



TRIM & TILT PISTON SEAL TOOL KIT - P/N 5008918

APPLICATION

Use this kit to service single piston trim and tilt assemblies used on the outboard models listed under **IDENTIFICATION** on p. 2.

SAFETY INFORMATION

The following symbols and/or signal words may be used in this document:

⚠ DANGER

Indicates a hazardous situation which, if not avoided, will result in death or serious injury.

⚠ WARNING

Indicates a hazardous situation which, if not avoided, could result in death or serious injury.

⚠ CAUTION

Indicates a hazardous situation which, if not avoided, could result in minor or moderate personal injury.

NOTICE Indicates an instruction which, if not followed, could severely damage engine components or other property.

These safety alert signal words mean:

ATTENTION!
BECOME ALERT!
YOUR SAFETY IS INVOLVED!

For safety reasons, this kit must be installed by an authorized *Evinrude/Johnson*® dealer. This instruction sheet is not a substitute for work experience. Additional helpful information may be found in other service literature.

DO NOT perform any work until you have read and understood these instructions completely.

Torque wrench tightening specifications must strictly be adhered to.

Should removal of any locking fastener (lock tabs, locknuts, or patch screws) be required, always replace with a new one.

When replacement parts are required, use *Evinrude/Johnson Genuine Parts* or parts with equivalent characteristics, including type, strength and material. Use of substandard parts could result in injury or product malfunction.

Always wear EYE PROTECTION AND APPROPRIATE GLOVES when using power tools.

Unless otherwise specified, engine must be OFF (not running) when performing this work.

Always be aware of parts that can move, such as flywheels, propellers, etc.

Some components may be HOT. Always wait for engine to cool down before performing work.

If you use procedures or service tools that are not recommended in this instruction sheet, YOU ALONE must decide if your actions might injure people or damage the outboard.

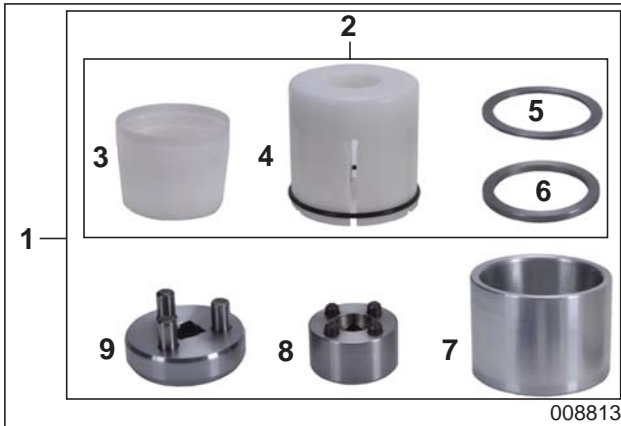
This instruction sheet may be translated into other languages. In the event of any discrepancy, the English version shall prevail.

TO THE INSTALLER: Give this sheet and the operating instructions to the owner. Advise the owner of any special operation or maintenance information contained in the instructions.

TO THE OWNER: Save these instructions in your owner's kit. This sheet contains information important for the use and maintenance of your engine.



PISTON SEAL TOOL KIT



Ref	P/N	Description	Qty
1	5008918	TILT/TRIM PISTON SEAL TOOL KIT	1
2	T-550	*INSTALLER, piston seal	1
3	T-550-1	**MANDREL, seal	1
4	T-550-2	**PUSHER, seal	1
5	T-550-3	**SHIM, 0.060 in. (1.5 mm)	1
6	T-550-4	**SHIM, 0.120 in. (3 mm)	1
7	T-551	*FIXTURE, Seal resizing	1
8	T-552	*WRENCH, Spanner - Nut	1
9	T-553	*WRENCH, Spanner - Piston	1

PROCEDURE

Refer to **TRIM AND TILT REPLACEMENT** in the appropriate Service Manual for trim and tilt assembly removal procedure.

IDENTIFICATION

Dealers must correctly identify trim and tilt assemblies to order the correct service parts and use the correct service procedure.

