FORM NO. 3310-348 Rev. A

TORO®

MODEL NO. 37027—40001 & UP
MODEL NO. 33755—40001 & UP
MODEL NO. 33787—40001 & UP
MODEL NO. 33876—40001 & UP

OWNER'S MANUAL

PARKMASTER® 5, 7, AND 9



Price $3.00

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FOREWORD

TO THE TORO OWNER . . .

The correct equipment for fine turf-grass mowing and proper turf care was the basis for the development of the new Parkmaster 5, 7, and 9.

We know that you will find these machines high quality, precise, and exacting turf care tools. They utilize the most advanced concepts in engineering and design and with proper care will give years of trouble-free service.

Please take the time to read this Owner's Manual before operating your new Parkmaster. The better you understand the operation of the machine . . . the better the job it will do for you.

While reading the manual, compare the illustrations with the actual machine. This should familiarize yourself with the location of controls, lubrication points, adjustments, and operation.

A study of the operating instructions will insure proper function of the unit on your turf and will help promote safe operation. Please save this manual for future reference and information. Use the Maintenance Record at the end of this manual to record periodic maintenance procedures and services.

If additional assistance is needed, your local Authorized Toro Turf Equipment Distributor will be glad to help.

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Bloomington, Minnesota 55420 U.S.A.

SPECIFICATIONS

MODEL 37027 TRACTOR

ENGINE: Chevrolet Motor Division, General Motors Corporation, Model 250 CID L-6. For further description see Engine Tune-Up Specifications, page 27.

CLUTCH: 11 inch diameter, diaphragm type, spring loaded, foot operated with torsional dampener for smooth engagement.

THROW-OUT BEARING: Ball type, pre-lubricated.

FLYWHEEL CLUTCH HOUSING: Integral type, including rear engine mounting surfaces. Cast iron material.

ENGINE MOUNTS: Four point mounts, including resilient rubber mounts, dampening vibration between power train and frame.

RADIATOR: Tube and fin construction. Core 24.66 x 16.33 x 1.95 thick. Stamped brass top and bottom tanks. 15 P.S.I. pressure cap. 13 quart capacity. Coolant, permanent type ethylene glycol anti-freeze.

FAN: 17 inch diameter, 6 blade, 2.02 pitch. Heavy-duty construction, dynamically balanced with blades riveted to spider.

STARTER MOTOR: 12-volt, 3 bolt attachment to flywheel-clutch housing. Integral solenoid with switch providing full voltage for cold weather starting.

ALTERNATOR: 37 ampere, 12 Volt alternator with integral solid state voltage regulator. Unit designed to withstand severe dusty & dirty operating conditions.

IGNITION SYSTEM: Coil and distributor. Distributor includes vacuum advance control to provide proper engine timing at variable engine speeds. 1.8 OHM resistor used to operate distributor breaker points at 10.5 Volts and provide long life operation. Switch at starter solenoid provides 12 volts, during starting cycle.

CARBURETOR: Single barrel, industrial type, including stainless steel anti-friction ball bearings for use with governor.

AIR CLEANER: Dry hat type with replaceable paper element 350 C.F.M. capacity.

TRANSMISSION: New Process Division, Chrysler Corp., Model 435 CL Four speeds forward, one speed reverse synchro-mesh shifting provided in 2nd, 3rd, & 4th gears. 275 lb/ft. torque capacity.

Gear Ratios:	1st	6.685:1
	2nd	3.339:1
	3rd	1.662:1
	4th	1.000:1
	Reverse	8.268:1

Lubrication, SAE 90 EP Grease, 7 pint capacity

DRIVE SHAFT: 2½ inch diameter tubing, two universal joints with relubricatable anti-friction bearings. Steel forged yokes.

REAR AXLE: 7500 pound load capacity 7.17:1 reduction with spiral bevel hypoid pinion and ring gear set. Full floating drive axle shafts, 1-3/8 effective diameter. Malleable cast iron gear case, steel tubing trumpet housings. Removeable differential carrier and taper anti-friction bearings. Lubrication, SAE 90 EP grease, 6½ pint capacity.

BRAKES: 14 inch diameter x 2¼ inch wide, double servo hydraulic brakes on rear wheels, providing 119 square inches total brake shoe area.

Master cylinder: One inch diameter piston with spring return.

Parking brake provided with compound hand lever, multi-stranded cable & conduit, actuating brake shoes.

THROTTLE CONTROLS: Foot pedal, with foot rest for operator comfort. Hand throttle included with optional governor kit.

FRONT AXLE: Welded construction, four inch, 9½ pound structural steel I-beam with center pivot. Wishbone supports integral with axle. Cast steel spindle knuckles and steering arms. 50° maximum turn with adjustable stops to restrict turn if desirable. Needle bearings and roller thrust bearings on spindles. Sealed ball joints with grease fittings for lubrication.

FRONT WHEEL HUBS: Cast iron hubs, tapered roller bearings.

POWER STEERING GEAR: Recirculating ball screw, rack and pinion steering gear with integral 3-1/8 inch diameter power piston and directional flow control valve. Separate steering column with ball anti-friction bearings and flexible coupling between column and steering gear. Ratio 17.5:1 maximum output at 1000 P.S.I. 8,250 inch pounds torque. 1-3/8 diameter tubular drag link with adjustable ball sockets and grease fittings for lubrication.

POWER STEERING PUMP: Heavy duty, vane type design maintains high efficiency at high pressures and temperatures throughout its life. Flow control system allows external pump flow to drop off at higher speeds thereby decreasing back pressure in hydraulic system. Minimum output 1.75 G.P.M. at 465 R.P.M., maximum output 2.80 G.P.M. at 1500 R.P.M.

Relief valve adjusted to 1000 PSI; pump includes integral filter and reservoir and uses type "A" automatic transmission oil. Pump belt driven from engine crankshaft.

STEERING WHEEL: 15 inch diameter, dished, hard rubber reinforced steel steering wheel. 3-3/4 turns of the steering wheel from maximum left turn to maximum right turn.

FRAME: Welded construction. 5 inch, 9 pound structural steel channel reinforced to provide maximum strength.

SPECIFICATIONS (Continued)

INSTRUMENT PANEL: Individual instruments, ammeter, fuel level, oil pressure, water temperature, hour meter and speedometer with odometer. Speedometer driven from transmission, all other instruments electrically powered. Hand choke for engine. Provisions for light switch, head & taillights, horn, direction signals, and emergency flashing lights when required.

HOOD & COWLING: Reinforced sheet steel with hood opening vertically from front to provide access to engine compartment.

SEAT: Contour seat with drape-around 13 inch high back rest. Seat pan and back rest with foam filler and integral vinyl cover. Adjustable slide with 4 inch adjustment, forward and backward.

SEAT SUSPENSION: Suspension adjustable with hydraulic shock absorber to compensate for variable weight of operators.

FUEL CAPACITY: 15½ gallons, tank mounted at rear of tractor with provisions for convenient refueling when mounted frames are used. Inline, replaceable fuel filter used to insure clean fuel supply to engine.

BATTERY: 12 Volt, 54 plate, 45 ampere capacity. Battery includes anchor-bond construction where the plates are bonded to both top and bottom of case.

TOOL BOX: Seamless steel construction, 21 inches long, 8 inches wide, 6 inches high.

DRAWBAR: 13/16 diameter hitch hole. May be installed on tractor centerline, in any of nine positions to a maximum of 11-1/4 inches either side of center. Height 14-3/8 inches from ground to top of drawbar hitch. Entire drawbar quickly removable.

TIRES & WHEELS:

Rear: Dual semi-drop center, demountable rims with all traction, R-3, 4-ply, 7.50-16 tires with tubes on PM5 & 7; 8.00-16 on PM9. Tubes include valves for liquid ballast if desired.

Front: Drop center 15 x 5 wheels with 6.70-15, 4-ply, 1-I ribbed tires with tubes on PM5 & 7; 14 x 8 wheels with 9.50-14, 4-ply, 1-I ribbed tires with tubes on PM9.

(See page 19 for recommended tire pressures)

DIMENSIONS:

Overall Length: 133 inches without dump box
150 inches with dump box.
Height: 51 inches over front of hood
66 inches over steering wheel
58½ inches over dump box.
Maximum width: 84 inches (across rear tires)
Wheel base: 99 inches
Front wheel tread: 61¼ inches
Rear wheel tread: 65½ inches
Curb clearance: 10 inches

WEIGHT: 3000 pounds total weight – includes coolant, fuel and lubricants. 1460 pounds on front wheels. (48.7% of total) 1540 pounds on rear wheels (51.3% of total).

SPEEDS: Transport – 4th gear maximum transport speed varies depending upon weather conditions and road conditions. 20 MPH should be considered maximum speed under ideal conditions.

WORKING SPEEDS:

Gear	Engine Speed		
	1200 RPM	1600 RPM	2000 RPM
4th	14.688 MPH	19.584 MPH	24.480 MPH
3rd	8.838 MPH	11.784 MPH	14.730 MPH
2nd	4.399 MPH	5.865 MPH	7.332 MPH
1st	2.276 MPH	2.929 MPH	3.662 MPH
Rev	1.776 MPH	2.369 MPH	2.961 MPH

TURNING RADIUS: Minimum of 7'3" from center of turn to closest side of rear dual tire on inside of turn. May be increased by adjusting stops at front axle.

OPTIONAL EQUIPMENT:

Governor: (Model #70106) Variable speed governor controlled by quadrant-type hand throttle lever mounted on steering column. Governor belt driven from engine water pump pulley. Speed control from 800 RPM to 2200 RPM.

Road Kit: (Model #70096) Consists of horn, directional lights with 4 way flasher, head and taillights.

Horn: 12 Volt utility horn with horn relay and water proof horn button attached to steering column.

Directional Signals: Non-cancelling controller mounted on steering column, with pilot lights and 4-way flasher switch. Four 12 Volt, SAE Class A, Type I signal lamps.

Head & Tail Lights: Two headlights, 12 Volt, 35 watt all glass sealed beam, single filament, 4½" diameter lens, adjustable mounting. Two taillights included with directional and stop light, double filament bulbs. Switch, fused and mounted in instrument panel.

Front Fenders: (Model #70196) Fabricated steel welded construction with rubber and fabric flaps. Fenders prevent material from being thrown from front tires, rearward.

Front Tires: (Model #70180) Drop center 14 x 8 wheels with 9.50-14 4-ply, 1-I ribbed tires with tubes.

Rear Tires: 9.50-16 (for PM5, 7, & 9) or 8.00-16 (for PM5 & 7). See Parts Catalog for part numbers.

Drawbar Kit: (#18-2940) Can be used with Parkmaster Units, but rear mower and frame lift arm must be removed.

AVAILABLE IMPLEMENTS

Dump Box: (Model #70043) One cubic yard capacity. 7 Gauge reinforced steel, electrically welded. Over-center dumping with mechanical trip for dumping and tail gate. Empty weight approx. 450 pounds.

Towed Implements: The tractor provides a standard drawbar by which a wide variety of implements can be pulled. Among these are the Toro Universal Frame, Roughmaster Frame, Aero Frame and Rak-O-Vac Sweeper.

For Cutting Unit specifications see individual specification for these units.

OPERATING INSTRUCTIONS

CONTROLS

The controls and instruments on your new TORO Parkmaster Tractor are similar to those on an automobile with a standard transmission. Before using the tractor for the first time, read this Owner's Manual carefully to familiarize yourself with the controls.

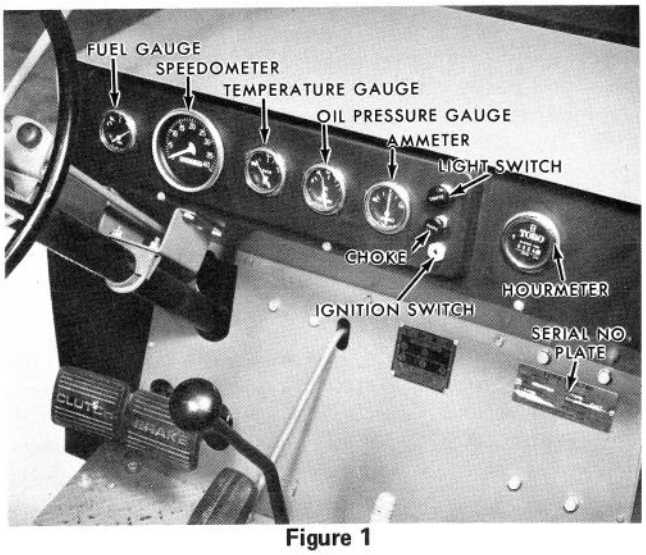


Figure 1

TEMPERATURE GAUGE

After a normal warm-up period, the needle should register in the 240°F. range. If the needle moves to the HOT end of the gauge, stop the engine and determine and correct the cause of overheating.

OIL PRESSURE GAUGE

Form the habit of looking at this gauge immediately after starting the engine. If there is no pressure, or very little pressure, stop the engine and determine the cause. Make any corrections necessary before restarting the engine. Normal operating oil pressure is 45 PSI, with the engine at normal temperature and speed.

AMMETER

The ammeter should show a slight charge unless the engine is idling slowly. If the battery is fully charged, the needle may appear to remain centered on the gauge. If the gauge shows a continuous discharge when the engine is running above idle speed, stop the engine and determine the cause. A dead short will show full charge when engine is running, full discharge when engine is not running. Make any corrections necessary to avoid discharging the battery.

HOURMETER

The hourmeter registers actual hours of engine operation. Use the hourmeter readings to determine the proper intervals for lubrication and maintenance procedures.

SPEEDOMETER AND ODOMETER

The speedometer needle indicates ground speed in miles per hour. The odometer indicates total accumulated mileage.

IGNITION START SWITCH

Turn the ignition key clockwise to start the engine. Release the key as soon as the engine starts. If the engine does not start immediately, do not re-engage the starting motor while the flywheel is turning.

IMPORTANT: Do not keep the starter engaged for more than 15 seconds at a time. Wait 10 or 15 seconds before trying again.

Remove the key when the tractor is unattended.

CHOKE CONTROL

The carburetor choke valve is controlled by the knob on the instrument panel. Pulling the knob out the first ¼-inch produces a fast idle speed for starting; pulling the knob out further operates the choke valve in the carburetor. Push the knob in when the engine starts.

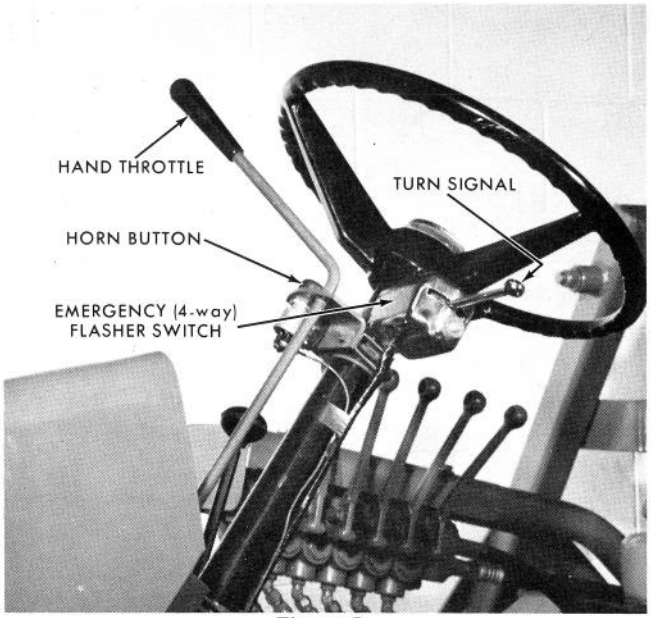


Figure 2

LIGHT SWITCH (OPTIONAL)

Pulling the switch out will activate the headlights and taillights.

TURN SIGNALS (OPTIONAL)

To signal a turn, move the lever in the direction of turn and release. The lever must be returned manually to the neutral position when the turn is completed.

EMERGENCY FLASHER (OPTIONAL)

To activate the four flashers, pull out on the red knob located on the directional signal lever housing. To turn off the flashers, turn the directional signal lever momentarily to one of the signalling positions, then return the lever to the neutral position.

OPERATING INSTRUCTIONS (Continued)

HAND THROTTLE (OPTIONAL)

Pull the throttle lever to the rear to increase speed; forward to decrease speed. The accelerator pedal will over-ride the hand throttle setting.

IMPORTANT: Return the hand throttle all the way to the idle position before turning off the engine to prevent dieseling.

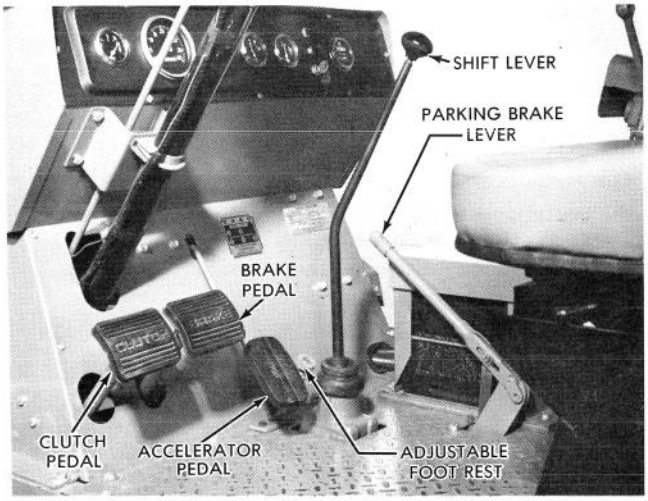


Figure 3

CLUTCH PEDAL

Depress the clutch pedal to disengage the clutch when starting the engine and when shifting transmission gears. Engage the clutch slowly to prevent unnecessary wear on the clutch and other related parts.

BRAKE PEDAL

The brake pedal applies the service brakes located on the rear wheels. Keep the brakes adjusted evenly. See Maintenance, page 16.

CAUTION: Driving through deep water may affect brake performance. Applying the brakes lightly will indicate whether they have been affected. To dry them quickly, lightly apply the brakes while maintaining a slow forward speed with an assured clear distance ahead until brake performance returns to normal.

Before descending a steep or long grade, reduce speed and shift into a lower gear. Use the brakes sparingly to prevent them from overheating and thus reducing brake effectiveness.

PARKING BRAKE

Pull back on the lever to engage the parking brake; push forward to release.

ACCELERATOR PEDAL

The accelerator pedal is used to open and close the throttle valve to vary engine speed and thus regulate ground speed. If the tractor is equipped with an optional governor kit (with a hand throttle control), the foot accelerator will override the hand throttle setting.

IMPORTANT: Do not accelerate when making a turn on turf area. Should acceleration take place, the rear dual tire closest to the radius center will spin out and cause damage to turf.

FOOT REST

The adjustable foot rest is used in conjunction with the accelerator pedal and helps you maintain a predetermined engine speed. Your foot can rest partly on the accelerator pedal and partly on the rest. Adjust the rest so you can comfortably hold the engine speed at approximately 1650 RPM. This will provide a ground speed of approximately 6 MPH in 2nd gear, the optimum speed and gear for most mowing operations.

To increase the ground speed, merely slide your foot to the left (off the rest), and depress the pedal further.

GEAR SHIFT LEVER

Depress the clutch pedal and shift into the desired gear selection. The following recommendations show which gear should be selected to correctly perform various tractor applications.

NOTE: See Mower Manual for recommended ground speed.

FIRST GEAR: Use for jobs requiring slow speed or for heavy cutting. Tractor must be stopped when shifting into this gear.

SECOND GEAR: The principal gear for all gangmower work. Most operations will be in this gear.

THIRD GEAR: A faster speed for light mowing operations. DO NOT EXCEED 6 MPH.

FOURTH GEAR: Transport

The Parkmaster Tractor will usually provide a speed adequate to keep up with city traffic. Caution should be used to insure control of the vehicle and excess speed should not be used when encountering rough terrain.

SEAT

The seat may be adjusted forward or backward by pulling out the lever at the left side of the seat, sliding the seat to the desired position, and releasing the lever. The weight adjustment knob may be adjusted for any operator's comfort.

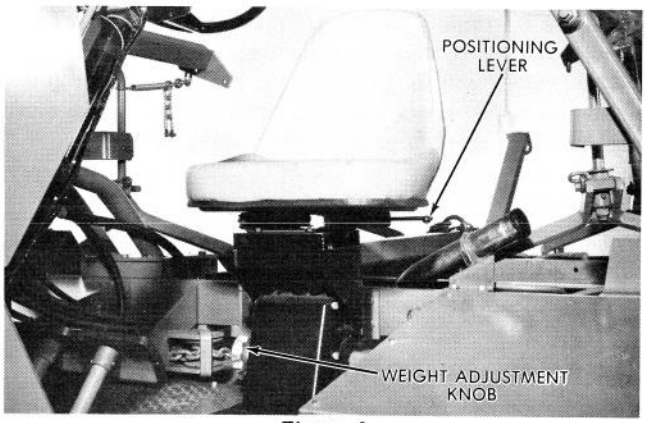


Figure 4

OPERATING INSTRUCTIONS (Continued)

HYDRAULIC CONTROL VALVE

The control levers correspond to the cutting units. The center lever controls the center cutting units (Nos. 1, 2 & 3). The first lever to the left of center controls the No. 4 cutting unit, the first lever to the right of center controls No. 5 cutting unit, etc. See Figures 5 and 6. Pull on the levers to raise the cutting units, push to lower.

IMPORTANT: When raising or lowering mowers, hold the control lever until the cylinder is either fully extended or contracted. See page 36.

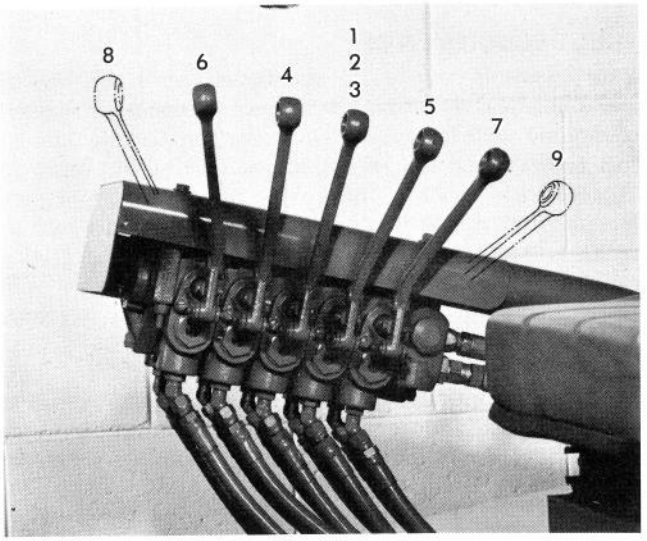


Figure 5

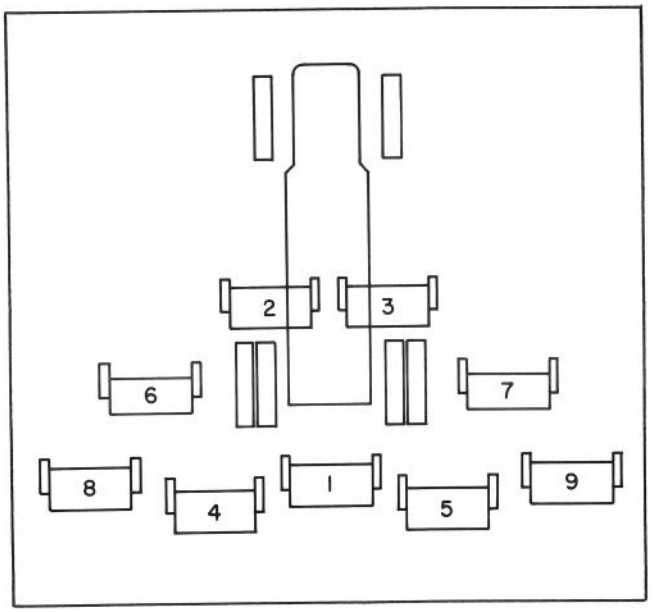


Figure 6

CAUTION: Before raising or lowering cutting units, check to make certain that no one is near the units.

OPERATING AND SAFETY INSTRUCTIONS

CAUTION: The following operating and safety instructions are suggested by The TORO Company.

These tractors are designed, engineered and tested to offer reasonably safe and effective service, provided they are operated in strict accordance with these instructions. FAILURE TO DO SO MAY RESULT IN PERSONAL INJURY.

TRAINING

1. Know the controls and how to stop tractor quickly — READ THE OWNER'S MANUAL.
2. Learn the width of the Parkmaster with the cutting units down in the operating position.

PREPARATION

3. Wear substantial shoes while using this tractor.
4. Fill gas tank outdoors, never while engine is running. Avoid spilling.

OPERATION

5. Do not carry passengers on tractor or towed or mounted implements.
6. Give complete and undivided attention to the job at hand.
7. Stop engine before making repairs or adjustments.
8. Take precautions such as lowering cutting units, shifting tractor into neutral, shutting engine off, and setting parking brake when leaving operator position.
9. Never allow anyone but operator on or near the tractor while in operation.
10. Reduce speed on side hills and in sharp turns to prevent loss of control.
11. Stay alert for holes in terrain and other hidden hazards.
12. Look behind the tractor before backing up.
13. Do not drive close to a ditch or creek.
14. Never dismount while tractor is in motion.
15. Use extreme caution when crossing or near roadways and traffic.
16. Keep tractor and attachments in good operating condition. Keep all guards and safety devices in place.
17. Tractor and attachments should be stopped and inspected for damage after striking a foreign object. Repair damage before re-starting and operating.
18. Check tractor brake periodically to be sure brake, when applied, will hold firmly.

