FORM NO. 3310-870

TORO®

MODEL NO. 27-5780

INSTALLATION INSTRUCTIONS

Modification Kit-Groundsmaster 72 Traction Unit
(MODEL 30774 ONLY)

NOTE: Left and right side of Groundsmaster 72 is determined by standing behind the machine or sitting in the operator's position.

⚠ SAFETY INSTRUCTIONS

The GROUNDSMASTER 72, when equipped with Modification Kit, MODEL No. 27-5780, was tested and certified by an independent laboratory for compliance with the B71.1a — 1974 specifications of the American National Standards Institute. However, improper use or maintenance of the machine can result in injury. To reduce the potential for injury, comply with the following safety instructions.

BEFORE OPERATING

1. Read and understand the contents of this manual before starting and operating the machine. Become familiar with all controls and know how to stop quickly. A free replacement manual is available by sending complete Model and Serial Number to:

   The Toro Company
   8111 Lyndale Avenue South
   Minneapolis, Minnesota 55420

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

3. Remove all debris or other objects that might be picked up and thrown by the cutter blades.
   Keep all bystanders away from the mowing area.

4. Keep all shields and safety devices in place. If a shield, safety device or decal is defective or damaged, repair or replace it before operation is commenced. Also tighten any loose nuts, bolts and screws to assure machine is in safe operating condition.

5. Do not wear loose fitting clothing that could get caught in moving parts. Always wear long pants and substantial shoes. Wearing safety glasses, safety shoes and a helmet is advisable and required by some local ordinances and insurance regulations.

6. Assure that interlock switches are adjusted correctly so engine cannot be started unless traction pedal is released — neutral position — and PTO lever is in DISENGAGE position.

7. Since gasoline is flammable, handle it carefully.
   A. Use an approved gasoline container.
   B. Do not fill fuel tank when engine is hot or running.
   C. Do not smoke while handling gasoline.
   D. Fill fuel tank outdoors and up to about one inch from the top of the tank, not the filler neck.
   E. Wipe up any spilled gasoline.

WHILE OPERATING

8. Sit on the seat when starting the engine and operating the machine.

9. Before starting the engine:
   A. Engage parking brake.
   B. Assure traction pedal is in neutral and PTO is in OFF, disengage position.
   C. After engine is started, release parking brake and keep foot off traction pedal. Machine must not move. If movement is evident, the neutral return mechanism is adjusted incorrectly; therefore, shut engine off and adjust until machine does not move when traction pedal is released.

10. Do not run the engine in a confined area without adequate ventilation. Exhaust fumes are hazardous and could possibly be deadly.

11. Maximum recommended seating capacity is one person. Therefore, never carry passengers.

12. Using the machine demands attention, to prevent loss of control:
   A. Mow only in daylight or when there is good artificial light.
   B. Watch for holes or other hidden hazards.
   C. Use caution when close to a sand trap, ditch, creek or other hazard.
   D. Reduce speed when making sharp turns and when turning on hillsides.
   E. Avoid sudden stops and starts.

13. Cut grass slopes carefully.

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14. The grass deflector must always be installed on the cutting unit. If the cutting unit discharge area ever plugs, disengage PTO and shut engine off before removing the obstruction.

15. Never raise the cutting unit while the blades are rotating.

16. If the cutting blades strike a solid object or the machine vibrates abnormally, disengage PTO, move throttle to SLOW, set parking brake and shut engine off. Remove key from switch and pull high tension wire off the coil to prevent possibility of accidental starting. Check cutting unit and traction unit for damage and defective parts. Repair any damage before restarting the engine and operating the cutting unit. Assure blades are in good condition and blade nuts are tight.

17. Do not touch engine, muffler or radiator while engine is running or soon after it is stopped. These areas could be hot enough to cause a burn.

18. Before getting off the seat:
   A. Move traction pedal to neutral position and remove foot from pedal.
   B. Set the parking brake and disengage the PTO.
   C. Shut the engine off and remove key from ignition switch. Wait for all movement to stop before getting off the seat.
   D. Lower cutting unit.

MAINTENANCE

19. Remove key from ignition switch and disconnect high tension wire from coil to prevent accidental starting of the engine when servicing, adjusting or storing the machine.

20. If major repairs are ever needed or assistance is desired, contact an Authorized TORO Distributor. Ask about Red Wagon Maintenance.

21. To reduce potential fire hazard, keep the engine free of excessive grease, grass, leaves and accumulations of dirt.

22. Assure machine is in safe operating condition by keeping nuts, bolts and screws tight. Check all blade mounting nuts frequently to assure they are tight 75 to 100 ft-lb.

23. If the engine must be running to perform maintenance or an adjustment, keep hands, feet, clothing and other parts of the body away from PTO shaft, cutting unit blades and other moving parts.

24. Do not overspeed the engine by changing the governor settings. Maximum engine speed with no load is 3300 rpm. To assure safety and accuracy, have an Authorized TORO Distributor check maximum engine speed with a tachometer.

25. Engine must be shut off before checking oil or adding oil to the crankcase.

26. Safety standards in effect for riding mowers will be valid only if the Groundsmaster 72 Traction Unit is equipped with Modification Kit, Model 27-5780 and the Groundsmaster 72 Cutting Unit is equipped with Modification Kit, Model 27-5900.

27. To assure optimum performance and continued safety certification of the machine, use genuine TORO replacement parts and accessories. Replacement parts and accessories made by other manufacturers may result in non-conformance with the safety standards, and the warranty may be voided.

SAFETY AND INSTRUCTION DECALS

The following safety and instruction decals must be mounted on the traction unit. If any decal becomes damaged or illegible, install a new decal.

⚠ CAUTION

CHECK PERFORMANCE OF ALL INTERLOCK SWITCHES DAILY. SEE OPERATOR'S MANUAL FOR INSTRUCTION. DO NOT DEFEAT INTERLOCK SYSTEM. IT IS FOR YOUR PROTECTION.

NEAR TOOL BOX COVER

STARTING INSTRUCTIONS
1. Disengage power take-off.
2. Place traction drive pedal in neutral position.
3. Depress brake pedal.
4. Set choke and throttle controls as required. (See Owners Manual.)
5. Turn key to start position. To stop turn key to off position and remove key.

NOTE: ENGINE WILL SHUT OFF AUTOMATICALLY DUE TO HIGH ENGINE TEMPERATURE. WHEN THIS HAPPENS:
1. Allow engine to cool.
2. Clean debris from front of radiator.
3. Check coolant level.
⚠ Caution: Coolant under pressure. Use caution when removing radiator cap to prevent burns.
4. Depress high temperature reset on dash.
5. Restart according to starting instructions.

READ AND UNDERSTAND OPERATORS MANUAL BEFORE OPERATING THIS MACHINE.
REPLACEMENT MANUAL AVAILABLE BY SENDING COMPLETE MODEL NUMBER TO:
THE TORO COMPANY, 8111 LYNDALE AVE., MINNEAPOLIS, MINN. 55420

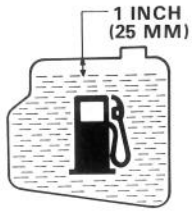
ON BATTERY COVER

ON POWER TAKE-OFF OFF

⚠ CAUTION

1. KEEP ALL SHIELDS IN PLACE.
2. BEFORE LEAVING OPERATOR'S POSITION:
   A. MOVE TRANSMISSION TO NEUTRAL.
   B. SET PARKING BRAKE.
   C. DISENGAGE POWER TAKE-OFF.
   D. SHUT OFF ENGINE.
   E. REMOVE IGNITION KEY.
3. WAIT FOR ALL MOVEMENT TO STOP BEFORE SERVICING MACHINE.
4. STOP ENGINE BEFORE ADDING FUEL OR LIFTING HOOD.
5. KEEP PEOPLE AND PETS A SAFE DISTANCE AWAY FROM MACHINE.

NEAR P.T.O. LEVER



⚠ CAUTION

FILL FUEL TANK TO 1 INCH BELOW FILLER NECK.

DO NOT OVERFILL

NEAR FUEL TANK CAP

TRACTION PEDAL

FORWARD OF TRACTION PEDAL

HIGH TEMPERATURE RESET

BELOW ENGINE TEMPERATURE GAUGE

PARKING BRAKE

1. DEPRESS BRAKE PEDAL.
2. PULL KNOB TO LOCK.
3. TO UNLOCK: DEPRESS BRAKE PEDAL.

TOP OF STEERING COLUMN SUPPORT

NEAR LIFT LEVER

TRACTION PEDAL INSTRUCTIONS



THE MORE THE PEDAL IS DISPLACED, THE FASTER THE VEHICLE SPEED.

