



# 8000 SERIES TRACTOR SERVICE MANUAL

FORM NO: 34836 (3-85)

PART NO: 34686, 34687, 34688, 34689  
34690, 38303, 38304

PRINTED IN USA

NOTE

All references to "left-side", "right-side", "front", and "back" are given from the operator's position.



Look for this symbol to point out important safety precautions. It means -- ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED.

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## SECTION 1

### General Specifications

Fuel Specification	See your engine manual
Fuel Tank Capacity	5.3 Gallons (U.S.) (20 liters)
Engine Oil Specification	See your engine manual
Engine Oil Capacity	See your engine manual
Transmission Oil Specification	API Service SC 10W-40 Motor Oil
Transmission Oil Capacity	6 Quarts (U.S.) (5.7 liters)
Hydraulic Fluid Specification	Automatic Transmission Fluid Type A, Suffix A, Type F or Dextron
Hydraulic Fluid Capacity	1.5 Quarts (U.S.) (1.4 liters)
Battery	12 Volt, BCl group 22F, 42 amp. hr.
Fuse	30 amp. Acc-30
Tire Sizes:	
Regular Models, Front	16 x 6.50 - 8
Regular Models, Rear	23 x 8.50 - 12
Professional Models, Front	16 x 7.50 - 8
Professional Models, Rear	23 x 10.50 - 12
Tire Pressure, Front	14 psi (97 kN/m <sup>2</sup> ) to 18 psi (124 kN/m <sup>2</sup> )
Tire Pressure, Rear	10 psi (69 kN/m <sup>2</sup> ) to 14 psi (97 kN/m <sup>2</sup> )

Ground Speeds (at 3600 rpm Engine Speed)

FORWARD

<u>"LO" RANGE</u>		<u>"HI RANGE"</u>	
<u>Gear</u>	<u>Speed</u>	<u>Gear</u>	<u>Speed</u>
1	.5 mph ( .8 km/h)	1	2.5 mph ( 4.0 km/h)
2	.8 mph (1.2 km/h)	2	3.8 mph ( 6.1 km/h)
3	1.1 mph (1.8 km/h)	3	5.7 mph ( 9.2 km/h)
4	1.7 mph (2.7 km/h)	4	8.5 mph (13.7 km/h)

REVERSE

"HI" OR "LO" RANGES

<u>Gear</u>	<u>Speed</u>
1	1.1 mph (1.8 km/h)
2	1.7 mph (2.7 km/h)
3	2.5 mph (4.0 km/h)
4	3.8 mph (6.1 km/h)

BOLT TORQUE SPECIFICATIONS		
<u>BOLT SIZE</u>	<u>FOOT POUNDS (ft. lbs.)</u>	<u>NEWTON METERS (N.m)</u>
1/4"	7	9.5
5/16"	14	19
3/8"	25	34
7/16"	40	54
1/2"	60	82
9/16"	83	113
5/8"	120	163
3/4"	200	217

CHART 1

## SECTION 2


### Service Instructions

Chart 2 shows the recommended schedule for service that should be performed on a regular basis.

Service Performed	Time Intervals Between Service		
	Daily	25 Hr.	200 Hr.
Check Tire Pressure (Section 1)		X	
General Lubrication (Section 2.2)		X	
Check Engine Oil (Section 2.3)	X		
Check Air Intake Screen (Section 2.6)	X		
Check Cooling System (Section 2.7)		X	
Check Air Cleaner (Section 2.8)	X		
Check Transmission Oil (Section 2.10)		X	
Check Hydraulic Fluid (Section 2.16)			X
Check Fluid Level and Clean Battery (Section 2.17)			X

CHART 2

#### 2.1 Filling the Fuel Tank

 **WARNING:** Gasoline is very flammable. Follow safety instructions shown in Section 1, Operator's Manual.

Gasoline is added as required. Use clean lead free or regular grade gasoline. To add gasoline:

1. Put the tractor in an open area.
2. Stop the engine and lock the brake.
3. Clean the fuel cap area.
4. Remove the fuel tank cap.
5. Fill the tank with gasoline. Use caution. Do not overflow.
6. Reinstall fuel tank cap.
7. If gasoline is spilled, wipe it up.

## 2.2 General Lubrication

There are seven grease fittings to be greased at 25-hour intervals. Clean the fittings before attaching the grease gun. Use a multi-purpose grease. Add grease until it appears at the ends of the bearings. The locations of the seven fittings are:

1. On the direction control lever.
2. On the front axle at each king pin.
3. On the front axle as shown in Figure 1.
4. On the steering mechanism as shown in Figure 2.

Apply motor oil to all pin connections, pivot points and areas where sliding occurs in the clutch, transmission, PTO, and lift control systems every 25 hours.

## 2.3 Checking the Engine Oil

Check the engine oil level daily. Never operate the engine with the oil level below the low mark on the dipstick. See your engine manual.

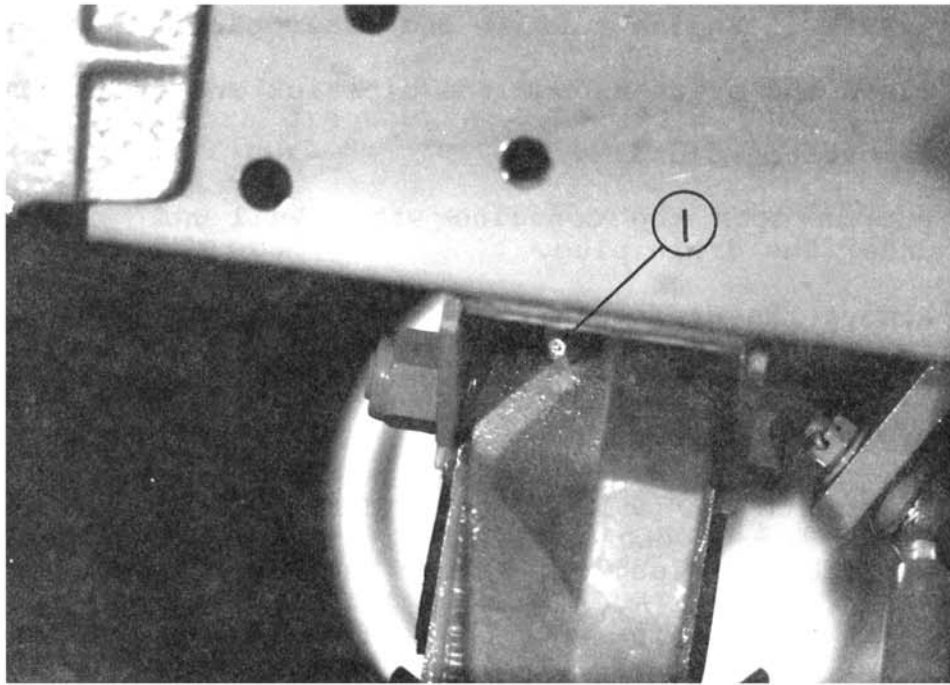
To check the oil level:

1. Park the tractor on a level area.
2. Clean around the dipstick to prevent dirt from entering the tube.
3. Remove the dipstick and wipe off the oil.
4. Put the dipstick back in place. Be sure it is all the way down.
5. Remove the dipstick again and note oil level.
6. Add oil, if needed. Do not overfill.
7. Repeat Step 4.

## 2.4 Changing the Engine Oil

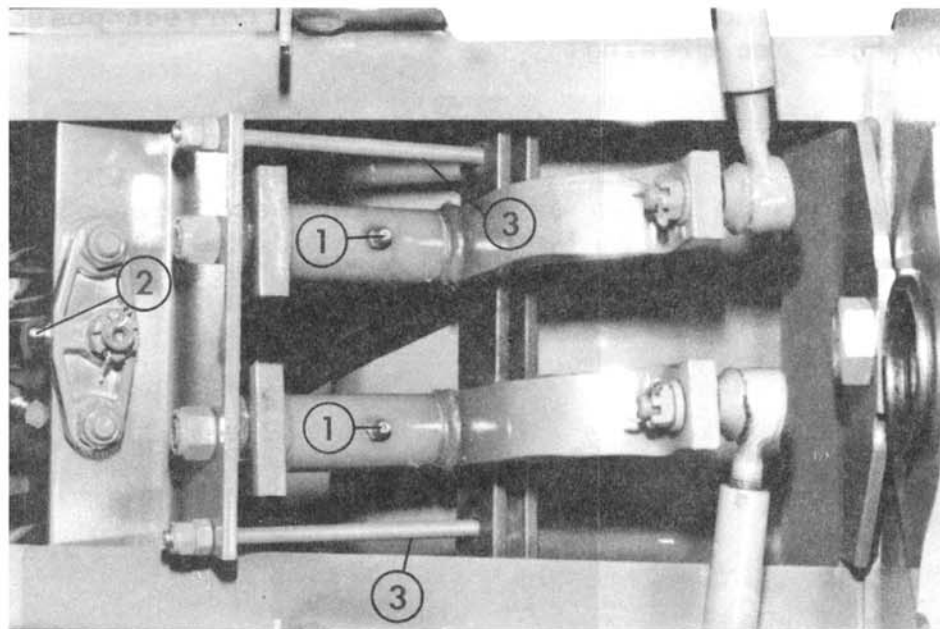
To change oil:

1. Read your engine manual for recommended change schedule.
2. Move the tractor to a level area. Lock the brake.
3. If the engine is cold, let it run for 5 minutes.



1 - Grease Fitting on the Front Axle  
FIGURE 1

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1 - Grease Fittings for the Steering Arms  
2 - Grease Fittings for the Steering Columns  
3 - Adjusting Bolt

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FIGURE 2



4. When the engine is warm, stop it and raise the rear fender.

 **WARNING:** Engine muffler and other parts are hot.

5. Clean the areas around the dipstick and drain plug.
6. Remove the dipstick.
7. Put an open top container that will hold four quarts under the drain plug.
8. Remove the drain plug.
9. Allow the engine to drain completely.
10. Clean and reinstall the drain plug.
11. Fill with new oil to the "FULL" mark on the dipstick.
12. Replace the dipstick. Lower the rear fender.
13. Start the engine and check for leakage at the drain plug. Tighten the plug if leakage occurs.

## 2.5 Checking the Fasteners

Check all fasteners periodically. Look for loose or missing fasteners any time looseness of parts, rattles, or excess noise and vibration are noted. Make sure all bolts, screws, nuts, pins, snap rings, and cotter pins are in the correct position and replace any that are missing.

## 2.6 Checking the Air Intake Screen

Check the air intake screen on the engine each day. Remove any grass, dirt, or debris that may have accumulated on it. **THE AIR INTAKE SCREEN MUST BE KEPT CLEAN.**

## 2.7 Checking the Cooling System

Check the cooling system for signs of the collection of grass and debris in the engine cooling fins every 25 hours or more often when operated in dirty conditions. See your engine manual for instructions.

## 2.8 Checking the Air Cleaner

Check the air cleaner each day. See your engine manual for instructions.

## 2.9 Changing the Air Cleaner Element

Replace the air cleaner element at the correct intervals. See your engine manual for instructions.

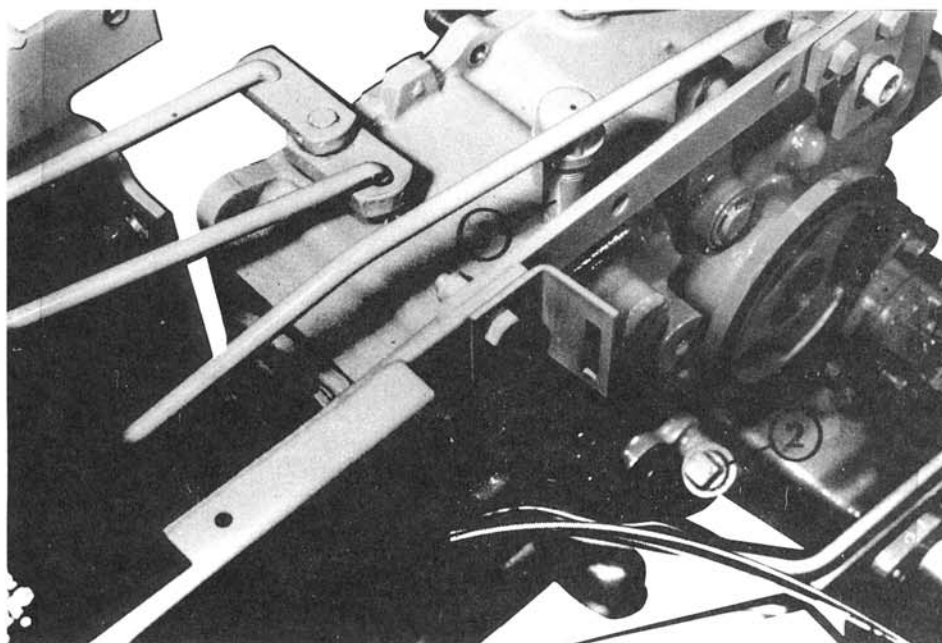
## 2.10 Checking the Transmission Oil

Check the transmission oil level every 25 hours. If leakage is observed, check more frequently. The fill tube and the check plug are shown in Figure 3. To check the transmission oil level:

1. Move the tractor to a level area. Stop the engine and lock the brake.
2. Raise the rear fender.
3. Clean the check plug and remove it.
4. The oil level is correct when oil is at the top of the hole.
5. If the level is correct, reinstall and tighten the plug. If the level is low, add oil. See Section 1 for recommended lubricant specifications.

To add oil:

1. Remove the fill tube cap.
2. Add oil until it reaches the top of the check plug hole.
3. Reinstall and tighten the fill tube cap and check plug.



1 - Fill Tube  
2 - Check Plug  
FIGURE 3


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## 2.11 Servicing the Brake

Brake service is required if:

1. The brake does not stop and hold the tractor effectively. The brake should be effective enough to cause the rear wheels to slide if applied suddenly on a concrete or asphalt surface.

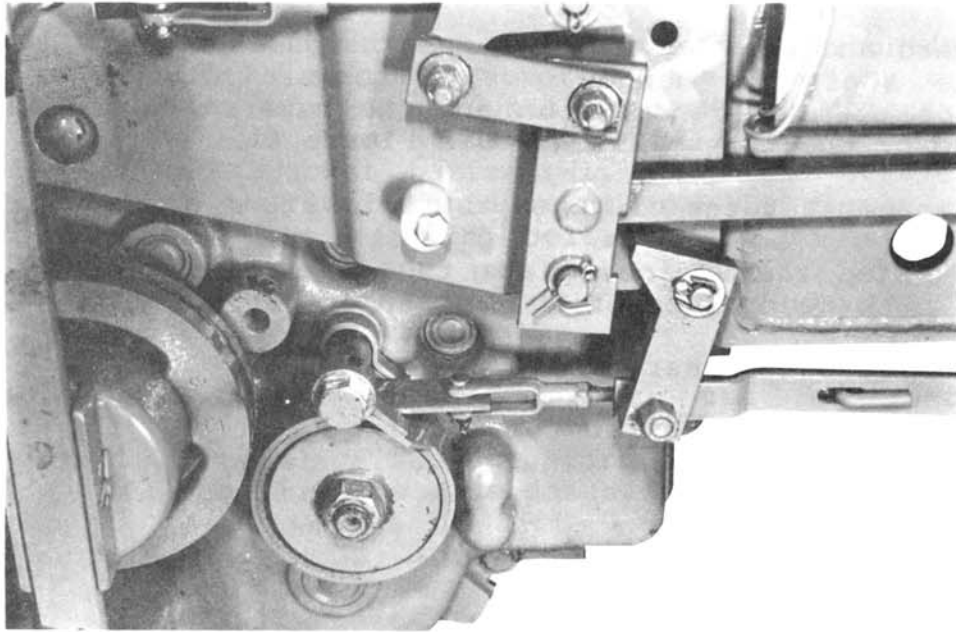
The brake is shown in Figure 4.

 **CAUTION:** Replace the brake band when the lining is as thin as the ignition key.

Replace the brake drum if it is visibly worn or rough.

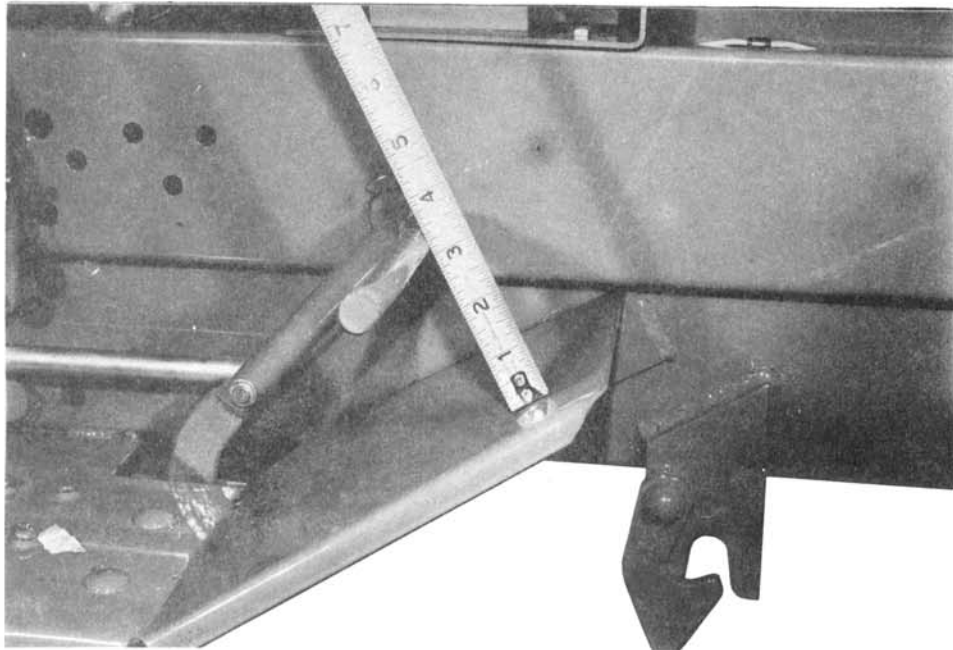
To adjust the brake:

1. Stop the tractor on a level surface.
2. Stop the engine and block the wheels so the tractor cannot roll.
3. Loosen the jam nut and remove the clevis pin.
4. Turn the clevis clockwise to tighten or counterclockwise to loosen as needed.
5. To check the adjustment, reconnect the clevis and brake band with the pin.
6. Push the direction control lever all the way forward.
7. Push the brake pedal by hand while watching the motion of the brake band. The brake is correctly adjusted when the band becomes tight on the drum as the direction control lever moves to "NEUTRAL." If the band is tight before the lever moves to "NEUTRAL", the brake is too tight. If too tight or too loose, repeat Steps 4, 5, 6, and 7 until the correct adjustment is obtained. The brake pedal should stop approximately 3" from the foot board. See Figure 5.
8. Install the cotter pin in the clevis pin and tighten the jam nut.
9. Check the effectiveness of the brake while operating the tractor.