OPERATING INSTRUCTIONS (Continued)

OPERATION (Continued)

19. When operating on uneven terrain, use extreme caution and maintain good vehicle traction.

20. Never place hands or feet under or into moving parts or concealed areas. Keep hands and feet clearly away from cutting units, belts, chains, pulleys, gears, etc., while unit is in operation.

21. Open doors if engine is run in a garage. Exhaust gases are extremely dangerous.

22. Keep step and platform free of oil or other slippery substances such as grass clippings.

23. When pulling loads use only approved drawbar hitch points.

MAINTENANCE

24. Follow maintenance instructions as outlined in this manual.

25. Have a competent TORO Service Distributor inspect and repair the tractor each year.

26. Disengage clutch and shut off ignition switch before making any adjustment or repair.

27. Keep entire unit free of debris build-up.

28. Safety and performance levels can be assured only by use of specified TORO replacement parts.

PRE-STARTING INSTRUCTIONS

Make a complete visual check of the tractor immediately upon delivery to be sure no damage occurred during shipment. Inspect all sheet metal and fabricated parts for distortion or damage. Notify the transit agent immediately of any damage or shortage.

The hood can be propped open with the rod as shown in Figure 7. Store the rod in the clip when the hood is closed.

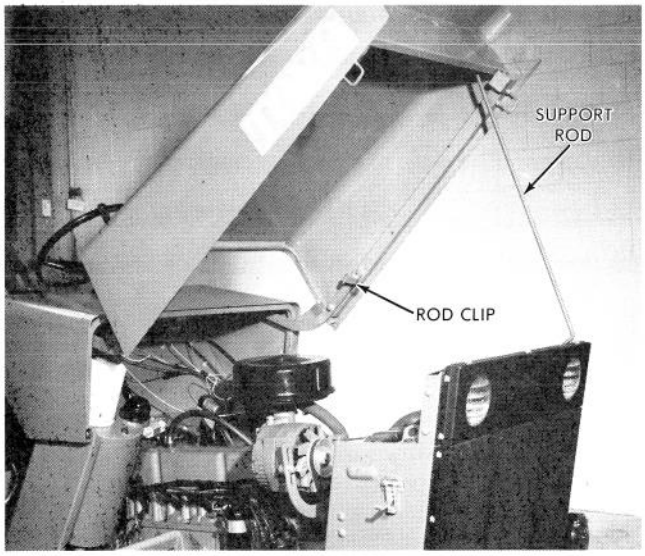


Figure 7

Check all hoses, fuel lines, hydraulic lines and fittings for leaks and make any corrections necessary.

The tires are over-inflated for shipment, to make rigid blocking possible. Reduce to the pressures recommended on page 19.

Check the fluid level in all compartments. Replenish if necessary with the specified fluid. See the Maintenance Section.

Fill the fuel tank with a good grade of regular gasoline. (See Fuel Requirements below.)

FUEL REQUIREMENTS

Your engine is designed to operate efficiently on fuel of approximately 91 Research Octane Number or higher, commonly sold in the United States and Canada. Use of fuel which is too low in anti-knock quality will result in "spark-knock" and/or "after-run". Since the anti-knock quality of all gasolines is not the same and factors such as altitude, terrain, and air temperature affect operating efficiency, knocking and/or "after-run" may result even though you are using the fuel recommended. If these conditions persist consult your authorized dealer.

In any case, continuous or excessive knocking may result in engine damage and constitutes misuse of the engine for which "The Toro Company" is not responsible under the terms of the new engine warranty.

To obtain maximum results in the reduction of automotive emissions, use an unleaded or low-lead gasoline. If such gasoline is not available, you may use a leaded regular grade gasoline.

STARTING

Depress clutch pedal and place the transmission in neutral. Hold the clutch pedal to the floor throughout the starting procedure. Depress the accelerator pedal and activate the starter as outlined below for different conditions.

IMPORTANT: Do not keep the starter engaged for more than 15 seconds at a time. Wait 10 or 15 seconds before trying again.

Cold Engine:

Depress accelerator pedal about half way, pull choke control fully out and crank engine by turning the ignition key fully clockwise. Release when engine starts. With engine running, depress choke control approximately half way and allow engine to warm up. Once engine is warm, choke can be depressed to full open position. It is desirable to run engine at a fast idle speed to allow engine to warm up faster.

OPERATING INSTRUCTIONS (Continued)

STARTING (Continued)

Warm Engine:

Depress accelerator pedal about half way and hold while cranking the engine. Choking normally is not required.

Flooded Engine:

A hot engine is easily flooded and may start hard. If the engine is flooded, depress the accelerator pedal and hold to floor while starting until the engine is cleared of excess fuel and is running smoothly. Do not pump the accelerator pedal. Release pedal when engine starts.

Extremely cold weather or after tractor has been idle several days:

Fully depress and release accelerator pedal two or three times before cranking the engine. Depress accelerator pedal about half way, pull choke control fully out and crank engine by turning the ignition key fully clockwise. Release when engine starts. With engine running, depress choke control approximately half way and allow engine to warm up. Once engine is warm, choke can be depressed to full open position. It is desirable to run engine at a fast idle speed to allow engine to warm up faster.

Form the habit of observing the gauges after starting the engine. If there is very little or no oil pressure, stop the engine immediately. If the temperature gauge and ammeter fail to show a normal reading after a reasonable warm-up period, stop the engine. Determine the cause of any malfunction, and correct before restarting.

ENGINE BREAK-IN

The break-in period of an engine is a very critical time. The observance of a few simple operating rules during the first few hours of operation will assure the maximum in performance, economy, and durability.

Make certain to keep the coolant in the radiator and the lubricants in all compartments up to the specified levels. Check the temperature gauge and the oil pressure gauge frequently, especially during the break-in period. Check the engine oil level frequently since a somewhat higher oil consumption is normal until the piston rings become seated.

NOTE: Avoid loading the engine until it has reached normal operating temperature.

Prolonged operation at full load or full speed should be avoided during the first 10 hours of operation; however, occasional short periods of full load operation, not to exceed 5 minutes duration, will assist in ring seating. Operating at 1/2 to 3/4 load at an engine speed a few hundred RPM below maximum will provide a satisfactory break-in. Prolonged operation at very light load is not recommended because the cylinder walls may glaze and retard ring seating.

DRAWBAR (OPTIONAL)

The drawbar can be adjusted laterally to any set of holes in the frame, to position the trailing implement as desired. The drawbar can be mounted facing forward and out of the way when using mounted equipment or a Dump Box.

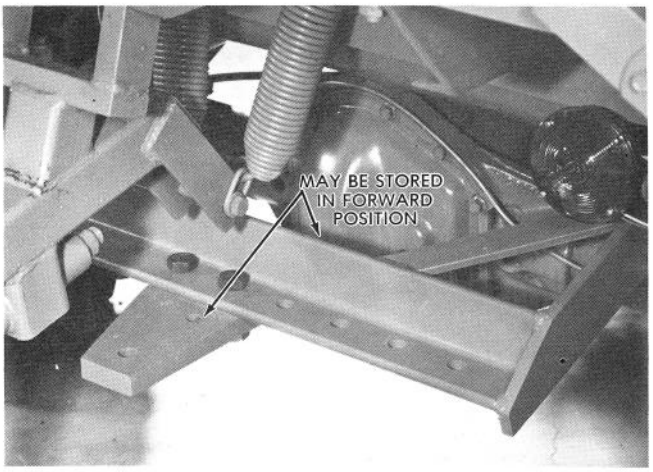


Figure 8

TOWING THE PARKMASTER

If it is ever necessary to tow the PARKMASTER with another vehicle, it is very important that the drive shaft be removed before the unit is towed. Serious damage to the transmission could result if this precaution is not followed. Reinstall per instructions on page 23.

REMOVING PARKMASTER FRAME

The PARKMASTER frame may be easily removed for installation of the Dump Box accessory package or other applications. Disconnect and cap the two hydraulic lines from the rear of the control valve. Remove the fasteners holding the PARKMASTER unit to the tractor frame. Two lifting hoops are provided on the PARKMASTER frame as shown in Figure 9. Using a suitable hoist, lift the frame from the tractor.



Figure 9

MAINTENANCE

CHASSIS LUBRICATION

Figure 10 shows the location of the grease fittings and lubrication points on the chassis of your PARKMASTER Tractor, the service intervals, and type of lubricant.

Before servicing any of the fittings, clean the fitting with a rag to be sure no foreign matter will be forced into the bearing with the lubricant. When servicing a fitting, make certain that the bearing is taking grease. Keep applying the lubricant until you can see some of the grease coming out from the sides of the bearing. Wipe off this excess grease and the fitting after servicing.

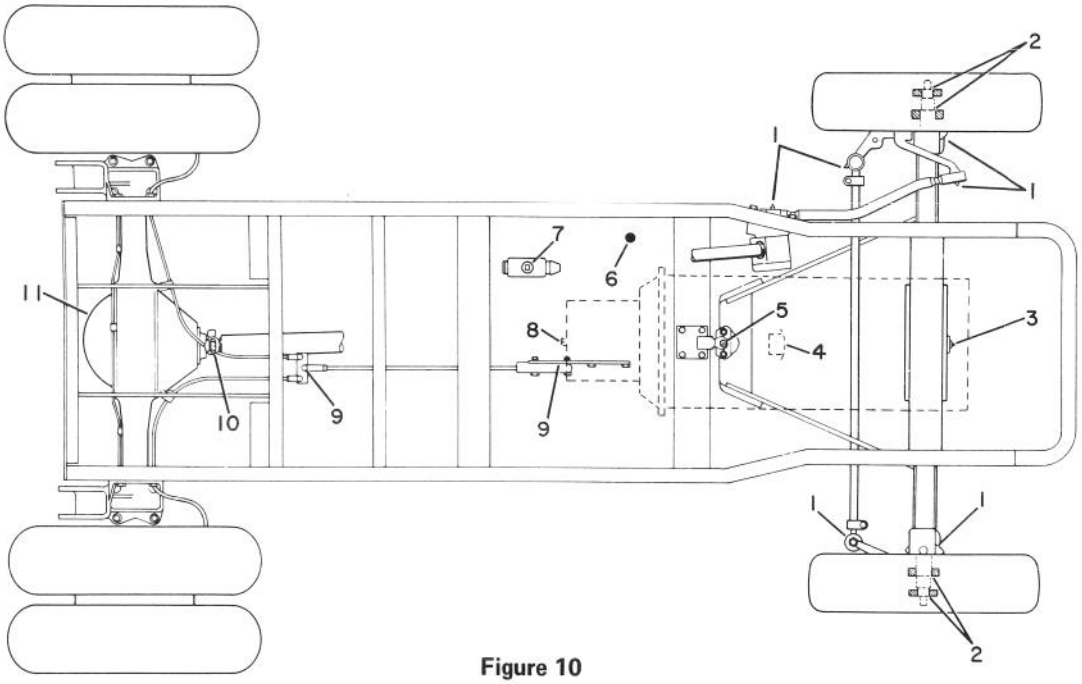


Figure 10

SERVICE INTERVAL CHART

Ref. No.	Service Point	Service Interval				Type of Lubrication Service
		Daily	60 Hours	150 Hours	600 Hours	
1	Steering Linkage		x			Chassis Lubricant
2	*Front Wheel Bearings				x	#5 Wheel Bearing Grease
3	Front Axle Pivot Point		x			Chassis Lubricant
4	*Engine Drain Plug		x			Drain and Refill, Engine oil, SE Grade
5	Wishbone Pivot Point		x			Chassis Lubricant
6	Clutch Linkage				x	Engine Oil
7	*Brake Master Cylinder				x	Check; brake fluid
8	*Transmission				x	Drain and Refill; SAE90EP
9	Hand Brake Linkage		x			10W Oil (use oil can)
10	*Universal Joints				x	0 or 00 Grease
11	*Rear Axle			x	x	Check; drain and refill; SAE90EP
	*Oil Filter Cartridge, Engine					Change every other oil change
	*Hydraulic Filter Cartridge					See Page 12.
	*Engine Oil		x			Drain and Refill, SE Grade
	*Belt Tension			x		Check and Adjust
	*Power Steering System			x		Check Level; Type "A", Suffix "A" ATF
	*Air Cleaner			x	x	Clean; Replace
	*Radiator	x				Check Level
	*Distributor				x	See Page 12.
	*Battery		x			Check Level
	*Tire Pressure			x		Check Pressure
	Brake, Carburetor & Governor Linkage		x			10W Oil

*See following pages for more detailed information.

MAINTENANCE (Continued)

UNIVERSAL JOINTS AND SLIP JOINT

Grease the joints with a good grade of semi-fluid lubricant, No. 0 or 00.

CAUTION: Use only a hand-operated grease gun on the universal joint fittings. Lubricate only until added resistance is felt on the grease gun. If too much pressure is applied to the fittings, the grease seals may be ruptured.

ENGINE OIL

Use only engine oil which meets GM-6041-M (SE) standard. High quality oils which are intended for service SE and pass car makers tests are of this quality. The oil change interval (see section on "Oil Change Interval" below) and the new engine warranty are based on the use of oils that meet these requirements.

NOTE: Non-detergent and other low quality oils are specifically not recommended. The use of proper engine oils and oil change intervals are your best assurance of continued reliability and performance from your engine.

Crankcase Capacity — 4 U.S. quarts; when changing filter, install one additional quart. The filler cap is located on the rocker arm cover.

Checking Oil Level — The engine oil should be maintained at proper level. The best time to check it is before operating the engine or as a last step in a fuel stop. This will allow the oil accumulation in the engine to drain back into the crankcase. To check the level, remove the dipstick, wipe it clean and reinsert it firmly for an accurate reading.

The dipstick is marked "FULL" and "ADD OIL". If the oil is at or below the "ADD" mark on the dipstick, oil should be added as necessary. The oil level should be maintained in the safety margin, neither going above the "FULL" line nor below the "ADD OIL" line.

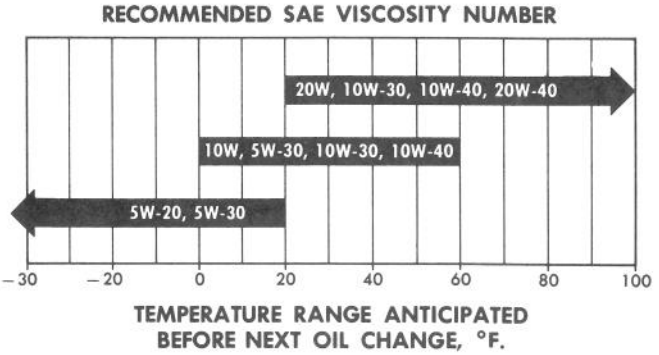
NOTE: The dipstick is also marked, "Use GM-6041-M Quality SE Oil", as a reminder to use only high quality oils as prescribed.

Reseat the dipstick firmly after taking the reading.

Oil Change Interval — Change the oil every 60 hours of normal operation. If the engine is subjected to the following types of severe service, the oil should be changed at proportionately shorter intervals.

- operation under dusty conditions.
- extensive idling.
- extended operation at high speeds and high ambient temperatures.
- short trip operation at freezing temperatures (engine not thoroughly warmed up).
- stop and go type service.

Recommended Viscosity — The following chart will serve as a guide in selecting the proper oil viscosity.



NOTE: SAE 5W-20 oils are not recommended for sustained high speed operation. SAE 30 oils may be used at temperatures above 40° F.

ENGINE OIL FILTER

The engine oil filter should be replaced at the first oil change and every other oil change thereafter. These recommendations are based on the use of the recommended engine oils and a quality oil filter. Make certain the gasket seating surface on the base is clean. Fill the filter with engine oil. Apply a film of clean oil to the gasket on the filter, turn it on until it contacts the base, then turn one turn further. Check for leaks after the engine is started.

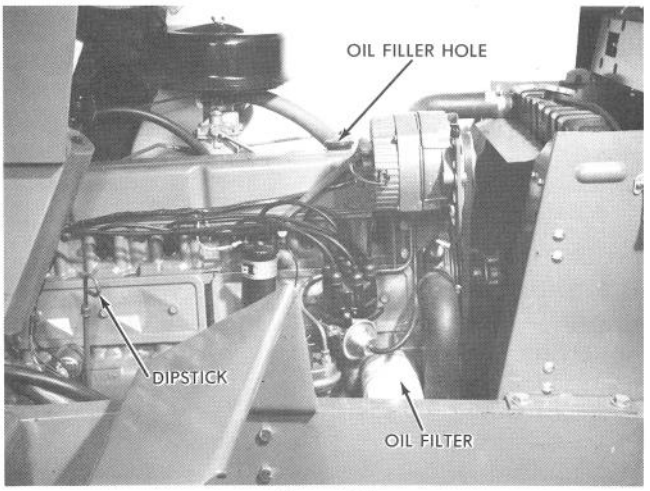


Figure 11

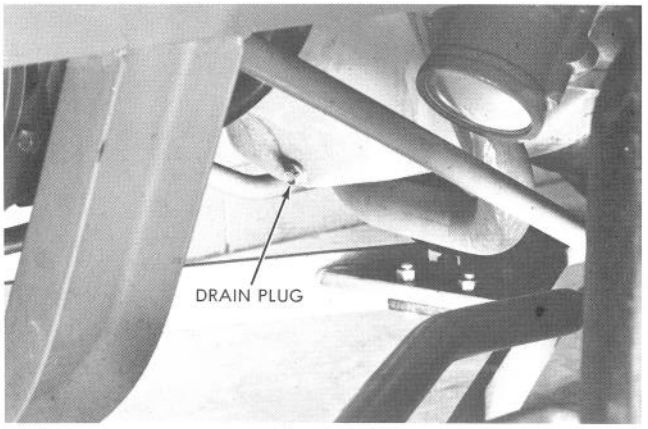


Figure 12

MAINTENANCE (Continued)

AIR CLEANER

Remove the element every 150 hours of normal operation and shake out the accumulated dirt. DO NOT TAP THE ELEMENT AGAINST A SOLID OBJECT IN AN ATTEMPT TO CLEAN IT. DO NOT WASH THE ELEMENT. THE SLIGHTEST RUPTURE NECESSITATES REPLACING THE ELEMENT. Replace the element after 600 hours of operation.

Service the air cleaner more often if the tractor is subjected to extremely dusty conditions.

IMPORTANT: For maximum protection, use only a replacement filter available from your TORO Distributor.

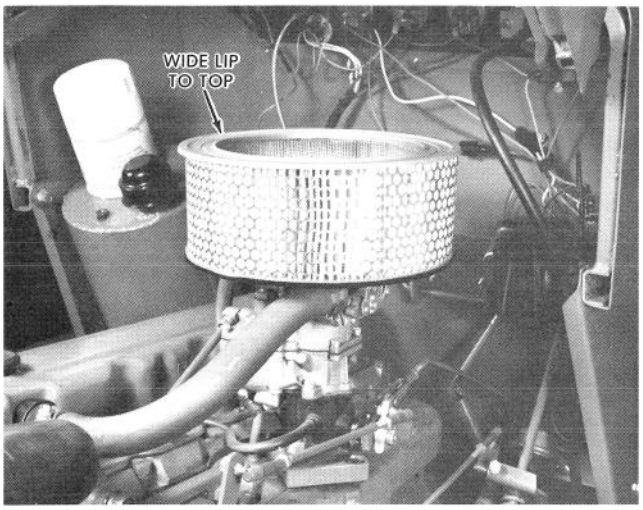


Figure 13

DISTRIBUTOR

Rotate or turn lubricator 1/2 turn every 300 hours of operation. Replace the lubricator every 600 hours of operation. Place a few drops of SAE No. 20 oil on the wick in the shaft every 300 hours.

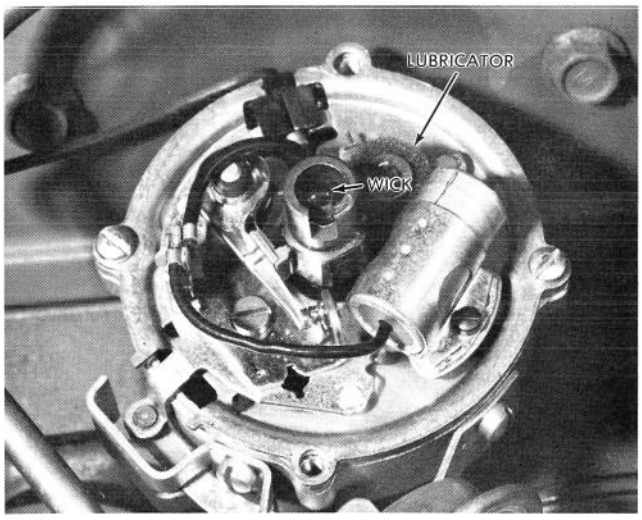


Figure 14

MANIFOLD HEAT CONTROL VALVE

Check the manifold heat control valve occasionally to make certain it is operative with the anti-rattle spring and thermostatic spring in place. If the shaft is frozen, free it up with graphite in alcohol. When engine is cold, the spring should cause valve to move to closed position.

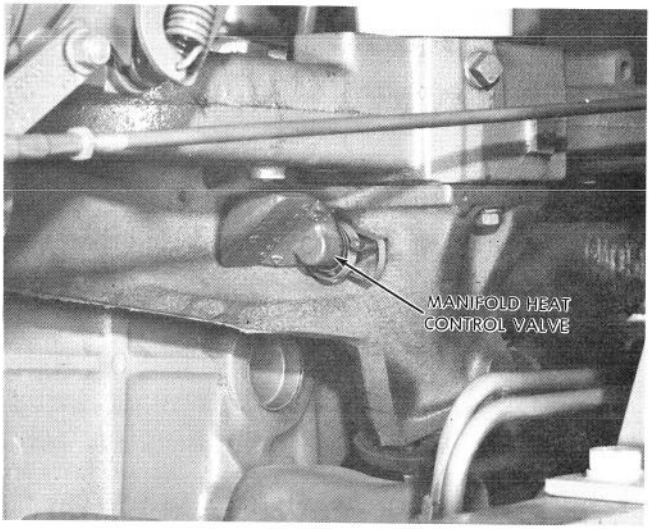


Figure 15

HYDRAULIC RESERVOIR AND FILTER

Check the level of the hydraulic fluid daily. Use a 9/16" wrench to free the dip stick. Check the level with the cutting units UP, and the oil warm. Maintain the level between the two marks on the dip stick. Replenish as necessary with SAE 10 engine oil.

Clean the cone-shaped screen in a solvent before adding fluid.

Clean the breather cap in a solvent every 500 hours of operation. Oil lightly with SAE 30 engine oil and shake out the excess oil.

Change the hydraulic filter every 1500 hours of normal operation. Make certain the gasket seating surface on the filter base is clean. Apply a film of clean oil to the sealing gasket on the filter, turn the filter on until the gasket contacts the base, then turn it on 2/3 turn further.

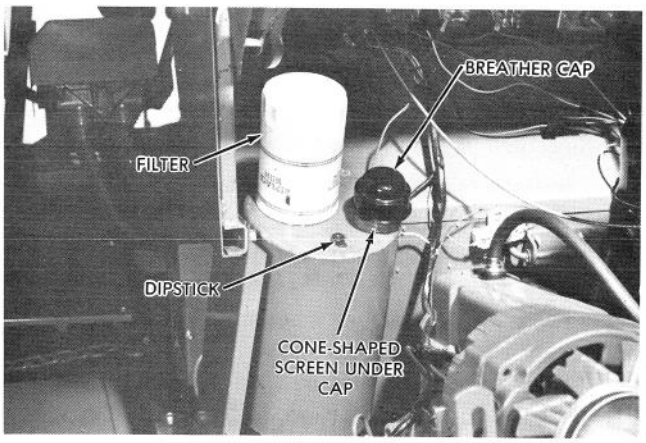


Figure 16

MAINTENANCE (Continued)

HYDRAULIC RESERVOIR AND FILTER (Continued)

Every 3000 hours, or sooner if the oil is contaminated, drain and flush the hydraulic system. To drain the system, disconnect the pressure hose at the rear of the valve bank, start the engine and allow it to idle. Use a suitable container, and allow the fluid to be pumped out of the system. See Figure 88.

IMPORTANT: Stop the engine immediately when the fluid stops running to prevent damage to the pump.

Install clean fluid in the reservoir. The capacity of the reservoir is 7 U.S. quarts. Start the engine and activate all hydraulic components to distribute the fluid. Recheck the level and replenish as necessary.

POWER STEERING

The power steering system requires little maintenance. However, the system should be kept clean to ensure maximum operating performance and trouble-free service.

At regular intervals (approximately 150 hours), the hydraulic fluid level should be checked and fluid added when required. Use type "A" Suffix "A" automatic transmission oil. Inspect hoses, gear, and pump for leaks and repair if necessary.

When the slightest evidence of dirt, sludge, or water is discovered in the system, drain and refill with clean hydraulic fluid. Drain by disconnecting the return line and running the engine.

The hydraulic pump, control valve, and power cylinder do not require adjustment on the vehicle. The only adjustments are on the steering linkage.