⚠ CAUTION

1. DISENGAGE IMPLEMENT BEFORE RAISING TO TRANSPORT POSITION.
2. DO NOT OPERATE IMPLEMENT IN TRANSPORT POSITION.

LIFT CONTROL

FLOAT

TRANSPORT

RAISE

INSTALLING SEAT SWITCH ASSEMBLY

Description	Qty.	Where Used
Seat Support Brckt.	1	Step 1
Compression Spring	1	Step 2
Pin-Seat Switch	1	Step 2
Spring Pin 3/16 x 1-1/4	1	Step 3
Arm Switch	1	Step 4
Capscrew 1/4 - 20 x 1/2	1	Step 4
Locknut 1/4 - 20	1	Step 4
Plastic Cap	1	Step 5
Seat Prop	1	Step 5
Cotter Pin 3/32 x 1/2	1	Step 5
Flat Washer 9/32 x 5/8	1	Step 5
Seat Support	1	Step 6
Seat Pivot	1	Step 6
Shaft	1	Step 6
Spring Pin 3/16 x 7/8	1	Step 6
Flat Washer 11/32 x 11/16	1	Step 6
Lynch Pin	1	Step 6
Tinnerman Clip	1	Step 7
Decal-Fuel Tank	1	Step 8
Decal-Interlock Switch	1	Step 8

Tools Required: 7/16 inch, 1/2 inch, 9/16 inch wrenches, hammer, drift punch and pliers.

Remove the following:

1. The seat from the seat support bracket.

2. The seat clamps, seat support and seat support bracket.

3. Discard all components but the seat and retain the mounting fasteners.

Assemble the following:

1. Insert the lower portion of seat support bracket in a vise and secure it.

2. Coat seat switch pin with a light coat of grease and mount the compression spring between the flanges, insert the seat switch pin up from the bottom side through the lower flange hole and through the spring (Fig. 1).

3. Compress the spring from the top down, insert the spring pin into the seat switch pin and install it with a hammer and punch so it protrudes equidistant from both sides of the switch pin.

NOTE: A valve spring compressing tool will aid in installing the spring pin.

4. Install the arm switch with the arm of switch under the seat switch pin.

5. Mount the seat support bracket, the plastic cap into the seat switch pin and install the seat prop and secure it with a flat washer and cotter pin (Fig. 1).

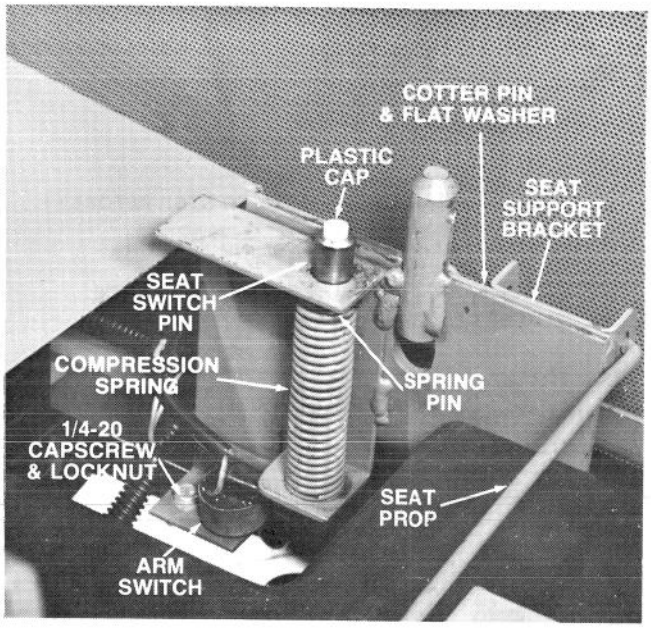


Figure 1

6. Assemble the seat support and seat pivot together, align the holes and insert the shaft through the holes. Secure the components together with a spring pin and mount the assembly to the frame. Assemble a flat washer beneath the head of the L.H. mounting capscrew and leave the assembly loose (Fig. 2). Lower the seat support, install the seat and reposition the

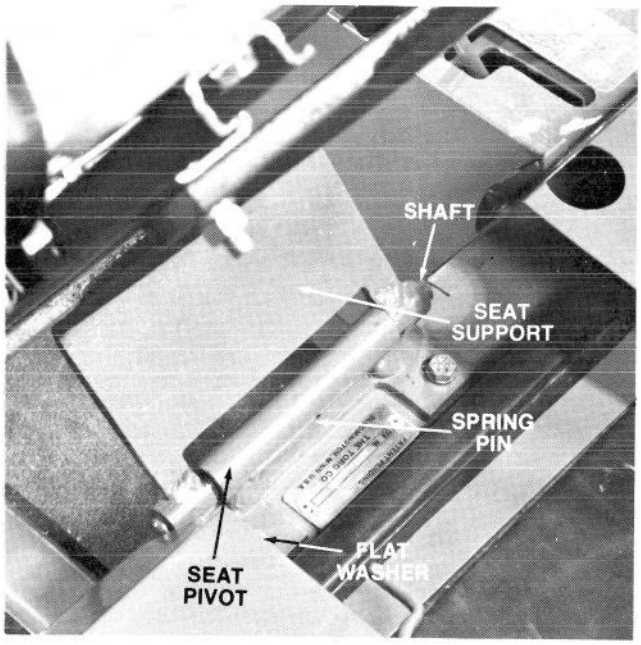


Figure 2

assembly so the seat support slips easily over the rear pin. Tighten the mounting capscrews to secure the assembly and install the lynch pin (Fig. 3).

NOTE: The lynch pin and seat belts are necessary when a roll bar or cab is installed.



Figure 3

7. Measure, center punch and drill a 1/4 inch hole in the top of the tool box cover (Fig. 4). Install the Tinnermann Clip. Use it to store the seat prop.

IMPORTANT: Be careful not to drill a hole in the fuel tank.

8. Install fuel tank decal on top of the tool box cover. Also install interlock switch decal (Fig. 4).

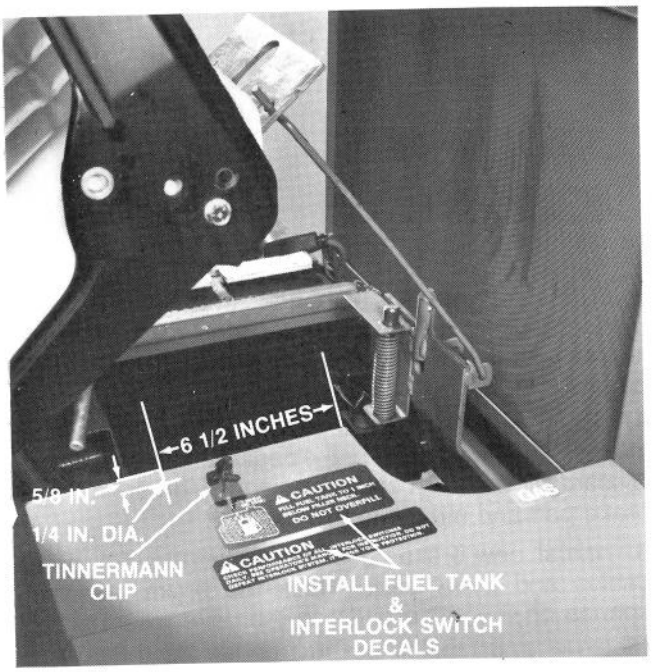


Figure 4

INSTALL P.T.O. BRAKE (FIG. 5)

Description	Qty.	Where Used
Spring Pin 3/8 x 1-1/2 lg.	1	Step 2
Front Engine Support	1	Step 2
Flat Washers 3/4 x 1 1/4	2	Step 4
Spring	1	Step 5
Brake Assy. P.T.O.	1	Step 5
Spacer	1	Step 6
Locknut 1/2 - 20NF	1	Step 6

Tools Required: 9/16 inch, 3/4 inch socket wrench, torque wrench, hammer, drift punch and pliers.

1. Place blocks under the engine pan and remove and discard the front engine support. Retain P.T.O. Belt guides.

2. Install the 3/8 x 1-1/2 inch spring pin into the hole on the right hand side of the stud in the replacement front engine support. Drive it in until it's flush with engine side of the support.

3. Install the front engine support. Torque the mounting capscrews to 35-40 ft-lb (Fig. 5).

4. Check end play in the P.T.O. shaft assembly by levering the P.T.O. pulley forward and rearward (Fig. 5). If end play exceeds 1/32 inch, remove the cotter pin and flat washer from the P.T.O. pulley end of the P.T.O. pivot shaft and add one (1) or two (2) 3/4 x 1 1/4 washers to reduce end play to less than 1/32 inch and install cotter pin.

5. Engage P.T.O. lever, slide the spring over the stud, then the P.T.O. brake assembly over the stud and the spring pin (Fig. 5).

6. Install the spacer and start the 1/2-20NF nut on the stud (Fig. 5).

7. Disengage the P.T.O. lever to allow the P.T.O. pulley and brake assembly to align.

8. Turn the nut onto the stud until all end play is removed from the brake assembly and actuate the P.T.O. lever several times to double check the alignment. Readjust if necessary.

