

FMC CORPORATION  
 OUTDOOR POWER EQUIPMENT DIVISION

MODEL HT-20  
 (2087)

# OWNER MANUAL

## BOLENS TRACTOR



### WITH HYDROSTATIC AND K532S KOHLER ENGINE

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## TO THE OWNER

This is an operational and general maintenance manual which does not attempt to cover major repairs. All major repair work must be performed by an AUTHORIZED DEALER for the factory guaranty to be valid. BOLENS equipment is carefully designed, engineered, and manufactured to give good performance if properly operated and maintained.

The AUTHORIZED DEALER will repair or replace any parts which fail due to defective material or workmanship during the guaranty period. He will also provide continuing repair service and supply factory replacement parts.

CONTACT YOUR DEALER FOR ANY REPLACEMENT PARTS OR SERVICE NEEDED. DO NOT RETURN PARTS DIRECTLY TO THE FACTORY. THE FACTORY REQUIRES PRIOR APPROVAL ON RETURNS, AND APPROVALS ARE ISSUED ONLY TO BOLENS DEALERS OR DISTRIBUTORS.

READ YOUR GUARANTY AND BE SURE THE POST-PAID GUARANTY REGISTRATION CARD IS MAILED TO THE FACTORY.

## GENERAL SAFETY PRECAUTIONS

**CAUTION**

Preventing accidents is the responsibility of every equipment operator. The following general safety precautions *must* be fully understood and followed by every operator of this tractor and its attachments. Review them frequently and NEVER TAKE CHANCES. BE CAREFUL BEFORE, DURING AND RIGHT AFTER USE OF ANY POWERED EQUIPMENT. ACCIDENTS CAN BE PREVENTED.

1. Study your manual. Know your tractor before operating it. Take time to operate the unit in the safest manner.

2. Study all attachment manuals thoroughly before using attachments with tractor. By doing so you will be aware of both the tractor and attachment capabilities when used as a unit, and also the safest manner in which to operate them.

3. Always follow manufacturer's operational suggestions.

4. Do not fill gasoline tank while engine is running or hot. Add gas (using funnel) only outdoors and when engine is cool. KEEP SMOKERS AND FLAMES AWAY FROM UNIT WHILE FUELING. This will help eliminate the possibility of fire and/or explosion from spilled gasoline or fumes.

5. Refuel tractor from the Left side, the side on which the fuel tank is mounted. This is safer and more convenient than reaching over engine with fuel can.

6. Store fuel in approved container out of reach of children. Do not store fuel in the house. Gasoline is highly flammable and the fumes highly explosive.

7. Never wear loose clothing when operating unit. Loose clothing can get caught in moving parts and cause severe injuries.

8. Mount vehicle, engage foot brake and put P.T.O. lever in OFF position prior to starting engine. Starter will not operate unless foot brake is engaged and P.T.O. lever is in OFF position.

9. Do not mount or leave vehicle while it is in motion or in actual operation, nor leave vehicle unattended while engine is running. Injury to the operator or a tractor run-away could occur.

10. Always shut off engine, remove key, and lock brake in PARK whenever vehicle is to be left unattended. Also, lower all attachments to the ground and place P.T.O. lever in OFF position to prevent injury to bystanders.

11. Never operate tractor with mower, snow caster, or any other attachment having moving parts, when any child or another person is in travel path or discharge area. *Children must not be allowed in or near working areas when equipment is being used.* Items or objects such as wire, stones, small toys and etc. can be ejected at high velocity out of the discharge chute. Clear work area of all objects which might be picked up and thrown.

**CAUTION**

12. Always look back to be certain no one is in the way before using reverse. This will avoid the possibility of running over any children, other persons or pets who might be in the area in back of the vehicle.

13. Children shall not be allowed to operate vehicle at any time. The average child is not capable of coping with the intricacies of operating a power tool.

14. Do not allow adults to operate vehicle without proper instructions including all safety instructions. In doing so, you will be sure they know how to operate unit properly and also are aware of all the safety precautions.

15. Attachments must be lowered to the ground when storing tractor. This will prevent the attachment from being dropped accidentally and causing injury. Place P.T.O. lever in OFF position.

16. Do not tow vehicle. Damage to the vehicle could occur.

17. Use care when pulling heavy loads. Use only the approved draw bar hitch. Limit loads to those which you can safely handle.

18. Do not carry passengers. The passenger could fall off the vehicle and be injured.

19. Keep tractor and attachments free of excess grease and oil. The unit will operate cooler, be easier to maintain, and safer to operate.

20. Engine must be stopped, and P.T.O. disengaged when cleaning, servicing, adjusting, repairing, or installing attachments on tractor. This is necessary to avoid possible injury from moving parts.

21. Always disconnect negative (-) battery cable from battery before doing any work on the electrical system. Reconnect it LAST when work is done. This is to prevent accidental burns and shorting of electrical system.

22. Before starting unit check to be sure *all* guards and safety devices are in place and in working condition. This will help assure you against possible injury.

23. Do not drive this unit on a public thoroughfare at any time. The operator is risking injury from passing vehicles. Most local ordinances prohibit operating a unit such as this on a public thoroughfare.

24. Do not drive too close to a creek or ditch; also be alert for holes and other hazards. If you would drive into any of the above you could lose control of the unit.

25. Be careful on slopes, reduce speed and avoid sharp turns to prevent tipping or loss of control. Do not stop or start suddenly when going uphill or downhill.

26. Do not start or operate vehicle in an inside area, unless it is adequately ventilated. Engine exhaust contains carbon monoxide fumes, which are very poisonous.

27. Do not operate attachments when transporting vehicle.

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## GENERAL SAFETY PRECAUTIONS (Continued)

28. Always wear substantial footwear to provide as much protection as possible.
29. *Do not* change engine governor setting or overspeed the engine.
30. Watch out for traffic, when crossing or near roadways, to avoid possible injury from passing vehicles.
31. Keep all nuts, bolts, and screws tight to be sure equipment is in safe working condition. Check blade mounting bolts, for proper tightness, at frequent intervals.
32. When using attachments never direct discharge of material toward bystanders or pets.
33. After striking foreign objects, stop the unit, shut off engine. Inspect for damage and repair the damage before restarting and operating equipment.

### **AVOID ACCIDENTS** **BE A SAFE OPERATOR**

To read reports from all over the country is to be convinced that a large number of accidents can be prevented only by the operator anticipating the result before the accident is caused and doing something about it. No power equipment can be safer than the man who is at the controls. If accidents are to be prevented — and they most certainly can be prevented — operators must accept their full measure of responsibility.

It is true that the designer, the manufacturer and the safety engineer can help, but their combined efforts can be wiped out by a single careless act.

It is said that "the best kind of safety device is a careful operator." We ask you to be that kind of person.

**NATIONAL SAFETY COUNCIL**

## SERIAL NUMBER

To ensure prompt service when repairs or adjustments are required, your Bolens dealer must have the following information. For your own personal reference, fill in the serial number spaces provided below.

Model number of Tractor. (Fig. 1) 2087

Serial number of Tractor. (Fig. 1)

Engine Model Number. (Fig. 2) K532S

Engine Serial Number. (Fig. 2)

Engine Spec. Number. (Fig. 2)

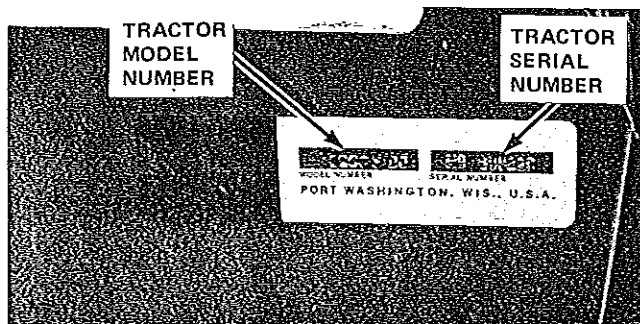


Figure 1

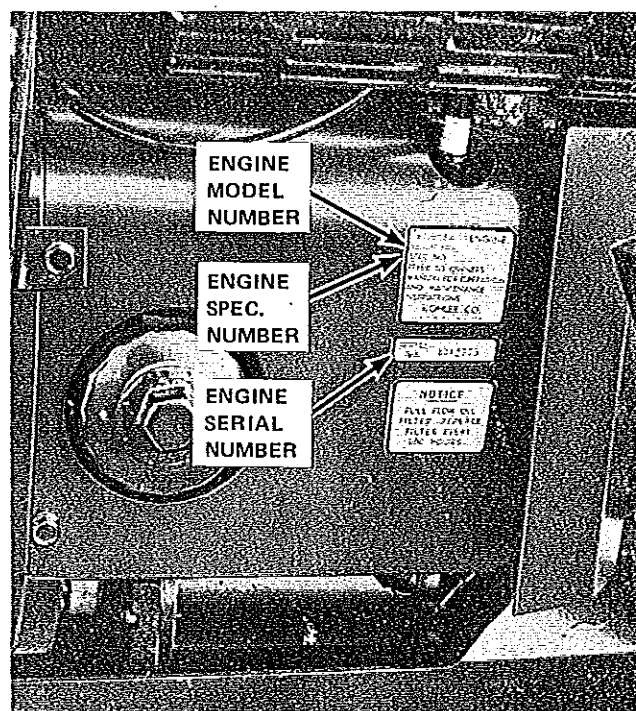


Figure 2

## SPECIFICATIONS

BOLENS RESERVES THE RIGHT TO MAKE CHANGES OR IMPROVEMENTS TO ITS PRODUCTS WITHOUT OBLIGATION TO INSTALL SAME ON PRODUCTS PREVIOUSLY MANUFACTURED.

Engine ..... Kohler, no load speed at 3600 rpm  
 Engine Governed speed ..... 3450 rpm  
 Manufacturers hp rating ..... 19.5 hp at 3450 rpm  
 Type ..... 4 cycle, 2 cylinder, air cooled  
 Fuel capacity ..... 5.3 gallons  
 Engine oil capacity, 3 quarts + 1 pint with filter change  
 Air cleaner ..... Dry type  
 Drive ..... Hydrostatic transmission  
 Transmission oil capacity ..... 10 quarts  
 Speed, Infinitely

variable ..... Forward: approx. 0-8 mph  
 Reverse: approx. 0-4 mph

Power to attachments ..... Triple belt drive (P.T.O.)  
 with universal joints and  
 splined shaft.

High Flotation Lawn &  
 Garden Tires ..... 26 x 12.00-12 Rear  
 18 x 8.50-8 Front

Height ..... 45 inches  
 Overall Width .....  
 ..... With Terra Tires - 46 inches  
 Length ..... 75 inches  
 Wheelbase ..... 52 inches  
 Turning radius ..... 54 inches  
 Ground clearance - rear axle ..... 8-1/2 inches  
 Shipping weight ..... 1090 lbs.  
 Standard equipment ..... P.T.O. splined shaft to drive

front, center, or rear attachments; hydraulic lift system; electric starting; head lights and taillights; full fenders; adjustable moulded contour seat with spring suspension (easily removable for weather protection); 45 amp battery; interlock switches to prevent tractor from being started in drive and with P.T.O. lever in ON position; tapered roller bearing front wheels and replaceable spindle bushings; automotive type muffler; coil ignition; rectifier-regulator; ammeter; extra-heavy channel frame.

# CONTROLS

## LOCATION AND FUNCTION

Before operating the tractor, the operator should become familiar with the function and location of each control to ensure proper and efficient operation.

The following listed numbers and accompanying information correspond to those numbers assigned to the controls indicated in Figure 3.

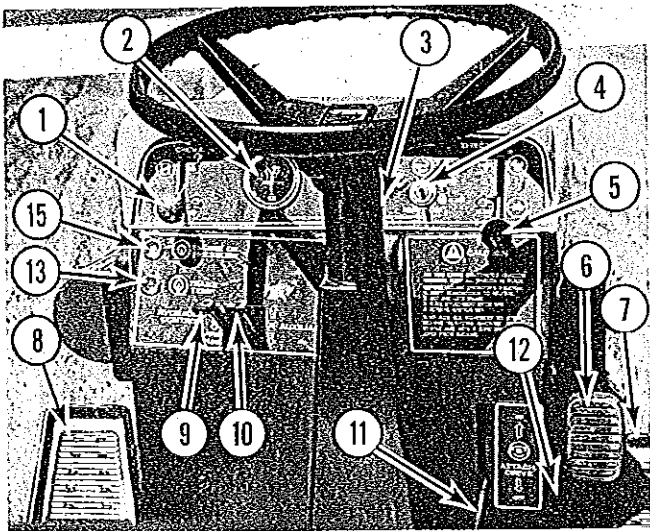
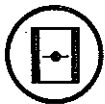


Figure 3



**1. CHOKE.**  
Provides a richer fuel mixture for easy starting.



**2. AMMETER.**  
Indicates rate of charge to or discharge from battery.



**3. LIGHT SWITCH.**  
Off-on positions.

**4. IGNITION-STARTER SWITCH.**  
Off-run-start positions.

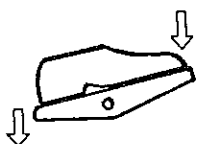
Turn ignition key to the right to start engine. Release when engine starts.



**5. THROTTLE.**  
Controls engine speed.

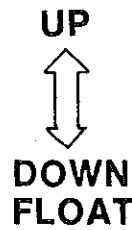


**6. FOOT BRAKE.**  
Use when vehicle is being moved or free-wheeling.



**7. TRAVEL PEDAL.**  
Neutral-Forward-Reverse.  
Depress pedal with toe of foot for forward motion. Depress with heel of foot for reverse motion.

**8. FOOT REST.**



**9. HYDRAULIC LIFT LEVER.**  
Pull lever up to raise and push lever down to lower attachments. Push lift lever all the way down to lock for FLOAT position.



**10. HYDRAULIC CONTROL LEVER.**  
This lever regulates the auxiliary control-cylinders on any attachments which are plugged into either the front or rear auxiliary hydraulic connections.



**11. ATTACHMENT DRIVE LEVER.**  
Engages and disengages power to attachments. Move lever up to engage P.T.O. and down to disengage.

**12. PARKING LOCK.**  
Depress foot brake and raise lock to set.

**13. HYDROSTATIC OIL TEMPERATURE LIGHT.**  
Indicates when hydrostatic transmission and hydraulic system becomes overheated.

**14. OPTIONAL HOUR METER.**  
Can be purchased as an option through your Bolens Dealer.

**15. OIL PRESSURE LIGHT.**  
Indicates when engine oil pressure is low.

## ⚠ CAUTION

1. Keep all shields and guards in place.
2. Before leaving operator's position:
  - Shift transmission to NEUTRAL
  - Set parking brake
  - Disengage attachment clutch
  - Shut off engine and remove Ignition key.
3. Wait for all movement to stop before servicing machine.
4. Keep people and pets a safe distance away from machine.

## PRE-OPERATIONAL CHECKS

The operator should become familiar with the following pre-operational check list prior to starting or operating the Bolens; REFER TO MAINTENANCE SECTION OF MANUAL, page 13.

1. Check for proper level of engine oil. Fill crankcase through dipstick opening. The oil level is indicated by marks on the dipstick. See Figure 4.

