OWNERS MANUAL

PRICE $1.00

SERIAL NUMBER

MODEL NO. 931016 S-12
HYDRAULIC LIFT W/FRONT AND
REAR ROCKSHAFT
SERIAL NO. 000101 AND UP

MODEL NO. 931017 S-14
HYDRAULIC LIFT W/FRONT AND
REAR ROCKSHAFT
SERIAL NO. 000101 AND UP

MODEL NO. 931018 S-16
HYDRAULIC LIFT W/FRONT AND
REAR ROCKSHAFT
SERIAL NO. 000101 AND UP

MODEL NO. 931015 S-18
HYDRAULIC LIFE W/FRONT
ROCKSHAFT AND REAR P.T.O.
SERIAL NO. 000101 AND UP

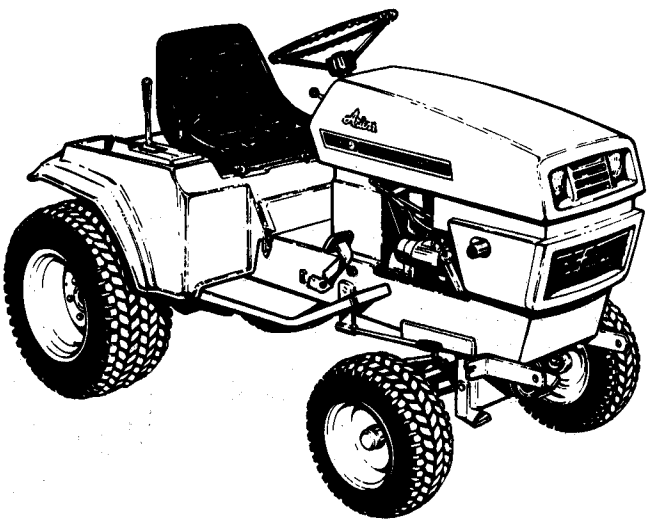
Part No. 31975

Ariens

12·14·16·18 HP

HYDROSTATIC

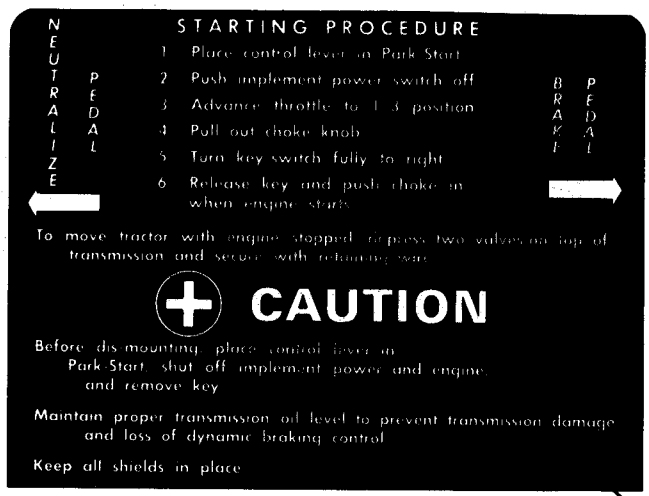
Garden Tractors



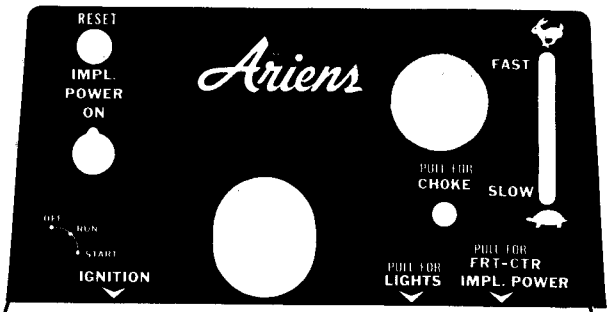
ARIENS COMPANY

BRILLION, WIS. 54110

DECALS FOR HYDROSTATIC MODELS 931015, 931016, 931017, & 931018



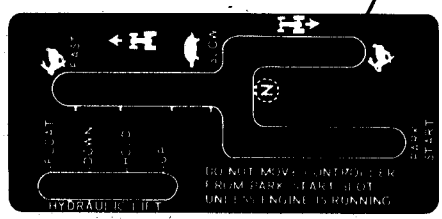
78309



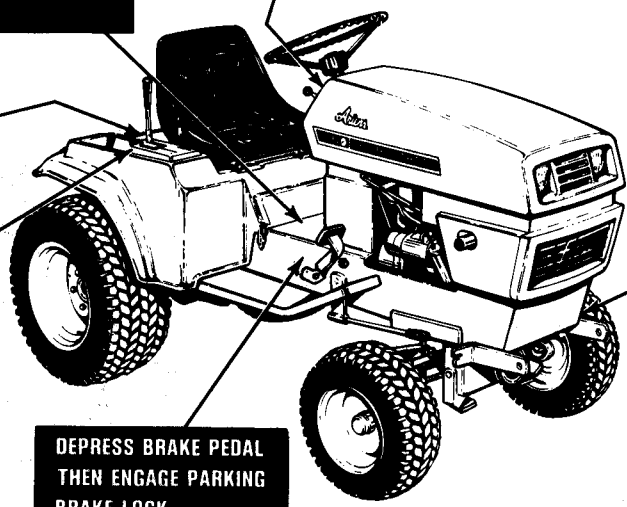
DASH PANEL - 78341
DASH PANEL - 78465 (S-18H ONLY)

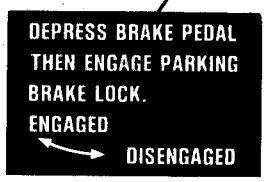
78466
(S-18H ONLY)

78462 (S-18H ONLY)
(UNDER REAR DECK)



CONTROL CONSOLE 78386





78311

78281

INSTRUCTIONS FOR SAFE OPERATION

1. Know the controls and how to stop quickly. READ THE OWNER'S MANUAL.

2. Do not allow children to operate the vehicle. Do not allow adults to operate it without proper instruction.

3. Do not carry passengers. Keep children and pets a safe distance away.

4. Clear the work area of objects which might be picked up and thrown.

5. Disengage all attachment clutches and shift into park before attempting to start the engine.

6. Disengage power to attachment, stop the engine and place shift lever to "Park-Start" position before leaving the operator's position.

7. Disengage power to attachment and stop the engine before making any repairs or adjustments.

8. Disengage power to attachment when transporting or not in use.

9. Take all possible precautions when leaving the vehicle unattended, such as disengaging the power take-off, lowering the attachment, shifting into park, setting the parking brake, stopping the engine, and removing the key.

10. Do not stop or start suddenly when going uphill or downhill. Mow up and down the face of steep slopes; never across the face.

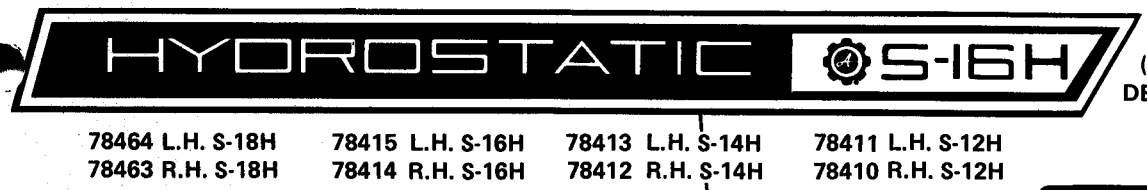
11. Reduce speed on slopes and in sharp turns to prevent tipping or loss of control. Exercise extreme caution when changing direction on slopes.

12. Stay alert for holes in the terrain and other hidden hazards.

13. Use care when pulling loads or using heavy equipment.
    a. Use only approved drawbar hitch points.
    b. Limit loads to those you can safely control.
    c. Do not turn sharply. Use care when backing.
    d. Use counterweight(s) or wheel weights when suggested in the owner's manual.

14. Watch out for traffic when crossing or near roadways.

DECALS FOR HYDROSTATIC MODELS 931015, 931016, 931017, & 931018

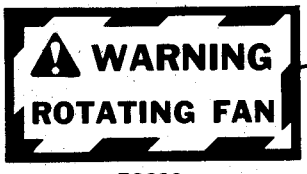


(LEFT SIDE DECAL SHOWN)

78464 L.H. S-18H	78415 L.H. S-16H	78413 L.H. S-14H	78411 L.H. S-12H
78463 R.H. S-18H	78414 R.H. S-16H	78412 R.H. S-14H	78410 R.H. S-12H

78282

78278



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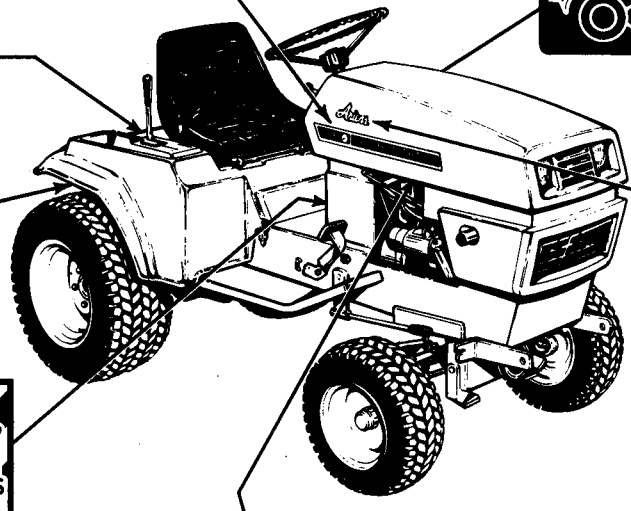

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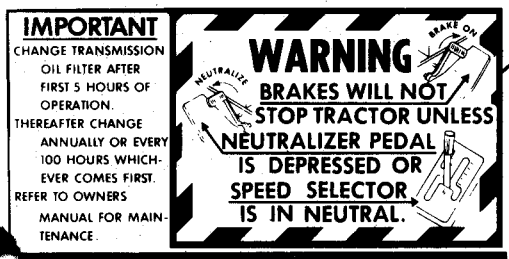
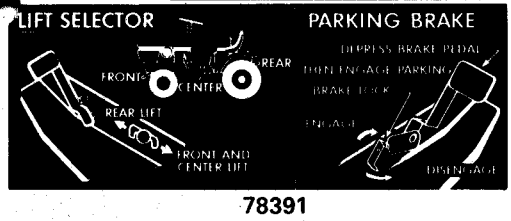




78391

78226

COMPLIANCE WITH CANADIAN RADIO INTERFERENCE REGULATIONS CERTIFIED
REPLACE SPARK PLUG WITH RESISTOR SPARK PLUG ONLY !
CERTFIE CONFORME AU REGLEMENT CANADIEN SUR LE BROUILLACE RADIOELECTRIQUE
REMPLACER LA ROUGIE PAR UNE ROUGIE A RESISTANCE SEULEMENT !

78400
(UNDER HOOD NEXT TO SPARK PLUG)

BE AWARE OF SAFETY DECALS

15. When using any attachments, never direct discharge of material toward bystanders nor allow anyone near the vehicle while in operation.

16. Handle gasoline with care—it is highly inflammable.
    a. Use approved gasoline container.
    b. Never remove the cap of the fuel or add gasoline to a running or hot engine, or fill the fuel tank indoors. Wipe up spilled gasoline.
    c. Open doors if the engine is run in the garage—exhaust fumes are dangerous. Do not run the engine indoors.

17. Keep the vehicle and attachments in good operating condition, and keep safety devices in place.

18. Keep all nuts, bolts, and screws tight to be sure the equipment is in safe working condition.

19. Never store the equipment with gasoline in the tank inside a building where fumes may reach an open flame or spark. Allow the engine to cool before storing in any enclosure.

20. To reduce fire hazard, keep the engine free of grass, leaves, or excessive grease.

21. The vehicle and attachments should be stopped and inspected for damage after striking a foreign object, and the damage should be repaired before restarting and operating the equipment, see numbers 6 & 7 opposite page.

22. Do not change the engine governor settings or overspeed the engine.

23. When using the vehicle with mower, proceed as follows:
    a. Mow only in daylight or in good artificial light.
    b. Never make a cutting height adjustment while the engine is running if the operator must dismount to do so.
    c. Shut the engine off when removing the grass catcher or unclogging chute.
    d. Check the blade mounting bolts for proper tightness at frequent invervals.

24. Check the grass catcher bags frequently for wear or deterioration. Replace with new bags for safety protection.

CONTROLS

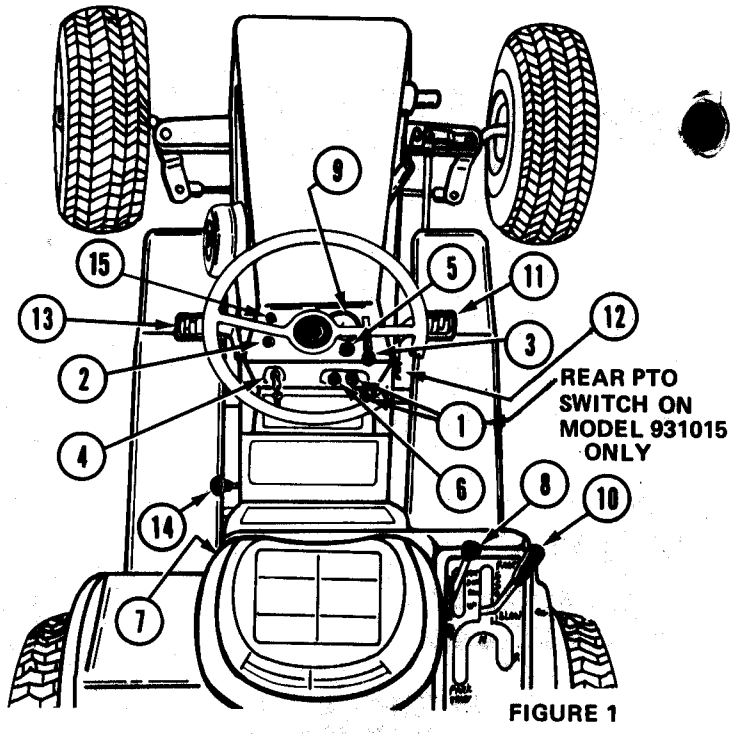


FIGURE 1

(1) **Implement Power Control Switch** (Figure 1). Pull the switch out (ON) to engage the electromagnetic clutch to drive the mower and front mounted attachments. (12, 14 and 16 H.P.)

NOTE: On 18 H.P. Tractor there are two switches. The extra switch controls the rear P.T.O. and attachments.

NOTE: These switches (1) must be pushed in (OFF) to disengage the drive before the engine will start or to allow engine to keep running if the operator gets off the seat.

(2) **Implement Power Indicator Light** (Figure 1). This light glows red when either of the implement power control switches (1) is pulled out to indicate that the attachment is engaged.

(3) **Throttle Lever** (Figure 1). Raise the lever to increase engine speed. Lower the lever to decrease engine speed.

(4) **Ignition Switch** (Figure 1). Turn the key fully clockwise to start the engine and release when the engine starts. Turn the key counterclockwise to stop the engine.

(5) **Choke Control** (Figure 1). Pull choke control out when attempting to start a cold engine or when starting during cold weather. When engine starts, gradually push choke in. Normally, it is not necessary to use the choke when starting a warm engine.

(6) **Light Switch** (Figure 1). Pull the switch out to turn on the front and rear lights. The ignition key must be turned on before the lights work.

(7) **Seat Interlock Switch** (Figure 1). This switch, located in the seat, is actuated by the operators weight. If the operator leaves the seat for any reason while the PTO is "ON" or the shift lever is not in "PARK START" the PTO clutch and engine ignition are both shut off. When the PTO is "OFF" and the shift lever is in "PARK/START" leaving the seat will not cause the engine to stop.

(8) **Hydraulic Lift** (Figure 1) This lever controls the hydraulic system used to raise and lower attachments. The lever has four positions – UP, HOLD, DOWN and FLOAT. The normal out-of-use position is the "HOLD" position. In this position the attachment will not raise or lower. When it is desired to raise the implement, move the lever to the "UP" position; to lower the attachment move the lever to the "DOWN" position. Place the lever in the "FLOAT" position to allow the attachments to follow the ground contours.

(9) **Ammeter** (Figure 1). The ammeter indicates the rate of battery charge or discharge. The indicator should register on the (+) side of the dial when the engine is running at any speed above a slow idle. When the engine is idling or with a fully charged battery, the ammeter may not show charge. Should the ammeter register on the (–) side of the dial for an extended period of time with the engine running, it indicates the alternator is not charging the battery. Check the battery connections or contact your dealer.

(10) **Hand Control Lever** (Figure 1). This lever regulates both tractor speed and direction. Move the lever forward from neutral to increase the forward travel speed. Move the lever rearward to back the tractor and regulate reverse speed. Refer to Figure 2.

NOTE: This lever must be placed in the "Park-Start" position before engine will start or to allow engine to keep running when operator gets off seat.

DO NOT MOVE CONTROL LEVER FROM "PARK-STOP" POSITION UNLESS ENGINE IS RUNNING.

(11) **Brake Pedal** (Figure 1) When this pedal is depressed the friction brakes will be applied to stop the tractor, DEPRESS THE NEUTRALIZER PEDAL (13) OR RETURN THE HYDRO STATIC CONTROL LEVER TO NEUTRAL BEFORE ATTEMPTING TO STOP THE TRACTOR.

(12) **Parking Brake** (Figure 1) The parking brake is a latch that locks the brake pedal. To apply the parking brake, depress the brake pedal, flip up the parking brake latch. (12) To disengage the parking brake, depress the brake pedal and push down the latch.

(13) **Neutralizer Pedal** (Figure 1). When this pedal is fully depressed the hand control lever will return to neutral and the forward or reverse motion of the tractor will stop. KEEP FOOT OFF PEDAL DURING NORMAL OPERATION OR WHEN MOVING THE HAND CONTROL LEVER. The pedal is an optional control for slowing down or stopping. Use of the pedal and hand control lever simultaneously can result in misadjusted hydrostatic linkage.

(14) **Lift Selector** - Connects the hydraulic lift to front/center or rear rock shaft. See page 14 and Figure 27 for operation.

(15) **Implement Reset Button** - Press to restart PTO in the event the operator leaves the seat momentarily. Under these conditions the PTO and engine ignition will be shut off. If the operator sits down before the engine stops revolving, the engine will restart, but the PTO will not start until the reset button (15) is pushed. If the engine stops, the normal starting procedure (Implement switches (1) OFF; Hand Control Lever (10) in PARK START) must be followed.

OPERATION

PRE-STARTING INSPECTION

Prior to starting the engine for each day's operation, the following checks and services should be performed:

a. Check oil in engine crankcase. Add oil as required to maintain proper level.

b. Check fuel supply. Use regular gasoline only.

c. Check air filter for excessive dirt. Clean as required.

d. Make visual check with regards to safety precautions, obstructions, lubrication, and maintenance.

STARTING THE ENGINE

Use the following procedure to start the engine:

1. Place the hydrostatic control lever in the "Park-Start" position, shown in Figure 2.

NOTE: This is a safety feature. The engine will not start unless the control lever is pulled all the way to the rear of the "Park-Start" slot.

2. Be sure the Implement Power Control Switch (1) Figure 1, is pushed in (OFF).

NOTE: This is a safety feature. The engine will not start unless the switch is off (pushed in).

3. Raise throttle lever (3) Figure 1, to approximately 1/3 fast position.

4. Pull choke control (5) Figure 1, all the way out if engine is cold. If engine is warm, little or no choke may be required.

5. Turn ignition key (4) Figure 1, clockwise all the way. Release key as soon as the engine starts and push choke button in. In cold weather it may be necessary to push choke in gradually until engine warms up. If engine fails to start on the first attempt, turn key to off, wait a few minutes and try again. Do not operate the starting motor continuously for more than 30 seconds at a time.

Always allow engine to warm up before applying load. In below freezing weather, allow engine to run at a fast idle for a period of at least 5 minutes before using the tractor. Serious internal damage to the engine and hydrostatic transmission could result if this procedure is not followed.

OPERATING THE TRACTOR – CONTROL LEVER

When the hand control lever is placed in the "Park-Start" position as shown in Figure 2, a pin engages in the teeth on the reduction gear inside the rear axle housing. This mechanically locks the rear wheels and prevents them from turning. When the control lever is moved into the neutral (N) position, Figure 2, the pin is disengaged; however, the hydrostatic transmission will not allow the rear wheels to turn provided there is sufficient oil in the transmission and the free-wheeling valves are not depressed.

To move the tractor forward and to increase forward travel speed, gradually push the hand control lever forward in the slot from the neutral (N) position, shown in Figure 2. To stop or slow down, gradually pull the control lever toward the neutral (N) position or depress the neutralizing pedal.

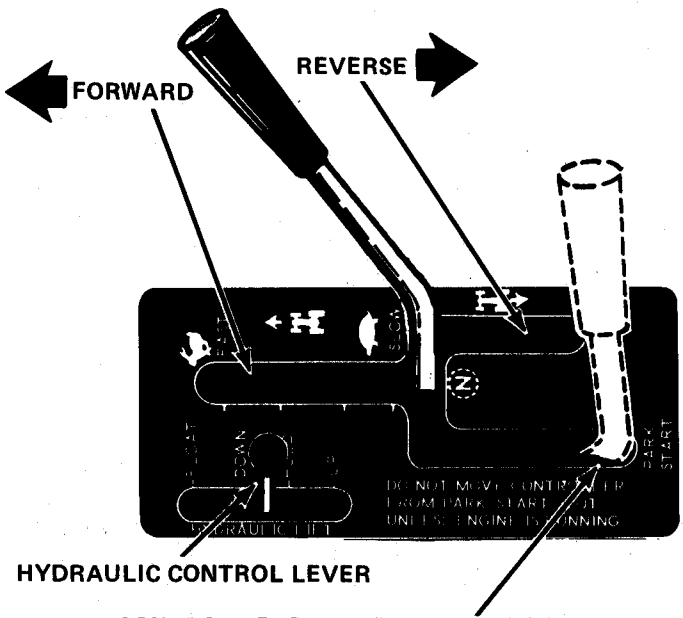
NOTE: The lines next to the forward slot do not indicate a given speed and serve as guide lines only.

To move the tractor backward and increase reverse travel speed, gradually pull the hydrostatic control lever back in the reverse (R) slot from the neutral (N) position, shown in Figure 2. To stop or slow down, gradually push the control lever toward the neutral (N) position or depress neutralizing pedal slowly with foot.

To stop the tractor, return the control lever to neutral either by hand or with the neutralizing pedal and then step on the brake to stop tractor from rolling.

DO NOT MOVE CONTROL LEVER FROM "PARK-START" SLOT UNLESS ENGINE IS RUNNING..

CONTROL LEVER IN NEUTRAL (N) POSITION - TRACTOR STOPPED



CONTROL LEVER IN "PARK START" POSITION - TRACTOR PARKED OR STOPPED

FIGURE 2

Because of the dynamic braking characteristics of the hydrostatic transmission the control lever is extremely sensitive to the slightest movement when in the forward or reverse slots. Always move lever slowly when in these slots.

When the tractor is stopped on a hill or grade and the control in neutral, a slight amount of tractor movement is considered normal, if wheel brakes are not applied after neutralizing transmission speed control.

The forward travel speed of the tractor is infinitely variable from 0 to 6.8 mph. The reverse travel speed is infinitely variable from 0 to 3.2 mph with the engine running full throttle.

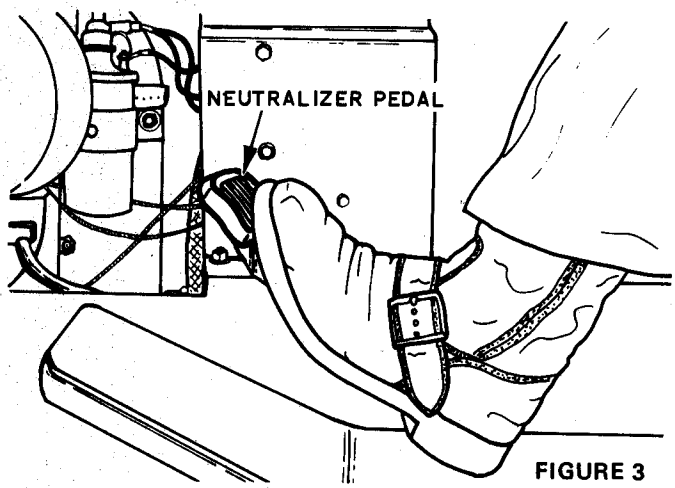


FIGURE 3

NOTE: KEEP FOOT OFF PEDAL DURING NORMAL OPERATION OR WHEN MOVING THE HAND CONTROL LEVER. USE OF THE PEDAL AND HAND CONTROL LEVER SIMULTANEOUSLY CAN RESULT IN MIS-ADJUSTED HYDROSTATIC LINKAGE.

THROTTLE LEVER SETTING

When operating power driven attachments such as the mower, snow thrower or the rotary tiller, run the engine at full throttle unless the attachment operator's manual specifies otherwise. Use the hand control lever, **not the throttle lever** to select a safe travel speed when using power driven attachments.

Safe or proper travel speed depends on the attachment used, the type of terrain and lawn, field or garden conditions in which the tractor is operated.

STOPPING THE TRACTOR

To stop the tractor, depress neutralizer pedal completely ⑬ or move control lever ⑩ to neutral, Figure 1, and depress the brake pedal. Then place the control lever in the "Park Start" position and set the parking brake. Figure 4.

EMERGENCY STOPS

For emergency or "panic" stops, the neutralizer pedal and brake pedal can be used, see Figure 3. When the neutralizer pedal is depressed, the control lever is shifted to the neutral (N) position from either the forward or reverse positions, then use the brake pedal to stop the tractor if motion continues.

NOTE: Keep foot off neutralizer pedal when moving the hand control lever. Use of the neutralizer pedal and control lever simultaneously can result in mis-adjusted hydrostatic linkage. Become familiar with the use of the neutralizer pedal. Using the foot controlled neutralizing pedal for all slowing down and stopping operations will make emergency or "panic" stops become "automatic" by use.

