# Table of Contents

<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trim Pump Specifications</td>
<td>5A-2</td>
</tr>
<tr>
<td>Valve Pressure Specifications</td>
<td>5A-2</td>
</tr>
<tr>
<td>Specifications</td>
<td>6A-2</td>
</tr>
<tr>
<td>Special Tools</td>
<td>6A-2</td>
</tr>
<tr>
<td>Lubricants/Adhesives/Sealers</td>
<td>6A-2</td>
</tr>
<tr>
<td>Description</td>
<td>6A-3</td>
</tr>
<tr>
<td>Earlier Style Control Valve</td>
<td>6A-3</td>
</tr>
<tr>
<td>Later Style Control Valve</td>
<td>6A-3</td>
</tr>
<tr>
<td>Earlier Model Power Steering System Left Turn</td>
<td>6A-4</td>
</tr>
<tr>
<td>Earlier Model Power Steering System Right Turn</td>
<td>6A-4</td>
</tr>
<tr>
<td>Earlier Model Power Steering System Left Turn</td>
<td>6A-5</td>
</tr>
<tr>
<td>Earlier Model Power Steering System Neutral</td>
<td>6A-6</td>
</tr>
<tr>
<td>Later Model Power Steering System Right Turn</td>
<td>6A-7</td>
</tr>
<tr>
<td>Later Model Power Steering System Left Turn</td>
<td>6A-8</td>
</tr>
<tr>
<td>Later Model Power Steering System Neutral</td>
<td>6A-9</td>
</tr>
<tr>
<td>Steering Helm and Cable</td>
<td>6A-10</td>
</tr>
<tr>
<td>Steering Cable Specifications</td>
<td>6A-11</td>
</tr>
<tr>
<td>Filling and Air Bleeding Power</td>
<td></td>
</tr>
<tr>
<td>Steering System</td>
<td>6A-12</td>
</tr>
<tr>
<td>Balancing Power Steering Control Valve</td>
<td>6A-13</td>
</tr>
<tr>
<td>Steering Cable Selection, Removal and Installation</td>
<td>6A-17</td>
</tr>
<tr>
<td>Selection</td>
<td>6A-17</td>
</tr>
<tr>
<td>Removal</td>
<td>6A-18</td>
</tr>
<tr>
<td>Installation</td>
<td>6A-18</td>
</tr>
<tr>
<td>Installation</td>
<td>6A-20</td>
</tr>
<tr>
<td>Power Steering Pump Lugging Test</td>
<td>6A-21</td>
</tr>
<tr>
<td>Power Steering System Pressure Test</td>
<td>6A-22</td>
</tr>
<tr>
<td>Power Steering Unit</td>
<td>6A-29</td>
</tr>
<tr>
<td>Power Steering Component Repair</td>
<td>6A-29</td>
</tr>
<tr>
<td>Power Steering Unit</td>
<td>6A-29</td>
</tr>
<tr>
<td>Cable Guide Tube (Early Style Only)</td>
<td>6A-33</td>
</tr>
<tr>
<td>Control Valve (Early Style Only)</td>
<td>6A-37</td>
</tr>
<tr>
<td>Booster Cylinder (Early Style Only)</td>
<td>6A-50</td>
</tr>
<tr>
<td>Power Steering Pump</td>
<td>6A-55</td>
</tr>
<tr>
<td>Removal</td>
<td>6A-55</td>
</tr>
<tr>
<td>Flow Control Valve Servicing</td>
<td>6A-55</td>
</tr>
<tr>
<td>Pump Shaft Oil Seal Replacement</td>
<td>6A-56</td>
</tr>
<tr>
<td>Disassembly</td>
<td>6A-58</td>
</tr>
<tr>
<td>Cleaning And Inspection</td>
<td>6A-61</td>
</tr>
<tr>
<td>Reassembly</td>
<td>6A-61</td>
</tr>
<tr>
<td>Multiple Sterndrive Steering Tie Bar Arrangements</td>
<td>6A-67</td>
</tr>
<tr>
<td>Determining Tie Bar Length</td>
<td>6A-67</td>
</tr>
<tr>
<td>Selection</td>
<td>6A-68</td>
</tr>
<tr>
<td>Installation</td>
<td>6A-69</td>
</tr>
</tbody>
</table>
Specifications

Special Tools

<table>
<thead>
<tr>
<th>Kent-Moore Special Tools</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kent-Moore Tools, Inc.</td>
</tr>
<tr>
<td>29784 Little Mack</td>
</tr>
<tr>
<td>Roseville, MI 48066</td>
</tr>
<tr>
<td>Phone: (313) 774-9500</td>
</tr>
<tr>
<td>Power Steering Pump Pulley Remover</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Snap-On Special Tools</th>
</tr>
</thead>
<tbody>
<tr>
<td>Snap-On Tools</td>
</tr>
<tr>
<td>2801 80th Street</td>
</tr>
<tr>
<td>Kenosha, WI 53141</td>
</tr>
<tr>
<td>See Snap-On Catalog</td>
</tr>
<tr>
<td>for your regional distributor phone number.</td>
</tr>
<tr>
<td>Serpentine Belt Pulley Remover</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MerCruiser Special Tools</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mercury Marine</td>
</tr>
<tr>
<td>W6250 Pioneer Rd., P.O. Box 1939</td>
</tr>
<tr>
<td>Fond Du Lac, WI 54936-1939</td>
</tr>
<tr>
<td>Phone: 1-800-487-MERC</td>
</tr>
<tr>
<td>Fax: 1-800-457-8736</td>
</tr>
<tr>
<td><a href="http://www.MERCURYMARINE.COM">www.MERCURYMARINE.COM</a></td>
</tr>
<tr>
<td>Power Steering Test Gauge</td>
</tr>
<tr>
<td>Power Steering Pump Pulley Installer</td>
</tr>
</tbody>
</table>

Lubricants/Adhesives/Sealers

<table>
<thead>
<tr>
<th>Description</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-4-C Marine Lubricant with Teflon</td>
<td>92-825407A12</td>
</tr>
<tr>
<td>Special Lubricant 101</td>
<td>92-13872A1</td>
</tr>
<tr>
<td>Loctite No. 8831</td>
<td>92-826089-1</td>
</tr>
</tbody>
</table>
Description

The Power Steering system utilizes an engine-driven, vane-type hydraulic pump that supplies fluid flow and pressure by means of hoses to a control valve that, in turn, controls fluid flow and pressure to-and-from a booster cylinder. Three modes make up the basic function of the Power Steering system: 1) neutral mode, 2) left turn mode, and 3) right turn mode. The control valve, which is activated by the steering cable, controls the steering system modes.

