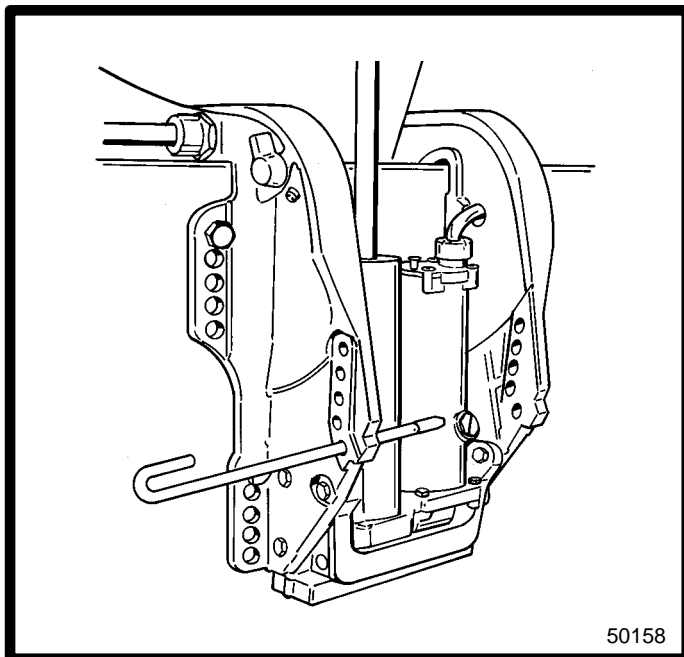




MID-SECTION



5

B

POWER TRIM (DESIGN 1)



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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

NOTE: Because varying hull designs react differently in various degrees of rough water, it is recommended to experiment with trim positions to determine whether trimming “up” or “down” will improve the ride in rough water.

When trimming your 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, generally increasing top speed.

Transfers steering torque harder to left on installations below 23” 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” solenoid (located under engine cowl) and close the electric motor circuit. The electric motor will drive the pump, thus forcing automatic transmission 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 pin 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 pin one hole closer to transom).

Operating “Down” circuit will actuate the “down” solenoid (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, thus forcing automatic fluid thru internal passageways into the “down” side of the tilt ram. The tilt ram will move the engine downward 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.

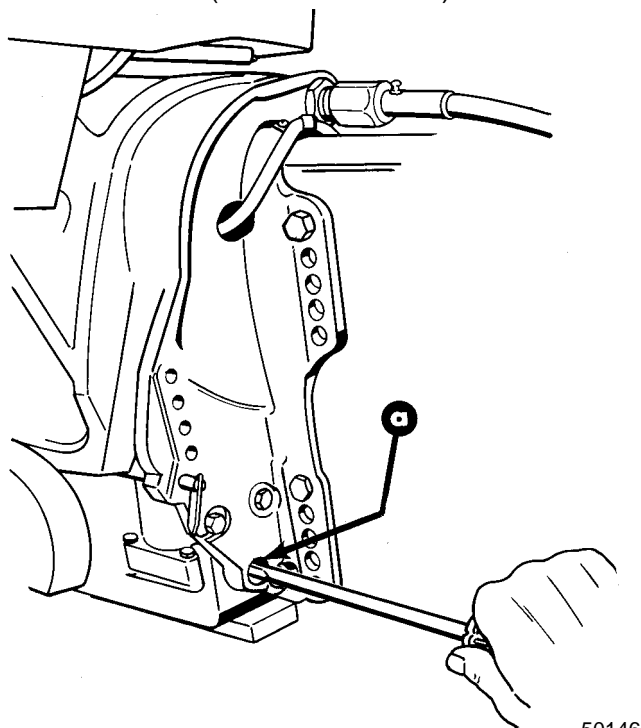
While operating “up” circuit, tilt ram will continue to tilt outboard to full up position for trailering.

Tilting Outboard Up and Down Manually

⚠ WARNING

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

With power trim installed, the outboard can be raised or lowered manually by opening the manual release valve 3 to 4 turns (counterclockwise).



a - Manual Release Valve

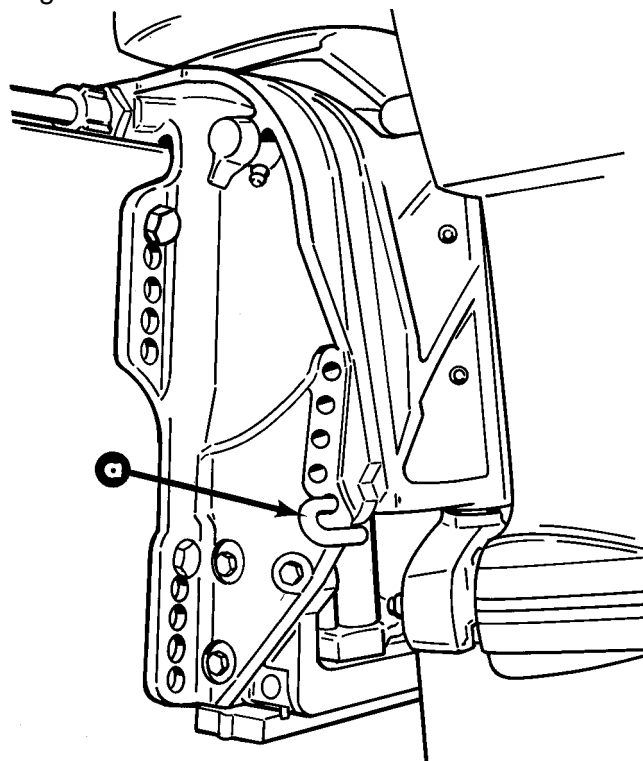
Trim “In” Angle Adjustment

⚠ WARNING

Operating some boats with engine trimmed to the full “in” trim angle [not using trim adjustment pin (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 pin (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 pin may be desired. However, some boats with engine trimmed to the full “in” trim angle at planing speeds 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 pin and without the pin adjusted in the proper holes to prevent unsafe handling characteristics.

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



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Power Trim System Components

- 1 - Trim Rod
- 2 - Dowel Pin (Upper)
- 3 - Upper Pivot Pin
- 4 - Rod Wiper
- 5 - O-ring .671 in. I.D.
- 6 - Cylinder Cap
- 7 - O-ring 1.864 in. I.D.
- 8 - O-ring .614 in. I.D.
- 9 - Trim Rod Piston
- 10 - Ball (5)
- 11 - Spring Seat (5)
- 12 - Spring (5)
- 13 - Retaining Plate
- 14 - Screw (5)
- 15 - O-ring 1.600 in I.D. (Rod Piston)
- 16 - O-ring 1.600 in. I.D. (Memory Piston)
- 17 - Memory Piston
- 18 - Trim Rod Cylinder
- 19 - Screw (2)
- 20 - O-ring .208 in I.D. (2)
- 21 - Filter
- 22 - O-ring .301 in. I.D.
- 23 - Valve Seat
- 24 - O-ring .364 in. I.D.
- 25 - Ball
- 26 - Spring Guide
- 27 - Spring
- 28 - Dowel Pin (2)
- 29 - Reservoir
- 30 - Fill Screw
- 31 - O-ring .583 in. I.D.
- 32 - Screw (4)
- 33 - Washer (4)
- 34 - O-ring 2.364 in. I.D.
- 35 - Screw
- 36 - Drive Shaft
- 37 - Pump
- 38 - O-ring .176 in. I.D. (2)
- 39 - Dowel Pin
- 40 - Manifold
- 41 - O-ring .114 in. I.D.
- 42 - O-ring .208 in. I.D.
- 43 - O-ring .239 in. I.D.
- 44 - Relief Valve
- 45 - "E" Clip
- 46 - Wire Harness
- 47 - Cap
- 48 - Washer
- 49 - Grommet
- 50 - Screw (4)
- 51 - Screw
- 52 - Reservoir Cap
- 53 - O-ring 2.364 in. I.D.
- 54 - Disk Foam Pad
- 55 - Nut (2)
- 56 - End Cap
- 57 - Washer (.030 in. Thick) (2)
- 58 - Washer, Thrust
- 59 - Armature
- 60 - Washer (.010 in. Thick)
- 61 - Housing
- 62 - O-ring
- 63 - End Frame
- 64 - O-ring .489 in. I.D.
- 65 - Screw (2)

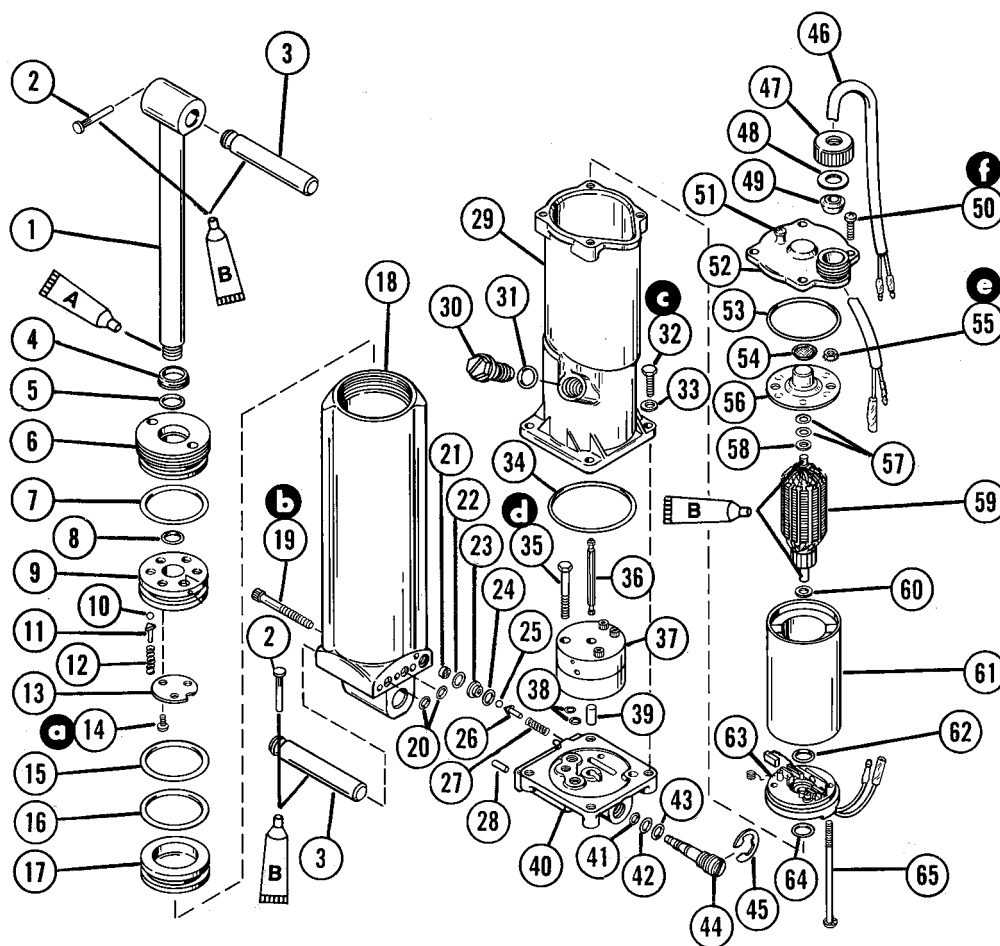
NOTE: It is recommended that "ALL" O-rings be replaced when servicing tilt system.

Torque Specifications

- a** 35 lb. in. (4.0 N·m)
- b** 100 lb. in. (11.2 N·m)
- c** 70 lb. in. (7.9 N·m)
- d** 90 lb. in. (10.2 N·m)
- e** 25 lb. in. (2.8 N·m)
- f** 13 lb. in. (1.5 N·m)

Quicksilver Lubricants and Service Aids

- A** Loctite Grade "A" (271)
- B** 2-4-C Marine Lubricant (92-90018A12)



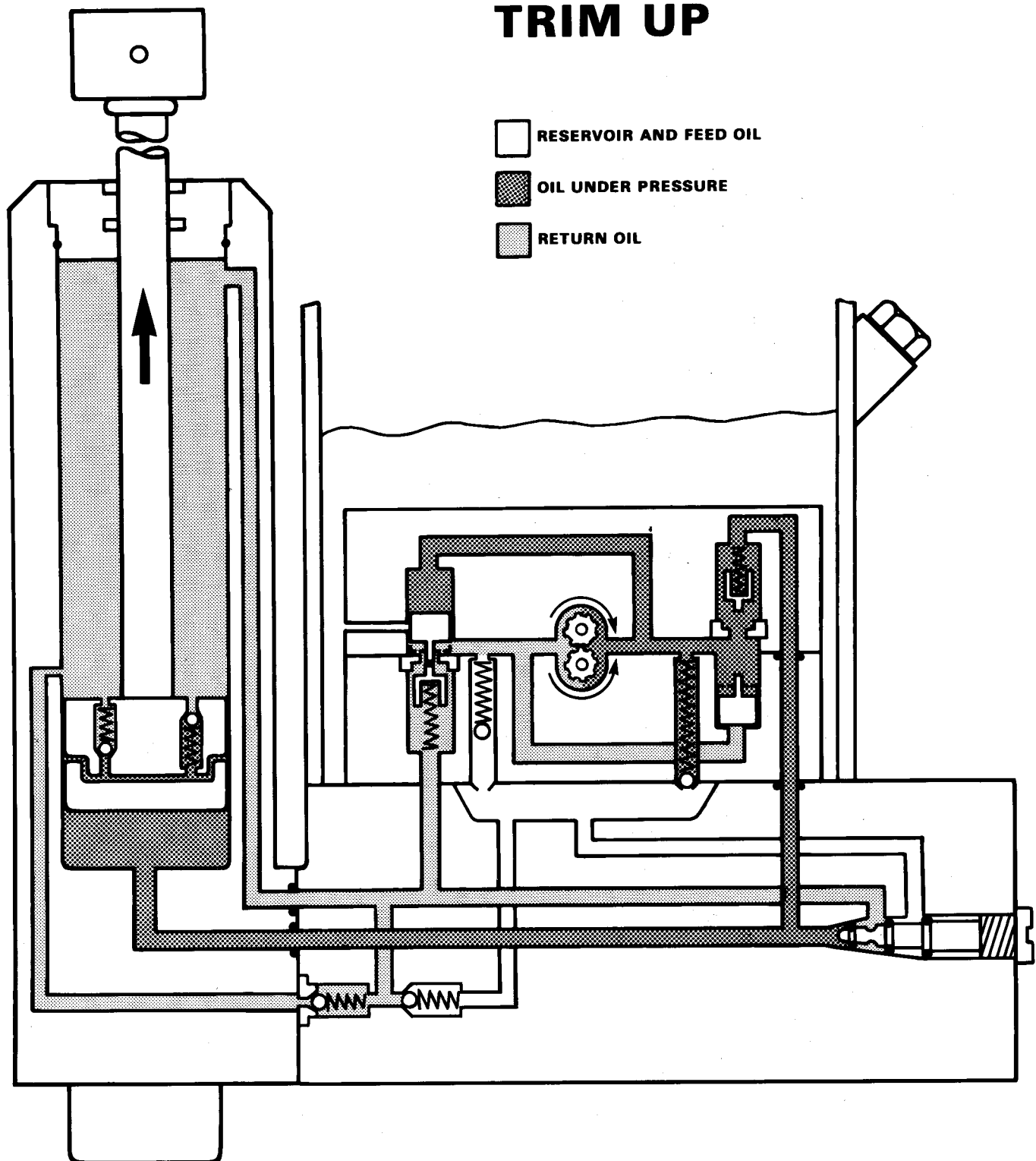
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Power Trim Flow Diagrams