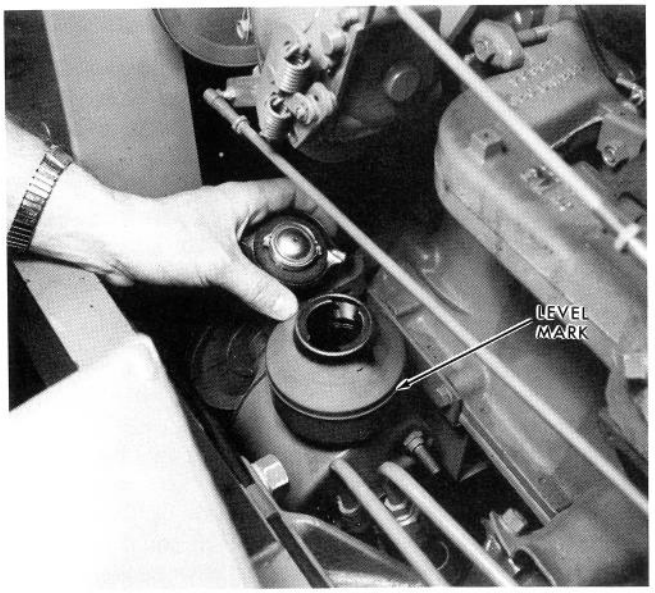


Figure 17

REAR AXLE

Use SAE 90 EP Gear Oil in the rear axle. Check level every 150 hours; add oil if required. The capacity is 6½ pints. Every 600 hours of operation, drain the oil and flush the case with kerosene or diesel fuel. Figure 18 shows the location of the filler and drain plugs. With the tractor on a level surface, fill the housing to the level of the filler plug. Wash the breather in a solvent at the time of changing the oil in the rear axle. Make certain the breather cap is free to work up and down.

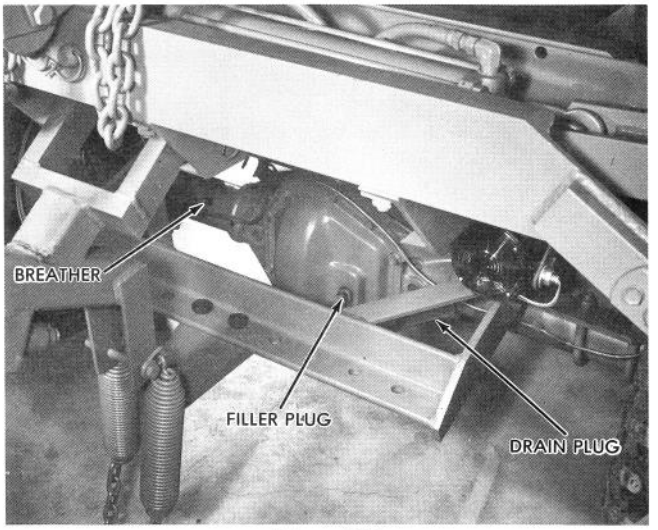


Figure 18

TRANSMISSION

Use SAE 90 EP Gear Oil in the transmission case. The capacity is 7 pints. Every 600 hours of operation, drain the oil and flush the case with kerosene or diesel fuel. Figure 19 shows the drain and filler plugs. With the tractor on a level surface, fill to the level of the filler plug.

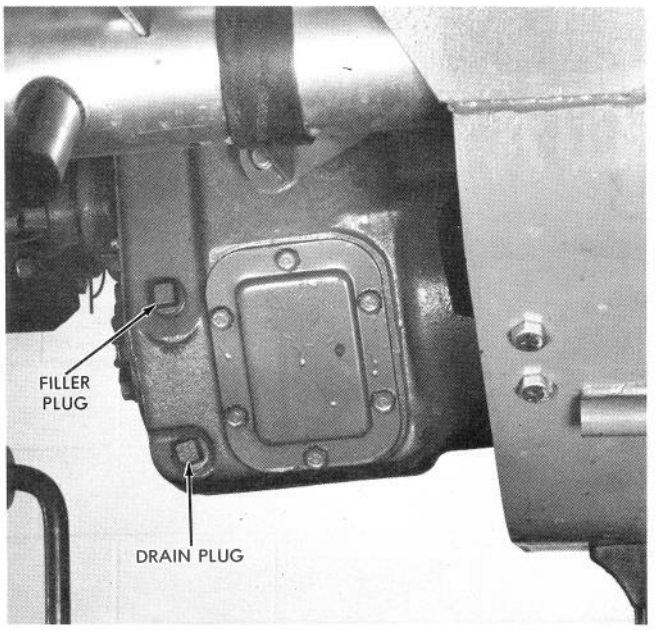


Figure 19

MAINTENANCE (Continued)

FRONT WHEEL BEARINGS

Repack the front wheel bearings every 600 hours of operation with No. 5 wheel bearing grease.

FUEL FILTERS

Your tractor is equipped with two filters in the fuel system; one in the inlet side of the carburetor and one in the fuel line.

The filter screen in the carburetor should be cleaned every 500 hours of normal operation, or whenever the engine seems to be starving for fuel. Remove the cap, gasket and screen, and blow clean with compressed air from the inside out.

Replace the in-line filter each time the carburetor filter is serviced.

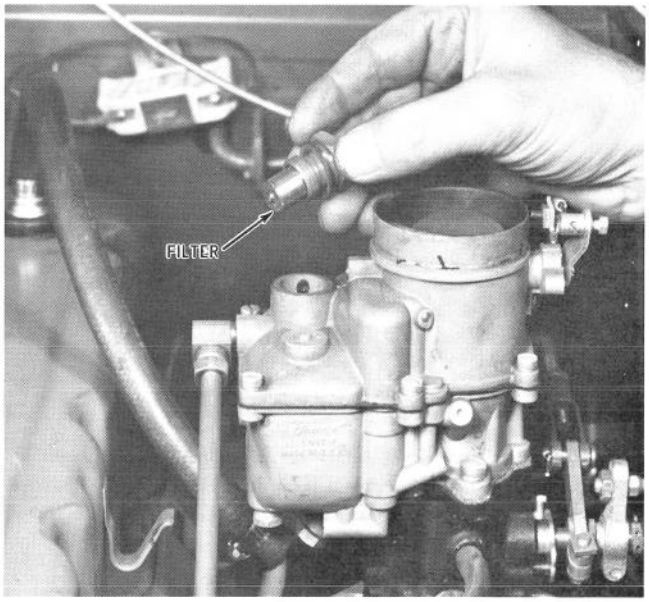


Figure 20

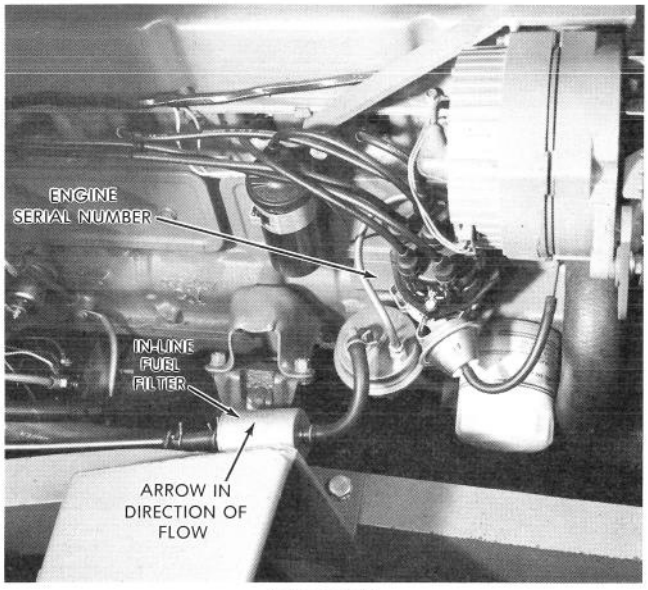


Figure 21

BATTERY

The electrical system has a negative ground.

Keep the liquid level in the battery about 3/8 inch over the top of the plates. The specific gravity of the battery should be 1.250. Distilled water should be used to eliminate the possibility of harmful impurities being added to the electrolyte. Check each cell. If the tractor is to be used during extremely cold weather, it is important that the battery has a full, or nearly full charge. A fully charged battery can withstand a much lower temperature.



Figure 22

CAUTION: Disconnect battery ground cable when charging battery to prevent accidentally reverse polarizing the charging system and causing damage to the system.

In freezing weather, run the engine for 15 to 20 minutes after adding battery water to prevent freezing.

WARNING: Since normal battery chemical action generates hydrogen gas which is explosive when mixed with air, never expose the battery to an open flame or electrical spark. Also, avoid getting battery fluid, which is a sulfuric acid solution, on skin, on clothing or other fabrics, or on painted surfaces. Eye protection should be worn while working on the battery.

Hydrogen gas may be released by a battery and is generally present when the battery has been, or is charging. If a booster battery is being used, and the booster battery is part of another vehicle's electrical system, the booster battery should be treated carefully when using jumper cables – follow exactly the procedure outlined below, being careful not to cause sparks which could ignite any hydrogen which might be present when attaching jumper cable clips to the two batteries.

MAINTENANCE (Continued)

BATTERY (Continued)

The battery cable terminals must be clean and tight. When corrosion appears on the terminals they should be cleaned in a solution of baking soda and water or ammonia and water. After cleaning, the top of the battery should be flushed off with clean water.

The connections in the entire charging system must be kept tight and free from corrosion or anything that will cause high resistance in the circuit.

CAUTION: Never remove generator "bat" lead without first disconnecting battery ground cable. Do not short across or attempt to polarize system.

JUMP STARTING WITH AUXILIARY (BOOSTER) BATTERY

If booster battery is part of another vehicle's electrical system, booster should be treated carefully when using jumper cables. Follow exactly the procedure outlined below, being careful not to cause sparks:

1. Set parking brake and place transmission in "NEUTRAL".
2. Attach one end of one jumper cable to the positive terminal of the booster battery (identified by "+" or "P" on the battery case, post or clamp) and the other end of same cable to positive terminal of discharged battery.
3. Attach one end of the remaining cable to negative terminal ("–" or "N") of "good" battery, and finally to the engine block of the stalled vehicle, NOT TO THE NEGATIVE TERMINAL OF THE BATTERY ITSELF.

   Reverse this sequence exactly when removing the jumper cables.

CAUTION: Any procedure other than the above could result in personal injury caused by electrolyte squirting out the battery vents, damage or injury due to battery explosion, and/or damage to the charging system of the booster vehicle's or immobilized vehicle's charging system. Do not attempt to jump start a vehicle having a frozen battery because the battery may explode. If a frozen battery is suspected, open and examine all fill vents on the battery. If ice can be seen, or the electrolyte fluid cannot be seen, do not attempt to start with jumper cables.

FAN BELTS

The fan is driven from the crankshaft pulley by both the power steering belt and the alternator belt. Thus it is essential that both these belts be tensioned properly. If one belt slips, the other will wear prematurely and soon start to slip. See the following instructions for tensioning the power steering and alternator belts.

POWER STEERING BELT

The power steering pump belt must be properly tensioned to assure an adequate flow of fluid throughout the power steering circuit, and to drive the fan at the proper speed. Keep the belt adjusted so a 6-7 pound pull with a spring scale midway in the longest span will produce a deflection of 11/64 inch. Loosen the pump mounting bolts and pry upward to tighten the belt and then tighten the bolts.

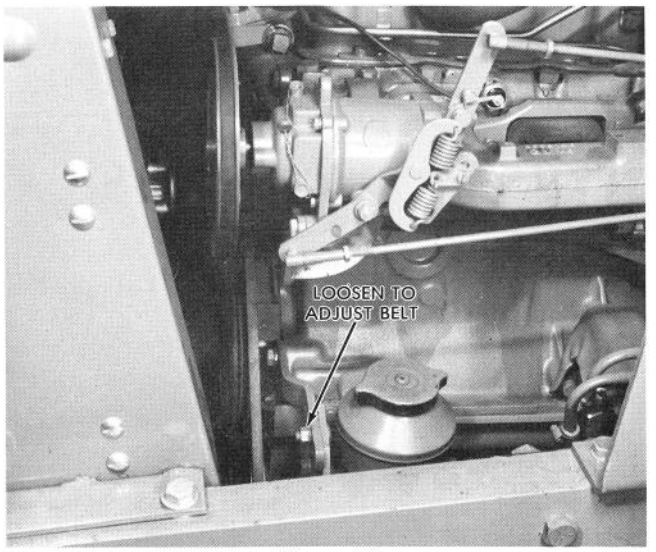


Figure 23

ALTERNATOR BELT

Check the tension of the alternator belt frequently. A loose belt will slip, thus reducing the speed of the alternator and fan. A belt that is too tight will impose an unnecessary load on the fan and alternator bearings. The belt tension is correct when a force (pull) of 4-5 pounds midway in the longest span will produce a deflection of 1/4 inch. Loosen the nuts shown in Figure 24 and rotate the alternator to the position necessary to attain the proper tension.

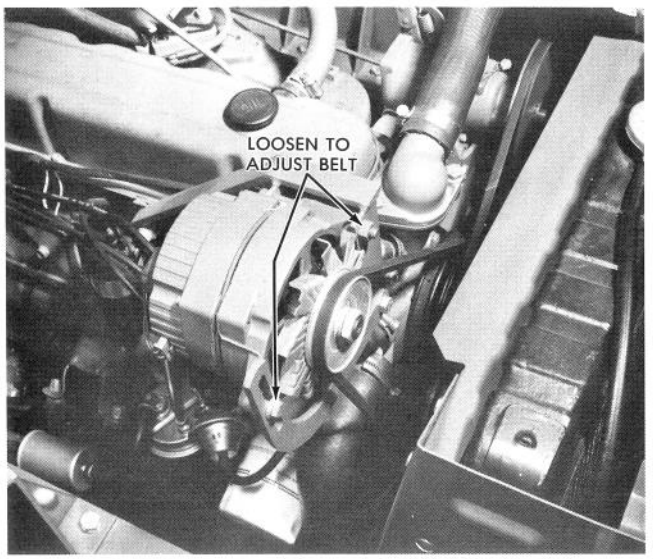


Figure 24

MAINTENANCE (Continued)

GOVERNOR BELT (WITH OPTIONAL GOVERNOR)

Keep the governor belt adjusted so a force of 8-9 pounds applied to a new belt, or 6-7 pounds on a used belt, when applied to the center of the belt span, will produce a deflection of 1/8 inch. To adjust the belt, loosen the two mounting bolts and pry up on the governor casting. KEEP THE GOVERNOR LEVEL TO PROVIDE PROPER LUBRICATION AND TO PREVENT THE LINKAGE FROM BINDING.

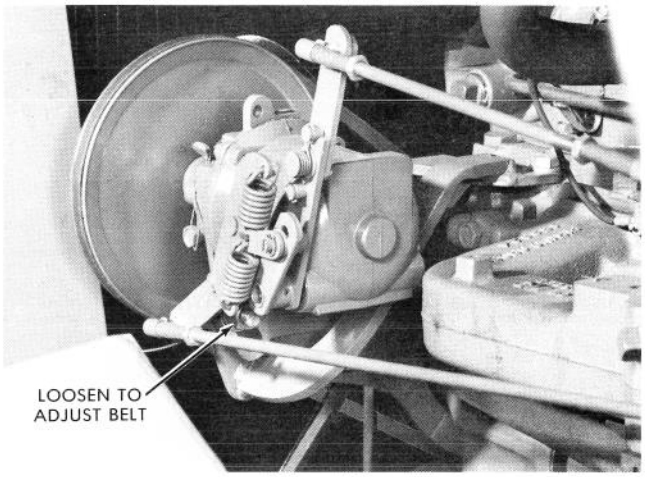


Figure 25

HYDRAULIC PUMP BELTS (MATCHED SET)

The hydraulic pump is driven by a matched set of two belts. Keep them adjusted evenly so a force of 6-7 pounds midway in the span will result in a deflection of 1/8 inch. To adjust, loosen the mounting bolts, pry the pump to the left (when facing the pulley from the front), and tighten the bolts. When replacing, the belts must be replaced as a matched set.

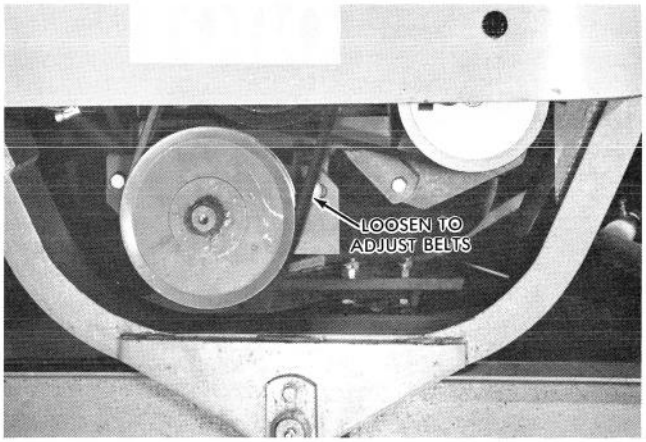


Figure 26

PARKING BRAKE ADJUSTMENT

The parking brake adjustment on the PARKMASTER Tractor is very easy to make. When it is apparent that the brake needs adjustment, place the parking brake lever in the released position (forward) and turn the knurled nut at the top end of the lever in a clockwise direction about four turns. Park the vehicle on a fairly steep slope with the rear of the tractor facing down hill and the transmission in neutral. Apply the parking brake. If it will not hold, release the brake and tighten the knurled nut further. Repeat until the unit will hold on the slope.

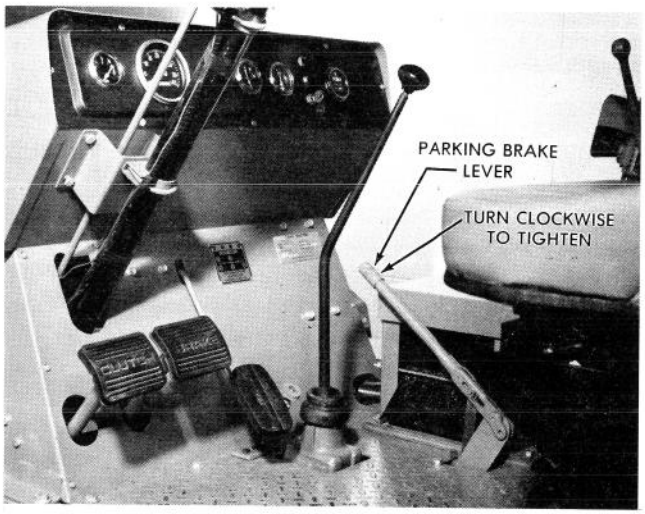


Figure 27

MASTER CYLINDER

Every 600 hours of operation (or when a brake problem is evident), check the level of the fluid in the master cylinder.

The cylinder is accessible through the hole in the floor plate. Clean the area around the hole and the cap on the master cylinder thoroughly before removing the cap to prevent the entrance of dirt into the system. Add fluid as necessary and reinstall the cap. Make certain the vent hole in the cap is open at all times.

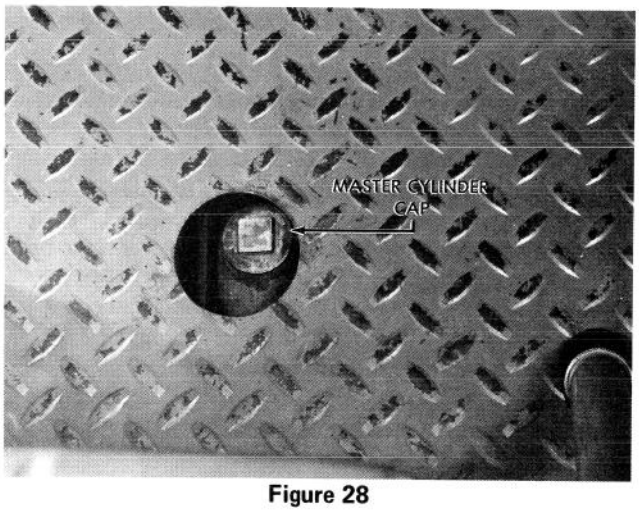


Figure 28

SERVICE BRAKE ADJUSTMENT

The service brakes should be adjusted whenever the brake pedal has more than 2 inches of free travel. Block the front wheels and jack up the rear wheels. Make certain that the

MAINTENANCE (Continued)

SERVICE BRAKE ADJUSTMENT (Continued)

transmission is in the neutral position. Remove the protective plugs from the adjusting slots in the brake plates. Release parking brake. To adjust proceed as follows:

1. Tighten star wheel with screwdriver until wheel locks.
2. Back off star wheel about 12-15 notches or until wheel turns freely.
3. Repeat above procedure for both brakes.
4. Replace protective plugs.

If the brake lines are ever disconnected for any reason, and air enters the system, the system must be bled.

Fill the master cylinder with brake fluid. Connect a bleed hose to the bleed screw and submerge the other end of the hose in brake fluid in a clean container. Loosen bleed screw and have a helper depress the brake pedal. Continue until air bubbles cease in container. It is important that end of hose remain submerged and that the master cylinder is continually refilled so that air is not allowed to enter. Tighten bleed screw and repeat operation for other wheel. It is recommended that the left brake be bled first and then the right brake. Discard brake fluid in container because it may be contaminated.

Check and fill master cylinder to full mark if required.

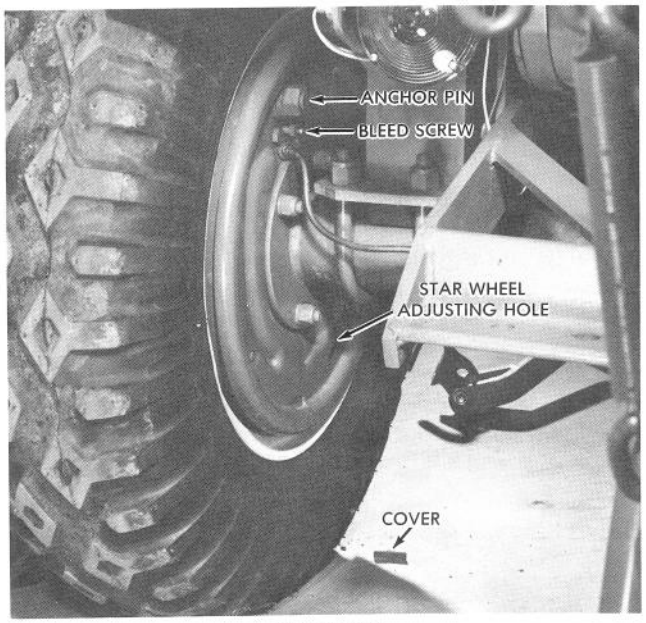


Figure 29

BRAKE LINKAGE ADJUSTMENT

If the linkage from the brake pedal to the master cylinder is bent or otherwise damaged, it must be readjusted as follows:

1. Remove the cap from the master cylinder.
2. The reservoir must be about half full, so the fluid covers the piston.
3. Adjust the clevis so a turbulence can be seen in the fluid when the brake pedal is making its return stroke. This will ensure that the piston is making its full return stroke.
4. Replenish the fluid in the cylinder as necessary and reinstall the cap.

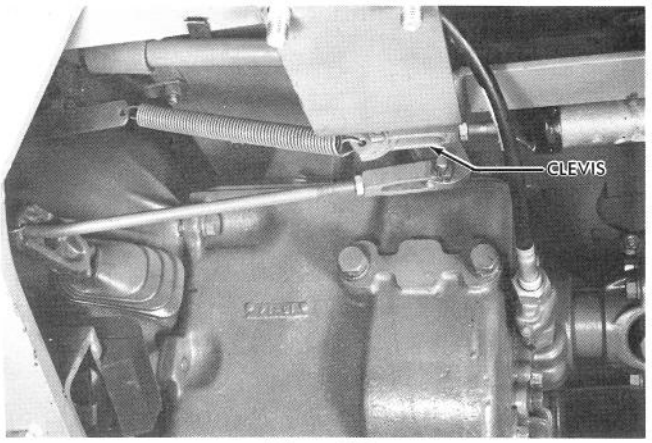


Figure 30

BRAKE SHOES AND CYLINDERS

Replace brake shoes and install wheel and master cylinder kits, when required, using standard automotive procedures. See "WHEEL BEARINGS" on page 22 for recommended procedures for reinstalling the rear wheel hub.

CLUTCH ADJUSTMENT

The clutch pedal free travel should be measured at least once a month. By pressing down on the clutch pedal with your hand, you will find that it will travel a certain distance before an added resistance is felt. Place a ruler along the side of the pedal and measure the amount of free travel. If the free travel is less than 3/8 of an inch, the clutch must be adjusted. Recommended free travel should be 3/4 of an inch.

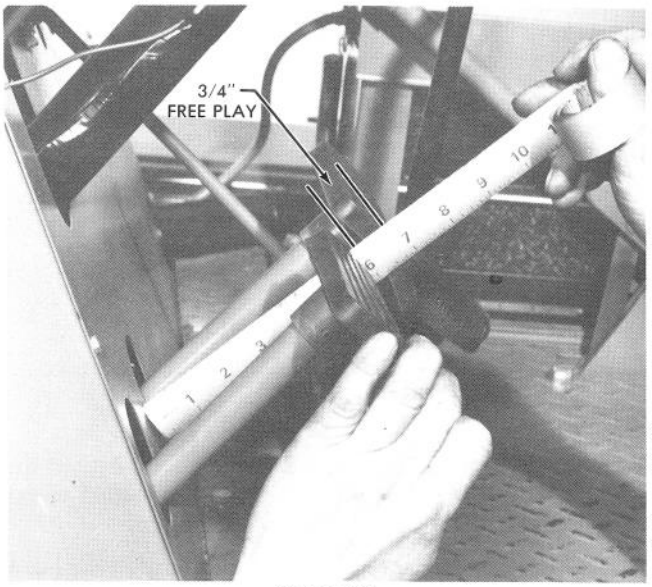


Figure 31

MAINTENANCE (Continued)

CLUTCH ADJUSTMENT (Continued)

To adjust the clutch, remove the cotter pin and yoke pin at the clevis end of the clutch linkage. See Figure 32.

Loosen the jam nut and turn the clevis about three turns. Connect the clevis and again measure the free travel. Repeat this operation until 3/4 inch free travel exists at the pedal. Secure the yoke pin with the cotter pin and tighten the jam nut.

