

XTX Series Operators Manual

Valid for the following tractors models:

XTX145
XTX165
XTX185
XTX200
XTX215

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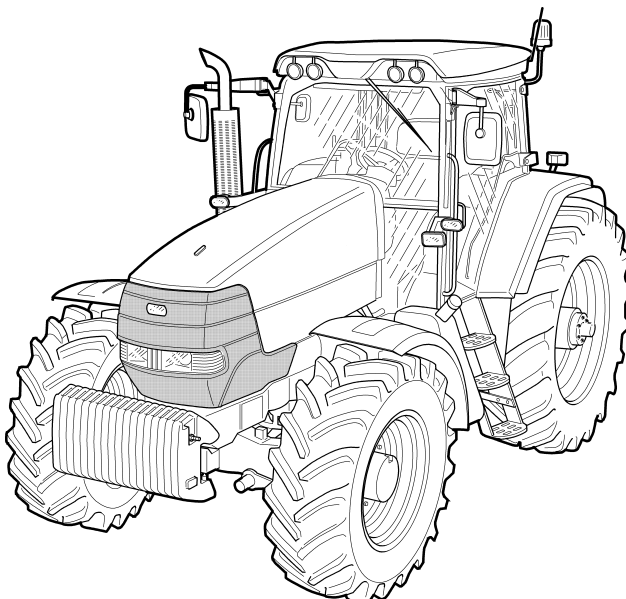
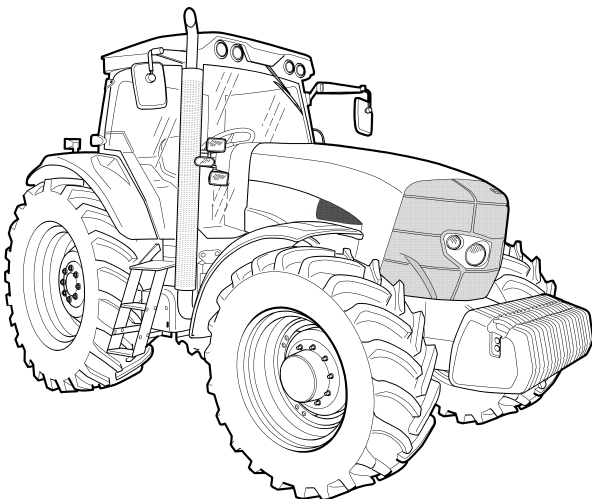
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McCORMICK

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IMPROPER OPERATION OF THIS TRACTOR CAN CAUSE INJURY OR DEATH. BEFORE USING THIS TRACTOR, MAKE CERTAIN THAT EVERY OPERATOR:

- Is instructed in safe and proper use of the tractor.
- Reads and understands the Manual(s) pertaining to the tractor.
- Reads and understands ALL Safety Decals on the tractor.
- Clear the area of other persons.
- Learns and practices safe use of tractor controls in a safe, clear area before operating on a job site.

It is your responsibility to observe pertinent laws and regulations and follow McCormick Tractors International Limited instructions on tractor operation and maintenance as quoted in this Operators Manual.

Tractor, Customer and Dealer Data

Type:
Serial No.:
Engine No.:
Transmission No.:
Registration No.:
Delivery Date:
Operators Manual:

1st. Owner

Name:
Address:
.....
.....
.....
Tel No.:

2nd. Owner

Name:
Address:
.....
.....
.....
Tel No.:

Dealer

Name:
Address:
.....
.....
.....
Tel No.:

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Introduction

Chapter 1 Introduction

1

Introduction

TO THE OWNER

McCormick's Commitment To Quality

The McCormick tractors of the 21st century remain true to the values and principles that made McCormick a world-beater for so many years. That means no compromises in quality. This McCormick tractor is a product of the highest quality and reliability.

Your authorized dealer guarantees that this McCormick tractor is delivered in top condition by carrying out a Pre-Delivery Inspection before it reaches you. They will also give you a comprehensive introduction into a newly acquired tractor which ensures maximum benefits from the machine.

The purchase of this McCormick tractor gives the certainty of possessing a state-of-the-art tractor of the highest quality. Its continued value, operation and reliability depend to a large extent on the regular maintenance and care of this McCormick tractor.

About This Manual

Read this manual before you start the engine or operate your McCormick tractor. If you need any more information, see your dealer. Your dealer has technicians with specialized training that know the best methods of repair and maintenance for your tractor.

Refer to the Alphabetical Index at the end of this manual for locating specific items about your tractor.

The right and left of the tractor in this manual are the same as your right and left when sitting in the tractor seat looking forward.

Some of the illustrations/photographs in this manual may look slightly different to that of your tractor as they may have been produced from photographs taken on prototype tractors.

DO NOT operate or permit anyone to operate or service this tractor until you or the other persons have read this manual. Use only trained operators who have demonstrated the ability to operate and service this tractor correctly and safely.

This tractor, with standard equipment and authorized attachments, is intended to be used for farming, and related operations. DO NOT use this tractor for any application or purpose other than those described in this manual. Consult an authorized dealer or McCormick Tractors International Limited on changes, additions or modifications that can be required for this tractor to comply with various country regulations and safety requirements. Unauthorized modifications may cause serious injury or death. Anyone making such unauthorized modifications is responsible for the consequences.

McCormick Technical Documentation

McCormick tractors are being constantly improved. Technical changes introduced since this Operators Manual went into print are therefore not taken into consideration.

There is a large selection of McCormick tractor models available for vastly differing applications. This is a worldwide Operators Manual and therefore may include some information, illustrations and photographs which may differ to the standard equipment and accessories on your tractor.



MANUALS_1

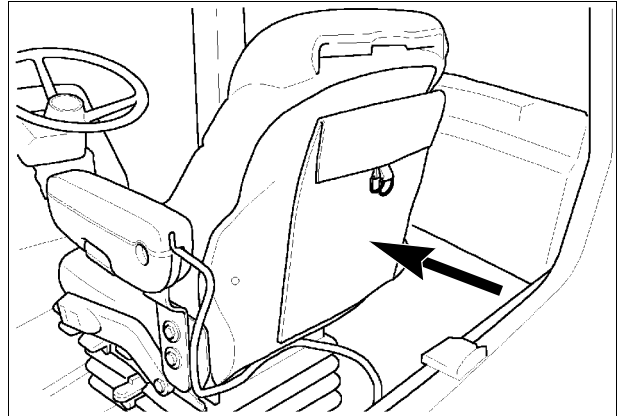
Additional manuals are available from your Dealer for the operation, service and repair of your tractor. For prompt convenient service, contact your Dealer for assistance in obtaining the manuals for your tractor.

Your Dealer can expedite your order for Operators Manuals, Parts Catalogues, Service Manuals etc.

Always give the tractor Name, Model and P.I.N. (product identification number) or S.N. (serial number) of your tractor so your Dealer can provide the correct manuals for your tractor.

Manual Storage

Keep the Operators Manual stored in the manual storage compartment equipped on this tractor.



MI03G057

Make sure this manual is complete and in good condition.

IMPORTANT: *This operators manual is part of your tractor. If the tractor is sold, loaned or rented, the operators manual MUST go with it.*

Units of Measurement

All units of measurement used in this manual are metric unless otherwise stated. Use the following table to convert from metric to imperial units.

$\text{mm} \times 0.03937 = \text{inches}$
$\text{kg} \times 2.2 = \text{pounds (lb)}$
$\text{Bar} \times 14.5038 = \text{PSI}$
$\text{Litres} \times 0.22 = \text{Imperial Gallons}$
$\text{Litres} \times 0.264 = \text{U.S Gallons}$
$\text{N (Newtons)} \times 0.225 = \text{lbf}$
$\text{Nm} \times 0.738 = \text{lb. ft}$
$\text{Nm} \times 8.85 = \text{lb. in}$
$^{\circ} \text{C} \times 1.8 (=32) = ^{\circ} \text{F}$
$\text{km/h} \times 0.62 = \text{MPH}$

Introduction

PRODUCT IDENTIFICATION AND SERIAL NUMBERS

Write your tractor Model number, Product Identification Number (P.I.N.), and Serial numbers on the lines provided opposite. If needed, give these numbers to your dealer when you need parts or information for your tractor.

Keep the record and your Manufacturers Statement of Origin in a safe place. If the tractor is stolen, report the numbers to your local police.

1. TRACTOR TYPE

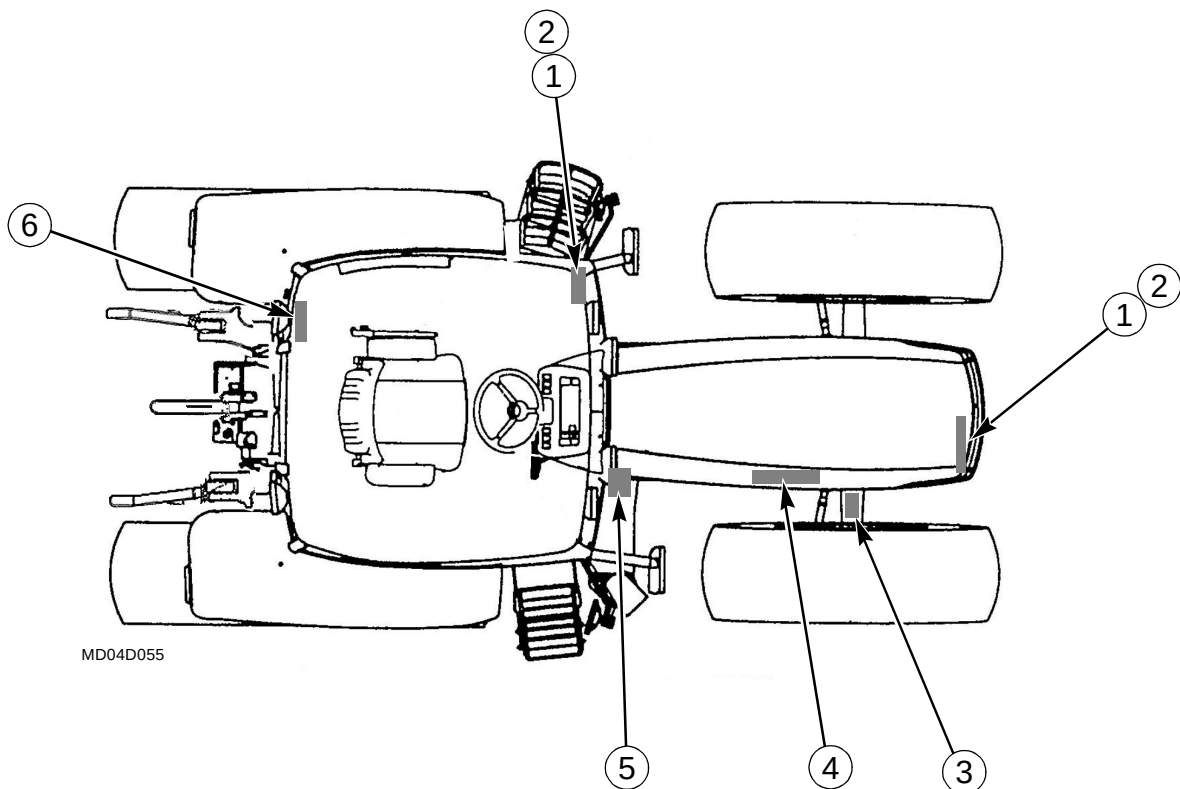
2. PRODUCT IDENTIFICATION NUMBER

3. AXLE SERIAL NUMBER

4. ENGINE SERIAL NUMBER

5. TRANSMISSION SERIAL NUMBER

6. CAB ROPS SERIAL NUMBER



WARRANTY

Base Warranty Cover

All McCormick tractors carry a minimum 12 months warranty covering both parts and labour costs arising from faulty material or workmanship. See your authorized dealer for the warranty period pertaining to your market area and for full terms and conditions.

This warranty does not restrict or affect your statutory rights and all that is required of you is to make sure that the inspections, preventative maintenance and service requirements, (set out in this Operators Manual), are undertaken and that the tractor is made available in a timely manner to your authorized dealer in the event of a repair becoming necessary under warranty.

Warranty will not apply if the tractor has been misused or modified, unless such modification has been carried out with written approval from McCormick Tractors International Limited.

Due to the variety of equipment used and operating conditions, this warranty cannot include cost of:

- Equipment removal,
- Productivity loss/consequential damage,
- Transportation,
- Service items (eg. oils, filters and wearing parts etc.).

Expiry of Warranty

Once the base warranty cover has expired, McCormick **MAY** have offered you, at the time of purchasing the tractor, the opportunity to also purchase an extended warranty cover, "McCORMICK CARE". Terms and conditions of this extended warranty will apply once the base warranty cover has expired. See your authorized dealer for more information on "McCORMICK CARE" terms and conditions.

NOTE: *The extended warranty cover option "McCORMICK CARE" is only available in certain markets. See your authorized dealer for confirmation.*

Refer to your Service Records Booklet for full terms and conditions on the Manufacturer's Standard Warranty and further information with regard to all necessary service and maintenance requirements expected.

Introduction

IMPORTANT INFORMATION FOR EEC MEMBER STATES

Type Approval

This tractor complies with the provisions of the following directive:

74/150/EEC - Type Approval

This tractor is road traffic law approved in all EC countries with this overall type approval, with designed speeds up to 40 km/h.

Over and above this speed, national approvals exist for versions measured with a speed of up to 50 km/h.

Declaration of Conformity

This tractor meets the Electromagnetic Compatibility directive 89/336/EEC - and is marked with CE.



As an operator it is important to know the following:

EMC - Supplementary Information

Safety information for the supplementary installation of electrical and electronic appliances and/or components.

This tractor is equipped with electronic constituents and component parts whose function can be influenced by electromagnetic radiations of other appliances. Such influences can cause hazards for persons if the following safety information is not taken into account.

1. For supplementary installation of electrical and electronic appliances and/or constituents on the tractor with a connection to the onboard system, the user HAS to verify whether the installation causes disturbances to the electronics on the tractor or other constituents. This particularly applies to the Hitch, PTO, Transmission Control and the Instrument Cluster.

Also it has to be taken into account that the supplementary installed electrical and electronic components comply with the EMC Directive 89/336/EEC in the respective current version and that they are CE marked.

2. For the supplementary installation of mobile communication systems (i.e. radio communication, mobile telephone) the following additional requirements have to be fulfilled:
 - A. Only devices with an approval complying with the valid national regulations must be installed.
 - B. The devices must be firmly installed.
 - C. The operation of portable or mobile devices within the cab of the tractor is ONLY permitted if the device has a fixed outside antenna.
 - D. The transmitting part shall be installed separately to the tractor electronics.
 - E. Installation of the antenna must be carried out by a professional and the antenna must have a good ground connection between the antenna and the tractor ground.

For the correct size cabling, installation and the maximum permissible current supply, see your dealer.

Safety Precautions

Chapter 2 Safety Precautions

2

Safety Precautions



SAFETY ALERT SYMBOLS AND TERMS

This safety alert symbol means ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!



The safety alert symbol also indicates important safety messages in this manual. When you see this symbol carefully read the message that follows and be alert to the possibility of death or serious injury.

Why is SAFETY important to you?

<< ACCIDENTS DISABLE and KILL >>

<< ACCIDENTS are COSTLY >>

<< ACCIDENTS can be AVOIDED >>

Safety - Tractor And Implement

- The tractor is a source of power - Mechanical and Hydraulic.
- On its own, the tractor is of little practical value. Only when used in conjunction with an implement or other attachment does it become a working unit.
- This Operators Manual is compiled to cover safe working practices that are associated with the base tractor operation.
- It does not cover all operation and safety instructions relevant to all known implements and attachments that may be fitted to your tractor.
- It is essential that operators use and understand the relevant Operators Manual which accompany such implements and attachments.

Safety Precautions

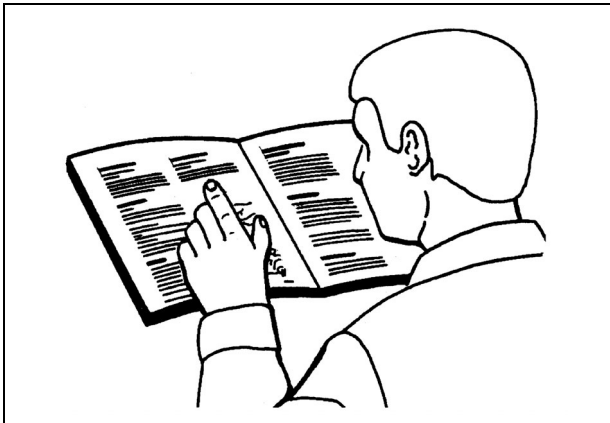
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A Message to the Operator

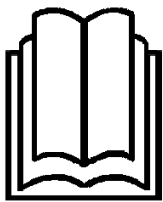
It is YOUR responsibility to read and comply with all safety instructions quoted in this Operators Manual.

Understand that your safety and the safety of other persons is measured by how you operate, and service this tractor. Know the positions and operations of all controls before you try to operate. **MAKE SURE YOU CHECK ALL CONTROLS IN A SAFE AREA BEFORE STARTING YOUR WORK.**

READ THIS MANUAL COMPLETELY and make sure you understand the controls. All equipment has a limit. Make sure you understand the speed, brakes, steering, stability, and load characteristics of this tractor before you start to operate.



MH04F085



The "Operators Manual Symbol", is intended to direct the operator to the Operators Manual for correct information with regard to operation, maintenance/adjustments etc. When you see this symbol on any particular part of the tractor refer to this Operators Manual.

The safety information given in this manual does not replace safety codes, insurance needs, federal, state and local laws. Make sure your tractor has the correct equipment needed by the local laws and regulations.

McCormick Tractors International Limited are continuing to work for your safety: by making tractors with better protection and by giving these rules for safe operation.

Intended Use

This McCormick tractor is designed solely for use in customary agricultural or similar operation (intended use).

Use in any other way is considered as contrary to the intended use. The manufacturer accepts no liability for any damage or injury resulting from this misuse and these risks must be born solely by the user.

Compliance with and strict adherence to the conditions of operation, service and repair as specified by the manufacturer also constitutes essential elements for the intended use.

This McCormick tractor should be operated, serviced and repaired only by persons familiar with all its particular characteristics and acquainted with the relevant safety rules (accident prevention).

The accident prevention regulations, all other generally recognized regulations on safety and occupational medicine and the road traffic regulations must be observed at all times.

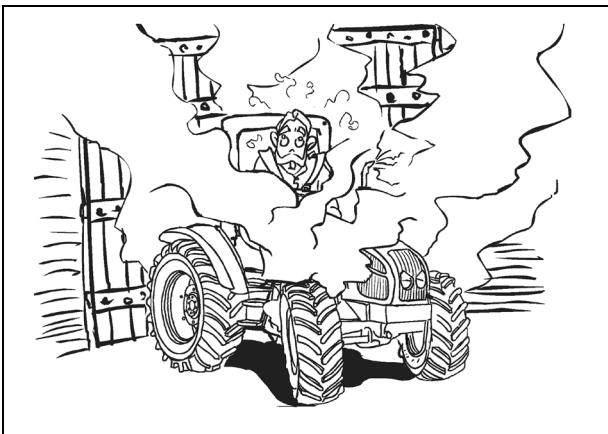
Any arbitrary modifications carried out on the tractor will relieve the manufacturer of all liability for any resulting damage or injury.

Safety Precautions



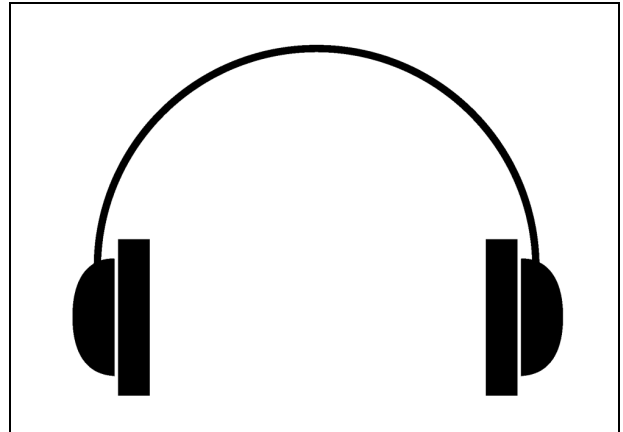
General Safety And Accident Prevention Regulations

- In addition to the instructions contained in this Operators Manual, also observe the general safety and accident prevention regulations.
- Always comply with local traffic regulations when driving on public roads.
- Before starting work, familiarize yourself with all the controls and instruments and their functions. During work is too late.
- Securely fasten your seat belt, if equipped. Your tractor is equipped with a ROPS cab or frame for your protection. The seat belt can help insure your safety if it is used and maintained. Never wear a seat belt loosely or with slack in the belt system. Never wear the belt in a twisted condition or pinched between the seat structural members.
- Start the engine only from the operator's seat.
- Before moving away, always check the immediate vicinity of the tractor (e.g. for children). Ensure adequate visibility.
- Never run the engine in a closed building. Proper ventilation is required.
- Handle fuel with care as it is highly flammable. Never refuel the tractor in the vicinity of naked flames or sparks. Do not smoke during refuelling.
- Never refuel the machine when the engine is hot or running.
- Always stop the engine and remove the main switch key before refuelling. Fill fuel tank outdoors. Clean up any spilled fuel immediately.
- Prevent fires by keeping the tractor clean.
- Exposure to high noise levels may cause hearing loss. Always wear suitable ear protection when working in a noisy environment.



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- Clothing worn by the operator must be close-fitting. Avoid wearing loose jackets, shirts or ties.



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Safety Precautions



Personal Safety

Throughout this manual and on the Safety Decals on this tractor you will find precautionary statements which use the words **Danger, Warning or Caution**. These precautionary statements are intended for your personal safety.

Failure to follow the **Danger, Warning or Caution** instructions may result in serious bodily injury or death.

Danger, Warning or Caution are defined as follows:

- **DANGER:** Indicates an immediate hazardous situation that if not avoided, will result in death or serious injury. The colour associated with Danger is RED.
- **WARNING:** Indicates a potentially hazardous situation that if not avoided, could result in death or serious injury. The colour associated with Warning is ORANGE.
- **CAUTION:** Indicates a potentially hazardous situation that if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices. The colour associated with Caution is YELLOW.

Safety Decals on this tractor which are ISO-two panel Pictorial type decals, are defined as follows:

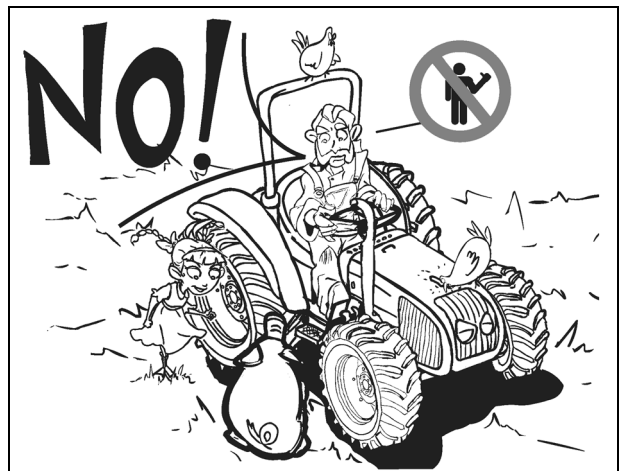
- The first panel indicates the nature of the hazard.
- The second panel indicates the appropriate avoidance of the hazard.
- Background colour is YELLOW.
- Prohibition symbols such as

  and  if used, are RED.



Transporting Passengers

- Passengers may only be carried if a proper passenger seat is fitted.
- The passenger seat should only be used:
 - A. When training a new operator.
 - B. When a service technician is diagnosing a problem with the tractor.
- The carrying of passengers is otherwise not permitted.



MH04F090A

Passenger Seat Safety (If Equipped)

- The passenger seat allows a colleague to ride in safety and comfort. **Children are NOT permitted to use the passenger seat.**
- When the passenger Seat is occupied, the following precautions must be taken:
 - C. Tractor should be driven at a slower speed and on level ground.
 - D. Avoid driving on highways or public roads.
 - E. Avoid quick starts or stops.
 - F. Avoid sharp turns.
 - G. The left hand door **MUST** be closed at all times, while the tractor is in motion.

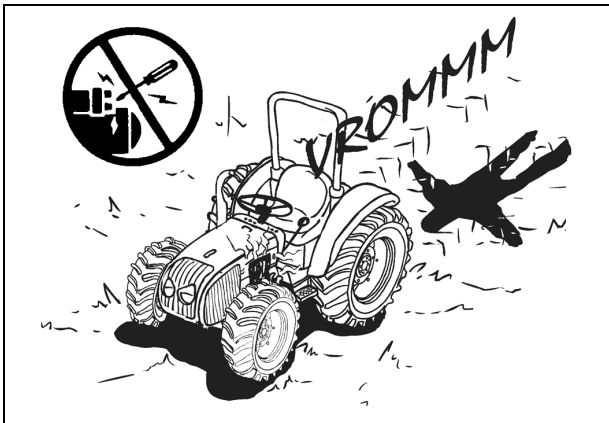


WARNING: A frequent cause of personal injury or death is persons falling off and being run over. **DO NOT** permit others to ride, except on the designated Passenger Seat.

Safety Precautions

Operation

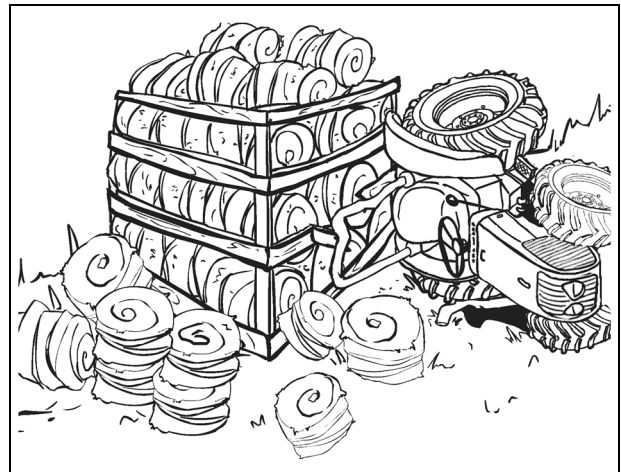
- DO NOT operate the tractor while under the influence of alcohol and/or drugs.
- Before starting the engine, be sure all operating controls are in neutral. This will eliminate accidental movement of the machine or start up of power driven equipment.
- Operate controls only when seated in the Operators seat.
- Never attempt to start engine by shorting across the starting motor terminals as the machine may immediately start to move.



MH04F089A

- To assist cold weather starting DO NOT spray ether or gasoline into the air induction manifold. To do so could cause an explosion and injury.
- Collision of high speed road traffic and tractors or implements can cause personal injury or death. On roads, use flasher/lights according to local laws. Keep SMV emblem visible. Pull over to let faster traffic pass. Slow down and signal before turning off.
- Brake pedals must be locked together for road travel. This will insure uniform brake application and maximum stopping ability.
- Attach trailers and/or implements correctly. The operating, steering and braking behavior will be affected by attaching implements, trailers and ballast weights. Therefore ensure adequate steering and braking power.
- Make sure that the weight of a trailed vehicle that is not equipped with brakes, NEVER EXCEEDS the weight of the machine that is towing the vehicle. Stopping distance increases with increasing speed as the weight of the towed load increases, especially on hills and slopes.

- Extra weight and bad traction conditions such as mud or ice increase your stopping distance. Remember that liquid in the tires, weights on the machine or wheels, tanks filled with fertilizer, herbicides or insecticides; all these add weight and increase the distance you need to stop.
- Do not drive on roads, or at high speed anywhere, with the differential lock engaged. Difficult steering will occur, and can result in an accident. In field operation, use the differential lock for traction improvement, but release for turning at row ends.
- Always adapt your ground speed to the ground conditions. Avoid making sharp turns when driving up or down slopes or when driving across the slope. Do not attempt to turn the tractor with the differential lock engaged. When driving down slopes, never depress the clutch and change gear. DO NOT operate up and down slopes of more than 30 degrees and DO NOT operate across slopes of more than 15 degrees.
- Travel speed should be such that complete control and machine stability is maintained at all times. Where possible, avoid operating near ditches, embankments and holes. Reduce speed when turning, crossing slopes, and on rough, slick, or muddy surfaces.



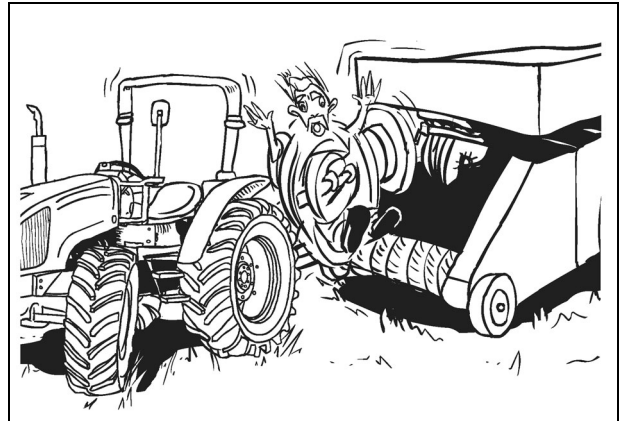
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- Stay off slopes too steep for safe operation. Shift down before you start up or down a hill with a heavy load. Avoid "free wheeling".

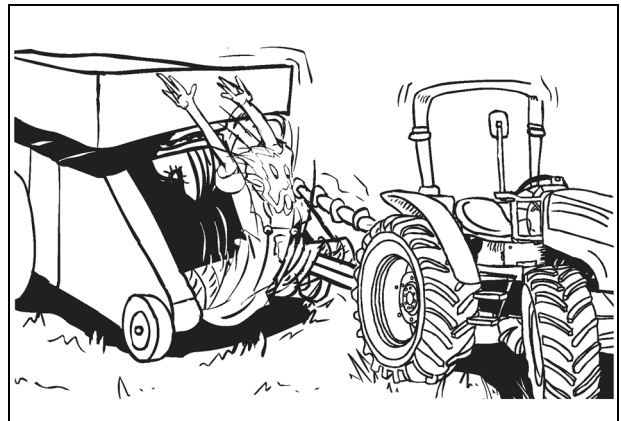
Safety Precautions

PTO Operation

- Always shut off engine before connecting or disconnecting drive shaft.
- Clothing worn by the operator must be close-fitting. Avoid wearing loose jackets, shirts or ties.
- When operating the PTO, no-one must be allowed to remain in the vicinity of the rotating PTO stub shaft or drive shaft.
- PTO driven machinery can cause serious injury. Before working on or near the PTO shaft, or servicing or clearing the driven machine, put the PTO control in the DISENGAGE position and STOP the engine.
- Whenever a PTO driven machine is in operation, the PTO guard must be in place for most operations to prevent injury to the operator or bystanders. Where attachments, such as pumps, are installed on the PTO shaft (especially if the tractor PTO guard is moved upward or removed) extended shielding equivalent to the PTO guard must be installed with the attachment. Install the PTO guard to its original position immediately when the attachment is removed.
- When doing stationary PTO work and dismounting from the tractor with the PTO running, keep clear of all moving parts as they are a potential safety hazard.
- High-inertia implements do not become stationary immediately when PTO is disengaged. Allow sufficient time for implement to “coast down” to a halt before cleaning or adjusting.
- Guards for drive shaft and PTO stub shaft must be fitted. As soon as drive shaft has been removed, install guard over PTO stub shaft.
- When using the PTO, to avoid damage to the driveline, implement or injury to bystanders make sure the implement input shaft rpm never exceeds the recommended rpm for the implement.
540 PTO runs at 1860 engine rpm. NEVER exceed 2170 engine rpm (corresponding to 630 rpm at the PTO shaft).
Ecomony PTO 540E runs at 1625 engine rpm. NEVER exceed 1940 engine rpm (corresponding to 630 rpm at the PTO shaft).



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Safety Precautions

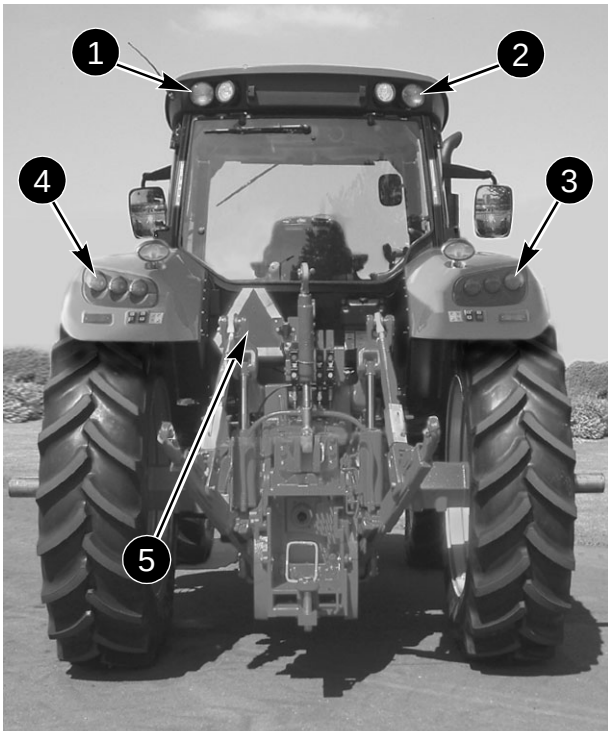
Highway/Public Road Operation

- Comply with road traffic laws, including any speed restrictions and the correct use of Hazard Warning Lamps and SMV Symbol.
- Connect the brake pedals together with the brake pedal interlock. This will ensure uniform braking and maximum stopping ability.
- Check clearance before going under electric power lines, bridges etc.

Tractor Warning Lamp Usage North American Tractors

- The flashing amber warning lamps must be used according to road traffic laws.

The flashing amber warning lamps must be used when operating the tractor on the road during the day or night. A vehicle operator that comes near the tractor must see an SMV symbol and the tail lamps from the rear and the flashing amber warning lamps from the front and rear.

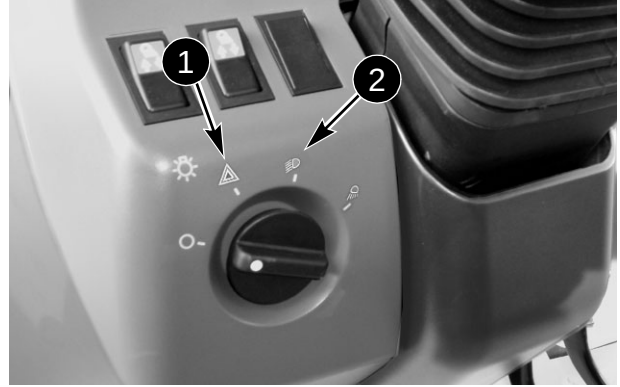


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1. AMBER WARNING LAMP AND TURN SIGNAL LAMP (LEFT SIDE)
2. AMBER WARNING LAMP AND TURN SIGNAL LAMP (RIGHT SIDE)
3. TAIL LAMP (RIGHT SIDE)
4. TAIL LAMP (LEFT SIDE)
5. SLOW MOVING VEHICLE (SMV) SYMBOL

Amber Warning Lamps Operation

The amber warning lamps operate as follows, when the main lamp switch is turned to the first and second positions clockwise.

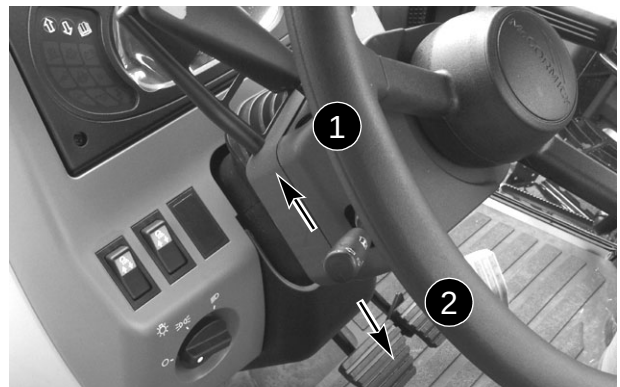


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FIRST POSITION (1) - ALL the amber warning lamps will flash ON and OFF.

SECOND POSITION (2) - ALL the amber warning lamps will flash ON and OFF. Tail lamps and headlamps will be illuminated.

When the direction turn signal switch is used, the amber warning lamps will operate as follows:



MD04C020

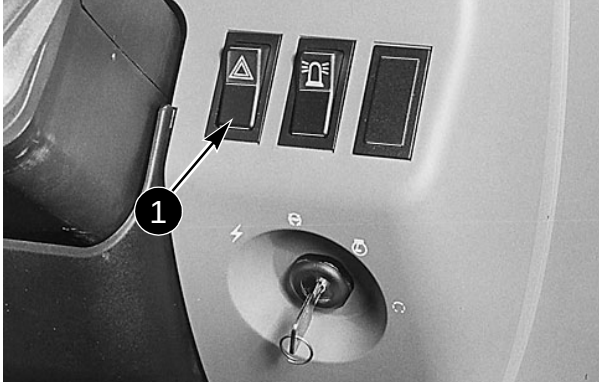
1. When indicating to turn right, the Right amber warning lamp will flash ON and OFF and the Left amber warning lamp will illuminate but will not flash.
2. When indicating to turn left, the Left amber warning lamp will flash ON and OFF and the Right amber warning lamp will illuminate but will not flash.

IMPORTANT: When towing an implement or wagon with the tractor, the complete rear area warning system (amber warning lamps, red tail lamps and SMV symbol) must be easily seen by any vehicle operator coming near the tractor.

Safety Precautions

Tractor Warning Lamp Usage Rest Of World Tractors

- The flashing amber warning lamps must be used according to local road traffic laws.



The amber warning lamps are used to indicate a hazard to other road users. To operate, press the switch (1) as shown above. This operates all four direction turn indicator lamps at once.

IMPORTANT: When operating the tractor, towing an implement or trailer, the complete rear area warning system (amber warning lamps, when applicable, and red tail lamps) must be easily seen by any vehicle operator coming near the tractor.

Implement Warning Lamps (If Equipped)

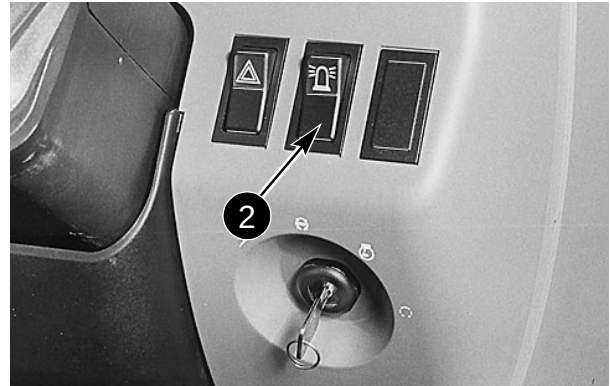
It is recommended that implement warning lamps are used:

- If the flashing warning lamps and red tail lamps on the tractor cannot be seen because they are obstructed by the implement.
- If the towed implement is 1219 mm or more behind the hitch point of the tractor.
- If the towed implement is 1219 mm or more to the left or right of the center of the tractor.
- If the towed implement is 3000 mm or more wide.

Install the warning lamps to indicate the side of the implement nearest the centre of the road.

Rotating Amber Beacon (If Equipped)

- The rotating amber beacon must be used according to local road traffic laws.



The rotating amber beacon is operated by pressing the switch (2) with the flashing beacon symbol.

Slow Moving Vehicle Symbol (If Equipped)

- For correct use of the SMV symbol (3), observe local road traffic laws.



If a Slow Moving Vehicle (SMV) symbol is equipped it must be installed on the rear part of the tractor.

To install the SMV symbol on an implement or trailer a special bracket must be obtained from your dealer.



WARNING: Collision of high speed road traffic and slow moving machines can cause personal injury or death. On roads, use amber warning lamps according to local laws. Keep SMV emblem visible. Pull over to let faster traffic pass. Slow down and signal before turning off.

Safety Precautions

Neutral Start System

- For your safety a Neutral Start Switch is fitted in the Forward/Reverse Shuttle circuits which prevents unintentional tractor movement when starting the tractor engine. The engine should only start when the lever is in either NEUTRAL or PARK, (depending on which shuttle lever option is equipped).
- Make sure the Neutral Start System is operating properly by doing the following checks, in a clear open area, with no other persons or objects near the tractor:

While sitting in the operators seat, with the engine not running, place the shuttle lever into FORWARD. Attempt to start the engine. The engine **should not start**.

Repeat procedure for REVERSE lever position. The engine **should not start**. If the engine starts, see your Dealer for repair.

Operator Presence System

- For your safety an Operator Presence Safety Switch is fitted in the Forward/Reverse Shuttle circuits. This is activated by the operator sitting on the seat as follows:
 1. With the operator sitting on the seat (switch closed) and the TRACTOR MOVING; if the operator gets off the seat, the tractor will continue moving, but the tractor will stop if the shuttle lever is moved to a new position.
 2. If the operator IS NOT sitting on the seat (switch open); the Forward/Reverse Shuttle circuits will not function and the tractor will not drive when the shuttle lever is moved from neutral/park to either forward or reverse direction.
 3. If the rear PTO is engaged and the operator gets out of the seat for more than 2 seconds, an audible alarm will sound for 7 seconds.

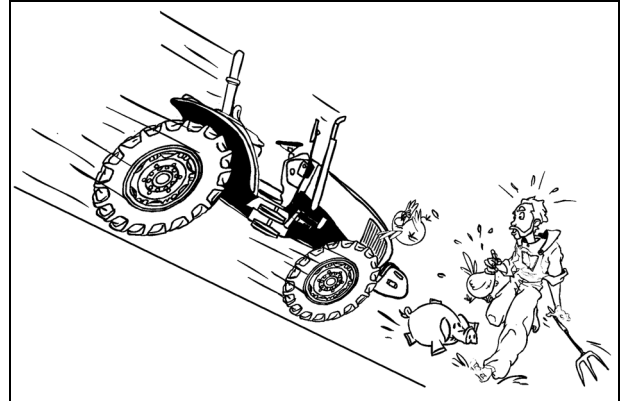


WARNING: ONLY operate the tractor when sitting on the seat. DO NOT try to bypass the OPERATOR PRESENCE SAFETY SWITCH, for example, by putting heavy objects on the seat. This can result in serious injury or death.

If you try to bypass the safety switch wiring, after a set period of time, the tractor will shut down and not operate.

Leaving The Tractor

- When leaving the tractor, ensure that it will not roll away. Put the Forward/Reverse shuttle lever in Park (as applicable), apply the park brake, install a wheel wedge (as applicable) and stop the engine.



MH04F094A

- Remove the main switch key and lock the operator's cab.
- Never leave the tractor unattended as long as the engine is still running.
- Never leave the operator's cab when driving.
- Lower implement or equipment to the ground before leaving the tractor.

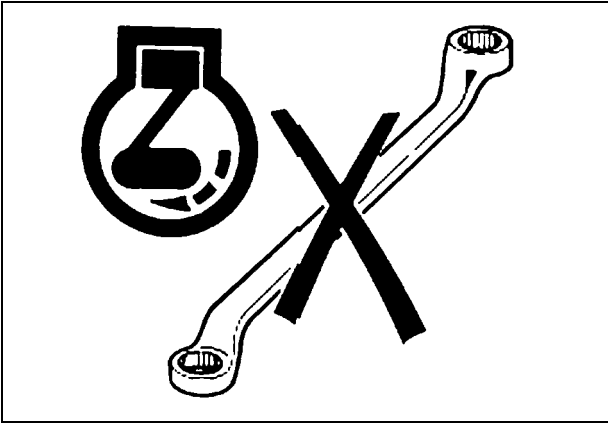
Implements

- ALWAYS read and comply with the implement manufacturers operators manual before attaching and using any implement.
- Attach implements and trailers to the tractor only using the prescribed drawbars or hitches. Rear upset can result if pulling from wrong location on tractor. The three point hitch must only be used with the implements designed for its use, not as a drawbar.
- Take particular care when attaching trailers or implements. The operating, steering and braking behavior will be affected by attaching implements, trailers and ballast weights. Therefore ensure adequate steering and braking power.
- Prevent trailer and implement from rolling away.
- Operate tractor only when all guards are fitted and in their correct position.

Safety Precautions

Service

- Do not service the tractor with the engine running. Follow the instructions in this manual or see your dealer.



MD04F087

- This tractor is equipped with a spring applied mechanical front wheel drive (MFD) clutch and a front axle limited slip differential. Even with the MFD engaging switch in the OFF position, the front axle clutch can propel both front wheels if any of the following conditions occur:
 1. The engine is turned off.
 2. The engine is stopped when the rear wheels are still coasting.
 3. Any interruption in the clutch operating hydraulic system flow or pressure or in the electrical controls for clutch operation.

For these reasons, the following service procedures must be followed.

Before rotating the rear wheels of a MFD tractor (if you are using engine power with the rear wheels supported off the ground), one of the following procedures must be done to prevent an accidental tractor movement.

1. Jack up and support BOTH front wheels completely off the ground.

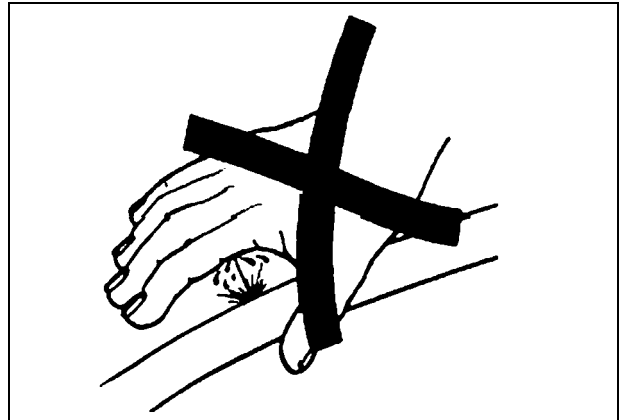
OR

2. Disconnect the front wheel drive shaft.

- Escaping fluid (fuel or hydraulic oil) under high pressure can penetrate the skin and cause serious injury.

To Prevent Personal Injury:

Relieve all pressure, before disconnecting fluid lines. Before applying pressure, make sure all connections are tight and components are in good condition. Never use your hand to check for suspected leaks under pressure. Use a piece of cardboard or wood for this purpose. If any fluid is injected into the skin, consult a doctor immediately as other-wise serious infections may result.



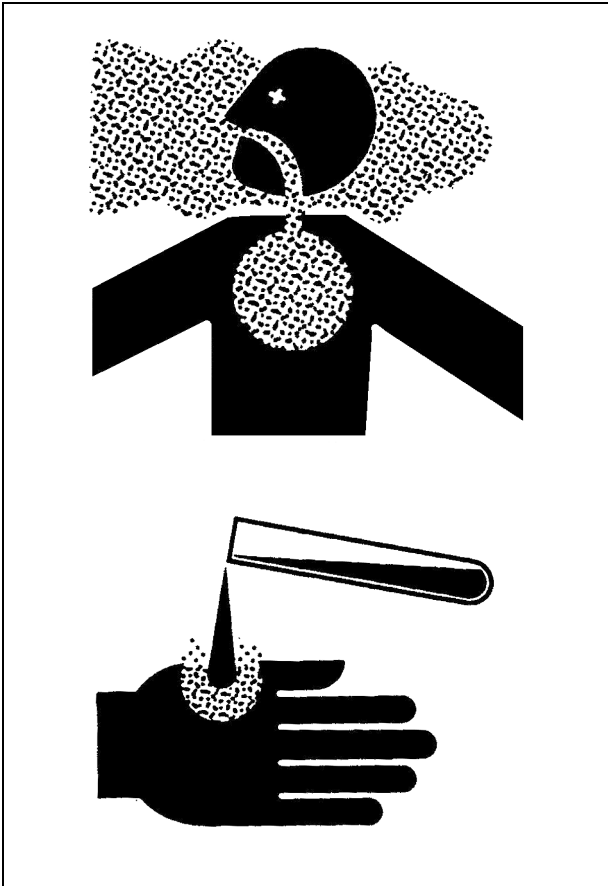
MH04F086

- It is recommended that you know the location of a First Aid Kit and Fire Extinguisher and have access before servicing the tractor.
- Dispose of oil, fuel and filters in accordance with local regulations. Do not drain the oil on the ground or into a drain. Be responsible for the environment.
- Do not attempt to mount a tyre unless you have the proper equipment and experience to perform the job safely. See page 177.
- Retighten wheel nuts after the specified hours in this manual. See page 212.
- Always disconnect the battery ground strap(s) before carrying out any electrical repairs on the tractor. See page 248.
- Use original manufacturers parts. Spare parts/ Service parts must comply with the manufacturers technical specifications.

Safety Precautions



Hazardous Chemicals



MS05A029 & MS05A030

- If you are exposed to or come in contact with hazardous chemicals, you can be seriously injured. The fluids, lubricants, paints, adhesives, coolants, etc., used with your tractor can be hazardous, ALWAYS follow the chemical manufacturers instructions thoroughly.

- North America Only:
Material Safety Data Sheets (MSDS) provide information about the chemical substances within a product, safe handling procedures, first aid measures and procedures to be taken when the product is accidentally spilled or released. In North American, Material Safety Data Sheets (MSDS) are available from your dealer.

Before you service your machine, check the MSDS for each fluid, lubricant, etc., used in this machine. This information indicates what the risks are and how to service the machine safely. Follow this information when servicing the machine.

- Cab air filters remove dust in the air, but are not capable of removing chemicals used in spraying crops or in weed control.

Many chemicals used for these purposes are toxic when improperly used, and can be hazardous to operators and others in the area.

Follow the instructions of manufacturers of both the equipment and the chemicals regarding prohibitions against inhalation of dust or spray, personal hygiene practices, and other precautions noted by the manufacturers.

- Always wear protective clothing, e.g.: overalls, goggles, gloves and face mask when preparing equipment for chemical spraying operations and ALWAYS follow the chemical manufacturers instructions. Remove all protective items and store outside the operators cab in the locker on the spraying equipment before entering the tractor operators cab.

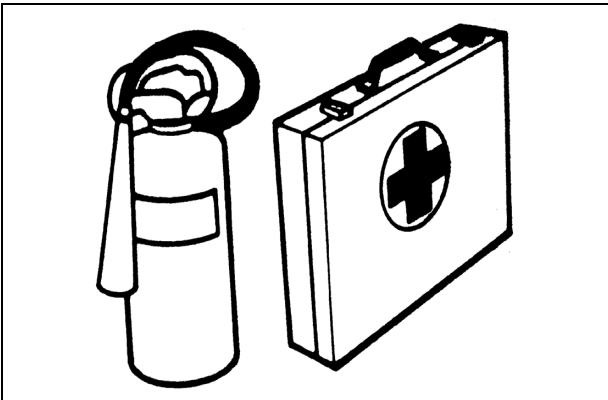
- Before you service the tractor and dispose of the old fluids and lubricants, always remember the environment. DO NOT put oil or fluids into the ground or into containers that can leak.

Check with your local environmental or recycling center or your dealer for correct disposal information.

Safety Precautions

Fire Or Explosion Prevention

- Fire risks can be minimized by frequent removal of accumulated crop material, trash or debris from the tractor. Remove all crop material, trash or debris at the start of each working day. Take extra care to make sure the engine area and exhaust system are clean.
- Engine fuel is flammable and can cause a fire or an explosion. DO NOT fill the fuel tank or service the fuel system near an naked flame, welding, burning cigars, cigarettes etc.
- Use nonflammable cleaning solvents to clean parts.
- A fire can cause serious injury or death. ALWAYS have a fire extinguisher near or on the tractor. Make sure the fire extinguisher is serviced according to the manufacturers instructions.



MH04F095

- If a fire extinguisher has been used, always recharge or replace after use.
- Refer to Fire Prevention in the Routine Maintenance section of this manual for more information.

Battery Safety

- DO NOT make sparks or use an open flame near the battery.
- BATTERY ACID CAUSES SEVERE BURNS. Batteries contain sulfuric acid. Avoid contact with skin, eyes or clothing. Antidote:
EXTERNAL - Flush with water.
INTERNAL - Drink large quantities of water or milk. DO NOT induce vomiting. Seek medical attention immediately.
EYES - Flush with water for 15 minutes and get medical attention immediately.
- Battery explosion and/or damage to electrical components can result from improper connection of booster batteries or charger. Connect positive to positive and negative to negative. Externally, battery acid can cause burns and blindness, and taken internally is poison.
- BATTERIES PRODUCE EXPLOSIVE GASES. Keep sparks, flame, cigars and cigarettes away. Ventilate when charging or using in enclosed area. Always wear eye protection when working near batteries. Wash hands after handling. KEEP OUT OF REACH OF CHILDREN.
- When working around storage batteries, remember that all of the exposed metal parts are "live". Never lay a metal object across the terminals because a spark, short circuit, explosion or personal injury may result.



BASIC RULE



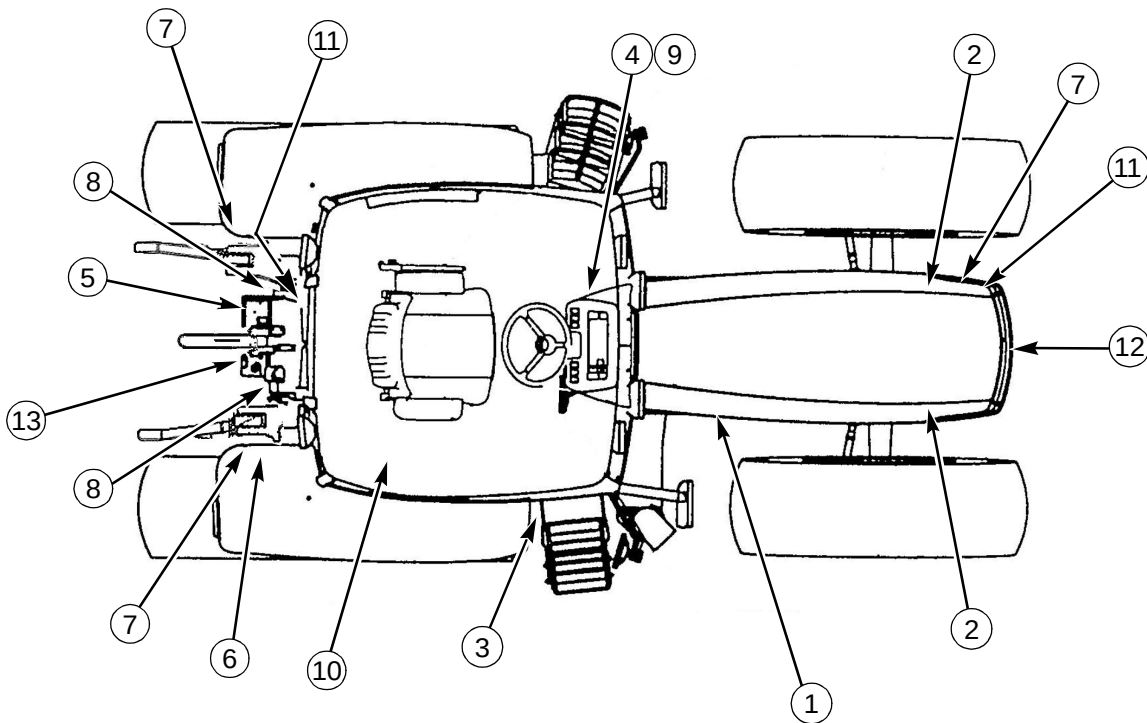
- Always check the operating and road safety of the tractor before starting.
- ALWAYS make sure the working area is clear of other persons, pets, tools etc. before you start operating this tractor. Never allow anybody in the work area during tractor operation.

Safety Precautions

SAFETY DECAL LOCATIONS - (North American Tractors)

IMPORTANT: Install new decals if the old decals are destroyed, lost, painted over or cannot be read. When parts are replaced that have decals, make sure you install a new decal with each new part. New decals are available from your dealer. When you clean the decals, use only a cloth, water and soap. Do not use solvent, gasoline, etc.

NOTE: Due to North American market requirements, the following safety decals are fitted.



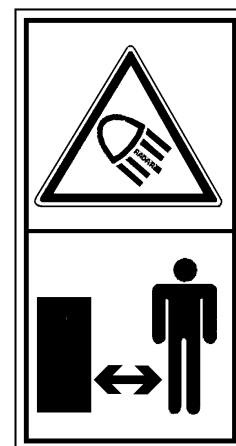
DECAL 1
Part No. 321-7040
(Located on the Starter Motor)



DECAL 2
Part No. 1985614C1
(Located on Radiator Housing)
(One each side)



DECAL 3
Part No. 249807A1
(If Equipped with True Ground Speed Sensor) - KEEP CLEAR



Safety Precautions

2

DECAL 4
Part No. 305584A1

WARNING

AVOID INJURY OR DEATH BEFORE STARTING ENGINE:
Read operators manual for safety information and operating instructions.
Read all tractor safety signs.
Be sure other people are clear of tractor and equipment.
Be sure gear shift is in neutral or park and PTO control is off.
Start engine only from seat.
Shields are for your protection. Keep them in place.

OPERATION:
With ROPS, always buckle and adjust seat belt.
No riders on tractor or equipment.
Keep hands, feet, and clothing away from power driven parts.
For road travel, couple brake pedals, use flashing warning lamps unless prohibited by law and keep SMV emblem visible.
TRACTORS CAN BE UPSET:
Reduce speed on turns and rough ground.
Avoid steep slopes.
Avoid rear upset. Pull only from draw bar, never higher.

WHEN TRACTOR HAS STOPPED:
Engage park lock or brake.
Lower implement to ground.
Disengage PTO, stop engine, and wait for all movement to stop before servicing or clearing equipment.

DECAL 7
Part No. 400852A1
(If Equipped with External Hitch Controls and also If Equipped with Front Hitch)

WARNING

TO AVOID INJURY AND ENTRAPMENT, STAY CLEAR OF DRAFT LINK LIFTING RANGE WHILE OPERATING ROCKSHAFT CONTROLS.

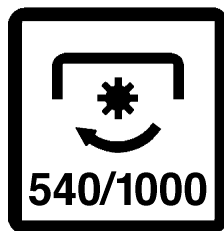
DECAL 8
Part No. 708630A1
(If Equipped with Cab Suspension - Located on Suspension Cylinder)
(One each side)

WARNING

TO AVOID INJURY AND ENTRAPMENT, KEEP HANDS CLEAR OF CAB FRAME, CAB SUSPENSION COMPONENTS AND TOP OF TRANSMISSION.

DECAL 5
Part No. 1092074R2

WARNING: Keep clear.
Rear PTO shaft(s) rotates at 540 or 1000 rpm.



DECAL 9
Part No. 711012A1
(If Equipped with a Electronic Transmission)

CAUTION

1 - 8
2 - 8
3 - 8

4 - 1
3 - 1
2 - 1

IF THE TRACTOR IS BEING OPERATED UNDER LOAD, WHEN MAKING A RANGE CHANGE THE TRACTOR WILL STOP.

ONCE THE NEW RANGE IS ENGAGED THE TRACTOR WILL AUTOMATICALLY RE-ENGAGE DRIVE.

DECAL 6
Part No. 400848A1
(Located on the Inside of Right Hand Rear Fender)

WARNING

TO AVOID CLOTHING ENTANGLEMENT AND INJURY, THE PTO SHIELD MUST BE POSITIONED FOR THE SHAFT BEING USED. KEEP DRIVELINE SHIELDS IN PLACE.

DECAL 10
Part No. 276660A1
(If Equipped with Creeper)

IMPORTANT
THE CREEPER SPEED SHOULD BE APPLIED ONLY FOR LIGHT-DUTY OPERATIONS

Safety Precautions

DECAL 11

Part No. 711170A1

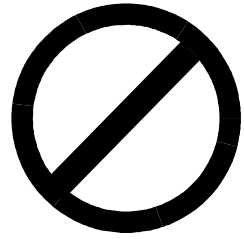
(If Equipped with Front Hitch - Located on the Front Hitch Frame and also at the rear of the tractor next to the Multi-Valve)



DECAL 13

Part No. 712024A1

(Located on Rear Remote Couplers when Front Hitch is fitted)



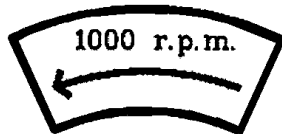
WARNING: The front hitch is supplied from one of the rear remote valves.

DO NOT remove blanking plugs from the remote couplers and try to use both the front hitch and the corresponding rear remote couplers at the same time.

DECAL 12

Part No. 712110A1

(If Equipped with Front PTO)



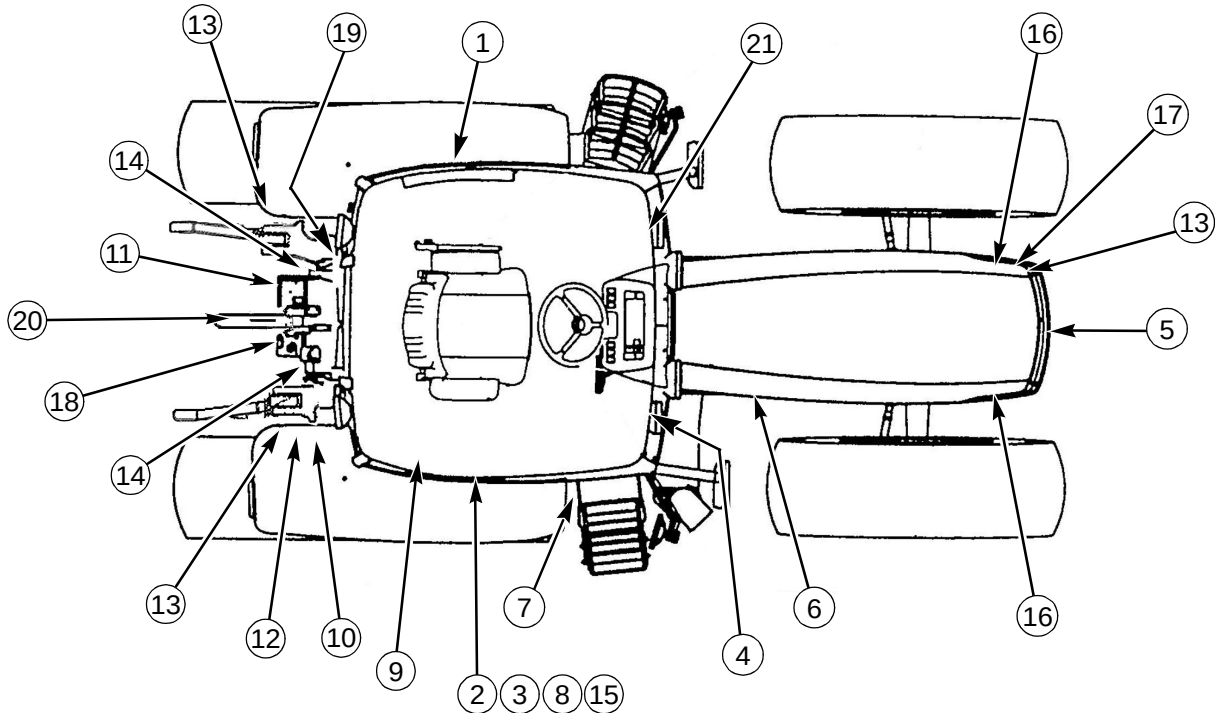
WARNING: Keep clear. Front PTO shaft rotation and speed (rpm).

Safety Precautions

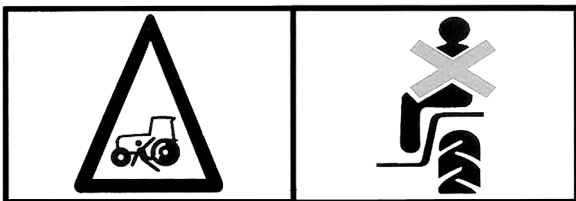
SAFETY DECAL LOCATIONS - (Rest Of World Tractors)

IMPORTANT: Install new decals if the old decals are destroyed, lost, painted over or cannot be read. When parts are replaced that have decals, make sure you install a new decal with each new part. New decals are available from your dealer. When you clean the decals, use only a cloth, water and soap. Do not use solvent, gasoline, etc.

NOTE: Due to differing market requirements, the following decals are fitted for ALL markets other than North America.

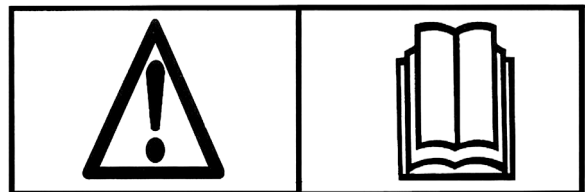


DECAL 1
Part No. 711015A1



WARNING: Risk of being crushed. Riding on this machine is only allowed if a passenger seat is provided and if the driver's view is not obstructed.

DECAL 2
Part No. 711010A1



CAUTION: Before operation, always read the safety and operating instructions in your Operators Manual.

Safety Precautions

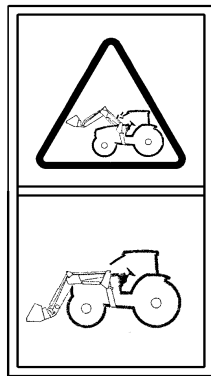
DECAL 3
Part No. 711013A1



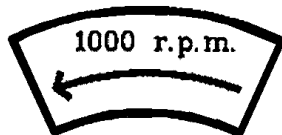
WARNING: Always read the safety and operating instructions in your Operators Manual.

DECAL 4
Part No. 281726A1
(If Equipped with Opening Windsheild)

CAUTION: DO NOT open the windshield when a front loader is fitted.

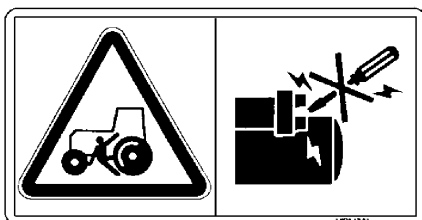


DECAL 5
Part No. 712110A1
(If Equipped with Front PTO)



WARNING: Keep clear. Front PTO shaft rotation and speed (rpm).

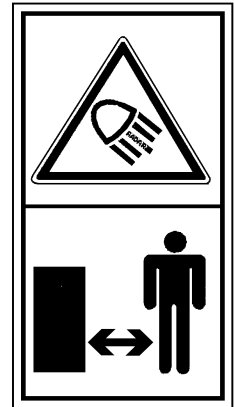
DECAL 6
Part No. 180543A1
(Located on Starter Motor)



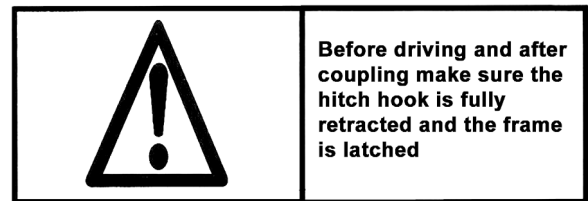
WARNING: Risk of being crushed. DO NOT short across starter terminals to start the engine. Only start the engine from the operators seat.

DECAL 7
Part No. 249807A1
(If Equipped with True Ground Speed Sensor)

WARNING: DO NOT look directly into the face of the ground speed sensor keep clear of sensor unit



DECAL 8
Part No. 711014A1
(If Equipped with Auto Hitch)



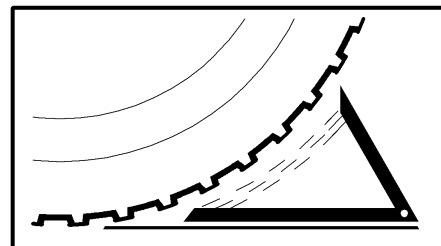
CAUTION: Correct auto hitch operation.

DECAL 9
Part No. 276660A1
(If Equipped with Creeper)



CAUTION: Correct Creeper Speed operation.

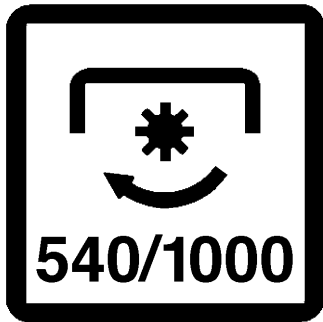
DECAL 10
Part No. 249807A1
(If Equipped with Wheel Wedge)



CAUTION: ALWAYS use a wheel wedge in front of or behind a wheel when parked on a slope.

Safety Precautions

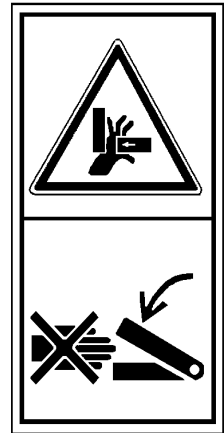
DECAL 11
Part No. 1092074R2



WARNING: Keep clear. Rear PTO shaft(s) rotates at 540 or 1000 rpm.

DECAL 14
Part No. 708629A1
(If Equipped with Cab Suspension - Located on Suspension Cylinder) (One each side)

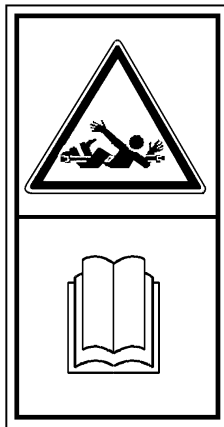
WARNING: To avoid possible injury and entrapment, keep hands clear of cab, cab suspension components and top of the transmission.



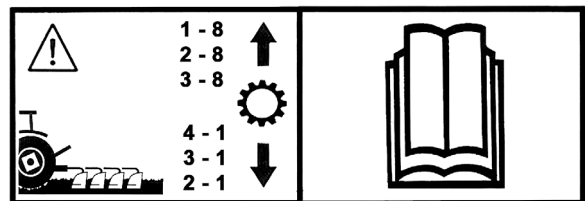
2

DECAL 12
Part No. 400855A1
(Located on the Inside of Right Hand Rear Fender)

WARNING: Risk of entanglement. Keep all guards in place both on the tractor and implement(s). Read your Operators Manual for correct PTO operational procedure.



DECAL 15
Part No. 711011A1
(If Equipped with a Electronic Transmission)



CAUTION: When operating under load the tractor will stop when shifting between ranges. Once the new range is engaged drive will re-engage. For further information refer to your Operators Manual.

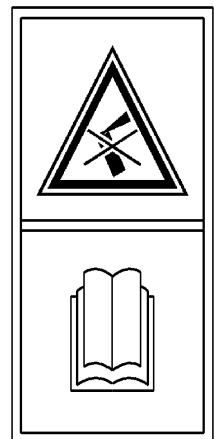
DECAL 13
Part No. 400853A1
(If Equipped with External Hitch Controls and also If Equipped with Front Hitch))

WARNING: Stand well clear of the linkage and implements when using the hitch remote switches or injury can result from moving parts.



DECAL 16
Part No. 705833A1
(Located on Radiator Housing) (One each side)

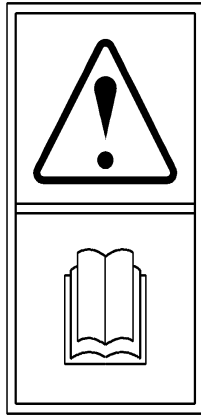
DANGER: DO NOT spray petrol or ether starting aid into the air intake. Explosion and serious injury could result. Read your operators manual for correct cold start procedure.



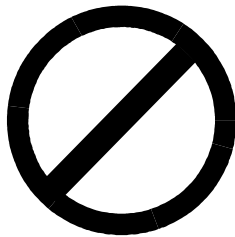
Safety Precautions

DECAL 17
Part No. 249806A1
(If Equipped with Front Hitch)

CAUTION: Before operation, always read the safety and operating instructions in your Operators Manual.



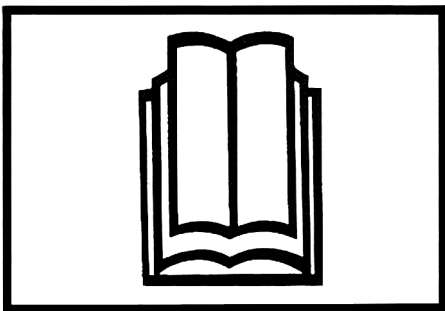
DECAL 18
Part No. 712024A1
(If Equipped with Front Hitch - Located on Rear Remote Couplers)



WARNING: The front hitch is supplied from one of the rear remote valves.

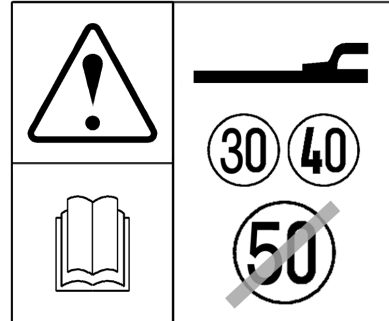
DO NOT remove blanking plugs from the remote couplers and try to use both the front hitch and the corresponding rear remote couplers at the same time.

DECAL 19
Part No. 711169A1
(If Equipped with Front Hitch - Located next to the Multi-Valve)



WARNING: Before operating the Multi-Valve read the safety and operating instructions in your Operators Manual.

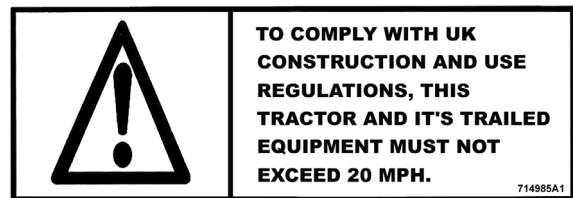
DECAL 20
Part No. 713924A1
(If Equipped with a 50km/h Transmission - Located on Drawbar Support Bracket)



WARNING: All drawbars, hitches and hitch clevises have their own individual speed restrictions for operation on public roads.

Before travelling on public roads, make sure you comply will ALL legal requirements.

DECAL 21 - UK Specifications Tractors ONLY
Part No. 714985A1
(If Equipped with a 50km/h Transmission)



WARNING: ALWAYS comply with local traffic regulations when driving on public roads.

Safety Precautions

ROLL OVER PROTECTIVE STRUCTURE (ROPS)



WARNING: Securely fasten your seat belt (if equipped). Your tractor is equipped with a ROPS cab for your protection. The seat belt can help ensure your safety if it is used and maintained. Never wear a seat belt loose or with slack in the belt system. Never wear the belt in a twisted condition or pinched between the seat structural members.

Your tractor is equipped with a Roll Over Protective Structure (ROPS) cab. Seat belts (if equipped and permitted by local regulations) are a part of your protective system and must be worn at all times. Carefully follow all instructions to get all the safety advantages of the equipment provided.

Tractor Roll Over

ROPS is a special safety unit. The ROPS must be replaced with a new ROPS if damaged, to ensure you will get the same protection.

The ROPS, the operators seat, the seat belt (if equipped) and all the mounting accessories and wiring inside the operators protective system must be carefully checked if a ROPS cab is damaged, and all damaged parts must be replaced with new parts immediately.

DO NOT TRY TO MAKE REPAIRS OR WELD A ROPS.

ROPS Safety Rules

Do not make modifications to the ROPS. Example; welding an accessory to the ROPS, or drilling a hole in the ROPS. Special fasteners are used to install the operator protective parts. Replacement parts must be the same as given in the Parts Catalog for your tractor.

ROPS Plate



DI96M016

Each ROPS is equipped with a ROPS Plate. The plate shows the ROPS serial number and applicable standards. See page 4 for location.

[illegible]

Operating Controls

Chapter 3 Operating Controls

3

Operating Controls

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Operating Controls

TRACTOR ACCESS



WARNING: *Jumping on or off the tractor can cause an injury. Always face the tractor, use the hand rails and steps, and get on or off slowly. Maintain a minimum three point contact to avoid falling, (both hands on rails and one foot on the step, or one hand on the hand rail and both feet on the steps).*



MD05F057A

When mounting or dismounting from the tractor use the left hand door when possible. If you use the right hand door, avoid interference with the control levers.

Cab Door Lock

Use the key for the key switch to lock or unlock the cab door from the outside.



DP96J383

Operating Controls

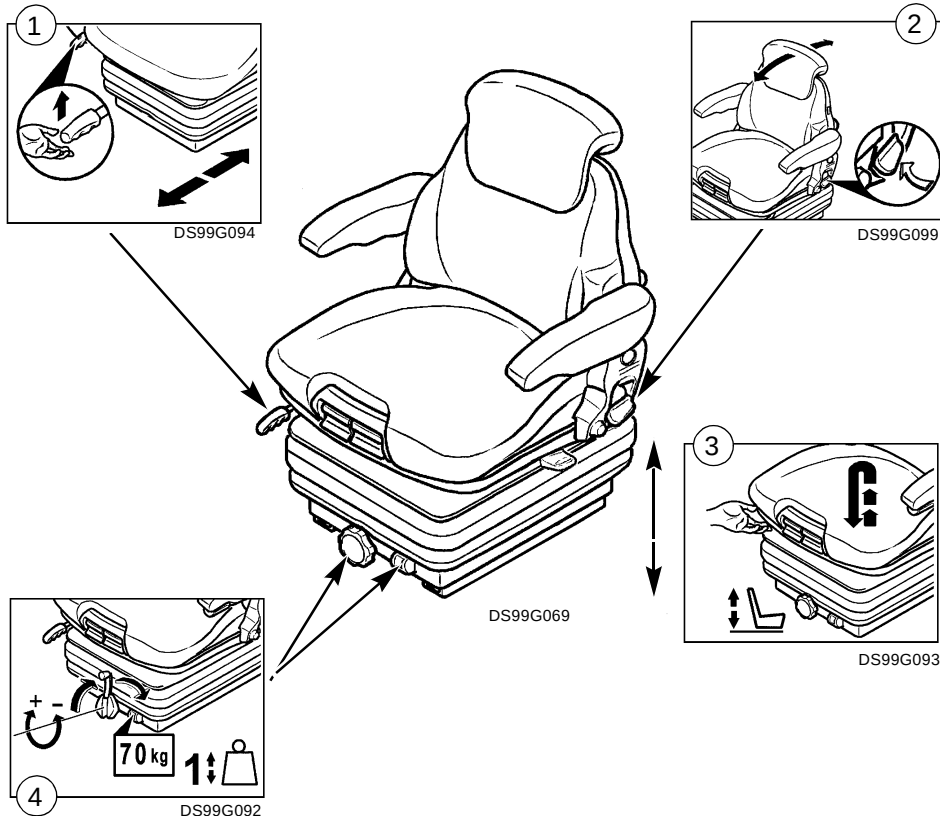
OPERATORS SEAT

Two different seat types may be fitted to the XTX series Tractors, (manufacturers are either Grammer or Sears). The seat type fitted will depend upon market requirements, tractor specification and availability.



WARNING: Do not adjust the seat while driving. Loss of control and injury can result.

Grammer Mechanical Suspension Seat



1. FORE/AFT ADJUSTMENT CONTROL -

Lift lever and adjust as required, release lever to lock in position.



2. BACK REST ADJUSTMENT CONTROL -

Lift control to tilt as required, release lever to lock in position.



3. HEIGHT ADJUSTMENT CONTROL -

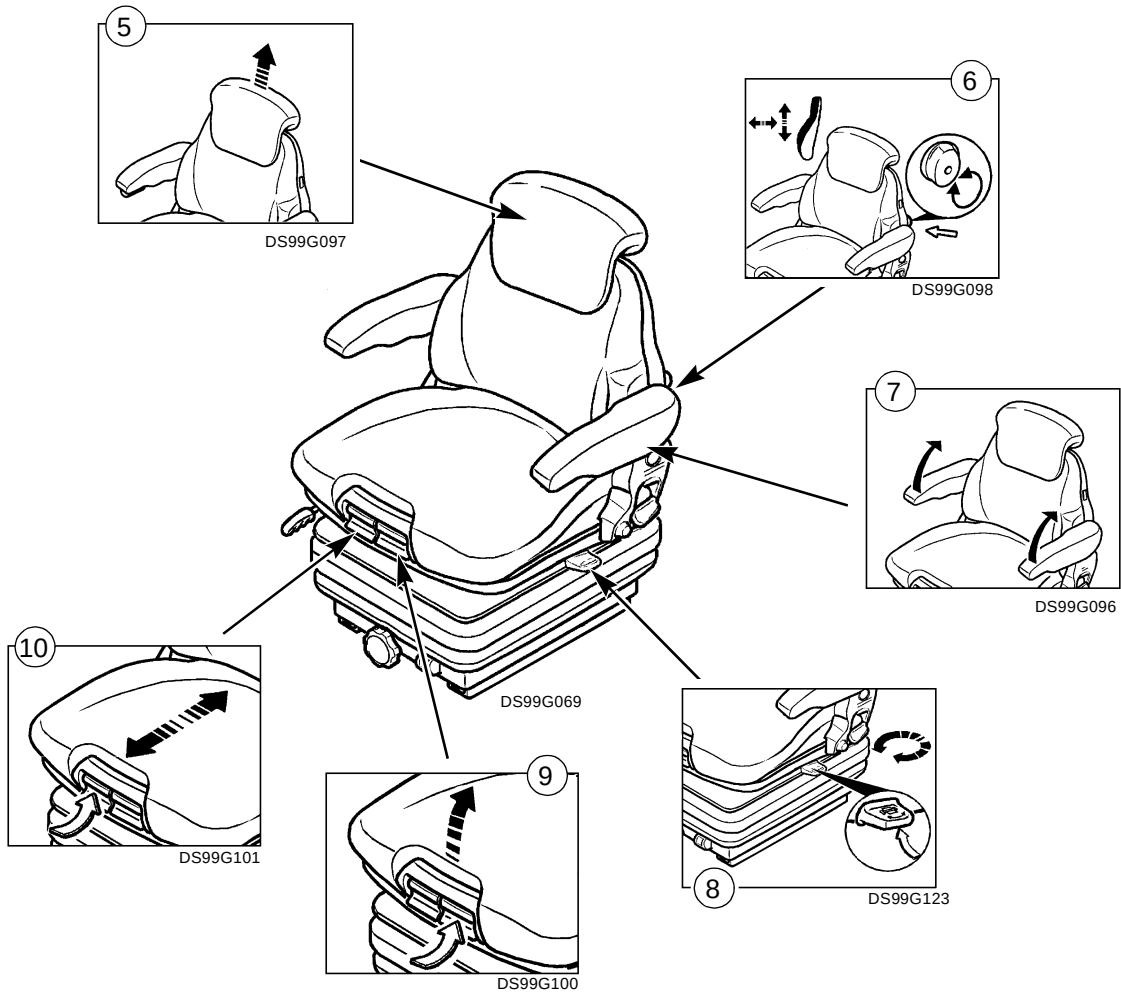
Grip seat and raise to required height. To lower, raise seat fully passed the upper end stop then lower to lowest position.



4. WEIGHT ADJUSTMENT CONTROL AND WEIGHT INDICATOR -

With the seat empty turn knob as required until operators weight is shown on the weight indicator.

Operating Controls



5. HEAD RESTRAINT HEIGHT ADJUSTMENT/REMOVAL -

Pull up or push down to required height. Pull up past end stop to remove.



8. SWIVEL ADJUSTMENT CONTROL (Deluxe Seat Only) -

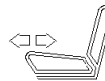
Lift lever and adjust as required.

NOTE: *There is no fore/aft adjustment in the offset positions.*



6. LUMBAR ADJUSTMENT CONTROL -

Turn knob as required.



9. CUSHION TILT ADJUSTMENT (Deluxe Seat Only) -

Lift lever to adjust seat cushion tilt angle.



7. ARM RESTS -

Lift up or down.

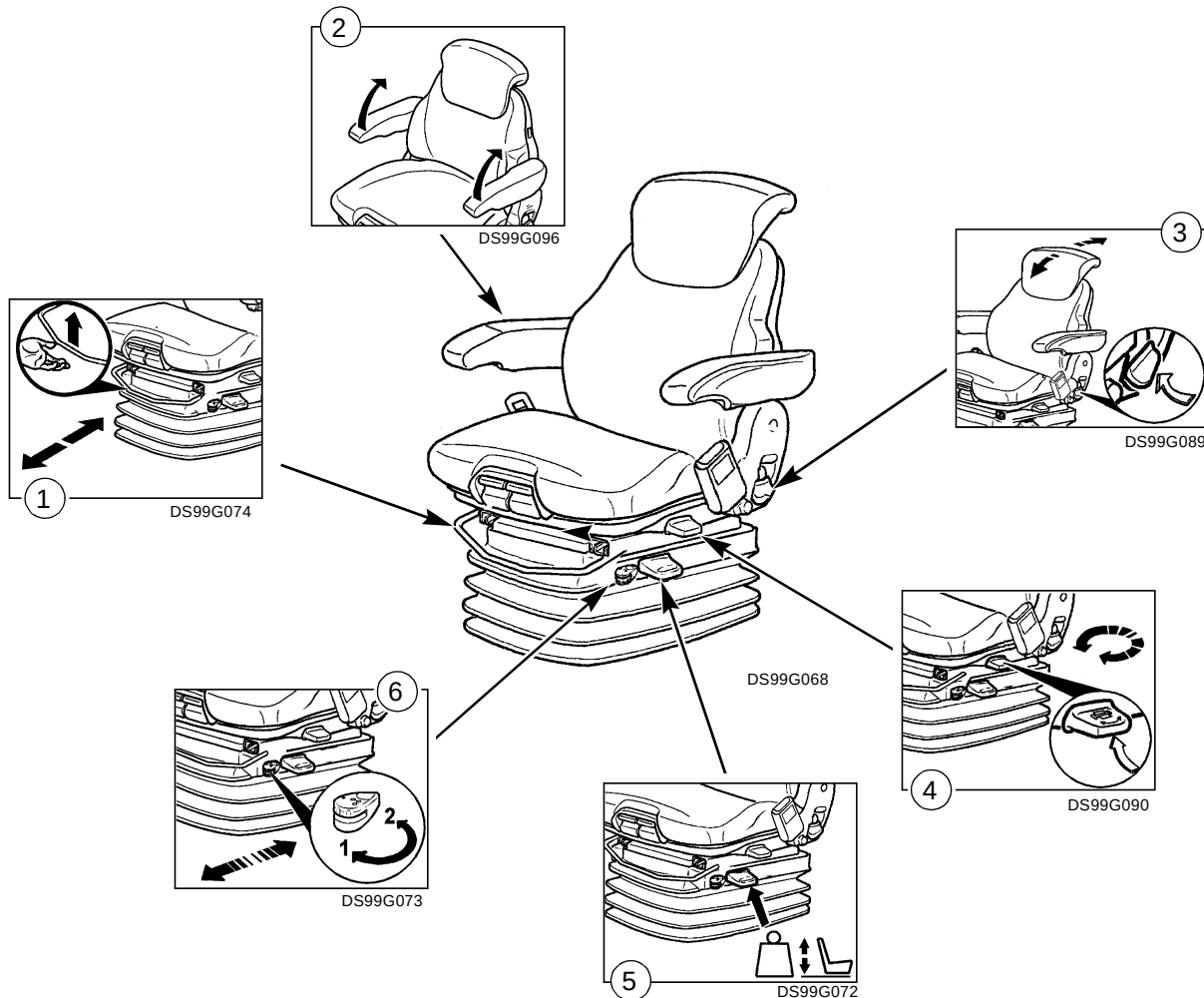


10. CUSHION DEPTH ADJUSTMENT (Deluxe Seat Only) -

Lift lever to adjust seat cushion depth.

Operating Controls

Grammer Air Suspension Seat



1. FORE/AFT ADJUSTMENT CONTROL -

Lift lever and adjust as required, release lever to lock in position.



2. ARM RESTS -

Lift up or down.



3. BACK REST ADJUSTMENT CONTROL -

Lift control to tilt as required, release lever to lock in position.



4. SWIVEL ADJUSTMENT CONTROL (Deluxe Seat Only) -

Lift lever and adjust as required.

NOTE: There is no fore/aft adjustment in the offset positions.



5. HEIGHT & WEIGHT ADJUSTMENT CONTROL -

Lift and release for Automatic Weight Adjustment. Lift and hold to raise or push and hold to lower.

NOTE: Seat must be lowered before the automatic weight adjustment can be made.

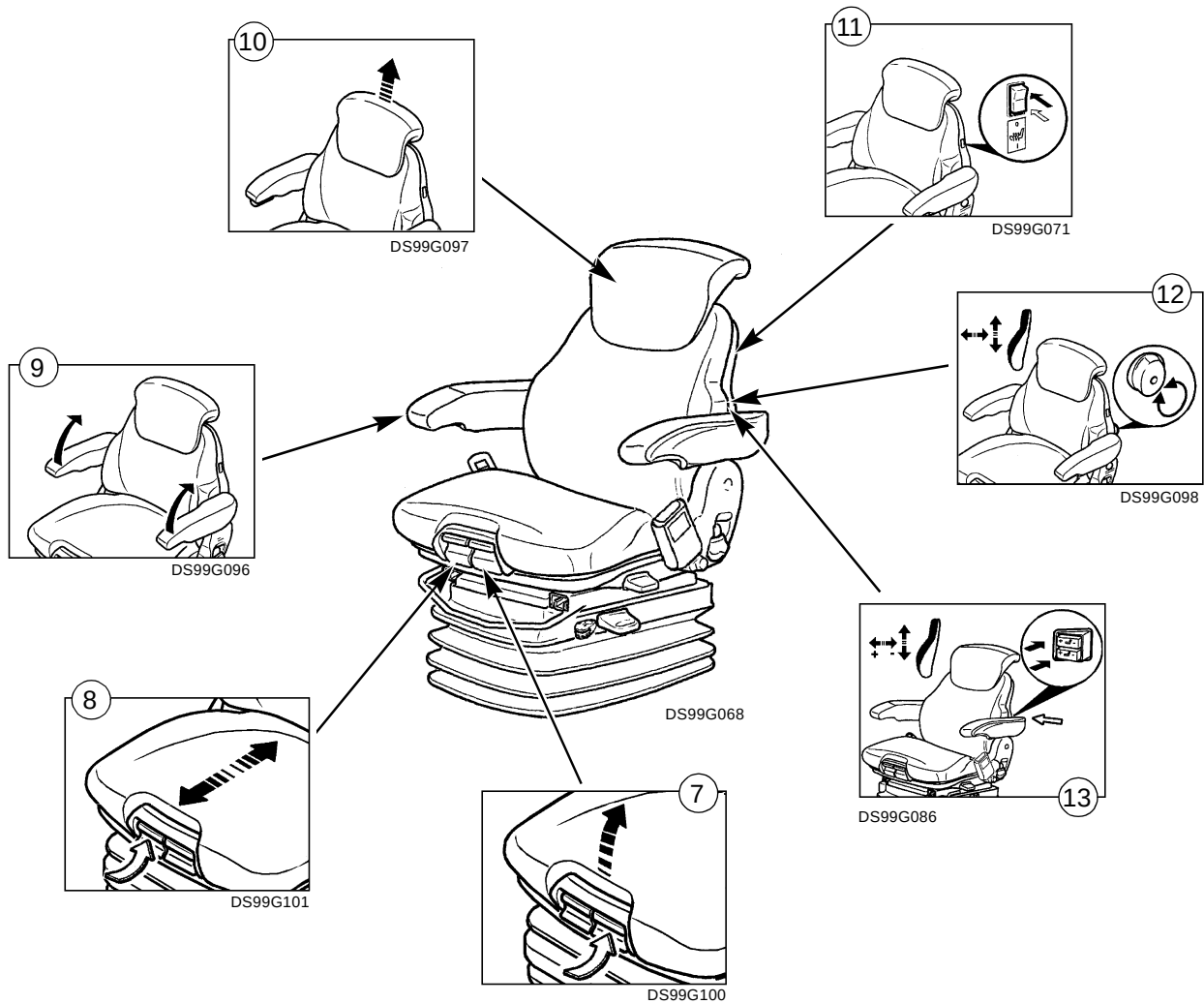
IMPORTANT: Never operate the compressor for more than 1 minute.



