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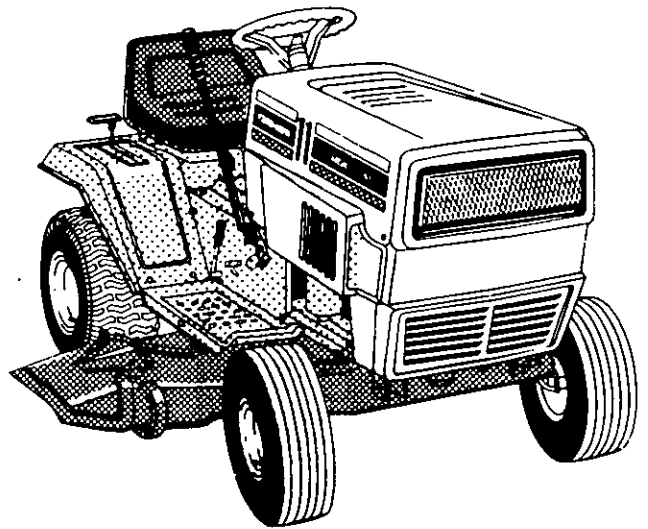
Owner's Manual

**ASSEMBLY
OPERATION
MAINTENANCE
PARTS LIST**

Important:

**Read Safety Rules and
Instructions Carefully**

TRANSMATIC LAWN TRACTORS



**Model Numbers
13648C
13649C**

**YARD-MAN CO.
P. O. BOX 360940
CLEVELAND, OHIO 44136**

PRINTED IN U.S.A.

FORM NO. 770-5462A

27. Keep the vehicle and attachments in good operating condition, and keep safety devices in place. Use guards as instructed in operator's manual.
28. Keep all nuts, bolts, and screws tight to be sure the equipment is in safe working condition.
29. Never store the machine with fuel in the fuel tank inside a building where ignition sources are present, such as hot water and space heaters, clothes dryers, and the like. Allow the engine to cool before storing in any enclosure.
30. To reduce fire hazard, keep engine free of grass, leaves or excessive grease.
31. The vehicle and attachments should be stopped and inspected for damage after striking a foreign object. The damage should be repaired before restarting and operating the equipment.
32. Do not change the engine governor settings or overspeed the engine.
33. When using the vehicle with mower, proceed as follows:

- (1) Mow only in daylight or in good artificial light.
 - (2) Never make a cutting height adjustment while engine is running if operator must dismount to do so.
 - (3) Shut the engine off and wait until the blade comes to a complete stop before removing the grass catcher.
 - (4) Check blade mounting bolts for proper tightness at frequent intervals.
34. Check grass catcher bags frequently for wear or deterioration. For safety protection, replace only with new bag meeting original equipment specifications.
 35. Look behind to make sure the area is clear before placing the transmission in reverse and continue looking behind while backing up. Disengage blades before shifting into reverse and backing up.
 36. This unit should not be driven up a ramp onto a trailer or truck under power, because the unit could tip over, causing serious personal injury. The unit must be pushed manually to load properly.

NOTE

This unit is shipped **WITHOUT GASOLINE** or **OIL**. After assembly, see separate engine manual for proper fuel and engine oil recommendations.

NOTE

Reference to right hand or left hand side of machine is determined from the operating position, facing forward.

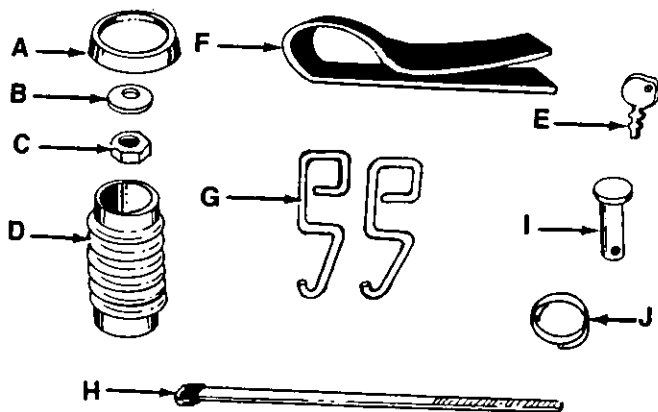


FIGURE 1.

ASSEMBLY

This owner's manual covers various models of lawn tractors. Follow the instructions which pertain to your unit. Refer to the separate deck manual for all information concerning the deck.

**Contents of Hardware Pack:
(See Figure 1)**

- A (1) Steering Wheel Cap
 - B (1) Belleville Washer
 - C (1) Hex Nut 5/16-18 Thread
 - D (1) Steering Bellow
 - E (2) Ignition Keys
 - F (1) Battery Strap
 - G (2) Battery Strap Hooks
 - H (1) Cable Tie
 - I (1) Clevis Pin
 - J (1) Lock Ring
- Hardware for Mounting the Seat (Not Shown)
(2) Hex Bolts and Lock Washers

Loose Parts in Carton:

- (1) Battery Pack
- (1) Steering Wheel
- (1) Seat

BATTERY INFORMATION



- A. Battery acid must be handled with great care as contact with it can burn and blister the skin. It is also advisable to wear protective clothing (goggles, rubber gloves and apron) when working with it.*
- B. Should battery acid accidentally splatter into the eyes or onto the face, rinse the affected area immediately with clean cold water. If there is any further discomfort, seek prompt medical attention.
- C. If acid spills on clothing, first dilute it with clean water, then neutralize with a solution of ammonia/water or baking soda/water.

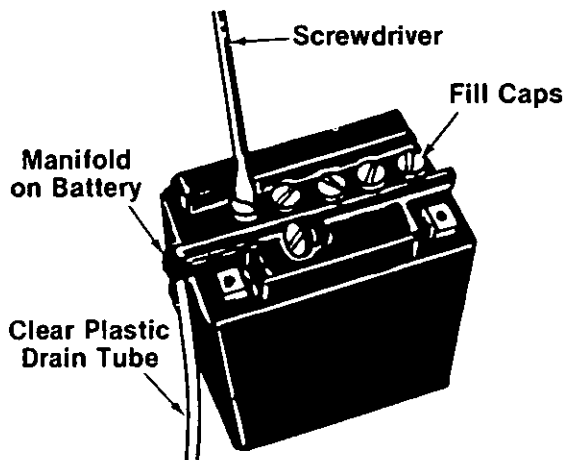


FIGURE 2.

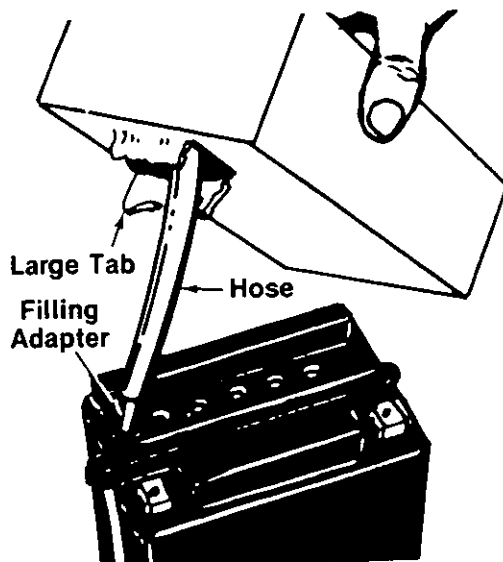


FIGURE 3.

- D. Since battery acid is corrosive, do not pour it into any sink or drain. Before discarding empty electrolyte containers, rinse them with a neutralizing solution.
- E. NEVER connect or disconnect charger clips to battery while charger is turned on as it can cause sparks.
- F. Keep all lighted materials (cigarettes, matches, lighters) away from the battery as the hydrogen gas generated during charging can be combustible.
- G. As a further precaution, only charge the battery in a well-ventilated area.

*** Always shield eyes, protect skin and clothing when working near batteries.**

ACTIVATING AND INSTALLING THE BATTERY

1. Upon opening the battery pack, you should receive acid pack, battery, drain tube, filling adapter and hardware.



BATTERIES CONTAIN SULFURIC ACID AND MAY CONTAIN EXPLOSIVE GASES (when electrolyte has been added).

2. Place the battery on table or workbench to be filled.
3. Place one end of clear plastic drain tube on manifold of battery. See figure 2.



Some batteries may already have the drain tube installed, in which case it may be necessary to snip off the sealed end.

4. Remove the six fill caps from the top of the battery with a screwdriver. Care should be taken not to damage the fill caps. See figure 2.
5. Lay acid package down, with "push in" facing up. Using thumb, push in small perforated tab at dot on front of package. Tear down large tab to solid line, exposing hose. Do not use any sharp object to open acid package.
6. Pull out hose from package and hold upright. Squeeze hose forcing all acid back into package. Cut off tip of hose and insert filling adapter. See figure 3.
7. Fill each cell to upper level marked on front of battery. Replace fill caps on battery. See figure 3.



DANGER

Battery contains sulfuric acid. Refer to warning on page 5. Antidote: **EXTERNAL**—Flush with water. **INTERNAL**—Drink large quantities of water or milk. Follow with milk of magnesia, beaten egg or vegetable oil. Seek prompt medical attention. **EYES:** Flush with cool water for at least 15 minutes, then seek immediate medical attention.

Since batteries produce explosive gases, keep all lighted materials (cigarettes, lighters, matches, etc.) away. Be sure to charge battery only in well-ventilated areas.

**KEEP BATTERIES
OUT OF THE REACH OF CHILDREN!**

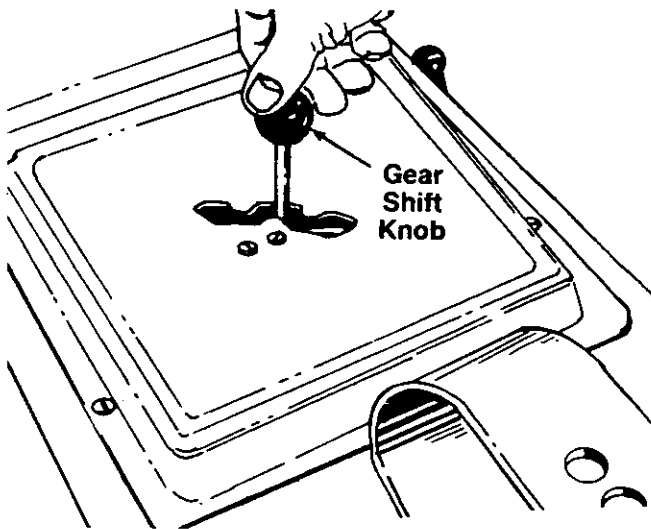


FIGURE 4.

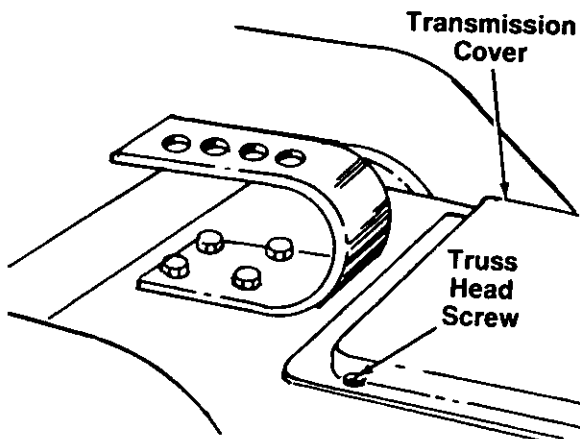


FIGURE 5.

8. Allow battery to sit for 20 to 30 minutes. Add additional acid, if necessary, to bring it up to the proper level.
9. The battery can be charged after the 20 minutes sitting period. **SLOW CHARGE THE BATTERY (DO NOT FAST CHARGE)** at a maximum bench rate of 1.4 amperes until the specific gravity reading is 1.260-1.280. Charge for a minimum of 2 hours and a maximum of 8 hours.

NOTE

Charging rate after battery has been put into operation: The battery is to be charged for a period of 14-16 hours. **NO LONGER THAN 30 HOURS.**

After battery has been in service, add only distilled water. Do not add acid.

NOTE

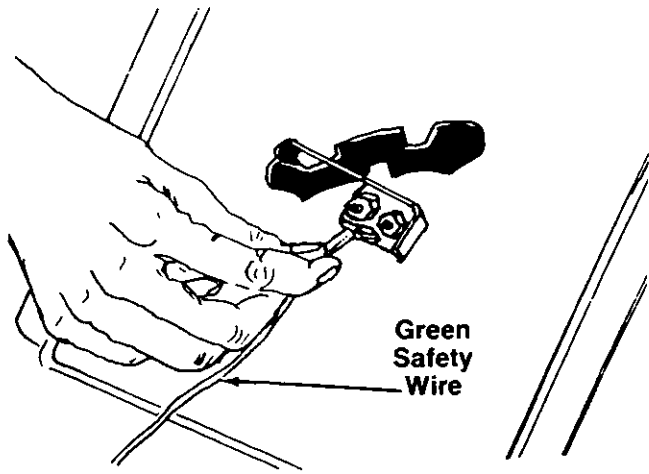
This engine is equipped with an alternator. The current for the battery charger alternator is unregulated. During normal operation, it is only necessary to charge the battery:

1. When it is activated for the first time.
2. Before winter storage.
3. Before using the lawn tractor after winter storage.

INSTALLING THE BATTERY

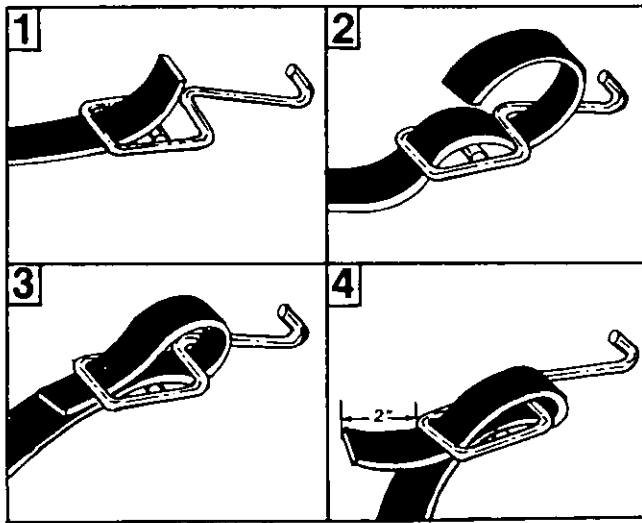
1. Place gear shift lever in the "neutral" position. Unscrew the gear shift knob. See figure 4.

2. Remove the two truss head screws which secure the transmission cover. See figure 5.



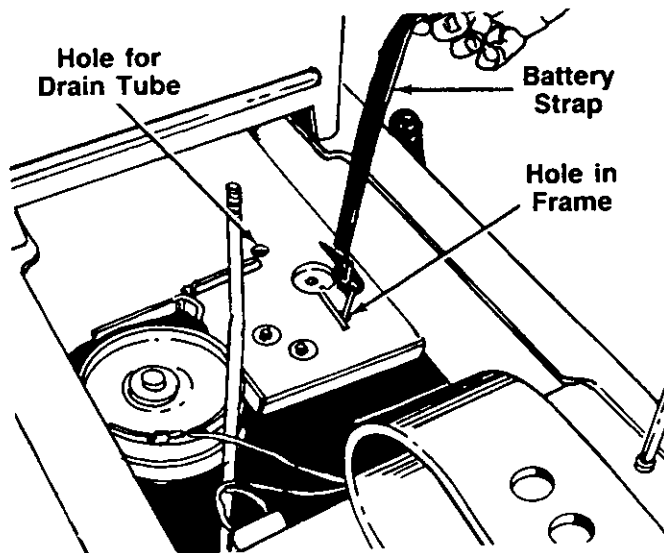
3. Lift the transmission cover. Unplug the green safety wire from beneath the transmission cover. See figure 6. Remove transmission cover.

