FORM NO. 3312-814

TORO®

MODEL NO. 30783

OPERATOR'S MANUAL

CRUISE CONTROL

(FOR GROUNDSMASTER 327 & 322D)

Since this operator's manual covers only a minimal amount of information necessary to maintain and operate your machine, we suggest that you keep this material with your traction unit operator's manual so that both may be referred to for instructions concerning safe operation and proper maintenance procedures.

Note: Right and left side is determined from rear of unit.

UNPACK AND ORGANIZE PARTS

1. Remove parts from carton and separate them into various assemblies to assist installation (Fig. 1, 2).

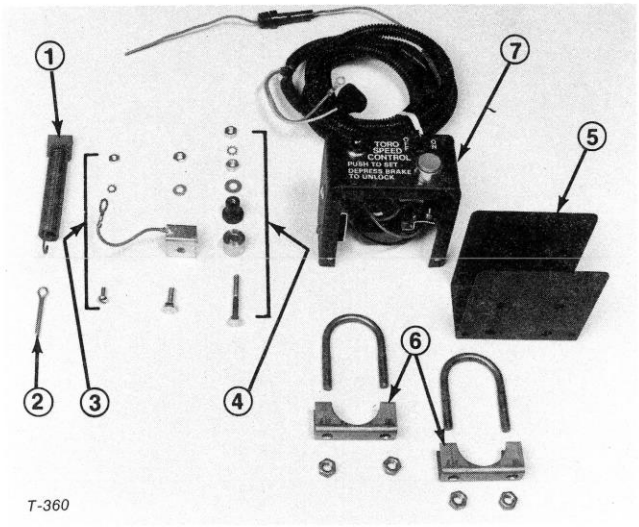


Figure 1

1. *Extension spring*
2. *Cotter pin*
3. *Grounding clip assembly*
4. *Contact spacer assembly*
5. *Box Assembly*
6. *Muffler clamp assemblies*
7. *Control panel and harness assembly*

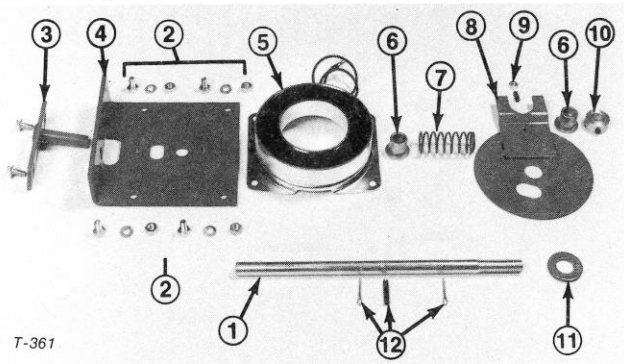


Figure 2

1. *Traction pedal shaft*
2. *Coil assembly mounting fasteners*
3. *Shaft assembly*
4. *Bracket*
5. *Coil assembly*
6. *Flange bushing*
7. *Spring*
8. *Clutch plate*
9. *Set screw and jam nut*
10. *Collar*
11. *Flatwasher*
12. *Roll pin and cotter pins*

INSTALLING EXTENSION SPRING, GROUND CLIP AND CONTACT SPACER

1. Remove parking brake latch rod knob and screws securing steering column support and slide support up on steering column (Fig. 3).

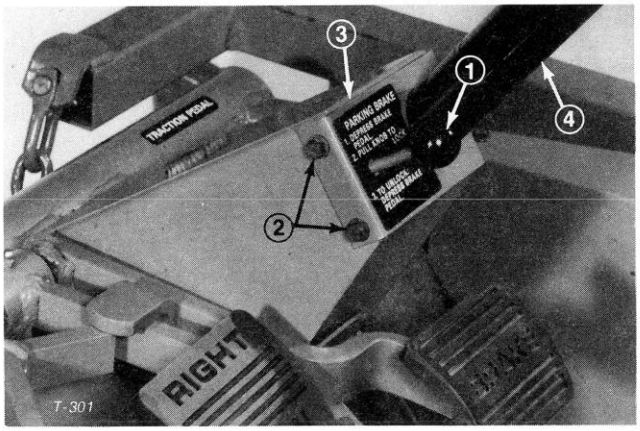


Figure 3

1. *Knob*
2. *Mounting screws*
3. *Steering column support*
4. *Steering column*

2. Center punch proper location for hole in bend of brake pedal arm and drill 7/32 in. (5.56 mm) hole in pedal arm (Fig. 4).

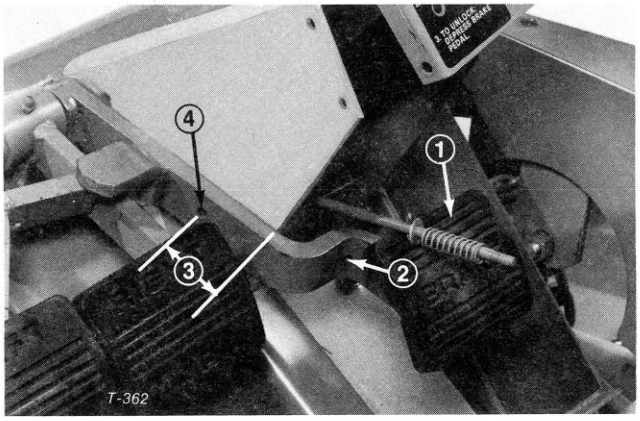


Figure 4

1. *Brake pedal*
2. *Drill 7/32 in. (5.56 mm) hole*
3. *2-1/4 in. (60 mm)*
4. *Drill 9/32 in. (7 mm) hole*

12. Assemble an external tooth lockwasher onto the machine screw, slip screw through grounding clip wire end and through hole in steering mount (Fig. 9).

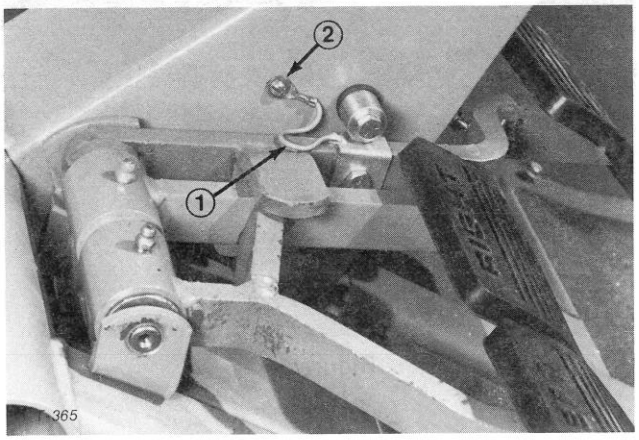


Figure 9

1. *Slack for pedal travel*
2. *Machine screw, external tooth lockwasher and lead*

13. Slip end of green wire from wire harness over machine screw on inside of steering cover and secure with nut (Fig. 10). Make sure there is enough slack in grounding clip lead after tightening.