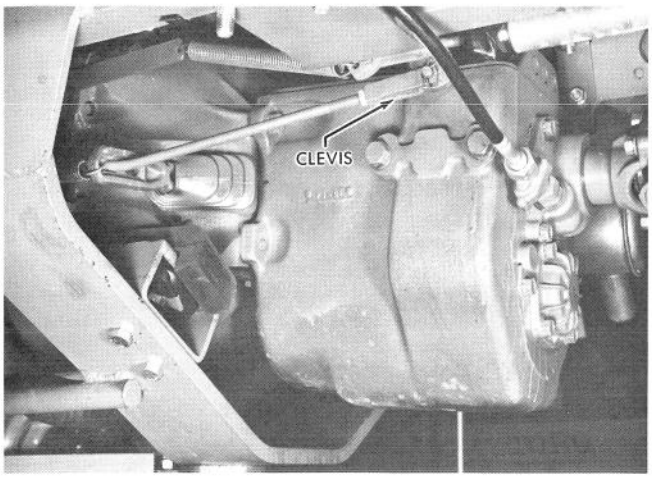


Figure 32

FRONT WHEEL TOE-IN

The tie rod must be adjusted so the center-to-center distance at the front of the tires is 1/8 inch less than the center-to-center distance at the rear of the tires. Make the measurements at the height of the front axle.

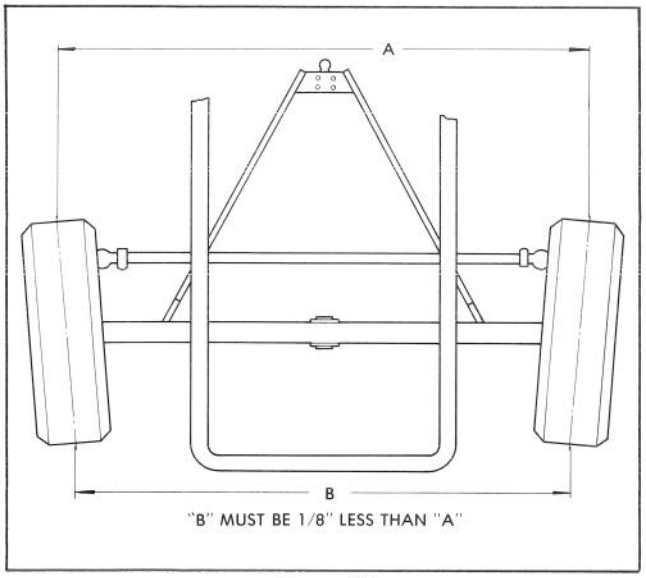


Figure 33

To adjust the toe-in, loosen the clamps at both ends of the tie rod, and turn the tie rod in the proper direction to get the required 1/8 inch toe-in. Tighten the clamps.

NOTE: Position the clamps so they will not hit the reach when the wheels are turned.

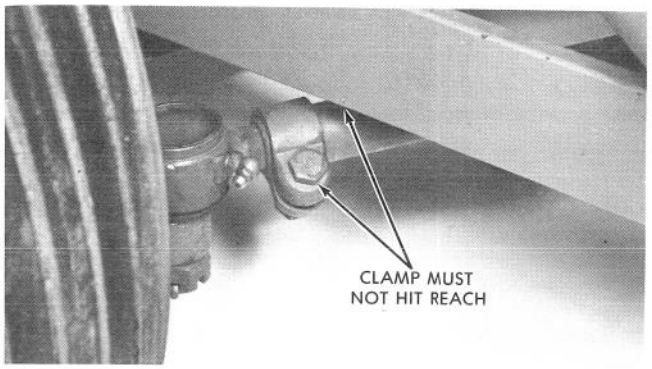


Figure 34

WHEEL STOPS

The wheel stops should be adjusted so there is 1/8 inch of the setscrew protruding through the yoke as shown in Figure 35. Loosen the jam nut to make the adjustment, then retighten securely. Repeat the adjustment on the opposite side. This adjustment will provide the minimum allowable turning radius for the PARKMASTER.

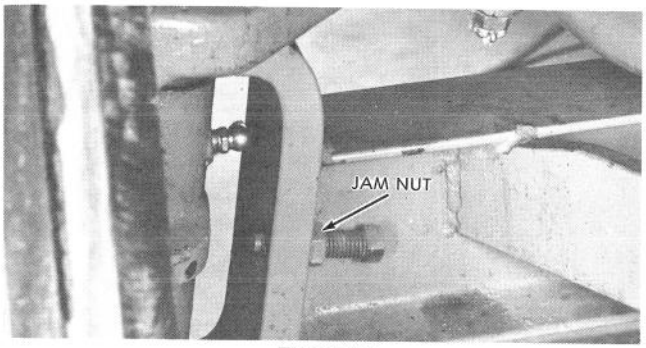


Figure 35

TIE ROD ENDS

If the tie rod ends develop excessive play, they must be replaced. Remove the cotter key and slotted nut. Reverse the nut and install it on the stud until the threads are at least half engaged. Support the opposite side of the steering spindle securely to prevent breakage, and drive against the nut to free the rod end from the tapered hole in the spindle arm. Remove the nut and tie rod end. Install the new components and adjust the toe-in as described on page 18.

NOTE: The right hand tie rod end has right hand thread; the left hand rod end has left hand thread.

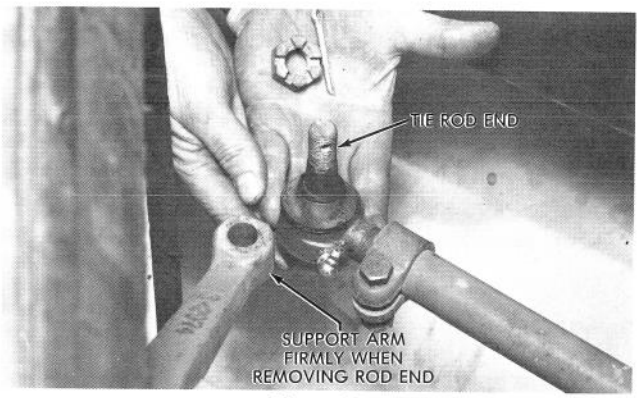


Figure 36

MAINTENANCE (Continued)

DRAG LINK ENDS

If excessive play develops in the drag link ends, remove the cotter pin and tighten the end plugs snug, then back off to where the cotter pin can be inserted.

If the ball studs are worn so badly that this adjustment will not remove the play, they must be replaced.

Remove the cotter pin, end plug, spring seat and spring. Turn the steering wheel back and forth to free the components.

To replace the front ball stud, remove the cotter pin, reverse the slotted nut on the threads, support the drag link arm, and drive the ball stud out of the tapered seat. Remove the nut and ball stud. Install the new ball stud.

IMPORTANT: When driving out the stud, support the arm firmly, and use extreme care to avoid breaking the arm.

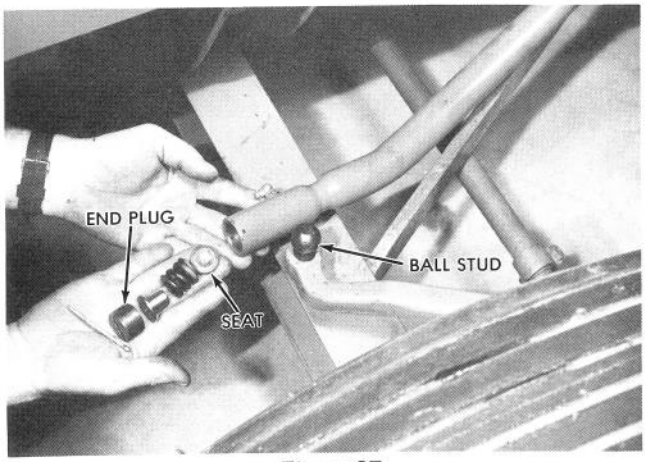


Figure 37

The rear ball stud is an integral part of the pitman arm, and the entire assembly must be replaced. Note the position of the arm and install the new one in the same position. (There are 4 blank splines in the arm to aid in correct positioning). Tighten the arm nut to 180 to 210 ft/lbs.

TIRE PRESSURES

Keep the tires inflated as follows:

		PM 5 & PM 7	PM 9
Rear:	7.50-16	12 PSI	–
	8.00-16	12 PSI	18 PSI
	9.50-16	12 PSI	18 PSI
Front:	6.70-15	18 PSI	–
	9.50-14	10 PSI	10 PSI

NOTE: The tubes are equipped with valves for liquid ballast if desired. See page 37.

REPAIRING OR CHANGING TIRES OR TUBES

The front wheels and tires can be removed and repaired in regular automotive fashion.

IMPORTANT: We strongly recommend that you take the rear tires and rims to a tire shop or a truck service station for repair. The rear rims are a split ring type, and can be very dangerous without the proper equipment or training.

Remove the outer rear rim by removing the nuts and wedge clamps. Remove the spacer band to remove the rear rim. It may be necessary to use penetrating oil to free up the spacer band.

NOTE: The spacer band used with 5.50 rims has a ½" square ring welded to one side. The band must be installed with this ring to the inside. Three shims are used with 5.50 rims, between the wheel hub and inner rim. These shims must be installed over every other spoke.

The washer over the valve stem used with 6.50 rims must be installed with the sharp edge away from the inner tube.

When installing the inner rim, use the 3 shims with 5.50 rims only.

Install 3 wedge clamps in a triangular pattern (120° apart). Draw up the top nut finger tight, rotate the wheel until the next nut is at the top, tighten it finger tight, and repeat for the third nut. Install the 3 remaining wedge clamps and nuts. Then tighten all nuts evenly and gradually to 40 to 60 ft/lbs. maximum.

Install the spacer band with the spacer bars centered over the spokes. Install the outer rim so the outer valve stem is in line with the inner stem. Tighten clamp nuts to 40 to 60 ft/lbs. maximum.

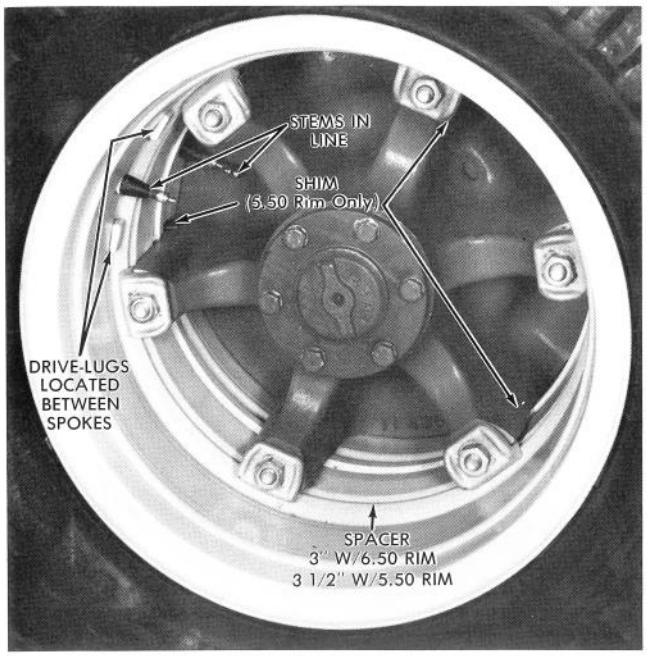


Figure 38

MAINTENANCE (Continued)

FUEL TANK

If the felt strips under the fuel tank straps have deteriorated to the point that there is metal-to-metal contact, install new felt strips to prevent a possible leak and/or a fire hazard.

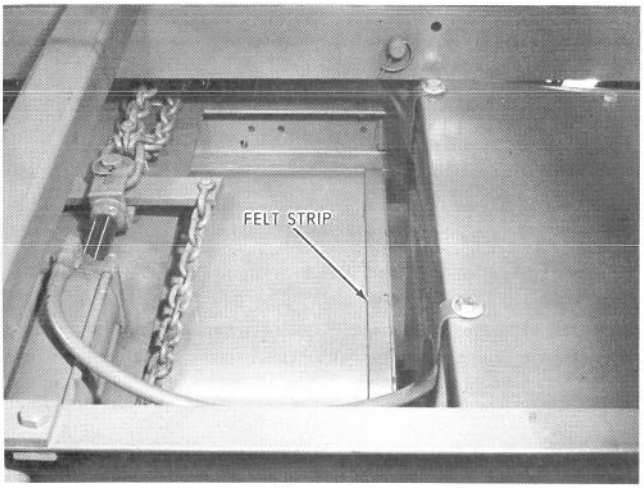


Figure 39

COOLING SYSTEM

The capacity of the cooling system is 13 U.S. quarts. The tractor is shipped from the factory with a 50-50 solution of water and ethylene glycol anti-freeze in the system. Do not use alcohol or methanol base coolants or plain water.

IMPORTANT: Even though there is no anticipated danger of freezing, it is recommended that the cooling system be protected with an ethylene glycol anti-freeze coolant to at least 0°F. This is advisable for corrosion protection, proper temperature gauge operation, and proper coolant boil protection.

Drain and flush the system once every two years. The radiator drain cock is located at the lower right corner of the radiator. The block drain cock is shown in Figure 40. Periodically use an air hose and clean radiator fins and grille screen to insure maximum cooling efficiency.

A 195º thermostat and a 15 PSI radiator pressure cap are standard equipment. It is extremely important that there be no leaks in the system.

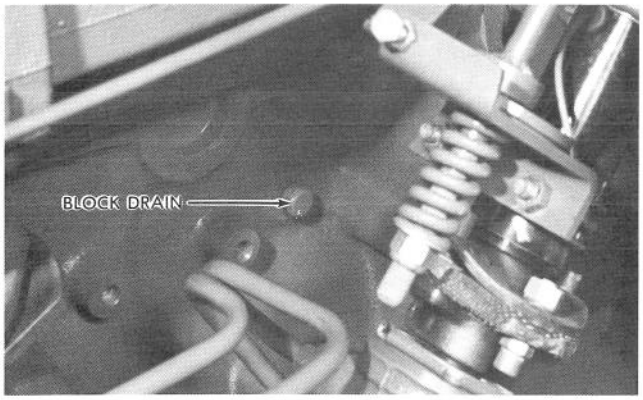


Figure 40

CARBURETOR

With the accelerator pedal fully depressed, the carburetor throttle butterfly should be fully open. If it is not, refer to Figure 41 and proceed as follows.

NOTE: Figure 41 shows the optional governor linkage installed).

1. Loosen the capscrew holding the inside clamp to the shaft.
2. Turn the butterfly shaft until the butterfly is fully open and hold the accelerator pedal to the floor.
3. Rotate the clamp on the butterfly shaft until the clamp contacts the arm.
4. Tighten the clamp in this position.

NOTE: It is possible for the arm to go over-center in the idling position. Adjust the link if necessary to locate the arm as shown in Figure 41.

Adjust the idle speed stop screw until the engine idles at 400 RPM.

Adjust the idle mixture screw until the engine runs smoothly at idle speed.

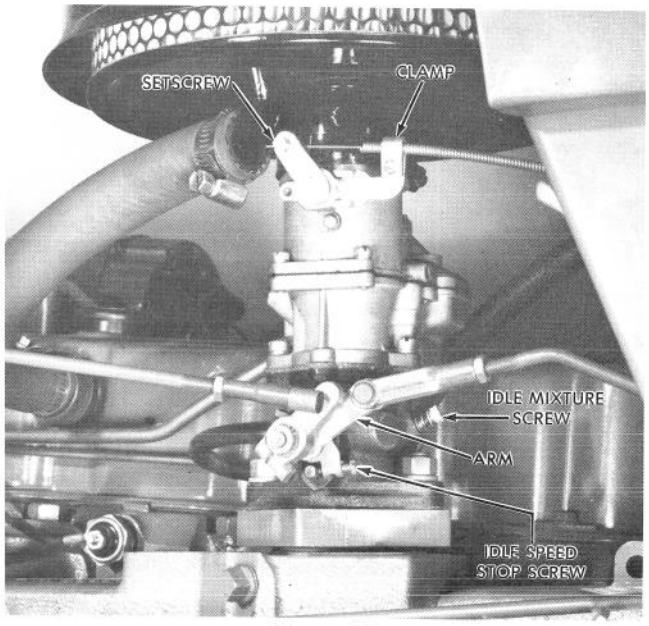


Figure 41

CHOKE WIRE ADJUSTMENT (Figure 41)

If the choke wire is disconnected, it must be adjusted so the choke butterfly is fully open with the choke button fully in, and fully closed with the choke button out. Secure the choke wire in the butterfly arm with the setscrew so the arm has full travel to meet the above conditions. Secure the cable with the clamp.

GOVERNOR (OPTIONAL)

If the governor or linkages have been removed or disturbed, adjust as follows:

1. Make certain the carburetor is properly adjusted.

MAINTENANCE (Continued)

GOVERNOR (OPTIONAL) (Continued)

2. Adjust the low speed stop screw so 1/8 inch protrudes through the bracket as shown in Figure 42. Secure with the jam nut.

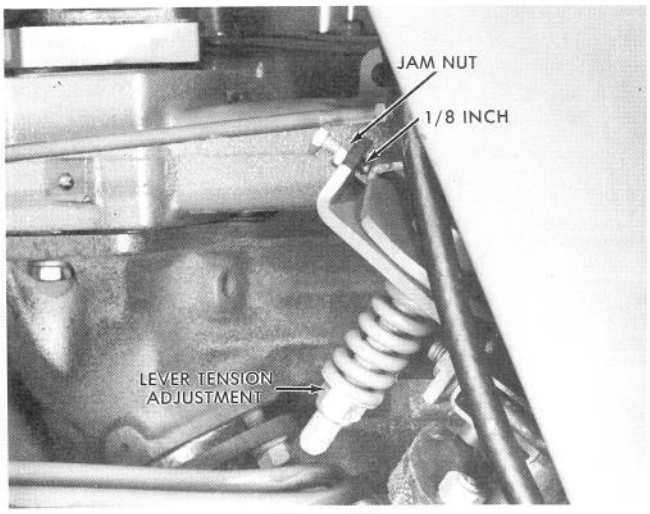


Figure 42

3. With the engine shut off, move the throttle lever to full speed position (all the way back). Loosen the jam nuts and adjust the control rod length to provide 1/32 inch clearance between the carburetor bell crank and the stop pin on the carburetor.

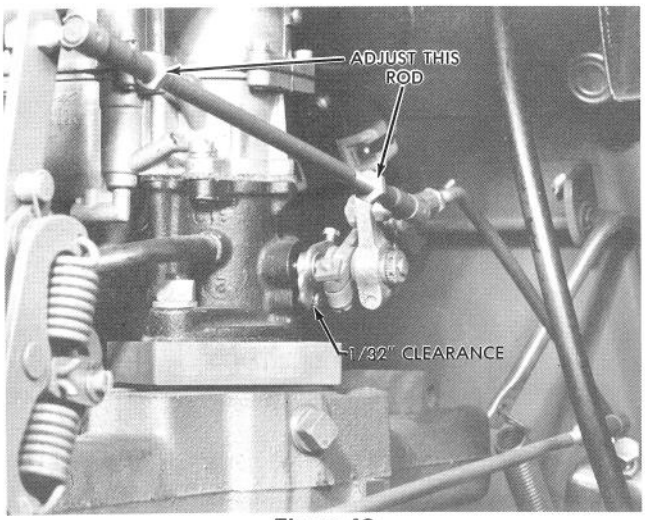


Figure 43

4. Start the engine and allow it to warm up to normal operating temperature. Move hand throttle lever to provide an engine speed of 1600 RPM.

5. To stabilize the governor, eliminate hunting, or to increase the spread of RPM between no-load and full load, loosen the locknut on the regulation screw shown in Figure 44, turn the screw counterclockwise 1/8 turn, and tighten the locknut. Readjust hand throttle lever to obtain 1600 RPM. Repeat this procedure as required for proper engine operation.

6. Loosen the jam nuts and adjust the length of the governor control rod to provide a .060" gap between the governor link and arm when engine idle speed is set at 400 RPM. (Adjust low speed idle screw on the carburetor if necessary to obtain 400 RPM idle speed).

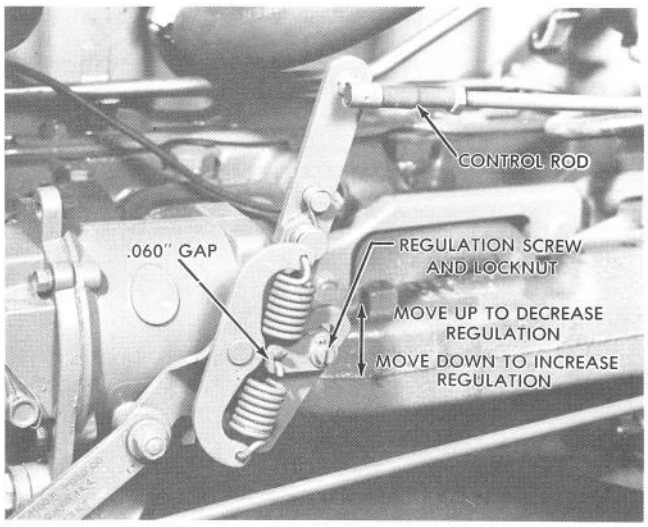


Figure 44

7. Tighten all jam and locknuts and check to see that all control linkage operates freely without binding.

NOTE: The foot accelerator will over-ride the hand throttle setting.

8. If the throttle lever "creeps" at high speeds, tighten the nut shown in Figure 42 to apply additional tension to the lever.

ENGINE MOUNTS

The engine is attached to the frame with four rubber mounts. If any of the mounts deteriorate, we recommend replacing all four to maintain proper engine alignment. Block the engine up securely and replace the mounts one at a time.



Figure 45

MAINTENANCE (Continued)

HEADLIGHTS (OPTIONAL)

To replace the headlights, disconnect the wires, remove four nuts and the retaining plate, and remove the lens. Install the new lens and connect the wires. The lights can be "aimed" to a small degree, by the method of tightening the nuts. Position the tractor on a level surface about 20 feet from a wall, turn on the lights, and aim them for optimum effect.

IMPORTANT: Do not tighten the capscrews too tight or you may break the lens.

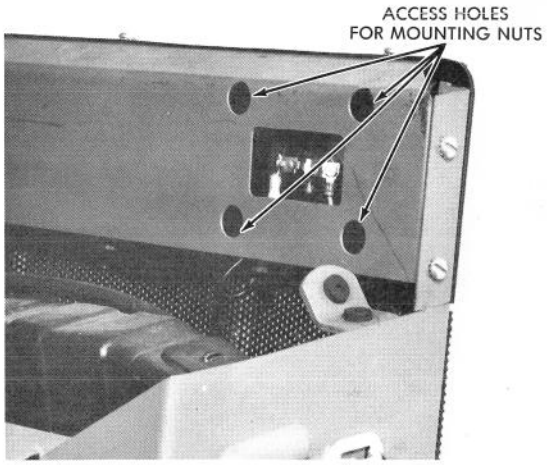


Figure 46

HOOD LATCH

Keep the U-bolts on the inside of the hood adjusted so the hood latches hold securely.

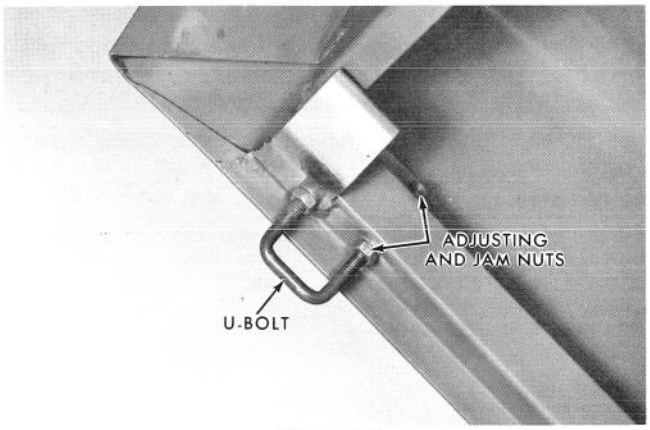


Figure 47

FRONT AXLE SPINDLES (See Figure 48)

If the spindle develops excessive play or looseness, the bearings and/or spindle pins must be replaced.

1. Jack up the front end and remove the wheel.
2. Drive out the retaining pin through the spindle pin.
3. Drive the spindle pin out of the fork and spindle. Remove the thrust bearing and needle bearings.
4. Pack the new bearings with #5 wheel bearing grease and install the components in reverse order of diasssembly.

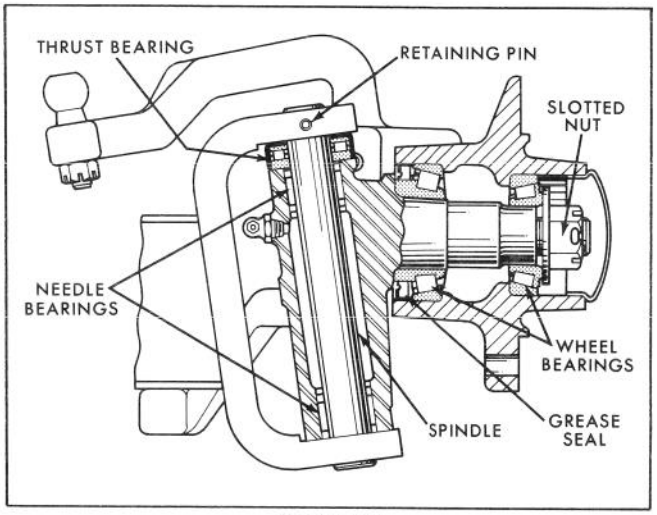


Figure 48

WHEEL BEARINGS

Front: To replace the front wheel bearings proceed as follows:

1. Jack up the wheel being serviced.
2. Remove the hub cap, cotter key, slotted nut, and washer.
3. Pull off the wheel and outer bearing cone. Remove the inner bearing cone and seal from the spindle.
4. Remove the bearing cups from the hub. Clean the hub with a solvent.
5. Press the new cups in the hub, being certain they are fully seated.
6. Pack the new cones with #5 wheel bearing grease.
7. Grease the sealing lip and slip the new seal on the extended race of the inner bearing cone.
8. Reassemble in reverse order of disassembly.
9. Tighten the slotted nut until the bearings bind slightly when rotating the wheel by hand. Back off the slotted nut to the nearest cotter pin hole and secure with a new cotter pin.
10. Reinstall the hub caps.

