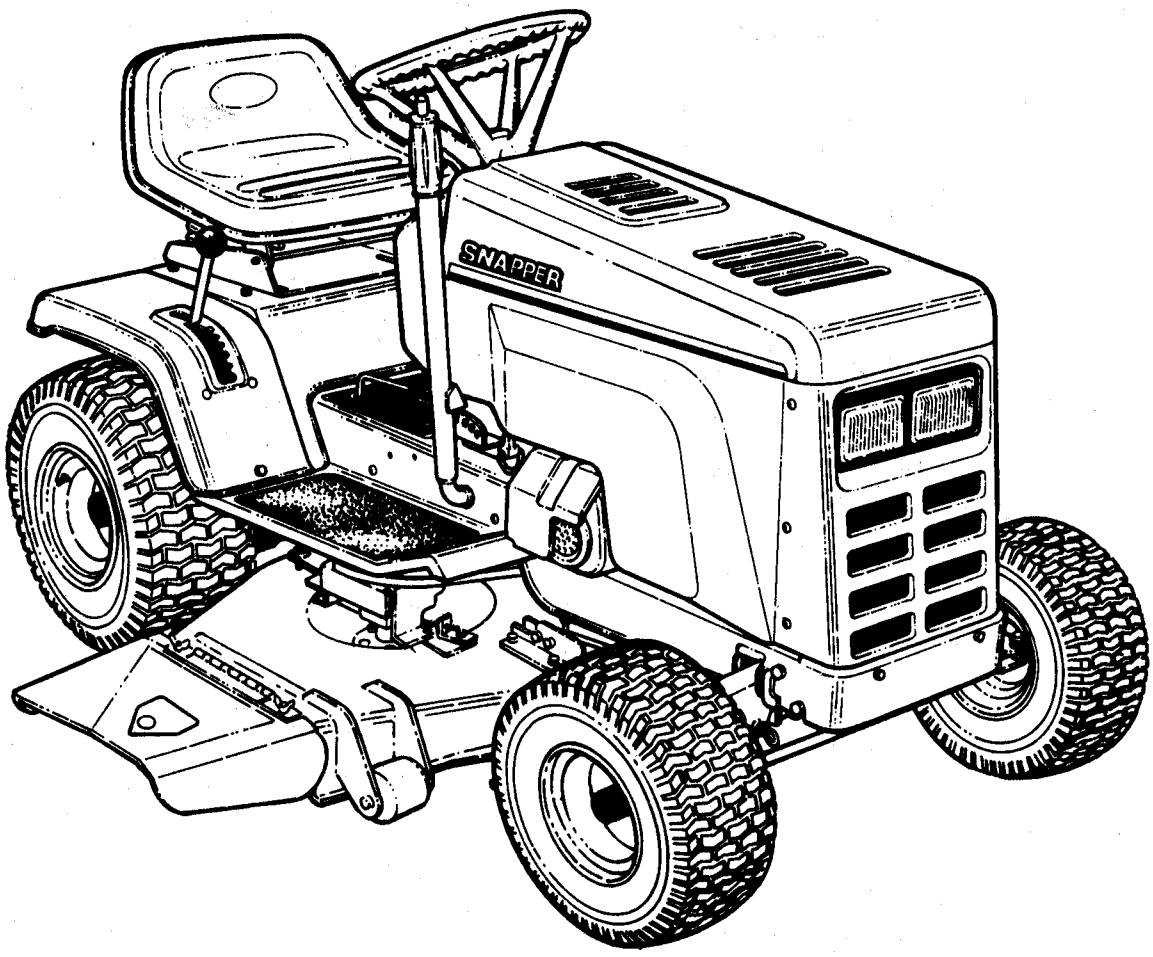
Service Manual for

SNAPPER®

LTD SERIES 0
LAWN TRACTORS & MOWER ATTACHMENTS



SNAPPER POWER EQUIPMENT
McDonough, GA., 30253 U.S.A.

F/I FUQUA INDUSTRIES Company

(IR 8/90) MANUAL #07218

INTRODUCTION

This manual covers the **SNAPPER LTD Series Lawn Tractors & Mower Attachments.**

TOOL REQUIREMENTS: The normal complement of U.S. Standard tools found in most repair shops are all that will normally be needed to repair **SNAPPER Lawn Tractors**. Several special tools are available to aid in pulling wheel hubs and drive discs. Refer to the parts manuals for these tools and for correct replacement parts for the particular model series being repaired.

CONTENTS: This manual contains six sections. The first section covers some of the routine operational service and adjustment information as found in the operator's manual which accompanies each unit. This information is repeated here for general reference only. Refer to the appropriate Operator's Manual for specific details. The sections are listed below.

TABLE OF CONTENTS

SAFETY FIRST!

Most major service procedures on the **SNAPPER LTD Series Lawn Tractors & Mower Attachments** require that the tractor be stood on its rear bumpers for extended periods of time. This being the case, it is imperative that the following SAFETY PRECAUTIONS be adhered to:

FUEL TANK: DRAIN FUEL FROM TANK, CLOSE FUEL SHUT-OFF VALVE(S) & CLOSE VENT ON FUEL FILLER CAP BY TURNING CLOCKWISE.

SPARK PLUG: DISCONNECT SPARK PLUG WIRE.

BATTERY: TURN IGNITION KEYSWITCH "OFF" AND REMOVE KEY. DISCONNECT POSITIVE (+) CABLE FIRST, THEN NEGATIVE (-) CABLE FROM BATTERY. REMOVE BATTERY AND STORE IN A PLACE THAT IS COOL, DRY AND WELL VENTILATED.

Always wear SAFETY GLASSES when compressing or extending springs, or when using a hammer and drift pin to remove locking collars, drive disc or other components. Use SAFETY GLASSES when pressing bearings IN or OUT. Always wear PROTECTIVE GLOVES when handling sharpened blades.

Section I - OPERATION & ROUTINE SERVICE

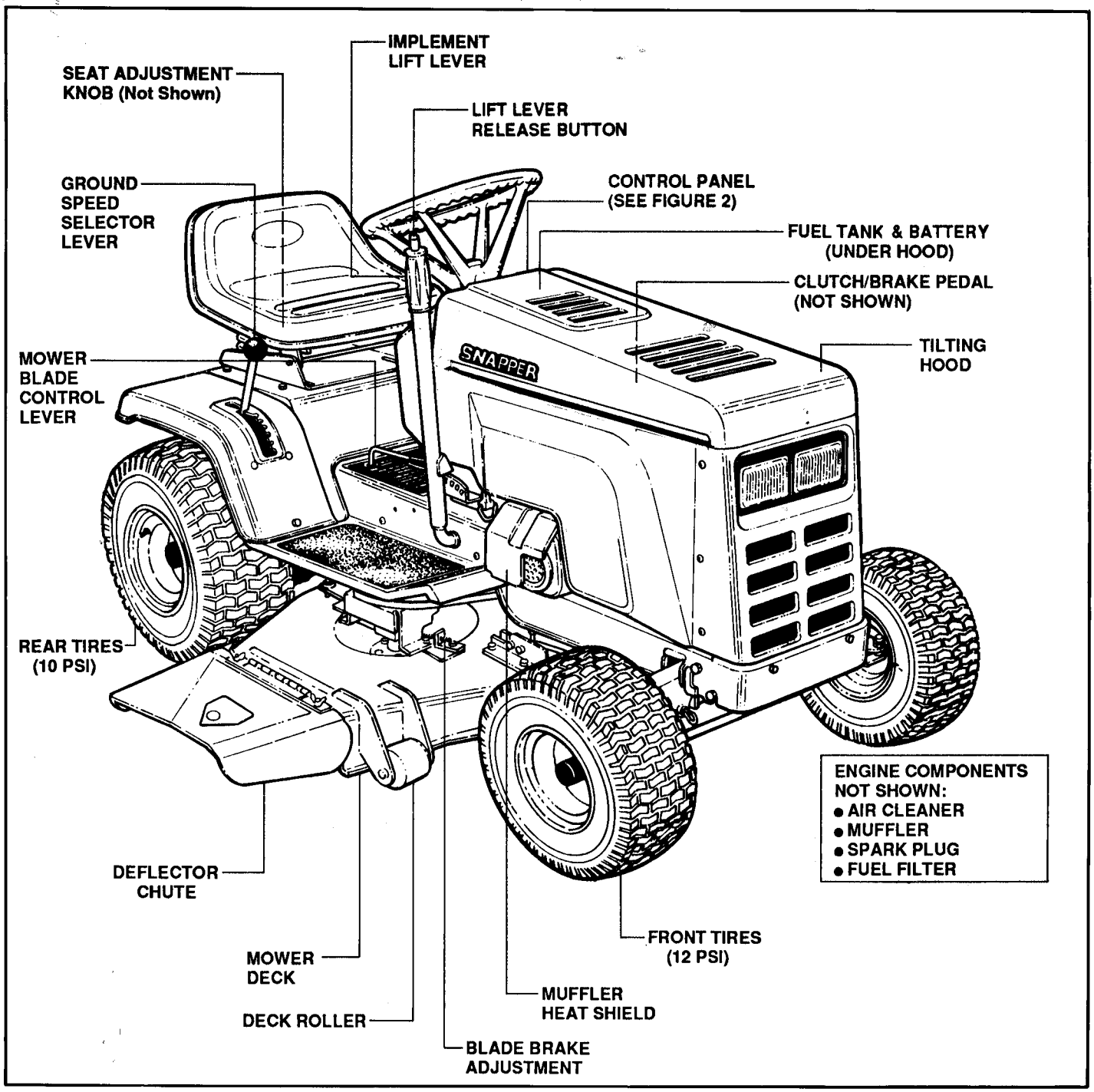


FIGURE 1

INTRODUCTION

This manual has been prepared for the operators of the **SNAPPER LTD Series LAWN TRACTOR**.

Its purpose, aside from recommending operating and routine service requirements, is to promote safety through the use of accepted operating practices. **READ, UNDERSTAND AND FOLLOW** the safety precautions on page 2 of this manual and all safety messages on the tractor and attachments before operating the machine.

NOMENCLATURE

The nomenclature drawing above (Figure 1) shows the essential parts of the **SNAPPER LTD Series LAWN TRACTOR**. It is recommended that all operators of this equipment become thoroughly familiar with the controls, parts and operation of this machine before operating. Specific details involving the engine are found in the separate engine owner's manual. Study these manuals before operating and keep both handy for future reference.

Section I - OPERATION & ROUTINE SERVICE

BEFORE OPERATING:

Be thoroughly familiar with all controls and how to use them before operating your mower. Know beforehand how to stop the engine, wheel drive and mower blade in preparation for possible emergencies.

STOPPING

ENGINE: ***STOP ENGINE*** by turning the KEYSWITCH to "OFF". See Figure 2.

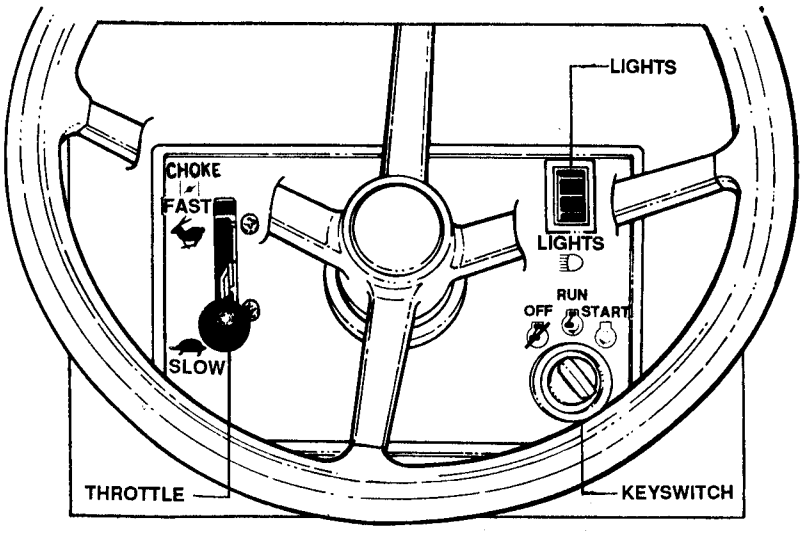


FIGURE 2

WHEEL DRIVE: ***STOP FORWARD MOTION*** of mower by pushing Clutch/Brake pedal all the way down. See Figure 3.

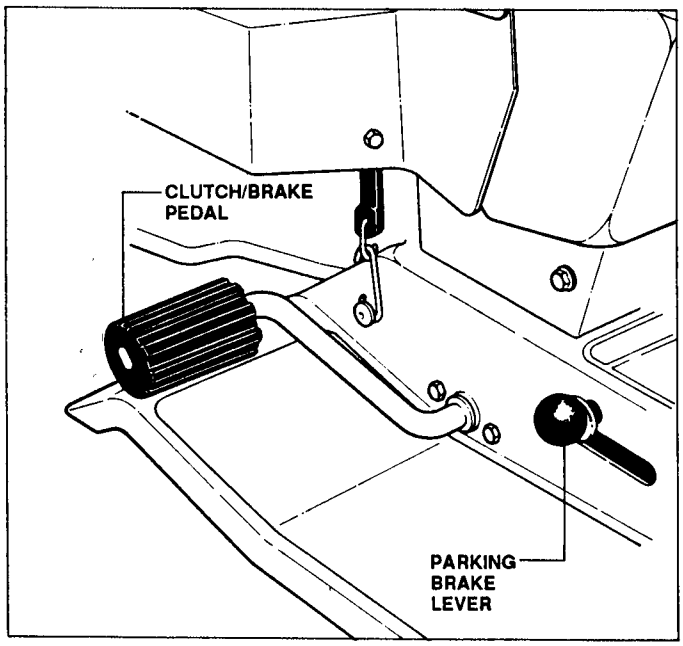


FIGURE 3

MOWER BLADE: ***STOP MOWER BLADE*** by pushing BLADE CONTROL lever downward to "OFF". See Figure 4.

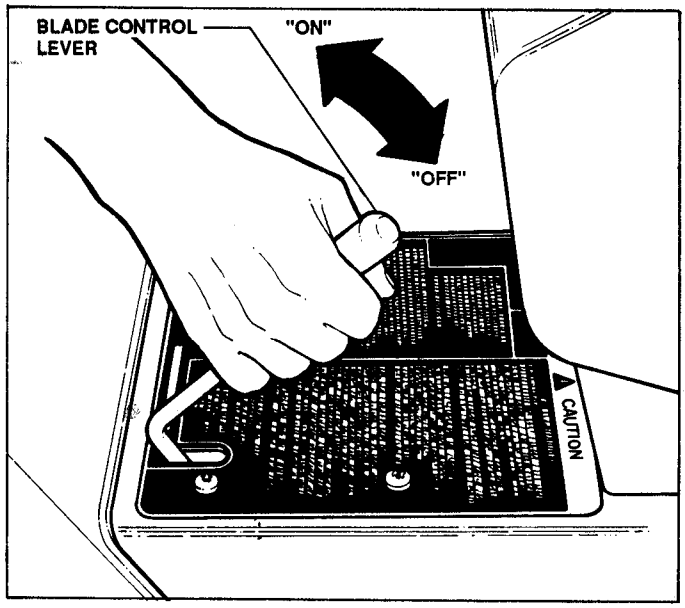


FIGURE 4

PRE-START CHECK LIST

Make the following checks and perform the service as required before each start up.

- CHECK TIRES and add air as needed to bring pressure to 12 psi in front and 10 psi in rear tires.
- CHECK GUARDS, DEFLECTORS & COVERS to make sure all are in place and securely tightened.
- CHECK BLADE CONTROL to insure it works freely. Blade lever must be moved manually from ON to OFF to stop blade.
- CLEAN EXTERIOR SURFACES of cutting deck and engine of any accumulation of dirt, grass, oil, etc. Keep engine air intake screens and cooling fins clear at all times.
- RE-ADJUST SEAT as needed to most comfortable position. (Refer to Pages 5 & 6, Figure 8)
- CHECK ENGINE OIL and add oil as needed to bring level up to (but not over) the full mark. (Refer to engine manual for oil specifications).
- ADD FUEL to tank after pushing the mower outside where fumes can be dissipated. Make sure cap is tightened after refueling. (Refer to engine manual for fuel specifications). See Figure 5.

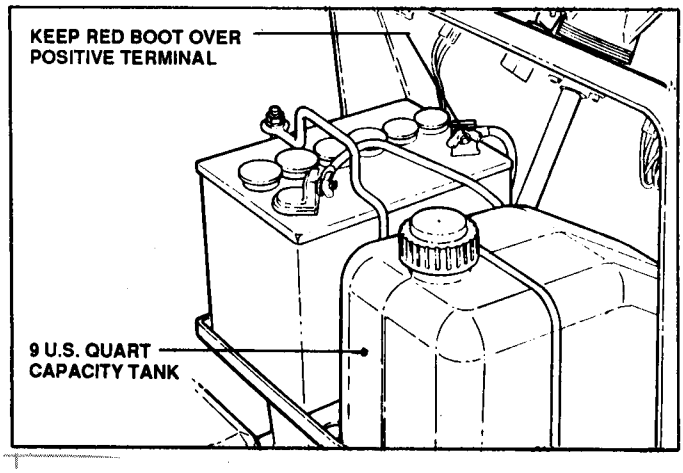


FIGURE 5

STARTING & OPERATING

ENGINE: ***START ENGINE*** as follows:

1. PUSH BLADE CONTROL LEVER downward to "OFF" position (Fig. 4) and fully depress the CLUTCH/BRAKE pedal (Fig. 7), so that Safety Interlock System will allow engine to start.
2. CHOKE ENGINE for cold starting by moving THROTTLE CONTROL to "CHOKE" position. (Little or no choking will be needed when restarting a warm engine). Refer to Figure 2.

NOTE

THE SEAT INTERLOCK FUNCTIONS TO SHUT OFF THE ENGINE IN THE EVENT THE OPERATOR VACATES THE SEAT WITH THE TRACTION DRIVE ENGAGED AND/OR THE MOWER BLADE ENGAGED. IN THE EVENT OF AN INTERLOCK MALFUNCTION, DO NOT OPERATE THE TRACTOR UNTIL THE CONDITION IS CORRECTED.

3. Insert key in ENGINE IGNITION switch, turn key to "START" position to crank engine and hold until engine starts then release.

NOTE

LIMIT CRANKING INTERVALS TO FIVE SECONDS DURATION TO PREVENT OVERHEATING OF STARTING MOTOR AND/OR DEPLETION OF BATTERY ENERGY. NORMALLY, FIVE SECONDS IS SUFFICIENT CRANKING TIME FOR STARTING. IF THIS TIME IS EXCEEDED, LOCATE AND CORRECT CAUSE OF STARTING PROBLEM.

4. WARM-UP ENGINE momentarily, then move the THROTTLE CONTROL downward out of CHOKE position until engine runs smoothly. Set desired speed. Best cutting and bagging performance is obtained with engine at or near top speed.

TO START MOTION

After the engine has been started and is running smoothly, proceed as follows to start forward or rearward motion.

1. With CLUTCH/BRAKE pedal depressed, shift SPEED SELECTOR to **1** for forward or **R** for reverse and release pedal. (For comfort and safety, always shift back to **1** before starting forward). See Figure 6.

CAUTION

AVOID UPHILL STARTS. IF MACHINE IS STOPPED GOING UP SLOPE, PUSH **BLADE CONTROL LEVER** DOWNWARD TO "OFF" POSITION AND BACK SLOWLY DOWN SLOPE. IF UPHILL START MUST BE MADE, PUSH **BLADE CONTROL LEVER** DOWNWARD TO "OFF" AND SET THROTTLE AT HALF SPEED.

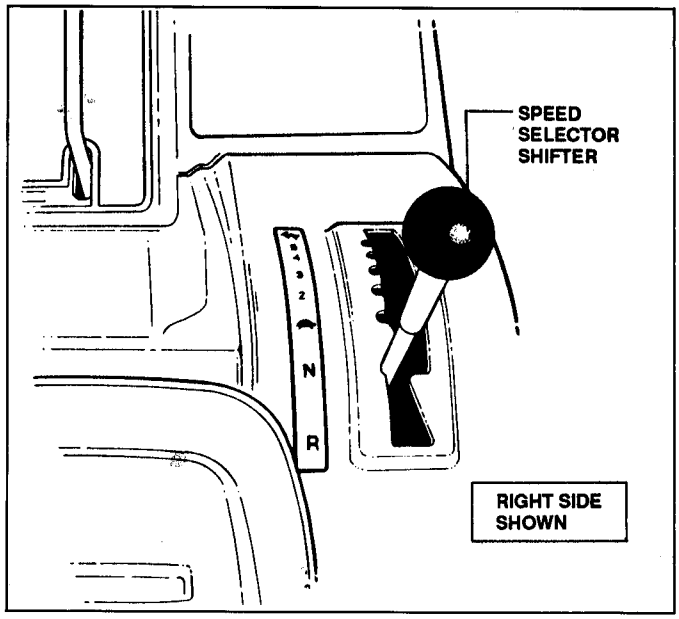


FIGURE 6

TO STOP MOTION

Push CLUTCH/BRAKE PEDAL all the way down to stop forward or rearward motion.

TO SET PARKING BRAKE

Depress CLUTCH/BRAKE PEDAL. Pull PARKING BRAKE LEVER "UP" while releasing pedal. See Figure 7.

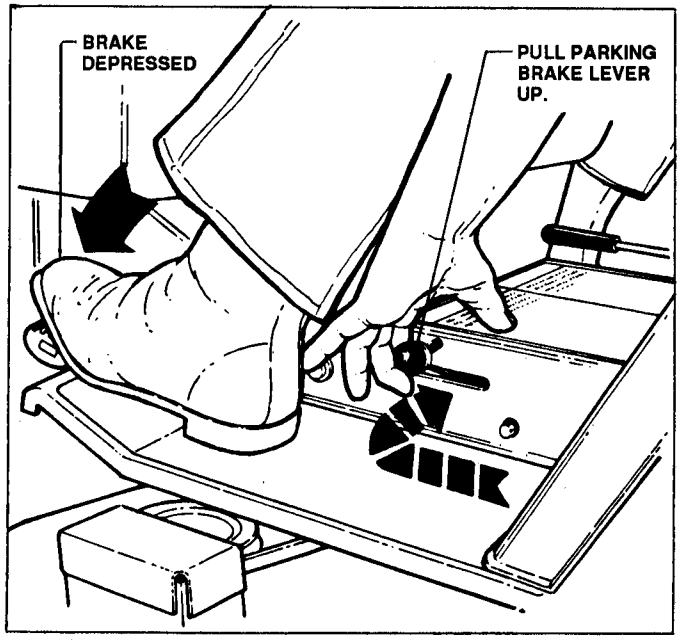


FIGURE 7

Push CLUTCH/BRAKE PEDAL down to release PARKING BRAKE.

TO ROLL MACHINE

Shift SPEED SELECTOR to "N" position or hold CLUTCH/BRAKE PEDAL half down.

TO ADJUST OPERATOR'S SEAT

FORE & AFT ADJUSTMENT: With machine stopped, loosen the ADJUSTING KNOB on seat

support. Sit in operators seat and, while depressing the CLUTCH/BRAKE PEDAL, slide the seat forward or rearward to the most comfortable position, then lock in position by tightening ADJUSTING KNOB. See Figure 8.

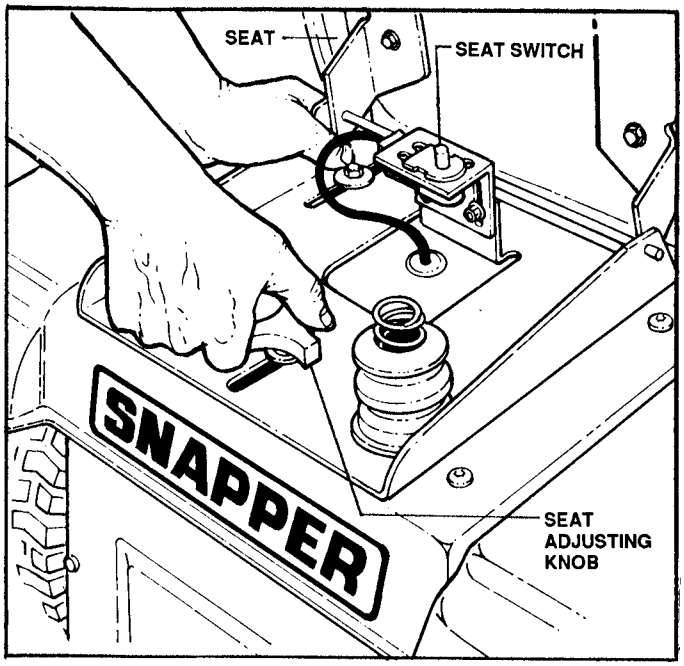


FIGURE 8

TO OPERATE MOWER

During transport or for clearance through gates it may become necessary to raise the DISCHARGE DEFLECTOR. Reinstall the wing nuts on the studs when the DEFLECTOR is raised so they will not be lost. Be sure to lower the DEFLECTOR and clamp it securely down with the wing nuts before mowing. See Figure 9.

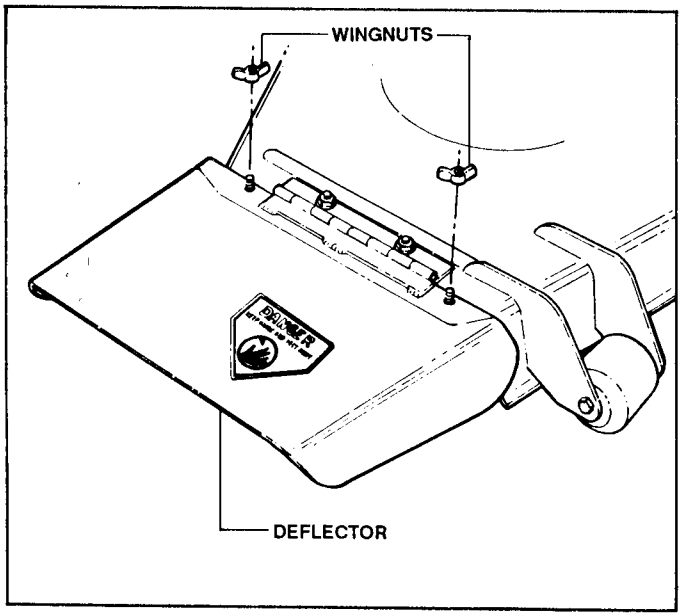


FIGURE 9

TO ADJUST CUTTING HEIGHT

The cutting height can be changed to any one of nine positions by raising or lowering the cutting deck attachment with the IMPLEMENT LIFT LEVER as shown in Figure 10.

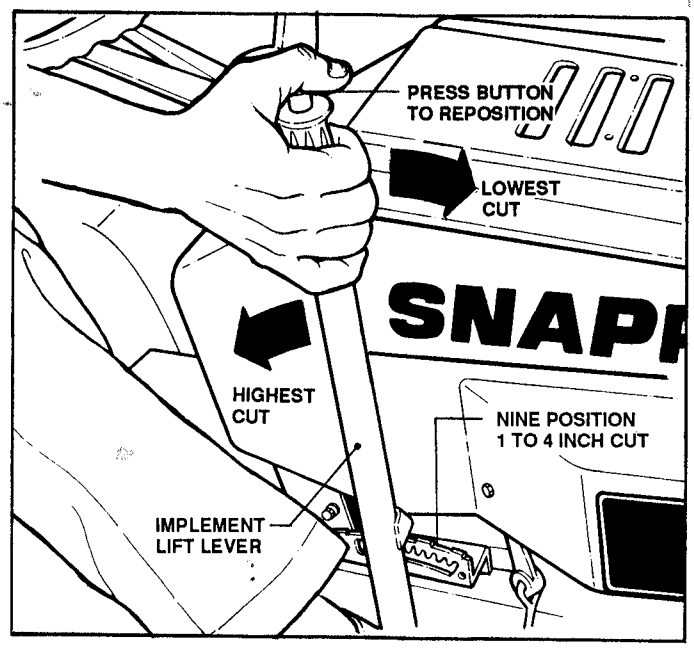


FIGURE 10

To suit mowing conditions, experiment by increasing engine speed and/or decreasing driving speed until smoothest cut is obtained without placing engine under heavy strain.

TO START MOWER BLADE

START MOWER BLADE by pulling BLADE CONTROL LEVER "UP" to "ON". See Figure 10A.

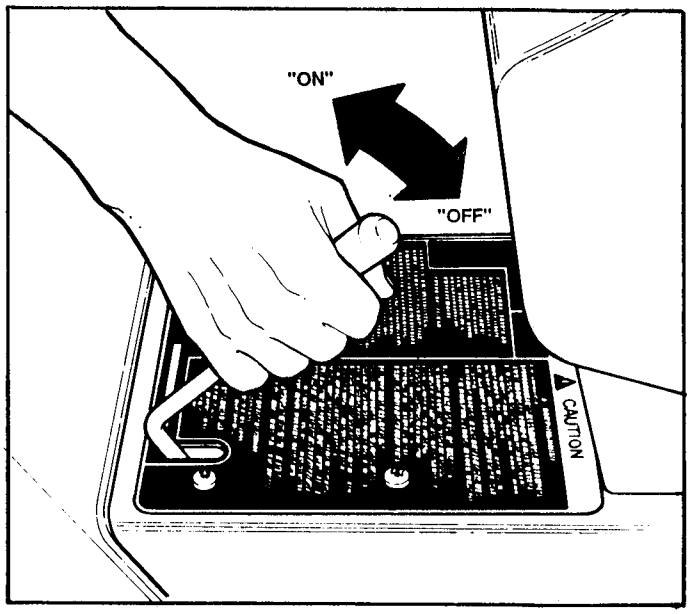


FIGURE 10A

TO BE ABLE TO GET OFF MOWER AND LEAVE ENGINE RUNNING:

1. Push BRAKE all way down.
2. Set PARKING BRAKE.
3. Push BLADE CONTROL LEVER downward to "OFF" position. Refer to Figure 10A.

Section I - OPERATION & ROUTINE SERVICE

To retain the quality of your tractor, use Genuine **SNAPPER** Replacement Parts only. Contact your local **SNAPPER** Dealer for parts and service assistance. For the correct part or information for your particular mower, always mention model and serial number. We recommend returning the tractor to an authorized **SNAPPER** Dealer on a yearly basis for inspection and addition of any new devices which might upgrade the safety of your mower. For the nearest **SNAPPER** Dealer, check the yellow pages under the heading LAWN MOWERS. For engine parts and service, look for the engine manufacturer's dealers under the heading ENGINES-gasoline.

DRAINING ENGINE OIL

NOTE
RAISE HOOD. IT MAY BE MORE CONVENIENT TO REMOVE HOOD FOR EASIER ACCESS WHEN FILLING WITH OIL. SEE "HOOD REMOVAL", PAGE 12.

1. Disconnect spark plug wire.
2. Fashion an oil drain trough from metal or cardboard as shown in Figure 11.

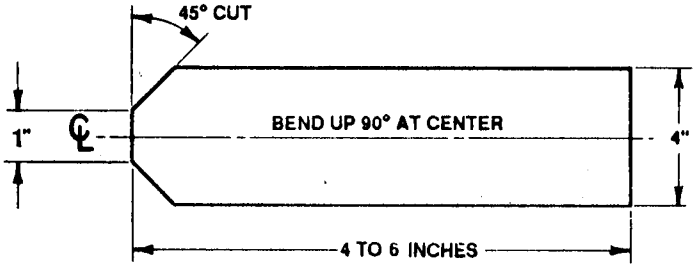


FIGURE 11

3. Loosen oil drain plug. Place trough under plug. Place a flat container (2 qt. Min. Capacity) beneath end of oil drain trough.

NOTE
TO ACHIEVE PROPER OIL DRAINAGE, IT MAY BE NECESSARY TO PLACE BLOCKS UNDER LEFT WHEELS OF MOWER.

4. Loosen oil fill cap and remove oil drain plug. Allow engine oil to drain completely. See Figure 12.

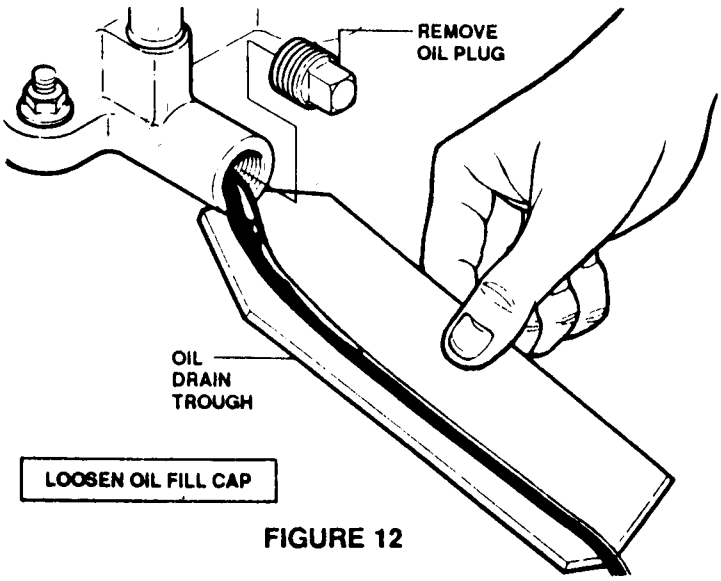


FIGURE 12

5. Reinstall oil plug, remove fill cap and refill crankcase with oil. Refer to the Engine Owner's Manual for engine oil specifications.

