

GARMIN™

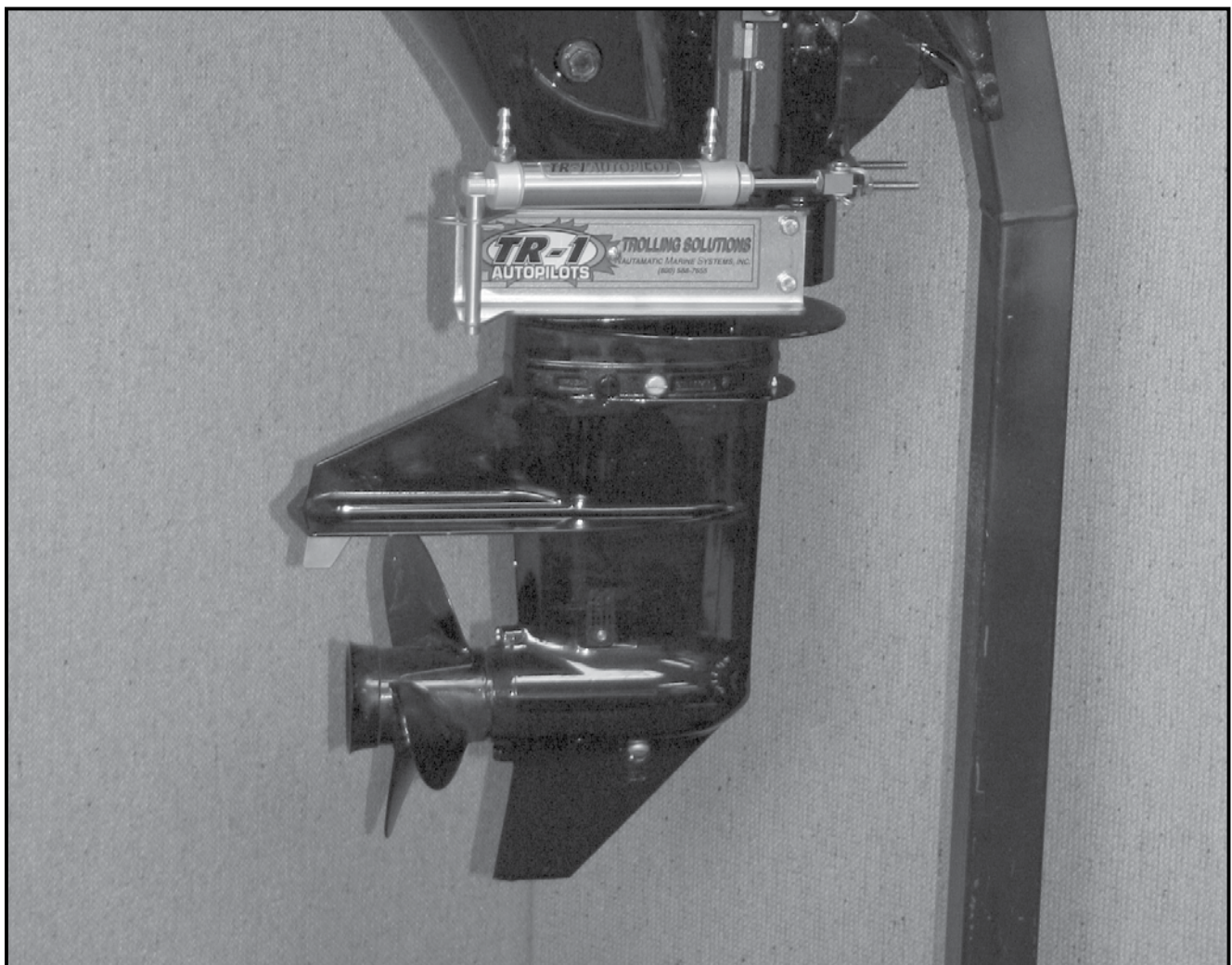
TR-1 Gold

Cylinder and Bracket Mounting Instructions

Mercury 8 HP: 2005 and Newer