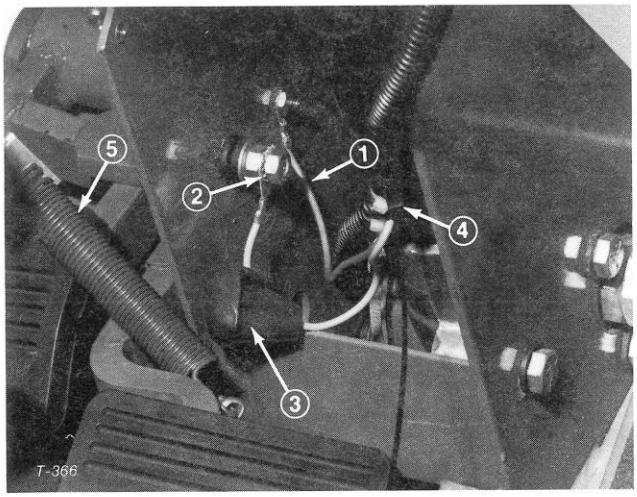


Figure 10

1. *Green wire (grounding lead)*
2. *Orange wire (contact spacer)*
3. *Boot*
4. *Cable tie*
5. *Spring removed for clarity*

14. Assemble orange wire harness to contact spacer capscrew and secure with lockwasher and nut (Fig. 10). Install boot over orange wire terminal (Fig. 10).

15. Position lower end of wire harness against steering column and secure it to column with a cable tie (Fig. 10).

INSTALL BOX AND BOX COVER ASSEMBLY

1. Install muffler clamp and bracket onto steering column, mount box over clamp and secure with clamp nuts (Fig. 11).

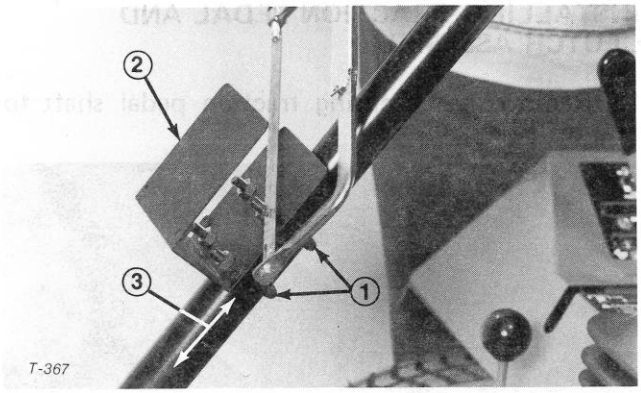


Figure 11

1. *Muffler clamps*
2. *Box*
3. *Approximately 6-3/4 in. (17 cm) between clamp and steering support*

2. Repeat step 1 with second clamp. Position assembly so there is approximately 6-3/4 in. (17 cm) between steering column support and bottom clamp (Fig. 11).

3. Tighten clamp nuts securely and cut excess portions of clamps off with a hacksaw (Fig. 11).

4. Slide cover assembly over box (Fig. 12). If you are unable to raise box assembly high enough to assemble over top of box because of insufficient cable length, loosen clamp nuts and lower box on steering shaft. Assemble external tooth lockwashers onto machine screws and secure cover assembly to box with screws (Fig. 13).