FIGURE 6.



4. Assemble one hook (G) to each end of the battery strap (G) as shown in figure 7. Adjust the strap so there is about 2" of strap beyond the hooks.

FIGURE 7.



5. Hook one end of the battery strap into the hole provided in the frame. See figure 8. Lay the strap over the side of the frame.

FIGURE 8.

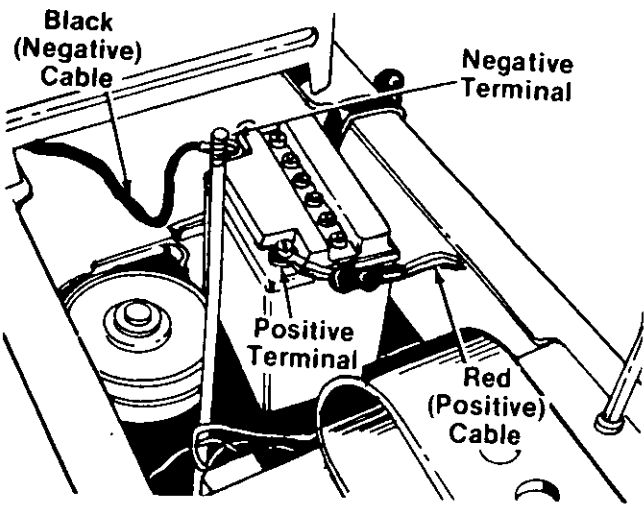


FIGURE 9.

6. Set the battery in the lawn tractor so that the negative terminal is toward the front of the unit. See figure 9. Place the end of the drain tube into the hole in the frame shown in figure 8.
7. Slide the square nut (provided with battery hardware) into the positive (+) terminal. Place the positive (heavy red wire) cable on the positive terminal. Secure with screw provided. See figure 9.
8. Slide the square nut (provided with battery hardware) into the negative (-) terminal. Place the negative (heavy black wire) cable on the negative terminal. Secure with screw provided.

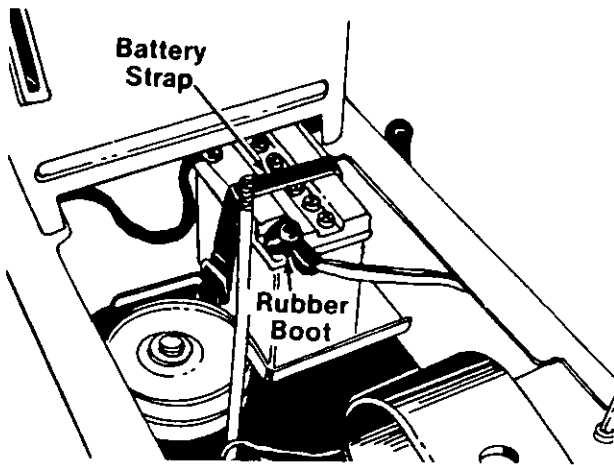


FIGURE 10.

9. Slide the battery forward into position as shown in figure 10. Secure in place with the battery strap, stretching strap over the battery and hooking into hole in the frame.
10. Slide rubber boot over the positive terminal. See figure 10.

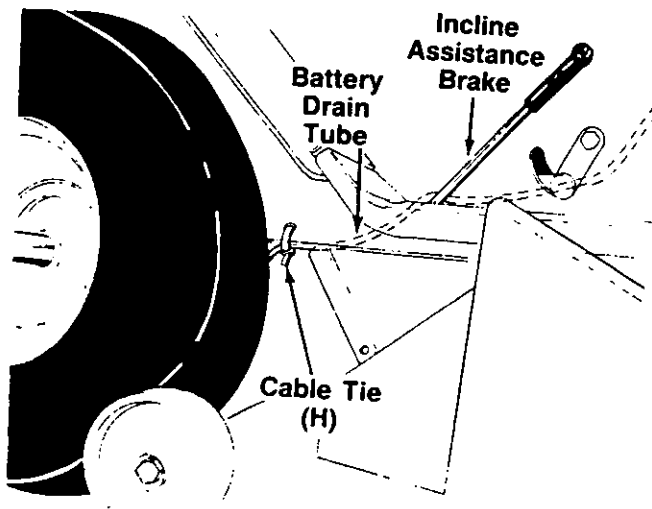
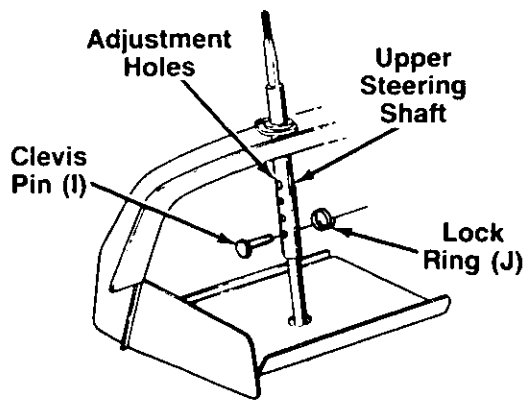


FIGURE 11.

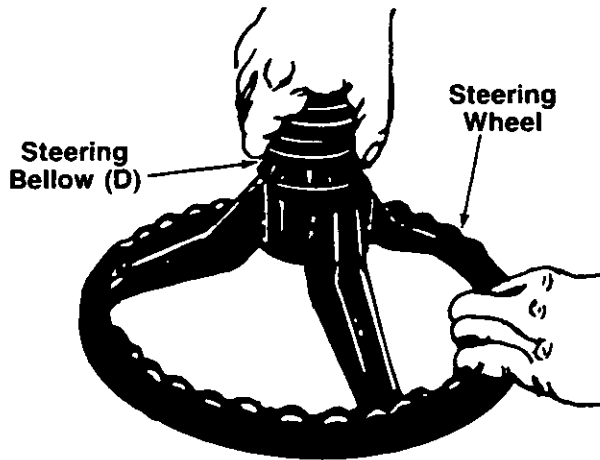
11. Route the battery drain tube toward the back of the unit, over the shaft on the incline assistance brake and inside the deck links. See figure 11.
12. Secure drain tube to hole in the side of frame with cable tie (H) as shown in figure 11. Cut off excess end of cable tie. Be certain tube is routed away from wheel rim.
13. Plug the green safety wire into the switch beneath the transmission cover. Refer to figure 6. Replace the transmission cover and gear shift knob.



STEERING WHEEL INSTALLATION

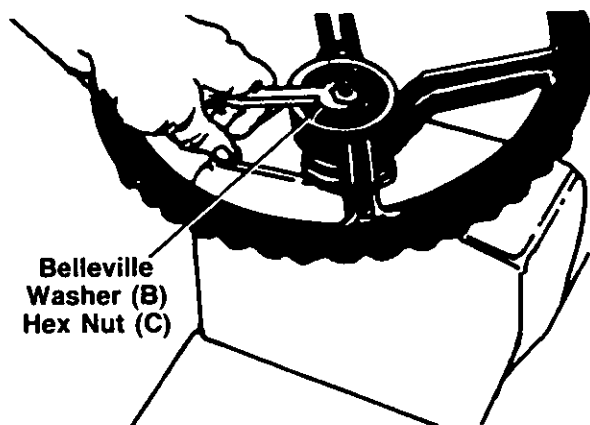
1. For shipping purposes, the upper steering shaft is pushed all the way down over the lower steering shaft. Pull the upper steering shaft up. The four holes in the shaft provide four steering wheel heights. Select desired hole and secure with clevis pin (I) and lock ring (J). See figure 12.

FIGURE 12.



2. Attach steering bellow (D) to the steering wheel as shown in figure 13.

FIGURE 13.



3. Make certain the front wheels of the lawn tractor are pointing straight.
4. Place steering wheel in position desired, and attach steering wheel and bellow to the steering shaft.

NOTE

On units which have flats on the steering wheel and shaft, line up the flats in the wheel with the flats on the shaft.

5. Secure with belleville washer (B) (cupped side against the steering wheel) and hex nut (C). See figure 14.

6. Position the steering wheel cap (A) as desired, and press it onto the steering wheel by hand.

FIGURE 14.

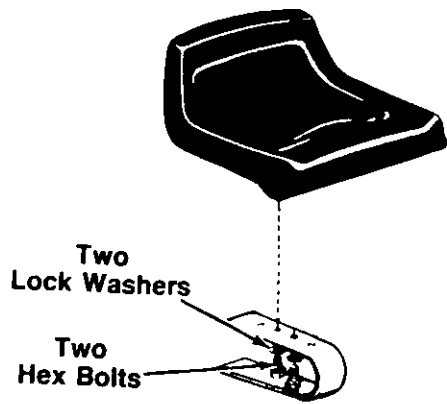


FIGURE 15.

SEAT INSTALLATION

The seat may be adjusted to three different positions. Select desired position and secure to seat spring with two hex bolts and lock washers. See figure 15.

CONTROLS

THROTTLE CONTROL

The throttle control is used to regulate the engine speed. To get maximum efficiency from cutting, the throttle should be in the FAST position when operating the mower. See figure 16.

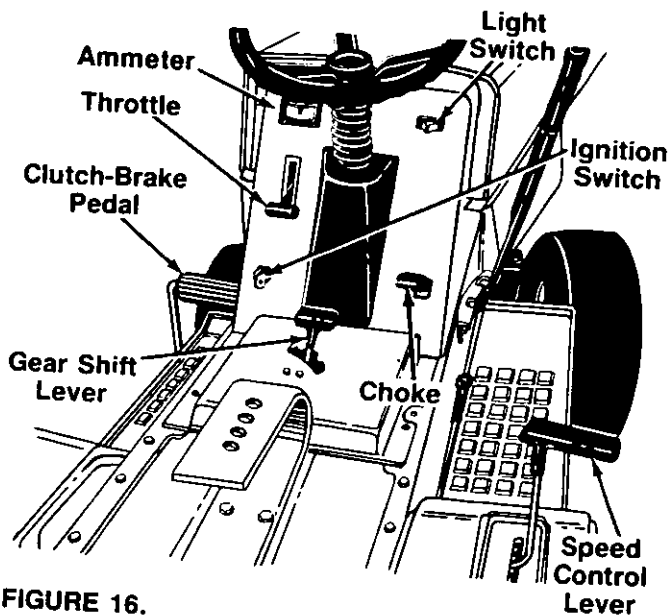


FIGURE 16.

CHOKES CONTROL

The choke control is located on the dashboard and is operated manually. Details for the choke operation are covered in the separate engine manual packed with your unit. See figure 16.

GEAR SHIFT LEVER

The shift lever is located on the left side of the console and has three positions, FORWARD, NEUTRAL and REVERSE. See figure 16. The clutch-brake pedal must be depressed and the lawn tractor must not be moving when shifting gears. Do not force the shift lever. Release the clutch-brake pedal slightly to line up the shifting collar in the transmission. Then try to shift gears.

SPEED CONTROL LEVER

The speed control lever allows you to regulate the ground speed of the lawn tractor. See figure 17. To select the ground speed, depress clutch pedal. Push speed control lever outward and move backward to slow lawn tractor, move forward to increase speed. When desired speed has been obtained, release lever in that position. Whenever clutch is engaged, unit will automatically go to the pre-set speed.

IGNITION SWITCH

Turn the key to the START position to start the engine. When the engine is running, let the key return to the ON position. To stop the engine, turn the key to the left to the OFF position and remove it to prevent accidental starting. See figure 16.

LIGHT SWITCH

Push the light switch to turn on the lights. The lights will only operate when the engine is running. See figure 16.

AMMETER

The ammeter registers the rate of battery charge or discharge. The ammeter will register on the discharging side when starting the engine. It should register on the opposite side (charging) when the engine is running in the fast position until the battery is completely charged. With a fully charged battery or with the engine idling, the ammeter will not show a charge. See figure 16.

CLUTCH-BRAKE PEDAL

The clutch-brake pedal is located on the left side of the lawn tractor. Depressing the clutch-brake pedal part way disengages the clutch. Pressing the pedal all the way down disengages the clutch and engages the disc brake. See figure 16.



The clutch-brake pedal must be depressed to start the engine.

PARKING BRAKE

The speed control lever is used to set the parking brake. To set the parking brake, depress the clutch-brake pedal. Press the speed control lever outward and all the way to the rear of the unit. Release the speed control lever and the clutch-brake pedal.

To release the parking brake, depress the clutch-brake pedal, press the speed control lever outward and move to desired position. Release the speed control lever and the clutch-brake pedal.

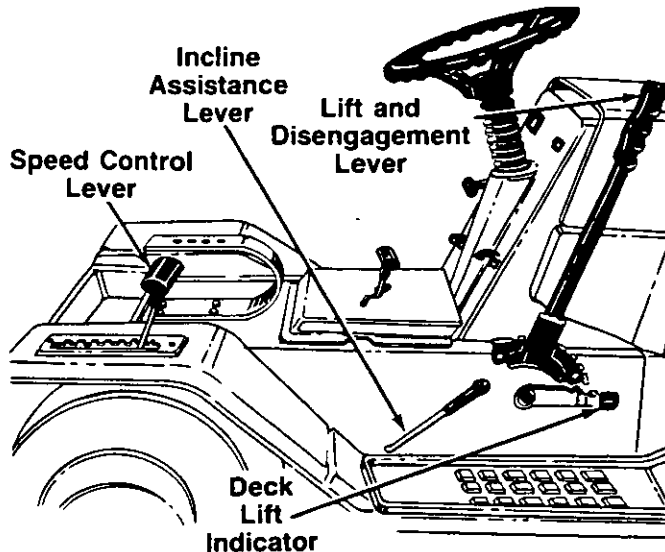


FIGURE 17.

INCLINE ASSISTANCE BRAKE

When stopping on a hill, hold the incline assistance brake lever back while you release the clutch-brake pedal until the lawn tractor begins to move, then release the lever. This lever permits smoother starts and clutch engagement by holding the tractor during the brake release/clutch engagement operation. See figure 17.

INTERLOCKS (Not Shown)

Interlock safety switches are located on the clutch-brake pedal, and the lift and disengagement lever and gear shift lever.

Before the engine will start, the clutch-brake pedal must be depressed all the way and the lift and disengagement lever must be in the disengaged position.

Before the unit can be shifted into reverse, the lift and disengagement must be in the disengaged position.

CUTTING CONTROLS

A. LIFT AND DISENGAGEMENT LEVER

The lift and disengagement lever is used to raise and lower the cutting deck. Pulling it all the way back and locking it disengages the blades. The lift and disengagement lever **must** be in the disengaged position when starting the engine and when shifting into reverse. See figure 17.

B. DECK LIFT INDICATOR

The deck lift indicator marks the position being used for the lift lever. Select the lift lever position desired, press the indicator lever outward, move it to the position immediately below the lift lever and release the indicator lever. See figure 17.

C. WHEEL HEIGHT ADJUSTER

Move the lever towards the wheel and set it in the desired height. See figure 18.