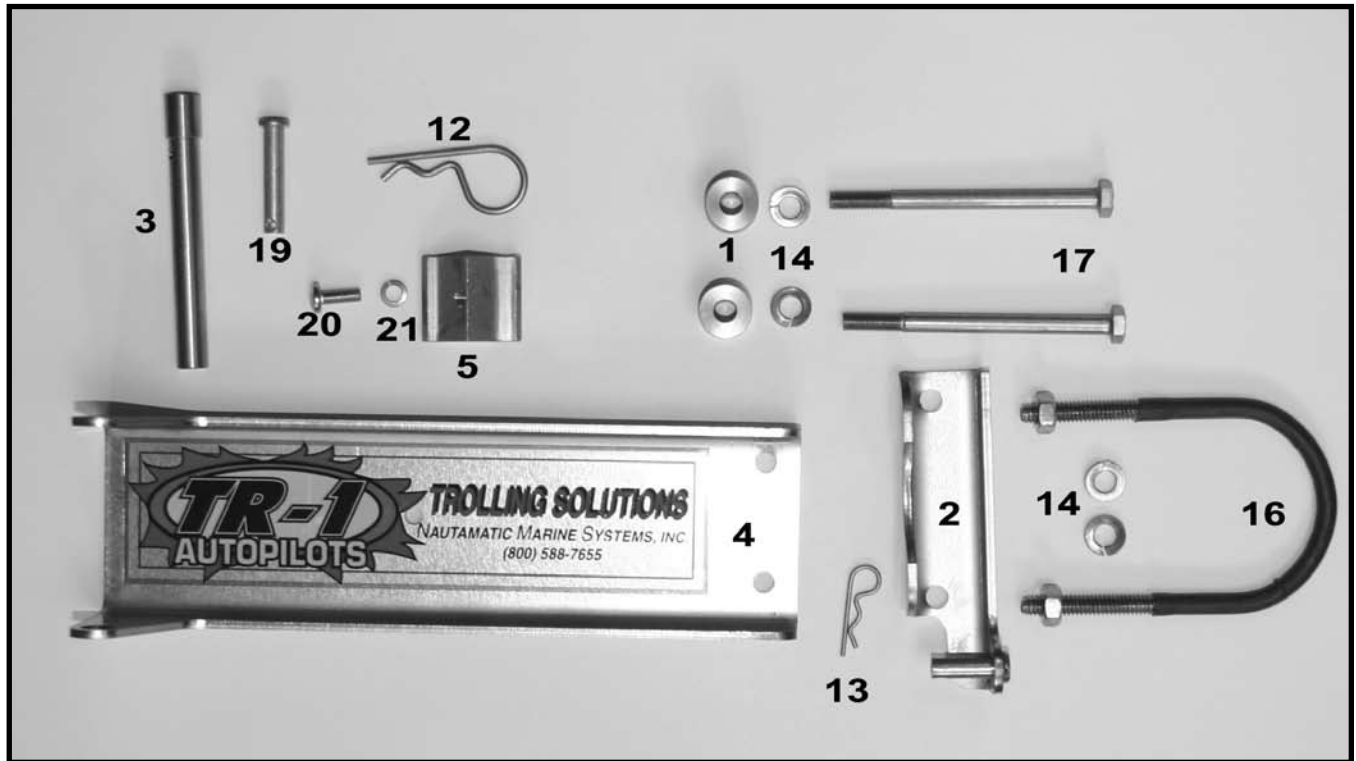
Mercury 9.9 HP: 2005 and Newer

(Not for Bigfoot or Pro-Kicker)



Parts:

Cylinder Kit PN 120-1120-00

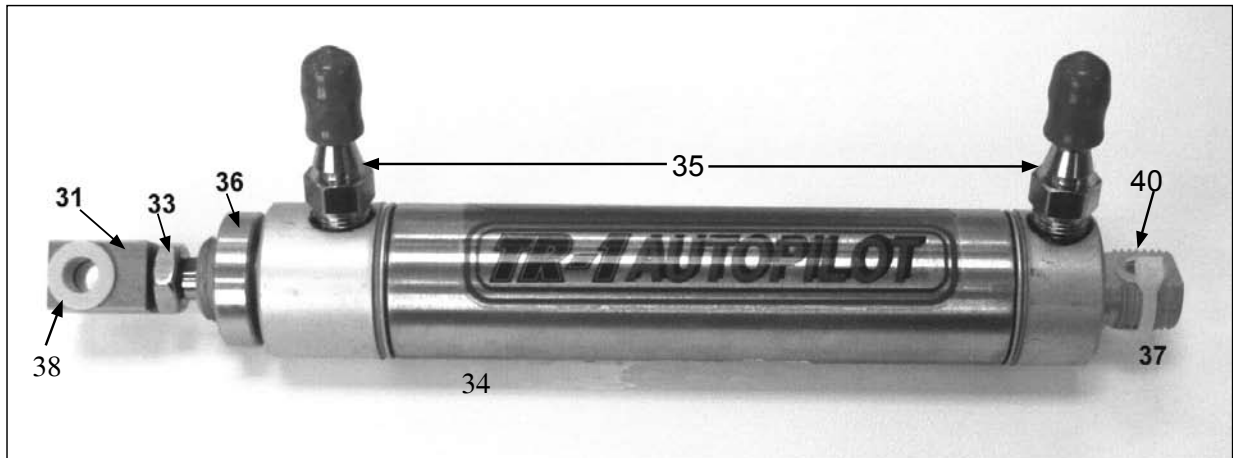


Bracket Kit PN 120-1120-00

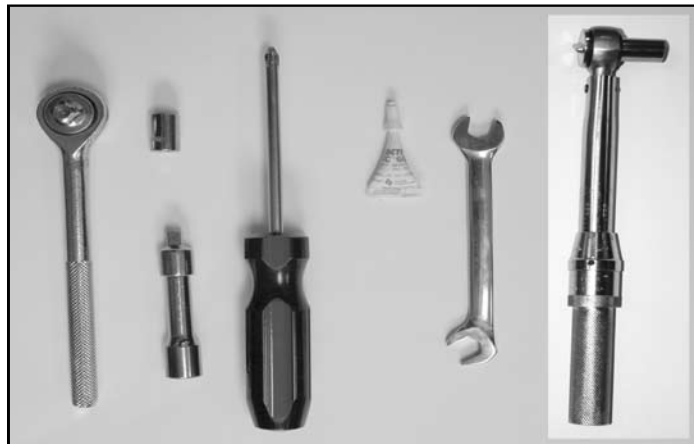
Item Number	Part Number	Name	Qty.
1	330-1121-00	Standoff, Spacer	2
2	130-1122-00	Bracket, Rod Eye Mounting	1
3	330-1003-00	Pin, Stern Pivot	1
4	380-1124-00	Channel, Cylinder Mounting	1
5	340-1125-00	Clip, Channel Snubber	1
12	310-0067-01	Hair Pin, Cotter Large	1
13	310-0067-02	Hair Pin, Cotter Medium	1
14	310-0076-25	LW, Split 1/4	4
16	310-0082-00	U-Bolt 2" ID 1/4-20	1
17	310-0068-80	Hex Cap M6 X 80mm	2
19	310-2501-25	Clevis Pin 1/4 Dia X 1.25	1
20	310-0014-08	#10-32 UNF X 1/2 Phillips Pan	1
21	310-0076-18	LW Split SS #10	1

Cylinder Kit PN 120-0900-00

ITEM	PART NO.	QTY	NAME
31	330-1002-00	1	Rod Eye, 5/16-24
33	310-0042-09	1	Hex Jam Nut 5/16-24
34	340-0900-00	1	Cylinder
35	321-0001-00	2	Fitting, Straight 1/8 NPT X 1/4
36	330-1101-00	1	Zinc Anode (Replace)
37	310-0040-26	1	Washer, Flat, Nylon 1/4 ID X .03
38	328-0901-00	2	Bushing 1/4 ID X 5/16 OD X 1/4"L
40	328-0902-00	1	Cylinder Tail Bushing



Tools Needed:



Tools Needed
3/8" Ratchet and extension with 1/4" adapter
#3 Phillips Screw Driver
Loctite or Similar Thread Locking Compound
End Wrench
Torque Wrench

Cylinder & Bracket Installation

Step One: Install U-bolt and Rod Eye Bracket.