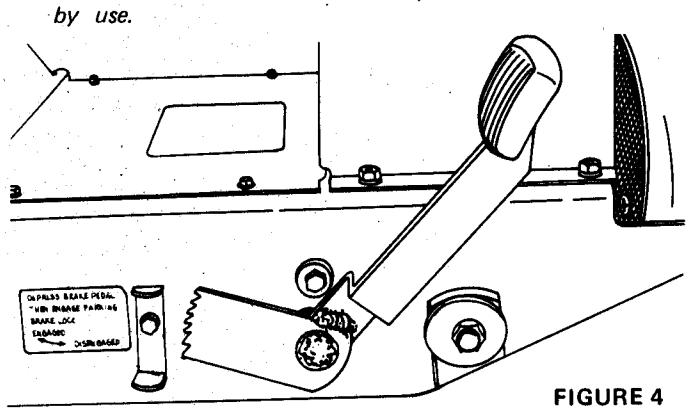


FIGURE 4

STOPPING THE ENGINE

Always use the following procedure to stop the engine:

1. Move the hand control lever ⑩ Figure 1, in "Park-Start" position and set the parking brake, Figure 4.

2. Disengage Implement Power Control Switches ① Figure 1, and driven attachments.

3. Lower attachment so that it is resting on the floor or ground.

4. Lower the throttle lever ③ Figure 1, and allow engine to idle for a short period before turning it off.

5. Turn the ignition key ⑥ Figure 1, counterclockwise to stop engine.

IMPORTANT – Remove ignition key before dismounting from tractor. This will prevent children and inexperienced operators from starting the tractor.

RAISING THE REAR DECK

The transmission and control linkage are readily accessible by raising the rear deck, shown in Figure 5. To raise the rear deck, place the hydrostatic control lever in the "Park-Start" position, release the two latches and raise the rear deck to its stop.

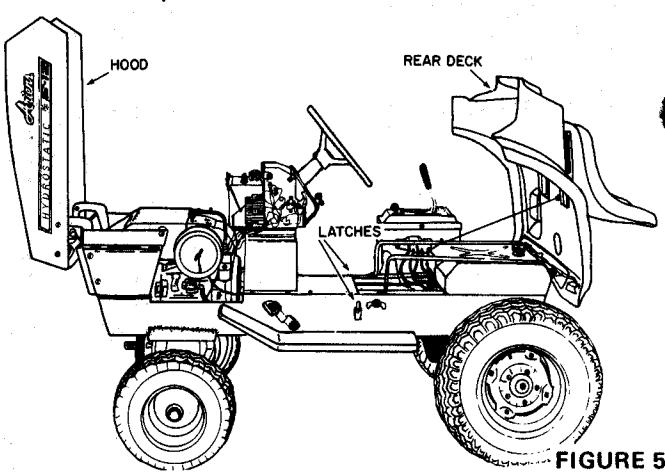


FIGURE 5

CAUTION: Always shut off engine before raising the rear deck. Be sure to lock the rear deck down with the latches provided before operating the tractor.

RAISING THE HOOD

The engine, battery and electrical components are readily accessible by raising the hood, see Figure 5. To raise the hood grasp each side and raise it up and forward to its stop.

CAUTION: ALWAYS SHUT ENGINE OFF BEFORE RAISING HOOD. NEVER TOUCH MUFFLER, EXHAUST PIPE OR ENGINE UNTIL THEY HAVE HAD TIME TO COOL AFTER OPERATING THE ENGINE.

FREE-WHEELING VALVE

The free-wheeling valves are located under the rear deck on top of the transmission, see Figure 6. These valves must be kept closed (buttons out) at all times except when it becomes absolutely necessary to push the tractor with the engine stopped. If this should happen, open the valves by pushing the buttons "IN", by rotating cam. See Figure 6.

Before attempting to push the tractor be sure the hydrostatic control lever is in neutral (N) and the free wheeling valves pushed in. If the lever is in the "Park-Start" position the rear wheels will be mechanically locked.

The tractor will not move under power unless the free wheeling valves are closed (button out), by rotating cam.

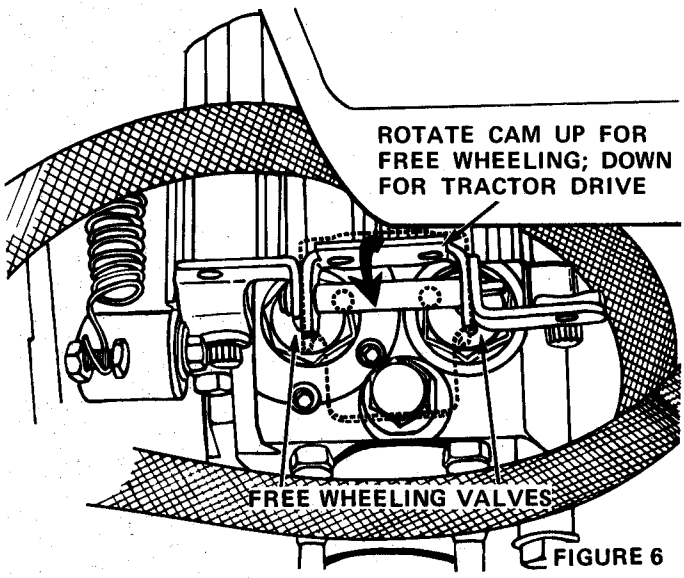


FIGURE 6

IMPORTANT: DO NOT PUSH OR TOW TRACTOR LONG DISTANCES AS INTERNAL TRANSMISSION DAMAGE COULD RESULT. LOAD TRACTOR ON A TRAILER OR TRUCK WHEN MOVING LONG DISTANCES.

LUBRICATION

FILLING THE TANK

The fuel tank filler cap is located behind the seat, see Figure 7. Wipe the dust and dirt from around the cap before removing it to prevent dirt from falling into the tank while filling. Use an approved gasoline container and keep it clean.

The fuel tank capacity is 4.5 U.S. gallons.

Use regular grade gasoline. Be sure the gasoline is clean and fresh. Do not use premium gasoline. Do not mix oil with gasoline.

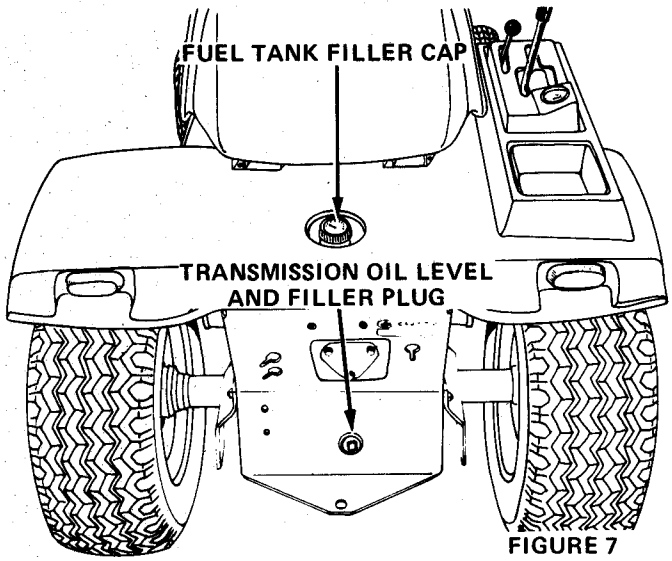


FIGURE 7

ENGINE

Check the engine crankcase oil level daily or every 5 hours operation. It is essential that the oil level be maintained in the "safe" operating range as shown in Figure 8 at all times or serious engine damage could result.

To check the oil, stop engine and wipe all dirt and dust from around the dip stick, Figure 9. Pull dip stick out, wipe off the oil, re-insert dip stick and push it down tight. Pull the dip stick out and observe the oil level. Add sufficient oil of the proper viscosity to bring the oil up to the "fill" (F) mark, see Figure 8. Be sure tractor is level to correctly read dip stick.

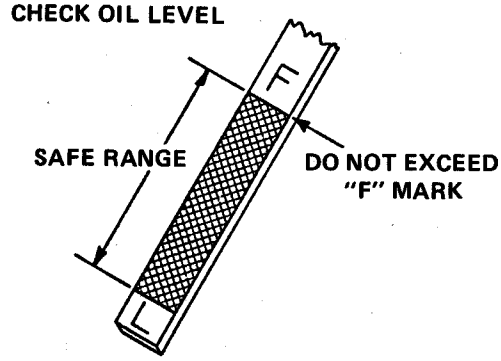


FIGURE 8

DO NOT OVERFILL – Oil level must never exceed full mark. Oil capacity of the engine crankcase is 4 U.S. pints.

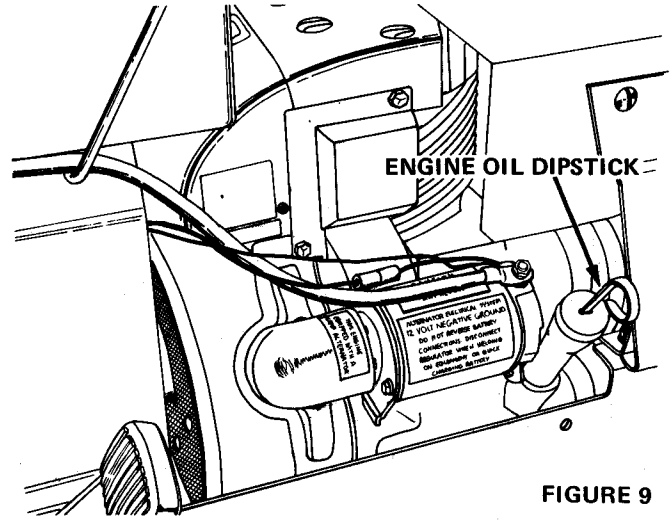


FIGURE 9

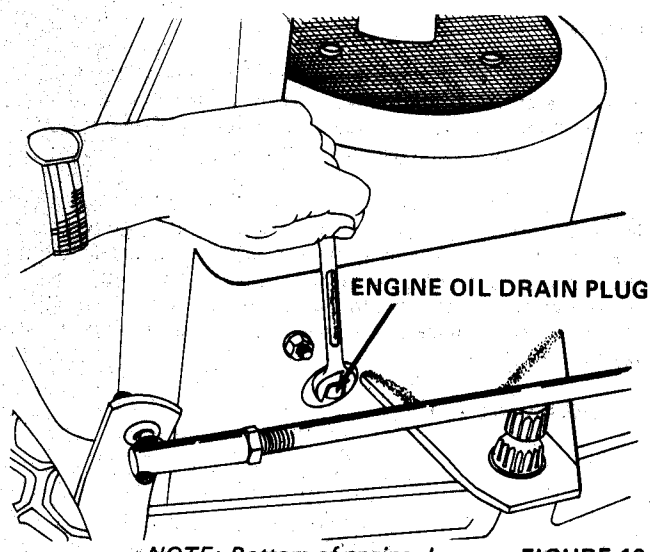
Use Ariens Gard-N-Yard oil (SAE 10W-30 SE classification) when using lawn and garden attachments. Use Ariens Sno-Thro oil (SAE 5W-20 SE classification) when using snow removal attachments.

CHANGE ENGINE OIL

When the tractor is new, the oil should be changed after the first 5 hours of operation.

Under normal operating conditions, the oil should be changed every 25 hours of operation. If extremely dusty or dirty conditions prevail, change oil more frequently. See Engine Owner's Manual.

Drain the crankcase by removing the drain plug, shown in Figure 10, and allow the oil to drain into a container. If possible, run engine just prior to changing oil, as the oil will flow more freely and carry away more contamination when hot.



NOTE: Bottom of engine shown. **FIGURE 10**

Replace drain plug. Remove dip stick and refill crankcase with 4 U.S. pints of oil. Check oil on the dip stick to see that the oil level is at the full (F) mark. Do not overfill.

TRANSMISSION OIL GRADE AND VISCOSITY

Ariens Gard-N-Yard 10W-30 or an equivalent detergent type motor oil meeting the requirements of the American Petroleum Institute (A.P.I.) Service Classification SE should be used. Oil viscosity (weight) should be SAE 10W-30 and is recommended for year-round use.

TRANSMISSION OIL LEVEL

The hydrostatic transmission, differential and hydraulic lift system all operate from a common oil reservoir. Note that the rear end is the oil reservoir. The oil level in the reservoir should be checked every 25 hours of operation or monthly.

CAUTION: Proper oil level is essential for proper operation and protection against severe damage to the transmission as well as dynamic braking.

Use the following procedure to check the transmission oil level:

1. Drive tractor onto level ground.

2. On tractors with hydraulic lift systems, move hydraulic control lever to the "DOWN" position until the lift cylinder is fully retracted.

3. Move control lever to park start, keeping engine at fast idle.

4. Wipe dirt from around the oil level and filler plug. See Figure 7.

5. Remove plug. Oil level should be to the top of the pipe elbow at the filler plug, see Figure 11.

6. If necessary, use a small funnel to add sufficient SAE 10W-30 with SE classification motor oil to bring the oil up to the proper level. Replace plug.

Be very careful to prevent dirt and foreign materials from entering the oil reservoir when checking or adding oil.

CHANGE TRANSMISSION OIL FILTER

When the tractor is new, change the filter after the first five (5) hours of operation.

Thereafter, the filter should be changed every 100 hours or annually, whichever comes first. It is not necessary to change the transmission oil.

Use the following procedure to change the transmission oil filter.

1. Drive the tractor onto level ground. Place a container under the filter to catch oil spillage as filter is removed.
2. Unscrew and discard oil filter. Use an oil filter removal tool if necessary.

3. Moisten the rubber gasket with oil and install the filter.

4. Start engine and cycle the hydraulic lift until it operates smoothly. This bleeds the air out of the transmission. Check for leaks.

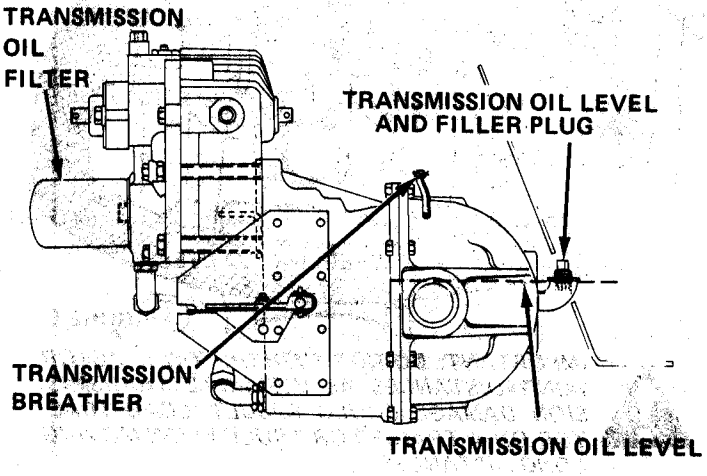


FIGURE 11

5. Move control lever to park start, keeping engine at fast idle.

6. Wipe dirt from around the oil level and filler plugs. See Figure 8. Remove plug.

7. Add sufficient SAE 10W-30 motor oil so that the oil fills the elbow. Install the filler plug.

Be very careful to prevent dirt and foreign materials from entering the reservoir or oil filter when changing the oil and filter.

Be sure breather is not clogged. Wipe clean with a rag and solvent. See Figure 11.

GREASE STEERING SYSTEM

Under normal conditions the steering system should be lubricated every 50 hours of operation or quarterly whichever occurs first. The following list of grease fittings are identified in Figure 12. Wipe each fitting clean before and after lubrication! Use a good grade of general purpose grease such as Ariens Multi-Purpose grease.

Rotate steering wheel clockwise until the spindle arm contacts the axle stop and fill gearbox until grease is forced out around the cam follower adjusting screw.

1. Steering gearbox.
2. Left king pin.
3. Front L.H. Wheel.
4. Axle pivot.
5. Right king pin.
6. Front R.H. Wheel.

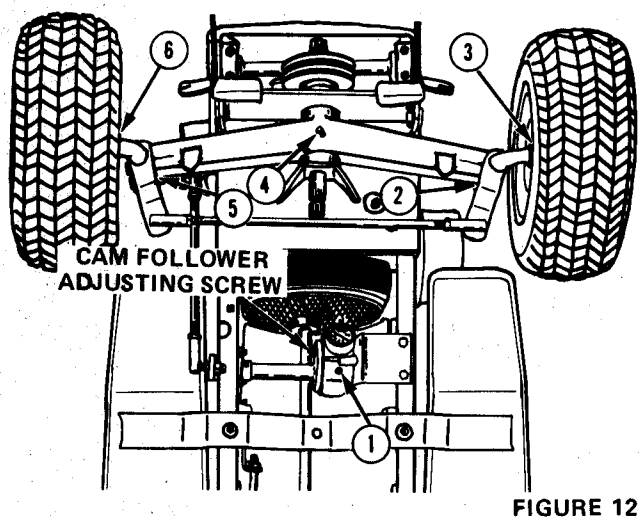


FIGURE 12

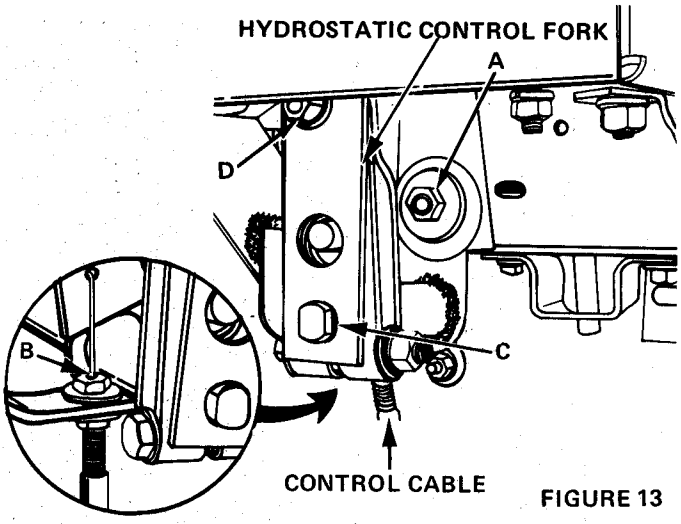


FIGURE 13

OIL HYDROSTATIC CONTROL LINKAGE

1. Oil the roller in the cam slotted plate shown in Figure 18 with a few drops of light oil every 25 hours of operation or monthly.
2. Oil control cable B, Figure 13.
3. Periodically oil hydrostatic control pivot shaft at Point C, Figure 13.
4. Periodically lubricate all lift linkage pivot areas.

MAINTENANCE

NOTE THAT ALL ENGINE SERIAL NUMBERS HIGHER THAN THOSE LISTED BELOW HAVE A GOVERNOR SETTING OF 3250 RPM, NO LOAD (± 75 ROM). IDLE SET AT 1600 RPM, NO LOAD.

12 H.P.	MODEL NO. K301S	SERIAL NO. 8173991
14 H.P.	MODEL NO. K321S	SERIAL NO. 8117916
16 H.P.	MODEL NO. K341S	SERIAL NO. 8119833
18 H.P.	MODEL NO. K361QS	ALL ENGINES

HOUR METER

The hour meter is standard equipment on the Model 931015 and is available as an optional accessory for all other models.

The hour meter is located under the engine hood, on the right side, just ahead of the dash panel. The hour meter will record the actual time the engine operates. Keep a record of hour meter readings in order to perform Maintenance and Lubrication services at the recommended hourly intervals.

AIR FILTER SERVICE

Check the air filter daily or every 5 hours of operation. When operating in extremely dusty conditions, check the air filter daily. A pre-cleaner is available.Consult the engine manual.

To clean the cartridge, remove the wing nut and the cover, shown in Figure 14. and then remove the cartridge. Gently tap the cartridge on a flat surface. Do not use any liquid cleaner to wash cartridge. Do not use compressed air to remove dirt as this may rupture the cartridge.

Examine cartridge carefully and replace it with a new one if it is bent, crushed or if there is a noticeable loss of power. Re-assemble cartridge and cover making sure it seats around the back plate. Install wing nut and tighten finger tight.

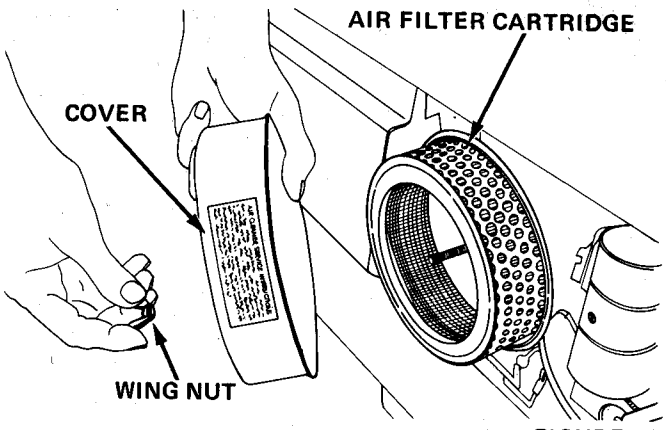


FIGURE 14

IMPORTANT: Do not run engine with air filter removed.

BATTERY SERVICE

Check the battery electrolyte level once each month. Add distilled water to bring the level to the bottom of the split ring in the filler tube of each cell.

Each spring and fall remove corrosion from the terminals and apply a light coat of grease to the terminals. Keep battery cables securely tightened to terminals and be sure battery is properly fastened down in battery holder at all times. Keeping battery clean will prolong battery life.

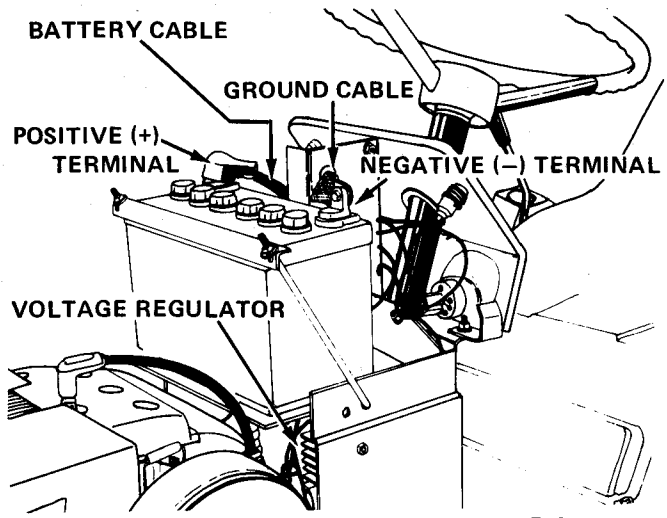


FIGURE 15

CAUTION: Storage batteries give off highly inflammable hydrogen gas. Do not allow sparks or flame near battery. Do not lay tools across battery terminals which may cause a spark resulting in an explosion.

Maintain the battery at full charge during storage and during winter months to prevent freezing. When water is added during freezing weather, run the engine at least one hour to thoroughly mix the water and electrolyte.

When installing the battery, make certain that the ground cable is connected to the negative (—) terminal on the battery, see Figure15. Be sure the battery cable is connected to the positive (+) terminal.

WARNING: Reversed battery cables or reversed cables from a battery charger or booster battery can cause damage to the regulator rectifier (Figure 17). Always disconnect plug from the regulator rectifier before using a charger, booster battery or when electric welding is done on the tractor.

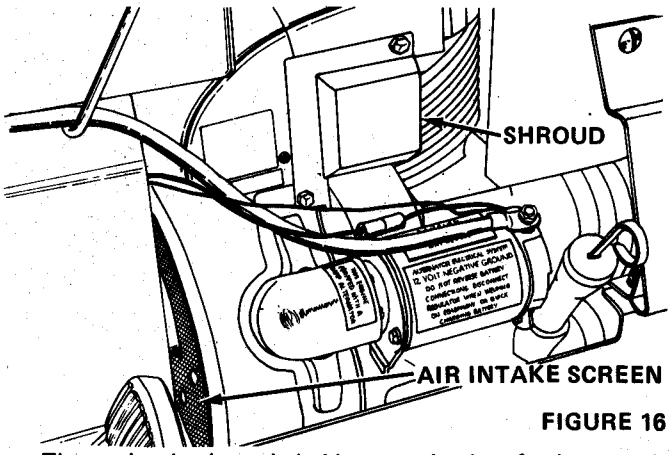


FIGURE 16

The engine is air cooled. Air must circulate freely around the engine from the air intake screen shown in Figure 16 and over the cooling fins in the cylinder head and block to prevent overheating.

Every 50 hours of operation or quarterly check the air intake screen. Wipe away any dirt or debris which has collected on the screen. Remove the shroud, Figure 16 and inspect the cooling fins. Remove any dirt, or chaff accumulations from the cooling fins with compressed air. Replace shroud.

TRANSMISSION COOLING

Dirt and grime accumulations on transmission cooling fins can cause overheating. Check and clean the cooling fins every 50 hours of operation or quarterly.

Be sure transmission cooling fan is in good condition.

TIRE PRESSURES

Check tire pressure at least once each month. Inflate tires to pressures shown in the chart below. Use a low pressure tire gauge for accurate readings.

TIRE SIZE	LOADING		
	Light	Medium	Heavy
Front 16 x 6.50 x 8	(Lawn Work) 8 p.s.i.	(Sno - Thro) 12 p.s.i.	16 p.s.i.
Rear 23 x 10.50 x 12	(Lawn Work) 6 p.s.i.	(Rotary - Tiller) 8 p.s.i.	10 p.s.i.

Keep tires properly inflated at all times. Over-inflation will cause operator discomfort. Under-inflation will cause short tire life. Always see that the tire valve caps are in place and securely tightened to prevent air loss.

FUEL PUMP AND FILTER

The engine may fail to start due to lack of fuel at the carburetor if the fuel pump shown in Figure 17 loses its prime. This can occur when the fuel tank is run dry or may be due to evaporation of fuel from the system after a storage period. In either case, make certain there is fresh fuel in the tank and operate the priming lever on the fuel pump several times to start fuel flow.

If a faulty fuel pump is suspected, see your Ariens dealer.

When dirt or other foreign material is allowed to enter the fuel tank it will collect in the fuel filter shown in Figure 17. This will eventually cause fuel stoppage. The filter can be disassembled and cleaned.

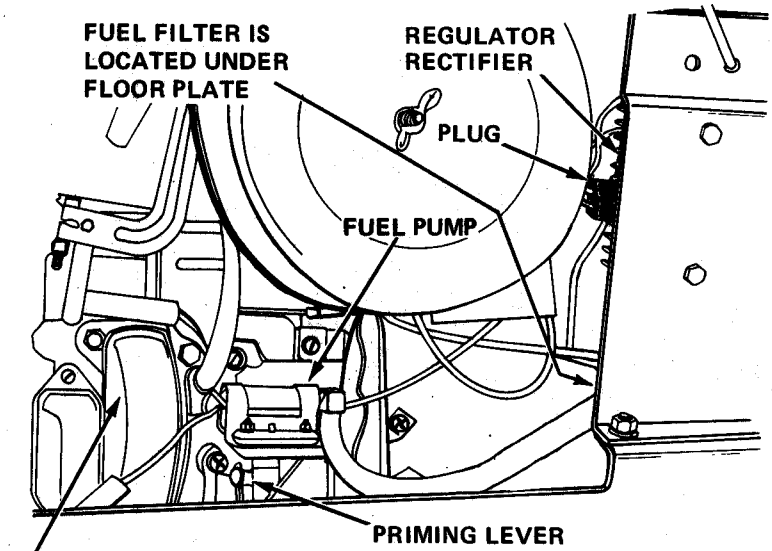


FIGURE 17

LUBRICATION AND PERIODIC SERVICE SCHEDULE

Hours of Operation/ Time Interval	Service Required
Every 5 Hours or Daily	Check Engine Crankcase Oil Service Engine Air Filter
Every 25 Hours or Monthly	Service Battery Check Tire Pressures Check Transmission Oil Level Change Engine Oil Clean Park Lock Assembly Oil Hydrostatic Control Linkage Oil Park Lock Control Cable
Every 50 Hours or Quarterly	Grease Steering System Clean Engine Cooling Fins Clean Transmission Cooling Fins Check Spark Plug
Every 250 Hours or Yearly	Clean Fuel Filter

NOTE: When tractor is new, change the engine oil and the transmission oil filter after the first five hours of operation.

