OPERATOR'S MANUAL

LAWN & GARDEN TRACTORS

710-6 Speed
712S, 712H
716-6 Speed
716H & 718H

Model No. 1690211, 1690212
1690213, 1690214
1690215, 1690367

ALLIS-CHALMERS

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SAFETY PRECAUTIONS



ATTENTION! BECOME ALERT!
YOUR SAFETY IS INVOLVED!

This symbol is used to call your attention to safety precautions that should be followed by the operator to avoid accidents. When you see this symbol - Heed Its Warning.

Many hours of lost time and much suffering is caused by the failure to practice simple safety rules.

IT IS TOO LATE TO REMEMBER WHAT SHOULD HAVE BEEN DONE AFTER THE ACCIDENT HAS HAPPENED.

OPERATION

* **KNOW THE CONTROLS** and how to stop quickly - READ THE OPERATOR'S MANUAL.
* **DO NOT** allow children to operate vehicle. **DO NOT** allow adults to operate it without proper instruction.
* **DO NOT** carry passengers. KEEP CHILDREN AND PETS A SAFE DISTANCE AWAY.
* **CLEAR** work area of objects which might be picked up and thrown.
* **TAKE ALL** possible precautions when leaving vehicle unattended; such as disengaging power take off, lowering attachments, shifting into neutral, setting parking brake, stopping engine and removing key.
* **DO NOT** stop or start suddenly when going uphill or downhill. Mow up and down the face of steep slopes; never across the face.
* **REDUCE** speed on slopes and in sharp turns to prevent tipping or loss of control. Exercise extreme caution when changing direction on slopes.
* **STAY ALERT** for holes in terrain and other hidden hazards.
* **USE CARE** when pulling loads or using heavy equipment:
  A. Use only approved drawbar hitch points.
  B. Limit loads to those you can safely control.
  C. Do not turn sharply. Use care when backing.
  D. Use counterweight(s) or wheel weights when suggested in operator's manual.
* **WATCH** for traffic when crossing or near roadways.
* **KEEP** all nuts, bolts and screws tight to be sure equipment is in safe working condition.
* **DO NOT** change engine governor settings or overspeed engine.
* **DO NOT** operate equipment when barefoot or wearing open sandals. Always wear substantial footwear.
* **CAUTION:** This tractor does not have warning devices for operation on public roads or highways.

FUEL AND FIRE HAZARDS

* **HANDLE** gasoline with care - - it is highly flammable. Always carry and store it in an approved gasoline container.
* **DO NOT** remove the fuel cap or fill fuel tanks:
  A. When the engine is running.
  B. When engine is hot.
  C. While using a lantern.
  D. While smoking.
  E. When tractor is in a closed building.
* **DO NOT** run the engine in a closed area - - exhaust fumes are very dangerous.
* **NEVER** store equipment with gasoline in the tank inside a building where fumes may reach an open flame or spark.
* **ALLOW** engine to cool before storing in any enclosure.
* **TO REDUCE** fire hazard keep engine free of grass, leaves or excessive grease.

ATTACHMENTS

* **DISENGAGE** all attachment clutches and shift into neutral before attempting to start engine.
* **DISENGAGE** power to attachments and stop engine before leaving operator position.
* **DISENGAGE** power to attachment(s) and stop engine before making any repairs or adjustments.
* **DISENGAGE** power to attachments when transporting or not in use.
* When using any attachments **NEVER** direct discharge of material toward bystanders or allow anyone near vehicle while in operation.
* **KEEP** vehicle and attachments in good operating condition and keep safety devices in place. Use guards as instructed in operator's manual.

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* **VEHICLE** and attachments should be stopped and inspected for damage after striking a foreign object and the damage should be repaired before restarting and operating the equipment.

* When using vehicle with **MOWER**:
  A. Mow only in daylight or in good artificial light.
  B. Never make a cutting height adjustment while engine is running if operator must dismount to do so.
  C. Shut engine off when removing grass catcher and/or unclogging chutes.
  D. Check blade mounting bolts for proper tightness at frequent intervals.

* **REMEMBER** that safe operation is no accident.

AVOID ACCIDENTS

BUILT IN SAFETY FEATURES CAN BE EFFECTIVE ONLY IF PROPERLY MAINTAINED AND UTILIZED.

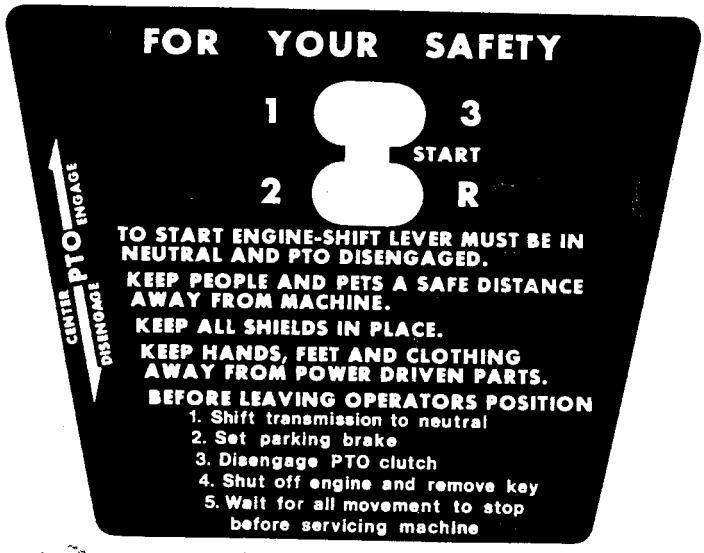
IF SAFETY OR OPERATIONAL DECALS BECOME LOST OR DAMAGED, REPLACE THEM IMMEDIATELY.

SAFETY AND OPERATIONAL DECALS

These safety decals should be kept clean and in good condition to provide operator with constant reminders of safe operating procedures. If they become damaged or destroyed, replace them immediately. New decals can be obtained from your Allis-Chalmers Lawn and Garden Equipment dealer.



Model 712-S



MODEL 710 6 - SPEED
MODEL 716 6 - SPEED



Model 712-H Model 716-H Model 718-H

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DISENGAGE ← PTO → ENGAGE

On Tractors with 36" and 42" Snow Thrower PTO Clutch Installed.

STAY AWAY FROM ROTOR AND DRIVE WHEN ENGINE IS RUNNING

On Blower Housing of 36" and 42" Snow Thrower

DANGER
STAND CLEAR OF DISCHARGE OPENING

On Rotary Mower Housings

CAUTION
FOR YOUR SAFETY
DO NOT OPERATE THIS VACUUM COLLECTOR WITH ANY PART OF THE COLLECTOR DETACHED. BE SURE TO DISENGAGE TRACTOR MOWER WHEN USING THE ROVING NOZZLE.

On Blower Housing of Vacuum Collector

WARNING
DO NOT OPERATE MOWER WITHOUT DEFLECTOR OR VACUUM COLLECTOR IN PLACE.

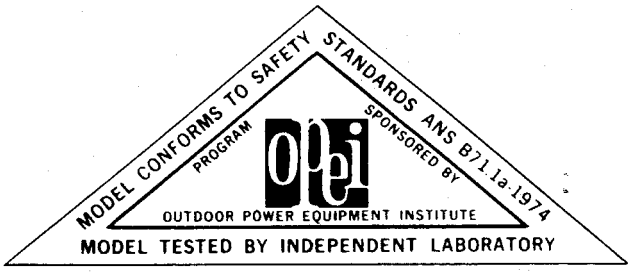
On Rotary Mower Housings

CAUTION
KEEP HANDS & FEET FROM UNDER MOWER

On Rotary Mower Housings

SAFETY FIRST
STAND CLEAR WHEN MACHINE IS RUNNING

On Belt Shield of Rotary Tillers



On Rotary Mower Housings

WARNING: WHEN PARKING ON HILL, SET PARKING BRAKE. DO NOT RELY ON TRANSMISSION TO HOLD TRACTOR.

On Tractor Frame in front of operator seat on Models 712-H, 716-H, 718-H.

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INTRODUCTION

Your Allis-Chalmers 700 Series tractor with its attachments is a big step to better lawn care. It is designed and built to give you fine performance and to help you have a more beautiful yard.

To help you have a more beautiful lawn, most grasses should be kept cut at approximately two (2) inches in height. Under dry conditions, one good watering (1-2 inches) is recommended every two weeks. A good watering well spaced is worth far more for root development than several 1/8-1/4 inch sprinklings. Never mow more than one-third (1/3) off the total height of the grass in one mowing except the initial mowing when grass is extremely tall (tall grass should be gradually mowed down to the desired height). Grass should always be cut when it is free of moisture for best appearance and ease of cutting. Change mowing patterns occasionally to give lawn smoother appearance.

Grass can be a pollution fighter and we should give more thoughts to the benefits of grass. Grass sod helps control soil erosion. Good growing sod or turf reduces water runoff and soil erosion losses. Soil erosion is one of the devastating losses to our environment and is a principle contributor to water pollution. A healthy grass sod cover helps stabilize the soil against erosion and tends to minimize or eliminate surface runoff.

Green plants purify the air of wastes produced by humans and produce the oxygen we need. Grass also reduces wind erosion and the amount of blowing dust. Healthy grass also enhances the beauty of the landscape and helps enhance enjoyment in recreation.

It has been said that healthy turf makes a tree "King" and a flower "Queen" in the settings where they are planted.

GENERAL INFORMATION

The following models of 700 Series tractors are covered in this manual.

Model 710 and 716, with 6 - speed transmission, Model 712-S, with shuttle clutch and 4 speed transmission. Model 712-H and 716-H each with hydrostatic transmission.

In each of the sections which follow, CONTROLS, OPERATION, LUBRICATION AND SERVICE, AND ADJUSTMENTS, those items which are common to all models are listed first followed by subsections listing the additional items that are pertinate to each of the three types of transmissions listed. Each operator should study the first part of each section listed "Common to all Models", as well as the specific subsections listed for tractors with the specific transmission with which his tractor is equipped.

NOTE: Some of the photographs used in this manual were taken of prototype models. Actual production models may differ from photographs in minor detail.

TRACTOR I.D. NO.

The tractor serial number plate is located on the tractor frame near the operators position.

One 12 digit number, called an "I.D. No." occurs on the plate, the first seven digits is a number which identifies the exact model of the tractor. The remaining 5 digits are the serial number identifying the specific tractor. For example, I.D.No. 169021100499 would be a model 716-H tractor whose serial No. is 499.

When ordering repair parts or asking for information about the tractor ALWAYS give the entire 12 digits of the I.D. No.

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	710-6 SPEED	712-S	712-H	716-H	716 - 6 SPEED	718-H
ENGINE						
Horsepower	10	12		16		18
Kohler	Model K241S	Kohler K301S		Model K341S		Model K3615
Type	4 Cycle, Single Cylinder - Air Cooled					
Bore and Stroke	3.25" x 2.88"	3.38" x 3.25"		3.75" x 3.25"		
Displacement	23.9 cu. in.	29.07 cu. in.		35.89 cu. in.		
RPM	3600 RPM at Rated Horsepower					
Crankshaft	Balanced - 1" Dia. with 1/4" Keyway					Balanced - 1-1/4" Dia. with 1/4" Keyway
Starter	Gear Driven Electric Starter, Key Controlled					
Governor	Mechanical Fly Weight Type with External Adjustment					
Electrical System	15 AMP, Flywheel Alternator, Solid State Regulator - Recifier or Split Circuit Alternator					Split Circuit Alternator
Ignition System	Battery Ignition with Breaker Points, Key Switch					
Battery	Allis-Chalmers, 45 AMP, Hour					
Air Cleaner	Replaceable Dry Element					
GROUND DRIVE						
Clutch	Foot Operated V-Belt Clutch Between Engine and Transmission					
Transmission	Sliding Gear Transmission -3 Speed Forward; 1 Reverse Belt Drive - Dual Range to Transmission	Differential Shuttle Clutch Drive with Forward Reverse Control to Sliding Spur Gear 4 Speed Transmission	Hydrostatic Drive with Variable Displacement Axial Piston Pump and Fixed Displacement, Reversible Axial Piston Motor	Sliding Gear Transmission - 3 Speed Forward; 1 Reverse Belt Drive - Dual Range to Transmission		Same as 712-H, 716-H
Speeds at 3600 RPM	Lo-Range Hi-Range			Lo-Range Hi-Range		
First	0.7 MPH 1.6 MPH	.96 MPH	Forward - Variable up to 7 MPH	0.7 MPH 1.6 MPH		
Second	1.7 MPH 3.7 MPH	2.3 MPH	Reverse - Variable up to 4 MPH	1.7 MPH 3.7 MPH		
Third	2.8 MPH 6.1 MPH	3.7 MPH	Continuous range of ground speeds in	2.8 MPH 6.1 MPH		Same as 712-H, 716-H
Fourth		5.1 MPH	forward and reverse without clutching or shifting			
Reverse	1.5 MPH 3.2 MPH	(Same as above)		1.5 MPH 3.2 MPH		
Differential	Planetary Spur Gear - Controlled Traction					
STEERING	Bevel Gear - Spindle Lever Type Linkage - 4.66: 1 STEERING GEAR RATIO – 4.14 OVERALL RATIO					
BRAKES	Drum and Band on Transmission Shaft - Foot Operated/Cam Lever Parking Brake - Hand Operated					
CAPACITIES						
Engine Crankcase	2 Quarts					
Fuel Tank	3 Gallons					
Transmission	4.5 Pints Allis-Chalmers Gear Lube 715 (SAE 90)			4.5 Pints AC Gear Lube 715 (SAE 90)		
Bevel Gear Housing	Bevel Gear Box - Fill to End of Dipstick - SAE 90 Gear Lubricant					
Hydrostatic Unit			3 to 3-1/2 Quarts Allis-Chalmers Power Fluid 401 (Dexron)			Same as 712-H, 716-H
DIMENSIONS						
Height @ Steering Wheel	39.25 inches					
Height @ Instrument Panel	35.5 inches					
Width Overall	37.5 inches					
Length Overall	67.0 inches					
Wheel Tread - Front	29.0 inches	30.0 inches				
Wheel Tread - Rear	27.0 inches					

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	710-6 SPEED	712-S	712-H	716-H	716 - 6 SPEED	718-H
DIMENSIONS (Cont'd.)						
Clearance - Front Axle	8.0 inches					
Wheel Base	48.1 inches					
Turning Radius	30.5 inches to inside rear tire					
TIRE SIZE						
Front	4.80/4.00 x 8 (10 PSI)	16-6.50 x 8 (10 PSI)				
Rear	23-8.50 x 12 (8 PSI)			23-10.50 x 12 (8 PSI)		
IMPLEMENT LIFT	Manual Lift Standard - Electric Lift Available for Field Installation					
CENTER PTO	Mechanical Cone Clutch and Belt Drive to Center and Rear Mounted Implements is Standard					
HEAD LIGHTS	Standard					

IMPLEMENTS – OPTIONAL EQUIPMENT

For 712-S, 712-H, 716- 6 Speed, 716-H, and 718-H Tractors Only:

48" Rotary Mower

For All 710 - 6 Speed, 712-S, 712-H, 716 - 6 Speed 716-H, and 718-H Tractors:

42" Rotary Mower
PTO Vacuum Collector, Adapters, Roving Nozzle, Dump Cart and Cover
36" Rotary Tiller
36" and 42" Snow Throwers
46" Sickle for Mower
42" and 46" Snow Plow and Dozer Blades
42" Grader Blade
Spring Tooth Harrow
Cultivator
10" Plow
One Point Sleeve Hitch

ACCESSORIES

For All 710 - 6 Speed, 712-S, 712-H, 716 - 6 Speed, 716-H, and 718-H Tractors:

Hub Caps
Rear Wheel Weight
Power Lift Kit
Dual Lift Lever
Rear Lift Kit
Tire Chains
Hourmeter
Tractor Cab
Rear Ball Hitch

The Allis-Chalmers Corporation reserves the right to make changes in the above specifications or to add improvements at any time without notice or obligation.

OPERATING CONTROLS

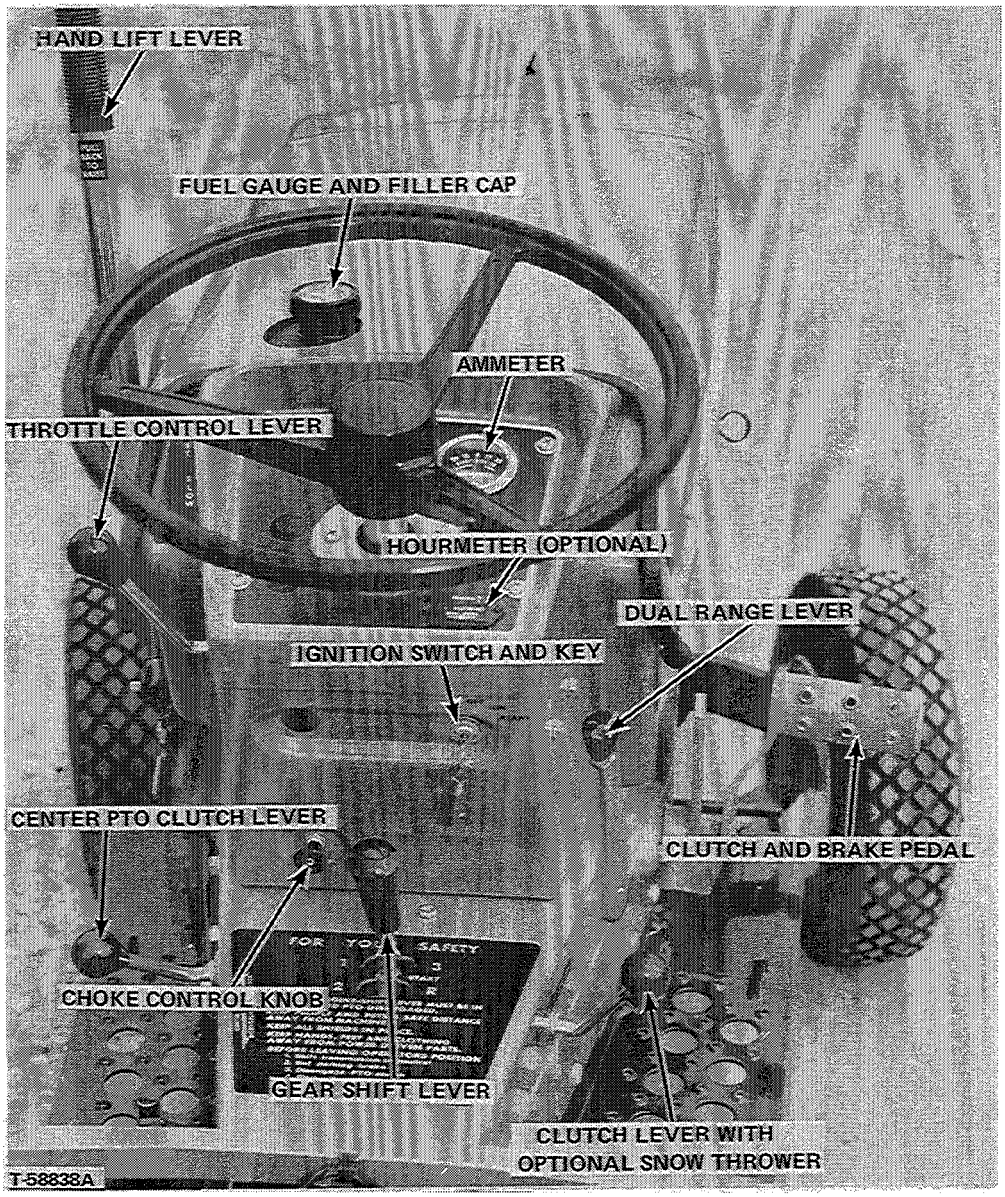


FIGURE 1 - Controls 6-Speed Transmission Tractor

CONTROLS COMMON TO ALL MODELS

Before starting engine acquaint yourself with all the controls and their function.

1. IGNITION SWITCH AND KEY (Figure 1)

When key is turned clockwise to the first position the ignition is "on". In the "on" position optional equipment like lights, hourmeter, etc. will operate. The key is turned farther clockwise to "start" position to actuate the starter. As soon as engine starts key should be released to return to the "on" position.

NOTE: Gear shift lever must be in neutral and center PTO lever must be disengaged before the starter will operate.

CAUTION: ALWAYS remove the ignition key when cleaning, adjusting, or servicing the tractor or any attachment and when leaving the tractor unattended.

2. CHOKE CONTROL KNOB (Figure 1)

When starting engine in cold weather pull the choke all the way out. After engine starts partially close choke for a few minutes warm up then push it all the way in. Little or no choke is required when air temperature is 70 degrees or more or when engine is warm from recent running. Never operate engine with choke out after it has warmed up.

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3. THROTTLE CONTROL LEVER (Figure 1)

Engine speed is set with the throttle control lever. Push lever forward to increase engine speed and pull it backward to reduce engine speed.

Specific information on suggested setting of engine speed is given in the operation section of manual.

4. CENTER PTO CLUTCH LEVER (Figure 1)

The center PTO clutch, which drives center mounted and rear mounted implements, is engaged when the lever is pushed forward and disengaged when it is pulled fully to the rear. The lever must be in the rear position to actuate a safety start switch whenever engine is to be started.

5. AMMETER (Figure 1)

The ammeter indicates the rate at which the battery is being charged or discharged. Normally it should show some charge when the engine is first started then gradually diminish toward the zero mark as battery charge is replenished. If the ammeter remains in the discharged position with engine at full speed, see your Allis-Chalmers dealer for alternator or regulator adjustment.

6. FUEL GAUGE AND FILLER CAP (Figure 1)

The fuel gauge is built into the filler cap and is located at the rear of the hood. Turn cap counter-clockwise to remove and lift straight up.

CAUTION: NEVER add fuel when engine is running or is hot. Do not smoke or have open flames near tractor when fuel is added. Do not overfill.

7. CLUTCH AND BRAKE PEDAL (Figure 1)

Depressing clutch pedal first disengages the tractor drive clutch. As pedal is pushed farther forward the tractor brake is applied to stop the tractor.

NOTE: DO NOT use clutch pedal as a foot rest. To do so will cause excessive drive belt wear.

8. PARKING BRAKE LOCK (Figures 2 and 3)

To lock the parking brake pull the parking brake lever up into a vertical position as shown in Figure 3. Lever can be more easily lifted and locked in position if foot brake is fully depressed first. Brake should be locked whenever operator leaves the tractor seat.

NOTE: Lock is located on right hand fender on hydrostatic transmission tractors (Figure 3), and on the L.H. fender for shuttle clutch and 6 speed transmission tractors (Figure 2).

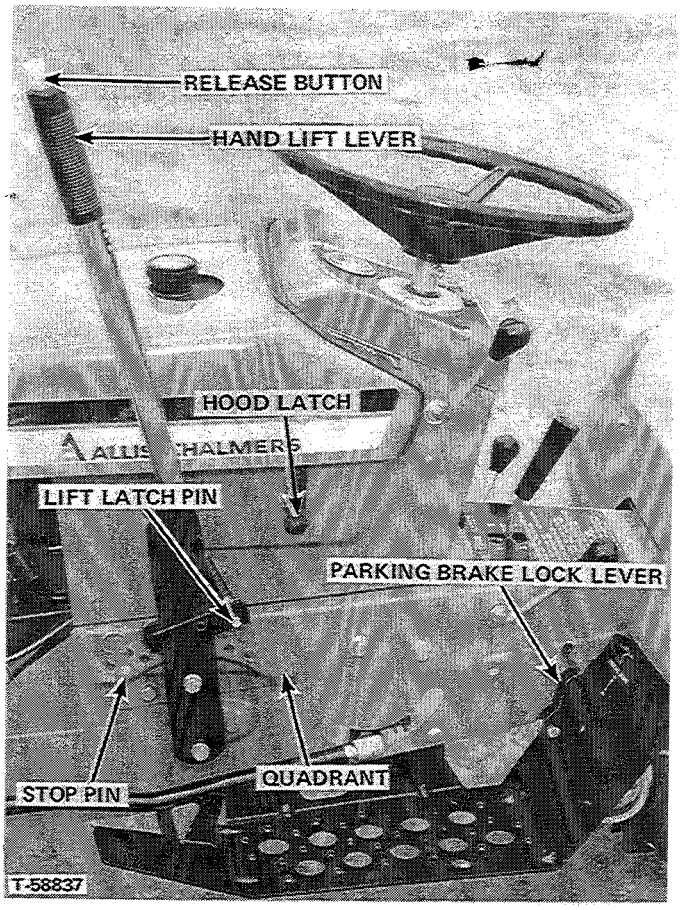


FIGURE 2 - 6 Speed Transmission Tractor

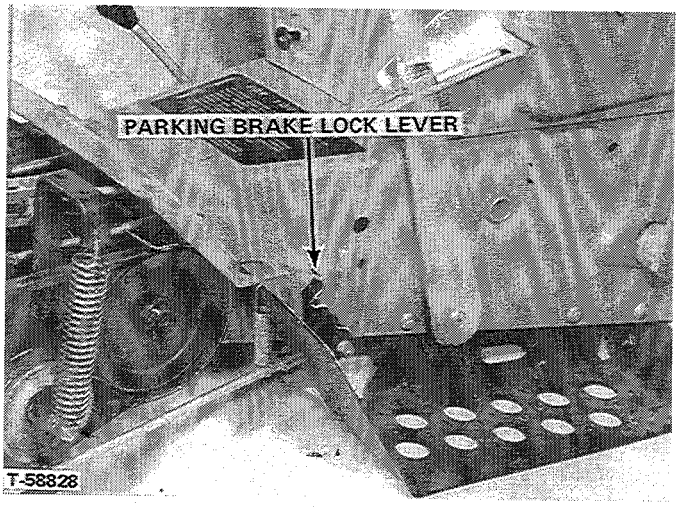


FIGURE 3 - Hydrostatic Transmission Tractor (Seat and Seat Deck Removed)

9. HAND LIFT LEVER (Figure 2)

The hand lift lever is used to raise and lower front mounted, center mounted and rear mounted implements. The release button on top of lever releases the latch pin from the quadrant. The stop pin can be moved in the holes in quadrant to provide an upper or lower stop position for the lift lever as desired.

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CONTROLS FOR DUAL RANGE 6 - SPEED TRANSMISSION TRACTORS

In addition to the 9 controls used on all model tractors, dual range 6 - speed transmission tractors also have the following.

GEAR SHIFT LEVER AND DUAL RANGE LEVER (Figure 1)

The gear shift lever is used to select one of the 3 forward or the reverse gears, and the dual range lever is used to select Hi or Lo range.

The approximate ground speeds at 3600 RPM full rated engine speeds are:

	Lo - Range	Hi - Range
First	0.7 MPH	1.6 MPH
Second	1.7 MPH	3.7 MPH
Third	2.8 MPH	6.1 MPH
Reverse	1.5 MPH	3.2 MPH

To select the Hi or Lo range, tractor movement must be stopped and the clutch brake pedal must be fully depressed. Push the dual range lever forward for Hi range or pull it back for Lo range.

The gear shift pattern is shown on the tractor control panel (Figure 1). To shift transmission gears the tractor movement must be stopped and the clutch brake pedal must be fully depressed. The gear shift lever must be in the center of the netural position for engine starter to operate.

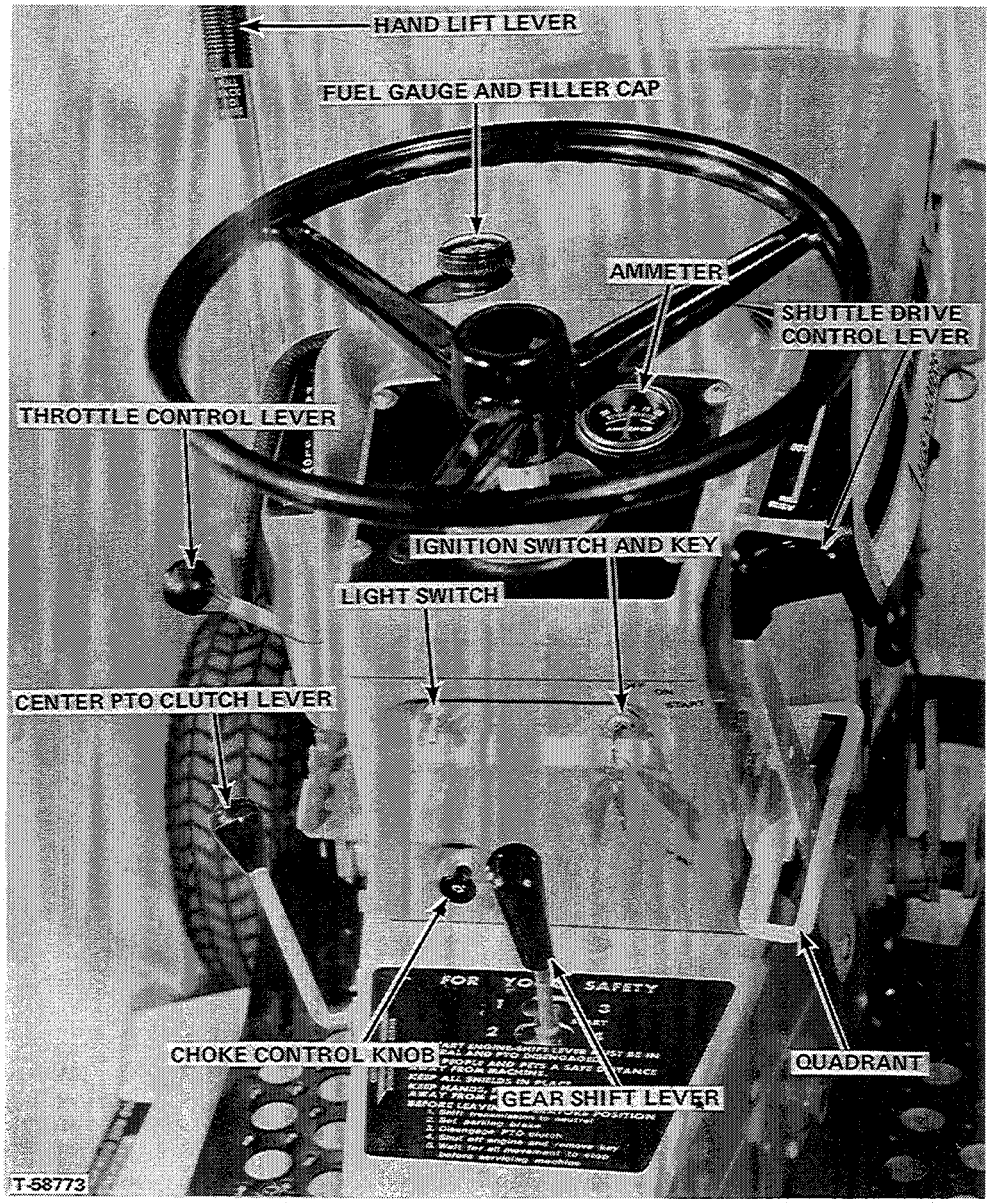


FIGURE 4 - Shuttle Clutch Transmission Tractors

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CONTROLS FOR SHUTTLE CLUTCH TRANSMISSION TRACTORS

In addition to the 9 controls used on all model tractors, shuttle clutch tractors also have the following:

1. GEAR SHIFT LEVER (Figure 4)

The gear shift lever is used to select which of the four transmission speeds will be used. Using the shuttle drive unit the tractor will move forward or reverse in any of the gears. The approximate ground speed in miles per hour both forward and reverse are as follows with full engine speed of 3600 RPM.

Gear	Maximum Ground Speed
First	.96 MPH
Second	2.3 MPH
Third	3.7 MPH
Fourth	5.1 MPH

The gear shift pattern is shown on the tractor control panel. To shift transmission gears the tractor movement must be stopped and either the shuttle drive control lever must be in neutral or the clutch brake pedal must be fully depressed. The gear shift lever must be in the center of the neutral position for the engine starter to operate.

2. SHUTTLE DRIVE CONTROL LEVER (Figure 4)

This lever is used to cause the tractor to move forward, to move in reverse or to stop. With the transmission in gear and engine running, pushing the shuttle drive control lever forward from the neutral notch causes tractor to move forward. Moving lever from forward position rearward to the neutral notch slows and stops the tractor. In similar manner pulling lever to rear causes tractor to move in reverse and pushing it forward again to neutral slows and stops tractor.

NOTE: All continuous operation should be done with the control lever fully forward and locked in the forward notch, or fully to the rear for reverse. Other than when starting or stopping or changing from forward to reverse or from reverse to forward the shuttle control should be in the fully engaged position. To operate it for more than a short time midway between neutral and fully engaged position will cause heating and excessive wear on clutches. Lever should be moved smoothly and steadily forward or rearward at a slow enough speed to prevent sudden starts or stops.

3. LIGHT SWITCH (Figure 4)

Push light switch up to turn tractor lights on - down to turn them off. The ignition switch must be turned to "on" for lights to burn.

Do not operate the lights unless engine is running and ammeter is not showing a discharge.

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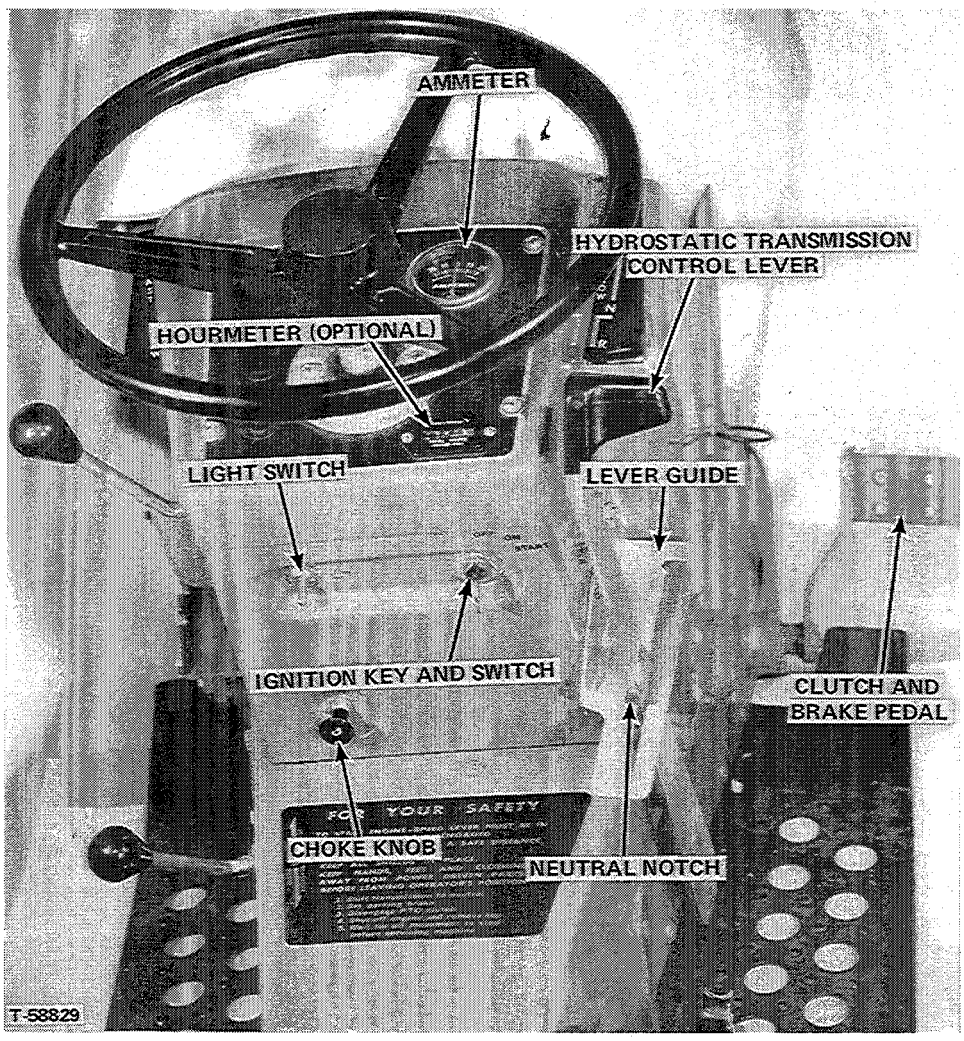


FIGURE 5 - Hydrostatic Transmission Tractors

CONTROLS FOR HYDROSTATIC TRANSMISSION TRACTORS

In addition to the 9 controls listed for all 700 Series tractors in the first part of this section, tractors that are equipped with hydrostatic transmissions also have the following:

1. HYDROSTATIC TRANSMISSION CONTROL LEVER (Figure 5)

The hydrostatic transmission is used to control both the direction of travel and the ground speed of the tractor. NEUTRAL position for the hydrostatic transmission control lever is as shown with the back of the control lever resting in the "neutral" notch portion of the lever guide. The hydrostatic transmission control lever must be in this "neutral" position for the engine starter to operate.

To move the tractor forward grip the lever, spring it to the right out of the "neutral" notch and gradually move it forward. The farther forward from neutral the control lever is pushed, the faster the tractor will move forward at a given engine speed. To slow or stop the tractor when it is moving forward, pull the control lever rearward slowly toward the "neutral" position. You can place the hydrostatic transmission in "neutral" from the forward position without watching it by slightly pushing to the right on the control lever as it is moved rearward. The control lever will stop against the notched portion of the guide when it reached neutral.

To move the tractor in REVERSE, push the lever to the right and gradually pull it back from the "neutral" position. The farther back the control lever is moved, the faster the tractor will travel in reverse. To stop the tractor while moving in reverse, move lever forward slowly to the "neutral" position. In emergency situations, you may use the foot clutch brake pedal to stop.

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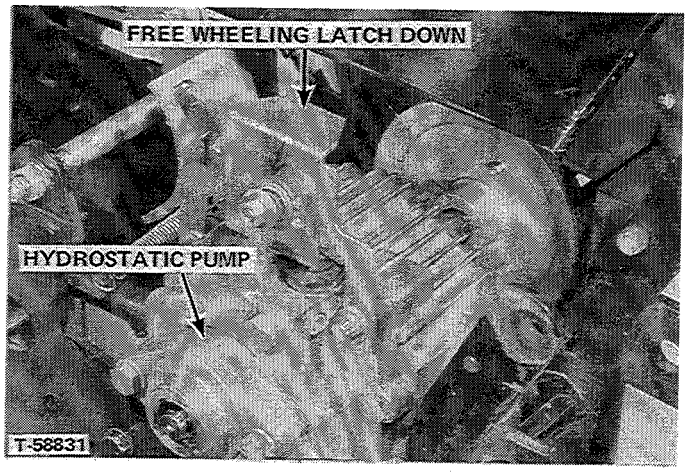


FIGURE 6 - (Seat and Seat Deck Removed)

2. FREE WHEELING LATCH

The free wheeling latch is located on the top of the hydrostatic pump and motor unit. To move the tractor without engine power place the hydrostatic control lever in "neutral", stop engine, and push down on the free wheeling latch (Figure 6). To return the tractor to engine power pull up on the free wheeling latch (Figure 7). The pins depressed by the free wheeling latch will return to the "up" or "drive" position when the engine is again started.

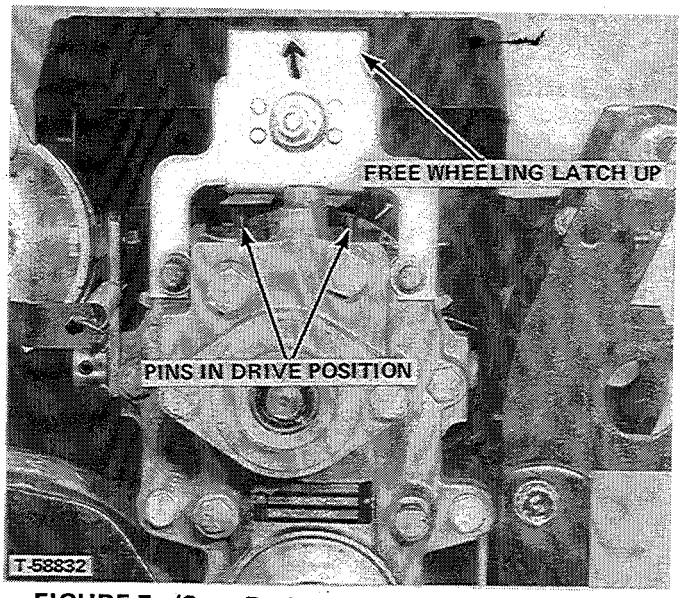


FIGURE 7 - (Seat, Deck and L.H. Wheel Removed)

3. LIGHT SWITCH (Figure 5)

Push light switch up to turn tractor lights on - down to turn them off. The ignition switch must be turned to "on" for the lights to burn. Do not operate the lights unless the engine is running and the ammeter is not showing a discharge.

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OPERATION

BEFORE STARTING ENGINE

1. Study this operators manual especially the safety precautions in front of book and follow the recommendations.

2. Check that crankcase is filled to the "F" mark with a high quality detergent oil classified as "SC", "SD", or "CC". Use SAE 30 above 30 degrees F, SAE 10, between 30 degrees F and 0 degrees F, and SAE 5W-20 below 0 degrees F.

3. Fill the fuel tank with good grade of fresh regular non leaded gasoline. Do not use premium gasoline and DO NOT mix oil with gasoline.

CAUTION: GASOLINE IS HIGHLY FLAMMABLE. DO NOT fill the fuel tank while the engine is running, while engine is hot, while using a lantern, or while smoking. Avoid overfilling and wipe up any spilled fuel.

4. Be sure that all of the tractor and any attachment to be used has been properly serviced.

STARTING ENGINE

1. Be seated properly in the tractor seat.

2. On 6 speed transmission tractors and shuttle clutch tractors: Place gear shift lever in neutral and center PTO clutch in disengaged position to activate the interlock safety switches.

   On hydrostatic transmission tractors: Place the hydrostatic transmission control lever in the "neutral" position notch in guide and place center PTO clutch in disengaged position to activate the interlock safety switches.

3. Depress clutch brake pedal and apply braking pressure.

4. Pull choke out to choke position (unless engine is warm).

5. Place throttle control lever in idle (slowest) position.

6. Turn ignition key to "Start" position until engine starts then let go of key to return it to "on" position. Note, if engine does not start within 30 seconds allow starter motor to cool for a minute or two before making a second attempt.

   NOTE: If the starter will not run check that the safety interlock switches referred to in step 2 are actually activated.

7. As engine warms up push choke fully in. Allow engine to warm up for a few minutes before applying a load.

8. During conditions of extreme cold (below 0^{o} F.) the starter may tend to disengage, prior to engine starting. If this condition occurs it may be necessary to push the choke control in slightly to achieve starting.

   NOTE: Throttle control lever must be in idle (slowest) position.

STOPPING THE ENGINE

1. Move the throttle control lever to the "Slow" position.
2. If tractor has been operating under full load allow the engine to idle for a minute or two to reduce engine temperature. Stopping a hot engine suddenly can damage engine parts.
3. Turn ignition key to the "Off" position to stop engine.
4. Set parking brake.
5. Remove ignition key to prevent unauthorized use of the tractor.

STARTING TRACTOR TRAVEL - 6 SPEED TRANSMISSION TRACTOR

1. With engine running set throttle between 1/4 and 1/2 open.
2. Depress foot clutch pedal fully and push the dual range lever forward (Hi range) or pull back (Lo range)
3. Depress foot clutch fully and use gear shift lever to select desired transmission gear. It may be necessary to partially engage clutch carefully to rotate gears enough to line up gear teeth and permit shifting. DO NOT "clash" gears by trying to force gears in place while clutch is partially engaged.

CAUTION: WHEN OPERATING TRACTOR FOR FIRST TIME operator should select first gear until he becomes familiar with controls and operation of tractor.

4. Look carefully around to make sure there are no people, pets, or obstructions in direction you plan to drive, then raise clutch brake pedal slowly to engage clutch and start tractor in motion.
5. Adjust throttle control lever to obtain desired engine speed for job being performed.
6. To shift gears tractor motion must be completely stopped and the clutch brake pedal completely depressed.

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STOPPING TRACTOR TRAVEL - 6 SPEED TRANSMISSION TRACTOR

To stop the 6 - speed transmission tractor push the foot clutch brake pedal down smoothly and firmly to release the clutch and apply the brake. Place transmission gears in neutral.

STARTING TRACTOR TRAVEL

SHUTTLE CLUTCH TRACTORS

1. With engine running set throttle between 1/4 and 1/2 open.

2. With clutch and brake pedal engaged, (up) and shuttle drive control lever in neutral, place gear shift lever in desired position. It may be necessary to move shuttle drive control a little off neutral and then back to neutral again to rotate the gears enough to line up gear teeth to permit shifting.

CAUTION: When operating the tractor for first time operator should select first or second gear until he becomes familiar with the controls and operation of tractor.

3. Look carefully around to make sure there are no people, pets or obstructions in the direction you plan to drive then push shuttle drive control lever slowly but steadily in direction you want tractor to move. If forward, push lever entirely forward and lock it in quadrant notch. If travel is backward push lever fully to the rear of notch. DO NOT operate with lever midway between neutral and full range except when starting or stopping.

4. When shuttle drive control lever is fully forward (or backward) adjust throttle control lever to desired engine speed.

5. To shift gears tractor motion must be completely stopped either by depressing clutch and brake or by bringing shuttle drive control lever to neutral.

STOPPING TRACTOR TRAVEL

SHUTTLE CLUTCH TRACTORS

Tractor motion is normally stopped by moving the shuttle drive clutch lever smoothly from operating position to neutral position and then on thru neutral partway into the opposite direction range till tractor stops. As soon as tractor stops move lever onto neutral notch.

Tractors may also be stopped by depressing the foot clutch brake lever until tractor stops.

STARTING TRACTOR TRAVEL

HYDROSTATIC TRANSMISSION TRACTORS

1. Be sure free wheeling latch on hydrostatic pump is engaged, (Figure 7). With engine running set throttle control lever between 1/4 and 1/2 open.

2. With foot clutch engaged (up) and hydrostatic transmission control lever against the neutral notch grasp the lever and push it to the right to clear neutral notch, then move it slowly forward to move tractor forward. To move tractor backward push lever to right to clear the notch and pull lever to rear (Figure 6).

3. Set engine speed at desired level, move the hydrostatic control lever to position that gives desired ground speed and release lever.

CAUTION: When operating the tractor for first time the operator should keep tractor ground speeds low until he becomes familiar with the controls and operation of tractor.

STOPPING TRACTOR TRAVEL

HYDROSTATIC TRANSMISSION TRACTORS

To stop tractor motion, grasp hydrostatic control lever and move it smoothly to the neutral position notch.