Design 1

TRIM UP

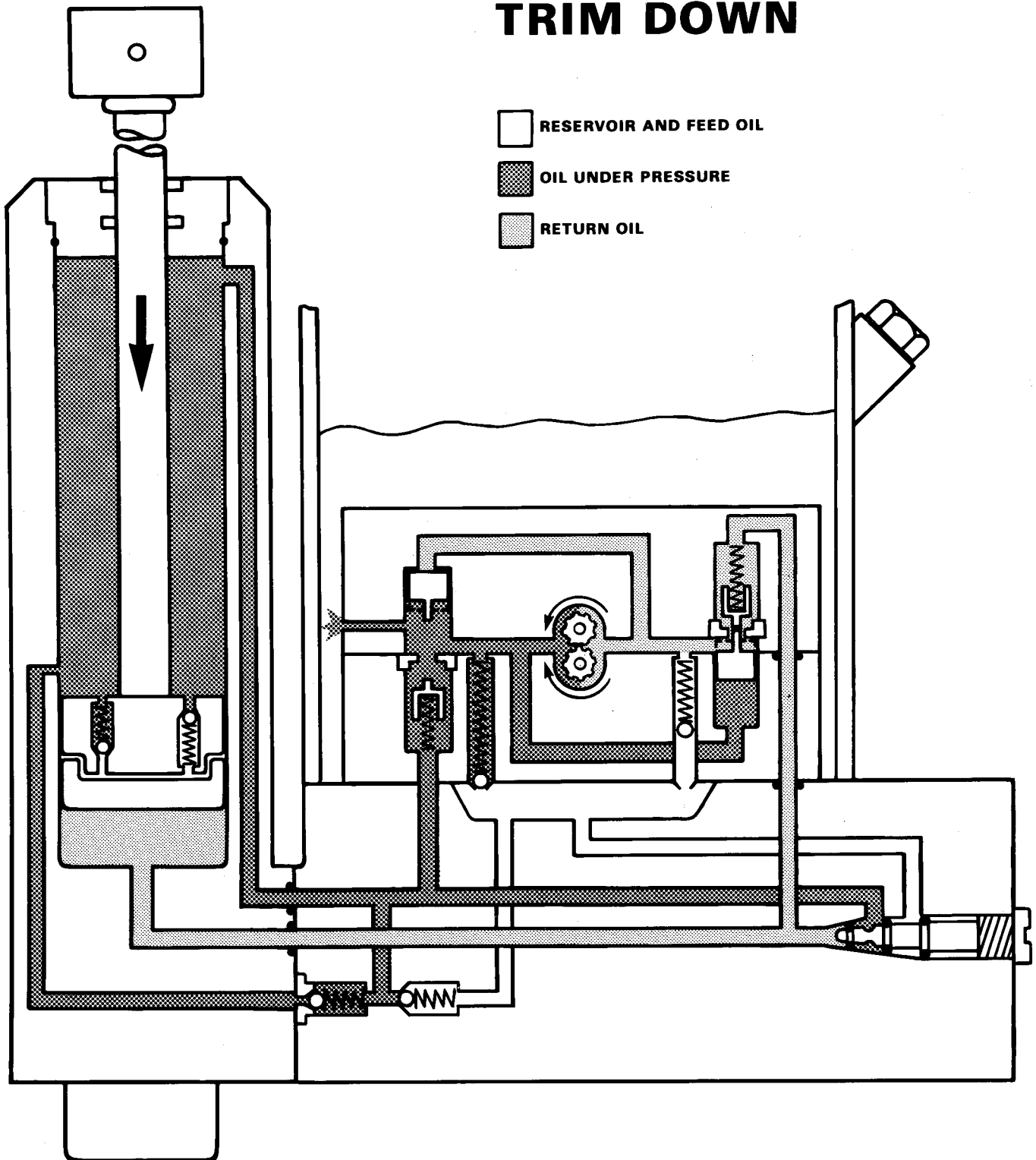


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Design 1

TRIM DOWN

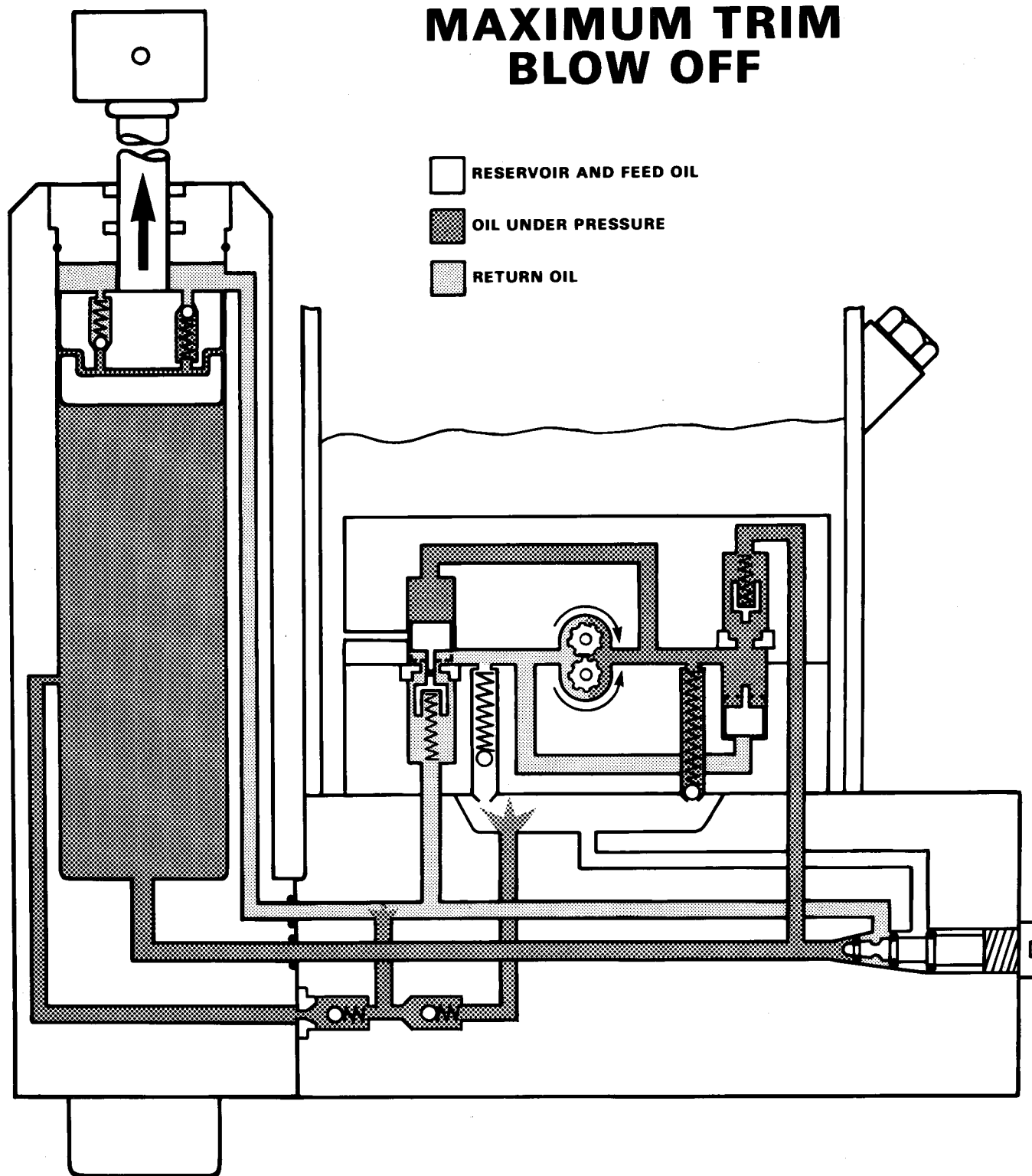


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Design 1

MAXIMUM TRIM BLOW OFF

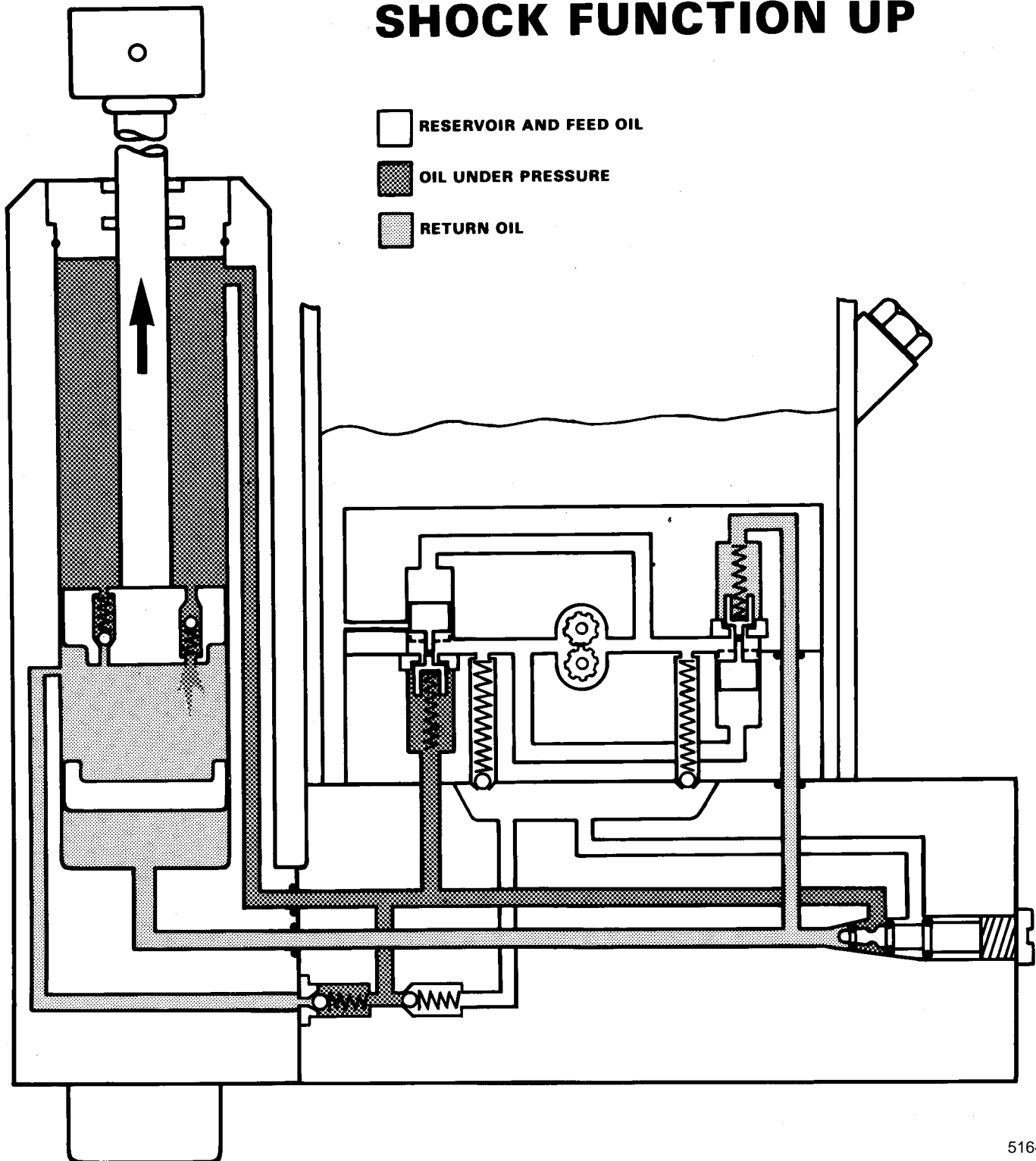


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Design 1

SHOCK FUNCTION UP

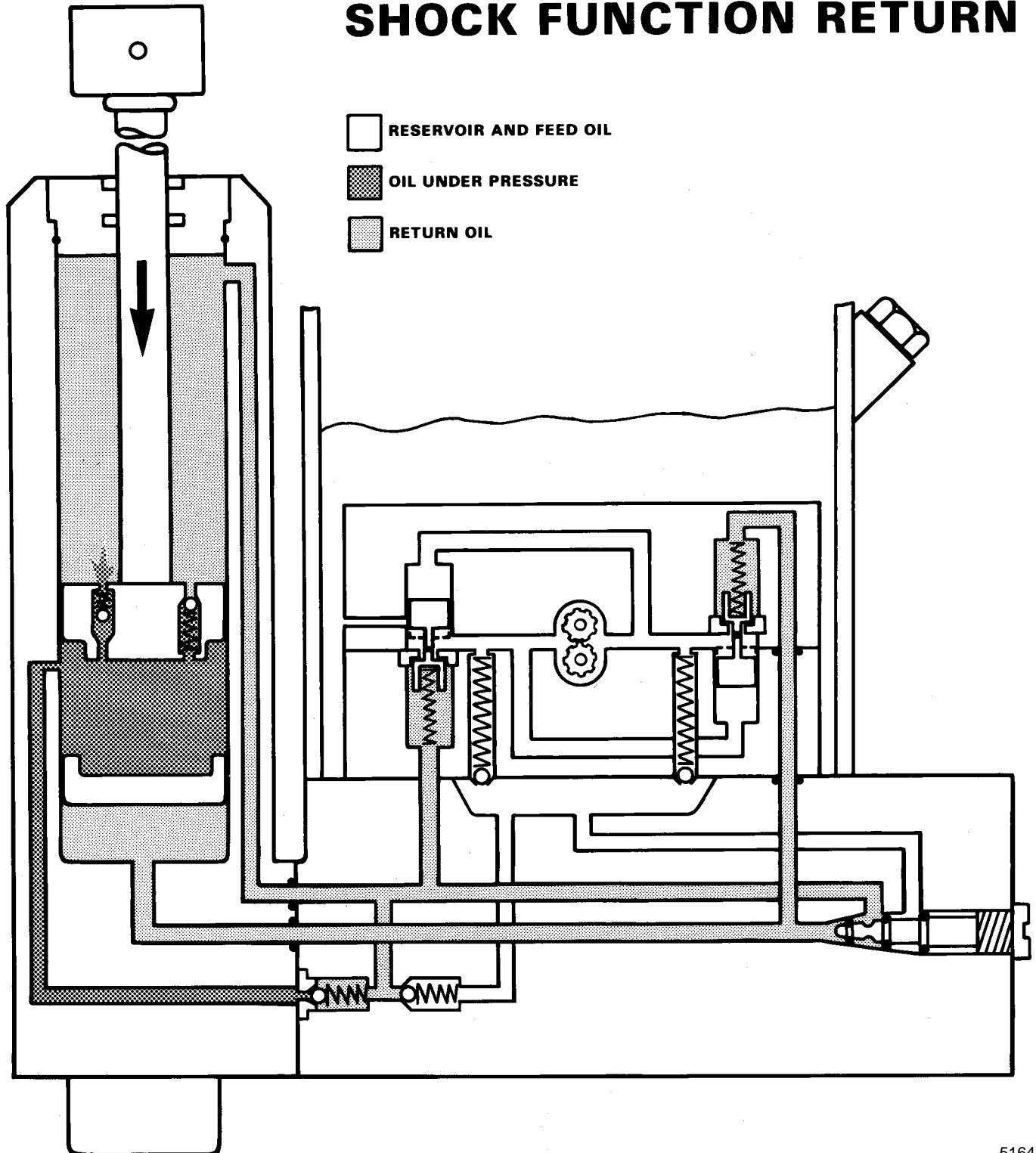


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Design 1

SHOCK FUNCTION RETURN

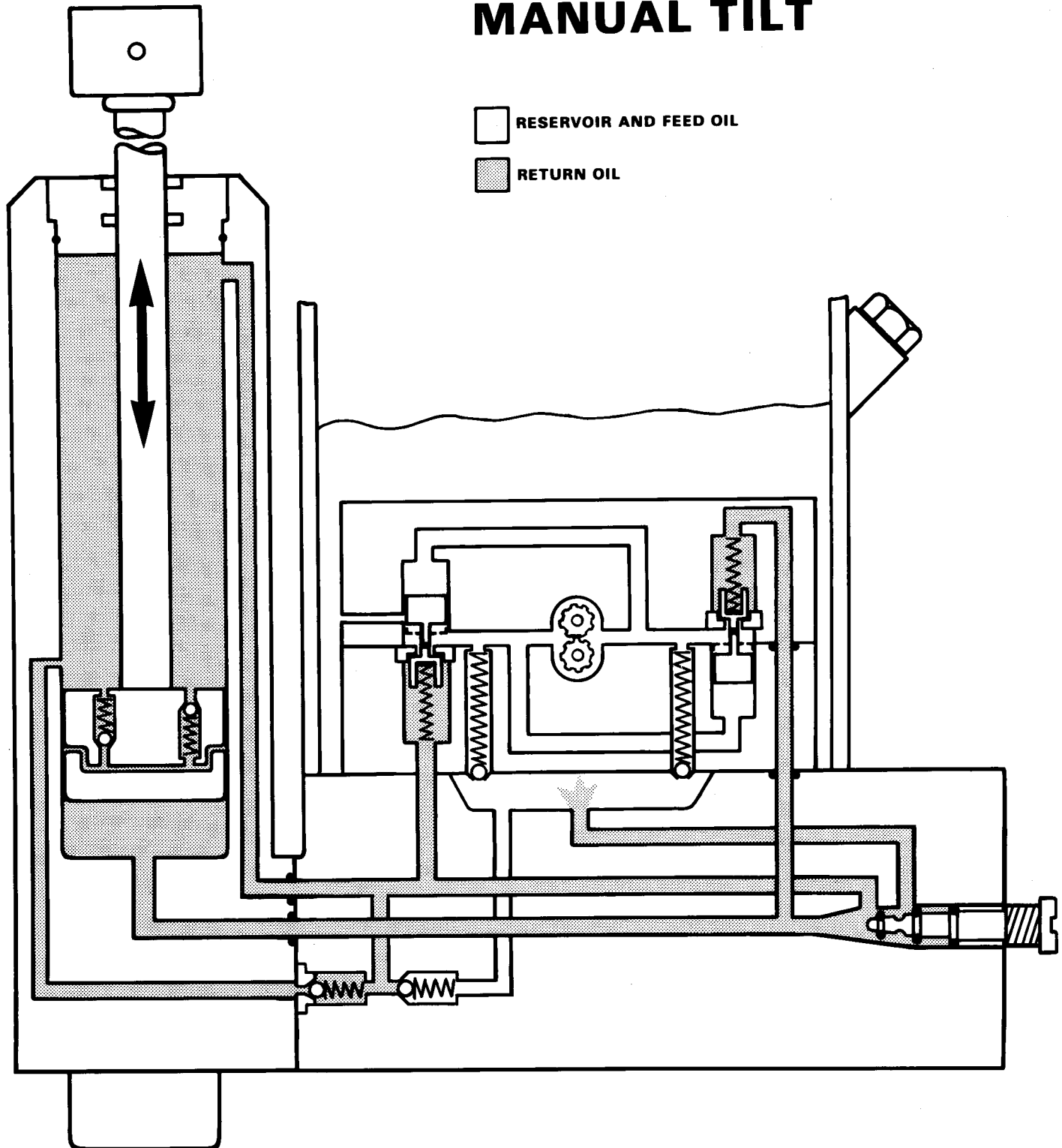


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Design 1

MANUAL TILT



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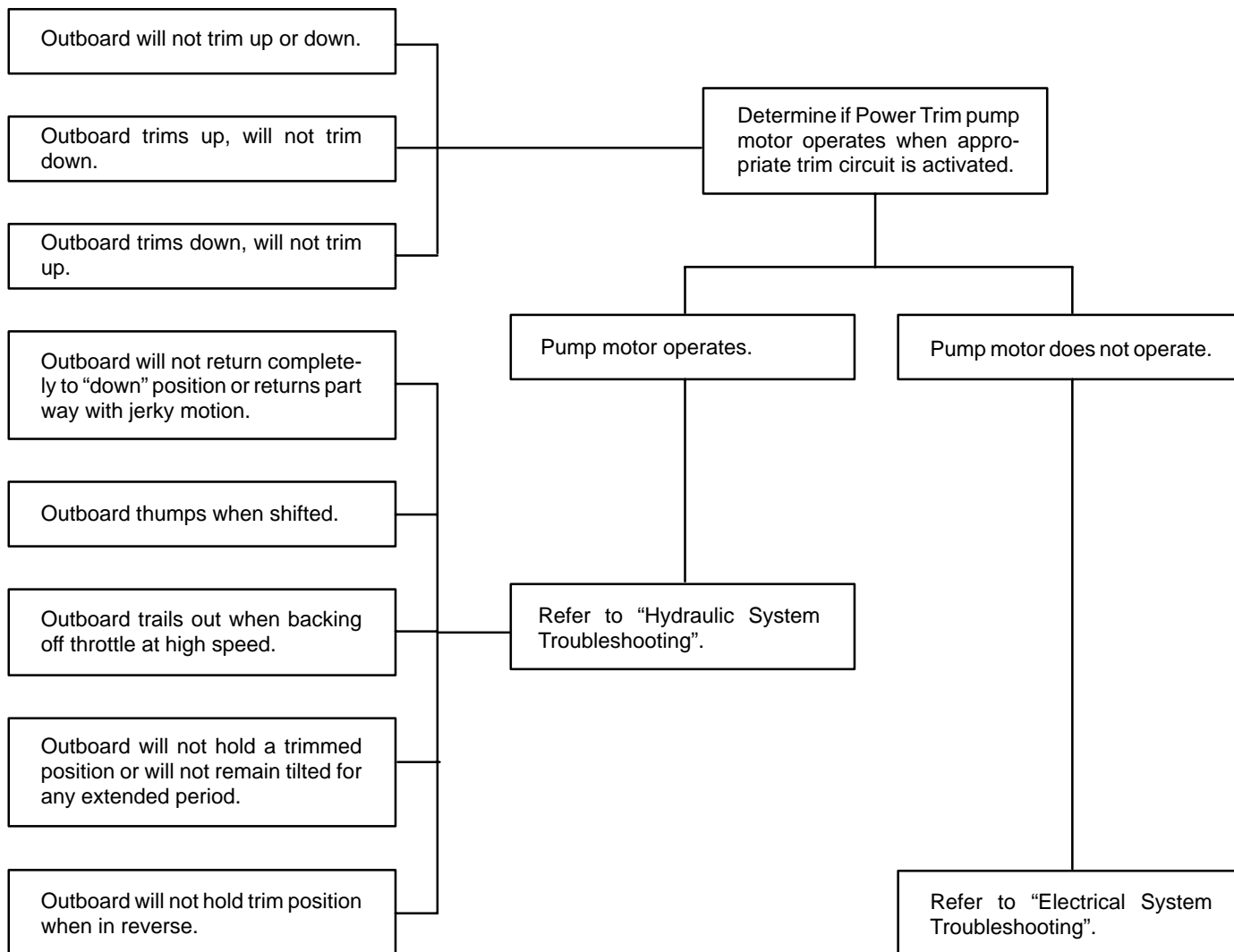


Troubleshooting

Determine if Problem is Electrical or Hydraulic

Refer to the following chart to determine which system is at fault.

Trouble Chart





Hydraulic System Troubleshooting

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

IMPORTANT: After debris or failed components have been found (during troubleshooting procedure) it is recommended that unit be disassembled completely and ALL O-rings be replaced. Check ball valve components and castings must be cleaned using engine cleaner and compressed air or replaced prior to reassembly.

