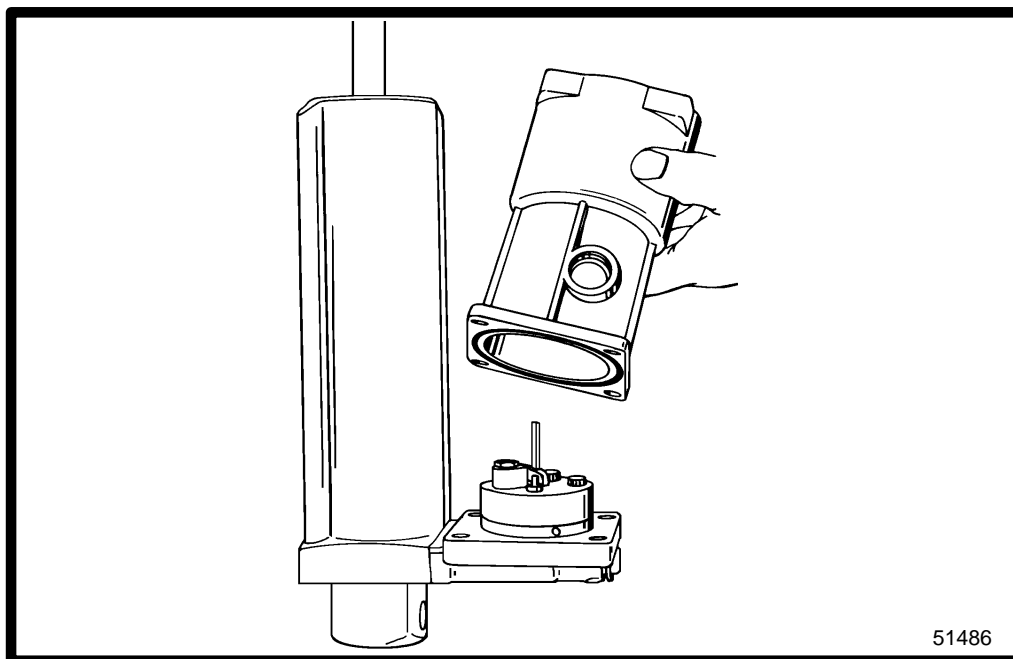




# MID-SECTION



5

D

**POWER TRIM (DESIGN 3)**



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## Special Tools

Description	Part No.
Torch Lamp	91-63209
Spanner Wrench	91-74951
Multi-Meter DVA Tester	91-99750

## Quicksilver Lubricants and Service Aids

Description	Part No.
Power Trim and Steering Fluid	91-9010012
Loctite 271	91-32609-1
Liquid Neoprene	91-25711-1
Anti-Corrosion Grease	91-78376A6

## Power Trim - General Information

### Description

The Power Trim system consists of an electric motor, pressurized fluid reservoir, pump and trim cylinder.

The remote control (or trim panel) is equipped with a switch that is used for trimming the outboard “up” and “down”, and for tilting the outboard for shallow water operation (at slow speed) or for “trailing”. The outboard can be trimmed “up” or “down” while engine is under power or when engine is not running.

### Trimming Characteristics

When trimming outboard from a mid-trim position (trim tab in neutral, straight fore-and-aft position), you can expect the following results:

#### TRIMMING OUTBOARD “UP” (“OUT”)

##### WARNING

**Excessive trim “out” may reduce the stability of some high speed hulls. To correct instability at high speed, reduce the power gradually and trim the motor “In” slightly before resuming high speed operation. (Rapid reduction in power will cause a sudden change of steering torque and may cause additional momentary boat instability.)**

Will lift bow of boat, usually increasing top speed.

Transfers steering torque harder to port (left) on installations below 23 in. transom height.

Increases clearance over submerged objects.

In excess, can cause “porpoising” and/or ventilation.

In excess, can cause insufficient water supply to water pump resulting in serious water pump and/or powerhead overheating damage.

##### WARNING

**Excessive engine trim angle will result in insufficient water supply to water pump causing water pump and/or powerhead overheating damage. Make sure that water level is above gear housing water intake holes whenever engine is running.**

Operating “Up” circuit will actuate the “up” relay (located under engine cowl) and close the electric motor circuit. The electric motor drives the pump, forcing fluid thru internal passageways into the “up” side of the trim cylinder.

The trim cylinder/trim ram will position the engine at the desired trim angle within the 20° maximum trim range. The Power Trim system is designed so the engine cannot be trimmed beyond the 20° maximum trim angle as long as engine RPM is above approximately 2000 RPM.

The engine can be raised beyond the 20° maximum trim angle for shallow water operation, etc., by keeping the engine RPM below 2000 RPM. If engine RPM increases above 2000 RPM, the thrust created by the propeller (if deep enough in the water) will cause the trim system to automatically lower the engine back to the 20° maximum trim angle.

#### TRIMMING OUTBOARD “DOWN” (“IN”)

##### WARNING

**Excessive speed at minimum trim “In” may cause undesirable and/or unsafe steering conditions. Each boat should be tested for handling characteristics after any adjustment is made to the tilt angle (tilt bolt relocation).**

Will help planing off, particularly with a heavy load.

Usually improves ride in choppy water.

In excess, can cause boat to veer to the left or right (bow steer).

Transfers steering torque harder to right (or less to the left).

Improves planing speed acceleration (by moving tilt bolt one hole closer to transom).



Operating “Down” circuit will actuate the “down” relay (located under engine cowl) and close the electric motor circuit (motor will run in opposite direction of the “Up” circuit). The electric motor will drive the pump, forcing fluid thru internal passageways into the “down” side of the tilt ram. The tilt ram will move the engine down to the desired angle.

## Trailing Outboard

### ⚠ WARNING

**Excessive engine trim angle will result in insufficient water supply to water pump causing water pump and/or powerhead overheating damage. Make sure that water level is above gear housing water intake holes whenever engine is running.**

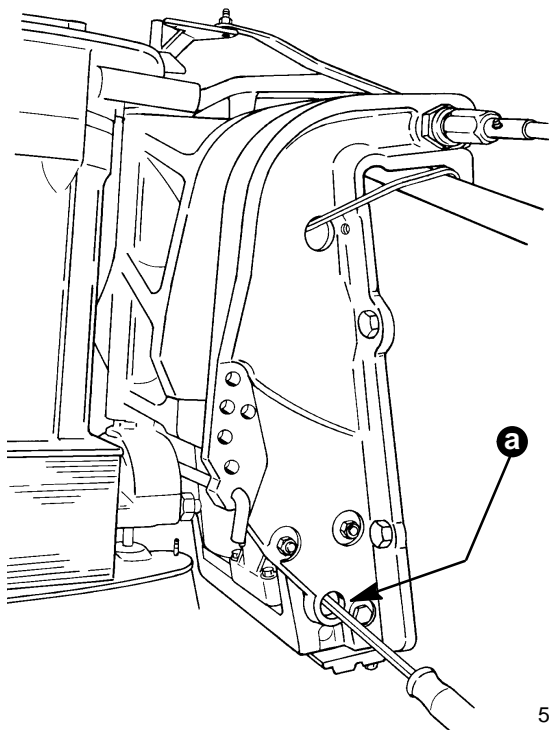
While operating “up” circuit, the ram will continue to tilt outboard to full up position for trailering.

## Tilting Outboard Up and Down Manually

### ⚠ WARNING

**Before opening the manual release valve, make sure all persons are clear of engine as engine will drop to full “down” position when valve is opened.**

With power trim installed, the outboard can be raised or lowered manually by opening the manual release valve 3 turns **maximum** (counterclockwise).



52028

a - Manual Release Valve

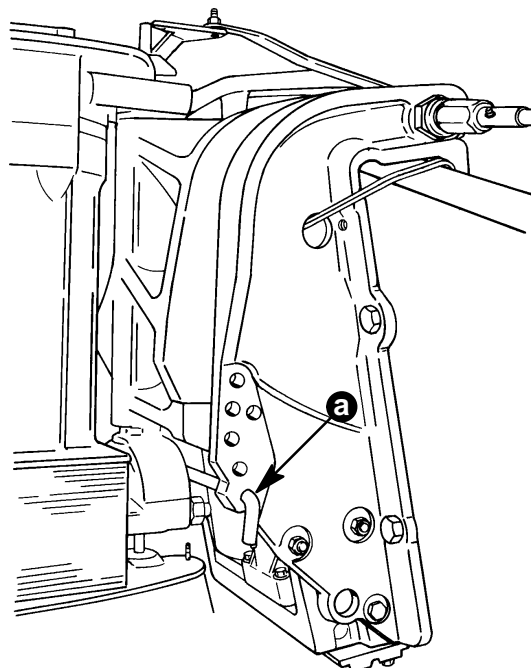
## Trim “In” Angle Adjustment

### ⚠ WARNING

**Operating some boats with engine trimmed to the full “in” trim angle [not using trim adjustment bolt (a)] at planing speed will cause undesirable and/or unsafe steering conditions. Each boat must be water tested for handling characteristics after engine installation and after any trim adjustments.**

**IMPORTANT:** Some boat/motor combinations, that do not use the trim adjustment bolt (a) and are trimmed to the full “in” trim angle, will not experience any undesirable and/or unsafe steering conditions during planing speed. Thus, not using trim adjustment bolt may be desired. However, some boats with engine trimmed to the full “in” trim angle at planing speed will cause undesirable and/or unsafe steering conditions. If these steering conditions are experienced, under no circumstances should the engine be operated without the trim adjustment bolt and without the bolt adjusted in the proper holes to prevent unsafe handling characteristics.

Water test the boat not using the trim adjustment bolt. If undesirable and/or unsafe steering conditions are experienced (boat runs with nose down), install trim adjustment bolt in proper hole to prevent unsafe handling characteristics.



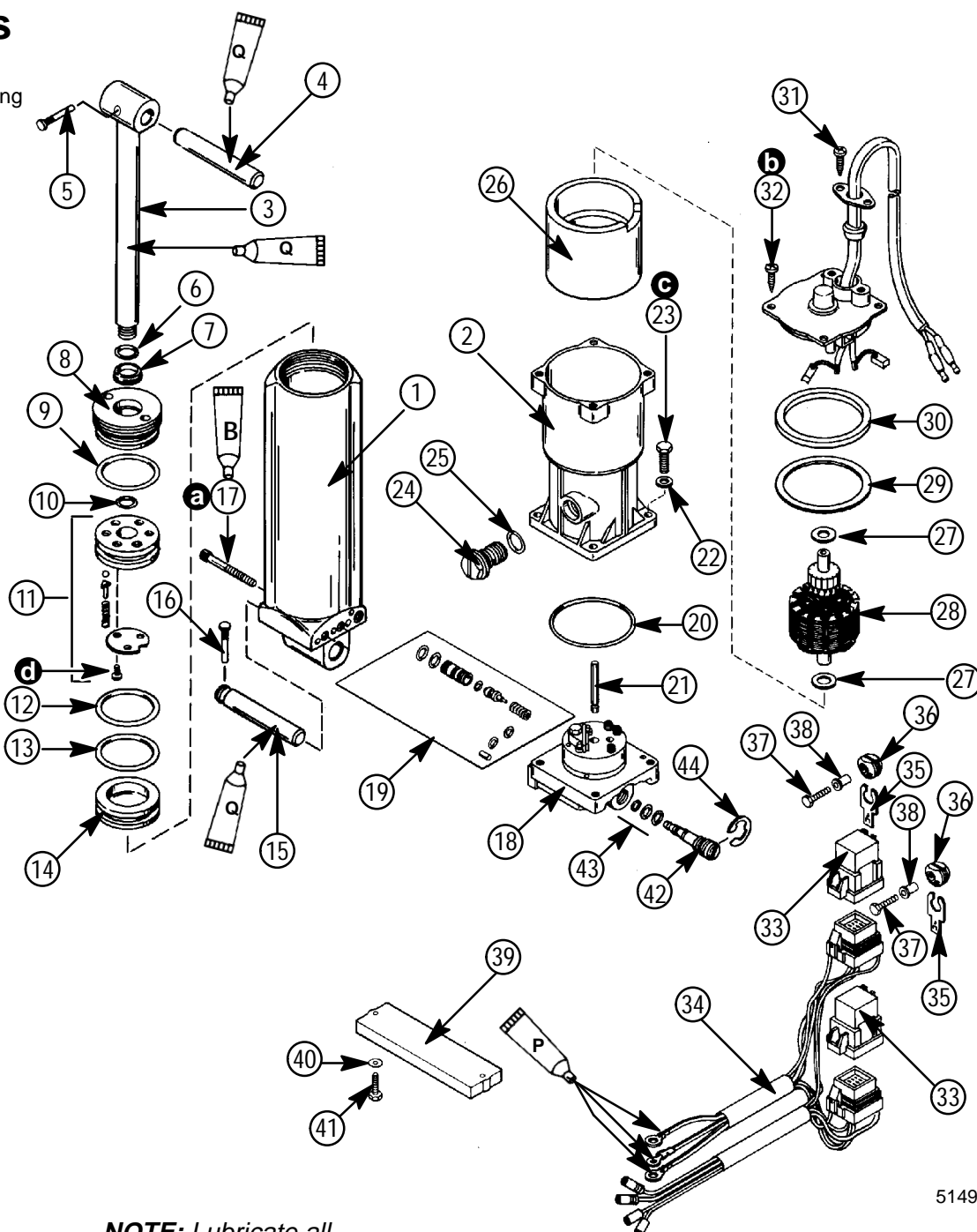
52029

a - Trim Adjustment Bolt

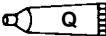


# Power Trim System Components



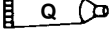
- 1 - Tilt/Trim Cylinder
- 2 - Reservoir/Motor Housing
- 3 - Piston Rod
- 4 - Upper Pivot Shaft
- 5 - Cross Pin
- 6 - O-ring
- 7 - End Cap Seal
- 8 - End Cap
- 9 - O-ring
- 10 - O-ring
- 11 - Piston Assembly
- 12 - O-ring
- 13 - O-ring
- 14 - Memory Piston
- 15 - Lower Pivot Shaft
- 16 - Cross Pin
- 17 - Screw (2)
- 18 - Pump Assembly
- 19 - Pilot Valve Assembly
- 20 - O-ring
- 21 - Driveshaft
- 22 - Washer (4)
- 23 - Screw (4)
- 24 - Fill Screw
- 25 - O-ring
- 26 - Motor Frame
- 27 - Thrust Washer (2)
- 28 - Armature
- 29 - Ring
- 30 - Seal
- 31 - Screw (2)
- 32 - Screw (4)
- 33 - Relay
- 34 - Wiring Harness
- 35 - Relay Mount (2)
- 36 - Rubber Mount (2)
- 37 - Screw (2)
- 38 - Spacer (2)
- 39 - Anode
- 40 - Washer (2)
- 41 - Screw (2)
- 42 - Manual Release Valve
- 43 - O-ring
- 44 - E-clip



51498

**NOTE:** Lubricate all  
O-rings and seals with 

## Quicksilver Lubricants and Service Aids

-  Loctite "271" (92-32609-1)
-  Liquid Neoprene (92-25711-1)
-  Power Trim and Steering Fluid (92-90100A12)

## Torque Specifications

- a** - 100 lb. in. (11.1 N·m)
- b** - 13 lb. in. (1.5 N·m)
- c** - 70 lb. in. (7.7 N·m)
- d** - 35 lb. in. (4.0 N·m)