6. ISOLATOR CONTROL -

Move control from rear to front (position 1) for float. Move control from front to rear (position 2) to lock.

Operating Controls



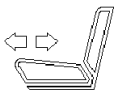
3

7. CUSHION TILT ADJUSTMENT (Deluxe Seat Only) -



Lift lever to adjust seat cushion tilt angle.

8. CUSHION DEPTH ADJUSTMENT (Deluxe Seat Only) -



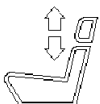
Lift lever to adjust seat cushion depth.

9. ARM RESTS -



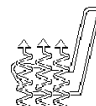
Lift up or down.

10. HEAD RESTRAINT HEIGHT ADJUSTMENT/REMOVAL -



Pull up or push down to required height. Pull up past end stop to remove.

11. HEATED SEAT CUSHIONS (Super Deluxe Seat Only) -



Press switch down to turn heater ON. Press switch up to turn heater OFF.

12. MANUAL LUMBAR ADJUSTMENT CONTROL -



Turn knob as required.

13. AIR LUMBAR ADJUSTMENT CONTROL (Deluxe Seats Only) -

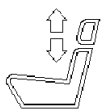
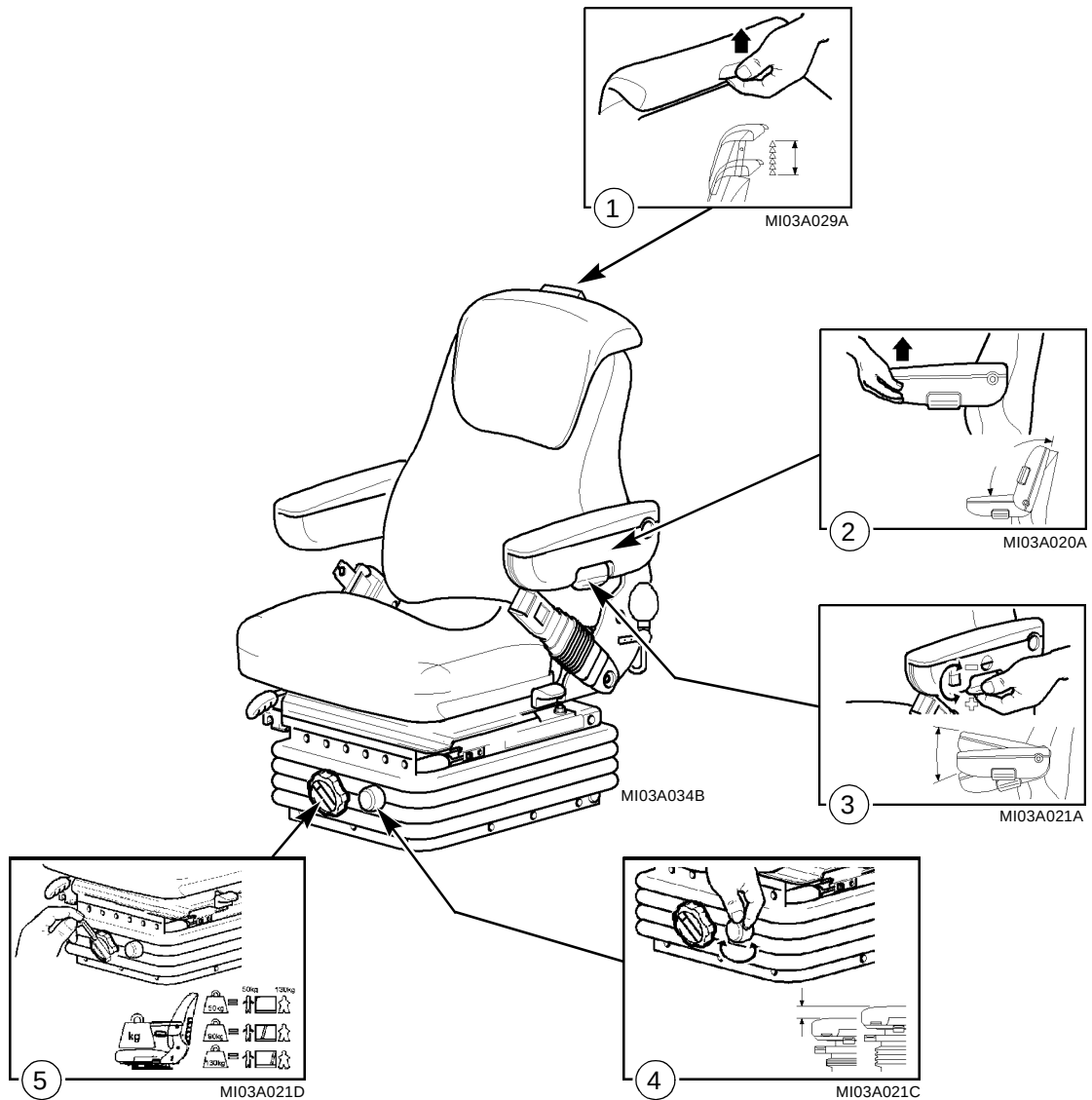


Press upper and lower switches as required.

IMPORTANT: Never operate the compressor for more than 1 minute.

Operating Controls

Sears Mechanical Suspension Seat



1a. HEAD RESTRAINT HEIGHT

ADJUSTMENT OR REMOVAL -

Lift and pull up or push down to required height. Pull up past end stop to remove.



4. HEIGHT ADJUSTMENT CONTROL -

Rotate the knob to raise/lower the seat as required.



2. ARM RESTS -

Lift up or down.



5. WEIGHT ADJUSTMENT CONTROL -

With the seat empty turn the knob as required until the operators weight is shown on the weight indicator.

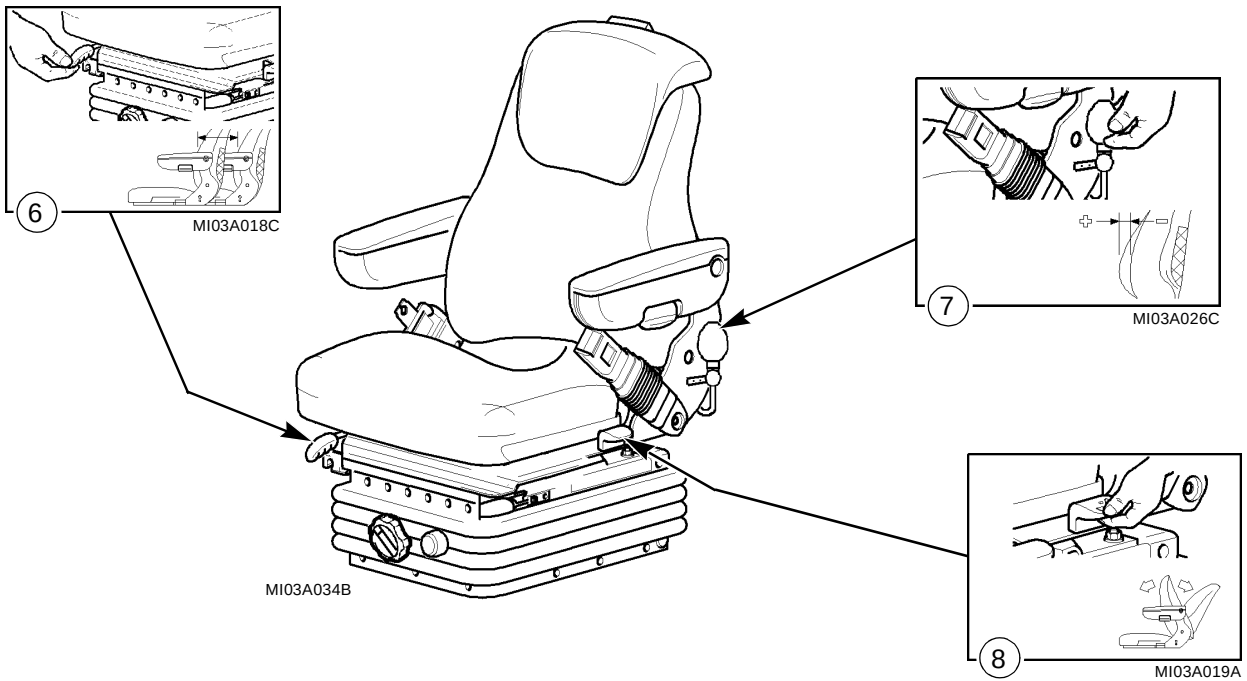


3. ARM RESTS (FINE ADJUSTMENT) -

Rotate the wheel to adjust the arm rest for fine adjustment to suit operator comfort.

Operating Controls

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6. FORE/AFT ADJUSTMENT CONTROL -

Lift lever and adjust as required, release lever to lock in position.



7. MANUAL AIR LUMBAR ADJUSTMENT CONTROL -

Use the pump to increase or decrease the lumbar support as required.

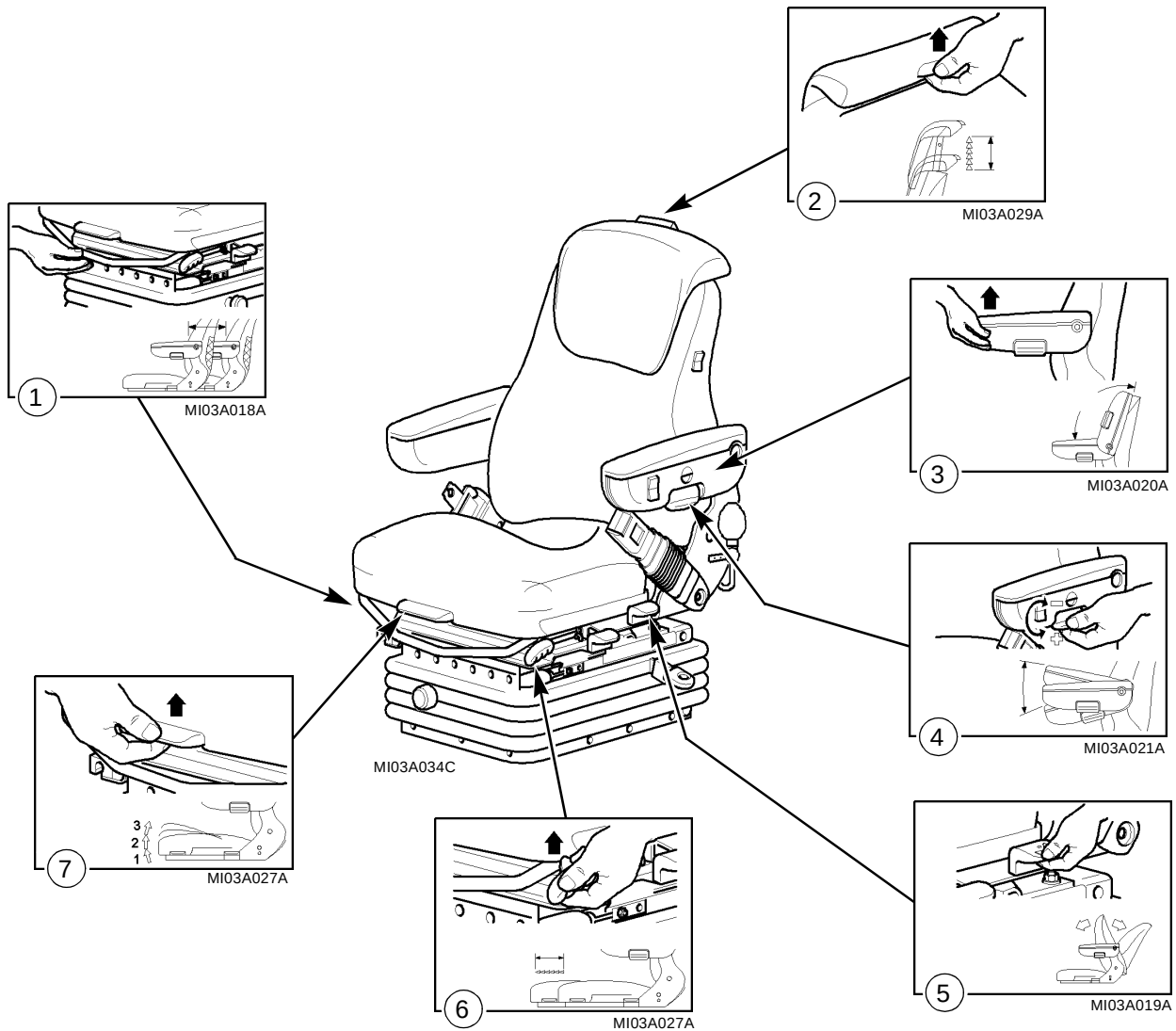


8. BACK REST ADJUSTMENT CONTROL -

Lift control to tilt as required, release lever to lock in position.

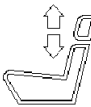
Operating Controls

Sears Air Suspension Seat



1. FORE/AFT ADJUSTMENT CONTROL -

Lift lever and adjust as required, release lever to lock in position.



2. HEAD RESTRAINT HEIGHT ADJUSTMENT OR REMOVAL -

Lift and pull up or push down to required height. Pull up past end stop to remove.



3. ARM RESTS -

Lift up or down.



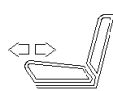
4. ARM RESTS (FINE ADJUSTMENT) -

Rotate the wheel to adjust the arm rest for fine adjustment to suit operator comfort.



5. BACK REST ADJUSTMENT CONTROL -

Lift control to tilt as required, release lever to lock in position.



6. CUSHIONFORE/AFT ADJUSTMENT -

Lift lever to adjust seat cushion fore/aft position, release lever to lock in position.

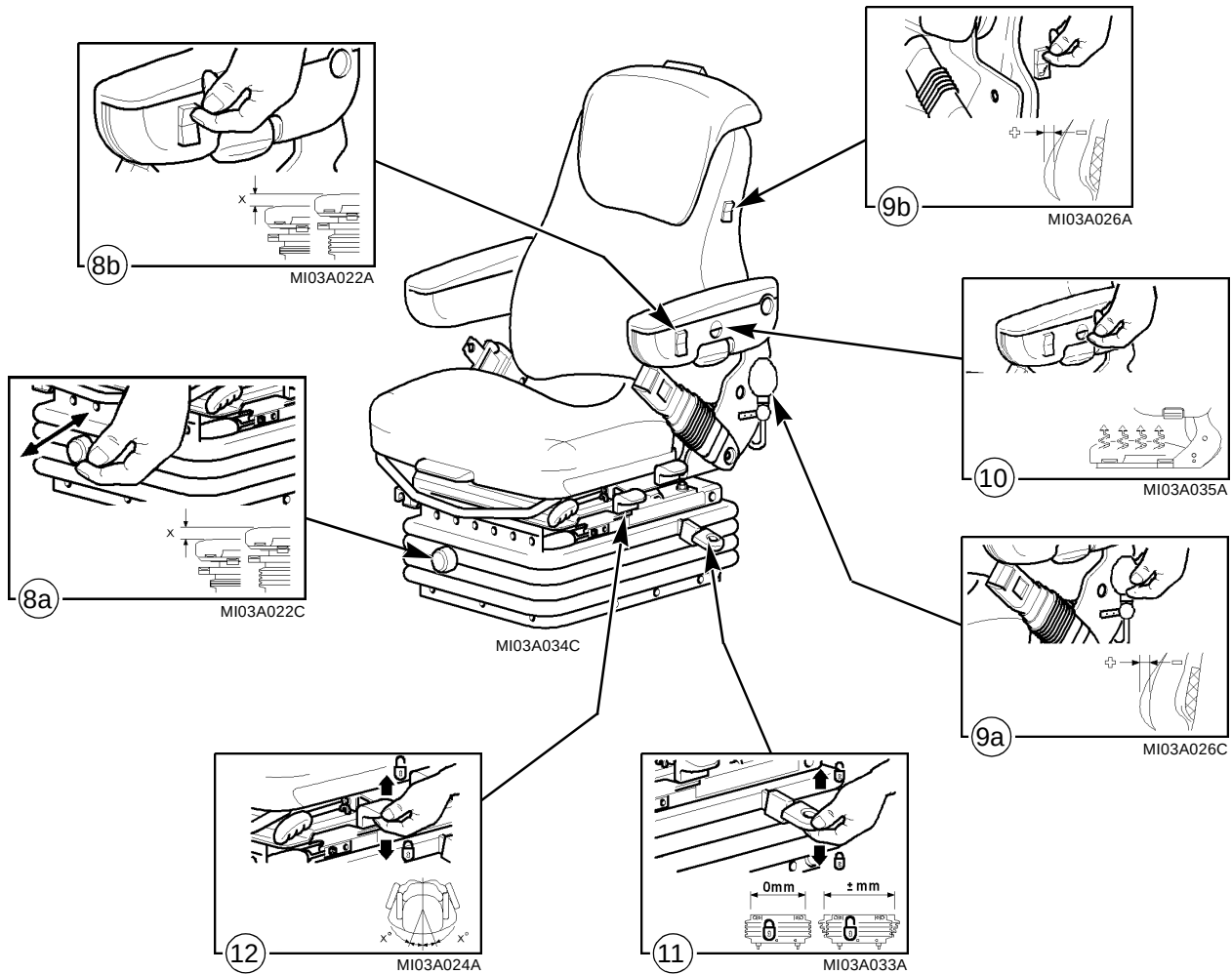


7. CUSHION TILT ADJUSTMENT -

Lift lever to adjust seat cushion tilt angle.

Operating Controls

3



8a. HEIGHT ADJUSTMENT CONTROL -

Push pull the control to raise or lower as required.



8b. HEIGHT ADJUSTMENT CONTROL (Deluxe Seat ONLY) -

Press the top of the switch to raise the seat and the bottom of the switch to lower.

9a. MANUAL AIR LUMBAR ADJUSTMENT -

Use the pump to increase or decrease the lumbar support as required.



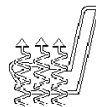
9b. ELECTRIC AIR LUMBAR ADJUSTMENT (Deluxe Seat ONLY) -

Press the top or bottom of the switch to increase or decrease the lumbar support as required.

IMPORTANT: Never operate the compressor for more than 1 minute.

10. HEATED SEAT CUSHIONS -

Press the switch accordingly to turn the heater On or OFF as required.



11. FORE/AFT ISOLATOR CONTROL -

With the lever in the raised position the seat can float a small distance fore/aft to absorb shocks and reduce operator fatigue. If the lever is in the lower position the seat is locked (no float).



12. SWIVEL ADJUSTMENT CONTROL -

Lift lever and adjust as required.



NOTE: There is no fore/aft adjustment in the offset positions.

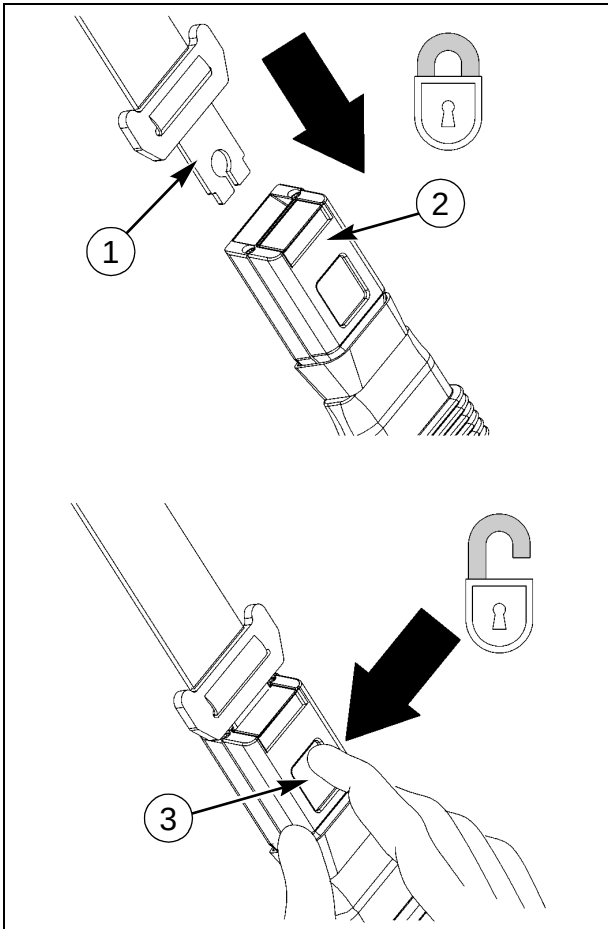
Operating Controls

Seat Belt (If Equipped)



WARNING: Securely fasten your seat belt. Your tractor is equipped with a ROPS cab or frame for your protection. The seat belt can help ensure your safety if it is used and maintained. Never wear the belt in a twisted condition or pinched between the seat structural members.

STEP 1



MI03A015

Adjust the seat to your requirements.

Keep your back straight in the seat. Pull the seat belt completely across your body and push the metal eye (1) into the latch assembly (2) until it locks.

Adjust the position of the seat belt as low on your body as possible.

To release the seat belt, push the red button (3) on the latch assembly.

IMPORTANT: From time to time, carefully inspect the seat belt and replace belt if worn or damaged.

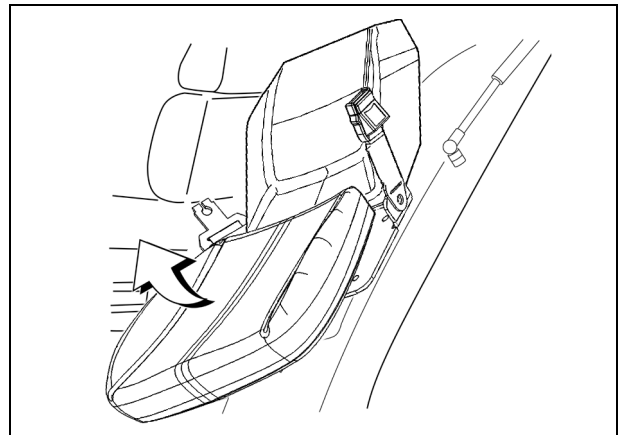
Passenger Seat (If Equipped)

The passenger seat allows a colleague to ride in safety and comfort.

IMPORTANT:

1. Children are NOT permitted to use the passenger seat.
2. The left hand door MUST be closed at all times whenever the passenger seat is occupied and the tractor is in motion.
3. See page 11 for additional safety information.

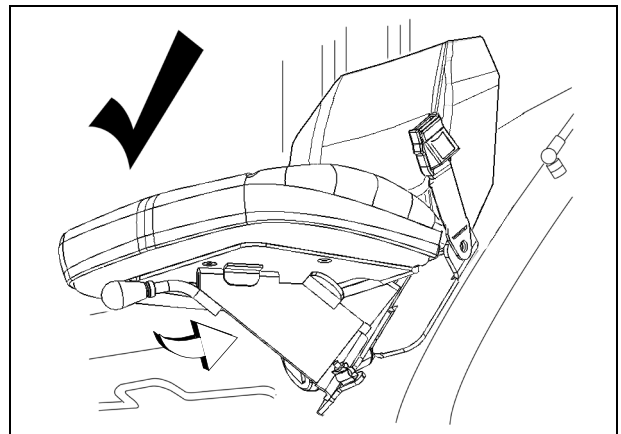
STEP 1



MH04F102

Raise the seat base.

STEP 2



MH04F103

Insert the seat base support between the seat base stops as shown above.

IMPORTANT: Before using the passenger seat make sure the seat base and support are fully secure.

STEP 3

Store the seat in the reverse sequence.

Operating Controls

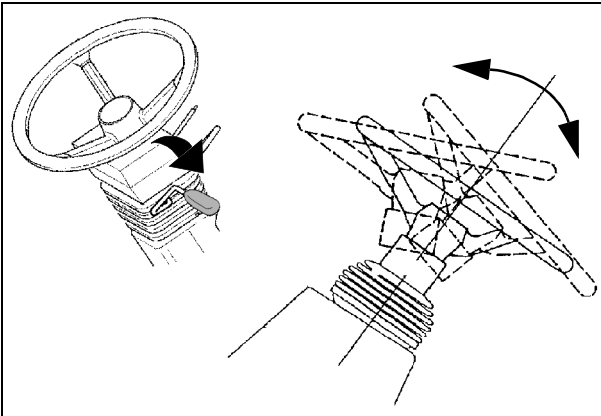
STEERING COLUMN ADJUSTMENT



WARNING: *Never adjust the steering column while driving. Adjusting the steering column while driving can cause loss of control resulting in injury or death.*

Column Tilt Adjustment

The steering column can be adjusted up or down as required.



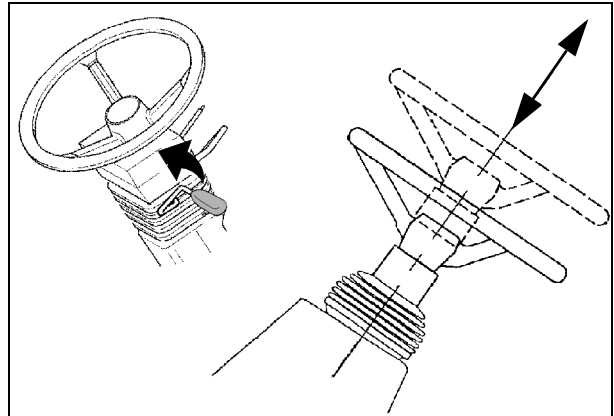
MD04H047

To adjust:

Push the lever down and hold. Move the column up or down to the required position and then release the lever to lock the column in position.

Telescopic Column Adjustment

The steering column can be moved in or out at any tilt position.



MD04H048

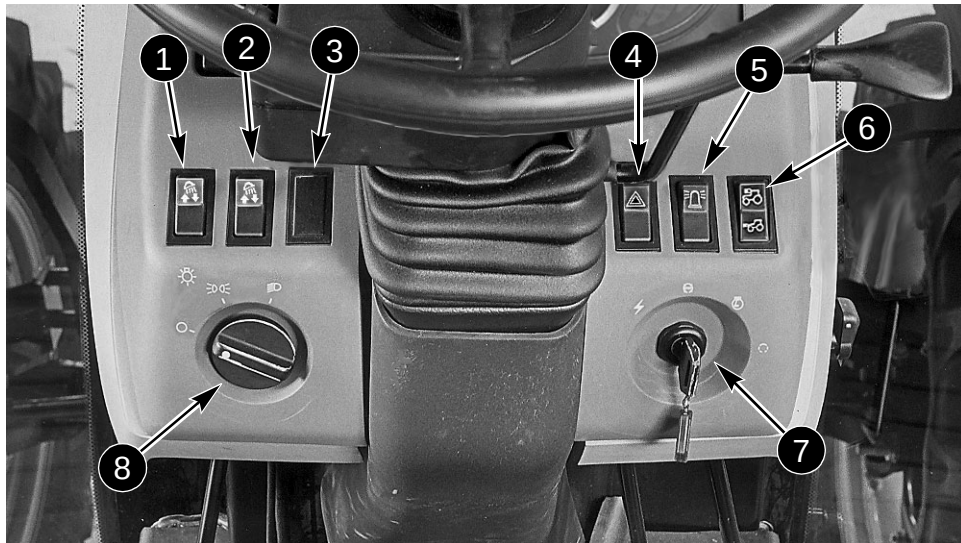
To adjust:

Lift and hold the locking lever up. Pull or push the column in or out to the required position and then release the lever to lock the column in position.

Operating Controls

OPERATING CONTROLS

Instrument Panel



MD04F099

1. FRONT WORK LIGHTS - Three position rocker switch. The lights will operate as follows:
First Position - OFF.

Second Position - The lower front work lights are ON. The indicator lamp on the rocker switch will illuminate.

Third Position - The upper and lower front work lights are ON. The lamp in the rocker switch will still be illuminated to confirm the lower worklights are ON and the indicator lamp in the instrument cluster will also illuminate to indicate the upper worklights are ON.

2. REAR WORK LIGHTS - Three position rocker switch. The lights will operate as follows:

First Position - OFF.

Second Position - The lower rear work lights are ON. The indicator lamp on the rocker switch will illuminate.

Third Position - The upper and lower rear work lights are ON. The lamp in the rocker switch will still be illuminated to confirm the lower worklights are ON and the indicator lamp in the instrument cluster will also illuminate to indicate the upper worklights are ON.

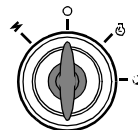
3. REAR FOG LIGHT (If Equipped)

4. HAZARD WARNING SIGNAL SWITCH

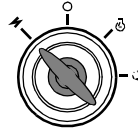
5. ROTATING BEACON SWITCH (If Equipped)

6. UPPER HEAD LAMPS SWITCH (If Equipped with Front Hitch) - With head lamp switch in third position press the front of the switch down, upper head lamps will illuminate and main head lamps will go off.

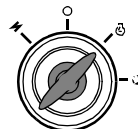
7. KEY SWITCH - The key switch has four positions as follows:



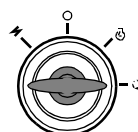
Off Position - Turn from On/Run position counter clockwise to stop the tractor. The key can only be removed from this position.



Accessory Position - The radio can be operated in this position and some of the cluster displays, also used for programming the digital instrument cluster.



On/Run Position - The radio can be operated in this position and some of the cluster displays, also used for programming the digital instrument cluster.

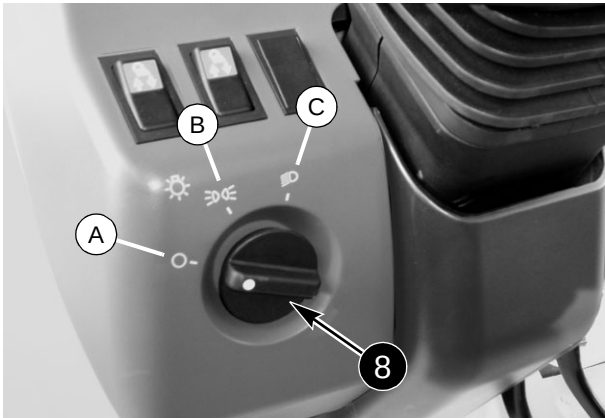


Start Position - Turn the key fully clockwise against spring pressure will energise the starter motor in addition to the circuits already mentioned above.

Operating Controls

8. HEAD LAMP SWITCH -

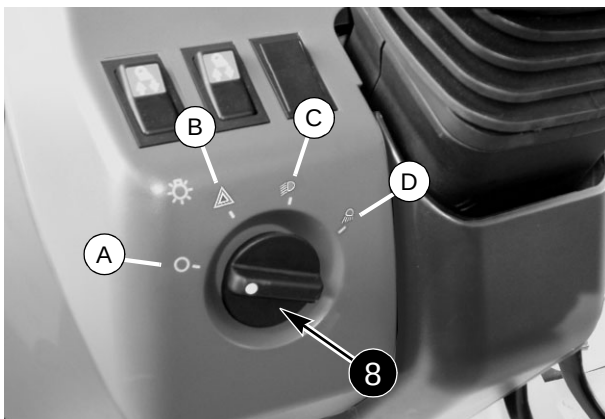
Three Position Switch



MD04H022

- A. First Position - All lamps OFF.
- B. Second Position - Front position lamps, tail lamps, license plate lamps and the side console illumination lamp will illuminate. Also analog cluster illumination lamps will be ON.
- C. Third Position - Front side lamps, tail lamps, license plate lamps, the side console illumination lamp and main head lamps will illuminate.

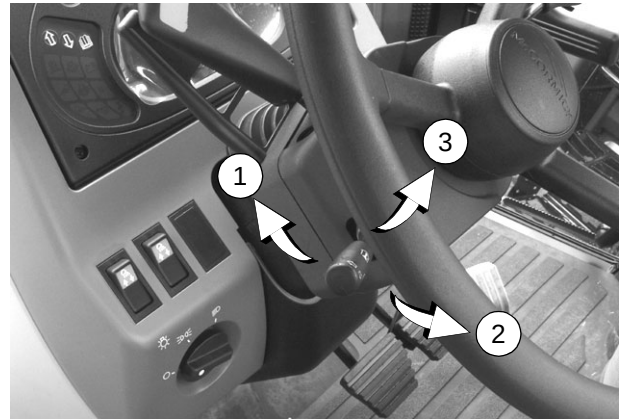
Four Position Switch



MD04H023

- A. First Position - All lamps OFF.
- B. Second Position - ALL the amber warning lamps will flash ON and OFF. (Road - Daytime).
- C. Third Position - ALL the amber warning lamps will flash ON and OFF. Tail lamps and headlamps will be illuminated. (Road - Night).
- D. Fourth Position - The side console illumination lamp and main head lamps will illuminate. Work lamp switch is enabled (Field).

Direction Turn Signal, Hi/Low Beam Switch and Horn



MD04C020

TURN SIGNAL:

Position 1. = Right turn signal on.

Position 2. = Left turn signal on.

NOTE: Self cancelling switch only: The turn signal lamps will continue to flash until the steering wheel is turned in the opposite direction. You can override this function to cancel the indicator by moving the switch in the opposite direction chosen.

HEADLAMP HI/LOW BEAM:

Position 3.= With headlamp switch in **Third** or **Fourth** position, lifting the switch towards the steering wheel, then releasing, will select high beam, (Blue indicator lamp on instrument cluster will illuminated). Lifting the switch again will select low beam, (Blue indicator lamp will go off).

With headlamp switch in **First** or **Second** position, lifting the switch towards the steering wheel and releasing will flash the headlamps.

HORN:

Press the end of the switch to operate.

Operating Controls

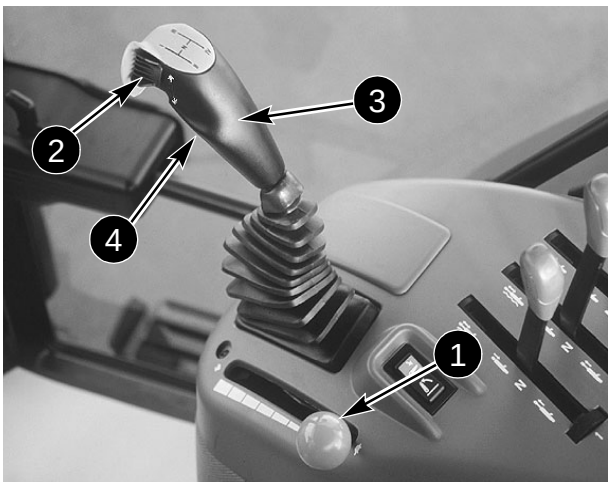
XtraSpeed TRANSMISSION CONTROLS

The XtraSpeed transmission is a 32 speed (4 ranges x 8 powershift speeds) transmission and is available in mechanically and electronically controlled versions.

Mechanical Version

This transmission utilises a 8 speed powershift system which allows clutchless shifting within each range.

Range changes are made using either the clutch pedal or de-clutch button (located on the front of the range lever).



GEARSTICK

XtraSpeed

(EQUIPPED WITH MECHANICAL REMOTE VALVES)

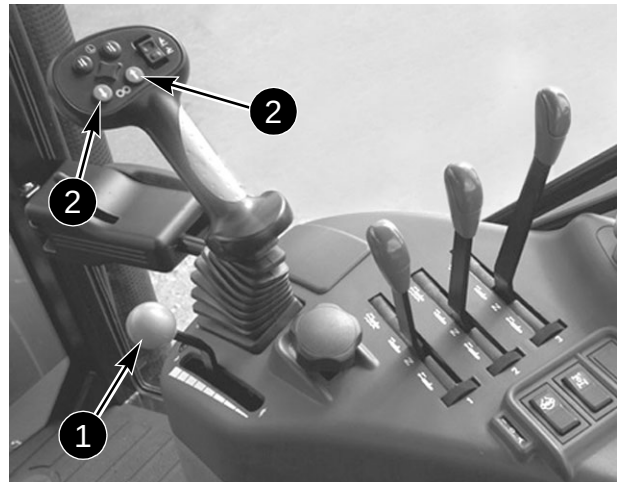
1. THROTTLE CONTROL
2. GEAR SELECTION UP/DOWN SWITCH
3. RANGE LEVER
4. DE-CLUTCH BUTTON

See page 98 for complete transmission operational instructions.

Electronic Versions

This transmission also has an 8 speed powershift system, but is operated via push buttons located on the Multi Control Lever.

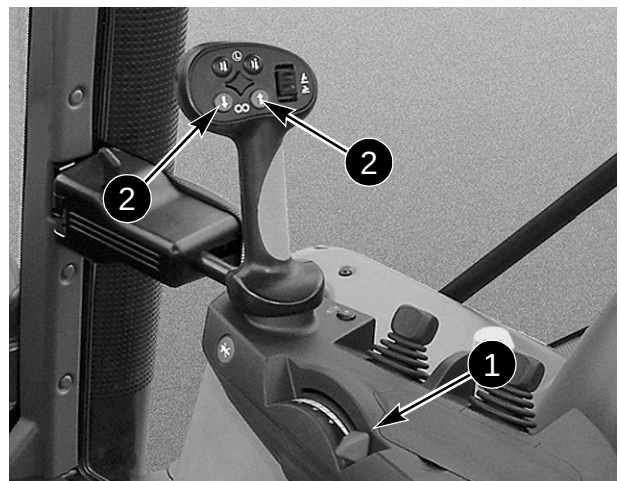
Electronic shifting allows ALL 32 speeds to be changed via the push buttons thus replacing the range lever.



MD05F041A

XtraSpeed-E

(EQUIPPED WITH MECHANICAL REMOTE VALVES)



MD04K026

XtraSpeed-Eplus

(EQUIPPED WITH ELECTRONIC REMOTE VALVES)

1. THROTTLE CONTROL
2. GEAR SELECTION UP/DOWN SWITCHES

See page 100 for complete instructions.

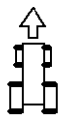
Operating Controls

Forward/Reverse Shuttle Lever



Use the Forward/Reverse shuttle lever to change direction of travel.

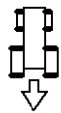
The shuttle lever has 3 standard positions:



FORWARD



NEUTRAL



REVERSE



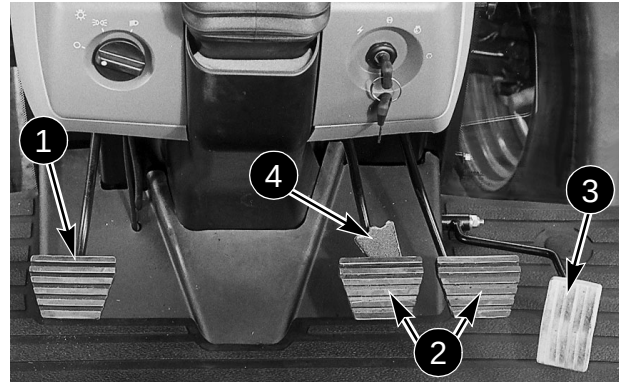
with an optional fourth position "PARK" also available.



PARK

NOTE: For your safety a Neutral Start Switch is fitted in the Forward/Reverse Shuttle circuits which prevents unintentional tractor movement when starting the tractor engine. The engine should only start when the lever is in either NEUTRAL or PARK, (depending on which shuttle lever option is equipped). For additional safety information see page 16.

Pedal Controls



1. **CLUTCH PEDAL** - Used to temporarily disengage drive. Use the clutch pedal when moving the tractor short distances or when operating in confined areas. Use the clutch pedal to start the tractor moving from stationary. Gradually and completely releasing the clutch pedal for a controlled smooth start.

NOTE: DO NOT ride the clutch pedal when the transmission is under load. Release the clutch pedal completely within 5 seconds for improved clutch service life.

While the tractor is moving the transmission must always be in drive. Never allow the tractor to coast down hill with the transmission in neutral or with the clutch pedal depressed. To do so could result in the operator not having full control of the tractor and may result in personal injury.

2. **THROTTLE PEDAL**

3. **BRAKE PEDALS** - The left brake pedal stops the left rear wheel and the right brake pedal stops the right rear wheel.



WARNING: Extra weight and bad traction conditions such as mud or ice increase your stopping distance. Remember that liquid in the tyres, weights on the tractor or wheels, towed implements or trailers all add weight and increase the distance you need in which to stop.

4. **BRAKE PEDALS INTERLOCK** - Used to lock the brake pedals together.

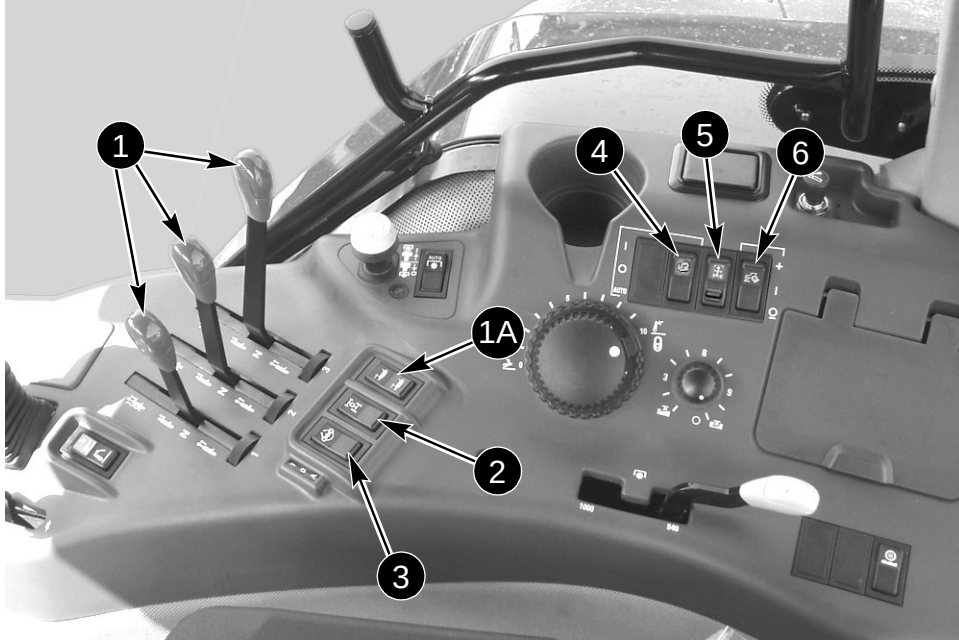


WARNING: Brake pedals must be locked together for road travel. This will ensure uniform brake operation and maximum stopping ability.

Operating Controls

RIGHT HAND CONSOLE CONTROLS

If Equipped With Mechanical Remote Valves (XtraSpeed and XtraSpeed-E Tractors)



MD05F037

1. REMOTE HYDRAULIC VALVE LEVERS -
see page 164.

1A. FOURTH REMOTE VALVE SWITCH
(If Equipped).

2. DIFFERENTIAL LOCK SWITCH -
see page 152.

3. MECHANICAL FRONT DRIVE (MFD)
(If Equipped) - see page 154.

4. CREEPER SWITCH (If Equipped) -
see page 105.

5. FRONT PTO SWITCH (If Equipped) -
see page 137.

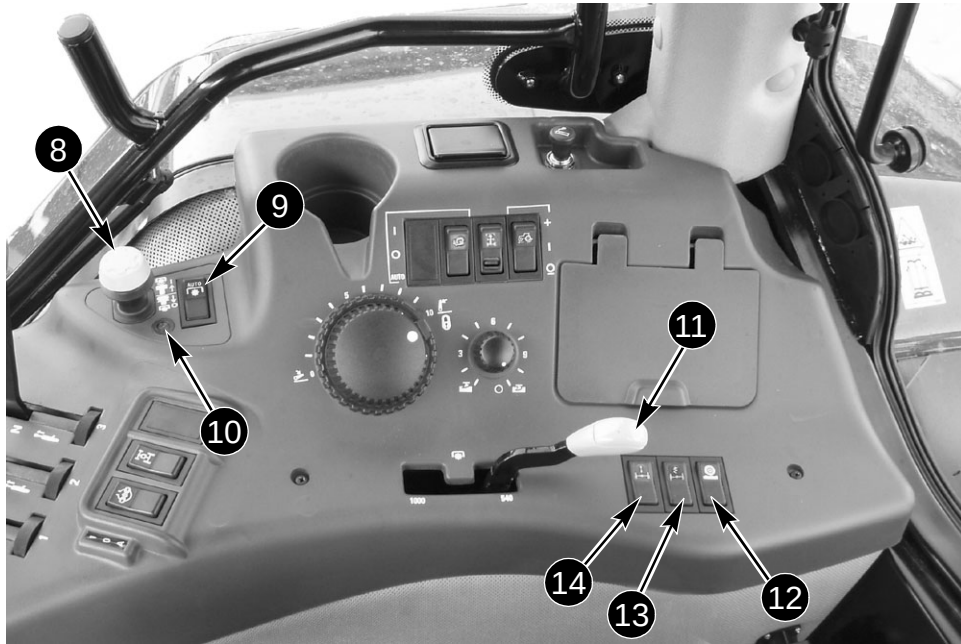
6. WHEEL SLIP LIMIT CONTROL SWITCH -
see page 148.

7. HITCH UP/DOWN SWITCH - see page 145.



MD05F038 & MD05F042

Operating Controls



MD05F036

3

8. REAR PTO ON/OFF SWITCH - see page 130.

IMPORTANT: When the engine is stopped the PTO will disengage, but the PTO ON/OFF switch will remain in the ON position. The engine will start if the PTO ON/OFF switch is not in the OFF position, but the PTO shaft will not rotate and the error code indicator lamp will flash. Move the PTO ON/OFF switch to the OFF position to turn off the indicator lamp and enable the system.

9. AUTO PTO SWITCH - see page 134.

10. REAR PTO STATUS LAMP

11. REAR PTO SHIFTABLE SPEED LEVER
(If Equipped) - see page 130.
(2 Speed PTO shown*)

* **NOTE:** The number of PTO speeds available will vary depending on tractor specification.

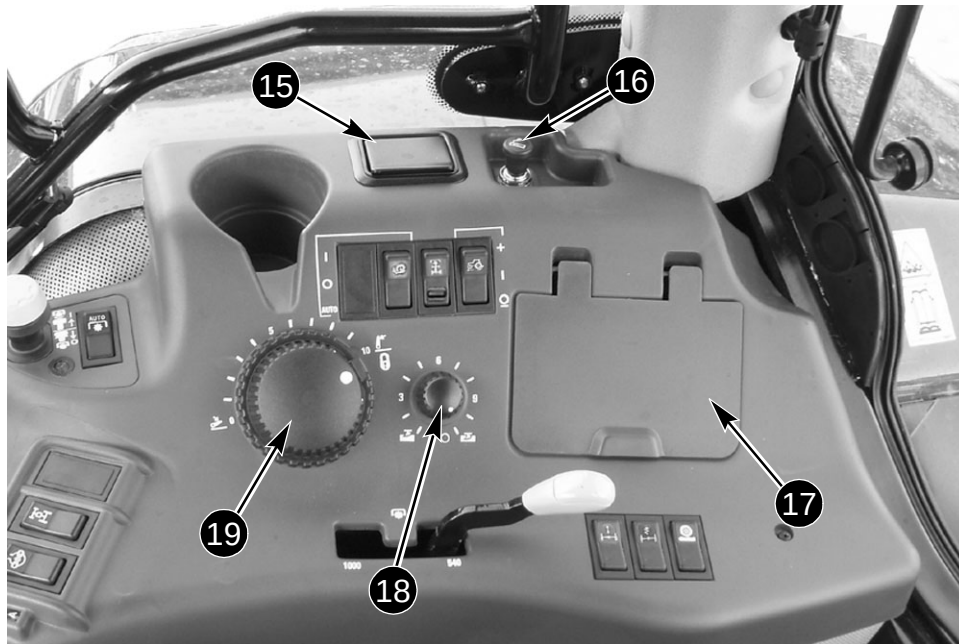
NOTE: Disengage the PTO before changing speed.

12. RIDE CONTROL SWITCH -
see page 151.

13. INDEPENDENT FRONT SUSPENSION
ON/OFF SWITCH - see page 156.

14. INDEPENDENT FRONT SUSPENSION
MANUAL HEIGHT ADJUSTMENT SWITCH -
see page 156.

Operating Controls



MD05F039

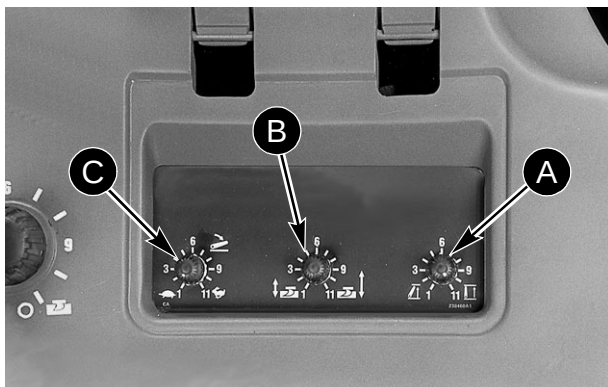
15. ASHTRAY

16. CIGARETTE LIGHTER

17. HITCH CONTROL BOX -

18. HITCH DRAFT (LOAD) CONTROL KNOB -
see page 145.

19. HITCH POSITION CONTROL -
see page 145.



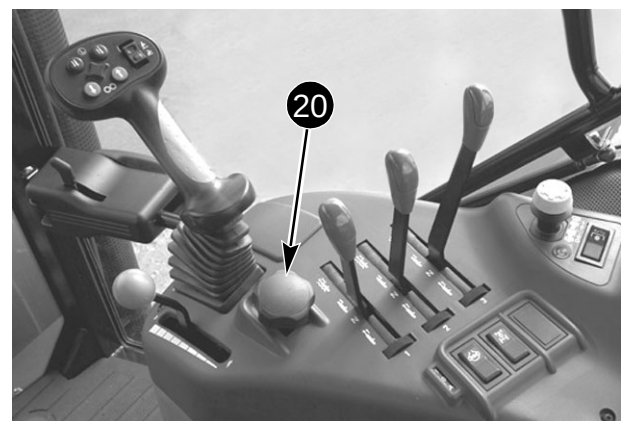
MD04E002

A. HITCH UPPER LIMIT CONTROL KNOB

B. HITCH TRAVEL CONTROL KNOB

C. HITCH DROP RATE CONTROL KNOB

See REAR THREE POINT HITCH OPERATION on
Page 145 of this manual to items listed above.



MD05F041

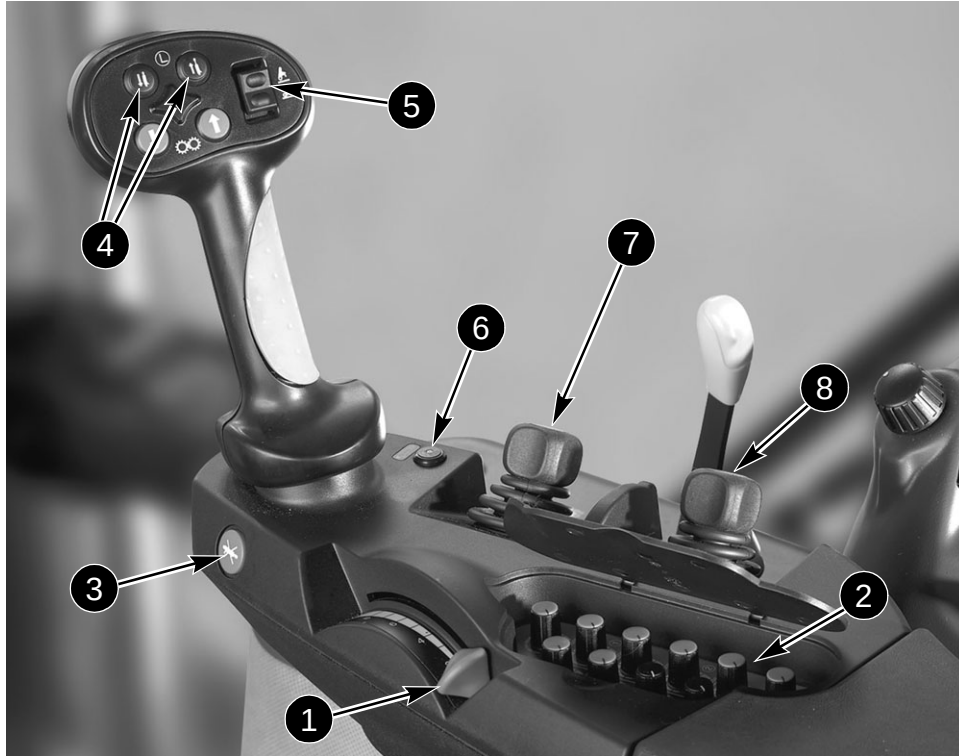
For operator comfort the Multi Control Lever can be
adjusted.

To adjust, loosen the locking knob (20). Move the
lever fore or aft as required and then tighten the
locking knob.

Operating Controls

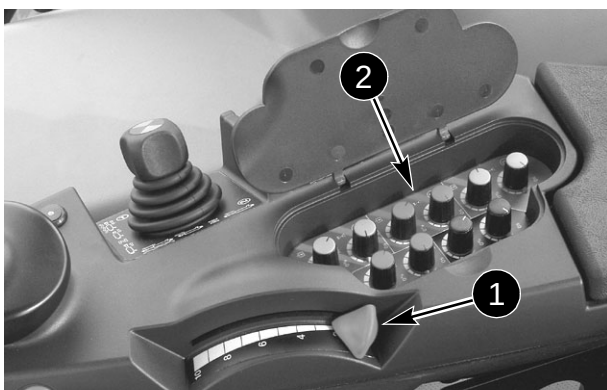
If Equipped With Electronic Remote Valves (XtraSpeed-Eplus Tractors)

Arm Rest Controls



MD05F045

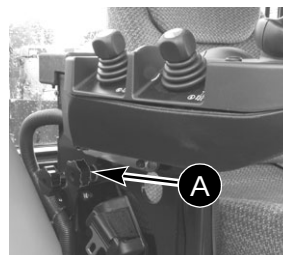
1. THROTTLE CONTROL - To increase or decrease the engine speed.
2. VARIABLE REMOTE HYDRAULIC FLOW CONTROL KNOBS - see page 167.



FLOWCONTROL

3. EMERGENCY REMOTE HYDRAULIC VALVE 'CUT-OFF' BUTTON - In the case of an emergency pressing this button will disable the remote valves.
4. FIFTH REMOTE HYDRAULIC VALVE PUSH BUTTON CONTROL (OPTIONAL) - see page 167.

5. HITCH UP/DOWN SWITCH - see page 145.
6. REMOTE HYDRAULIC VALVE ENABLE BUTTON - see page 167.
7. FIRST AND SECOND REMOTE HYDRAULIC VALVE JOYSTICK CONTROL - see page 167.
8. THIRD AND FOURTH REMOTE HYDRAULIC VALVE JOYSTICK CONTROL - see page 167.
9. ARM REST ADJUSTMENT -

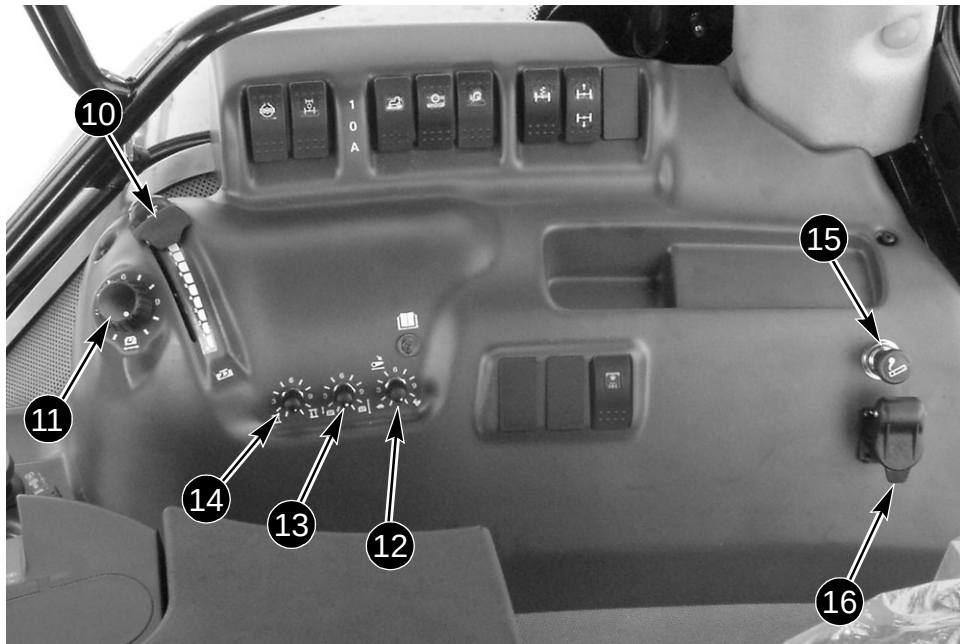


MD04F097

The armrest can be adjusted up or down for operator comfort. Loosen the two locking knobs (A), slide the arm rest to the required position and then tighten the locking knobs.

Operating Controls

Right Console Controls



MD05F053

10. HITCH POSITION CONTROL - see page 145.

11. HITCH DRAFT (LOAD) CONTROL KNOB -
see page 145.

12. HITCH UPPER LIMIT CONTROL KNOB -
see page 145.

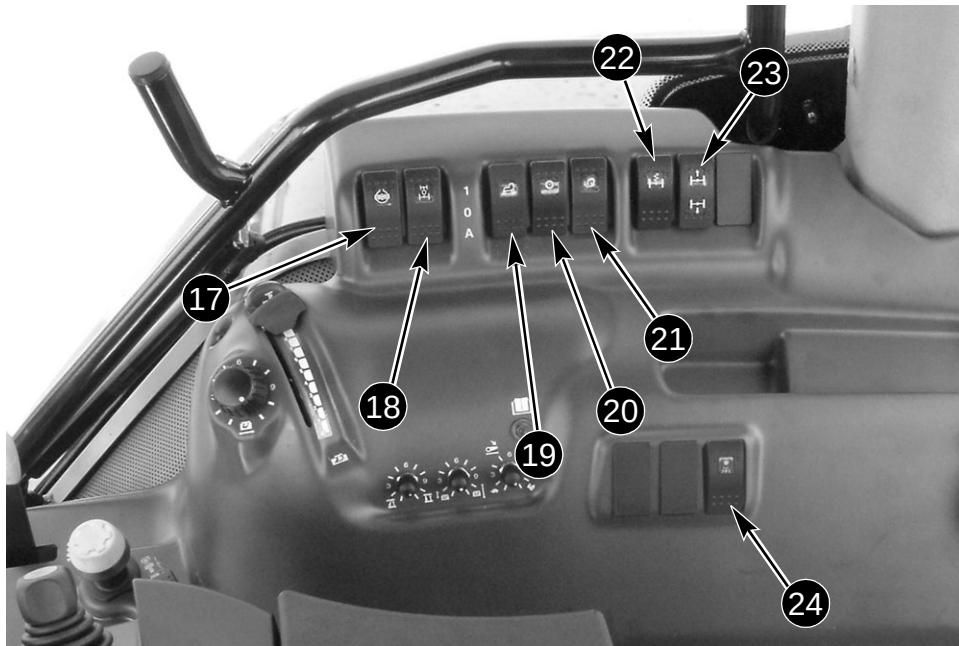
13. HITCH TRAVEL CONTROL KNOB -
see page 145.

14. HITCH DROP RATE CONTROL KNOB -
see page 145.

15. CIGARETTE LIGHTER

16. AUXILLARY POWER SOCKET - see page 124.

Operating Controls

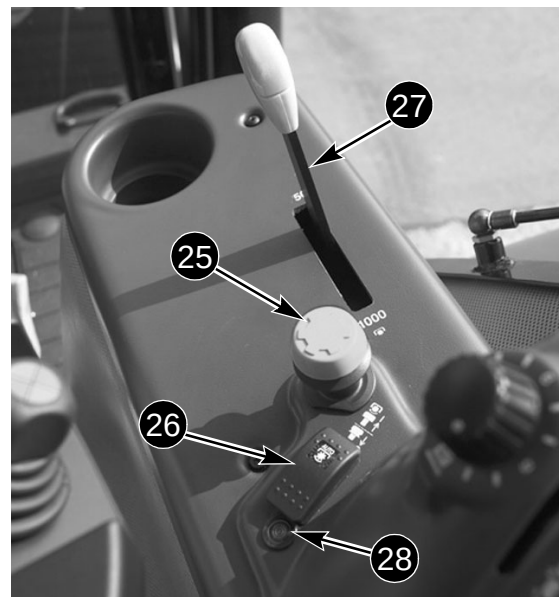


MD05F052

3

- 17. DIFFERENTIAL LOCK SWITCH -
see page 152.
- 18. MECHANICAL FRONT DRIVE (MFD)
(If Equipped) - see page 154.
- 19. WHEEL SLIP LIMIT CONTROL SWITCH -
see page 148.
- 20. RIDE CONTROL SWITCH -
see page 151.
- 21. CREEPER SWITCH -
see page 105.
- 22. INDEPENDENT FRONT SUSPENSION ON/
OFF SWITCH - see page 156.
- 23. INDEPENDENT FRONT SUSPENSION
MANUAL HEIGHT ADJUSTMENT SWITCH -
see page 156.
- 24. FRONT PTO SWITCH (If Equipped) -
see page 137.
- 25. REAR PTO ON/OFF SWITCH - see page 127.

IMPORTANT: When the engine is stopped the PTO will disengage, but the PTO ON/OFF switch will remain in the ON position. The engine will start if the PTO ON/OFF switch is not in the OFF position, but the PTO shaft will not rotate and the error code indicator lamp will flash. Move the PTO ON/OFF switch to the OFF position to turn off the indicator lamp and enable the system.



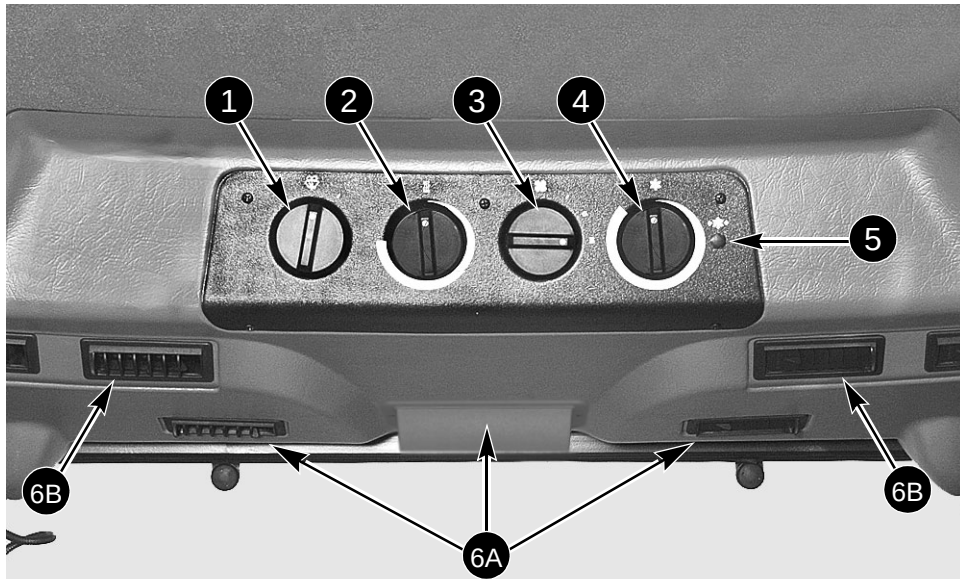
MD05E046

- 26. AUTO PTO SWITCH - see page 134.
- 27. REAR PTO SHIFTABLE SPEED LEVER - (If
Equipped) - see page 130.
(2 Speed PTO shown*)
- * **NOTE:** The number of PTO speeds available will
vary depending on tractor specification.
- 28. REAR PTO STATUS LAMP

Operating Controls

OPERATOR CAB ENVIRONMENT CONTROLS

Standard Temperature Control System



DD95M222

1. WINDSHIELD WIPER/WASHER CONTROL - Three Positions:



Intermittent, clockwise to increase or counterclockwise to decrease wipes per minute.

I Slow.

II Fast.

NOTE: On tractors equipped with the opening windshield there is only one speed.

Push the control knob to activate windshield washer (If Equipped).

2. TEMPERATURE CONTROL - Turn the control clockwise to raise the in-cab temperature. To lower the in-cab temperature turn the control counterclockwise.

NOTE: Under certain conditions the heater fan can run at maximum speed when the control is in the 2nd, 1st or OFF position. This is a safety feature designed to prevent overheating of resistors in the circuit.

3. BLOWER CONTROL - Turn the control clockwise. Keep turning the control clockwise to increase the blower speed.

4. AIR CONDITIONER CONTROL (If Equipped) - Blower must be operating, see page 53 for more information.

5. AIR CONDITIONER PRESSURE INDICATOR LAMP - See page 53 for more information.

6. A. DEFROSTER LOUVERS -

- B. AIR DISCHARGE LOUVERS -

To open or close the louvers and control air flow direction move the louvers from side to side as required. The units can also be adjusted front to rear for added air flow control.

7. RECIRCULATION VENT - Slide the louver to regulate amount of fresh air intake/recirculation of air within the cab.



DP96J356

Operating Controls

3

Control Settings

CAB ENVIRONMENT CONTROL SETTINGS						
Type/Condition Required	Blower Speed Control	Discharge Vents	Defroster Vents	Temperature Control	Recirculation Vent	Air Conditioning
Cool (With Air Conditioning)	Adjust as Required	Open	Adjust as Required	OFF	Open	ON/MAX
Cool (Without Air Conditioning)	Adjust as Required	Open	Adjust as Required	OFF	Closed	Not Applicable
Heat	HIGH (II) or LOW (I)	Adjust as Required	Open	Adjust as Required	Open	OFF
Pressurize	MAX (III)	Open	Open	ON or OFF	Closed	ON or OFF
Inside Window Moisture Removal	MAX (III)	Open *	Open	ON/MAX	Open **	ON/MED

* Open or Close if Moisture is on Windshield.

** Open or Close if not Humid Outside.

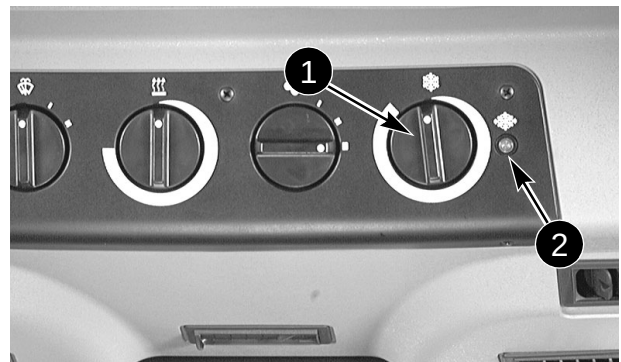
NOTE: Use the maximum (III) settings for fast cooling, fast heat or for fast defrost. Use the high (II) or minimum (I) settings for optimum operator comfort.

NOTE: Under certain conditions the heater fan can run at maximum speed when the control is in the 2nd, 1st or OFF position. This is because of heat build up in a temperature controlled override switch, after a long period of operation, and is a safety feature designed to prevent overheating of resistors in the circuit.

Air Conditioner Operation (If Equipped)

To operate the air conditioner, the blower must be on. The blower speed, temperature control and all vents must be adjusted to obtain the best cooling for the ambient temperature and dust conditions. Under normal operating conditions, and with the windows and doors closed, temperatures in the cab of 6°C to 15°C less than the ambient temperature will occur. When operating the air conditioner system, the moisture level is decreased.

NOTE: During cold weather, with ambient temperature above 0°C, operate the air conditioner at least once per month, for a period of 10 to 15 minutes. This will lubricate the seals to prevent them becoming brittle and help prevent the loss of refrigerant from the system.



1. AIR CONDITIONING CONTROL
2. AIR CONDITIONER PRESSURE INDICATOR

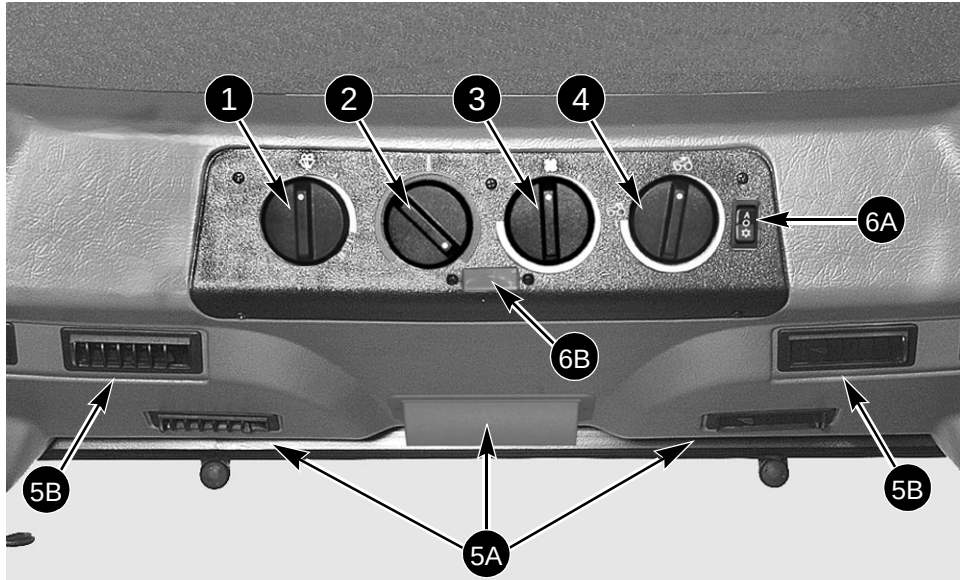
When the pressure indicator lamp is illuminated, the air conditioning system has turned off due to refrigerant pressures that are too high or too low. This can indicate that the system needs service or that the ambient temperature is too cool for air conditioning operation. To start the air conditioner again, turn the control to the OFF position and then back to the ON position.

NOTE: The system has two safety switches to protect the system for low refrigerant level and high restrictions. If, during tractor operation, the air conditioner stops working, see page 243 for more information.

NOTE: The system is equipped with an environmentally safe refrigerant, HFC-R134a. Never recharge the air conditioning system with refrigerant other than HFC-R134a as this will result in loss of cooling and permanent damage to all air conditioning components.

Operating Controls

Automatic Temperature Control System (If Equipped)



MS02J017

1. WINDSHIELD WIPER/WASHER CONTROL - Three Positions:



Intermittent, turn the control clockwise to increase or counterclockwise to decrease wipes per minute.

I Slow.

II Fast.

NOTE: On tractors equipped with the opening windshield there is only one speed.

Push the control knob to activate windshield washer (If Equipped).

2. TEMPERATURE CONTROL - Turn the control clockwise to raise the in-cab temperature. To lower the in-cab temperature turn the control counterclockwise.

3. BLOWER CONTROL - Turn the control clockwise. Keep turning the control clockwise to increase the blower speed.

4. RECIRCULATION CONTROL - Adjust the control as required to regulate amount of fresh air intake/recirculation of air within the cab.



Fresh Air Intake.



Recirculation of air within cab.

5. A. DEFROST LOUVERS -

B. AIR DISCHARGE LOUVERS -

To open or close the louvers and control air flow direction move the louvers from side to side as required. The units can also be adjusted front to rear for added air flow control.

6. AUTOMATIC TEMPERATURE CONTROL -

6A. Control Switch.

6B. Digital Display.

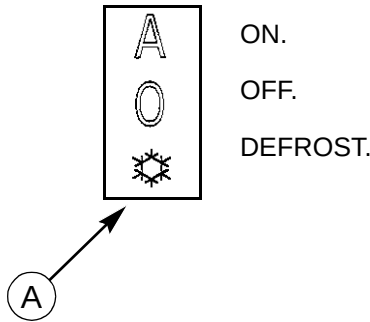
See page 55 for more information.

Operating Controls

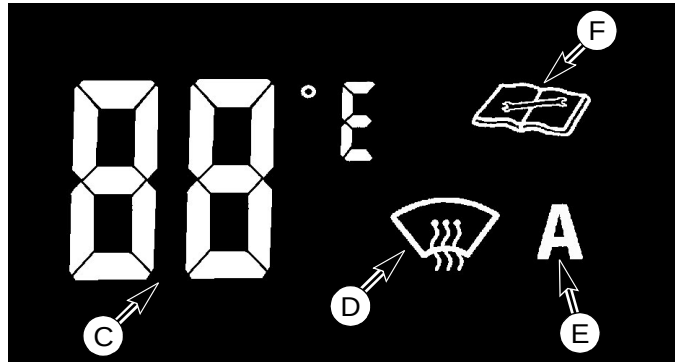
3

Automatic Temperature Control

A. CONTROL SWITCH



B. DIGITAL DISPLAY



- C. TEMPERATURE SETTING
D. DEFROST MODE INDICATOR
E. AUTO MODE INDICATOR
F. SERVICE INDICATOR

Automatic Temperature Control Operation

1. Press the top of the switch (A) to activate the automatic mode. An "A" symbol (E) will appear in the digital display to indicate automatic operation is on.
2. Set the desired cab temperature using the Temperature Control (3), the temperature setting on the display (C) will increase or decrease accordingly.

NOTE: If the temperature is set to either maximum or minimum the "A" symbol (E) will disappear from the display. Turn the Temperature Control knob slightly away from maximum/minimum to return to automatic mode.

NOTE: The temperature display can be set to read the temperature in either degrees centigrade or fahrenheit. This is however not an operator function, for more information see your dealer.

The blower fan speed will automatically regulate to achieve and maintain the desired cab temperature.

NOTE: In cold climates the blower speed will not increase until the heater core is warm. This will prevent cold air being blown on the operator.

3. To override the automatic function simply make a manual adjustment to either the blower speed (4) or recirculation control (5). The "A" symbol (E) will disappear, automatic mode disabled.

To return back to the automatic mode, press the Automatic Temperature Switch (A) to the OFF position (switch in the centre) and then back to ON (press top of switch).

Defrost Control Operation

1. Press the bottom of the switch (A) to activate Defrost Mode. The Defrost Indicator (D) will illuminate on the display.
2. Set the desired cab temperature using the Temperature Control (3).
3. The system will operate the same as in automatic mode to maximise defrost capabilities.

System Diagnostics

If the system fails to function correctly the service indicator (F) will illuminate and an error code will be displayed in the Temperature Setting Display (C).

The error code will alternate between that and the temperature setting.

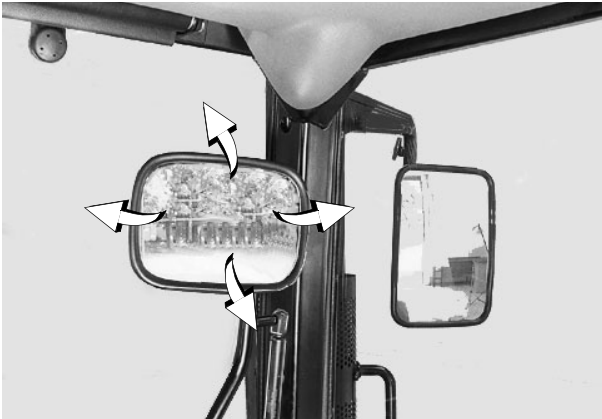
Report all error codes to your dealer.

Operating Controls

REAR VIEW MIRRORS

The mirrors give the operator a clear rear view for distance and an immediate rear view to check implements when working.

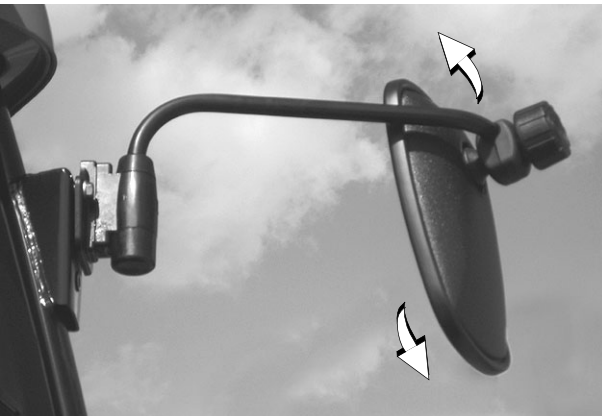
Internal Mirror



DP96J364

To adjust the mirror: hold firmly, tilt horizontally and vertically as required.

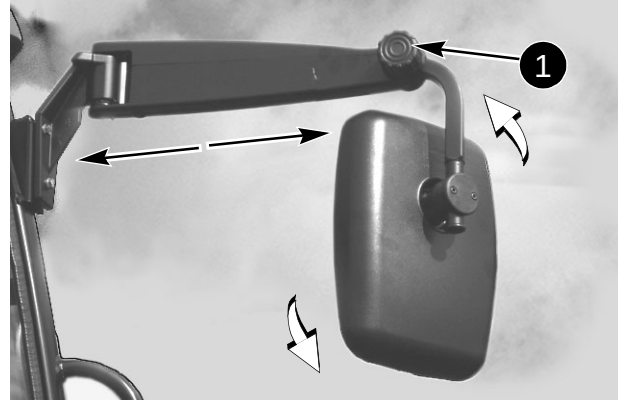
Basic Mirrors



MD04H063

To adjust the mirror head: hold firmly, tilt horizontally and vertically as required.

Extendable Mirrors (If Equipped)

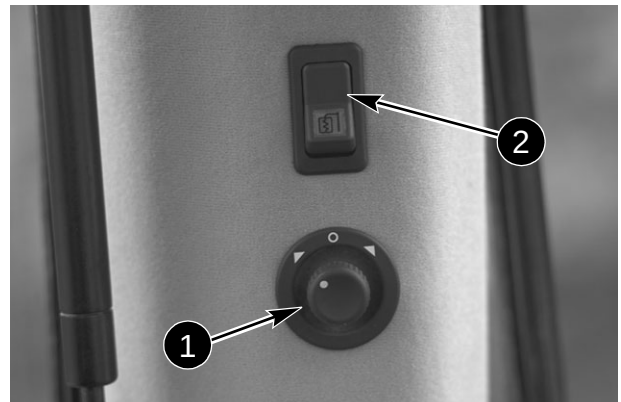


MD04H052

To alter the length: loosen the locking knob (1) and move the mirror to the required position, then tighten the locking knob.

To adjust mirror head: hold firmly, tilt horizontally and vertically as required.

Power Adjust/Heated Mirrors (If Equipped)



MD05E047

POWER ADJUST: Rotate the control knob (1) clockwise to enable the Right Hand Mirror. Use the control (as a joystick) to adjust mirror head as required.

Rotate the control knob (1) counterclockwise to enable the Left Hand Mirror. Use the control (as a joystick) to adjust mirror head as required.

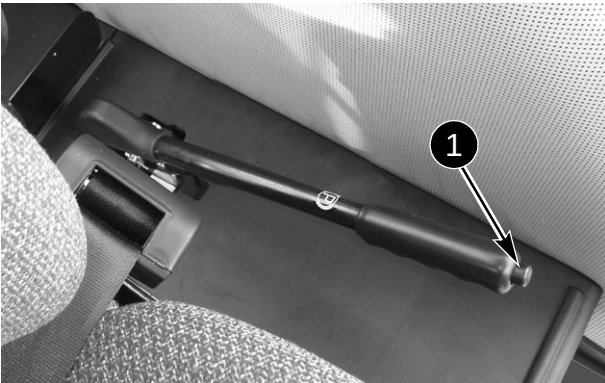
DEFROSTER (HEATER): Press the bottom of the switch (2) to activate the heater. An indicator lamp in the switch will illuminate to indicate the heater is switched on. Press the top of the switch and the heater and indicator lamp will go off.

IMPORTANT: Once the mirror is clear turn the heater off. Never leave the heater on for more than 10 minutes. Failure to switch the heater off will result in damage to the heater element.

Operating Controls

ADDITIONAL CAB FEATURES

Park Brake



MD05M003

The park brake is located at the LH side of the operators seat. Pull the lever fully up to engage the park brake. If you set the tractor in motion release the park brake after putting the tractor in gear, see note. Press the button (1) on the end of the lever IN and lower the lever to release the brake.

When the park brake is engaged the warning lamp on the instrument cluster will illuminate when the keyswitch is turned to ON. The master warning lamp will flash when the engine is started.

The lamps will go off when the brake is disengaged.

NOTE: An audible alarm will sound, when the engine is running, if forward or reverse is selected when the park brake is engaged.

IMPORTANT: Driving the tractor with the park brake partially engaged will cause damage to internal transmission components. Make sure brake is fully off.

Storage Compartment (If Equipped)



MD05F043

Open the lid 180 degrees to create a ideal working platform to support such items as computer equipment.

Cab Rear Window



DD95M217

Ventilation - The lever in the slot (as shown).

Emergency Exit - window fully open.

Sun Visor

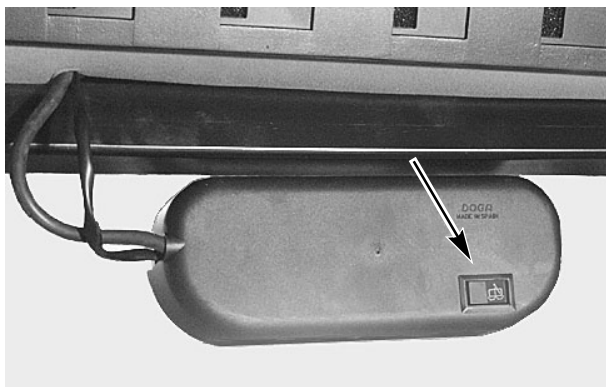


DP96J366

Pull down or push up as required.

Operating Controls

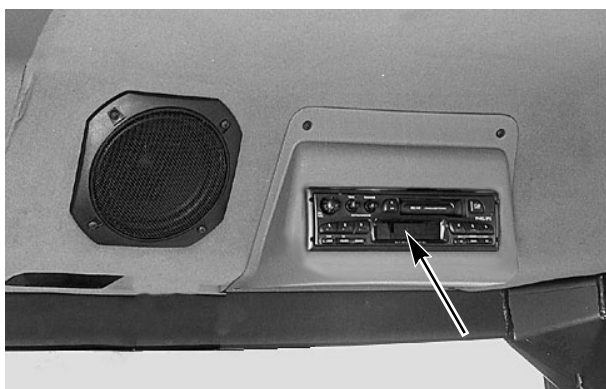
Rear Wiper/Washer (If Equipped)



DD95M219

When looking at the switch:
Right side of switch = On/wash.
Left side of switch = Off.

Radio (If Equipped)



DP96J357

For operation refer to the radio manufacturers instructions.

Auto Hitch Locking Latches Release Control (If Equipped)



MD04D014

This control is located to the side of the seat on the right hand side.

While holding the Ride Control switch down, pull the auto hitch release control to unlock the locking latches.

For more information on Auto Hitch operation, see page 118.

Opening Windshield (If Equipped)



DP96H290

Release catches, (one each side) and push the bottom outward. **DO NOT** open the windshield when using a front loader.

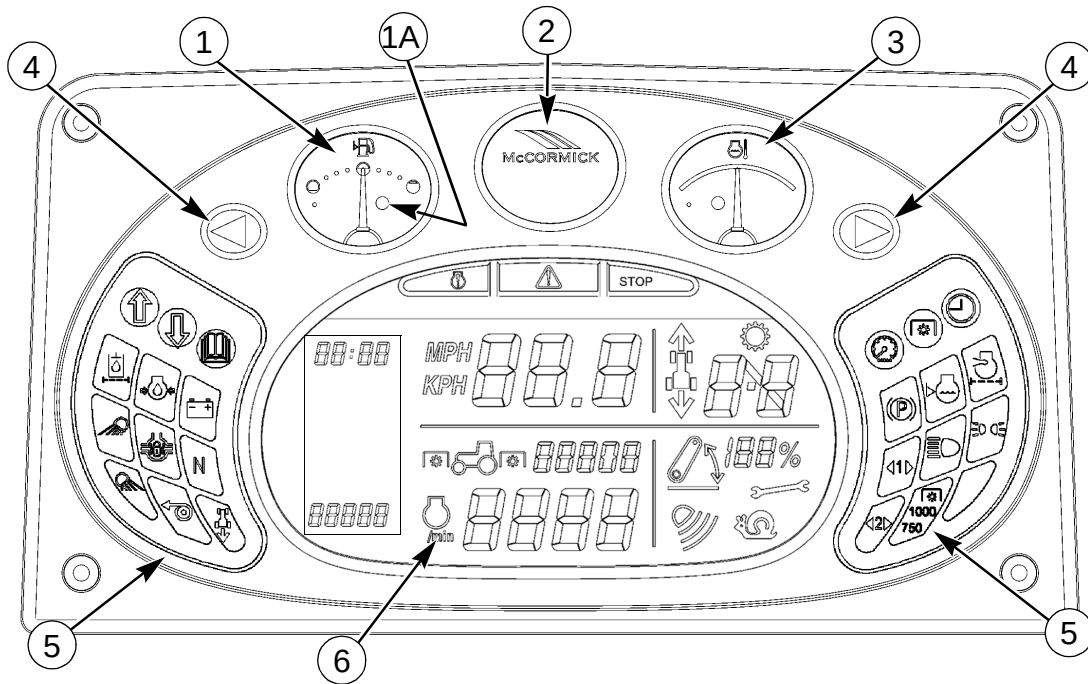
Instruments and Programming

Chapter 4 Instruments and Programming

4

Instruments and Programming

INSTRUMENTATION



MI03C064

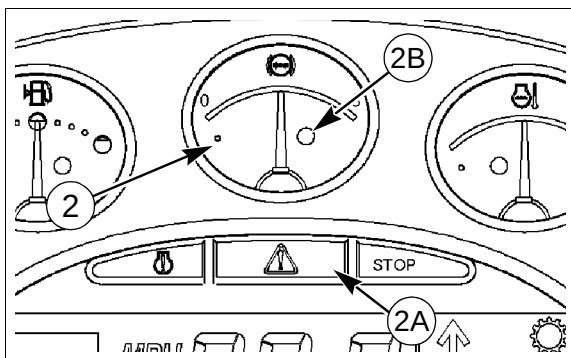
1. FUEL LEVEL GAUGE

1A. LOW FUEL WARNING LAMP

2. McCORMICK LOGO

or

AIR PRESSURE GAUGE (If Equipped) - indicates system pressure for pneumatic trailer brakes.



MI03D106

NOTE: If the pressure drops below 4 bar (58 psi) the master warning lamp (2A) and low air pressure lamp (2B) will illuminate and an audible alarm will sound.

3. ENGINE COOLANT TEMPERATURE GAUGE -

Yellow area: low temperature.

Green area: normal working temperature.

Red area: high operating temperature.

IMPORTANT: If the pointer is in the red area, the master warning lamp will flash. **STOP THE ENGINE AND CHECK THE CAUSE OF OVERHEATING.** Make sure the engine is cool before starting any inspection.

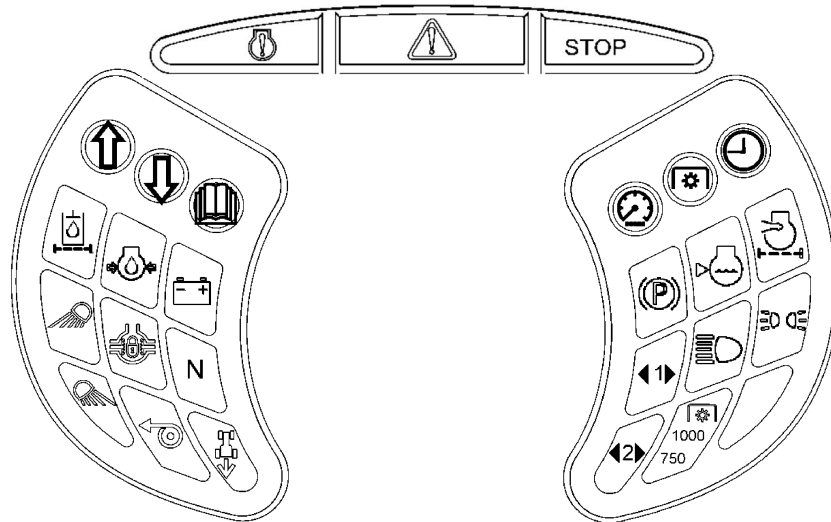
4. TURN SIGNAL INDICATOR LAMPS

5. INDICATOR LAMPS - see page 61 for details.

6. MAIN DIGITAL DISPLAY - see page 62 for more details.

Instruments and Programming

INDICATOR LAMPS



MI03C068 & MI03C069

4

1. POSITION LAMPS ILLUMINATED - Green.
2. LOW ENGINE OIL PRESSURE WARNING - Red.
3. ENGINE AIR FILTER RESTRICTION - Amber.
4. LOW COOLANT LEVEL WARNING - Red.
5. MFD ENGAGED - Green.
6. HYDRAULIC HIGH PRESSURE OIL FILTER RESTRICTION - Red.
7. DIFFERENTIAL LOCK ENGAGED - Green.
8. HEADLAMP HIGH BEAM - Blue.
9. PARK BRAKE ENGAGED - Red.
10. ALTERNATOR CHARGE - Red.
11. FRONT WORKLAMPS - Amber.
12. REAR WORKLAMPS - Amber.
13. FIRST TRAILER TURN SIGNAL - Green.
14. SECOND TRAILER TURN SIGNAL - Green.

15. MAXIMUM PTO OPTION ENGAGED - Amber.
16. SHIFT F/N/R LEVER TO NEUTRAL - Amber.
17. REVERSE GEAR SELECTED - Green.

Critical Indicator Lamps

The following lamps are part of the tractor management and illuminate or flash to warn the operator when a critical fault occurs.

18. MASTER WARNING LAMP - Amber.

This lamp will flash when the engine is running and the park brake is engaged, the engine oil pressure is low (along with the engine stop lamp), the coolant is low and when the coolant temperature is in the red area.

This lamp also illuminates when the key switch is turned to the ON position.

19. ENGINE STOP LAMP - Red.

If this lamp illuminates the management system has detected a major fault with the tractor.

STOP the engine **IMMEDIATELY** and contact your McCormick dealer.

20. ENGINE WARNING LAMP - Amber.

If this lamp illuminates (and remains ON) the management system has detected a minor fault with the tractor. Contact your McCormick dealer at your convenience.