MAINTENANCE & LUBRICATION SCHEDULE

Refer to the Engine Owner's Manual for service specifications on the engine itself. The following applies primarily to the tractor and optional mower attachments. Clean fittings before greasing.

FIRST 5 HOURS (NEW UNIT)

- ENGINE: Change oil in crankcase. Refer to Engine Owner's Manual, and Draining Engine Oil on this page.
- TRACTOR: Check all fasteners and retighten as needed.

EVERY 25 OPERATING HOURS

- FRONT WHEEL BEARINGS: Lubricate bearings through the fitting on hub of front wheels. See Figure 13.

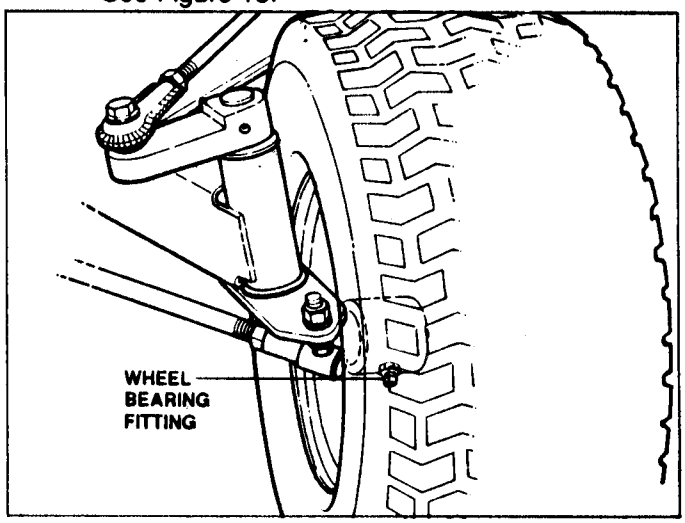


FIGURE 13

- REAR LEFT AXLE BEARING: Lubricate through fitting with 2 shots of bearing grease. Right hand bearing is lubricated by transmission.
- FRONT AXLE PIVOT & SPINDLE BUSHINGS: Lubricate the center pivot fitting on underside of the front axle and each spindle fitting located on rear of front axle (toward operator). See Figure 14. (Continued on next page)

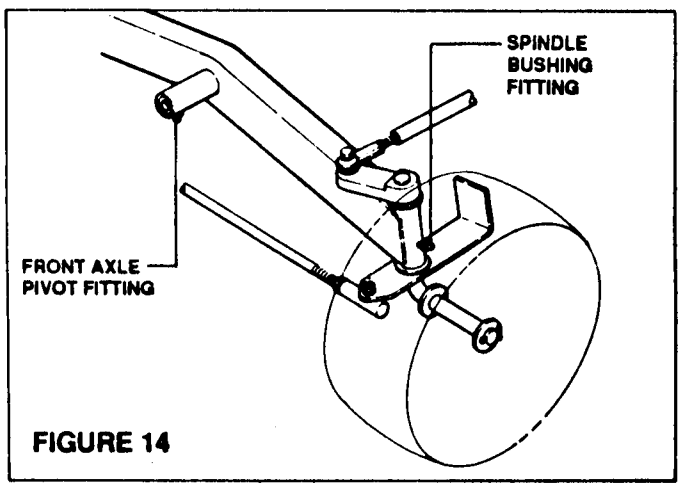


FIGURE 14

- CHANGE OIL IN ENGINE CRANKCASE with oil of weight and grade specified in Engine Owner's Manual.
- ENGINE AIR CLEANER: Refer to Engine Owner's Manual for details.

END OF EACH SEASON (OR EVERY 100 HOURS)

- TRANSMISSION DIFFERENTIAL: Remove rear panel or fender seat pan to gain access to differential. See Figure 15.
- TO REMOVE REAR PANEL:
  1. Remove six (6) screws.
  2. Remove REAR PANEL.
- TO REMOVE FENDER SEAT PAN:
  1. Remove shift handle knob.
  2. Disconnect wires to seat switch.
  3. Remove four (4) top screws.
  4. Remove two (2) lower fender screws.
  5. Remove FENDER SEAT PAN from mower.

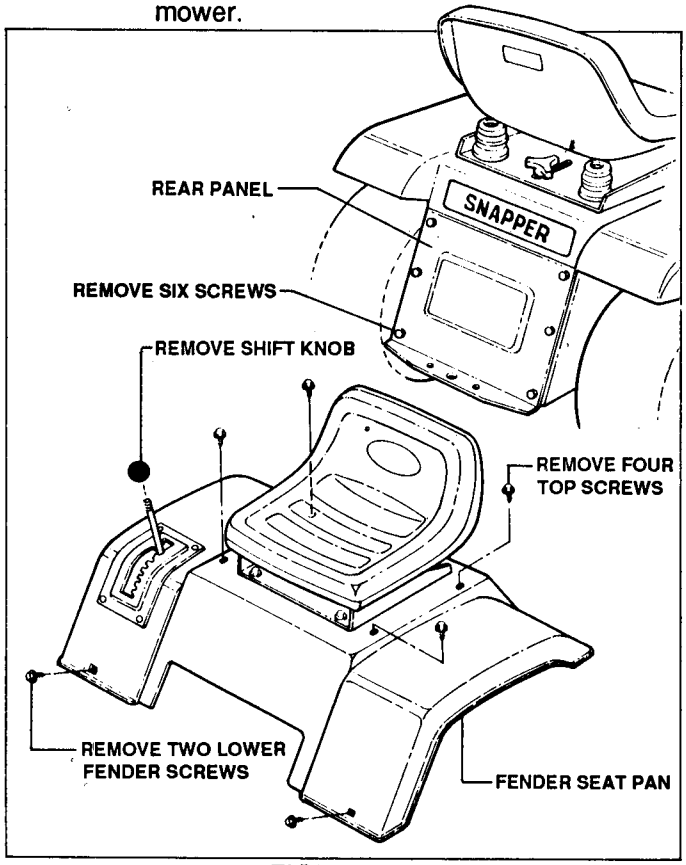


FIGURE 15

- Remove CHECK PLUG on inside of unit shown in Figure 16 to check level of oil. Add **SNAPPER "O"** grease as needed thru upper fill hole to bring the level up to the lower edge of the CHECK PLUG HOLE. Reinstall NEW plugs after servicing.
- CHAIN CASE: Remove plug and check. If dry, add one ounce of **SNAPPER "O"** grease - do not overfill. Total capacity must not exceed 2 ounces.

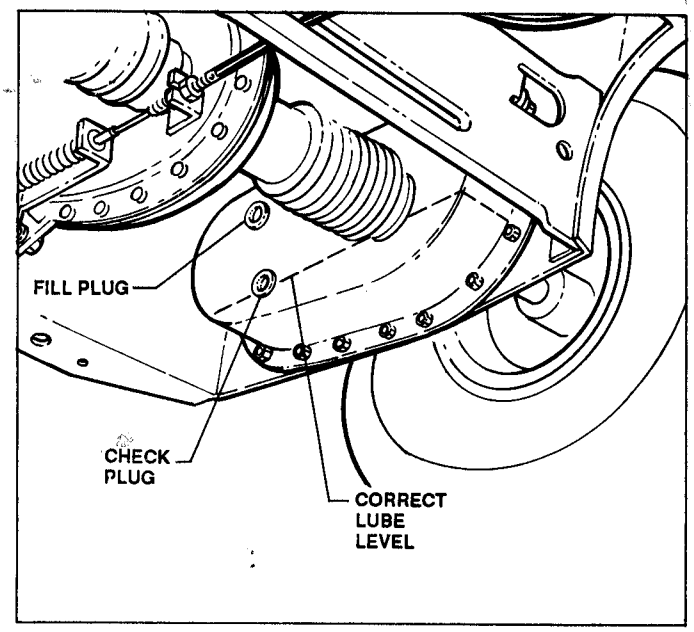


FIGURE 16

- MOWER ATTACHMENT SPINDLE(S): Lubricate fitting for BLADE SPINDLE BEARINGS with two shots only of bearing grease once each year.
- SERVICE Engine air cleaner element and spark plug.
- SERVICE FUEL FILTER as instructed below.

FUEL SYSTEM SERVICE

Check the in-line fuel filter at frequent intervals and replace before the screen becomes clogged with sediment. Make sure the replacement is correctly installed with IN marking toward the tank and OUT toward the engine. Check the fuel system components frequently and replace any parts showing worn spots or cracks. See Figure 17.

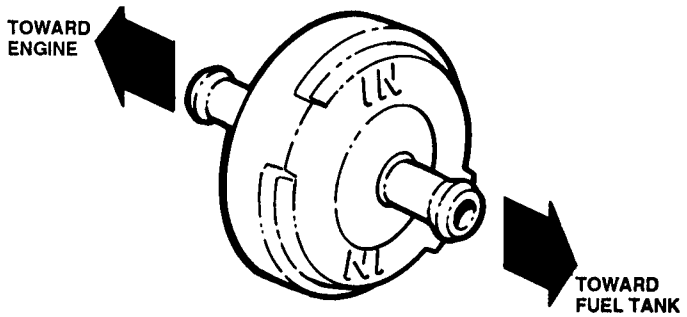


FIGURE 17

BATTERY SERVICE

Check the battery once each month. Remove the caps and add distilled water as necessary to bring the level of the electrolyte up to about 3/32" over plates in each cell. **DO NOT FILL TO THE RINGS**. Carefully reinstall battery caps. In freezing weather, charge the battery after adding water to thoroughly mix the water in the electolyte. Keep the terminals and straps clean and tight and make sure the red boot (shown in figure 5) remains in position over the positive terminals. Always disconnect negative (-) terminal first and reconnect last!

Section I - OPERATION & ROUTINE SERVICE

BATTERY CHARGING

The engine is equipped with a flywheel alternator to charge the battery. If the tractor is not run regularly, connect the battery to a charger monthly to maintain the specific gravity at 1.250 or higher. If this reading falls below 1.175, the battery liquid may freeze when temperatures drop to around zero degrees F.

To charge, connect per instructions furnished with charger. If time allows, slow charge at 1 amp for ten hours or as an alternate, fast charge at 3 amps for four hours. Observe all precautions while charging.

TO ADJUST TIRE PRESSURE

Check tire pressure at frequent intervals. A low tire on one side causes uneven mowing. Pressure in front tires should be maintained at 12 psi while rear tire pressure should be 10 psi.

DRIVEN DISC SERVICE

If the drive does not engage after extended use, it may be that the driven disc is excessively worn and is not contacting the drive disc. The driven disc must be replaced if the rubber is worn down to 1/16" above the metal. Replace the rubber driven disc when excessively worn or unevenly worn. To replace, remove the rear cover plate, shift the drive into neutral, remove the four nuts from the hub, remove the old disc and replace it with new disc (see Figure 18). Refer to Page 15 for TRACTION LOSS ADJUSTMENT procedure.

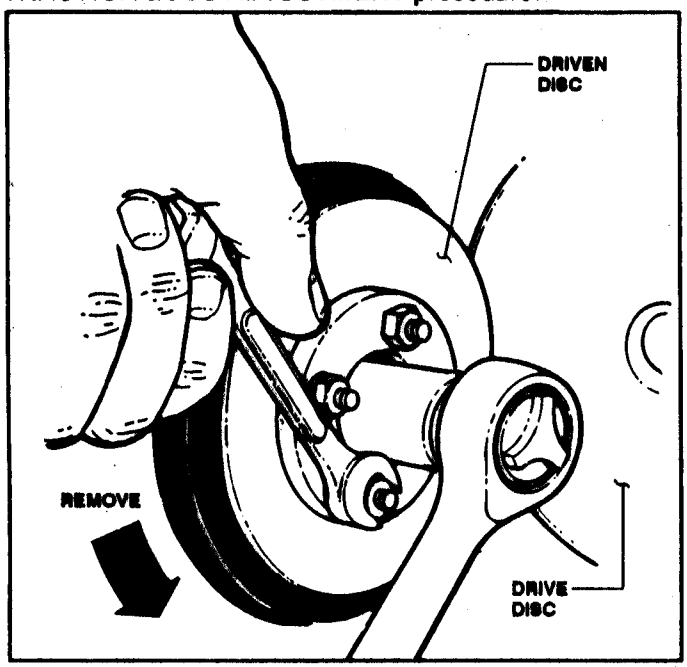


FIGURE 18

WHEEL BRAKE TEST & READJUSTMENT

1. Test the wheel braking action at frequent intervals to insure proper stopping in the event of possible emergencies. Normally, the mower should stop from top forward speed within approximately three feet after the CLUTCH/BRAKE pedal has been fully depressed.
2. To adjust the braking action:
   Loosen Locknut and adjust the cable housing toward the rear of the mower to increase cable tension. See Figure 19.

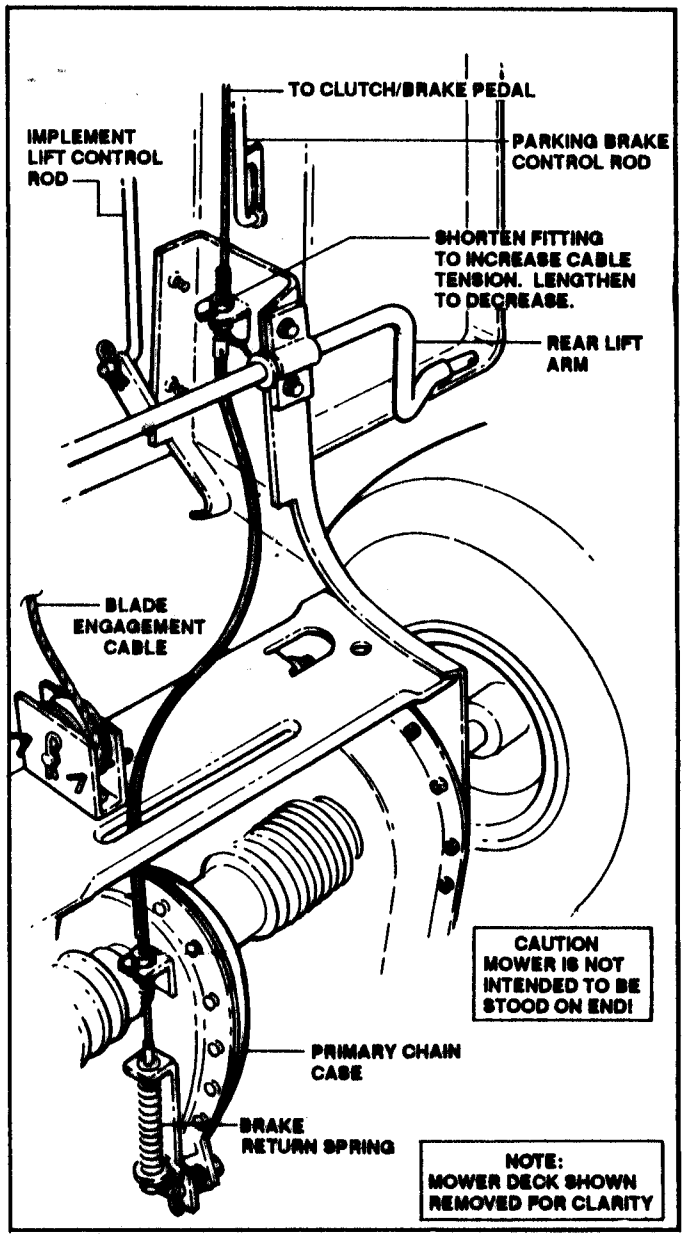


FIGURE 19

3. After adjusting, put the Speed Selecting lever in sixth (6th) position. Depress the CLUTCH/BRAKE pedal slowly as you roll the mower. There should be a place where the CLUTCH is disengaged and the brakes not yet applied, allowing the machine to roll. This should occur in the first half of the pedal travel.
4. Retest braking action as described in Step 1.

MOWER DRIVE BELT ADJUSTMENT (33")

Normally, within the first few hours of operation, the MOWER DRIVE BELT will seat into the pulleys and become slack. To regain correct belt tension, follow steps 1 thru 5.

1. Lower MOWER DECK to lowest position.
2. Push BLADE CONTROL lever downward to "OFF" position.
3. Remove BLADE CABLE spring from hole in BRAKE ARM. Reattach spring in next hole forward. See Figure 20. (Continued on next Page)

Section I - OPERATION & ROUTINE SERVICE

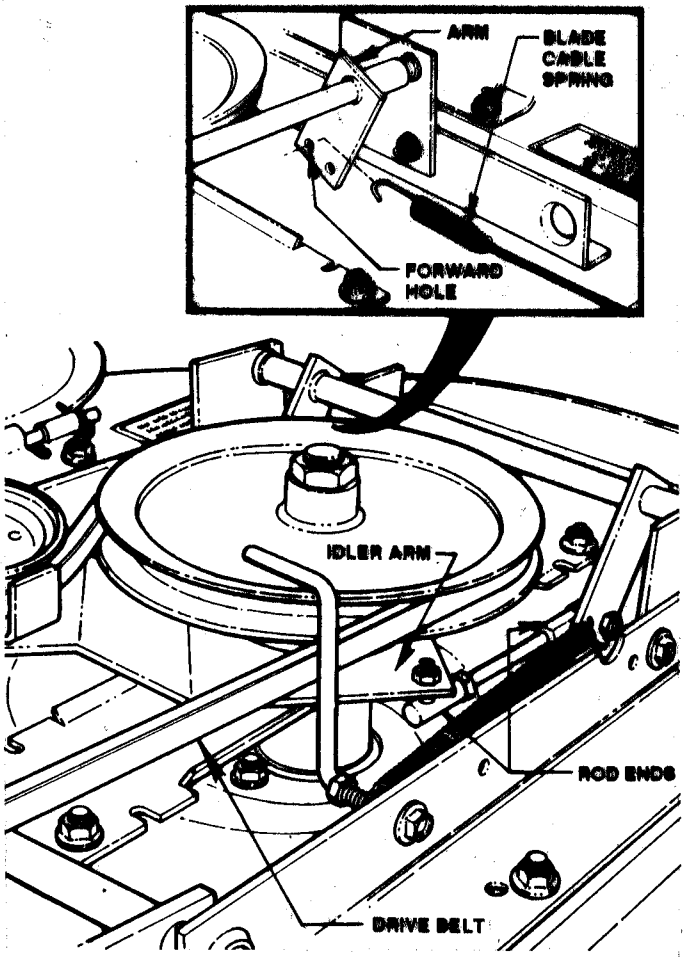


FIGURE 20

4. Remove ROD ENDS from CRANK ARM and IDLER ARM.
5. INCREASE belt tension by turning ROD ENDS "OUT". DECREASE tension by running ROD ENDS "IN".
6. Re-attach ROD ENDS and BLADE CABLE SPRING.

> **NOTE**
> WHEN INSTALLING BLADE CABLE SPRING, MAKE SURE SPRING IS ATTACHED IN FORWARD HOLE OF ARM (REFER TO FIGURE 20).

7. Pull BLADE CONTROL lever up to "ON" position, then check belt tension.
8. If belt is still too slack, readjust ROD ENDS as outlined above.

MOWER DRIVE BELT ADJUSTMENT (41")

Normally, within the first few hours of operation, the MOWER DRIVE BELT will seat into the pulleys and become slack. To regain correct belt tension, follow steps 1 thru 5.

1. Lower MOWER DECK to lowest position.
2. Push BLADE CONTROL lever downward to "OFF" position.
3. Remove BLADE CABLE spring from hole in BRAKE ARM. Reattach spring in next hole forward. See Figure 20A.

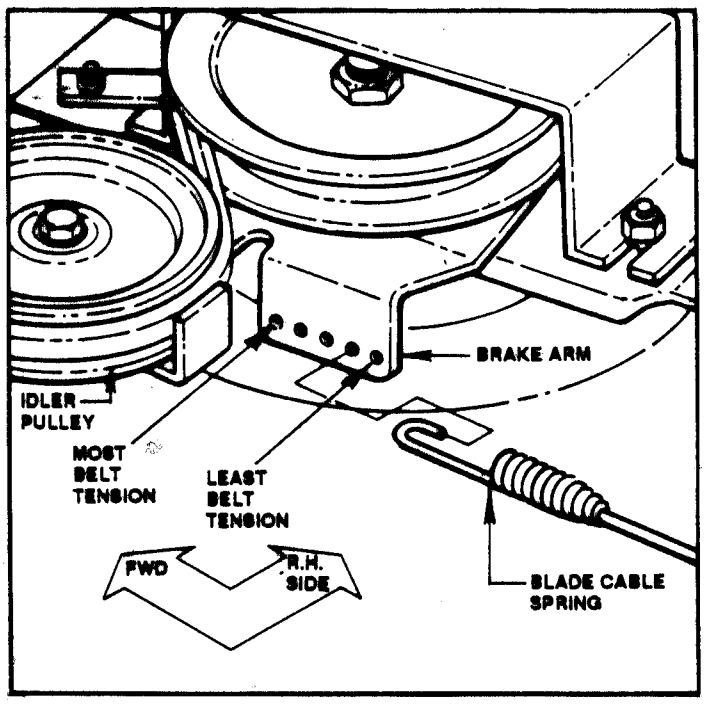


FIGURE 20A

4. Pull BLADE CONTROL lever up to "ON" position, then check belt tension.
5. If belt is still too slack, move spring to another hole until tension is correct.

MOWER DRIVE BELT SERVICE (33")

To install or replace the MOWER DRIVE BELT, follow steps 1 thru 4.

1. Lower MOWER DECK to lowest position.
2. Loosen pulley screw on IDLER PULLEY until BELT RETAINER can be moved away from belt. See Figure 21.

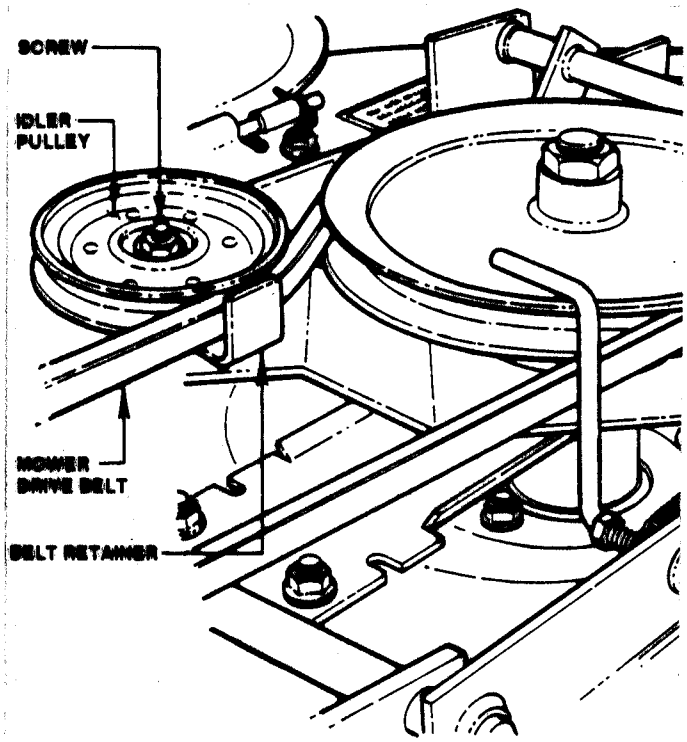


FIGURE 21

3. Remove old belt from between BELT RETAINER and PULLEY and from mower.
4. Install new DRIVE BELT in reverse order. Adjust as required.

MOWER DRIVE BELT SERVICE (41")

To install or replace the MOWER DRIVE BELT, follow steps 1 thru 9.

1. Lower MOWER DECK to lowest position.
2. Loosen screw on slotted side of belt covers and swing covers away from pulleys.
3. Loosen pulley screw on stationary IDLER PULLEY until BELT RETAINER can be moved away from belt.
4. Loosen pulley screw on BRAKE ARM IDLER PULLEY until belt can be removed from between BELT RETAINER and PULLEY.
5. Remove old belt.
6. Route new belt around pulleys as shown in Figure 21A.

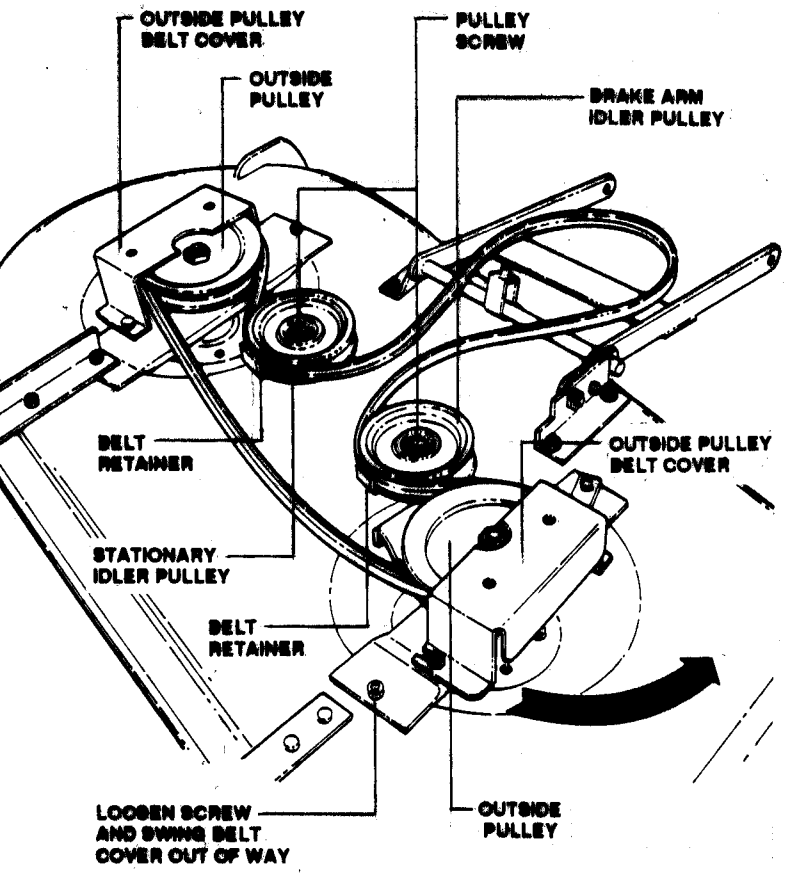


FIGURE 21A

7. Retighten BRAKE ARM IDLER PULLEY screw.
8. Readjust BELT RETAINER on stationary IDLER PULLEY, then retighten pulley screw.
9. Reinstall belt covers on outside pulleys. Tighten retaining screws.

MOWER SERVICE & ADJUSTMENTS

Keep the topside of the mower free of grass cuttings. Buildup of clippings could cause belt problems and also might present potential fire hazard especially when dry. If uneven cutting is noted, check the tire pressure first as this is the most common cause. If tire pressure is correct and uneven cutting persists, move the tractor to a flat level surface, such as a garage floor, and check the deck level. (See "LEVELING MOWER", Page 15-16). To prolong the life and efficiency of your mower, keep the underside of deck clean and free of accumulated grass clippings by washing it down with a hose and/or scraping with a wire brush and scraper. Make sure this is done at the end of the cutting season before placing the mower in storage.

BLADE BRAKE ADJUSTMENT

The BLADE BRAKE assembly is designed to stop blade rotation within 3 seconds after the BLADE CONTROL lever has been pushed downward to "OFF". Should the blades not stop within 3 seconds, the BLADE BRAKE must be adjusted as follows:

1. Lower deck to lowest position.
2. Push BLADE CONTROL lever doward to "OFF" position.
3. Loosen retaining nut on R.H. OUTSIDE PULLEY BELT COVER and swing cover out of way.
4. Inspect BRAKE BAND closely in order to determine approximate amount of adjustment required.
5. Tighten BRAKE BAND by loosening jam nut and turning T-nut, on end of eyebolt, clockwise 1 to 2 turns, or until brake band tightens. Make sure flanged lip on T-nut is positioned vertically to fit over top edge of anchor. See Figure 22.

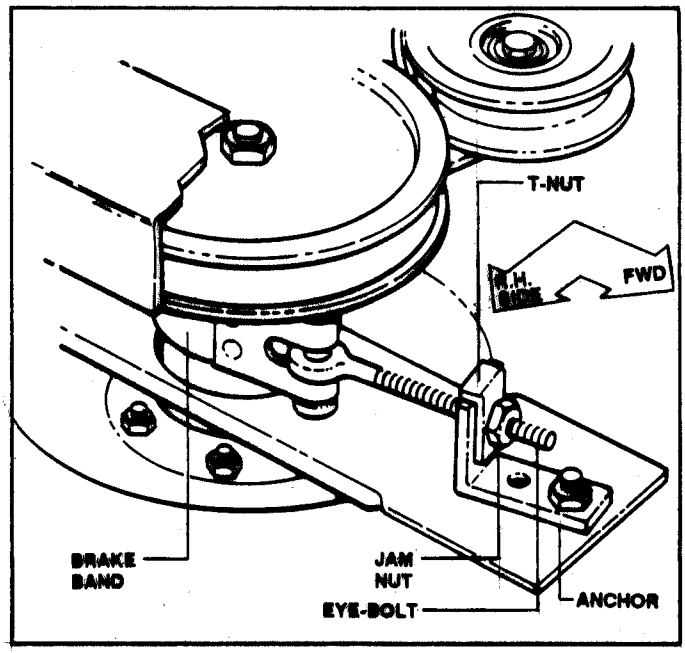


FIGURE 22

NOTE
MAKE SURE THAT BRAKE BAND DOES NOT DRAG AFTER ADJUSTMENT.

(Continued on next Page)

6. After adjusting BLADE BRAKE, start mower, engage blade and then disengage blade to check stopping time. Readjust if necessary.

CUTTING BLADE SERVICE

Check at frequent intervals to make sure the blade is securely tightened and that it is in good condition.

Replace blade if badly chipped, bent, out of balance, or as soon as notch starts wearing in the tip between the flat surface and upturned lift as depicted in Figure 23. This type wear pattern occurs more rapidly under sandy soil conditions.

CAUTION
NEVER OPERATE THE MOWER WITH BLADE WORN TO THE EXTENT SHOWN IN VIEW C AS THE TIP COULD FLY OFF CAUSING PERSONAL INJURY OR PROPERTY DAMAGE.

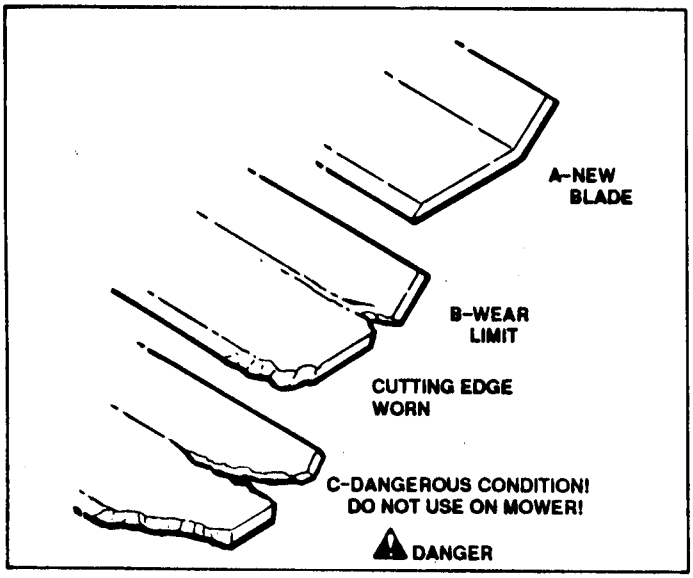
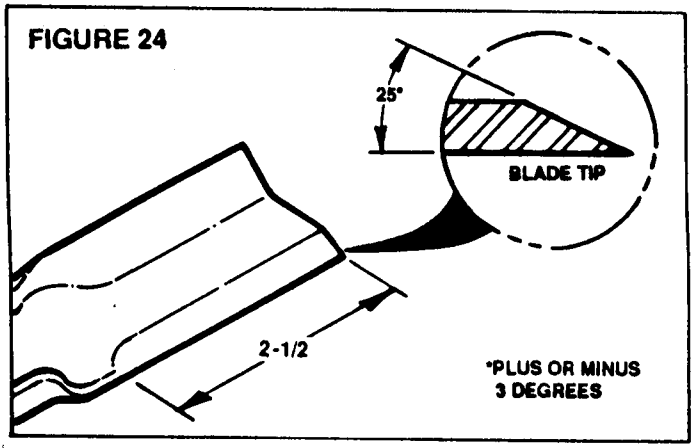


FIGURE 23

Sharpen blade when the cutting edges become dull if the blade is in otherwise good condition. When dull, the grass cut ends will be ragged and usually turn brown soon after mowing. For best results, remove the blade and sharpen it on a grinding wheel at an angle of 22 to 28 degrees. The cutting surface should extend in about 2 1/2" from the tips. Check the blade after sharpening to determine that it is still balanced. It will cause excessive vibration if unbalanced. See Figure 24.