Rear: To replace the rear wheel bearings and seal, proceed as follows:

1. Jack up the side of the tractor being serviced.

   NOTE: Jack it up so the wheels are several inches off the floor, and the rear axle will not have to be drained.
2. We recommend removing the rear tires and rims to reduce the weight of the assembly.
3. Remove the 6 capscrews and pull the axle shaft carefully out of the housing.
4. Remove the gasket.
5. Remove the two large nuts and lock-tab and remove the rear wheel hub and outer bearing from the housing.

MAINTENANCE (Continued)

WHEEL BEARINGS (Continued)

6. Remove the inner bearing cup and the grease seal from the housing.
7. Remove the old bearing cones from the hub.
8. Clean the housing and the inside of the wheel hub with a solvent.
9. Coat the seal seating surface on the housing with No. 5 grease and install the new seal.

   NOTE: Install the seal so it is flush or slightly past the shoulder of the seal surface. If it is forced on too far, the seal could become distorted and leak.

10. Install the inner bearing cup on the housing, making certain it is fully seated.
11. Pack the new bearing cones with No. 5 grease and press into the wheel hub.
12. Install the hub carefully over the seal and install the outer bearing cup.
13. Install the inner nut and tighten securely to seat the bearings. Back off the nut and retighten snug.
14. Loosen the nut 90° and assemble lock-tab by loosening nut to the nearest hole.
15. Install the outer nut and tighten to 40 ft/lbs. minimum.
16. Use a new gasket and reinstall the axle shaft, rotating as necessary to engage the splines at the inner end.
17. Install the 6 capscrews and lockwashers and tighten evenly and gradually.

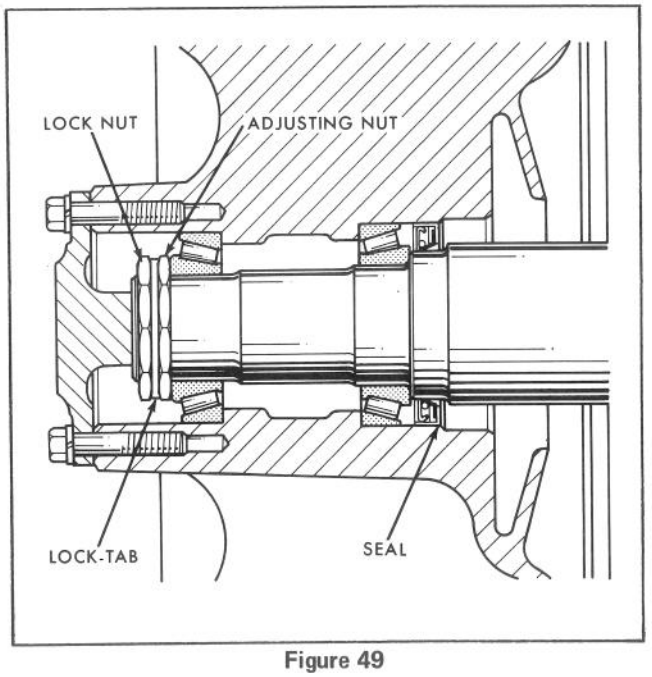


Figure 49

UNIVERSAL JOINTS

If the universal joints develop excessive play or looseness, remove the U-bolts at each end of the drive shaft and remove the shaft. Remove the snap rings and bearings. Reassemble with new bearings and secure with the snap rings.

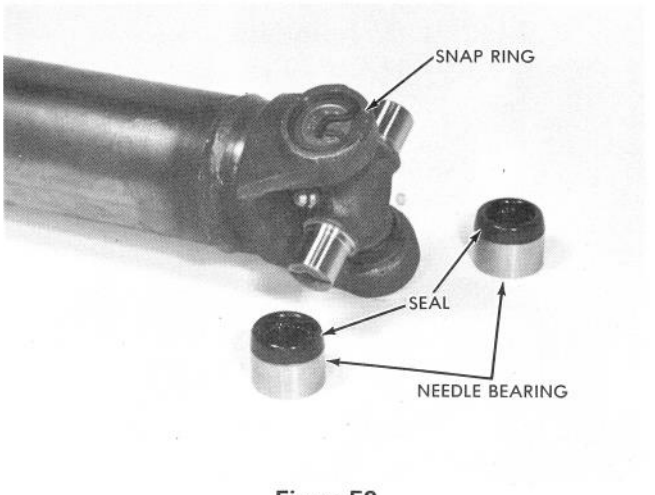


Figure 50

If the drive shaft has been disassembled, reassemble with the clevises and arrows in line as shown in Figure 51.

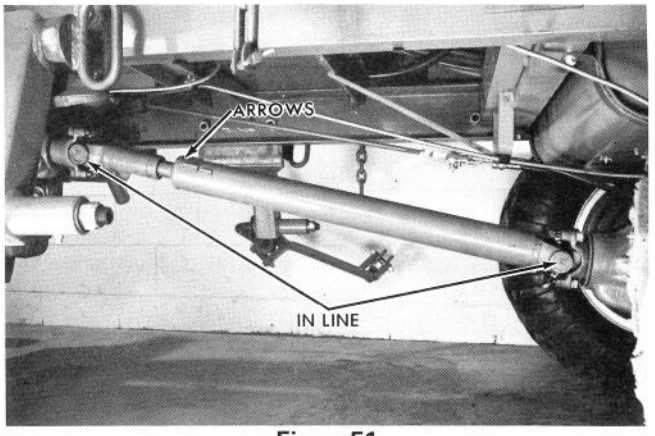


Figure 51

SPARK PLUGS

Before removing spark plugs, clean all foreign material from around the parts with compressed air. Remove the wires and loosen each plug one turn. Reconnect the wires and start the engine. Accelerate to approximately 1000 RPM to blow away any dirt or carbon particles. Stop engine, disconnect wires, and remove plugs.

Gap new or serviced plugs to .035". Bend only the ground, or outside electrode. Torque the spark plugs to 15 ft/lbs.

IMPORTANT: Do not over-tighten. These spark plugs do not require a sealing washer. If the plugs are over-tightened, they may be very difficult to remove. Use only AC R 46T plugs, or the equivalent.

SPARK PLUGS (Continued)

Figure 52 shows the cylinder numbering and plug wire locations.

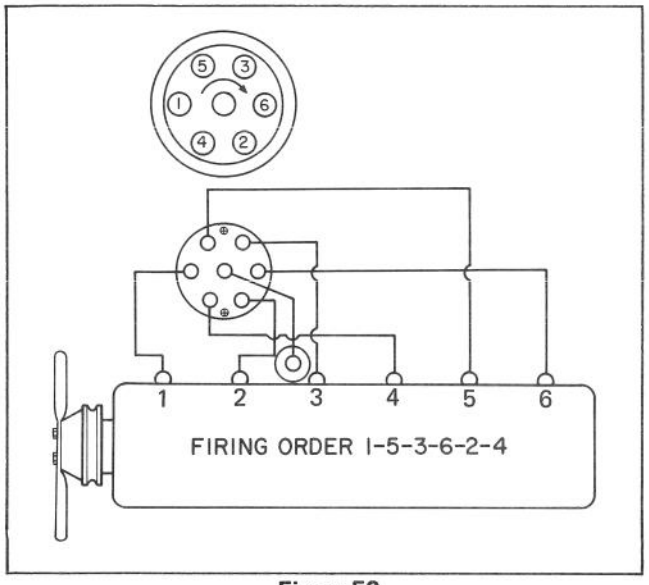


Figure 52

POSITIVE CRANKCASE VENTILATION (PCV) VALVE

The positive crankcase ventilation valve shown in Figure 53 returns blow-by gases from inside the valve cover to the combustion chamber where they are burned. If this valve becomes plugged or partially plugged, the increased pressure in the engine could cause rough idling, erratic running or surging, oil leaks and seal damage. If any of these conditions exist, check the PCV valve before attempting any more serious overhaul procedures.

Inspect this valve for proper operation at the time of the first oil change, and at each subsequent oil change. To inspect the valve, proceed as follows:

1. Connect a tachometer to the engine.
2. Start the engine and make certain the idle mixture and idle speed are correct.
3. Remove the valve (with hose attached) from the valve cover.
4. Plug the inlet to the valve and note the change in engine RPM.
5. If plugging the valve causes a change of less than 50 RPM with the engine idling, a clogged, or partially restricted valve is indicated.
6. If necessary, remove the plugged valve and install a new one. The large end of the valve goes into the grommet on the valve cover.

IMPORTANT: Install valve correctly, for proper air flow. Do not reverse. Change the PCV valve every 500 hours of operation.

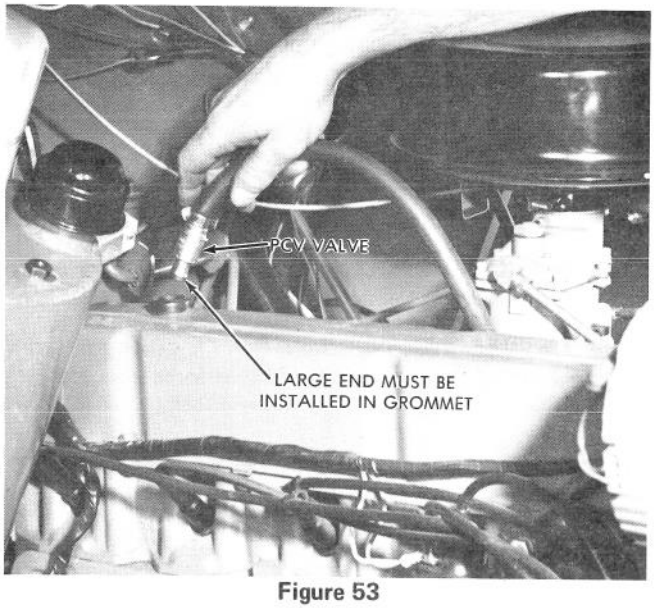


Figure 53

FLAME ARRESTER

The hose leading from the air cleaner to the valve cover provides a clean air flow through the engine. The flame arrester at the lower end of the hose prevents a possible fire in the engine, in the event of a back fire through the carburetor. Clean the flame arrester in solvent every 1000 hours of operation.

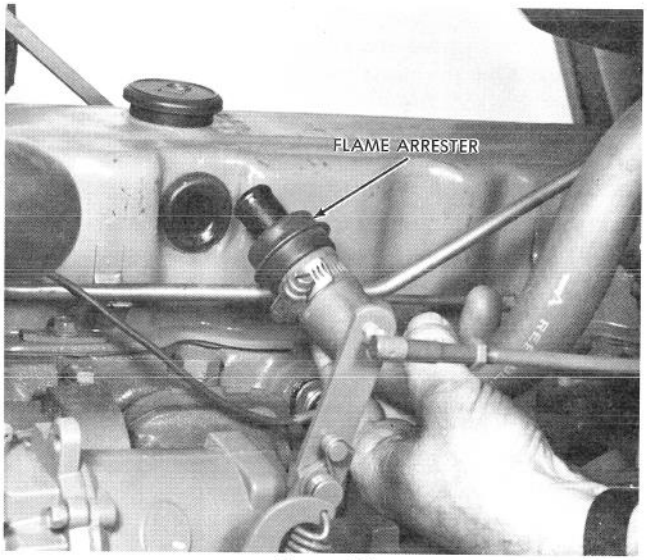


Figure 54

REMOVING ROCKER ARM COVER

CAUTION: Do not pry rocker arm cover loose. Prying may distort the cover and prevent good sealing. Remove the hoses and fasteners and bump the cover rearward with the palm of the hand or a rubber mallet.

CYLINDER HEAD BOLTS

Run engine until it is thoroughly warmed up. Retorque cylinder head bolts evenly and gradually to 95 ft/lbs., in the sequence shown in Figure 55. Retorque heads after adjusting the valves.

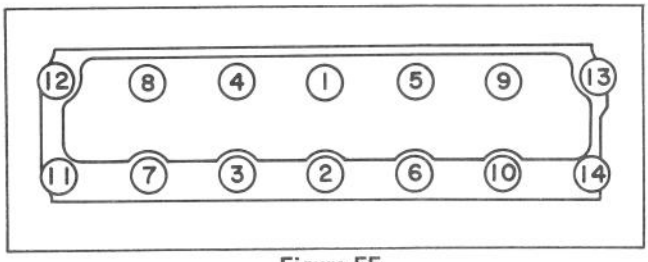


Figure 55

HYDRAULIC VALVE ADJUSTMENT (COLD ENGINE)

1. Remove rocker arm cover and gasket as described above.
2. Adjust valves as follows:
   a. Mark distributor housing, with chalk, at number one and number six positions (plug wire) then disconnect plug wires at spark plugs and coil and remove distributor cap and plug wire assembly (if not previously done).
   b. Crank engine until distributor rotor points to number one cylinder position and breaker points are open. The following valves can be adjusted with engine in number one firing position:

      Number one cylinder-Exhaust and Intake
      Number two cylinder-Intake
      Number three cylinder-Exhaust
      Number four cylinder-Intake
      Number five cylinder-Exhaust

   NOTE: Valves are located as follows: EIIEEIIEEIIE

   c. Back out adjusting nut until lash is felt at the push rod then turn in adjusting nut until all lash is removed. This can be determined by checking push rod end play while turning adjusting nut (Figure 56). When play has been removed, turn adjusting nut in one full additional turn (to center lifter plunger).

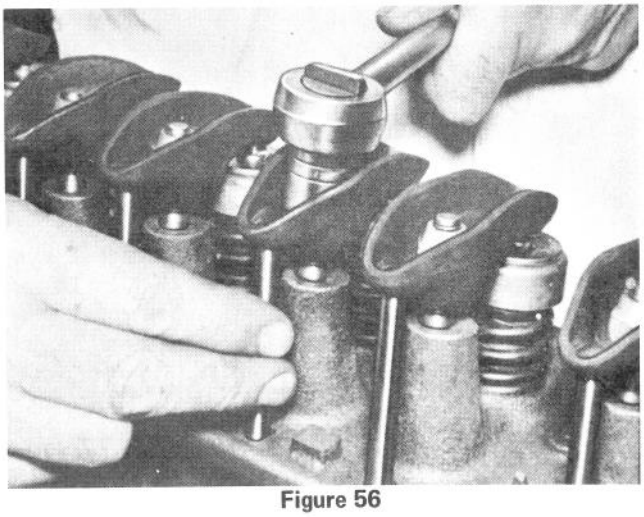


Figure 56

   d. Crank engine until distributor rotor points to number six position and breaker points are open. The following valves can be adjusted with engine in number six firing position:

      Number two cylinder—Exhaust
      Number three cylinder—Intake
      Number four cylinder-Exhaust
      Number five cylinder-Intake
      Number six cylinder-Intake and Exhaust

NOTE: To locate a noisy lifter, use a piece of garden hose approximately four feet long. Hold one end of the hose near the end of each valve, and the other end of the hose to the ear. By localizing the sound, it is easy to determine the noisy lifter. Another method is to hold a finger on the face of the valve spring retainer. If the lifter is not functioning properly, a distinct shock will be felt when the valve returns to its seat.

ENGINE TIMING

IMPORTANT: Before attempting to adjust ignition timing, make sure carburetor is properly adjusted. Disconnect vacuum line from distributor vacuum advance unit and plug the open end of the line.

The timing tab is shown in Figure 57. Clean the tab and pulley so they will be easily visible as the timing light flashes. Markings on the tab are in 2-degree increments, with the "O" mark being top dead center.

This engine is timed at 4° before top dead center with the engine idling. Timing is set on No. 1 cylinder.

With timing light connected to No. 1 spark plug, and with engine idling, loosen the mounting clamp screw at the base of the distributor and rotate the distributor as necessary to synchronize flashes with timing mark when mark is aligned with notch in pulley. After completing adjustment, tighten capscrew and connect vacuum line.

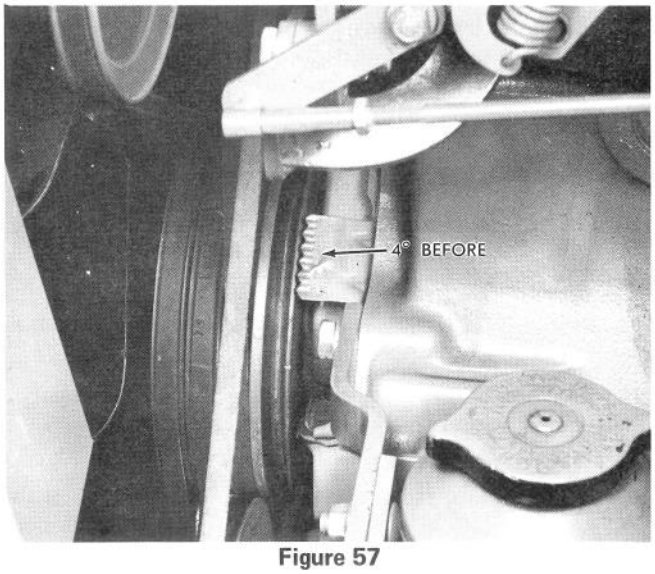


Figure 57

MAINTENANCE (Continued)

DISTRIBUTOR

Dirty points should be cleaned with a few strokes of a fine-cut point file. Do not use emery cloth. Do not attempt to remove all roughness; merely remove scale or dirt.

If the points are badly pitted or burned, they should be replaced. Replace the condenser at the same time.

1. Remove distributor cap and rotor.
2. Pull primary and condenser lead wires from quick-disconnect terminal. Remove condenser.
3. Remove contact point set and clean breaker plate.
4. Carefully wipe protective film from contact set, then place new contact set assembly on breaker plate and install attaching screw.
5. Inspect distributor cap for possible cracks.

   NOTE: Pilot on contact set must engage matching hole in breaker plate.

6. Install new condenser. Connect primary lead and condenser lead to terminal. Lead assemblies must be assembled "back-to-back". Push clip nearest the contact lever down between the spring and locator; then push the remaining clip down between the first clip and locator. Do not push on the spring.
7. Apply a slight trace of petroleum jelly to the breaker cam and a few drops of SAE #20 oil to the wick in the shaft.
8. Check and adjust points for proper alignment and breaker arm spring for proper tension. Use an alignment tool to bend stationary contact support if points need alignment.

   NOTE: The contact point pressure must be 19-23 ounces. Weak tension will cause chatter, resulting in arcing and burning of the points and an ignition miss at high speed, while excessive tension will cause undue wear of the contact points, cam and rubbing block. The spring pressure should be checked with a spring gauge, and the pull exerted at 90-degrees to the breaker lever. The reading should be taken just as the points separate. The pressure can be adjusted by bending the breaker lever spring. If pressure is excessive, it can be decreased by pinching the spring carefully. To increase pressure, the lever must be removed from the distributor so the spring can be bent away from the lever. Avoid excessive spring distortion.

9. Turn engine over until the rubbing block is on a high point of the cam lobe.
10. Set point opening to .019" with new points; .016" with used redressed points.

    NOTE: New points are set to the larger opening as the rubbing block will wear down slightly while seating to the cam.

11. To adjust the point gap, loosen the lock screw, insert a screwdriver tip in the slots, and rotate to provide the desired gap.

    NOTE: Clean the points with a few light strokes of the point file. This will remove any oils or perspiration which may have transferred from the feeler gauge.

12. Install the rotor and distributor cap.
13. Start the engine and check ignition timing.

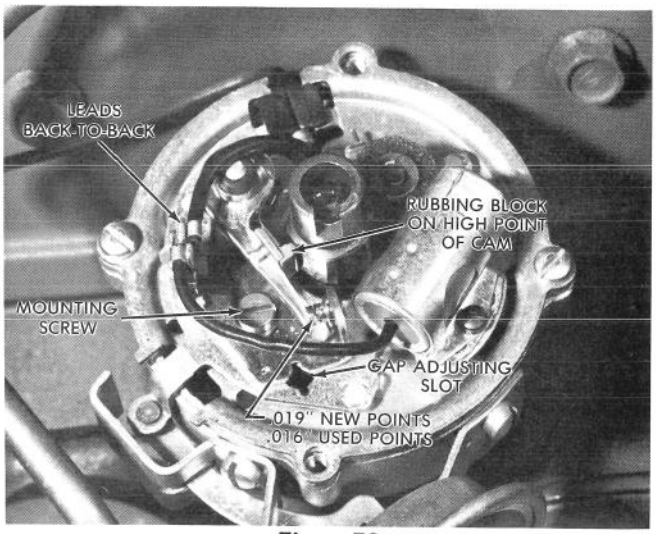


Figure 58

ENGINE LIFTING HOOKS

If it becomes necessary to remove the engine from the unit, tag and remove all wires, tubing, hoses, accessories, etc., as necessary prior to engine removal. A set of lifting hooks is shipped in the tool box. Install these hooks as shown. Remove the fasteners and lift the engine up and out with a suitable hoist.

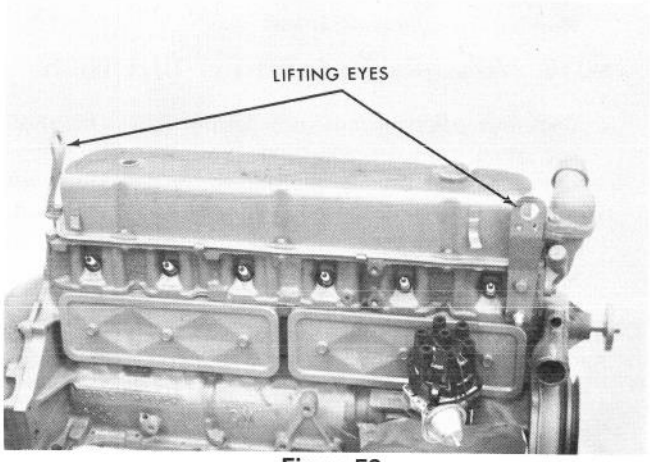


Figure 59

OVERHAUL

For detailed instructions on major overhaul on your engine and transmission, refer to the General Motors Service Manual or Overhaul Manual on the 1972 model truck, Series 10-30.

The Service Manual contains "on-the-vehicle" adjustments, specifications, and maintenance procedures that can be performed with the engine and transmission in the vehicle.

MAINTENANCE (Continued)

OVERHAUL (Continued)

The Overhaul Manual contains "off-the-vehicle" overhaul of the major components. These procedures would generally be performed with the components on a bench.

Order these manuals from:

Helm Incorporated
Post Office Box 7706
Detroit, Michigan 48207

Form numbers and prices are:

Service Manual	ST-330-72	$5.65
Overhaul Manual	ST-333-72	$5.65

For maintenance on the rear axle assembly, consult your TORO distributor.

SERIAL NUMBER LOCATIONS

In any correspondence concerning your tractor, be sure to include the serial numbers of both the chassis and the engine. These numbers will identify your unit for proper parts and service.

The engine number is stamped on a milled surface just behind the distributor. See Figure 21.

The chassis number is stamped on the plate just below the instrument panel. See Figure 1.

ENGINE TUNE-UP SPECIFICATIONS

CAUTION: Since the ignition coil is fed through the starter solenoid during cranking, the engine will have a tendency to start whenever it is cranked, even though the ignition switch is in the "OFF" position. To prevent this from happening and possibly causing personal injury, disconnect the primary wire from the ignition coil before performing tests which require cranking the engine.

Chevrolet Engine

Type	In-line, 6 Cyl.
Bore	3.88"
Stroke	3.53
Engine Displacement (cu. in.)	250
Compression Ratio	8.5 – 1
Compression Pressure (at cranking speed)	130 PSI
Maximum variation between cylinders	20 PSI
Firing Order	1-5-3-6-2-4
Spark Plug	AC-R46T or AC-R46TS
Spark plug gap	.035"
Torque	15 ft-lbs.
Distributor	
Dwell angle	31°-34°
Point Gap (new)	.019"
Point Gap (used)	.016"
Lever spring tension (oz.)	19-23
Ignition Timing	4° BTC @ 550 RPM (idle)
Valve lash	0
Cylinder head bolt torque	95 ft-lbs.
Connecting rod bolt torque	35 ft-lbs.
Main bearing cap bolts	65 ft-lbs.
Flywheel bolt torque	60 ft-lbs.
Engine idle speed	400-450 RPM
Fuel Pump Pressure	3½-4½ PSI
H.P.	107 @ 2400 RPM
Torque	235 ft.-lb. @ 1600 RPM
Capacities	
Cooling System	13.0 U.S. quarts
Crankcase (w/o filter)	4 U.S. quarts
Power steering pump reservoir	3 U.S. quarts

WIRING DIAGRAM

IMPORTANT: Make certain wires, connectors, etc., are located so they cannot short out to ground or against another component.