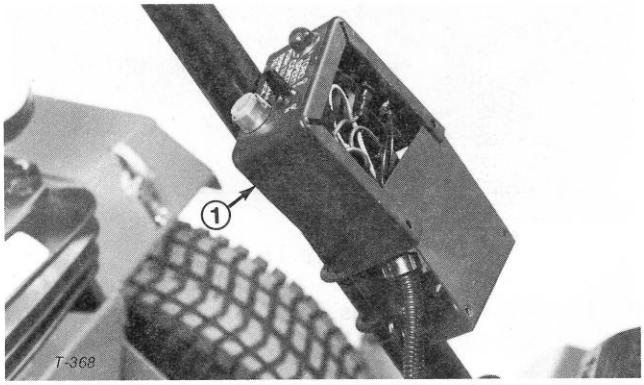


Figure 12

1. *Cover assembly*

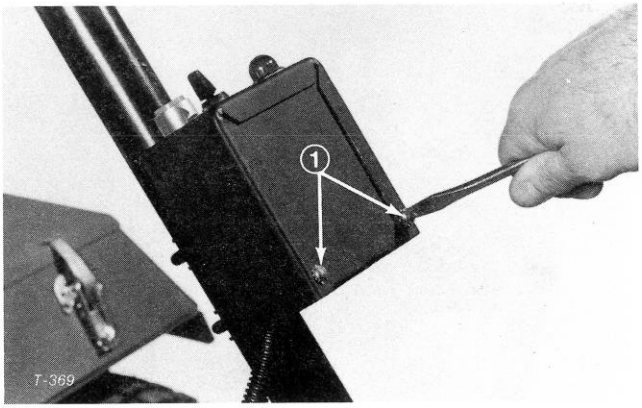


Figure 13

1. *Machine screws and external tooth lockwashers*

INSTALLING TRACTION PEDAL AND CLUTCH ASSEMBLY

1. Remove nut securing traction pedal shaft to bracket (Fig. 14).

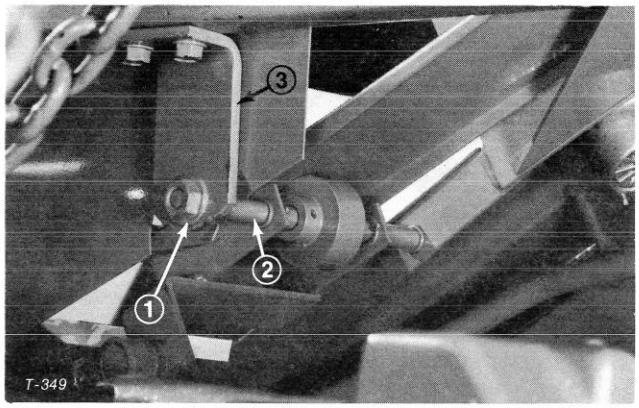


Figure 14

1. Nut
2. Traction pedal shaft
3. Bracket

2. Remove and discard bracket (Fig. 15).

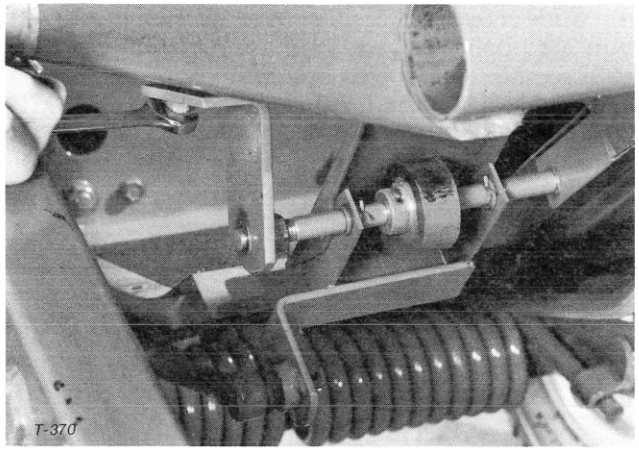


Figure 15

3. Remove cotter pins from traction pedal shaft and discard pins (Fig. 16).

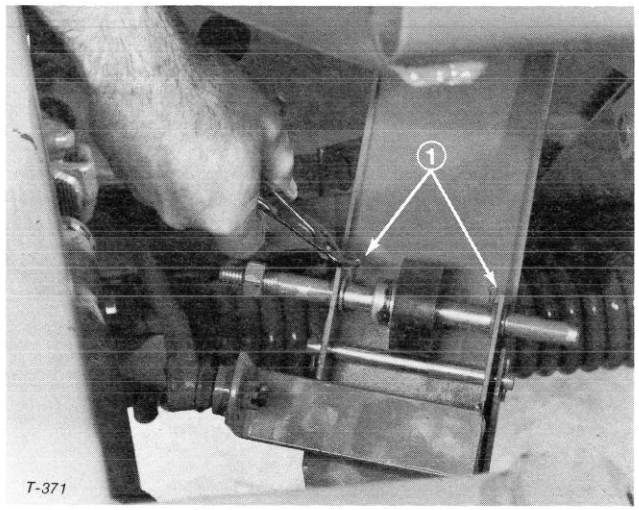


Figure 16

1. Cotter pins

4. Drive roll pin out of friction wheel and traction pedal shaft (Fig. 17). Discard roll pin.

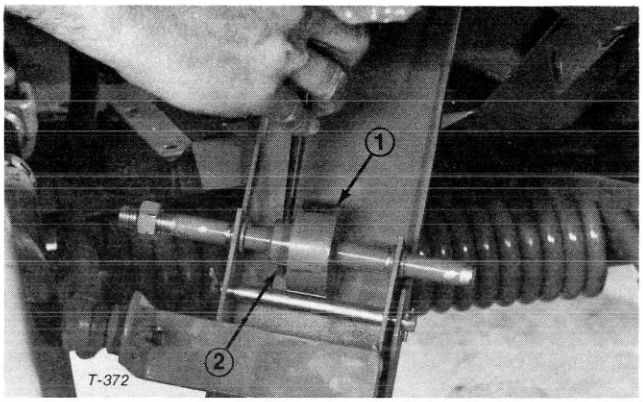


Figure 17

1. Friction wheel
2. Roll pin

5. Slide traction pedal shaft out of traction pedal bracket and friction wheel. Discard shaft; retain friction wheel, flatwasher and jam nuts.

6. Remove foot rest side plate. Matching the radius in lower front corner, measure 1-1/2 in. (38 mm) in on plate, scribe and trim 1-1/2 in. (38 mm) area off plate (Fig. 18). Set plate aside for further use.

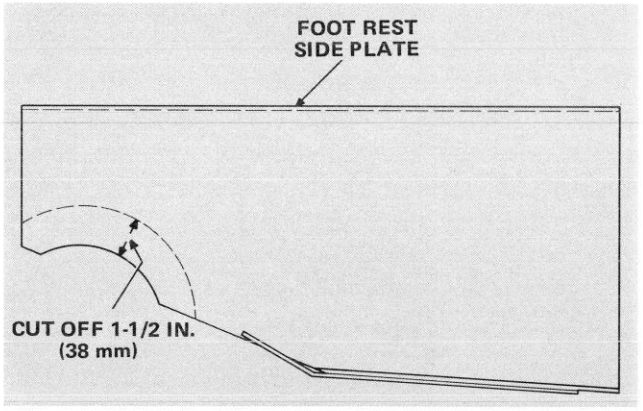


Figure 18

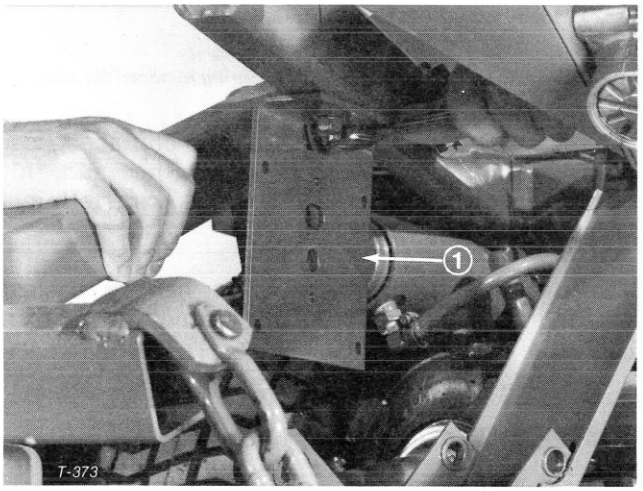


Figure 19

1. Bracket

7. Using original bracket mounting capscrews, install new bracket (Fig. 19).

8. Install field core coil assembly onto bracket ensuring wire lead is at top (Fig. 20). Secure coil with capscrews, lockwashers and nuts (Fig. 20).

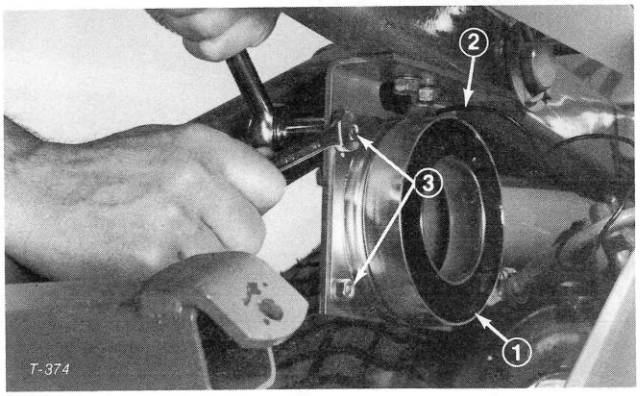


Figure 20

1. Field core coil assembly
2. Coil wire
3. Capscrews, lockwashers and nuts

9. Fully install a jam nut onto threaded end of new traction pedal shaft (Fig. 21). Insert non-threaded end of shaft into left hand hole of traction pedal bracket and friction wheel (Fig. 21).