**NOTE:** The following Power Steering unit installations are viewed from inside boat, looking at transom.

Earlier Style Control Valve

Most illustrations in this section show an earlier style power steering control valve. This valve has various components that can be replaced and or serviced.

![Earlier Style Control Valve Image]

Later Style Control Valve

The later style control valve is not serviceable and must be replaced as a complete assembly.

![Later Style Control Valve Image]
Earlier Model Power Steering System

Right Turn

(VIEWING FROM INSIDE OF BOAT LOOKING AT TRANSOM)

a - Piston  e - Relief Valve
b - Control Valve  f - Pump Housing
c - Pump  g - High Pressure
d - Power Steering Fluid Cooler  h - Low Pressure
Earlier Model Power Steering System

Left Turn

(VIEWING FROM INSIDE OF BOAT LOOKING AT TRANSOM)

- **a** - Piston
- **b** - Control Valve
- **c** - Pump
- **d** - Power Steering Fluid Cooler
- **e** - Relief Valve
- **f** - Pump Housing
- **g** - High Pressure
- **h** - Low Pressure
Earlier Model Power Steering System

Neutral

(Viewing from inside of boat looking at transom)

a - Piston
b - Control Valve
c - Pump
d - Power Steering Fluid Cooler
e - Relief Valve
f - Pump Housing
g - High Pressure
h - Low Pressure
Later Model Power Steering System

Right Turn

(VIEWING FROM INSIDE OF BOAT LOOKING AT TRANSOM)

- a - Piston
- b - Control Valve
- c - Pump
- d - Power Steering Fluid Cooler
- e - Relief Valve
- f - Pump Housing
- g - High Pressure
- h - Low Pressure
Later Model Power Steering System

Left Turn

(Viewing from inside of boat looking at transom)

- a - Piston
- b - Control Valve
- c - Pump
- d - Power Steering Fluid Cooler
- e - Relief Valve
- f - Pump Housing
- g - High Pressure
- h - Low Pressure
Later Model Power Steering System

Neutral

(VIEWING FROM INSIDE OF BOAT LOOKING AT TRANSOM)

a - Piston
b - Control Valve
c - Pump
d - Power Steering Fluid Cooler
e - Relief Valve
f - Pump Housing
g - High Pressure
h - Low Pressure
Steering Helm and Cable

Transom assembly is shipped with the steering cable guide tube preset for cables with end dimensions that comply with ABYC standards as outlined in the NMMA certification handbook. The steering cable coupler nut must also have a means of locking it to the guide tube, as specified in ABYC requirements.

**WARNING**

Failure to use a steering cable locking device could cause loss of steering, which could cause damage to the boat and/or injury.

All current production Quicksilver Ride Guide steering cables have a self-locking coupler nut and do not require an external locking device. (Other cable manufacturers also make cables with self-locking coupler nut.)

![Diagram of steering cable components](image)

22060

a - Quicksilver Ride Guide Steering Cable Self-Locking Coupler Nut (Identified By Groove)

**IMPORTANT:** If using a steering cable that does not have a self-locking coupler nut, an external locking device must be used.

![Diagram of locking plate components](image)

50629

Locking Plate

a - Locking Plate P/N 92766
b - Screw P/N 10-41209 - (see “Torque Specifications”)
c - Washer P/N 12-35462

d - Locking Sleeve (If Required - Must Be Ordered Separately)
e - Cable Coupler Nut
f - Cable Guide Tube
**CAUTION**

POWER STEERING EQUIPPED UNITS ONLY - If cables with improper dimensions are installed, severe damage to transom assembly and/or steering system may result. DO NOT attempt to adjust cable guide tube on power steering unit, as guide tube and locknut have been torqued (with Loctite) at the factory, and an attempt to loosen nut or sleeve may result in damage to tube.

1. Steering cable must be the correct length, particularly when installed in larger boats.
2. Avoid sharp bends, kinks or loops in cable.
3. **Power Steering Models**: Fully extended steering cable end dimension must be correct.

**Steering Cable Specifications**

![Steering Cable Diagram]

- a - Coupler Nut - 7/8 - 14 UNF - 2B Thread
- b - 11-3/4 in. (298 mm) Min.
- c - Interface Point
- d - 1/2 in. (12.7 mm) Max.
- e - .420 in. (10.668 mm) Min. Flat
- f - .102 in. (0.508 mm) Min. Radius
- g - 5/8 in. (15.875 mm) Max. Diameter End Fitting
- h - 3/8 in. (9.525 mm)
- i - .385 in. (9.779 mm) Diameter Through Hole, Chamfered Each Side
- j - 1-3/8 in. (34.925 mm) Max.
- k - 5/8 in. (15.875 mm) Diameter Tube
- l - Mid-Travel Position - 16-7/8 in. (428.6 mm). Total Travel To Be 8 in. (203.2 mm) Min., to 9 in. (228.6 mm) Max. Travel Each Side of Mid-Travel Position - 4 in. (101.6 mm) Min., 4-1/2 in. (114.3 mm) Max.

![Steering Cable Diagram]

- a - Steering Cable Mounting Flange
- b - Center of Hole in Steering Cable End
- c - 21-3/8 in. (543 mm) Maximum
Filling and Air Bleeding Power Steering System

IMPORTANT: Power Steering system MUST BE filled exactly as explained, following, to be sure that all air is bled from the system. All air must be removed, or fluid in pump may foam during operation and be discharged from pump reservoir. Foamy fluid also may cause Power Steering system to become spongy, which may result in poor boat control.

1. Position drive unit straight back. Remove fill cap from power steering pump and check fluid level with dipstick.
2. Add Quicksilver Power Trim and Steering Fluid or Dexron II, as required, to bring fluid up to correct level.

![Fluid Level Diagram]

3. (With engine not running), turn the steering wheel at a moderate rate, back-and-forth, to end of travel in each direction, pausing each time at end of travel for a few seconds to allow any air to bubble from pump reservoir. Do this a minimum of 5 complete cycles. Recheck fluid level and add if necessary.