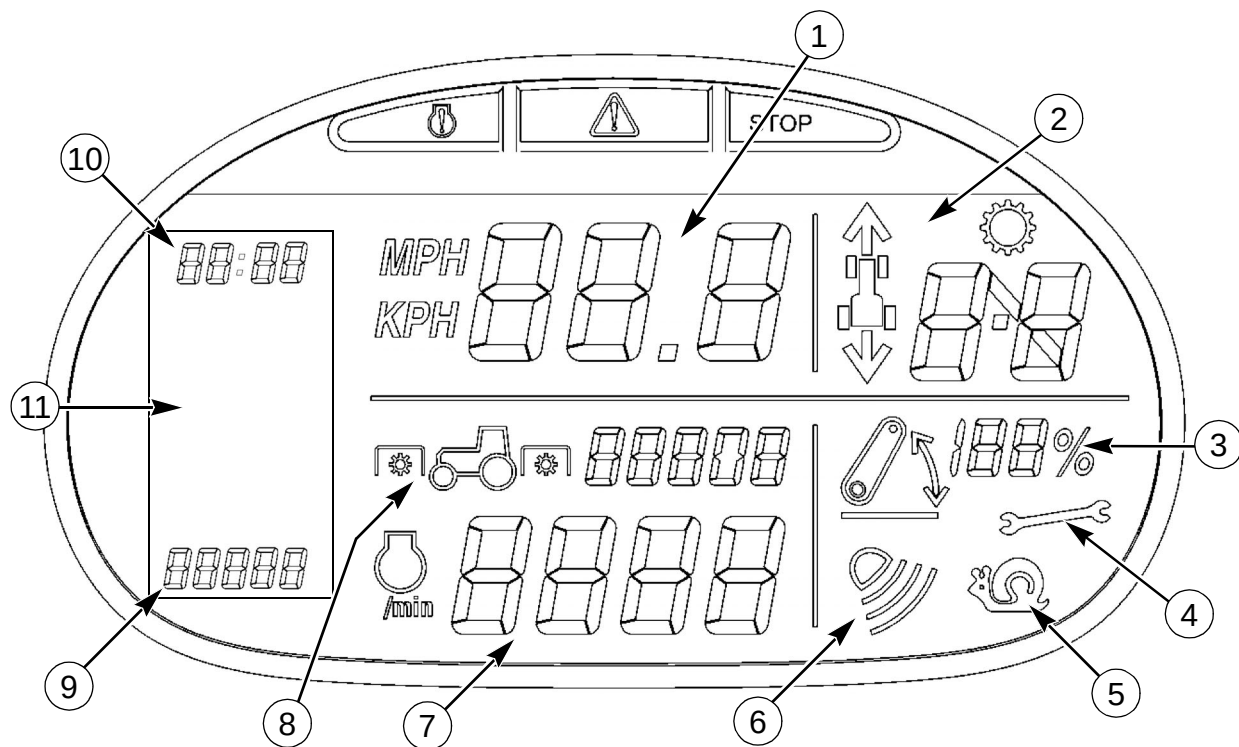


STOP



Instruments and Programming

MAIN DIGITAL DISPLAY



M103C067

1. SPEEDOMETER -
Tractor travel speed in mph or km/h as indicated.

2. TRANSMISSION GEAR/DIRECTION OF TRAVEL INDICATOR -
Indicates which transmission gear has been selected and what direction the tractor is travelling in.

3. HITCH POSITION INDICATOR -
Shows an accurate position of the rear hitch.

4. SERVICE INDICATOR -
Indicates when a maintenance procedure is required. Refer to the Universal Data Display for further detail in establishing which service is required.

5. CREEPER SPEED INDICATOR -
Indicates when Creeper is engaged.

6. TRUE GROUND SPEED SENSOR INDICATOR -
Refer to main manual for further information.

7. ENGINE RPM/FRONT OR REAR PTO RPM -
Engine or Front/Rear PTO RPM.

Press  to view either engine rpm and PTO rpm as required.

8. PTO RPM SELECTION INDICATOR-
Indicates which PTO option has been engaged, eg. 540 or 1000 rpm.

9. ENGINE HOURMETER -
Shows the total number of engine hours the tractors has accumulated.

10. CLOCK -
Refer to next page.

11. UNIVERSAL DATA DISPLAY -
This screen provides various menus from service reminders, tractor performance and other cluster programming menus. See page 65. for further information.

Instruments and Programming

CLOCK SETTINGS

To Change Display To Read 12 Or 24 Hours:

STEP 1

Press  momentarily

To Change The Time Setting:

STEP 1

Press  and hold for 2 seconds.

STEP 2

Two horizontal lines will appear under the hour digits.

 Using   change the HOUR accordingly.

STEP 3

Press  momentarily to store new hours.

STEP 4

Two horizontal lines will now appear under the minute digits.

 Using   change the MINUTES accordingly.

STEP 5

Press  momentarily to store new minutes.

STEP 6

To exit and store the new time setting, Press  and hold for 2 seconds.

Instruments and Programming

CLUSTER CONTRAST/BRIGHTNESS ADJUSTMENT

There are three separate adjustments that can be made on the cluster:

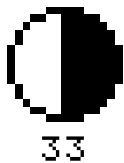
1. The contrast of the Universal Data Display.
2. The brightness of the Main Digital Display.
3. The intensity of the Indicator Lamps.

The settings can be adjusted for both day and night time settings. To change day-time setting simply follow the procedure below. To change the night-time settings turn on your head lamps and then follow the procedure below:

STEP 1

Press  and hold for 2 seconds.

The current **CONTRAST** setting will be displayed:.

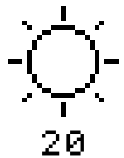


Using   change the contrast accordingly.

Press  momentarily to store new contrast setting.

STEP 2

The current **BRIGHTNESS** setting will now be displayed:.



Using   change the brightness accordingly, 1 = 5% up to 20 = 100%.

Press  momentarily to store new brightness setting.

STEP 3

The current indicator lamp **INTENSITY** setting will now be displayed:.



Using   change the intensity accordingly. 1 = LOW, 20 = HIGH.

STEP 4

Press  and hold for 2 seconds to store all new settings and exit.

Instruments and Programming

UNIVERSAL DATA DISPLAY

The Universal Data Display provides various menus from service reminders, tractor performance and other cluster programming menus. The display will show different information depending upon Keyswitch position.

1. IGNITION ON/RUN MODE (Keyswitch one position clockwise from OFF). - The display provides tractor performance information, service reminders, calibration procedures, wheel slip etc. etc.
2. ACCESSORY (PROGRAMMING) MODE (Keyswitch one position counterclockwise from OFF). This position will allow the operator to program certain parts of the cluster.

1. IGNITION ON/RUN MODE

During normal operation

While the tractor is in operation the cluster and various controllers are monitoring the tractors performance. On occasions the cluster will display certain messages/symbols on the universal data display to advise the operator.



Wait-To-Start.

Do not try and start the engine with this symbol illuminated. Wait until the symbol goes off before trying to start the engine.

This symbol may also illuminate after start up to indicate the heater is still activated.



Water in fuel detected.

Drain fuel filter.



Tractor Malfunction.

An error has been detected and an error code has been generated (active errors only).

Identify Active Errors:

Press the menu button to enter the menu.



Each controller is shown on the Display,

Example:

ENG	= ENGINE
IC	= INSTRUMENT CLUSTER
CC	= CAB CONTROLS
TC	= TRANSMISSION
HC	= ELECTRONIC HITCH
CS	= CAB SUSPENSION
AVC	= AUXILLIARY VALVE CONTROLS
AVC 1,	= AUXILLIARY VALVES
2 etc.	

followed by the number of indentified errors for each controller.

Example:

ENG
0 No engine errors.

Using the UP button scroll through to the next controller to establish if it has detected errors.



IC
1 One cluster error detected.

To view error codes, Press the menu button.



103 Error Code 103.

NOTE: If more than one error code has been generated use the UP button to scroll through and identify the next error code.



Press the menu button to exit the menu. Report all error codes to your dealer.



Instruments and Programming

Entering The Programming Mode

STEP 1



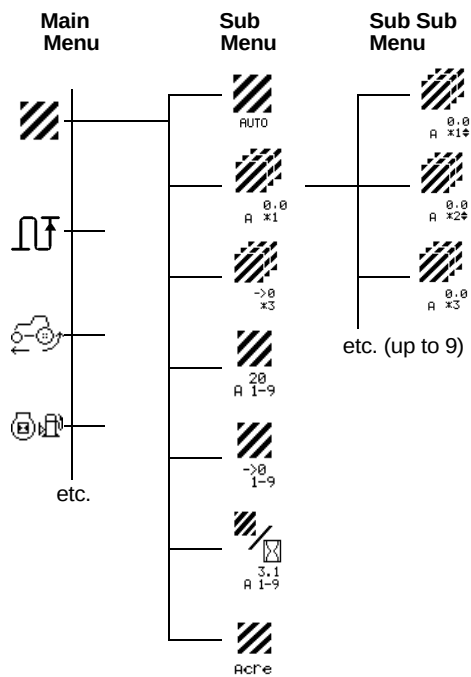
Press and hold the menu button for 2 seconds.

STEP 2



Use the UP button scroll through each menu until you reach the required display.

The programming structure consists of a number main menus. Certain main menus are then subsequently split into sub menus and sub sub menus. An example of the programming structure is shown below.

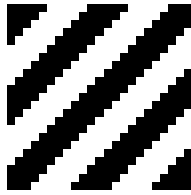


Exit the programming mode at any time by turning the key switch to the OFF position. When the key switch is turned to the on position the cluster will return to its normal operating mode.

NOTE: The number of menus and the menu order will vary depending on tractor model.

Instruments and Programming

Area Function (Menu 1)



The area function can display the sub-total area worked per field (up to a maximum of 9 fields), the total area worked (the total of all fields worked) and the area worked per hour.

NOTE: Prior to using the area function the implement width must be programmed into the cluster. See *Programming Implement Width (Menu 5)* on Page 88 for correct procedure.

NOTE: For trailed implements, a connector is provided on the harness behind the seven terminal auxiliary electrical socket, to connect an implement position switch. This will turn the area function off when not required. Refer to main manual for further information with regard to the external implement switch.

NOTE: You **MUST** first enter the main menu before being able to view the sub menus, as explained on Page 66.

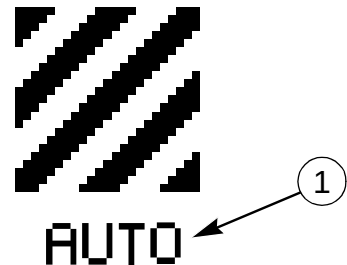
To change the current area function status (Menu1-1):

STEP 1



Momentarily press the menu button to enter the sub menu.

The current area function status (1) will be displayed under the area icon.



STEP 2



Momentarily press the menu button again.



Use the UP and Down buttons to change the status accordingly.

OFF = Area Function Off.



MAN (ON) = Area Function On.

AUTO = Auto Mode will only accumulate the area worked when the implement is in the lowered position (working). The area count will turn on and off automatically when using either the hitch raise/lower switch, or an external implement switch, which has been connected into the wiring harness.

STEP 3



Momentarily press the menu button to store the new setting and return to the main menu.

Instruments and Programming

**To select a specific field and view area worked with that field
(Menu 1-2):**

STEP 1



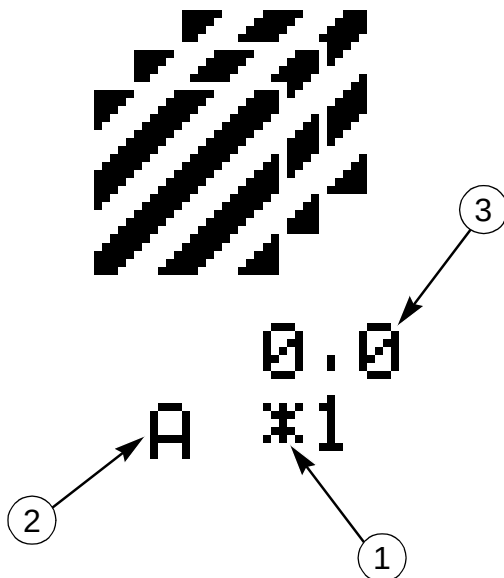
Momentarily press the menu button to enter the sub menu.

STEP 2



Use the UP button to scroll through the sub menus until the field selection menu is displayed, as shown below.

NOTE: The STAR (1) next to the field number identifies which field is currently selected, (up to a maximum of nine).

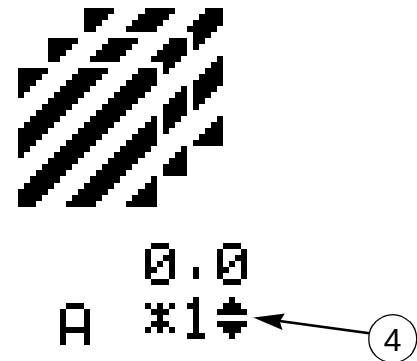


- 3. CURRENT FIELD SELECTED
- 4. UNIT OF MEASUREMENT
- 5. AREA COVERED

Once you have found the correct menu,



momentarily press the menu button again to enter the sub sub menu. The scroll up/down symbol (4) will appear next to the current field selected.



STEP 3



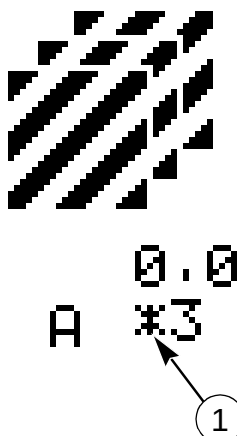
Use the UP and Down buttons to scroll through the sub sub menus until the required field is found.



STEP 4



Momentarily press the menu button to store the new field.



NOTE: The STAR (1) next to the field number should appear to identify the new field has been successfully selected.

Instruments and Programming

**To reset a specific field area counter to zero
(Menu 1-3):**

STEP 1



Momentarily press the menu button to enter the sub menu.

STEP 2



Use the UP button to scroll through the sub menus until the correct menu is displayed, as shown below.

NOTE: The STAR (1) next to the field number identifies which field is currently selected.



Once you have found the correct menu,



momentarily press the menu button again to enter the sub sub menu. The scroll up/down symbol will appear next to the current field selected.

STEP 3



Use the UP and Down buttons to scroll through the sub sub menus until the required field is found.



STEP 4



Momentarily press the menu button and the area counter will zero, will return to the sub menu and display the current field selected.

**To view the total area worked (of all fields, up to a maximum of nine)
(Menu 1-4):**

STEP 1

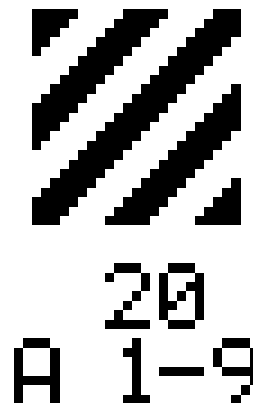


Momentarily press the menu button to enter the sub menu.

STEP 2



Use the UP button to scroll through the sub menus until the correct menu is displayed, as shown below.



STEP 3



Use the UP and Down buttons to scroll through to the next sub menu.



Instruments and Programming

To reset the total area counter to zero (Menu 1-5):

STEP 1

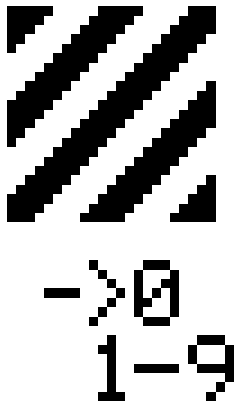


Momentarily press the menu button to enter the sub menu.

STEP 2



Use the UP button to scroll through the sub menus until the correct menu is displayed, as shown below.



Once you have found the correct menu, momentarily press the menu button to reset the total area counter.



NOTE: When you reset the total area counter each individual field counter will also be reset and will return to Menu 1-4.

To view the total area per hour (of all fields, up to a maximum of nine) (Menu 1-6):

STEP 1



Momentarily press the menu button to enter the sub menu.

STEP 2



Use the UP button to scroll through the sub menus until the correct menu is displayed, as shown below.



STEP 3



Use the UP and Down buttons to scroll through to the next sub menu.

Instruments and Programming

Programming hectares or acres (Menu 1-7):

STEP 1

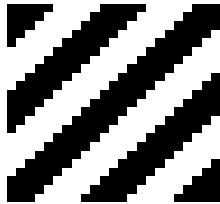


Momentarily press the menu button to enter the sub menu.

STEP 2



Use the UP button to scroll through the sub menus until the correct menu is displayed, as shown below.



Acre

4

STEP 3



Momentarily press the menu button to enter the sub menu.



Use the UP and Down buttons to change the unit of measurement.



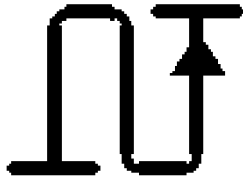
Momentarily press the menu button to store the new setting and return to the sub menu.



NOTE: If you hold the menu button you will exit the programming mode.

Instruments and Programming

Distance Function (Menu 2)



The distance function records and displays the distance travelled.

Within the Distance menu there are three sub menus, one to turn the distance function On/Off, one to read current distance travelled and one to read a accumulative distance travelled.

NOTE: The units for distance travelled is automatically selected based upon the ground speed units.

eg. If your cluster is programmed for mph, then miles will be displayed. If your cluster is programmed for km/h, then kilometers will be displayed.

NOTE: You **MUST** first enter the main menu before being able to view the sub menus, as explained on Page 66.

To start the distance function (Menu 2-1):

STEP 1



Momentarily press the menu button to enter the sub menu.

STEP 2



Use the UP button to scroll through the sub menus until the correct menu is displayed, as shown below.



On

Once you have found the correct menu,



momentarily press the menu button again to enter the sub menu. The scroll up/down symbol (1) will appear next to the current status.



On

1

STEP 3



Use the UP and Down buttons to turn the distance function ON or OFF.

STEP 4



Momentarily press the menu button to store the new status and return to the sub menu.

Instruments and Programming

To view the current total distance worked (Menu 2-2):

STEP 1

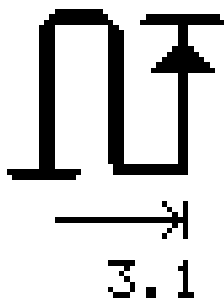


Momentarily press the menu button to enter the sub menu.

STEP 2



Use the UP button to scroll through the sub menus until the correct menu is displayed, as shown below.



To reset the counter:,



simply press the menu button and the total area will zero.

To view the accumulative total distance worked (Menu 2-3):

STEP 1

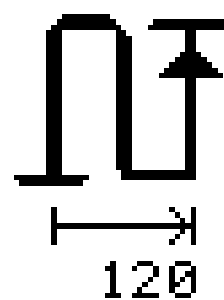


Momentarily press the menu button to enter the sub menu.

STEP 2



Use the UP button to scroll through the sub menus until the correct menu is displayed, as shown below.



To reset the counter:,

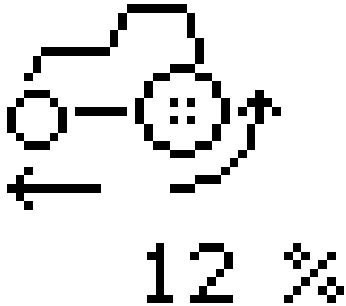


simply press the menu button and the total area will zero.

NOTE: When you reset the accumulative total counter the current total counter will also reset to zero.

Instruments and Programming

Percentage Wheel Slip (Menu 3)



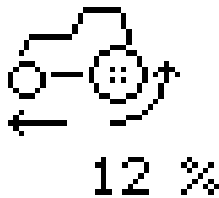
This screen will show the actual wheel slip and by entering the programme menu the slip limit can be changed.

STEP 1



Momentarily press the menu button to enter the menu.

The current wheel slip setting will be displayed.



Use the UP and Down buttons change the setting accordingly.

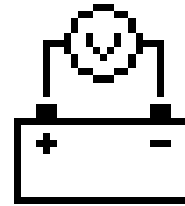


Maximum setting is 25% and the minimum is 10%.



Momentarily press the menu button to store the new setting and return to the main menu.

Electrical System Voltage (Menu 4)

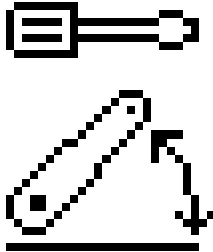


12.0

This screen displays the approximate electrical system voltage.

Instruments and Programming

Cluster Hitch Position Display Calibration (Menu 5)



For the cluster to display an accurate hitch position the hitch needs to be calibrated.

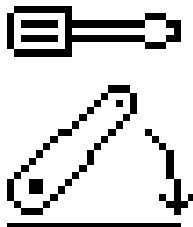
STEP 1



Momentarily press the menu button to enter the calibration mode.

STEP 2

The 'lower the hitch' icon will appear on the display.

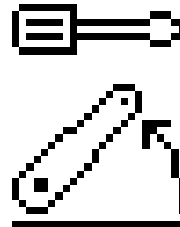


Lower the hitch to the bottom stop.

Press  to store the lower hitch position.

STEP 3

The 'raise the hitch' icon will now appear on the display.



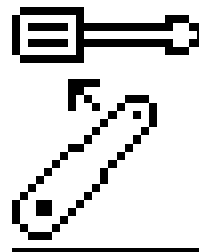
Raise the hitch to the upper limit.

NOTE: Make sure the Upper Limit Control is set to maximum (11) position.

Press  to store the upper hitch position.

STEP 4

The 'hitch override' icon will appear on the display.

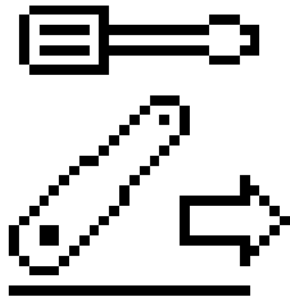


Press  again and return to the main menu.

Calibration is now completed.

Instruments and Programming

Rear Hitch Calibration (Menu 6)



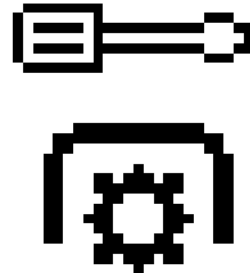
The McCormick Electronic Hitch system is calibrated when leaving the factory, however under certain circumstances it will be necessary to re-calibrate the hitch, (ie due to a hitch repair or if the control module is replaced).

This is NOT an operator menu.

DO NOT press  to enter this menu.

Entering this menu will effect the tractors operation.
See your dealer for more information.

Rear PTO Calibration (Menu 7)



The McCormick PTO system is calibrated when leaving the factory, however under certain circumstances it will be necessary to re-calibrate the PTO.

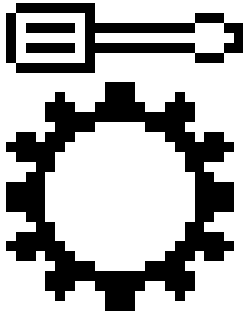
This is NOT an operator menu.

DO NOT press  to enter this menu.

Entering this menu will effect the tractors operation.
See your dealer for more information.

Instruments and Programming

Transmission Calibration (Menu 8)



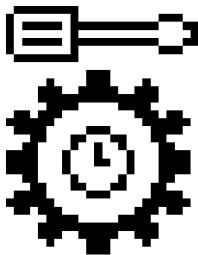
The XtraSpeed transmission is calibrated when leaving the factory, however under certain circumstances it will be necessary to re-calibrate the transmission.

This is NOT an operator menu.

DO NOT press  to enter this menu.

IMPORTANT: ENTERING THIS MENU WILL SERIOUSLY EFFECT THE TRACTORS OPERATION. ONLY COMPETENT PERSON(S) SHOULD CARRY OUT THIS PROCEDURE.

If the following icon appears on the screen, you have accidentally entered the transmission calibration procedure.

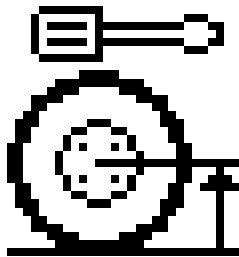


Immediately turn the key switch to the OFF position to exit.

See your dealer for more information.

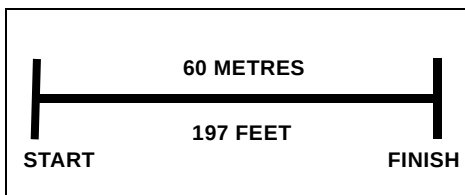
Instruments and Programming

Dynamic Calibration (Menu 9)



Prior to entering the Dynamic Calibration Mode:

STEP 1



Mark off a straight line distance of 60 metres (197 ft). Use an acceptable method to mark the start line and finish line.

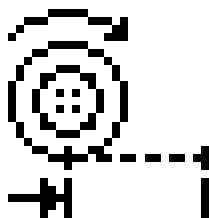
To enter the Dynamic Calibration Mode:

STEP 2

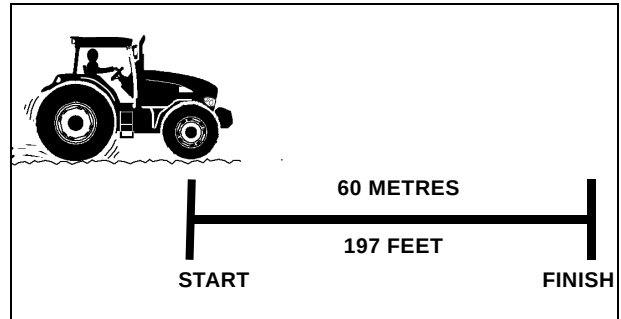


Momentarily press the menu button to enter the calibration mode.

The cluster will prompt you to drive the tractor to the start line by displaying the following icon.



STEP 3



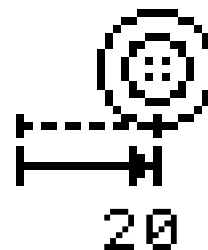
DI96J517

Start the tractor and drive SLOWLY toward the start line.

When the tractor reaches the start line, momentarily press the UP button.



The number of pulses displayed on the cluster will start to increase and the following icon will be displayed.



STEP 4

When the tractor reaches the finish line, momentarily press the UP button.



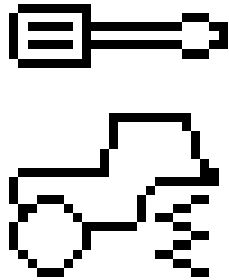
The number of pulses displayed will be stored automatically into the cluster.

Press  to return to the main menu.

Calibration is now completed.

Instruments and Programming

Cab Suspension Calibration (Menu 10)



Although the McCormick Cab Suspension system is calibrated when leaving the factory, it will be necessary to re-calibrate if the cab or any of the suspension components are removed. Also if any of the linkages are adjusted or if the control module is replaced.

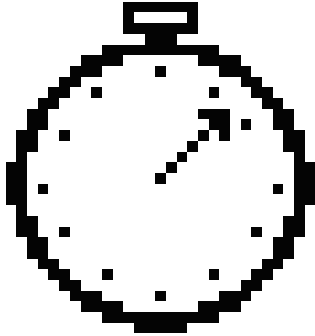
This is NOT an operator menu.

DO NOT press  to enter this menu.

Entering this menu will effect the tractors operation.
See your dealer for more information.

Instruments and Programming

Timer Function (If Equipped) (Menu 11)



The timer function gives the operator the ability to record the time spent in any individual field (up to a maximum of 9 fields) and the total elapsed time of all the selected fields.

The timer will display the elapsed time in minutes and hours.

NOTE: You **MUST** first enter the main menu before being able to view the sub menus, as explained on Page 66.

To start the timer function (Menu 11-1):

STEP 1

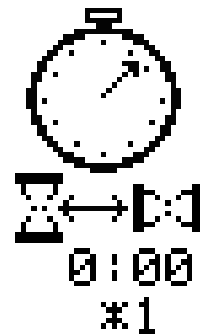


Momentarily press the menu button to enter the sub menu.

STEP 2



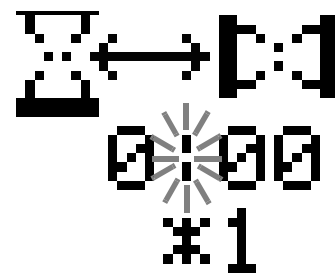
Use the UP button to scroll through the sub menus until the correct menu is displayed, as shown below.



Once you have found the correct menu,



momentarily press the menu button to start the timer.



The colon symbol will start flash to indicate the time function is active.

The timer will display the elapsed time in minutes and hours.

STEP 3



Momentarily press the menu button to stop the timer.

Instruments and Programming

To select a specific field (Menu 11-2):

The timer function is not limited to one field. The elapsed time can be recorded in a total of nine fields.

STEP 1



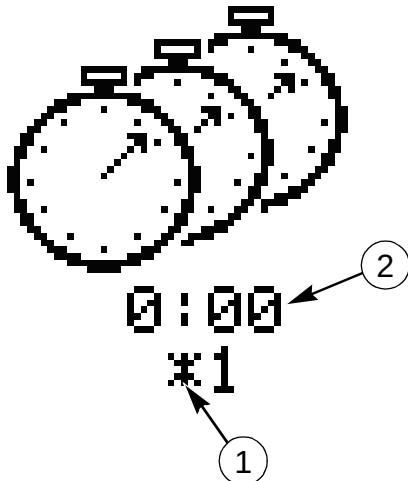
Momentarily press the menu button to enter the sub menu.

STEP 2



Use the UP button to scroll through the sub menus until the field selection menu is displayed, as shown below.

NOTE: The STAR (1) next to the field number identifies which field is currently selected, (up to a maximum of nine).

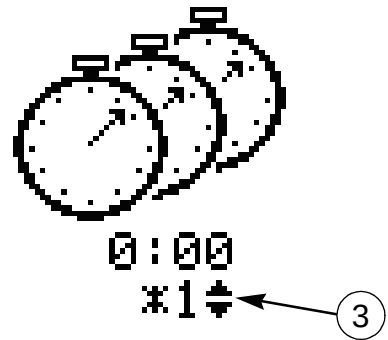


- 1. CURRENT FIELD SELECTED
- 2. TIME TAKEN

Once you have found the correct menu,



momentarily press the menu button again to enter the sub sub menu. The scroll up/down symbol (3) will appear next to the current field selected.



STEP 3



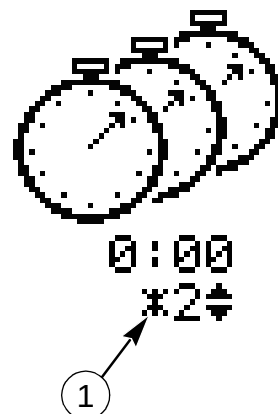
Use the UP and Down buttons to scroll through the sub sub menus until the required field is found.



STEP 4



Momentarily press the menu button to store the new field.



NOTE: The STAR (1) next to the field number should appear to identify the new field has been successfully selected.

Instruments and Programming

To reset a specific field timer to zero (Menu 11-3):

STEP 1



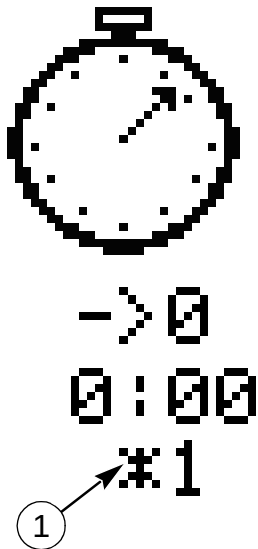
Momentarily press the menu button to enter the sub menu.

STEP 2



Use the UP button to scroll through the sub menus until the correct menu is displayed, as shown below.

NOTE: The STAR (1) next to the field number identifies which field is currently selected.



Once you have found the correct menu,



momentarily press the menu button again to enter the sub sub menu. The scroll up/down symbol will appear next to the current field selected.

STEP 3



Use the UP and Down buttons to scroll through the sub sub menus until the required field is found.



STEP 4



Momentarily press the menu button and the area counter will zero, will return to the sub menu and display the current field selected.

To view the total time (of all fields, up to a maximum of nine) (Menu 11-4):

STEP 1

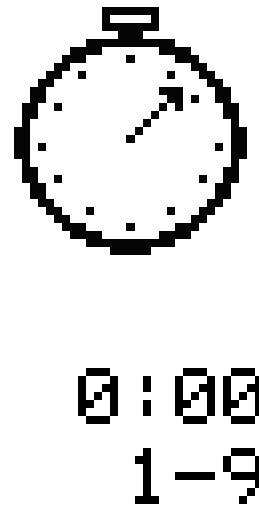


Momentarily press the menu button to enter the sub menu.

STEP 2



Use the UP button to scroll through the sub menus until the correct menu is displayed, as shown below.



STEP 3



Use the UP and Down buttons to scroll through to the next sub menu.



Instruments and Programming

To reset the total timer to zero (Menu 11-5):

STEP 1

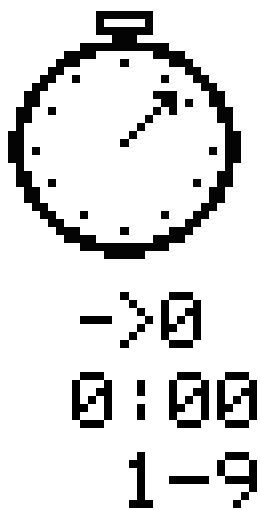


Momentarily press the menu button to enter the sub menu.

STEP 2



Use the UP button to scroll through the sub menus until the correct menu is displayed, as shown below.



Once you have found the correct menu, momentarily press the menu button to reset the total area counter.



NOTE: When you reset the total timer each individual field counter will also be reset and will return to Menu 11-4.

Instruments and Programming

2. **ACCESSORY MODE -** **(One position counterclockwise from OFF)**

Entering The Programming Mode

STEP 1



Press and hold the menu button for 2 seconds.

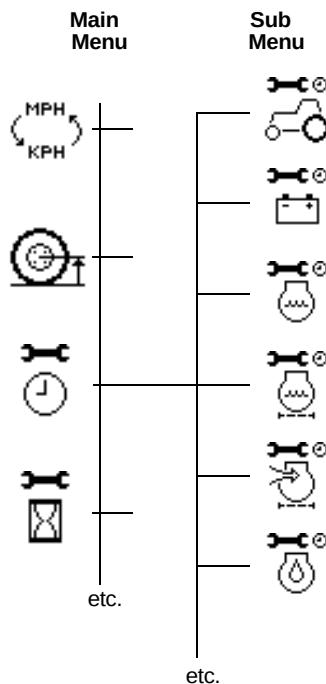
STEP 2



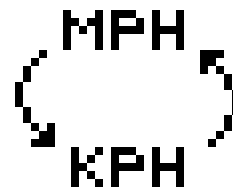
Using the UP and Down buttons scroll through each menu until you reach the required display.



The programming structure consists of a number main menus. Certain main menus are then subsequently split into sub menus. An example of the programming structure is shown below.



Programming MPH or km/h (Menu 1)



STEP 1



Momentarily press the menu button to enter the menu.



Use the UP and Down buttons to change the setting accordingly.



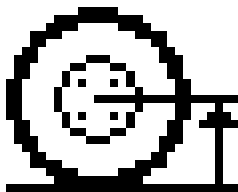
STEP 2



Momentarily press the menu button to store the new setting and return to the main menu.

Instruments and Programming

Programming Tyre Radius (Menu 2)



In order for the cluster to display the correct ground speed, the correct tyre radius constant must be programmed. This setting is normally programmed into the cluster at the factory and should not have to be changed. However if different wheel/tyre equipment is installed then the new tyre radius constant must be programmed into the cluster.

Use the table below to determine the correct radius constant to be programmed into the cluster.

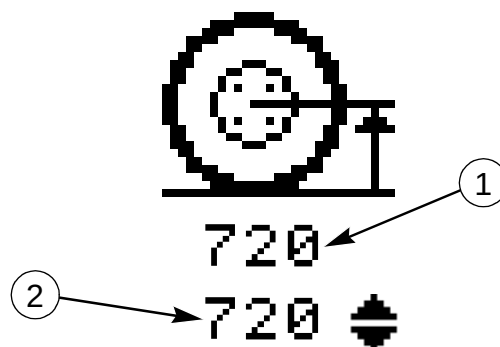
REAR TYRE SIZE	ETRTO ROLLING RADIUS (mm)
420/85R38 (16.9R38)	800
480/70R38	800
520/85R38 (20.8R38)	875
600/65R38	825
650/65R38	875
460/85R38 (18.4R38)	825
520/70R38	825
580/70R38	875
620/70R38	875
710/70R38	925
460/85R42 (18.4R42)	875
520/85R42 (20.8R42)	925
650/65R42	925
620/70R42	925
340/85R46	830
380/85R46 (14.9R46)	835
460/85R46 (18.4R46)	890

The radius can differ depending on tyre manufacturer, tyre wear, tyre pressures and load. The tyre radius constants quoted in the table above will provide the correct tractor ground speed, however the if a more accurate reading is required then a dynamic calibration is recommended. See page 78. for further information.

STEP 1



Momentarily press the menu button to enter the menu.



The current tyre radius constant (1) will be shown under the icon and directly under that will be the new constant to be programmed (2).

STEP 2



Use the UP and Down buttons to change the constant accordingly.



STEP 3



Momentarily press the menu button to store the new constant and return to the main menu.

Instruments and Programming

Programming the Service Intervals (Menu 3)



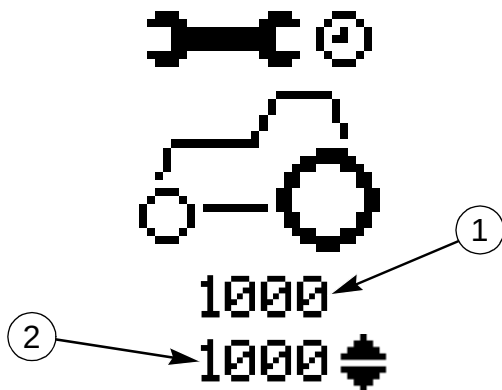
This menu allows the you to program numerous service reminders. With each service item programmed, once the relevant time has elapsed the service indicator symbol will illuminate.

Within the Service Timers menu there are numerous sub menus. Each menu allowing the operator to program the relevant service interval. These service intervals will normally be factory set and will correspond with the Service Interval Quick Reference Chart found in the Lubrication Section of this manual, however they may be changed as required.

STEP 1



Momentarily press the menu button to enter the menu.



The current service interval (1) will be shown under the icon and directly under that will be the new interval to be programmed (2).

STEP 2



Use the UP and Down buttons to change the service interval accordingly.



STEP 3



Momentarily press the menu button to store the new interval and return to the main menu.

STEP 4

If you wish to change a further service interval you will have to enter the menu again.



Momentarily press the menu button to enter the menu.



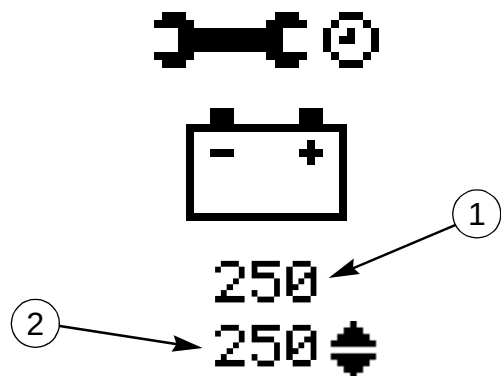
Use the UP and Down buttons to scroll through the menus until you reach the required service.



STEP 5



Momentarily press the menu button.



Once again the current service interval (1) will be shown under the icon and directly under that will be the new interval to be programmed (2).

Instruments and Programming

STEP 6



Use the UP and Down buttons to change the service interval accordingly.



STEP 7



Momentarily press the menu button to store the new interval.

By pressing the button again you will exit the sub menus and return to the main menu.

Repeats steps 4 to 7 as required.

Icon Recognition



Tractor Main Service



Battery



Engine Coolant



Engine Air Filters



Engine Oil



Engine Oil Filter



Engine Fuel Filter



Transmission/Hydraulic Oil



Transmission/Hydraulic Filters



Cab Air Filter



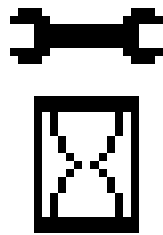
Transmission/Hydraulic Strainer



Engine Coolant Filter

Instruments and Programming

Service Reminders (Menu 4)



This menu displays the total number of hours remaining before a service is due for each of the pre programmed service intervals, (as per the previous menu).

STEP 1



Momentarily press the menu button.

STEP 2



Press either the UP and Down buttons to display the relevant service icon and the hours remaining before the next service is required.



As each service interval has elapsed the service indicator symbol (Spanner/Wrench) will illuminate on the main digital display.

STEP 3

To Reset the each Timer



Find the relevant service icon to be reset by scrolling through the sub menus (as per steps 1 and 2). Double press the menu button to enter the menu.

STEP 4



Momentarily press the UP button to reset the relevant programmed service interval.

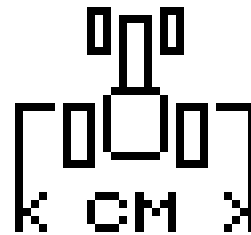
NOTE: If the service interval is not reset the service reminder will continue to count and a minus sign "-" prefix will be displayed along with the total number of engine hours the tractor has run beyond the programmed service interval.

STEP 5



Momentarily press the menu button to return to the main menu.

Programming Implement Width (Menu 5)



To calculate an accurate Area Worked it is necessary to programme the correct implement width into the cluster.

STEP 1



Momentarily press the menu button.

STEP 2



Use the UP and Down buttons to change the implement width accordingly.



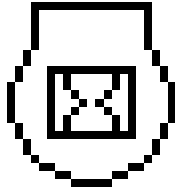
STEP 3



Momentarily press the menu button to store the new implement width and return to the main menu.

Instruments and Programming

Programming the OLd Instrument Cluster Hours (Menu 6)



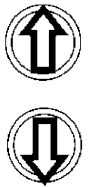
The cluster hourmeter display reading can not be changed. A new cluster will always start recording at '0". If a new cluster is installed, the recorded hours from the old cluster can be programmed into a separate 'OLd hour display in the new cluster. This function provides the option to store and display the hours recorded by a replaced cluster, so an accurate recording of the tractors total hours can be kept electronically.

STEP 1



Momentarily press the menu button.

STEP 2



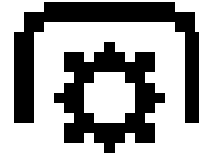
Use the UP and Down buttons to input the old cluster engine hours accordingly.

STEP 3



Momentarily press the menu button to store the old hours and return to the main menu.

PTO Constants (ALL PTO options) (Menu 7)

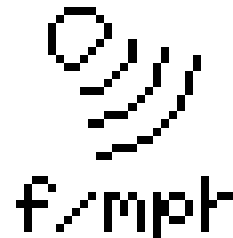


Although these constants can be viewed by the operator **this is NOT an operator menu.**

DO NOT press  to enter this menu.

Entering this menu will effect the tractors operation. See your dealer for more information.

True Ground Speed Sensor (Radar) Constant (Menu 8)



If a true ground speed radar is installed via the factory a constant will have been programmed into the cluster. However if a McCormick radar is installed as a dealer option it will be necessary to programme the cluster.

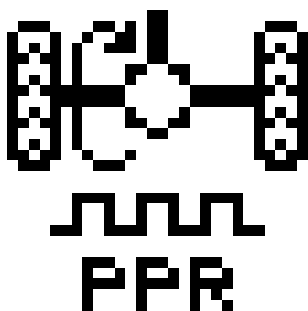
Although these constants can be viewed by the operator **this is NOT an operator menu.**

DO NOT press  to enter this menu.

Entering this menu will effect the tractors operation. See your dealer for more information.

Instruments and Programming

Axle Ratio Constants (Menu 9)

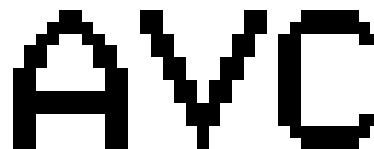


Although these constants can be viewed by the operator **this is NOT an operator menu.**

DO NOT press  to enter this menu.

Entering this menu will effect the tractors operation.
See your dealer for more information.

Programming the Auxiliary/ Remote Valve Constants (Menu10)



The XTX series tractors are equipped with either mechanical or electronic remote/auxillary valves. It is necessary to programme the relevant option into the cluster to allow correct operation. This constant will have been programmed before leaving the factory.

Although these constants can be viewed by the operator **this is NOT an operator menu.**

DO NOT press  to enter this menu.

Entering this menu will effect the tractors operation.
See your dealer for more information.

Chapter 5 Operation

5

Operation

GENERAL OPERATION

Before Starting The Engine



WARNING: An Operator Presence Safety Switch is fitted on this tractor. *ONLY* operate the tractor when sitting on the seat. *DO NOT* try to bypass the Operator Presence Safety Switch, for example, by putting heavy objects on the seat. This can result in serious injury or death.



WARNING: Before starting the engine, be sure all operating controls are in neutral and the park brake is engaged. This will eliminate accidental movement of the machine or start up of power driven equipment.



WARNING: Never start the engine in a closed building. Proper ventilation is required under all circumstances.

Do the following checks before starting the tractor for the first time.

1. Check all fluid levels; ie. engine crankcase, transmission, coolant (in the recovery bottle) and fuel tank etc.

When checking the fuel level make sure the tank is filled with clean fuel of the specifications given in this manual. Make sure all persons that operate or do maintenance on the tractor understand that clean fuel is important.

Clean around the fuel tank cap before you remove the cap.

2. Check all lubrication fittings.
3. Check the water level in the batteries.
4. Check all around the tractor for leaks.
5. Check that all drive belts are adjusted correctly.
6. Remove any water or sediment from the fuel primary filter.
7. Check the air pressure of the tyres.
8. If your tractor has a power takeoff, make sure the safety guard is installed and in good condition.

Run In Procedure

If run-in instructions for a new engine are not followed, you can cause damage to piston rings and cylinder bore.

Load

During the first eight hours of operating the tractor in the field, operate in one gear range lower than normal. During the next 12 operating hours, **DO NOT OVERLOAD** the engine. To prevent OVERLOADING put the transmission in a lower gear range. A new engine must not be operated with excessive loads at low engine rpm.

No Load

Do not run the engine for long periods at idle speed. When not operating the engine with a load, you can keep the correct engine operating temperature if you run the engine at approximately 1500 RPM.

STARTING PROCEDURE



WARNING: On electrically operated MFD tractors, the MFD clutch is spring loaded into engagement and relies on hydraulic pressure for disengagement. A failure in the MFD hydraulic system will therefore automatically engage the MFD even though the MFD switch is in the disengaged position. This is a built in safety feature. **DO NOT** operate MFD tractor transmissions with the rear wheels off the ground or removed, **UNLESS THE FRONT WHEELS ARE ALSO JACKED UP CLEAR OF THE GROUND OR THE FRONT AXLE DRIVE SHAFT IS DISCONNECTED.** Failure to do this can result in the tractor being pulled off the rear supports by the front axle.



WARNING: Operate controls only when seated in the Operators seat.

STEP 1

Tractors with a Master Disconnect Switch

Make sure the switch is in the ON position.

STEP 2

Tractors with a 3 Position (F/N/R) Shuttle Lever

Put the shuttle lever in the NEUTRAL position.

NOTE: If the shuttle lever is not in neutral position the engine **WILL NOT** start.

STEP 3

Tractors with a 4 Position (F/N/R/P) Shuttle Lever

Put the shuttle lever in the PARK position.

NOTE: If the shuttle lever is not in park position the engine **WILL NOT** start.

STEP 4

Tractors with a Mechanical Transmission

Put the Range lever in the NEUTRAL position.

STEP 5

Move the throttle lever to 1/4 open position.

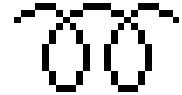
IMPORTANT: It is important to operate the engine at idle speed for a few minutes to make sure that enough lubricant reaches the turbocharger bearings and engine parts before operating the engine at rated speed.

STEP 6

Turn the keyswitch to the ON position and pause for a second before turning the keyswitch to the start position. This will allow the tractors electronic control systems to energise and communicate with each other. Once started, run the engine for approximately 2 minutes.

IMPORTANT: Do not hold the key in the Start position for more than 30 seconds before releasing the key. Wait three minutes between starts to allow the starter motor to cool.

NOTE: When trying to start the engine during cold temperatures the WAIT-TO-START symbol (shown opposite) may illuminate on the instrument cluster. Wait until the symbol goes off before trying to start the engine.



This symbol may also illuminate after start up to indicate the heater is still activated.

NOTE: Once the engine starts the symbol **!** will be displayed on the cluster for 1 to 2 seconds while the tractor goes through a self test. If the symbol remains on then an error has been detected. See page 65 for error code retrieval.

IMPORTANT: If the engine starts and then stops wait for the starter motor to stop turning before you turn the key switch to the start position again.

STEP 7

Check that all indicator lamps are giving normal indications and, when warm, that the coolant temperature gauge is in the green area.

NOTE: During operation the "state" of the tractor is being constantly monitored by various systems. These systems will be shown active or engaged via the illumination of indicator lamps or information shown on the instrument cluster. If during operation any warning lamps illuminate or the **!** symbol is displayed, a problem has been detected on the tractor. Stop the engine immediately and check for the cause. Indicator lamp functions and error code retrieval information can be found in the Instruments and Programming section of this manual.

Operation

COLD TEMPERATURE OPERATION

Before you start the engine and operate your tractor during cold ambient temperatures, check the following items:

- BATTERIES - Must have a full charge.
- FUEL - Must be clean and contain no water.
- ENGINE OIL - Must have the correct viscosity for the ambient temperature range.
- TRANSMISSION HYDRAULIC FLUID - Must have correct oil. Use McCormick HTX transmission fluid.
- COOLING SYSTEM - Must have a minimum of 33 percent and a maximum of 50 percent low silicate ethylene glycol solution for protection. This ratio will vary with different market requirements.
- TYRES - If there is liquid in the tyres, the tyres must have protection against freezing temperatures below 0°C. See your dealer.
- STOPPING THE ENGINE - Permit the engine temperature to decrease before stopping.
- CONDENSATION IN FUEL TANK - To prevent condensation in the fuel tank and water entering the fuel system, fill the fuel tank after each operating day.
- FUEL FILTER - During cold ambient temperatures, make sure you remove water from the fuel filter each day or damage will occur. Loosen the drain plug each day before starting the engine. Tighten the drain plug after the water has drained.

IMPORTANT: *During cold ambient temperatures never run the engine at low idle speed for long periods of time. Never run the engine for long periods of time when the coolant temperature is below normal.*



WARNING: *To assist cold weather starting DO NOT spray ether or gasoline into the air induction manifold. To do so could cause an explosion and injury.*

During cold ambient temperatures, the engine will not heat to or keep the rated operating temperature at slow engine speeds. Slow engine speeds in cold temperatures can cause damage to the engine. Use the following procedures to warm the engine oil and transmission oil and to keep the correct operating temperatures.

1. WARMING THE ENGINE AND TRANSMISSION.

- A. To heat the transmission oil, run the engine at 1500 rpm for approximately five minutes.

2. KEEP ENGINE AT CORRECT OPERATING TEMPERATURE.

- A. When the engine is operating in cold ambient temperatures without a load, keep the engine warm as described below.
- B. Run the engine at approximately 1500 rpm.
- C. Put a cover in front of the grille to control the amount of air going through the radiator.

3. STOPPING THE ENGINE.

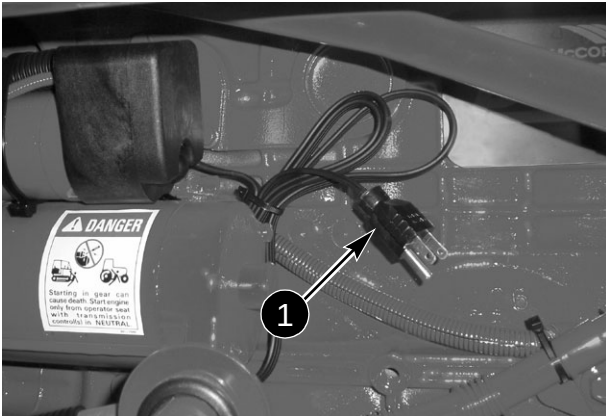
- A. Run the engine at slow speed for a short period of time. This will permit the engine temperature to decrease gradually before stopping the engine.

Engine Block (Coolant) Heat Maintainer (If Equipped)

The heater element is installed in the engine block and will keep the engine coolant at a warm temperature for improved cold temperature starting.

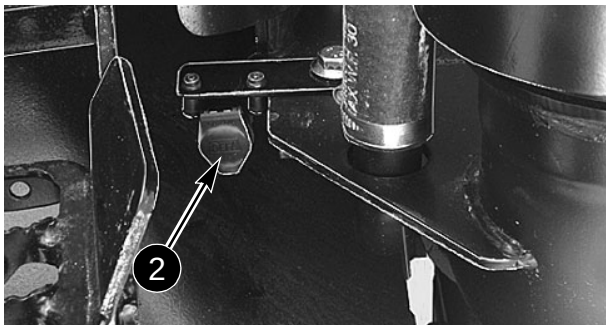
NOTE: Use a heavy duty three wire extension cord if required.

North American Tractors (120 Volts):

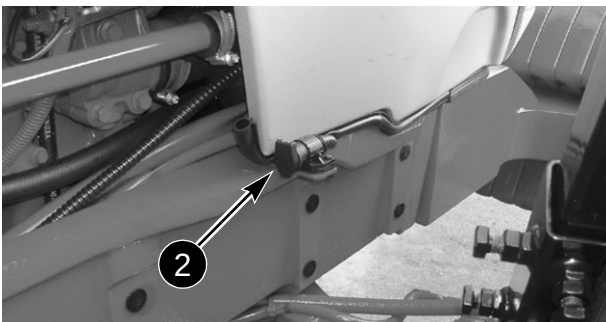


Connect a mains supply to the connector plug (1), located directly on the engine block.

Rest or World Tractors (220/240 Volts):



LOCATION A
(Located next to the RH Step)



LOCATION B
(Located on the Tractor Front Frame)

Connect a mains supply to the connector plug (2).

Transmission Oil Heat Maintainer (Dealer Option)

Depending upon market, your dealer may be able to offer a transmission oil heater for your tractor. The heater will keep the transmission oil warm for improved cold temperature starting.

See your dealer for more information.

Engine Oil Pan Heat Maintainer (Dealer Option)

Depending upon market, your dealer may be able to offer an engine oil pan heater for your tractor. The heater will keep the engine oil warm for improved cold temperature starting.

See your dealer for more information.

NOTE: The heater is installed in the RH side of the oil pan and has a rating of 300 watts at 120 volts. Connect the heater to a 120 volt AC grounded outlet. Use a heavy duty three wire extension cord if required.

Fuel Heat Maintainer (Dealer Option)

Depending upon market, your dealer may be able to offer an fuel heater for your tractor. The heater will keep the fuel warm for improved cold temperature starting.

See your dealer for more information.

Operation

STOPPING THE ENGINE AND PARKING THE TRACTOR

STEP 1

Park the tractor. Once the tractor is stationary, put the Forward/Reverse shuttle lever into NEUTRAL or PARK position, as equipped.

IMPORTANT: *DO NOT engage "PARK" until the tractor has come to a complete standstill. Serious damage to the transmission could result.*

STEP 2

Tractors with a Mechanical Transmission

Put the Range lever in the NEUTRAL position.

STEP 3

Disengage the PTO if in operation.

STEP 4

Move the throttle lever fully rearward to the low idle position for three to five minutes to decrease the temperature of the engine and turbocharger, before stopping the engine.

IMPORTANT: *This procedure is very important if the engine has been operating under heavy load. It will allow the engine and turbocharger temperature to decrease gradually.*

STEP 5

Tractors with Independent Front Suspension

Fully lower the axle to the bottom mechanical stop.

STEP 6

Apply the Park Brake.

STEP 7

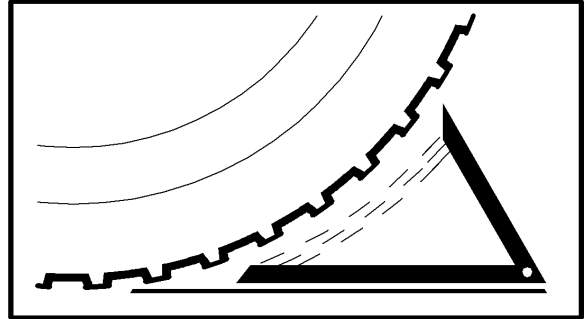
Turn the keyswitch to the Off position and remove the key.

IMPORTANT: *NEVER turn the keyswitch to the "Off" position while the tractor is moving. Serious damage to the transmission could result.*

STEP 8

Turn off master disconnect switch (if equipped) and remove the master switch key.

Folding Wheel Wedge (If Equipped)

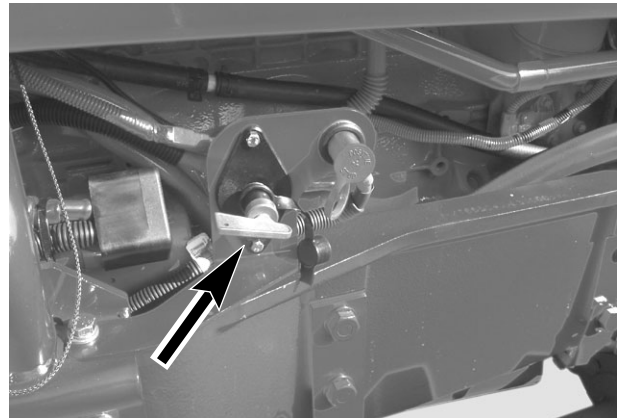


OM1401

Use the wheel wedge in front of or behind a rear wheel, (depending on the direction of the tractor), when parking the tractor on a slope.

IMPORTANT: *To prevent accidents do not park the tractor with equipment raised.*

Master Disconnect Switch (If Equipped)



MD05F175

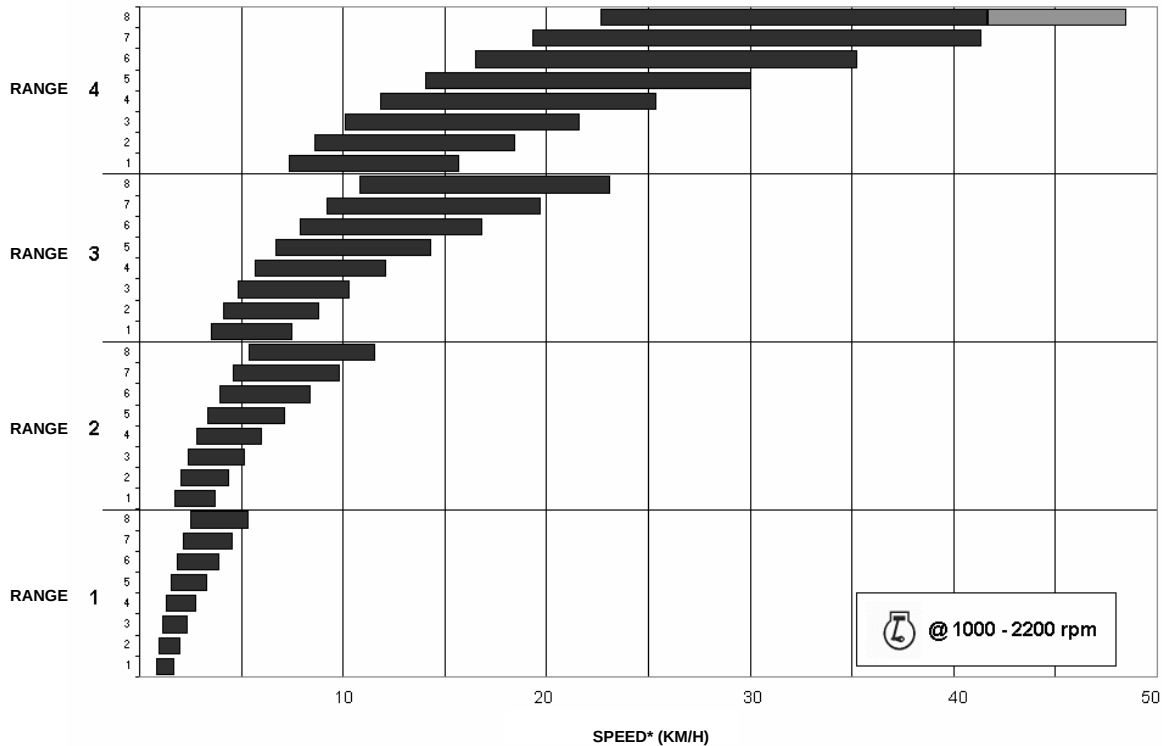
Use the master disconnect switch to disconnect the battery power from the electrical systems on the machine, when leaving the tractor or during servicing to prevent accidental start up.

The key can be removed to prevent unauthorized use or accidents.

IMPORTANT: *DO NOT, unless in an emergency, use the master disconnect switch to stop the engine.*

OPERATING THE XtraSpeed TRANSMISSION

The XtraSpeed transmission is a 32 speed (4 ranges x 8 powershift speeds) transmission and is available in mechanically and electronically controlled versions.



- **MECHANICAL TRANSMISSION (XtraSpeed)** - This transmission utilises a 8 speed powershift system which allows clutchless shifting within each range.

Range changes are made using either the clutch pedal or de-clutch button (located on the front of the range lever). Forward/Reverse shuttle can be made without using the clutch pedal.

- **ELECTRONIC TRANSMISSION (XtraSpeed-E or XtraSpeed-Eplus)** - These transmission options also have an 8 speed powershift system, but are operated via push buttons located on the Multi Control Lever.

Electronic shifting allows ALL 32 speeds to be changed via the push buttons thus replacing the range lever. Forward/Reverse shuttle can be made without using the clutch pedal.

- **CREEPER TRANSMISSION** - Available on all transmission options creeper doubles the amount of gears available to the operator in ranges 1 and 2. Creeper is engaged electronically via a switch on the right hand console and without the need to depress the clutch pedal.

See the following pages for correction operating instructions on all transmission variants.

Operation

XtraSpeed MECHANICAL TRANSMISSION OPERATION

NOTE: In ambient temperatures of -10°C or below, the transmission and controls could be difficult to operate for the first few minutes after starting, until the transmission oil is warm.

Starting Ground Travel

STEP 1

Start the tractor, see page 93 for correct starting procedure. On engine start-up the default for the transmission is 5th Powershift speed (in ranges 1, 2 or 3). If 4th range is engaged, on engine start-up the transmission will default to 1st powershift.

STEP 2



MD04H046

Push the clutch pedal fully down and select the range and powershift speed to suit the load.

Disengage the park brake.

NOTE: The maximum gear the tractor can be driven from stationary is 4-1.

STEP 3



MD04C022

Select FORWARD or REVERSE and slowly release the clutch pedal. The tractor will start moving.

IMPORTANT: The Forward/Reverse shuttle lever must only be moved with the operator sitting on the seat. If the lever is moved without the operator sitting on the seat the tractor will not move. The operator must sit on the seat and move the lever back into NEUTRAL and then into FORWARD to start the tractor moving.

Selecting Speeds with Tractor Moving

STEP 4

Adjust engine speed, transmission range and/or powershift speed as required.

Powershift Change

The powershift switch can be shifted to any position when the tractor is moving.

Method A:

Momentarily rotating and releasing the powershift switch up or down will shift the transmission one speed at a time, respectively.

Method B:

Rotating and holding the powershift switch either up or down will shift the powershift speeds sequentially to the maximum/minimum speed (up to 8th or down to 1st) or until the switch is released.

The speed selection will be displayed on the instrument cluster.

Range Change

When a Range change is required either press down the clutch pedal or press and hold the de-clutch button (1) and move the lever to the new range. Release the clutch pedal/button.

The transmission will sense the range change and will aim to select the nearest powershift speed in the new range selected, providing the tractor does not stop.



MD02H062

Shuttle Shifting

When changing the direction of travel this can be done with or without using the clutch pedal.

Always slow the tractor speed to a minimum before moving the forward/reverse shuttle lever to the desired direction of travel.

NOTE: When shuttling from forward to reverse in 1st or 2nd range (any powershift speed) the transmission will remain in the same range and powershift speed in reverse.

When shuttling forward to reverse in 3rd or 4th range (any powershift speed) the transmission will remain in the same range but select 1st powershift. If the operator then shuttles back to forward the transmission will remain in 1st powershift.

Speed Matching

Speed Matching operates in 4th range only.

When either the clutch pedal or de-clutch button is FULLY depressed and then released, with the tractor in motion, the transmission will automatically downshift to match a decrease in ground speed and engage a suitable powershift speed that best matches the ground to engine speed.

This feature can be used during transport or road operation.

Example:

When the tractor is approaching a road junction the operator will reduce ground speed. If the road ahead is clear the operator can FULLY depress the clutch pedal then release. The transmission will automatically select the appropriate powershift speed to match the ground speed and engine rpm maintaining forward momentum.

Parking The Tractor

Stationary Tractor Operation (Engine Running)

If you leave the tractor while the engine is running ALWAYS make sure both the forward/reverse shuttle and the transmission are in NEUTRAL.

STEP 1

Bring the tractor to a standstill. Put the Forward/Reverse shuttle lever in NEUTRAL or PARK position, as equipped and apply the Park Brake.

STEP 2

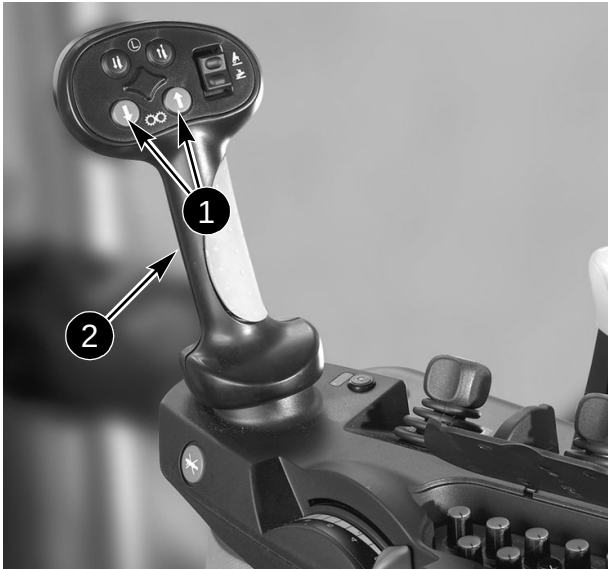


MD04H046

Put the range lever in the NEUTRAL position.

Operation

XtraSpeed-E and XtraSpeed-Eplus ELECTRONIC TRANSMISSION OPERATION



MD05F045

1. GEAR SELECTION SWITCHES
2. RANGE SKIP SWITCH

The photographs used within this explanation show the XtraSpeed-Eplus transmission option, however the procedure is the same for the XtraSpeed-E transmission.

NOTE: In ambient temperatures of -10°C or below, the transmission and controls could be difficult to operate for the first few minutes after starting, until the transmission oil is warm.

Programmable Start Gears (Drive Engagement)

On starting the engine the factory default for the transmission is gear 2-5 (2nd range/5th powershift) in forward and in reverse.

New start gears can be programmed by the operator. This allows the operator to bypass the lower gears and initially engage any desired start gear.

Starting gears all programmable from 1-1 (1st range/1st powershift) up to 3-5 (3rd range/5th powershift).

To change the Start Gears the key switch must be in the on position (**engine must NOT be running**).

1. Depress the clutch pedal and move the forward/reverse shuttle lever into forward.
2. Press either gear selection switch up or down to select a higher or lower gear respectively. If an audible alarm sounds, this is to signify a range change is required.

To change range release the Gear Selection switch. Press the switch again and hold until the new range is displayed on the instrument cluster.

Continue to press the relevant gear selection switch until the desired start up gear is obtained.

3. To store the start gear, press and hold both Gear Selection Switches for approximately 2 seconds. An audible alarm will sound to confirm the new start gear has been stored.

Place the shuttle lever into neutral and turn the keyswitch to the OFF position.

Starting Ground Travel

STEP 1

Start the tractor, see page 93 for correct starting procedure.

On engine start-up the default for the transmission is gear 2-5 (2nd range/5th powershift) in forward and in reverse unless a preset start gear has been programmed, then the transmission will start in the preselected start gear.

See page 100 for correct procedure on programming different start gears.

STEP 2

Disengage the park brake.

STEP 3



MD04C022

Select FORWARD or REVERSE and slowly release the clutch pedal. The tractor will start moving.

IMPORTANT: The Forward/Reverse shuttle lever must only be moved with the operator sitting on the seat. If the lever is moved without the operator sitting on the seat the tractor will not move. The operator must sit on the seat and move the lever back into NEUTRAL and then into FORWARD to start the tractor moving.

NOTE: The maximum gear the tractor can be driven from stationary is 4-1.

Selecting Speeds with Tractor Moving

STEP 4

Adjust engine speed, transmission gear as required.



MD05F045

1. GEAR SELECTION SWITCHES

Method A:

Momentarily pressing and releasing either of the Gear Selection switches shifts the transmission up or down one gear at a time within that range. If an audible alarm sounds, this is to signify a range change is required. To change range release the Gear Selection switch. Press the switch again and hold until the new range is displayed on the instrument cluster.

Method B:

Pressing and holding either switch will shift the transmission gears sequentially within that range. When the audible alarm sounds, release the Gear Selection switch. Press the switch again and hold until the new range is displayed on the instrument cluster.

To continue sequential gear changes you will now need to release the relevant switch. Press the switch again and hold, the transmission will then change gears sequentially within that range until the alarm sounds again, thus signifying another range change is required. Repeat the procedure as quoted above to continue up/down the transmission gears.

Operation

NOTE 1: Under certain operating conditions (ie. on inclines during heavy trailer work) the tractor may stop and initially roll backwards during range changes. In this instance applying the foot brakes will hold the tractor until the range change has been made.

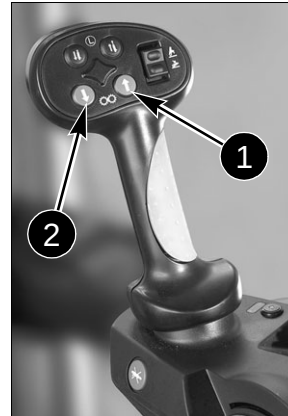
NOTE 2: When ever the tractor is being operated under heavy load (ie. ploughing etc.), when the transmission changes range the tractor will stop. It is recommended prior to selecting the next range, the operator depresses the clutch pedal. This will enable a smooth take-up of drive when the clutch pedal is released.

NOTE 3: The initial configuration of the software will only allow the operator to make a range change by holding either the UP or DOWN Gear Selection switch for a period of 1 second.

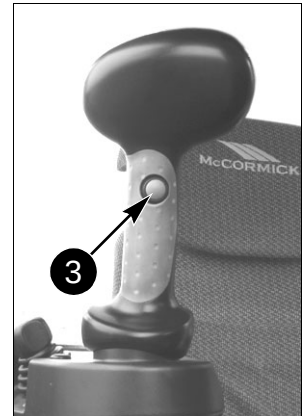
It is possible to remove the 1 second delay by pressing and holding both the Range Skip switch and UP Gear Selection switch and then starting the engine. An audible alarm will sound to indicate the 1 second delay has been removed. This change will be stored in the memory until the system is reconfigured.

If the 1 second delay is required this can be reset by pressing the Range Skip switch and DOWN Gear Selection switch and starting the engine.

Range Skip Shift



MD05F045A



MD04G009

1. UP GEAR SELECTION SWITCH
2. DOWN GEAR SELECTION SWITCH
3. RANGE SKIP SWITCH

UP Shifts - Tractor Stationary:

Pressing the Range Skip switch (3) in conjunction with the **UP** Gear Selection switch (1) the transmission will:

- A. (In powershift speeds 1, 2, 3 or 4) select the 1st powershift speed within the next range.
- B. (In powershift speeds 5, 6, 7 or 8) select the 5th powershift speed within the next range.

UP Shifts - Tractor Moving:

By pressing the Range Skip switch (3) in conjunction with the UP Gear Selection switch (1), the transmission will sense the range change and aim to select the nearest powershift speed in the new range selected, providing the tractor does not stop. If the tractors stops (ie. due to high draft loads) the transmission will select 1st powershift in the next range.

DOWN Shifts - Tractor Stationary ONLY:

Pressing the Range Skip switch (3) in conjunction with the **DOWN** Gear Selection switch (2) will allow the transmission to shift down to the next range, same powershift.

Example:

If the transmission is in 3-6 (3rd range/6th powershift) and you press Range Skip and the DOWN Gear Selection Switch the transmission will shift to 2-6 (2nd range/6th powershift).

Shuttle Shifting

When changing the direction of travel this can be done with or without using the clutch pedal.

Always slow the tractor speed to a minimum before moving the forward/reverse shuttle lever to the desired direction of travel.

NOTE: When shuttling from forward to reverse in 1st or 2nd range the transmission will remain in the same range and same powershift.

When shuttling forward to reverse in 3rd or 4th range (irrespective of powershift speed) the transmission will remain in the same range **but** will always default to 1st powershift. If the operator then shuttles back to forward the transmission will remain in 1st powershift.

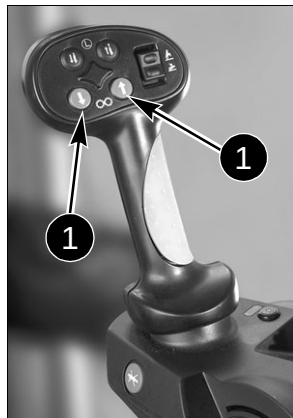
Alternative Programmable Headland Shuttle Gears

For certain field operations, (ie headland turns) alternative forward and reverse shuttle gears can be programmed by the operator, (not maintained in the transmission's memory).

The Headland Shuttle Gears can only be set within one given range (Ranges 1, 2 and 3 only). If the operator makes a range change, and then shuttles from forward to reverse or visa versa, the tractor will revert back to normal shuttling operation, ie. The same range and powershift speed will be engaged.

To change the headland shuttle gear:

1. The tractor **MUST** be stationary with the engine running.
2. Depress the clutch pedal and move the forward/reverse shuttle lever into either forward or reverse.
3. Press either Gear Selection Switches up or down to select a higher or lower gear respectively. The maximum headland shuttle gears available are 3-5 (in Forward or Reverse).



MD05F045A

1. GEAR SELECTION SWITCHES

4. Press and hold both Gear Selection Switches for approximately 2 seconds. An audible alarm will sound to confirm the new start gear(s) have been stored.

When performing headland manoeuvres the operator simply uses the forward/reverse shuttle lever leaving the right hand free to simultaneously operate the hitch or remote valves.

NOTE: Once the key switch is turned to the OFF position these shuttle gears will be lost and will need to be reset when the engine is restarted.

Speed Matching

Speed Matching operates in 4th range only (4-1 to 4-8)

When the clutch pedal is FULLY depressed and then released, with the tractor in motion, the transmission will automatically downshift to match a decrease in ground speed and engage a suitable powershift speed that best matches the ground to engine speed.

This feature can be used during transport or road operation.

Example:

When the tractor is approaching a road junction the operator will reduce ground speed. If the road ahead is clear the operator can FULLY depress the clutch pedal then release. The transmission will automatically select the appropriate powershift speed to match the ground speed and engine rpm maintaining forward momentum.

Operation

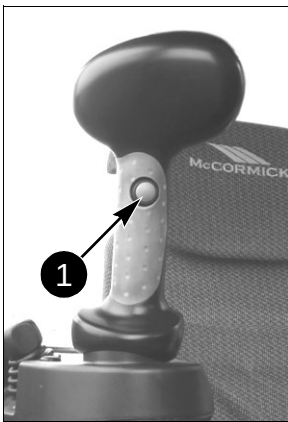
Auto Rooding

Auto Rooding operates in 4th range only (4-1 to 4-8)

With this feature engaged the transmission will automatically select higher or lower powershift speeds, within 4th range, as dictated by engine rpm and load and/or engine throttle position.

To engage Auto Rooding Mode:

1. The transmission **MUST** be in 4th range.
2. Press the Range Skip switch (1) in conjunction with the **UP** Gear Selection switch (2).



MD04G009



MD05F045A

1. RANGE SKIP SWITCH
2. UP GEAR SELECTION SWITCH

3. The range/powershift currently selected will already be displayed on the instrument cluster. When Auto Rooding Mode is engaged the number 4 (to indicate 4th range currently selected) will change to an "A" symbol.

A = Auto Rooding Mode Engaged.

The transmission will auto up and down shift according to engine rpm and load and/or engine throttle position.

Auto Rooding Mode will disengage if any of the following occur:

- A manual range/powershift change is made, (ie pressing either the Up, Down or Range Skip switch)
- Shuttling the forward/reverse lever.
- If the ignition is switched off.

Parking The Tractor

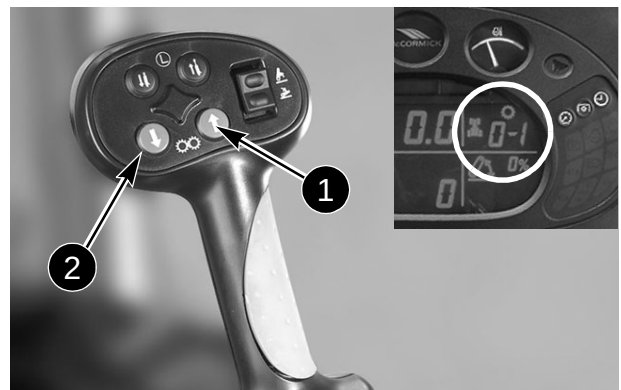
Stationary Tractor Operation (Engine Running)

If you leave the tractor while the engine is running **ALWAYS** make sure both the forward/reverse shuttle and the transmission are in NEUTRAL.

STEP 1

Bring the tractor to a standstill. Put the Forward/Reverse shuttle lever in NEUTRAL or PARK position, as equipped and apply the Park Brake.

STEP 2



MD05F045

1. UP GEAR SELECTION SWITCH
2. DOWN GEAR SELECTION SWITCH

Press and hold both Gear Selection Switches (1 & 2) down for approximately 3 seconds to put the transmission into neutral. The Gear Selection Display on the instrument cluster will show either 0-1 or 0-0 (depending on software installed) and the transmission gear selection function will disable. Check and make sure 0-1 or 0-0 is displayed before leaving the operators cab.

NOTE: On certain tractors, the software within the transmission will automatically select neutral if the shuttle lever is in neutral or park and the operator leaves the seat for more than 5 seconds.

To re-enable the transmission, press and hold the 'UP' Gear Selection Switch. An audible alarm will sound and a gear symbol on the instrument cluster will flash to warn the operator when the transmission is about to enable. The transmission will select gear 1-5 (1st range/5th powershift). Alternatively, if the 'UP' Gear Selection Switch and the Range Skip Switch are pressed simultaneously the transmission will re-enable reverting to the last gear engaged.

NOTE: If the transmission does not enable, stop and then restart the engine. The transmission will default to the relevant programmed start gear.

CREEPER OPERATION (If Equipped)

Transmission creeper speeds can be used for PTO type harvesting operations or other applications where slower ground speeds are desired.

NOTE: Creeper gears are only available in ranges 1 and 2.

NOTE: Creeper should not be used with high draft loads. Using creeper with high draft loads will cause transmission damage.

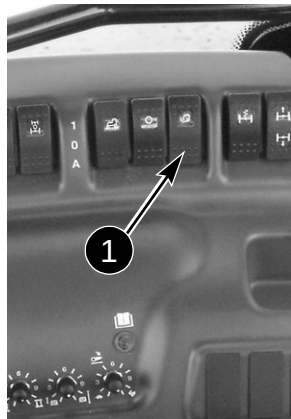
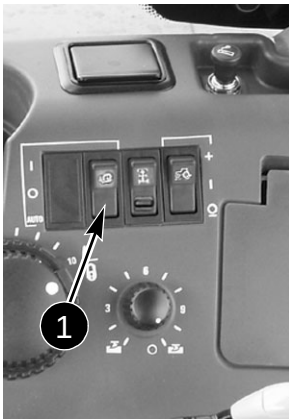
To engage creeper:

STEP 1

Bring the tractor to a standstill and place the transmission in neutral. Disengage the park brake.

Set the engine rpm to low idle.

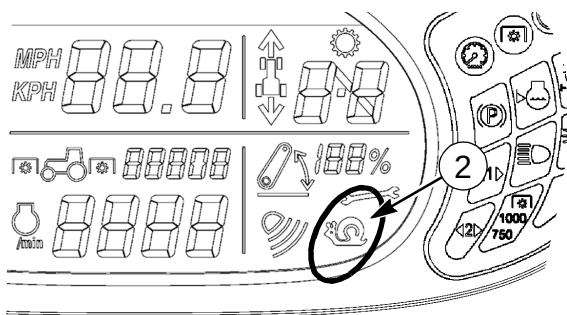
STEP 2



MD05F049 & MD05F050

1. CREEPER SELECTION SWITCH

Press the top of the creeper switch (1), the lamp on the switch will illuminate to show creeper has been selected.



MI03C064

2. CREEPER SYMBOL

A creeper (snail) symbol (2) on the instrument cluster will start to flash, again to show creeper has been selected. Once creeper has engaged the creeper symbol (2) will remain constant (stop flashing).

STEP 3

Wait for the creeper symbol (2) to stop flashing before adjusting the engine speed and engaging the relevant gear.

Change transmission range/powershift speed as in normal transmission operation.

NOTE: If the engine speed is increased or a transmission gear is selected prior to creeper engaging (creeper symbol (2) constantly illuminated), creeper will not engage and the creeper symbol will continue to flash. To reset, press the bottom of the creeper switch (to the off position). Re-engage creeper as per steps 1 and 2.

To disengage the creeper:

To disengage the creeper, reduce the engine speed to low idle, place the transmission in neutral and press the bottom of the creeper switch.

A creeper (snail) symbol on the instrument cluster will start to flash to indicate creeper is disengaging. Once creeper has disengaged the creeper symbol on the instrument cluster will stop flashing and go off.

NOTE: A small amount of gear clash may occur when engaging and disengaging creep speeds. Engagement effort will be high, especially when changing from creep to direct drive when the oil is cold.

Operation

HOW TO TRANSPORT THE TRACTOR

Towing The Tractor



WARNING: Make sure that the weight of a trailed vehicle that is not equipped with brakes **NEVER EXCEEDS** the weight of the tractor that is towing the vehicle or any national weight limitations which may apply. Stopping distance increases with increasing speed as the weight of the towed load increases, especially on hills and slopes.

IMPORTANT: Due the complexity of the transmission and pressure lubrication requirements, special rules apply when the tractor engine is running or not running. Use the following procedures as applicable.

A. Engine NOT Running

DO NOT tow this tractor if the engine is inoperative. Serious damage to the transmission could result. Contact your dealer for assistance.

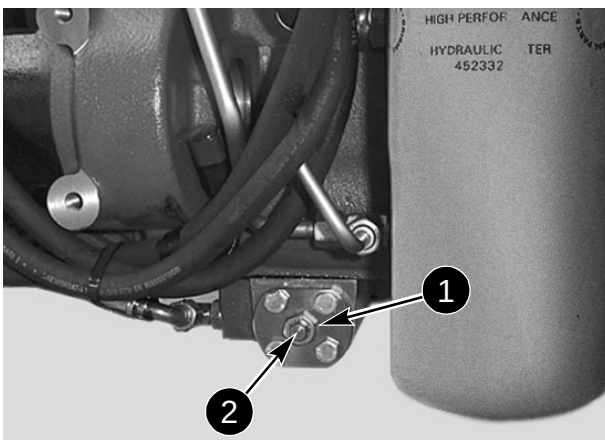
B. Engine Running (At a minimum of 1200 rpm)

The tractor can be towed a maximum of 20 km (12 miles) at a maximum speed of 10 km/h (6 mph) if the tractor has been operating within the past 48 hours.

If the tractor must be towed:

1. If equipped with Park Lock:

Disengage the park lock by loosening the lock nut (1) and then tightening the stud (2), (located on the right hand side of the transmission next to the transmsion/hydraulic oil filter).



MD04G020

2. Make sure Mechanical Front Drive (MFD) and the Differential Lock are **NOT** engaged.

3. Put the Forward/Reverse shuttle lever into NEUTRAL.

4. **Tractors with a Mechanical Transmission**
Put the Range lever in the NEUTRAL position.

5. **Tractors with an Electronic Transmission**
(XtraSpeed-E and XtraSpeed-Eplus)
Press and hold both Gear Selection Switches down for approximately 3 seconds to put the transmission into neutral.

6. Use a rigid tow bar and safety chains to pull the tractor. Attach the tow bar and safety chains to the tractor side channels or the front support.

IMPORTANT: Check brake operation before starting to tow.

Limp Home Operation

Transmission

In the event of a fault with the transmission or on the its control system the transmission will enter a limp home mode. In this mode the amber warning lamp will flash and the tractor can only be driven in ranges 1 and 2. A fault code will be displayed on the cluster. Report the fault code and any other relevant information to your dealer.

Engine

In the event of a fault with the engine or on its control system the engine speed will default to approximately 1300rpm to enable the tractor to be moved and allow your dealer to diagnose/repair the problem. A fault code will be displayed on the cluster. Report the fault code and any other relevant information to your dealer.

In the unlikely event of a major failure rendering the tractor immobile, your dealer has provisions to provide a means of moving the tractor. If a failure occurs and the tractor will not move contact your dealer.

IMPORTANT: Limp home mode is only a temporary device which will allow you to get the tractor home or back to your dealer and is **NOT** to be used as a means of continuing tractor operation.

Transport by Truck or Rail



WARNING: The tractor can slip and fall from a trailer or ramp and cause serious injury or death. Make sure the trailer or ramp is not slippery. Remove all oil, grease, mud, ice etc. When moving the tractor take extra care, be vigilant, make sure the tractor is in the centre of the trailer and does not over hang.

When you transport the tractor by truck or rail specific rules or laws will be applicable depending in which country you are in. Make sure you are familiar with these rules or laws before transporting the tractor.

STEP 1

Make sure the transmission is in the **NEUTRAL** position, as per correct procedure quoted on previous page.

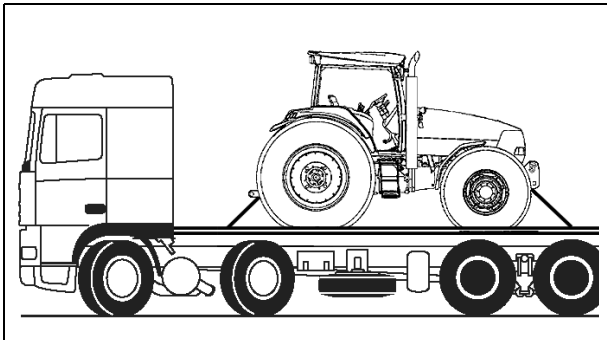
STEP 2

If equipped with a **FOUR position** Forward/Reverse Shuttle Lever put the lever in **PARK** position.

STEP 3

Engage the **PARK** brake.

STEP 4

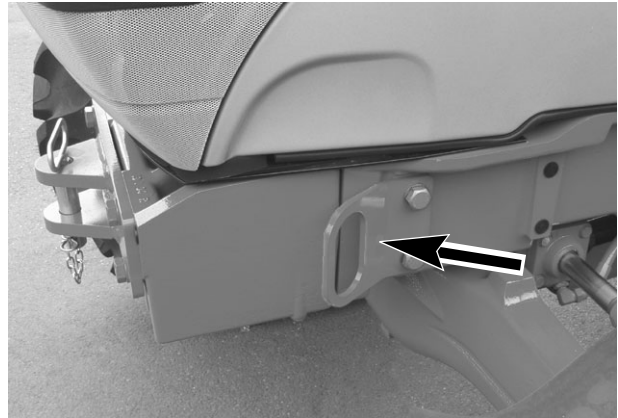


MH06B078A

Secure the tractor. Tie the tractor down around the front and rear axles with safety chains having a rating greater than the gross load of the tractor (refer to tractor P.I.N. plate).

IMPORTANT: *DO NOT* tie chains around the front ballast weight support bracket to hold the tractor down.

STEP 5



MR01J031

If equipped with front tie down brackets (as shown above) tie the front of the tractor down putting the safety chains through the loop of each bracket rather than using the front axle.

IMPORTANT: *DO NOT* use the tie down brackets (if equipped) to lift or pull the tractor. The tie down brackets are only to be used to secure the tractor to the trailer.

STEP 6

Install blocks/wedges to prevent the wheels rolling.

Operation

DRAWBARS



WARNING: Rear upset can result if pulling from wrong location on tractor. Hitch only to the drawbar. Use 3 point hitch only with the implements designed for its use, not as a drawbar.

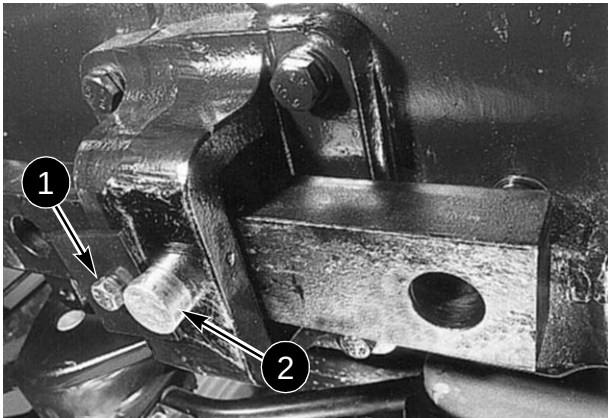


WARNING: Try to balance the load primarily on the implement wheels as in loading a machine with harvest crops. Avoid overloading the drawbar. Add front end weights for improved stability. Engage the clutch smoothly, avoid jerking and use the brakes cautiously to avoid jack-knifing.

In certain markets pulling trailers on public roads is not permitted unless a special approval note has been supplied with the machine documents. Always make sure you have the relevant approval before pulling trailers on public roads.

The drawbar can be set in various positions, see following pages for preparation and operation.

Fore/Aft Position



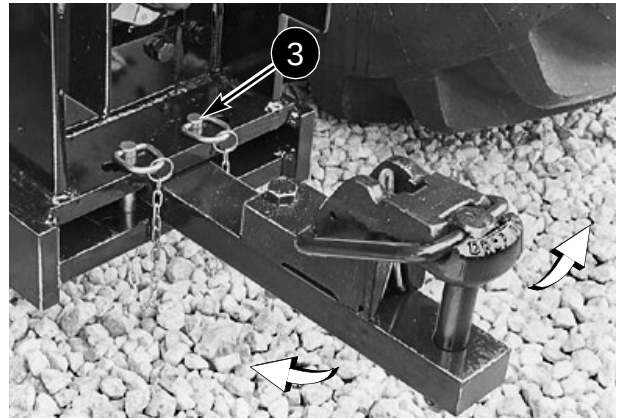
MH04C097

Remove the pivot pin retainer bolt (1) and the pivot pin (2) at the front of the drawbar.

Slide the drawbar backward or forward to the required drawbar position as indicated on the implement or in the implement operators manual.

When the correct position of the drawbar has been set, install the pivot pin (2) and the retainer bolt (1).

Left/Right Offset Position



DP98M145

Remove the retaining pin (3) and slide the drawbar left or right as required. Install the retaining pin.

When using the offset positions raise the lower links to full height. With the lower links in this position the hitch will not interfere with the side movement of the swinging drawbar.

NOTE: The drawbar must not be offset in the fully forward position.

IMPORTANT: The drawbar must be locked in the centre position when doing any of the following operations:

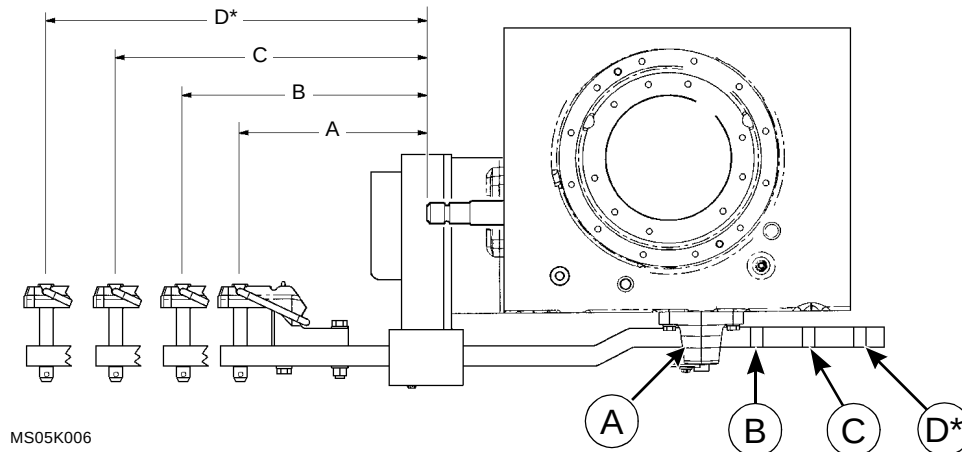
- A. Towing implements at transport speed (15 km/h (10 mph) or more) in the field.
- B. Towing an implement or trailer on the highway at all speeds.
- C. Operating a drawbar pulled, PTO driven implement.
- D. Moving the tractor in reverse with an implement attached.

