

MC105-MC115-MC130 MC120 Power6-MC135 Power6 Operator's Manual

McCormick's Commitment To Quality

McCormick tractors 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.



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A R G O

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WARNING

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 instructions on tractor operation and maintenance as quoted in this Operators Manual.

CALIFORNIA Proposition 65 Warning

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.

Battery posts, terminals and related accessories contain lead and lead compounds.

Wash hands after handling.

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

TO THE OWNER

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.

This manual contains important information regarding how to use, adjust and service your tractor in safe conditions. To make information research easier, this manual is subdivided into chapters that are listed in the general Table of contents. The operation instructions are contained in four chapters:

1. INSTRUMENTS/CONTROLS - Indicates the positions of all controls.
2. TRACTOR OPERATION - Contains general information regarding daily use of the tractor, such as starting/stopping the tractor, gearshift etc.
3. FIELD OPERATION - Contains information regarding use of accessories such as 3-point linkage, rear PTO etc.
4. TYRES/WHEELS/BALLAST WEIGHTS - Contains information on adjustments for tractor applications such as tyre pressure, track widths etc.

The section of this manual dedicated to service is subdivided into two chapters:

1. ROUTINE MAINTENANCE - Service operations and adjustments to be carried out at regular intervals.
2. ELECTRICAL COMPONENTS - General information on electrical components servicing.

IMPORTANT: *The index at the end of the manual is useful to find information on single parts of the tractor.*

The right and left of the tractor in this manual are the same as the operator's right and left when sitting in the driver seat looking forward.

DO NOT operate or permit anyone to operate or service this tractor until you or the other persons have read this manual. Use of the tractor must be only trusted to 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 on changes, additions or modifications that can be required for this tractor to comply with regulations and safety requirements in force in your Country. 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 Operator's 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 Operator's Manual and therefore may include some information, illustrations and photographs which may differ to the standard equipment and accessories on your tractor.

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 Operator's 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.

INTRODUCTION

Manual Storage

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



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.

mm x 0.03937 = inches
kg x 2.2 = pounds (lb)
Bar x 14.5038 = PSI
Litres x 0.22 = Imperial Gallons
Litres x 0.264 = U.S Gallons
N (Newtons) x 0.225 = lbf
Nm x 0.738 = lb. ft
Nm x 8.85 = lb. in
° C x 1.8 (=32) = ° F
km/h x 0.62 = MPH

Important Information for EEC Member States

This tractor complies with the provisions of the following directive:

74/150/EEC - Type Approval.

Included in this directive is 89/336/EEC-Electromagnetic Compatibility. 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, Powershift 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.

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 MODEL NUMBER

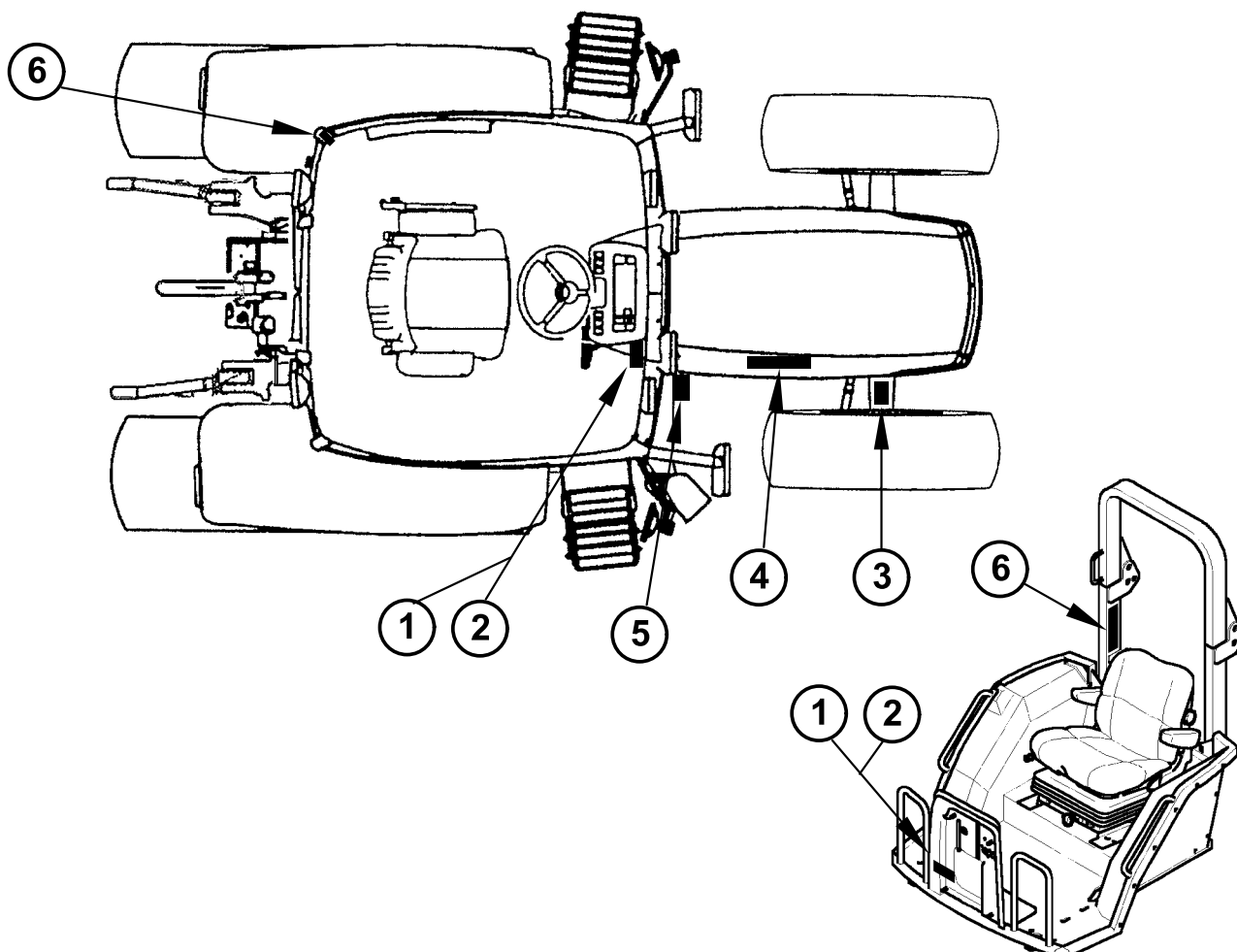
2. PRODUCT IDENTIFICATION NUMBER

3. 4WD AXLE SERIAL NUMBER

4. ENGINE SERIAL NUMBER

5. TRANSMISSION SERIAL NUMBER

6. CAB - ROPS SERIAL NUMBER



INTRODUCTION

WARRANTY

Base Warranty Cover

All McCormick tractors carry a minimum 12 month or 1200 hour warranty covering both parts and labour costs arising from faulty material or workmanship with no restrictions on operating hours during the warranty period.

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 Operator's 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.

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 (e.g. oils, filters and wearing parts etc.).

SAFETY PRECAUTIONS

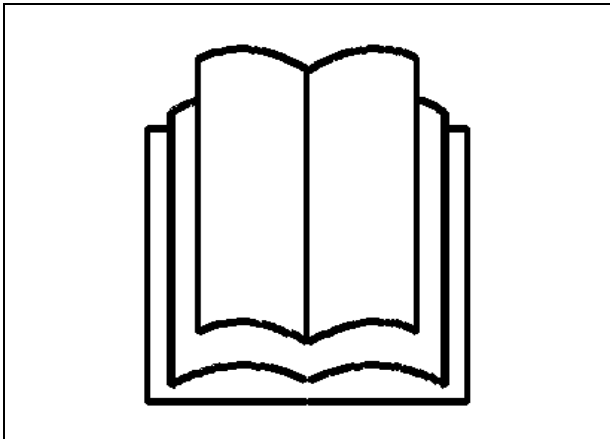


Before operating, read and comply with all safety instructions quoted in this Operators Manual.

Understand that your safety and the safety of other persons is measured by how you service, and operate 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.

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 your Operators Manual.



DI96K246

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



THIS SAFETY ALERT SYMBOL 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.

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.
- Never attempt to start engine by shorting across the starting motor terminals as the tractor may immediately start to move.
- 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.
- Clothing worn by the operator must be close-fitting. Avoid wearing loose jackets, shirts or ties.
- 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. Never smoke while refuelling.
- 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.



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.

SAFETY PRECAUTIONS



Transporting Passengers

- Passengers may only be carried if a proper passenger seat is fitted.
- The carrying of passengers is otherwise not permitted.

Passenger Seat Safety (If Equipped)



DD00A117

- 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:
 - A. Tractor should be driven at a slower speed and on level ground.
 - B. Avoid driving on highways or public roads.
 - C. Avoid quick starts or stops.
 - D. Avoid sharp turns.
 - E. 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.



Neutral Start System

- For your safety a Neutral Start Switch is fitted in the FORWARD/NEUTRAL/REVERSE circuits which prevents unintentional tractor movement when starting the tractor engine. The engine should only start when the F-N-R lever is in NEUTRAL.
- 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 F-N-R 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/NEUTRAL/REVERSE 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 F/N/R lever is moved to a new position.
 2. If the operator IS NOT sitting on the seat (switch open); the F/N/R circuits will not function and the tractor will not drive when the F/N/R lever is moved from neutral 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.

SAFETY PRECAUTIONS



Operation

- DO NOT operate the tractor while under the influence of alcohol and/or drugs.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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

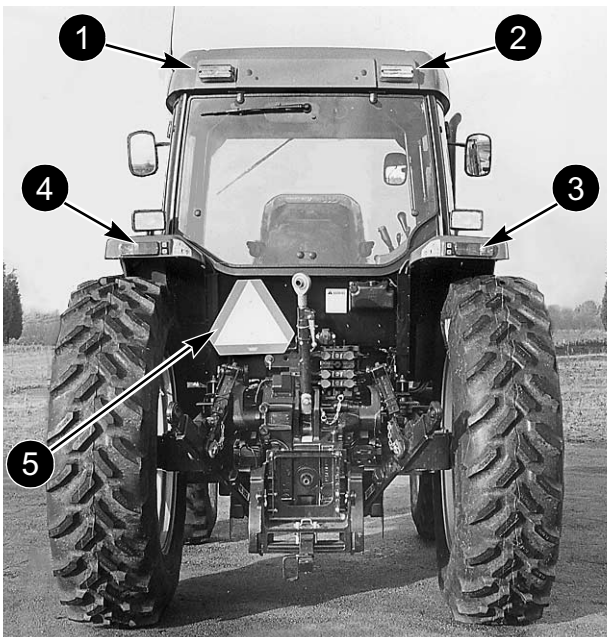
Highway/Public Road Operation

- 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.

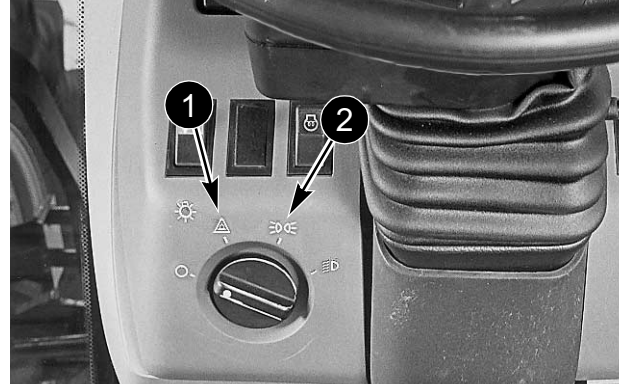


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1. AMBER WARNING LAMP AND TURN SIGNAL LAMP (LEFT SIDE)
2. AMBER WARNING LAMP AND TURN SIGNAL LAMP (RIGHT SIDE)
3. TAIL LAMP (RIGHT SIDE)
4. TAIL LAMP (LEFT SIDE)
5. SLOW MOVING VEHICLE (SMV) SYMBOL

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.

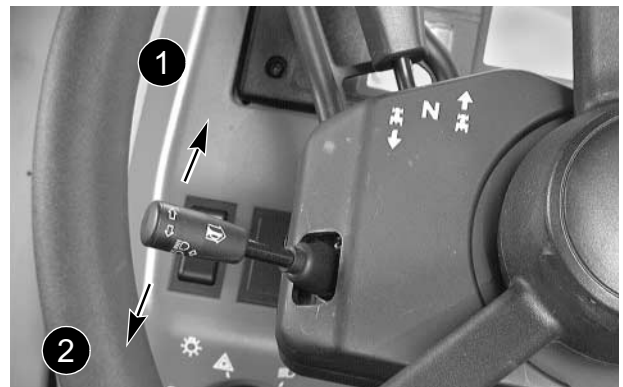


DP96K308

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:



RD99D026

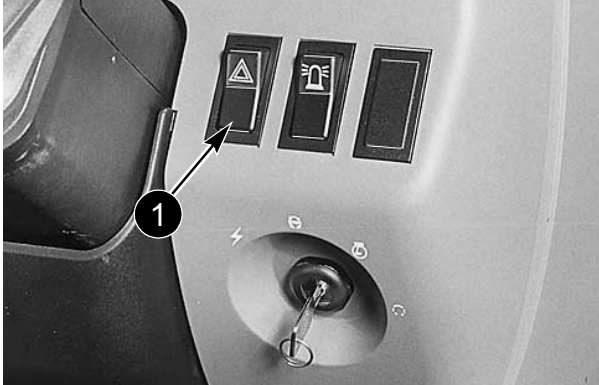
1. When indicating to turn right, the Right amber warning lamp will flash ON and OFF and the Left amber warning lamp will illuminate but will not flash.
2. When indicating to turn left, the Left amber warning lamp will flash ON and OFF and the Right amber warning lamp will illuminate but will not flash.

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.



DP97A095

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 (4 ft) or more behind the hitch point of the tractor.
- If the towed implement is 1219 mm (4 ft) or more to the left or right of the center of the tractor.
- If the towed implement is 3000 mm (10 ft) 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.

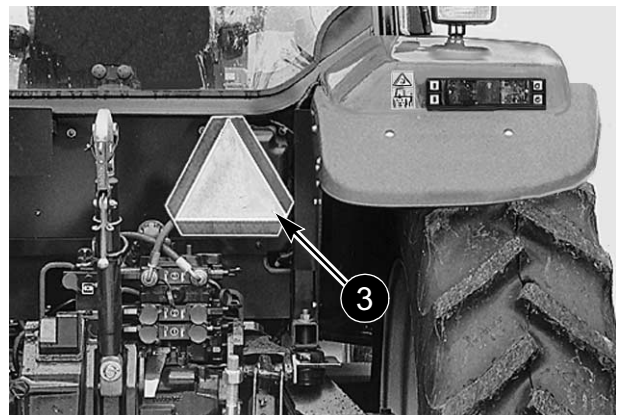


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The rotating amber beacon is operated by pressing the switch (2) with the flashing beacon symbol.

Slow Moving Vehicle Symbol (If Equipped)

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



MR01E005

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



Leaving The Tractor

- When leaving the tractor, ensure that it will not roll away (apply park brake, wheel wedges) stop the engine.
- 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

- 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.



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 lever 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.

SAFETY PRECAUTIONS



Service

- Do not service the tractor with the engine running. Follow the instructions in this manual or see your dealer.
- 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 otherwise serious infections may result.

- 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 157.
- Retighten wheel nuts after the specified hours in this manual. See page 194.
- Always disconnect the battery ground strap(s) before carrying out any electrical repairs on the tractor. See page 241.
- Use original manufacturers parts. Spare parts/Service parts must comply with the manufacturers technical specifications.



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.

SAFETY PRECAUTIONS



Hazardous Chemicals

- 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.
- 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.



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



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.

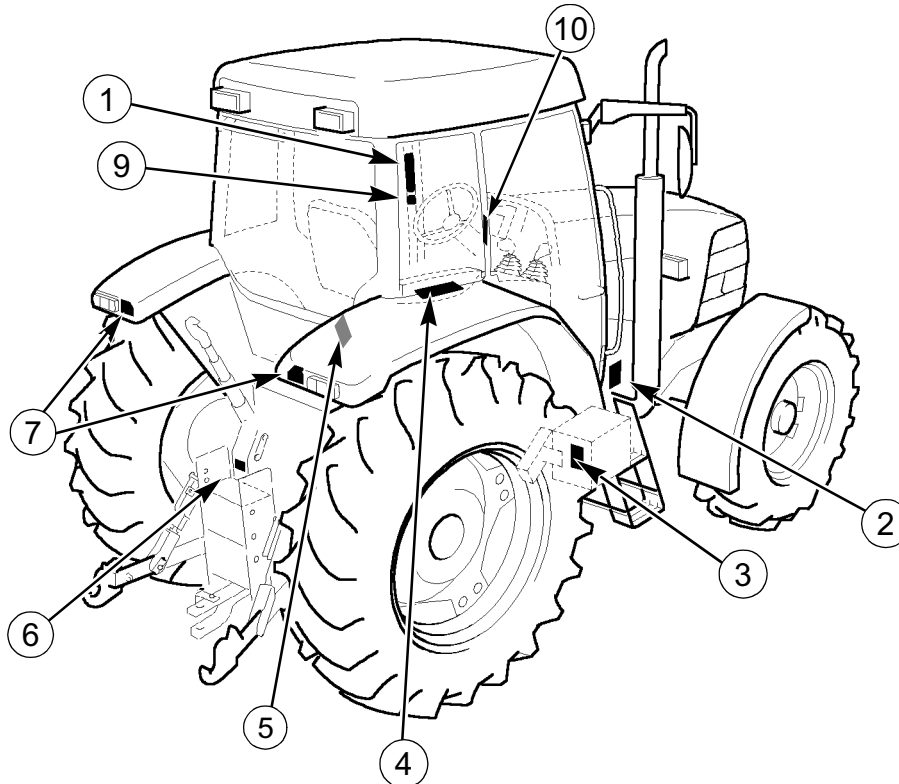
SAFETY PRECAUTIONS

SAFETY DECALS

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.

North American Tractors

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

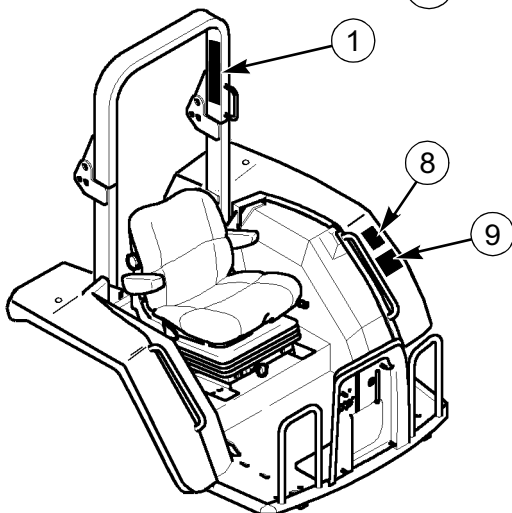


DECAL 1
Part No. 305584A1

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 2
Part No. 321-7040
(Located on the Starter Motor)



321-7040

DS98E115

SAFETY PRECAUTIONS

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



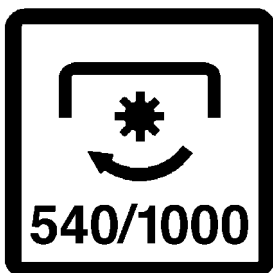
DECAL 4
Part No. 276660A1
(If Equipped with Creeper)

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

DECAL 5
Part No. 400848A1
(If Equipped - Located on the Inside of Right Hand Rear Fender)



DECAL 6
Part No. 1902074R2



DECAL 7
Part No. 400853A1 or 400852A1
(If Equipped with External Hitch Controls)



TYPE A

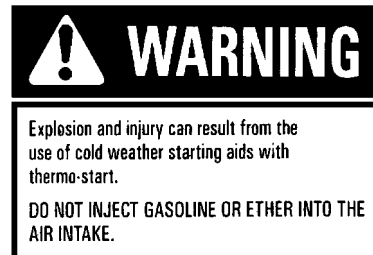


TYPE B

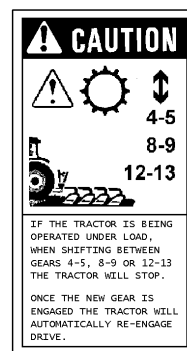
DECAL 8
Part No. 250937A1
(If Equipped with a ROPS Frame)



DECAL 9
Part No. 1985614C1
(If Equipped with Thermostart)



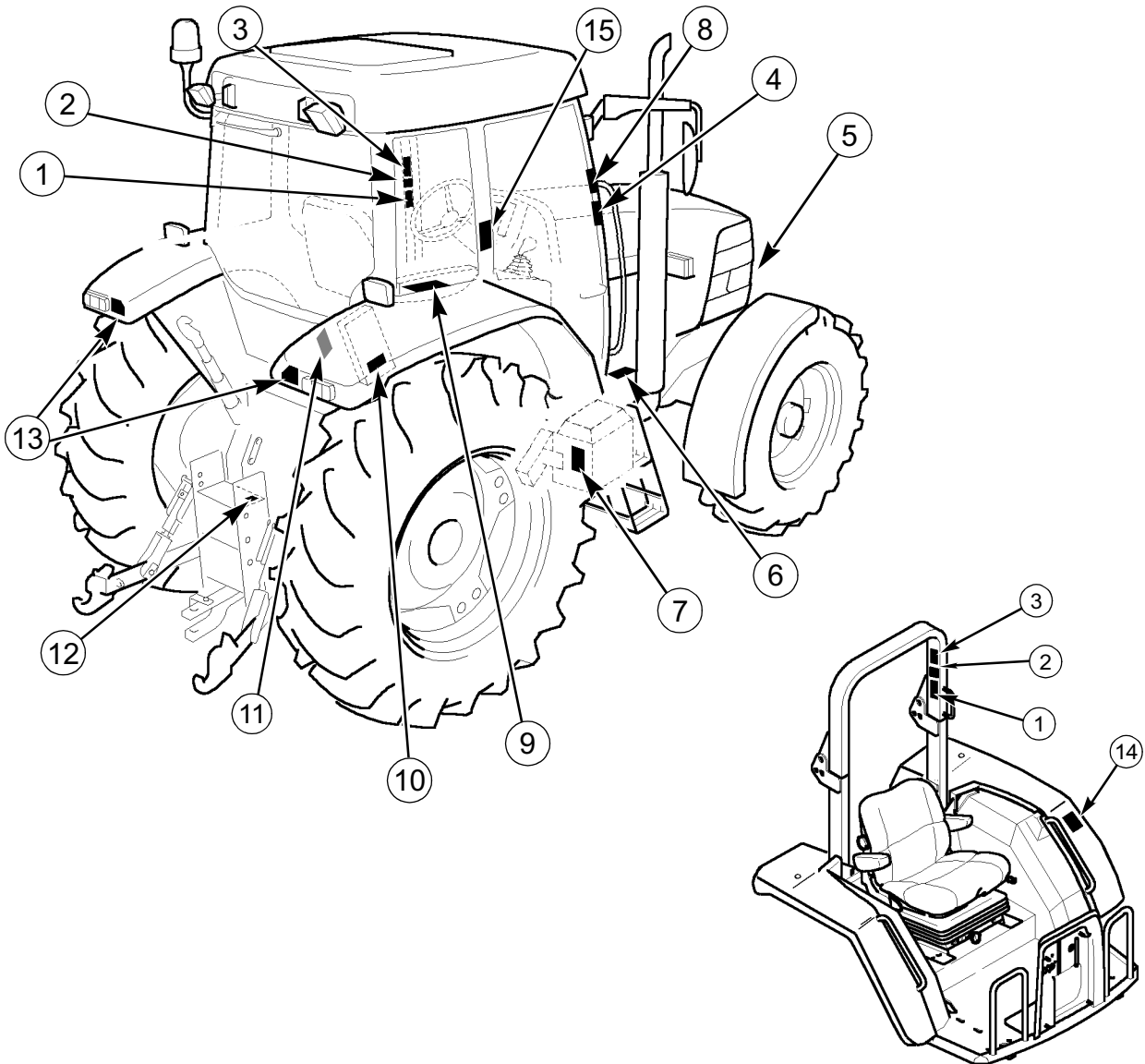
DECAL 10
Part No. 700081A1
(If Equipped with a Auto Speed Transmission)



SAFETY PRECAUTIONS

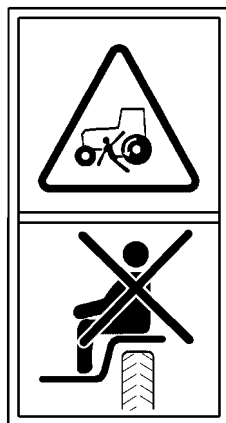
Rest Of World Tractors

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



DECAL 1 Part No. 249809A1

WARNING: Risk of being crushed. DO NOT allow any passenger to sit on the fenders or on any other part of the tractor or towed implement.



DI96K245

DECAL 2 Part No. 243007A1



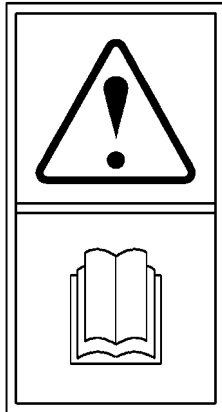
DI96K245

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

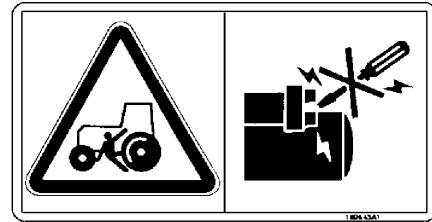
SAFETY PRECAUTIONS

DECAL 3 Part No. 249806A1

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



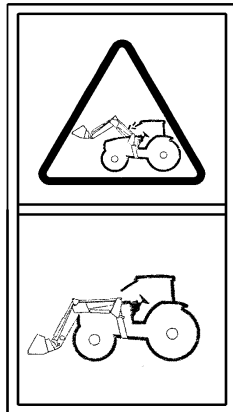
DECAL 6 Part No. 180543A1 (Located on Starter Motor)



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

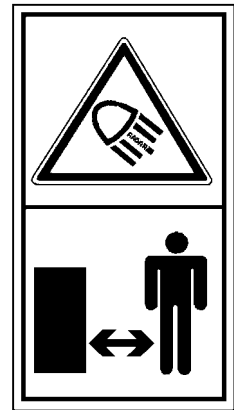
DECAL 4 Part No. 281726A1 (If Equipped with Opening Windshield)

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

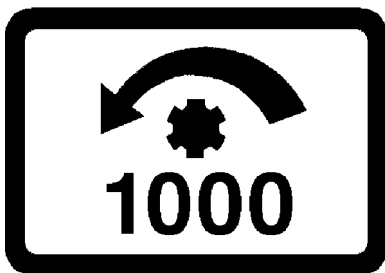


DECAL 7 Part No. 249807A1 (If Equipped with True Ground Speed Sensor)

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



DECAL 5 Part No. 1534713C1 (If Equipped with Front PTO)

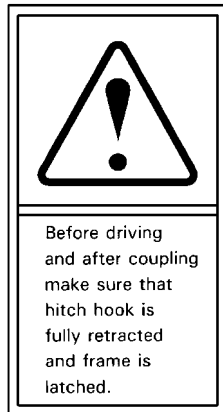


WARNING: Keep clear. Front PTO shaft rotates at 1000 rpm.

SAFETY PRECAUTIONS

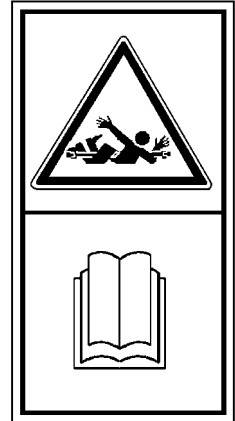
DECAL 8
Part No. 282889A1
(If Equipped with Auto Hitch)

CAUTION: *Correct auto hitch operation.*



DECAL 11
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.

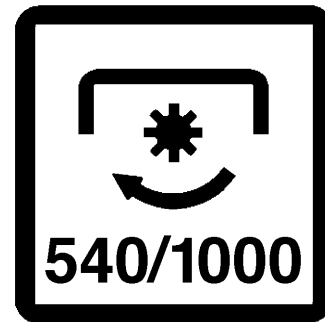


DECAL 9
Part No. 276660A1
(If Equipped with Creeper)

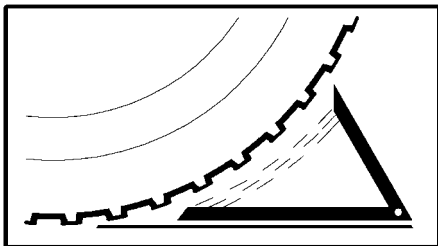
IMPORTANT
THE CREEPER SPEED SHOULD BE APPLIED
ONLY FOR LIGHT-DUTY OPERATIONS

CAUTION: *Correct Creeper Speed operation.*

DECAL 12
Part No. 1902074R2



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

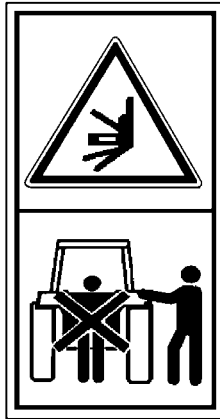


CAUTION: *ALWAYS use a wheel wedge in front of or behind a wheel when parked on a slope.*

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

SAFETY PRECAUTIONS

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



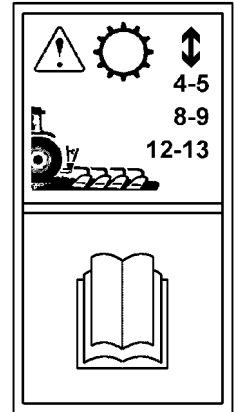
WARNING: Stand well clear of the rear linkage and implements when using the hitch remote switches or injury can result from moving parts.

DECAL 15
Part No. 700080A1
(If Equipped with a Auto
Speed transmission)

CAUTION: When operating under load the tractor will stop when shifting between ranges, (gears 4-5, 8-9 and 12-13).

Once the new range is engaged drive will re-engage.

For further information refer to your Operators Manual.



DECAL 14
Part No. 250937A1
(If Equipped with a ROPS Frame)



WARNING: ROPS frame clearance.
(Refer to page 148. for correct operation and related safety issues).

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.

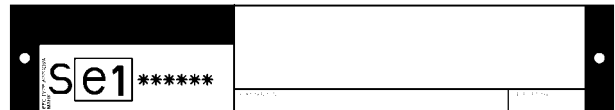
The ROPS, the operators seat, the seat belt (if equipped) and all the mounting accessories and wiring inside the operators protective system must be carefully checked if a ROPS cab is damaged, and all damaged parts must be replaced with new parts immediately.

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 3. for location.

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 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).*

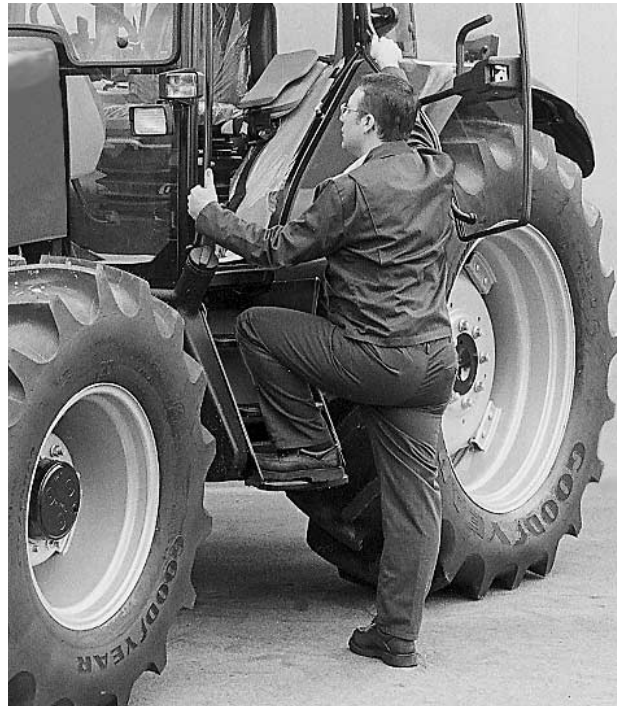
Cab Door Lock

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

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.



DP96J383



DR99G164

INSTRUMENTS/CONTROLS

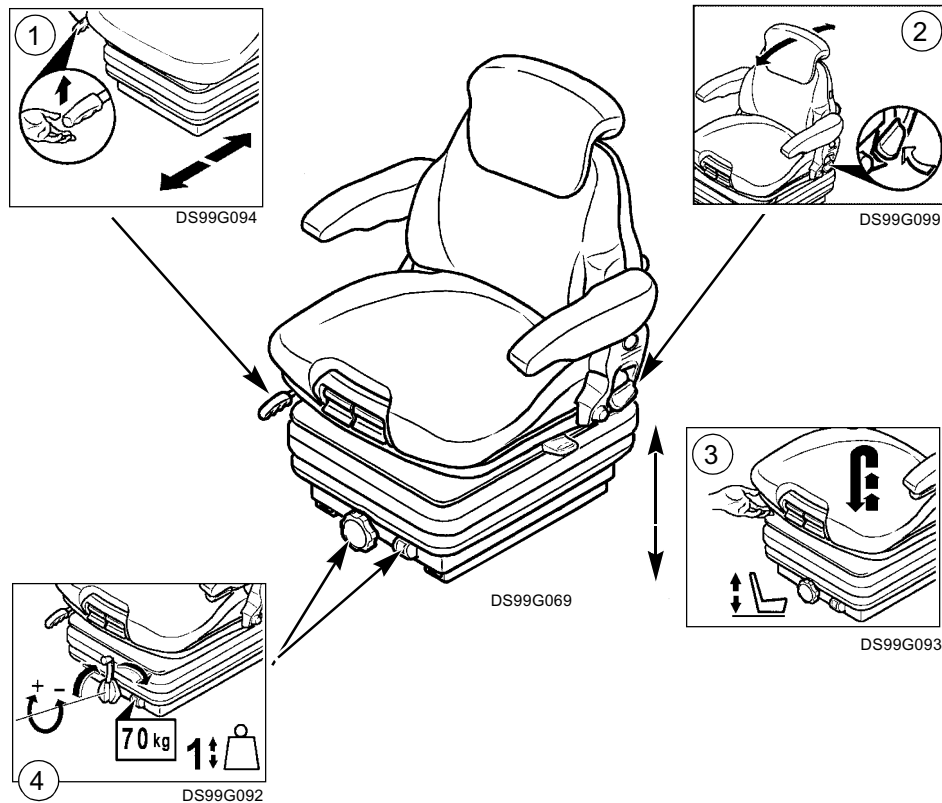
OPERATORS SEAT



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

Mechanical Suspension Seats - Cab Tractors

NOTE: The standard mechanical seat is also optional for ROPS (platform) tractors with a waterproof covering.



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.

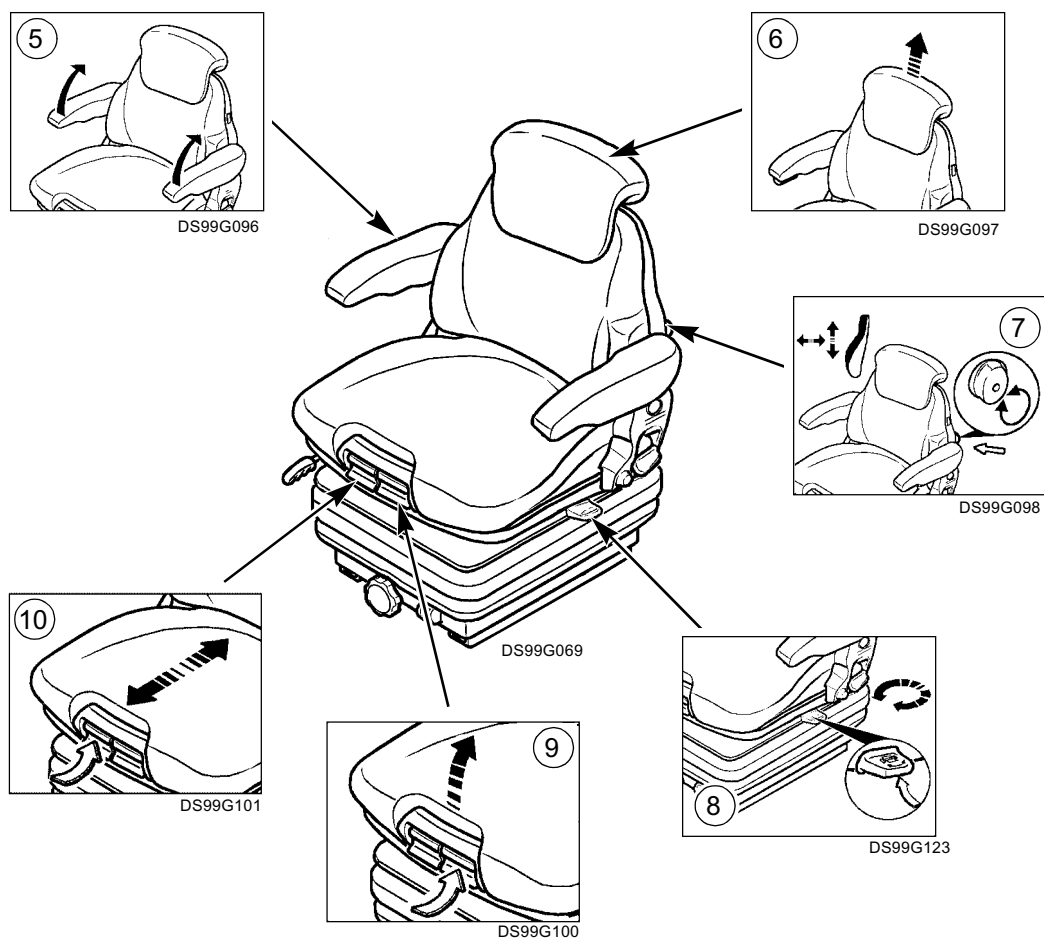
3. HEIGHT ADJUSTMENT CONTROL - Grip seat and raise to required height. To lower, raise seat fully passed the upper end stop then lower to lowest position.

4. WEIGHT ADJUSTMENT CONTROL AND WEIGHT INDICATOR - With the seat empty turn knob as required until operators weight is shown on the weight indicator.



WARNING: To prevent injury the operators weight setting must be checked and adjusted to suit the operator before the tractor is driven.

INSTRUMENTS/CONTROLS



5. ARM RESTS - Lift up or down.

6. BACK REST HEIGHT ADJUSTMENT/ REMOVAL (If Equipped) - Pull up or push down to required height. Pull up past end stop to remove.

7. LUMBAR ADJUSTMENT CONTROL - Turn knob as required.

8. SWIVEL ADJUSTMENT CONTROL (Deluxe Seat Only) - Lift lever and adjust as required.

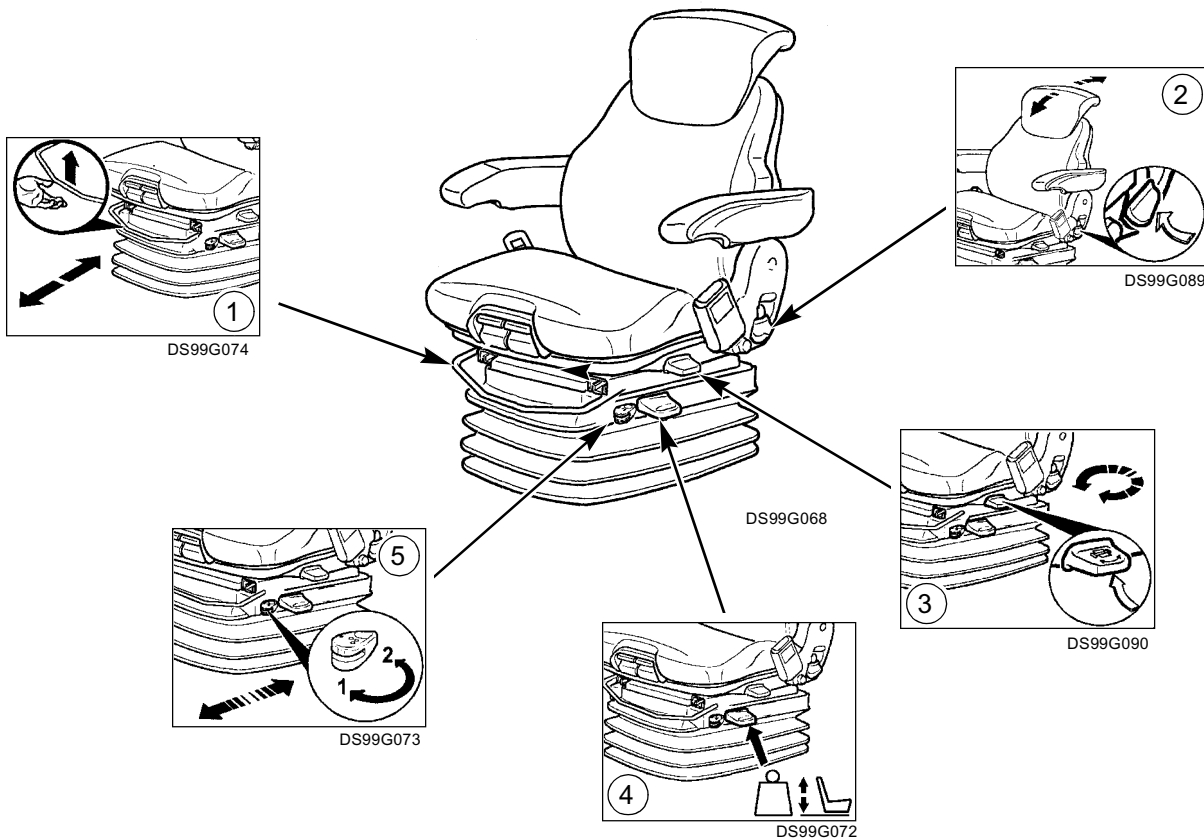
9. CUSHION TILT ADJUSTMENT (Deluxe Seat Only) - Lift lever to adjust seat cushion tilt angle.

10. CUSHION DEPTH ADJUSTMENT (Deluxe Seat Only) - Lift lever to adjust seat cushion depth.

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

INSTRUMENTS/CONTROLS

Air Suspension Seats - Cab Tractors



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. Release lever and lock in position.

3. SWIVEL ADJUSTMENT CONTROL (Deluxe Cab Only) - Lift lever and adjust as required.

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

4. HEIGHT AND 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.

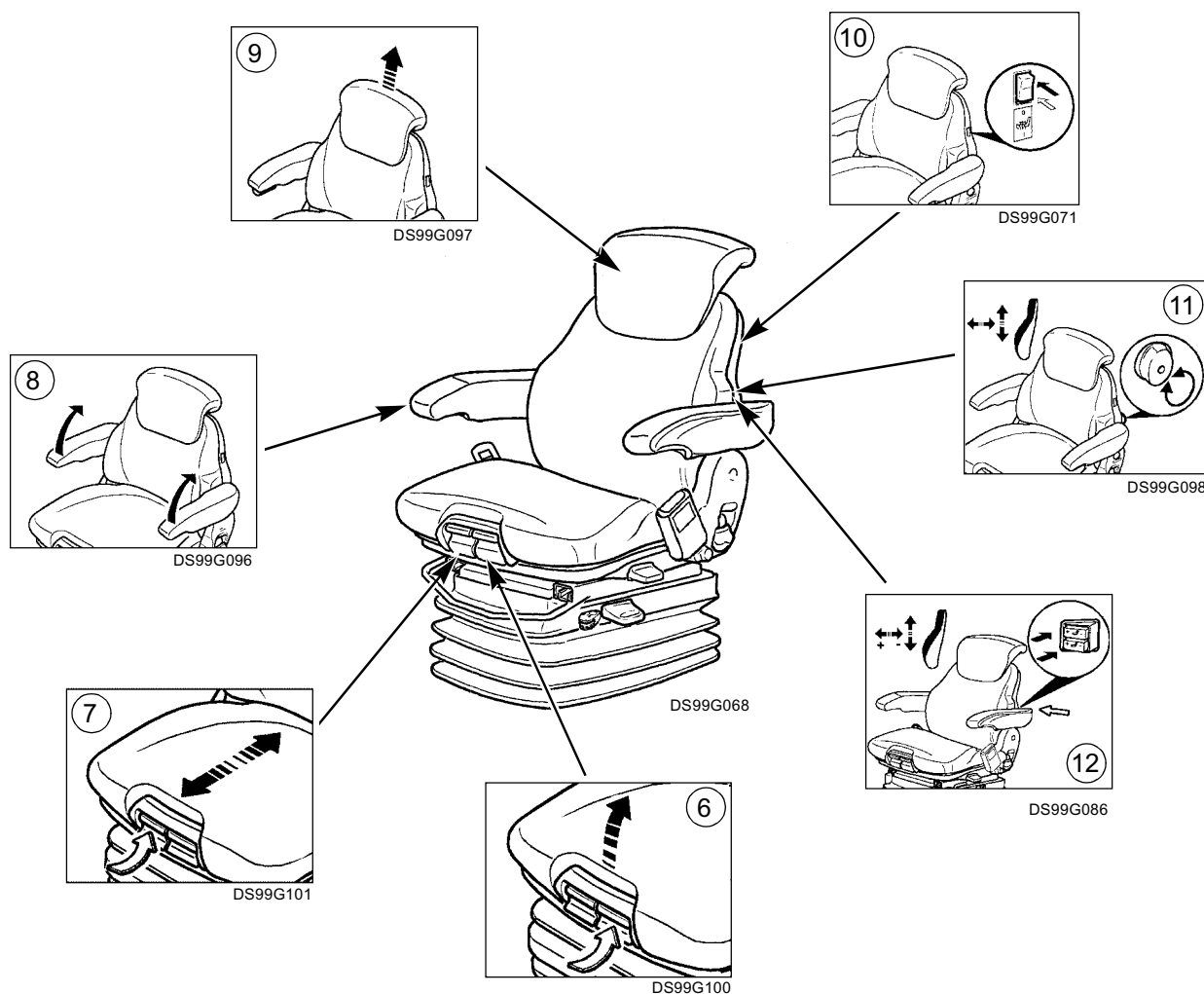
IMPORTANT: Never operate the compressor for more than 1 minute.



WARNING: To prevent injury the operators weight setting must be checked and adjusted to suit the operator before the tractor is driven.

5. ISOLATOR CONTROL - Move control from rear to front (position 1) for float. Move control from front to rear (position 2) to lock.

INSTRUMENTS/CONTROLS



6. CUSHION TILT ADJUSTMENT (Deluxe Seats Only) - Lift lever to adjust seat cushion tilt angle.

7. CUSHION DEPTH ADJUSTMENT (Deluxe Seats Only) - Lift lever to adjust seat cushion depth.

8. ARM RESTS - Lift up or down.

NOTE: Tractors equipped with a Auto Speed transmission Only: By using the wheel located under the arm rest fine adjustment can be made to suit operator comfort

9. BACK REST HEIGHT ADJUSTMENT/ REMOVAL (If Equipped) - Pull up or push down to required height. Pull up past end stop to remove.

10. HEATED SEAT CUSHIONS (Super Deluxe Seat Only) (If Equipped) - Press switch down to turn heater ON. Press switch up to turn heater OFF.

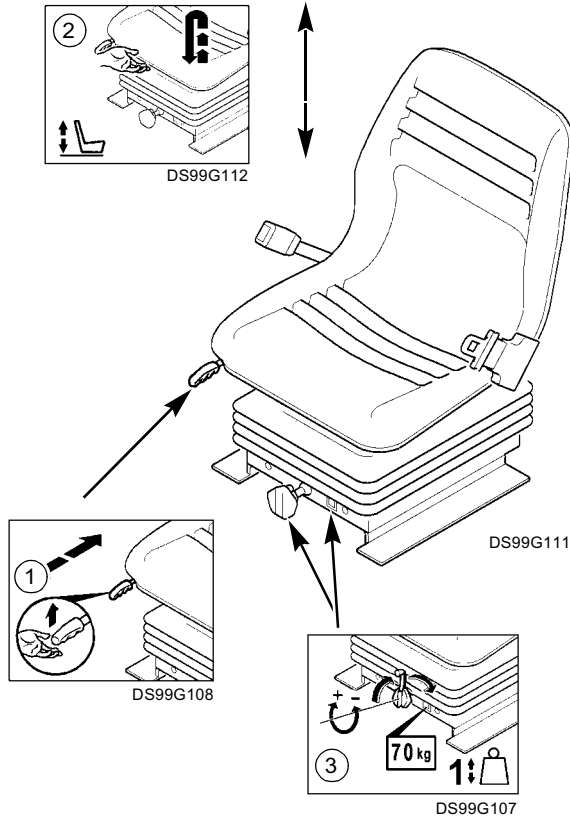
11. MANUAL LUMBAR ADJUSTMENT CONTROL - Turn knob as required.

12. AIR LUMBAR ADJUSTMENT CONTROL (Deluxe Seats Only) - Press upper and lower switches as required.

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

INSTRUMENTS/CONTROLS

Mechanical Suspension Seat - Tractor with ROPS (Platform)



1. FORE/AFT ADJUSTMENT CONTROL - Lift lever and adjust as required, release lever to lock in position.
2. HEIGHT ADJUSTMENT CONTROL - Grip seat and raise to required height. To lower, raise seat fully past the upper end stop then lower to lowest position.
3. WEIGHT ADJUSTMENT CONTROL - With the seat empty turn knob as required until operators weight is shown on the weight indicator.



WARNING: To prevent injury the operators weight setting must be checked and adjusted to suit the operator before the tractor is driven.

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



DP96J381

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 into the latch assembly until it locks.

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

STEP 2



DP96J382

To release the seat belt, push the red button on top of the latch assembly.

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

INSTRUMENTS/CONTROLS

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 7 for additional safety information.*

STEP 1



DD00A115

Raise the seat base.

STEP 2



DD00A116

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

STEP 3

Store the seat in the reverse sequence.



DD00A118

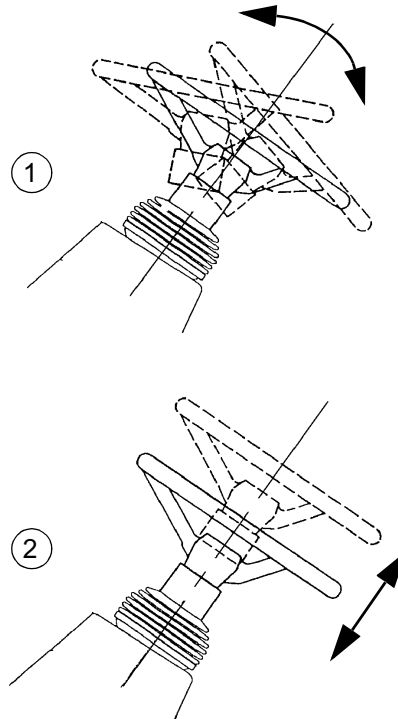
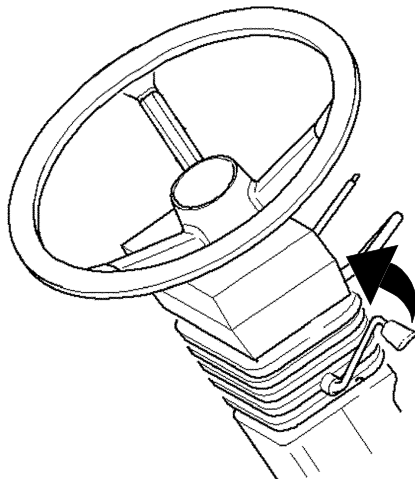
For the Operators convenience a net storage pouch is provided on the rear of the passenger seat.

INSTRUMENTS/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.*



DS98B210

1. Column Tilt Adjustment (If Equipped)

The steering column can be adjusted up or down into ten different positions.

To adjust:

Lift and hold the locking lever (1) up. Move the column up or down to the required position and then release the lever to lock the column in position.

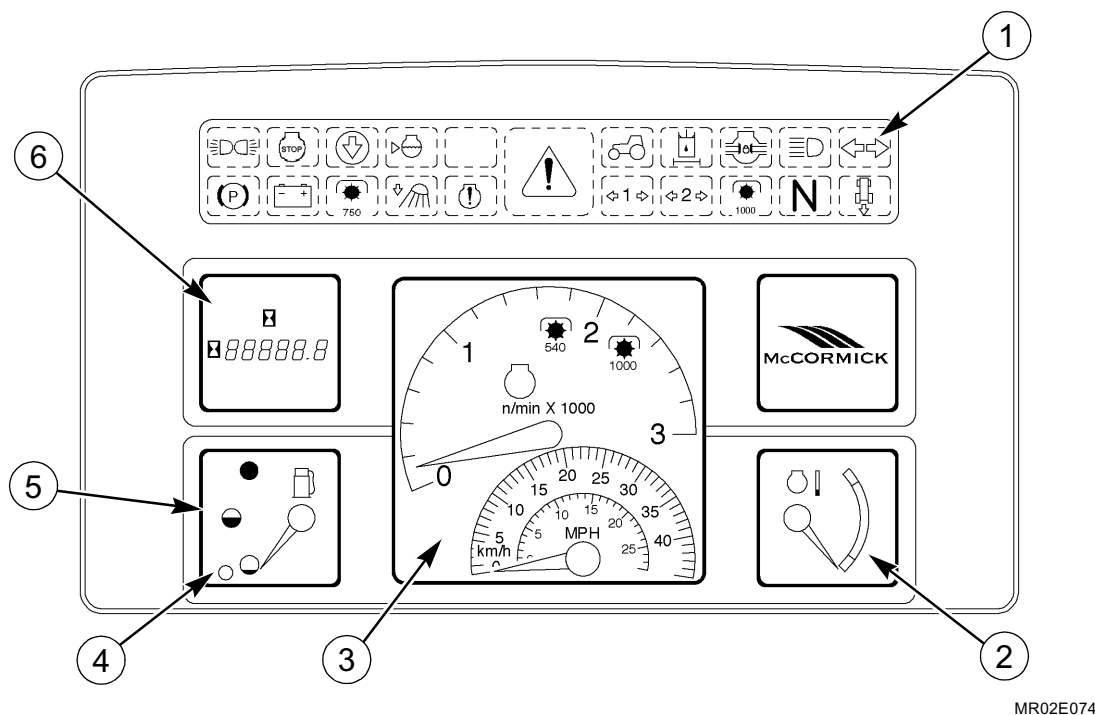
2. Telescopic Column Adjustment (If Equipped)

The steering column can be moved in or out at any of the tilt positions.

To adjust:

Lift and hold the locking lever (1) up. Pull or push the column in or out to the required position and then release the lever to lock the column in position.

Standard (Analog) Instrument Cluster (If Equipped)



- Yellow area:** low temperature.
Green area: normal working temperature.
Red area: overheating.

3. TACHOMETER/SPEEDMETER -

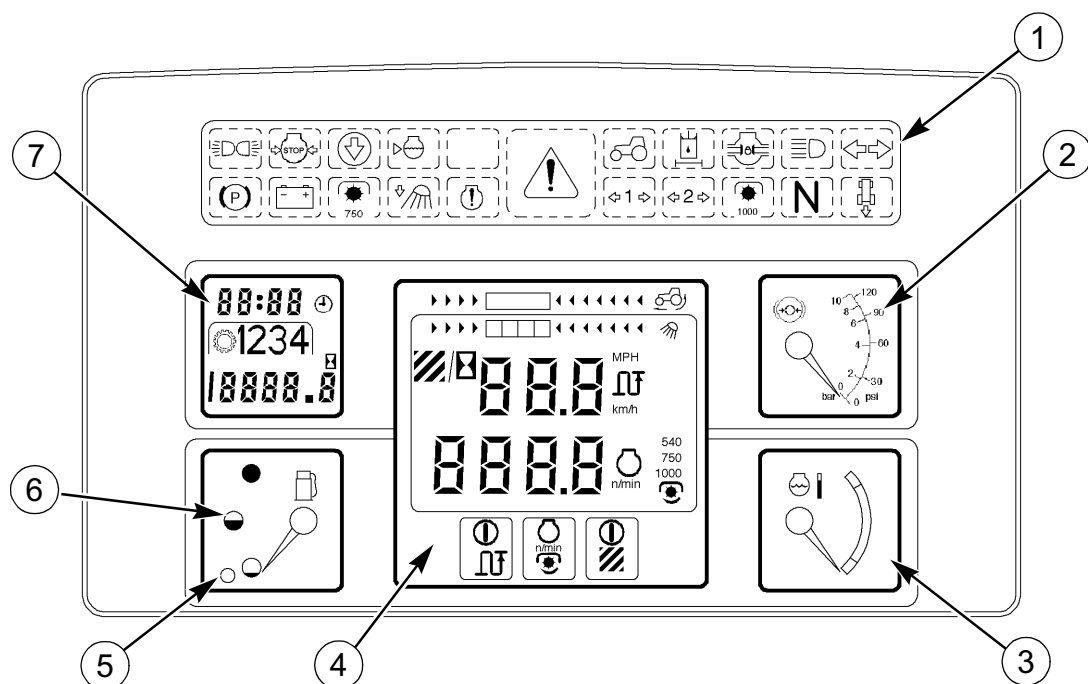
PTO symbols: correct engine rpm for the PTO speed.

Lower dial: tractor speed in kilometers per hour (km/h) outside, and miles per hour (mph) inside.

NOTE: If the rear tyre size is changed the instrument cluster must be reprogrammed with the new tyre size, see page 158 for correct procedure.

INSTRUMENTS/CONTROLS

Deluxe (Digital) Instrument Cluster (If Equipped)



MR02E075

1. INDICATOR LAMPS - see page 31 for details.

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

3. ENGINE COOLANT TEMPERATURE GAUGE -

Yellow area: low temperature.

Green area: normal working temperature.

Red area: overheating.

4. MAIN DIGITAL DISPLAY - see page 33 for more details.

5. LOW FUEL WARNING LAMP

6. FUEL LEVEL GAUGE

7. CLOCK, POWERSHIFT INDICATOR, (If Equipped) AND ENGINE HOURMETER

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.

INSTRUMENTS/CONTROLS

Indicator Lamps



1. POSITION LAMPS ILLUMINATED - Green.



2. ENGINE STOP - Red



3. ENGINE AIR FILTER RESTRICTION - Amber.



4. LOW COOLANT LEVEL WARNING - Red.



5. MASTER WARNING - Amber.



6. MFD ENGAGED - Green.



7. HYDRAULIC OIL FILTER RESTRICTION - Red.



8. DIFFERENTIAL LOCK ENGAGED - Green.



9. HEADLAMP HIGH BEAM - Blue.



10. LEFT/RIGHT TURN SIGNAL - Green.



11. PARK BRAKE ENGAGED - Red.



12. ALTERNATOR CHARGE - Red.



13. 750 RPM PTO ENGAGED - Amber



14. LOWER WORKLAMPS - Amber.



15. COLD START/ENGINE WARNING LAMP - Amber



16. AUXILIARY STEERING LOW PRESSURE INDICATOR - (30 km/h transmission only) - Amber.



17. FIRST TRAILER TURN SIGNAL - Green.



18. SECOND TRAILER TURN SIGNAL - Green.



19. 1000 RPM PTO ENGAGED - Amber.



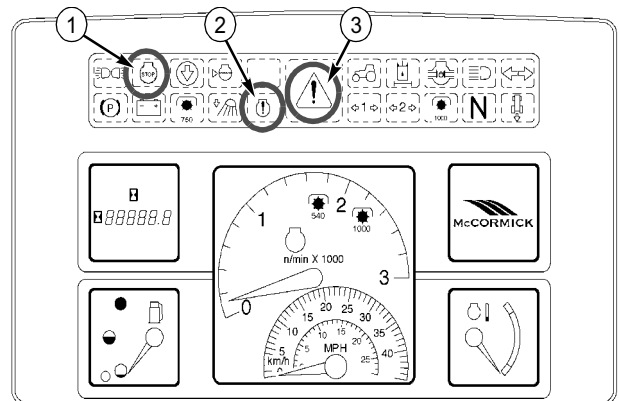
20. SHIFT F/N/R LEVER TO NEUTRAL - Amber.



21. REVERSE GEAR SELECTED - Green.

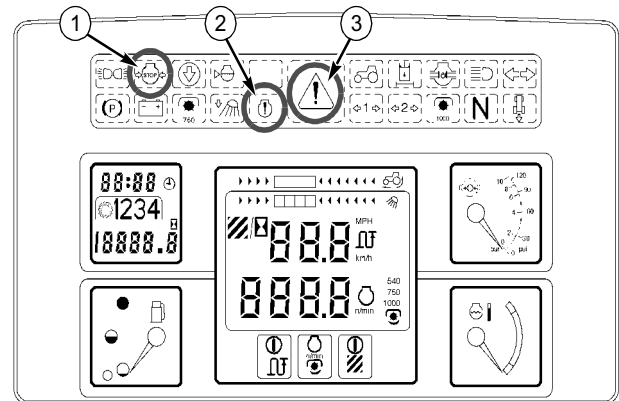
Critical Indicator Lamps

Analogue Instrument Cluster



MR02E074

Digital Instrument Cluster



MR02E075

1. ENGINE STOP LAMP - RED
2. COLD START/ENGINE WARNING LAMP - AMBER
3. MASTER WARNING LAMP - AMBER

The Engine Stop, Cold Start/Engine and Master Warning lamps are part of the engine management and illuminate or flash to warn the operator when a critical fault occurs.

INSTRUMENTS/CONTROLS

Critical Indicator Lamps (Continued)

The Master Warning, Engine Stop and Cold Start/Engine Warning lamps are part of the engine management and illuminate or flash to warn the operator when a critical fault occurs.

Master Warning Lamp



The Master Warning 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.

Engine Stop and Cold Start/Engine Warning Lamp

The Engine Stop Lamp and Cold Start/Engine Warning Lamp will illuminate and/or flash to advise or warn the operator for various operating conditions. Below is a list of when these lamps will illuminate/flash.

1. BULB CHECK

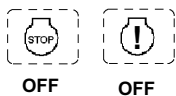


When the key switch is turned to the ON position both lamps will illuminate for approximately 3 seconds. Both lamps will then go off unless cold start is required.

2. COLD START

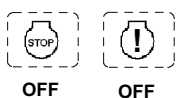


Whilst "starting aid" is being operated.

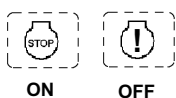


When engine is running and cold starting operation is complete.

3. ENGINE CRANKING

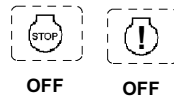


No faults detected.

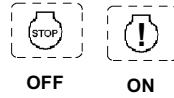


Low Engine Oil Pressure.

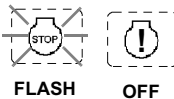
4. AFTER ENGINE CRANKING, If engine fails to start.



No faults detected.



Electrical Fault.

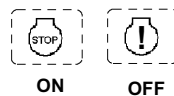


Stop Engine fault detected that prevented the engine to start.

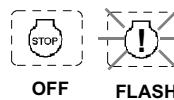
5. ENGINE RUNNING, or SHUT DOWN AUTOMATICALLY



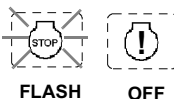
No faults detected.



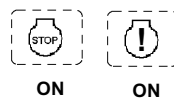
Low Engine Oil Pressure.



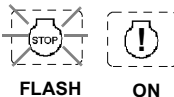
Turbo boost temperature is high. Engine may be losing power.



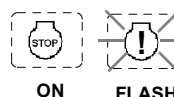
Engine Stop fault detected. Excessive loss of power.



Low Engine Oil Pressure and Electrical Fault Warning.



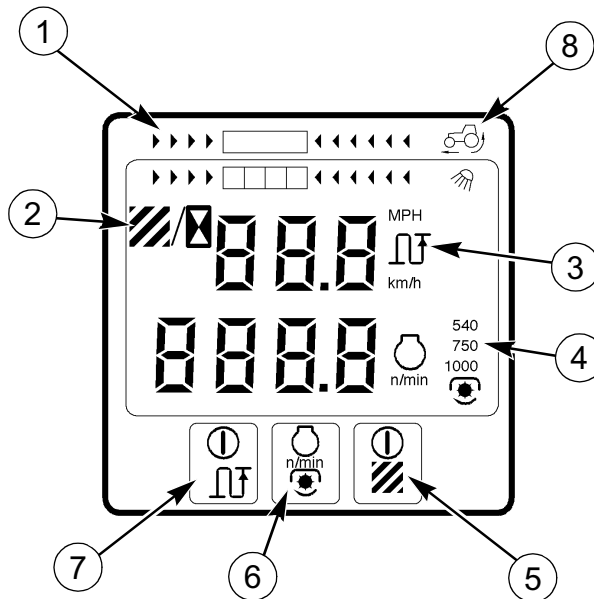
Engine Stop fault detected. Excessive loss of power. Electrical Fault Warning.



Low Engine Oil Pressure. Coolant Temperature is High. Turbo boost temperature is high. Engine may be losing power.

INSTRUMENTS/CONTROLS

Main Digital Display



DI98K042

1. WHEEL SLIP INDICATOR

NOTE: If equipped with a true ground speed sensor, see "Wheel Slip Display" on page 100.

2. AREA or AREA/HOUR INDICATOR

3. DISTANCE TRAVELLED INDICATOR

4. PTO RPM or ENGINE RPM INDICATOR

5. AREA FUNCTION ON/OFF BUTTON

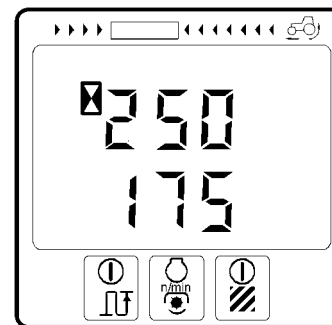
6. ENGINE/PTO RPM BUTTON

7. DISTANCE TRAVELLED ON/OFF FUNCTION BUTTON

8. TRUE GROUND SPEED SENSOR INDICATOR

Digital Displays in Different Keyswitch Positions

ACCESSORY MODE- One position counterclockwise from OFF.

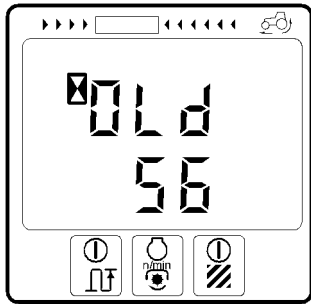


DI98K257

When the keyswitch is turned from OFF to the ACCESSORY position the service hours will be displayed; service interval time on the upper display with the service hour symbol, elapsed time on the lower display.

NOTE: The timer is set to 250 or 500 hours depending upon machine. When the relevant time has elapsed, the service timer symbol will flash. Flashing and counting will continue until the timer is read once, and then it will return to 0 and start again. The service timer can be set to any value between 0 and 999. See PROGRAMMING THE DIGITAL INSTRUMENT CLUSTER on Page 36 of this manual.

INSTRUMENTS/CONTROLS



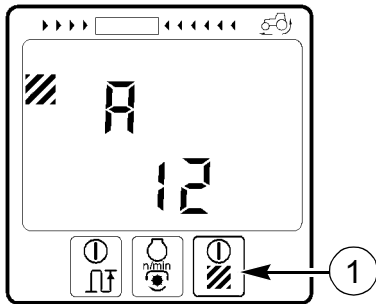
DI98K044

When the keyswitch is in the ACCESSORY position, if the ENGINE rpm button is pressed while the service hours are displayed, the old instrument cluster hours will be displayed with 'OLD' and the service timer symbol on the upper display and hours on the lower display. If the ENGINE rpm button is pressed again, the display will show service hours.

When a '0' is programmed for old instrument cluster hours, this function is not displayed.

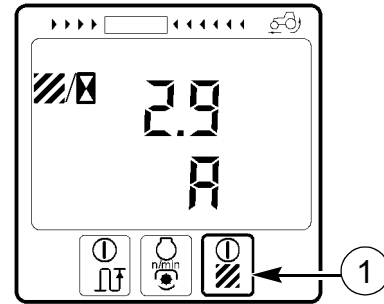
New tractors are programmed with '0' old instrument cluster hours, so this function will not display on a new tractor. See page 36 for more information.

NOTE: If you have to replace the hour meter, the old ('OLD') hours recorded can be programmed into the cluster, see page 41.



DI98K045

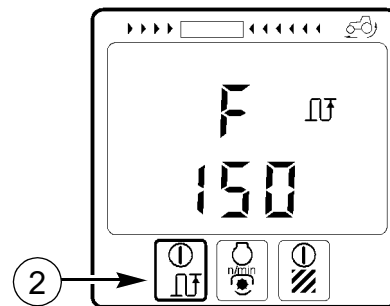
With the keyswitch in the ACCESSORY position, if the AREA FUNCTION button (1) is pressed, the upper digital display will show the units (A for acres or h for hectares), and the lower digital display will show the total area worked. The Area symbol will also be displayed.



DI98K047

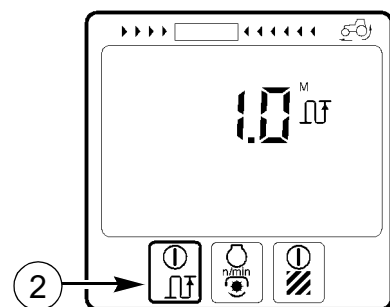
If the AREA FUNCTION button is pressed again, the lower digital display will show the units and the upper digital display will show the area worked per hour. The Area per Hour symbol will also be displayed.

If the AREA FUNCTION button is pressed again, the display will return to total area worked. To reset to zero, press the AREA FUNCTION button and ENGINE/PTO RPM button together for 1 second.



DI98K046

If the DISTANCE FUNCTION button (2) is pressed the lower digital display will show the distance travelled in feet (F) or metres (m). The Distance symbol will also be displayed.



DI98K048

If the DISTANCE FUNCTION button is pressed again, the upper display will show the distance travelled in miles 'M' or kilometres 'km'. The distance symbol will also be displayed.

To reset to zero, press the DISTANCE FUNCTION button and ENGINE/PTO RPM button together for 1 second.

NOTE: If the distance travelled is greater than 9999 feet or metres, the display will only show the distance travelled in miles or kilometres.

INSTRUMENTS/CONTROLS

IGNITION ON/RUN MODE -

One position clockwise from OFF.

Initial Self Test

When the keyswitch is turned from the OFF position to the ON/RUN position, the instrument cluster will go through an INITIAL SELF TEST.

All digital displays and some warning and indicator lights will be illuminated for approximately 3.5 seconds.

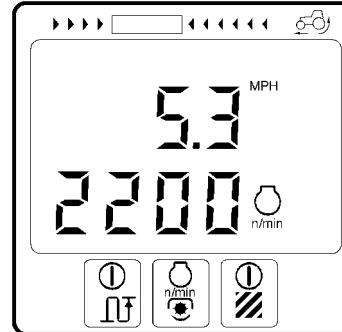
If equipped with true ground speed sensor AND AN OPEN CIRCUIT IS DETECTED in the true ground speed sensor signal input, the true ground speed sensor symbol will flash for 6 seconds.

If an open circuit is detected, contact your dealer.

If the true ground speed sensor is not operating, the instrument cluster will use the wheel speed sensor for ground speed automatically.

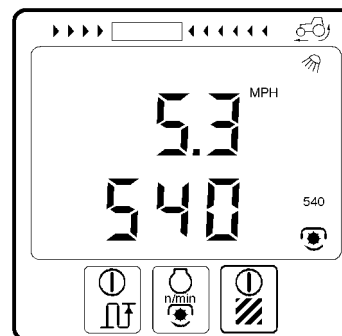
IMPORTANT: *If the FORWARD/ NEUTRAL/ REVERSE lever is moved into forward or reverse before the initial test is completed the tractor will not move. To reset, move the lever into neutral and then select the direction required.*

Normal Operation



DI98K049

After the self test, the tractor speed in either 'mph' or 'km/h' will be displayed in the upper display and the engine rpm in the lower display.



DI98K050

If the ENGINE rpm / PTO rpm button is pressed, the lower display will show the PTO shaft rpm with the PTO speed and symbol on the right.

If the tractor is equipped with a true ground speed sensor, the sensor symbol is also displayed at the top RH corner.

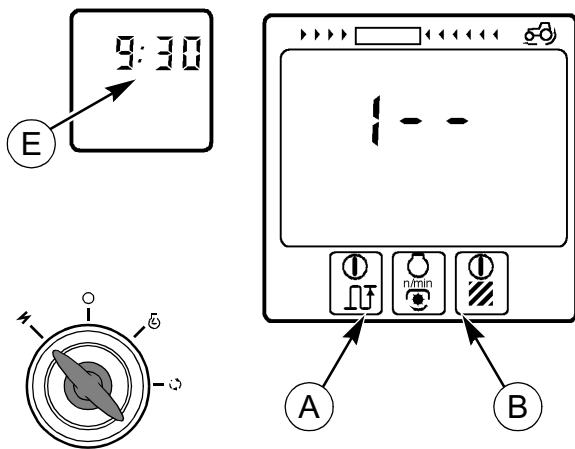
PROGRAMMING THE DIGITAL INSTRUMENT CLUSTER

General Information

There are three different programming modes for the digital instrument cluster:

1. ACCESSORY MODE - see below.
2. IMPLEMENT WIDTH MODE - see page 42.
3. DYNAMIC MODE - see page 42.

1. Programming in the Accessory Mode



DI98K051

STEP 1

Press and hold the Engine/PTO RPM switch (A) and turn the key counterclockwise to the accessory position.

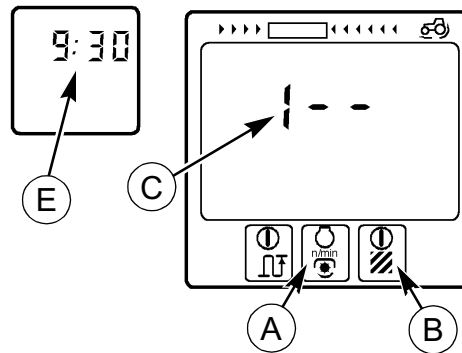
The top digital display should display the menu code 1-- as shown. Release the switch, the clock display (E) will begin to flash on and off.

NOTE: To change the menu code number press switch (A) to decrease the number and switch (B) to increase the number.

Programming the Clock (Menu Code 1)

NOTE: The digital clock can be programmed to display a 12 or a 24 hour time display.

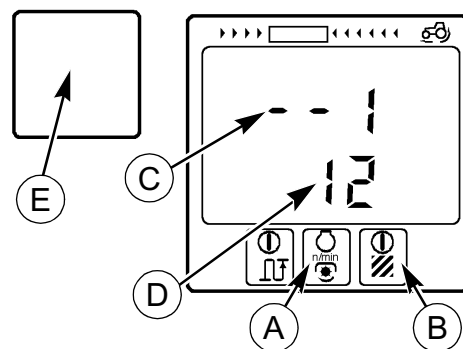
STEP 2



DI98K051

If the menu code display (C) is not as shown press switches (A) or (B) until the menu code 1-- is displayed. The clock display (E) will begin to flash on and off.

STEP 3



DI98K052

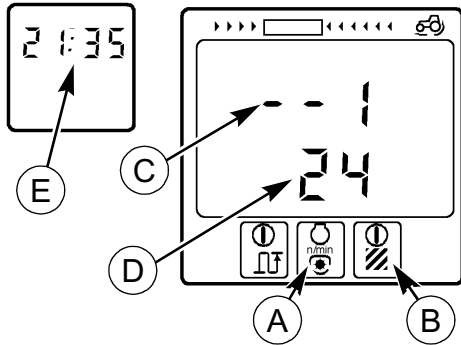
Press and hold switches (A) and (B) at the same time. The menu code will change to --1 and 12 or 24 will appear on the lower digital display (D), release the switches.

The clock display (E) will become blank. To change the display press the switch (A) to select 12 or press switch (B) to select 24.

INSTRUMENTS/CONTROLS

NOTE: Selecting 12 will programme the clock for a 12 hour time display and selecting 24 will programme the clock for a 24 hour time display.