**FIGURE 4**

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**FIGURE 5**

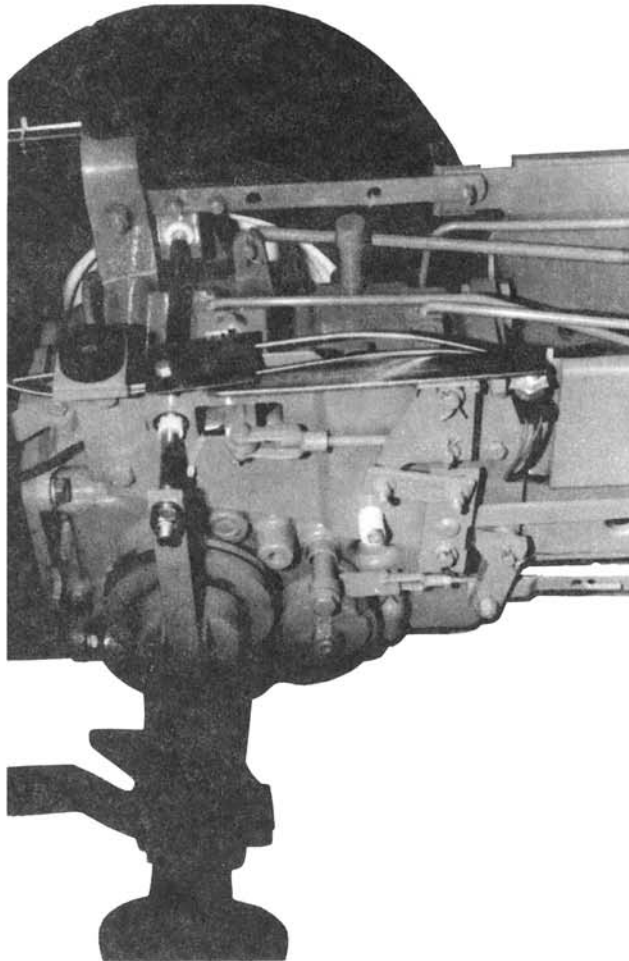
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## 2.12 Servicing the Forward and Reverse Clutches

The forward and reverse clutches must be checked every 100 hours. Lubricate shaft if needed. The forward clutch is on the right-side of the transmission and the reverse clutch is on the left-side of the transmission. See Figure 6.

Inspect and adjust the clutches as follows:

1. Stop the engine, place the direction control lever in the neutral position, and engage brake lock.
2. Raise the rear fender.

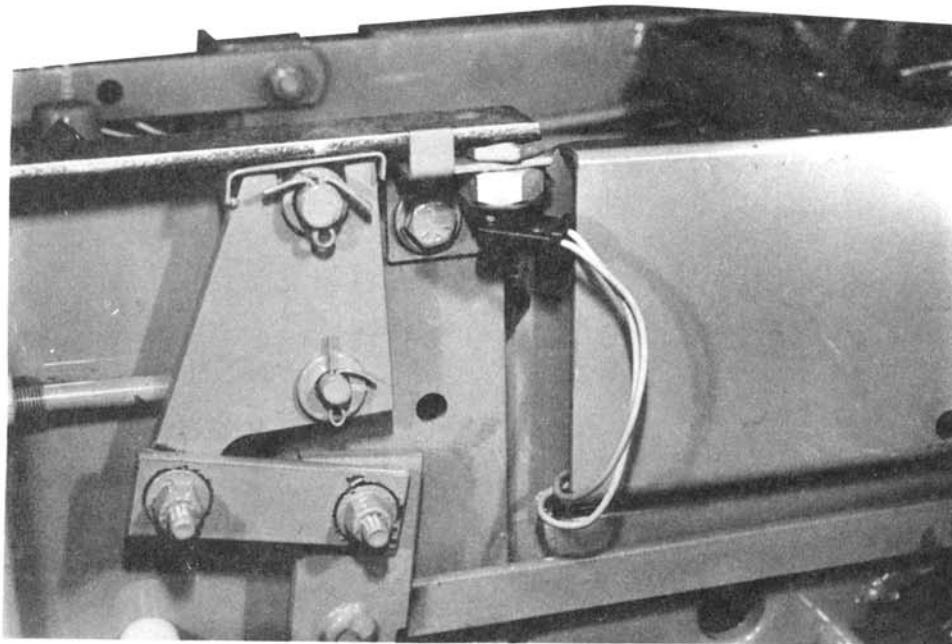


**FIGURE 6**

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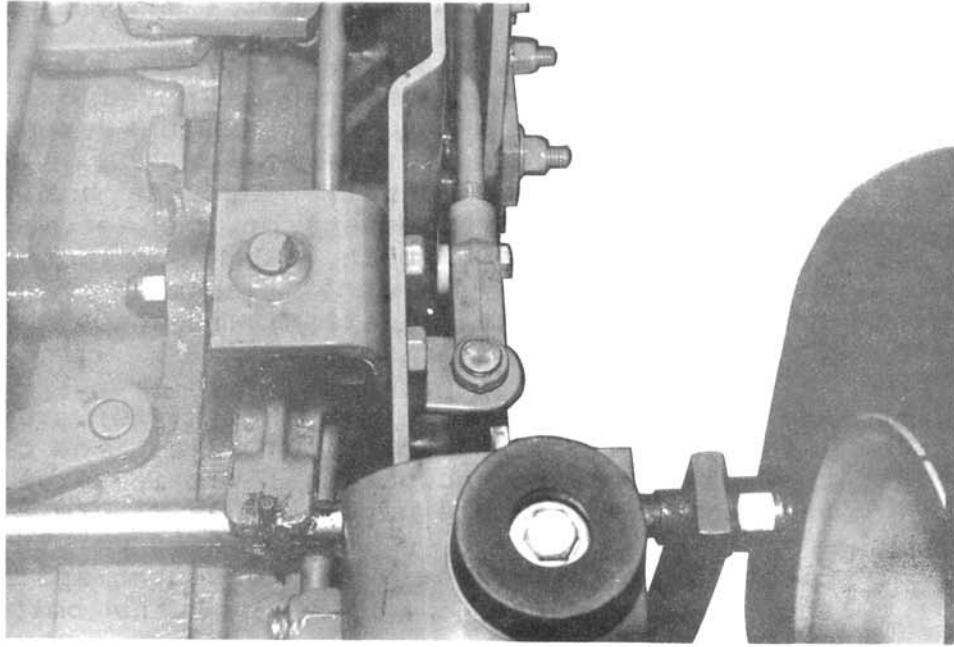
### 3. Adjustments:

- a. Neutral interlock switch: Loosen the mounting bolt until the switch bracket can be moved by tapping. Tap the bracket up until the clutch detent spring lifts off the actuating arm. NOTE: Keep the switch bracket horizontal. Tap the bracket down until the leaf spring rests on the actuating arm. Tighten the mounting bolt. Check adjustment with an ohm meter or put the transmission gear in neutral and move the ignition switch to the "START" position. See Figure 7.
- b. Rod actuating lever: With the forward-reverse lever in the neutral position, adjust the clevis so that the slide rod actuating lever is parallel with the transmission case gasket. See Figure 8.
- c. Clutch springs: Push in on the clutch spring until there is no clutch gap. Adjust the bolt in the axle flange until the clutch spring is vertical. Repeat for the other clutch. See Figure 9.



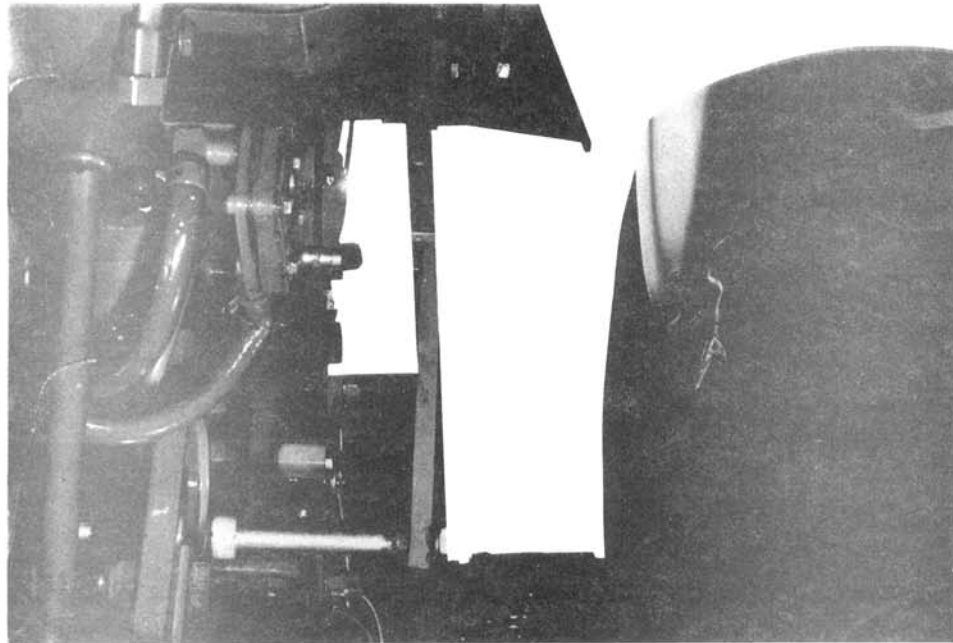
**FIGURE 7**

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**FIGURE 8**

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**FIGURE 9**

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- d. Clutch gap adjustment: With the forward-reverse lever in the neutral position, adjust the nuts on the slide rod so that: (1) the forward clutch gap is 0.070" (1.8mm) and (2) the reverse clutch gap is 0.125" (3.2mm). See Figure 10 (the ignition key can be used for a gauge in the fwd clutch).
  - e. Cam bushing adjustment: Loosen retaining bolt and rotate the bushing until the linkage goes over center .125". See Figure 11. Retighten the bolt.
4. To lubricate clutch, remove the clutch and apply a film of multi-purpose grease to the splined clutch shaft. Readjust as described above.

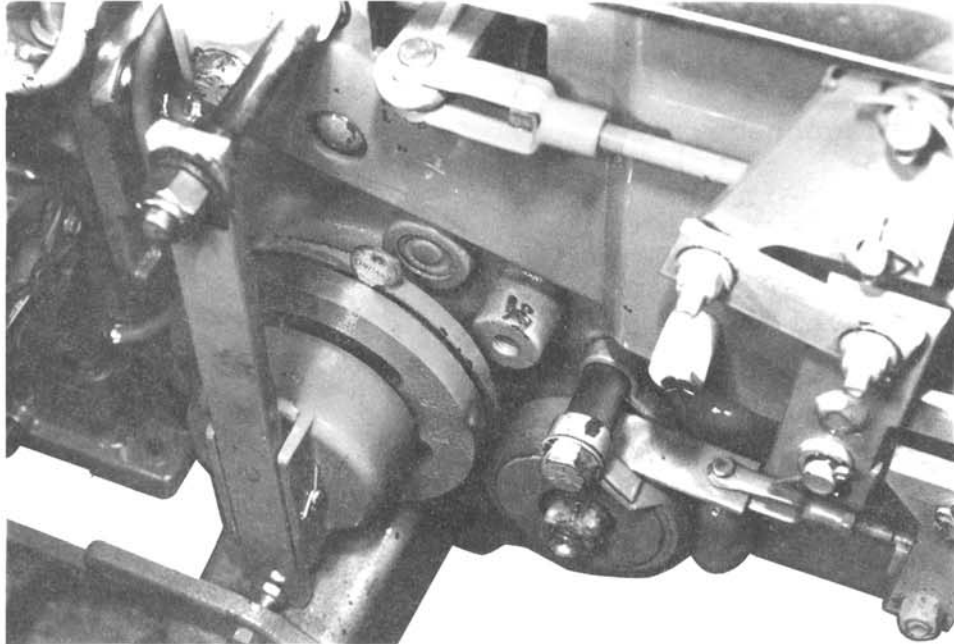


FIGURE 10

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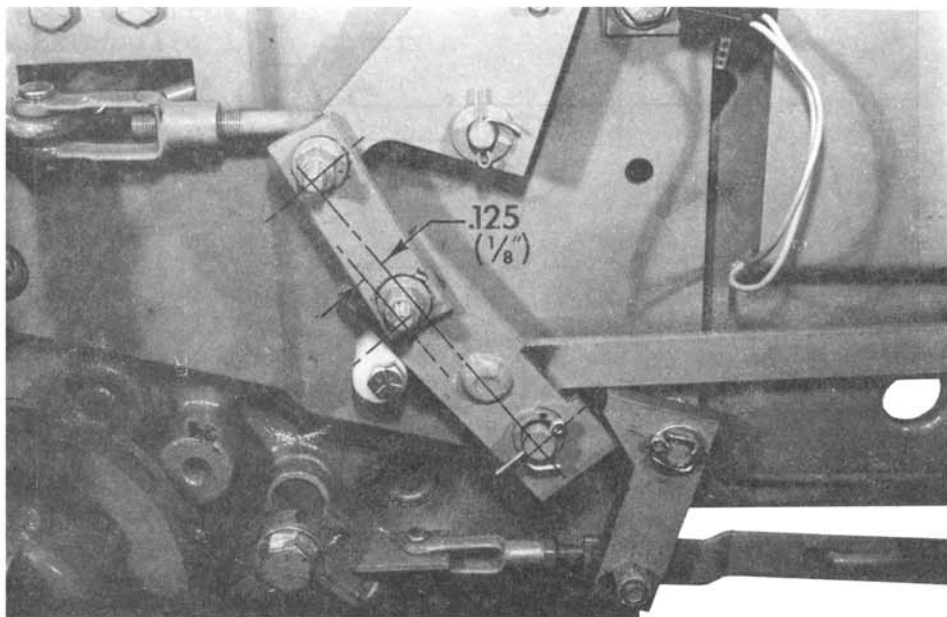


FIGURE 11

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## 2.13 Servicing the PTO Clutch

The PTO clutch should be adjusted whenever there is less than .5 inches of free travel in the clutch lever when it is in the "ON" position. See Figure 12 to see where this free travel is measured. The free travel should be between .5 inch and 1.0 inch. To adjust:

1. Stop the engine and lock the brake.
2. Raise the rear fender.
3. Push the PTO lever to "ON."
4. Disconnect the PTO rod from the PTO lever. See Figure 13.
5. Rotate the PTO rod to change the free travel. Each turn will change it by about .25 inch. Turn clockwise to increase and counterclockwise to decrease the free travel.
6. Reconnect the control rod to the transmission lever.
7. Check for correct free travel. Repeat Steps 4, 5, and 6 if necessary.

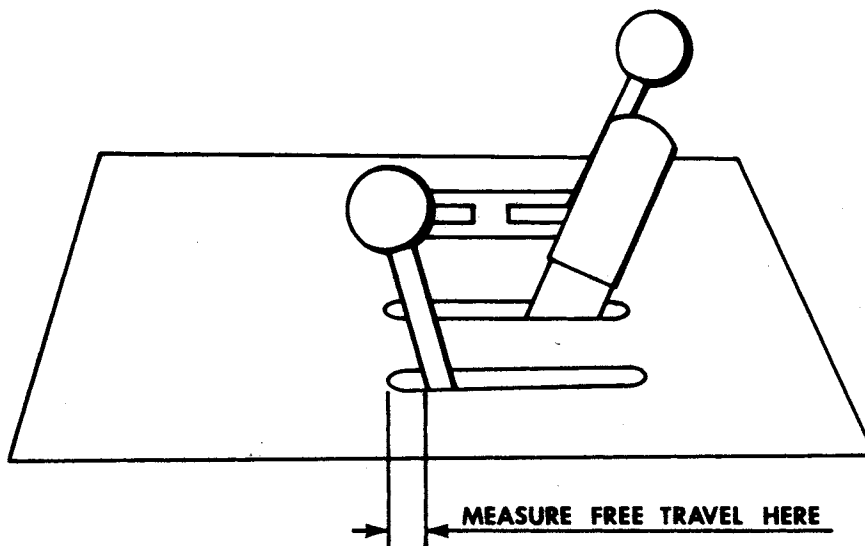
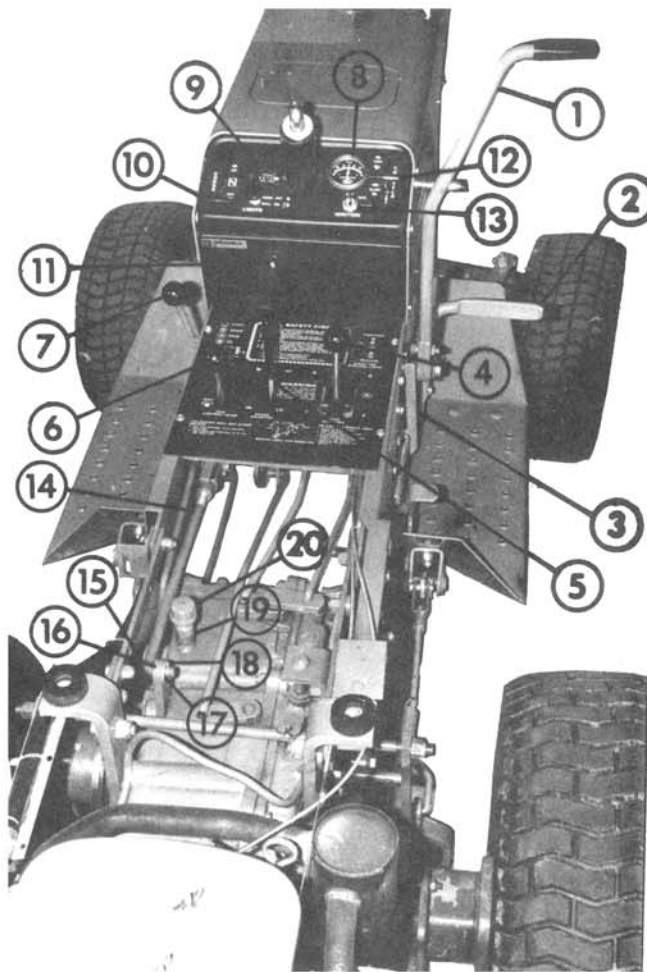


FIGURE 12



- |                             |                       |
|-----------------------------|-----------------------|
| 1 - Direction Control Lever | 11 - Fuse Holder      |
| 2 - Brake Pedal             | 12 - Throttle Control |
| 3 - Brake Lock Lever        | 13 - Ignition Switch  |
| 4 - Gear Selector           | 14 - PTO Rod          |
| 5 - Range Selector          | 15 - Pipe Plug        |
| 6 - PTO Control             | 16 - PTO Lever        |
| 7 - Hydraulic Lift Control  | 17 - Washer           |
| 8 - Ammeter                 | 18 - Cotter Pin       |
| 9 - Hourmeter               | 19 - Pipe Nipple      |
| 10 - Choke Control          | 20 - Pipe Cap         |

FIGURE 13

## 2.14 Servicing the Steering System

Adjustment is usually needed whenever there is more than 2 inches of free play in the steering wheel.