4. Reinstall fill cap.

**CAUTION**

DO NOT operate engine without water being supplied to seawater pickup holes in gear housing. Overheating damage to engine may result.

5. Install flush test device and connect a hose between it and water tap.

![Flush Test Device Diagram]

**NOTE:** If using a test tank or if boat is in the water, ensure sterndrive unit gear housing water intake holes are below water level.
6. Partially open water tap (approximately 1/2 max.) and allow water to enter cooling system. DO NOT use full water tap pressure.

7. Start engine and run at idle. During this time, turn steering wheel back-and-forth to end of travel in each direction several times.

8. Position drive unit so that it is straight back and then stop engine. Remove fill cap from pump. Allow any foam in pump reservoir to disperse, then check fluid level and add fluid, if needed. DO NOT OVERFILL. Reinstall fill cap and tighten securely.

9. If fluid was foamy in previous step, repeat steps 7 and 8 until fluid does not foam and level remains constant.

**Balancing Power Steering Control Valve**

**IMPORTANT:** Control valve is balanced by the manufacturer and should not require further adjustment. However, if drive unit tends to creep in one direction or the other (with engine running, drive unit in neutral, and hands off the steering wheel), the control valve MUST BE balanced as explained following.

1. Ensure engine is off.
2. Disconnect steering cable from power steering control valve clevis.

```
a - Steering Cable
b - Clevis
c - Pin
d - Cotter Pin
```
3. Disconnect power steering control valve clevis from drive unit steering lever.

- a - Clevis
- b - Steering Lever
- c - Pin
- d - Cotter Pin (Hidden)

4. Remove dust cover.

- a - Dust Cover

**CAUTION**

DO NOT operate engine without water being supplied to seawater pickup holes in gear housing. Water pump damage and overheating damage to engine may result.

**WARNING**

Remain clear of power steering clevis when starting engine. If control valve is not balanced, unexpected movement of clevis could cause injury.
5. Connect a flush test device to drive unit. Partially open water tap (approximately 1/2 max.) and allow water to enter cooling system. DO NOT use full water tap pressure.

6. Start engine and adjust control valve by turning adjustment nut as follows:

   a. **If power steering piston rod end clevis moves toward right (starboard)**, turn nut clockwise until clevis just begins to move toward left (port), then turn nut counterclockwise until clevis just begins to move toward right (starboard). Turn nut clockwise to exactly 1/2 the rotation necessary to change direction of rod end clevis movement.

   b. **If power steering piston rod end clevis moves toward left (port)**, turn nut counterclockwise until clevis just begins to move toward right (starboard), then turn nut clockwise until clevis just begins to move toward left (port). Turn nut counterclockwise to exactly 1/2 the rotation necessary to change direction of rod end clevis movement.

7. Turn off engine.

8. Apply a liberal amount of Special Lubricant 101 to end of steering cable and install cable end in clevis. Secure with pin and cotter pin.

9. Torque self-locking coupler nut to 35 lb-ft (48 Nm).
10. Install and tighten locking plate on coupler nut. Secure with self-locking bolt and washer (if required).

11. Reconnect power steering control valve piston rod end clevis to drive unit steering lever.
12. Place 2-4-C Marine Lubricant with Teflon in adjustment nut cavity and reinstall dust cover.

13. Restart engine and observe drive unit. If drive unit still creeps in one direction or the other, an external tension may exist on steering cable. Ensure that nothing is attached to steering cable (pushing or pulling).

**Steering Cable Selection, Removal and Installation**

**Selection**

Steering system has the steering cable guide tube set for cables with end dimensions which comply with the BIA Certification Handbook. Refer to “Steering Cable Specifications” listed previously in this section.

<table>
<thead>
<tr>
<th>CAUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>If cables with improper dimensions are installed, severe damage to transom assembly and/or steering system may result.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CAUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steering cables MUST BE THE CORRECT LENGTH, particularly when installed in large boats. Sharp bends or too-short cables result in kinks; too-long cables require unnecessary bends and/or loops. Both place an extra stress on the cable. The proper cable is as short as possible, with the fewest bends and with radii as large as possible.</td>
</tr>
</tbody>
</table>
Removal

1. Remove steering cable.

![Diagram of steering cable components]

- a - Steering Cable
- b - Self-Locking Cable Coupler Nut
- c - Cotter Pin
- d - Clevis Pin

Installation

**WARNING**

Steering cable outer casing MUST BE free to move back-and-forth for steering to function properly. DO NOT fasten any wires, cables or other items to steering cable, as this may prevent it from moving.

1. Apply a liberal amount of Special Lubricant 101 to end of steering cable and install cable end in clevis. Secure with pin and cotter pin.

2. **Later model control valve**: Using a suitable wrench, hold the flat surfaces on the cable guide tube in the vertical position.

3. **Both models**: Torque coupler nut to 35 lb-ft (48 Nm).

4. **Earlier model control valve**: Install and tighten locking plate on coupler nut. Secure with self locking bolt and washer.
NOTE: Later model control valves do not have a locking plate on the coupler nut

Earlier Model Control Valve
- a - Clevis Pin
- b - Cotter Pin
- c - Locking Plate (If No Self Locking Coupler Nut)
- d - Coupler Nut
- e - Steering Cable
- f - Bolt and Washer

Later Model Control Valve
- a - Clevis Pin
- b - Cotter Pin
- c - Coupler Nut
- d - Steering Cable
- e - Flat (Hold Vertical)
- f - Suitable Wrench
WARNING
Steering cable outer casing MUST BE free to move back-and-forth for steering to function properly. DO NOT fasten any wires, cables or other items to steering cable, as this may prevent it from moving.

1. Apply a liberal amount of Special Lubricant 101 to end of steering cable and install cable end in clevis. Secure with pin and cotter pin.

2. Later model control valve: Using a suitable wrench, hold the flat surfaces on the cable guide tube in the vertical position.

3. Both models: Torque coupler nut to 35 lb-ft (48 Nm).


**NOTE:** Later model control valves do not have a locking plate on the coupler nut.

5. Install test gauge assembly between control valve and pump pressure hose. Tighten all fittings securely, but DO NOT OVERTIGHTEN.