Single piston trim and tilt assemblies are used on the following outboard models:

Outboard	HP	Model Year
<i>Johnson</i>	40 – 50 HP	2005 & older
<i>Evinrude E-TEC</i>	15 – 30 HP	2009 & newer
	40 – 60 HP	2004 & newer
	75 – 90 HP (20 inch models)	2005 & newer
	115 – 130 HP 60° V4 (20 inch models)	2007 & newer

Part numbers are stamped on the bottom of the housing of trim and tilt assemblies.



1. Part number

008814

Use the table below and **Parts and Accessories Bulletin 2011-05(P)**, or the appropriate **Parts Catalog** to correctly identify the trim and tilt assembly and order service parts.

Models	Trim & Tilt Assembly P/N	Manifold Description
15 H.O.	5008228	Anodized Flat Black
	5007774	
25 – 30	5009034	
	5005441	
40 – 60 E-TEC	5007774	
	5009035	
40/50 Carbureted	5007775	Painted to match engine
75 – 130	5005756	Painted Gloss Black
	5007776	Anodized Flat Black
	5008949	

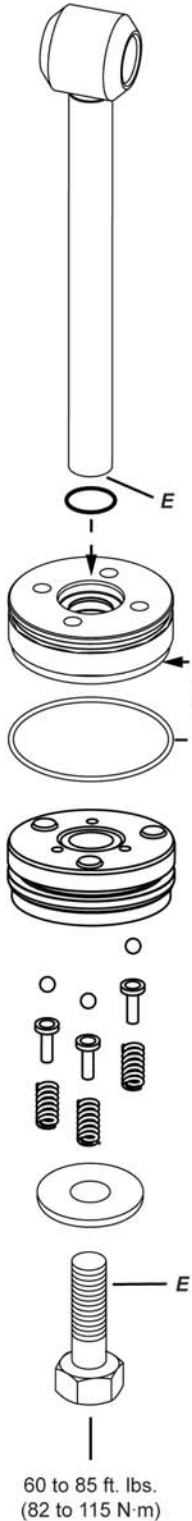
Piston seal tool kit, P/N 5008918 is available from BRP.

To order individual replacement tools, contact:

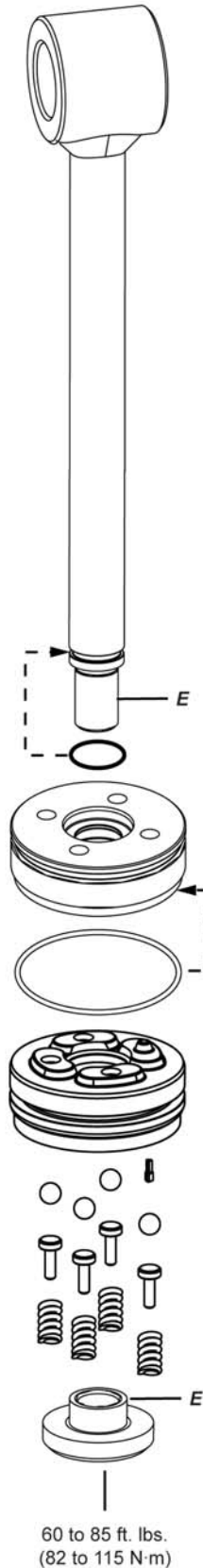
Meyer Engineering
 1139 North Lewis Avenue
 Winthrop Harbor, IL 60096
 Phone: 847.746.1500
 web site: <http://www.meyerengineering.com>

TRIM & TILT CYLINDER SERVICE CHART

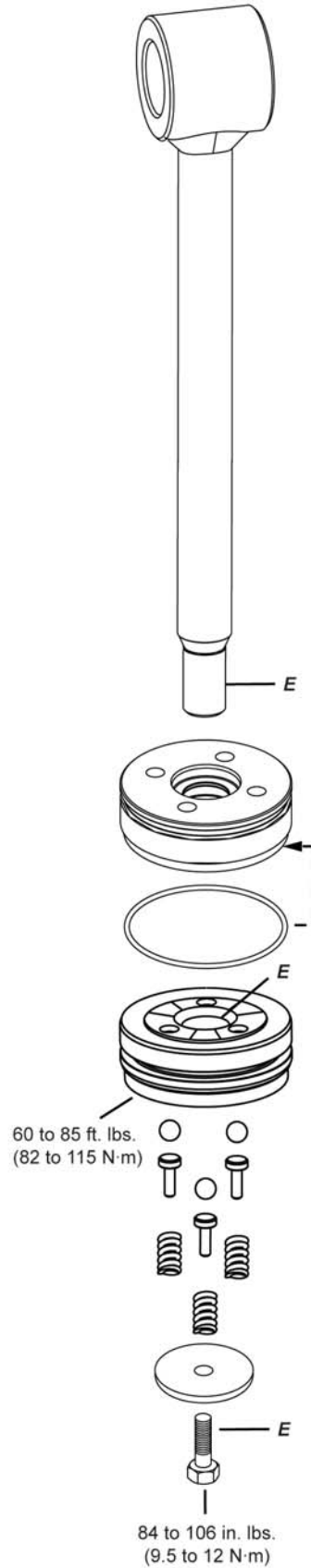
P/N 5005441
 P/N 5007774
 P/N 5007775
 P/N 5008228