CAUTION
AVOID CUTTING YOURSELF ON CUTTING BLADE! PROTECT YOUR HANDS FROM CUTS WHILE HANDLING BLADE.

Install sharpened or replacement blade with components in same sequence as removed. Make sure that the turned-up rims in the center of blade fit over the edges of the blade drive hub when installing. Do not substitute any components here. Tighten the blade retaining capscrew to 20-30 foot pounds torque value. See Figure 25.

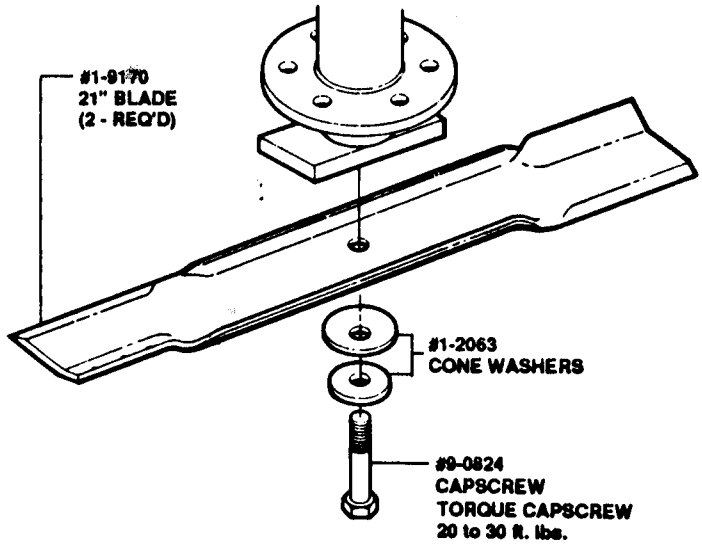


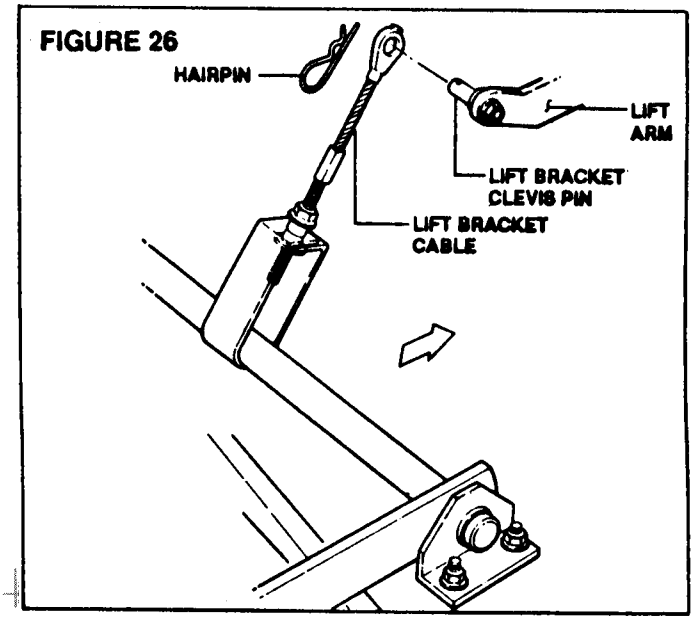
FIGURE 25

REMOVING & INSTALLING MOWER

The mower is attached to the tractor and leveled at the factory. If the mower is to be removed for cutting blade service, or to install another attachment, be sure that the mower settings remain unchanged.

TO REMOVE MOWER:

1. Lower deck to lowest position.
2. Remove hairpin from LIFT BRACKET CABLE clevis pin. See Figure 26.



3. Remove hairpins and washers from REAR LIFT ARM CHAINS. See Figure 27.

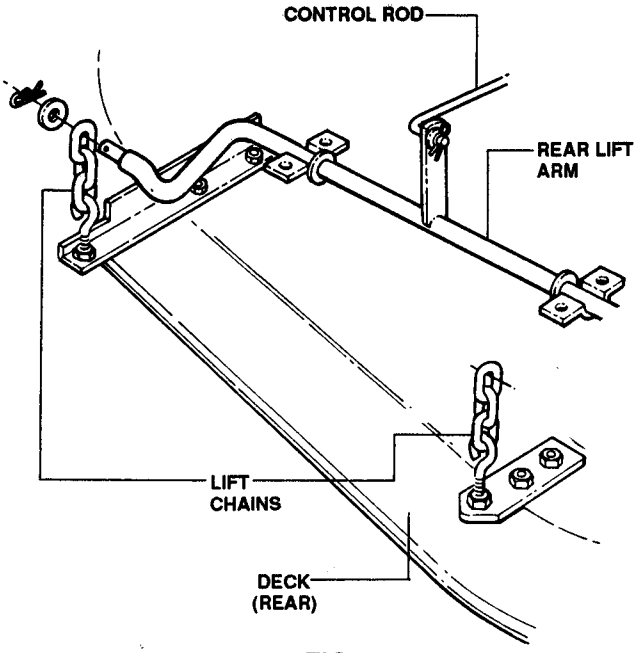


FIGURE 27

4. Remove hairpins and clevis pins from FRONT LIFT ARMS. See Figure 28.

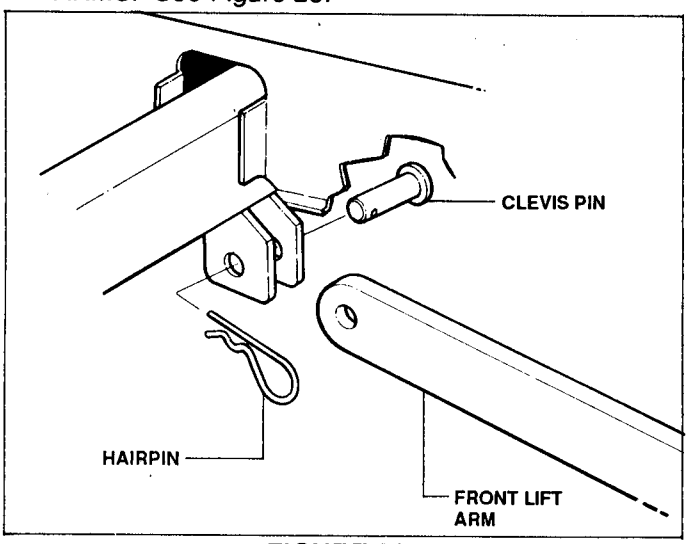


FIGURE 28

5. After deck has been lowered to ground, turn tractor's front wheels to the left and slide the mower out from the right side. Reverse steps 1 thru 5 to reinstall mower.

HOOD REMOVAL

To service engine (changing oil, spark plug, etc.). It is recommended that the hood be removed. Hood removal is as follows:

1. With hood in closed position, unhook latches at bottom rear of hood.
2. Disconnect headlight wire at lower left front of hood.
3. With hood level, lift straight up to clear pivot pins at front front. See Figure 29.
4. Remove hood and lay aside until maintenance is completed. Reinstall hood in reverse order.

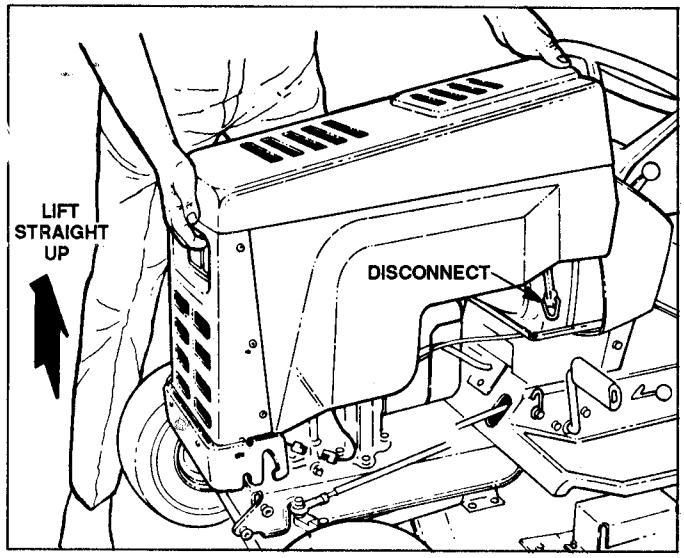


FIGURE 29

ADJUSTING STEERING

If steering develops excessive free-play, then the eccentric steering bolt must be adjusted. Proceed as follows:

1. Working from the left side of the tractor, use a 7/16" wrench to loosen nut on top of carriage bolt. See Figure 30.
2. Push eccentric clockwise (towards R.H. side of tractor) until free-play in steering wheel is minimized.
3. Retighten nut.

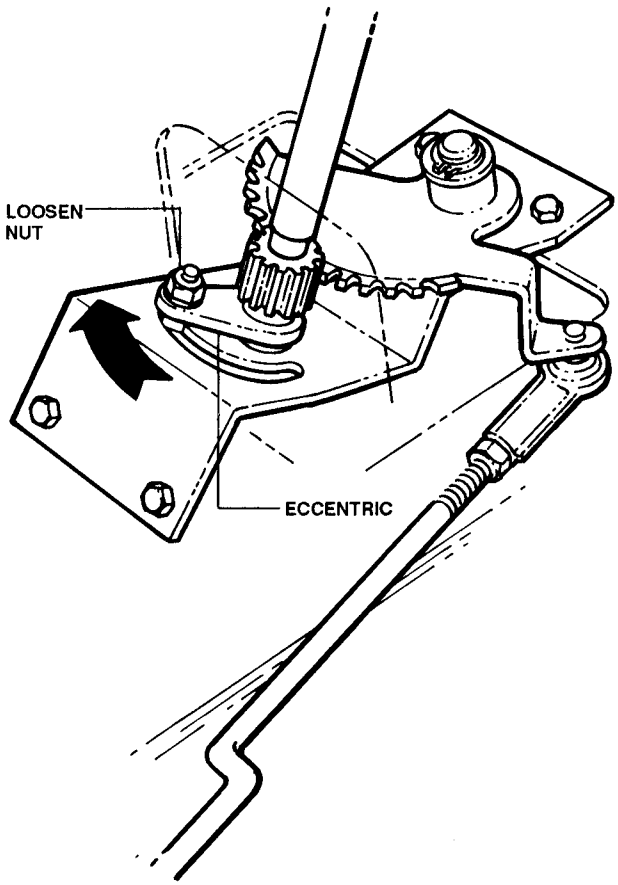


FIGURE 30

LEVELING 33" MOWER

With the blade sharpened and properly aligned, a level mower deck will insure a clean, even cut. The mower should be checked for level as follows:

1. Check the air pressure in the tires and correct pressure as needed (12 psi front and 20 psi rear tires).
2. Move the tractor to a smooth, flat and level area such as garage floor.
3. Move the lift lever to #5 notch.

A. SIDE TO SIDE LEVEL ADJUSTMENT

(1) Place a piece of angle iron under center of deck. See Figure 31.
(2) Pull the pins and remove the CHAINS from the REAR LIFT ARMS.
(3) Measure distance between the floor and outside center edges of the deck.

NOTE
A DECK IS CONSIDERED LEVEL IF MEASUREMENTS ARE WITHIN 1/8" FROM SIDE-TO-SIDE.

(4) If required, adjust side-to-side level of mower deck by loosening SHOULDER SCREW on side of lift arm ECCENTRIC BOLT. See Figure 31.
(5) Turn the ECCENTRIC BOLT "UP" or "DOWN" to level deck within 1/8" side-to-side.
(6) When deck is level, tighten SHOULDER SCREW.
(7) Re-attach CHAINS to REAR LIFT ARMS.
(8) If either CHAIN is slack, adjust EYEBOLT until both CHAINS have equal tension. Recheck deck level. See Figure 31.

B. FRONT TO REAR LEVEL ADJUSTMENT

(1) Measure distance between the floor and the front and rear edges of the mower deck. Measurements should be the same or 1/8" lower at the rear.
(2) Adjust chain EYEBOLTS the same number of turns to raise or lower rear of deck. Adjust until deck is properly leveled.

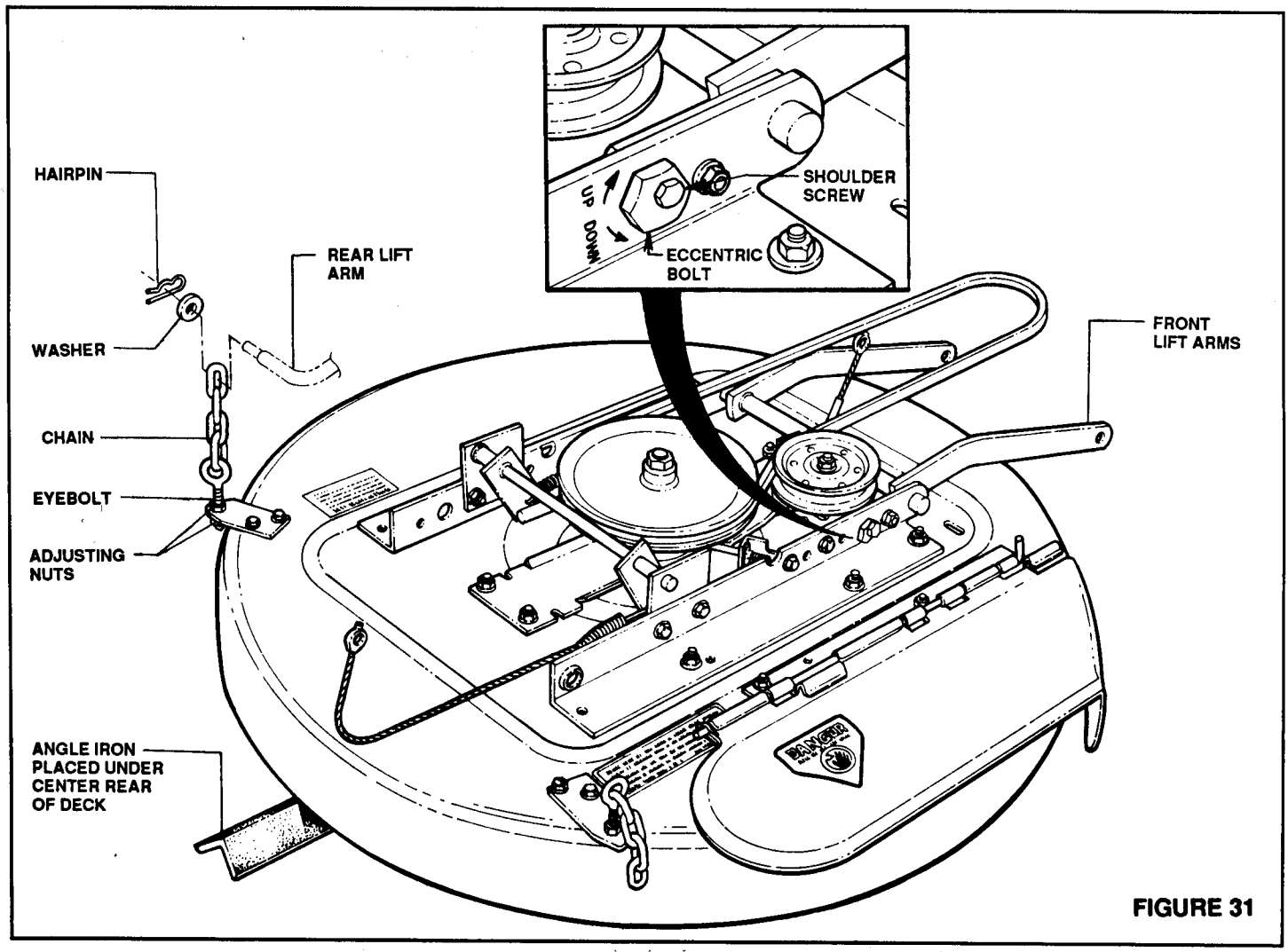


FIGURE 31

LEVELING 41" MOWER

With the blades sharpened and properly aligned, a level mower deck will insure a clean, even cut. The mower should be checked for level as follows:

1. Check the air pressure in the tires and correct pressure as needed (12 psi front and 10 psi rear tires).
2. Move the tractor to a smooth, flat and level area such as garage floor.
3. Move the lift lever to #5 notch.
4. Place a 2 x 4" block on edge under the front lip of the deck in the exact center between the front lift arms.
5. Loosen the jam nut on the front lift cable and adjust until the front lip of the deck rests on the 2 x 4 block and the cable is tight. Tighten the cable jam nut and remove the block. See Figure 31.
6. Place a 3" high block under the exact center of the rear lip of the deck.
7. Pull the pins and remove the chains from the rear lift arms.
8. Turn the outside blades perpendicular to the tractor frame.
9. Loosen nuts on eccentric bolt and pivot bolt and level the deck side to side by turning the eccentric adjusting bolt. The distance from floor to each blade tip should be within 1/8" of each other.
10. Loosen the jam nuts and adjust both rear lift chain eyebolts so that the top link of the chain just slides over the rear arm pins. Tighten jam nuts. Reinstall the flat washers and hairpins. Recheck level.

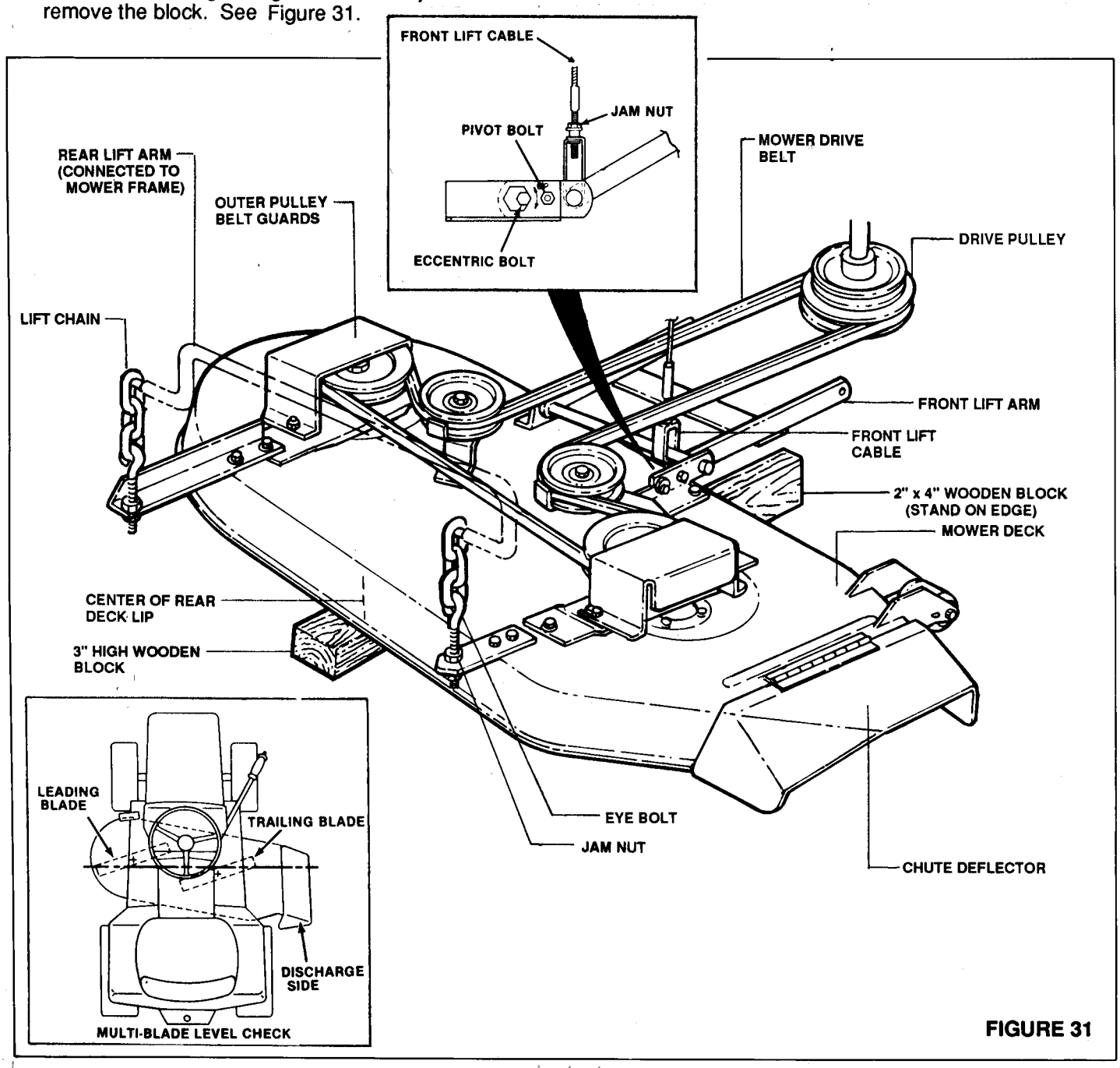


FIGURE 31

Section I - OPERATION & ROUTINE SERVICE

DRIVE BELT SERVICE

To remove and replace the DRIVE BELT, follow steps 1 thru 11.

1. Raise mower hood and disconnect spark plug wire.
2. Lower MOWER DECK to lowest position
3. Remove REAR COVER PLATE. See Figure 32.

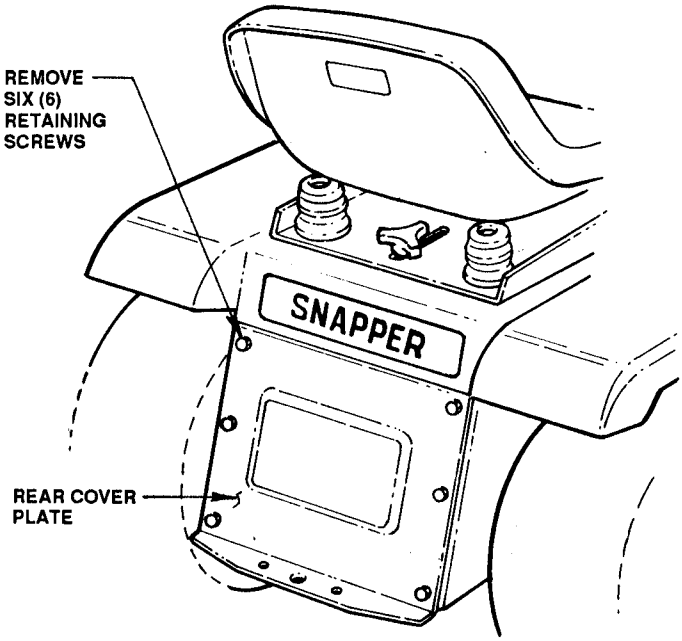


FIGURE 32

4. Depress CLUTCH/BRAKE PEDAL and lock into position by pulling PARKING BRAKE LEVER "UP".
5. Shift SPEED SELECTOR to 6th position.

NOTE
ALTHOUGH IT IS POSSIBLE TO REMOVE AND REPLACE THE DRIVE BELT WITH THE MOWER DECK ATTACHED, IT IS RECOMMENDED THAT THE DECK BE REMOVED TO MAKE BELT INSTALLATION EASIER. SEE "REMOVING & INSTALLING MOWER", PAGES 11 & 12.

6. Disconnect IDLER SPRING. See Figure 33.

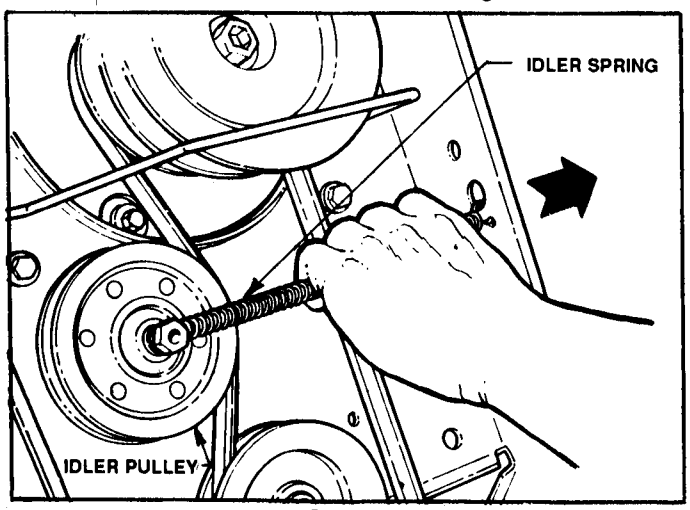


FIGURE 33

CAUTION
THE IDLER SPRING IS UNDER TENSION. TO AVOID INJURY, USE CARE WHEN DISCONNECTING SPRING FROM FRAME.

7. Remove hairpin from front of CONTROL ROD then lower CONTROL ROD. See Figure 34.

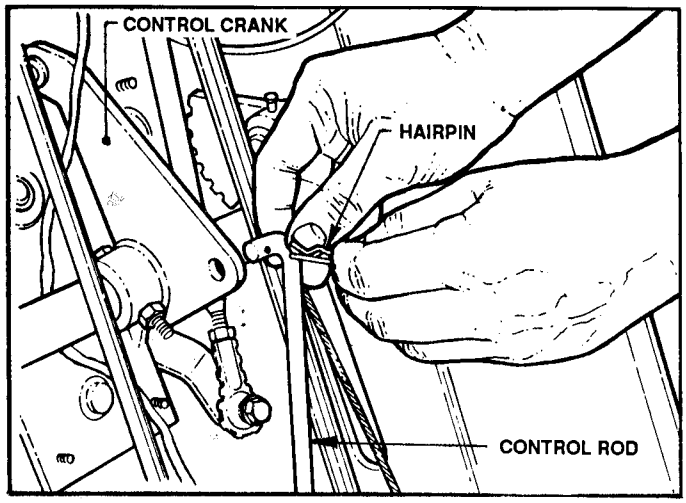


FIGURE 34

NOTE
IF REMOVING/REPLACING DRIVE BELT WITH DECK ATTACHED, THEN REMOVE MOWER BELT FROM FRONT DRIVE PULLEY AT THIS TIME.

8. Remove DRIVE BELT from engine pulley by rotating MOWER DRIVE PULLEY and holding down on DRIVE BELT at same time. Allow belt to remain on hub between pulleys at this time. See Figure 35.

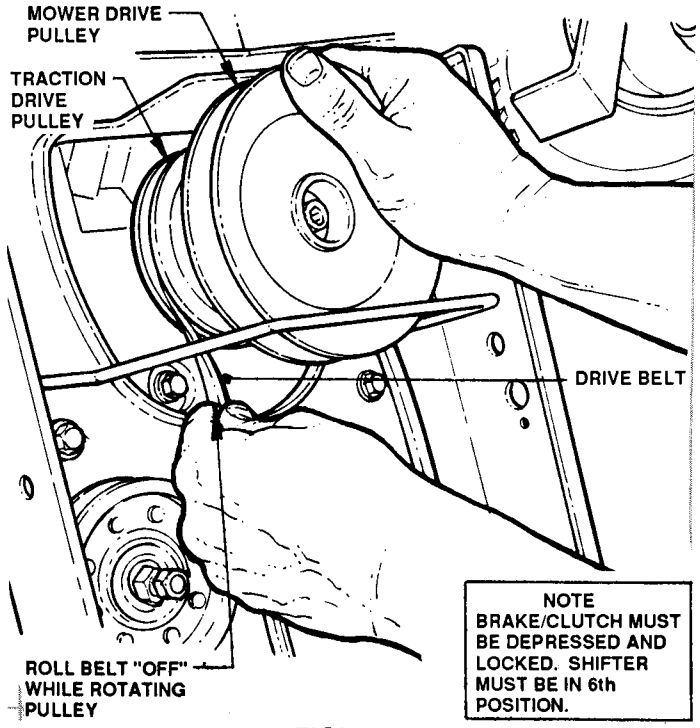


FIGURE 35

9. Working at the rear of the mower, rotate the DRIVE DISC while holding down on the DRIVE BELT until belt is clear of disc. See Figure 36.

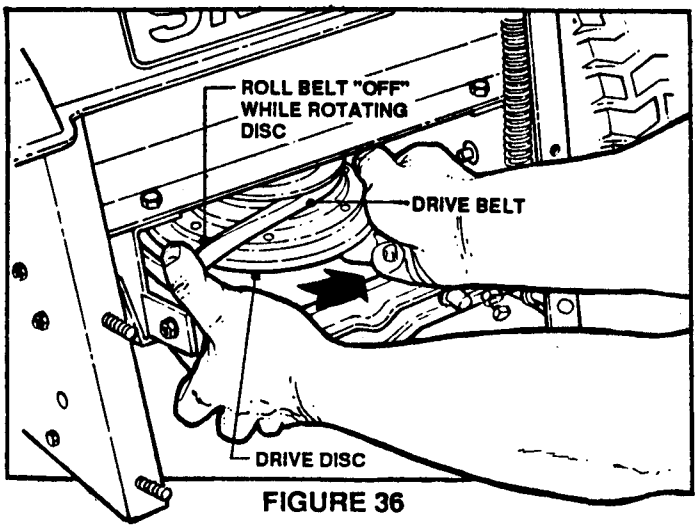


FIGURE 36

10. Remove DRIVE BELT from front pulley.

11. Install DRIVE BELT in reverse order of above.

CAUTION
MAKE SURE THE BELT BEING INSTALLED IS ABOVE REAR LIFT ARM.

TRACTION LOSS ADJUSTMENT

If the rubber on the driven disc ring wears enough to cause loss of traction, readjust the yoke stop (see Figure 37) to restore good contact. With engine "OFF" and drive shifted into "NEUTRAL", loosen the jamnuts and turn the bolt clockwise about 2 turns. Check to see that rubber ring turns freely in the center or "NEUTRAL" groove - turn bolt in more if needed to achieve this, then secure bolt by tightening both jamnuts.