ADJUSTMENTS

Ariens dealers will provide any service which may be required to keep the tractor operating at peak efficiency. The tractor is equipped with the finest quality engine obtainable. However, should servicing be required, it can be obtained from an Ariens dealer or an authorized engine manufacturer's service station. Consult your Ariens dealer for details.

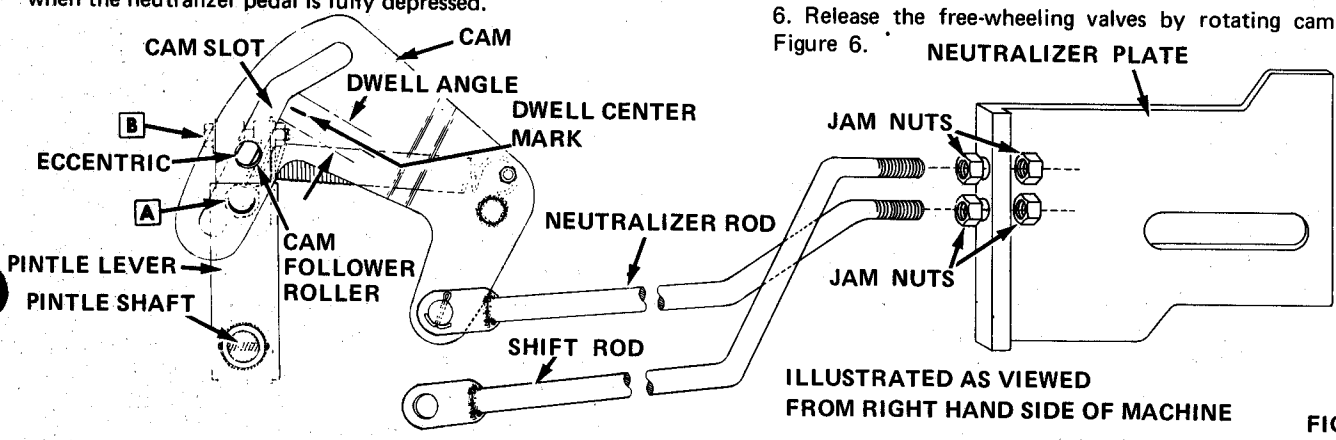
SEAT ADJUSTMENT

The seat is adjustable forward and backward to seven positions. To adjust seat position, grasp seat back and raise seat. Slide the seat forward or backward as required to the most comfortable position.

HYDROSTATIC CONTROL ADJUSTMENT

If the tractor creeps when the hydrostatic control lever is in the neutral (N) position on the control console, make the following adjustment:

The hydrostatic controls should be adjusted so the tractor does not creep forward or backward when the control lever is in the neutral (N) slot in the control console as shown in Figure 2. In addition, the control lever should automatically be shifted to this position from either "forward" or "reverse" when the neutralizer pedal is fully depressed.



ILLUSTRATED AS VIEWED FROM RIGHT HAND SIDE OF MACHINE

FIGURE 18

1. Jack up the rear of the tractor until the drive wheels clear the ground and BLOCK SECURELY. Wheels must be free to revolve.
2. With the control lever in "park-start" position, raise the rear deck. Activate seat switch to allow engine to start.
3. Start engine; place control lever in the neutral position and increase engine speed to full throttle.
4. Loosen clamp bolt B, Figure 18 a sufficient amount to allow the cam follower to rotate. Turn the eccentric "clockwise" or "counter-clockwise" as required until the rear tractor wheels completely stop. Retighten clamp bolt B.

Check adjustment by moving the control lever to both forward and reverse positions several times. Each time the lever is returned to neutral, the rear wheels should stop completely if they drift, re-adjust the eccentric until a true neutral position is found.

CAUTION: USE EXTREME CAUTION WHEN ADJUSTING THE HYDROSTATIC LINKAGE WITH THE ENGINE RUNNING DUE TO THE ROTATING DRIVE SHAFT COUPLING AND FAN.

If a positive neutral cannot be found by adjusting the eccentric, it will be necessary to adjust the hydrostatic linkage using the following procedure:

1. Use steps 1 and 2 of the previous procedure.

CAUTION: REAR AXLE MUST BE RAISED AND BLOCKED SECURELY SO THAT REAR WHEELS ARE FREE TO REVOLVE.

2. Loosen clamp bolt B, Figure 18 and rotate the eccentric until the flats on the eccentric are parallel to the cam slot as shown in Figure 18. Retighten bolt B. This will assure a maximum fine adjustment range.
3. With the control fork, Figure 19, move the cam, Figure 18, until the cam follower roller is lined up with the cam dwell center mark. DO NOT adjust the hydrostatic control fork, Figure 19, if the control lever is not in the neutral slot of the console. This is the final adjustment to be made.
4. Depress free-wheeling valves by rotating cam up. See Figure 6.
5. Loosen pintle lever clamp bolt A, Figure 18, a sufficient amount to allow the pintle lever to move freely. Move the hydrostatic control lever, Figure 19, in the park-start position, start the engine and run at idle. Return the control lever to the neutral slot in the control console.
6. Release the free-wheeling valves by rotating cam down, Figure 6.

CAUTION: WHEELS MAY TURN WHEN FREE-WHEELING CAM IS RELEASED. KEEP ARMS AND LEGS CLEAR AT ALL TIMES.

Check that the cam follower roller is lined up with cam dwell center mark. Move the pintle arm back and forth until wheels stop turning. Carefully tighten bolt A, Figure 18. The neutral adjustment is extremely sensitive and this procedure is a course adjustment. If, when bolt A is tightened, the wheels still move slowly, the fine tuning will be done in step 9.

7. Loosen (4) jam nuts on neutralizing plate, Figure 18, and depress neutralizer pedal completely, Figure 3. The cam follower roller, Figure 18, should remain in line with the cam dwell center mark. Snug (4) jam nuts up against neutralizer plate. Release pedal and securely tighten jam nuts.
8. Check the hydrostatic control lever. If the neutralizer pedal does not automatically shift the control lever to the neutral position from either "forward" or "reverse" when the pedal is fully depressed, loosen hydrostatic control fork adjustment bolt D, Figure 19. Move the fork so that it aligns with the neutral slot in the control console. Securely tighten bolt D.
9. If the wheels still move slowly when neutralized, increase the engine speed to full throttle. Loosen clamp bolt B, Figure 18 and adjust the eccentric roller until the wheels stop completely. Tighten clamp bolt B, Figure 18.

CONTROL LEVER FRICTION ADJUSTMENT

The hydrostatic friction plates, shown in Figure 19, must be adjusted so the control lever moves through the "forward" and "reverse" modes with a minimum of force. However, there must be sufficient spring pressure on the friction plates so that, under normal operating conditions, the control lever will remain at any selected setting.

If the tractor has a tendency to slow down or speed up without touching the control lever, it will be necessary to increase the spring pressure on the friction plates by tightening the screws at A and B, Figure 19. Access to these screws can be gained by raising the rear deck of the tractor and inserting a screw driver through the access holes as shown.

If the tractor has a tendency to speed up, tighten screw A slightly more than screw B.

If the tractor has a tendency to slow down, tighten screw B slightly more than screw A.

NOTE: The control console, see Figure 19, has been removed for clarity only.

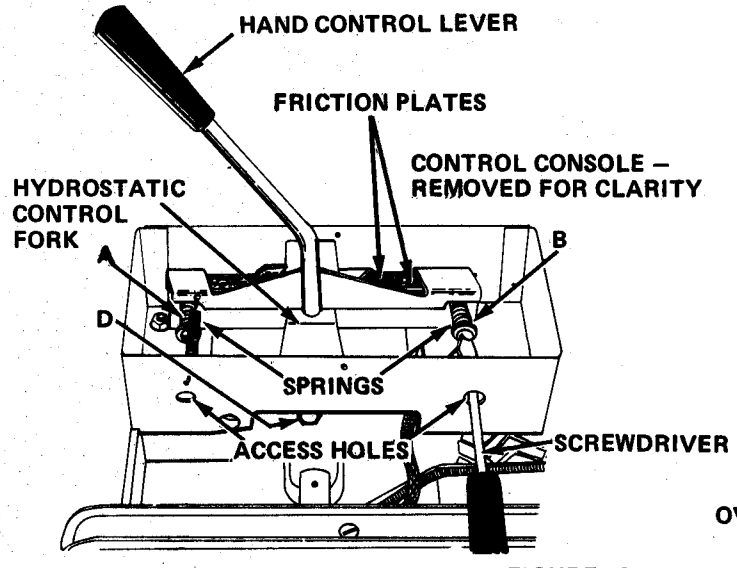


FIGURE 19

PARK LOCK MAINTENANCE AND ADJUSTMENT

When the hydrostatic control lever is placed in the "park-start" position, the cable shown in Figure 20 is pushed out of the cable housing causing the pivot plate to rotate in the direction of the arrow. This results in the park-lock pin engaging in a reduction gear in the differential housing which locks the rear wheels. When the control lever is moved forward, the pivot plate rotates opposite to the direction of the arrow shown in Figure 20 and the park-lock pin disengages from the reduction gear thus unlocking the rear wheels.

The park-lock mechanism should be kept clean of any dirt or grass build-up and the moving parts should be oiled occasionally to assure that the park-lock functions properly.

The park-lock mechanism is properly adjusted when the over-center latch pin, Figure 20 actuates at Point C, Figure 21 (approximately 1/2 to 2/3 the length of the slot on the console cover), as the control lever is moved from the front of the slot back into the park-start position. A distinct "click" can be heard when the over-center latch actuates.

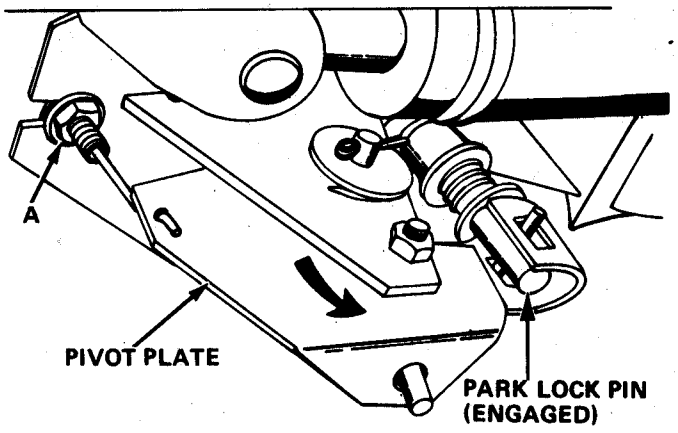


FIGURE 20

When the mechanism is properly adjusted, the park-lock pin will engage the teeth of the reduction gear when the control lever reaches Point B, Figure 21, and the pin will be completely disengaged at Point A.

Adjustment is made by loosening nuts A, Figure 20, and moving the cable housing "in" or "out" until the over-center latch actuates when the control lever reaches Point C, Figure 21, as the lever is moved from the front of the slot, rearward into the park-start position. Moving the cable housing "in" toward the tractor causes the park-lock pin to engage later. Moving it "out" away from the tractor causes the pin to engage earlier in the reduction gear.

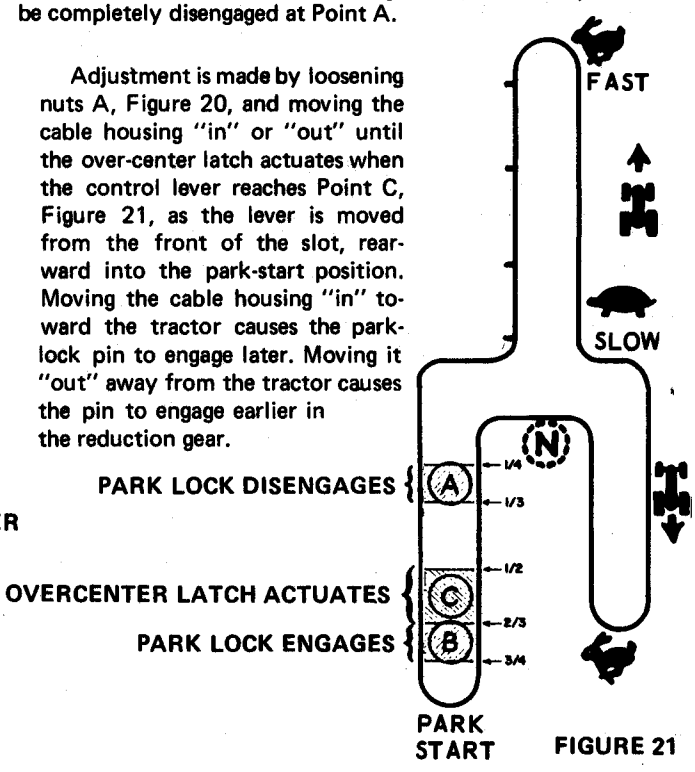


FIGURE 21

PARK LOCK BRAKE ADJUSTMENT

The park lock brake must be adjusted to hold the control lever at the rear of the "park-start" slot in the console. Otherwise, while starting the engine, the control lever will need to be held back to fully depress the safety switch located under the console cover.

The "park-lock" brake is adjusted by tightening or loosening nut A, Figure 20.

FRONT WHEEL TOE–IN ADJUSTMENT

Proper toe-in of the front wheels is necessary to assure proper steering and to reduce tire wear. The proper amount of toe-in is when the front of the wheels are 1/16" to 1/8" closer together than the rear of the wheels, measured at the horizontal centerline of the rim flange.

If the steering develops a wandering characteristic or if excessive tire wear develops, the toe-in of the front wheels should be checked. If the toe-in is incorrect, adjust as follows:

1. Loosen jam nuts A and B, Figure 23.

2. Rotate tie-rod until toe-in is correct. Shorten tie-rod to decrease toe-in. Lengthen it to increase toe-in.

3. Tighten jam nuts A and B after correct toe-in is obtained.

BRAKE ADJUSTMENT

The tractor brakes will require adjustment when the brake pedal depresses over two inches. To adjust the brakes proceed as follows:

1. Block up the rear of the tractor with the wheels off the ground.

2. Remove the wheel lug nuts and remove the wheel.

3. Insert a screw driver in the slot in the brake drum (See Figure 22) and tighten the star washer until the brakes are snug and the drum does not turn. Back off the star washer one full turn.

4. Replace the wheel and secure with the wheel lug nuts.

Repeat adjustment on the opposite wheel.

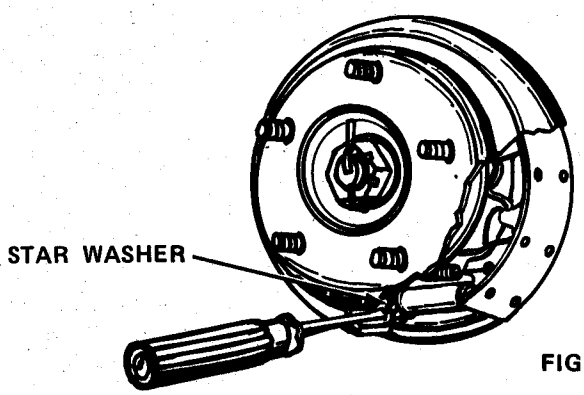


FIGURE 22

STEERING GEAR ADJUSTMENT

If excessive looseness is noticed in the steering system after continued use, the steering gear may require adjusting to remove excessive backlash between the gears. Adjust steering gear using the following procedure:

1. Raise front of tractor so that the tires clear the ground.

2. Remove cotter pin identified in Figure 23.

3. Loosen jam nut C, Figure 23 and turn adjusting screw out (counter-clockwise) 1½ turns.

4. Tighten adjusting plug, Figure 23, to 10-14 ft. lbs. of torque.

5. Rotate adjusting plug out slightly to align nearest slot in the plug with the cotter pin hole and reinstall the cotter pin.

6. Hold jam nut and turn adjusting screw, Figure 23, clockwise (in) until backlash is removed from steering wheel. DO NOT FORCE ADJUSTING SCREW. Torque jam nuts 35-45 ft. lbs. while holding adjusting screw in position.

7. Turn steering wheel from lock to lock and check for binding or dragging inside gearbox. If any binding or dragging exists, it will be necessary to loosen the adjusting screw and/or the adjusting plug slightly until steering wheel turns freely with no excessive looseness.

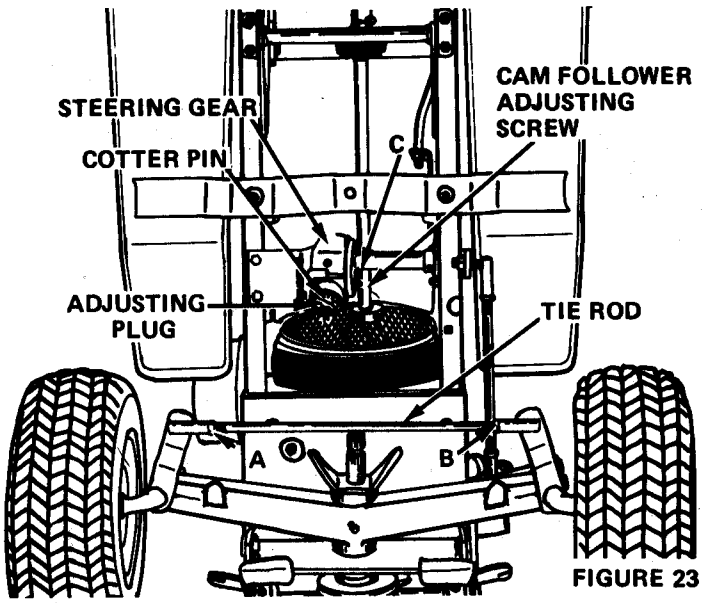


FIGURE 23

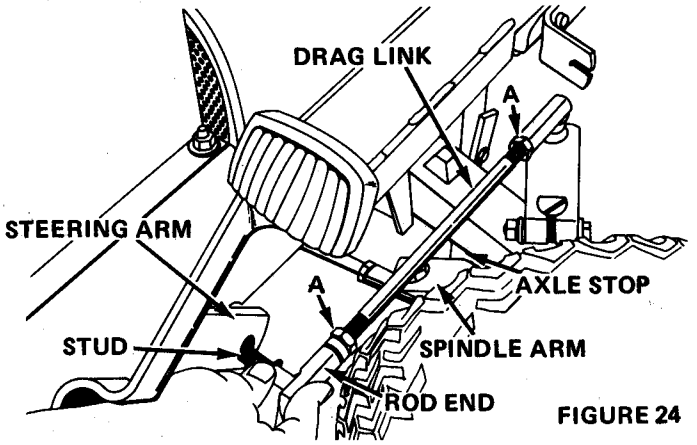


FIGURE 24

STEERING STOP ADJUSTMENT

When making a full right hand turn, the spindle arm should contact the axle stop as shown in Figure 24. When making a full left hand turn, the left spindle arm should contact the left axle stop. Proceed as follows to adjust the steering stops after checking toe-in.

1. Rotate front wheels to the right until right spindle arm contacts the axle stop, Figure 24.

2. Remove drag link rod end from steering arm, Figure 24, and loosen jam nuts A.

2a. Rotate steering wheel clockwise until steering gear bottoms. Back off 1/8-1/4 turn counter clockwise.

3. Rotate drag link as required while preventing the loose rod end from turning until the stud is approximately ½ hole to the rear of hole in steering arm, Figure 24. Be sure axle stop contacts steering arm.

4. Reinstall rod end stud in steering arm and tighten jam nuts A.

5. Rotate wheels completely to the left. The left spindle arm should contact left axle stop. If it does not, repeat step 2 and shorten drag links slightly until both spindle arms contact their respective axle stops when making full turns in either direction. The steering gear should not bottom before the spindle arm contacts the axle stop.

REAR WHEEL TREAD ADJUSTMENT

The rear wheels are normally assembled in the narrow tread position, shown in Figure 25. The wheels can be turned on the hubs for a wider tread. The wide tread provides greater stability on hillsides and on rough terrain.

Remove the wheel lug nuts, turn the wheels around with the valve stems inward and re-assemble on the hub.

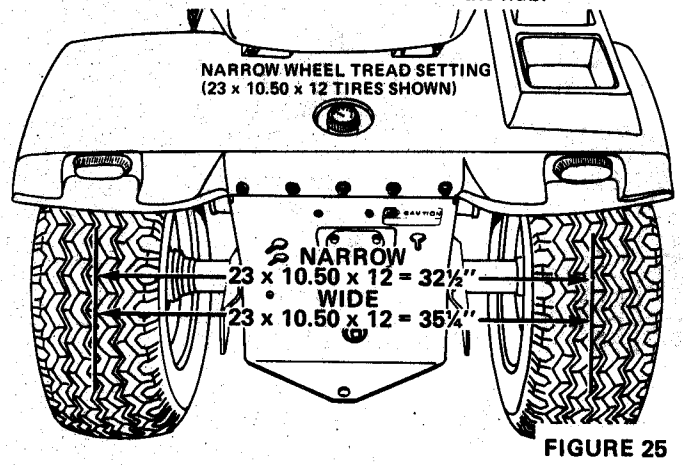


FIGURE 25

If Chevron tread tires are used, remove the wheel lug nuts and re-assemble the wheels on opposite sides of the tractor with the valve stems turned inward. Interchanging the wheels is necessary to maintain proper direction of rotation for traction tires.

HYDRAULIC LIFT OPERATION

The hydraulic control lever is located on the control console, shown in Figure 2. It is a four position lever to perform four functions, UP, HOLD, DOWN and FLOAT. The normal out-of-use position is the "HOLD" position and the attachment will not lower or raise. When it is desired to raise the attachment, the lever is pulled to the "UP" position and the cylinder is actuated to lift the attachment. When the lever is moved to the "DOWN" position, the oil pressure in the cylinder is reversed and the cylinder forces the attachment down.

When an attachment is being used which is designed to follow ground contours, the lever should be placed in the "FLOAT" position. The cylinder is then free to move as the attachment position requires.

Figure 28 shows the components of the hydraulic lift system. The hydrostatic transmission charge pump supplies the oil flow from the rear axle transmission oil reservoir. Oil flow to and from the cylinder is controlled by the valve. The back end of the cylinder is anchored to the rear rock shaft. The forward end of the cylinder is pinned to the lower end of the bell crank.

When the cylinder is extended or retracted, the bell crank pivots and raises or lowers both the front and center rock shafts at the same time through the front and center rock shaft linkages shown in Figure 28. The connection to the center rock shaft is made through the slotted hole which allows the center rock shaft to move up and down, allowing the mower to float independent of the flotation provision in the hydraulic system.

The center rock shaft flotation spring provides mower flotation. The tension on the spring can be increased by pulling the chain shown in Figure 26 and latching a chain link in the notch in the back of the tractor frame. This spring should always be in use when the mower pan is used.

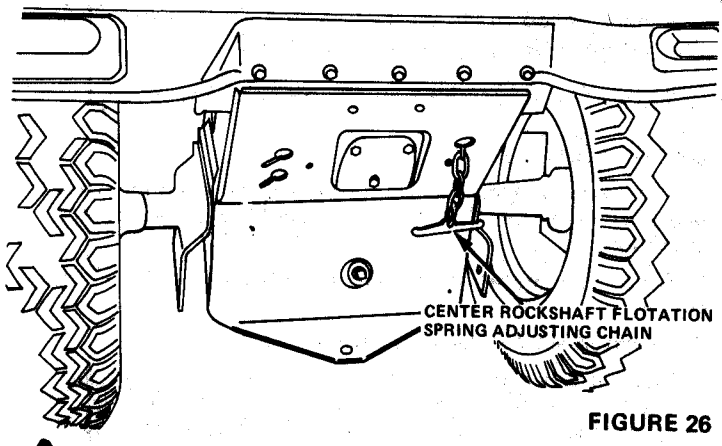


FIGURE 26

CAUTION - WHEN ADJUSTING CHAIN TENSION ALWAYS GRASP CHAIN HANDLE FIRMLY (NOT THE CHAIN) AS CONSIDERABLE TENSION IS ON THE CHAIN AND INJURY TO THE HANDS COULD RESULT.

HYDRAULIC LIFT REAR ROCK SHAFT

The tractor comes with a lift selector device so that the front and center rock shafts can be operated independently of the rear rock shaft while utilizing only one hydraulic cylinder. The alternately latched, split lift linkage system holds the front and center rock shafts in their raised positions while the rear rock shaft is operated by the cylinder or vice versa. This allows a rear mounted attachment to be used without removing the front or center mounted attachments and vice versa.

To make the rear rock shaft operational, move the hydraulic control lever to the "UP" position and hold it there until the cylinder is fully extended. Place the selector knob in the front notch (Figure 27).

To make the front and center rock shafts operational, move the hydraulic control lever to the "UP" position and hold it there until the cylinder is fully extended. Place the selector knob in the rear notch as shown in Figure 27.