12 Volt
Negative Ground

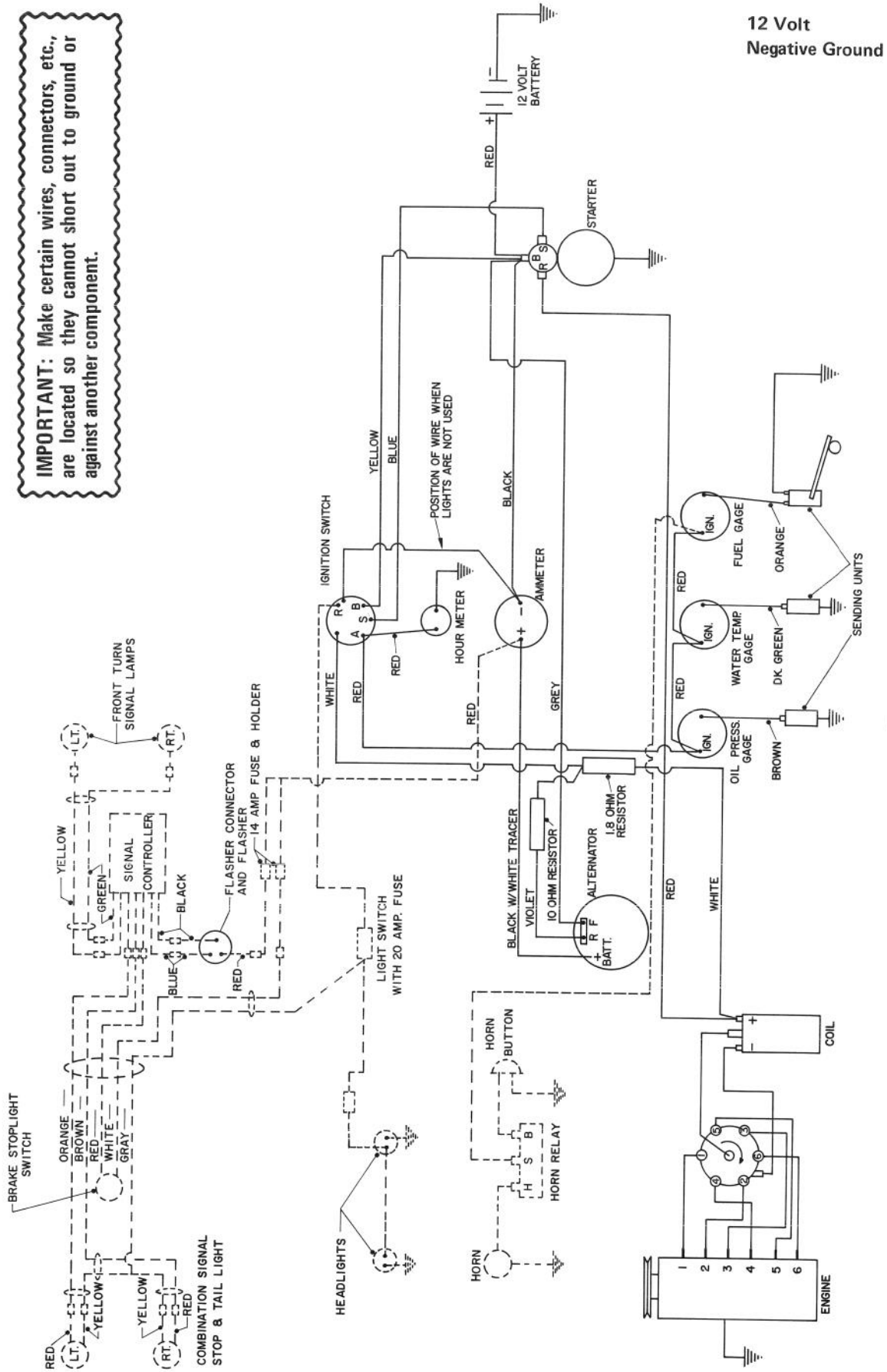


Figure 60

PARKMASTER FRAME SPECIFICATIONS

	PARKMASTER 5	PARKMASTER 7	PARKMASTER 9
Cutting Units:	Five (5)	Seven (7)	Nine (9)
Hydraulic lift for raising and lowering all cutting units:	1st, 2nd and 3rd cutting units operate together. Cutting units 4-9 operate individually.		
Main Frame:	Tubular steel, reinforced welded construction.		
Wing Lift Arms:	Tubular steel, reinforced welded construction.		
Hydraulic System: Pump:	Gear type, 10 GPM @ 1700 RPM, 1500 PSI, belt driven from engine crankshaft with matched set of two belts.		
Reservoir:	7 quart capacity with spin-on 40 micron filter. Full flow includes by-pass with 11-18 PSI pressure setting. Vent cap and breather including filter screen at oil fill port.		
Control Valves:	Heavy duty, directional control valves, parallel circuit, stack design. Cast iron valve bodies, with hardened spools and plated for corrosion protection. Primary relief valve, non-adjustable type set at 1250 PSI maximum pressure on Parkmaster 5 & 7; 1500 PSI on Parkmaster 9. Relief valve prevents excessive pressure build-up in hydraulic system and safe guards the hydraulic pump and hoses.		
Hydraulic Cylinders:	Tie rod construction, 3-inch bore. (3 double acting cylinders, one 12-inch stroke and two 10-inch stroke used on Parkmaster 5.) (5 double acting cylinders, three 12-inch stroke and two 10-inch stroke used on Parkmaster 7). (7 double acting cylinders; five 12-inch stroke and two 10-inch stroke used on Parkmaster 9). Chrome plated rods 1 1/8-inch diameter. Precision finished bore in cylinder tubes.		
Hoses:	Two braid with swaged fittings.		
Tractor Tires: Front:	15 x 5 wheels with 6.70-15, 4-ply, 1-I ribbed tires and tubes. Pressure — 16 P.S.I.		14 x 8 wheels with 9.50-14, 4-ply, 1-I ribbed tires and tubes. Pressure — 10 P.S.I.
Rear:	7.50-16, 4-ply, R-3 tires and tubes. Valves have provision for liquid ballast. Pressure — 12 P.S.I. for turf work, 20 P.S.I. for transport.		8.00-16, 6-ply, lawn and garden tires and tubes. Valves have provision for liquid ballast. Pressure — 18 P.S.I. for turf work, 24 P.S.I. for transport.
Cutting Units:	Spartan or Roughmaster mowers.		Spartan mowers.
Counterweight Ballast:			Combination front bumper and ballast bolted to front of tractor frame.
Width of Cut:	Approximately 11"	Approximately 14' 6"	Approximately 18' 6"
Overall Width: Transport Position:	96" with Spartan mowers w/rubber tires; 92" w/iron wheels.		
Overall Length: Transport Position: Mowing Position:	Approximately 188" Approximately 177"	Approximately 188" Approximately 177"	Approximately 186" Approximately 175"
Overall Height: Transport Position:	66"	66"	91"
Weights:* Total Weight		6320 lbs. w/7 Spartan mowers.	7240 lbs. w/9 Spartan mowers.
Front Axle: Transport Position: Cutting Position:		1580 lbs. 1840 lbs.	1220 lbs. 1710 lbs.
Rear Axle: Transport Position: Cutting Position:		4740 lbs. 2400 lbs.	6060 lbs. 3160 lbs.

*Rear axle weights do not include liquid ballast in tires. 400-500 pounds can be added with ballast.

GENERAL ASSEMBLY INSTRUCTIONS

CUTTING UNITS

The PARKMASTER is shipped with tractor and frame completely assembled and serviced. The mowers and wheels for mowers must be installed to complete the unit. Assembly instructions for installing the wheels are included in the mower owners manual. It is generally easier to adjust mowers to the required height-of-cut prior to installing the mowers to the PARKMASTER frame.

MOWER TIRE INFLATION PRESSURE

If pneumatic tires are used on the mowers, it is important that the tires be inflated to the proper inflation pressure and tires matched so that the same diameter tires are installed on the same mower. If tires vary considerably in diameter, it will be impossible for the mower bedknife to be parallel with the ground and provide a uniform cut. Tire inflation is important and should always be maintained at the prescribed pressure.

Spartan mower tires – 35 P.S.I.
*Roughmaster mower tires – 35 P.S.I.

*Used with Parkmaster 5 and 7 only.

MOWER DRAWBAR ATTACHMENT POSITIONS

IMPORTANT: Capscrews attaching drawbar to clamps at positions A, B, or C must be installed with capscrew heads away from wheel. This will allow capscrew to be removed easily when changing the mounting location of the drawbar to the clamp. See also Figure 80, Page 34.

Force transfer characteristics of the mowers result from the pull of the drawbar. The Parkmaster frame clamp for attaching the drawbars has three positions (see illustration – holes "A, B, & C").

NOTE: Nut fits cored recess in clamp.

POSITION	REASON FOR POSITION
A	Less pressure on the rear rollers; greater pressure on the drive wheels–improved traction.
B	Normal position when operating on level, flat terrain.
C	Added pressure on the rear rollers; should be used especially when bouncing of rear roller occurs (uneven, bumpy terrain).

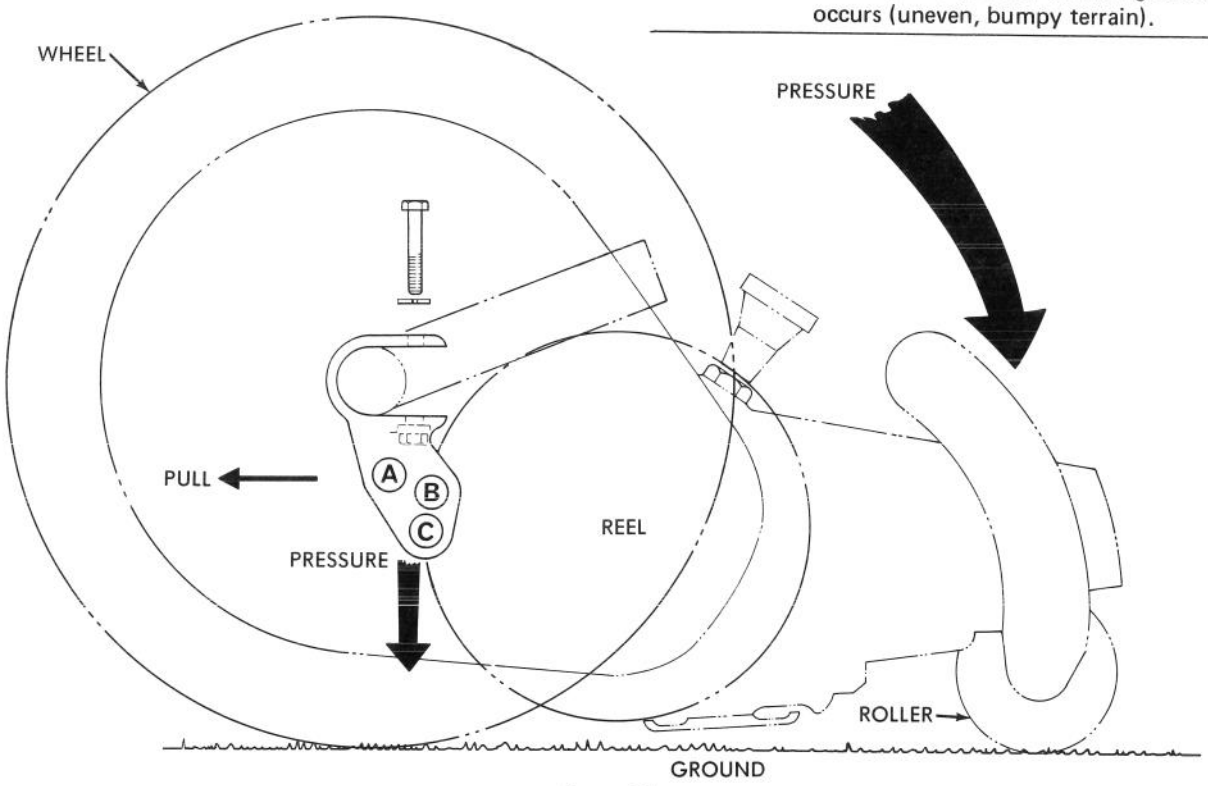


Figure 61

LOOSE PARTS CHART

Loose Parts	Quantity			Description	Where Used
	PM 5	PM 7	PM 9		
Capscrew	10	14	18	7/16 – 14 NC x 2½	Secure clamp to mower
Lockwasher	10	14	18	7/16 Med.	Secure clamp to mower
Nut	10	14	18	7/16 – 14 NC	Secure clamp to mower
Owner's Manual			1		
Parts Catalog			1		

ATTACHMENT OF MOWERS TO LIFT ARMS

PARKMASTER 5 & 7
SPARTAN OR ROUGHMASTER MOWERS

Figures 62-74 show the correct attachment of mowers to lift arms at all positions for the Parkmaster frame. The fasteners for attaching the draw bar clamps (see page 30) are shipped in a loose parts bag in the tractor tool box.

Your Parkmaster frame is equipped with safety chains. These chains should be used when the unit is in the transport position, to prevent the mowers from accidentally being lowered when the tractor is traveling at high speeds. Figures 62-74 show the proper attachment to the mowers. The safety chains can be stored right on frame when not being used.

NO. 1 POSITION

SPARTAN MOWER

DOWN

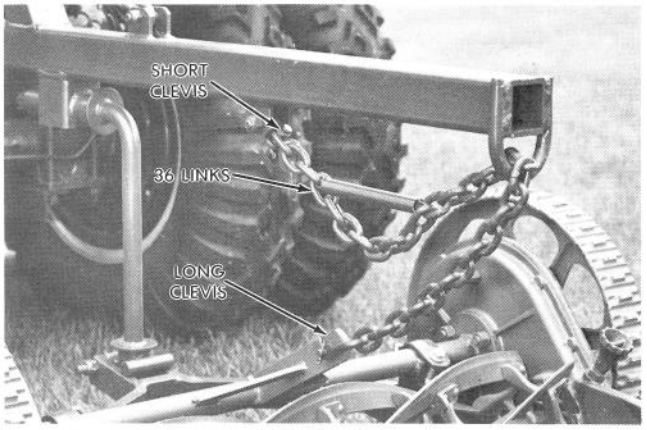


Figure 62

NO. 1 POSITION

ROUGHMASTER MOWER

UP

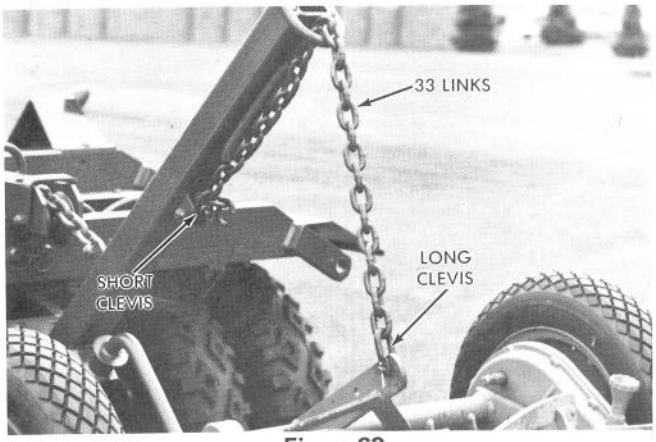


Figure 63

DOWN

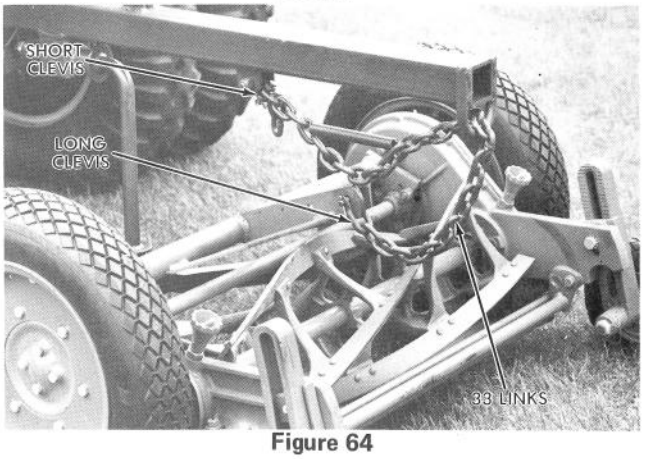


Figure 64

NO. 2 & 3 POSITION

ROUGHMASTER MOWER

DOWN

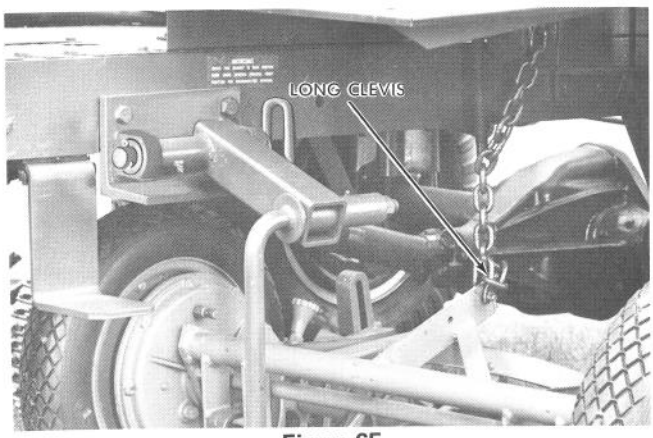


Figure 65

Connect spring in 5th link from clevis. Connect clevis in 4th link from end.

SPARTAN MOWER

DOWN

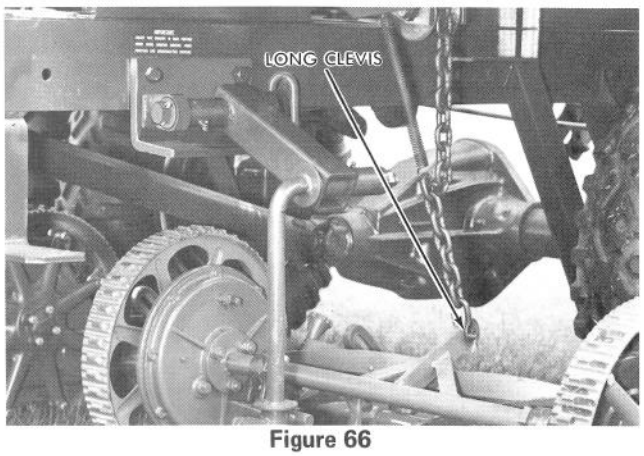


Figure 66

Connect spring in 7th link from end.

ATTACHMENT OF MOWERS TO LIFT ARMS (Continued)

PARKMASTER 5 & 7 (Continued)

NO. 4 & 5 POSITION

NOTE: The inside wheel on # 4 & 5 mowers have a tendency to hit tractor frame when the mower is raised. If so, remove chain and twist it so that as the chain tries to straighten itself, it will rotate mower away from the frame.

SPARTAN MOWER

DOWN

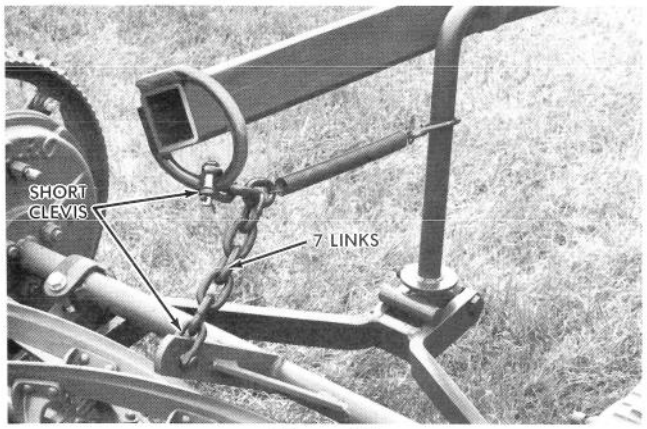


Figure 67

UP

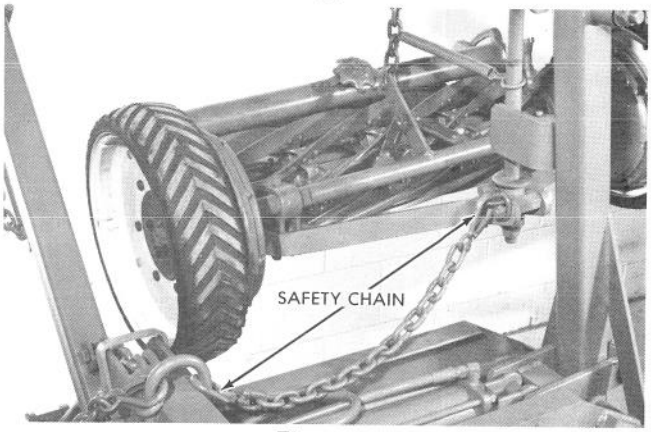


Figure 68

Hook spring in 3rd to 6th link from bottom.

ROUGHMASTER MOWER

DOWN



Figure 69

UP

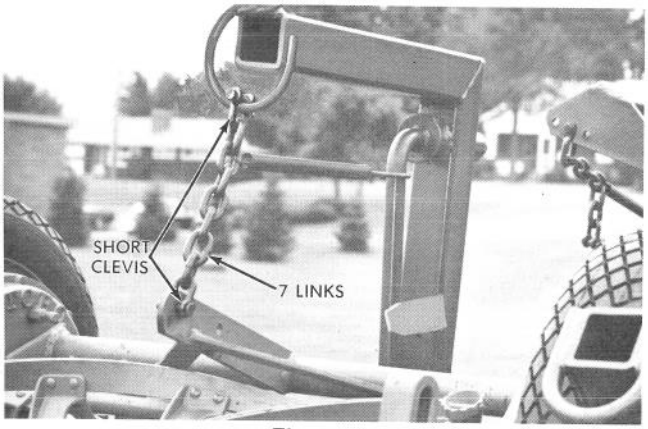


Figure 70

Hook spring in 3rd to 6th link from bottom.

NO. 6 & 7 POSITION (PARKMASTER 7 ONLY)

SPARTAN MOWER

DOWN

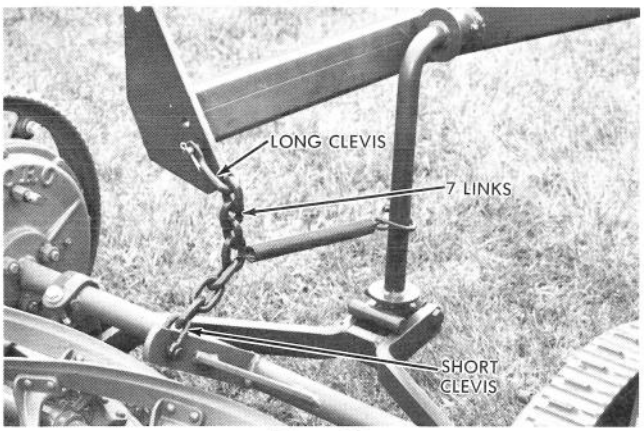


Figure 71

UP

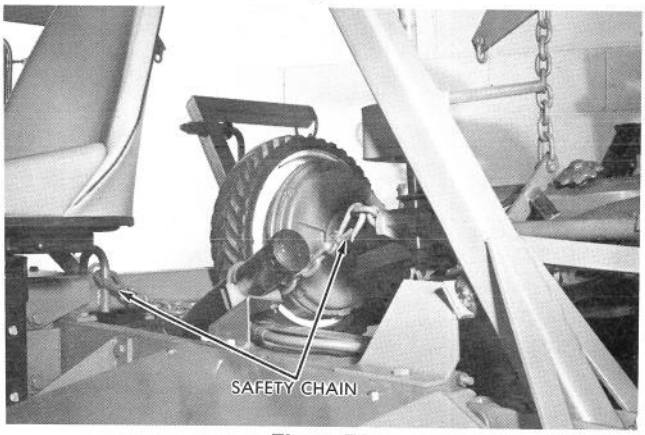


Figure 72

Hook spring in 3rd to 6th link from bottom.

ATTACHMENT OF MOWERS TO LIFT ARMS (Continued)

PARKMASTER 5 & 7 (Continued)

NO. 6 & 7 POSITION (PARKMASTER 7 ONLY)

ROUGHMASTER MOWER

DOWN

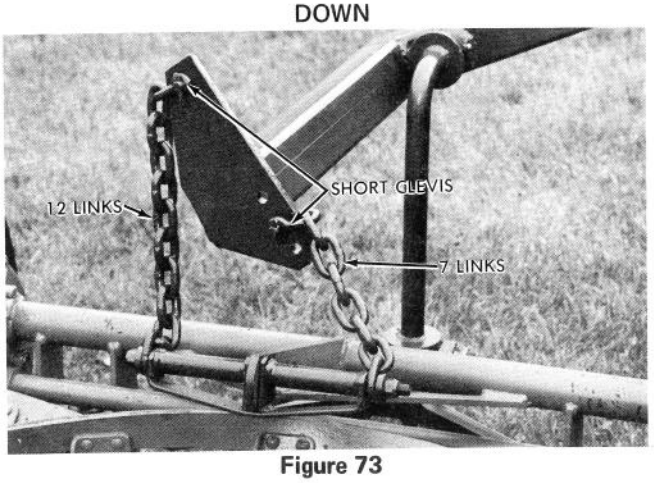


Figure 73

UP

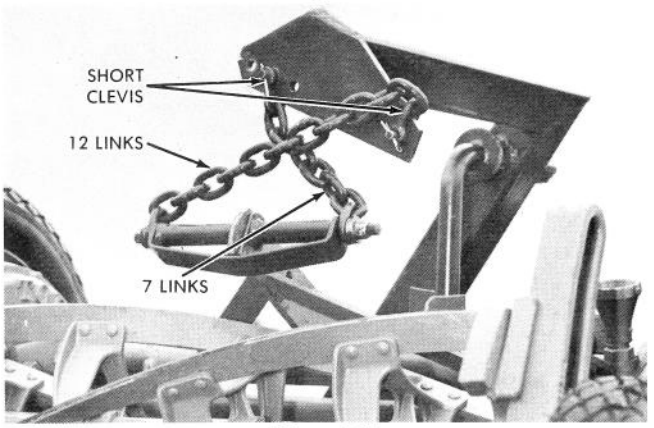


Figure 74

PARKMASTER 9
(SPARTAN MOWERS ONLY)

Figures 75-84 show the correct attachment of mowers to lift arms at all positions for the Parkmaster 9 frame. The fasteners for attaching the draw bar clamps (see page 30) are shipped in a loose parts bag in the tractor tool box.