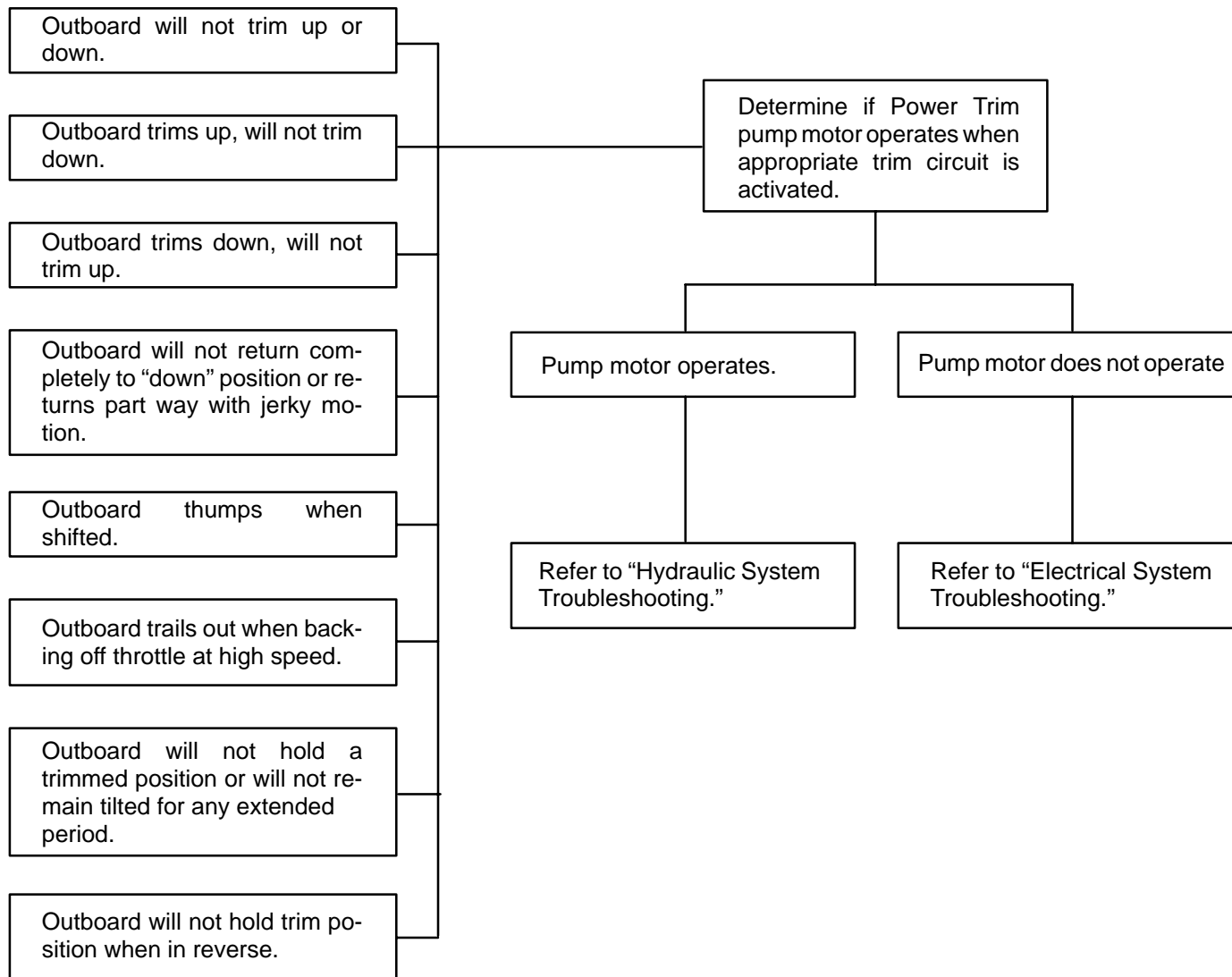


# Troubleshooting

## Determining if Problem is Electrical or Hydraulic

When a problem is encountered with the Power Trim system, the first step is to determine whether the malfunction is in the “electrical system” or the “hydraulic system.” Refer to the following chart to determine which system is at fault.

**Problem Chart**





## Hydraulic System Troubleshooting

Support outboard with tilt lock lever when servicing power trim system.

**After debris or failed components have been found (during troubleshooting procedures) disassemble unit completely and replace all O-rings. Check ball valve components and castings must be cleaned using engine cleaner and compressed air or replaced prior to reassembly.**

**Power trim system is pressurized. Outboard must be in the full "UP" position (cylinder fully extended) prior to fill screw or manual release valve removal.**

Refer to instructions following if disassembly is required.

Follow preliminary checks before proceeding to troubleshooting flow diagrams (following).

### Preliminary Checks

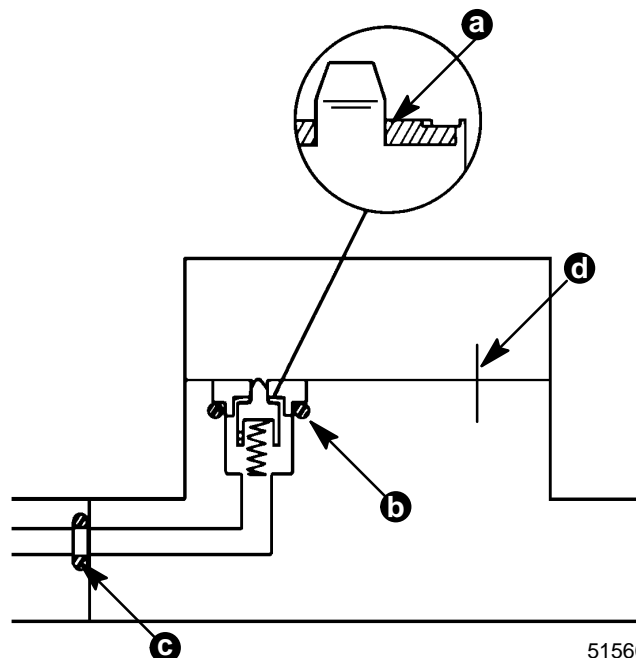
**Operate Power Trim System after each check to see if problem is corrected. If not, proceed with the next check.**

1. Check that manual release valve is tightened to full right (clockwise) position.
2. Check trim pump fluid level with outboard in full "UP" position and fill if necessary. Refer to "Fill and Purge the Power Trim System."
3. Check for external leaks in Power Trim system. Replace defective part(s) if leak is found.
4. Outboard not holding tilted position (falls to trim in position) indicates debris or defective components in trim valve assembly. Clean or replace components as required.
5. Check manual release valve for broken stem and one O-ring remaining in the release valve passage. (Separate the manifold assembly from the cylinder to dislodge broken stem.) Install new release valve and test system.
6. Check for nicked, deteriorated, or misplaced O-rings throughout trim system.

## Leak Down Check - Pump and Manifold Assembly

**NOTE:** Scribe (d) pump housing and manifold before disassembly.

1. Debris or chips between valve and seat (a), usually imbedded in rubber valve seat.
2. Nicked or deteriorated O-ring (b).
3. Nicked, deteriorated, or misplaced O-ring (c).



4. After reassembly, insert driveshaft and check pump rotor resistance to turning - housing halves can shift/turn during reassembly. Align scribe marks (d) carefully.

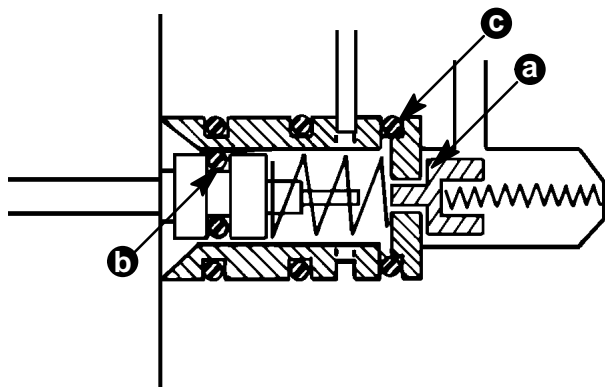




## Leak Down Check - Pilot Valve Assembly

1. Debris or chips between valve and seat, usually imbedded in rubber valve seat.
2. Pilot valve installed from non-chamfered end of spool, results in nicked or damaged O-ring.
3. Nicked or deteriorated O-ring.

A leak path is created between the UP side of the cylinder and the reservoir. The trim system will leak down until the trim port in cylinder is covered.

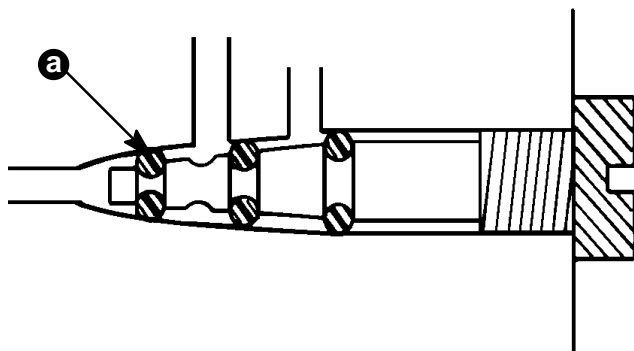


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- a - Valve and Seat
- b - Pilot Valve O-ring
- c - O-ring

## Leak Down Check - Manual Release Valve

1. Debris or chips under O-ring (a).
2. Flash from valve molding causing O-ring (a) to not seal.
3. Nicked O-ring (a).



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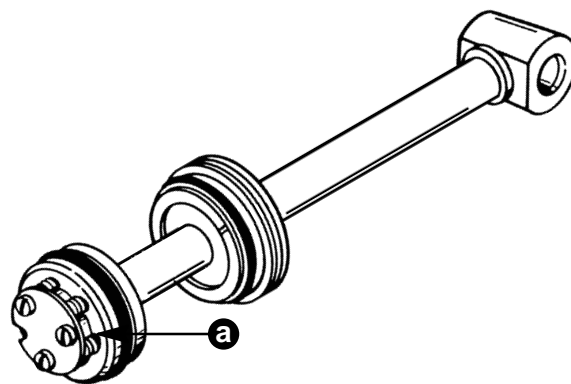
- a - O-ring

## Leaks Past Ball and Seat - Piston Assembly

Unit will trim to full or near full down position and then will begin to trim up while trim switch is held in "DOWN" mode.

If trim switch is released, outboard can be pushed (by hand) down to the point where trim UP started.

1. Inspect balls and seats in piston assembly for debris or damage. Repair or replace balls/seats.



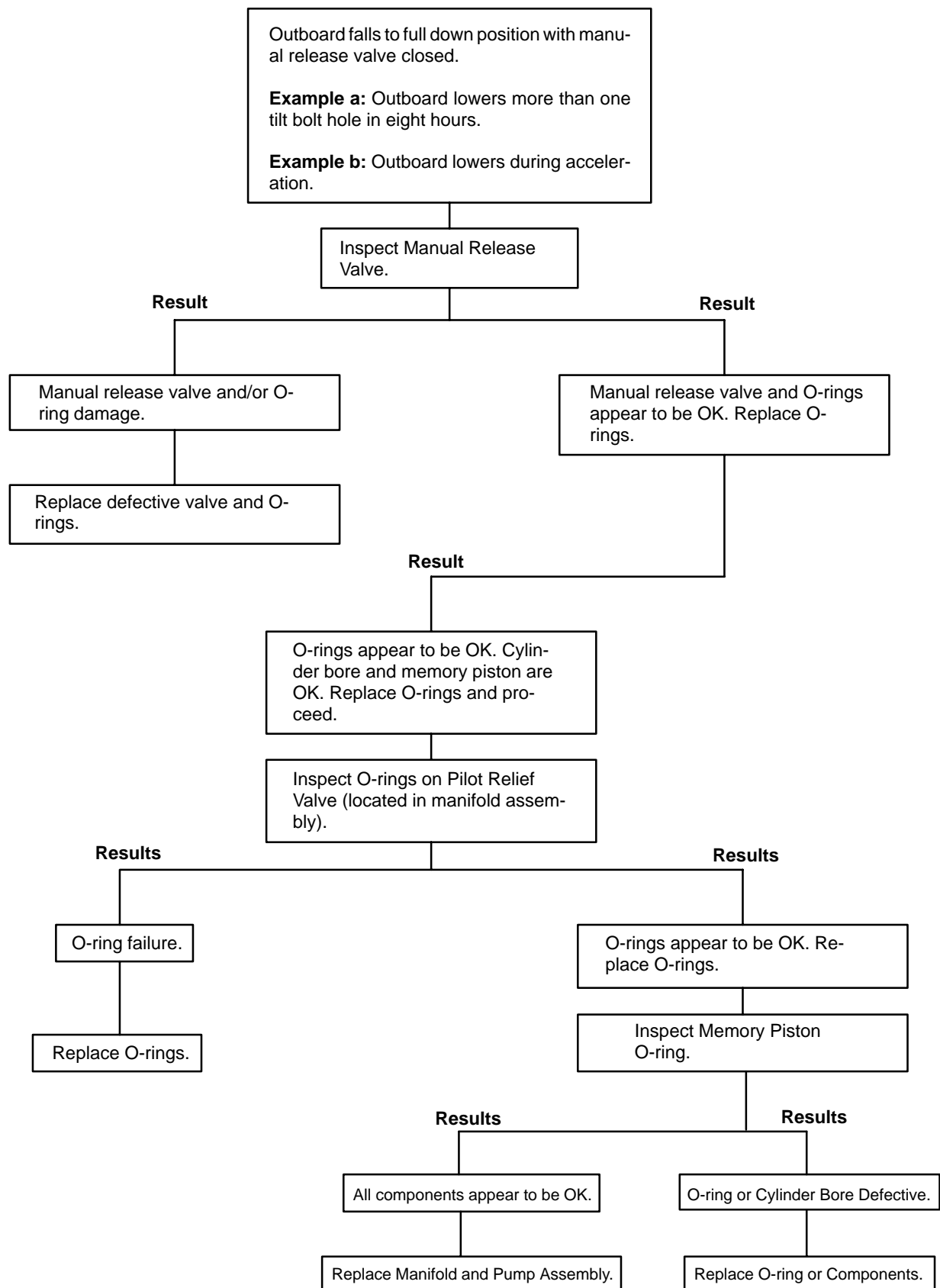
51143

- a - Ball and Seat. Check All For Debris or Damage.