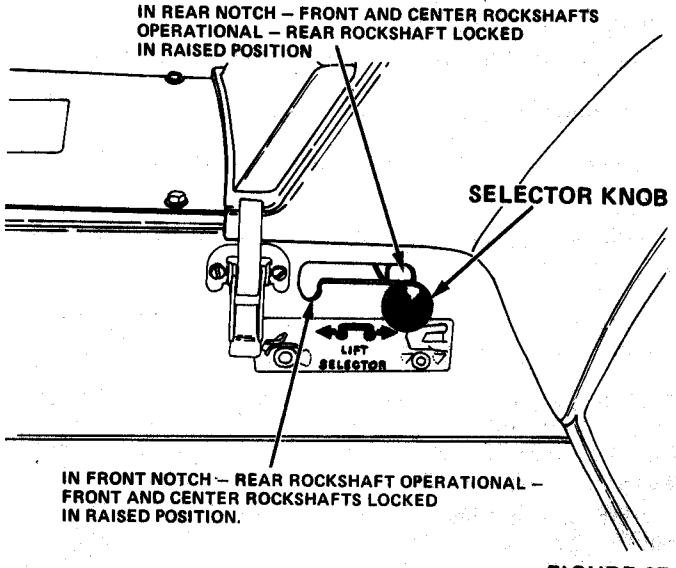


FIGURE 27

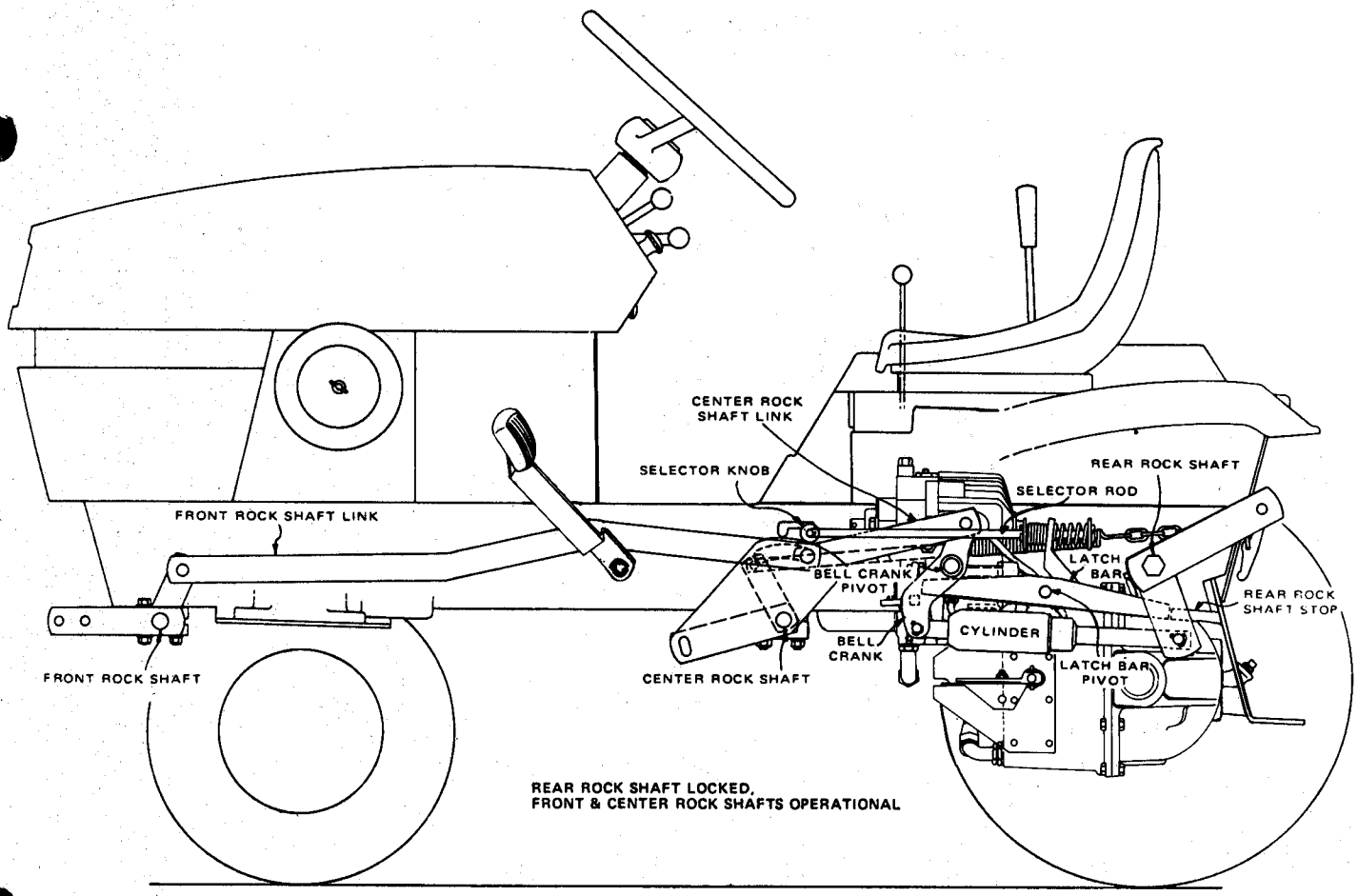


FIGURE 28

STORAGE

PREPARATION FOR STORAGE

1. Remove all oil, grease and dirt from engine and transmission.

2. Clean the tractor exterior and tires thoroughly, removing all mud, dirt and grease.

3. Touch up all unpainted and exposed areas with paint to prevent rust.

4. Change engine oil.

5. Disconnect fuel line at fuel filter and drain fuel tank. Run the engine until the fuel is exhausted from the system. Drain the carburetor by loosening the nut on the bottom of the carburetor bowl. Clean the fuel filter.

6. Remove and clean the battery. Check electrolyte level and have battery fully charged. Store battery in a cool, dry place where it will not freeze.

7. Remove the spark plug and pour one tablespoon of SAE 30 oil into the cylinder. Turn engine over manually at least two revolutions.

8. Re-gap spark plug. Replace if required.

9. Grease the steering system.

10. Store tractor in a cool, dry place to reduce tire deterioration. Block up tractor to take the weight off the tires.

11. Inspect tractor for visible signs of wear, breakage or damage. Order any parts required and make necessary repairs to avoid delays when starting next season.

NOTE: Your authorized Ariens dealer is trained and equipped to service your tractor. A periodic check-up by your dealer will help to reduce your maintenance costs.

PREPARATION FOR USE AFTER STORAGE

1. Replace battery and check electrolyte level.

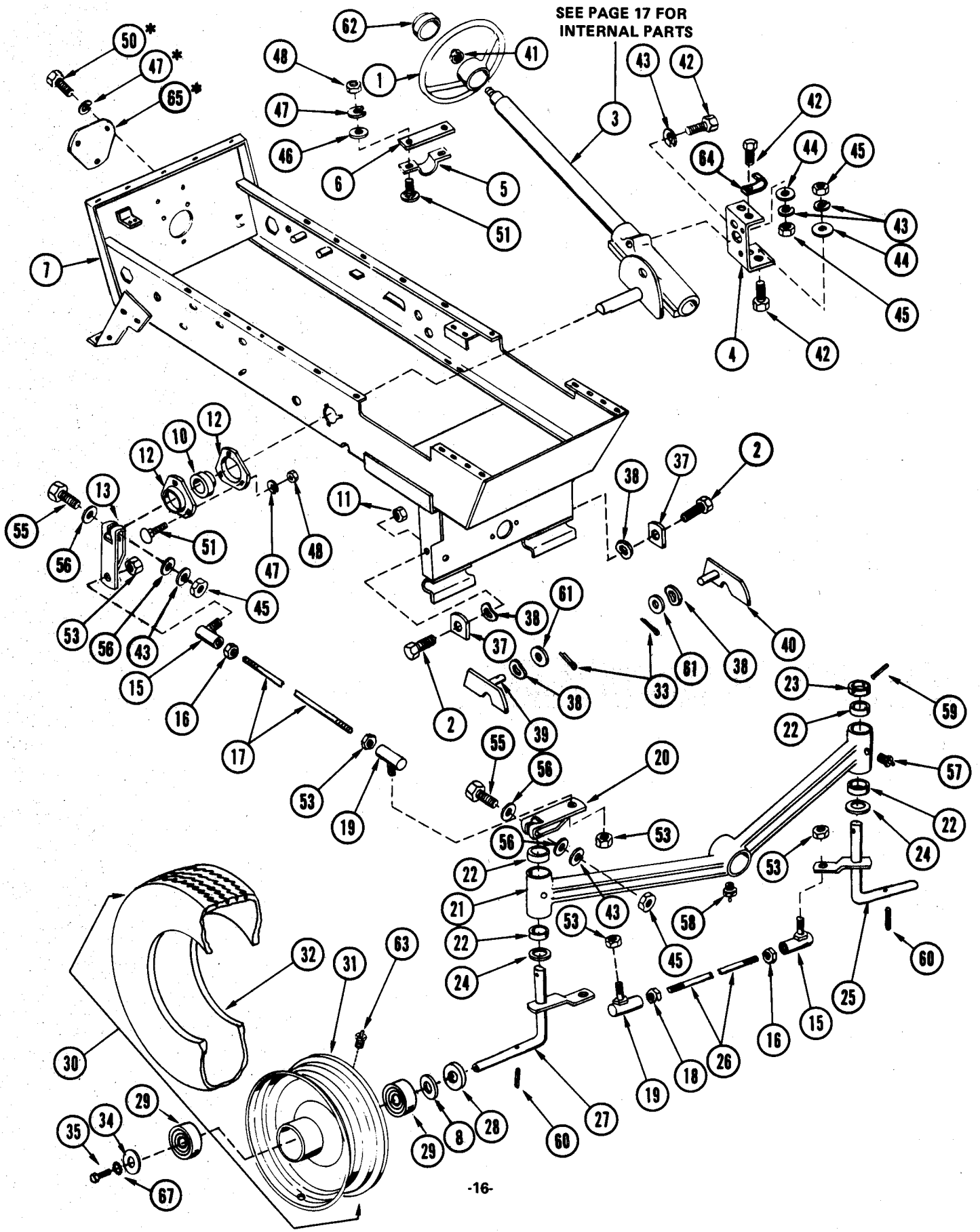
2. Fill fuel tank with fresh, clean regular gasoline.

3. Check transmission oil level.

4. Check tire inflation.

FRAME, STEERING, FRONT WHEEL

HYDROSTATIC MODELS 931015, 931016, 931017 & 031018



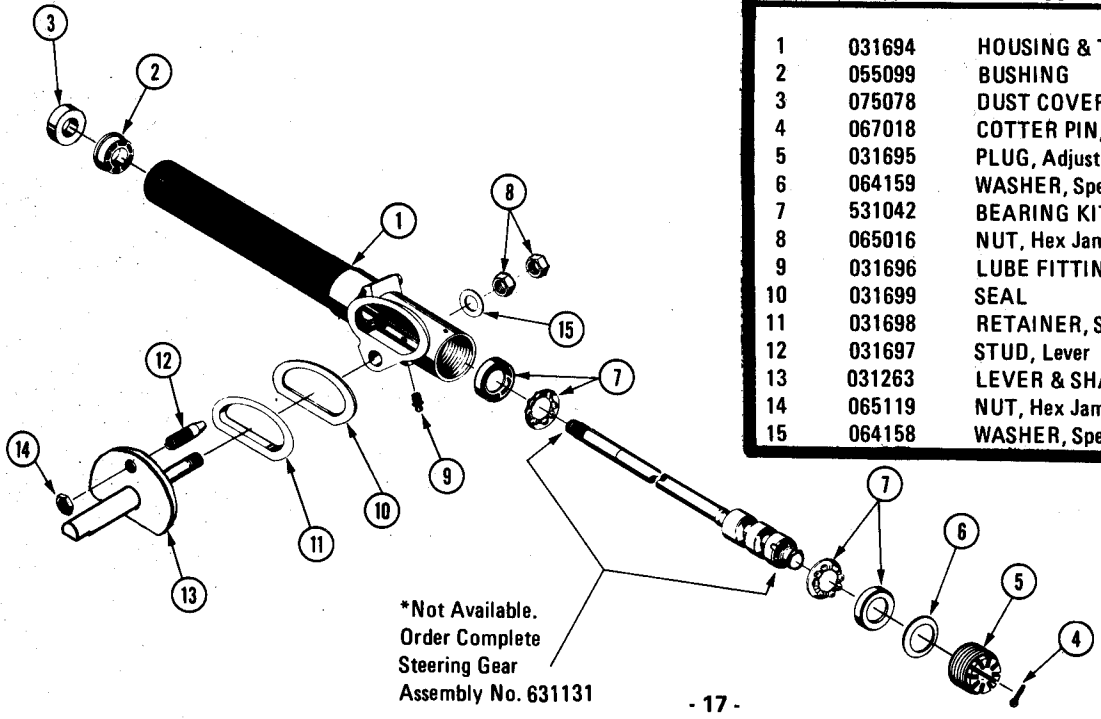
FRAME, STEERING, FRONT WHEEL

HYDROSTATIC MODELS 931015, 931016, 931017 & 931018

REF NO.	PART NO.	DESCRIPTION	NO REQ'D
1	031084	STEERING WHEEL	1
2	059004	CAP SCREW, HH, 3/8 - 16 x 1	2
3	631131	STEERING GEAR ASS'Y	1
4	031173	BRACKET, Mounting	1
5	031038	CLAMP	1
6	031049	PAD	1
7	531092	FRAME	1
8	064063	WASHER	AR
10	054101	BALL BEARING	1
11	065098	LOCKNUT, 3/8"	2
12	031020	BEARING FLANGE	2
13	031262	STEERING ARM	1
14	064126	WASHER, 2" OD. x 9/16" ID x .135 Thick	1
15	031130	BALL JOINT, L.H.	2
16	065105	NUT, Hex Jam 1/2" - 20 UNF (L.H.)	2
17	031929	DRAG LINK	1
18	065044	NUT, Hex Jam 1/2 - 20 UNF (R.H.)	6
19	031129	BALL JOINT, R.H.	2
20	031175	STEERING ARM	1
21	531011	FRONT AXLE W/BUSHING, ZERKS	1
22	055091	BUSHING	4
23	031140	SPINDLE COLLER, L.H.	1
24	075067	WASHER, 1-1/32 ID x 1-3/4 OD. x .060 Thick	2
25	031552	SPINDLE, L.H.	1
26	031169	ROD, 18-1/2" Long	1
27	031551	SPINDLE, R.H.	1
28	064029	WASHER	2
29	054121	RADIAL BEARING	2
30	631084	FRONT WHEEL ASS'Y - Consists of	2
31		071110 RIM	1
32		071103 TIRE	1
33	067024	PIN, cotter 1/8 x 3/4	2
34	031568	WASHER, SPECIAL	2
35	059154	CAP SCREW, 3/8-16 x 3/4 GR. 5	2
36	063006	LOCKWASHER, 1/2"	1
37	029013	LOCK STOP	2
38	029024	WASHER, Spring	4
39	029014	LATCH R.H.	1
40	029015	LATCH L.H.	1
41	065117	NUT, Hex Jam, 5/8"	1
42	059145	CAP SCREW, HH, 3/8 x 1" GR.5	7
43	063021	LOCKWASHER, 3/8"	8
44	064008	WASHER, Flat, 3/8"	4
45	065018	NUT, Hex, 3/8"	5
46	064002	WASHER, Flat, 5/16"	2
*47	063003	LOCKWASHER, 5/16"	8
48	065015	NUT, Hex, 5/16"	5
*50	059022	CAP SCREW, HH, 5/16 x 3/4	3
51	062015	BOLT, Carriage, 5/16 x 1"	3
52	059146	CAP SCREW, HH, 1/2 x 1-1/4" GR. 5	1
53	065121	LOCKNUT 1/2-20 UNF	5
55	059152	CAP SCREW, HH, 3/8 x 2-1/2	1
56	064131	WASHER, Flat, 3/8"	2
57	022093	ZERK FITTING	2
58	031121	ZERK FITTING, 90°	1
59	058037	ROLL PIN, 1/4 x 1-3/4	1
60	058004	ROLL PIN	2
61	064043	WASHER	2
62	031083	CAP	1
63	010353	ZERK FITTING	2
64	069094	CLAMP	1
*65	031031	COVER	1
67	063030	LOCKWASHER	2

*These parts are not required on Model 931015

STEERING GEAR ASSEMBLY

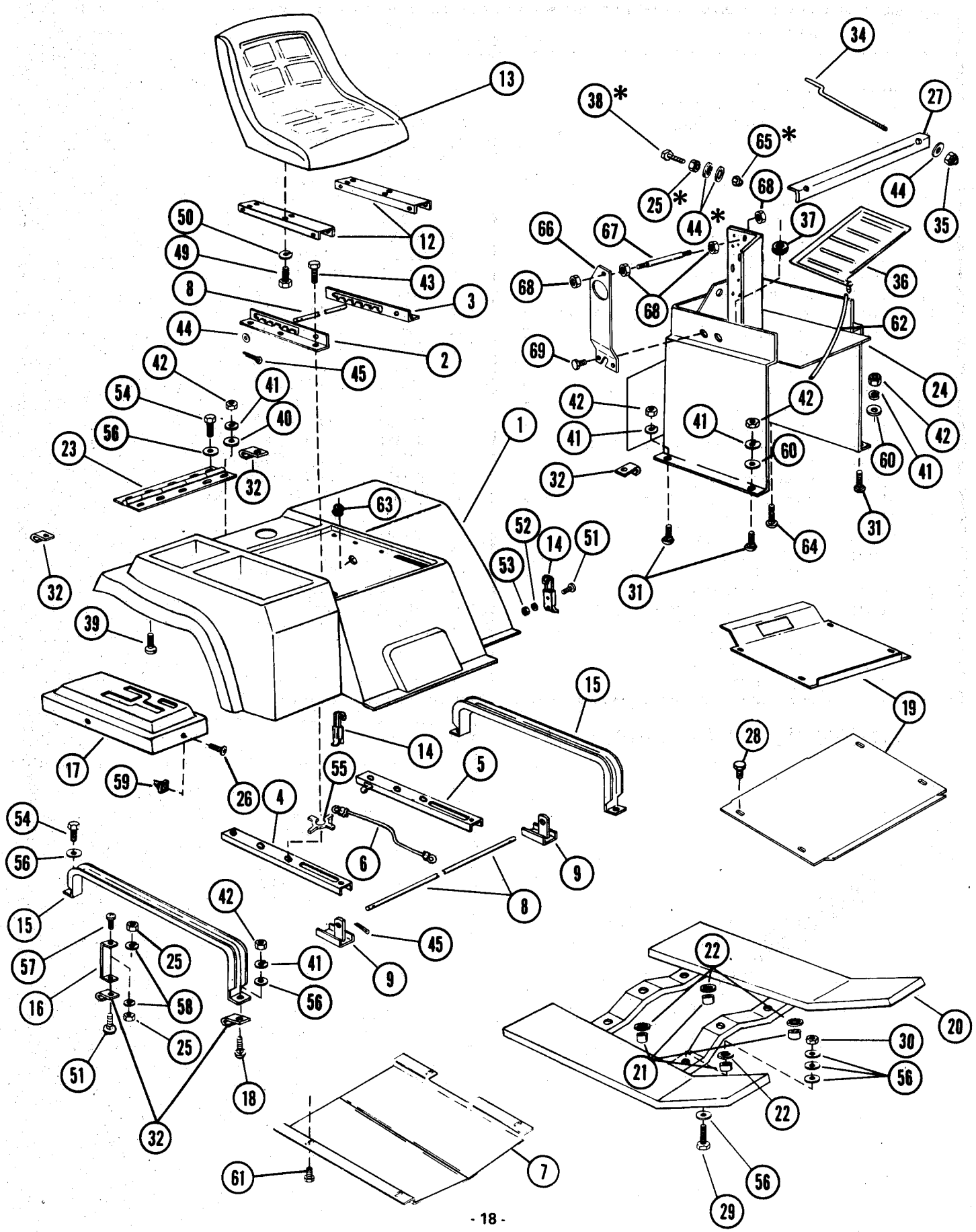


*Not Available. Order Complete Steering Gear Assembly No. 631131

REF. NO.	PART NO.	DESCRIPTION	NO. REQ'D.
1	031694	HOUSING & TUBE ASSEMBLY	1
2	055099	BUSHING	1
3	075078	DUST COVER	1
4	067018	COTTER PIN, 1/8" x 1/2"	1
5	031695	PLUG, Adjusting	1
6	064159	WASHER, Special	1
7	531042	BEARING KIT	2
8	065016	NUT, Hex Jam, 3/4"	2
9	031696	LUBE FITTING, 1/4" Straight	1
10	031699	SEAL	1
11	031698	RETAINER, Seal	1
12	031697	STUD, Lever	1
13	031263	LEVER & SHAFT	1
14	065119	NUT, Hex Jam, 9/16"	1
15	064158	WASHER, Special	1

REAR DECK, SEAT, DASH SUPPORT, RUNNING BOARD

HYDROSTATIC MODELS 931015, 931016, 931017, & 931018



*THESE PARTS NOT REQUIRED ON MODEL 931015

REAR DECK, SEAT, DASH SUPPORT, RUNNING BOARD

HYDROSTATIC MODELS 931015, 931016, 931017 & 931018

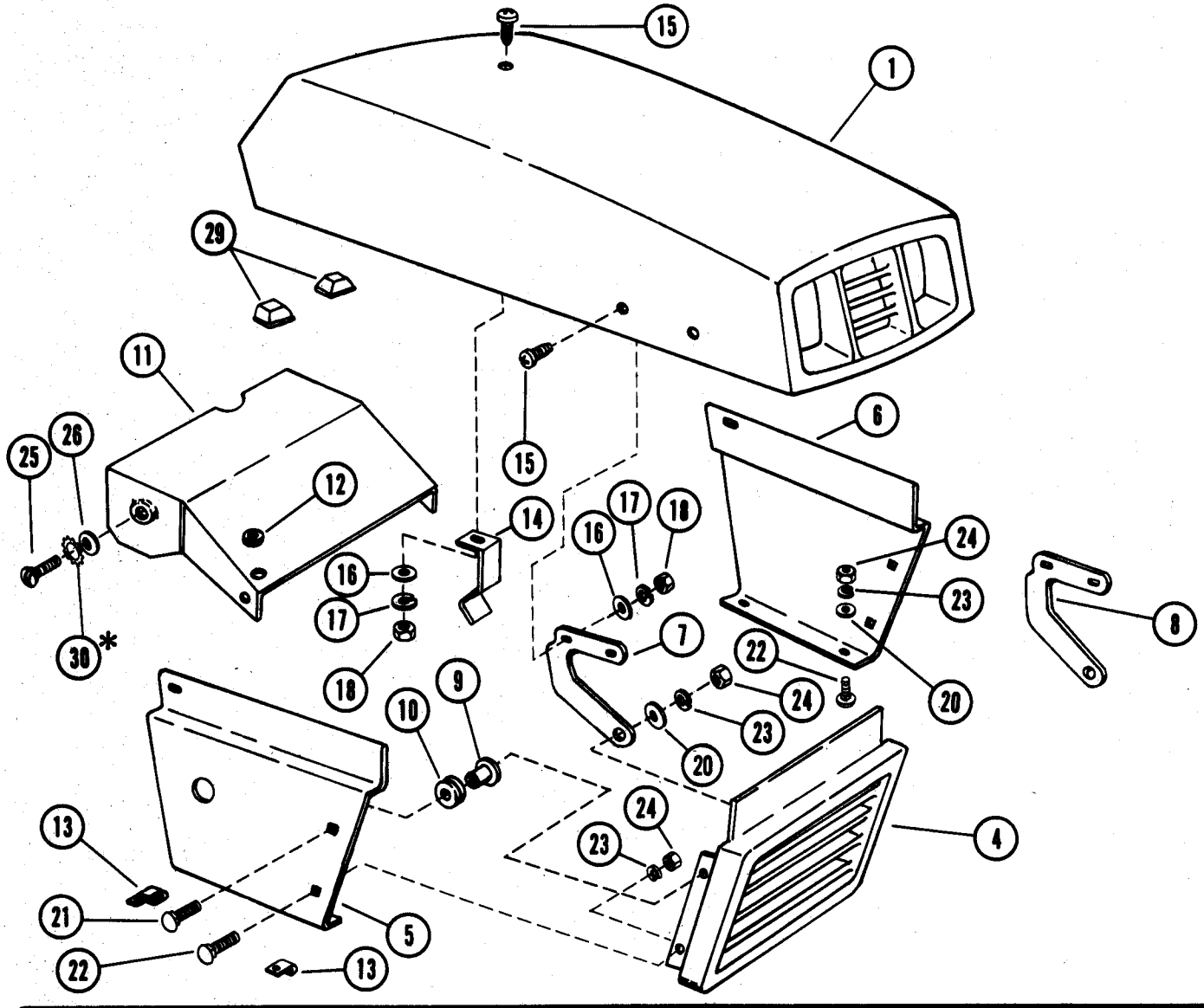
REF NO.	PART NO.	DESCRIPTION	NO REQ'D
1	031713	REAR DECK	1
2	031132	SEAT BRACKET, right hand	1
3	031133	SEAT BRACKET, left hand	1
4	031197	SEAT SUPPORT	1
5	031134	SUPPORT	1
6	069102	CABLE, 24"	1
7	031798	BOTTOM COVER	1
8	031135	ROD, 12-5/16" Long	2
9	031131	CHANNEL	2
12	031711	CHANNEL	2
13	031710	SEAT	1
14	031094	CLAMP	2
15	031517	CHANNEL	2
16	031055	SUPPORT	1
17	631118	CONSOLE DECK, W/Decal	1
18	062034	BOLT, Carriage, 5/16 - 18 x 3/4	2
19	531069	FLOOR PLATE, On 931016, 931017 & 931018	1
	531100	FLOOR PLATE, On 931015	1
20	031569	RUNNING BOARD	1
21	031019	SPACER	4
22	075066	GROMMET	4
23	031028	HINGE	1
24	531068	DASH SUPPORT	1
25*	065032	NUT, Hex, 1/4"	3
26	074001	SCREW, Self-Tapping, No. 10 x 3/8"	4
27	031086	BATTERY TIE DOWN	1
28	070015	FLANGE WHIZLOCK SCREW, 5/16-18 x 1/2	4
29	059069	CAP SCREW, HH, 5/16 x 1-1/4	4
30	065042	LOCKNUT, Hex, 5/16"	4
31	062011	BOLT, Carriage, 5/16 x 3/4	4
32	069094	"J" CLAMP	4
34	031089	ROD, Battery Tie Down	2
35	065070	NUT, Crown	2
36	031701	BATTERY TRAY (Models 931016, 031017 & 931018)	1
	031999	BATTERY TRAY (Model 931015)	1
37	075065	GROMMET	1
38*	059150	CAP SCREW, HH, 1/4 x 1-1/2	1
39	061042	SCREW, Machine, Truss H, 5/16 x 3/4	4
40	064123	WASHER, Flat, 5/16	4
41	063003	LOCKWASHER, 5/16	10
42	065015	NUT, Hex, 5/16	10
43	074043	SCREW, Self-Tapping, HH, No. 10 x 1/2"	6
44*	064127	WASHER, Flat, 1/4"	6
45	067003	PIN, Cotter, 1/16 x 1/2"	4
49	059023	CAP SCREW, HH, 3/8" x 3/4"	4
50	063021	LOCKWASHER, 3/8"	4
51	061012	SCREW, Machine R.H. No. 10-32 x 1/2"	5
52	063026	LOCKWASHER, No. 10	4
53	065026	NUT, Hex, No. 10-32	4
54	074017	SCREW, Self-Tapping, HH, 5/16 x 3/4	5
55	031556	X WASHER	1
56	064002	WASHER, Flat, 5/16	17
57	061039	SCREW, Machine, Truss H, 1/4 x 3/4	1
58	063002	LOCKWASHER, 1/4"	2
59	075076	PLASTIC GROMMET	4
60	064123	WASHER	2
61	070015	FLANGE, Whizlock Screw	4
62	031709	HOSE	1
63	075044	GROMMET	1
64	062015	CARRIAGE BOLT	1
65*	065099	NUT	1
66	031961	BRACKET	1
67	031965	ROD	1
68	065056	LOCKNUT	4
69	074052	SCREW, Self Tapping	2