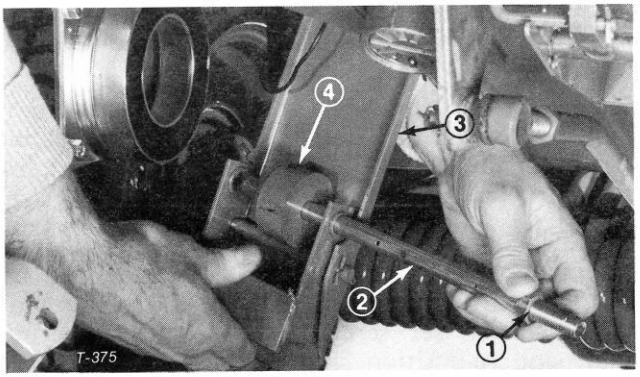


Figure 21

1. Jam nut
2. Traction pedal shaft
3. Traction pedal
4. Friction wheel

10. Install end of shaft assembly through slotted hole in frame bracket (Fig. 22) and secure loosely to bracket with two capscrews (Fig. 23).

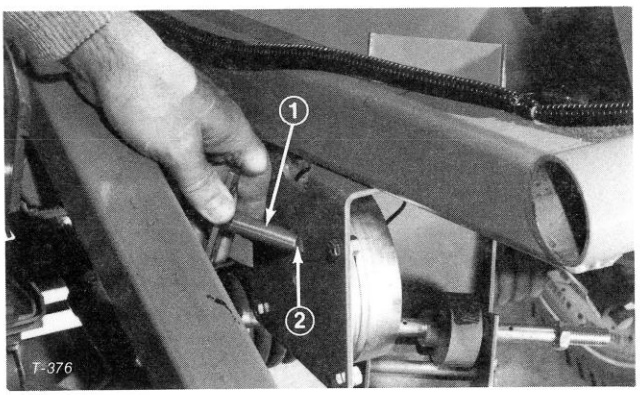


Figure 22

1. Shaft assembly
2. Slotted hole

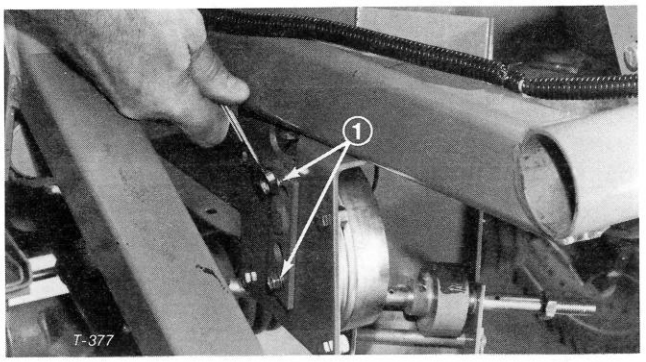


Figure 23

1. Shaft assembly mounting capscrews

11. Slide shaft through remaining traction pedal bracket hole and install collar on shaft (Fig. 24). Install and tighten jam nut on set screw in clutch plate (Fig. 24).

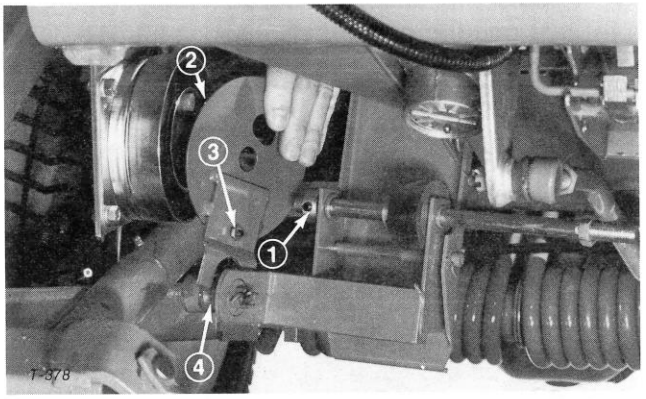


Figure 24

1. Collar
2. Clutch plate
3. Jam nut and set screw
4. Traction pedal bracket boss

12. Position slotted portion of clutch plate over boss on right side of traction pedal (Fig. 25). Clutch plate must move freely on boss and should be able to be adjusted, if necessary, so it can just clear lever of traction pedal bracket (Fig. 25). File excess portion of weldment away if this is not possible (Fig. 25).

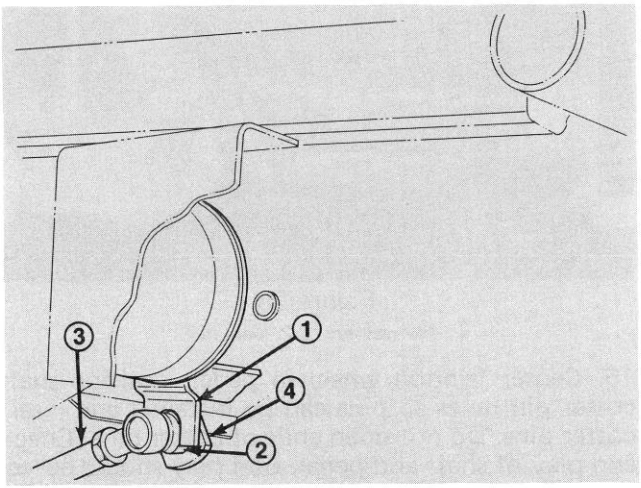


Figure 25

1. Clutch plate
2. Boss—file excess weld away
3. Pump control rod
4. Traction pedal bracket lever

13. Insert flange bushing into clutch plate from left side, slide traction pedal shaft through bushing and install spring and flange bushing onto shaft (Fig. 26).