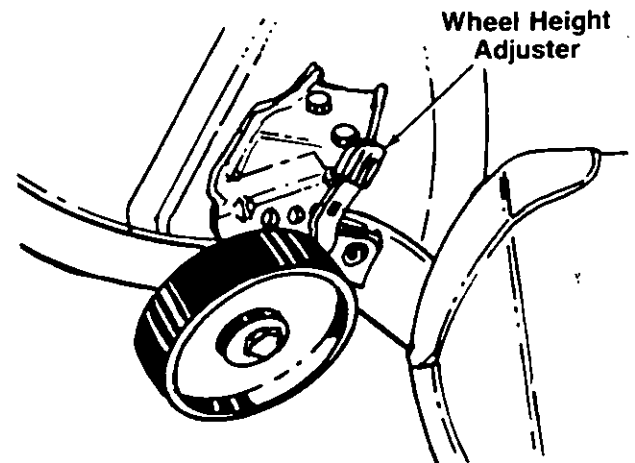


FIGURE 18.

D. SETTING THE CUTTING HEIGHT

1. Select the position for the lift lever which gives the desired cutting height. Move the deck lift indicator so that the lift lever can be returned to the same position after it is raised.
2. Set the wheel height adjusters on the deck so that the wheels are $\frac{1}{4}$ to $\frac{1}{2}$ inch above the ground.

OPERATION



CAUTION

1. Keep all shields in place.
2. Before leaving operator's position:
 - a. Shift transmission to neutral
 - b. Set parking brake
 - c. Disengage attachment clutch
 - d. Shut off engine
 - e. Remove ignition key
3. Wait for all movement to stop before servicing machine.
4. Keep people and pets a safe distance away from machine.
5. Look to the rear before backing up.

TIRE PRESSURE

For shipping purposes, the tires on your unit may be over-inflated. Tire pressure should be reduced before unit is put into operation. Recommended operating tire pressure should be 10 p.s.i.

Check sidewall of tire for manufacturer's maximum tire pressure. If this information does not appear on your tire, maximum tire pressure under any circumstances is 30 p.s.i. Equal tire pressure should be maintained on all tires.

STARTING THE ENGINE

NOTE

To open the hood, simply lift up on both sides of the hood on all models.

1. Service the engine with oil and gasoline as described in the engine manual.
2. Depress the clutch-brake pedal and set the parking brake.
3. Place the lift and disengagement lever in the DISENGAGED position. See figure 17.

NOTE

This unit is equipped with a safety interlock system for your protection. The purpose of the safety interlock system is to prevent the engine from cranking or starting unless the clutch-brake pedal is depressed and the lift and disengagement lever is in the disengaged position. In addition, the lift and disengagement lever must be in the disengaged position when the unit is put into reverse or the engine will shut off.



Do not operate the lawn tractor if the interlock system is malfunctioning because it is a safety device, designed for protection.

4. Set the throttle control in the FAST position. See figure 16.
5. Pull out choke knob to choke engine.

NOTE

A warm engine may not require choking.

6. Turn the ignition key to the START position. When the engine is running, let the key return to the ON position. See figure 16.
7. Push choke knob in gradually. Move the throttle control to desired engine speed.

STOPPING THE ENGINE

Turn the ignition key to the left to the OFF position. Remove the key to prevent accidental starting.

NOTE

A brief break-in period is essential to ensure maximum engine and mower life. The break-in consists of running the engine at half speed for a period of time required to use one tank of gasoline. It is also recommended to change crankcase oil after the first 5 hours of operation.

Be sure that the lawn is clear of stones, sticks, wire, or other objects which could damage lawn tractor or engine. For best results and to insure more even grass distribution, do not mow when lawn is excessively wet.

IMPORTANT

If you strike a foreign object, stop the engine. Remove wire from spark plug, thoroughly inspect the unit for any damage, and repair the damage before restarting and operating the mower.

OPERATING THE LAWN TRACTOR

1. Set the desired cutting height.
2. Start the engine as instructed in previous column.
3. Move throttle control to $\frac{3}{4}$ or full throttle to prevent strain on the engine and to operate the cutting blades.
4. Place the shift lever in either the FORWARD or REVERSE position.



Look to the rear before backing up.

5. Release the parking brake by depressing the clutch-brake pedal, pressing outward on the speed control lever and moving to desired position.

NOTE

Use first speed position when operating the lawn tractor for the first time.

6. Release clutch-brake pedal slowly to put unit into motion.
7. The lawn tractor is brought to a stop by depressing the clutch-brake pedal.



CAUTION

If the unit is not to be used for a long period, place the gear shift lever in NEUTRAL, stop the engine, set the parking brake and remove the key. **DO NOT** leave the machine on an incline.

If unit stalls with speed control in high speed, or if unit will not operate with speed control lever in a low speed position, proceed as follows.

1. Place shift lever in NEUTRAL.
2. Restart engine.
3. Place speed control lever in high speed position.
4. Release clutch-brake pedal fully.
5. Depress clutch-brake pedal.
6. Place speed control lever in desired position.
7. Place shift lever in either FORWARD or REVERSE, and follow normal operating procedures.

OPERATING THE CUTTING BLADES

The cutting blades may be engaged while the lawn tractor is moving or standing still. **DO NOT** engage the cutting blades abruptly as the sudden belt tension on the pulley may cause the engine to stall.



WARNING

When the blade drive is engaged, keep feet and hands away from the discharge opening, the blades or any part of the deck.

Move the lift and disengagement lever into the **DISENGAGED** position to raise the deck and disengage the blades.



NOTE

When the machine is used for other than mowing operations, the blade drive should be disengaged.

GRASS CATCHER Model 015 is available as optional equipment for lawn tractor Model 13648.



WARNING

The mower should not be operated without the entire grass catcher or chute deflector in place.



NOTE

Under normal usage bag material is subject to wear, and should be checked periodically. Be sure any replacement bag complies with the mower manufacturer's recommendations.

For replacement bags, use only factory authorized replacement bag.

ADJUSTMENTS

SEAT ADJUSTMENT

The seat may be adjusted to one of several positions. Refer to seat installation section of assembly instructions.

STEERING WHEEL ADJUSTMENT

There are four height positions for the steering wheel. To adjust the height of the steering wheel, remove the lock ring and clevis pin on the steering shaft. Place the steering wheel in the position desired and secure with lock ring and clevis pin. Refer to figure 12.

SPEED CONTROL ADJUSTMENT (See figure 19)

First, adjust the speed control lever by pushing the clutch-brake pedal forward until the stop on the speed control rod is against the running board rod. See figure 19. Have another person hold the pedal in this position as you make the following adjustment. Place the speed control lever in parking brake position. Remove the hairpin cotter and flat washer, and adjust the ferrule on the rod so it is against the back end of the slot. See figure 19. Replace the flat washer and hairpin cotter.

Next, adjust the speed control link as follows to obtain the correct neutral adjustment.

1. Start the engine.
2. Place the shift lever in Neutral position.
3. Place the speed control lever in high speed position.
4. Release the clutch-brake pedal completely, then slowly depress the pedal all the way (to park position). Hold the pedal in this position.
5. Turn the engine off.

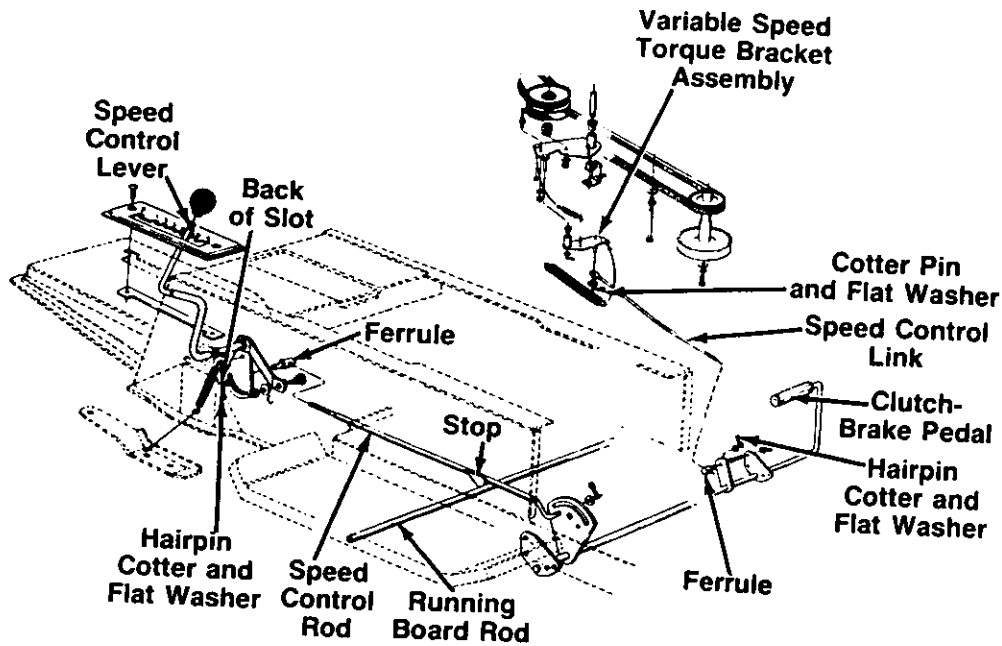


FIGURE 19.

6. After engine stops completely, release the clutch-brake pedal.
7. Place speed control lever in second position.
8. Remove the cotter pin and flat washer which secures the speed control link to the variable speed torque bracket assembly.
9. Push the clutch-brake pedal backward by hand as far as it will go using light pressure. Hold it in this position as you thread the speed control link in or out of the ferrule until it lines up with the pin on the variable speed torque bracket assembly.
10. Secure speed control link to variable speed torque bracket assembly with flat washer and cotter pin.

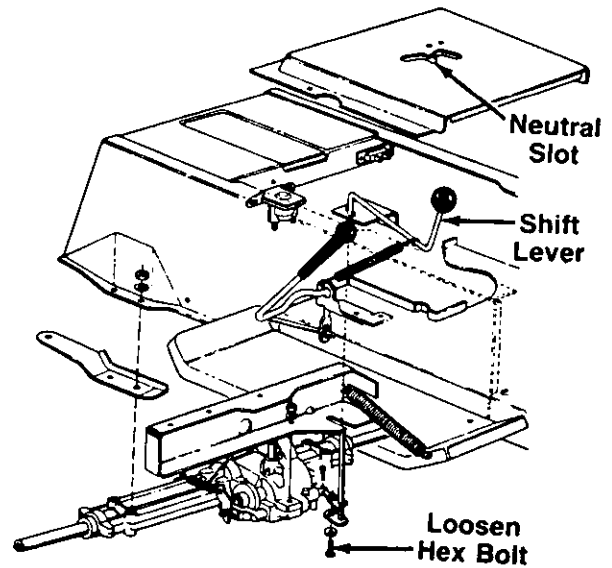


FIGURE 20.

NEUTRAL ADJUSTMENT

1. Place the transmission in neutral. (The unit will move freely when pushed forward and backward with the parking brake released.)
2. Loosen the bolt which secures the shift lever assembly to the shift lever link. See figure 20.
3. Place the shift lever in the neutral slot. See figure 20.
4. Tighten the bolt to 13 foot pounds.

WHEEL ADJUSTMENT

The caster (forward slant of the king pin) and the camber (tilt of the wheels out at the top) require no adjustment. Automotive steering principles have been used to determine the caster and camber on the tractor. The front wheels should toe-in 1/8 inch.

To adjust the toe-in, follow these steps.

1. Remove the hex nut and lock washer, and drop the tie rod end from the wheel bracket. See figure 21.

2. Loosen the hex jam nut on tie rod.
3. Adjust the tie rod assembly for correct toe-in.

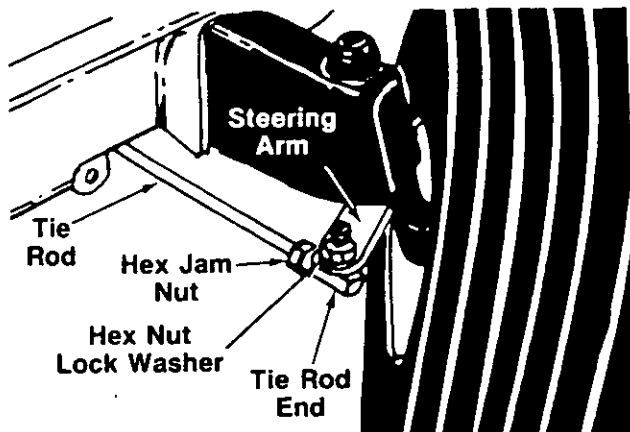


FIGURE 21.

Dimension "B" should be approximately 1/8" less than Dimension "A." See figure 22.

- A.) To increase Dimension "B," screw tie rod into tie rod end.
- B.) To decrease Dimension "B," unscrew tie rod from tie rod end.
- C.) Reassemble tie rod. Check dimensions. Readjust if necessary.

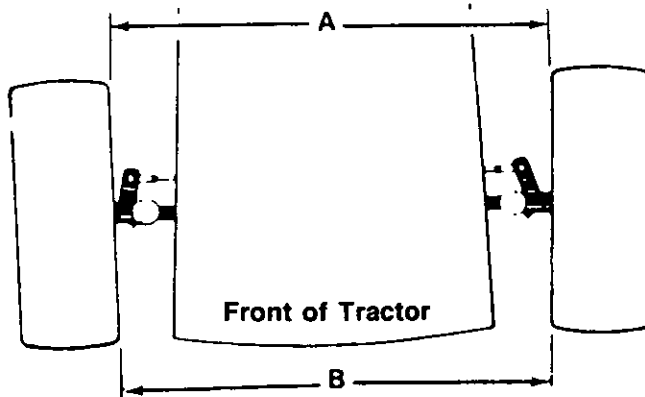


FIGURE 22. TOE-IN DIAGRAM

CARBURETOR ADJUSTMENT



If any adjustments are made to the engine while the engine is running (e.g. carburetor), disengage all clutches, and blades. Keep clear of all moving parts. Be careful of heated surfaces and muffler.

Minor carburetor adjustment may be required to compensate for differences in fuel, temperature, altitude and load. To adjust the carburetor, refer to the separate engine manual packed with your unit.

BRAKE ADJUSTMENT (See figure 23)

The brake is located by the right rear wheel inside the frame. During normal operation of this machine, the brake is subject to wear and will require periodic examination and adjustment.



Do not have the engine running when you adjust the brake.

To adjust the brake, remove the cotter pin. Adjust the castle nut so the brake starts to engage when the brake lever is 1/4" to 5/16" away from the axle housing.



Figure 23 is shown with the unit tipped up on rear wheels for clarity only.

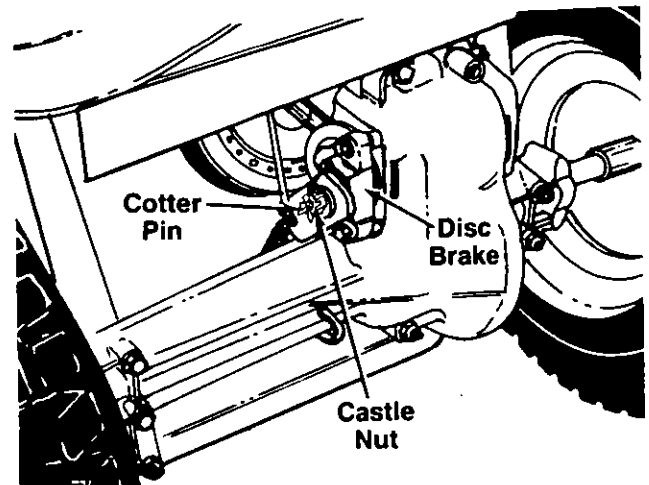


FIGURE 23.