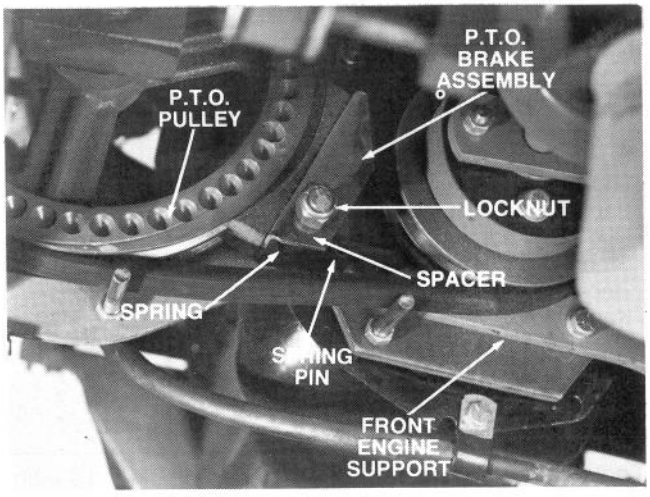


Figure 5

INSTALL P.T.O. SWITCH AND IGNITION SWITCH

Description	Qty.	Where Used
Ignition Switch	1	Step 2
Arm Switch	1	Step 3
Mount-Arm Switch	1	Step 3
Capscrew 1/4 - 20 x 1/2 lg.	1	Step 3
Locknut 1/4 - 20NC	1	Step 3

Tools Required: 7/16 inch, 1/2 inch, 9/16 inch and 15/16 inch wrenches.

1. Remove the instrument cover and battery.

CAUTION: Since the gasses created from the electrolytic action of the battery are explosive, do not smoke and keep open flame away from the battery while removing it from the machine. Remove the negative (-) cable first to prevent sparks from occurring.

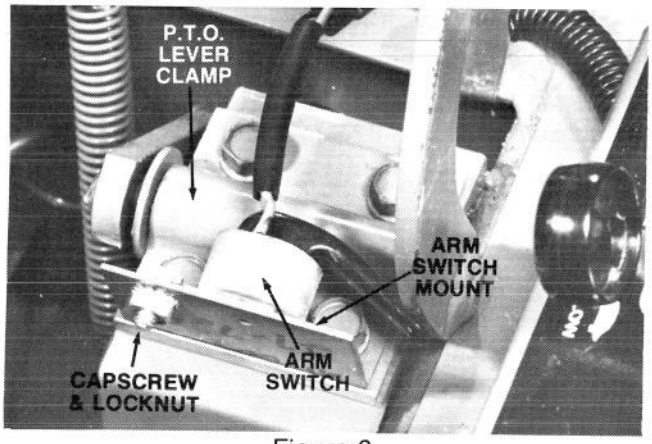


Figure 6

2. Disconnect the wire terminals from the ignition switch, remove switch and discard it. Install the replacement switch.

3. Move control lever to engaged position, assemble the arm switch to the arm switch mount, remove the two (2) rear mounting capscrews for the P.T.O. lever clamp and install the arm switch and mount on top of the clamp (Fig. 6). Move lever to disengaged position.

4. Switch arm must bend 1/2 inch. Bend the mounting bracket to achieve the correct adjustment.

INSTALL BRAKE PEDAL ASSEMBLY

Description	Qty.	Where Used
Brake Pedal Assembly	1	Step 5
Locknut - 3/8 - 16	2	Step 5
Pad - L.H. & R.H.	2	Step 5
Rod - Brake Latch	1	Step 6
Steering Column Support	1	Step 6
Decal - Parking Brake	1	Step 6
Knob	1	Step 6
Flat Washer	1	Step 6
Brake Latch Shaft	1	Step 7
Cotter Pin 3/32 x 1/2 lg.	3	Step 7
Cotter Pin 3/32 x 1 lg.	2	Step 7

Tools Required: Pliers, 2 x 4 wooden block, 7/16 inch, 9/16 inch 15/16 inch wrenches, pliers and grease gun.

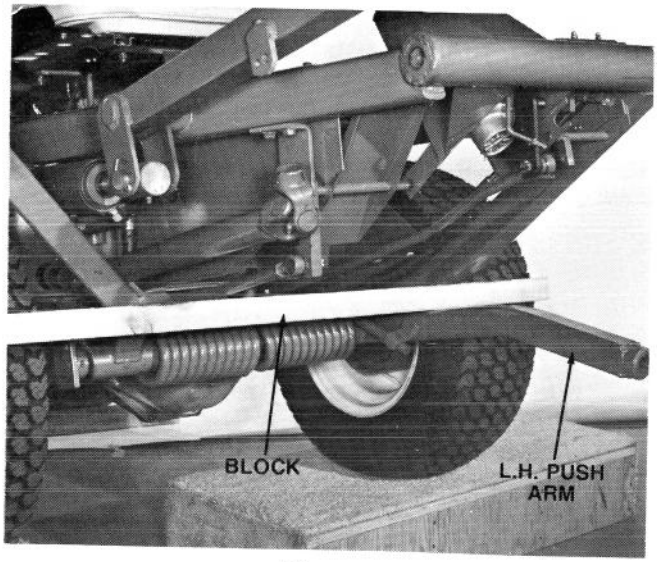


Figure 7

1. Remove cutting unit and place a 2 x 4 block between the left hand push arm and frame (Fig. 7).

⚠ CAUTION

Take care while removing push arms as they are under heavy spring tension.

2. Remove the floor plate, steering wheel and steering column plate. Discard the plate.

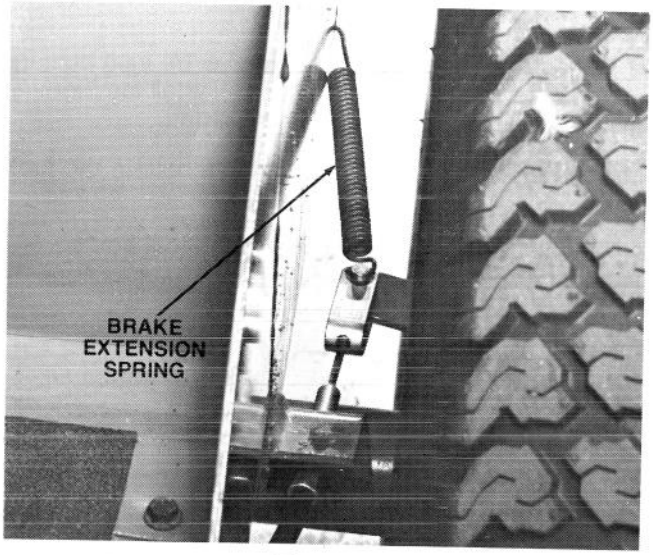


Figure 8

3. Unhook brake tension springs from holes in frame behind drive wheels (Fig. 8), loosen brake cable adjustment nuts and remove brake cables from brake pedals (Fig. 9).

4. Remove parking brake actuating rod, brake latch shaft, left and right hand brake pedals and brake mount. Discard all parts except the compression spring, one brake pad and mounting fasteners.

5. Install new brake pedal assembly (Fig. 10), brake cables and pedal pads. Hook the brake extension springs on the cable ends on the drive wheel end of cables (Fig. 8). Install locknuts on left hand mounting bolts (Fig. 11).

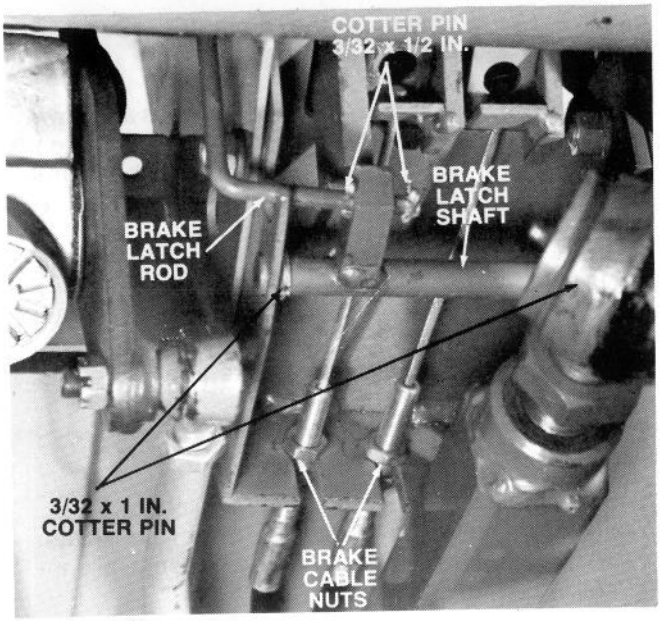


Figure 9

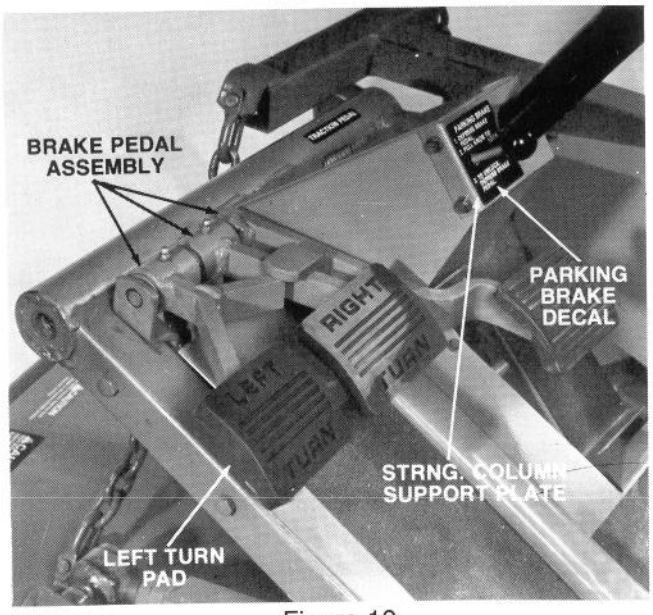


Figure 10

6. Slip the parking brake latch up from the bottom. Install the cotter pin, flat washer, spring, steering column support plate, parking brake decal, knob and steering wheel (Fig. 10-11).