Drawbar Positions for PTO Operation

When using power takeoff driven equipment (which would normally require an equal angle hitch drawbar extension) the drawbar can be installed in two different fore/aft positions ('A' for 540/E rpm or 'B' for 1000 rpm). Positions 'C' and 'D' must not be used for power takeoff operation.

Refer to the illustration and charts below for the drawbar positions and the vertical loads permitted in those positions. Also refer to the implement operators manual before making any adjustments.

NOTE: For non-PTO work, the drawbar can be set in any of the fore/aft positions, depending on maximum vertical load required.



* NOTE: Position 'D' NOT available on XTX185, XTX200 and XTX215 Tractors.

North American Tractors

All Models

DRAWBAR POSITIONS	A (540/E rpm)	B (1000/E rpm)	C	D*
DIMENSION FROM END OF PTO SHAFT TO CENTRE OF HITCH PIN HOLE	350 mm (13.8 in)	400 mm (15.7 in)	500 mm (19.7 in)	600 mm (23.6 in)
MAXIMUM STATIC VERTICAL LOAD	2146 kg (4731 lb)	1803 kg (3975 lb)	1366 kg (3011 lb)	1100 kg (2425 lb)

Rest Of World Tractors

XTX145 and XTX165 Tractors

DRAWBAR POSITIONS	A (540/E rpm)	B (1000/E rpm)	C	D
DIMENSION FROM END OF PTO SHAFT TO CENTRE OF HITCH PIN HOLE	400 mm (15.7 in)	450 mm (17.7 in)	550 mm (21.7 in)	650 mm (25.6 in)
MAXIMUM STATIC VERTICAL LOAD	1800 kg (3970 lb)	1509 kg (3327 lb)	1140 kg (2513 lb)	916 kg (2020 lb)

XTX185, XTX200 and XTX215 Tractors

DRAWBAR POSITIONS	A (540/E rpm)	B (1000/E rpm)	C
DIMENSION FROM END OF PTO SHAFT TO CENTRE OF HITCH PIN HOLE	300 mm (12 in)	400 mm (16 in)	550 mm (22 in)
MAXIMUM STATIC VERTICAL LOAD	2130 kg (4700 lb)	1800 kg (3970 lb)	1140 kg (2513 lb)

Operation

Connecting an Implement/Trailer to the Tractor

Before connecting any trailed equipment to the tractor, read and understand the following:



WARNING: Rear upset can result if pulling from wrong location on tractor. Hitch only to the drawbar. Use 3 point hitch only with the implements designed for its use, not as a drawbar.

IMPORTANT: Make sure local regulations are followed when towing implements/trailers. All drawbars, hitches and hitch clevises have their own individual speed restrictions for operation on public roads. Also, the regulations in certain countries require brakes to be fitted on any equipment that is to be towed on public roads. Before travelling on public roads, make sure you comply will ALL legal requirements.

When towing equipment that is **not equipped with brakes** observe the following:

- Do not tow equipment that weighs more than twice the tractor weight.
- Do not exceed 16 km/h (10 mph) if the towed equipment weighs more than the tractor weight.
- Do not exceed 32 km/h (20 mph) if the towed equipment weighs less than the tractor weight.

Connect pull behind implements to the drawbar only.

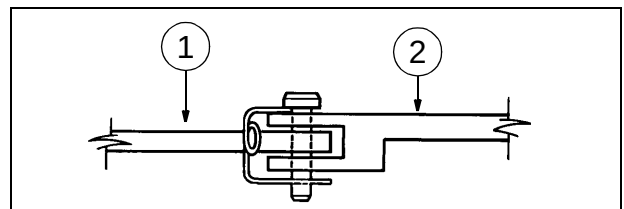
Use the hardened steel hitch pin supplied to connect the implement to the drawbar. Make sure the pin is held securely in place with a lock pin.

IMPORTANT: Only use a 50 mm inner diameter towing eye, See page 121 for more information.

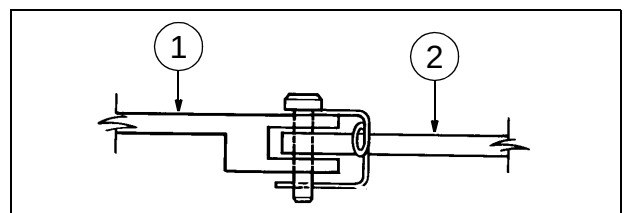
If both the tractor and the implement are equipped with a drawbar clevis, remove the clevis from the tractor OR implement. DO NOT PUT A LONG HITCH PIN THROUGH BOTH THE IMPLEMENT CLEVIS AND THE DRAWBAR CLEVIS.

See examples A and B below for correct methods of using a clevis type hitch.

EXAMPLE A



EXAMPLE B



PM023

1. TRACTOR DRAWBAR
2. IMPLEMENT DRAWBAR

Adjust the drawbar so that the centre line of the pulling force of the tractor will be aligned with the centre line of the implement.

When working with the drawbar, raise the lower links as high as possible to prevent interference between the lower links and the implement.

When working with PTO equipment, use the following positions in the drawbar:

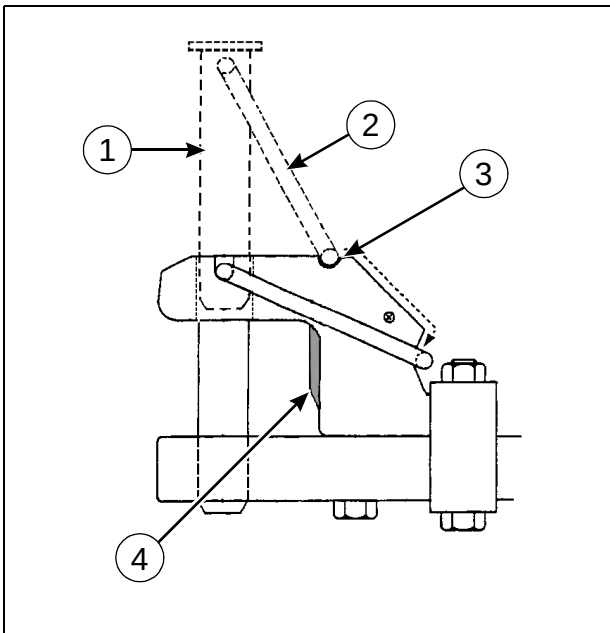
- 540/E rpm (6 spline) PTO shaft - Position A.
- 1000 rpm (21 spline) PTO shaft - Position B.

NOTE: For non-PTO work, the drawbar can be set in any of the three fore/aft positions, depending on maximum vertical load required.

See page 109 for more information.

The clevis (if equipped) must be removed from the drawbar or mounted under the drawbar (See example B), to prevent possible interference between the clevis and the implement driveline.

Auto Pin Hammerstrap (If Equipped)

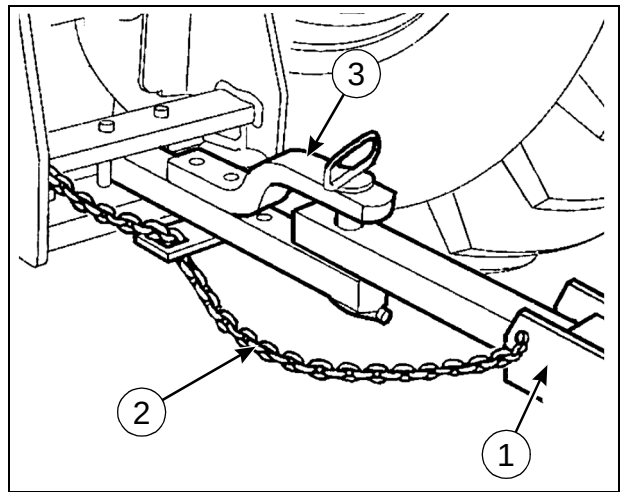


DS98M148

Lift the hitch pin (1) until the pin handle (2) is positioned in the groove (3) in the hammerstrap body.

Move the tractor rearwards to align the tractor and implement drawbars. When the implement drawbar contacts the trigger (4) of the Auto Pin Hammerstrap the force will push the pin handle out of the groove and the hitch pin will drop through the implement drawbar into the tractor drawbar.

Drawbar Safety Chain



MI03G047

When towing an implement (1) on the highway, use a safety chain (2), with a rating greater than the gross weight of the implement, as an auxiliary connection between the tractor drawbar (3) and the implement (1).

Check the implement operators manual for the implement weight and any specific attaching hardware specifications.

After attaching the safety chain make sure the chain is adjusted correctly. Drive the tractor a short distance turning to the right and to the left checking to make sure the chain is not too tight or too loose.

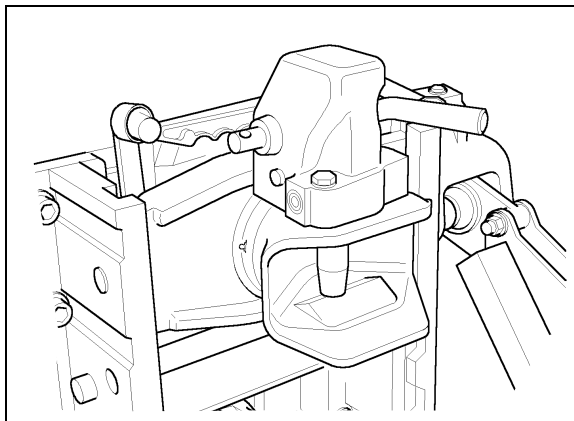
Adjust the chain as necessary.

Operation

HEIGHT ADJUSTABLE TRAILER HITCHES (If Equipped)

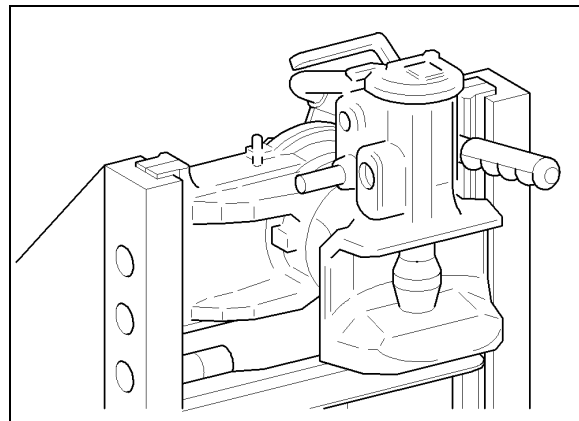
Height Adjustable Trailer Hitches can be adjusted up or down to match the implement hitch height and to give clearance for the top link or for PTO operation. These hitches are equipped with either an automatic or a manual clevis. There are two types of automatic clevis and three types of manual clevis, all of which operate in a slightly different way.

Hitches with Automatic Clevis



TYPE A

MI02H042

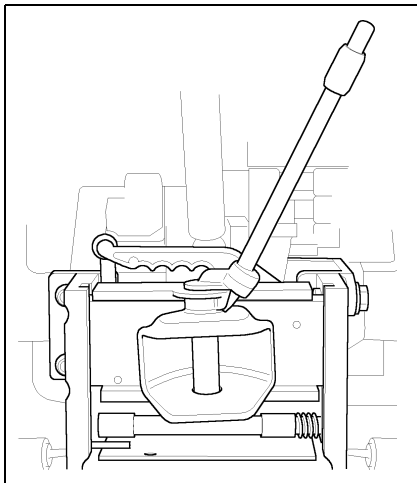


TYPE B

MI05J080A

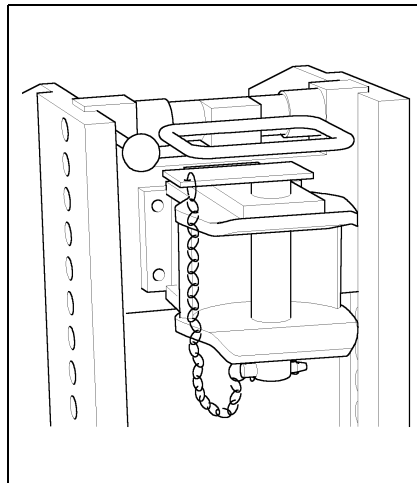
When the implement towing eye contacts the release mechanism inside the hitch coupling, the hitch automatically locks the implement towing eye in place.

Hitches with Manual Clevis



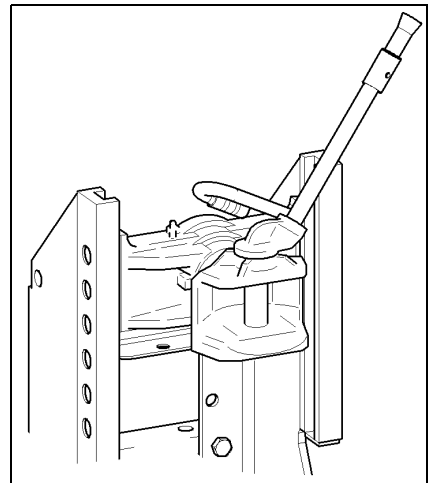
TYPE A

MI02H042



TYPE B

MI01F066



TYPE C

MI05J072

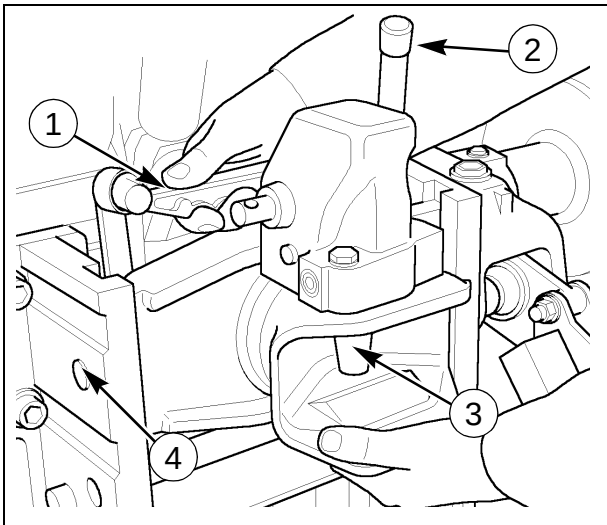
The operator must manually inset the hitch pin to secure the implement to the tractor.

NOTE: Make sure local regulations are followed when towing implements/trailers. Only use trailers with a towing eye that matches the clevis pin diameter and does not have excessive clearance. See page 121 for more information.

IMPORTANT: Maximum vertical load capacity is 2000 kg (4409 lb) depending upon the capacity of the rear tyres fitted. Where applicable refer to your approval documentation.

IMPORTANT: Keep the hitch clean and protect all moving parts of the hitch from corrosion, (including the inner slide rails), by cleaning and greasing at regular intervals. All moving parts should be checked for free movement and correct operation. Refer to Lubrication/Maintenance Section, page 224 for further information.

Automatic Clevis - Type A



MI02H047

To adjust the height, support the weight of the hitch coupling assembly with one hand and with the other hand pull the quick release lever (1) to the right.

Move the hitch coupling assembly to the required position. Push the quick release lever (1) to the left to lock the coupling assembly in position.



WARNING: DO NOT touch the inside of the hitch coupling assembly when the release mechanism is under tension, (operating lever (2) in the vertical position). Accidental movement of your hand may trigger the release mechanism resulting in serious injury.

IMPORTANT: Check that the locking pins (4) have fully engaged in the holes in the side support (locking pins level with the outer surface).

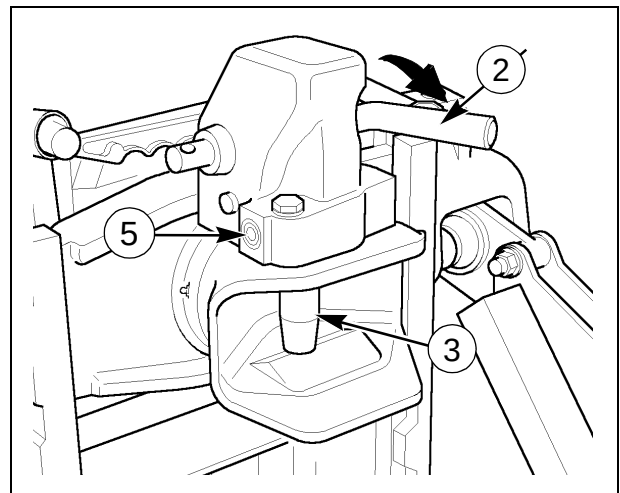
IMPORTANT: Use only implement towing eyes with 40 or 50 mm inner diameter, see page 121.

Prior to connecting an implement make sure the operating lever (2) is in the vertical position,

The connecting pin (3) engages automatically as the implement towing eye contacts the release mechanism inside the hitch coupling. Alternatively the connecting pin can be engaged manually by striking the operating lever (2) downwards (away from the tractor) to the horizontal position.

Before moving the tractor make sure:

1. The indicator pin (5) is fully in.
2. The operating lever (2) is in the horizontal position.
3. The connecting pin (3) is fully in the hole of the pin guidance bushing (fully engaged). Do not tow or move if the pin is not fully engaged.

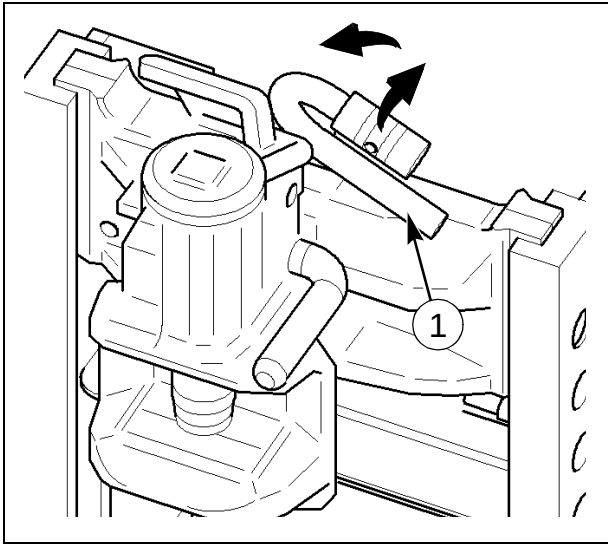


MI02H046

NOTE: When the automatic hitch is not being used, make sure the hitch connecting pin (3) is down and the operating lever (2) is horizontal.

Operation

Automatic Clevis - Type B



MI05J074

To adjust the height, support the weight of the hitch coupling assembly with one hand and with the other hand raise the quick release lever (1) then rotate to the left.

Move the hitch coupling assembly to the required position. Release the quick release lever (1) to lock the coupling assembly in position.



WARNING: DO NOT touch the inside of the hitch coupling assembly when the release mechanism is under tension, (operating lever (2) in the vertical position). Accidental movement of your hand may trigger the release mechanism resulting in serious injury.

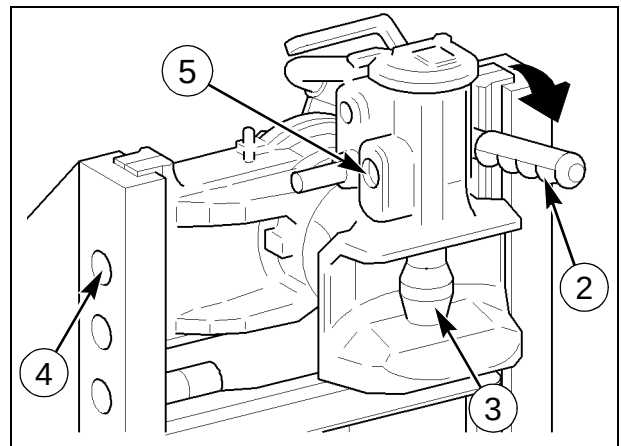
IMPORTANT: Check that the locking pins (4) have fully engaged in the holes in the side support (locking pins level with the outer surface).

Prior to connecting an implement make sure the operating lever (2) is in the vertical position,

The connecting pin (3) engages automatically as the implement towing eye contacts the release mechanism inside the hitch coupling. Alternatively the connecting pin can be engaged manually by striking the operating lever (2) downwards (away from the tractor) to the horizontal position.

Before moving the tractor make sure:

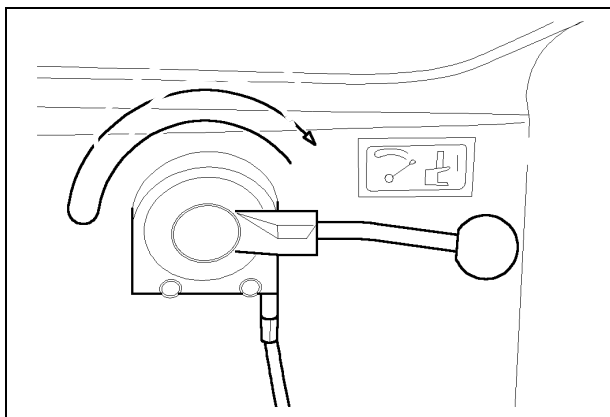
1. The indicator pin (5) is fully in.
2. The operating lever (2) is in the horizontal position.
3. The connecting pin (3) is fully in the hole of the pin guidance bushing (fully engaged). Do not tow or move if the pin is not fully engaged.



MI05J080A

NOTE: When the automatic hitch is not being used, make sure the hitch connecting pin (3) is down and the operating lever (2) is horizontal.

Auto Clevis Internal Hitch Release (If Equipped)



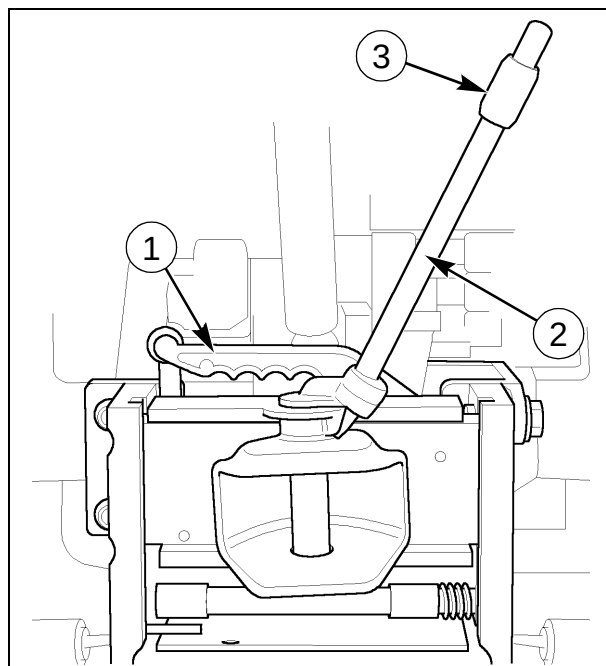
MI03A060

This control enables the operator to disconnect the implement towing eye without leaving the tractor.

To operate, pull the lever to unlock and then rotate the lever 180 degrees. The implement connecting pin will disengage from the trailer towing eye.

The hitch release lever will automatically return to the locked position. If the release lever does not return and lock, adjust the nut (6) as required.

Manual Clevis - Type A



MI03H127

To adjust the height, support the weight of the hitch coupling assembly with one hand and with the other hand pull the release lever (1) to the right.

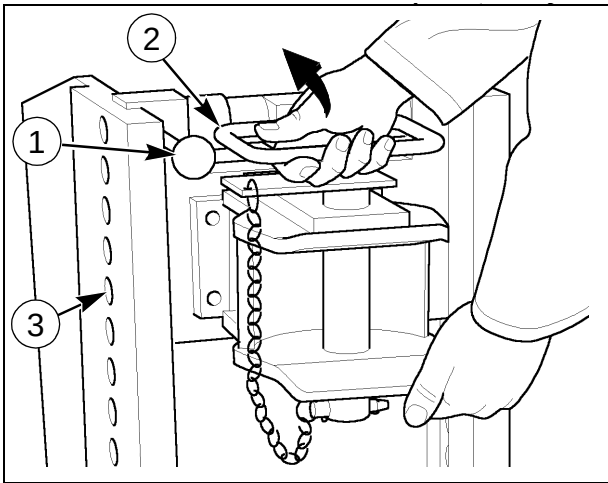
Move the hitch coupling assembly to the required position. Push the release lever to the left and down to lock in position.

IMPORTANT: Check that the locking pins have fully engaged in the holes in the side support (locking pins level with the outer surface).

To remove the hitch pin (2), pull the release latch sleeve (3) up. Make sure the latch sleeve is fully engaged after installing the hitch pin.

Operation

Manual Clevis - Type B

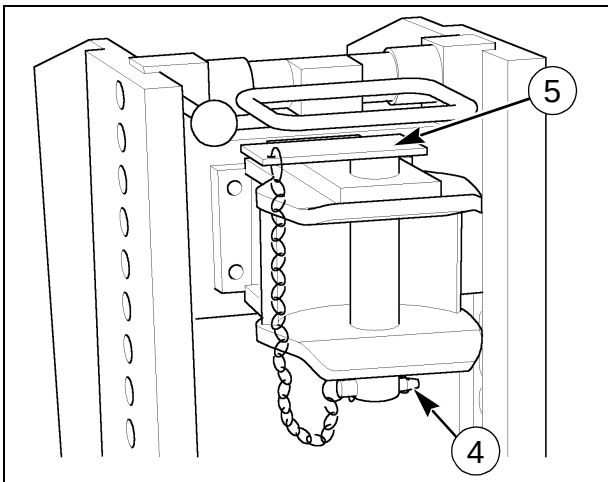


MI01F067

To adjust the height, pull the release knob (1) out. Raise the handle (2) and while supporting the weight of the coupling assembly with the other hand, raise or lower the assembly to the required position.

Lower the handle (2), the release knob (1) will spring back to lock hitch coupler assembly into position.

IMPORTANT: Check that the locking pins (3) have fully engaged in the holes in the side support (locking pins level with the outer surface).

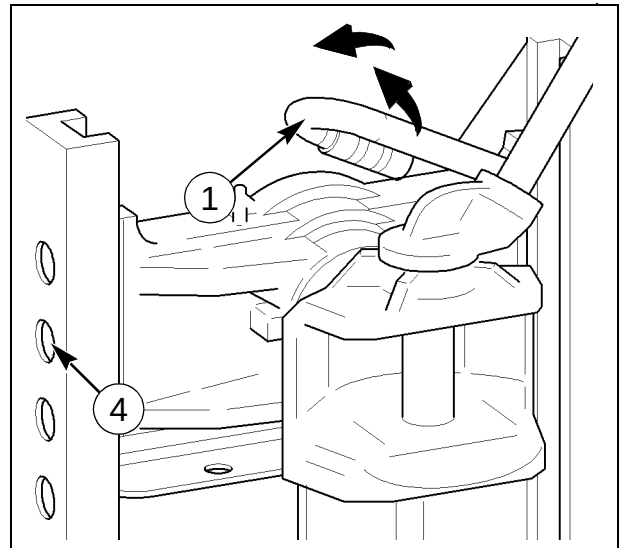


MI01F066

To connect an implement/trailer, Remove the spring clip (4) and hitch pin (5).

Enter the implement/trailer towing eye into the clevis, install the hitch pin (5) to secure the implement/trailer. Install the spring clip (4).

Manual Clevis - Type C

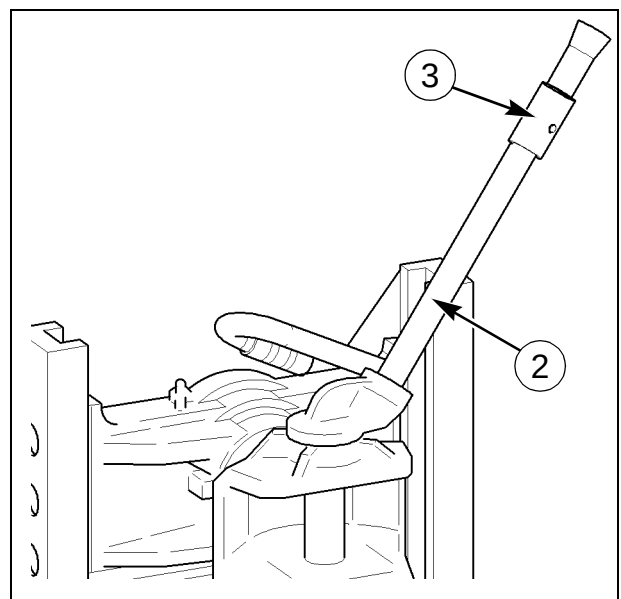


MI05J072A

To adjust the height, support the weight of the hitch coupling assembly with one hand and with the other hand raise the quick release lever (1) then rotate to the left.

Move the hitch coupling assembly to the required position. Release the quick release lever (1) to lock the coupling assembly in position.

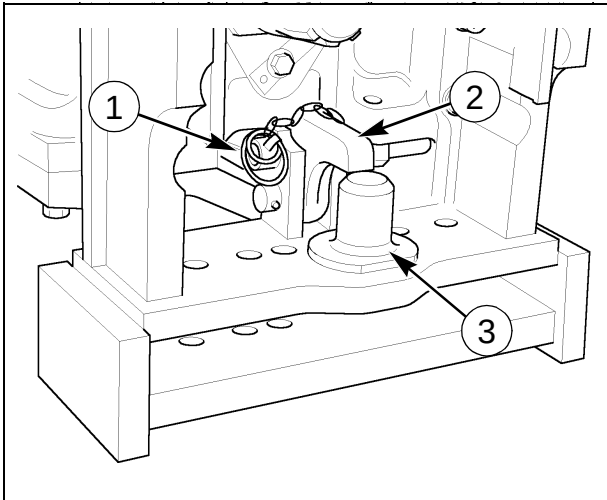
IMPORTANT: Check that the locking pins (4) have fully engaged in the holes in the side support (locking pins level with the outer surface).



MI05J072B

To remove the hitch pin (2), pull the release latch sleeve (3) up. Make sure the latch sleeve is fully engaged after installing the hitch pin.

Piton- Fixe (If Equipped)



MI02H045

To connect an implement/trailer, Remove the spring clip and pin (1) and lift the retaining hook (2).

Install the implement towing eye over the towing pin (3) and lower the retaining hook (2).

Install the pin and spring clip (1).

To connect an implement/trailer, Remove the spring clip and pin (1) and lift the retaining hook (2).

Install the implement towing eye over the towing pin (3) and lower the retaining hook (2).

Install the pin and spring clip (1).

IMPORTANT: *Maximum vertical load capacity is 3000 kg (6613 lb) depending upon the capacity of the rear tyres fitted. Where applicable refer to your approval documentation.*

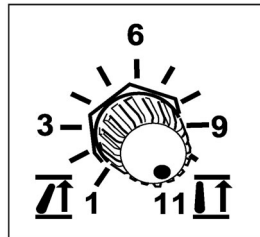
Operation

AUTO HITCH (If Equipped) (according to 89/173/EEC, ISO 6489)

Connecting an Implement

STEP 1

Turn the Upper Limit Control Knob (1) to the maximum setting (Setting 11).



MD04D013A

STEP 2

Raise the hitch to maximum height.

IMPORTANT: Make sure **LOAD CONTROL** is in the (0) off position, this will prevent unwanted hitch movement when the tractor is moving at more than 0.8 km/h (0.5 mph).

STEP 3

Press and hold the Ride Control switch fully forward (to the hitch override position) until the hitch stops upward movement

Once the hitch stops pull the auto hitch release control to unlock the locking latches and then release the Ride Control switch.



MD04C164

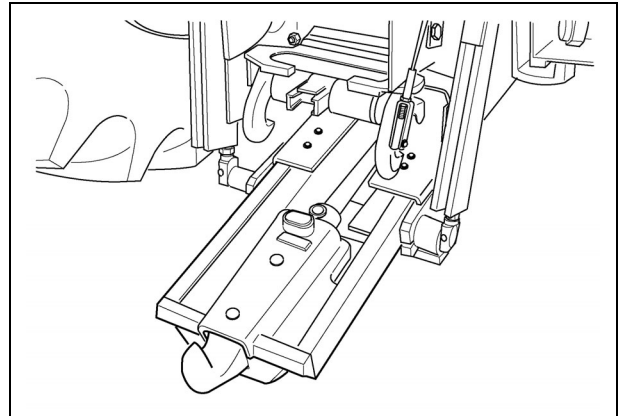


MD04D014

STEP 5

Lower the auto hitch.

STEP 6



MH06B079

Extend the hook rearwards, by moving the corresponding hydraulic remote control until the hook is aligned under the implement towing eye.

STEP 7

Raise the auto hitch until the hook is engaged in the implement towing eye.

STEP 8

Fully retract the hook by moving the correct remote lever rearwards.

IMPORTANT: The Gap between the tip of the hook and the keeper plate must be less than 8 mm. A larger gap indicates the hook is not fully retracted.

STEP 9

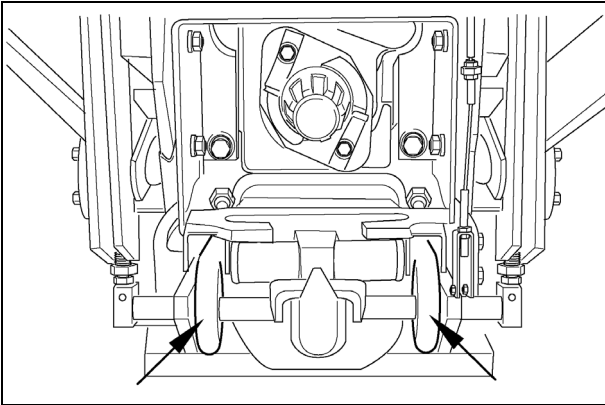
Raise the auto hitch to maximum height.

STEP 10

Press and hold the Ride Control switch fully forward (to the hitch override position) until the hitch stops upward movement and the locking latches are latched.

Release the Ride Control switch.

STEP 11



MH06B080

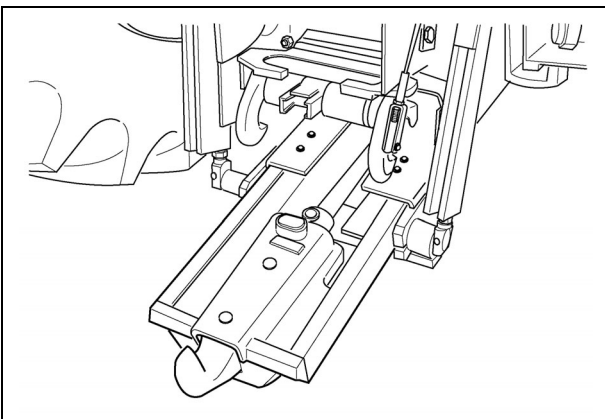
Lower the hitch onto the locking latches to take the weight off the hydraulic system.

IMPORTANT: The hitch must always be supported on the locking latches and NOT by the hydraulic system.
If the locking latches do not lock, adjust the lift rods. If after adjustment the locking latches still do not lock see your dealer.

IMPORTANT: To prevent accidents, make sure the hook is fully retracted and the frame is correctly latched.

Hook/Clevis Change Over

STEP 1

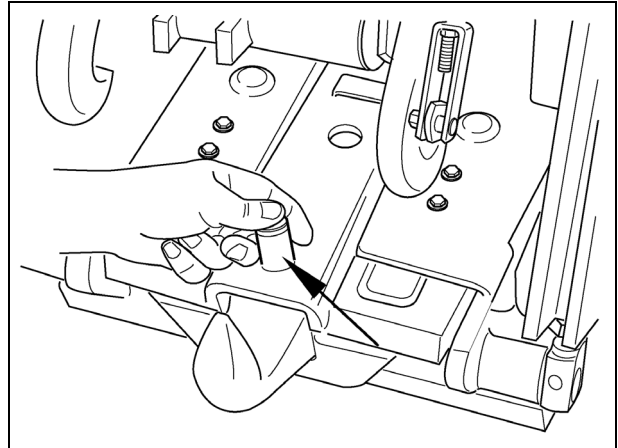


MH06B079

Lower the auto hitch half way. Extend the hook/clevis by moving the corresponding hydraulic remote control.

IMPORTANT: After lowering and extending the auto hitch, stop the engine, and engage the parking brake before leaving the tractor.

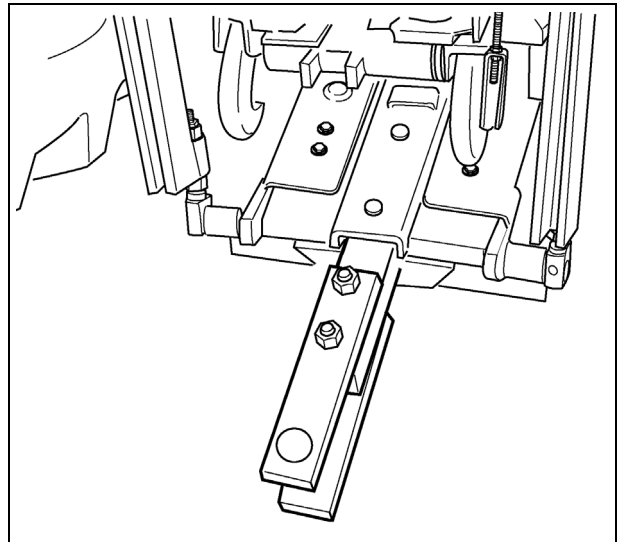
STEP 2



MH06B081

Remove the hook/clevis locating pins.

STEP 3



MH06B082

Remove the hook or clevis. Install the hook or clevis in the storage bracket located at the front of the tractor on the left hand side.

Install the hook or clevis. The clevis can be installed in two positions fore/aft. Install the lock pins. Retract the assembly and raise auto hitch until locked, then lower onto latches.

Make sure local regulations are followed when towing implements/trailers. All drawbars, hitches and hitch clevises have their own individual speed restrictions for operation on public roads. Also, the regulations in certain countries require brakes to be fitted on any equipment that is to be towed on public roads.

Before travelling on public roads, make sure you comply with ALL legal requirements.

Operation

Auto Hitch Clevis Positions

Position for Power Takeoff Operations

Install the drawbar in the fully extended rearward with one hole (1) in the drawbar showing.

The MAXIMUM drawbar vertical load in this position is **1400 kg (3086 lb)**. Also observe tyre capacity and local legal requirements.

Position for Pulling Operations

For pulling operations, install the drawbar in the fully forward position.

The MAXIMUM **drawbar** vertical load in this position is **1800 kg (3970 lb)**.

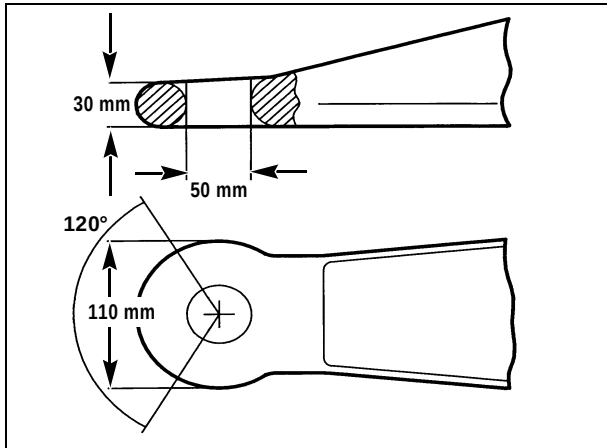
The MAXIMUM **hook** vertical load in this position is **3000 kg (6614 lb)**.

Also observe tyre capacity and local legal requirements

NOTE: *Pulling trailers on public roads may not be permitted unless a special approval note has been supplied with the machine documents.*

IMPLEMENT/TRAILER DRAWBAR DIMENSIONS

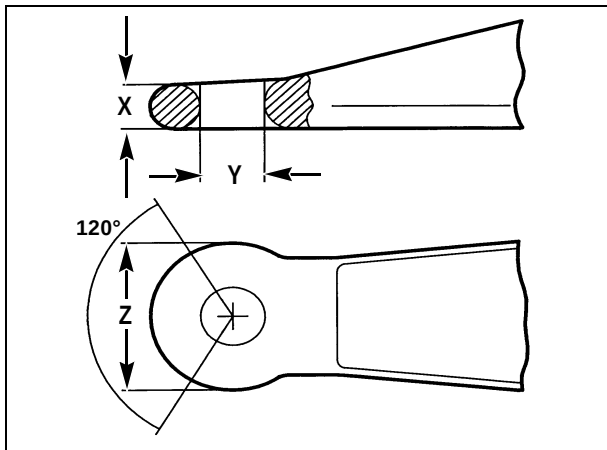
A) For Piton-Fixe, Auto Hitch (B.S.2) and Swinging Drawbar



OM0881

When using a Piton-Fixe, Auto Hitch or swinging Drawbar, the trailer/implement drawbar must be to ISO 5692 standard dimensions. If any other drawbar is used, damage to your tractor can/will occur.

B) Manual and Automatic Clevis Type Trailer Hitches - (EURO Clevis)

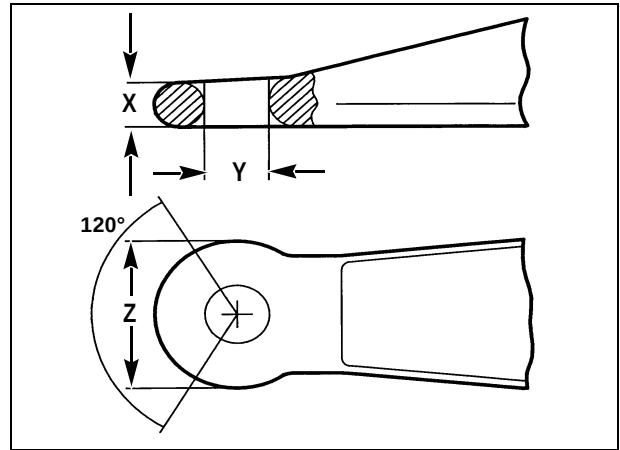


OM0881

When using a manual or automatic clevis type trailer hitch, the trailer/implement drawbar must be to DIN 74054, DIN 74053, DIN 11043, DIN 11026 or ISO 5692 standard dimensions. If any other drawbar is used, damage to your tractor can/will occur.

	X (mm)	Y (mm)	Z (mm)
DIN 74053	45	50	115
DIN 74054	30	40	100
DIN 11026	42	40	100
DIN 11043	32	40	100
ISO 5692	30	50	110

C) Automatic Clevis Type Trailer Hitch (with Special Coupling) - (GERMAN CLEVIS)



OM0881

When using this type of trailer hitch, ONLY use a trailer/implement drawbar to DIN 74054, DIN 11043 and DIN 11026 standard dimensions. This will improve connection between hitch and trailer/implement drawbar. If any other drawbar is used, damage to your tractor can/will occur.

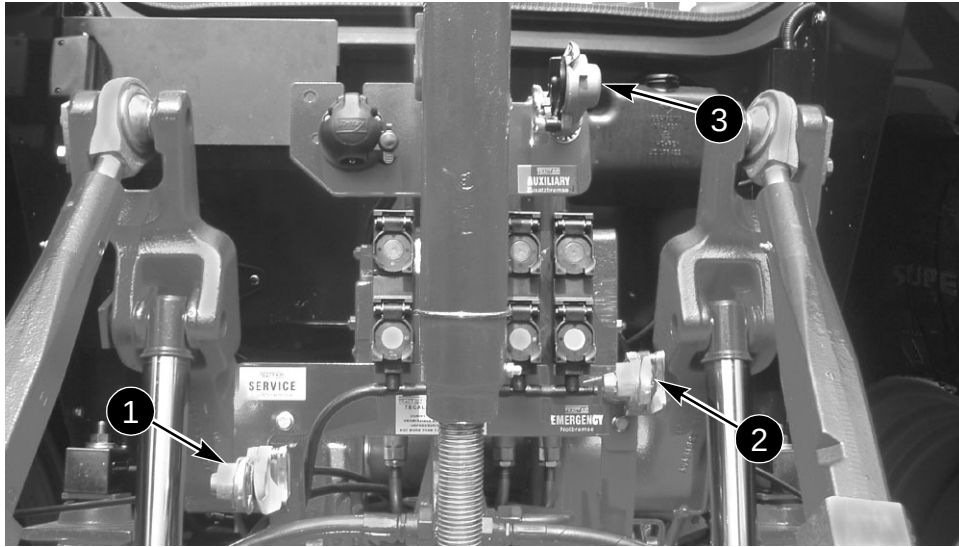
	X (mm)	Y (mm)	Z (mm)
DIN 74054	30	40	100
DIN 11026	42	40	100
DIN 11043	32	40	100

If this type of trailer hitch is fitted a decal will be positioned near the hitch clevis.

Operation

TRAILER BRAKE COUPLINGS (If Equipped)

Pneumatic Trailer Brakes



MD05F034B

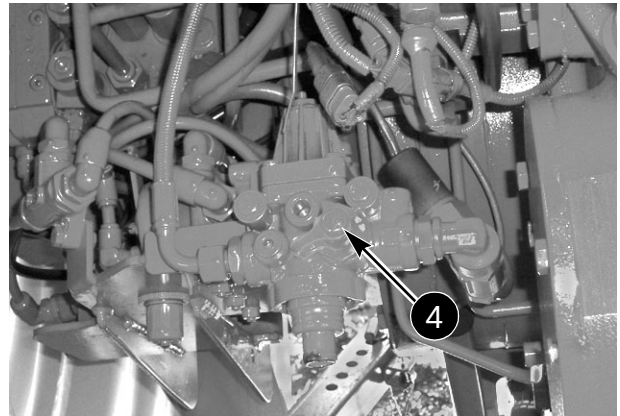
1. YELLOW COUPLING - BRAKE SERVICE LINE (DUAL LINE SYSTEM)
2. RED COUPLING - BRAKE EMERGENCY LINE (DUAL LINE SYSTEM)
3. BLACK COUPLING - FEED AND RETURN (SINGLE LINE SYSTEM) - (OPTIONAL)



WARNING: Make sure the system is at working pressure before operating the brakes with a trailer(s) fitted. Failure to do this can result in injury or death.



WARNING: DO NOT park an unattended tractor/trailer(s) combination using air pressure to apply the brakes (Dual Line Pneumatic Braking System). The mechanical park brake on both the tractor and trailer(s) MUST be applied.



MD05F035

4. TEST PORT* - (LOCATED UNDER CAB)

*** This port may be used to inflate a tyre, if so then a regulator and air pressure gauge MUST be fitted.**

The air reservoirs store air under pressure to operate the trailer brakes.

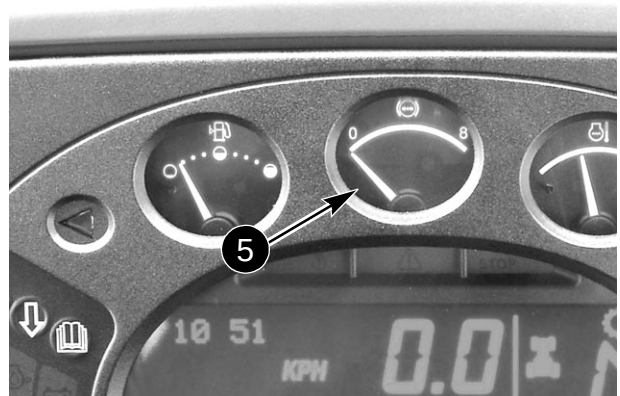
Maximum Permitted Pressure12.5 bar
(181 lb in²)

Working Pressure
Dual Line System7.5 bar
(109 lb in²)
Single Line System.....5.0 bar
(72.5 lb in²)

NOTE: A low pressure indicator (within the air gauge) will illuminate, an alarm will sound and the master warning lamp will illuminate if the system pressure drops below 4 bar (58 psi).

Capacity 10 litres
(605 in³)

Drain Reservoirs Daily



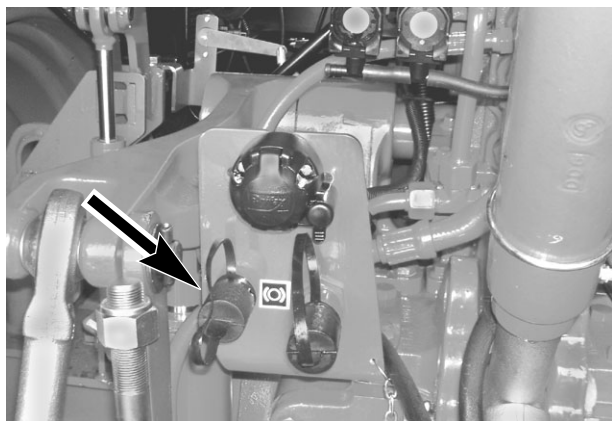
MD04D027

5. AIR PRESSURE GAUGE

Hydraulic Trailer Brakes (If Equipped)

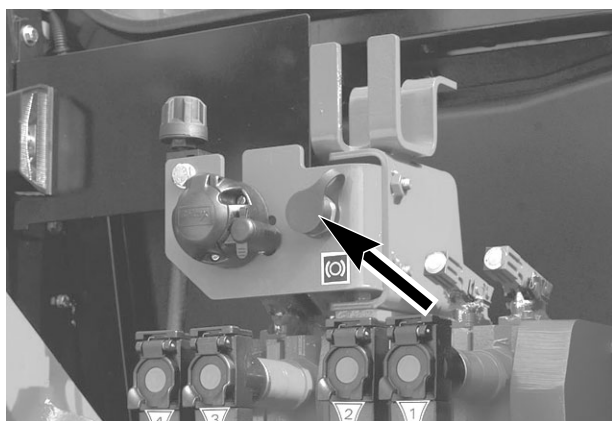
To connect or disconnect:

Slide the sleeve back on the trailer brake coupler and push on or pull off, then release the sleeve.



MD06K001

XTX145 AND XTX165 TRACTORS



MD05F060

XTX185, XTX200 AND XTX215 TRACTORS

Operation

AUXILIARY ELECTRICAL POWER SOCKETS

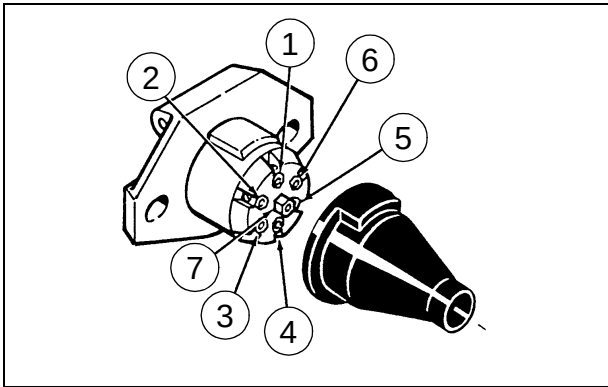
Seven Terminal Electrical Socket

The seven terminal electrical outlet socket is fitted to all tractors to supply power to operate the electrical systems of implements, trailer lighting, warning lamps, and field lights. The correct plug to fit the socket can be obtained from your dealer.

Observe local legal requirements.

NOTE: If the warning lamp, implement or trailer connector plug is not a seven terminal type, the plug must be changed.

North American Tractors

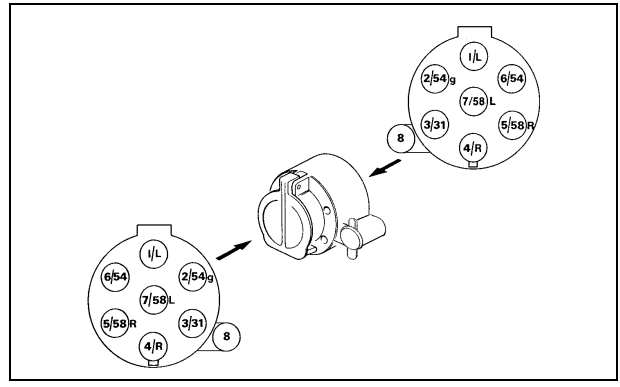


102B

TERMINAL No.	CIRCUIT (CABLE COLOR)
1	GROUND (WHITE)
2	FIELD LIGHTS (BLACK)
3	LEFT TURN SIGNAL (YELLOW)
4.....	AUXILIARY POWER (RED)
5	RIGHT TURN SIGNAL (GREEN)
6	TAIL LAMPS (BROWN)
7	AUXILIARY POWER (BLUE)

Pin number 4 and 7 are controlled through the key switch. These circuits are protected with a 30 ampere fuse. See Electrical System Circuit Protection in this manual.

Rest Of World Tractors



510125

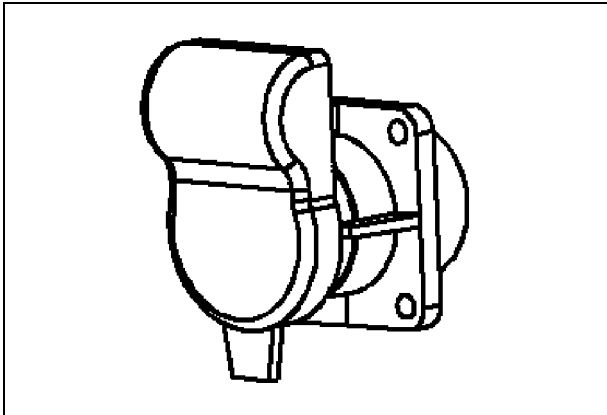
TERMINAL No.	TERMINAL USE
1 L.....	LH INDICATORS
2 54g.....	REAR FOG LAMPS
3 31.....	EARTH (GROUND)
4 R	RH INDICATORS
5 58R	RH REAR/SIDE LAMPS
6 54.....	STOP LAMPS
7 58L.....	LH REAR/SIDE LAMPS

The small socket (8) to the right of the seven terminal electrical outlet is used for connecting accessories on to an implement or trailer, e.g. rotating beacon.

Power to the socket will only be available at the socket when the Rotating Beacon Switch (If Equipped) is in the ON position.

NOTE: The correct plug to fit the small socket can be obtained from your dealer.

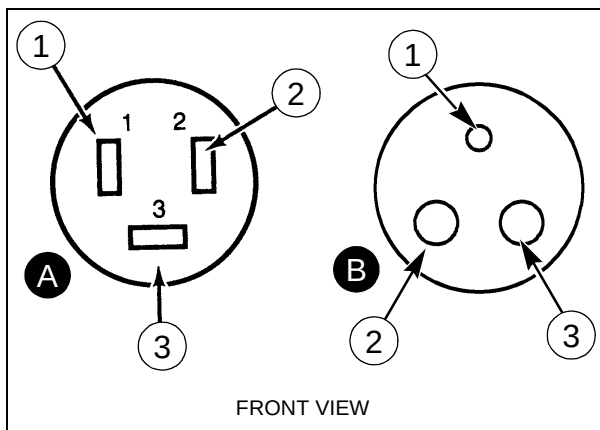
Three Terminal Electrical Sockets



mi02k078

Two auxiliary electrical power sockets are provided inside the operators compartment for connecting monitors, implement controllers, C.B. radios, and other 12 volt equipment.

NOTE: The correct 3 pin plug to fit the sockets can be obtained from your dealer.

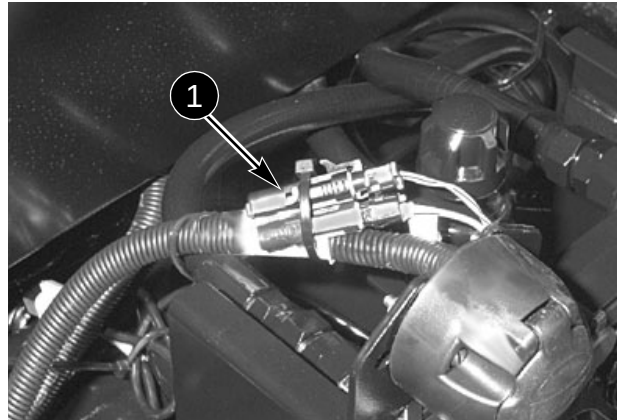


A. NORTH AMERICA

B. REST OF WORLD

1. POWER - THROUGH KEY SWITCH (134 RED CABLE)
2. POWER - DIRECT (164 RED CABLE)
3. GROUND (BROWN CABLE)

Remote Implement Switch Harness Connection (If Equipped)



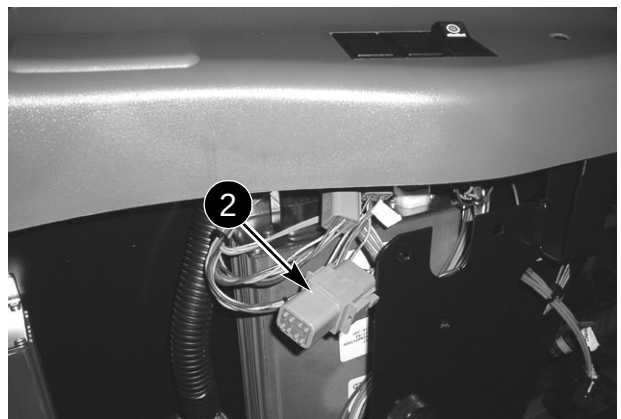
DD00H035

A two-pin plug connector (1) is provided at the rear of the seven terminal electrical socket to permit the connection of a remote implement switch (ON/OFF Type Single Pole).

The connection of an external switching circuit from the implement, allows the automatic area function to be operated.

To operate using a remote implement switch, the Hitch Raise/Lower Switch must be in the UP position and the area mode must be set to AUTO.

Implement Interface Connector (IIC)



MD04N011

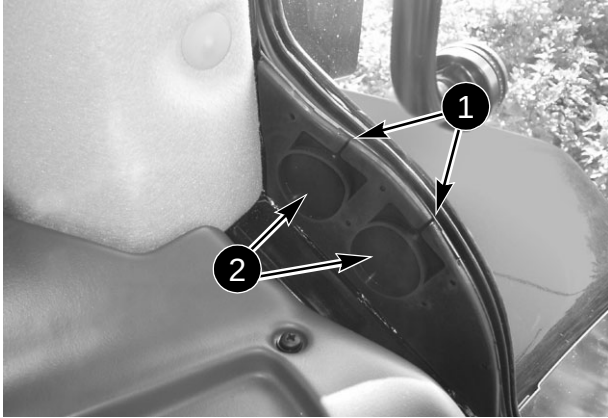
The implement interface connector (2) is provided to enable external systems to be connected to various McComick electronic signals (eg. radar, Axle speed).

The connector is located under the right hand console towards the rear of the cab.

Operation

IMPLEMENT CABLE ACCESS

Access is provided for implement cables in the right hand corner of the rear window.



MD03G133

To fit cables:

STEP 1

Open the rear window and remove the rubber grommet by pulling upward.

STEP 2

Cut the grommet down (1) into the centre of the circle area and then cut out the centre (2) to fit the cable(s).

STEP 3

Fit the grommet over the cable(s) and install the grommet and cable(s) into the slots in the cab.

STEP 4

Close the rear window.

FIELD OPERATION REAR POWER TAKEOFF

PTO Operating Safety

When using power takeoff operated equipment the following rules MUST be followed:

1. ALWAYS follow the implement manufacturers recommendations (refer to implement Operators Manual) when adjusting and aligning the implement and the implement driveline with the tractor.
2. On a tractor with a three point hitch, both lift links must be set as specified in the implement Operators Manual.
3. Set the three point hitch so as to limit the lateral movement of any implement attached.
4. The Upper Limit (maximum lift) for the hitch must be set correctly, See page 147 for instruction on how to adjust the lift height.
5. If attaching an implement to the drawbar:
 - A. Hold the drawbar in the centre location on the rear support with the retaining pins.
 - B. Raise the three point hitch as high as possible to prevent possible interference between the lower links and the implement.
 - C. The drawbar clevis (if equipped) must be removed or mounted under the drawbar, to prevent possible interference between the clevis and the implement driveline.
 - D. Connect the implement to the drawbar with a hardened steel pin. Make sure the pin is securely held in place with a cotter pin or lock pin and does not make contact with the implement driveline.
 - E. Connect the implement to the tractor drawbar before connecting the implement driveline to the power takeoff. When connecting the implement driveline to the tractor, check the driveline for correct length and for free telescopic movement. The correct length is important to prevent the driveline from hitting bottom or from separating in any tractor or implement operating position.
6. Always stop the engine before changing PTO shaft and before connecting an implement to the PTO shaft. This releases the tractor PTO brake and allows the PTO shaft to be turned by hand so that the splines of the tractor and implement PTO shafts can be aligned.
7. This tractor is equipped with a PTO brake which may be damaged by the continued rotation of high inertia implements. To prevent damage to the PTO brake, only use implements with an Over-Run mechanism to make sure that no implement rotation continues against the PTO brake when the PTO has been switched OFF.



WARNING: ALWAYS read and comply with the implement manufacturers operators manual before attaching and using any implement.



WARNING: In order to prevent damage to the 540 or 540E rpm PTO driveline and/or injury to bystanders do not attach implements that require more than 56 kW (75 hp) to operate. If this limit is exceeded, the PTO is designed to disengage. Implements that require more than 56 kW (75 hp) should only be attached to the 1000 rpm PTO driveline.



WARNING: When attaching implements ALWAYS make sure they are matched to the tractor PTO SPEEDS. Do not exceed the recommended speeds of the driven machine. Do not operate the PTO unless the shaft and drive line shields are in position and the tachometer is working correctly.



WARNING: PTO driven implements can cause serious injury. Before working on or near the PTO shaft, or servicing or clearing the implement, ALWAYS DISENGAGE the PTO and STOP the engine.



WARNING: When doing stationary PTO work and dismounting from the tractor with the PTO running, keep clear of all moving parts as they are a potential safety hazard.

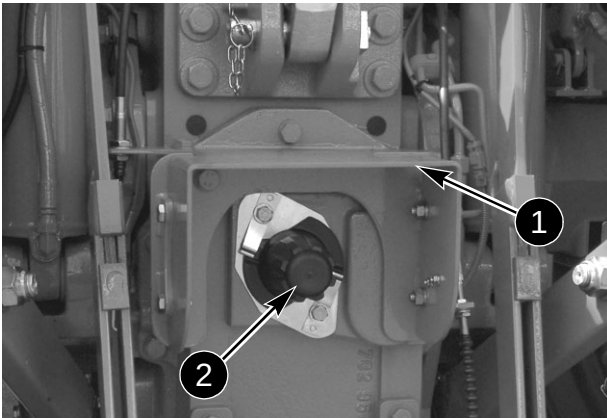
Operation

PTO Safety Guard

All tractors with a power take off have a large safety guard (1) and a small tube type guard (2) for the splined output shaft.

To prevent injury to the operator, the tractor power take off safety guard and the shields for the telescopic shaft assembly must be used.

When possible raise the guard when connecting an implement and lower the guard to horizontal when using the 3 point hitch and a non driven PTO implement.



MD05F056

TRACTOR EQUIPPED WITH AUTO HITCH USED FOR
ILLUSTRATION PURPOSES ONLY



WARNING: *Whenever a PTO driven implement is in operation, the PTO guards MUST be in place (for most operations) to prevent injury to the operator or bystanders. Where attachments, such as pumps, are installed on the PTO shaft (especially if the tractor PTO guard is moved upward or removed), extended shielding equivalent to the PTO guard must be installed with the attachment. Install the PTO guard to its original position immediately when the attachment is removed.*

Changing the PTO Shaft

The XTX tractor range has a reversible PTO shaft, 6 splines on one end and 21 splines on the other.

NOTE: A 20 spline shaft is also available depending on market requirements.

How the PTO shaft is changed varies depending on tractor specification.

Reversible Shaft with Locking Collar (Typically North American Tractors)

STEP 1



MH04C098A

Stop the engine. Lift the PTO guard. Push the output shaft locking collar in to release the shaft.

STEP 2



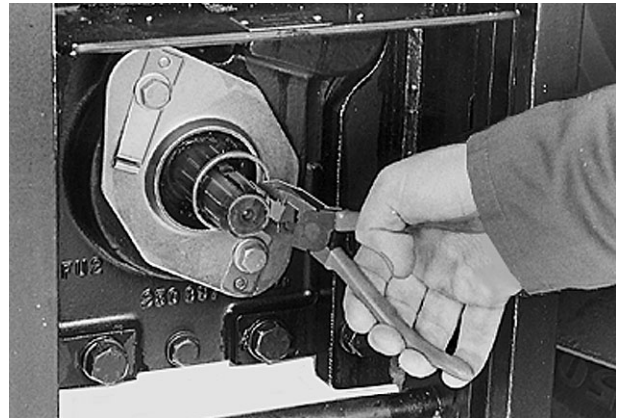
MH04C099A

Remove the shaft. Clean the shaft splines. Put grease on the shaft splines.

Push the locking collar in, insert the shaft and release the collar.

Reversible Shaft with Snap Ring (Typically European Tractors)

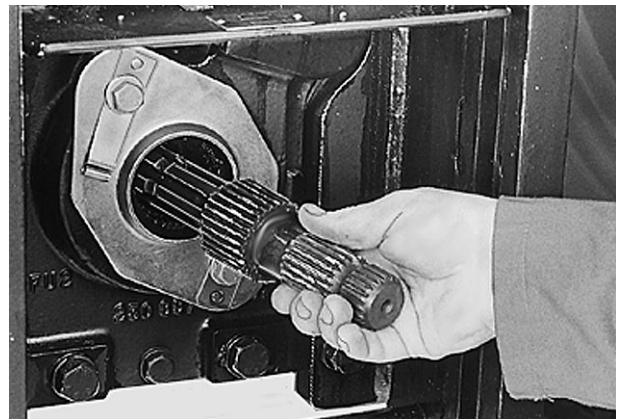
STEP 1



DP98M195A

Stop the engine. Lift the PTO guard. Remove the snap ring which retains the output shaft.

STEP 2



DP98M196A

Remove the shaft and clean the shaft splines. Put grease on the shaft splines and insert the other end.

Install the snap ring, making sure the ring locates correctly in the groove.

Operation

Changing the PTO Speed

NOTE: Make sure the drawbar is set in the correct position if operating a drawbar pulled, PTO driven implement; See page 109 for more information.

Via Reversible Shaft Type PTO (Typically North American Tractors)

This PTO has a reversible shaft and depending on which way the shaft is inserted will allow either 540, 540E or 1000 rpm PTO speed.

Inserting the shaft with 6 splines showing will give 540 (or 540E) PTO rpm and with 21 splines showing will give 1000 PTO rpm.

To change ends and therefore change PTO rpm speed refer to steps 1 and 2 (left hand column) on the previous page.

NOTE: A 20 spline shaft is also available. With this shaft installed the PTO will give 1000 rpm.

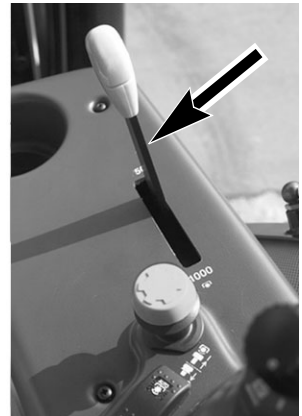
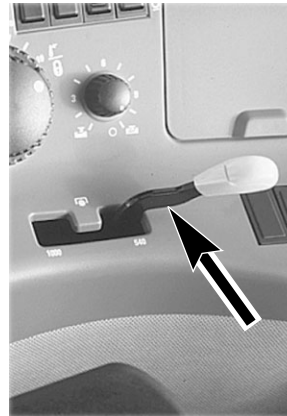
Via Shiftable Type PTO (Typically European Tractors)

This PTO also has a reversible 6/21 spline shaft as standard with an additional 20 spline shaft option. To change the PTO speed this PTO type has a lever in the operators cab.

NOTE: The number of PTO speeds available will vary depending on tractor specification.

To change speed, disengage the PTO (if engaged). Move the lever forward or rearward as required and re-engage the PTO.

NOTE: The PTO speed change is achieved by means of an internal sliding collar (ie. not synchronized). If you experience difficulty changing the PTO speed, momentarily engage and disengage the PTO. This will allow the gears to align inside the PTO housing and the lever should then move freely to the new speed position.



MD04C158

NOTE: Make sure the correct shaft to suit the implement being used is installed, (see steps 1 and 2 - right hand column on the previous page).

PTO Speed Options

Two PTO options are available;

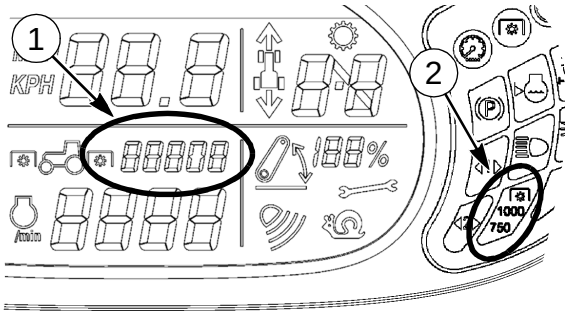
1. 540/1000 PTO

PTO Speed	Engine rpm
540 PTO	1860 rpm
1000 PTO	2025 rpm

2. 540E/1000 PTO

PTO Speed	Engine rpm
540E (Economy) PTO	1625 rpm
1000 PTO	2025 rpm

IMPORTANT: If the tractor PTO exceeds a specific speed the PTO indicator lamps (1) and (2) will flash. They will continue to flash until the PTO speed is reduced.



MI03C064

540/540E PTO: The lamps will flash when the PTO speed exceeds 630 rpm and will continue to flash until the speed drops below 600 rpm.

1000 PTO: The lamps will flash when the PTO speed exceeds 1170 rpm and will continue to flash until the speed drops below 1100 rpm.

IMPORTANT: When using the PTO, to avoid damage to the driveline, implement or injury to bystanders make sure the implement input shaft rpm never exceeds the recommended rpm for the implement.

When using the 540 or 540E rpm PTO driveline do not attach implements that require more than 56 kW (75 hp) to operate. If this limit is exceeded, the PTO is designed to disengage.

Implements that require more than 56 kW (75 hp) should only be attached to the 1000 rpm PTO driveline.

Economy PTO (540E)

In most cases, power takeoff operated equipment that do not need a high power output are designed to run at 540 rpm. Equipment that have a higher power requirement are designed to operate at 1000 rpm.

Economy PTO is a feature where 540 rpm PTO speed can be obtained using a lower engine rpm. This has a number of advantages, including a reduction in fuel consumption, noise and vibration.

This feature should only be used for implements which do not require maximum power, (such as fertilizer spreaders, sprayers etc).

Power Management System

The XTX range of tractors are equipped with a power management system on the engine which monitors and boosts engine power during PTO operations.

When the torque load applied through the PTO driveline increases the power management system will increase horsepower to maintain the PTO performance. As the load reduces the system will lower the horsepower as necessary.

The power management system basically changes the maximum engine torque curves electronically as and when load is applied to the engine.

This system will operate within all PTO speeds.

Operation

Operating the Electronic PTO System

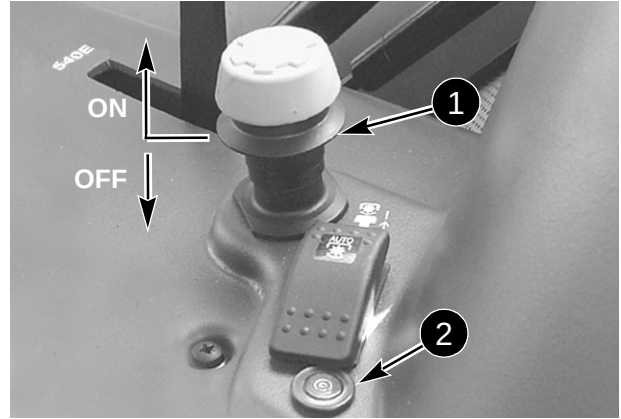
The PTO can be turned ON/OFF by using either an internal ON/OFF switch, located on the right hand console, or by external remote push buttons, (if equipped), on both of the rear fenders. The electronic PTO control system provides controlled modulation of PTO clutch engagement regardless of the engine speed or implement size. This allows smooth PTO engagement at any speed up to full throttle. The PTO is independent of the transmission and can be operated anytime the engine is running. The tractor motion can be started or stopped in any of the forward or reverse speeds without affecting the speed of the power takeoff shaft. Also, the PTO shaft can be started or stopped without affecting the speed of the tractor.

NOTE: The upper limit control should always be used, see page 147 (item 7), when using the PTO.

Internal PTO Controls

Turning the PTO ON/OFF from Inside the Cab:

STEP 1



MD05E085

Lift the locking collar (1) on the ON/OFF switch and pull the switch up to the ON position. The switch will stay in the ON position and the indicator lamp (2) will illuminate to show the PTO is engaged.

IMPORTANT: If the operator gets off the seat when the PTO is running an audible alarm will sound for 7 seconds.

NOTE: To assist PTO engagement it may be necessary to increase engine rpm.

STEP 2

Push the ON/OFF switch fully down to disengage the PTO. The PTO indicator lamp will turn off.

IMPORTANT: If the PTO is engaged and the engine is stopped the PTO will disengage, but the ON/OFF switch will remain in the ON position. The engine will start if the ON/OFF switch is not in the OFF position, but the PTO shaft will not rotate and the PTO indicator lamp will flash. Push the ON/OFF switch fully down to the OFF position to turn off the indicator lamp and enable the PTO system.

STEP 3

When the PTO is not in use ALWAYS install the output shaft guard.

IMPORTANT: Do not operate without drive line shields fitted. Make sure the tachometer is working. Read the Operators Manual supplied with PTO driven equipment.

External PTO Controls (Rear Fender Remote PTO, If Equipped)

With the tractor stationary, the operator can leave the cab and use the remote push button switch to turn the PTO ON/OFF.

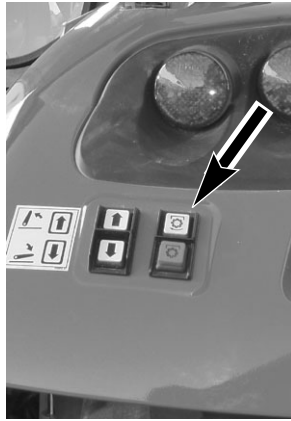
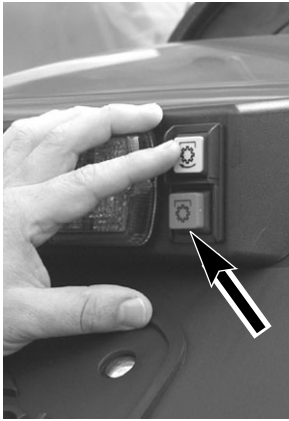
Remote control of the PTO is independent of the internal cab controls and the Operator Presence Switch.



WARNING: Stand well clear of the PTO shaft when operating the external PTO controls or injury can result from contact with moving parts.

Engaging/Disengaging the PTO Using External Controls:

NOTE: The tractor must be stationary for the remote push buttons to operate.



MD04G022



Press and hold the yellow ON push button for 3 seconds.

The PTO indicator lamp on the right hand console will illuminate.

NOTE: If the push button is released before the 3 second period the PTO will disengage.



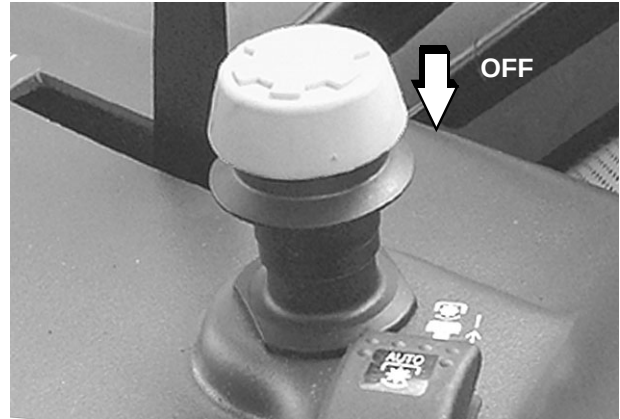
Press the red OFF push button to immediately disengage the PTO.

The PTO indicator lamp on the right hand console will turn off.

NOTE: With the PTO engaged and the tractor in motion, if either of the external PTO push buttons are operated the PTO will immediately disengage. To reset the PTO push the internal PTO ON/OFF switch down to disengage and then re-engage the PTO.

To reset the external remote PTO controls it will be necessary to turn the keyswitch to OFF then restart the tractor.

Disengaging the PTO from inside the cab after being engaged using the external controls:

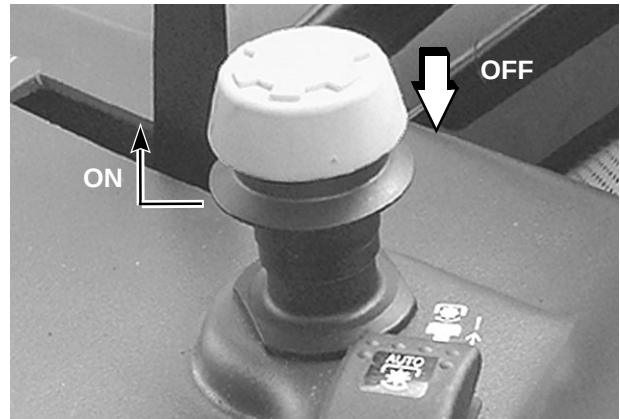


MD05E086

Push the yellow dome on the ON/OFF switch down to disengage the PTO. The PTO indicator lamp will turn off.

Re-engaging the PTO from inside the cab after being engaged from inside the cab and then disengaged using the external controls:

The PTO ON/OFF switch will be in the ON position (switch fully raised) but the PTO shaft is stationary (due to being switched OFF by the external controls). The PTO indicator lamp on the right hand console will be flashing.



MD05E086

Push the ON/OFF switch fully down. The PTO indicator lamp will turn off.

Lift the locking collar on the ON/OFF switch and pull the switch up to the ON position. The switch will stay in the ON position and the PTO indicator lamp will illuminate to indicate the PTO shaft is rotating.

Operation

Auto PTO (If Equipped)

The auto PTO automatically disengages/engages the PTO when raising/lowering an implement, i.e. during a headland turn.



MD04C005

The Auto PTO Switch has three positions:

- SET (MOMENTARY)
- ON
- OFF

To operate in Auto PTO mode, you must program the PTO 'OFF' and 'ON' set-points. The set-points must be suitable to ensure correct operation of the PTO, for the particular implement that is attached to the hitch. The set-points can be programmed anywhere between the lower stop and the upper limit setting.

NOTE: The PTO 'OFF' set-point should be set at the point where the implement has just cleared the ground, when raised by the hitch.

NOTE: The PTO 'ON' set-point should be set at a point which ensures the PTO is On and fully engaged, before the implement enters the ground, (refer to "Setting the PTO 'ON' set-point" on following page for a more detailed explanation).

IMPORTANT: To program the Auto PTO set-points, the tractor must be stationary and the PTO switch must be in the OFF position.

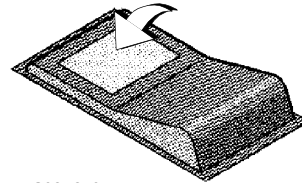
IMPORTANT: The PTO 'OFF' and 'ON' set-points will stay in memory, even if the battery is disconnected and can only be changed by repeating the following procedures.

Setting the PTO 'OFF' set-point

STEP 1

Raise or lower the implement to the required hitch position where the implement is just clear of the ground.

STEP 2



DS98K259

Press the top of the Auto PTO switch fully forward to the SET position and hold for 1 second. The light on the Auto PTO switch will flash once and the buzzer will sound once, to

indicate that the PTO 'OFF' set-point, (hitch position for PTO disengagement), has been stored in memory.

Setting the PTO 'ON' set-point

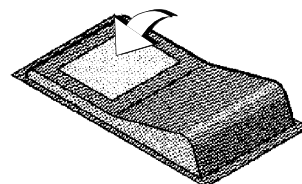
The PTO 'ON' set-point should be set at a position which ensures that the PTO is ON and fully engaged (full PTO clutch lock-up), before the implement enters the ground.

IMPORTANT: PTO clutch damage may occur if you do not ensure full PTO engagement has occurred prior to the implement entering the ground. A minimum of 3 seconds should be allowed between PTO 'ON' set-point and the implement entering the ground, by setting the hitch drop speed to comply.

STEP 1

Set the hitch to the desired PTO 'ON' set-point, (hitch position for PTO engagement).

STEP 2



DS98K259

Press the top of the Auto PTO switch fully forward to the SET position, twice within 1 second; on the second press, hold down for a minimum of 1 second. The light in the Auto PTO

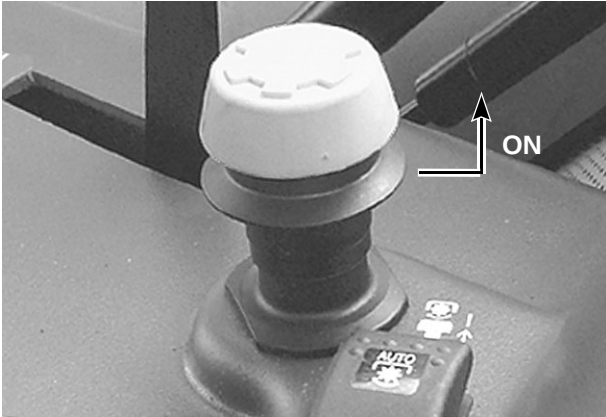
switch will flash twice and the buzzer will sound twice, to confirm that the PTO 'ON' set-point, has been stored in memory.

Activating Auto PTO mode:

STEP 1

Confirm PTO 'OFF' and 'ON' set-points are correct for attached implement/hitch settings. (Change settings as necessary).

STEP 2

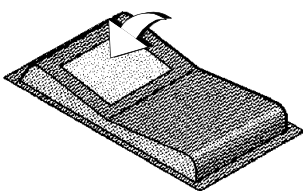


MD05E086

Engage the PTO, (see Step 1 on Page 132 for complete instructions).

NOTE: If the Auto PTO switch is moved to the ON position, before the PTO is turned ON; then the Auto PTO switch light will not illuminate until the PTO is turned ON via the main PTO switch. (i.e The Auto PTO function is not available until the PTO ON/OFF switch is enabled).

STEP 3



DS98K260

Push the Auto PTO switch to the ON position. Auto PTO is activated and the lamp on the switch will illuminate.

If the hitch position is above the PTO 'OFF' set-point, the PTO will automatically be turned OFF and the PTO indicator light will go out.

If the hitch position is below the PTO 'OFF' set-point, the PTO will continue to run.

IMPORTANT: When starting the tractor, if the Auto PTO switch is ON, both the PTO indicator light and the Auto PTO switch indicator light, will flash. BOTH the PTO switch AND the Auto PTO switch will have to be turned OFF, to re-enable either function, as required.

Driving into the row

STEP 1

Lower the implement.

The PTO will automatically start up when the hitch passes the PTO 'ON' set-point. The PTO indicator lamp will illuminate.

IMPORTANT: Raising/Lowering the Hitch using the UP/DOWN switch, **IS** the preferred method.

If, while using the Position Control Knob, the hitch is raised above the OFF set-point, and disengages the PTO; but is not raised above the ON set-point, the PTO will re-engage as the hitch is lowered through the OFF set-point.

IMPORTANT: If, when lowering the implement, the PTO clutch has not been fully engaged within 3 seconds, the PTO indicator lamp will flash and the PTO will disengage. This is caused by the DROP SPEED being set too fast. Decrease the Drop Speed and re-enable the PTO system by pushing the PTO ON/OFF switch fully down to the OFF position. The PTO indicator lamp will go off. Then lift the locking collar on the PTO ON/OFF switch and pull the switch up to the ON position to re-engage the PTO.

Driving out of the row

STEP 1

Raise the implement using either the UP/DOWN switch or the Position Control Knob).

IMPORTANT: Raising/Lowering the Hitch using the UP/DOWN switch, **IS** the preferred method.

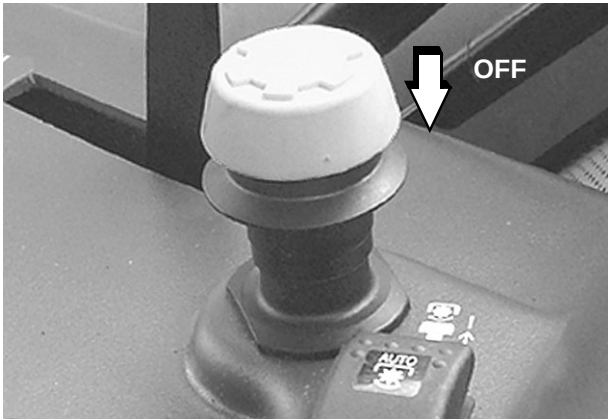
STEP 2

The PTO will automatically turn OFF when the PTO 'OFF' set-point is passed. The PTO indicator lamp will go out.

Operation

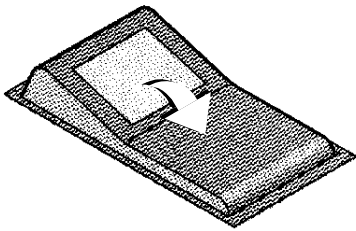
De-activating Auto PTO mode:

STEP 1



Disengage the PTO.

STEP 2



Move the Auto PTO switch to the OFF position. The switch light will go out.

Auto PTO will Disable and the PTO will Disengage when:

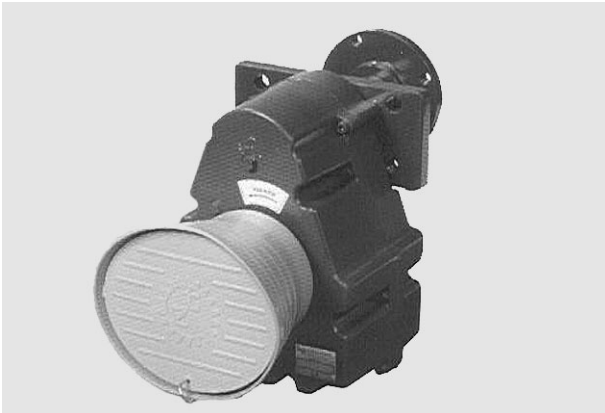
- A. If the hitch position is between the 'Auto' PTO OFF set-point and the Upper Limit Setting.
- B. The hitch is in the above state and not lowered within two minutes.
- C. The tractor does not move for 10 seconds.
- D. Any remote hitch push button, (if equipped) are pressed.
- E. If the operator is off the seat for more than 5 seconds.
- F. The hitch is not enabled (refer to Operators Manual to enable hitch).
- G. Any remote PTO push button, (if equipped), is pressed. (Unless the external PTO controls are disabled).

If Auto PTO function is **disabled** for any of the above reasons, the PTO will not operate, the PTO indicator lamp on the right hand console will flash and the Auto PTO switch lamp will go off. The flashing lamp is to indicate that the PTO switch on the right hand console is in the ON position but the PTO is disengaged.

To enable the PTO system push the PTO ON/OFF switch fully down to the OFF position, the PTO indicator lamp will go off, then lift the locking collar on the PTO ON/OFF switch and pull the switch up to the ON position to re-engage the PTO. If the Auto PTO switch is ON, Auto PTO **is also** enabled and the lamp in the switch will illuminate.

NOTE: *If at any time the operator switches Auto PTO off the PTO system will revert back to manual operation.*

FRONT POWER TAKEOFF OPERATION (If Equipped)



MH04N012

The front power takeoff has a 6 spline output shaft which rotates at 1000 rpm. Engagement is electro-hydraulic, actuated by a three position rocker switch (OFF, ON and ENGAGED) situated on the RH side console. Depending upon market requirements the front PTO can be supplied with two different directions of rotation (clockwise or counterclockwise).

IMPORTANT: When using implements which cause shock loads, ALWAYS have a slip clutch fitted between the implement and the tractor PTO drive shaft. Before using the implement check the slip clutch is working correctly and the implement is free to run.

IMPORTANT: When using implements which have fast moving parts eg. mowers, corn choppers or snow blowers, ALWAYS install an Over-Run mechanism to the implement drive shaft to prevent PTO failure.

IMPORTANT: Make sure the PTO shaft on the implement is not too long or the PTO will be damaged if the front hitch is raised to full height.



WARNING: ALWAYS read and comply with the implement manufacturers operators manual before attaching and using any implement.

Engage the PTO as follows:

STEP 1

Reduce the engine rpm.

STEP 2



MD04D015

Press the top of the switch down, push the switch lock (1) (on the bottom of the switch) down and at the same time press the switch down again and release.

An indicator lamp in the switch will illuminate when the front power takeoff is engaged.

IMPORTANT: PTO will not engage if engine is started with the switch in the engage position. Move switch to disengage and then engage.

IMPORTANT: Never try to release dead locked implements by repeated clutch engagement and disengagement. The front power takeoff clutch will slip and become damaged.

Disengage the PTO as follows:

STEP 1

Reduce the engine rpm.

STEP 2

Push the bottom of the switch (1) down to the off position, the indicator lamp in the switch will go out when the front power takeoff is disengaged.

STEP 3

When the engine is switched off the front power takeoff is automatically disengaged. The indicator lamp in the switch will go out to indicate the front PTO is disengaged.

STEP 4

Always install the PTO shaft guard when the PTO is not being used.

IMPORTANT: High-inertia implements do not become stationary immediately when PTO is disengaged. Allow sufficient time for implement to "run down" to a halt before cleaning or adjusting.

Operation

REAR THREE POINT HITCH PREPARATION

The hitch system gives position control and load control of soil engaging implements.

XTX145, XTX165 Tractors:

Your tractor could be, depending upon customer specification, able to accept either Cat II or Cat IIIN implements, conforming to SAE-ASAE standard dimensions. If your tractor is equipped with a Cat IIIN hitch, the hitch can be converted to accept Cat II implements with the use of either reducer bushings, one for each lower link and one for the top link or alternative linkage balls, all of which are available from your dealer.

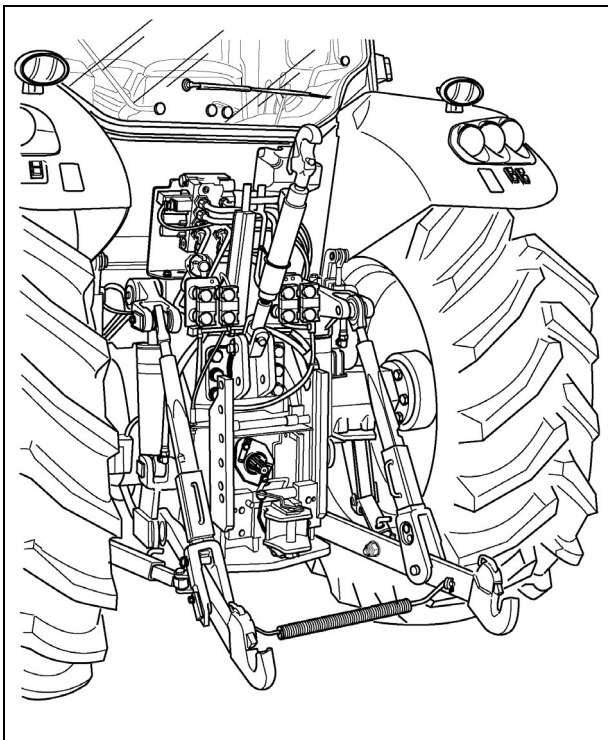
XTX185, XTX200, XTX215 Tractors:

Your tractor is equipped with a three point hitch that will accept Cat III mounted implements conforming to the SAE-ASAE Standard Dimensions.