LUBRICATION



Always stop engine and disconnect spark plug wire before cleaning, lubricating or doing any kind of work on lawn tractor.

STEERING GEARS

Lubricate teeth of steering gears with automotive multi-purpose grease after every 25 hours of operation or once a season. See figure 24.

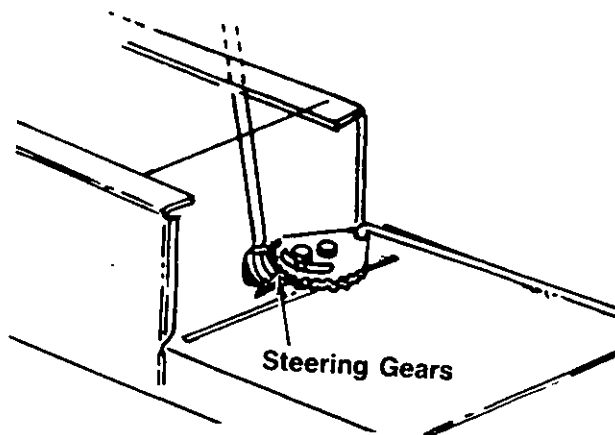


FIGURE 24.

STEERING SHAFT

Lubricate steering shaft at least once a season with light oil.

TRANSAXLE

The transaxle is lubricated and sealed at the factory and does not require checking. If disassembled for any reason, lubricate with 10 oz. of grease, part number 737-0148.

FRONT WHEELS

The front wheels are provided with grease fittings. Lubricate at least once a season with automotive multi-purpose grease.

PIVOT POINTS

Lubricate all pivot points with light oil at least once a season.

CRANKCASE OIL

Check the oil level in the crankcase before each use of the machine and after every five hours of operation. Oil level should be maintained as instructed in the separate engine manual.

After the first five hours of operating a new engine, drain the oil from the crankcase while engine is still hot and refill crankcase with new oil; thereafter change the oil every 25 hours of operation. Refer to the engine manual.

AIR CLEANER

Under normal operating conditions, the air cleaner, located on top of the carburetor, must be serviced after every ten hours of use. Under extremely dusty operating conditions, the air cleaner must be serviced after every hour of operation. To service the air cleaner, refer to the separate engine manual packed with your unit.

CLEANING ENGINE AND BLADE HOUSING

Any fuel or oil spilled on the machine should be wiped off promptly. Grass, leaves, and other dirt must not be left to accumulate around the cooling fins of the engine or on any part of the machine.

Clean the underside of the blade housing after each mowing.

SPARK PLUG

The spark plug should be cleaned and the gap reset once a season. Spark plug replacement is recommended at the start of each mowing season; check engine manual for correct plug type and gap specification.

CUTTING BLADE

A. Removal for Sharpening or Replacement



WARNING

Be sure to disconnect and ground the spark plug wire and remove ignition key before working on the cutting blade to prevent accidental engine starting. Protect hands by using heavy gloves or a rag to grasp the cutting blades.

1. Remove the large bolt and lock washer which holds the blade and adapter to the blade spindle.
2. Remove the blade and adapter from the spindle. Be careful not to lose the key on the spindle.
3. If the blade or blade adapter needs replacing, remove the two small bolts, lock washers and nuts which hold the blade to the adapter.

MAINTENANCE



WARNING

Disconnect the spark plug wire and ground against the engine before performing any repairs or maintenance.

B. Sharpening

Remove the cutting blade by following the directions of the preceding section.

When sharpening the blade, follow the original angle of grind as a guide. It is **extremely important** that each cutting edge receives an equal amount of grinding to prevent an unbalanced blade. An unbalanced blade will cause excessive vibration when rotating at high speeds, may cause damage to the mower and could break, causing personal injury.

The blade can be tested for balance by balancing it on a round shaft screwdriver. Remove metal from the heavy side until it balances evenly.



It is recommended that the blade always be removed from the adapter for the best test of balance.

C. Reassembly

Before reassembling the blade and the blade adapter to the unit, lubricate the spindle and the inner surface of the blade adapter with light oil. Lubricating the bolt holes, bolts and inner surface of the nuts with light oil is also recommended. A 4 oz. plastic bottle of light oil lubricant is available. Order part number 737-0170. Engine oil may also be used.

When replacing the blade, be sure to install the blade with the side of the blade marked "Bottom" (or with part number) facing the ground when the mower is in the operating position. Make certain key is in place on the crankshaft.

Blade Mounting Torque

3/8" Dia. Bolt 375 in. lb. min., 450 in. lb. max.

5/16" Dia. Bolt 150 in. lb. min., 250 in. lb. max.

To insure safe operation of your unit, **ALL** nuts and bolts must be checked periodically for correct tightness.

FUEL FILTER

Your unit is equipped with a replaceable in-line fuel filter. Replace filter whenever contamination or discoloration is noticed. Order replacement filter through your engine authorized service dealer.

DRIVE BELT REMOVAL AND REPLACEMENT



Disconnect the spark plug wire and ground it against the engine. Block the wheels of the unit.



Figures 26 through 29 are shown with the unit tipped up for clarity. It is not necessary to tip the unit to remove the belts.

However, if tipping the unit is desired, remove the battery from the unit. To prevent gasoline leakage, drain the gasoline, or remove the fuel tank cap, place a thin piece of plastic over the neck of the fuel tank and screw on the cap. Be certain to remove the plastic when finished changing the belts. Block unit securely.

Rear Drive Belt

1. Remove the two truss head screws which secure the transmission cover. See figure 5.
2. Lift the transmission cover. Unplug the green safety wire from beneath the transmission cover. Refer to figure 6. Remove transmission cover.
3. Push the idler pulley toward the right side of the unit. Lift the belt over the idler pulley. See figure 25.
4. Remove the belt from the variable speed pulley.
5. Remove the two bolts which hold the shift lever bracket to the frame on the left side of the unit. Swing the bracket toward the right so the belt can be removed from the transmission pulley. See figure 25.
6. Replace belt, and reassemble in reverse order.

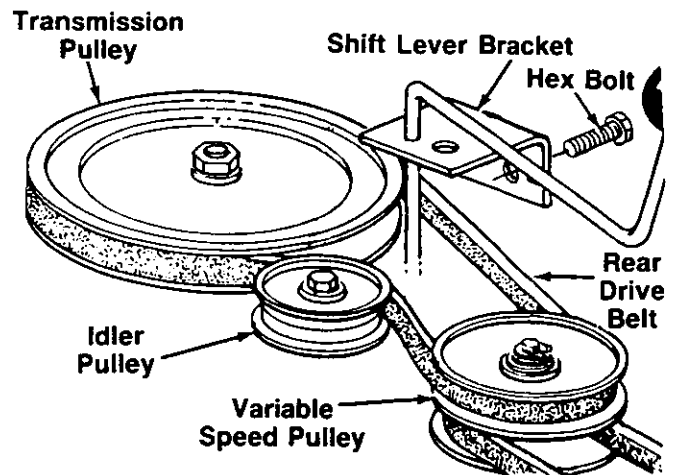


FIGURE 25.

Front Drive Belt

1. To remove the front drive belt, first remove the rear drive belt from the idler pulley and variable speed pulley.

2. Place the lift lever in the disengaged position.
3. Remove the three hex bolts (belt keepers) from the engine pulley belt guard. See figure 26.



Make certain hex bolts are reassembled as shown in figure 26.

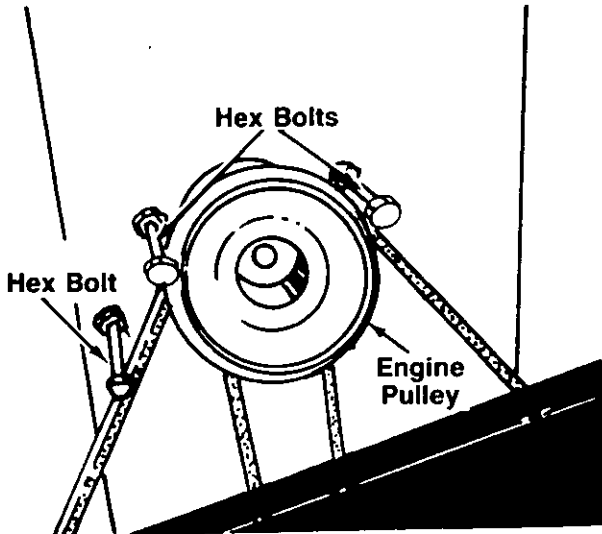


FIGURE 26.

4. Unhook the deck belt from the engine pulley.
5. Remove the two bolts, lock washers and nuts on each side of the frame which hold the engine pulley belt guard to the frame. See figure 27.

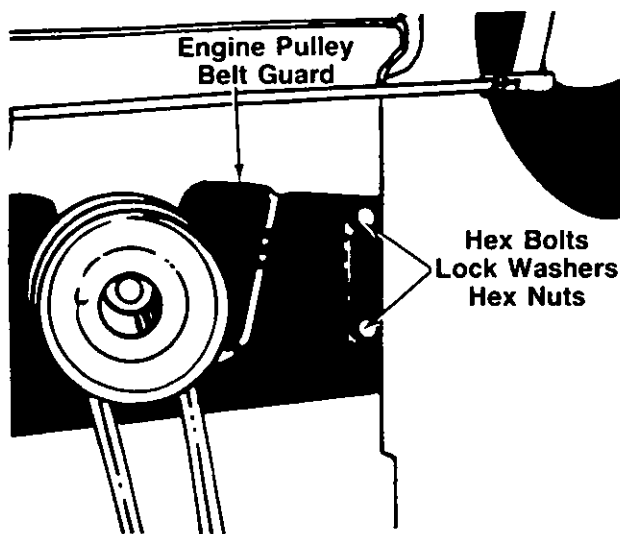


FIGURE 27.

6. Remove the engine pulley belt guard by slipping it back and to the right. See figure 28.

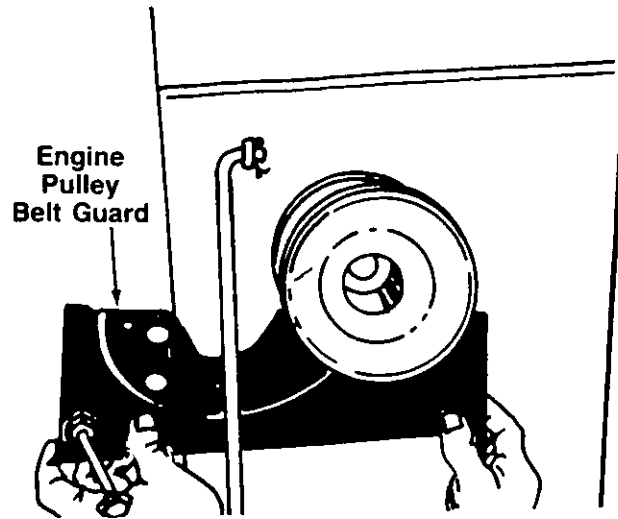


FIGURE 28.

7. Place the clutch-brake pedal in park position.
8. Push forward on the variable speed pulley, and lift the belt off the engine pulley and remove the belt from the engine pulley.
9. Release the clutch-brake pedal. Using the pedal to move the variable speed pulley as necessary, lift the belt up and off the variable speed pulley.



When reassembling, make certain belt is inside the pins. See figure 29.

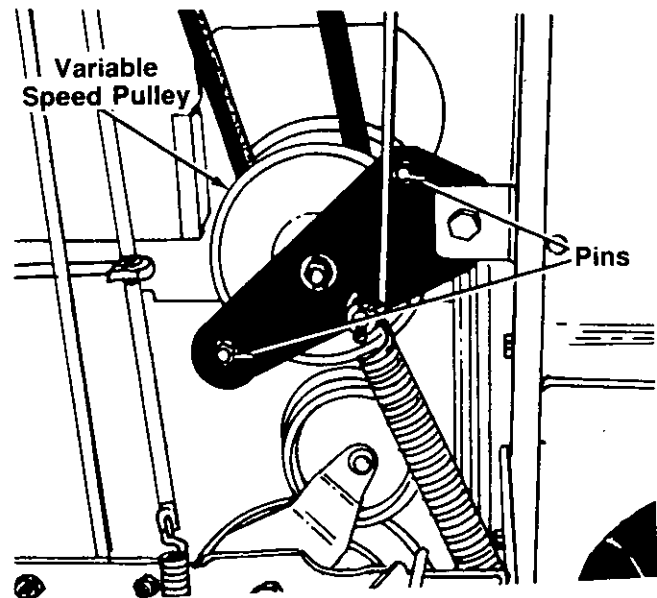


FIGURE 29.

10. Reassemble with a new belt, following instructions in reverse order.

BATTERY REMOVAL OR INSTALLATION



WARNING

When removing the battery, follow this order of disassembly to prevent the screwdriver from shorting against the frame.

1. Remove the Negative cable.
2. Remove the Positive cable.

To install a battery:

1. Attach the Positive cable.
2. Attach the Negative cable.

JUMP STARTING

1. Attach the first jumper cable from the Positive terminal of the good battery to the Positive terminal of the dead battery.
2. Attach the second jumper cable from the Negative terminal of the good battery to the **FRAME OF THE UNIT WITH THE DEAD BATTERY.**



WARNING

Failure to use this starting procedure could cause sparking, and the gas in either battery could explode.

BATTERY MAINTENANCE

1. Check periodically (every two weeks or before and after charging) to be sure electrolyte level is above the lowest line on battery. Add only distilled water or a good quality drinking water. **NEVER** add additional acid or other chemicals to battery after initial activation.
2. The battery should be checked with a hydrometer after every 25 hours of operation. If the specific gravity is less than 1.225, remove battery and recharge.
3. Coat the terminals and exposed wiring with a thin coat of grease or petroleum jelly for longer service and protection against electrolyte corrosion.
4. The battery should be kept clean. Any deposits of acid should be neutralized with soda and water. Be careful not to get this solution in the cells.

BATTERY STORAGE

1. Charge battery using normal methods. **NEVER** store discharged battery as it will not recover.
2. When storing battery for extended periods, disconnect battery cables. Removing battery from unit is recommended.
3. Store in cold, dry place.

4. Recharge battery whenever the specific gravity is less than 1.225, before returning to service, or every two months, whichever occurs first.

COMMON CAUSES FOR BATTERY FAILURE ARE:

1. Overcharging
2. Undercharging
3. Lack of water
4. Loose holds downs and/or corroded connections
5. Excessive loads
6. Battery electrolyte substitutes
7. Freezing of electrolyte



NOTE

THESE FAILURES DO NOT CONSTITUTE WARRANTY.

INSTALLATION OF TIRE TO RIM



WARNING

The following procedure must be followed when removing or installing a tire to the rim.

1. Be sure rim is clean and rust free.
2. Lubricate both the tire and rim generously.
3. Never inflate to over 30 p.s.i. to seat beads. Excessive inflation pressure when seating beads may cause tire/rim assembly to burst with force sufficient to cause serious injury.

OFF-SEASON STORAGE

If the machine is to be inoperative for a period longer than 30 days, prepare for storage as follows.

1. Clean the engine and the entire unit thoroughly.
2. Lubricate all lubrication points. Wipe the entire machine with an oiled rag to protect the surfaces.
3. Refer to the engine manual for correct engine storage instructions. The engine must be completely drained of fuel to prevent gum deposits from forming on essential carburetor parts, fuel lines and fuel tanks.
4. Refer to battery storage instructions in previous column.
5. Store unit in a clean, dry area.