---

**Diagram:**

- a - Pump Pressure Hose
- b - Gauge Fitting
- c - Gauge Valve Hose
- d - Control Valve
Power Steering Pump Lugging Test

⚠️ CAUTION
DO NOT operate engine without cooling water being supplied to water pickup holes in gear housing, or over-heating damage to engine may result.

⚠️ WARNING
Steering cable outer casing MUST BE free to move back-and-forth for Power Steering to function properly. Make sure that no wires, cables, or other items are fastened to steering cable, as this may prevent it from moving.

⚠️ CAUTION
If Power Steering pump lugs when steering wheel is turned to end of travel in either direction (left or right), damage to steering system and/or sterndrive may result.

IMPORTANT: Make sure that Power Steering pump is filled to proper level before proceeding.

1. Completely open test gauge.
2. Start engine and run at idle speed.
3. Turn steering wheel to hard left and observe reading on gauge. If pressure reading is higher than 300 psi (2069 kPa), stop engine and check the following:
   a. Check for an obstruction between gimbal ring and gimbal housing and all moving steering system components.
   b. Check that steering lever is not contacting cutout in transom. If contact is being made, modify cutout.
   c. Check steering cable guide tube dimensions and adjust as necessary.

a - Steering Cable Guide Tube
b - 5/8-7/8 in. (16-22 mm) [Ideal 3/4 in. (19 mm)]
4. With engine running, turn steering wheel to **hard right** and observe reading on gauge. If reading is higher than 300 psi (2069 kPa), stop engine and check the following.

a. Check for an obstruction between gimbal ring, and gimbal housing and all moving steering system components.

b. Check that steering lever is not contacting cutout in transom. If contact is being made, modify cutout.

c. Check steering cable end dimensions with cable fully extended. If excessive, replace cable and/or steering head as required.

![Diagram a - Steering Cable Mounting Flange, b - Center of Hole in Steering Cable End, c - 21-3/8 in. (543 mm)]

d. Check steering cable guide tube dimension and adjust as necessary.

![Diagram a - Steering Cable Guide Tube, b - 5/8-7/8 in. (16-22 mm) [Ideal 3/4 in. (19 mm)]]
Power Steering System Pressure Test

IMPORTANT INFORMATION

The following instructions are arranged so that a defective part can be detected by the process of elimination. It is suggested that the order of the instructions be followed so that the Power Steering System can be tested effectively.

1. Remove steering cable from Power Steering unit and disconnect Power Steering unit from steering lever.

   - a - Clevis
   - b - Pins (2)
   - c - Cotter Pins (2) - Hidden
   - d - Steering Lever
   - e - Steering Cable
   - f - Self-Locking Coupler Nut

2. Assemble and install test gauge.
3. Open valve on gauge completely.

![Diagram of power steering components]

- a - Pump Pressure Hose
- b - Gauge Fitting
- c - Gauge Valve Hose
- d - Control Valve

4. Connect a flush test device to drive unit. Partially open water tap (approximately 1/2 max.) and allow cooling system to fill completely. Cooling system is full when water is discharged through the propeller. DO NOT use full water tap pressure.

5. Start engine and run at 1000-1500 rpm until engine reaches normal operating temperature.

6. With engine at idle speed, test gauge reading should be between 70 and 125 psi (483 and 862 kPa). If not, proceed as follows:

   **If lower than 70 psi (483 kPa),** proceed to “Pump Pressure Test,” see “Index.”

   **If higher than 125 psi (862 kPa),** check for hose restrictions in the system.

   **CAUTION**

   DO NOT lug pump at maximum pressure for more than 5 seconds, in next step, or damage to Power Steering pump may occur.

7. Push control valve adaptor block momentarily to the left and then to the right. Gauge reading should show an instant increase in pressure when block is pushed in both directions.
8. Push control valve adaptor block to the right, until booster cylinder piston rod is fully retracted. With piston rod in this position, momentarily push adaptor block to the right until maximum pressure reading is obtained.

- If pressure is above 1000 psi (6897 kPa), system pressure is good.
- If pressure is below 1000 psi (6897 kPa), conduct “Pump Pressure Test,” see “Index.”

**Pump Pressure Test**

**CAUTION**

In performing the following test, DO NOT lug pump at maximum pressure for more than 5 seconds or damage to Power Steering pump may occur.

1. Install test gauge.

DO NOT operate engine without cooling water being supplied to water pickup holes in gear housing, or overheating damage to engine may result.
2. Connect a flush test device to drive unit. Partially open water tap (approximately 1/2 max.) and allow water to enter cooling system. DO NOT use full water tap pressure.

3. Start engine and run at 1000-1500 rpm until engine reaches normal operating temperature.

4. Close test gauge valve just long enough to obtain maximum pressure reading.

5. Close and open valve 3 times. Record highest pressure reading attained each time.
   a. **If pressure readings are between 1150 and 1250 psi (7932-8621 kPa) and are within a range of 50 psi (345 kPa),** the pump is within specifications. If the pump tests OK, but system pressure was low (as tested under “Power Steering System Pressure Test,” see “Index”), proceed to “Booster Cylinder Test,” see “Index.”
   b. **If pressure readings are between 1150-1250 psi (7932-8621 kPa), but are not within a 50 psi (345 kPa) range,** the Power Steering pump flow control valve is sticking or pump hydraulic system is dirty.
   c. **If pressure readings are constant, but below 1000 psi (6897 kPa),** replace Power Steering pump.
Booster Cylinder Test

**CAUTION**

DO **NOT** operate engine without cooling water being supplied to water pickup holes in gear housing, or over-heating damage to engine may result.

1. Connect a flush test device to drive unit. Partially open water tap (approximately 1/2 max.) and allow water to enter cooling system. DO **NOT** use full water tap pressure.

2. Start engine.

3. Push control valve adaptor block to the right until booster cylinder rod is fully retracted.

4. Stop engine.

5. Remove top metal hydraulic line from control valve.

6. Plug port in control valve and cap end of metal line with cap and plug supplied in test gauge kit.

**a** - Adaptor Block - Push To Right

**b** - Top Metal Line
7. Start engine.

8. Push control valve adaptor block **momentarily** to the right and observe for conditions “a” or “b,” following:

   a. **If piston rod extends**, booster cylinder is leaking and must be replaced. After replacement, repeat “Power Steering System Pressure Test.” If pressure is still low, replace control valve.

   b. **If piston rod does not extend, but pressure was low when performing “Power Steering System Pressure Test,”** replace control valve.