To adjust the steering gear:

1. Be sure that all hood fasteners are tight.
2. Loosen the lock nuts on both adjusting bolts. See Figure 2.
3. Turn the steering wheel to the right as far as it will go.

4. Turn the adjusting nut on the left side adjusting bolt clockwise with your fingers until it is tight. Then back the nut off one fourth turn.
5. Tighten the lock nut against the adjusting nut being careful not to move the adjusting nut.
6. Turn the steering wheel to the left as far as it will go.
7. Repeat Steps 4 and 5 for the right side adjusting nut.
8. Check for tightness or backlash in the steering gear through the full range of the steering wheel rotation. There should be no noticeable tightness or backlash in the rack and pinion mesh. If there is, repeat Steps 3 through 7 as required.

Upon completion of the steering gear adjustment, recheck the steering wheel free play. If the free play is still excessive, look for loose steering arms on the king pins, loose or worn ball joints, or other signs of wear. Tighten or replace as required.

#### 2.15 Servicing the Spark Plug(s)

To clean or change a spark plug:

1. Stop the engine, lock the brake, and raise the rear fender.
2. See your engine manual for further instructions.

#### 2.16 Checking the Hydraulic Fluid

Check the hydraulic fluid level every 200 hours or at any sign of leakage. The tank is under the hood. See Figure 14. To check the level of the fluid:

1. Stop the engine, lock the brake, and remove the hood.
2. Clean the top of the tank.
3. Remove the plug with dipstick.
4. Wipe the dipstick and put it back in the hole in the tank. Do not engage threads.
5. Remove again and note the level of the fluid on the dipstick.

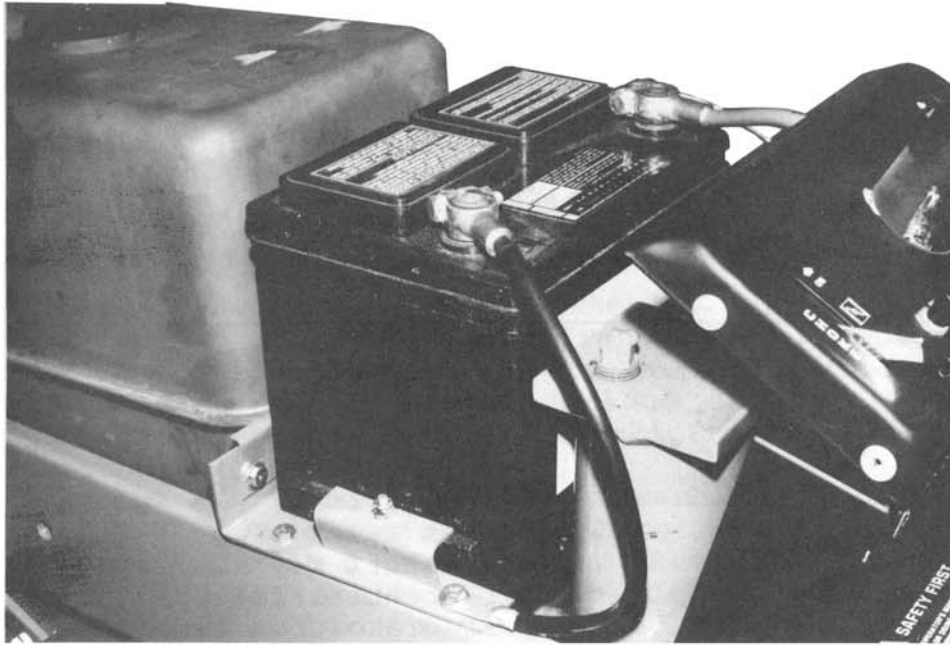


FIGURE 14

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6. If the level is low, add fluid to raise the level to the full mark.

**⚠ CAUTION:** Do not overfill.

NOTE: See Section 1 for hydraulic fluid specifications.

7. Reinstall and tighten the plug.

## 2.17 Checking the Battery Fluid

Check the battery fluid every 25 hours. On tractors with low water loss batteries, check the fluid level once a season if the cap can be removed. See Figure 14. Use caution and wear eye protection when checking the battery. To check the battery.

1. Clean the top of the battery.
2. Lift the filler caps.
3. If the fluid level is below the split rings in the filler tube, add distilled water. Do not fill above the split ring. Do not use a metal funnel.
4. Reinstall the filler caps. Push them all the way down.

SECTION 3

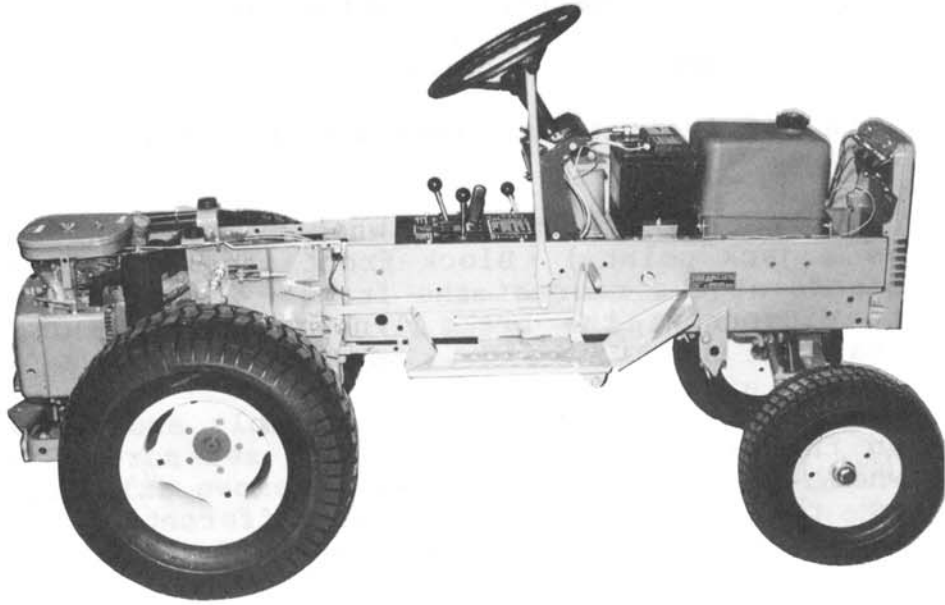
Transmission

3.1 Problem Solving Chart:

PROBLEM	POSSIBLE CAUSE
1. Tractor will not move.	Axle key sheared Clutch - lining worn - linkage broken - dowel pin sheared in slide rod  Broken axle Crankshaft key sheared Differential failure (check to see if brake drum turns)
2. Tractor will move only in reverse.	Adjustment of range linkage Hi-lo range in neutral Forward clutch hub (18024P1) Key sheared or missing Forward clutch - lining worn or linkage broken
3. Tractor will move only in forward.	Reverse clutch hub (18024P1) Key sheared or missing Reverse clutch - lining worn or linkage broken
4. Attachment does not operate.	PTO linkage out of adjustment PTO clutch lining worn out Crankshaft key sheared
5. Attachment will not stop.	PTO clutch stuck PTO linkage out of adjustment
6. Difficult or impossible to shift range gear.	Control linkage Roll pin in shifter arm sheared Broken shifter fork Burred hi-lo shifting gear
7. Gear shift lever will not go in 1,3 position or 4,2 position	1,3 or 4,2 gears not in neutral Gears not aligned, rock tractor, or momentarily engaged clutch #6 shaft bent

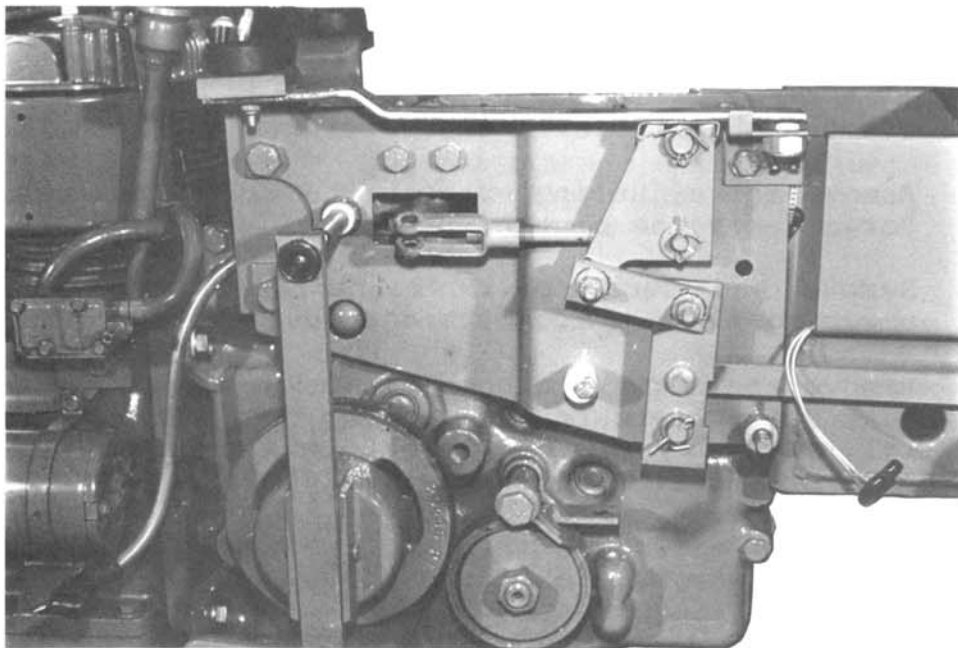
### 3.2 Transmission Disassembly (in frame)

1. Remove hood and rear deck. See Figure 15.
2. Disconnect the battery ground cable.
3. Drain transmission lubricant.
4. Turn off fuel at fuel tank and disconnect fuel line at engine.
5. Jack tractor to lift rear wheels. (Do not use engine as a jack point.) Block front wheels. Position jack stands at the rear of the frame. It may be convenient to disconnect the brake linkage to position the jack stand on the right side. See Figure 16.
6. Remove the right rear tire assembly and remove E-ring on the axle. Loosen wheel hub, set screw, and remove wheel hub with a gear puller. Remove axle key. Repeat on the left side if the differential (#8 shaft assembly) is to be removed. See Figure 17.
7. Disconnect the starter cable, charging circuit wires. Remove ties and press away from the transmission. If the PTO clutch assembly (#9 shaft assembly) is to be removed, disconnect the coil wire, choke control, throttle control, and other engine connections.
8. Disconnect the forward-reverse neutral switch.
9. Disconnect the forward-reverse shifter link at the forward-reverse lever.
10. Disconnect the clevis on the clutch actuating rod.
11. Remove the adjusting nuts on the slide rod. Remove the forward-reverse clutch springs.
12. Remove the three bolts mounting the forward-reverse mounting plate weldment and remove.
13. Remove the forward clutch assembly. Remove the spring, flat washer, and retaining ring from the forward clutch (#1 shaft assembly). Repeat on the other side if the reverse shaft (#2 shaft assembly) is to be removed. See Figure 18.
14. Remove brake band and brake drum.
15. Remove the right rear hitch arm. Clean the right axle and remove the axle bearing retainer.
16. Loosen the left, and remove the right engine adaptor bolts. Pull engine rearward.



**FIGURE 15**

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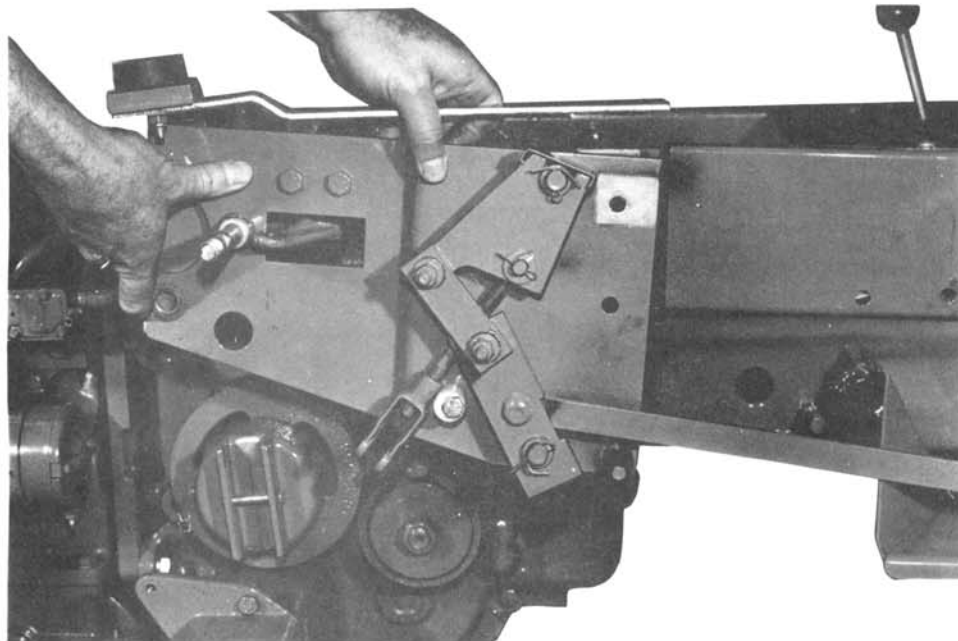
**FIGURE 16**

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**FIGURE 17**

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**FIGURE 18**

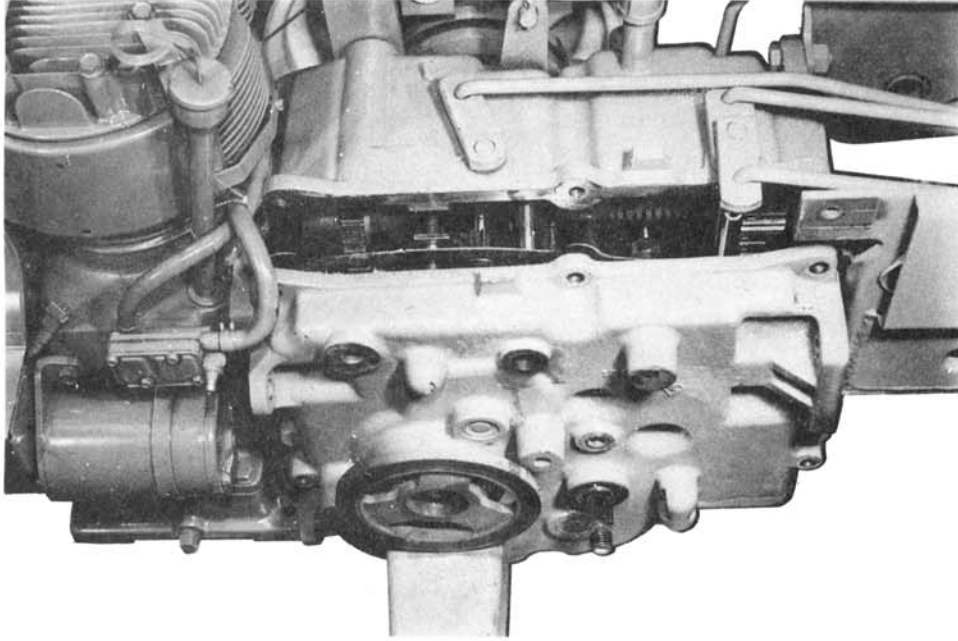
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17. Remove the two right frame bolts.
18. Remove the e-ring on the PTO yoke shaft. Remove all visible paint and debris from PTO yoke shaft.
19. Remove the cover bolts.
20. Put the gear shift lever in the neutral position, the PTO control in the "ON" position, and the hi-lo lever in the "Lo" position.
21. Tap the cover with a soft hammer and pry off with two screwdrivers or pry bars. Clean paint and debris off the exposed part of #1, #6, and #8 shafts. Tap #1 shaft, #6 shaft, #8 shaft (axle), and the PTO yoke shaft as the cover is worked off. Place a clean cloth or box under the transmission to catch the parts which may fall out. See Figure 19.