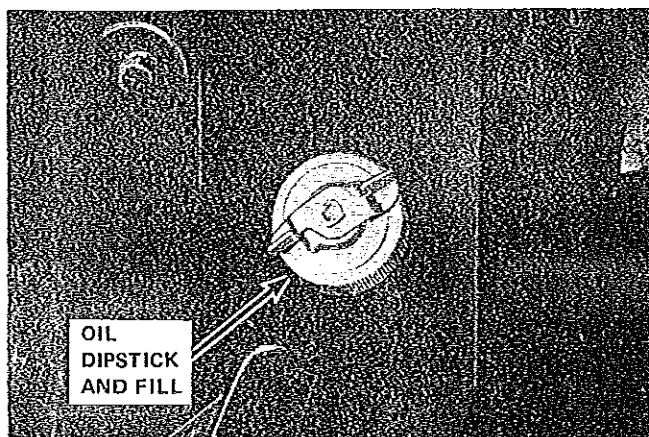


Figure 4

2. Check gasoline tank for sufficient gas supply. Use only a good grade of fresh clean regular or low lead gasoline.



**KEEP SMOKERS AND FLAMES AWAY WHEN REFUELING. BE CAREFUL NOT TO SHORT FUEL CAN ON ELECTRICAL CONNECTIONS.**

3. Inspect battery for:

- A. Proper electrolyte level.
- B. Clean cables.
- C. Clean terminals.

Refer to Figure 5 for battery and its location.

4. Check to see that air cleaner element is free of debris. Check and clean regularly. Refer to Figure 5.

5. Clean flywheel screen. Check and clean regularly. Refer to Air Screen, Maintenance Section, page 13.

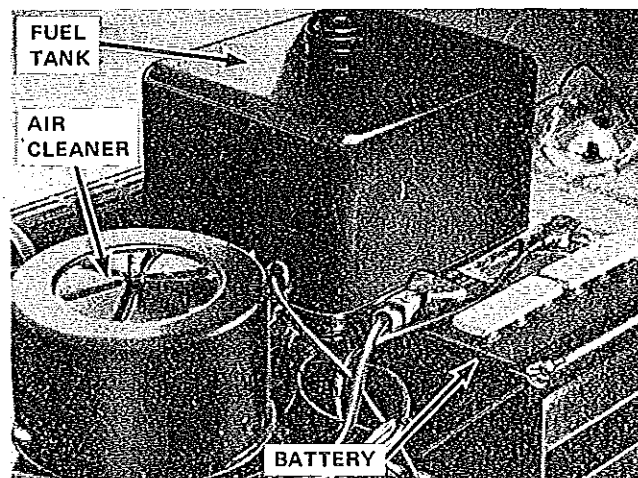


Figure 5

6. Visually check for loose or missing nuts, screws, and damaged parts. Replace and tighten before starting engine.

7. Check for even tire inflation. FRONT AND REAR TIRE INFLATION SHOULD NOT BE LESS THAN 8 LBS. NOR MORE THAN 12.

8. With transmission cold, thoroughly clean area around hydrostatic transmission dipstick and fill tube. Remove dipstick and check transmission fluid level. Level must be maintained in the operating zone. Refer to Figure 6.

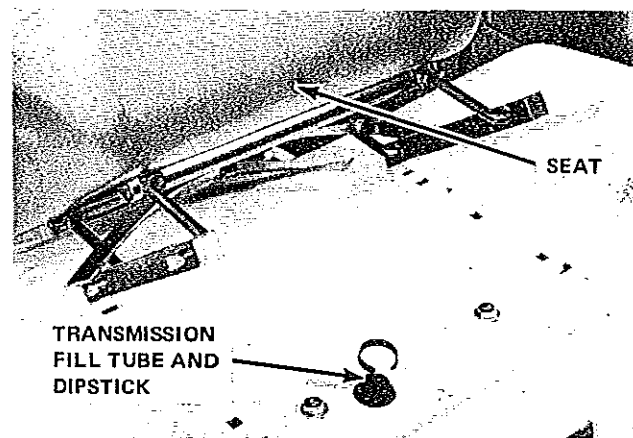


Figure 6

## BREAK-IN PERIOD

The engine should be placed under load, but not overloaded, from the very beginning as this will improve the final seating of the rings.

A special "break-in" oil is used at the factory during the engine test and run-in period. After factory "run-in", the special oil is drained and the engine filled with 10W30 SD grade oil. Further use of "break-in" oil is not required nor recommended for new Kohler Engines.

**NOTE: AFTER RUN-IN OF NEW ENGINES, USE OIL RECOMMENDED IN LUBRICATION CHART. (Page 24.)**

The engine oil level must be maintained in the "safe" operating range at all times. Oil level must be between the L (low) and F (full) marks on the dipstick. Always clean area around dipstick so that dirt does not fall into engine when dipstick is removed. Check daily and add oil as necessary to maintain proper level — **DO NOT OVERFILL.**

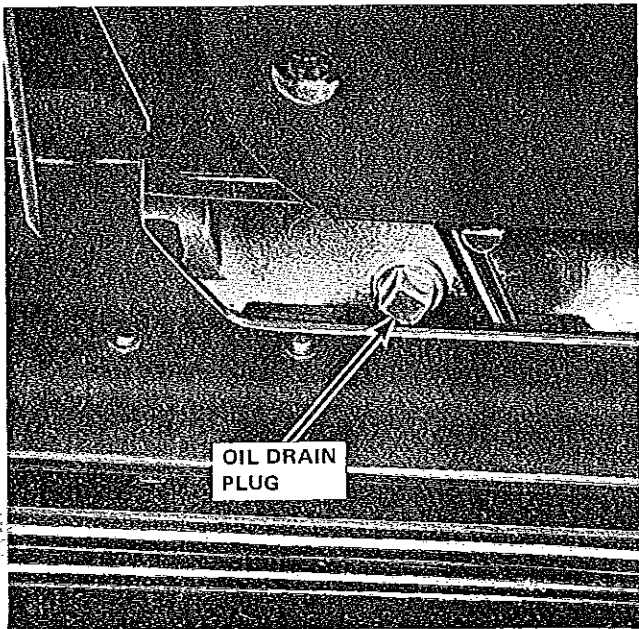


Figure 7

On a new engine, change oil after the first 5 hours and thereafter at 50 hours intervals. Drain oil (Figure 7) while it is hot for it will then flow more freely and thus carry away more impurities.

Change the oil filter at every other oil change (every 100 hours). Refer to Figure 8 for location.

After completely draining oil, reinstall drain plug then remove oil filler cap and add 3-1/2 quarts of oil. Check the oil level on the dipstick before adding more. Bring the level up in the safe range but do not exceed the full mark. If the oil filter has been changed, add one more pint (half quart) of oil. Select oil weight and type according to outside temperature. Refer to lubrication chart on page 24.

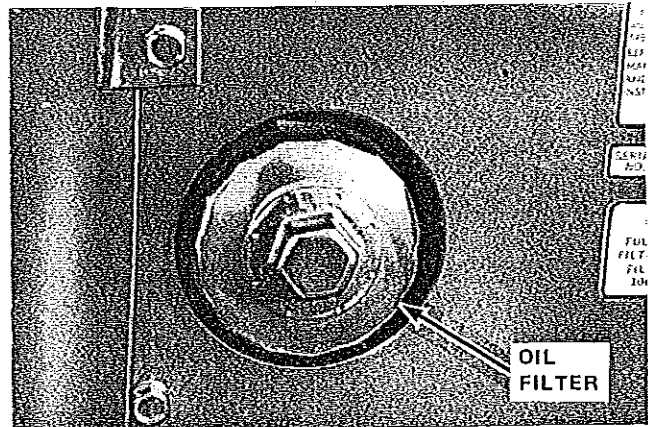


Figure 8



## STARTING THE ENGINE

### NORMAL STARTING

1. THE STARTER WILL ONLY OPERATE WHEN P.T.O. CONTROL LEVER IS IN "OFF" POSITION AND FOOT BRAKE DEPRESSED OR LOCKED IN PARK.
2. Move choke lever all the way up (choke on). Experience will indicate need for more or less choking due to variations in temperature, grade of fuel, etc.
3. Move throttle lever up about half-way.
4. Insert ignition key and turn to the right to start engine. Release when engine starts.

NOTE: To aid in starting during severe cold temperatures, open the "Free Wheeling Valve." Close valve after engine has warmed up.



**CAUTION**

IN THE EVENT OF A "FALSE START" (ENGINE GETS UP SUFFICIENT SPEED TO DISENGAGE STARTER BUT FAILS TO CONTINUE RUNNING), THE ENGINE MUST BE COMPLETELY STOPPED BEFORE ANOTHER STARTING ATTEMPT IS MADE. IF THE FLYWHEEL IS STILL ROTATING, THE DRIVE PINION AND RING GEAR WILL CLASH AND BE DAMAGED. LIMIT CRANKING (CONTINUOUS) TO A PERIOD OF 30 SECONDS TO PREVENT OVERHEATING OF THE STARTER. IF CRANKED UP TO 30 SECONDS, STARTER SHOULD NOT BE OPERATED AGAIN FOR 60 SECONDS TO ALLOW TIME FOR COOLING.

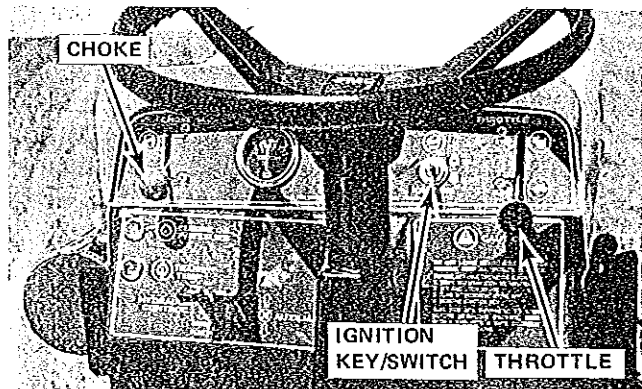


Figure 9

5. Move choke lever down about half-way as soon as engine starts. Gradually push all the way down as the engine warms up. In normal operation, choke lever must be in off (down) position for best engine efficiency and fuel economy.

### 6. MOVE THROTTLE LEVER UP TO FULL OPERATING SPEED WHEN OPERATING TRACTOR.

7. To stop the engine, bring engine back to idle, lock the brakes, place P.T.O. lever in "OFF" position and turn ignition switch off. Remove the ignition key when the tractor is not in use, or left unattended. If engine has been working hard let it idle several minutes before shutting it off. This will allow engine temperatures to normalize more rapidly, preventing overheating.

### EMERGENCY STARTING

In the event of electrical failure, get in touch with your DEALER for assistance in locating the trouble.

Should the battery be too low on power to start the unit, it is always best to remove it and have it recharged. However, should jumper cables be used the following must be observed.

1. REMOVE CELL CAPS WHEN USING JUMPER CABLES.
2. BE CERTAIN jumper cables are connected positive to positive and negative from the booster battery to the engine block of the tractor, NOT TO NEGATIVE (-) TERMINAL OF BATTERY. THIS IS TO PREVENT ANY SPARKS AND A POSSIBLE EXPLOSION OF THE BATTERY.
3. Check P.T.O. lever (must be in OFF position) and brakes locked.
4. Follow procedure outlined under Normal Starting.
5. Remove tractor battery and have it fully charged as soon as possible.

NOTE: DAMAGE TO THE ELECTRICAL SYSTEM WOULD RESULT IF THE BATTERY IS RECHARGED BY AN OUTSIDE SOURCE WHILE IN THE TRACTOR.

6. After the battery is fully recharged and has been checked, reinstall it in the tractor, connecting the negative cable last.

### CIRCUIT BREAKER

If electrical system fails while operating engine, shut engine off and let tractor stand a few minutes to allow circuit breaker to cool and reset. See Figure 26 for location.

## OPERATION

BEFORE DRIVING THE BOLENS TRACTOR, THE OPERATOR SHOULD BE FAMILIAR WITH THE LOCATION AND FUNCTIONS OF ALL CONTROLS. THE ENGINE WILL START ONLY WHEN P.T.O. LEVER IS IN OFF POSITION AND THE FOOT BRAKE DE-PRESSED OR LOCKED.

### FOOT AND PARKING BRAKE

Depress the foot pedal to apply the brakes. To place in park, depress the foot pedal to fully apply the brakes, hold pedal in this position and lift parking lock to lock pedal down. See Figure 10.

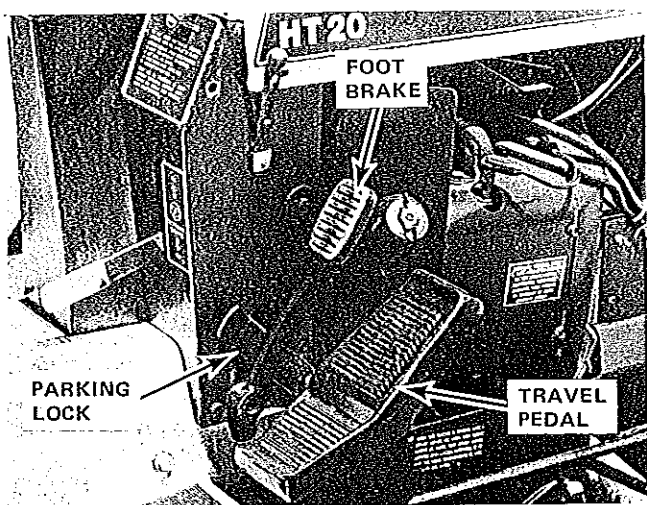


Figure 10

### HYDROSTATIC TRANSMISSION

The hydrostatic transmission gives the operator a choice of infinitely variable speeds from 0 to 8 mph forward, and 0 to 4 mph in reverse. Avoid excessive HIGH travel speed whenever possible. Lower travel speeds are best for most jobs such as snow casting or mowing.

It is required that the tractor operate at FULL THROTTLE. While operating under heavy load conditions, listen to the engine RPM. If the engine begins to labor, *do not advance the travel pedal*. By letting up on the travel pedal, the ground speed will decrease and the engine speed will increase, thereby allowing engine to maintain constant P.T.O. speed.

**NOTE: DO NOT DRIVE THE TRACTOR IMMEDIATELY AFTER START UP. LET THE ENGINE RUN A FEW MINUTES TO ALLOW HYDROSTATIC FLUID TO WARM UP FIRST. IN EXTREME COLD WEATHER THE TRACTOR SHOULD NOT BE DRIVEN UNTIL AFTER THE HYDRAULIC LIFT SYSTEM IS OPERATING. LENGTH OF WARM UP WILL BE DETERMINED BY TEMPERATURE.**

Release brake pedal, and slowly apply pressure to the travel pedal with toe of right foot for forward motion, or if reverse motion is desired, slowly apply pressure to travel pedal with heel of right foot. (See Figure 11.)

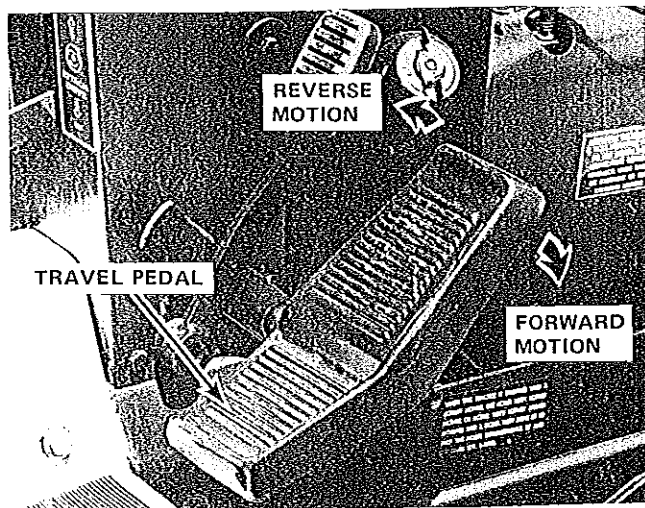


Figure 11

The travel (control) pedal is generally used for dynamic braking. To slow down or stop the tractor while it is in forward motion, gradually apply pressure to the travel control pedal with heel of right foot until tractor comes to a full stop. To slow down or stop the tractor while it is in reverse motion, apply pressure to travel control pedal with toe of right foot until tractor comes to a full stop.