	XTX145 & XTX165		XTX185 to XTX215
	Cat II	Cat IIIN	Cat III
Diameter Of Hitch Balls	50.0 mm (2 in)	60.0 mm (2-3/8 in)	60.0 mm (2-3/8 in)
Diameter Of Hitch Pins	28.6 mm (1-1/8 in)	36.6 mm (1-1/2 in)	36.6 mm (1-1/2 in)
Lower Hitch Pin Inner Shoulder Spread	825 mm (32-7/16 in)	825 mm (32-7/16 in)	965 mm (38 in)
Gap In Top Of Implement Mast	52.4 mm (2-1/16 in)	52.4 mm (2-1/16 in)	52.4 mm (2-1/16 in)
Diameter Of Holes In Top Of Implement Mast	25.4 mm (1 in)	31.7 mm (1-1/4 in)	31.7 mm (1-1/4 in)



WARNING: ALWAYS read and comply with the implement manufacturers operators manual before attaching and using any implement.



MH06B083

When using the three point hitch ensure there is sufficient clearance between the rear tyres and the lower links by adjusting the stabilizers and/or tread positions, see pages 140, 189 and 191 for more information.

The top and lower links must be adjusted correctly so that the implement can work at the required depth and that the lower links are free to move up and down with the shape of the ground.

After making any adjustments, carefully raise the implement to make sure there is clearance between the tractor and implement.

Make sure tyre pressures, wheel equipment and ballasting are correct before making hitch adjustments.



WARNING: Extreme care must be exercised when adjusting and checking the hitch and control linkage when the engine is running and when linkage is under hydraulic or mechanical load. Study the linkage and hitch travel, keep hands, arms, legs and feet out of the travel arc of the hitch and linkage. Make sure that no persons are in the danger area.

Lower Link Adjustment

STEP 1

Put the tractor on a hard level surface and lower the hitch to the lowest position.

STEP 2



DP98E003

Lift the turnbuckle lock (1) to release.

STEP 3

Turn the turnbuckle lock clockwise to lower and counterclockwise to raise.

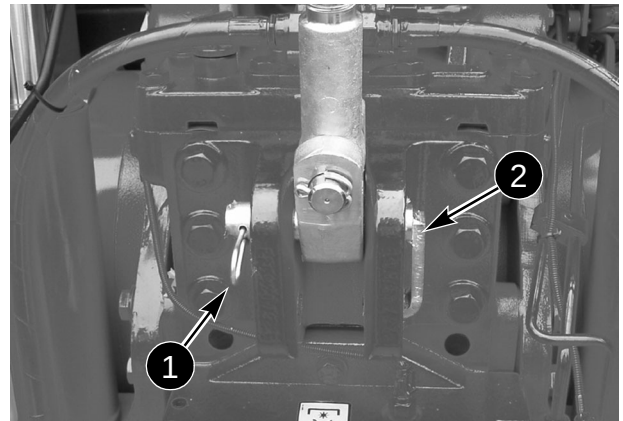
NOTE: Be sure to place the turnbuckle locks in their locked position after adjusting the lower links.

Top Link Adjustment



WARNING: Only use the special swivel type top link supplied with the tractor when connecting to the top bracket. Serious damage and possible injury can result, if you use other types of top link. M523

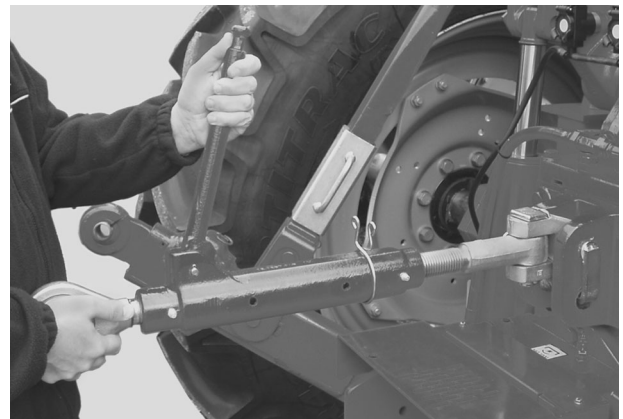
The mounting holes within the top link bracket allow for different implement lift angles to be achieved. Use the appropriate hole to suit the equipment mounted to the tractor.



MD05K015

To adjust the top link mounting position, remove the 'R' clip (1). Remove the link pin (2) and move the top link to the required position.

Once the top link is in the correct position, make sure the length of the top link is adjusted correctly. Refer to the implement Operators Manual for the correct length.

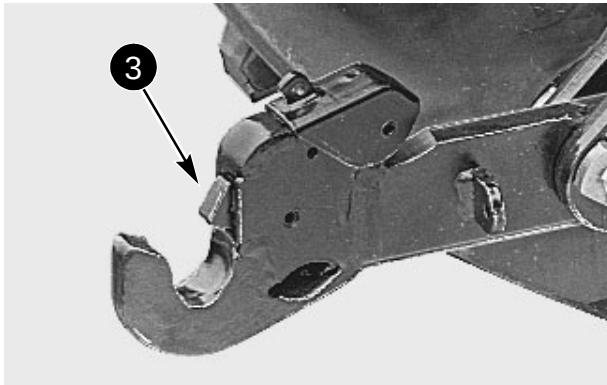


MD05K014

To adjust the length of the top link, move the adjustment handle to the vertical position. Turn the handle clockwise to shorten the link or counterclockwise to lengthen the link.

Operation

Claw End Lower Links (If Equipped)



F01605

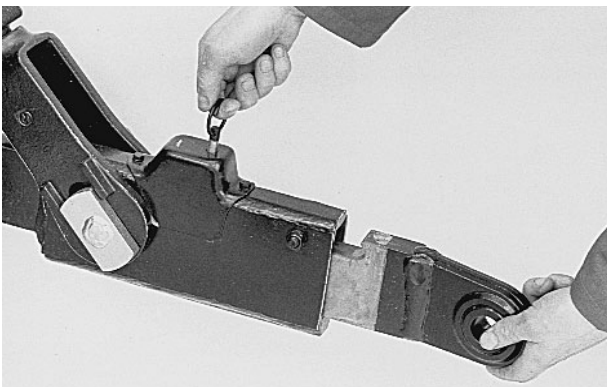
Connecting an Implement: Reverse the tractor until the claw ends of the lower links are aligned under the connecting points of the implement. Raise the lower links until the claws engage and the latches (3) lock.

The spring spacer between the lower links will give the Cat III width setting.

Disconnecting an Implement: Lower the implement to the ground. Pull the remote release rope (if equipped) to release the claw end latches and lower the lower links until clear of the implement. Lift the top link off the implement upper connecting point and store in the bracket provided.

Move the tractor forward away from the implement.

Telescoping Lower Links (If Equipped)



B06835

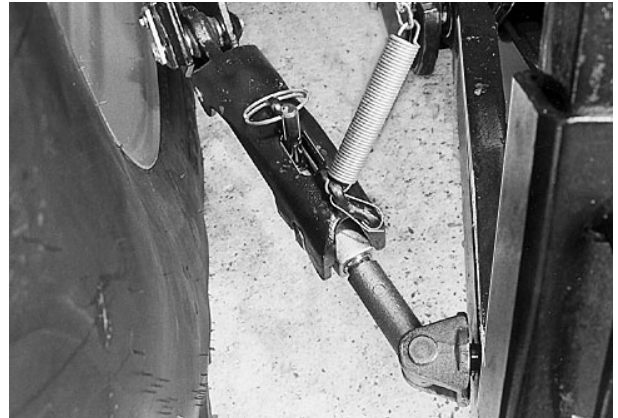
Pull the latch handle up and pull the end of the lower link out. Connect the extended lower links to the implement. The lower links will retract and lock in place when the tractor is moved rearward.

IMPORTANT: Make sure that the lower links are fully retracted and locked in place before operating the tractor.

Left Hand Stabilizer (Option A) (If Equipped)

The stabilizer locking device is operated by an adjustable chain and spring. The chain length can be altered by connecting different links of the chain to the hook on the rear left fender.

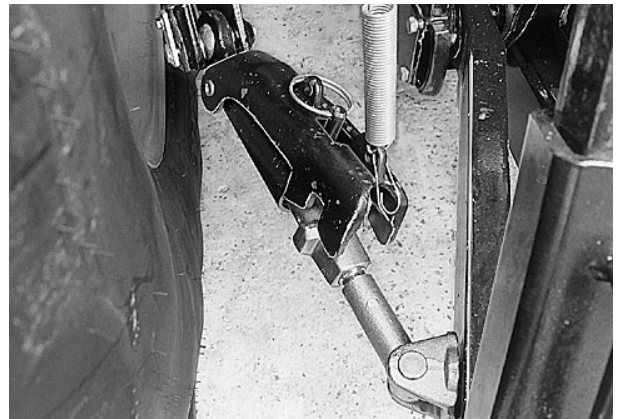
Rigid Operation



DP98E007

With the three point linkage fully lowered, adjust the chain by putting a different link on the fender hook so the chain becomes loose and there is no tension in the spring. The stabilizer will be locked for rigid operation.

Sway Operation



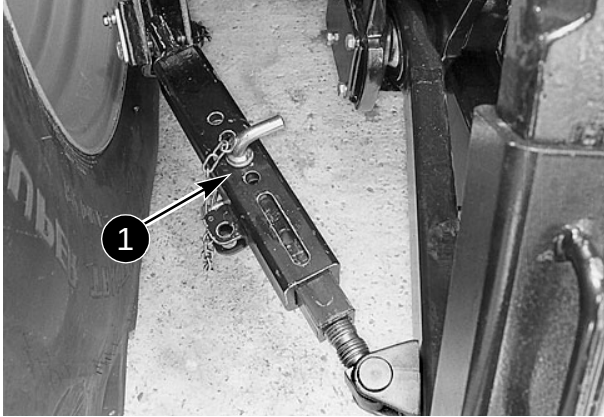
DP98E006

With the three point linkage fully lowered, adjust the chain by putting a different link on the fender hook so the chain is tight and the spring is under tension. This will hold the top latch of the stabilizer up. The stabilizer will be free to float for sway operation.

When the three point linkage is raised the chain will loosen, the top flap will drop and lock the stabilizer to prevent sway during transportation.

Left Hand Stabilizer (Option B) (If Equipped)

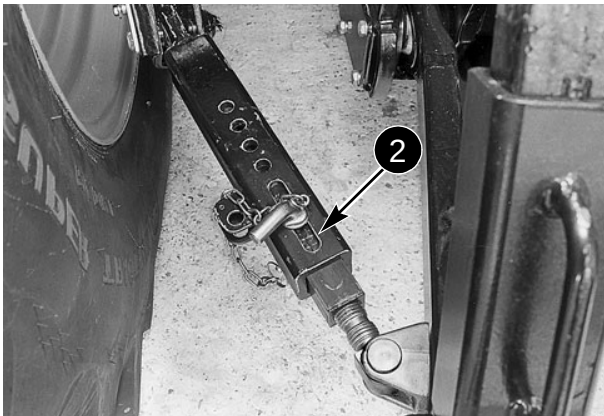
Rigid Operation



DP98E009

Install the pin through the holes (1) for RIGID operation.

Sway Operation



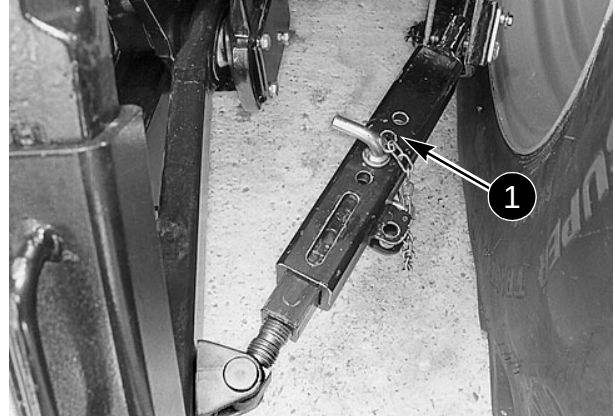
DP98E008

Install the pin through the slot (2) for SWAY operation.

When the three point linkage is raised the stabilizer DOES NOT lock to prevent sway during transportation.

Right Hand Stabilizer (If Equipped)

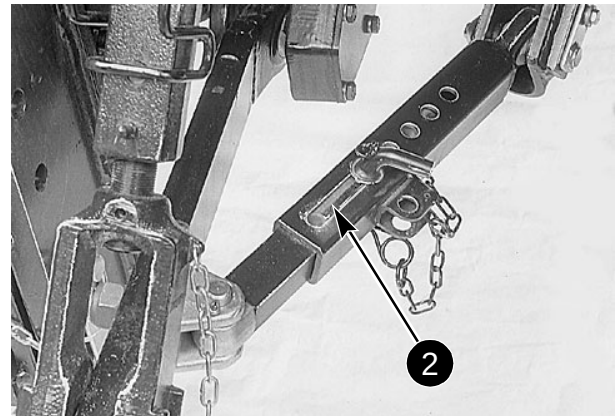
Rigid Operation



DP98E009

Install the pin through the holes (1) for RIGID operation.

Sway Operation



DP96H276

Install the pin through the slot (2) for SWAY operation.

If equipped with 'Option A' Left Hand Stabilizer:
When the three point linkage is raised the chain will loosen, the top flap will drop and lock the stabilizer to prevent sway during transportation.

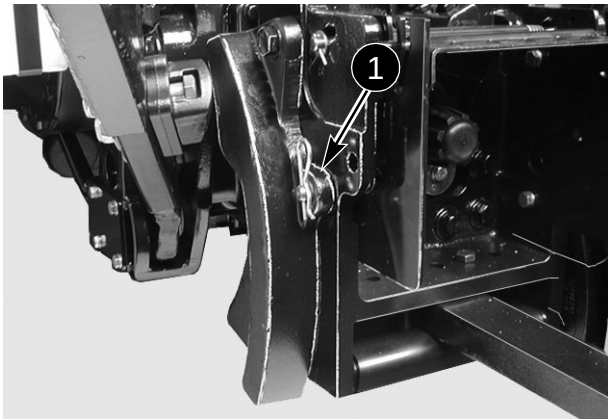
If equipped with 'Option B' Left Hand Stabilizer:
When the three point linkage is raised the stabilizer DOES NOT lock to prevent sway during transportation.

Operation

Cam Sway Blocks (If Equipped)

Cam sway blocks for the three point hitch can be mounted in two (2) positions on the drawbar support to control the side to side movement of the three point hitch.

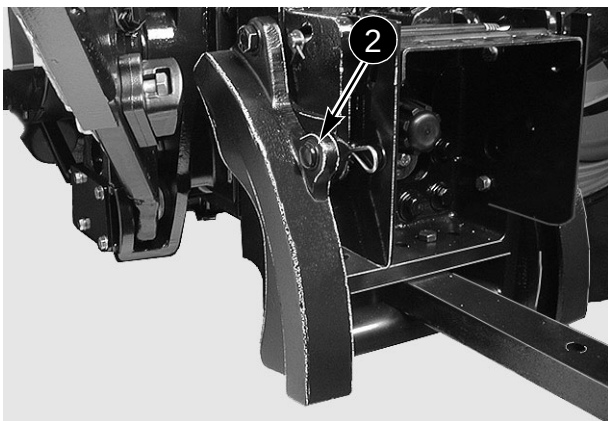
Rigid Operation



MD01F091

The sway blocks can be mounted in the RIGID position with the pin in lower hole (1) to give minimum side to side movement in both the working and transport positions of the hitch.

Sway Operation



MD01F090

The sway blocks can also be mounted in the SWAY position with the pin in upper hole (2) to give maximum side to side movement.

In the SWAY position the blocks are tapered to automatically give maximum sway when the hitch is lowered and to give no sway when the hitch is raised (transport position).

Adjustment Blocks

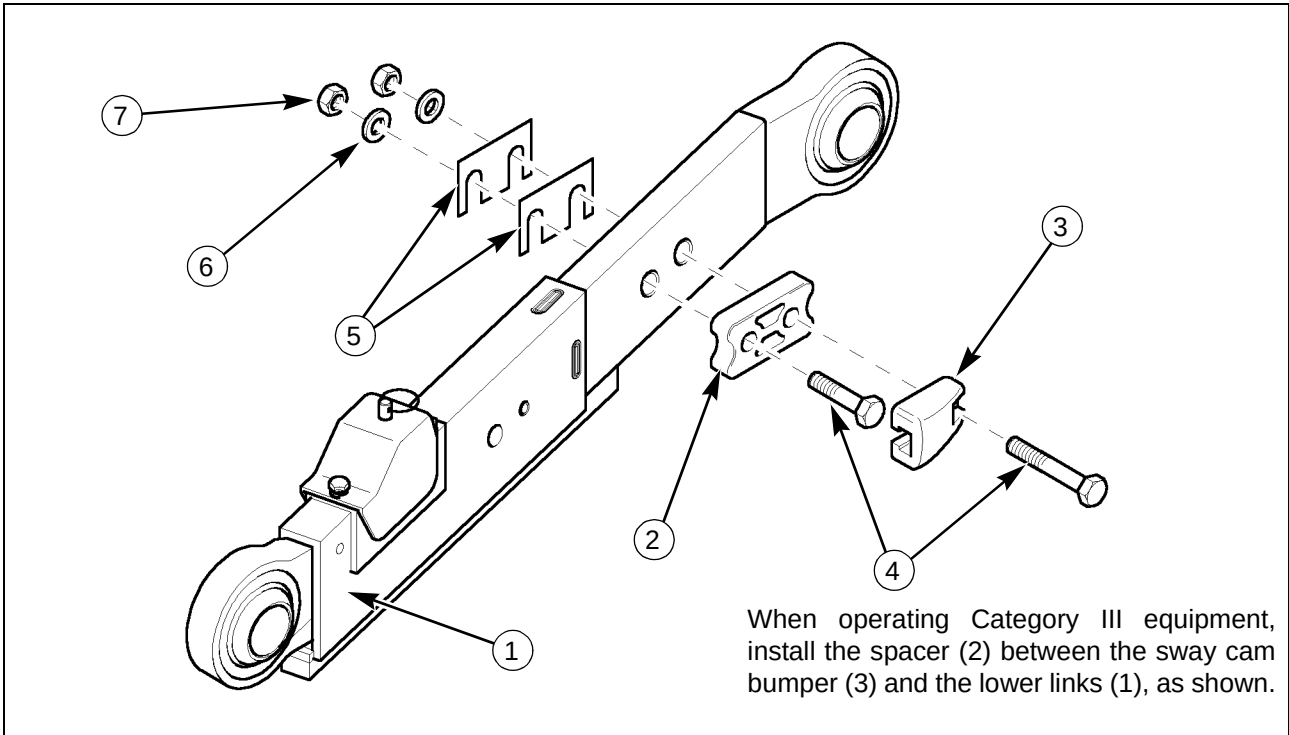
The width between the lower links is adjustable for Category III or Category IIN equipment by the use of shims positioned between the sway bumper cam and the lowerlink.

IMPORTANT: Make sure the hitch category setting is correct for the implement attached. Damage to the hitch can occur if an implement is attached with the wrong category setting.

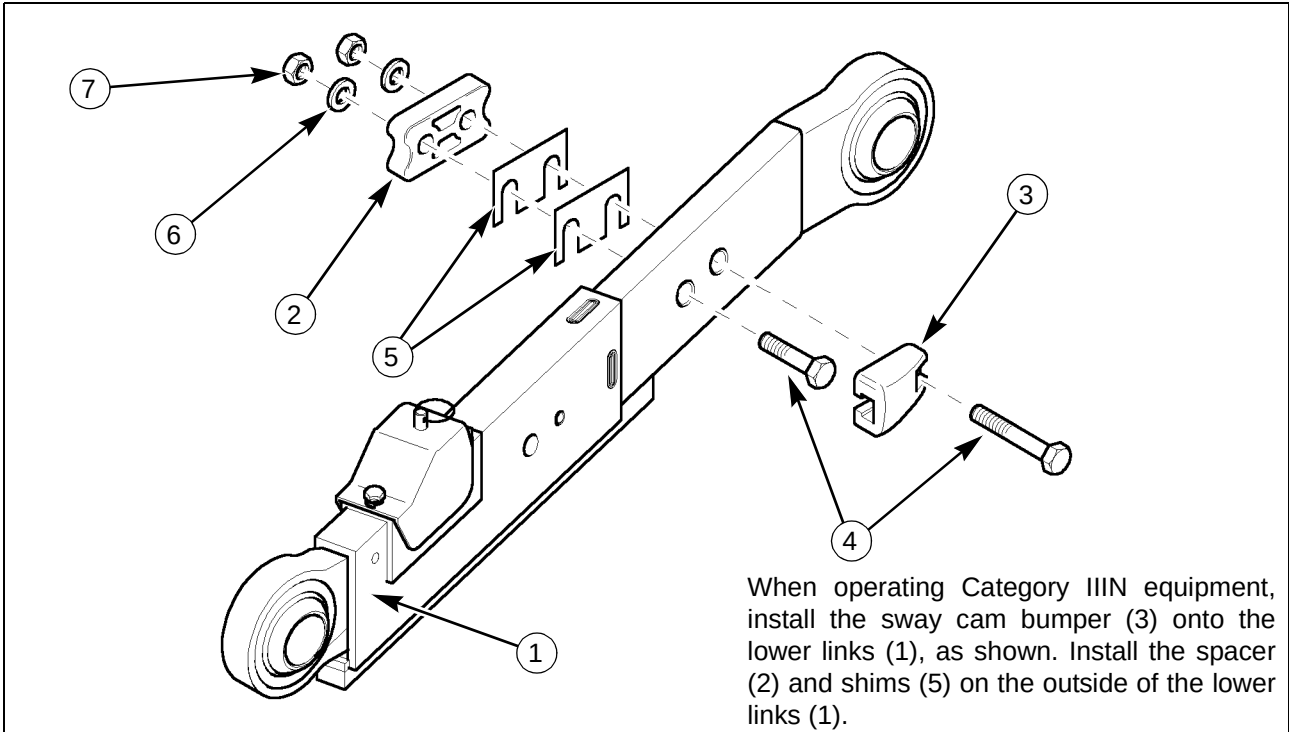
When adjusting the lateral movement, an equal number of shims must be used on each lower link. Adjustment can be made with the Cam Sway Blocks in the rigid position or sway position with the hitch raised to the transport position.

The lower links must be able to move freely without binding against the sway blocks throughout the full stroke of the hitch when an implement is attached. Add shims between the spacer and sway bumper cam as required.

CATEGORY III



CATEGORY IIIN



1. LOWER LINK ASSEMBLY
2. SPACER
3. SWAY BUMPER CAM
4. BOLT (M20 x 130)

5. SHIM
6. WASHER (22 x 37 x 4 mm)
7. NUT (Prevailing Torque)

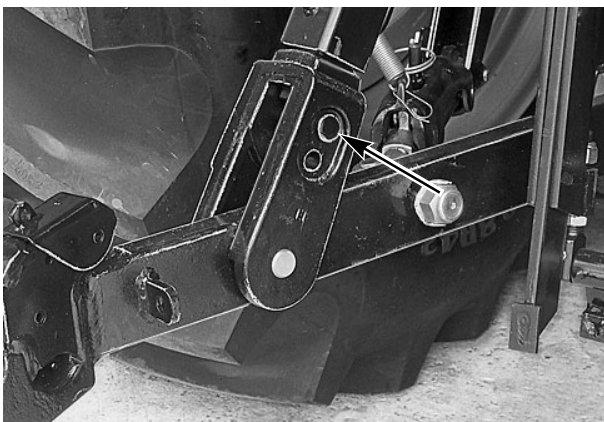
Operation

Lower Link Flotation

IMPORTANT: Check the implement Operators Manual to see if mechanical flotation can be used.

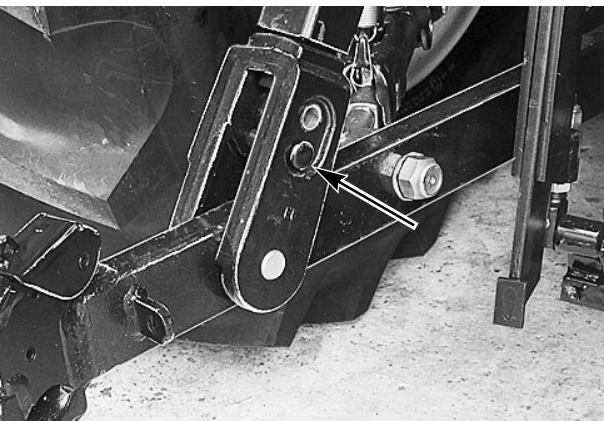
One or both lower links can be set to move up or down approximately 38 mm. The mechanical lower link float is used when operating in variable field surface conditions allowing the implement to follow the surface conditions.

Mechanical flotation is also used when the mounted implement width is more than the wheel base of the tractor.



DP98E004

For RIDGID operation with no up or down movement, the pin in the lift link lower fork must be in the upper hole, as shown.



DP98E005

For FLOAT operation, the pin in the lift link lower fork must be in the lower hole, as shown.

REAR THREE POINT HITCH OPERATION

Electronic Hitch System

The electronic hitch system consists of the operators control panel, the control module, two load pin sensors, the hitch hydraulic control valve, the hitch position feedback sensor and wiring harnesses.

The Electronic Hitch System can be operated in one of two modes: 1) POSITION CONTROL and 2) LOAD CONTROL. In position control the hitch moves as the position control knob/slider is moved. In load control the Electronic Hitch System moves the hitch to maintain a constant implement load on the tractor in changing soil conditions and terrain.

1. Indicator/Enable Lamp



MD05F038 & MD05F045A

This lamp is used to indicate the condition of the ELECTRONIC HITCH SYSTEM. It will stay ON for 2 seconds after the engine has started for a bulb check. The indicator has 2 functions:

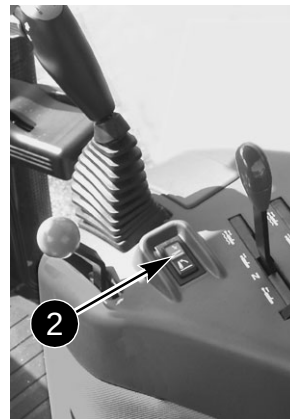
- A. FLASHING - The hitch needs to be enabled. The actual position of the hitch is not the same as the setting of the UP/DOWN Switch or that of Position Control.

To enable the hitch system: Set the Up/Down switch to DOWN. Operate Position Control until that of the control and the actual position of the hitch are the same. When the indicator lamp stops flashing the hitch system is enabled.

IMPORTANT: *On tractors equipped with an Electronic Transmission the right hand door MUST be closed before attempting to enable the hitch.*

- B. CONTINUOUSLY ON - An error has been detected within the hitch system and an error code will have been generated. See page 65 for how to proceed.

2. Up/Down Switch



MD05F038 & MD05F045A

This switch is used to fully raise or lower the hitch. It has 3 working positions: UP, DOWN, and MOMENTARY.

UP - The top of the switch pushed down. This fully raises the hitch from the working position to the transport position (controlled by the UPPER LIMIT STOP). The speed is not adjustable.

DOWN - The switch is in the centre position. This lowers the hitch from the transport position to full down (working position) or the position set with Position Control. The speed is controlled by the Drop Speed Control.

MOMENTARY - Double click and hold the bottom of the switch. This will by-pass the Drop Speed Control setting allowing the hitch to drop at maximum speed. As long as the momentary switch is held, the hitch will continue to drop and will by-pass the "Bottom" setting. When the momentary switch is released, the hitch will automatically return to the "Bottom" setting. This function is only active when the position control is set in the bottom half of its range.

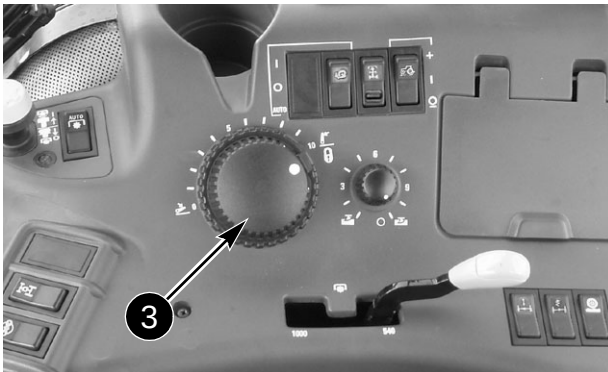
Operation

3. Position Control

This control is used to;

- A. Enable the Hitch System,
- B. Set a "Bottom" limit,
- C. Give precise control of the position of the hitch,
- D. Provide Hitch transport lock

Operation via Control Knob:



MD05F036

OUTER RING - This is an adjustable mechanical stop for the inner knob. The setting can be bypassed with the push-button on the inner knob.

INNER KNOB - Used to precisely control the position of the hitch. Turning the knob clockwise will raise the hitch or counterclockwise will lower the hitch.

Press the **PUSH-BUTTON** in on the side of the knob, to bypass the "Bottom" limit without changing the setting on the Outer Ring. The **PUSH -BUTTON** is also used when the knob is turned fully clockwise to lock the knob in the **TRANSPORT** position.

Operation via Slider Control:

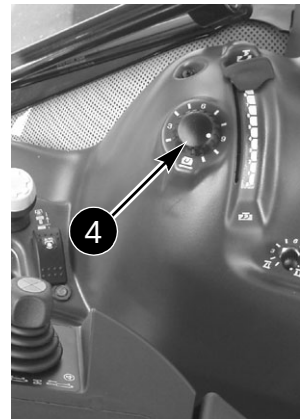
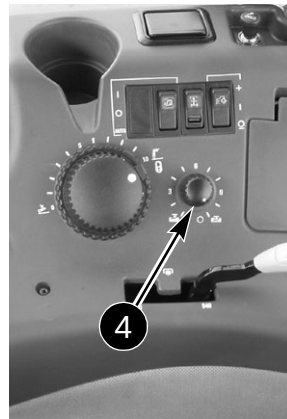


MD05F048

Used to precisely control the position of the hitch. Sliding the control forward will raise the hitch or rearward will lower the hitch.

Sliding the control fully forward (until it stops) will lock the hitch in the **TRANSPORT** position.

4. Load Control



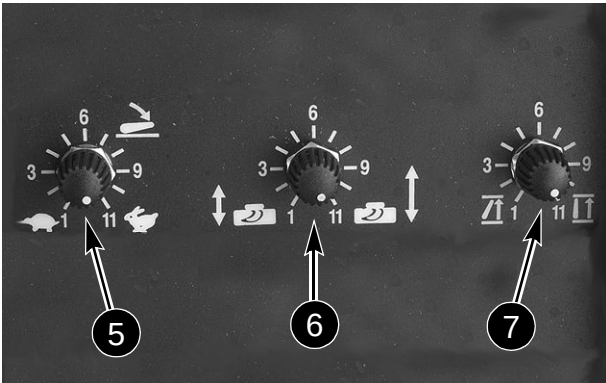
MD05F047 & MD05F046

This knob is used to set the load on the tractor or implement depth. Rotate the knob as required to increase or decrease the load and implement depth.

IMPORTANT: The knob **MUST** be turned to the (O) off position to set the Electronic Hitch System in the Position Control Mode.

The (O) position is used to prevent unwanted hitch movement at light load or no hitch load, when the tractor is moving at more than 0.8 km/h (0.5 mph).

IMPORTANT: The tractor must be moving in order for the Load Control to be functional. Adjusting the Load Control to the lighter load settings of 1 to 5 while the tractor is stationary, may result in significant hitch movement when the tractor moves again.



MD04D022

5. Drop Speed Control

This knob is used to adjust the lowering speed of the hitch when using either the Up/down Switch or Position Control. Set the Drop Speed to fast (fully clockwise) for light weight implements, and slow (fully counterclockwise) for heavy implements such as ploughs. This control can be over-ridden by double clicking and holding the Up/down Switch in the MOMENTARY position.

6. Travel Control

This knob is used to adjust the amount of hitch movement (depth variation) allowed in the Load Control Mode. Turning the knob clockwise will increase the hitch movement. This allows closer control of the load on the tractor and enables the hitch to follow soil contours better. Turning the knob counterclockwise will decrease the amount of hitch movement. Set the control in the lower range when using semi-mounted implements or on flat terrain where the amount of hitch movement can be restricted without affecting performance.

7. Upper Limit Control

This knob is used to adjust the maximum transport height of the hitch. It limits the transport height when using either the Up/Down Switch or Position Control. A setting of "1" allows the hitch to raise only half the way, while a setting of "11" allows full transport height to be reached. This control can be used to limit hitch height with fully-mounted PTO driven implements where the angle of the Implement Input Driveline (IID) joints need to be limited to prevent noise, chatter and damage due to excessive angles. Turning the knob clockwise increases the transport height. Turning the knob counterclockwise decreases the transport height.

IMPORTANT: When using the Automatic Hitch the Upper Limit Stop **MUST ALWAYS** be rotated fully clockwise to the stop position (position "11").

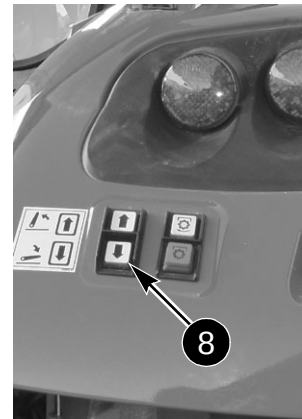
8. Operation of External Hitch Switches (If Equipped)

The external switches can be used to raise or lower the hitch from outside the tractor. This can be useful for making small adjustments when connecting implements to the 3 point hitch.

IMPORTANT: On tractors equipped with an **Electronic Transmission the right hand door MUST be closed before attempting to enable the hitch.**

Always operate the remote switches according to the following procedure:

Move the shuttle lever to the NEUTRAL position. Engage the park brake.



MD04G024

Press the top switch to raise the hitch. Press the bottom switch to lower the hitch.

When the switches are released, the hitch will stop at the selected position.

If both switches are pressed together the hitch will stop. When the switches are released, the system will reset in approximately one (1) second. The hitch switches can be used in the normal manner.



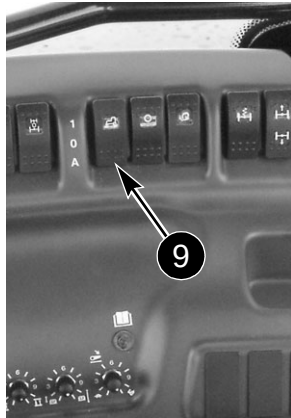
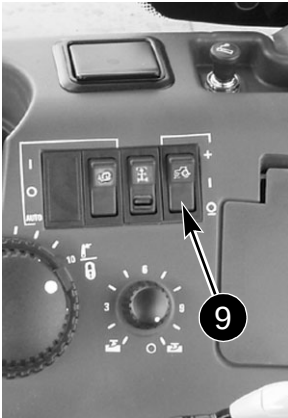
WARNING: Stand well clear of the linkage or implement when operating the external controls or injury can result from contact with moving parts.

Watch for possible pinch points between the implement and tractor when the hitch is moved.

NOTE: For safety purposes, when either of the external hitch switches are operated the internal cab hitch controls are automatically disabled. It will be necessary to re-active the hitch before you can operate the internal hitch controls.

Operation

9. Slip Limit Control (If Equipped)



MD05F049 & MD05F050

The Slip Limit Control Switch is used to prevent the tractor wheel slip from exceeding a set slip limit. When the actual slip is more than the slip limit, the hitch will be controlled by the slip limit control. The hitch will raise to alleviate the slip conditions by allowing greater weight transfer for improved traction and reduced drawbar load. When slip is decreased below the set slip limit, hitch control returns to load or position control.

The slip limit control switch has two positions:

ON - Slip Limit Activated

OFF - No slip limit function is available.

For instructions on how to change the slip limit refer to the INSTRUMENTATION section within this manual.

USING THE SLIP LIMIT CONTROL SYSTEM:

- The tractor must be correctly ballasted for the load being pulled.
- Tractor must be moving at more than 3.2 km/h (2 mph) and the three point hitch must be lowered with the implement in the ground for all setting adjustments.
- Set the hitch for the desired implement load or position.

Hitch Control Bypass

If the hitch should fail to operate properly and there is a need to raise or lower the hitch in order to travel home, the hitch controls can be overridden by the Up/Down Switch.

To lower the hitch, move the Up/Down Switch to the "Momentary" position and hold. Hitch will drop for 1.5 seconds. Repeat the sequence until the hitch is in the required position.

To raise the hitch, start with the Up/Down Switch in the "Down" position, then move the switch to the "Up" and then to the "Down" position. The hitch will move up for 1.5 seconds. Repeat the sequence until the hitch is in the required position.

NOTE: If your tractor is equipped with rear fender mounted remote hitch switches. They can also be used to raise and lower the hitch.

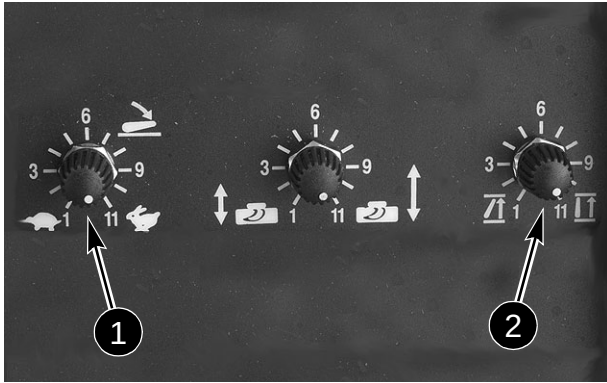
OPERATING IN POSITION CONTROL

The tractor and implement must be operated in the field to select the correct position of the hitch. Do the following steps:

STEP 1

Before moving the tractor, set Position Control to the TRANSPORT and turn the Load Control to the (O) off position.

STEP 2

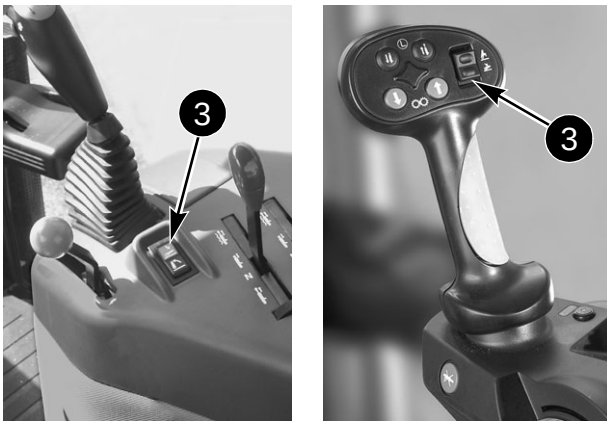


MD04D022

Set the DROP SPEED CONTROL (1) to setting 6.

Set the UPPER LIMIT CONTROL (2) to setting 10.

STEP 3



MD05F038 & MD05F045A

Set the UP/DOWN switch (3) in the DOWN position. If the hitch enable lamp flashes, move the hitch Position Control to match the actual hitch position.

STEP 4

Adjust the UPPER LIMIT CONTROL (2) to set the desired hitch raised position. A setting of "11" corresponds to the hitch being fully up.

STEP 5

Adjust the DROP SPEED CONTROL (1) until the implement lowers at the speed desired.

STEP 6

Operate the tractor and implement in the field. Set the implement depth with the Position Control. The rate of hitch movement is determined by the amount the control is moved. If the control is moved slowly a precision control mode is provided to move the hitch slowly to match the knob.

IMPORTANT: Turn the Load Control to the (0) OFF position, this will prevent unwanted hitch movement when the tractor is moving at more than 0.8 km/h (0.5 mph).

If the position control is moved quickly the hitch will lower at the set drop rate. Move the outer ring to set "Bottom" or lowest hitch position desired. This will provide a reference point for returning the knob to the original implement height position each time the knob is moved and also to maintain the same height.

STEP 7

Press the UP position on the UP/DOWN switch (3) to temporarily raise the implement without changing any of the hitch position adjustments. Use the DOWN position to return the implement to its original position.

IMPORTANT: Always use the hitch position control to raise the hitch for road transport with three point linkage mounted equipment. Put the control in the transport lock position and the up/down switch in the up position.

Operation

OPERATING IN LOAD CONTROL

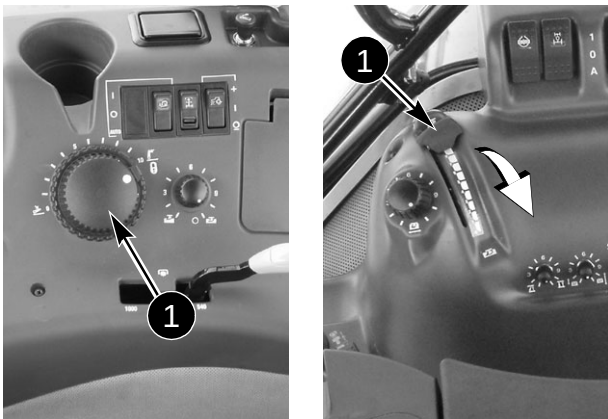
The electronic hitch system will automatically adjust the hitch position to maintain a constant implement load on the tractor as the implement travels through varying soil conditions and terrain. If an implement travels through heavy soil the increased load is sensed at the lower link and the hitch will raise the implement in small increments to maintain a constant load on the tractor. As the implement travels through lighter soil conditions the lower link will sense the load decrease and lower the implement in small increments while maintaining a constant load on the tractor.

IMPORTANT: *The tractor must be moving at a speed of more than 0.8 km/h (0.5 mph) for the load controls to function. Adjusting the Load Control to the lighter load settings of 1 to 5 while the tractor is stationary, may result in significant hitch movement when the tractor moves again.*

STEP 1

Set the Drop Speed and Upper Height Limit to operate attached equipment safely. Set the Travel Control to a setting of "6".

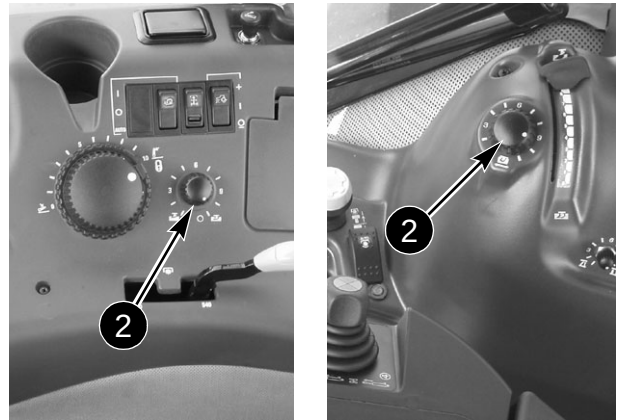
STEP 2



MD05F047 & MD05F048A

Lower the hitch FULLY using the Position Control (1).

STEP 3



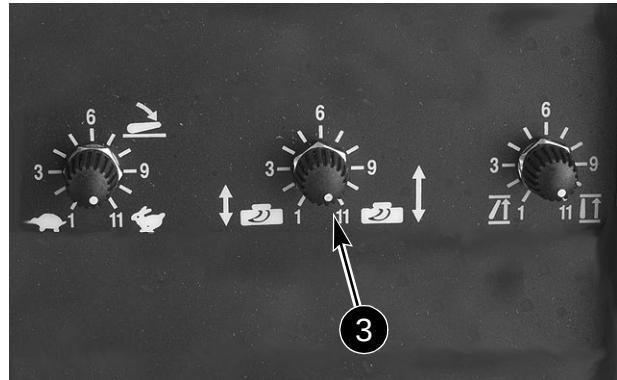
MD05F047 & MD05F046

Set the Load Control (2) to mid position, setting "6".

Operate the tractor and adjust the Load Control until the desired implement depth is achieved. eg. The lower the number the shallower the working depth, the higher the number the deeper the working depth.

NOTE: *The load control is OFF at the (0) position and the hitch will operate in the position control mode.*

STEP 4



MD04D022

Turn the Travel Control knob (3) until the correct hitch movement/sensitivity is achieved.

NOTE: *If operating in varying soil types the Position Control may be used to set a maximum working depth.*

NOTE: *Use the Up/Down switch to raise and lower the hitch when making headland turns.*

RIDE CONTROL (If Equipped)

Ride control improves the tractor ride quality when carrying fully mounted hitch implements. It reduces the fore/aft pitch motion introduced to the tractor by the free hanging mounted implement at high travel speeds and reduces front tyre bounce introduced to the tractor by bumps or pot holes in the field as well as on the road.

IMPORTANT: After attaching an implement to the three point hitch and before using the Ride Control feature there **MUST** be a minimum clearance of 380 mm between the lowest point of the implement and the ground. The measurement has to be taken with the tractor stationary and the implement at the maximum height. If the ground clearance is less than 380 mm Ride Control **MUST** be **DISABLED** by pushing the Ride Control Switch into the OFF position.

NOTE: If the Ride Control feature is not wanted, it can be disabled by your dealer.



MD04C164

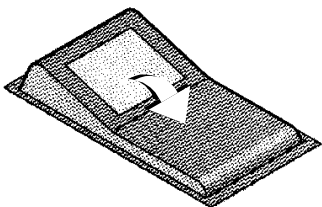
The Ride Control Switch has three positions:

OFF

ON

UPPER LIMIT SETTING
OVERRIDE

Ride Control OFF



DS98K261

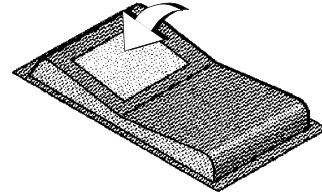
Ride Control will be disabled if:

- A. The switch is in the OFF position.
- B. The hitch UP/DOWN switch is in the down position.
- C. The travel speed is below 0.8 km/h (0.5 mph).

Ride Control ON

To enable Ride Control do the following:

STEP 1



DS98K260

Push the Ride Control switch to the ON position.

STEP 2

Push the hitch UP/DOWN switch into the UP position. As soon as the tractor travel speed exceeds 0.8 km/h (0.5 mph) the implement automatically will be lowered slightly (to a 'neutral' position) and Ride Control is enabled.

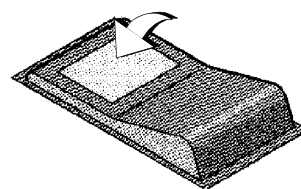
The hitch will automatically raise or lower in response to a bump and then return to its 'neutral' position, to maintain optimum ride control performance at all times.

Upper Limit Setting Override

This position can be used to raise the hitch above the upper limit setting until the hitch stops upward movement.

Tractors equipped with Auto Hitch:

The Ride Control switch in this position will take the load off the hitch locking latches thus improving the latching/unlatching of the auto hitch.



DS98K259

Press and hold the Ride Control Switch in the fully forward position until the hitch stops upward movement.

See page 118 for full Auto Hitch operating instructions.

Operation

DIFFERENTIAL LOCK CONTROL

Your tractor is equipped with a differential lock that will make both rear wheels turn at the same speed.

The differential lock prevents loss of motion when the traction to the rear wheels is not equal. When the traction of one rear wheel decreases, or any time you need more traction, engage the differential lock.

It also provides a straight line steering aid when opening up the field and to control implement overlap.

The differential lock can be engaged manually or can be set to engage automatically.



MD04C165

The differential lock switch has three positions:

I = ENGAGE

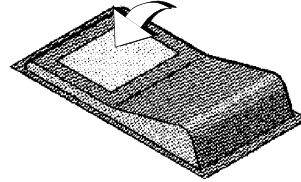
O = ON

AUTO = AUTOMATIC
MODE



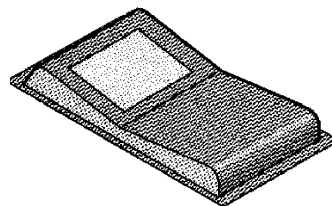
WARNING: Do not drive on roads, or at high speed anywhere, with the differential lock engaged. Difficult steering will occur, and can result in an accident. In field operation, use the differential lock for traction improvement, but release for turning at row ends.

Manual Mode



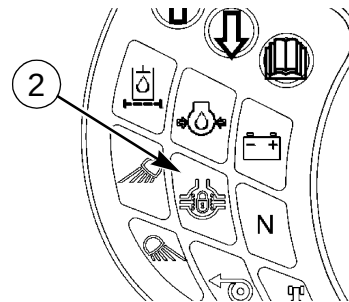
DS98K259

To ENGAGE the differential lock, press the top of the switch fully down (I) and release



DS98K260

The switch will return to the centre position (O) when released (as shown).



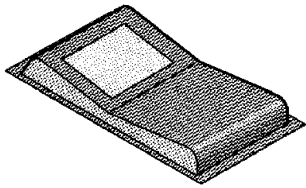
MI03C068

The differential lock indicator light (2) on the instrument cluster will illuminate any time the differential lock is engaged.

To DISENGAGE the differential lock, push one or both brake pedals down.

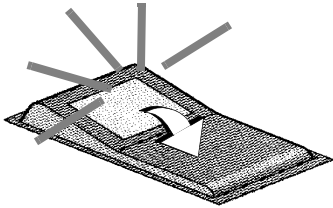
IMPORTANT: When you engage or disengage the differential lock, the front wheels must be in the STRAIGHT FORWARD position. Disengage the differential lock before turning the tractor.

Automatic Mode



DS98K260

To engage the AUTOMATIC MODE, first make sure the switch is in the center position (O), (as shown).



DS98K261

Then press the bottom of the switch to the (AUTO) position. The lamp in the switch will illuminate and the indicator light in the instrument cluster will go out.

Differential Lock engagement and disengagement is determined by the hitch position, brake application and travel speed.

The Automatic Mode will disengage when the keyswitch is turned to OFF. To reset to Automatic Mode press the switch to the center position (O) and then the bottom of the switch to the (AUTO) position.

Operation in automatic mode with hitch mounted implements:

The differential lock will disengage when any of the following occur:

- A. The hitch reaches the upper third of the hitch travel.
- B. One or both brake pedals are applied.
- C. Travel speed exceeds 16 km/h (10mph).

NOTE: * Once the travel speed exceeds 16 km/h (10 mph) Automatic Mode is disengaged. Automatic Mode can only be restored when the travel speed is below 13 km/h (8 mph) by manually re-engaging (ie. moving the differential lock switch to the center (O) position and then back to the Automatic (AUTO) position).

The differential lock will reengage [as long as the travel speeds has not exceeded 16 km/h (10 mph)] if any of the following occur:

- A. The hitch is lowered below the upper third of hitch travel.
- B. Both brake pedals are in the released position.

Operation In Automatic Mode With Drawbar Pulled Implements

If the automatic mode is required when using drawbar pulled implements it is recommended to use a remote implement switch connected to the tractor wiring harness, see page 125 for more information.

NOTE: If a remote implement switch is not installed, before engaging the automatic mode set the hitch to TRANSPORT position and the hitch Up/Down switch in the UP position.

The differential lock will disengage when any of the following occur:

- A. The implement reaches UP position, (if implement switch is connected).
- B. One or both brake pedals are applied.
- C. Travel speed exceeds 16 km/h (10mph).

NOTE: * Once the travel speed exceeds 16 km/h (10 mph) Automatic Mode is disengaged. Automatic Mode can only be restored when the travel speed is below 13 km/h (8 mph) by manually re-engaging (ie. moving the differential lock switch to the center (O) position and then back to the Automatic (AUTO) position).

The differential lock will reengage [as long as the travel speeds has not exceeded 16 km/h (10 mph)] if any of the following occur:

- A. The implement reaches DOWN position (if implement switch is connected).
- B. Both brake pedals are in the released position.

Operation

MECHANICAL FRONT DRIVE (MFD) OPERATION

The MFD can be engaged while the tractor is moving or stopped. The MFD provides additional traction and pulling power when engaged.

IMPORTANT: DO NOT leave the MFD engaged when travelling faster than 16 km/h (10 mph) (except when in the field) as this can cause damage to the MFD and other transmission components as well as premature tyre wear.



WARNING: On electrically operated MFD tractors, the MFD clutch is spring loaded into engagement and relies on hydraulic pressure for disengagement. A failure in the MFD hydraulic system will therefore automatically engage the MFD even though the MFD switch is in the disengaged position. This is a built in safety feature. DO NOT operate MFD tractor transmissions with the rear wheels off the ground or removed, UNLESS THE FRONT WHEELS ARE ALSO JACKED UP CLEAR OF THE GROUND OR THE FRONT AXLE DRIVE SHAFT IS DISCONNECTED. Failure to do this can result in the tractor being pulled off the rear supports by the front axle.



MD04C165

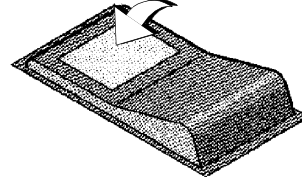
The MFD switch has three positions:

I = ON, MANUAL

O = OFF

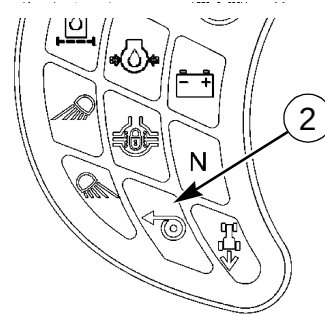
AUTO = AUTOMATIC MODE

Manual Mode



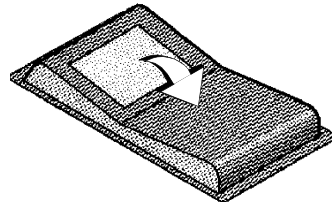
DS98K259

To engage MFD, press the top of the switch fully down to the ON (I) position.



M103C068

The MFD indicator light (2) on the instrument cluster will illuminate.

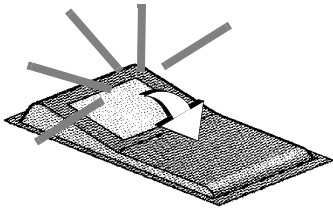


DS98K260

To disengage MFD push the switch to the center position OFF (O), (as shown).

The indicator light in on the instrument cluster will go off.

Automatic Mode



DS98K261

To engage Automatic mode (AUTO) press the bottom of the switch down.

The lamp in the switch will illuminate, (the indicator light in the instrument cluster will not illuminate).

The Automatic MFD engagement or disengagement is determined by the hitch position, brake application and travel speed.

Operation in automatic mode with hitch mounted implements

The MFD will disengage if:

- A. The hitch reaches the upper third of the hitch travel.
- OR
- B. Travel speed exceeds 16 km/h (10mph).

The MFD will re-engage when:

- A. The hitch is lowered below the upper third of hitch travel [with the travel speed below 13 km/h (8 mph)].
- OR
- B. Travel speed drops below 13 km/h (8 mph), after travelling above 16 km/h (10 mph).

Operation in automatic mode with pull type implements:

If the automatic mode is required when using drawbar pulled implements it is recommended to use a remote implement switch connected to the tractor wiring harness, see page 125 for more information.

NOTE: *If a remote implement switch is not used, before engaging the automatic mode set the hitch to TRANSPORT position and the hitch Up/Down switch in the UP position.*

The MFD will disengage when:

- A. The implement reaches "UP" position, (if implement switch is connected).
- OR
- B. Travel speed exceeds 16 km/h (10mph) *.

The MFD will engage or re-engage when:

- A. The implement reaches "DOWN" position and travel speed has not exceeded 16 km/h (10 mph), (only applicable if implement switch is connected).
- OR
- B. Travel speed drops below 13 km/h (8 mph), after travelling above 16 km/h (10 mph).

MFD Assisted Stops

MFD will engage whenever both brake pedals are applied together, no matter what position the MFD switch is in giving 4 wheel braking. This feature allows a safer and controlled stop.

When both brake pedals are applied together the MFD indicator lamp on the instrument cluster will illuminate.

MFD Tractors Equipped with 4 Position (PARK) Shuttle Lever

MFD will automatically engage when the forward/reverse shuttle lever is placed in the PARK position.

Operation

OPERATING THE INDEPENDENT FRONT SUSPENSION (If Equipped)



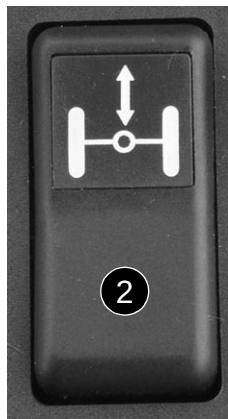
MD05F062

With Independent Front Suspension each wheel acts independently for continuous contact on the ground, to give improved ride comfort both in the field or during road travel.

NOTE: Always turn the axle suspension mode OFF when operating the tractor on inclines.

In addition, front axle ground clearance can be manually adjusted to match working conditions at the touch of a button.

Independent Front Suspension is operated with the use of 2 rocker switches, a suspension mode switch and a manual override switch.

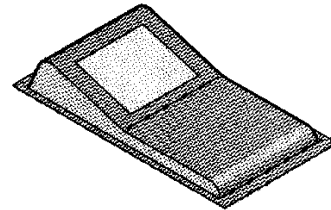


MD04D001 & MD04D002

1. SUSPENSION MODE SWITCH
2. MANUAL OVERRIDE SWITCH

Suspension Mode Switch

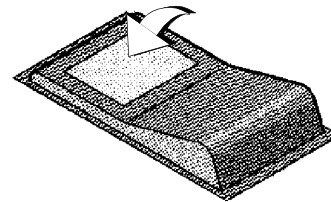
Position 1 -
With Suspension Indicator Lamp NOT
illuminated



DS98K261

Axle suspension mode OFF. The axle will operate as a conventional MFD axle.

Position 2 (Momentary)



DS98K259

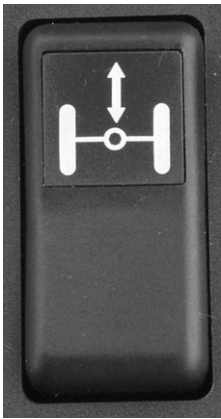
To activate the axle suspension mode press the top of the switch fully forward to position 2 (as shown above) and then release. The switch will return to position 1 and the indicator lamp in the switch will illuminate.

Approximately 15 seconds after pressing the switch the axle will rise to the mid-position of the total axle range.

NOTE: If the switch is held in position 2 for more than 10 seconds the calibration mode is activated and the indicator lamp will flash. This is a dealer function and is not to be performed by the operator. To exit the calibration mode turn the key switch to the off position to stop the engine.

NOTE: If the engine is stopped when the axle is in the suspension mode, on engine start up the axle will remain in the mid position and the indicator lamp will NOT be illuminated. Axle suspension mode will not be activated until the top of the switch is pressed fully forward to position 2 and then released. The indicator lamp on the switch will illuminate to show axle suspension mode has been activated.

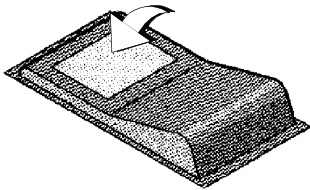
Manual Override Switch



Manual Override will only operate when the axle suspension mode is activated. Use the switch to manually adjust the ground clearance, within the total suspension travel range of 90 mm (3.5 in), to match working conditions.

MD04D001

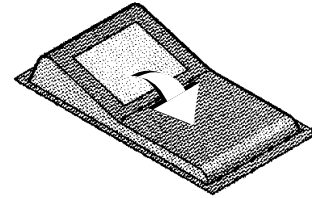
Suspension RAISE (to increase ground clearance)



DS98K259

Press and hold the top of the switch. The indicator lamp on the suspension mode switch will go OFF. Release the switch when required ground clearance is reached.

Suspension LOWER (to reduce ground clearance)



DS98K261

Press and hold the bottom of the switch. The indicator lamp on the suspension mode switch will go OFF. Release the switch when required ground clearance is reached.

NOTE: Adjustment is only possible when axle suspension mode is activated and the travel speed is below 14 km/h (8.7 mph), above 14 km/h (8.7 mph) the axle automatically goes into suspension mode and the indicator lamp will illuminate. The axle will remain in the suspension mode if the travel speed then falls below 14 km/h (8.7 mph).

NOTE: With the keyswitch in the ON position (engine not running), the suspension will remain in the manually adjusted position. The suspension can be lowered by pressing the bottom of the Manual Override Switch.

IMPORTANT: If the indicator lamp on the suspension mode switch flashes, a fault has occurred. The axle will remain in the current position and can not be moved by operating either the manual override switch or suspension mode switch. See your dealer to diagnose the fault and reset the system.

Operation

FRONT HITCH (If Equipped)

Hitch System



MD05F065

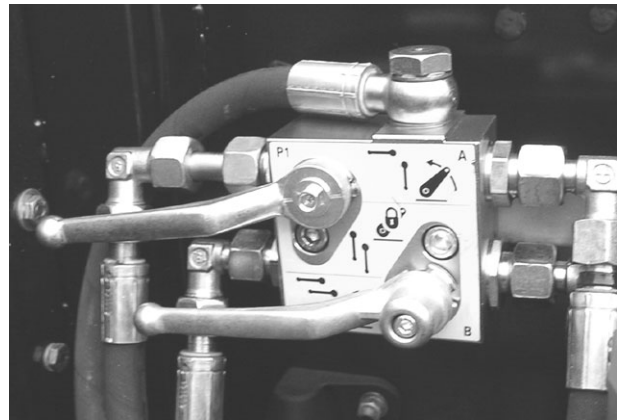
The front hitch is operated via the tractors remote hydraulic valve circuit and is double acting, (the linkage is power lifted and power lowered).

The hitch is designed for Category IIIN implements. The lower links have claw ends and the top link a ball end.

Maximum Lift Capacity,
(at 610 mm in front of lift point 3500 kg
(7716 lb)

IMPORTANT: Do not exceed the maximum permitted front axle operating weight when using the front hitch, see page 270 for more information. Observe tyre load capacities and any possible legal limitations.

Multi Valve



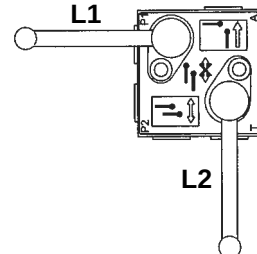
MD04N035

The Multi Valve provides the user with the possibility to adjust the hitch from double acting to single acting or to disengage the hitch hydraulically (ie for transport).

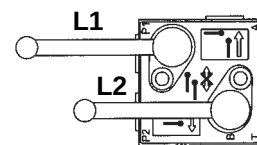
The valve is mounted at the rear of the tractor.

Valve Positions:

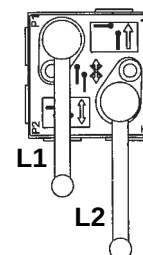
Single Acting (Power Lift/Weight Lowered)



Double Acting (Power Lift/Power Lowered)



Disengaged (Transport)



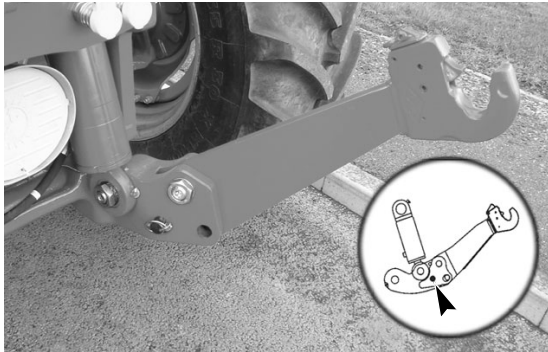
IMPORTANT: The front hitch is operated using one of the tractors remote valves. In order to use the rear couplers of this valve the front hitch **MUST** be disengaged as shown.

Lower Links

The lower links have three positions. When changing the position of the lower links, support the links when removing the retaining pins. Both lift links must be set in the same position.

Raise the hitch to maximum height before adjusting the lower links.

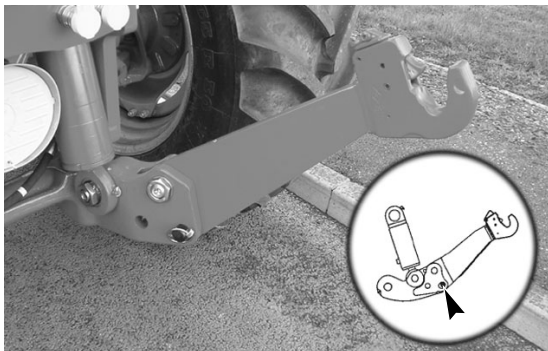
Rigid Position



MD04N040

For operation with no vertical movement, install the retaining pins in the rear hole.

Float Position



MD04N039

For operation with vertical float, independently of each other, install the retaining pins in the front hole.

Stored Position



MD04N041

Top Link

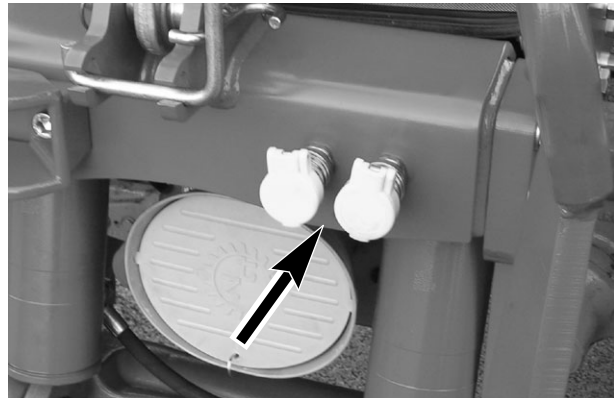


MD04N038

When not being used store the Top Link as shown above.

When operating on the public highway without equipment attached always store the top link correctly.

Remote Hydraulic Couplers (If Equipped)



MD04N043

IMPORTANT: The front remote couplers are supplied from one of the rear remote valves. DO NOT use both the front and the corresponding rear remote couplers at the same time.

Operation

Hitch Operation

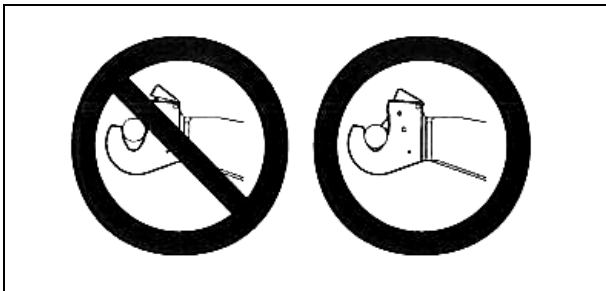
STEP 1

Lower the lower links and set for Rigid or Float application, as required.

STEP 2

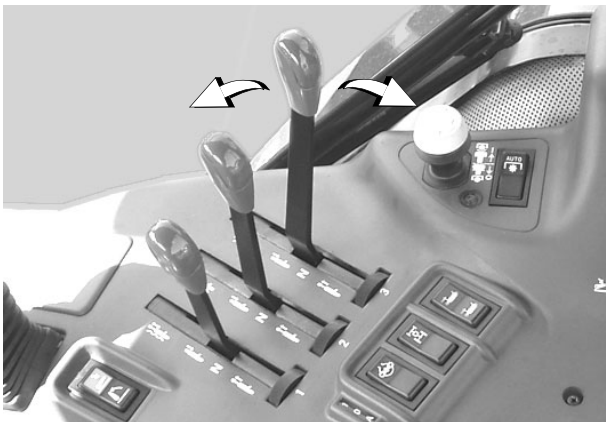
Attach the implement to the hitch. Make sure the correct category implement is attached. A category indication is stamped on each lower link.

Make sure the claws on the front hitch engage with the implement and the latches lock.



MH04N042

STEP 3



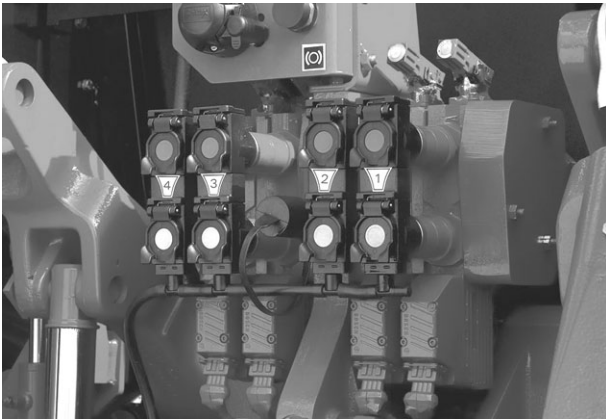
MD05F037



MD05F051

Move the relevant remote control to raise or lower the hitch as required.

REMOTE HYDRAULIC VALVES



MD05F059

Your tractor is equipped with a remote hydraulic system which gives priority flow to the 1st remote circuit. Flow will then be supplied to the 2nd, 3rd, 4th and 5th remote circuits (as equipped).

The remote hydraulic control operates the corresponding remote, e.g.; control 1 = remote valve 1, control 2 = remote valve 2 etc.

The return hydraulic oil from all implements must be returned through the hydraulic couplers on the remote valves to prevent damage to the transmission. The return oil supplies pressure lubrication to the transmission.

IMPORTANT: Implements and other attachments can have several large remote cylinders that need as much as 15 litres of fluid to fill. Always check the transmission fluid level after charging cylinders of implements and attachments. Never operate the tractor under load if the fluid level is low.

IMPORTANT: Under "normal" operating conditions the maximum oil available for external use is:

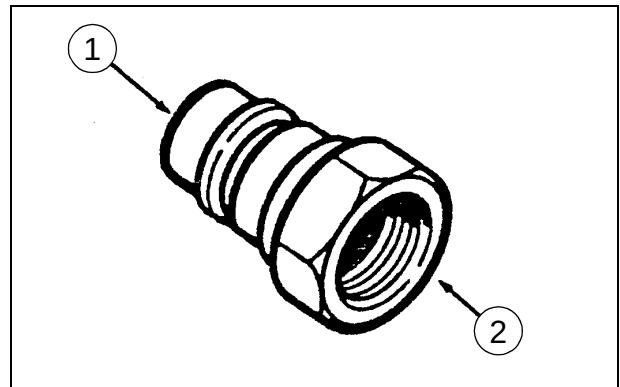
1. Stationary tractor operating on slopes of no more than 2 degrees 30 litres (7.9 US gal)
2. Moving tractor operating on slopes of no more than 15 degrees 20 litres (5.3 US gal)
3. Moving tractor operating on slopes of no more than 30 degrees 12 litres (3.2 US gal)

If the tractor is to be operated under extreme hilly conditions or where an implement requires more oil, up to an additional 12 litres of oil can be added to the transmission. This additional oil will then increase the above quantities by 12 litres (3.2 US gal) respectively.

Hose Couplers

The tractor is equipped with ISO 5675 Standard Female couplings. These couplings will fit standard male hose couplers made to ASAE S366, SAE J1036 or ISO Standard 5675.

Your dealer has ASAE Standard Male couplers, part number 1272399C2 with 7/8-14 inch UNF SAE Standard threads and 1272770C2 with 1/2-14 inch NPTF threads and 1285718C2 with 3/4-16 inch UNF SAE standard threads. Your dealer can also supply hose fittings or adapters to connect different combinations of implements to the standard male coupler.



DP97A084

1. ASAE MALE COUPLER
2. PART NUMBER 1272399C2 (7/8-14 INCH UNF THREADS)
OR
PART NUMBER 1272770C2 (1/2-14 INCH THREADS)
OR
PART NUMBER 1285718C2 (3/4-16 INCH THREADS)



WARNING: Hydraulic fluid escaping under pressure can have enough force to penetrate the skin. Hydraulic fluid may also infect a minor cut or opening in the skin. If injured by escaping fluid, see a doctor at once.

Serious infection or reaction can result if medical treatment is not given immediately. Make sure all connections are tight and that hoses and lines are in good condition before applying pressure to the system. Release all pressure before disconnecting the lines or performing other work on the hydraulic system. To find a leak under pressure use a small piece of cardboard or wood. Never use hands.

Operation

Connecting Remote Hoses

The implement couplers can be connected or disconnected with the tractor or implement hydraulic system under pressure.

To connect a couple do the following:

STEP 1

Remove the dust cap. Clean the implement male coupler before connecting.

STEP 2

Push the implement coupler into the tractor coupler. The couplers can be connected or disconnected with the tractor or implement hydraulic system under pressure.

IMPORTANT: *All implements must be fitted with shrouded couplers, which are available from your dealer. If an implement is not fitted with shrouded couplers there will be restricted oil flow through the couplers resulting in inefficient machine operation, especially where high flow rates are required.*

STEP 3

To equalize the pressure in the hydraulic lines move the control back and forth.

IMPORTANT: *When connecting the implement hose to the tractor, make sure there is enough hydraulic hose to permit the tractor to turn in both directions.*

Disconnecting Hoses and Implements

STEP 1

To reduce the possibility of oil leakage when disconnecting the couplers run the engine and move the remote control to the float position.

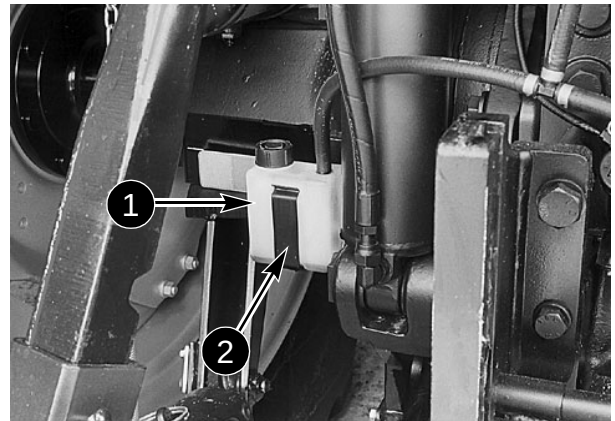
STEP 2

Leaving the lever in the float position stop the engine and disconnect the hoses from the couplers.

To disconnect the coupler, just pull. Clean the coupler dust cap and install.

Remote Couplers Spillage Collector (If Equipped)

When the remote couplers are connected or disconnected any spillage is drained through the spillage collector into a reservoir (1).



DP98M194

Drain the reservoir (1) at regular intervals.

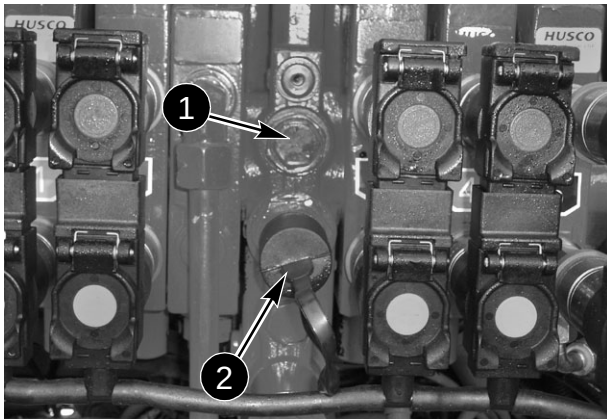
To remove the reservoir pull the retaining clip (2) outward and lift the reservoir off.

IMPORTANT: *DO NOT pour the reservoir contents back into the hydraulic system. Dispose of contents in accordance with local regulations. DO NOT drain the contents on the ground or into a drain. Be responsible for the environment.*

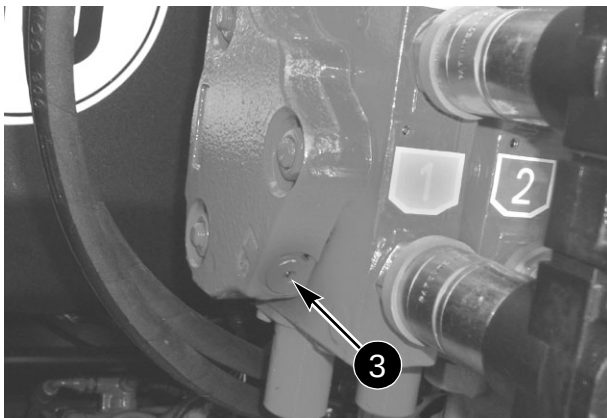
Power Beyond Connections

The power beyond connections can be used when a continuous supply of oil is needed, for example; a front loader. The implement must be fitted with a closed center control valve which has a work port signal line function.

XTX145 and XTX165 Tractors



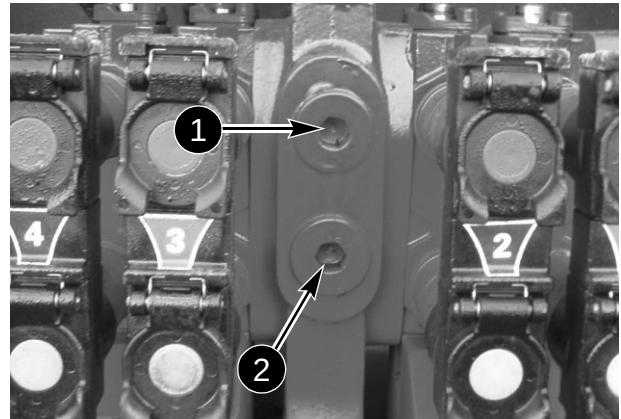
MD05M037



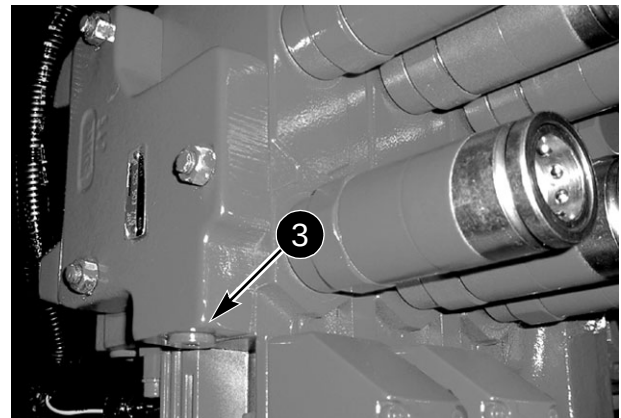
MD05M030

1. SUPPLY
2. RETURN
3. SENSING

XTX185, XTX200 and XTX215 Tractors



MD05M038



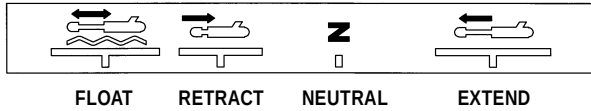
MD05A036

1. SUPPLY
2. RETURN
3. SENSING

Operation

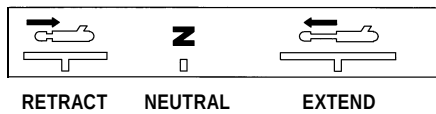
REMOTE HYDRAULICS OPERATION USING MECHANICAL CONTROL LEVERS

There can be up to three remote control levers, each having four positions:



OM1075

The optional fourth remote is operated by a 3 position rocker switch.



OM1075

The speed of movement of auxiliary equipment is determined by the distance the lever is moved from neutral and the position of the variable flow control. See page 166 for complete instructions.



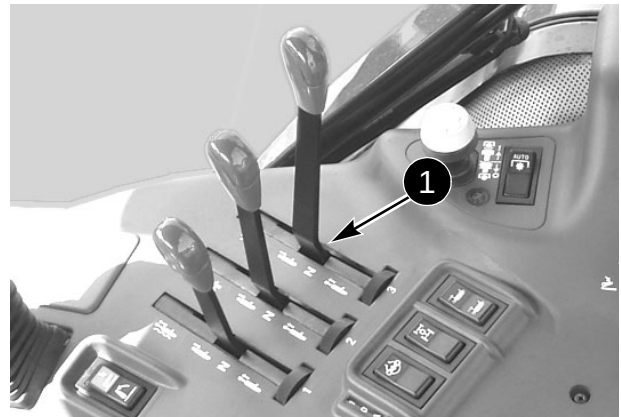
MD05F055

If the lever is moved fully rearward from neutral, the equipment hydraulic cylinder(s) will extend quickly. If the lever is moved rearward a short distance from neutral, the equipment hydraulic cylinder(s) will extend slowly.

If the lever is moved fully forward from neutral (when float is locked out) the equipment hydraulic cylinder(s) will retract quickly. If the lever is moved a short distance forward from neutral the equipment hydraulic cylinder(s) will retract slowly.

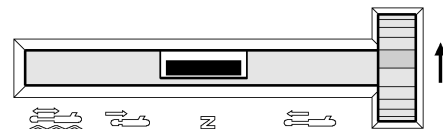
NOTE: If there is too much restriction in the implement cylinders or other attachments, the restriction can cause a back pressure in the remote valve which will cause the remote lever on the console to return to neutral before the cylinder has reached full stroke. If the condition occurs, it will be necessary to manually hold the lever in position until the cylinder has reached full stroke. **Continual use of the remote valve in this condition will cause the hydraulic oil to over heat and possible damage to the hydraulic system.** If the condition occurs at regular intervals the implement restriction should be corrected. It is normal for the control lever to return to neutral when the cylinders reach full stroke.

Neutral Lock



MD05F037

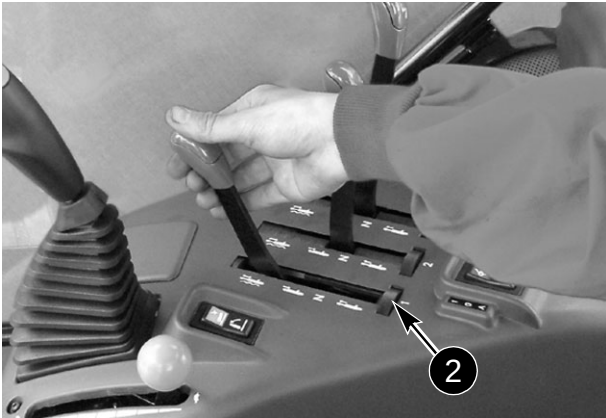
The remote hydraulic control levers can be locked in the neutral position (1) to prevent moving the remote valves. This can be done by moving the valve control levers to the neutral position and turning the lock control fully clockwise.



DI96N023

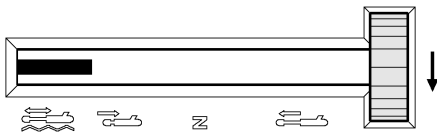
When used with equipment in the raised position, the neutral lock provides a positive means of preventing the accidental movement of the valve control levers.

Float



MD05F054

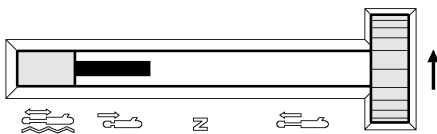
To operate the remote hydraulics in a float condition, turn the lock control (2) fully counterclockwise.



DI96N025

This will allow the control lever to go completely forward into the float position.

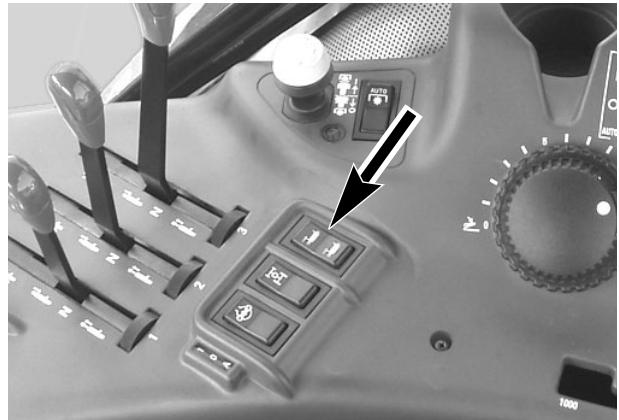
The remote hydraulic control levers can be locked out of the float position. When using equipment for work where the float position is not wanted, turn the lock control one position clockwise so that the control lever cannot be moved into the float position.



DI96N024

NOTE: Single action cylinders can be operated in a float or no float position at the same time that the hitch is operated.

Operation Using Fourth Remote Switch (If Equipped)



MD05F037

The fourth remote switch is a momentary switch used to extend and retract the equipment hydraulic cylinder(s).

Press the bottom of the switch to extend the equipment hydraulic cylinder(s).

Once released, the switch will return to the centre NEUTRAL position and stop the hydraulic cylinder(s) movement.

Press the top of the switch to retract equipment hydraulic cylinder(s).

Failure in Operation



WARNING: If a fault occurs with the remote valve which makes it necessary to remove any connected implement from the tractor, (to carry out a repair to the valve), make sure all necessary precautions and **EXTREME CARE** is taken to prevent injury to yourself or others due to crushing or entrapment while disconnecting the implement.

Always consult your implement manufactures operators instructions.

If in any doubt as to the correct procedure contact your dealer.

Operation

Variable Flow Controls (If equipped with Mechanical Remote Valves)

If there is too much restriction in the implement cylinders or other attachments, the restriction can cause a back pressure in the remote hydraulic valve which will cause the remote hydraulic lever on the console to return to the neutral (kick out) position before the cylinder reaches the full stroke.

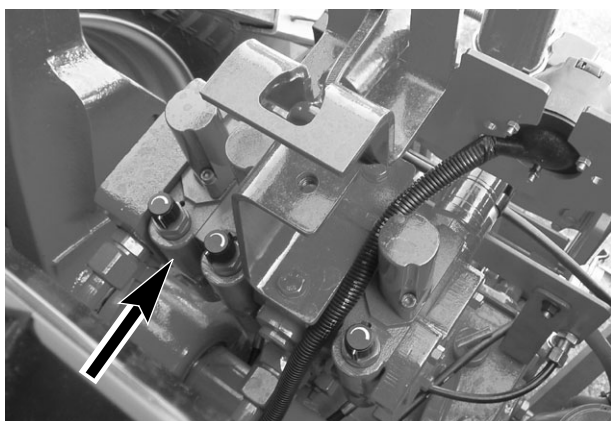
If this condition occurs decrease the amount of fluid going to the implement.

NOTE: *It is normal for the remote hydraulic control lever to return to the neutral position when the cylinders reach the full stroke.*

Flow Rate Adjustment

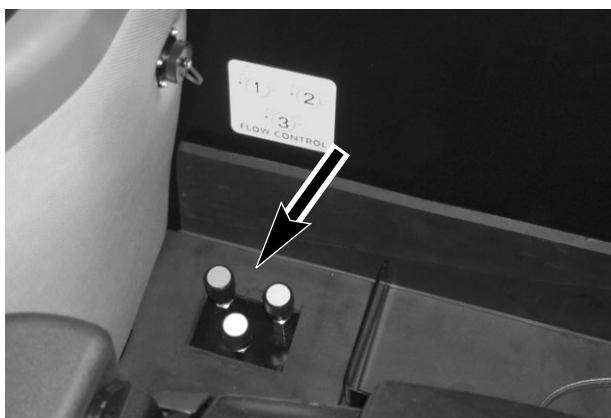
Use the variable flow controls to increase or decrease the rate of flow of hydraulic fluid to the remote hydraulic couplers.

This can be done either at the Hydraulic Valve,



MD05F044

Or by using the Optional Cab Controls.



MD05A001

REMOTE HYDRAULICS OPERATION USING ELECTRICAL CONTROLS

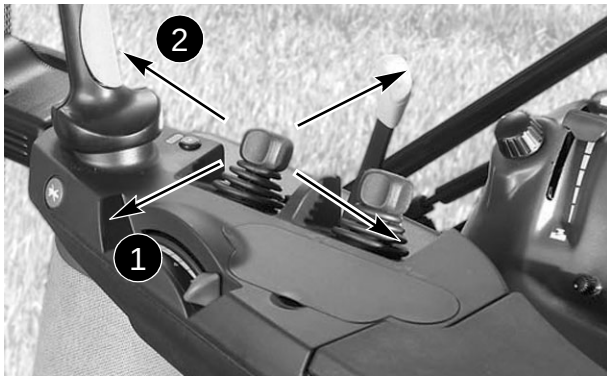
The speed of movement of auxiliary equipment is determined by the distance the control is moved from neutral. If the control is moved fully from neutral, the equipment hydraulic cylinder(s) will extend or retract quickly. If the control is moved only a short distance from neutral, the equipment hydraulic cylinder(s) will extend or retract slowly.

Prior to using the remote valves the system may need to be enabled. An indicator lamp in the button (A) is illuminated if the system is active. If lamp is not illuminated simply press the button (A) to re-enable.



MD05E051

Remote Valves 1 and 2

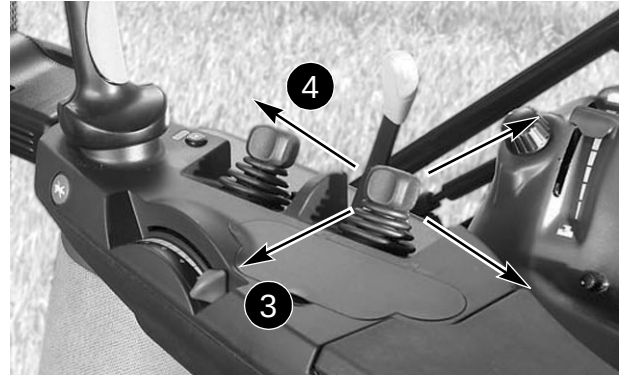


MD05F051

Remote Valve 1: Pushing the joystick sideways from neutral actuates number 1 remote valve. Pushing the lever fully RIGHT to the detent will operate the hydraulics in a float condition.

Remote Valve 2: Pushing the joystick forward or rearward from neutral actuates number 2 remote valve. Pushing the lever fully FORWARD to the detent will operate the hydraulics in a float condition.

Remote Valves 3 and 4



MD05F051

Remote Valve 3: Pushing the joystick sideways from neutral actuates number 1 remote valve. Pushing the lever fully RIGHT to the detent will operate the hydraulics in a float condition.

Remote Valve 4: Pushing the joystick forward or rearward from neutral actuates number 2 remote valve. Pushing the lever fully FORWARD to the detent will operate the hydraulics in a float condition.

Remote Valve 5 or (Remote Valve 4*)



MD05F045

Remote Valve 5: Can be operated from the Multi-Function Control Lever using the upper push buttons (5).

***NOTE:** If your tractor is equipped with a total of 4 remote valves this control can also be used to operate the fourth remote in addition to the joystick control.

Operation

Failure in Operation

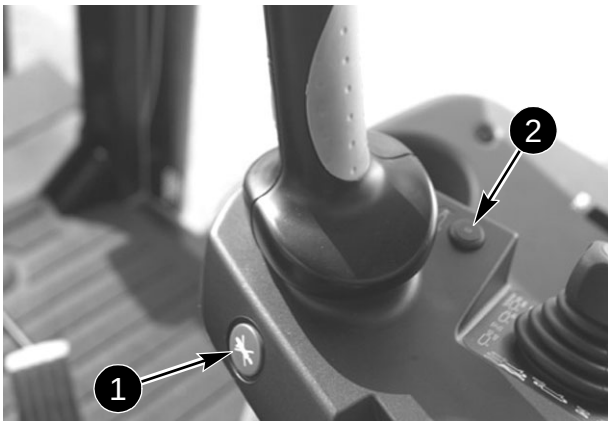


WARNING: If a fault occurs with the remote valve which makes it necessary to remove any connected implement from the tractor, (to carry out a repair to the valve), make sure all necessary precautions and **EXTREME CARE** is taken to prevent injury to yourself or others due to crushing or entrapment while disconnecting the implement.

Always consult your implement manufactures operators instructions.

If in any doubt as to the correct procedure contact your dealer.

Hydraulic Lock-Out

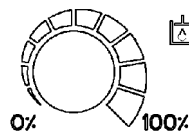


Press the Hydraulic Lock-Out button (1) to disable the Electrical Hydraulic Controls. This will stop implement movement if any of the controls are accidentally operated.

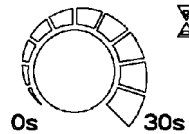
To re-enable the hydraulic system press the enable button (2) and the lamp will illuminate to indicate the system is enabled.

Variable Flow Controls

The variable flow controls allow the remote valves to run for a pre-set amount of time during repetitive operations or to allow continuous flow when operating a hydraulic motors.



Rotate the relevant control clockwise or counterclockwise to increase or decrease the rate of flow to the remote hydraulic couplers from 0 to 100% as required.



Use the flow timers, (one for each variable control) to determine the amount of time a remote valve has hydraulic flow after the control has been operated. The time can be set from 0 to 30 seconds.