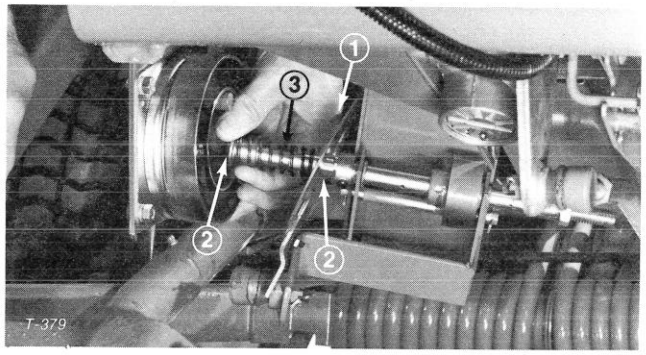


Figure 26

1. Clutch plate 3. Spring
2. Flange bushings

14. Slide traction pedal shaft through frame bracket until threaded end of shaft is inside left hand frame bracket (Fig. 27).

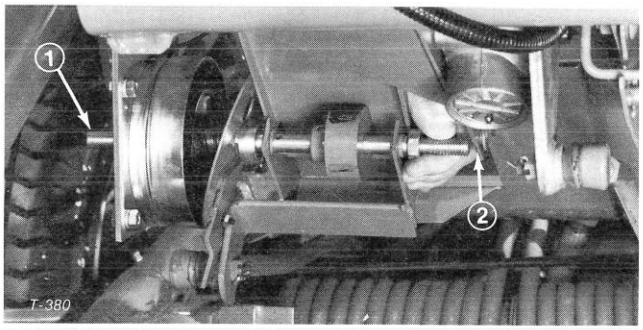


Figure 27

1. Traction pedal shaft 2. Left hand frame bracket

15. Install flatwasher onto threaded end of shaft, slide shaft through frame bracket and install flatwasher and jam nut (Fig. 28).

Note: Install flatwasher from kit first as it is designed to fit over flange bushing.

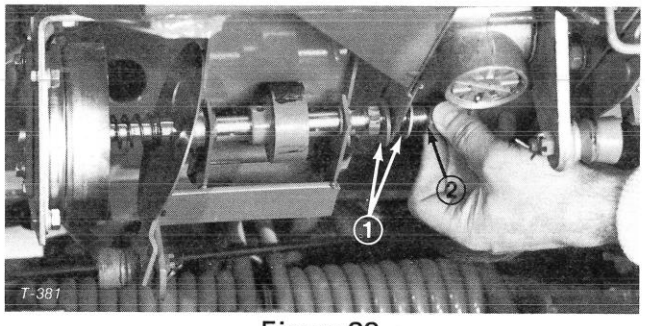


Figure 28

1. Flatwashers 2. Jam nut

16. Center friction wheel in pedal, position shaft cotter pin holes so pins can be installed and insert cotter pins. Do not open ends of cotter pins. Check end play of shaft and pedal. End play should be less than 1/16 in. (1.6 mm). If play is greater than 1/16 in. (1.6 mm) add a 1/2 in. (13 mm) diameter washer between the cotter pin and pedal assembly (Fig. 30). Tighten jam nuts (Fig. 30).

17. Open ends of cotter pins (Fig. 30).

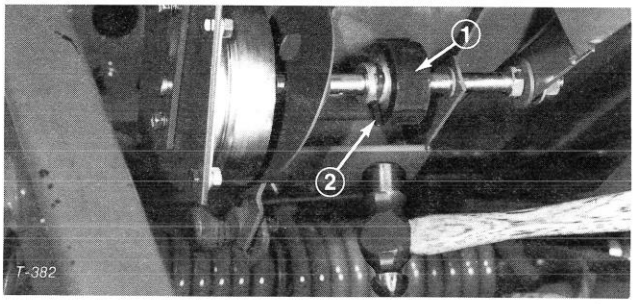


Figure 29

1. Friction wheel 2. Roll pin

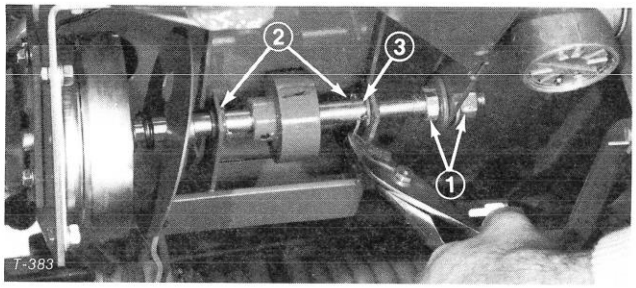


Figure 30

1. Center friction wheel; tighten jam nuts
2. Cotter pins
3. Add washer (if required)

18. Align shaft hole with friction wheel hole and install roll pin (Fig. 29).

19. Position top of clutch plate so there is approximately 3/32 in. (2.2 mm) between plate and coil (Fig. 31). Push collar against plate and secure with set screw (Fig. 31).

20. Check position of clutch plate with respect to traction pedal boss (Fig. 31). Plate should be centered on boss (Fig. 31). If not centered, loosen collar set screw and jam nuts securing shaft and re-position shaft. Tighten nuts and set screw to secure adjustment.

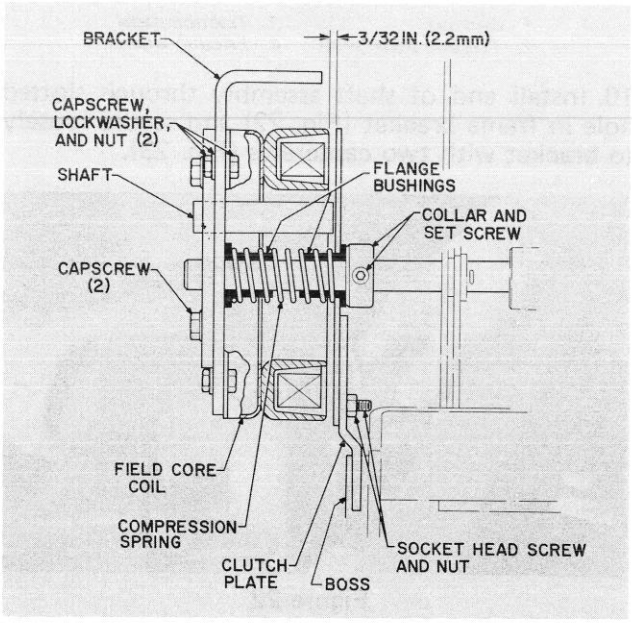


Figure 31

ASSEMBLING WIRE HARNESS TO COIL AND CONTROL PANEL

1. Route harness down past steering gear box out under front frame member to right front corner of machine. Pull slack out of harness and secure to front frame with cable tie (Fig. 32).