NOTE

When storing any type of power equipment in an unventilated or metal storage shed, care should be taken to rustproof the equipment. Using a light oil or silicone, coat the equipment, especially any chains, springs, bearings and cables.

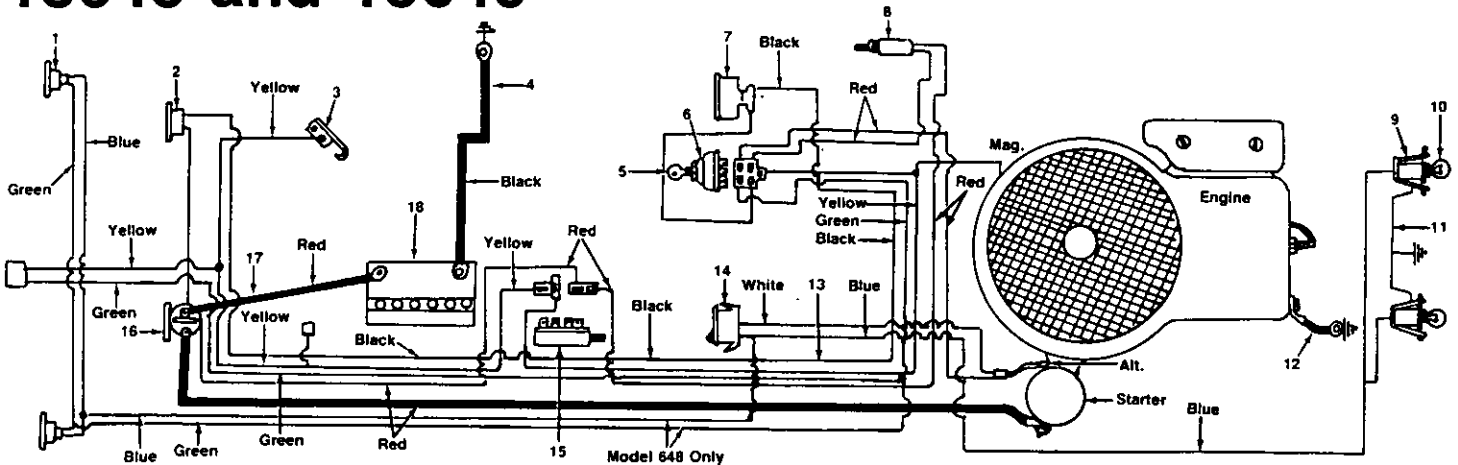
TROUBLE SHOOTING CHART FOR ELECTRIC START MODELS

TROUBLE	LOOK FOR	REMEDY
Engine will not crank	Battery installed incorrectly	The battery must be installed with the negative, identified at the terminal post by (Neg, N or -), grounded. The positive (Pos, P or +) attaches to the large cable from the solenoid. The small red wire from the fuse holder or circuit breaker is also attached to the positive terminal.
	Blown fuse or circuit breaker	Replace fuse with 7½ amp. fuse ¼ x 1¼" lg. Circuit breaker will reset itself when it cools off. Fuses or circuit breakers seldom open or fail without a reason. The problem must be corrected. Check for loose connections in the fuse holder. Replace fuse holder if necessary. A dead short may be in the cranking or charging circuit where the insulation may have rubbed through and exposed the bare wire. Replace the wire or repair with electrician's tape if the wire strands have not been damaged. Note: Look for a wire pinched between body panels, burned by the exhaust pipe or muffler or rubbed against a moving part.
	Battery is dead or weak	<p>Use a hydrometer to check the condition of the battery. The Specific Gravity (s.g.) should be 1.265 at 80°F. (1.215 s.g. minimum needed for cranking engine). The reason for the battery failing must be determined. (1) Defective battery. Battery will not accept or hold a full charge. (2) Short circuit. Check for grounded wire. (3) Charging system not working, either engine alternator or trickle charger.</p> <p>Trickle Charger. Check with multimeter. Charger 725-0578—input 120 V A.C., no load output 13.5 V D.C., rated load current 1 amp. Charger 725-0507—input 120 V A.C., no load output 17.4 V D.C., rated load current 1/2 amp.</p> <p>Alternator (dual or single circuit) The charging system is an alternator located under the flywheel. It is unregulated and rated 3 amp. at 3600 r.p.m. A diode (rectifier) is located in the output lead just before the wire harness plug on the engine side.</p> <div style="text-align: center;"> </div> <p>The diode changes A.C. to D.C. to charge the battery. A bad diode can either fail to charge the battery or discharge the battery if the alternator is shorted as well as the diode. To test: (1) Disconnect charger lead from the battery (small red wire). (2) Connect 12 V small test lamp between the 3 amp. D.C. charge lead and the positive terminal of the battery. (3) With the engine off, the lamp should not light. If it does, the diode and possibly the alternator should be replaced. (4) Start the engine. The lamp should light. If it does not, the alternator (stator) or lead wire is bad and should be replaced.</p>
Mechanical failure. (Wires and switches)	The interlock system includes two mechanical activated switches which are wired in series in the circuit used to energize the starter solenoid. While testing the interlock system, you will make the mower temporarily unsafe by permitting the engine to be started with the blade and clutch engaged. WARNING: While testing, disengage the clutch, shut off the blade control, set the parking brake and place the gear shift lever in neutral. Attach a wire (minimum 18 gauge) to the positive terminal of the battery and touch the other end to the small terminal on the solenoid. If the engine does not crank: (1) There is a loose connection or poor ground. (2) The solenoid may be bad. The solenoid can be checked by using a heavy wire (#8 gauge minimum) and jumping between the two large terminals. If the engine cranks, the solenoid is bad. (3) If the engine does not crank when you jump the solenoid, have the starter motor tested by an authorized engine dealer. If the engine does crank, the problem is with one of the safety switches, ignition switch or the wire between the fuse holder (or circuit breaker) and the small terminal on the solenoid. Note: Look for a poor connection at the switches or a defective switch. Replace if necessary.	
Engine cranks but will not start	Throttle or choke not in starting position	Check owner's guide for correct position for throttle control and choke (if separate control) for starting.

TROUBLE SHOOTING CHART FOR ELECTRIC START MODELS

TROUBLE	LOOK FOR	REMEDY
	No spark to spark plug	Spark plug lead disconnected. Connect lead. Hold spark plug lead away from engine block about 1/8". Crank engine. There should be a spark. If not, have engine repaired at authorized engine service dealer. Faulty spark plug. To test, remove spark plug. Attach spark plug lead to spark plug. Ground the spark plug body against the engine block. Crank the engine. The spark plug should fire at the electrode. Replace if it does not.
	No fuel to the carburetor	Gasoline tank empty. Fill. Fuel valve shut off. Open valve. Valve is located either at the bottom of the fuel tank or on the carburetor. Fuel line plugged. Remove and clean.
	Air filter dirty	If the air cleaner is dirty, the engine may not start. Clean or replace as recommended by the engine manufacturer.
Engine smokes	Engine loses crankcase vacuum	Dipstick not seated or broken. Replace defective part. Engine breather defective. Replace.
Excessive vibration	Bent or damaged blade spindle	Stop engine immediately. Check all pulleys, blade adapters, keys and bolts for tightness and damage. Tighten or replace any damaged parts.
	Bent blade	Stop engine immediately. Replace damaged blade. Only use original equipment blades.
Mower will not discharge grass or leaves uncut strips	Engine speed low Transmission selection Blades short or dull	Throttle must be set between 3/4 and full throttle. Use lower transmission gear. The slower your ground speed, the better the quality of cut. Sharpen or replace blades (uncut strip problem only).

13648 and 13649



PARTS LIST FOR ELECTRICAL SYSTEM MODELS 648 AND 649

REF. NO.	PART NO.	COLOR CODE	DESCRIPTION	NEW PART	REF. NO.	PART NO.	COLOR CODE	DESCRIPTION	NEW PART
1	725-1128		Taillight (648 Only)	N	11	725-0916		Grounding Wire	
2	725-0459		Circuit Breaker		12	725-0976		Ground Wire 7.25" Lg.	
3	725-0759		Spring Switch		13	725-1188		Wire Harness (648)	N
4	725-0975		Ground Wire 9.0" Lg.			725-1178	7	Wire Harness (649)	N
5	725-0201		Ignition Key		14	725-1130		Light Switch	
6	725-0267		Ignition Switch		15	725-0803		Safety Switch	
7	725-0925		Ammeter		16	725-0771		Solenoid	
8	725-0577		Safety Switch		17	725-0926		Elec. Wire w/Bolt	
9	725-1058		Socket—Headlight		18	725-0514		12-V Battery	
10	725-0963		Lamp—Headlight						

13648 13649

PARTS LIST FOR MODELS 13648 AND 13649 LAWN TRACTORS

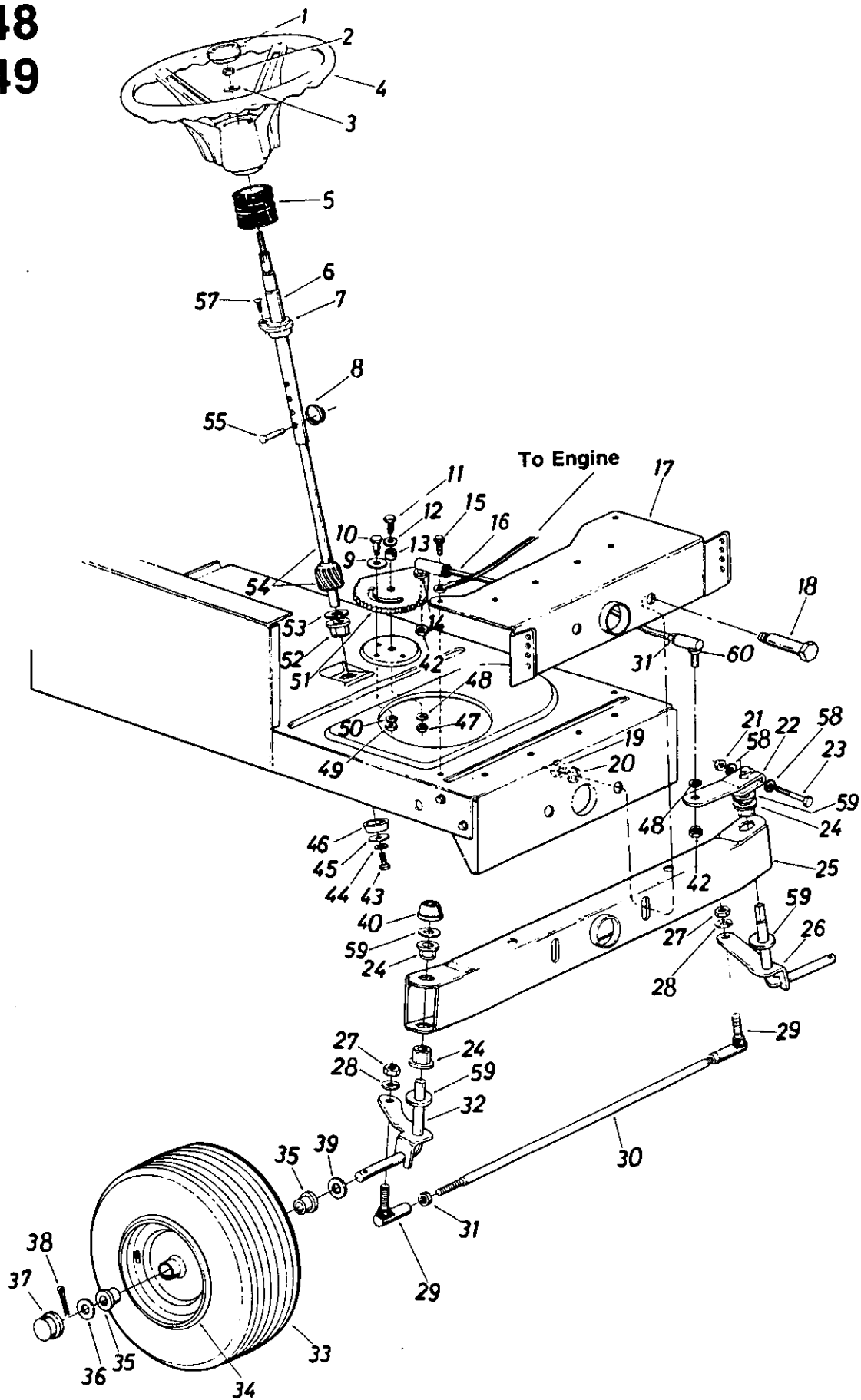
REF. NO.	PART NO.	COLOR CODE	DESCRIPTION	NEW PART	REF. NO.	PART NO.	COLOR CODE	DESCRIPTION	NEW PART
1	15808	499	Hood		44	710-0351		Truss Mach. Tap Scr. #10 x .50" Lg.	
2	710-0258		Hex Scr. ¼-20 x .62" Lg.*		45	710-0167		Carriage Bolt ¼-20 x .50" *	
3	736-0175		Fl-Wash. .296" I.D. x .73" O.D.		47	16433		Transmission Panel	
6	712-0272		Hex Sems Nut #10-24 Thd.*		48	725-0759		Reverse Safety Switch	
7	736-0931		Fl-Wash. .203" I.D. x .41" O.D. x .040		49	726-0222		Insulator Nut Plate	
8	727-0290		Hood Stop		50	14607		Hitch Plate	
9	710-0473		Truss Hd. Scr. #10-24 x ½"*		51	14603		L.H. Side Frame	
10	723-0333		Fuel Cap Gauge		53	14605		Fuel Tank Support	
11	751-0172		Fuel Tank		54	710-0255		Truss Hd. Scr. ¼-20 x .75" Lg.*	
12	726-0209		Tie Strap		55	15814		Side Cover—R.H.	
13	726-0207		Hose Clamp			15815		Side Cover—L.H. (Not Shown)	
14	751-0173		Fuel Line		56	710-0286		Truss Mach. Scr. ¼-20 x .50" Lg.*	
15	725-0963		Lamp		58	736-0921		L-Wash. ½" I.D.*	
16	725-1058		Twist Lock—Lamp Socket		59	831-0823		Throttle Control Box Ass'y.	N
17	731-0705		Headlight Housing	N	60	746-0638		Throttle Control Wire	N
18	731-0787		Headlight Bezel		61	710-0376		Hex Bolt 5/16-18 x 1.0"*	
19	712-0324		Hex L-Nut ¼-20 Thd.		62	732-0458		Seat Spring 5.5" High	
20	710-0118		Hex Bolt 5/16-18 x .75" Lg.*	N	63	725-0201		Ignition Key	
21	16457	499	Grille		64	725-0267		Ignition Switch	
22	15818		Dash Support Bracket		65	16489		Dash Panel	
23	736-0119		L-Wash. 5/16" I.D.*		66	725-1130		Light Switch	
24	712-0267		Hex Nut 5/16-18 Thd.*		67	725-0925		Ammeter	
25	747-0475		Battery Strap Hook		68	731-0511		Trim Strip—27"	
26	731-0718		Battery Hold Down Strap		69	732-0462		Hood Spring	
27	725-0514		12V Battery		70	757-0299	3/8	Seat Ass'y.	
28	15930		Lower Frame		71	710-0865		Hex Bolt ½-13 x 1.0" Lg. (2 Req'd.)	
29	14619		Front Pivot Brk't.		72	726-0139		Speed Nut #10Z	
30	15821		Grille Mount Brk't.—L.H.		73	710-0749		Hex Scr. #10-24 x 1.0" Lg.	
31	15822		Grille Mount Brk't.—R.H.		75	15931		Tie Strap—Grille/Side Panel	
32	710-0726		Hex Wash. Hd. AB-Tap Scr. 5/16 x .75" Lg.		76	731-0511		Trim Strip—81"	
33	738-0526		Running Board Rod		77	710-0642		Hex Wash. Hd. Tap Scr. ¼ x .75" Lg.	
34	14604		Running Board (R.H. & L.H.)		78	722-0157		Foam Strip 3/8 x 1-1/8" x 1½" Lg. (2 Req'd.)	
35	—		Blade Brake Ass'y. (Refer to Deck Breakdown)		79	710-0227		Hex Wash. Hd. AB-Tap #8 x .50" Lg.	
36	712-0287		Hex Nut ¼-20 Thd.*		82	746-0615		Choke Control 29" Lg.	N
37	736-0329		L-Wash. ¼" I.D.*		83	710-0779		Truss Mach. AB-Tap Scr. #10 x .5" Lg.	
38	710-0323		Truss Mach. Scr. 5/16-18 x .75" Lg.*		84	710-0936		Truss Hd. AB-Tap Scr. #6 x .62" Lg. (648)	
39	731-0753		Foot Pad (648)		85	725-1128		Taillight (648)	N
	731-0754		Foot Pad (649)		86	731-0788		Upper Frame For Bezel	N
40	710-0134		Carriage Bolt ¼-20 x .62" *		87	731-0789		Lower Frame For Bezel	N
41	14602		R.H. Side Frame						
42	15848		Fender Mount Brace						
43	16472	621	Rear Fender (648)	N					
	16198		Rear Fender (R.H.) (649)						
	15350		Rear Fender (L.H.) (649)						

(499—Beige)
(621—Brilliant Fire Mist)

*For faster service obtain standard nuts, bolts and washers locally. If these items cannot be obtained locally, order by part number and size as shown on parts list.