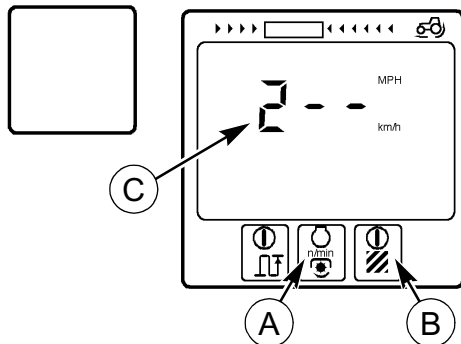
STEP 4



DI97M122

Press and hold switches (A) and (B) at the same time for 1 second to save the selection. The clock display (E) will appear. To change the hours, press switch (A) and to change the minutes press switch (B).

STEP 5

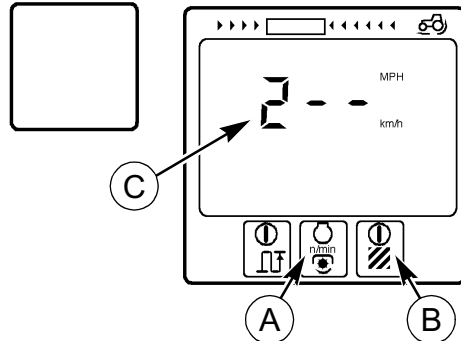


DI98K054

Press and hold switches (A) and (B) at the same time for 1 second to save the selection. The code menu display (C) will display 2-- and the MPH and km/h symbols will flash on and off alternately.

Programming MPH or km/h (Menu Code 2)

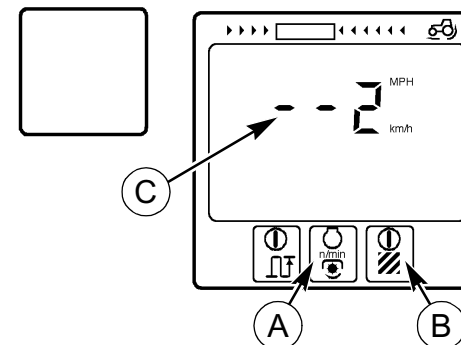
STEP 6



DI98K054

If the menu code display (C) is not as shown, press switches (A) or (B) until the menu code 2-- is displayed. The MPH and km/h symbols will flash on and off alternately.

STEP 7

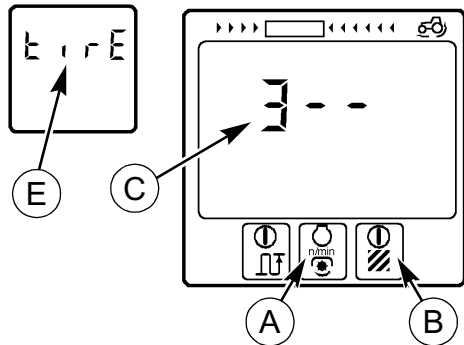


DI98K055

Press and hold switches (A) and (B) at the same time. When the top digital display changes to --2 as shown, release the switches. The MPH or km/h symbol will be displayed (not flashing). Press switch (A) to select the km/h option or switch (B) to select the MPH option.

INSTRUMENTS/CONTROLS

STEP 8

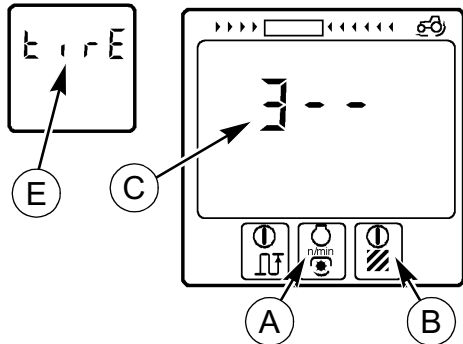


DI98K056

When the correct speed display option has been selected, press and hold switches (A) and (B) at the same time for 1 second to save the selection. The code menu display (C) will display 3-- and 'tirE' will appear and flash on and off on the clock display (E).

Programming Tyre Radius (Menu Code 3)

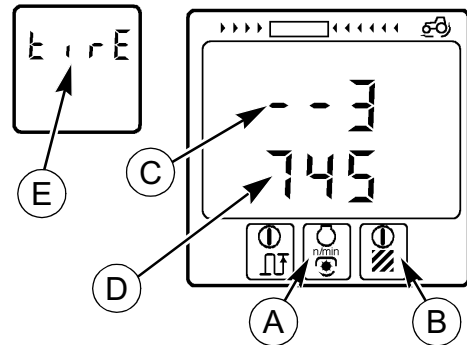
STEP 9



DI98K056

If the menu code display (C) is not as shown, press switches (A) or (B) until the menu code 3-- is displayed, tirE will appear and flash on and off on the clock display (E).

STEP 10



DI98K057

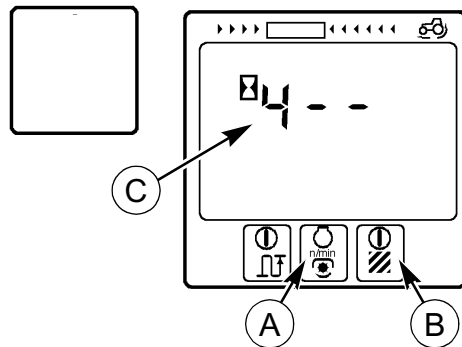
Press and hold switches (A) and (B) at the same time. When the top digital display changes to --3 as shown, release the switches. The previous programmed tyre radius will appear on the lower digital display (D), the clock display (E) will stop flashing.

Press switch (A) to decrease the constant and switch (B) to increase the constant.

NOTE: Use the table on the next page to the determine the correct tyre radius constant to be programmed into the cluster.

NOTE: If switch (A) or switch (B) is held down, the numbers will increase or decrease rapidly. To increase or decrease the number by one, press and release the switch.

STEP 11

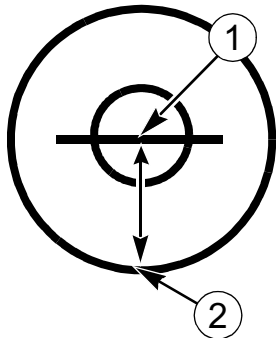


DI98K058

When the correct tyre size constant has been selected, press and hold switches (A) and (B) at the same time for 1 second to save the selection. The code menu display (C) will display 4-- and the hour glass symbol will flash on and off.

INSTRUMENTS/CONTROLS

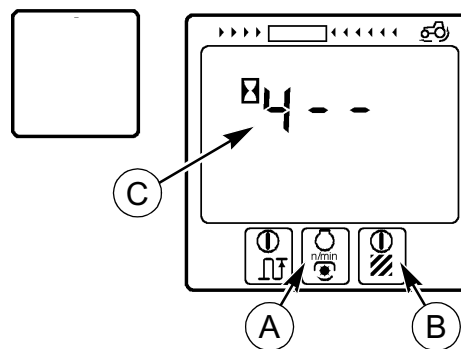
Rear Tyre Rolling Radius

REAR TIRE SIZE	ROLLING RADIUS (mm)	MEASURING THE RADIUS
16.9R34/16.9-34	745	 MEASURE FROM CENTER OF WHEEL HUB TO THE GROUND
18.4R34/18.4-34	770	
480/70R34	745	
520/70R34	780	
600/65R34	770	
13.6R38/13.6-38	740	
14.9R38/14.9-38	765	
16.9R38/16.9-38	795	
18.4R38/18.4-38	820	
20.8R38/20.8-38	855	
480/70R38	795	
520/70R38	820	
540/65R38	795	
600/65R38	820	
9.5R48/9.5-48	795	

IMPORTANT: The rolling radius can differ depending on tyre Manufacturer, tyre wear, tyre pressures and load. For a more accurate rolling radius dimension, use the Dynamic Mode procedure on page 42.

Programming the Service Timer Interval (Menu Code 4)

STEP 12

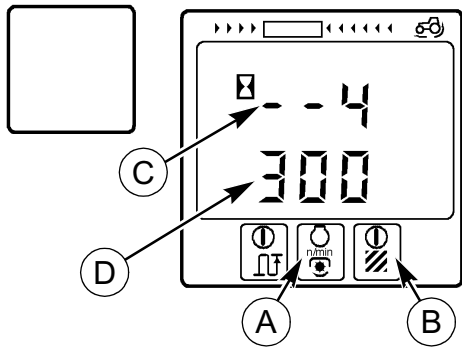


DI98K058

If the menu code display (C) is not as shown press switches (A) or (B) until the menu code 4-- is displayed. The hour glass symbol will flash on and off.

INSTRUMENTS/CONTROLS

STEP 13

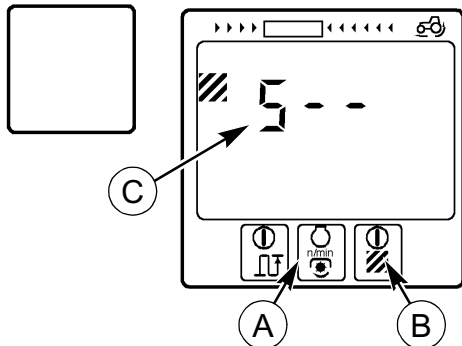


DI98K059

Press and hold switches (A) and (B) at the same time. The top digital display (C) will change to --4 as shown, release the switches. The previous programmed service interval will appear on the lower digital display (D) and hour glass symbol will stop flashing.

Press switch (A) to decrease the service interval constant or switch (B) to increase the service interval constant.

STEP 14



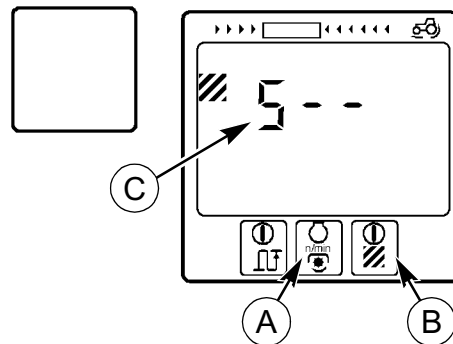
DI98K060

When the correct service interval has been selected, press and hold switches (A) and (B) at the same time for 1 second to save the selection. The code menu display (C) will display 5-- and the area function symbol will flash on and off.

Programming The Area Function Mode (Menu Code 5)

NOTE: The cluster can be programmed for manual area or automatic area display. In the manual area mode the cluster will continually accumulate the area worked when the area counter is turned on. The manual mode allows the operator to stop and start the area count by pressing the switch (B) on the cluster. In the auto area mode the cluster 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. Refer to page 95 for further information with regard to the external implement switch.

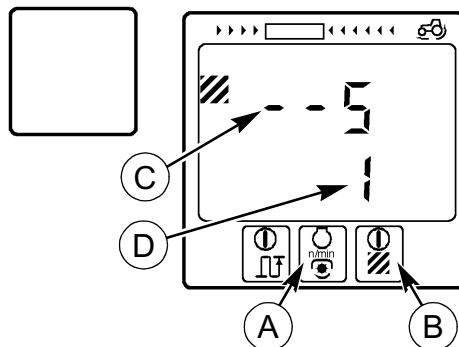
STEP 15



DI98K060

If the menu code (C) displayed is not as shown press switches (A) or (B) until the menu code 5-- is displayed. The area function symbol will flash on and off.

STEP 16

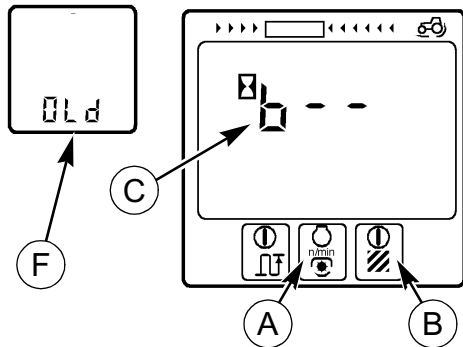


DI98K061

Press and hold switches (A) and (B) at the same time. When the digital display (C) changes to --5 as shown, release the switches. The previous area function constant will appear on the lower digital display (D). The area function symbol will stop flashing. Press switch (A) to display the AUTO area function mode constant '1' or switch (B) to display the MANUAL area function mode constant '2'.

INSTRUMENTS/CONTROLS

STEP 17



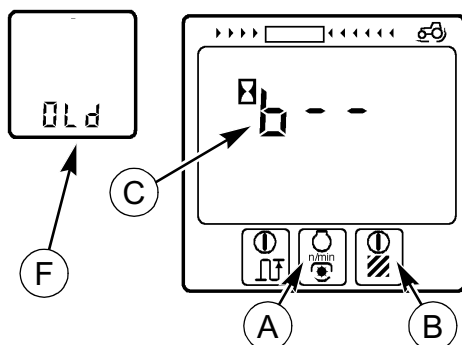
DI98K062

When the correct area function mode has been selected, press and hold switches (A) and (B) at the same time for 1 second to save the selection. The code menu display (C) will display 6--. OLd will appear and flash on and off in the hourmeter display (F) and the hour glass symbol will also flash on and off.

Programming the "OLd" Instrument Cluster Hours (As Required) (Menu Code 6)

NOTE: The cluster hourmeter display reading can not be changed. A new cluster or hourmeter will always start recording at '0". If a new cluster or hourmeter is to be 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 or hourmeter, so an accurate recording of the tractors total hours can be kept electronically.

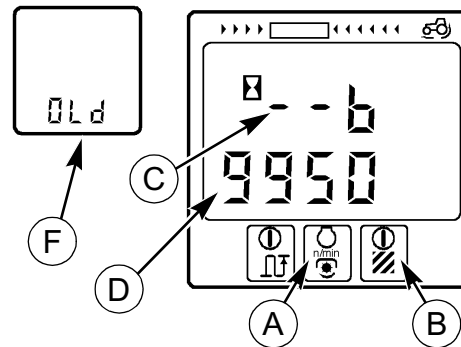
STEP 18



DI98K062

If the menu code display (C) is not as shown press switches (A) or (B) until the menu code 6-- is displayed. OLd will appear and flash on and off in the hourmeter display (F) and the hour glass symbol will also flash on and off.

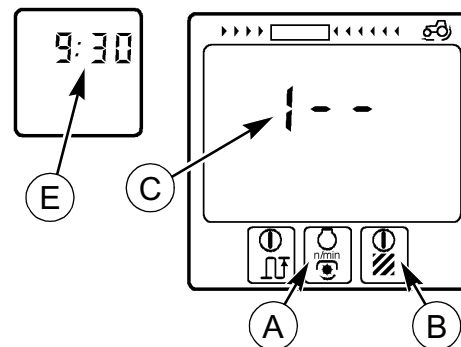
STEP 19



DI98K063

Press and hold switches (A) and (B) at the same time. When the digital display (C) changes to --6 as shown, release the switches. The old hours will appear on the lower digital display (D) and hourmeter (F) and hour glass symbol will stop flashing. Press switch (A) to decrease the old hour number or switch (B) to increase the number.

STEP 20

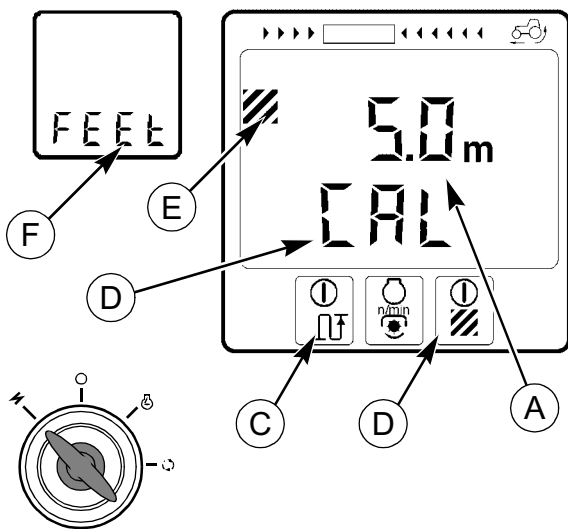


DI98K051

When the correct old hours have been selected, press and hold switches (A) and (B) at the same time for 1 second to save the selection. The code menu display (C) will display 1-- (Menu Code 1) and the clock display (E) will flash on and off. To exit, turn key to off.

INSTRUMENTS/CONTROLS

2. Programming in the Implement Width Mode



DS98K064

STEP 1

To access the implement width programming mode, press the AREA FUNCTION switch (B) while turning the keyswitch from OFF to the ACCESSORY position.

The upper display (A) will show the previous width setting and the lower display (D) will show "CAL". The area symbol (E) will also illuminate.

STEP 2

Press the AREA FUNCTION switch (B) to increase the implement width. Press the ENGINE RPM/PTO RPM switch (C) to decrease the implement width. Make sure the decimal point setting is accurate.

The implement width is programmable between 0 and 99.9 . The factory setting is 5.0 metres for Europe and 16.4 feet for North America.

STEP 3

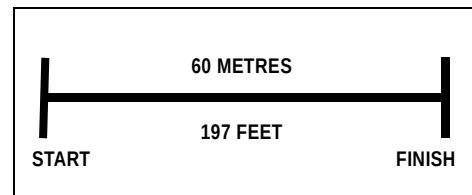
Turn the keyswitch to the OFF position to save the implement width setting and exit the implement width programming mode.

If MPH is selected for the ground speed, implement width is shown in FEET (F) on the clock display. If km/h is selected, implement width will be displayed in metres (m).

3. Programming in the Dynamic Mode

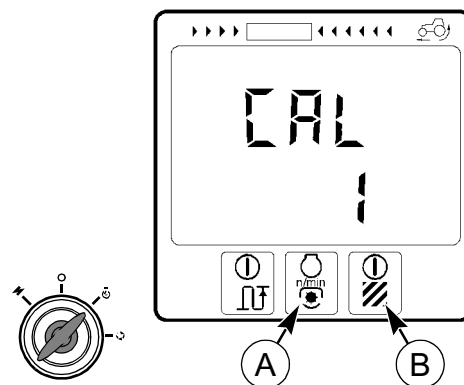
NOTE: The factory settings for tyre radius and true ground speed sensor will provide correct tractor performance, however the following calibration can be performed if more accurate settings are desired.

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.

STEP 2



DS98K065

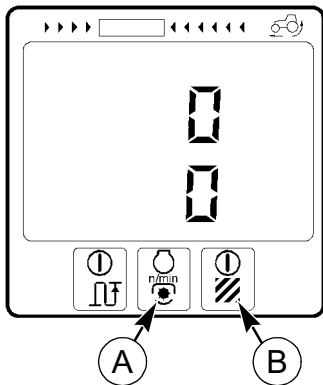
While pressing the ENGINE RPM/PTO RPM switch (A), turn the keyswitch from OFF to the ON/RUN position and start the engine. The upper display will show "CAL" and the lower display will show "1".

The lower display is the number of calibration runs which will be averaged automatically by the cluster for the final calibration. The number of calibration runs is programmable between 1 and 4.

Use the AREA FUNCTION switch (B) to increase the number of runs. Use the ENGINE RPM/PTO RPM switch (A) to decrease the number of runs. The most accurate calibration will be obtained using 4 calibration runs.

INSTRUMENTS/CONTROLS

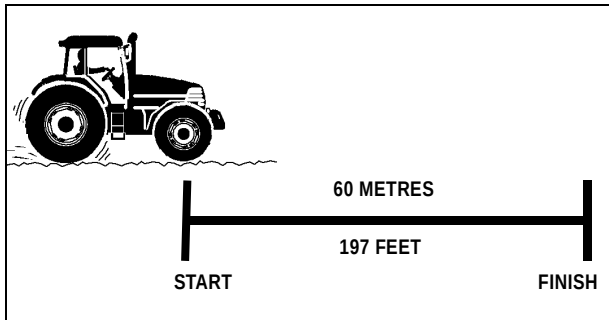
STEP 3



DS98K066

When the desired number of calibrations is set, press the ENGINE RPM/PTO RPM (A) and AREA FUNCTION (B) switches at the same time for one second to save the setting. The lower display will show "0". If equipped with a true ground speed sensor, two "0" zeros will be displayed. The "0" represents the number of pulses received from the sensor. This number will increase during each calibration run.

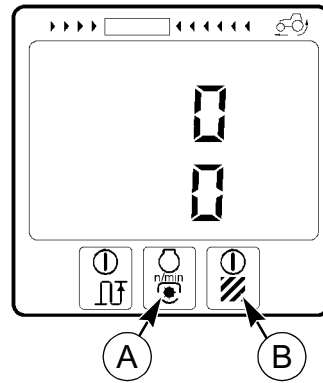
STEP 4



DI96J517

Start the tractor and drive SLOWLY, but at more than 2 km/h (1.25 mph), toward the start line.

STEP 5



DS98K066

When the tractor reaches the start line, momentarily press either the ENGINE/PTO rpm switch (A) or the AREA FUNCTION switch (B). The number of pulses displayed will start to increase.

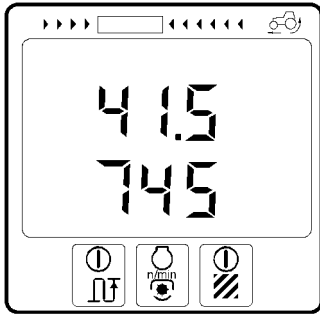
STEP 6

When the tractor reaches the finish line, momentarily press either the ENGINE RPM/PTO RPM switch or the AREA FUNCTION switch. The number of pulses displayed will return to "0". Repeat steps 4 and 5 until all calibration runs are complete.

IMPORTANT: The programmed number of calibration runs must be completed. If the programmed number of calibration runs are not completed, the instrument cluster will remain in the dynamic programming mode until the keyswitch is turned to the OFF position, and the calibration will not be programmed.

INSTRUMENTS/CONTROLS

STEP 7



DS98K067

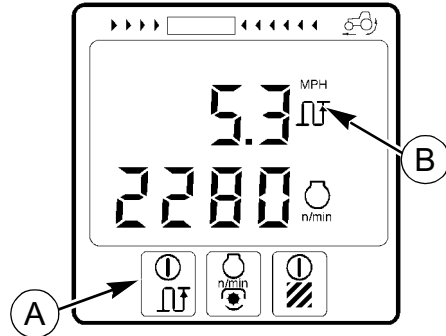
When all calibration runs are complete, the upper display will show the true ground speed sensor calibration number (if equipped) and the lower display will show the loaded tyre radius in millimeters. The instrument cluster and the display will then return to the normal operating mode.

Distance Function Operation

The distance function records and displays the distance travelled.

During normal operation:

STEP 1



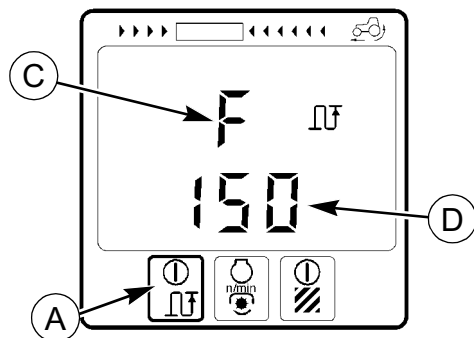
DS98K068

Press the DISTANCE FUNCTION switch (A) to start measuring the distance travelled. The distance symbol (B) is displayed.

Press the switch again to stop measuring. The distance symbol (B) is turned off. The distance travelled is stored in the memory.

STEP 2

(To display distanced travelled; in the run mode while driving)

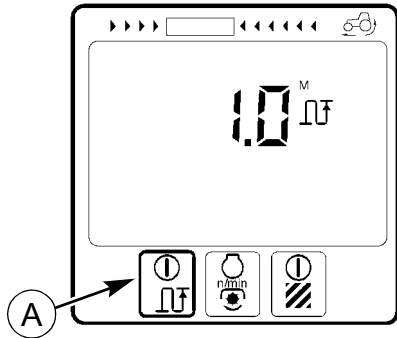


DS98K046

Press and hold the switch (A) for 2 seconds. The upper display (C) will show the unit of measurement (F for feet or m for metres) and the lower display (D) will show the total distance travelled. The distance symbol will also illuminate.

INSTRUMENTS/CONTROLS

STEP 3



DS98K069

Press and hold the switch (A) for 2 seconds again. The upper display will now show the distance travelled in miles ("M") or kilometers ("km").

NOTE: If the distance travelled in feet or metres is greater than 9999, the distance travelled will only be displayed in miles or kilometres. The units for distance travelled is automatically selected based upon the ground speed units.

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

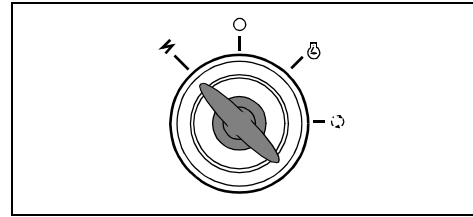
STEP 4

To reset the distance travelled, press and hold the DISTANCE FUNCTION and ENGINE RPM/PTO RPM switches together for 1 second. The lower display will change to zero and the distance travelled information will be reset.

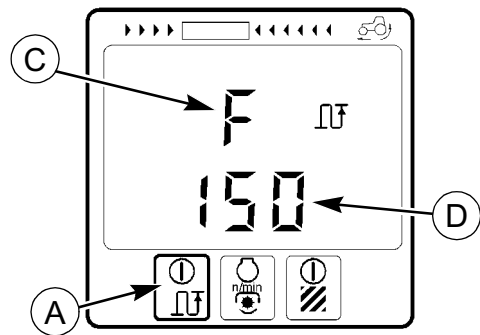
STEP 5

To return to normal rpm display, press and release the RPM switch once.

The distance travelled can also be read with the keyswitch in the **ACCESSORY** position:



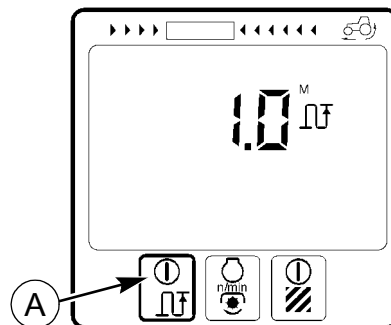
STEP 1



DI98K046

Press and release the DISTANCE FUNCTION switch (A). The upper display (C) will show the unit of measurement (F for feet or m for metres) and the lower display (D) will show the total distance travelled. The distance symbol will also illuminate.

STEP 2



DS98K069

Press the switch (A) again. The upper display will show the distance travelled in miles ("M") or kilometers ("km").

STEP 3

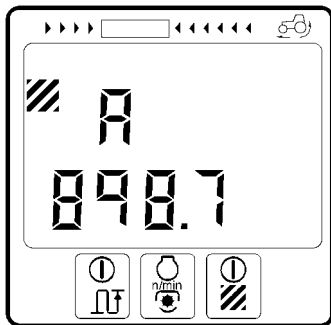
To reset the distance travelled, press and hold the DISTANCE FUNCTION and ENGINE RPM/PTO RPM switches together for 1 second. The lower display will change to zero and the distance travelled information will be reset.

INSTRUMENTS/CONTROLS

Area Function Operation

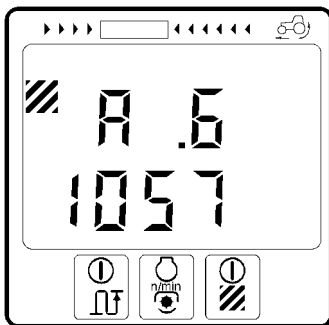
The area function can display the total area worked or the area worked per hour.

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 page 95 for further information with regard to the external implement switch.



DH98K072

If the area worked is **less** than 1000 acres or hectares, it is displayed with a decimal point on the lower display.



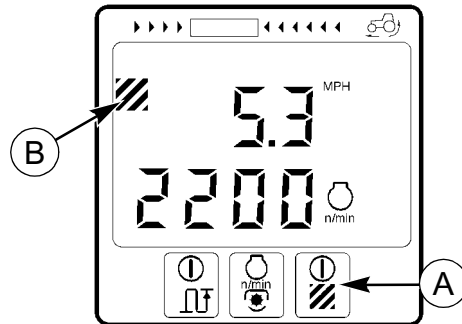
DH98K071

If the area worked is **more** than 1000 acres or hectares, the whole number is shown on the lower display and the point and tenths on the upper display.

IMPORTANT: Make sure the area function mode and the implement width are programmed before using the area function. The factory setting is in the AUTO mode with an implement width of 5 meters (16.5 ft). To change this setting, See Programming The Area Function Mode (Menu Code 5) on Page 40 of this manual.

During normal operation:

STEP 1



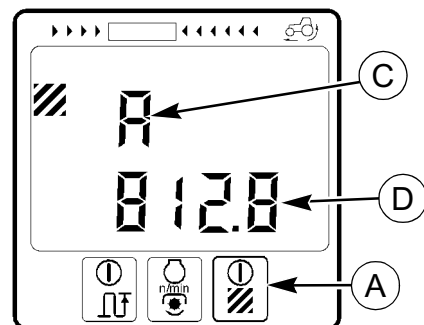
DS98K070

Press the AREA FUNCTION switch (A) to turn the area measuring function on. The area symbol (B) will be displayed.

Press the switch again to stop measuring. The area symbol will be turned off. The area worked is stored in the memory.

STEP 2

(To display area worked; in the run mode while driving).

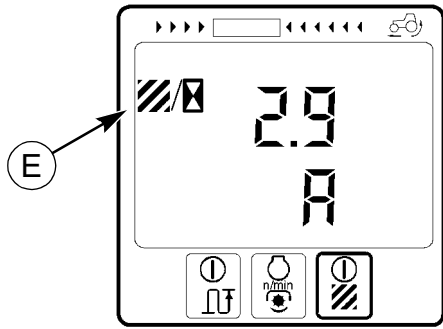


DH98K073

Press and hold the switch (A) for 2 seconds. The upper display (C) will show the unit of area ('A' for acres or 'h' for hectares) and the lower display (D) will show the total area worked. The area symbol will also display.

INSTRUMENTS/CONTROLS

STEP 3



DI98K074

Press and hold the switch (A) again for 2 seconds. The lower display will show the area units and the upper display the area worked per hour. The area per hour symbol (E) will illuminate.

STEP 4

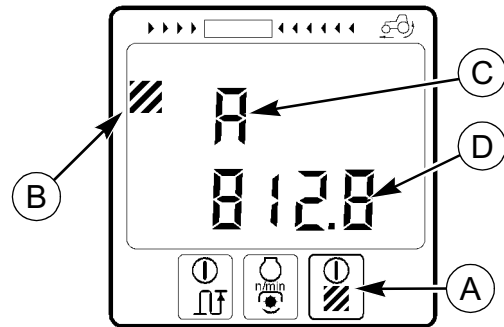
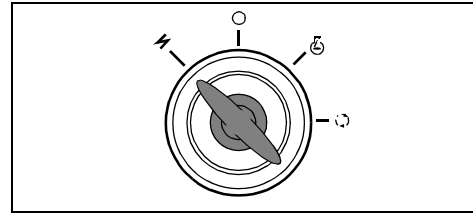
Press and release the RPM switch to return to normal display.

NOTE: The units for area worked is automatically selected based upon the ground speed units. eg. If your cluster is programmed for **mph**, then **acres** will be displayed. If your cluster is programmed for **km/h**, then **hectares** will be displayed.

STEP 5

To reset the area worked, press and hold the AREA FUNCTION and ENGINE RPM/PTO RPM switches together for 1 second. The lower display will change to zero and the area worked information will be reset.

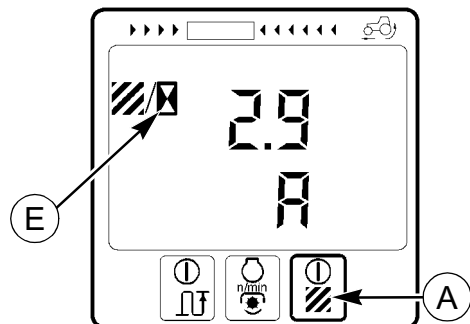
The area worked can also be read with the keyswitch in the **ACCESSORY** position:



DH98K073

Press and release the AREA FUNCTION switch (A). The upper display (C) will show the unit of area, either 'A' for acres or 'h' for hectares. The lower display (D) will show the total area worked. The area symbol (B) will also illuminate.

STEP 6



DI98K074

Press and release the switch (A) again. The lower display will show the units, either 'A' for acres or 'h' for hectares and the upper display will show area worked per hour. The area per hour symbol (E) will illuminate.

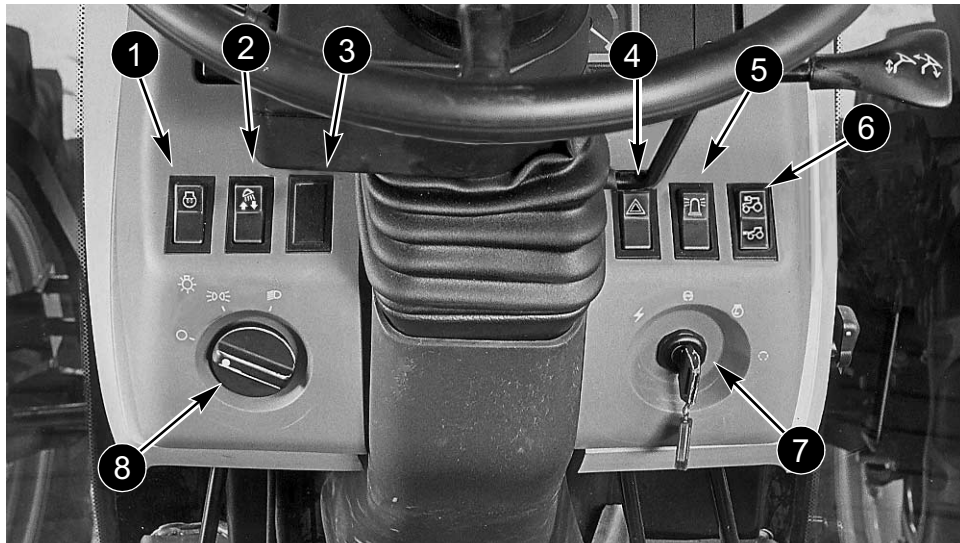
STEP 7

To reset the area worked, press and hold the AREA FUNCTION and ENGINE RPM/PTO RPM switches together for 1 second. The lower display will change to zero and the area worked information will be reset.

INSTRUMENTS/CONTROLS

OPERATING CONTROLS

Instrument Panel



DP98J006

1. THERMOSTART (COLD START) SWITCH
(If Equipped) -See page 67 for instructions.

OR

COLD START (WAIT TO START) LAMP

If this lamp illuminates you **MUST** wait until the lamp goes off before trying to start the engine.

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

First Position - OFF.

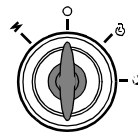
Second Position - The lower front and rear work lights are ON. The worklight indicator lamp on the instrument cluster will illuminate.

Third Position - The lower and upper, front and rear, work lights are ON. The lamp in the rocker switch will be illuminated to indicate the upper worklights are now ON. (The instrument cluster indicator lamp continues to illuminate to confirm the lower worklights are ON).

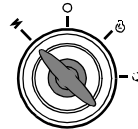
3. REAR FOG LIGHT (If Equipped)
4. HAZARD WARNING SIGNAL SWITCH
5. ROTATING BEACON SWITCH (If Equipped)

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.

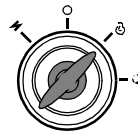
7. KEY SWITCH - The key switch has four positions as follows:



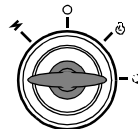
Off Position - Turn from On/Run position counter clockwise to stop the tractor. The key can only be removed from this position.



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 - All bar graphs, digital displays, warning and indicator lamps will be turned on for approximately 3.5 seconds. This position is also used for dynamic calibration of rear tyre size and true ground speed sensor, if equipped.

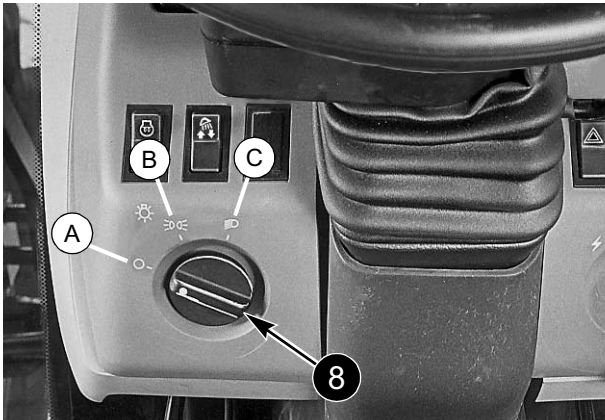


Start Position - Turn the key fully clockwise against spring pressure will energise the starter motor in addition to the circuits already mentioned above.

INSTRUMENTS/CONTROLS

8. HEAD LAMP SWITCH -

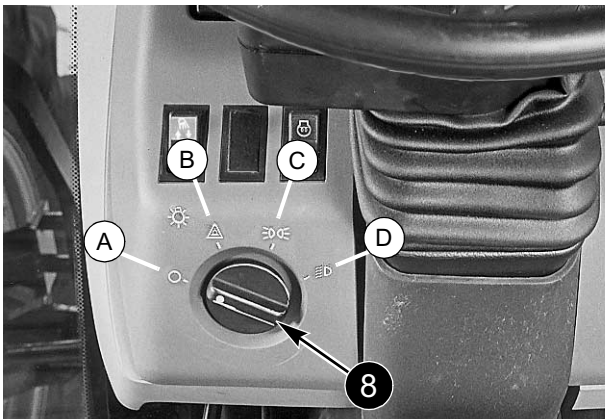
Three Position Switch



DP97C136

- 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.

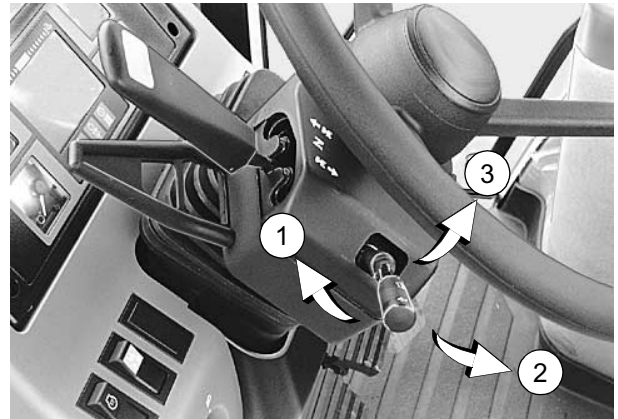
Four Position Switch



DP96K308

- 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



DD98J149

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.

INSTRUMENTS/CONTROLS

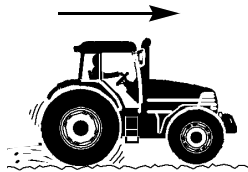
Forward/Neutral/Reverse Lever



DP98J026

Use the Forward/Neutral/Reverse (F/N/R) lever to change direction of travel.

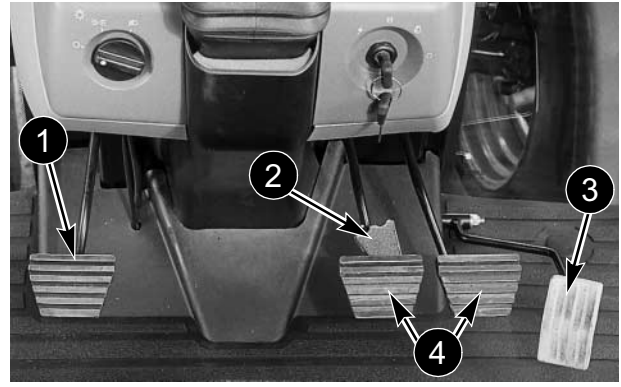
Position 1. = Forward



Position 2. = Reverse



Pedal Controls



DP98E011

1. CLUTCH PEDAL - See page 71 for correct clutch pedal operation.

2. BRAKE PEDALS INTERLOCK - The brake pedals interlock is 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.

3. THROTTLE PEDAL

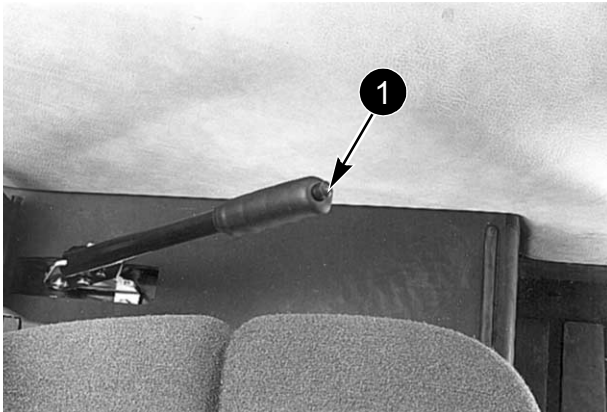
4. BRAKE PEDALS - The left brake pedal stops the left rear wheel and the right brake pedal stops the right rear wheel. For off road operation the pedals can be used individually to assist turning. For road operation the pedals **MUST** be locked together.



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, tanks filled with fertilizer, herbicides or insecticides - all these add weight and increase the distance you need in which to stop.

Do not exceed the maximum permissible tractor or axle operating weights, as found on the tractor P.I.N. plate.

Park Brake



RP95N098

1. PARK BRAKE BUTTON

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 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.*

Auto Hitch Locking Latches Release Control (If Equipped)



DR99C151

This control is located behind the seat on the RH side.

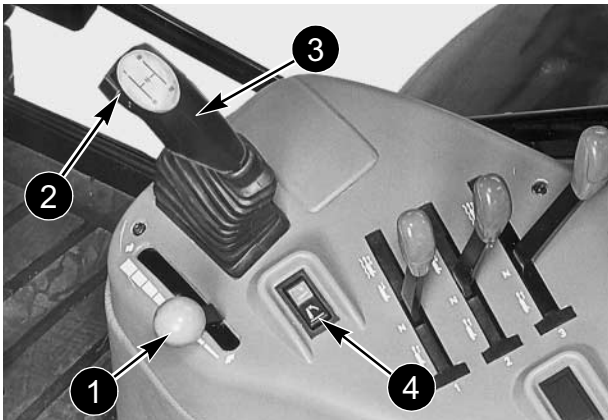
While holding the Ride Control switch down, pull the auto hitch release control to unlock the locking latches.

See Connecting an Implement on Page 88 of this manual.

INSTRUMENTS/CONTROLS

RIGHT HAND CONSOLE CONTROLS

Powershift Transmission



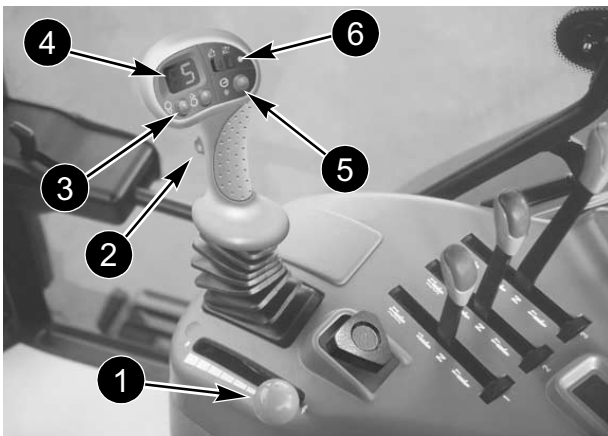
1. THROTTLE LEVER - To increase or decrease the engine speed.
2. POWER SHIFT SWITCH
3. RANGE LEVER

See page 72 for complete instructions.

4. HITCH UP/DOWN SWITCH - See page 120.

IMPORTANT: When the position control knob is in the transport position (locked) the UP/DOWN switch will not function.

Auto Speed Transmission



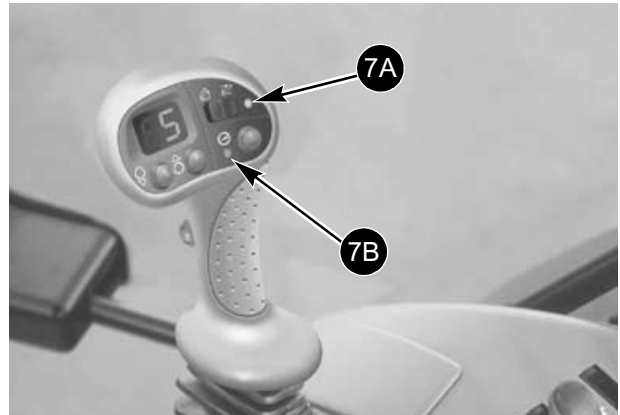
1. THROTTLE LEVER - To increase or decrease the engine speed.
2. RANGE SKIP SWITCH
3. GEAR SELECTION UP/DOWN SWITCHES
4. GEAR SELECTION DISPLAY
5. SOFT SHIFT SELECTOR SWITCH

See page 74 for complete instructions.

6. HITCH UP/DOWN SWITCH - See page 120.

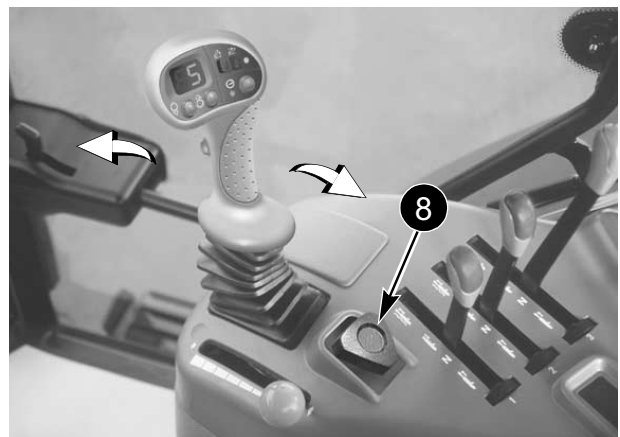
IMPORTANT: When the position control knob is in the transport position (locked) the UP/DOWN switch will not function.

7. FUNCTION INDICATOR LAMPS



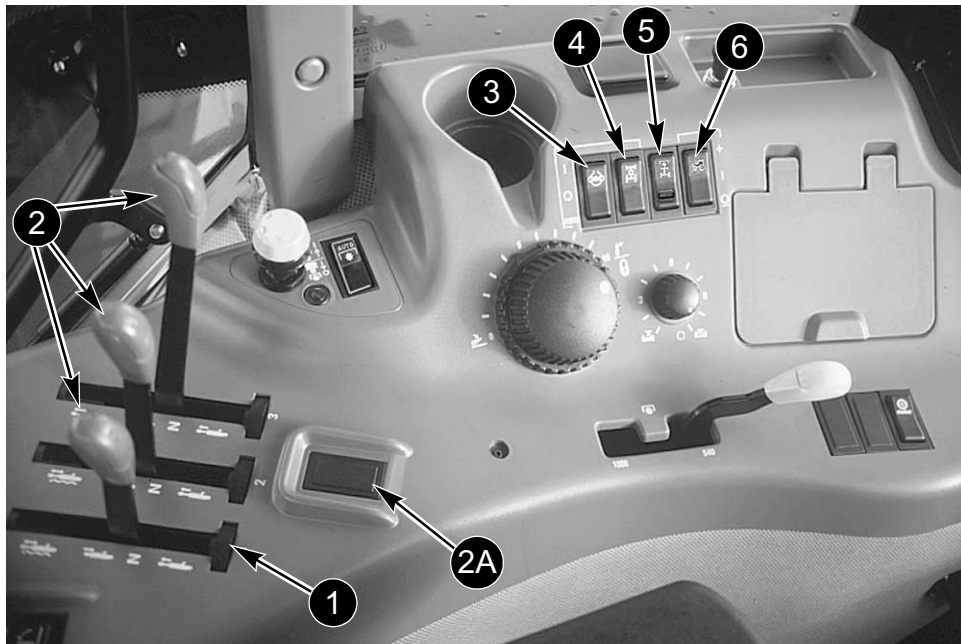
- A. REAR HITCH ENABLED.
- B. SOFT SHIFT ACTIVATED.

8. ADJUSTMENT LOCKING KNOB



To adjust the position of the multi control lever loosen the locking knob (8). Move the lever fore or aft as required and then tighten locking knob.

All Transmission Options



MP01C050

1. REMOTE LEVERS LOCKING DEVICE -
see page 146.

2. REMOTE HYDRAULIC VALVE LEVERS -
see page 143.

Attachments Controlled By The Remote Levers:

Equipped with Auto Hitch **ONLY**
(Hook/Drawbar Extend/Retract)..... Lever No. 3

Equipped with Front Hitch **ONLY**
(Lift Links Raise or Lower) Lever No. 3

Equipped with Auto Hitch **AND** Front Hitch
(Hook/Drawbar Extend/Retract)..... Lever No. 1
(Lift Links Raise or Lower) Lever No. 3

3. DIFFERENTIAL LOCK SWITCH -
see page 131.

4. MECHANICAL FRONT DRIVE (MFD)
(If Equipped) - see page 134.

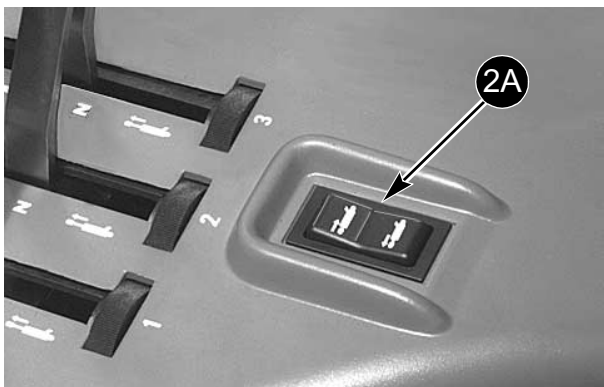
NOTE: DO NOT use the MFD for light duty work or when travelling on the highway. DO NOT drive the tractor in high range third or fourth gear with MFD engaged.



WARNING: Tractors equipped with Mechanical Front Drive (MFD) have increased traction and can climb steeper slopes. Stay off slopes too steep for safe operation. To prevent rear overturns, reverse up steeper slopes.

5. FRONT PTO SWITCH (If Equipped) -
see page 112.

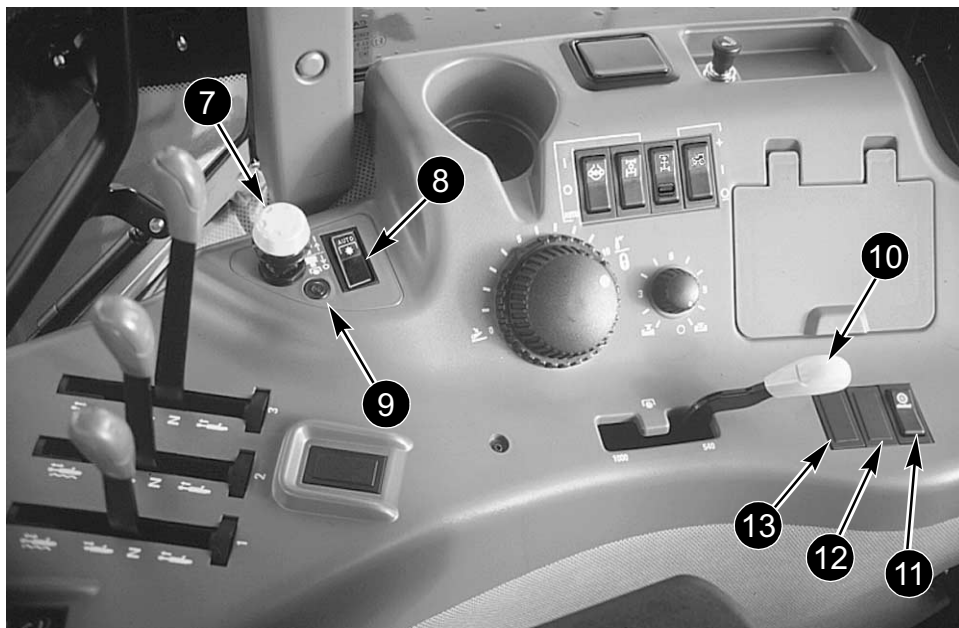
6. WHEEL SLIP LIMIT CONTROL SWITCH -
see page 101.



DD99C276

2A. FOURTH REMOTE VALVE SWITCH
(If Equipped).

INSTRUMENTS/CONTROLS



MP01C050

7. REAR PTO ON/OFF SWITCH - see page 102.

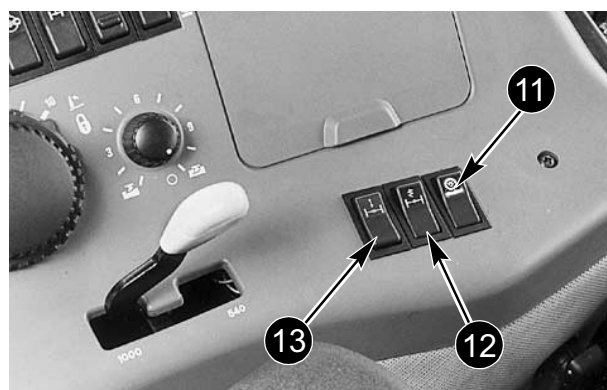
IMPORTANT: When the engine is stopped the PTO will disengage, but the PTO ON/OFF switch will remain in the ON position. The engine will start if the PTO ON/OFF switch is not in the OFF position, but the PTO shaft will not rotate and the error code indicator lamp will flash. Move the PTO ON/OFF switch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

8. AUTO PTO SWITCH - see page 106.

9. REAR PTO ERROR CODE INDICATOR LAMP - see page 110.

10. REAR PTO SHIFTABLE SPEED LEVER - see page 102.

NOTE: Disengage the PTO before changing speed.



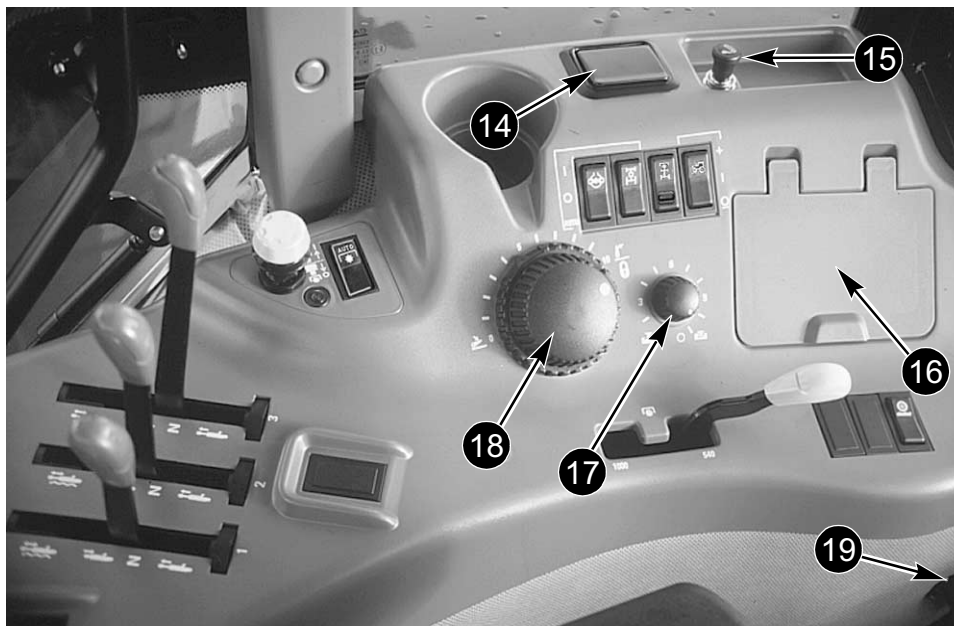
DP99A122

11. RIDE CONTROL SWITCH - see page 129.

12. INDEPENDENT FRONT SUSPENSION ON/OFF SWITCH - see page 137.

13. INDEPENDENT FRONT SUSPENSION MANUAL HEIGHT ADJUSTMENT SWITCH - see page 137.

INSTRUMENTS/CONTROLS



MP01C050

14. ASHTRAY

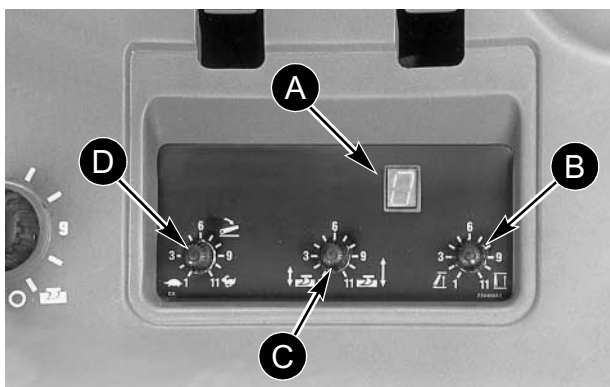
15. CIGARETTE LIGHTER

16. HITCH CONTROL BOX -

17. HITCH DRAFT (LOAD) CONTROL KNOB -
see page 120.

18. HITCH POSITION CONTROL - see page 120.

19. CREEPER LEVER (If Equipped) -
see page 99.



DP96J340

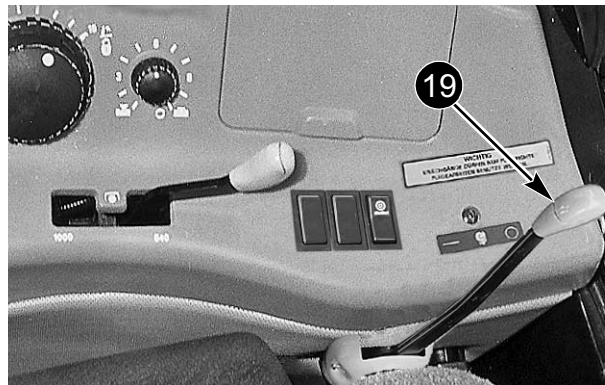
A. DIAGNOSTIC DISPLAY - The display indicates hitch operation error codes.

B. HITCH UPPER LIMIT CONTROL KNOB

C. HITCH TRAVEL CONTROL KNOB

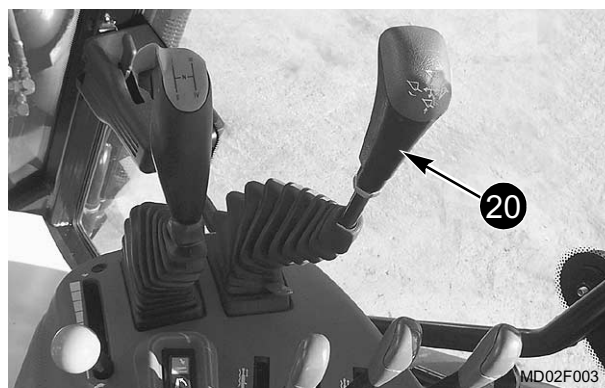
D. HITCH DROP RATE CONTROL KNOB

See REAR THREE POINT HITCH OPERATION on Page 120 of this manual. to items listed above.



DR99G105

20. FRONT LOADER CONTROL LEVER
(If Equipped).



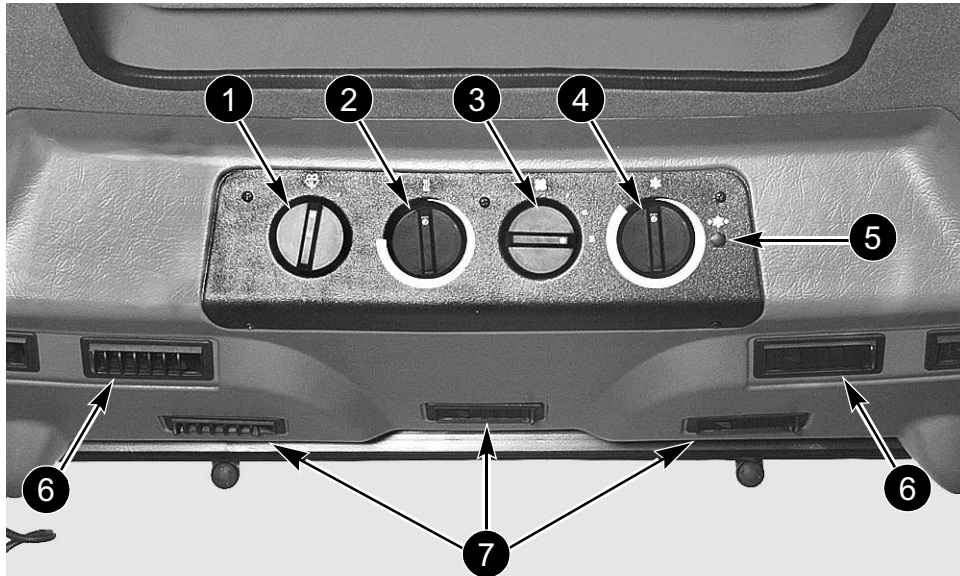
MD02F003

Refer to loader manufacturers handbook and/or your dealer for correct loader operation.

INSTRUMENTS/CONTROLS

OPERATOR CAB ENVIRONMENT CONTROLS

Deluxe Cab



DD95M222

1. WINDSHIELD WIPER/WASHER CONTROL - Three Positions:



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



Slow.



Fast.

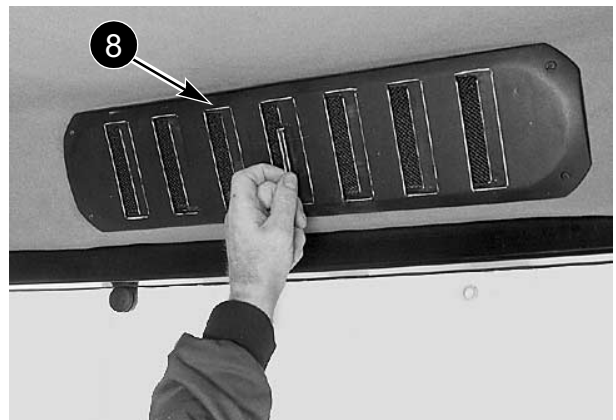
NOTE: On tractors equipped with the opening windshield there is only one speed.

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

5. AIR CONDITIONER PRESSURE INDICATOR LAMP

6. AIR OUTLET VENTS

7. DEFROSTER CONTROL



DP96J356

2. TEMPERATURE CONTROL

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.

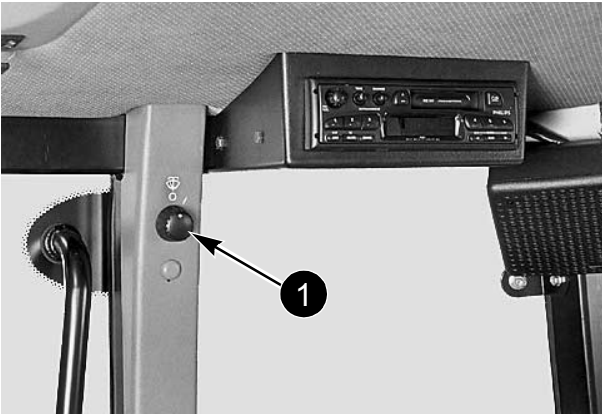
3. BLOWER CONTROL

4. AIR CONDITIONER CONTROL - Blower must be operating.

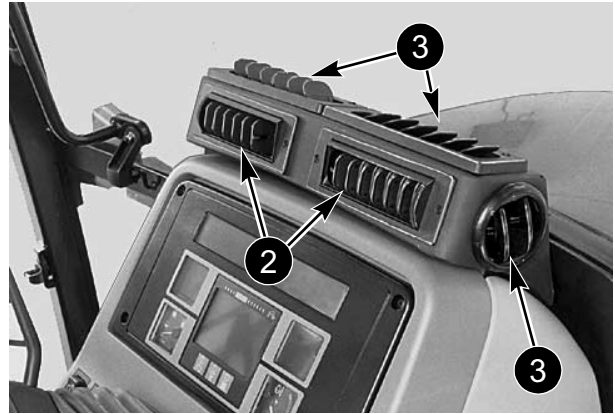
8. RECIRCULATION VENT

INSTRUMENTS/CONTROLS

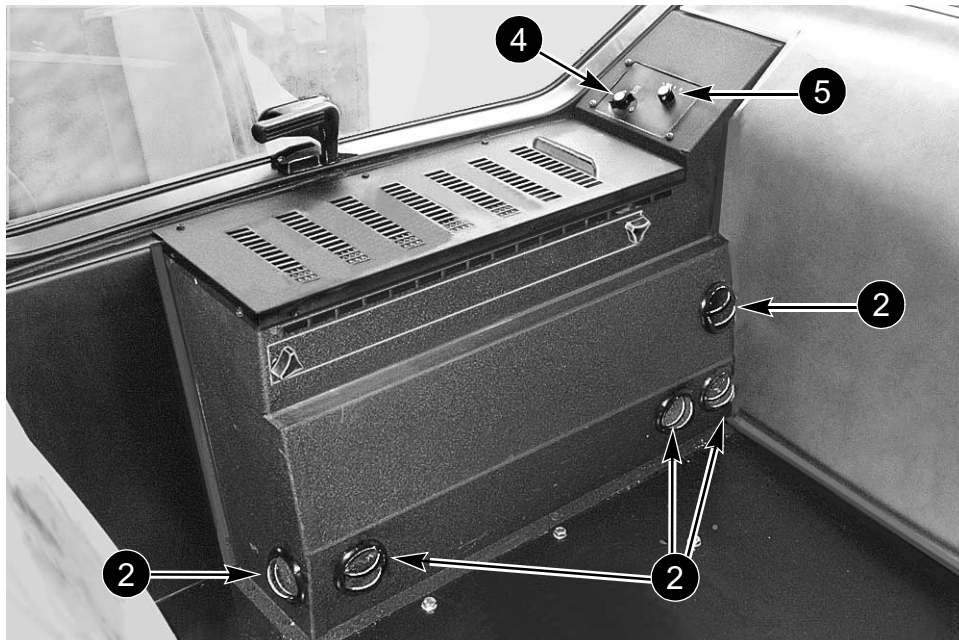
Low Profile Cab (without Air Conditioning)



DP97K027



DP99G059



DP97E257

1. WINDSHIELD WIPER/WASHER CONTROL- Two Positions:



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



On.

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

2. AIR DISCHARGE VENTS

3. DEFROSTER VENTS

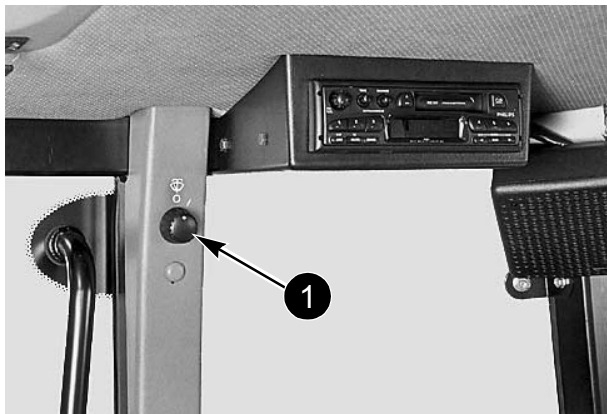
4. TEMPERATURE CONTROL

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.

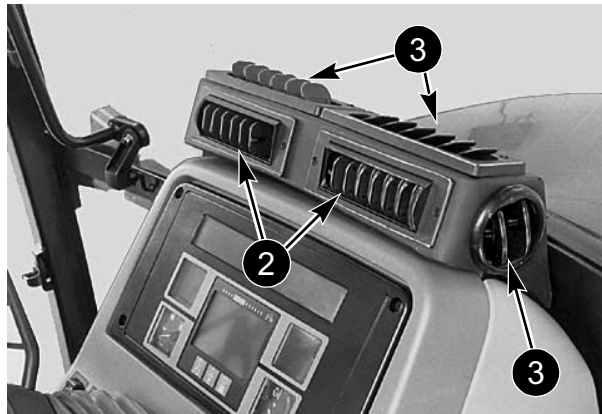
5. BLOWER CONTROL

INSTRUMENTS/CONTROLS

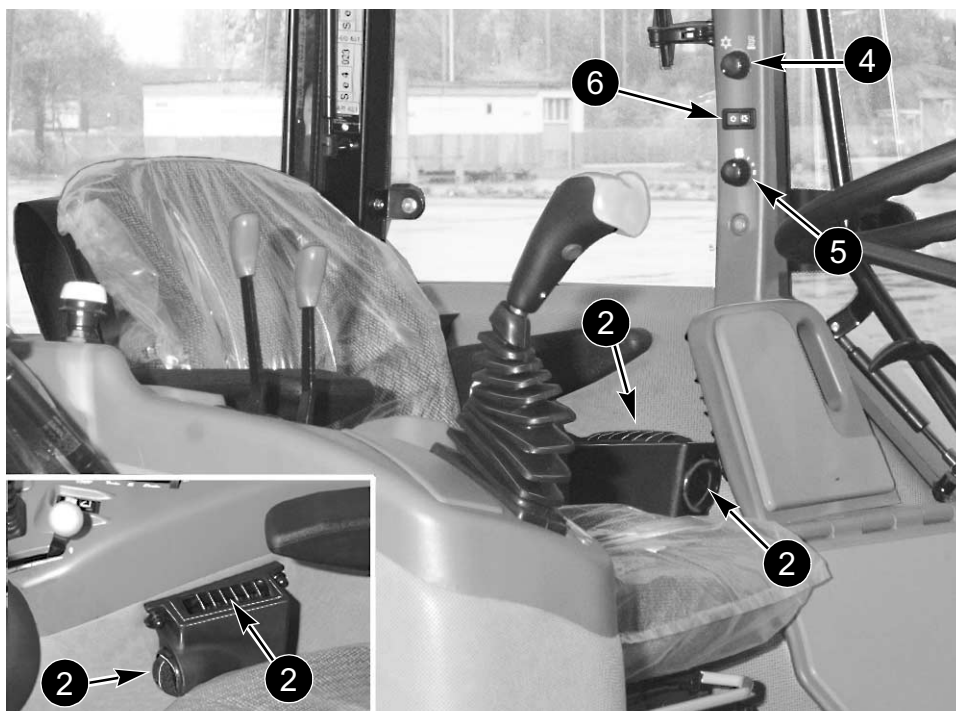
Low Profile Cab (with Air Conditioning)



DP97K027



DP99G059



DD00M005

1. WINDSHIELD WIPER/WASHER CONTROL- Two Positions:



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



On.

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

2. AIR DISCHARGE VENTS

3. DEFROSTER VENTS

4. TEMPERATURE CONTROL

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.

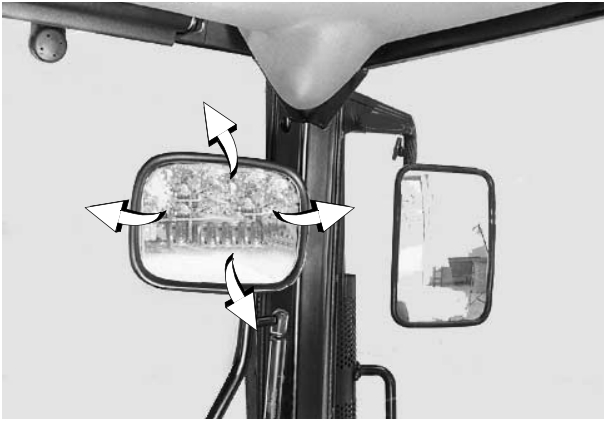
5. BLOWER CONTROL

6. AIR CONDITIONER CONTROL (If Equipped) - Blower must be operating.

REAR VIEW MIRRORS

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

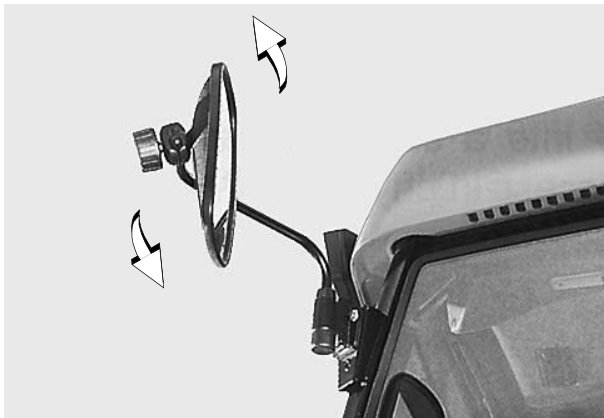
Internal Mirror



DP96J364

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

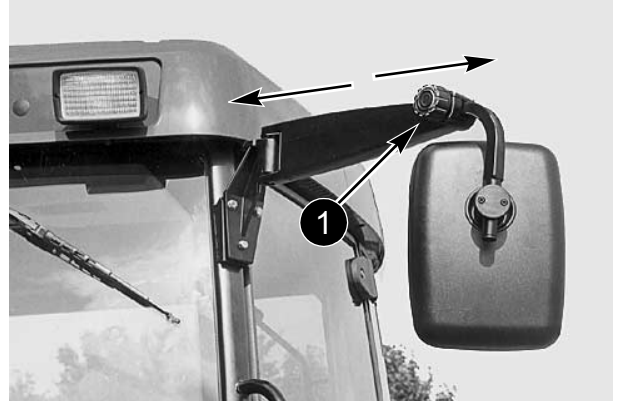
Basic Mirrors



DS97K180

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

Extendable Mirrors (If Equipped)

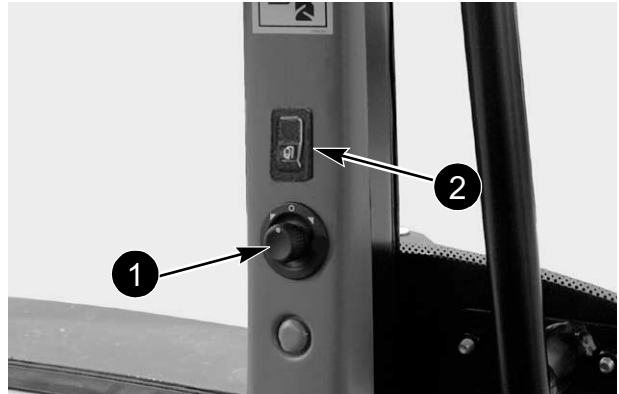


DP99J053

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)



MD01H001

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.

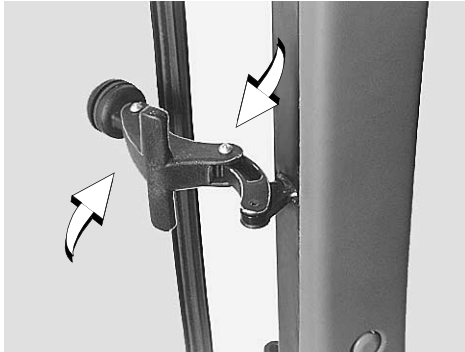
DEFROSTER (HEATER): Press the bottom of the switch (2) to activate the heater. An indicator lamp in the switch will illuminate to indicate the heater is switched on. Press the top of the switch and the heater and indicator lamp will go off.

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.

INSTRUMENTS/CONTROLS

ADDITIONAL CAB FEATURES

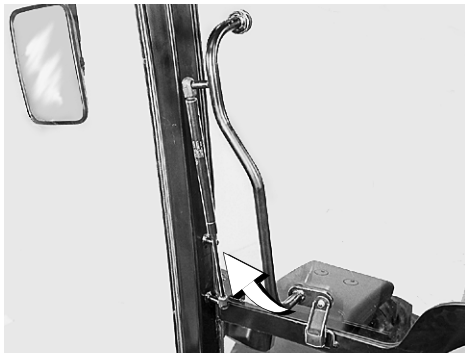
Cab Side Windows



DD95M220

Push the window arm rearward and then push the arm out until the window stops.

Opening Windshield (If Equipped)



DP96H290

Release catches, (one each side) and push the bottom outward.

IMPORTANT: DO NOT open the windshield when using a front loader.

Cab Rear Window



DD95M217

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

Emergency Exit - window fully open.

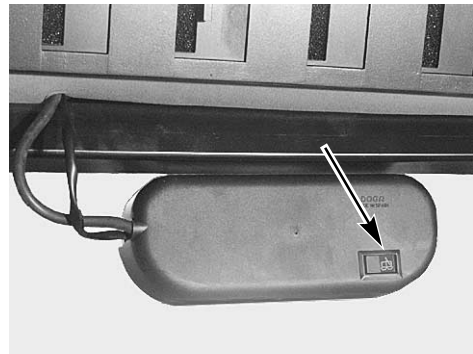
Sun Visor



DP96J366

Pull down or push up as required.

Rear Wiper/Washer (If Equipped)



DD95M219

When looking at the switch:

Right side of switch = On/wash.

Left side of switch = Off.

INSTRUMENTS/CONTROLS

Roof Hatch (If Equipped)



DP96H288

Ventilation - Push the latch towards the front of the tractor and then push the hatch up.

Emergency Exit - Push firmly upward to release the support struts from the lower retainer clips.

Radio (If Equipped)



DP96J357

For operation refer to the radio manufacturers instructions.