IMPORTANT: 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

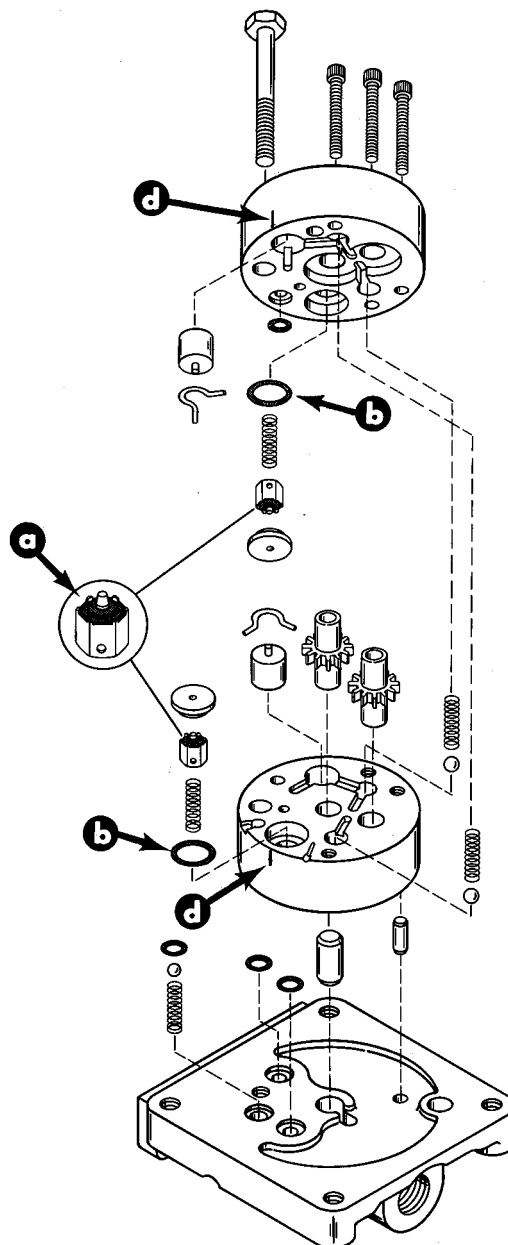
IMPORTANT: Operate Power Trim system after each check to see if problem has been corrected. If problem has not been corrected proceed to next check.

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 halves 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 between manifold and trim cylinder. Refer to "Manifold Removal" for O-ring location.



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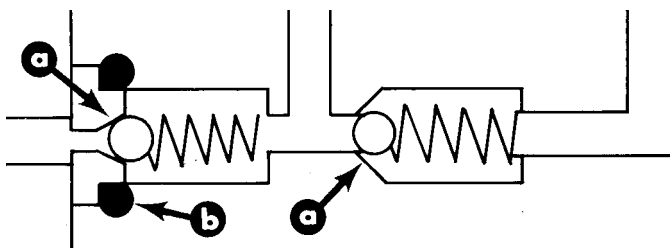
4. After reassembly, insert driveshaft and check pump rotation resistance to turning – housing halves can shift/turn during reassembly. Align scribe marks (d) carefully.



Leak Down Check – Pilot Valve Assembly

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

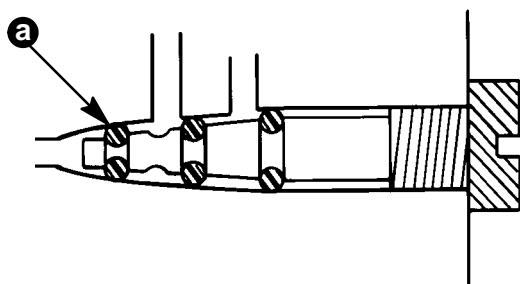
A leak path is created between the UP side of the cylinder and the reservoir. The trim system will leak DOWN until the trim port in cylinder is covered.



a - Check Ball and Seat
b - 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).



a - O-ring

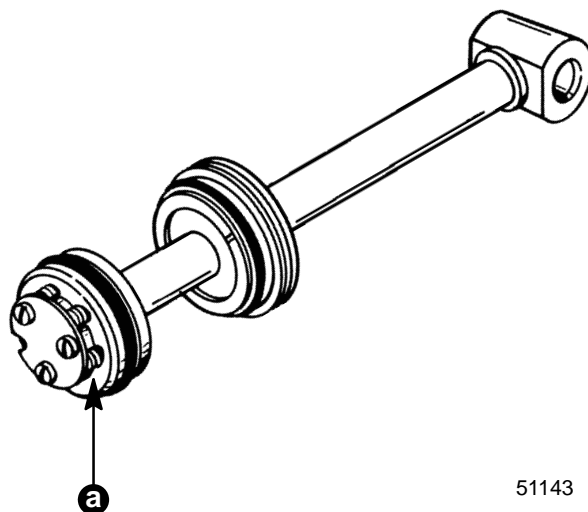
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Leakage Past Ball and Seat – Piston Assembly

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.

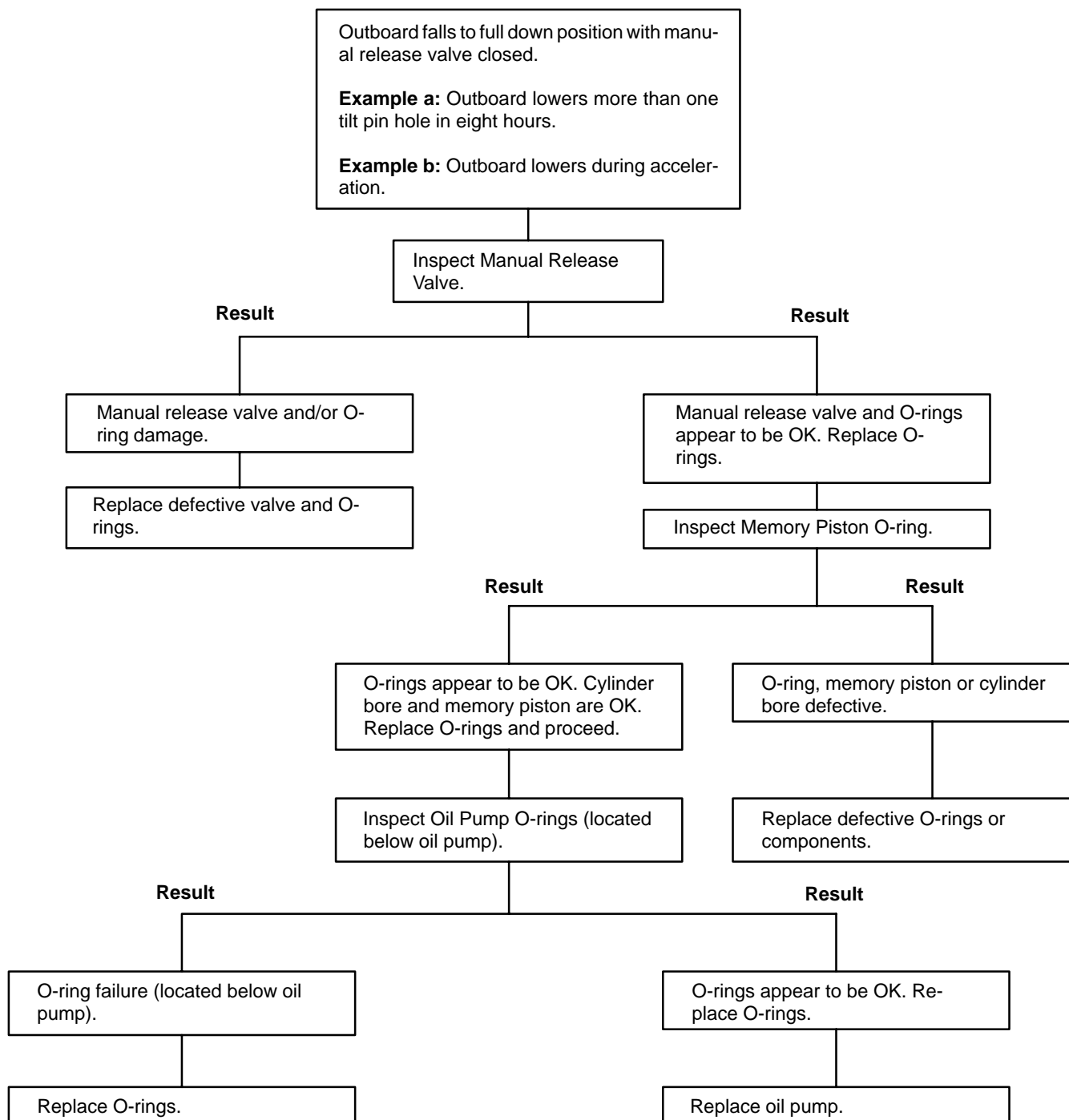


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a - Ball and Seat. Check for Debris or Damage

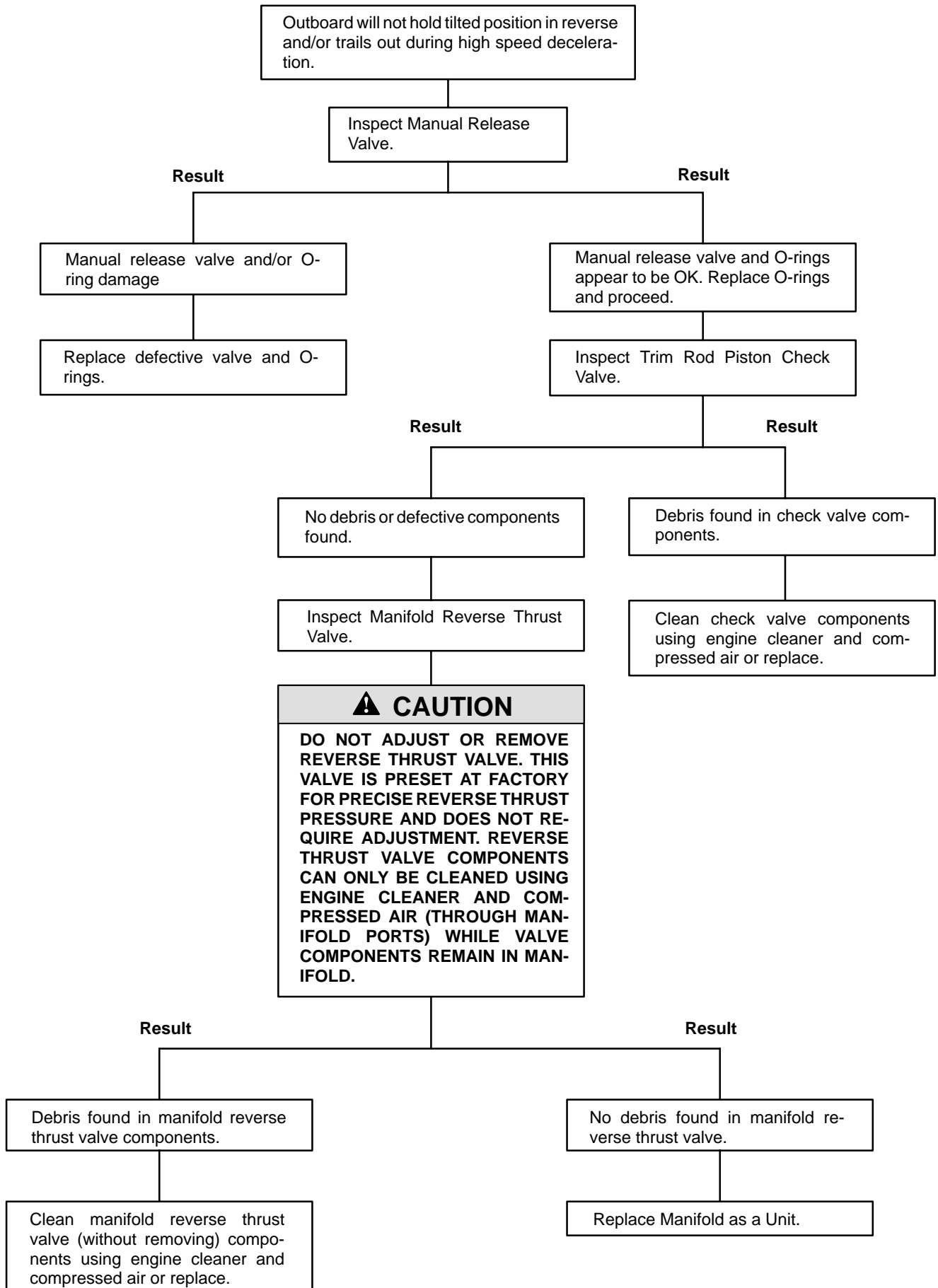


Troubleshooting Flow Diagram



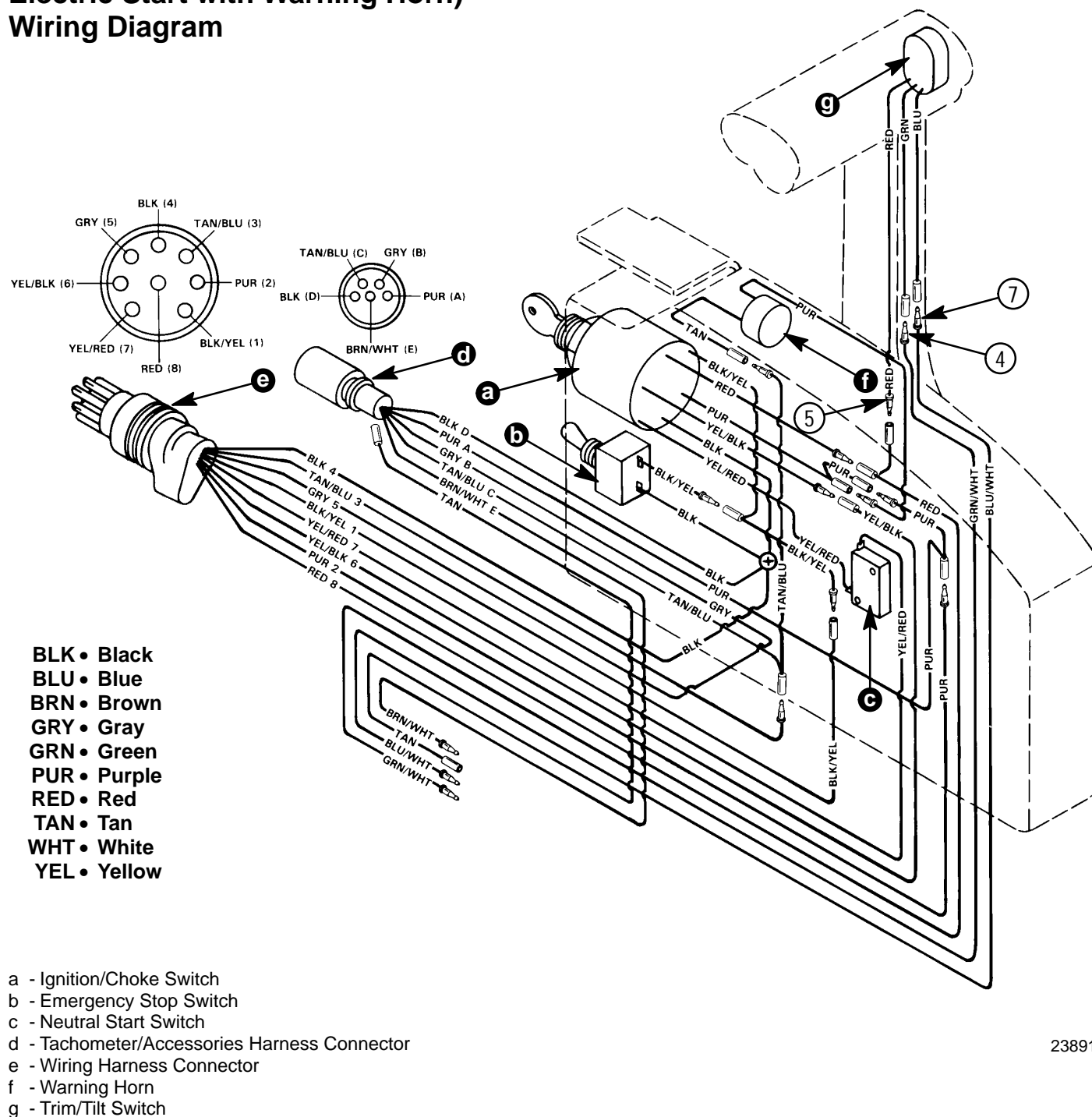


Troubleshooting Flow Diagram



Electrical System Troubleshooting

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



23891



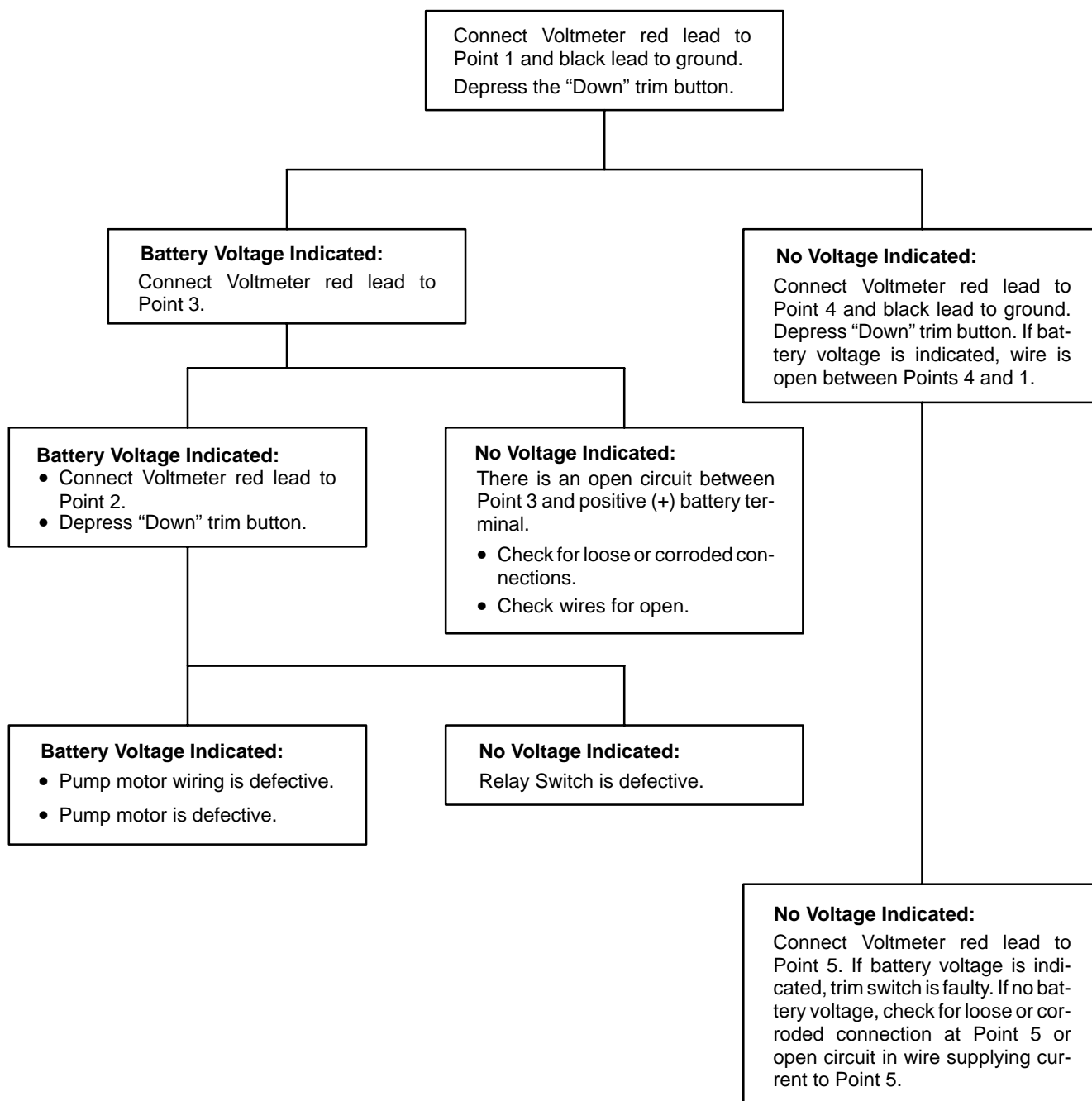
- a - To Power Trim Pump Motor
- b - Relay Switch "UP"
- c - Relay Switch "DOWN"
- d - Engine Starter Motor Solenoid
- e - Cowl Trim Switch
- f - Fuse Holder (20 Amp Fuse)
- g - Engine Wiring Harness Connector
- h - Remote Control Wiring Harness