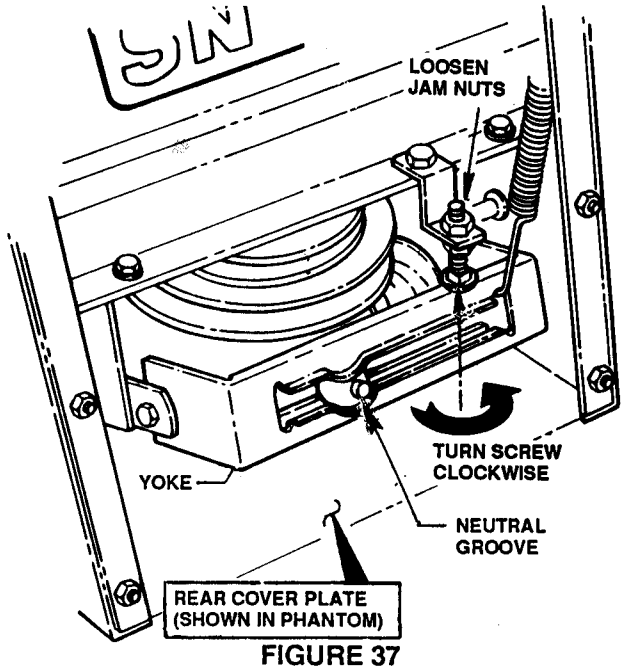
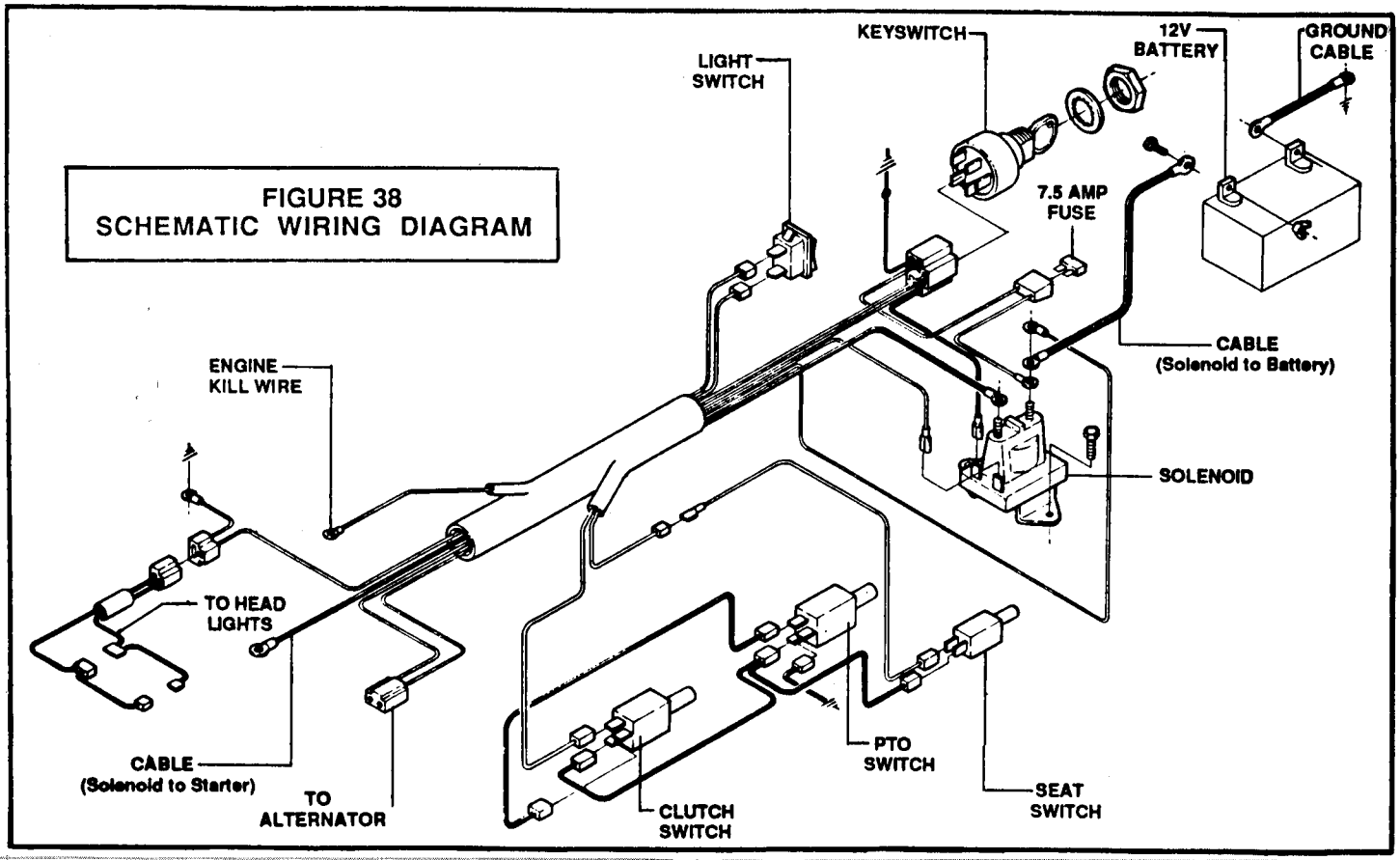


FIGURE 37

FIGURE 38
SCHEMATIC WIRING DIAGRAM



Section II - TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	PROBABLE SOLUTION	REFERENCES
2.1 Engine will not start	a. Transmission interlock prevents starting	a. Shift into NEU/PARK and attempt to start	Section VI, 6.1-6.2
	b. Cutter interlock prevents starting	a. Shift cutter into OUT position	Section VI, 6.1
	c. Throttle Control not in starting position	c. Move to CHOKE or START	Section I, P. 5-6 Section VI, 6.1
	d. Fuel Related	d. Tank empty, vent cap closed, fuel shut-off valve closed	Section I, P. 5
	e. Ignition Related starting problems	e. Spark plug lead loose or disconnected from plug. Faulty spark plug or faulty electronic ignition. Replace.	ENGINE MANUAL
	f. Interlock switches	f. Check for disconnected wires. Check continuity of each switch. Check ignition switch.	Section VI, 6.3
	g. Battery too weak to start engine	g. Charge battery Test Battery.	Section VI, 6.5
	h. 7.5 Amp Fuse defective.	h. Replace Fuse.	Section VI, 6.4, C.
2.2 Engine stall after running	a. Throttle control left in full choke	a. Move to run position	Section I, P. 5 & 6
	b. Fuel Shut-off valve on tank outlet closed	b. Open Valve	Section I, P. 5, 6 & 9
	c. Fuel Tank run dry, fuel line or filter blocked	c. Unclog line or refill tank	OWNER'S MANUAL
	d. Engine speed set too slow for starting conditions	d. Adjust throttle to increase speed	OWNER'S MANUAL
	e. Engine carburetor problems	e. Readjust carburetor main fuel setting to specifications in engine manual	ENGINE & OWNER'S MANUAL
	f. Engine air cleaner clogged causing over-rich mixture	f. Service air clearner	OWNER'S MANUAL
	g. Interlock switch faulty and shutting off engine	g. Test switch and replace if necessary	Section VI, 6.4, F.
2.3 Grease leaking from chain case	a. Cup insert plugs faulty	a. Replace with new plugs	Section IV, 4.11, B.
	b. Case overfilled, leaking grease	b. Drain all grease and add 2 ozs. of **SNAPPER 0** grease.	OWNER'S MANUAL
	c. Paint drain hole not closed	c. Tap tab closed with a hammer and apply sealer	
	d. Case Housing screws loose or missing	d. Replace missing screws and/or tighten all screws	
	e. Case gasket broken or faulty	e. Replace gasket	Section IV, 4.11, B.
2.4 Grease leaking from differential	a. Cup insert plugs faulty	a. Replace with new plug	Section IV, INTRODUCTION
	b. Drain hole not closed	b. Tap tab closed with hammer and/or apply sealer	
	c. Case housing screws loose or missing	c. Replace missing screws and/or tighten all screws	
	d. Fender gasket faulty and not sealing properly	d. Replace gasket	Section IV
	e. Oil seal leaking	e. Replace oil seal	Section IV
2.5 Excessive noise and/ or vibration when in drive	a. Clutch brake chattering against metal rim of driven disc producing rattling sound	a. Check clutch brake mtg. bolt to insure tightness	Section IV, 4.2, E.
	b. Wheel bearings dry, producing dragging sound	b. Lubricate with grease	Section I, P. 8
	c. Driven disc with missing pieces of rubber producing thumping sounds and speed surging	c. Replace disc	Section IV, 4.5
	d. Drive disc will produce roaring sound when warped or out of alignment due to bent crankshaft	d. Replace drive disc if warped. See engine service manual if crankshaft is bent	Section IV, 4.4
	e. Rough gears in transmission may cause excessive noise	e. Check to see if gears need replacement or lubrication	Section I, P. 8 Section IV, 4.7, E. & F.

Section II - TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	PROBABLE SOLUTION	REFERENCES
2.6 Excessive noise and/or vibration with blade engaged	a. Blade tips striking rolled lips of deck	a. Straighten blade and/or align spindle	Section III, 3.5-3.7
	b. Drive belt improperly tensioned causing slapping of inside spans in idler pulley area.	b. Correct tension. Replace if belt is excessively worn	Section I, P. 10-12
	c. Spindle bearings dry or worn out	c. Lubricate with grease or replace	Section I, P. 8
	d. Air lifters improperly installed	d. Install properly	Section III, 3.4
	e. Blade unbalanced or pulley halves separated causing vibration and noise	e. Balance blade and/or repair pulley	Section III, 3.4
2.7 Mows improperly	a. Blade dull producing ragged, brown cut edges on grass	a. Sharpen blade or replace if necessary	Section III, 3.5
	b. Uneven tire pressure causing uneven side to side cut	b. Inflate tires to specifications	Section I, P.10
	c. Deck level uneven causing improper cut	c. Make necessary adjustments	Section I, P. 15 & 16
	d. Drive belt slippage causing poor cut	d. Make necessary adjustments to correct tension or replace	Section I, P. 10-12
	e. Speed improper for conditions	e. Increase engine speed and/or lower ground speed to suit conditions	Section I, P. 5 OWNER'S MANUAL
2.8 Will not pull in gear or slips when clutch is release	a. Drive disc rubber badly worn or improper clearance causing poor or no contact.	a. Replace disc or readjust clutch link guide	Section IV, 4.4 & 4.5
	b. Clutch/brake cable too tight causes declutching when pedal is released	b. Reposition ferrules on cable in in order to adjust	Section IV, 4.2
	c. Shift detent out of adjustment - not completely in gear	c. Readjust detent	Section IV, 4.2
	d. Clutch spring disconnected, broken or missing	d. Replace or reconnect spring	Section IV, 4.1 & 4.2
	e. Lift yoke sticking or groove worn in slot	e. Lubricate friction points, replace worn yoke	Section IV, 4.1
	f. Axle Bolt sheared	f. Replace with new tapered bolt	Section IV, 4.7, E.
	g. Wheel hub weld broken	g. Replace hub	Section IV, 4.7, E.
	i. Input shaft key sheared on input shaft to driven disc	i. Replace key	
	j. Chain case or differential components damaged	j. Requires overhaul	Section IV, 4.7 & 4.8

MOWING GUIDE

2.9 ENGINE

ENGINE H.P.	ENGINE RPM	SLOW RPM CAUSE(S)
12	3400	1. Chute Clogging 2. Overloaded Engine 3. Generally Poor Performance.

A. Refer to Engine Owners Manual

2.10 BLADE

A. Keep blade(s) in top condition for maximum performance and Safety. Refer to Section III, 3.6 thru 3.11 for proper maintenance and adjustments to blade(s).

2.11 BELTS

A. Make certain belts are always properly adjusted and maintained in top running condition. Replace belts as necessary. Refer to Section III, 3.1 thru 3.3 for proper belt tension, adjustment and replacement.

Section II - TROUBLESHOOTING

2.12 BLADE TO GROUND

A. In order to maintain the best cut possible, maintain blades and belts as described above. Also, maintain proper deck level. Refer to Section III, 3.7 for proper deck adjustments.

2.13 TIRES

A. Even if the blade(s), belts and deck are in top running condition, uneven cutting can be caused from tires not being inflated properly. Refer to Section 1, 1.1., A for proper tire pressures. Always replace tires with the correct size and height tire. Consult Parts Manual.

NOTE

Under some grass conditions, the front lip of a HV deck will prevent the blade from having good access to grass. As the mower moves forward, the grass is pushed down by front lip of deck. The direction of rotation of blade causes the blade to be traveling with the grain of grass on L.H. side of deck and against grass on R.H. side. See Figure 2.1. This causes cut to be somewhat ragged on L.H. side of mower. Lowering rear of deck approximately 3/8" lower than front will eliminate this problem.

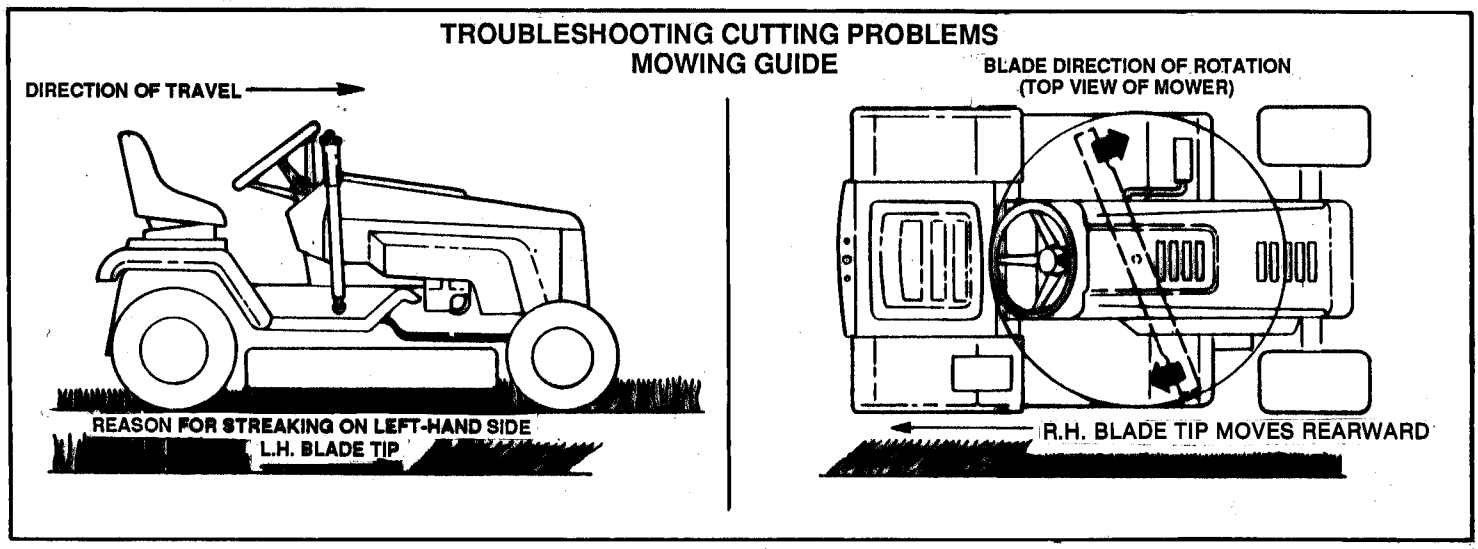


FIGURE 2.1

Section III - CUTTER UNITS

This section covers procedures for the adjustment, disassembly and repair of those Cutter Deck components used on the **SNAPPER LT12D Serles 33" and 41" LAWN TRACTORS.**

These Cutter Deck components include the drive belts, spindles, brakes lift arms and rail assemblies for both the single blade and two blade Cutter Units.

Both Cutter Decks have spindle brakes designed to stop blade rotation within 3 seconds after the BLADE CONTROL lever has been pushed downward to "OFF". To keep the spindle brakes functioning properly, they must be periodically adjusted. Refer to adjustment procedures later in this section. See Figures 3.1 and 3.2.

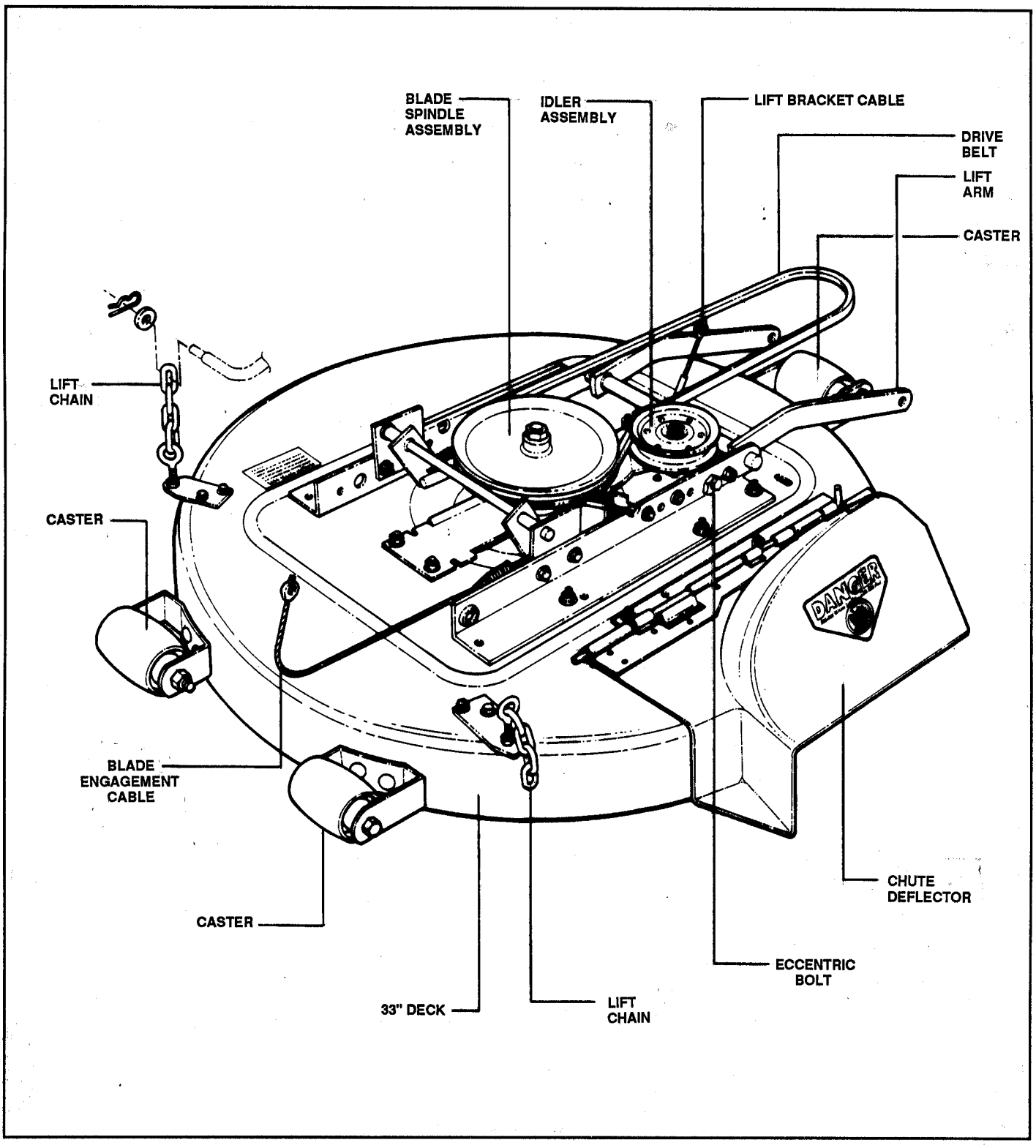


FIGURE 3.1

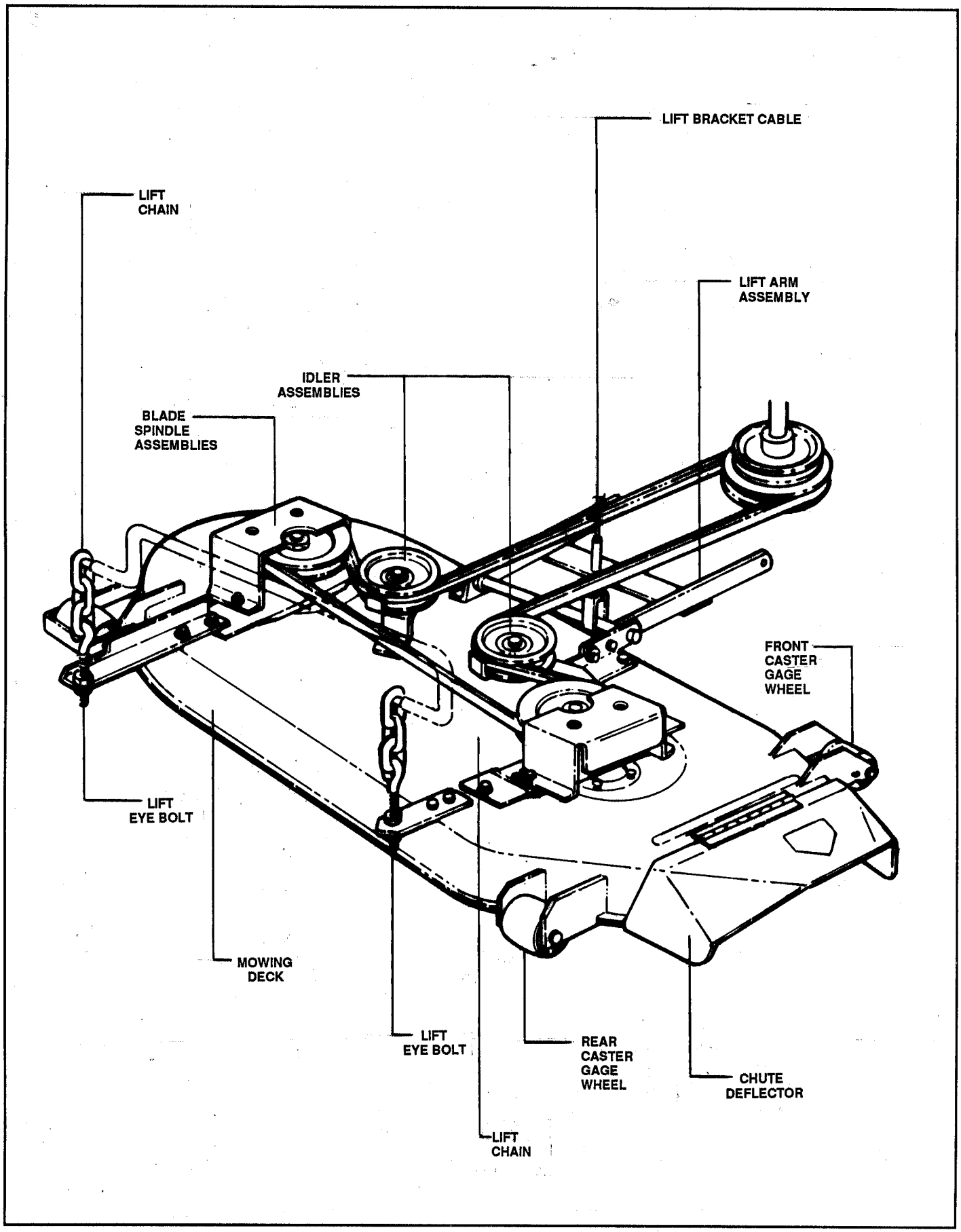

LIFT BRACKET CABLE
LIFT CHAIN
LIFT ARM ASSEMBLY
IDLER ASSEMBLIES
BLADE SPINDLE ASSEMBLIES
FRONT CASTER GAGE WHEEL
LIFT EYE BOLT
MOWING DECK
LIFT EYE BOLT
REAR CASTER GAGE WHEEL
CHUTE DEFLECTOR
LIFT CHAIN

FIGURE 3.2

Section III - CUTTER UNITS

3.1 Information covering service and adjustments for both Cutter Decks (single & twin blade) is found in Section I of this manual. The following information is covered:

- **A.** MOWER DRIVE BELT ADJUSTMENT
- **B.** MOWER DRIVE BELT SERVICE
- **C.** MOWER SERVICE & ADJUSTMENTS
- **D.** BLADE BRAKE ADJUSTMENT
- **E.** CUTTING BLADE SERVICE
- **F.** REMOVING & INSTALLING MOWER
- **G.** LEVELING MOWER
  - (1) SIDE TO SIDE LEVEL ADJUSTMENT
  - (2) FRONT TO REAR LEVEL ADJUSTMENT
- **H.** DRIVE BELT SERVICE (Removal & Replacement)

3.2 BRAKE BAND REPLACEMENT

Replace Brake Band if BLADE STOP cannot be adjusted to stop blade within 3 seconds.

- **A.** Remove spark plug wire and lower deck to lowest position.
- **B.** Loosen pulley screw on IDLER PULLEY until BELT RETAINER can be moved enough to allow belt removal.
- **C.** Remove belt from SPINDLE PULLEY.
- **D.** Remove jam-nut and SPINDLE PULLEY. See Figure 3.3.

NOTE: 33" BRAKE BAND SHOWN

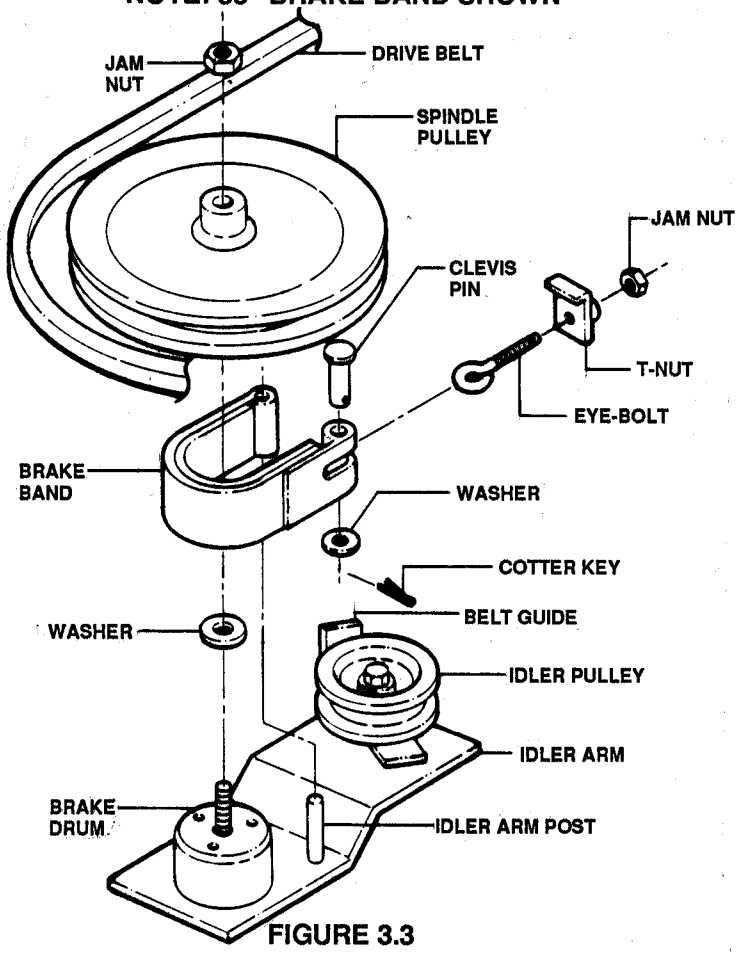


FIGURE 3.3

- **E.** Remove cotter pin, 1/4" washer, and clevis pin from eyebolt.
- **F.** Remove brake band from brake drum.
- **G.** Install new brake band and reassemble in reverse order. Adjust brake band to stop blade within 3 seconds.

3.3 CUTTING BLADE(S)

See Section I of this manual for information concerning sharpening and balancing of blade(s).

3.4 AIR LIFTERS

Air lifters are designed for use on mowers to increase their vacuuming efficiency when using grass catchers.

- **A.** Install air lifters on INSIDE TOP flange of blade with 5/16" screws, lockwashers and nuts. See Figure 3.4.
- **B.** Torque nuts to 20-25 Ft. Lbs.

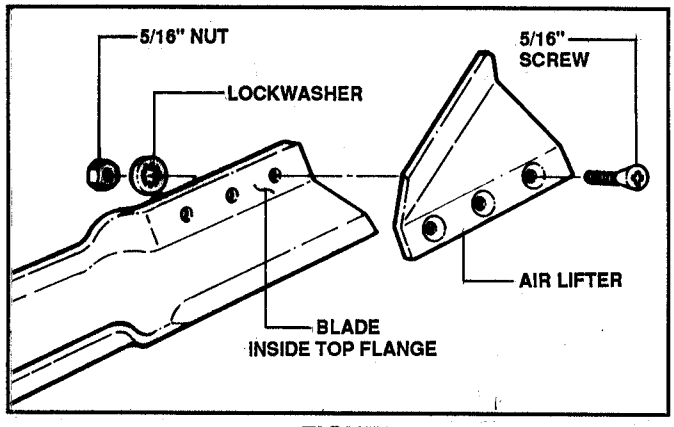


FIGURE 3.4

3.5 BLADE STRAIGHTNESS CHECK

Check sharpened or replacement blade(s) for straightness as follows:

- **A.** Mark one blade tip "A" and the other tip "B".
- **B.** Select one point on deck lip and mark as reference.
- **C.** Turn blade tip "A" to reference mark and measure distance between deck lip and blade. See Figure 3.5.

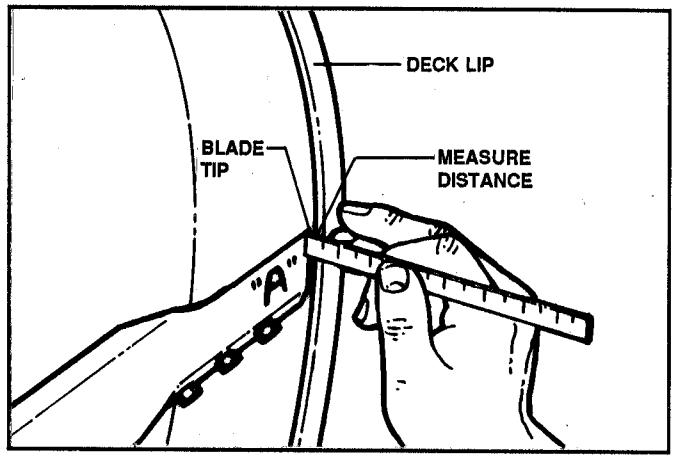


FIGURE 3.5

Section III - CUTTER UNITS

D. Turn blade tip "B" to same reference point and measure distance as above.

E. The blade is straight if both measurements are within 1/16" of each other.

F. If blade tip measurements differ more than 1/16", straighten blade as follows:

3.6 PROCEDURE FOR STRAIGHTENING BLADE

A. SINGLE BLADE (33" MODEL)

1. Loosen jam-nuts on top of adjustable blade holder.
2. Adjust jack screws "IN" or "OUT" until blade tips are within correct tolerance.
3. Tighten jam-nuts.

B. TWIN BLADE (41" MODEL)

1. If one blade (or both) on the **41" TWIN BLADE Model** exceeds the 1/16" measurement differential, then replacement of the Blade may be required.
2. Check BLADE and SPINDLE ALIGNMENT, 3.7, before replacing Blade.

3.7 BLADE & SPINDLE ALIGNMENT (After Insuring Blade Straightness)

A. With mower on level ground, rotate blade 360 degrees and measure the tip-to-lip clearance at four equal points around the deck.

B. If tip-to-lip measurements vary more than 1/8", spindle is misaligned.

NOTE

THE SPINDLE HOUSING HAS OVERSIZED HOLES FOR ALIGNMENT PURPOSES. THESE HOLES WILL NOT NECESSARILY BE CENTERED WHEN CORRECT ALIGNMENT IS ATTAINED.

NOTE

BEFORE ATTEMPTING TO ALIGN SPINDLE, MAKE CERTAIN TOLERANCE RING IS PROPERLY ALIGNED IN SPINDLE HOUSING GROOVE (ON 33" DECKS).

C. PROCEDURE FOR MAKING BLADE PARALLEL IN DECK

1. Loosen nuts on the three spindle hex flange lock bolts. See Figure 3.6.

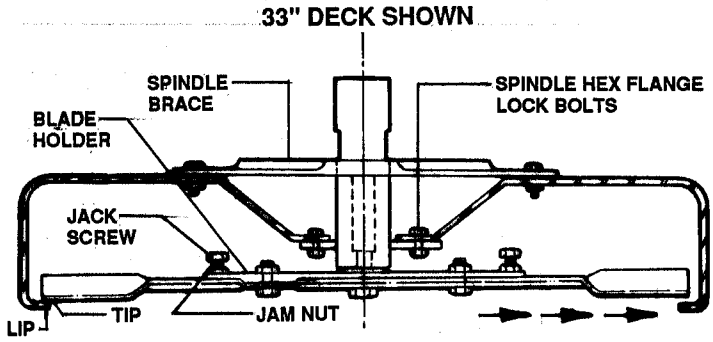


FIGURE 3.6

2. Hold blade, shift spindle sideways until both blade tips are the same distance from the deck lips: 180 degrees across from each other.
3. Rotate blade and check alignment front to rear and side to side.
4. Secure spindle hex flange lock bolts when alignment is corrected.

Section IV - TRANSMISSION & DRIVE SYSTEM

INTRODUCTION

This section covers procedures for the disassembly and repair of those traction drive components used on the **SNAPPER LT Series LAWN TRACTORS.**

These drive components include the belt-driven drive disc, driven disc, primary chain case, (transmission) axles and differential. They transmit engine power thru the belt-driven disc to the driven disc, which in turn powers the primary chain case, differential and axles (transmission).

It should be noted that the Smooth Start Clutch (SSC) is used on ALL **LT Series LAWN TRACTORS.** 1990 models feature a reverse assist spring mechanism which eliminates the shift link spring found on earlier models. Earlier models of the **LT Series** may be converted with the **LT12D Reverse Assist Spring Kit #61000.** See Figures 4.1 and 4.2 for component breakdown.