Your Parkmaster frame is equipped with five (5) safety chains; one each for mowers 4, 5, 6, 7, and one between 8 & 9. These chains should be used when the unit is in the transport position to prevent the mowers from accidentally being lowered when the tractor is traveling at high speeds. Figures 79, 82, & 84 show the proper attachment to the mowers. The safety chains can be stored right on frame when not being used.

NO. 1 POSITION

DOWN

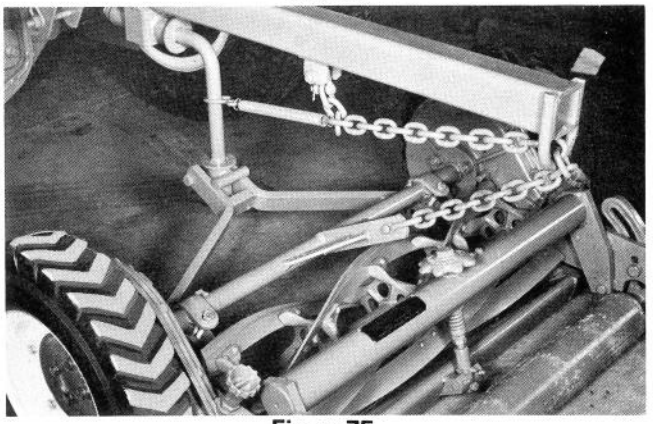


Figure 75

Connect spring in 4th link from end.

NO. 1 POSITION

UP

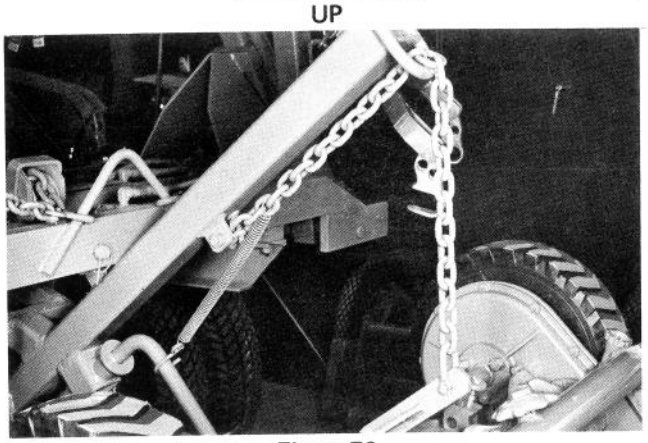


Figure 76

NO. 2 & 3 POSITION

DOWN

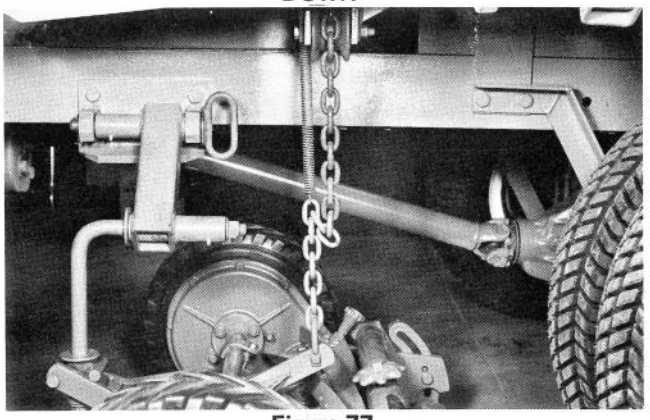


Figure 77

Connect spring in 7th link from end

ATTACHMENT OF MOWERS TO LIFT ARMS (Continued)

PARKMASTER 9 (SPARTAN MOWERS ONLY) (Continued)

NO. 4 & 5 POSITION

DOWN

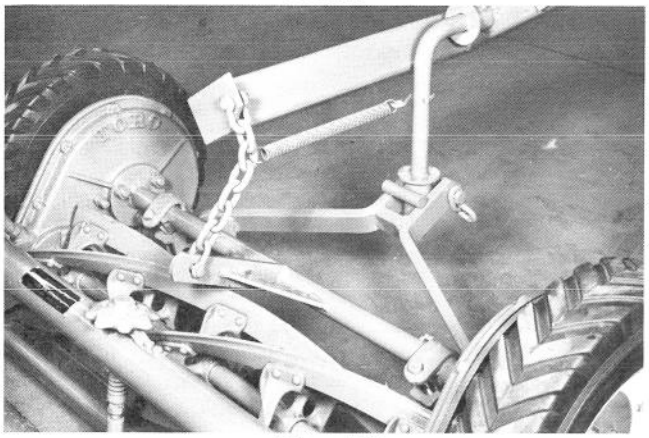


Figure 78

Connect spring in 5th link from end.

NO. 4 & 5 POSITION

TRANSPORT

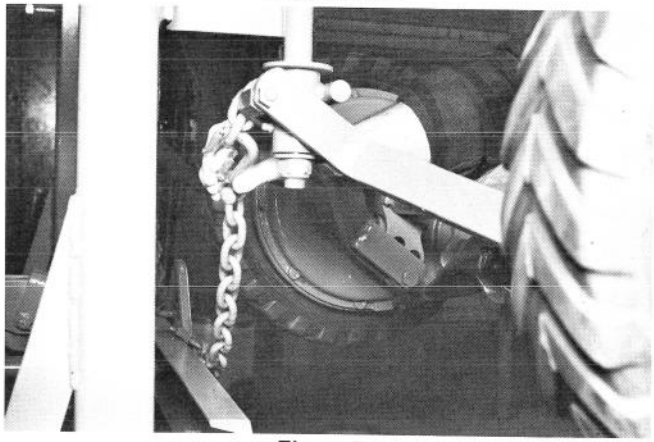


Figure 79

Safety chain connected to mower for transport.

NOTE: Check to make certain chains on mowers 4 and 5 are rotated so that inside mower wheel swings away from frame when mower is raised.

NO. 6 & 7 POSITION

DOWN

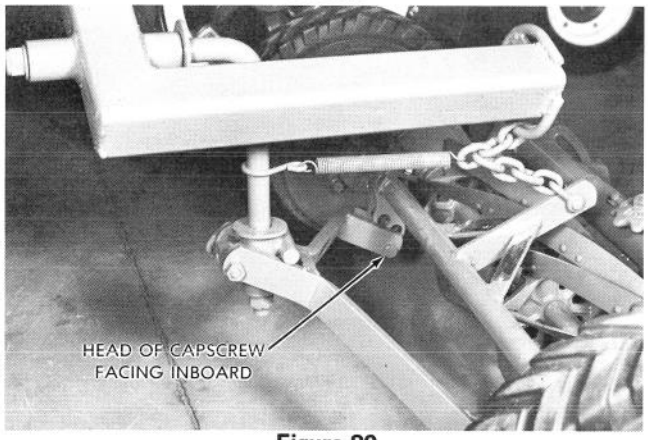


Figure 80

Connect spring in 5th link from end

NOTE: Install capscrews with head of capscrews facing inboard for all mowers. See Figure 80.

NO. 6 & 7 POSITION

UP

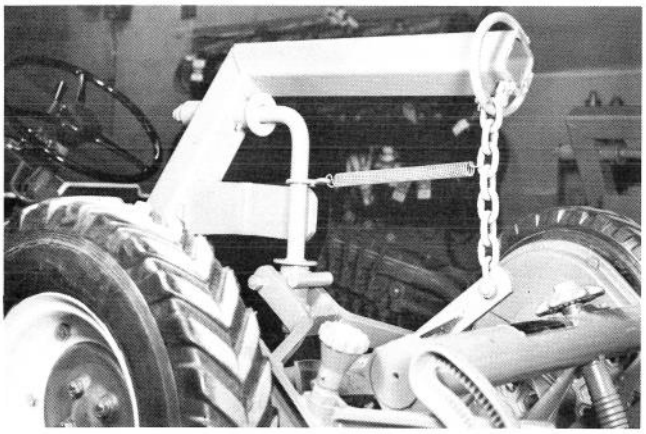


Figure 81

NO. 6 & 7 POSITION

TRANSPORT

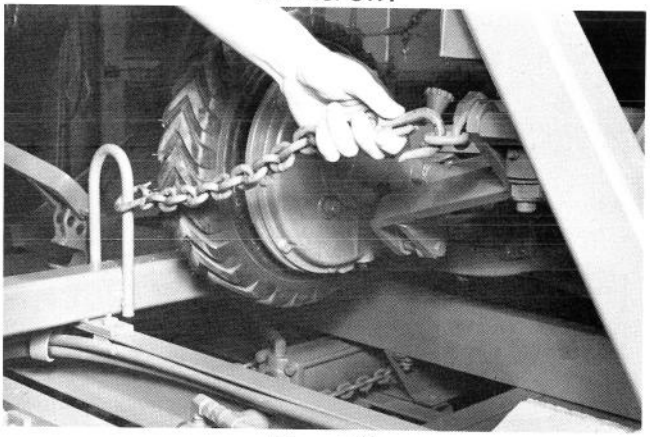


Figure 82

Safety chain connected to mower for transport.

ATTACHMENT OF MOWERS TO LIFT ARMS (Continued)

PARKMASTER 9 (SPARTAN MOWERS ONLY) (Continued)

NO. 8 & 9 POSITION
DOWN

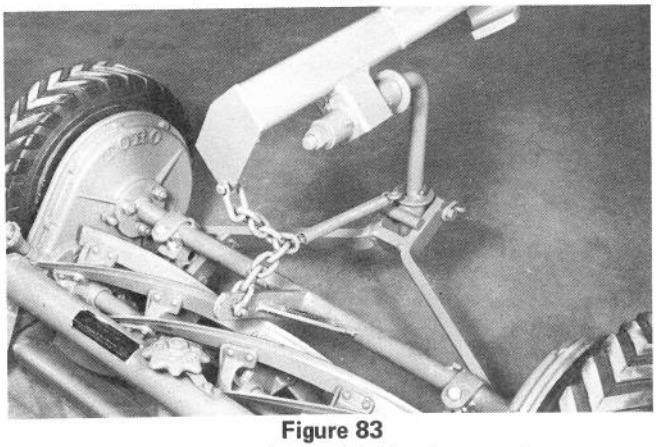


Figure 83
Connect spring in 4th link from end.

NO. 8 & 9 POSITION
TRANSPORT

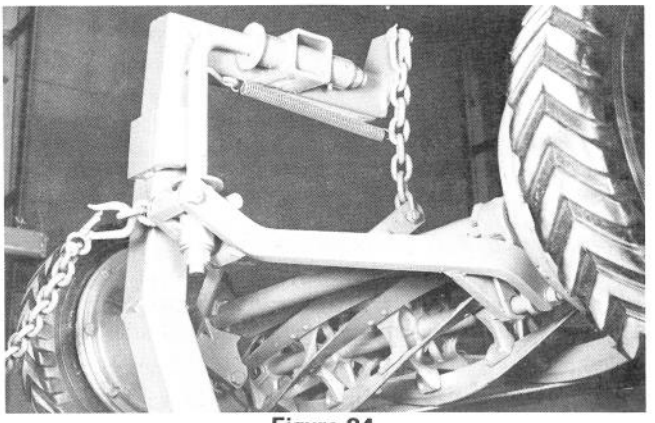


Figure 84
Safety chain connected to mower for transport.

LUBRICATION

GREASE FITTINGS

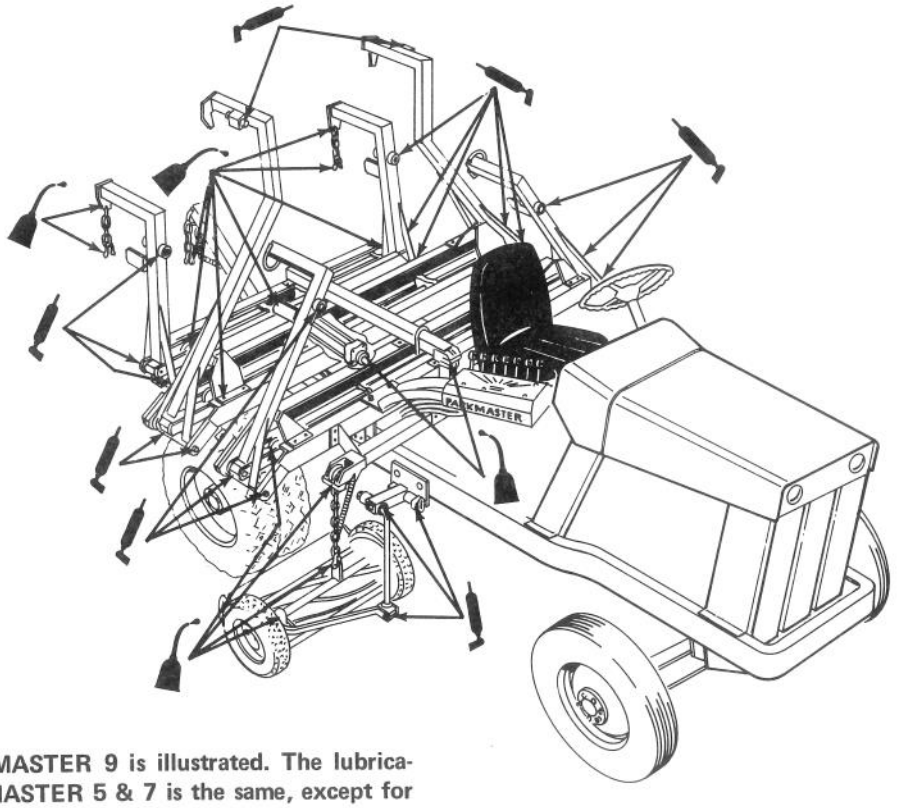
Before servicing any of the grease fittings, clean the fitting with a rag to make sure that no foreign matter will be forced into the bearing with the lubricant. The fitting should be lubricated every 50 hours with a light chassis grease (Mobilux No. 2 is recommended).

When servicing a fitting, make certain that the bearing is taking grease. Keep applying lubricant to the fitting until you see some of the grease coming out from the sides of the bearing. Wipe the fittings and sides of the bearing clean after servicing.

FRICTION POINTS

Wear or friction points should be lightly oiled every 50 hours with a good grade of SAE 30 oil.

NOTE: Use the hour meter provided on the tractor as a time reference for lubricating.



NOTE: The PARKMASTER 9 is illustrated. The lubrication for the PARKMASTER 5 & 7 is the same, except for the number of lubrication points.

Figure 85

HYDRAULIC SYSTEM AND CONTROLS

The hydraulic system for the cutting units includes double-acting hydraulic cylinder for raising and lowering each of the outboard wing mowers, and one double-acting cylinder for raising and lowering the two under-slung forward mowers and center rear mower. Other components of the hydraulic system include a hydraulic pump, hydraulic reservoir, filter, lines and control valve with integral relief valve. The relief valve is a non-adjustable type with a 1250 P.S.I. pressure setting on the Parkmaster 5 and 7; 1500 P.S.I. on the Parkmaster 9.

When raising and lowering mowers the tractor engine should be at idle speed. The control valve lever should be held until the hydraulic cylinders have completely extended or retracted. At the completion of any cylinder cycle, the relief valve will open followed by an audible sound. This sound indicates that hydraulic oil is being bypassed from the cylinder back to the hydraulic reservoir.

IMPORTANT: Do not hold control lever for a prolonged period because continued operation of the relief valve will generate heat and raise the temperature of the hydraulic oil.

IMPORTANT: The hydraulic cylinder piston rod must be fully extended so that the link has clearance with the lift arm shaft, enabling the mowers to follow the terrain.

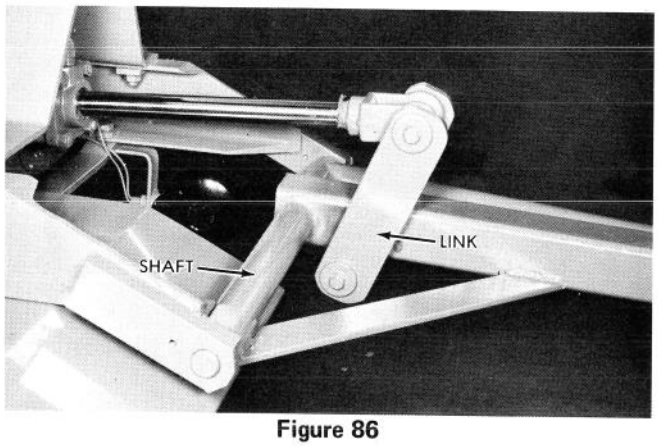


Figure 86

When storing your Parkmaster, the hydraulic cylinders should be in a retracted position as this will prevent damage, contamination, and corrosion of the piston rods.

NOTE: Any defect on the surface finish of the piston rods will cause seal failure and oil leakage of the cylinder.

HYDRAULIC CONTROL PANEL

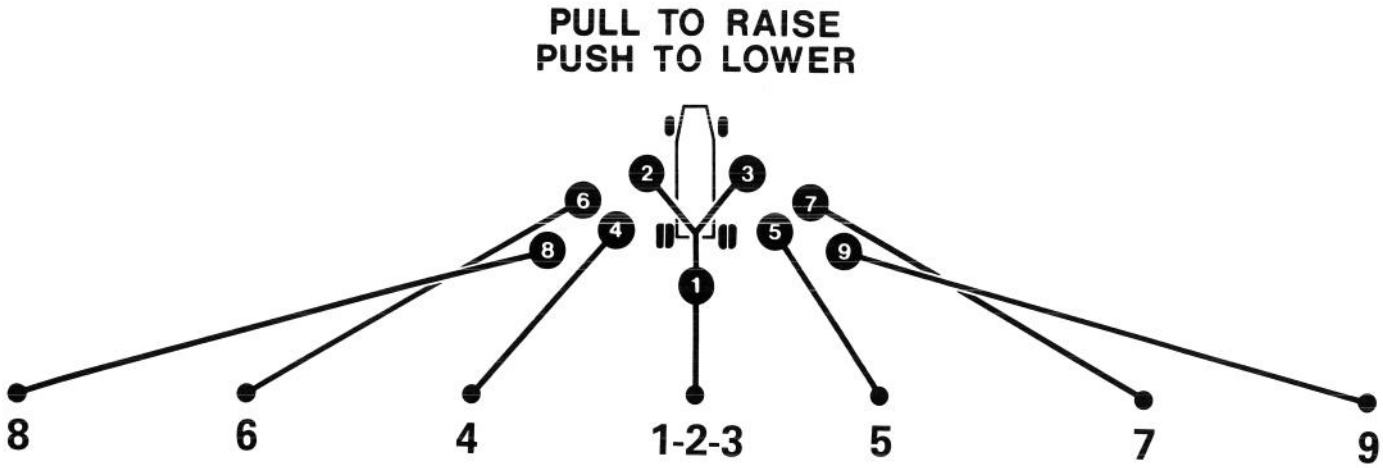


Figure 87

INSTRUCTIONS FOR MOWING

TRAINING PERIOD

Before mowing with your Parkmaster, The Toro Company suggests that you find a large, clear area and practice starting and stopping, raising and lowering the mowers, etc. This training period will be beneficial to the operator in gaining confidence in the performance of the Parkmaster. Because of the cutting width of this unit, it is important that the operator develops skill in controlling the movement of the extreme outboard mowers to prevent hitting obstacles with these units.

MOWING GOLF COURSE FAIRWAYS

Mow with a plan. Make certain all your mowers are adjusted properly; height-of-cut, reel to bedknife and that all mowers are in gear. The mower owner's manual has instructions for engaging and disengaging the mower gear train.

Approach the fairway with the mowers in the transport position with safety chains removed and tractor in second gear. With your Parkmaster in motion, lower the cutting units to the turf. Complying with this procedure will eliminate the possibility of spinning the tractor drive wheels on the turf and causing damage. The grass clippings will also be thrown rearward far enough to prevent any accumulation between roller and bedknife.

It is usually advisable to mow the periphery of the fairway, working your way to the center. When approaching a steep hill or bunker, down shift the tractor prior to climbing the hill. This procedure will eliminate the possibility of down shifting half-way up the hill, causing tire slippage and turf damage. If a condition does occur where you lack sufficient power to climb a hill, it is usually better to raise one or two outboard mowers. This will provide added weight to the drive wheels and reduce the power requirements. When operating on a side hill, partially raise one or two of the uphill outboard mowers, which will add to the stability of your Parkmaster. This added weight will prevent the uphill drive wheel spinning needlessly, and helps prevent the unit from tipping over.

Continuously mowing a fairway in the same direction of travel, will cause a grain condition in the turf where the grass will tend to grow in the direction of mower travel. This problem can be reduced if the direction of travel is reversed each time the fairway is mowed. If time permits, the fairway should be mowed periodically at 90 degrees to the length.

To reduce compaction of the soil and turf, occasionally raise one or two outboard mowers nearest the rough when making the initial pass around the fairway. This will off-set the tractor wheel and mower wheel tracks from the previous mowing and prevent driving in the same path continuously. It is also advisable to cross cut each end of the fairway at the tee and green to reduce the amount of travel at these locations. Considerable traffic is concentrated at these locations by the golfers and carts; therefore, any reduction in travel by the mowing equipment is beneficial to the turf.

The mowing speed for your Parkmaster will vary, depending upon terrain. Best results for achieving a fine, manicured turf occur when traveling between four and six miles per hour. Traveling too fast can cause mechanical damage to the mowers. The operator requires more over-lap for each pass, while the over-all efficiency is not significantly increased. A speed of six miles per hour in second gear is the most economical and efficient speed and gear setting. At this speed, the engine is operating at approximately 1600-1650 RPM, at its maximum torque output.

CAUTION: Before raising or lowering mowers, ensure that no person is working on, or is near the cutting units.

LIQUID BALLAST

If your Parkmaster will be used on extremely hilly terrain, it is advisable to add liquid ballast to the rear tires for increased traction. If the unit will not be subjected to freezing temperatures, plain water may be used.

The following chart provides data on filling tires with water and calcium chloride solutions, based on filling to valve level, or approximately 75% full.

Either Type 1 (77%) or Type 2 (94%) commercial calcium chloride flake may be used. The chart is based on the use of Type 1 (77%). If Type 2 (94%) is used, reduce the weight of calcium chloride to be used by 25%.

Plain water freezes solid at 32° F. The 3½ pound calcium chloride to one gallon of water solution is slush free to -12°F, and will freeze solid at -52°F. The 5 pound per gallon solution is slush free to -52°F and will freeze solid at -62°F.

Tires should be filled to approximately 75% capacity (valve level with valve at the top).

IMPORTANT: If a puncture occurs in a tire with liquid ballast, remove unit from turf area as quickly as possible. To prevent possible damage to turf, immediately soak affected area with water.

	Water Only		3½ lb. CaC12 Solution			5 lb. CaC12 Solution		
Tire Size	Gallons	Weight Pounds	Gallons Water	Pounds CaC12	Total Weight	Gallons Water	Pounds CaC12	Total Weight
7.50-16	9	75	8	28	95	7.3	37	98
8.00-16	10	83	9	32	107	8	40	106
9.50-16	12	100	10	35	118	10	50	133

FRAME MAINTENANCE

DRAINING THE HYDRAULIC SYSTEM

To drain fluid from hydraulic system, disconnect high pressure hose (Figure 88) from hydraulic control valve. Run engine in idle position and drain into container until fluid ceases to flow.

IMPORTANT: Stop engine as soon as flow ceases to prevent damage to pump. Change the filter, clean the cone-shaped screen, and refill the reservoir. The pump is self-priming.

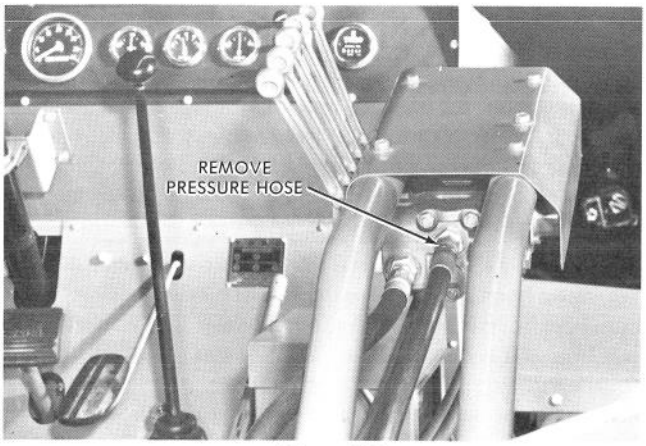


Figure 88

LIFT ARM BUSHING REPLACEMENT

To replace the lift arm bushing (see Figure 89) proceed as follows:

1. Position lift arm in the down position.
2. Remove capscrew from pin assembly.
3. Remove link between hydraulic cylinder and lift arm.
4. Remove pin and bushings in lift arm.
5. Insert and size new bushings and replace pin.
6. Replace capscrew.

IMPORTANT: It may be necessary to drive the pin assembly out of the lift arm.