If color or finish is important when ordering parts, use the appropriate color code shown below [i.e. (part no.)-621 for Brilliant Fire Mist Finish].

13648
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13648

13649

PARTS LIST FOR MODELS 13648 AND 13649 LAWN TRACTORS

REF. NO.	PART NO.	COLOR CODE	DESCRIPTION	NEW PART	REF. NO.	PART NO.	COLOR CODE	DESCRIPTION	NEW PART
1	731-0220		Steering Wheel Cap		27	712-0241		Hex Nut 3/8-24 Thd.*	
2	712-0267		Hex Nut 5/16-18 Thd.†		28	736-0169		L-Wash. 3/8" I.D.*	
	712-0123		Hex Nut 5/16-24 Thd.††		29	723-3018		Ball Joint 3/8-24 Thd.	
3	736-0242		Belleville Wash. .345" I.D.		30	711-0613		Tie Rod	
4	731-0356		Steering Wheel†		31	712-0711		Hex Jam Nut 3/8-24 Thd.*	
	731-0806		Steering Wheel††	N	32	14650		Front Axle Ass'y.—R.H.	
5	731-0559		Steering Bellow—4.5"		33	**		Wheel Ass'y. Comp.	
6	14775		Steering Column Ass'y.†		34	**		Front Wheel Rim Only	
	16512		Steering Column Ass'y.††	N	35	741-0313		Bearing	
7	741-0356		Flange Bearing .890 I.D. x 1.36 O.D.		36	736-0285		FI-Wash. .635 I.D. x 1.59" O.D.	
8	714-0150		Locking Ring		37	731-0484		Front Wheel Hub Cap	
9	736-0319		FI-Wash. .438" I.D. x 1.37" O.D.		38	714-0470		Cotter Pin 1/8" Dia. x 1.25"*	
					39	736-0187		FI-Wash. .640" I.D. x 1.24" O.D.	
10	738-0141		Shoulder Bolt .437" Dia. x .35 Lg. 5/16-18 Thd.		40	726-0214		Push Cap 5/8" Dia. Rod	
11	710-0152		Hex Bolt 3/8-24 x 1.0" Lg. (Grade 5)		42	712-0241		Hex Nut 3/8-24 Thd.*	
12	736-0258		FI-Wash. .38" I.D. x 1.0" O.D.		43	710-0538		Hex L-Bolt 5/16-18 x .62"*	
					44	736-0119		L-Wash. 5/16" I.D.*	
13	750-0535		Spacer .380" I.D. x .625" O.D. x .227		45	736-0231		FI-Wash. .344" I.D. x 1.25" O.D.	
14	736-0169		L-Wash. .38" I.D.*		46	750-0532		Spacer (Plastic)	
15	710-0726		Hex Wash. Hd. Self-Tap Scr.		47	712-0241		Hex Nut 3/8-24 Thd.*	
16	711-0788		Steering Drag Link	N	48	736-0169		L-Wash. 3/8" I.D.*	
17	14619		Front Pivot Brkt.		49	712-0267		Hex Nut 5/16-18 Thd.*	
18	738-0527		Shoulder Bolt .498" Dia. x 2.04 Lg. 3/8-16 Thd.		50	736-0119		L-Wash. 5/16" I.D.*	
					51	717-0622		Steering Gear Segment	N
19	712-0798		Hex Nut 3/8-16 Thd.*		52	741-0225		Hex Flg. Brg. .634 I.D.	
20	736-0169		L-Wash. 3/8" I.D.*		53	736-0187		FI-Wash. (Hardened)	
21	712-0237		Hex Cent. L-Nut 5/16-24 Thd.		54	738-0522		Steering Shaft Lower	
					55	711-0684		Clevis Pin 1/4" Dia. x 1.0"	
22	16481		Steering Arm Front Axle	N	57	710-0837		Oval Hd. Cr.—Sunk Scr. #10 x 5/8" Lg.	
23	710-0772		Hex Bolt 5/16-24 x 2.00" Lg. (Grade 5)		58	736-0271		Wave-Wash. .32" I.D. x .62" O.D.	
24	741-0225		Hex Flg. Brg. .634 I.D.		59	736-0187		FI-Wash. (Hardened)	
25	14608		Pivot Bar Ass'y.		60	723-3018		Drag Link Ball Joint 3/8-24 Thd.	
26	16479		Front Axle Ass'y.—L.H.						

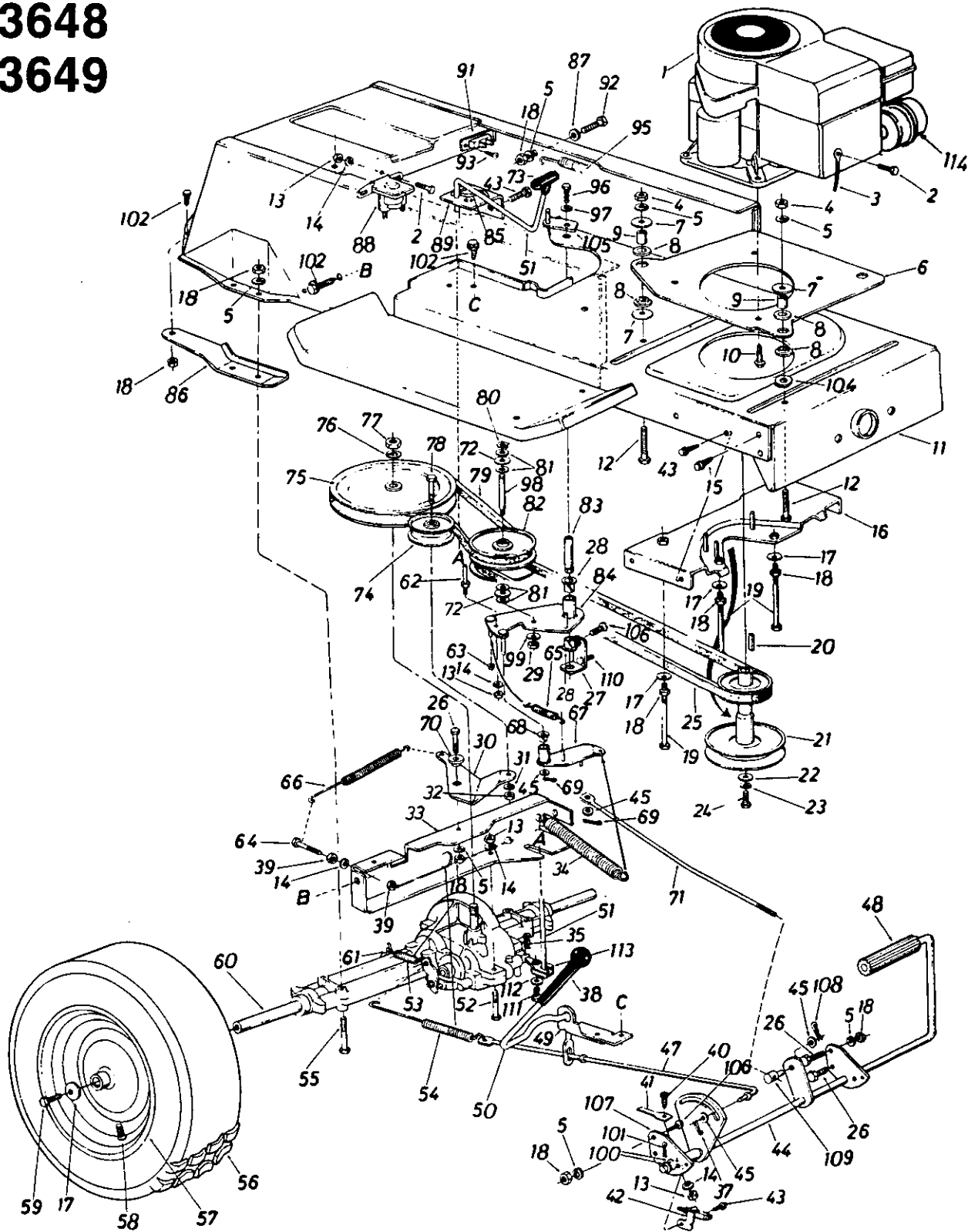
†Steering Shaft With Two Flats
 ††Steering Shaft With Splined End

*For faster service obtain standard nuts, bolts and washers locally. If these items cannot be obtained locally, order by part number and size as shown on parts list.

**FRONT WHEEL CHART

Description	15 x 6.00
Wheel Assembly Comp.	734-0863
Tire Only	734-0864
Rim Only	734-0864
Bearing	741-0313
Air Valve	734-0255
Grease Fitting	737-0146

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**REAR WHEEL CHART

Description	18 x 9.50 (13648)	18 x 6.50 (13649)
Wheel Assembly Comp.	734-0817	734-1132
Tire Only	734-0448	734-0294
Rim Only	734-0603	734-1133

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PARTS LIST FOR MODELS 13648 AND 13649 LAWN TRACTORS

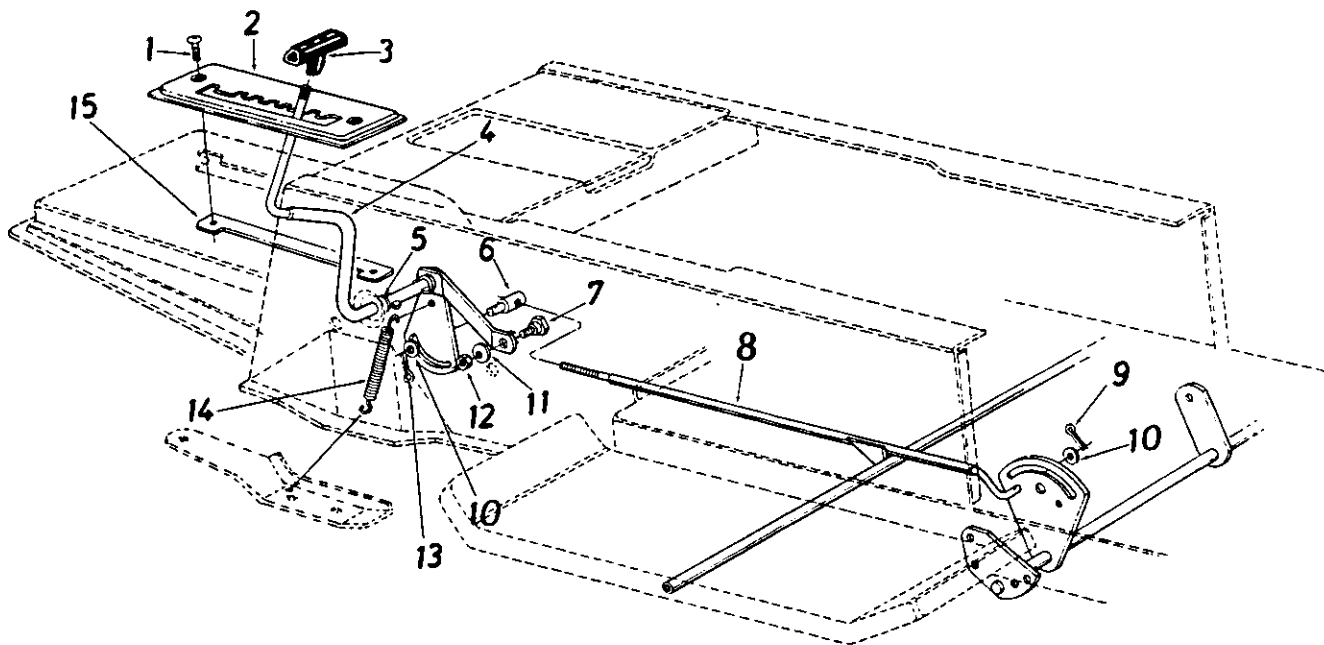
REF. NO.	PART NO.	COLOR CODE	DESCRIPTION	NEW PART	REF. NO.	PART NO.	COLOR CODE	DESCRIPTION	NEW PART
1	—		Engine		55	710-0176		Hex Bolt 5/16-18 x 2.75" *	
2	710-0258		Hex Bolt 1/4-20 x .62" Lg. *		56	**		Wheel Ass'y. Comp.	
3	725-0122		Electric Ground Wire		57	**		Wheel Rim Only	
4	712-0123		Hex Nut 5/16-24 Thd. *		58	734-0255		Air Valve (Service Only)	
5	736-0119		L-Wash. 5/16" I.D. *		59	710-0627		Hex Bolt 5/16-24 x .75" Lg. *	
6	14791		Engine Mounting Plate		60	717-0750A		Transaxle Complete	
7	736-0343		FI-Wash. .320" I.D. x 1.25"		61	732-0454		Brake Return Spring Anchor	
8	722-0153		Engine Mounting Grommet		62	711-0768		Belt Guard Pin 1/4-20 Thd.	
9	750-0539		Spacer		63	726-0106		Cap Speed Nut 1/4" Dia.	
10	710-0650		Hex Wash. Hd. TT-Tap Scr. 5/16-18 x 7/8" Lg.		64	710-0428		Hex Bolt 1/4-28 x 1.25" Lg. *	
11	15930		Lower Frame Ass'y.		65	732-0387		Ext. Spring .50" Dia.	
12	710-0158		Hex Bolt 5/16-24 x 1.25" *		66	732-0384		Ext. Spring .62" O.D. x 6.12"	
13	712-0287		Hex Nut 1/4-20 Thd. *		67	16554		Variable Speed Torque Brkt. Ass'y.	N
14	736-0329		L-Wash. 1/4" I.D. *		68	741-0419		Flanged Bearing	
15	710-0781		Hex Wash. Hd. AB-Tap Scr. 5/16" x .75" Lg.		69	714-0507		Cotter Pin 3/32" Dia. *	
16	15898		Belt Guard Brkt. Ass'y.		70	748-0234		Shoulder Spacer .500" Dia. x .27" Lg.	
17	736-0242		Bell-Wash. .345" I.D. x .88"		71	747-0530		Speed Control Link	N
18	712-0267		Hex Nut 5/16-18 Thd. *		72	741-0405		Truss Bearing .56 Dia. x 1.25"	
19	710-0833		Hex Bolt 5/16-18 x 5.25" Lg.		73	720-0210		Ball Knob	
20	714-0114		Sq. Key 1/4" x 1/4" x 2.00"		74	756-0437		FI-Idler Pulley 3.25" x 1.0"	
21	756-0428		Engine Pulley		75	756-0374		1/2" "V"-Pulley 8.0" O.D. x .501" I.D.	
22	736-0322		FI-Wash. 7/16" I.D. x 1.25"		76	736-0921		L-Wash. 1/2" I.D. *	
23	736-0171		L-Wash. 7/16" I.D. *		77	712-0922		Hex Jam Nut 1/2-20 Thd. *	
24	710-0757		Hex Bolt 7/16-20 x 1.50" Lg.		78	710-0539		Hex Bolt 3/8-24 x .75" Lg. *	
25	754-0280		Variable-Speed Belt .715 x 53" Lg.		79	754-0281		Variable Speed Belt .715 x 44" Lg.	
27	16553		Bearing Shaft Bracket Ass'y.	N	80	716-0114		Snap Ring .56" Dia.	
28	741-0295		Flanged Nyliner Brg. 5/8" I.D. x .88" Lg.		81	736-0355		FI-Wash.	
29	712-0241		Hex Nut 3/8-24 Thd. *		82	717-0800		Variable Speed Pulley Ass'y. 5" O.D.	
30	15891		Idler Bracket		83	711-0766		Bearing Shaft	
31	736-0169		L-Wash. 3/8" I.D. *		84	16354		Variable Speed Brkt. Ass'y.	
32	712-0241		Hex Nut 3/8-24 Thd. *		85	732-0525		Comp. Spring—Clip	N
33	15945		Transaxle Support Brkt.		86	14770		Transaxle Support Brkt.—R.H.	
34	732-0459		Ext. Spring .94" O.D. x 6.7			14769		Transaxle Support Brkt.—L.H. (Not Shown)	
35	714-0149		Inter. Cott-Pin		87	736-0231		FI-Wash. .34 I.D. x 1.12 O.D.	
37	714-0507		Cotter Pin 3/32" Dia. x .75" *		88	725-0771		Solenoid	
38	720-0143		Grip—Black		89	16429		Shift Lever Bracket	
39	712-0138		Hex Nut 1/4-28 Thd.		91	725-0459		Circuit Breaker	
40	710-0597		Hex Bolt 1/4-20 x 1.00" Lg. *		92	710-0959		Hex Bolt 5/16-18 x 1.50" Lg.	
41	732-0435		Switch Actuator		93	710-0351		Truss Hd. Phil. Scr. #10 x 1/2" Lg.	
42	725-0577		Safety Switch		95	732-0307		Ext. Spring .99" O.D. x 11.0"	
43	710-0599		Hex Wash. Hd. S-Tap Scr. 1/4-20 x .50" Lg.		96	710-0180		Hex Bolt 3/8-24 x .75" Lg. *	
44	16235		Clutch & Brake Pedal Ass'y.	N	97	736-0105		Bell-Wash. .38" I.D. x .88"	
45	736-0117		FI-Wash.		98	738-0569		Shaft .56" Dia. x 3.875" Lg.	
47	747-0519		Brake Rod 20.9" Lg.		99	736-0331		Bell-Wash. .39" I.D. x 1.12"	
48	735-0196		Foot Pad		100	736-0256		FI-Wash.	
49	15889		Brake Lever Bracket		101	714-0111		Cotter Pin 3/32" Dia. x 1.0" *	
50	15888		Hill Holder Brake Handle		102	710-0604		Hex Wash. Hd. Scr. 5/16-18 x .62" Lg.	
51	16430		Shift Lever Ass'y.	N	104	736-0362		FI-Wash. .32" I.D. x 1.25"	
52	710-0559		Hex Bolt 1/4-28 x 1.75" Lg. *						
53	732-0264		Ext. Spring .38" O.D. x 2.5"						
54	732-0413		Ext. Spring .59" O.D. x 7.08"						