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

GENERAL OPERATION

GENERAL OPERATION

Before Starting The Engine

IMPORTANT: An OPERATOR PRESENCE SAFETY SWITCH is fitted in the FORWARD-NEUTRAL-REVERSE (F-N-R) circuit, activated by the operator sitting on the seat. See OPERATING THE TRANSMISSION on Page 71 of this manual.



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.



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.

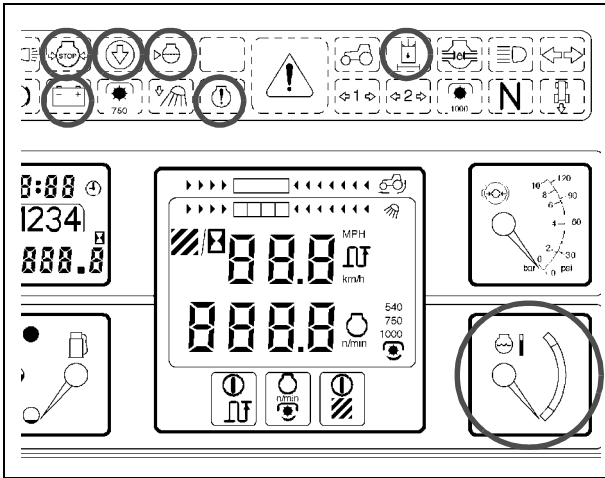
1. Make sure all persons that operate or do maintenance on the tractor understand that clean fuel is important.
2. Check all lubrication fittings.
3. Check the oil levels in the engine crankcase and transmission.
4. Check the water level in the batteries (if battery is not maintenance - free).
5. Check that the fuel tank is filled with clean fuel of the specifications given in this manual. Clean around the fuel tank cap before you remove the cap.
6. Check the fuel system, cooling system and engine oil pan for leaks.
7. Check that the alternator and compressor belts are adjusted correctly.
8. Remove any water or sediment from the fuel primary filter.
9. Check the air pressure of the tyres.
10. If your tractor has a power takeoff, make sure the safety guard is installed and in good condition.
11. Check the coolant level in the coolant recovery bottle and radiator. Add water and ethylene glycol coolant as needed.

Run In Procedure

- A gradual run-in of a new engine is not necessary.
- Continuous operation at light loads during the early life of the engine can cause lubricating oil to enter the exhaust system.
- Maximum load can be applied to a new engine as soon as the engine is put into service and the coolant temperature has reached a minimum of 60°C (140°F).
- The engine will benefit if the load is applied as soon as possible after the engine is put into service.
- **DO NOT** run the engine for long periods at maximum load.
- **DO NOT** run the engine for long periods at high speed without a load. When not operating the engine with a load, keep the engine at the correct operating temperature.

GENERAL OPERATION

Service Indicator Lamps And Gauges



MR02E075

The condition of a monitored system is indicated by the service indicator lamps, (as highlighted above). If the 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 Instruments/Controls section of this manual.

When the keyswitch is turned to the ON position, the instrument cluster will do a self check of all monitored systems. Some of the indicator lamps, gauges and the digital displays will energize for 3.5 seconds.

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, See page 39 for more information.

First Service Required Before Regular Intervals

Services must be carried out at varying Engine Hour intervals, depending on which comes first, see below for example.

- Every 10 Hours, or daily
- Every 50 Hours, or weekly
- Every 100 Hours, or every two weeks
- Every 250 Hours, or monthly
- Every 500 Hours, or six monthly
- Every 1000 Hours, or annually
- Every 2000 Hours, or bi-ennial

Some tasks must be carried out which are **outside** the regular 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 wheel bolts/nuts.
- Check the torque of all front axle bolts/nuts.

After the first 20 Hours of Front PTO operation (then at 250 Hours and every 250 Hours of Front PTO operation, thereafter):

- Change Front PTO oil.

After the first 50 Hours of operation (then at 250 Hours and every 250 Hours of operation thereafter):

- Check tension of drive belts.

After the first 250 Hours of operation (then at 1000 Hours and every 1000 Hours of operation thereafter):

- Change the Transmission/Hydraulic Oil Filter.
- Clean the Transmission/Hydraulic Oil Strainer.
- Change the Differential Oil.
- Change the Planetary Oil.

GENERAL OPERATION

NORMAL 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.

IMPORTANT: 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 1

Make sure the master disconnect switch, (if equipped) is switched ON and the Forward/Neutral/Reverse lever and Range lever (Powershift Transmission only) are in the NEUTRAL position.

NOTE: This tractor is equipped with a Neutral Start Switch. If the Forward/Neutral/Reverse lever is not in the neutral position the engine **WILL NOT** start.

STEP 2



DP96J347

Move the throttle lever to 1/4 open position.

STEP 3



DP96J332

Turn the keyswitch to the START position until the engine starts, but no more than 30 seconds, then release the key. Run the engine for 2 minutes.

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.

IMPORTANT: **DO NOT** use the starting motor for more than 30 seconds without stopping. Wait three minutes between starts to allow the starter motor to cool.

STEP 4

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

IMPORTANT: If the indicator lamps or gauge does not give the correct indications, **STOP THE ENGINE IMMEDIATELY AND CHECK FOR THE CAUSE.**

NOTE: If equipped with a Auto Speed transmission, on starting the engine the transmission will default to Gear 5.

GENERAL 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.*

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. Start the engine using the correct Cold Temperature Starting procedure given in this manual.
- B. 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.

GENERAL OPERATION

Starting the Engine Using the Thermostart Cold Start System (If Equipped)



WARNING: DO NOT spray ether or gasoline into the air induction manifold of the tractor fitted with a thermostart system. To do so could cause an explosion and injury.

To start the diesel engine at cold ambient temperatures of -7°C (20°F) or lower, use the Thermostart cold start system according to the following procedure:

STEP 1

Make sure the master disconnect switch, (if equipped) is switched ON and the Forward/Neutral/Reverse lever and Range lever (Powershift Transmission only) are in the NEUTRAL position.

NOTE: This tractor is equipped with a Neutral Start Switch. If the Forward/Neutral/Reverse lever is not in the neutral position the engine WILL NOT start.

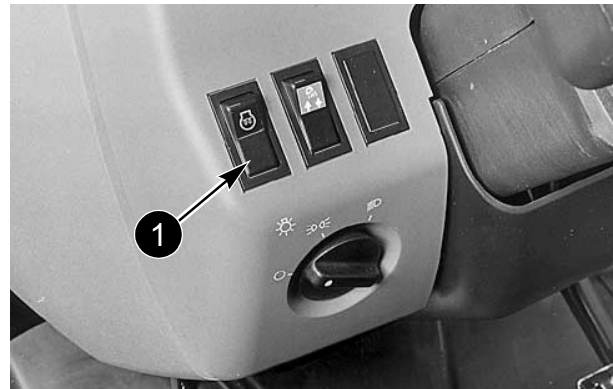
STEP 2



DP96J347

Move the throttle lever to the FULL open position.

STEP 3



DP97F029

Push the top of the thermostart switch (1) down for 10 to 15 seconds, then turn the keyswitch to the start position. While cranking the engine hold the thermostart switch down for a maximum of 30 seconds. Once started, move the throttle to 1/3 open and run the engine for 2 minutes.

NOTE: If the engine runs erratically, press the thermostart switch again while the engine is running.

NOTE: If the engine does not start in the first 15 seconds then repeat the procedure, but push the thermostart button for only 10 seconds. If the engine still does not start, DO NOT try to start the engine again for 3 minutes.

STEP 4

When the engine starts check that all indicator lamps and gauges are giving normal indications and when the engine is warm the coolant temperature indicator is in the correct area.

IMPORTANT: If the indicator lamps or gauges do not give the correct indications, STOP THE ENGINE IMMEDIATELY AND CHECK FOR THE CAUSE.

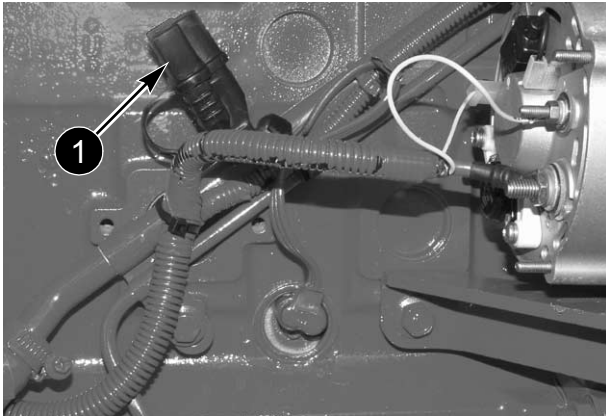
NOTE: If equipped with a Auto Speed transmission, on starting the engine the transmission will default to Gear 5.

GENERAL OPERATION

Engine 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.

North American Tractors

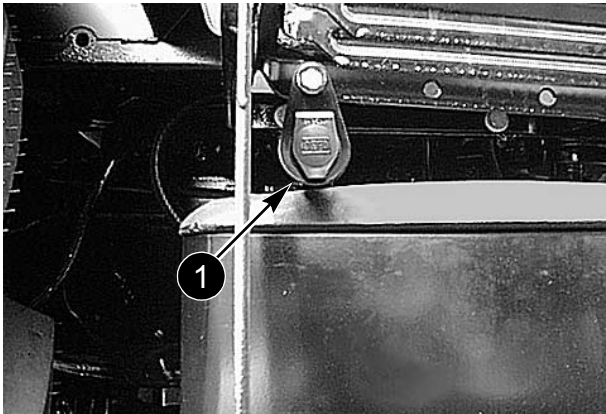


MD02B020

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

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

Rest Of World Tractors



DD98M118

Connect a mains supply to the connector plug (1), located next to the RH step.

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

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.

GENERAL OPERATION

PARKING THE TRACTOR

Stationary Tractor Operation (Engine Running)

Before doing any PTO and/or HYDRAULIC operation do the following:

STEP 1

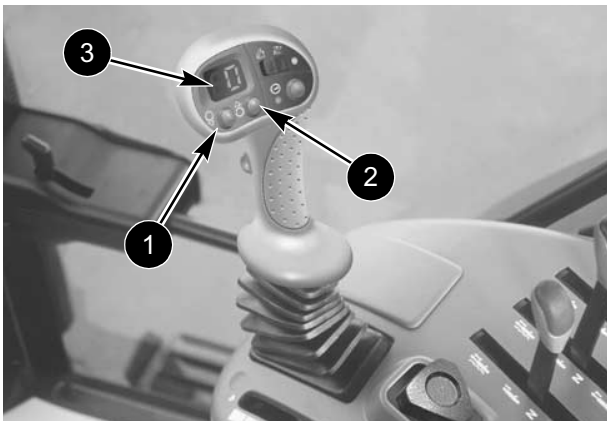
Stop the tractor and put the Forward/Neutral/Reverse lever in NEUTRAL position.

STEP 2



DP96J337

If equipped with a powershift transmission, put the range lever in the NEUTRAL position.



MR01J031

If equipped with a Auto Speed transmission, to gain NEUTRAL press and hold both Gear Selection Switches (1 & 2) down until The Gear Selection Display (3) shows zero (0).

Stopping The Engine

- Carry out steps 1 and 2 in opposite column.

STEP 3



DR99B071

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.

STEP 5

If equipped with Independent Front Suspension fully lower the axle to the bottom mechanical stop.

STEP 6

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

IMPORTANT: When stopping the engine after operating under heavy load, run the engine at idle speed for a short period of time. This will allow the engine and turbocharger temperature to decrease gradually.

STEP 7

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

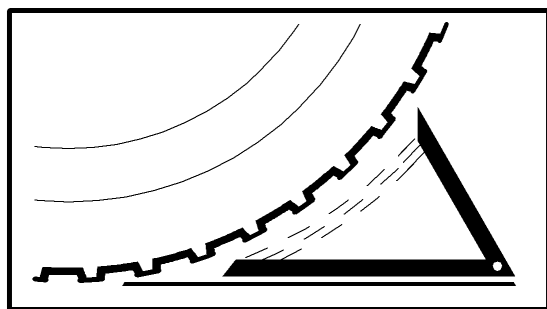
GENERAL OPERATION

Folding Wheel Wedge (If Equipped)



DP96H256

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



OM1401

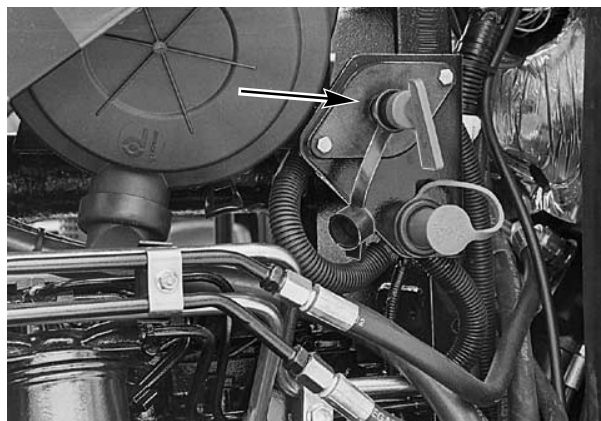
IMPORTANT: To prevent accidents do not park the tractor with equipment raised.

Master Disconnect Switch (If Equipped)

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.*



DP99G157

GENERAL OPERATION

OPERATING THE TRANSMISSION

NOTE: In ambient temperatures of -10°C (14 °F) or below, the transmission and controls could be difficult to operate for the first few minutes after starting, until the transmission oil is warm.

IMPORTANT: While the tractor is moving the transmission must always be in drive, (except when changing range, speed or direction and when using inching control). Failure to do so will result in the operator not having full control of the tractor and may result in personal injury.

- FORWARD/NEUTRAL/REVERSE - directions **CAN** be selected without using the clutch pedal.
- POWER SHIFT TRANSMISSION - speeds **CAN** be selected without using the clutch pedal, Range speeds **CANNOT** be selected without using the clutch pedal.

IMPORTANT: The transmission will not operate if reverse is selected with the range lever engaged in fourth range.

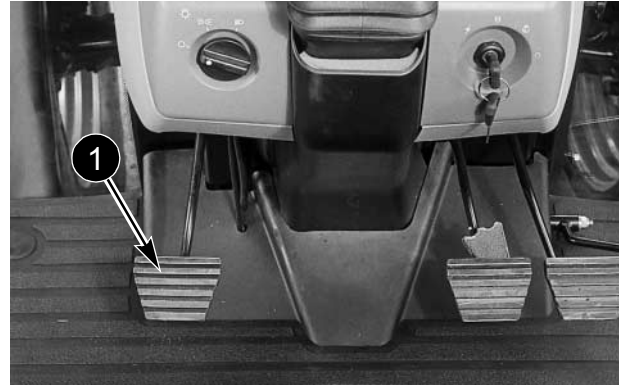
- AUTO SPEED TRANSMISSION - Gear selection (range/speed) **CAN** be made without using the clutch pedal.

IMPORTANT: The transmission will default to reverse gear 13 if reverse is selected when currently in forward Gears 14, 15 and 16.

See the following pages for complete instructions.

CREEP - speeds **CANNOT** be selected without using the clutch pedal, see page 99 for creep operation.

Clutch Pedal Operation



DP98E011

The clutch pedal is used to temporarily disengage drive.

Use the clutch pedal when moving the tractor short distances or when operating in confined areas, connecting implements to the tractor, and stopping the tractor.

The operator should use the clutch pedal to start the tractor moving from stationary. Gradually and completely release the clutch pedal for a controlled smooth start.

ALWAYS operate the clutch pedal when doing the following:

- When selecting or changing RANGE, if equipped with a POWERSHIFT transmission.
- When engaging and disengaging creeper (if equipped).
- When stopping the tractor.

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.

GENERAL OPERATION

POWERSHIFT TRANSMISSION OPERATION

The Powershift transmission is operated with the forward/neutral/reverse lever, the range lever, and the powershift switch located on the knob of the range lever.

If your transmission is also equipped with creeper speeds, see page 99 for operation.

Selecting Speeds with Tractor Stationary

STEP 1



DP96J337

Move the powershift switch to position 1.

STEP 2



DP96J336

Push the clutch pedal fully down and select the range. Disengage the park brake.

STEP 3



DR98J150

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

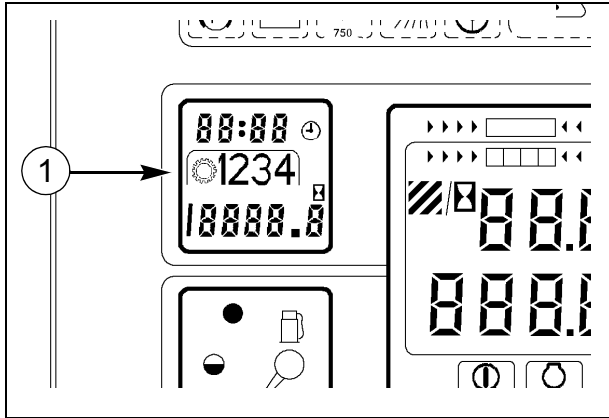
IMPORTANT: *The FORWARD/NEUTRAL/REVERSE lever must only be moved with the operator sitting on the seat. If the lever is moved without the operator sitting on the seat the tractor will not move. The operator must sit on the seat and move the lever back into NEUTRAL and then into FORWARD to start the tractor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

GENERAL OPERATION

Selecting Speeds with Tractor Moving

The powershift switch can be shifted to any position when the tractor is moving. For smooth speed changes, move the switch one speed at a time in sequence 1,2 3,4.

If equipped with a digital instrument cluster the powershift display (1) on the instrument cluster will indicate which speed has been selected.



DP96J384

IMPORTANT: To prevent excessive deceleration of the tractor ALWAYS downshift one speed at a time in sequence, 4, 3, 2, 1.

Soft Shift



DP96J384

Only use the Soft Shift in 4th range.

DO NOT USE THE SOFT SHIFT IF THE TRACTOR IS UNDER LOAD

The Soft Shift selector button (2) can be used to give a smoother shift operation.

To Operate; hold the button in while moving the power shift switch to a new position.

Shuttle Shifting

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

Always slow the tractor speed to a minimum before moving the FORWARD/NEUTRAL/REVERSE lever to the desired direction of travel.

IMPORTANT: The transmission will not operate if reverse is selected with the range lever engaged in fourth. To reset the transmission, push the clutch pedal fully down and move the range lever to 1st, 2nd or 3rd range then move the FIN/R lever to NEUTRAL then REVERSE.

Move the power shift switch through the speed range to the desired speed selection.

GENERAL OPERATION

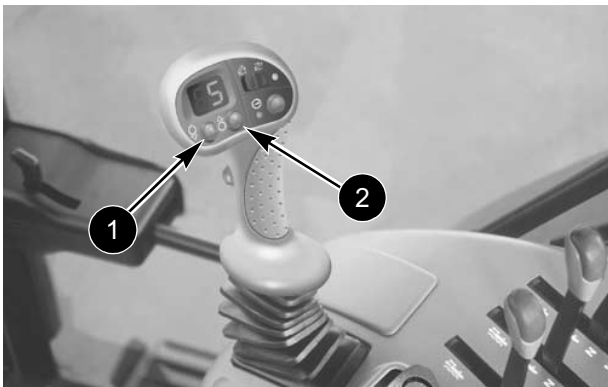
AUTO SPEED TRANSMISSION OPERATION

The Auto Speed transmission is operated with the Forward/Neutral/Reverse lever plus the Gear Selection up/down switches, Range Skip switch and the Shift Mode switch which are all located on the Multi Control Lever for easy operation.

If your transmission is also equipped with creeper speeds, see page 81 for operation.

Selecting a Gear (Stationary or Moving)

NOTE: On starting the engine the gear default will be 5th gear.



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

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 transmission has made the range change.

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 transmission has made the range change. 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.

NOTE: When shifting *DOWN* the transmission gears (using either Method A or B) the gear selection is numerically sequenced (ie. gear 16 to 15 to 14 etc.), with the exception of gear 12. When shifting *DOWN* from gear 13 the transmission will miss gear 12 and select gear 11.

NOTE: Under certain operating conditions (ie. on inclines during heavy trailer work) the tractor may stop and initially roll backwards during range changes (ie. gears 4 to 5, 8 to 9 or 12 to 13). In this instance applying the foot brakes will hold the tractor until the range change has been made.

NOTE: When ever the tractor is being operated under heavy load (ie. ploughing etc.), when the transmission changes range (ie. gears 4 to 5, 8 to 9 or 12 to 13) the tractor will stop. Once the new range is engaged the tractor will automatically re-engage drive.

The gear selection will be displayed on the Multi Control Lever.

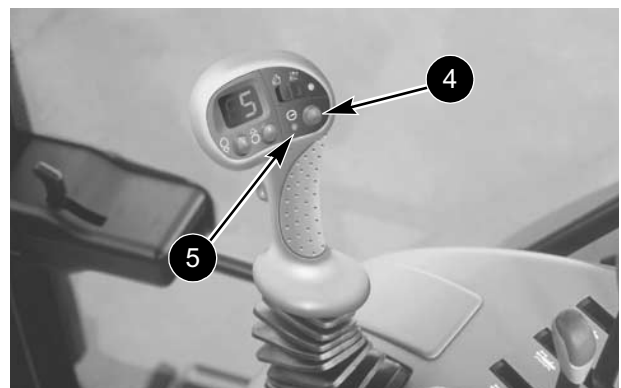


3. GEAR DISPLAY

Soft Shift

The soft shift can be used to give a smoother gear shift operation.

NOTE: This function will only work in forward gears 9 through 16, or reverse gears 9 through 13.



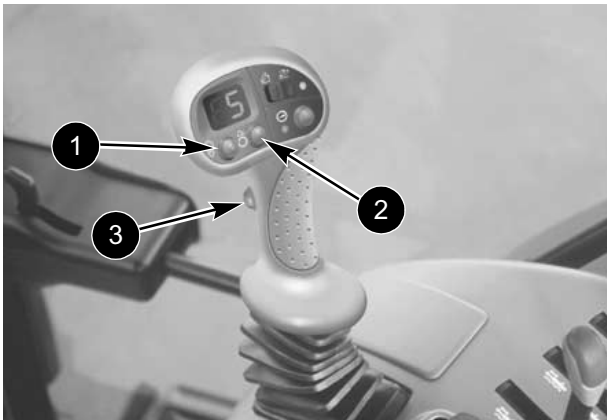
In gear 9 or above, press the Soft Shift switch (4) to activate this function. An indicator lamp (5) on the multi control lever will illuminate to show soft shift is activated.

If gear 8 or below is selected while soft shift is activated, soft shift will automatically disengage and will require re-engagement when gear 9 or above is selected.

GENERAL OPERATION

Range Skip Shift

This feature will allow gear shifts up to a factor of 4.



MP01F075

Tractor Stationary

UP Gear Selection:

Pressing the Range Skip switch (6) in conjunction with the **UP** Gear Selection switch (2) will allow the transmission to shift up to the first speed within the next range.

Example:

If the transmission is in gear 6 and you press Range Skip and the UP Gear Selection Switch the transmission will shift to gear 9.

OR

If the transmission is in gear 11 and you press Range Skip and the UP Gear Selection Switch the transmission will shift to gear 13.

DOWN Gear Selection:

Pressing the Range Skip switch (6) in conjunction with the **DOWN** Gear Selection switch (1) will allow the transmission to shift down between the four ranges by a factor of 4.

Example:

If the transmission is in gear 12 and you press Range Skip and the DOWN Gear Selection Switch the transmission will shift to gear 8.

OR

If the transmission is in gear 10 and you press Range Skip and the DOWN Gear Selection Switch while moving, the transmission will shift to gear 6.

Tractor Moving

Pressing the Range Skip switch (6) in conjunction with the UP Gear Selection switch (2) will allow the transmission to shift up to the first speed within the next range.

Example:

If the transmission is in gear 6 and you press Range Skip and the UP Gear Selection Switch while moving, the transmission will shift to gear 9.

OR

If the transmission is in gear 11 and you press Range Skip and the UP Gear Selection Switch while moving, the transmission will shift to gear 13.

NOTE: This function only works during 'UP' shifting.

Shuttle Shifting

Changing the direction of travel can be done with or without using the clutch pedal.

Always slow the tractor speed to a minimum before moving the FORWARD/NEUTRAL/REVERSE lever to the desired direction of travel.

Moving the F/N/R lever from forward to reverse or reverse to forward, gear changes are indicated in the table opposite.

Press the Gear Selection up/down switches to the desired gear selection.

FORWARD	REVERSE
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13
14	13
15*	13
16*	13

*** NOTE:** If the transmission is in forward gears 14, 15 or 16 and the F/N/R lever is moved to reverse, the transmission will default to reverse gear 13. When moving the F/N/R lever back to forward, the transmission will remain in gear 13.

GENERAL OPERATION

Additional Features (If Equipped)

Operator Programmed Start Off/Shuttle Gears

For special shuttle shift applications it is possible to select a different forward and reverse gear within a range, (gears 1 to 4 **or** 5 to 8 ONLY).

To change the transmission start off/shuttle gear the tractor **MUST** be stationary and engine running. Depress the clutch pedal and move the Forward/Reverse lever into either forward or reverse. Press either Gear Selection Switch up or down to select a higher or lower gear respectively. Press and hold both Gear Selection Switches for approximately 2 seconds. An audible alarm will sound twice to confirm the new start gear has been stored.

NOTE: *Once the key switch is turned to the OFF position the preselect gears will be lost.*

If the operator makes a range change, with the next shuttle shift the transmission will select the nearest gear within that range, (shuttle shifts will not allow a range change to be made).

Speed Matching

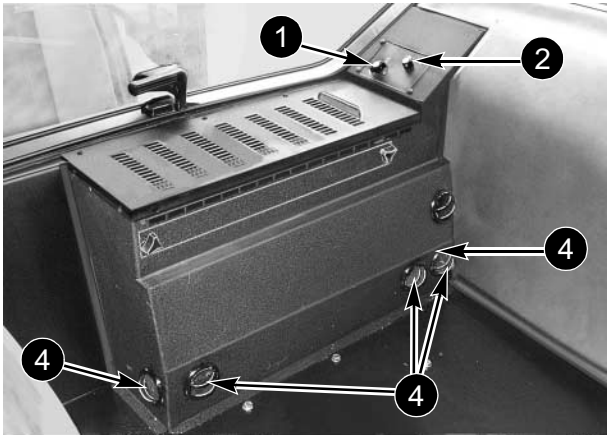
If the clutch pedal is momentarily depressed and then released with the tractor in motion, the transmission will automatically downshift to match a decrease in ground speed and engage a suitable gear that best matches the ground to engine speed.

This feature is ideal during transport or road operation. When the tractor is approaching a road junction for example, the operator will reduce ground speed. If the road ahead is clear the operator can depress the clutch pedal. The transmission will automatically select the appropriate gear to match current ground speed and engine rpm maintaining forward momentum.

GENERAL OPERATION

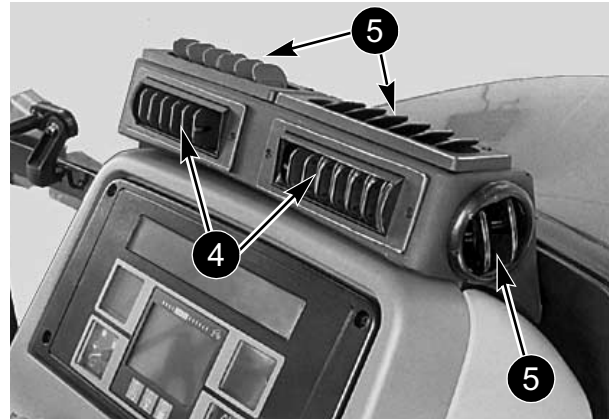
CAB ENVIRONMENT

Low Profile Cab

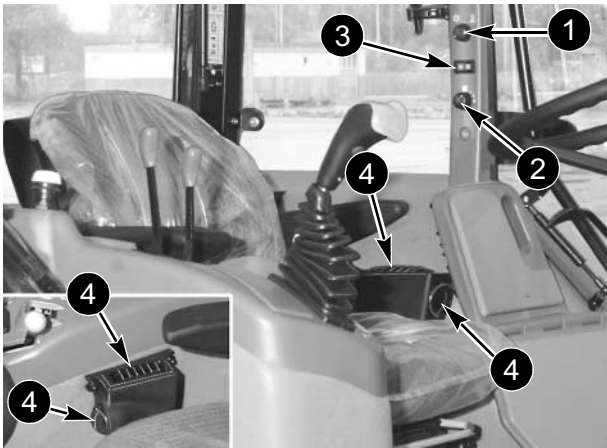


DP97E257

LOW PROFILE CAB WITHOUT AIR CONDITIONING



DP99G059



DD00M005

LOW PROFILE CAB WITH AIR CONDITIONING

1. TEMPERATURE CONTROL
2. BLOWER CONTROL
3. AIR CONDITIONING CONTROL (IF EQUIPPED)
4. DISCHARGE VENTS
5. DEFROST VENTS

Quick Reference

CAB ENVIRONMENT CONTROL SETTINGS						
Type Condi- tion 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

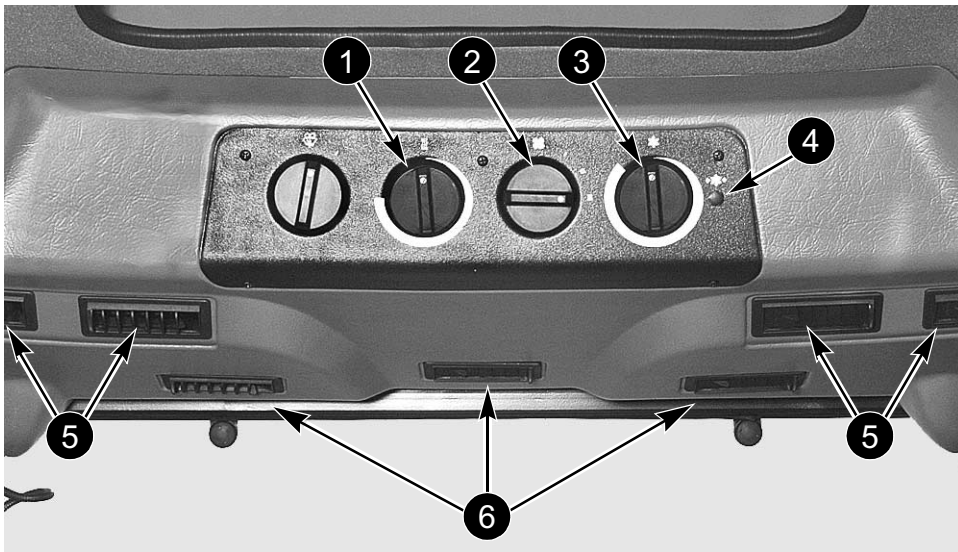
* Open or Close if Moisture is on Windshield.

** 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.

GENERAL OPERATION

Deluxe Cab



RD96N065

- | | |
|---|------------------------|
| 1. TEMPERATURE CONTROL | 5. DISCHARGE VENTS |
| 2. BLOWER CONTROL | 6. DEFROST VENTS |
| 3. AIR CONDITIONING CONTROL (IF EQUIPPED) | 7. RECIRCULATION VENTS |
| 4. AIR CONDITIONER PRESSURE INDICATOR | |

Quick Reference

CAB ENVIRONMENT CONTROL SETTINGS						
Type Condi- tion 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

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.

* Open or Close if Moisture is on Windshield.

** Open or Close if not Humid Outside.

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.

GENERAL OPERATION

CAB ENVIRONMENT ADJUSTMENTS

Cab Cooling

- Set Blower control as required, (I) for minimum cooling or (III) for maximum cooling.
- Open all air discharge vents.
- Open defroster vents and adjust as required.
- Set temperature control to OFF.
- Close the recirculation vent. Closing the recirculation vent minimizes inside air recirculation and maximizes outside air intake.

NOTE: With the recirculation vent set in any position outside air will still be pulled into the cab.

- If equipped with air conditioning, turn control to ON and adjust as required, page 80.

Cab Heating

For maximum cab heat operation, run the tractor engine until operating temperature is reached then do the following:

- Set Blower control as required, (I) for minimum heated air flow or (III) for maximum heated air flow. With the blower control set at (I), air flow and air speed is decreased. This causes the heated air temperature to be higher than the blower speed set at (III).
- Adjust air discharge vents as required.
- Open defroster vents and adjust as required.
- Set temperature control as required, fully clockwise for maximum heat and fully counterclockwise for OFF.
- Open recirculation vent. Opening the recirculation vent maximizes inside air recirculation and minimizes outside air intake.
- If equipped with air conditioning, set control to OFF, page 80.

Pressurized Cab (high wind or dust conditions)



WARNING: 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.

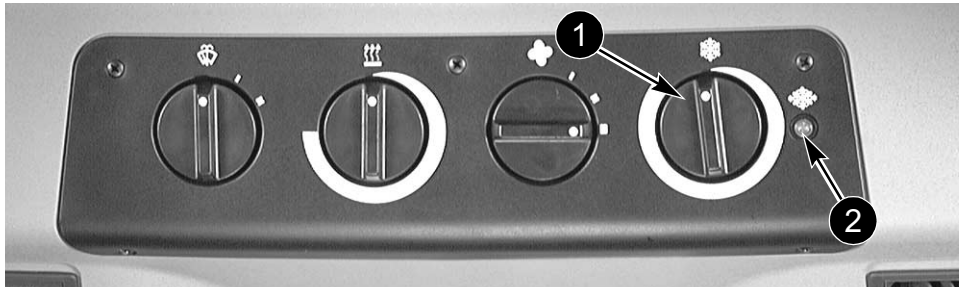
- Set Blower control to maximum (III).
 - Open all air discharge vents.
 - Open defroster vents and adjust as required.
 - Set temperature control as required.
 - Close recirculation vent. Closing the recirculation vent minimizes inside air recirculation and maximizes outside air intake.
- NOTE:** With the recirculation vent set in any position outside air will still be pulled into the cab.
- If equipped with air conditioning, adjust as required, page 80.

Window Demisting/Defrosting

- Set Blower control to maximum (III).
- Open all air discharge vents.
- Open defroster vents and adjust towards windshield/windows.
- Turn temperature control to maximum (III).
- Close recirculation vent.
- If equipped with air conditioning, turn control to ON and adjust as required, page 80.

GENERAL OPERATION

Air Conditioner Operation (If Equipped)



RD96N065

DELUXE CAB

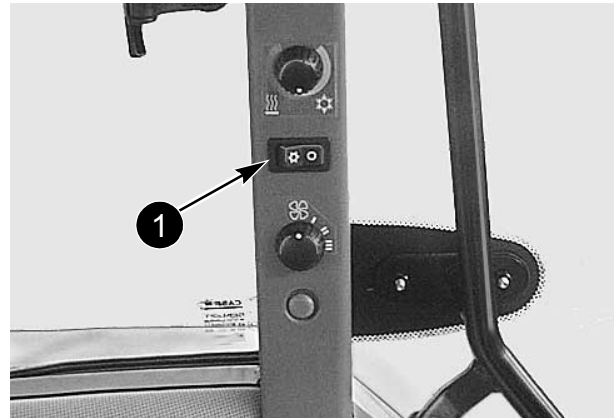
1. AIR CONDITIONING CONTROL
2. AIR CONDITIONER PRESSURE INDICATOR (IF EQUIPPED)

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 (10°F to 25°F) 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 (32°F), 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.

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 air conditioner system has two safety switches for protection of the system for low refrigerant level and high restrictions. If, during tractor operation, the air conditioner stops working, See System Check on Page 239 of this manual.



DD99J036

LOW PROFILE CAB

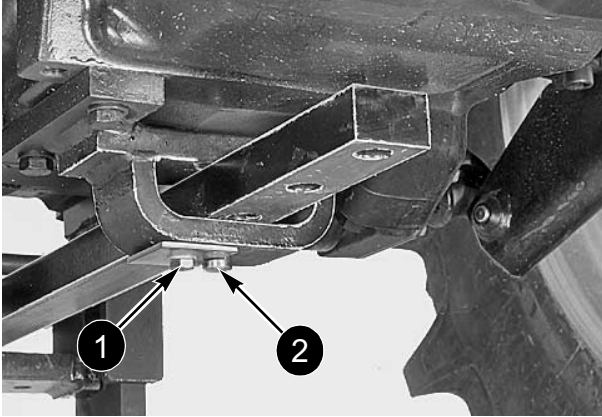
NOTE: The Air Conditioning system is equipped with an environmentally safe refrigerant, HFC-R134a. Never recharge the air conditioning system with refrigerant other than HFC-R134a as this will result in loss of cooling and permanent damage to all air conditioning components.

GENERAL OPERATION

DRAWBAR

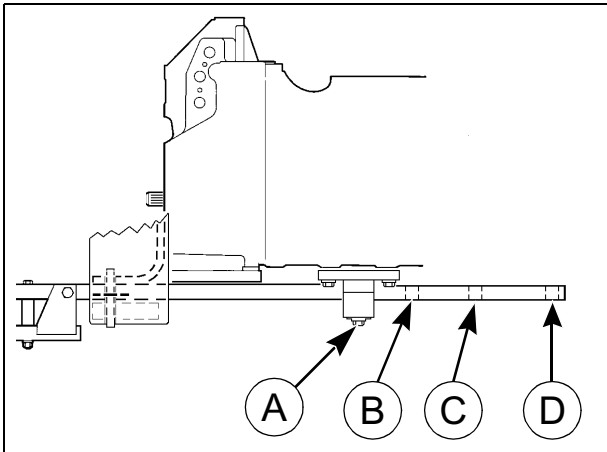
The drawbar can be set in various positions, fore/aft and off set.

Fore/Aft Position



DP96H284

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

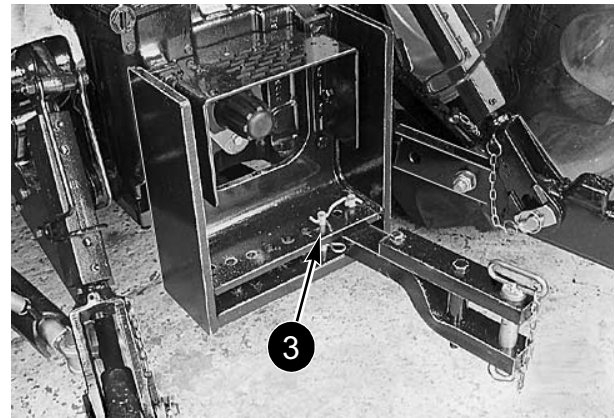
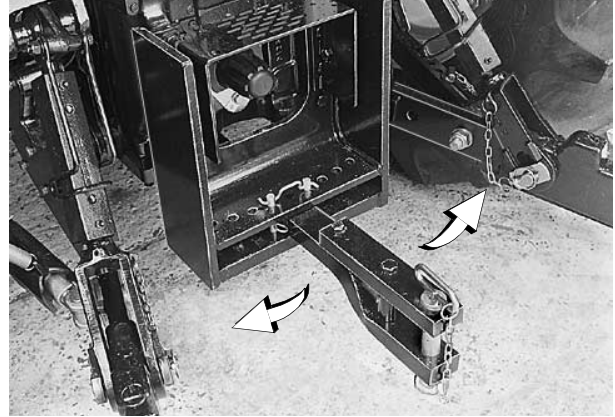


DS98M153

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).

Slide the drawbar left or right as required and 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 lateral 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.

GENERAL OPERATION

IMPORTANT: Make sure local regulations are followed when towing implements/trailers.



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.

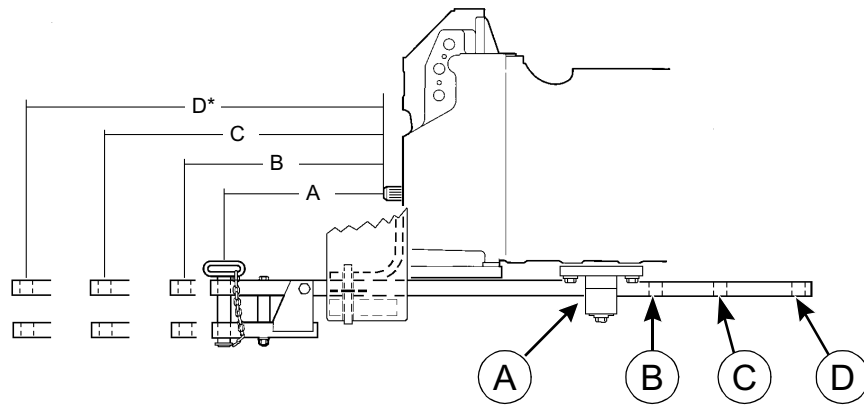
Drawbar Positions for PTO Operation

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 rpm or 'B' for 1000 rpm). Positions 'C' and 'D' must not be used for power takeoff operation.

See the illustration and charts opposite 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.

GENERAL OPERATION



DH98J012

North American Tractors

DRAWBAR POSITIONS	A (540 rpm)	B (1000 rpm)	C	D
DIMENSION FROM END OF PTO SHAFT TO CENTRE OF HITCH PIN HOLE	350 mm (13.8 inch)	400 mm (15.7 inch)	500 mm (19.7 inch)	600 mm (23.6 inch)
MAXIMUM STATIC VERTICAL LOAD	2146 kg (4730 lb)	1803 kg (3975 lb)	1366 kg (3013 lb)	1100 kg (2425 lb)

Rest Of World Tractors

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

GENERAL OPERATION

Connecting Implement to Drawbar

When connecting an implement, always:

1. Connect pull behind implements to the drawbar only.
2. 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.
3. 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.

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

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

540 rpm (6 spline) PTO shaft - Position A.

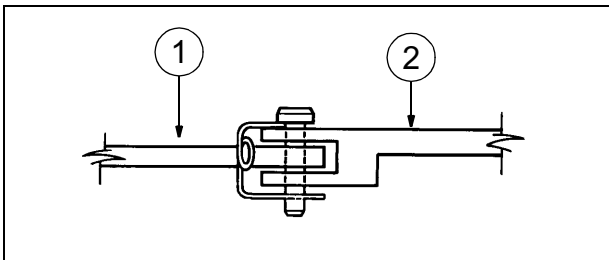
1000 rpm (21 spline) PTO shaft - Position B.

See page 82 for correct fore/aft drawbar position.

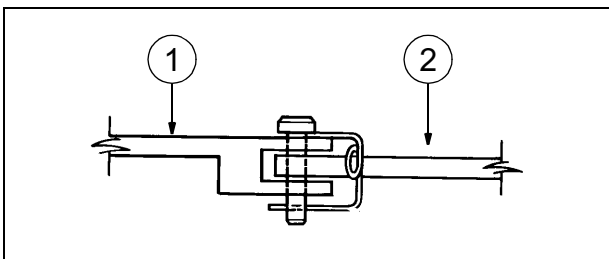
7. The clevis (if equipped) must be removed from the drawbar or mounted under the drawbar (See example B), to prevent possible interference between the clevis and the implement driveline.

IMPORTANT: Only use a 50 mm inner diameter towing eye, also see "IMPLEMENT/TRAILER DRAWBAR DIMENSIONS" on page 91 for more information.

EXAMPLE A



EXAMPLE B



PM023

1. TRACTOR DRAWBAR
2. IMPLEMENT DRAWBAR

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

4. 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.

GENERAL OPERATION

HEIGHT ADJUSTABLE TRAILER HITCHES (If Equipped)

These 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.

IMPORTANT: Make sure local regulations are followed when towing implements/trailers.

NOTE: For ALL trailer hitches the trailer clevis hole diameter and the hitch pin diameter must not have excessive clearance (page 91).

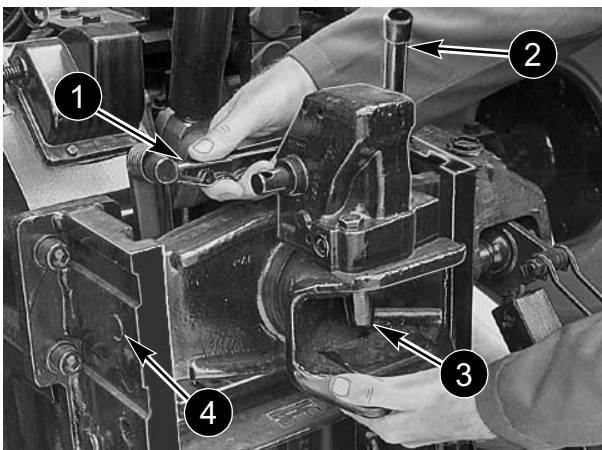
IMPORTANT: Maximum vertical load capacity is 2000 kg (4409 lb) depending upon the capacity of the rear tyres fitted. Where applicable refer to your approval documentation.

Automatic Type (according to 89/173/EEC, DIN 11029)



WARNING: DO NOT touch the inside of the hitch coupling assembly when the release mechanism is under tension, (operating lever (1) in the vertical position). Serious injury can result.

This hitch connects automatically when the implement towing eye contacts the release mechanism (3) inside the hitch coupling. Before connecting an implement make sure the operating lever (2) is in the vertical position, as shown.



DP99G156

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.

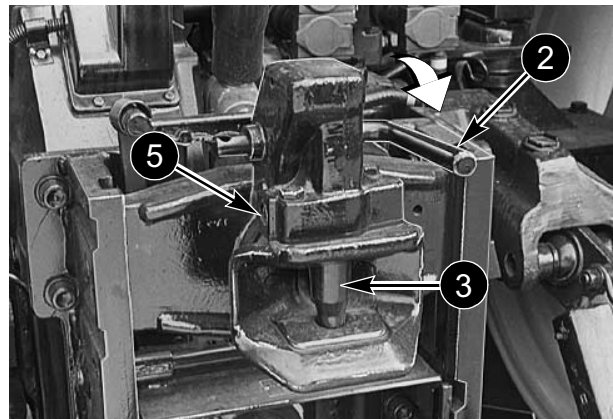
IMPORTANT: Check that the locking pins (4) have fully engaged in the holes in the side support (locking pins level with the outer surface).

IMPORTANT: Use only implement towing eyes with 40 or 50 mm inner diameter, see page 91.

IMPORTANT: The connecting pin (No.3 in lower photo) engages automatically as the implement towing eye contacts the release mechanism inside the hitch coupling or it can be engaged manually by striking the operating lever (2) downwards (away from the tractor) to the horizontal position.

IMPORTANT: Before moving the tractor make sure:

- The indicator pin (5) is fully in.
- The operating lever (2) is in the horizontal position.
- 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.



DP99G155

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

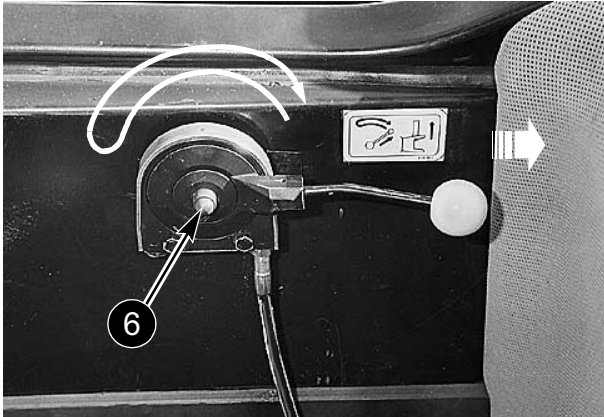
IMPORTANT: Keep the hitch clean and protect all moving parts of the hitch from corrosion, (including the inner slide rails), by cleaning and greasing at regular intervals.

All moving parts should be checked for free movement and correct operation.

Refer to Lubrication/Maintenance Section, page 211 for further information.

GENERAL OPERATION

Internal Hitch Release (If Equipped)

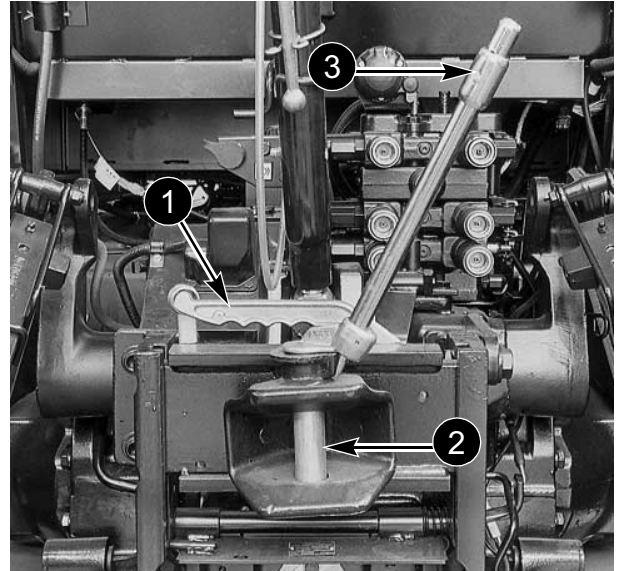


This control enables the operator to disconnect the implement towing eye without leaving the tractor.

To operate, pull the lever to unlock and then rotate the lever 180 degrees. The implement connecting pin (3) will disengage and the coupling operating lever (2) will be vertical. The hitch release lever must return automatically to the locked position.

IMPORTANT: *If the release lever does not return automatically and lock, adjust the nut (6) until it does.*

Manual Type "Option A" (according to 89/173/EEC, DIN 11029)



This type of coupling has to be connected manually by hand.

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.

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.*

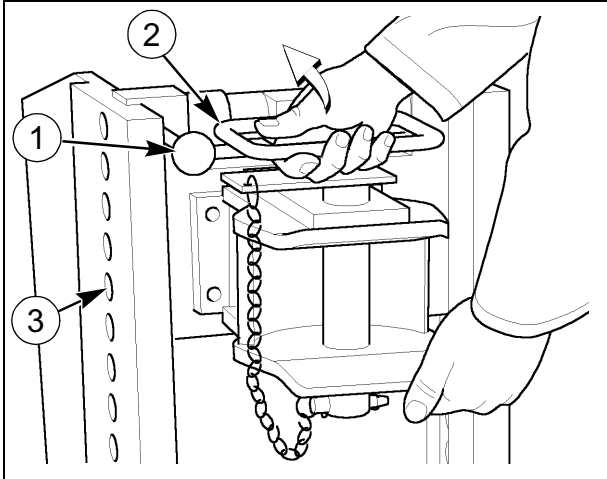
All moving parts should be checked for free movement and correct operation.

Refer to Lubrication/Maintenance Section, page 211 for further information.

GENERAL OPERATION

Manual Type "Option B" (according to 89/173/EEC, DIN 11029)

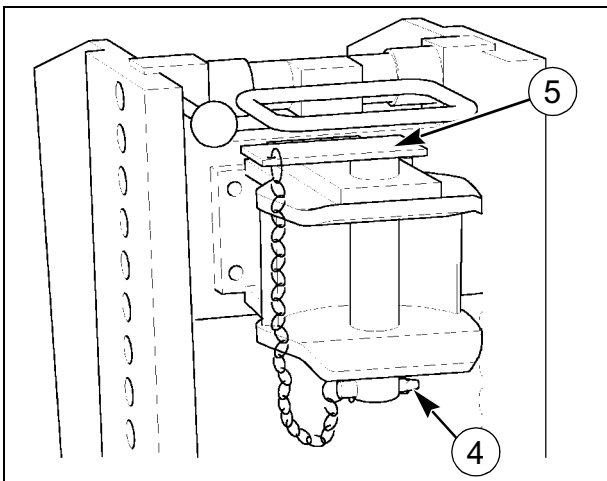
This type of coupling has to be connected manually by hand.



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.



To connect an implement/trailer, Remove the spring clip (4) and hitch pin (5).

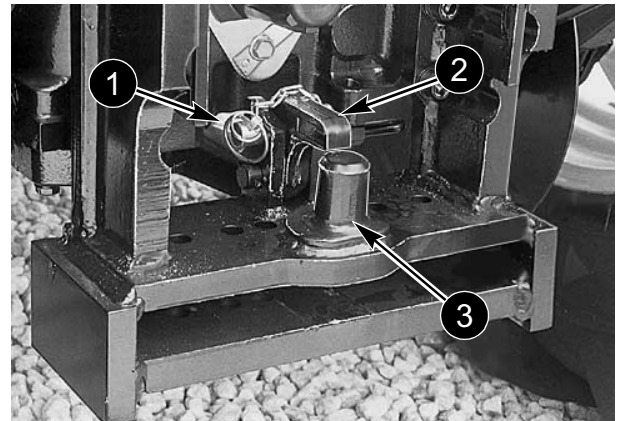
Enter the implement/trailer towing eye into the clevis, install the hitch pin (5) to secure the implement/trailer. Install the spring clip (4).

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 211 for further information.

Piton- Fixe (If Equipped) (according to NFU-026)



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).

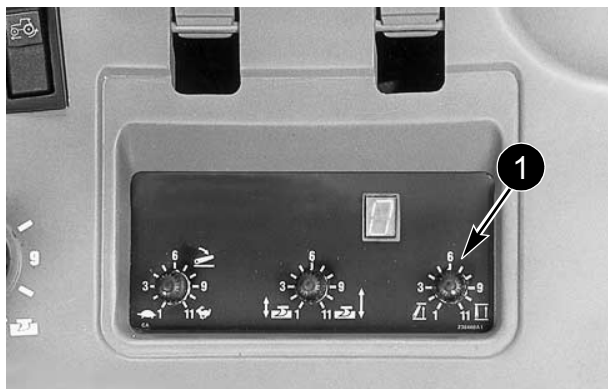
IMPORTANT: The implement towing eye must have an internal diameter of 50 mm, see page 91.

GENERAL OPERATION

AUTO HITCH (If Equipped) (according to 89/173/EEC, ISO 6489)

Connecting an Implement

STEP 1



DP96N112

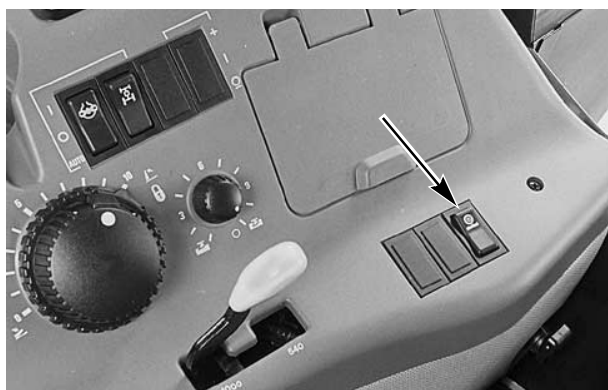
Turn the Upper Limit Control Knob (1) to the maximum setting (Setting 11).

STEP 2

Raise the auto hitch to maximum height (by either turning the three point linkage Position Control Knob fully clockwise to position 10 or setting the UP/DOWN switch into the UP position).

IMPORTANT: Turn the LOAD CONTROL knob fully clockwise 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).

STEP 3



DP99G143

Press and hold the top of the Ride Control switch fully down until the hitch stops upward movement.

STEP 4



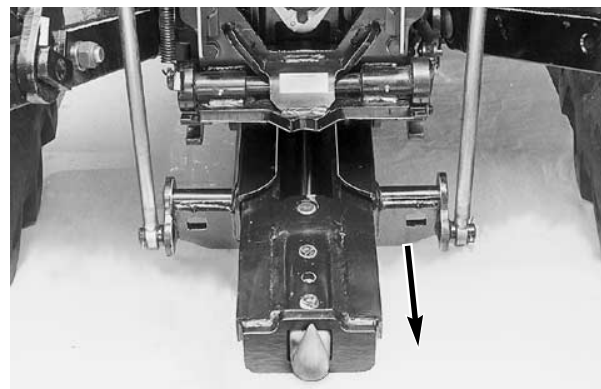
DR99C151

While holding the Ride Control switch down pull the auto hitch release control to unlock the locking latches and then release the Ride Control switch to allow the hitch to lower to the upper limit setting.

STEP 5

Lower the auto hitch (by either turning the three point linkage Position Control Knob counterclockwise or setting the UP/DOWN switch into the DOWN position).

STEP 6



DP96076

Extend the hook rearwards, by moving the remote lever forward (No. 3 lever without front hitch or No. 1 lever if equipped with front hitch) until the hook is aligned under the implement towing eye.

GENERAL OPERATION

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

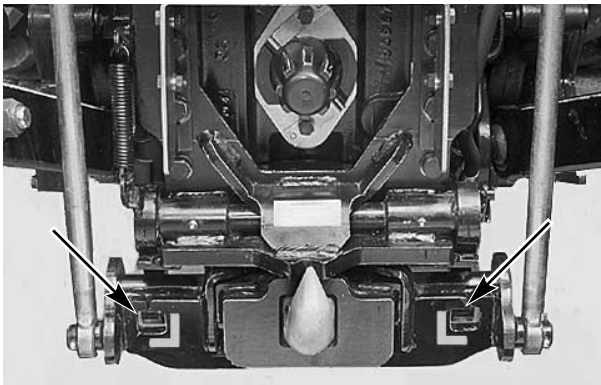
Raise the auto hitch to maximum height.

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. The hitch will lower to the upper limit setting.

STEP 11



DP96J410

Lower the hitch onto the locking latches to take the weight off the hydraulic system.

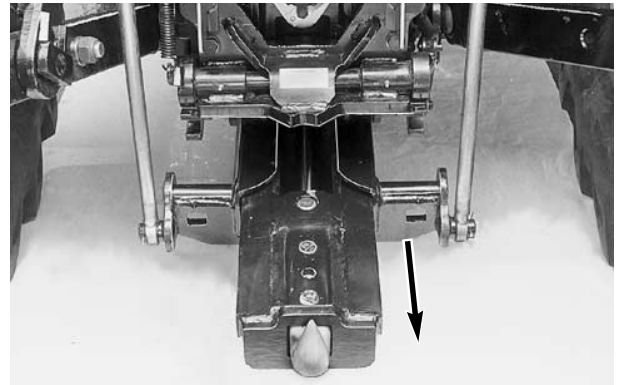
IMPORTANT: *The hitch must always be supported on the locking latches and NOT by the hydraulic system.*

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

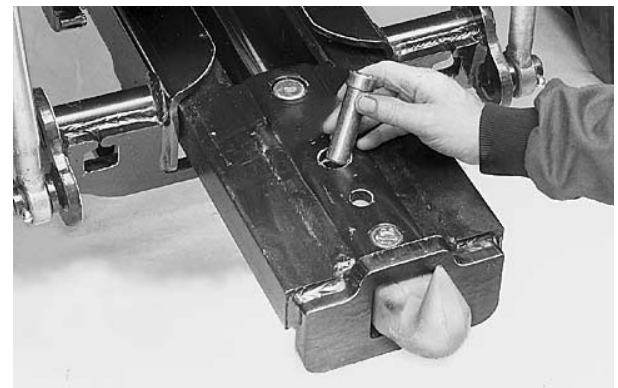


DP96076

Lower the auto hitch half way. Extend the hook/clevis by moving number 1 remote lever forward.

IMPORTANT: *After lowering and extending the auto hitch, stop the engine, put all transmission levers in neutral and engage the parking brake before leaving the tractor.*

STEP 2

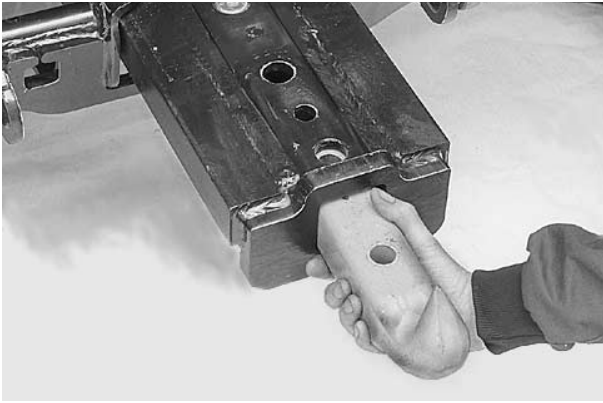


DP96J405

Remove the hook/clevis locating pins.

GENERAL OPERATION

STEP 3



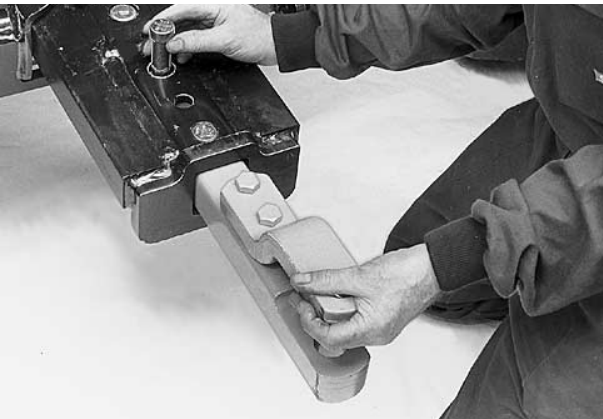
DP96J408



MD01K054

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.

STEP 4

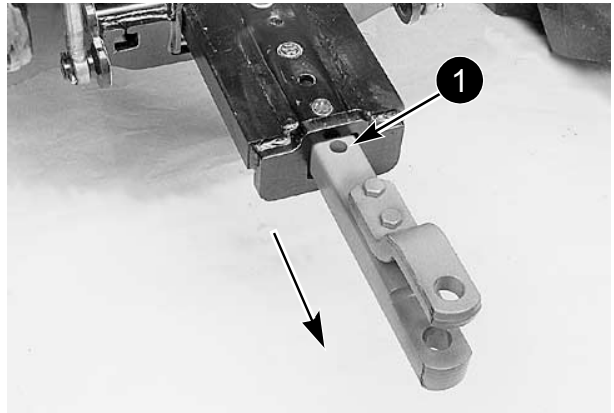


DP96J407

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.

Auto Hitch Clevis Positions

Position for Power Takeoff Operations

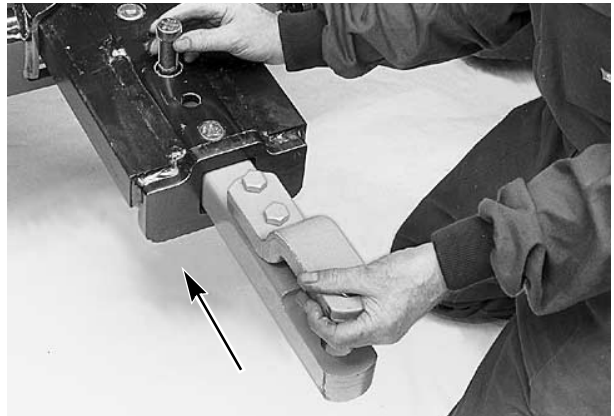


DP96J406

Install the drawbar in the fully extended rearward with one hole (1) in the drawbar showing.

The **MAXIMUM** drawbar load in this position is **1400 kg (3086 lb)**. Also observe tyre capacity and local legal requirements.

Position for Pulling Operations



DP96J407

For pulling operations, install the drawbar in the fully forward position.

The **MAXIMUM** drawbar load in this position is **1800 kg (3970 lb)**.

The **MAXIMUM** hook load in this position is **3000 kg (6614 lb)**.

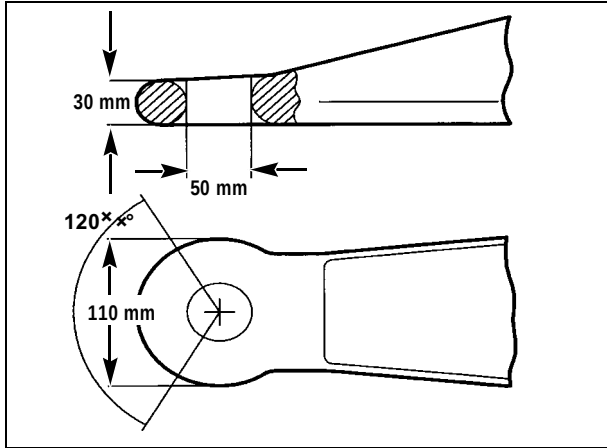
Also observe tyre capacity and local legal requirements

NOTE: *Pulling trailers on public roads may not be permitted unless a special approval note has been supplied with the machine documents.*

GENERAL OPERATION

IMPLEMENT/TRAILER DRAWBAR DIMENSIONS

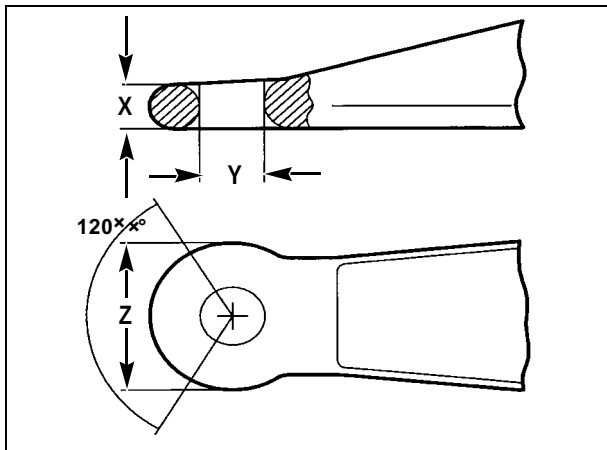
A) For Piton-Fixe, Auto Hitch (B.S.2) and Swinging Drawbar



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)

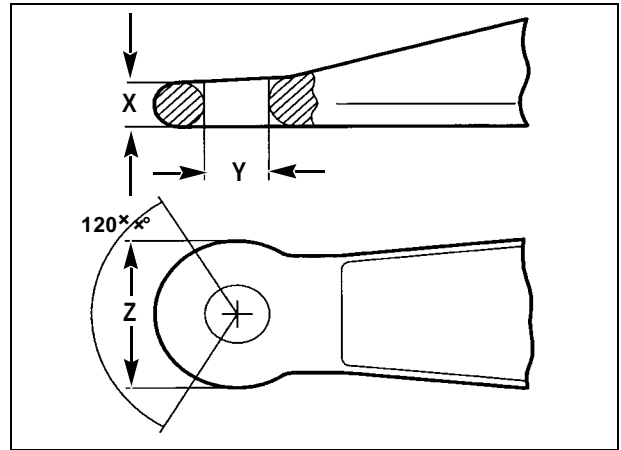


OM0881

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.

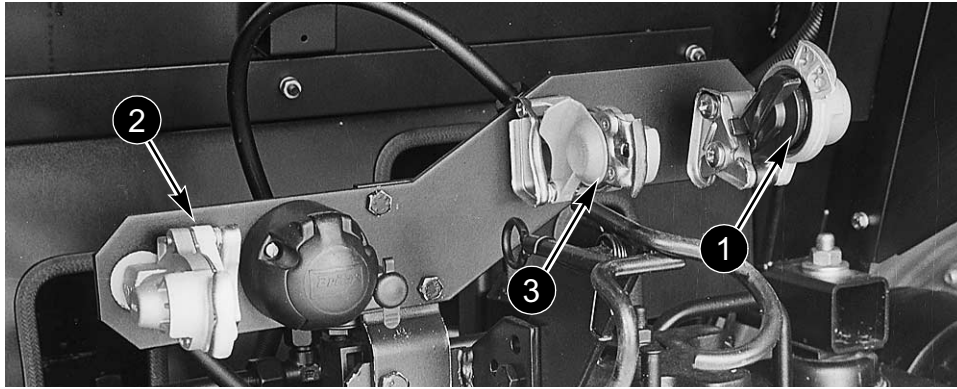
	X (mm)	Y (mm)	Z (mm)
DIN 74054	30	40	100
DIN 11026	42	40	100
DIN 11043	32	40	100

If this type of trailer hitch is fitted a decal will be positioned near the hitch clevis.

GENERAL OPERATION

TRAILER BRAKE COUPLINGS (If Equipped)

Pneumatic Trailer Brakes



DP98J142

1. BLACK COUPLING - FEED AND RETURN (SINGLE LINE SYSTEM)
2. YELLOW COUPLING - BRAKE SERVICE LINE (DUAL LINE SYSTEM)
3. RED COUPLING - BRAKE EMERGENCY LINE (DUAL LINE SYSTEM)



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.

The air reservoirs store air under pressure to operate the trailer brakes.

Maximum Working Pressure..... 15.5 bar (225 psi)

Working Temperature

Range -40°C to 100°C(
(-40°F to 212°F)

Capacity 10litres
(605 in³)

Drain ReservoirsDaily

GENERAL OPERATION

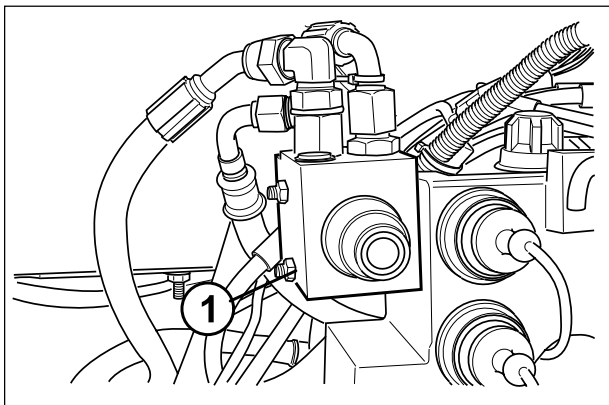
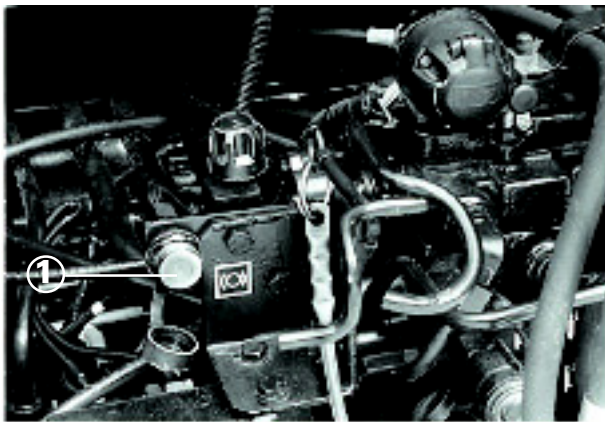


6. WATER DRAIN PLUNGER (PUSH UP)

Hydraulic Trailer Brakes (If Equipped)

To connect or disconnect (1):

Slide the sleeve back on the trailer brake coupler and push on or pull off, then release the sleeve.



MC 120 Power6 - MC 135 Power6

Hydraulic Trailer Brakes (Approved for ITALY) (if Equipped)

The tractor braking system can be equipped with a hydraulic valve which allows the trailer itself to be braked along with the tractor.

Comply with the following instructions to correctly connect and disconnect the flexible trailer brake hose to and from the union (1) at the rear of the tractor and to always operate in conditions of the utmost safety.

The trailer-tractor connecting tube can be connected and disconnected with the engine either running or at a standstill:

- With the engine at a standstill: there are no difficulties when either connecting or disconnecting as there is no oil pressure in the brake circuit.
- With the engine running: it is essential to engage the hand brake since this ensures that no pressure remains in the brake circuit.

WARNING: *It is extremely important to ALWAYS carry out this operation before detaching the trailer from the tractor since it ensures the immediate action of the automatic safety braking system with which this trailer braking system is obligatorily equipped.*

There is a specific indicator light (if equipped) on the control panel of the tractor which keeps the operator constantly informed about the operating conditions of the trailer brake oil tap.

Indicator light off:

- When the oil tap is not connected to the trailer.
- When the pressure of the oil in the circuit is regular with the trailer connected.

Indicator light on:

- When the engine is at a standstill and the ignition key is turned to first position.
- When the hand brake is engaged with the engine running.



WARNING: *If the indicator light should come on in other conditions than those mentioned above, this means that there is a fault in the braking system and that use of it must immediately stop and the breaking system be checked for obvious safety reasons.*

GENERAL 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.

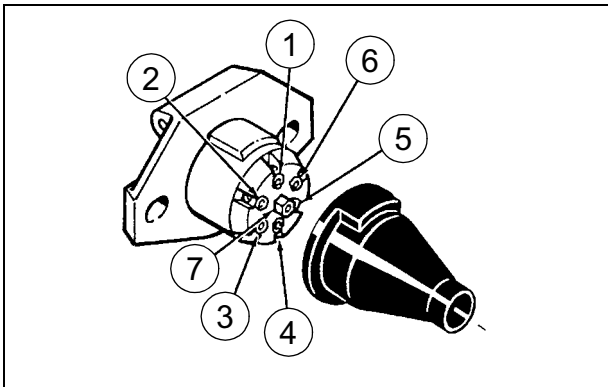
NOTE: If the warning lamp, implement or trailer connector plug is not a seven terminal type, the plug must be changed.

North American Tractors



RD96N021

Terminal Positions and Circuits

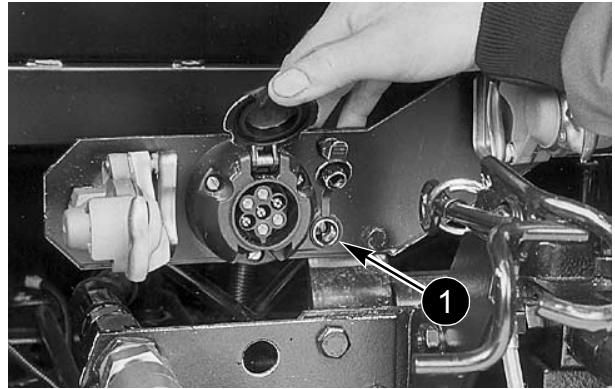


102B

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.

Rest Of World Tractors

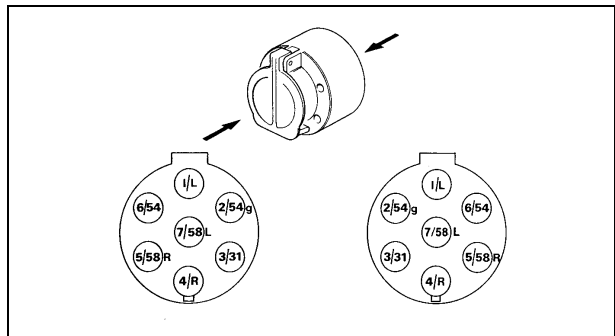


DP96H257

The small socket (1) 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.

Terminal Positions and Circuits



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

GENERAL OPERATION

Three Terminal Electrical Sockets



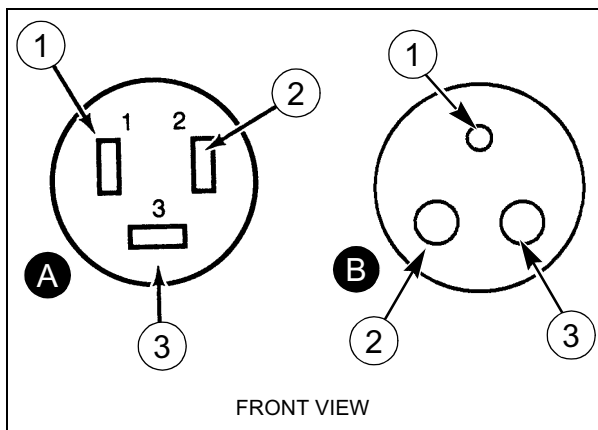
DP97A096



DR99G160

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.

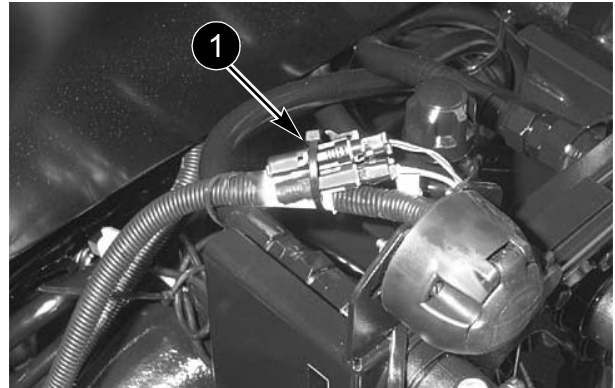


A. NORTH AMERICA

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, (red and blue harness wires), 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, using the implement switch as the means of controlling the measuring cycle, (ON/OFF).

To operate using a remote implement switch, the Hitch RAISE/LOWER Switch must be in the UP position and the AUTOMATIC AREA MODE must be selected.

To start area counting, momentarily press the Area Function Switch on the instrument cluster.

As the tractor operates, the following information will be displayed:

Total Area Worked Accumulative.

Average area worked in one hour (not spot rate).