P/N 5005756



P/N 5007776



E Red Ultra Lock

008815

DISASSEMBLY

Place the trim and tilt assembly in a holding fixture. Be sure the rod is fully extended. Remove the fill plug.

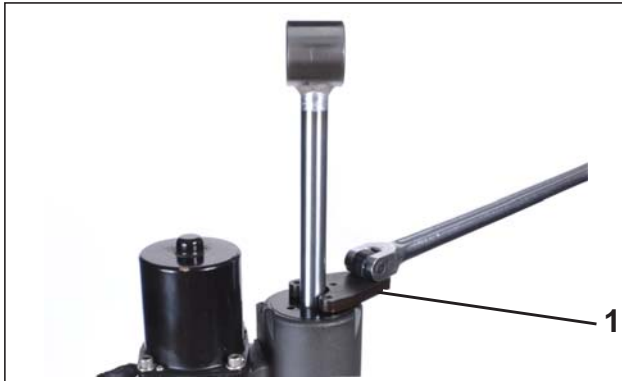
Drain trim and tilt fluid from the trim and tilt assembly.



1. Fill plug (typical)

008816

Use end cap spanner wrench, P/N 352932, to remove the end cap from the trim and tilt assembly.



1. End cap spanner wrench

008817

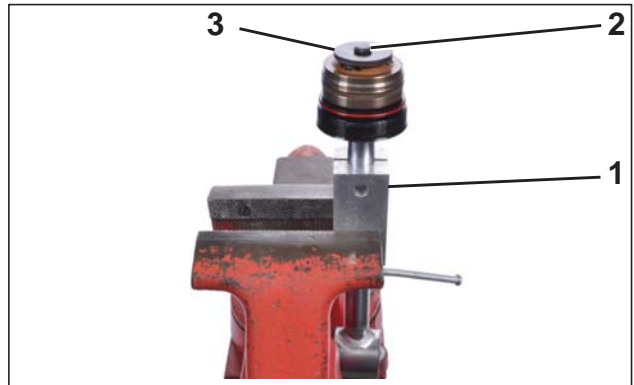
Remove the rod, piston and end cap assembly from the cylinder of the trim and tilt assembly.

Drain remaining trim and tilt fluid from the cylinder of the trim and tilt assembly.

Use hydraulic cylinder rod holder set, P/N 983213 to hold the rod in a vise as shown.

Remove fastener and washer from piston assembly.

Note: Note: Use spanner wrench, P/N T-552, to remove fastener from piston of trim and tilt assembly, P/N 5005756.



1. Hydraulic cylinder rod holder set
2. Fastener
3. Washer

008818

Remove springs, valves and check balls from the piston assembly.



1. Springs, valves and check balls

008819

Remove seal and o-ring from the piston.



1. Seal
2. O-ring

008820

Remove the piston from the rod.

Note: Use piston spanner wrench, P/N T-553, to remove the piston from the rod of trim and tilt assembly, P/N 5007776.



1. Piston spanner wrench

008821

END CAP RESEAL PROCEDURE FOR HYDRAULIC ASSEMBLY, P/N 5005756

Remove the o-ring.



1. O-ring

009980

Remove the end cap from the rod.

HYDRAULIC ASSEMBLY 5005756 ONLY

NOTICE The end cap from hydraulic assembly, P/N 5005756, contains a machined groove on its underside, it **MUST** be resealed and reused.