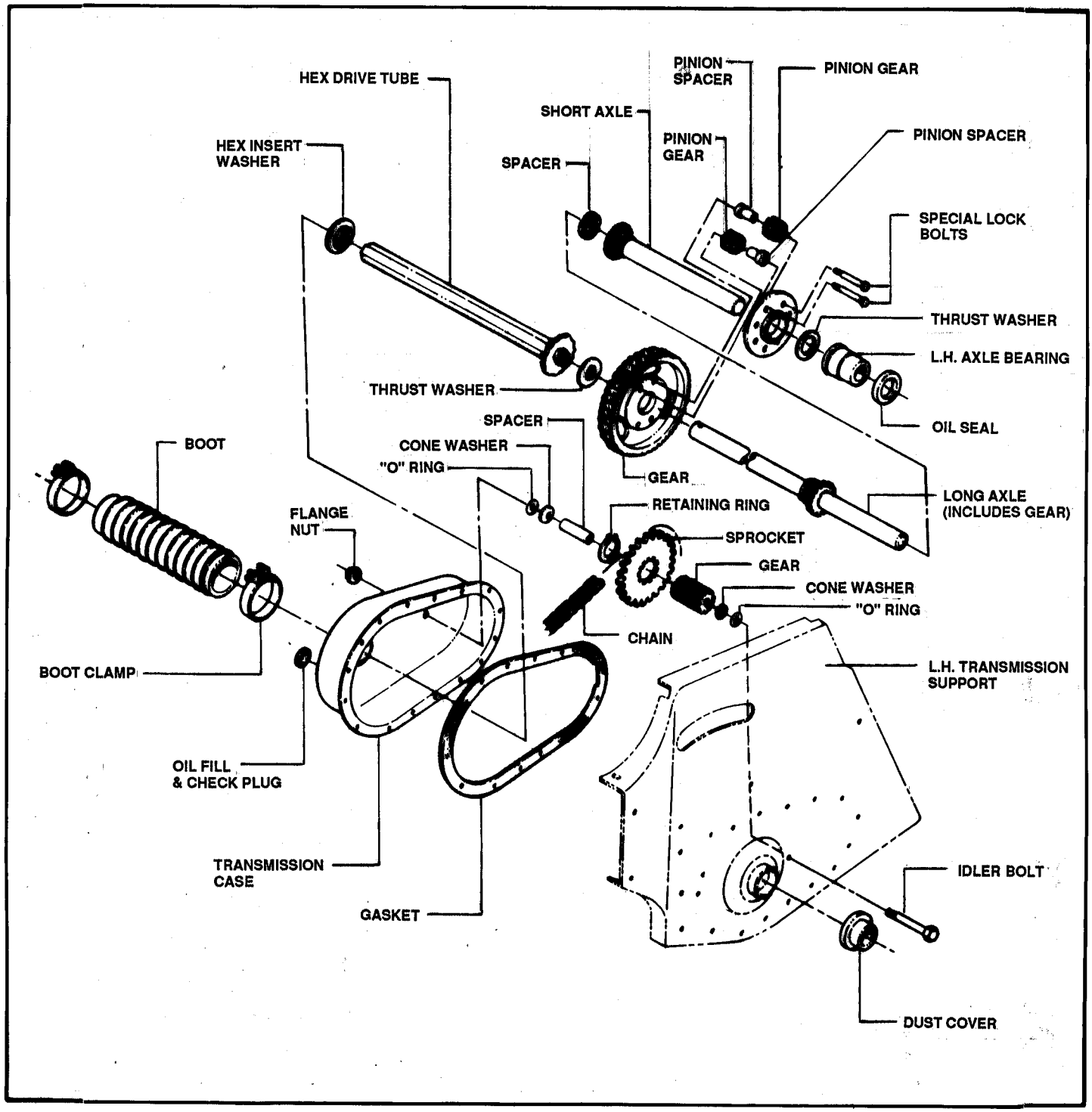


FIGURE 4.1

Section IV - TRANSMISSION & DRIVE SYSTEM

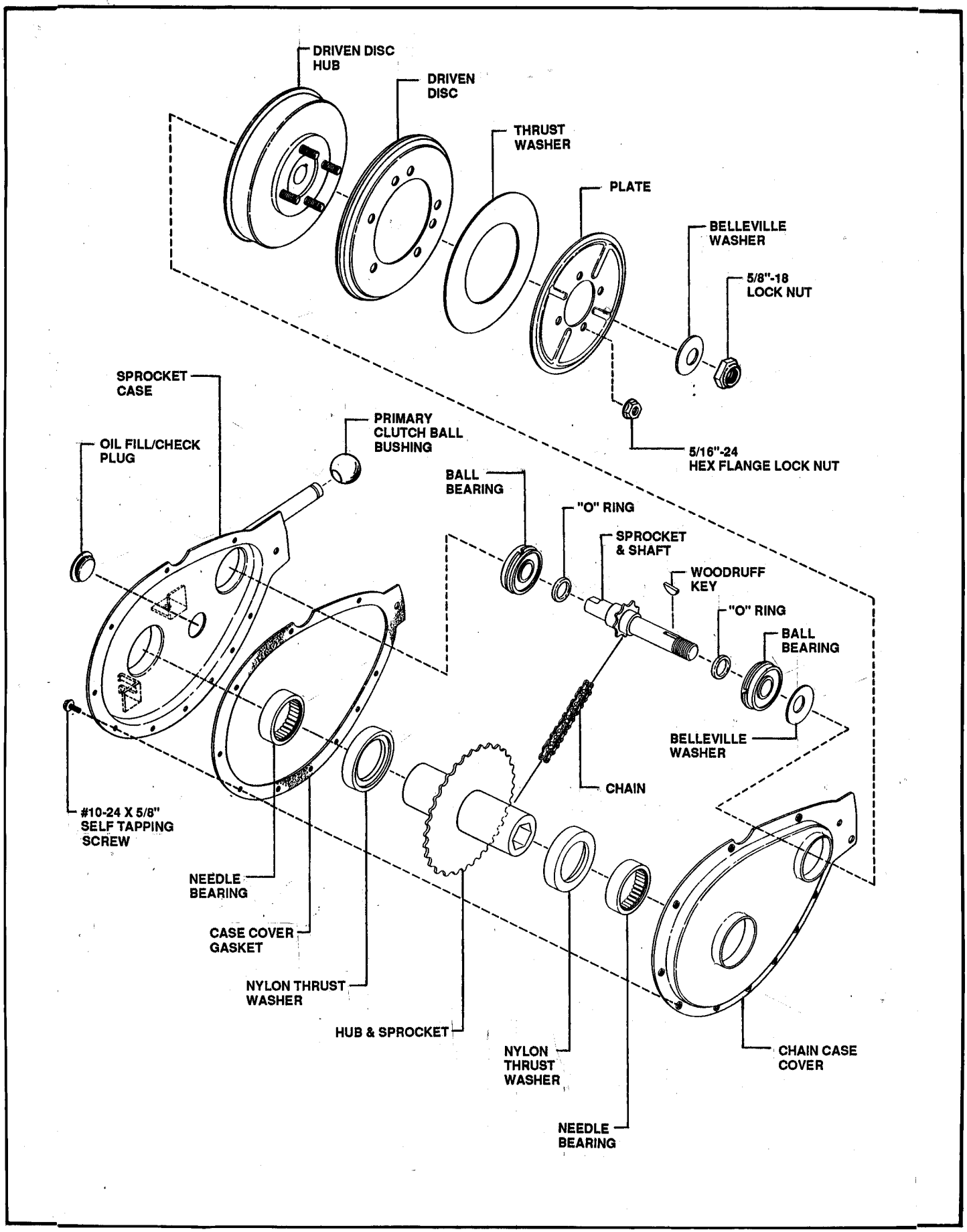


FIGURE 4.2

Section IV - TRANSMISSION & DRIVE SYSTEM ADJUSTMENTS

4.1 YOKE ADJUSTMENT

The most noticeable symptom that the yoke needs adjusting is when the tractor shows a loss of pulling power in all gears.

As the driven disc (rubber) wears, the yoke must move farther "up" before the disc engages. At some point during wear, the yoke will hit the adjustable stop before the driven disc engages the drive disc. When this occurs, the yoke must be adjusted.

A. Depress Clutch Pedal and shift Transmission Lever to NEUTRAL. Refer to Figure 4.3.

B. Place hand (palm up) under disc and, without lifting, turn the disc.

C. Now, lift disc up and attempt to rotate it. If the yoke is properly adjusted, the disc will not rotate against the drive disc.

D. If the driven disc does rotate, run the adjusting carriage bolt "UP until disc will not rotate. See Figure 4.3.

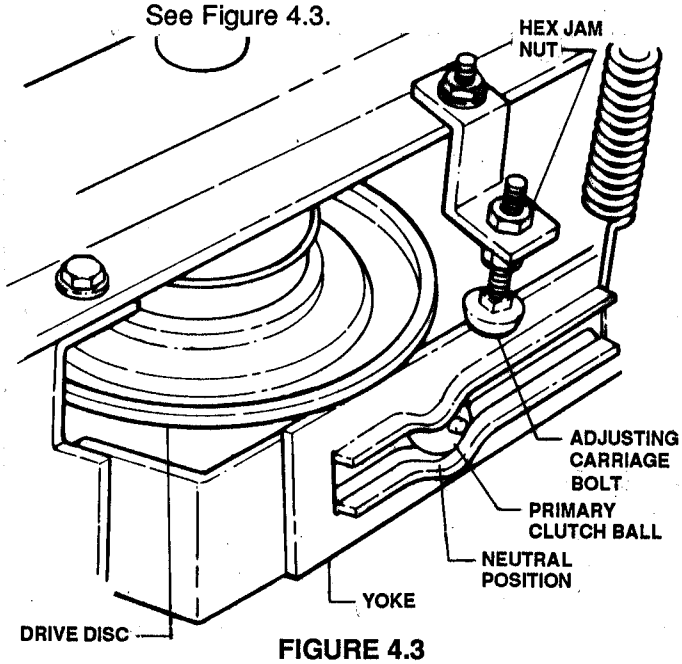


FIGURE 4.3

4.2 ADJUSTING SHIFT DETENT

A. Depress Clutch Pedal and move Transmission Shifter until Primary Clutch Ball is in NEUTRAL position in yoke. See Figure 4.4.

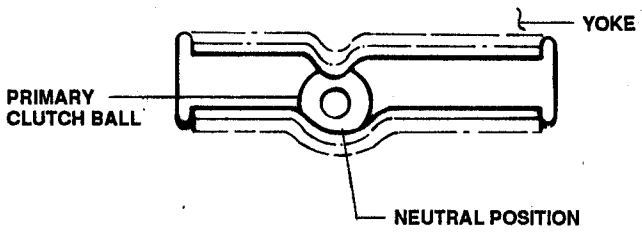


FIGURE 4.4

B. Loosen Carriage Bolt (A) holding Shift Lever and Shift Lever Adjuster together. See Figure 4.5.

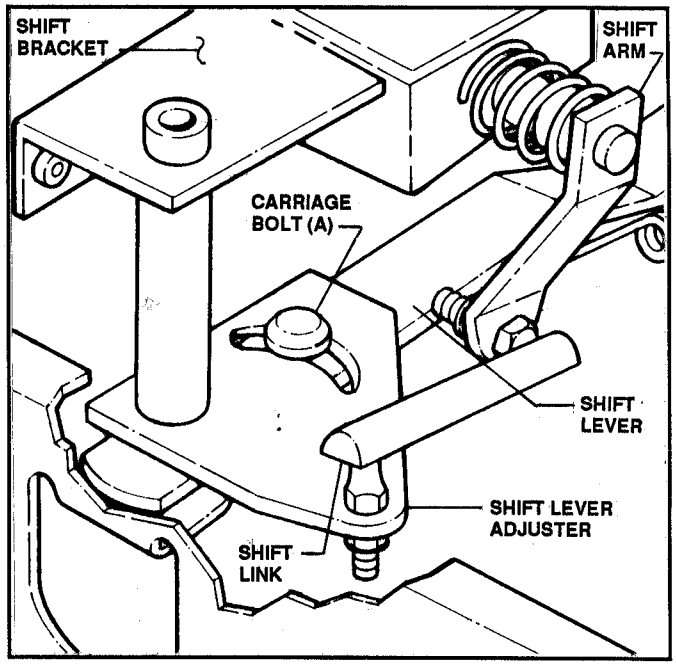


FIGURE 4.5

C. Move slotted Shift Lever Adjuster until Transmission is in NEUTRAL position in Shifter Detent as shown in Figure 4.6.

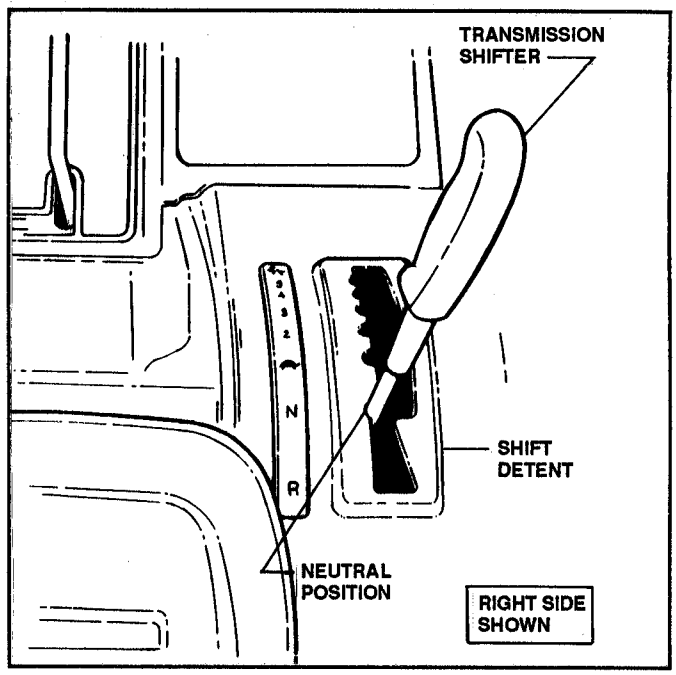


FIGURE 4.6

D. Check to make sure Primary Clutch Ball is still in NEUTRAL position in yoke.
E. Tighten Carriage Bolt holding Shift Lever and Shift Lever Adjuster together.
F. Test unit for proper shifting. Readjust if necessary.

4.3 DRIVE DISC REPLACEMENT

Roaring sounds could be caused by a warped Drive Disc Assembly. Use a dial indicator to check for variance in the surface. If the surface varies more than .020", replace the Drive Disc Assembly (See 4.4, DRIVE DISC REMOVAL, for procedure).

NOTE
EXCESSIVE RUN-OUT CAN CAUSE PREMATURE YOKE WEAR.

4.4 DRIVE DISC REMOVAL (ALSO FOLLOW THIS PROCEDURE FOR DRIVE DISC BEARING REPLACEMENT)

A. Remove Shift Handle by driving out Roll Pin. See Figure 4.7.

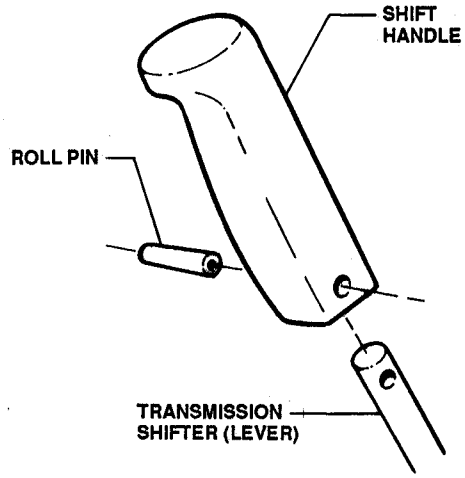


FIGURE 4.7

B. Remove Rear Cover.
C. Disconnect wires to seat switch and remove Rear Fender from tractor. See Figure 4.8.

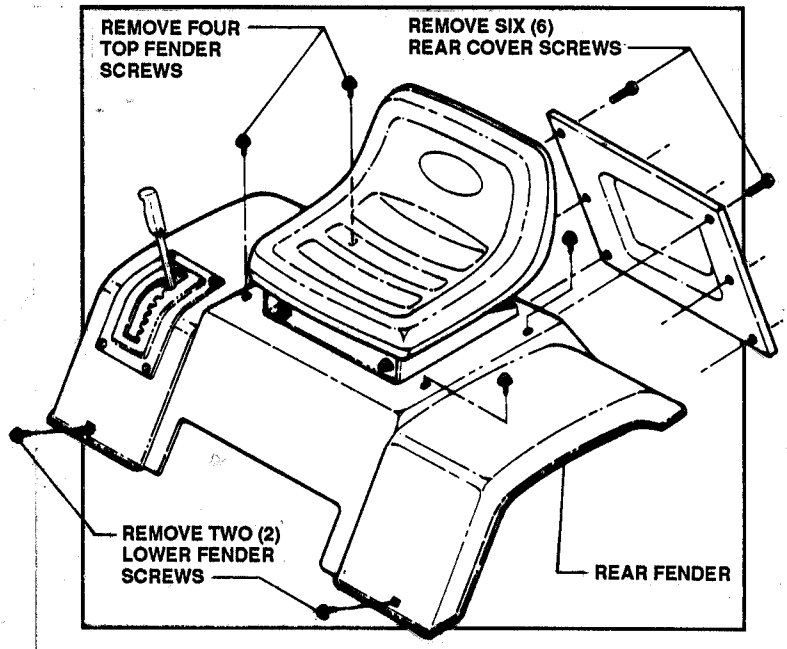


FIGURE 4.8

D. Unhook Tension Spring from R.H. side of yoke as shown in Figure 4.9.

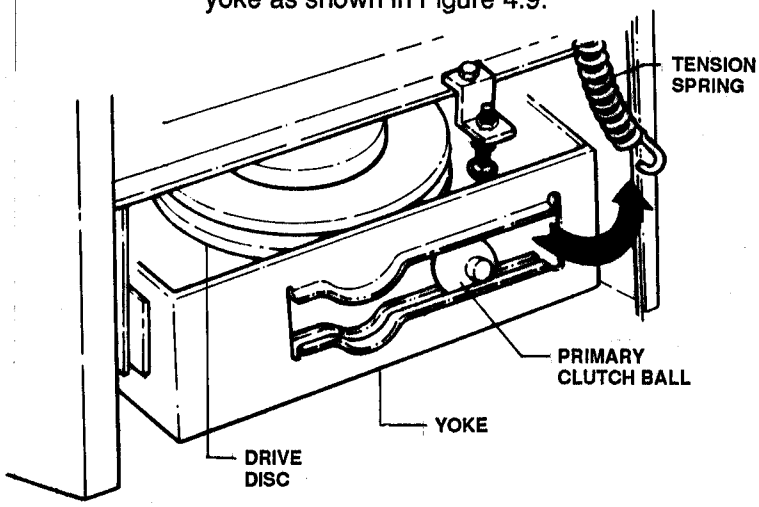


FIGURE 4.9

E. Remove Hairpin and washer, and slide Reverse-Assist spring off post. See Figure 4.10.

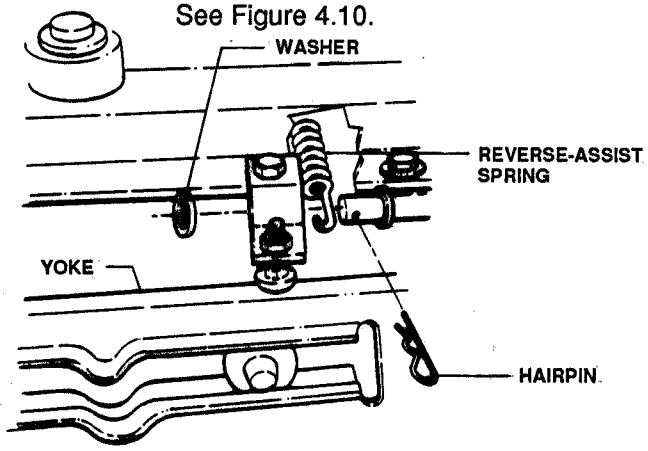


FIGURE 4.10

F. Remove Cotter Pin, Washer and slide Clutch Rod out of Yoke Arm Bushing. Note position of Yoke Arm Bushing Flange. Refer to Figure 4.11.

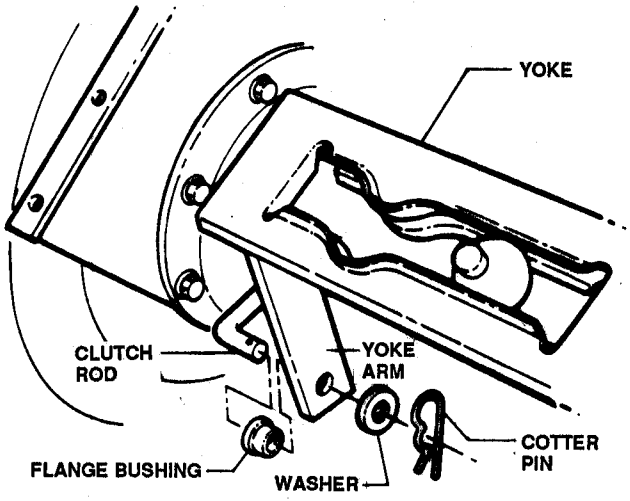


FIGURE 4.11

G. Loosen R.H. Transmission Support, then remove four self-tapping screws holding Drive Disc Support to R.H. & L.H. Transmission Supports.

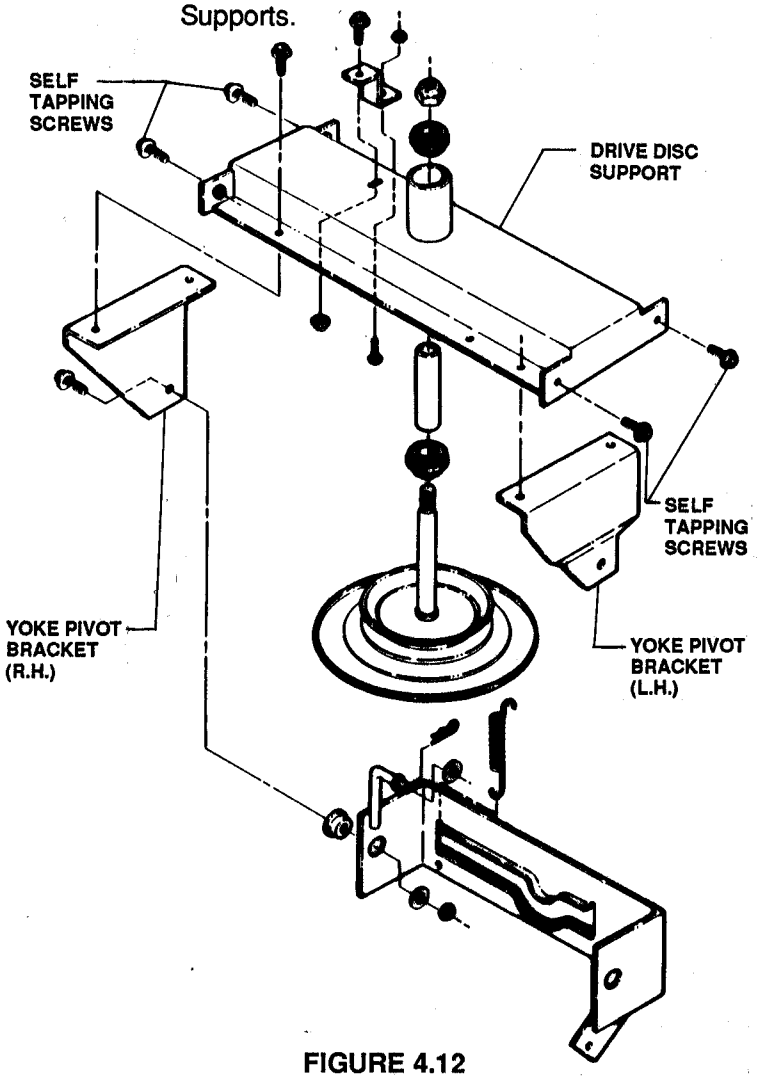


FIGURE 4.12

H. Move Drive Disc Support Assembly to the rear until Primary Clutch Ball Bushing is free of the Chain Case Shaft.

I. Withdraw Drive Disc Support Assembly from tractor.

J. Remove Yoke and Yoke Pivot Brackets from Drive Disc Support.

NOTE
REMOVE PRIMARY CLUTCH BALL BY ROTATING BALL UNTIL HOLE IS FACING UP OR DOWN. WITHDRAW BALL FROM YOKE.

K. Remove Drive Disc by removing locknut bearings and spacer. Refer to Figure 4.10.

L. Inspect Drive Disc and bearings for wear or other damage. Replace if required.

4.5 DRIVEN DISC REPLACEMENT

If the tractor does not move, or travels erratically when the Transmission is shifted into DRIVE, and the Clutch Pedal is released, the first thing to check for is a worn Driven Disc. Poor contact between the Drive Disc and Driven Disc may be caused by a worn yoke lift structure or an excessively worn Driven Disc. Replace the disc if the rubber is worn down to within 1/32" to 1/16" of the metal surface, or if it is badly chunked. See Figure 4.13.

NOTE
GREASE OR OIL ON THE SURFACE OF THE DISCS WILL ALSO CAUSE SLIPPAGE. KEEP THE SURFACES CLEAN!

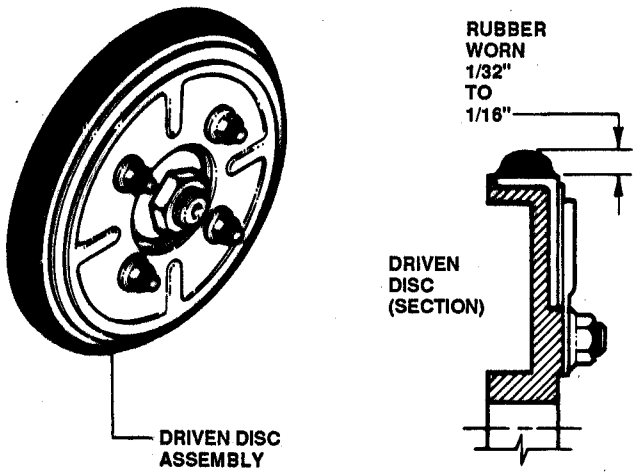


FIGURE 4.13

REPLACE THE DRIVEN DISC AS FOLLOWS:

A. Use a 1/2" socket wrench to remove the four retaining hex flange lock nuts. Turn nuts counterclockwise to remove. Use #3-2392 SPECIAL SMOOTH CLUTCH TOOL to hold the Driven Disc to prevent its turning while removing or installing retaining nuts. See Figure 4.14.

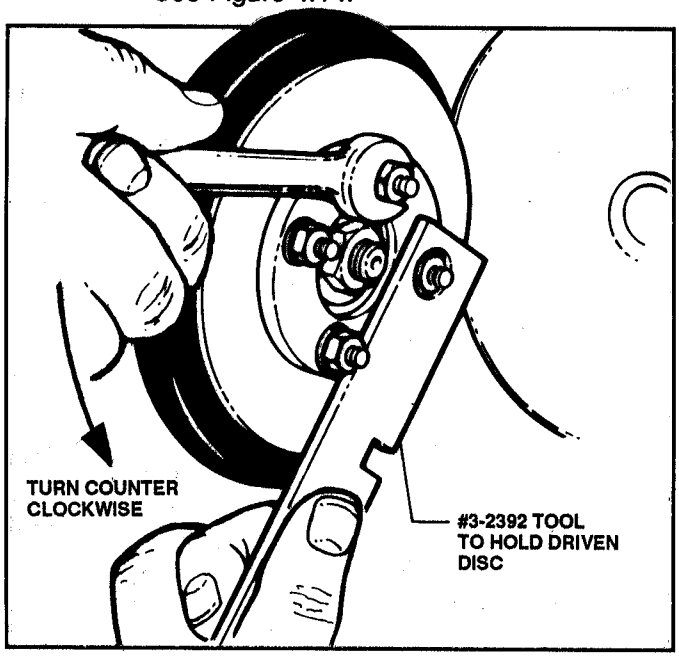


FIGURE 4.14

B. When installing a new Driven Disc on SMOOTH CLUTCH, make certain that fiber washer is centered over boss hub on center of Driven Disc Hub. See Figure 4.15.

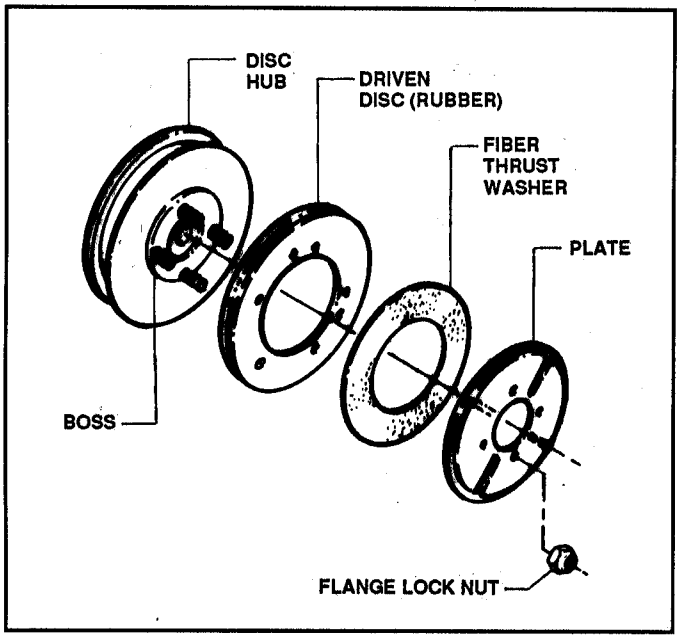


FIGURE 4.15

NOTE
IF THE FIBER WASHER IS NOT FREE TO "FLOAT" AROUND BOSS ON CENTER OF DRIVEN DISC HUB, IT CAN CAUSE BINDING OF THE SMOOTH CLUTCH.

CAUTION!
IF THE DRIVEN DISC IS REMOVED FROM THE CHAIN CASE SPROCKET SHAFT FOR ANY REASON, THE LOCKING NUT MUST BE TORQUED TO 70 FT. LBS. DURING INSTALLATION.

4.6 TRANSMISSION SHIFTER DISASSEMBLY

CAUTION!
THE SHIFTER IS SPRING-LOADED. REMOVE WITH CARE TO AVOID POSSIBLE INJURY

A. Compress the Shift Detent Spring with a "C" clamp, vise grip pliers or other safe, suitable means.

B. Remove the Cotter Pin and Clevis Pin from the Shifter Arm. See Figure 4.16.

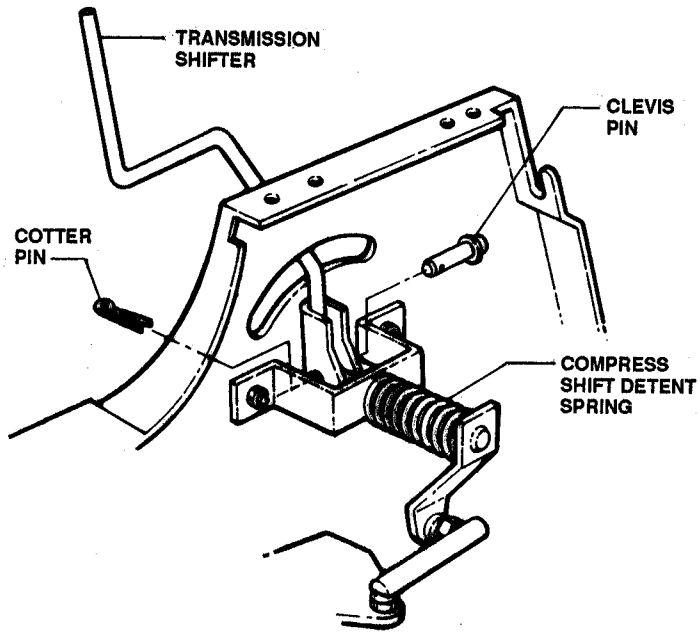


FIGURE 4.16

C. Release spring tension slowly as Shifter Arm slides out of Shifter Pivot.

D. **REINSTALLING SHIFTER COMPONENTS**
To prevent component wear, reassemble all parts EXACTLY as shown in Figure 4.17. Place one Hardened Thrust Washer on the Shifter Arm's shaft (against Arm) and against the flange on Bushing. The other Hardened Thrust Washer goes between the Shifter and flange of other Bushing.

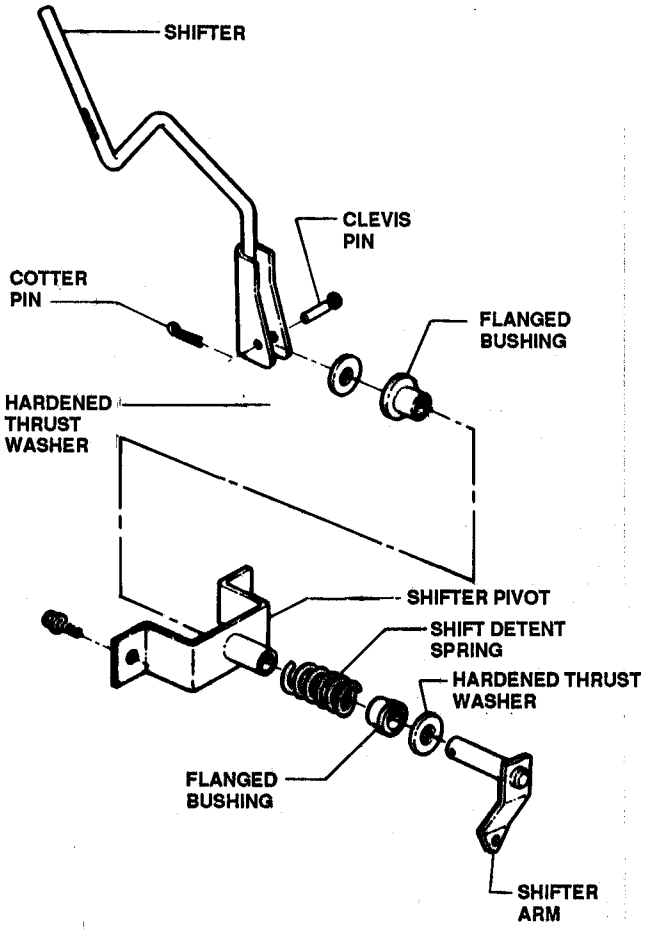


FIGURE 4.17

4.7 DIFFERENTIAL DISASSEMBLY & REPAIR
The **SNAPPER** Transmission System contains two fundamental components. The Differential Assembly and the Primary Chain Case.

The Primary Chain Case Assembly transfers power from the engine through the hex drive tube to the Differential.

The Differential Assembly drives the rear wheels of the tractor. If the tractor will not pull, elevate the rear wheels and turn both in the same direction and observe Driven Disc. If Disc does not turn, a broken axle bolt, differential gears or broken chain in Differential or Primary Chain Case may be the cause. If the Driven Disc does turn when testing for the no-drive cause, check for the following:

A. Yoke set too low - Driven Disc not contacting Drive Disc. Adjust per instructions in Section 4.1.

B. Yoke spring missing, broken or disconnected. Reconnect or replace.

C. Remove the Driven Disc Hub from Sprocket Shaft and check for sheared key.

D. To check for problems in Primary Chain Case, loosen clamp on one of the boots, slide boot back and observe hex drive tube while turning both rear wheels in same direction. If the tube does not turn, the Primary Chain Case can be eliminated as the site of the no-drive condition.

E. If the no-drive condition is caused by a problem in the Differential or Primary Chain Case, overhaul using the following procedures:
   1. Elevate tractor in such a manner that the rear wheels can be removed.
   2. Using 3/4" socket, remove both rear wheels from hubs.
   3. Remove nuts from tapered axle bolts on both drive hubs. Use 1/2" wrench or socket and pliers for removal as shown in Figure 4.18.