With the control turned fully clockwise continuous flow will be given to the relevant remote valve.

To set the valves into the timer condition:

Push the relevant valve control to full travel in the desired direction and then release back to the neutral position. The valve will then run at the set flow until one of the following conditions occur;

- The control is moved from the neutral position.
- The control is not returned to neutral after pushing the control to full travel.
- The hydraulics are disabled.
- The set time has elapsed.

NOTE: The timer on remote valve 5 operates in the same manner except it will be necessary to press the relevant button to start the timer and press again to stop.

OPERATING HYDRAULIC MOTORS

Connect hydraulic motors to the 1st. remote circuit to make sure of a constant flow of oil to the motor.



MD05F054



MD05F051

Stop the engine. Move remote control to the float position.

To engage the hydraulic motor, start the engine and move the control out of the float position. The hydraulic motor will now operate.

Use the variable flow controls to regulate the motor speed.

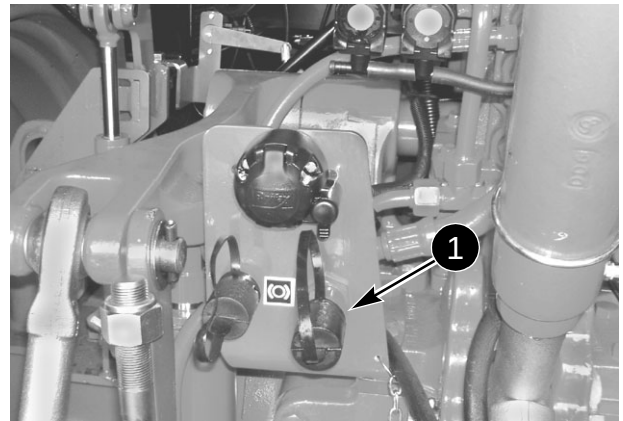
To disengage the hydraulic motor, move the remote control back to the float position. This will allow the hydraulic motor to slow down before stopping.

IMPORTANT: *Allowing the control to return to the neutral position during motor application will cause the motor to stop immediately. This may cause damage to the hydraulic motor, hoses and equipment.*

To change the direction of rotation of the hydraulic motor, change the hoses over on the remote coupler.

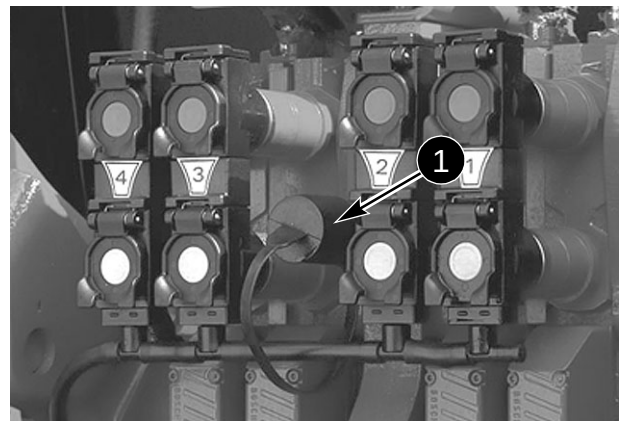
NOTE: *It is recommended when operating hydraulic motors that your tractor is equipped with a Hydraulic Motor Return Circuit.*

Hydraulic Motor Return Circuit (If Equipped)



MD06K001

XTX145 AND XTX165 TRACTORS



MD05F061

XTX185, XTX200 AND XTX215 TRACTORS

The hydraulic motor return circuit can be used to reduce restriction in the remote hydraulic motor return line. This will result in more efficient hydraulic motor operation.

The motor return circuit can also be used in applications where low return oil pressure is required for improved implement operation.

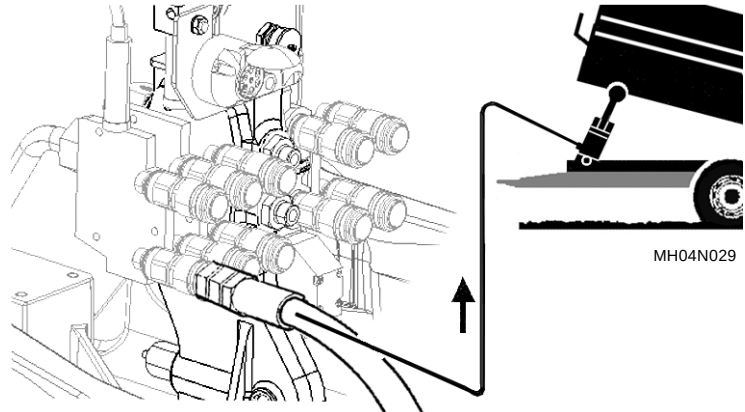
To use the hydraulic motor return circuit, connect the return line from the hydraulic motor or implement to the connector (1).

Operation

OPERATION USING SINGLE ACTING REMOTE HYDRAULIC CYLINDERS



WARNING: When remote cylinders are connected to the hydraulic system, cycle the control lever about three times to remove air from the cylinder and hoses. With air in the system raised equipment can drop accidentally and cause personal injury or machine damage.



IMPORTANT: Single acting remote circuits cannot be used for continuous oil supply applications.

When using single acting hydraulic cylinders connect the hose (from the single acting cylinder) to the bottom remote coupler.

By moving the relevant lever/joystick control to the raised position the single acting cylinder will extend.

Move the lever/joystick control back to neutral to stop the cylinder. If the cylinder reaches full extension the lever/joystick control will automatically return to the neutral position.

Move the lever/joystick control to the float position to retract the cylinder. This allows up to 9 litres of hydraulic oil to be dumped to the transmission at minimum back pressure.

Tyres, Wheels, Ballasting

Chapter 6 Tyres, Wheels, Ballasting

6

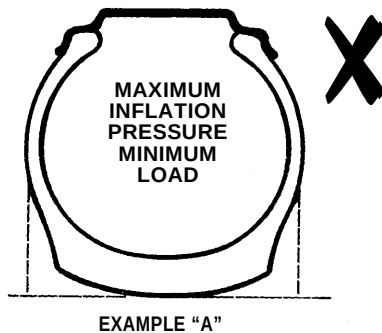
Tyres, Wheels, Ballasting

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Tyres, Wheels, Ballasting

TYRE INFLATION SPECIFICATIONS

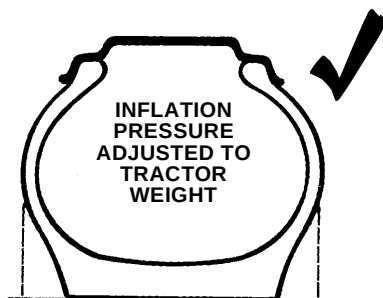
For maximum tractor performance, always adjust the tyre pressure within the minimum/maximum range, to conform with the actual load on the tyres. Under normal conditions use the minimum pressure rating for general drawbar work. Use the higher pressure rating, up to the maximum, for heavy three point hitch mounted equipment.



EXAMPLE "A"

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Example 'A' shows the cross section of a tyre inflated for maximum load but with a minimum load on the tyre. The tyre tread is not making full contact with the ground which will give poor performance.



EXAMPLE "B"

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Example 'B' shows the cross section of a tyre with the inflated pressure correctly adjusted to the load on the tyre. The tyre tread is making full contact with the ground which will give maximum performance.

Tyre pressure can also be adjusted as required to satisfy the following requirements.

- A. Severe Service.** Tyre pressure can be increased 28 kPa, 0.27 bar, (4 psi) more than the maximum pressure shown in the charts, for tyres used in severe service. Severe service includes the furrow tyre in regular ploughing operations, and in hillside operations.
- B. Tyres With Liquid Ballast.** Inflate the tyres 14 kPa, 0.14 bar, (2 psi) more than the normal operating pressure required for your operation. This will compensate for aeration that occurs when the tyres are in motion.

WARNING: A tyre can explode during inflation and cause serious injury or death. Never increase air pressure beyond 241 kPa, 2.4 bar to seat the bead on the rim. Replace a tyre if it has a defect. Replace a wheel rim which has cracks, wear or severe rust. Make sure that all the air is removed from a tyre before removing the tyre from the rim. Never use force on an inflated or partially inflated tyre, make sure the tyre is correctly seated before inflating.



See Tyre and Wheel Service on page 177 for instructions on safe tyre inflation procedure, recommended tyre maintenance and tyre/rim repair.

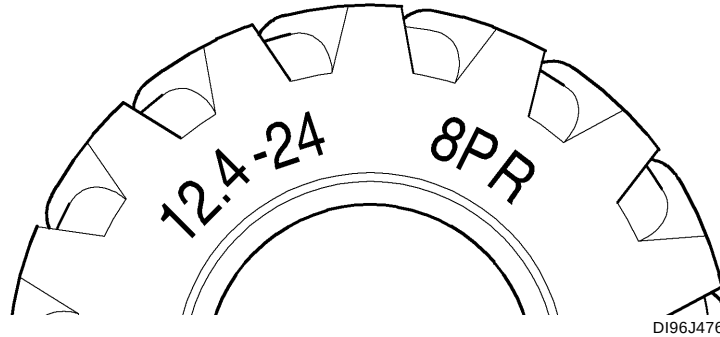
IMPORTANT: During transportation, by rail or road, tractor tyres are inflated to higher than normal operating pressures. Before using your tractor check the air pressure in the tyres to make sure that the air pressures are correct.

Tyres, Wheels, Ballasting

TYRE PRESSURES, LOAD CAPACITIES AND SERVICE

Tyres can be marked in two ways, as shown in the examples below:

CROSSPLY - Example

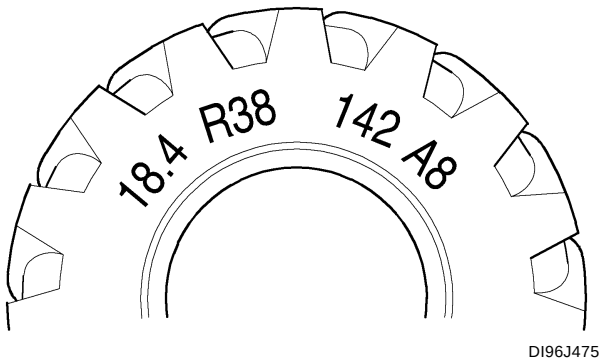


12.4-24 8PR

- 12.4 = Nominal tyre width in inches
- = Crossply structure
- 24 = Internal diameter
- 8PR = 8 ply rating

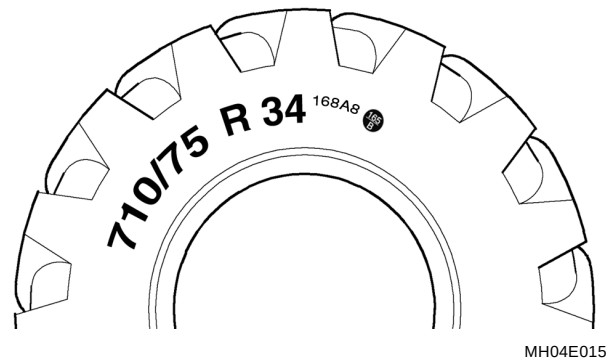
For correct tyre pressures/load capacities for CROSSPLY tyres see your dealer or tyre manufacturer.

RADIAL - Examples



18.4R38

- 18.4 = Nominal tyre width in inches
- R = Radial structure
- 38 = Internal diameter
- 142 = Load index number, 142 = 2650 kg (see chart 1)
- A8 = Speed code for 40 km/h, (see chart 2)



710/75R34

- 710 = Nominal tyre width in mm
- 75 = Nominal aspect ratio (ratio of sidewall height/section width)
- R = Radial structure
- 34 = Rim diameter at the bead seat in inches
- 168 = Load index number, 168 = 5600 kg (see chart 1)
- A8 = Speed code for 40 km/h, (see chart 2)
- 165 = Load index number, 165 = 5150 kg (see chart 1)
- B = Speed code for 50 km/h, (see chart 2)

The performance of a Radial tyre is determined by the Load Index and Speed Code which have replaced the Ply rating found on Crossply tyres.

The maximum load which can be carried by a tyre is dependant upon the Load Index quoted on the tyre wall. Charts 1 and 2, on the following page, give a guide to the maximum load a tyre can carry and a percentage (%) variation depending upon the speed code or travel speed.

Tyres, Wheels, Ballasting

IMPORTANT: The charts below are only a guide. Loads may vary slightly with makes of tyre. For correct loads see your dealer or tyre manufacturer.

Chart 1 - Load Index Codes and Loads per Tyre

INDEX	kg	INDEX	kg	INDEX	kg	INDEX	kg	INDEX	kg	INDEX	kg
90	600	105	925	120	1400	135	2180	150	3350	165	5150
91	615	106	950	121	1450	136	2240	151	3450	166	5300
92	630	107	975	122	1500	137	2300	152	3550	167	5450
93	650	108	1000	123	1550	138	2360	153	3650	168	5600
94	670	109	1030	124	1600	139	2430	154	3750	169	5800
95	690	110	1060	125	1650	140	2500	155	3875	170	6000
96	710	111	1090	126	1700	141	2575	156	4000	171	6150
97	730	112	1120	127	1750	142	2650	157	4125	172	6300
98	750	113	1150	128	1800	143	2725	158	4250	173	6500
99	775	114	1180	129	1850	144	2800	159	4375	174	6700
100	800	115	1215	130	1900	145	2900	160	4500	175	6900
101	825	116	1250	131	1950	146	3000	161	4625	176	7100
102	850	117	1285	132	2000	147	3075	162	4750	177	7300
103	875	118	1320	133	2060	148	3150	163	4875	178	7500
104	900	119	1360	134	2120	149	3250	164	5000	179	7750

Chart 2 - Speed Codes

SPEED CODE	km/h	mph	% VARIATION FACTOR (*) FOR DIFFERENT SPEEDS
A2	10	6	+ 67%
A3	15	9	+ 50%
A4	20	12	+ 39%
A5	25	15	+ 28%
A6	30	19	+ 11%
A7	35	22	+ 4%
A8	40	25	0
B	50	31	- 9%

(*) The % variation factors are based on recommendations by the European Tyre And Rim Technical Organization (ETRTO).

Tyres, Wheels, Ballasting

Air Pressure Check

Check the tyre inflation pressure every 50 hours of operation or once per week.

NOTE: For best tyre life check tyre pressures as regular intervals. Too low a pressure causes early tyre wall failure. Too high a pressure causes higher tread wear or damage.

Check the condition of the tyres and wheels for wear or damage. Keep the tyres inflated to the recommended pressures.

NOTE: Cross ply tyres can have the pressure reduced to increase traction in field work. For speeds below 16 km/h (10 mph), loads can be increased by 20%.

NOTE: Never use radial ply tyres below 1.2 bar (17 psi). It is not necessary to reduce the pressure in radial tyres to get better traction in the field.

IMPORTANT: Before leaving the factory the tyre pressures are increased. Check and adjust the pressures before operating the tractor.

For tyres equipped with liquid ballast, check the air pressure as follows:

STEP 1

Use an air-water gauge. The valve must be at the bottom of the tyre to get an accurate reading.

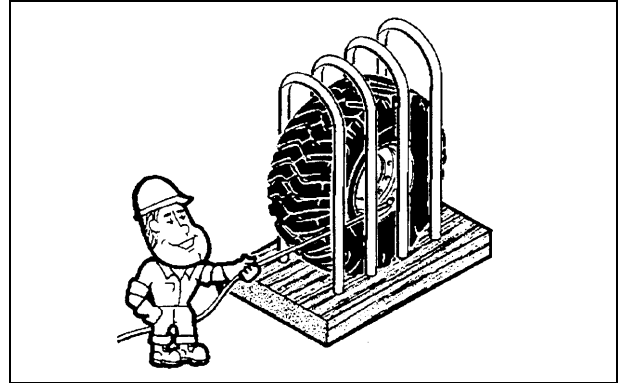
STEP 2

Use a standard air gauge as follows:

- A. The valve must be at the top of the tyre.
- B. Measure the wheel diameter.
- C. Add 3.5 kPa, 0.04 bar (1/2 psi) for each 305 mm (12 inches) of rim diameter to the standard gauge reading.

Tyre Inflation Procedure

DO NOT inflate a tyre that has had a complete loss of air. If the tyre has lost all air pressure, have a qualified tyre mechanic service the tyre.



DS97D088

IMPORTANT: If the tyre wheel assembly has been removed from the tractor always use a restraining device (tyre inflation cage) when inflating a tyre.

To ADD air to a partly inflated tyre, use the following procedure:

STEP 1

Use a SAFETY TYPE air hose with a remote shutoff valve and a self-locking air chuck.

STEP 2

Stand behind the tread of the tyre and make sure all persons are away from the side of the tyre before you start to add air.

STEP 3

Inflate the tyre to the recommended air pressure. DO NOT INFLATE THE TYRE MORE THAN THE RECOMMENDED PRESSURE.

Tyres, Wheels, Ballasting

Tyre And Wheel Service



WARNING: Do not remove, install or make repairs to tyres or rims. Take the tyre and rim to a tyre specialist where persons with special training and special safety tools are available. If the tyre is not correctly positioned on the rim, or if over inflated, the tyre bead can loosen on one side and cause air to leak at high force and can thrust the tyre in any direction. Explosive separation of the tyre can cause serious injury.



WARNING: DO NOT weld to wheel or rim when a tyre is installed. Welding will cause an explosive air/gas mixture that will be ignited with high temperatures. This can happen to tyres inflated or deflated. Removing air or breaking bead is not adequate. The tyre **MUST** be completely removed from the rim prior to welding.



WARNING: Explosive separation of the tyre and/or rim parts can cause injury or death. When tyre service is necessary, have a qualified tyre mechanic service the tyre.

Always have a qualified tyre mechanic service the tyres and wheels on this machine. If the tyre has lost all air pressure, take the tyre and wheel to a tyre specialist for service. The use of correct equipment and correct service/repair procedures will prevent accidents.

Tyre Installation

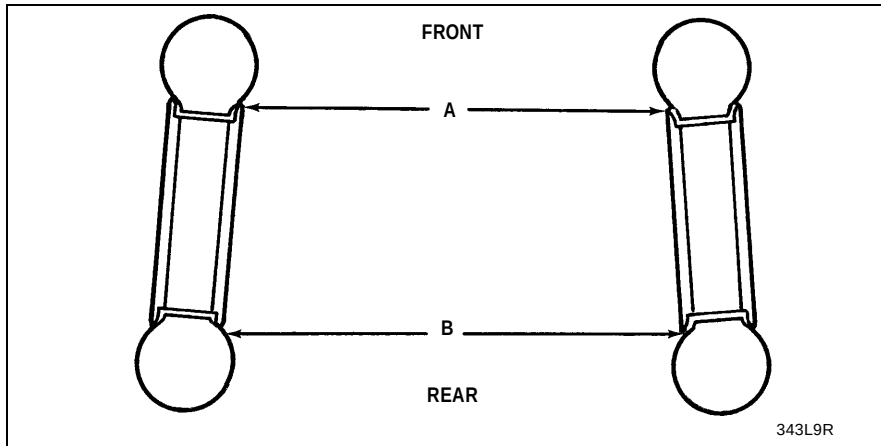
To get the correct traction and cleaning action of the lugs, the tyres must be installed on the wheels so the tread pattern is turning as shown. DO NOT try to remove, repair or install a tractor tyre on a wheel.



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Tyres, Wheels, Ballasting

SETTING THE FRONT WHEEL TOE-IN



STEP 1

Park the tractor on hard level ground, engage the park brake and stop the engine.

STEP 2

Raise the front of the tractor so that both front wheels are off the ground and the steering is free to turn through the full range LEFT AND RIGHT.

STEP 3

Mark the inside front of the rims at the tyre/rim interface and at the same height as the centre of the hub.

STEP 4

Measure the distance between the rim edges at the front (dimension A in the diagram).

STEP 5

Rotate each wheel 180 degrees so that the marks are at the rear, at the same height as the centre of the hub.

STEP 6

Measure the distance between the marks at the rear (dimension B in the diagram).

STEP 7

Subtract the front dimension (A) from the rear dimension (B), this is the toe -in measurement.

Adjustment

2WD +/- 2 mm

MFD +/- 3 mm

INDEPENDENT

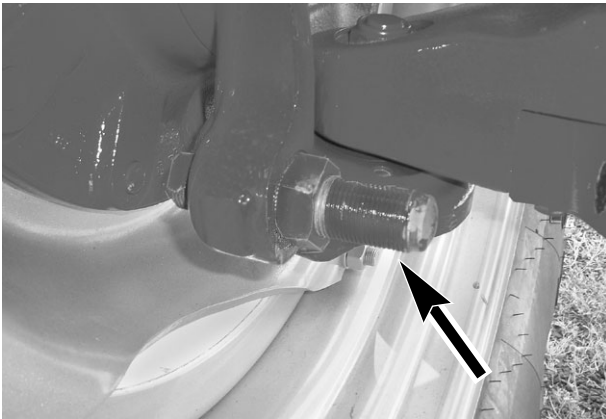
FRONT

SUSPENSION +/- 3 mm (At Mid Position)

- Adjust the length of each tie rod, by the same amount, as required.
- Make sure the tyres do not contact the steering cylinder when on full lock.

Tyres, Wheels, Ballasting

AXLE - STEERING STOPS



MD05G135

XTX200 TRACTOR WITH INDEPENDENT FRONT
SUSPENSION AXLE SHOWN

The steering stops are used to give the required steering clearance between the front tyres and tractor frame.

The stops are located on the rear of each swivel housing.

The angles you can set the stops to depends upon:

- The size of the front tyres installed.
- The wheel tread width setting.
- If front fenders are installed.
- If the tractor is equipped with a front hitch.

IMPORTANT: *Never operate the tractor without the steering stops installed.*

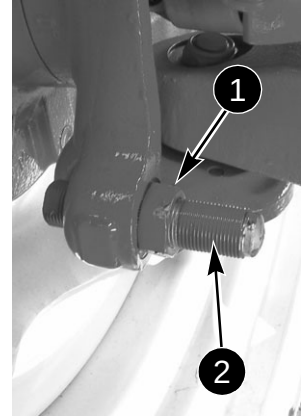
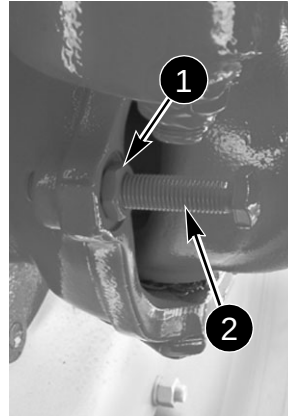
IMPORTANT: *When installing a front loader check the manufacturers recommendations for axle steering and oscillation stops.*

Adjusting The Steering Stops

STEP 1

Park the tractor on hard, level ground and apply the park brake. Stop the engine and remove the key from the key switch.

STEP 2



MD05G134A & 135A

Loosen the lock nuts (1). Adjust the steering stop bolts (2) in or out to achieve the correct steering angle.



WARNING: *Before carrying out any servicing on tractors equipped with Independent Front Suspension make sure the keyswitch is in the OFF position, the suspension ON/OFF switch is in the OFF position and the axle is fully lowered to the bottom mechanical stop. Failure to do this may result in serious injury.*

IMPORTANT: *After adjustment,*

- 1. Raise the front of the tractor so the axle can be moved into maximum oscillation.*
- 2. Start the engine and turn the steering wheel to full lock in both directions.*
- 3. Check to make sure the tyres or fenders (If Equipped) DO NOT touch the tractor frame.*

Tyres, Wheels, Ballasting

TWO WHEEL DRIVE FRONT AXLE TREAD ADJUSTMENT

STEP 1

Put blocks in front of and behind the rear wheels. Lift the front of the tractor and install axle supports.

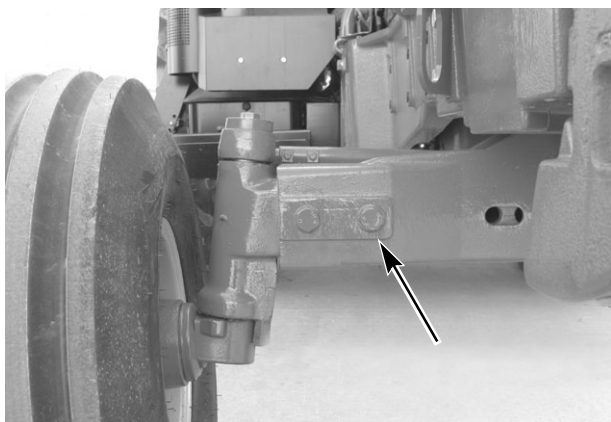
STEP 2



MD05J059

Remove the clamps, washers, bolts and nuts from the tie rods.

STEP 3



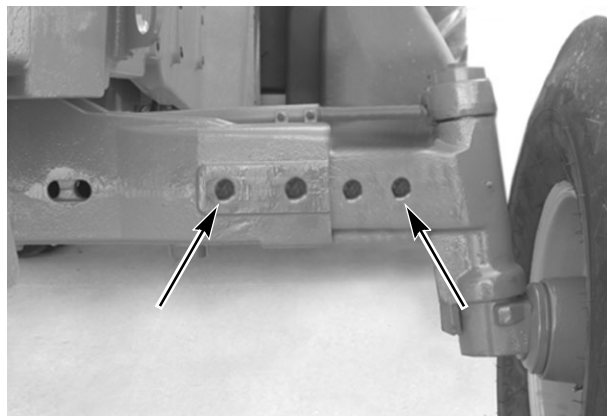
MD05J060

Remove the locating bolts and nuts from the axle extensions.

STEP 4

Slide the axle extensions to the required tread position setting and install the locating bolts and nuts. See next page for settings.

STEP 5



MD05J061

To keep the correct toe-in as the axle extensions are moved in or out, there are holes in the tie rods spaced at 50 mm (2 inch) to correspond with the holes in the axle extensions.

STEP 6

Install the clamp bolt in the tie rod hole which corresponds to the axle outer locating bolt hole.

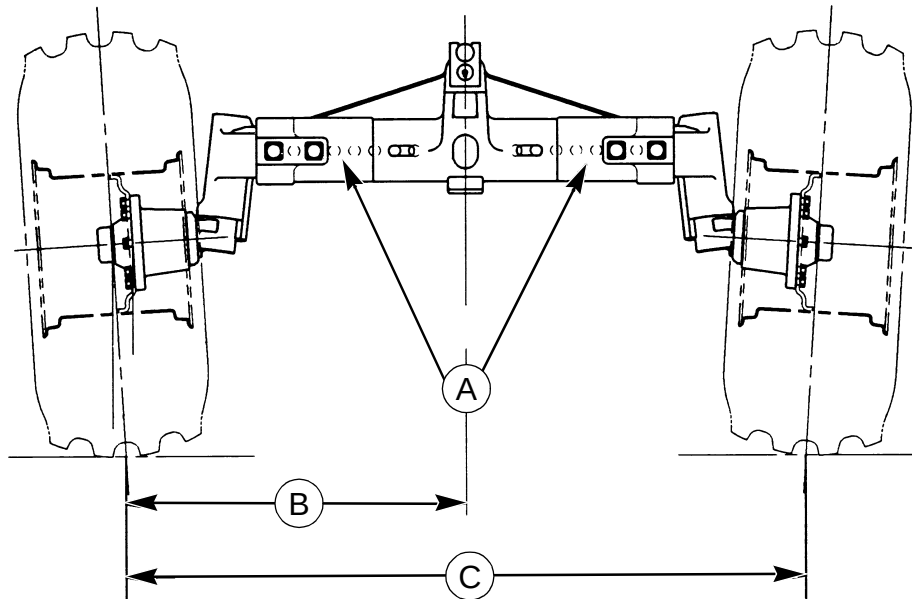
Example: If the axle outer locating bolt is in the fourth hole from the outer end of the axle extension then the tie rod clamp bolt must be in the fourth hole from the outer end.

Tighten the axle extension bolts to a torque of 508 to 576 Nm (375 to 425 lb ft) and the tie rod clamp nuts and bolts to 54 to 68 Nm (40 to 50 lb ft)

NOTE: If these procedures are not followed, the turning angle will be changed.

Tyres, Wheels, Ballasting

Two Wheel Drive (2WD) Front Wheel Tread Widths



A. 6 SETTINGS

B. CENTRE OF AXLE TO
CENTRE OF TYRE

C. TREAD WIDTH

TYRE SIZE AND RIM SIZE	CENTRELINE OF AXLE TO CENTRELINE OF TYRE		TREAD WIDTHS			
			RIM IN		RIM OUT	
	RIM IN	RIM OUT	MIN	MAX	MIN	MAX
11.0 - 16 W10L X 16	770 mm (30 inch)	871 mm (34 inch)	1537mm (61 inch)	2045mm (81 inch)	1740 mm (69 inch)	2248 mm (89 inch)
14L - 16.1 W11C X 16.1	790 mm (31 inch)	846 mm (33 inch)	1580 mm (62 inch)	2088 mm (82 inch)	1689 mm (67 inch)	2197 mm (87 inch)

NOTE: All tread figures are at ground level. The maximum and minimum tread width varies slightly with different tyre sizes.

Tyres, Wheels, Ballasting

MFD FRONT WHEEL TREAD WIDTHS

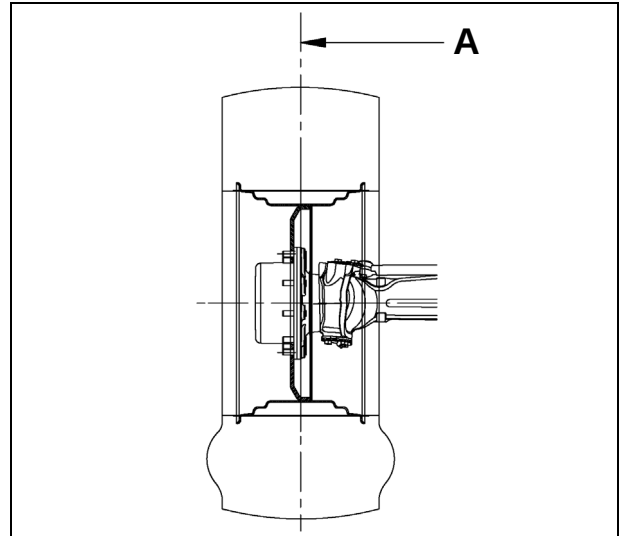


WARNING: When servicing or making adjustments to the tractor with one set of wheels supported on a stand, **NEVER** attempt to rotate the wheel either by hand or by starting the engine. This could propel the tractor off the stands. Either support all wheels off the ground or disconnect the front axle drive shaft.

IMPORTANT: The steering stops on the axle must be installed in the correct position for the tread width and tyre size being used.

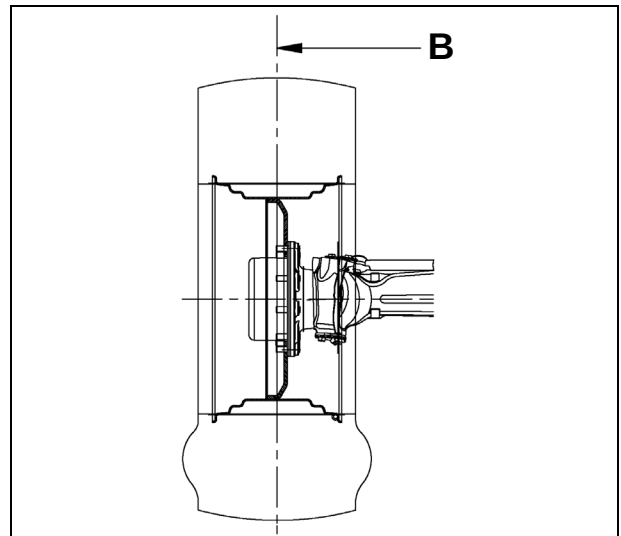
One Piece (Fixed) Wheels

One piece wheels are not adjustable and can only be interchangeable between each side of the axle.



MH06B084

A: 1830 mm (72 in)
RIM IN



MH06B084

B: 1930 mm (76 in)
RIM OUT

IMPORTANT: One piece (Fixed) wheels must be used as standard if your tractor is equipped with a 50 km/h transmission.

Tyres, Wheels, Ballasting

Two Piece Wheels

Two piece wheels are disc wheels with removable rims. The tread width (measured between tyre centres at ground level) can be adjusted by turning the wheel discs and/or the wheel rims in or out. The wheel disc can also be installed on either side of the mounting lugs on the rim.

IMPORTANT: DO NOT use two piece wheels when operating the tractor at travel speeds greater than 40 km/h (25 mph).

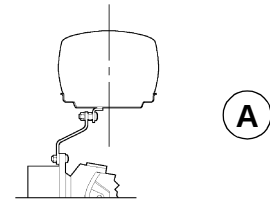
The illustrations show the wheel disc and rim positions for upto eight different tread positions.

TREAD WIDTHS			
A	RIM IN DISC IN SPACER IN USE	E	RIM IN DISC OUT SPACER IN USE
	* 1530 mm (60 in)		1930 mm (76 in)
B	RIM IN DISC IN SPACER NOT IN USE	F	RIM IN DISC OUT SPACER NOT IN USE
	1630 mm (64 in)		2030 mm (80 in)
C	RIM OUT DISC IN SPACER NOT IN USE	G	RIM OUT DISC OUT SPACER NOT IN USE
	1730 mm (68 in)		2130 mm (84 in)
D	RIM OUT DISC IN SPACER IN USE	H	RIM OUT DISC OUT SPACER IN USE
	1830 mm (72 in)		** 2230 mm (88 in)

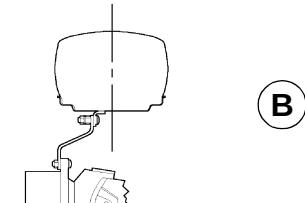
* The 1530 mm (60 in) tread position is not possible with front fenders installed.

** The 2230 mm (88 in) tread position is not possible with front fenders installed.

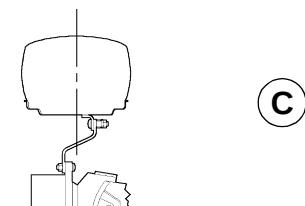
CENTRE OF TRACTOR →



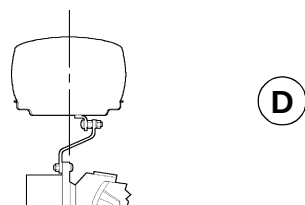
A



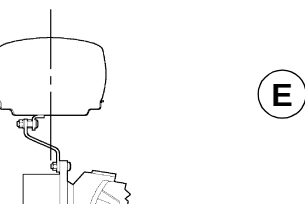
B



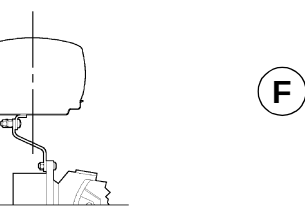
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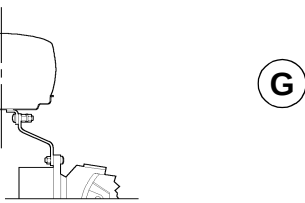
D



E



F



G

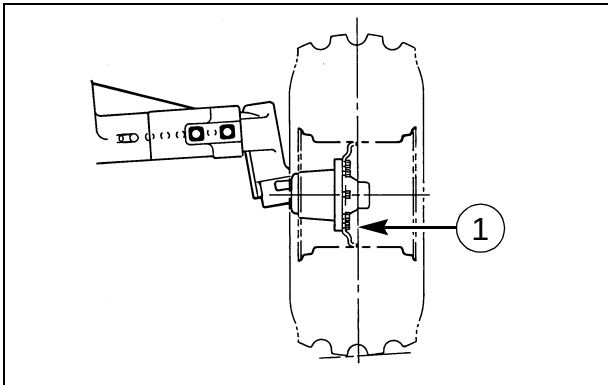


H

Tyres, Wheels, Ballasting

FRONT WHEEL BOLT TORQUES

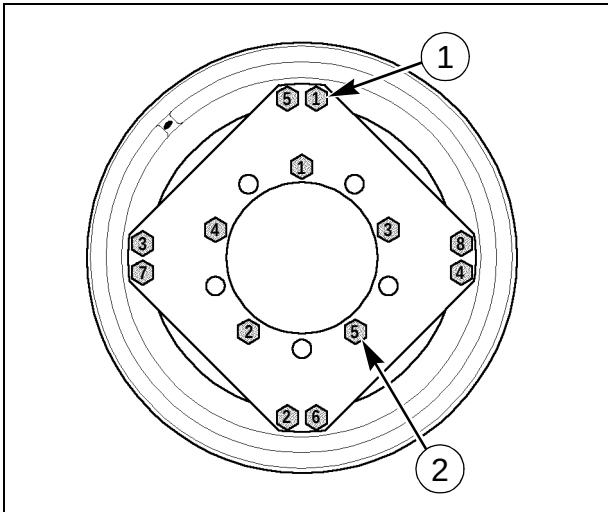
Two Wheel Drive (2WD)



342L9

Tighten the wheel to hub mounting bolts (1) to a torque of 190 to 217 Nm (140 to 160 lb ft).

Five Stud Wheel Hub Arrangement

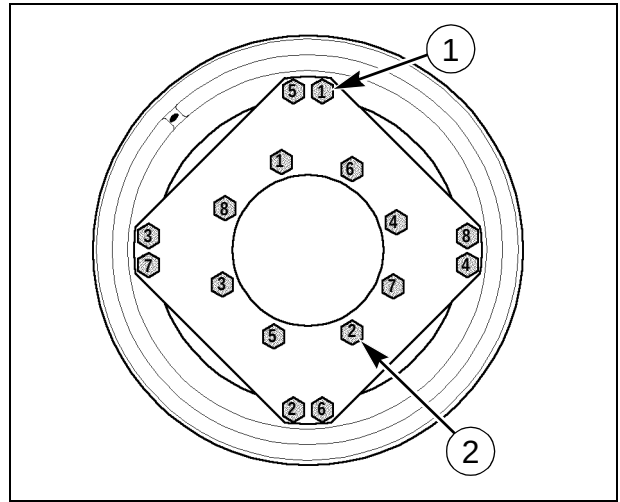


DI99B172

Tighten the center disc to rim nuts (1) to a torque of 280 to 310 Nm (206 to 229 ft lb) in the numbered sequence shown. The center disc must fit flush against the rim lugs when assembled.

Tighten the wheel center disc to axle hub nuts (2) in the numbered sequence shown, to a torque of 530 to 570 Nm (391 to 420 ft lb).

Eight Stud Wheel Hub Arrangement

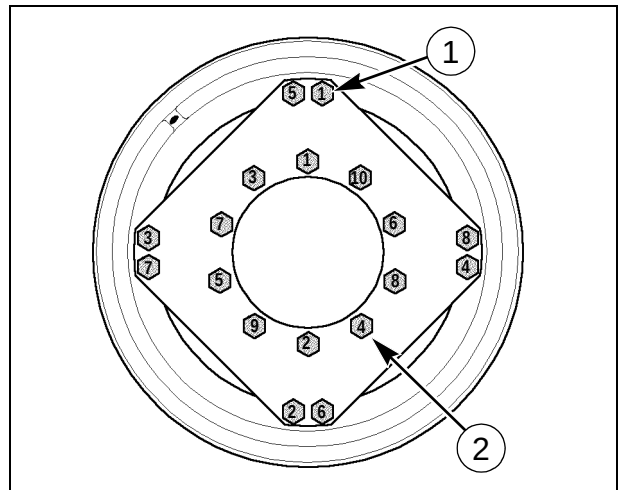


DI99B172A

Tighten the center disc to rim nuts (1) to a torque of 280 to 310 Nm (206 to 229 ft lb) in the numbered sequence shown. The center disc must fit flush against the rim lugs when assembled.

Tighten the center disc to axle hub nuts (2) to a torque of 300 to 350 Nm (221 to 258 ft lb) for NEW nuts and 400 to 450 Nm (295 to 332 ft lb) for USED nuts in the numbered sequence shown.

Ten Stud Wheel Hub Arrangement



DI99B172B

Tighten the center disc to rim nuts (1) to a torque of 280 to 310 Nm (206 to 229 ft lb) in the numbered sequence shown. The center disc must fit flush against the rim lugs when assembled.

Tighten the center disc to axle hub nuts (2) to a torque of 300 to 350 Nm (221 to 258 ft lb) for NEW nuts and 400 to 450 Nm (295 to 332 ft lb) for USED nuts in the numbered sequence shown.

Tyres, Wheels, Ballasting

FRONT TO REAR TYRE SIZE COMBINATIONS

Tractors equipped with Mechanical Front Drive and Independent Front suspension must use front and rear tyre combinations that are correctly matched. The use of recommended tyre combinations will give maximum tractor performance, extended tyre life and reduced wear on drive train components.

The LEAD/LAG (How fast the front tire rotates compared to the rear tire) should be between 0 and 5 percent lead, with +1 to +3 percent being ideal. To calculate the LEAD/LAG, use the following formula:

$$\frac{(RC_F \times IR) - RC_R}{RC_R} \times 100 = \text{lead}$$

RC_F = Rolling Circumference of Front Tire (Refer to the Tire Manufacturers Hand book).

RC_R = Rolling Circumference of Rear Tire (Refer to the Tire Manufactures Hand book).

IR = Inter Axle Ratio (see page 259).

IMPORTANT: To minimize tire wear, MFD tractors must have MFD disengaged if the tractor is going to be run at high speeds and low loads (roading). This procedure will also reduce power loss, increase fuel economy and ride stability.

IMPORTANT: NEVER exceed the load capacity or the inflation pressure for a particular tire. Refer to the TIRE LOAD AND INFLATION CHART in this manual.

IMPORTANT: The tyre size combinations are specified to provide matched ground speeds of the front and rear tyres. Mixing worn and new tyres or tyres of different diameters, manufacturers, or loaded radii can give incorrect ground speed match. When replacing tyres refer to the table on the following page. If the tyres required are not listed or you are in any doubt consult your dealer.

IMPORTANT: If you change the tyre size combination, the correct rear tyre size constant MUST be programmed into the instrument cluster. See page 85 for correct procedure or if in doubt see your dealer.

Tyres, Wheels, Ballasting

XTX145 and XTX165 Tractors

Single Front and Rear Tyres

REAR TYRES	FRONT TYRES									
	480/70R28	540/65R28	420/85R28 (16.9R28)	420/70R28	420/85R30 (16.9R30)	540/65R30	380/85R28 (14.9R28)	340/85R28 (13.6R28)	380/70R28	480/65R28
520/85R38 (20.8R38)	●		●							
650/65R38		●								
460/85R38 (18.4R38)				●			●			
520/70R38				●						
580/70R38	●									
460/85R42 ★ (18.4R42)			●		●					
520/85R42 ★ (20.8R42)					●					
650/65R42 ★						●				
420/85R38 (16.9R38)								●	●	
480/70R38							●	●	●	
600/65R38										●

Single Front and Dual Rear Tyres (Tractor MUST be equipped with a Bar Axle)

REAR TYRES	FRONT TYRES				
	480/70R28	420/85R28 (16.9R28)	420/70R28	420/85R30 (16.9R30)	380/85R28 (14.9R28)
520/85R38 (20.8R28)	●	●			
460/85R38 (18.4R38)			●		●
520/70R38			●		
460/85R42 ★ (18.4R42)		●		●	

● = Correct tyre size combination.

* **NOTE:** Tyre size availability is subject to market requirements and transmission option (ie. 40 km/h or 50 km/h). See your dealer for more information.

Tyres, Wheels, Ballasting

XTX185, XTX200 and XTX215 Tractors

Single Front and Rear Tyres

REAR TYRES	FRONT TYRES							
	480/70R28	540/65R28	480/70R30	420/85R28 (16.9R28)	420/70R28	600/65R28 (14.9R30)	420/85R30 (16.9R30)	540/65R30 (16.9R30)
520/85R38 (20.8R28)	●			●				
650/65R38		●						
460/85R38 (18.4R38)					●			
520/70R38					●			
580/70R38	●							
620/70R38		●				●		
710/70R38						●		
460/85R42 (18.4R42)				●			●	
520/85R42 (20.8R42)			●				●	
650/65R42						●		●
620/70R42			●					
380/85R46 (14.9R46)						●		
460/85R46 (18.4R46)								●

Single Front and Dual Rear Tyres (Tractor MUST be equipped with a Bar Axle)

REAR TYRES	FRONT TYRES						
	480/70R28	480/70R30	420/85R28 (16.9R28)	420/70R28	340/85R30 (14.9R30)	420/85R30 (16.9R30)	420/85R30 (3 STAR) (16.9R30)
520/85R38 (20.8R28)	●		●				
460/85R38 (18.4R38)				●			
520/70R38				●			
580/70R38	●						
460/85R42 (18.4R42)			●		●	●	
520/85R42 (20.8R42)		●				●	
460/85R46 (18.4R46)							●

● = Correct tyre size combination.

NOTE: Tyre size availability is subject to market requirements and transmission option (ie. 40 km/h or 50 km/h). See your dealer for more information.

Tyres, Wheels, Ballasting

FRONT WHEEL FENDERS (If Equipped)

Front wheel fenders are available for all tractor variants. On MFD and Independant Front Suspension models the fenders are fully adjustable to ensure the tyre is covered at all tread widths.

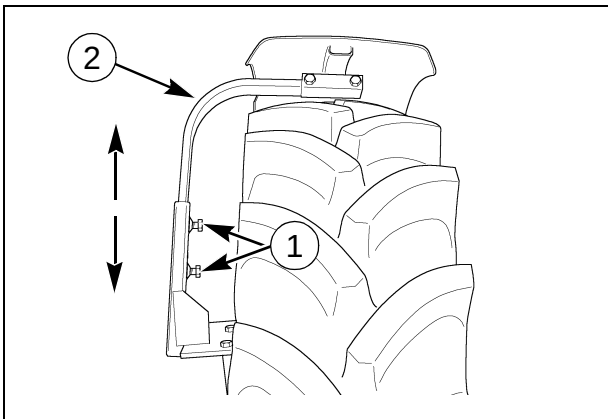
The front fenders provide greater safety and keep the tractor cleaner, therefore improving operation and durability.

To provide the necessary clearance between the fender and other tractor components, the fender mounting position and the total amount of swivel must be adjusted for the tread width and tyre size being used.

Vertical Adjustment

Loosen the support brace mounting bolts (1) and slide the support brace (2) up or down to the correct position. Tighten the mounting bolts to a torque of 50 Nm (37 lb ft).

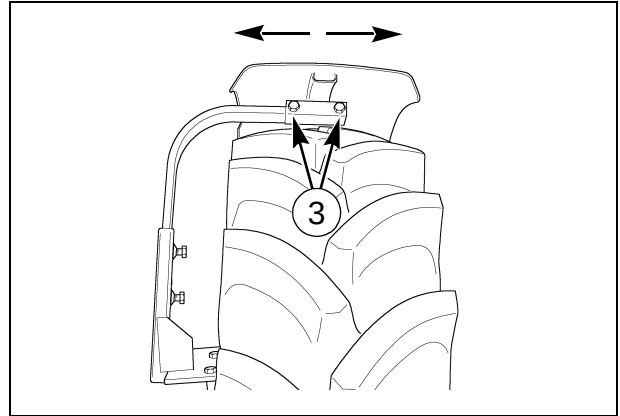
NOTE: The distance between tyre and support brace must be 50-100 mm (2-4 in).



DS99G185

Horizontal Adjustment

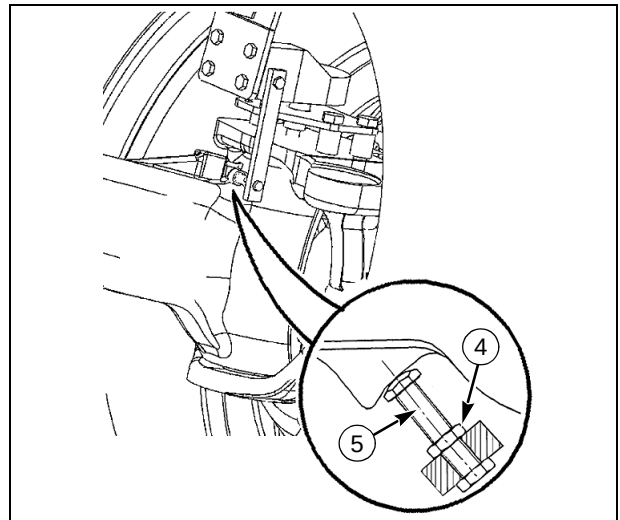
Loosen the fender bracket mounting bolts (3) and slide the fender bracket left or right until the fender is central over the tyre. Tighten the mounting bolts.



DS99G185

Swivel Limit Adjustment (If Equipped)

Loosen the lock nuts (4). Adjust the stop bolts (5) in or out to achieve the correct amount of swivel. Tighten the lock nuts.



MI03K010

Tyres, Wheels, Ballasting

REAR WHEEL TREAD ADJUSTMENT



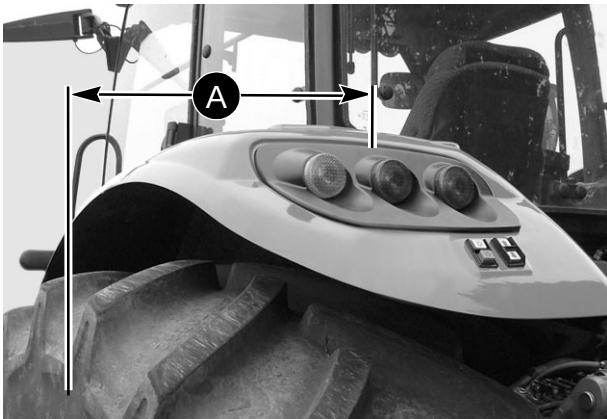
WARNING: When servicing or making adjustments to the tractor with one set of wheels supported on a stand, NEVER attempt to rotate the wheel either by hand or by starting the engine. This could propel the tractor off the stands. Either support all wheels off the ground or disconnect the front axle drive shaft.

IMPORTANT: Before making any adjustment make sure that the tractor is correctly supported. Apply the park brake and put blocks in front of and behind both front wheels and the other rear wheel. Check torques after the first 30 minutes of operation and then every 10 hours of operation until torques stabilize. This tightening and checking procedure is necessary after any wheel repositioning operation, see page 194 for correct torques and tightening sequence.

Important information for EEC Member States:

This tractor is manufactured with rear lamps which meet all necessary lighting regulations for correct operation while travelling on the public road.

The legal requirement states when using public roads the distance from the extreme outer edge of the tractor and that of the rear stop lamp lens should not exceed 400mm (16in) - Dimension A.



MD05J064

If the tread width is adjusted beyond the initial factory setting then it may be necessary to either reposition the rear lights or install auxiliary lighting to comply with legal requirements.

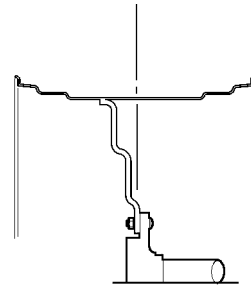
Also, overall widths above 3000 mm (118 in) **WILL** require local authorization for use on the highway. An overall width of 2550 mm to 3000 mm (8 to 10 feet) **MAY** require local authorization for use on the highway, check before operation.

Flanged Type Axle Tread Widths

When adjusting to the minimum tread position, make sure that there is a clearance of at least 50 mm (2 in) between the tyres and components of the rear fenders.

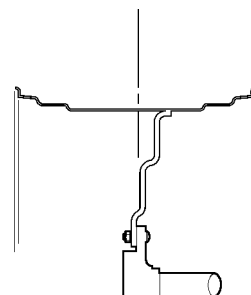
One Piece Wheels

One piece wheels are not adjustable and can only be interchangeable between each side of the axle.



1830 mm (72 in)
RIM IN

MH04E021



1930 mm (76 in)
RIM OUT

MH04E022

IMPORTANT: One piece (Fixed) wheels must be used as standard if your tractor is equipped with a 50 km/h transmission.

Tyres, Wheels, Ballasting

Two Piece Wheels

IMPORTANT: DO NOT use two piece wheels when operating the tractor at travel speeds greater than 40 km/h (25 mph).

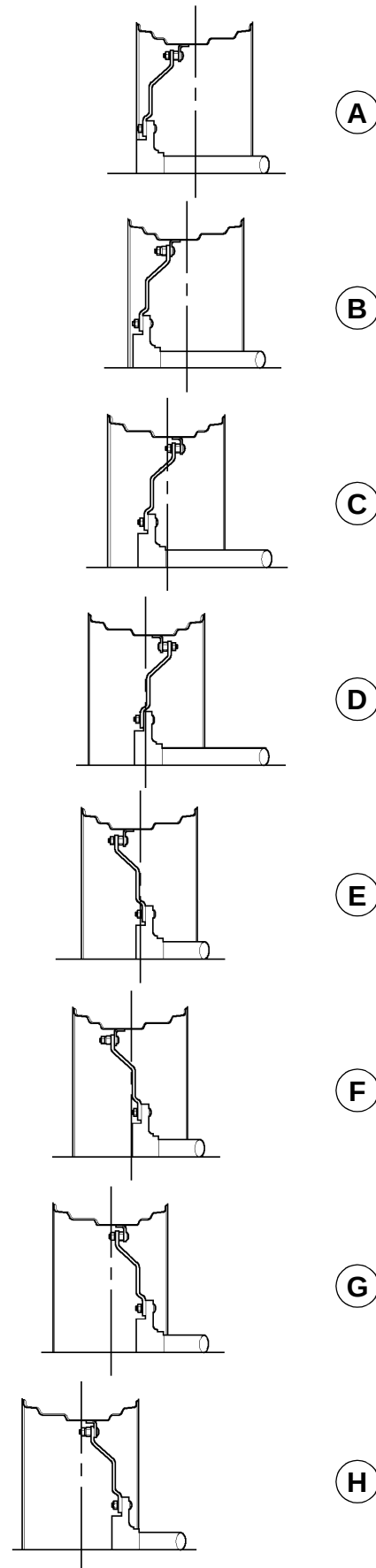
Two piece wheels are disc wheels with removable rims. The illustrations on the following pages show the rim and disc positions for the various tread widths. When the rims are reversed to change the tread width, install the right hand tyre and rim on the left disc and the left tyre and rim on the right disc to make sure that the tread pattern is in the correct direction for maximum traction as shown by the arrow on the tyre.

TREAD WIDTHS			
A	RIM IN DISC IN SPACER IN USE	E	RIM IN DISC OUT SPACER IN USE
	1530 mm (60 in)		1930 mm (76 in)
B	RIM IN DISC IN SPACER NOT IN USE	F	RIM IN DISC OUT SPACER NOT IN USE
	1630 mm (64 in)		2030 mm (80 in)
C	RIM OUT DISC IN SPACER IN USE	G	RIM OUT DISC OUT SPACER IN USE
	1730 mm (68 in)		2130 mm (84 in)
D	RIM OUT DISC IN SPACER IN USE	H	RIM OUT DISC OUT SPACER NOT IN USE
	1830 mm (72 in)		2230 mm (88 in)

Use the chart below as a guide to establish the **minimum tread width possible** for the tyres fitted to your tractor.

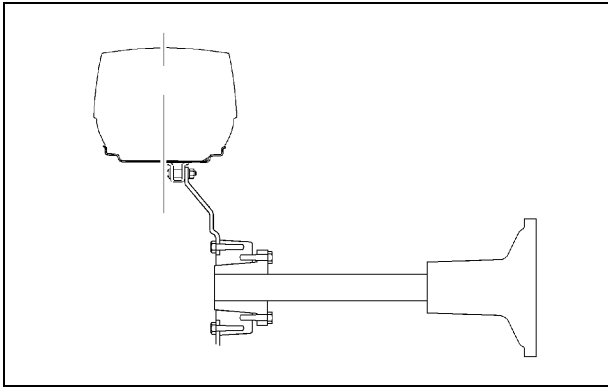
TREAD WIDTH	TYRE SIZE(S)
1530 mm (60 in)	14.9R46 380/85R46
1630 mm (64 in)	18.4R38 18.4R42 18.4R46 460/85R38 460/85R42 460/85R46
1730 mm (68 in)	20.8R38 650/65R38 520/70R38 520/85R38 580/70R38 620/70R38 20.8R42 520/85R42 650/65R42 620/70R42
1830 mm (72 in)	710/70R38 (one piece wheel)

CENTRE OF TRACTOR →



Tyres, Wheels, Ballasting

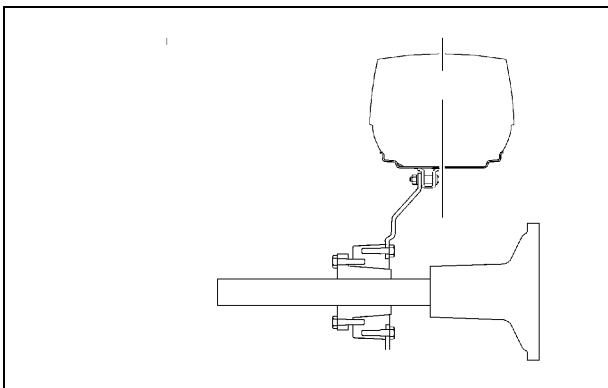
Bar Axle Adjustment



DS97M213

MAXIMUM TREAD - HUB FLANGE OUT

The **maximum** tread position of 3175mm (125 in) is obtained with the hubs at the end of the axle shafts and the hub flanges, wheel rims and discs turned out.



DS97M214

MINIMUM TREAD - HUB FLANGE IN

The **minimum** tread position of 1586 mm (62 in) is obtained with the hub flanges, wheel rims and discs turned in. Position the hubs on the axle shafts so that there is a clearance of at least 50 mm (2 in) between the tires and components of the rear fenders.

Use the following procedure to change the tread setting:

STEP 1

Park the tractor on hard, level ground, apply the park brake and stop the engine.

STEP 2

Clean any paint dirt or rust from the axle shafts area where the hubs are to be located.

STEP 3

Loosen the six tapered bushing bolts.

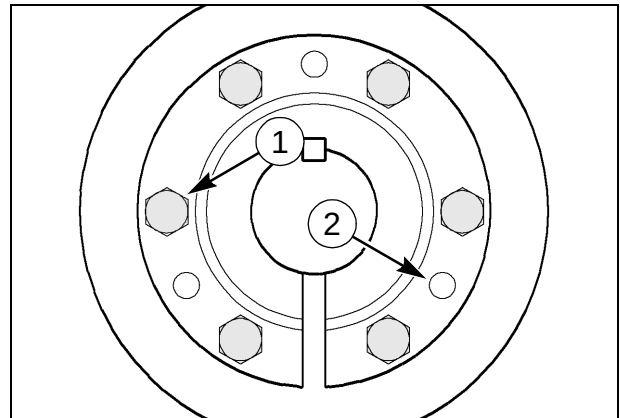
STEP 4

To prevent accidental tractor movement if the spring clutch engages when a rear wheel is rotated; raise the front wheels off the ground and install supports under the axle.

STEP 5

Lift the rear of the tractor until the rear tires are just clear of the ground. Install supports under the axle.

STEP 6



DI96M106

Remove the six bolts (1) from the tapered bushing.

Clean the threads of the three threaded holes (2) in the tapered bushing and apply oil. Install three of the bolts removed and install into the threaded holes and use as a jack to separate the hub and bushing. Tighten the bolts evenly to separate the wheel and hub from the tapered bushing.

STEP 7

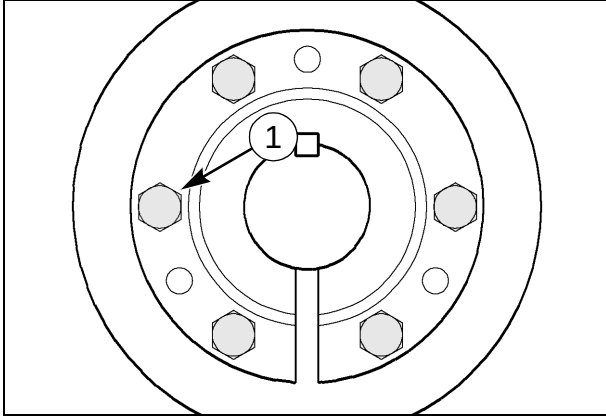
Install a wedge into the bushing slot just enough so that the bushing can be moved on the shaft to the new tread position.

Tyres, Wheels, Ballasting

STEP 8

Apply anti-seize compound Loctite 8150 to the hub, bushing, bolt threads and washers.

STEP 9



DI96M106

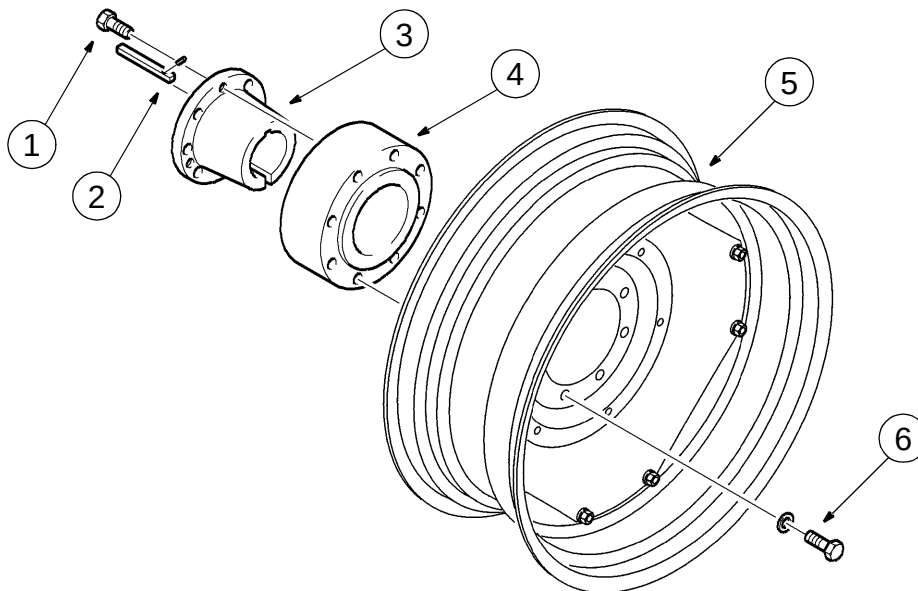
Remove the 3 bolts used as jacking bolts and then install the six bolts (1) and tighten evenly in 50 Nm intervals, up to 244 to 298 Nm in the sequence shown.

IMPORTANT: Do not exceed a torque of 298 Nm.

Apply anti-seize compound Loctite 8150 to the exposed axle shafts.

Wheel Offset Direction Change

If you need to change the direction of the wheel offset (in or out), remove the tire and wheel from one side of the tractor and mount on the other side of tractor. The tire pattern must face the same direction.



DI96M091

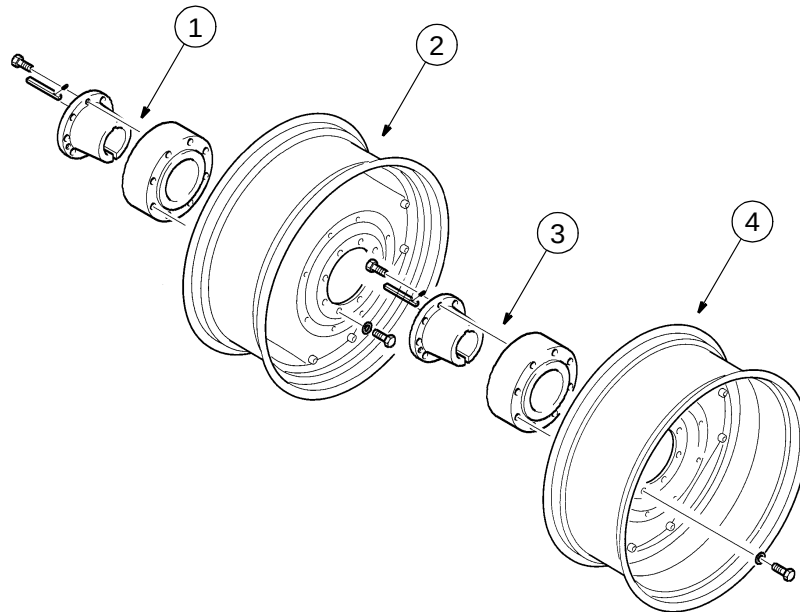
- 1. TAPERED BUSHING BOLT
- 2. BUSHING TO AXLE KEY
- 3. TAPERED BUSHING

- 4. HUB BODY
- 5. WHEEL RIM
- 6. WHEEL MOUNTING BOLT

Tyres, Wheels, Ballasting

Bar Axle - Dual Wheel Installation

IMPORTANT: *Dual wheels are not permitted for 50 km/h (30 mph) operations.*



1. INNER HUB ASSEMBLY
2. INNER WHEEL

3. OUTER HUB ASSEMBLY
4. OUTER WHEEL

DI96M094

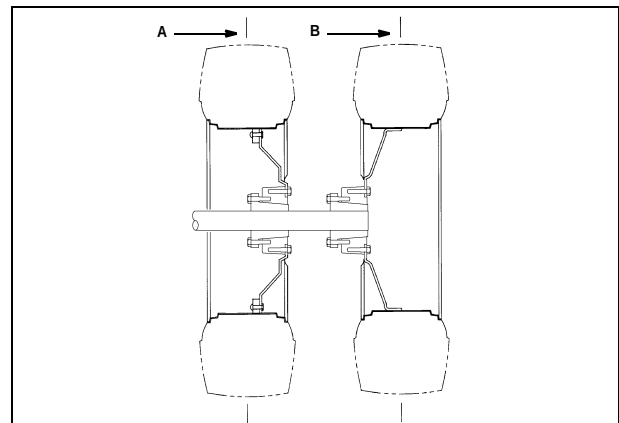
NOTE: *The use of dual wheels on tractors equipped with MFD is generally not required.*

Depending on soil conditions, the use of dual wheels on your MFD tractor is generally not required or recommended. For maximum fuel economy, the use of dual wheels is only recommended where required to carry heavy three point hitch mounted equipment or for floatation purposes for seed bed preparation.

When dual wheels are required, the inner wheel can be installed with the concave face in, and the outer wheel with the concave face out.

Tread Positions for Dual Rear Wheels

See Bar Axle Adjustment on Page 191 of this manual for instructions on changing the wheel tread width.



OM0792A

A = INNER WHEEL TREAD WIDTHS WITH OUTER WHEEL SET AT 2794 mm (110 inch)		
TYRE SIZE	MINIMUM mm (inch)	MAXIMUM mm (inch)
460/85R38 (18.4R38)	1524 (60)	1630 (64)
520/85R38 (20.8R38)	1696 (66)	NOT POSSIBLE
460/85R38 (18.4R42)	1524 (60)	1630 (64)
520/85R42 (20.8R42)	1676 (60)	NOT POSSIBLE

B = OUTER WHEEL TREAD WIDTHS WITH INNER WHEEL SET AT 1524 mm (60 inch)		
TYRE SIZE	MINIMUM mm (inch)	MAXIMUM mm (inch)
460/85R38 (18.4R38)	2687 (105)	2794 (110)
520/85R38 (20.8R38)	NOT POSSIBLE	2794 (110)
460/85R38 (18.4R42)	2687 (105)	2794 (110)
520/85R42 (20.8R42)	NOT POSSIBLE	2794 (110)

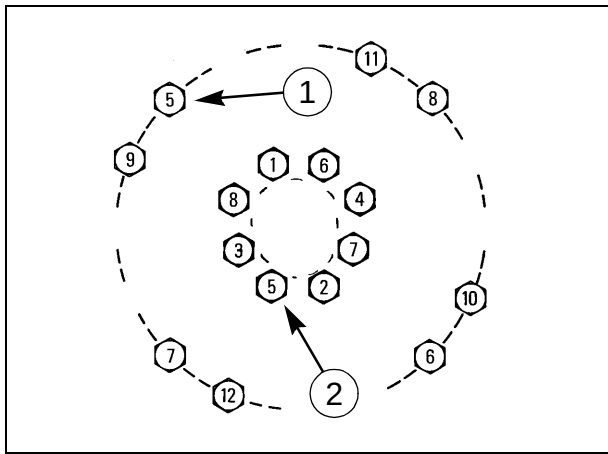
Tyres, Wheels, Ballasting

REAR WHEEL BOLT TORQUES

IMPORTANT: Check torques after the first 30 minutes of operation and then every 10 hours of operation until torques stabilize. This tightening and checking procedure is necessary after any wheel repositioning operation.

IMPORTANT: DO NOT lubricate the threads.

Flanged Axle



5100166

TIGHTENING SEQUENCES

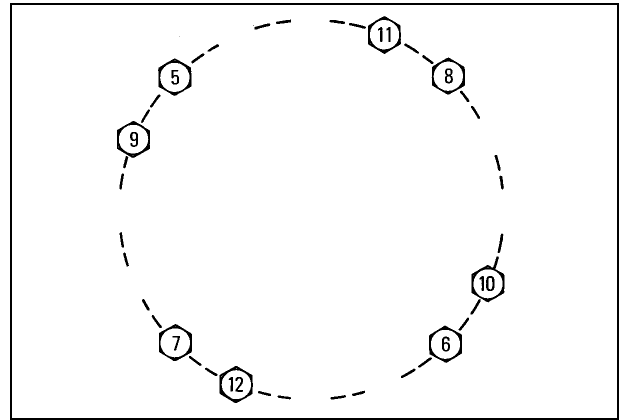
1. Centre Disc To Rim Nuts -

Tighten the centre disc to rim nuts (1) to 280 to 340 Nm (206 to 250 lb ft) in the sequence shown.

2. Centre Disc To Axle Flange Nuts -

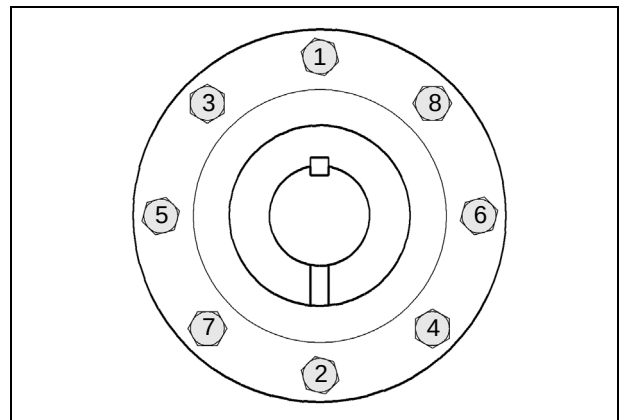
Tighten the centre disc to axle flange nuts (2) to a torque of 485 to 550 Nm (357 to 406 lb ft) in the sequence shown.

Bar Axle



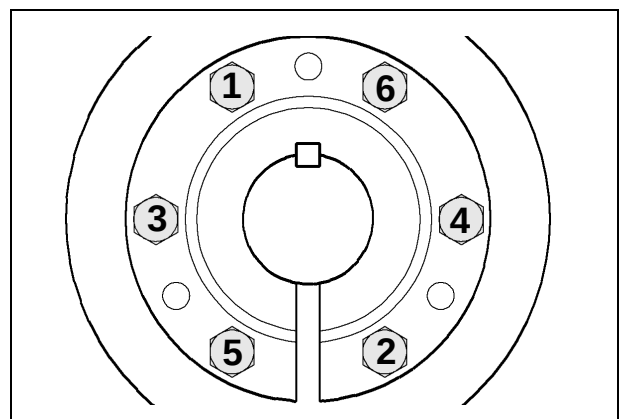
5100166

WHEEL DISC TO WHEEL RIM NUTS = 280 to 340 Nm (206 to 250 lb ft) in the sequence shown



DI96M106

WHEEL TO HUB BOLTS = to 485 to 550 Nm (357 to 406 lb ft) in the sequence shown.



DI96M106

TAPERED BUSHING TO WHEEL HUB BOLTS = 244 to 298 Nm (180 to 220 lb ft), evenly in 50 Nm intervals, in the sequence shown.

Tyres, Wheels, Ballasting

TRACTOR BALLAST

Loads Matched to Tractor

The life of the tractor will be increased by operating in the highest possible gear without labouring the engine. Match the implement to the tractor to get the best forward speed. Operating at 8 km/h (5 mph) or above is best for long life of main components. Too much ballast and excessive loads decrease tyre life, wastes fuel and often reduces output.

- The best traction occurs when wheel slip is between 12 - 16%.
- Remove the ballast when not needed for lighter loads.
- Pull lighter loads at a little faster speed to do more work and increase efficiency. Do not over weight the tractor to pull very heavy loads.

Operating a tractor with too much weight can cause:

- A decrease in horsepower available at the implement and then, a decrease in amount of field worked.
- An increase in amount of fuel used.
- A decrease in tyre life.
- The soil to be compacted.
- Too much force on the power train which will decrease the life of the power train and cause high operating cost.

The most important item in field operations is the amount of horsepower available at the hitch or drawbar. Power needed to move a tractor that has too much weight will decrease the power that is available to pull the implement.

IMPORTANT: *The total tractor weight with all equipment and ballast weight must never be more than the maximum recommended operating weight. See page 270. Observe tyre capacities and any possible legal limitations.*

Tractor Weight Distribution

The optimum static weight distribution for this size tractor is:

Two Wheel Drive (2WD) Tractors

IMPLEMENT TYPE	% FRONT	% REAR
Towed - Drawbar	25%	75%
Semi - Mounted	30%	70%
Fully - Mounted	35%	65%

Mechanical Front Drive (MFD) Tractors

% FRONT	% REAR
40%	60%

The weight distribution ratios are based upon the tractor (including ballast) with mounted equipment in the lowered position.

The correct static weight distribution and the correct amount of wheel slip will give maximum tractive efficiency, maximum productivity and extended service life for the tractor components.

The amount and type of front and rear mounted equipment being used will affect the weight distribution to the front and rear tyres. Add or remove ballast as necessary, to your fully equipped tractor, to achieve the recommended static weight distribution.

To achieve the optimum performance careful ballasting is required. The amount of ballast will vary according to soil type, implement type and tyre equipment. A general guideline is shown below.

- 45-55 kg (99-121 lb) per engine kW for working speeds at 7 km/h (4.3 mph) and above.
- 55-65 kg (121-143 lb) per engine kW for working speeds at 6 km/h (3.7 mph).
- 65-75 kg (143-165 lb) per engine kW for working speeds at 5 km/h (3.1 mph) and below.

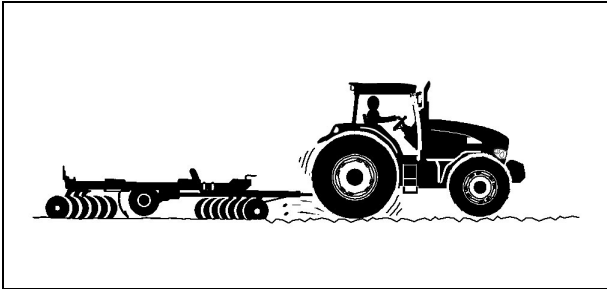
IMPORTANT: *The total tractor weight with all equipment and ballast weight must never be more than the maximum recommended operating weight. See page 270. Observe tyre capacities and any possible legal limitations.*

IMPORTANT: *Whatever the state of loading of the tractor, the weight transmitted to the road by the wheels of the front axle must not be less than 20 percent of the unladen weight of the tractor.*

Tyres, Wheels, Ballasting

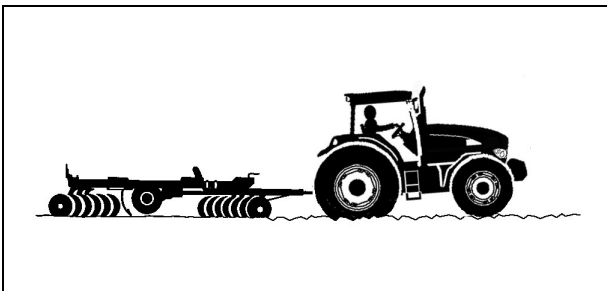
Front end weights, rear wheel weights and liquid ballast in the tyres can be used to ballast your tractor. Inadequate traction and excessive wheel slip can waste up to thirty percent of tractor horsepower.

IDEAL WHEEL SLIP 12 -16%



DI96J517

Do not try to reduce wheel slippage to zero. Stay within the 12-16% wheel slip.



DI96J518

If you add weight to the tractor to reduce wheel slip to less than 12%, the added weight will consume more engine power due to the increased rolling resistance caused by the tyres sinking into the soil.

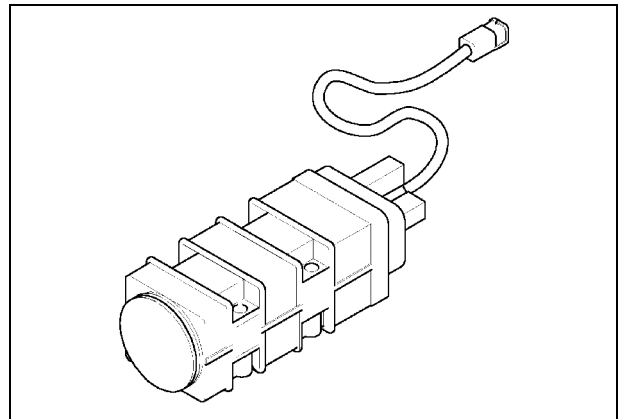
Add ballast weight only as necessary to maintain the correct tractor weight distribution and the recommended amount of wheel slip.

Wasted energy, increased fuel consumption, decreased tyre life and loss of productivity are all principle ingredients that can increase operating cost.

Determine the amount of wheel slip as follows:

- A. With True Ground Speed Sensor
- B. Without True Ground Speed Sensor

A. True Ground Speed Sensor (If Equipped)



DP98J225

TYPICAL TRUE GROUND SPEED SENSOR

The sensor will accurately determine the true ground speed of the tractor.

Precise application of chemicals and planting inputs can be achieved with the Ground Speed Sensor. This will reduce your input costs for planting, fertilizing and chemical application for weed and pest control.

You can also use the Ground Speed Sensor to determine the actual percentage of rear wheel slip under all operating conditions. This will allow you to maintain the recommended amount of wheel slip for maximum productivity and operating efficiency.



WARNING: Do not look directly into the face of the sensor. Micro-wave signals emitted by the sensor can cause eye damage.

NOTE: To provide accurate ground speed and wheel slip, the correct tyre size radius must be programmed into the instrument cluster.

IMPORTANT: Keep the face of the sensor clean. Scrape mud off with a plastic scraper. DO NOT use a metal scraper. Wash the face of the sensor with soap and water or steam clean. DO NOT disconnect the harness while cleaning.

Tyres, Wheels, Ballasting

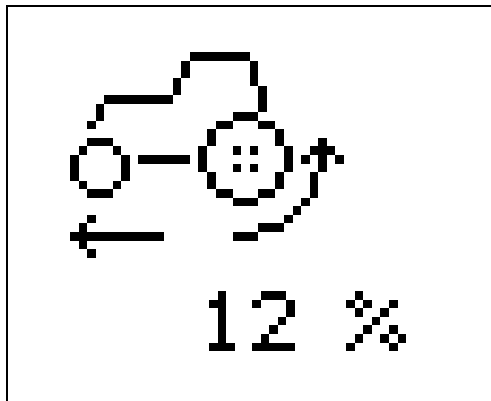
To read wheel slip on the main digital display make sure the Slip Limit Control is ON then;

STEP 1

Press  and hold for 2 seconds to enter the programming mode.

STEP 2

Using  scroll through the menu until the following screen appears.



The actual wheel slip will be displayed, as a percentage.

B. Measuring Wheel Slip Without a True Ground Speed Sensor

If your tractor is not equipped with a True Ground Speed Sensor, measure the amount of wheel slip you will need the assistance of a second person:

STEP 1

Put a reference mark on the side of the tractor rear tyre.

STEP 2

Operate the tractor with the implement IN THE GROUND.

STEP 3

While the tractor is moving put a marker on the ground, outside the implement width, where the reference mark on the tyre comes down to the ground.

STEP 4

Continue to walk along with the tractor and count ten wheel revolutions. Put a second marker on the ground outside the implement width, where the reference mark on the tyre comes down to the ground for the TENTH time.

STEP 5

Lift the implement out of the ground. Put the tractor in position with the rear tyre next to the first ground marker and put a new reference mark on the rear tyre aligned with the first ground marker.

STEP 6

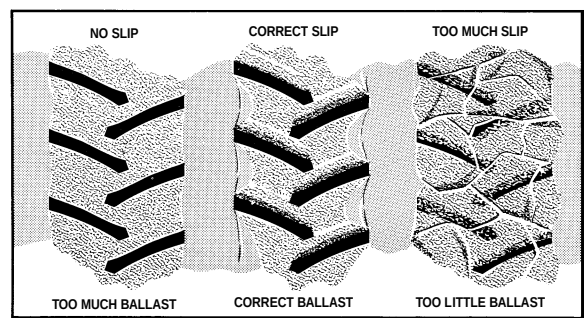
Operate the tractor, with the implement RAISED, from the first ground marker to the second ground marker. Count the number of wheel revolutions between the two ground markers.

STEP 7

Find the percent of slip as follows:

Revolutions of wheel with implement raised.	Slip (%)
9-1/2.....	5
9.....	10
8-1/2.....	15
8.....	20
7-1/2.....	25
7.....	30

NOTE: When you have too much ballast installed on the tractor, you will see the clear shape of the tyre tread in the ground which is an indication of no slippage. With too little ballast, the tyre tread marks will not show because of the tyre slippage.



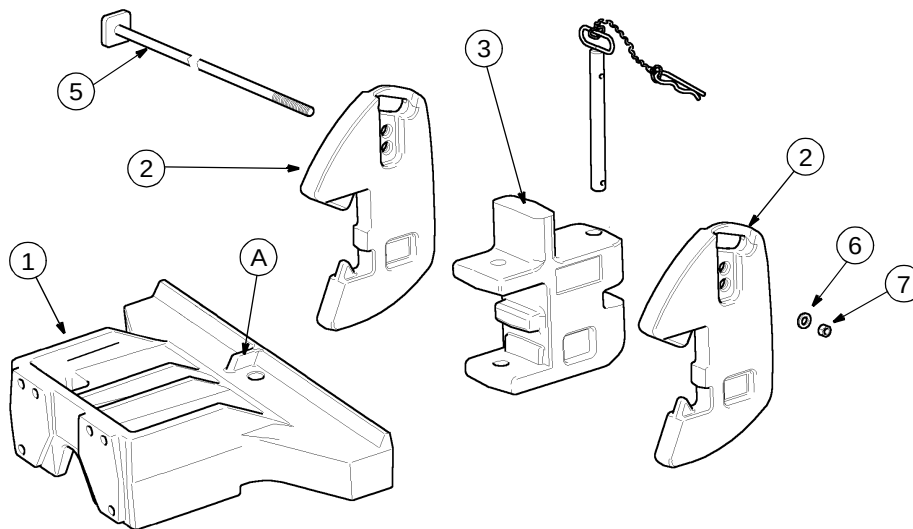
479A

Tyres, Wheels, Ballasting

Front End Weights (If Equipped)

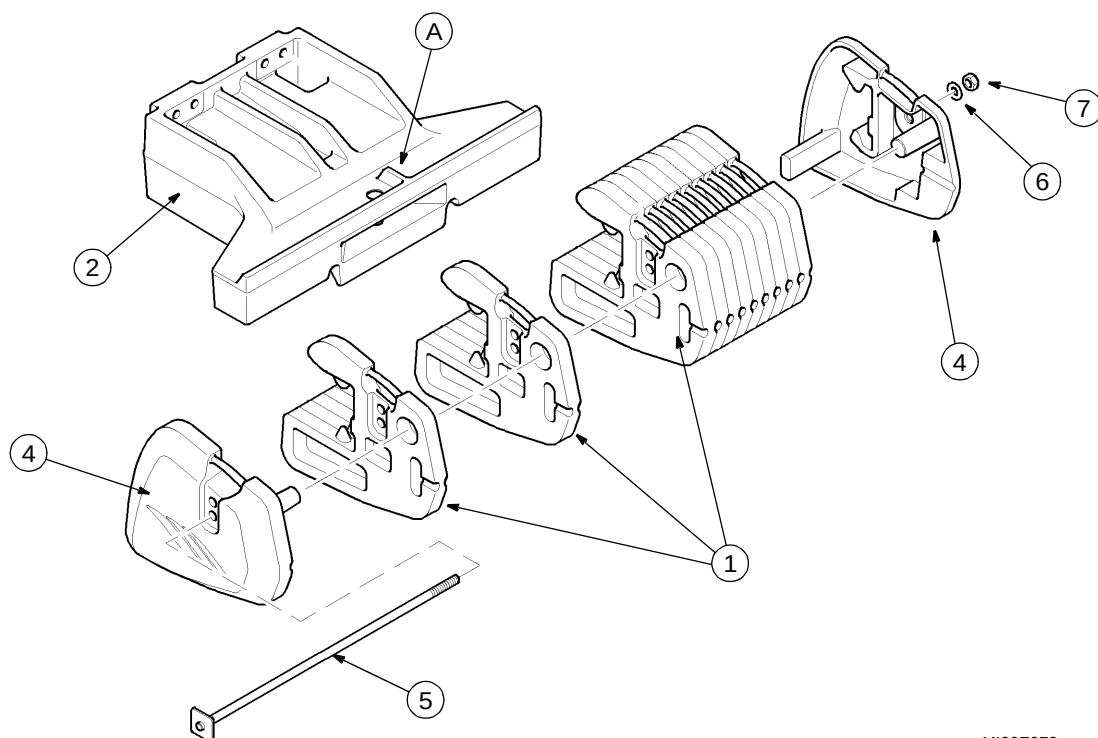
Use front end weights as needed to provide effective steering control and front end stability and to achieve maximum operating efficiency and tractor field performance. See Tractor Weight Distribution on Page 195 of this manual for recommendations on ballasting procedures.

Type A Front Weights



MI03A106

Type B Front Weights



MI06E078

Tyres, Wheels, Ballasting

Installing Front End Weights

STEP 1

Park the tractor on hard level ground. STOP the engine and apply the park brake. Remove the key.

STEP 2

Type A Front Weights Only

If a clevis (3) is to be installed, install the clevis weight and clevis pin.

NOTE: Make sure the clevis pin retainer locates correctly to secure the clevis pin.

STEP 3

Hook one weight (1) over the top lip of the weight frame (2) towards its outer edge.

Slide the weight towards the centre of the frame until it is against tab (A) on the weight frame. The bottom of the weight will interlock behind the tab at the centre of the weight frame.

STEP 4

Repeat STEP 2 and install second weight onto the opposite side.

STEP 5

Continue to install weights equally to each side until the required weight pack is installed. The tab on each weight will interlock into the previous installed weight.

IMPORTANT: The total tractor weight with all equipment and ballast weight must never be more than the maximum recommended operating weight. See Maximum Permitted Operating Weights on Page 270 of this manual. Observe tyre capacities and any possible legal limitations.

STEP 6

Type B Front Weights Only

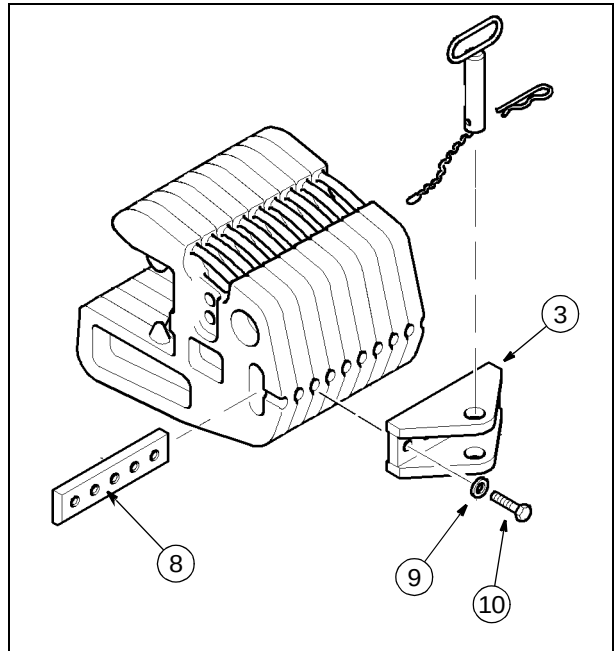
Once the correct number of weights have been installed, install the two end weights (4), making sure they interlock with the two outer weights.

STEP 7

Install the retaining stud (5) through the holes in the weight pack. Install the washer (6) and nut (7) to the opposite end of the stud. Tighten the nut.

STEP 8

Type B Front Weights Only



MI06E076

A bolt-on clevis is available which mounts to the front of the weights. If a clevis (3) is to be installed, slide the retaining bar (8) through the front weights.

Align the holes of the retaining bar with the holes of the clevis. Install the washer (9) and nut (10). Tighten the nut.

NOTE: Make sure the clevis pin retainer locates correctly to secure the clevis pin.

Tyres, Wheels, Ballasting

Rear Wheel Weights

Rear wheel weights, 60 kg each, are available from your Dealer.

Use the wheel weights as needed to provide safe and efficient tractor operation. Do not add more weight to the rear wheels of your tractor than is needed to achieve the correct tractor static weight distribution and the correct amount of wheel slip.

A maximum of 3 weights per wheel can be used. The 3 weights can be installed on the inside or outside of the wheels as shown (NOT BOTH). When installing weights on the inside the weights must not extend over axle housing casting.

See Tractor Weight Distribution on Page 195 of this manual for recommendations on ballasting procedures.

IMPORTANT: *DO NOT use rear wheel weights when operating the tractor at travel speeds greater than 40 km/h (25 mph).*

IMPORTANT: *Wheel weights CAN NOT be used when dual wheels are installed. Liquid weight can only be added to the inner wheel and front end weights can also be installed.*

IMPORTANT: *The total tractor weight with all equipment and ballast weight must never be more than the maximum recommended operating weight. See page 270. Observe tyre capacities and any possible legal limitations.*



MD04E031

See next page for installation instructions:

Tyres, Wheels, Ballasting

Installing Rear Wheel Weights

STEP 1

Park the tractor on hard level ground. STOP the engine and apply the park brake. Remove the key.