The new end cap included in this seal kit does not contain the machined groove. Do **NOT** use this new end cap on hydraulic assembly, P/N 5005756, incorrect operation and permanent damage of the trim and tilt unit may occur.

All other components of the kit may be used as required.

END CAP IDENTIFICATION



1. End cap for hydraulic assembly, P/N 5005756 009987

2. End cap for hydraulic assembly, P/N's 5007776 and 5008949

Remove the wiper seal.



1. Wiper seal

009981

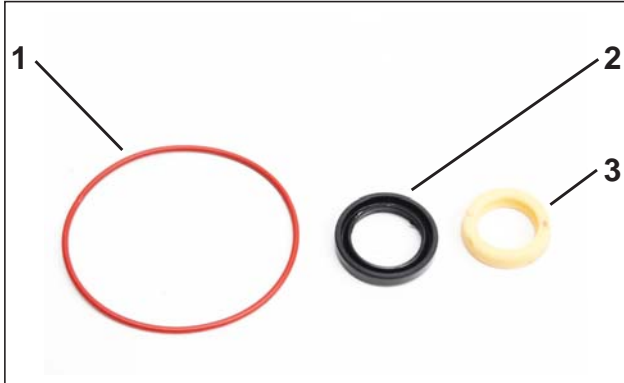
Remove the u-cup.



1. U-cup

009982

IMPORTANT: Discard the o-ring, wiper seal, and u-cup. Do NOT reuse them.



- 1. O-ring
 - 2. Wiper seal
 - 3. U-cup
- 009984

Clean the end cap thoroughly.

Lubricate and install the new u-cup with the lip side facing the bottom of the end cap.



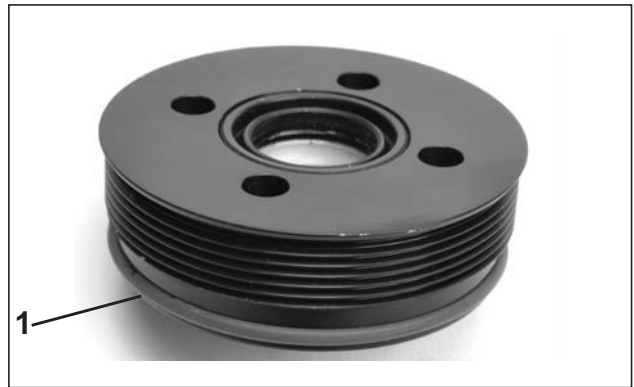
- 1. U-cup
- 009982

Lubricate and install the new wiper seal with the lip side facing the top of the end cap.



- 1. Wiper seal
- 009985

Lubricate and install the new o-ring.



- 1. O-ring
- 009983

Lubricate the threads of the end cap prior to assembly.

INSPECTION

Remove ALL debris. Thoroughly clean and dry all parts before continuing. Remove ALL old thread locking compound from threaded parts.

Inspect the piston, rod and cylinder bore for scratches or damage which could allow seals to leak. If the piston, rod or cylinder bore are damaged, replace the trim and tilt assembly. Do not use sharp objects to install o-rings or seals.

Inspect the installation tools. Make sure all tools are free from nicks, burrs and scratches. Replace damaged tools.

NOTICE Use of damaged components can result in leaks or incorrect operation of trim and tilt assembly.

ASSEMBLY

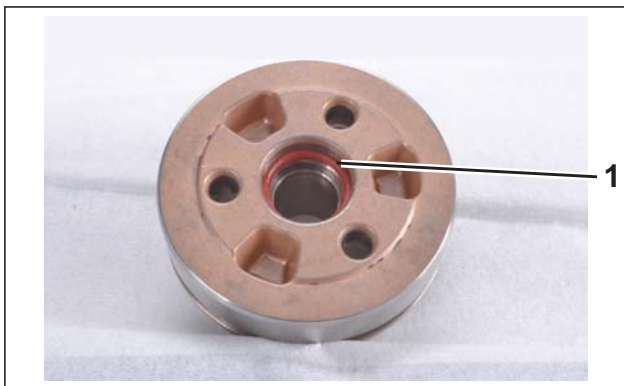
IMPORTANT: Always use the correct trim/tilt fluid. Some trim and tilt assemblies use Power Trim/Tilt and Steering Fluid, and some use *Evinrude/Johnson* Biodegradable Trim/Tilt Fluid. Refer to the correct service manual.