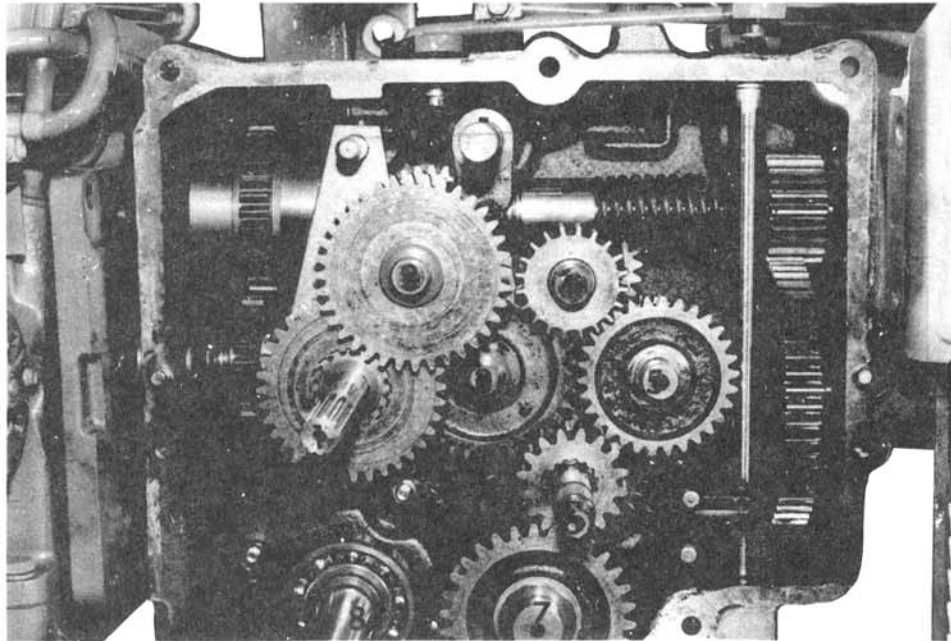
### 3.3 Gearing Removal

1. Remove idler gear assembly and races from #2 shaft assembly. See Figure 20.
2. Remove #7 shaft assembly.
3. Remove #5 shaft assembly.
4. Remove #4 shaft assembly.
5. Remove the hi-lo detent spring and ball. A magnet can be used to lift the ball out of the case. See Figure 21.
6. Remove #1 shaft assembly along with hi-lo shaft fork. See Figure 22.
7. Remove #3 shaft assembly.
8. Remove #6 shaft assembly.
9. Remove #8 shaft assembly (differential-axle assembly). See Figure 23.
10. Remove #2 shaft. Slide races towards reverse drive to clear #9.
11. Removal of #9 (PTO clutch) assembly:
  - a. Remove engine. See Section 4.
  - b. Disconnect PTO lever.
  - c. Remove e-ring, key, and PTO lever. See Figure 24.
  - d. Pull yoke shaft out and remove PTO yoke.
  - e. Remove front PTO cap.
  - f. Remove retaining ring on rear clutch cup. See Figure 25.
  - g. Slide assembly forward. Swing rear outward and pull out of case. See Figure 26.



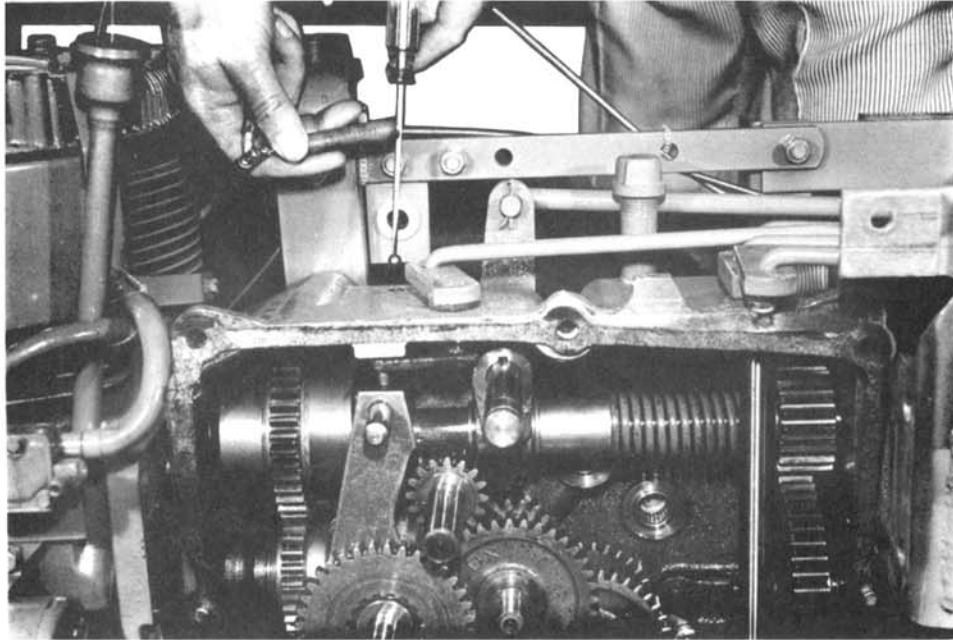
**FIGURE 19**

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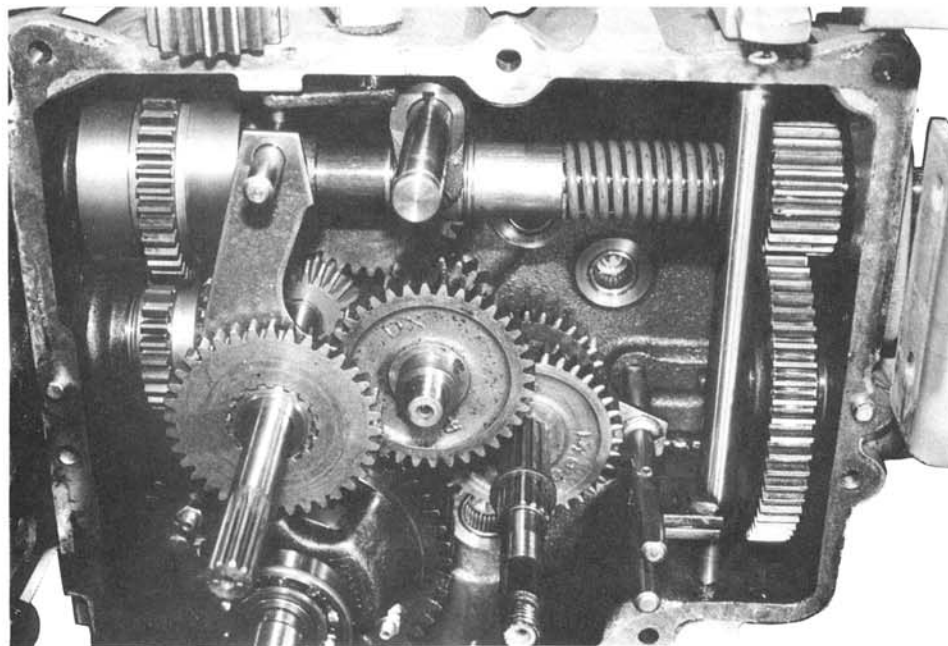
**FIGURE 20**

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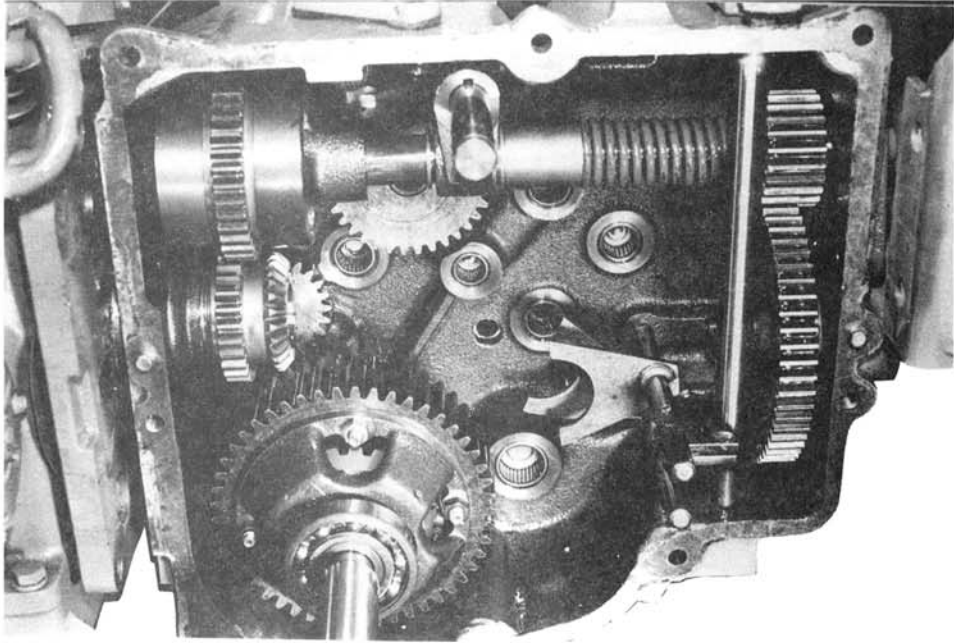
**FIGURE 21**

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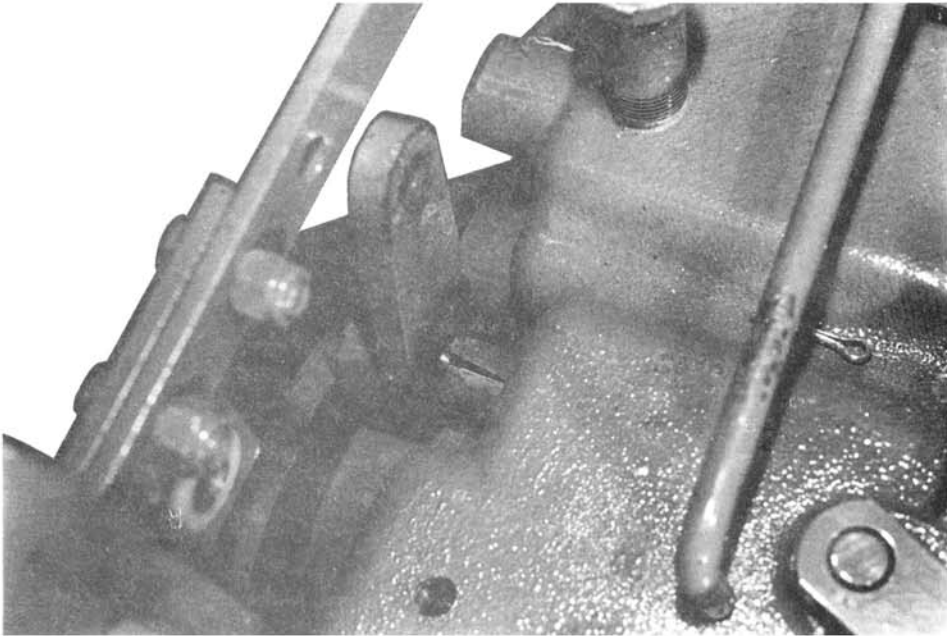
**FIGURE 22**

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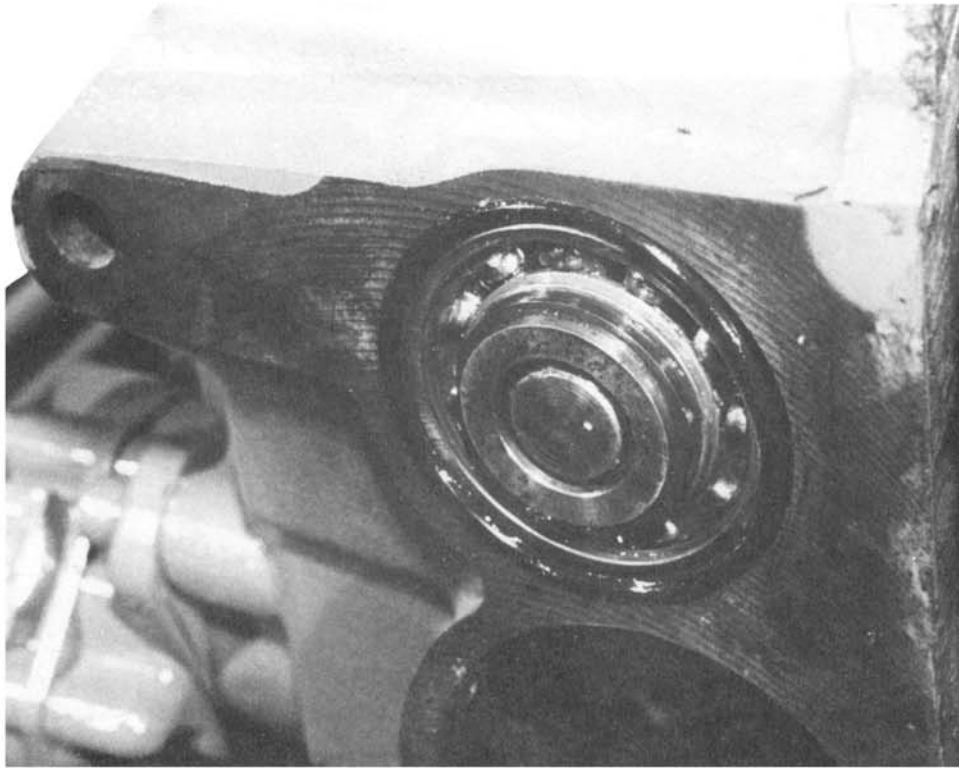
**FIGURE 23**

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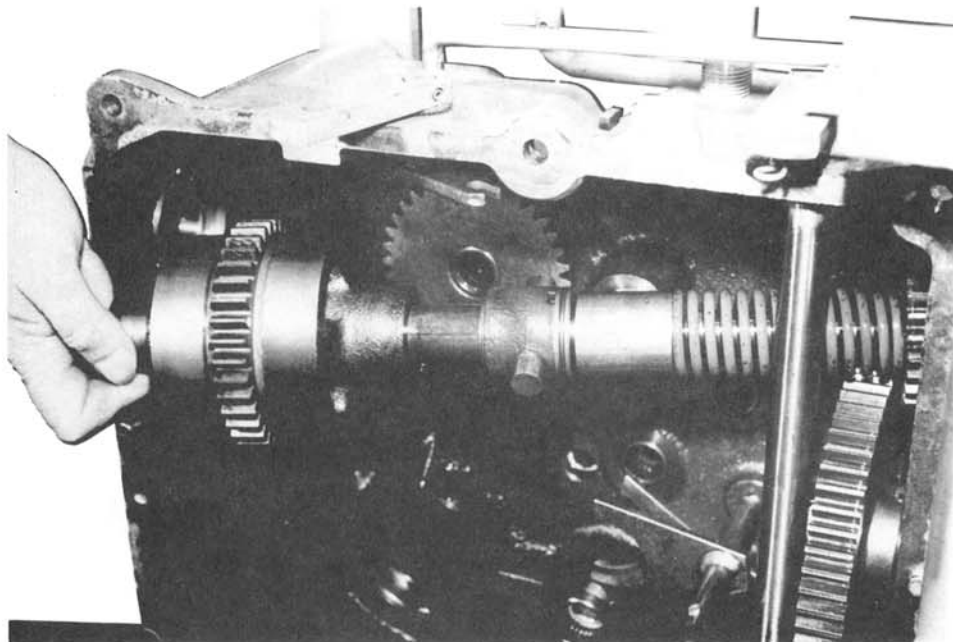
**FIGURE 24**

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**FIGURE 25**

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**FIGURE 26**

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12. Removal of #10 shaft assembly (PTO shaft):

- a. Put the male universal shaft on the PTO shaft. Rotate the U-joint to 90° and rotate against the tractor frame. See Figure 27.
- b. Use a 15/16 wrench to remove the lock nut on the end of the shaft.
- c. Pull shaft forward out of the transmission case.
- d. Drive out seal and remove bearing.
- e. Inspect bearing races and remove if worn or damaged. Use a bearing puller to remove the races. Use the snap ring clamp and snap ring pliers to remove the snap ring. See Section 10.

3.4 Inspection and Repair of #10 Shaft (PTO Shaft). See Figure 28.

1. Inspect all parts for wear and damage.
2. Replace all worn or damaged parts.

3.5 Assembly of #10 Shaft (PTO Shaft)

1. If bearings are to be replaced, secure a complete new bearing set as the parts are matched.
2. Put snap ring in the groove and press races from either side using a driver. See Section 10.

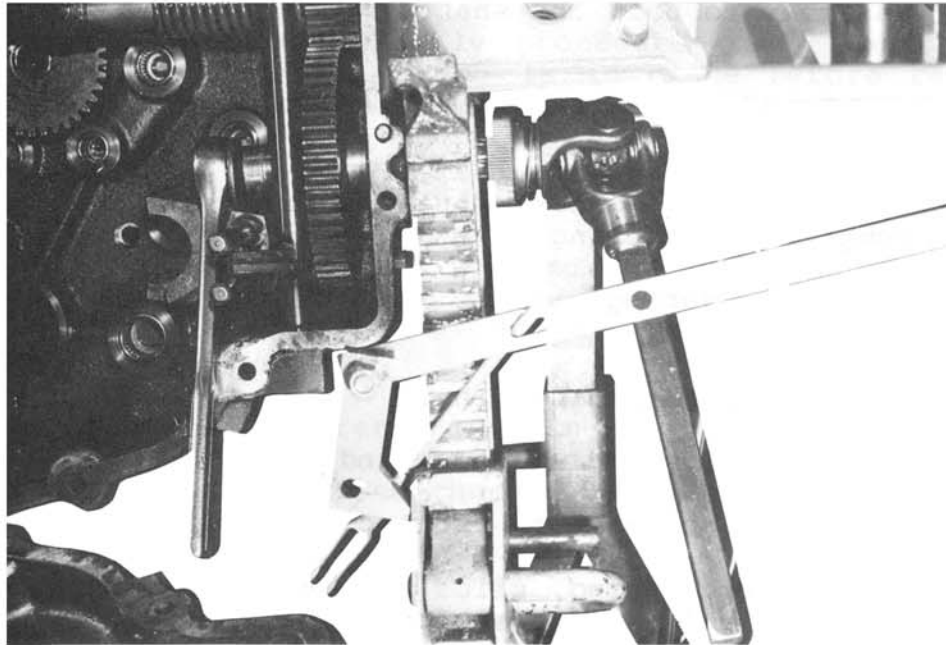


FIGURE 27

84104

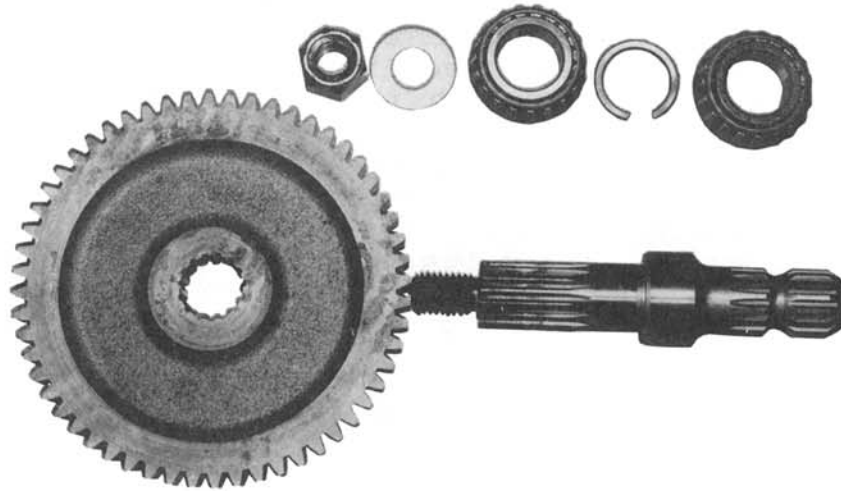


FIGURE 28

84105

3. Put cone in front race and press seal into position.
4. Put cone spacer, bearing cone, spacer, and gear in position and slide shaft into place.
5. Put a hardened washer (33845) next to the gear and secure assembly with the lock nut. Use the U-joint assembly to hold the shaft.