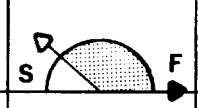
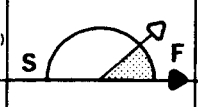
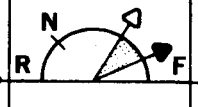
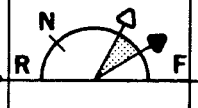
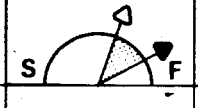
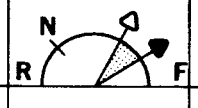
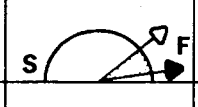
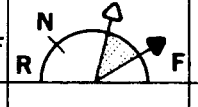
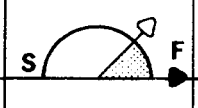
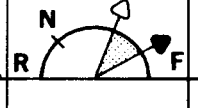
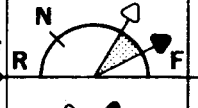
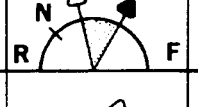
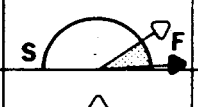
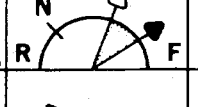
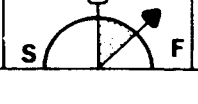
In emergencies tractor can be stopped by depressing the foot clutch and brake. Do not start tractor motion or attempt to "inch" tractor with the foot clutch. Always have hydrostatic control lever in neutral when releasing foot clutch. Then use control lever to start motion.

OPERATING TRACTOR WITH IMPLEMENTS

For operating information with various implements refer to the operating chart on next page. Also refer to the implement section in the rear of this book for major attachments and to the operators instructions packed with other implements and attachments.

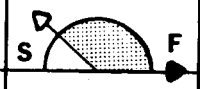
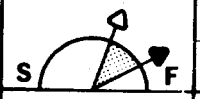
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HYDROSTATIC TRANSMISSION

Attachment	Engine Speed Control	Hydrostatic Lever Position	Approx Ground Speed (MPH)	Required Accessories and Options	Recommended Accessories and Options
Transporting Tractor			3-7		
42" or 48" Rotary Mower (Smooth terrain - normal grass)			3-5		2 Rear wheel weights when mowing slopes 20-35% mowing slopes greater than 35% not recommended.
42" or 48" Rotary Mower (Rough terrain - heavy or wet grass)			2-4		2 Rear wheel weights when mowing slopes 20-35% mowing slopes greater than 35% not recommended.
46" Sickle Bar			3-5		2 Rear wheel weights when mowing slopes 20-35% mowing slopes greater than 35% not recommended.
36" or 42" Snow Thrower (Light Snow)			3-4		Power lift kit. Tire chains. 4 Rear wheel weights. 2 Front wheel weights.
36" or 42" Snow Thrower (Heavy or wet snow)			1-2		Power lift kit, Tire chains. 4 Rear wheel weights. 2 Front wheel weights.
42" or 46" Snow Plow and Dozer Blade			3-5		Tire chains. 4 Rear wheel weights. 2 Front wheel weights. Power lift kit.
42" Grader Blade			3-5		4 Rear wheel weights.
36" Rotary Tiller			1-2	Rear lift kit.	4 Rear wheel weights. 2 Front wheel weights. Power lift kit.
10" Mounted Plow			2-3	Rear lift kit.	4 Rear wheel weights. 2 Front wheel weights. Power lift kit.
Cultivator			2-4	Rear lift kit.	4 Rear wheel weights. 2 Front wheel weights. Power Lift Kit.
Spring Tooth Harrow			3-5	Rear lift kit.	4 Rear wheel weights. 2 Front wheel weights. Power lift kit.

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6 - SPEED TRANSMISSION

Attachment	Engine Speed Control	Speed Range	Trans. Gear	Approx. Ground Speed (MPH)	Required Accessories and Options	Recommended Accessories and Options
Transporting Tractor		HI	3	3-6		
42" or 48" Rotary Mower (Smooth terrain - normal grass)		LO HI	3 2	3-4		2 Rear wheel weights when mowing slopes 20-35% mowing slopes greater than 35% not recommended.
42" or 48" Rotary Mower (Rough terrain - heavy or wet grass)		LO HI	2 1	2-3		2 Rear wheel weights when mowing slopes 20-35% mowing slopes greater than 35% not recommended.
46" Sickle Bar		LO HI	2 2	2-4		2 Rear wheel weights when mowing slopes 20-35% mowing slopes greater than 35% not recommended.
36" or 42" Snow Thrower (Light Snow)		LO HI	3 2	3-4		Power lift kit. Tire chains. 4 Rear wheel weights. 2 Front wheel weights.
36" or 42" Snow Thrower (Heavy or wet snow)		LO HI	1 1	1-1.5		Power lift kit. Tire chains. 4 Rear wheel weights. 2 Front wheel weights.
42" or 46" Snow Plow and Dozer Blade		LO HI	3 2	3-4		Tire chains. 4 Rear wheel weights. 2 Front wheel weights. Power lift kit.
42" Grader Blade		LO HI	3 2	3-4		4 Rear wheel weights.
36" Rotary Tiller		LO HI	1 1	1-1.5	Rear lift kit.	4 Rear wheel weights. 2 Front wheel weights. Power lift kit.
10" Mounted Plow		LO HI	1 1	1-1.5	Rear lift kit.	4 Rear wheel weights. 2 Front wheel weights. Power lift kit.
Cultivator		LO HI	2 2	2-4	Rear lift kit.	4 Rear wheel weights. 2 Front wheel weights. Power lift Kit.
Spring Tooth Harrow		LO HI	2 2	2-4	Rear lift kit.	4 Rear wheel weights. 2 Front wheel weights. Power lift kit.

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LUBRICATION & SERVICE

Your tractor has been designed to give you many years of dependable service. In order for it to give you efficient, trouble free operation over a long period the lubrication and service operations listed here should be performed on a regular basis.

EVERY 5 HOURS OF OPERATION

1. Clean engine intake air screen.
2. Check engine crankcase oil level.
3. Check engine cooling fins. (Page 25)
4. Make general inspection of engine, tractor and implement specifically looking for loose bolts, oil leaks, - loose or damaged parts, improperly adjusted belts, etc. Correct as required.
5. Check hydrostatic transmission cooling fins on hydrostatic models.

EVERY 25 HOURS OF OPERATION

1. Change engine oil (5 hours first time).
2. Check bevel gear box oil level.
3. Check transmission fluid level.
4. Remove engine shroud and clean cooling fins.
5. Lubricate grease fittings.
6. Lubricate pivot points.
7. Check battery fluid level and charge.
8. Check tire pressure.
9. Check and clean air cleaner element.

EVERY 100 HOURS

1. Clean and repack front wheel bearings.
2. Repack shuttle clutch drive bearings.
3. Clean and regap spark plugs.
4. Replace engine fuel filter.

200 HOURS OR YEARLY

1. Replace air cleaner element.
2. Drain and refill hydrostatic transmission with Allis-Chalmers Power Fluid 401 (Dexron) automatic transmission fluid. (First change at 25 hours.)
3. Replace hydrostatic transmission filter. (First change at 25 hours.)

Refer to following pages for detailed instructions in performing the above services. Also refer to your Kohler engine manual for additional engine service.

☆ ☆ ☆ ☆ ☆ ☆

LUBRICATION AND SERVICE - ALL MODELS

CAUTION: ALWAYS stop engine, set brake, and remove ignition key before servicing, inspecting, adjusting or repairing the tractor and any implements being used.

ENGINE OIL (Figure 8)

1. Check the engine oil level before starting engine and after each 5 hours of operation.

   To check level remove oil dipstick and wipe it clean. Replace in oil fill tube and push firmly all the way down. Remove and check the level. It should be between the "L" and "F" marks on dipstick. NEVER run engine with oil level below the "L" mark. Fill with oil to the "F" mark but DO NOT EXCEED THIS MARK.

2. Change the oil after the first 5 hours of operation and every 25 hours of operation after that. Tractor should be on a level surface when checking or changing oil.

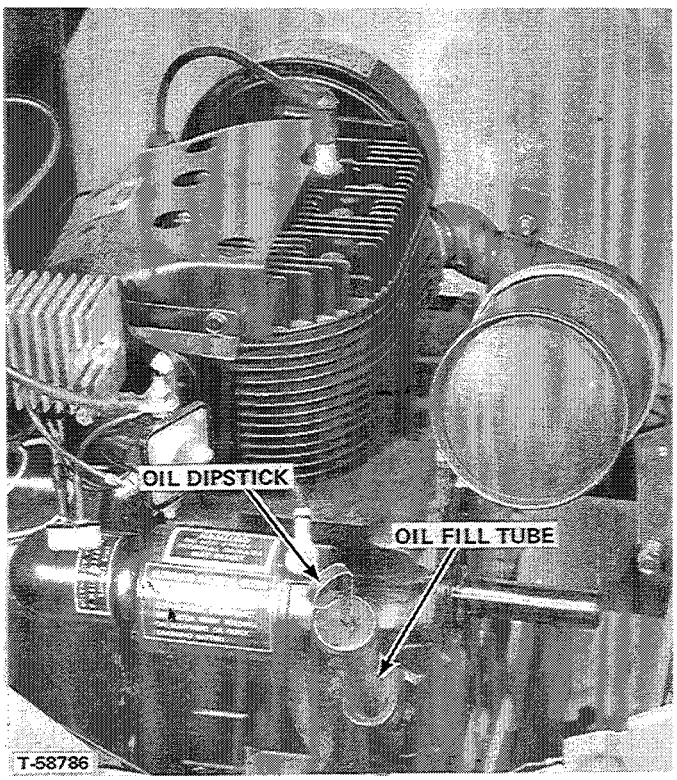


FIGURE 8

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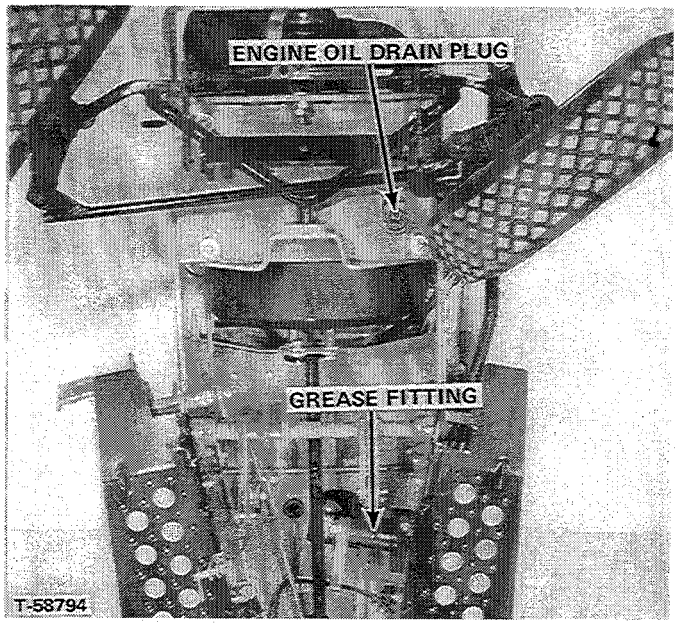


FIGURE 9 - View from Under Tractor

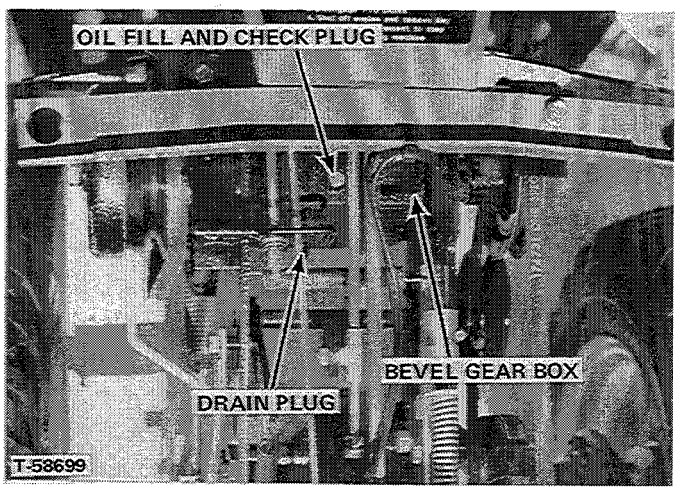


FIGURE 10 - Top View (Seat Lifted)

To change oil, have engine hot, clean any dust or dirt from around oil fill tube and remove the dipstick. Then remove the oil drain plug (See Figure 9) and permit all oil to drain out. Replace drain plug and fill the crankcase up to the "F" mark on dipstick with a high quality detergent oil classified "SC", "SD" or "CC" service of proper viscosity for the prevailing temperature. DO NOT OVERFILL.

Air Temperature	Oil Viscosity
Above 30°F.	SAE 30
30° to 0°F.	SAE 10
Below 0°F.	SAE 5W-20

NOTE: Nothing should be added to the recommended engine oil.

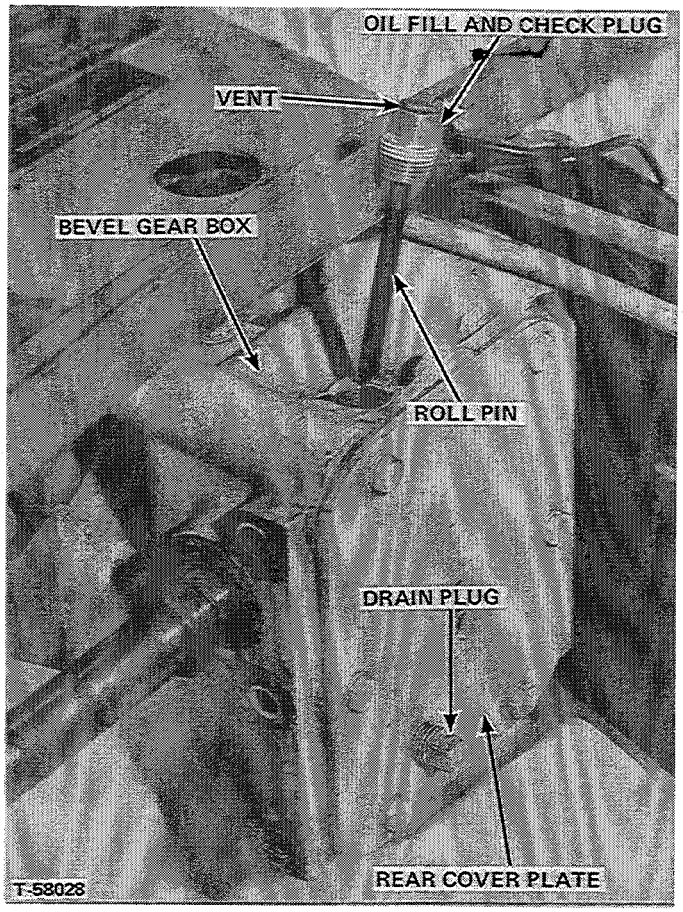


FIGURE 11 - (Parts Removed For Visibility)

ENGINE FUEL

1. Use clean, fresh, non-leaded "REGULAR" grade gasoline. Fill tank completely. DO NOT use premium gasoline and DO NOT mix oil with gasoline (Figures 1 and 4).

2. Fuel filter should be replaced every 100 hours of operation or once a year (Figure 14). On some Models the fuel filter is in the fuel tank.

CAUTION: NEVER add fuel, or open fuel line when engine is running or is hot. If gasoline is spilled on the engine wipe it up and permit all of it to evaporate before starting engine.

BEVEL GEAR HOUSING (Figures 10 and 11)

On 700 series tractors the main drive from the engine goes directly into a bevel gear housing located under the seat. The oil level in this box should be checked every 25 hours of operating time. To check, lift and swing back the seat and seat deck. Remove the oil fill and check plug from the top of the box and wipe the oil from the roll pin attached to the plug with a clean cloth or paper towel. Insert the roll pin into the box and set the plug on top of the oil plug hole. Do not screw plug into hole in gear box. In this position the oil should just touch the bottom of the roll pin. Add Allis-Chalmers Gear Lube 715 or good quality SAE 90 transmission oil as required to establish this level but do not overfill. A drain plug is located on rear cover of the box if oil must be drained.

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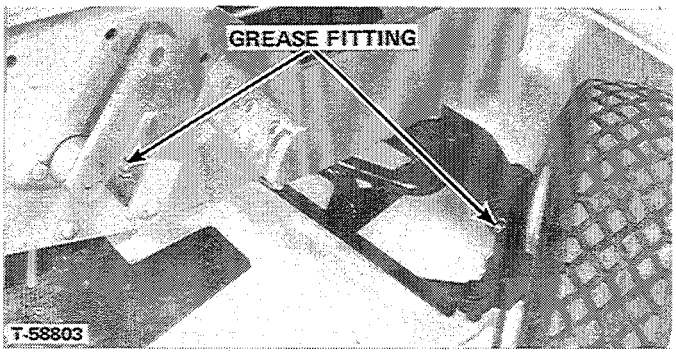


FIGURE 12

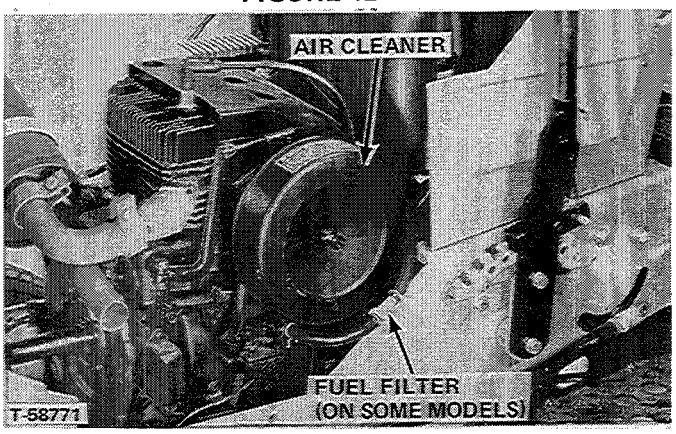


FIGURE 14

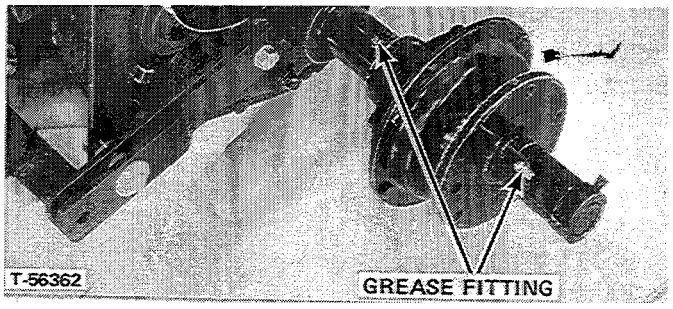


FIGURE 13

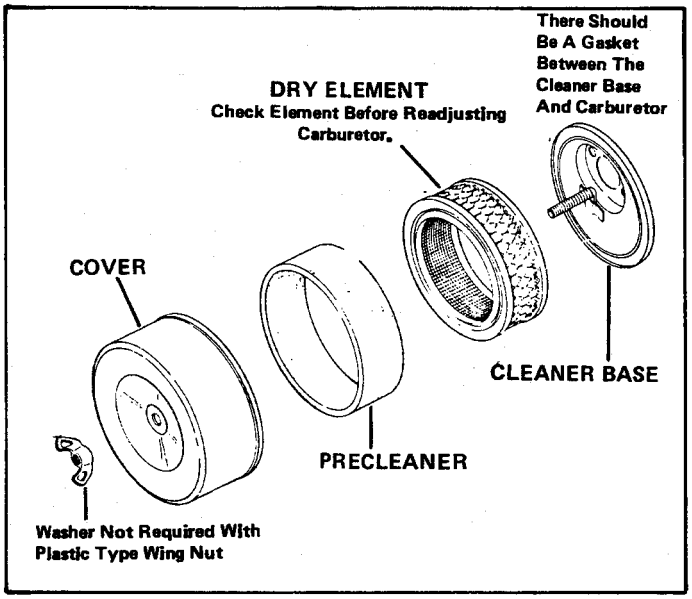


FIGURE 15 - 10 H.P., 12 H.P. and 16 H.P.

GREASE FITTINGS

There are 6 grease fittings on all 700 Series tractors which should be lubricated every 25 hours of operating time. They are located as follows:

2 fittings on front axle (right hand shown)	(Figure 12)
1 fitting on clutch brake pedal	(Figure 12)
1 fitting on steering gear under tractor	(Figure 9)
2 fittings on the right hand rear axle	(Figure 13)

Wipe fittings clean before greasing. Use a standard grease gun with general purpose automotive grease.

LUBRICATE PIVOT POINTS

A few drops of engine oil should be placed on the numerous pivot points on tractor and controls to provide smooth operation and reduce wear. Be careful to keep oil off of belts and pulleys to prevent belt damage.

AIR CLEANER AND PRECLEANER (Figures 14 and 15) (10 H.P., 12 H.P. and 16 H.P. Tractors only)

NOTE: Be sure engine is stopped before removing air cleaner, or precleaner.

Precleaners are used with dry air cleaners on all Kohler engines. The precleaner traps much of the dirt, preventing it from entering the dry element, thereby extending its life.

The precleaner slips tightly over the dry element, with no modification. Servicing of the precleaner is accomplished by washing it in soap and water. After rinsing and squeezing out the excess water, allow it to air dry. The precleaner is made of tough, open cell type urethane to last through numerous cleanings. THIS PRECLEANER SHOULD NOT BE OILED, OR WASHED IN GASOLINE.

There are two different size precleaners used, one for the 10 HP. and 12 HP. engine; and one for the 16 HP. engine.

The Air Cleaner is removed by loosening the wing nut in the center of the Air Cleaner Cover. This is a "Dry Type" Air Cleaner element and should be removed and cleaned after every twenty-five (25) hours of operation - more often in dry, dusty conditions - and should be replaced after each 200 hours of operation, or more often in dry, dusty conditions.

A clean Air Cleaner element cannot be overemphasized as dirt induced into the engine air intake system will wear out an engine quicker than long periods of operation. A clogged air system causes a richer fuel mixture than is necessary in the fuel system which can lead to harmful sludge deposits. Always cover the carburetor when the Air Cleaner is being serviced.

Remove the element and tap lightly on a flat surface to remove loose dirt particles.

NOTE: DO NOT wash the element in any fluid or attempt to blow it off with an air hose.

When replacing the Air Cleaner element, these points must be checked closely.

1. The cleaner base must be securely tightened to the

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carburetor. If the base is bent or cracked, it should be replaced.

2. There must be a gasket between cleaner base and carburetor.

3. Cover must fit snugly all the way around cleaner base.

4. Wing nut should be finger-tight. If other than a plastic wing nut is used, a copper washer must be used between cover and wing nut.

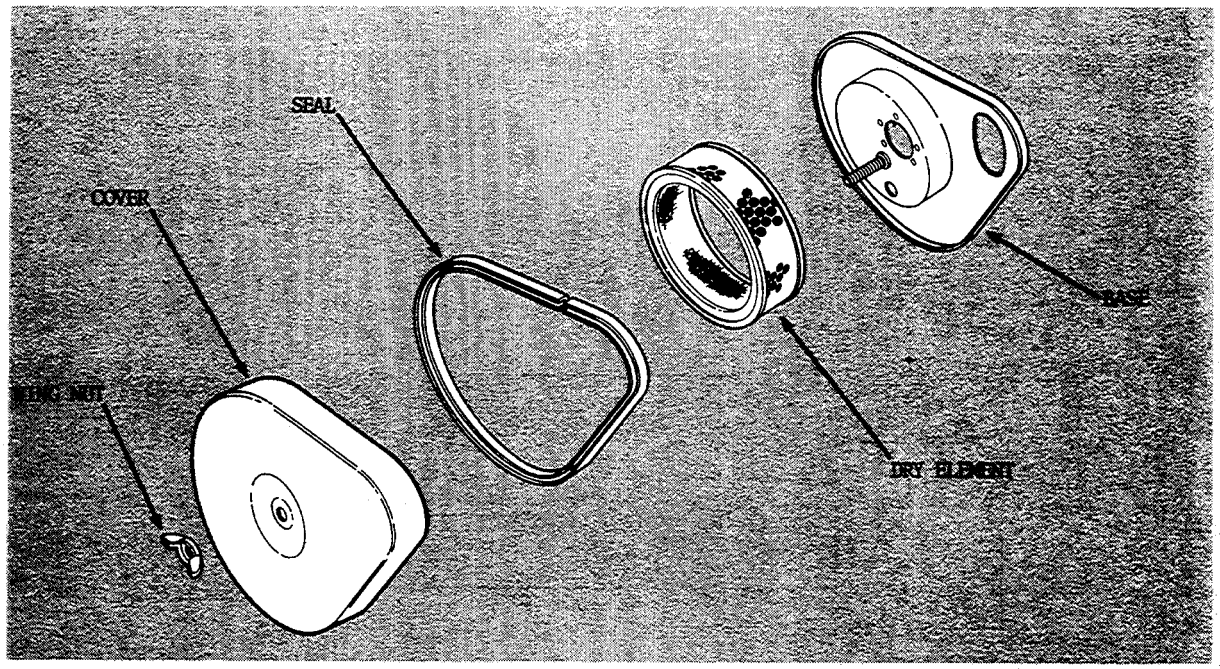


FIGURE 15A (18 H.P.)

AIR CLEANER (Figure 15A) (18 HP ONLY)

The precleaner is not used on the 18 HP engines, because the air is taken from the blower housing screen which acts as a precleaner, removing the larger foreign matter.

The engine is equipped with a dry type air cleaner. Make sure the air cleaner cover includes an air cleaner seal. Without this seal the carburetor may be exposed to dirt and the air cleaner cover may vibrate when engine is running. Every 50 hours remove element and service by tapping element lightly against flat surface to dislodge loose surface dirt--do not clean in any liquid or blow out with compressed air as this will run filter material in the element. Replace element after each 100 hours. Service element more frequently under dusty, dirty conditions.

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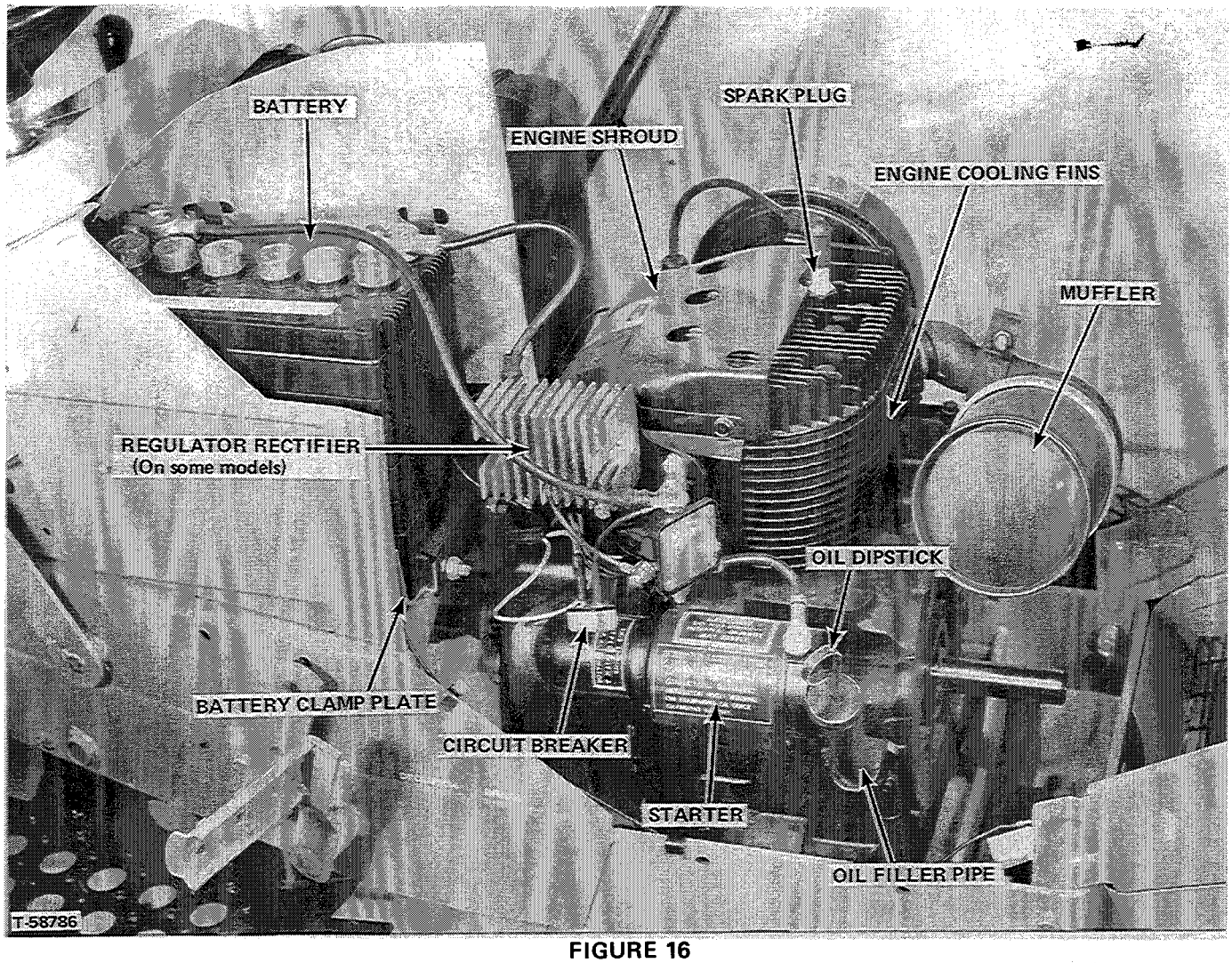


FIGURE 16

ENGINE COOLING SYSTEM (FINS) (Figure 16)

Any grass and other foreign matter build-up around the fins of cooling system will cause overheating of engine thus shortening engine life.

The Cooling system fins and air intake screen should be cleaned after each day of operation. Special care should be taken to make sure that no build-up of this foreign matter has accumulated around the Oil Filler Pipe area.

Every 25 hours remove engine shroud to thoroughly clean engine cooling fins in rear part of engine.

SPARK PLUG (Figure 16)

The plug should be removed, cleaned and regapped to .035 inch every 100 hours. Use a new plug if needed Reinstall the plug and torque to 18 - 22 ft.-lbs.

BATTERY CARE (Figure 16)

NOTE: Always disonnect the negative (–) terminal first, then the positive (+) terminal before removing the battery or working on the electrical system.

A hydrometer test of the battery solution should be made every 25 hours. If the specific gravity tests 1.225 or less, the battery should be removed and thoroughly recharged. At the same time the solution level should be examined and distilled water added when necessary to retain the level of 3/16" over the plates. When necessary to add distilled water it should always be done just prior to re-charging to mix the added water thoroughly into the solution. When recharging is necessary and user does not have his own charging equipment, he should request service station to slow charge the battery at a rate of 4 to 6 amperes.

Any collection of grease or any other substance should be kept removed from the top of the battery and the top kept dry and clean at all times. The battery should be kept clamped securely in place at all times with the battery clamp plate.

Vent caps should be kept tight and the small vent holes in top or side of cap be kept open at all times to permit escapage of gases formed in the battery. Care should be exercised not to overfill the battery at any time and to always retain 3/16" of solution above the plates.

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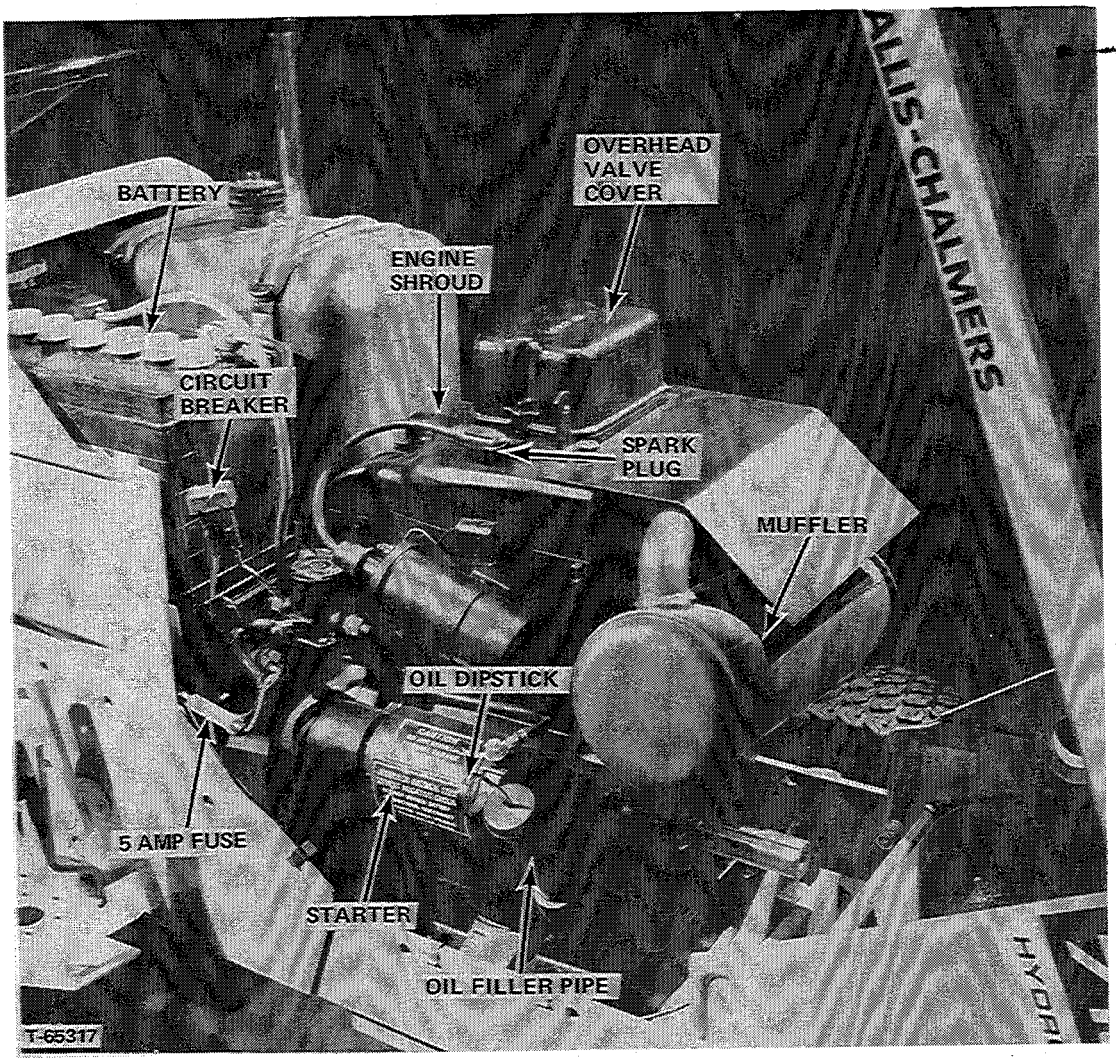


FIGURE 16A

WINTER CARE

If battery will not be used during the winter months it should be removed and stored in a cool, dry place. Any collection of grease or other substance should be removed from the top of the battery. The battery must be re-charged monthly or whenever the hydrometer reads less than 1.225. Before reinstalling the battery in the spring it should always be given a thorough recharge.

CAUTION: DO NOT charge the battery before first disconnecting the Regulator - Rectifier (Figure 16). Tractors with split circuit alternators do not have regulator - rectifiers.

REGULATOR - RECTIFIER (Figure 16)

NOTE: When welding anywhere on the tractor be sure to disconnect the Regulator - Rectifier. Failure to do this may result in permanent damage to the Regulator - Rectifier.

The Regulator - Rectifier does exactly what it says it does. First, it regulates the amount of electrical power being produced by the alternator, and at the same time it transforms alternating current to direct current for use on the tractor.

NOTE: Tractors with split circuit alternators do not have Regulator - Rectifiers.

FUSE (Figure 16A) - (Split Circuit Alternator Only)

There is a 5 Amp. fuse in the charging system. This fuse protects the stater in case of electrical short in the system.

If the battery does not charge, inspect the fuse and if it is blown, replace it with a 5 Amp. fuse. If the fuse is not blown, see BATTERY CARE.

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TIRE PRESSURE

Periodically check tire pressure and maintain 10 PSI in front tires and 8 PSI in rear tires.

FRONT WHEEL BEARINGS (Figure 17)

Every 100 hours of operation or once a year the front wheel bearings should be removed and repacked with grease. Proceed as follows:

1. Block or jack up front of tractor so the wheels are off the ground.

2. Remove cap A by prying it off with screwdriver.

3. Use an Allen wrench to loosen setscrew in collar B.

4. Remove the set collar B; Washer E, outer bearing C, wheel D.

   If seal G remains in hub instead of staying on the bearing shaft remove it and remove inner bearing. Wash the bearing shaft, bearings, wheel housing and seal with a suitable solvent, and wipe dry.

   NOTE: IT IS EXTREMELY important that bearings, all other parts, and the grease to be packed with them be kept clean. Bearings should also be replaced in same position from which removed.

5. Using the palm of your hand force a good quality wheel bearing grease into the bearings. Place a coating of grease on seal where it turns in hub.

6. Replace the inner bearing, and seal in hub. Make sure the five washers that were back of seal "G" are placed on the bearing shaft and then slide the wheel on the shaft.

7. Replace the outer bearing, washer and set collar Spin the wheel slowly and press in on set collar to seat bearings. Be sure the seal on the inside of wheel is properly seated. Hold in on set collar and tighten Allen screw securely.

8. Replace cap A.

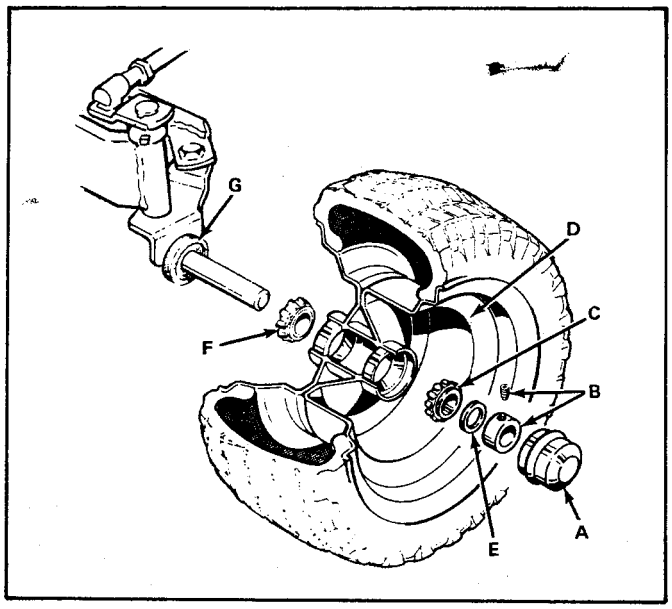


FIGURE 17

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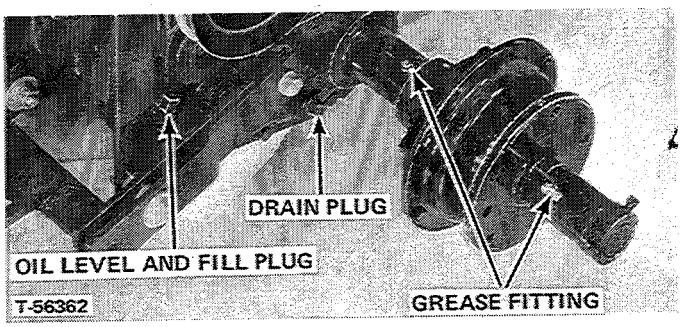


FIGURE 18

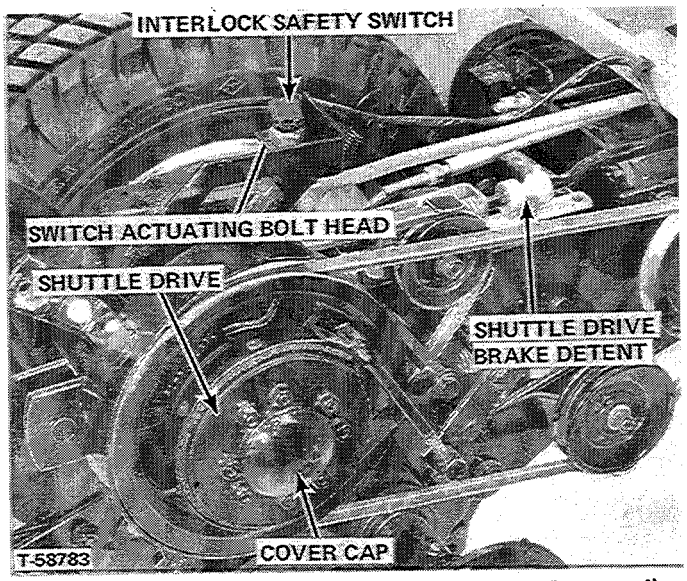


FIGURE 19 - (Seat, Seat Deck and R.H. Wheel Removed)

TRACTOR WITH 6 SPEED TRANSMISSION

In addition to the above lubrication and service operations which apply to all 700 Series tractors, the tractors that are equipped with dual range 6 - speed transmission must have the following attention:

1. Transmission oil shall be maintained up to the bottom of the oil level and fill plug (Figure 18). Fill with Allis-Chalmers Gear Lube 715 or good quality SAE 90 transmission oil. Check every 25 hours of operating time.

   If it should become necessary to drain transmission use the drain plug at lower side of housing.

TRACTORS WITH SHUTTLE CLUTCH

In addition to the above LUBRICATION AND SERVICE items, tractors that are equipped with shuttle clutch must have the following attention:

1. Transmission oil level shall be maintained up to the bottom of the oil level and fill plug (Figure 18). Fill with Allis-Chalmers gear lube 715 or good quality SAE 90 transmission oil. Check every 25 hours of operating time.

   If it should become necessary to drain transmission use the drain plug at lower side of housing.

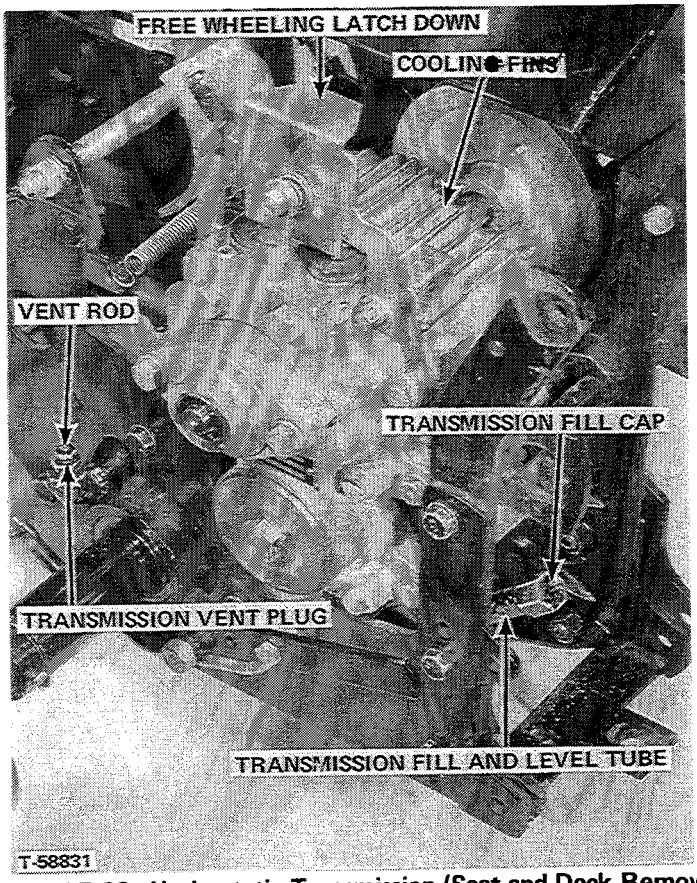


FIGURE 20 - Hydrostatic Transmission (Seat and Deck Removed

2. Apply a small amount of grease to the pin and groove of the shuttle drive brake detent and to the head of the bolt that actuates the interlock safety switch when gear shift lever is in neutral (Figure 19).

3. Every 100 hours or once a year block up rear of tractor and remove right hand rear wheel. With a screwdriver remove the cover cap from the shuttle drive (Figure 19). Force pressure gun grease into the space around the differential and pinion gears. Replace cover cap.

TRACTOR WITH HYDROSTATIC TRANSMISSION

In addition to the general LUBRICATION AND SERVICE items listed above for all models of 700 Series tractors, tractors that are equipped with hydrostatic transmission must have the following attention:

1. Hydrostatic Transmission Oil Level Check

The hydrostatic transmission oil level must be checked and maintained at proper level every 25 hours of operating time. To check and maintain the proper oil level by the following system, it is necessary that the transmission level and fill tube be set at the angular location shown in Figure 20B.

With a scale or ruler, measure the distance from the closest point on the surface of the rolled lower side of the pump support plate to the upper forward edge of the fill

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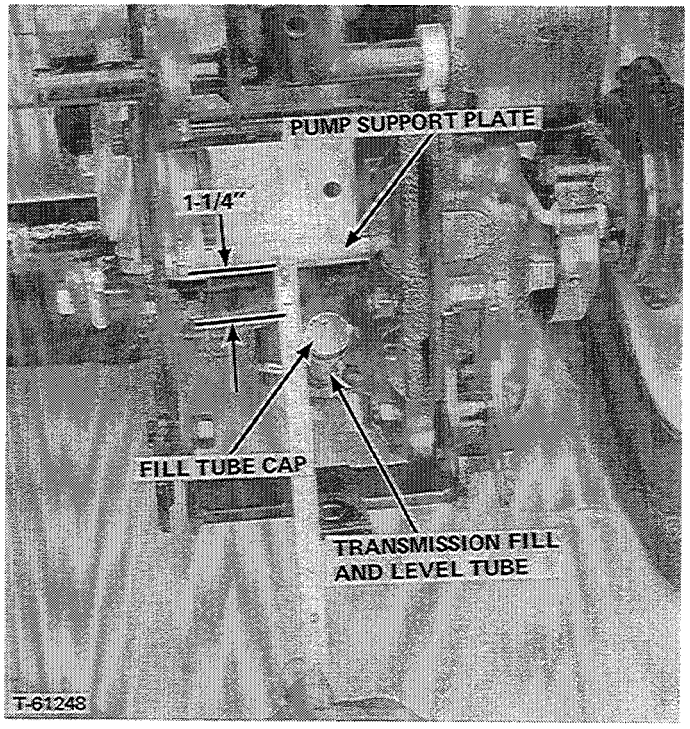


FIGURE 20A - Transmission Fill and Level Tube Position too low

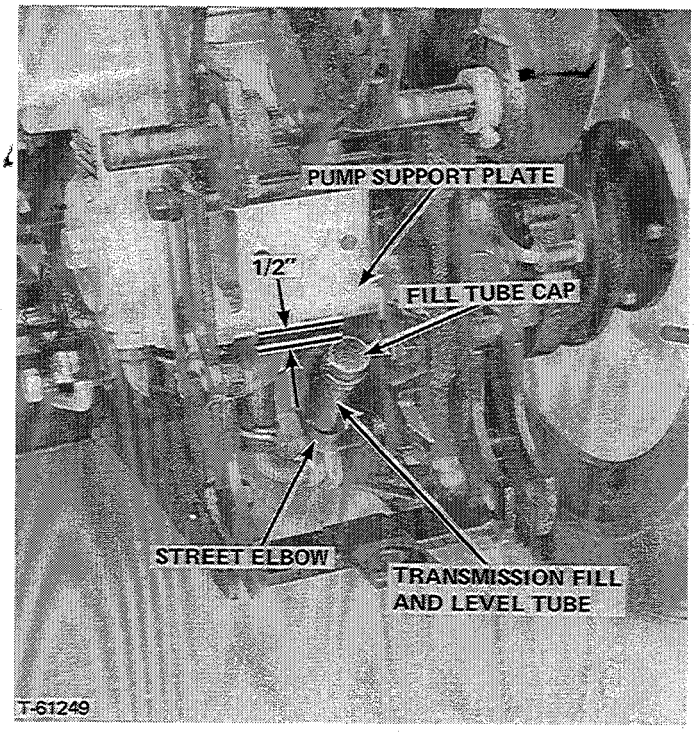


FIGURE 20B - Transmission Fill and Level Tube Position correct

tube cap as shown in Figure 20A. This dimension should be 1/2". If it is greater than this, as it is in Figure 20-A, the street elbow into which the fill and level tube is threaded must be rotated counterclockwise about the end threaded into the transmission housing until the fill tube cap moves to the 1/2" dimension shown in Figure 20B.