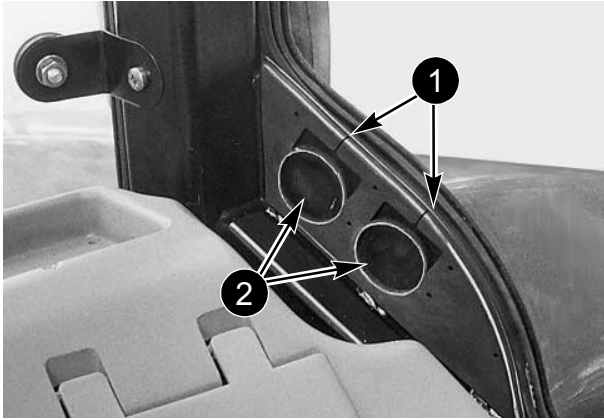
NOTE: The area symbol will remain on at all times whether the switch is up or down, when in the Automatic mode.

NOTE: If an external implement switch has been used, the tractor must be stopped and then re-started, before the RAISE/LOWER Switch will operate the area counter.

GENERAL OPERATION

IMPLEMENT CABLE ACCESS

Access is provided for implement cables in the right hand corner of the rear window.



DP97A152

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.

There are also tapped holes provided in the cab A, B and C posts, behind the plastic trim, for mounting an implement monitor.

For full installation instructions and replacement grommets see you dealer.

GENERAL OPERATION

HOW TO TRANSPORT THE TRACTOR

Towing The Tractor

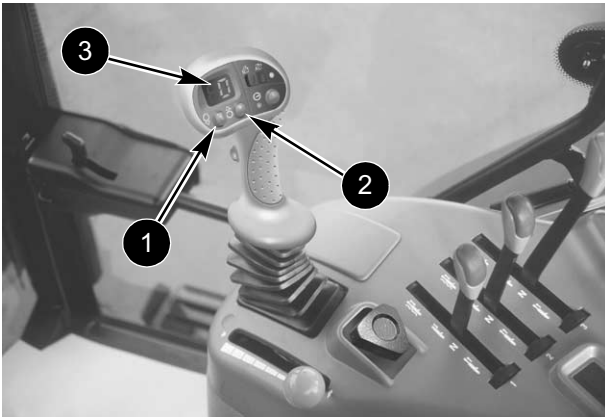


WARNING: Make sure that the weight of a trailed vehicle that is not equipped with brakes **NEVER EXCEEDS** the weight of the tractor that is towing the vehicle or any national weight limitations which may apply. Stopping distance increases with increasing speed as the weight of the towed load increases,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

STEP 1

If equipped with a Powershift transmission, put the F/N/R Lever and Range Lever in NEUTRAL.

If equipped with a Auto Speed transmission, put the F/N/R Lever into NEUTRAL and press and hold both Gear Selection Switches (1 & 2) down until The Gear Selection Display (3) shows zero (0).



MR01J031

STEP 2

Disengage the park brake .

STEP 3

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: Because of 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

IMPORTANT: When the engine is not running, there is no power assistance to the steering. Use extreme caution when towing with the engine stopped.

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.

IMPORTANT: To prevent damage to the tractor, follow the above procedures carefully when towing the tractor.

B. Engine Running

- Do not pull the tractor faster than 20 km/h (12 mph).
- Disengage the mechanical front drive (MFD) (if equipped).
- Disengage the differential lock.
- Put the transmission in NEUTRAL, as per correct procedure quoted opposite.

NOTE: The engine must be running at 1200 rpm or more. Check brake operation.

Transport by Truck or Rail

When you transport the tractor by truck or rail, do the following:

- Put the transmission into NEUTRAL.
- Engage the PARK brake.
- 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.

- Install blocks/wedges to prevent the wheels rolling.

[illegible]

FIELD OPERATION

TRANSMISSION CREEPER OPERATION (If Equipped)

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

To operate in creeper use the following procedure.

STEP 1

If equipped with a Powershift transmission, Put the Range and Forward/Neutral/Reverse levers into NEUTRAL and start the engine.

If equipped with a Auto Speed transmission, Put the Forward/Neutral/Reverse lever into NEUTRAL and start the engine.

NOTE: If equipped with a Auto Speed transmission, on starting the engine the transmission will default to Gear 5.

STEP 2



Push the clutch pedal fully down and move the creeper lever (1) positively FORWARD to the engaged position.

STEP 3

Keep the clutch pedal fully down and;

If equipped with a Powershift transmission, select required range and powershift speed 1.

If equipped with a Auto Speed transmission, select Gear 1.

NOTE: Ranges 3 and 4 (Powershift Transmissions) or gears 9 to 16 (Auto Speed Transmissions) should not be used with high draft loads. Using creep with high draft loads will cause gear damage.

STEP 4

Select FORWARD or REVERSE.

STEP 5

Disengage the park brake and release the clutch pedal slowly. The tractor will start moving.

Adjust engine speed to obtain required travel speed.

STEP 6

Change transmission gear/speed as in normal transmission operation.

To disengage the creeper, reduce the engine speed to slow idle, push the clutch pedal fully down and move the creeper lever positively REARWARD to the disengaged position.

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.

FIELD OPERATION

WHEEL SLIP INDICATOR

To read wheel slip the tractor must be equipped with a digital instrument cluster and a True Ground Speed Sensor.

True Ground Speed Sensor (If Equipped)



DP96H286

The sensor (1) 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.

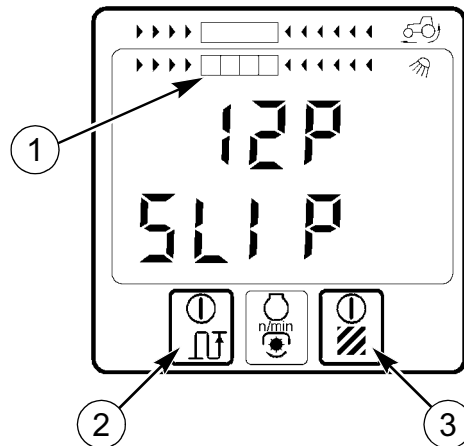


WARNING: Do not look directly into the face of the sensor. Micro-wave signals emitted by the sensor can cause eye damage.

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.

Wheel Slip Display



DS98K096

There are two methods of reading the wheel slip.

METHOD 1:

The wheel slip bar graph (1) will indicate wheel slip anytime the tractor is in motion. The wheel slip bar graph contains 14 segments. Each segment represents 2 percent slip.

The range of the bar graph is from zero percent (all segments OFF) to 28 percent (all segments ON).

METHOD 2:

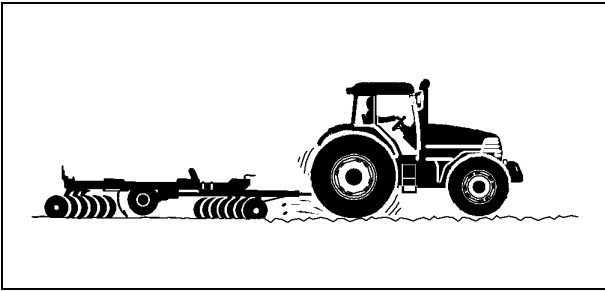
To read wheel slip on the main digital display, press both the DISTANCE FUNCTION SWITCH (2) and the AREA FUNCTION SWITCH (3) at the same time, for 2 seconds.

The upper display will show the percentage of wheel slip and the letter "P" for percent. The lower display will show the word "SLIP".

To return to the normal RPM display, press and release the RPM switch .

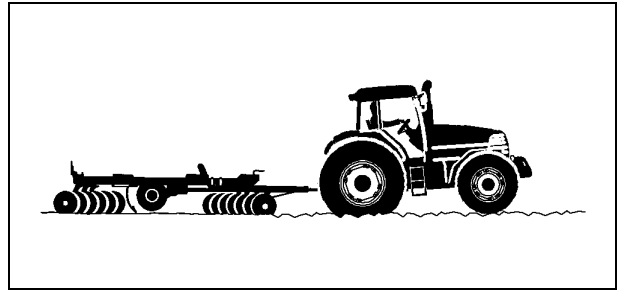
FIELD OPERATION

Operating with Wheel Slip



DI96J517

The ideal wheel slip is between **nine and sixteen percent**. Inadequate traction and excessive wheel slip can waste up to thirty percent of the tractors horsepower.



DI96J518

Do not try to reduce wheel slippage to zero. Stay within the nine to sixteen percent wheel slip.

If you add weight to the tractor to reduce wheel slip to less than nine percent, 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.

See page 180 for more information on wheel slip and correct ballasting etc.

FIELD OPERATION

REAR POWER TAKEOFF

See the Specifications Section in this manual for general specifications for the power takeoff on your tractor.

When using power takeoff operated equipment the following rules **MUST** be followed:

1. On a tractor with a three point hitch, both lift links must be set as specified in the EQUIPMENT OPERATORS MANUAL.
2. The left hand stabilizer or sway blocks (as equipped) must be in the RIGID position to limit the lateral movement of the equipment.
3. The top link **MUST** be connected in the CENTRE hole of the top link bracket.
4. The Upper Limit for the hitch maximum lift must be set correctly, see page 122 for instruction on how to adjust the lift height.
5. Always stop the engine before changing ends on the reversible 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.
6. 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: This tractor is equipped with a dual 540 or 1000 rpm PTO. Be sure the implements are matched to the tractor PTO SPEEDS.

Lock the swinging drawbar in the centre position when using the PTO. Do not use the 540 rpm PTO for implements requiring more than 85 PTO horsepower.

Changing the PTO Speed

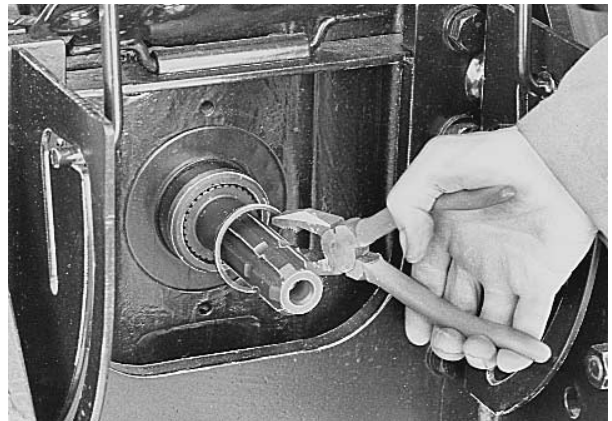
NOTE: Make sure the drawbar is set in the correct position if operating a drawbar pulled, PTO driven implement; See Drawbar Positions for PTO Operation on Page 82 of this manual. for more information.

Reversible Shaft Type PTO (Typically North American Tractors)

This PTO has a reversible shaft with 6 splines for 540 PTO rpm one end and 21 splines for 1000 PTO rpm on the other.

To change ends and change PTO rpm speed do the following.

STEP 1



B07219

Stop the engine. Lift the PTO guard. Remove the snap ring which retains the output shaft.

STEP 2



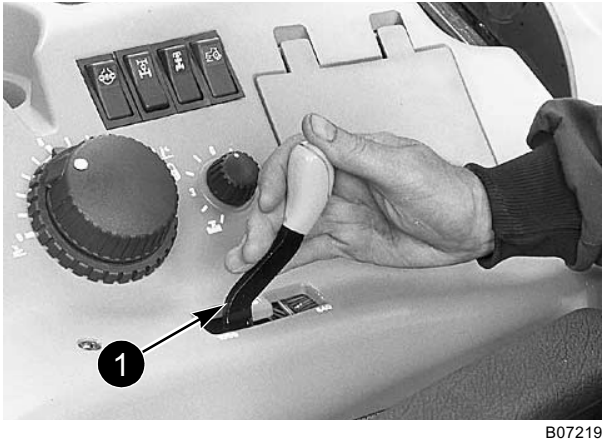
B07221

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.

FIELD OPERATION

Shiftable Type PTO (Typically European Tractors)

This PTO also has a reversible output shaft but has a lever (1) in the operators cab for changing the SPEED. The output shaft must be changed over, (see steps 1 and 2 on the previous page), to suit the implement being used.



B07219

To change speed move the lever forward for 1000 RPM or rearward for 540 RPM.

NOTE: Disengage the PTO clutch before changing the PTO speed.

Operating the Electronic PTO System

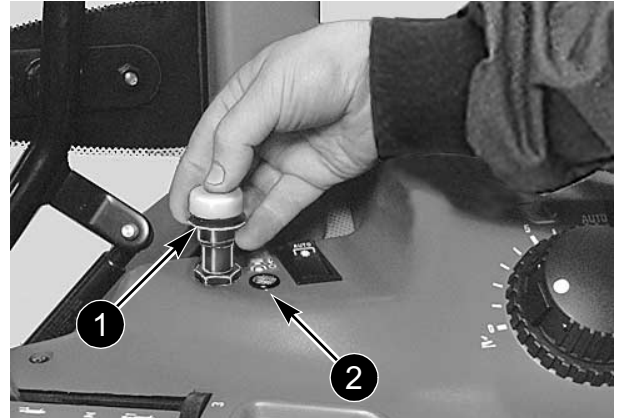
The PTO can be turned ON/OFF by using either an internal ON/OFF switch, located on the right hand console, or by external remote push buttons, (if equipped), on both of the rear fenders. The electronic PTO control system provides controlled modulation of PTO clutch engagement regardless of the engine 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 122 (item 7), when using the PTO.

Internal PTO Controls

Turning the PTO ON from Inside the Cab:

STEP 1

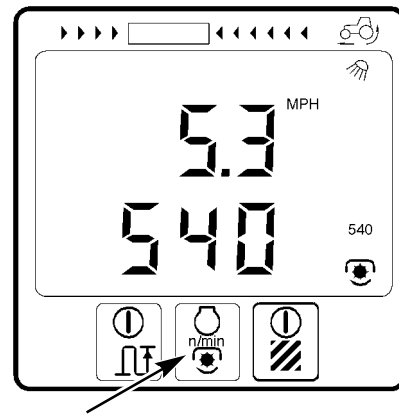


DR99B070

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 PTO indicator lamp (2) will illuminate.

IMPORTANT: If the operator gets off the seat when the PTO is running an audible alarm will sound for 7 seconds.

STEP 2



D198K050

If equipped with a digital display cluster do the following. Push the ENGINE/PTO rpm button once to display the 540 rpm PTO speed. Push the button again to display 1000 rpm speed.

STEP 3

Adjust the engine rpm to obtain the desired PTO speed. To display engine rpm, press the ENGINE/PTO rpm button.

FIELD OPERATION

Turning the PTO OFF from Inside the Cab:

STEP 1

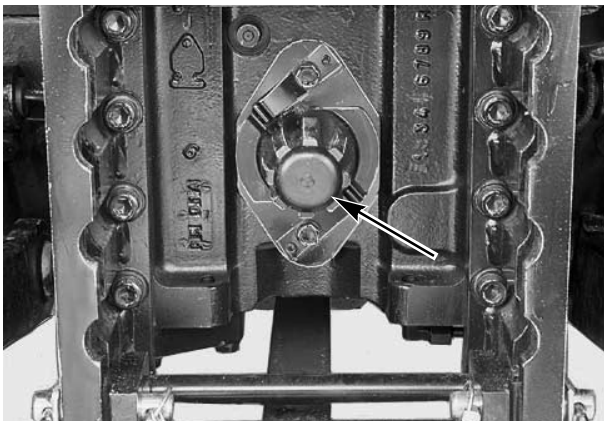


DR99B071

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 2

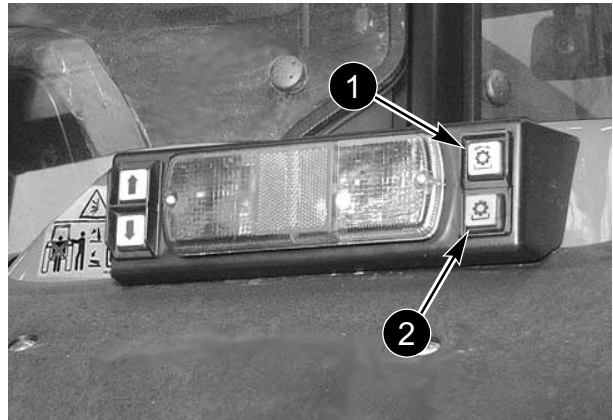


DP96H263

When the PTO is not in use install the 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)



DR99B123

- 1.ON (YELLOW)
- 2.OFF (RED)

With the tractor stationary, the operator can leave the cab and use the remote push button switches to turn the PTO ON/OFF.

Remote control of the PTO is independent of the internal cab controls and the Operator Presence Switch.

NOTE: The tractor must be stationary for the remote push buttons to operate.

NOTE: When the PTO is engaged and the tractor is in motion, if any of the remote PTO push buttons are operated the PTO will immediately disengage. The PTO indicator lamp on the right hand console will flash. To turn off the flashing lamp push the PTO ON/OFF switch fully down to the OFF position. To restart the PTO lift the locking collar on the PTO ON/OFF switch and pull the switch up to the ON position. To reset the external remote PTO controls, turn the keyswitch to OFF then restart the tractor.



WARNING: Stand well clear of the PTO shaft when operating the external PTO controls or injury can result from contact with moving parts.

Turning the PTO ON using external Controls:

Press and hold the yellow ON push button (1) 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.

FIELD OPERATION

Turning the PTO OFF using external controls:

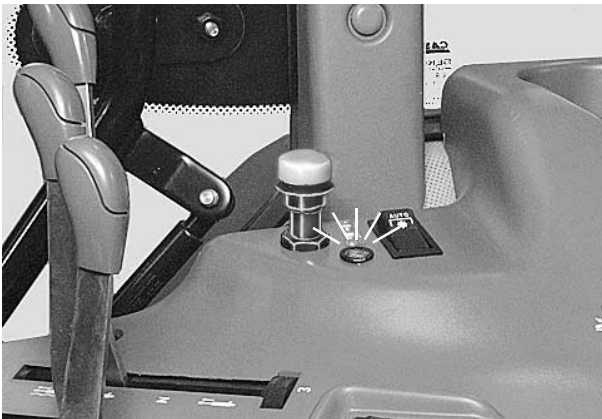
Press the red OFF push button (2) to immediately disengage the PTO.

The PTO indicator lamp on the right hand console will turn off.

NOTE: When turning the PTO OFF using the external controls after it has been turned ON from inside the cab the PTO will disengage and the PTO indicator lamp on the right hand console will flash. To turn off the flashing lamp push the PTO ON/OFF switch fully down to the OFF position.

To restart the PTO, either press the ON remote push button or restart from inside the cab.

Turning the PTO back ON from inside the cab after being turned ON from inside the cab and then OFF using the external controls:



DD99B122

The PTO ON/OFF switch will be in the ON position (as shown above) 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 flash.



DR99B071

Push the ON/OFF switch fully down. The PTO indicator lamp will turn off.



DR99B070

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.

Turning the PTO OFF from inside the cab after being turned ON using the external controls:



DR99B071

Push the yellow dome on the ON/OFF switch down to disengage the PTO. The PTO indicator lamp will turn off.

FIELD OPERATION

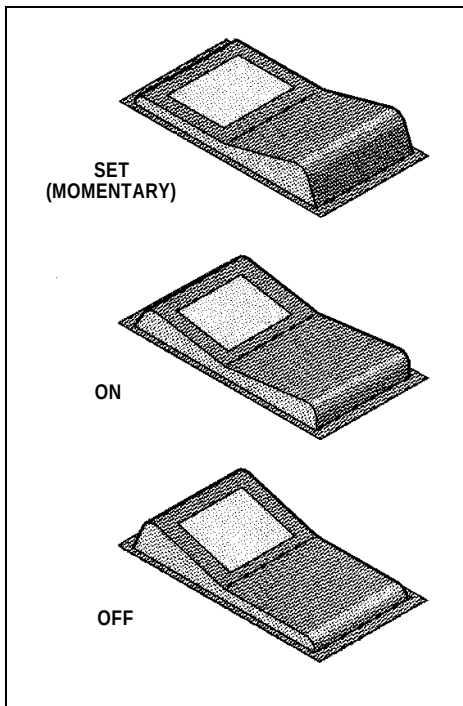
Auto PTO (If Equipped)

The auto PTO automatically disengages/engages the PTO when raising/lowering an implement, i.e. during a headland turn.



DD99B124

The Auto PTO switch (1) has three positions:



DS97K079

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.

Setting the PTO 'OFF' set-point

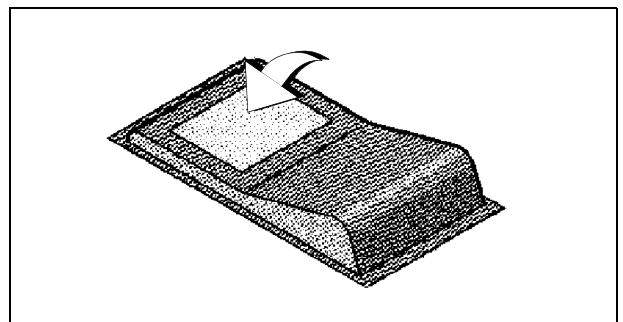
STEP 1



DP99B116

Raise or lower the implement using the Position Control Knob 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.

FIELD OPERATION

Setting the PTO 'ON' set-point

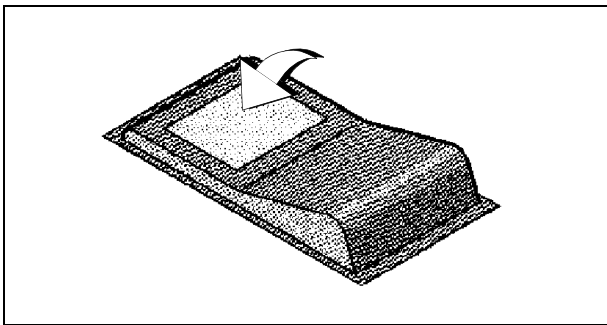
The PTO 'ON' set-point should be set at a position which ensures that the PTO is ON and fully engaged (full PTO clutch lock-up), before the implement enters the ground.

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

Using the position Control Knob, 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.

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 above procedures.

Activating Auto PTO mode:

STEP 1

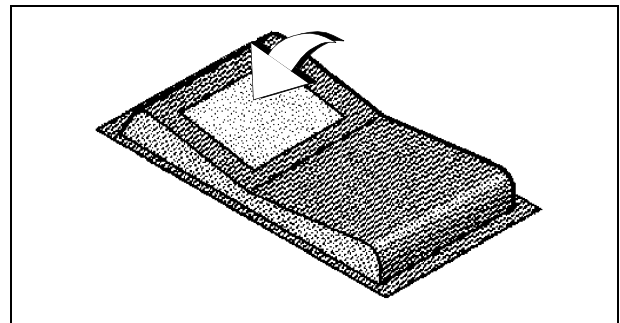
Confirm PTO 'OFF' and 'ON' set-points are correct for attached implement/hitch settings. (Change settings as necessary).

STEP 2

Engage the PTO, (see Step 1 on page 103 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.

FIELD OPERATION

Driving into the row



DH99D033

STEP 1

Lower the implement.

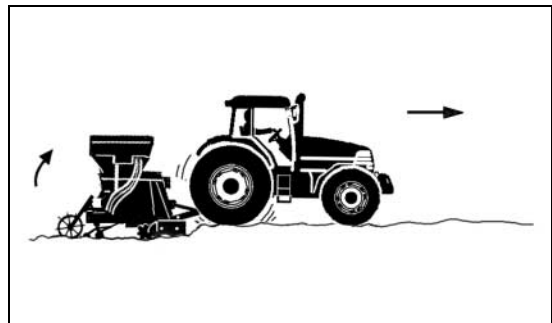
The PTO will automatically start up when the hitch passes the PTO 'ON' set-point. The PTO indicator lamp will illuminate.

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



DH99D034

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.

FIELD OPERATION

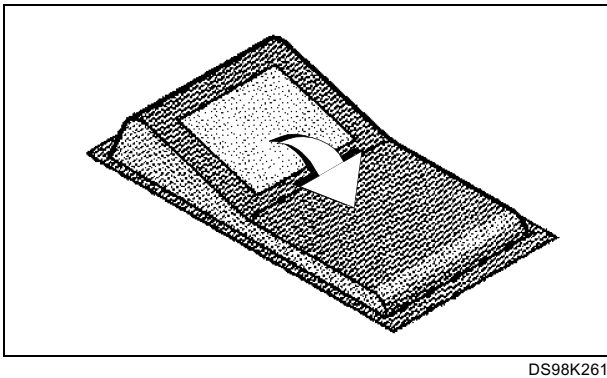
De-activating Auto PTO mode:

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:

- The Auto PTO switch is moved to the OFF position before disengaging the PTO.
- If the hitch position is between the 'Auto' PTO OFF set-point and the Upper Limit Setting and:
 - A. The hitch is not lowered within two minutes or,
 - B. The tractor does not move for 10 seconds or,
 - C. Any remote hitch push button, (if equipped) is pressed.
- If the Ride Control switch is in the On position and Ride Control is enabled, by having the UP/DOWN switch in the UP position, for more than two minutes.
- If the operator is off the seat for more than 5 seconds.
- The hitch is not enabled (refer to Operators Manual to enable hitch).
- 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 disengage, 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.

FIELD OPERATION

PTO Control Module Error Code Retrieval

PTO system error codes are stored in the memory of the PTO module for various control system error conditions. A maximum of ten error codes may be stored in memory. A repeating error is stored only once unless separated by a different error(s). To access error codes from the PTO control module do the following:

STEP 1

Put key switch in the OFF position.

STEP 2

Stand up clear of the seat, DO NOT LEAN ON THE SEAT.

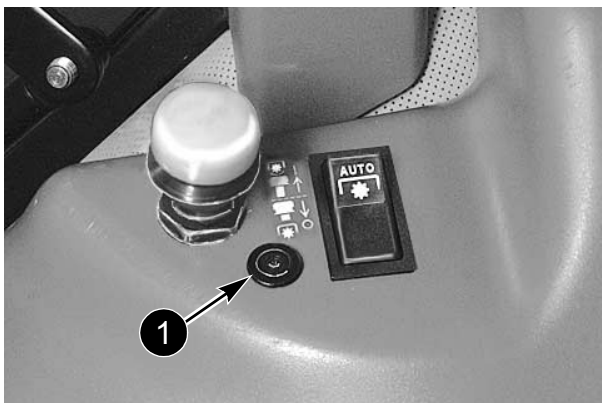
STEP 3



Engage the PTO, (see page 103 for complete instructions).

STEP 4

Turn the key switch to the ON position, DO NOT START THE ENGINE.



An error code is a 2 digit number. Each digit of an error code number is indicated by a series of flashes from the PTO LAMP (1).

TO IDENTIFY ERROR CODE: Count the number of rapid flashes separated by a 2 second pause. The most recent code will be indicated first if there is more than one.

The first series of flashes represent the first digit of the error code, the second series of flashes represent the second digit of the error code.

Example:

FLASH, FLASH = 2

Then a 2 Second Pause.

FLASH, FLASH, FLASH, FLASH = 4

Then a 5 Second Pause.

The sequence above represents error code **24**.

If the PTO ON/OFF switch is NOT moved, the same error code will be repeated after the 5 second pause.

If the PTO ON/OFF switch is moved from the ON position to the OFF position and then back to the ON position the next error code will be displayed.

IMPORTANT: DO NOT move the PTO ON/OFF switch rapidly from ON to OFF as this may erase error codes.

Report all error codes to your dealer.

FIELD OPERATION

PTO Operating Safety



WARNING: 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 lever in the DISENGAGE position 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.

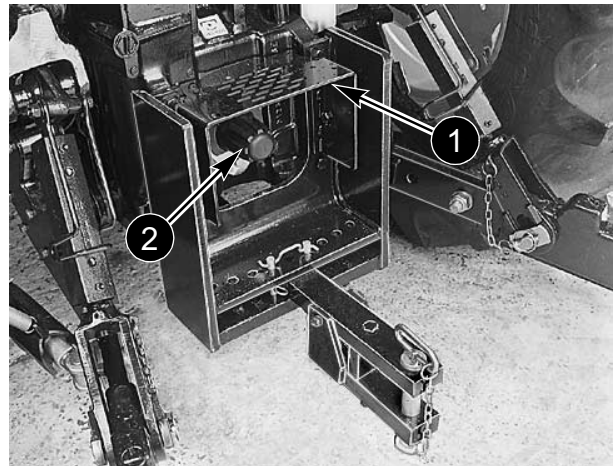
For the safe operation of the PTO, follow these safe operating practices.

- Hold the drawbar in the centre location on the rear support with the retaining pins.
- The drawbar clevis (if equipped) must be removed or mounted under the drawbar, to prevent possible interference between the clevis and the implement driveline.
- Connect the implement hitch 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.
- Connect the implement hitch to the tractor drawbar before connecting the implement driveline to the power takeoff.
- Connect 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.
- When working with the drawbar raise the 3 Point Hitch as high as possible to prevent possible interference between the lower links and the implement.

IMPORTANT: Follow the implement manufacturers recommendations in adjusting and aligning the implement and the implement driveline with the tractor.

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.



DR98K082

TRACTOR EQUIPPED WITH DRAWBAR USED FOR ILLUSTRATION PURPOSES ONLY



WARNING: 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. Read and learn to understand the Operators Manuals supplied with any PTO driven equipment which may be attached to the machine.



WARNING: Whenever a PTO driven machine 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.

FIELD OPERATION

FRONT POWER TAKEOFF OPERATION (If Equipped)

The front power takeoff has a 6 spline output shaft which rotates at 1000 rpm. Engagement is actuated by a three position rocker switch (OFF, ON and ENGAGED) situated on the RH side console. The PTO shaft rotates counterclockwise, from front of tractor.

IMPORTANT: DO NOT attach implements to the front PTO which need more than 90 kW (120 hp) to operate.

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.

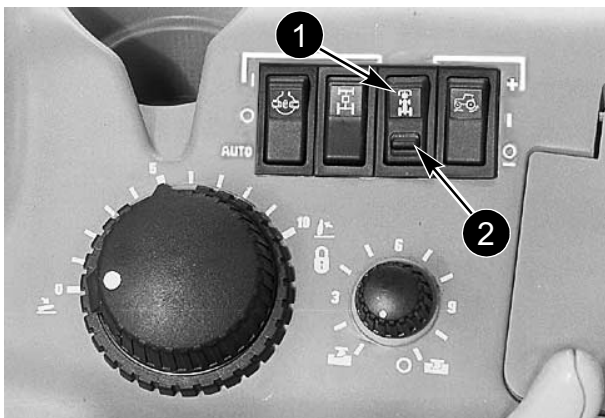
IMPORTANT: Make sure the PTO shaft on the implement is not too long or the PTO will be damaged if the front hitch is raised to full height.

Engage The Front PTO As Follows:

STEP 1

Reduce the engine rpm.

STEP 2



DP96J335

Press the front of the switch (1) down, push the switch lock (2) (on the rear of the switch) forward and at the same time press the switch down again and release.

STEP 3

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 Front PTO As Follows:

STEP 1

Reduce the engine rpm.

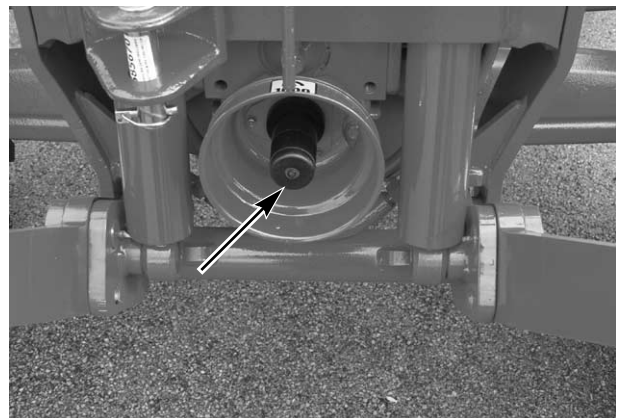
STEP 2

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



MD01K006

HYDRAC PTO SHOWN

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.

FIELD OPERATION

REAR THREE POINT HITCH PREPARATION

The hitch system gives position control and load control of soil engaging implements.

IMPORTANT: (CLAW END LINKS ONLY)

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.

	Cat II	Cat IIIN
DIAMETER OF HITCH BALLS	50.0 mm (2 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)
LOWER HITCH PIN INNER SHOULDER SPREAD	825 mm (32 7/16 in)	825 mm (32 7/16 in)
GAP IN TOP OF IMPLEMENT MAST	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)



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.*

NOTE: *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 117, 173 and 176 for more information.*

FIELD OPERATION

Top and Lower Links Adjustment

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.

NOTE: Make sure tyre pressures, wheel equipment and blasting are correct before making hitch adjustments. See **TYRE PRESSURES AND LOAD CAPACITIES** on Page 155 of this manual. and See **TRACTOR BALLAST** on Page 180 of this manual.

IMPORTANT: After making any adjustments, carefully raise the implement to make sure there is clearance between the tractor and implement.

NOTE: All photographs have been taken using a European specification Tractor. The same procedure applies for all market areas except where stated.

Lower Link Adjustment

Adjust the lower links as follows:

STEP 1

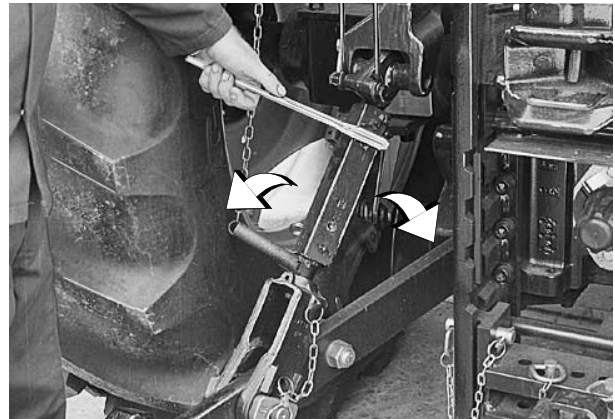
Put the tractor on a hard level surface and lower the hitch to the lowest position.

STEP 2



To adjust the lower link height, pull the turnbuckle lock off the turnbuckle.

STEP 3



Use a wrench to rotate the turnbuckle to adjust the lower link to the required height.

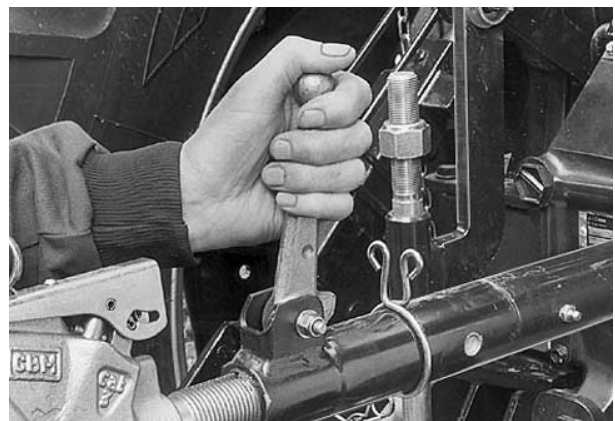
NOTE: Be sure to place the turnbuckle locks in their locked position after adjusting the lower links.

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.

Make sure that the length of the top link is adjusted correctly. See the implement Operators Manual for the correct length.



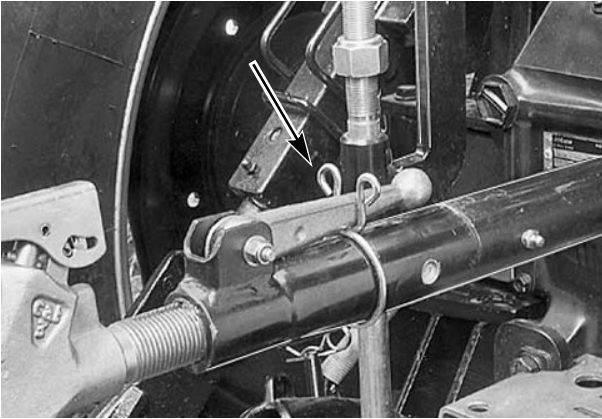
To adjust the length of the top link, pull the adjustment handle out of the retaining clip to a vertical position.

Turn the handle counterclockwise to shorten the link or clockwise to lengthen the link. As seen from behind the tractor looking forward.

FIELD OPERATION

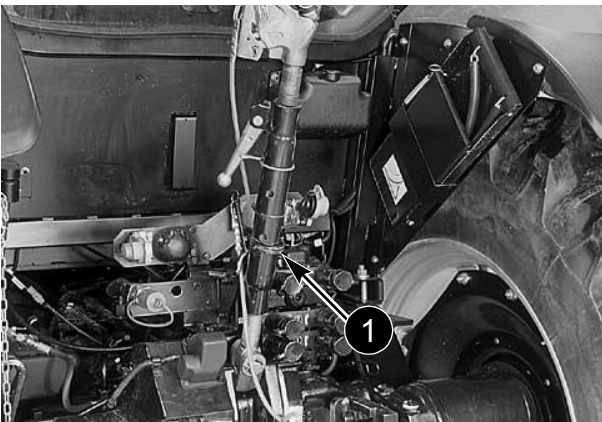
IMPORTANT: The top link is fitted with a stop pin to prevent the link being adjusted out too far. If the link becomes tight to adjust and is forced past the stop pin, the threads will be damaged. Keep the threads clean and make sure the tube turns easily.

NOTE: To obtain maximum length adjustment and strength, the thread length on the ends of the turnbuckle must be equal.



DP96J396

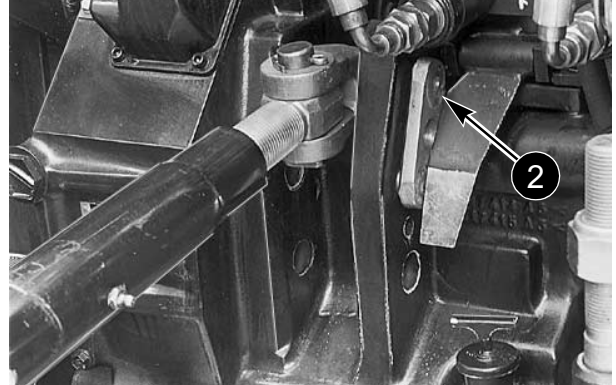
After adjusting the top link, install the adjustment handle in the retaining clip.



DP96H264

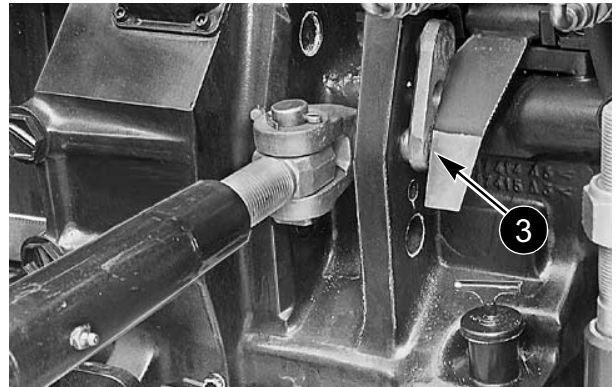
When the top link is not being used, store the link in the retaining clip (1) provided.

To store, or remove the top link push the sprung loaded lever on the stay mechanism and slide the top link in or out.



DP96J394

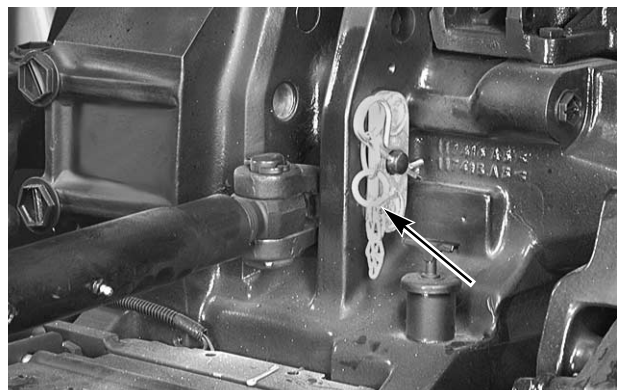
The top link must be installed in the top hole (2) of the link bracket for 3 point hitch extended mast operation.



DP98K030

Connect the top link in the center hole (3) of the link bracket for implements with lower mast operation, when using power take off operated equipment, and for normal hitch operations.

North American Tractors ONLY



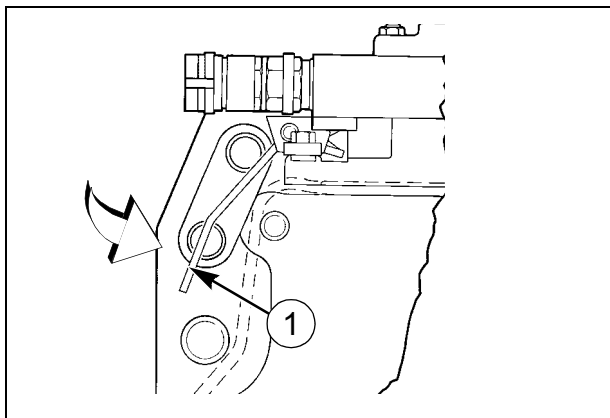
RD96N024

The top link must be installed in the LOWER hole of the link bracket when not using power take off operated equipment.

IMPORTANT: For Rest OF World Tractors the lower hole is capped. DO NOT install the top link to the lower hole

FIELD OPERATION

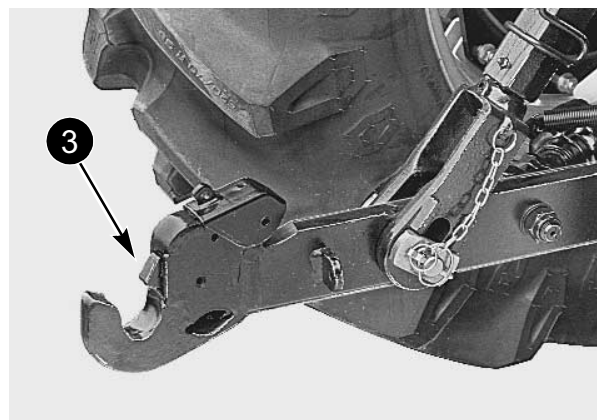
Top Link Pin Retainer (If Equipped)



OM300

To operate the retainer, push the lever (1) down and remove the pin. Hold the lever down and install the pin in the new position then release the lever. The lever must return to the position shown above.

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.

FIELD OPERATION

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.

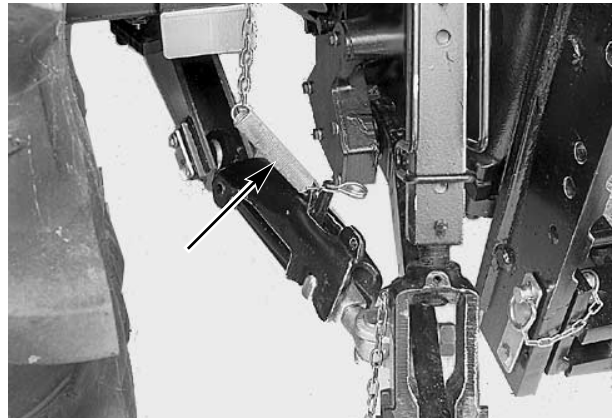
The lower links will retract and lock in place when the tractor is moved rearward.

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.

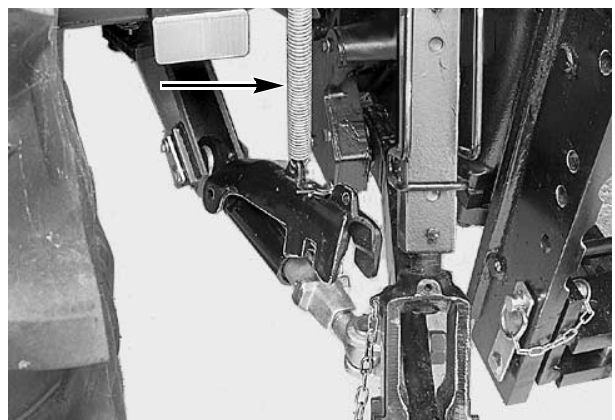
Rigid Operation



DP96H270

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



DP96H271

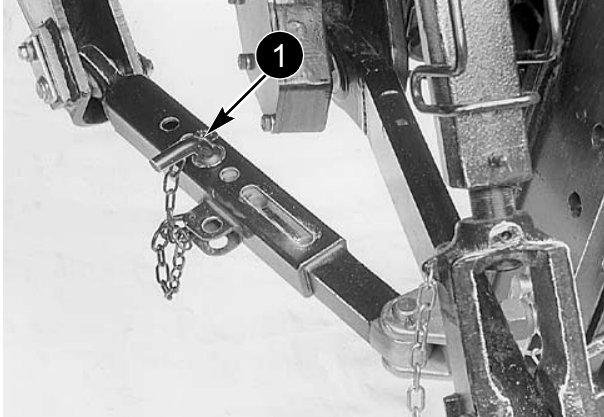
With the three point linkage fully lowered, adjust the chain by putting a different link on the fender hook so the chain is tight and the spring is under tension. This will hold the top latch of the stabilizer up. The stabilizer will be free to float for sway operation.

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.

FIELD OPERATION

Left Hand Stabilizer (Option B) (If Equipped)

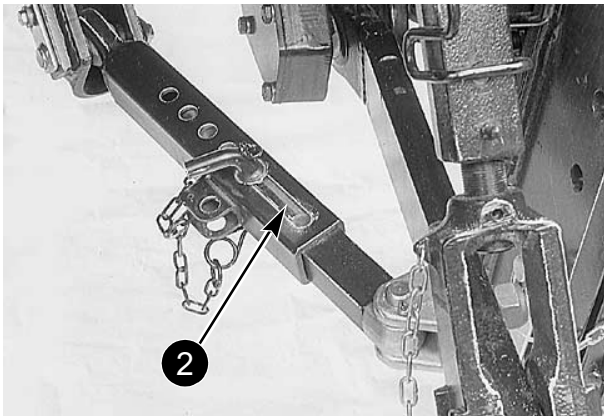
Rigid Operation



DP96H277

Install the pin through the holes (1) for RIGID operation.

Sway Operation



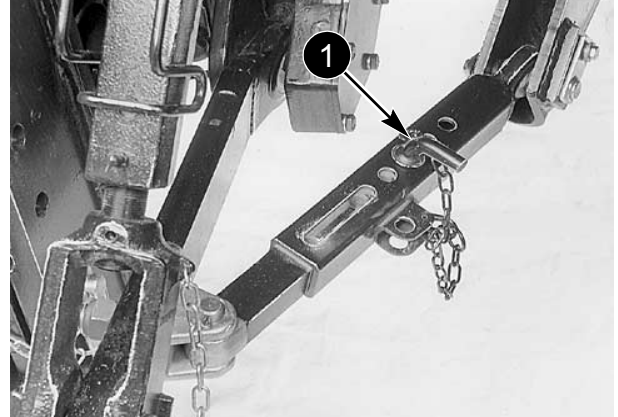
DP96H276

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)

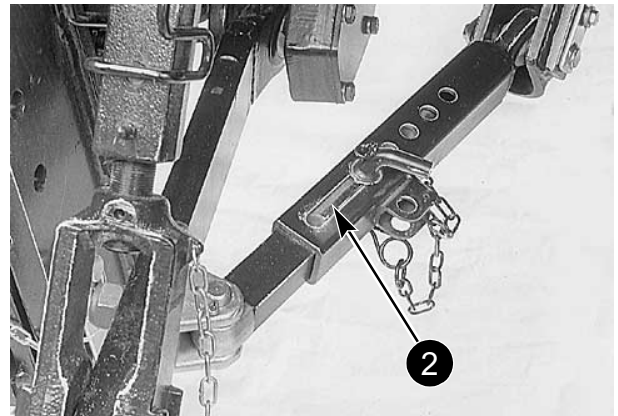
Rigid Operation



DP96H277

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.

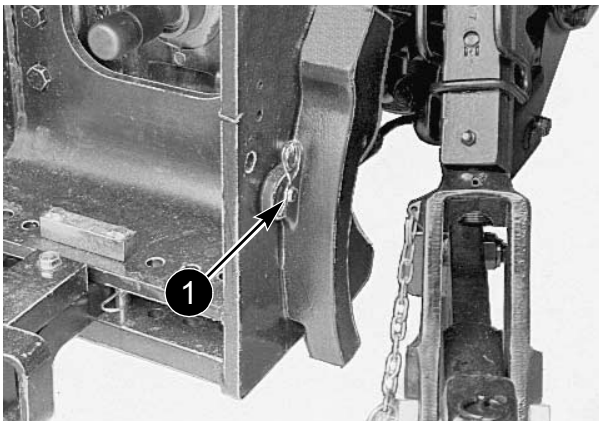
FIELD OPERATION

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.

IMPORTANT: *The Cam Sway Blocks are designed only for operation with Category II width implements.*

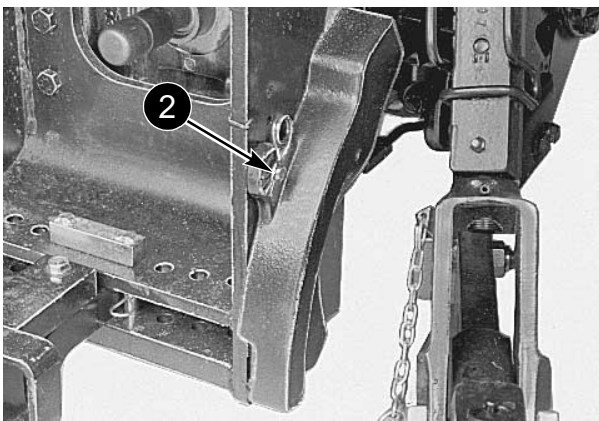
Rigid Operation



F02924

The sway blocks can be mounted in the RIGID position with the pin in lower forward hole (1) to give minimum side to side movement in both the working and transport positions of the hitch.

Sway Operation



F02922

The sway blocks can also be mounted in the SWAY position with the pin in upper rearward hole (2) to give maximum side to side movement.

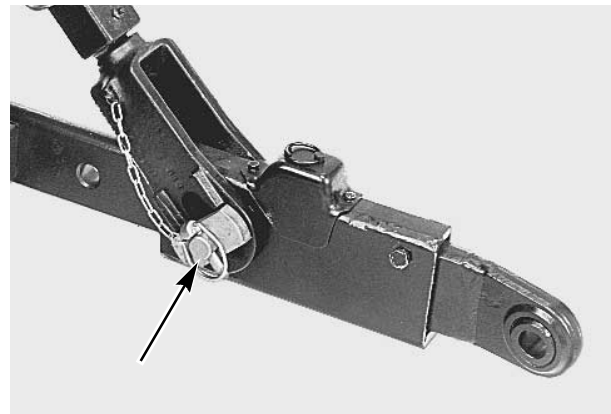
In the SWAY position the blocks are tapered to automatically give maximum sway when the hitch is lowered and to give no sway when the hitch is raised (transport position).

Lower Link Flotation

IMPORTANT: *Check the implement Operators Manual to see if mechanical flotation can be used.*

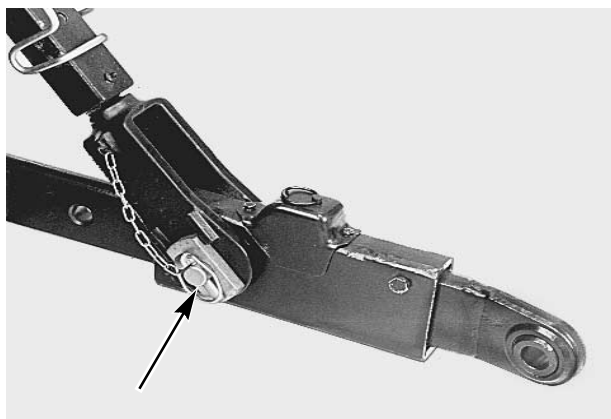
One or both lower links can be set to move up or down approximately 38 mm (1 1/2 in). The mechanical lower link float is used when operating in variable field surface conditions allowing the implement to follow the surface conditions.

Mechanical flotation is also used when the mounted implement width is more than the wheel base of the tractor.



C05813

For RIGID operation with no up or down movement, the heads of the pins and the washers must be across the lift rods as shown.



C05812

For FLOAT operation, the heads of the pins and the washers must be aligned with the lift rods as shown.

FIELD OPERATION

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.

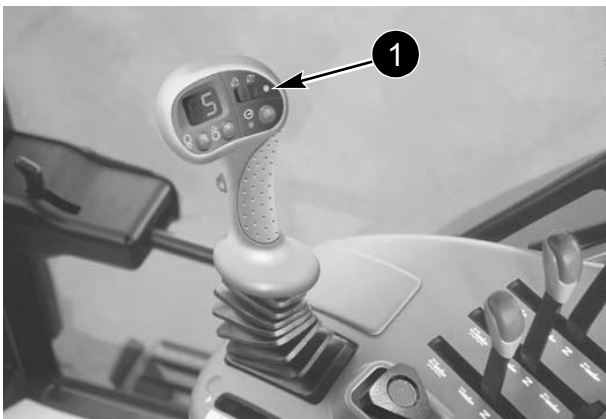
The Electronic Hitch System can be operated in one of two modes: 1) POSITION CONTROL and 2) LOAD CONTROL. In position control the hitch moves with the rotation of the position control knob. In load control the Electronic Hitch System moves the hitch to maintain a constant implement load on the tractor in changing soil conditions and terrain.

The operator controls for the Electronic Hitch Control system consists of an indicator lamp, rocker switches, diagnostic display and 5 control knobs.

1. INDICATOR LAMP



TRACTOR EQUIPPED WITH POWERSHIFT TRANSMISSION



TRACTOR EQUIPPED WITH AUTO SPEED TRANSMISSION

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 the POSITION CONTROL knob.

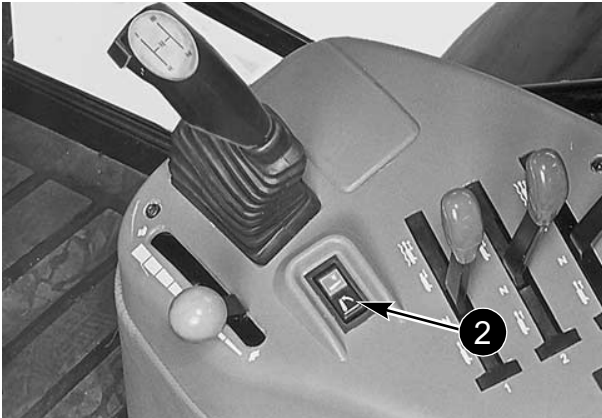
To enable the hitch system: Set the UP/DOWN switch to DOWN. Rotate the POSITION CONTROL knob until the control and the actual position of the hitch are the same. When the indicator lamp stops flashing the hitch system is enabled. The hitch will follow the movement of the POSITION CONTROL knob, when the hitch UP/DOWN switch is in the DOWN position.

IMPORTANT: On tractors equipped with a *Auto Speed Transmission* the right hand door (if equipped) **MUST** be closed otherwise the external hitch switches will not operate.

- B. CONTINUOUSLY ON - Look for the diagnostic code showing in the Diagnostic Display, under the cover on the right console. See Electronic Hitch Diagnostic Codes page 128 in this manual for how to proceed.

FIELD OPERATION

2. UP/DOWN SWITCH



DP96H299

TRACTOR EQUIPPED WITH POWERSHIFT TRANSMISSION



MP01F075

TRACTOR EQUIPPED WITH AUTO SPEED TRANSMISSION

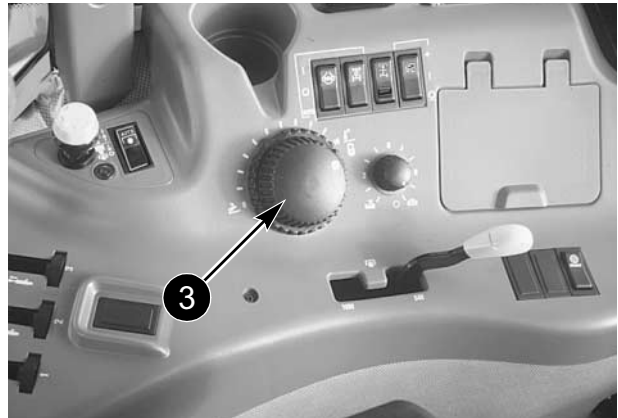
This switch is used to fully raise or lower the hitch. It has 3 working positions: UP, DOWN, and MOMENTARY.

UP - The back or left 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 the Position Control Knob. The speed is controlled by the DROP SPEED CONTROL.

MOMENTARY - Double click and hold the switch by pushing the front or right of the switch into the MOMENTARY position. 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.

3. POSITION CONTROL



MP01C050

The control consists of an inner knob and an outer ring. 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

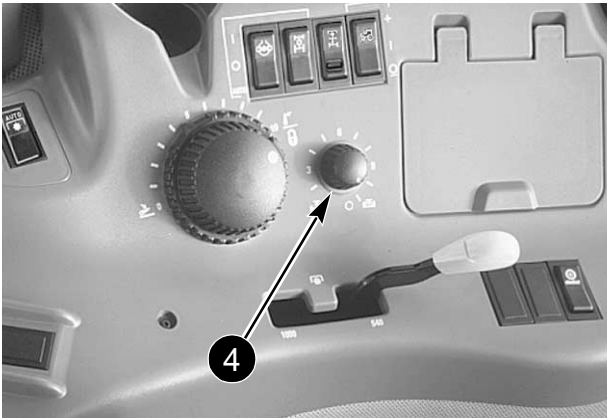
OUTER RING - This is an adjustable mechanical stop for the inner knob. The setting can be bypassed with the push-button on the inner knob.

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.

FIELD OPERATION

4. LOAD CONTROL



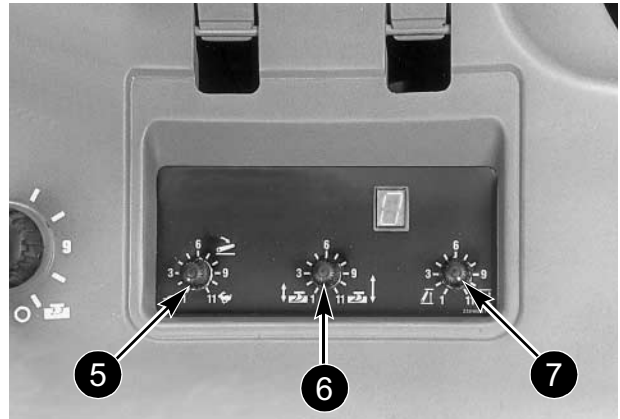
MP01C050

This knob is used to set the load on the tractor or implement depth. Turn the knob clockwise to increase the load and implement depth. Turn the knob counter-clockwise to reduce the load and implement depth.

IMPORTANT: The knob **MUST** be turned fully clockwise 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 knob 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.



MP01C050

5. DROP SPEED CONTROL

This knob is used to adjust the lowering speed of the hitch when using either the UP/DOWN SWITCH or the POSITION CONTROL knob. 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 knob. 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").

FIELD OPERATION

Operation of External Hitch Switches (If Equipped)

The external switches for the 3 point hitch 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 a Auto Speed Transmission the right hand door (if equipped) MUST be closed otherwise the external hitch switches will not operate.*

Always operate the remote switches according to the following procedure:

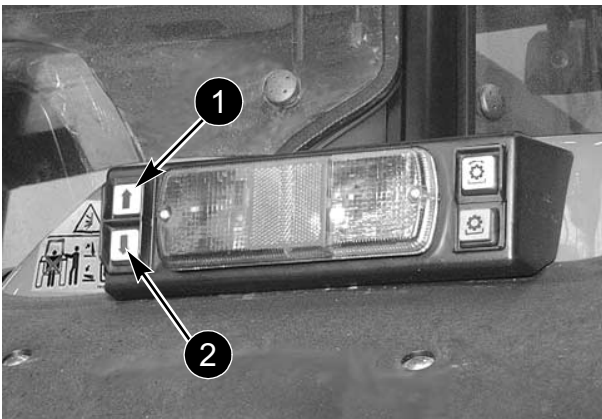
STEP 1



DR98J150

Move the FORWARD/NEUTRAL/ REVERSE lever to the NEUTRAL position. Engage the park brake.

STEP 2



DR99B123

Press the top switch (1) to raise the hitch. Press the bottom switch (2) to lower the hitch.

When the switches are released, the hitch will stop at the selected position until the hitch controls on the right hand side console are used. The hitch will have to be enabled with the position control knob after each use of the remote switches. To enable the hitch, see Operator controls on page 120.

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: *Watch for possible pinch points between the implement and tractor when the hitch is moved.*



WARNING: *Stand well clear of the linkage or implement when operating the external controls or injury can result from contact with moving parts.*

FIELD OPERATION

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:

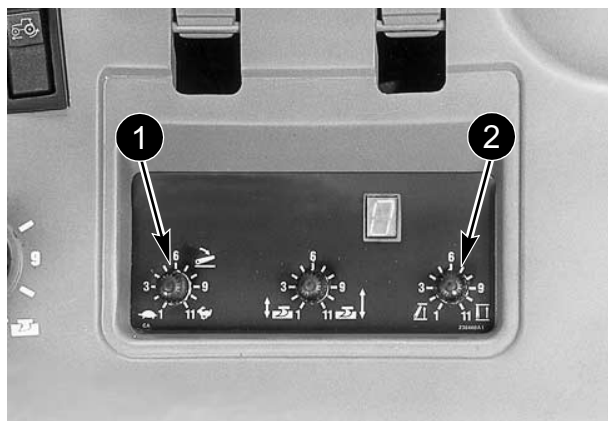
STEP 1



DP96J411

Before moving the tractor, set the POSITION CONTROL KNOB to the transport lock position, fully clockwise and turn the load control knob fully clockwise to the (O) off position.

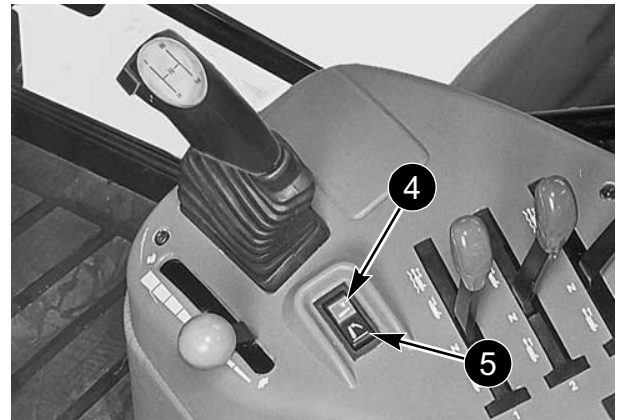
STEP 2



DP96N112

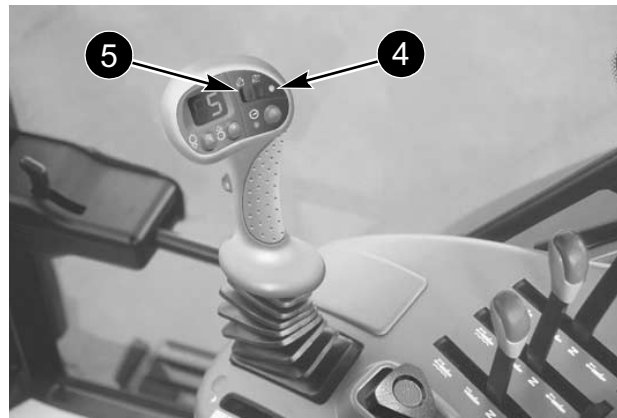
Set the DROP SPEED CONTROL (1) to setting 6.
Set the UPPER LIMIT CONTROL (2) to setting 1.

STEP 3



DP96H299

TRACTOR EQUIPPED WITH POWERSHIFT TRANSMISSION



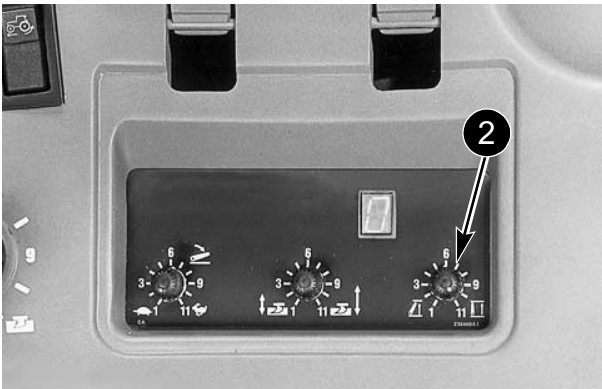
MP01F075

TRACTOR EQUIPPED WITH AUTO SPEED TRANSMISSION

Set the UP/DOWN switch (5) in the DOWN position. If the enable or reset lamp (4) on the switch flashes, move the hitch POSITION CONTROL KNOB to match the actual hitch position.

FIELD OPERATION

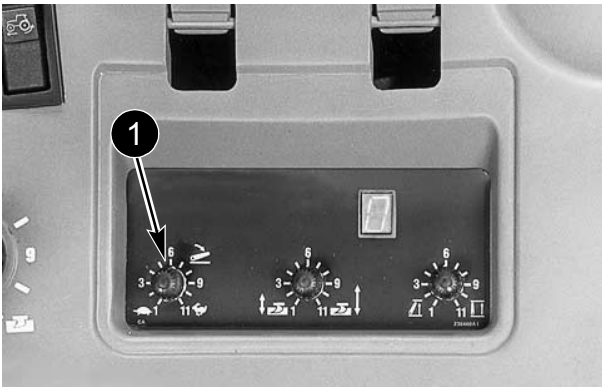
STEP 4



DP96N112

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



DP96N112

Adjust the DROP SPEED CONTROL (1) until the implement lowers at the speed desired.

STEP 6



DP96J41

Operate the tractor and implement in the field. Set the implement depth with the POSITION CONTROL KNOB. The rate of hitch movement is determined by the amount the knob is moved. If the knob is moved slowly a precision control mode is provided to move the hitch slowly to match the knob.

IMPORTANT: Turn the LOAD CONTROL knob fully clockwise 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 knob 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



DP96H299

TRACTOR EQUIPPED WITH POWERSHIFT TRANSMISSION



MP01F075

TRACTOR EQUIPPED WITH AUTO SPEED TRANSMISSION

Use the UP position 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 knob to raise the hitch for road transport with three point linkage mounted equipment. Put the control knob in the transport lock position and the up/down switch in the up position.

FIELD OPERATION

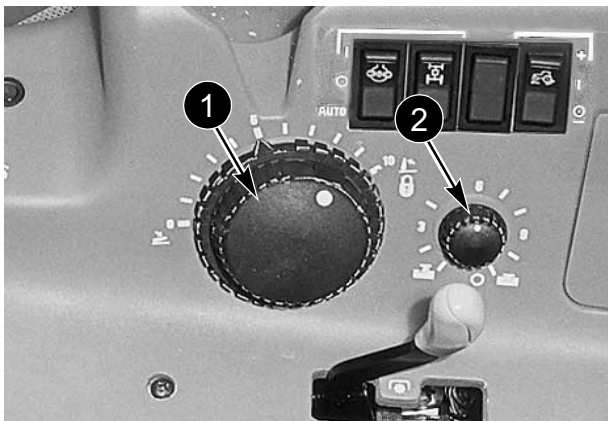
Operating in Load Control

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 knob 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.

NOTE: If the implement has gauge wheels, move the Hitch Position Control Knob fully counterclockwise before carrying out the following procedure.

STEP 1



Turn the LOAD CONTROL Knob (2) counterclockwise to decrease the load setting until the hitch begins to raise.

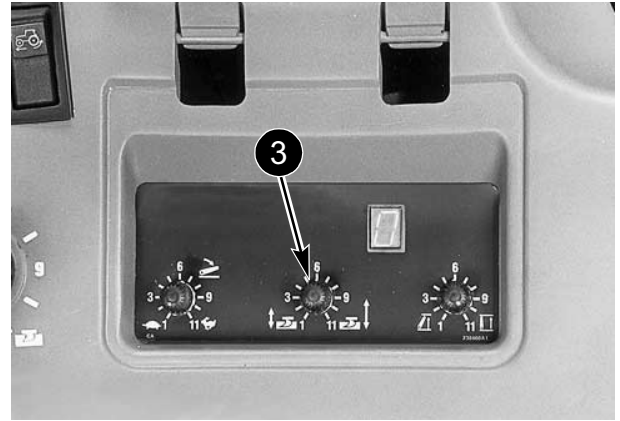
NOTE: The load control is OFF at the (0) position and the hitch will operate in the position control mode.

STEP 2

Move the hitch POSITON CONTROL knob (1) fully counterclockwise.

NOTE: In fields with intermittent hard and soft soil conditions, a "Bottom" depth may be set by moving the Hitch Position Control knob to the desired maximum implement operating depth.

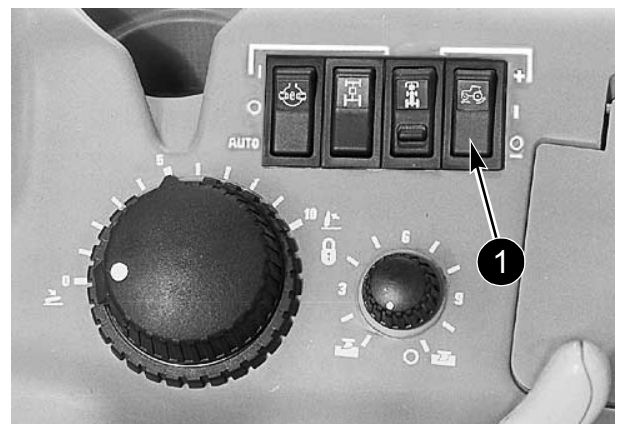
STEP 3



Turn the TRAVEL CONTROL knob (3) counterclockwise to reduce and clockwise to increase the changes in working depth with changing loads.

NOTE: A typical operation for a fully mounted implement is a setting of "7" to "10" and a setting of "3" to "5" for a semi-mounted implement.

Slip Limit Control



The SLIP LIMIT CONTROL SWITCH (1) (If Equipped) 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.

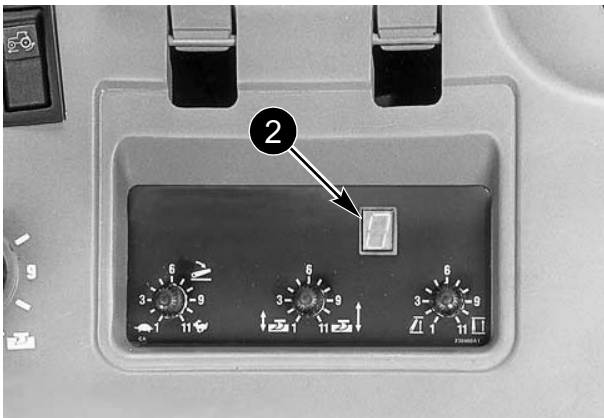
FIELD OPERATION

The slip limit control switch has three positions:

1. **SET** (momentary) Symbol (+) and increase. where the slip limit is set.
2. **ON** Symbol (I) where the slip function is selected. If no limit was set before, the slip limit default is set to 30%.
3. **OFF** Symbol (O) and decrease (-) where no slip limit function is available.

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.



DP96N112

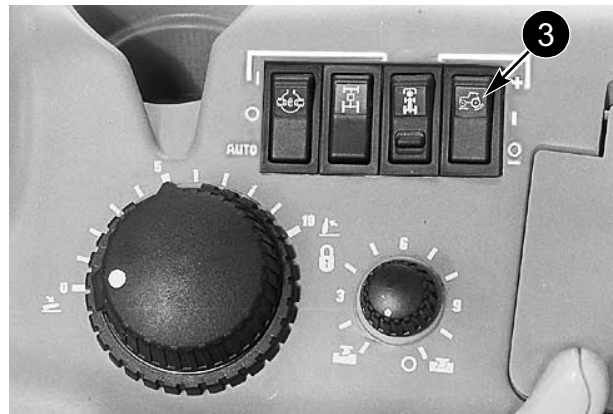
- Press the slip control switch to (I) ON position, then press). SET (momentary) and release. The display (2) will flash the slip value, which will be the current slip + 5%. The system will not set to below 5%, or above 30%. The hitch will begin to raise if the wheel slip exceeds the slip limit value.

EXAMPLE: If slip limit was set to 18%, display (2) would show the following: Blank, "1", Blank, "8", Blank, Previous Display.

- If field conditions change, the slip limit must be changed to match the new conditions. this can be done in three ways:

- A. **Automatic reset system** - Press slip limit control switch to OFF (O) for at least two seconds, then reset. See paragraph above.
- B. **Manually increase set point** - Press to SET (+) and release. Every time the switch is pressed the set point will increase by 1%. After the switch is pressed, the display will flash a new value. Set point will not raise again until new value is displayed. Set point can not be set above 30%.
- C. **Manually decrease the set point** - Press the slip control switch to OFF (O) then back to ON (I) quickly. Set point will decrease by 1%. Display will flash new value. Set point can not be lowered again until the new value is displayed. Set point can not be set below 5%.

NOTE: The tractor must be moving to do the manual adjustments above.

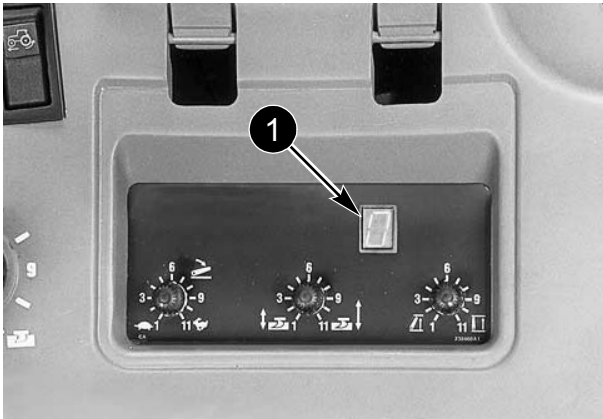


DP96J335

- The slip switch lamp (3) will illuminate if the limit has been exceeded and the hitch is raising.

FIELD OPERATION

Rear Three Point Hitch Diagnostic Display



DP96N112

The Hitch Diagnostic display (1) tells the operator the condition of the electronic load control system by a diagnostic code.



When power is applied to the electronic load control system, the figure "8" is displayed for 1 to 2 seconds for a display check. If any segment of the display is not illuminated, see your dealer.

Hitch Diagnostic Codes

The "0" code indicates SYSTEMS NORMAL

SYSTEMS NORMAL means that the electrical and electronic parts of the hitch system are functioning normally.



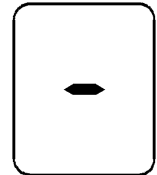
This display does not tell the operator if the controls are not adjusted correctly or if there is an hydraulic problem. If the display code is "0" and the hitch performance is reduced from what it had been, contact your dealer.

NOTE: The DOT after the zero indicates that the tractor is not moving. When the tractor moves a minimum of 0.8 km/h (0.5 mph) the DOT should disappear. If the Dot does not disappear, contact your dealer.

If the hitch fails to function properly check the diagnostic code and then report the error code and your hitch malfunction to your dealer.

In all cases, before attempting to repair an error, restart the tractor and observe if the error code is repeated. The error code may have been caused by the way the tractor was operated and the error code will be cleared upon start-up.

The above UPPER LIMIT error code, (as shown opposite) occurs when starting the tractor and the actual hitch position is above the UPPER LIMIT setting. This error code can be cleared by the operator by doing one of the following:



- Press and hold MOMENTARY position on the hitch UP/DOWN switch until the UPPER LIMIT setting is reached.
- Adjust the UPPER LIMIT control knob clockwise until the hitch position is matched.
- Press and hold the LOWER position on the Hitch Remote switch until the UPPER LIMIT setting is reached.

Make sure the UPPER LIMIT is set to the desired position after the error code is cleared.

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.

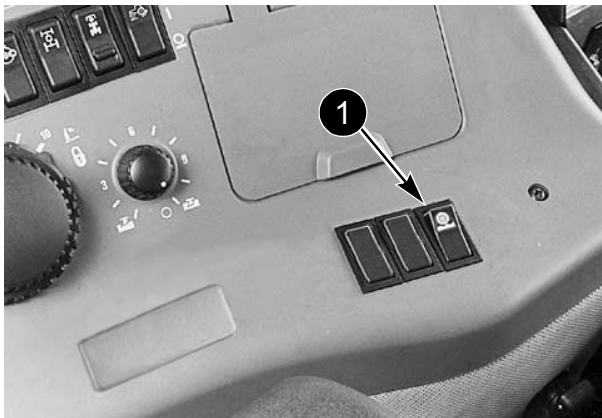
FIELD OPERATION

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 (15 in) 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.