10. Connect power steering piston rod clevis to drive unit steering lever. Secure with pin and cotter pin.

11. Apply a liberal amount of Special Lubricant 101 to end of steering cable and install cable end in clevis. Secure with pin and cotter pin.

12. Torque self-locking coupler nut to 35 lb-ft (48 Nm).

---

**Diagram:**

- **a** - Clevis
- **b** - Pins (2)
- **c** - Cotter Pins (2)
- **d** - Steering Lever
- **e** - Steering Cable
- **f** - Self-Locking Coupler Nut
Power Steering Component Repair

NOTE: DO NOT attempt to repair or adjust the later model control valve.

Later Model Control Valve
a - Later Model Control Valve (Do Not Repair or Adjust)

Power Steering Unit

REMOVAL

1. Remove steering cable and Power Steering pump fluid hoses.

   a - Cotter Pin (Hidden)
   b - Clevis Pin
   c - Power Steering Pump Fluid Hoses - Remove and Plug
   d - Self-Locking Cable Coupler Nut
   e - Steering Cable
2. Remove Power Steering unit.

![Diagram of Power Steering Unit]

- **a** - Power Steering Unit
- **b** - Tab Washer - Bend Tab Away from Pivot Bolt
- **c** - Pivot Bolt

### INSTALLATION

1. Lubricate power steering unit bushings with Special Lubricant 101.

![Diagram of Bushings]

- **a** - Bushings

2. Lubricate pivot bolts with Special Lubricant 101.

3. **HAND THREAD** pivot bolts all-the-way into inner transom plate and swivel ring. **DO NOT** use a wrench.

4. Straddle tab washer tangs on inner transom plate ridge.

![Diagram of Pivot Bolts and Swivel Ring]

- **a** - Pivot Bolts - **HAND THREAD** into Transom Plate and Power Steering Unit
- **b** - Tab Washer - Straddle Inner Transom Plate Ridge
- **c** - Swivel Ring

5. Torque pivot bolts to 25 lb-ft (35 Nm). Bend washer tabs against corresponding flats on bolt tabs.
6. Move power steering unit back-and-forth to ensure that it pivots freely.

![Diagram of power steering unit](image)

a - Move Power Steering Unit Back-and-Forth

7. Connect power steering piston rod clevis to drive unit steering lever. Secure with pin and cotter pin.

![Diagram of clevis and steering lever](image)

a - Clevis  
b - Pin  
c - Cotter Pin  
d - Steering Lever

8. Apply a liberal amount of Special Lubricant 101 to end of steering cable and install cable end in clevis. Secure with pin and cotter pin.
9. Torque self-locking coupler nut to 35 lb-ft (48 Nm).

10. Connect power steering pump hoses to their respective fittings on control valve. Torque large hose fitting to 20-25 lb-ft (27-34 Nm). Torque the small hose fitting to 96-108 lb-in. (11-12 Nm).

a - Hose (Large Fitting)
b - Hose (Small Fitting)
Cable Guide Tube (Early Style Only)

REMOVAL

1. Remove power steering pump hoses from control valve. Cap hoses and plug holes in control valve.

   a - Control Valve  
   b - Pump Hoses

2. Remove steering cable from power steering control valve.

   a - Clevis Pin  
   b - Cotter Pin (Hidden)  
   c - Self-Locking Coupler Nut  
   d - Steering Cable
3. Remove adaptor block as follows:
   a. Loosen adaptor block nut.
   b. Tap adaptor nut with hammer to loosen block.
   c. Remove nut; then remove block.

4. Heat area shown (to break down Loctite), and remove steering tube bushing, guide, and nut. Remove cable guide tube.
WARNING

Loctite MUST BE applied to cable guide tube threads to prevent tube from loosening during operation.

1. Clean guide tube threads with a wire brush to remove old Loctite. Apply Quicksilver Loctite 8831 or 271 to guide tube threads in the area where adaptor block and locknut will be installed.

![Diagram of a - Loctite 8831 or 271 to Threads of Cable Guide Tube]

2. Reinstall steering tube and related hardware and position so that threaded end of tube protrudes exactly 3/4 in. (19 mm) through adaptor block. Torque steering tube nut to 40 lb-ft (54 Nm).

![Diagram of a - Steering Guide Tube, b - Steering Tube Bushing, c - Steering Tube Guide, d - Steering Tube Nut, e - 3/4 in. (19 mm)]

3. Apply a liberal amount of Special Lubricant 101 to end of steering cable and install cable end in clevis. Secure with pin and cotter pin.
4. Torque self-locking coupler nut to 35 lb-ft (48 Nm).

5. Connect power steering pump hoses to their respective fittings on control valve.

a - Clevis Pin
b - Cotter Pin
c - Self-Locking Coupler Nut
d - Steering Cable

a - Hose (Large Fitting) - Torque to 20-25 lb-ft (27-34 Nm)
b - Hose (Small Fitting) - Torque to 96-108 lb-in. (11-12 Nm)
Control Valve (Early Style Only)

**NOTE:** If accessibility to control valve area is limited, remove Power Steering unit from transom assembly, to gain easier access to control valve.

**REMOVAL**

1. Remove steering cable and Power Steering pump fluid hoses.

![Diagram of Control Valve](image)

- a - Cotter Pins (Hidden)
- b - Clevis Pins
- c - Power Steering Pump Fluid Hoses - Remove and Plug
- d - Cable Self-Locking Coupler Nut
- e - Steering Cable

2. Remove tubes from control valve.

![Diagram of Control Valve](image)

- a - Metal Tubes
3. Heat area shown (to breakdown Loctite), and remove steering tube bushing, guide and nut.

4. Remove control valve from adaptor block assembly.
1. Remove adaptor block as follows:
   Loosen adaptor block nut. Tap adaptor nut with hammer to loosen block. Remove nut, washer and adaptor block.

![Diagram of adaptor block removal](image1)

- a - Adaptor Block Nut
- b - Washer
- c - Adaptor Block
- d - Control Valve

2. Remove dust cover and adjusting nut.

![Diagram of dust cover removal](image2)

- a - Dust Cover
- b - Adjusting Nut

3. Separate valve housing from adaptor.

![Diagram of valve housing separation](image3)

- a - Valve Housing
- b - Adaptor
- c - Screws (2)
- d - Lockwashers (2)
4. Remove components shown.