With the fill tube properly positioned, check the oil level every 25 hours of operating time and add oil, if necessary, by following these steps.

A. The transmission oil should be checked before starting the day's operations. The tractor must be parked on a level surface and the transmission oil must be cold.

B. Make sure that the hydrostatic control lever is in the neutral position, that any P.T.O. clutch levers are in the disengaged position, that the parking brake is set, and that the free wheeling latch (See Figure 20.) is pushed completely down, disengaging the hydrostatic drive pump.

C. Carefully clean all dirt away from the vent rod and plug (Figures 20 and 22) and from the transmission fill and level tube and fill tube cap.

CAUTION: Make sure that parking brake is fully locked and that hydrostatic pump is disengaged by having the free wheeling latch pushed fully downward before starting the engine.

D. Start the engine and let it run at idle speed or slightly above for 30 seconds to one minute.

E. Stop the engine and immediately lift the small vent rod in the transmission vent plug with thumbnail and fingernail, and hold it up as far as it will go for several seconds to relieve pressure. As soon as vent is released, start loosening the fill tube cap. When cap is loose enough to be turned by hand, again lift the vent rod and hold it up while the cap is removed. Oil level should be within 1/8" of the top rear edge of the fill tube. If the oil level is more than 1/8" below this "run-over" level, **continue to hold vent rod up** while slowly pouring Allis-Chalmers Power Fluid 401 or Dexron automatic transmission fluid into the fill tube with the use of a clean funnel until oil reaches the "run-over" level. Replace the fill tube cap at once. Be extremely careful to keep dust and dirt out of the transmission.

F. Checking oil level while transmission oil is hot is not recommended because expansion will usually cause oil overflow and needless lowering of the true oil level in the transmission.

2. Hydrostatic Transmission Oil & Filter Change

On a new tractor, the hydrostatic transmission oil and transmission oil filter should be changed at the first 25 hours of operation. After this first change, both the oil and the filter should be changed regularly every 200 hours of operation, or every Spring, whichever comes first. Proceed as follows:

A. With hydrostatic transmission oil hot, park tractor on level ground, place hydrostatic control lever in neutral, place any P.T.O. clutch levers in the disengaged position, engage parking brake, and stop engine. Press free wheeling latch (Figures 20 and 21) down firmly to disconnect the hydrostatic pump.

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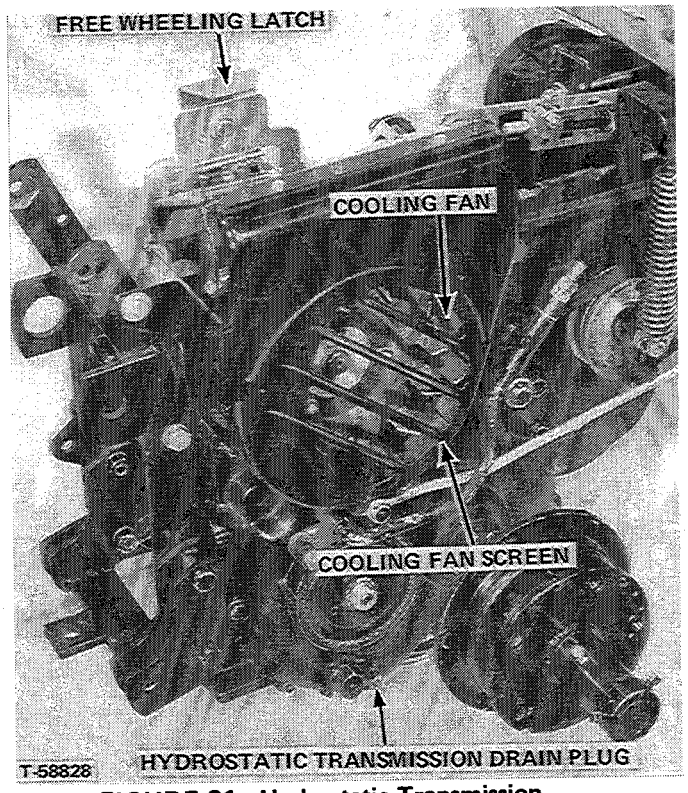


FIGURE 21 - Hydrostatic Transmission (Seat, Seat Deck and R.H. Wheel Removed)

B. Remove hydrostatic transmission drain plug from lower R.H. side of transmission (Figure 21). Remove dirt from around transmission fill cap (Figure 20), and loosen cap to permit air to enter transmission.

C. Clean dirt from the hydrostatic transmission filter and filter holder into which it is mounted (Figure 22), and remove and discard filter.

D. When fluid has drained out of transmission, install new hydrostatic transmission filter in the following way:

Coat gasket with transmission fluid, screw filter on until gasket contacts base, then tighten 1/2 to 3/4 turn more. Use no tools. Turn by hand only. Install and tighten drain plug securely.

E. Remove the transmission fill tube cap and clean dirt away from vent rod and transmission vent plug. Before filling be sure fill tube is located as outlined in Item 1 "Hydrostatic Transmission Oil Level Check." Using a clean funnel, pour new, clean, Allis-Chalmers Power Fluid 401 or Dexron automatic transmission fluid into the fill tube while holding the vent rod up (Figures 20 and 22), until fill tube is full and will no longer accept more fluid. Then replace the fill tube cap hand tight only.

NOTE: Vent rod must be held fully up for the entire time that fluid is being added.

F. Start engine and set it at idle speed, or slightly above.

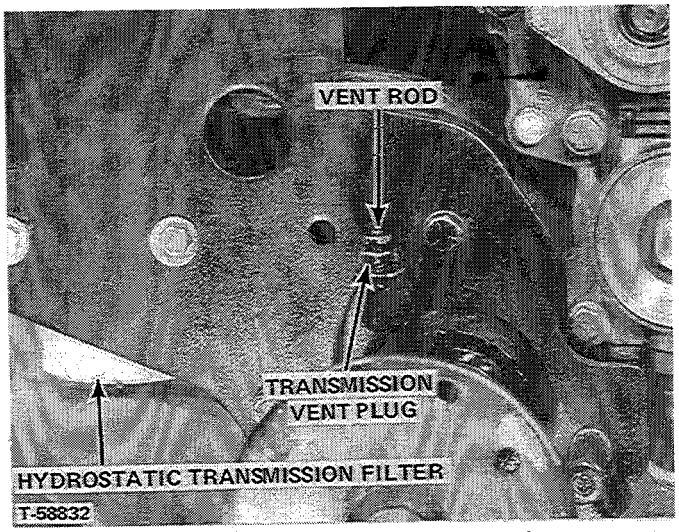


FIGURE 22 - Hydrostatic Transmission (L.H. Wheel Removed)

CAUTION: Make sure that free wheeling latch is firmly down and that parking brake is fully engaged before starting the engine.

G. Let engine run at least five minutes to fill new filter and filter tubes with fluid, then stop engine and immediately lift vent rod and remove fill tube cap. While holding vent rod up, pour more Allis-Chalmers Power Fluid 401 or Dexron into the transmission fill tube until level reaches the "run-over" point of the tube. Then install and tighten the fill tube cap. Total fluid installed should be three quarts or more. Be extremely careful to keep all dust and dirt out of transmission while changing oil and filter. Check filter and drain plug for leaks.

3. Hydrostatic Transmission Cooling Fins

Every four hours of operation, lift the seat deck and examine the hydrostatic transmission cooling fins (Figure 20) and the cooling fan and fan screen for dust and dirt. Keep area clean for cool and efficient hydrostatic operation.

OFF-SEASON STORAGE - ALL 700 SERIES TRACTORS

When your tractor is to be stored without use for a period of 2 months or more perform the following operations:

1. Drain all gasoline from fuel tank by disconnecting fuel line at fuel filter. Reconnect fuel line, and put about 1/2 cup gasoline back in tank. A good gasoline stabilizer can be added to eliminate need for draining tank. If the tractor does not have a fuel filter, disconnect the fuel line at the carburetor.

CAUTION: NEVER remove or add fuel when engine is hot. If any fuel is spilled wipe it up and allow remainder to evaporate before proceeding with next step.

2. When safe, start engine and allow it to run until all fuel is used up and engine stops.

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3. Drain crankcase oil while engine is hot and refill with a grade of oil that will be required when tractor is again to be used. Place tag on engine stating grade of oil used.

4. Remove spark plug and pour two tablespoons of SAE 30 oil into cylinder through plug hole. Crank engine two or three times and reinstall spark plug.

5. Clean any dirt or grass from cylinder head cooling fins and engine housing and clean air cleaner element.

6. Cover air cleaner and exhaust outlet tightly with plastic or other water proof material to keep moisture, dirt and insects out of the engine.

7. Completely lubricate tractor as outlined in earlier part of this section.

8. Clean up tractor and apply paint or rust preventive to any areas where paint is chipped or damaged.

9. Be sure the battery is filled to the proper level with water and is fully charged. Battery life will be increased if it is removed and put in a cool, dry place and fully charged about once a month.

10. If the tractor is to be stored 6 months or longer block the tractor up off the wheels to relieve weight and keep the tires off a damp floor. Protect the tires from prolonged exposure to direct sunlight.

11. Store the tractor in a dry place indoors.

STARTING THE TRACTOR AFTER STORAGE

Before starting the tractor after it has been stored, do the following:

1. Remove the blocks from under the tractor.

2. Replace the battery.

3. Unplug the exhaust outlet.

4. Remove spark plug and wipe it dry. Crank the engine a few times to blow excess oil out of the plug hole. Reinstall plug.

5. Fill fuel tank with fresh regular grade gasoline.

6. Check crankcase oil level, and add proper oil if necessary.

7. Start the engine and let it run slowly. DO NOT run at high speed immediately after starting. Be sure to run engine only out of doors or in well ventilated area.

8. Inflate tires to proper operating pressure.

SERVICE TIPS

HARD STARTING OR LOSS OR POWER

a. **Faulty ignition.**
   1. Leads grounded or loose.
   2. Spark plug faulty or improperly gapped.
   3. Coil, points or condenser defective.
   4. Check Timing.

b. **Faulty carburetion.**
   1. Fuel line or filler clogged (dirt-gum).
   2. Fuel pump faulty.
   3. Carburetor dirty or improperly adjusted.

c. **Poor compression.**
   1. Head loose or gasket leaking.
   2. Valves sticking or leaking.
   3. Piston rings worn.

OPERATING ERRATICALLY

a. Clogged fuel line.
b. Water in fuel
c. Vent in gas cap plugged.
d. Faulty fuel pump.
e. Gasket leaking (carb. - manifold).
f. Governor improperly set.
g. Carburetor improperly adjusted.
h. Check Timing.
i. Check Condensor lead (lead to negative post on coil)

KNOCKING

a. Fuel octane too low.
b. Carbon build-up in combustion chamber.
c. Engine overheated.
d. Check Timing.

OCCASIONAL "SKIP" AT HIGH SPEED

a. Spark plug fouled, faulty or gap too wide.
b. Carburetor improperly adjusted.

OVERHEATING

a. Air intake screen or fins clogged.
b. Oil level too high (or low).
c. Fuel mixture too lean.
d. Engine overloaded.
e. Tappet clearance too close.
f. Check Timing
g. Check condensor lead (lead to negative post on coil)

IDLES POORLY

a. Idle speed too low.
b. Idle Fuel improperly adjusted.
c. Gasket leaking (carburetor to manifold).
d. Spark plug gap too close.

BACKFIRING

a. Carburetor set too lean (Main Fuel).
b. Valve sticking.

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LUBRICATION AND SERVICE RECORD

DATE	HOURS USED	OIL CHANGE	AIR CLEANER SERVICE	LUBRICATION	SERVICE OR REPAIR PERFORMED

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ADJUSTMENTS

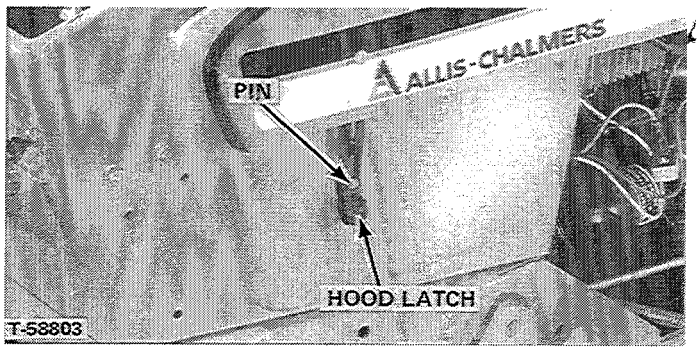


FIGURE 23

ALL 700 SERIES TRACTORS

RAISING TRACTOR HOOD (Figure 23)

The tractor hood is hinged at the front and held down to the tractor console with a rubber hood latch on each side. Pull down and out on the straps to release them from the pin and lift rear end of hood for access to the engine compartment.

RAISING THE SEAT DECK (Figure 24)

The seat deck is hinged at the rear and held in place in front with a seat latch under each front corner. To raise deck and seat grasp the front corners of the deck with both hands and lift the outer end of the seat latches with your fingertips. While holding latches up, raise seat deck and swing it backwards to expose the transmission area of the tractor.

SEAT ADJUSTMENT

The seat can be adjusted forward or backward in any of four positions on the seat deck. It should be positioned to permit the operator to comfortably operate the clutch and brake pedal while sitting fully back in the seat. To adjust:

1. Raise seat deck and swing it as far back as it goes.

2. Remove the two capscrews and lockwashers from the rear set of holes in seat and remove the nuts and lockwashers from the two studs in front of seat.

3. If the seat is to be positioned in the two forward set of holes the two rubber covered studs are placed on the two front holes in seat and located between the seat and the seat deck. If the seat is to be located on either of the two rear sets of holes the rubber covered studs are located under the seat deck and long end of stud screwed into holes in seat. The loose seat nuts are then placed on bottom end of stud as shown in 24A.

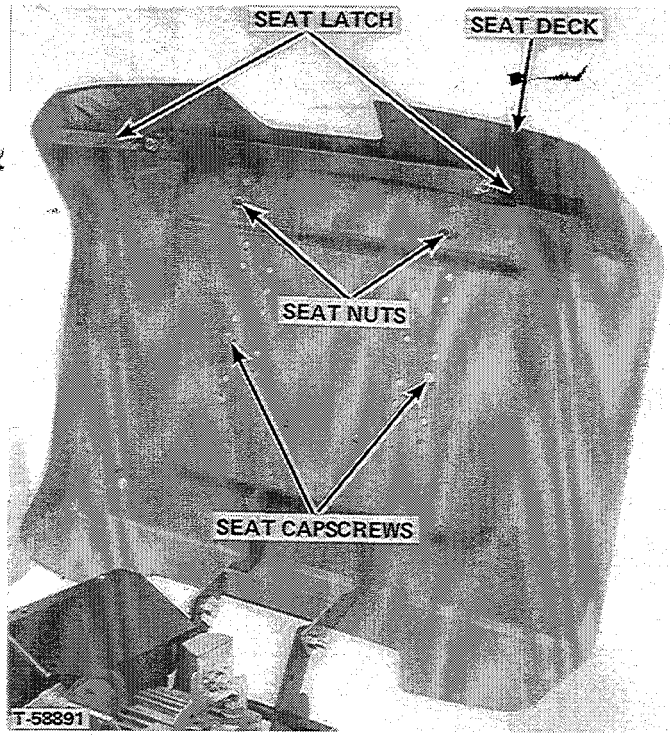


FIGURE 24 - Seat in Second from Front Position

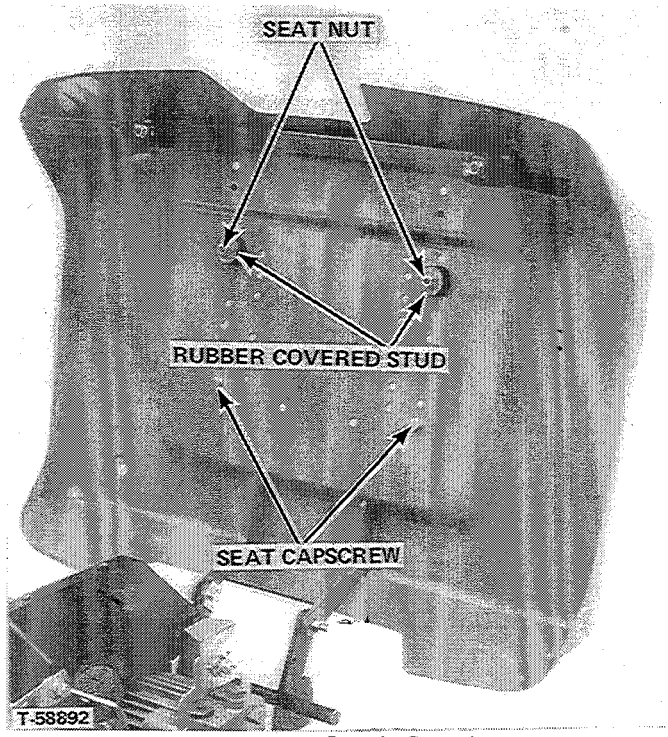


FIGURE 24A - Seat in Rear Position

4. Locate the seat where desired and install the nuts and lockwashers on the seat studs in front and install the capscrews and lockwashers in the rear holes. Tighten hardware securely.

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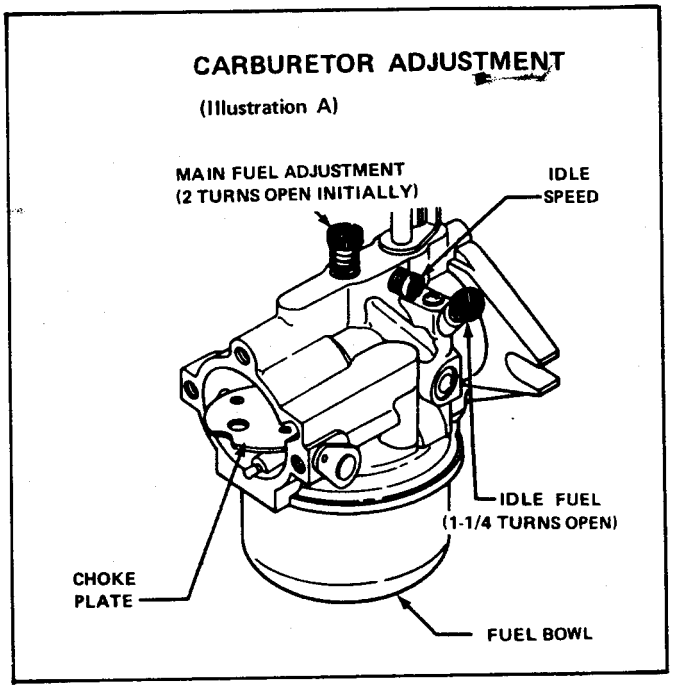
1. CARBURETOR ADJUSTMENTS (Illustration A)

Lack of power and black sooty exhaust smoke usually indicates that fuel mixture is too rich. An "overrich" mixture may also be caused by a clogged air cleaner - check this before readjusting carburetor. Fuel mixture may be too lean if engine "skips" or backfires at high speed.

Main Fuel Adjustment: For preliminary setting, turn MAIN FUEL screw in clockwise direction until it bottoms lightly (do not force) then back out two (2) turns. With engine thoroughly warmed up and running at full throttle and full load, turn MAIN FUEL screw in until engine slows down (lean setting) then turn screw out until engines regains speed and then starts to slow down (overrich setting). Turn screw back in until it is positioned halfway between lean and overrich settings - when properly adjusted engine will accelerate smoothly and operate with steady governor action.

Idle Adjustment: Rough idle is usually caused by the idle speed being set too low. Turn IDLE SPEED screw in (clockwise direction) to increase speed. If engine still idles poorly after speed is increased, stop engine and turn IDLE FUEL screw all the way in (clockwise) until it bottoms lightly (do not force screw), then back out 1 to 1-1/4 turns. Restart engine and check idle - turn needle in or out (1/4 turn at a time) until smoothest idle is achieved.

Idle speed should be 1700 to 1800 RPM. Do not set the idle speed below 1700 RPM. The RPM speed should be set with a tachometer to avoid damage to the engine.



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P.T.O. CLUTCH ADJUSTMENT (Figure 26)
ALL MODELS

The P.T.O. clutch is properly adjusted when the clutch pulley moves outward toward the clutch cone exactly 1/8" when the P.T.O. lever is moved from the fully disengaged to the fully engaged position. See Figure 26. Adjust jam nuts "A" on end of P.T.O. clutch rod to give 1/8" pulley motion when P.T.O. lever is moved through its full range of motion.

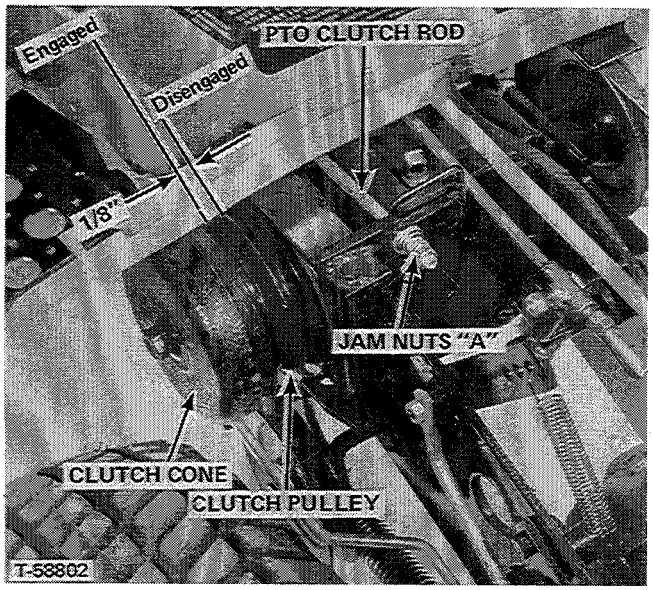


FIGURE 26 - (Seat and Seat Deck Removed)

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TRACTORS WITH DUAL RANGE 6 - SPEED TRANSMISSION

In addition to the adjustments just given that are common to all Series 700 tractors, the tractors that are equipped with dual range 6 - speed transmission have the following additional adjustments:

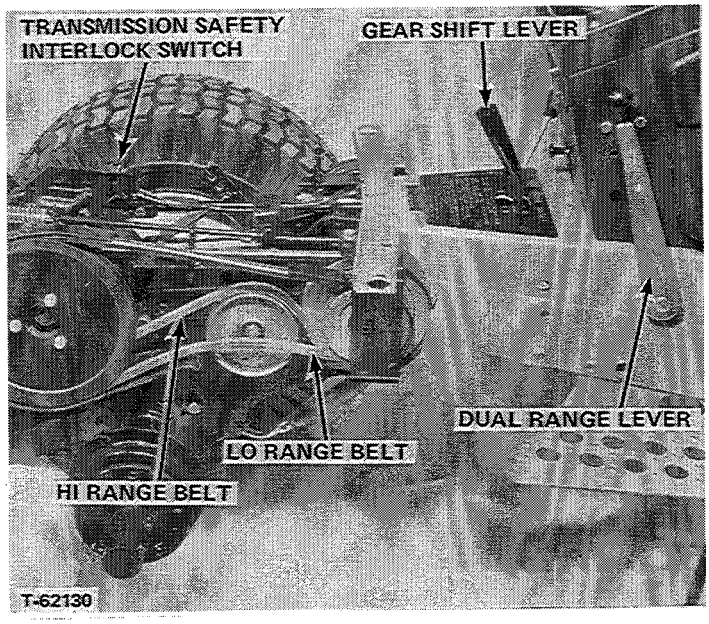


FIGURE 27 - Dual Range Transmission

Rear Belt Guard Adjustment

1. Loosen, but do not remove the two capscrews which secure the rear belt guard to the side of the transmission.

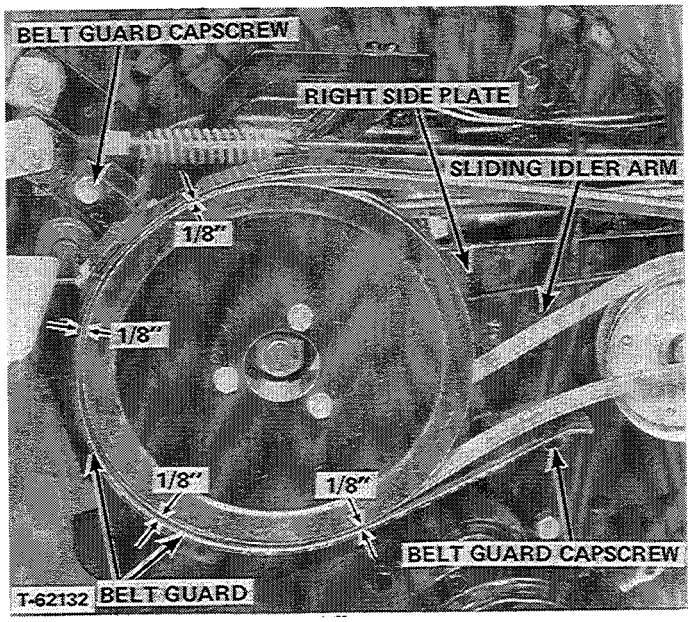


FIGURE 28 - Rear Belt Guard Adjustment

2. Adjust the belt guard to obtain 1/8" clearance between the outside diameter of the large pulley and the inside diameter of the retainer.

3. Tighten the two capscrews and recheck for 1/8" clearance. It may be necessary to bend the belt guard to obtain proper clearance.

CAM LEVER ADJUSTMENT

1. Depress the clutch-brake pedal and shift the dual range lever to hi range (forward). The sliding idler arm should be tight against the right side plate bushing. This will slide the shifting cam lever into contact with the left-hand side of the gate finger.

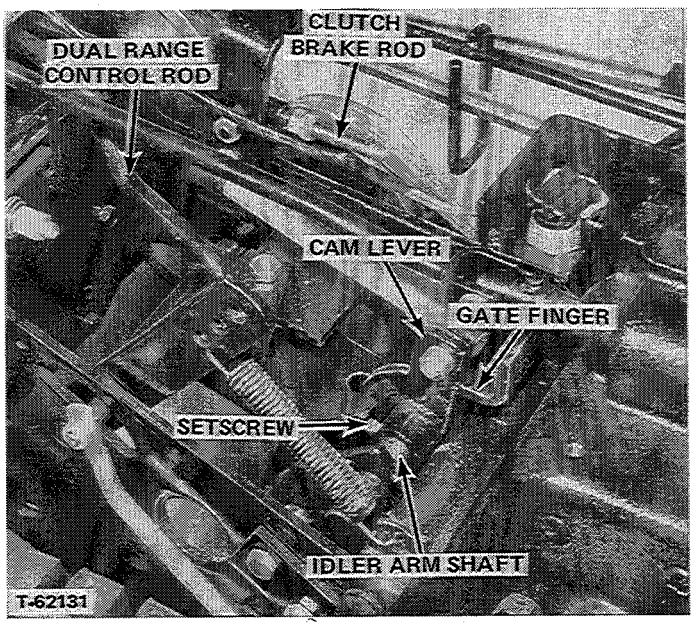


FIGURE 29 - Cam Lever Adjustment

2. Check to see if binding occurs between the cam lever and gate finger. To eliminate binding, loosen the set screw in the hub on the shift cam lever and reposition the cam lever on the idler arm shaft, so that it is against the gate finger by sliding the cam lever right or left on the idler arm shaft. Tighten the set screw securely.

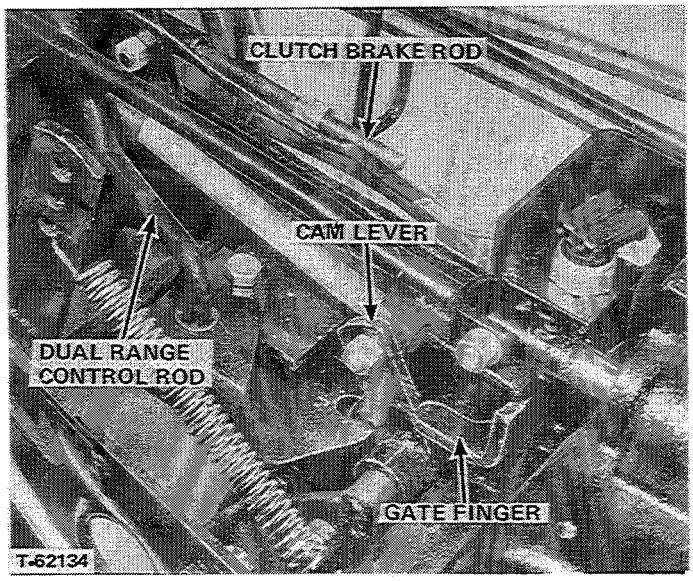


FIGURE 30 - Idler Height Adjustment

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Idler Height Adjustment

1. Depress the clutch-brake pedal and move the dual range lever until the cam lever is under the gate finger. Release the pedal and let the spring tension hold the cam lever in position.

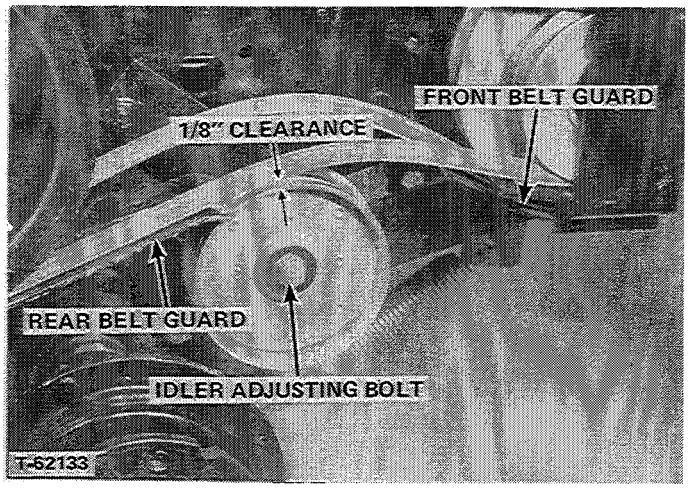


FIGURE 31 - Idler Height Adjustment

2. With the outside belt resting on both the front and rear belt guards, loosen the idler adjusting bolt and position the idler pulley so there is a minium of 1/8" clearance between the the belt and outside diameter of the idler pulley. Tighten the adjustment bolt securely.

Clutch Rod Adjustment

1. Depress the clutch-brake pedal and move the dual range lever in Hi range.

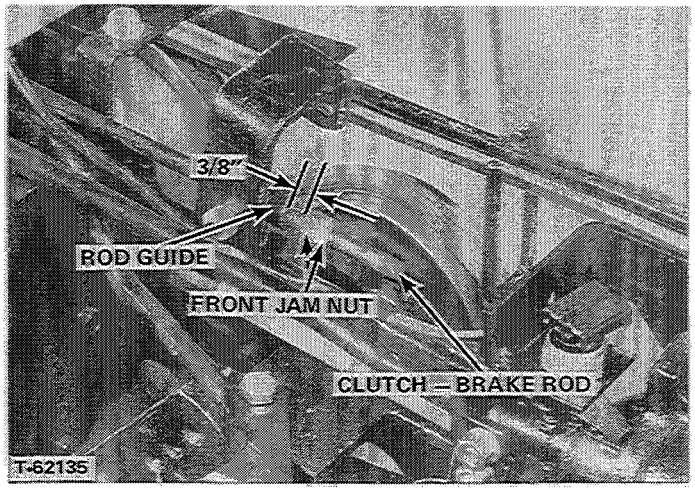


FIGURE 32 - Clutch Rod Adjustment

2. With the pedal up in engaged position, there should be a clearance of 3/8" between the front jam nut and the rod guide. Pull back on the pedal to make sure it is completely in engaged position.

3. To make the proper adjustment, loosen the two jam nuts and turn the front jam nut in or out to obtain the 3/8" measurement. Hold the front jam nut in position and tighten the rear jam nut securely.

Transmission Brake And Parking Brake Adjustment

1. Depress the clutch-brake pedal and move the dual range lever unit the cam lever is under the gate finger.

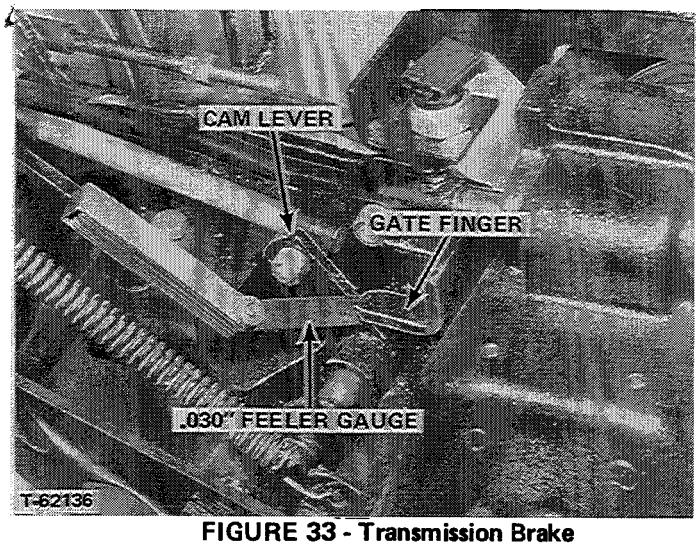


FIGURE 33 - Transmission Brake and Parking Brake Adjustment

2. Place a .030" feeler guage between the cam lever and the end of the gate finger. Release the pedal and let the spring tension hold the feeler guage in place.

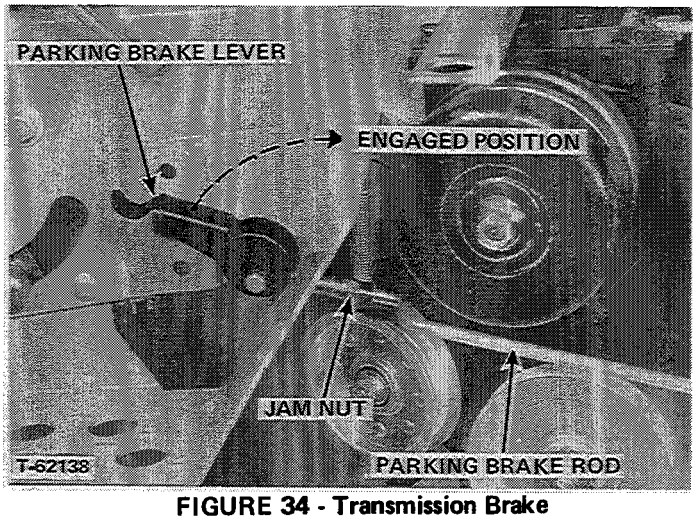


FIGURE 34 - Transmission Brake and Parking Brake Adjustment

3. Loosen the jam nut behind the parking brake lever and turn the lever clockwise to increase tension or counterclockwise to decrease tension, until tension is felt when putting the lever into engaged position. Tighten locknut when properly adjusted. Clockwise and counterclockwise direction given is standing in front of the tractor looking at the parking brake lever.

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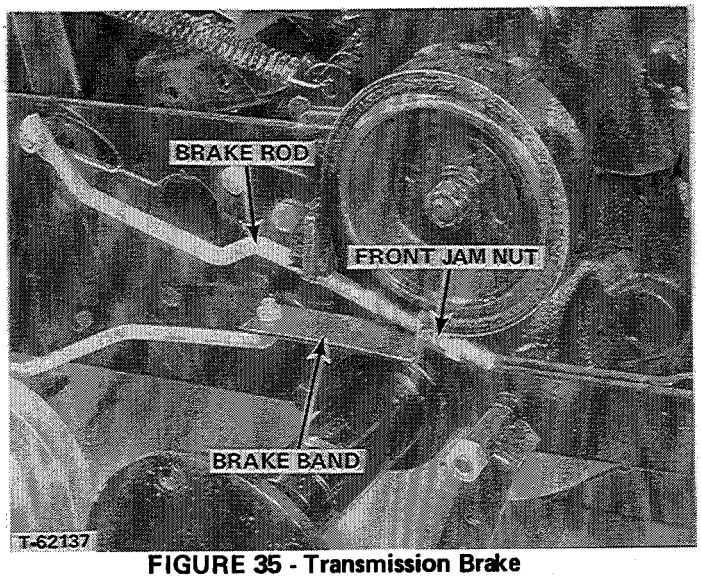


FIGURE 35 - Transmission Brake and Parking Brake Adjustment

4. With the parking brake engaged, loosen the brake rod jam nuts, and turn the front jam nut in or out, until it just comes in contact with the brake band plus 1/3 turn. Hold the front jam nut in position and tighten the rear adjusting nut securely.

Pulley Brake

1. With the clutch-brake pedal engaged and the dual range lever in Hi or Lo range, set the coil length of the return spring (the rear spring) to 1-3/8". Loosen the jam nuts and turn the front jam nut in or out to obtain this measurement.

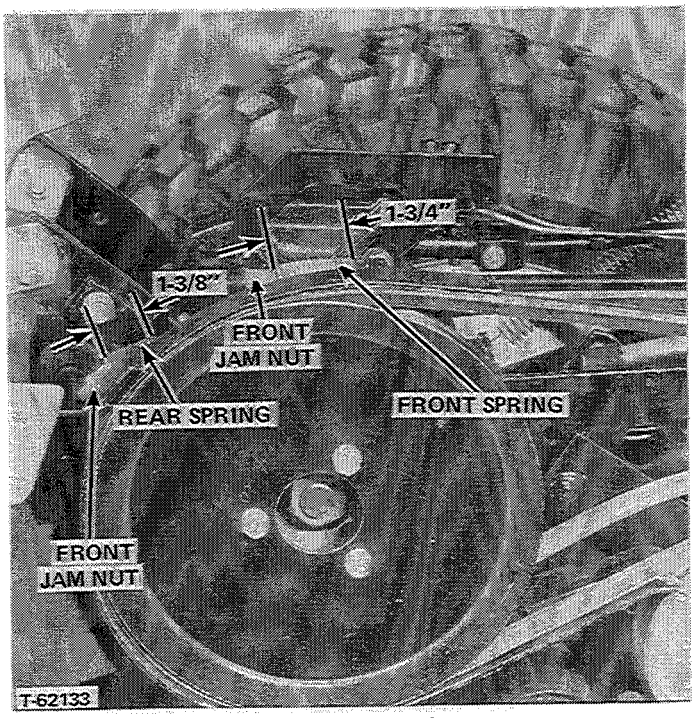


FIGURE 36 - Pulley Brake

2. Depress the clutch-brake pedal and move the dual range lever until the cam lever is under the gate finger.

3. Loosen the jam nuts behind the front spring and turn the front jam nut in or out until the spring is compressed to 1-3/4" between the rod guide and front nut. Tighten the jam nuts securely.

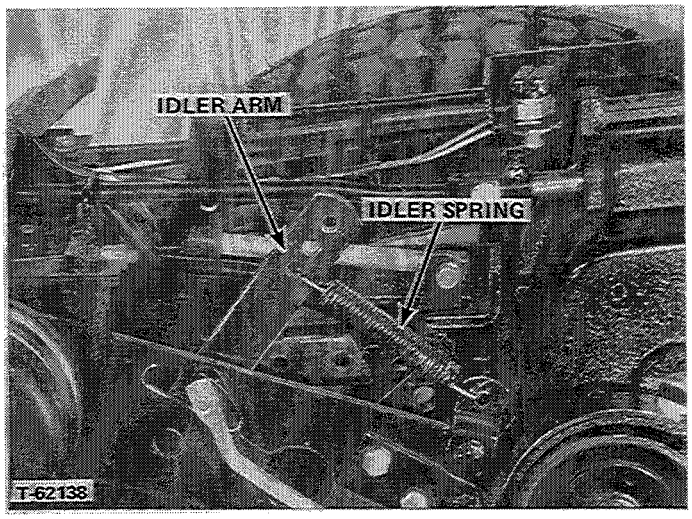


FIGURE 37 - Lower Arm Adjustment

NOTE: The idler spring should be in the bottom hole of the idler arm. If belt slippage occurs with a heavy drawbar load, move the spring into the next hole. When the spring is moved into a higher hole, there will be an increase in tension on the clutch-brake pedal, due to the increased tension on the idler arm. This will require more pressure to depress the clutch-brake pedal.

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TRACTORS WITH SHUTTLE CLUTCH

In addition to the adjustments common to all 700 Series tractors, the tractors that are equipped with shuttle clutch have the following additional adjustments:

1. See Figures 38 and 39. Adjust jam nuts on rear end of brake rod so that when foot clutch brake pedal is pushed firmly forward clutch arm will stop with its forward edge 5/8 inch to rear of the rear lift cable guide near the bevel gear box when the brake is locked tight.

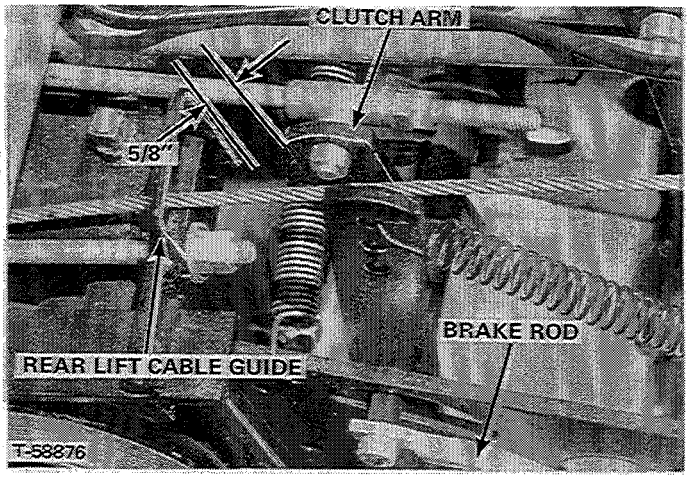


FIGURE 38

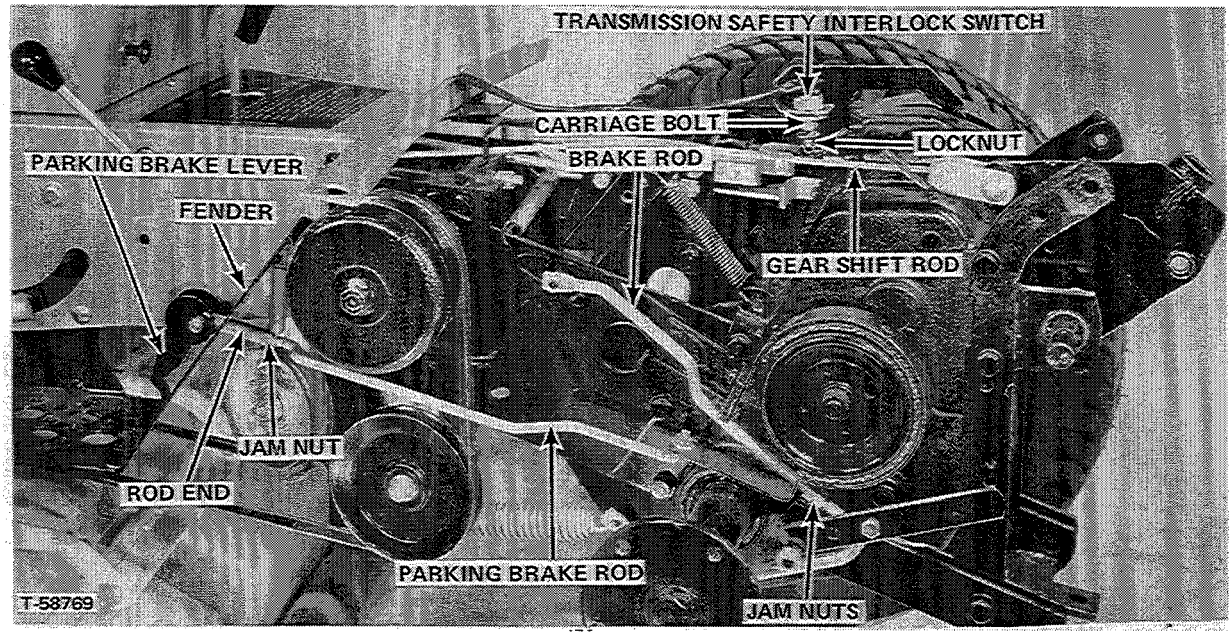


FIGURE 39

2. Loosen jam nut on parking brake rod and turn lever and rod end so that brake is tight when parking brake lever is pulled fully upward against the fender opposite the position shown in Figure 39. Tighten jam nut against rod end.

3. With clutch pedal up in engaged position adjust jam nuts on clutch rod 1/4 inch away from clutch rod guide (Figure 41).

4. Slide the front belt guard forward or back in slot at bolt "C" until guard has 1/8" clearance to the outside of the front pulley at the front side. Make sure

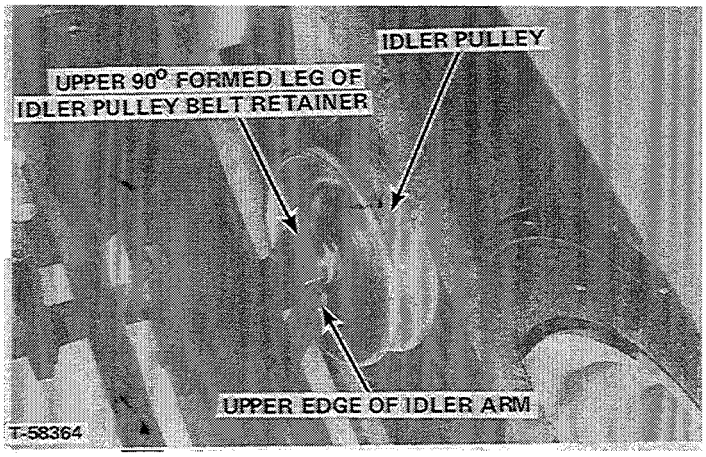


FIGURE 40

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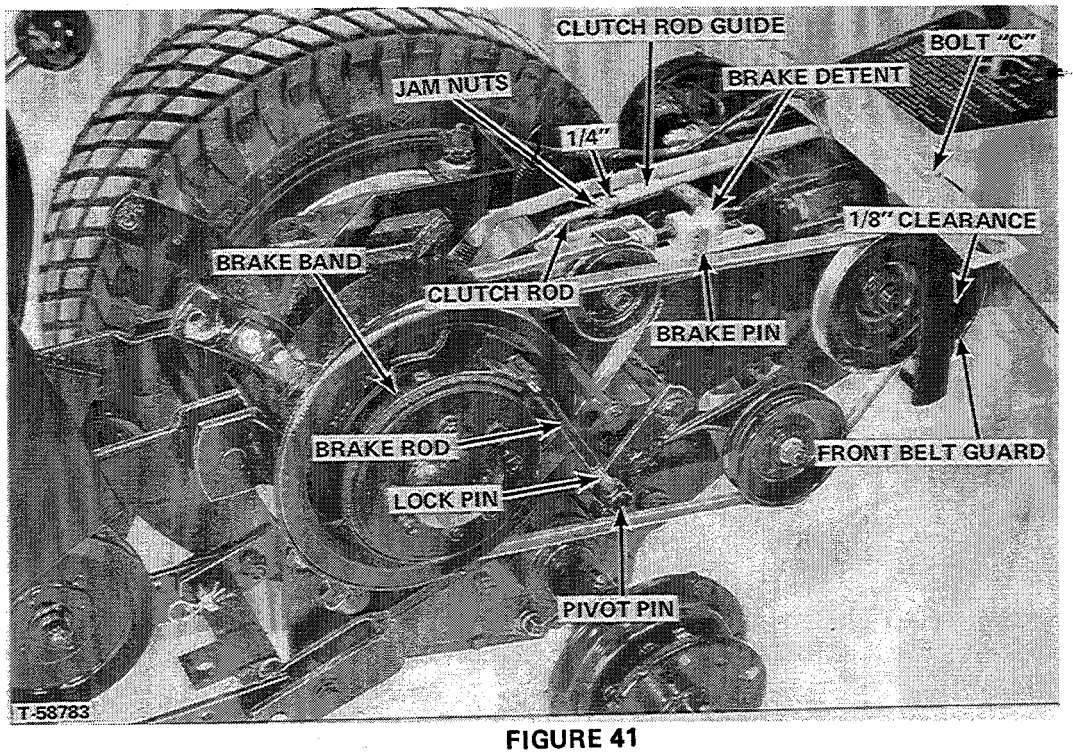


FIGURE 41

that the belt guard does not touch the pulley or the belt at any point while clutch is fully engaged (Figure 41).