3.6 Disassembly of #9 Shaft Assembly (PTO Clutch). See Figure 29.

1. Use a bearing puller with long legs in a push-puller to compress the spring.
2. Compress spring until the clutch cup clears the retaining ring.
3. Remove the retaining ring.
4. Remove the rear clutch cup and key.
5. Remove the cone gear, front clutch cup, and key.
6. Release the spring, slide remaining parts off the shaft while noting their position.

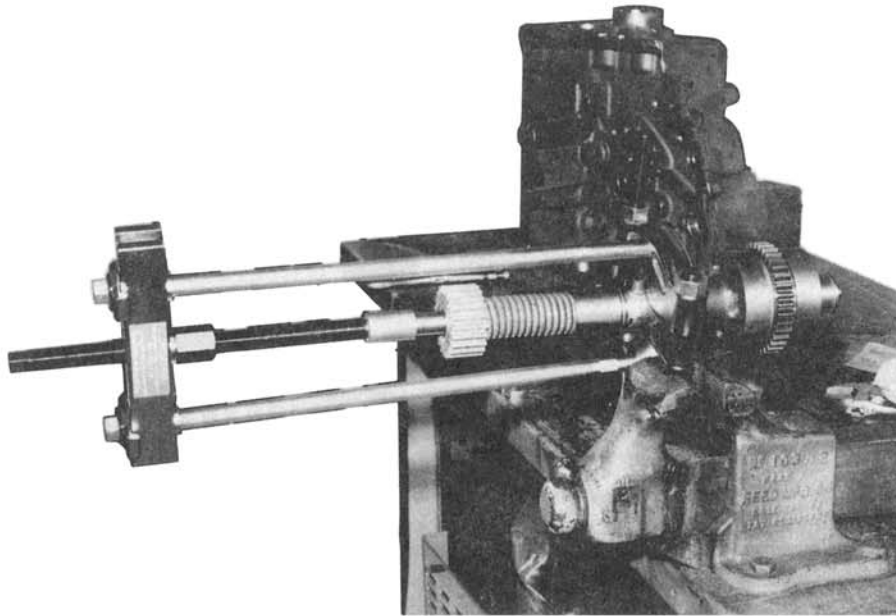


FIGURE 29

84106

3.7 Inspection and Repair of #9 Shaft (PTO Clutch). See Figure 30.

1. Inspect all parts for damage and wear.
2. Replace all parts damaged or worn. The retaining rings should be replaced.

3.8 Assembly of #9 Shaft (PTO Clutch)

1. Reverse the disassembly procedure given in 3.6. Be sure the retaining ring is in place before releasing the spring pressure.

3.9 Disassembly of #8 Shaft (Differential)

1. Remove the four bolts holding the assembly.
2. Use a soft hammer to loosen the assembly and pull apart.
3. Remove the axle retaining rings.
4. Remove bearings from the end cap with a soft hammer.

3.10 Inspection and Repair of #8 (Differential-Axle). See Figure 31.

1. Inspect all parts for damage and wear.
2. Replace any parts worn or damaged.





### 3.11 Assembly of #8 (Differential-Axle)

1. Reverse the disassembly procedure.
2. Use nut retaining compound on the four bolts and tighten to a torque of 25 ft-lb.

### 3.12 Gearing Inspection and Repair

1. Inspect all parts for wear and damage.
2. Replace any part worn or damaged. If a bearing or thrust race is damaged, replace the bearing and both thrust races. See Figures 32, 33, 34, 35, 36, 37 and 38.

- 3.13 Check the seals for wear and damage in the forward/reverse clutch hubs, #6 shaft seal, axle seals and PTO cap. Replace as needed.

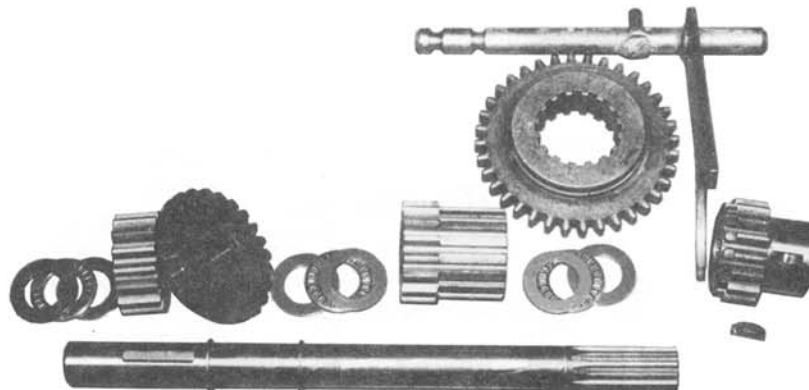


FIGURE 32

84109

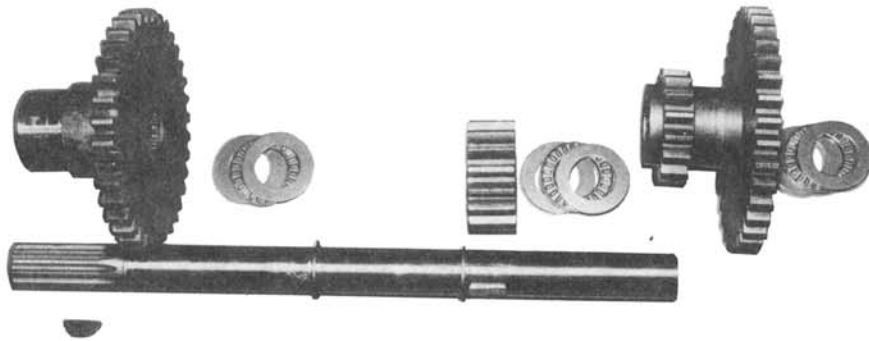


FIGURE 33

84110

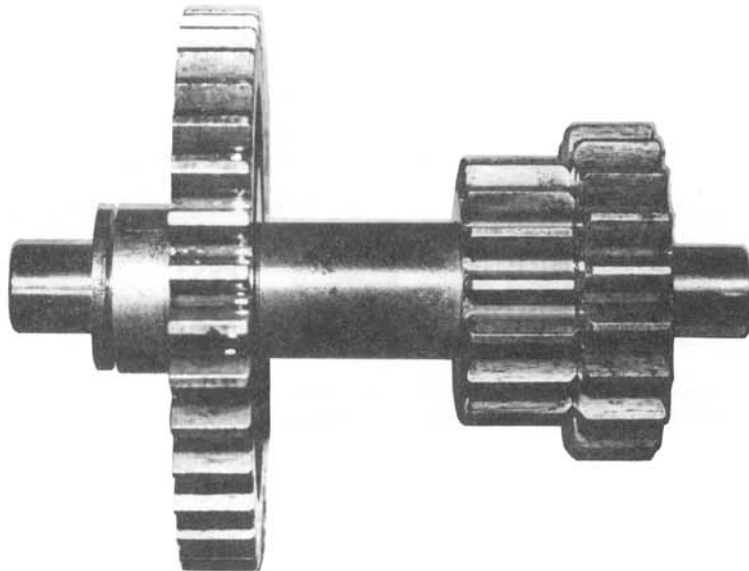


FIGURE 34

84111

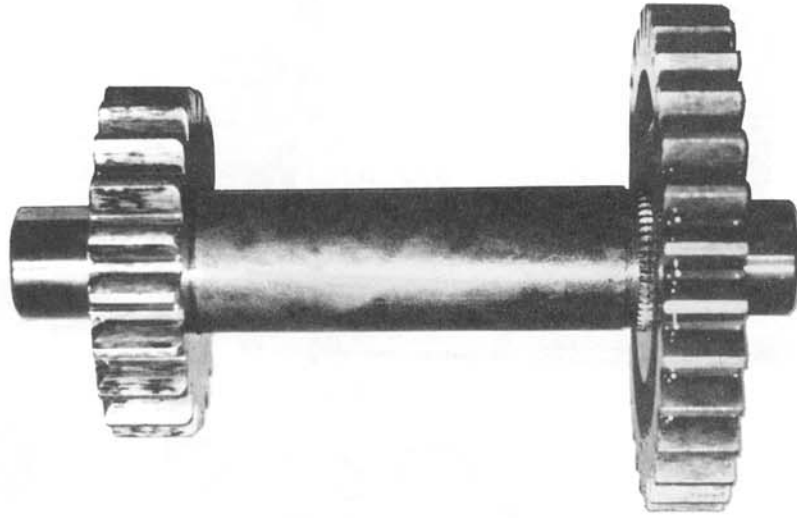


FIGURE 35

84112

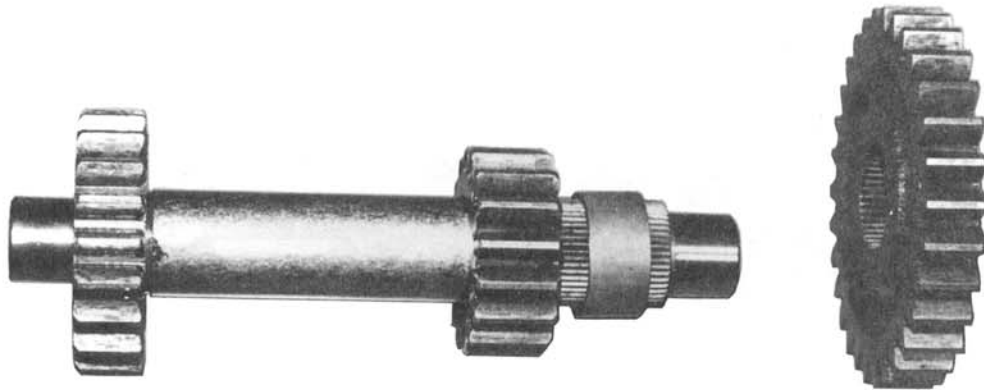


FIGURE 36

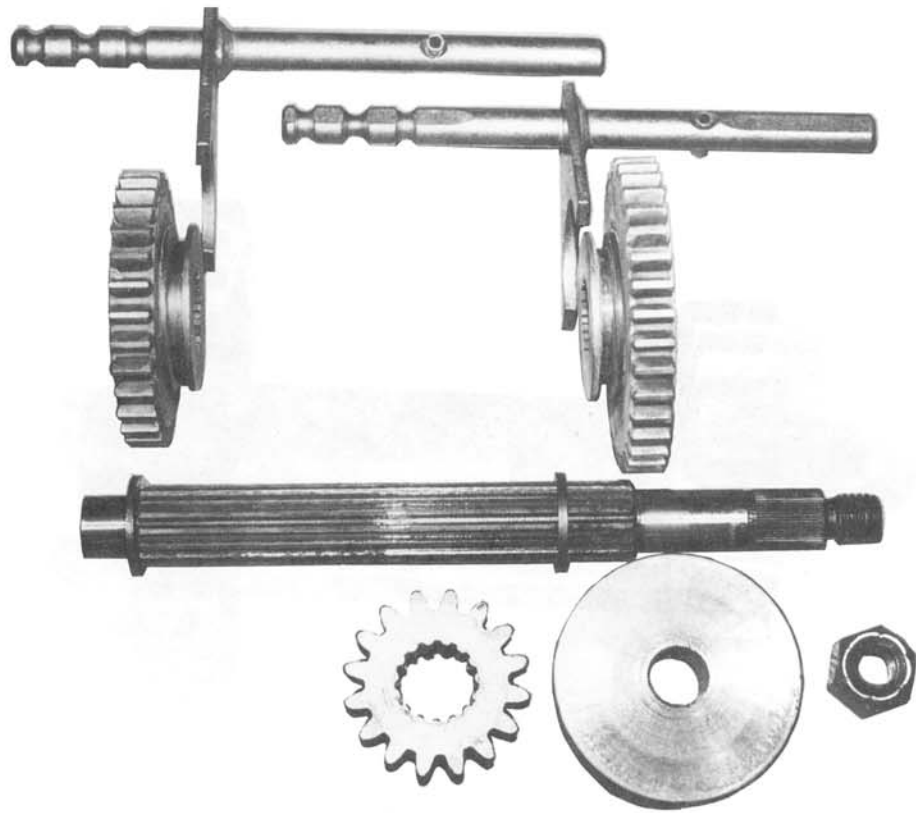


FIGURE 37

84114

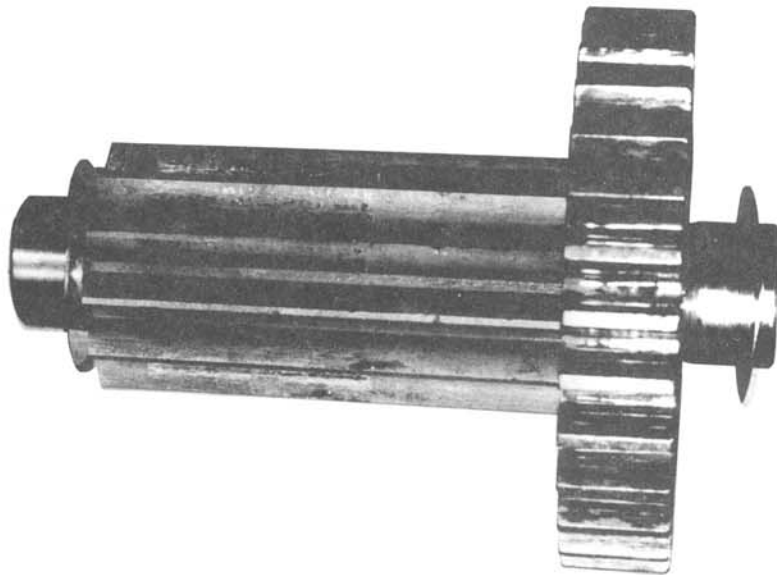
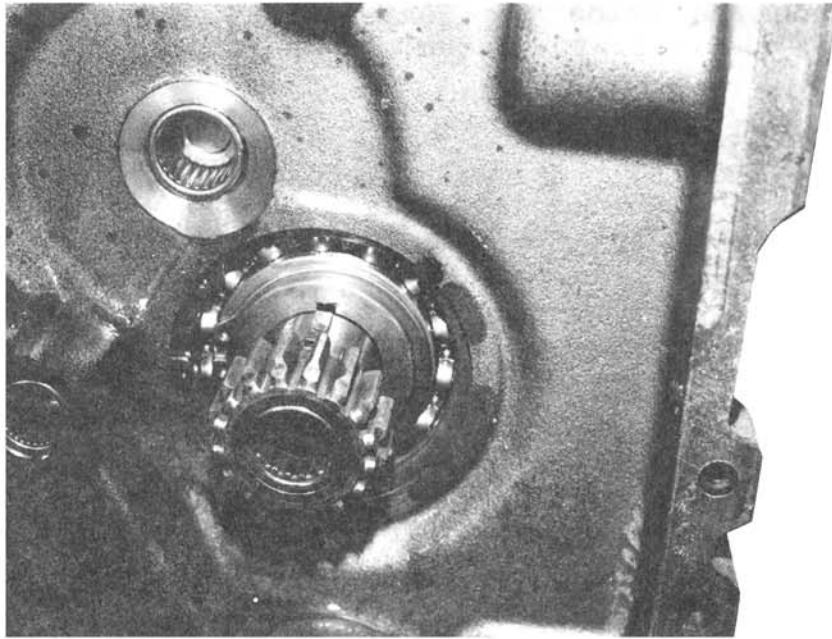


FIGURE 38

84115

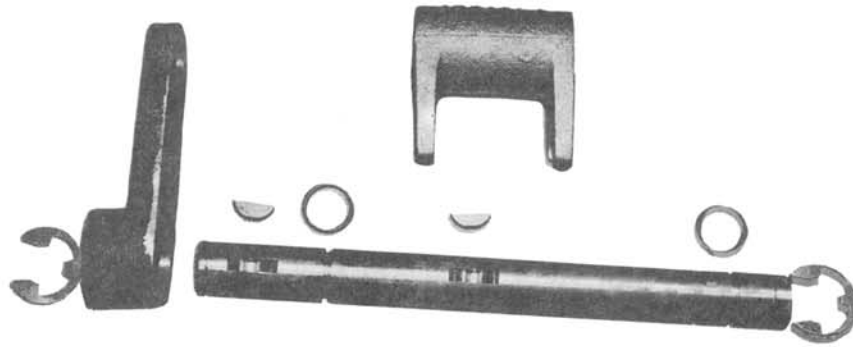
### 3.14 Gearing Installation

1. Put the key in the hub of the gear-bearing assembly which goes on the right end of #1 shaft. Put grease on the hub and slide the gear-bearing assembly into the clutch hub (forward clutch) in the cover. See Figure 39.
2. Put the key in the hub of the reverse gear and bearing assembly which goes on the left end of #2 shaft. Put grease on the hub and slide the reverse gear and bearing assembly into the clutch hub (reverse).
3. Position the controls
  - a. PTO to "ON"
  - b. Hi-lo to "Lo"
  - c. Gear to "NEUTRAL"
  - d. Fwd-rev "NEUTRAL"
4. Installation of #9 shaft assembly (PTO clutch)
  - a. Put the front of the assembly through the front hole of the case. Move rearward into the bearing. Tap the bearing with a soft hammer until the shaft is in place.
  - b. Install the square retaining ring.
  - c. Slide the front PTO cap with gasket in place and secure with two bolts.
  - d. At the rear, rotate the bearing snap ring gap to the top position. Apply a coat of grease to the O-ring and place in the case.
  - e. Put O-rings and a key in the PTO yoke shaft. Coat the O-rings with grease. See Figure 40.
  - f. Slide the PTO yoke in position over the key and into the case. Note orientation of yoke--heavy side to rear.
  - g. Install PTO lever, woodruff key and e-ring.
  - h. Connect PTO lever to the PTO rod with a washer and cotter pin.
5. Install the shaft assemblies in the following order:
  - a. #6 shaft. Install interlock pin, detent balls, detent springs and shift forks if removed. If removed, replace the shifter weldments and associated parts first.
  - b. #8 shaft (differential).
  - c. #1 shaft with 2-speed shift rail, detent ball, detent spring, and plug. Reconnect 2-speed linkage.
  - d. #3 shaft.
  - e. #2 shaft. Put the bearing and bearing race near the end of the shaft so as to clear the PTO assembly.
  - f. #4 shaft.
  - g. #5 shaft.
  - h. #7 shaft.