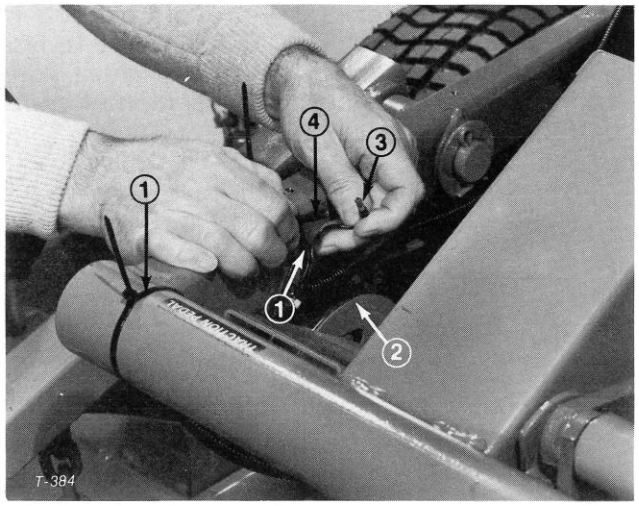


Figure 32

1. Cable ties
2. Coil assembly
3. Bullet connector – coil
4. Harness connector

2. Route harness across top of coil and connect bullet connector on coil wire to harness connector (Fig. 32). Loop excess coil and harness wire together and secure to right side of frame with cable tie (Fig. 32).

3. Unlatch clamps and remove instrument cover. Route harness under right frame member and secure with cable ties (Fig. 33).

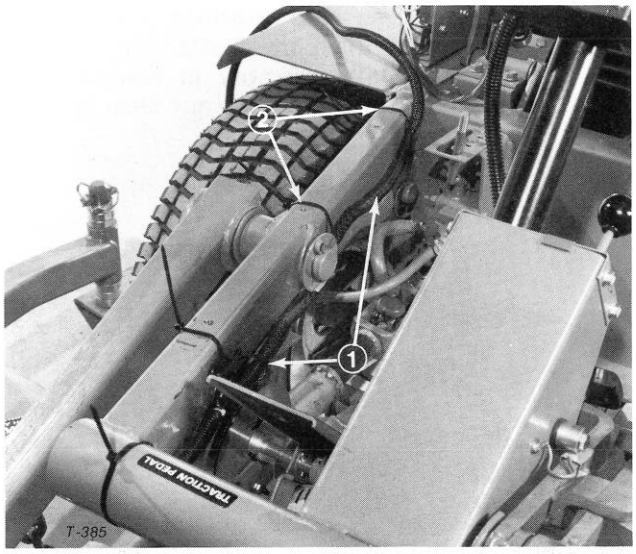


Figure 33

1. Harness
2. Cable ties

4. Route harness under control panel. Insert red harness wire end into tap connector (Fig. 34) until wire end butts up against stop in connector (Fig. 35).

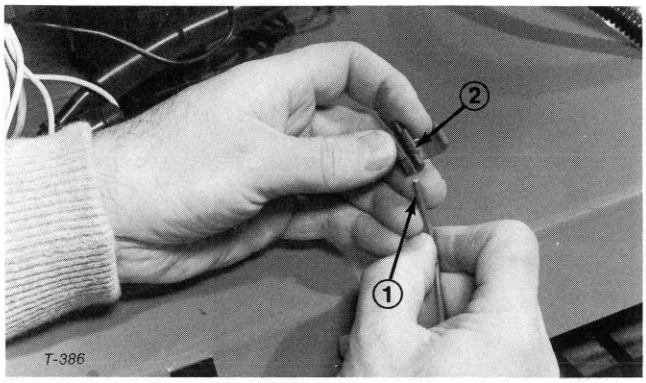


Figure 34

1. Red harness wire 2. Tab connector

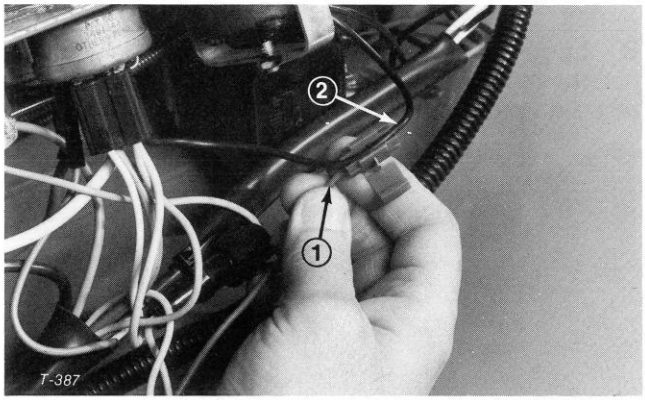


Figure 35

1. Red harness wire
2. Black wire – ignition switch to hour meter

5. Hold red wire against stop in tap connector and position black wire leading from ignition switch to hour meter into slot in connector (Fig. 35).

6. Hold red and black wires in position and squeeze metal tab in connector with pliers to lock wires into connector (Fig. 36).

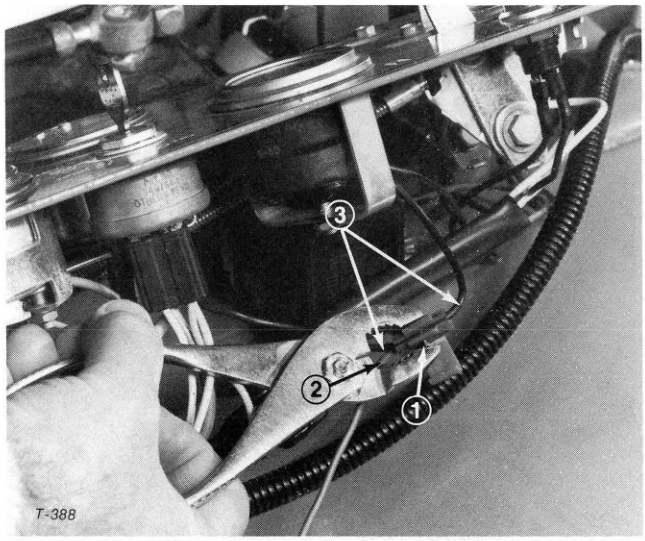


Figure 36

1. Metal tab
2. Red wire
3. Black wire

7. Snap tab over top of connector (Fig. 37).

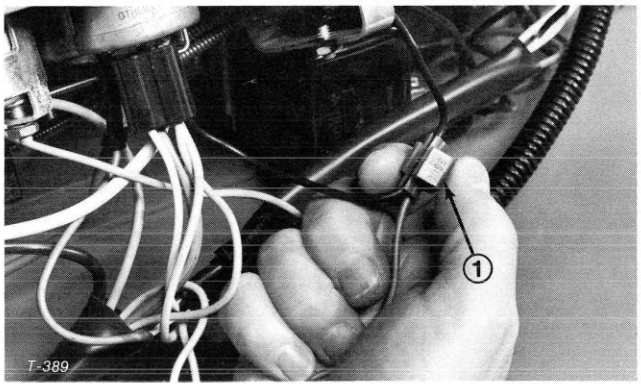


Figure 37

1. Snap over top of connector

8. Loop excess portion of harness under control panel. Install instrument panel cover and foot rest side plate (Fig. 38).