5. Check that the upper 90° formed leg of the idler pulley belt retainer is resting on and is parallel to the top edge of the idler arm as shown in Figure 40, to properly locate the belt retainer.

6. The transmission safety interlock switch is actuated by a special flat top carriage bolt screwed into the gear shift rod and held by a jam nut. (See Figure 39) The carriage bolt should be adjusted in or out of the rod to the correct height to actuate the switch when the shift rod is in neutral but not high enough to drag tightly against the switch. The bolt must not touch the switch when shift is in any of the 4 gears.

7. (Figure 41), with the shuttle clutch control lever in neutral position make sure center of notch in brake detent is centered on brake pin. If necessary loosen setscrew in detent, move it, and retighten setscrew.

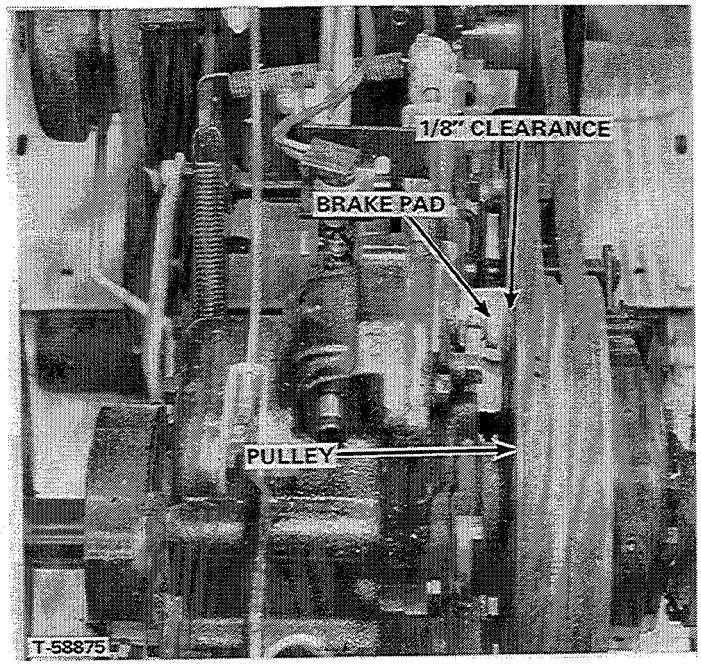


FIGURE 42 - (Control Lever Fully Forward)

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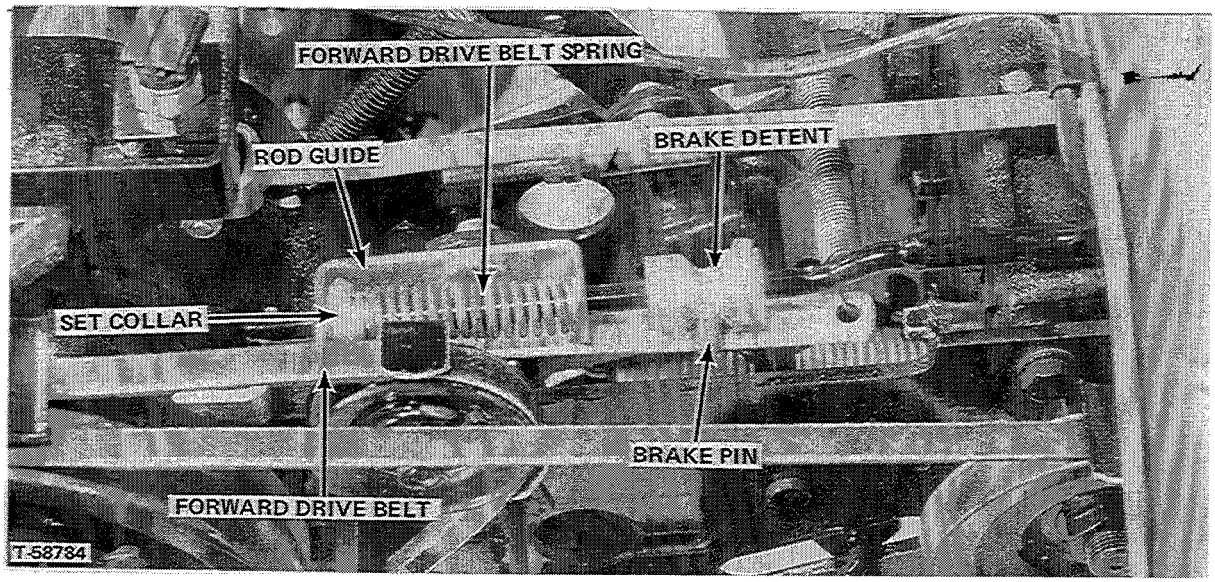


FIGURE 43 - Control Lever in Neutral

8. With control lever in full forward position adjust brake pad assembly, (Figure 42), to have 1/8 inch clearance between pad and surface of pulley. Check with control lever in full rear position, clearance between brake pad and pulley must be at least, 1/16" or more, if less readjust to a full 1/16" clearance. With the control lever in neutral there must be at least 1/16" clearance between brake pin and notch of brake detent (Figure 43).

9. With control lever in neutral position loosen setscrew in set collar behind forward drive belt spring (Figure 43). Move rod guide assembly and spring forward until slack is taken out of forward drive belt. Tighten setscrew. Move control lever to the full forward position. There should now be 3/16" clearance between rear surface of set collar and rear leg of rod guide assembly (Figure 44). If necessary reset set collar to obtain the 3/16" dimension when control lever is fully forward.

10. See Figure 41. With control lever in neutral position rotate pivot pin on threads on brake rod so that when pin is reinstalled in hole in brake lever all of the slack will be taken out of brake band. Fasten pivot pin in place in brake lever with lock pin.

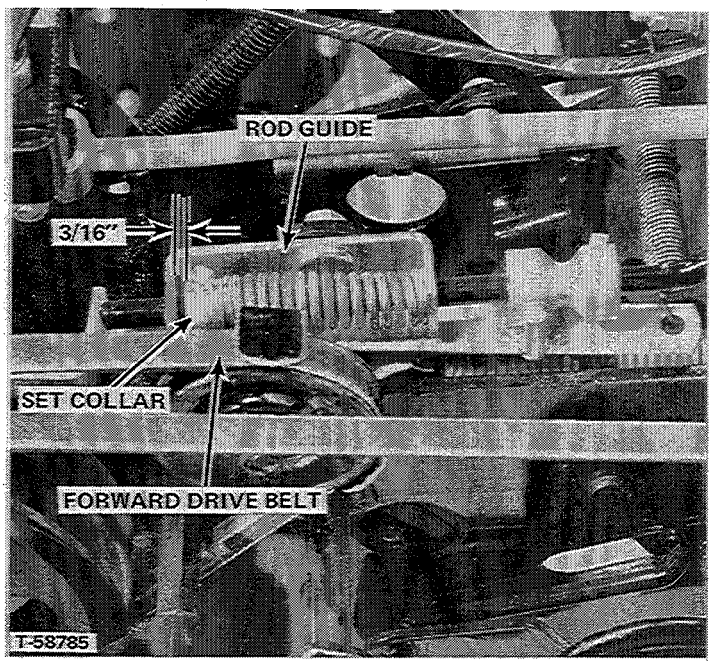


FIGURE 44 - Control Lever in Forward Position

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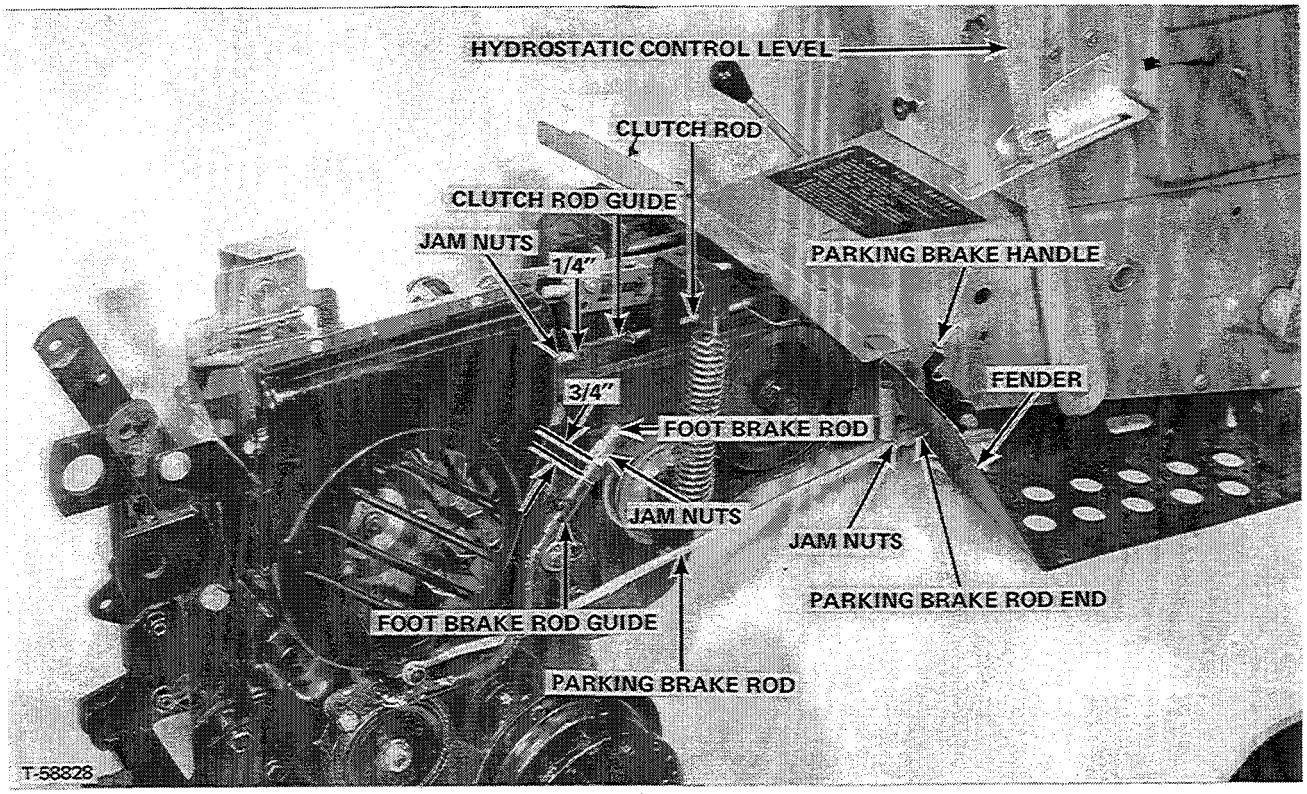


FIGURE 45

TRACTORS WITH HYDROSTATIC TRANSMISSIONS

In addition to the adjustments listed at beginning of this section for all 700 Series tractors, those tractors with hydrostatic transmissions have the following adjustments:

1. (Figure 45), loosen nut from rod end at front of parking brake rod. Turn parking brake handle and rod end until parking brake is fully tight when parking brake handle is pulled up against fender as shown.

2. With parking brake tight, adjust jam nuts on end of foot brake rod to provide 3/4" clearance to rod guide (Figure 45).

3. Adjust jam nuts on clutch rod to have 1/4" clearance from clutch rod guide as seen in Figure 45.

4. Hydrostatic Neutral Adjustment. If tractor moves forward or backward when the hydrostatic control lever is in the neutral notch of the quadrant as seen in Figure 46 proceed as follows to adjust the control linkage :

   A. Park tractor on level ground, make sure hydrostatic control lever is firmly seated in the neutral notch of quadrant, stop engine and set parking brake.

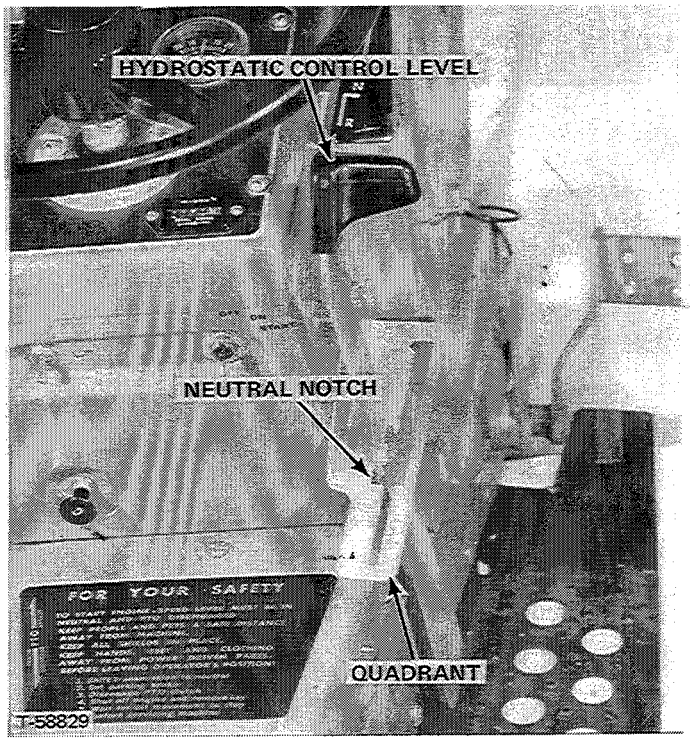


FIGURE 46

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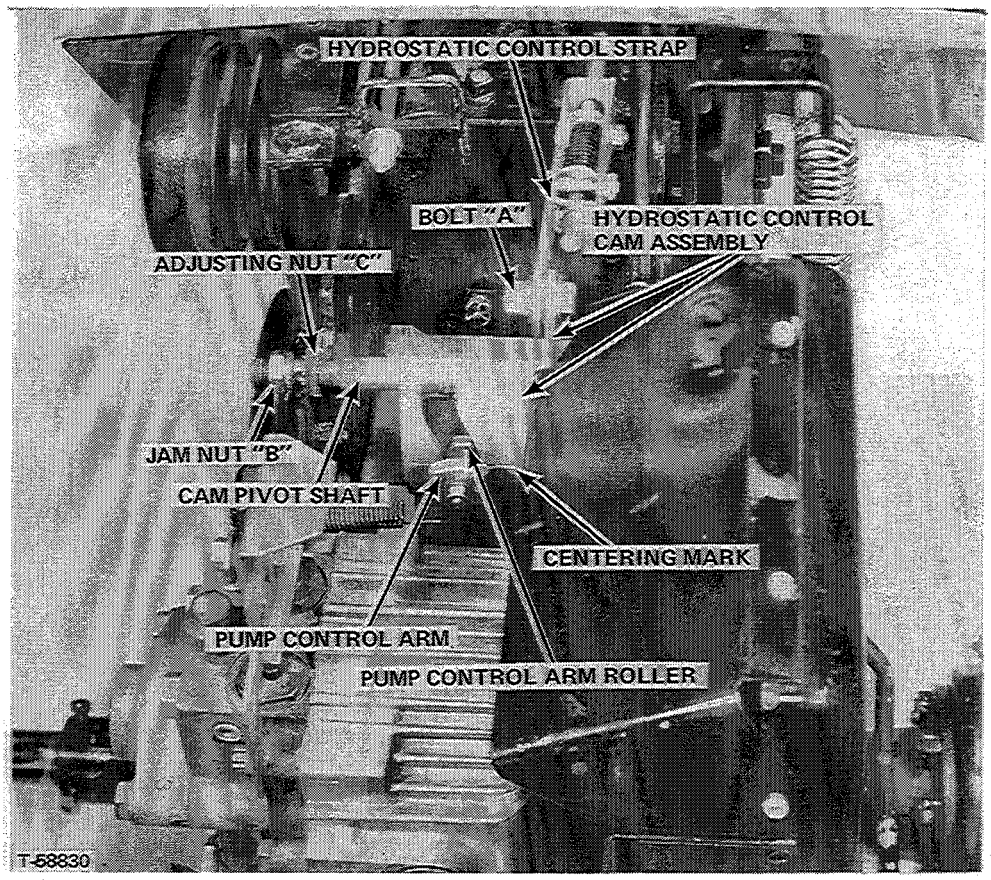


FIGURE 47 - Hydrostatic Tractor (Seat Deck Raised)

B. Raise the seat deck and check if the pump control arm roller, (Figure 47), is exactly centered with the centering mark on the hydrostatic control cam. If it is not centered, loosen bolt "A" and move the hydrostatic control cam assembly forward or backward in the slotted hole in the hydrostatic control strap until centering mark is centered on roller. Tighten bolt "A". Lower seat deck, get in the operator's seat, start engine and release parking brake. If tractor still creeps with hydrostatic control lever in neutral, note which direction it creeps and proceed with next step.

C. Again stop tractor engine, set parking brake and raise seat deck. Refer to Figure 47 and loosen jam nut "B" on L.H. end of the cam pivot shaft. If tractor creep had been in reverse turn adjusting nut "C" 1/8 to 1/4 turn clockwise when viewed from the R.H. side of tractor. If tractor creep had been forward turn nut "C" 1/8 to 1/4 turn counterclockwise. Lock jam nut, lower seat deck, get on tractor seat, start engine and release parking brake. If tractor still creeps in neutral repeat step C moving nut "C" a small amount at a time until no more creep occurs.

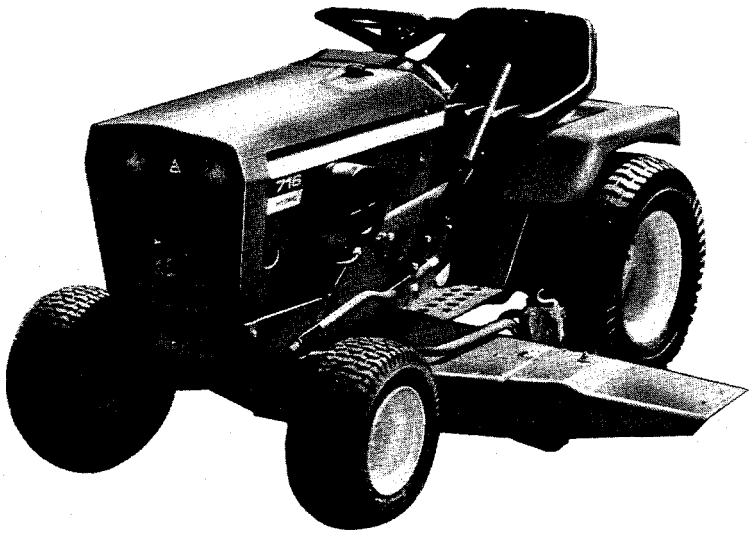
CAUTION: ALWAYS stop tractor engine before leaving tractor seat. NEVER attempt to make adjustments while engine is running.

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MAJOR ATTACHMENTS (For 700 Series Lawn and Garden Tractors)

For your convenience the operator's manual information for four major optional attachments commonly used with your garden tractor is included in the remaining part of this manual. See your Allis-Chalmers dealer for complete optional equipment listing.

To obtain the utmost in safety, performance, long life and convenience from your Allis-Chalmers Lawn and Garden Equipment study carefully the parts of this manual covering the tractor and the attachments you plan to use. Refer to this information periodically to refresh your memory and assure most efficient servicing, operating, and adjusting procedures.



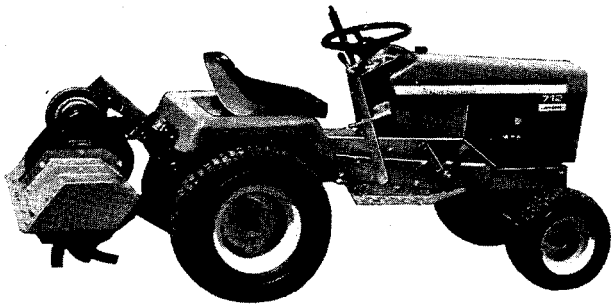
T-62798

Rotary Mower and Tractor



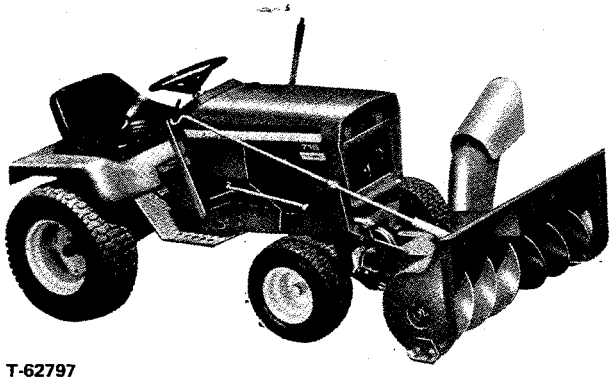
T-62799

Vacuum Collector and Tractor



T-62796

Tiller and Tractor

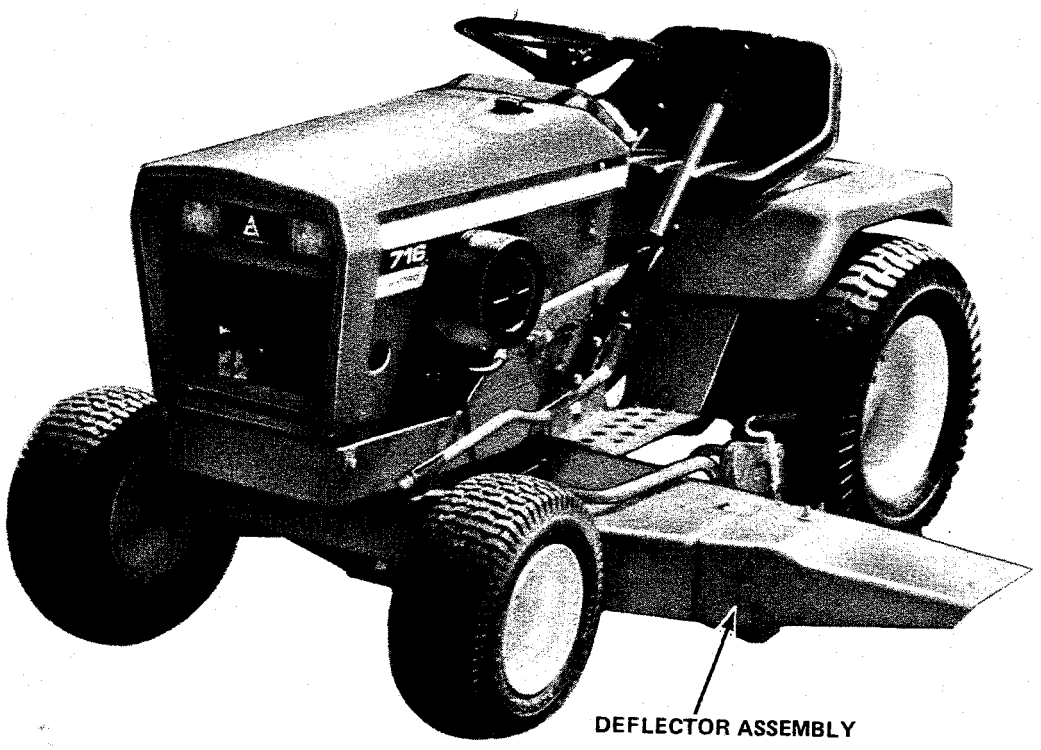


T-62797

Snow Thrower and Tractor

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ROTARY MOWER



T-62798

FIGURE 1

42" and 48" ROTARY MOWERS

The 42" mower is recommended for use on all tractor models. The 48" mower is recommended for the models 712-S, 712-H, 716 6-speed, 716-H and 718H tractors.

OPERATION

BEFORE STARTING ENGINE

1. Read this mower section and the tractor section of this manual very carefully. Be sure you are familiar with the safety precautions, controls and operating instructions.

2. Check the mower carefully to be sure it is properly installed.

CAUTION: NEVER operate the mower unless the discharge guard and either the deflector assembly or the vacuum collector adapter are fastened securely in place on the mower housing (Figures 1 and 2).

3. Check the condition of mower blades. Keep them sharp and in balance.

4. Clear the lawn of all sticks, stones, wire and other debris which may be caught or thrown by the mower blade.

5. Determine the best method of mowing according to the dimensions, terrain and obstructions of the lawn.

6. Be sure that mower is properly leveled and adjusted as outlined in adjustment section.

7. Refer to the tractor part of manual for starting engine.

ENGINE SPEED

Engine speed should normally be operated at 2/3 to full throttle when mowing. When grass is wet or over 3 inches high, engine should be run at full speed for best results.

TRANSMISSION GEAR SELECTION

All forward speeds may be used for mowing under some conditions. Higher speeds should only be used in smooth level lawns with moderate to light grass crop. Always select a forward speed that is slow enough to assure that you can properly and safely control the tractor over the ground conditions encountered.

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ROTARY MOWER

CAUTION: When operating the mower for first time use the lowest speed of the tractor until you become acquainted with the controls and operation of the tractor and mower.

MOWING PATTERN AND TIPS

For the first use of the mower choose a smooth level area. Cut long straight strips overlapping slightly. After becoming familiar with the operation proceed to inclined or rougher ground.

The size and type of area to be mowed determines the best mowing pattern to use. Obstructions such as trees, fences, and buildings must also be considered. In most cases, making one or two passes in a counter-clockwise direction around the outside of the area to be mowed is advisable to keep cut grass off of fences, walks, etc. The remainder of the mowing should normally be done in a clockwise direction so the clippings are dispersed on the cut area.

Always keep the right side of mower toward trees, posts, or other obstacles on the first pass around obstacle.

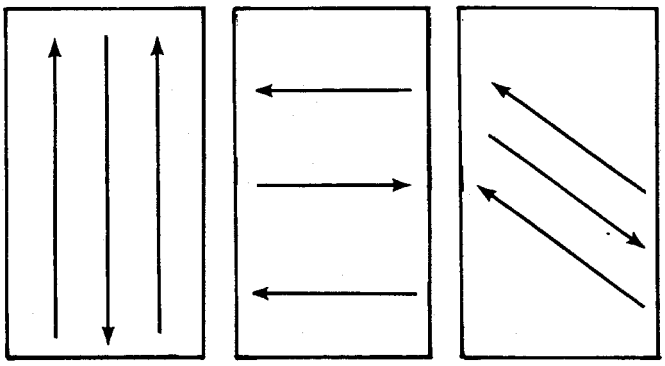
On moderate size, frequently mowed lawns where grass is light and dry it is sometimes practical to mow in a counter-clockwise direction so that clippings are thrown toward the center of the lawn and concentrated for easy pickup and removal.

Most lawns should be mowed to keep the grass approximately two to three inches high. Best results are obtained by cutting often and not too short. To keep a green lawn, never mow more than one third off the height of the grass or a maximum of one inch in one mowing. For extremely tall grass, set the cutting height at maximum for the first mowing, then reset to the desired height and mow again. Allow the grass to grow to three inches, then cut off only the top inch.

On thick or springy grass or soft ground, the mower rollers may sink into the ground giving too low a cut. Adjust the cutting height to get the desired height of cut.

For best appearance, grass should be cut in the afternoon or evening when it is free of moisture.

Where possible change patterns occasionally to eliminate matting, graining and a corrugated appearance. See diagrams below.



Front to Back | Side to Side | Diagonal

CAUTION: DO NOT WORK around mower housing area until you are certain that the mower blades have stopped rotating.

Heed the **CAUTION SIGN**, the **DANGER SIGN**, and the **WARNING SIGN** located on the mower housing. Make certain the discharge guard and either the deflector assembly or the vacuum collector adapter are securely in place before operating the mower.

CAUTION: ALWAYS disengage the PTO drive clutch and stop engine before leaving the tractor seat. If leaving the tractor and mower unattended, remove the ignition key.

LUBRICATION AND SERVICE

BLADE REPLACEMENT

Do not attempt to remove the blades unless you have the correct size box or socket wrench to fit the blade mounting capscrews. Remove mower from tractor and turn it over to expose the blades (Figure 2).

To remove the blades securely wedge a block of wood between the blade and the housing in such position that it will hold the blade safely while loosening or tightening the blade mounting capscrews.

Do not attempt to remove the arbor assemblies, take out blade mounting capscrews only.

CAUTION: ALWAYS handle the blade with care to avoid injury.

To sharpen blades yourself, clamp blade securely in a vise and use a large mill file along the original bevel. File to a sharp edge.

To balance blade, place a small rod through center hole to see if blade rests with both ends balancing evenly. File heavy side of blade until it balances out even.

NOTE: Your Allis-Chalmers Lawn and Garden Equipment Dealer is equipped to sharpen and balance your mower blades. For expert service and quality parts, see your authorized Allis-Chalmers Dealer.

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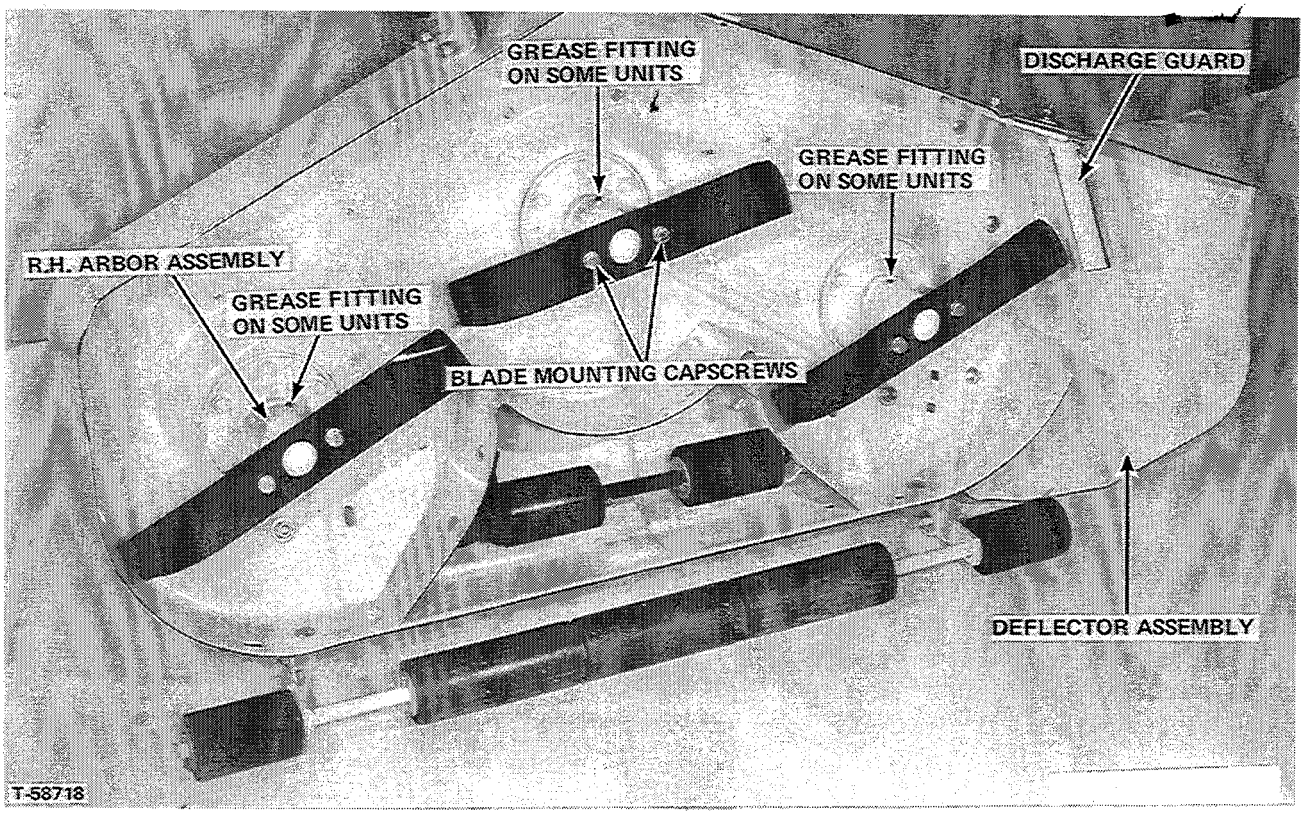


FIGURE 2 - 42" Mower Shown (48" Similar)

INSTALLING BLADES WITH ONE MOUNTING CAP-SCREW PER ARBOR ASSEMBLY

Carefully clean the blades and arbors. Before installing the blade, be sure that the self-locking ring is pushed up tight against the blade adaptor. Install the new or sharpened blade with the lift tabs toward the top on the arbor shaft. Install the spline washer, making sure that it is engaged on the splines of the arbor shaft. Install the spring washer with the concave side toward the blade and tighten the capscrew securely. Use a block or wedge to keep the blade from turning while tightening the capscrew.

NOTE: The mower blade retaining capscrews should be torqued to 45 - 55 ft.-lbs.

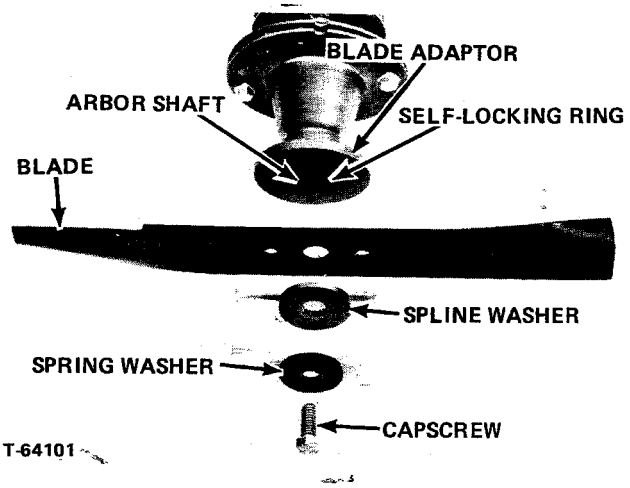
Rotate the blades slowly by hand to see that they clear the housing all around and that the blade tips are running true.

INSTALLING BLADES WITH TWO MOUNTING CAPSCREWS PER ARBOR ASSEMBLY

Carefully clean the blades and arbors. Install the new or sharpened blades with the lift tabs toward the top and tighten the capscrews securely. Use a block or wedge to keep the blade from turning while tightening capscrew.

NOTE: The mower blade retaining capscrews should be torqued to 32 ft.-lbs.

Rotate the blades slowly by hand to see that they clear the housing all around and that the blade tips are running true.



GREASE FITTINGS (Figure 2)

The grease fittings in each of the arbor assemblies, (Figure 2) should be given about 5 shots of No. 2 lithium base gun grease every 50 hours of operation and at the end of the cutting season each year.

Do not overgrease and make sure that any excess grease forced out of the mower arbor assemblies does not get on the drive belts.

Arbors with one mounting capscrew will not have grease fittings.

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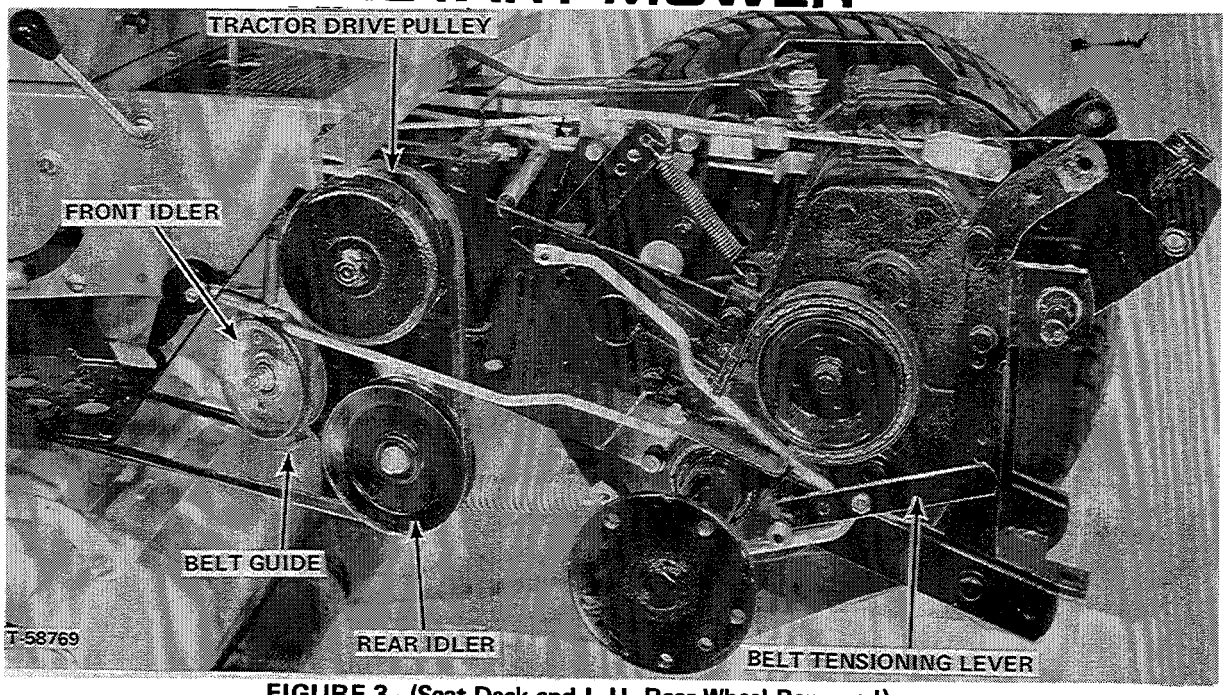


FIGURE 3 - (Seat Deck and L.H. Rear Wheel Removed)

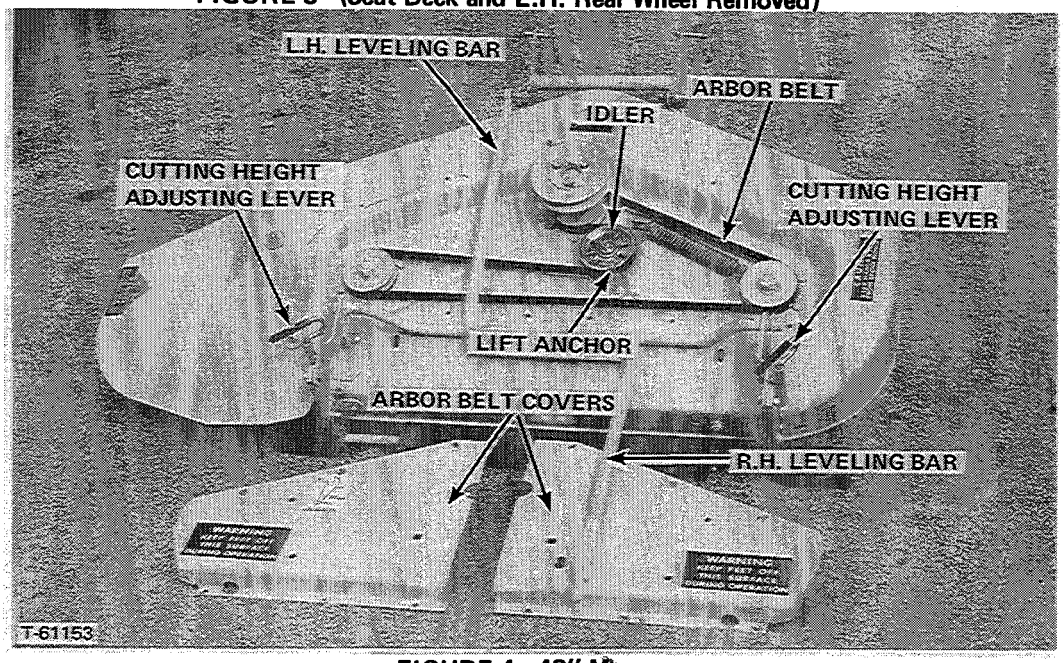


FIGURE 4 - 42" Mower

BELT REPLACEMENT

To replace the mower drive belt, stop the engine, fully disengage the PTO drive clutch. Push the belt tensioning lever (Figure 3) fully downward to loosen drive belt idlers. Remove the belt from the drive pulley on the tractor and from the driven pulley on the mower. Loosen the belt guide on the front idler pulley and remove belt. Reinstall a new belt in reverse order.

To replace the arbor drive belt remove the mower from the tractor, then remove the arbor belt cover right hand and left hand by removing bolts that hold them to mower deck and the pin that holds the lift cable clevis to the lift anchor of the mower.

On the 42" mower remove the right hand leveling bar to permit lifting right hand arbor cover over the lift anchor (Figure 4).

On the 48" mower remove the left hand arbor belt cover first then spring the inner edge of the right hand cover up over the lift anchor and slide it out from under the right hand leveling bar as shown in Figure 5.

Unhook idler spring from idler and remove belt from arbor pulleys. Install new belt as shown in Figures 4 and 5 and reattach idler spring.

Reinstall arbor belt covers right hand and left hand, and hook up leveling bars.

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OUT OF SERVICE PROTECTION (STORAGE)

1. Remove the mower from the tractor.
2. Use water under pressure to thoroughly clean the mower to remove any buildup of grass clippins and dirt under the mower deck.
3. Cover any area where paint has been worn or chipped away with paint or a light coat of oil.
4. Lubricate each arbor grease fitting with about 5 shots of No. 2 lithium base gun grease.
5. Store the mower in a dry place.

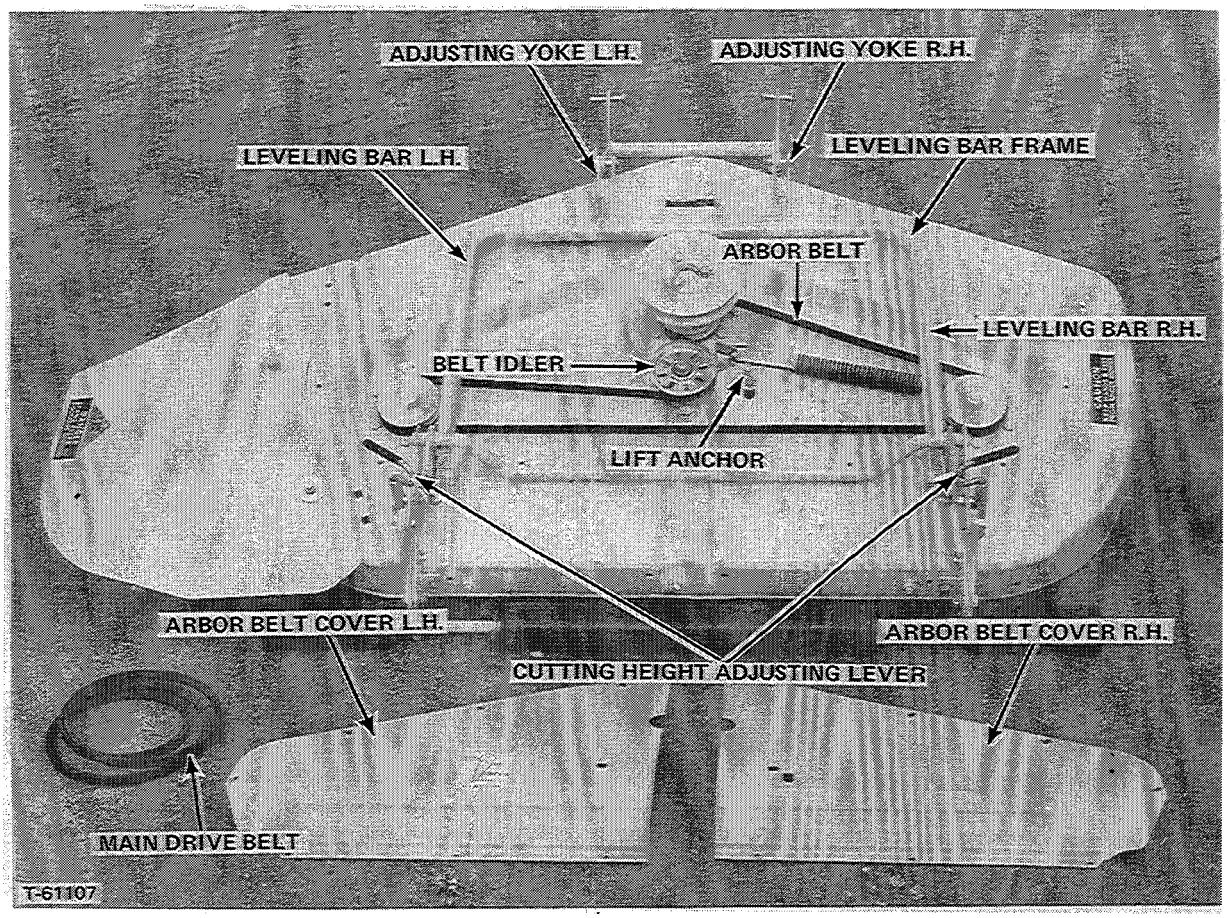


FIGURE 5 - 48" Mower (Arbor Belt Covers Removed)

ADJUSTMENTS

LEVELING THE MOWER (Figures 4, 5 and 6)

Check the tractor tire pressures and make them equal on right hand and left hand side. Set mower to normal cutting height.

With the tractor and mower on a level surface rotate the three blades so that the blade tips are pointed toward the front of the mower. Measure the distance from the front tip of the center blade to the ground. Then measure the height of the rear tips of side blades. The front tip of center blade should be 1/4 inch higher than rear tip of side blades. The rear tips of right hand and left hand side blades should be the same distance above ground.