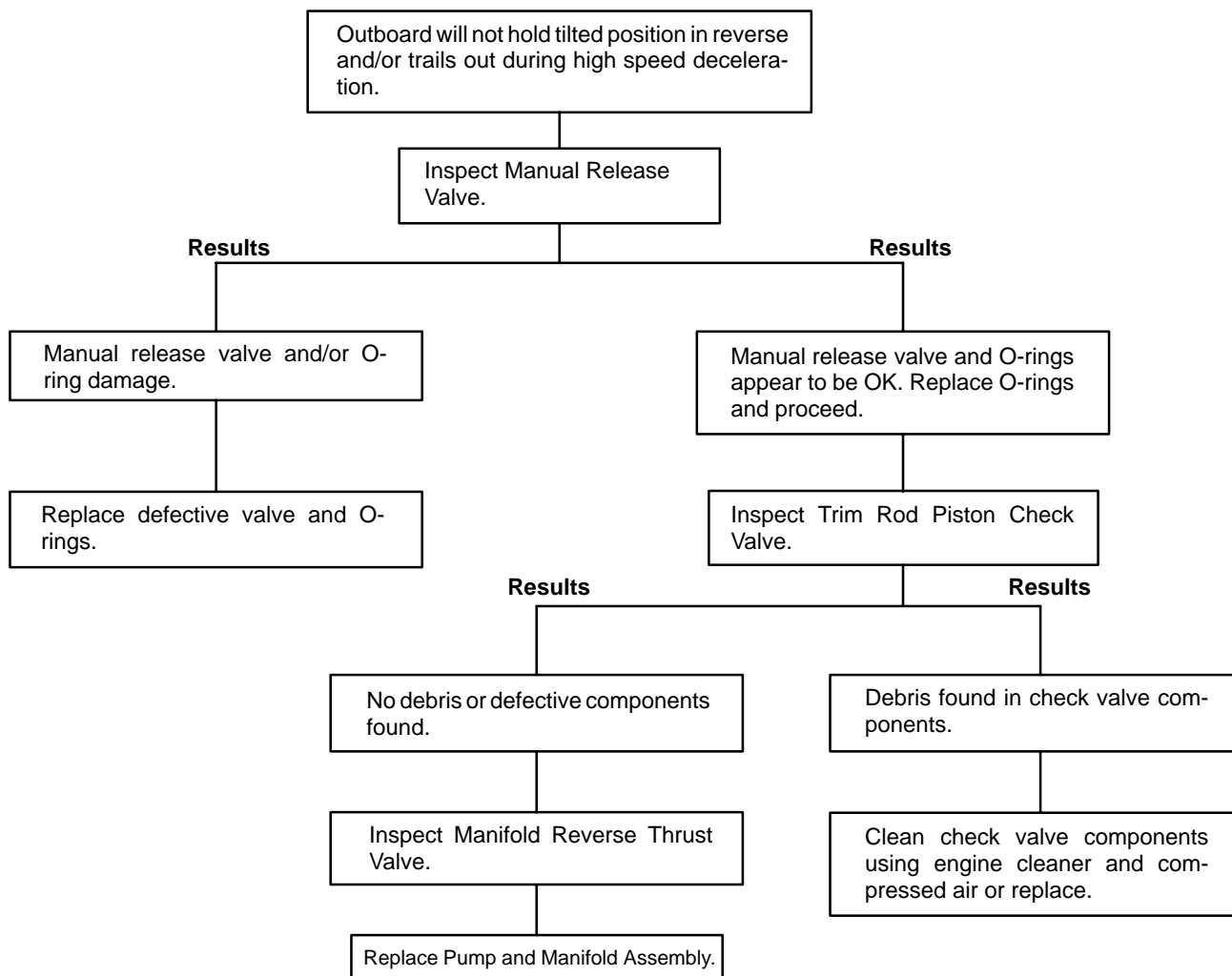


## Troubleshooting Flow Diagram





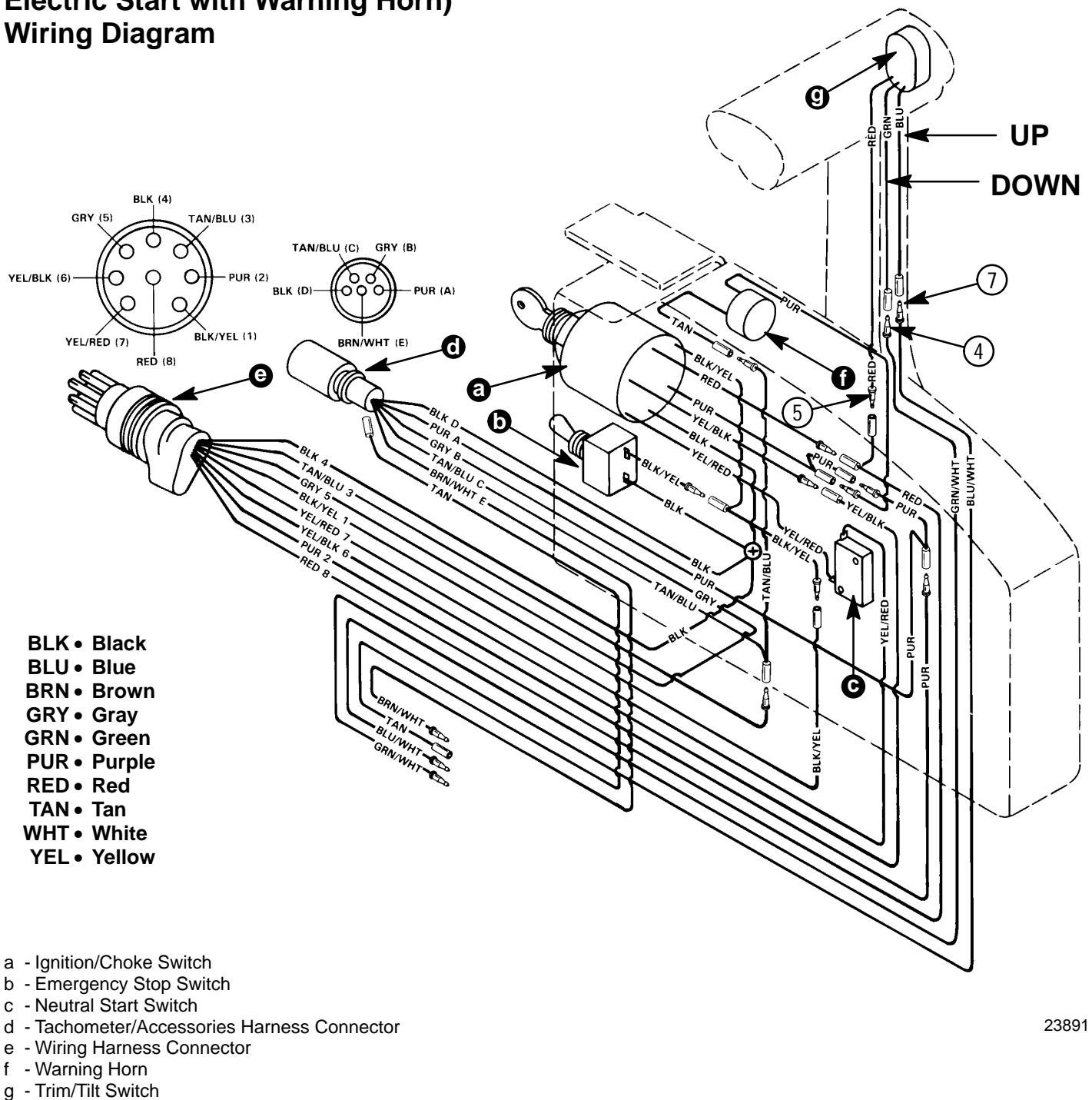
## Troubleshooting Flow Diagram





## Electrical System Troubleshooting

### COMMANDER 2000 Side Mount Remote Control (Power Trim/Tilt Electric Start with Warning Horn) Wiring Diagram



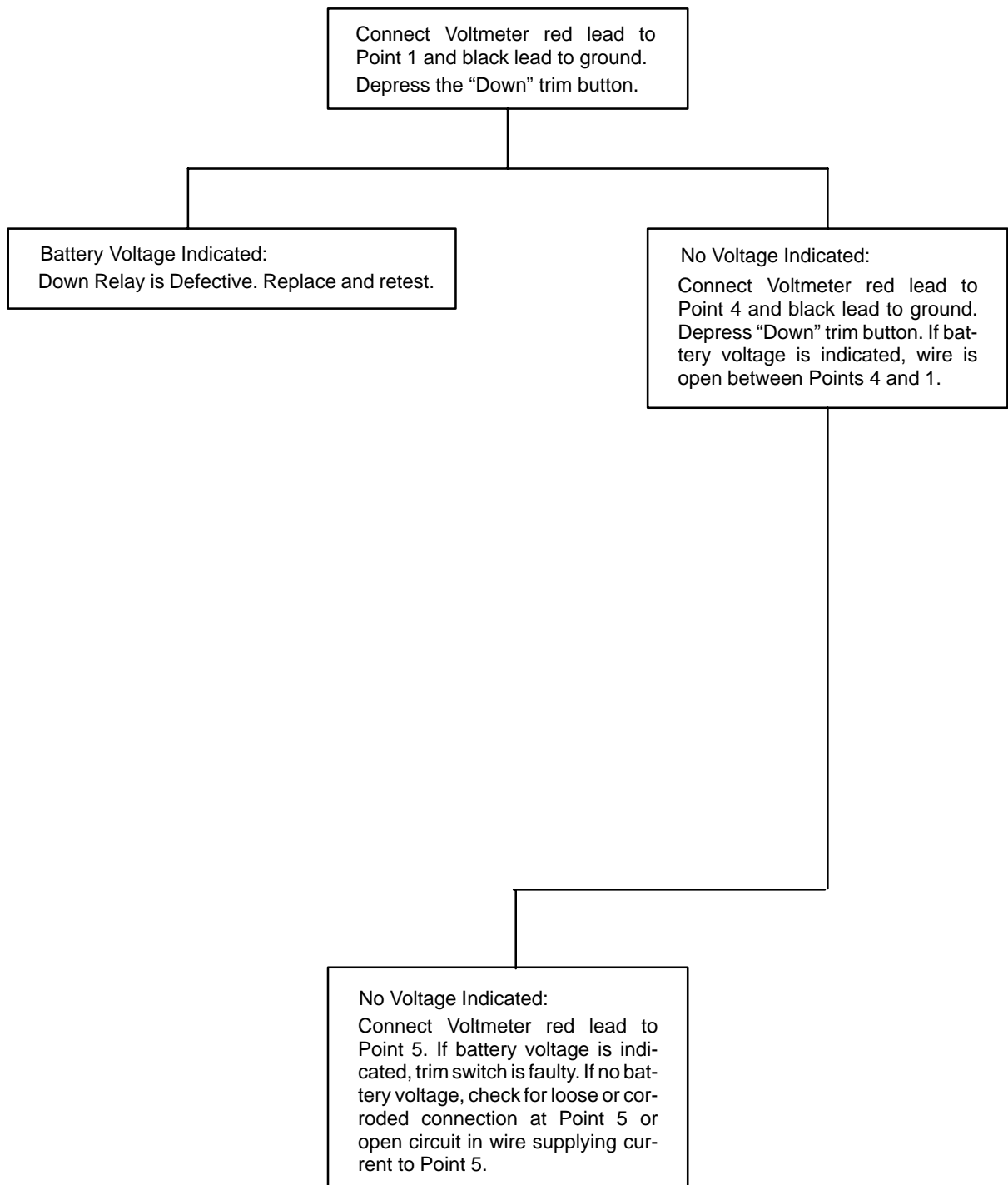
23891





## Troubleshooting the “Down” Circuit\* (When “Up” Circuit is OK)

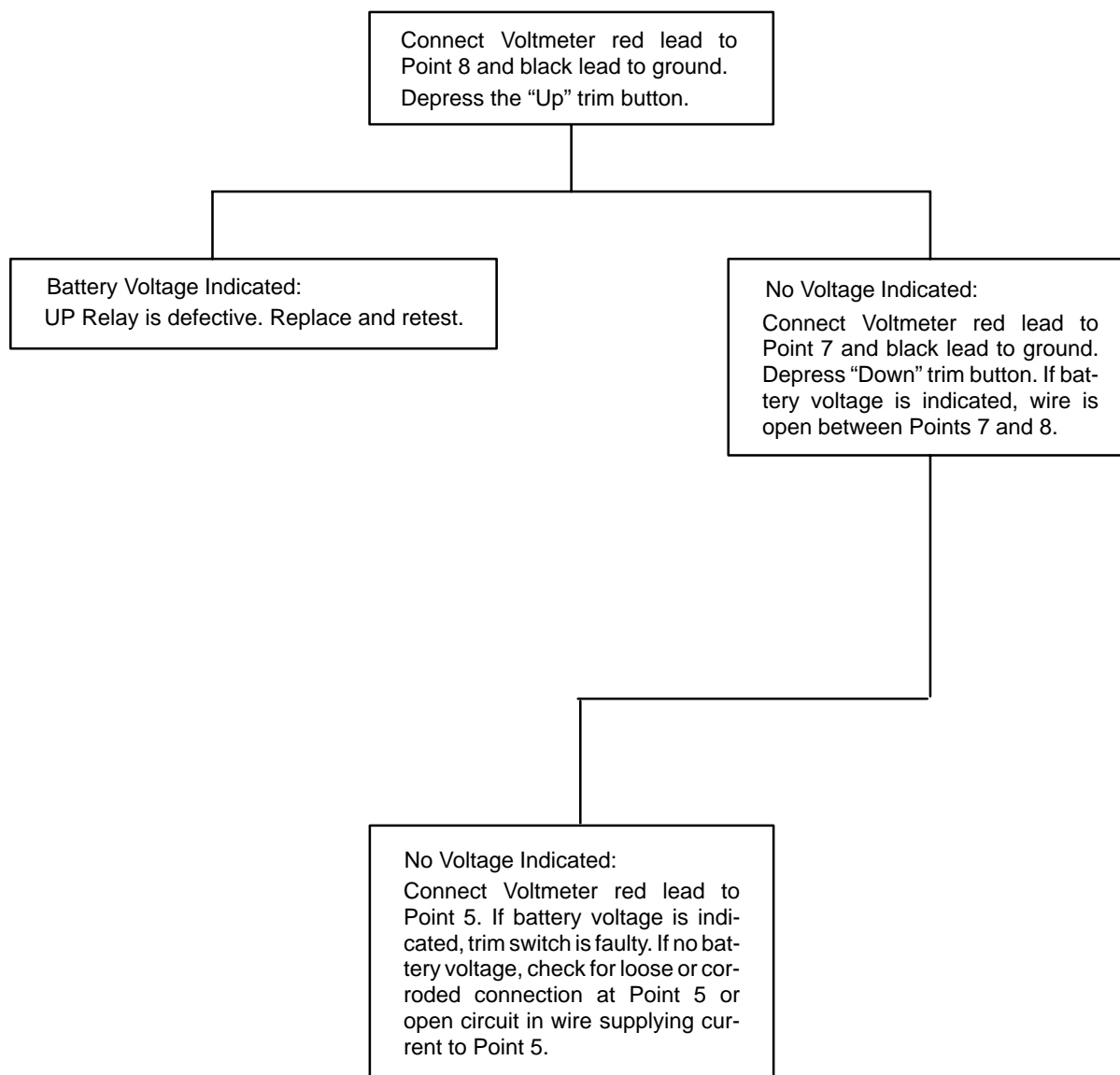
\*Remote Control Not Equipped with Trailer  
Button