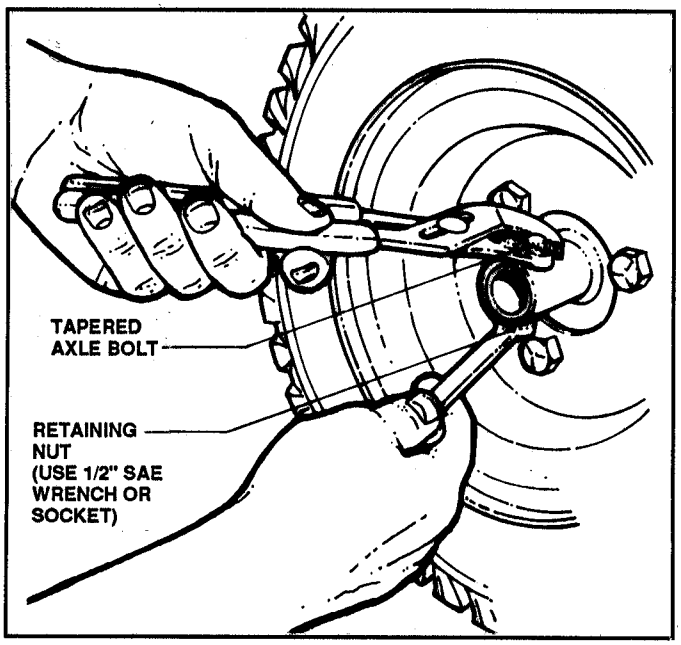


FIGURE 4.18

4. Remove tapered axle bolts by tapping with a soft-faced hammer.
5. Pull wheel hubs using **SNAPPER** #60237 Hub Puller. See Figure 4.19.

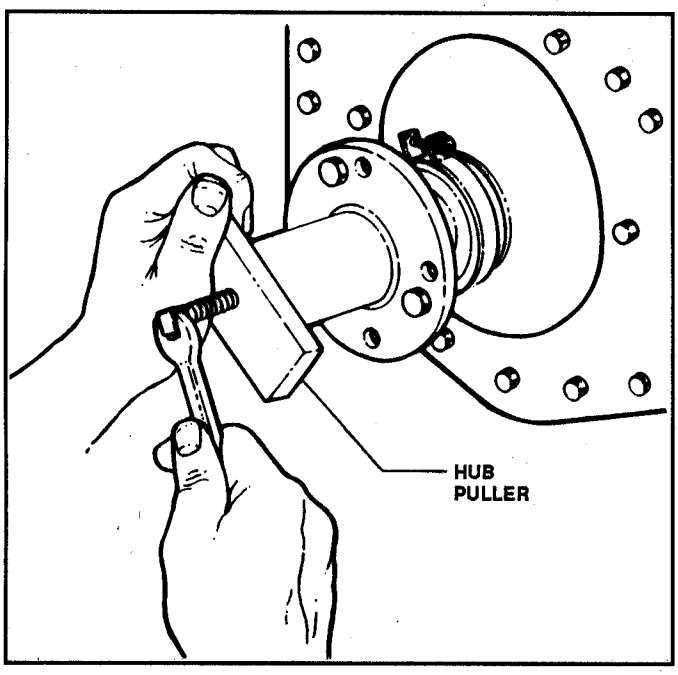


FIGURE 4.19

6. Remove Rear Cover and Rear Fender from tractor.
7. Remove Drive Disc Support Assembly. (See Instructions in Section 4.4).
8. Remove hardware securing L.H. Transmission Support to L.H. Extension. See Figure 4.20.

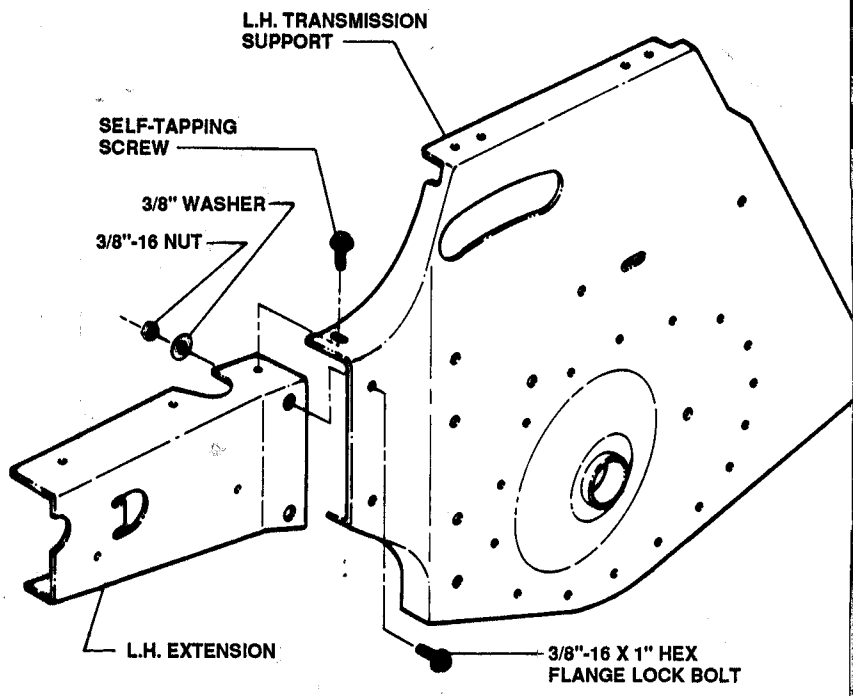


FIGURE 4.20

9. Loosen outside boot clamp and slide boot away from L.H. Transmission Support.
10. Remove L.H. Transmission Support (with Differential attached) and place in either a 2" diameter hole drilled in workbench or fabricated 2" x 4" wooden support. See Figure 4.21.

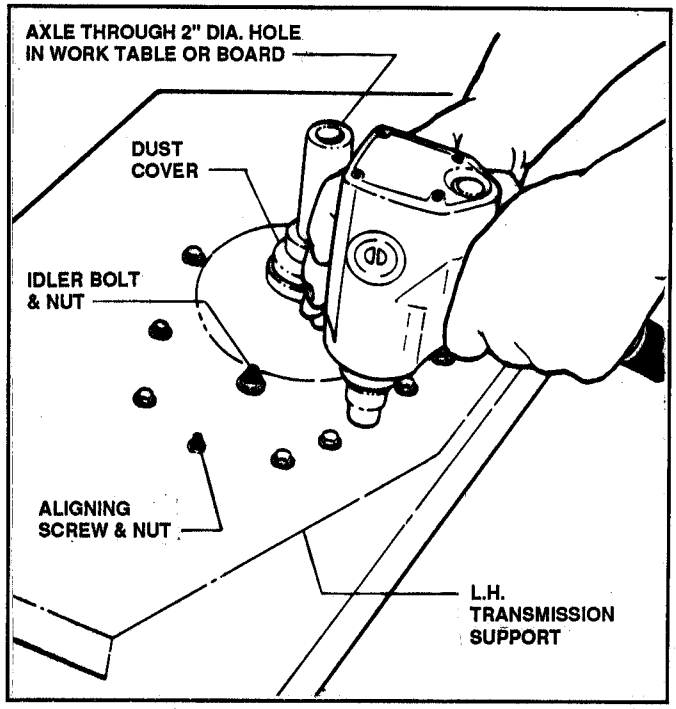


FIGURE 4.21

11. Remove the 14 self-tapping screws securing Transmission Case to L.H. Transmission Support. Remove the two nuts from the hex flange aligning screws and the hex flange locknut from the idler bolt. Refer to Figure 4.21.
12. Remove Dust Cover.
13. Remove L.H. Transmission Support from Transmission Case.
14. While holding the hex drive tube in place, pull the Bull Gear Assembly up and out of the way of the hex tube. Lay gear assembly aside.
15. Remove the "O" ring and cone washer from idler bolt.
16. Remove chain, sprocket, eleven tooth gear and spacer from idler bolt.
17. Remove lower cone washer and "O" ring. See Figure 4.22.

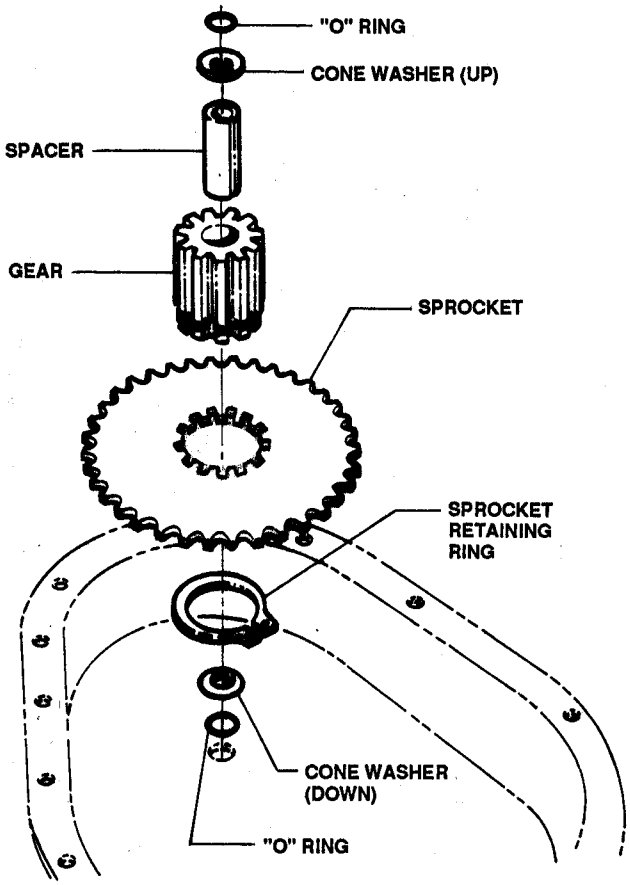


FIGURE 4.22

18. Remove hex drive tube.
19. Remove hex washer from top end of hex tube. See Figure 4.23.

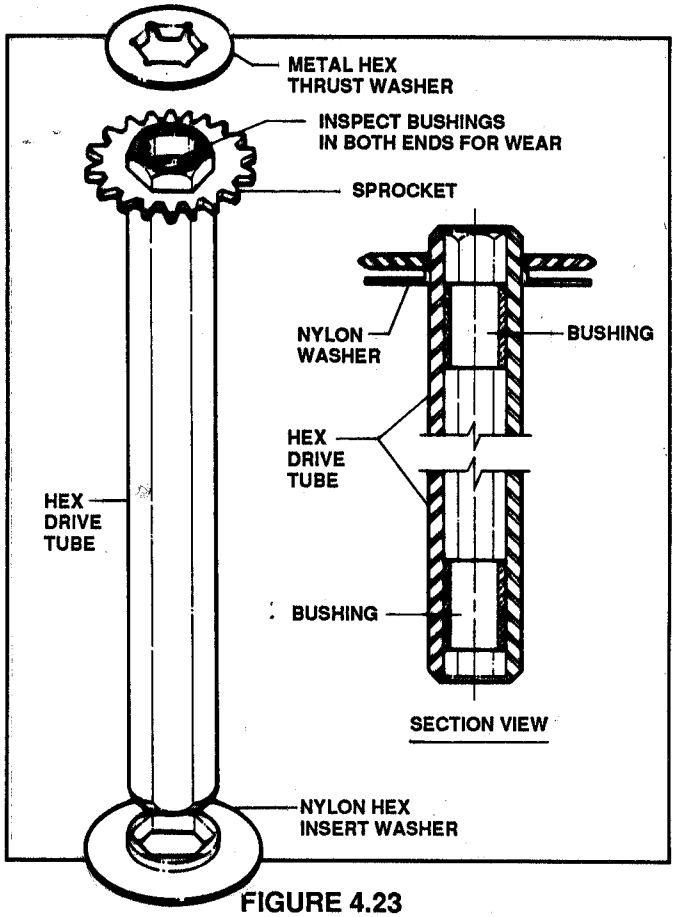


FIGURE 4.23

20. Remove nylon hex insert washer.
21. Inspect bronze bushings in both ends of Hex Drive Tube Assembly. Refer to Figure 4.23.
22. Insert the Bull Gear Assembly in the 2" x 4" wooden support.
23. Remove the self-locking capscrews from Differential Plate and discard - they cannot be reused. Replace with new #1-2333 capscrews during reassembly. See Figure 4.24.

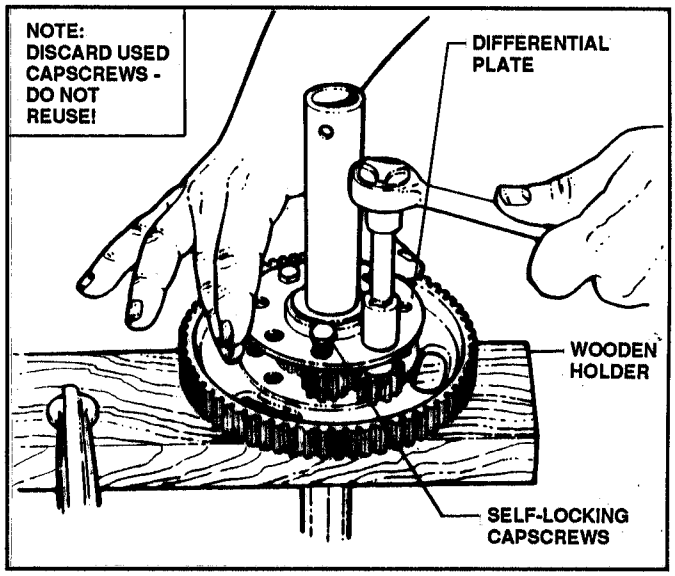


FIGURE 4.24

24. Remove the Thrust Washer and Differential Plate. See Figure 4.25.

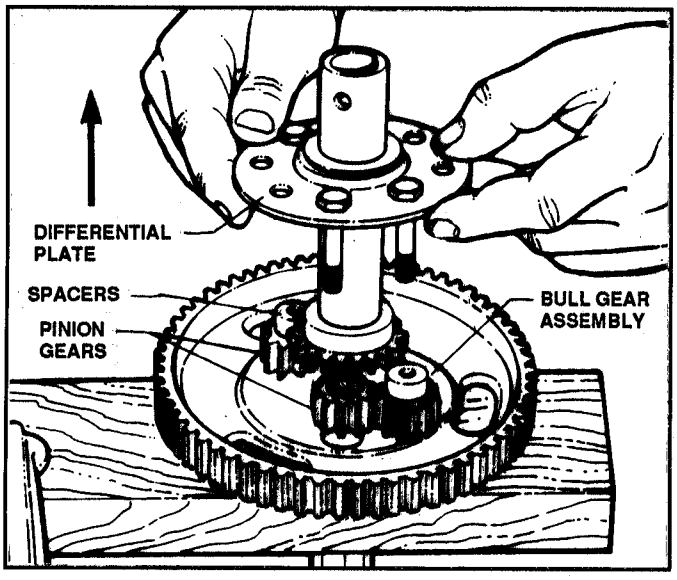


FIGURE 4.25

25. Remove short axle.
26. Thoroughly clean and carefully inspect each component of the Bull Gear Assembly. Replace any damaged or worn parts.

F. DIFFERENTIAL REASSEMBLY PROCEDURE

1. Center the Bull Gear over the hole in the 2 x 4 wooden support or workbench.
2. Insert the long axle in the Bull Gear.
3. Install the nylon spacer on the long axle-over the weld. (This spacer establishes proper position of the long and short axles. Replace spacer if damaged or worn). See Figure 4.26.

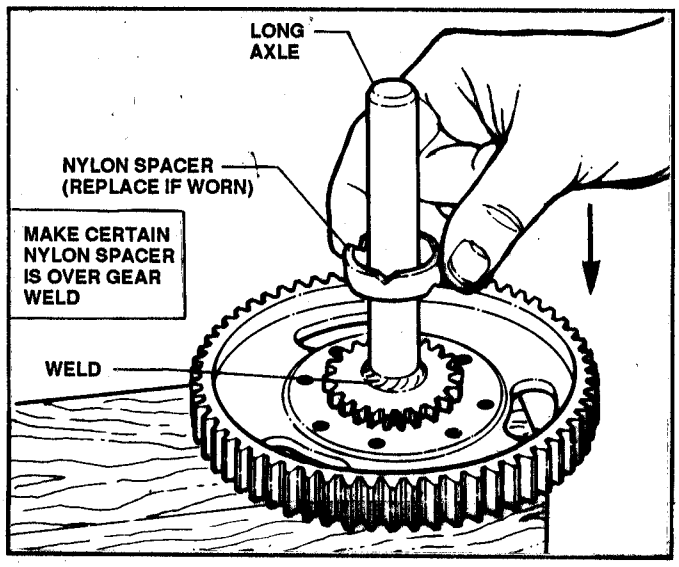


FIGURE 4.26

4. Inspect bushing in short axle for wear. If worn excessively, replace short axle assembly. See Figure 4.27.

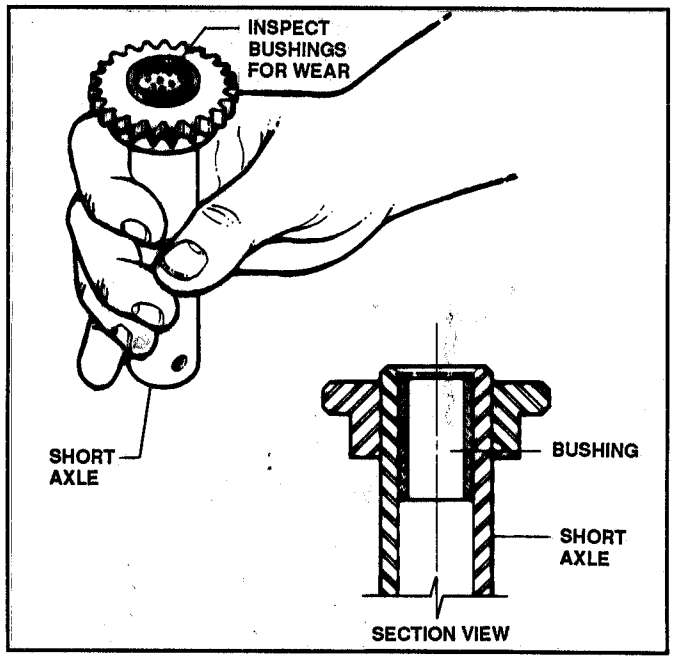


FIGURE 4.27

5. Prelubricate short axle bushings with **SNAPPER "0" Grease.**
6. Install short axle over long axle, insuring that the nylon spacer fits down over the weld of the long axle. See Figure 4.28.

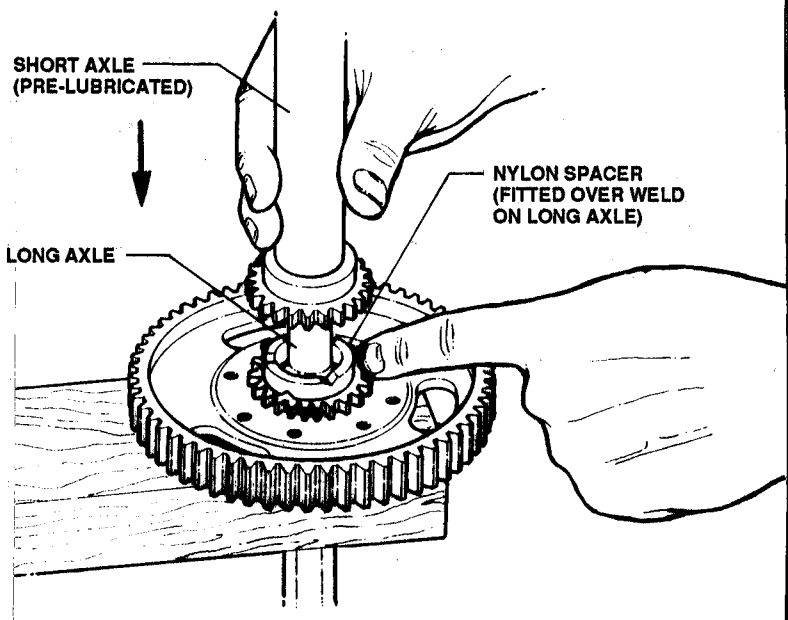


FIGURE 4.28

7. Prelubricate pinion spaces before installing.
8. Install four twelve-tooth pinion gears and spacers in staggered position - spacer below one gear and above on the next. See Figure 4.29.

NOTE
EXTRA TOUGH BULL GEAR ASSEMBLIES UTILIZE EIGHT PINION GEARS & EIGHT SPACERS.

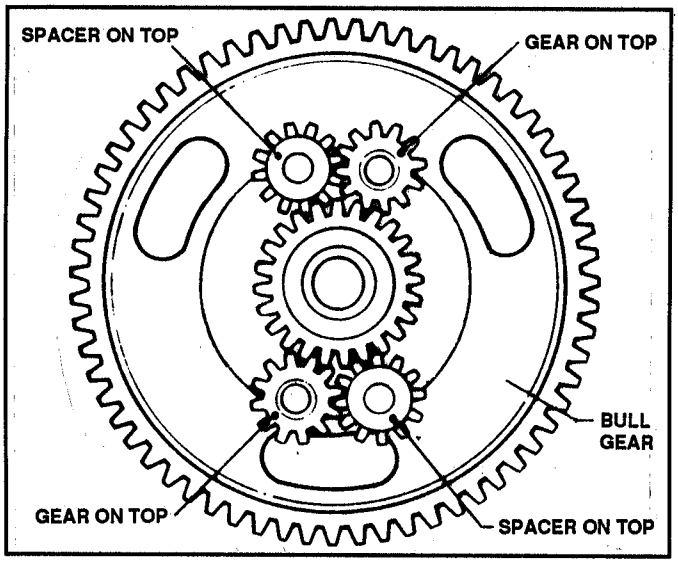


FIGURE 4.29

NOTE
PINION GEARS AND SPACERS MUST BE OPPOSITE (NEXT TO EACH OTHER) AND DIAGONALLY (ACROSS) AFTER INSTALLATION IS COMPLETE.

9. Insert new **SNAPPER** #12333 capscrews through Differential Plate, Pinion Gears/Spacers, and screw into Bull Gear. See Figure 4.30.

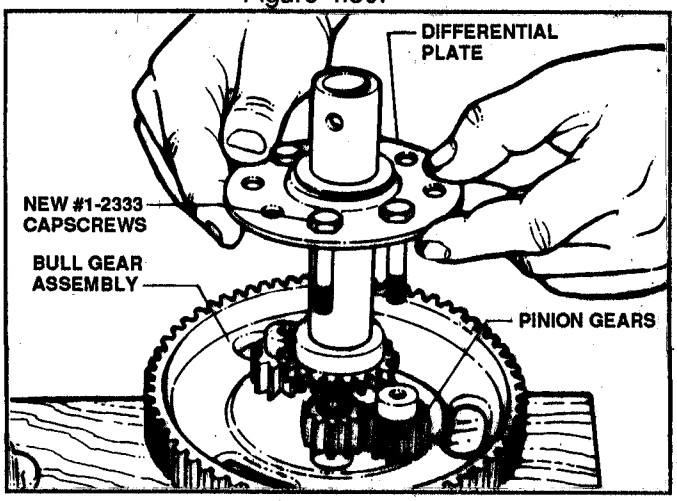


FIGURE 4.30

CAUTION!
THE **SNAPPER** #12333 CAPSCREWS ARE MISALIGNING THREAD-TYPE LOCKING SCREWS AND INTENDED FOR ONE-TIME USE ONLY! **DO NOT RE-USE REMOVED CAPSCREWS! REPLACE WITH NEW, UNUSED SNAPPER #12333 CAPSCREWS ONLY!**

10. Alternately tighten capscrews to 16-25 Ft. Lbs. with torque wrench.
11. Remove Bull Gear Assembly from wooden support or bench.
12. Install external tooth lockwasher and flat washer on idler bolt.
13. Insert idler bolt into transmission case from outside. Slip "O" ring on idler bolt from inside. See Figure 4.31.

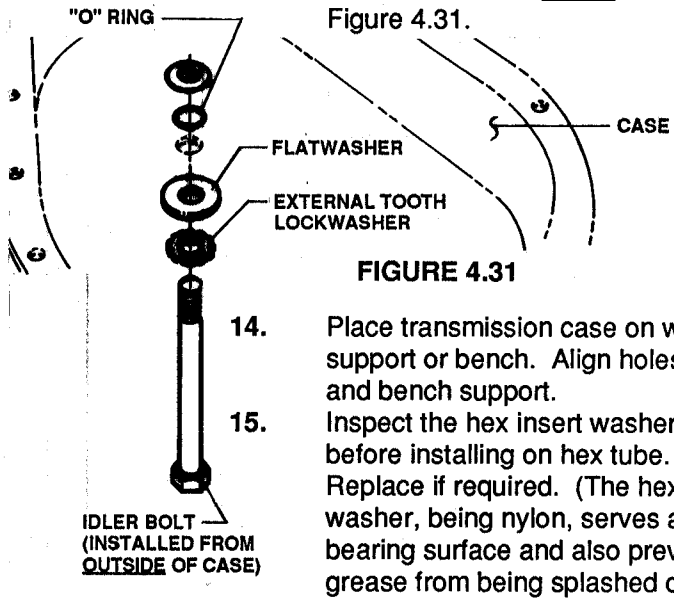


FIGURE 4.31

14. Place transmission case on wooden support or bench. Align holes in case and bench support.
15. Inspect the hex insert washer for wear before installing on hex tube. Replace if required. (The hex insert washer, being nylon, serves as a bearing surface and also prevents grease from being splashed off the chain into the boot). Also, check the bushings in each end of the hex tube for wear and placement. Replace hex tube assembly if bushings are worn. See Figure 4.32.

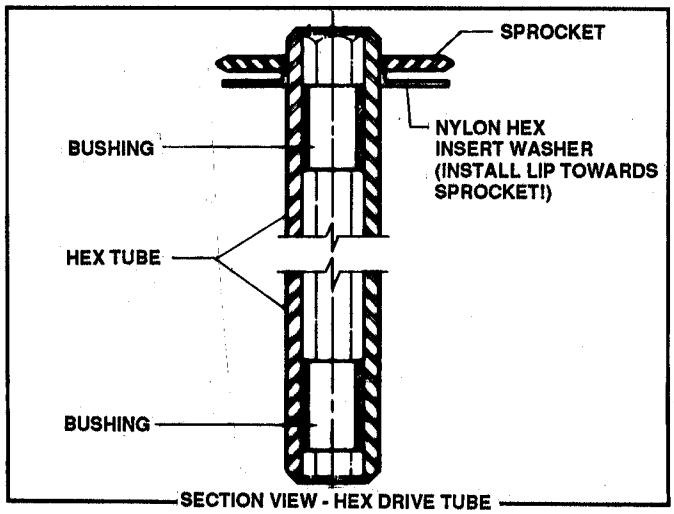


FIGURE 4.32

16. Install hex drive tube in transmission case and lubricate internally with grease.
17. Reinstall metal thrust washer on sprocket end of hex shaft. See Figure 4.33.

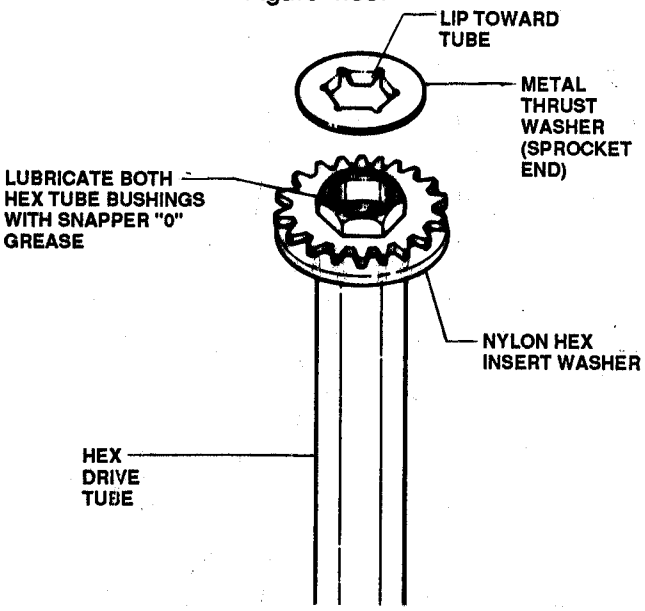


FIGURE 4.33

CAUTION!
THE THRUST WASHER SHOWN IN FIGURE 4.32 SERVES AS A BEARING SURFACE BETWEEN THE BULL GEAR ASSEMBLY AND HEX TUBE. OMISSION OF WASHER DURING ASSEMBLY, CAN CAUSE EXCESSIVE WEAR IN THE HEX TUBE AND MAY CAUSE THE SPROCKET TO FALL OFF!

18. Place one cone washer (EDGE DOWN) over "O" ring on idler bolt and press firmly against Transmission Case.
19. Assemble spacer, sprocket and chain, and install as a unit in case. (There is not enough clearance to install the chain and sprocket individually). Make sure the hole in the side of the 11-tooth gear is clean - this allows lubrication to reach the bearing race. See Figure 4.34.

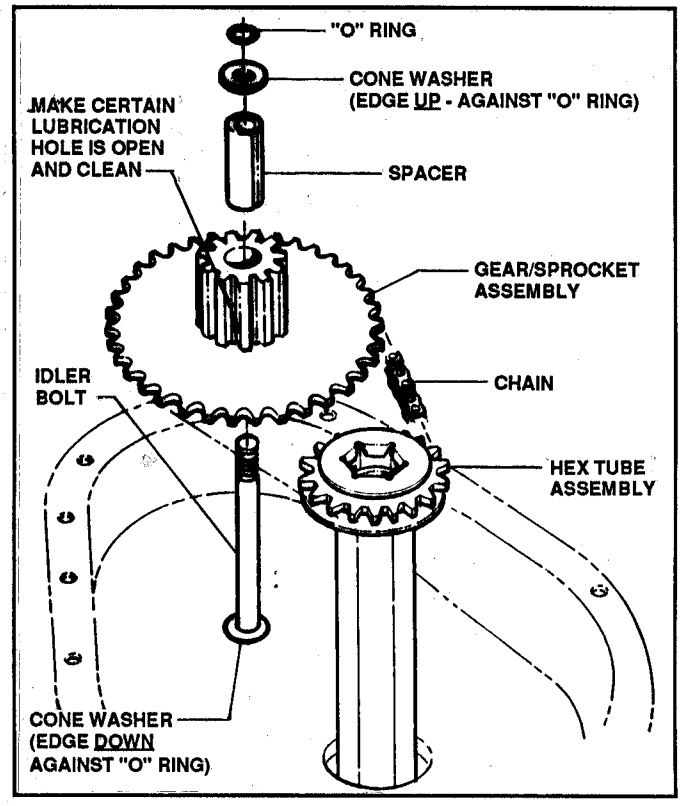


FIGURE 4.34

20. Place cone washer (EDGE UP) on idler bolt, then slip "O" ring on bolt and against washer.
21. Thoroughly grease long axle and insert it into hex tube.
22. Reinstall thrust washer over end of short axle (against Differential Plate). This washer serves as a bearing surface between the Bull Gear Assembly and the bearing in the L.H. Transmission Support. Refer to Figure 4.25.

NOTE
BEFORE PROCEEDING FURTHER, LUBRICATE THE OUTSIDE OF THE SHORT AXLE WITH GREASE.

23. Install new gasket on transmission case.
24. Align L.H. transmission support against transmission case.
25. Install lock nut on idler bolt. DO NOT TIGHTEN.
26. Insert the two aligning capscrews through end holes from case side. Fit with lock nuts and tighten.
27. Install and tighten eleven self-tapping screws, then tighten idler lock nut to 18-20 Ft. Lbs. with torque wrench.

NOTE
IT IS IMPERATIVE THAT THE IDLER BOLT LOCKNUT BE PROPERLY TIGHTENED. IF LOOSE, THE CHAIN AND SPROCKET ARE THROWN OUT OF ALIGNMENT WHICH COULD RESULT IN UNEVEN WEAR ON THE BULL GEAR AND ELEVEN-TOOTH GEAR, CAUSING MISALIGNMENT OF THE CHAIN AND SPROCKET. THIS CONDITION COULD CAUSE THE CHAIN TO BREAK AND JUMP OFF THE SPROCKET.

28. Install NEW oil fill and oil check plugs in case.
29. The Differential is now completely rebuilt and ready for reinstallation into the Transmission System. After installing, fill Transmission Case to proper level with **SNAPPER** "O" Grease.

4.8 PRIMARY CHAIN CASE DISASSEMBLY PROCEDURE

A. CHAIN CASE REMOVAL

1. Elevate tractor and remove both rear wheels.
2. Remove R.H. drive hub.
3. Remove rear cover and rear fender from tractor.
4. Remove Drive Disc Support Assembly. Remove Yoke and Yoke Pivot Brackets from Support. (See instructions in Section 4.4).
5. Remove hardware securing R.H. Transmission Support to R.H. extension.
6. Loosen both boot clamps and slide boot away from R.H. Transmission Support and Primary Chain Case.
7. Remove R.H. Transmission Support.
8. Disconnect the short shift link from the Primary Chain Case. See Figure 4.35.