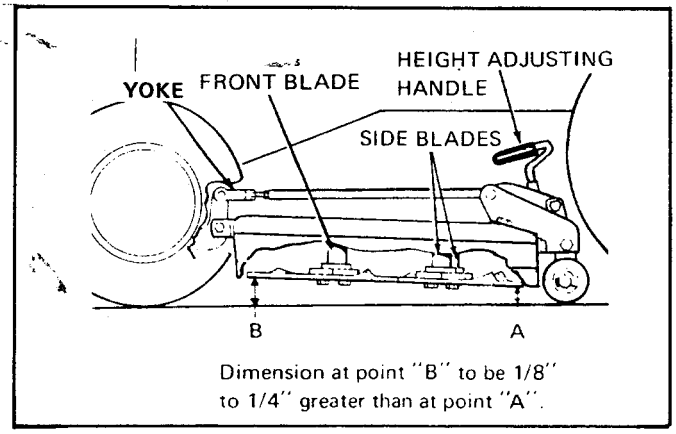


FIGURE 6

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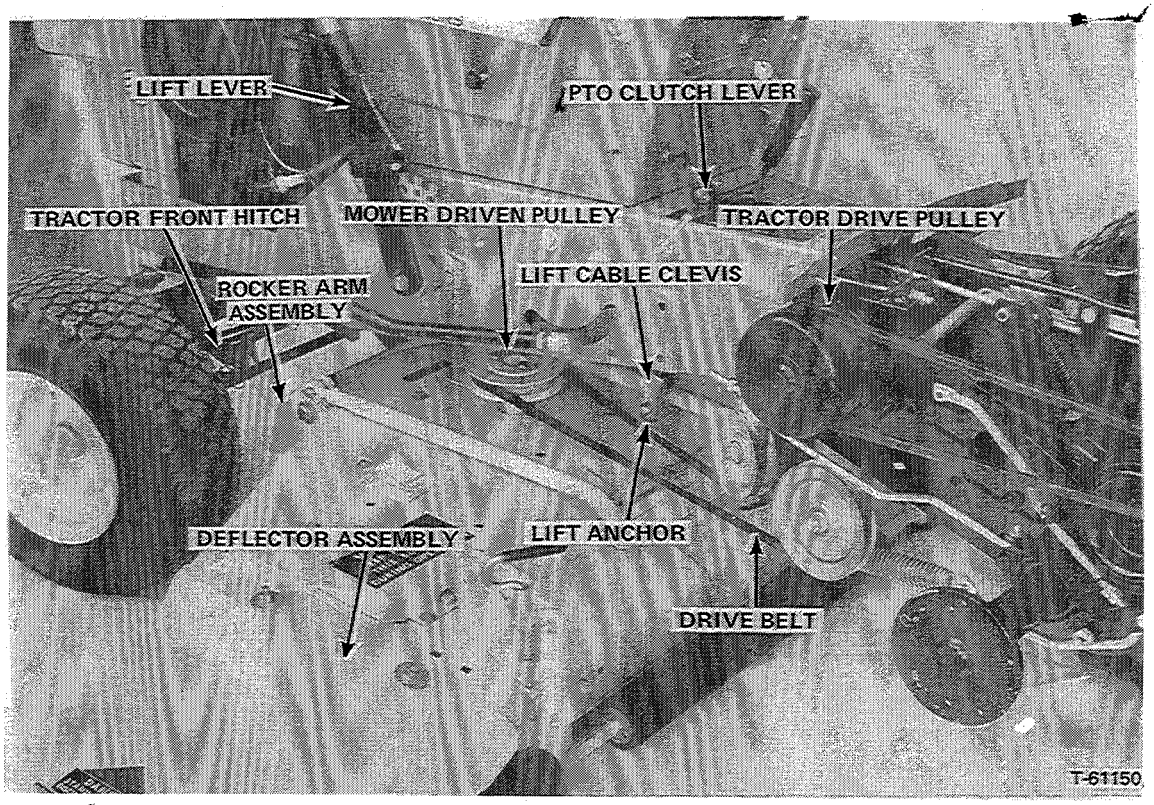


FIGURE 7 - 42" Mower on 712-S Tractor (Seat Deck, L.H. Foot Rest and L.H. Wheel Removed for Visibility)

To adjust, turn the adjusting yokes on the front end of the leveling bar frame on the 48" mower, (Figure 5), and the eyebolts on the front end of the leveling bars on the 42" mower (Figure 4).

Turn both yokes, or eyebolts to obtain the 1/8" to 1/4" difference in height from front tip to back tip. Turn only one yoke or eyebolt to obtain same height of the side blades for sideways leveling.

CUTTING HEIGHT (Figures 4 and 5)

Cutting height from 1-5/8 inches to 3-1/8 inches can be selected by adjusting the height control levers up or down. Turn the levers clockwise to raise the blades and counter-clockwise to lower them. The mowers have an adjusting lever on both sides of the mower. These should be turned the same number of turns to keep mower level from side to side.

A cutting height of approximately 2 inches is average and normal. The lower settings should be used only for smooth lawns where short grass is desired. The higher settings are for rougher areas or for very high grass.

ATTACHING THE MOWER

1. Park the tractor on level ground with the mower positioned on left hand side. Turn the front wheels fully away from the mower to give clear access to the tractor side. Slide the mower underneath the tractor, then straighten the front wheels. Move the lift lever forward and attach the lift cable clevis to the lift anchor on the top of mower with pin and lock pin (Figure 7).

2. Partially raise the mower lift and attach the mower rocker arm assembly to the holes in tractor front hitch using round head pins and lock pins (Figure 7).

3. Disengage the tractor power take off lever. Push the belt tensioning lever, (Figure 8) all the way down. Loosen the bolt that holds the belt guide on the front idler. Place the mower drive belt over the mower driven pulley, the tractor drive pulley and the front and rear idlers as shown in Figures 7 and 8. Make sure that flat top of the belt contacts the front idler. Locate belt guide as shown and tighten bolt. Raise belt tensioning lever to tighten belt.

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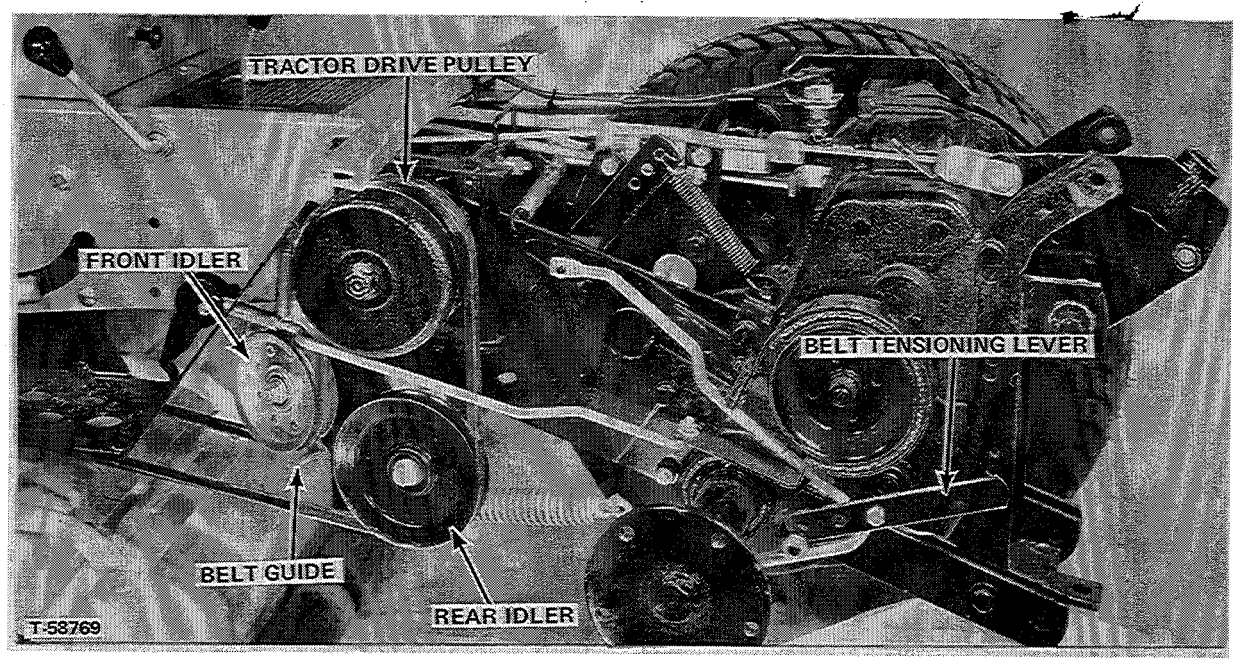


FIGURE 8 - (Seat Deck and L.H. Rear Wheel Removed)

REMOVING MOWER FROM TRACTOR

1. Position tractor and mower on a level solid surface with space for mower at left side of tractor.

2. Disengage the P.T.O. lever and lower the belt tensioning lever (Figures 7 and 8). Loosen the bolt that holds the belt guide to the front idler and remove the drive belt from the tractor drive pulley and idlers and from the mower driven pulley.

3. Partially lower the mower with lift lever and disconnect the mower rocker arm assembly from the tractor front hitch. Store the pins and lock pins in the mower rocker arm assembly.

4. Complete lowering the mower to the ground with the lift lever. Remove lock pin and pin holding lift clevis to lift anchor on top of mower.

5. Slide mower from under tractor on left hand side.

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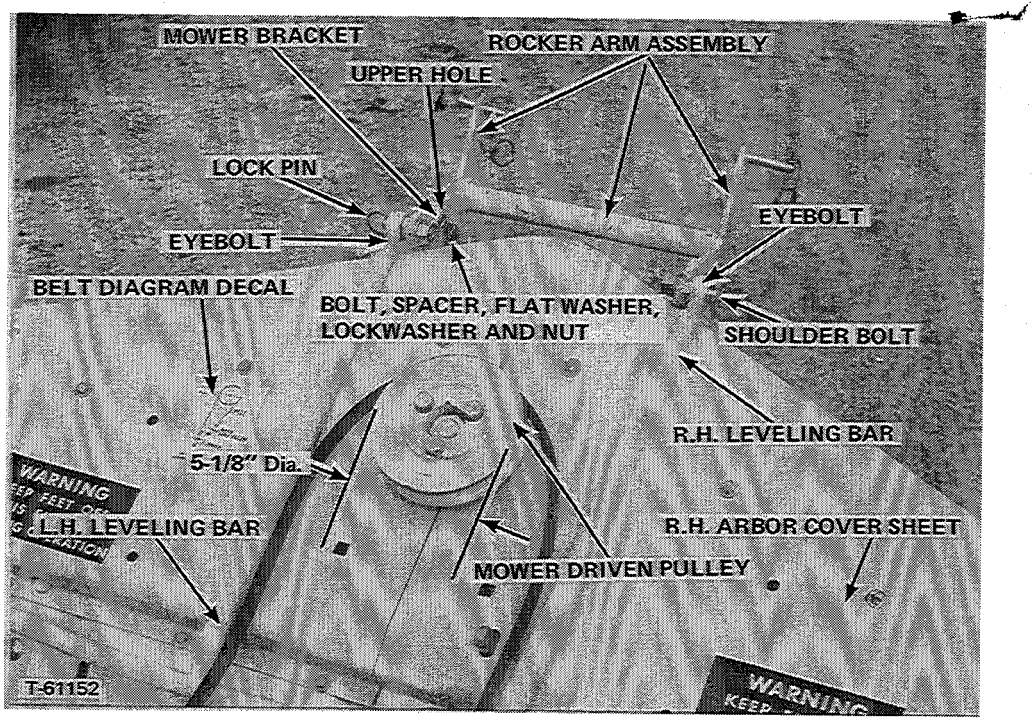


FIGURE 9 - 42" Mower

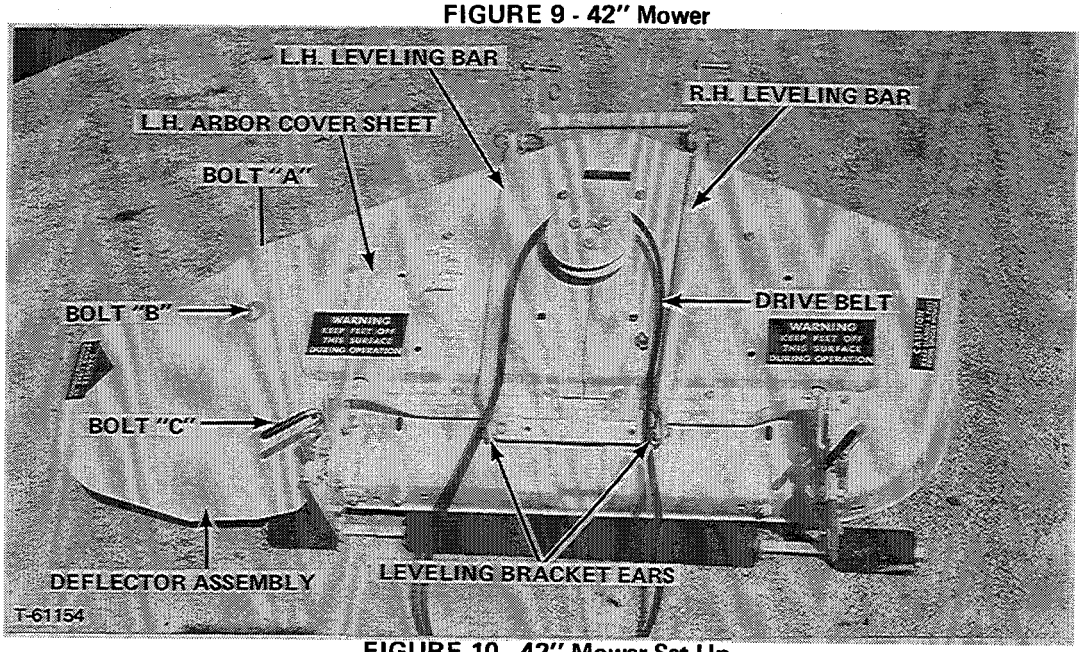


FIGURE 10 - 42" Mower Set-Up

SETTING UP INSTRUCTIONS - 42" ROTARY MOWER

1. Bolt the rocker arm assembly in the lower holes of the mower brackets with two bolts, spacers, flat washers, lockwashers and nuts as shown in Figure 9.

2. Place shoulder bolts into rear holes of the rocker arm assemblies from the outside and install the eyebolt ends of the right hand and left hand leveling bars on the plain end of shoulder bolts and secure with lock pins as shown in Figure 9.

3. Install the 5-1/8" diameter mower driven pulley on the mower drive hub (Figure 9).

4. Place the belt diagram decal on the left hand arbor cover sheet (Figure 9).

5. Fasten the rear of the right hand and left hand leveling bars to the outside of the leveling bracket ears with bolts, spacers, flat washers, lockwashers and nuts as shown in Figure 10.

6. Bolt the discharge deflector to the L.H. end of mower housing, slipping notch in front leg of deflector under large flat washer on bolt "A" and installing bolt, flat washer, lockwasher and nut at holes "B" and "C" (Figure 10). Tighten bolts securely.

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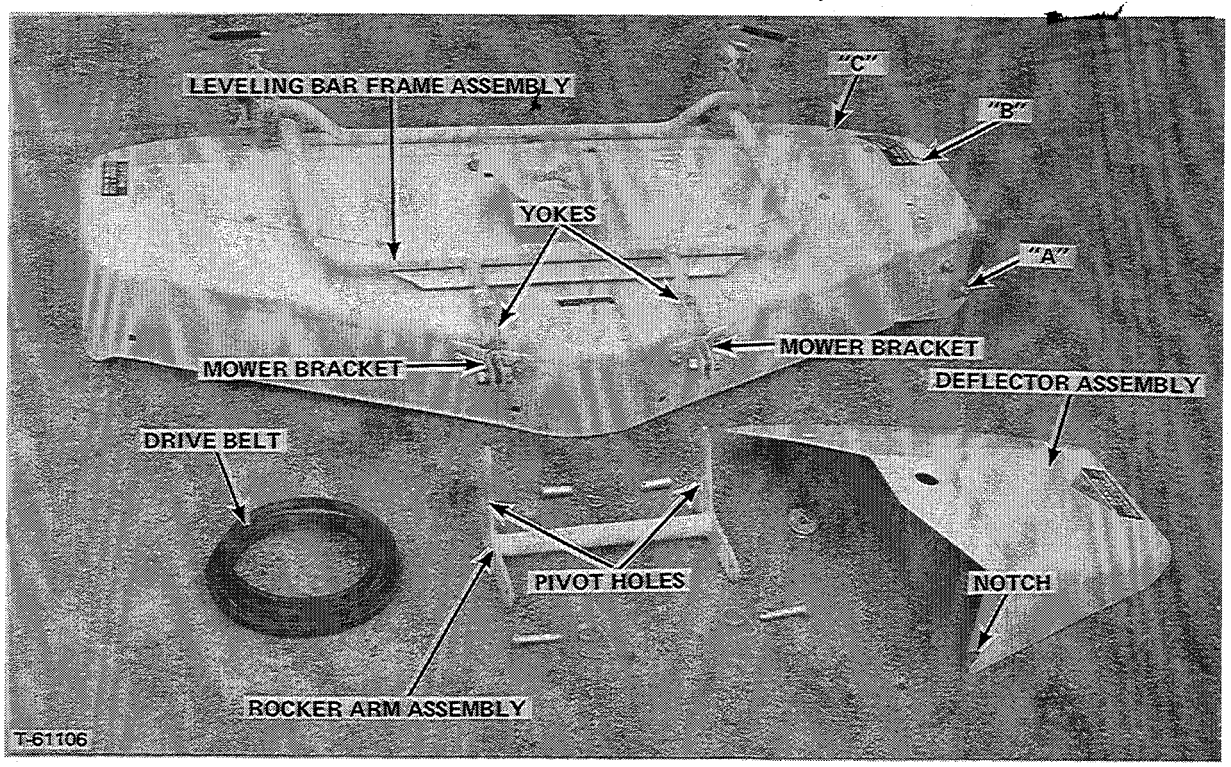


FIGURE 11 - 48" Mower as Shipped

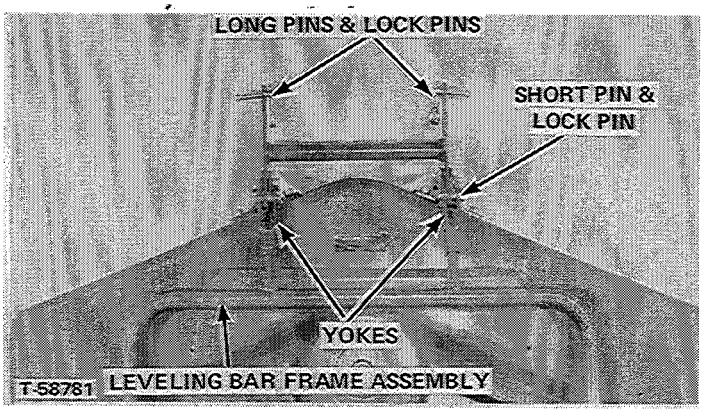


FIGURE 12

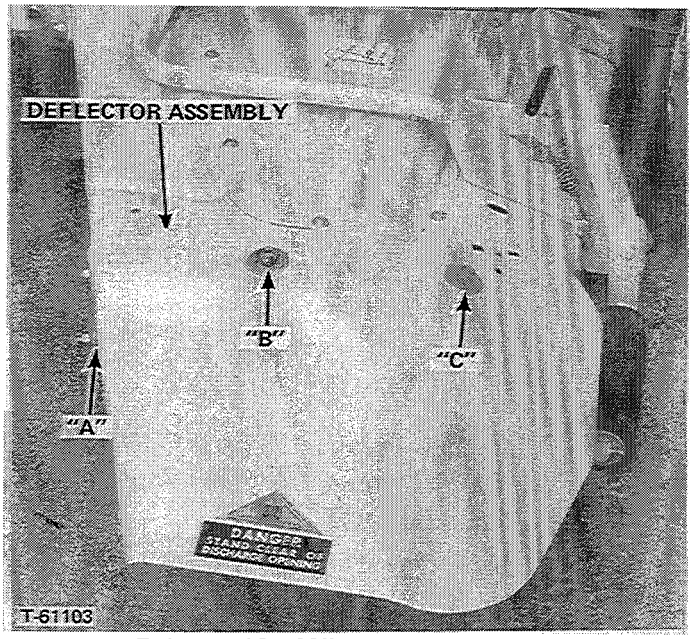


FIGURE 13 - 48" Rotary Mower

SETTING UP INSTRUCTIONS - 48" MOWER

(See Figures 11 and 12)

1. Bolt the rocker arm assembly to the mower brackets placing the spacers and bolts in the mower brackets in the pivot holes in rocker arm assembly.

2. Pin the yokes on the front of the leveling bar frame assembly to the rear holes in the rocker arm assembly with the short pins and lock pins.

3. Place long pins and lock pins in front holes in rocker arm assembly for storage.

4. Bolt the deflector assembly to the discharge end of mower housing as shown in Figure 13. Place notch in front leg of deflector under large flat washer at "A". Install carriage bolts at "B" and "C" with the heads under the mower housing and with a large flat washer and nut above the deflector as shown. Tighten securely.

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VACUUM COLLECTOR

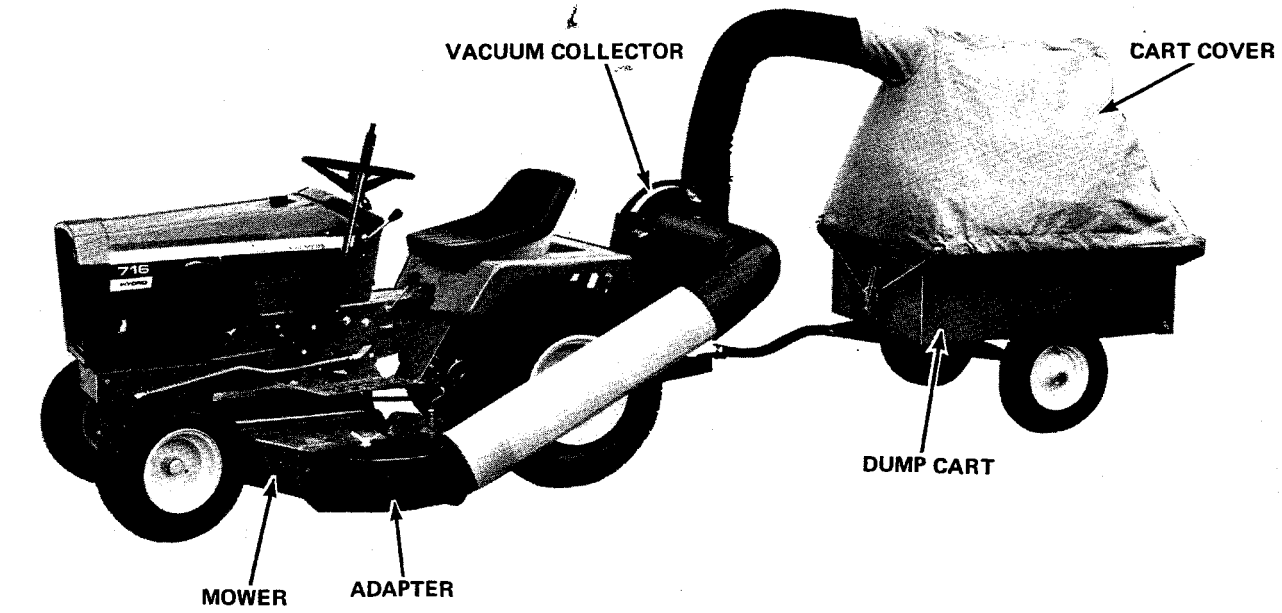


FIGURE 1

VACUUM COLLECTOR, CART COVER & ROVING NOZZLE

INTRODUCTION

Use of the vacuum collector, dump cart and cover, with your 710, 712, 716 or 718 tractor and rotary mower will enable you to keep your lawn neat and clean with minimum effort. In addition to improved appearance your lawn will also be healthier if the clippings are removed after each cutting.

Use of the roving nozzle will permit you to pick up leaves and grass in areas where the mower cannot be operated such as flower beds, under bushes and trees etc.

BEFORE OPERATING

Read and become familiar with the owners manual for your tractor and the mower before operating the vacuum collector. Pay special attention to the safety precautions for they will also apply to the operation of this unit. In addition the precautions given on the next page apply specifically to the vacuum collector and its allied equipment. Study them thoroughly before operating.

PREPARING TO START

Check that mower is in proper adjustment, and that adapter is securely fastened to outlet of mower. Check that intake elbow and discharge hose are securely fastened.

Check that blower drive belts are properly installed and adjusted.

CAUTION: NEVER start the blower running unless both the intake elbow and the discharge hoses are firmly fastened in their proper place to the blower housing.

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VACUUM COLLECTOR
SAFETY PRECAUTIONS



ATTENTION! BECOME ALERT!
YOUR SAFETY IS INVOLVED!

This symbol is used to call your attention to safety precautions that should be followed by the operator to avoid accidents. When you see this symbol - Heed Its Warning!

Many hours of lost time and much suffering is caused by the failure to practice simple safety rules.

IT IS TOO LATE TO REMEMBER WHAT SHOULD HAVE BEEN DONE AFTER THE ACCIDENT HAS HAPPENED.

Read and become familiar with the sections of this manual for your tractor and the mower before operating the vacuum collector. Pay special attention to the safety precautions for they will also apply to the operation of this unit. In addition the following precautions apply specifically to the vacuum collector.

* **ALWAYS** disengage tractor P.T.O. drive, and stop tractor engine before removing intake tube, intake elbow, or hose from blower, mower adaptor or cart cover.

* **ALWAYS** disengage tractor P.T.O. drive, stop tractor engine and remove ignition key before cleaning or servicing of fan blades or blower housing.
NOTE: If tractor does not have an ignition cut-off switch, remove spark plug wire so that engine cannot start if accidentally turned over while turning fan blades.

* **NEVER** direct the discharged material from the blower toward anyone.

* **NEVER** allow anyone to ride in or on the cart while blower is running.

* **ALWAYS** stop the tractor engine before leaving the machine - even if only for a moment. Remove ignition key.

* **NEVER** operate equipment unless all guards and shields are in place.

* **NEVER** overspeed the tractor engine or alter governor settings. Excessive speed is always unsafe and shortens engine life.

* **NEVER** allow anyone to operate the equipment without full instruction and knowledge of safe operating procedures.

* **ALWAYS** stop tractor engine immediately when striking a foreign object, check equipment for breakage or damage and repair it before starting operations again.

* **DO NOT** attempt to pick up anything from the ground or remove debris from an implement while in the operator's seat with the engine running. Shut the engine off, wait until moving parts have stopped, then handle the job safely.

* **WHEN BACKING** tractor, check to see that the right-of-way is clear. Be especially careful when backing dump cart.

* **REMEMBER** that safe operation is no accident.



CAUTION: For Your Safety, when using the ROVING NOZZLE with the vacuum collector:

1. **ALWAYS** make sure that either the mower drive belt is removed or that the mower drive belt tightening lever behind the left hand tractor axle is fully loosened to stop the mower from turning before engaging the PTO clutch to run the vacuum collector to use the roving nozzle.

2. **ALWAYS** put tractor transmission in neutral, and fully engage the parking brake before leaving the tractor seat to operate the roving nozzle - Be careful to stay away from all moving parts.

3. **NEVER** remove roving nozzle hose or the discharge hose from fan or from the cart cover while engine is running or fan is still turning.

4. **NEVER** attempt to clean or adjust vacuum collector or cart in any way while engine is running or fan is still turning.

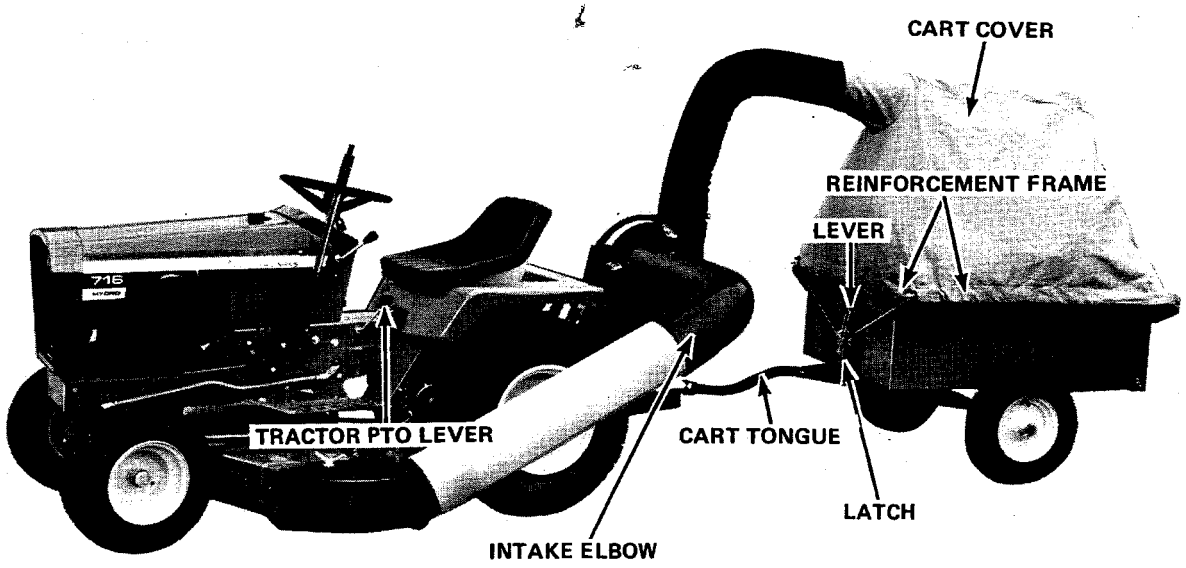
5. **NEVER** attempt to move the tractor to a new location without getting completely back in driving position on the tractor seat.

AVOID ACCIDENTS

BUILT IN SAFETY FEATURES CAN BE EFFECTIVE ONLY IF PROPERLY MAINTAINED AND UTILIZED.

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VACUUM COLLECTOR



T-62799

FIGURE 2

OPERATION

Refer to tractor section for instructions for starting and operating tractor.

To start vacuum collecting have tractor transmission or hydrostatic control lever in neutral position. With engine running at about 1/2 throttle slowly and gently engage the tractor P.T.O. clutch to start the mower and blower. Then shift transmission into gear or move hydrostatic control lever ahead to start forward motion.

VACUUM COLLECTING

Under average dry conditions set the tractor engine throttle about 3/4 open and operate mower in normal mowing speeds. Under damp conditions or when collecting thick heavy material, run engine at full throttle and slow ground speed by using second or first gear.

When collecting leaves and tall grass, raise the mower to highest cutting height on first pass, then lower it for the second pass.

In extremely heavy or tall green grass it may be necessary to cut only half the width of the mower to prevent the hoses from clogging up. Check the hoses and blower housing periodically to make sure the material does not accumulate and block the flow to cart.

NOTE: It is recommended that you do not try to collect grass or leaves that are wet with external moisture such as rain or dew.

Best results for filling the covered cart can be obtained with at least a 3/4 or more engine speed throttle setting.

As the cart and cover fills up it is advisable to occasionally stop the forward motion of the tractor and stop the mower and vacuum collector fan to allow the cart cover to settle and show how full the cart is. If the cart is overfilled the discharge tube can be quickly filled and the blower plugged.

CAUTION: When cleaning material out of hoses or fan be sure to stop tractor engine and wait until all moving parts have stopped before removing hoses. Also always disengage P.T.O. clutch and remove start switch key before placing hands inside blower housing. Moving the fan blades could possibly start engine and blower running if P.T.O. is left engaged and key is not removed.

DUMPING CART

To empty the cart, back it into the area where material is to be dumped and disconnect the tractor P.T.O. clutch to stop the mower and the fan. Shift tractor transmission into neutral, apply the parking brake and stop the tractor engine.

Release the levers and unhook the latches from the front and rear of cart (Figures 2 and 3). Lift the side and end bar reinforcement frame of the cover straight up off of the top of cart side frames until the pin bolts clear the holes in the side frames. Then lift rear of frame and cover up over the end of the discharge hose in effect turning the cover partly inside out. Support the front end bar on the cart tongue and lean the rest of the frame forward over the fan.

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VACUUM COLLECTOR

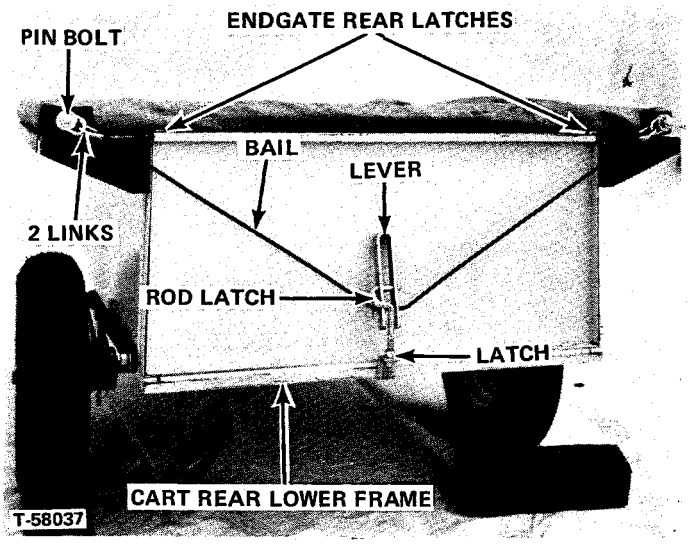


FIGURE 3

Turn the rear latches to clear the top of end gate and remove end gate. Trip front latch holding cart box to tongue and tip box back to dump material.

Clear out cart, swing it forward and latch to tongue. Replace end gate and place cover back on side frames with pin bolts in pin bolt holes. Hook front and rear latches and lift front and rear levers up into clamped position to tighten cover frame into place.

ROVING VACUUM NOZZLE

To use the roving vacuum nozzle remove the intake elbow and install the nozzle in the blower intake at the same time disengage the mower drive by either removing the mower drive belt or releasing the belt tensioning lever behind the left hand tractor axle (See Figure 12).

The 15 foot hand operated roving vacuum nozzle can be used to easily collect piles of leaves or grass in areas where the rotary mower cannot be operated. Operate tractor at 3/4 to full throttle when using roving nozzle.

CAUTION: Refer to and observe at all times the 5 special safety precautions listed at the end of page (50) for operation of the vacuum collector with roving nozzle.

CAUTION: Always turn engine off and wait for equipment to stop turning completely before doing any cleaning or adjusting.

LUBRICATION AND SERVICE

Every 10 hours of operation lubricate the grease fitting in blower drive cross shaft - housing under the blower (Figure 4).

AFTER EACH USE

Be sure to clean out the hoses and cart thoroughly, especially at the cover sleeve connection.

With cart cover No. 1600395 remove the entire canvas cover with its side bar and end bar reinforcements and hang it up in a well ventilated location.

SERVICE TIPS

If leaves and grass are not being completely picked up, check the following:

1. Run the tractor engine at full throttle.
2. Run the tractor at slower ground speed (first gear).
3. Check all hose connections to be sure they are tight.

If the hoses become plugged, check the following:

1. Grass may be too high or wet, use only half the mower width.
2. Run the tractor in a lower gear.
3. Raise the mower adjustment for the first pass, lower it to make a second pass.

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VACUUM COLLECTOR

BLOWER DRIVE

Figure 4 shows the blower belt drive with the belt shield removed. Be sure the drive belt and idler spring are installed as shown and that shield is installed as shown in Figure 8.

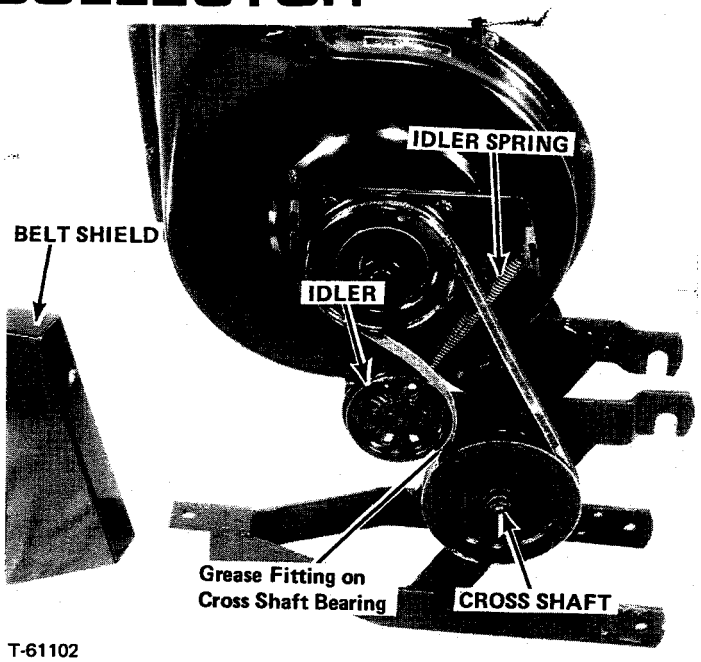


FIGURE 4

SETTING UP & INSTALLATION INSTRUCTIONS

INSTALLING ADAPTOR (Figures 5, 6 and 7)

1. Remove the bolts that hold the defelctor assembly to the top of mower housing and loosen the front attaching bolt.

2. Replace the bolt at "B" (Figure 5) with a longer carriage bolt, nut and lockwasher as shown and tighten nut.

3. Place the correct adaptor for the mower used over the end of the mower housing. Hook the front attaching clip over front attaching bolt "A" between large flat washer and mower housing, and place large hole in top of adaptor over bolt and nut at "B". Place wing nut on bolt at "B" and tighten against adaptor. Tighten the front attaching bolt "A". Save the mower deflector and the hardware that was used to fasten it to the mower housing. (See Figure 6 for 42" mower and Figure 7 for 48" mower.)

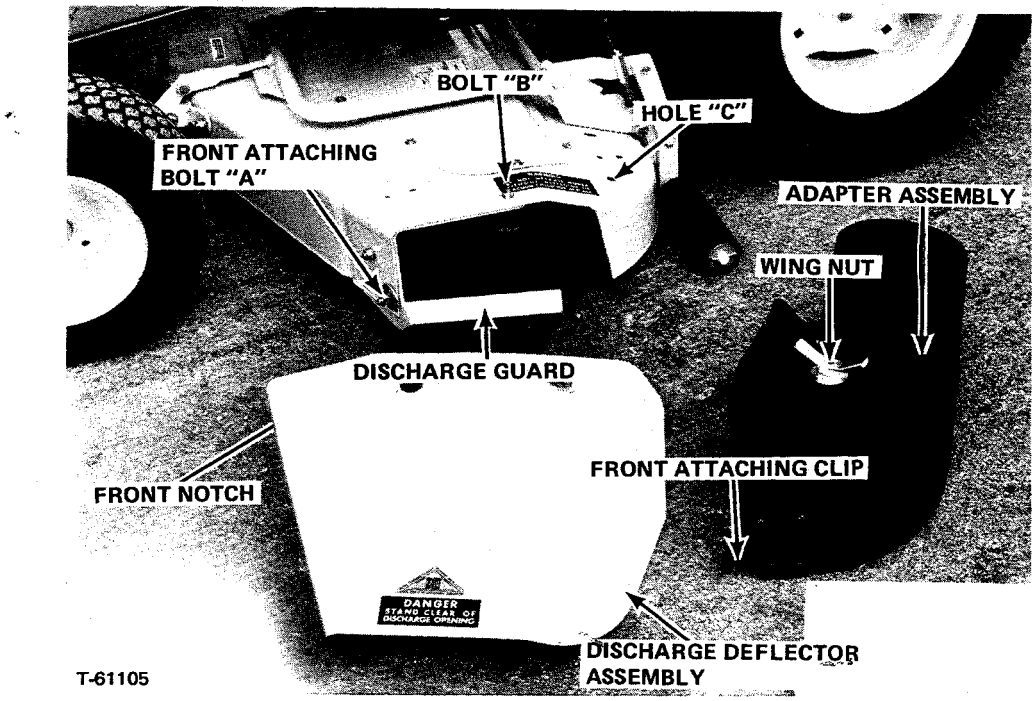


FIGURE 5 - 48" Mower

REMOVING ADAPTOR

When removing the adaptor place the wing nut that came with the adaptor attachment on the bolt at "B" to fasten the deflector assembly back on the mower housing. Hook front notch of deflector (Figure 5) back of front attaching bolt "A" and use same hardware at "C" to hold the upper rear corner of deflector to mower housing that was taken out when deflector was removed.

CAUTION: DO NOT use mower after removing Vacuum Collector unless deflector assembly and the discharge guard are bolted down in place.

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VACUUM COLLECTOR

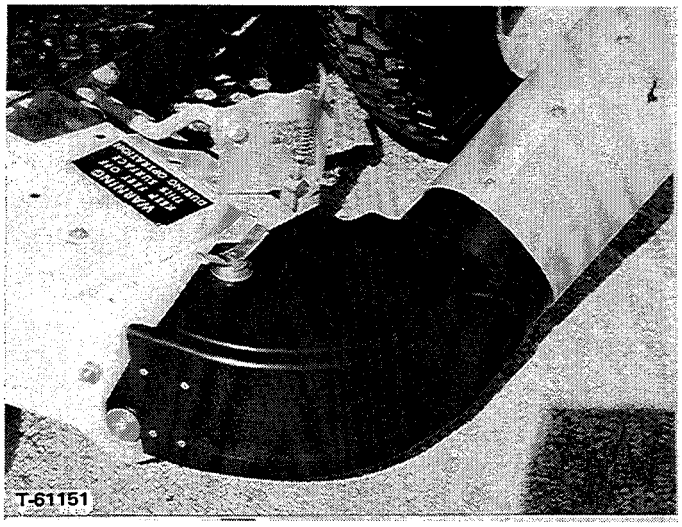


FIGURE 6 - 712-S Tractor, 42" Mower

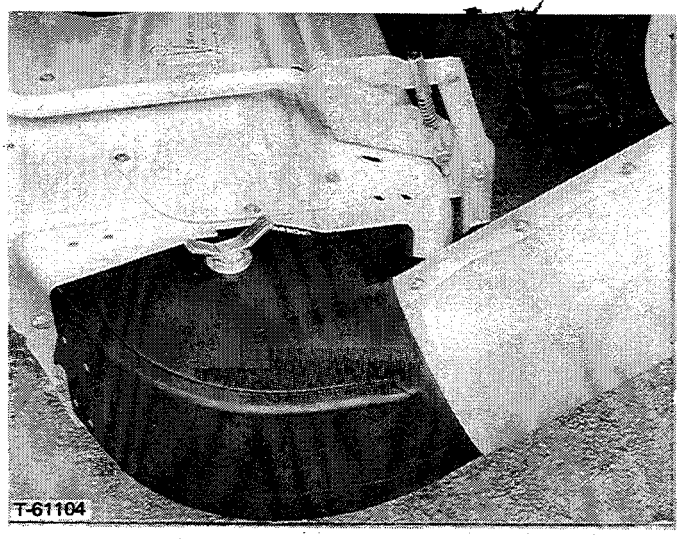


FIGURE 7 - 716-H Tractor, 48" Mower

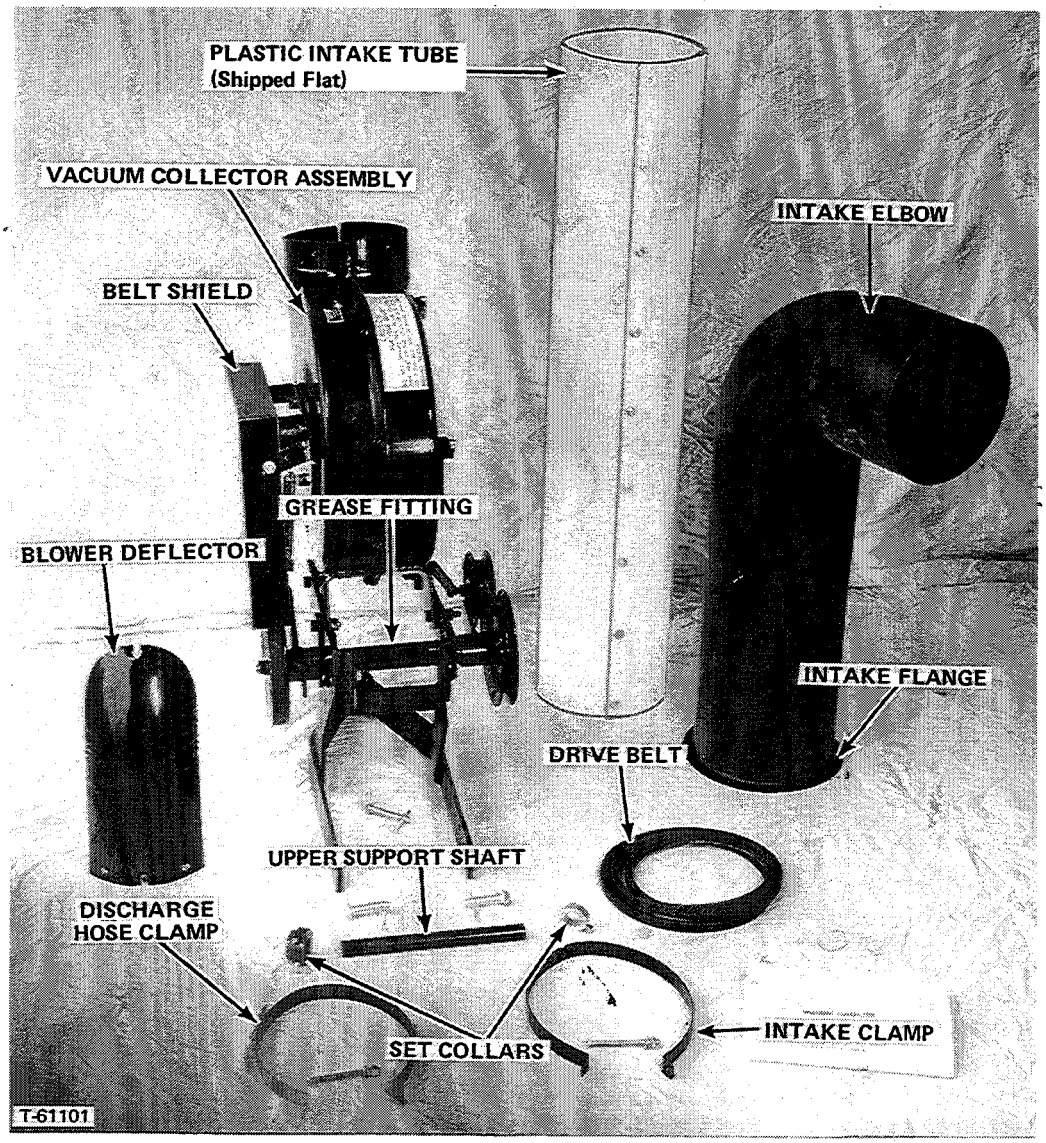


FIGURE 8

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VACUUM COLLECTOR

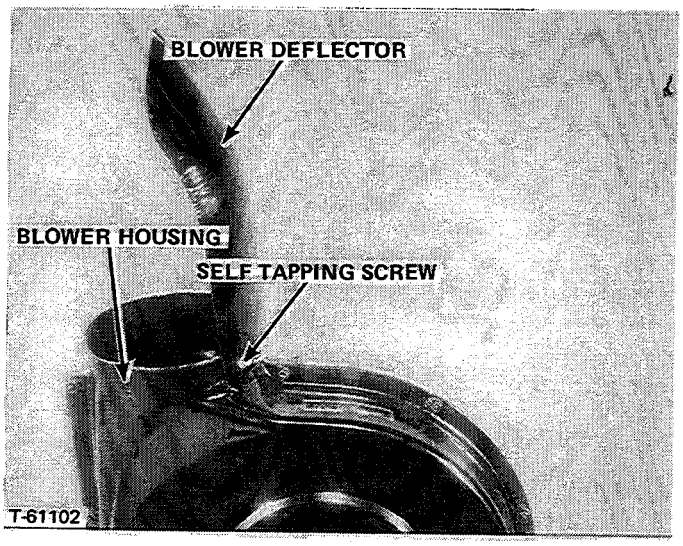


FIGURE 9

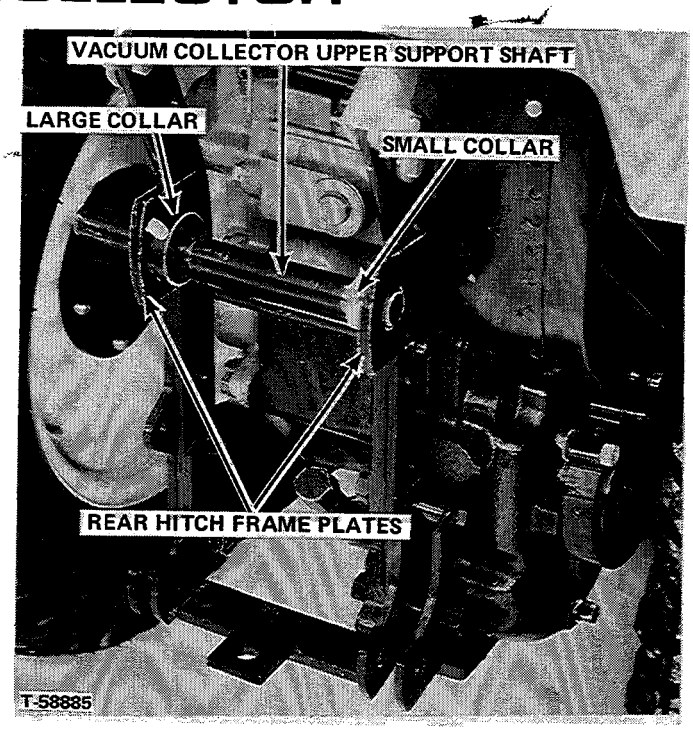


FIGURE 10

SETTING UP AND INSTALLING VACUUM COLLECTOR ON TRACTOR

The vacuum collector is shipped approximately as shown in Figure 8 plus a separate box for the discharge hose (not shown). Proceed as follows:

1. Install blower deflector on blower housing with 2 self tapping screws as shown in Figure 9.

2. If tractor is not equipped with a rear lift attachment install the vacuum collector upper support shaft and set collars as shown in Figure 10. Locate upper support shaft right hand end flush with outside of right hand rear hitch frame plate.