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

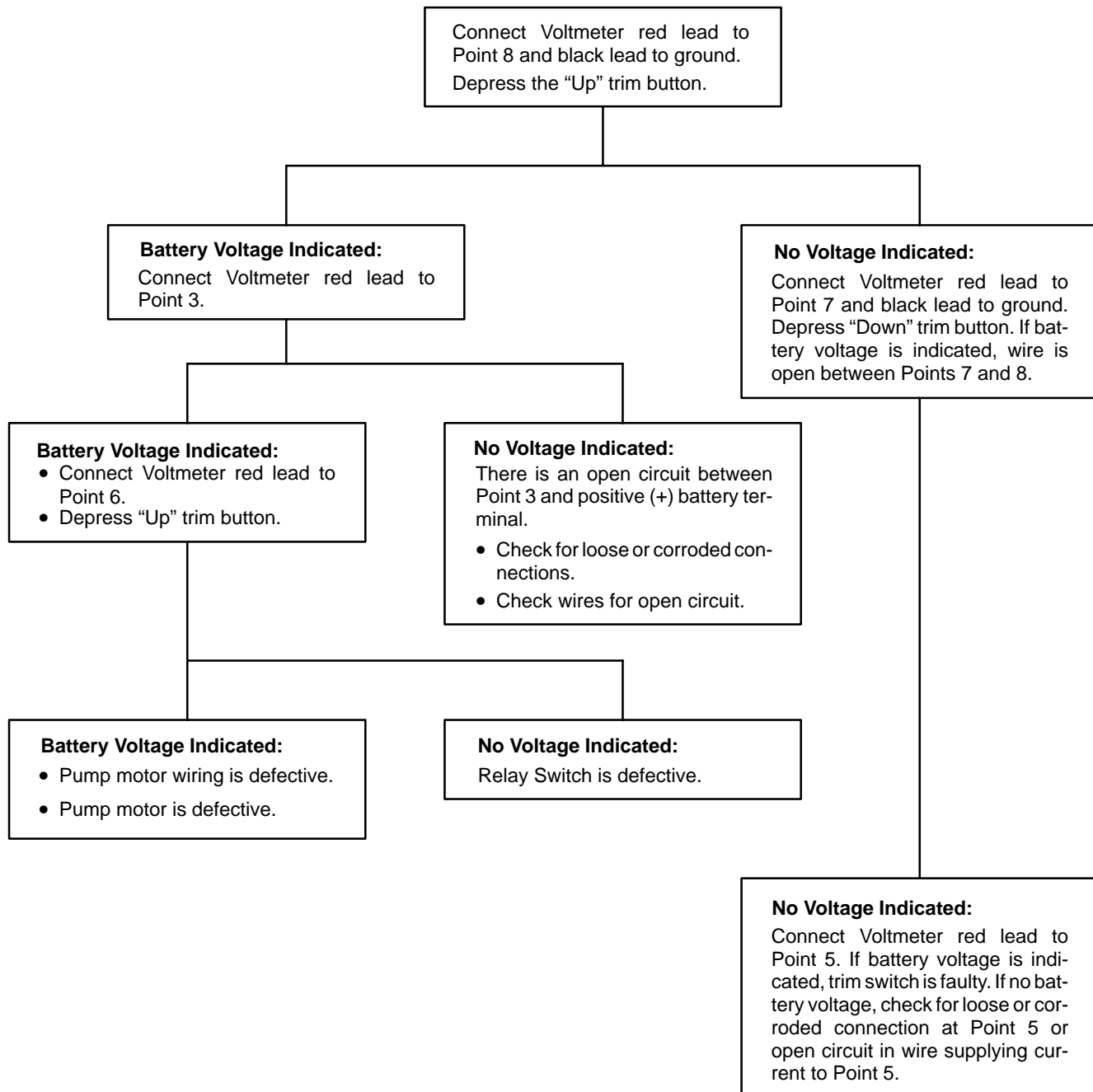
*Remote Control Not Equipped with Trailer Button





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

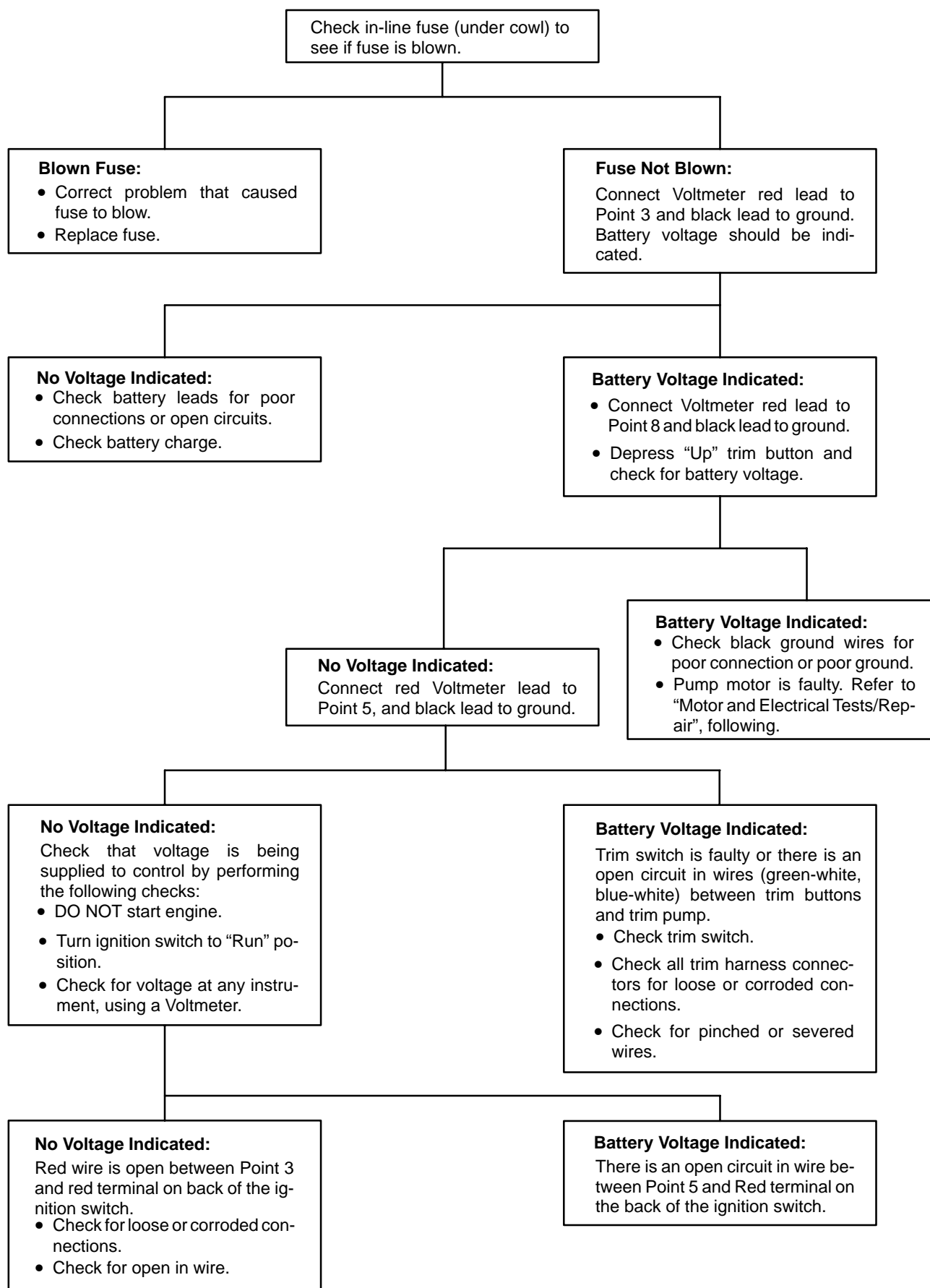
*Remote Control NOT Equipped with Trailer Button





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

*Remote Control Not Equipped with Trailer Button

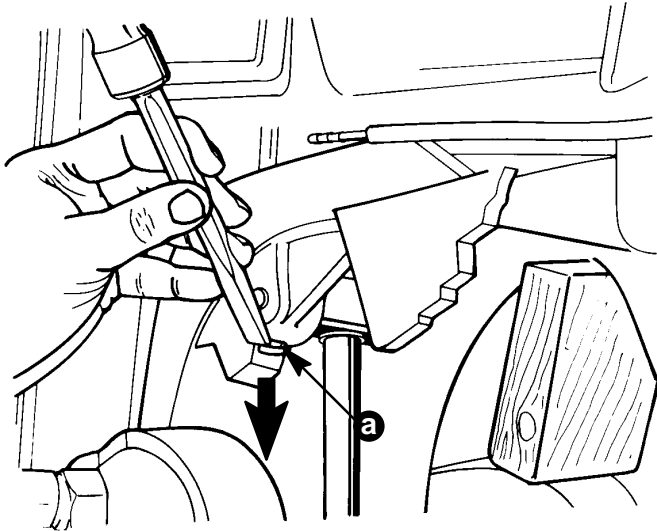




Power Trim System Removal

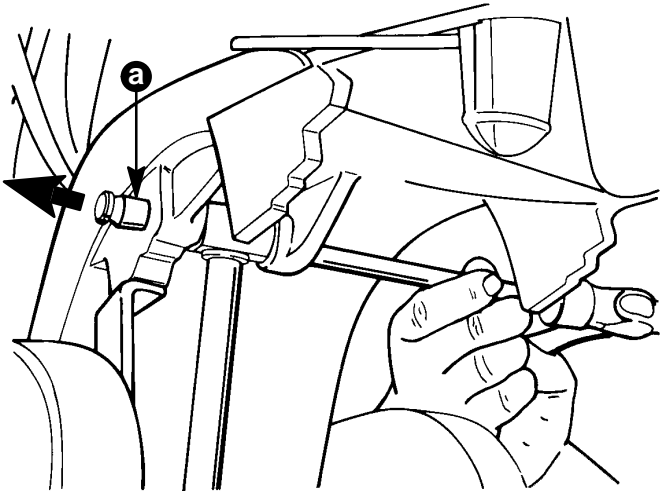
Support outboard with tilt lock lever when servicing power trim system.

1. Disconnect power trim harness from outboard wiring harness.
2. Remove screw and clip securing wiring harness to clamp bracket.
3. Use suitable tool to remove (DRIVE DOWN) upper dowel pin. Retain dowel pin.



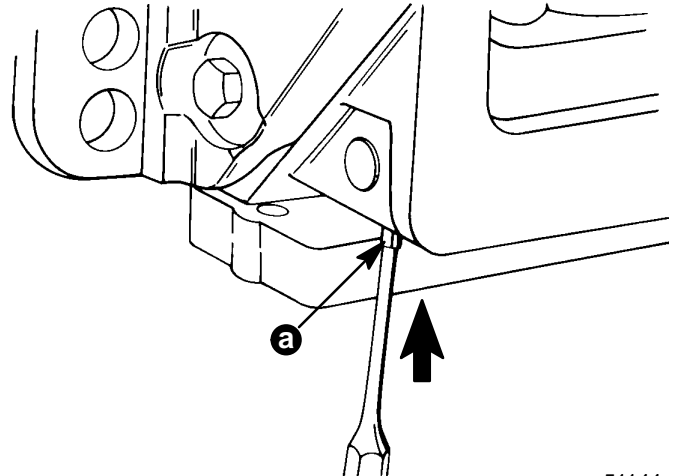
a - Dowel Pin

4. Use suitable punch to drive out upper pivot pin.



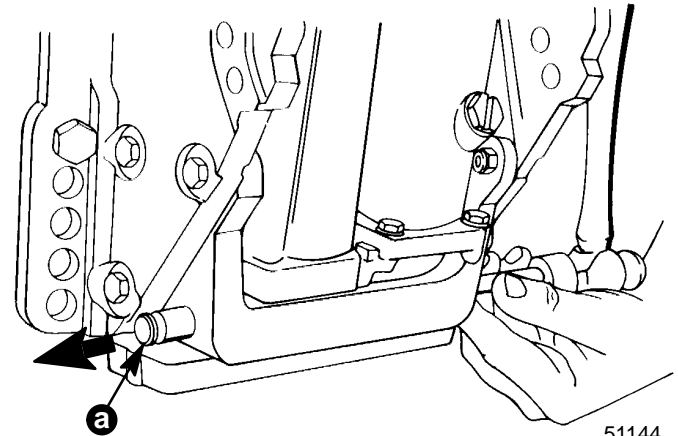
a - Pivot Pin

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



a - Dowel Pin

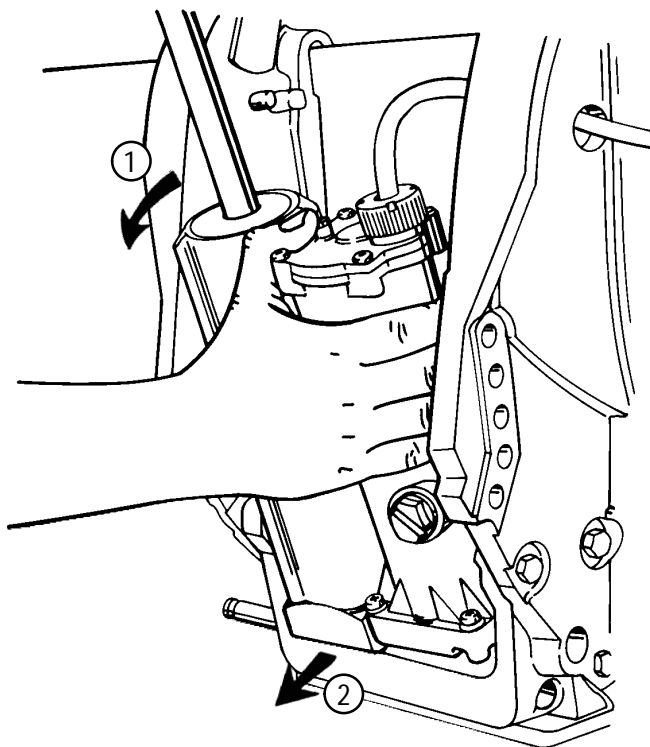
6. Use suitable punch to drive out lower pivot pin.



a - Pivot Pin

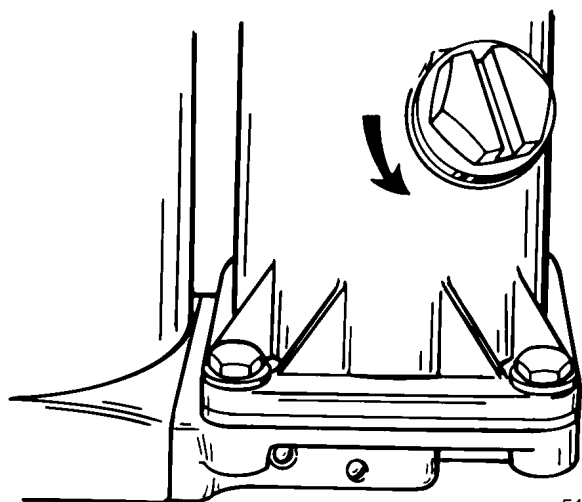


7. Tilt power trim assembly (top first) out from clamp bracket and remove assembly.



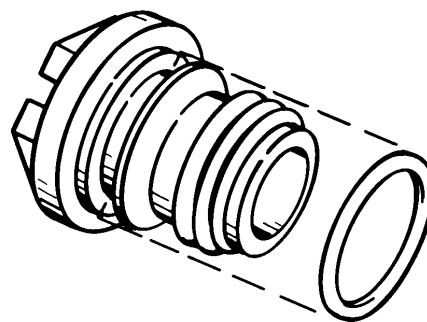
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8. Remove fill cap and drain unit.



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9. Remove O-ring from fill cap.

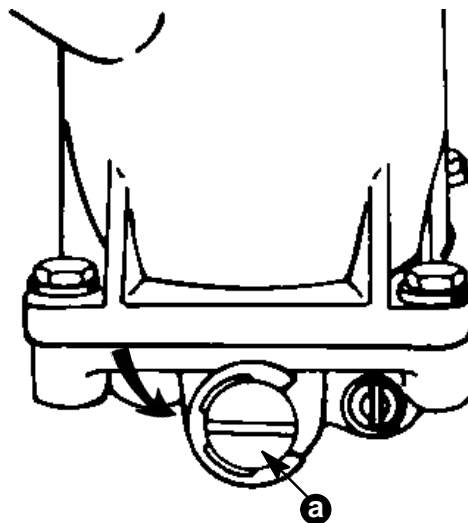


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Power Trim System Disassembly

Trim Rod Removal

1. Secure power trim assembly in soft jawed vise.
2. Open manual release valve three or four turns (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).