## Troubleshooting the “Up” Circuit\* (When “Down” Circuit Is OK)

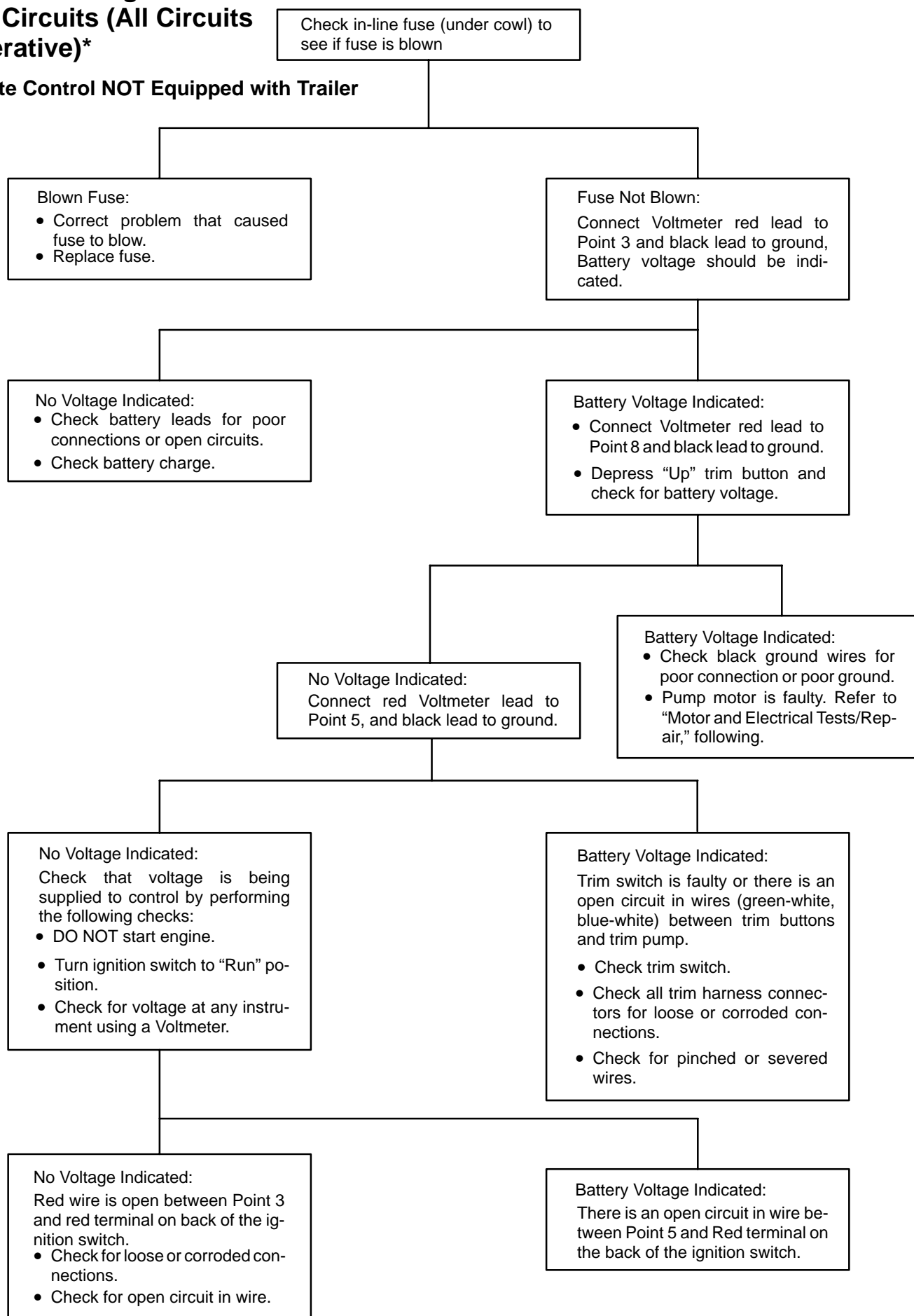
\*Remote Control NOT Equipped with Trailer Button





# Troubleshooting the “Down” and “Up” Circuits (All Circuits Inoperative)\*

\*Remote Control NOT Equipped with Trailer Button



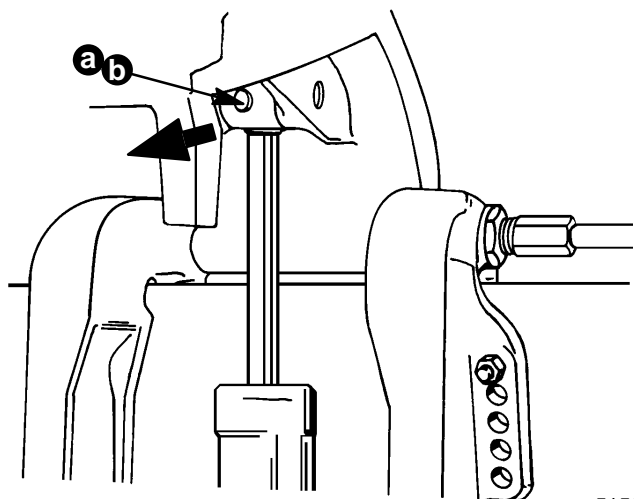




## Power Trim System Removal

Support outboard with tilt lock lever when servicing power trim system.

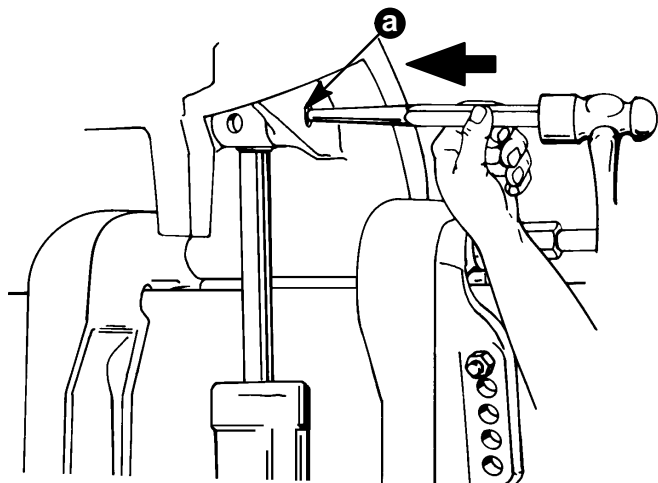
1. Disconnect power trim harness from outboard wiring harness.
2. Remove screw and clip securing wiring harness to clamp bracket.
3. Remove trim gauge sender (if equipped).
4. Use suitable tool to remove upper headed cross pin. Retain pin. Straight pin is hard to remove (see item 5).



51505

- a - Cross Pin (Design 1 - Straight)  
b - Cross Pin (Design 2 - Headed)

5. Drive out upper pivot pin. This will shear cross pin.

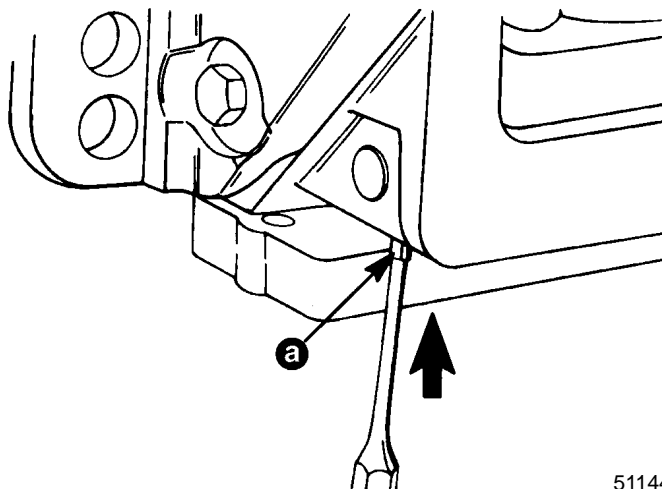


50515

- a - Upper Pivot Pin

Inspect cross pin hole and pivot pin hole for damage.

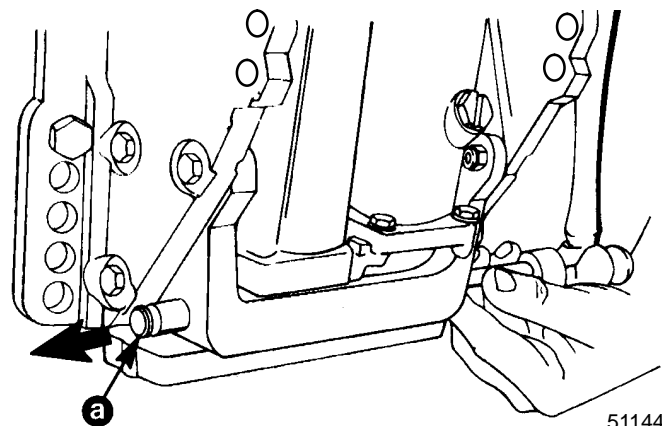
6. Use suitable punch to remove (DRIVE UP) lower dowel pin. Retain dowel pin.



51144

- a - Cross Pin

7. Use suitable punch to drive out lower pivot pin.

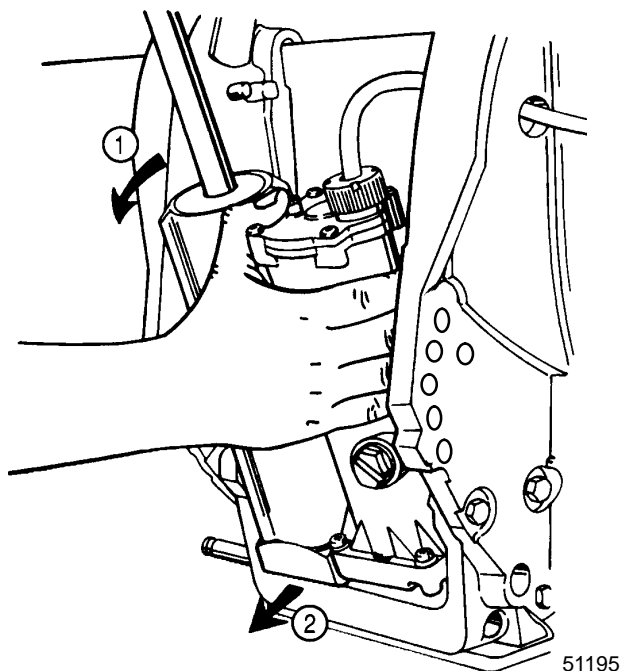


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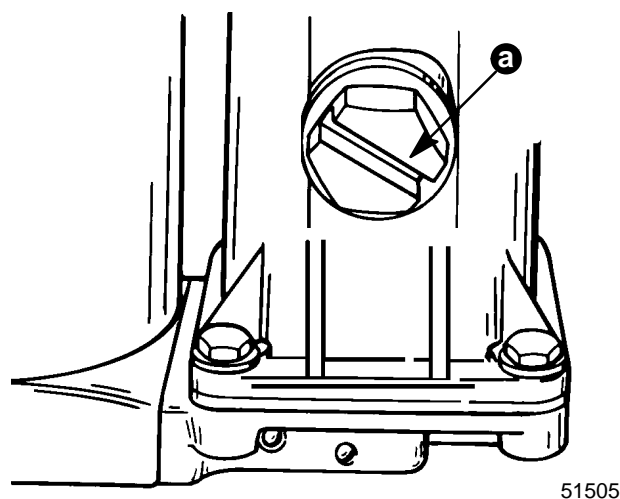
- a - Pivot Pin



8. Tilt power trim assembly (top first) out from clamp bracket and remove assembly.

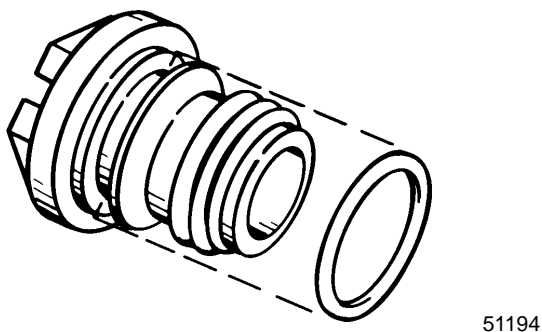


9. Remove fill screw and drain unit.



a - Fill Screw

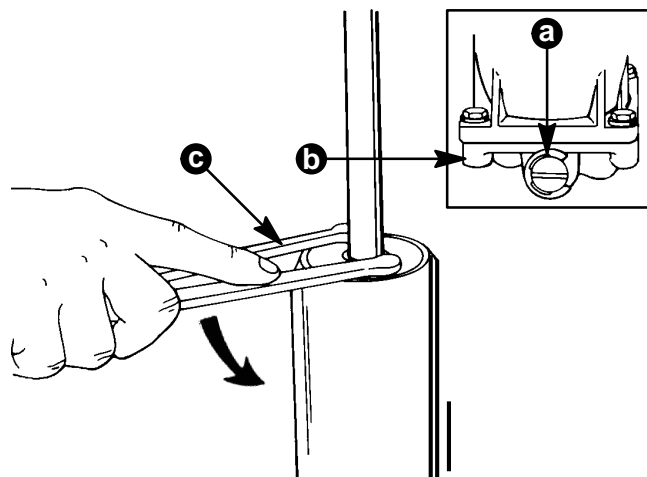
10. Remove O-ring from fill cap.



## Power Trim System Disassembly

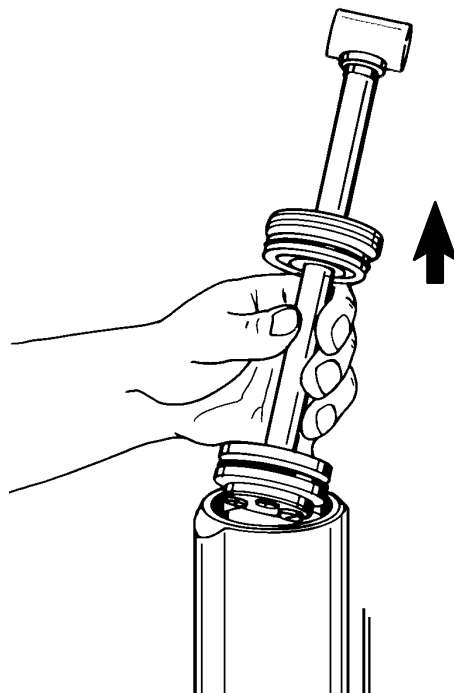
### Trim Rod Removal

1. Secure power trim assembly in soft jawed vise.
2. Open manual release valve three turns **maximum** (counterclockwise) and position trim rod to full up position.
3. Remove cylinder end cap assembly from cylinder using spanner wrench (1/4 in. x 5/16 in. long pegs).



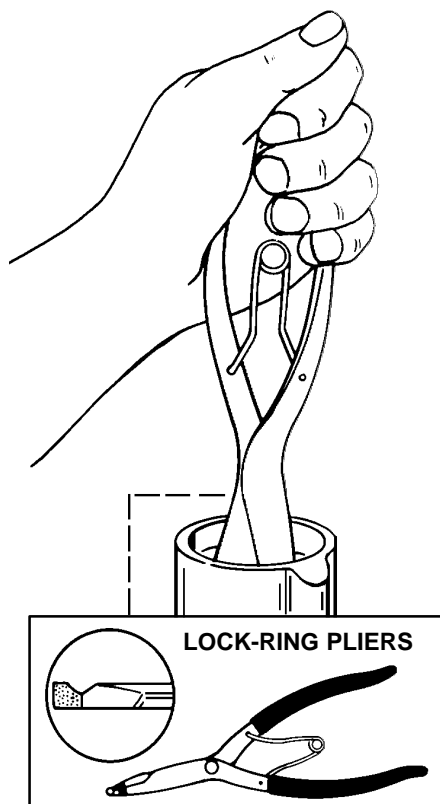
a - Manual Release Valve  
b - Manifold  
c - Spanner Wrench (P/N 91-74951)

4. Remove trim rod assembly from cylinder.

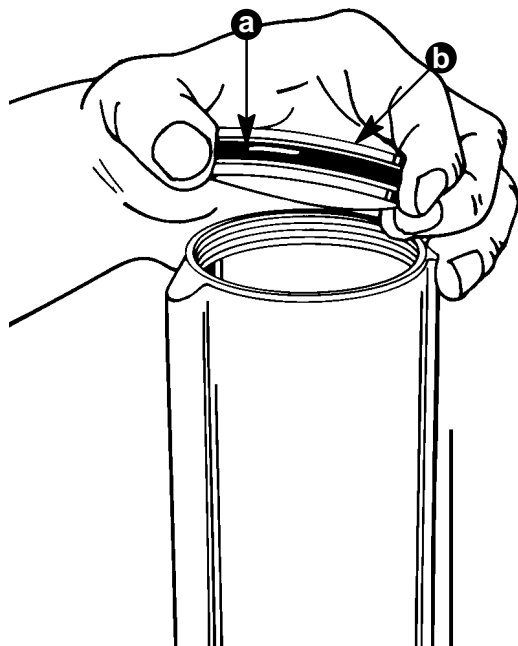




5. Remove memory piston from cylinder using lock-ring pliers (Craftsman P/N 4735) or suitable tool.



6. Remove O-ring from memory piston.

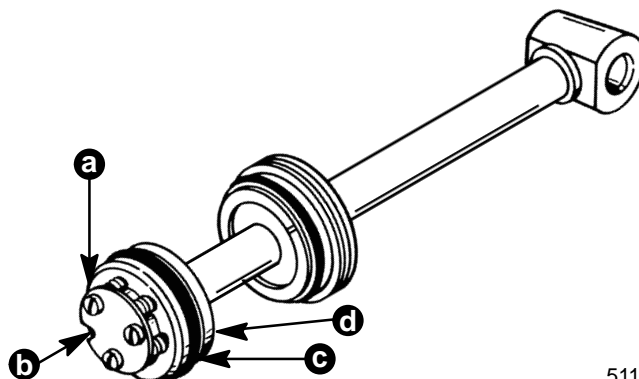


- a - O-ring
- b - Memory Piston

7. Remove trim system from vise and empty fluid into appropriate container.

## Trim Rod Disassembly

1. Place trim rod assembly on clean work surface.
2. Remove screws securing plate to trim rod piston and O-ring.
3. Remove check ball components from trim rod piston.