7. Install a 3/32 x 1 inch cotter pin in the right hand hole in parking brake latch shaft, insert the left end of latch shaft into mount hole far enough to allow right end to be inserted into right hand mount hole. Secure shaft by installing cotter pin in left hand shaft hole, insert brake latch into shaft mounting hole and secure by installing two (2) 3/32 x 1/2 inch cotter pins (Fig. 11).

8. Apply grease to the brake pedal fittings and adjust brake cables until there is approximately 1/2 inch free travel to the left and right hand pedals. Check brake adjustment after kit is completely assembled to machine. Install the floor plate.

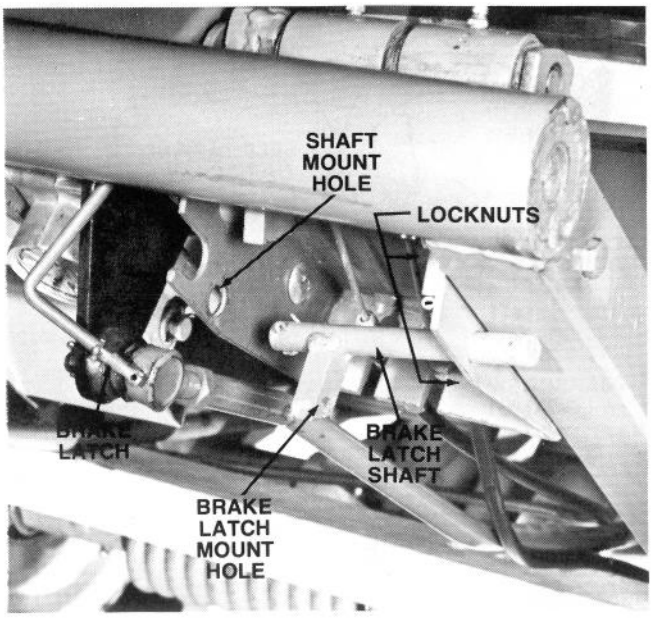


Figure 11

INSTALL NEUTRAL RETURN SWITCH ASSEMBLY

Description	Qty.	Where Used
Micro Switch	1	Step 1
Pump Plate	1	Step 1
Machine Screw	2	Step 1
Internal Tooth Lockwasher	2	Step 1
Brass Hex Nut 6-32	2	Step 1
Self Tapping Screw 1/4-20 x 3/4	3	Step 1
Pump Lever	1	Step 2
Roll Pin 1/4 x 1	1	Step 2
Capscrew 5/16 - 24 x 1 - 1/4	1	Step 3
Ball Bearing	1	Step 3
Extended Leaf Spring	1	Step 3
Leaf Spring	1	Step 3
Capscrew 5/16 -18 x 1 - 3/8	1	Step 3
Locknut 5/16 -18	1	Step 3
Capscrew 1/4-20NC x 3/4	2	Step 4
Locknut 1/4 NC-20	2	Step 4
Cotter Pin 1/8 x 3/4	1	Step 5

Tools Required: Hammer, drift punch, pliers, 5/16 inch, 7/16 inch, 1/2 inch wrenches.

Remove the following:

1. Pump control rod from pump lever and the pump lever from the transmission shaft (Fig. 12).

2. The pump plate and leaf spring assembly from the transmission. Discard the pump lever, pump plate and leaf spring assembly.

Assemble the following:

1. The micro switch to the pump plate and the pump plate to the transmission (Fig. 12). Tighten the pump plate screws enough to secure it against the housing but still allow the plate to be moved for final adjustment.

2. Thoroughly clean the pump lever shaft, apply either Loctite 271 or 601, and install the pump lever.

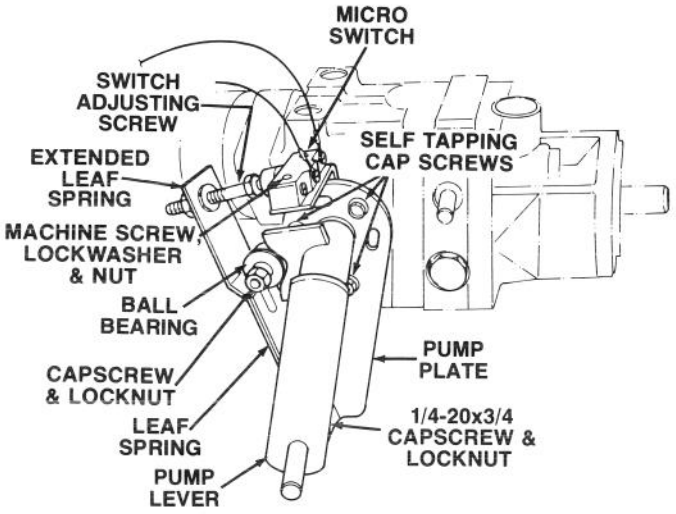


Figure 12

3. Assemble the switch adjusting screw into the extended leaf spring and the ball bearing into the leaf spring with the head of the ball bearing mounting capscrew towards the transmission.

4. Join the extended leaf spring and leaf spring together and install them on pump plate. Insure the ball bearing is in alignment with the pump lever cam before tightening the leaf spring mounting capscrews.

5. Mount the pump control rod to the pump control lever.

INSTALL WIRE HARNESS

Description	Qty.	Where Used
Wire Connector	1	Step 2
Wiring Harness	1	Step 3
Cable Tie	2	Step 5
Wire Clip	1	Step 5
Decal - Reset	1	Step 7
Decal - Power Takeoff	1	Step 7
Decal - Lift Control	1	Step 7
Decal - Starting Instructions	1	Step 7
Decal - Traction Pedal	1	Step 7

Tools Required: Wire cutter and stripping tool.

1. Use a thin, narrow blade to release tabs on each terminal connector on ignition switch and remove all five (5) wires.

2. Cut the ignition switch connector terminal from the brown wire leading from the buzzer, strip the insulation from the wire end and discard terminal end (see wiring diagram, page 15).

3. Cut the black wire leading from the hour meter to the ignition switch approximately in the center, strip the insulation from both ends and join the two black and the brown wire together with the connector.

4. Use the electrical wiring diagram as a guide, connect the wiring harness to the proper ignition switch terminals. The wire with inline fuse connects to the positive (+) terminal of the ammeter. (See wiring diagram, Page 15).

5. Route the interlock switch wire harness as shown in Fig. 13 and connect the harness to all three (3) switches. The neutral switch must be wired using the normally open and common terminals.

6. Use the two (2) plastic tie straps and the wire clip to secure the harness to the frame (Fig. 13 & 14).

7. Install the battery; positive (+) cable first, then the negative (-) cable to prevent sparks from occurring.

⚠ CAUTION

Since the gasses created from the electrolytic action of the battery are explosive, do not smoke and keep open flame away from the battery while installing it.

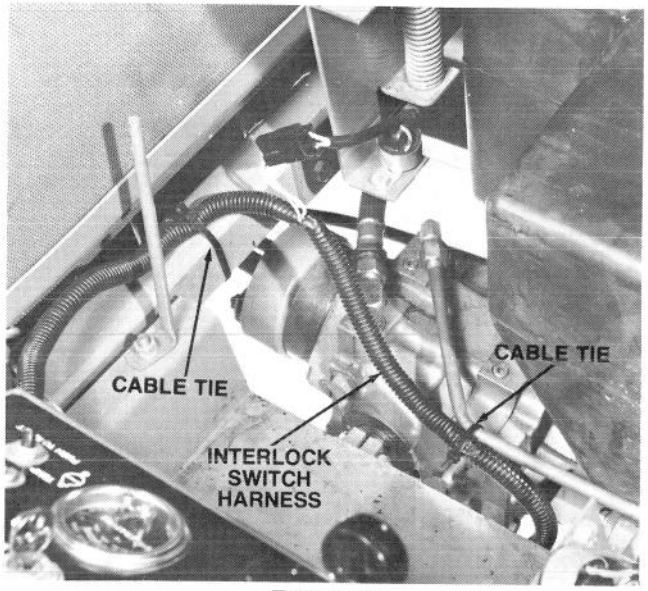


Figure 13

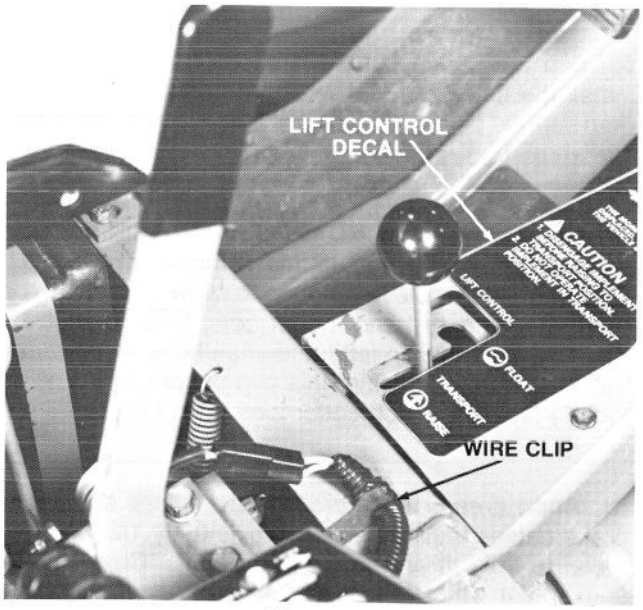


Figure 14

7. Install new decals in the following locations:
   A. Decal — Reset; Install beneath Engine Temperature Switch Gauge on instrument panel.
   B. Decal — Power Take Off; Install on left hand side of P.T.O. control lever.
   C. Decal — Lift Control. Install lift control decal forward of lift control lever.
   D. Decal — Starting Instructions; Mount on instrument cover below instrument panel.
   E. Decal — Traction Pedal; Mount on main frame tube in front of traction pedal.