DR99D002

The Ride Control Switch (1) has three positions:

OFF

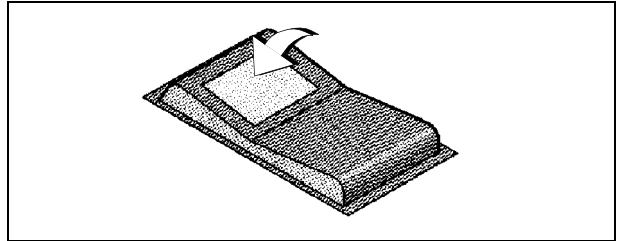
ON

UPPER LIMIT SETTING OVERRIDE

Ride Control ON

To enable Ride Control do the following:

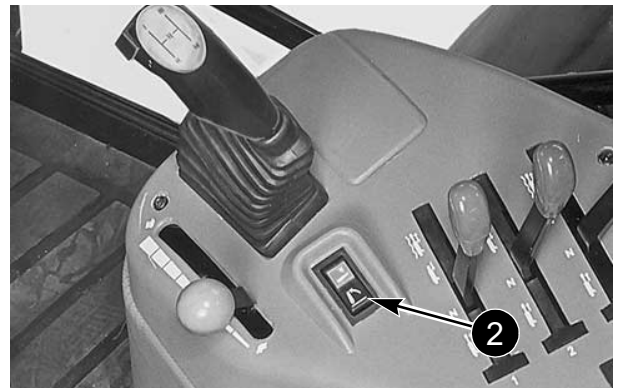
STEP 1



DS98K260

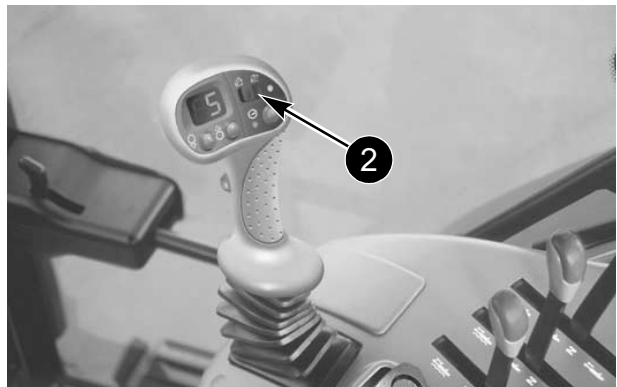
Push the Ride Control switch to the ON position.

STEP 2



DP96H299

TRACTOR EQUIPPED WITH POWERSHIFT TRANSMISSION



MP01F075

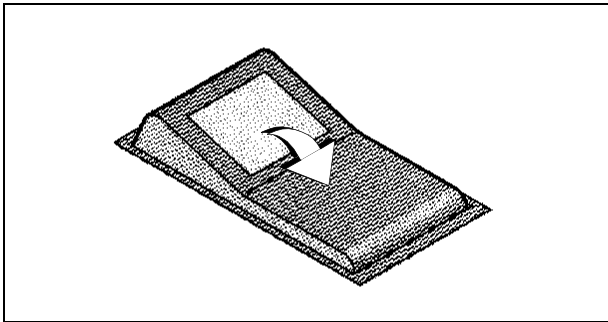
TRACTOR EQUIPPED WITH AUTO SPEED TRANSMISSION

Push the hitch UP/DOWN switch (2) 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.

FIELD OPERATION

Ride Control OFF



DS98K261

Ride Control will be disabled if:

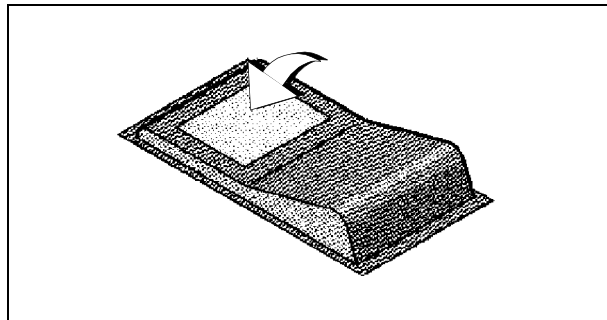
- A. The switch is in the OFF position.
- B. The hitch UP/DOWN switch is in the down position.
- C. The travel speed is below 0.8 km/h (0.5 mph).

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 88 for full Auto Hitch operating instructions.

FIELD OPERATION

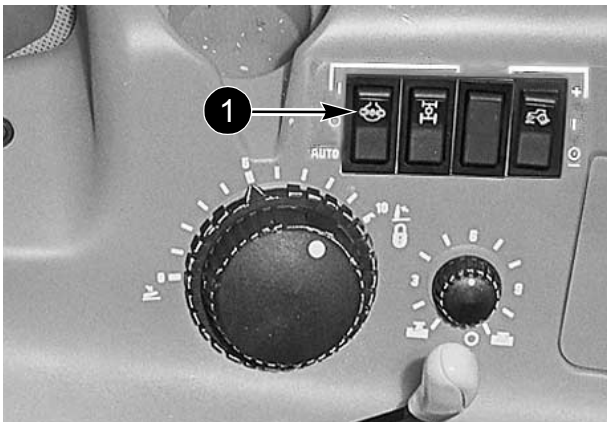
DIFFERENTIAL LOCK CONTROL

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.



DP96H300

The differential lock switch (1) has three positions:

I = ENGAGE

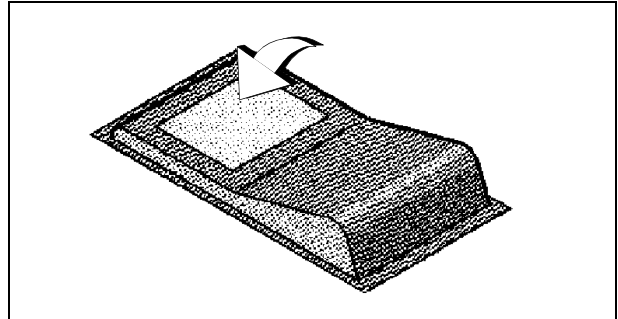
O = ON

AUTO = AUTOMATIC MODE



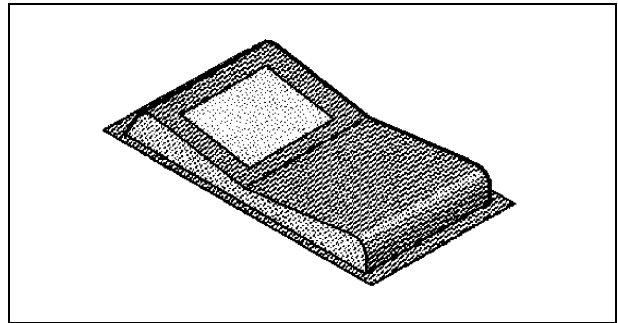
WARNING: Do not drive on roads, or at high speed anywhere, with the differential lock engaged. Difficult steering will occur, and can result in an accident. In field operation, use the differential lock for traction improvement, but release for turning at row ends.

Manual Mode



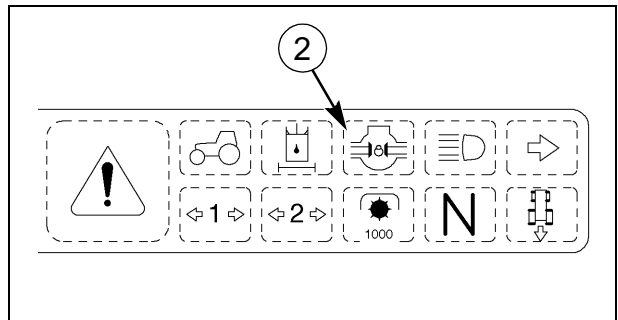
DS98K259

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).



DI96F063

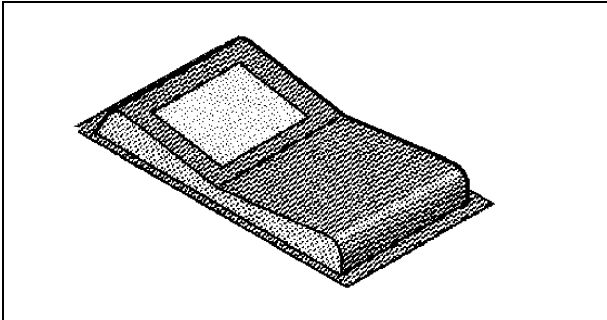
The differential lock indicator light (2) on the instrument cluster will illuminate any time the differential lock is engaged.

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.

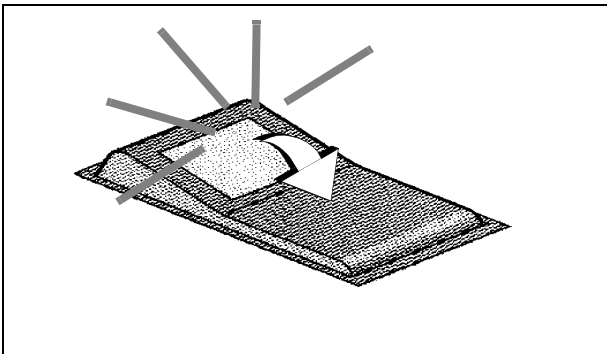
FIELD OPERATION

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, travel speed and wheel slip (Only if equipped with a true ground speed sensor).

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:

- A. The hitch reaches the upper third of the hitch travel.
- B. Travel speed exceeds 16 km/h (10mph).
- C. One or both brake pedals are applied and held on.

The differential lock will engage or re-engage at travel speeds below 16 km/h (10 mph) when:

- A. The hitch is lowered below the upper third of hitch travel.
- B. Both brake pedals are in the released position.
- C. Wheel slip exceeds 15% (if equipped with a true ground speed sensor).

Operation In Automatic Mode With Pull Type Implements

WITHOUT REMOTE IMPLEMENT SWITCH:

The automatic mode is engaged by moving the Position Control knob to the Transport position (fully clockwise) and the UP/DOWN switch to the UP position. Actual hitch position can be adjusted anywhere within the upper half of the full hitch movement with Upper Limit Control, if desired.

The differential lock will disengage when:

- A. Travel speed exceeds 16 km/h (10mph) *.
- B. One or both brake pedals are applied and held on.

NOTE: * Automatic Mode is also disengaged when the travel speed goes above 16 km/h (10 mph). The automatic function can be restored below 13 km/h (8 mph) by moving the differential lock switch to the center (O) position and then back to the Automatic (AUTO) position.

The differential lock will engage or re-engage at travel speeds below 16 km/h (10 mph) when:

- A. Both brake pedals are in the released position.

FIELD OPERATION

Operation In Automatic Mode With Pull Type Implements (Cont'd)

WITH REMOTE IMPLEMENT SWITCH:

The automatic mode is engaged by moving the Position Control knob to the Transport position (fully clockwise) and connecting remote implement switch to wiring harness. Actual hitch position can be adjusted anywhere within the upper half of the full hitch movement with Upper Limit Control, if desired.

The differential lock will disengage when:

- A. The implement reaches UP position.
- B. Travel speed exceeds 16 km/h (10mph) *.
- C. One or both brake pedals are applied and held on.

NOTE: * Automatic Mode is also disengaged when the travel speed goes above 16 km/h (10 mph). The automatic function can be restored below 13 km/h (8 mph) by moving the differential lock switch to the center (0) position and then back to the Automatic (AUTO) position.

The differential lock will engage or re-engage when:

- A. The implement reaches DOWN position.
- B. Both brake pedals are in the released position.
- C. Wheel slip exceeds 15% (if equipped with a true ground speed sensor).

FIELD OPERATION

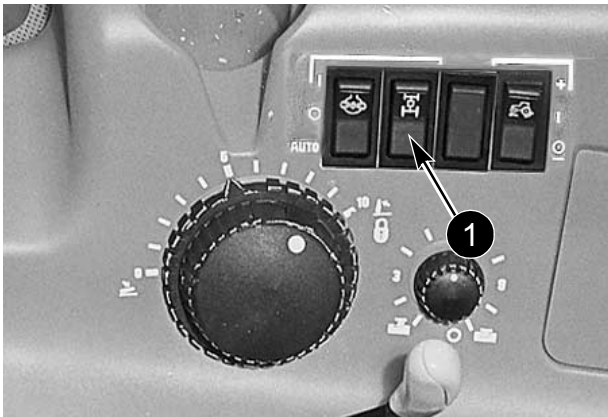
MECHANICAL FRONT DRIVE (MFD) OPERATION

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.



DP96H300

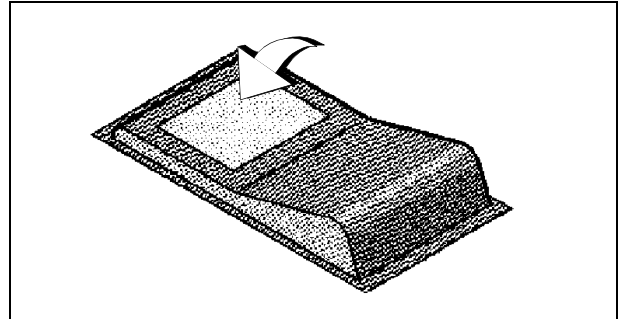
The MFD switch (1) has three positions:

I = ON, MANUAL

O = OFF

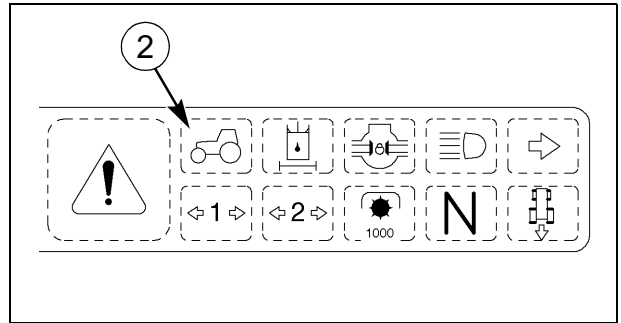
AUTO = AUTOMATIC MODE

Manual Mode



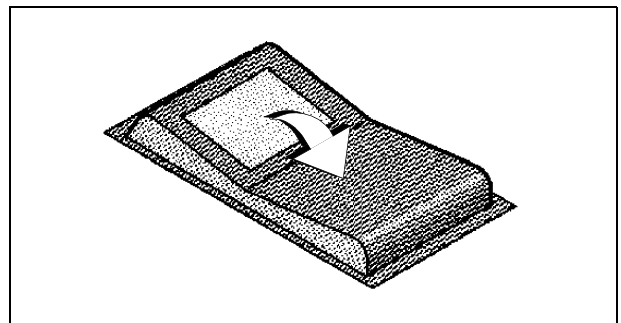
DS98K259

To engage MFD, push the top of the MFD switch to the ON (I) position.



DI96F063

The MFD indicator light (2) on the instrument cluster will illuminate.



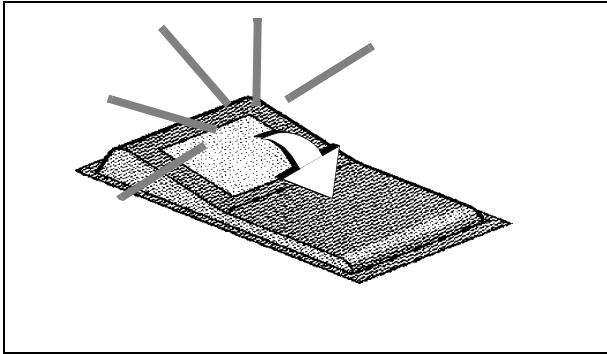
DS98K260

To disengage MFD push the MFD switch to the center position OFF (O), (as shown).

The indicator light in on the instrument cluster will go off.

FIELD OPERATION

Automatic Mode



DS98K261

To engage Automatic mode (AUTO) press the bottom of the switch down.

When the MFD switch is in the Automatic (AUTO) position and the automatic function is active the indicator light on the instrument cluster will illuminate.

The Automatic MFD engagement or disengagement is determined by the hitch position, brake application, travel speed and wheel slip (only if equipped with a true ground speed sensor).

Operation in automatic mode with hitch mounted implements

The MFD will disengage when slip is less than 10% and:

- A. The hitch reaches the upper third of the hitch travel or.
- B. Travel speed exceeds 16 km/h (10mph).

The MFD will engage or re-engage when:

- A. The hitch is lowered below the upper third of hitch travel and travel speed has not exceeded 16 km/h (10 mph) or speed drops below 13 km/h (8 mph), after travelling above 16 km/h (10 mph).
- B. Both brake pedals are applied.
- C. Wheel slip exceeds 15% (if equipped with a true ground speed sensor).
- D. The differential lock is engaged.

Operation in automatic mode with pull type implements:

WITHOUT REMOTE IMPLEMENT SWITCH

The automatic mode is engaged by moving the Position Control knob to the Transport position (fully clockwise) and the UP/DOWN switch to the UP position. Actual hitch position can be adjusted anywhere within the upper half of the full hitch movement with Upper Limit Control, if desired.

The MFD will disengage when:

- A. Travel speed exceeds 16 km/h (10mph) *.
- B. One brake pedal is applied and held on.

NOTE: * Automatic Mode is also disengaged when the travel speed goes above 16 km/h (10 mph). The automatic function can be restored by reducing speed to below 13 km/h (8 mph).

The MFD will engage or re-engage when:

- A. One brake pedal is released.
- B. Wheel slip exceeds 15% (if equipped with a true ground speed sensor).
- C. Travel speed drops below 13 km/h (8 mph), after travelling above 16 km/h (10 mph)
- D. The Differential lock is engaged.
- E. When both brake pedals are depressed.

FIELD OPERATION

Operation in automatic mode with pull type implements:

WITH REMOTE IMPLEMENT SWITCH

The automatic mode is engaged by moving the Position Control knob to the Transport position (fully clockwise) and connecting the implement switch harness to the connector on the wiring harness located behind the 7 pin socket. Actual hitch position can be adjusted anywhere within the upper half of the full hitch movement with Upper Limit Control, if desired.

The MFD will disengage when slip is less than 10% and:

- A. The implement reaches "UP" position.
- B. Travel speed exceeds 16 km/h (10 mph) *.

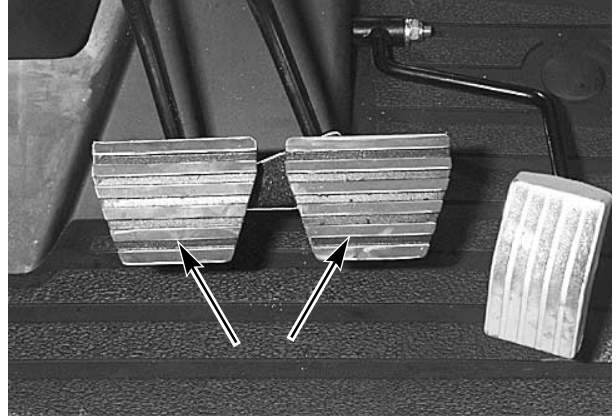
NOTE: * *Automatic Mode is also disengaged when the travel speed goes above 16 km/h (10 mph). The automatic function can be restored by reducing speed to below 13 km/h (8 mph).*

The MFD will engage or re-engage when:

- A. The implement reaches the "DOWN" position and travel speed has not exceeded 16 km/h (10 mph), or travel speed drops below 13 km/h (8 mph) after travelling above 16 km/h (10 mph).
- B. Both brake pedals are applied.
- C. Wheel slip exceeds 15% (if equipped with a true ground speed sensor).
- D. The Differential lock is engaged.

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.

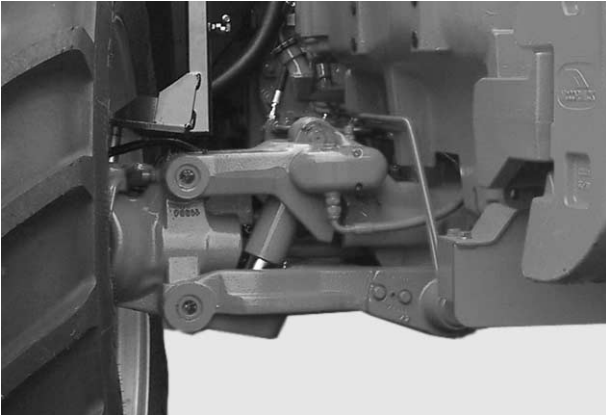


DD98D211

When both brake pedals are applied together the MFD indicator lamp on the instrument cluster will illuminate.

FIELD OPERATION

OPERATING THE INDEPENDENT FRONT SUSPENSION MC130 (If Equipped)

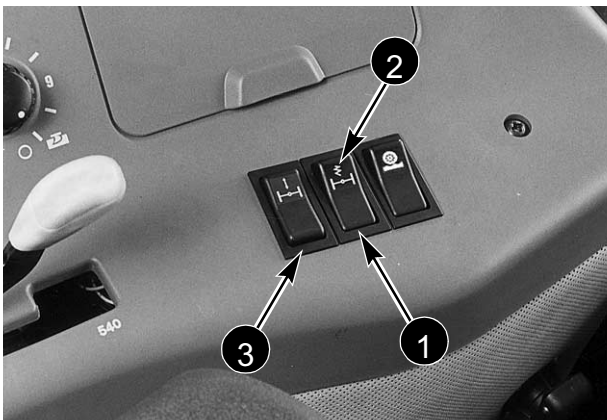


DP99A119

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.

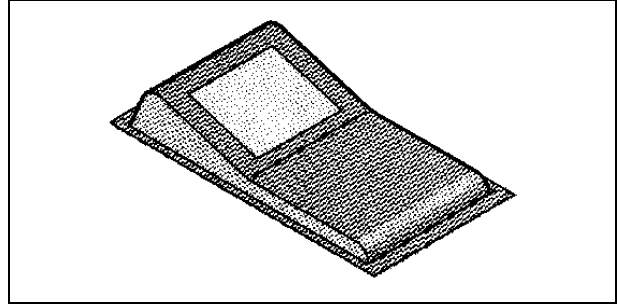


1. SUSPENSION MODE SWITCH
2. SUSPENSION INDICATOR LAMP
3. MANUAL OVERRIDE SWITCH

Independent Front Suspension is operated with the use of 2 rocker switches, a suspension mode switch and a manual override switch.

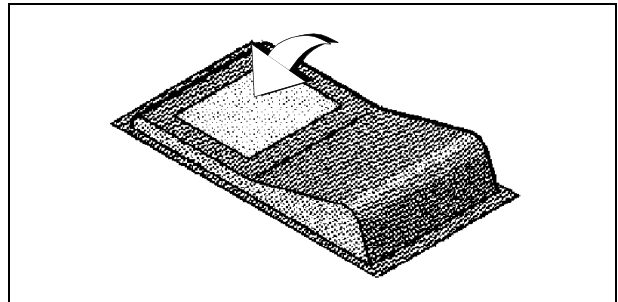
Suspension Mode Switch

Position 1 -
With Suspension Indicator Lamp NOT illuminated



Axle suspension mode OFF. The axle will operate as a conventional MFD axle.

Position 2 (Momentary)



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.

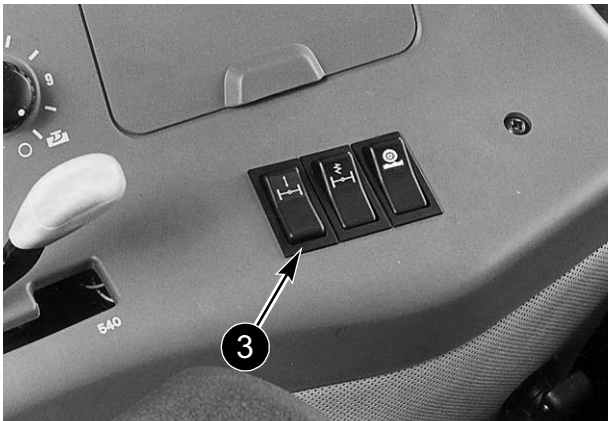
Approximately 15 seconds after pressing the switch the axle will rise to the mid-position of the total axle range.

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.

FIELD OPERATION

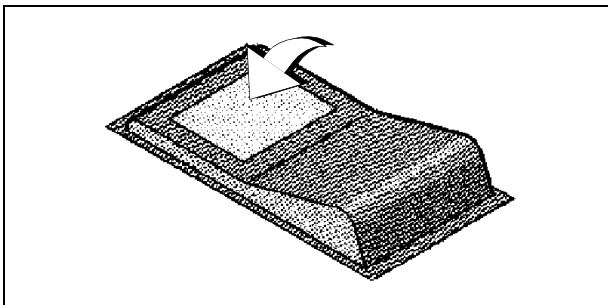
NOTE: If the engine is stopped when the axle is in the suspension mode, on engine start up the axle will remain in the mid position and the indicator lamp will NOT be illuminated. Axle suspension mode will not be activated until the top of the switch is pressed fully forward to position 2 and then released. The indicator lamp on the switch will illuminate to show axle suspension mode has been activated.

Manual Override Switch



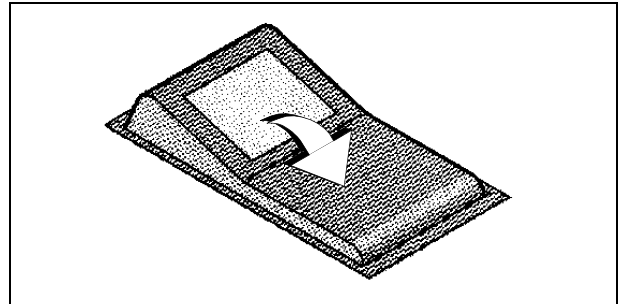
Manual Override will only operate when the axle suspension mode is activated. Use the switch (3) to manually adjust the ground clearance, within the total suspension travel range of 90 mm (3.5 in), to match working conditions.

Suspension RAISE (to increase ground clearance)



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)



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.

[illegible]

[illegible]

FIELD OPERATION

Hitch Preparation (Option B - Hydrac Hitch)

Hitch System



MD01K012

The front hitch system is operated through a (double acting) first remote hydraulic valve circuit.

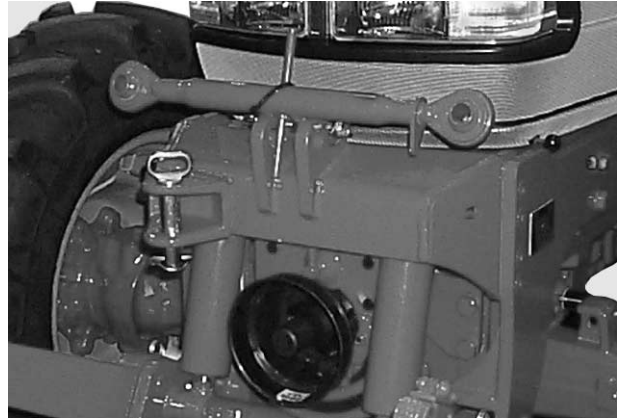
NOTE: *The linkage is power lifted and power lowered. The linkage is free to float upward on partial stroke.*

The hitch is designed for Category II implements only. Lower links are rigidly mounted with no lateral movement.

The lower links have claw ends and the top link a ball end. The top link can be adjusted for length and has a rigid or float position.

Lift Capacity3000 kg (7291 lb)

Top Link Stored Position

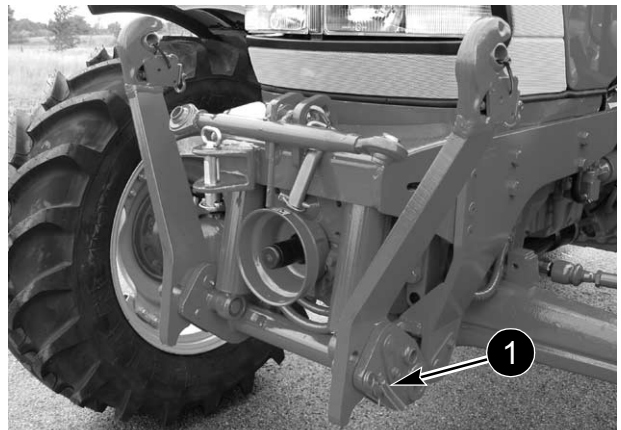


MD01J033

When not being used store the top link as shown in the photograph.

Lower Links Stored Position

When the front hitch is not being used, store the lower links.

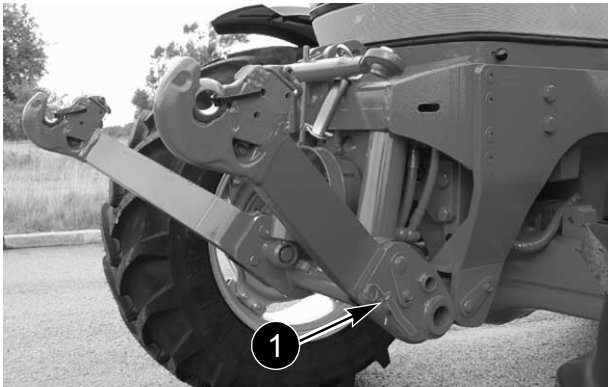


MD01K053

Insert the storage retaining pins (1) and 'R' clips as shown.

FIELD OPERATION

Lower Link Adjustments



MD01K010

RIGID POSITION

For operation with no vertical movement (float), install the storage retaining pins in the front hole (1).

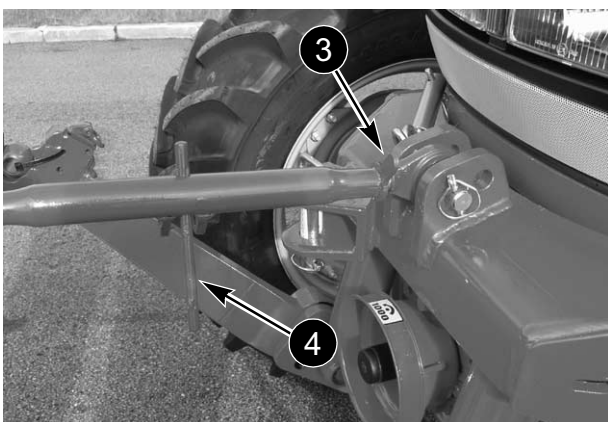


MD01K009

FLOAT POSITION

For operation with vertical float, install the storage retaining pins in the rear hole (2).

Top Link Adjustments



MD01K008

For fine adjustment of length, turn the locking plate (3) counterclockwise to release, then turn link body using adjustment handle (4) to lengthen or shorten the top link as required. Turn the locking plate clockwise to lock.

Hitch Operation (Both Hitch Options)

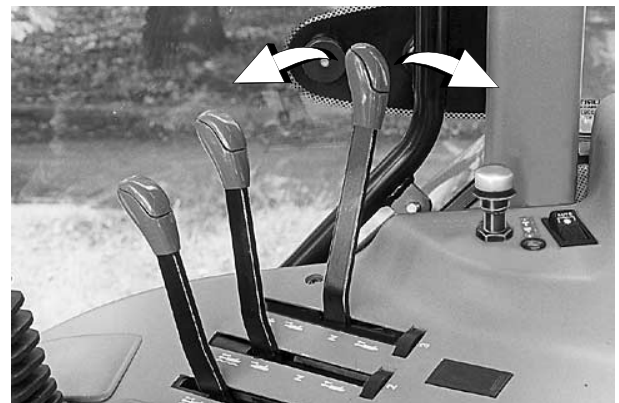
STEP 1



MD01K010

Lower the lower links and set for Rigid or Float application, as required.

STEP 2



DD97C117

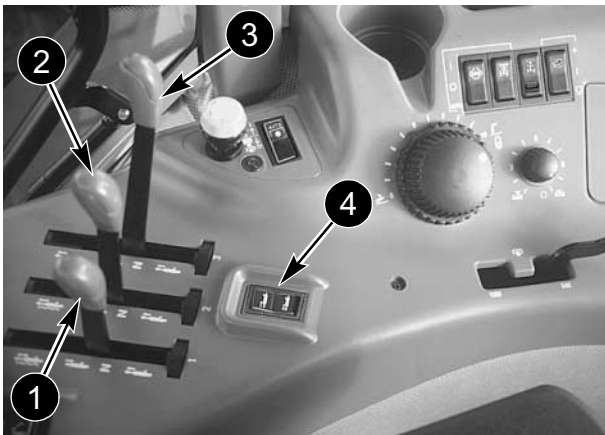
Move the number 3 remote lever rearward to raise the linkage or forward to lower.

FIELD OPERATION

REMOTE HYDRAULIC VALVES

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 and 4th remote circuits (as equipped).

The remote hydraulic control levers operate the corresponding remote, e.g.; lever 1 controls remote valve 1, lever 2 controls remote valve 2 etc.



DP96K097

NUMBERS 1, 2 AND 3 = REMOTE CONTROL LEVERS
NUMBER 4 = OPTIONAL 4TH REMOTE SWITCH

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.

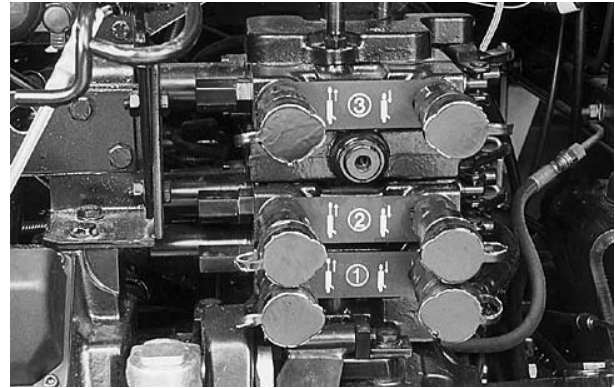
IMPORTANT: Under "normal" operating conditions the maximum oil available for external use is:

1. Stationary tractor operating on slopes
of no more than 2 degrees..... 30 litres
(8 US gallons)
2. Moving tractor operating on slopes
of no more than 15 degrees..... 20 litres
(5.5 US gallons)
3. Moving tractor operating on slopes
of no more than 30 degrees..... 12 litres
(3.2 US gallons)

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.

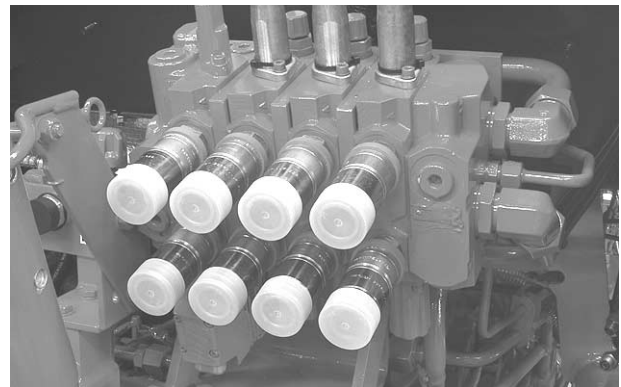
The return hydraulic oil from all implements must be returned through the hydraulic couplers on the remote valves to prevent damage to the transmission. The return oil supplies pressure lubrication to the transmission.

Connecting Remote Hoses



DP96H258

VALVE TYPE A



VALVE TYPE B

Connect the implement to the remote couplers so that the implement lowers when the control lever is pushed forward and raises when the control lever is pulled rearward.

The couplers on the left are to raise the implement, the couplers on the right are to lower the implement, as seen looking at the rear of the tractor. Change the hoses over if the implement works in the opposite way.

The implement couplers can be connected or disconnected with the tractor or implement hydraulic system under pressure.

FIELD OPERATION

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 lever on the side console forward and rearward.

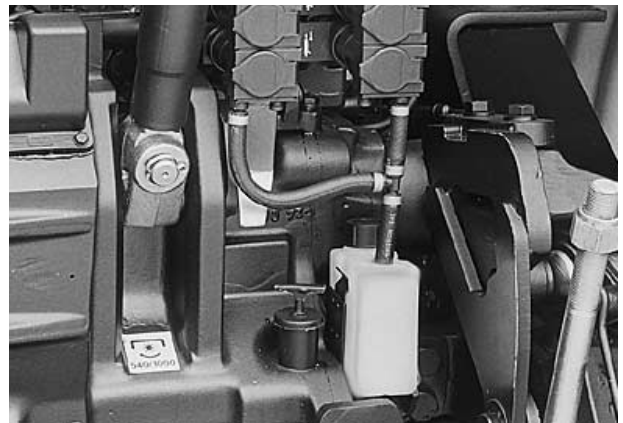
IMPORTANT: *When connecting the implement hose to the tractor, make sure there is enough hydraulic hose to permit the tractor to turn in both directions.*

Disconnecting Hoses and Implements

To reduce the possibility of oil leakage when disconnecting the couplers run the engine and move the remote lever fully forward to the float position. 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)



DP98J029

When the remote couplers are connected or disconnected any spillage is drained through the spillage collector into a reservoir.

Drain the reservoir at regular intervals.

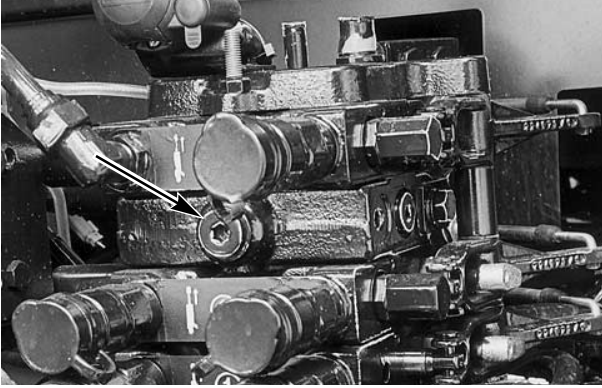
To remove the reservoir pull the retaining clip outward and lift the reservoir off.

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.*

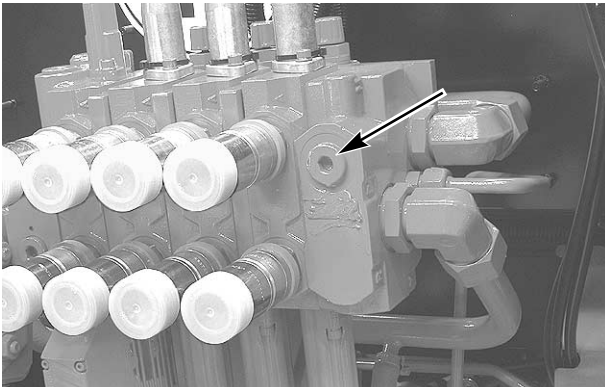
FIELD OPERATION

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.



VALVE TYPE A

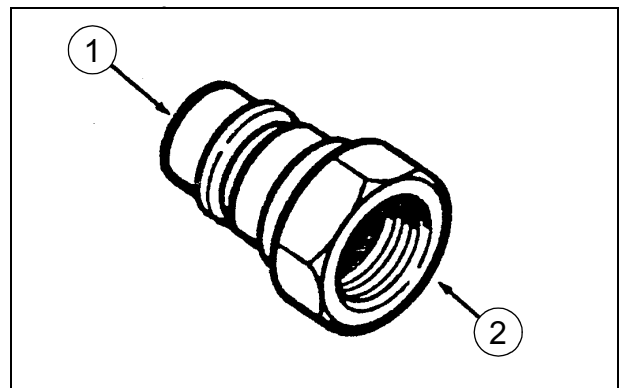


VALVE TYPE B

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.

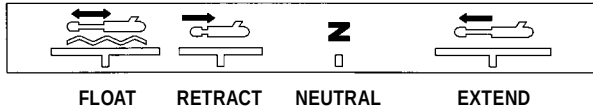


Serious infection or reaction can result if medical treatment is not given immediately. Make sure all connections are tight and that hoses and lines are in good condition before applying pressure to the system. Release all pressure before disconnecting the lines or performing other work on the hydraulic system. To find a leak under pressure use a small piece of cardboard or wood. Never use hands.

FIELD OPERATION

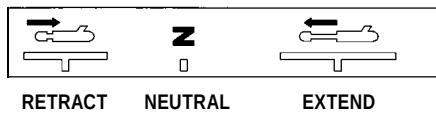
REMOTE HYDRAULICS OPERATION

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

Operation Using Control Levers

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 149 for complete instructions.



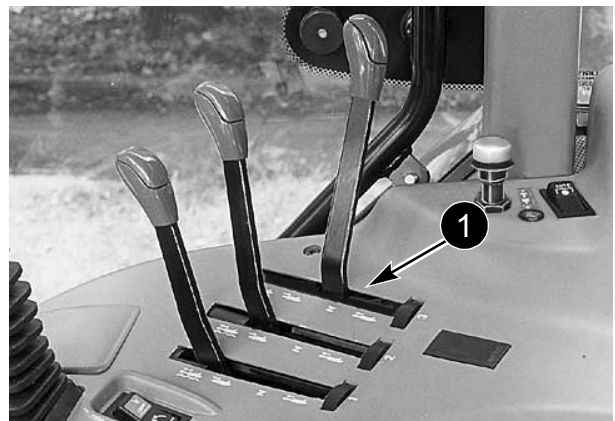
DR99G121

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.

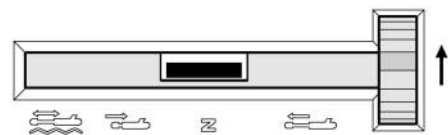
NOTE: If there is too much restriction in the implement cylinders or other attachments, the restriction can cause a back pressure in the remote valve which will cause the remote lever on the console to return to neutral before the cylinder has reached full stroke. If the condition occurs, it will be 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



DR99G120

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.

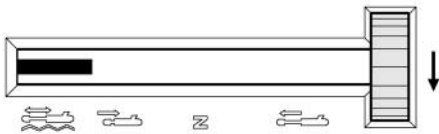
FIELD OPERATION

Float



DP96J349

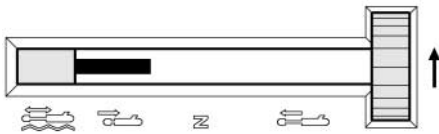
To operate the remote hydraulics in a float condition, turn the lock control (2) fully counterclockwise.



DI96N025

This will allow the control lever to go completely forward into the float position.

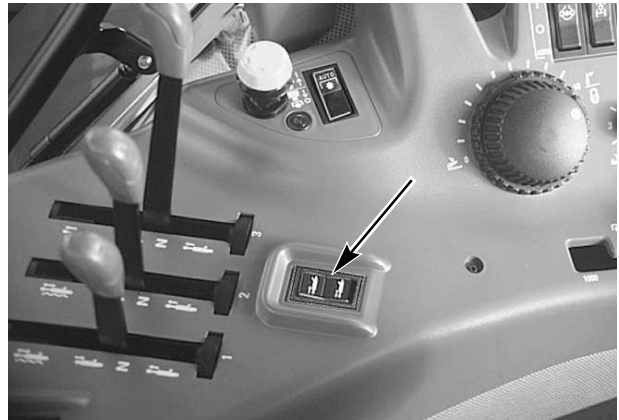
The remote hydraulic control levers can be locked out of the float position. When using equipment for work where the float position is not wanted, turn the lock control one position clockwise so that the control lever cannot be moved into the float position.



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)



MR01D004

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).

Operation Using Single Acting Remote Hydraulic Cylinders

When using single acting hydraulic cylinders move the control lever to the float position to retract the cylinder. This allows up to 9 litres of hydraulic oil to be dumped to the transmission at zero back pressure.

IMPORTANT: Single acting remote circuits cannot be used for continuous oil supply applications.



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.

FIELD OPERATION

Operating Hydraulic Motors

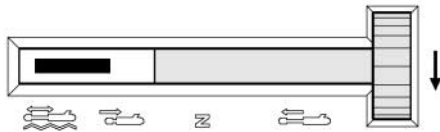
Connect hydraulic motors to the 1st remote circuit to make sure of a constant flow of oil to the motor.



DP96J349

Stop the engine. Move remote control lever forward to the float position.

Turn the lever lock (1) to restrict the control lever movement to the retract and float positions.

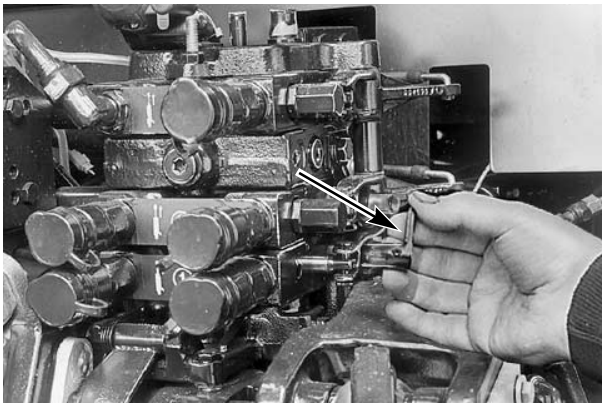


DI96N026

This will provide two operating positions for the control lever for the hydraulic motor application only.

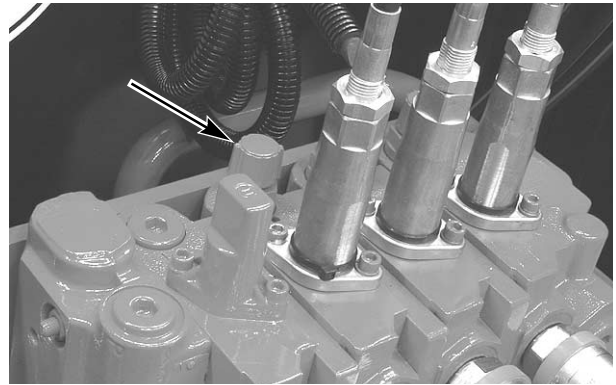
To engage the hydraulic motor, start the engine and move the control lever rearward from the float position until against the lever lock. The hydraulic motor will now operate.

Use the variable flow controls to regulate the motor speed. This can be done at either:



DP97A151

VALVE TYPE A



MD03A011

VALVE TYPE B

To disengage the hydraulic motor, move the remote control lever forward to the float position. This will allow the hydraulic motor to slow down before stopping.

DO NOT DISENGAGE THE LEVER LOCK. Allowing the control lever to return to the neutral position during motor application will cause the motor to stop immediately. This will cause damage to the hydraulic motor, hoses and equipment.

To change the direction of rotation of the hydraulic motor, change the hoses over on number 1 remote coupler.

IMPORTANT: *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.*

FIELD OPERATION

Variable Flow Controls (If equipped)

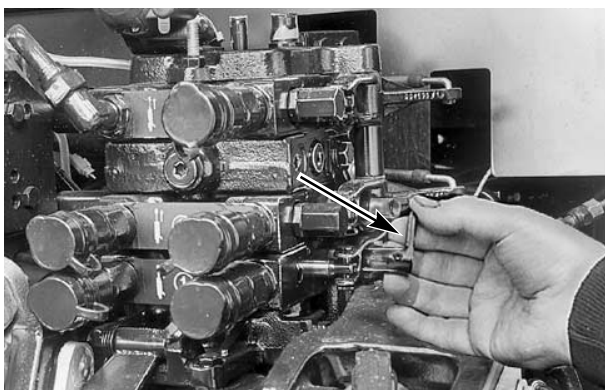
If there is too much restriction in the implement cylinders or other attachments, the restriction can cause a back pressure in the remote hydraulic valve which will cause the remote hydraulic lever on the console to return to the neutral (kick out) position before the cylinder reaches the full stroke.

If this condition occurs decrease the amount of fluid going to the implement.

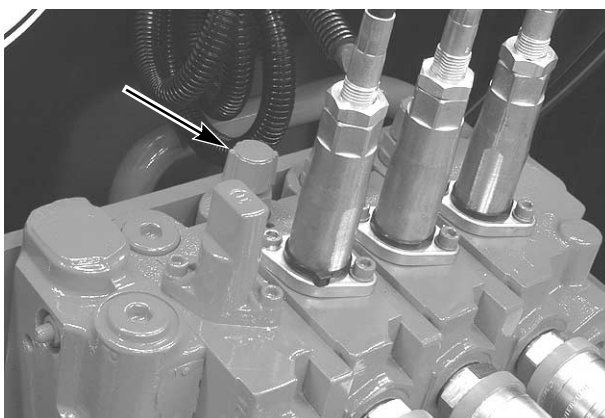
NOTE: *It is normal for the remote hydraulic control lever to return to the neutral position when the cylinders reach the full stroke.*

Flow Rate Adjustment

Use the variable flow controls to increase or decrease the rate of flow of hydraulic fluid to the remote hydraulic couplers.



VALVE TYPE A



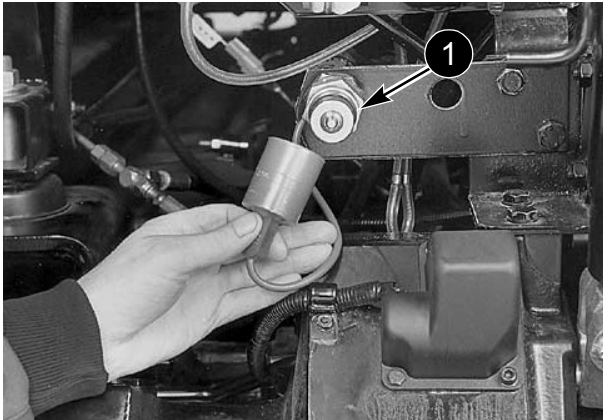
VALVE TYPE B

To increase the rate of flow, turn the control (1) clockwise.

To decrease the rate of flow, turn the control (1) counterclockwise.

FIELD OPERATION

Hydraulic Motor Return Circuit (If Equipped)



DP96H275

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.

To use the hydraulic motor return circuit, connect the return line from the hydraulic motor or implement to the connector (1).

Hydraulic Motor Case Drain (If Equipped)

An optional coupler, located next to the Hydraulic Motor Return Connector (ie No.1 in photographs above), is available and can be used when special hydraulic motors are equipped with a case drain return port.

This coupler allows hydraulic oil to be dumped directly into the transmission by-passing the valve block and hydraulic filter for a zero pressure return.

Remote Valve with Load Check (If equipped)

The remote hydraulic valves can be equipped with either a RAISE load check valve only or RAISE and LOWER load check valves.

The load check is used in applications where a remote hydraulic cylinder must be hydraulically locked in position with no leakage.

FIELD OPERATION

FOLDABLE ROPS FRAME (If Equipped)

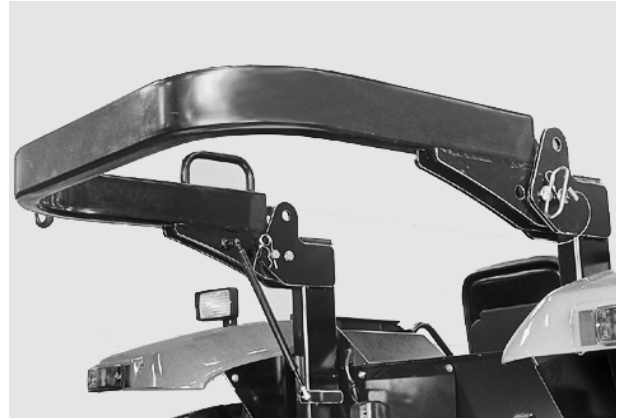


WARNING: DO NOT modify the ROPS in any manner. Unauthorized modifications such as welding, drilling, cutting or adding attachments can weaken the structure and reduce your protection. Replace the ROPS if subjected to roll-over or damage. Do not attempt to repair.



DP98J134

For NORMAL OPERATION, including transportation, always use the foldable Roll Over Protective Structure (ROPS) in the secured upright position with the seat belt (if equipped) fastened for full ROPS protection.



DP98J135

For LOW CLEARANCE OPERATION, such as operating in buildings, orchards or vineyards, the ROPS can be lowered and secured in the down position. NO ROPS PROTECTION IS PROVIDED IN THE LOWERED POSITION.



WARNING: When improperly operated, this tractor can roll over or upset. For low clearance use only, the ROPS can be lowered. No protection is provided in this position. For all other uses and transport, secure ROPS in upright position and fasten seat belt. Use of ROPS and seat belt minimize the possibility of injury or death if roll over or upset occurs.

IMPORTANT: When the ROPS frame is in the lowered position, make sure there is clearance between the frame and hitch mounted equipment. Slowly raise the hitch to maximum height to check the necessary clearance. For drawbar attached and/or PTO driven equipment, check for clearance including turning corners.

IMPORTANT: Loads must not be carried on the rops frame when lowered or upright.

FIELD OPERATION

Changing the ROPS Position

STEP 1

Remove the retaining clips from the locking pins (1) on each side of the frame.

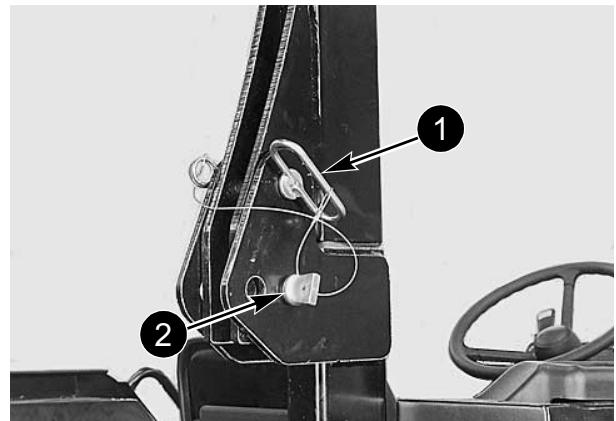
Remove the locking pins. DO NOT REMOVE THE PIVOT PINS (2).

STEP 2

Lower or raise the upper part of the ROPS frame.

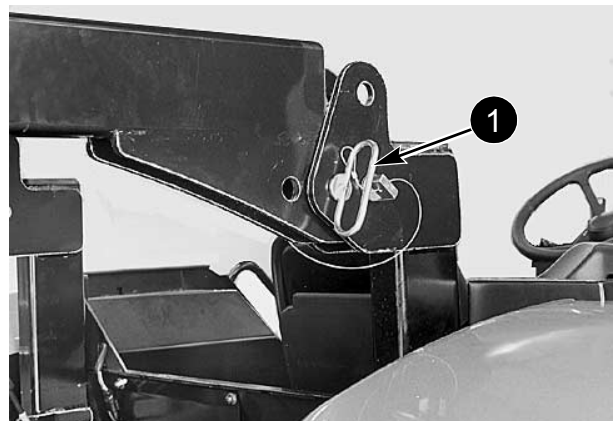
STEP 3

Install the locking pins (1) and pin retaining clips to secure the upper part of the ROPS frame in the desired position, up or down.



DP98J136

LOCKING PIN POSITION WITH FRAME RAISED

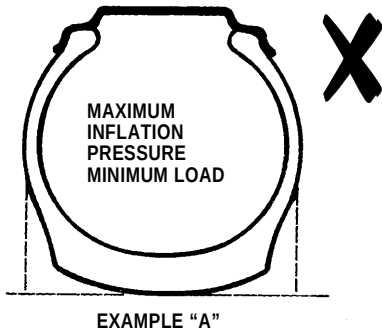


DP98J137

LOCKING PIN POSITION WITH FRAME LOWERED

TYRE INFLATION SPECIFICATIONS

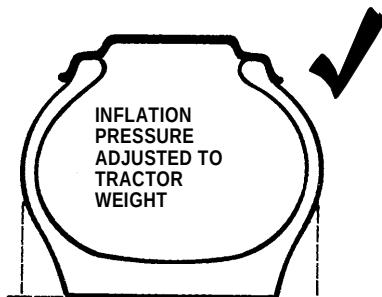
For maximum tractor performance, always adjust the tyre pressure within the minimum/maximum range, to conform with the actual load on the tyres. Under normal conditions use the minimum pressure rating for general drawbar work. Use the higher pressure rating, up to the maximum, for heavy three point hitch mounted equipment.



EXAMPLE "A"

479

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"

479

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, 0.28 bar (4 psi), more than the maximum pressure for tyres used in severe service. Severe service includes the furrow tyre in normal 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. See page 186.

WARNING: A tyre can explode during inflation and cause serious injury or death. Never increase air pressure beyond 241 kPa, 2.4 bar (35 psi) 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 157 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/BALLAST

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 (17.5 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.

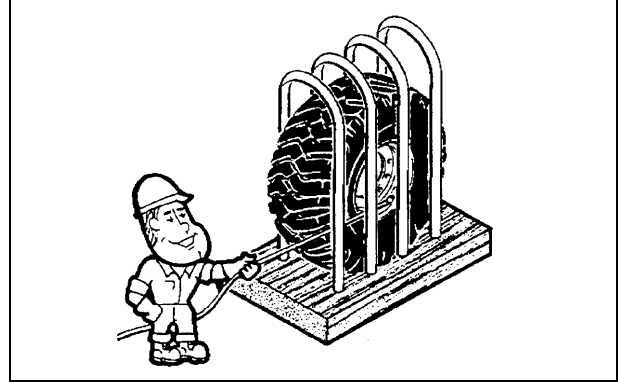
STEP 2

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 (0.5 psi) for each 305 mm (12 in) of the 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

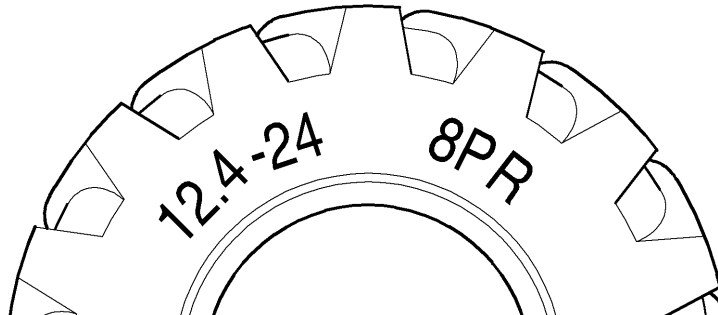
Inflate the tyre to the recommended air pressure. DO NOT INFLATE THE TYRE MORE THAN THE RECOMMENDED PRESSURE.

TYRES/WHEELS/BALLAST

TYRE PRESSURES AND LOAD CAPACITIES

Tyres can be marked in two ways, as shown in the examples below:

CROSSPLY - Example



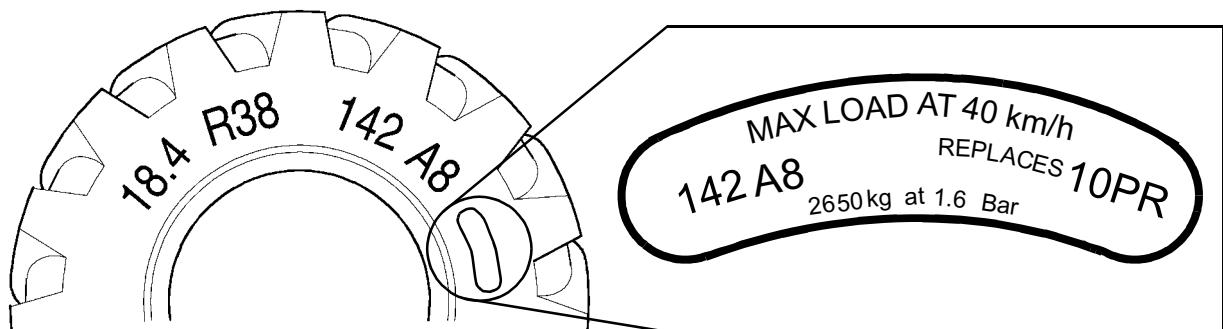
DI96J476

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 - Example



DI96J475

18.4R38 142 A8

18.4 =	Nominal tyre width in inches
R =	Radial structure
38 =	Internal diameter
142 =	Load index number, see chart 1
A8 =	Speed code for 40 km/h at 1,6 bar pressure, 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/BALLAST

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
95	690	109	1030	123	1550	137	2300	151	3450	165	5150
96	710	110	1060	124	1600	138	2360	152	3550	166	5300
97	730	111	1090	125	1650	139	2430	153	3650	167	5450
98	750	112	1120	126	1700	140	2500	154	3750	168	5600
99	775	113	1150	127	1750	141	2575	155	3875	169	5800
100	800	114	1180	128	1800	142	2650	156	4000	170	6000
101	825	115	1215	129	1850	143	2725	157	4125	171	6150
102	850	116	1250	130	1900	144	2800	158	4250	172	6300
103	875	117	1285	131	1950	145	2900	159	4375	173	6500
104	900	118	1320	132	2000	146	3000	160	4500	174	6700
105	925	119	1360	133	2060	147	3075	161	4625	175	6900
106	950	120	1400	134	2120	148	3150	162	4750	176	7100
107	975	121	1450	135	2180	149	3250	163	4875	177	7300
108	1000	122	1500	136	2240	150	3350	164	5000	178	7500

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

(*) The % variation factors are based on recommendations by the European Tyre And Rim Technical Organization (ETRTO).

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.



t11800

TYRES/WHEELS/BALLAST

INSTRUMENT CLUSTER PROGRAMMING FOR DIFFERENT TYRE SIZES

Both the Standard (Analog) and the Digital instrument clusters **MUST** be programmed according to the rear tyre size your tractor is equipped with. Program the clusters as follows:

Digital Cluster

See Programming Tyre Radius (Menu Code 3) on Page 38 of this manual for the correct procedure.

Standard (Analog) Instrument Cluster

STEP 1



DR98J155

Remove the instrument cluster, but **DO NOT DISCONNECT THE HARNESS**.

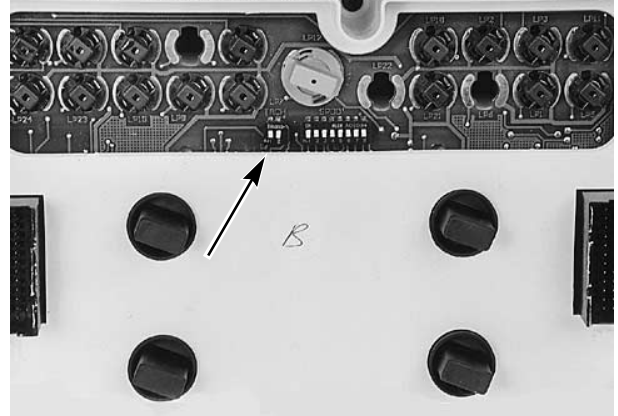
STEP 2



DR98J154

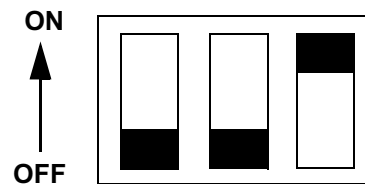
Remove the cover (1) on the back to gain access to the switches.

STEP 3

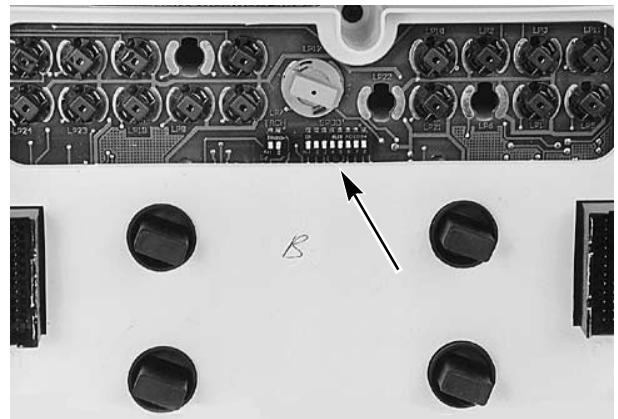


DP98C393

TACHOMETER CALIBRATION - set the switches in the positions shown below.



STEP 4



DP98C393

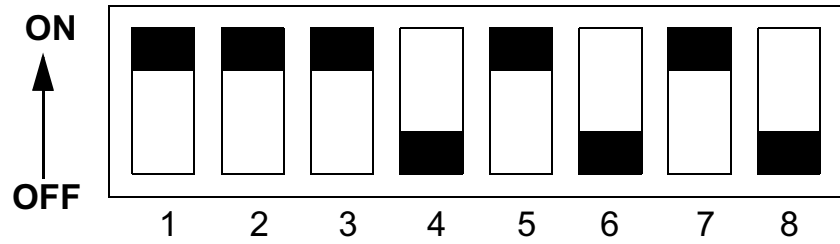
SPEEDOMETER CALIBRATION - Set the switches in the positions as shown in calibration chart opposite.

STEP 5

When the calibration has been completed install the indicator lamp cover, the cluster and the four retaining screws.

TYRES/WHEELS/BALLAST

Speedometer Calibration Chart



SWITCH POSITIONS IN THE EXAMPLE ABOVE ARE FOR 16.9R38 TYRES

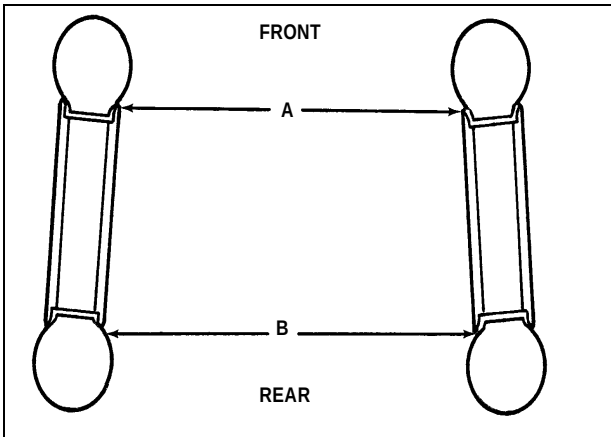
Set the switches as shown in the chart below to the rear tyre size.

REAR TYRE SIZE	CALIBRATION SWITCH POSITIONS							
	1	2	3	4	5	6	7	8
16.9R34		ON	ON			ON	ON	
480/70R34		ON	ON			ON	ON	
18.4R34	ON	ON	ON	ON	ON		ON	
520/70R34	ON	ON	ON	ON	ON		ON	
600/65R34	ON	ON	ON	ON	ON		ON	
13.6R38	ON	ON	ON			ON	ON	
14.9R38						ON	ON	
16.9R38	ON	ON	ON		ON		ON	
18.4R38					ON		ON	
20.8R38		ON	ON				ON	
480/70R38		ON		ON				ON
520/70R38					ON		ON	
540/65R38	ON	ON	ON		ON		ON	
600/65R38					ON		ON	

NOTE: Only the most common tyre options are listed in the table above.
If other tyre sizes are fitted which are not shown in the table above
see your dealer for the correct calibration.

TYRES/WHEELS/BALLAST

SETTING THE FRONT WHEEL TOE-IN



STEP 1

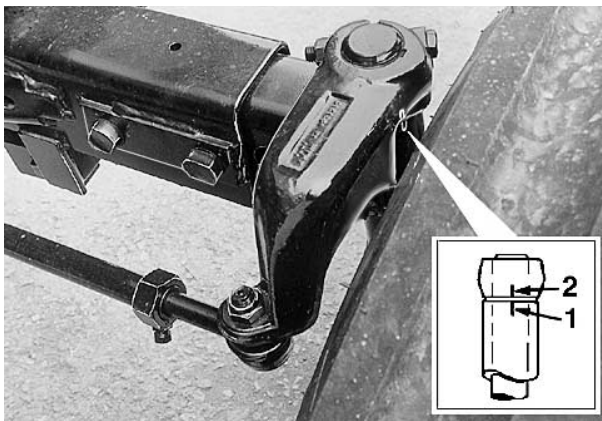
Park the tractor on hard level ground, engage the park brake and stop the engine.

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

2 Wheel Drive ONLY



DP98H145

Turn the steering to line up the chisel marks (1) and (2) one on steering knuckle and one on sleeve.

If the marks on the other steering knuckle are in line the toe-in is correct.

Adjustments

STEP 4

Measure the distance between the rim edges at the front (dimension A in the diagram).

Rotate each wheel 180 degrees so that the marks are at the rear, at the same height as the centre of the hub.

Measure the distance between the marks at the rear (dimension B in the diagram).

STEP 5

Subtract the front dimension (A) from the rear dimension (B), this is the toe -in measurement.

2WD = 0 - 5 mm (0 - 0.2 in).

MFD = 0 - 2 mm. (0 - 0.08 in).

INDEPENDENT FRONT

SUSPENSION (toe out)* = 4-8 mm. (0.16 - 0.32in).

***NOTE:** For Independent Front Suspension the TOE-OUT measurement must be taken with the axle fully lowered. This gives a neutral (zero) toe-in value when the suspended axle is raised to the mid position of the total axle range.



WARNING: Before carrying out any servicing on tractors equipped with Independent Front Suspension make sure the keyswitch is in the OFF position, the suspension mode 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.

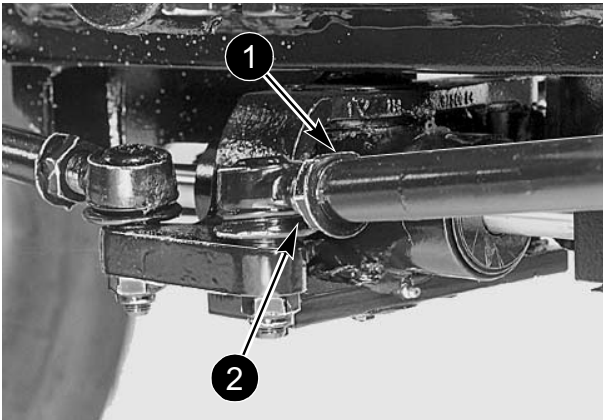
If the toe-in is less, increase the length of the tie rods. If the toe-in is more, decrease the length of the tie rods.

To change the length of the tie rods do the following, on the next page:

TYRES/WHEELS/BALLAST

Two Wheel Drive

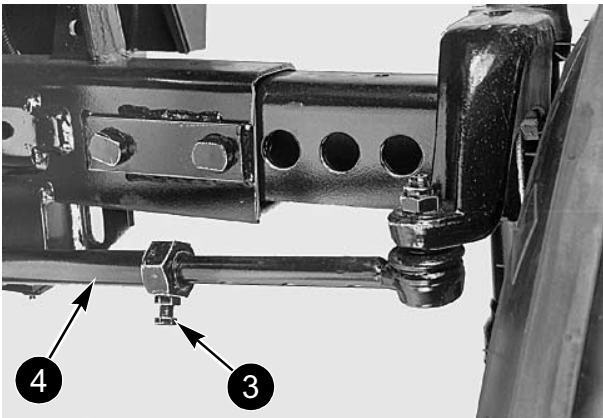
STEP 1



DP99G133

Bend back the locking tabs (1) and loosen the lock nuts (2).

STEP 2



DP99G132

Loosen locking nuts and locking bolts (3) to free the tie rod tubes (4).

STEP 3

Turn each tube an equal amount to increase or decrease the length. Make sure the steering cylinder arm remains central.

STEP 4

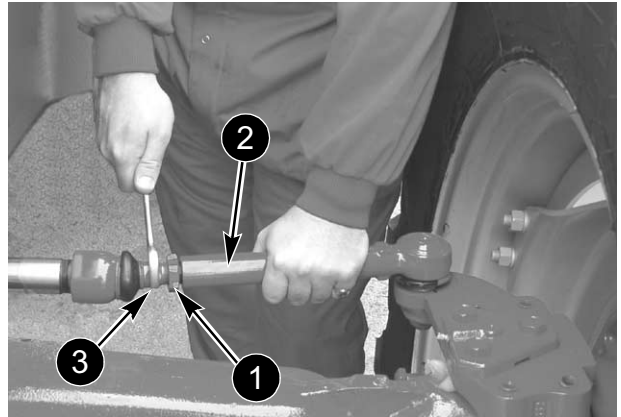
Tighten the locking bolts, make sure they locate in the tie rod dimples, and check the toe-in. Repeat the adjustment if necessary.

STEP 5

Once the correct toe-in has been achieved, tighten the locking bolts to 81 Nm (60 lb ft). Tighten the lock nuts and bend over the locking tabs.

IMPORTANT: Make sure the tyres do not contact the steering cylinder when on full lock.

Mechanical Front Drive/Suspended Axle



MD02J005

STEP 1

Loosen the clamp bolts (1), one each side to free the tie rod tubes (2).

STEP 2

Turn the adjusting rods (3), at each side, an equal amount to increase or decrease the length.

STEP 3

Tighten the clamp bolts and check the toe-in.

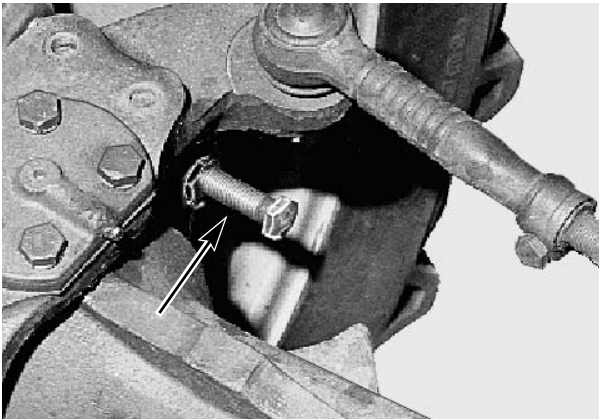
NOTE: Make sure the tie rod ball joints are central.

Repeat steps 1 and 2 until the correct toe-in has been achieved.

IMPORTANT: Make sure the tyres do not contact the steering cylinder when on full lock.

TYRES/WHEELS/BALLAST

AXLE - STEERING STOPS



D24904

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.*

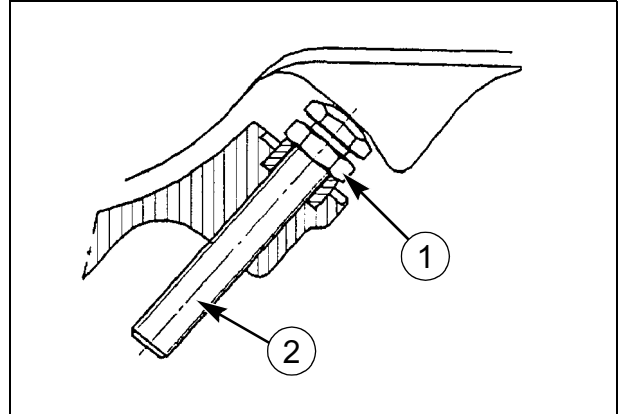
IMPORTANT: *When installing a front loader check the manufacturers recommendations for axle steering and oscillation stops.*

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



DS99B173

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.*

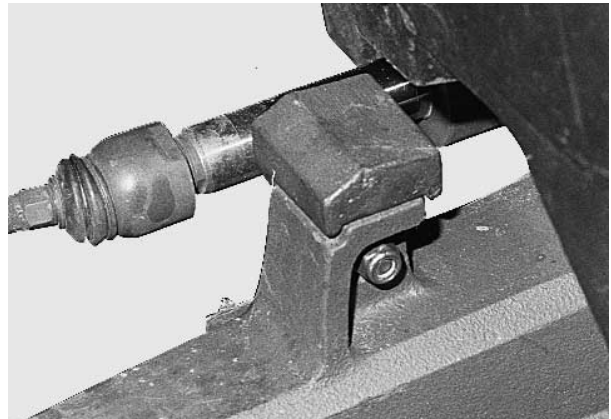
IMPORTANT: *After adjustment,*

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.*

AXLE - OSCILLATION STOPS

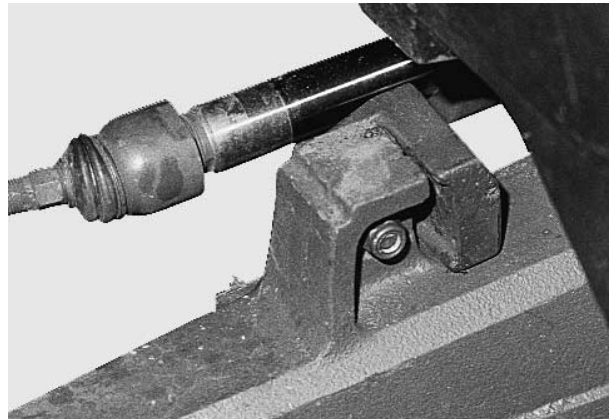
To prevent the front tyres making contact with any part of the tractor, especially at some of the lower tread widths, axle oscillation stops are available from your dealer on certain MC tractors. See your dealer for more information.

IMPORTANT: *When installing Oscillation stops be aware that this will change the steering angle adjustment.*



D24912

7° OF OSCILLATION
(STOP IN USE)



D24914

12° OF OSCILLATION
(STOP STORED)

TYRES/WHEELS/BALLAST

TWO WHEEL DRIVE FRONT AXLE TREAD ADJUSTMENT

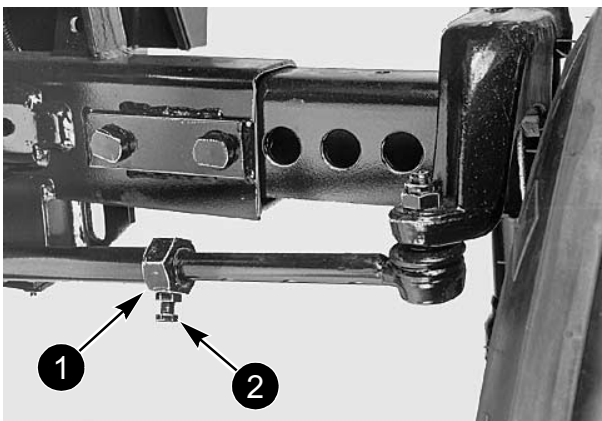
This axle is adjustable in 50 mm stages each side. The Extra width settings are available by turning the wheel concaves out.