If transmission "HOT LIGHT" comes on reduce draw bar loading. *Do not over crowd tractor.*

To move about manually, turn "Free Wheeling Valve" on Hydrostatic about one half turn counterclockwise to open. See Figure 12. Tractor can then be pushed. Push on the Right side of tractor so foot brake pedal can be used to stop tractor.

**NOTE: THE "L" SHAPED TUBULAR WRENCH PACKED WITH THE TRACTOR IS TO AID IN REACHING THE FREE-WHEELING VALVE. THE SLOT IN THE END OF THE LONG LEG FITS OVER THE HANDLE OF THE FREE-WHEELING VALVE.**

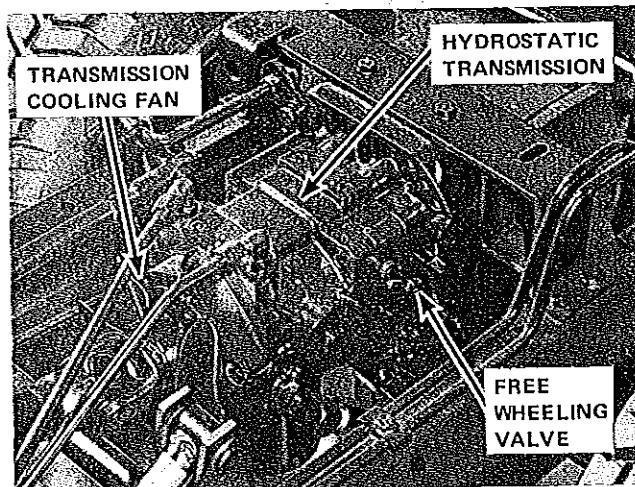


Figure 12

## OPERATION (Continued)

### HYDRAULIC LIFT VALVE

The hydraulic lift valve can be maneuvered while vehicle is at rest or in motion. Lift lever to raise and push down on lever to lower attachments. When released, lever will automatically return to NEUTRAL position and hold, except when in the FLOAT position. Push lift lever all the way down to lock in FLOAT position. The FLOAT position *must* be used when the operator wants the attached implement to follow ground contours independently. (See Figure 13) Consult your attachment manual for correct lift lever position.

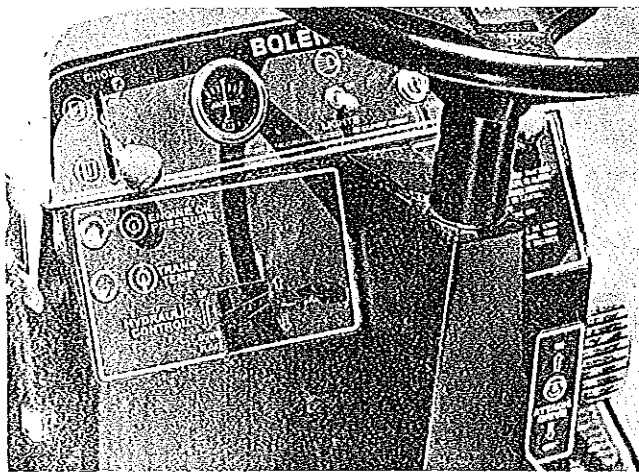


Figure 13



#### CAUTION

BE SURE ATTACHMENT IS COMPLETELY HOOKED UP BEFORE USING HYDRAULIC LIFT. DAMAGE COULD RESULT. MOVE THE ATTACHMENT THROUGH ITS COMPLETE RANGE SLOWLY TO MAKE SURE IT DOES NOT BIND OR HAVE INTERFERENCE. MAKE NECESSARY ADJUSTMENT IF REQUIRED.

### AUXILIARY VALVE

This is a 3 position valve, with the center position being "OFF" or "NEUTRAL." This valve is used only for operating small double acting cylinders on the remote or auxiliary hydraulically controlled attachments.

### AUXILIARY HYDRAULIC CONNECTIONS

Refer to Figures 14 and 15. These are connections for the auxiliary hydraulic controls. To use, clean all dirt and debris from around connections. Push lock collar back

towards tractor, remove rubber plugs and insert hydraulic hose end. When not in use, rubber cap plugs must be in place at all times to prevent entry of dirt into hydraulic system.

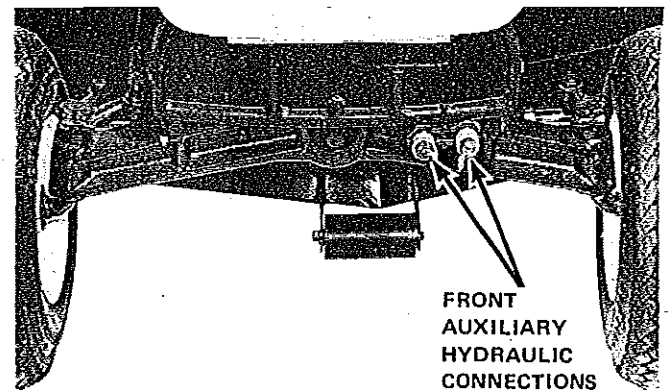


Figure 14

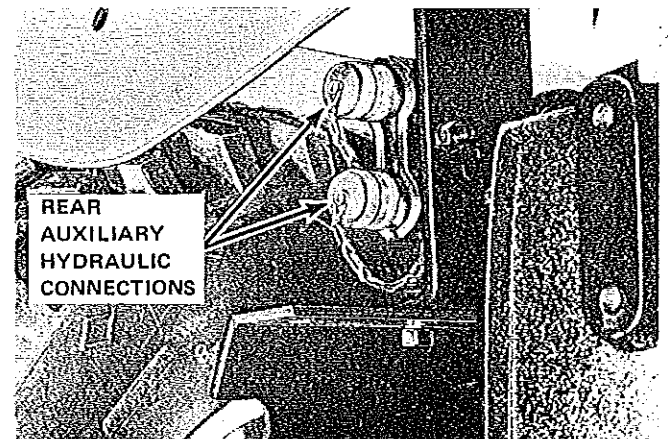


Figure 15

**NOTE: THESE CONNECTIONS MUST BE KEPT CLEAN. THIS IS NECESSARY TO PREVENT CONTAMINATION OF THE HYDRAULIC FLUID AND CONSEQUENT DAMAGE TO THE HYDRAULIC COMPONENTS.**

**ONLY BOLENS APPROVED ATTACHMENTS ARE TO BE ATTACHED TO THESE AUXILIARY HYDRAULIC CONNECTIONS. CONSEQUENTIAL DAMAGE TO THE HYDRAULIC SYSTEM COULD RESULT FROM THE USE OF UNAPPROVED ATTACHMENTS, THUS VOIDING WARRANTY.**

## OPERATION (Continued)

### HYDROSTATIC HEAT INDICATOR LIGHT

This light indicates when the fluid in the hydrostatic and hydraulic system is overheated. If this light comes on, shut the tractor off and let the system cool down. When restarting tractor operate at reduced load conditions. Do not crowd tractor under heavy loads.

**NOTE: IF THE HEAT INDICATOR LIGHT COMES ON FREQUENTLY DUE TO OPERATING AND LOAD CONDITIONS, WE REQUIRE THE INSTALLATION OF A MODEL 18087 OIL COOLER KIT.**

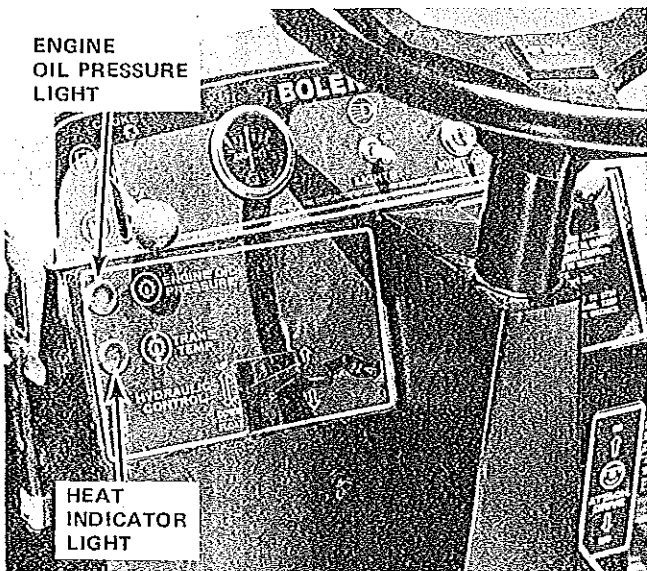


Figure 16

### ENGINE OIL PRESSURE LIGHT

This light indicates when the engine oil pressure drops below the safe operating level. If this light comes on check the crankcase oil level. Add oil if level is low. If the oil level is not low change the engine oil filter. If the light does not go off after performing the above see your Bolens Dealer.

### ATTACHMENT DRIVE

The attachment drive and hydrostatic transmission are separate systems; therefore the attachment drive can be engaged or disengaged at any time.

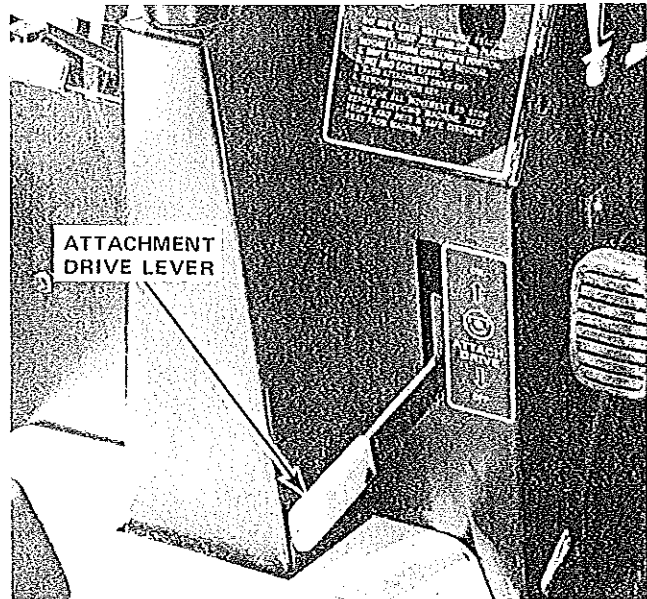


Figure 17

Move attachment drive lever UP and lock in detent to engage attachment drive. Move attachment drive lever DOWN to disengage attachment drive.



### CAUTION

DO NOT ENGAGE ATTACHMENT DRIVE WITHOUT AN IMPLEMENT ATTACHED. ALWAYS REMOVE UNIVERSAL JOINTS FROM ATTACHMENT DRIVE SHAFT AFTER ATTACHMENT IS REMOVED. SERIOUS DAMAGE WILL RESULT IF UNIVERSAL JOINTS ARE LEFT ON AND ATTACHMENT DRIVE IS ENGAGED.

**NOTE: WHEN TRANSPORTING TRACTOR ON AN OPEN TRAILER OR TRUCK EITHER REMOVE OR TIE DOWN THE SEAT TO PREVENT LOSING IT.**

## PREVENTIVE MAINTENANCE

A little time spent by the operator on preventive maintenance each day the unit is used will lead to longer operating life of the BOLENS tractor.

The removal of debris, dirt and grease accumulations are considered normal maintenance practices and can help discover minor difficulties before they become troublesome.

### LUBRICATION

See Lubrication Chart on page 24.

### ENGINE

The engine oil level must be maintained in the "safe" operating range at all times. Oil level must be between the "L" (low) and "F" (full) marks on the dipstick. Clean area around dipstick so dirt does not fall into crankcase when dipstick is removed. Check daily and add oil as necessary to maintain proper level — **DO NOT OVERFILL**. Oil level must not exceed the "F" mark. After completely draining oil, reinstall drain plug then remove oil filler cap and refill with 3-1/2 quarts of oil — check the oil level on the dipstick before adding more — then bring the level up in the safe range. If the oil filter has been changed, add one additional pint (half quart) of oil. Select oil weight and type according to outside temperature. Refer to Lubrication Chart on page 24.

### OIL FILTER

The filter is mounted on the crankcase of the engine. See Figure 8, page 8. These are "throw away" cartridge type filter elements. If the cartridge has been overtightened during installation, a strap wrench may have to be used to remove it but usually it can be removed by hand. Use the following procedure to replace:

1. Drain crankcase oil.
2. Place rags or a pan below the cartridge to catch spilled oil. Unscrew the cartridge counterclockwise and discard.
3. Wipe up any spilled oil, then wipe the adapter clean.
4. Apply grease on oil filter gasket then turn new cartridge (with gasket in place) onto the adapter in clockwise direction — hand tighten only.
5. After replenishing oil and restarting engine, check area around cartridge for signs of oil leakage. Correct leakage if need be by turning cartridge tighter.

Failure to change oil filter elements at the recommended intervals can lead to serious damage to the engine. An oil filter does a very effective job; however, it must be replaced *each 100 hours* of operation (every other oil change) under normal conditions or more often if the engine is subject to extremely dirty conditions.

**NOTE: USE ONLY THE GENUINE KOHLER OIL FILTER CARTRIDGE FOR REPLACEMENT.**

### AIR CLEANER

Under normal operating conditions, disassemble and service air cleaner components every 50 hours of operation. Do this more frequently (even daily) if extremely dusty or dirty conditions prevail. The dry type element is cleaned by gently tapping on a flat surface — when doing this, be careful not to damage gasket surfaces on element. *Do not* attempt to clean dry type elements in any liquid or with compressed air as this will damage paper filter material. Wipe dirt or dust accumulation from cover including base plate where used.

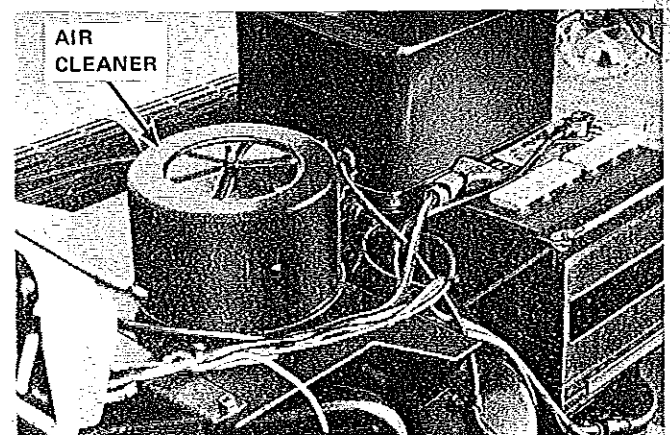


Figure 18

Dry type elements should be replaced after each 100 to 200 hours — replace at 100 hours if engine is operated under dirty conditions — replace every 200 hours under good clean air conditions.

The importance of maintaining an air cleaner in proper condition cannot be overemphasized! Dirt induced through improperly installed, improperly serviced or inadequate elements, wears out more engines than does long hours of operation.