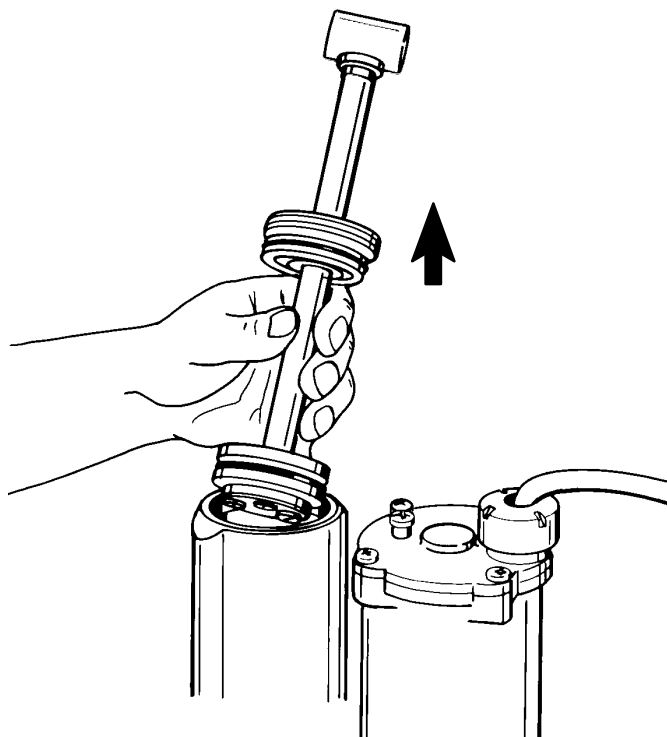


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a - Manual Release Valve

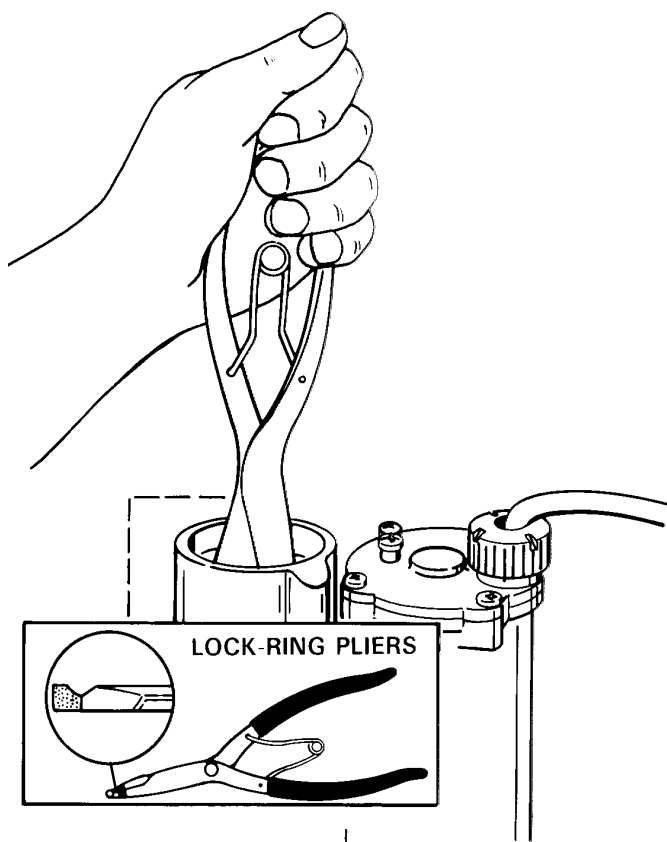


4. Remove trim rod assembly from cylinder.



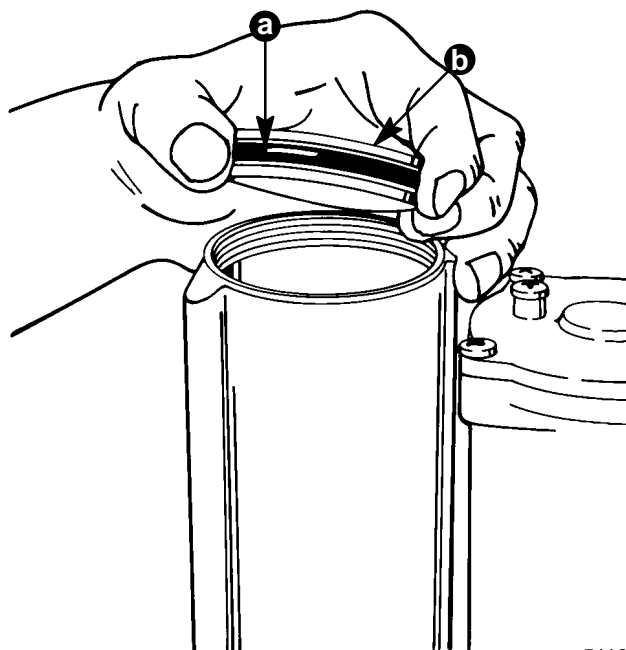
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5. Remove memory piston from cylinder using lock-ring pliers (shown) or suitable tool.



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6. Remove O-ring from memory piston.



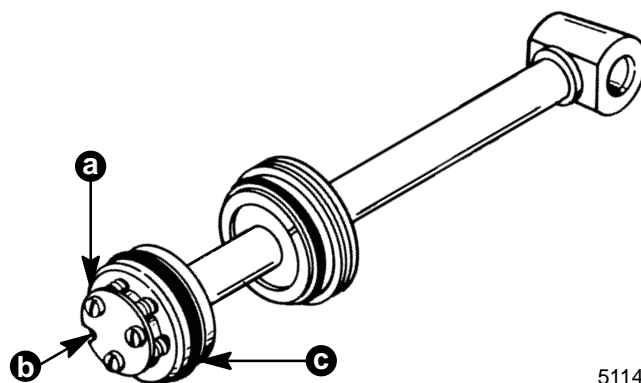
51196

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.



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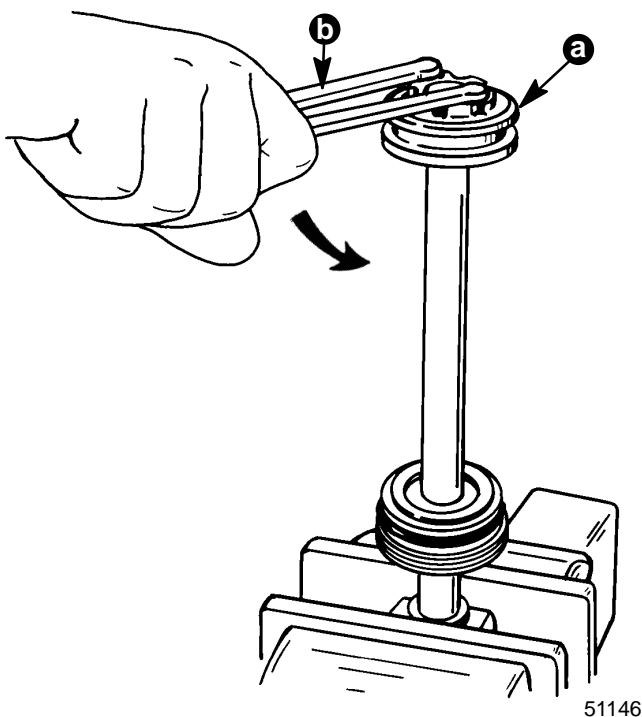
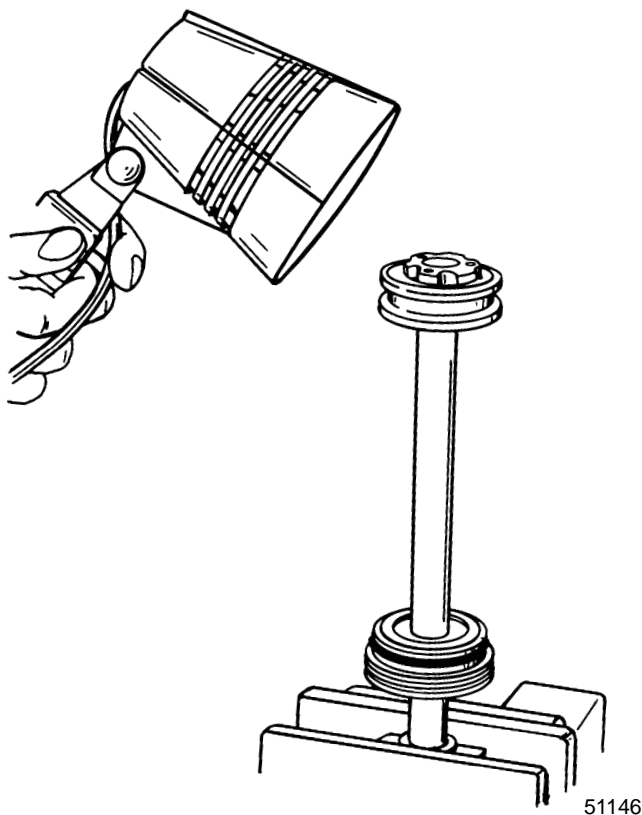
a - Screw
b - Plate
c - O-ring

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.



4. Place trim rod into soft jawed vise and apply heat to shock piston using torch lamp (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.

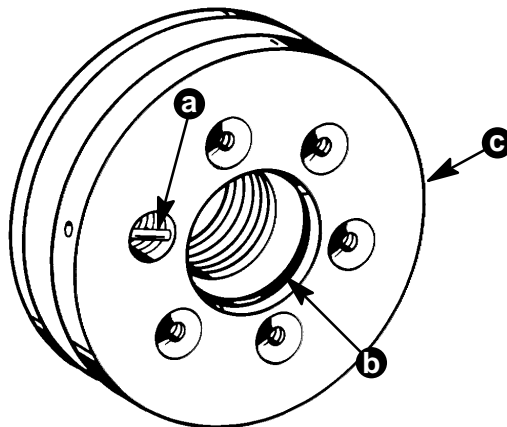


a - Trim Rod Piston
b - Spanner Wrench

⚠ CAUTION

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

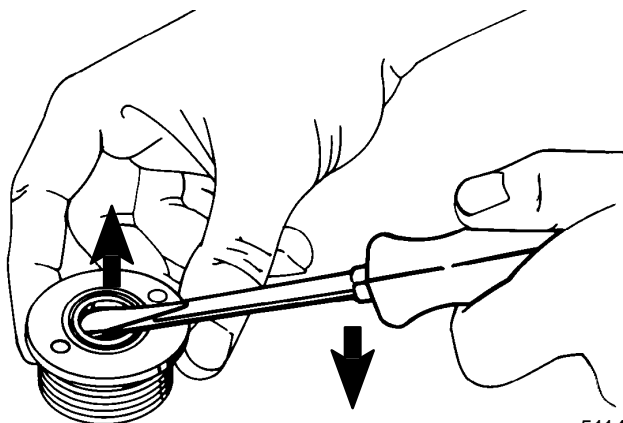
7. Remove inner O-ring from piston.



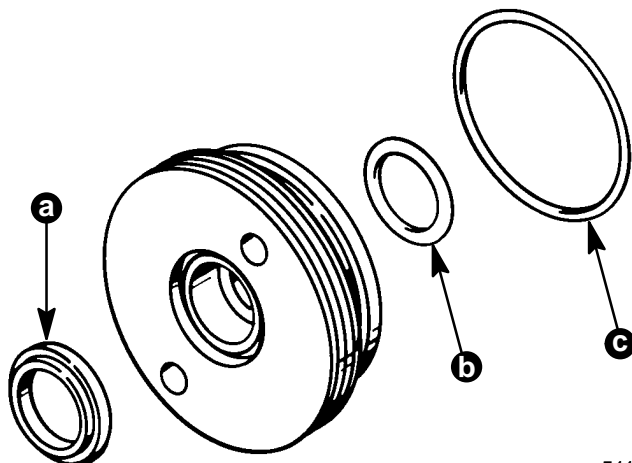
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a - Check Ball Components
b - O-ring
c - Piston

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



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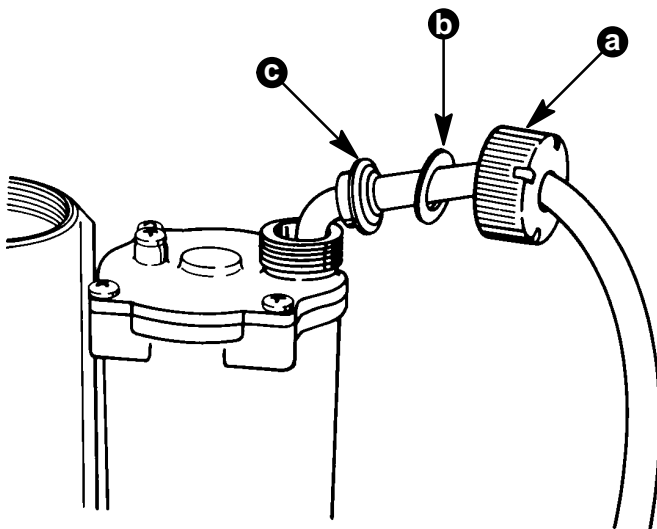
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a - Rod Wiper
b - Inner O-ring
c - Outer O-ring



Trim “Motor” Removal

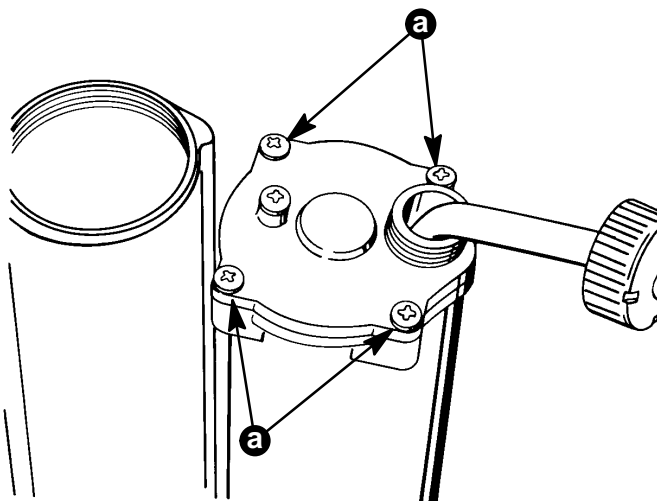
1. Secure power trim assembly in soft jawed vise.
2. Remove cap, washer and grommet from reservoir assembly.



51195

- a - Cap
- b - Washer
- c - Grommet

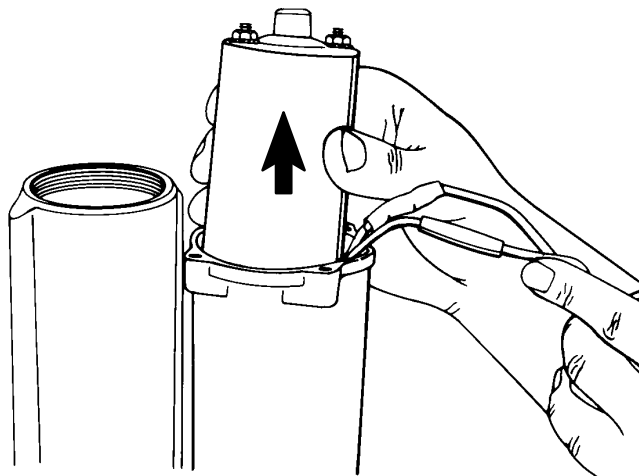
3. Remove screws securing reservoir cap to reservoir.



51193

- a - Screws

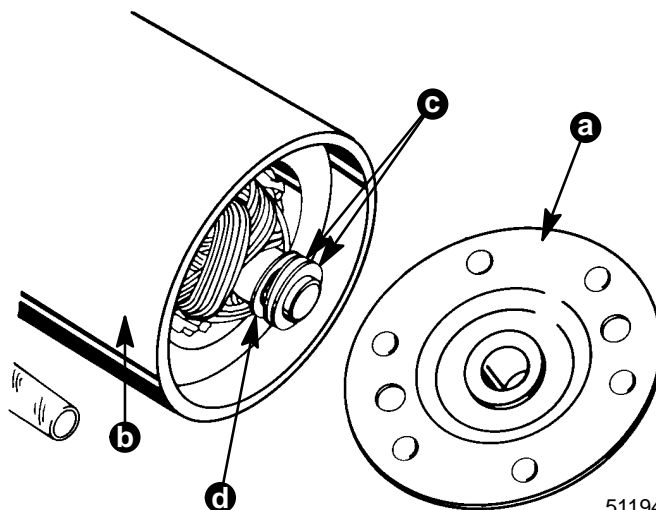
4. Remove motor and harness from reservoir.



51196

Trim “Motor” Disassembly

1. Remove end cap from motor housing. Note position of washers on armature.

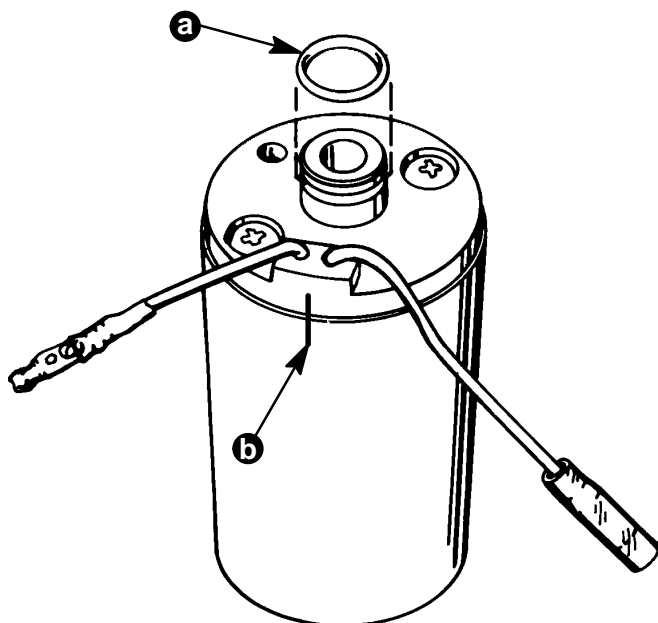


51194

- a - End Cap
- b - Motor Housing
- c - Wave Washer (2)
- d - Washer



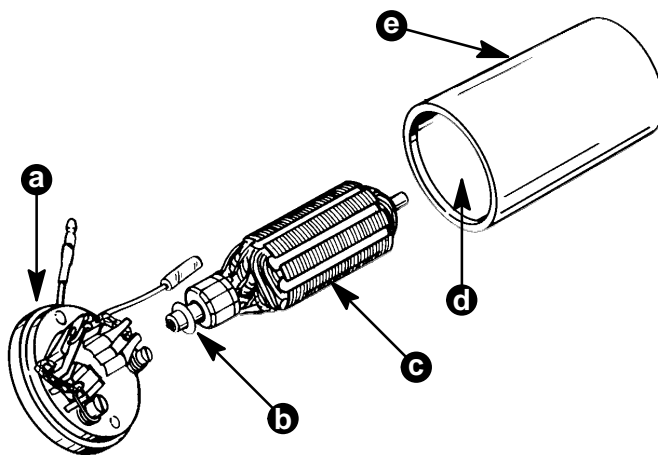
2. Remove O-ring from end frame.
3. Place scribe mark on motor housing and end frame as reassembly reference, as shown.



51194

- a - O-ring
b - Scribe Mark

4. Remove end frame and armature from housing.



51194

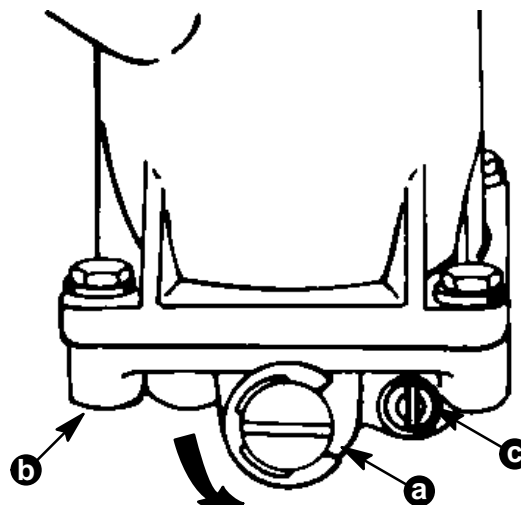
- a - End Frame
b - Washer
c - Armature
d - Fiber Guard (Brush Wires)
e - Housing

Reservoir Assembly Removal

⚠ CAUTION

DO NOT ADJUST OR REMOVE REVERSE THRUST VALVE. THIS VALVE IS PRESET AT FACTORY FOR PRECISE REVERSE THRUST PRESSURE AND DOES NOT REQUIRE ADJUSTMENT.

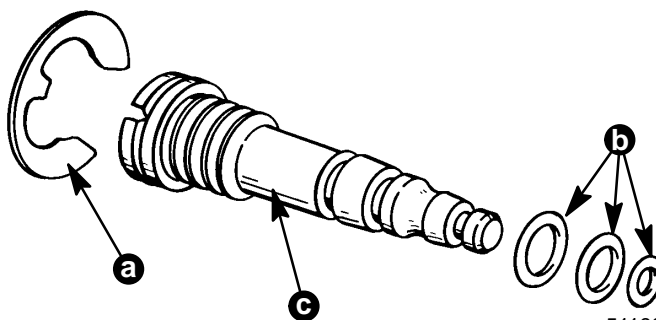
1. Remove manual release valve from manifold.
DO NOT remove or adjust reverse thrust valve.