8. Adjust the traction interlock switch and the traction drive for neutral: refer to Adjusting Traction Interlock Switch and Adjusting Traction Drive for Neutral, page 9.

ADJUSTING TRACTION INTERLOCK SWITCH

Tools Required: 1/2 inch wrench.

1. Adjust transmission for neutral: refer to Adjusting Traction Drive for Neutral, page 9.

2. Actuate the pump lever (Fig. 12) to assure all parts are operating freely and seated properly.

3. Rotate switch adjusting screw (Fig. 12) until there is a gap between top of screw and switch button.

4. Rotate adjusting screw until it contacts the switch button. Continue to rotate the screw until the circuit is completed (switch "clicks"). After the switch clicks, rotate the adjusting screw an additional 1/2 turn.

5. Push switch completely down and check continuity. Replace switch if no continuity is evident.

ADJUSTING TRACTION DRIVE FOR NEUTRAL

Tools Required: Jack, jack stand, blocks, hammer, 7/16 inch wrench.

The front wheels must not rotate when traction pedal and pump lever are in neutral position. If wheels rotate, an adjustment is required.

1. Park vehicle on a level surface. Next, apply the parking brake.

2. Block right front tire and both rear tires so vehicle cannot roll forward or backward.

3. Jack up frame so left front wheel is off the shop floor. Use a jack stand to support the frame.

4. Start engine and allow it to idle for 5 minutes to heat oil in transmission to operating temperature.

NOTE: If engine does not start, perform a preliminary adjustment of traction interlock switch. See Adjusting Traction Interlock Switch, page 9.

5. Release parking brake; then check left front wheel that is off shop floor. Wheel must not be rotating. If wheel is rotating, proceed to step 6 for an adjustment. If wheel is not rotating, proceed to step 7. Verify the adjustment with throttle in SLOW and FAST position.

6. Because the wheel is rotating, the pump plate must be adjusted. But before adjusting the pump plate, move throttle to SLOW. If wheel is rotating forward, lightly tap bottom of pump plate counterclockwise (Fig. 12). By contrast, tap pump plate clockwise if wheel is rotating backward (Fig. 12). When wheel stops rotating, tighten cap screws holding pump plate against side of transmission.

7. Shut engine off and tighten pump plate mounting capscrews.

8. Adjust traction control rod: refer to Adjusting Traction Control Rod, page 9.

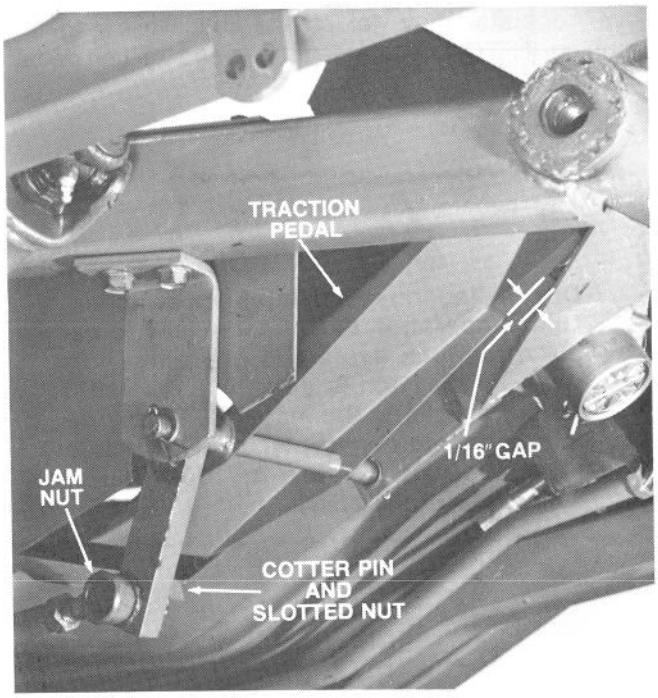


Figure 15

ADJUSTING TRACTION CONTROL ROD

Tools Required: Pliers, hammer, 5/8 inch and 3/4 inch wrenches.

1. Check traction drive neutral position to assure front wheels do not creep: refer to Adjusting Traction Drive For Neutral, page 9.

2. Depress traction pedal fully. There must be 1/16 of an inch between inside front edge of pedal and triangular support brace (Fig. 15). If distance is as specified, the control rod is adjusted correctly. If distance is not as specified, proceed to step 3 for an adjustment.

3. Loosen jam nut from front of control rod (Fig. 15). Remove cotter pin and slotted nut retaining tapered socket in pivot mount on bottom of traction pedal (Fig. 15).

4. Adjust tapered socket as required. Slide end of tapered socket through traction pedal pivot mount. Then depress pedal and check for 1/16 inch clearance between front edge of pedal and top of support brace. Adjust tapered socket until correct adjustment results.

5. After control rod is adjusted correctly, secure tapered socket and traction pedal together with slotted nut and cotter pin. Also tighten jam nut against front of control rod.

6. Start machine and check function of brakes. Adjust as necessary.

CHECKING INTERLOCK SWITCHES

The machine has interlock switches in the electrical system. These switches are designed to stop the engine when operator gets off the seat while either the PTO lever is engaged or traction pedal is depressed. However, operator may get off the seat while engine is running, if PTO lever is disengaged and traction pedal is released.

CAUTION

Do not disconnect the interlock switches. Check operation of switches daily to assure interlock system is operating correctly. If a switch is defective, replace it before operating the machine. To assure maximum safety, replace all switches after every two years or 1000 hours, whichever comes first.

To check operation of interlock switches:

1. Move PTO lever to OFF position and remove foot from traction pedal so it is fully released.

2. Try to start the engine. If engine starts, proceed to step 3. If engine does not crank there may be a defect in the electrical system: refer to Electrical Troubleshooting, pages 11-15.

3. Raise off the seat and move PTO lever to ON position while the engine is running. The engine should stop. If engine stops, the PTO switch is operating correctly; thus, proceed to step 4. If engine does not stop there is a defect in the safety interlock system: refer to Electrical Troubleshooting, pages 11-15.

4. Move PTO lever to OFF position. Raise off the seat and depress traction pedal slowly while engine is running. The engine should stop. If engine stops the neutral switch is operating correctly. If engine does not stop, there is a defect in the electrical system: refer to Electrical Troubleshooting, pages 11-15.

5. If all the switches operate correctly, the machine can be operated.

FILL OUT CERTIFICATION CARD

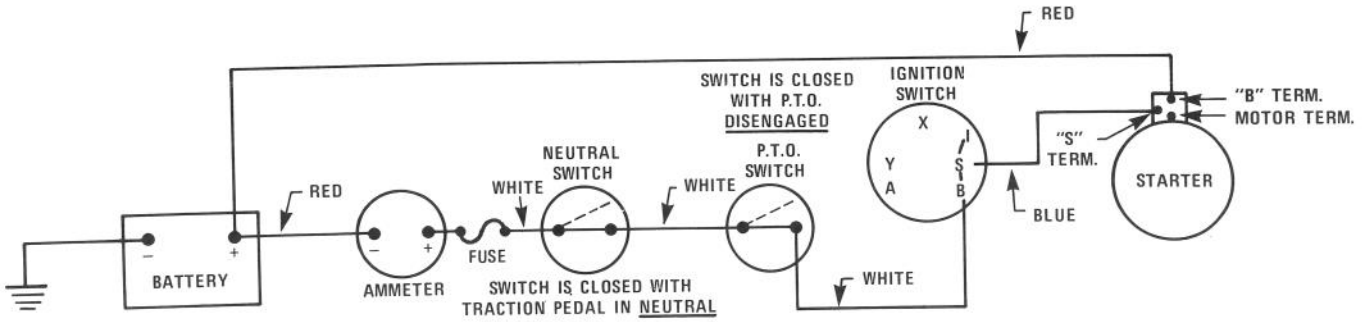
Fill out the Groundsmaster 72 Traction Unit Certification Card supplied with the kit and mail it to The TORO Company.

IMPORTANT: Failure to complete this card and return it to The TORO Company may result in your involvement in product liability litigation.