**NOTE: A FOAM PRE-CLEANER IN ADDITION TO THE AIR CLEANER ELEMENT IS AVAILABLE FROM YOUR KOHLER DEALER FOR SEVERE DIRT CONDITIONS.**

## PREVENTIVE MAINTENANCE (Continued)

### AIR SCREEN

Clean flywheel air screen frequently. A dirty air screen and/or engine will cause the engine to overheat and damage the engine.

To clean the flywheel air screen remove the rubber and steel panels around screen. Replace the panels after the screen has been cleaned. These panels must remain in place for proper cooling of engine.

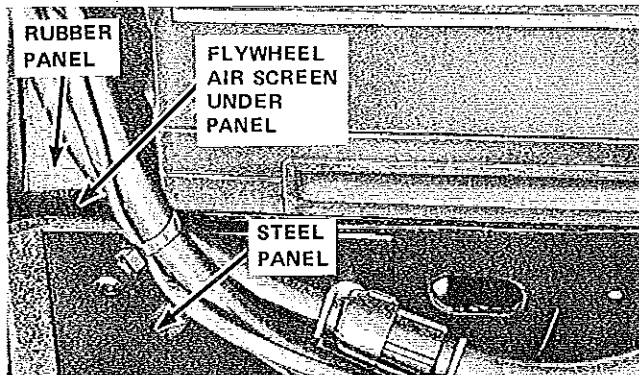


Figure 19

### SPARK PLUG

Every 100 hours remove plugs, check condition and reset at .025 inch or replace plugs if needed. Good operating conditions are indicated if plugs have a light coating of gray or tan deposit. A dead white, blistered coating could indicate overheating. A black (carbon) coating may indicate an "over-rich" fuel mixture caused by clogged air cleaner or improper carburetor adjustment. Do not service plugs in poor condition—best results are obtained with new plugs.

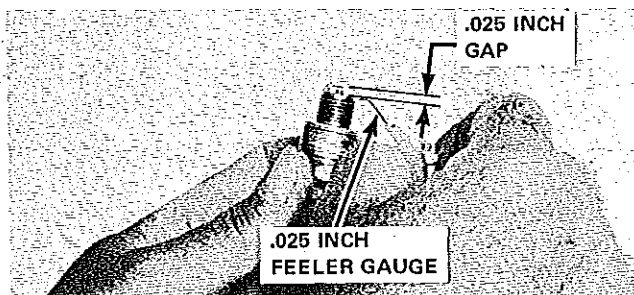


Figure 20

**NOTE: CLEANING OF SPARK PLUGS IN CLEANING MACHINES THAT USE ABRASIVE GRIT IS NOT RECOMMENDED. SPARK PLUGS SHOULD BE CLEANED BY SCRAPING OR WIRE BRUSHING, THEN WASHING WITH A COMMERCIAL SOLVENT.**

### BREAKER POINTS

Operation is greatly affected by breaker point condition and adjustment of point gap. If points are burned or

badly oxidized, little or no current will pass and as a result the engine may not operate at all, or if it does run, it is likely to miss particularly at full throttle.

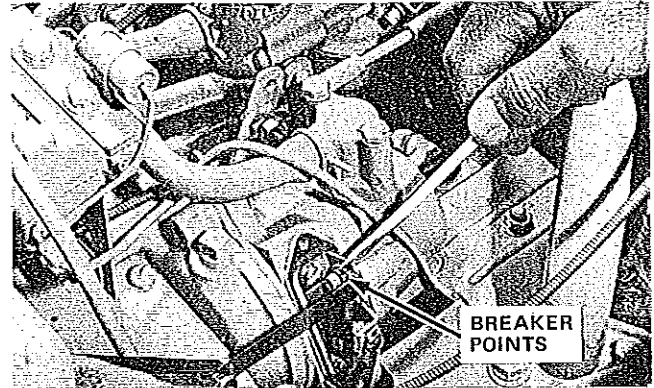


Figure 21

The points are located under the cover on top of the governor. Use the following procedure to adjust breaker point gap:

1. Remove breaker point cover.
2. Turn engine over until breaker points are full open — measure gap with a feeler gauge. Maximum opening should be .020". Adjust by loosening gap adjusting screw then insert a screwdriver blade in adjusting notch to shift movable plate until .020" maximum opening is attained. Retighten gap adjusting screw and replace breaker point cover after initial adjustment.

Always replace badly burned or pitted breaker points.

### TIMING

Timing should be performed only by an Authorized Kohler Dealer.

### CYLINDER HEAD SERVICE

After each 500 hours of operation have your authorized Kohler Dealer remove the carbon deposits from in the two cylinders.

**NOTE: UNDER CERTAIN OPERATING CONDITIONS CARBON MAY BUILD UP MORE RAPIDLY. THESE BUILD-UPS ARE INDICATED BY HEAVY DEPOSITS OF CARBON ON THE SPARK PLUG ELECTRODES. WHEN THIS CONDITION EXISTS 250 HOUR INTERVALS ARE RECOMMENDED.**

### VALVE SERVICE

After each 500 operating hours (or sooner if a noisy valve is detected) have your authorized Kohler Dealer service and adjust the valves.



## PREVENTIVE MAINTENANCE (Continued)

### FUEL TANK

Fill with clean fresh gasoline of regular grade. (For cold weather operation use winter blend gasoline.) DO NOT MIX OIL WITH GASOLINE. REFUEL OUTDOORS WITH ENGINE STOPPED AND COOL.

Check to see that vent hole in fuel tank cap is not plugged.

### FUEL VALVE

The fuel valve is located under the fuel tank as shown in Figure 22. This valve must be fully open for proper operation of the tractor.

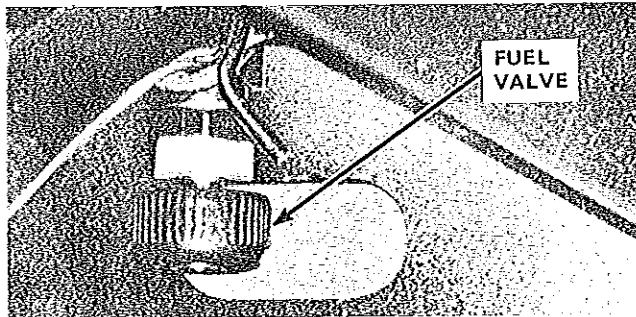


Figure 22

### FUEL FILTER

The fuel filter is a cartridge type in-line filter. See Figure 23 for location. If this filter is a one piece filter, it is a throw away type and should be replaced when dirty. If this filter is a two piece filter, it can be opened for cleaning. To open: shut off fuel valve and separate filter with a counterclockwise twist. See Figure 24 for separated filter. When reassembling filter, twist the two valves counterclockwise each about one-half turn. This preloads the filter to lock it together.

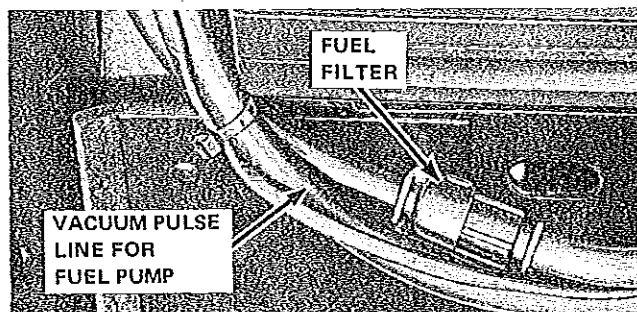


Figure 23

**NOTE:** TO RECLOSE, TWIST THE TWO HALVES COUNTERCLOCKWISE EACH ABOUT ONE HALF TURN BEFORE ASSEMBLING. THEN PLACE TWO HALVES TOGETHER AND CLOSE BY TURNING CLOCKWISE UNTIL THEY ARE SECURELY TIGHTENED.

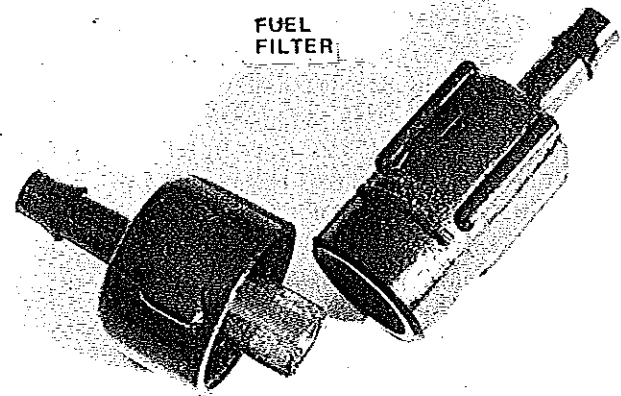


Figure 24

### BATTERY

Keep cables and terminals clean and apply a light coat of petroleum jelly or oil for protection. Check battery bracket for corrosion and keep clean. Do not overtighten battery mounting. Reinstall battery in same position.

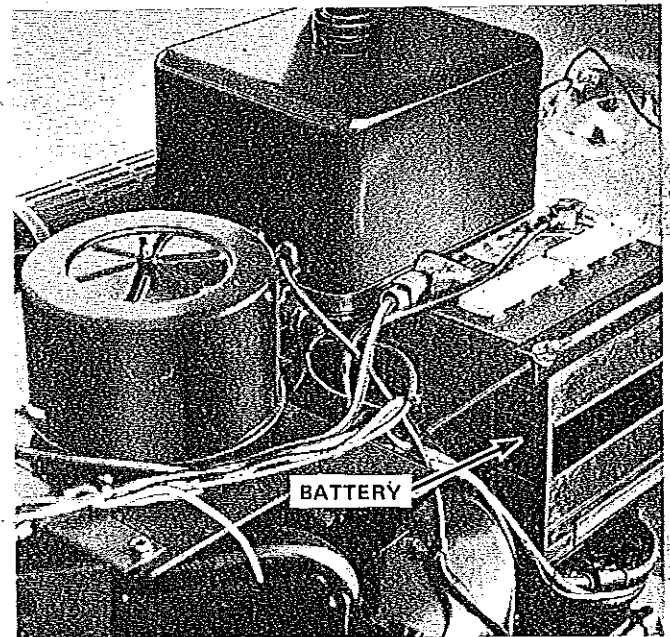


Figure 25



**CAUTION**

ELECTRIC STORAGE BATTERIES GIVE OFF HIGHLY FLAMMABLE HYDROGEN GAS WHEN CHARGING, AND CONTINUE TO DO SO FOR SOME TIME AFTER RECEIVING A STEADY CHARGE. DO NOT UNDER ANY CIRCUMSTANCES ALLOW AN ELECTRIC SPARK OR AN OPEN FLAME NEAR THE BATTERY. DO NOT LAY TOOLS ACROSS BATTERY TERMINALS AS THIS MAY RESULT IN A SPARK OR SHORT CIRCUIT WHICH MAY CAUSE AN EXPLOSION. BE CAREFUL TO AVOID SPILLING ANY ELECTROLYTE ON HANDS OR CLOTHING.

## PREVENTIVE MAINTENANCE (Continued)

**NOTE:** WHEN SERVICING THE BATTERY, BE SURE BATTERY CABLES ARE DISCONNECTED BEFORE ATTEMPTING REMOVAL OF THE BATTERY FROM THE TRACTOR. ALWAYS DISCONNECT NEGATIVE (-) CABLE FIRST. WHEN INSTALLING THE BATTERY, ALWAYS CHECK THE POLARITY OF THE BATTERY TERMINALS TO BE SURE THE BATTERY IS NOT REVERSED. THE NEGATIVE TERMINAL (-) IS GROUND. APPLY A LIGHT COAT OF PETROLEUM JELLY OR OIL TO THE INSIDE OF THE CLAMP TERMINALS AND OVER THE BOLT STUD BEFORE CONNECTING TERMINALS. ALWAYS CONNECT THE NEGATIVE TERMINAL (-) LAST. WHEN REINSTALLING THE BATTERY: (1) PLACE HOLD DOWN RODS IN PLACE. (2) TIGHTEN WINGNUTS FINGER TIGHT ONLY, TO AVOID POSSIBLE DAMAGE TO BATTERY CASE.

The electrolyte (acid and water) in each cell should be at triangle level at all times to prevent battery failure. When the electrolyte is below this level, *add pure, distilled water.*

UNDER NO CIRCUMSTANCES ADD ANY SPECIAL BATTERY. "DOPES", SOLUTIONS, POWDERS OR EXOTIC ADDITIVES: THIS VOIDS WARRANTY.

### ALTERNATOR SYSTEM

The Alternator system provides electrical energy to charge a 12 volt battery and also for lighting. Engine has the 15 amp Alternator system with the Rectifier-Regulator Assembly which is externally mounted on the dash. The Rectifier-Regulator Assembly is shown in Figure 26. In addition to the Rectifier-Regulator, the Alternator system has two other

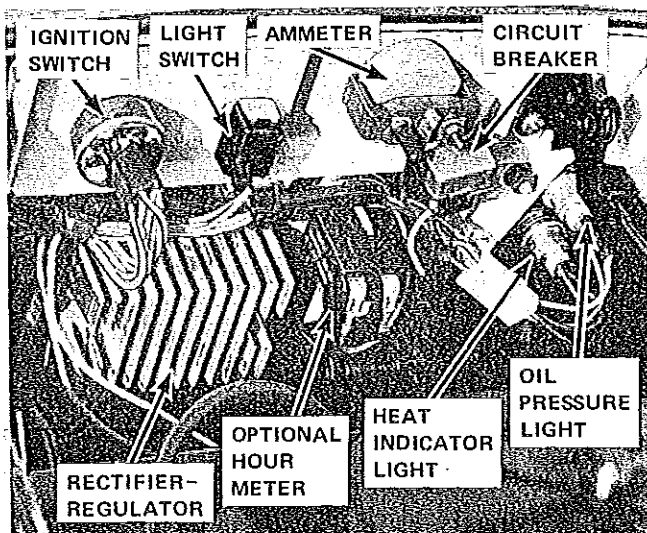


Figure 26

basic components which are: The permanent field magnet ring and the Alternator-stator. The flywheel must be removed to gain access to these two components.

With the exception of the permanent magnet ring which is affixed to the flywheel, the 15 amp Alternator system has no moving or mechanically operated parts and is therefore virtually service free. The only service required is an occasional check to make sure all electrical connections are tight and that wires are not frayed or cracked.



**CAUTION** TO AVOID DAMAGE TO THE ALTERNATOR SYSTEM, MAKE SURE THE FOLLOWING PRECAUTIONS ARE TAKEN.

1. Battery polarity must be correct — negative (-) battery terminal is connected to ground.
2. Rectifier-Regulator must be in common ground with engine and battery.
3. Make sure that no fuses, resistors, or wires smaller than No. 10 AWG are in connection from battery to rectifier.
4. Disconnect wire at terminal marked "BATT. NEG." if arc welding is done on equipment in common ground with engine.
5. Disconnect battery to regulator lead when battery is being recharged.
6. DO NOT operate engine with battery disconnected from Alternator System.

### HYDROSTATIC TRANSMISSION

Remove ignition key. Remove all dirt from around transmission filler dipstick area and filter. Clean transmission housing periodically. If tractor is operated in a dusty environment, check and clean more frequently. Consult your Bolens dealer for transmission maintenance. (See Figures 27 and 28.)