51194

- a - Manual Release Valve
b - Manifold
c - Reverse Thrust Valve

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

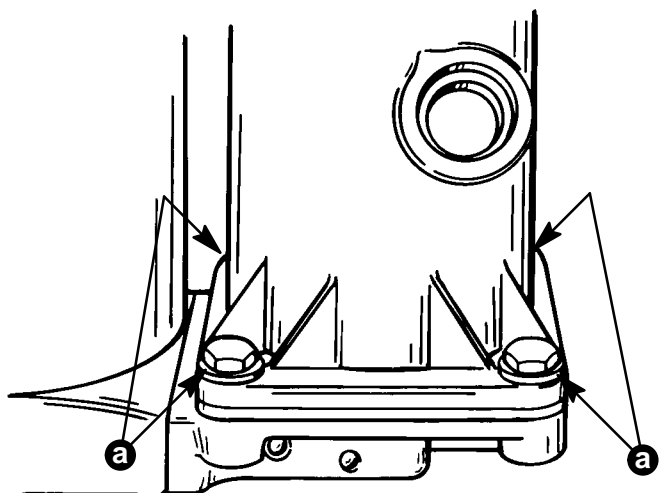


51196

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



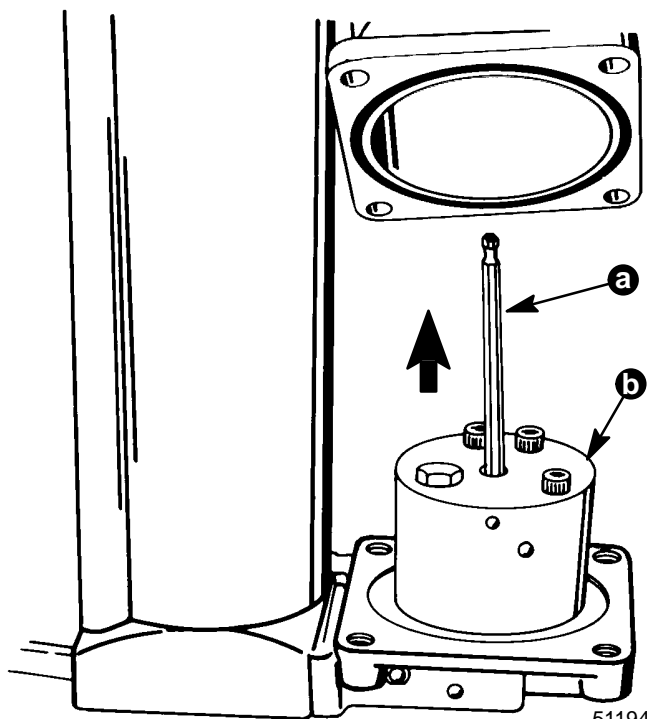
3. Remove four screws securing reservoir to manifold.



51193

a - Screw

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



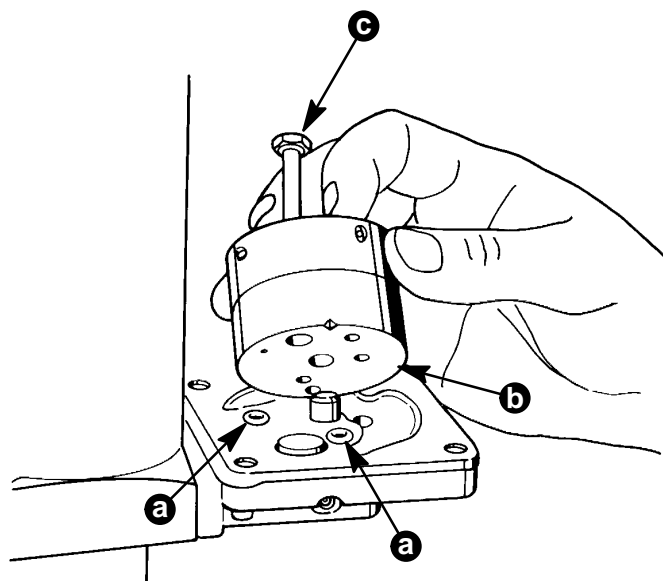
51194

a - Drive Shaft
b - Oil Pump

Oil Pump Removal

IMPORTANT: The oil pump is not rebuildable. If oil pump is defective, replace as an assembly.

1. Remove screw, oil pump and O-rings from manifold.

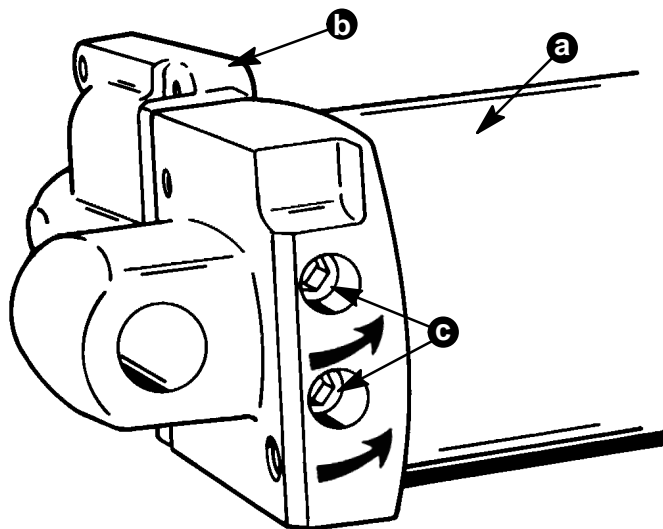


51007

a - O-ring
b - Oil Pump
c - Screw

Manifold Removal

1. While holding trim cylinder to manifold, remove screws.

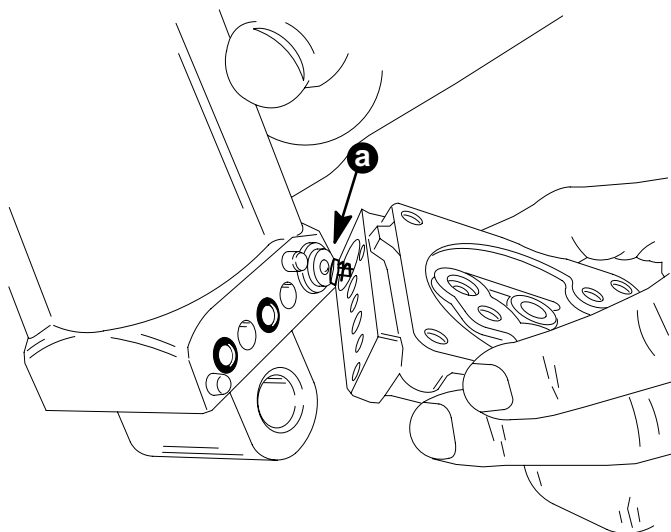


51007

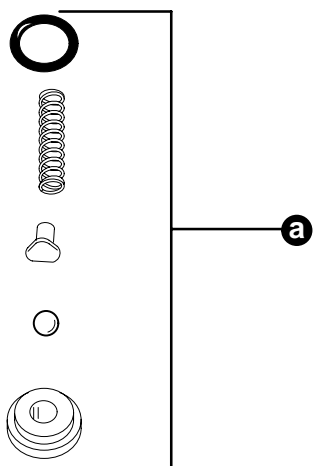
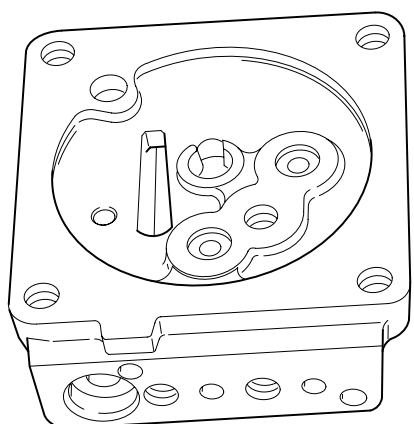
a - Trim Cylinder
b - Manifold
c - Screw



2. Slowly remove manifold from cylinder. Note position of above trim check ball assembly and remove.



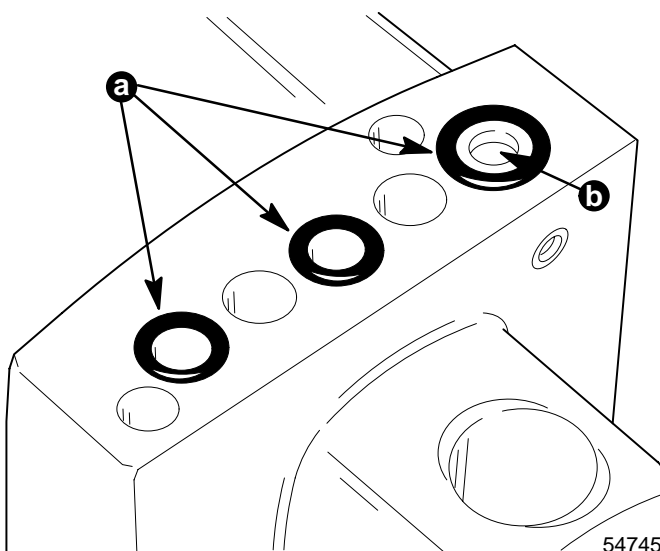
54743



54744

a - Above Trim Check Ball Components

3. Remove O-rings from cylinder.
4. Remove filter.



54745

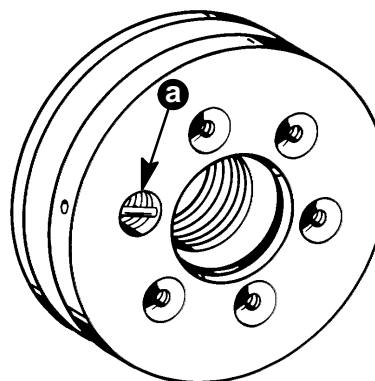
a - O-rings
b - Filter

Cleaning and Inspection of Trim Rod Components

IMPORTANT: Components must be dirt and lint free. Slightest amount of debris in Power Trim system could cause system to malfunction.

⚠ CAUTION

Do not remove check valve components from trim rod piston. Removal and reinstallation of check valve could result in improper operating pressure and possible power trim system damage.



51199

a - Check Ball Components



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.

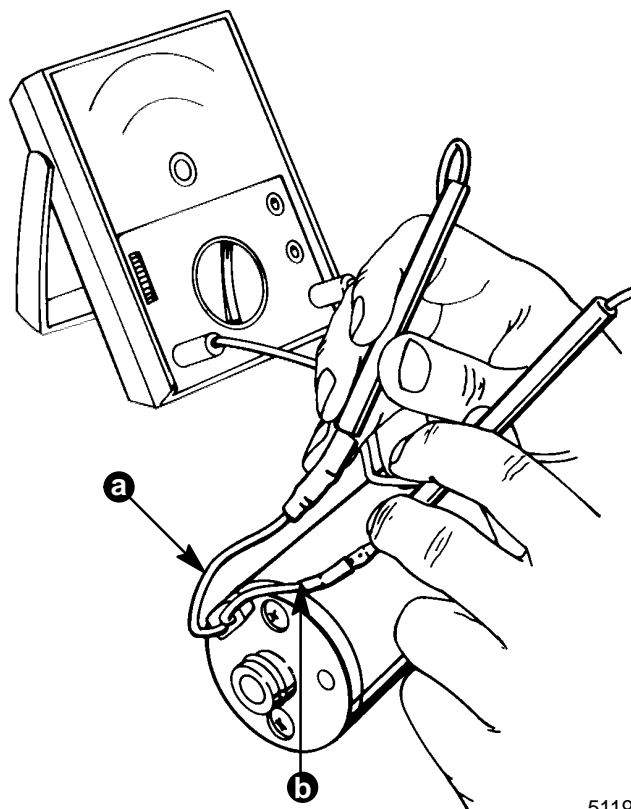
1. Disconnect orange (motor) wire and black (motor) wire from relay switch wiring harness.
2. Connect a 12 volt power supply to motor wires (positive to orange; negative to black results in motor up direction. Positive to black; negative to orange results in motor down direction). Motor should run.
3.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

Thermal Overload Switch Test

IMPORTANT: If thermal overload switch has been activated, pump motor cannot be tested for a minimum of one minute. After this period switch should close (reset itself) and pump motor may be operated. Perform the following check(s) only if switch does not reset itself.

MOTOR ASSEMBLED

Connect Ohmmeter (R x 1 scale) leads as shown. If switch is good, full continuity (zero ohms) will be indicated. If full continuity is not indicated, disassemble motor and recheck switch per instructions, following.

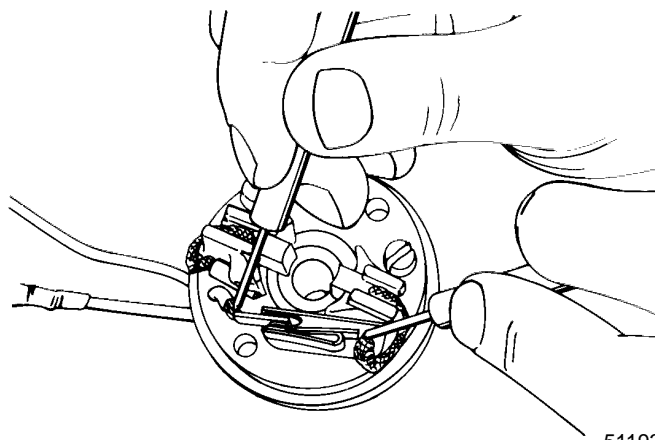


- a - Motor Wire (Black)
b - Motor Wire (Orange)

51196

MOTOR DISASSEMBLED

Connect Ohmmeter (R x 1 scale) leads as shown. If switch is good, full continuity (zero ohms) will be indicated.



51193

If full continuity is not indicated, clean switch contact surfaces, using an ignition point file.

Recheck switch; if full continuity is not indicated, replace end frame.



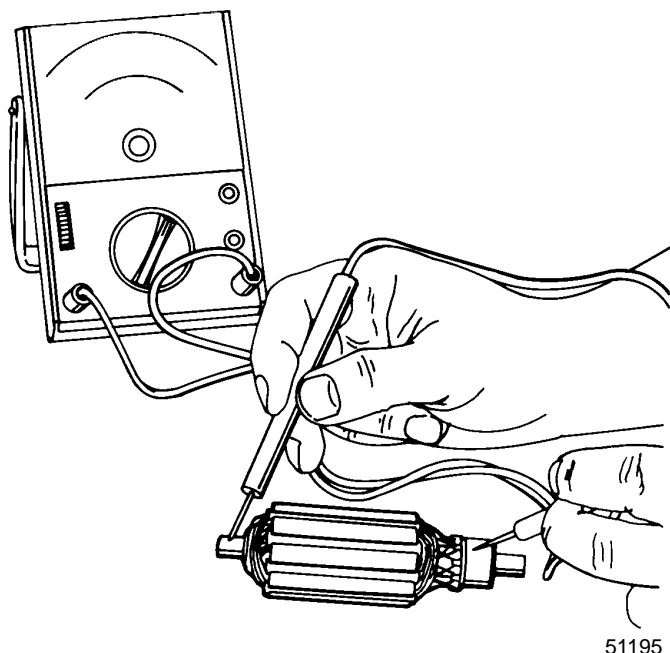
Armature Tests

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

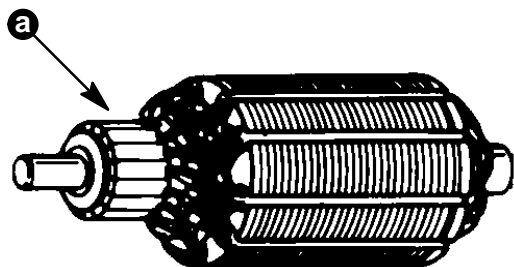
Use an Ohmmeter (R x 1 scale). Place one lead of Ohmmeter on armature shaft and other lead on commutator, as shown. If continuity is indicated, armature is grounded and must be replaced.



CHECKING AND CLEANING COMMUTATOR

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

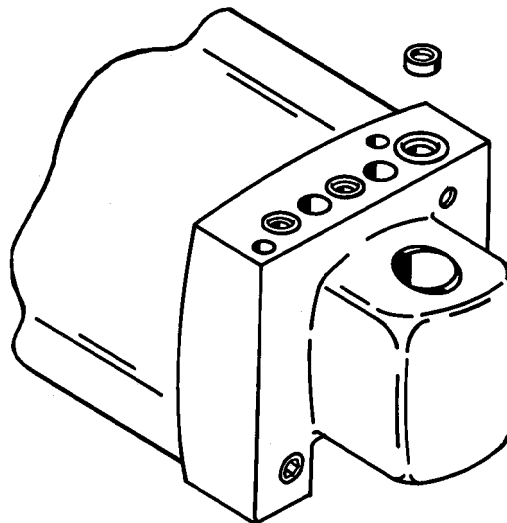
Clean commutator with "00" sandpaper.



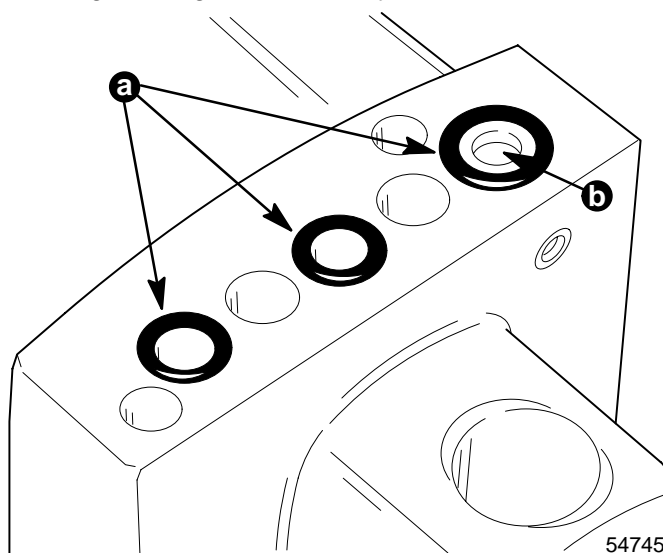
Power Trim System Reassembly

Manifold Installation

IMPORTANT: Filter must be installed in trim cylinder with ridge of filter housing facing out.