5. Carefully (so as not to nick the top surface) turn adjuster plug out of sleeve.
6. Remove components shown.

   a - Valve Shaft  
   b - Ball Seal Spring  
   c - Upper Ball Seat

7. Remove sleeve bearing and lower ball seat.

   a - Ball Stud - Pull Up into Rubber Boot  
   b - Sleeve Bearing  
   c - Lower Ball Seat

8. Clean and inspect metal parts. If any metal part shows signs of wear, replace control valve assembly.
1. Install lower ball seat into sleeve bearing.

2. Install sleeve bearing.

3. Position ball stud in sleeve bearing.

4. Install upper ball seat.
5. Install ball seat spring.

6. Insert valve shaft into adjuster plug. Screw adjuster plug into sleeve until tight; then back-off plug until slot lines up with notches in sleeve.

7. Install key.
8. Install components shown.

![Diagram of components](image)

- **a** - Valve Shaft Washer
- **b** - Gasket
- **c** - Annulus Spacer
- **d** - Large ID Washer

9. Install O-ring in control valve housing.

![Diagram of O-ring](image)

- **a** - O-ring
- **b** - Control Valve Housing

10. Install “V” block seal. Insert valve spool into adjusting nut end of control valve.

![Diagram of seal](image)

- **a** - “V” Block Seal - Lip of Seal Facing Lands on Spool
- **b** - Spool
- **c** - Control Valve
11. Assemble reaction spool.

![Diagram of reaction spool assembly]

- a - Reaction Spool
- b - O-ring
- c - Thrust Washer
- d - Valve Spring
- e - Spring Retainer
- f - Annulus Seal - Lip Facing O-ring End of Spool

12. Install valve adjustment spring.

![Diagram of valve adjustment spring]

- a - Valve Adjustment Spring
- b - Control Valve

13. Install reaction spool assembly into larger control valve cavity.

![Diagram of reaction spool assembly in control valve]

- a - Reaction Spool Assembly
- b - Control Valve - Large Cavity

15. Match annulus spacer to control valve housing. Secure adaptor housing to control valve housing.

17. Install dust cover.

18. Lubricate control valve with Quicksilver 2-4-C Marine Lubricant with Teflon until lubricant
appears around rubber boot.

19. Install adaptor block.

- Dust Cover
- Grease Fitting
- Rubber Boot
- Adaptor Block
- Internal Lockwasher
- Nut - Torque to 30-40 lb-ft (41-54 Nm)
INSTALLATION


![Diagram of control valve and adaptor block assembly]

- a - Control Valve
- b - Adaptor Block Assembly
- c - Washer
- d - Screw-

2. Install metal tubes onto control valve.

![Diagram of metal tubes and control valve]

- a - Metal Tubes
- b - Control Valve

**WARNING**

Loctite MUST BE applied to cable guide tube threads to prevent tube from loosening during operation.

3. Clean guide tube threads with a wire brush to remove old Loctite. Apply a liberal amount of Loctite 8831 or 271 to guide tube threads in the area where adaptor block and locknut will be installed.

![Diagram of Loctite on cable guide tube]

- a - Loctite 8831 or 271 to Threads of Cable Guide Tube
4. Reinstall steering tube and related hardware and position so that threaded end of tube protrudes exactly 3/4 in. (19 mm) through adaptor block. Torque steering tube nut to 40 lb-ft (54 Nm).

5. Apply a liberal amount of Special Lubricant 101 to end of steering cable and install cable end in clevis. Secure with pin and cotter pin.

6. Torque self-locking coupler nut to 35 lb-ft (48 Nm).

7. Connect power steering pump hoses to the respective fittings on control valve.

8. Torque large hose fitting to 23 lb-ft (30.5 Nm).
9. Torque the small hose fitting to 102 lb-in. (11.5 Nm).

**Booster Cylinder (Early Style Only)**

**REMOVAL**

*NOTE:* If accessibility to booster cylinder area is limited, remove Power Steering unit from transom assembly to gain easier access to booster cylinder.

1. Remove steering cable and Power Steering pump fluid hoses.

2. Remove metal lines from control valve.
3. Remove control valve from adaptor block assembly.

![Diagram of control valve and adaptor block assembly]

- a - Control Valve
- b - Adaptor Block Assembly
- c - Screw
- d - Washer

4. Remove clevis assembly.

![Diagram of clevis assembly and booster cylinder]

- a - Clevis Assembly
- b - Nut
- c - Washer
- d - Booster Cylinder

5. Separate booster cylinder from adaptor block assembly.

![Diagram of cotter pin, retaining pins, booster cylinder, and adaptor block assembly]

- a - Cotter Pin
- b - Retaining Pins (2)
- c - Booster Cylinder
- d - Adaptor Block Assembly
6. Remove lines from booster cylinder.

7. Remove components shown.

INSTALLATION

1. Install components shown.

2. Install metal lines. Tighten Securely, BUT DO NOT OVERTIGHTEN.
3. Install adaptor block assembly.

![Adaptor Block Assembly Diagram]

- a - Adaptor Block Assembly
- b - Booster Cylinder
- c - Retaining Pins
- d - Cotter Pin - Spread Both Ends

4. Install clevis assembly.

![Clevis Assembly Diagram]

- a - Clevis Assembly
- b - Washer
- c - Nut - Tighten Securely

5. Secure control valve to adaptor block assembly. Torque to 30 lb-ft (40.5 Nm)

![Control Valve Diagram]

- a - Control Valve
- b - Adaptor Block Assembly
- c - Washer
- d - Screw

6. Install metal lines onto control valve. Tighten Securely BUT DO NOT OVER-TIGHTEN

![Metal Lines Diagram]

- a - Metal Lines
- b - Control Valve
7. Apply a liberal amount of Special Lubricant 101 to end of steering cable and install cable end in clevis. Secure with pin and cotter pin.

8. Torque self-locking coupler nut to 35 lb-ft (48 Nm).

9. Connect power steering pump hoses to their respective fittings on control valve.

10. Torque large hose fitting to 23 lb-ft (30.5 Nm).

11. Torque the small hose fitting to 102 lb-in. (11.5 Nm).
Power Steering Pump

Removal

1. Disconnect hoses at pump. Cap hose and fittings.
2. Loosen pump bolts at engine to remove pump belt.
3. Remove bracket from pump.