MODEL 931015 ONLY

*THESE PARTS ARE NOT REQUIRED ON MODEL 931015

HOOD, GRILL, AND HEAT SHIELD

HYDROSTATIC MODELS 931015, 931016, 931017 & 931018

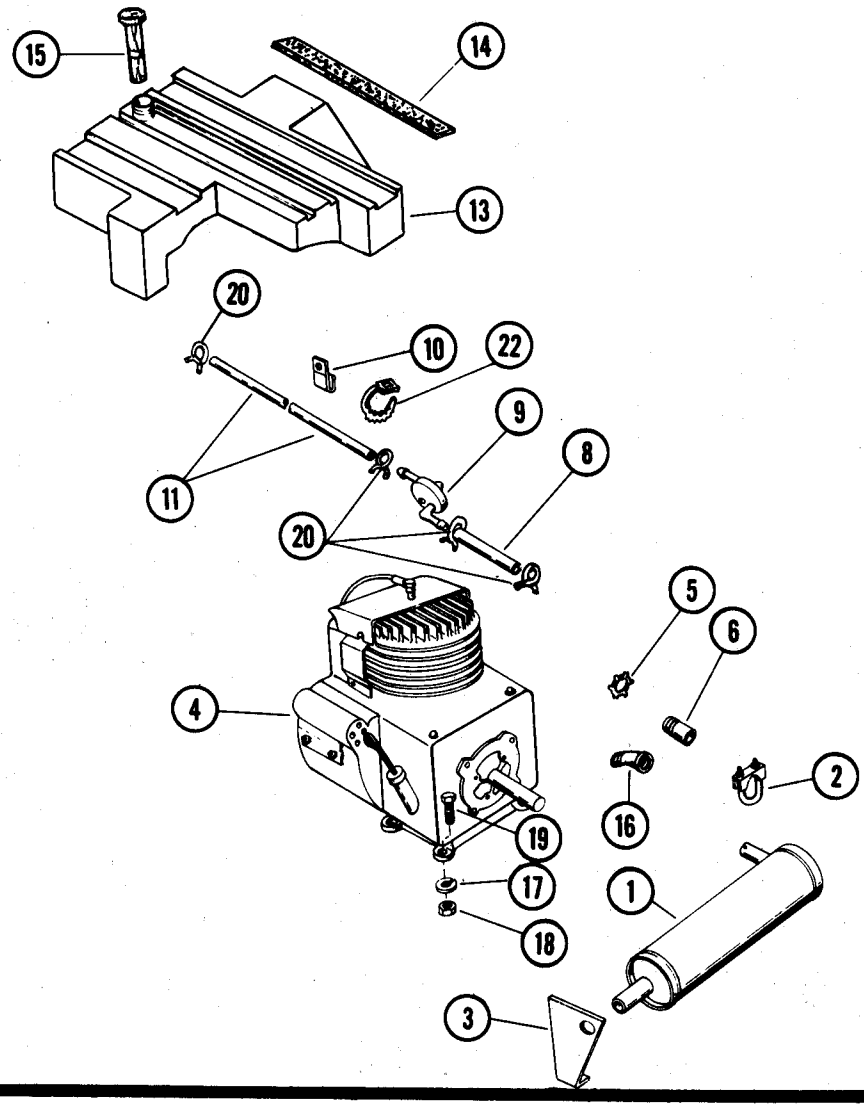


REF NO.	PART NO.	DESCRIPTION	NO. REQ'D.
1	531002	HOOD, S-12H	1
	531008	HOOD, S-14H	1
	531009	HOOD, S-16H	1
4	031046	GRILL	1
5	031139	SIDE, Right Hand	1
6	031138	SIDE, Left Hand	1
7	031185	HINGE, Right Hand	1
8	031186	HINGE, Left Hand	1
9	031145	SPACER, 3/4"	2
10	075064	GROMMET	2
11	031091	MUFFLER SHIELD, Models 931016, 931017 & Model 931018)	1
	031986	MUFFLER SHIELD, (Model 931015)	1
12	075066	GROMMET	1
13	069094	"J" CLAMP	2
14	031093	LATCH	1
15	061039	SCREW, Machine, Truss H, 1/4 x 3/4	5
16	064127	WASHER, Flat, 1/4"	5
17	063002	LOCKWASHER, 1/4"	5
18	065032	NUT, Hex, 1/4"	5
20	064008	WASHER, Flat, 3/8"	6
21	062032	BOLT, Carriage 3/8" x 2	2
22	062013	BOLT, Carriage, 3/8" x 1	6
23	063021	LOCKWASHER, 3/8"	8
24	065018	NUT, Hex, 3/8"	8
25	061042	SCREW, Machine, Truss H, 5/16 x 3/4	2
26	064123	WASHER, Flat, 5/16"	2
29	075058	HOOD STOP	2
30*	063018	STAR LOCKWASHER	2

*(A quantity of 4 is required on Model 931015)

MUFFLER, FUEL LINES & TANK

HYDROSTATIC MODELS 931015, 931016, 931017 & 931018



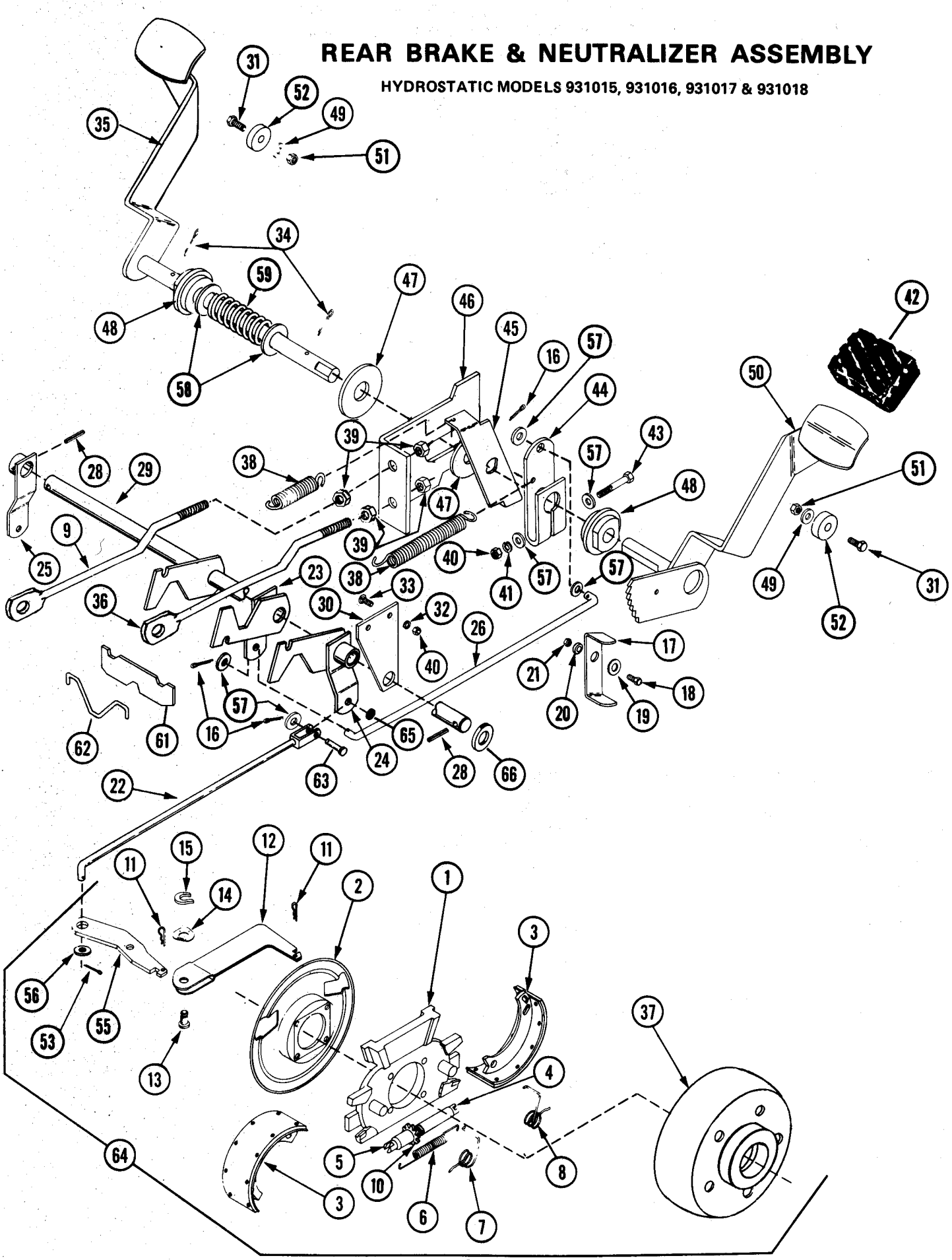
REF NO.	PART NO.	DESCRIPTION	931016	931017	931018	931015
1	031984	MUFFLER				1
	031184	MUFFLER			1	
	031155	MUFFLER	1	1		
2	031985	CLAMP				1
	031266	CLAMP			1	
	023401	CLAMP	1	1		
3	031082	BRACKET, Muffler			1	1
	031187	BRACKET, Muffler	1	1		
* 4		ENGINE, S-12, Kohler No. 301S-PF 47404D	1			
		ENGINE, S-14 Kohler No. 321-S PF60238	1			
		ENGINE, S-16 Kohler No. 341-S PF71109A		1		
		ENGINE, S-18 Kohler No. 361QS - PF 231108				1
5	070039	LOCKNUT, Special	1	1		1
	070040	LOCKNUT, Special			1	

REF. NO.	PART NO.	DESCRIPTION	931016	931017	931018	931015
6	031177	PIPE, 1-1/4 x 2"			1	
	031180	PIPE NIPPLE	1	1		
8	029113	HOSE, 4" Long	1	1	1	1
9	029108	FILTER, Fuel	1	1	1	1
10	069094	"J" CLAMP	1	1	1	1
11	031264	HOSE, 47" Long	1	1	1	1
13	031818	TANK, Fuel	1	1	1	1
14	031904	FOAM, 6" Long	AR	AR	AR	AR
15	031819	GAS GAUGE & CAP	1	1	1	1
16	031190	ELBOW, Street, 45°, 1-1/4			1	
17	063021	LOCKWASHER, 3/8	4	4	4	4
18	065018	NUT, Hex, 3/8	4	4	4	4
19	059151	CAP SCREW, HH, 3/8 x 1-1/2 GR.5	4	4	4	4
20	029172	HOSE CLAMP	4	4	4	4
22	069053	TIE	1	1	1	1

*Order Replacement Engine and Replacement Engine Parts From Your Nearest Kohler Service Central

REAR BRAKE & NEUTRALIZER ASSEMBLY

HYDROSTATIC MODELS 931015, 931016, 931017 & 931018



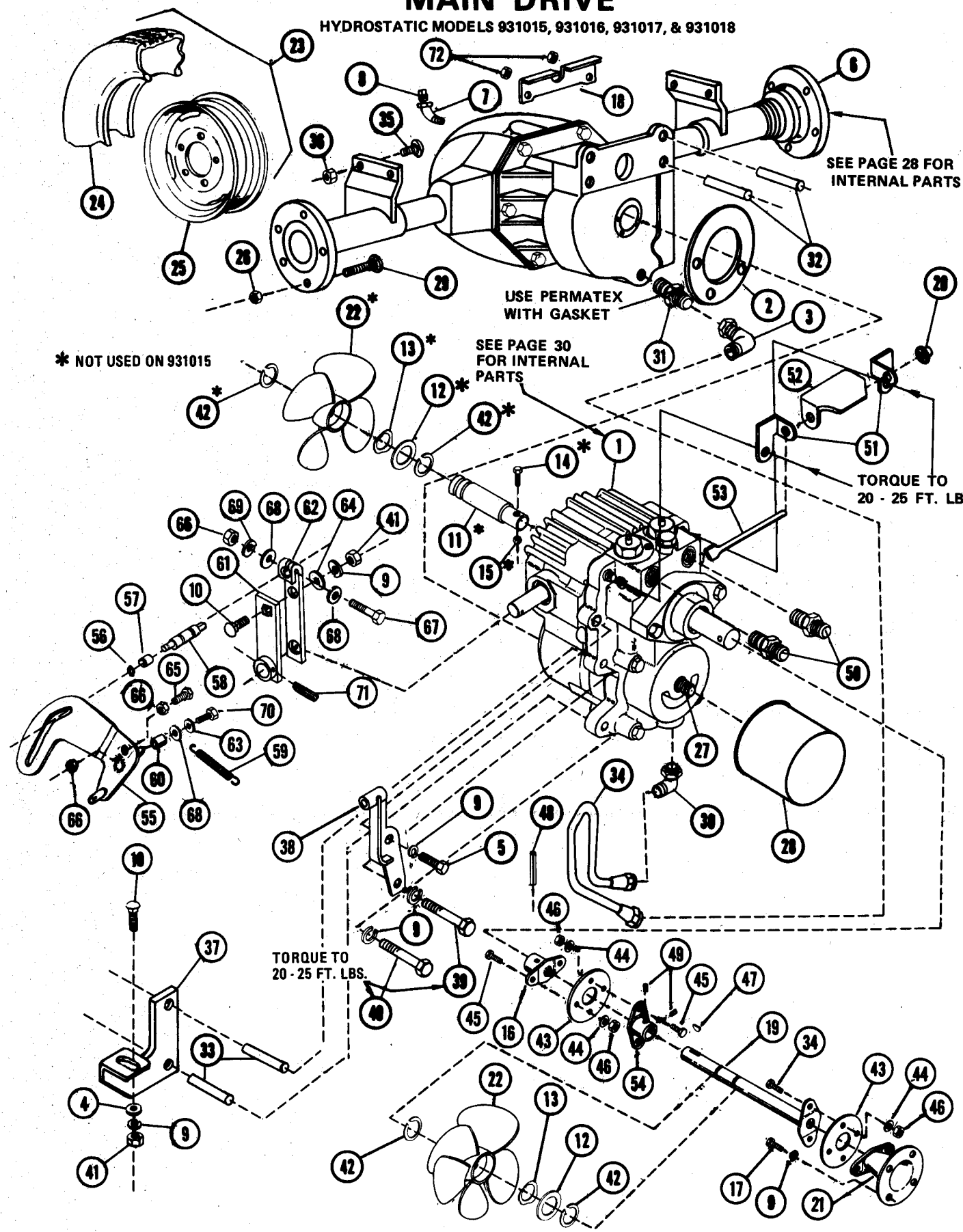
REAR BRAKE & NEUTRALIZER ASSEMBLY PARTS

HYDROSTATIC MODELS 931015, 931016, 931017, & 931018

REF NO.	PART NO	DESCRIPTION	NO REQ'D
1	031679	TORQUE, Spider	2
2	031678	DUST SHIELD	2
3	531039	BRAKE SHOE (sold in sets of two only)	2
4	031680	PIVOT NUT	2
5	031682	SOCKET, Adjusting Screw	2
6	083162	SPRING, Adjusting Shoe	2
7	083161	SPRING, Shoe Return, L.H.	2
8	083160	SPRING, Shoe Return, R.H.	2
9	031576	ROD, Shift	1
10	031681	ADJUSTING SCREW, (star wheel)	2
11	067032	HAIR PIN RETAINER	4
12	031675	STRUT & LEVER ASSEMBLY	2
13	031677	PIN	2
14	064156	WAVE WASHER	2
15	031702	RETAINER CLIP	2
16	067001	PIN, Cotter	4
17	031507	BRAKE LATCH	1
18	059001	CAP SCREW, HH, 1/4" x 3/4"	1
19	064127	WASHER, Special	1
20	011091	SPACER, Bushing	1
21	065040	LOCKNUT, Hex, 1/4"	1
22	031935	BRAKE ROD	2
23	031939	BRAKE ARM	1
24	031940	ARM	1
25	031938	BRAKE ARM	2
26	031508	BRAKE ROD	1
27	067004	PIN, Cotter 1/8 x 1	1
28	058040	PIN, Drive 1/4" x 1-1/4"	2
29	031941	BRAKE SHAFT	1
30	031509	PLATE	2
31	059003	CAP SCREW, HH 5/16"	2
32	063004	LOCKWASHER, 3/8"	4
33	062013	BOLT, Carriage 3/8" x 1"	4
34	067006	PIN, Cotter 3/16" x 1-1/4"	2
35	031501	L. H. PEDAL	1
36	031506	NEUTRALIZER ROD	1
37	031674	BRAKE DRUM	2
38	083122	SPRING	2
39	065046	LOCKNUT, Hex 1/2"	4
40	065018	NUT, Hex 3/8"	5
41	063021	LOCKWASHER, 3/8"	1
42	075051	PEDAL PAD	2
43	059030	CAP SCREW, HH 3/8" x 2-1/4"	1
44	031505	ARM, Brake	1
45	031503	NEUTRALIZER ARM	1
46	031502	NEUTRALIZER PLATE	1
47	064042	WASHER, Special	2
48	055095	BUSHING	2
49	064002	WASHER, 5/16"	2
50	031504	R.H. PEDAL	1
51	065042	LOCKNUT, Hex 5/16"	2
52	025135	SPACER	2
53	067001	PIN, Cotter 3/32" x 3/4"	2
54	064058	WASHER, Flat 3/4"	2
55	031676	PARK BRAKE LEVER	2
56	064057	WASHER, 5/16"	2
57	064043	WASHER, Flat 3/8"	7
58	064048	WASHER	2
59	083055	SPRING	1
60	067029	HAIR PIN	1
61	031936	BAL. LINK	1
62	031937	CLIP	1
63	013303	CLEVIS PIN	2
64	631107	R.H. BRAKE ASSEMBLY	1
	631108	L.H. BRAKE ASSEMBLY	1
65	075022	GROMMET	2
66	064062	WASHER	AR

MAIN DRIVE

HYDROSTATIC MODELS 931015, 931016, 931017, & 931018



MAIN DRIVE

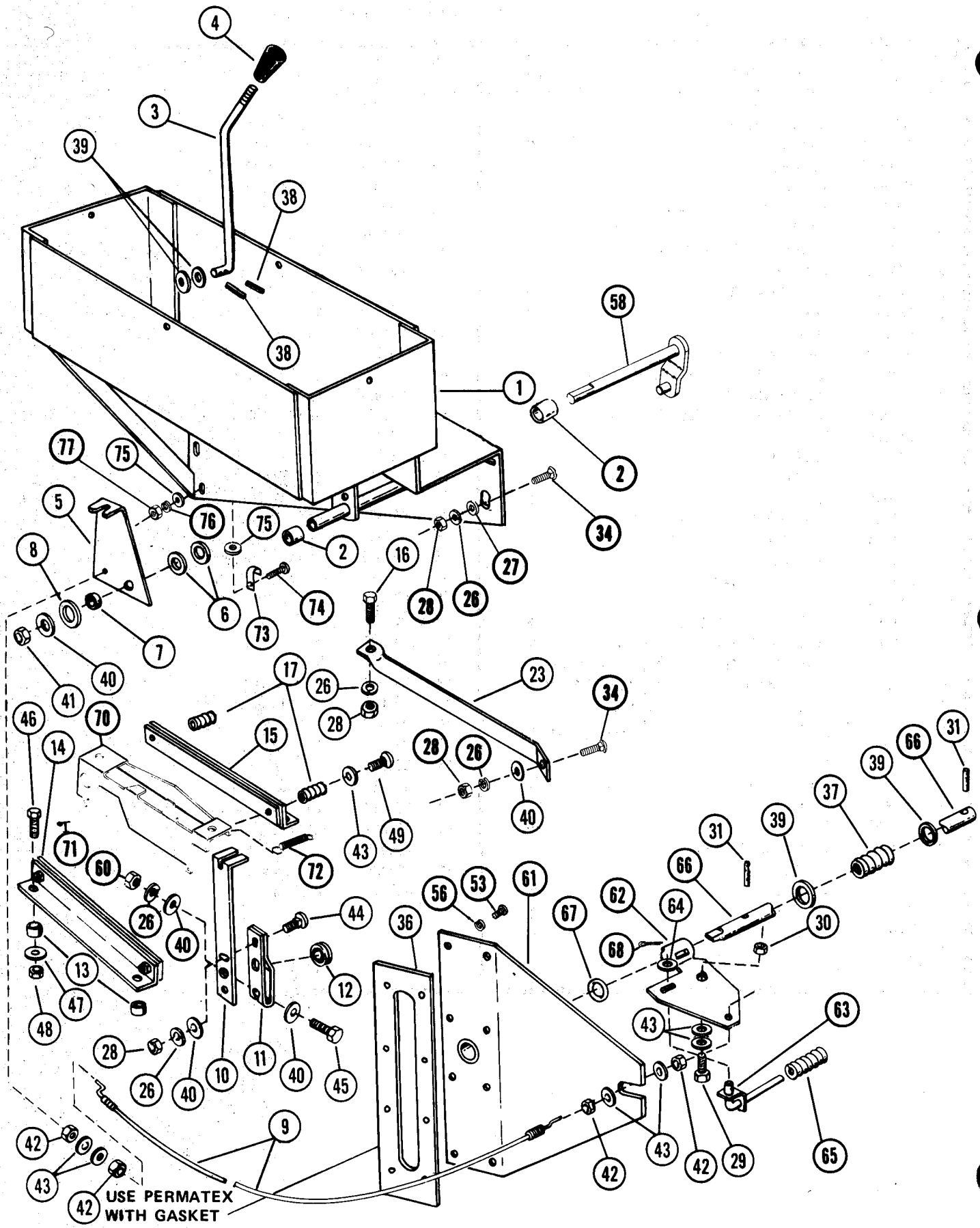
HYDROSTATIC MODELS 931015, 931016, 931017, & 931018

REF NO.	PART NO.	DESCRIPTION	NO REQ'D
1	631088	TRANSMISSION	1
2	031480	GASKET	1
3	031485	ELBOW, 90°, SWIVEL	1
4	064008	WASHER	1
5	059006	CAP SCREW, HH, 3/8 x 1-1/4	1
6	631066	AXLE	1
7	031125	STREET ELBOW, 1/2" x 45°	1
8	001137	PLUG, Pipe, 1/2"	1
9	063021	LOCKWASHER, 3/8"	7
10	062013	CARRIAGE BOLT	2
11	031516	SHAFT	1
12	064063	WASHER, Special	1
	064095	WASHER, Special (Model 931015 only)	1
13	011113	WAVE WASHER	1
	031998	WAVE WASHER (Model 931015 only)	1
14	059056	CAP SCREW	1
15	065040	LOCK NUT	1
16	031982	COUPLING	1
17	059099	CAP SCREW	4
18	031987	TORQUE BRACE (Model 931015 only)	1
19	631153	SHAFT, W/Roll Pin	1
20	031573	PUSH NUT	1
21	031978	DRIVE COUPLING	1
22	031515	FAN	1
	031995	FAN (Model 931015 only)	1
23	631002	TIRE & WHEEL ASS'Y, Consists of	2
24	071105	TIRE, 23 x 10.50-12 — 1 } Models 931015	
25	071106	WHEEL W/Valve — 1 } 931017 & 931018	
23	631097	TIRE & WHEEL ASS'Y Consists of	2
24	071114	TIRE — 1 } Model 931016 Only	
25	071115	RIM — 1 }	
26	065114	LUG NUT	10
27	031618	FILTER UNION	1
28	031928	FILTER, Oil	1
29	070044	LUG BOLT	10
30	031489	ELBOW, 90° "O" Ring	1
31	031484	CONNECTOR, Male	1
32	031487	SPACER	2
33	031488	SPACER	2
34	031490	TUBE, Assembly	1
35	062014	CARRIAGE BOLT Grade 5	4

REF NO.	PART NO.	DESCRIPTION	NO REQ'D
36	065127	LOCK NUT	4
37	031491	BRACKET	1
38	031574	PIVOT BRACKET	1
39	059175	CAP SCREW	1
40	059171	CAP SCREW	3
41	065018	NUT, Hex, 3/8"	2
42	057062	RING, External Snap (S-12H, S-14H, S-16H)	2
	057012	RING, External Snap (S-18H only)	2
43	031952	SPACER , Special	2
44	064123	WASHER, Flat, 5/16	8
45	059022	CAP SCREW, HH, 5/16 x 3/4	8
46	065042	LOCKNUT, Hex, 5/16	4
47	066003	KEY, Woodruff, 3/16 x 3/4	1
48	058007	PIN, Roll	1
49	060012	SETSCREW, Sq. Hd., 5/16 x 1	2
50	031495	CONNECTOR	2
51	031570	SUPPORT	2
52	031577	CAM	1
53	031572	PIVOT ROD	1
54	031951	OUTPUT COUPLING	1
55	031492	CAM	1
56	057063	SNAP RING	1
57	031137	ROLLER, 1/2" O.D.	1
58	031023	ECCENTRIC PIN	1
59	083116	SPRING, 2-13/16 Long	1
60	031691	HUB	1
61	031493	HUB	1
62	031494	PINTLE ARM	1
63	064003	WASHER, Flat, 1/2"	1
64	064043	WASHER, Flat, 3/8"	1
65	059132	CAP SCREW, HH, 1/4 x 1	1
66	065032	NUT, Hex, 1/4"	3
67	059162	CAP SCREW, HH, 1/4 x 2", Grade 5	1
68	064127	WASHER, Flat, 1/4"	3
69	063002	LOCKWASHER, 1/4"	1
70	070015	FLANGE WHIZLOCK SCREW, 1/4-20 x 1/2"	1
71	058038	ROLL PIN	1
72	065043	NUT, (Model 931015 Only)	2