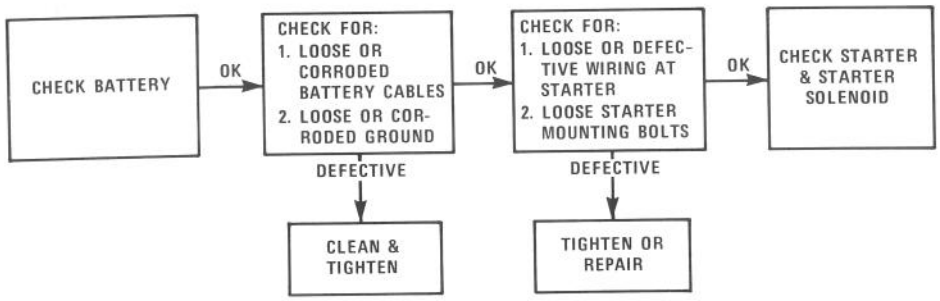
NOTE: The OPEI Certification will not be valid unless the Groundsmaster 72 Cutting Unit Modification Kit, Toro Part No. 27-5900 is installed.

ELECTRICAL MAINTENANCE TROUBLESHOOTING

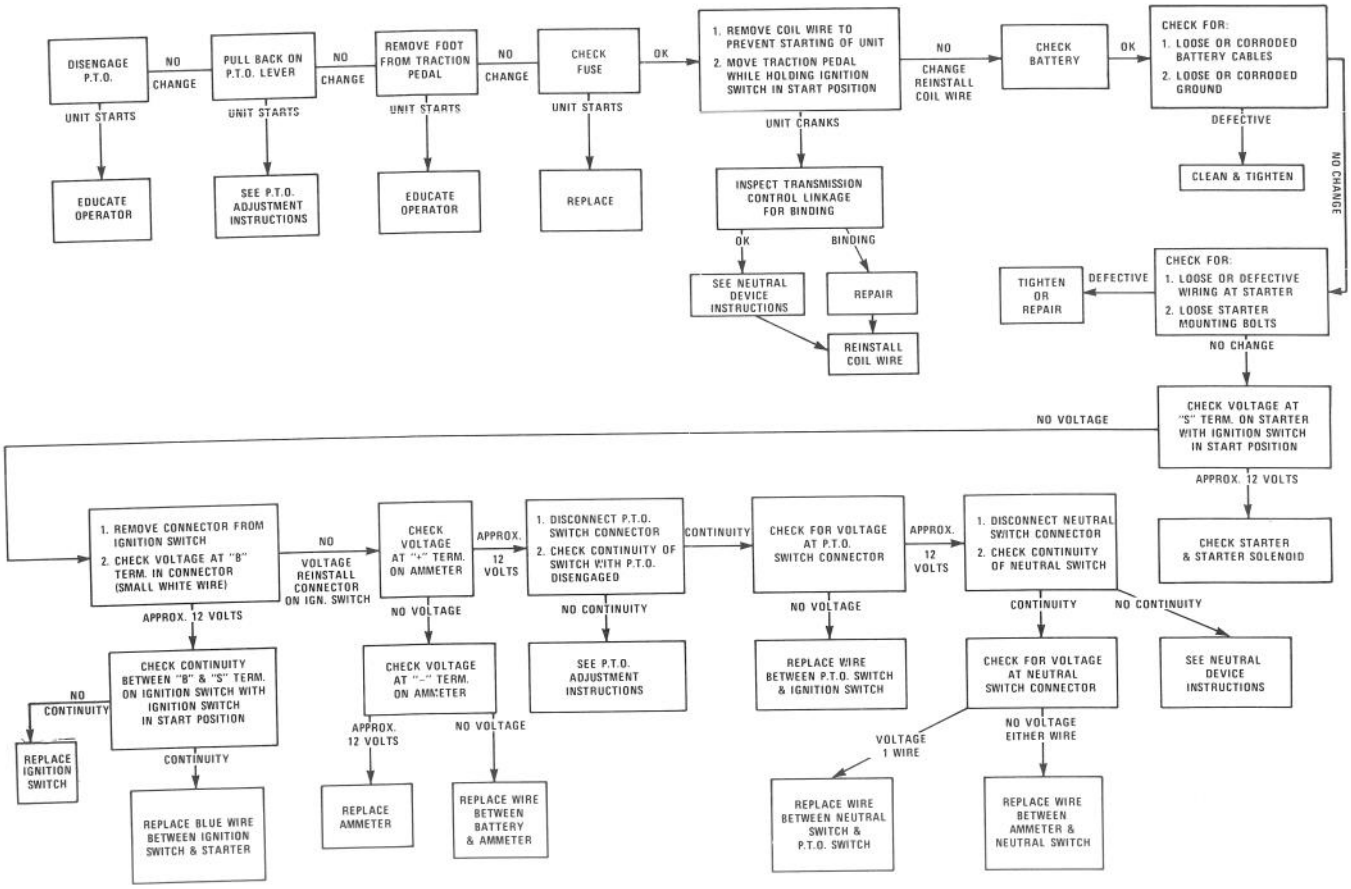
PROBLEM: STARTER SOLENOID CLICKS, BUT STARTER WILL NOT CRANK.
(IF SOLENOID CLICKS INTERLOCK SYSTEM IS NOT AT FAULT)



CIRCUIT INVOLVED WITH CRANKING ENGINE

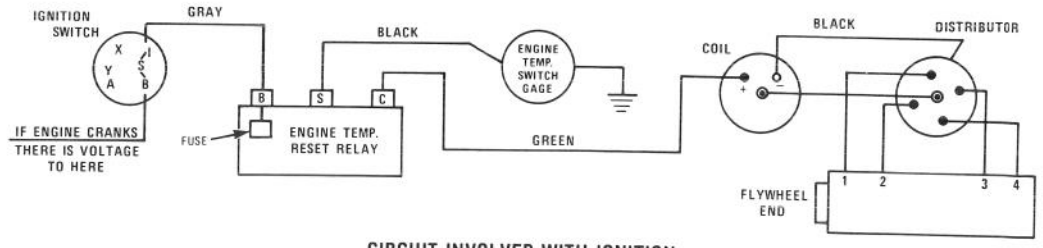


PROBLEM: NOTHING HAPPENS WHEN START ATTEMPT IS MADE.
REFER TO CIRCUIT DIAGRAM ABOVE.