Adjust as follows:

STEP 1

Put blocks in front of and behind the rear wheels. Lift the front of the tractor and install axle supports.

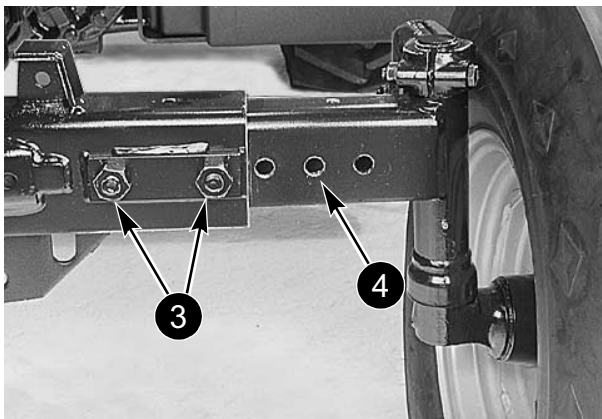
STEP 2



DP99G132

Loosen the lock nuts (1) and screws (2).

STEP 3



DP99G139

Remove the locating bolts and nuts (3) from the axle extensions (4).

STEP 4

Slide the axle extensions (4) to the required tread position setting and install the locating bolts and nuts (3), tighten to a torque of 508 to 576 Nm (375 to 425 lb ft).

STEP 5

To keep the correct toe-in as the axle extensions are moved in or out, there are detents in the tie rods spaced at 50 mm (2 in) to correspond with the holes in the axle extensions.

EXAMPLE: If the axle outer locating bolt is in the fourth hole from the outer end of the axle extension then the tie rod retaining bolt must be in the fourth hole from the outer end of the tie rod.

STEP 6

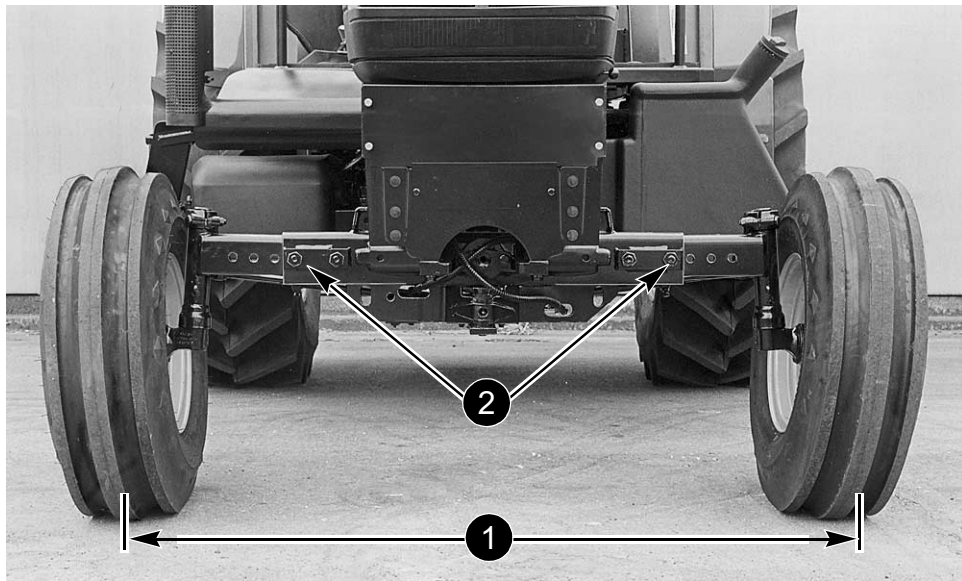
Tighten the screws (2) and lock nuts (1) on the tie rod.

NOTE: If these procedures are not followed, the turning angle will be changed.

IMPORTANT: After adjustment tighten the axle and wheel nuts to the correct torque. Check wheel nut torque after the first 30 minutes of operation and then every 10 hours of operation until torques stabilize.

TYRES/WHEELS/BALLAST

Two Wheel Drive (2WD) Front Wheel Tread Widths



DP99G140

1. TREAD WIDTH

2. 6 SETTINGS

NOTE: All tread figures are at ground level. The maximum and minimum tread width varies slightly with different tyre sizes.

Metric Figures

TYRE SIZE	FLANGE TO FLANGE (TYRE CENTER)	WHEEL DISH IN	WHEEL DISH OUT
7.50-18 6PR	1498 to 2006 mm	1392 to 1900 mm	1526 to 2034 mm
7.50-20 8PR	1498 to 2006 mm	1376 to 1884 mm	1551 to 2059 mm
10.00-16 8PR	1498 to 2006 mm	1390 to 1898 mm	1523 to 2031 mm
11.00-16 8PR	1498 to 2006 mm	1387 to 1895 mm	1520 to 2028 mm

Imperial Figures

TYRE SIZE	FLANGE TO FLANGE (TYRE CENTER)	WHEEL DISH IN	WHEEL DISH OUT
7.50-18 6PR	59 to 79 inch	55 to 75 inch	60 to 80 inch
7.50-20 8PR	59 to 79 inch	54 to 74 inch	61 to 81 inch
10.00-16 8PR	59 to 79 inch	55 to 75 inch	60 to 80 inch
11.00-16 8PR	59 to 79 inch	55 to 75 inch	60 to 80 inch

NOTE: After adjustment tighten the axle and wheel nuts to the correct torque. Check wheel nut torque after the first 30 minutes of operation and then every 10 hours of operation until torques stabilize.

TYRES/WHEELS/BALLAST

MFD FRONT WHEEL TREAD WIDTHS

The MFD front wheel tread widths (measured between tyre centres at ground level) can be adjusted to eight different positions as needed for your operation.

IMPORTANT: *The steering stops on the axle must be installed in the correct position for the tread width and tyre size being used.*

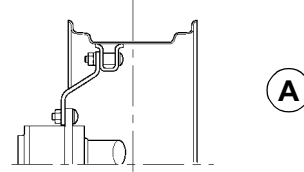
The tread width can be adjusted by turning the wheel discs and/or the wheel rims in or out. The wheel disc can also be installed on either side of the mounting lugs on the rim. Install the wheel discs and rims in the positions shown for the wheel tread needed.

TREAD WIDTHS			
A	RIM IN DISC IN LUG IN	E	RIM IN DISC OUT LUG IN
	* 1530 mm (60 in)		1930 mm (76 in)
B	RIM IN DISC IN LUG OUT	F	RIM IN DISC OUT LUG OUT
	1630 mm (64 in)		2030 mm (80 in)
C	RIM OUT DISC IN LUG IN	G	RIM OUT DISC OUT LUG IN
	1730 mm (68 in)		2130 mm (84 in)
D	RIM OUT DISC IN LUG OUT	H	RIM OUT DISC OUT LUG OUT
	1830 mm (72 in)		** 2230 mm (88 in)

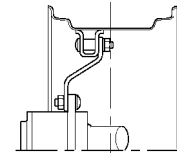
* The 1530 mm (60 in) tread position is not possible with front fenders installed.

** The 2230 mm (88 in) tread position is not possible with front fenders installed.

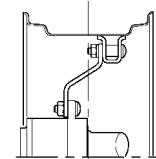
CENTRE OF TRACTOR →



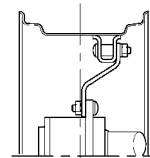
A



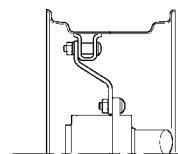
B



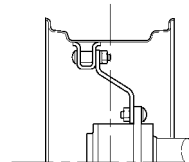
C



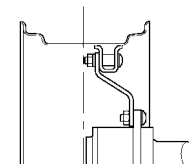
D



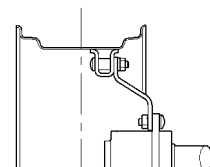
E



F



G



H

TYRES/WHEELS/BALLAST

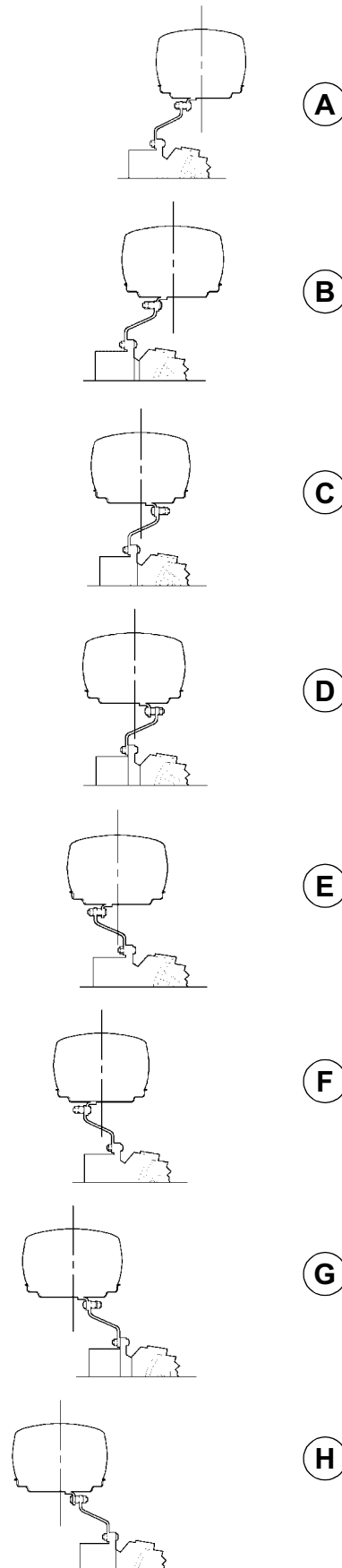
Heavy Duty Wheels, If Equipped

CENTRE OF TRACTOR →

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.

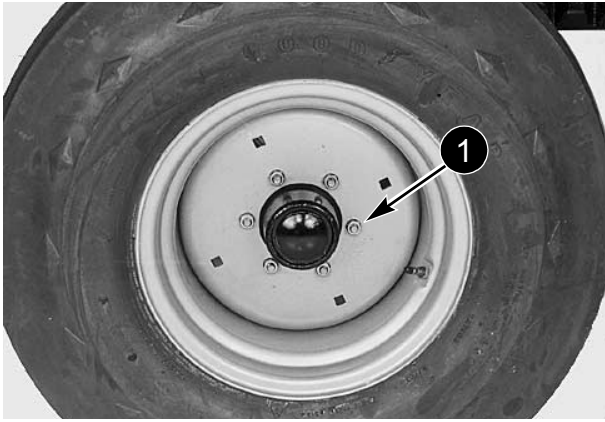
** The 2230 mm (88 in) tread position is not possible with front fenders installed.



TYRES/WHEELS/BALLAST

FRONT WHEEL BOLT TORQUES

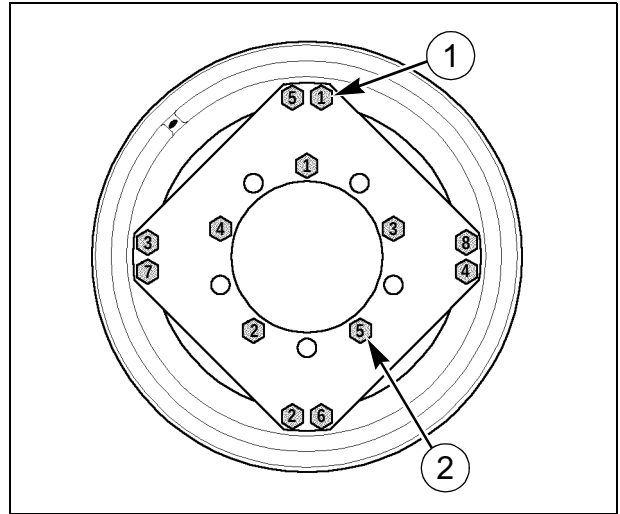
Two Wheel Drive (2WD)



342L9

Tighten the wheel to hub mounting bolts (1) to a torque of 108 to 136 Nm (80 to 100 lb ft).

Five Stud Wheel Hub Arrangement

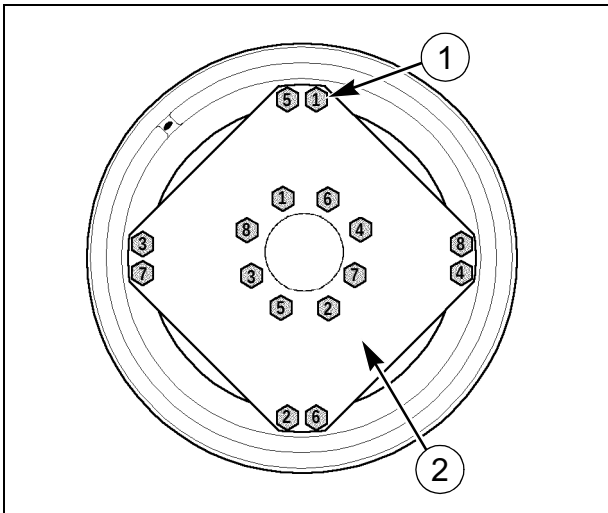


DI99B172

Tighten the wheel centre disc to rim nuts (1) to a torque of 280 to 340 Nm (206 to 251 lb ft) in the numbered sequence shown. The centre disc must be flush against the rim when assembled.

Tighten the wheel centre disc to axle hub nuts (2) in the numbered sequence shown, to a torque of 530 to 570 Nm (391 to 420 lb ft) .

Eight Stud Wheel Hub Arrangement



MI02J004

Tighten the centre disc to rim nuts (1) to a torque of 280 to 340 Nm (206 to 251 lb ft) in the numbered sequence shown. The centre disc must fit flush against the rim lugs when assembled.

Tighten the centre disc to axle hub nuts (2) to a torque of 300 to 350 Nm (221 to 258 lb ft) for NEW nuts and 400 to 450 Nm (295 to 332 lb ft) for USED nuts in the numbered sequence shown.

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 tyre rotates compared to the rear tyre) should be between 0 and 5 percent lead, with +1 to +3 percent being ideal. To calculate the LEAD/LAG, use the following formula:

$$\frac{(RC_F \times IR) - RC_R}{RC_R} \times 100 = \text{lead}$$

Continued

RC_F = Rolling Circumference of Front tyre (Refer to the tyre Manufacturers Hand book).

RC_R = Rolling Circumference of Rear tyre (Refer to the tyre Manufactures Hand book).

IR = Inter Axle Ratio (see page 259).

IMPORTANT: *To minimize tyre 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 tyre. Refer to the tyre 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 tables on the following pages. 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 rear hitch **MUST** be calibrated to suit the new tyre sizes. See your dealer.*

TYRES/WHEELS/BALLAST

MC105, MC115, MC130 TRACTORS																			
REAR TYRE SIZES		FRONT TYRE SIZES																	
	12.4R24	380/70R24	13.6R24	420/70R24	14.9R24	480/65R24	440/65R28	13.6R28	380/70R28	380/85R28	16.9R24	480/70R24	14.9R28	420/70R28	480/65R28	12.4R32	420/85R28	14.9R30	480/70R28
13.6R38		■	■	■	■	■													
16.9R34		■	■	■	■	■													
480/70R34	■	■	■	■	■	■													
14.9R38				■	■	■	■	■	■										
18.4R34	■			■	■	■	■	■	■										
600/65R34				■	■	■	■	■	■										
520/70R34				■	■	■	■	■	■										
230/95R48							■	■	■	■	■	■							
480/80R38							■	■	■	■	■	■							
9.5R48							■	■	■	■	■	■	■						
480/70R38							■	■	■	■	■	■	■						
540/65R38							■	■	■	■	■	■	■						
16.9R38							■	■	■	■	■	■	■						
300/95R46							■	■	■	■	■	■	■	■	■	■			
600/65R38											■	■	■	■	■	■			
520/70R38											■	■	■	■	■	■			
18.4R38											■	■	■	■	■	■			
520/85R38													■	■	■	■	■		
14.9R46														■	■	■	■	■	
20.8R38																		■	■

TYRES/WHEELS/BALLAST

MC120 Power6, M135 Power6 TRACTORS																					
REAR TYRE SIZES	FRONT TYRE SIZES																				
	380/70R24	13.6R24	420/70R24	14.9R24	480/65R24	230/95R32	11.2R32	440/65R28	13.6R28	380/70R28	16.9R24	480/70R24	380/85R28	14.9R28	420/70R28	480/65R28	12.4R32	14.9R30	420/85R28	480/70R28	
13.6R38	■	■	■	■	■																
16.9R34	■	■	■	■	■																
480/70R34	■	■	■	■	■																
14.9R38			■	■	■	■	■	■	■	■											
18.4R34			■	■	■	■	■	■	■	■											
600/65R34			■	■	■	■	■	■	■	■											
520/70R34			■	■	■	■	■	■	■	■											
230/95R48						■	■	■	■	■	■	■									
480/80R38							■	■	■	■	■	■									
9.5R48							■	■	■	■	■	■	■	■							
480/70R38								■	■	■	■	■	■	■							
540/65R38								■	■	■	■	■	■	■							
16.9R38								■	■	■	■	■	■	■							
300/95R46											■	■	■	■	■	■	■				
600/65R38											■	■	■	■	■	■	■				
520/70R38											■	■	■	■	■	■	■				
18.4R38											■	■	■	■	■	■	■				
12.4R46											■	■	■	■	■	■	■				
14.9R46															■	■	■	■			
520/85R38																		■	■	■	
20.8R38																		■	■	■	

TYRES/WHEELS/BALLAST

FRONT WHEEL FENDERS (If Equipped)

Front wheel fenders are available for all tractor variants. On MFD and Independent Front Suspension models the fenders are fully adjustable to ensure the tyre is covered at all tread widths.

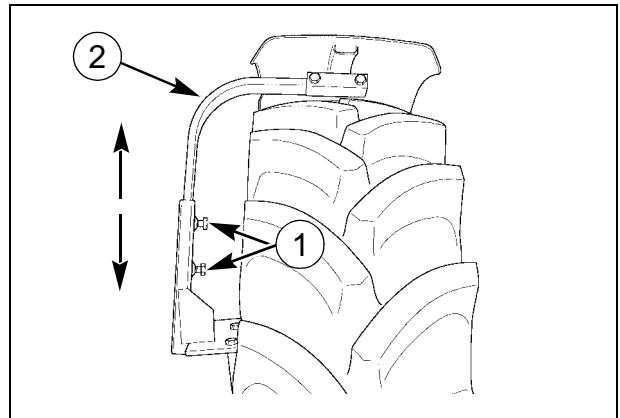
NOTE: To provide the necessary clearance between the fender and other tractor components, the fender mounting position must be adjusted for the tread width and tyre size being used.

The front fenders provide greater safety and keep the tractor cleaner, therefore improving operation and durability.

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).

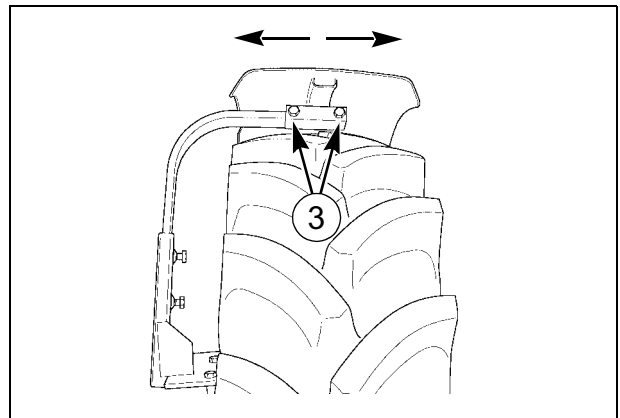
NOTE: The distance between tyre and support brace must be 50-100 mm (2 to 4 in).



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.

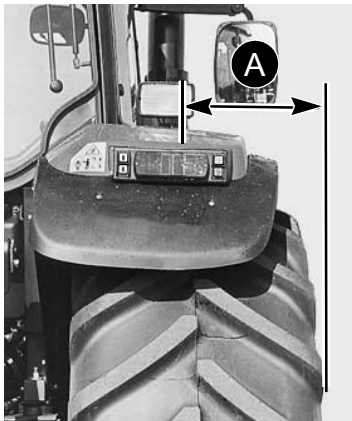


DS99G185

REAR WHEEL TREAD ADJUSTMENT

Important information for EEC Member States:

- Overall widths above 3000 mm (10 ft) **WILL** require local authorization for use on the highway. An overall width of 2550 mm to 3000 mm (8 to 10 ft) **MAY** require local authorization for use on the highway, check before operation.
- It is a legal requirement, when travelling on the highway, to make sure the distance from the tyre outer edge and the rear stop lamp lens does not exceed 400 mm (16 in), dimension 'A'.



DP00H120

Flanged Type Axle Tread Widths

The rear 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.

When adjusting to the minimum tread position, make sure that there is a clearance of at least 50 mm between the tyres and components of the fenders.

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.

IMPORTANT: To maintain a minimum clearance between tyres and tractor the following width settings are **NOT** recommended for certain size tyres:

A. 1530mm = 480/70R38, 520/70R38.

B. 1630mm = 18.4R38 and 20.8R38.

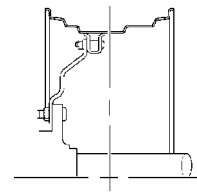
IMPORTANT: Before making any adjustment make sure that the tractor is correctly supported. Apply the park brake and put blocks in front of and behind both front wheels and the other rear wheel. Check torques after the first 30 minutes of operation and then every 10 hours of operation until torques stabilize. This tightening and checking procedure is necessary after any wheel repositioning operation, see "REAR WHEEL BOLT TORQUES" on page 179 for correct torques and tightening sequence.

TYRES/WHEELS/BALLAST

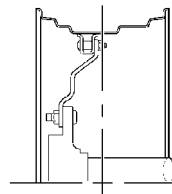
TREAD WIDTHS			
A	RIM IN DISC IN LUG IN	E	RIM IN DISC OUT LUG IN
	1530 mm (60 in)		1930 mm (76 in)
B	RIM IN DISC IN LUG OUT	F	RIM IN DISC OUT LUG OUT
	1630 mm (64 in)		2030 mm (80 in)
C	RIM OUT DISC IN LUG IN	G	RIM OUT DISC OUT LUG IN
	1730 mm (68 in)		2130 mm (84 in)
D	RIM OUT DISC IN LUG OUT	H	RIM OUT DISC OUT LUG OUT
	1830 mm (72 in)		2230 mm (88 in)

NOTE: Tread position 1530 mm (60 in) is NOT Approved for tyre sizes: 520/70R38 and 18.4R38.
Tread position 1630 mm (64 in) is NOT Approved for tyre sizes: 18.4R38.

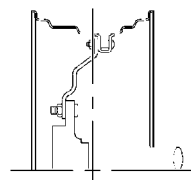
CENTRE OF TRACTOR →



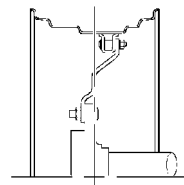
A



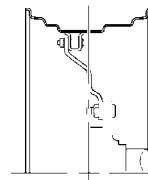
B



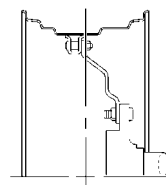
C



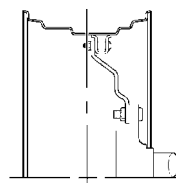
D



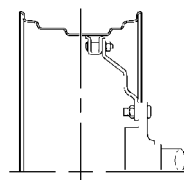
E



F



G



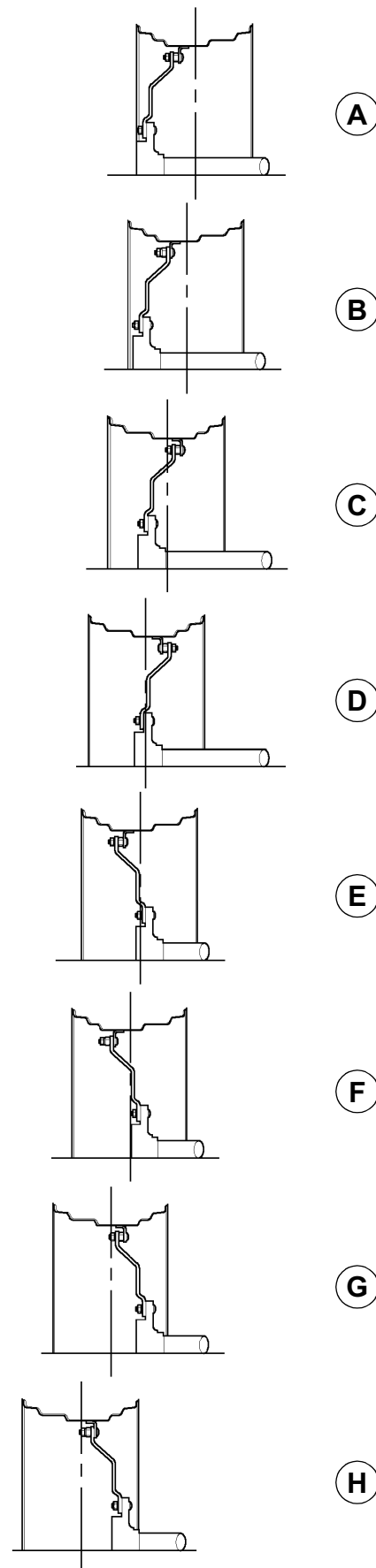
H

TYRES/WHEELS/BALLAST

Heavy Duty Wheels, If Equipped

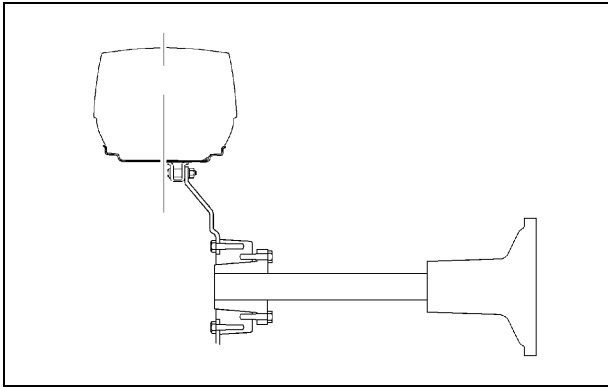
TREAD WIDTHS			
A	RIM IN DISC IN SPACER IN USE	E	RIM IN DISC OUT SPACER IN USE
	1530 mm (60 in)		1930 mm (76 in)
B	RIM IN DISC IN SPACER NOT IN USE	F	RIM IN DISC OUT SPACER NOT IN USE
	1630 mm (64 in)		2030 mm (80 in)
C	RIM OUT DISC IN SPACER IN USE	G	RIM OUT DISC OUT SPACER IN USE
	1730 mm (68 in)		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)

NOTE: Tread position 1530 mm (60 in) is NOT Approved for tyre sizes: 520/70R38 and 18.4R38.
Tread position 1630 mm (64 in) is NOT Approved for tyre sizes: 18.4R38.



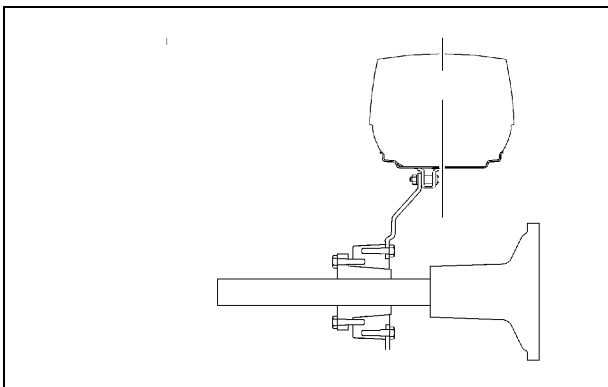
TYRES/WHEELS/BALLAST

Bar Axle Adjustment



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.



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 tyres and components of the fenders. See next page for correct wheel offset change.

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 "REAR WHEEL BOLT TORQUES" on page 179 for correct torques and tightening sequence.

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.

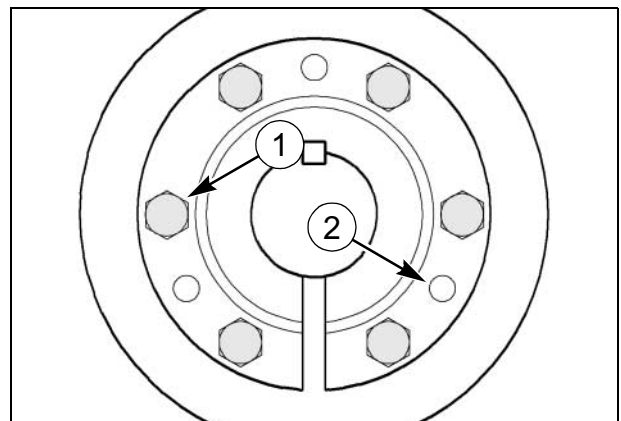
STEP 4

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 tyres are just clear of the ground. Install supports under the axle.

STEP 6



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

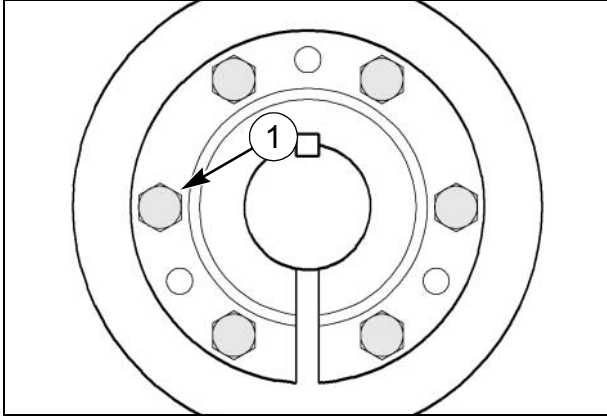
Install a wedge into the bushing slot just enough so that the bushing can be moved on the shaft to the new tread position.

TYRES/WHEELS/BALLAST

STEP 8

Apply anti-seize compound Loctite 8150 to the hub, bushing, bolt threads and washers.

STEP 9



DI96M106

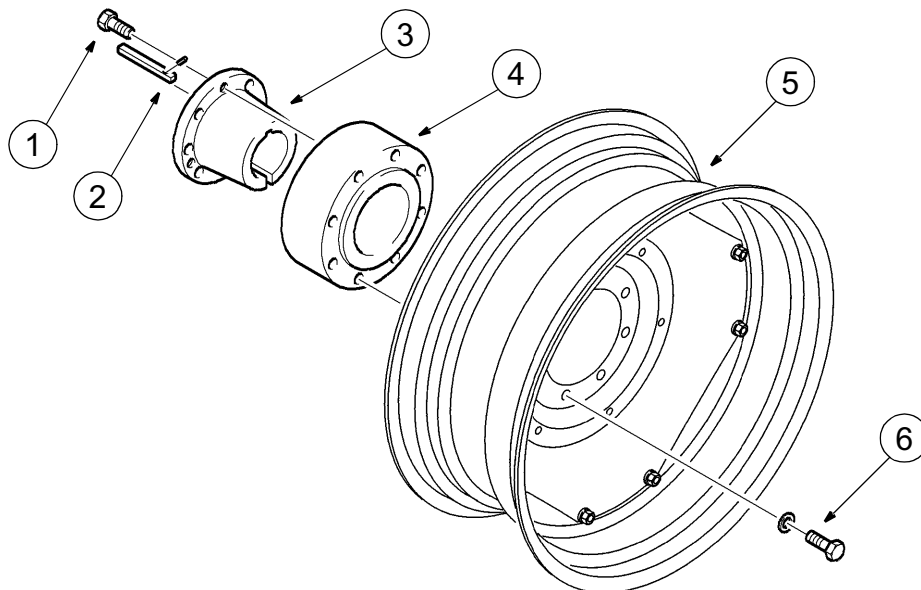
Remove the 3 bolts used as jacking bolts and then install the six bolts (1) and tighten evenly in 50 Nm intervals, up to 244 to 298 Nm in the sequence shown.

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 tyre and wheel from one side of the tractor and mount on the other side of tractor. The tyre pattern must face the same direction.

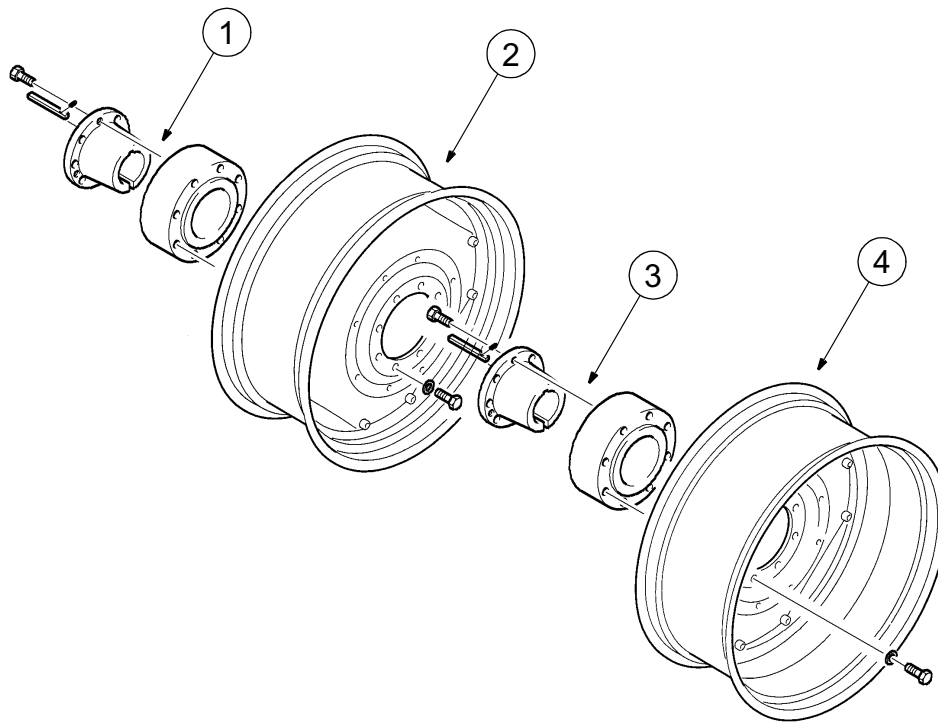


- 1. TAPERED BUSHING BOLT
- 2. BUSHING TO AXLE KEY
- 3. TAPERED BUSHING

- 4. HUB BODY
- 5. WHEEL RIM
- 6. WHEEL MOUNTING BOLT

TYRES/WHEELS/BALLAST

Bar Axle - Dual Wheel Installation



DI96M094

- 1. INNER HUB ASSEMBLY
- 2. INNER WHEEL

- 3. OUTER HUB ASSEMBLY
- 4. OUTER WHEEL

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.

See page 176 for instructions on changing the wheel tread width.

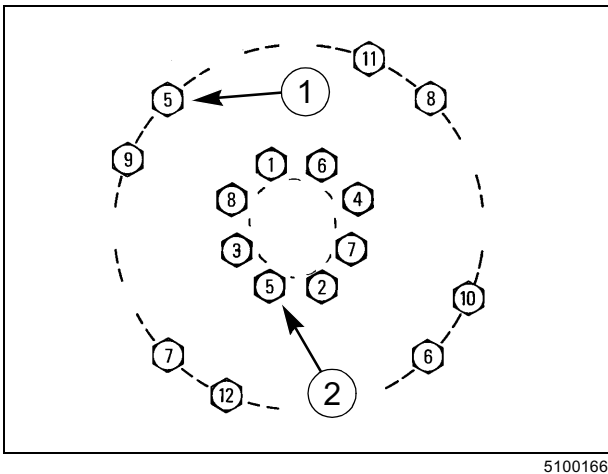
TYRES/WHEELS/BALLAST

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

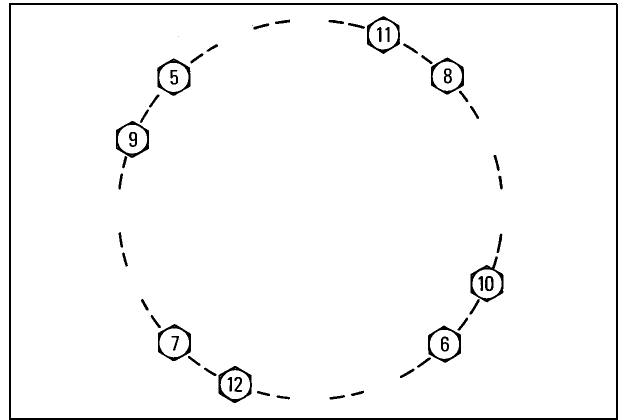


5100166

TIGHTENING SEQUENCES

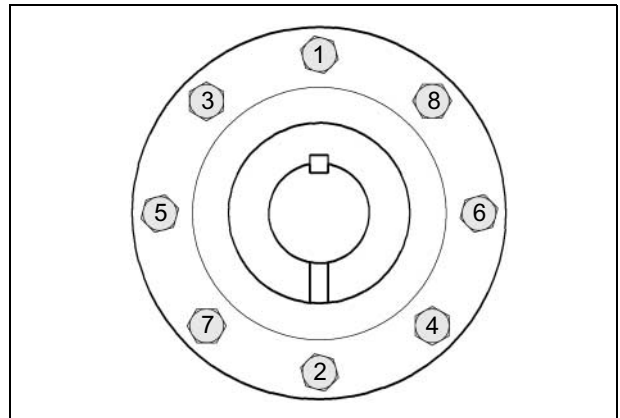
1. CENTRE DISC TO RIM NUTS = 280 to 340 Nm (205 to 250 lb ft) in the sequence shown.
2. CENTRE DISC TO AXLE FLANGE NUTS = 270 to 310 Nm (199 to 229 lb ft) in the sequence shown.

Bar Axle



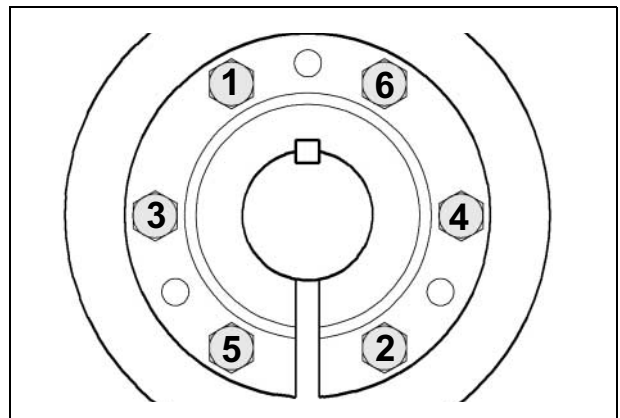
5100166

WHEEL DISC TO WHEEL RIM NUTS = 280 to 340 Nm (205 to 250 lb ft) in the sequence shown



DI96M106

WHEEL TO HUB BOLTS = to 485 to 550 Nm (358 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 (37 lb ft) intervals, in the sequence shown.

TYRES/WHEELS/BALLAST

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 nine and sixteen percent.
- 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. A decrease in horsepower available at the implement and then, a decrease in amount of field worked.
- B. An increase in amount of fuel used.
- C. A decrease in tyre life.
- D. The soil to be compacted.
- E. 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 Maximum Permitted Operating Weights on Page 277 of this manual Observe tyre capacities and any possible legal limitations.*

Tractor Weight Distribution

The optimum static weight distribution for mechanical front drive (MFD) tractors is shown below. 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. When the weight distribution is correct, add ballast as necessary to achieve the recommended amount of wheel slip.

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.*

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 277 of this manual Observe tyre capacities and any possible legal limitations.*

See the following examples for the recommended static weight distribution for your tractor.

Two Wheel Drive (2WD) Tractors

IMPLEMENT TYPE	% FRONT	% REAR
Towed - Drawbar	25%	75%
Semi - Mounted	30%	70%
Fully - Mounted	35%	65%

The weight distribution ratios are based upon the total weight of a fully equipped tractor (including ballast).

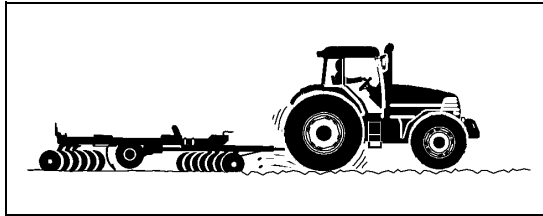
Mechanical Front Drive (MFD) Tractors

% FRONT	% REAR
40%	60%

The weight distribution ratios are based upon the total weight of a fully equipped tractor (including ballast).

TYRES/WHEELS/BALLAST

Front end weights, rear wheel weights and liquid ballast in the tyres can be used to ballast your tractor. Local operating conditions will determine the amount of ballast needed for maximum operating efficiency and tractor field performance. Inadequate traction and excessive wheel slip can waste up to thirty percent of tractor horsepower.

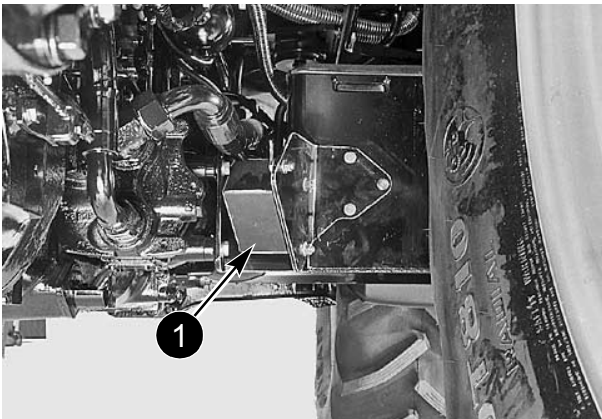


DI96J517

IDEAL WHEEL SLIP 9 -16%

A good ballast weight for your tractor is the weight needed to maintain 9 to 16 percent wheel slip.

Determine the amount of wheel slip as follows:



DP98J225

A. With True Ground Speed Sensor (1) - See Wheel Slip Indicator on page 100 for more information.

B. Without True Ground Speed Sensor - See Measuring Wheel Slip on next page for more information.

Do not add more weight than is necessary to achieve the correct tractor static weight distribution and the correct amount of wheel slip.

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 277 of this manual. Observe tyre load capacities and any possible legal limitations.*

Measuring Wheel Slip

For tractors equipped with True Ground Speed Sensor, see Wheel Slip Indicator on page 100 for instructions. If your tractor is not equipped with a True Ground Speed Sensor, measure the amount of wheel slip as follows with 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.

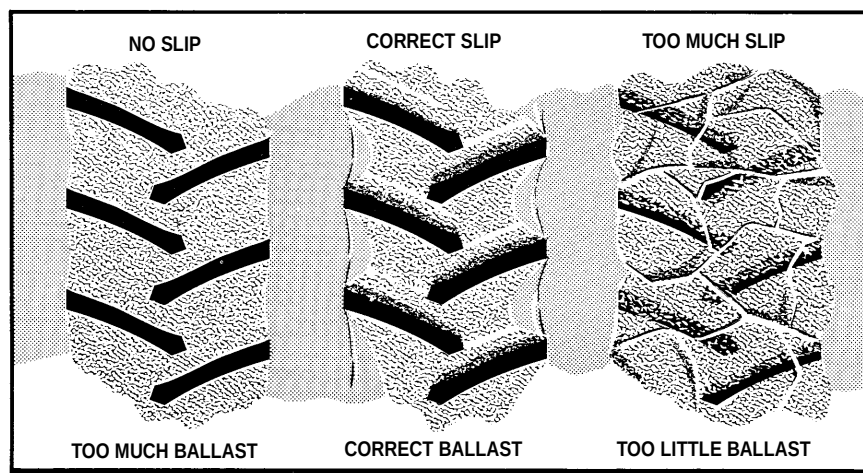
TYRES/WHEELS/BALLAST

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/BALLAST

Front End Weights (If Equipped)

Front end weights can be mounted on the front of the tractor with a weight frame. The weights and weight frame are available from your Dealer. Two weight frames are available, a standard frame and an extended frame.

Use front end weights as needed to provide effective steering control, front end stability and to achieve maximum operating efficiency and tractor field performance. See Tractor Weight Distribution on Page 180 of this manual, for recommendations on ballasting procedures.

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 277 of this manual. Observe tyre capacities and any possible legal limitations.*

Installing Front End Weights

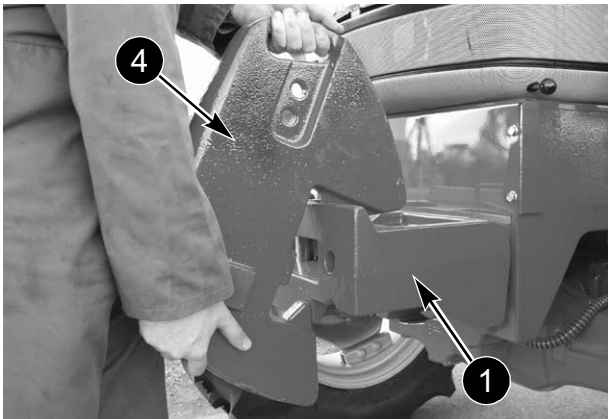
STEP 1

Park the tractor on hard level ground. STOP the engine and apply the park brake. Remove the key.

STEP 2

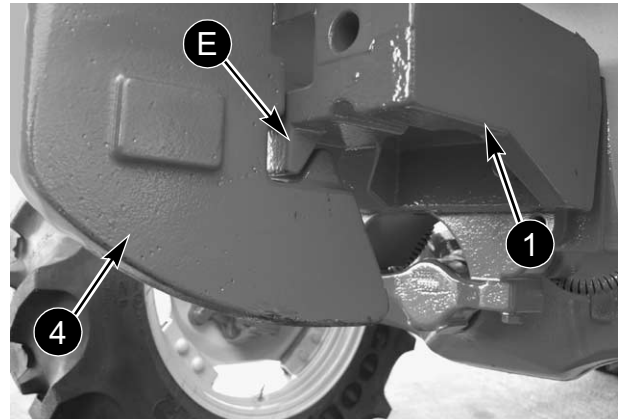
If a clevis weight (2) is to be installed, install the clevis weight and clevis pin (3). Make sure the clevis pin retainer (A) locates correctly into the top hole (B) of the clevis pin (3).

STEP 3



Hook one weight (4) over the top lip of the weight frame (1) towards its outer edge, (as shown in photo above).

STEP 4



Slide the weight (4) towards the centre of the frame (1), next to the clevis weight (2), (if equipped), or until it is against tab (D) on the weight frame (1). The bottom of the weight (4) will interlock behind tab (E) at the centre of the weight frame (1).

STEP 5

Repeat STEP 4 and install second weight onto the other side of the clevis weight (2) or tab (D) on the weight frame.

IMPORTANT: *If a clevis weight (2) is NOT to be installed, the minimum number of weights (4) that can be installed is TWO, one either side of tab (D) on the weight frame (1). The tab on one weight (4) must locate into the recess (C) in the weight previously installed in STEP 4.*

STEP 6



Continue to install weights (4) equally to each side until the required weight pack is installed. The tab (F) on each weight will interlock into the previous installed weight.

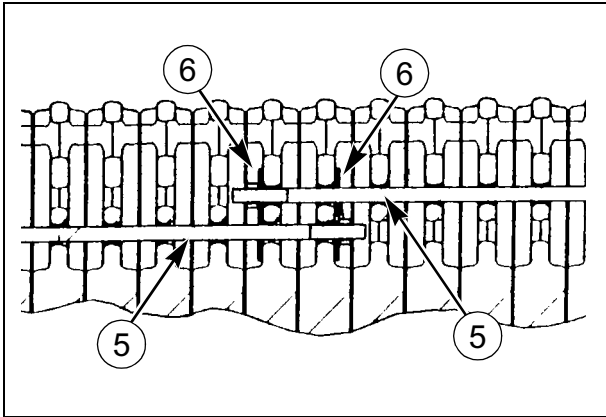
TYRES/WHEELS/BALLAST

STEP 7

Install the retaining stud (5) through the holes in the weight pack and install the threaded plate (6).

Make sure the threads are fully installed into the plate and the plate is correctly located into the recess in the outer weight (4). Install the washer (7) and nut (8) to the opposite end of the stud (5). Tighten the nut.

STEP 8



RH96H005

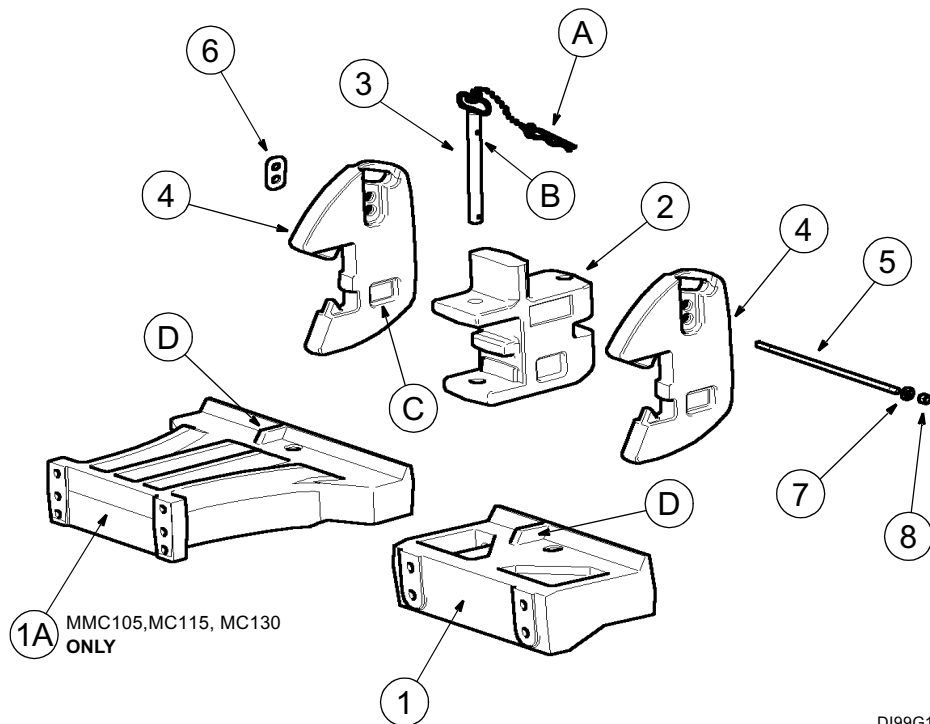
If using shorter studs (5), install a stud from each side and use 2 plates (6) as shown.

STEP 9

If a small number of weights are to be installed, install and tighten a suitable bolt through the weights into the threaded plate, make sure the threaded plate locates into the recess in the weight.

Weight Combinations

Model	Frame Type	Total No. of Weights	
		(Without Clevis)	(With Clevis)
MC105, MC115, MC130	Standard	9	6
	Extended	13	10
MC120 Power6, MC135 Power6	Standard	10	6



DI99G109

1. STANDARD WEIGHT FRAME
(MC105, MC115, MC130) - 107 kg (235 lbs)
(MC120 Power6, MC135 Power6) - 206 kg (453 lbs)
- 1A. EXTENDED WEIGHT FRAME
(MC105, MC115, MC130) - 165 kg (363 lbs)
2. CLEVIS WEIGHT
(MC105, MC115, MC130) - 100 kg (220 lbs)
(MC120 Power6, MC135 Power6) - 110 kg (242 lbs)
3. CLEVIS PIN
4. WEIGHT 45 kg
5. THREADED PLATE
6. BOLT
7. WASHER
8. NUT

Rear Wheel Weights

Rear wheel weights, 60 kg (132 lb) 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.

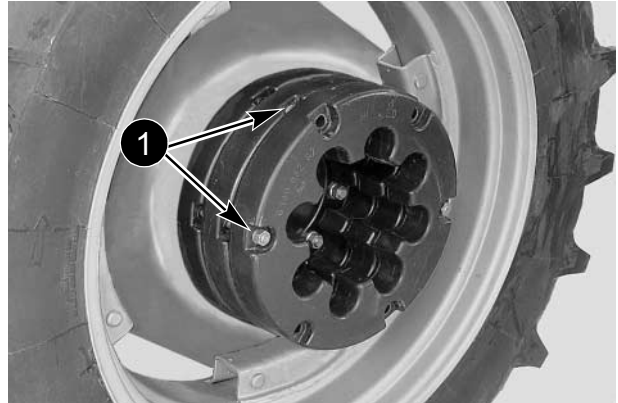
See Tractor Weight Distribution on Page 180 of this manual for recommendations on ballasting procedures.

IMPORTANT: *Lift the rear wheel above the ground and turn the wheel 180 degrees for each weight installed, changing the position of each weight to get correct balance alignment. 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.*

IMPORTANT: *Weights can only be mounted on inside or outside, not both. Inside weights must not extend over axle housing casting.*

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 Maximum Permitted Operating Weights on Page 277 of this manual. Observe tyre capacities and any possible legal limitations.*



DP96N121

1. MOUNTING BOLTS (STAGGERED IN PAIRS)

FLANGED AXLE SHOWN FOR EXAMPLE

TYRES/WHEELS/BALLAST

Tyre Liquid Ballast

Use tyre liquid ballast as needed to provide safe and efficient tractor operation. See Tractor Weight Distribution on Page 180 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 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: *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 277 of this manual. 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	CaCl_2 kg	Total Weight kg	Litres Water	CaCl_2 kg	Total Weight kg	Litres Water	CaCl_2 kg	Total Weight kg
16.9R34	290	290	271	49	320	249	104	353	235	141	376
18.4R34	361	361	337	61	398	310	130	440	293	176	469
480/70R34	318	318	297	53	350	272	114	386	258	155	413
520/70R34	378	378	353	63	416	324	136	460	307	184	491
600/65R34	434	434	405	73	478	372	156	528	352	211	563
13.6R38	190	190	177	32	209	163	68	231	154	92	246
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
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
540/65R38	389	389	363	65	428	333	140	473	315	189	504
600/65R38	474	474	443	80	523	407	171	578	385	231	616

1. Water will freeze at 0°C (32°F).
2. A solution of 1 kg (2.2 lb) calcium chloride solution per 4.5 (1.2 US gal) litres of water will give protection to -8°C and will freeze at -31°C .
3. A solution of 1.6 kg (3.5 lb) calcium chloride solution per 4.5 (1.2 US gal) litres of water will give protection to -26°C and will freeze at -47°C .
4. A solution of 2.3 kg (5 lb) calcium chloride solution per 4.5 (1.2 US gal) litres of water will give protection to -47°C and will freeze at -54°C .
5. 4.5 litres (1.2 US gal) of water weighs 4.5 kg (10 lb).

NOTE: *DO NOT use radiator type Anti-freeze in tyres.*

TYRES/WHEELS/BALLAST

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.

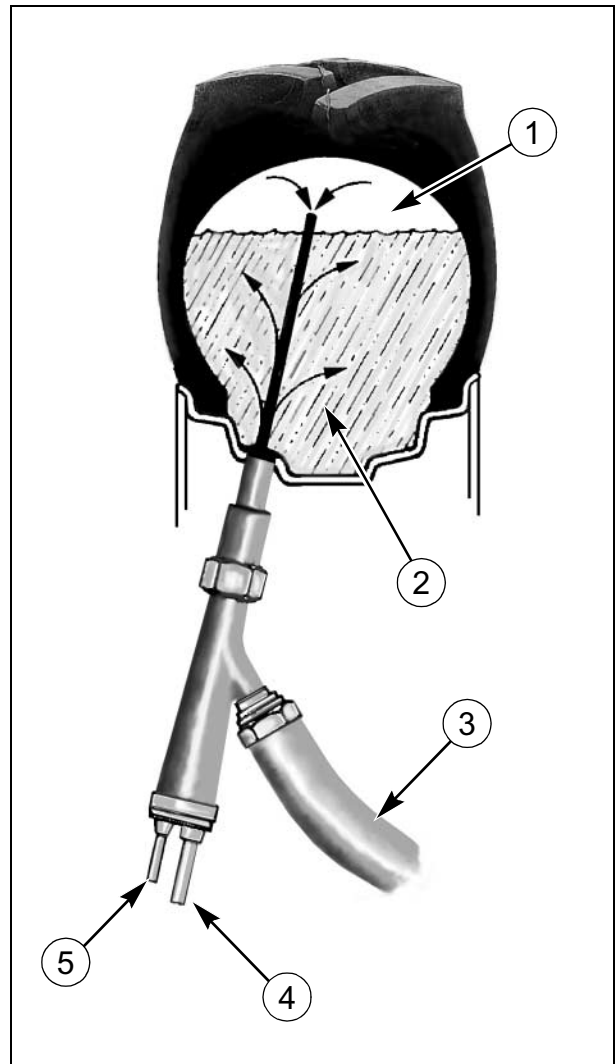
STEP 4

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

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

ROUTINE SERVICING

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.



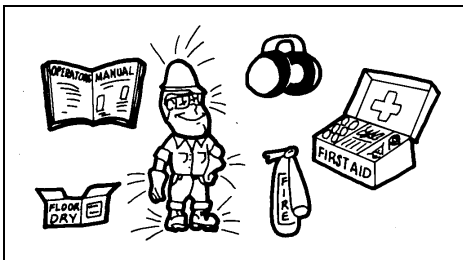
Before any adjustments are made carry out the following:

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.

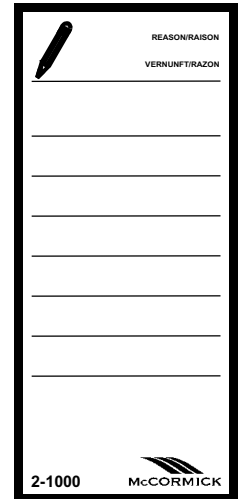


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Use the correct safety clothing and safety equipment. If you wear clothing that is too loose or do not use the correct safety equipment for your job, you can be injured. Always wear clothing that will not catch on objects. Extra safety equipment that 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 SERVICING

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, depending on which comes first, see below for example.

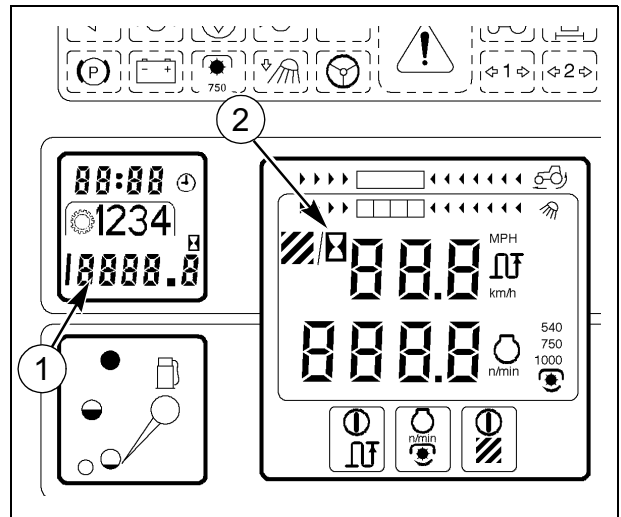
- Every 10 Hours, or daily
- Every 50 Hours, or weekly
- Every 100 Hours, or every two weeks
- Every 250 Hours, or monthly
- Every 500 Hours, or six monthly
- Every 1000 Hours, or annually
- Every 2000 Hours, or bi-ennial

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 (1) 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 (2) shows the next service interval at the top and the time in hours elapsed at the bottom, the engine hourmeter (1) will also show the actual hours the engine has run.



DI98J095

NOTE: Prior to commencing any servicing procedures on the tractor, make sure the engine is not running and the keyswitch is in the OFF position.

ROUTINE SERVICING

HOOD, SERVICE DOOR AND TOOL BOX



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.

Opening the Hood

STEP 1

Park the tractor on hard, level ground and apply the park brake.

STEP 2



MD01K055

Pull the hood release lever.

STEP 3



MD02B017

Push the front of the hood 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.

Service Door (MC120 Power6 and MC135 Power6)



MD01K055

To open the service door, pull the bottom left-hand corner firmly outward.

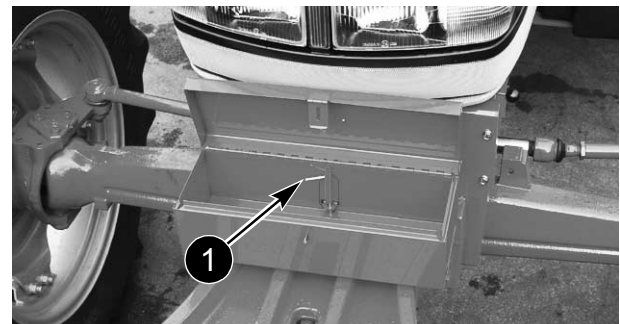
Tool Box Removal

To remove the tool box, do the following:

STEP 1

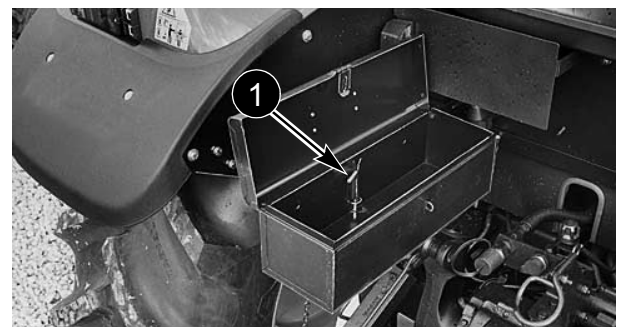
Open the lid and remove the inner tray.

STEP 2



MD02C080

FRONT MOUNTED



DP98M005

REAR MOUNTED

Remove the retaining pin (1), located in the center, back of the tool box.

ROUTINE SERVICING

LUBRICANTS AND CAPACITIES

Engine

Oil Type.....McCormick Engine Oil, SAE 15W-40

Oil Capacity

MC105-115-130 7.3 Litres (2.0 US gal)

MC120 Power6, MC135 Power6 13.5 Litres (3.5 US gal)

Engine Oil Selection

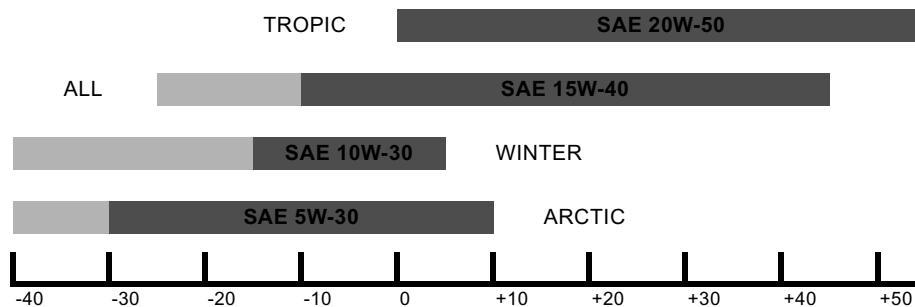
Engine oils must meet the following minimum API performance grades; CH-4 .

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)

Coolant Capacity

MC105-115-130 17.5 Litres (4.6 US gallons)

MC120 Power6, MC135 Power6 20.5 Litres (5.4 US gallons)

ROUTINE SERVICING

Fuel Tank

Fuel Type	No.2 Diesel Fuel
Fuel Tank Capacity	
MC105-115-130	189 Litres (50 US gallons)
MC120 Power6, MC135 Power6.....	265 Litres (70 US gallons)

Transmission/Hydraulic System

Oil Type	McCormick HTX
Capacity	75 Litres (19.8 US gallons)
Overfill	12 Litres (3 US gallons)

4WD Axle (MC120 Power6 and MC135 Power6)

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 (6.3 US quarts)
Axle Planetary Capacity (EACH)	
Non-Braked Axle.....	0.6 Litres (2.1 US US quarts)
Braked Axle.....	Oil Type: AGROLUBE KRIPTOS LS 90:.....2.0 Litres (0.5 US quarts)

4WD Axle (MC105-115-130)

Oil Type	McCormick Multi-Purpose Gear Oil SAE 85W - 140 EP Gear Oil to API GL-5 or MIL-L-2105D Specification
Axle Planetary Capacity (EACH).....	0.6 Litres (0.6 US quarts)
Axle Differential Capacity	
MC105-115-130	6 Litres (6.4 US quarts)

Independent Front Suspension Axle (MC130,MC120Power6,MC130 Power6)

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	
Non-Braked Axle.....	2.2 Litres (2.3 US quarts)
Braked Axle	Oil Type: AGROLUBE KRIPTOS LS 90:.....2.2 Litres (2.3 US quarts)
Axle Planetary Capacity (EACH)	
Non-Braked Axle.....	1.5 Litres (1.6 US quarts)
Braked Axle	Oil Type: AGROLUBE KRIPTOS LS 90:.....2.0 Litres (2.1 US quarts)

Front PTO (If Equipped)

Hydrac Front PTO

Oil Type.....	McCormick Super Universal, SAE 10W-30
Capacity	0.75 Litres (0.8 US quarts)

ROUTINE SERVICING

SERVICE INTERVALS

S E R V I C E H O U R S	SERVICE POINTS	S E E P A G E	SERVICE REQUIRED				
			G R E A S E	D R A I N	C H E C K	C L E A N	C H A N G E
10	Front Wheel Nuts	168			X		
	Rear Wheel Nuts	179			X		
	Fuel Level	209			X		
	Engine Oil Level	196			X		
	Transmission/Hydraulic Oil Level	197			X		
	Pneumatic Trailer Brake Reservoir	199		X			
	Coolant Recovery Reservoir Level	199			X		
	Fuel/Water Separator	198		X			
	Front PTO oil Level	198			X		
	General Tractor Inspection - (See Note 1)	-			X		
50	Air Pressure in Tires	155			X		
	Fuel Water Trap - Fuel Filter	202		X			
	2WD Front Axle Grease Points - (See Note 1)	200	X				
	MFD Front Axle Grease Points - (See Note 1)	200	X				
	Independent Front Suspension Axle Grease Points - (See Note 1 and 7)	201	X				
	Engine Air Filter Dust Valve (See Note 6)	202			X		
	Radiator and Coolers	202				X	
	Cab Air Recirculation Filter	203				X	
100	Rear Three Point Linkage	204	X				
	Front Three Point Linkage	204	X				
	Cab Air Intake Filter	205				X	
250	Front PTO Oil - (See Notes 6 and 7)	209					X
	Auto Hitch Locking Latches - (See Notes 2 and 6)	209	X				
	Axle Differential Oil (Independent Front Suspension) - (See Note 5)	210			X		
	Axle Diff. and Planetary Oil - (See Note 5)	210			X		
	Compressor Belt	210			X		
	Fan and Alternator Belt	210			X		
	Battery(s)	212			X		
	Trailer Hitch, Bolt Torques - (See Notes 2 and 6)	211			X		
	Trailer Hitch, Moving parts - (See Notes 2 and 6)	211	X				
	Drawbar Bolt Torques - (See Note 6)	211			X		

ROUTINE SERVICING

S E R V I C E H O U R S	SERVICE POINTS	S E E P A G E	SERVICE REQUIRED				
			G R E A S E	D R A I N	C H E C K	C L E A N	C H A N G E
500	Engine Fuel Filter	216					X
	Engine Oil and Filter (See Note 5)	214					X
	Transmission/Hydraulic Oil Filter (See Note 5)	230					X
	Operator Presence Switch Function	224			X		
	Auto Hitch Lift Rod Adjustment (See Notes 2 and 6)	220			X		
	Braked Axle Planetaries, Oil	224					
1000	2WD Front Wheel Bearing	225	X				
	Engine Air Intake System	227			X		
	Engine Primary Air Filter (See Notes 2 and 4)	227					X
	Engine Secondary Air Filter	227					X
	Transmission/Hydraulic Oil	230					X
	Transmission/Hydraulic System Breather	231					X
	500-Transmission/Hydraulic Oil Filter (See Note 5)	230					X
	Transmission/Hydraulic Oil Strainer	231					X
	Axle Planetaries (Non-Braked Axle) and Differential Oil (All Axle Types) (See Note 5)	233					X
	Fuel Injectors	233				X	
	Cab Intake Air Filter (See Note 3)	234					X
	Cooling System Anti-Freeze (yearly before winter)	238			X		
	Door Locks and Hinges	-	X				
	Engine Valve Clearances	226			X		
2000	Coolant	237					X

NOTE 1: Check the tractor for leaks, rubbing hoses, loose bolts and trash build up. Repair all leaks, hoses and tighten loose 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.

NOTE 6: If equipped.

NOTE 7: After 250 PTO operating hours.

NOTE 8: In severe operating conditions, grease daily.

NOTE 9: After any wheel adjustment, check after 30 minutes, then every 10 hours until torques stabilize.

ROUTINE SERVICING

10 HOURS OR DAILY SERVICE

Check Fuel Level



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 fuel the machine when the engine is hot or running. Never smoke while refueling.

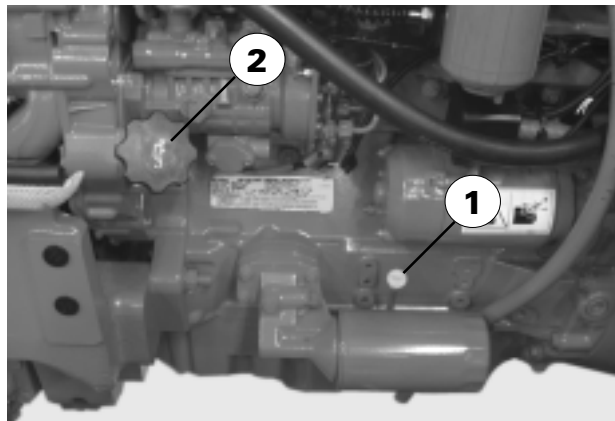


WARNING: Engine fuel is flammable and can cause a fire or an explosion. DO NOT fill the fuel tank or service the fuel system near a naked flame, welding, burning cigars, cigarettes etc.

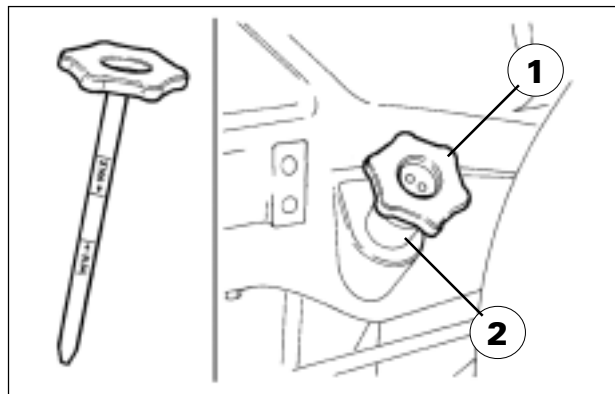


WARNING: Hydraulic oil or diesel fuel leaking under pressure can penetrate the skin and cause infection or other injury. To prevent injury: release all pressure, before disconnecting fluid lines. Before applying pressure, make sure all connections are tight and components are in good condition. Never 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



MC 105 - 115 - 130



MC120 POWER6 AND MC135 POWER6

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 below the ADD mark, add oil, through the filler tube (2), to raise the oil level to the FULL mark. DO NOT raise the oil level above the FULL mark.

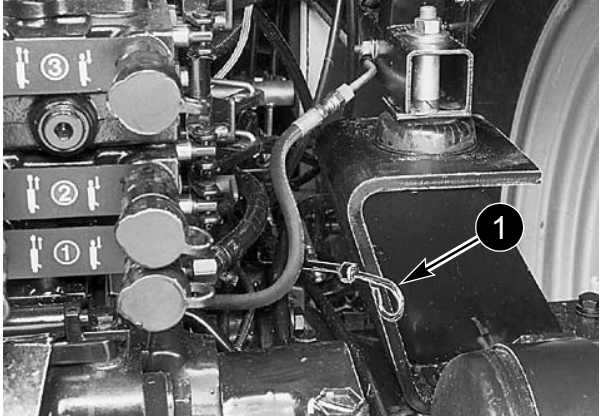
ROUTINE SERVICING

10 HOURS OR DAILY SERVICE

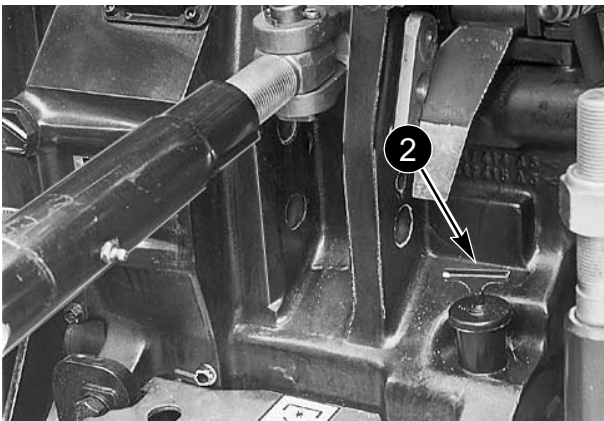
Check Transmission/Hydraulic Oil Level

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.

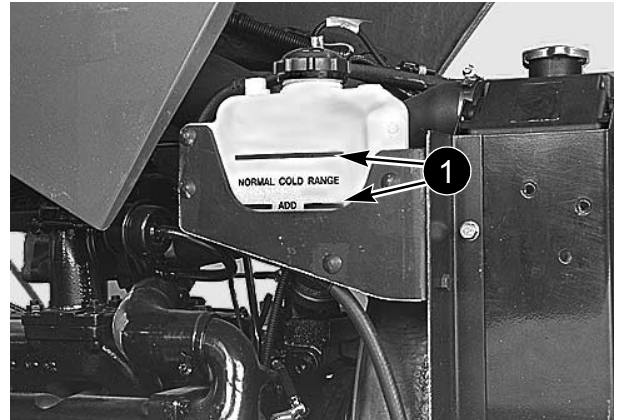


If the oil level is below the "NORMAL" mark on the dipstick, add the recommended oil in through the fill tube (2) located at the rear of the transmission.



If working in extreme hilly conditions make sure the oil level is raised to the "MAX" mark on the dipstick.

Check Coolant Level



NOTE: MC105 Tractor shown. Coolant Reservoir location and shape may vary to photograph shown above depending on tractor specification.

Check the coolant level when the coolant is cold and with the engine stopped. **DO NOT REMOVE THE RADIATOR CAP.**

The coolant level must be within the normal cold range marks (1) on the reservoir. If the level is below the ADD mark, fill the reservoir to the top mark with correct coolant mixture (this will depend upon market requirements).

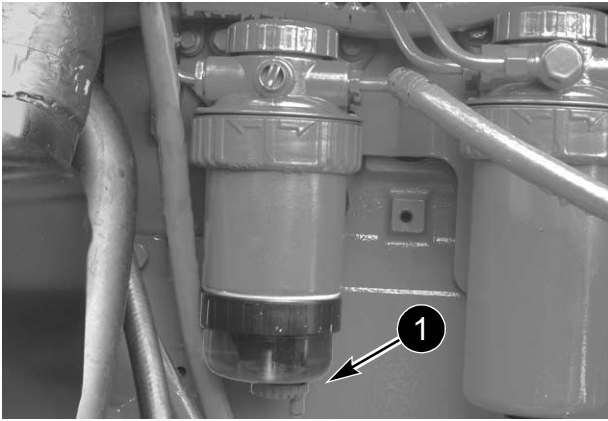


WARNING: Hot coolant can spray out if the coolant recovery reservoir cap or radiator cap is removed while system is still hot. **DO NOT REMOVE RADIATOR CAP.** To remove the coolant recovery reservoir cap or radiator cap, let system cool, turn cap to first notch, then wait until pressure is released. Scalding can result from fast removal of radiator cap.

ROUTINE SERVICING

10 HOURS OR DAILY SERVICE

Drain Fuel/Water Separator (MC120 Power6 and MC135 Power6 Tractors Only)



MD03A013

Drain as required or under the following circumstances:

- Loss of power.
- Black smoke from the exhaust muffler.

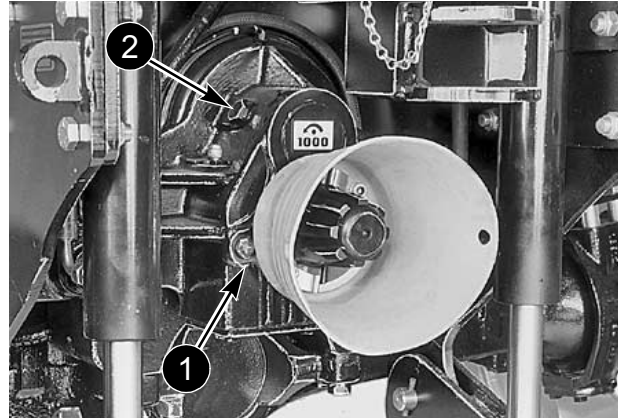
To drain do the following.