Install a new o-ring on rod or piston as indicated. Refer to **TRIM & TILT CYLINDER SERVICE CHART** on p. 3.



1. O-ring

008822

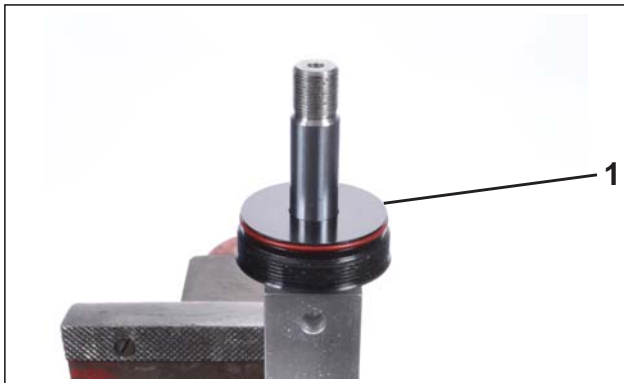


1. O-ring

008823

Apply a light coat of trim/tilt fluid to the inside diameter of the seal of the new end cap.

Install the end cap on the rod as shown.



1. End cap

008824

Apply trim/tilt fluid to the piston o-ring. Install the piston o-ring on the piston. Make sure the o-ring

is NOT damaged or twisted. Remove and reinstall the o-ring correctly if necessary.



1. O-ring

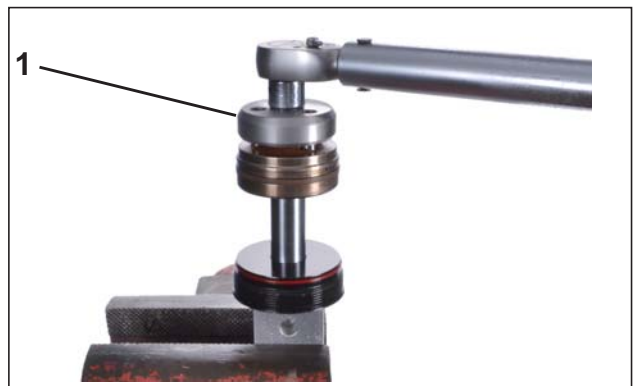
008825

Apply red *Ultra Lock* to the threaded portion of the rod, piston and fasteners. Install the piston on the rod.



008826

Note: Use piston spanner wrench, P/N T-553, to install piston on the rod of trim and tilt assembly, P/N 5007776.



1. Piston spanner wrench

008827

Assemble the piston as shown in the **TRIM & TILT CYLINDER SERVICE CHART** on p. 3.

Tighten fasteners to specified torque.



008828

Place the shim on the piston.



1. Shim

008830

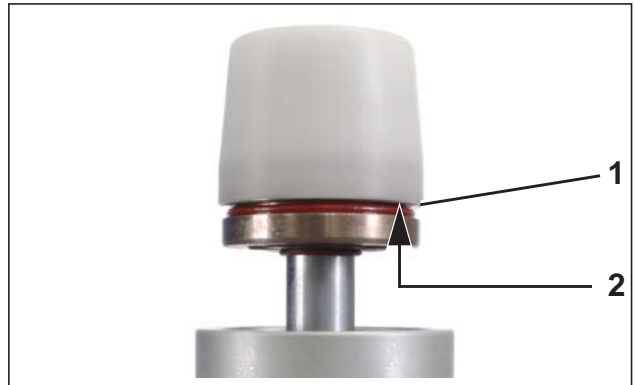
Apply trim/tilt fluid to the inside diameter of the resizing fixture. Place the resizing fixture over the piston with the tapered end up. Slide the resizing fixture down past the piston.



1. Resizing fixture

008829

Place the loading mandrel, on the piston. Make sure the edge of the loading mandrel is flush with the top edge of the seal groove in the piston.



1. Edge of the loading mandrel
2. Seal groove

008831

Not all hydraulic assemblies use the same shim for assembly. Select the appropriate shim from the chart.