51143

- a - Screw (3)
- b - Plate
- c - O-ring
- d - Piston

### ⚠ CAUTION

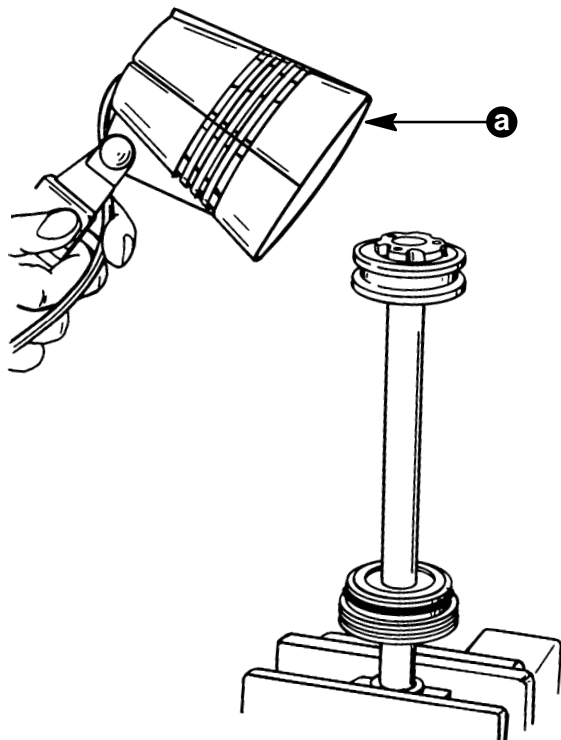
When removing Trim Rod piston, spanner wrench must have 1/4 in. x 5/16 in. long pegs to avoid damage to trim piston.

51193

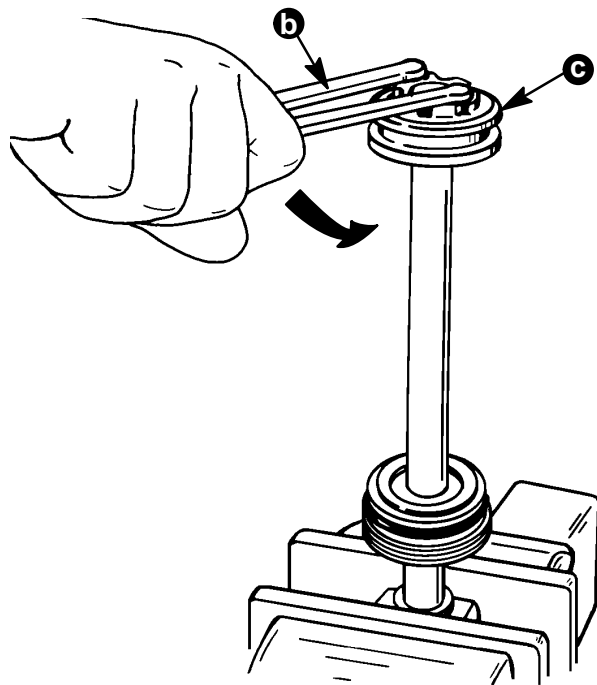
51196



4. Place trim rod into soft jawed vise and apply heat to shock piston using torch lamp (a) (P/N 91-63209).
5. Loosen trim rod piston using spanner wrench (1/4 in. x 5/16 in. long pegs).
6. Allow trim rod piston to cool. Remove from trim rod.



a - Torch Lamp



b - Spanner Wrench  
c - Trim Rod Piston

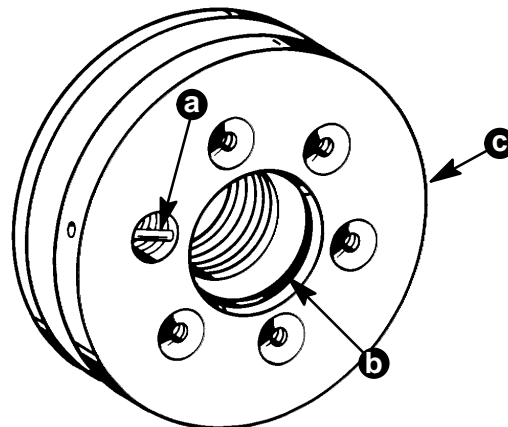
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## ⚠ CAUTION

Do not remove check ball components (a) from trim rod piston. Removal and re-installation of check valve could result in improper operating pressure and possible power trim system damage. If check valve is defective, replace trim rod piston.

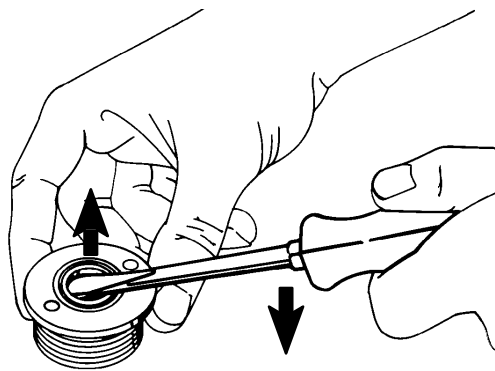
7. Remove inner O-ring from piston.



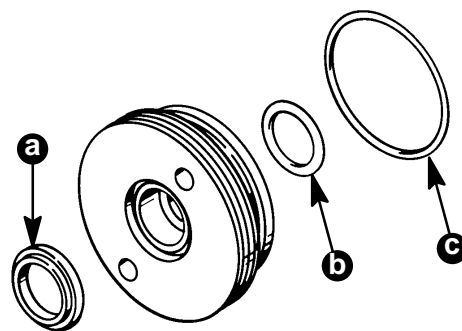
51199

a - Check Ball Components  
b - O-ring  
c - Piston

8. Remove rod wiper, inner O-ring and outer O-ring.



51147



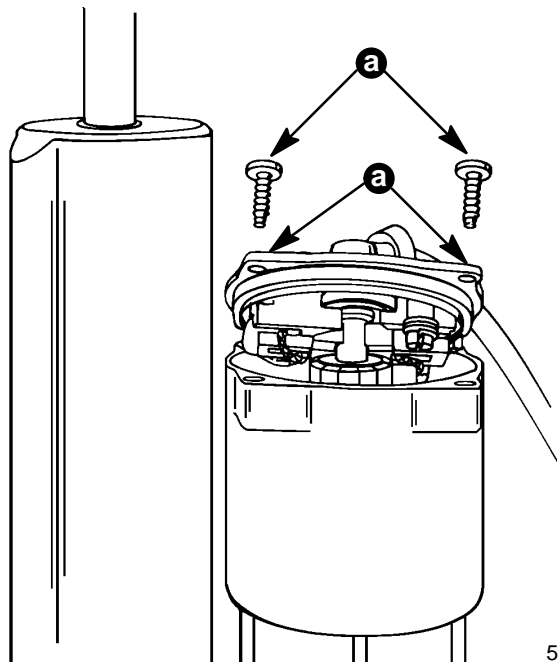
51145

a - Rod Wiper  
b - Inner O-Ring  
c - Outer O-Ring



## Trim “Motor” Removal

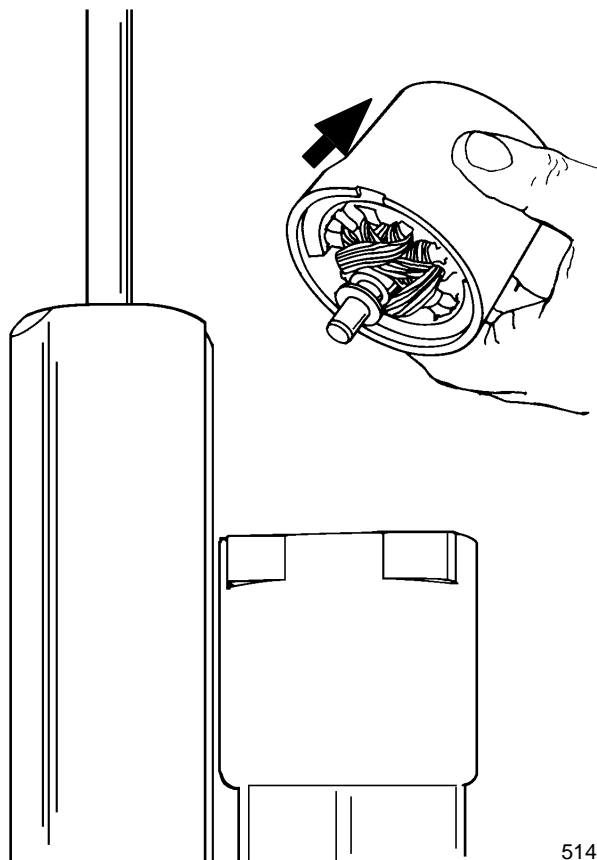
1. Secure power trim assembly in soft jawed vise.
2. Remove screws securing end cap to reservoir and remove end cap.



51486

a - Screws (4)

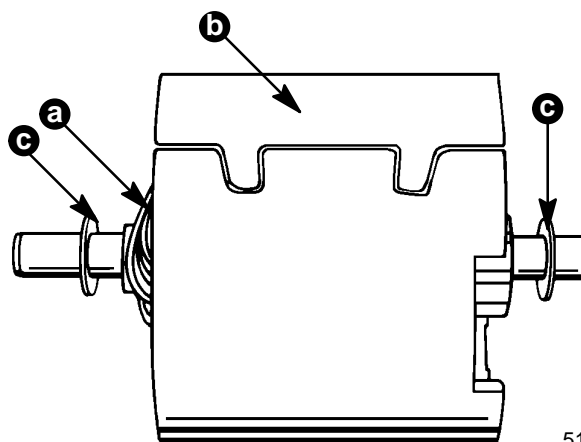
3. Remove motor from reservoir.



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## Trim “Motor” Disassembly

1. Remove armature from motor frame. Note position of washers on armature.

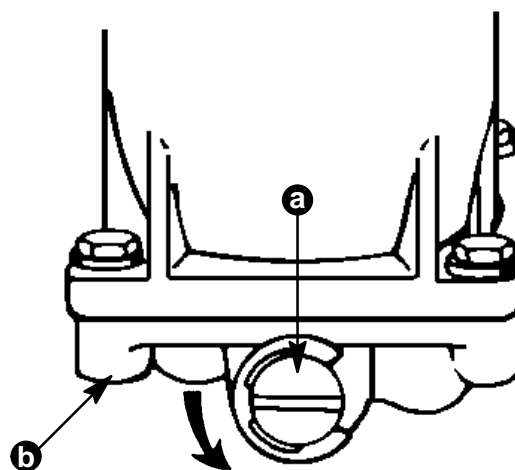


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- a - Armature  
b - Motor Frame  
c - Washer (1 each end of armature)

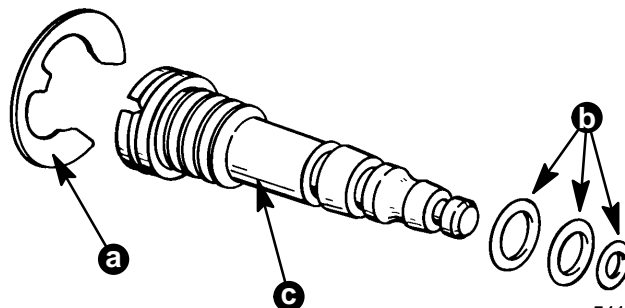
## Reservoir Assembly Removal

1. Remove manual release valve from manifold.



- a - Manual Release Valve  
b - Manifold

2. Remove “E” clip and O-rings from manual release valve.

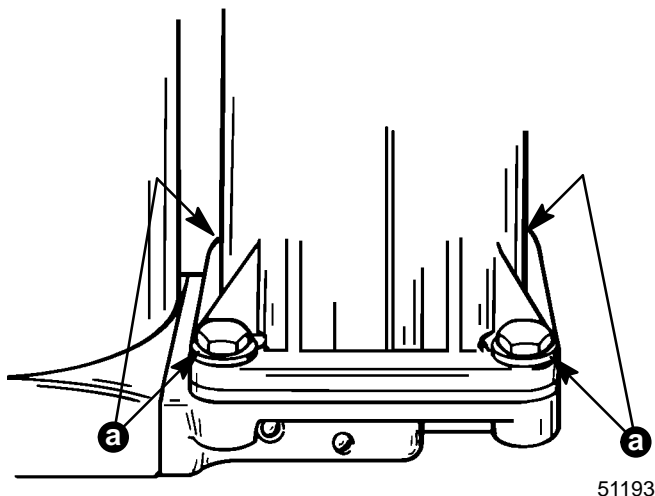


51196

- a - “E” Clip  
b - O-rings  
c - Manual Release Valve

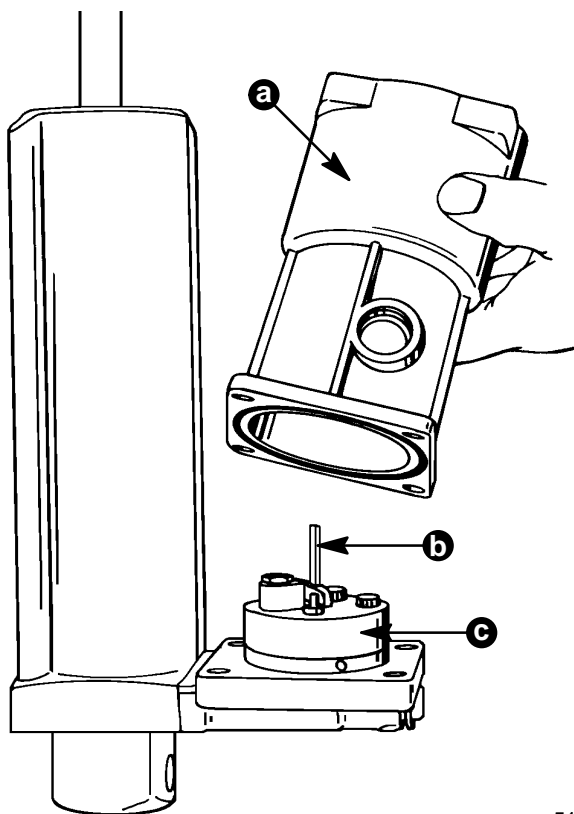


3. Remove four screws securing reservoir to manifold.



a - Screws (4)