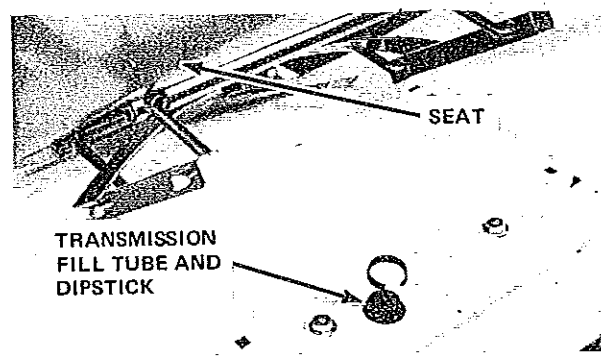


Figure 27



## PREVENTIVE MAINTENANCE (Continued)

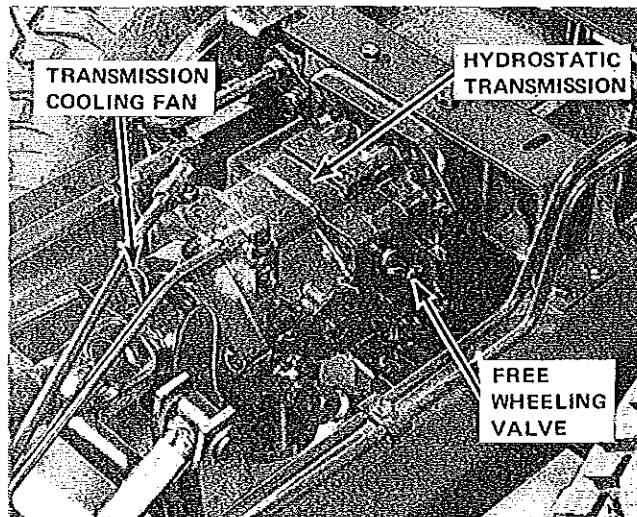


Figure 28

### FRONT WHEEL BEARINGS

1. Securely block up front of tractor.
2. Remove dust cap.
3. Remove cotter pin and unscrew slotted nut.

4. Remove outer bearing.
5. Remove wheel and hub assembly from spindle.
6. Remove inner bearing.
7. Clean bearings in a commercial solvent. Dry with a clean cloth.
8. Pack bearings with a good grade of wheel bearing grease.
9. Reinstall bearings into hub.
10. Reinstall wheel and hub assembly to spindle.
11. Turn slotted nut on spindle hand-tight, test-spin wheel to align bearings, then back nut off to nearest slot in line with hole in spindle, and install a new cotter pin.
12. Press on dust cap.
13. Remove blocking from front of tractor.

### PNEUMATIC TIRES

Keep both front and rear tires inflated evenly. Under no circumstances should tire inflation be less than 8 pounds, nor more than 12 pounds. Check air pressure regularly with a low pressure gauge. Operating with incorrect pressures may damage tires.

# ADJUSTMENTS

## CARBURETOR

Carburetor is adjusted at the factory and should not have to be reset. If black exhaust smoke is noted, check the air cleaner first. An "overrich" mixture is usually caused by a poorly serviced, clogged air cleaner element, not an improperly adjusted carburetor.

If readjustment becomes necessary, stop the engine. Turn the MAIN and IDLE fuel adjusting screws all the way in until they bottom *lightly* — do not force them closed as this will damage the needle valves. For preliminary setting, turn MAIN fuel screw out (counterclockwise) 2 full turns and the IDLE 1-1/4 turns. For final adjustments, start engine and allow it to warm up then operate at full throttle and under load, if possible. Turn MAIN fuel screw in until engine slows down (lean side) then out until it slows down again from overrich setting — note positions of screw at both settings, then set it about half-way between the two. The IDLE fuel setting can then be adjusted in the same manner for smoothest idle. Rough idle is often due to the idle speed being set too low — check this also.

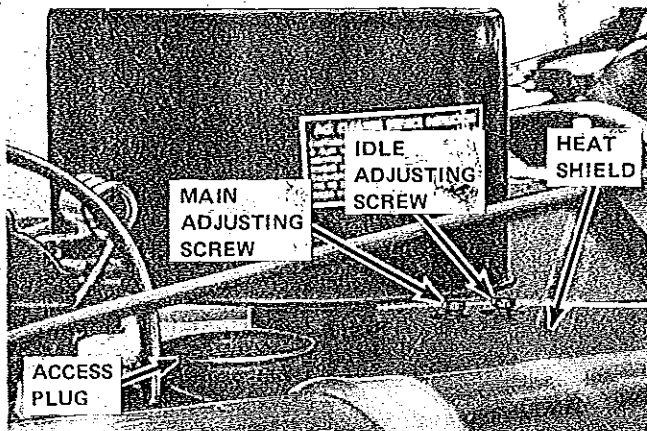


Figure 29

To adjust idle speed, remove plug in heat shield (Figure 29) to gain access to adjusting screw (Figure 30). The idle speed should be no less than 1,200 RPM. The proper idle speed will help prevent carburetor "load up" and engine "kill".

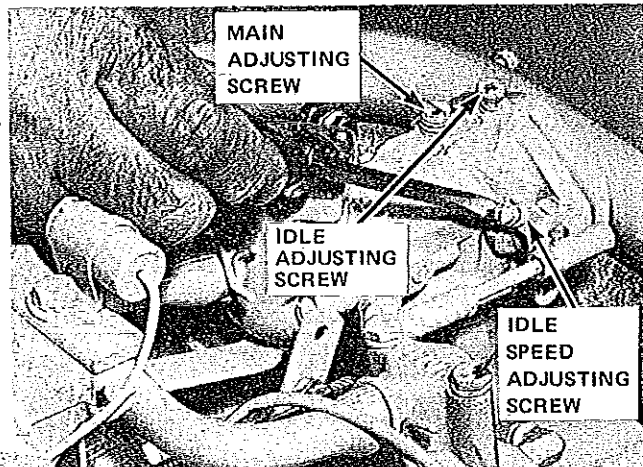


Figure 30

## FRONT WHEEL ALIGNMENT

1. Turn steering wheel so that front wheels are straight ahead.
2. Disconnect R.H. side of tie rod from steering arm. Measure distance across front of tire, center line to center line. Measure distance across rear of front tire, center line to center line and adjust toe-in from: 0 to 3/8" maximum, by turning tie rod in or out as required. (Front reading should be less than rear reading when measured across tire center lines.)
3. Tighten hex nut securely, and reinstall tie rod into steering arm making sure lockwasher is between ball joint and arm.
4. Check length of steering drag link. Overall length should be approximately 27-1/16". Adjust if necessary.

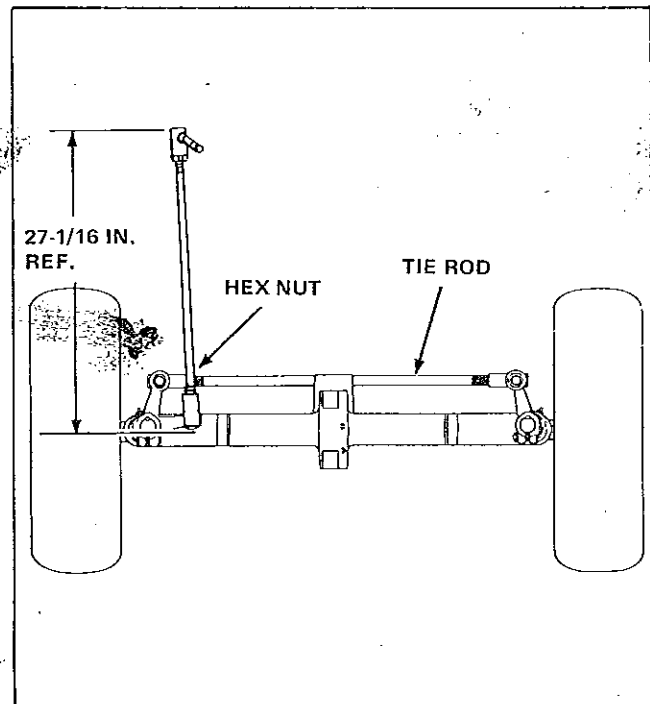


Figure 31

## TURNING RADIUS

1. ADJUST TURNING RADIUS IF, IN MAKING SHORT TURNS, A FRONT TIRE INTERFERES WITH FRONT MOUNTED ATTACHMENTS BRACKETS OR CENTER MOUNTED ATTACHMENTS. ADJUSTING SCREWS ARE PROVIDED AS FOLLOWS:

A. You will find a slot in the right hand frame at the rear of the steering drag link where it connects to the steering gear. (See Figure 32.) Near each end of this slot is a square head setscrew, with lock nut, inserted in the frame.

B. The screw at the front of the slot area controls the LEFT turning radius. The screw at the rear controls the RIGHT turning radius.

## ADJUSTMENTS (Continued)

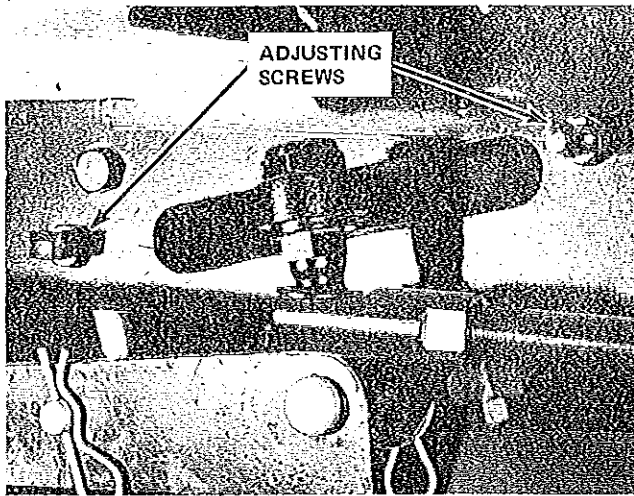


Figure 32

C. Turning these screws IN will increase the tractor turning radius. Turning screws OUT will decrease the radius.

NOTE: ADJUST SCREWS SO THAT TRACTOR TURNING RADIUS IS APPROXIMATELY THE SAME, LEFT AND RIGHT.

2. Check to make sure the stops are being used.

### FRONT AXLE STOP

If the clearance between the Front axle assembly "A" and the Stop assemblies "B", Figure 33, is 1/16 inch or more, the stops must be adjusted.

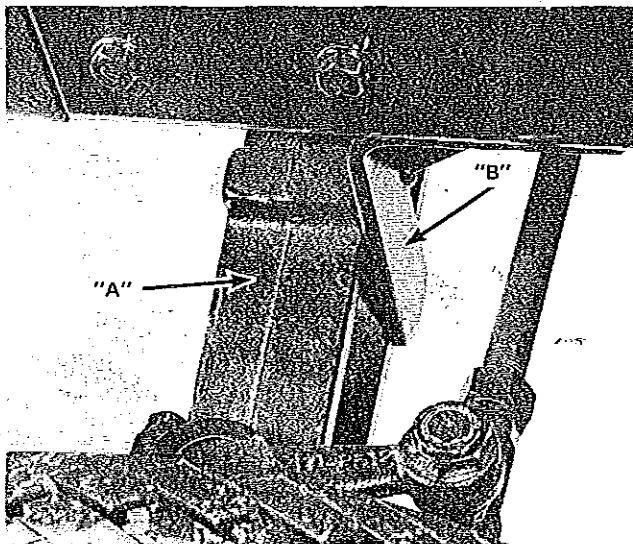


Figure 33

A. Loosen capscrews "A," Figure 34.

B. Move Stop assemblies "B," Figures 33 and 34, up against Front axle assembly "A," Figure 33.

C. Secure capscrews "A," Figure 34.

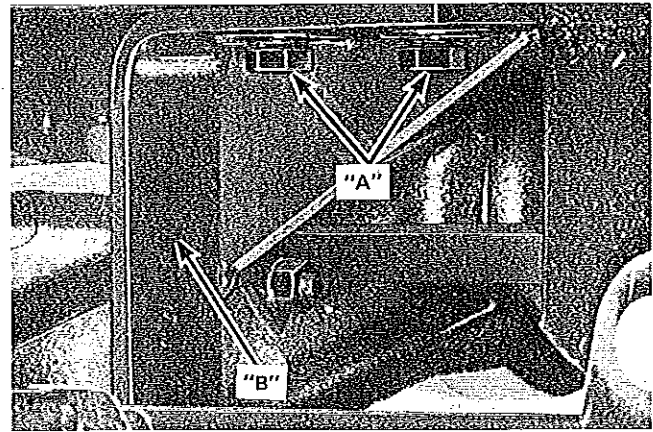


Figure 34

### POWER TAKE-OFF (P.T.O.) LEVER

1. Place P.T.O. lever in the OFF position.
2. Remove spring cotter pin and turn the P.T.O. control rod in until the desired tension is obtained. Reinstall spring cotter pin.

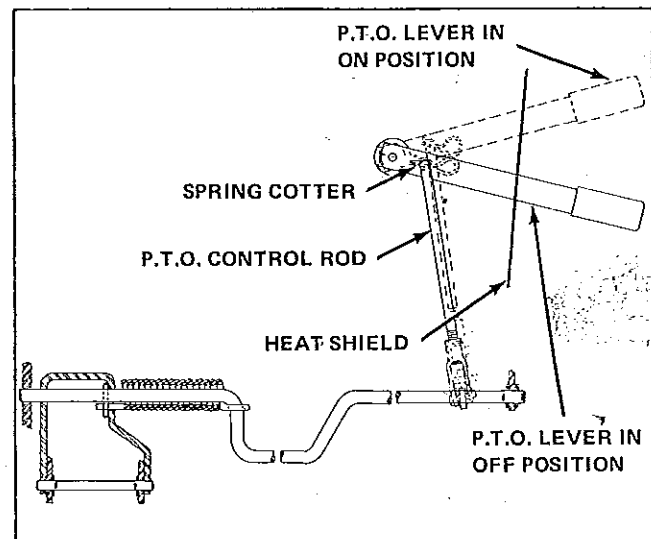


Figure 35

3. With the P.T.O. lever in the ON position, loosen the hex capscrew which secures the upper belt guide shown in Figure 36. Adjust upper belt guide for 1/8 to 1/4 inch clearance between belt and belt guide. Tighten hex capscrew securely.

### P.T.O. BELTS

Should it become necessary to replace P.T.O. belts, install new belts as follows:

1. Place P.T.O. lever in the OFF position.
2. DO NOT disturb upper belt guide, if 1/8 to 1/4 inch gap is evident with P.T.O. lever in the "ON" position.
3. Remove lower belt guide and old belts.

## ADJUSTMENTS (Continued)

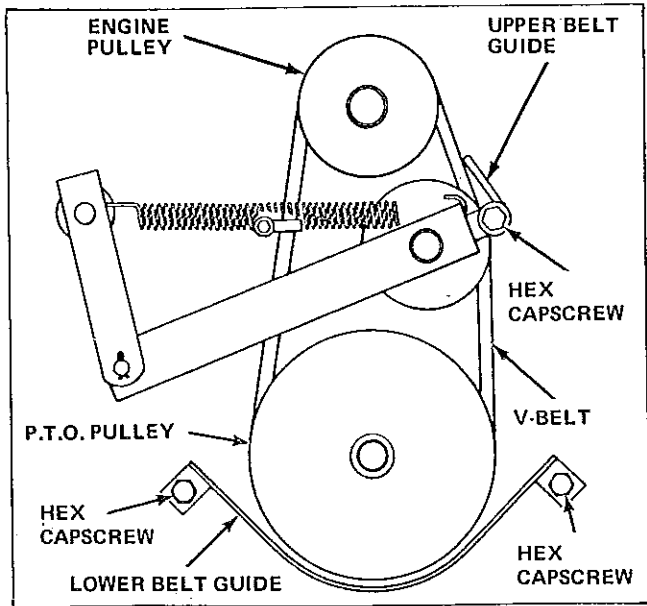


Figure 36

4. With hood open place the three NEW BELTS over both ENGINE and IDLER pulley with your right hand while feeding belts up from below with left hand, then feed into grooves of P.T.O. pulley.