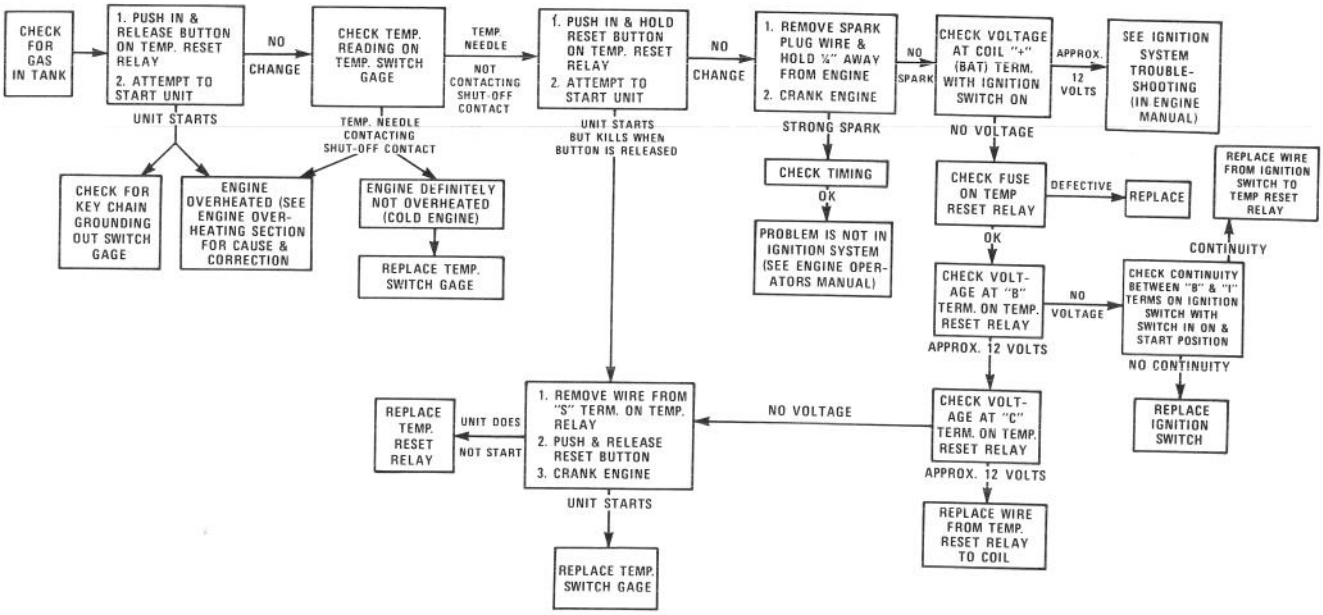


ELECTRICAL MAINTENANCE TROUBLESHOOTING

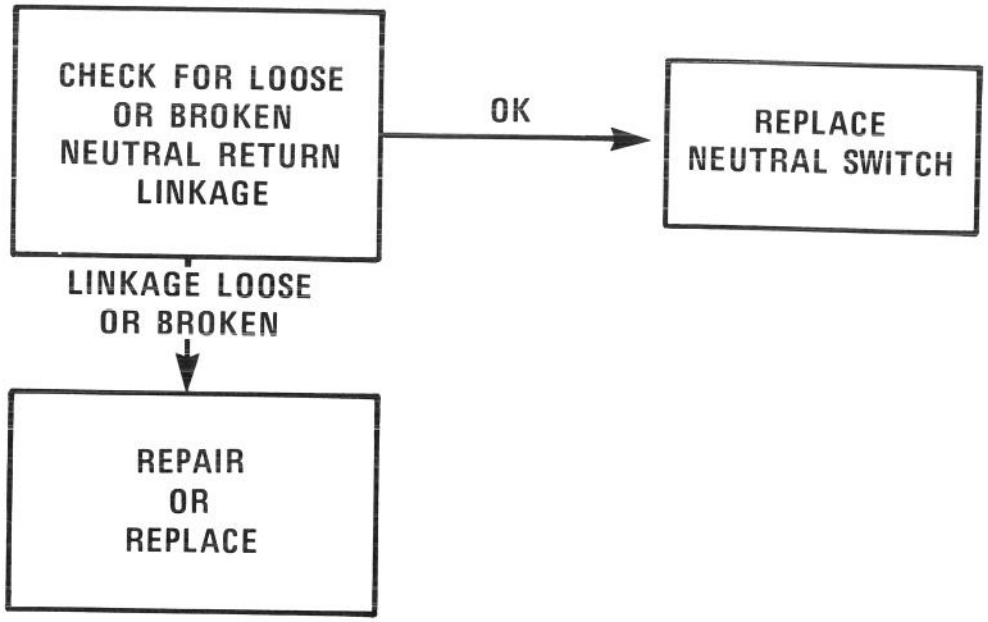
PROBLEM: ENGINE CRANKS, BUT WILL NOT START (IF ENGINE CRANKS, INTERLOCK CIRCUIT IS NOT AT FAULT)



CIRCUIT INVOLVED WITH IGNITION

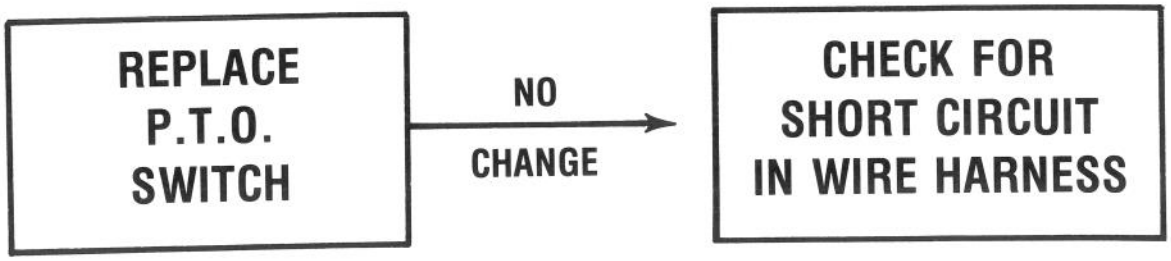


PROBLEM: ENGINE CRANKS, BUT SHOULD NOT, WHEN TRACTION PEDAL IS DEPRESSED.

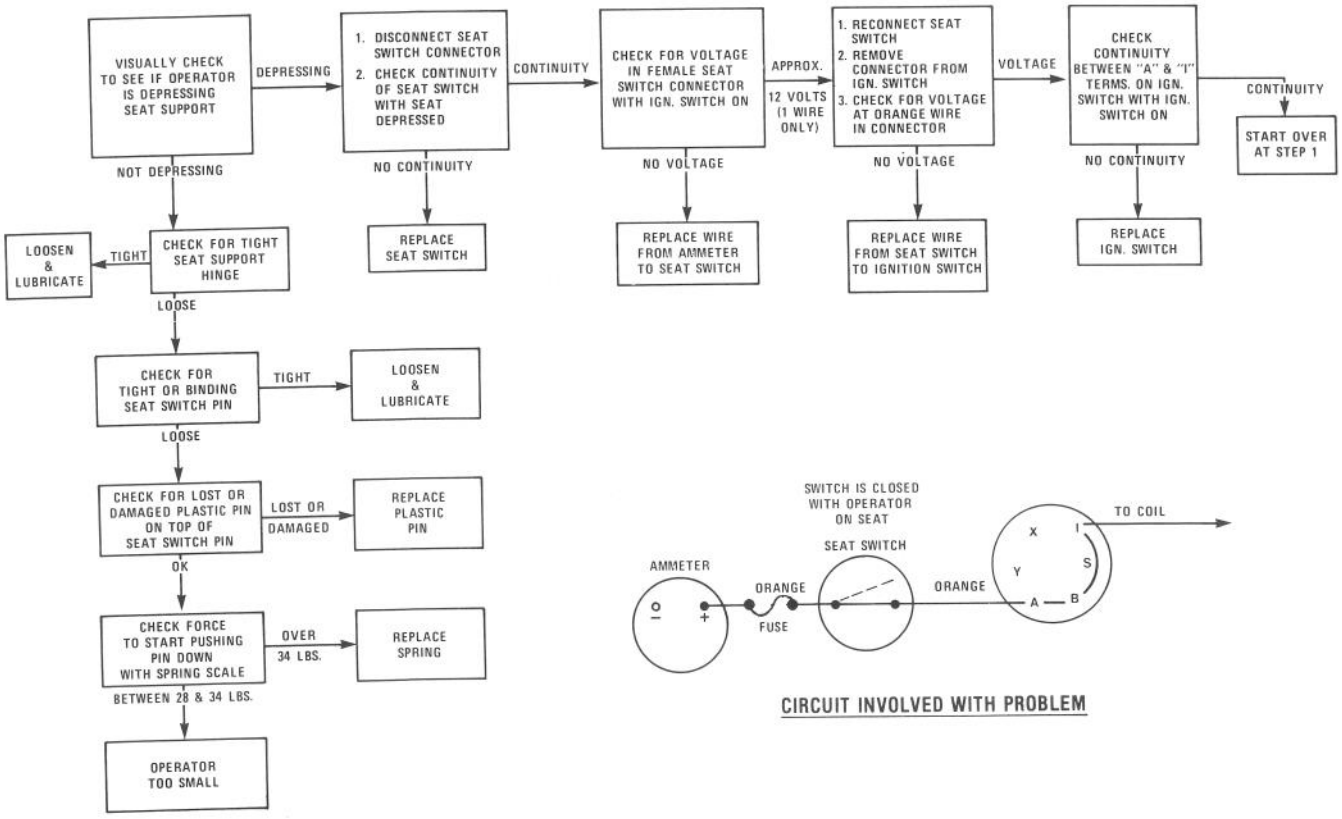


ELECTRICAL MAINTENANCE TROUBLESHOOTING

PROBLEM: ENGINE CRANKS, BUT SHOULD NOT, WHEN P.T.O. IS ENGAGED.



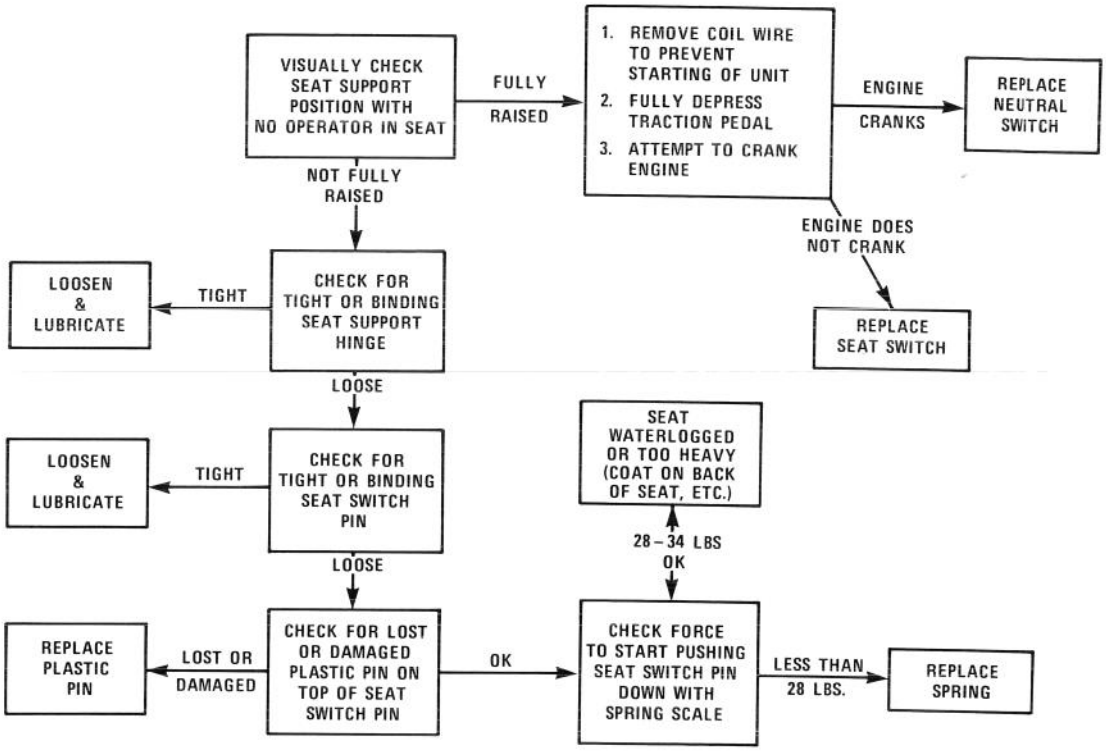
PROBLEM: ENGINE STARTS BUT KILLS WITH OPERATOR ON SEAT AND TRACTION PEDAL OR P.T.O. ENGAGED. (ENGINE NOT OVERHEATED)