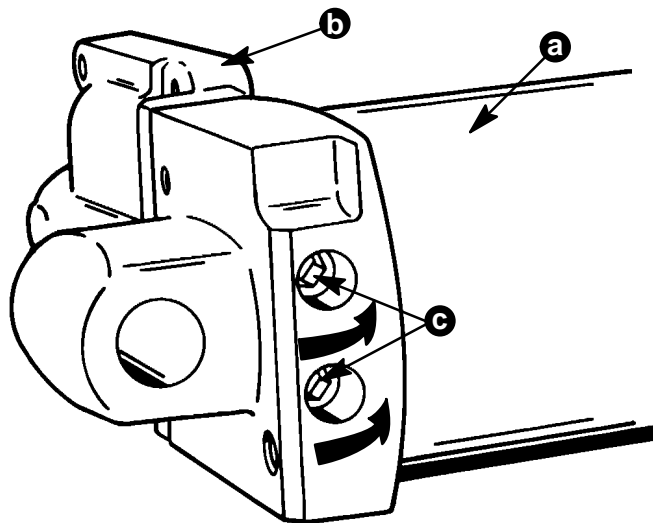
4. Remove reservoir from manifold.
5. Remove drive shaft from oil pump.



a - Reservoir  
b - Drive Shaft  
c - Oil Pump

## Manifold Removal

1. Remove screws and manifold from cylinder.

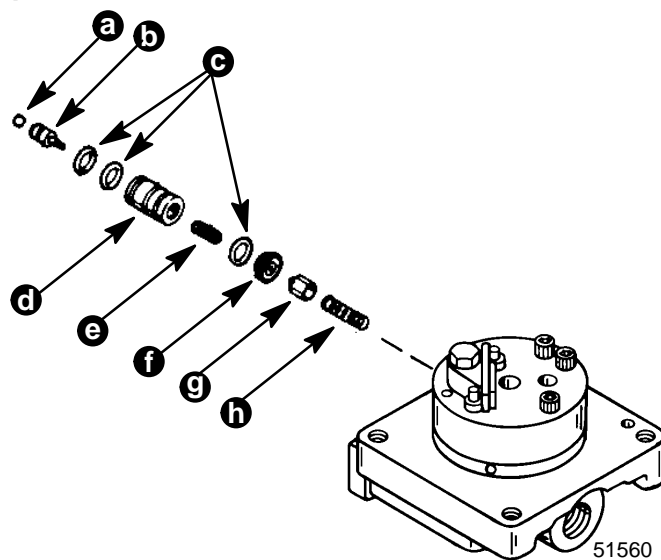


a - Trim Cylinder  
b - Manifold  
c - Screw (2)

51007

2. Remove check valve components from manifold.

**IMPORTANT:** Sleeve (d) is chamfered on I.D. on end opposite drilled cross hole. Install spool (b) (with O-ring installed) from chamfered end of sleeve to avoid possibility of damaging O-ring on spool.

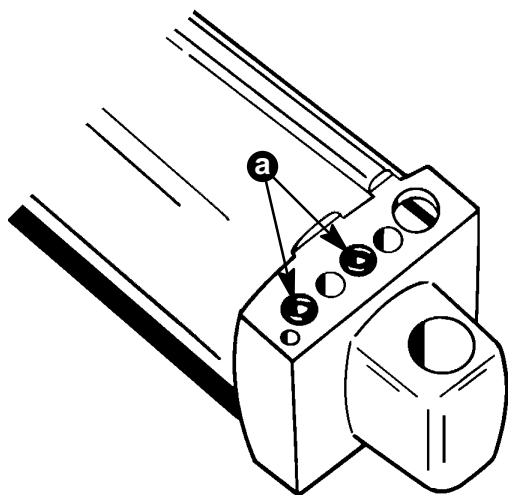


a - O-ring (0.114 I.D.)  
b - Spool  
c - O-ring (0.301 I.D.) (3 each)  
d - Sleeve  
e - Spring  
f - Valve Seat  
g - Valve  
h - Spring

51560



3. Remove O-rings from cylinder.



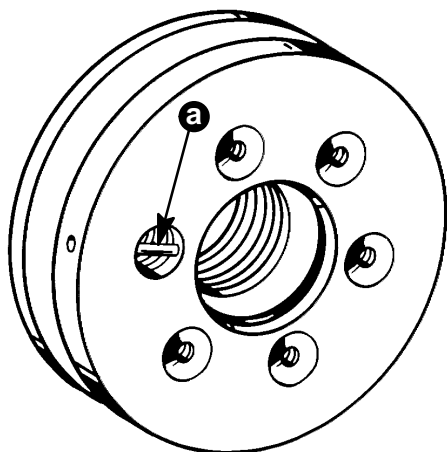
51008

a - O-rings (2)

## Cleaning and Inspection of Trim Rod Components

### ⚠ CAUTION

Do not remove check ball components (a) from trim rod piston. Removal and re-installation of check valve could result in improper operating pressure and possible power trim system damage.



51199

Inspect check valve for debris; clean debris from check valve if found. If debris cannot be cleaned from check valve, replace trim rod piston as an assembly.

Clean trim rod and components with parts cleaner and dry with compressed air.

It is recommended that all O-rings in trim system be replaced.

Inspect trim rod. If scraper (located in cap) has failed to keep rod clean, replace scraper.

Lubricate all O-rings using Quicksilver Power Trim and Steering Fluid or; (ATF) Type F, FA or Dexron II.

## Motor and Electrical Tests/Repair

### Trim Pump Motor Test

#### ⚠ WARNING

Do not perform this test near flammables (or explosives), as a spark may occur when making connections.

1. Disconnect green (motor) wire and blue (motor) wire from trim system wiring harness.
2. Connect a 12 volt power supply to motor wires (positive to blue; negative to green results in motor up direction. Positive to green; negative to blue results in motor down direction). Motor should run.
3. If motor does not run, disassemble motor and check components.

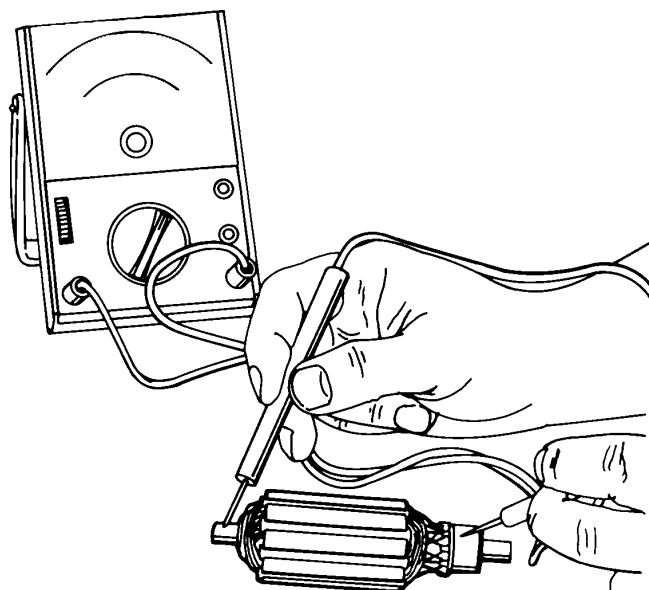
### Armature Tests

#### TEST FOR SHORTS

Check armature on a Growler (follow Growler manufacturer's test instructions). Indication of a short requires replacement of armature.

#### TEST FOR GROUND

Use an Ohmmeter (R x 1 scale). Place one lead on Ohmmeter on armature shaft and other lead on commutator, as shown. If continuity is indicated, armature is grounded and must be replaced.



51195

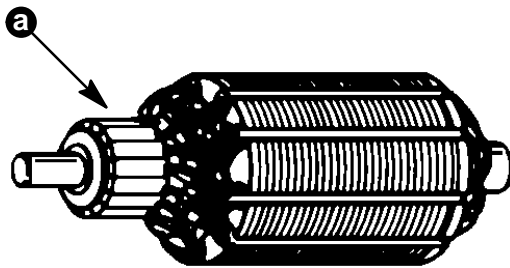




## CHECKING AND CLEANING COMMUTATOR

If commutator (a) is worn it can be turned down on an armature conditioner tool or on a lathe.

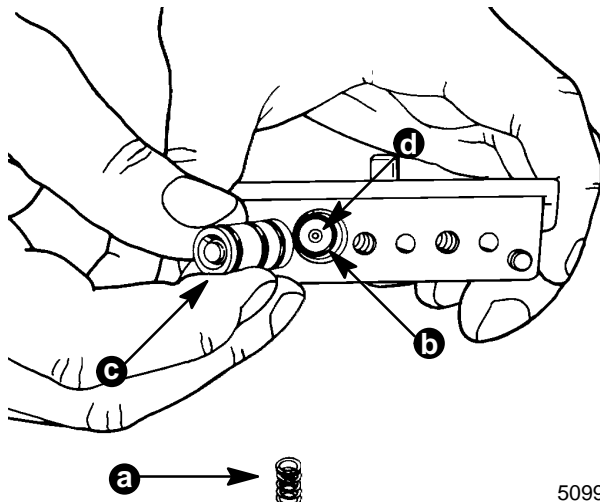
Clean commutator with "00" sandpaper.



## Power Trim System Reassembly

### Manifold Installation

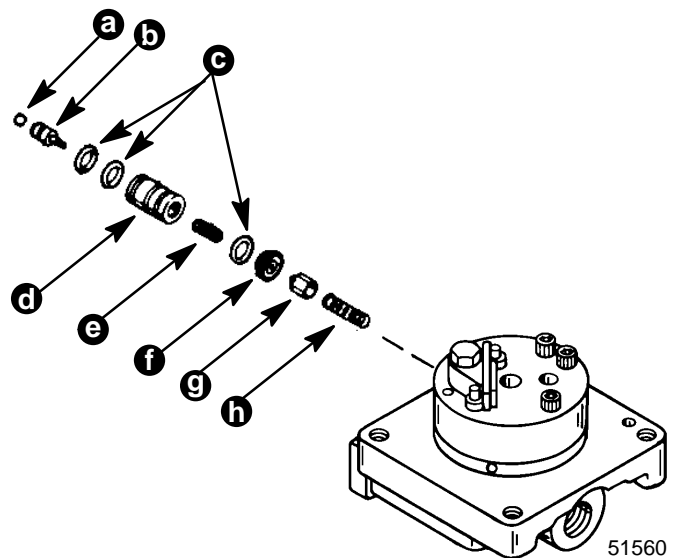
**IMPORTANT:** Install spring, check valve and O-ring into manifold. Position components in place using sleeve to seat in place. It is recommended that O-ring and valve seat be replaced when installing Screw and Seal Kit 811226A1 in manifold.



- a - Spring
- b - O-ring
- c - Sleeve
- d - Valve Seat

50999

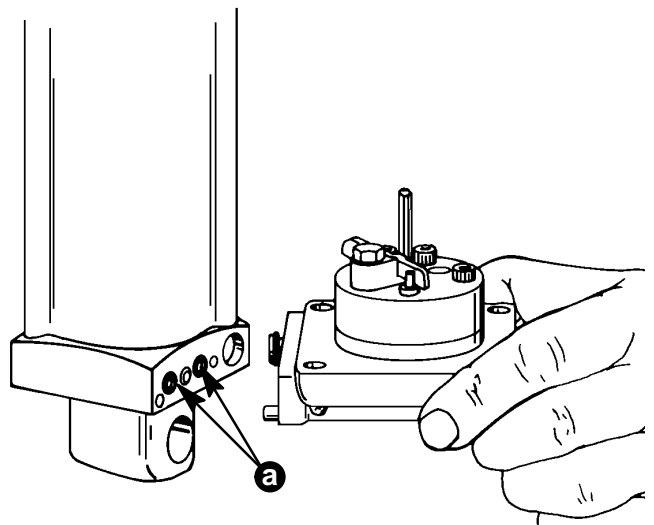
1. Install check valve components into manifold.



- a - O-ring (0.114 I.D.)
- b - Spool
- c - O-ring (0.301 I.D.) (3 each)
- d - Sleeve
- e - Spring
- f - Valve Seat
- g - Valve
- h - Spring

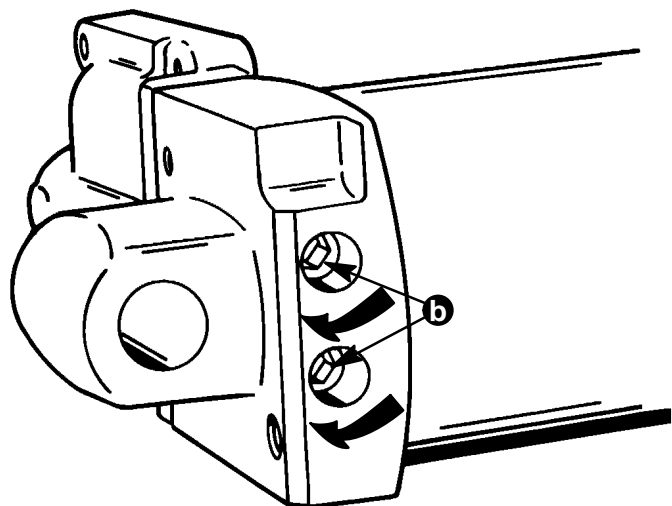
**IMPORTANT:** Sleeve (d) is chamfered on I.D. on end opposite drilled cross hole. Install spool (e) (with O-ring installed) from chamfered end of sleeve to avoid possibility of damaging O-ring on spool.

2. Install O-rings on cylinder and secure manifold assembly to cylinder using screws. Torque screws to 100 lb. in. (11.0 N-m).



- a - O-rings (2)

51486



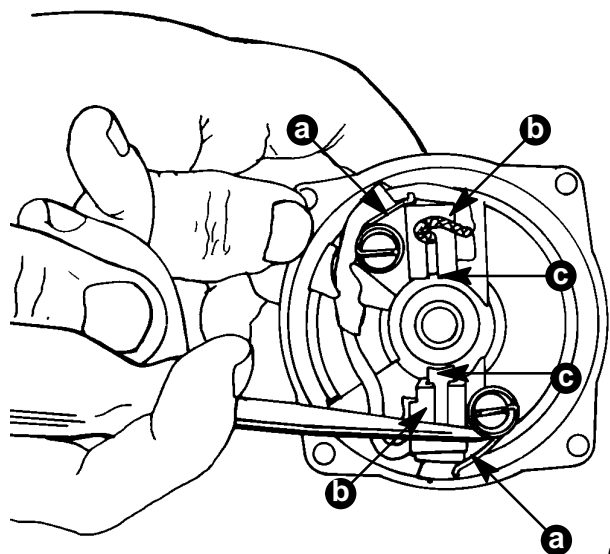
51007

b - Screws [100 lb. in. (11 N·m)] (2)

3. Secure power trim unit in soft jawed vise.

## Trim Motor Reassembly

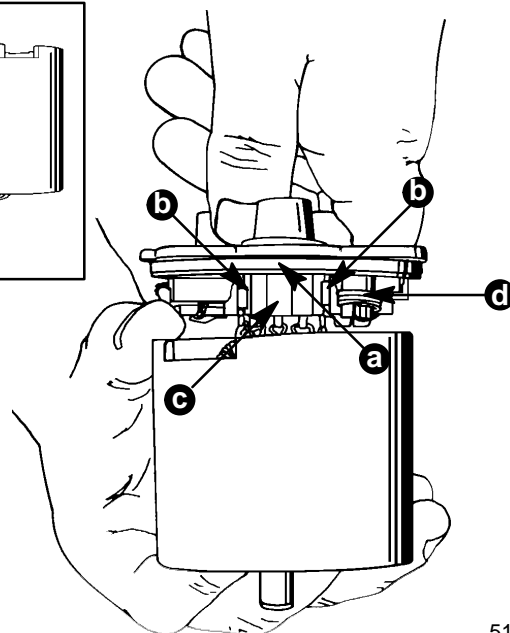
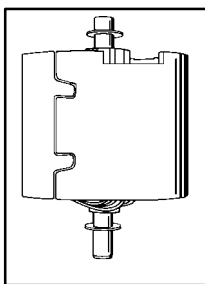
1. Place brush tension springs on outer ends of brush housings to release tension on brushes.