Install the Rod eye Bracket (item 2) by using the U-Bolt (item 16), split washers (item 14) and the nuts as seen in Figures 1 & 2. Use Loctite on threads to keep the nuts from vibrating loose.

Note: Push the rod eye bracket up so it touches the diagonal gussets, and the U-bolt goes above the ridge. You may also cut the excess threads off with a hack saw if preferred.

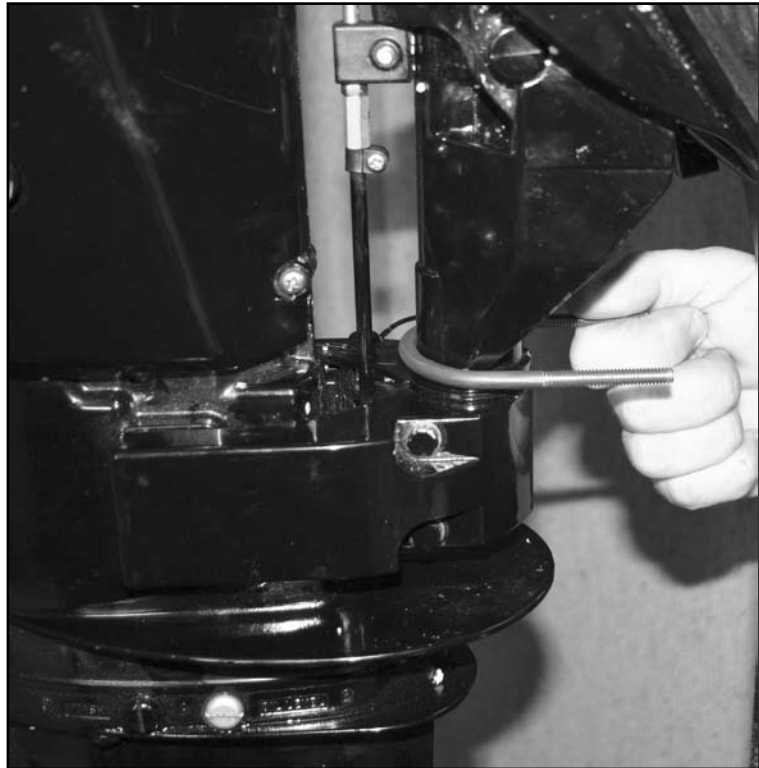


Figure 1

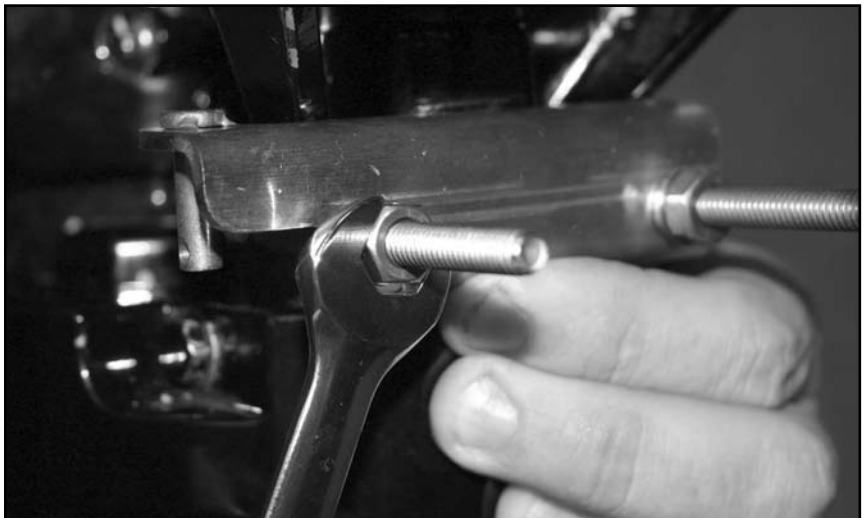


Figure 2

Step Two: Install Standoffs and Channel Bracket.