**FIGURE 39**

84116



**FIGURE 40**

84117

### 3.15 Transmission Assembly

1. Coat a new cover gasket with grease and stick in place on the case. Slide the cover in place by tapping with a soft hammer.
2. Install the e-ring on the PTO yoke shaft.
3. Start all of the cover bolts, then tighten the cover bolts.
4. Put the two bolts and lock washers in the right side of the engine adaptor plate. Push the engine in place and tighten all four engine adaptor bolts.
5. Install the brake drum, brake band, and connect the brake linkage.
6. Put a seal protector coated with oil on the axle in the axle bearing retainer assembly. Coat a new gasket with grease and stick it to the axle bearing retainer. Slide the assembly in place on the axle and install the four bolts. Remove the seal protector. Repeat on the other side if removed.
7. Install the clutch mounting plate assembly and associated linkage.
8. Put the snap rings on #1 and #2 shafts and coat the splines with grease. Put the clutch assemblies in place and retain with the clutch spring and hardware.
9. See Section 2.12 for clutch adjustment procedure.

### 3.16 Chassis Assembly

1. Replace the rear hitch arm.
2. Coat the axle(s) with grease, put the key(s) in place and put the wheel hub(s) on the axle(s). Put the retainer ring on the axle(s). Set and lock the set screw(s).
3. Mount the tire assembly(ies).
4. Remove jack stands.
5. Reconnect choke, throttle, starter cable, fuel line, interlock switches, coil wire, charging wire, and any other disconnected items. Secure wiring and lines with ties as they were removed.
6. Reconnect the battery cables, replace the hood, and turn on fuel at the fuel tank.
7. Put lubricant in the transmission.
8. Mount the rear deck and latch.



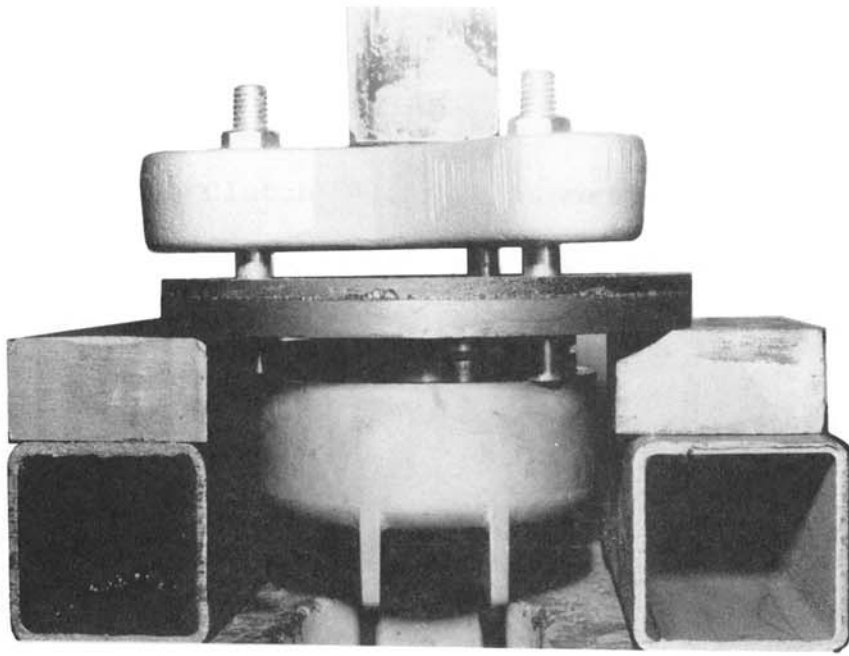
### 3.17 Forward-Reverse Clutch Bearing Service

1. Remove the trunnion, bearing, disc assembly from the transmission. See Figure 41.
2. Use a flange puller with three bolts positioned to fit the trunnion lip to press the trunnion off the bearing. See Figure 42.
3. Turn the assembly over and remove the snap ring.
4. Readjust the position of the three bolts to fit the bearing. Press the bearing off the disc assembly. See Figure 43.
5. Inspect all parts. Replace any parts damaged or worn.
6. Press the bearing on the disc assembly, and install the snap ring. See Figure 44.
7. Turn the assembly over and press the trunnion on the bearing. See Figure 45.



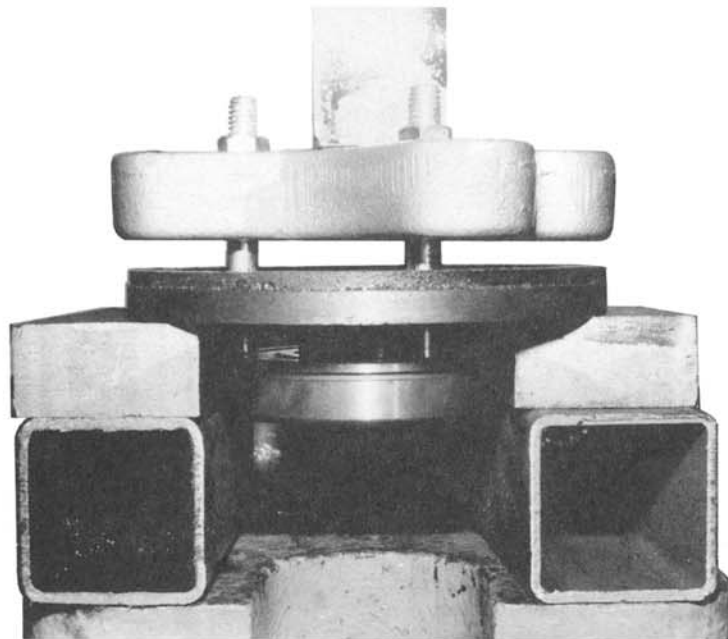
FIGURE 41

84118



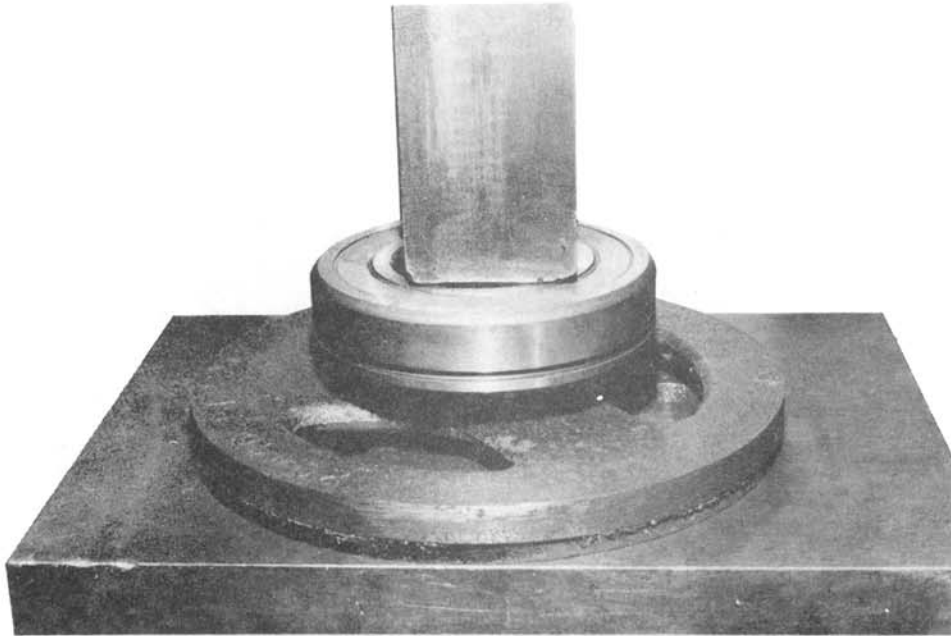
**FIGURE 42**

84119



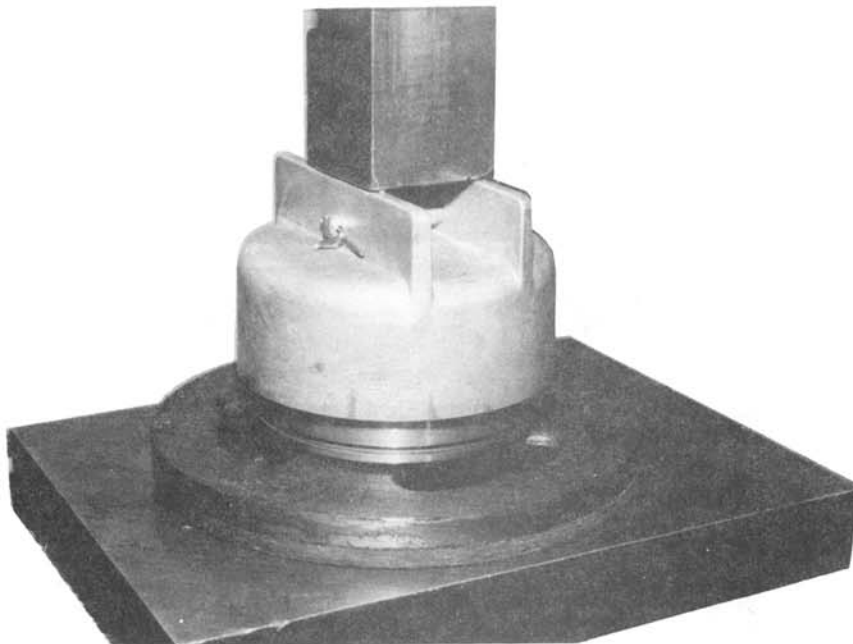
**FIGURE 43**

84120



**FIGURE 44**

84121



**FIGURE 45**

84122

3.18 Forward-Reverse Clutch Seal Replacement-Small Seal (18035):

1. Remove the trunnion, bearing and disc assembly (#11).
2. Carefully remove the old seal with a small punch. (Hub may have two seals.)
3. Put a film of grease on the lip of the new seal and slide it on the thimble (Figure 53 - Section 10).
4. Put the thimble over the shaft and seat the seal with a driver (Figure 55 - Section 10).

Large Seal (17917):

1. The inside clutch hub must be removed to install this seal. Follow the procedure for removal of the clutch shaft in the transmission disassembly.
2. Remove the old seal.
3. Install the new seal with a driver (Figure 56 - Section 10).
4. Assemble transmission.

## SECTION 4

### Engine

- 4.1 Refer to your engine service manual for adjustments and repair.
  
- 4.2 Engine Removal
  1. Remove hood. Disconnect battery cables. Remove negative cable first.
  2. Turn off fuel at fuel tank outlet.
  3. Remove the rear deck.
  4. Disconnect the choke and throttle cables.
  5. Disconnect the engine charging wire(s), ignition wire, and starter cable.
  6. Disconnect the fuel line at the engine.
  7. Place a jack under the engine to provide support during removal.
  8. Remove the four bolts holding the adaptor plate to the frame.
  9. Slide the engine rearward out of the transmission. Take care to keep the gear and bearing set on the crankshaft.
  
- 4.3 Adaptor Plate Removal/Installation
  1. Remove the gear, key, and bearing set.
  2. Remove the four bolts which mount the adaptor plate off the pilot.
  3. Use a soft hammer to remove the adaptor plate off the pilot.
  4. Inspect the adaptor plate, bearing set and gear for damage and wear.
  5. Replace any parts worn or damaged.
  6. Remove all residue of the adaptor gasket from the engine and adaptor plate. Put a film of grease on a new gasket and put it in place on the engine.

7. Slide the adaptor plate in place with the assistance of a soft hammer.
8. Start all four bolts and then tighten.
9. Replace the bearing set, key, and gear.
10. Install a new O-ring coated with grease on the adaptor plate.

#### 4.4 Engine Installation

1. Coat a new PTO O-ring with grease and put in position on the rear of the transmission.
2. Set the engine on a jack. Adjust the jack so that the crankshaft is on the centerline of the hole in the transmission.
3. Slide the engine into the transmission. Rotate the forward clutch to mesh the bevel gears.
4. Install the four bolts and tighten.
5. Reverse the disassembly process for engine connections and replacement of the rear deck and hood.

## SECTION 5

### Steering

#### 5.1 Front Wheel Bearings Removal

1. Jack up the front of the tractor.
2. Remove the caps.
3. Remove the nut, washer, spacer, bearing, and wheel assembly for each spindle.
4. Use a piece of clean bar stock and a hammer to tap out the inside bearing and seal.

#### 5.2 Front Wheel Bearing Inspection and Repair

1. Thoroughly clean the wheel hub and other part.
2. Replace any part which is worn or damaged.
3. If a bearing is replaced, also replace the bearing cup. Use a bearing puller to remove the bearing cups.

#### 5.3 Front Wheel Bearing Installation

1. If removed, install new bearing cups with a driver. See Section 10. Pack the bearings with wheel bearing grease. See Figure 46.
2. Lay the inside bearing in the cup and press a new seal in place.
3. Put a film of grease on the lip of the seal.
4. Clean the spindles.
5. Slide a spacer on the spindle followed by the wheel assembly.
6. Fill the wheel hub cavity with grease. Put the outside bearing in the cup followed with a spacer, flatwasher, and a nut.
7. Tighten the nuts, back off until the wheel turns freely. Replace the caps with the driver. See Section 10.

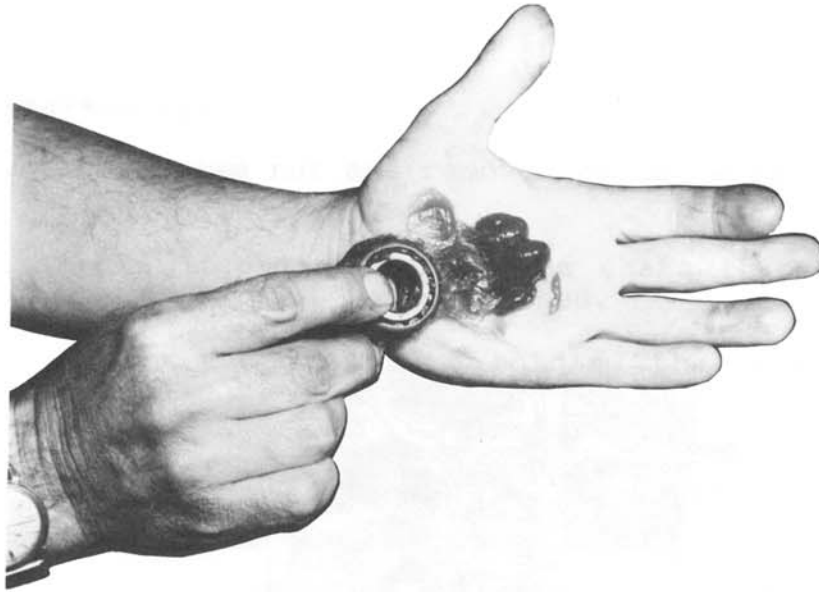


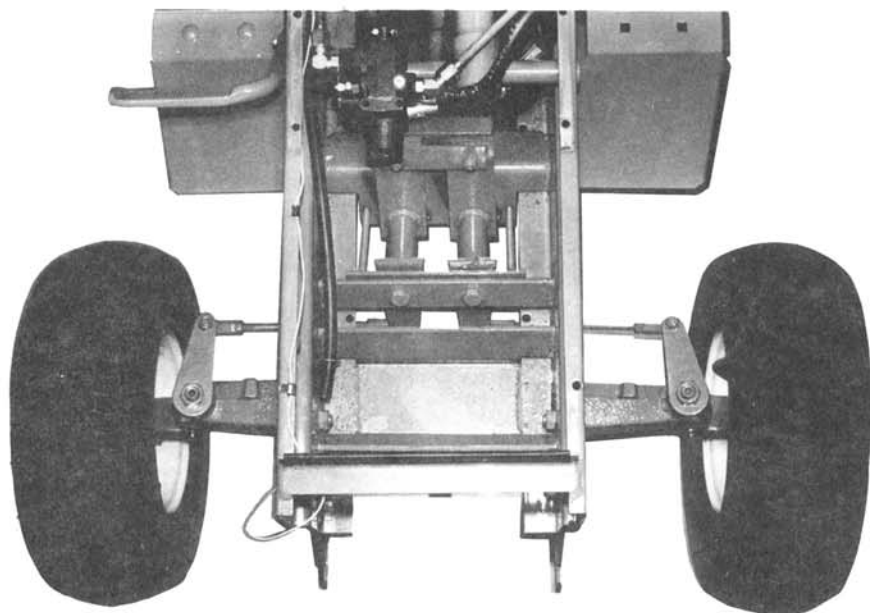
FIGURE 46

84123

#### 5.4 Front Wheel Toe-In Adjustment

1. Rotate the steering wheel until the two steering arm weldments are parallel to the frame side.
2. On the consumer models, loosen the jam nuts on the tie rods and disconnect the outside ball joint. Rotate the front tires by hand so that the distance between the front centerline of the tire is  $1/4'' - 3/4''$  less than the distance between the rear centerline. Adjust the tie rods so that the ball joint can be connected to the tie rod arm without moving the tire. See Figure 47.
3. On commercial models, loosen the jam nuts on the tie rods and rotate the tire rod tube so that the front centerline is  $1/4'' - 3/4''$  closer than the rear centerline. Tighten the jam nuts.