51485

a - Brush Tension Spring (2)  
b - Brush Housing (2)  
c - Brush (2)

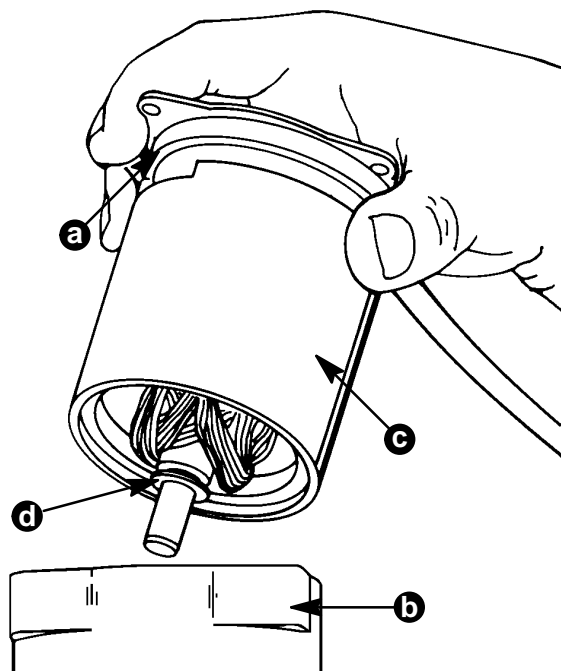
2. Lubricate end cap bushing with Quicksilver 2-4-C Lubricant and install armature and motor frame into end cap. As brushes contact commutator, release brush tension spring from ends of brush housings (returning springs to apply brush pressure to commutator). Install washer on each end of armature before installing armature into end cap (see inset).



51484

a - End Cap Bushing. Lubricate with Quicksilver 2-4-C Lubricant  
b - Brush (2)  
c - Commutator  
d - Brush Tension Spring (2)

3. Guide armature and motor frame into reservoir housing as shown.



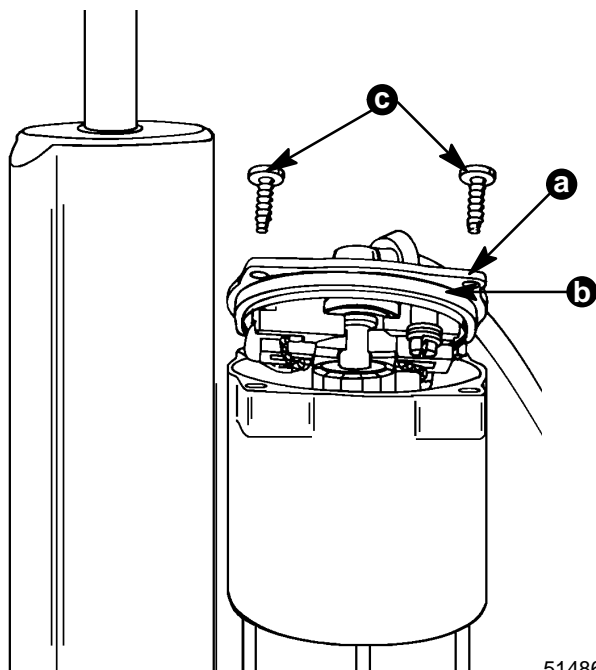
51485

a - End Cap  
b - Motor Housing  
c - Armature and Motor Frame  
d - Washer (One Each End of Armature)



## Reservoir Installation

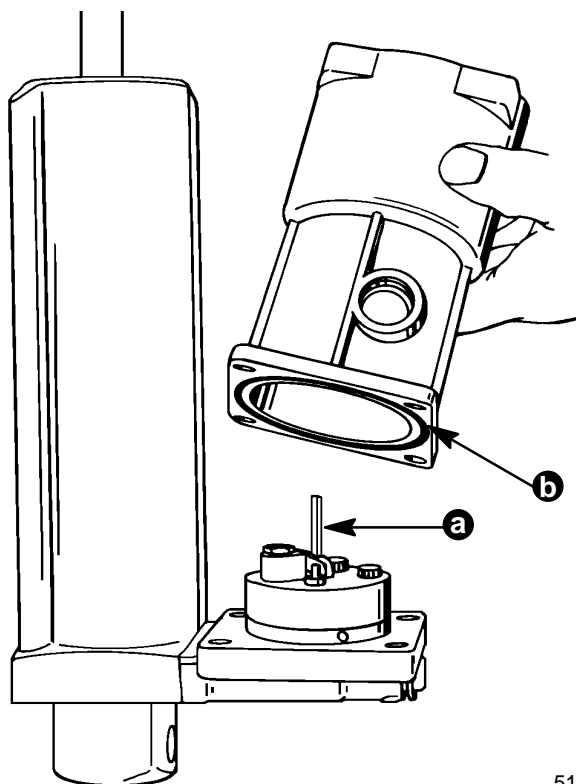
1. Torque end cap screws to 13 lb. ft. (1.5 N·m).



51486

- a - End Cap
- b - O-ring
- c - Screws (4)

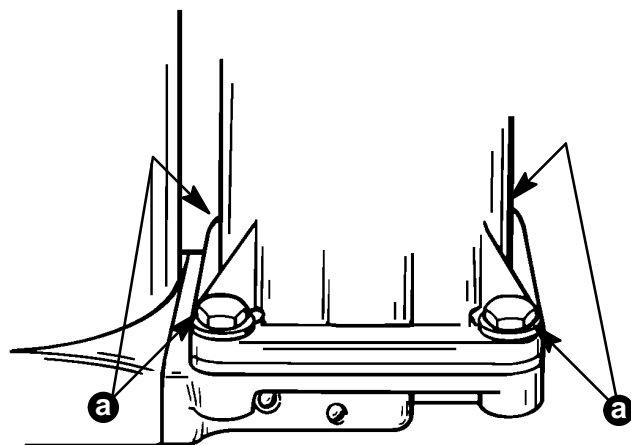
2. Place drive shaft into oil pump.
3. Install lubricated O-ring to base of reservoir.
4. Carefully guide (with motor) down onto drive shaft.



51486

- a - Drive Shaft
- b - O-ring

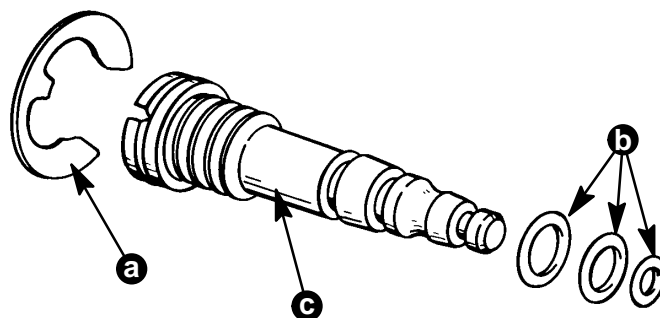
5. Secure reservoir to manifold using four screws. Torque screws to 70 lb. in. (7.7 N·m).



51193

- a - Screws (4)

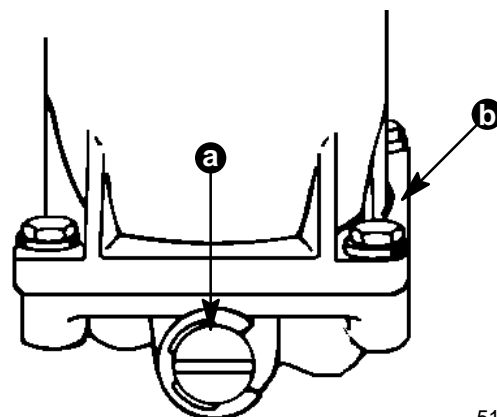
6. Install lubricated O-rings and "E" clip to manual release valve.



51196

- a - "E" Clip
- b - O-ring
- c - Manual Release Valve

7. Insert manual release valve into manifold and tighten snugly. Back release valve out 3 turns **maximum** allowing trim rod installation.



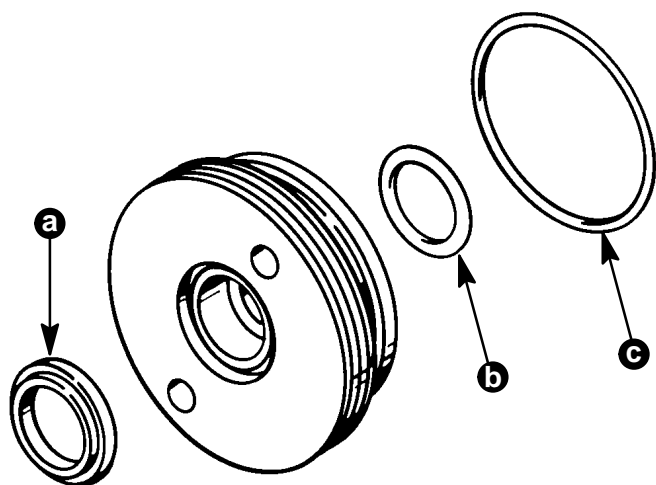
51194

- a - Manual Release Valve
- b - Manifold



## Trim Rod Reassembly

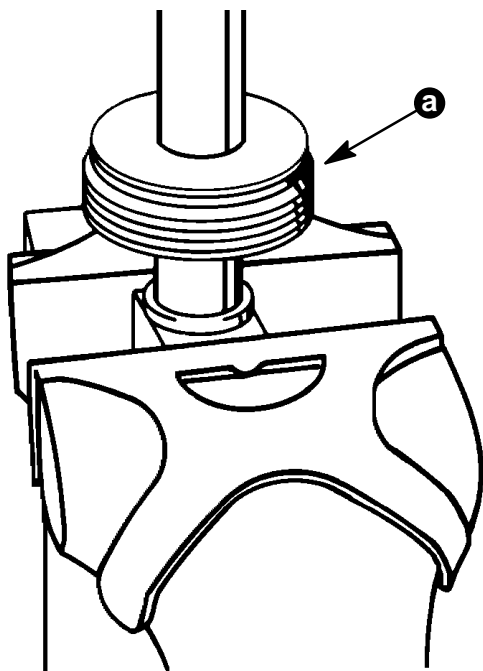
1. Install lubricated O-rings and rod wiper to end cap.



51145

- a - Rod Wiper
- b - Inner O-ring
- c - Outer O-ring

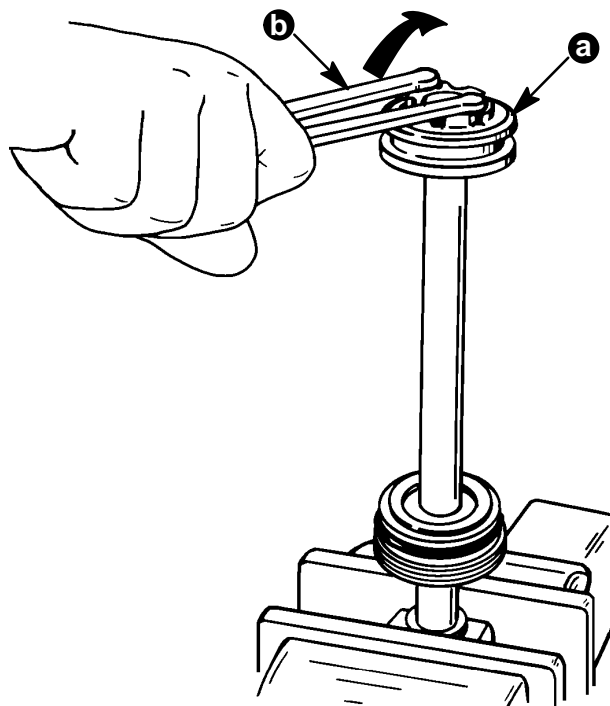
2. Secure trim rod in soft jawed vise as shown.
3. Slide end cap onto trim rod.



51146

- a - End Cap

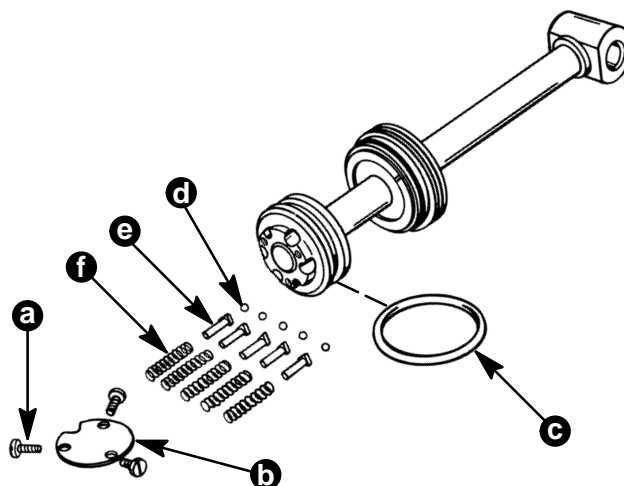
4. Apply Loctite Grade A (271) to threads of trim rod and install rod piston. Tighten piston securely using spanner wrench (1/4 in. x 5/16 in. long peg).



51146

- a - Trim Rod Piston
- b - Spanner Wrench

5. Install lubricated O-ring to trim rod piston.
6. Install check ball components into its respective bore.
7. Secure components in place using plate and screws. Torque screws to 35 lb. in. (4.0 N·m).



51147

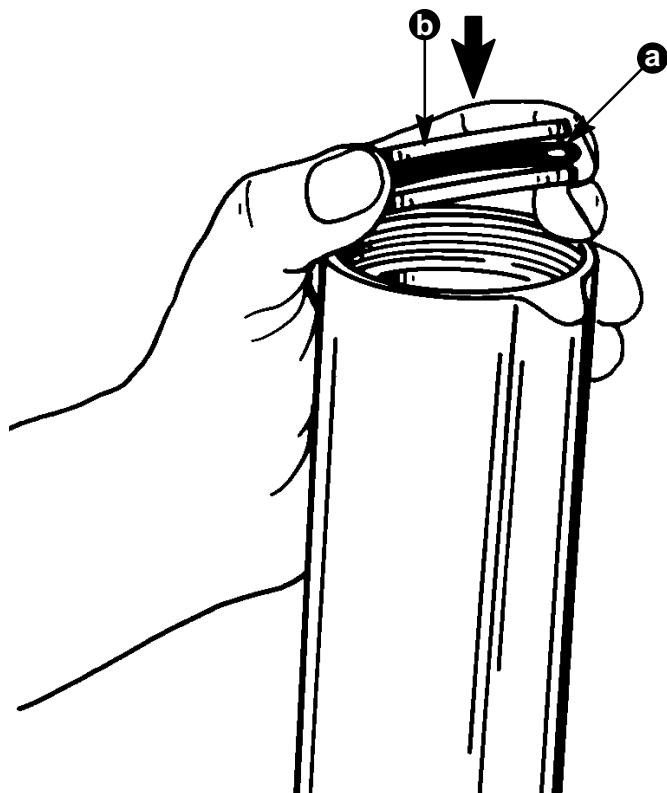
- a - Screw (3)
- b - Plate
- c - O-ring
- d - Ball (5)
- e - Seat, Spring (5)
- f - Spring (5)



## Trim Rod Installation

1. Place trim cylinder in soft jawed vise.
2. Fill trim cylinder three inches (76.2mm) from top of cylinder using Quicksilver Power Trim and Steering Fluid or; (ATF) Type F, FA or Dexron II.
3. Install lubricated O-ring to memory piston and place into cylinder. Push piston down to level of oil.