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PARTS LIST FOR MODELS 13648 AND 13649 LAWN TRACTORS (CONTINUED)

REF. NO.	PART NO.	COLOR CODE	DESCRIPTION	NEW PART
105	16067		Belt Guard	
106	710-0323		Truss Mach. Scr. 5/16-18 x .75" Lg.*	
107	15835		Pedal Bracket	
108	714-0507		Cotter Pin 3/32" Dia. x .75"	
109	711-0198		Ferrule	
110	710-0971		Truss Phillips Hd. Scr. 5/16-18 x 1.0" Lg.	
111	710-0195		Hex Bolt 1/4-28 x .50" Lg.	
112	736-0270		Bell-Wash. .265" I.D. x .75"	
113	16437		Shift Lever Link Ass'y.	
114	757-6443		<i>Muffler</i>	

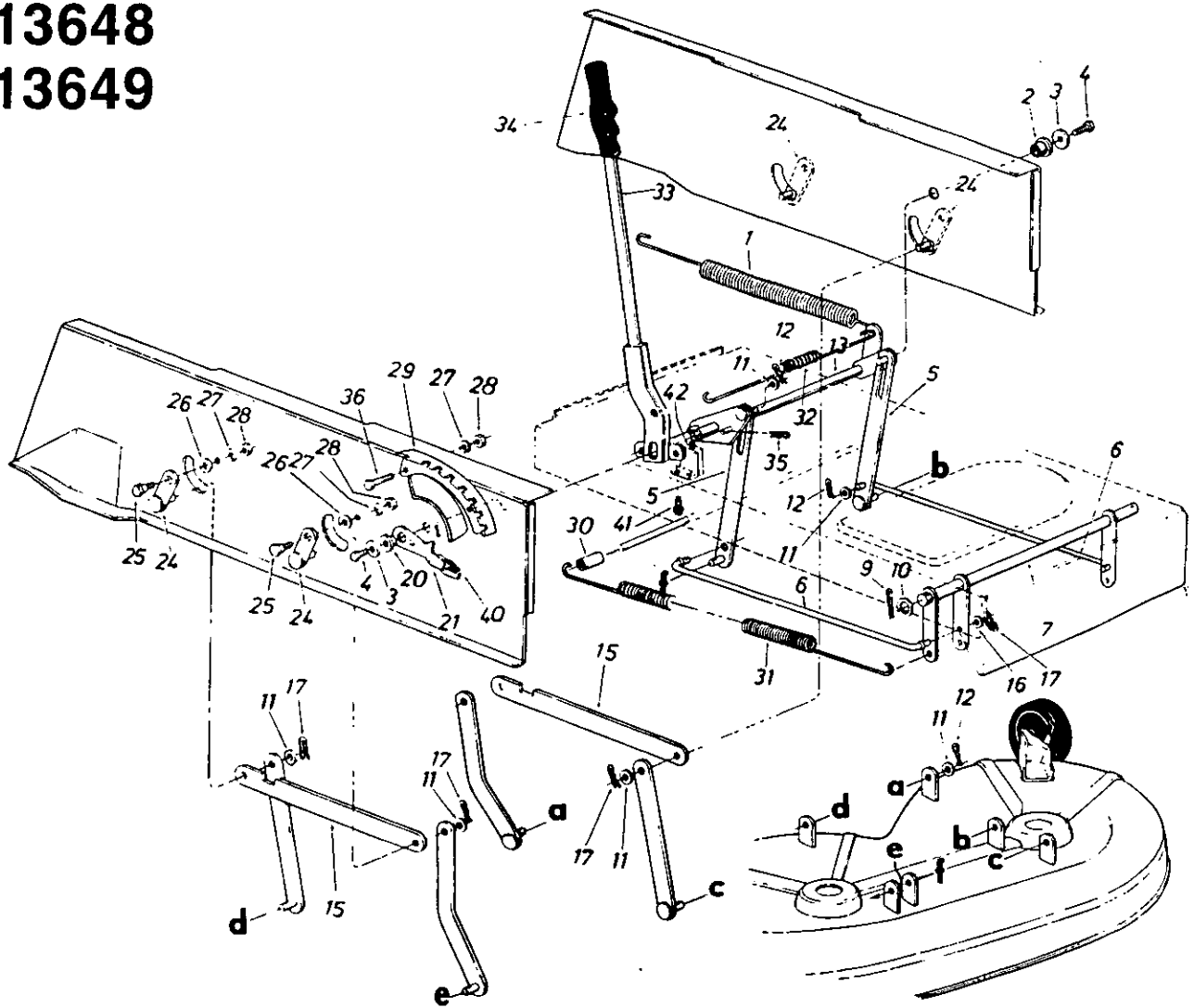
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PARTS LIST FOR MODELS 13648 AND 13649 LAWN TRACTORS

REF. NO.	PART NO.	COLOR CODE	DESCRIPTION	NEW PART	REF. NO.	PART NO.	COLOR CODE	DESCRIPTION	NEW PART
1	710-0924		Truss Mach. Scr. 1/4-20 x .75" Lg.		8	16355		Speed Control Rod Ass'y.	
2	16194		Speed Selector Plate 7-Speed		9	714-0507		Cotter Pin 3/32" Dia. x .75" Lg.*	
3	720-0209		Gear Shift Knob		10	736-0226		Fl-Wash. .469" I.D. x .88" O.D.	
4	16192		Speed Selector Cam Ass'y.		11	736-0119		L-Wash. 5/16" I.D.*	
5	736-0192		Flat Washer .53" I.D. x .93" O.D.		12	712-0267		Hex Nut 5/16-18 Thd.*	
6	711-0196		Ferrule 3/8-24 x .37" Dia.		13	714-0507		Cotter Pin 3/32" Dia. x .75" Lg.*	
7	738-0155		Shoulder Bolt .435" Dia. x .160		14	732-0303		Spring .38" O.D. x 3.18" Lg.	
					15	16196		Clamping Plate	

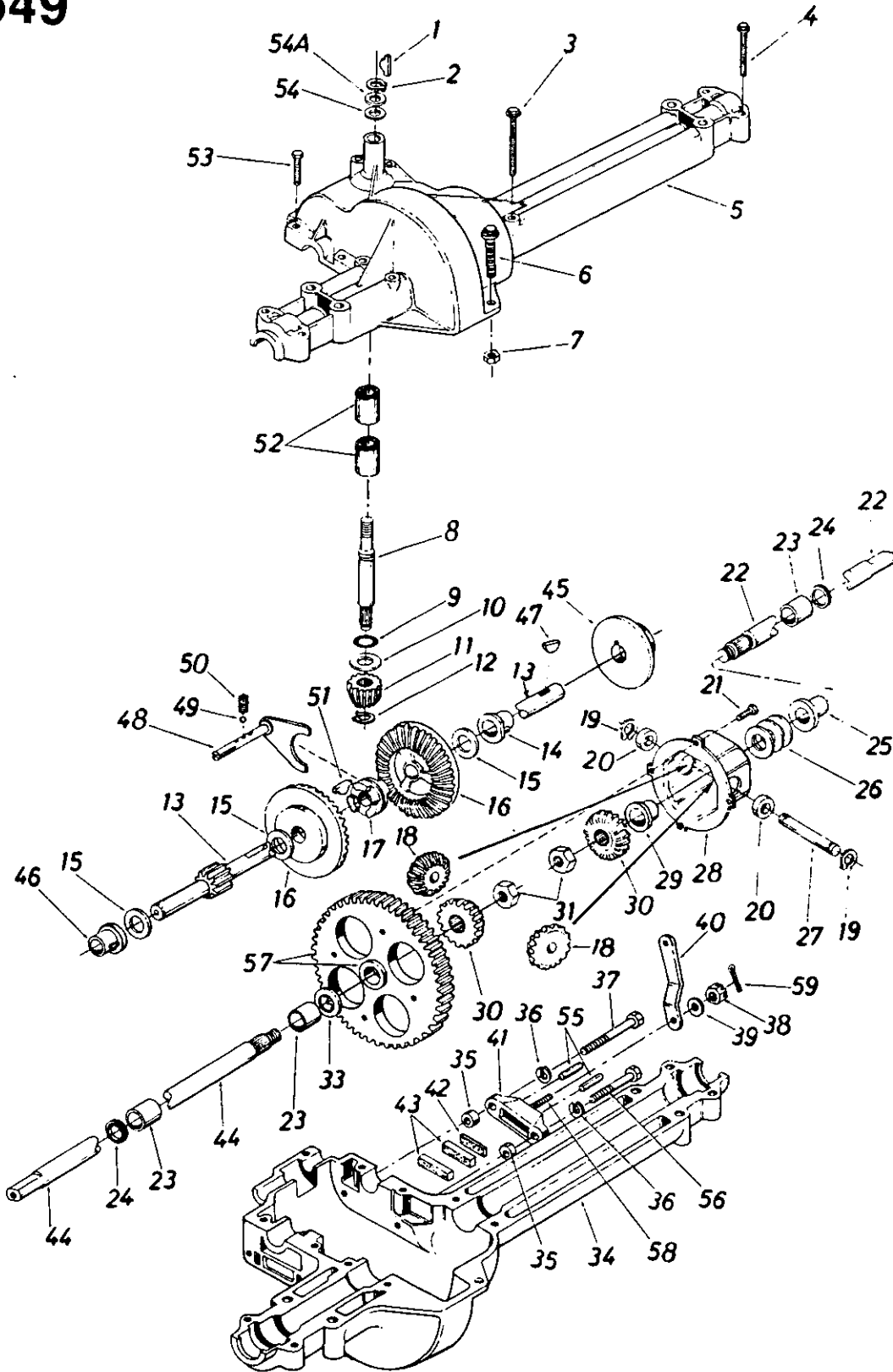
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PARTS LIST FOR MODELS 13648 AND 13649 LAWN TRACTORS

REF. NO.	PART NO.	COLOR CODE	DESCRIPTION	NEW PART	REF. NO.	PART NO.	COLOR CODE	DESCRIPTION	NEW PART
1	732-0307		Extension Spring .99" O.D. x 11.00" Lg.		25	738-0140		Shld. Bolt .437" Dia. x .180" Lg. (5/16-18)	
2	741-0313		Flange Bearing .634" I.D.		26	736-0264		FI-Wash. .344" I.D. x .62"	
3	736-0231		FI-Wash. .344" I.D. x 1.125"		27	736-0119		L-Wash. 5/16" I.D.*	
4	710-0604		Hex Wash. Hd. 5/16-18 x .62" Lg.		28	712-0267		Hex Nut 5/16-18 Thd.*	
5	14802		Link Deck Lift Ass'y.		29	16462		Index Brkt.	N
6	711-0738		Stabilizer Rod		30	711-0425		Spacer .523" I.D. x .640" O.D. x 1.95" Lg.	
7	16234		Stabilizer Shaft Ass'y.	N	31	732-0530		Ext. Spring .99" O.D. x 13.25" Lg.	
9	714-0470		Cotter Pin 1/8" Dia. x 1 1/4"*		32	732-0498		Ext. Spring .56" O.D. x 32 Coils	
10	736-0156		FI-Wash. .635" I.D. x 1.12"		33	16465		Lift Handle Ass'y.	N
11	736-0160		FI-Wash. .531" I.D. x .940"		34	720-0157		Grip (Lift Handle)	
12	714-0111		Inter. Cotter Pin	N	35	714-0145		Intern. Cotter Pin 1/2" Dia.	
13	16463		Lift Shaft Ass'y.		36	710-0118		Hex Bolt 5/16-18 x .75"*	
15	09735		Connecting Rod		40	08540		Knob	
16	736-0300		FI-Wash. .40" I.D. x .88"		41	710-0351		Hex AB-Tap Scr. #10 x .50"	
17	714-0104		Inter. Cotter Pin—3/8" Rod		42	725-0803		Safety Switch	
20	748-0176		Flange Brg. .630" I.D.						
21	732-0412		Deck Lift—Down Stop						
24	09721		Pivot Link Ass'y.						