HYDROSTATIC CONTROLS AND CONSOLE

HYDROSTATIC MODELS 931015, 931016, 931017 & 931018



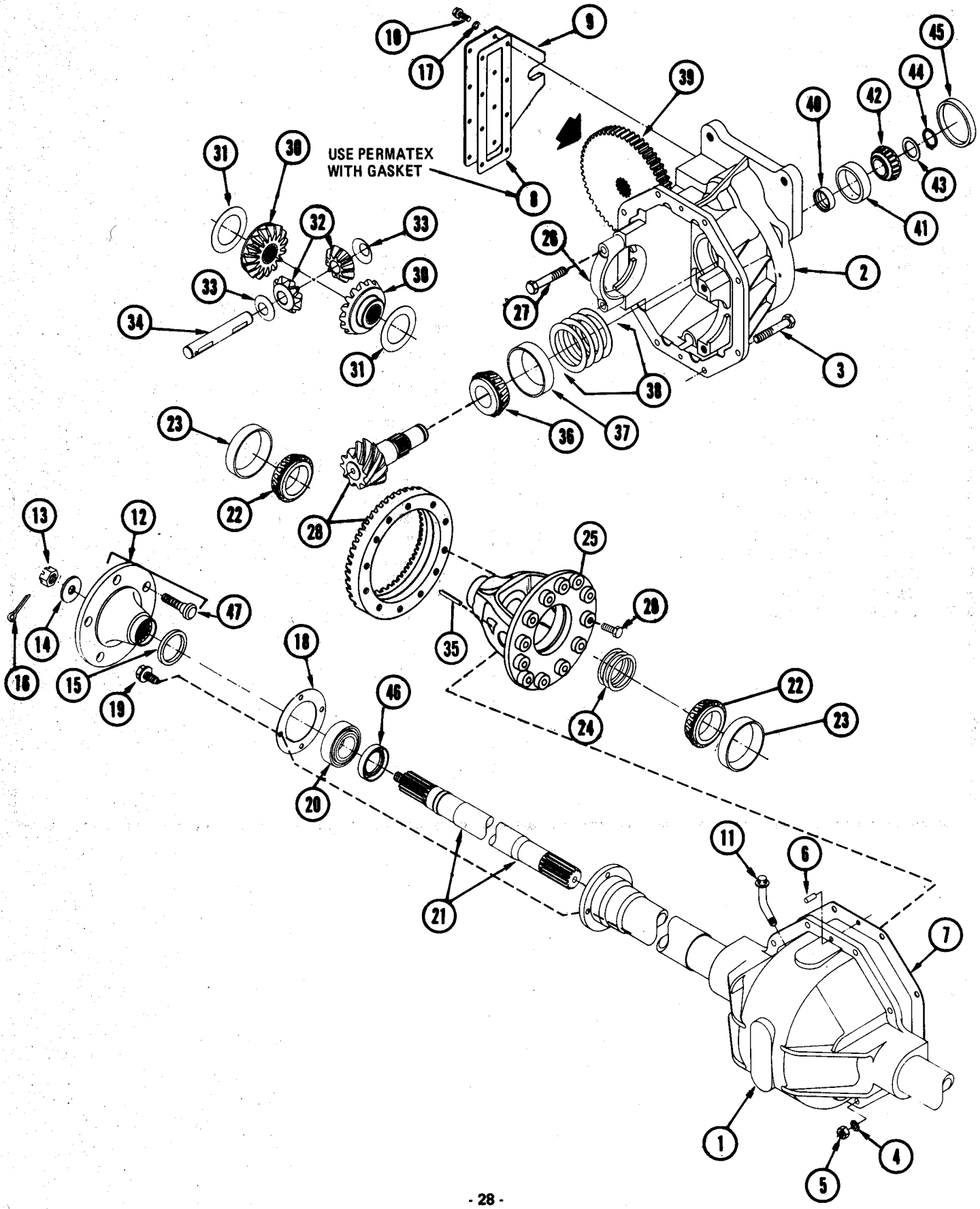
HYDROSTATIC CONTROLS AND CONSOLE

HYDROSTATIC MODELS 931015, 931016, 931017 & 931018

REF NO.	PART NO.	DESCRIPTION	NO REQ'D
1	031160	CONTROL BOX	1
2	055024	BUSHING	2
3	031064	SHIFT ROD	1
4	075049	HANDLE	1
5	031258	ARM	1
6	064028	WASHER, Spacer	2
7	055089	BUSHING	1
8	031162	WASHER, Special	1
9	069100	CABLE, 24-7/8" Long	1
10	031261	ARM	1
11	031260	CLEVIS	1
12	075046	GROMMET	1
13	031127	SPACER	2
14	031567	RH FRICTION ANGLE	1
15	031566	LH FRICTION ANGLE	1
16	059023	CAP SCREW, HH, 3/8" x 3/4"	1
17	083125	SPRING, 1-1/2 Long	2
23	031024	BRACE	1
26	063021	LOCKWASHER, 3/8"	6
27	064008	WASHER, Flat, 3/8"	2
28	065018	NUT, Hex, 3/8"	5
29	059135	CAP SCREW 5/16-18 x 3/4 GR.5	1
30	065101	LOCKNUT, Hex, 5/16	1
31	058003	ROLL PIN, 3/16 x 1-1/4	2
34	062013	CARRIAGE BOLT	3
36	031167	GASKET	1
37	083120	SPRING	1
38	058005	PIN, Spring 3/16 x 7/8	2
39	064003	WASHER, Flat, 1/2"	4
40	064043	WASHER, Flat, 3/8"	5
41	065098	LOCKNUT, Hex, 3/8"	1
42	065100	NUT, Hex Jam, 5/16"	4
43	064123	WASHER, Flat, 5/16"	8
44	062029	BOLT, Carriage, 3/8 x 1	1
45	059152	CAP SCREW, HH, 3/8 x 2-1/2 Grade 5	1
46	059069	CAP SCREW, HH, 5/16 x 1-1/4" Grade 5	2
47	063003	LOCKWASHER, 5/16"	2
48	065015	NUT, Hex, 5/16"	2
49	061044	SCREW, Machine Fillister Hd, 5/16 x 2-1/2	2
53	074045	TAPPING SCREW	8
56	063024	LOCKWASHER	8
58	031575	SHIFT SHAFT	1
60	065018	NUT	1
61	031100	LOCK PIN GUIDE	1
62	031099	PIVOT PLATE	1
63	031098	PIN	1
64	064128	WASHER, Special	1
65	083121	SPRING	1
66	031097	PIN	1
67	056075	"O" RING	1
68	067024	PIN, Cotter, 1/8 x 3/4	1
70	031724	SHIFT LOCK	1
71	067034	COTTER PIN	2
72	083149	SPRING	1
73	069110	CLAMP	1
74	059004	SCREW	1
75	064002	WASHER	2
76	063021	LOCKWASHER	1
77	065018	NUT	1

REAR AXLE

HYDROSTATIC MODELS 931015, 931016, 931017 & 931018



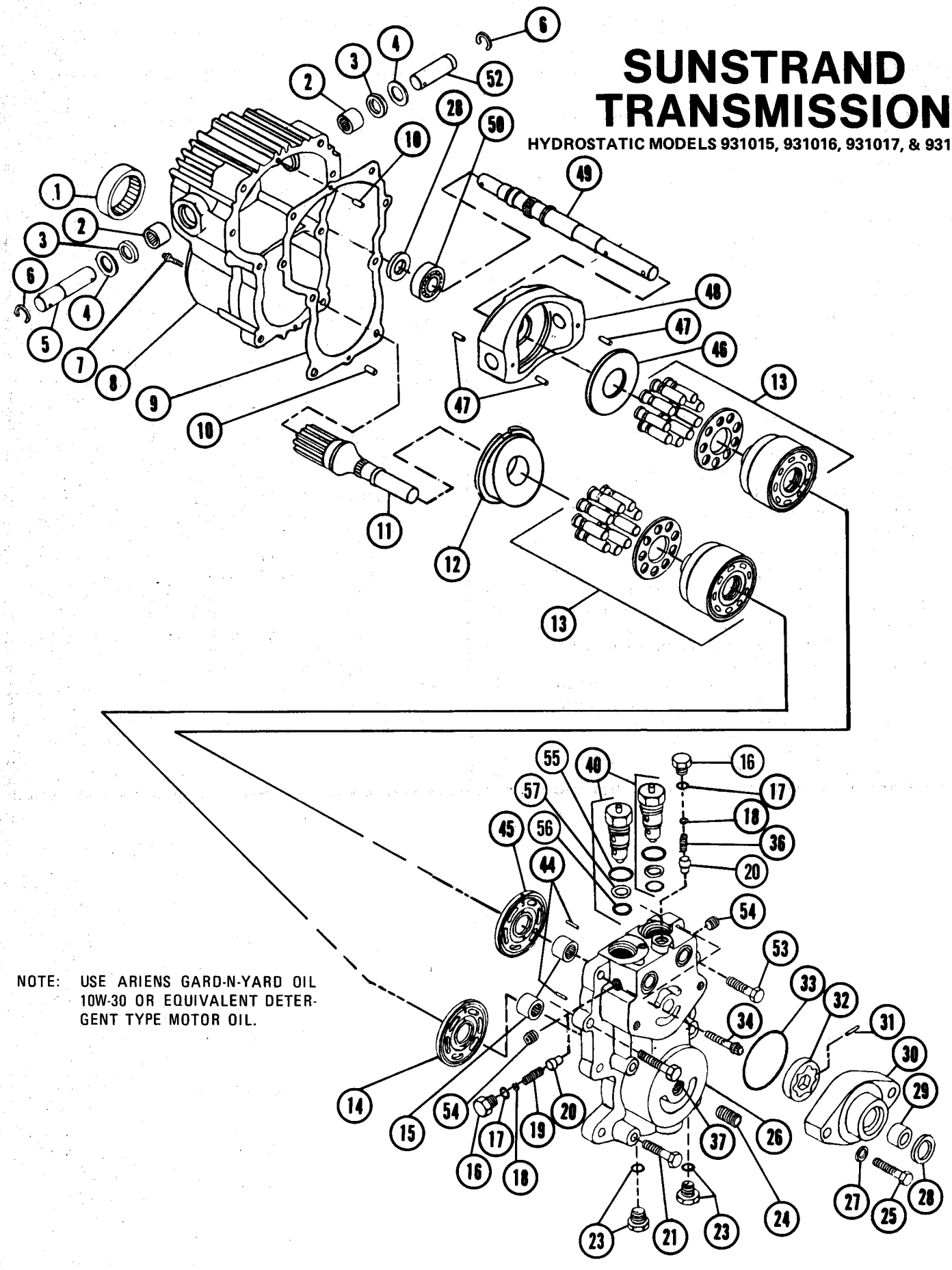
REAR AXLE PARTS LIST

HYDROSTATIC MODELS 931015, 931016, 931017 & 931018

REF. NO.	PART NO.	DESCRIPTION	NO. REQ'D
1	031635	Rear Housing	1
2	531052	Front Housing w/Bearing Cap	1
3	059181	Cap Screw, Hex Head, 5/16" x 1" Grade 5	8
4	063018	Lockwasher, External Tooth, 5/16"	8
5	065015	Hex Nut, 5/16"	8
6	031637	Dowel Pin, 1/4" x 3/4"	2
7	031638	Housing Gasket	1
8	031167	Gear Cover Gasket	1
9	031100	Lock Pin Guide	1
10	074045	Self-Tapping Screw, Hex Head, No. 10 x 1/2"	8
11	031639	Vent Tube Assembly	1
12	531040	Wheel Hub w/Lug Bolts	2
13	065118	Nut	2
14	064163	Special Washer	2
15	031641	Felt Seal	2
16	067005	Cotter Pin	2
17	063024	Lockwasher	8
18	031642	Wheel Bearing Gasket	2
19	070027	Flange Whizlock Screw 5/16-18 x 3/4"	8
20	054129	Bearing and Cone Assembly	2
21	031643	Axle Shaft - Left Hand	1
	031644	Axle Shaft - Right Hand	1
22	054130	Bearing Cone	2
23	054131	Bearing Cup	2
24	031645	Differential Bearing Adjusting Shim .003	AR
	031646	Differential Bearing Adjusting Shim .005	AR
	031647	Differential Bearing Adjusting Shim .010	AR
	031648	Differential Bearing Adjusting Shim .030	AR
25	031649	Differential Case	1
26	N.A.	Bearing Cap (This Cap is bolted to Ref. No. 2 and then machined as a matched Assembly)	2
27	059126	Hex Head, Cap Screw, 7/16" x 2"	4
28	531050	Ring and Pinion Gear Set	1
29	070043	Special Bolt	10
30	031651	Side Gear	2
31	064154	Throw Washer	2
32	031652	Bevel Mate Gear	2
33	064155	Thrust Washer	2
34	031653	Pinion Mate Shaft	1
35	031654	Lock Pin	1
36	054132	Bearing Cone	1
37	054133	Bearing Cup	1
38	031655	Rear Pinion Bearing Shim .003	AR
	031656	Rear Pinion Bearing Shim .005	AR
39	031657	Spur Gear	1
40	031658	Front Pinion Bearing Spacer	1
41	054134	Bearing Cup	1
42	054135	Bearing Cone	1
43	531049	Shim Kit consists of the following,	
	031659	Front Pinion Bearing Shim .031	AR
	031660	Front Pinion Bearing Shim .033	AR
	031661	Front Pinion Bearing Shim .035	AR
	031662	Front Pinion Bearing Shim .037	AR
	031663	Front Pinion Bearing Shim .039	AR
	031664	Front Pinion Bearing Shim .041	AR
	031665	Front Pinion Bearing Shim .043	AR
	031666	Front Pinion Bearing Shim .045	AR
	031667	Front Pinion Bearing Shim .047	AR
	031668	Front Pinion Bearing Shim .049	AR
	031669	Front Pinion Bearing Shim .051	AR
	031670	Front Pinion Bearing Shim .053	AR
	031671	Front Pinion Bearing Shim .055	AR
	031672	Front Pinion Bearing Shim .057	AR
44	057026	Retaining Ring	1
45	031673	Cup Plug	1
46	056093	Oil Seal	2
47	070044	Wheel Lug Bolt	10

SUNSTRAND TRANSMISSION

HYDROSTATIC MODELS 931015, 931016, 931017, & 931018



NOTE: USE ARIENS GARD-N-YARD OIL 10W-30 OR EQUIVALENT DETERGENT TYPE MOTOR OIL.

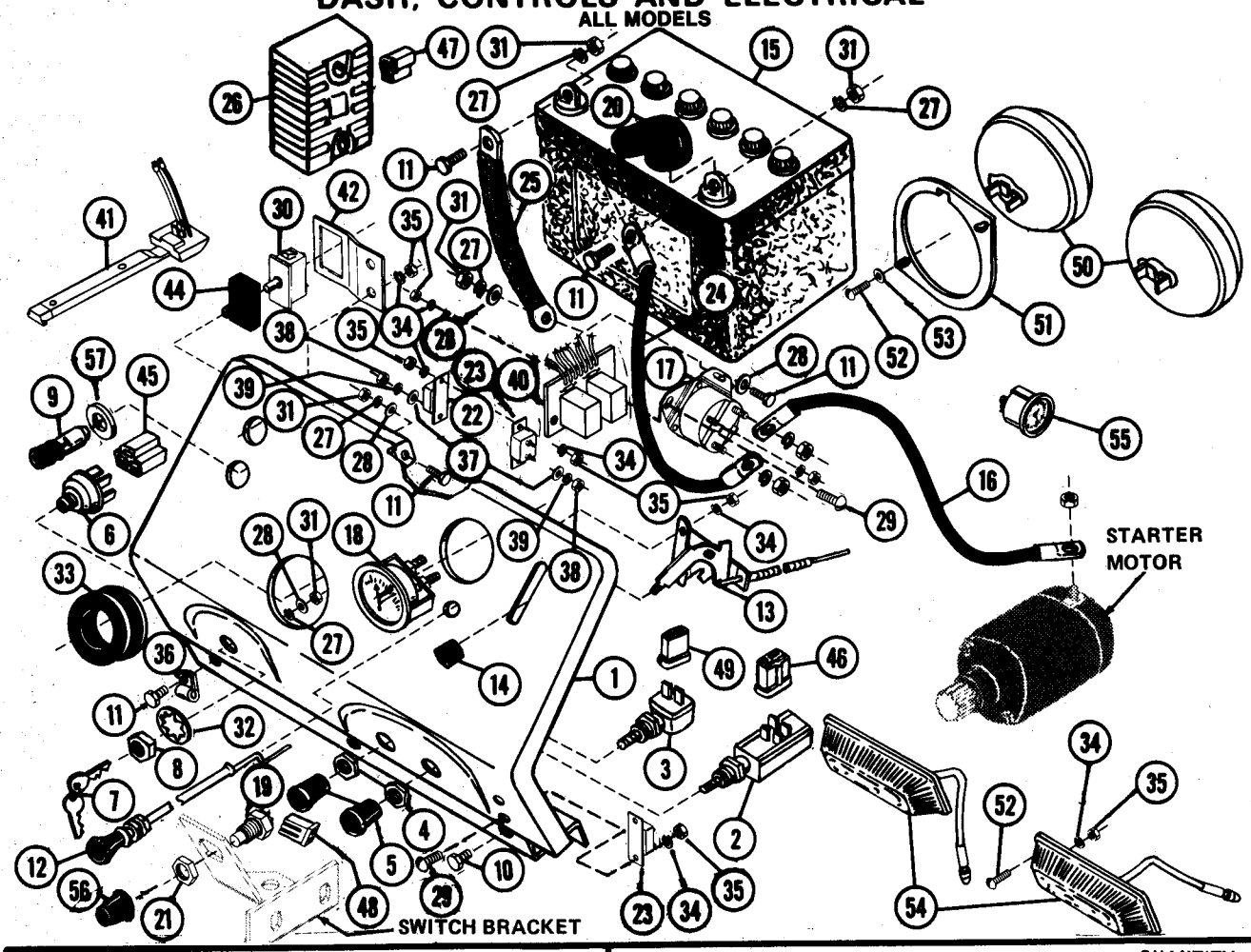
SUNSTRAND TRANSMISSION

HYDROSTATIC MODELS 931015, 931016, 931017 & 931018

REF. NO.	PART NO.	DESCRIPTION	NO. REQ'D
1	054128	ROLLER BEARING	1
2	054126	NEEDLE BEARING	2
3	056089	LIP SEAL	2
4	064151	WASHER	2
5	031615	TRUNNION SHAFT	1
6	057069	RETAINING RING	2
7	059180	CAP SCREW, 12 Pt.	2
8	031624	HOUSING	1
9	031629	GASKET	1
10	031632	PIN, Dowell	2
11	031623	MOTOR SHAFT	1
12	031622	SWASHPLATE	1
13	531035	CYLINDER BLOCK KIT	2
14	031621	MOTOR VALVE PLATE	1
15	054127	NEEDLE ROLLER BEARING	2
16	031611	HEX HEAD PLUG	2
17	056088	"O" RING	2
18	031613	SHIM-PACK	A/R
19	083157	RELIEF VALVE SPRING	1
20	031609	RELIEV VALVE CONE	2
21	059147	HEX HEAD CAP SCREW GR.5	4
23	031608	THREADED PLUG	2
24	031618	FILTER UNION	1
25	059126	HEX HEAD CAP SCREW	2
26	031619	CENTER SECTION	1
27	064153	FLAT WASHER	2
28	056091	LIP SEAL	2
29	054054	NEEDLE BEARING	1
30	031617	CHG PUMP HOUSING	1
31	031631	PIN, Dowell	1
32	531034	ROTOR ASSEMBLY	1
33	056092	"O" RING	1
34	059179	CAP SCREW, 12 Pt. GR.5	2
36	083159	RELIEF VALVE SPRING	1
37	059133	CAP SCREW, Hex Hd. Gr. 5	1
40	531076	CHECK VALVE ASSEMBLY	2
44	031633	PIN, Headless Star	2
45	031628	PUMP VALVE PLATE	1
46	031627	THRUST PLATE	1
47	058062	COILED SPRING PIN	3
48	031626	VAR. SWASHPLATE	1
49	031616	PUMP SHAFT	1
50	054071	BALL BEARING	1
52	031614	TRUNNION SHAFT	1
53	059151	CAP SCREW, Hex Hd. GR. 5	1
54	031630	PIPE PLUG	2
55	056096	"O" RING	2
56	056097	"O" RING	2
57	056098	WASHER	2

DASH, CONTROLS AND ELECTRICAL

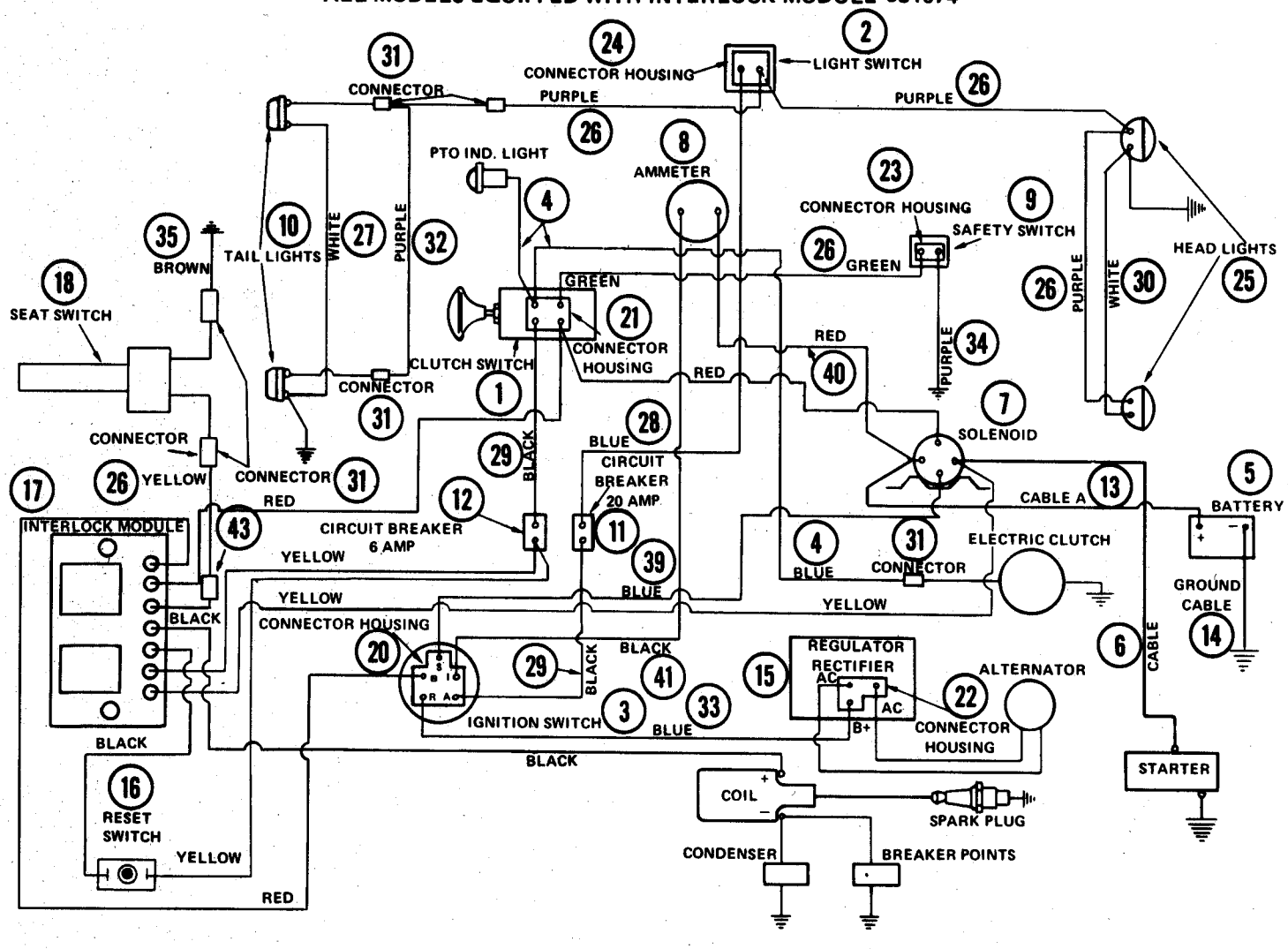
ALL MODELS



REF NO.	PART NO.	DESCRIPTION	QUANTITY 931016	931017	931018	931015
1	531058	DASH W/Decal	1	–		
	531101	DASH W/Decal (18 H.P. Only)	–	1		
2	031150	SWITCH, Clutch	1	2		
3	031151	SWITCH, Lights	1	1		
4	065104	NUT, Jam, 1/2"	2	3		
5	075068	KNOB, Switch	2	3		
6	031152	SWITCH, Ignition	1	1		
7	013157	KEY SET	1	1		
8	065106	NUT, Special, 9/16"	1	1		
9	031179	PTO Indicater & Wire Ass'y	1	1		
	031983	PTO Indicater & Wire Ass'y	–	1		
10	074043	SCREW, Self-Tapping, No. 10 x 1/2	4	4		
11	059001	CAP SCREW, HH, 1/4 x 3/4	8	8		
12	069103	CHOKE CONTROL ASS'Y	1	–		
	069115	CHOKE CONTROL ASS'Y, 18 Only	–	1		
13	069104	THROTTLE CONTROL	1	–		
	069116	THROTTLE CONTROL, 18 Only	–	1		
14	075019	KNOB, Throttle Control	1	1		
15	031085	BATTERY, 12 Volt	1	1		
16	031111	CABLE ASS'Y, Solenoid to Starter	1	1		
17	031720	SOLENOID STARTER SWITCH	1	1		
18	031117	AMMETER	1	1		
19	031107	SWITCH, Safety	1	1		
20	075057	INSULATOR	1	1		
21	065071	NUT, Special, 5/8"	1	1		
22	031102	CIRCUIT BREAKER, 20 Amp	1	1		
23	031108	CIRCUIT BREAKER, 6 Amp	1	2		
24	031110	CABLE ASS'Y, Battery to Solenoid	1	1		
25	031103	CABLE ASS'Y, Battery to Ground	1	1		
26	031109	REGULATOR RECTIFIER	1	–		
27	063002	LOCKWASHER, 1/4"	8	2		
28	064127	WASHER, Flat 1/4"	4	4		
29	061012	MACHINE SCREW, No. 10-24 x 1/2	2	3		
30	025172	SWITCH	1	1		
31	065032	NUT, Hex, 1/4"	8	8		
32	063029	LOCKWASHER, Internal Tooth, 9/16"	1	1		
33	075061	GROMMET	1	1		
34	063011	LOCKWASHER, External Tooth, No. 10	14	16		
35	065055	NUT, Hex, No. 10-24	14	16		
36	031070	CLIP	2	2		
37	064141	WASHER	4	4		
38	065026	NUT	4	4		
39	063011	LOCKWASHERS	4	4		
40	531074	RELAY - Diode	1	1		
	031976	RELAY - Diode 18 H.P. Only	–	1		
41	031716	SEAT SWITCH	1	1		
42	031833	BRACKET - Switch	1	1		
44	075045	RUBBER BOOT	1	1		
45	023478	CONNECTOR HOUSING, 5 Wire	1	1		
46	023595	CONNECTOR HOUSING, 4 Wire	1	2		
47	031106	CONNECTOR HOUSING, 3 Wire	1	1		
48	031895	CONNECTOR HOUSING, 2 Wire	1	1		
49	031105	CONNECTOR	1	1		
50	031149	HEAD LIGHT	2	2		
51	031159	RETAINER RING	2	2		
52	061040	SCREW, Machine, Truss H. No. 10-1/2"	8	8		
53	064001	WASHER	8	8		
54	631006	TAIL LIGHT	2	2		
		BULB - for item 54 GE 1895 (not ill.)	2	2		
	031375	LENS - Red for item 54 (not ill.)	2	2		
55	031962	HOUR METER, (Model 931015 Only)	–	1		
56	075063	BOOT, Switch	1	1		
57	030006	SPACER, (For use with Dash No. 531058 Only)	1	1		