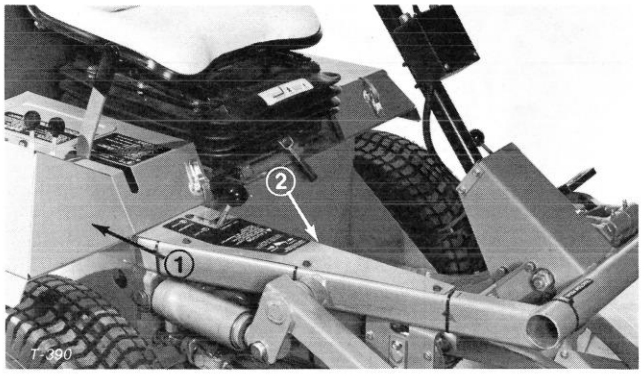


Figure 38

1. Instrument panel cover
2. Foot rest side plate

ADJUSTMENTS AND PERFORMANCE CHECKS

1. Make sure traction pedal is in neutral position. Turn ignition switch in machine control panel to RUN position and toggle switch on cruise control panel to ON (Fig. 39).

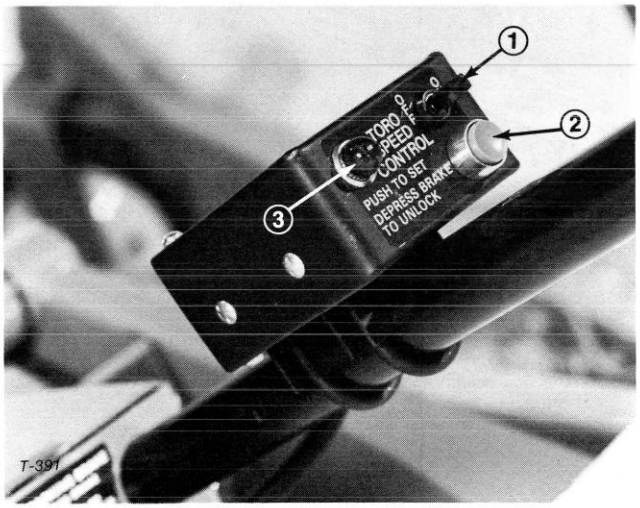


Figure 39

1. Toggle switch
2. Actuating button
3. Indicator lamp

2. Press button in cruise control panel (Fig. 39). The clutch plate should be pulled against the coil when button is depressed; if plate does not move, coil is not energized. Check wire connections. If clutch plate moves, proceed to step 3.

3. With plate against coil, rotate shaft assembly on outside of coil so that inner portion of shaft assembly contacts forward end of slotted hole in clutch plate (Fig. 40). This functions as a reverse lock out when the coil is engaged. Tighten shaft assembly capscrews and check operation of cruise control; proceed to step 4.

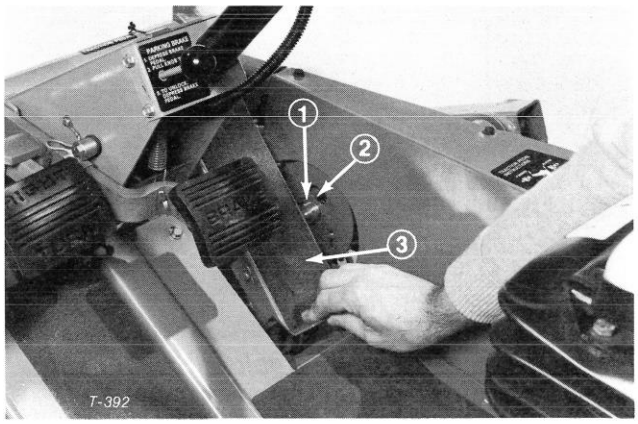


Figure 40

1. Clutch plate against coil
2. Shaft assembly in contact with end of slot
3. Traction pedal in neutral

4. Depress brake pedal; clutch plate should move away from coil and light should go out on panel (Fig. 39).

5. Turn cruise control switch and ignition switch to OFF. Manually actuate traction pedal to forward and reverse operating positions. Pedal should operate freely and the clutch plate should clear the end of the shaft assembly in reverse pedal position (Fig. 41). If plate does not clear the end

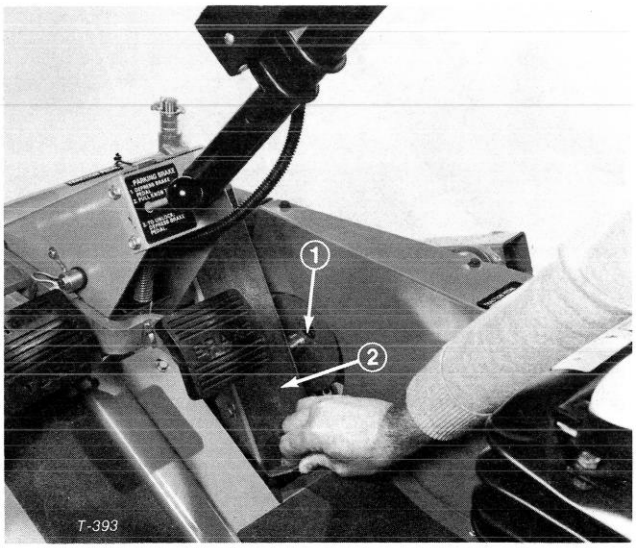


Figure 41

1. Clutch plate clears end of shaft assembly
2. Traction pedal in reverse

of the shaft assembly, move the clutch plate further away from the coil; proceed to step 6. If plate does clear end of shaft assembly, proceed to step 7.

6. Loosen set screw in collar and allow spring tension to move plate and collar away from top of coil (Fig. 42). Allow a minimum amount of movement of plate and tighten set screw. Recheck plate function; refer to steps 1-5.