5. Reinstall lower belt guide and adjust for a  $\frac{3}{32}$  to  $\frac{1}{8}$  inch clearance between belt guide and belts with P.T.O. lever in the "ON" position. Tighten the two hex capscrews securely. Check upper belt guide and adjust if necessary. Place P.T.O. lever in OFF position.

### DISC BRAKES

After every 50 operating hours check clearance of brake pads. If there is more than .010 inch clearance between the brake pads and brake disc, see "A," Figures 37 and 38, the brakes need adjustment. To adjust place brake pedal in the OFF position, then turn nut "B," Figures 37 and 38, clockwise to bring the brake pads closer to the brake disc. The correct clearance is 0 to .010 inch.

**NOTE:** Be sure to adjust the brakes on both wheels equally to avoid uneven braking. Check for proper operation.

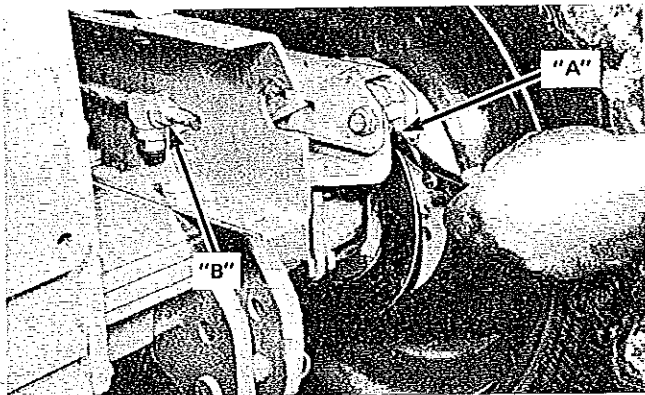


Figure 37

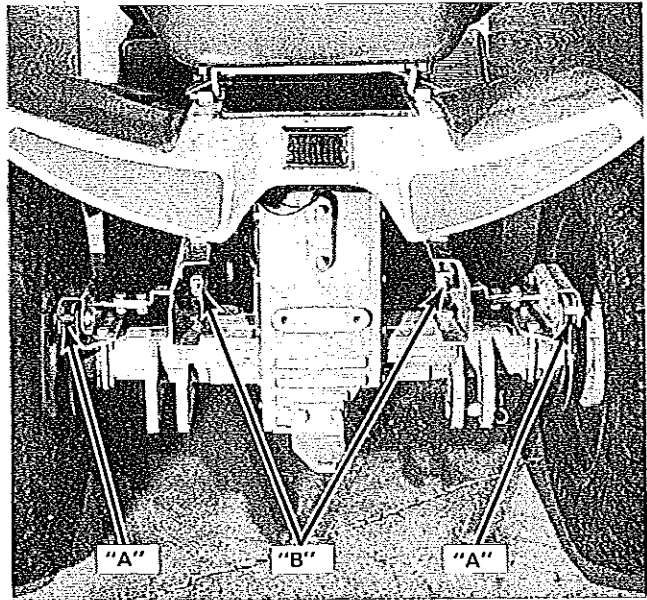


Figure 38

### SEAT

1. Tilt seat forward and lift up out of fender.
2. Position the lugs of the seat assembly into either of the three pair of slots in the top of the fender assembly. See "A" Figure 39.

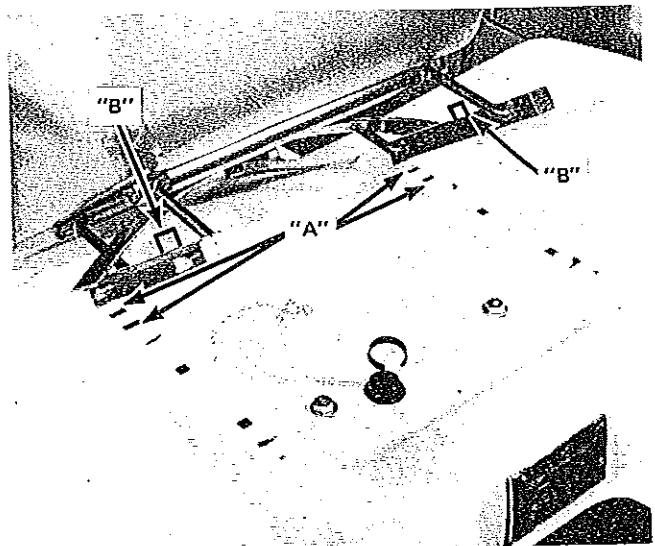


Figure 39

**NOTE:** BE SURE THE LUGS ARE IN CORRESPONDING SLOTS ON EACH SIDE OR SEAT WILL NOT BE STRAIGHT. WHEN LOWERING SEAT INTO POSITION PLACE ENDS OF LEAF SPRING TO THE REAR OF PINS IN ASSEMBLY. SEE "B" FIGURE 39.

### TRAVEL PEDAL

The travel pedal angle can be adjusted for the operator's comfort. Refer to Figure 40.

## ADJUSTMENTS (Continued)

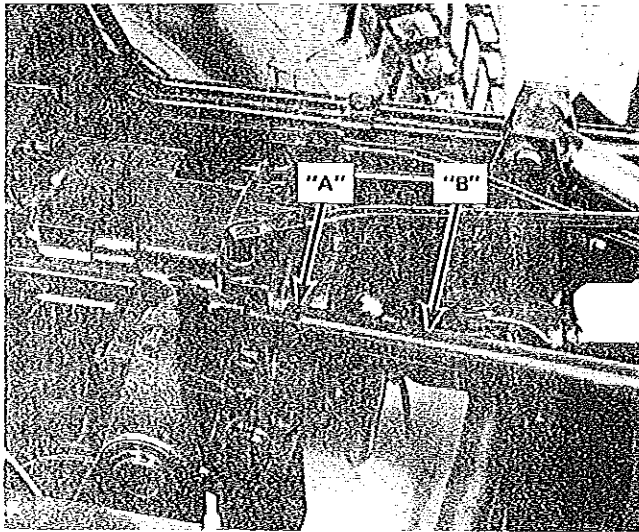


Figure 40

1. Loosen nut "A" Figure 40.
2. Remove spring cotter "A" from pin "C." Remove pin "C" from control arm "D," Figure 41.
3. To bring toe of pedal closer to operator, shorten rod "B" Figures 40 and 41.

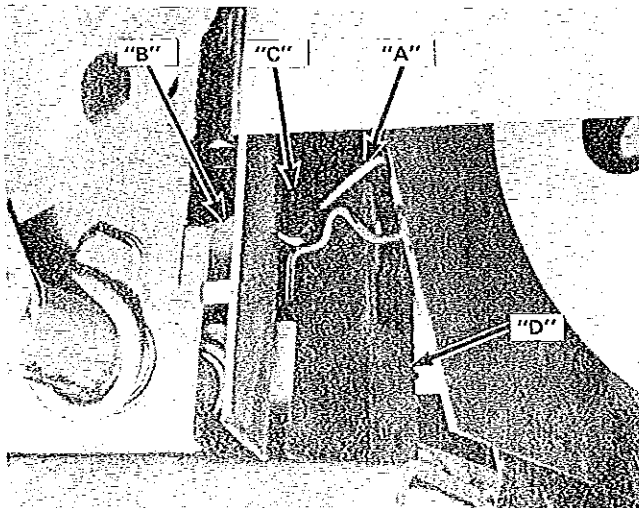


Figure 41

4. To move toe of pedal farther away from operator, lengthen rod "B" Figures 40 and 41.
5. After desired adjustment is reached, align hole in pedal end of rod "B" with hole in control arm "D" Figure 41 and secure with pin "C" and spring cotter "A." Lock hex nut "A" Figure 40.

### FOOT BRAKE INTERLOCK SWITCH

This switch is wired to be normally open or off when the switch lever is not depressed. When the P.T.O. lever is in the "Off" position and the "Parking Brake" is set, the switch lever is depressed closing or turning on the switches.

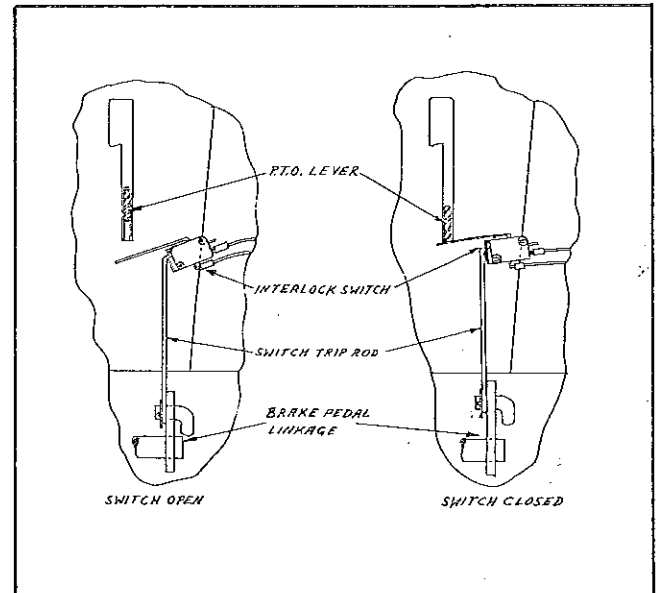


Figure 42

To check adjustment of the interlock switch on the foot brake proceed as follows:

1. Remove seat and fender assembly.
2. Depress the foot brake. When rod "F" Figure 43 is 1 to 1-1/4 inches from the top of frame rail at "A" Figure 43, pin "A" Figure 44 should just be in slot "B" of lever "C" as shown in Figure 44. With the above adjustments the interlock switch should activate, closing the circuit.

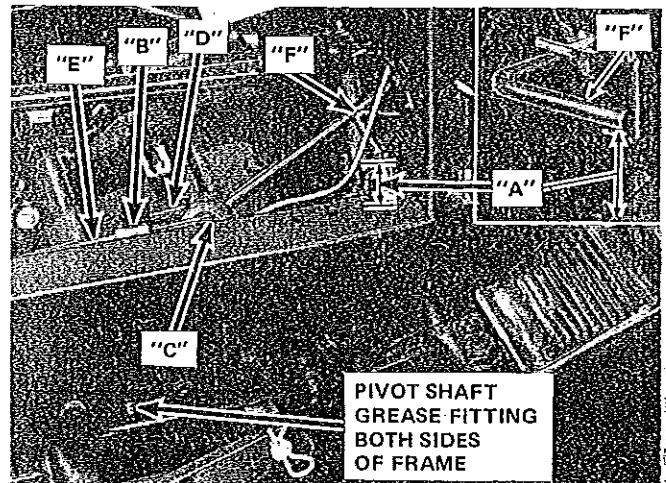


Figure 43

## ADJUSTMENTS (Continued)

3. To adjust loosen hex nut "B" Figure 43. Remove pin "C" and turn clevis "D" either clockwise or counterclockwise on rod "E" to obtain proper adjustment.

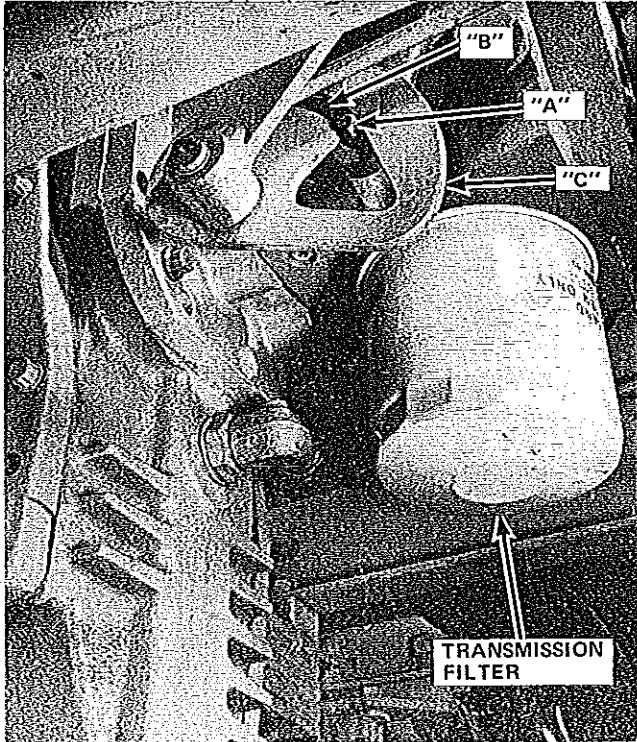


Figure 44

4. When adjustment is achieved replace pin "C" and lock with cotter pin. Lock clevis "D" with hex nut "B" Figure 43.

### HYDROSTATIC NEUTRAL ADJUSTMENT

The "Hydrostatic" neutral is adjusted at the factory.

If, with the engine running and the brakes released, the tractor creeps either "Forward" or "Backward" the "Neutral" position needs adjustment.

Adjust the "Neutral" as follows:

1. Remove seat and fender assembly.
2. Securely block up rear of tractor off of the ground.
3. Place travel pedal into the "Neutral" position. Start the engine and release the brakes.
4. Loosen nuts "A" Figure 45. If the rear wheels creep "Forward" shorten link "B" Figure 45 until wheels stop creeping. If the rear wheels creep "Backward" lengthen link "B" Figure 45 until wheels stop creeping. Retighten nuts "A" Figure 45.
5. Shut off engine and set brakes. Remove the blocking from under the tractor.

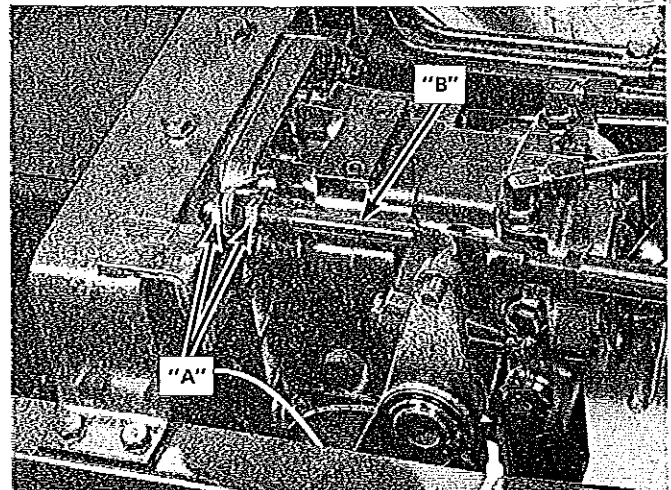


Figure 45



## POWER TAKE-OFF (P.T.O.)

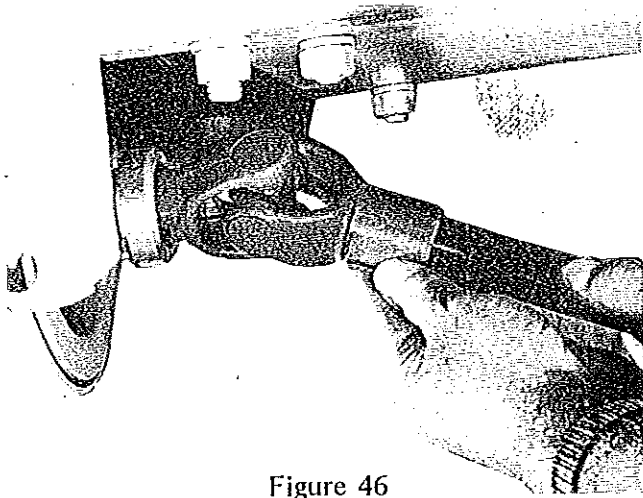


Figure 46

The P.T.O. (Power take-off) drive shaft is located under the front of the tractor frame and is connected to the engine by three drive belts. This assembly has a drive shaft which is

splined at both ends so that front, center and rear power attachments can be coupled directly to it. Liberally grease P.T.O. shaft. Slide universal joint over end of splined power take-off shaft until locking collar snaps into lock groove in shaft. Liberally grease square drive shaft on attachment. Slide attachment drive and P.T.O. drive shaft universal joint together; install pins into hitch points. Universal joints on the attachments allow you to raise or lower attachments (with hydraulic lift lever) while the tractor is under full power.