ELECTRICAL WIRING DIAGRAM

ALL MODELS EQUIPPED WITH INTERLOCK MODULE 531074

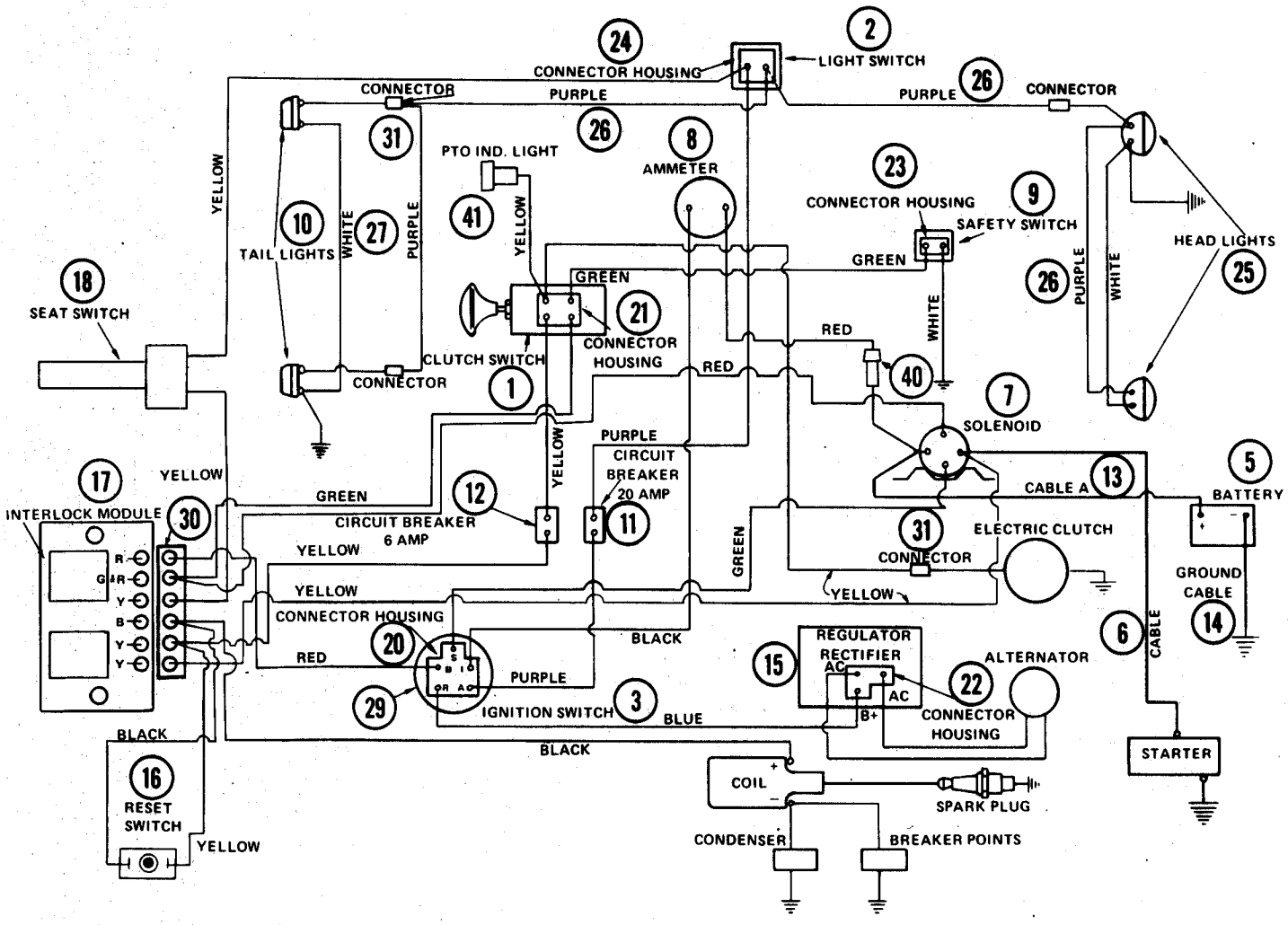


REF NO.	PART NO.	DESCRIPTION	NO. REQ'D
1	031150	SWITCH, Clutch	1
2	031151	SWITCH, Lights	1
3	031152	SWITCH, Ignition	1
4	031179	PTO Indicater & Wire Ass'y	1
5	031085	BATTERY, 12 Volt	1
6	031111	CABLE ASS'Y, Solenoid to Starter	1
7	031720	SOLENOID STARTER SWITCH	1
8	031117	AMMETER	1
9	031107	SWITCH, Safety	1
10	631006	TAIL LIGHT	2
11	031102	CIRCUIT BREAKER, 20 Amp	1
12	031108	CIRCUIT BREAKER, 6 Amp	1
13	031110	CABLE ASS'Y, Battery to Solenoid	1
14	031103	CABLE ASS'Y, Battery to Ground	1
15		REGULATOR RECTIFIER KOHLER 237335	1
16	025172	SWITCH, Reset	1
17	531099	INTERLOCK MODULE	1
18	031716	SEAT SWITCH	1
20	023478	CONNECTOR HOUSING, 5 Wire	1
21	023595	CONNECTOR HOUSING, 4 Wire	1
22	031106	CONNECTOR HOUSING, 3 Wire	1
23	031895	CONNECTOR HOUSING, 2 Wire	1
24	031105	CONNECTOR	1
25	031149	HEAD LIGHT	2
26	031722	WIRE HARNESS, 2 Wire	1
27	031147	WIRE HARNESS, 35" Long (white) Ground for Tail Lites	1
28	031114	WIRE HARNESS, 6½" Long (blue) Brake to Lite Switch	1
29	031113	WIRE HARNESS, 7½" Long (black) 20 Amp Circuit Breaker to Ign. Switch. 6 Amp Circuit Breaker to Clutch Switch	2
30	031104	WIRE HARNESS, (white) Ground for Head Lite	1
31	031101	WIRE CONNECTOR	7
32	031168	WIRE ASS'Y, 44½" Long	1
33	031119	WIRE, Ignition to Rectifier (blue)	1
34	031721	WIRE, Wire to Ground (purple)	1
35	031712	WIRE , Seat Switch to Ground	1
39	031715	WIRE, (blue) Switch to Solenoid	1
40	031823	WIRE, (red)	1
41	031824	WIRE, (black) Ammeter to Switch	1
43	031895	CONNECTOR	1
	031192	BULB (For Item No. 4, PTO Light)	1

ELECTRICAL WIRING DIAGRAM

HYDROSTATIC MODELS

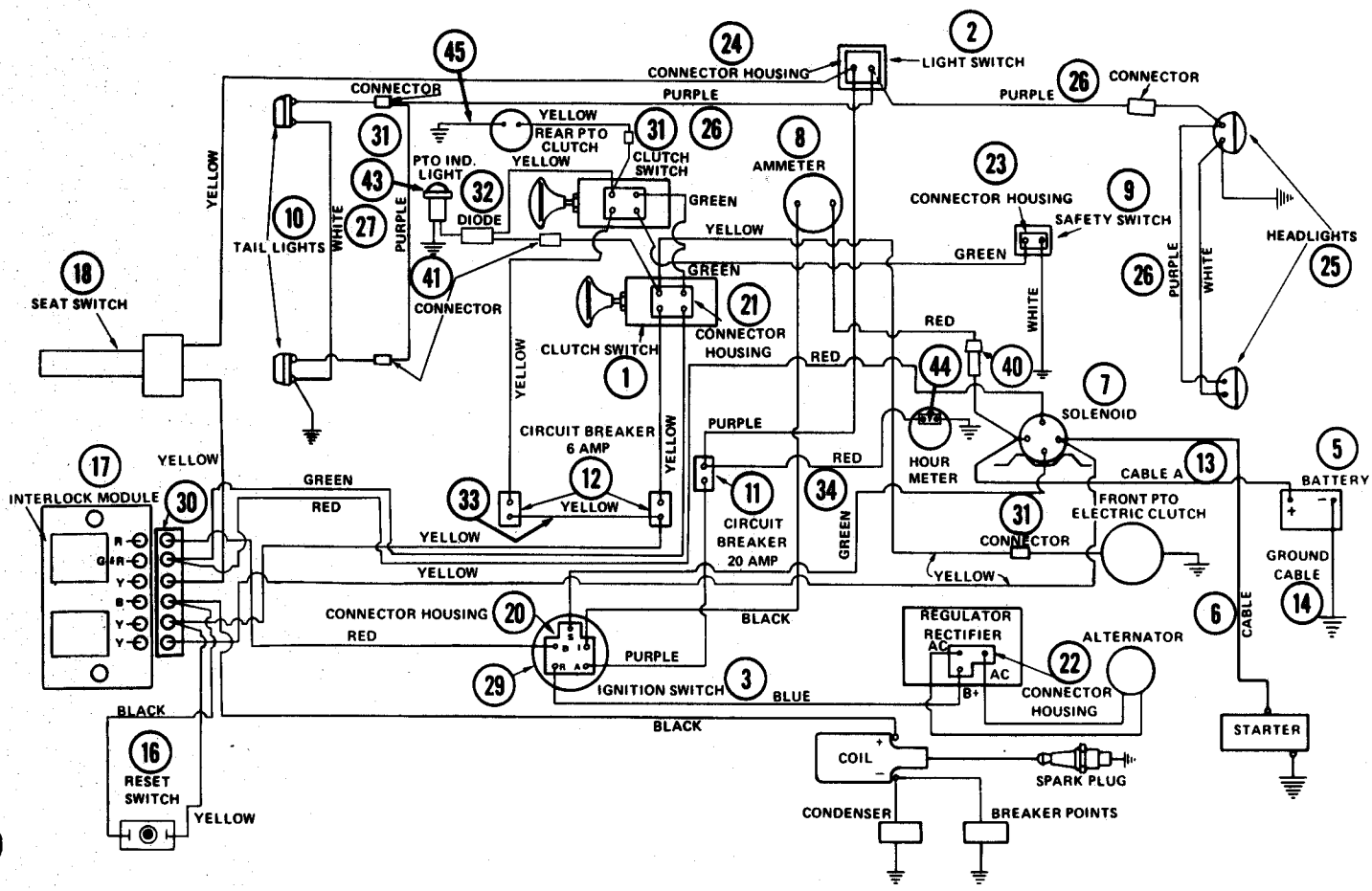
EQUIPPED WITH INTERLOCK MODULE 31976 OR 531099



REF NO.	PART NO.	DESCRIPTION	NO. REQ'D	REF NO.	PART NO.	DESCRIPTION	NO. REQ'D
1	031150	SWITCH, Clutch	1	25	031149	HEAD LIGHT	2
2	031151	SWITCH, Lights	1	26	030002	WIRE HARNESS, Headlight & Clutch	1
3	031152	SWITCH, Ignition	1	27	030001	WIRE HARNESS, Tail Light	1
5	031085	BATTERY, 12 Volt	1	29	030003	DASH HARNESS	1
6	031111	CABLE ASS'Y, Solenoid to Starter	1	30	030004	INTERLOCK MODULE HARNESS	1
7	031720	SOLENOID STARTER SWITCH	1	31	031101	.WIRE CONNECTOR	7
8	031117	AMMETER	1	40		STD, 30a SAE FUSE	1
9	031107	SWITCH, Safety	1	41	031983	PTO INDICATOR LIGHT	1
10	631006	TAIL LIGHT	2		030016	STD, 12 PSB LAMP	1
11	031102	CIRCUIT BREAKER, 20 Amp	1				
12	031108	CIRCUIT BREAKER, 6 Amp	1				
13	031110	CABLE, Battery to Solenoid	1				
14	031103	CABLE, Battery to Ground	1				
15		REGULATOR RECTIFIER KOHLER 237335, 12, 14 & 16	1				
16	025172	SWITCH, Reset	1				
17	031976	INTERLOCK MODULE	1				
18	031716	SEAT SWITCH	1				
20	023478	CONNECTOR HOUSING, 5 Wire	1				
21	023595	CONNECTOR HOUSING, 4 Wire	1				
22	031106	CONNECTOR HOUSING, 3 Wire	1				
23	029170	CONNECTOR HOUSING, 2 Wire	1				
24	031105	CONNECTOR	1				

ELECTRICAL WIRING DIAGRAM

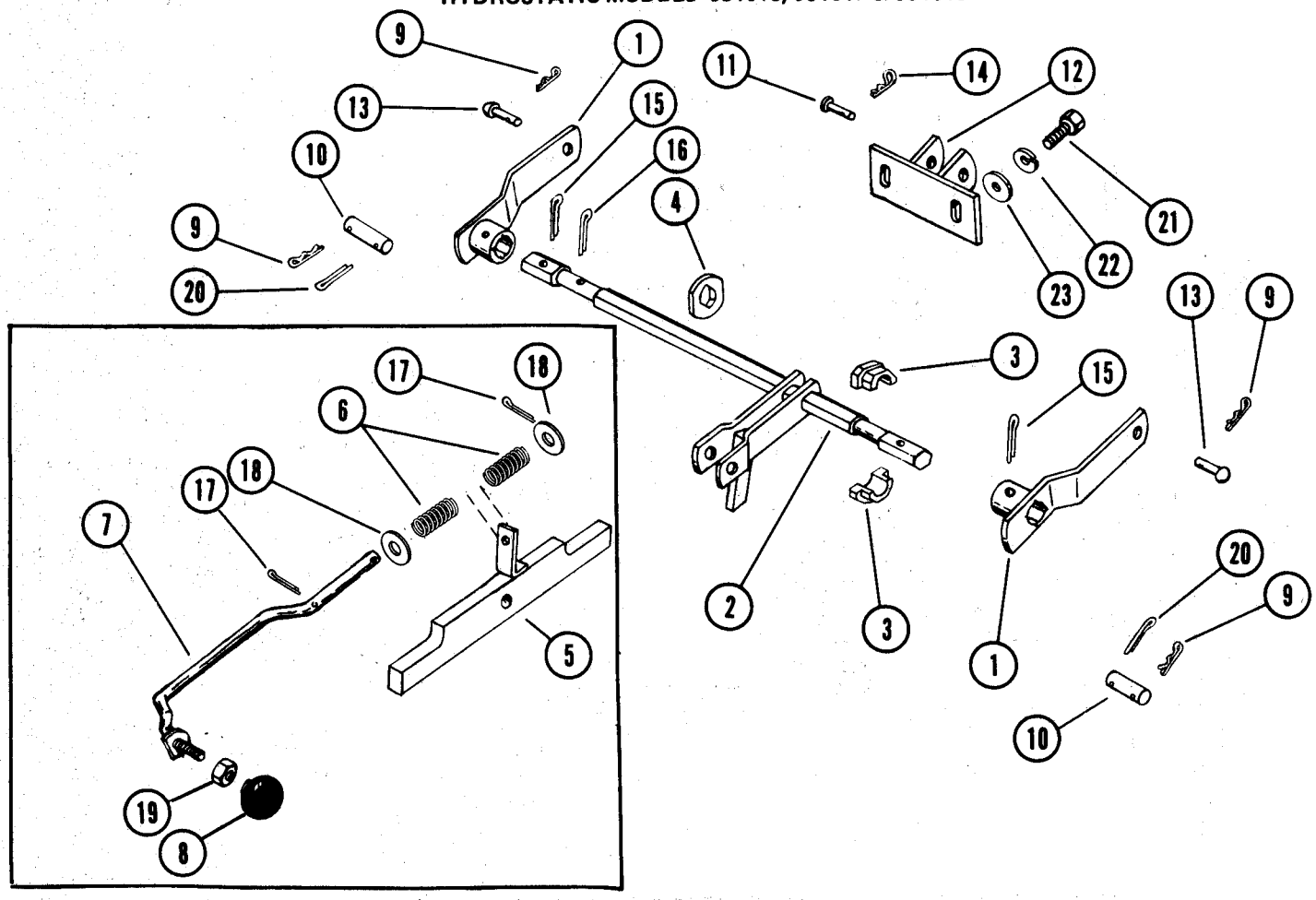
HYDROSTATIC MODEL 931015



REF NO.	PART NO.	DESCRIPTION	NO. REQ'D
1	031150	SWITCH, Clutch	1
2	031151	SWITCH, Lights	1
3	031152	SWITCH, Ignition	1
5	031085	BATTERY, 12 Volt	1
6	031111	CABLE ASS'Y, Solenoid to Starter	1
7	031720	SOLENOID STARTER SWITCH	1
8	031117	AMMETER	1
9	031107	SWITCH, Safety	1
10	631006	TAIL LIGHT	2
11	031102	CIRCUIT BREAKER, 20 Amp	1
12	031108	CIRCUIT BREAKER, 6 Amp	1
13	031110	CABLE, Battery to Solenoid	1
14	031103	CABLE, Battery to Ground	1
16	025172	SWITCH, Reset	1
17	031976	INTERLOCK MODULE	1
18	031716	SEAT SWITCH	1
20	023478	CONNECTOR HOUSING, 5 Wire	1
21	023595	CONNECTOR HOUSING, 4 Wire	1
22	031106	CONNECTOR HOUSING, 3 Wire	1
23	029170	CONNECTOR HOUSING, 2 Wire	1
24	031105	CONNECTOR	1
25	031149	HEAD LIGHT	2
26	030002	WIRE HARNESS, Headlight & Clutch	1
27	030001	WIRE HARNESS, Tail Light	1
29	030003	DASH HARNESS	1
30	030004	INTERLOCK MODULE HARNESS	1
31	031101	WIRE CONNECTOR	7
32	031636	WIRE ASSEMBLY, Rear PTO	1
33	031996	WIRE	1
34	031964	WIRE HARNESS, Hour Meter	1
40		STD, 30a SAE FUSE	1
41	031997	GROUND WIRE, Black	1
42	030016	STD, 12 PSB LAMP	1
43	031983	PTO LIGHT	1
44	031962	HOUR METER CONNECTOR	1
45	002303	GROUND WIRE	1

REAR ROCK SHAFT

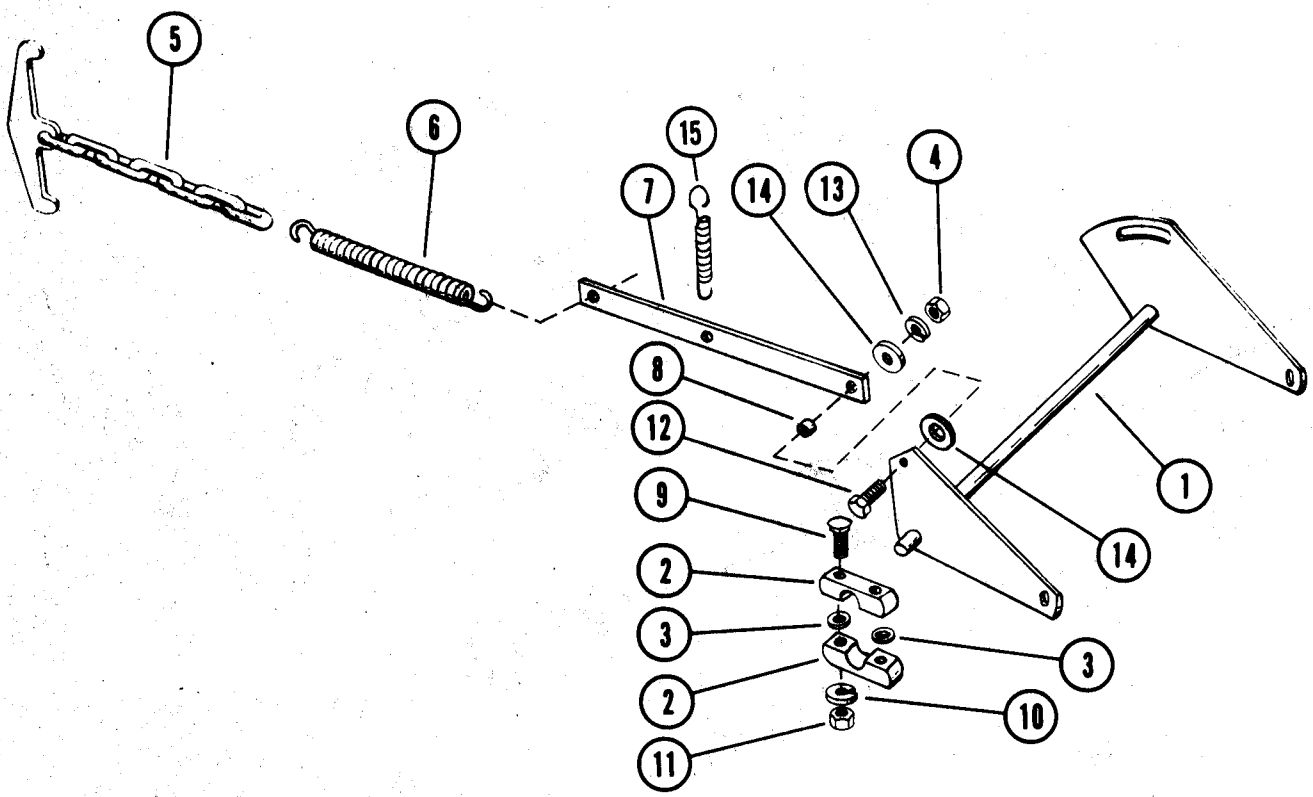
HYDROSTATIC MODELS 931016, 931017 & 931018



REF NO.	PART NO.	DESCRIPTION	NO. REQ'D.
1	031534	ARM	2
2	031497	SHAFT	1
3	055085	BEARING, Rockshaft	4
4	031693	WASHER, 1-1/32 Hex	1
5	031498	LATCH	1
6	083105	SPRING	2
7	031499	LATCH ROD	1
8	075052	KNOB	1
9	067022	HAIRPIN COTTER	4
10	031012	PIN	2
11	031008	PIN, Clevis	1
12	031007	BRACKET	1
13	068055	RIVET, Drilled	2
14	067029	HAIRPIN COTTER	1
15	067025	PIN, Cotter, 3/16 x 2	2
16	067012	PIN, Cotter, 3/16 x 1-1/2	1
17	067024	PIN, Cotter, 1/8 x 3/4	2
18	064043	WASHER, Flat, 3/8	2
19	065001	NUT, Hex, Jam, 3/8	1
20	067004	PIN, Cotter, 1/8 x 1	2
21	059023	CAP SCREW, HH, 3/8 x 3/4	2
22	063021	LOCKWASHER, 3/8	2
23	064008	WASHER, Flat, 3/8	2

CENTER ROCK SHAFT

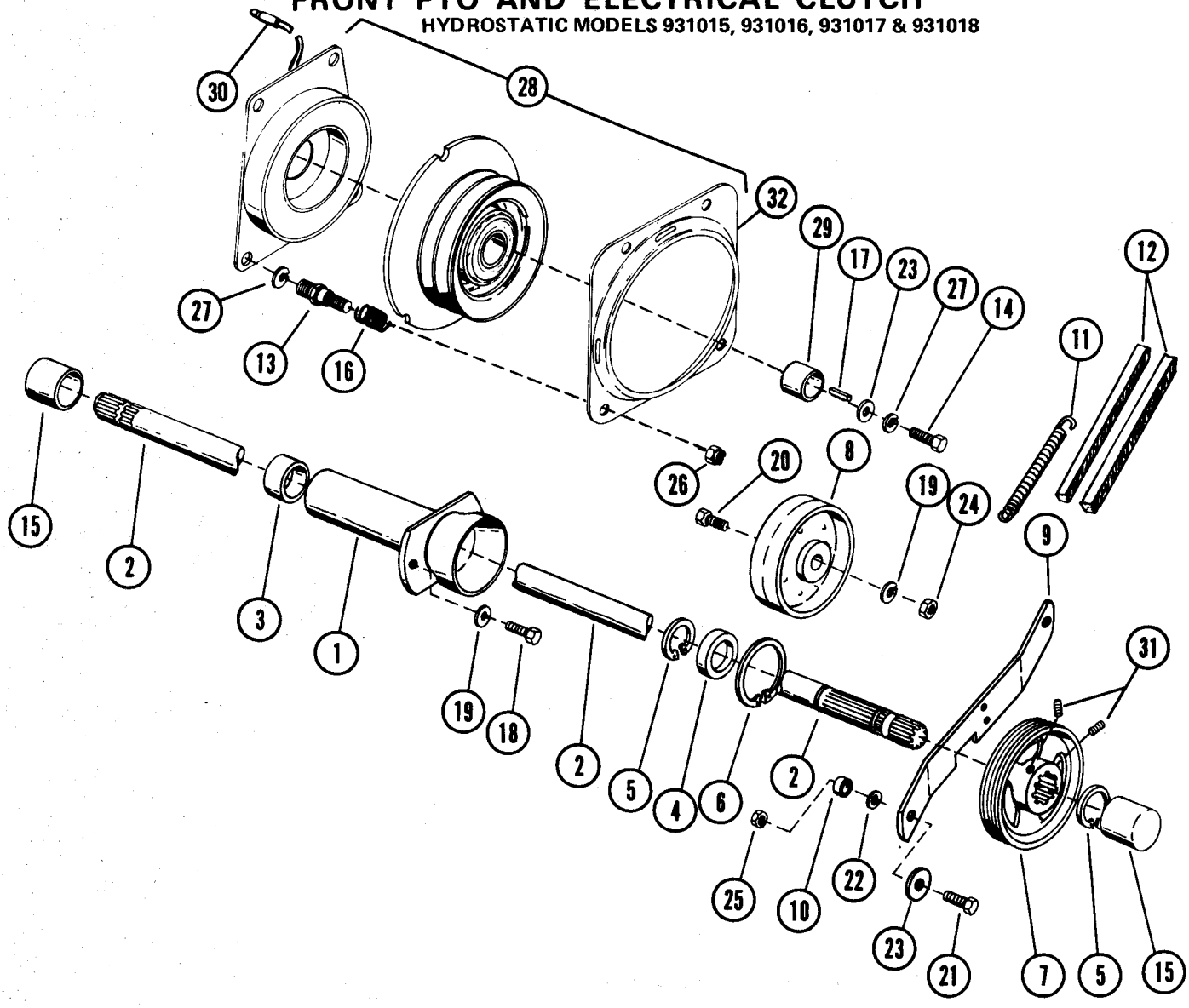
HYDROSTATIC MODELS 931015, 931016, 931017 & 931018