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SINGLE SPEED TRANSAXLE—R.H.
MODEL 717-0750A

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PARTS LIST FOR SINGLE SPEED TRANSAXLE RIGHT HAND 717-0750A

REF. NO.	PART NO.	COLOR CODE	DESCRIPTION	NEW PART	REF. NO.	PART NO.	COLOR CODE	DESCRIPTION	NEW PART
1	714-0129		#4 Hi-Pro Key 3/32 x 5/8" Dia.		33	736-0188		FI-Wash. .760" I.D. x 1.49" O.D.	
2	716-0115		Snap Ring .625" Shaft						
3	710-0854		Hex Bolt 1/4-20 x 1.75" Lg.*		34	717-0761		Lower Housing	
4	710-0809		Hex Bolt 1/4-20 x 1.25" Lg.*		35	750-0555		Spacer .53" O.D. x 3/8" Lg.	
5	717-0764		Upper Housing		36	736-0329		L-Wash. 1/4" I.D.*	
6	710-0889		Hex FI-Bolt 1/4-20 x .88" Lg.*		37	710-0886		Hex Bolt 1/4-20 x 1.50" Lg. (Grade 5)	
7	712-0287		Hex Nut 1/4-20 Thd.*					Castle Nut 5/16-24 Thd.*	
8	717-0634		Input Shaft		38	712-0335		FI-Wash. .344" I.D. x .875" O.D.	
9	721-0178		Square Seal 5/8" I.D.		39	736-0159		Actuating Arm—R.H.	
10	736-0335		Thrust Washer 5/8" I.D. x 1.25" O.D.		40	717-0700		Brake Yoke	
11	717-0633		Pinion Input 14T		41	717-0679		Puck Plate	
12	716-0108		Retaining Ring 7/16" Ext.		42	717-0682		Brake Puck	
13	717-0758		Drive Shaft—R.H.		43	717-0678		Axle L.H.	
14	741-0336		Flange Brg. 5/8" I.D. x 3/4" Lg.*		44	717-1011		Brake Disc	
15	**		FI-Wash. (See Below)		45	717-0677		Flange Bearing 5/8" I.D. x 15/16" Lg.	
16	717-0757		Bevel Gear 42T		46	741-0337		Woodruff Key 3/16 x 5/8 HT	
17	717-0667		Clutch Collar		47	714-0161		Shift Fork Ass'y.	
18	717-1010		Miter Gear 15T		48	717-0754		Ball Detent .250" Dia.	
19	716-0142		Snap Ring		49	741-0862		Spring Detent	
20	717-0690		Thrust Bearing 1/2" I.D. x 1.0" O.D.		50	732-0863		#9 Hi-Pro Key 3/16" x 3/4" Dia. HT	
21	710-0862		Pan Head Scr. 1/4-20 x .50" Lg. w/Patch		51	714-0169		Needle Brg. 5/8" I.D. x 1/2" Lg.	
22	717-1012		Axle R.H.		52	741-0335		Hex Bolt 1/4-20 x 1.00" Lg.	
23	741-0340		Sleeve Bearing 3/4" I.D. x 1.0" Lg.		53	710-0855		FI-Wash. 5/8" I.D. x .030	
24	721-0179		Oil Seal 3/4" I.D.		54	736-0336		FI-Wash. 5/8" I.D. x .040	
25	741-0339		Flange Bearing 3/4" I.D. x 15/16" Lg.		54A	736-0337		Actuating Pin 5/16" Dia.	
26	736-0188		FI-Wash. .760" I.D. x 1.49" O.D.		55	741-0343		Hex Bolt 1/4-20 x 1.50" Lg. (Grade 5)	
27	717-0673		Cross Shaft		56	710-0886		Differential Gear 72T Ass'y. w/Bearing	
28	717-0777		Differential Housing Ass'y.		57	717-0767		Sq. Hd. Bolt 5/16-24 Thd.	
29	—		Comes with Ref. 28		58	717-0681		Cotter Pin 3/32" Dia. x .50" Lg.	
30	717-1009		Miter Gear		59	1544-013		Grease—Shell (10 oz.)	
31	712-0200		Hex Ins. L-Nut 1/2-20 Thd.		—	737-0148			

**Ref. No. 15 736-0349 FI-Wash. 5/8" I.D. x 1.0" O.D. x .020 Thk.
 736-0336 FI-Wash. 5/8" I.D. x 1.0" O.D. x .030 Thk.
 736-0337 FI-Wash. 5/8" I.D. x 1.0" O.D. x .040 Thk.



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PARTS LIST FOR SINGLE SPEED TRANSAXLE RIGHT HAND 717-0750A

REF. NO.	PART NO.	COLOR CODE	DESCRIPTION	NEW PART	REF. NO.	PART NO.	COLOR CODE	DESCRIPTION	NEW PART
1	714-0129		#4 Hi-Pro Key 3/32 x 5/8" Dia.		33	736-0188		FI-Wash. .760" I.D. x 1.49" O.D.	
2	716-0115		Snap Ring .625" Shaft					Lower Housing	
3	710-0854		Hex Bolt 1/4-20 x 1.75" Lg.*		34	717-0761		Spacer .53" O.D. x 3/8" Lg.	
4	710-0809		Hex Bolt 1/4-20 x 1.25" Lg.*		35	750-0555		L-Wash. 1/4" I.D.*	
5	717-0764		Upper Housing		36	736-0329		Hex Bolt 1/4-20 x 1.50" Lg.	
6	710-0889		Hex FI-Bolt 1/4-20 x .88" Lg.*		37	710-0886		(Grade 5)	
7	712-0287		Hex Nut 1/4-20 Thd.*		38	712-0335		Castle Nut 5/16-24 Thd.*	
8	717-0634		Input Shaft		39	736-0159		FI-Wash. .344" I.D. x .875" O.D.	
9	721-0178		Square Seal 5/8" I.D.					Actuating Arm—R.H.	
10	736-0335		Thrust Washer 5/8" I.D. x 1.25" O.D.		40	717-0700		Brake Yoke	
11	717-0633		Pinion Input 14T		41	717-0679		Puck Plate	
12	716-0108		Retaining Ring 7/16" Ext.		42	717-0682		Brake Puck	
13	717-0758		Drive Shaft—R.H.		43	717-0678		Axle L.H.	
14	741-0336		Flange Brg. 5/8" I.D. x 3/4" Lg.*		44	717-1011		Brake Disc	
15	**		FI-Wash. (See Below)		45	717-0677		Flange Bearing 5/8" I.D. x 15/16" Lg.	
16	717-0757		Bevel Gear 42T		46	741-0337		Woodruff Key 3/16 x 5/8 HT	
17	717-0667		Clutch Collar		47	714-0161		Shift Fork Ass'y.	
18	717-1010		Miter Gear 15T		48	717-0754		Ball Detent .250" Dia.	
19	716-0142		Snap Ring		49	741-0862		Spring Detent	
20	717-0690		Thrust Bearing 1/2" I.D. x 1.0" O.D.		50	732-0863		#9 Hi-Pro Key 3/16" x 3/4" Dia. HT	
21	710-0862		Pan Head Scr. 1/4-20 x .50" Lg. w/Patch		51	714-0169		Needle Brg. 5/8" I.D. x 1/2" Lg.	
22	717-1012		Axle R.H.		52	741-0335		Hex Bolt 1/4-20 x 1.00" Lg.	
23	741-0340		Sleeve Bearing 3/4" I.D. x 1.0" Lg.		53	710-0855		FI-Wash. 5/8" I.D. x .030	
24	721-0179		Oil Seal 3/4" I.D.		54	736-0336		FI-Wash. 5/8" I.D. x .040	
25	741-0339		Flange Bearing 3/4" I.D. x 15/16" Lg.		54A	736-0337		Actuating Pin 5/16" Dia.	
26	736-0188		FI-Wash. .760" I.D. x 1.49" O.D.		55	741-0343		Hex Bolt 1/4-20 x 1.50" Lg.	
27	717-0673		Cross Shaft		56	710-0886		(Grade 5)	
28	717-0777		Differential Housing Ass'y.		57	717-0767		Differential Gear 72T Ass'y. w/Bearing	
29	—		Comes with Ref. 28		58	717-0681		Sq. Hd. Bolt 5/16-24 Thd.	
30	717-1009		Miter Gear		59	1544-013		Cotter Pin 3/32" Dia. x .50" Lg.	
31	712-0200		Hex Ins. L-Nut 1/2-20 Thd.		—	737-0148		Grease—Shell (10 oz.)	

**Ref. No. 15 736-0349 FI-Wash. 5/8" I.D. x 1.0" O.D. x .020 Thk.
 736-0336 FI-Wash. 5/8" I.D. x 1.0" O.D. x .030 Thk.
 736-0337 FI-Wash. 5/8" I.D. x 1.0" O.D. x .040 Thk.

YARD-MAN PARTS INFORMATION

POWER EQUIPMENT PARTS AND SERVICE

Parts and service for all YARD-MAN manufactured power equipment are available through the authorized service distributors listed below. All orders should specify the model number of your unit, parts numbers, description of parts and the quantity of each part required. **DO NOT SEND PARTS ORDER TO FACTORY.** Dealers should contact their area distributors identified by state abbreviation below.

AZ A. E. I. CORPORATION
 CA 2641 DuBridge Ave.
 NV P.O. Box 16097
 Irvine, CA 92713
 (714) 474-3070

MD DE ADAMS EQUIPMENT
 WA-DC 8001 Newell St.
 VA Silver Springs, MD 20910
 E-WV (301) 585-1322
 NC ALLISON-ERWIN CO.
 SC 2920 N. Tryon Street
 P.O. Box 32308
 Charlotte, NC 28232
 (704) 334-8621

ME M. L. COFFIN CO.
 N-NH 725 Broadway
 Bangor, ME 04401
 (207) 942-8289

CT VT CRANDALL-HICKS CO.
 RI MA 250 Eliot St.
 NH Ashland, MA 01721
 (617) 881-6122

MS DICKERSON DISTRIBUTORS,
 INC.
 P.O. Drawer 231
 127 N. W. Depot
 Durant, MS 39063
 601-653-3004

S-FL FLORIDA TURF & GARDEN
 EQUIP.
 7275 NW 64th St.
 Miami, FL 33166
 (305) 592-3846

N-AL HART-GREER INC.
 224 Oxmoor Circle
 Birmingham, AL 35209
 (205) 945-4980

MI IDEAL MOWER SALES
 NW-OH 811 Woodward Heights
 Ferndale, MI 48220
 (313) 541-4660

N-GA LAWN PRODUCTS OF
 AMERICA
 1275 Alpharetta St.
 Roswell, GA 30075
 (404) 992-5031

E-PA S.P. LUMMUS SUPPLY CO.,
 S-NJ INC.
 (309) 800 Industrial Hwy.
 Pottstown, PA 19464
 (215) 327-4920

C-FL MANLEY TRACTOR SALES
 5909 E. Broadway
 Tampa, FL 33619
 (813) 626-5900

WI MERCY CORP.
 N-MI 4080 N. Pt. Washington Rd.
 P.O. Box 12145
 Milwaukee, WI 53212
 (414) 961-3200

MN MERCY CORP. MINN.
 1769 Yankee Doodle Rd.
 Eagan, MN 55121
 (612) 452-0792

N-NJ NIEMEYER CORP.
 (201) 1135 Phoenixville Pike
 P.O. Box 1477
 West Chester, PA 19380-0037
 (215) 431-7200

MO OZARK EQUIPMENT CO.
 E-KS Hwy. 63 & Black Street
 Rolla, MO 65401
 (314) 364-2180

N-FL POWER EQUIP. DIST. INC.
 S-GA 565 S. Edgewood Ave.
 Jacksonville, FL 32205
 (904) 387-1512

UT MT POWERED PRODUCTS
 NV S-ID 1661 N. Beck St.
 Salt Lake City, UT 84116
 (801) 359-9767

OH RAHRIG SALES INC.
 IN 108-110 W. Lima St.
 Forest, OH 45843
 (419) 273-2556

W-WV RASCHE CYCLE CO.
 KY TN 713 Kentucky Ave.
 Paducah, KY 42001
 (502) 443-5698

ND ROTT-KELLER CO.
 65-28th St. S.
 Fargo, ND 58107
 (701) 235-0563

NM HUGO SCHULTE & CO.
 6666 Fourth St.
 Albuquerque, NM 87107
 (505) 345-2633

SD STERN OIL CO. INC.
 394 South Main
 P.O. Box 218
 Freeman, SD 57029
 (605) 925-7999

NE STICKNEYS INC.
 NE-CO 101 Main St.
 SE-WY Sterling, CO 80751
 NW-KS (303) 522-2665

TX TIMBERLAND SAW CO.
 OK Hwy. 31 South
 AR P.O. Box 1227
 LA Marshall, TX 75671
 (214) 935-5251

OR R. M. WADE & CO.
 AK 10025 S. W. Allen Blvd.
 Beaverton, OR 97005
 (503) 641-1865

WA R. M. WADE & CO.
 W-ID 5808 S. 196th St.
 Kent, WA 98032
 (206) 872-9233

WA R. M. WADE & CO.
 E. 9922 Montgomery -18
 Spokane, WA 99206
 (509) 922-6100

CANADA MTD PRODUCTS CANADA
 97 Kent Ave.
 Kitchener, Ontario
 Canada, N2G 4J1
 (519) 579-5500

EXPORT DRAKE AMERICA CORP.
 477 Madison Ave.
 New York, NY 10022
 (212) 758-5400

BRIGGS & STRATTON, TECUMSEH AND PEERLESS PARTS AND SERVICE

Briggs & Stratton, Tecumseh and Peerless parts and service should be handled by your nearest authorized engine service firm. Check the yellow pages of your telephone directory under the listing **Engine—Gasoline**, Briggs & Stratton or Tecumseh Lauson.

WARRANTY PARTS AND SERVICE POLICY

(0985)

The purpose of warranty is to protect the customer from defects in workmanship and materials, defects which are NOT detected at the time of manufacture. It does not provide for the unlimited and unrestricted replacement of parts. Use and maintenance are the responsibility of the customer. The manufacturer cannot assume responsibility for conditions over which it has no control. Simply put, if it's the manufacturer's fault, it's the manufacturer's responsibility; if it's the customer's fault, it's the customer's responsibility.

CLAIMS AGAINST THE MANUFACTURER'S WARRANTY INCLUDES:

1. Replacement of Missing Parts on new equipment.
2. Replacement of Defective Parts within the warranty period.
3. Repair of Defects within the warranty period.

All claims MUST be substantiated with the following information:

1. Model Number of unit involved.
2. Date unit was purchased or first put into service.
3. Date of failure—Date Repaired.
4. Nature of failure—Correction.