Trim and Tilt Assembly P/N	Shim
5005441	0.120 (3 mm)
5007774	0.120 (3 mm)
5007775	0.120 (3 mm)
5008228	0.120 (3 mm)
5005756	0.060 (1.5 mm)
5007776	none

If the edge of the loading mandrel is not flush with the top of the seal groove, the wrong shim was selected. Check shim selection and reinstall the mandrel.

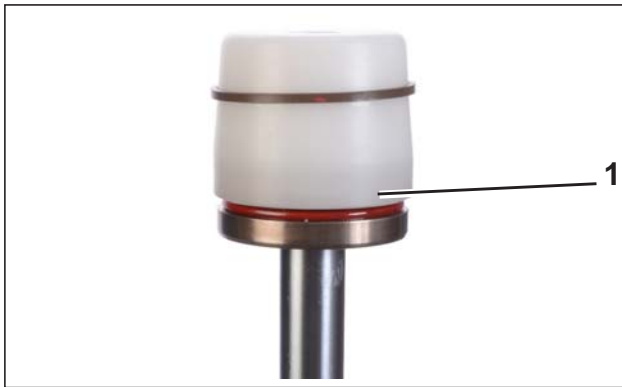
Lubricate the mandrel with trim/tilt fluid.

Use a piece of wire to suspend the seal in a cup of hot water. Warm the seal in a cup of hot water for about one minute.



008832

Place the seal on the loading mandrel.



1. Seal 008833

Slowly move the seal pusher down the mandrel. Use the seal pusher to slide the seal into the groove of the piston.

IMPORTANT: Prevent the seal from sliding past the seal groove. Position one hand even with the bottom of the seal groove as shown. The seal can be damaged if it slides past the seal groove.



1. Seal installed in groove of piston 008834

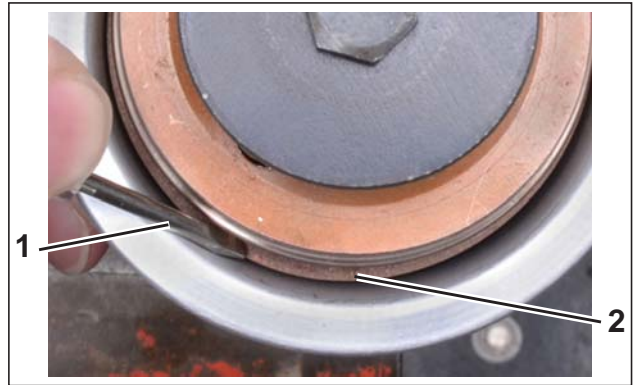
Remove the pusher tool, loading mandrel, and shim from the piston.

Lift the resizing fixture up over the piston as shown.



1. Resizing fixture 008835

Lift resizing fixture over the seal while observing the seal. Use a blunt edged tool to hold the seal in position if any portion of the seal moves out of the groove of the piston.



1. Tool 008836
2. Seal

Continue lifting the resizing fixture until the bottom of the resizing fixture is flush with the piston as shown.

Leave the resizing fixture in place for at least five minutes.



1. Bottom of the resizing fixture flush with the piston 008837
2. Piston

Remove the resizing fixture from the piston. Inspect the seal. Make sure the seal was not damaged during installation.



1. Seal 008838

Remove the cylinder rod assembly from holder and lubricate the piston assembly with trim/tilt fluid.

Slide the end cap assembly to the eyelet of rod.

Reinstall the fill plug.

Place the piston into the cylinder of the trim and tilt assembly. Carefully push the rod and piston assembly into the cylinder until the end cap just clears the cylinder top. Leave enough room to pour fluid into the cylinder. Fill the cylinder with Power Trim/Tilt & Steering Fluid. Failure to fill the cylinder could cause difficulty purging air from the trim and tilt assembly.



008839

Use end cap spanner wrench, P/N 352932, to install the end cap. Tighten to a torque of 60 to 85 ft. lbs. (81 to 115 N-m).



008840

Raise the trim and tilt assembly to the full UP position. Remove the fill plug and check the fluid level. Fill until fluid runs out of the fill hole of the manifold. Cycle the tilt and trim assembly up and down several times. Recheck level until fill.

INSTALLATION

Refer to TRIM AND TILT REPLACEMENT in the appropriate Service Manual for trim and tilt assembly installation procedure.