REF NO.	PART NO.	DESCRIPTION	NO. REQ'D.
1	031050	CENTER ROCK SHAFT	1
2	029011	BEARING BLOCK	4
3	064115	SHIM, .005 Thick	4
4	065032	NUT, Hex, 1/4"	1
5	031017	CHAIN, 11 Links	1
6	083107	SPRING	1
7	031181	LINK, 9-1/2" Long	1
8	031021	SPACER	1
9	062005	BOLT, Carriage, 3/8 x 2-1/4	4
10	063021	LOCKWASHER, 3/8	4
11	065018	NUT, Hex, 3/8	4
12	059132	CAP SCREW, HH, 1/4 x 1"	1
13	063002	LOCKWASHER, 1/4"	1
14	064127	WASHER, Flat, 1/4"	2
15	083149	SPRING	1

FRONT PTO AND ELECTRICAL CLUTCH

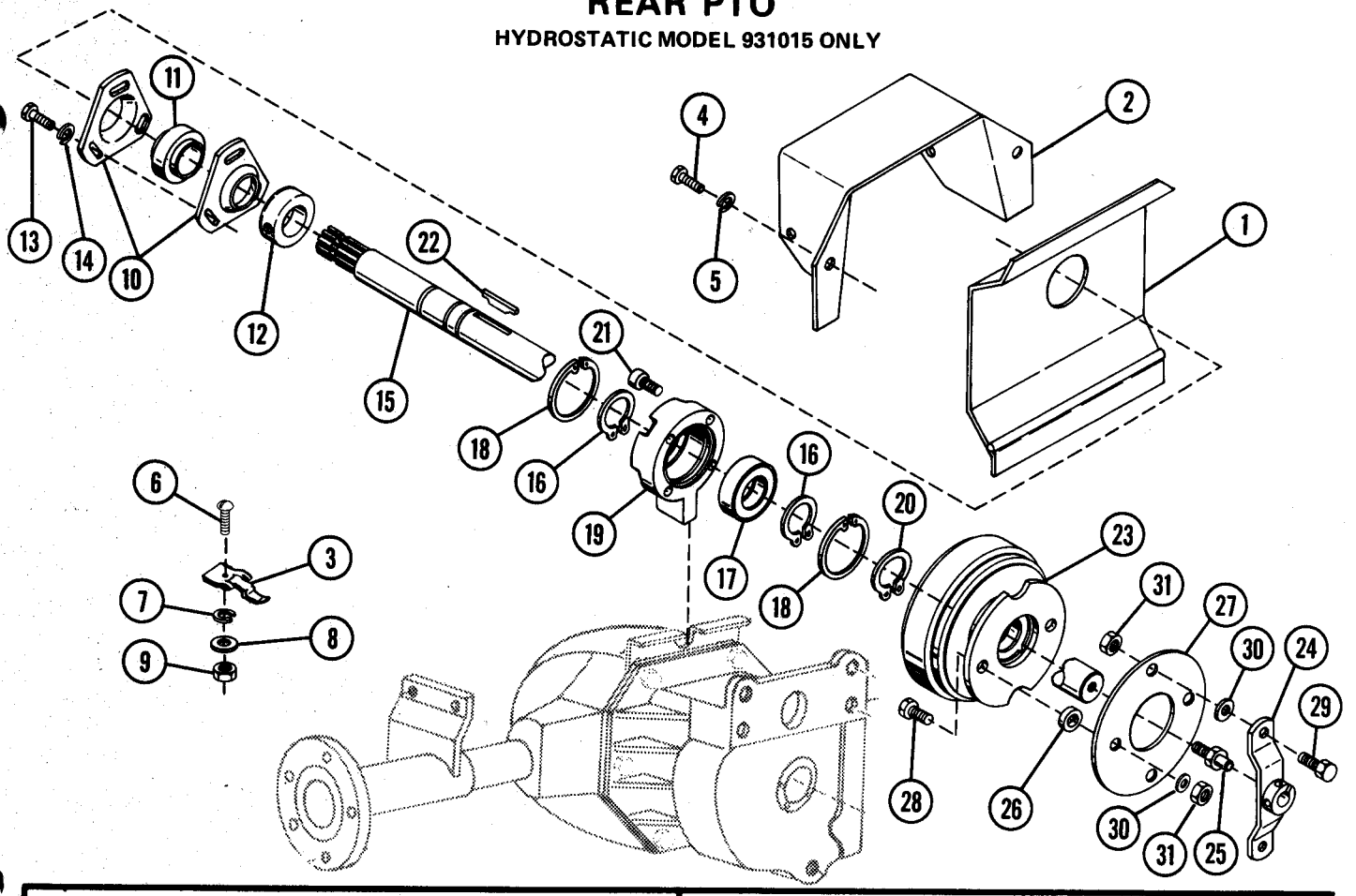
HYDROSTATIC MODELS 931015, 931016, 931017 & 931018



REF NO.	PART NO.	DESCRIPTION	NO REQ'D
1	531013	PTO HOUSING W/Needle Bearing	1
2	031183	SHAFT	1
3	054102	NEEDLE BEARING	1
4	054052	BEARING	1
5	057062	EXTERNAL SNAP RING	2
6	057024	SNAP RING	1
7	031979	SHEAVE	1
8	073055	IDLER PULLEY	1
9	031148	IDLER ARM	1
10	031157	SPACER	1
11	083126	SPRING	1
12	072076	"V" BELT - Matched Set of Two	1
13	031544	STUD	4
14	059142	CAP SCREW, HH, 7/16 x 1	1
15	075060	COVER, PTO Shaft	2
16	083148	SPRING	4
17	066027	KEY, Square, 1/4 x 5/8"	1
18	059023	CAP SCREW, HH, 3/8 x 3/4	2
19	063021	LOCKWASHER, 3/8"	3
20	059068	CAP SCREW, HH, 3/8" x 2	1
21	059042	CAP SCREW, HH, 1/2" x 1-1/4	1
22	031158	SHIM SPACER	1
23	064045	WASHER, Special	2
24	065018	NUT, Hex, 3/8"	1
25	065097	NUT, Hex, 1/2"	1
26	065116	LOCKNUT, 5/16"	4
27	063005	LOCKWASHER, 7/16"	5
28	531023	CLUTCH	1
29	031358	SLEEVE	1
30	031265	TERMINAL	1
31	060012	SET SCREW	2
32	031545	PLATE	1

REAR PTO

HYDROSTATIC MODEL 931015 ONLY

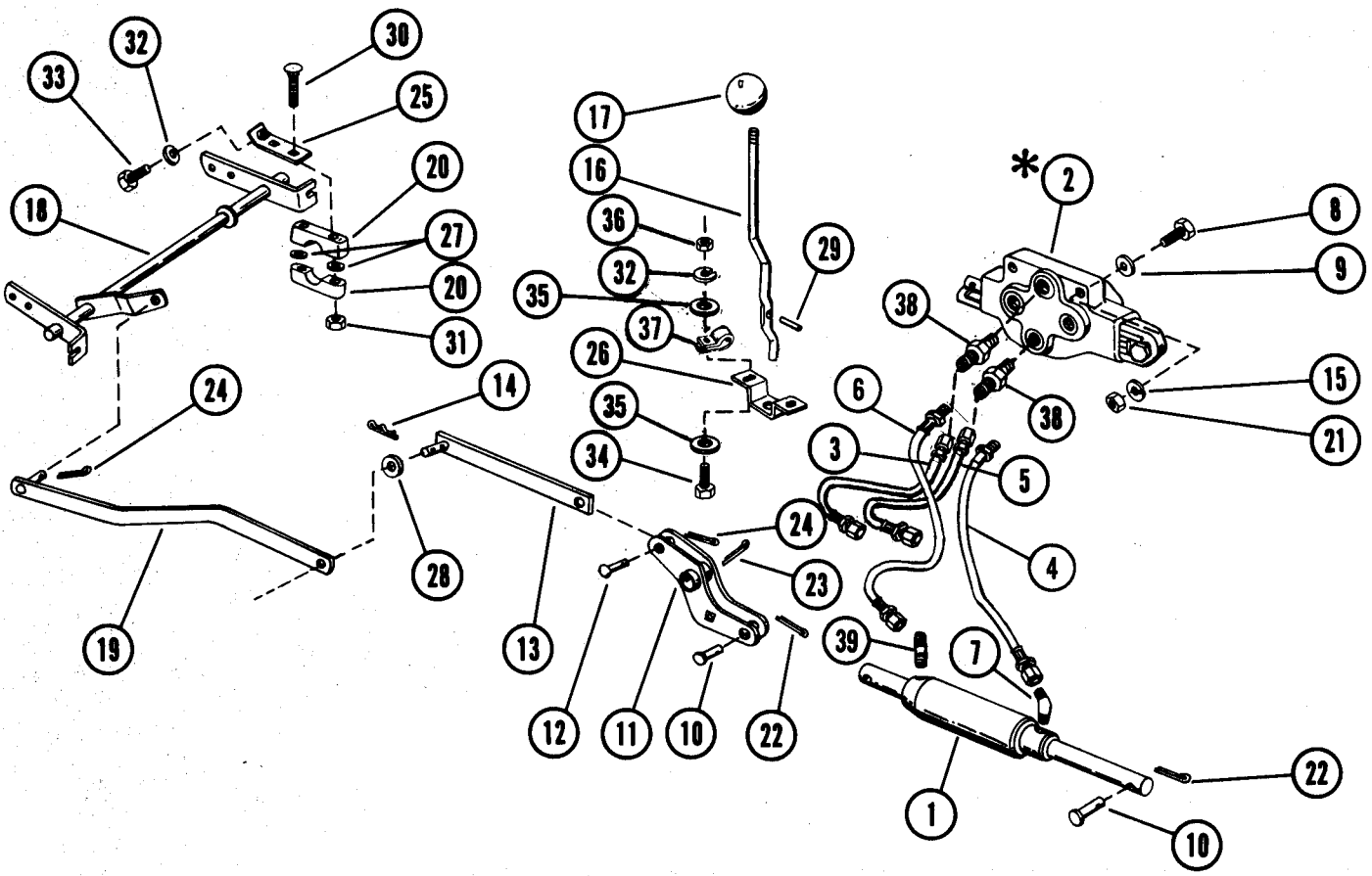


REF NO.	PART NO.	DESCRIPTION	QTY
1	031530	COVER	1
2	031571	SHIELD	1
3	031305	SNAP FASTENER	1
4	074017	SCREW, Self Tapping HH, 5/16 x 3/4	2
5	064002	WASHER, Flat 5/16	2
6	061050	SCREW, Machine, R.H. No. 10 x 1"	1
7	063026	LOCKWASHER, External Tooth, No. 10	1
8	064141	WASHER, Flat, 3/16	1
9	065055	NUT, Hex, No. 10	1
10	031020	FLANGETTE	2
11	054110	BEARING, Ball	1
12	031315	COLLAR	1
13	059022	CAP SCREW	3
14	063003	LOCKWASHER	3
15	031991	SHAFT, Rear PTO	1
16	057062	SNAP RING, External	2

REF. NO.	PART NO.	DESCRIPTION	QTY.
17	054052	BEARING, Ball	1
18	057024	SNAP RING, Internal	2
19	031989	BEARING HUB	1
20	057073	SNAP RING, External	1
21	074061	CAP SCREW,Socket Head, No. 10-24 x 1"	4
22	066022	KEY	1
23	031990	CLUTCH ASSEMBLY	1
24	031988	HUB	1
25	031992	STUD	1
26	025062	SPACER	1
27	031993	COUPLING	1
28	059181	CAP SCREW	2
29	059135	CAP SCREW	2
30	064123	WASHER	4
31	065042	LOCKNUT	4

HYDRAULIC LIFT AND FRONT ROCK SHAFT

HYDROSTATIC MODELS 931015, 931016, 931017, & 931018



REF NO.	PART NO.	DESCRIPTION	NO REQ'D.
1	531043	CYLINDER ASS'Y (includes adapters)	1
*2	031170	VALVE	1
3	031496	TUBE 11" Long, Valve to Reservoir	1
4	031692	HOSE, 21-1/2" Long, Valve to Cylinder	1
5	031520	TUBE 5-3/4" Long, Valve to Pump	1
6	031058	HOSE, 24-1/2" Long, Valve to Cylinder	1
7	031068	ADAPTER, 1/4 to 9/16, 45°	1
8	059050	CAP SCREW, HH, 1/4 x 1-1/2	2
9	064127	WASHER, Flat, 1/4"	2
10	031051	PIN, Clevis	2
11	031063	BELL CRANK	1
12	068061	PIN	1
13	031500	LINK	1
14	067029	HAIRPIN COTTER	1
15	063002	LOCKWASHER, 1/4"	2
16	031189	CONTROL ROD	1
17	075052	KNOB	1
18	531005	FRONT ROCKSHAFT	1
19	031015	CONNECTOR LINK	1

REF NO.	PART NO.	DESCRIPTION	NO REQ'D.
20	029011	BEARING BLOCK	4
21	065032	NUT, Hex, 1/4"	2
22	067004	PIN, Cotter, 1/8 x 1	2
23	067006	PIN, Cotter, 3/16 x 1-1/4	1
24	067026	PIN, Cotter, 3/16 x 1"	2
25	031014	BRACE	1
26	031076	BRACKET	1
27	064115	SHIM, .005 Thick	4
28	064009	WASHER, Flat, 3/4	1
29	058053	GROOVE PIN, 1/4 x 3/4	1
30	062005	BOLT, Carriage, 3/8 x 2-1/4	4
31	065098	LOCKNUT, Hex, 3/8	4
32	063003	LOCKWASHER, 5/16"	3
33	059134	CAP SCREW, HH, 5/16 x 1-1/4 GR.5	1
34	059022	CAP SCREW, HH, 5/16 x 3/4	2
35	064002	WASHER, Flat, 5/16	4
36	065015	NUT, Hex, 5/16	2
37	069094	J - CLAMP	1
38	031495	CONNECTOR	2
39	031634	ADAPTOR	1

*531041 Section Repair Kit Available
*531057 Spool Repair Kit Available

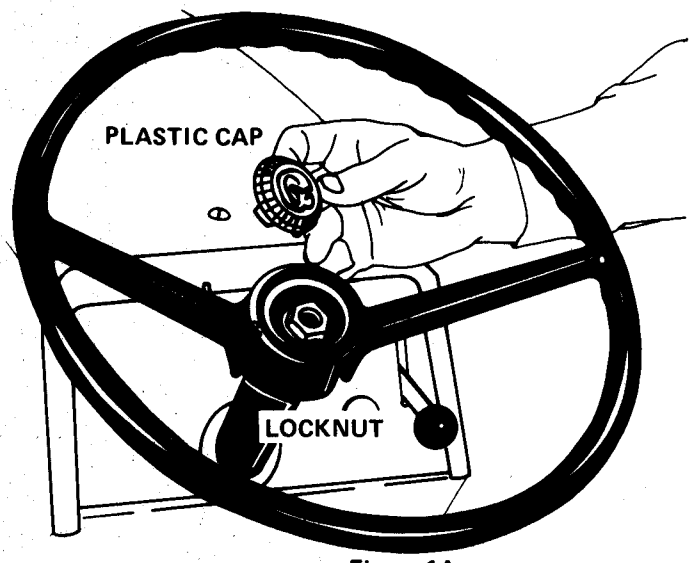


Figure 1A

STEERING WHEEL

Install steering wheel on the column as shown in Figure 1A. Secure with nut provided. Place the plastic cap firmly in the steering wheel hub.

SERVICE BATTERY

Remove the battery from the tractor. This will prevent any accidentally spilled electrolyte from damaging the tractor.

Electrolyte is not furnished with the tractor. Use only battery grade sulphuric acid electrolyte with 1.265 specific gravity plus or minus 0.005 corrected to 80° F.

Prepare battery as follows:

1. Remove vent plugs.

2. With battery removed from the tractor, fill each cell with electrolyte until electrolyte level rises to split ring at the bottom of the filler tube. DO NOT OVERFILL.

CAUTION: Electrolyte contains sulphuric acid which is harmful to skin, eyes and clothing. Handle with extreme care. If spillage occurs on body or clothing, rinse at once with water.

3. After filling cells, wait five to ten minutes and add additional electrolyte if necessary to bring electrolyte to proper level.

4. Charge battery with a 12 volt charger for 30 minutes at 4 to 6 amps.

5. After charging, add electrolyte until level is up to the split ring in the filler tube. Thereafter, add only clean, distilled water as use and time requires.

6. Replace vent caps. Clean and dry battery exterior.

INSTALL BATTERY

Place the battery in the battery carrier as shown in Figure 2A with the positive (+) terminal to the right side of the tractor.

Secure the battery in place with the battery hold down bolts, flat washers and locknuts as shown in Figure 2A. Do not overtighten these bolts.

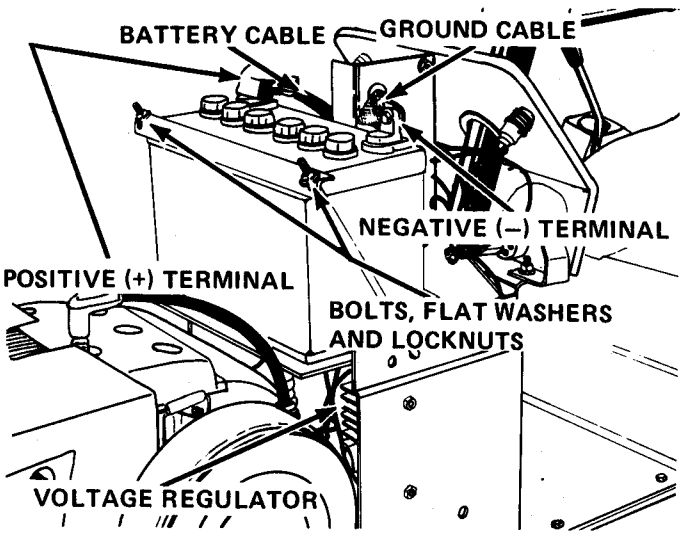


Figure 2A

Attach the battery cable to the positive (+) terminal and the ground cable to the negative (–) terminal as shown in Figure 2A. Tighten the cables to the terminals securely.

Coat the terminals and battery cable ends with a light coat of grease or petroleum jelly to prevent corrosion.

ENGINE

Fill the engine crankcase (Fig. 3A & 4A). Use Ariens Gard-N-Yard MS 10W-30 oil when using lawn and garden attachments and SE 5W-20 when using snow removal attachments.

Do not overfill – Oil level must never exceed full mark.

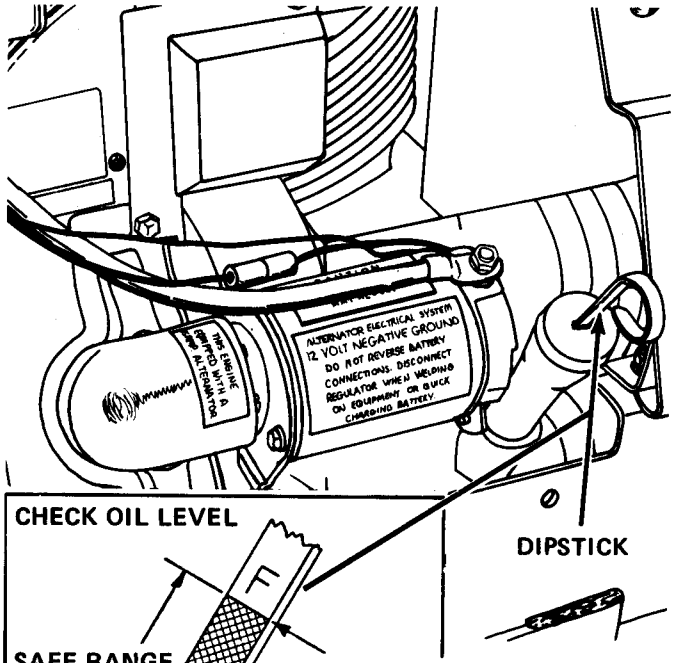


Figure 3A

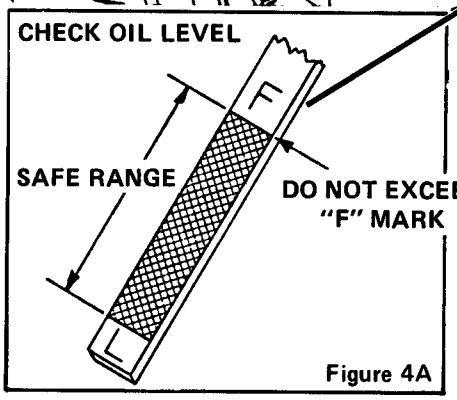


Figure 4A

CHECK TRANSMISSION OIL LEVEL

The hydrostatic transmission, differential and hydraulic lift system (if the tractor is so equipped) all operate from a common oil reservoir.

CAUTION: Proper oil level is essential for full braking effect and protection against severe damage to the transmission.

Use the following procedure to check the transmission oil level:

1. Be sure tractor is level and tires are inflated properly.
2. Wipe dirt from around the oil level and filler plug. Figure 6A.
3. With engine running, remove plug. Oil level is correct when it is at the top of the filler elbow as shown in Figure 6A.
4. If necessary, use a small funnel to add sufficient ARIENS 10W-30 Gard-N-Yard oil to bring the oil up to the proper level. Replace plug.

Be very careful to prevent dirt and foreign materials from entering the oil reservoir when checking the oil.

IMPORTANT: Do not push or tow tractor long distances as internal transmission damage could result. Load tractor on truck or trailer when delivering to purchaser.

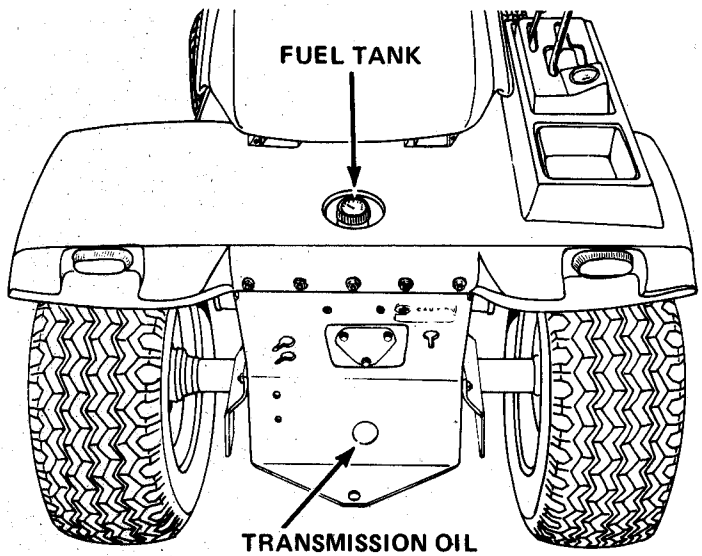


Figure 5A

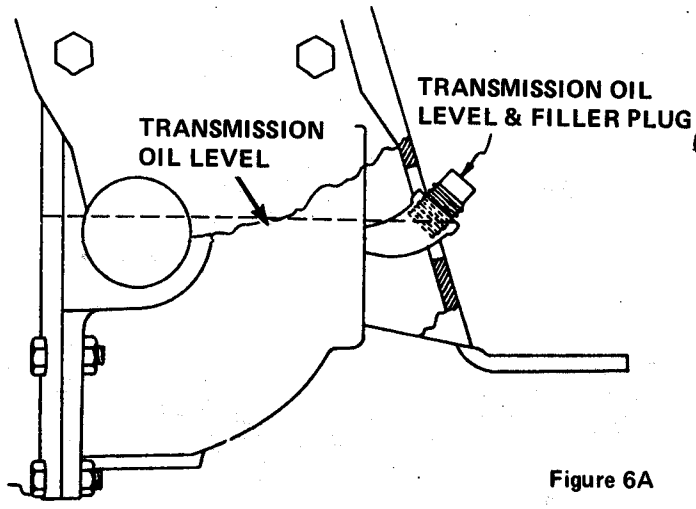


Figure 6A

FILL FUEL TANK

Fill fuel tank with regular grade gasoline. Do not use premium gasoline.

CHECK TIRE PRESSURE

Inflate tires to pressures shown in the chart below. Use a low pressure tire gauge for accurate readings.

TIRE SIZE	LOADING		
	Light	Medium	Heavy
Front	(Lawn Work)	(Sno-Thro)	
16 x 6.50 x 8	8 p.s.i.	12 p.s.i.	16 p.s.i.
Rear	(Lawn Work)	(Rotary-Tiller)	
23 x 10.50 x 12	6 p.s.i.	8 p.s.i.	10 p.s.i.

CHECK SAFETY INTERLOCK SYSTEM

To make sure that the safety interlock system has not become disconnected or damaged in shipment, check to see that the tractor will not start unless:

a. The shift lever is in the PARK/START position
b. Implement Power Control Switch is in the OFF (In) position.

If the engine starts with above controls in any other position, the safety interlock must be corrected before delivery.

DELIVERY

Using the Owner's Manual as a guide, instruct the customer as follows:

1. Instruct the customer on the operation of the tractor. Emphasize safety and discuss the safety information in the Owner's Manual.
2. Advise customer to change oil in the engine crankcase after the first five hours of operation.
3. Explain how to perform the recommended lubrication and periodic service.
4. Explain maintenance and adjustment instructions.
5. Demonstrate how to mount and dismount attachments.
6. Make certain the customer has his Owner's Manual.
7. Explain Ariens Warranty Policy. Fill out and return Ariens Warranty Registration Card.