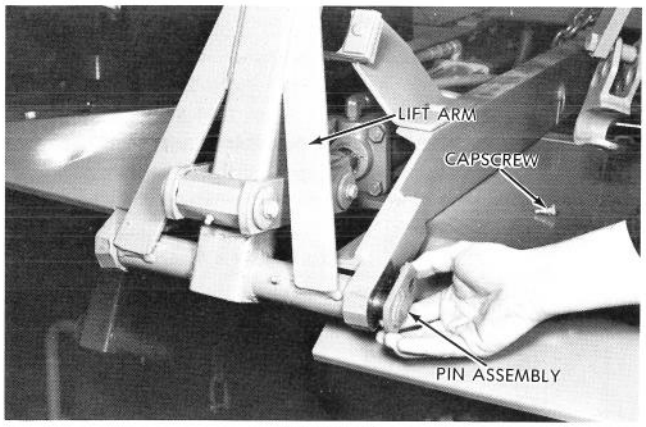


Figure 89

REPLACING, ADDING OR REMOVING HOUSING AND SPOOL ASSEMBLY

NOTE: For the purpose of these instructions, we shall consider the section containing the Main Relief Valve as the left side of the valve.

1. If the valve is to be reassembled in the same order, it is suggested that before disassembling, each section be marked numerically so that they may be returned to the same sequence when reassembled.
2. If the valve has been removed from Parkmaster, it is advisable to mount valve vertically in a vise to facilitate disassembly and assembly.
3. Remove the three (3) assembly locknuts from right end section, using a thin-wall socket.
4. Valve sections may now be removed by sliding the sections along the assembly studs.
5. Thoroughly clean the O-Ring counterbores and the ground surface of each section. Place O-Ring Seals in proper counterbores. For better sealing, it is suggested that all O-Rings used in the counterbores be replaced with new parts.
6. Replace the sections on assembly studs with the O-Ring counterbores facing the right end of the valve. Use care in replacing sections so that the section O-Rings are not dislodged from the counterbores.
7. When all sections are assembled on assembly studs, tighten the assembly stud nuts evenly to 20 ft/lbs torque, NO MORE, NO LESS; spools may bind or stick.

REPLACING SPOOL SEALS

NOTE: For the purpose of these instructions, we shall consider the control handle side of the valve as the FRONT, and the opposite side as the BACK.

1. At the BACK of the valve, remove all bonnet assembly parts which are connected to the spool, and keep in the order of disassembly.
2. At the FRONT of the valve, remove all parts connected to the spool (handle, link).
3. Push spool into housing from the FRONT of the valve until front seal is exposed, then remove front seal. Pull spool out of housing from FRONT end, being very careful that neither spool nor bore is scratched or damaged in any way.
4. Remove back seal.
5. Thoroughly clean both seal grooves.
6. Replace the spool through the front of the housing being sure that the end having the tapped hole enters the housing first. Push the spool into the housing far enough to expose the FRONT seal groove. Insert a new seal in the FRONT groove. Pinch one side of the seal, causing the seal to bend into a shape slightly smaller than the seal groove in the valve. When the seal has been properly placed in the seal groove, straighten the seal by running a smooth rod around the exposed edge of the seal. You should have a smooth, perfect ridge without kinks or twists.

FRAME MAINTENANCE (Continued)

REPLACING SPOOL SEALS (Continued)

7. Apply a small amount of grease or heavy oil on the seal to protect it during assembly.
8. Pull the spool out toward the FRONT of the valve until the spool handle end is exposed. Insert a metal rod about 3 to 4 inches long, and up to ¼" diameter through the spool handle pin hole for use as a handle. Pull the spool slowly past the seal with a twisting motion to assist the movement. Continue to pull the spool until the BACK seal groove is exposed. DO NOT pull the spool too far as this will allow the seal in the FRONT seal groove to enter a spool groove and the seal will be cut when the spool is pushed back.
9. Install the new BACK seal in the same manner as the FRONT seal, taking care that the seal is not twisted or cut. Apply grease or heavy oil to the seal.
10. Push the spool into the housing past the back seal with a twisting motion until 5/16" of the polished surface of the spool remains exposed at the FRONT of the valve.
11. Reassemble all parts disassembled in Step #2.
12. Reassemble (in reverse order) all parts disassembled in Step #1. Use 12 ft. lbs. of torque to tighten assembly screw.

HYDRAULIC SYSTEM SCHEMATIC

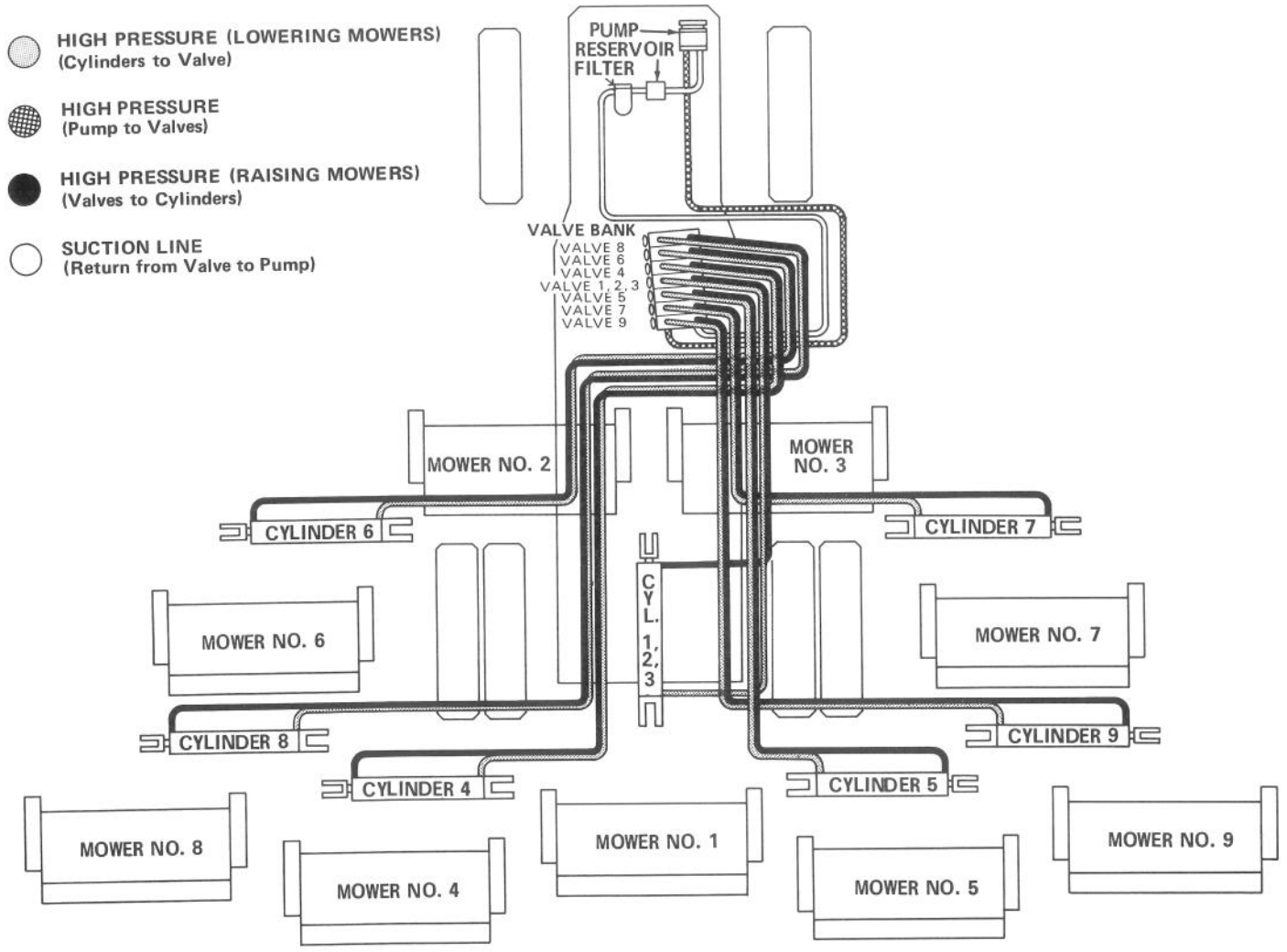


Figure 90

NOTE: Cylinders, mowers, and valves 1-5 used with Parkmaster 5.
Cylinders, mowers, and valves 1-7 used with Parkmaster 7.
Cylinders, mowers, and valves 1-9 used with Parkmaster 9.

RECOMMENDED PROCEDURE FOR STORAGE

If you wish to store the Parkmaster for a long period of time, the following steps should be accomplished prior to storage:

1. Wash and clean exterior of unit.
2. WITH THE ENGINE WARM, drain the engine oil and replace the drain plug.
3. Refill the oil pan to ½ its normal capacity with clean, high grade, SAE 50 oil.
4. Start the engine and run at about 700 RPM for at least one minute, but NO MORE THAN 2 minutes, to complete oil distribution to all surfaces.
5. Stop the engine and remove all of the spark plugs.
6. Pour 3 ounces of SAE 50 engine oil into each of the spark plug holes.
7. Pull the high-tension wire out of the top of the coil, and crank the engine with the starter for at least a dozen revolutions to distribute the oil over the cylinder walls and valve mechanism.
8. Replace all spark plugs, the high-tension coil wire, and all spark plug wires.
9. Drain the oil from the engine pan and replace the drain plug. Fill with regular weight oil.
10. Drain the coolant by opening the petcock at the bottom of the radiator AND the one at the left side of the engine block. After all the coolant has drained, close both of the petcocks.
11. Drain all the gasoline from the fuel tank, lines, and carburetor bowl.
12. Seal the air cleaner inlet and the exhaust outlet with weather-proof masking tape. Prior to applying the masking tape, wipe all oily or greasy surfaces to which the tape must adhere with a rag saturated with gasoline. After the oil or grease is removed, wipe the surface dry with a clean, dry rag.
13. Make certain that the oil filler cap, gas tank cap, and the radiator cap are securely in place.
14. Disconnect and remove the battery from the tractor. Coat the terminals with a light coating of petroleum jelly or gun grease. If possible, the battery should be stored in a COOL, DRY place. About once a month, check the liquid level and specific gravity of each cell. When the battery has a full charge, the specific gravity should be 1.250.
15. Place the transmission lever in the neutral position and apply the hand brake.
16. Jack up the front of the tractor until the wheels are just off the ground and place blocks under the front axle.
17. Jack up the rear of the tractor in the same manner as above and place blocks under the rear axle.
18. If possible, cover the entire unit with a heavy piece of plastic or a canvas drop-cloth.
19. Place all frame lift arms in transport position.
20. Lubricate frame.
21. If unit is stored with mowers attached, coat cutting edges of reels and bed knives with grease.
22. Drain engine oil and replace with recommended oil when taking unit out of storage.

TROUBLE SHOOTING CHART

This Trouble Shooting Chart is intended as a guide to assist in correcting some of the common problems which may occur. Most of the "Remedies" can be performed with common hand tools. The Chart is not intended as a guide for major overhaul procedures. For problems which are not covered in this Trouble Shooting Chart or this Owner's Manual, consult your Toro Distributor.

SECTION I ENGINE

HARD STARTING

TROUBLE	POSSIBLE CAUSE	REMEDY
Slow Cranking	Heavy engine oil.	Change to lighter oil.
	Partially discharged battery.	Charge battery.
	Faulty or undercapacity battery.	Replace battery.
	Poor battery connections.	Clean and tighten or replace connections.
	Faulty starter solenoid.	Replace or repair solenoid.
	Faulty starting motor or drive.	Overhaul starting motor.
Low Cylinder Compression	Burned or warped valves.	Overhaul cylinder head.
	Improper valve lash.	Adjust to proper clearance.
	Worn or broken piston rings.	Overhaul engine.
	Defective cylinder head gasket.	Replace gasket.
Lack of Fuel	Fuel lines clogged.	Clean fuel lines.
	Low fuel supply.	Check amount of fuel in tank, fill if supply is low.
	Clogged vent in fuel tank cap.	Clean or replace cap.
	Break in fuel supply line allowing air to be drawn into fuel line.	Replace or repair lines.
	Clogged fuel filter or filters.	Service filters as recommended.
	Water or ice in fuel system.	Thaw if frozen, and drain water out of tank and filters.
	Defective fuel pump.	Make pressure test at pump outlet.
	Dirty carburetor.	Clean carburetor.
	Carburetor choke inoperative, or not properly adjusted.	Check choke operation and adjust as necessary.
Ignition troubles	Distributor points burned or corroded.	Clean or replace points.
	Distributor points out of adjustment.	Adjust point gap.
	Faulty spark plugs.	Clean or replace and adjust spark plug gap.
	Defective wiring.	Inspect wiring and correct as required.
	Ignition out of time.	Set ignition timing.
	Cracked distributor cap.	Replace.
	Defective ignition coil or condenser.	Test coil and condenser; replace if necessary.
LACK OF POWER		
Poor Compression	Incorrect valve lash.	Adjust to correct clearance.
	Leaky valves.	Remove cylinder head and grind valves.
	Valves or lifters sticking.	Free up or replace.
	Weak or broken valve springs.	Replace defective springs.
	Valve timing incorrect.	Correct the valve timing.
	Blown cylinder head gasket.	Replace gasket.
	Broken or stuck piston rings.	Free up or replace piston rings.
	Worn pistons, ring, and/or cylinder bores.	Overhaul engine.
Ignition System Malfunction	Ignition out of time.	Set ignition timing.
	Defective spark plugs.	Clean or replace spark plugs.
	Distributor points worn or out of adjustment.	Clean and adjust points or replace.
	Cracked distributor cap.	Replace.

TROUBLE SHOOTING CHART (Continued)

LACK OF POWER (Continued)

TROUBLE	POSSIBLE CAUSE	REMEDY
Lack of Fuel	Dirt or water in carburetor.	Clean carburetor.
	Gas lines partly clogged.	Clean gas lines.
	Dirt in gas tank.	Clean gas tank.
	Air leaks in gas line.	Tighten and check gas lines.
	Fuel pump not functioning properly.	Replace or repair fuel pump.
	Governor malfunction.	Repair or replace governor.
Excessive Fuel (Flooding)	Choke not fully open.	Check choke and adjust control.
	Air cleaner restricted.	Service air cleaner.
	Carburetor float valve not seating.	Clean float valve and set float level.
	Rich mixture at idle speed.	Adjust carburetor idle mixture.
Faulty Acceleration	Defective carburetor.	Repair or replace carburetor.
	Defective governor.	Repair or replace governor.
	Air leak at intake manifold.	Replace gaskets and/or manifold.
	Faulty ignition wiring.	Inspect for excessive resistance and defective insulation.
	Misfiring spark plugs.	Clean and/or replace spark plugs.
	Lack of cylinder compression, due to worn piston rings, burned valves, or defective head gasket.	Replace defective parts or overhaul engine.
	Exhaust back pressure too high.	Replace or repair defective exhaust system components.
OVERHEATING		
Overheating	Loose or defective fan belt.	Adjust or replace belt.
	Thermostat not opening.	Replace thermostat.
	Coolant loss.	Check for leaks and repair as necessary.
	Partially clogged radiator.	Clean radiator core internal passages, and air passages.
	Defective water pump.	Repair or replace pump.
	Incorrect ignition or valve timing.	Retime engine.
	Dragging brakes.	Adjust or repair brakes.
	Restricted exhaust system.	Clean or replace exhaust system components.
	Improper valve clearances.	Adjust valve clearance.
	Ignition distributor advance inoperative.	Repair distributor to correct malfunction.
	Overloaded vehicle.	Reduce load per vehicle rating.
ROUGH IDLE AND/OR STALLING		
Erratic running or surging	Idle mixture too rich.	Adjust idle mixture screws.
	Improper ignition timing.	Set timing.
	Vacuum leak (air entering intake manifold).	Replace gasket, or tighten manifold bolts.
	Inoperative crankcase ventilation valve.	Clean or replace valve.
	Cylinder head gasket leaking or, cylinder head cracked.	Replace cylinder head or gasket.
	Worn valve guides.	Overhaul cylinder head.
Stalling	Engine idle speed set too slow.	Adjust idle speed to specifications.
	Engine running too cool.	Install proper thermostat.
	Exhaust restricted.	Repair exhaust system to eliminate excessive back pressure.
	Carburetor flooding.	Replace defective float valve, set carburetor float level. Check fuel pump for excessive pressure.
	Defective fuel pump.	Replace pump.

TROUBLE SHOOTING CHART (Continued)

DETONATION
(SPARK KNOCK OR PING ON ACCELERATION)

TROUBLE	POSSIBLE CAUSE	REMEDY
Spark knock or ping on Acceleration	Ignition advance too far for fuel being used.	Retard ignition timing.
	Wrong type (heat range) spark plug.	Install correct spark plug.
	Excessive build-up of deposits in combustion chambers.	Clean combustion chambers.
	Restricted coolant passages in cylinder head causing "hot spots" in combustion chamber.	Remove cylinder head and clean passages.
	Overheated engine.	Make corrections to lower the engine operating temperature. (Refer to "Causes" and "Remedies" previously covered under "Overheating.")
	Lugging engine.	Use lower transmission gear to prevent overloading engine.
HIGH LUBRICATING OIL CONSUMPTION		
High Oil Consumption	Oil lines or connections leaking.	Tighten or replace defective parts.
	Leaking gaskets.	Replace gaskets as necessary.
	Crankcase oil level too high.	Drain crankcase and refill to correct level.
	Crankshaft oil seals worn.	Replace oil seals.
	Pistons and/or rings worn, or pistons damaged; cylinder bores scored or worn.	Overhaul engine.
LOW ENGINE OIL PRESSURE (When checked with engine at normal operating temperature)		
Low Engine Oil Pressure	Defective oil gauge or sending unit.	Check pressure with master gauge. Replace oil gauge or sending unit if defective.
	Oil viscosity too low.	Fill crankcase with correct oil.
	Oil diluted with gasoline.	Check for indications of choke malfunction or carburetor flooding allowing gasoline to enter crankcase. Make necessary correction.
	Suction loss.	Check for loose intake pipe and screen in oil pan. Also check for partially clogged inlet screen.
	Weak or broken relief valve spring in oil pump.	Inspect spring and replace if necessary.
ENGINE NOISE		
Valve Mechanism Noise	Sticking valves.	Clean and lubricate valve stems.
	Incorrect valve lash.	Adjust valve lash.
	Bent push rod(s).	Determine and correct cause of push rod bending. Install new push rod.
	Worn rocker arms and/or shaft.	Replace worn parts and make sure oil is reaching valve rocker arms.
	Broken valve spring.	Replace spring.
	Damaged valve lifter and/or camshaft.	Replace lifter and/or camshaft.
Bearing Noise	Insufficient oil supply.	Check oil level and add oil as required.
	Low oil pump pressure.	Remove and inspect oil pump and inlet screen. Make necessary corrections.
	Thin or dilute oil.	Change oil. Use oil with proper viscosity.
	Excessive bearing clearance.	Remove oil pan and make bearing replacement or repairs.
	Piston pins loose fit in connecting rod or piston.	Install new piston pins (oversize pins if required).
	Piston to cylinder bore clearance excessive (piston slap).	Overhaul engine.
NOTE: When diagnosing engine noise problems, be careful that noises caused by accessories such as governor or hydraulic pumps are not mistaken for engine noises. Removal of accessory drive belts will eliminate any noises caused by these units.		

TROUBLE SHOOTING CHART (Continued)

SECTION II STEERING GEAR AND PUMP

TROUBLE	POSSIBLE CAUSE	REMEDY
Hissing noise in steering gear	There is some noise in all power steering systems. One of the most common is a hissing sound most evident at standstill parking. There is no relationship between this noise and performance of the steering. "Hiss" may be expected when steering wheel is at end of travel or when slowly turning at standstill.	Slight "hiss" is normal and in no way affects steering. Do not replace valve unless "hiss" is extremely objectionable. A replacement valve will also exhibit slight noise and is not always a cure for the objection. Investigate clearance around flexible coupling rivets. Be sure steering shaft and gear are aligned so flexible coupling rotates in a flat plane and is not distorted as shaft rotates. Any metal-to-metal contacts through flexible coupling will transmit valve "hiss" through the steering column.
Rattle or chuckle noise in steering gear	Gear loose on frame.	Check gear-to-frame mounting screws. Tighten mounting screws.
	Steering linkage looseness.	Check linkage pivot points for wear. Replace if necessary.
	Pressure hose touching other parts of vehicle.	Adjust hose position. Do not bend tubing by hand.
	Loose pitman shaft over center adjustment.	Adjust to specifications.
Belt squeal (particularly noticeable at full wheel travel and standstill parking)	Loose belt.	Adjust belt tension to specification.
Growl noise in steering pump	Excessive back pressure in hoses or steering gear caused by restriction.	Locate restriction and correct. Replace part if necessary.
Groan noise in steering pump	Low oil level.	Fill reservoir to proper level.
	Air in the oil. Poor pressure hose connection.	Tighten connector to specified torque. Bleed system by operating steering from right to left—full turn.
Rattle or knock noise in steering pump	Loose pump pulley nut.	Tighten nut to specified torque.
Momentary increase in effort when turning wheel fast to right or left	Low oil level in pump.	Add power steering fluid as required.
	Pump belt slipping.	Tighten or replace belt.
	High internal leakage.	Check pump pressure.
Hard steering or lack of assist	Loose pump belt.	Adjust belt tension to specification.
	Low oil level in reservoir. NOTE: Low oil level will also result in excessive pump noise.	Fill to proper level. If excessively low, check all lines and joints for evidence of external leakage. Tighten loose connectors to 30-ft-lbs.
	Steering gear to column misalignment.	Align steering column.
	Lower coupling flange rubbing against steering gear adjuster plug.	Loosen pinch bolt and assemble properly.
	Tires not properly inflated.	Inflate to recommended pressure.
Foaming milky power steering fluid, low fluid level and possible low pressure.	Air in the fluid, and loss of fluid due to internal pump leakage causing overflow.	Check for leak and correct. Bleed system. Extremely cold temperatures will cause system aeriation should the oil level be low. If oil level is correct and pump still foams, remove pump from vehicle and separate reservoir from housing. Check welsh plug and housing for cracks. If plug is loose or housing is cracked, replace housing.

SECTION III PARKMASTER FRAME AND MOWER

Mowers cannot be raised or lowered.	Insufficient hydraulic oil supply.	Check level in reservoir.
	Worn hydraulic pump.	Rebuild or replace pump.
	Defective seal on hydraulic cylinder piston.	Replace defective seal.
Mowers do not follow terrain	Lack of downward travel.	Fully extend all hydraulic cylinders.
One mower drive wheel skids.	Both gear trains not engaged on mower.	Engage both gear trains.
Tractor rear wheels hit #2 and #3 cutting units.	Mowers incorrectly installed on frame.	See installation instructions and photos.

MAINTENANCE RECORD

Date	Engine Oil	Engine Oil Filter	Air Cleaner	Fuel Filters	Power Steering Oil Change	Hydraulic System Oil Change	Hydraulic System Filter Change	Rear Axle & Transmission Lube	Chassis Lubrication	Engine Tune-Up

MAINTENANCE RECORD

Date	Engine Oil	Engine Oil Filter	Air Cleaner	Fuel Filters	Power Steering Oil Change	Hydraulic System Oil Change	Hydraulic System Filter Change	Rear Axle & Transmission Lube	Chassis Lubrication	Engine Tune-Up

MAINTENANCE RECORD

Date	Engine Oil	Engine Oil Filter	Air Cleaner	Fuel Filters	Power Steering Oil Change	Hydraulic System Oil Change	Hydraulic System Filter Change	Rear Axle & Transmission Lube	Chassis Lubrication	Engine Tune-Up

PRODUCT CHANGES

In an effort to make improvements available to TORO owners as quickly as possible, minor changes are incorporated into Toro's products from time to time that do not become immediately shown in the Parts Catalog. If such a change apparently has been made in your unit, which is not reflected in your manual, see your TORO distributor or his Authorized TORO Service Dealer for information and part numbers.

IMPORTANT ORDERING INSTRUCTIONS

Repair parts are available from your Authorized TORO Service Distributor. To insure getting correct parts without delay, furnish the following information:

1. Model and serial number of your unit as shown on the name plate.
2. Part number, description, and quantity of each part required.
3. State whether parts should be shipped by mail or express. All repair parts are shipped F.O.B. Factory.
4. Name and address where parts are to be shipped.
5. Do not order by reference number; use part number only.

THE TORO PROMISE

It is Toro's policy to design and produce TORO products to provide our customers with a high level of performance and durability in normal operation. Our products, however, are produced in high volume, and it is inevitable that occasionally a unit will reach a customer with a defect in materials or workmanship which causes that unit to fall below the normal high level of TORO performance. Invariably, such a defect will be noticed in a residential product within one year, and in an institutional product within ninety days after purchase. Recognizing this possibility, Toro has established a simple guarantee policy and procedure that is intended to assure customer satisfaction. This guarantee statement is as follows:

The Toro Promise

The Toro Company promises to repair any TORO product for the original purchaser if defective in materials or workmanship. The following time periods from the date of purchase apply:

Residential products	1 year
Residential products used commercially	45 days
Institutional products	90 days

The costs of parts and labor are included, but the customer pays the transportation costs. Just return any residential product to an Authorized TORO Service Dealer, or any institutional product to a TORO distributor.

Should you feel that a product is defective, and wish to rely on The Toro Promise, the following procedure is recommended:

1. Contact any TORO dealer or distributor, but preferably the dealer or distributor from whom you purchased the product.
2. He will instruct you to either return the product to him, or tell you the name and address of your nearest Authorized TORO Service Dealer if the product is to be returned to such dealer.
3. Take the product and your original sales slip, or other evidence of purchase date, to the servicing dealer.
4. The servicing dealer will inspect the unit, advise you whether the product is defective and, if so, make all repairs necessary to correct the defect without extra charge to you.

If for any reason you are dissatisfied with the dealer's analysis of the defect or the service he performs, we urge you to contact us. Write:

TORO "Customer Care" Department
8111 Lyndale Avenue South
Bloomington, Minnesota 55420

Litho in U.S.A.