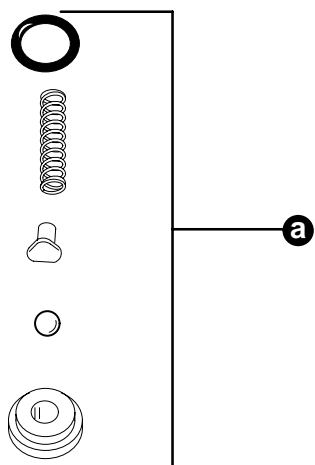
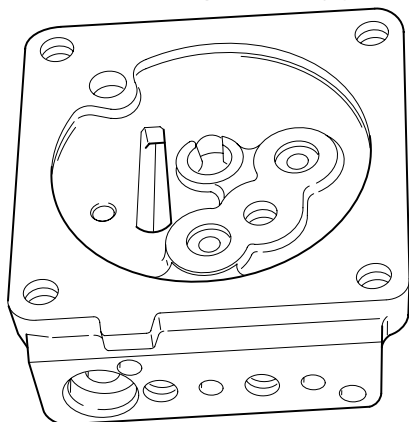
1. Install lubricated O-rings and filter, with housing ridge facing out, to trim cylinder.



a - O-ring
b - Filter

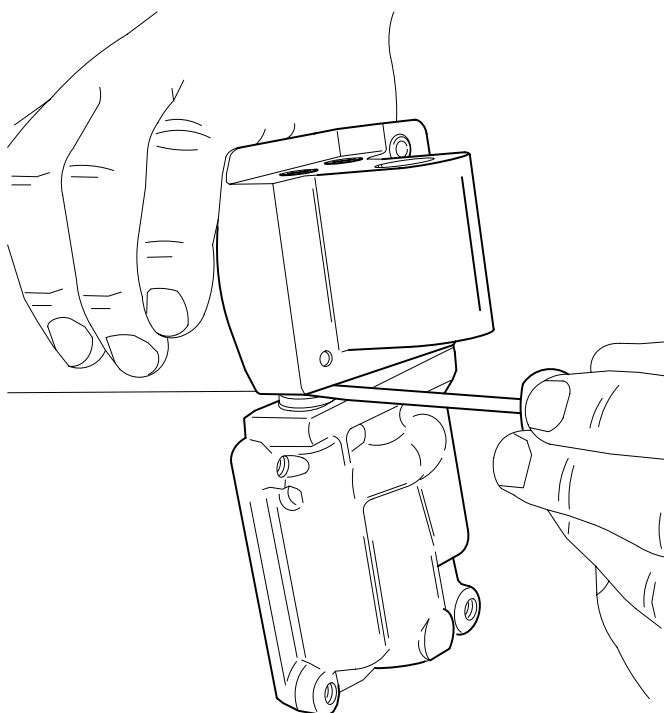


2. Install check ball components (a) into manifold.



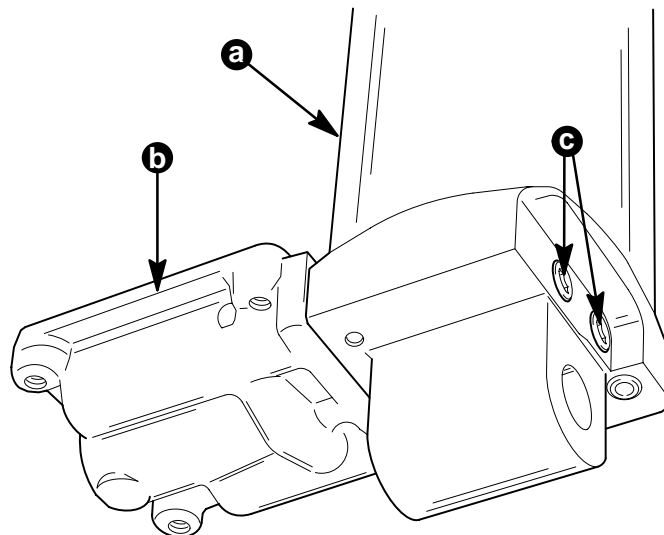
54744

3. Hold check ball components in place using screwdriver (as shown). Connect manifold to trim cylinder.



54748

4. Secure manifold to cylinder using screws, torque to 100 lb. in. (11.2 N·m).

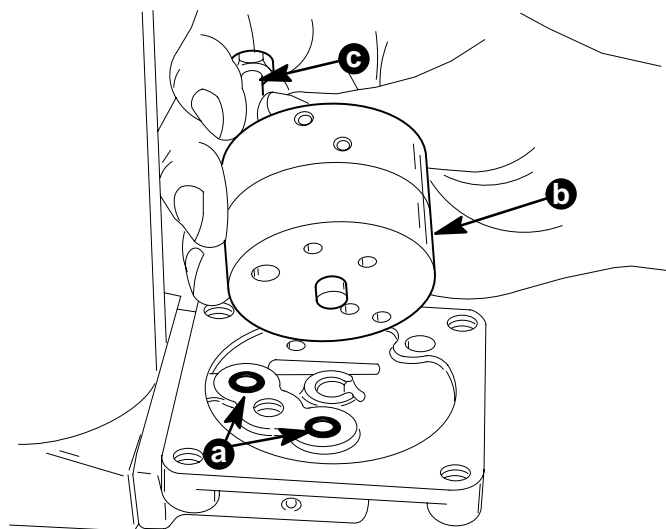


54746

- a - Trim Cylinder
- b - Manifold
- c - Screw

Oil Pump Installation

1. Secure power trim unit in soft jawed vise.
2. Install lubricated O-rings to manifold.
3. Install oil pump to manifold and secure using screw, torque to 90 lb. in. (10.2 N·m).



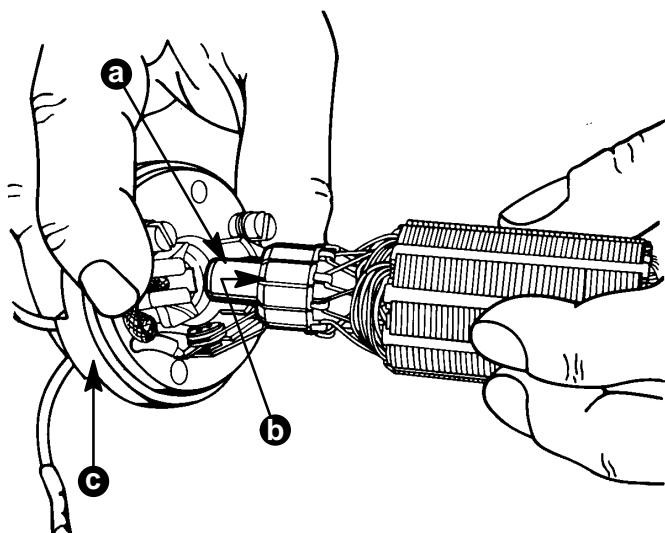
54747

- a - O-ring
- b - Oil Pump
- c - Screw



Trim Motor Reassembly

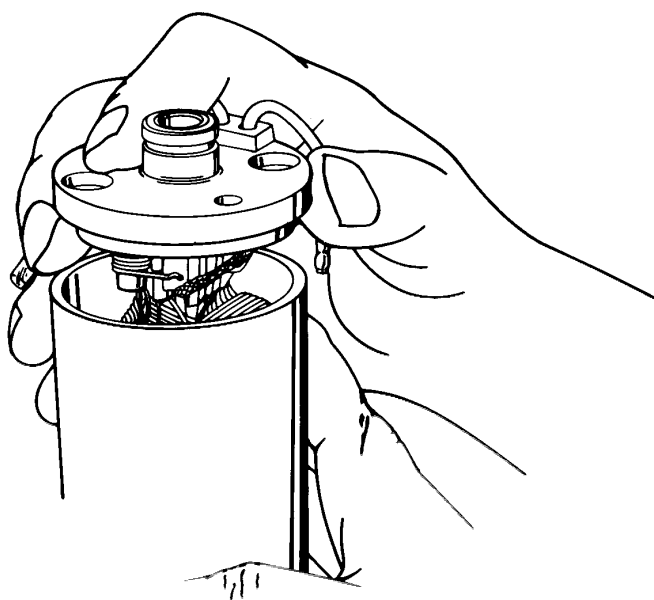
1. Apply Quicksilver Marine Lubricant (2-4-C) to armature shaft and insert into end frame.



51195

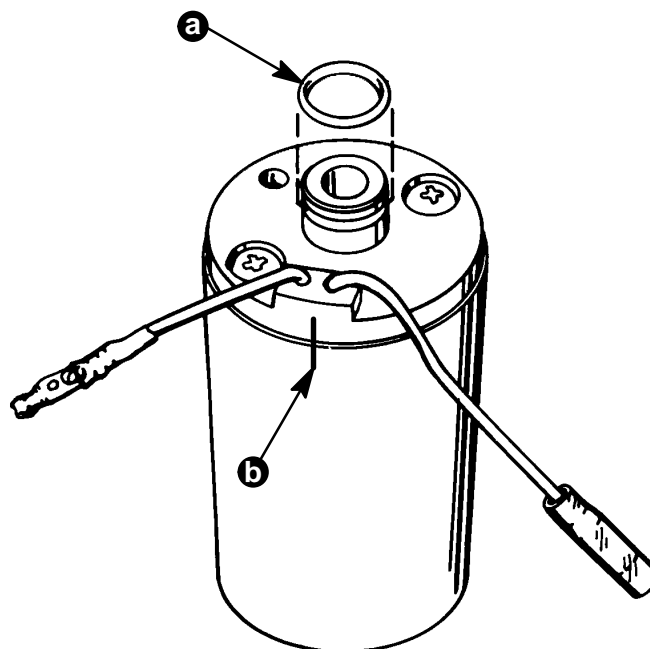
- a - Armature Shaft
- b - Washer
- c - End Frame

2. Guide armature and end frame into housing as shown.



51196

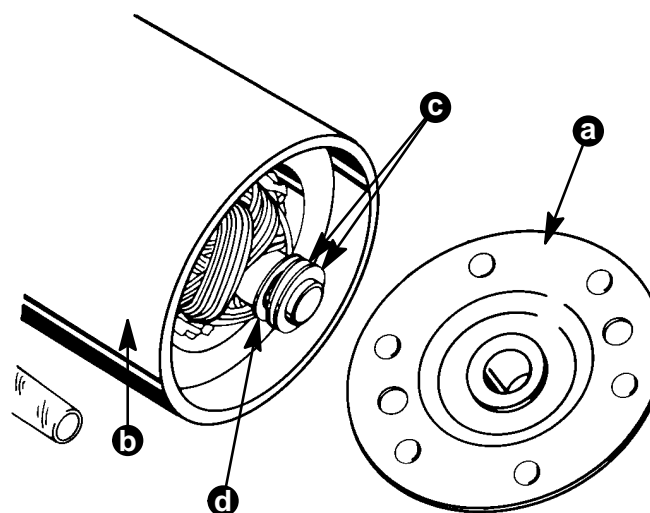
3. Align scribe mark on housing with mark on end frame.
4. Install lubricated O-ring to end frame.



51194

- a - O-ring
- b - Scribe Mark

5. Install washers to armature shaft as shown.
6. Install end cap to housing. Torque nuts to 25 lb. in. (2.8 N-m).

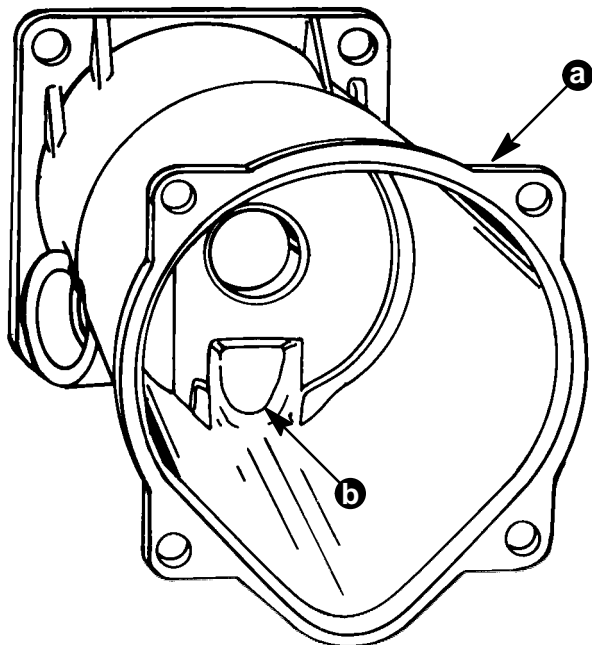


51194

- a - End Cap
- b - Motor Housing
- c - Wave Washer
- d - Washer



IMPORTANT: When installing motor, wires (black, orange) must rest in cavity of cylinder allowing motor to seat properly.

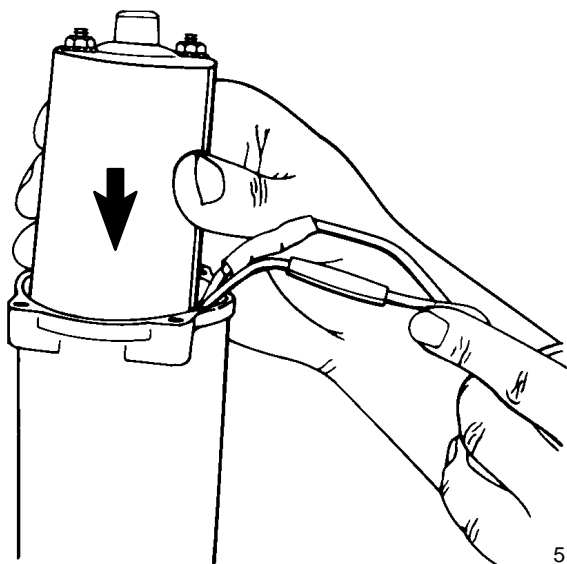


51194

a - Manifold
b - Cavity

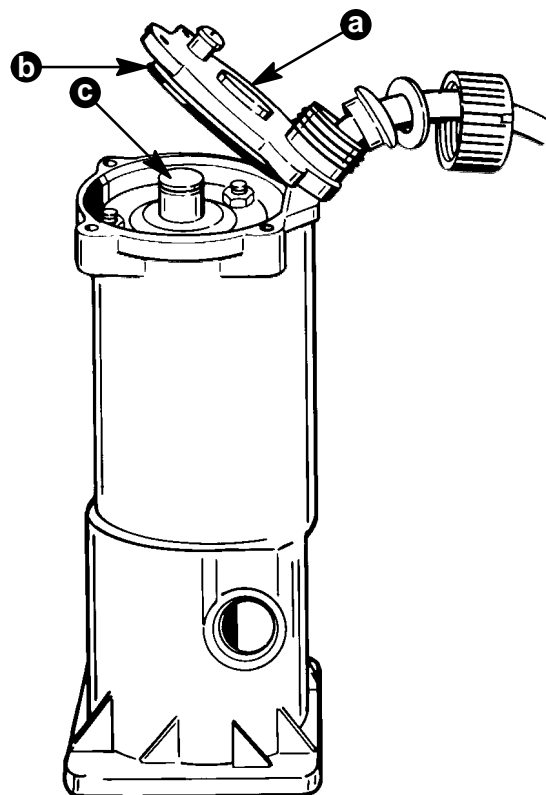
Reservoir Installation

1. Connect trim motor wires to harness.
2. Insert motor into reservoir. Motor must be seated properly prior to end cap installation.



51196

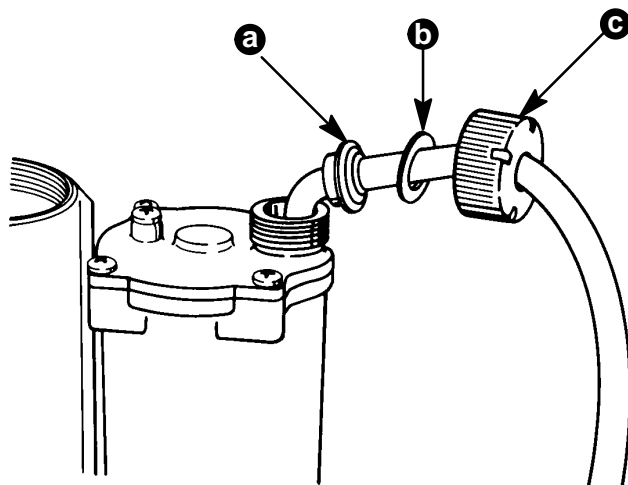
3. Install end cap, O-ring and foam pad to cylinder.
4. Torque screws to 13 lb. ft. (1.5 N·m).



51195

a - End Cap
b - O-ring
c - Foam Pad

5. Install grommet, washer and screw cap to cylinder end cap. Tighten screw securely.

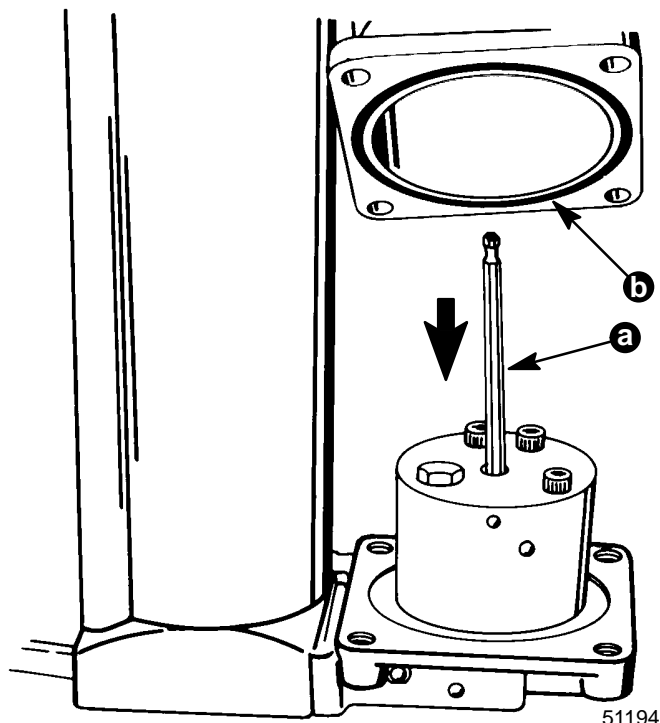


51195

a - Grommet
b - Washer
c - Screw Cap

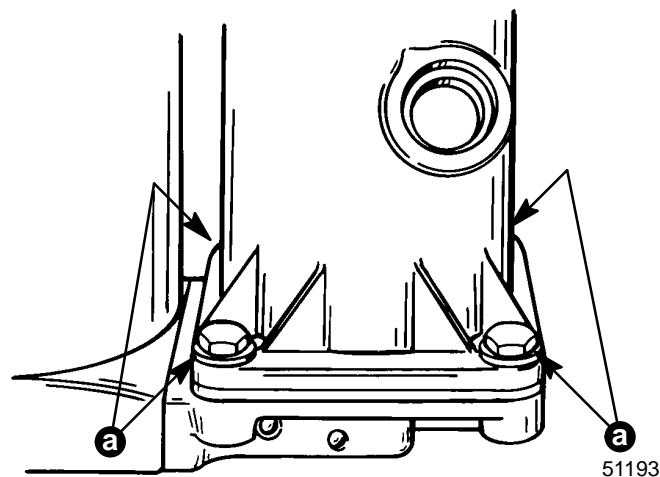


6. Place drive shaft into oil pump.
7. Install lubricated O-ring to base of reservoir.
8. Carefully guide reservoir (with motor) down onto drive shaft.



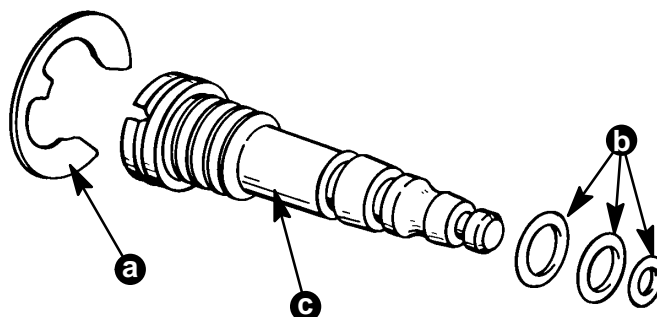
- a - Drive Shaft
b - O-ring

9. Secure reservoir to manifold using four screws. Torque screws to 70 lb. in. (7.9 N·m).



- a - Screw

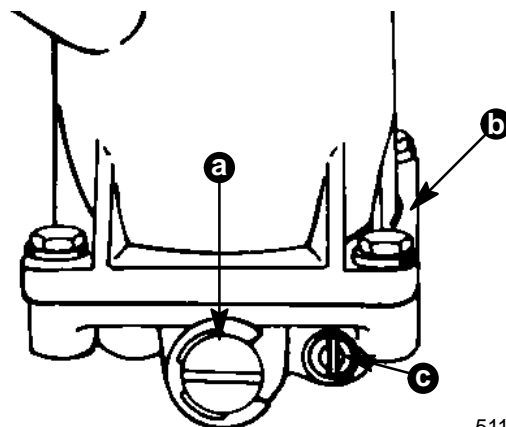
10. Install lubricated O-rings and "E" clip to manual release valve.



51196

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

11. Insert manual release valve into manifold and tighten snugly. Back release valve out 3 or 4 turns allowing trim rod installation.