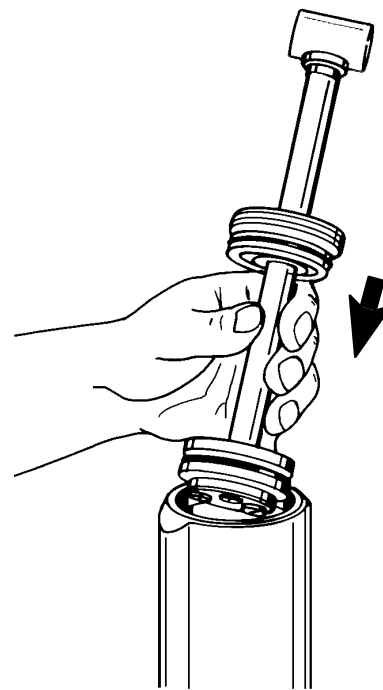
**Memory piston must not contact end cap during trim rod/end cap installation.**



51144

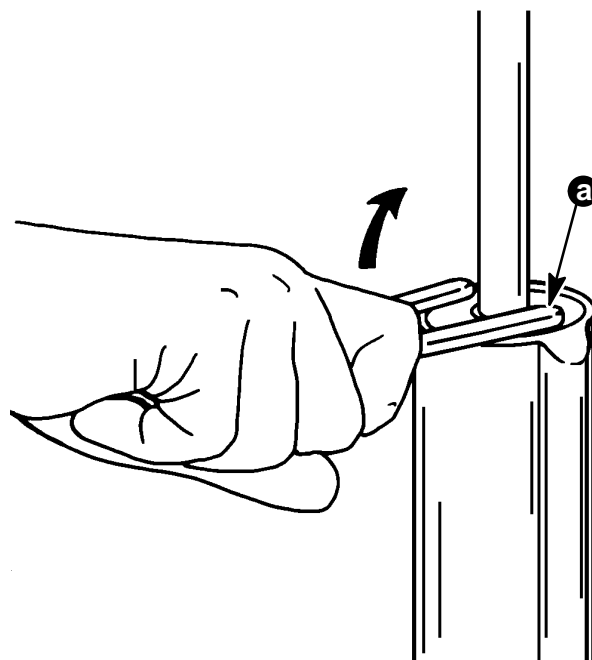
- a - O-ring
- b - Memory Piston

4. Install trim rod into cylinder.



51196

5. Tighten end cap assembly to cylinder securely using spanner wrench (1/4 in. x 5/16 in. long pegs).



51145

- a - Spanner Wrench (P/N 91-74951)

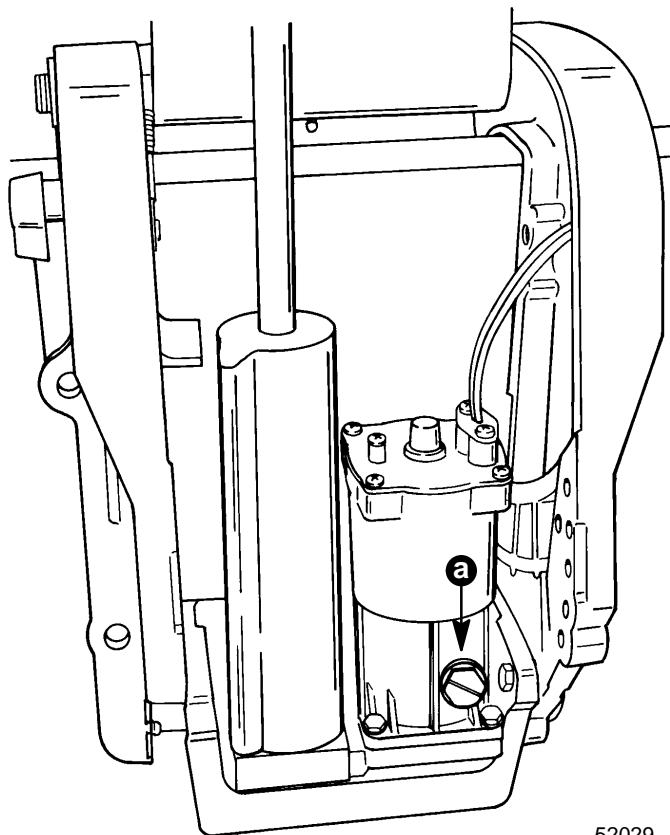
6. Tighten manual release valve snugly following end cap installation.



## Purging Power Trim Unit

**Manual release valve must be in full closed position during power trim purging and operation.**

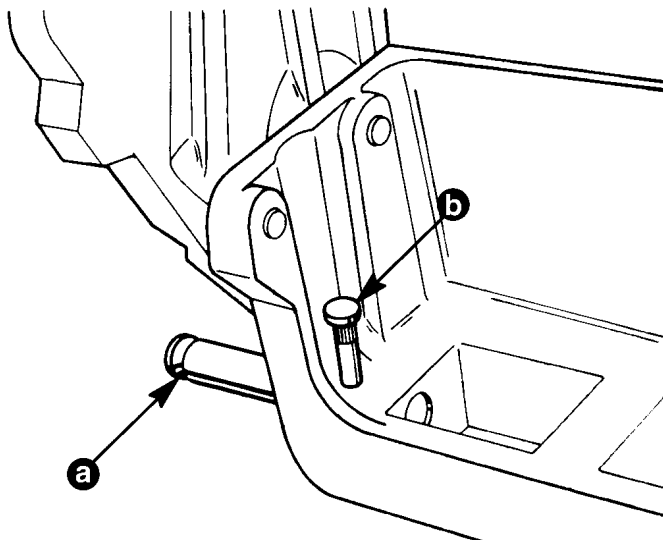
1. Secure power trim unit in soft jawed vise.
2. Remove fill cap (a). Add Quicksilver Power Trim and Steering Fluid (92-90100A12) or Automatic Transmission Fluid (ATF) Type F, FA or Dexron II up to threads of reservoir. Install cap (a).



3. Using a 12 volt power supply connect positive lead to green wire, negative lead to blue wire and drive trim rod to the down position. Connect positive lead to blue wire and negative lead to green wire and drive trim rod to the up position. Re-check fluid level, add fluid as required and repeat cycle until fluid level remains at lower portion of threads.

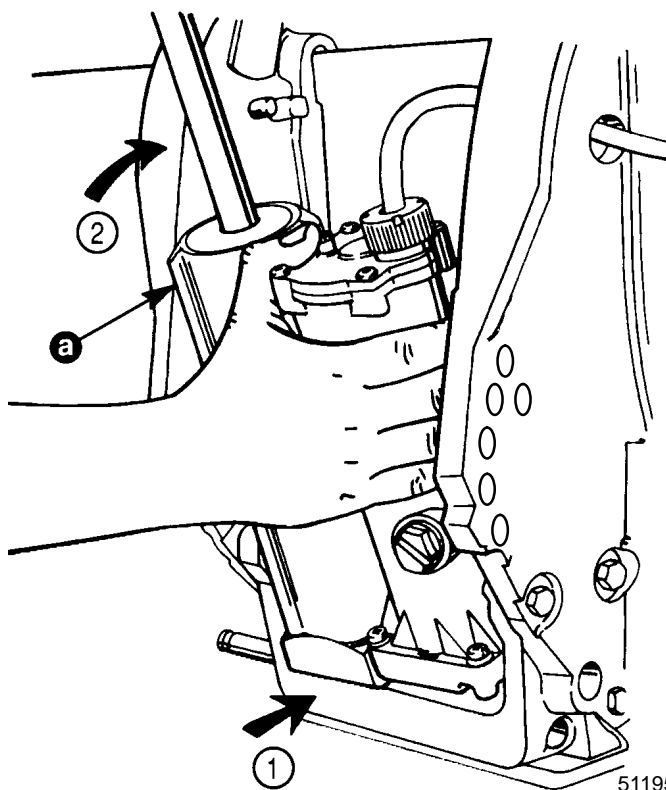
## Power Trim Unit Installation

1. Apply Special Lubricant 101 (92-13872A1) to lower pivot pin bore and pivot pin surface.
2. Start lower pivot pin into pivot pin bore and position lower cross pin (RETAINED) in its respective hole.



a - Lower Pivot Pin  
b - Lower Dowel Pin

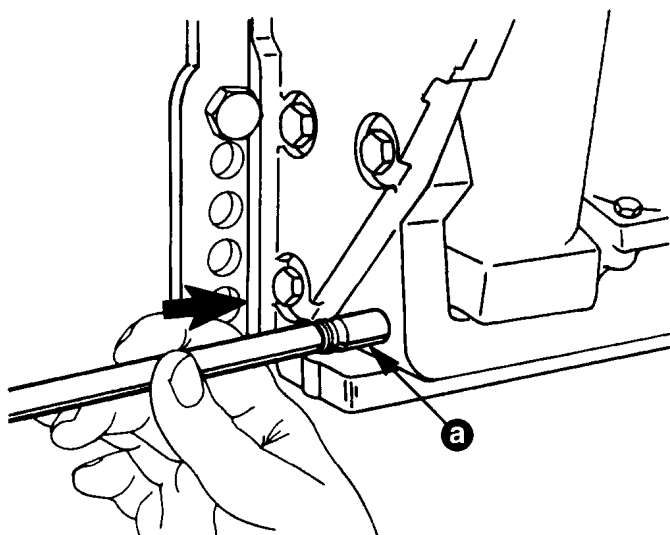
3. Position trim cylinder assembly (BOTTOM FIRST) between clamp brackets and route trim pump electrical harness through access hole in starboard clamp bracket.



a - Trim Cylinder Assembly



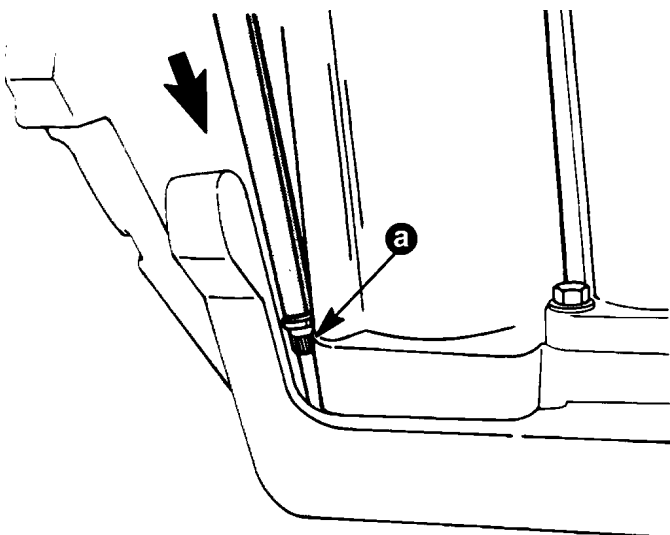
4. Using a suitable punch, drive lower pivot pin into clamp bracket and trim cylinder assembly until pivot pin is flush with outside surface.



51147

a - Lower Cross Pin

5. Using a suitable punch, drive lower pivot pin into clamp bracket and trim cylinder assembly until pivot pin is flush with outside surface.

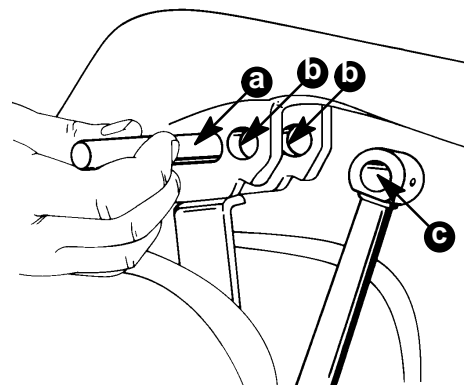


51148

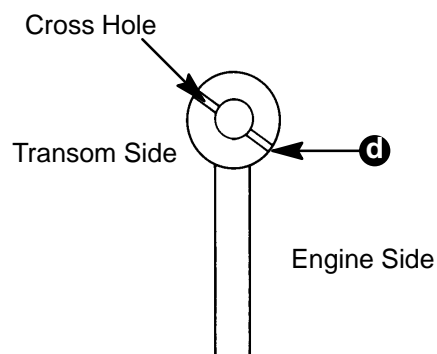
a - Lower Dowel Pin

6. Apply Special Lubricant (92-13872A1) to surface of upper pivot pin, pivot pin bore and trim ram bore.

**NOTE:** Install trim ram with cross hole located as shown. If trim ram is installed reversed, the trim sender (if installed) will not operate.



51515

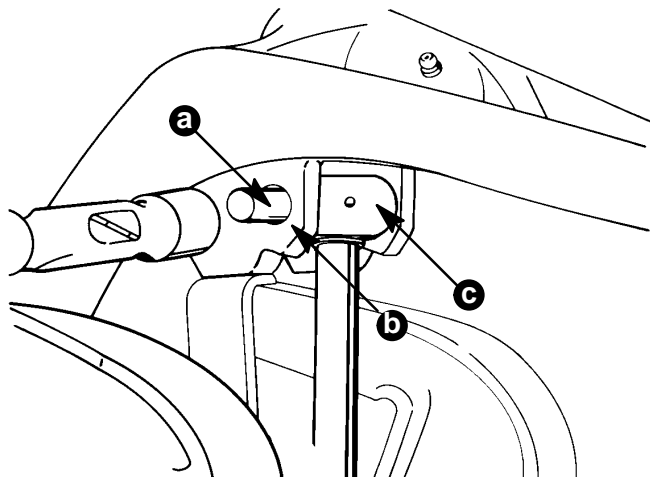


- a - Pivot Pin  
b - Pivot Pin Bore  
c - Trim Ram Bore  
d - Install Trim Ram As Shown





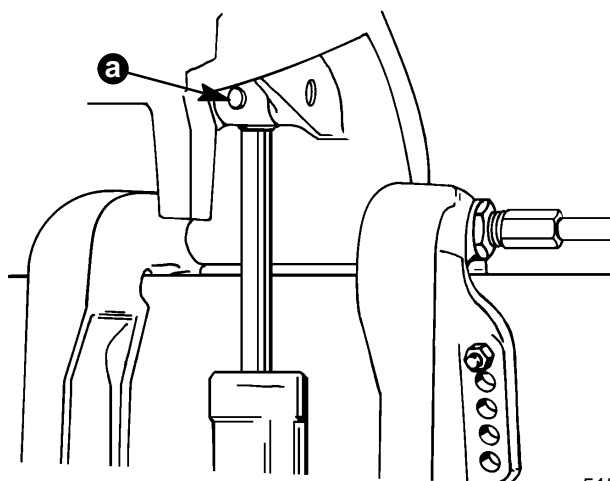
7. Using a suitable mallet, drive upper pivot pin into swivel bracket and through trim ram until pivot pin is flush with swivel bracket.



51515

- a - Pivot Pin  
b - Swivel Bracket  
c - Trim Ram

8. Drive upper retaining pin (a) in until seated.



51505

9. Recheck fluid level.
10. Power trim may now be operated to lower outboard to desired position. Trim system is self purging.
11. Reconnect power trim leads to relays under ignition cover.
12. Reinstall spark plug leads to spark plugs.
13. Reinstall cowls.
14. Connect battery leads to battery terminals.