**CAUTION** ALWAYS REMOVE UNIVERSAL JOINT FROM POWER TAKE-OFF SHAFT WHEN ATTACHMENTS ARE REMOVED FROM TRACTOR. IF THE UNIVERSAL JOINT IS NOT REMOVED AND THE POWER TAKE-OFF IS ENGAGED, DAMAGE WILL RESULT FROM WHIPPING ACTION OF THE FREE UNIVERSAL JOINT, AND PERSONAL INJURY COULD OCCUR.

## MODEL 18029-01 FRONT WHEEL WEIGHT KIT

This kit consists of:

- 2 — — Front Wheel Weights
- 4 — No. 110-0257 — Flat Washers — 1/2
- 4 — No. 111-1518 — Hex Hd. Capscrew — 1/2-20 x 6
- 4 — No. 110-7275 — Hex. Hd. Capscrew — 1/2-20 x 2-3/4
- 4 — No. 172-4323 — Long Hex. Nut — 1/2-20

To install on the high flotation wheels remove two wheel capscrews 180° apart. Install weight and secure with two each of No. 111-1518 Hex Hd. Capscrew — 1/2-20 x 6 and No. 110-0257 Flat Washer — 1/2 in place of the wheel capscrews. See Figure 47.

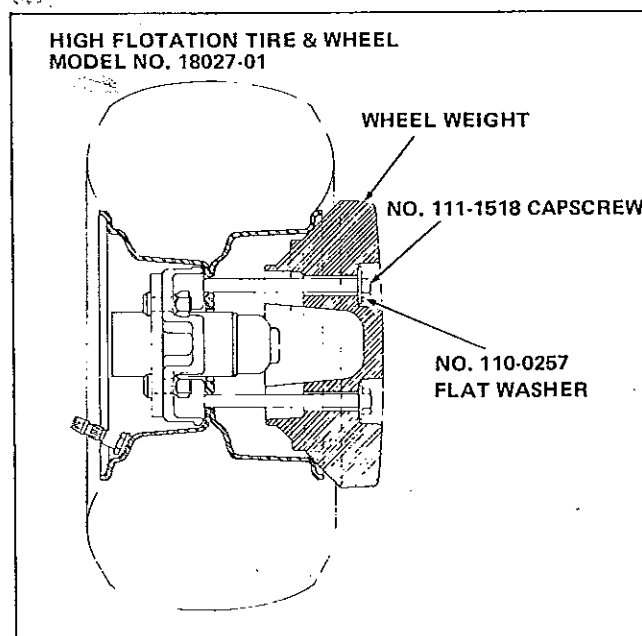


Figure 47.

## LUBRICATION CHART

LUBRICATION REQUIRED	Length of Operation	Type of Lubrication	Amount Required	
1. Engine Crankcase —	Daily & 8 Hrs.	Bolens Engine Oil	Add Oil To Full Mark	
Average Temperature	(Spring, Summer, Autumn) (+120° F. to 40° F.)	50 Hrs.*	Bolens 16014 SAE 30 Oil Type SD-SE	Replace 3 QT**
	(Winter) (+40° to 0° F.)	50 Hrs.*	Bolens 16015 SAE 10W-30 Oil Type SD-SE	Replace 3 QT**
	(Winter) (Below Zero)	50 Hrs.*	SAE 5W-20 Oil Type SD-SE	Replace 3 QT**
2. Hydrostatic Transmission — (Capacity 10 qts.)	Check Weekly Or 25 Hrs.	Type "F" Automatic Trans. Fluid	Level must be maintained in the operating zone	
	When Oil is Discolored	Drain and refill with Bolens 172-1514 Hydrostatic fluid or Type "F" Automatic Transmission Fluid		
3. Front Wheel Bearings —	Once a year	Wheel Bearing Grease	Pack	
4. Front Wheel Spindles —	8 Hrs.	Grease With Bolens 16020	1-2 Strokes	
5. Front Axle Pivot —	8 Hrs.	Grease With Bolens 16020	1-2 Strokes	
6. PTO Housing —	8 Hrs.	Grease With Bolens 16020	1-2 Strokes	
7. Tie Rod Ends and Drag Links —	8 Hrs.	Oil	Small Amount	
8. Steering Shaft —	8 Hrs.	Oil	Small Amount	
9. Pivot Shaft —	8 Hrs.	Grease With Bolens 16020	1-2 Strokes	
10. Brake Linkage —	8 Hrs.	Oil	Small Amount	
11. Travel Pedal Shaft —	8 Hrs.	Oil	Small Amount	
12. Hydrostatic Control Arms —	8 Hrs.	Light Machine Oil	Small Amount	

\*More often under extreme conditions.

\*\*Plus 1 pint when changing oil filter.

NOTE: A hand grease gun is recommended when greasing your unit. This type grease gun can be purchased from your Bolens dealer. Ask for Bolens Grease Gun No. 16023 with Bolens Multi-purpose Grease No. 16020. *Hi-pressure type grease guns* could cause damage to the fittings and bearing seals. Lubricate all linkages, levers and pins not equipped with grease fittings with an oil can once a week, or oftener depending on operating conditions.



## LUBRICATION

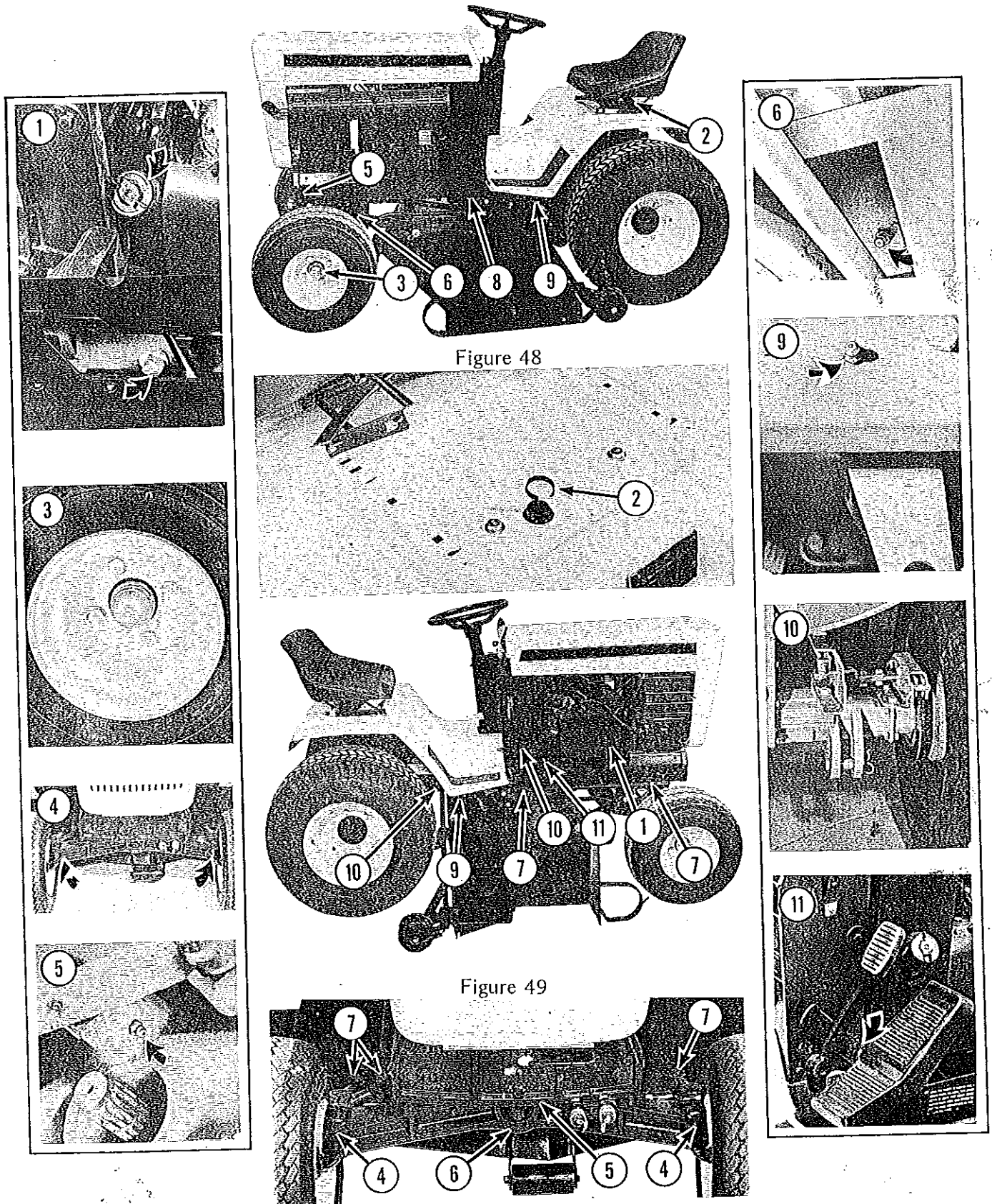


Figure 48

Figure 49

Figure 50

## MAINTENANCE CHART

MAINTENANCE REQUIRED	Length of Operation	Type of Maintenance
Engine Oil Filter —	100 Hrs.*	Replace
Engine Cooling Air Screen —	Daily or 8 Hrs.*	Brush Clean
Engine Air Cleaner —	50 Hrs.*	Shake Out Dirt
	100 Hrs.*	Replace
Cooling Fins — (Engine) —	Daily or 8 Hrs.	Clean — Use Air Hose if Available
Spark Plugs —	100 Hrs.	Service or Replace
Breaker Points —	500 Hrs.	Service or Replace
Ignition Timing —	500 Hrs.**	Adjust
Engine Valves —	500 Hrs.**	Adjust
Engine Cylinder Heads —	500 Hrs.**	Remove Carbon
Fuel Filter —	100 Hrs.	Replace if One Piece, Clean if Two Piece Filter
Battery —	Daily	Check Electrolyte Level — Add Water As Necessary
Hydrostatic and Rear Axle Fins —	50 Hrs.*	Clean — Use Air Hose if Available
Belts —	50 Hrs.*	Check for Wear and Adjust
Tires —	25 Hrs.	Check for Damage and Air Pressure
Transmission Filter —	After First 10 Hours then After Every 100 Hours	Change and Add Oil to Bring to Operating Level Use Only Bolens Filter No. 172-6450

\*More often under extreme conditions.

\*\*Services should be performed by an Authorized Kohler Engine Dealer.

## MINOR TROUBLESHOOTING GUIDE

IF TRACTOR ACTS IN FOLLOWING MANNER	CHECK FOR POSSIBLE CAUSE												
	CLEAN OFF ENGINE FINS FLYWHEEL SCREEN (CLEAN)	FAULTY IGNITION*	FAULTY SPARK PLUG	EMPTY FUEL TANK	BATTERY	CARBURETOR	OIL	AIR CLEANER (CLEAN)	CHOKE	SEE YOUR BOLENS DEALER	CONTROLS NOT IN CORRECT POSITION	CHECK INTERLOCK SWITCH	VACUUM LINE LEAK
Engine will turn over but won't start		X	X	X		X			X	X			X
Engine will not turn over					X					X	X	X	
Starts only after repeated tries		X	X			X			X	X			
Stalls in a few seconds				X		X				X			X
Stalls when hot	X	X	X	X	X	X	X	X		X			X
Idles rough			X	X		X			X	X			
Engine overheats	X	X	X			X	X	X		X			

\*See Your Authorized Dealer.