**FIGURE 47**

84124

## SECTION 6

### Attachment Lift

#### 6.1 Manual Lift

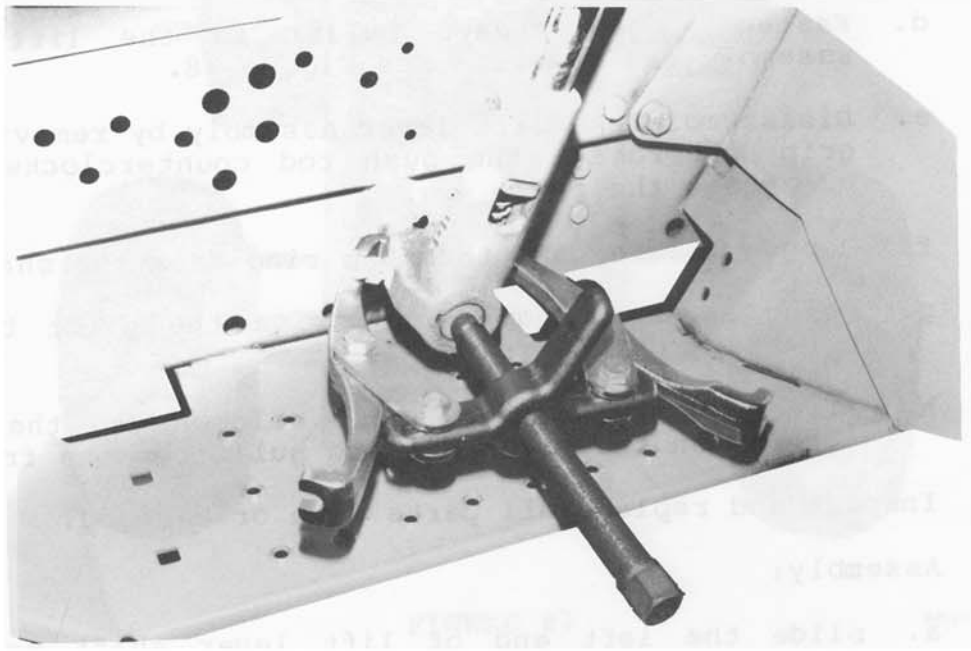
##### 1. Disassembly:

- a. Loosen jam nut and remove the set screw in the lift lever assembly.
- b. Apply liquid wrench to the shaft through the hole where the pawl is positioned.
- c. Loosen the two bolts holding the locator casting and remove.
- d. Fasten a gear/sheave puller to the lift lever assembly and remove. See Figure 48.
- e. Disassemble the lift lever assembly by removing the grip and rotate the push rod counterclockwise to disengage the pawl.
- f. Remove the key and the snap ring from the shaft.
- g. Using a punch and hammer drive the pivot bushing outward from the frame.
- h. Slide the lift lever shaft weldment to the left. Lift up on the right end and pull from the frame.

##### 2. Inspect and replace all parts worn or damaged.

##### 3. Assembly:

- a. Slide the left end of lift lever shaft weldment into the frame hole and move to the left. Lower the right end and slide into the right hole.
- b. Slide new pivot bushings on the shaft and start in the holes. Slide the lift lever on the shaft and drive the bushings into the frame.
- c. Put the snap ring on and key in the shaft.
- d. Reassembly the lift lever.
- e. Reassemble the locator casting and mount to the frame.
- f. Put the lift lever assembly on the shaft so as to align with the key. Use a soft hammer to drive in place while holding down on the push rod.
- g. Install the set screw and tighten the jam nut.



**FIGURE 48**

84125

## 6.2 Hydraulic Lift

### 1. Problem Solving Chart

Observation	Possible Cause
1. Attachment will not raise.	Lift linkage jammed Hydraulic pump pressure too low Relief valve leaking Control linkage damaged or disconnected Low hydraulic fluid level Hydraulic pump drive failure
2. Hydraulic lift has no down pressure.	Damaged control linkage
3. Control will not move to the float position.	Control linkage damaged
4. Control will not move to neutral position from power up or power down positions when released.	Control linkage damaged Control valve mounting hardware is too tight
5. Continuous pressure on cylinder noted by relief valve squeal.	Bent control linkage
6. Attachment lowers slowly.	Dirt in control valve Damaged control valve Seals in hydraulic cylinder leaking

### 2. Hydraulic Valve Removal:

- a. Remove hood.
- b. Disconnect the battery cables and the battery.
- c. Remove the battery tray and fuel tank. Place an oil pan under the valve to collect the hydraulic oil.
- d. Clean the hydraulic lines and fittings. Disconnect hydraulic cylinder hoses. Use two wrenches to prevent damage to the fittings.
- e. Disconnect the control linkage.
- f. Disconnect the line to the pump and the line to the tank.

### 3. Refer to the Valve Manufacturer's literature for hydraulic valve repair.

4. Installation of the Valve:
  - a. Reverse the removal procedure. Start fittings with fingers to avoid cross-threading.
  - b. Put clean new hydraulic oil in the tank.
5. Hydraulic Cylinder Removal:
  - a. Clean the hydraulic fitting at the cylinder. Disconnect the hydraulic lines.
  - b. Disconnect the piston from the lift lever weldment.
  - c. Remove the snap ring and any rust from the left end of the hydraulic cylinder shaft. If the shaft is rusted, clean with sandpaper and lubricate.
  - d. Use a soft hammer or a hammer and punch to drive the shaft to the right through the frame side and hydraulic cylinder. Take care not to pen the end of the shaft. This will cause it to bind in the frame or cylinder.
6. Hydraulic Cylinder Repair - refer to instructions supplied with the seal kit.
7. Hydraulic Cylinder Installation:
  - a. Reverse the disassembly procedure. Start fittings with fingers to prevent cross-threading.
  - b. Note that the bolt connecting the piston to the lift lever weldment must be loose enough to allow free rotation of the bolt.
  - c. Check the hydraulic tank after the lift has been cycled and add oil if necessary.
8. Hydraulic Pump Removal:
  - a. Remove the rear deck and left rear wheel.
  - b. Put an oil pan under the pump.
  - c. Clean the pump body, hydraulic lines, and fittings.
  - d. Disconnect the hydraulic lines. Use a second wrench on the fitting in the pump to prevent breakage.
  - e. Remove the two socket cap screws retaining the pump.
  - f. Using a soft hammer, gently tap the pump to free and remove.

9. Repair of the Hydraulic Pump - refer to the pump seal kit instructions.
10. Installation of the Hydraulic Pump:
  - a. Reverse the disassembly.
  - b. Start the hydraulic fittings with the fingers to prevent cross-threading.
  - c. Add fresh, clean hydraulic oil to the tank.
11. Hydraulic Pump Shaft Removal:
  - a. Remove the hydraulic pump as described in Section 6.2.8.
  - b. Remove the engine as described in Section 4.
  - c. Remove the snap ring on the pump shaft.
  - d. Put a shop cloth under the gear to catch the key and spacer if dropped. Tap the pump shaft inward with a soft hammer. When the key is exposed, rotate the shaft so that the key is on the top side. When the shaft passes through the outboard bearing, the gear, shaft and spacer can be pulled passed the bevel gear on #1 shaft and out the rear of the transmission.
12. Replace the parts worn or damaged.
13. Hydraulic Pump Shaft Installation:
  - a. Reverse the disassembly process.
  - b. Put fresh, clean hydraulic oil in the tank.
14. Hydraulic Pressure Measurement and Adjustment:
  - a. Remove the left rear wheel assembly.
  - b. Remove the adaptor fitting at the pump outlet and install the pressure gauge. Use two wrenches to avoid breaking the fittings. See Figure 49.
  - c. Start the engine. Move the lift control to the "UP" position and hold. The pressure gauge should read 950 psi to 1050 psi.
  - d. If the pressure reading is not correct, it can be adjusted with the relief valve in the hydraulic control valve assembly.
  - e. Turn the fuel valve off at the fuel tank.

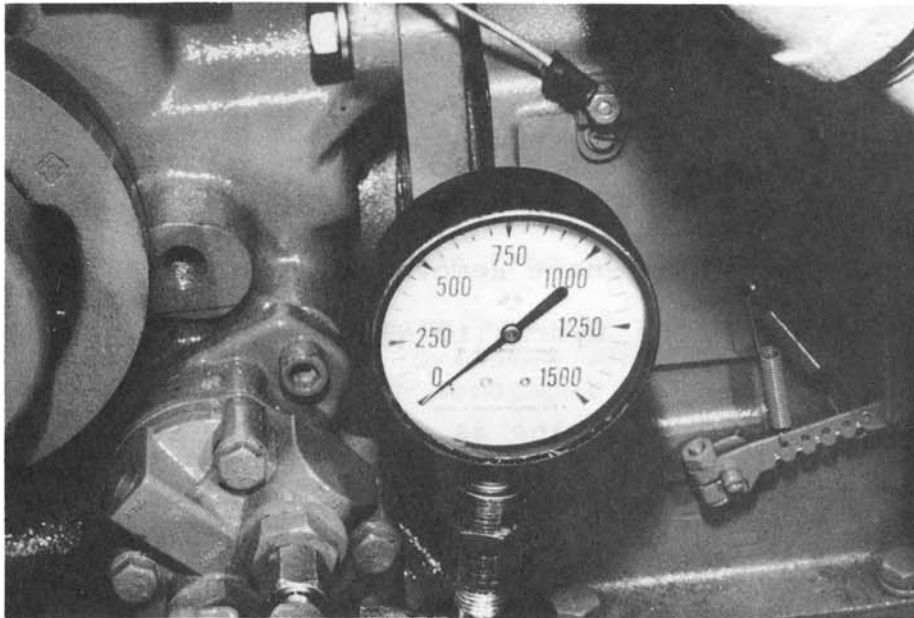


FIGURE 49

84128

- f. Remove the hood.
- g. Remove the fuel tank.
- h. Position the fuel tank near the chassis so that it can continue to supply fuel.
- i. Remove the acorn nut on the valve body. See Figure 50. Loosen the jam nut while holding the adjusting screw with a screwdriver.
- j. Start the engine. Have another person hold the hydraulic lift control in the "UP" position while observing the pressure gauge. Rotate the adjusting screw clockwise to increase the pressure. Rotate the adjusting screw counterclockwise to reduce the pressure. Take care not to move the adjusting screw when tightening the jam nut.
- k. Reverse the disassembly procedure to reassembly.

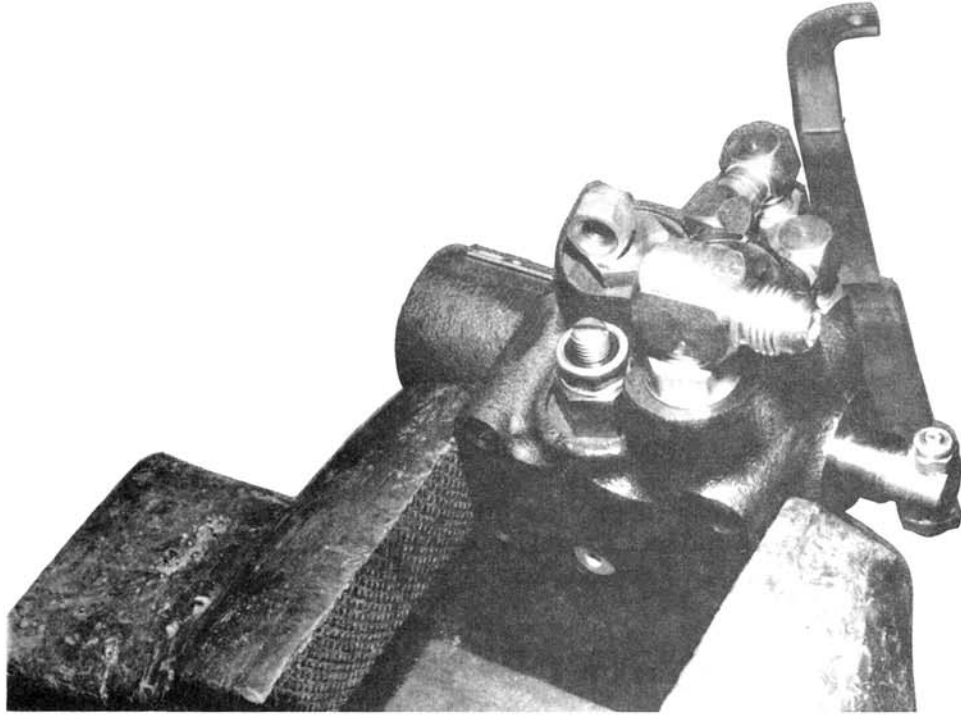


FIGURE 50

84127



## SECTION 7

### Fuel System

#### 7.1 Fuel Tank Removal

1. Remove the hood.
2. Turn off fuel valve at the tank outlet.
3. Remove the tank bracket hardware and the tank brackets.
4. Lift tank up out of the frame.
5. Disconnect the fuel line.

#### 7.2 Fuel System Inspection and Repair

1. Check the fuel tank, fitting and fuel line for damage.
2. Replace any worn or damaged parts. Replace the fuel tank if it is leaking. Welding on a fuel tank could result in an explosion.

#### 7.3 Fuel Tank Installation

1. Reverse the disassembly process to reassemble.
2. Make sure the fuel tank is centered in the frame.
3. Use new moulding with the brackets.
4. Note that the fuel valve has a longer stem than the fuel valve on the 800 Series.

## SECTION 8

### Brakes

#### 8.1 Brake Removal

1. Remove the rear deck.
2. Remove the right rear wheel assembly. This is not necessary but will provide easy access to the brake.
3. Remove the 1/2" bolt and brake band.
4. Use a two-prong puller to remove the brake drum.

#### 8.2 Brake Repair and Inspection

1. Inspect the brake parts and linkage. Replace any part worn or damaged.
2. Replace the brake band when the lining is as thin as the thickness of the ignition key (about .070").

#### 8.3 Brake Installation

1. Reverse the disassembly procedure.
2. See Section 2.11 for adjustment.

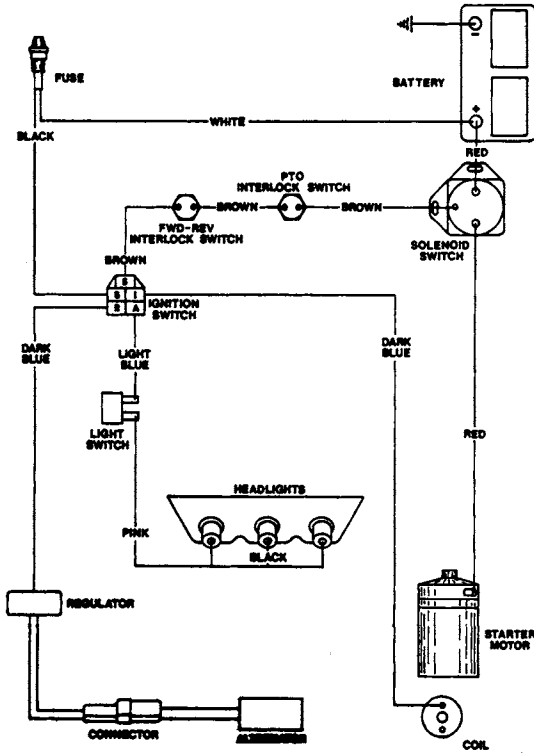
## SECTION 9

Electrical System

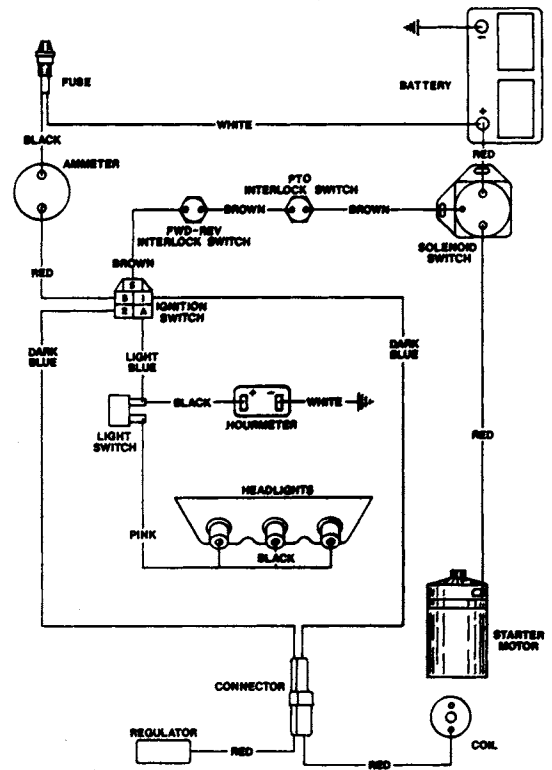
## 9.1 Problem Solving Chart

Observation	Possible Cause
1. No sound or motion when ignition switch is turned to the "START" position.	PTO control in "ON" position Direction control lever in forward or reverse position Fuse blown Battery discharged Starting solenoid damaged or not grounded
2. When ignition switch turned to "START" solenoid "clicks" engine starter does not operate.	Discharged battery Battery cables corroded Starter damaged
3. When ignition switch turned to "START" the starter operates but engine does not start.	Fuel valve turned off Fuel tank empty Loose wire to + side of coil Engine spark plug(s) fouled Engine electrical failure See engine service manual
4. Battery is discharged.	Regulator-rectifier failure Poor connection to the ignition switch, regulator-rectifier, fuse holder, or battery Engine alternator failure Battery failure
5. Engine continues to run when the ignition switch is rotated to the "OFF" position.	Ground wire not connected or incorrectly wired (8163B) Ignition switch failure
6. Lights do not come on when the light switch is moved to the "ON" position.	Light bulbs burned out Defective light switch Loose wire connections Light fixture rusted Engine light generator failure (8163-B)
7. Engine runs rough or stops after it gets hot.	See engine service manual
8. Fuse blows when starting engine	Grounded interlock switch Defective solenoid