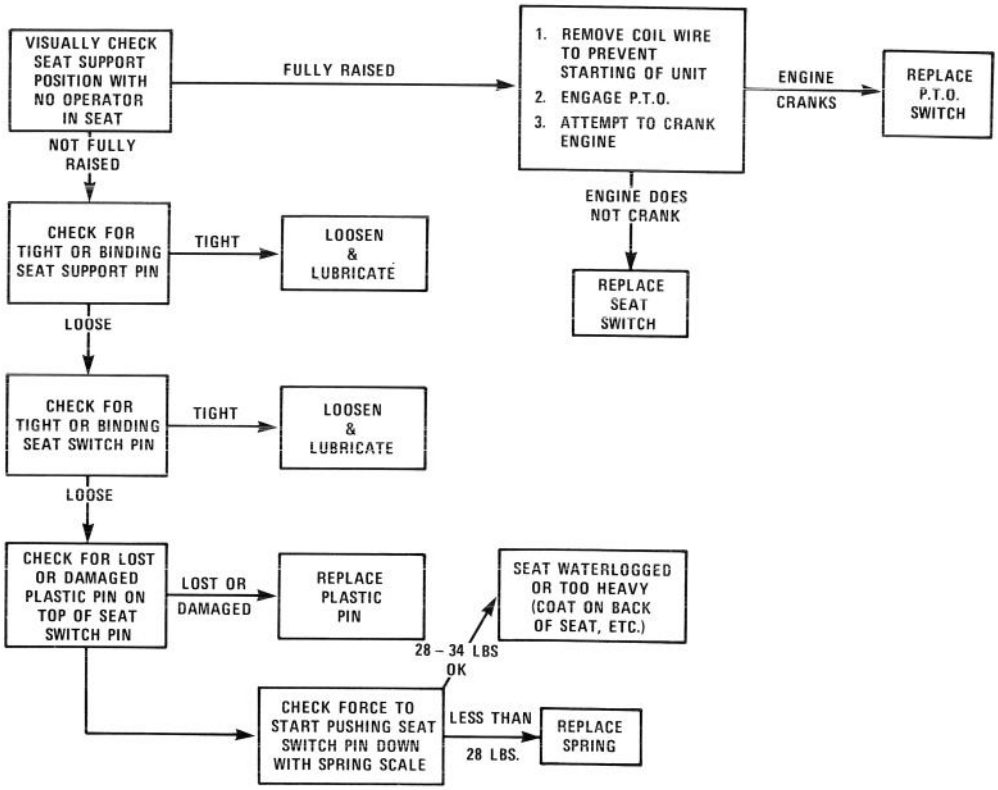
CIRCUIT INVOLVED WITH PROBLEM

ELECTRICAL MAINTENANCE TROUBLESHOOTING

PROBLEM: ENGINE CONTINUES TO RUN, BUT SHOULD NOT, WHEN TRACTION PEDAL IS ENGAGED WITH NO OPERATOR ON SEAT. (NEUTRAL RETURN DEVICE WORKING PROPERLY)

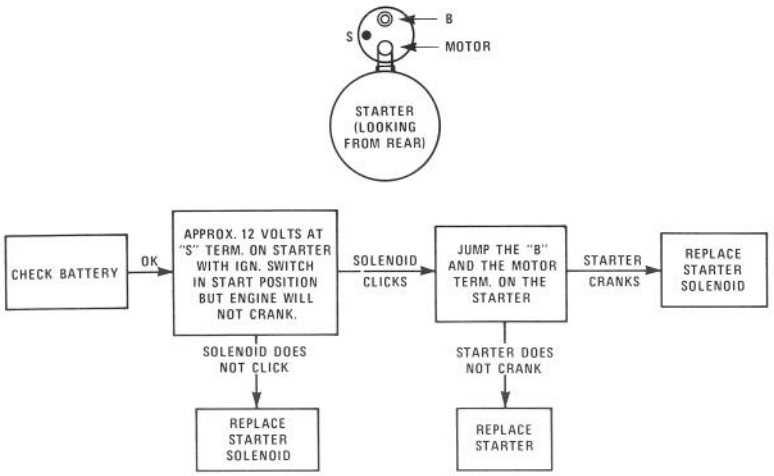


PROBLEM: ENGINE CONTINUES TO RUN, BUT SHOULD NOT, WHEN P.T.O. IS ENGAGED WITH NO OPERATOR ON SEAT.

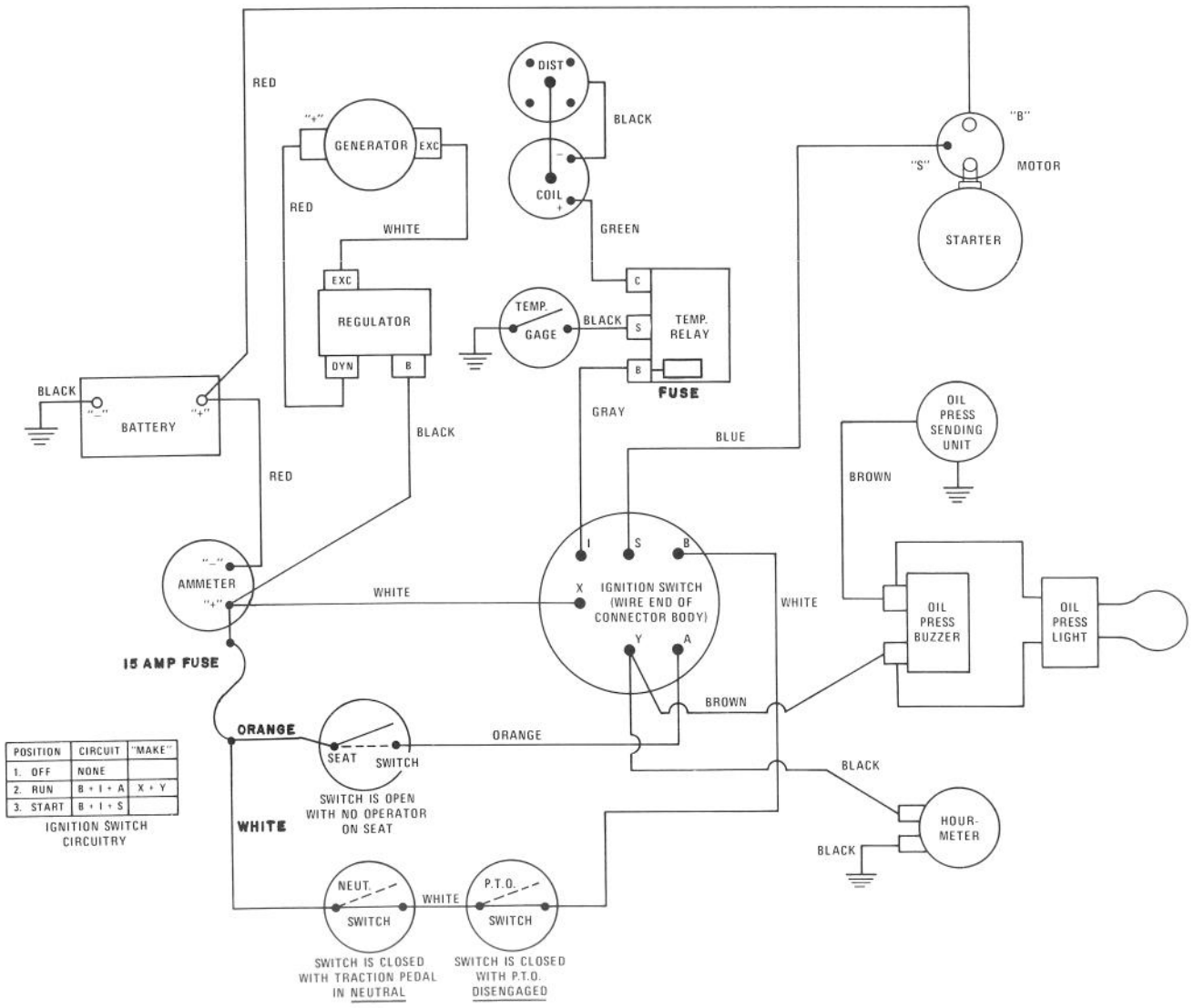


ELECTRICAL MAINTENANCE TROUBLESHOOTING

PROBLEM: THERE IS VOLTAGE AT "S" TERM ON STARTER BUT STARTER WILL NOT CRANK.



WIRING SCHEMATIC



MAINTENANCE RECORD

Date	Hours Used	Engine Oil Change	Oil Filter Change	Air Cleaner Service	Lubrication	Sharpen Blades	Hydraulic Oil Change	Hydraulic Filter Change