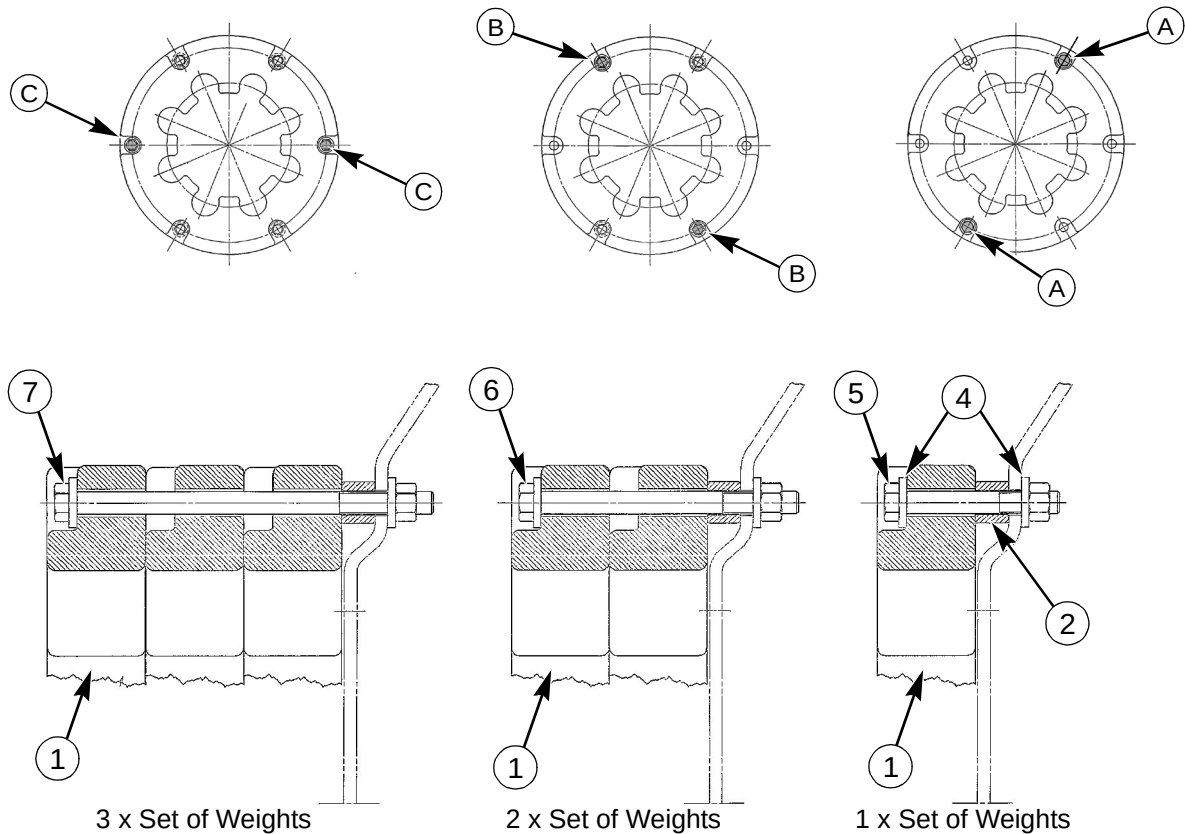
STEP 2

Secure the first weight using bolt (5) through hole (A).

STEP 3

Then secure the second weight using bolt (6) through hole (B) and finally secure the third weight using bolt (7) through hole (C).

NOTE: Torque all bolts to 200-220 Nm (149-161 lb ft).



	1 x SET	2 X SET	3 X SET
1. WEIGHT 60 kg (132 lb)	2	2	2
2. SPACER	4	4	4
3. NUT	4	4	4
4. WASHER	8	8	8
5. HEX. HEAD BOLT (M16x115)	4		
6. HEX. HEAD BOLT (M16x195)		4	
7. HEX. HEAD BOLT (M16x260)			4

Tyres, Wheels, Ballasting

Tyre Liquid Ballast

Use tyre liquid ballast as needed to provide safe and efficient tractor operation. See Tractor Weight Distribution on Page 195 of this manual for recommendations. The chart shows the liquid weight each tyre will hold when 75 percent filled (filled to Valve Level), with water or calcium chloride and water solution.

Calcium chloride (CaCl_2) keeps the water from freezing. Water will start to freeze at 0°C .

When liquid ballast is used, inflate the tyres 0.14 bar (2 psi) more than the recommended pressure. This will compensate for aeration that occurs when the tyre is in motion.

When dual wheels are installed, use liquid ballast in the inside tyres only.

IMPORTANT: DO NOT use liquid ballast when operating the tractor at travel speeds greater than 40 km/h (25 mph).

IMPORTANT: The total tractor weight with all equipment and ballast weight must never be more than the maximum recommend operating weight, See page 270. Observe tyre capacities and any possible legal limitations.

LIQUID BALLAST PER TYRE IN LITRES AND KILOGRAMS											
TYRE SIZE	WATER ONLY		PROTECTION TO -15°C			PROTECTION TO -35°C			PROTECTION TO -50°C		
	Litres Water	Weight kg	Litres Water	Ca Cl_2 kg	Total Weight kg	Litres Water	Ca Cl_2 kg	Total Weight kg	Litres Water	Ca Cl_2 kg	Total Weight kg
18.4R34	361	361	337	61	398	310	130	440	293	176	469
16.9R38	317	317	296	53	349	272	114	386	257	154	411
18.4R38	390	390	364	66	430	335	140	475	317	190	507
20.8R38	509	509	475	85	560	436	183	619	413	248	661
460/85R38	390	390	364	66	430	335	140	475	317	190	507
480/70R38	337	337	314	57	371	289	121	410	273	164	437
520/70R38	414	414	386	69	455	355	149	504	336	201	537
520/85R38	509	509	475	85	560	436	183	619	413	248	661
580/70R38	539	539	503	90	593	462	194	656	437	262	699
600/65R38	474	474	443	80	523	407	171	578	385	231	616
650/65R38	586	586	547	98	645	503	211	714	475	285	760
18.4R42	435	435	406	73	479	373	157	529	353	212	564
20.8R42	633	633	591	106	697	543	228	771	514	308	822
460/85R42	435	435	406	73	479	373	157	529	353	212	564
520/85R42	633	633	591	106	697	543	228	771	514	308	822
14.9R46	303	303	-	-	-	257	108	365	246	147	393
18.4R46	325	325	-	-	-	280	117	397	265	159	423
380/85R46	303	303	-	-	-	257	108	365	246	147	393
460/85R46	325	325	-	-	-	280	117	397	265	159	423

NOTE: For any tyres not listed in the above chart, refer to the tyre manufacturers specifications or alternatively see your dealer.

Tyres, Wheels, Ballasting

Filling Procedure

STEP 1 (Mixing The Solution)

Add the correct amount of calcium chloride (CaCl_2) into the correct amount of water, see previous charts for the required degree of protection from freezing.



WARNING: SLOWLY add calcium chloride to water, stirring continuously. NEVER ADD WATER TO CALCIUM CHLORIDE. To do so will cause a violent reaction. When correctly mixed, the solution will increase in temperature. Allow the solution to cool before adding to the tyre. See your authorized dealer for details.

STEP 2

Raise one side of the tractor and turn the wheel so that the valve is at the top, see illustration opposite.

STEP 3

Remove the valve core and connect the hand pump.

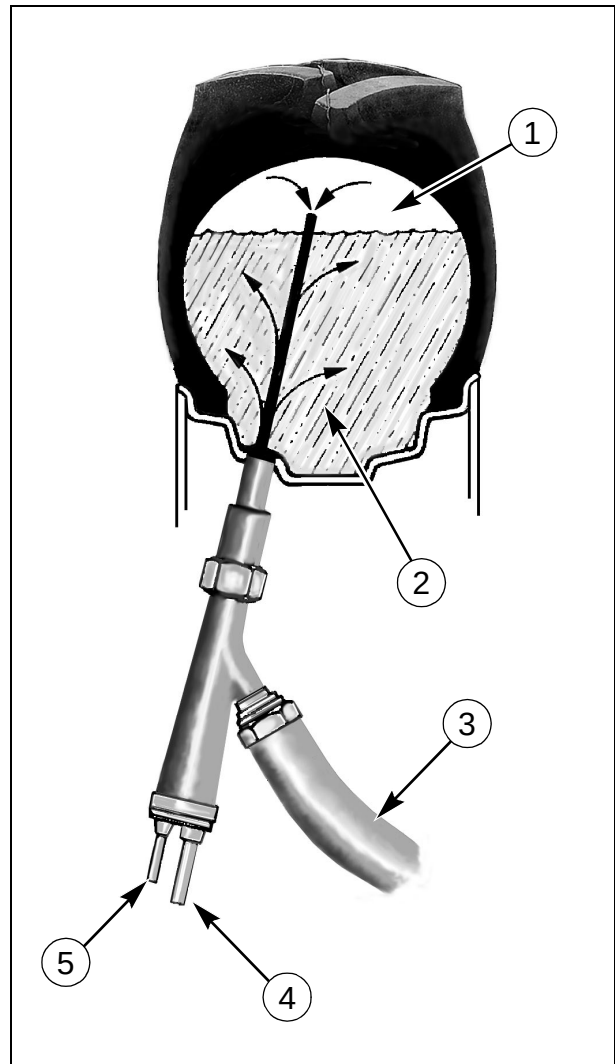
STEP 4

Measure the amount of solution added to the tyre and use the figures in the previous charts to calculate the weight added.

STEP 5

When sufficient weight has been added, remove the pump. Install the valve core. Inflate the tyre to the correct pressure.

NOTE: When liquid ballast is used, inflate the tyres 0.14 bar (2 psi) more than the recommended pressure. This will compensate for aeration that occurs when the tyre is in motion.



DH97M216

1. AIR
2. WATER ENTERING TYRE
3. WATER SUPPLY
4. AIR SUPPLY
5. AIR VENT

Tyres, Wheels, Ballasting

NOTES:

[illegible]

Routine Maintenance

Chapter 7 Routine Maintenance

7

Routine Maintenance

RECOMMENDATIONS BEFORE YOU SERVICE

WARNING: Before servicing, carefully read the instructions in this section. There is a risk of injury or death if servicing is not carried out or if the following instructions are not followed correctly. If you do not understand a service or adjustment procedure see your dealer.



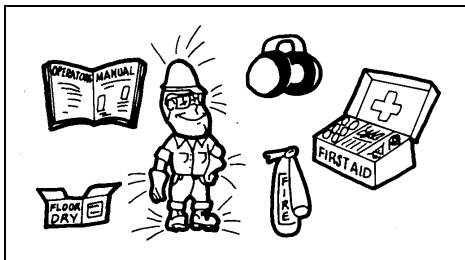
Before any adjustments are made carry out the following:

1. Park the tractor on hard level ground and apply the parking brake.
2. Stop the engine and remove the key.
3. Put blocks in front of and behind the front and rear wheels.

WARNING: When handling lubricants (oil, grease etc.) and other chemical products, always follow instructions for their proper use. Use proper containers to collect fluid. Dispose of fluids and filters responsibly and in accordance with the law. DO NOT smoke or use an open flame during the service procedure. Use eye protection.



Read the safety decals and information decals on this tractor. Read the operators manual. Understand the operation of the tractor before you start servicing.

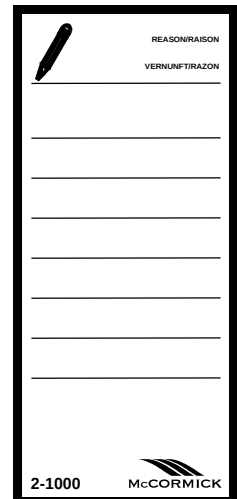


B770996R

Use the correct safety clothing and safety equipment. If you wear clothing that is too loose or do not use the correct safety equipment for your job, you can be injured. Always wear clothing that will not catch on objects. Extra safety equipment that can be required includes hard hat, safety shoes, ear protection, eye or face protection, heavy gloves and reflector clothing.

Establish where your nearest first aid kit and fire extinguisher are located. Undertake suitable training to make sure you know how the fire extinguisher works.

Put a warning tag, as shown below, on or near the key switch before carrying out servicing or repairs to the tractor. Warning tags (publication number 2-1000) are available from your dealer.



Environment

Before you service this machine and before you dispose of the old fluids, lubricants and filters always consider the environment.

DO NOT pour oil or fluids in the ground, down drains or into containers that can leak.

Dispose of all old fluids, lubricants and filters in accordance with local regulations.

Check with your local environmental recycling center or your dealer for correct information.

Plastic And Resin Parts

Avoid using petrol, paraffin, paint thinner, etc., when cleaning plastic, e.g.; console, instrument cluster, monitors and gauges etc.

Use ONLY water, mild soap and a soft cloth when you clean these parts.

Using petrol, paraffin, paint thinner etc., will cause cracking or deformation of the part being cleaned.

Routine Maintenance

SERVICE ACCESS

Opening the Hood

STEP 1

Park the tractor on hard, level ground and apply the park brake.

STEP 2



MD06F039

Release the hood and push the front upward keeping clear until the hood is fully raised. The gas strut will hold the hood in the upright position.

IMPORTANT: When opening the hood in windy conditions, put the front of the tractor towards the wind.

STEP 3

To close, pull hood down and push the front down hard to close.

Side Panel Removal (If Equipped)

STEP 1

Raise the hood.

STEP 2



MD03A005

Large (Red) Side Panels: Lift the panels upwards and outwards.

STEP 3



MD03A006

Small (Grey) Side Panels: Firstly remove the large (red) panels (see Step 2).

Pull the top of the panel outward and then slide the panel forward off the lower locating pins.



WARNING: Replace all covers or guards removed, close the hood and close any service access doors after servicing or cleaning this machine. NEVER operate the machine with any covers or guards removed or with the hood or service door open.

TOOL BOX

The tool box (if equipped) is located in front of the cab on the right hand side.



MD04H044

The tool box can be removed by removing the retaining pin, located at the centre back of the tool box. Lift the tool box from the bottom outwards and upwards.

Routine Maintenance

LUBRICANTS AND CAPACITIES

Engine

Oil Type.....McCormick Engine Oil, SAE 15W-40

Oil Capacity (Refill)

XTX145 to XTX215 β -power Tractors 16.0 Litres (4.2 US gal)

XTX215 Cummins Tractors 15.0 Litres (4.0 US gal)

Engine Oil Selection

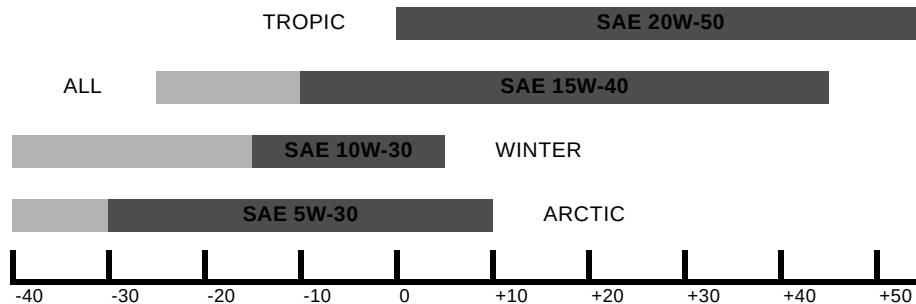
Engine oils must meet the following specification, API performance grade CH-4.

NOTE: Do not put Performance Additives or other oil additive products in the engine oil. The oil change intervals given in this manual are according to tests with McCormick authorized lubricants.



RB97F100

Oil Viscosities and Ambient Temperature Ranges



TEMPERATURE RANGES IN DEGREES °C

NOTE: This lighter area indicates that the use of an engine oil pan heater or an engine coolant heater is required when operating in these temperatures.

Cooling System

Coolant Mix..... McCormick Universal Anti-Freeze
33% to 50% Ethylene Glycol, (depending on the market requirement)

Quick Reference Guide				
Ambient Temp. ° C	-8°	-15°	-25°	-35°
Ambient Temp. ° F	-18°	-5°	-13°	-31°
% of Antifreeze per volume	20	30	40	50

Coolant Capacity

XTX145 to XTX215 β -power Tractors 29.0 Litres (7.7 US gal)

XTX215 Cummins Tractors 21.0 Litres (5.5 US gal)

Routine Maintenance

Fuel Tank

Fuel Type	No.2 Diesel Fuel
Fuel Tank Capacity	
XTX145 and XTX165 Tractors.....	300 Litres (79.25 US gal)
XTX185 to XTX215 Tractors.....	347 Litres (91.7 US gal)

Transmission/Hydraulic System

Oil Type	McCormick HTX
Capacity	
XTX145 and XTX165 Tractors.....	80 Litres (21.1 US gal)
XTX185 to XTX215 Tractors.....	95 Litres (25.1 US gal)
Overfill	12 Litres (3.1 US gal)

MFD Axle (If Equipped)

Oil Type	McCormick Multi-Purpose Gear Oil SAE 85W - 140 EP Gear Oil to API GL-5 or MIL-L-2105D Specification
Axle Differential Capacity	6 Litres (1.5 US gal)
Axle Planetary Capacity (EACH)	
Non-Braked Axle	
XTX145 and XTX165 Tractors	0.7 Litres (0.7 US quarts)
XTX185 to XTX215 Tractors	1.5 Litres (1.5 US quarts)
Braked Axle.....	2.0 Litres (2.0 US quarts)

NOTE: If required a limited slip additive (Part No. B91246) is available from your dealer.

Add 30ml (0.3 US quarts) of additive to every 1.0 litre (1.0 US quart) of McCormick Multi-Purpose Gear Oil.

Independent Front Suspension Axle (If Equipped)

Oil Type	McCormick Multi-Purpose Gear Oil SAE 85W - 140 EP Gear Oil to API GL-5 or MIL-L-2105D Specification
Axle Differential Capacity	
XTX145 to XTX185 Tractors.....	2.2 Litres (2.2 US quarts)
XTX200 and XTX215 Tractors.....	5.5 Litres (5.8 US quarts)
Axle Planetary Capacity (EACH)	
Non-Braked Axle	
XTX145 Tractors.....	0.7 Litres (0.7 US quarts)
XTX185 to XTX215 Tractors.....	1.5 Litres (1.5 US quarts)
Braked Axle.....	2.0 Litres (2.0 US quarts)

NOTE: If required a limited slip additive (Part No. B91246) is available from your dealer.

Add 30ml (0.3 US quarts) of additive to every 1.0 litre (1.0 US quart) of McCormick Multi-Purpose Gear Oil.

Front PTO (If Equipped)

Oil Type	McCormick Multifunction ATF4000 (Multifunctional Automatic Transmission Fluid)
Capacity	2.7 Litres (2.9 US quarts)

Routine Maintenance

SERVICE/HOURMETER



MP01H051

All tractors continued value, operation and reliability depend to a large extent on regular servicing. McCormick tractors have been designed to provide easy daily and routine access.

When servicing your tractor **ONLY** use original McCormick service parts, oils, lubricants, coolants, filters etc. which are released by McCormick or are McCormick Approved, to avoid affecting the working life of this tractor.

Services must be carried out at varying Engine Hour intervals or periodically through out the year, depending on which comes first, see below for example.

Every 10 Hours, or daily
Every 50 Hours, or weekly
Every 100 Hours, or bi-weekly
Every 250 Hours, or monthly - Interim Service
Every 500 Hours, or six monthly - Interim Service
Every 1000 Hours, or annually - Main Service
Every 2000 Hours, or bi-annually - Main Service

Engine Hourmeter

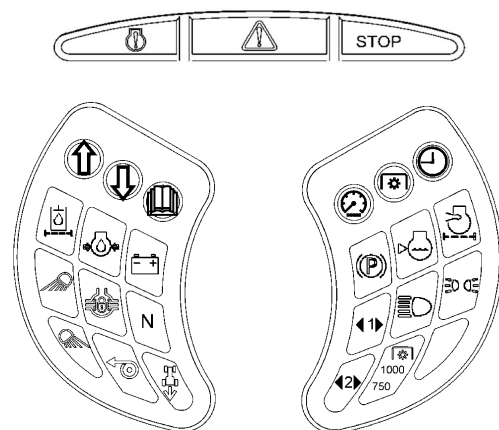
Use the engine hourmeter, along with the Service Charts on the following pages, to service your machine at the correct intervals.

With the key switch in the ON position, the engine hourmeter shows the actual hours the engine has run the number after the decimal point is tenths of an hour.

When the key switch is turned to the ACCESSORY position, counterclockwise from off, the main digital display will show the next service interval and the time in hours elapsed.

Prior to commencing any servicing procedures on the tractor, make sure the engine is not running and the keyswitch is in the OFF position.

Service Indicator Lamps And Gauges



MI03C068 & MI03C069

The condition of a monitored system is indicated by the service indicator lamps. If certain lamps illuminate when the engine is running, a service or repair is required.

The operation of the indicator lamps and gauges is described in the INSTRUMENTATION Section of this manual.

Before starting the tractor, make sure all systems are operating.

Service intervals can be programmed into the Digital Instrument Cluster to remind you when service is required, refer to INSTRUMENTATION Section for more information.

Routine Maintenance

INTERIM SERVICE (0 to 250 Hours)

Some servicing must be carried out which is outside the regular service intervals. These tasks are listed below.

After any wheel/axle adjustments

The first 30 minutes of operation (then every 10 Hours of operation thereafter, until the torque has stabilized):

- Check the torque of ALL Front and Rear Wheel Bolts/Nuts, see pages 184 and 194 for correct torques.

After the first 50 Hours of operation

- Check tension of Drive Belts, see page 226 for correct procedure.

After the first 250 Hours of operation

- Carry out a First 250 Hour Service (After Delivery Service). This is a detail list of checks/tasks that must be carried out by your dealer after the first 250 hours of operation.

See your dealer for more information.

Routine Maintenance

REGULAR SERVICE INTERVALS

The service intervals listed below are only suggested service intervals to follow when the tractor has been operating in "normal" conditions.

These intervals should be adapted to the real environment and operational conditions. Services must be more frequent if the tractor has been operating in adverse working conditions.

SERVICE HOURS	SERVICE POINTS	SERVICE REQUIRED					S E E P A G E
		G R E A S E	D R A I N	C H E E K	C L E A N	C H A N G E	
Every 10 hrs (or Daily)	Front Wheel Nuts			●			184
	Rear Wheel Nuts			●			194
	Fuel Level			●			214
	Engine Oil Level			●			214
	Transmission/Hydraulic Oil Level			●			215
	Pneumatic Trailer Brake Reservoir		●				216
	Coolant Recovery Reservoir Level			●			215
	Front PTO Oil Level			●			216
	Cab Suspension				●		216
Every 50 hrs (or Weekly)	Air Pressure in Tires			●			174
	Fuel/Water Separator		●	●			220
	Fuel Water Trap - Fuel Filter		●				220
	2WD Front Axle Grease Points	●					217
	Independent Front Suspension Grease Points	●					218
	MFD Front Axle Grease Points	●					220
	Radiator and Coolers				●		221
	Cab Air Recirculation Filter				●		221
Every 100 hrs (or Bi-Weekly)	Rear Three Point Linkage	●					222
	Front Three Point Linkage	●					222
	Cab Air Intake Filter				●		223
Every 250 hrs (or Monthly)	Axle Diff. and Planetary Oil - (See Note 5)			●			225
	Compressor Belt			●			226
	Fan and Alternator Belt			●			226
	Battery(s)			●			227
	Park Brake Operation			●			226
	Trailer Hitch, Bolt Torques			●			226
	Trailer Hitch, Moving parts - (See Note 2)	●					224
	Drawbar Bolt Torques			●			226

Routine Maintenance

SERVICE HOURS	SERVICE POINTS	SERVICE REQUIRED					SEE PAGE
		G R E A S E	D R A I N	C H E E C K	C L E A N	C H A N G E	
Every 500 hrs (or Six Monthly)	Engine Oil and Oil Filter					●	228
	Engine Fuel Filter					●	229
	Engine Breather Filter Elements					●	229
	Engine Fuel/Water Separator Filter Element					●	230
	Front PTO Oil					●	232
	Operator Presence Switch Function			●			233
	Auto Hitch Locking Latches & Lift Rod Adjustment (See Note 2)			●			233
Every 1000 hrs (or Annually)	Engine Air Intake System			●			234
	Engine Primary Air Filter (See Notes 2 and 4)					●	235
	Engine Secondary Air Filter					●	235
	Transmission/Hydraulic Oil					●	236
	Transmission/Hydraulic System Breather					●	237
	Transmission/Hydraulic Oil Filter (See Note 5)					●	236
	Transmission/Hydraulic Oil Strainer				●		237
	Axle Planetaries and Differential Oil (All Axle Types) (See Note 5)					●	239
	Fuel Injectors				●		239
	Cab Intake Air Filter (See Note 3)					●	240
	Cooling System Anti-Freeze (yearly before winter)			●			242
	In-Line Fuel Filter					●	239
	Engine Valve Clearances			●			239
Every 2000 hrs (or Bi-Annually)	Coolant					●	241
	Fuel System			●			242
General Maintenance	General Tractor Inspection (See Note 1)						
	Air Conditioning System						
	Check Hoses and Wiring for damage						
	Clean Viscous Fan Drive						
	Inspect Seat Belt						
	Clean Operators and Passenger Seats (as applicable)						
	Grease Door Locks and Hinges						

NOTE 1: Check the tractor for leaks, rubbing, squeezed or cracked hoses, loose nuts or bolts and trash build up. Repair all leaks, hoses and tighten loose nuts/bolts before operation.

NOTE 2: Check for wear and function.

NOTE 3: In dusty conditions the cab filter will require more frequent cleaning.

NOTE 4: Also clean the filter element whenever the service monitor illuminates.

NOTE 5: Change at first 250 Hours.

Routine Maintenance

10 HOURS OR DAILY SERVICE

Check Fuel Level



MH04M026

Fill the fuel tank at the end of each day after work has been completed to prevent condensation in the fuel tank.

Diesel Fuel

Use a high grade diesel fuel. The use of a low grade fuel will result in loss of engine power and high fuel consumption.

Fuel storage

If you keep fuel in storage for a period of time, you can get foreign material or water in the fuel storage tank. Many engine problems are caused by water in the fuel.

Keep the fuel storage tank outside and keep the fuel as cool as possible. Remove water from the fuel storage tank at regular intervals.

IMPORTANT: Different grades of diesel fuel are required for summer and winter operations. See your fuel supplier for winter fuel requirements in your area.



WARNING: Never refuel the machine when the engine is hot or running. Never smoke while refueling.

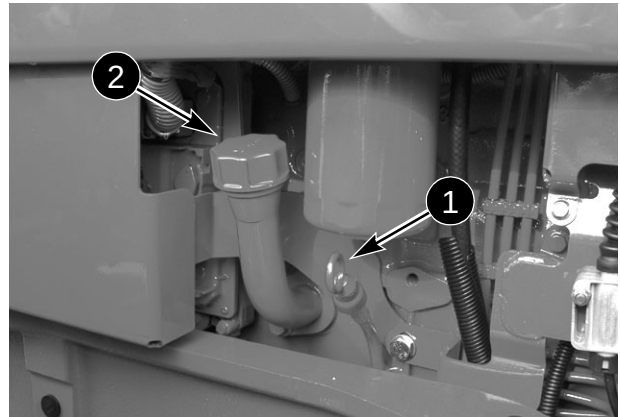


WARNING: Engine fuel is flammable and can cause a fire or an explosion. DO NOT fill the fuel tank or service the fuel system near a naked flame, welding, burning cigars, cigarettes etc.

WARNING: Hydraulic oil or diesel fuel leaking under pressure can penetrate the skin and cause infection or other injury. To prevent injury: release all pressure, before disconnecting fluid lines. Before applying pressure, make sure all connections are tight and components are in good condition. Never use your hand to check for suspected leaks under pressure. Use a piece of cardboard or wood for this purpose. If injured by leaking fluid, see your doctor immediately.



Check Engine Oil Level



MD04C139

To check the engine oil level, put the tractor on level ground and stop the engine.

Wait for 15 minutes for the oil to settle before checking the oil level.

Make sure the dipstick (1) is pushed completely down before checking the oil level.

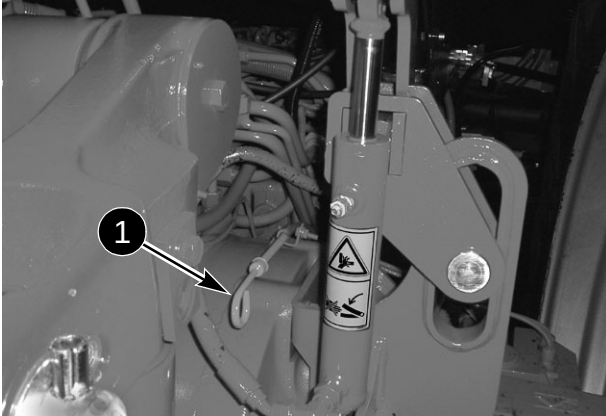
If the oil level is low, add oil through the filler tube (2), to raise the oil to the correct level. DO NOT over fill the engine.

Routine Maintenance

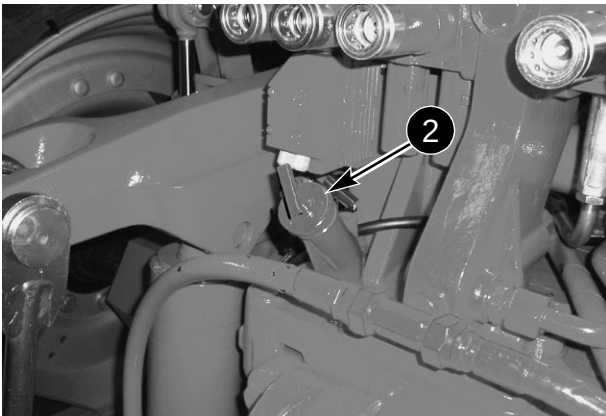
10 HOURS OR DAILY SERVICE

Check Transmission/Hydraulic Oil Level

To check the transmission oil level, put the tractor on level ground. Make sure the dipstick (1) is pushed completely in before checking the level.



MD05A080

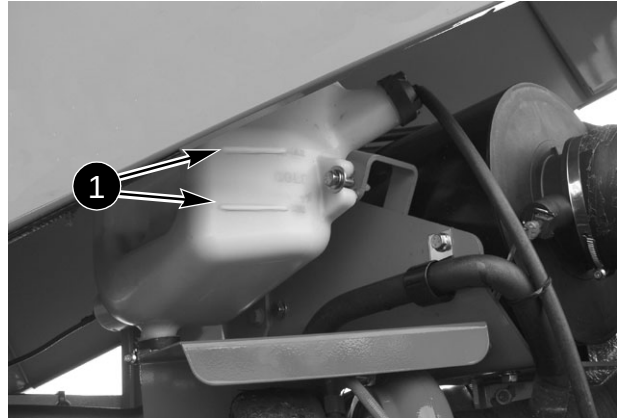


MD05A079

If the oil level is low, add the recommended oil in through the fill tube (2) located at the rear of the transmission.

When working in extremely hilly conditions make sure there is sufficient oil in the transmission before operation.

Check Coolant Level



MD04C140

Check the the coolant level within the reservoir is within the normal cold range marks (1) on the reservoir. If the level is below the lower mark, fill the reservoir to the top mark with correct coolant mixture, (this will depend upon market requirements).

Quick Reference Guide

Ambient Temp. ° C	-8°	-15°	-25°	-35°
Ambient Temp. ° F	-18°	-5°	-13°	-31°
% of Antifreeze per volume	20	30	40	50

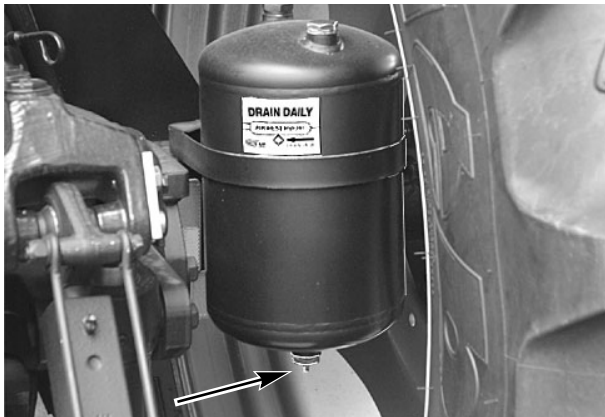


WARNING: DO NOT remove the reservoir cap when the system is hot. LET THE SYSTEM COOL. Hot coolant can spray out resulting in scalding if the cap is removed while system is still hot. When checking the coolant level, turn cap to first notch, then wait until pressure is released. Scalding could result from fast removal of the cap.

Routine Maintenance

10 HOURS OR DAILY SERVICE

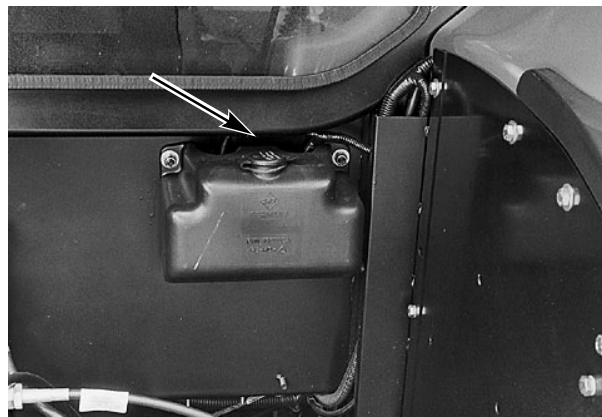
Drain Pneumatic Trailer Brake Reservoirs (If Equipped)



DD00H036

Operate the drain valve plunger under each reservoir to drain any water which has collected.

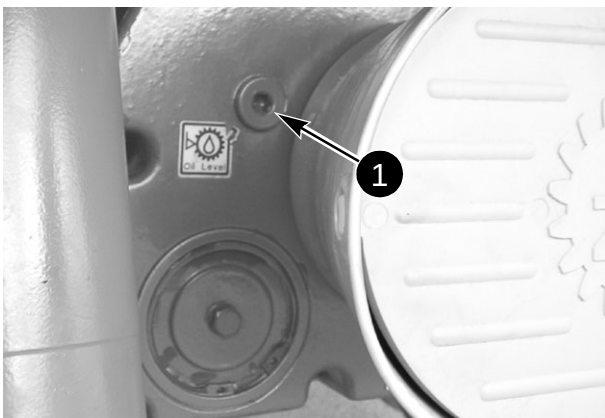
Check Windshield Washer Reservoir Level



DP98M173

If the fluid level is low fill the reservoir.

Check Front PTO Oil Level



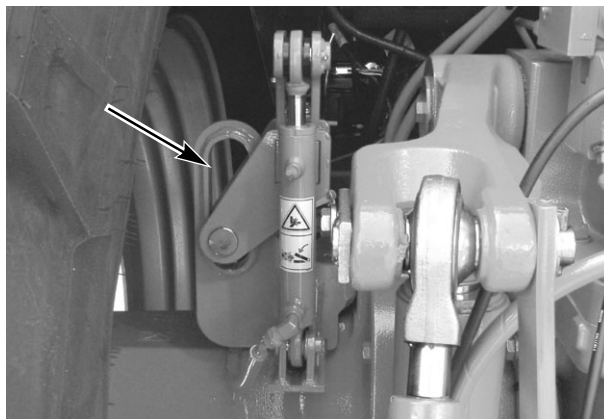
MD04N052

To check the power takeoff oil level, put the tractor on level ground.

Remove the fill/level plug (1) located on the front of the housing. If the oil level is low, add the recommended oil type to raise the oil level to the bottom edge of the fill hole. Install the plug and tighten.

Clean Cab Suspension Support Assembly

On a daily basis check to make sure the cab suspension support assembly and corresponding area is clean. Pay extra attention to the slot in the bracket, make sure any mud, dust, straw etc. is removed and not restricting movement.



MD05F058

Routine Maintenance

50 HOUR SERVICE

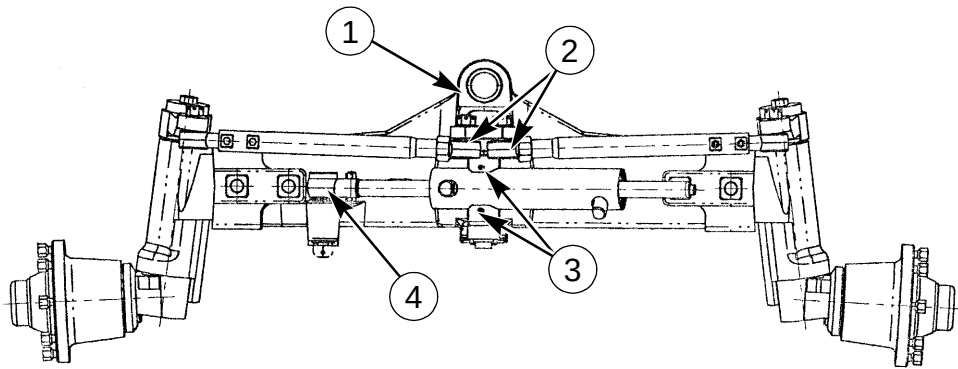
NOTE: Complete the 10 hour, (or daily), service plus the following.

Grease Points

Two Wheel Drive (2WD) Front Axle (If Equipped)

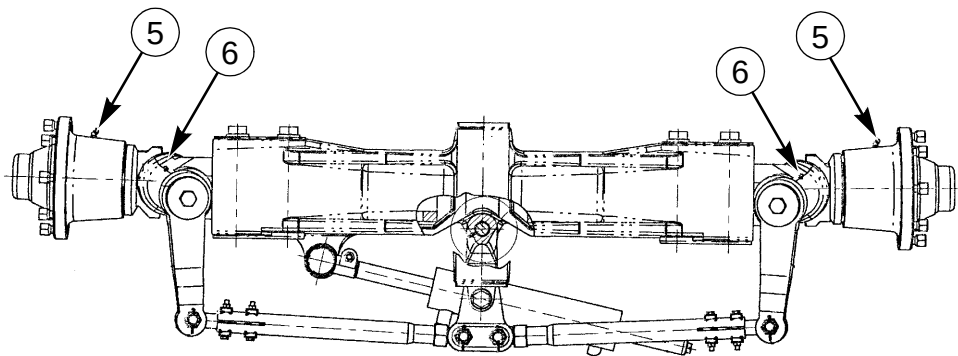
NOTE: Use McCormick Multi-Purpose Lithium Grease.

NOTE: In severe conditions lubricate these points more frequently.



DS97A162

- | | |
|--|--|
| 1. AXLE PIVOT PIN
(1 POINT) | 3. STEERING CYLINDER TRUNNION
(2 POINTS) |
| 2. TRACK ROD BALL JOINTS
(2 POINTS) | 4. STEERING CYLINDER BALL JOINT
(1 POINT) |



DS97A161

- | | |
|--|------------------------------------|
| 5. FRONT WHEEL HUB BEARING
(2 POINTS) | 6. FRONT AXLE SWIVEL
(2 POINTS) |
|--|------------------------------------|

Routine Maintenance

50 HOUR SERVICE

Grease Points (Cont'd)

Independent Front Suspension Axle

NOTE: Use McCormick LX Multi-Purpose EP2 Grease or Equivalent Grease with a NLGI 2 Classification.

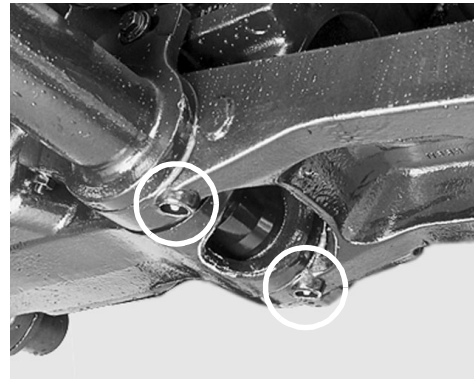
NOTE: In severe conditions lubricate these points more frequently.

XTX145, XTX165 and XTX185 Tractors



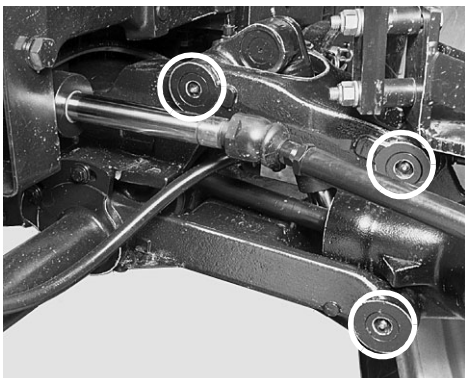
Suspension Arms - Front

DP00H119



Housing/Steering Arm Pivot

DP00H116



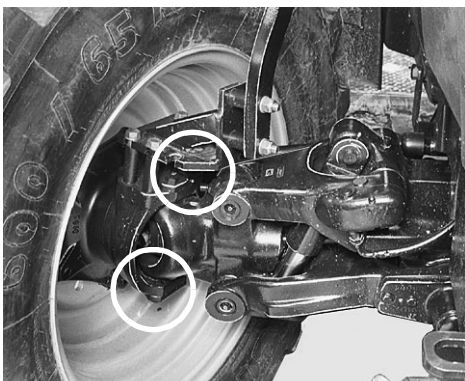
Suspension Arms - Rear

DP99A121



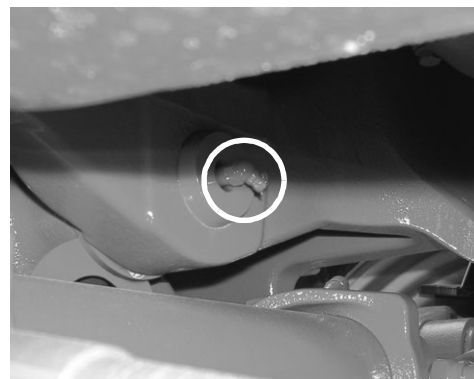
Axle Pivot Pin - Front
(Weight Frame removed for photographic purposes)

MD05E053



Steering Knuckle Swivel Pins

DP99A119



Axle Pivot Pin - Rear

MD05E057

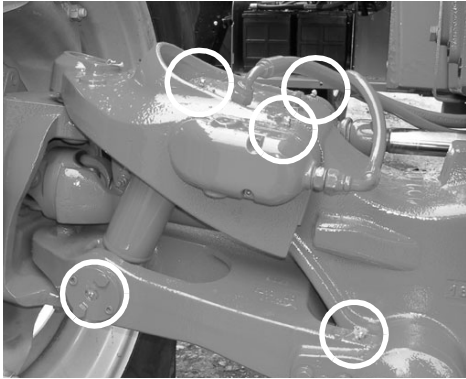
Routine Maintenance

50 HOUR SERVICE

Grease Points (Cont'd)

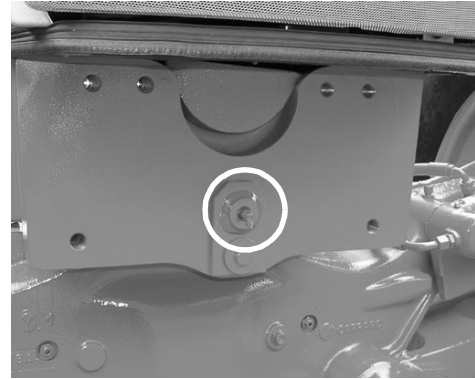
Independent Front Suspension Axle (Cont'd)

XTX200 and XTX215 Tractors



MD05E054

Suspension Arms - Front



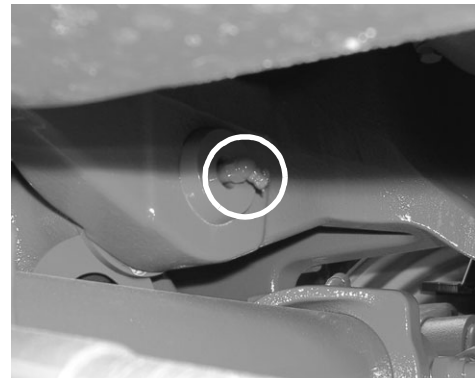
MD05E053

Axle Pivot Pin - Front
(Weight Frame removed for photographic purposes)



MD05E055

Suspension Arms - Front



MD05E057

Axle Pivot Pin - Rear



MD05E056

Suspension Arms - Rear

Suspended Axle Servicing



WARNING: Before carrying out any servicing on tractors equipped with Independent Front Suspension make sure the axle is fully lowered to the bottom mechanical stop, the engine is not running and the keyswitch is in the OFF position. Failure to do this may result in serious injury.

Routine Maintenance

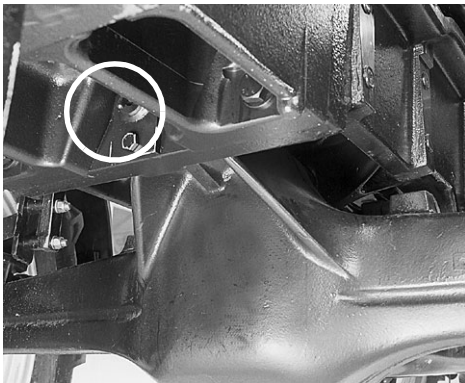
50 HOUR SERVICE

Grease Points (Cont'd)

Mechanical Front Drive (MFD) Axle

NOTE: Use McCormick LX Multi-Purpose EP2 Grease or Equivalent Grease with a NLGI 2 Classification.

NOTE: In severe conditions lubricate these points more frequently.



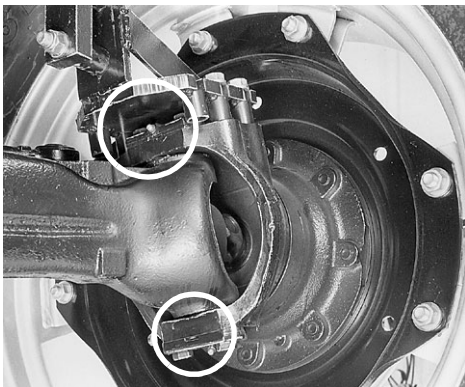
DP96H247

Axle Pivot Pin - Front



DP96H254

Axle Pivot Pin - Rear

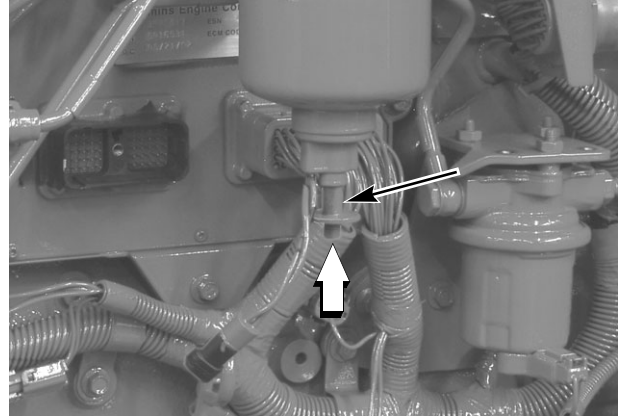


DP96H246

Steering Knuckle Swivel Pins

Drain Fuel Filter (XTX215 Cummins Engine)

NOTE: The β -power engines DO NOT have a drain plug on the fuel filter.

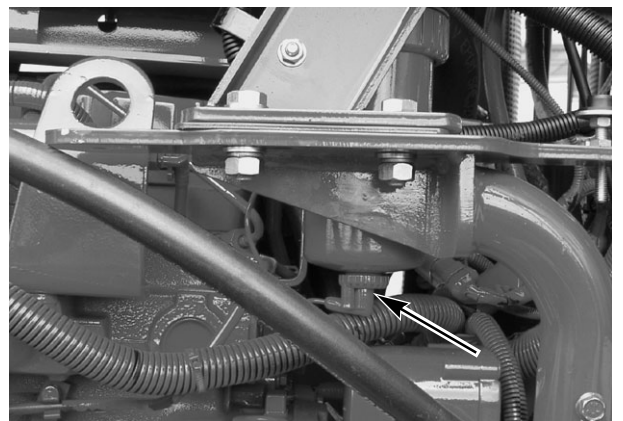


MD03B003

Push the bleed valve (1) on the bottom of the filter to drain any water.

IMPORTANT: Dispose of fuel in accordance with local regulations. DO NOT drain on the ground, into a drain or into a container that can leak. Be responsible for the environment.

Drain Fuel/Water Separator (XTX145 to XTX215 β -power Engines)



MD04C141

The drain plug is located on the bottom of the Fuel/Water Separator. Loosen the plug to let any water or sediment drain from the filter. Tighten the plug after the water has drained.

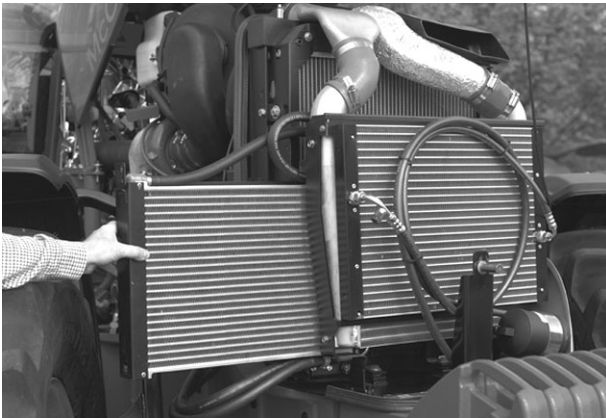
IMPORTANT: Dispose of fuel in accordance with local regulations. DO NOT drain on the ground, into a drain or into a container that can leak. Be responsible for the environment.

Routine Maintenance

50 HOUR SERVICE

Clean Grille Screens and Radiator Area

Clean the grille screens, air conditioning condenser, oil cooler, fuel cooler, charge cooler (as equipped) and radiator area every 50 hours of operation, or more frequently if required when operating in dirty conditions.



MD05E058

IMPORTANT: Be careful not to bend or damage the fins during cleaning. Areas with restricted access should be carefully cleaned with compressed air.

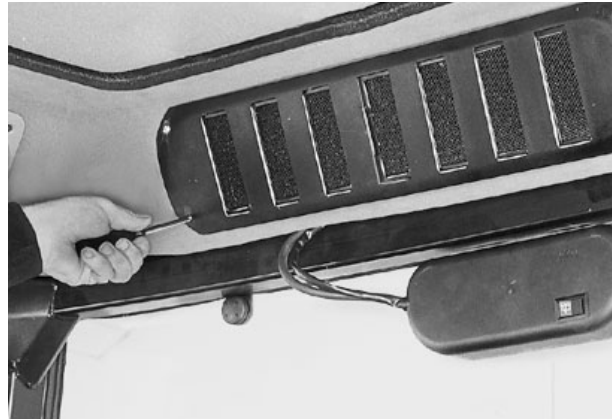
IMPORTANT: If you clean using compressed air use an air hose with a safety ON/OFF control nozzle and ALWAYS WEAR FACE PROTECTION.



WARNING: DO NOT steam clean any air conditioning system parts while the system is charged. The heat will cause the refrigerant to rise to a pressure that could cause the system to explode.

Clean Cab Air Recirculation Filter

STEP 1



DP96J430

Remove the four screws from the recirculation grille.

STEP 2



DP96J436

Remove the recirculation grille and the filter.

STEP 3

Clean the filter using mild soap and water.

Rinse with clear water and squeeze out the excess.

STEP 4

Install the filter in the recirculation grille.

STEP 5

Install the grille and filter. Install and tighten the screws.

Routine Maintenance

100 HOUR SERVICE

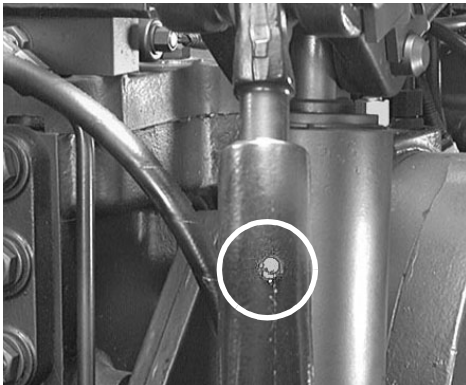
NOTE: Complete the items in the 10 hour, (or daily) and 50 hour service plus the following.

Grease Points

NOTE: Use McCormick Multi-Purpose Lithium Grease.

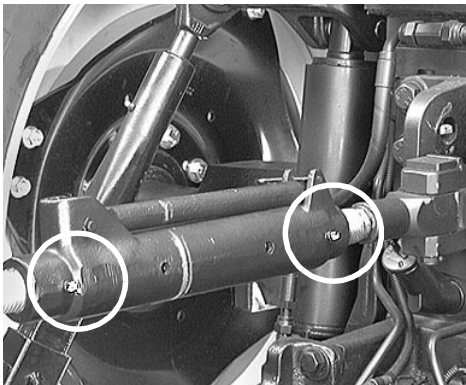
NOTE: In severe conditions lubricate these points more frequently.

Rear 3 Point Hitch



MD04C148

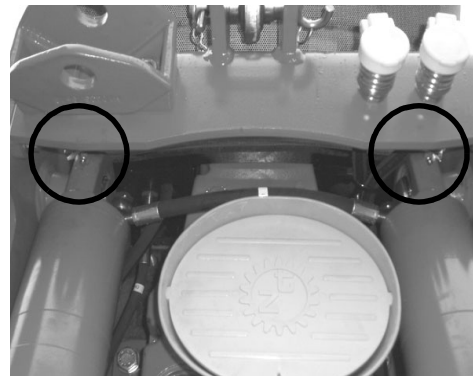
Turnbuckles, 2 points each side



MD04C149

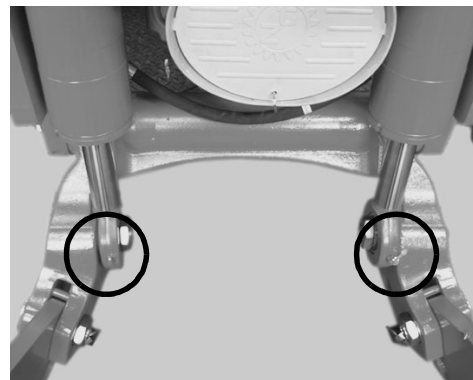
Top link, 2 points.

Front 3 Point Hitch (If equipped)



MD04N055

Top of lift cylinder, 2 points.



MD04N053

Bottom of lift cylinder, 2 points.

NOTE: Lubricate if not used frequently and also after washing with water pressure hose.

Routine Maintenance

100 HOUR SERVICE

Check and Clean Cab Air Intake Filter

The air intake filters should be checked weekly or daily if used in extreme conditions. The standard paper element has the following efficiency with a maximum differential pressure increase of 2 mbar (0.029 psi): - SAE coarse 99.5%.

NOTE: This element gives no protection against chemical spray.

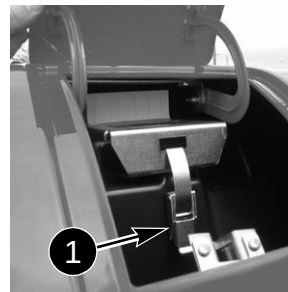
Clean the intake air filter every 100 hours or more often if needed. Keep the air filter clean for efficient operation of the heating and cooling system. Replace with a genuine McCormick part if damaged or when the filter can not be cleaned.



WARNING: Do not stand on the tractor to service the filter, use the correct equipment for a safe standing platform or injury can result.

IMPORTANT: Respiratory protection equipment and protective clothing appropriate to the environment that the filter has been in contact with **MUST** be used during the cleaning of the filter.

STEP 1



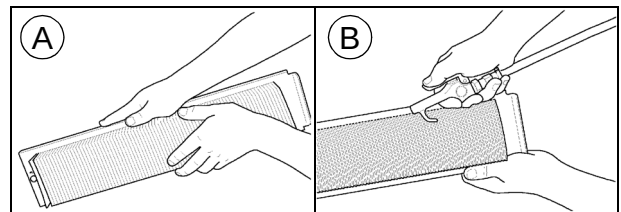
MD05G143 & 144

Open the filter cover.

Release the spring clip (1), slide out the filter element(s) and remove.

STEP 2

The filter element can be cleaned by following two methods:



MI03F034 & MI03F035

- A. By tapping against a flat surface. Do not use excessive force that can cause damage to the filter.
- B. By blowing with compressed air. Move the flow of air up and down the clean side of the filter. Maximum air pressure must not be more than 2 bar (29 psi). Too much pressure will damage the filter.

IMPORTANT: Always use an air hose with a safety ON/OFF control nozzle and **ALWAYS WEAR FACE PROTECTION.**

STEP 3

Clean the filter housing before installing the clean filter element. Secure the filter in place and close the filter cover.

Routine Maintenance

250 HOUR SERVICE

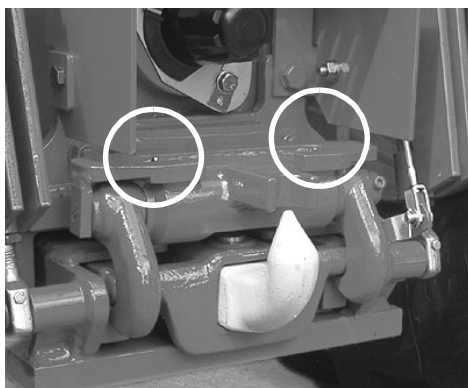
NOTE: Complete the items in the 10 hour, (or daily), 50 and 100 hour services plus the following.

Grease Points

NOTE: Use Multi-Purpose Lithium Grease.

NOTE: In severe conditions lubricate these points more frequently.

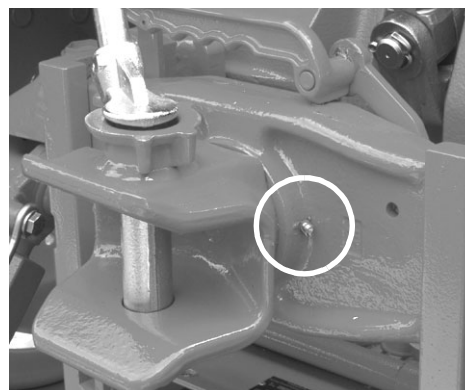
Auto Hitch Locking Latches



MD04G044

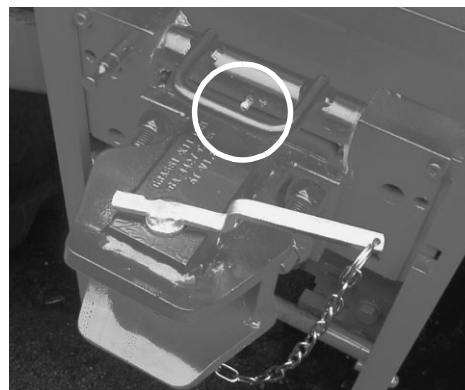
Locking Latches
and Rear Pivot, 2 Points

Trailer Hitch Slide Rails and Hitch Coupling Operating Parts



MD04H050

Type A Hitch Clevis, 1 Point



MD06B086

Type B Hitch Clevis, 1 Point

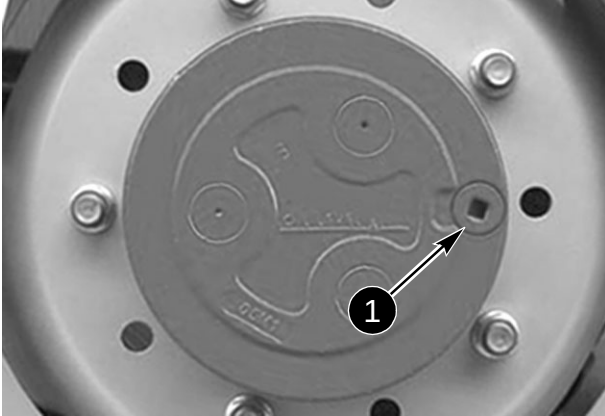
The hitch should be thoroughly cleaned and all moving parts, including the inner slide rails, should be greased to protect from corrosion.

Make sure that all moving parts move freely and operate correctly.

Routine Maintenance

250 HOUR SERVICE

Check Planetary Oil Level

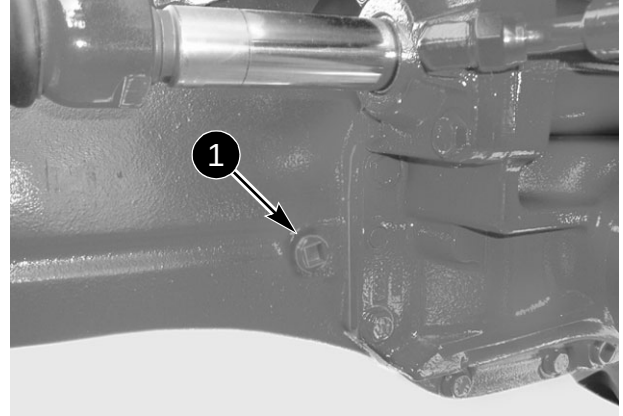


MD04F109

To check the planetary oil level, park the tractor on level ground.

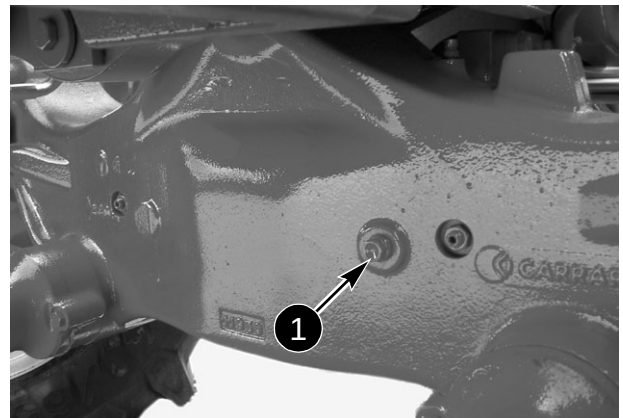
Turn the wheel hub until the plug (1) is in the 3 or 9 o'clock position. Remove the plug and check the oil level. The oil must be level with the bottom of the plug hole, add the recommended oil type to the correct level if required. Install the plug and tighten.

Check Differential Oil Level



MD05G139

MFD AXLE



MD05G137

INDEPENDENT FRONT SUSPENSION AXLE

To check the differential oil level, put the tractor on level ground. Remove the fill/level plug (1).

The oil must be level with the bottom edge of the hole. Add the recommended oil type to raise the oil to the correct level if required. Install the plug and tighten.

NOTE: If required a limited slip additive (Part No. B91246) is available from your dealer. Add 30ml (0.3 US quarts) of additive to every 1.0 litre (1.0 US quart) of McCormick Multi-Purpose Gear Oil.

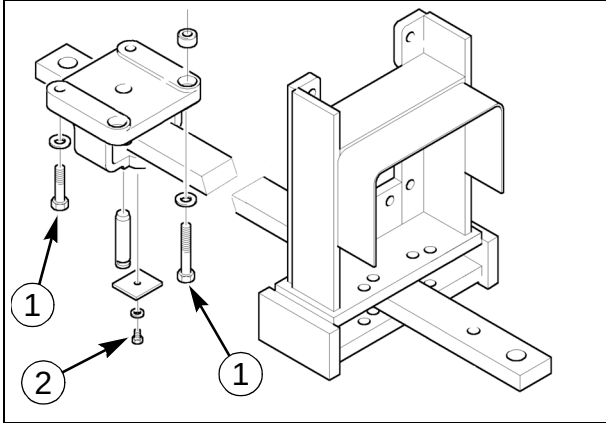


WARNING: Before carrying out any servicing on tractors equipped with Independent Front Suspension make sure the axle is fully lowered to the bottom mechanical stop, the engine is not running and the keyswitch is in the OFF position. Failure to do this may result in serious injury.

Routine Maintenance

250 HOUR SERVICE

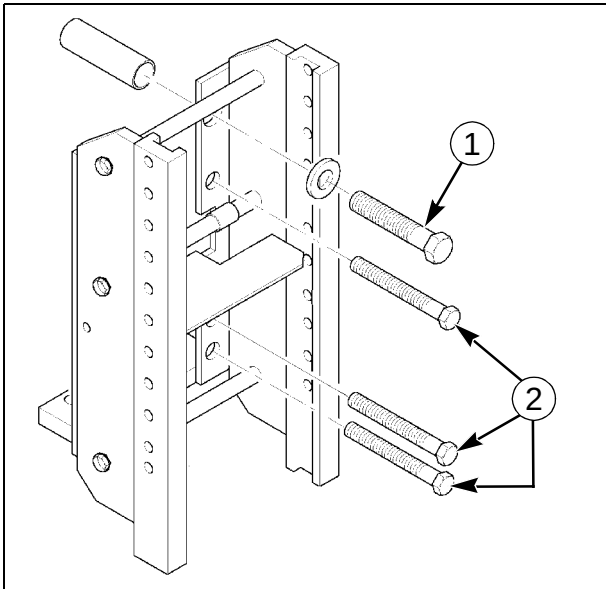
Check Drawbar Support Bracket Bolts Torque



MH04G047

1. Tighten bolts (1) [4 off] to a torque of 295 to 330 Nm (218 to 243 lb ft).
2. Tighten bolt (2) [1 off] to a torque of 94 to 106 Nm (69 to 78 lb ft).

Check the Torque of the Trailer Hitch Bolts (If Equipped)



MH04G046

1. Tighten the top retaining bolts (1) [2 off] to a torque of 570 to 645 Nm (420 to 476 lb ft).
2. Tighten the rear retaining bolts (2) [6 off] to the PTO housing, to a torque of 295 to 330 Nm (420 to 476 lb ft).

Check Drive Belts Tension

Check the tension of ALL drive belts, on the longest run of the belt, every 50 hours during the first 100 hours of operation until constant, then every 250 hours of operation.

The tension is correct when the belt deflects 10 mm on the longest run of the belt with a thumb pressure of 4.5 kgf applied.

Check the belt for cuts and wear. Replace as necessary.

Park Brake Operation



MD05M003

Make sure the ratchet locking mechanism is secure and reliable.

The park brake lever should move no more than 3-4 notches and be able to hold a fully laden tractor on a gradient of at least 1 in 5 (18%). Adjust as required.

Routine Maintenance

250 HOUR SERVICE

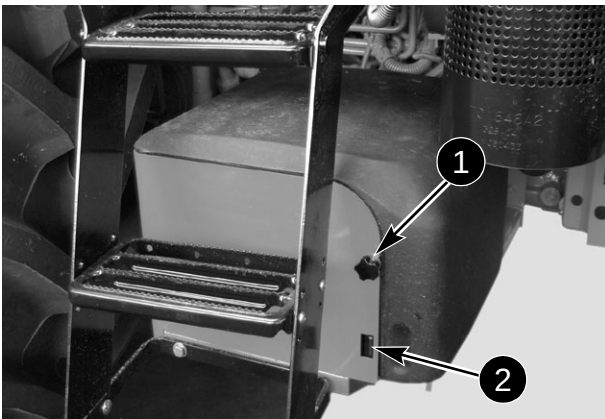
Batteries

Check the electrolyte level in each cell every 250 hours of operation. The Tractor is equipped with either one (1) or two (2) Low Maintenance batteries.



WARNING: BATTERY ACID CAUSES SEVERE BURNS. Batteries contain sulfuric acid. Avoid contact with skin, eyes or clothing. Antidote:
EXTERNAL - Flush with water.
INTERNAL - Drink large quantities of water or milk. DO NOT induce vomiting. Seek medical attention immediately.
EYES - Flush with water for 15 minutes and get medical attention immediately.
BATTERIES PRODUCE EXPLOSIVE GASES. Keep sparks, flame and cigarettes away. Ventilate when charging or using in enclosed space. Always shield eyes when working near batteries. **KEEP OUT OF REACH OF CHILDREN.**

Access to Batteries



MD05F063

Loosen the battery box lid screw (1), press the locking tab (2) in and lift the lid clear.

Check Electrolyte Level



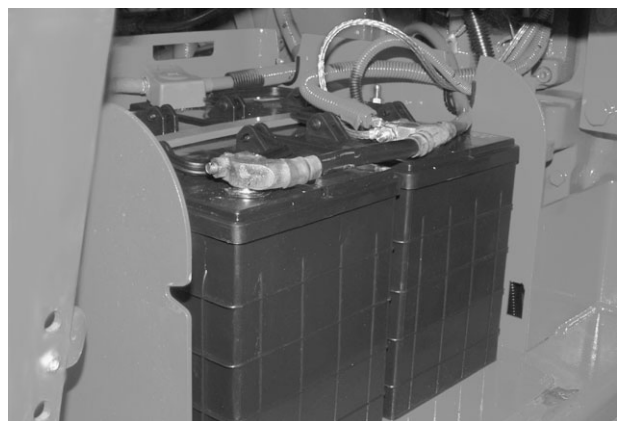
DP98J221

Disconnect the cables, in the correct sequence, if routed across the cell cover plates. Remove cell cover plates carefully.

Add distilled water to just cover the top of the separators. **DO NOT OVER FILL.** The electrolyte level should be 3 to 6 mm (0.12 to 0.24 in) below vent well.

When distilled water is added at ambient temperatures below 0°C (32°F) the batteries must be charged immediately to mix the water and electrolyte or the water will freeze, because the water will stay on top of the electrolyte.

Battery Cables and Terminals



MD02B019

The battery terminals must be kept clean and tight. Remove all corrosion with a wire brush, then wash with a weak solution of baking soda or ammonia. Put some petroleum jelly or light grease on terminals to prevent more corrosion.

Routine Maintenance

500 HOUR SERVICE

NOTE: Complete the items in the 10 hour (or daily), 50, 100 and 250 hour services plus the following.

Change Engine Oil and Filter

IMPORTANT: If the tractor has been operating under difficult conditions it may be necessary to change the oil and filter more frequently.

To change the engine oil, put the tractor on level ground and stop the engine.

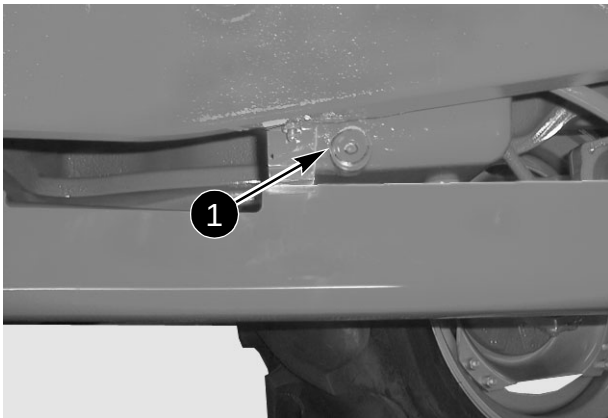
NOTE: For best results change the oil when the engine is warm.



WARNING; Avoid contact with hot oil. Do not change a hot filter due to risk of burning skin on hands, wait until temperature is below 50°C (32°F).

NOTE: Photographs used within this explanation show a XTX185 tractor, however the procedure is the same for all tractors within the XTX range.

STEP 1



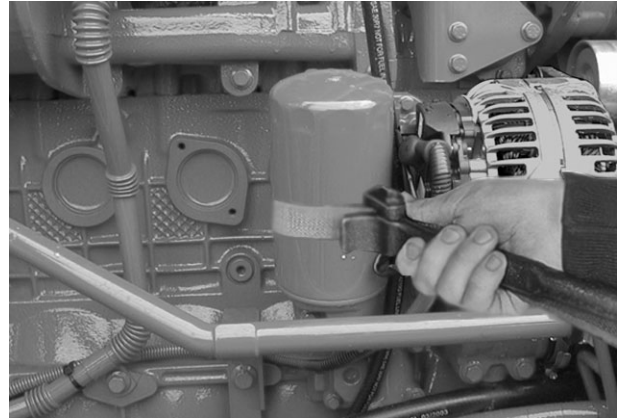
MD04C012

Put a suitable size container (see page 208 for engine capacity) under the drain plug (1).

Remove the drain plug and drain the oil. Take care of hot oil when draining.

IMPORTANT: Dispose of oil and filters in accordance with local regulations. DO NOT drain the oil on the ground, into a drain, or put into a container that can leak. Be responsible for the environment.

STEP 2



MD04C013

Using a filter wrench remove the filter.

STEP 3

Apply clean oil to the gasket on the new filter.

Install the filter. Turn the filter clockwise until the gasket comes in contact with the filter head. Tighten the filter an additional one half turn by hand.

IMPORTANT: Only use a McCormick approved oil filter, these filters have been specifically designed to provide superior engine protection.

IMPORTANT: DO NOT use a filter wrench to install the oil filter or you can cause damage to the gasket and filter.

STEP 4

Install a new seal on the drain plug (1). Install the drain plug in the crankcase and tighten.

Fill engine with correct grade engine oil, to the correct level.

Routine Maintenance

500 HOUR SERVICE

Change Fuel Filter

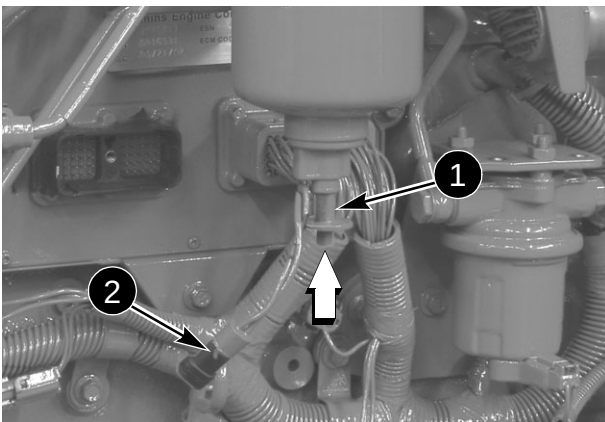
NOTE: Photographs used within this explanation show a XTX185 tractor, however the procedure is the same for all tractors within the XTX range except where stated .

STEP 1

Clean the filter head, filter and engine area next to the filter before removing the filter.

STEP 2

(XTX215 Cummins Engine Only)

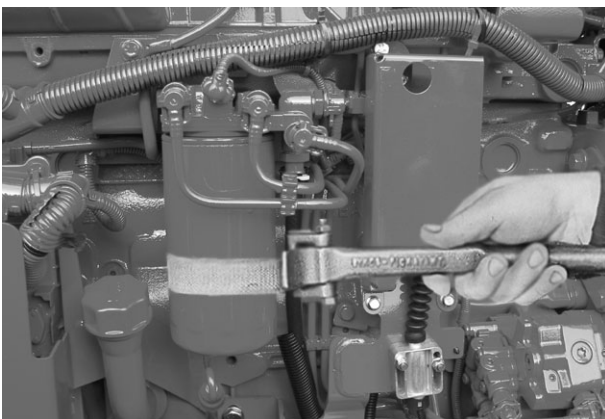


MD03B003

Push the bleed valve (1) on the bottom of the filter to drain any water.

Disconnect the water-in-fuel sensor (2) from the wiring harness.

STEP 3



MD04C143

Using a filter wrench remove the filter.

IMPORTANT: Dispose of filter in accordance with local regulations. DO NOT drain fuel onto the ground, into a drain or into a container that can leak. Be responsible for the environment.

STEP 4

Put clean oil or grease on the filter gasket of the new filter canister before installing. Install the filter by hand. Turn the filter until the gasket contacts the filter head then turn a further 1/2 turn.

IMPORTANT: Only use a McCormick approved parts, these parts have been specifically designed to provide superior engine protection.

STEP 5

(XTX215 Cummins Engine Only)

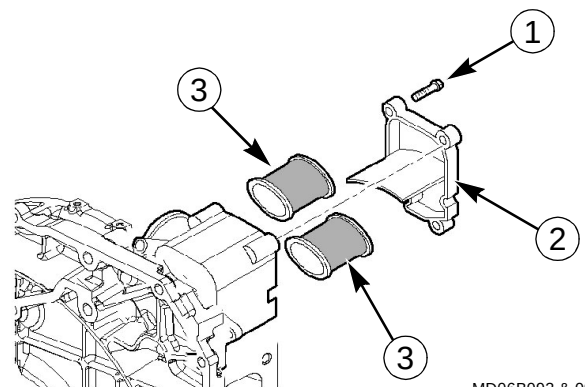
Connect the water-in-fuel sensor to the wiring harness.

Change Engine Breather Filter Elements (If Equipped)

STEP 1

Clean the area around the filter body.

STEP 2



MD06B093 & 094

Remove the retaining screws (1) and filter cover (2).

Remove and discard old filters (3) and replace with new.

STEP 3

Install the filter cover (2) and secure with the retaining screws (1).

Routine Maintenance

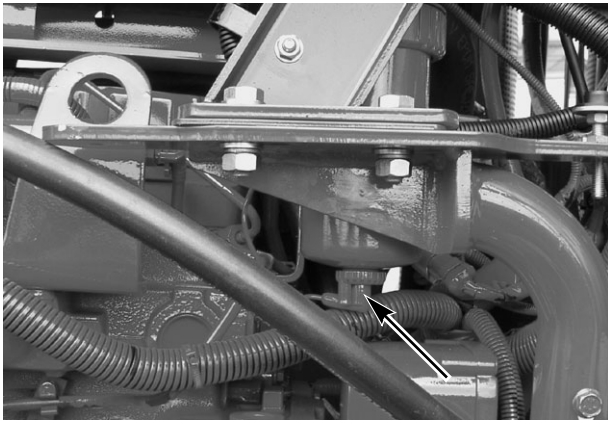
500 HOUR SERVICE

Change Fuel/Water Separator Filter Element (XTX145 to XTX215 B-power Engines)

STEP 1

Clean the filter head, filter and engine area next to the filter before removing the filter.

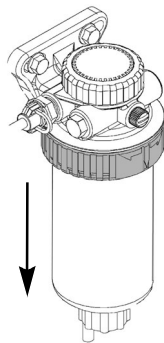
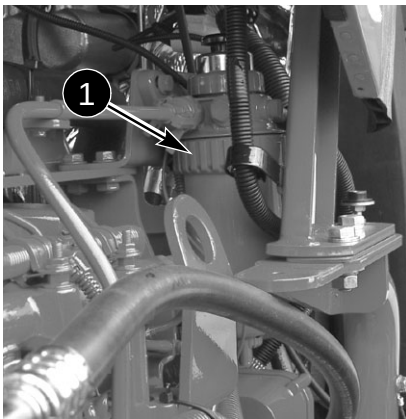
STEP 2



MD04C141

Disconnect the water-in-fuel sensor from the wiring harness. While keeping the water-in-fuel sensor clear, loosen the drain plug on the bottom of the filter to drain any water.

STEP 3



MD04C144 & MI04C147

Support the filter and rotate the locking collar (1) clockwise, (see the direction arrow). Remove the locking collar and retain.

Pull downwards on the filter canister to remove from filter head.

IMPORTANT: Dispose of filter in accordance with local regulations. DO NOT drain fuel onto the ground, into a drain or into a container that can leak. Be responsible for the environment.

STEP 4

Put clean oil or grease on the filter gasket of the new filter canister before installing.

Align the spline on the filter canister with the groove in the filter head and push the new filter canister fully into the filter head.

Support the canister, install the locking collar (1) and rotate counterclockwise to lock filter canister to the filter head.

IMPORTANT: DO NOT fill the new filter with fuel before installing.

IMPORTANT: Only use a McCormick approved fuel filter, these filters have been specifically designed to provide superior engine protection.

STEP 5

Fill the fuel tank and remove air from the fuel system. See Fuel System Air Removal on page 231.

IMPORTANT: DO NOT crank the engine before removing all the air from the fuel system or the fuel injection pump can be damaged.



WARNING: Engine fuel is flammable and can cause a fire or an explosion. DO NOT fill the fuel tank or service the fuel system near a naked flame, welding, burning cigars, cigarettes etc.

Routine Maintenance

500 HOUR SERVICE

Priming The Fuel System (XTX145 to XTX215 B-power Engines)

Air can enter the fuel system in the following situations:

- A. If the fuel tank becomes empty or is low on fuel.
- B. After fuel system parts have been removed for service or repairs.
- C. If the tractor has been in storage for a long period of time.

IMPORTANT: *DO NOT* crank the engine before removing all the air from the fuel system or the fuel injection pump can be damaged.

On **XTX215 Cummins Engines** no fuel system priming should be necessary as there is an electric primer pump which automatically operates and is controlled by the electronic control module.

For **XTX145 to XTX215 B-power Engines** use the following procedure to remove air from the fuel system.

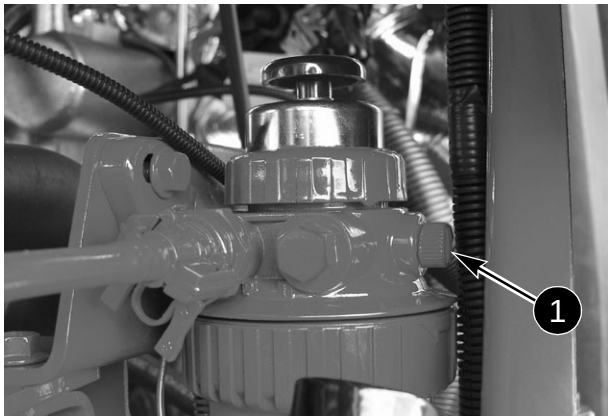
STEP 1

Make sure there is fuel in the tank.

STEP 2

Turn the key switch to ON to energize the cut off solenoid.

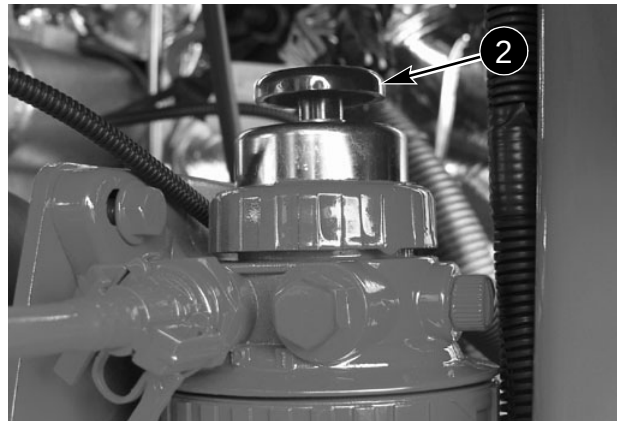
STEP 3



MD04C146

Loosen the air bleed screw (1) on top of the fuel/water separator filter.

STEP 4



MD04C146

Operate the hand primer pump (2) to fill the fuel filter. Tighten the air screw when fuel with no air bubbles flows from the screw.

STEP 5

Start the engine and check for fuel leaks around the filter, the fuel lines and fittings.

If the engine does not run correctly make sure the air bleed screw is closed, apply the maximum possible load until the engine runs smoothly.

If the engine fails to start repeat the air removal procedure.



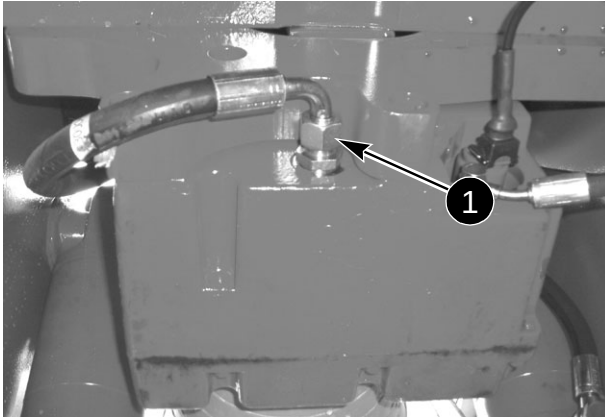
WARNING: *Never start the engine in a closed building. Proper ventilation is required under all circumstances.*

Routine Maintenance

500 HOUR SERVICE

Change Front PTO Oil and Clean the Oil Filter

STEP 1



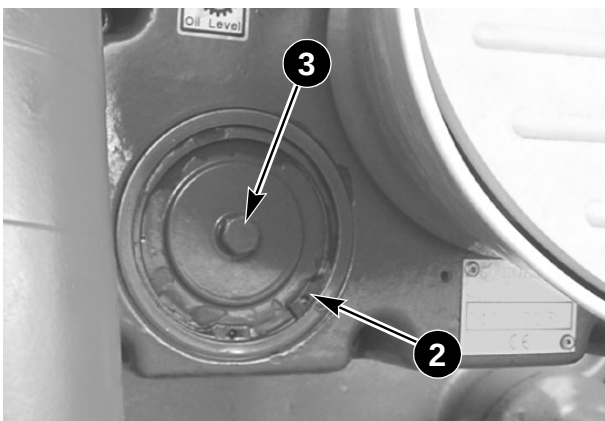
Put the tractor on level ground.

Remove the hose (1) and allow the oil to drain into a suitable container.

For best results drain the oil after operation when the oil is warm. Once the oil has completely drained re-attach the hose.

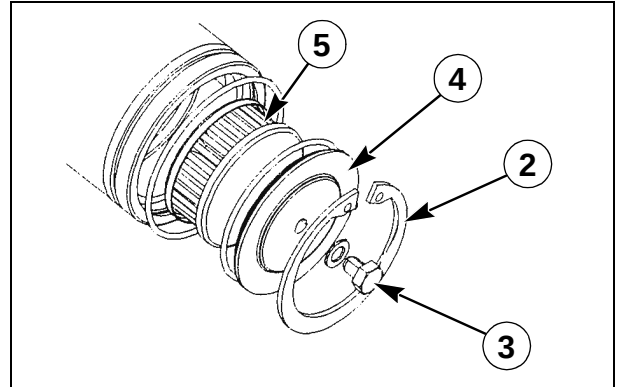
IMPORTANT: Dispose of oil in accordance with local regulations. DO NOT DRAIN THE OIL ON THE GROUND OR INTO A DRAIN. Be responsible for the environment.

STEP 2



Remove the circlip (2) and loosen the bolt (3).

STEP 3

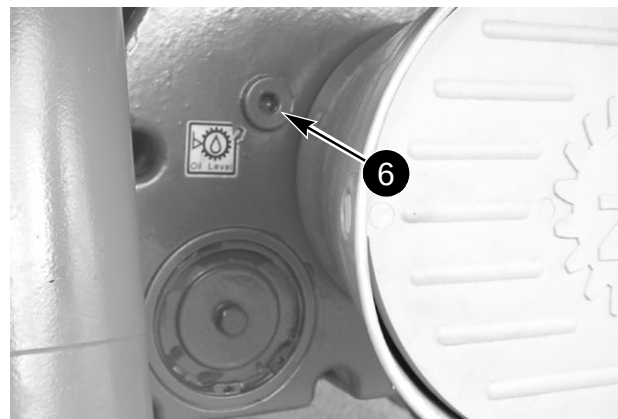


Remove the pump cover (4). Remove the oil filter (5) from the pump unit and clean the filter.

STEP 4

Install the clean oil filter, the pump cover (4) and tighten the bolt (3). Install the circlip (2).

STEP 5



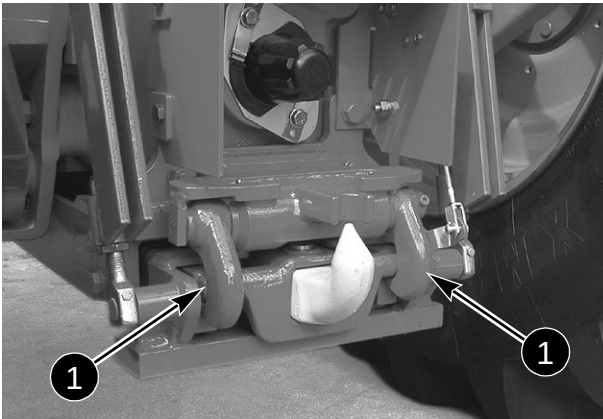
Add the recommended oil type through the fill/level plug hole (6) until the oil is level with the bottom edge of the hole.

Wait approximately 5 minutes. Check the oil level again and add oil as necessary. Install the fill/level plug.

Routine Maintenance

500 HOUR SERVICE

Check/Adjust Auto Hitch (If Equipped)



MD04G044

As necessary or at least every 500 hours check the operation of the auto hitch and make sure the locking latches (1) engage and the hitch is operating correctly.



WARNING: When checking the operation of the auto hitch, stay well clear of moving parts or injury can result.



WARNING: Never operate the engine in a closed building. Proper ventilation is required under all circumstances.

If the locking latches do not engage correctly the cable and/or the lift rods may need adjustment. See your dealer to allow for necessary adjustments to be carried out.

Check Function of the Operator Presence Switch

Check the switch for correct function every 500 hours of operation or at least once annually. When doing the following checks, do so in a clear open area with no other persons or objects near the tractor:

STEP 1

While sitting on the operator's seat, with the engine running at low idle speed, and the F-N-R lever in NEUTRAL, put the transmission into 1st range and release the clutch pedal. Stand up out of the operator's seat while holding onto the steering wheel and move the F-N-R lever from NEUTRAL to either FORWARD or REVERSE. The Neutral indicator "N" light will illuminate. The tractor **should not move**. If the tractor moves under power, see your dealer for repair.

STEP 2

While sitting on the operator's seat, with the engine running at low idle speed, put the F-N-R lever in FORWARD, the transmission in 1st range and release the clutch pedal to start the tractor moving. Stand up out of the operator's seat while holding onto the steering wheel, and move the F-N-R lever out of the FORWARD position into the REVERSE position. The Neutral indicator "N" light should illuminate. The tractor **should stop** (default to Neutral). If the tractor does not default to Neutral, see your dealer immediately for repair.

IMPORTANT: If the operator presence switch circuit is bypassed, the electronic system will sense the change and the master warning lamp will illuminate.

Routine Maintenance

1000 HOUR MAIN SERVICE

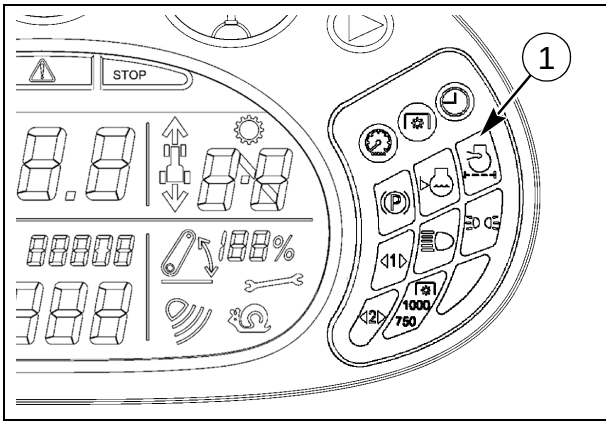
NOTE: Have your authorized McCormick dealer complete the 1000 Hour Main Service. The dealer engineer should complete the items in the 10 hour (or daily), 50, 100, 250 and 500 hour services plus the following.

Check Engine Air Induction System

Check all hoses for damage and that hose clamps are tight, correct torque = 3.4 Nm (2.5 ft lb).

Filter Restriction Indicator Lamp

When the air filter restriction indicator lamp (1) on the instrument cluster illuminates, the primary (outer) filter element needs cleaning. Service the element after the days work is completed.



NOTE: If the air filter restriction indicator lamp illuminates after the primary filter has been serviced, check the following possible causes:

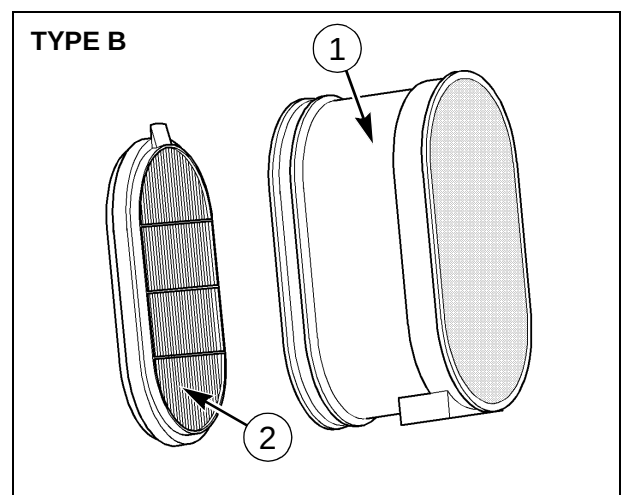
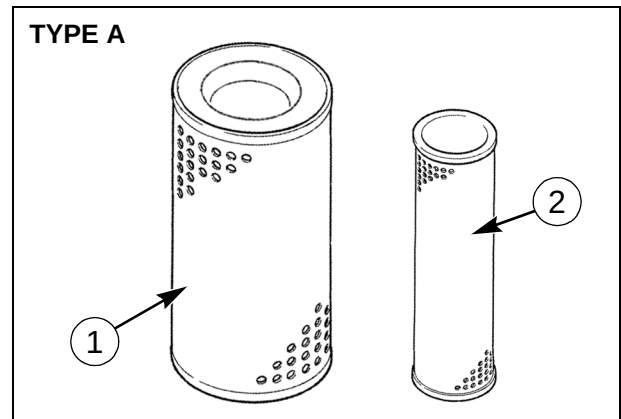
- A. Secondary (inner) element is dirty.
- B. Grille screen is dirty.