   If tractor has rear lift attachment installed the upper support shaft and collars shipped with the vacuum collector can be discarded.

3. Lift vacuum collector assembly up to rear end of tractor and hook the notches in the upper hitch arms over the upper support shaft (Figure 11) or the rear lift attachment shaft if tractor is so equipped (Figure 12). Swing the lower hitch arms between the tractor hitch plates and attach them to rear hitch holes with pins and lock pins.

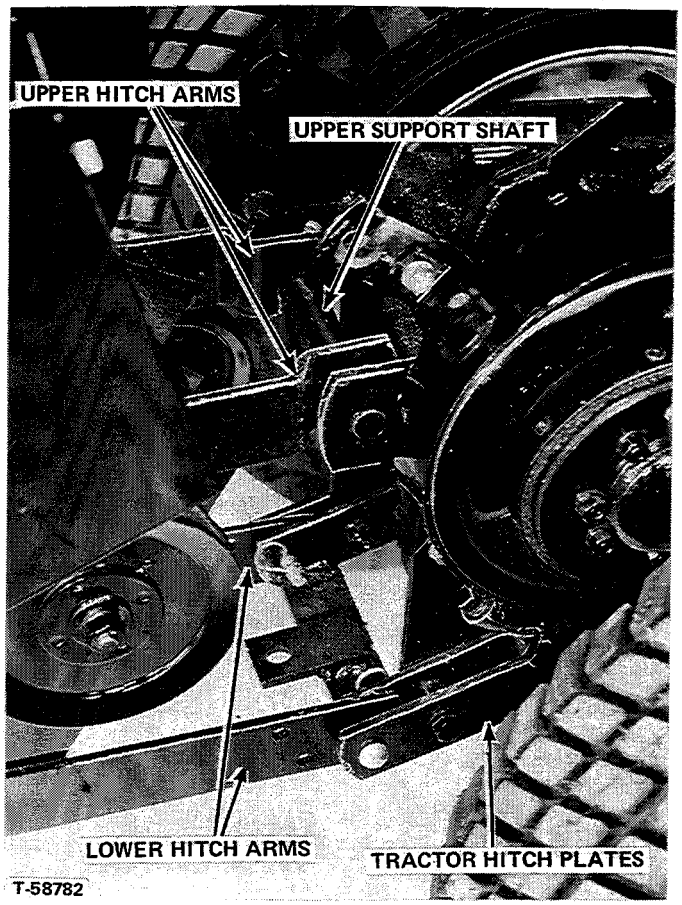


FIGURE 11

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VACUUM COLLECTOR

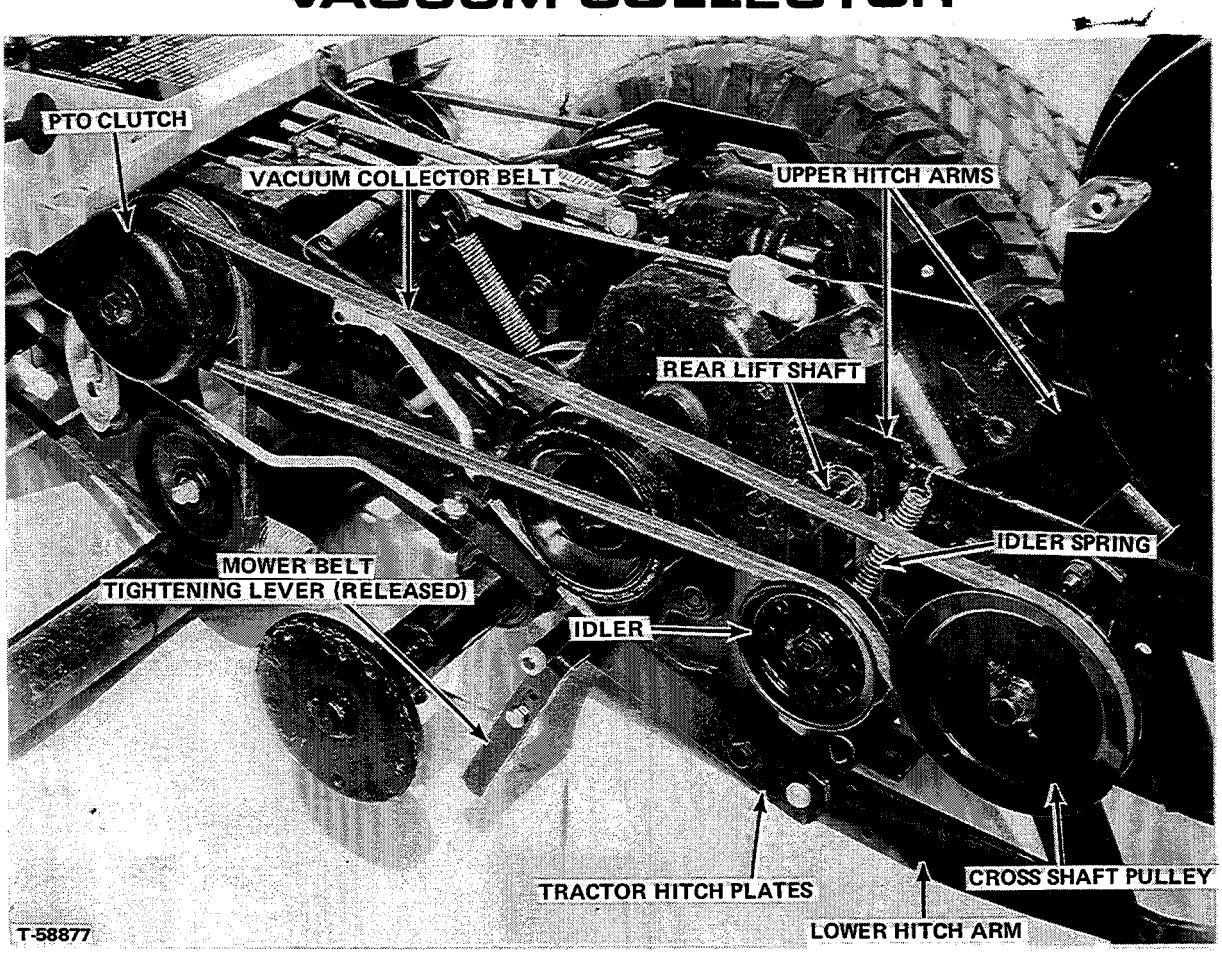


FIGURE 12 - (Seat Deck and L.H. Wheel Removed for Visibility)

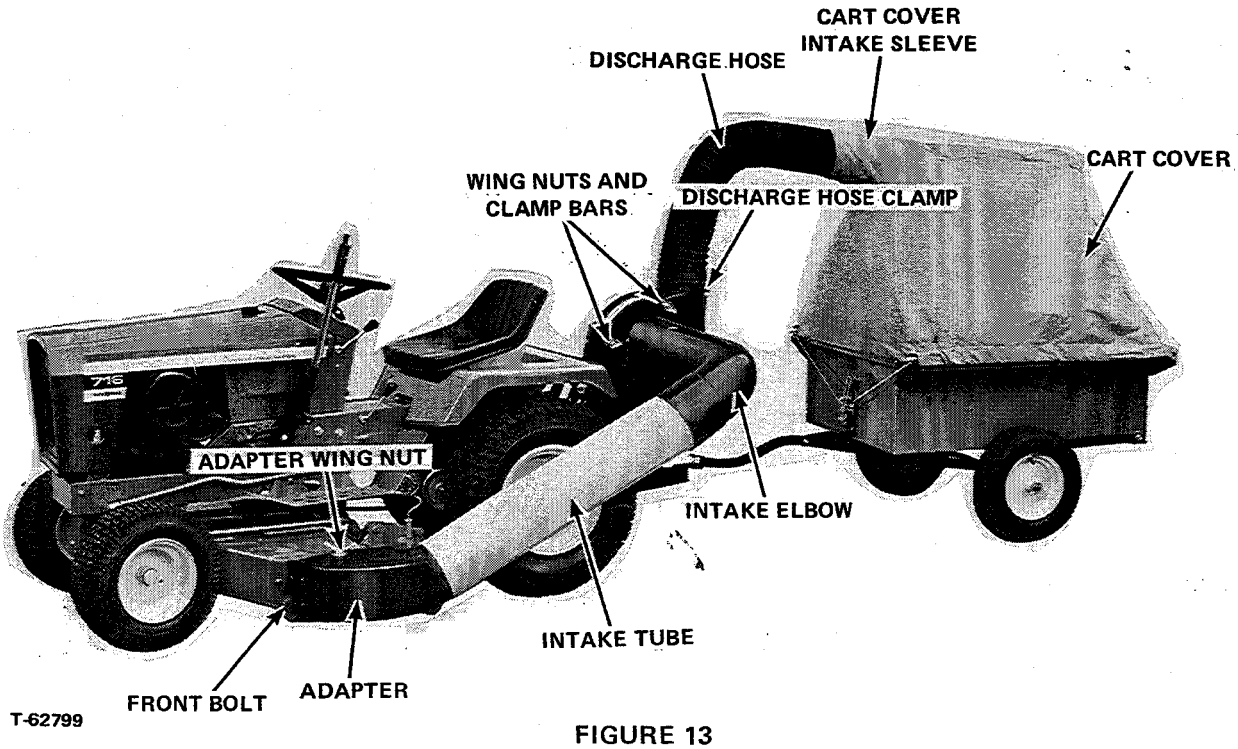


FIGURE 13

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VACUUM COLLECTOR

4. Install vacuum collector belt over the L.H. side of the P.T.O. clutch into the L.H. belt groove. Place other end of belt over the idler and around the cross shaft pulley as shown in Figure 12. Hook idler spring over the L.H. upper hitch arm.

   NOTE: If the roving nozzle is to be used first after installing the vacuum collector the mower drive belt should be removed before installing the vacuum collector belt or the mower belt tightener lever should be released by lowering it to position shown in Figure 12 to prevent mower from running while roving nozzle is used.

5. Make sure that intake flange is fully inserted in the long end of intake elbow (Figure 8). Place intake clamp over elbow and flange and tighten securely.

6. Roll the flat plastic sheet to form the intake tube aligning the bolt holes and install phillips head screws from the inside with a flat washer between the screw head and the inside of the tube, another flat washer on the outside of the tube followed by a lockwasher and nut. Tighten screws securely.

7. Slip one end of the intake tube over the rear end of the adaptor on end of mower housing. Slip the other end inside the short end of the intake elbow and at the same time place the intake flange on the other end of the intake elbow flat against the L.H. face of the vacuum collector above the fan intake and slide the flange down into the several retaining clips welded to fan intake sheet. When flange is fully seated under the retaining clips swing the clamp bars under the wing nuts down over the upper part of intake flange and tighten wing nuts. Tighten locknuts against wing nuts. (See Figure 13.)

8. Place one end of the discharge hose over discharge deflector and discharge opening of blower and fasten in place with hose clamp (Figure 13).

9. With cart hitched to the drawbar on rear of vacuum collector frame, place rear end of discharge hose inside the cart cover intake sleeve, pull sleeve forward and tighten sleeve strap around discharge hose to hold it in place as shown in Figure 13.

REMOVING VACUUM COLLECTOR

1. Remove belt from P.T.O. pulley and remove intake elbow and intake tube from blower and from end of adaptor.

2. Remove pins from drawbar assembly and lift Vacuum Collector upper arms off of rear lift cross shaft.

3. Remove adaptor wing nut (Figure 13) and remove adaptor from end of mower housing. DO NOT remove the long bolt in top of housing from which wing nut was removed.

4. Loosen front bolt, and install discharge deflector placing notch in front edge behind flat washer on front bolt. Place wing nut from vacuum collector attachment on long bolt "B" (Figure 5). Install bolt, flat washer, lockwasher and nut in hole "C". Tighten nuts on bolts "A" and "C" and wing nut on bolt "B" securely to hold the deflector assembly to mower housing.

CAUTION: DO NOT use mower after removing vacuum collector unless discharge deflector and discharge guard are bolted in place.

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VACUUM COLLECTOR

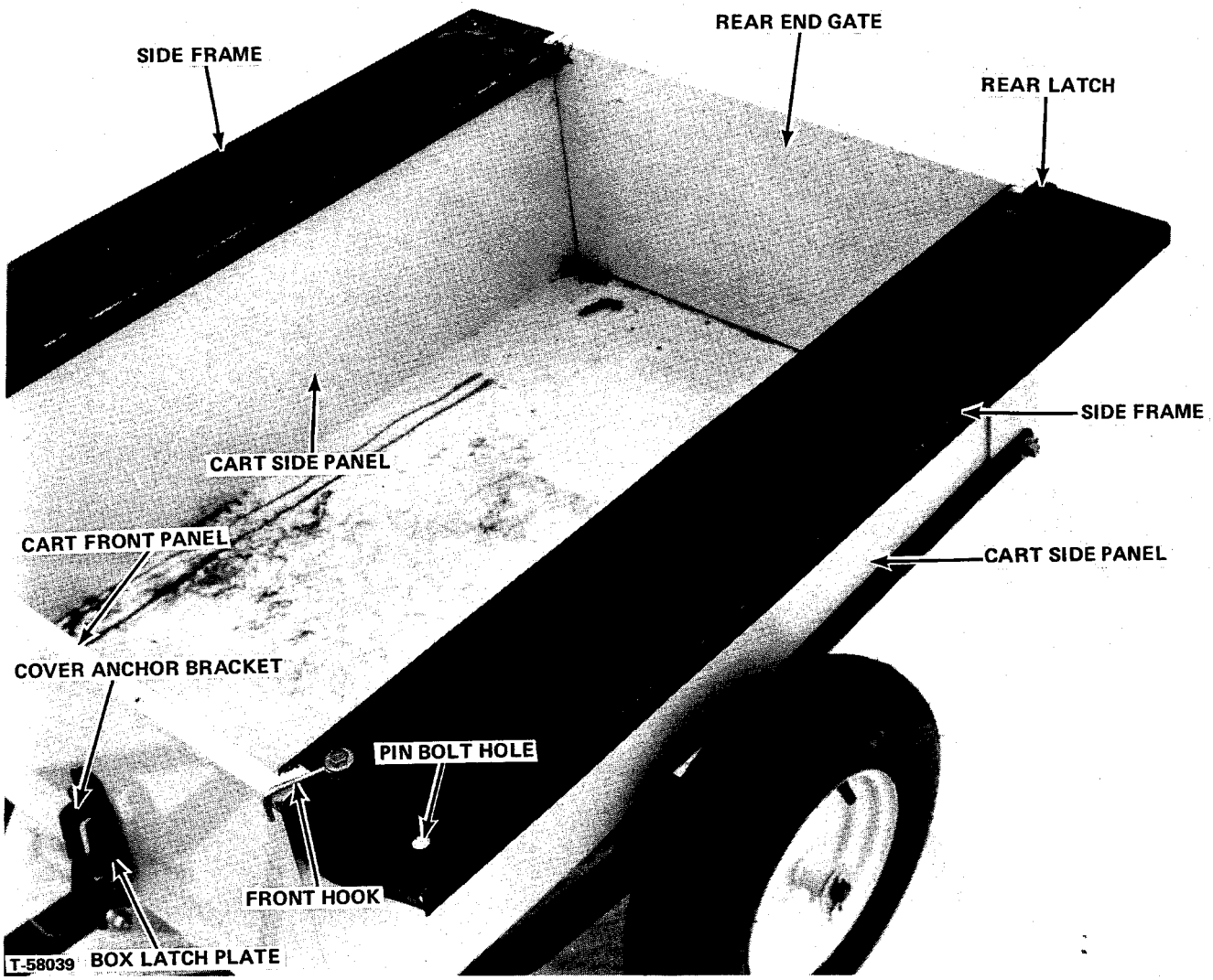


FIGURE 14

HIGH CAPACITY CART COVER

INSTALLATION INSTRUCTIONS

1. (See Figure 14). Remove rear end gate from cart. (**NOTE**: Item numbers used below refer to "Item Reference Number" in Figure 15.)

2. (See Figures 14 and 15). Starting at rear of cart align the folded lip edge "A" of Item 16, side frame, with the inner vertical leg of the top edge of the cart side panels. Slide the side frame forward interlocking the vertical leg of the cart side panel top inside the folded edge "A" of the side frame. Slide side frame fully forward until it touches the cart front panel. Install the other side frame in same manner on the other cart side panel.

3. Install Item 23, front hook, with Item 20, two of item 19, items 18 and 21 in the front inner corner of both side frames as shown in Figures 14 and 15. Swing hooks over cart side panels as shown and tighten locknut, 21.

4. Install item 17, rear latch with item 20, two of item 18 and items 19 and 21 as shown in Figures 14 and 15. Reinstall the rear end gate. Tighten locknut, 21, on rear latch capscrews, 20, just tight enough that latches can be turned to overlap the top corners of the end gate and hold it in place, but can be turned away by hand for end gate removal.

5. Remove the top capscrew holding the box latch plate to the cart front panel and install the cover anchor bracket, item 15, using longer capscrew, item 22. (Figures 14 and 15)

6. Place the cart cover on top of cart with the cover intake toward the front of cart and with the canvas side flaps inside the cart sides.

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VACUUM COLLECTOR

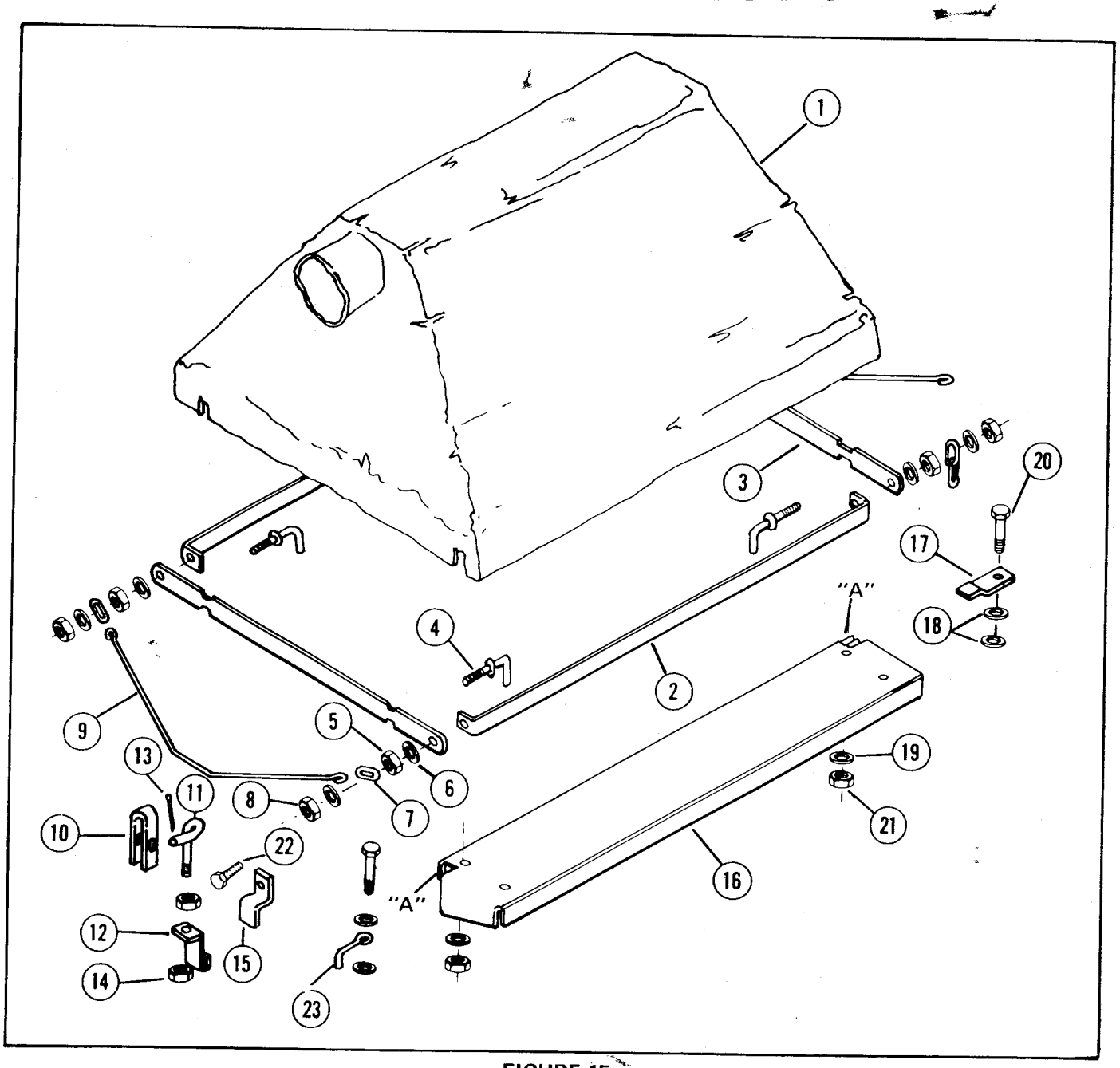


FIGURE 15

Item Reference Number	Quantity Required	Description
1	1	Cart Cover
2	2	Side Bar Reinf.
3	2	End Bar Reinf.
4	4	Pin Bolt
5	4	Hex Nut, 3/8-16
6	8	Flat Washer, 3/8
7	6	Link
8	4	Hex Locknut
9	2	Bail
10	2	Lever
11	2	Rod Latch
12	2	Latch
13	2	Cotter Pin
14	4	Hex Locknut
15	1	Cover Anchor Bracket
16	2	Side Frame
17	2	Rear Latch
18	6	Washer, Special
19	6	Plain Washer, 5/16
20	4	Hex Capscrew, 5/16-18 x 3/4
21	4	Hex Locknut, 5/16-18
22	1	Hex Capscrew, 3/8-16 x 1-1/4
23	2	Front Hook

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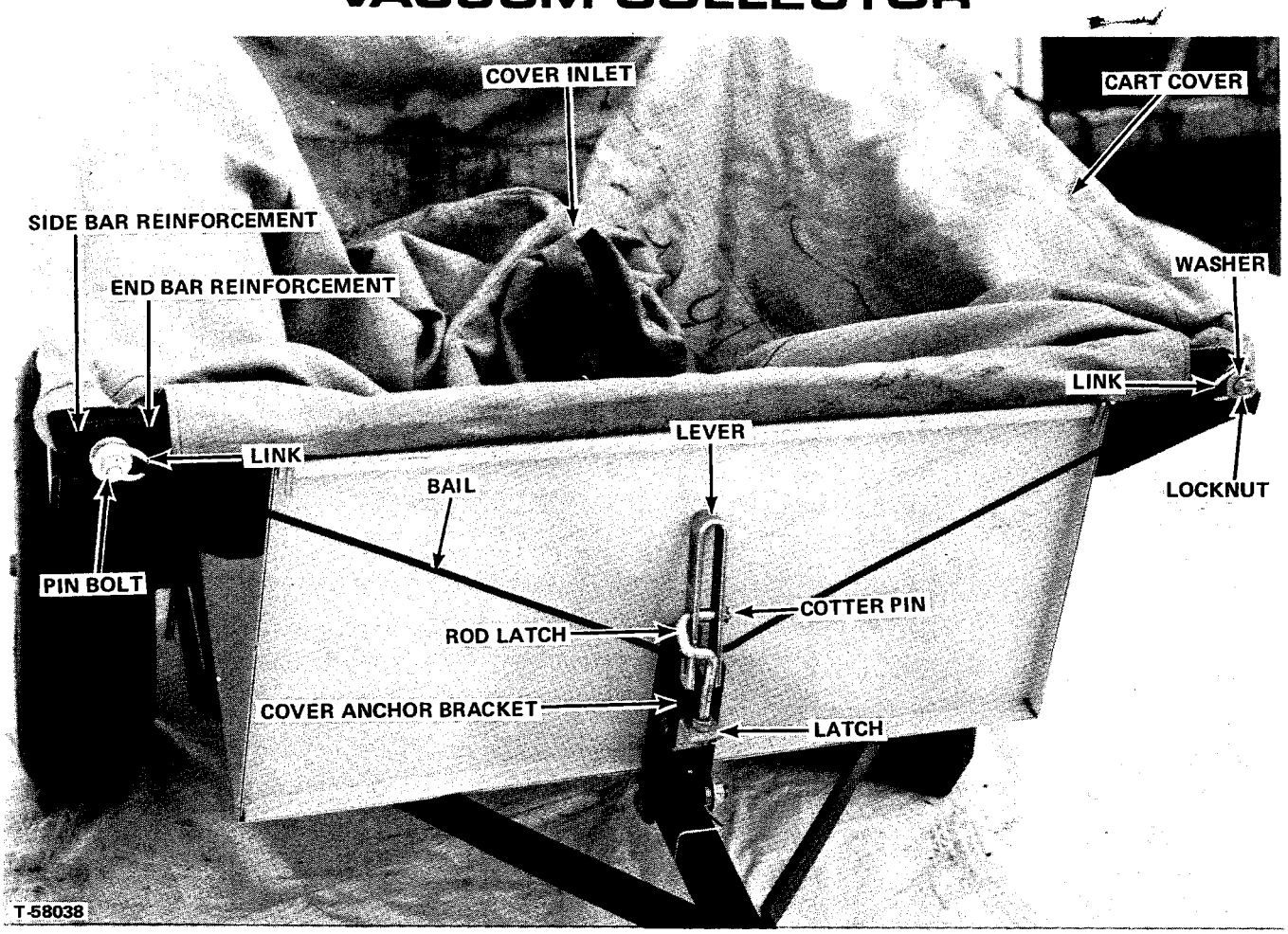


FIGURE 16

7. Insert the side bar and end bar reinforcements in the cart cover with the side bar bent ends pointing inward (See Figures 15, 16 and 17). Insert the pin bolts through the holes in the side and the end bars with the smooth end of pin down through pin bolt hole in each outer corner of the side frame. Place flat washers and hex nuts on threaded portion of pin bolt and tighten nuts (See Figure 17).

8. (See Figures 15 and 16). Insert bail, 9 through the slotted holes in lever, 10, attach one link to hook on each end of bail. Place the links over ends of pin bolts on front side of cart and hold in place with flat washers, 6 and locknuts, 8.

9. Place a locknut 14 on rod latch 11 and place through latch 12 and install 2nd locknut. Insert end of rod latch in holes in lever as shown in Figure 16 and install cotter pin in rod. Adjust position of latch on rod latch with nuts, 14, until pin bolts and the cover reinforcement bars are held snugly in place when latch is hooked under the cover anchor bracket and lever is raised to over-center position as shown in Figure 16.

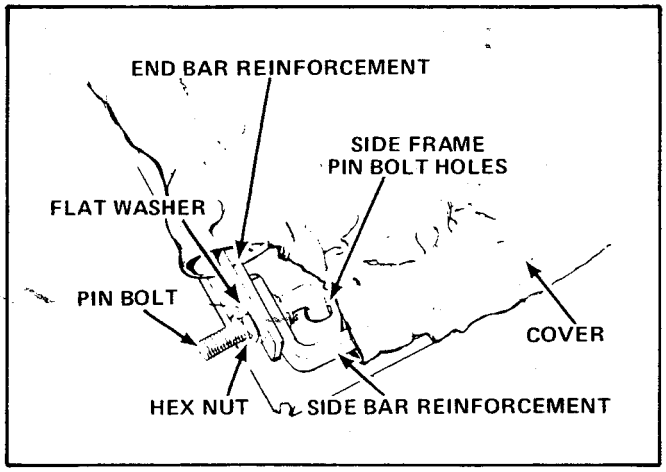
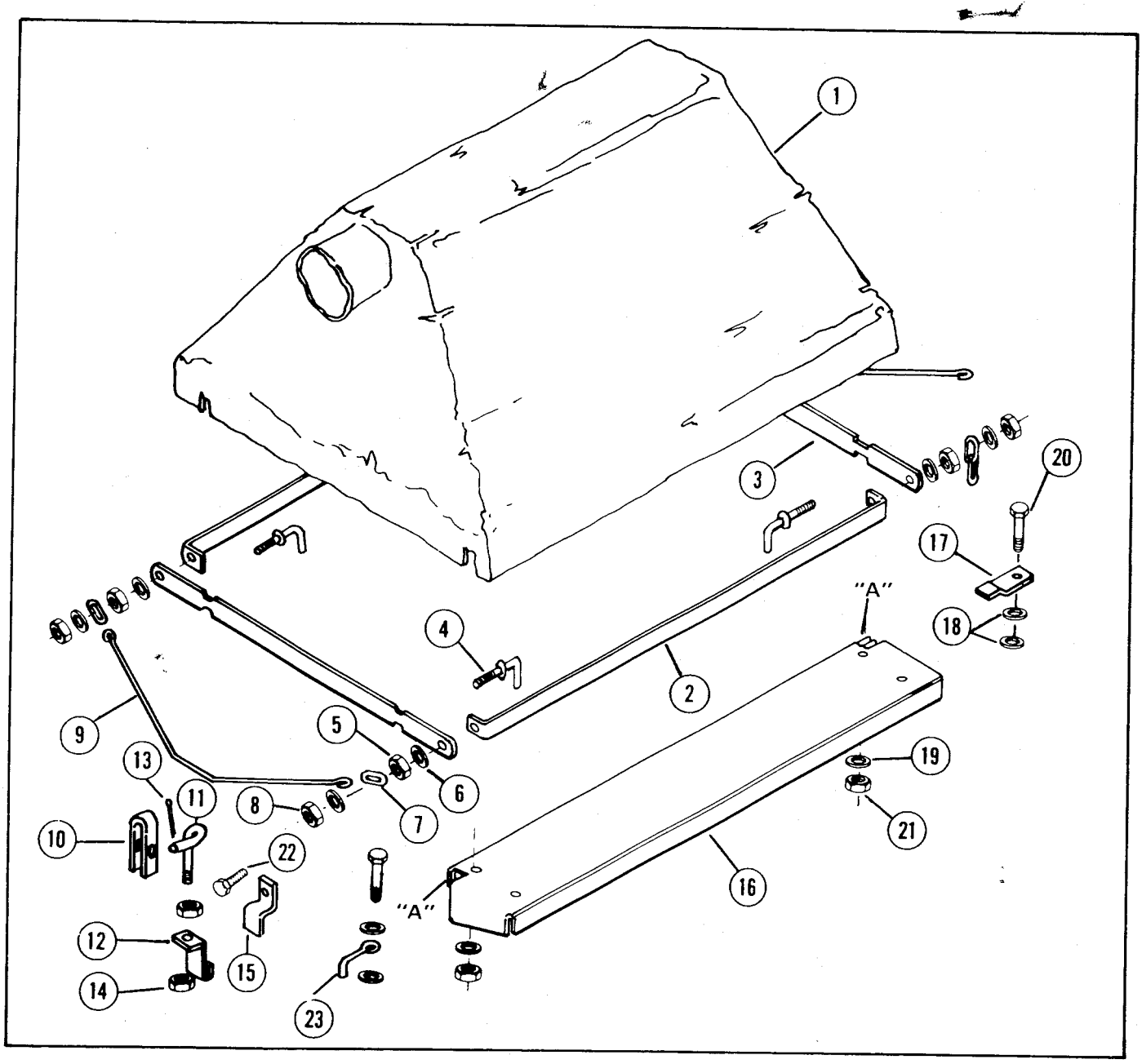


FIGURE 17

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VACUUM COLLECTOR



Item Reference Number	Quantity Required	Description
1	1	Cart Cover
2	2	Side Bar Reinf.
3	2	End Bar Reinf.
4	4	Pin Bolt
5	4	Hex Nut, 3/8-16
6	8	Flat Washer, 3/8
7	6	Link
8	4	Hex Locknut
9	2	Bail
10	2	Lever
11	2	Rod Latch

Item Reference Number	Quantity Required	Description
12	2	Latch
13	2	Cotter Pin
14	4	Hex Locknut
15	1	Cover Anchor Bracket
16	2	Side Frame
17	2	Rear Latch
18	6	Washer, Special
19	6	Plain Washer, 5/16
20	4	Hex Capscrew, 5/16-18 x 3/4
21	4	Hex Locknut, 5/16-18
22	1	Hex Capscrew, 3/8-16 x 1-1/4
23	2	Front Hook

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VACUUM COLLECTOR

10. (See Figure 18). Assemble second bail, lever, latch, rod latch at rear of cart using 2 links on each end of bail and hooking latch under the cart rear lower frame. Adjust latch as directed in step 9 above to hold the pin bolts and cover reinforcement bars in place when lever is raised as shown in Figure 18.

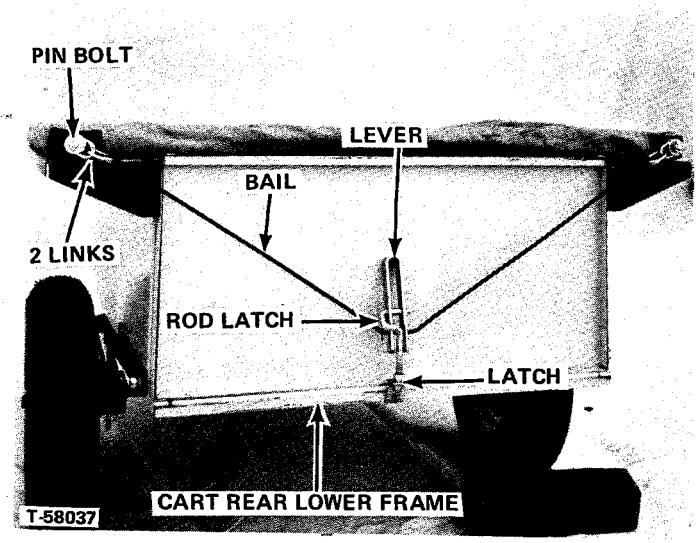


FIGURE 18

SETTING UP

ROVING NOZZLE (For Use with Vacuum Collector)

Place the two hose clamps for handle over end of hose and attach to handle near the tapered intake end.

Place other hose clamp on fan end of hose and install flange and tighten clamp over hose and flange.

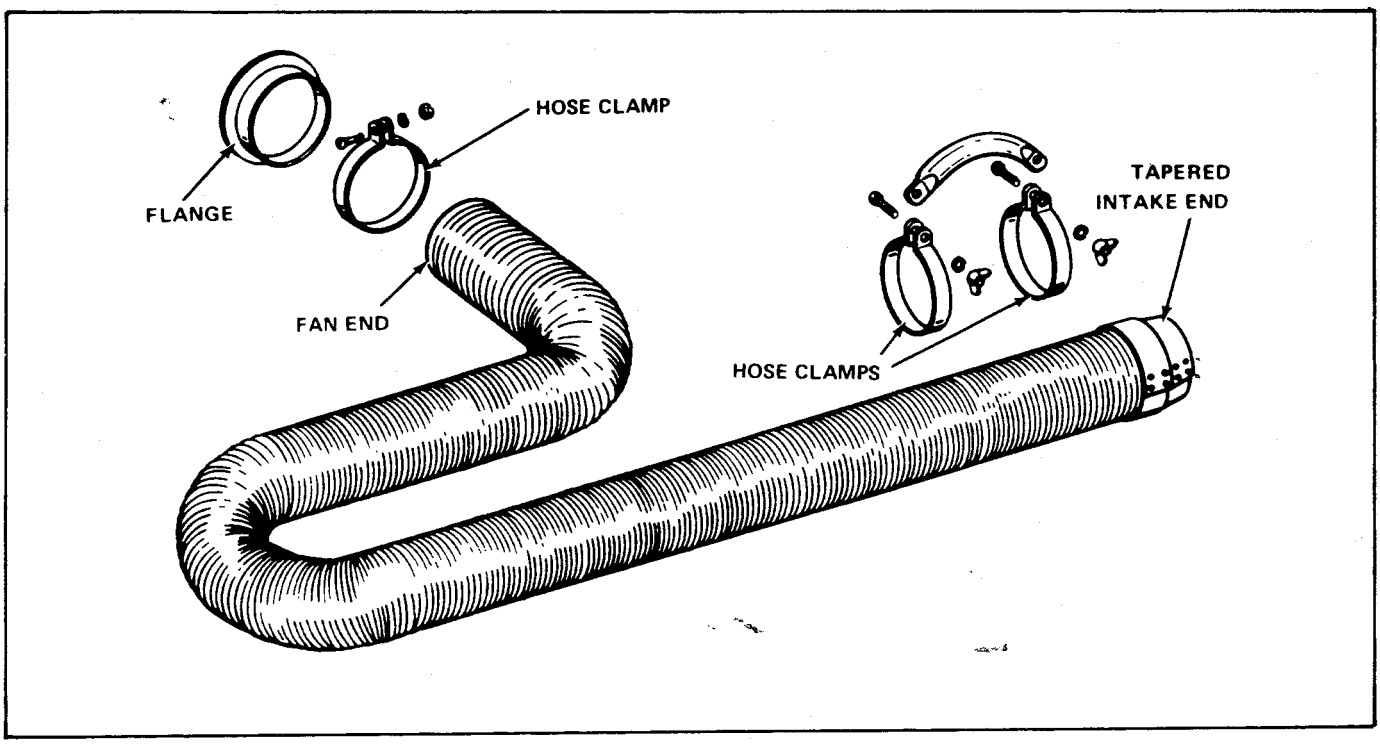
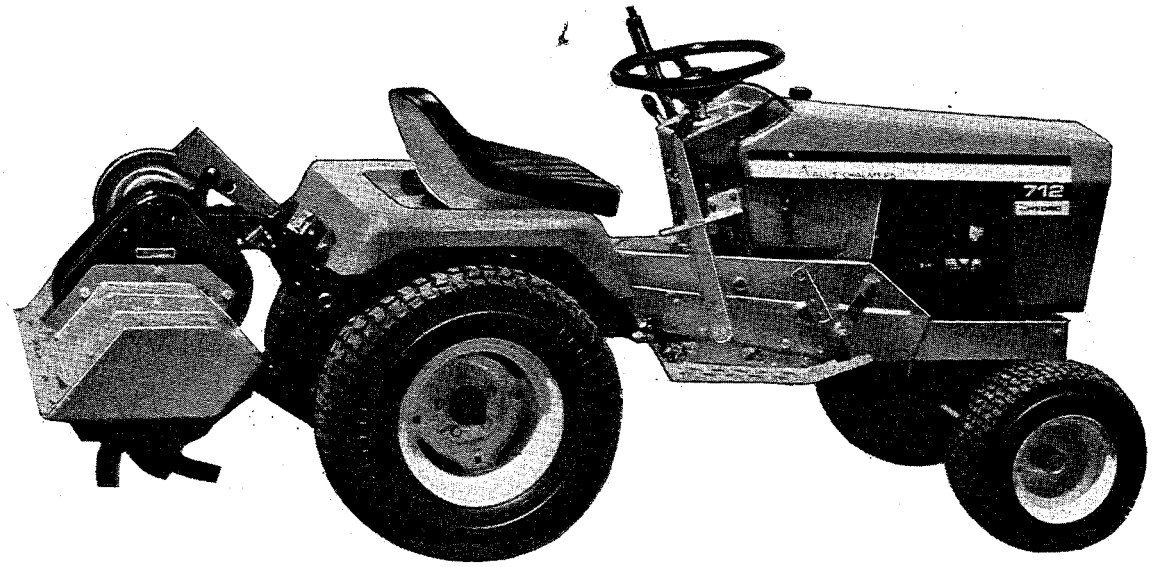


FIGURE 19

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ROTARY TILLER



T-62796

FIGURE 1

36" ROTARY TILLER (For 700 Series Tractors)

TILLER SPECIFICATIONS

Effective Width	36"
Tilling depth	8" maximum
Transport ground clearance	4" maximum
Number of tines	16 replaceable tines
Drive means	Heavy duty V-belt from tractor side PTO outlet.
Clutch	Standard tractor side PTO cone clutch
Drive Train	Triple reduction roller chain drive. Ball bearings on input and tine shafts.
Tiller width	38"
Tiller length	25-1/2"
Tiller height	22-1/2"
Weight	147 pounds

REQUIRED ATTACHMENT

Rear Lift Kit

RECOMMENDED ACCESSORIES AND OPTIONS

Rear wheel weights give added traction and stability when operating on slopes.

10" Tine Extension Kit

Allis-Chalmers reserves the right to make changes in the above specifications or to add improvements at any time without notice or obligation.

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ROTARY TILLER

GENERAL INFORMATION

TILLING IMPROVES YOUR SOIL

No other gardening tool can break up, crumble and blend your soil to such a uniform texture throughout the entire tilling depth. Prepares even-depth seed bed in a single pass - seeds germinate quickly, roots penetrate deeply, plants get off to a healthy start. Organic residue is blended throughout entire tilling depth. As material decays, it forms its own rich plant food and serves as binder in building desirable crumblike soil structure. Soil is aerated and water holding is improved.

SPRING

This heavy-duty rotary tiller helps break up the soil and prepare the seed bed for spring planting. It does the work of many tools, plows and discs.

FALL

This fine tool for garden clean-up time takes all your leftover plant stalks, stems, and blends them into the soil where they decay; becoming rich, natural, soil – building plant food.

BEFORE OPERATING

Before operating the tiller review the tractor section of this operators manual and refer to it for information on starting and operating the tractor.

Especially review the Safety Precautions in the tractor section and then study the following additional precautions specifically applicable to the use of rotary tiller.



SAFETY PRECAUTIONS

ATTENTION! BECOME ALERT!
YOUR SAFETY IS INVOLVED!

This symbol is used to call your attention to safety precautions that should be followed by the operator to avoid accidents. When you see this symbol - Heed Its Warning!

Many hours of lost time and much suffering is caused by the failure to practice simple safety rules.

IT IS TOO LATE TO REMEMBER WHAT SHOULD HAVE BEEN DONE AFTER THE ACCIDENT HAS HAPPENED.

* **READ** and become familiar with the owners manual for your tractor and the rotary tiller before operating the tiller.
* **DO NOT** allow anyone to use the rotary tiller unless they have been instructed in how to operate it safely.
* **NEVER** attempt to adjust, repair or service the tiller while the tractor engine is running.
* **DO NOT** allow others near the tiller when it is operating.
* **ALWAYS** stay clear of the power take off belt and tiller tines when the tractor engine is running.
* **ALWAYS** be sure that the engine has stopped and the power take off belt and tiller tines have stopped turning before attempting to adjust, repair or service the rotary tiller.



CAUTION: The tines may continue to rotate a few seconds after the clutch has been disengaged and the engine shut off.

* **ALWAYS** clear the work area of objects which might be picked up and thrown or caught in the tines.
* **ALWAYS** disengage power to the rotary tiller and stop the engine before leaving the operators position.
* Operate the tiller only in daylight or good artificial light.
* **ALWAYS** use caution when operating on sloping surfaces.
* When leaving tractor and tiller unattended **ALWAYS** disengage the PTO clutch, lower the tiller to the ground, shift into neutral, set parking brake, stop engine and remove key.

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ROTARY TILLER

OPERATION

Before starting the tractor engine, place the tractor PTO clutch lever in the "disengaged" position and raise the tiller above the surface of the ground.

Place tractor in first gear and set engine at 3/4 to full throttle.

With the tractor engine running, engage the tiller clutch and lower the tiller to the soil. As the tiller works into the soil, slowly release the tractor clutch and move ahead. Adjust the ground speed as required to obtain desired tilling depth. When coming to the end of a row, raise the tiller free of the soil before turning around.

CAUTION: When making sharp turns and when turning around at end of row **ALWAYS** lift tiller out of ground.

Effective operation of the tiller will depend in a large degree upon the operator. For example: when intending to till hard soil or sod area into a seed bed for gardening it obviously will require several passes over the same path to break-up the sod and soil into fine particles suitable for a seed bed. Depending upon the nature of the soil, it will be desirable to alter the depth settings for the tiller on succeeding passes until the desired depth is reached. When tilling in soil that has been previously worked, it may be possible to till the desired depth from the start.

The depth of tilling is regulated by the ground speed of the tractor and by the position in which the lift lever is located. The slower the ground speed the deeper the tilling action. The lift lever can be used to limit the depth to which the tiller will cut, but it cannot be used to force deeper depth.

Problems with clods can be reduced by avoiding tillage when soil is too wet. This is especially true of heavy clay soil.