Remove the lower bolt on the shroud as shown in Figure 3 & 4. Using the bolts from the cylinder kit (items 17), push the bolt through the lock washer (item 14), through the channel (item 4) and through the standoff spacer (item 1) into the shroud (Use loctite on threads). Snug up the bolt, but don't tighten, see Figure 5.

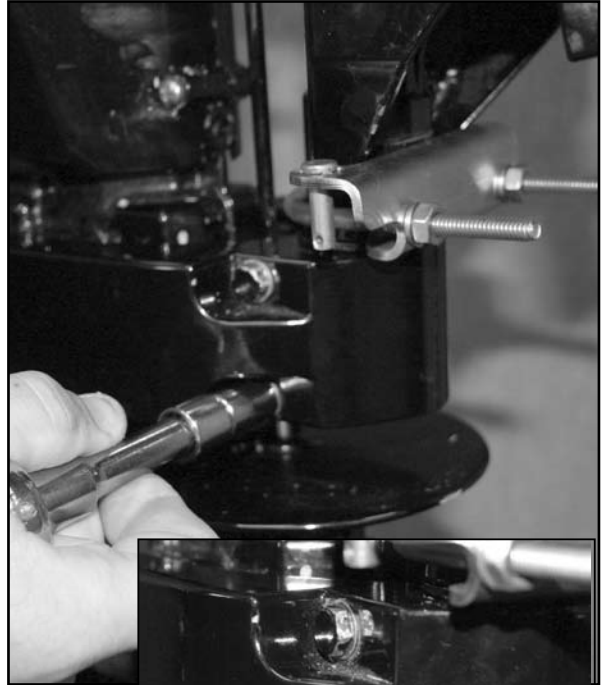


Figure 3 & 4



Figure 5



Figure 6

Remove the upper bolt from the shroud, See Figure 6. Install the second standoff spacer (item 1). Insert the bolt (item 17) through the lock washer (item 14) through the Channel (item 4) and finally through the standoff spacer and into the shroud as shown in Figure 6. (Use Loctite on threads.) Tighten both the upper and lower bolts securely, See Figure 7. Make sure the channel stays parallel as you tighten the bolts as shown in Figure 8.



Figure 7

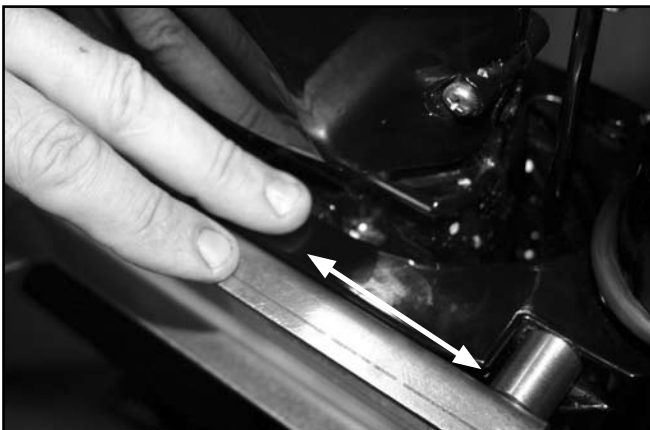


Figure 8

Keep Channel Parallel

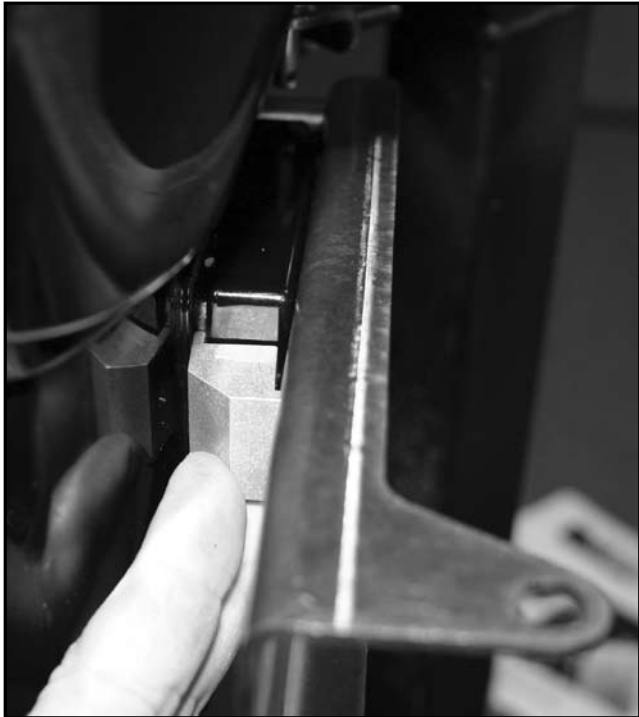


Figure 9

Step Three: Install Snubber and Screw.