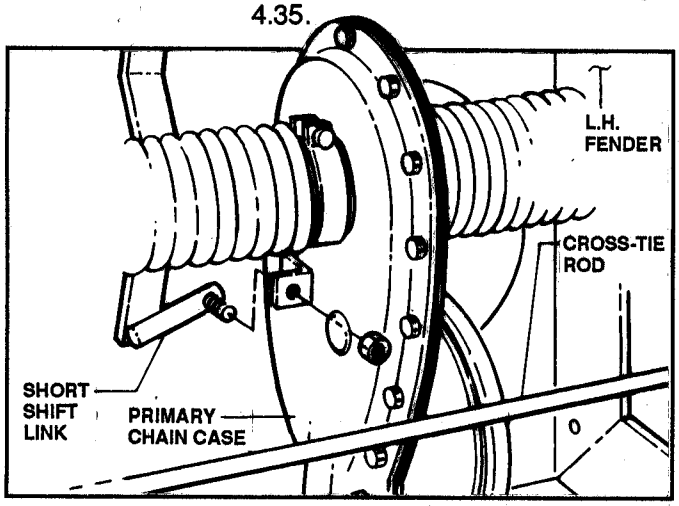


FIGURE 4.35

9. Disconnect Brake Lever Assembly from rear of Chain Case, then disconnect Brake Cable Housing from clip on Chain Case. See Figure 4.36.

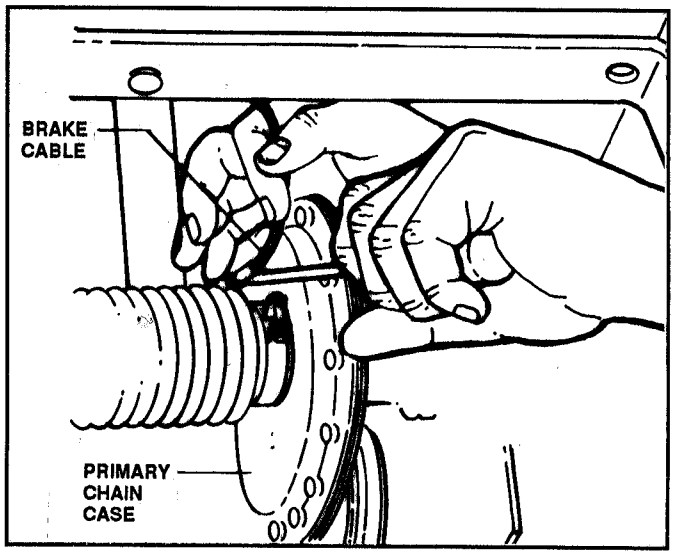


FIGURE 4.36

10. Slide the Primary Chain Case off end of Hex Drive Tube.

B. CHAIN CASE DISASSEMBLY & REASSEMBLY

1. Disassemble Chain Case as shown in Figure 4.37. Remove 5/8" hex lock nut, cone washer, driven disc hub, woodruff key, and remaining cone washer from the sprocket shaft.
   Remove the 10 self-tapping screws to open case for access to internal components. Always thoroughly clean and carefully inspect all internal components. Replace any damaged or worn parts and prelubricate before reassembly.
2. Reassemble the internal and external components in reverse order and always replace the case cover gasket.

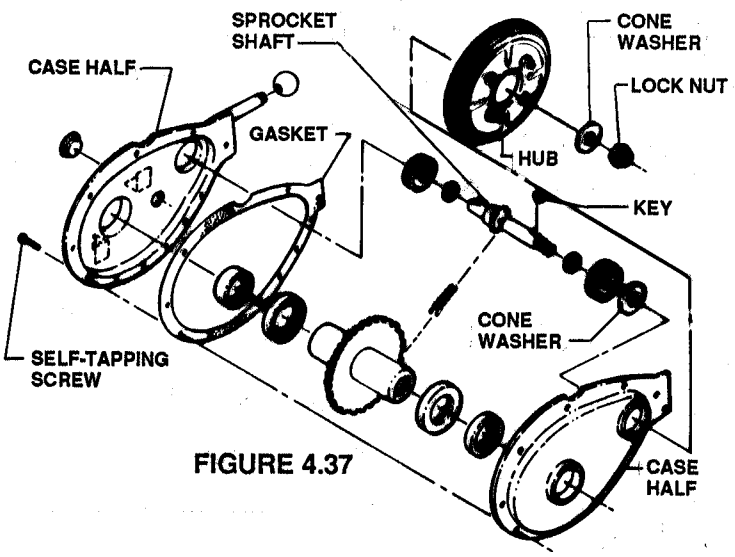


FIGURE 4.37

Section V - FRONT AXLE & STEERING REPAIR

INTRODUCTION

This section covers procedures for the removal and replacement of those front axle and steering components used on the **LT12D Series Lawn Tractor**.

These components include the front axle, kingpin assemblies, steering quadrant and steering shaft assemblies and front wheel assemblies. See Figure 5.1.

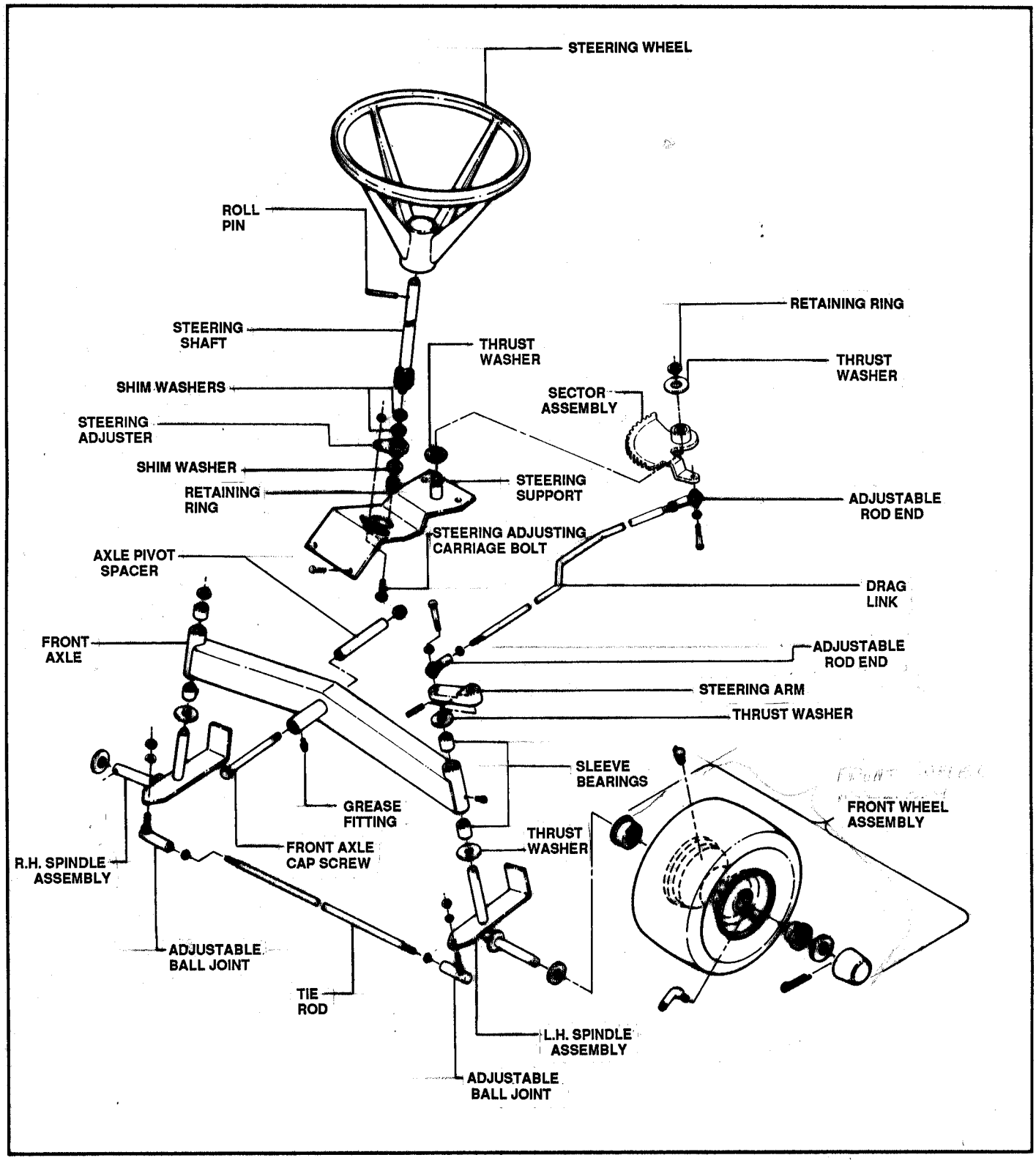


FIGURE 5.1

Section V - FRONT AXLE & STEERING REPAIR

5.1 FRONT WHEEL & BEARING REPLACEMENT

The **LT Lawn Tractors** use fully-pneumatic tires on both front and rear axles. Should rim leakage occur, it is recommended that optional inner tubes be installed. Removal and replacement of front wheels and bearings are as follows:

A. Raise and support front end of tractor.

> **CAUTION!**
> THE **LT TRACTOR** IS NOT DESIGNED TO BE STOOD UP ON ITS REAR END!

B. Remove dust cover, cotter pin and flat washer.

C. Slide wheel off front spindle. Inspect bearings and wheel and tire assembly. Replace as required. See Figure 5.2.

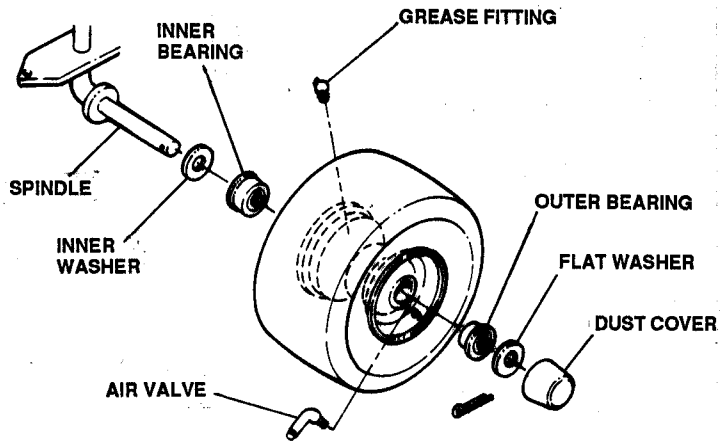


FIGURE 5.2

D. To replace wheel bearings, drive each out from inside of rim with drift punch. Pack replacement bearings with grease and lightly tap into position.

E. Inspect inner washer on spindle. Replace if worn.

F. Reinstall wheel and bearing assembly as shown in Figure 5.2.

5.2 SPINDLE & BEARING REPLACEMENT

A. Raise and support front end of tractor. Remove wheels from spindles.

B. Remove spindle assemblies as follows:

(1) Drive roll pin out of steering arm and, with drag link attached, remove steering arm from spindle (leaving drag link attached will eliminate need for adjustment during reassembly.) See Figure 5.3.

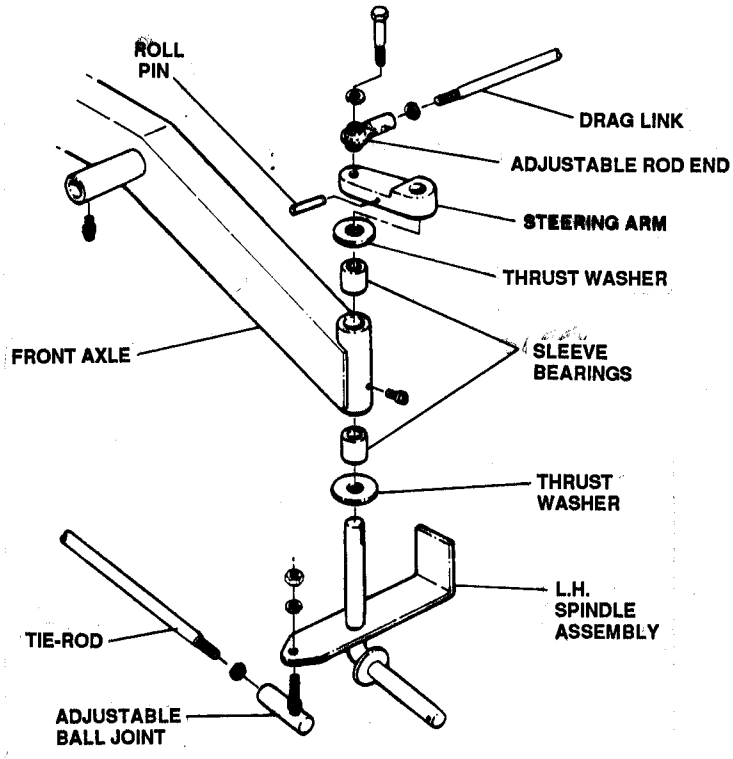


FIGURE 5.3

(2) Disconnect tie rod from arm of spindle.

(3) Remove thrust washer from end of king pin protruding above axle.

(4) Slide king pin out of bearings.

(5) Inspect bearings at top and bottom. If worn, replace.

(6) Inspect lower thrust washer for wear. Replace if required.

(7) Reverse procedure to reinstall spindle assembly.

Section V - FRONT AXLE & STEERING REPAIR

5.3 STEERING SHAFT & SECTOR ASSEMBLY

Although the steering components seldom need repair, the thrust washers, bearings and shims sometimes wear to a point where replacement is necessary. The following text gives instructions for the disassembly, replacement and reassembly of those components.

A. STEERING SHAFT SHIM WASHERS

(1) Remove mower deck and place tractor on a work platform high enough to allow access to work underneath.

(2) Remove retaining ring and lower shim washer from end of steering shaft. See Figure 5.4.

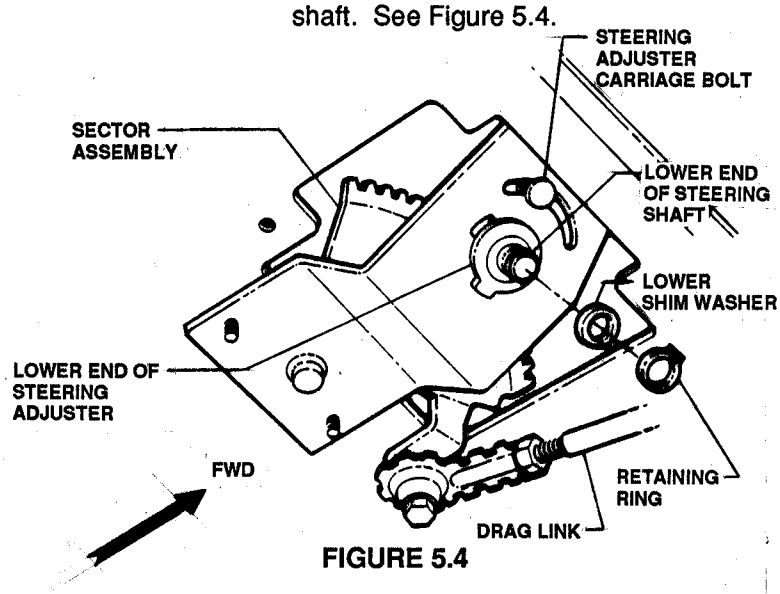


FIGURE 5.4

(3) Using a soft metal drift pin and hammer, tap the lower end of steering shaft until it can be pulled clear of the steering adjuster. See Figure 5.5.

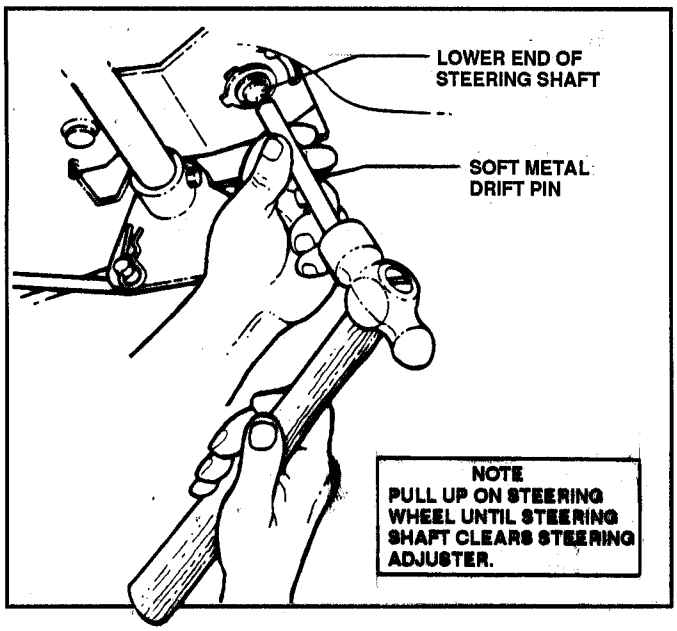


FIGURE 5.5

(4) Remove tractor hood.*

(5) After steering shaft has been pulled clear of steering adjuster, remove the shim washers from below gear on bottom of shaft. See Figure 5.6.

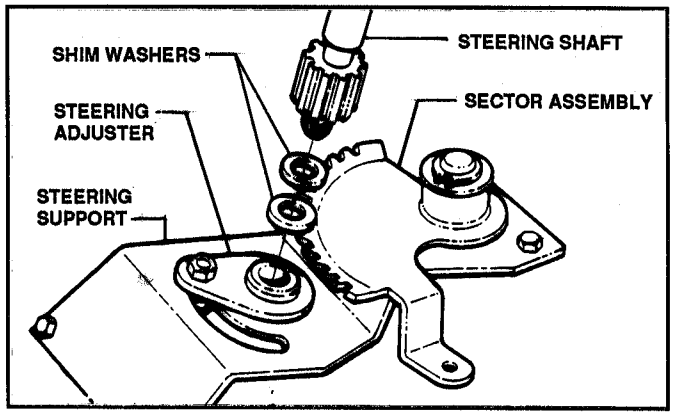


FIGURE 5.6

(6) Check all shim washers for wear. Replace if worn.

(7) Reassemble components in reverse order.

(8) If required, the steering adjuster can be removed/replaced by first removing the short carriage bolt and nut, then rotating the steering adjuster until the locking tab is aligned with the notch in the steering support. Lift the steering adjuster out and replace with new part. See Figure 5.7.

* **HOOD REMOVAL**

To service engine (changing oil, spark plug, etc.). It is recommended that the hood be removed. Hood removal is as follows:

1. With hood in closed position, unhook latches at bottom rear of hood.
2. Disconnect headlight wire at lower left front of hood.
3. With hood level, lift straight up to clear pivot pins at front. See Figure 5.6-A.
4. Remove hood and lay aside until maintenance is completed. Reinstall hood in reverse order.

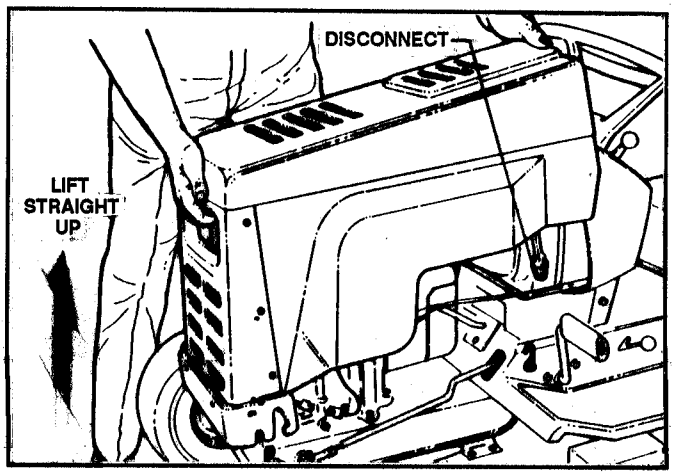


FIGURE 5.6-A

Section V - FRONT AXLE & STEERING REPAIR

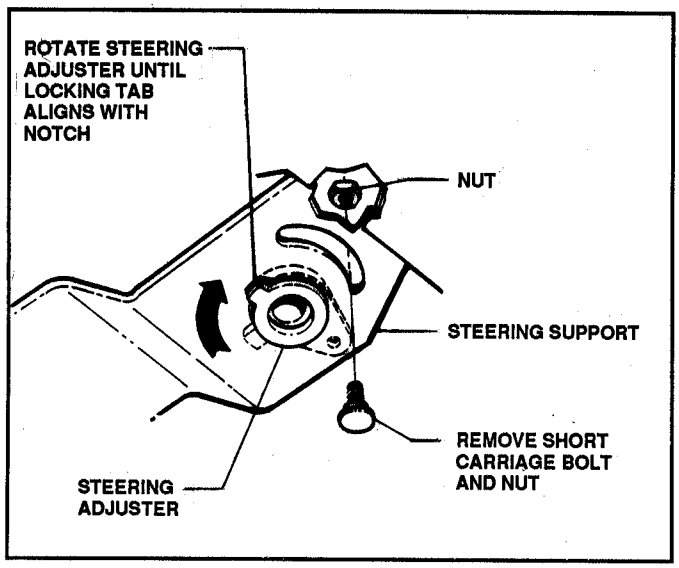


FIGURE 5.7

B. SECTOR ASSEMBLY BEARING & THRUST WASHERS

(1) Remove mower deck and place tractor on a work platform high enough to allow access to work underneath.

(2) Remove tractor hood.

(3) Loosen carriage bolt on steering adjuster and rotate adjuster to the L.H. side of tractor until steering shaft gear separates from sector teeth. See Figure 5.8.

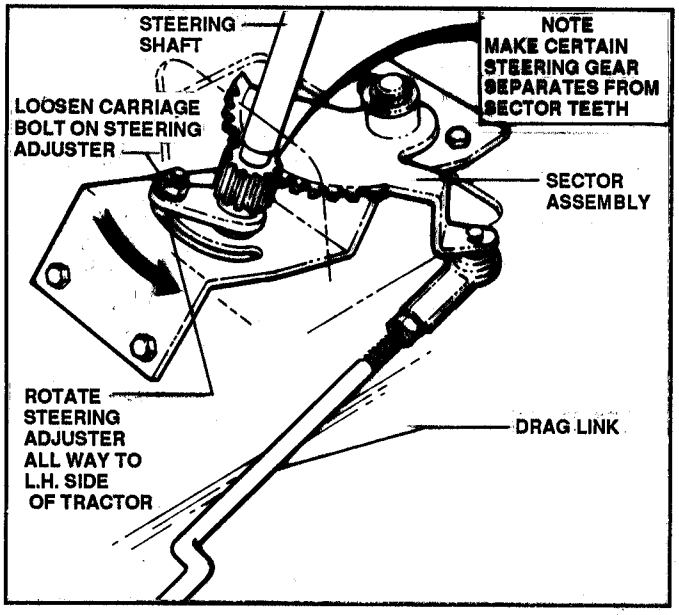


FIGURE 5.8

(4) Disconnect drag link from sector assembly.

(5) Remove retaining ring and upper thrust washer from sector assembly.

(6) Lift sector assembly off steering support post. See Figure 5.9.

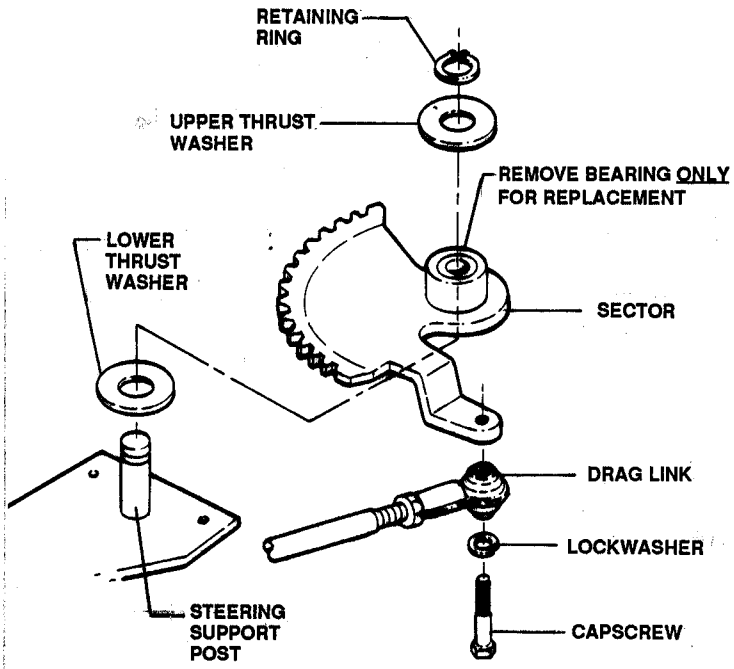


FIGURE 5.9

(7) Inspect sector bearing for wear. Replace sector if necessary.

(8) Inspect upper and lower thrust washers for wear. Replace if needed.

(9) Reassemble components in reverse order.

C. STEERING SHAFT REPLACEMENT

(1) Using a drift pin and hammer, drive out the steering wheel roll pin. Remove steering wheel. See Figure 5.10.

Section V - FRONT AXLE & STEERING REPAIR

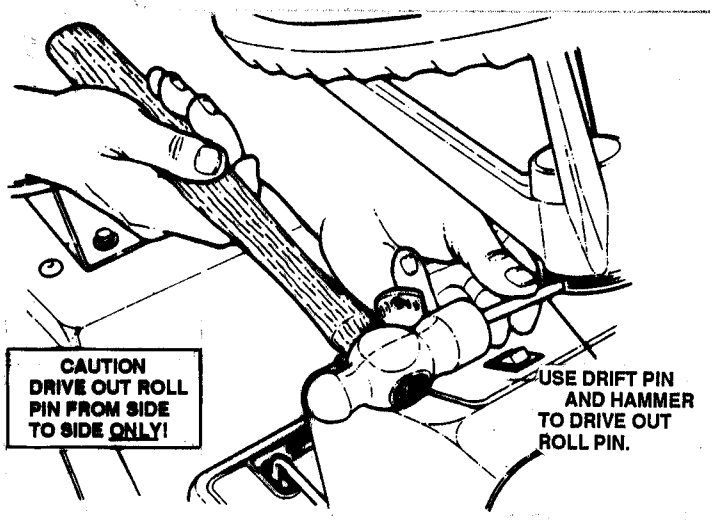


FIGURE 5.10

(2) Remove retaining ring and lower shim washer from lower end of steering shaft.
(3) Remove steering adjuster carriage bolt and nut.
(4) Tap bottom end of steering shaft until it can be pulled clear of steering adjuster.
(5) Remove the two (2) shim washers from bottom of steering shaft.
(6) Rotate steering adjuster until locking tab aligns with notch in steering support.
(7) Lift and remove steering adjuster from its interlocking position on steering support.
(8) Withdraw steering shaft down through notched hole in steering support.
(9) Replace steering shaft in reverse order.

D. STEERING SHAFT FLANGE ASSEMBLY (UPPER BEARING) REPLACEMENT

The steering shaft flange assembly (upper bearing) is located underneath the top front of the steering shaft support. Should this bearing need replacement, proceed as follows:

(1) Remove steering wheel and steering shaft.
(2) Remove mounting hardware and flanged bearing from the steering shaft support. See Figure 5.11.

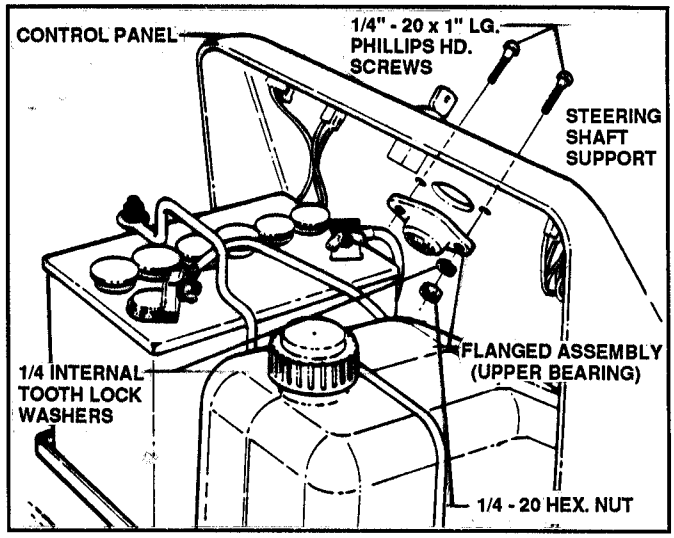


FIGURE 5.11

(3) Replace bearing if required.
(4) Reinstall steering shaft components in reverse order.

ADJUSTING STEERING

Excessive steering "free-play" is caused by loose meshing between the teeth on the steering shaft and those on the sector assembly. Proceed as follows:

(1) Working from the left side of the tractor, use a 7/16" wrench to loosen nut on top of steering adjuster carriage bolt. See Figure 5.11A.
(2) Push eccentric clockwise (towards R.H. side of tractor) until free-play in steering wheel is minimized.
(3) Retighten nut.

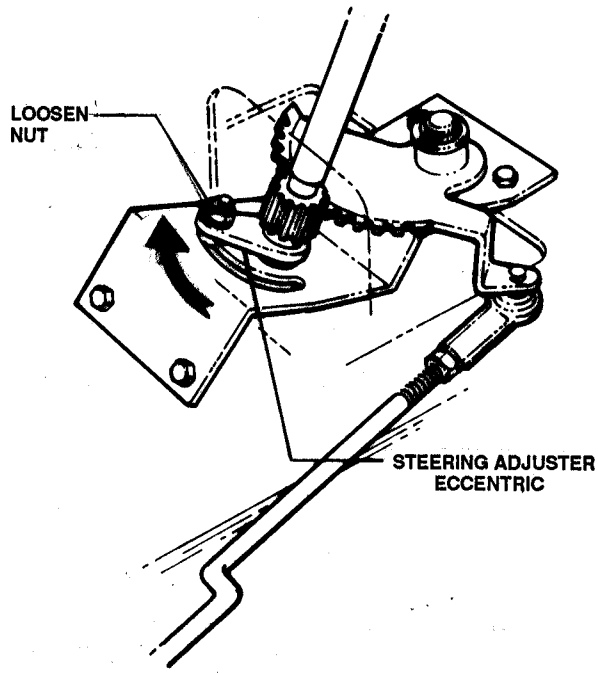


FIGURE 5.11A

5.4 TIE ROD & BALL JOINT REPLACEMENT

(1) Remove part to be replaced (Ball joint(s) or tie rod).
(2) Install new tie rod or ball joint(s).
(3) Adjust new installation until tires are parallel and facing straight ahead.

5.5 DRAG LINK REPLACEMENT & ADJUSTMENT

A. Disconnect drag link from steering arm and sector assembly.

B. Inspect drag link for deformities and rod ends for wear. Replace either if required.

C. Assemble and install new parts. Adjust rod ends (in or out) until wheels turn maximum distance in both directions when steering wheel is turned lock-to-lock.

5.6 FRONT AXLE REPLACEMENT

If replacement of the front axle becomes necessary, support mower just rear of the axle, then remove items such as wheels, spindle assemblies, etc. that are to be fitted to new axle. After the axle has been stripped, proceed as follows:

A. Remove hood (refer to Figure 5.6-A).

B. Remove axle cap screw and spacer and remove axle. See Figure 5.12.

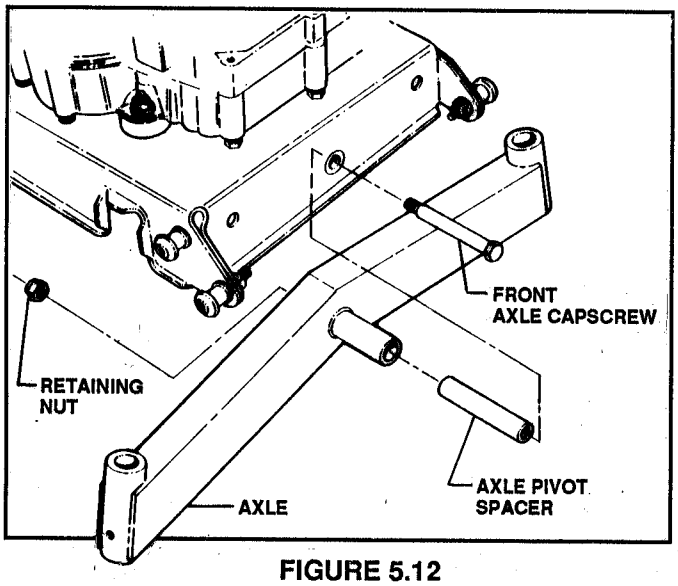


FIGURE 5.12

C. Check axle pivot spacer for wear. Replace if worn.

D. Install new axle. Complete the assembly with parts previously removed from old axle. Lubricate bearing surfaces through grease fittings.

NOTE
PROPERLY RELUBRICATE THOSE AREAS OF TRACTOR WHICH HAVE BEEN REPAIRED **BEFORE** UNIT IS PUT BACK INTO OPERATION.

Section VI - ELECTRICAL

INTRODUCTION

This section covers procedures for the testing, removal and repair of those electrical components used on **SNAPPER LT12D SERIES LAWN TRACTORS**.

These electrical components include the keyswitch, solenoid, seat switch, blade engagement switch, clutch & PTO switch, and light switch. See Figure 6.1.