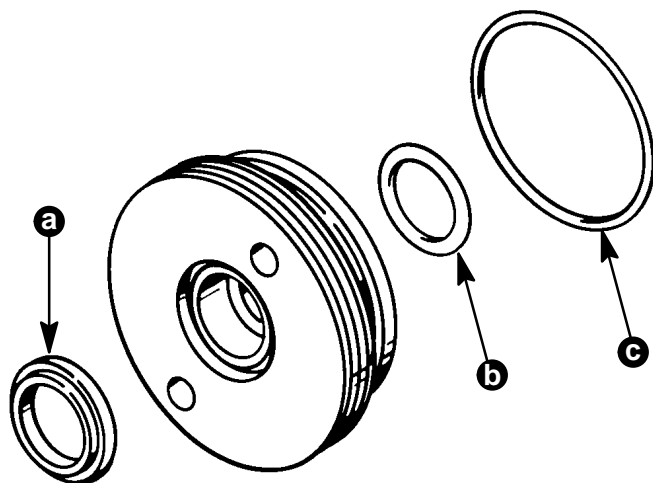
51194

- a - Manual Release Valve
b - Manifold
c - Reverse Thrust Valve



Trim Rod Reassembly

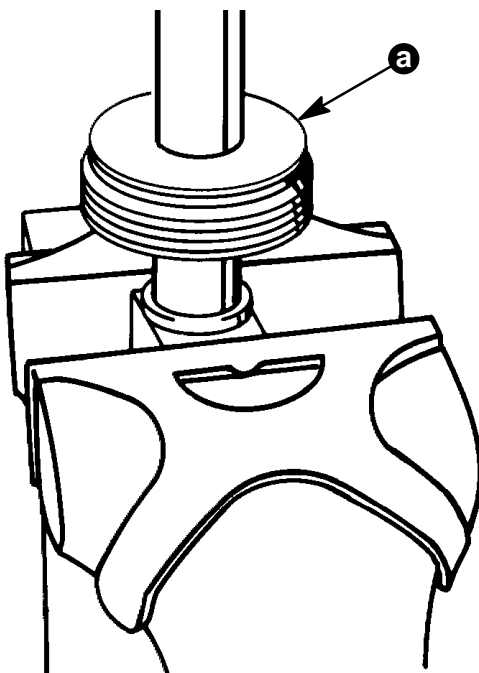
1. Install lubricated O-rings and rod wiper to end cap.



51145

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

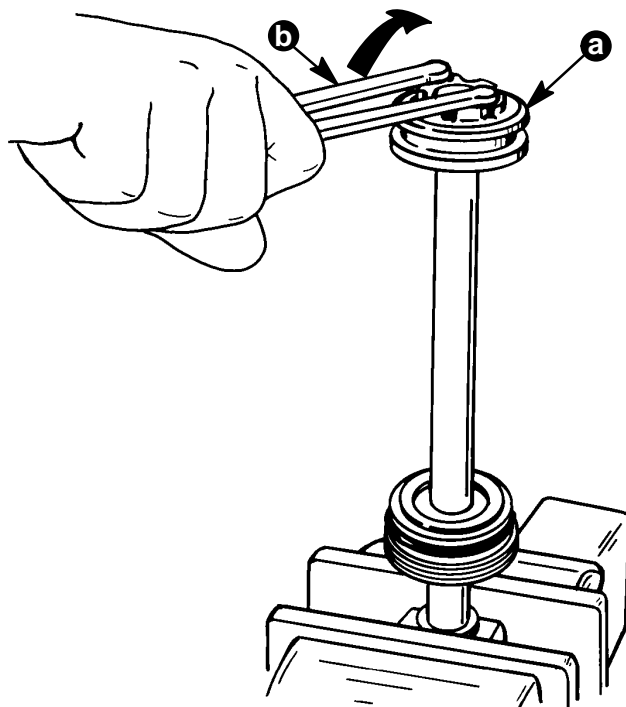
2. Secure trim rod in soft jawed vise as shown.
3. Slide end cap onto trim rod.



51146

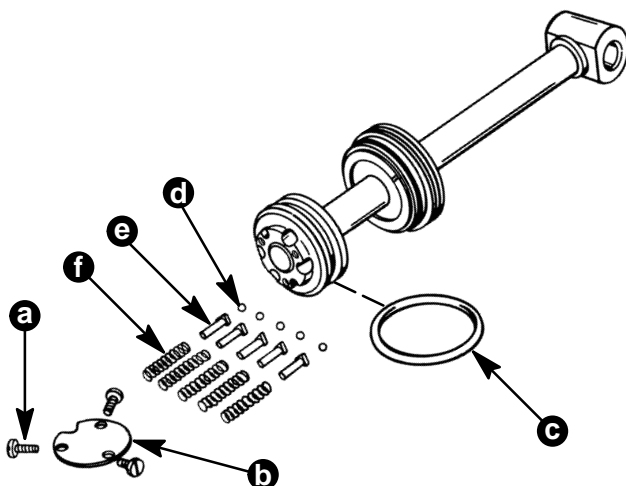
- a - End Cap

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



- 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 securely.



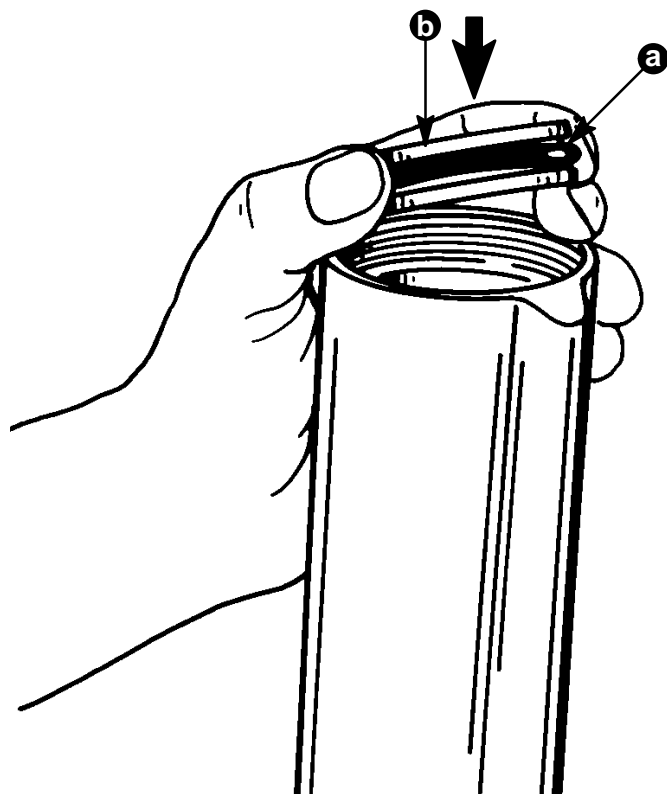
51147

- a - Screw
- b - Plate
- c - O-ring
- d - Ball
- e - Seat, Spring
- f - Spring



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.

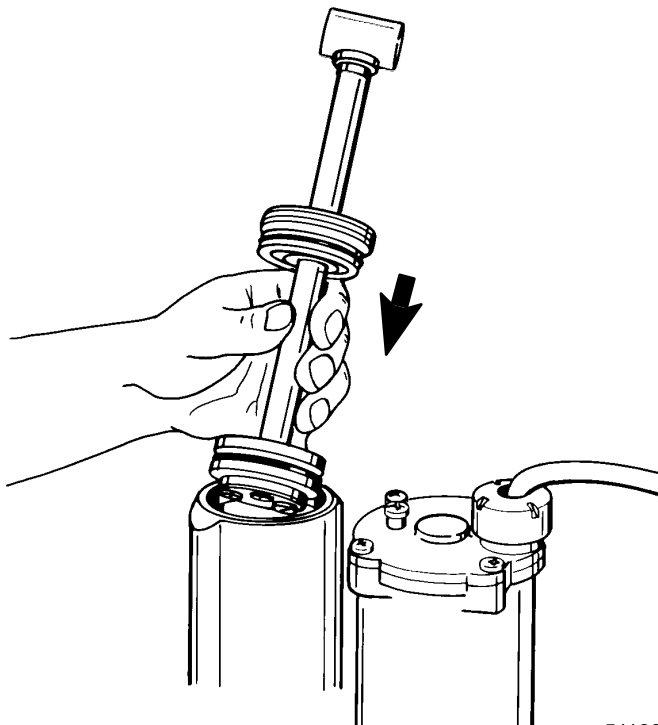


51144

a - O-ring
b - Memory Piston

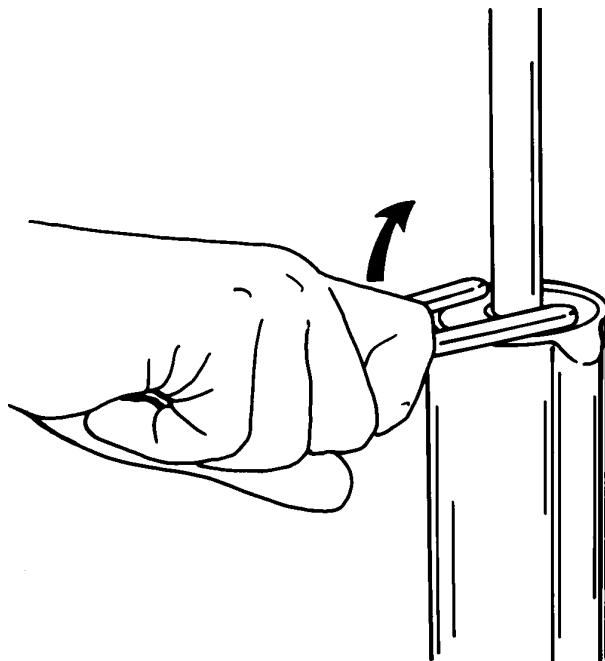
IMPORTANT: Memory piston must not come in contact with trim rod end cap during end cap/trim rod installation.

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

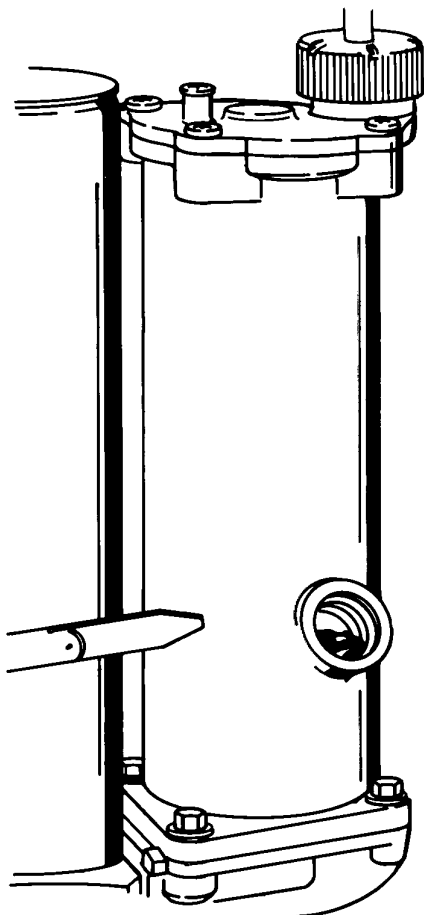
6. Tighten manual release valve snugly following end cap installation.



Bleeding Power Trim Unit

IMPORTANT: Manual release valve must be in the closed position during power trim bleeding and operation.

1. Secure power trim unit in soft jawed vise.
2. Remove fill screw. 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.

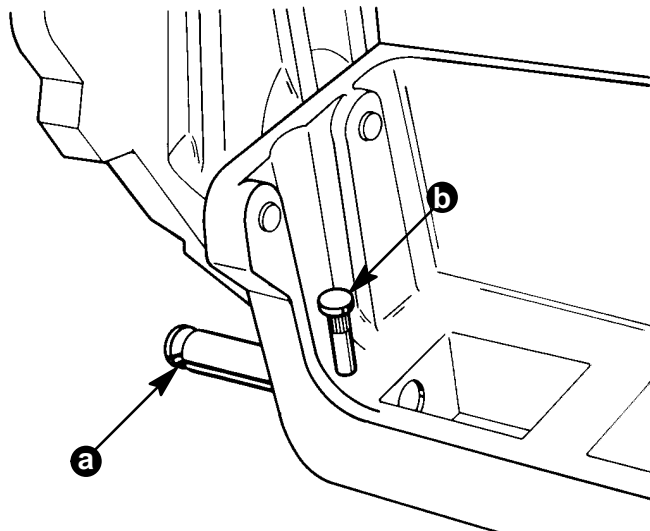


50241

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 if required and repeat cycle until fluid level remains at lower portion of threads.
4. Install fill plug.

Power Trim Unit Installation

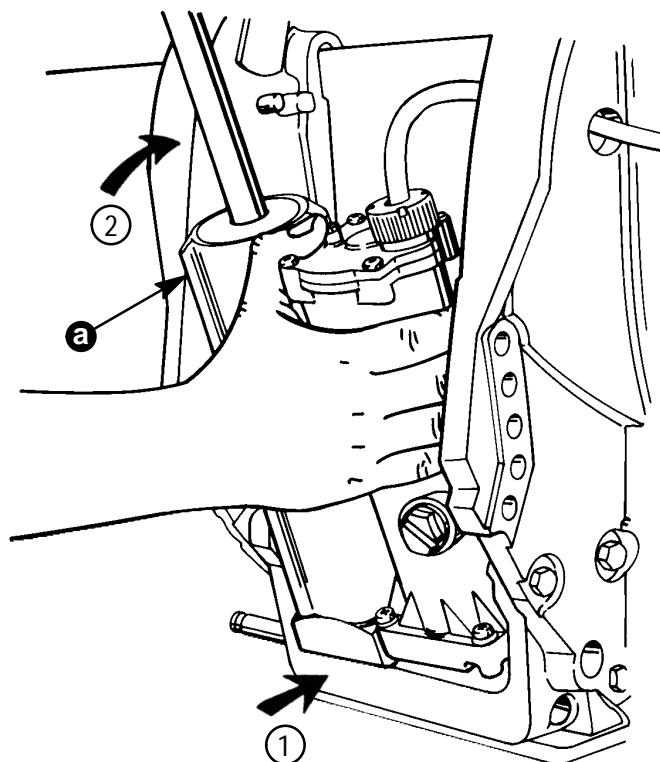
1. Apply Special Lubricant 101 (92-13872A1) to lower pivot pin hole and pivot pin surface.
2. Start lower pivot pin into pivot pin bore and position lower dowel pin (RETAINED) in its respective hole.



51148

- 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.

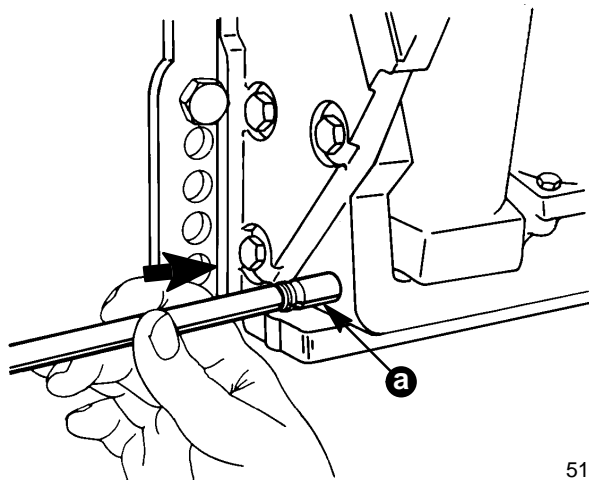


51195

- a - Trim Cylinder Assembly



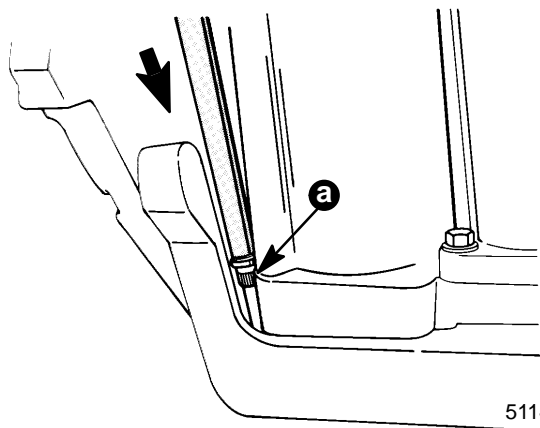
4. Using a suitable punch, drive lower pivot pin into clamp bracket and trim cylinder assembly until pivot pin is flush with outside surface.



51147

a - Lower Pivot Pin

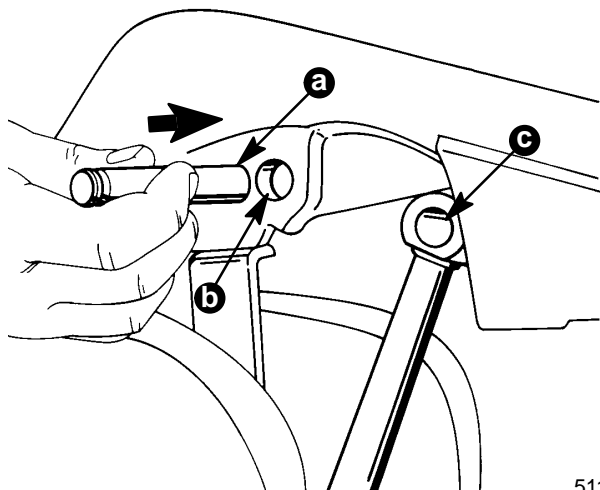
5. Using a suitable punch, drive lower dowel pin into its respective bore until seated.



51148

a - Lower Dowel Pin

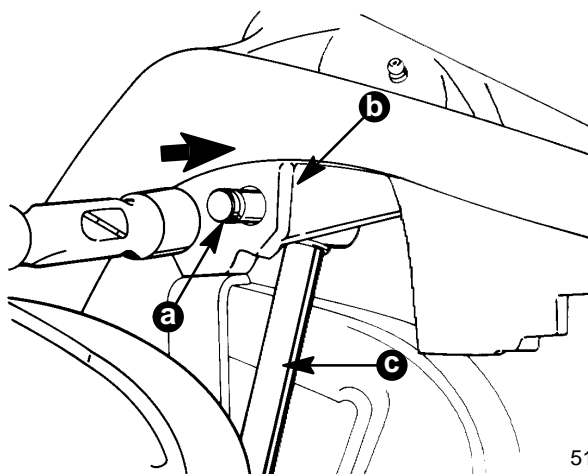
6. Apply 2-4-C Marine Lubricant (92-90018A12) to surface of upper pivot pin, pivot pin bore and trim ram bore.



51148

a - Pivot Pin
b - Pivot Pin Bore
c - Trim Ram Bore

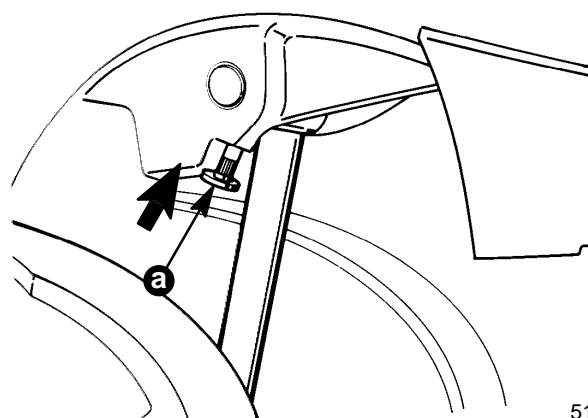
7. Using a suitable mallet, drive upper pivot pin into swivel bracket and through trim ram until pivot pin is flushed with swivel bracket.



51148

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

8. Drive upper dowel pin (RETAINED) into its respective hole until seated.



51147

a - Dowel Pin

9. Remove trim fluid fill screw. Fluid level should be to bottom of threads. Add Quicksilver Power Trim and Steering Fluid (92-90100A12) or Automatic Transmission Fluid (ATF) Type F, FA or Dexron II to trim system, if necessary.

10. Reinstall fill screw.

11. Power trim may now be operated to lower out-board to desired position. Trim system is self bleeding.

12. Reconnect spark plug leads to spark plugs.

13. Reinstall top cowl.

14. Connect battery leads to battery terminals.