## HYDRAULIC CIRCUIT DIAGRAM

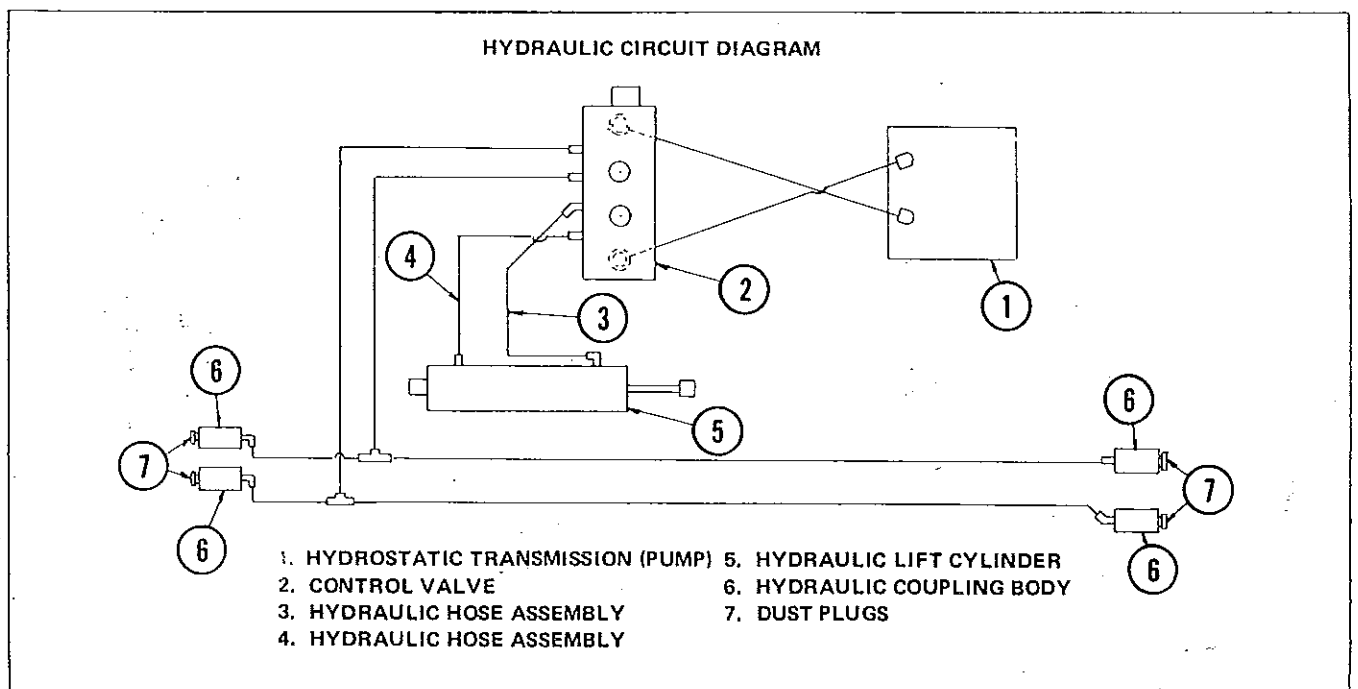
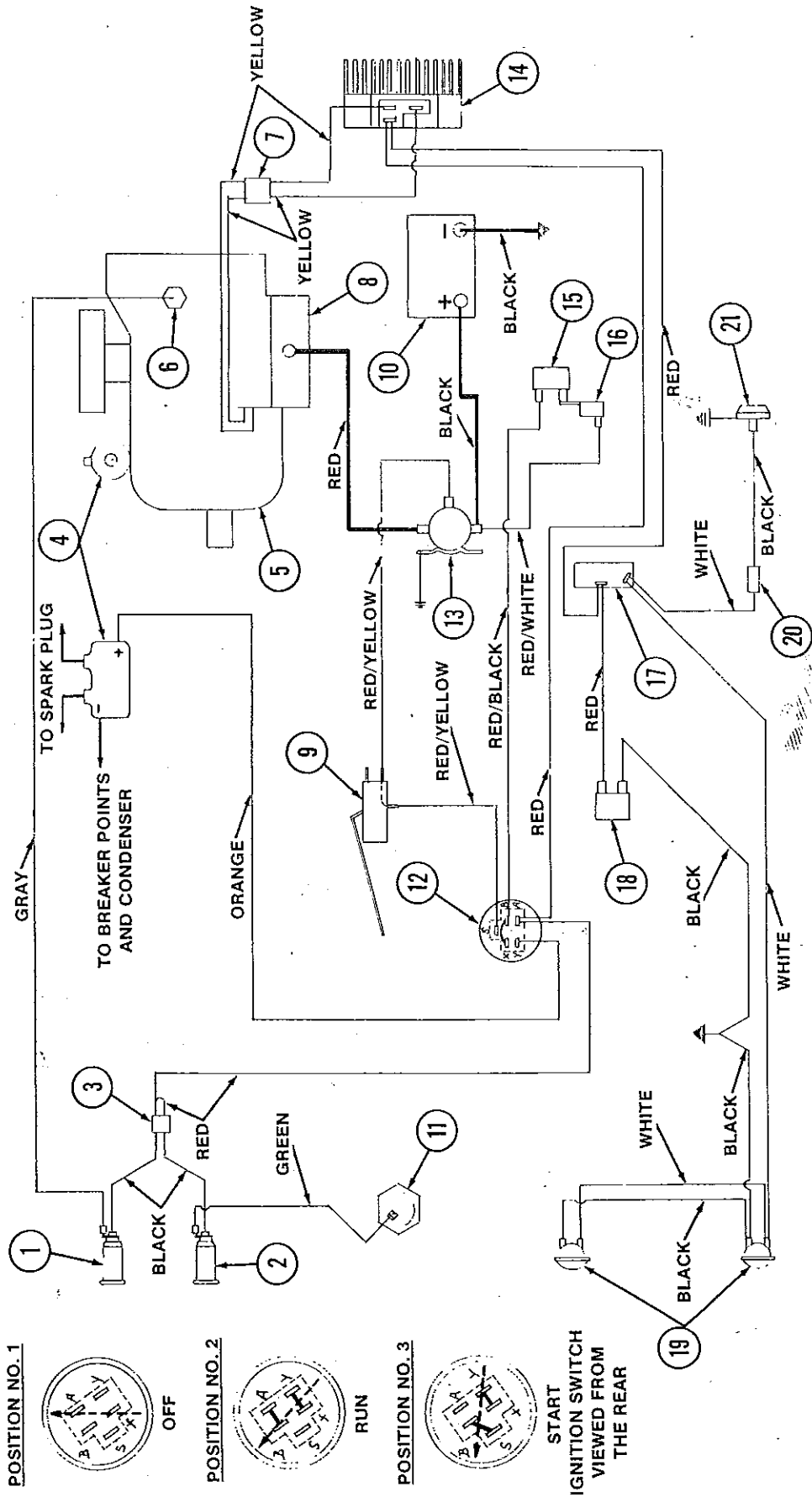
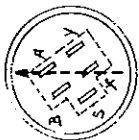


Figure 51

# WIRING DIAGRAM

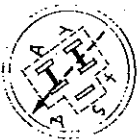


POSITION NO. 1



OFF

POSITION NO. 2



RUN

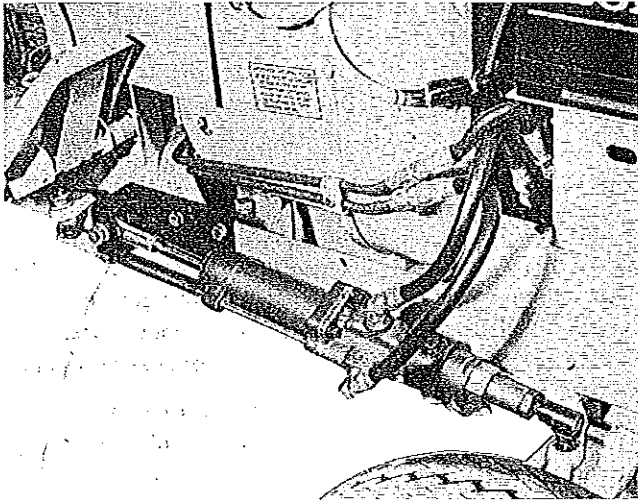
POSITION NO. 3



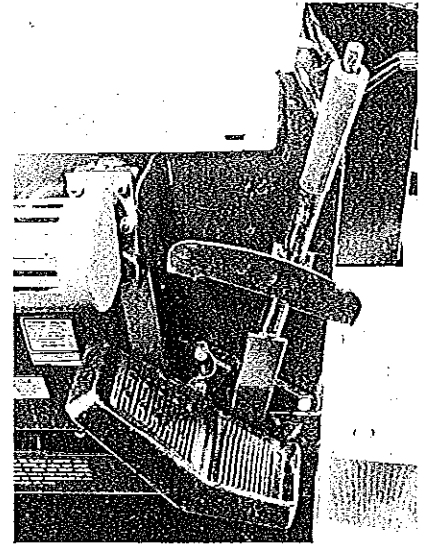
START  
IGNITION SWITCH  
VIEWED FROM  
THE REAR

- 1. OIL PRESSURE LIGHT
- 2. HEAT INDICATOR LIGHT
- 3. CONNECTOR
- 4. IGNITION COIL
- 5. ENGINE
- 6. OIL PRESSURE SWITCH
- 7. CONNECTOR
- 8. STARTER
- 9. INTERLOCK SWITCH
- 10. BATTERY
- 11. HEAT INDICATOR SWITCH
- 12. IGNITION SWITCH
- 13. SOLENOID
- 14. RECTIFIER — REGULATOR
- 15. AMMETER
- 16. CIRCUIT BREAKER
- 17. LIGHT SWITCH
- 18. OPTIONAL HOUR METER
- 19. HEAD LIGHTS
- 20. CONNECTOR
- 21. TAIL LIGHT

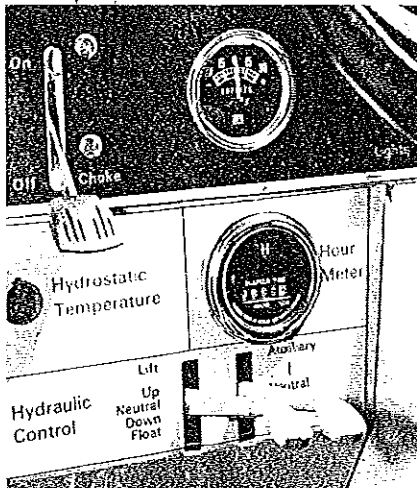
## OPTIONAL EQUIPMENT



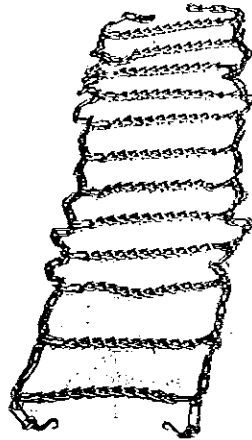
POWER STEERING KIT  
MODEL 18088



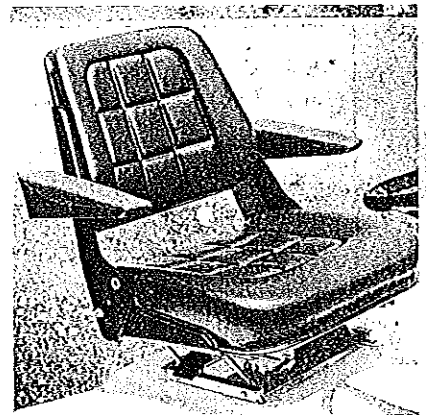
HYDRO HAND CONTROL  
MODEL 18099



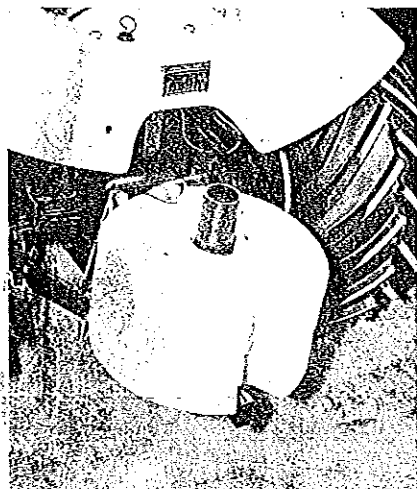
HRUR METER KIT  
MODEL 18096



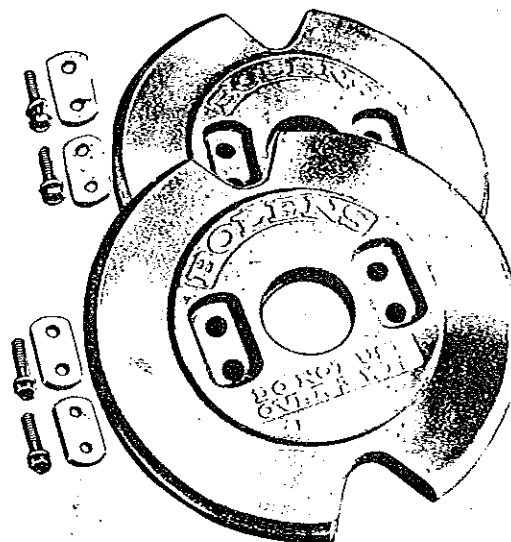
TIRE CHAINS  
Model No. 19614-01  
For 26 x 12.00-12 Tire



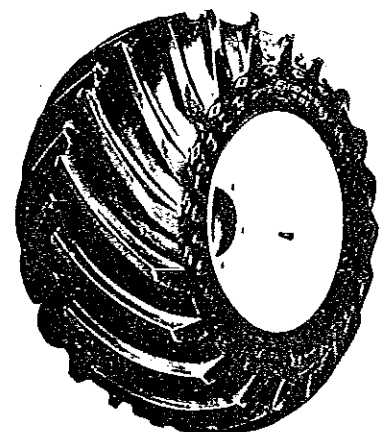
DELUXE SEAT  
MODEL 18098



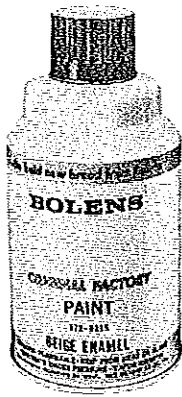
REAR WEIGHT CARRIER  
MODEL 18711



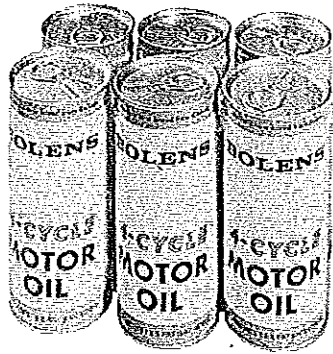
WEIGHT KIT  
MODEL NO. 19617



AGRICULTURAL  
TERRA TIRE KIT  
(26 x 12.00-12)  
MODEL NO. 18017-01



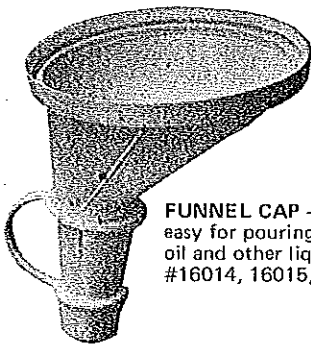
**BOLENS "Original Factory" PAINT** — To touch up the inevitable scratches and chips use factory matched paints available at your local Bolens dealer.



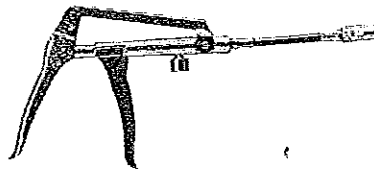
**BOLENS 4 CYCLE MOTOR OIL** — specially formulated, winter and summer grades, handy pint cans with plastic cap for storage of open cans.



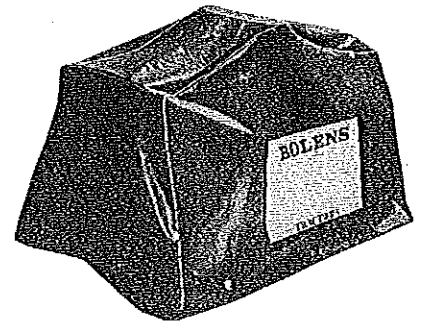
**BOLENS SILICONE SPRAY** — is specially formulated to provide maximum lubrication and protection on metal, plastic, wood and rubber surfaces. Model 16026



**FUNNEL CAP** — Make it easy for pouring — storing oil and other liquids. Fits #16014, 16015, 16016



**BOLENS GREASE GUN** — (Model 16023) — flexible barrel allows access to all grease fittings.



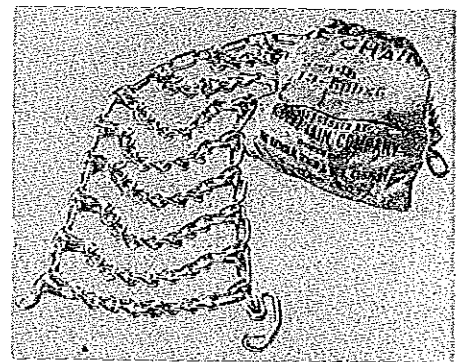
**PROTECTIVE COVERS** — Heavy duty fitted vinyl, tie down grommets for trailering, draw strings and room for the mower underneath. Three models fit all BOLENS Tractors.



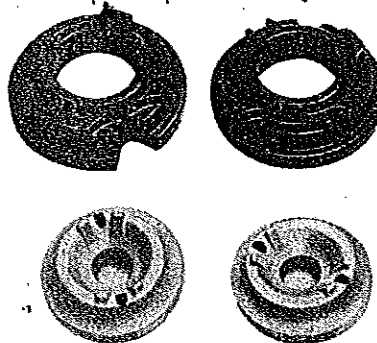
**MULTI-PURPOSE GREASE** — (Model 16020) — Premium, water-resistant Lithium Grease.



**BOLENS GEAR LUBE E.P. 90** — Used to replace and add oil in the gear cases of all gear tractors, mowers, snow-throwers, and most tillers. Model 16021.



**TIRE CHAINS** — Different sizes to fit all Snow Casters and Tractors. For traction on snow and slippery surfaces.



**WHEEL WEIGHTS** — Front and rear weights for increased traction when plowing or to reduce slippage when dozing snow or in loose soil.