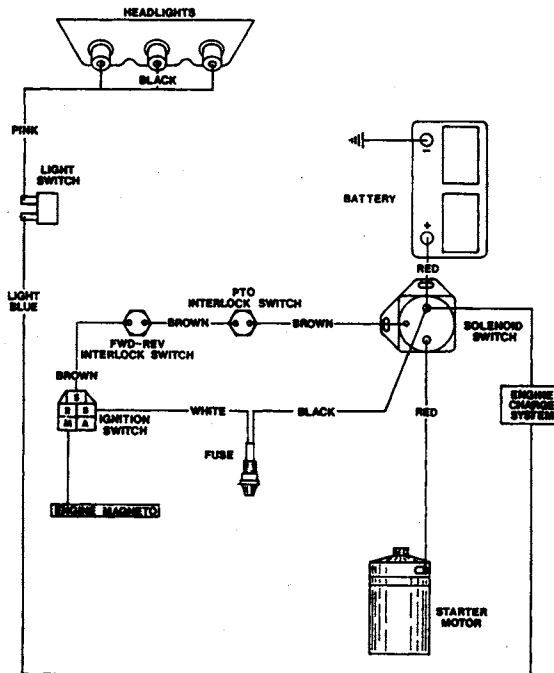
## 9.2 Wiring Diagrams



8122 & 8123  
DIAGRAM 1



8179 & 8199  
DIAGRAM 2

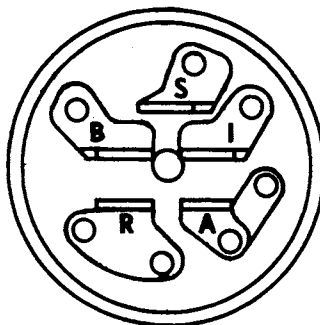


8163  
DIAGRAM 3

### 9.3 Ignition Switches

1. Switch number 19223 for Models 8179-KT, 8199-KT, 8122, and 8123.

FUNCTION DIAGRAM



Key Position	Function	Circuit
1	Off	None
2	Run	B+R+I+A
3	Start	B+R+I+S

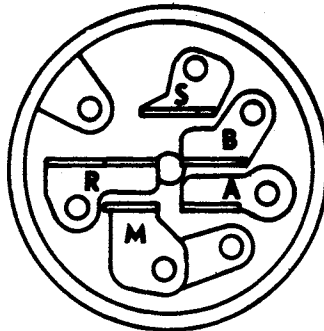
DIAGRAM 4

Check out procedure:

- a. Unplug the ignition switch and remove it from the instrument panel.
- b. Set a VOM in the ohm (Rx1) position. Connect one lead to the "B" pin.
- c. Turn the ignition key to position 1. Sequentially touch pins R, I, A, S and the case with the free meter lead. No circuit (infinity) should be indicated.
- d. Turn the ignition key to position 2. Sequentially touch pins R, I, and A with the free lead. A circuit (zero ohms) should be indicated. Touch the free lead to the case. No circuit (infinity) should be indicated.
- e. Turn the key to position 3 and hold. Sequentially touch pins R, I, and S with the free lead. A circuit (zero ohms) should be indicated. Touch the free lead to the case. No circuit (infinity) should be indicated.
- f. Replace the switch if the switch fails the above tests.

2. Switch number 20564 for Model 8163-B.

FUNCTION DIAGRAM



Key Position	Function	Circuit
1	Off	G+M+A
2	Run	B+A+R
3	Start	B+S

DIAGRAM 5

Check out procedure:

- a. Unplug the ignition switch and remove it from the instrument panel.
- b. Set a VOM in the ohm (Rx1) position. Connect one lead to the case.
- c. Put the key in the "OFF" position. Sequentially touch pin M and A with the free lead. A circuit (zero ohms) should be indicated. Sequentially touch the remaining pins. No circuit (infinity) should be indicated.
- d. Move the lead from the case to pin "B". Move the key to position 2. Sequentially touch pins A and R with the free lead. A circuit (zero ohms) should be indicated. Sequentially touch the remaining pins (M,S) and the case with the free lead. No circuit (infinity) should be indicated.
- e. With one meter lead connected to the "B" pin, move the key to the "S" position and hold. Touch the free lead to the "S" pin. A circuit (zero ohms) should be indicated. Sequentially move the lead from the "S" pin to the remaining pins. No circuit (infinity) should be indicated.
- f. Replace the switch if it fails the above tests.

#### 9.4 Interlock Switch

1. Remove the subject interlock switch from the tractor.
2. Set a VOM switch in the ohm (Rx1) position.
3. Connect the meter leads to the switch pins.
4. No circuit (infinity) should be indicated.
5. Push in on the interlock switch plunger. A circuit (zero ohms) should be indicated.
6. Connect one lead to the case and sequentially touch the switch pins with the other lead. No circuit (infinity) should be indicated.
7. Replace the switch if it fails the above test.

#### 9.5 Fuse Holder

1. Use a VOM with the switch set in the ohm (Rx1) position.
2. Make a visual check of the fuse to determine that it is not burned out. If the glass is clouded, check with an ohmmeter (zero ohms).
3. Unplug the fuse holder and connect the ohmmeter to the pins. A circuit (zero ohms) reading should be indicated.
4. If no circuit is indicated, replace the fuse holder.

#### 9.6 Battery

1. Detailed information on battery design, service, voltage check, and hydrometer use can be found in the Battery Service Manual published by the Battery Council International, 111 East Wacker Drive, Chicago, Illinois 60601.
2. On a standard battery, measure the voltage and specific gravity of the battery. Replace the battery if it fails the voltage or specific gravity test. See the schedule in Diagram 6. NOTE: The voltmeter used must be calibrated to give an accurate reading and the hydrometer reading must be corrected to a temperature of 80°F (26.7°C).

Charge Level	Specific Gravity	Voltage
100%	1.265	12.7
75%	1.225	12.4
50%	1.190	12.2
25%	1.155	12.0
Discharged	1.120	11.9

DIAGRAM 6

3. On low water loss batteries, if voltage is below 12.4 or the specific gravity is below 1.225 after charging, replace the battery. If the battery has a built-in hydrometer, follow the instructions on the battery.

#### 9.7 Ammeter

1. Remove and clean the electrical connection. Inspect for damage.
2. Replace the ammeter if it is damaged or does not function after cleaning.

#### 9.8 Hourmeter

1. Check and clean the electrical connections. Inspect for damage.
2. Turn the ignition key to the "ON" position. The hour-meter should "tick."
3. Replace the hourmeter if it does not operate.

#### 9.9 Solenoid Switch

1. Inspect and clean all wire connections.
2. Connect a VOM set in the volt position to the post to which the starter cable is connected and to the solenoid case. Turn the ignition switch to the "S" position. If a voltage is indicated, the solenoid switch is functional.
3. If the above test is not met, connect the voltmeter to the small post that is connected to the ignition switch. Turn the ignition switch to the "S" position. A voltage should be indicated. If the switch passes this test (voltage to the coil) and fails the test in number 2, replace the solenoid switch.

#### 9.10 Regulator-Rectifier. See the Engine Service Manual.



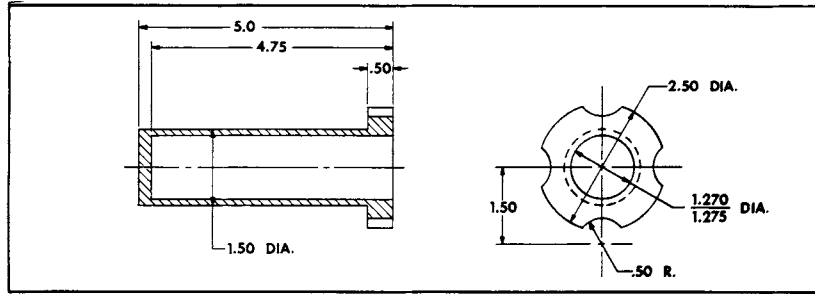
## SECTION 10

### Special Tools

#### 10.1 Tool Identification

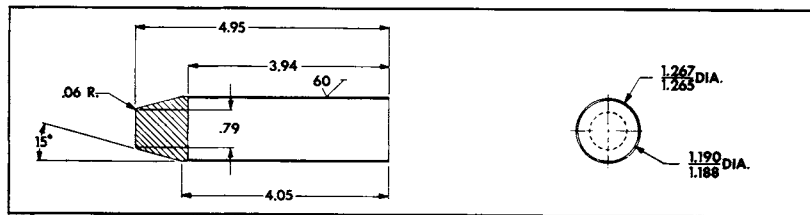
1. Axle: Seal (18031) - Driver - Figure 51  
- Thimble - Figure 52  
  
Hub (18052) - 3-Jaw Puller - OTC #1037\*  
  
\*Reference OTC catalog #A-83  
OTC Tools and Equipment  
Division of Owatonna Tool Company  
Owatonna, MN 55060
2. Brake Shaft (Shaft #6): Seal (15137) - Thimble - Fig. 53  
- Driver - Fig. 54
3. Fwd-Rev Clutch (Shaft #1, Shaft #2):  
  
Seal (18035) - Thimble - Figure 53  
- Driver - Figure 55  
  
Seal (17917) - Driver - Figure 56  
  
Bearing (18042) Removal - Flange Puller - OTC #518
4. PTO: Clutch - Spring Compressor - Bearing Puller - OTC  
#1123  
- Push-Puller - OTC #927  
- Push-Puller Legs - OTC #1101  
  
Cap - Seal (15137) - Thimble - Figure 53  
- Driver - Figure 54  
  
Output Shaft - Seal (17923) - Driver - Figure 57  
- Bearing Cup - Puller - OTC #1150  
- Slide Hammer - OTC #1155  
- Driver - OTC #27793  
- Snap Ring - Clamp - Figure 58
5. Lift Lever Removal: Bearing Puller - OTC #1123  
Push-Puller - OTC #927
6. Wheel, Front: Bearing Cup - Puller - OTC #1150  
- Slide Hammer - OTC #1155  
- Driver - OTC #27793  
  
Seal (18447) - Driver - OTC #27793  
Cap (18449) - Driver - Figure 59

10.2 Tool Illustrations



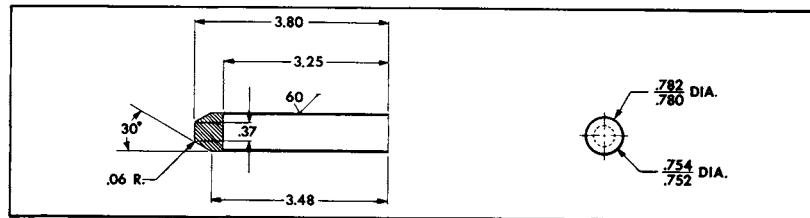
Seal Driver - Axle  
FIGURE 51

84128



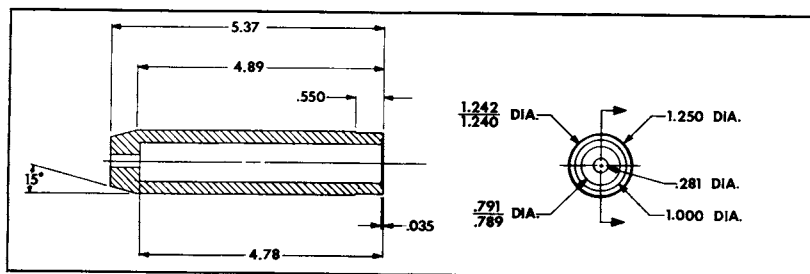
Seal Thimble - Axle  
FIGURE 52

84129



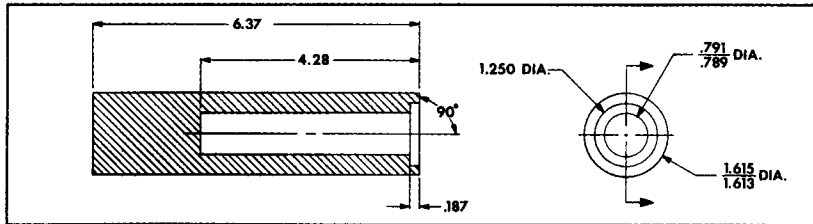
Seal Thimble - Brake Shaft Seal  
- PTO Cap Seal  
- Fwd/Rev Clutch Seal (18035)  
FIGURE 53

84130



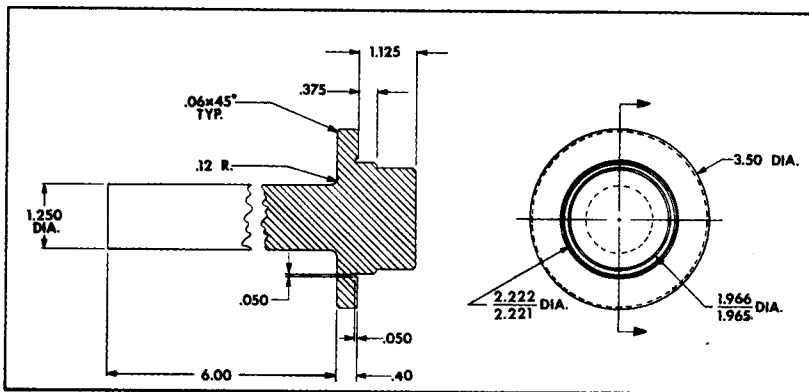
Driver - PTO Cap Seal (15137)  
- Brake Shaft Seal (15137)  
FIGURE 54

84131



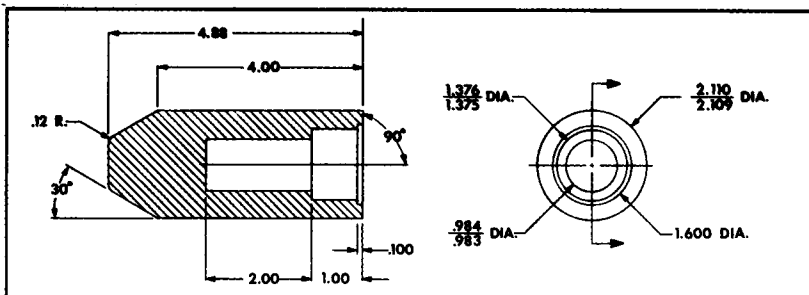
84132

Driver - Fwd/Rev Clutch Seal (18035)  
FIGURE 55



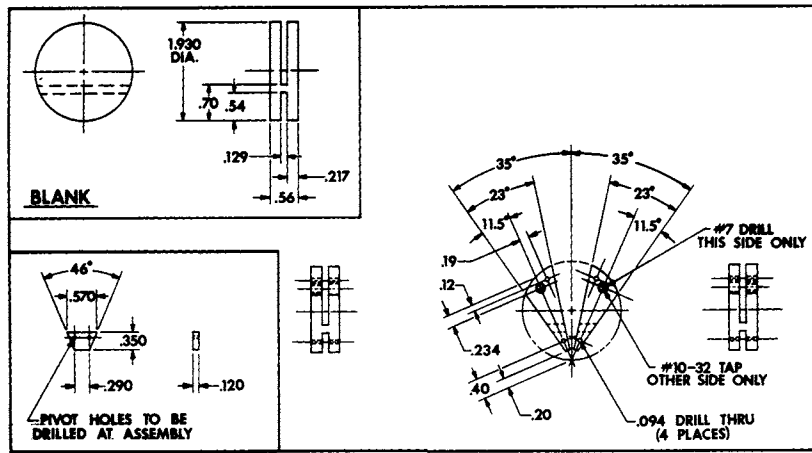
84133

Driver - Fwd/Rev Clutch Seal (17917)  
FIGURE 56



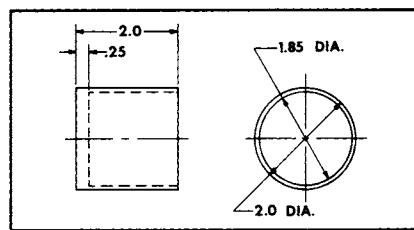
84134

Driver - PTO Output Shaft Seal (17923)  
FIGURE 57



84135

Retaining Ring Clamp - PTO Bearing Set  
FIGURE 58



84136

Driver - Front Wheel Cap  
FIGURE 59

### 10.3 Hydraulic Gauge and Fittings

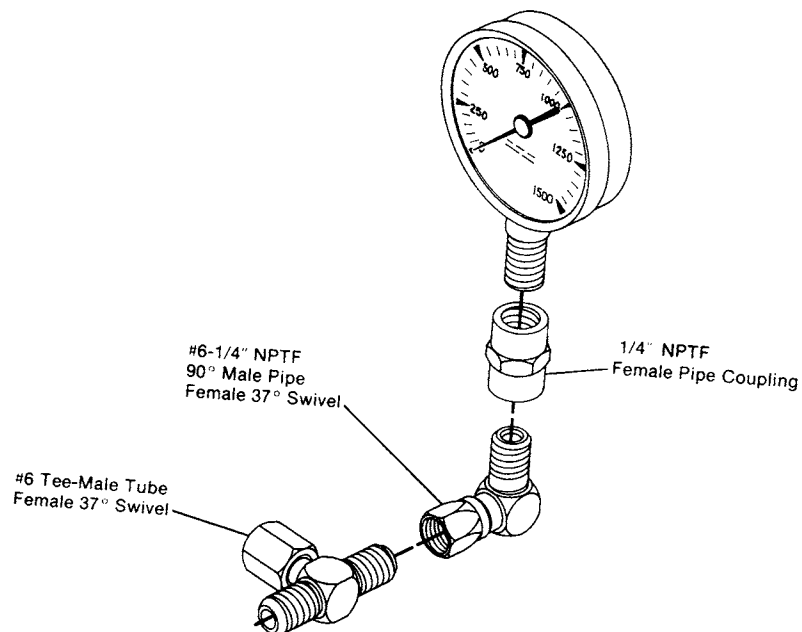


FIGURE 60

84145