If the lamp still illuminates see your dealer to check the restriction indicator sending unit.

The primary (outer) filter is a high capacity filter designed to provide optimum protection to the engine.

The primary filter can be cleaned as required between filter changes. The secondary (inner) filter gives extra protection to the engine if there is damage to the primary filter.

IMPORTANT: THE SECONDARY (INNER) FILTER MUST NOT BE CLEANED. REPLACE THE FILTER IF DAMAGED OR DIRTY, OR AT THE THIRD CLEANING OF THE PRIMARY FILTER.



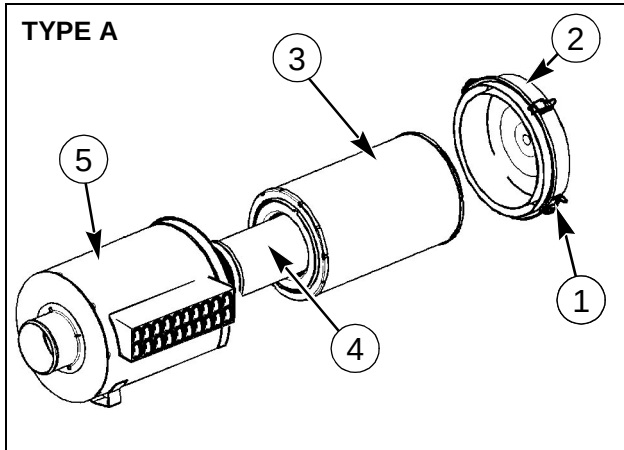
- 1. PRIMARY (OUTER) FILTER ELEMENT
- 2. SECONDARY (INNER) FILTER ELEMENT

IMPORTANT: Only use McCormick approved air filters, these filters have been specifically designed to provide superior engine protection.

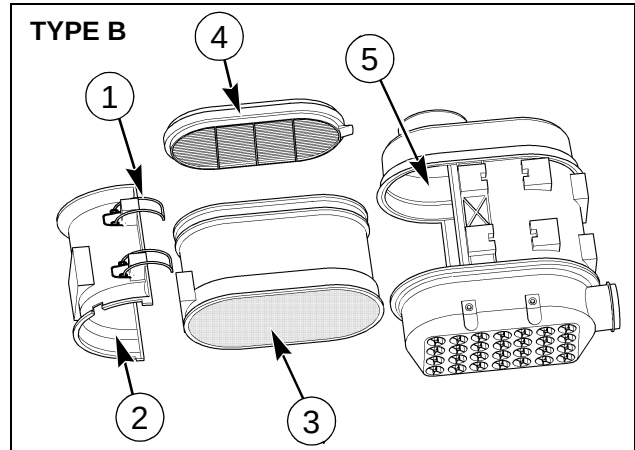
Routine Maintenance

1000 HOUR SERVICE

Service Engine Air Filter



MI03F067



MI05H026

STEP 1

Release the cover retaining clips (1) and remove the cover (2).

STEP 2

Pull out the primary (outer) filter element (3).

STEP 3

Pull out the secondary (inner) filter element (4), if it is to be changed.

IMPORTANT: DO NOT remove the secondary (inner) element unless it is to be changed.

IMPORTANT: Do not run the engine with the filters removed.

STEP 4

Clean the inside of the filter body (5).

IMPORTANT: Dispose of filters correctly in accordance with local regulations. Be responsible for the environment.

STEP 5

Install a new secondary (inner) element (4), if necessary or after the third cleaning of the primary filter (3). Apply talcum powder or similar to the inner seal face before installing the filter.

NOTE: NEVER use a petroleum base lubricant on the seal area. Petroleum lubricant could "glue" the cover to the element seal and damage the element.

STEP 6

If most of the dirt is dry, clean the primary element with compressed air from the inside of the element to the outside.

Keep the air nozzle approximately 130 mm (5 inches) away from the element and move the nozzle up and down while turning the element.

IMPORTANT: The air pressure must not be more than 207 kPa, 2 bar (30 psi). Use an air hose with a safety ON/OFF control nozzle and always wear face protection.

STEP 7

Visually check the rubber gasket for damage. Check the cover and filter material for damage. Replace an element that is damaged.

STEP 8

Before installing the primary (outer) element, apply talcum powder or similar to the inner seal face before installing the filter. Install with closed end outwards. Install the primary (outer) element, closed end outwards.

NOTE: NEVER use a petroleum base lubricant on the seal area. Petroleum lubricant could "glue" the cover to the element seal and damage the element.

Routine Maintenance

1000 HOUR MAIN SERVICE

Change Transmission/Hydraulic Oil and Filter

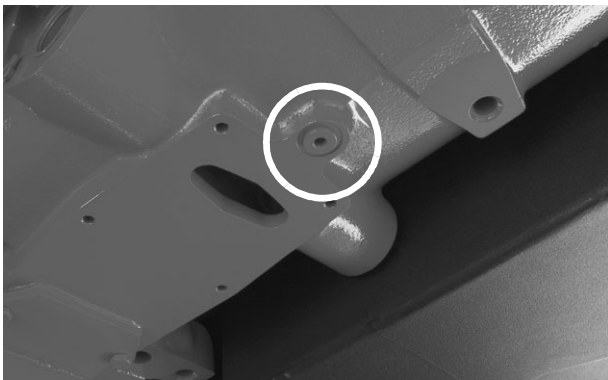
STEP 1

Put the tractor on hard level ground, apply the park brake and stop the engine.

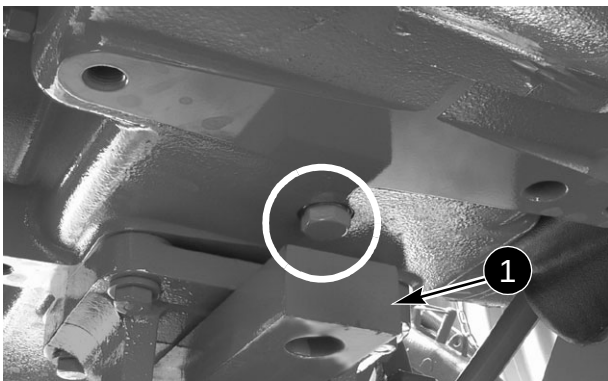
STEP 2

Remove ALL the drain plugs. For best results drain the oil when the oil is warm after operation.

Drain Plug Locations

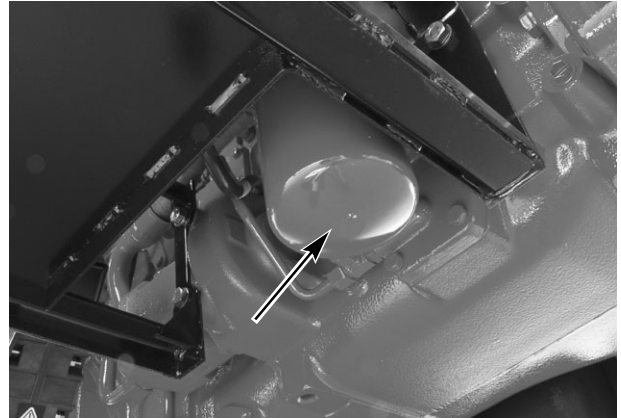


DRAIN PLUG - ONE EACH SIDE



NOTE: The PTO housing drain plug is covered by the drawbar (1) or hitch bracket.

STEP 3



While oil is draining, place a suitable container under the transmission/hydraulic oil filter. Use a suitable filter wrench and remove the oil filter and filter O-ring. Turn the filter counterclockwise.

IMPORTANT: The filter must also be changed if the service indicator lamp on the instrument panel illuminates during operation.

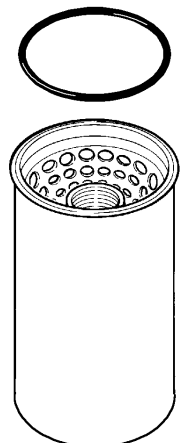
IMPORTANT: Dispose of oil and filters in accordance with local regulations. DO NOT drain the oil on the ground, into a drain or into a container that can leak. Be responsible for the environment.

STEP 4

Apply clean transmission oil to the new O-ring and position inside the lip of the new filter.

Install the new filter by hand. Turn the filter clockwise until the gasket comes in contact with the filter head then tighten the filter by hand another 1/3 of a turn.

IMPORTANT: DO NOT USE A FILTER WRENCH TO INSTALL THE OIL FILTER. If the filter is too tight it can cause damage to the gasket and filter.



IMPORTANT: Only use a McCormick approved hydraulic oil filter, these filters have been specifically designed to provide superior transmission/hydraulic system protection.

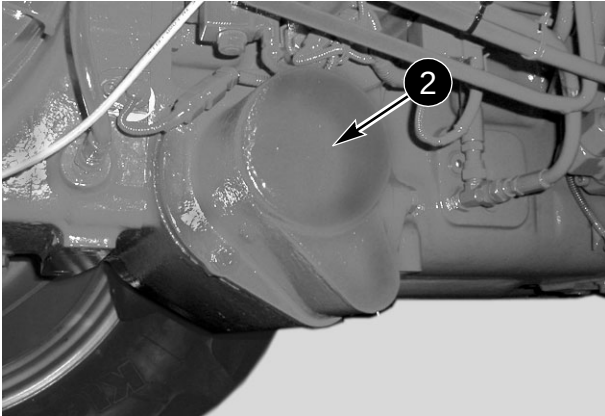
Routine Maintenance

1000 HOUR MAIN SERVICE

STEP 5

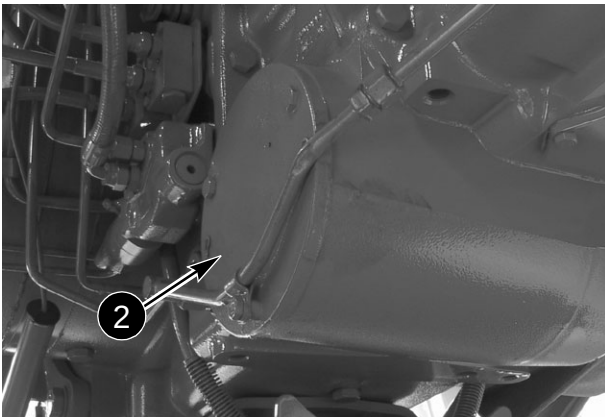
Install and tighten the drain plugs after the oil has drained.

STEP 7



MD05K039

XTX145 and XTX165 TRACTORS



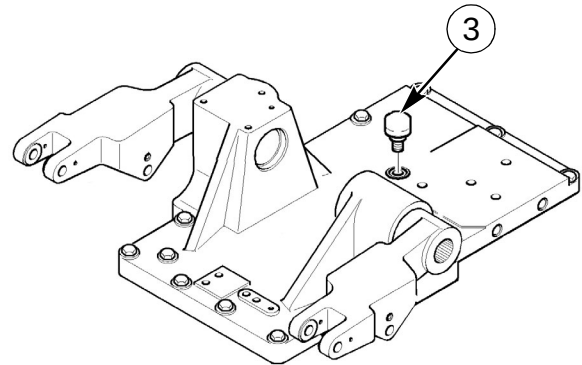
MD94G034

XTX185 to XTX215 TRACTORS

Remove and inspect the oil strainer (2) located on the right side of the range transmission housing. Thoroughly clean the strainer and replace. Always install a new strainer if the current strainer is damaged.

Before installing the oil strainer housing cover, clean and apply loctite 515. Apply loctite 572 to the left hand retaining bolt.

STEP 8



MI05F173

Install a new transmission housing breather (3).

STEP 9

Fill the transmission with the recommended oil to the correct level, Replace filler cap.

Start the engine and run for approximately 5 minutes checking for oil leaks around the drain plugs, strainer and oil filter.

STEP 10

Check the oil level. Add oil as required to bring the oil level up to the correct level.

Routine Maintenance

1000 HOUR MAIN SERVICE

Change Differential Oil

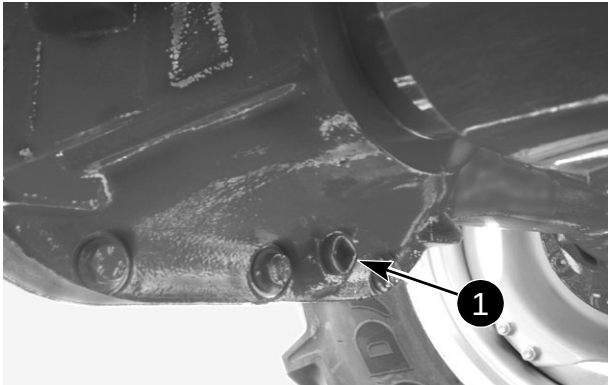


WARNING: Before carrying out any servicing on tractors equipped with Independent Front Suspension make sure the axle is fully lowered to the bottom mechanical stop, the engine is not running and the keyswitch is in the OFF position. Failure to do this may result in serious injury.

STEP 1

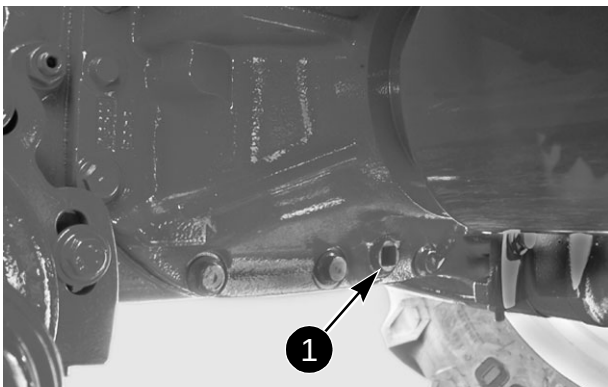
Put the tractor on level ground and put a suitable size container under the drain plug.

STEP 2



MFD AXLE

MD05G138



INDEPENDENT FRONT SUSPENSION AXLE

MD05G136

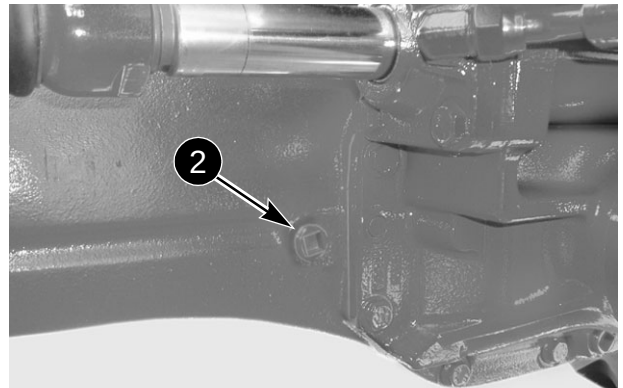
Remove the drain plug (1), located on the bottom of the axle housing at the rear, and drain the oil. For best results drain the oil when the oil is warm after operation.

IMPORTANT: Dispose of oil and filters in accordance with local regulations. DO NOT drain the oil on the ground, into a drain or put in a container that can leak. Be responsible for the environment.

STEP 3

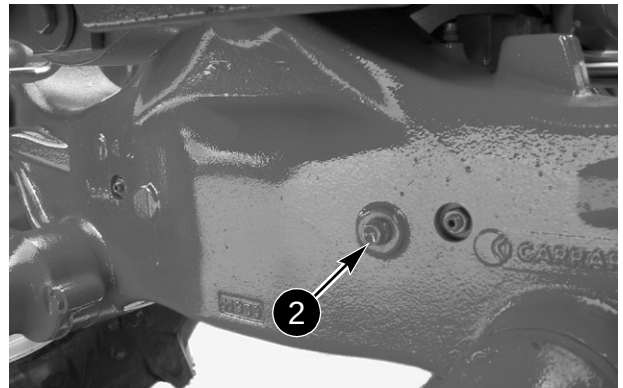
Install the drain plug and tighten.

STEP 4



MFD AXLE

MD05G139



INDEPENDENT FRONT SUSPENSION AXLE

MD05G137

Remove the fill/level plug (2). Add the recommended oil type until the oil is level with the bottom edge of the hole. Wait approximately 5 minutes. Check the oil level again and add oil as necessary.

NOTE: If required a limited slip additive (Part No. B91246) is available from your dealer. Add 30ml (0.3 US quarts) of additive to every 1.0 litre (1.0 US quart) of McCormick Multi-Purpose Gear Oil.

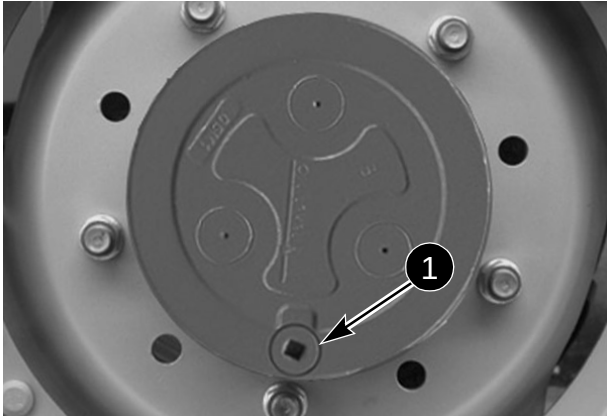
STEP 5

Install the fill/level plug and tighten.

Routine Maintenance

1000 HOUR MAIN SERVICE

Change Planetaries Oil



MD02C081

STEP 1

Park the tractor on level ground and turn each hub until the plug (1) is at the bottom.

STEP 2

Put a suitable size container under the plug. Remove the plug. For best results drain the oil when the oil is warm (after operation).

STEP 3

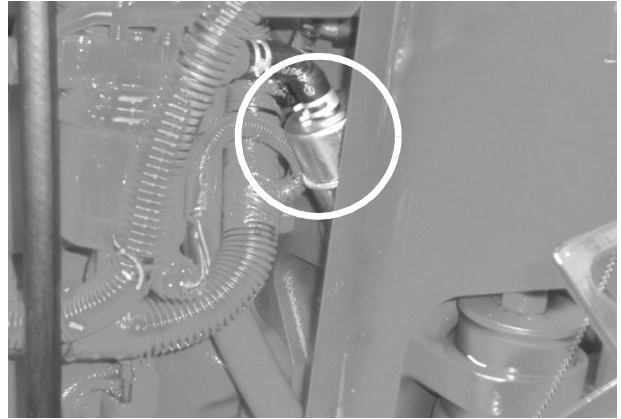
After the oil has drained, turn each wheel hub until the plug is at the 3 or 9 o'clock position. Add the recommended oil type until the oil is level with the bottom edge of the plug hole. Wait approximately 5 minutes for the oil to settle, then check the oil level again and add oil if necessary.

STEP 4

Install the plug and tighten.

IMPORTANT: Dispose of oil and filters in accordance with local regulations. DO NOT drain the oil on the ground, into a drain or put in a container that can leak. Be responsible for the environment.

Change In-Line Fuel Filter (XTX215 Cummins Engine)



MD05F177

STEP 1

Make a note of the direction of the arrow on the filter. Loosen the filter hose clips each end and remove the filter.

STEP 2

Install the new filter, making sure the arrow on the filter is pointing in the correct direction.

Check Condition of Fuel Injectors

The fuel injectors must not be cleaned. New injectors must be fitted by your dealer if there is damage or a fault occurs as listed below:

- Engine will not start or is difficult to start.
- Not enough power.
- Engine misfires or runs erratically.
- High fuel consumption.
- Black exhaust smoke.
- Engine knocks or vibration.
- Excessive engine temperature.

Check Engine Valves

Have your dealer check the engine valve to tappet clearances.

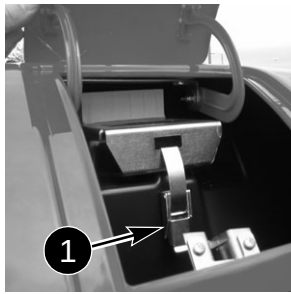
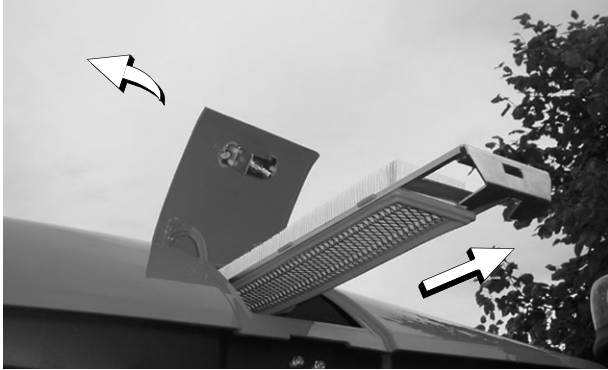
Routine Maintenance

1000 HOUR MAIN SERVICE

Change Cab Air Intake Filter

IMPORTANT: Respiratory protection equipment and protective clothing appropriate to the environment that the filter has been in contact with **MUST** be used during the cleaning of the filter.

STEP 1

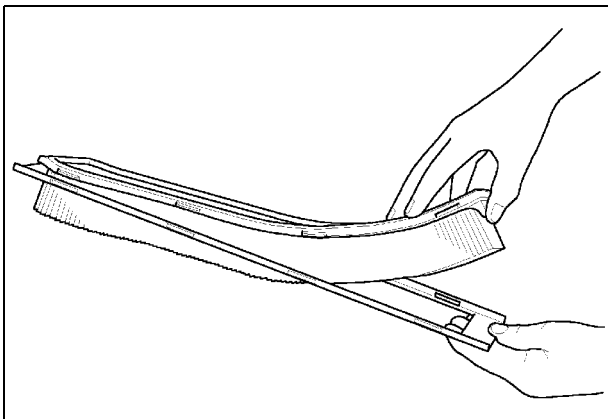


MD05G143 & 144

Open the filter cover.

Release the spring clip (1) and slide out the filter element(s).

STEP 2

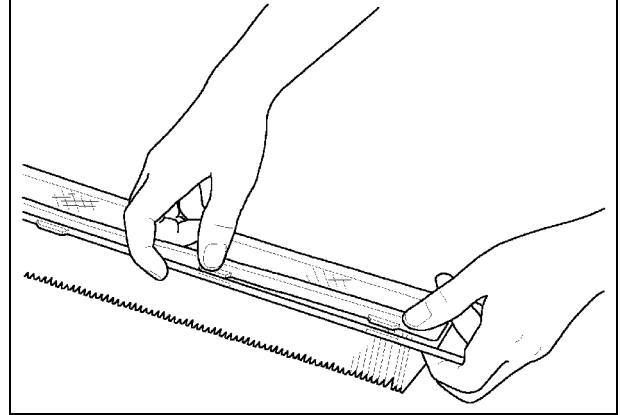


MI03F036

Remove the old element(s) from the metal retainer.

IMPORTANT: The old element **MUST** be put into a sealed container and disposed of in accordance with local regulations. Be responsible for the environment.

STEP 3



MI03F037

Install the new element(s) into the retainer making sure the rubber surround is pressed firmly inside the retainer rim and the retaining lugs are located in the slots in the retainer.

NOTE: Replace the element(s) with a genuine McCormick part.

STEP 4

Clean the filter housing before installing the new filter element(s). Secure in place and close the filter cover.

Routine Maintenance

2000 HOUR MAIN SERVICE

NOTE: Have your authorized McCormick dealer complete the 2000 Hour Main Service. The dealer engineer should complete the items in the 10 hour (or daily), 50, 100, 250 and 500 hour services and the items in the 1000 hour Main service plus the following.

Change Engine Coolant

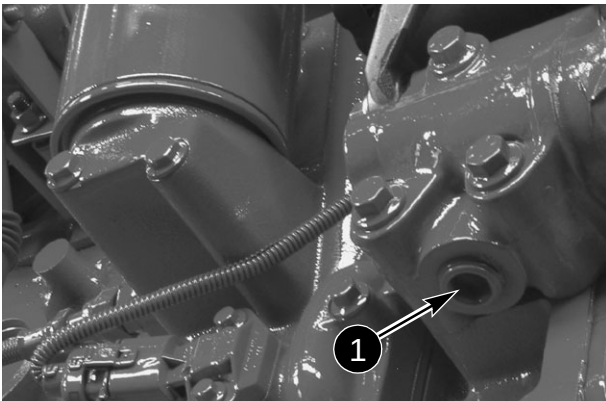
STEP 1

Remove the radiator cap slowly.



WARNING: Hot coolant can spray out if the coolant recovery reservoir cap or radiator cap is removed while system is hot. **DO NOT REMOVE RADIATOR CAP.** To remove the coolant recovery reservoir cap or radiator cap, let system cool, turn cap to first notch, then wait until all pressure is released. Scalding can result from fast removal of radiator cap.

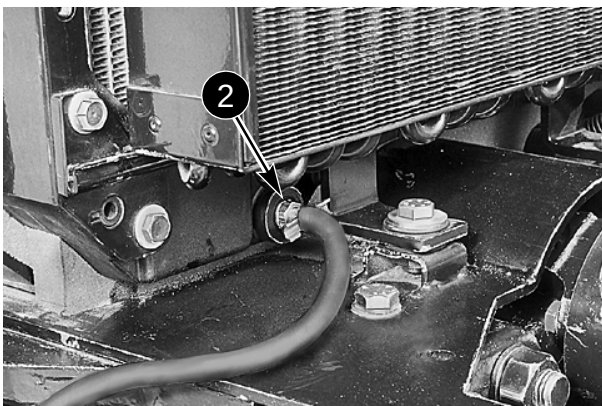
STEP 2



MD03D126

Put a suitable container under the engine block drain plug (1) (located in the water inlet housing) and remove plug.

STEP 3



DP97A098

Put a hose on the radiator drain valve (2) and open valve. Drain coolant into a suitable container.

IMPORTANT: Dispose of drained coolant responsibly. **DO NOT** pour on the ground or into a drain. Be responsible for the environment.

STEP 4

Close the radiator drain valve (2) and install the drain plug (1) when the system is empty.

STEP 5

Use a good quality radiator cleaner and fill the system. Follow the instructions given with the radiator cleaner to clean the system.

STEP 6

Remove the engine block drain plug and open the radiator drain valve. Flush the system with clean water to remove the radiator cleaner solution.

Allow cleaning solution to drain into suitable containers.

IMPORTANT: Dispose of the cleaning solution responsibly. **DO NOT** pour on the ground or into a drain. Be responsible for the environment.

STEP 7

Inspect the hoses and fittings for damage and leaks.

STEP 8

Install the engine block drain plug, close radiator drain valve and remove drain hose.

STEP 9

Fill the cooling system with the coolant solution as specified on the next page.

Start the engine and run at low idle for approximately 10 minutes.

Stop the engine and check the coolant level. Replenish as required.

Routine Maintenance

2000 HOUR MAIN SERVICE

Coolant Solution (Anti Freeze)

To prevent the coolant freezing in cold temperatures the cooling system is filled with an ethylene glycol/water coolant solution that has a low freezing point and a high boiling point.

IMPORTANT: *The heat generated by the diesel engine causes a natural change in the inhibitors in the coolant which results in loss of corrosion protection. The loss of the inhibitors may cause water pump cavitation and cylinder block erosion.*

Use only low silicate ethylene glycol coolant solution in the cooling system. Use a good quality, high boiling point, ethylene glycol that does not have any additives to stop leaks. The silicate content must not exceed 0.1 percent.

Do not use rust inhibitors that are not approved. It is possible that the rust inhibitors and ethylene glycol will not mix, and work against each other to decrease corrosion protection, form deposits in the cooling system and cause damage to the cooling system and the radiator.

Do not use a low boiling point, alcohol type coolant solution. Because the boiling point of alcohol is below the tractor minimum operating temperature, loss of coolant from evaporation will result.

IMPORTANT: *Always have a minimum of 33 percent ethylene glycol in the cooling system at all times and at all ambient temperature ranges. Never use a solution of more than 50 percent, unless the ambient temperature is below -37 degrees C (-34 F). More than 50% ethylene glycol decreases heat transfer and will increase the engine surface temperature to more than normal.*

Prepare the coolant solution as follows:

- A. Use clean water (distilled or deionized preferred).
- B. Mix the correct ratio of ethylene glycol and water to suit the market requirements.
- C. Fill the radiator and coolant recovery reservoir using the following procedure.

Fuel System General Inspection

Every 2000 hours of operation see your Dealer for an inspection of the fuel system and fuel injection nozzles. Also check the engine for needed general service or tune-up.

To prevent dirt or water from reaching the injection parts and causing damage and decreased performance, use clean fuel, keep the fuel tank full, drain any water from the fuel primary filter at regular intervals and service the filters.

Routine Maintenance

GENERAL MAINTENANCE

Air Conditioning System (If Equipped)



WARNING: Never attempt to open the air conditioning system. Liquid refrigerant can cause severe and painful frostbite. Contact your dealer, who is experienced in servicing and handling of refrigerants.

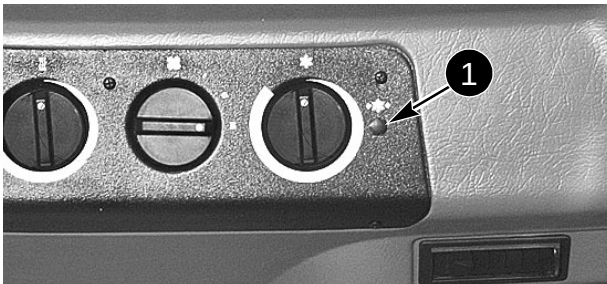
Compressor

During cold weather if the air conditioner has not been used for at least 30 days, operate the air conditioner for a period of 10 to 15 minutes, at an engine speed of 1500 rpm. This will lubricate the seals to prevent them becoming brittle and help prevent the loss of refrigerant from the system.

IMPORTANT: This tractor is equipped with HFC-134a refrigerant, which will not destroy the ozone layer. Never recharge the air conditioning system with refrigerant other than HFC-134a as this will result in loss of cooling and permanent damage to all air conditioning components.

System Check

Tractors equipped with a Standard Type Air Conditioning System



DD95M222

If the air conditioner indicator lamp (1) illuminates, check the following possible causes.

- A. Cold ambient temperature (turn thermostat switch or blower switch off then back on to desired setting).
- B. Restricted condenser.
- C. Restricted evaporator.

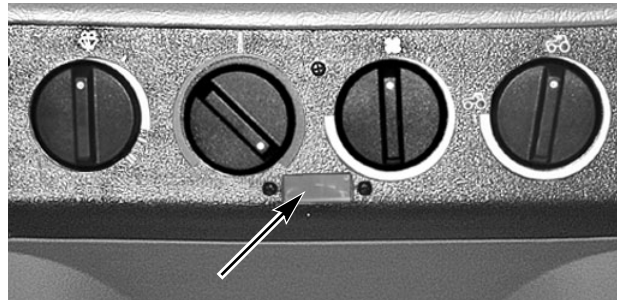
D. Low air flow (dirty filter or restriction).

See your dealer if problem continues.

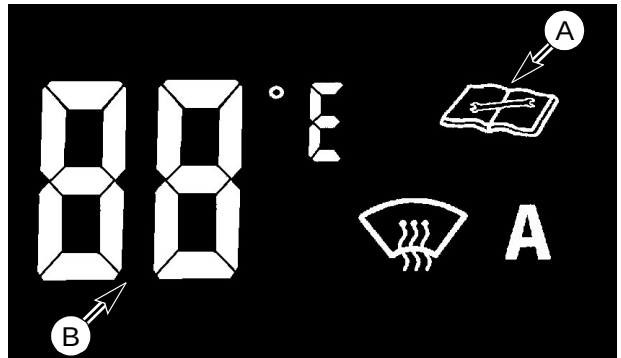
Rapid on/off illumination of the lamp indicates a problem with the system and if left could result in damage to the compressor clutch. If this occurs do not use the air conditioning until it has been serviced by your dealer.

System Diagnostics

Tractors equipped with Automatic Temperature Control Air Conditioning System



MS02J017



MS02J018

If the system fails to function correctly the service indicator (A) will illuminate and an error code will be displayed in the Temperature Setting Display (B).

NOTE: The display will alternate between the recorded error code and the temperature setting.

Report all error codes to your dealer.

Routine Maintenance

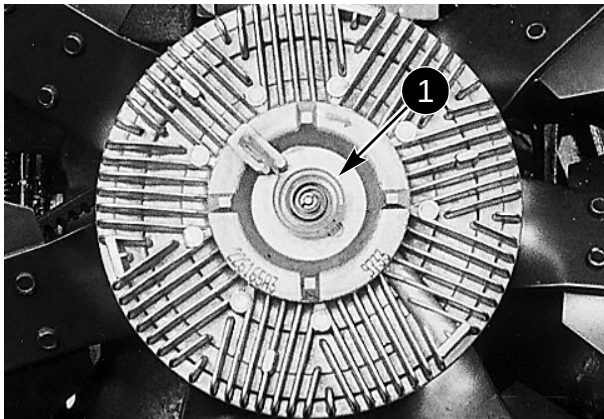
GENERAL MAINTENANCE

Hoses and Wiring

Check all hoses for damage and leakage. Check the hose clamps are tight, correct torque = 3.4 Nm.

Check all wiring for damage. If damage is found see your Dealer for replacement of parts or refrigerant.

Viscous Fan Drive



DP98E262

During cleaning and maintenance of the engine and radiator, be careful not to cause damage to the viscous fan drive.

DO NOT use steam or high pressure jets to clean the drive.

DO NOT restrict the fan blade rotation during engine operation.

DO NOT remove the bi-metal coil (1) on the front of the drive.

Check the fan and drive for external damage or erratic operation. See your dealer if service is required.

Clean the Operators Seat

Before removing stains, use a vacuum cleaner to remove loose dirt.

Find what type and how old the stains are. Some stains can be removed with water or soap solution.

CLEANER FLUID - This type of cleaner can be used for grease or oil stains, follow manufactures instructions.

FOAM CLEANER: This type of cleaner is good for all stains, follow manufactures instructions.



WARNING: Never use petroleum spirit, naphtha or any other volatile material for any cleaning purposes. These materials may be toxic and/or flammable.

NOTE: Do not make the material wet or clean with a hard brush. Clean with a damp cloth only. Immediately after the material is clean, dry the material with dry cloth.

Seat Belt Inspection and Maintenance (If Equipped)



WARNING: Securely fasten your seat belt. Your tractor is equipped with a ROPS cab or frame for your protection. The seat belt can help insure your safety if it is used and maintained. Never wear a seat belt loosely or with slack in the belt system. Never wear the belt in a twisted condition or pinched between the seat structural members.

- Keep sharp edges and items that can cause damage, away from the belt.
- From time to time, check belt, buckles and mounting bolts for damage.
- Replace all parts that are worn or damaged.
- Replace a belt that has cuts that can weaken the belt.
- Check that the bolts are tight on the seat bracket.
- Keep seat belt clean and dry.
- Clean belt only with a soap solution and warm water.
- Do not use bleach or dye on the belt because this can make the belt weak.

Routine Maintenance

GENERAL MAINTENANCE

PUTTING THE TRACTOR INTO STORAGE

Preparing the Tractor for Storage

When your tractor is not going to be used for some time, store the tractor in a dry protected place. Leaving your tractor outside, open to the weather, will shorten its life.

Follow the procedure below when your tractor is placed in storage for periods up to six months. See your dealer for the procedure on longer periods of storage.

STEP 1

Wash or clean and completely lubricate the tractor. See the Lubrication Section in this manual.

STEP 2

Clean the inside of the operators cab and instrument console.

STEP 3

Rodents can damage a tractor in storage. Rodents will eat plastic, insulation or rubber material. Clean the areas where rodents may nest. Leave access panels and doors open to remove convenient nesting pockets. In some conditions leaving moth balls will help discourage rats and mice.

STEP 4

Run the engine long enough to completely warm the oil in the crankcase before draining the oil. Remove and replace the oil filter as instructed. Fill the crankcase with fresh oil and run the engine for two to five minutes.

STEP 5

Open the drain on the fuel filter and drain the water and sediment before closing. Fill the fuel tank with a premium grade diesel fuel. If this fuel grade has not been used regularly, drain the fuel tank and fill with premium diesel fuel. Run the engine for five minutes to circulate the fuel through the fuel injection system.

STEP 6

Clean the engine air filter and body.

STEP 7

Drain, flush and fill the cooling system with the correct antifreeze mixture to protect the tractor to the lowest anticipated temperature.

STEP 8

The batteries do not need to be removed from the tractor, except for extended storage (more than 30 days) below freezing temperatures. The batteries must be fully charged to prevent freezing. Disconnect the negative (-) ground cable at the batteries to prevent possible discharge. Check the battery charge every 30 days.

STEP 9

Store the tractor where there is protection from sunlight. Clean the tires before storage. Support the tractor so that the load is off the tires. If the tractor is not supported, inflate the tires at regular intervals.

STEP 10

Coat all exposed cylinder rods with light grease to prevent rust.

Removing the Tractor from Storage

It is recommended that caution be used when starting an engine that has been in storage.

STEP 1

Open the fuel filter drain plug and remove contaminated fuel. Close the drain plug.

STEP 2

Check that the grade of oil in the engine crankcase is as specified in this Manual.

STEP 3

Check the coolant level in the reservoir and radiator.

STEP 4

Check that the batteries are fully charged.

Routine Maintenance

GENERAL MAINTENANCE

STEP 5

Connect the ground cable(s) (-) and tighten all terminals.

STEP 6

Check the transmission/hydraulic fluid level and linkages.

STEP 7

Check and adjust the tension on all drive belts.

STEP 8

Do not accelerate the engine rapidly, or operate at high RPM immediately after starting.

STEP 9

Inflate the tires to the correct operating pressures.

STEP 10

Make sure that all shields and guards are in the correct position.



WARNING: Before starting the engine, be sure all operating controls are in neutral and the park brake applied. This will eliminate accidental movement of the machine on start-up or power driven equipment.



WARNING: Do not operate the engine in a closed building. Proper ventilation is required under all circumstances.

Fire Prevention

Fire risks can be minimized by frequent removal of accumulated crop material, trash or debris from the machine.

Remove all crop material, trash or debris at the start of each working day. Take extra care to make sure the engine area and exhaust system are clean.

It is your responsibility to remove and/or clean your machine on a regular basis.

Fire risk can also be minimized by prompt repairing of leaks and cleaning up fuel and oil spills.

Engine fuel is flammable and can cause a fire or an explosion. DO NOT fill the fuel tank or service the fuel system near an naked flame, welding, burning cigars, cigarettes etc.

Sparks or flames can cause the hydrogen gas in a battery to explode. To prevent an explosion, do the following:

- When disconnecting the battery cables, disconnect the negative (-) cable first. When connecting the battery cables, connect the negative (-) cable last.
- When connecting jumper cables to start the engine, ONLY use the procedure shown on page 249 of this manual.
- DO NOT short circuit the battery posts with metal items.
- DO NOT weld, grind or smoke near a battery.

Check the electrical system for loose connections or frayed insulation. Repair or replace the loose or damaged parts.

Electrical System

Chapter 8 Electrical System

8

Electrical System

BATTERIES



WARNING: Battery explosion and/or damage to electrical components can result from improper connection of booster batteries or charger. Connect positive to positive and negative to negative. Externally, battery acid can cause burns and blindness, and taken internally is poison.

Keep the batteries in good operating condition as follows:

- Keep the batteries clean and dry, and the vents clear.
- Make sure the batteries are fastened securely in position. Do not over tighten the clamps.
- **LOW MAINTENANCE BATTERIES** - Add distilled water as needed to keep separators under water. Before you add water, check each cell with a hydrometer. The specific gravity in each cell must indicate a full charge of 1.270 SG.

NOTE: Cold temperatures of approximately -18°C will cause freezing of a battery with specific gravity of 1.175 SG.

Keep the batteries fully charged. Charge at the lowest rate possible to reduce gas formation. If a battery will not keep a charge, install a new battery that has the specifications given in 'Specifications' section.



WARNING: Do not charge a frozen battery, it can explode, causing serious injury.

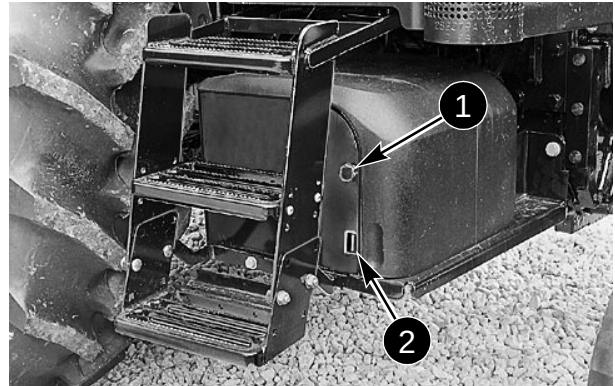
When Batteries Are Not In Use

When the tractor is not in use, the batteries will need a charge every six weeks to keep the specific gravity at or above 1.270 SG. Storage batteries not in use will slowly discharge. A battery that has discharged can freeze at low ambient temperatures and cause damage to the battery and tractor.

NOTE: Discarding old batteries can cause an environmental liability. Check with your local environmental or recycling center or your dealer for the correct disposal information.

Removal and Installation of Batteries

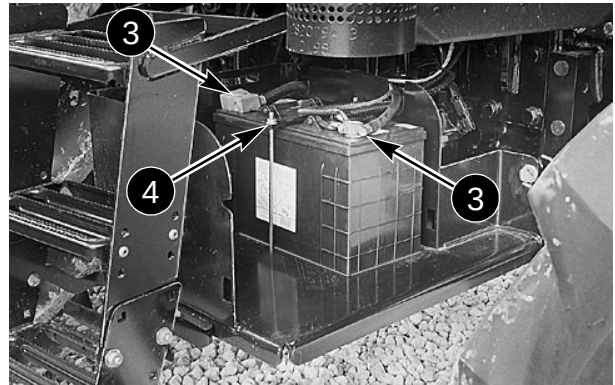
STEP 1



DP98F302

Loosen the battery box lid screw (1), press the locking tab (2) in and lift the lid clear.

STEP 2



DP98J247

To remove batteries (2 batteries are available) disconnect the battery cables (3) and remove the battery retaining bracket (4). When the batteries are installed, make sure the cables are connected to the correct terminals. The electrical system is 12 volt, **negative ground**.

IMPORTANT: Always disconnect the ground cable first and connect the ground cable last to prevent sparks. Do not start or operate the engine with the electrical system not completely connected.

NOTE: The batteries can be disconnected without affecting any programmed or stored information in the digital instrument cluster. When the batteries are connected again the instrument cluster will remember and use all stored information such as Tire Size Code Number, etc.

Electrical System

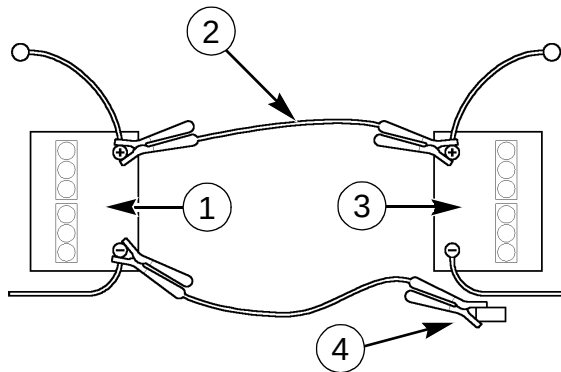
Connecting a Booster Battery

IMPORTANT: When connecting a booster battery to the tractor battery(s), make sure the batteries are the same voltage (i.e. 12 Volt) and the electrolyte is at the correct level. **DO NOT** connect auxiliary battery cables across the terminals of the starter. Always start the engine from the operator's seat.



WARNING: Always connect the ground cable last and disconnect the ground cable first so you do not cause a spark at the battery. A spark can cause a battery explosion and cause injury.

Procedure



DI98J017

- | | |
|--------------------|--------------------|
| 1. BOOSTER BATTERY | 3. TRACTOR BATTERY |
| 2. POSITIVE CABLE | 4. NEGATIVE CABLE |

STEP 1

Position the machine with the booster battery next to the tractor so that the booster cables can be connected easily. **MAKE SURE THE MACHINES ARE NOT TOUCHING.**

STEP 2

Turn off all electrical components on both machines.

STEP 3

Connect the booster battery positive (+) to the tractor battery positive (+) and the negative (-) to a good ground on the tractor frame, not to the tractor battery terminal.

STEP 4

Start the engine of the machine with the booster battery and run the engine for approximately 2 minutes.

STEP 5

Start the tractor engine. See correct procedure in this manual.

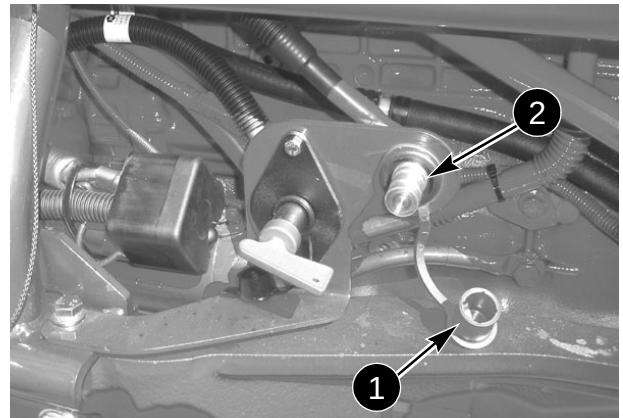
STEP 6

When the tractor engine has started, disconnect the negative booster cable from the tractor frame and the booster battery negative first, then the positive cable from the tractor battery and the booster battery.

Auxiliary Battery Terminal (If Equipped)

Remove the red protection cap (1), from the positive terminal (2); and connect the positive (red) cable clamp from the auxiliary battery to the terminal.

Connect the negative (black) cable clamp from the auxiliary battery to a good ground on the tractor frame.



MD05F176

Install the red protection cap on the positive terminal after the starting operation has been completed.

Electrical System

Battery System Servicing

Follow these general rules to prevent damage to the electrical system.

- Before working on the electrical system, disconnect the battery cables, ground cable first, or turn off the master switch (if equipped) and remove the key.
- Do not make a reverse battery connection.
- When you use an auxiliary battery for starting, connect negative (-) to negative (-) and positive (+) to positive (+). Use the auxiliary battery connections provided on the tractor (if equipped). See Auxiliary Battery Connections in this manual.
- When charging the tractor batteries, use the auxiliary battery connections on the tractor (if equipped). Do not attach directly to the battery terminals. Do not use a battery charging machine for starting the tractor.
- Never operate the tractor when the battery cables are disconnected.
- When you carry out maintenance on the engine, cover the alternator to prevent foreign material from entering.
- If electric welding is necessary, do the following to protect the electrical components:
 - A. disconnect the battery(s) or turn off the master switch (if equipped).
 - B. disconnect the instrument cluster harness.
 - C. disconnect the powershift controller (if equipped).
 - D. disconnect the alternator.

Put the welding equipment ground cable as close as you can to the weld area.

Do not put the ground cable where the current can flow through bearings or along channels with wiring harnesses.

Electrical System

FUSE LOCATION AND IDENTIFICATION

The fuses give protection to the electrical circuits of the engine, the tractor and cab.

IMPORTANT: Make sure the new fuse has the same ampere rating as the fuse being replaced.

Engine Fuses



MD06E096

The engine is protected by separate fuses located under the hood towards the rear of the engine.

To service the engine fuses it will be necessary to raise the hood.

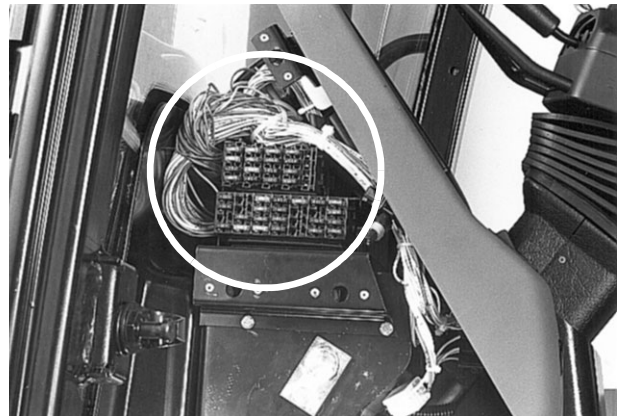
To replace a fuse, remove the fuse cover, pull the fuse out of the clips and push a new fuse in.

NOTE: The number of engine fuses depends on engine type, ie

tier II engines: two fuses (1 x 20 amp, 1 x 10 amp)

tier III engines: three fuses (1 x 20 amp, 2 x 10 amp)

Main Tractor Fuses



RP95F100

To service the fuses remove the left hand side panel from the front console.

To replace a fuse, pull the fuse out of the clips and push a new fuse in.

Main Tractor Fuse Identification Table

41	42	43	44
37	38	39	40
33	34	35	36
29	30	31	32

22	23	24	25	26	27	28
15	16	17	18	19	20	21
8	9	10	11	12	13	14
1	2	3	4	5	6	7

Electrical System

XTX145 and XTX165 Tractors

Fuse No	Circuit	Amps
1	Instrument Cluster (Switched B+)	7.5
2	Cab Controller (Switched B+)	7.5
3	Transmission Controller (Switched B+)	7.5
4	Interior Light, Radio, Suspended Axle, Clock (Unswitched B+)	7.5
5	Accessory, Instrument Cluster, Radio	7.5
6	Turn Signal Lights (North American) / Left Hand Position Lights (Rest of World)	10
7	Not Used (North American) / Right Hand Position Lights (Rest of World)	10
8	Front Console Auxiliary Connector (Battery B+)	30
9	Warning Lights (North American) / Not Used (Rest of World)	5
10	Not Used	-----
11	Headlight (High Beam)	15
12	Headlight (low Beam) (Circuit Breaker)	15
13	Not Used (North American) / Rear Fog Light (Rest of World)	15
14	Not Used	-----
15	Loader Control, Seat	15
16	MFD, Diff Lock	10
17	Auxiliary Valve Controller (Switched B+)	7.5
18	Front PTO	10
19	Independent Front Suspension Axle Controller (Switched B+)	10
20	Brake Lights	20
21	Not Used	-----
22	Electronic Hitch (Switched B+)	7.5
23	Not Used (North American) / Rotating Beacon (Rest of World)	20
24	Rear PTO (Switched B+)	7.5
25	Front Windscreen Wiper/Washer (Circuit Breaker)	15
26	Rear Windscreen Wiper/Washer	15
27	7 Pole Connector (Switched B+)	30
28	Right Hand Console And Front Console Auxiliary Connector (Switched B+)	30
29	Cigar Lighter, Diagnostic Connector	10
30	Turn Signal Lights (North American) / Hazard Warning Light Switch (Rest of World)	15
31	Right Hand Console Auxiliary Connector (Battery B+)	30
32	Flasher Unit (North American) / Turn Signal Lights (Rest of World)	15
33	Cab Upper Work Lights - Front Right	20
34	Cab Controller (Unswitched B+)	7.5
35	Cab Upper Work Lights - Rear Right	20
36	Implement Interface Connector (Unswitched B+)	10
37	Front Lower Work Lights	25
38	Auxiliary Valve Controller (Unswitched B+)	7.5
39	Cab Upper Work Lights - Front Left	20
40	Not Used	-----
41	Rear Fender Work Lights	15
42	Horn	15
43	Transmission Controller (Unswitched B+)	7.5
44	Cab Upper Work Lights - Rear Left	20

NOTE: Locations 12 and 25 are mini circuit breakers, which will reset automatically.

Electrical System

XTX185, XTX200 and XTX215 North American Tractors

Fuse No	Circuit	Amps
1	Horn	15
2	Front Lower Work Lights	25
3	Cab Roof Work Lights - Rear Left (Circuit Breaker)	25
4	Rear Fender Work Lights	15
5	Transmission Controller	7.5
6	Tail Stop Lamps	10
7	Not Used	-----
8	Loader Control, Seat	15
9	Cab Roof Work Lights - Rear Right (Circuit Breaker)	25
10	Grille Headlight (Low Beam) (Circuit Breaker)	10
11	Not Used	-----
12	Cab Roof Work Lights - Front Left (Circuit Breaker)	25
13	Grille Headlight (High Beam)	10
14	Not Used	-----
15	Cab Roof Head Lights (Low Beam)	15
16	Implement Interface Connector (Unswitched B+)	10
17	Flasher Unit	15
18	Turn Signal Lights	15
19	Warning Lights	5
20	Auxiliary Valve Controller (Unswitched B+)	7.5
21	Not Used	-----
22	Not Used	-----
23	# Engine Controller	20
	Not Used	-----
24	Brake Lights	20
25	Instrument Cluster Switched Power	7.5
26	MFD, Diff Lock	30
27	Cab Controller, Electronic Hitch (Switched B+)	7.5
28	Independent Front Suspension Axle Controller, Cab Suspension (Switched B+)	10
29	7 Pole Connector (Switched B+)	30
30	Right Hand Console And Front Console Auxiliary Connector (Switched B+)	30
31	Rear Windscreen Wiper/Washer	15
32	Front Windscreen Wiper/Washer (Circuit Breaker)	15
33	Rear PTO (Switched B+)	7.5
34	Transmission Controller (Switched B+)	7.5
35	Auxiliary Valve Controller (Switched B+)	7.5
36	Front PTO	10
37	Interior Light, Radio, Suspended Axle, Clock (Unswitched B+)	7.5
38	Cab Controller (Unswitched)	7.5
39	Cigar Lighter, Diagnostic Connector	10
40	Accessory, Instrument Cluster, Radio	7.5
41	Right Hand Console Auxiliary Connector (Battery B+)	30
42	Front Console Auxiliary Connector (Battery B+)	30
43	# Electronic Hitch (Unswitched B+)	7.5
	Not Used	-----
44	Cab Roof Work Lights - Front Right (Circuit Breaker)	25

NOTE: Early production tractors.

NOTE: Locations 3, 9, 10, 12, 32 and 44 are mini circuit breakers, which will reset automatically.

Electrical System

XTX185, XTX200, XTX215 Rest of World Tractors

Fuse No	Circuit	Amps
1	Horn	15
2	Front Lower Work Lights	25
3	Cab Roof Work Lights - Rear Left (Circuit Breaker)	25
4	Rear Fender Work Lights	15
5	Transmission Controller	7.5
6	Left Hand Position Lights	10
7	Right Hand Position Lights	10
8	Loader Control, Seat	15
9	Cab Roof Work Lights - Rear Right (Circuit Breaker)	25
10	Grille Headlight (Low Beam) (Circuit Breaker)	10
11	Rear Fog Light	15
12	Cab Roof Work Lights - Front Left (Circuit Breaker)	25
13	Grille Headlight (High Beam)	10
14	Not Used	-----
15	Cab Roof Head Lights (Low Beam)	15
16	Implement Interface Connector (Unswitched B+)	10
17	Not Used	-----
18	Hazard Warning Light Switch	15
19	Not Used	-----
20	Auxiliary Valve Controller (Unswitched B+)	7.5
21	Turn Signal Lights	15
22	Rotating Beacon	15
23	# Engine Controller	20
	Not Used	-----
24	Brake Lights	20
25	Instrument Cluster Switched Power	7.5
26	MFD, Diff Lock	30
27	Cab Controller, Electronic Hitch (Switched B+)	7.5
28	Independent Front Suspension Axle Controller, Cab Suspension (Switched B+)	10
29	7 Pole Connector (Switched B+)	30
30	Right Hand Console And Front Console Auxiliary Connector (Switched B+)	30
31	Rear Windscreen Wiper/washer	15
32	Front Windscreen Wiper/washer (Circuit Breaker)	15
33	Rear PTO (Switched B+)	7.5
34	Transmission Controller (Switched B+)	7.5
35	Auxiliary Valve Controller (Switched B+)	7.5
36	Front PTO	10
37	Interior Light, Radio, Suspended Axle, Clock (Unswitched B+)	7.5
38	Cab Controller (Unswitched)	7.5
39	Cigar Lighter, Diagnostic Connector	10
40	Accessory, Instrument Cluster, Radio	7.5
41	Right Hand Console Auxiliary Connector (Battery B+)	30
42	Front Console Auxiliary Connector (Battery B+)	30
43	# Electronic Hitch (Unswitched B+)	7.5
	Not Used	-----
44	Cab Roof Work Lights - Front Right (Circuit Breaker)	25

NOTE: Early production tractors.

NOTE: Locations 3, 9, 10, 12, 32 and 44 are mini circuit breakers, which will reset automatically.

Technical Specifications

Chapter 9 Technical Specifications

9

Technical Specifications

DIESEL ENGINE

Type

XTX145 to XTX215..... McCormick β -power (24 Valve), 6.7 Litre - Six Cylinder, Turbo Charged
XTX215 (early production)..... Cummins QSB, 5.9 Litre - Six Cylinder, Turbo Charged

Engine High Idle Speed, (Bare Engine) 2300 rpm

Rated Engine Speed 2200 rpm

Engine Low Idle Speed, (Bare Engine) 850 rpm

Air Intake System

Type Two Stage, Dry Type Air Induction System

Engine Cooling System

System Type Pressure System, Thermostat Controlled Bypass,
and Impeller Type Pump

Radiator Heavy Duty, Fin and Tube Type

Thermostat Operation

XTX145 to XTX215 β -power Starts to Open at Approximately 83°C, Fully Open at 95°C

XTX215 Cummins Starts to Open at Approximately 83°C, Fully Open at 91°C

Radiator Cap Pressure 1.1 bar (14.5 psi)

Fan Drive Viscous

Engine Lubrication System

Oil Pressure (At Rated Speed)

XTX145 to XTX215 β -power 3.5 bar (50 psi)

XTX215 Cummins 4.5 bar (65 psi)

Oil Filter (1) Full Flow, Turn on Type Bypass Valve in Oil Cooler Cover

Oil Cooler Cooled by Engine Coolant

Engine Fuel System

Fuel Injection Pumps Bosch

Fuel Pump Static Timing Refer to Service Manual or See your Dealer

Fuel Injectors Bosch

Fuel Primer Pump Low Pressure Gear Pump in the High Pressure Injection Pump

Governor Governed by Electronic Control Unit (ECU)

Fuel Filter Full Flow

Fuel Tank Capacity

XTX145 and XTX165 300 Litres (79.25 US gal)

XTX185 to XTX215 347 Litres (91.7 US gal)

Technical Specifications

ELECTRICAL SYSTEM

General Specifications

Type of System 12 Volt, Negative Ground
Batteries One or Two 12 Volt, Low Maintenance Hybrid Batteries
Connected in Parallel, DIN Type 60527,
Taper Post Terminals

TYPE	SAE (COLD CRANKING CAPACITY)	IEC	DIN	AMPERE HOURS	RESERVE CAPACITY
629	1000 Amps	670 Amps	600 Amps	170	320 mins
644	660 Amps	440 Amps	400 Amps	95	180 mins
664	770 Amps	515 Amps	465 Amps	105	210 mins
648	810 Amps	545 Amps	490 Amps	120	220 mins

Alternator..... 12 Volt, 120 Amp
Voltage Regulator..... 12 Volt, Solid State, Part of Alternator
Starter Motor, with Solenoid Switch..... 12 Volt, 2.8 kW

Accessory Connectors

7 Terminal Electrical Outlet Equipped for Directional Turn Lamps,
Stop lamps, Tail Lamps
Single Auxillary Socket
(next to 7 Terminal Socket) 12 Volt Power
for Implements with Circuit Protection
3 Pin Cab Connector..... 12 Volt Power Through Key Switch
and also Direct with Ground for
Implement Controllers and Monitors

Technical Specifications

GENERAL MACHINE

Brakes

Brake Type.....Hydraulic, Self-Adjusting,
Three Wet Plate Type Differential Brakes
Trailer BrakeHydraulic, or Air System with one and two lines

Differential Lock

Lock Type Multi Disc
Control Electro-hydraulic by a Switch on Side Console

Drawbar and Auto Hitch

Standard Drawbar or Yoke Type Full Swing, Slide Mount, Takes
a 30 mm Diameter pin

Maximum Static Vertical Loads:

Rest of World Tractors

XTX145 and XTX165
400 mm (15.7 in) Position 1800 kg (3970 lb)
450 mm (17.7 in) Position 1509 kg (3327 lb)
550 mm (21.7 in) Position 1140 kg (2513 lb)
650 mm (25.6 in) Position 916 kg (2020 lb)
XTX185 to XTX215
300 mm (11.8 in) Position 2130 kg (4700 lb)
400 mm (15.7 in) Position 1800 kg (3970 lb)
550 mm (21.7 in) Position 1140 kg (2513 lb)

North American Tractors

ALL models
350 mm (13.8 in) Position 2146 kg (4731 lb)
400 mm (15.7 in) Position 1803 kg (3975 lb)
500 mm (19.7 in) Position 1366 kg (3011 lb)
600 mm (23.6 in) Position* 1100 kg (2425 lb)

* NOTE: 600mm Position NOT available on XTX185, XTX200 and XTX215 Tractors.

Auto Hitch Maximum Vertical Loads:

Hook 3000 kg (6614 lb)
Drawbar, Retracted 1800 kg (3970 lb)
Extended 1400 kg (3086 lb)

Height Adjustable Hitches

Maximum Vertical Load 2000 kg (4409 lb)
Piton-Fixe 3000 kg (6614 lb)

IMPORTANT: The maximum loads stated for all the above hitch types may vary depending upon restrictions due to capacity of rear tyres fitted and/or legal requirements.

Technical Specifications

Hydrostatic Power Steering

Type Priority on Demand from Axial Piston Pump
Steering PumpHydrostatic Type, Actuated by the Steering Wheel
Steering Cylinder.....Double action

Front Axle Differential and Planetaries

Axle Type Hypoid with planetary reduction in hubs
Inter Axle Ratio
MFD Axle1:1.32
Independent Front Suspension Axle.....1:1.31

Transmission

Transmission 30, 40 or 50 km/h options
(Subject to Market and Availability)
Variant Mechanical or Electronic
Regular Speeds 32 Forward and 24 Reverse
Creep Speeds (If Equipped)..... 48 Forward and 40 Reverse
Oil CoolerTransmission/Hydraulic Fluid

Front Hitch System (If Equipped)

Valve Type Four Position -Float, Lift, Hold and Lower
Type of Lower LinksClaw Ends, Fixed
Type of Hitch Three Point, Category IIIN
Lift Capacity,
at 610 mm in front of the lift point..... 3500 kg (7716 lb)

Rear Hitch System

Type of Sensing Lower Links
Type of Lower Links Eye or Claw Ends, Fixed or Telescoping
Type of Hitch Three Point, Category II / IIIN / III
Maximum Lift Capacity
XTX145 and XTX165..... 8000 kg (17 637 lb)
XTX185 to XTX215..... 10 950 kg (24 140 lb)
Lift Capacity (at 610mm in front of the lift point)
XTX145 and XTX165.....6600 kg (14 550 lb)
XTX185 to XTX215.....8060 kg (17 769 lb)

Technical Specifications

Remote Hydraulic System

Pump	Axial Piston Pump, Pressure and Flow Compensated
Remote Valve.....	Closed Center, One to Four Sections, 1st Section Priority, with Load Check on 'B' Port, (Raise) Variable Flow Control for Each Section
Valve Type	Four Position - Raise, Hold, Lower and Float
Pump Capacity @ 2200 Engine rpm	
XTX145 and XTX165.....	110 Litres/min (29 US gal/min)
XTX185 to XTX215	
Standard Capacity Pump	129 Litres/min (34 US gal/min)
High Capacity Pump	163 Litres/min (43 US gal/min)
Maximum System Pressure	206 bar (2988 psi)
Couplings.....	ISO and ASAE approved, Breakaway

Front Power Takeoff (If equipped)

PTO Type.....	Independent of Transmission
Clutch Type	Hydraulic Actuated
Rotation	
Depending upon Market Requirements	Clockwise or Counterclockwise (from front of tractor)
Output Shaft Size.....	6 Splines, 34.925 mm (1.375 inch) Diameter Optional Splines, 34.925 mm (1.375 inch) Diameter (Subject to Market)
PTO Speed	1000 rpm
Engine Speed for 1000 PTO Speed	1920 rpm

Rear Power Takeoff

PTO Type.....	Independent of Transmission
Clutch Type	Multi Disc, Hydraulically Actuated
Rotation.....	Clockwise from Rear of Tractor
Output Shaft Size,	6 Splines, 35 mm (1.375 inch) Diameter 21 Splines, 35 mm (1.375 inch) Diameter 20 Splines, 44.5 mm (1.75 inch) Diameter (Optional)
Engine Speed	
540 PTO Speed	1860 rpm
540E (Economy) PTO Speed	1625 rpm
1000 PTO Speed	2025 rpm

IMPORTANT: When using the 540 or 540E rpm PTO driveline do not attach implements that require more than 56 kW (75 hp) to operate. Implements that require more than 56 kW (75 hp) should only be attached to the 1000 rpm PTO driveline.

Technical Specifications

TRAVEL SPEEDS

IMPORTANT: The following travel speeds are only an approximate guide, and are calculated at 2200 rpm engine speed. Speeds will vary according to make of tyre, tyre pressure and tyre wear. No allowance is made for wheel slip.

NOTE: On specific tractors the 4th Range travel speeds are either mechanically (gears "locked out") or electronically (via software) governed and therefore will not allow certain travel speeds or will reduce travel speeds to keep within legal parameters.

XTX145, XTX165 Transmission Regular FORWARD Speeds - km/h

RANGE - P/SHIFT GEAR	REAR TYRE SIZES and (INDEX RADIUS mm)					
	16.9R38 540/65R38 420/85R38 (745)	18.4R38 460/85R38 (820)	20.8R38 580/70R38 620/70R38 650/65R38 (855)	18.4R42 460/85R42 (870)	650/65R42 710/70R38 (905)	20.8R42 520/85R42 (920)
1-1	1.58	1.74	1.82	1.85	1.92	1.95
1-2	1.86	2.04	2.13	2.17	2.26	2.29
1-3	2.18	2.40	2.50	2.54	2.65	2.69
1-4	2.55	2.81	2.93	2.98	3.10	3.15
1-5	3.02	3.33	3.47	3.53	3.67	3.73
1-6	3.55	3.90	4.07	4.14	4.31	4.38
1-7	4.16	4.58	4.77	4.86	5.05	5.13
1-8	4.87	5.36	5.59	5.69	5.92	6.02
2-1	3.39	3.73	3.89	3.96	4.12	4.19
2-2	3.98	4.38	4.57	4.65	4.83	4.91
2-3	4.67	5.14	5.36	5.45	5.67	5.76
2-4	5.47	6.02	6.28	6.39	6.64	6.75
2-5	6.48	7.13	7.43	7.56	7.87	8.00
2-6	7.60	8.36	8.72	8.87	9.23	9.38
2-7	8.91	9.81	10.22	10.40	10.82	11.00
2-8	10.44	11.49	11.98	12.19	12.68	12.89
3-1	6.79	7.47	7.79	7.93	8.24	8.38
3-2	7.96	8.76	9.14	9.30	9.67	9.83
3-3	9.34	10.28	10.72	10.90	11.34	11.53
3-4	10.94	12.04	12.56	12.78	13.29	13.51
3-5	12.96	14.26	14.87	15.13	15.74	16.00
3-6	15.20	16.73	17.45	17.75	18.47	18.77
3-7	17.83	19.62	20.46	20.82	21.65	22.01
3-8	20.89	22.99	23.97	24.39	25.37	25.79
4-1	14.21	15.64	16.31	16.60	17.26	17.55
4-2	16.67	18.35	19.14	19.47	20.25	20.59
4-3	19.55	21.52	22.44	22.83	23.75	24.15
4-4	22.91	25.22	26.29	26.76	27.83	28.29
4-5	27.13	29.86	31.14	31.68	32.96	33.51
4-6	31.83	35.04	36.53	37.17	38.67	39.31
4-7	37.33	41.09	42.84	43.59	45.34	46.10
4-8	43.74	48.14	50.20	51.08	53.13	54.01

REGULAR FORWARD SPEEDS

To convert to M.P.H. multiply km/h values by 0.62.

Technical Specifications

XTX145, XTX165 Transmission Regular REVERSE Speeds - km/h

RANGE - P/SHIFT GEAR	REAR TYRE SIZES and (INDEX RADIUS mm)					
	16.9R38 540/65R38 420/85R38 (745)	18.4R38 460/85R38 (820)	20.8R38 580/70R38 620/70R38 650/65R38 (855)	18.4R42 460/85R42 (870)	650/65R42 710/70R38 (905)	20.8R42 520/85R42 (920)
1-1	1.91	2.10	2.19	2.23	2.32	2.35
1-2	2.24	2.46	2.57	2.61	2.72	2.76
1-3	2.62	3.2.89	3.01	3.06	3.19	3.24
1-4	3.07	3.38	3.53	3.59	3.73	3.79
1-5	3.64	4.01	4.18	4.25	4.42	4.49
1-6	4.27	4.70	4.90	4.99	5.19	5.27
1-7	5.01	5.51	5.75	5.85	6.08	6.18
1-8	5.87	6.46	6.73	6.85	7.13	7.24
2-1	4.08	4.50	4.69	4.77	4.96	5.04
2-2	4.79	5.27	5.50	5.60	5.82	5.92
2-3	5.62	6.18	6.45	5.56	6.83	6.94
2-4	6.58	7.25	7.56	7.69	8.00	8.13
2-5	7.80	8.58	8.95	9.11	9.47	9.63
2-6	9.15	10.07	10.50	10.68	11.11	11.30
2-7	10.73	11.81	12.31	12.53	13.03	13.25
2-8	12.57	13.84	14.43	14.68	15.27	15.52
3-1	8.17	8.99	9.38	9.54	9.93	10.09
3-2	9.59	10.55	11.00	11.20	11.65	11.84
3-3	11.24	12.37	12.90	13.13	13.66	13.88
3-4	13.17	14.50	15.12	15.38	16.00	16.27
3-5	15.60	17.17	17.90	18.22	18.95	19.27
3-6	18.30	20.15	21.01	21.37	22.23	22.60
3-7	21.46	23.62	24.63	25.06	26.07	26.51
3-8	25.15	27.68	28.86	29.37	30.55	31.06
4-1	17.11	18.84	19.64	19.98	20.79	21.13
4-2	20.08	22.10	23.04	23.45	24.39	24.79
4-3	23.54	25.91	27.02	27.49	28.60	29.07
4-4	27.59	30.36	31.66	32.22	33.51	34.07
4-5	32.67	35.96	37.49	38.15	39.69	40.34
4-6	38.33	42.19	43.99	44.76	46.56	47.33
4-7	44.95	49.47	51.58	52.49	54.60	55.50
4-8	52.67	57.97	60.44	61.50	63.98	65.04

REGULAR REVERSE SPEEDS

To convert to M.P.H. multiply km/h values by 0.62.

Technical Specifications

XTX185, XTX200, XTX215 Transmission Regular FORWARD Speeds - km/h

RANGE - P/SHIFT GEAR	REAR TYRE SIZES and (INDEX RADIUS mm)				
	18.4R38 460/85R38 (820)	20.8R38 580/70R38 620/70R38 650/65R38 (855)	18.4R42 460/85R42 (870)	650/65R42 710/70R38 (905)	20.8R42 520/85R42 (920)
1-1	1.61	1.68	1.71	1.77	1.80
1-2	1.89	1.97	2.00	2.08	2.12
1-3	2.21	2.31	2.35	2.44	2.48
1-4	2.59	2.70	2.75	2.86	2.91
1-5	3.07	3.20	3.26	3.39	3.44
1-6	3.60	3.76	3.82	3.98	4.04
1-7	4.22	4.40	4.48	4.66	4.74
1-8	4.95	5.16	5.25	5.46	5.55
2-1	3.45	3.59	3.66	3.80	3.87
2-2	4.04	4.22	4.29	4.46	4.54
2-3	4.74	4.94	5.03	5.23	5.32
2-4	5.56	5.79	5.89	6.13	6.23
2-5	6.58	6.86	6.98	7.26	7.38
2-6	7.72	8.05	8.19	8.52	8.66
2-7	9.05	9.44	9.60	9.99	10.16
2-8	10.61	11.06	11.25	11.71	11.90
3-1	6.90	7.19	7.32	7.61	7.74
3-2	8.09	8.44	8.58	8.93	9.08
3-3	9.49	9.89	10.07	10.47	10.64
3-4	11.12	11.59	11.79	12.27	12.47
3-5	13.16	13.73	13.97	14.53	14.77
3-6	15.44	16.10	16.39	17.05	17.33
3-7	18.11	18.88	19.22	19.99	20.32
3-8	21.22	22.13	22.52	23.42	23.81
4-1	14.44	15.06	15.32	15.94	16.20
4-2	16.94	17.66	17.97	18.70	19.01
4-3	19.87	20.71	21.08	21.92	22.29
4-4	23.28	24.27	24.70	25.69	26.12
4-5	27.57	28.74	29.25	30.42	30.93
4-6	32.34	33.72	34.31	35.69	36.29
4-7	37.93	39.54	40.24	41.86	42.55
4-8	43.43	45.28	46.08	47.93	48.73

REGULAR FORWARD SPEEDS

To convert to M.P.H. multiply km/h values by 0.62.

Technical Specifications

XTX185, XTX200, XTX215 Transmission Regular REVERSE Speeds - km/h

RANGE - P/SHIFT GEAR	REAR TYRE SIZES and (INDEX RADIUS mm)				
	18.4R38 460/85R38 (820)	20.8R38 580/70R38 620/70R38 650/65R38 (855)	18.4R42 460/85R42 (870)	650/65R42 710/70R38 (905)	20.8R42 520/85R42 (920)
1-1	1.94	2.02	2.05	2.14	2.17
1-2	2.27	2.37	2.41	2.51	2.55
1-3	2.66	2.78	2.83	2.94	2.99
1-4	3.12	3.26	3.31	3.45	3.50
1-5	3.70	3.85	3.92	4.08	4.15
1-6	4.34	4.52	4.60	4.79	4.87
1-7	5.09	5.30	5.40	5.61	5.71
1-8	5.96	6.21	6.32	6.58	6.69
2-1	1.94	2.02	2.05	2.14	2.17
2-2	2.27	2.37	2.41	2.51	2.55
2-3	5.71	5.95	6.06	6.30	6.41
2-4	6.69	6.98	7.10	7.38	7.51
2-5	7.92	8.26	8.41	8.74	8.89
2-6	9.29	9.69	9.86	10.26	10.43
2-7	10.90	11.36	11.56	12.03	12.23
2-8	12.77	13.32	13.55	14.09	14.33
3-1	8.30	8.66	8.81	9.21	9.32
3-2	9.74	10.16	10.32	10.76	10.93
3-3	11.42	11.91	12.12	12.61	12.82
3-4	13.38	13.96	14.20	14.77	15.02
3-5	15.85	16.53	16.82	17.49	17.78
3-6	18.60	19.39	19.73	20.52	20.86
3-7	21.81	22.74	23.14	24.07	24.47
3-8	25.55	26.64	27.11	28.20	28.67
4-1	17.39	18.13	18.45	19.32	19.51
4-2	N/A	N/A	N/A	N/A	N/A
4-3	N/A	N/A	N/A	N/A	N/A
4-4	N/A	N/A	N/A	N/A	N/A
4-5	N/A	N/A	N/A	N/A	N/A
4-6	N/A	N/A	N/A	N/A	N/A
4-7	N/A	N/A	N/A	N/A	N/A
4-8	N/A	N/A	N/A	N/A	N/A

REGULAR REVERSE SPEEDS

To convert to M.P.H. multiply km/h values by 0.62.

Technical Specifications

Creeper FORWARD Speeds (All transmission Options) - km/h

RANGE - P/SHIFT GEAR	REAR TYRE SIZES and (INDEX RADIUS mm)				
	18.4R38 460/85R38 (820)	20.8R38 580/70R38 620/70R38 650/65R38 (855)	18.4R42 460/85R42 (870)	650/65R42 710/70R38 (905)	20.8R42 520/85R42 (920)
1-1	0.30	0.31	0.32	0.33	0.34
1-2	0.35	0.37	0.37	0.39	0.40
1-3	0.41	0.43	0.44	0.46	0.46
1-4	0.48	0.50	0.51	0.53	0.54
1-5	0.57	0.60	0.61	0.63	0.64
1-6	0.67	0.70	0.71	0.74	0.75
1-7	0.79	0.82	0.84	0.87	0.88
1-8	0.92	0.96	0.98	1.02	1.04
2-1	0.64	0.67	0.68	0.71	0.72
2-2	0.75	0.79	0.80	0.83	0.85
2-3	0.89	0.92	0.94	0.98	0.99
2-4	1.04	1.08	1.10	1.14	1.16
2-5	1.23	1.28	1.30	1.36	1.38
2-6	1.44	1.50	1.53	1.59	1.62
2-7	1.69	1.76	1.79	1.86	1.90
2-8	1.98	2.06	2.10	2.19	2.22
3-1	1.29	1.34	1.37	1.42	1.44
3-2	N/A	N/A	N/A	N/A	N/A
3-3	N/A	N/A	N/A	N/A	N/A
3-4	N/A	N/A	N/A	N/A	N/A
3-5	N/A	N/A	N/A	N/A	N/A
3-6	N/A	N/A	N/A	N/A	N/A
3-7	N/A	N/A	N/A	N/A	N/A
3-8	N/A	N/A	N/A	N/A	N/A
4-1	2.70	2.81	2.86	2.97	3.02
4-2	N/A	N/A	N/A	N/A	N/A
4-3	N/A	N/A	N/A	N/A	N/A
4-4	N/A	N/A	N/A	N/A	N/A
4-5	N/A	N/A	N/A	N/A	N/A
4-6	N/A	N/A	N/A	N/A	N/A
4-7	N/A	N/A	N/A	N/A	N/A
4-8	N/A	N/A	N/A	N/A	N/A

CREEPER FORWARD SPEEDS

To convert to M.P.H. multiply km/h values by 0.62.

Technical Specifications

Creeper REVERSE Speeds (All transmission Options) - km/h

RANGE - P/SHIFT GEAR	REAR TYRE SIZES and (INDEX RADIUS mm)				
	18.4R38 460/85R38 (820)	20.8R38 580/70R38 620/70R38 650/65R38 (855)	18.4R42 460/85R42 (870)	650/65R42 710/70R38 (905)	20.8R42 520/85R42 (920)
1-1	0.36	0.38	0.38	0.40	0.41
1-2	0.42	0.44	0.45	0.47	0.48
1-3	0.50	0.52	0.53	0.55	0.56
1-4	0.58	0.61	0.62	0.64	0.65
1-5	0.69	0.72	0.73	0.76	0.77
1-6	0.81	0.84	0.86	0.89	0.91
1-7	0.95	0.99	1.01	1.05	1.07
1-8	1.11	1.16	1.18	1.23	1.25
2-1	0.36	0.38	0.38	0.40	0.41
2-2	0.42	0.44	0.45	0.47	0.48
2-3	1.07	1.11	1.13	1.18	1.20
2-4	1.25	1.30	1.32	1.38	1.40
2-5	1.48	1.54	1.57	1.63	1.66
2-6	1.73	1.81	1.84	1.91	1.95
2-7	2.03	2.12	2.16	2.25	2.28
2-8	2.38	2.49	2.53	2.63	2.67
3-1	0.77	0.81	0.82	0.85	0.87
3-2	N/A	N/A	N/A	N/A	N/A
3-3	N/A	N/A	N/A	N/A	N/A
3-4	N/A	N/A	N/A	N/A	N/A
3-5	N/A	N/A	N/A	N/A	N/A
3-6	N/A	N/A	N/A	N/A	N/A
3-7	N/A	N/A	N/A	N/A	N/A
3-8	N/A	N/A	N/A	N/A	N/A
4-1	1.55	1.62	1.64	1.71	1.74
4-2	N/A	N/A	N/A	N/A	N/A
4-3	N/A	N/A	N/A	N/A	N/A
4-4	N/A	N/A	N/A	N/A	N/A
4-5	N/A	N/A	N/A	N/A	N/A
4-6	N/A	N/A	N/A	N/A	N/A
4-7	N/A	N/A	N/A	N/A	N/A
4-8	N/A	N/A	N/A	N/A	N/A

CREEPER REVERSE SPEEDS

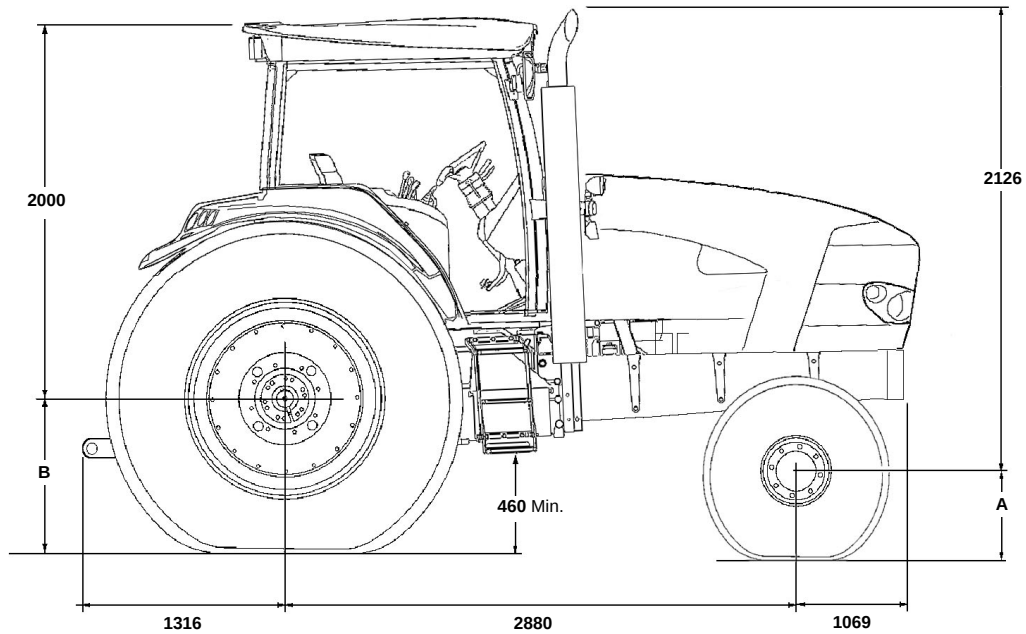
To convert to M.P.H. multiply km/h values by 0.62.

Technical Specifications

APPROXIMATE TRACTOR DIMENSIONS

IMPORTANT: The dimensions shown on the following pages are only approximate. Many varying factors affect these dimensions, for example; tyre sizes, ballast, amount of fuel and tyre pressures, etc. etc. The type of Hood and Rear Fender styling does not effect any dimensions quoted.

Two Wheel Drive (2WD) Tractors



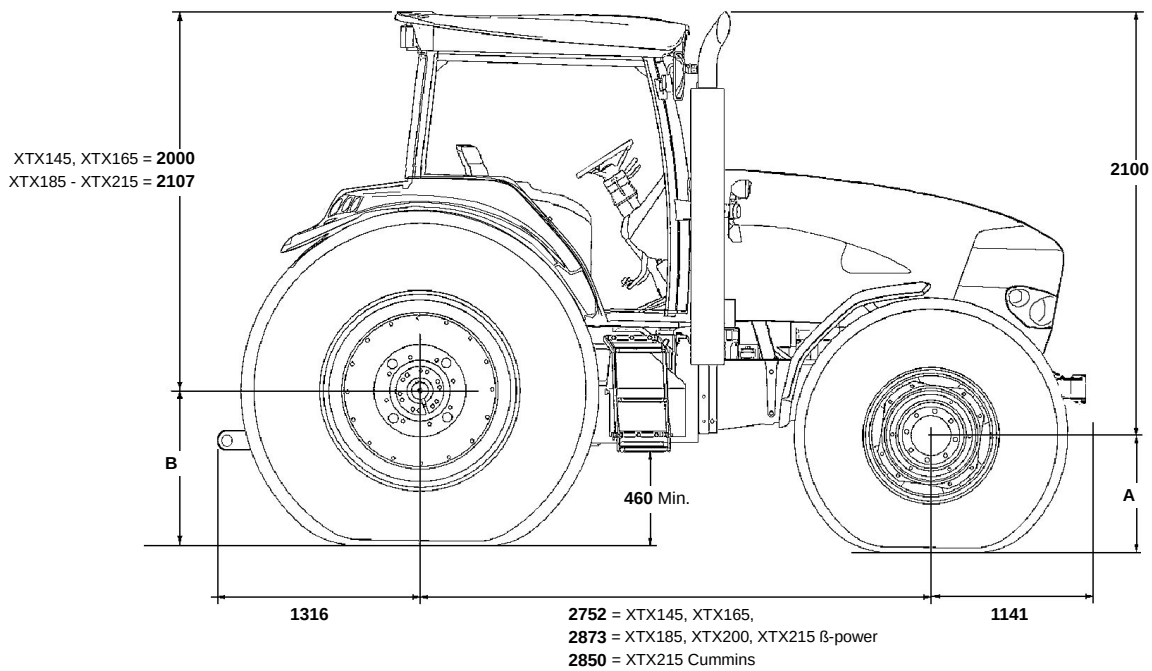
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REAR RADIUS		
TYRE SIZE	B	
	STATIC LOADED	ROLLING RADIUS
MIN 420/85R38	760	805
MAX 520/85R42	875	920

FRONT RADIUS		
TYRE SIZE	A	
	STATIC LOADED	ROLLING RADIUS
MIN 10.00-16 F2	404	442
MAX 14L-16.1 F2	455	490

Technical Specifications

Mechanical Front Drive (MFD) Tractors



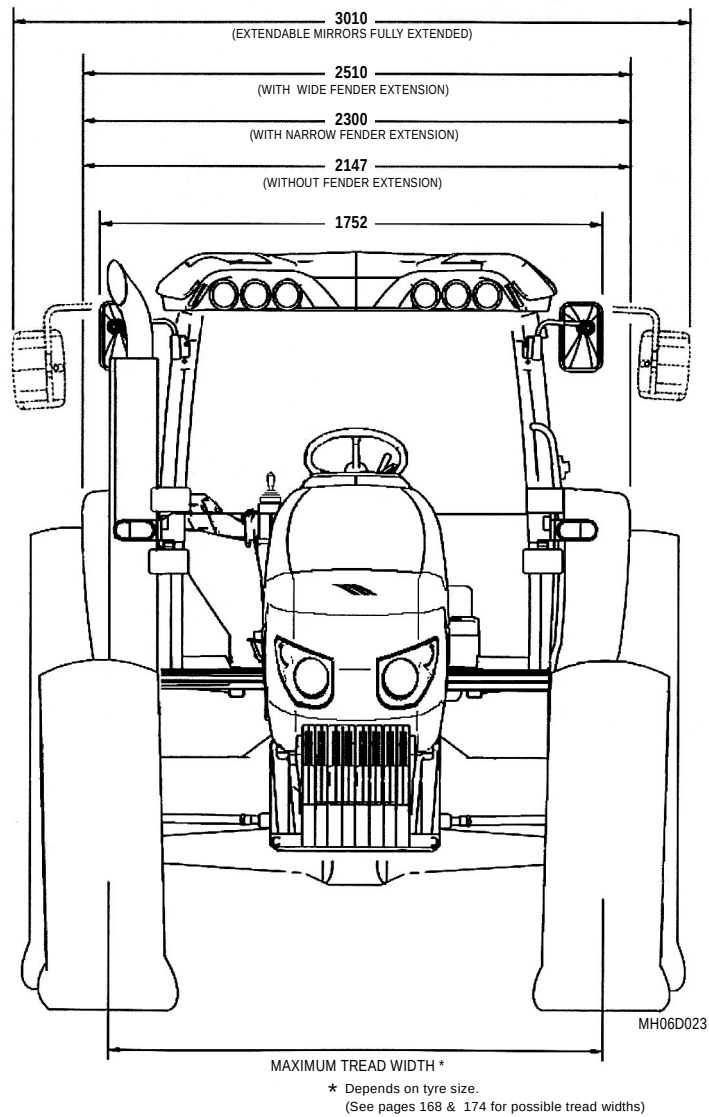
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REAR RADIUS		
TYRE SIZE	B	
	STATIC LOADED	ROLLING RADIUS
MIN 420/85R38	760	805
MAX 480/80R46	885	930

FRONT RADIUS		
TYRE SIZE	A	
	STATIC LOADED	ROLLING RADIUS
MIN 420/70R28	610	640
MAX 380/85R34	670	720

Technical Specifications

Approximate Maximum Tractor Widths



Technical Specifications

APPROXIMATE TRACTOR WEIGHTS

- The unladen mass of the tractor in running order (including the ROPS, excluding optional accessories but including coolants, oils, fuel, tools and driver):
XTX146, XTX165..... 6500 kg (14 330 lb)
XTX185, XTX200, XTX215..... 7700 kg (16 975 lb)
- The Distribution of total tractor mass between front and rear axles:
XTX146, XTX165
Front Axle 3000 kg (6614 lb)
Rear Axle 3500 kg (7716 lb)
Distribution (front/rear) 45/55%
XTX185, XTX200, XTX215
Front Axle 3040 kg (6702 lb)
Rear Axle 4660 kg (10 274 lb)
Distribution (front/rear) 40/60%

Maximum Permitted Operating Weights

IMPORTANT:

1. DO NOT exceed the maximum load capacity of the tyres on your tractor. See Loads and Inflation Pressures on page 174 for more information.
2. DO NOT exceed the local legal limitations of the axle loads and the total weight on the road.
3. ALWAYS refer to tractor P.I.N. plate for front and rear permissible axle loads.

XTX145 and XTX165 Tractors

Maximum Permitted TRACTOR Operating Weight

The maximum weight technically permissible:

Up to 40 km/h (Up to 25 mph)	8650 to 9500 kg (19 070 to 20 944 lb)
41 to 50 km/h (25 to 30 mph)	7500 kg (16 535 lb)

Maximum Permitted AXLE Operating Weight

The maximum permitted axle operating weight is the maximum laden weight of the tractor according to the tyre specification.

Front Axle

Up to 40 km/h (Up to 25 mph)	3860 to 4500 kg (8510 to 9921 lb)
41 to 50 km/h (25 to 30 mph)	2500 kg (5516 lb)

Rear Axle 5520 to 7000 kg (12 170 to 15 432 lb)

XTX185, XTX200 and XTX215 Tractors

Maximum Permitted TRACTOR Operating Weight

The maximum weight technically permissible:

Up to 40 km/h (Up to 25 mph)	9000 to 12 500 kg (19 842 to 27 557 lb)
41 to 50 km/h (25 to 30 mph)	9000 to 10 500 kg (19 842 to 23 149 lb)

Maximum Permitted AXLE Operating Weight

The maximum permitted axle operating weight is the maximum laden weight of the tractor according to the tyre specification.

Front Axle

Up to 40 km/h (Up to 25 mph)	3117 to 6000 kg (6872 to 13 228 lb)
41 to 50 km/h (25 to 30 mph)	3117 to 4000 kg (6872 to 8818 lb)

Rear Axle 4068 to 9183 kg (8968 to 20 245 lb)

Technical Specifications

NOISE LEVELS

1. Noise level inside the cab at operator's ear
(measured in accordance with
EEC Directive 77/311/EEC) is71* dB (A) Doors and windows closed
or80* dB (A) Doors and windows open

2. Bystander noise level 7500 mm (295 in)
away from the cab at bystander ear
(measured in accordance with
EEC Directive 74/151/EEC) is 84* dB (A)

★ All above figures may vary depending upon tractor model and specification.

NOTE: *If a radio is operated at the work position, for the radio to be heard, the volume level required is approximately 3 dB(A) above that of the machine/work station noise level.*

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