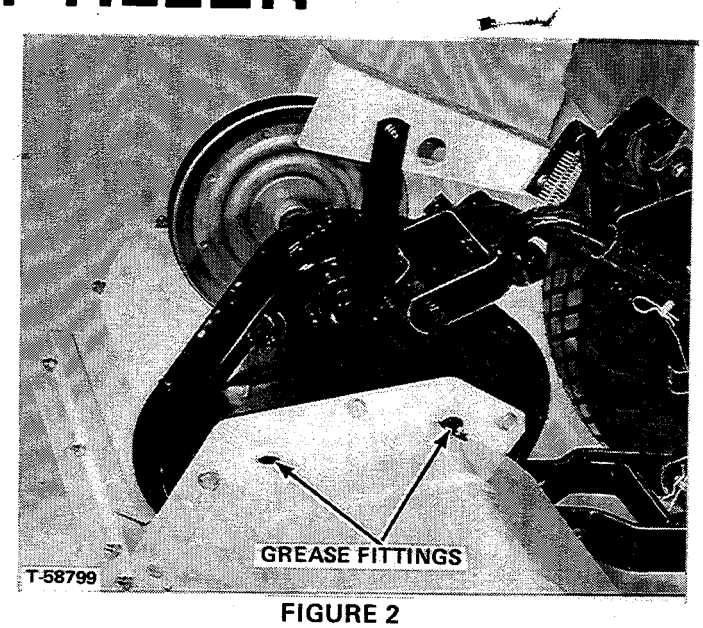


FIGURE 2

LUBRICATION (Figure 2)

There are grease fittings on each housing bearing and two 90° grease fittings are on right hand side of housing. These fittings should be lubricated every 3 hours of operation. Use a good grade of general purpose automotive type grease applied with a standard grease gun. (Fittings should be wiped clean before applying grease.) Place a few drops of engine oil on all pivot points being careful to keep all oil off belts or pulleys.

CAUTION: Always disengage the tiller clutch, stop the tractor engine and make sure tiller tines have stopped rotating before working around the tiller.

SERVICE

After each use: Remove any wire, twine or material that may have wrapped around tines. Check tine bolts for tightness.

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ROTARY TILLER

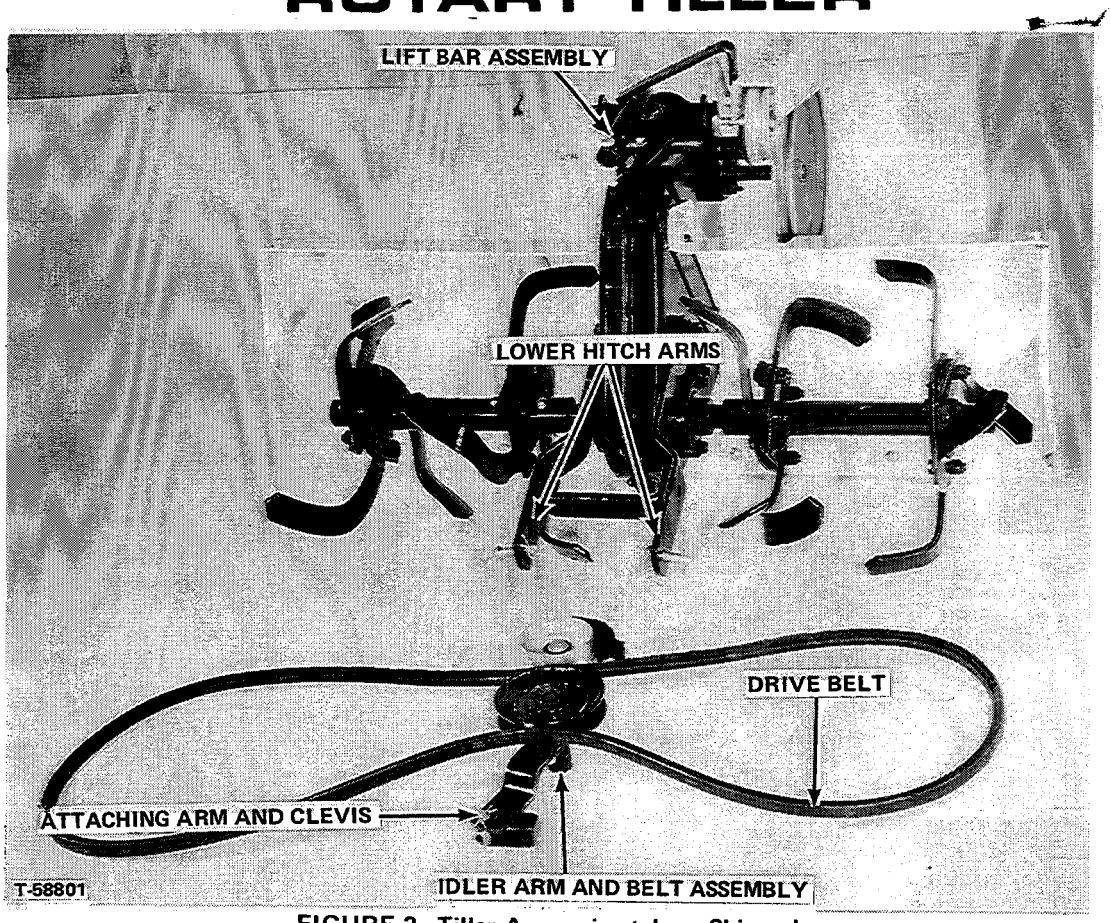


FIGURE 3 - Tiller Approximately as Shipped

SETTING UP AND INSTALLING TILLER ON TRACTOR

1. If not on tractor, procure and install the tractor rear lift kit.

2. Slide the center hub of the idler arm and belt assembly onto the left hand end of the rear lift shaft (Figures 3, 4 and 5). Rotate the attaching arm and clevis down over the left hand hitch member and fasten with pin and lock pin.

3. Place the front end of drive belt over the left hand belt groove in the PTO clutch pulley (Figure 5).

4. Lower the rear hitch of the tractor. Position the tiller at rear of tractor. Insert tiller lift bar assembly into tractor rear lift tube assembly and secure with pin and lock pin as shown in Figure 6.

5. Raise tractor rear lift as needed and insert tiller lower hitch arms between the tractor hitch plate and install pins and lock pins, (Figure 6).

6. Bring rear of drive belt back over the spring loaded idler under the belt shield and over the driven pulley as shown in Figure 5. Make sure that idler spring is hooked to shield support strap, (Figures 5 and 6).

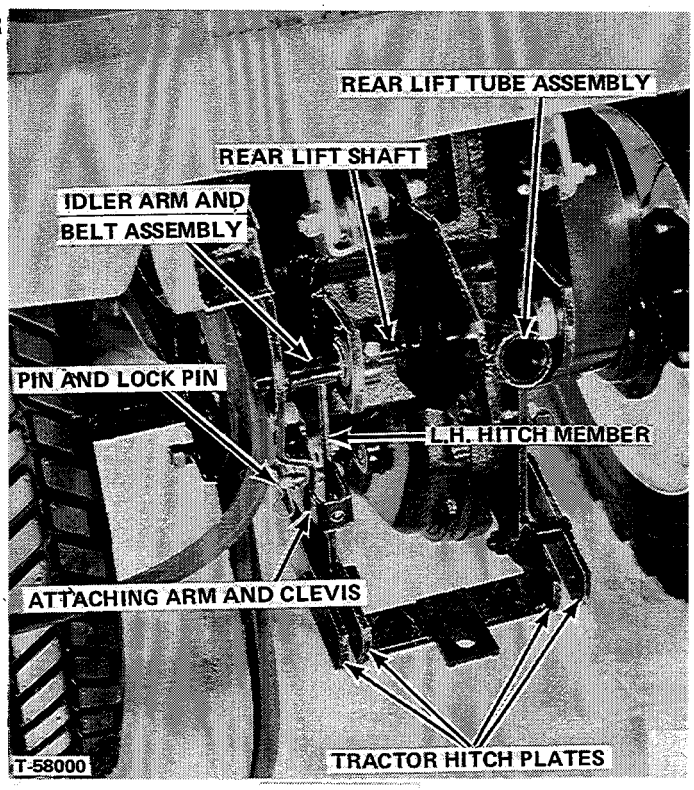


FIGURE 4

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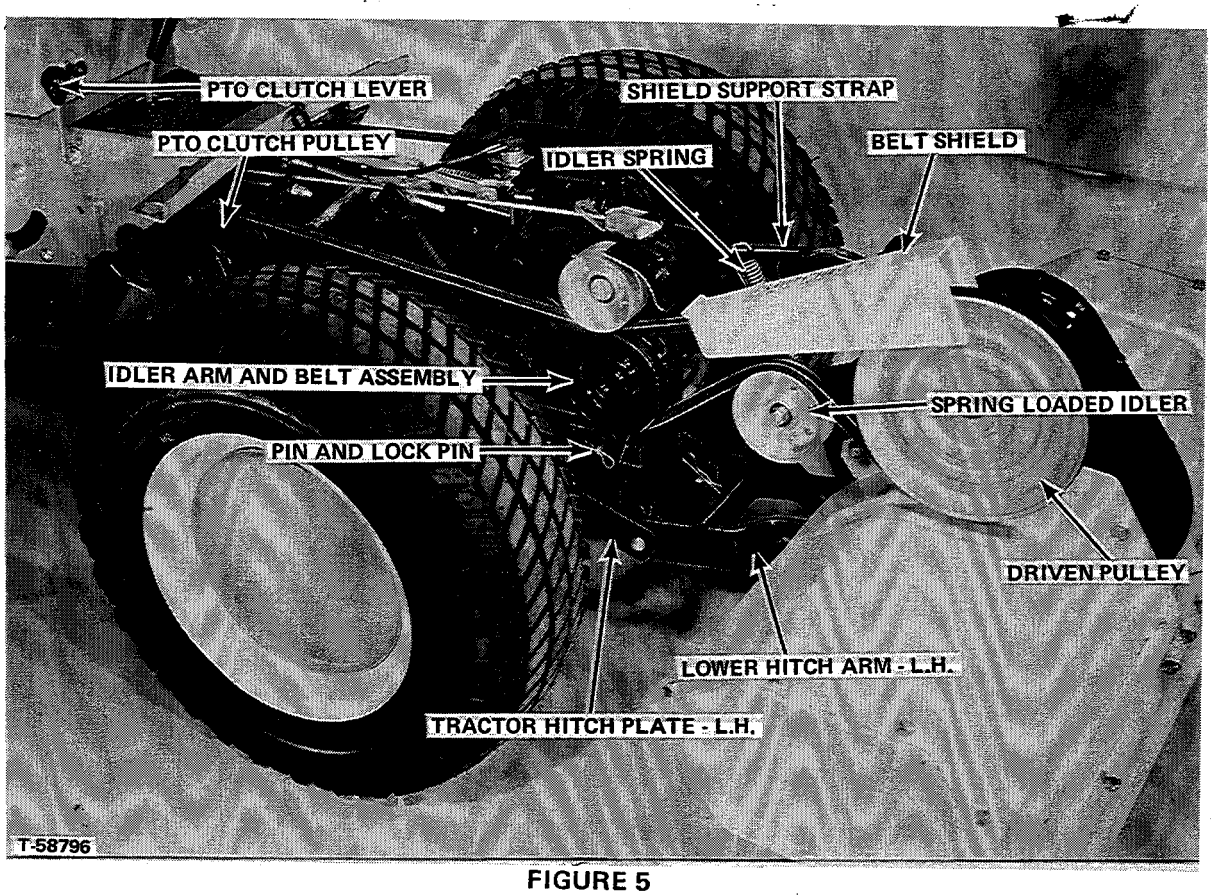


FIGURE 5

REMOVING TILLER FROM TRACTOR

1. Lower tiller to ground. Disengage tractor PTO clutch, stop engine and engage parking brake.

2. Remove drive belt from tiller driven pulley and the PTO clutch pulley (Figure 5).

3. Remove pins and lock pins holding lower hitch arms to the tractor hitch plates (Figures 5 and 6).

4. Remove pin and lock pin and remove tiller lift bar assembly from the tractor rear lift tube (Figure 6).

5. Remove pin and lock pin and slide idler arm and belt assembly from left hand end of rear lift shaft.

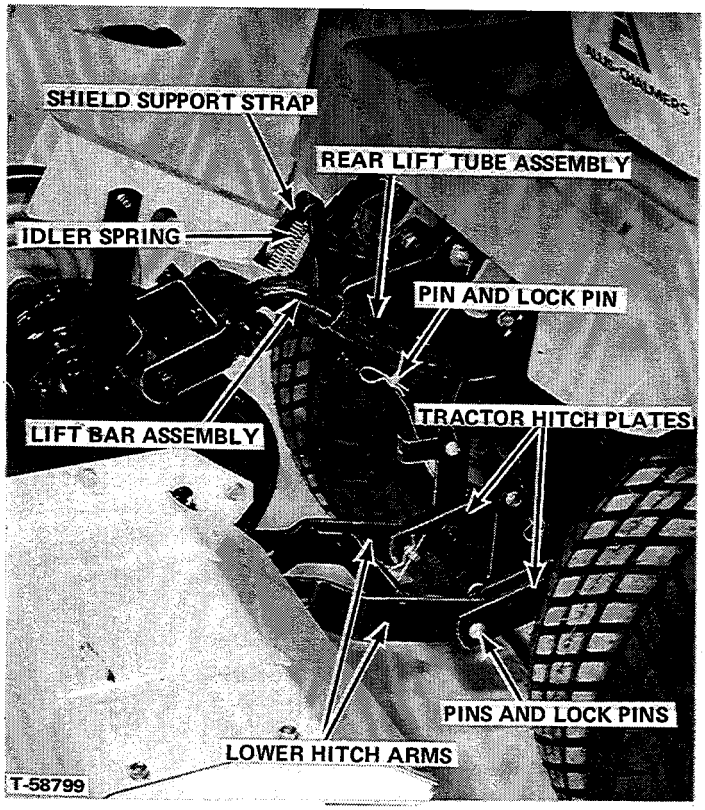


FIGURE 6

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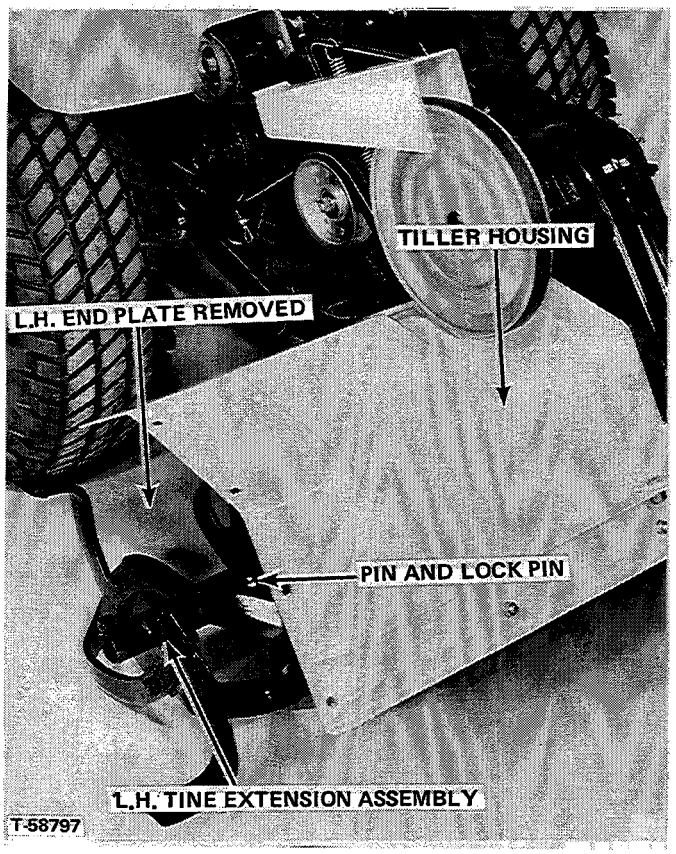


FIGURE 7

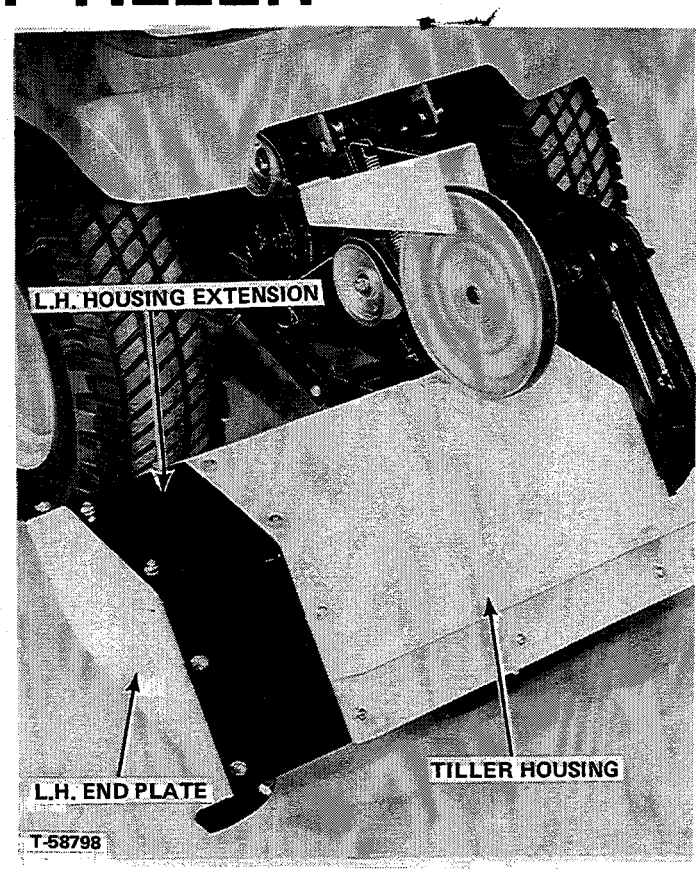


FIGURE 8

OPTIONAL 10" TINE EXTENSION

The optional 10" tine extension kit is recommended for light to moderate soil conditions and moderate tilling depths. It will increase ground coverage under these conditions.

If heavy soils or full depth tilling requirements are encountered it is recommended that the extensions be removed and standard 36" tiller be used until moderate conditions are again encountered.

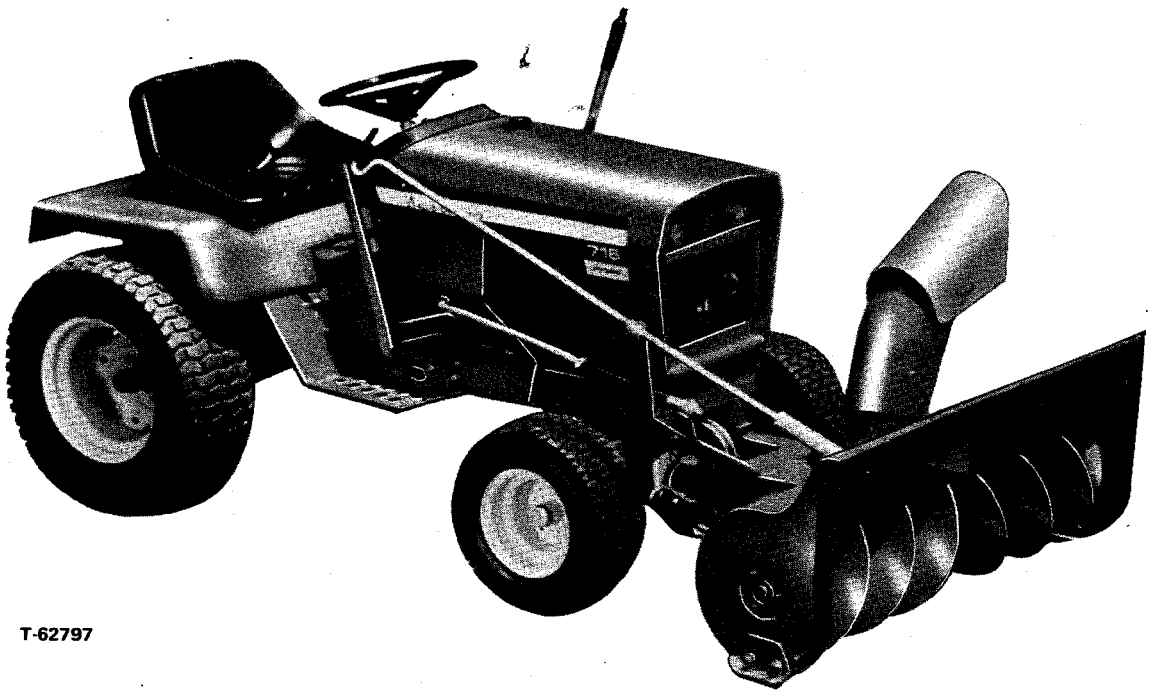
INSTALLING 10" TINE EXTENSION

1. Lower tiller to the ground, disengage PTO clutch, set parking brake and stop tractor engine.
2. Remove left hand and right hand end panels from tiller housing (Figure 7).
3. Place left hand and right hand tine assemblies over ends of standard tiller tine shafts and secure with pins and lock pins (Figure 7).
4. Replace left hand and right hand end plates in tiller housing (Figure 8).

CAUTION: DO NOT operate tiller without housing extension and end plates fastened securely in place.

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SNOW THROWER



T-62797

FIGURE 1

36" AND 42" SNOW THROWER ATTACHMENT (For 700 Series Lawn and Garden Tractors)

The 36" snow thrower is recommended for use with the 710 and 712 model tractors and the 42" snow thrower is recommended for use with the 712, 716 and 718 model tractors in average snow removal conditions.

SNOW THROWER IMPLEMENT SPECIFICATIONS

	36"	42"
Blower Housing		
Construction	Welded steel channel and stampings	
Width (effective)	36"	42"
Height of Opening	19"	19"
Spout	255° rotation with adjustable deflector	
Scraper Bar	High carbon, wear resistant steel	
Skid Shoes	Adjustable height, heat treated steel	
Auger		
Construction	Solid flite, welded steel	
Diameter	12"	12"
Auger Counter Drive		
Type	Belt, Cross shaft, and roller chain	
Bearings	Needle Bearings	
Controls		
Auger Drive Clutch	Friction Clutch and brake - sealed, self aligning ball bearings.	
Raise and Lower	Tractor lift lever	
Spout Rotation	Tee handle to right of operator	

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SNOW THROWER

SNOW THROWER IMPLEMENT SPECIFICATIONS (Cont'd)

Dimensions		
Length	27"	27"
Width	37-1/2"	43-1/2"
Height	19-1/2"	19-1/2"
Weight		
Shipping	145 lbs.	157 lbs.
Net	135 lbs.	145 lbs.

RECOMMENDED ACCESSORIES

The following accessories will improve traction and make the snow removal job easier and more effective.

Rear tire chains
Rear wheel weights
Clutch adapter Kit (718-H Only)

These can be obtained from your Allis-Chalmers Lawn and Garden Equipment Dealer.

* * * * * * * * * * *

Allis-Chalmers reserves the right to make changes in the above specifications or to add improvements at any time without notice or obligation.

SNOW THROWER

Before operating the snow thrower review the safety precautions in the tractor part of this manual and study the special snow thrower safety precautions below.

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SNOW THROWER

SAFETY PRECAUTIONS



ATTENTION! BECOME ALERT!
YOUR SAFETY IS INVOLVED!

This symbol is used to call your attention to safety precautions that should be followed by the operator to avoid accidents. When you see this symbol - Heed Its Warning.

Many hours of lost time and much suffering is caused by the failure to practice simple safety rules.

IT IS TOO LATE TO REMEMBER WHAT SHOULD HAVE BEEN DONE AFTER THE ACCIDENT HAS HAPPENED.

* **READ** and become familiar with owners manual for your tractor and snow thrower before operating the thrower.
* **DO NOT** allow anyone to use the snow thrower unless they have been instructed in how to operate it safely.
* **NEVER** attempt to clean, adjust, repair, or service the snow thrower while the engine is running.
* **DO NOT** allow others near the snow thrower while it is operating.
* **ALWAYS** stay clear of the snow thrower auger and discharge spout when the tractor engine is running.
* **CAUTION:** THE AUGER MAY CONTINUE TO ROTATE A FEW SECONDS AFTER THE CLUTCH HAS BEEN DISENGAGED AND THE ENGINE SHUT OFF - ALWAYS be sure that the engine is stopped and the auger has stopped turning before attempting to clean, adjust, repair or service the snow thrower.
* **ALWAYS** clear the work area of objects which might be picked up and thrown by the snow thrower or cause damage to it.
* **ALWAYS** disengage the snow thrower clutch, stop the tractor engine, and set the parking brake before leaving the operators position.
* Operate the snow thrower **ONLY** in daylight or good artificial light.
* **ALWAYS** use caution when operating on sloping surfaces.
* **NEVER** direct the discharge chute toward any by-standers or allow anyone near the snow thrower while it is in operation.
* When leaving tractor and snow thrower unattended **ALWAYS** disengage the snow thrower clutch, lower the thrower to the ground, shift into neutral, set parking brake, stop engine and remove key.
* **ALWAYS** adjust skid shoes to keep blade well above gravel or crushed rock surfaces.
* **ALWAYS** direct snow discharge so that it does not blow back toward operator. Constant inhalation of cold wet vapor and snow can be extremely injurious. On windy days have your nose and mouth well covered.

* **REMEMBER** that safe snow removal is no accident.

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SNOW THROWER

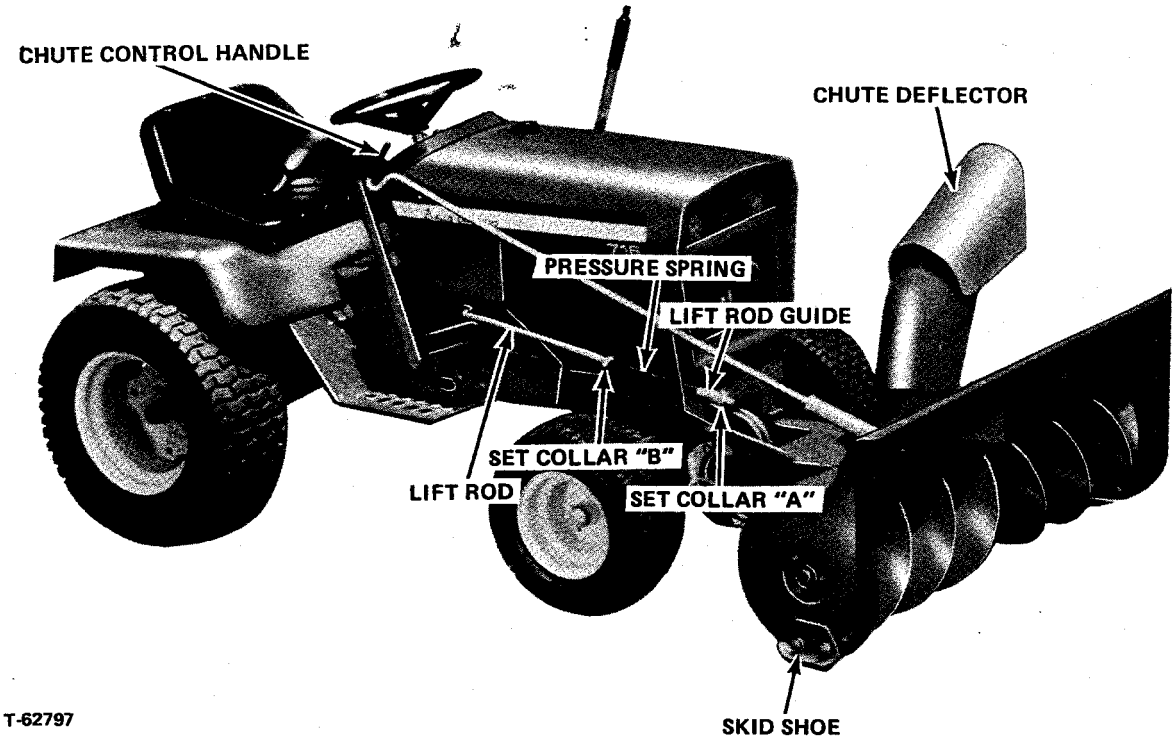


FIGURE 2

OPERATION AND ADJUSTMENTS

PREPARING TO START

1. Read this snow thrower section of this manual and the section for the tractor carefully. Be sure you are familiar with the safety precautions, controls and operating instructions.

2. **CAUTION:** Before attempting to inspect, adjust or service the snow thrower be sure the power take off is disengaged, the engine shut off, and that all moving parts have stopped.

3. Check the snow thrower carefully to be sure it is properly installed.

4. Check the condition of the snow thrower auger. Clean it of any frozen ice particles or other objects which could cause damage when it is started.

5. Lubricate the snow thrower according to instructions under Lubrication and Service section in this book.

6. Clean the area to be cleared of any articles which may be caught or thrown by the snow thrower.

CHUTE DEFLECTOR POSITION (Figure 2)

The chute deflector can be adjusted up or down by loosening the wing nuts which connect it to the chute. Its position along with engine speed control is used to control throwing distance and placement of snow. Normally the greatest throwing distance is obtained with the chute deflector up and engine speed high.

CAUTION: ALWAYS make sure that the tractor engine and the auger of the snow thrower is stopped before adjusting the chute deflector.

SKID SHOE ADJUSTMENT (Figure 2)

When operating on a gravel or rough, uneven surface the skid shoes on each side of the snow thrower should be adjusted all the way down to support the snow thrower with the scraper bar raised above the surface to prevent picking up and throwing stones.

When operating on a smooth hard surface the skid shoes should be loosened and the snow thrower lowered until the scraper bar under auger contacts the surface full width. Make sure the skid shoes also contact the surface and tighten in that position.

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SNOW THROWER

LIFT ROD ADJUSTMENT

With the tractor and snow thrower on level ground and the electric lift at the bottom of its range, or the hand lift lever fully forward, there should be some clearance between set collar "A" and lift rod guide, (Figure 2), to provide "float" action to permit snow thrower to follow ground level.

If it is desired to put more down pressure on the scraper bar, as for hard packed snow conditions, the pressure spring, (Figure 2), can be preloaded by moving set collar "B" down toward the lift rod guide. With electric lift the pressure will be maintained when lift is down. With the hand lift it will be necessary to push forward on lever to maintain spring pressure.

PLANNING SNOW REMOVAL PATTERN

Before beginning snow removal the operator should determine the best snow removal pattern. The size, shape, terrain, and obstructions of the area, as well as the wind direction and velocity should be considered. If possible snow should always be thrown down wind and operation should be started on windward side so that snow is not thrown over an area already cleared. Usually if wind permits it is best to drive back and forth the long way of the area to reduce turning. In small areas it is frequently easier to back up in the path already cleared and do all throwing traveling one direction rather than to turn around.

NOTE: ALWAYS RAISE THE SNOW THROWER OFF THE GROUND BEFORE TURNING OR BACKING TO PREVENT DAMAGE TO IT. When transporting to and from place of use the snow thrower should also be carried in the raised position with the power take off turned off.

OPERATING TRACTOR WITH SNOW THROWER

Refer to your tractor operators manual for instructions on how to operate the tractor and use the controls. Also review the safety precautions given for tractor operator.

IN LIGHT TO NORMAL SNOW

After planning the pattern of snow removal line up the snow thrower for the first pass. Lower the thrower by placing the tractor lift lever forward until snow thrower rides on the skid shoes.

Set the tractor engine at 1/2 throttle and engage the snow thrower PTO clutch lever to start the snow thrower. Turn the delivery chute to the proper direction by rotating the chute control handle. Always keep the spout adjusted so that operator is well out of way of snow stream. (Figure 2)

Place tractor transmission in first gear, speed up engine to 3/4 to full speed and start tractor forward. After first pass is made you may wish to shift to a higher gear if snow is light and ground smooth. In deeper, heavy snow select a ground speed to give a steady full stream of snow out of chute without overloading tractor engine or chute. If possible, adjust engine speed high enough that snow is thrown on beyond the edge of area to be cleared so that it will not have to be handled twice.

On second pass overlap the cleared area by a few inches to assure all snow is removed.

The amount of snow going thru thrower can be controlled by varying the width of cut as well as by varying the tractor speed.

IN HEAVY DEEP SNOW

With very dense snow or snow deeper than the center of auger a different method is suggested.

For the first pass, raise the snow thrower with the lift lever and latch it in the up position. Drive the tractor slowly through the snow with engine at full speed. At the end of the pass either turn around or back up and lower the snow thrower in the same path to clear the snow not moved on the first trip. Be sure the lift lever is forward so that thrower can float on skid shoes.

After the first path is cleared to the ground subsequent passes can be made with the snow thrower down on its skid shoes but with a considerable overlap into the cleared area. Vary the slice of snow taken to keep within the capacity of the snow thrower and engine.

CAUTION: Constant inhalation of wet cold vapor or powdered snow is extremely dangerous. On windy days have your nose and mouth covered.

PLUGGED AUGER OR CHUTE

If the auger stalls or the chute plugs, disengage the tractor front PTO clutch immediately. Stop the engine, set the parking brake and clear the auger or chute.

CAUTION: Always stop the engine and make sure auger has stopped turning before working on or near the auger or spout.

WHEN THE JOB IS FINISHED

When the clearing job is finished move the tractor to a sheltered area. With the front PTO clutch in the off position and the transmission gears in neutral let the engine run at slow speed for about 5 minutes to melt and dry up the snow in the engine compartment.

CAUTION: DO NOT RUN ENGINE IN CLOSED BUILDING. MAKE SURE THERE IS AMPLE VENTILATION to clear away the poisonous carbon monoxide in the engine exhaust gasses.

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LUBRICATION AND SERVICE

ORDERING SERVICE PARTS

Parts required for performing maintenance services or repair work should be purchased from your Allis-Chalmers Lawn and Garden Equipment dealer. When ordering parts, be prepared to give him the serial number of your snow thrower.

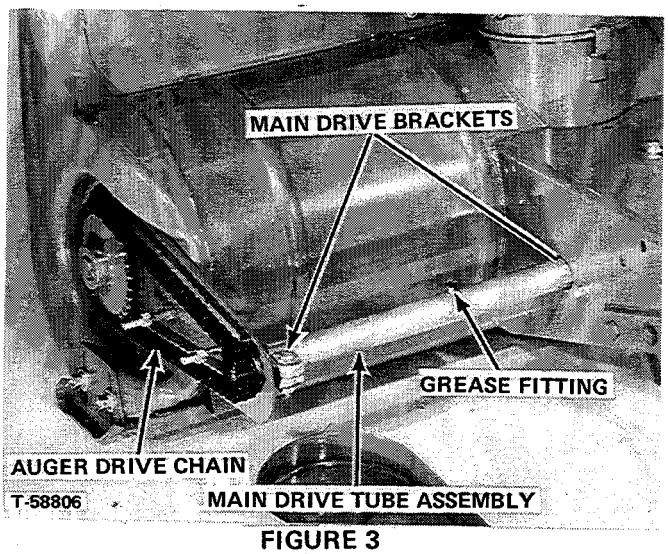


FIGURE 3

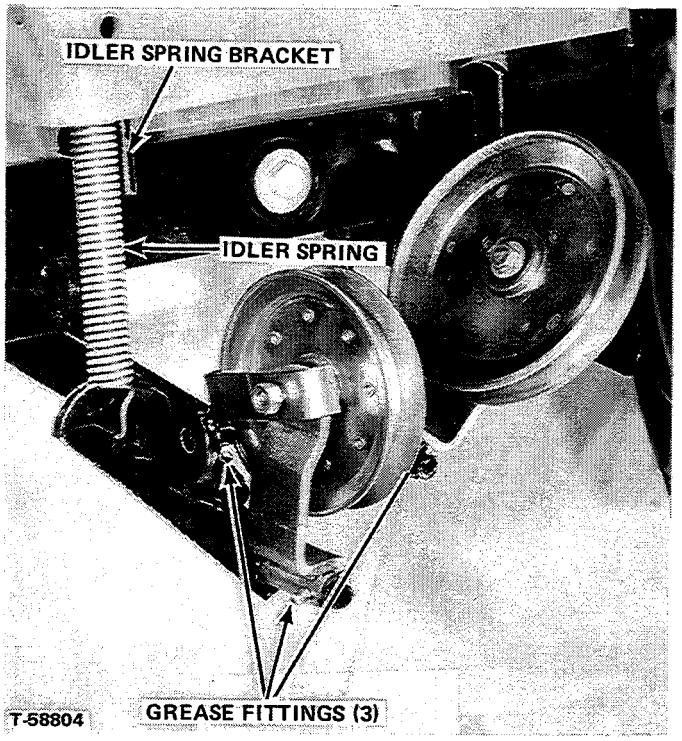


FIGURE 4

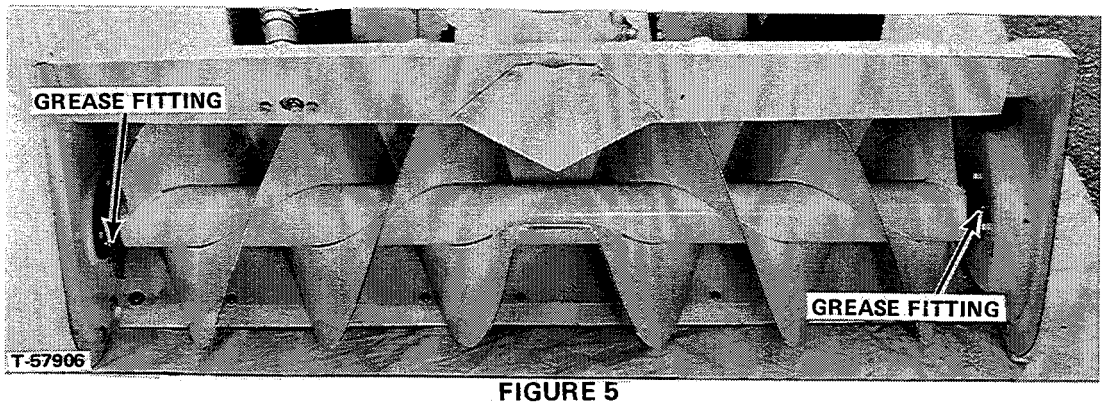


FIGURE 5

AFTER EACH USE

Inspect the snow thrower thoroughly looking for loose or missing bolts, pins or lock pins and worn or damaged parts, etc. Also check the snow thrower housing, drive shaft and spout for any buildup of ice which may cause damage when the snow thrower is started. Clean or repair the snow thrower as needed so it is ready to use the next time you wish to use it.

EVERY 10 HOURS OF OPERATION

1. Lubricate the grease fitting on the main drive tube assembly, (Figure 3) with multi-purpose pressure gun grease.

2. Lubricate the 3 grease fittings in the idler mounting brackets (Figure 4).

3. Lubricate the grease fittings on the right hand and left hand auger bearing (Figure 5).

4. Remove the two nuts that hold the chain shield to the left hand side of snow thrower. Remove the shield and coat drive chain with Allis-Chalmers Chain and Cable Lube. Replace the shield (Figure 3).

CAUTION: DO NOT attempt to lubricate chain with snow thrower auger running.

5. Place a few drops of oil on other moving surfaces such as the snow thrower mounting and pivot pins, lift rod pin and where spout rotates on thrower housing.

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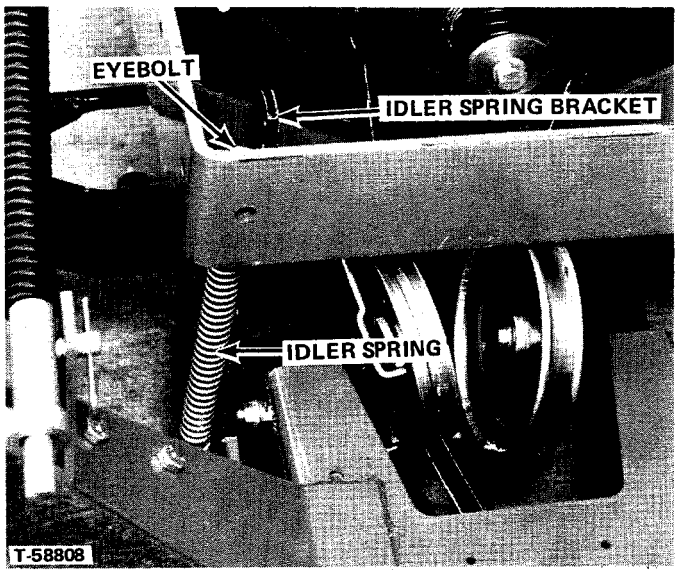


FIGURE 6

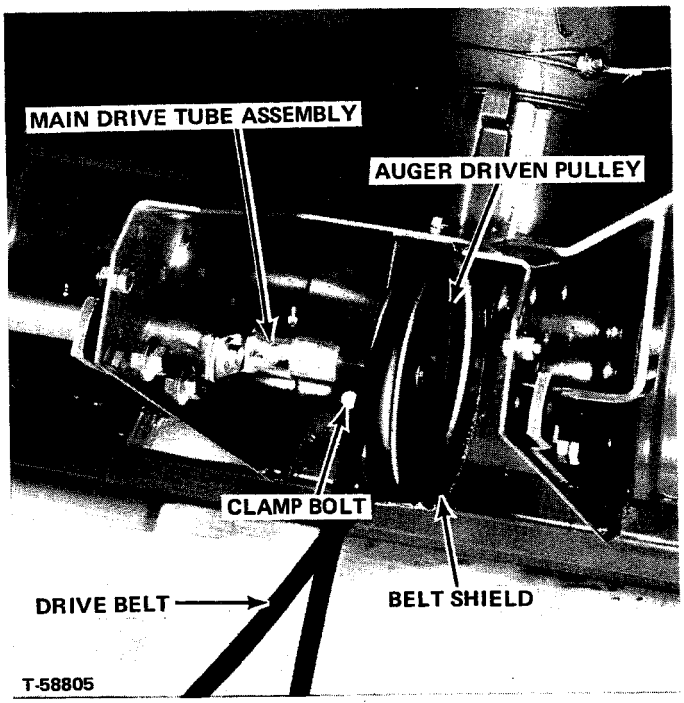


FIGURE 7

EVERY 100 HOURS OF OPERATION OR ONCE A YEAR

1. Remove chain shield on left hand side of snow thrower and inspect chain for wear and replace it if badly worn (Figure 3).

2. Loosen the bolts that hold the main drive brackets (Figure 6), to the snow thrower frame. Pull main drive tube assembly to rear until slack is removed from drive chain. Tighten bolt in left hand main drive bracket.

3. Move the right hand main drive bracket to make the main drive tube assembly parallel with snow thrower housing and tighten bolt securely.

4. Thoroughly coat drive chain with Allis-Chalmers Chain and Cable Lube.

5. Replace chain shield.

6. Check drive belt tension - (See next column).

DRIVE BELT TENSION (Figure 4)

When the drive belt stretches enough that it will not drive, tighten the idler spring - (Figure 4) by moving the eyebolt to which the idler spring upper hook is attached to a higher hole in the idler spring bracket. (Figures 4 and 6)

REPLACING DRIVE BELT

To install new drive belt loosen clamp bolt on left side of belt shield (Figure 6), and slide shield to left on main drive tube assembly to obtain access to driven pulley.

When new belt is in place slide shield back to right to its original position. Place belt over right hand and left hand idler pulleys and check that belt does not contact any part of belt shield. Shield can be rotated if necessary to obtain clearance where belt enters under, and leaves the shield.

OUT OF SERVICE PROTECTION

1. Remove the snow thrower from the tractor.

2. Use water pressure or a brush to thoroughly clean the snow thrower housing.

3. Paint or lightly coat with oil any area where paint has been worn or chipped away.

4. Lubricate the snow thrower according to the Every 10 Hour Maintenance service.

5. Perform the 100 Hour or once a year inspect, adjust and lubricate service on auger drive chain outlined above.

6. Store the snow thrower in a dry place.

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SNOW THROWER

SERVICE TIPS

PROBLEM OR SYMPTOM	POSSIBLE CAUSES	CHECKS OR CORRECTIONS
Snow thrower auger does not rotate.	Power take off lever not engaged. Power take off clutch slipping. Snow thrower drive belt slipping.	Engage power take off lever. Adjust power take off clutch. Adjust drive belt tension.
Auger rotates, but snow not thrown far enough.	Engine speed too slow. Ground speed too fast. Snow thrower discharge spout clogged.	Operate engine at 3/4 to full speed. Use low gear or about 1-2 MPH with hydrostatic transmission. STOP ENGINE. Unplug discharge spout.
Scraper bar does not clean down to hard surface.	Snow thrower not lowered enough. Skid shoes not properly adjusted.	Use tractor lift to lower snow thrower. Adjust skid shoes.
Snow thrower picks up and throws stones on gravel drive.	Skid shoes not properly adjusted for gravel surface. Too much down pressure on snow thrower.	Adjust skid shoes. Use the tractor lift lever or switch to raise the snow thrower slightly.
Tractor does not have sufficient traction.	Tractor too light at rear wheels.	Add 4 rear wheel weights and tire chains.
Tractor not stable on sloping surfaces.	Ground speed too fast. Tractor not properly weighted. Tire pressure incorrect.	Reduce ground speed. Use 4 rear wheel weights. Inflate tires according to tractor owner's manual.

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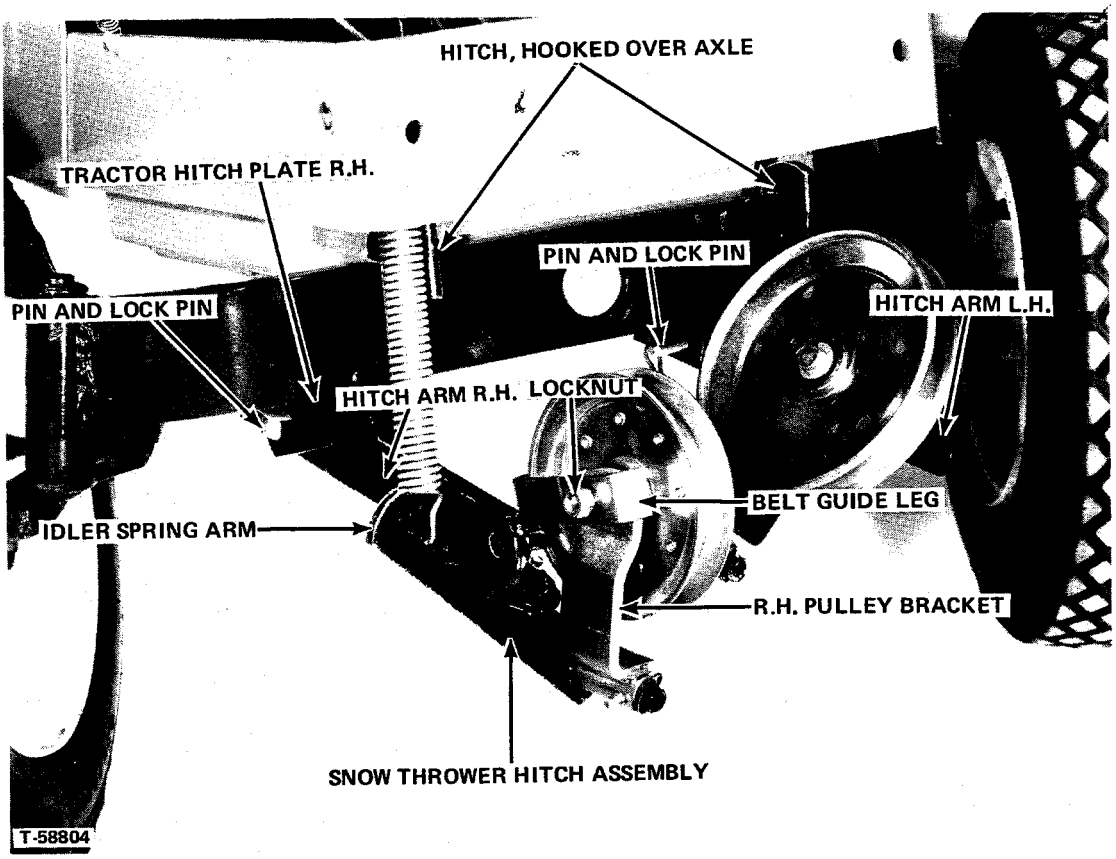


FIGURE 8 - (Tractor Hood Removed for Visibility)

ATTACHING SNOW THROWER TO TRACTOR

1. Make sure that the snow thrower PTO clutch has been properly installed on the tractor and that the snow thrower has been properly set up (See Setting Up Instructions, following).