Flow Control Valve Servicing

1. Drain fluid from pump.
2. Remove components shown.

3. Inspect control valve assembly and fitting assembly.
4. Install components shown.
5. Torque to 35 lb-ft (47 Nm).

---

a - Fitting Assembly  
b - Control Valve Assembly  
c - Flow Control Spring  
d - O-rings

---

a - Flow Control Spring  
b - Control Valve Assembly  
c - New O-rings  
d - Fitting Assembly
Pump Shaft Oil Seal Replacement

1. Remove pump pulley.

   ![Diagram showing pump shaft and parts]
   
   a - Kent Moore Pulley Removal Tool (J-25034)

2. Push a .005 in. (0.13 mm) shim stock past oil seal until it bottoms in pump body (approximately 2-1/2 in. [64 mm] long).

3. Cut seal and tear metal body approximately 1 in. (25 mm).

   ![Diagram showing oil seal and cutting tools]
   
   a - Oil Seal
   b - Chisel - To Cut Seal
   c - Shim Stock

4. Remove oil seal. Remove shim stock.

   ![Diagram showing torn seal and awl]
   
   a - Torn Seal
   b - Awl
5. Install new oil seal.

**NOTE:** Properly Support so Reservoir Back Does Not Distort

![Diagram of new oil seal installation](image)

- a - New Oil Seal - Metal Side Up
- b - 1 in. Socket
- c - Pump Reservoir

6. Install pulley, as follows, using Pulley Pusher Assembly 91-93656A1, and a long straight edge:
   
   a. Place pulley on pump shaft.
   b. Thread stud ALL-THE-WAY into pump shaft. Place bearing over stud. DO NOT use spacer from kit.
   c. Thread nut onto shaft. Thread shaft (and nut) ALL-THE-WAY onto stud.
   d. Using a long straight edge (to check drive belt alignment), turn large pusher nut until drive belt is parallel to straight edge.
e. Check pulley installation for correct alignment.

Disassembly

1. Drain fluid from pump.
2. Remove pump pulley.

a - Power Steering Pump Pulley
b - Stud
c - DO NOT Use Spacer
d - Bearing
e - Nut
f - Shaft
g - Crankshaft Pulley (Shown) or Water Circulating Pump Pulley
h - Long Straight Edge
i - Drive Belt Parallel

a - Kent Moore Pulley Removal Tool (J-25034)
3. Remove reservoir.

4. Remove retaining ring and end plate.

- a - Retaining Ring - Position so that Ring End is 1 in. (25 mm) from End of Hole in Housing
- b - Hole
- c - Screwdriver
5. Remove pump components shown.

![Diagram showing pump components]

- a - Spring
- b - Pressure Plate
- c - Pump Ring
- d - Pump Vanes
- e - Pump Shaft and Rotor Assembly
- f - Dowel Pins

6. Remove and discard O-rings from housing.

![Diagram showing O-rings]

- a - O-rings - Discard

7. Remove rotor and thrust plate.

![Diagram showing rotor and thrust plate]

- a - Retaining Ring
- b - Rotor
- c - Thrust Plate
- d - Pump Shaft

8. Remove magnet.

![Diagram showing magnet]

- a - Magnet
Cleaning And Inspection

1. Clean and inspect all metal parts.

Reassembly

**NOTE:** All references to Power Steering fluid refer to Quicksilver Power Trim and Steering Fluid, or Dexron II if Quicksilver product is not available.

**NOTE:** Obtain and install a new seal kit 5688044 from a local GM automotive dealer when reassembling pump.

1. Install new pump shaft oil seal.

**NOTE:** Properly support so the back of the reservoir does not distort.

![Diagram of new pump shaft oil seal installation](image)

- **a** - New Oil Seal - Metal Side Up
- **b** - 1 in. Socket
- **c** - Pump Reservoir

2. Install pressure plate O-ring and dowel pins.

![Diagram of pressure plate O-ring and dowel pins installation](image)

- **a** - Pressure Plate O-ring - Lubricate with Power Steering Fluid; Place in Third Groove in Housing
- **b** - Dowel Pins
3. Assemble pump shaft and rotor assembly.

   - Pump Shaft
   - Thrust Plate
   - Rotor - Countersunk Side Toward Thrust Plate
   - Retaining Ring

4. Install pump shaft and rotor assembly.

   - Pump Shaft and Rotor Assembly
   - Pump Housing

5. Install pump ring.

   - Pump Ring - Place 2 Smaller Holes Over Dowel Pins
6. Install vanes in rotor slots - Rounded edges toward pump ring. Vanes must slide freely.

   ![Vanes Diagram]

   a - Vanes - Rounded Edges Toward Pump Ring

7. Install pressure plate.

   ![Pressure Plate Diagram]

   a - Pressure Plate
   b - Spring Groove - Facing Up

8. Install end plate O-ring.

   ![End Plate O-ring Diagram]

   a - End Plate O-ring - Lubricate with Power Steering Fluid; Place in Second Groove in Housing
9. Install pressure plate spring, end plate and retaining ring.

a - Pressure Plate Spring
b - End Plate

10. Install reservoir O-rings.

a - Retaining Ring
b - Arbor Press -

a - Reservoir O-ring - Lubricate with Power Steering Fluid; Install in Groove in Pump Housing
11. Place magnet on housing.

a - Magnet

12. Secure reservoir to pump housing. Torque studs to 35 lb-ft (47 Nm).

a - Reservoir
b - Pump Housing
c - Studs

13. Install components shown. Torque fitting assembly to 35 lb-ft (47 Nm).

a - Flow Control Spring
b - Control Valve Assembly
c - O-ring - for Fitting Assembly
d - Fitting Assembly
14. Install pulley, as follows, using Pulley Pusher Assembly 91-93656A1, and a long straight edge:

a. Place pulley on pump shaft.

b. Thread stud ALL-THE-WAY into pump shaft. Place bearing over stud. DO NOT use spacer from kit.

c. Thread nut onto shaft. Thread shaft (and nut) ALL-THE-WAY onto stud.

d. Using a long straight edge (to check drive belt alignment), turn large pusher nut until drive belt is parallel to straight edge.

e. Check pulley installation for correct alignment.