Slip the snubber clip (item 5) behind the channel and up against the shroud as shown in Figure 9. Hold in place and start the #10 Pan head screw (item 20) through the front of the channel and through the split washer (item 21) and into the snubber clip, see Figure 10. (**Use loctite on threads**). Tighten the screw firmly.



Figure 10



Figure 11

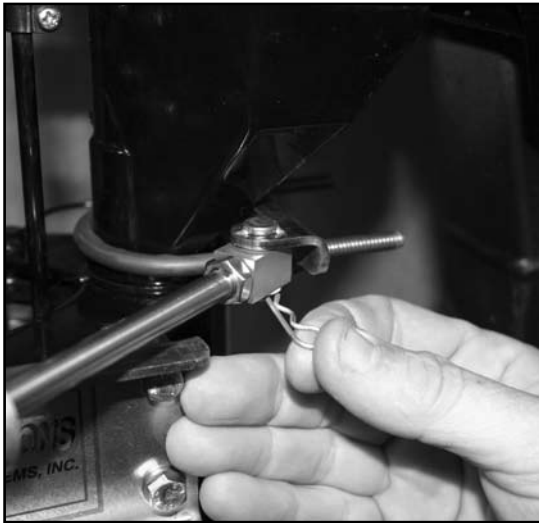


Figure 12

Step Four: Cylinder Rod Eye

Place the Rod Eye (item 31) over the vertical pin in the Rod Eye Mounting Bracket (item 2) as shown in Figure 12. (Leave the cylinder attached) Install the Medium Hair Pin Cotter (item 13) through the hole in the vertical pin. Turn the Cylinder (item 34) Fittings (item 35) up.



Figure 13

Step Five: Stern Pivot Pin

Slip the stern pivot pin (item 3) through the back of the channel. See Figure 13



Figure 14



Figure 15

Step Six: Cylinder End Cap

Line the hole in rear end cap of the Cylinder (item 34) with the hole in the top of the vertical pin stern part of the cylinder mounting Channel assembly (item 4).

Slide the Clevis Pin (item 19) through the hole into the Stern Pivot Pin. Put the Large Hair Pin Cotter (item 12) through the cross holes in both Pins.

Step Seven (Full Port & Starboard):

Turn the motor hard over to port. That will retract the Cylinder rod into the Cylinder, see Figure 16. Check that the Cylinder rod is still free to retract at least a little more. Be sure that the cylinder is free



Figure 16

to move by tugging on the hose fitting as in Figure 16 and move the cylinder a little (it will rattle slightly when moved) Next turn the motor hard over to starboard, see Figure 17. That will extend the Cylinder rod out of the Cylinder. Check that the Cylinder rod is still free to extend at least a little more. It should have additional travel in both directions. If it does not, adjust the position of the Rod Eye (item 31) on the Cylinder shaft. The Cylinder shaft should turn with your fingers if the Hex Jam Nut (item 33) is loose. (If the shaft does not turn freely enough, use a thin 1/4 inch open end wrench at the shaft's wrench flats.)

Do not use any tool on the cylindrical part of the Cylinder shaft. If the shaft gets scratched or bent the seal will fail.

With the cylinder properly adjusted, secure it by tightening the Hex Jam Nut against the Rod Eye, and place Threat Locker (Loctite) on the Threads before tightening Jam Nut. It is ready for plumbing. We suggest you put the original parts in a container and, carefully, store them. (You may eventually want to sell or trade in your motor, but we know you will want to keep your TR-1 Autopilot.)



Figure 17