2. Install the snow thrower hitch assembly on the front of tractor as shown in Figure 8. Hook the top of hitch frame over top of tractor axle and attach right hand and left hand hitch arms to right hand and left hand tractor hitch plates with pins and lock pins.

3. Locate snow thrower assembly in front of tractor, check that drive belt is over auger driven pulley and under belt shield as shown in Figure 7. Position snow thrower frame and frame clips over front end of left hand and right hand hitch arms and attach with pins and lock pins as shown in Figure 9.

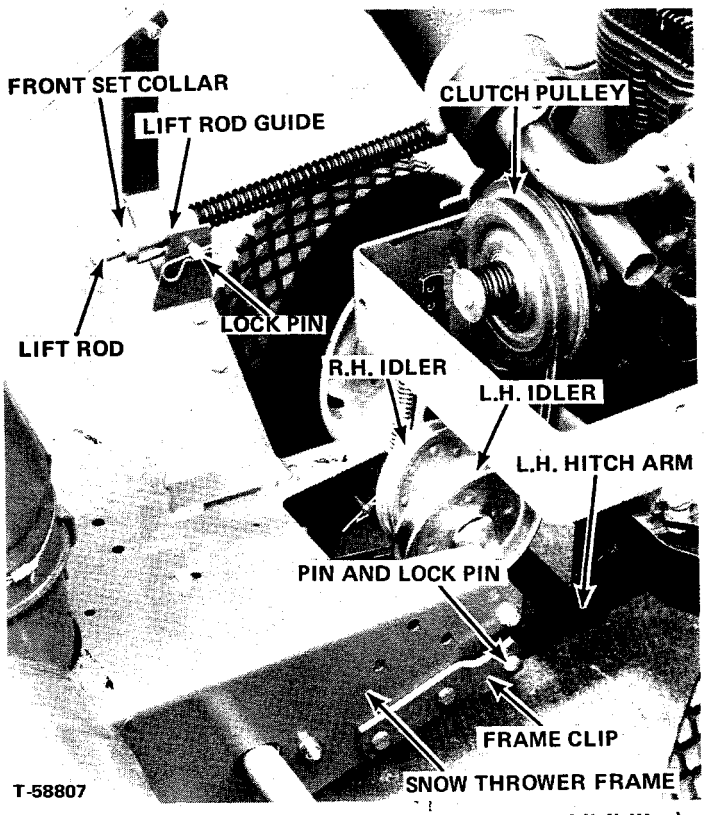


FIGURE 9 - (Tractor Hood Removed for Visibility)

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4. Place rear end of lift rod assembly in upper hole in tractor lift arm and secure with lock pin. Lift snow blower into transport position with tractor lift (Figure 11).

5. Loosen locknut that holds belt guide to right hand idler pulley and pass the belt from the top of the auger driven pulley on the snow thrower under the right hand pulley and up toward the clutch pulley with top side of belt against the right hand idler pulley as seen in Figure 10.

6. Pass the belt from the lower side of the auger driven pulley over the bottom of the left hand idler pulley and up toward the clutch pulley with "V" side of belt in left hand idler (Figure 10).

7. With left foot, step down on outer end of idler spring arm, (Figures 8 and 10), to raise right hand idler and give belt slack, then loop the "V" side of belt over the clutch pulley on end of engine crankshaft (Figures 9 and 10).

   CAUTION: Be careful to keep hands away from hot muffler and exhaust pipe if engine has recently been running.

8. Locate the belt guide on right hand pulley as shown in Figures 8 and 10 with front leg of guide against and parallel to the front edge of the right hand pulley bracket. Tighten locknut.

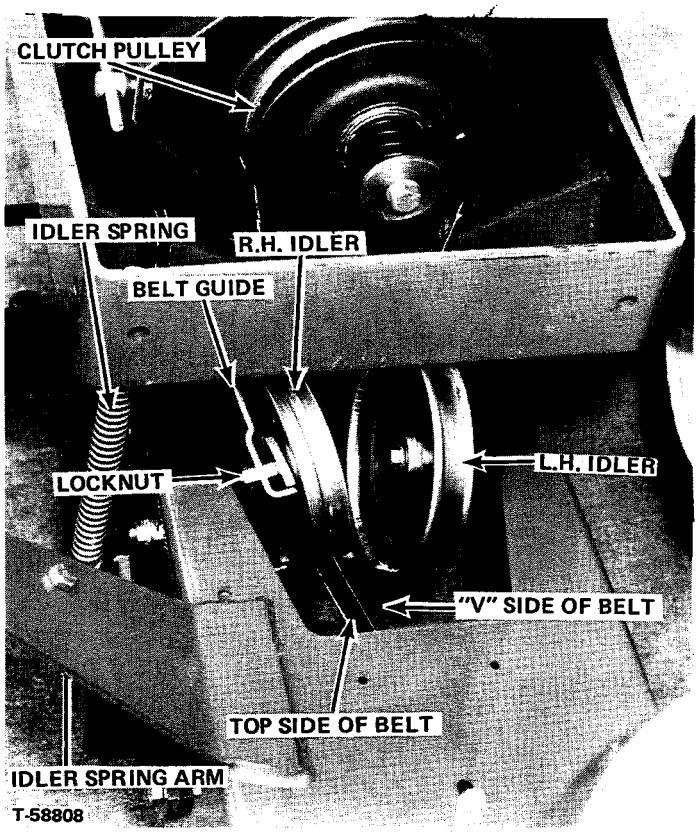


FIGURE 10

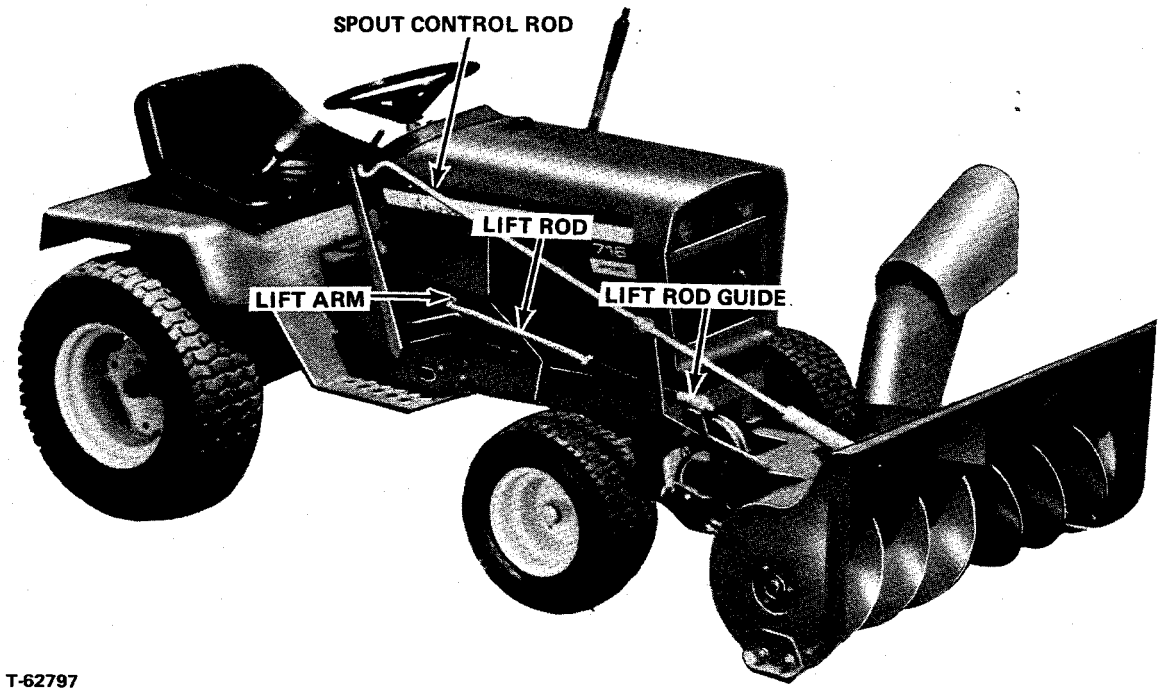


FIGURE 11

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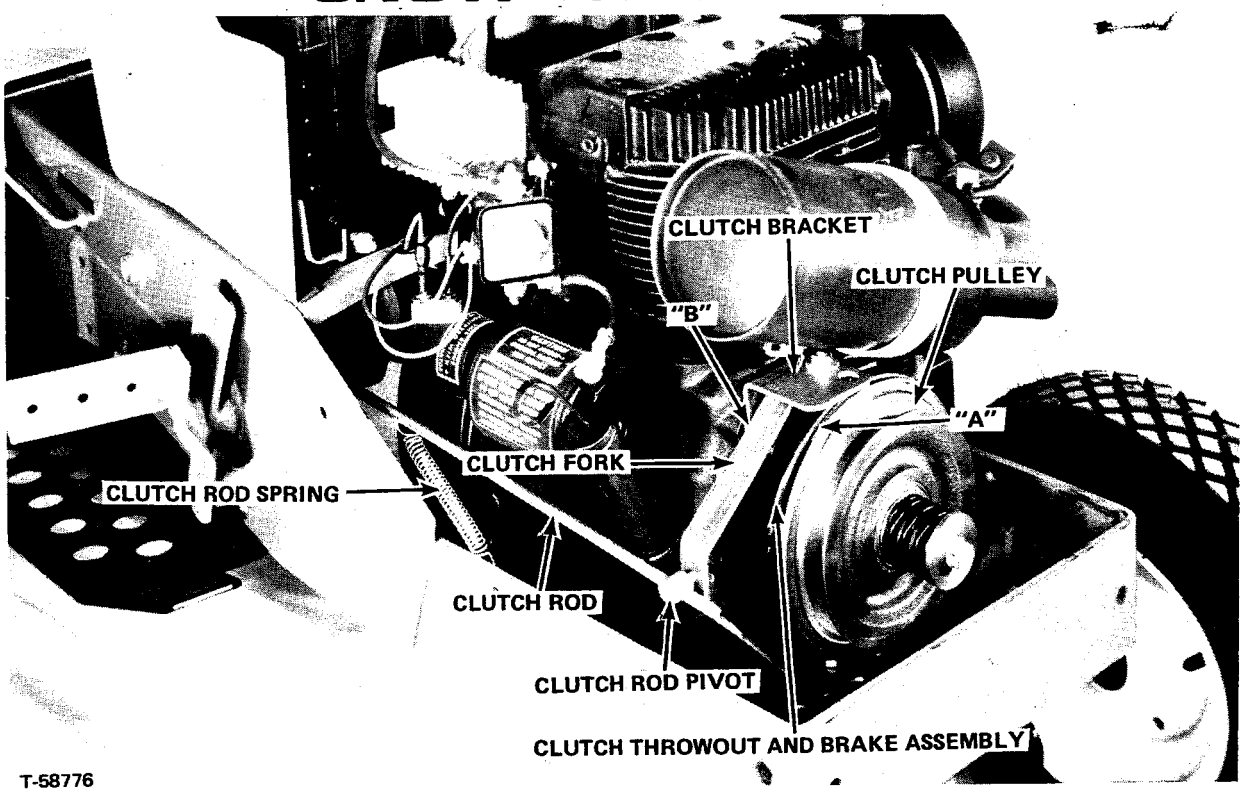


FIGURE 12

REMOVAL OF SNOW THROWER FROM TRACTOR (Figure 11)

1. Lift snow thrower into transport position.
2. Press down on idler spring arm and remove drive belt from clutch pulley. Loosen belt guide on right hand idler pulley and remove belt from idler.
3. Lower snow thrower to the ground and detach lift rod from tractor lift arm.
4. Detach snow thrower frame from hitch assembly and slide it ahead.
5. Remove hitch assembly from tractor front axle.

ADJUSTING SNOW THROWER PTO CLUTCH (Figures 11 and 12)

1. To adjust clutch move the snow thrower PTO clutch lever (Figure 11), forward into the fully engaged position.
2. Check the clearance at point "A" between the front side of the brake pad on the clutch throwout and brake assembly, (Figure 12), and the rear face of the clutch pulley. This clearance should be 1/16 inch. If less than 1/16" remove clutch rod pivot from the clutch fork and turn pivot counter-clockwise on clutch rod until clearance at A is 1/16 inch.
3. With PTO lever in the fully disengaged position check the clearance at point "B" between the corner of the clutch fork strap and the side of clutch bracket. There must be at least 1/32" clearance at B. If less than 1/32" clearance rotate the clutch rod pivot forward on clutch rod until that clearance is attained.

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SNOW THROWER

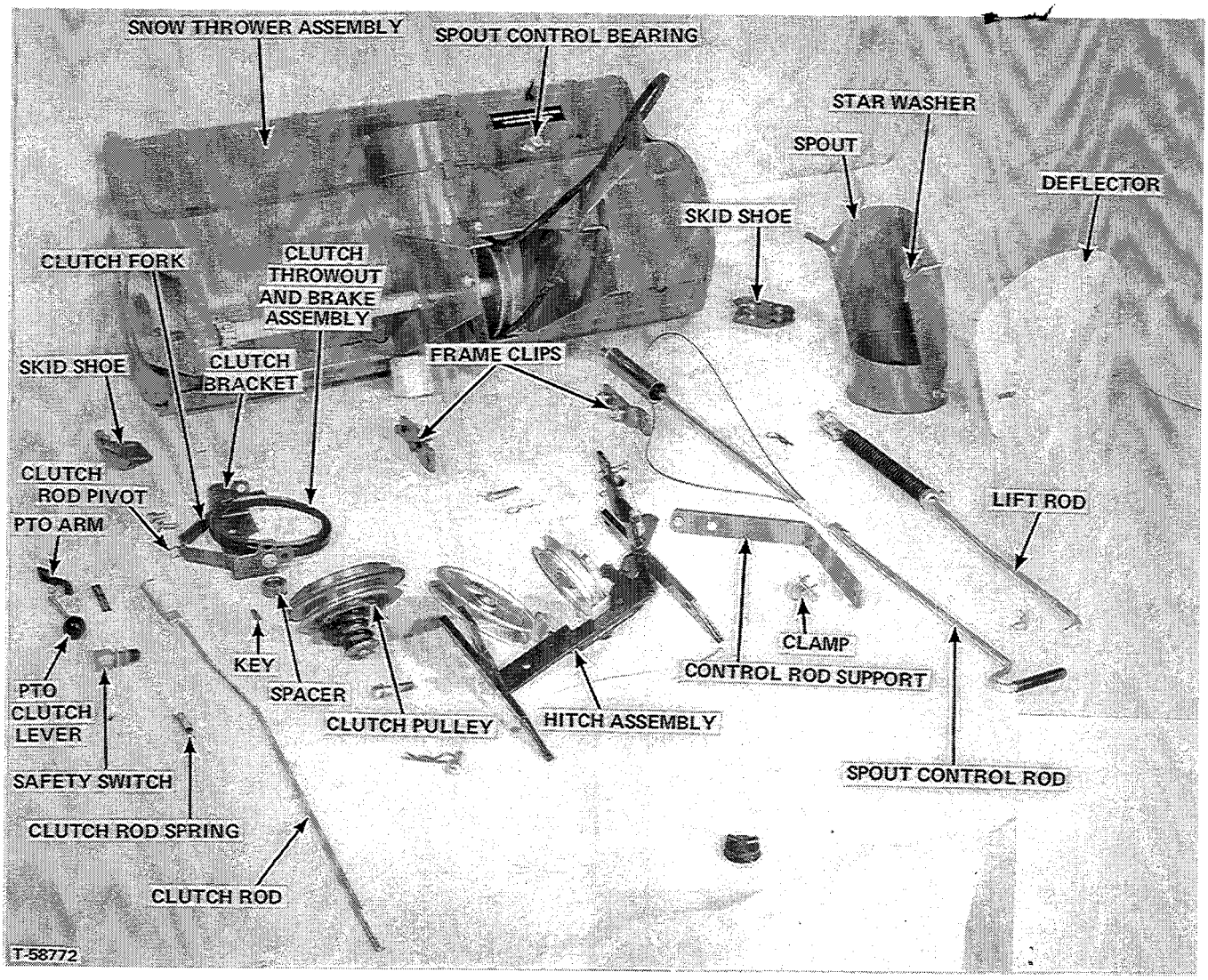


FIGURE 13

SETTING UP INSTRUCTIONS 36" and 42" SNOW THROWER

Figure 13 shows parts and subassemblies approximately as shipped and laid out for assembly.

INSTALLING SNOW THROWER PTO DRIVE CLUTCH IN TRACTOR

1. The clutch bracket, clutch fork, and clutch throwout and brake assembly may not be assembled or may be assembled differently than shown in Figure 13. In any event proceed as follows:

A. Place the pivot trunnions of the clutch throwout and brake assembly in the outer end holes in the clutch fork.

B. Place the clutch fork inside the ends of the clutch bracket and bolt the inner holes of the fork to the inner holes of the bracket with a hex head bolt installed from the inside, a spacer in the holes in fork and bracket and a flat washer and locknut on the outside at each leg of the bracket as shown in Figure 13.

NOTE: Clutch adapter kit is needed for the 718-H tractor.

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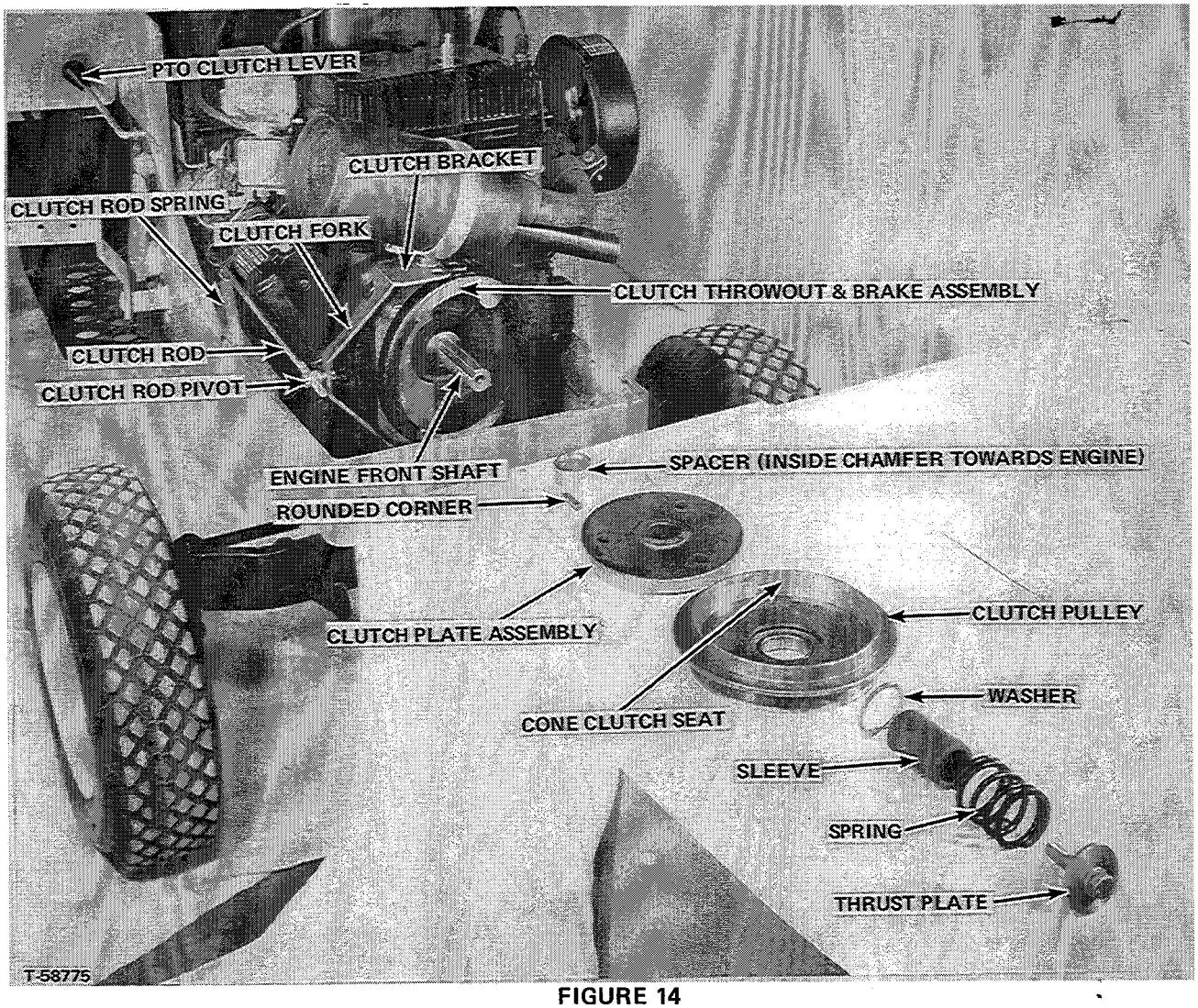


FIGURE 14

2. Remove the hood from the tractor on which the snow thrower is to be mounted. Bolt the clutch bracket and the parts assembled to it in 1, above to the front housing of the engine as shown in Figure 14. The brake lining pads must be facing forward.

3. Place parts displayed in Figure 14 on the engine front shaft in following order:

   A. Spacer with large inside chamfer towards engine,

   CAUTION: To prevent any possibility of accidentally starting engine while installing clutch parts, REMOVE SPARK PLUG WIRE FROM PLUG.

   B. Key, with rounded corner toward engine,

   C. Clutch plate assembly over shaft and key with the cone clutch lining facing forward,

   D. Place clutch pulley on rear end of sleeve and place sleeve on shaft with cone clutch seat of pulley facing the clutch plate assembly.

   E. Place washer over sleeve outside of clutch pulley, place spring over sleeve, place thrust plate in outer end of spring and install capscrew and lockwasher through thrust plate into end of engine shaft and tighten securely.

4. Remove PTO arm from the PTO clutch lever and install lever through hole in tractor frame (Figures 13, 14 and 15). Place PTO arm on squared shoulder shank of PTO clutch lever on the inside of the tractor frame in such position that when lever is held in a straight up vertical position, the arm is also pointing upward but at about a 30^{o} angle toward the rear. Install locknut and tighten securely. (See Figure 15)

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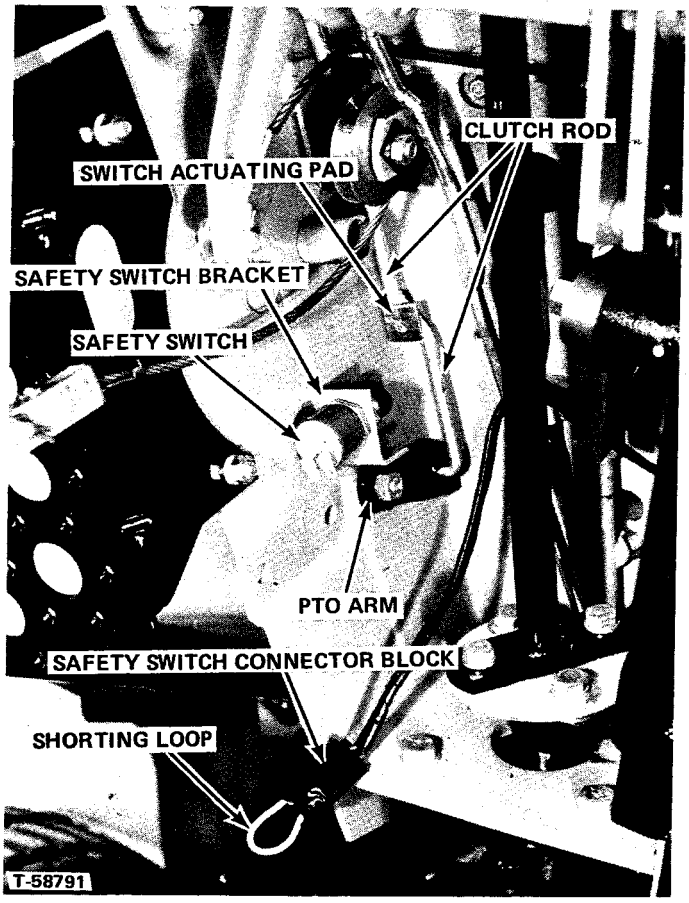


FIGURE 15 - View Under Tractor
(Snow Thrower PTO Clutch Engaged)

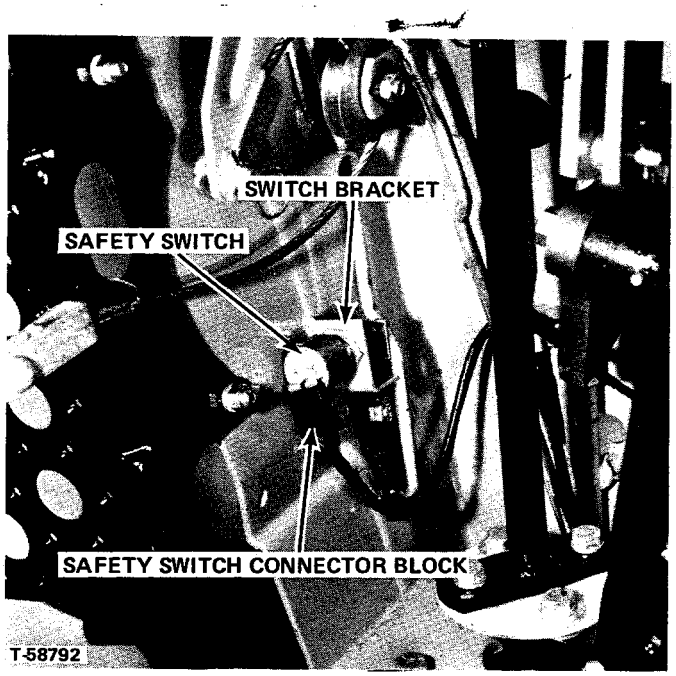


FIGURE 16 - View Under Tractor
(Snow Thrower PTO Clutch Disengaged)

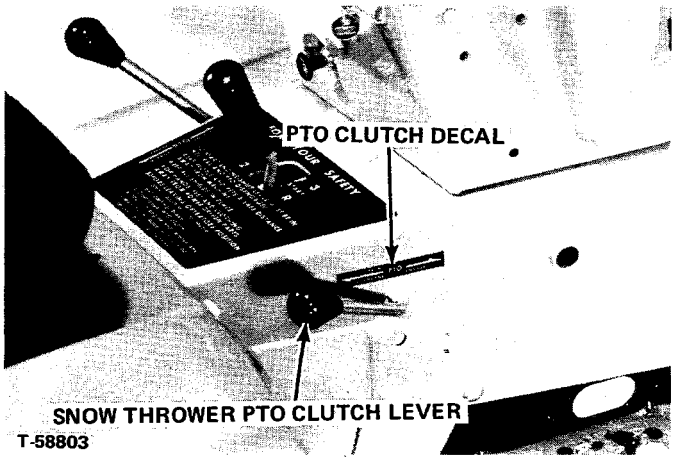


FIGURE 17

5. With the threaded end of clutch rod toward the front, work other end of rod back inside of tractor frame as shown in Figure 14 and hook rod end into PTO arm as shown in Figure 15. Secure with cotter pin in end of rod.

6. Place the clutch rod pivot on the end of the clutch rod, attach the clutch rod spring (Figure 14). Adjust the snow thrower PTO clutch as outlined immediately before this setting up instruction section.

7. With PTO clutch properly adjusted and placed in the forward, engaged position install the safety switch loosely in the safety switch bracket with one thin hex nut above the bracket and the switch and other hex nut below the bracket as shown in Figure 15.

8. Adjust the safety switch downward with the two thin hex nuts until the actuating pad (Figure 15) will almost fully depress the plunger in upper end of switch without putting any appreciable load on the switch itself when the PTO clutch is placed in the rear fully disengaged position. Lock the hex nuts against the bracket (Figure 16).

9. Remove and discard the tape and the shorting loop of wire from the end of the safety switch connector block, (Figure 15), that is attached to the wiring harness under the tractor. Slip connector block firmly over the two connector terminals on the switch as shown in Figure 16.

CAUTION: Be sure that safety start switch is so installed and adjusted that snow thrower PTO clutch must be in the fully disengaged position before the safety switch is activated to permit engine to start when switch is turned to "Start".

10. Install the PTO clutch decal on the tractor R.H. frame directly above the snow thrower PTO clutch lever as shown in Figure 17.

11. Reinstall the tractor hood.

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SNOW THROWER

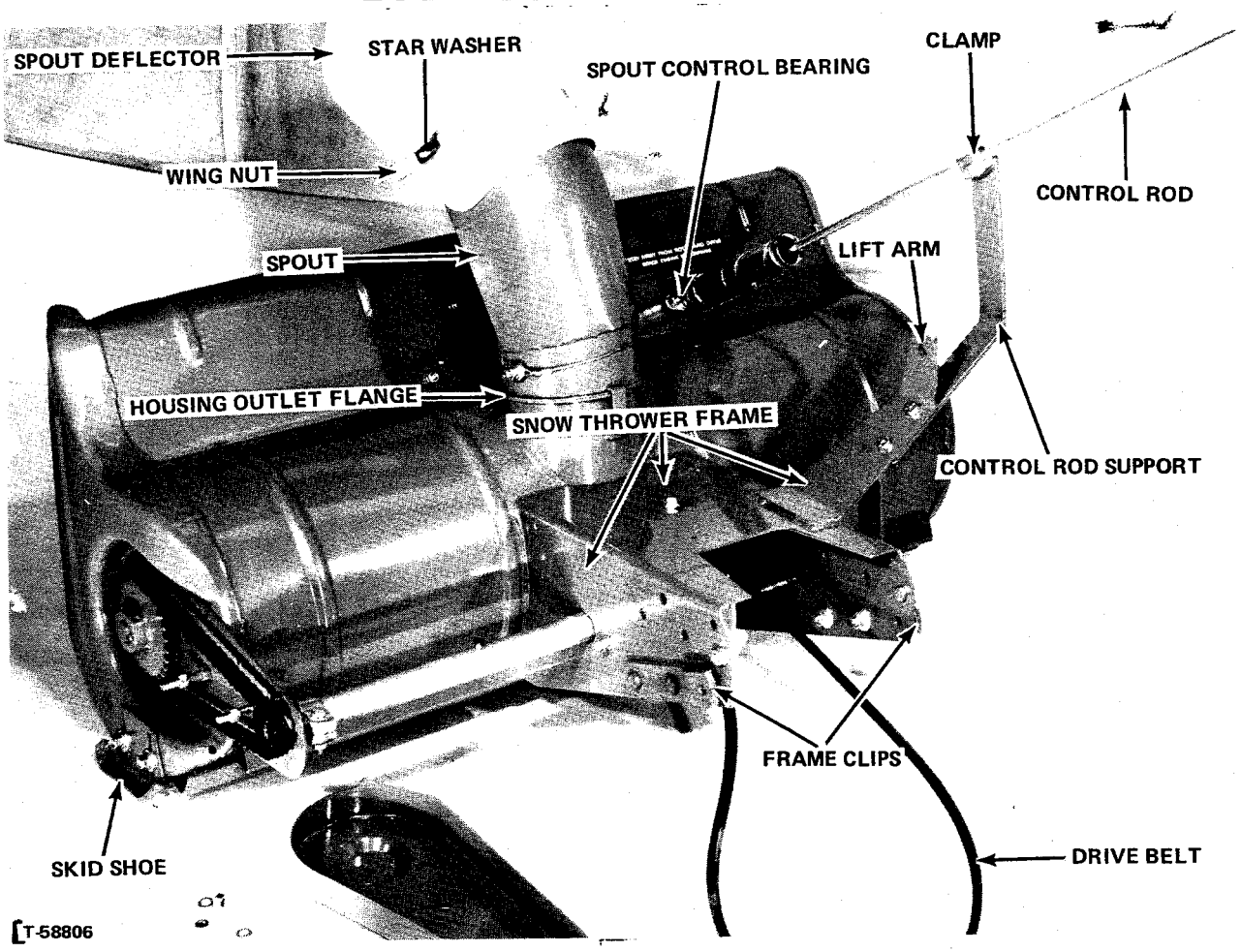


FIGURE 18

SETTING UP SNOW THROWER

Refer to Figure 13 for parts approximately as shipped.

1. Bolt the frame clips and the control rod support to the snow thrower frame, and bolt the skid shoes to the end of the housing using flat washers between the slotted holes and the lockwashers as shown in Figure 18.

2. Install the spout control rod into the bearing located on the right hand front of snow thrower housing. Install one cotter pin in control rod on each side of bearing (Figure 18). Place clamp on spout control rod and bolt it to control rod support (Figure 18). Use locknut on bolt and tighten it just enough to create a slight drag on spout control rod when rotated. This is to prevent undesirable - rotation of the spout while operating snow thrower.

3. Place a thin coating of light grease on the snow thrower housing outlet flange where spout contacts housing when in working position. Rotate spout back until notch lines up with holder on snow thrower housing. Slip spout down over end of housing discharge until it rests on outlet flange. Rotate the notch away from holder (Figures 18 and 19).

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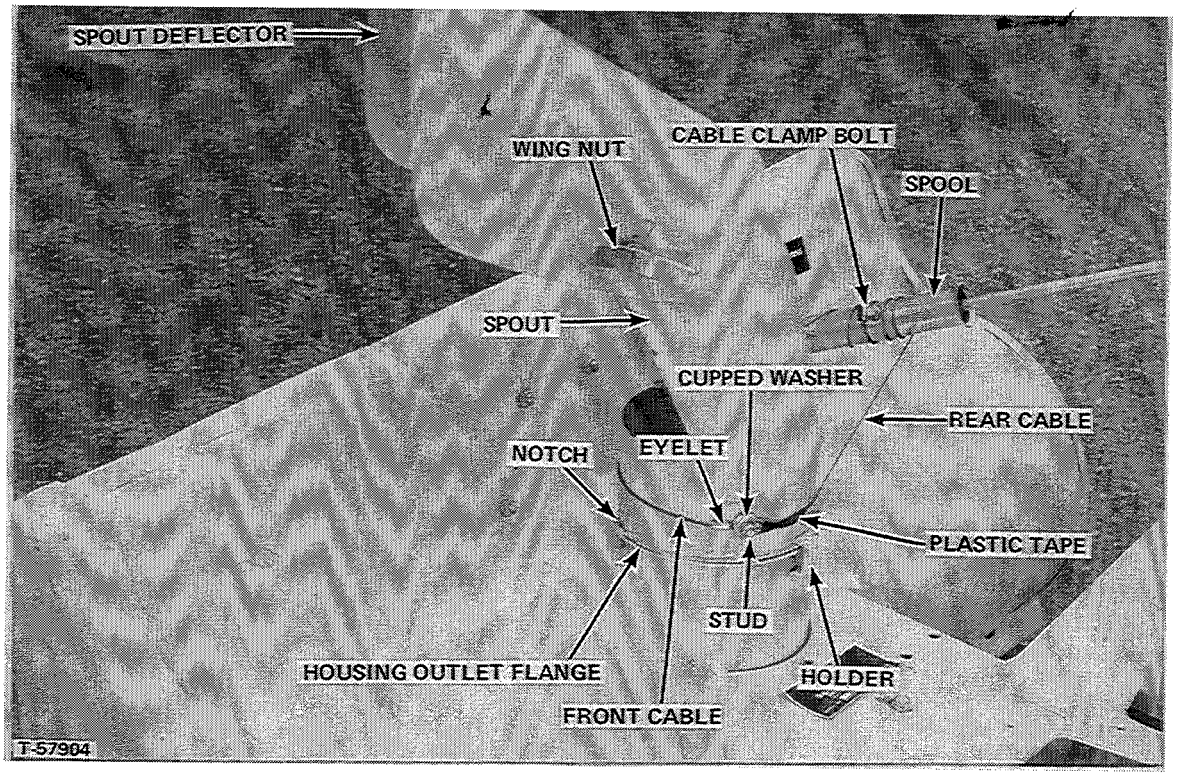


FIGURE 19

4. Place deflector over spout, install two carriage bolts through holes in spout and deflector. Place large star washer between the deflector and the spout with the cupped side of washer toward spout. Place the flat washers and wing nuts on the outside of the deflector. Tighten wing nuts. (Figures 18 and 19)

5. Attach cable clamp containing spout control cable onto control rod spool with bolt. Wrap cable with eyelet on end around front portion of control rod spool about 2 turns. Pass cable around front of spout and hook eyelet over stud and place flat washer over eyelet. While holding back on the left side of deflector lightly, turn spout control rod clockwise (while facing forward) to tighten front part of cable. Continue to turn spout control rod until spout is turned to point exactly straight forward (Figures 18 and 19).

6. Count the number of turns of front cable on the control rod spool. Wrap the rear part of cable around the rear of control rod spool with the same number of turns. Pass end of rear cable around back of spout and loop it around stud outside of flat washer. Place cupped washer with the cut out side over the looped end of cable and hold in place with lockwasher and nut. While holding the spout pointing straight front, pull the cable end tight with a pair of pliers, turn cupped washer so that the rear cable end enters and leaves through the cut out portion of washer. Tighten nut securely. Bind loose end of cable to rear cable with plastic tape as shown in Figures 9 and 10.

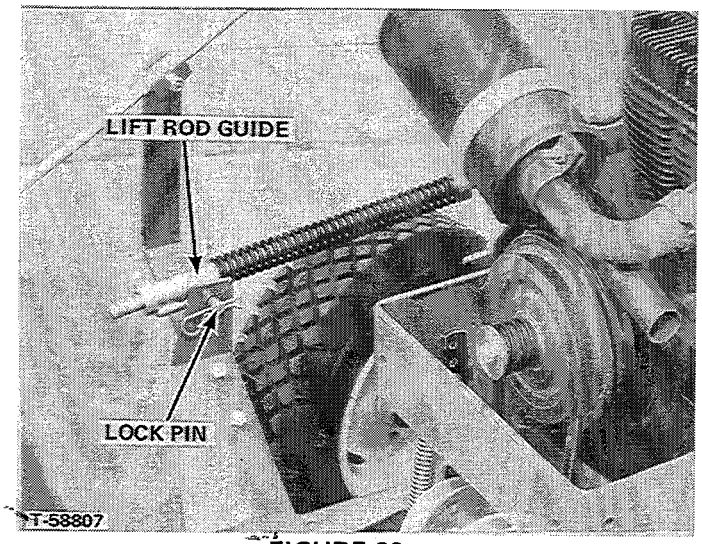


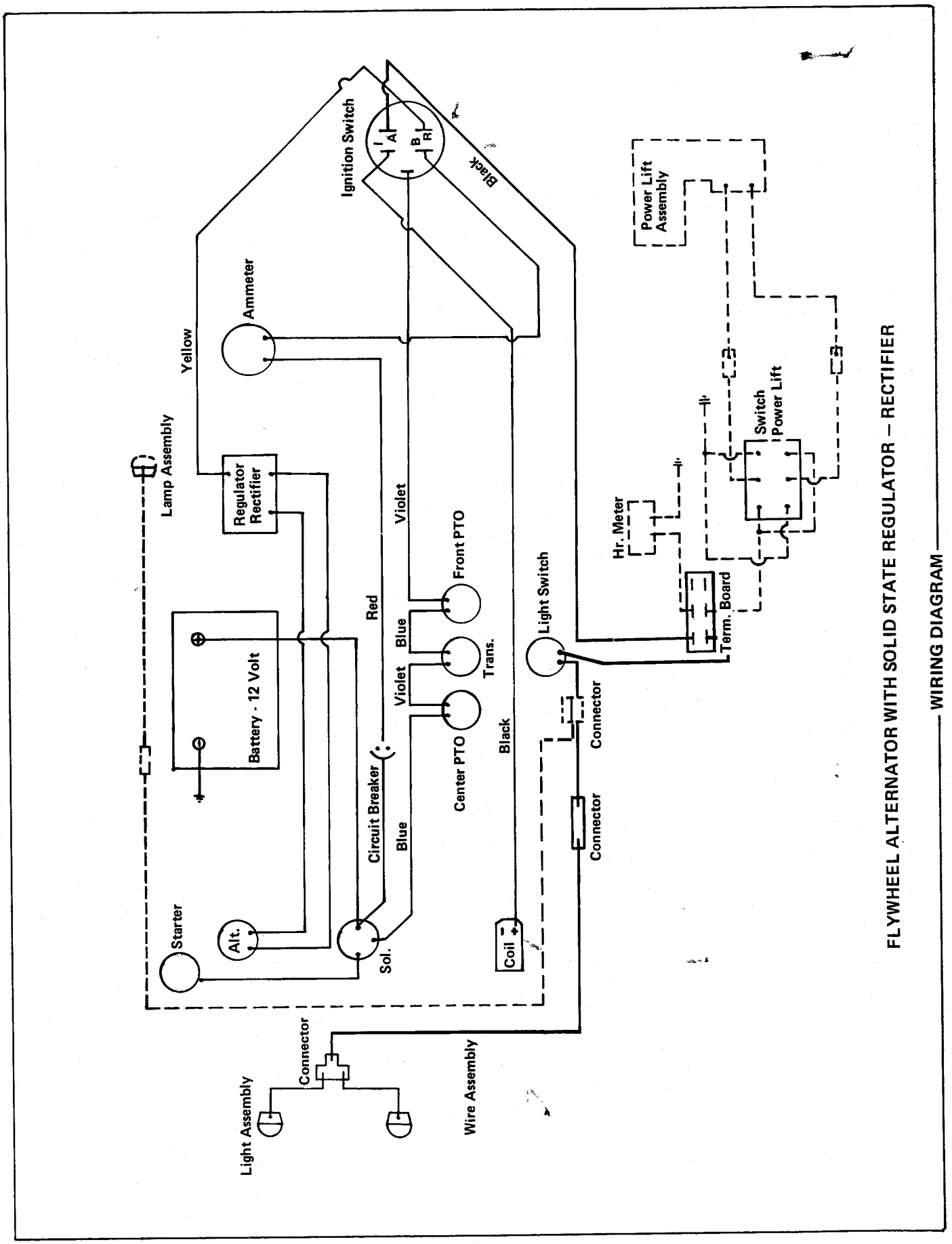
FIGURE 20

7. Check that spout travels equal angles when control rod is turned to full right and full left positions. If not, rewind the cable so that both front and rear portions have exactly the same number of turns when the spout is pointing straight forward.

8. Place pin part of lift rod guide through hole in snow thrower lift arm and secure with lock pin - (Figure 20).

To mount snow thrower to tractor see ATTACHING TO TRACTOR in front of this section.

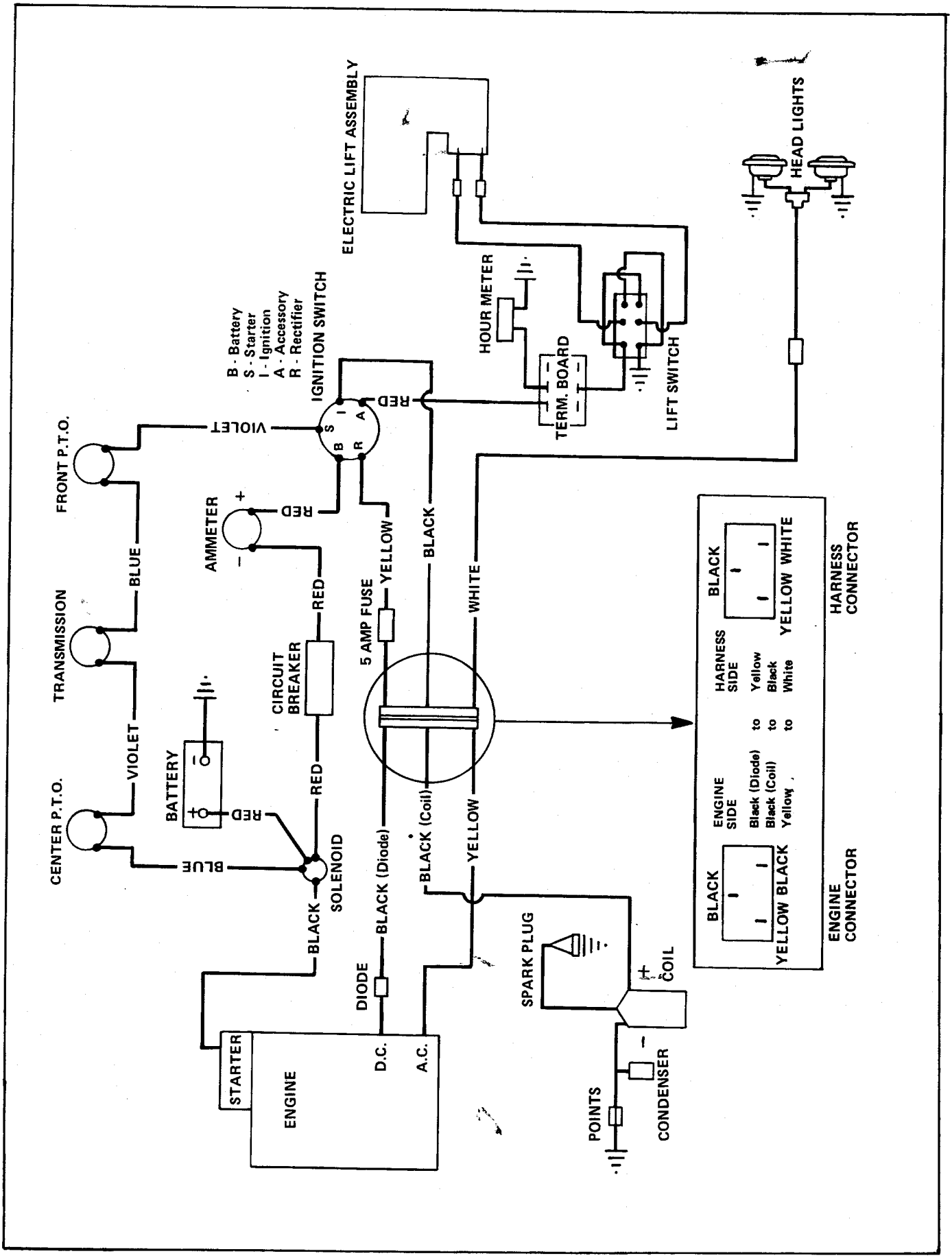
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FLYWHEEL ALTERNATOR WITH SOLID STATE REGULATOR – RECTIFIER

WIRING DIAGRAM

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