1. Loosen the drain valve (1) to allow any water or sediment to drain from the separator.
2. Close the drain valve. DO NOT over tighten.

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.*

Front PTO (If Equipped)

Kitchin Front PTO



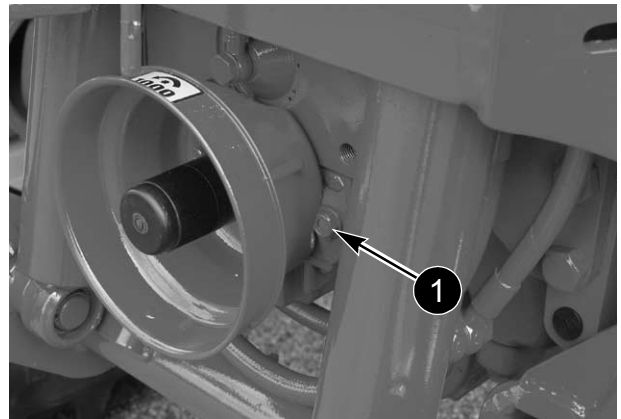
DP97E389

Put the tractor on level ground.

Check the level glass (1) located on the front left hand side of the housing.

If the oil level is low, remove the fill plug (2) and add the recommended oil type until the oil is level with the bottom edge of the level glass. Install the fill plug and tighten.

Hydrac Front PTO



MD01K007

Put the tractor on level ground.

Remove the fill/level plug (1) and check the oil level, which must be to the bottom edge of the plug hole. Add the recommended oil type as required. Install the plug.

ROUTINE SERVICING

10 HOURS OR DAILY SERVICE

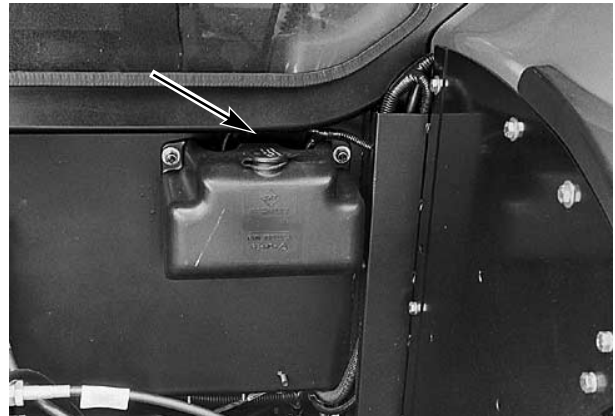
Drain Pneumatic Trailer Brake Reservoirs (If Equipped)



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.

ROUTINE SERVICING

50 HOUR SERVICE

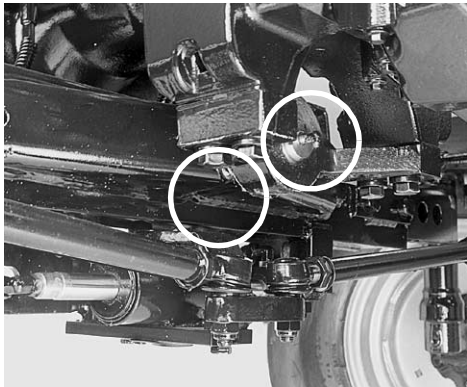
NOTE: Complete the 10 hour, (or daily), service plus the following.

Grease Points

NOTE: Use McCormick Multi-Purpose Lithium Grease.

NOTE: In severe conditions lubricate these points more frequently.

Two Wheel Drive (2WD) Front Axle



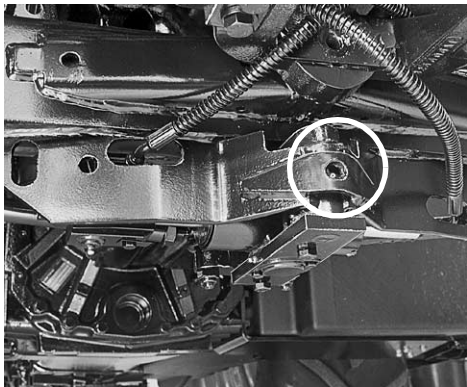
DP99G138

Axle Pivot Pin -
(2 points)



DP99G135

Front Axle Swivel -
(1 point each side)



DP99G134

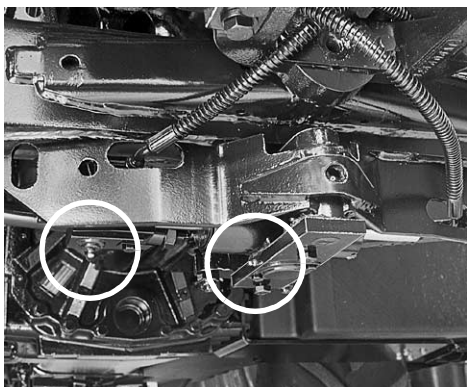
Steering Cylinder Trunnion -
(1 point)

Mechanical Front Drive (MFD) Axle



DP97E355

Axle Pivot Pins - (Front and Rear)



DP99G134

Steering Cylinder and Rod Pivots -
(2 points)



DP97E277

Steering Knuckle Swivel Pins -
(2 points each side)

ROUTINE SERVICING

50 HOUR SERVICE

Grease Points (Cont'd)

Independent Front Suspension Axle (MC130)



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.



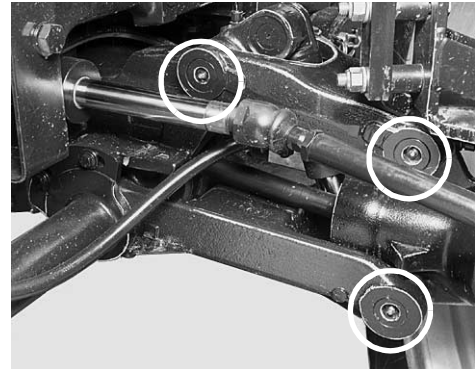
DP99A119

Suspension Arms - Front



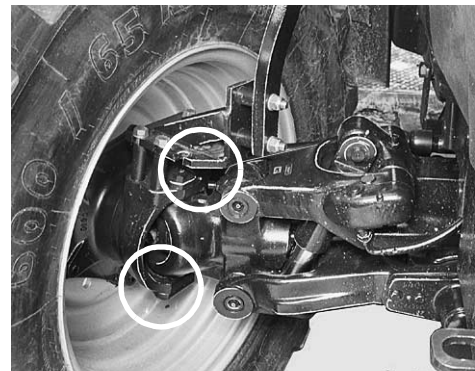
DP00H119

Suspension Arms - Front



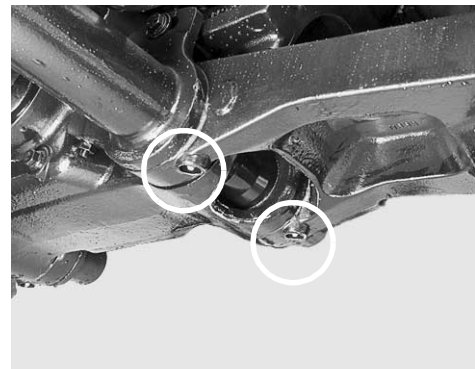
DP99A121

Suspension Arms - Rear



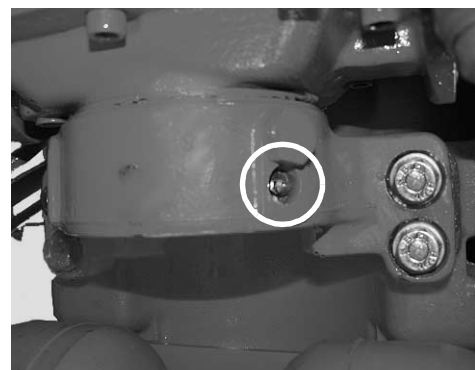
DP99A119

Steering Knuckle Swivel Pins



MH02H027

Housing/Steering Arm Pivot



MD02H026

Axle Pivot Pins - (Front and Rear)

ROUTINE SERVICING

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.



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.

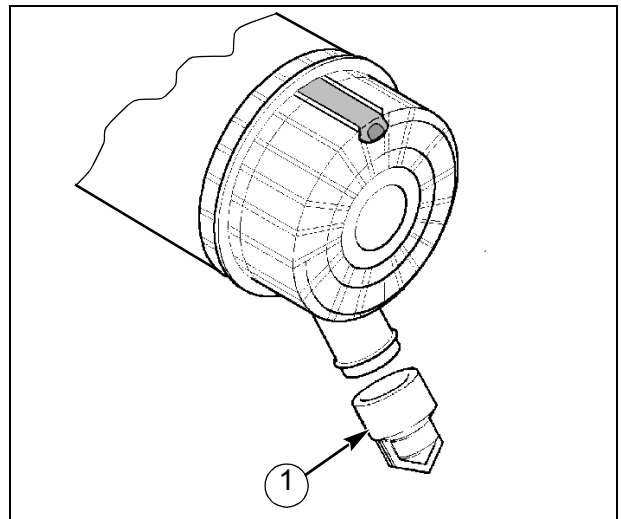
Drain Fuel Filter



The drain plug is located on the bottom of the fuel filter. 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.

Check Engine Air Filter Dust Valve (If Equipped)



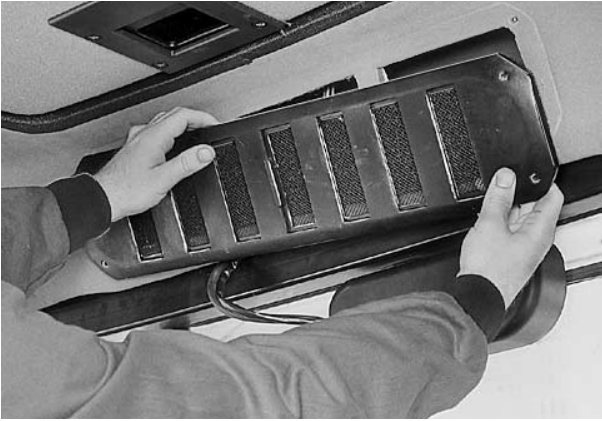
Squeeze the rubber dust valve (1) under the filter body cover to remove any dust. Install a new dust valve if damaged, or not operating correctly.

IMPORTANT: A new rubber dust valve **MUST** be installed every 1000 hours.

50 HOUR SERVICE

Clean Cab Air Recirculation Filter (Deluxe Cab Only)

STEP 1



DP96J436

Remove the four screws from the recirculation grille.

Remove the recirculation grille and the filter.

STEP 2

Clean the filter using mild soap and water. Rinse with clear water and squeeze out the excess.

STEP 3

Install the filter in the recirculation grille.

STEP 4

Install the grille and filter. Install and tighten the screws.

ROUTINE SERVICING

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



DP96H274

Turnbuckles, 2 points each side



J02603A

Levelling gearbox, if equipped.



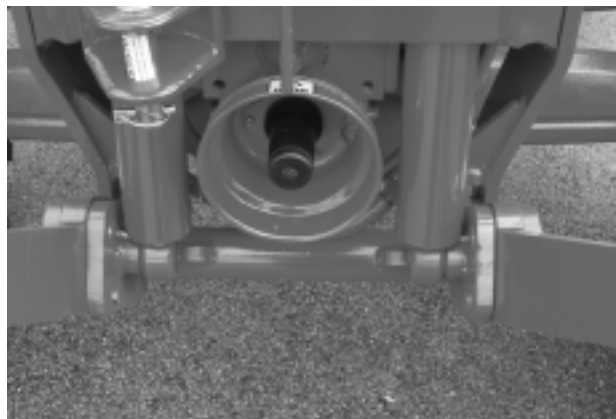
C05725

Toplink

Front 3 Point Hitch (If equipped)

NOTE: Lubricate if not used frequently and also after washing with water pressure hose.

Hydrac Hitch



MD01K006

Lower links, Front



MD01K009

Lower links, Rear-One each side

ROUTINE SERVICING

100 HOUR SERVICE

Check and Clean Cab Air Intake Filter

Check and 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 genuine McCormick parts if damaged or when the filter can not be cleaned.



WARNING: 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.

IMPORTANT: 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.

DELUXE CAB - Remove all protective items and store outside the operators cab in the locker on the spraying equipment before entering the tractor operators cab.

LOW PROFILE CAB - This tractor **CANNOT** be used for chemical spraying operations without wearing full protective clothing while in the operators cab.

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: - SAE coarse 99.5%.

NOTE: This element gives no protection against chemical spray.



WARNING: Do not stand on the tractor to service the filter, use the correct equipment for a safe standing platform or injury can result.

For optimum performance we recommend that the filter is serviced sooner if used in extreme conditions. Replaced with genuine McCormick parts if damaged or when the filter can not be cleaned.

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.

Deluxe Cab

STEP 1



DP97A075

Open the filter cover by pulling the front lower edge out.

STEP 2



DP96J439

Push the catch down.

Continued

ROUTINE SERVICING

100 HOUR SERVICE

STEP 3



DP97A090

Remove the filter element and clean the filter housing.

STEP 5

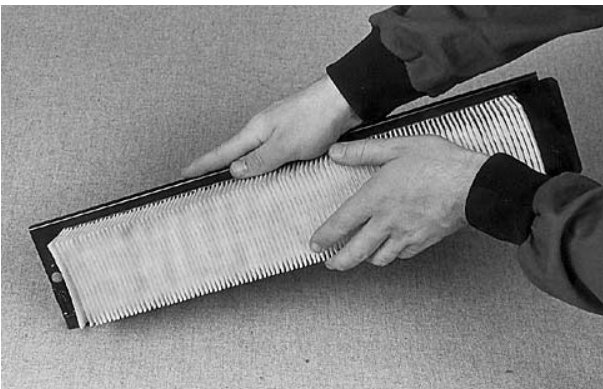
The filter element can be cleaned by following two methods:

A. By tapping against a flat surface.

or

B. By blowing with compressed air.

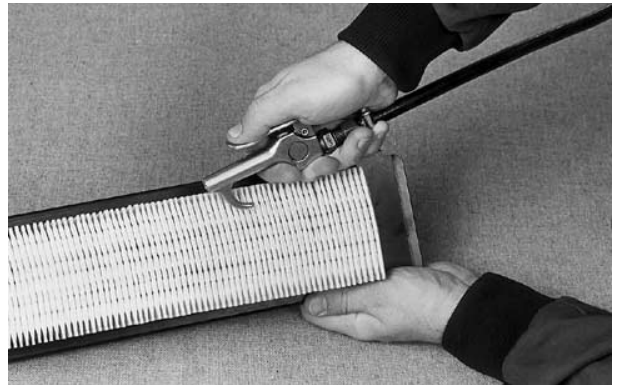
METHOD A



DP96J447

When most of the dirt is dust, this method can be used to clean the filter. Tap the dirty side of the filter against a flat surface. Do not use excessive force that can cause damage to the filter.

METHOD B

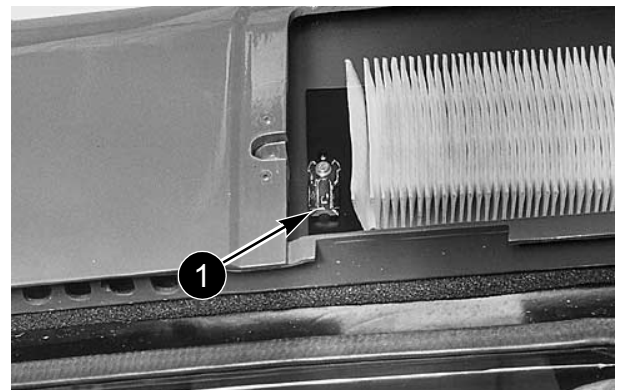


DP96J446

Use the compressed air method to remove the dust. 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 6



DP96J438

Install the filter element into the filter cover. Push the catch (1) up. Close the filter cover.

ROUTINE SERVICING

100 HOUR SERVICE

Low Profile Cab

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



DD97E258

LP CAB WITHOUT AIR CONDITIONING



DP99G055

LP CAB WITH AIR CONDITIONING

Loosen the retaining screws from the filter access cover and remove.

STEP 2



DD97E261

LP CAB WITHOUT AIR CONDITIONING



DP99G056

LP CAB WITH AIR CONDITIONING

Slide the filter element out.

IMPORTANT: If at any time the tractor has been used for chemical spraying operations, remove the filter and access cover immediately from the cab. Take care not to deposit any dirt from the filter and access cover on the cab interior.

STEP 3

Clean the filter housing.

STEP 4

The filter element can be cleaned by following two methods:

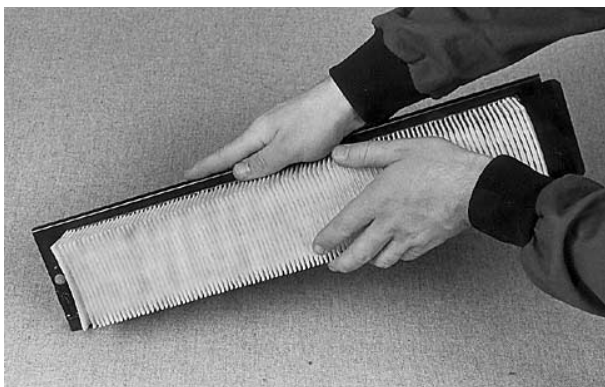
- A. By tapping against a flat surface.
- or
- B. By blowing with compressed air.

Continued

ROUTINE SERVICING

100 HOUR INTERIM SERVICE

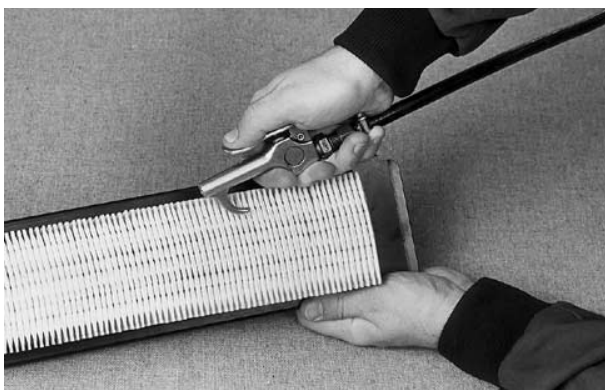
METHOD A



DP96J447

When most of the dirt is dust, this method can be used to clean the filter. Tap the dirty side of the filter against a flat surface. Do not use excessive force that can cause damage to the filter.

METHOD B



DP96J446

Use the compressed air method to remove the dust. 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 5



DD97E261

LP CAB WITHOUT AIR CONDITIONING



DP99G056

LP CAB WITH AIR CONDITIONING

Install the clean filter element. Replace the access cover and tighten the retaining screws.

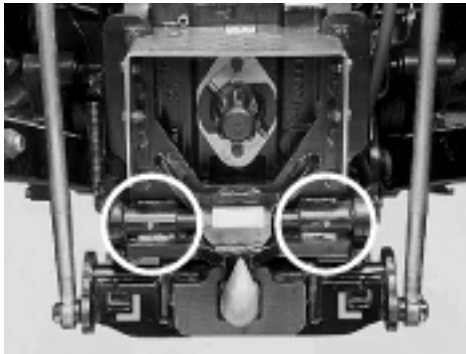
ROUTINE SERVICE

250 HOUR SERVICE

NOTE: Complete the items in the 10 hour, (or daily) and 50 hour services plus the following.

Grease Points

Auto Hitch Locking Latches



DP98D221

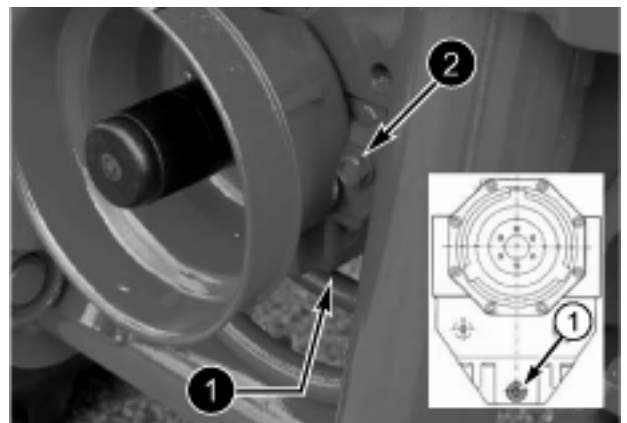
Locking Latches and Rear Pivot Points.

NOTE: Use Multi-Purpose Lithium Grease.

NOTE: In severe conditions lubricate these points more frequently.

Change Front PTO Oil (If Equipped)

Hydrac front PTO



MD001K007

To change the power take off oil, put the tractor on level ground. Put a suitable container under the drain plug (1) and remove. (Drain plug located at the rear, under side of PTO Housing. See insert).

For best results drain the oil after operation when the oil is warm.

Install the drain plug.

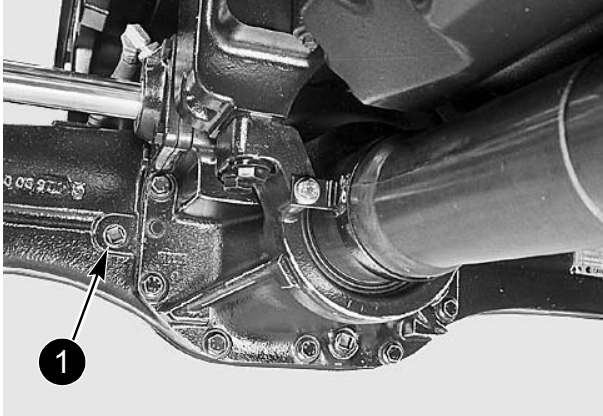
Remove fill/level plug (2) and add the recommended oil type through hole until the oil is level with the bottom edge of the hole. Wait approximately 5 minutes. Check the oil level again and add oil as necessary. Install the fill/level plug.

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.

ROUTINE SERVICING

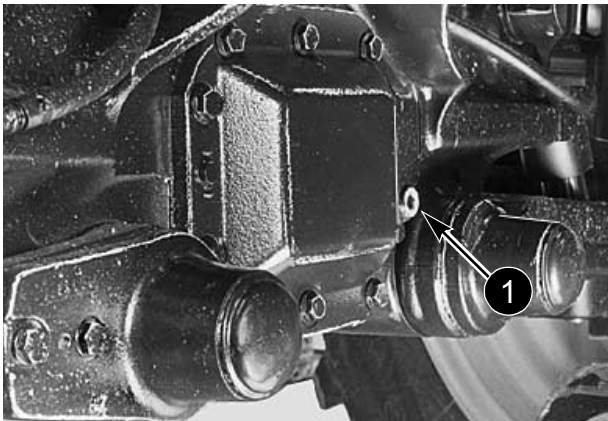
250 HOUR SERVICE

Check Differential Oil Level



MFD AXLE

DP97N050



INDEPENDENT FRONT SUSPENSION AXLE-MC130

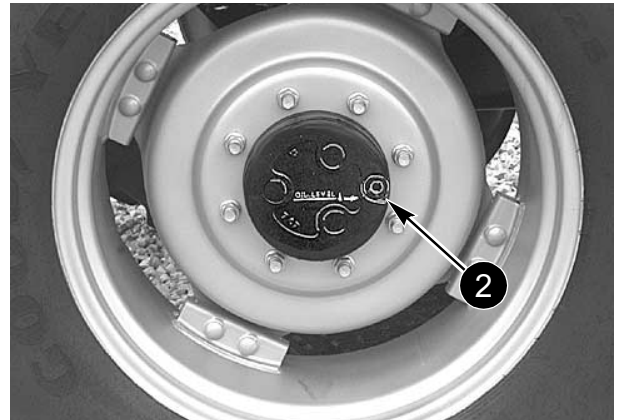
To check the differential oil level, put the tractor on level ground. Remove the fill/level plug (1).

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.



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.

Check Planetary Oil Level



DD97K104

To check the planetary oil level, park the tractor on level ground.

Turn the wheel hub until the plug (2) 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 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 (0.39 in) on the longest run of the belt with a thumb pressure of 4.5 kgf (32.5 lb ft) applied.

Check the belt for cuts and wear. Replace as necessary.

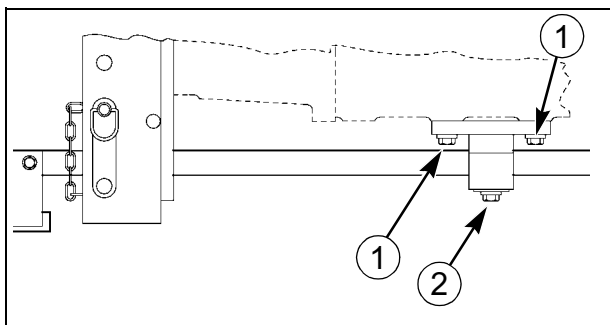
ROUTINE SERVICING

250 HOUR SERVICE

Check Drawbar Support Bracket Bolts Torque

Check the drawbar support bracket bolt torque after every 250 hours of operation.

1. Tighten bolts (1) to a torque of 295 to 330 Nm (218 to 243 lb ft).
2. Tighten bolt (2) to a torque of 94 to 106 Nm (69 to 78 lb ft).



OM1380

Grease Trailer Hitch Slide Rails and Hitch Coupling Operating Parts.

NOTE: Use McCormick Multi-Purpose Lithium Grease.

1. Every 250 hours of operation, the hitch should be thoroughly cleaned and all moving parts, including the inner slide rails, should be greased to protect from corrosion.
2. Make sure that all moving parts move freely and operate correctly.

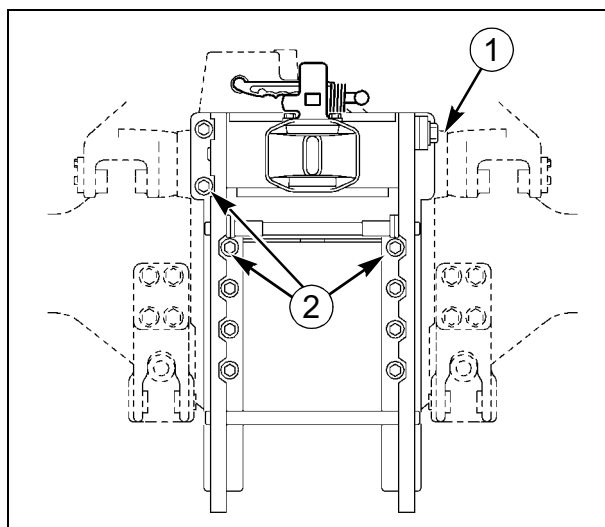
NOTE: In extreme operating conditions it may be necessary to clean and grease the hitch more frequently to ensure correct operation.

IMPORTANT: The hitch clevis and the pivot pin are sufficiently greased by the factory to ensure correct operation for a long period of time. However, under severe operating conditions, it may be necessary to grease these points more often. If necessary, this should **ONLY** be carried out by your Dealer.

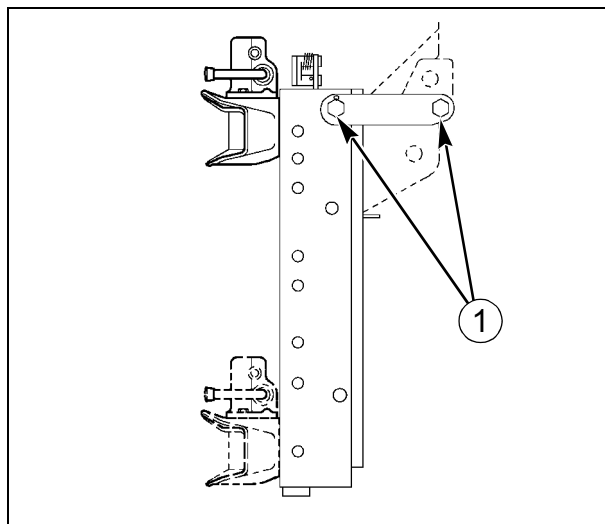
Check the Torque of the Trailer Hitch Bolts (If Equipped)

Check the torque of all the retaining bolts for ALL types of hitches at pre-delivery and every 250 hours of operation.

1. Tighten the top, side support bracket bolt (1) to a torque of 570 to 645 Nm (420 to 476 lb ft).
2. Tighten the rear retaining bolts (2) to the PTO housing, to a torque of 295 to 330 Nm (420 to 476 lb ft).



OM1382



OM1382

ROUTINE SERVICING

250 HOUR SERVICE

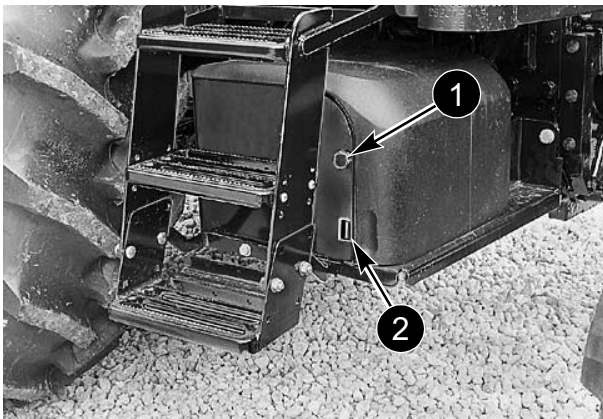
Batteries

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.**

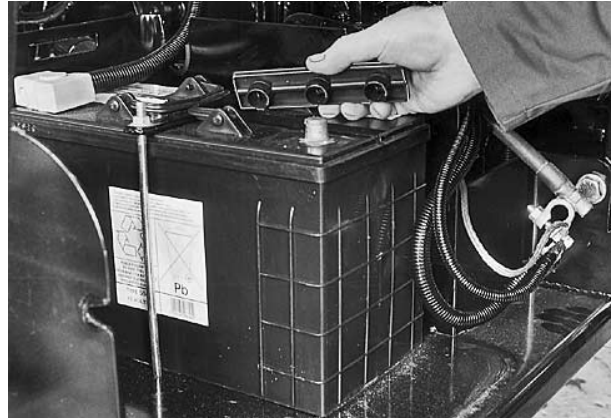
Access to Batteries



DP98F302

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 SERVICING

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 (MC105-115-130)

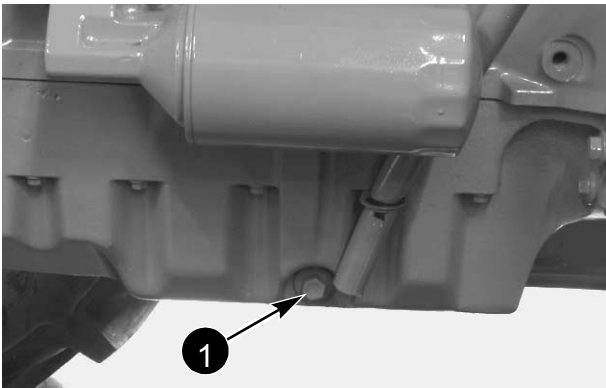
To change the engine oil, put the tractor on level ground and stop the engine.

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 (122°F).

STEP 1



MD03K003

Put a suitable size container (see page 192 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



MD03K004

Turn the oil filter counterclockwise with a strap wrench to remove.

STEP 3



MD03K005

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.

STEP 5

Fill with the correct grade of engine oil, to the correct level, see engine oil selection.

NOTE: The engine oil level dipstick, is only a guide. When you fill the engine crankcase with oil always measure the amount of oil you install.

ROUTINE SERVICING

500 HOUR SERVICE

Change Engine Oil and Filter (MC120Power6 e MC135Power6)

IMPORTANT: If the tractor has been operating under difficult conditions it may be necessary to change the oil and filter more frequently.

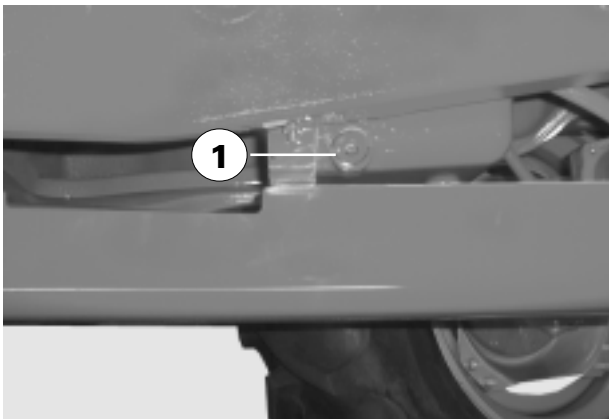
To change the engine oil, put the tractor on level ground and stop the engine.

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).

STEP 1

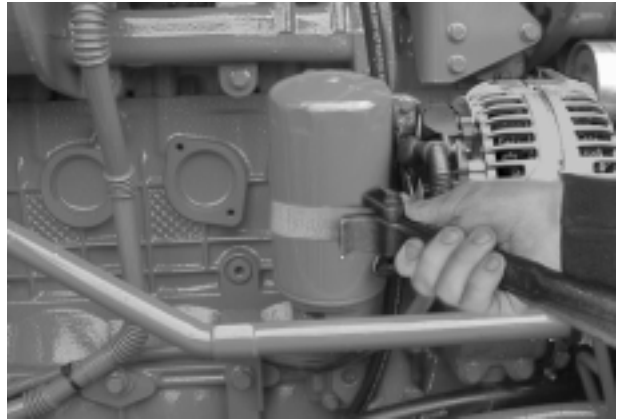


Put a suitable size container (see page 192 for engine capacity) under the drain plug (1).

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



Turn the oil filter counter clockwise with a strap wrench to remove.

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 crank case and tighten.

[illegible]

ROUTINE SERVICING

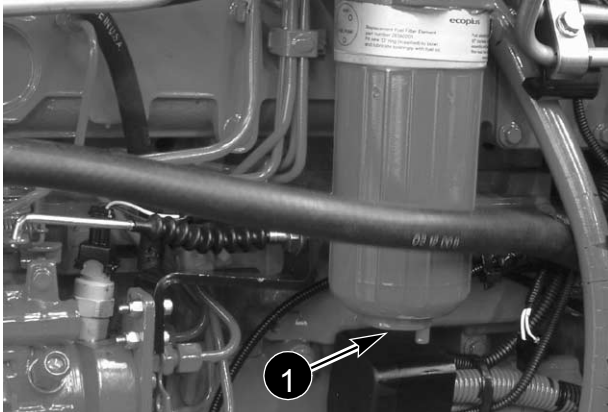
500 HOUR SERVICE

Change Fuel Filter (MC 105-115-130)

STEP 1

Clean the filter head, filter and engine area next to the filter before removing the filter.

STEP 2



MD03K006

Loosen the drain plug (1) on the bottom of the filter to drain any water.

STEP 3



MD03K007

Use a filter wrench to 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



MD03K008

Put clean oil or grease on the filter gasket of the new filter 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: 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 218.

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 SERVICING

500 HOUR SERVICE

Change Fuel Filter(s) - Fuel Filter and Fuel/Water Separator (MC120 Power6 and MC135 Power6)

STEP 1

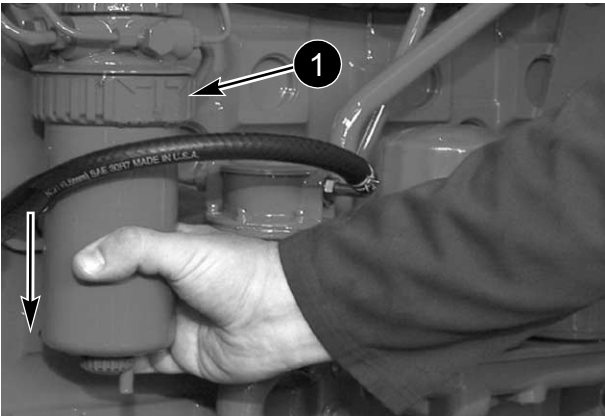
Clean the filter head, filter and engine area next to the filter before removing the filter.

STEP 2



Loosen the drain plug on the bottom of the filter to drain any water.

STEP 3

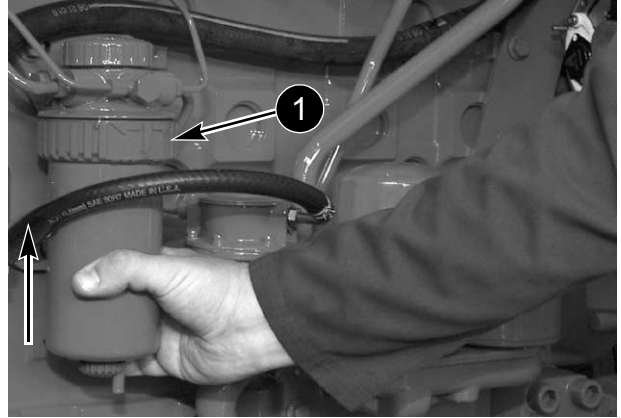


Support the filter and rotate the locking collar (1) clockwise, (see the direction arrow). Remove the locking collar and retain.

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 McCormick approved parts, these parts 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 218.

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 SERVICING

500 HOUR SERVICE

Remove Air From Fuel System

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.

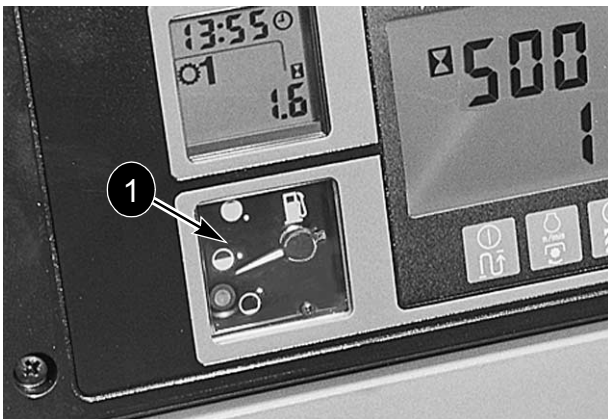
IMPORTANT: *DO NOT* crank the engine before removing all the air from the fuel system or the fuel injection pump can be damaged.

On **MC 105 - 115 - 130 Tractors** no fuel system priming should be necessary as there is an electric transfer pump which automatically operates and is controlled by the electronic control module.

Turn the keyswitch to the ON position, but do NOT start the engine. The electric transfer pump will run and purge air from the system. Keep the key in this position for approximately 60 seconds. After 60 seconds start the engine and check for leaks.

On **MC120 and MC135 Power 6 Tractors** use the following procedure to remove air from the fuel system.

STEP 1



MS02H016

Make sure there is fuel in the tank, check the gauge (1).

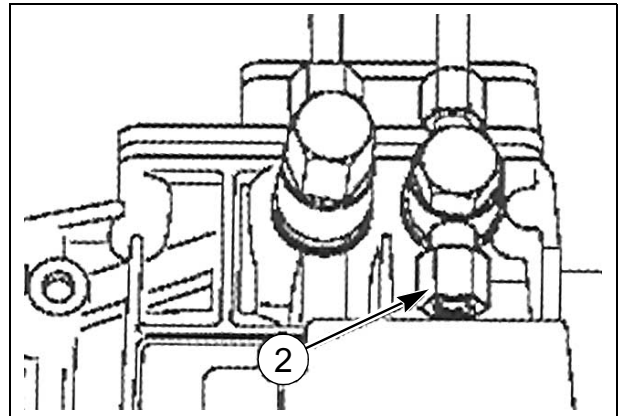
STEP 2



DP96J332

Turn the key switch to ON to energize the cut off solenoid.

STEP 3



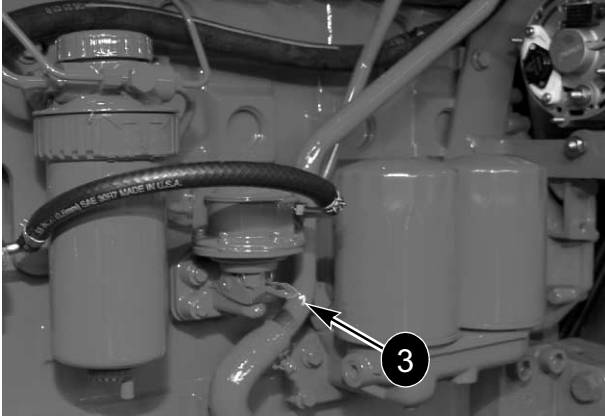
MS02H028

Loosen the ball bearing valve nut (2) on the fuel pump.

ROUTINE SERVICING

500 HOUR SERVICE

STEP 4



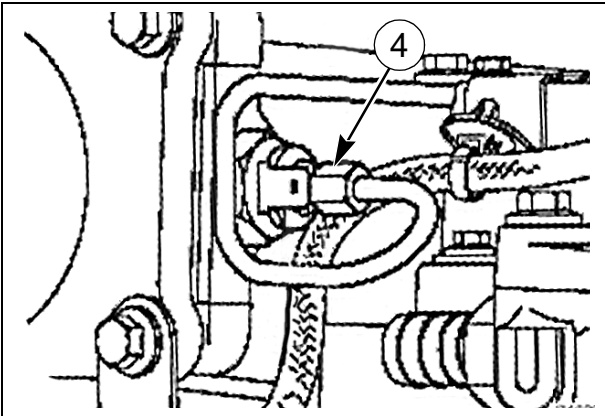
DP97N051

Operate the hand primer pump (3) until fuel, free from air, comes from the ball bearing valve (2).

Tighten the ball bearing valve nut (2).

NOTE: If the primer pump cannot be activated, turn the engine a small amount.

STEP 5

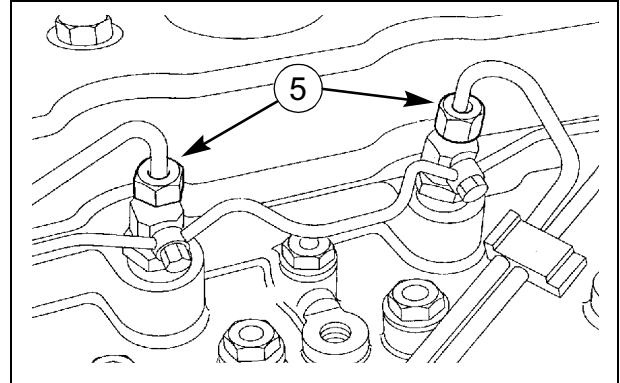


MS02H029

If equipped with thermostart, loosen the union nut (4) at the cold starting aid connection. Operate the hand primer pump until air free fuel (no bubbles) flows from the union. Tighten the union.

NOTE: Use a spanner on the starting aid to help prevent movement when loosening or tightening the union (4).

STEP 6



DS97E428

Loosen two of the injector pipes (5) at the injectors. Operate the starter motor until air free fuel flows. Tighten the injector pipes (do not over tighten).

IMPORTANT: DO NOT operate the starter motor for long periods or you could cause damage to starter motor, battery and fuel injection pump.

STEP 7



DP96J332

Start the engine and check for fuel leaks around the filter, the fuel lines and fittings.

If the engine does not run correctly, repeat the air removal procedure.

IMPORTANT: Run the engine at low idle for a minimum of two minutes after removing air, to prevent any damage to the fuel injection system.



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

ROUTINE SERVICING

500 HOUR SERVICE

Check/Adjust Auto Hitch (If Equipped)

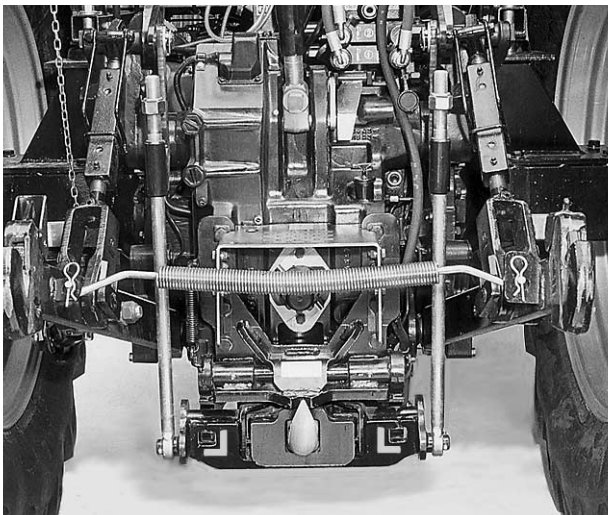
As necessary or at least every 500 hours check the operation of the auto hitch and make sure the locking latches engage and the hitch is operating correctly.



WARNING: When checking the operation of the auto hitch, stay well clear of moving parts or injury can result.

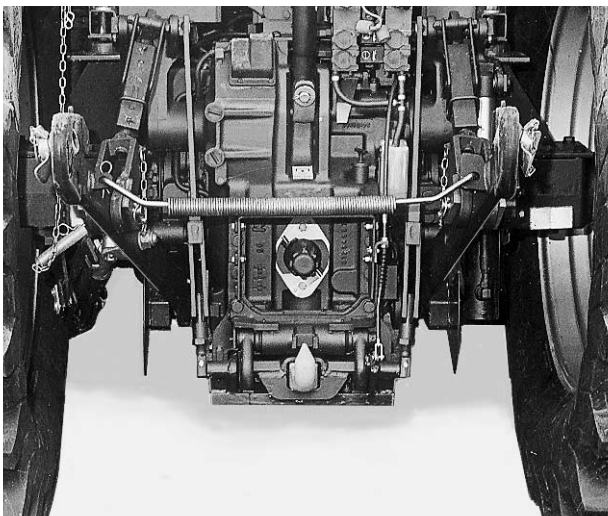


WARNING: Never operate the engine in a closed building. Proper ventilation is required under all circumstances.



DP96J415

DROMONE AUTO HITCH



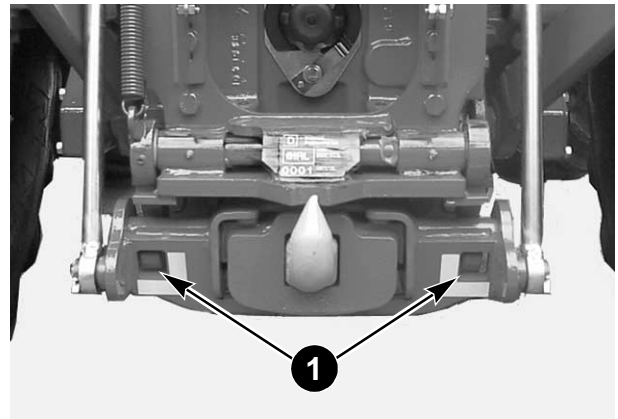
DP97N027

CBM AXLA AUTO HITCH

Dromone Auto Hitch Adjustments (If Equipped)

Cable Adjustment

STEP 1

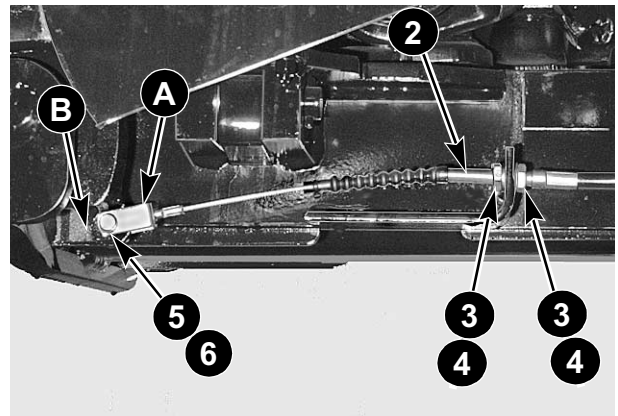


MD01F073

Make sure the auto hitch is in the raised position with latches (1) locked.

IMPORTANT: If the hitch latch fails to lock in the raised position, raise the hitch using a hydraulic jack until the hitch locks correctly.

STEP 2



DD00A075

Make sure the auto hitch release control is pushed fully down. Install cable (2) into the bracket with an adjusting nut (3) and washer (4) on either side. Adjust nuts (3) until pin (5) can be installed through the cable clevis (A) and hitch lever (B). Install clip (6) and tighten the adjust nuts (3).

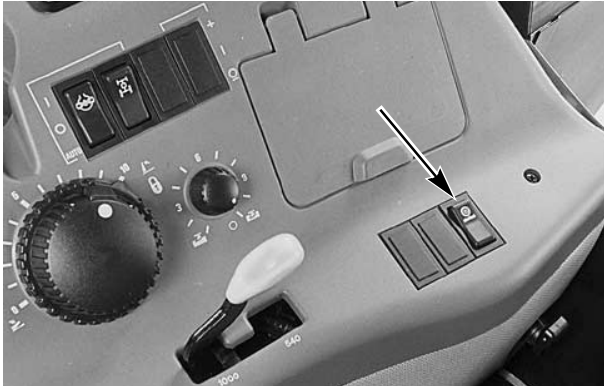
Continued

ROUTINE SERVICING

500 HOUR SERVICE

Lift Rod Adjustment

STEP 1



DP99G143

Start the engine and press the ride control switch to override the hitch upper limit stop and raise the hitch to the mechanical upper limit stop. While holding the switch down, STOP the engine and remove the key.



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

IMPORTANT: Position a suitable hydraulic jack under the hitch until the jack just touches the hitch to support the weight of the hitch. DO NOT raise the hitch using the jack.

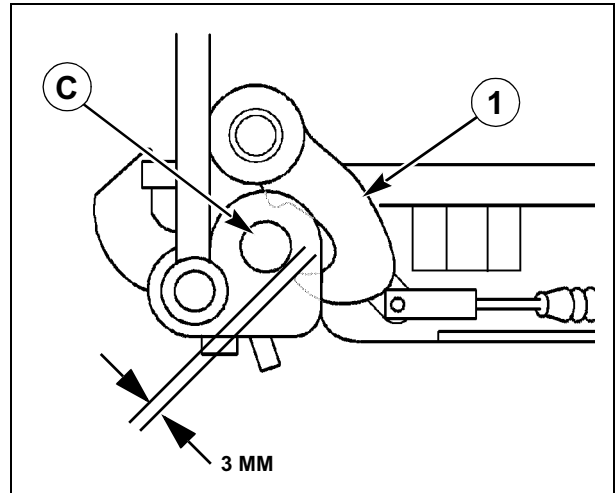
STEP 2



DR99C151

Pull the auto hitch release control to unlock the locking latches (1).

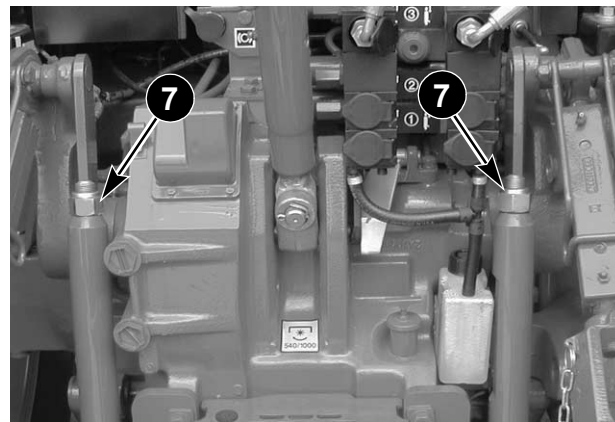
STEP 3



MI01H041

At this point the latch (1) should be clear of the frame. If not, check the clearance between the latch (1) and the lock bar (C), this should be 3 mm, if necessary adjust the LH and RH lift rods.

STEP 4



MD01F094

Adjust nuts (7) equally until the correct clearance between the latch (1) and the lock bar (C) is obtained.

NOTE: If the lift rods require lengthening it may be necessary to slightly lower the hydraulic jack.

STEP 5

Remove the hydraulic jack and start the engine and lower then raise the hitch to the upper limit to check the operation of the locking latches.



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

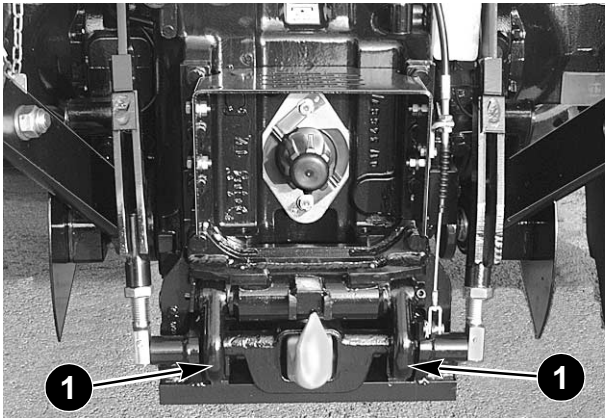
ROUTINE SERVICING

500 HOUR SERVICE

CBM Axla Auto Hitch Adjustments (If Equipped)

Cable Adjustment

STEP 1

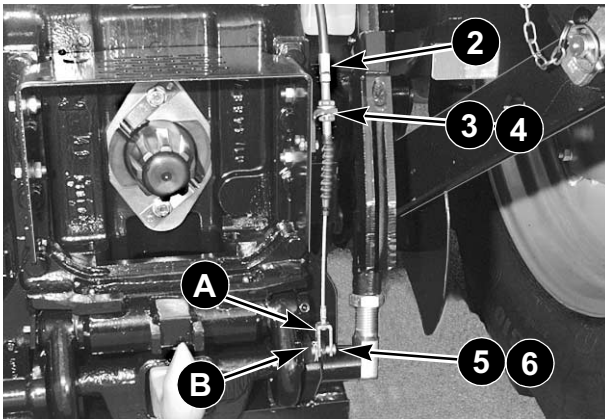


DD00A098

Make sure the auto hitch is in the raised position with latches (1) locked.

IMPORTANT: If the hitch latch fails to lock in the raised position, raise the hitch using the hydraulic jack until the hitch locks correctly.

STEP 2



DD00A097

Make sure the auto hitch release control is pushed fully down. Install cable (2) into the bracket with an adjusting nut (3) and washer (4) on either side. Adjust nuts (3) until pin (5) can be installed through the cable clevis (A) and hitch lever (B). Install clip (6) and tighten the adjusting nuts (3).

Lift Rod Adjustment

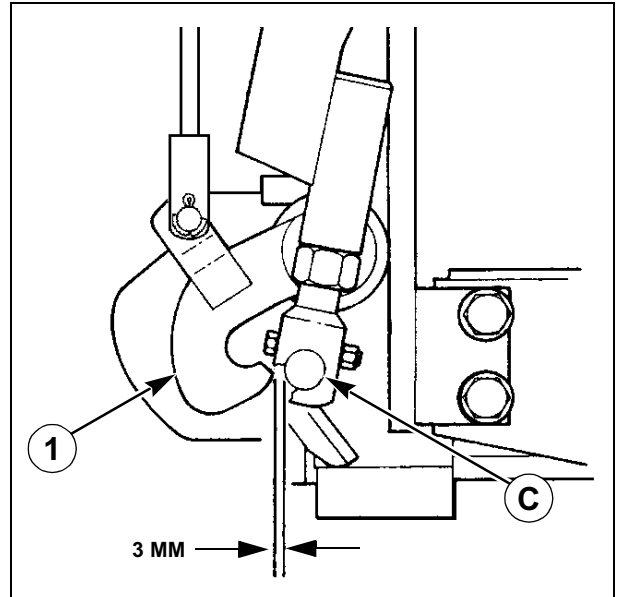
STEP 1

Start the engine and press the ride control switch to override the hitch upper limit stop and raise the hitch to the mechanical upper limit stop. While holding the switch down, STOP the engine and remove the key.



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

STEP 2



Pull the auto hitch release control to unlock the locking latches (1). At this point the latch (1) should be clear of the frame. If not, check the clearance between the latch (1) and the lock bar (C), this should be 3 mm, if necessary adjust the lift rod adjusting nuts (3) to obtain the correct clearance. Continue to Step 3 on next page for correct procedure.

ROUTINE SERVICING

500 HOUR SERVICE

STEP 3

Push auto hitch release control fully down to lock the hitch. Start the engine and lower the hitch approximately 100 mm. Make sure the hitch is locked.

IMPORTANT: If the hitch latch fails to lock, raise the hitch using the hydraulic jack until the hitch locks correctly. DO NOT remove the hydraulic jack.

STEP 4

Loosen the LH lift rod lock nut (7) and remove the retaining bolt (8). Slide the lift rod from the hitch. Adjust the lift rod clevis (9) as necessary.

STEP 5

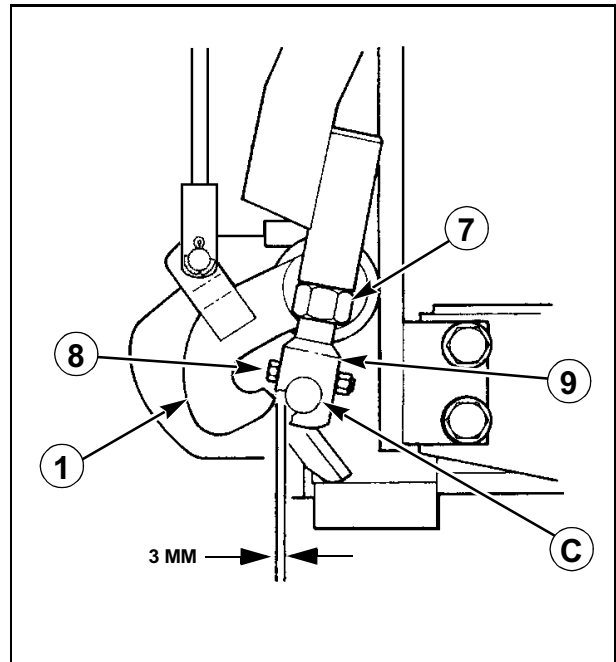
Install the lift rod onto the hitch and install and tighten the retaining bolt (8). Tighten the locknut (7).

STEP 6

Repeat Steps 4 and 5 for the RH lift rod. Make sure the lift rods are adjusted equally.

STEP 7

Remove the jack and start the engine and lower then raise the hitch to the upper limit to check the operation of the locking latches.



DI00A099



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

ROUTINE SERVICING

500 HOUR SERVICE

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.

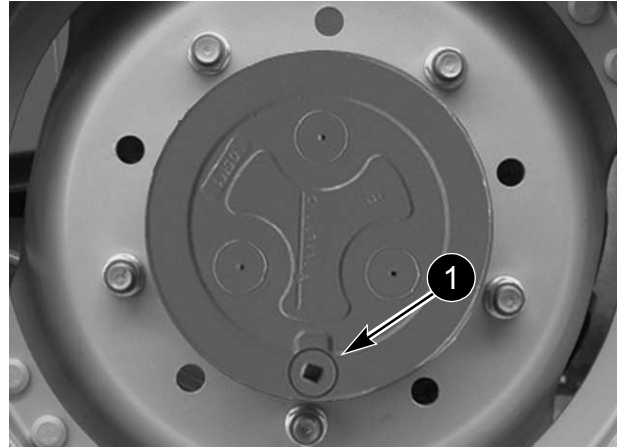
STEP 2

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.

Change Planetaries Oil (Braked Axle)

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.

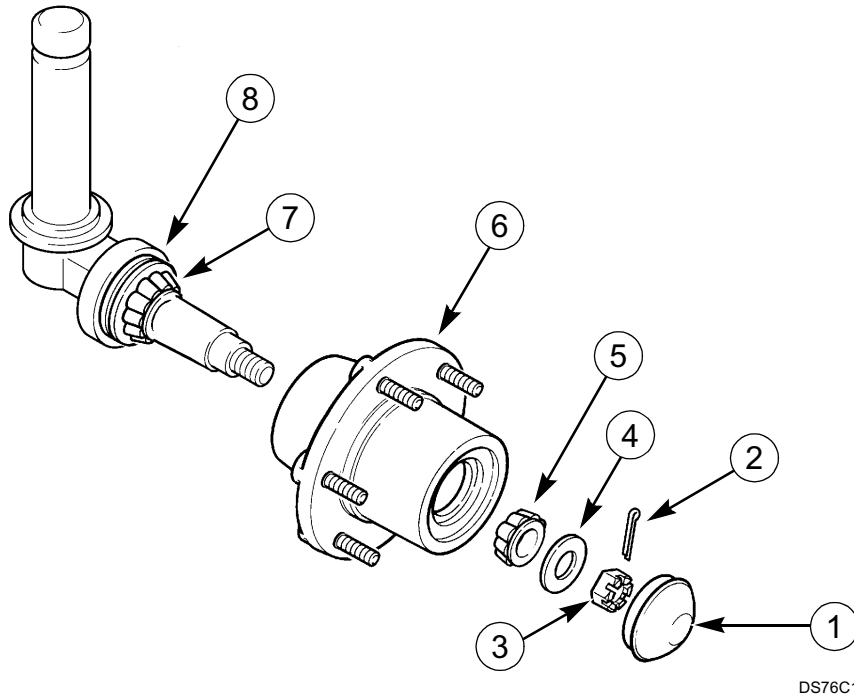
IMPORTANT: Dispose of oil and filters in accordance with local regulations. DO NOT drain the oil on the ground, into a drain or put in a container that can leak. Be responsible for the environment.

ROUTINE SERVICING

1000 HOUR SERVICE

NOTE: Have your authorized McCormick dealer complete the 1000 Hour Service. The dealer engineer should complete the items in the 10 hour (or daily), 50, 100, 250 and 500 hour services plus the following.

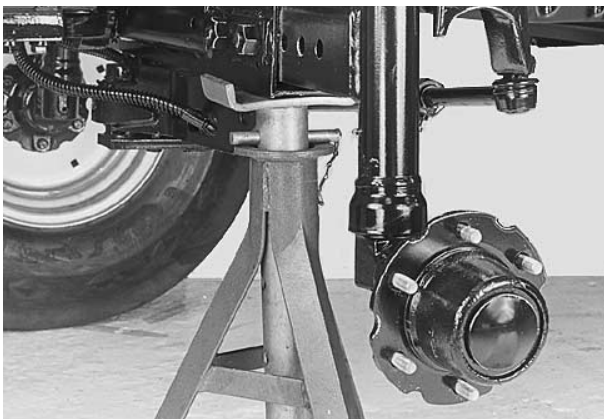
Grease Two Wheel Drive Front Wheel Bearing



STEP 1

Park the machine on hard level ground, engage the park brake and stop the engine. Put blocks in front of and behind the rear wheels.

STEP 2



Loosen the wheel nuts. Use a hydraulic jack under the front axle, raise the tractor and remove the wheel. Support the tractor on a suitable axle stand.

STEP 3

Remove the hub cap (1), cotter pin (2) and nut (3).

STEP 4

Remove the washer (4), outer bearing (5) and front wheel hub assembly (6).

STEP 5

Clean and examine bearings (5 & 7) and dust seal (8) for damage, replace if necessary.

STEP 6

Fill the inner bearing (7) and dirt seal (8) with grease.

STEP 7

Part fill the hub (6) with grease and install.

STEP 8

Fill the outer bearing (5) with grease and install the washer (4) and nut (3).

NOTE: A good quality Lithium based grease to NL.G.I. No.2 consistency is recommended for temperatures 0°C (32°F) and above. Temperatures below 0°C (32°F) use a good quality Lithium based grease to NL.G.I. No.1 consistency.

ROUTINE SERVICING

1000 HOUR SERVICE

STEP 9

Tighten the nut to a torque of 95 Nm (70 lb ft) while rotating the hub to seat the bearings.

STEP 10

Loosen the nut then tighten to a torque of 68 Nm (50 lb ft) for Adjustable Swept Back Axles or 34 Nm (25 lb ft) for Adjustable Straight Axles.

STEP 11

Install the cotter pin. The nut can be loosened 1/4 of a turn or more if necessary to fit the pin.

STEP 12

Install the hub cap. DO NOT fill the hub cap with grease unless operating in rice fields or other severe wet conditions.

Engine Valves

Have your dealer check the engine valve to tappet clearances.

ROUTINE SERVICING

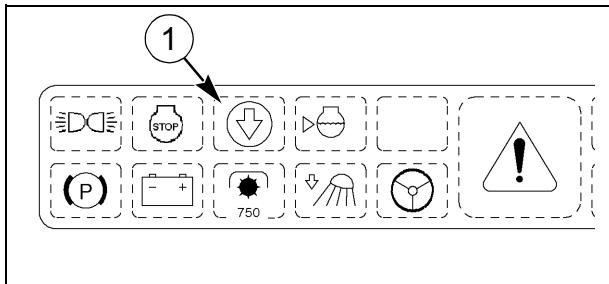
1000 HOUR SERVICE

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.



DS99G183

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.

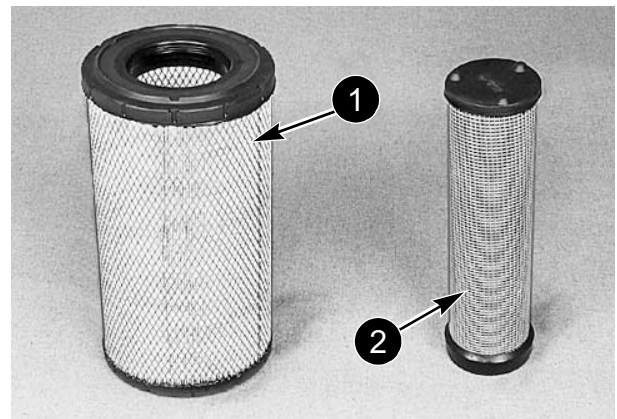
If the lamp still illuminates see your dealer to check the restriction indicator sending unit.

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. See the following pages for service procedure.

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.



DP96J425

- 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 SERVICING

1000 HOUR SERVICE

Service Engine Air Filter

STEP 1

MC105 and MC115 Tractors

Pull the yellow locking tab (1) out, turn the cover (2) counterclockwise and remove.

MC130, MC120 Power6 and MC135 Power6 Tractors

Release the three retaining clips and remove cover.



MD02H019

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.

STEP 4

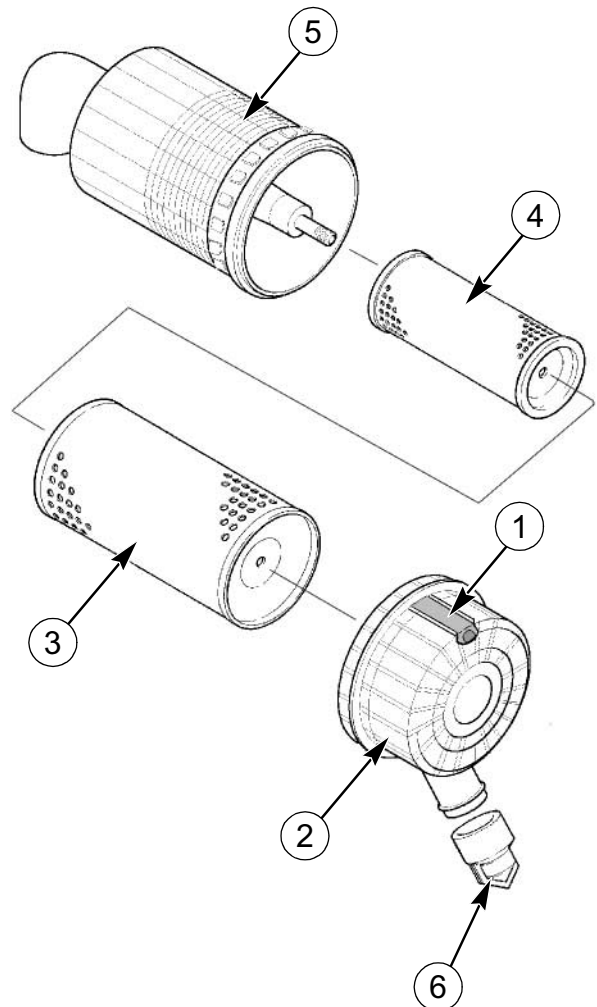
Clean the inside of the filter body (5).

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. Install with 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.



MR01E009

Continued

ROUTINE SERVICING

1000 HOUR SERVICE

STEP 6



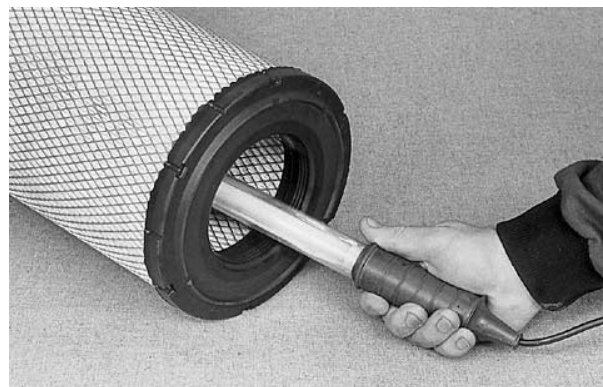
DP96J426

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 (29 psi). Use an air hose with a safety ON/OFF control nozzle and always wear face protection.

STEP 7



DP96J427

To check the clean element for damage or holes, put a lamp inside the element and turn the element. Visually check the rubber gasket for damage. Check the metal cover and filter material for damage. Replace an element that is damaged.

IMPORTANT: Do not run the engine with the filters removed.

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.

STEP 9

Install the air cleaner cover, rotate clockwise and push the locking tab back into position to lock the cover in place.

Change the rudder dust valve (6), if equipped.

ROUTINE SERVICING

1000 HOUR SERVICE

Change Transmission/Hydraulic Oil and Filter

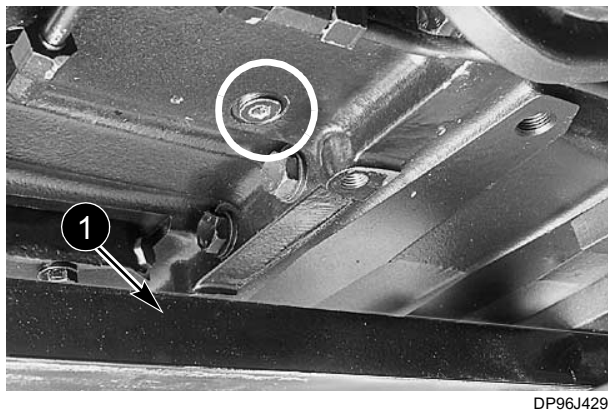
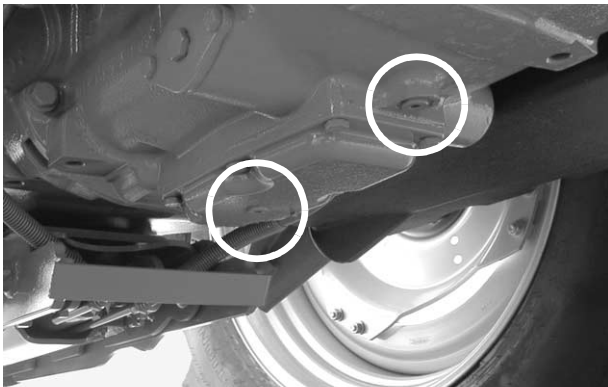
STEP 1

Put the tractor on hard level ground, apply the park brake and stop the engine.

STEP 2

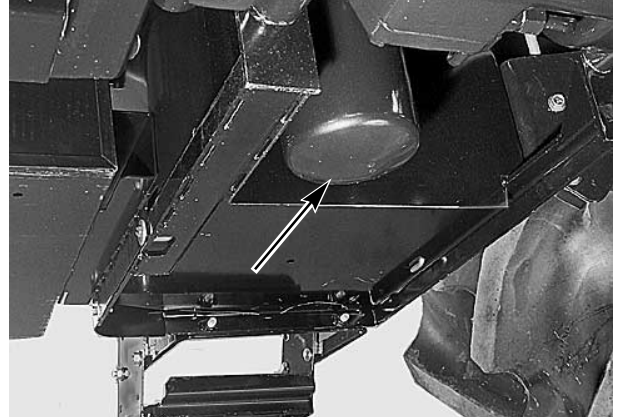
Remove ALL the drain plugs. For best results drain the oil when the oil is warm after operation.

Drain Plug Locations



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.

Change filter 500Hours - The filter must also be changed if the service indicator lamp on the instrument panel illuminates during operation. **ONLY** use a McCormick approved filter.

STEP 4

Install and tighten the drain plugs after the oil has drained.

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 5

Apply clean transmission oil to the new O-ring and position inside the lip of the new filter.

ROUTINE SERVICING

1000 HOUR SERVICE

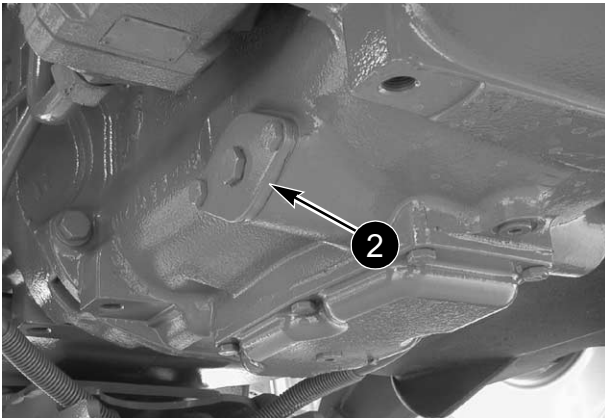
STEP 6

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.

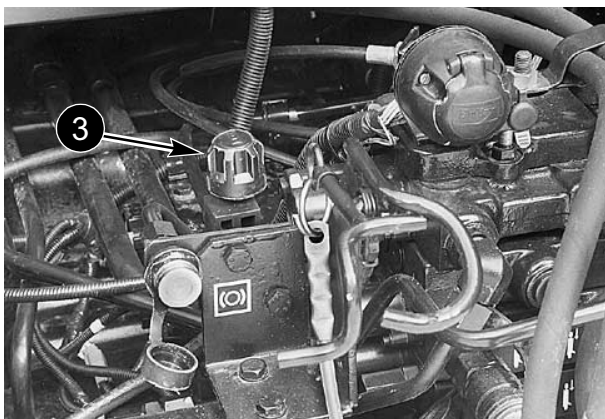
STEP 7



MD01H056

Change the oil strainer (2) on the right side of the range transmission housing.

STEP 8



DP98M169

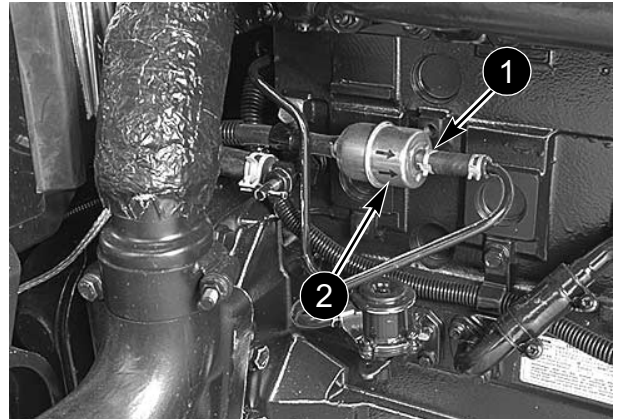
Install a new transmission housing breather (3).

STEP 9

Fill the transmission with the recommended oil to the correct level. Start the engine and check for oil leaks around the drain plugs, strainer and oil filter.

In-line Fuel Filter (If Equipped)

Change the in-line filter every 1000 hours as follows.



DK98A044

Make a note of the direction of the arrow (1) on the filter.

Loosen the filter hose clips (2) each end and remove the filter.

Install the new filter, making sure the arrow (1) on the filter is pointing in the correct direction.

ROUTINE SERVICING

1000 HOUR SERVICE

Change Differential Oil

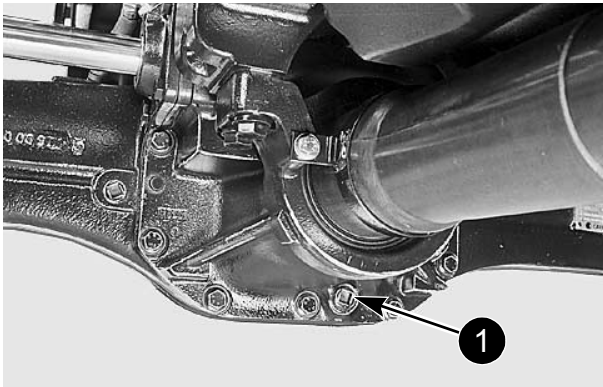


WARNING: Before carrying out any servicing on tractors equipped with Independent Front Suspension make sure the axle is fully lowered to the bottom mechanical stop, the engine is not running and the keyswitch is in the OFF position. Failure to do this may result in serious injury.