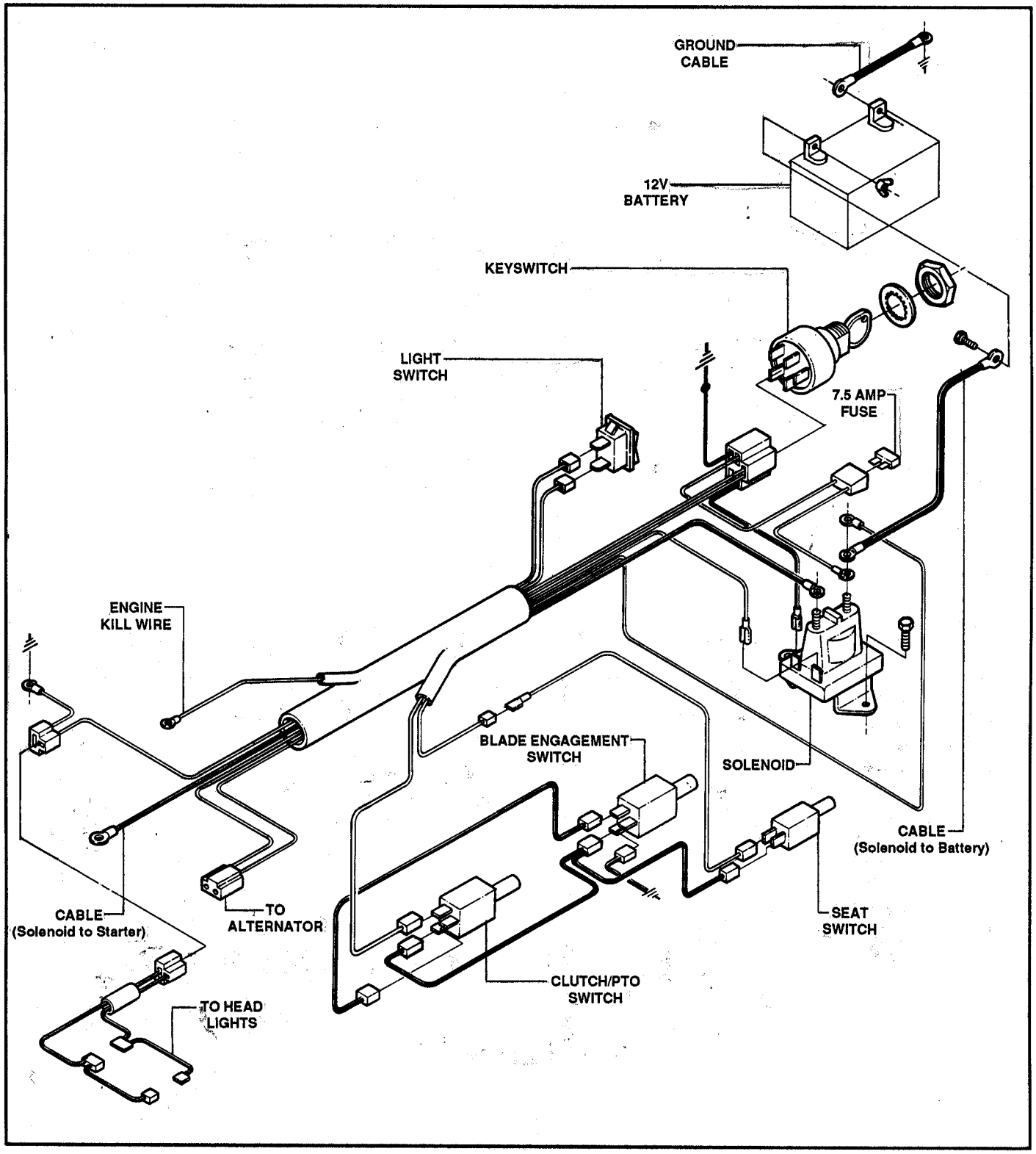


FIGURE 6.1

Section VI - ELECTRICAL

6.1 PRELIMINARY CHECKS

A. Be certain ignition switch is in the "RUN" position and the throttle control is in the START position. See Figure 6.2.

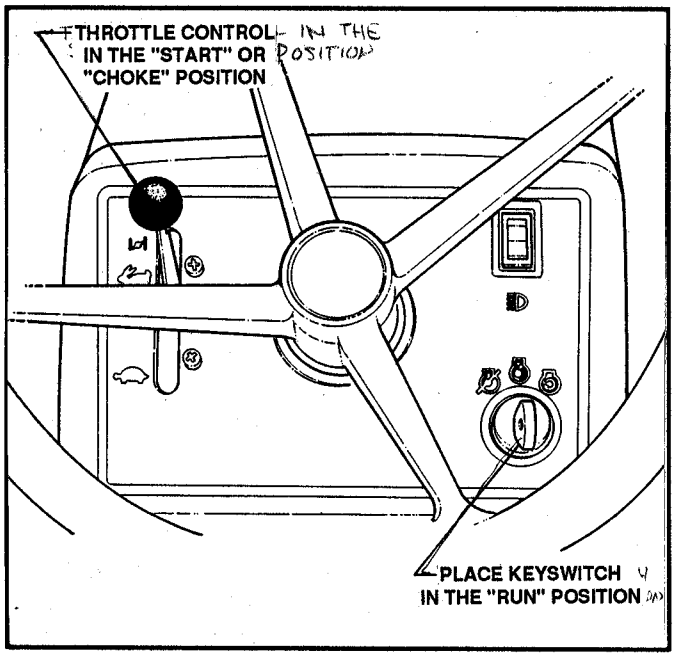


FIGURE 6.2

B. Place the blade engaging lever in the DISENGAGED position.

C. Make certain the Shifter is in the "NEU" position.

D. Check fuel level in fuel tank, refill with fresh fuel if necessary.

E. Depress clutch and attempt to start the engine.

(1) Starting attempts should not exceed 5 seconds per attempt until engine starts.

F. Should engine fail to start, proceed with the following to check for engine or electrical failure.

6.2 ENGINE FAILS TO START

After following the steps as listed in 6.1 PRELIMINARY CHECKS, and engine insists on not starting, use the following procedures for checking the engine as the problem.

A. BRIGGS & STRATTON ENGINE MODELS

(1) Disconnect wire at the grounding stud on the carburetor linkage plate. See Figure 6.3.

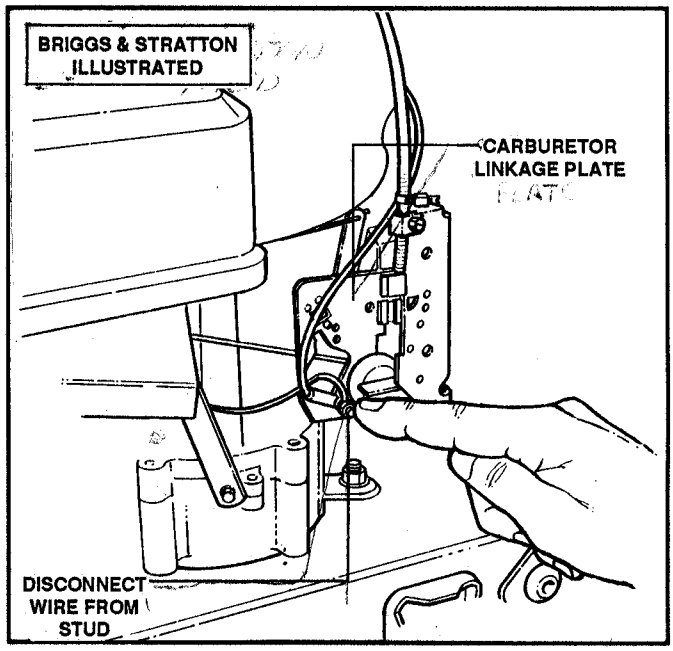


FIGURE 6.3

(2) Attempt to start engine.

(3) If engine fails to start, most likely the problem is within the engine. Consult engine repair manual.

B. ENGINE STARTS

If, after following the steps in paragraph A, the engine starts, the problem is not the engine. Proceed with the following information for proper checking of the electrical system and components.

6.3 GROUNDING OF THE ELECTRICAL SYSTEM

A. Most problems associated with the electrical system is a result of poor grounding between switches, screws and switch plate contact points.

Always, before attempting in-depth component testing, check the ground connections, listed below, of the interlock system for proper contact. Refer to Figure 6.1 for Electrical Grounding Points.

GROUNDING CHECK POINTS

- BATTERY GROUND CABLE
- KEYSWITCH TO MOUNTING PLATE
- KEYSWITCH TO ENGINE
- SEAT SWITCH
- BLADE ENGAGEMENT SWITCH
- SOLENOID MOUNTING SCREWS
- CLUTCH/PTO SWITCH

(1) After checking the grounding points, attempt to start engine. If engine fails to start, proceed with the following component testing procedures.

Section VI - ELECTRICAL

6.4 ELECTRICAL SYSTEM COMPONENT TESTING

For proper testing of all components of the Electrical System, use an OHM meter in conjunction with the following procedures for proper diagnosis of defective component(s).

A. KEYSWITCH TEST

The **SNAPPER LT12D Series LAWN TRACTORS** incorporate a five terminal Key Switch which controls "ON", "OFF" and "STARTING" of the engine. Should a defective switch be suspected, use the following information for proper testing and diagnosis of the Key Switch.

1. Before testing, be certain of the function of each terminal. See Figure 6.4.

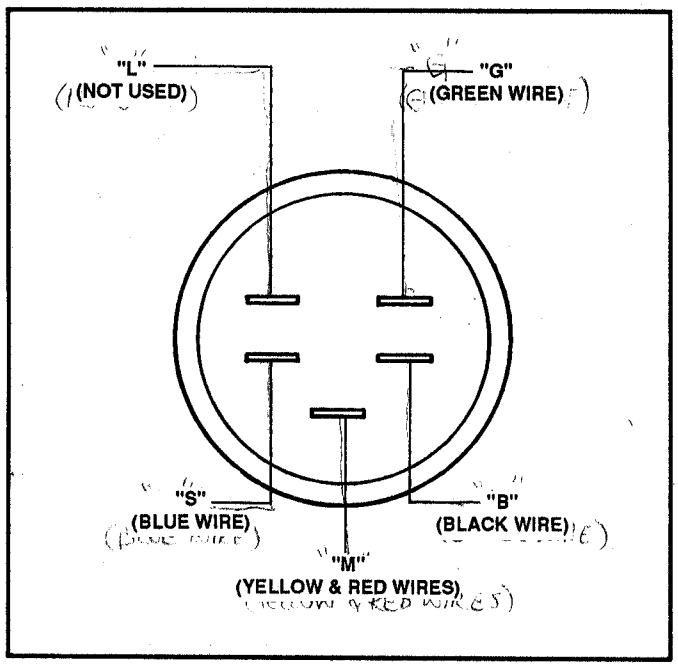


FIGURE 6.4

(a) Terminal B - TO FUSE
(b) Terminal S - TO SOLENOID
(c) Terminal M - TO CLUTCH & PTO SWITCH & ENGINE GROUND
(d) Terminal G - SOLENOID GROUND
(e) Terminal E - NOT USED

2. Disconnect the terminal lead block from the Key Switch.
3. Connect the Red (+) lead of the tester to the "B" (BATTERY) terminal.
4. Connect the Black (-) lead to the "S" terminal.
5. Turn Key to "ON", "START" and "OFF" positions.
6. The tester should show continuity only in the "START" position.
7. With the Red (+) lead connected to the "B" (BATTERY) terminal, connect the Black (-) tester lead to the "M" (MOTOR) terminal.
8. The tester should show no continuity when the Key Switch is in all its positions, "ON", "START" and "OFF".
9. Connect the Red (+) lead to the "M" terminal.
10. Connect the Black (-) lead to mounting nut at front of switch plate.
11. There should be continuity only when key is in the "OFF" position.
12. Connect the Black (-) lead to ground.
13. Connect the Red (+) lead to the "B" terminal.
14. There should be NO continuity to any key positions.
15. Move the Red (+) lead from the "B" terminal to the "S" terminal.
16. Meter should NOT show continuity in any key position.

NOTE
THE FOLLOWING TEST WILL DETECT ANY BATTERY CURRENT BLEED TO ENGINE WHICH MAY CAUSE ENGINE COIL AND IGNITION DAMAGE.

17. Connect the Red (+) lead to the "S" terminal.
18. Connect the Black (-) lead to the "M" terminal.
19. There should be NO continuity in any key position.
20. Should the Key Switch fail any of the above tests, it should be considered defective and replaced with new part.

B. KEY SWITCH REPLACEMENT

1. Remove terminal lead from Key Switch.
2. Remove Bezel from Key Switch.
3. Remove mounting nut and washer from Key Switch. Replace in reverse order. See Figure 6.5.

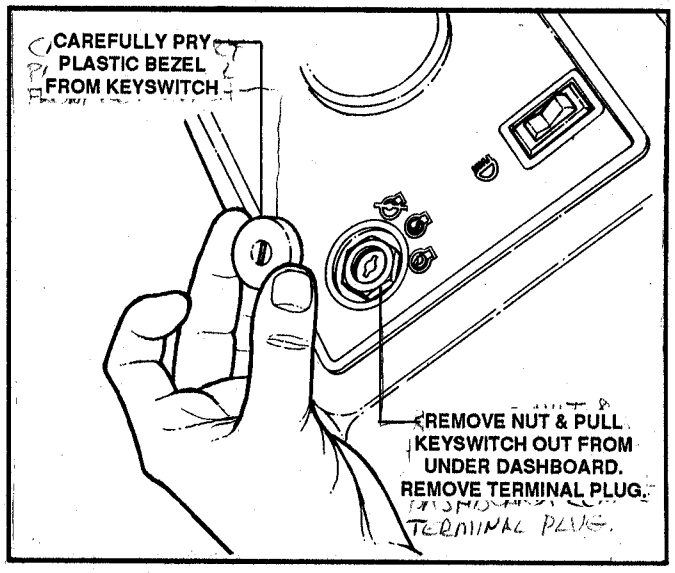


FIGURE 6.5

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C. FUSE

1. Should the Key Switch pass all the Key Switch tests, check the in-line fuse. See Figure 6.6.

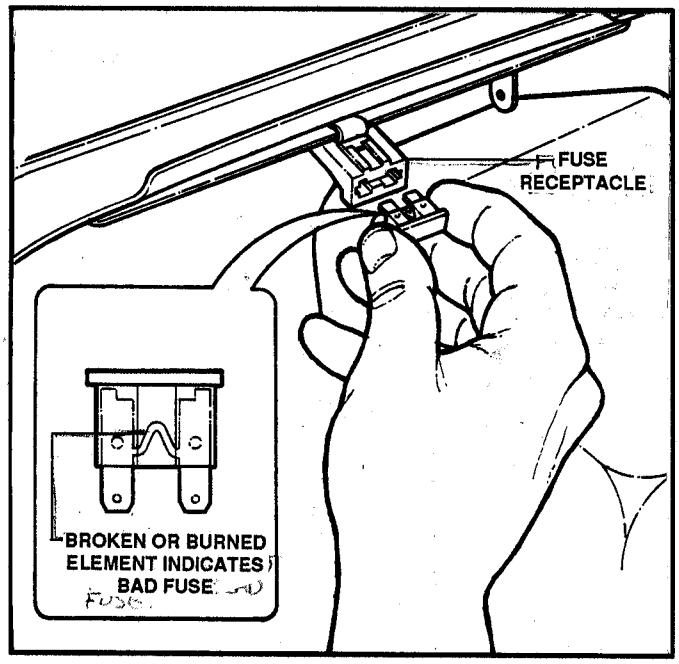

FIGURE 6.6

2. If the fuse is found to be defective, replace.
3. Should the fuse be in good condition, clean the contacts within the fuse holder and replace fuse. If engine fails to start, move on to the solenoid for testing.

D. SOLENOID TEST

The following solenoid tests should be performed using an OHM meter.

1. Remove BATTERY.
2. Remove the "+" (POSITIVE) battery cable from solenoid.
3. Set OHM meter to highest resistance setting.
4. Connect OHM meter leads to the solenoid BATTERY and STARTER terminals.
5. Install either a new or good battery on mower. Attach the "+" (POSITIVE) cable to the small, push-on terminal on the solenoid. You should hear a "CLICK" and the meter should read "0" (ZERO) resistance- or absolute continuity.
6. If meter reads otherwise, solenoid is defective. Replace with new solenoid.

E. SOLENOID REPLACEMENT

1. Remove BATTERY.
2. Remove all wire connections from the solenoid. See Figure 6.7.

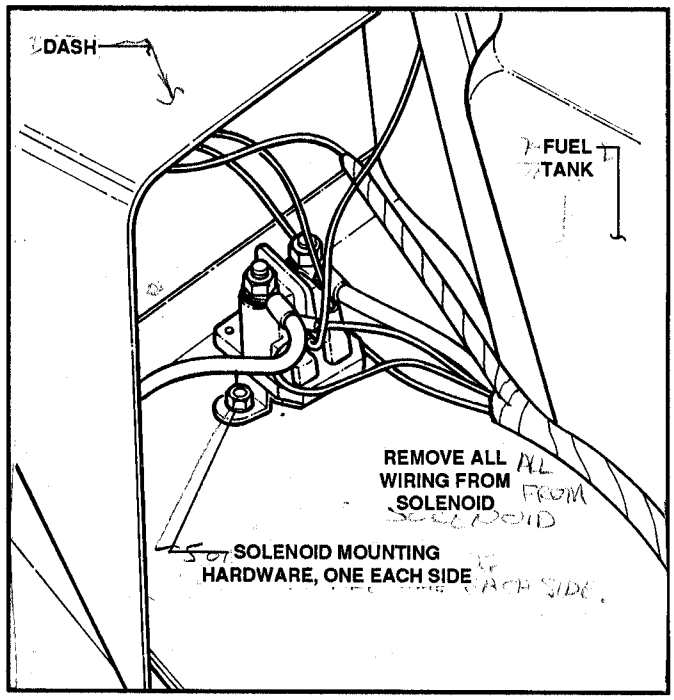

FIGURE 6.7

3. Remove the two (2) solenoid mounting screws and remove solenoid.
4. Replace with new solenoid. See Figure 6.8 for proper wire connections.

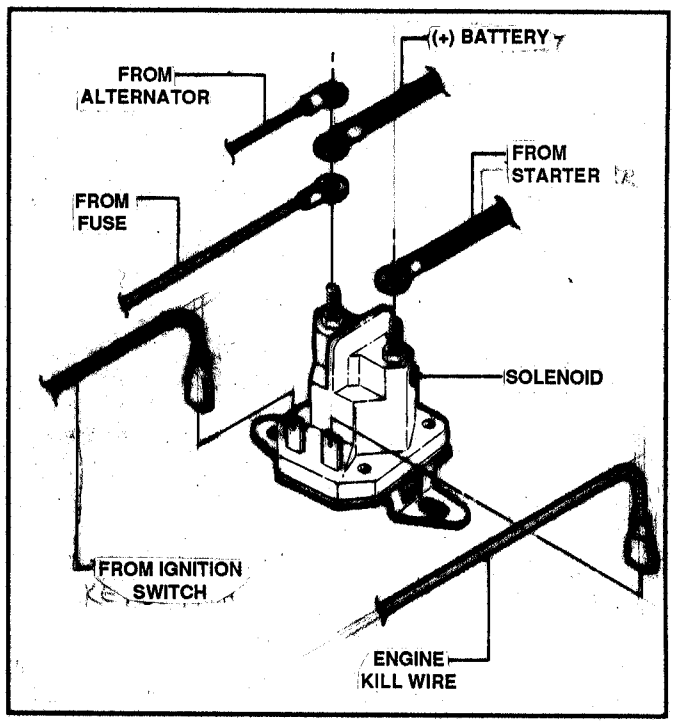

FIGURE 6.8

Section VI - ELECTRICAL

F. SEAT SWITCH TEST & REPLACEMENT

1. Raise seat.
2. Remove terminal lead block from seat switch.
3. Connect leads from OHM meter to terminals on switch.
4. Activate switch by hand and check for continuity. See Figure 6.9.
5. If no continuity is found, replace seat switch.

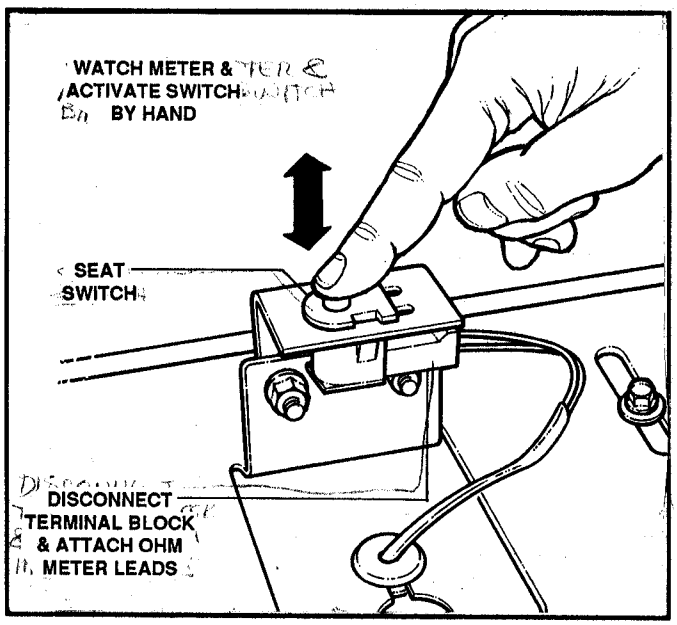

FIGURE 6.9

NOTE
ON PRE 1990 MODELS THE SEAT SWITCH IS ADJUSTABLE. SEE FIGURE 6.10 FOR PROPER ADJUSTMENT OF PRE 1990 MODELS SEAT SWITCH.

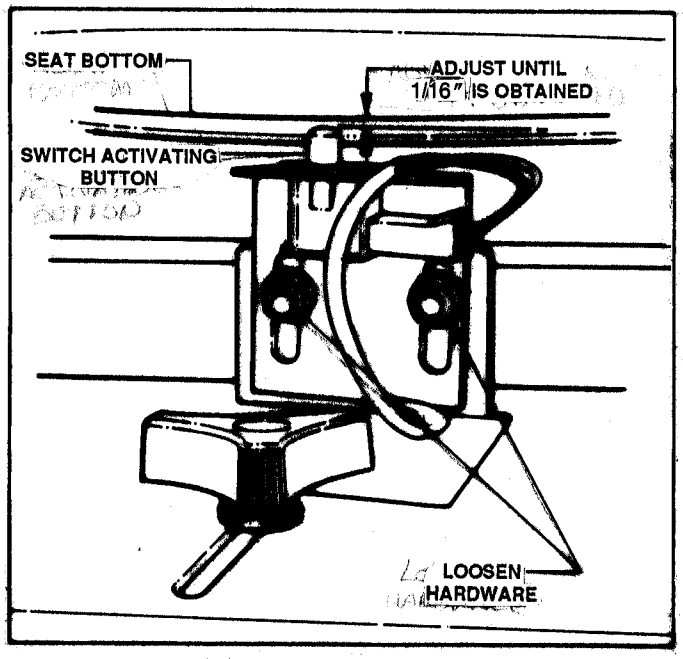

FIGURE 6.10

G. CLUTCH/PTO SWITCH TEST & REPLACEMENT

1. Remove terminal lead block from Clutch/PTO switch.
2. Attach leads from OHM meter to L.H. Terminals on Clutch/PTO switch.
3. Activate switch by hand and check for continuity.
4. If switch is found to be faulty, replace.

H. BLADE ENGAGEMENT SWITCH TEST & REPLACEMENT

1. Remove terminal lead block from blade engagement switch.
2. Connect leads from OHM meter to L.H. terminals of switch.
3. Activate switch by hand and check for continuity.
4. If switch is faulty, replace.

I. LIGHT SWITCH TEST & REPLACEMENT

NOTE
IF HEAD LIGHTS ARE NOT FUNCTIONING, FIRST CHECK HEAD LIGHT BULBS AND REPLACE IF NECESSARY.

1. Remove terminal blocks from light switch.
2. Attach leads from OHM meter to terminals on light switch.
3. Place switch in its "ON" position and check for continuity. If found defective, replace light switch.

6.5 BATTERY

A. NEW BATTERY ACTIVATION

1. Remove BATTERY from **LT12D Series LAWN TRACTOR.**

CAUTION!
NEVER ATTEMPT POURING ELECTROLYTE (ACID) IN A NEW BATTERY WHILE MOUNTED ON THE MOWER.

2. Set Battery on a level surface.
3. Remove Vent Caps from Battery and make certain Vent Holes are open to allow gas to escape while charging Battery.

NOTE
BATTERY AND ELECTROLYTE (ACID) TEMPERATURE SHOULD BE AT LEAST 70° F. BEFORE FILLING BATTERY CELLS.

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4. Wearing approved rubber gloves and face shield, fill each CELL of the Battery with 1.265± .05 specific gravity, battery grade electrolyte (acid). Fill each CELL to 3/16" above CELL PLATES or between full lines on clear batteries. See Figure 6.11.

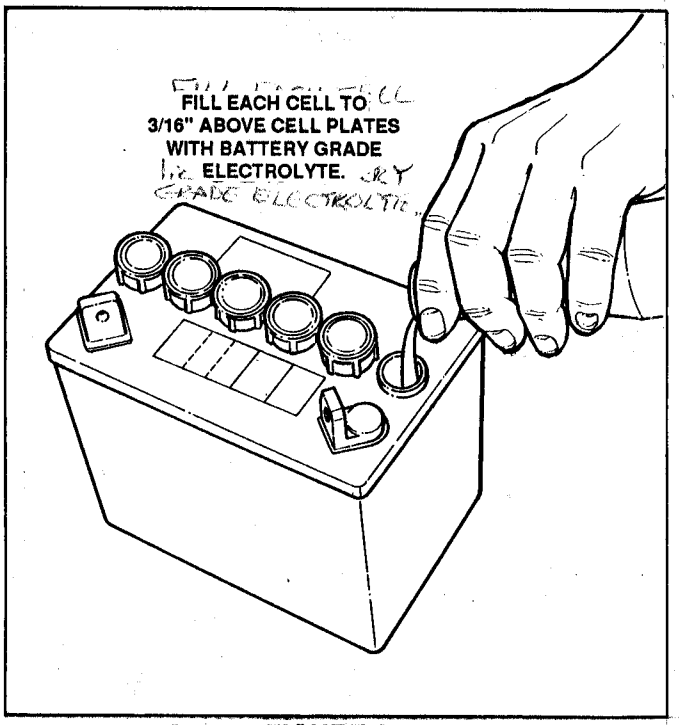

FIGURE 6.11

WARNING!
NEVER OVERFILL BATTERY CELLS!

5. After filling, allow the BATTERY to set for at least thirty (30) minutes. Check electrolyte (acid) level and refill CELLS to 3/16" above CELL PLATES if necessary. Refer to Figure 6.11.
6. After achieving proper fill level. SLOW CHARGE the Battery at one (1) amp for ten (10) hours, or three (3) amps for four (4) hours.

WARNING!
WHEN CHARGING BATTERY, THE ELECTROLYTE (ACID) PRODUCES HIGHLY EXPLOSIVE HYDROGEN GAS. MAKE CERTAIN THERE ARE NO SPARKS, FIRE OR FLAMES IN THE AREA WHILE BATTERY IS CHARGING!

7. Do not rely on the engine's charging system for the initial charge of BATTERY.

WARNING!
NEVER USE BOOST CHARGERS TO CHARGE BATTERY!

8. After proper electrolyte (acid) level and charging have been achieved, inspect BATTERY for leaks.
9. Clean outside of BATTERY and install on mower.
   (a) Using appropriate hardware, securely strap BATTERY into position.
10. Connect the POSITIVE (+) CABLE first to the BATTERY POSITIVE (+) TERMINAL.
11. Connect the NEGATIVE (-) CABLE to the BATTERY NEGATIVE (-) TERMINAL.
12. Coat the BATTERY terminals with a thin coat of petroleum jelly or GP grease to prevent corrosion.
13. Place COVER over the POSITIVE (+) terminal.
14. When removing BATTERY, always remove the NEGATIVE (-) CABLE first, to prevent arcing from accidental grounding while removing the POSITIVE (+) CABLE.

B. BATTERY MAINTENANCE

1. Check electrolyte (acid) level. If low refill with distilled water until 3/16" above plates is achieved in each cell.

WARNING!
DO NOT OVERFILL. OVERFILLING OF BATTERY CELLS CAN LEAD TO ELECTROLYTE (ACID) SPILLAGE, CAUSING LOSS OF ELECTRICITY AND/OR SEVER CORROSION OF TERMINALS AND METAL COMPONENTS OF MOWER.

2. Remove BATTERY and clean with a solution of Baking Soda and Water for removal of dirt and corrosion. Refer to Step 14, above, for cable removal.
3. Clean BATTERY TERMINALS and CABLES with wire brush until TERMINALS, CABLES and MOUNTING BOLTS are shiny.
4. Check the BATTERY VOLTAGE with an OHM meter (VOM) set on DC volts. Place the Red (+) lead of the tester to the POSITIVE (+) terminal and the Black (-) tester lead to the NEGATIVE terminal on the BATTERY. See chart below.

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BATTERY VOLTAGE TEST	
12 Volt Reading	a. BATTERY OK for Cranking System Tests. b. Test BATTERY CABLES for continuity.
Less Than 12V Reading	a. BATTERY discharged or defective. b. Perform BATTERY maintenance and HYDROMETER TEST. See Page

5. Should BATTERY check OK, reinstall according to Steps 9 thru 13 of Part A.
6. If BATTERY check indicates a discharged or defective BATTERY, clean, refill to proper level and recharge or replace with new **SNAPPER Dry Charge Battery Kit.**

NOTES

NOTES

Service Manual for

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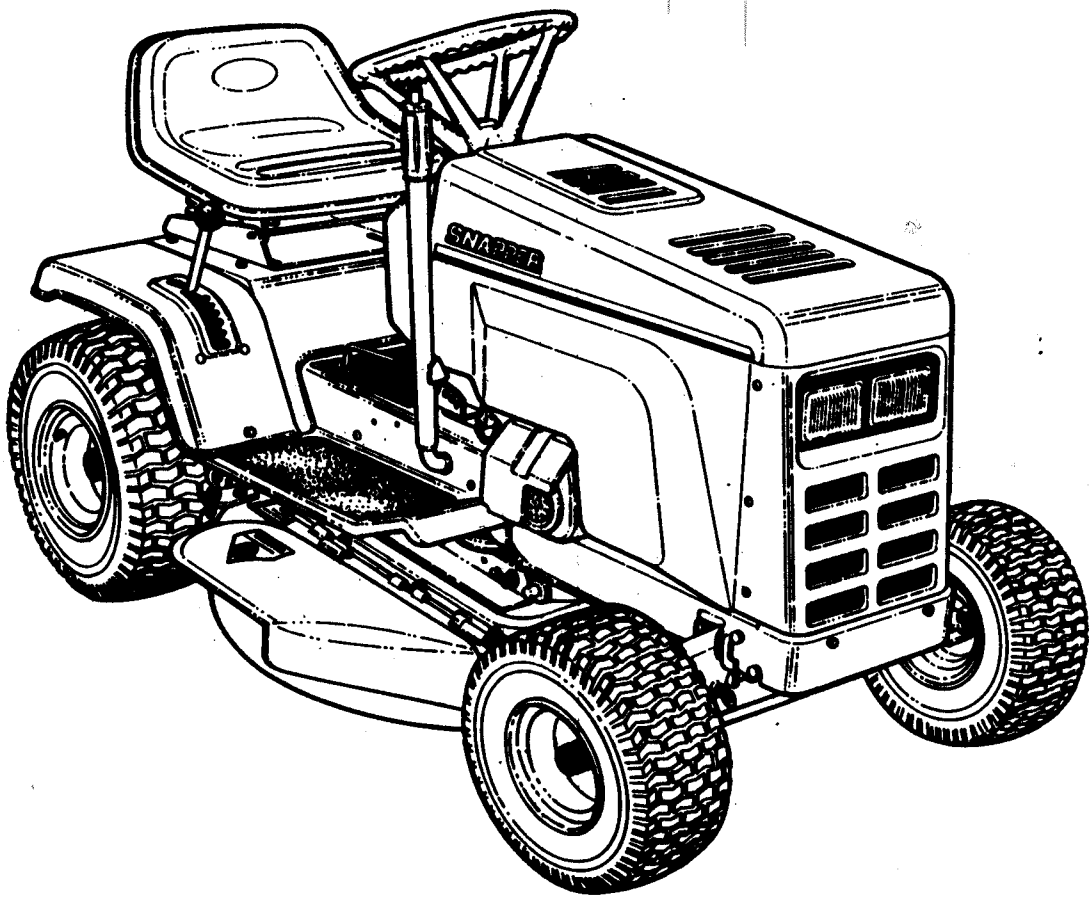

LTD SERIES 0 LAWN TRACTORS & MOWER ATTACHMENTS

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McDonough, GA., 30253 U.S.A.
E/I FUQUA INDUSTRIES Company

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