15. Install power steering pump on engine. (Refer to appropriate Engine Service Manual.)
Multiple Sterndrive Steering Tie Bar Arrangements

With multiple sterndrives it is important to consider which of several possible steering systems should be selected.

⚠️ CAUTION

Failure to observe the recommended Tie Bar Arrangements as presented in this section could result in serious damage to the steering and/or trim system components. This damage could adversely affect control of the boat.

INTERNAL TIE BAR ONLY

At the lower end of the performance spectrum (boats not capable of speeds in excess of 60 MPH) the basic internal tie bar is recommended. It connects the slave sterndrive to the sterndrive that is directly connected to the factory power steering output. This internal tie bar is available in a variety of lengths from the sterndrive manufacturer.

INTERNAL AND EXTERNAL TIE BAR

As a boat moves into a moderate performance range (60-70 MPH) or for a reduction in steering backlash, an external tie bar should be added. External tie bars are usually designed to attach at the aft power trim cylinder bosses which is an excellent location because of its proximity to the propeller. HOWEVER, because of the potential overstress that can occur if one drive is trimmed much differently than the other, a dual trim control kit (Part Number 90362A3) should be installed so as to limit this potential tilt differential to about 20°.

EXTERNAL POWER STEERING

When boat speeds move past 70 MPH or if additional steering backlash reduction is desired, external power steering is recommended. This normally will include an external tie bar mounted at the same general location of the power steering cylinders which are generally attached at the top of the sterndrive's drive shaft housing. With this steering system, no internal tie bar should be used. These steering cylinders can be attached either inboard (between) or outboard of the sterndrives.

EXTERNAL POWER STEERING WITH LOW EXTERNAL TIE BAR

For the fastest boats (over 80 MPH) or for the ultimate in steering backlash reduction, use external power steering, BUT (where mechanically possible) with the external tie bar mounted at the trim cylinder boss location (as previously described in “Internal and External Tie Bar” statements). Again this system does not use an internal tie bar.

Mercury Marine does not recommend the use of an external tie bar ONLY (no internal tie bar) when using the internal power steering system. This can cause excessive loads on the steering components on the drive connected to the internal power steering system. These increased loads can damage the steering components, resulting in increased play in the steering of the boat.

Determining Tie Bar Length

⚠️ WARNING

ON DUAL INSTALLATION USING STARBOARD TIE BAR KIT. The steering cable MUST have a minimum radius of 8 in. (203 mm) at the transom end. A radius less than 8 in. (203 mm) may kink the steering cable which, in turn, may affect steering operation. If the minimum 8 in. (203 mm) requirement cannot be met due to boat construction, etc., steering cable must then be routed to port transom and a port transom and a port tie bar kit 96708A4, A5 or A6 MUST BE used in place of the starboard tie bar kit.
NOTE: If drive units are to be “toed-in” or “toed-out,” measure from centerlines of steering levers (with drive units positioned as desired), instead of centerlines of power packages. In most cases, the best boat handling and performance characteristics will be obtained with the drive units positioned parallel.

1. Determine tie bar length.
   a. Measure centerline distance (Dimple in Gimbal Housing is located beneath the decal in the top center).
   b. Apply measurement to appropriate chart to determine tie bar length.

![Diagram](image)

- a - Distance Between Centerlines
- b - Port Transom Assembly Centerline
- c - Starboard Transom Assembly Centerline

### Selection

#### TIE BAR CHART

**For Dual Installations with Steering Cable Attached to Starboard Power Package**

<table>
<thead>
<tr>
<th>Distance</th>
<th>Tie Bar Chart</th>
</tr>
</thead>
<tbody>
<tr>
<td>* 16” to 30”</td>
<td>92020A1</td>
</tr>
<tr>
<td>* 30” to 46”</td>
<td>92020A2</td>
</tr>
<tr>
<td>46” to 62”</td>
<td>92020A3</td>
</tr>
</tbody>
</table>

* If centerline distance is the same as maximum figure, use next larger size tie bar.

#### TIE BAR CHART

**For Dual Installations with Steering Cable Attached to Port Power Package**

<table>
<thead>
<tr>
<th>Distance</th>
<th>Tie Bar Chart</th>
</tr>
</thead>
<tbody>
<tr>
<td>* 28” to 37-1/2”</td>
<td>96708A4</td>
</tr>
<tr>
<td>* 37-1/2” to 55”</td>
<td>96708A5</td>
</tr>
<tr>
<td>55” to 72”</td>
<td>96708A6</td>
</tr>
</tbody>
</table>

* If centerline distance is the same as maximum figure, use next larger size tie bar.
Installation

DUAL INSTALLATIONS WITH STEERING CABLE ATTACHED TO STARBOARD POWER PACKAGE

1. Install tie bar.
   a. Attach fixed bar end to steering lever, using clevis pin and cotter pin. Spread cotter pin ends.

b. Position drive units as desired and turn adjustable end (if necessary) to align hole in bar with holes in steering lever and piston rod end clevis.

c. Turn adjustable end out 3 to 4 turns from aligned position. Apply Loctite 8831 or equivalent, to exposed tie bar threads; then turn tie bar back in to previously aligned position.

d. Attach tie bar end using clevis pin and cotter pin. Spread cotter pin ends.
e. Apply Loctite 8831 or equivalent, to exposed tie bar threads. Torque locknut to 40-60 lb-ft (54-81 Nm).

DUAL INSTALLATIONS WITH STEERING CABLE ATTACHED TO PORT POWER PACKAGE

1. Install tie bar.

   a. Attach fixed bar end to steering lever, using clevis pin and cotter pin. Spread cotter pin ends.

   b. Position drive units as desired and turn adjustable end (if necessary) to align hole in bar with holes in steering lever and piston rod end clevis.

   a - Fixed Bar End
   b - Steering Lever
   c - Clevis Pin
   d - Cotter Pin
c. Turn adjustable end out 3 to 4 turns from aligned position. Apply Loctite 8831 or equivalent, to exposed tie bar threads; then turn tie bar back in to previously aligned position.

d. Attach tie bar end using clevis pin and cotter pin. Spread cotter pin ends.

e. Apply Loctite 8831 or equivalent, to exposed tie bar threads. Torque locknut to 40-60 lb-ft (54-81 Nm).

- e - Adjustable End
- f - Clevis Pin
- g - Cotter Pin
- h - Locknut