STEP 1

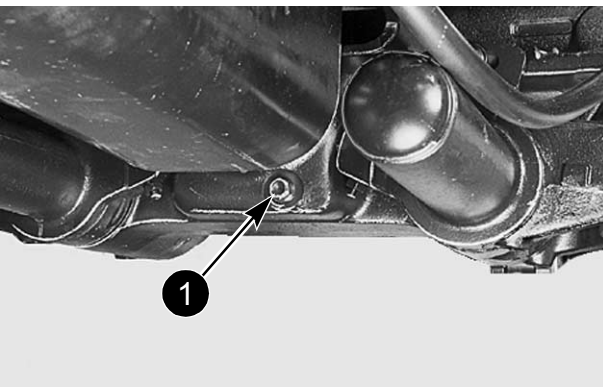
Put the tractor on level ground and put a suitable size container under the drain plug.

STEP 2



MFD AXLE

DP97N050



MH02H030

INDEPENDENT FRONT SUSPENSION AXLE-MC130

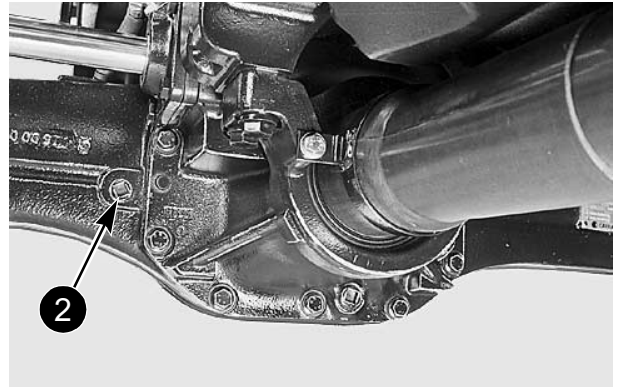
Remove the drain plug (1), located on the bottom of the axle housing at the rear, and drain the oil. For best results drain the oil when the oil is warm after operation.

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

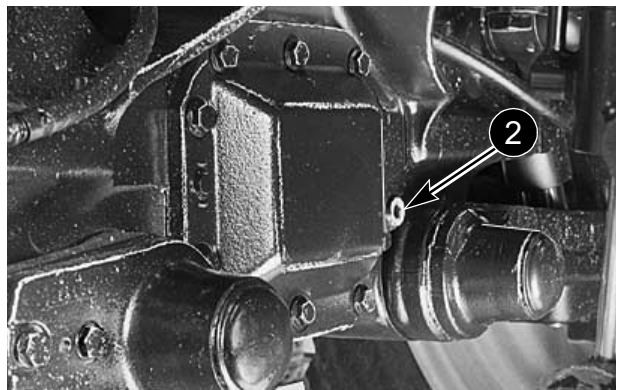
Install the drain plug and tighten.

STEP 4



DP97N050

MFD AXLE



INDEPENDENT FRONT SUSPENSION AXLE-MC130

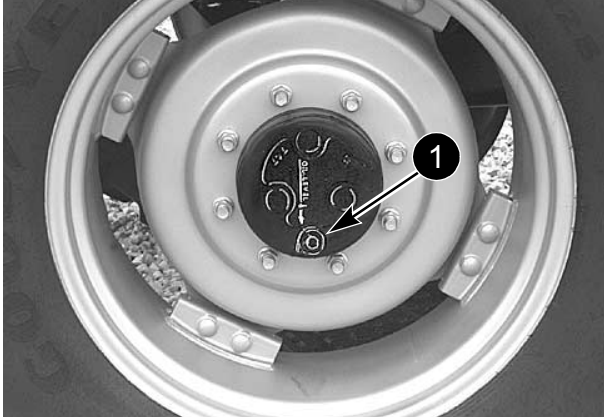
Remove the fill/level plug (2). Add the recommended oil type until the oil is level with the bottom edge of the hole. Wait approximately 5 minutes. Check the oil level again and add oil as necessary.

Install the fill/level plug and tighten.

1000 HOUR SERVICE

Change MFD Planetaries Oil (Non-Braked Axle)

STEP 1



DP98E038

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.*

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.

ROUTINE SERVICING

1000 HOUR 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.

Deluxe Cab

STEP 1



DP97A075

Open the filter cover by pulling the front lower edge out.

STEP 2

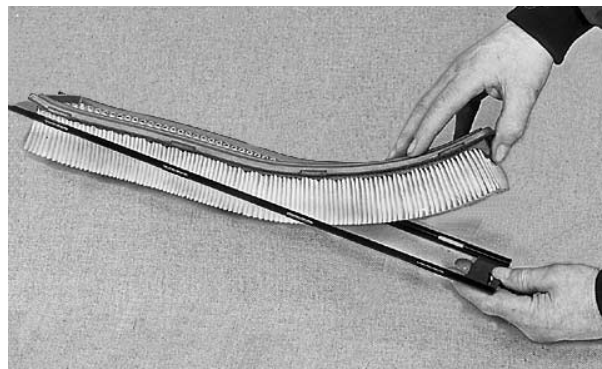


DP97A090

Push the catch down, see insert.

Remove the filter element assembly and clean the filter housing.

STEP 4



DP97A070

Remove the old element 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 5

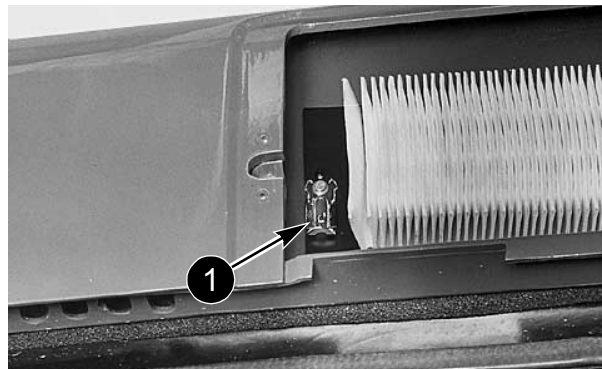


DP97A071

Install the new element 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 with a genuine McCormick part.

STEP 6



DP96J438

Install the new filter assembly and push the catch (1) up. Close the cover.

ROUTINE SERVICING

1000 HOUR SERVICE

Change Cab Air Intake Filter (Cont'd)

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.

Low Profile Cab

STEP 1



DD97E258

LP CAB WITHOUT AIR CONDITIONING



DP99G055

LP CAB WITH AIR CONDITIONING

Loosen the retaining screws from the filter access cover and remove.

STEP 2



DD97E261

LP CAB WITHOUT AIR CONDITIONING



DP99G056

LP CAB WITH AIR CONDITIONING

Slide the filter element out.

IMPORTANT: If at any time the tractor has been used for chemical spraying operations, remove the filter and access cover immediately from the cab. Take care not to deposit any dirt from the filter and access cover on the cab interior.

STEP 3

Clean the filter housing.

STEP 4

Install new filter element.

NOTE: Replace the element with a genuine McCormick part.

IMPORTANT: The old element **MUST** be put into a sealed container and disposed of in accordance with local regulations. Be responsible for the environment.

ROUTINE SERVICING

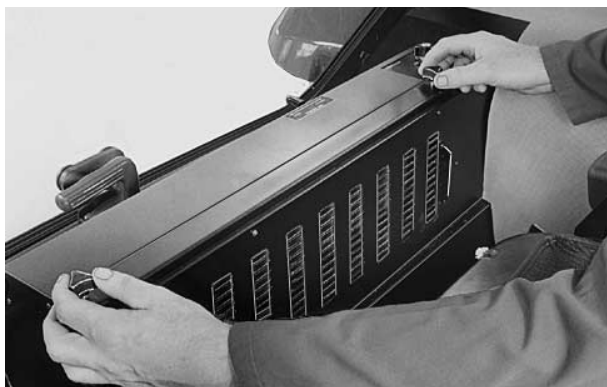
1000 HOUR SERVICE

STEP 5



DD97E258

LP CAB WITHOUT AIR CONDITIONING



DP99G055

LP CAB WITH AIR CONDITIONING

Replace the access cover and tighten the retaining screws.

ROUTINE SERVICING

2000 HOUR SERVICE

NOTE: Have your authorized McCormick dealer complete the 2000 Hour 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 service plus the following.

Change Engine Coolant

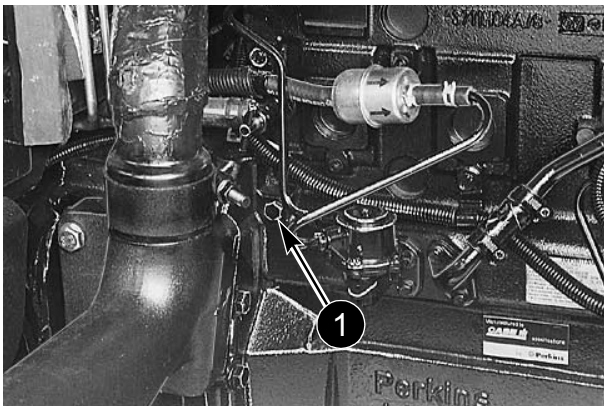
STEP 1

Remove the radiator cap slowly.

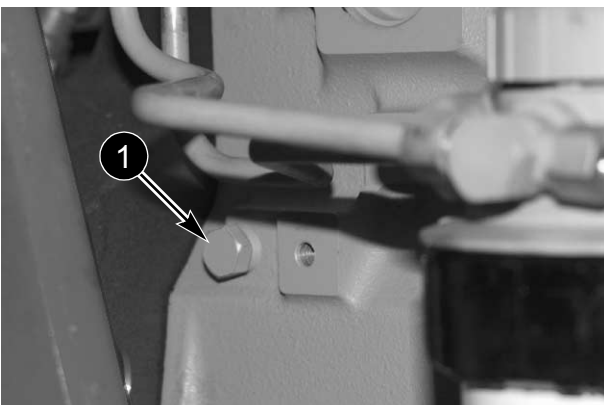


WARNING: Hot coolant can spray out if the coolant recovery reservoir cap or radiator cap is removed while system is hot. **DO NOT REMOVE RADIATOR CAP.** To remove the coolant recovery reservoir cap or radiator cap, let system cool, turn cap to first notch, then wait until all pressure is released. Scalding can result from fast removal of radiator cap.

STEP 2



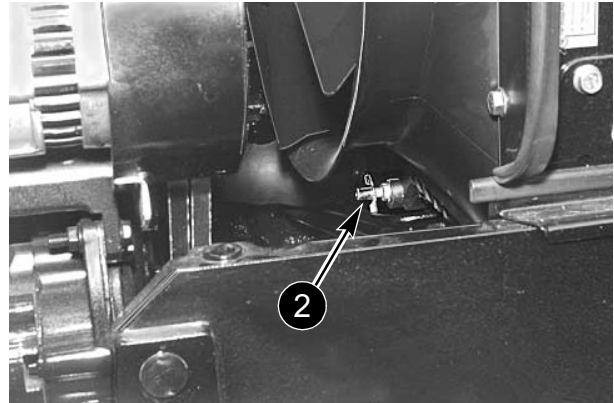
DP98J227



md02h011

Put a suitable container under the engine block drain plug (1) 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.

IMPORTANT: Allow cleaning solution to drain into suitable containers. *Dispose of the cleaning solution responsibly. DO NOT pour on the ground or into a drain. Be responsible for the environment.*

ROUTINE SERVICING

2000 HOUR SERVICE

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 below.

Start the engine and run at low idle for approximately 10 minutes.

Stop the engine and check the coolant level. Replenish as required.

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 degrees 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.

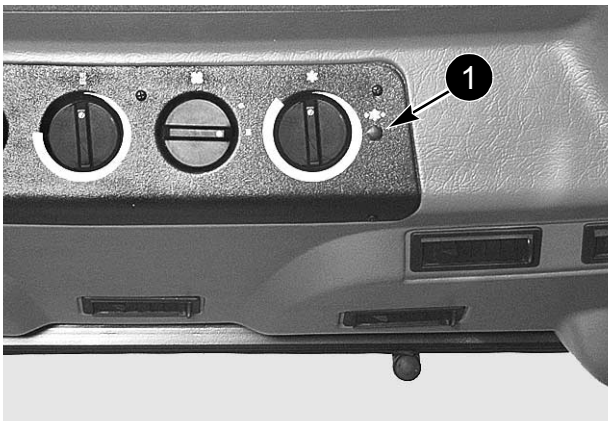
ROUTINE SERVICING

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.*

System Check



The cab air conditioner is equipped with a system to protect the compressor from high or low refrigerant pressures.

An indicator lamp is fitted to warn the operator. If the air conditioner indicator lamp (1) is illuminated, 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.

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.*

Hoses and Wiring

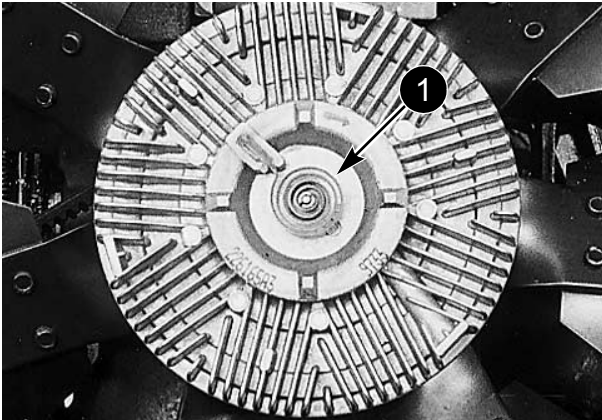
Check all hoses for damage and leakage. Check the hose clamps are tight,
correct torque = 3.4 Nm (2.5 ft lb).

Check all wiring for damage. If damage is found see your Dealer for replacement of parts or refrigerant.

ROUTINE SERVICING

GENERAL MAINTENANCE

Viscous Fan Drive



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

ELECTRICS

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 (0°F) 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.

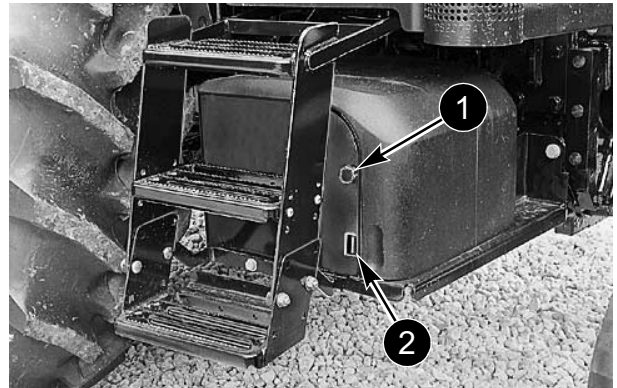
When Batteries Are Not In Use

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

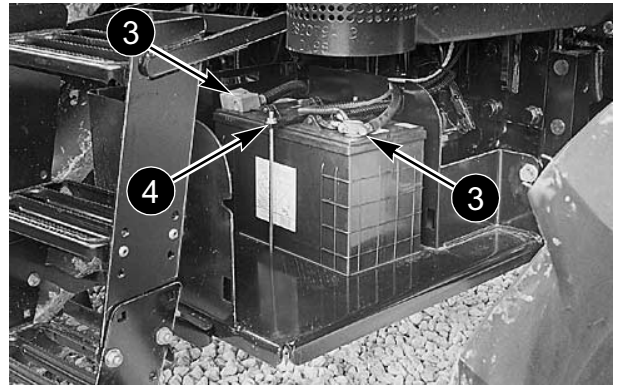
STEP 1



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.

ELECTRICS

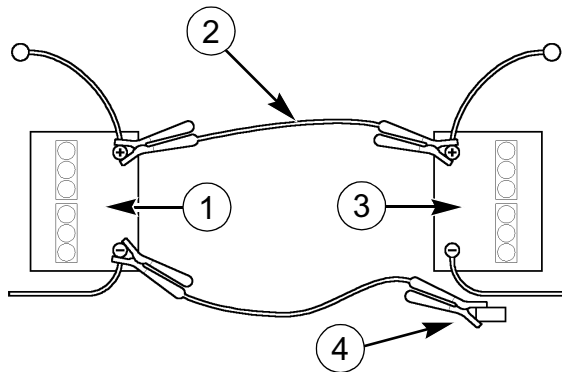
Connecting a Booster Battery

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.

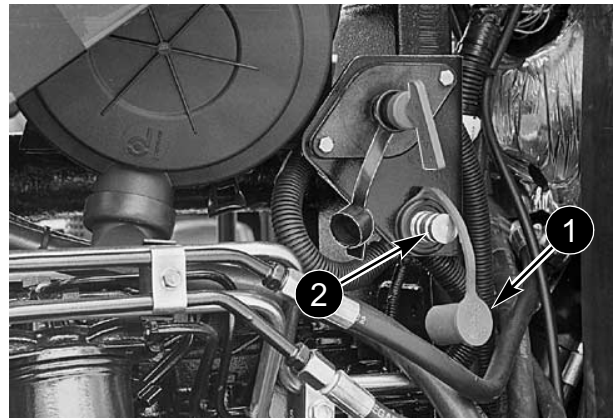
STEP 6

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.



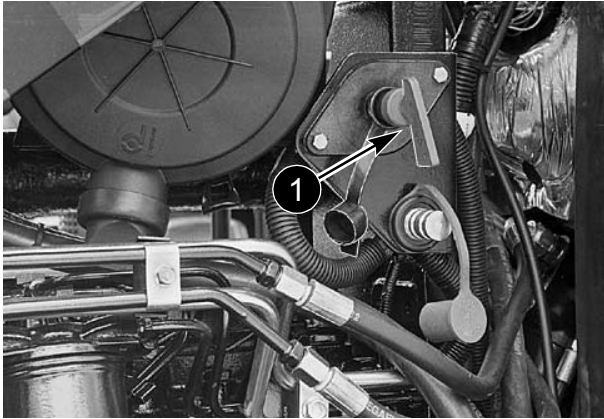
DP99G158

Install the red protection cap on the positive terminal after the starting operation has been completed.

ELECTRICS

Battery System Servicing

Follow these general rules to prevent damage to the electrical system.



DP99G158

- Before working on the electrical system, disconnect the battery cables, ground cable first, or turn off the master switch (1) (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.

ELECTRICS

BULB AND LAMP REPLACEMENT

	Type/Voltage/Watts	Part No.
Head Lamps Bulb.....	H4, 12 V-60/55 W	91967C1
Work Lamps	12V-55W	1312210C2
Side Lamps	12V-5W	1094368R1
Direction Turn Lamps	12V-21W	3131227R1
Stop and Tail Lamps.....	12V-21/5W	1094366R1
Number Plate Lamp	12V-10W	E35556
Cab Interior Lamp Bulb	12V-10W	3050958R1
Side Console Lamp Bulb.....	168 (12V-3W)	D71346
Warning and Function Indicator Lamps:		
Hazard Warning, Work Lamps, Beacon Light, Front PTO, Rocker Switches		
	12V-1.2W	3141107R1
Engine Oil Pressure, Hydraulic Filter Restriction, Alternator Charge, Air Cleaner Restriction, Park Brake, Head lamp High Beam, Left/Right Turn Indicators, Rear Work Lamp, PTO rpm, Differential Lock, Forward /Reverse Neutral, MFD Engaged, Reverse Engaged, First/Second Trailer Indicator Lamps		
	168 (14V)	191999A1
Master Warning Lamp	168 (14V)	26617R1
Gauge Illumination:		
Fuel Level, Coolant Temperature, Hour Meter, Trailer Brake Air Pressure (If equipped)		
	161	Anolog Cluster: 188057A1
		Digital Cluster
		Not Serviced Serarately

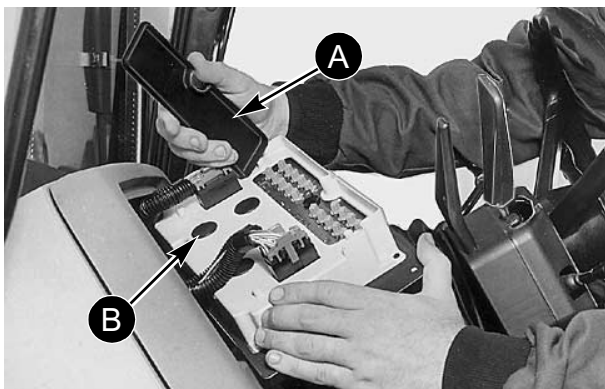
ELECTRICS

Cluster Lamp Replacement Procedure

STEP 1

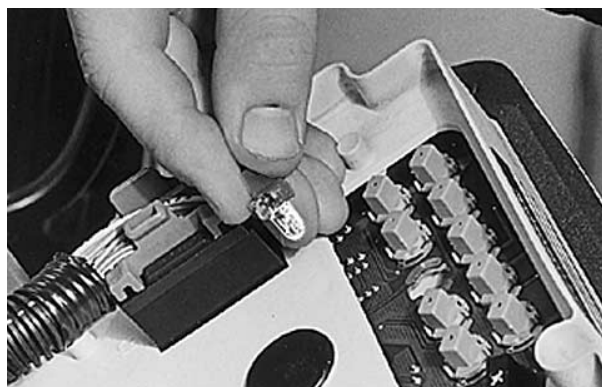
Remove the four retaining screws from the front of the instrument cluster.

STEP 2



Remove the instrument cluster, but **DO NOT DISCONNECT THE HARNESS**. Remove the relavent cover over the bulb holders (A or B, as equipped).

STEP 3



Turn the bulb holder counterclockwise and pull out to remove.

Pull the bulb out of the holder.

STEP 4

Push the new bulb into the holder.

Install the holder into the cluster, turn holder clockwise to lock in position.

3. Install the cover, the cluster and the four retaining screws.

ELECTRICS

FUSE LOCATION AND IDENTIFICATION (North American Tractors)

The fuses give protection to the electrical circuits of the tractor and cab.

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.

IMPORTANT: Make sure the new fuse has the same ampere rating as the fuse being replaced.



RP95F100

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

NOTE: Locations 9, 10, and 32 are mini circuit breakers, which will reset automatically.

Fuse No	Circuit	Amps
1	HORN	15
2	FRONT LOWER WORK LIGHTS	25
3	CAB ROOF WORK LIGHTS	25
4	REAR FENDER WORK LIGHTS	15
5	FORWARD/NEUTRAL/REVERSE SWITCH	5
6	NOT USED	-----
7	NOT USED	-----
8	LOADER CONTROL	15
9	LEFT HAND GRILLE HEADLIGHT (LOW BEAM) (CIRCUIT BREAKER)	10
10	RIGHT HAND GRILLE HEADLIGHT (LOW BEAM) (CIRCUIT BREAKER)	10

ELECTRICS

Fuse No	Circuit	Amps
11	NOT USED	-----
12	LEFT HAND GRILLE HEADLIGHT (HIGH BEAM)	10
13	RIGHT HAND GRILLE HEADLIGHT (HIGH BEAM)	10
14	ENGINE CONTROL UNIT (ECU) B+,	15
15	NOT USED	-----
16	IMPLEMENT INTERFACE CONNECTOR UNSWITCHED B+	10
17	ELECTRONIC PUMP RELAY	30
18	TURN SIGNAL LIGHTS	15
19	WARNING LIGHTS	5
20	TURN SIGNAL (SELF CANCELLING)	15
21	NOT USED	-----
22	NOT USED	-----
23	TAIL LIGHTS	5
24	BRAKE LIGHTS	20
25	INSTRUMENT CLUSTER SWITCHED POWER	7.5
26	MFD, DIFF LOCK	30
27	SEAT	15
28	INDEPENDENT FRONT SUSPENSION AXLE CONTROLLER SWITCHED B+	10
29	7 POLE CONNECTOR SWITCHED B+	30
30	INTERIOR LIGHT, RADIO CLOCK POWER, INSTRUMENT CLUSTER CLOCK POWER,	7.5
31	REAR WINDSCREEN WIPER/WASHER	15
32	FRONT WINDSCREEN WIPER/WASHER (CIRCUIT BREAKER)	15
33	ELECTRONIC HITCH	7.5
34	POWERSHIFT	20
35	REAR PTO, FORWARD/NEUTRAL/REVERSE, AUTO SPEED	7.5/20*
36	FRONT PTO	10
37	COLD START	20
38	FUEL SHUT-OFF	10
39	CIGAR LIGHTER	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	RIGHT HAND CONSOLE AUXILIARY CONNECTOR (SWITCHED B+)	30
44	FRONT CONSOLE AUXILIARY CONNECTOR (SWITCHED B+)	30

*** NOTE:** Fuse 35 rating increases to 20 amp **ONLY** when the tractor is equipped with a Auto Speed transmission.

ELECTRICS

FUSE LOCATION AND IDENTIFICATION (Rest Of World Tractors)

The fuses give protection to the electrical circuits of the tractor and cab.

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.

IMPORTANT: Make sure the new fuse has the same ampere rating as the fuse being replaced.



RP95F100

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

NOTE: Locations 9, 10, and 32 are mini circuit breakers, which will reset automatically.

Fuse No	Circuit	Amps
1	HORN	15
2	FRONT LOWER WORK LIGHTS	25
3	CAB ROOF WORK LIGHTS	25
4	REAR FENDER WORK LIGHTS	15
5	FORWARD/NEUTRAL/REVERSE SWITCH	5
6	LEFT HAND POSITION LIGHTS	10
7	RIGHT HAND POSITION LIGHTS	10
8	LOADER CONTROL	15
9	LEFT HAND GRILLE HEADLIGHT (LOW BEAM) (CIRCUIT BREAKER)	10
10	RIGHT HAND GRILLE HEADLIGHT (LOW BEAM) (CIRCUIT BREAKER)	10

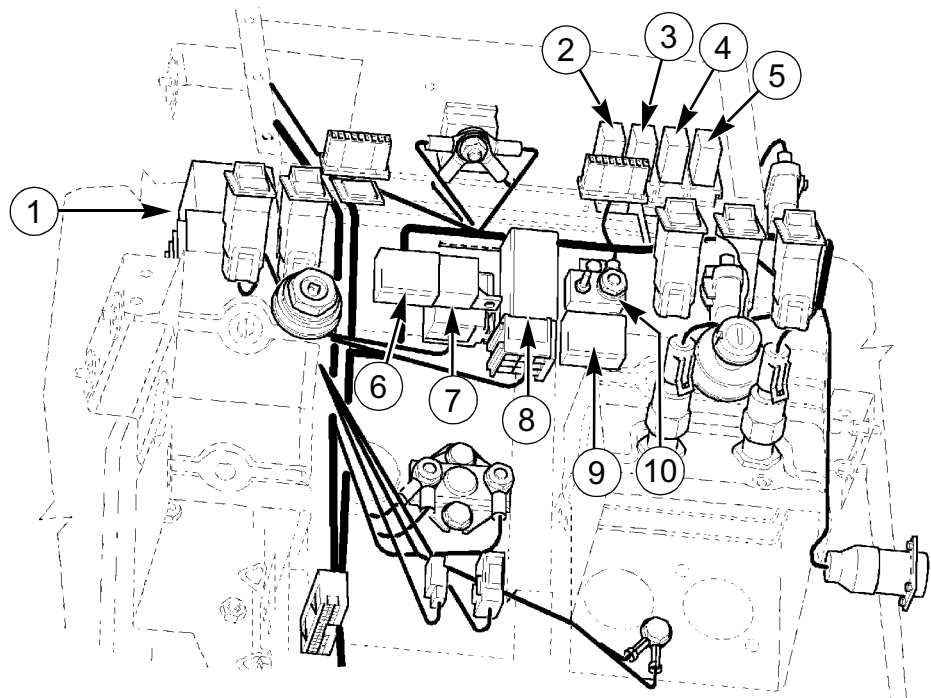
ELECTRICS

Fuse No	Circuit	Amps
11	REAR FOG LIGHT	15
12	LEFT HAND GRILLE HEADLIGHT (HIGH BEAM)	10
13	RIGHT HAND GRILLE HEADLIGHT (HIGH BEAM)	10
14	ENGINE CONTROL UNIT (ECU) B+	15
15	LEFT HAND CAB ROOF HEADLIGHT (LOW BEAM)	15
16	IMPLEMENT INTERFACE CONNECTOR UNSWITCHED B+	10
17	ELECTRONIC PUMP RELAY	30
18	HAZARD WARNING LIGHT SWITCH	15
19	NOT USED	-----
20	NOT USED	-----
21	TURN SIGNAL LIGHTS	15
22	ROTARY BEACON LIGHT	15
23	NOT USED	-----
24	BRAKE LIGHTS	20
25	INSTRUMENT CLUSTER SWITCHED POWER	7.5
26	MFD, DIFF LOCK	30
27	SEAT	15
28	INDEPENDENT FRONT SUSPENSION AXLE CONTROLLER SWITCHED B+	10
29	REAR FENDER AUXILIARY POWER CONNECTOR	30
30	INTERIOR LIGHT, RADIO CLOCK POWER, INSTRUMENT CLUSTER CLOCK POWER, INDEPENDENT FRONT SUSPENSION AXLE CONTROLLER UNSWITCHED B+	7.5
31	REAR WINDSCREEN WIPER/WASHER	15
32	FRONT WINDSCREEN WIPER/WASHER (CIRCUIT BREAKER)	15
33	ELECTRONIC HITCH	7.5
34	POWERSHIFT	20
35	REAR PTO, FORWARD/NEUTRAL/REVERSE, AUTO SPEED	20
36	FRONT PTO	10
37	THERMOSTART	20
38	FUEL SHUT-OFF	10
39	CIGAR LIGHTER	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	RIGHT HAND CONSOLE AUXILIARY CONNECTOR (SWITCHED B+)	30
44	FRONT CONSOLE AUXILIARY CONNECTOR (SWITCHED B+)	30

ELECTRICS

RELAYS

Relays under Instrument Panel

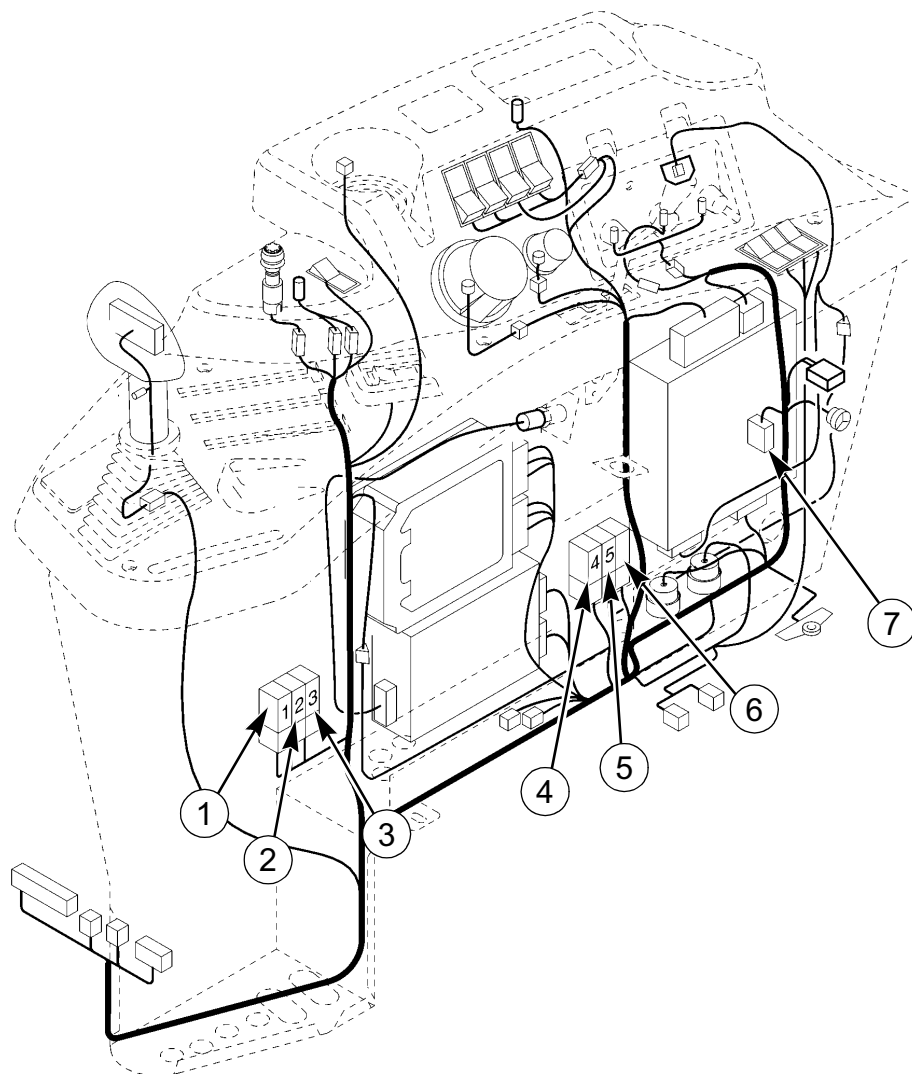


DI98M093

1. FUSE BLOCK
2. LOWER WORK LIGHT RELAY
3. CAB ROOF WORK LIGHT RELAY
4. ACCESSORY POWER RELAY
5. HEADLAMP RELAY
6. CAB POWER RELAY
7. HEADLAMP DIPPER RELAY
8. FLASHER RELAY
9. ELECTRONIC PUMP RELAY (If fitted)
10. BLOWER MOTOR CIRCUIT RELAY

ELECTRICS

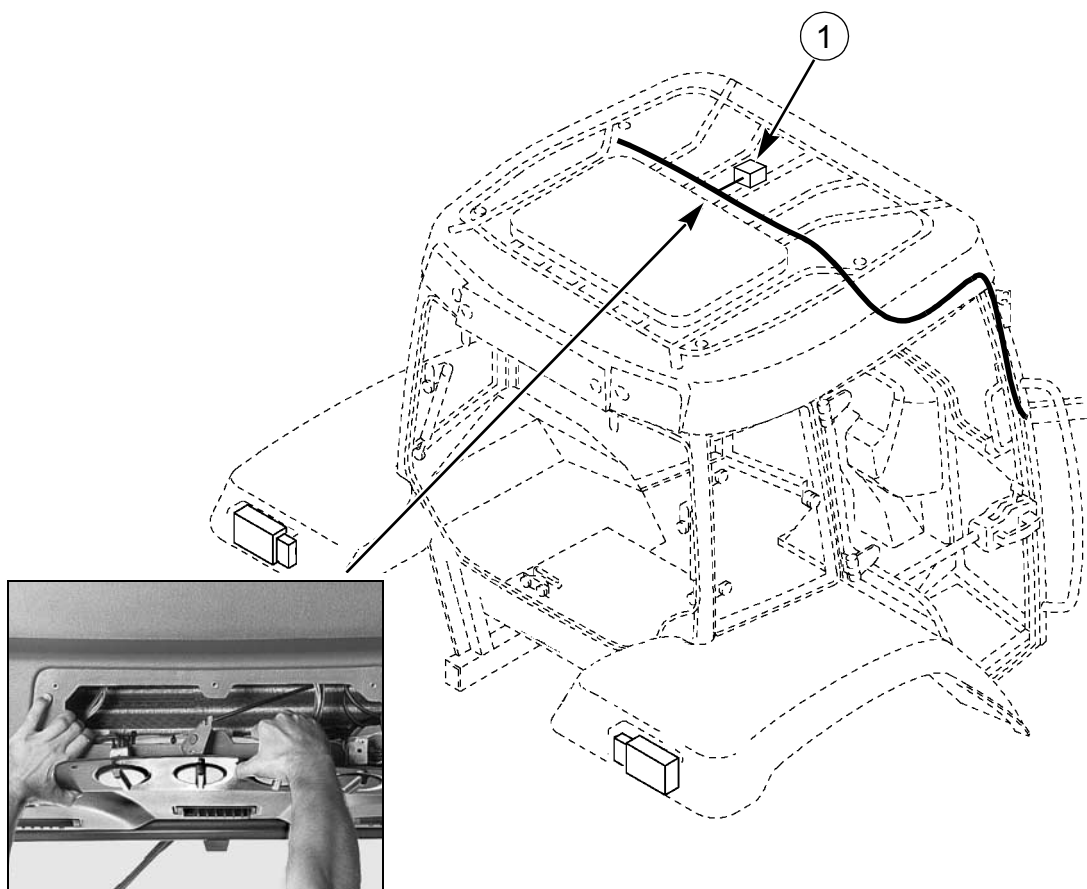
Relays under R/H Side Console



1. POWERSHIFT RELAY S2 SOLENOID
2. POWERSHIFT RELAY S1 SOLENOID
3. MFD RELAY
4. RIGHT BRAKE RELAY
5. LEFT BRAKE RELAY
6. FRONT PTO RELAY (IF EQUIPPED)
7. IIC CONNECTOR
(Implement Interface Connector)

ELECTRICS

Relays In Front Headliner



DI97K102 & RP96H331

1. AIR CONDITIONING RELAY

MACHINE STORAGE

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.

STEP 5

Connect the ground cable(s) (-) and tighten all terminals.

STEP 6

Check the transmission/hydraulic fluid level and linkages.

MACHINE STORAGE

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 242 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.

SPECIFICATIONS

DIESEL ENGINE

MC115-115-130	Four Cylinder, Turbocharged Aftercooler, 1104D-44TA Series
MC120 Power6, MC135 Power6	Six Cylinder, Turbocharged, β -power Series
Governed Engine Speed Without Load.....	2350 rpm (+/- 25 rpm)
Rated Engine Speed	2200 rpm
Engine Low Idle Speed	850 rpm (+/- 25 rpm)

Air Intake System

Type	Dry Type Elements, Two Stage, with Dust Unloader Valve
------------	---

Engine Cooling System

Type	Pressure System, Thermostat Controlled Bypass, Impeller Type Pump
Radiator.....	In-line Tube and Fin Type
Thermostat	Starts to Open at Approximately 82°C (180°F) Fully Open at 94°C (203°F)
Pressure Cap	62 to 82 kPa (9 to 12 psi)
Fan Drive Type.....	Viscous

Engine Lubrication System

Minimum Oil Pressure.....	207 kPa (30 psi) with Engine Warm and Operating at Maximum Speed
Oil Pump	Gear Type
Oil Filter.....	Full Flow

SPECIFICATIONS

Engine Fuel System

Fuel Injection Pumps Bosch

Fuel Pump Timing

Static..... Pin timed with No. 1 cylinder at TDC firing

Dynamic..... TDC at 2200 rpm, full load

IMPORTANT: *Do not alter the pump timing from the specified amount. The stated degrees gives minimum smoke emissions and efficient tractor operation.*

Governor..... Centrifugal, Part of Fuel Injection Pump

Fuel Injectors Bosch

Fuel Primer Pump Type Diaphragm

Fuel Filter Type Full Flow

Water Trap and Drain Location Bottom of Fuel Filter

Fuel Tank Capacity

MC105-115-130..... 189 Litres (50 US gallons)

MC120 Power6, MC135 Power6 265 Litres (70 US gallons)

Cold Starting Aid Ether or Thermostart System

SPECIFICATIONS

ELECTRICAL SYSTEM

General Specifications

Type of System 12 Volt, Negative Ground

Batteries One or Two, 12 Volt, 95 Ah, 700 CCA
Low Maintenance Hybrid Batteries
Connected in Parallel, DIN Type 60527,
Taper post Terminals

Alternator..... 12 Volt, 65, 95 or 120 Amp, as equipped

Voltage Regulator..... 12 Volt, Solid State, Part of Alternator

Starter Motor, with Solenoid Switch..... 12 Volt, 2.8 kW

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

Circuit Breakers

See Electrics section.

Fuses and Lamps

See Electrics section.

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

SPECIFICATIONS

GENERAL MACHINE

Brakes

Brake Type.....Hydraulic, Self-Adjusting,
Three Wet Plate Type Differential Brakes
Trailer Brake Hydraulic, 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 (1.18 in) Diameter pin

Maximum Static Loads:

Rest of World Tractors:

400 mm (15.7 inch) Position	1800 kg (3970 lb)
450 mm (17.7 inch) Position	1509 kg (3327 lb)
550 mm (21.7 inch) Position	1140 kg (2513 lb)
650 mm (25.6 inch) Position	916 kg (2020 lb)

Maximum Static Loads:

North American Tractors:

350 mm (13.8 inch) Position	2146 kg (4730 lb)
400 mm (15.7 inch) Position	1803 kg (3975 lb)
500 mm (19.7 inch) Position	1366 kg (3013 lb)
600 mm (23.6 inch) Position	1100 kg (2425 lb)

Auto Hitch Maximum Loads:

Hook	3000 kg (6614 lb)
Drawbar, Retracted.....	1800 kg (3968 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.*

Hydrostatic Power Steering

Type Priority on Demand from Axial Piston Pump
Steering Pump Hydrostatic Type, Actuated by the Steering Wheel
Steering Cylinder Double action

SPECIFICATIONS

Front Axle Differential and Planetaries

Model	Axle Type	Inter Axle Ratio
MC105-115		
MFD Axle.....	Carraro 20.19	1.320
MC130, MC120 Power6 and MC135 Power6		
MFD Axle.....	Carraro 20.19	1.320
Independent Front Suspension		
Non-Braked Axle	Carraro 20.19	1.320
Braked Axle	Carraro 20.25	1.330

Transmission

Transmission (Std)	Power Shift
Optional Transmission	Auto Speed
Regular Speeds	
Powershift Transmission.....	16 Forward and 12 Reverse
Auto Speed Transmission.....	16 Forward and 13 Reverse
Creep/Super Creep Speeds (If Equipped)	
Powershift Transmission.....	32 Forward and 24 Reverse
Auto Speed Transmission.....	32 Forward and 26 Reverse
Oil Cooler	Transmission/Hydraulic Fluid

Front Hitch System (If Equipped)

Valve Type	Four Position
Hydrac Hitch	Double Acting
Type of Lower Links	Claw Ends, Fixed
Type of Hitch.....	Three Point, Category II
Maximum Lift Capacity,	
Hydrac Hitch	3000 kg (6614 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.....	5871 kg (12 943 lb)
Lift Capacity @ Link Ends Horizontal.....	5096 kg (11 235 lb)
Lift Capacity thru full range @ 610mm.....	3720 kg (8201 lb)

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 at 2200 Engine rpm 109 Litres/min (28.8 US gpm)
Maximum System Pressure 206 bar (2988 psi)
Couplings ISO and ASAE approved, Breakaway

Front Power Takeoff (If equipped)

PTO TypeIndependent of Transmission
Clutch Type
Hydrac..... Hydraulic Actuated
Rotation Counterclockwise from Front of Tractor
Output Shaft Size 6 Splines, 34.925 mm (1.375 in) Diameter
PTO Speed..... 1000 rpm
Engine Speed for 1000 PTO Speed..... 2200 rpm

Rear Power Takeoff

PTO Type.....Independent of Transmission
Clutch Type..... Multi Disc, Hydraulically Actuated
Rotation..... Clockwise from Rear of Tractor
Output Shaft Size,
540 rpm 6 Splines, 34.925 mm (1.375 inch) Diameter
1000 rpm 21 Splines, 34.925 mm (1.375 inch) Diameter
Engine Speed for Shiftable PTO
540 PTO Speed 1877 rpm
1000 PTO Speed 2200 rpm
Engine Speed for Reversible PTO
540 PTO Speed 2163 rpm
1000 PTO Speed 2200 rpm

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.

30 km/h Transmission

REGULAR SPEEDS IN KILOMETERS PER HOUR						
POWERSHIFT SPEED-RANGE	REAR TYRE SIZES and (INDEX RADIUS mm)					
	16.9R34 480/70R34 540/65R34 (745)	12.4R42 (765)	600/65R34 18.4R34 (770)	540/65R38 16.9R38 (795)	18.4R38 (820)	580/70R38 20.8R38 (855)
1-1	1.92	1.97	1.98	2.05	2.11	2.20
2-1	2.31	2.37	2.39	2.46	2.54	2.65
3-1	2.85	2.93	2.95	3.05	3.14	3.28
4-1	3.54	3.63	3.65	3.77	3.89	4.06
1-2	3.60	3.70	3.72	3.84	3.96	4.13
2-2	4.34	4.45	4.48	4.63	4.77	4.98
3-2	5.36	5.50	5.54	5.72	5.90	6.15
4-2	6.64	6.82	6.86	7.09	7.31	7.62
1-3	7.18	7.38	7.42	7.67	7.91	8.24
2-3	8.65	8.88	8.94	9.23	9.52	9.93
3-3	10.69	10.98	11.05	11.41	11.77	12.27
4-3	13.25	13.60	13.69	14.14	14.58	15.20
1-4	13.97	14.35	14.44	14.91	15.38	16.03
2-4	16.83	17.28	17.39	17.96	18.52	19.31
3-4	20.80	21.36	21.50	22.19	22.89	23.87
4-4	25.76	26.46	26.63	27.49	28.36	29.57
1-1R	2.22	2.28	2.29	2.37	2.44	2.55
2-1R	2.67	2.74	2.76	2.85	2.94	3.07
3-1R	3.30	3.39	3.41	3.52	3.63	3.79
4-1R	4.09	4.20	4.23	4.37	4.50	4.70
1-2R	4.17	4.28	4.31	4.45	4.59	4.78
2-2R	5.02	5.15	5.19	5.36	5.52	5.76
3-2R	6.20	6.37	6.41	6.62	6.83	7.12
4-2R	7.68	7.89	7.94	8.20	8.46	8.82
1-3R	8.31	8.54	8.59	8.87	9.15	9.54
2-3R	10.01	10.28	10.35	10.68	11.02	11.49
3-3R	12.37	12.71	12.79	13.20	13.62	14.20
4-3R	15.33	15.74	15.84	16.36	16.87	17.59

To convert to M.P.H. multiply km/h values by 0.62.

SPECIFICATIONS

30 km/h Transmission

CREEPER SPEEDS IN KILOMETERS PER HOUR						
POWERSHIFT SPEED-RANGE	REAR TYRE SIZES and (INDEX RADIUS mm)					
	16.9R34 480/70R34 540/65R34 (745)	12.4R42 (765)	600/65R34 18.4R34 (770)	540/65R38 16.9R38 (795)	18.4R38 (820)	580/70R38 20.8R38 (855)
1-1	0.28	0.29	0.29	0.30	0.31	0.32
2-1	0.34	0.35	0.35	0.36	0.37	0.39
3-1	0.42	0.43	0.43	0.45	0.46	0.48
4-1	0.52	0.53	0.54	0.55	0.57	0.59
1-2	0.53	0.54	0.55	0.56	0.58	0.61
2-2	0.64	0.65	0.66	0.68	0.70	0.73
3-2	0.79	0.81	0.81	0.84	0.86	0.90
4-2	0.97	1.00	1.01	1.04	1.07	1.12
1-3	1.05	1.08	1.09	1.12	1.16	1.21
2-3	1.27	1.30	1.31	1.35	1.40	1.46
3-3	1.57	1.61	1.62	1.67	1.72	1.80
4-3	1.94	1.99	2.01	2.07	2.14	2.23
1-4	2.05	2.10	2.12	2.18	2.25	2.35
2-4	2.47	2.53	2.55	2.63	2.71	2.83
3-4	3.05	3.13	3.15	3.25	3.35	3.50
4-4	3.78	3.88	3.90	4.03	4.16	4.33
1-1R	0.33	0.33	0.34	0.35	0.36	0.37
2-1R	0.39	0.40	0.40	0.42	0.43	0.45
3-1R	0.48	0.50	0.50	0.52	0.53	0.56
4-1R	0.60	0.62	0.62	0.64	0.66	0.69
1-2R	0.61	0.63	0.63	0.65	0.67	0.70
2-2R	0.74	0.76	0.76	0.78	0.81	0.84
3-2R	0.91	0.93	0.94	0.97	1.00	1.04
4-2R	1.13	1.16	1.16	1.20	1.24	1.29
1-3R	1.22	1.25	1.26	1.30	1.34	1.40
2-3R	1.47	1.51	1.52	1.57	1.62	1.68
3-3R	1.81	1.86	1.87	1.94	2.00	2.08
4-3R	2.25	2.31	2.32	2.40	2.47	2.58

To convert to M.P.H. multiply km/h values by 0.62.

SPECIFICATIONS

30 km/h Transmission

SUPER CREEPER SPEEDS IN KILOMETERS PER HOUR						
POWERSHIFT SPEED-RANGE	REAR TYRE SIZES and (INDEX ROLLING RADIUS in mm)					
	16.9R34 480/70R34 540/65R34 (745)	12.4R42 (765)	600/65R34 18.4R34 (770)	540/65R38 16.9R38 (795)	18.4R38 (820)	580/70R38 20.8R38 (855)
1-1	0.15	0.15	0.15	0.16	0.16	0.17
2-1	0.18	0.18	0.19	0.19	0.20	0.21
3-1	0.22	0.23	0.23	0.24	0.24	0.25
4-1	0.28	0.28	0.28	0.29	0.30	0.32
1-2	0.28	0.29	0.29	0.30	0.31	0.32
2-2	0.34	0.35	0.34	0.36	0.37	0.39
3-2	0.42	0.43	0.43	0.44	0.46	0.48
4-2	0.52	0.53	0.53	0.55	0.57	0.59
1-3	0.56	0.57	0.58	0.60	0.62	0.64
2-3	0.67	0.69	0.70	0.72	0.74	0.77
3-3	0.83	0.85	0.86	0.89	0.92	0.95
4-3	1.03	1.06	1.07	1.10	1.13	1.18
1-4	1.09	1.12	1.12	1.16	1.20	1.25
2-4	1.31	1.34	1.35	1.40	1.44	1.50
3-4	1.62	1.66	1.67	1.73	1.78	1.86
4-4	2.01	2.06	2.07	2.14	2.21	2.30
1-1R	0.17	0.18	0.18	0.18	0.19	0.20
2-1R	0.21	0.21	0.21	0.22	0.23	0.24
3-1R	0.26	0.26	0.27	0.27	0.28	0.29
4-1R	0.32	0.33	0.33	0.34	0.35	0.37
1-2R	0.32	0.33	0.33	0.35	0.36	0.37
2-2R	0.39	0.40	0.40	0.42	0.43	0.45
3-2R	0.48	0.49	0.50	0.51	0.53	0.55
4-2R	0.60	0.61	0.62	0.64	0.66	0.68
1-3R	0.65	0.66	0.67	0.69	0.71	0.74
2-3R	0.78	0.80	0.81	0.83	0.86	0.89
3-3R	0.96	0.99	1.00	1.03	1.06	1.11
4-3R	1.19	1.23	1.23	1.27	1.31	1.37

SUPER CREEPER FORWARD SPEEDS

SUPER CREEPER REVERSE SPEEDS

To convert to M.P.H. multiply km/h values by 0.62.

SPECIFICATIONS

40 km/h Transmission

REGULAR SPEEDS IN KILOMETERS PER HOUR							
POWERSHIFT SPEED-RANGE	AUTO SPEED GEAR	REAR TYRE SIZES and (INDEX RADIUS mm)					
		16.9R34 480/70R34 540/65R34 (745)	12.4R42 (765)	600/65R34 18.4R34 (770)	540/65R38 16.9R38 (795)	18.4R38 (820)	580/70R38 20.8R38 (855)
1-1	1	2.61	2.68	2.70	2.80	2.88	3.00
2-1	2	3.15	3.24	3.26	3.36	3.47	3.62
3-1	3	3.89	4.00	4.02	4.16	4.28	4.47
4-1	4	4.83	4.95	4.98	5.15	5.31	5.54
1-2	5	4.91	5.05	5.08	5.25	5.41	5.64
2-2	6	5.91	6.08	6.11	6.31	6.51	6.79
3-2	7	7.32	7.51	7.56	7.81	8.05	8.39
4-2	8	9.06	9.30	9.36	9.67	9.97	10.40
1-3	9	9.80	10.06	10.13	10.46	10.78	11.24
2-3	10	11.81	12.12	12.21	12.60	13.00	13.55
3-3	11	14.59	14.99	15.08	15.57	16.06	16.74
4-3	12	18.08	18.56	18.68	19.29	19.90	20.74
1-4	13	19.06	19.57	19.70	20.35	20.98	21.88
2-4	14	22.96	23.58	23.73	24.51	25.27	26.35
3-4	15	28.38	29.13	29.33	30.28	31.24	32.56
4-4	16	35.15	36.09	36.33	37.52	38.70	40.35
1-1R	1R	3.03	3.10	3.12	3.23	3.33	3.47
2-1R	2R	3.65	3.74	3.77	3.89	4.01	4.18
3-1R	3R	4.50	4.63	4.66	4.81	4.96	5.17
4-1R	4R	5.58	5.74	5.77	5.96	6.14	6.41
1-2R	5R	5.68	5.84	5.87	6.07	6.26	6.52
2-2R	6R	6.84	7.03	7.07	7.30	7.53	7.86
3-2R	7R	8.46	8.69	8.75	9.03	9.31	9.71
4-2R	8R	10.48	10.76	10.84	11.19	11.54	12.03
1-3R	9R	11.34	11.65	11.72	12.10	12.49	13.02
2-3R	10R	13.66	14.02	14.12	14.58	15.04	15.68
3-3R	11R	16.89	17.34	17.45	18.02	18.58	19.37
4-3R	12R	20.92	21.47	21.62	22.32	23.02	24.00
	13R	220.6	22.66	22.80	23.54	24.28	25.32

To convert to M.P.H. multiply km/h values by 0.62.

SPECIFICATIONS

40 km/h Transmission

CREEPER SPEEDS IN KILOMETERS PER HOUR							
POWERSHIFT SPEED-RANGE	AUTO SPEED GEAR	REAR TYRE SIZES and (INDEX RADIUS mm)					
		16.9R34 480/70R34 540/65R34 (745)	12.4R42 (765)	600/65R34 18.4R34 (770)	540/65R38 16.9R38 (795)	18.4R38 (820)	580/70R38 20.8R38 (855)
1-1	1	0.39	0.40	0.40	0.41	0.42	0.44
2-1	2	0.46	0.47	0.48	0.49	0.51	0.53
3-1	3	0.57	0.59	0.59	0.61	0.63	0.66
4-1	4	0.71	0.72	0.73	0.75	0.77	0.82
1-2	5	0.72	0.74	0.74	0.77	0.79	0.83
2-2	6	0.87	0.89	0.90	0.93	0.95	0.99
3-2	7	1.08	1.10	1.11	1.14	1.18	1.23
4-2	8	1.33	1.36	1.37	1.42	1.46	1.53
1-3	9	1.43	1.47	1.48	1.54	1.58	1.65
2-3	10	1.73	1.78	1.79	1.85	1.90	1.99
3-3	11	2.14	2.19	2.20	2.28	2.35	2.46
4-3	12	2.64	2.72	2.74	2.83	2.92	3.04
1-4	13	2.79	2.87	2.88	2.98	3.07	3.21
2-4	14	3.36	3.46	3.48	3.59	3.70	3.87
3-4	15	4.16	4.27	4.29	4.44	4.58	4.78
4-4	16	5.15	5.29	5.33	5.50	5.67	5.91
1-1R	1R	0.44	0.46	0.46	0.47	0.49	0.51
2-1R	2R	0.53	0.55	0.55	0.57	0.59	0.62
3-1R	3R	0.66	0.68	0.68	0.70	0.73	0.76
4-1R	4R	0.82	0.84	0.85	0.88	0.90	0.94
1-2R	5R	0.84	0.86	0.86	0.89	0.92	0.96
2-2R	6R	1.00	1.03	1.03	1.07	1.11	1.15
3-2R	7R	1.24	1.27	1.29	1.33	1.37	1.42
4-2R	8R	1.54	1.58	1.59	1.64	1.69	1.77
1-3R	9R	1.66	1.70	1.71	1.78	1.83	1.91
2-3R	10R	2.01	2.06	2.07	2.13	2.20	2.30
3-3R	11R	2.48	2.54	2.56	2.64	2.73	2.84
4-3R	12R	3.06	3.15	3.17	3.27	3.38	3.52
	13R	3.22	3.30	3.32	3.44	3.54	3.70

CREEPER FORWARD SPEEDS

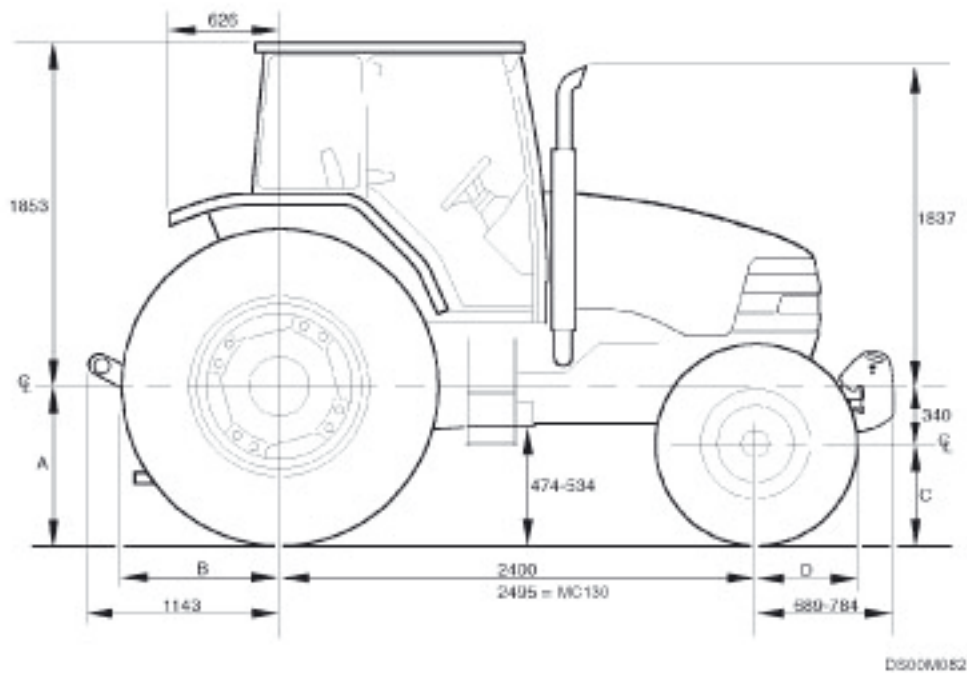
CREEPER REVERSE SPEEDS

To convert to M.P.H. multiply km/h values by 0.62.

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SPECIFICATIONS**Two Wheel Drive (2WD) Tractor with Low Profile Cab
(MC105-115-130) (If available)**

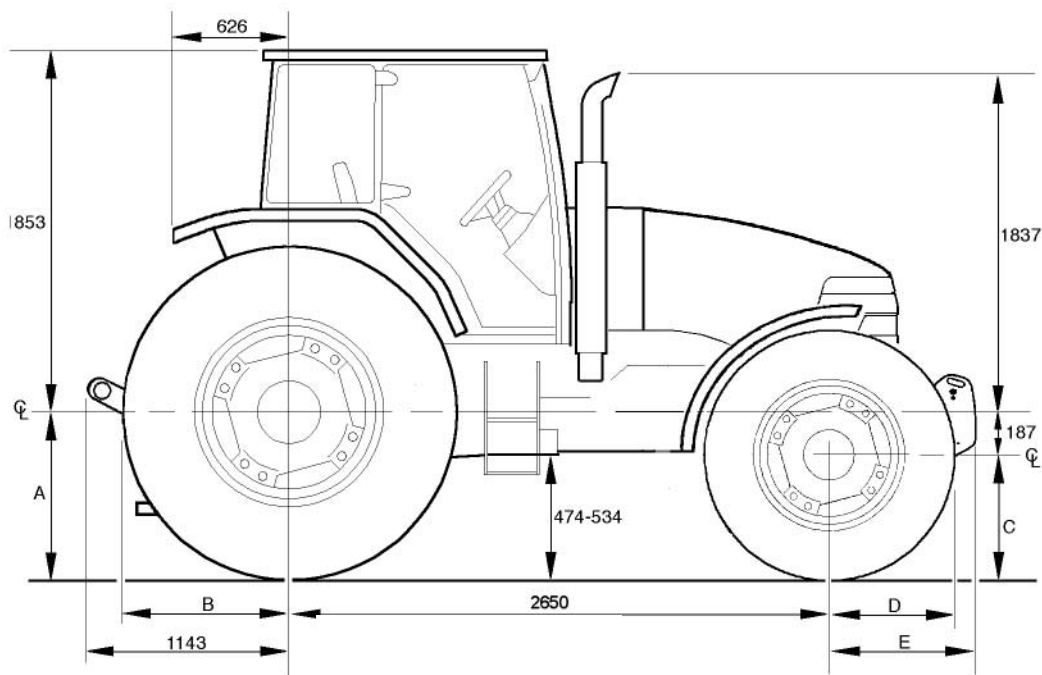
REAR RADIUS		
TIRE SIZE	A	B
	STATIC LOADED	MAX. IN SERVICE
MIN 13.6R34	722	780
MAX 20.8R38	830	915

FRONT RADIUS		
TIRE SIZE	C	D
	STATIC LOADED	MAX. IN SERVICE
MIN 7.50-18	406	437
MAX 11.00-16	447	487

REAR RADIUS			FRONT RADIUS		
TIRE SIZE	A	B	TIRE SIZE	C	D
	STATIC LOADED	MAX. IN SERVICE		STATIC LOADED	MAX. IN SERVICE
MIN 13.6R34	722	780	MIN 12.4R24	525	570
MAX 20.8R38	830	915	MAX 480/70R28	641	708

SPECIFICATIONS

Mechanical Front Drive (MFD) Tractor with Low Profile Cab (MC120 Power6 and MC135 Power6)



MS02067

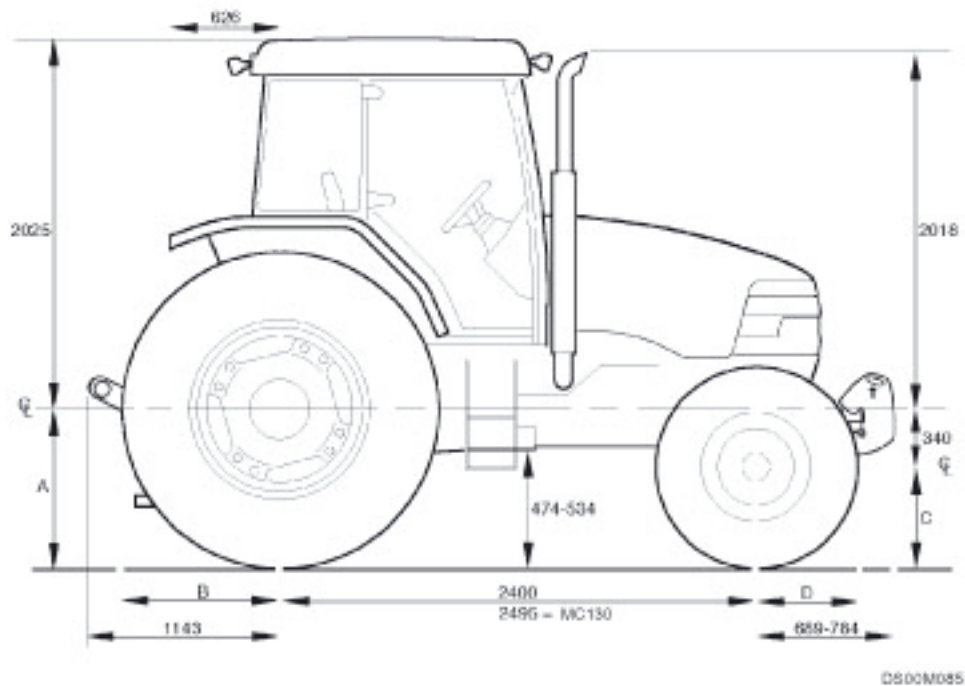
REAR RADIUS		
TIRE SIZE	A	B
	STATIC LOADED	MAX. IN SERVICE
MIN 13.6R34	722	780
MAX 20.8R38	830	915

FRONT RADIUS		
TIRE SIZE	C	D
	STATIC LOADED	MAX. IN SERVICE
MIN 12.4R24	525	570
MAX 480/70R28	641	708

E	WITH STANDARD WEIGHT FRAME	970
	WITH EXTENDED WEIGHT FRAME	1330

SPECIFICATIONS

Two Wheel Drive (2WD) Tractor with Deluxe Cab (MC105-115-130) (If available)

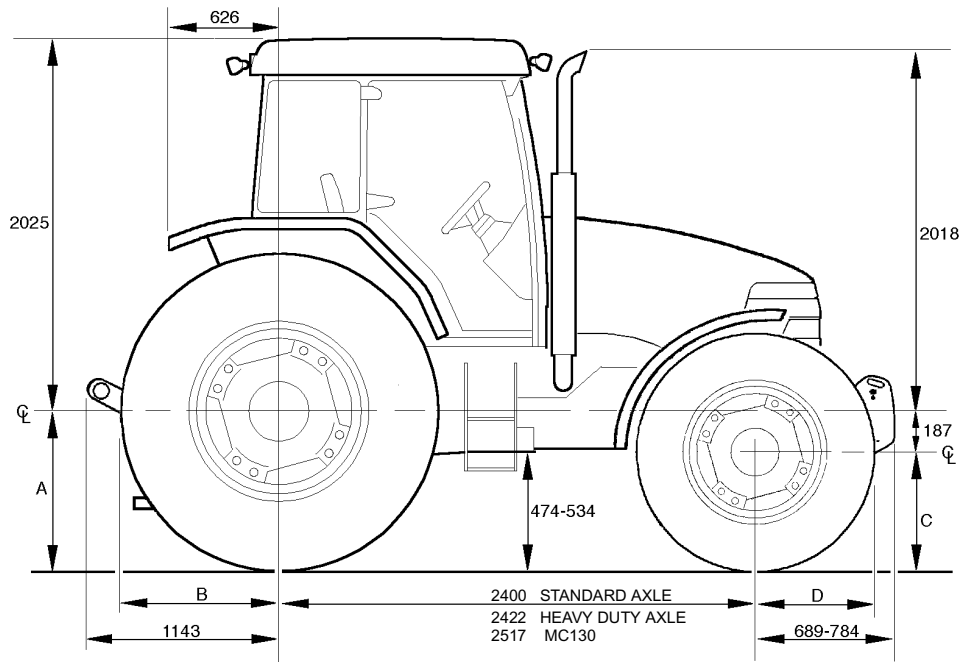


REAR RADIUS		
TIRE SIZE	A	B
	STATIC LOADED	MAX. IN SERVICE
MIN 13.6R34	722	780
MAX 20.8R38	830	915

FRONT RADIUS		
TIRE SIZE	C	D
	STATIC LOADED	MAX. IN SERVICE
MIN 7.50-18	406	437
MAX 11.00-16	447	487

SPECIFICATIONS

Mechanical Front Drive (MFD) Tractor with Deluxe Cab (MC105-115-130)



DS00M084

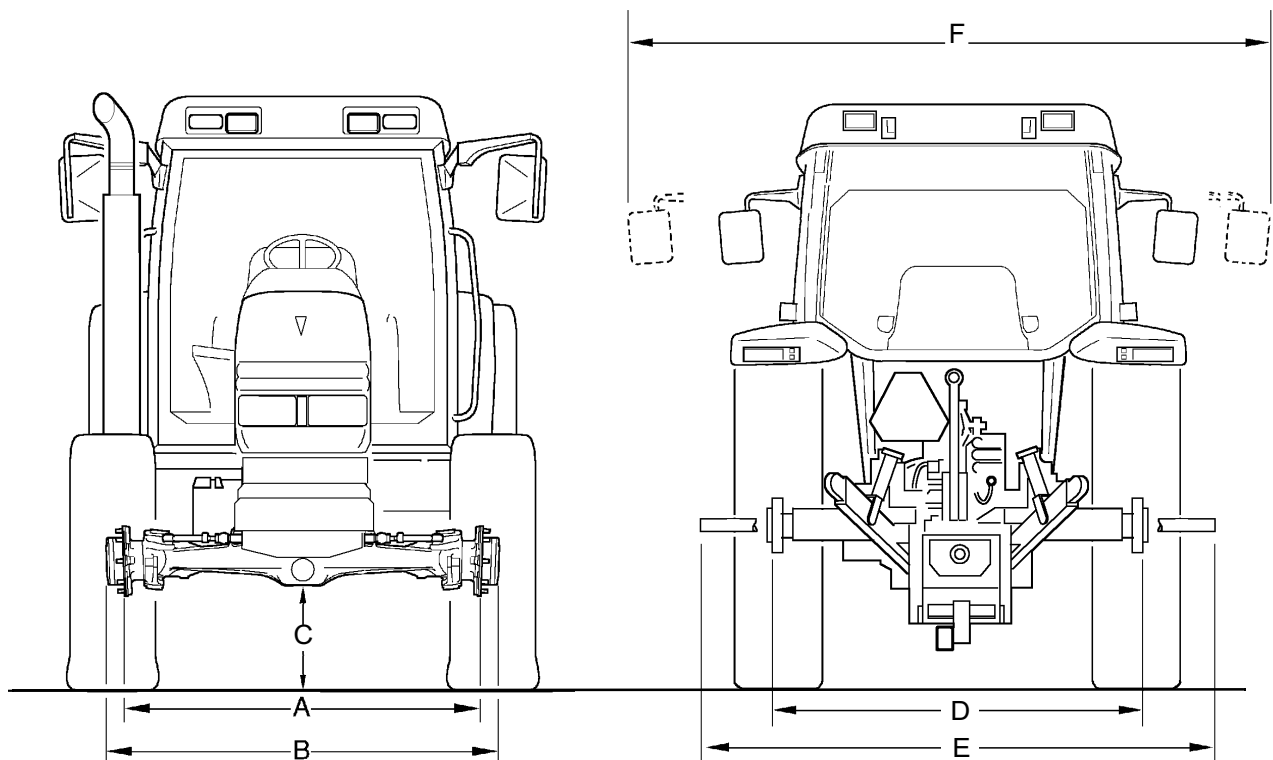
REAR RADIUS		
TIRE SIZE	A	B
	STATIC LOADED	MAX. IN SERVICE
MIN 13.6R34	722	780
MAX 20.8R38	830	915

FRONT RADIUS		
TIRE SIZE	C	D
	STATIC LOADED	MAX. IN SERVICE
MIN 12.4R24	525	570
MAX 480/70R28	641	708

E	MC105 MC115 MC130	WITH STANDARD WEIGHT FRAME	760
		WITH EXTENDED WEIGHT FRAME	1120

SPECIFICATIONS

Approximate Tractor Widths



DI97N238 & DI97N239

MODEL		A (FLANGE TO FLANGE)	B (MAXIMUM WIDTH)	C (GROUND CLEARANCE)
MC105	2WD	1634 mm	N/A	450 mm
MC115 MC130	MFD	1900 mm	2045 mm	474 mm
MC120 Power6 MC135 Power6		1910 mm	2054 mm	474 mm

D (FLANGE TO FLANGE)	E (BAR AXLE)	F		
		BASIC MIRRORS	EXTENDABLE MIRRORS	
			MIN	MAX
1869 mm	2997 mm	2185 mm	2706 mm	3212 mm

SPECIFICATIONS

APPROXIMATE TRACTOR WEIGHTS

The following weights are only approximate and are based on a tractor equipped with most common optional equipment (ie. a full fuel tank, no iron or liquid ballast), but include the operators weight. Many varying factors will affect the overall tractor weight; for example:

tire sizes, ballast, amount of fuel, and what rear hitch option has been chosen.

See Maximum recommended Operating Weights on page 277 in this manual for complete weight recommendations.

Weight distribution is shown as:

MC105-115-130 Tractors

2WD.....33% front and 67% rear
MFD.....35% front and 65% rear

MC120 Power6 and MC135 Power6 Tractors

MFD.....42% front and 58% rear

Tractors with ROPS (Platform)

MODEL		FRONT	REAR	TOTAL
MC105	2WD	1447 kg (3183 lb)	2938 kg (6464 lb)	4385 kg (9647 lb)
	MFD	1619 kg (3562 lb)	3006 kg (6613 lb)	4625 kg (10 175 lb)
MC115	2WD	1447 kg (3183 lb)	2938 kg (6464 lb)	4385 kg (9647 lb)
	MFD	1619 kg (3562 lb)	3006 kg (6613 lb)	4625 kg (10 175 lb)
MC130	2WD	1463 kg (3219 lb)	2972 kg (6538 lb)	4435 kg (9757 lb)
	MFD	1636 kg (3599 lb)	3039 kg (6686 lb)	4675 kg (10 285 lb)
MC120 Power6		2212 kg (4877 lb)	3073 kg (6775 lb)	5285 kg (11 652 lb)
MC135 Power6		2212 kg (4877 lb)	3073 kg (6775 lb)	5285 kg (11 652 lb)

Tractors with Low Profile Cab

MODEL		FRONT	REAR	TOTAL
MC105	2WD	1554 kg (3426 lb)	3156 kg (6958 lb)	4710 kg (10 384 lb)
	MFD	1732 kg (3818 lb)	3218 kg (7094 lb)	4950 kg (10 913lb)
MC115	2WD	1554 kg (3426 lb)	3156 kg (6958 lb)	4710 kg (10 384 lb)
	MFD	1732 kg (3818 lb)	3218 kg (7094 lb)	4950 kg (10 913lb)
MC130	2WD	1570 kg (3461 lb)	3190 kg (7033 lb)	4760 kg (10 494 lb)
	MFD	1749 kg (3856 lb)	3251 kg (7167 lb)	5000 kg (11 023 lb)
MC120 Power6		2365 kg (5214 lb)	3285 kg (7242 lb)	5650 kg (12 456 lb)
MC135 Power6		2365 kg (5214 lb)	3285 kg (7242 lb)	5650 kg (12 456 lb)

Tractors with Deluxe Cab

MODEL		FRONT	REAR	TOTAL
MC105	2WD	1592 kg (3510b)	3233 kg (7127 lb)	4825 kg (10 637 lb)
	MFD	1773 kg (4001 lb)	3292 kg (7257 lb)	5065 kg (11166 lb)
MC115	2WD	1592 kg (3510 lb)	3233 kg (7127 lb)	4825 kg (10 637 lb)
	MFD	1773 kg (4001 lb)	3292 kg (7257 lb)	5065 kg (11 166 lb)
MC130	2WD	1608 kg (3545 lb)	3267 kg (7202 lb)	4875 kg (10 748 lb)
	MFD	1790 kg (3946 lb)	3325 kg (7330 lb)	5115 kg (11 277 lb)
MC120 Power6		2420 kg (5335 lb)	3360 kg (7407 lb)	5780 kg (12 742 lb)
MC135 Power6		2420 kg (5335 lb)	3360 kg (7407 lb)	5780 kg (12 742 lb)

SPECIFICATIONS

Maximum Permitted Operating Weights

IMPORTANT: *DO NOT exceed the maximum load capacity of the tires on your tractor. See Loads and Inflation Pressures, page 155 for more information.*

IMPORTANT: *DO NOT exceed the local legal limitations of the axle loads and the total weight on the road.*

Maximum Permitted Tractor Operating Weight

The maximum permitted tractor operating weight includes the tractor, tractor equipment and ballast:

MC105-115-130.....	7815 kg (17 196 lb)
MC120 Power6, MC135 Power6.....	9000 kg (19 841 lb)

Maximum Permitted Axle Operating Weight

The maximum permitted axle operating weight includes the tractor, tractor equipment, ballast and three-point hitch mounted equipment.

MC105-115-130 Tractors

Front Axle, up to a tread width of 2032 mm

Two Wheel Drive	3060 kg (6747 lb)
MFD and Front Suspension	3300 kg (7275 lb)

Rear Axle6250 kg (13 779 lb)

Reduce weight by 200 kg (441 lb) for every 100 mm (4 inch) the tread width is increased over 2032 mm (80 inch).

MC120 Power6 and MC135 Power6 Tractors

Front Axle, up to a tread width of 2032 mm

MFD.....	4500 kg (9921 lb)
Independent Front Suspension	4500 kg (9921 lb)

Rear Axle7000 kg (15 432 lb)

Reduce weight by 200 kg (441 lb) for every 100 mm (4 inch) the tread width is increased over 2032 mm (80 inch).

SPECIFICATIONS

NOISE LEVELS

This Tractor is designed such that:

1. Noise level inside the cab at operator's ear

(measured in accordance with

EEC Directive 77/311/EEC)

Doors and windows CLOSED 71 to 73.6* dB (A)

Doors and windows OPEN 78.5 to 80.5* dB (A)

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 83.5 to 85* dB (A) Annex VI.

* These figures will 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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