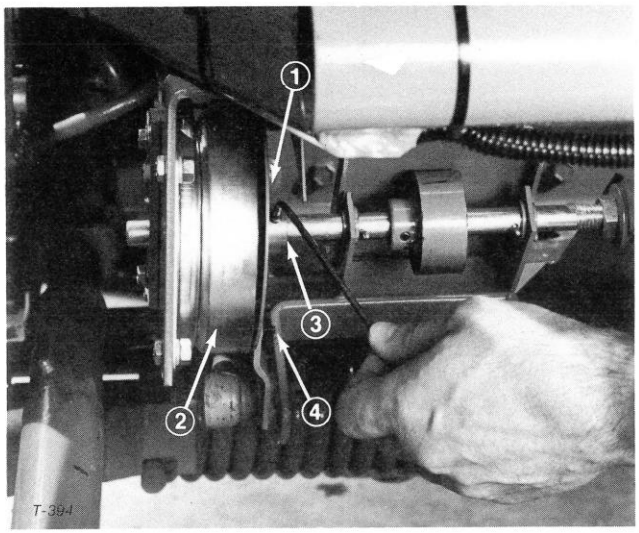


Figure 42

1. *Clutch plate*
2. *Coil assembly*
3. *Collar and set screw*
4. *Set screw and jam nut*

7. Sit on seat. Make sure traction pedal is in neutral position, turn machine ignition switch to RUN and cruise control switch to ON position (Fig. 39).

8. Push cruise control actuating button to draw clutch plate against coil (Fig. 39).

9. Actuate traction pedal with foot. Pedal should move with a medium amount of force (approximately 40 lb – 18 kg) required to move pedal. If an excessive amount of force is required, proceed to step 10. If force appears to be adequate, proceed to step 11.

10. Move lower portion of clutch plate away from coil; loosen jam nut securing set screw at bottom of clutch plate and turn screw clockwise (Fig. 42). Turn screw approximately one turn, lock jam nut and repeat steps 7-9. Continue procedure until pedal force meets requirements.

11. Operate machine in area similar to normal operating conditions. Actuate cruise control and check traction pedal function. Pedal should stay in a pre-set position under most all conditions except extremely rough terrain conditions. If it does not stay in a pre-set position, even though terrain is fairly smooth, adjust set screw at bottom of clutch plate out (Fig. 42). Tighten jam nut after adjustment. If it does stay in a pre-set position, proceed with normal operations.

Note: Clutch plate must clear end of shaft assembly; refer to step 5 for checking procedures.

OPERATING INSTRUCTIONS

1. Sit on seat, operate machine in normal manner.

2. Position traction pedal so machine is travelling at desired ground speed.

3. Hold pedal in position, turn cruise control switch to ON and depress actuating button (Fig. 39).

4. Machine can now be operated with traction pedal held in original set position or operator can reposition pedal by applying an overriding force to the pedal.

To disengage control:

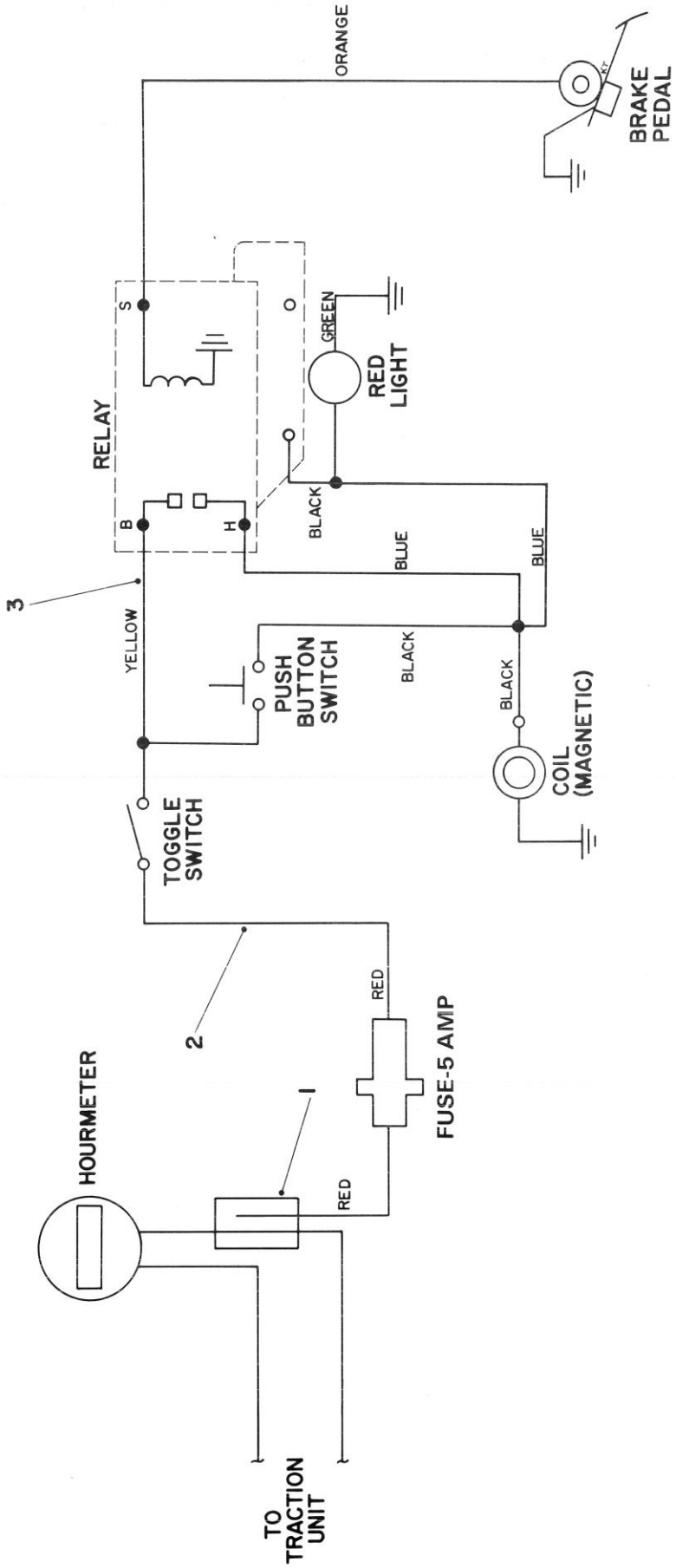
1. Actuate brake pedal; this breaks electrical circuit, allowing normal traction pedal operation.

or:

2. Turn control panel switch to OFF position.

Note: Turn control panel switch to OFF position when use of control is not planned and before leaving machine unattended.

ELECTRICAL SCHEMATIC



Litho in U.S.A.