

GARMIN[™]

TR-1 Gold

Cylinder and Bracket Mounting Instructions

OMC 9.9 HP. 2 & 4 Stroke: 1993-2002

OMC15 HP. 2 & 4 Stroke: 1993-2002



Cylinder Kit PN 120-1005-01

Parts:

ITEM	PART No	QTY.	NAME
3	330-1003-00	1	Pin, Stern Pivot
4	380-1004-00	1	Channel, Cylinder MTG.
5	370-1005-00	1	Cushion, Channel Mounting
6	380-1006-00	1	Washer, Angle Plate
7	130-1007-00	1	Assy, Mounting Bracket
11	320-0010-00	2	3/16 D. Split Tube
12	310-0203-50	2	Hex Cap 1/4-20 X 3-1/2" SS
14	130-0083-00	1	Hose Clamp assembly
15	310-2501-25	1	Clevis Pin 1/4 D. X 1.25
17	310-0067-01	1	Hair Pin Cotter LG.
18	310-0067-02	1	Hair Pin Cotter Med.
19	380-1010-00	1	Spacer Plate

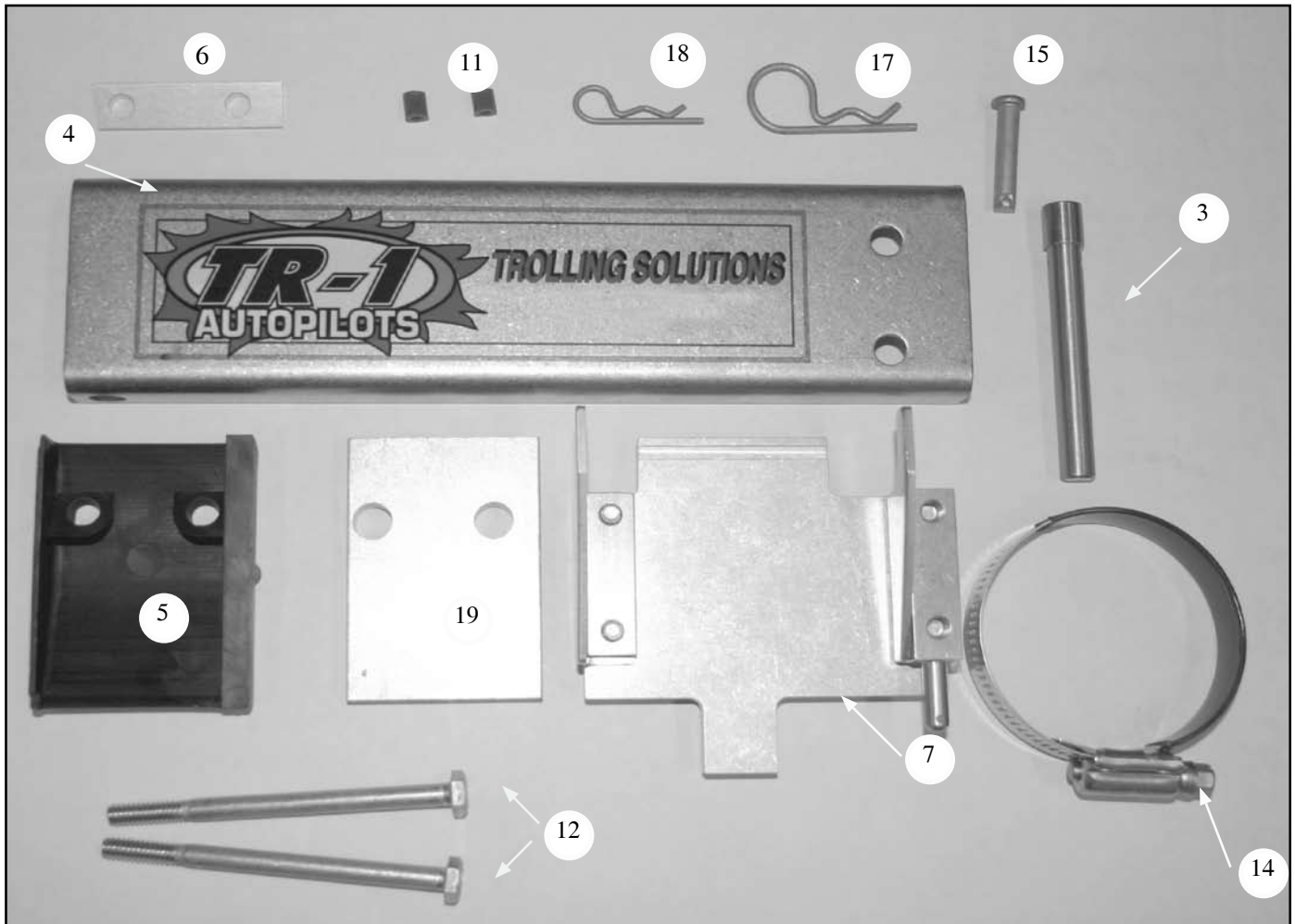


Figure 2

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 3/8 OD x .03 Thick
38	328-0901-00	2	Bushing 1/4 ID X 5/16 OD X 1/4"L
39	320-0001-03	2	Vinyl Cap 1/4"
40	328-0902-00	1	Cylinder Tail Bushing



I. Installing the Cylinder Mounts

Tools Required:

- One; Wrench 9/32 In. or 7mm
- One; 7/16 In. Wrenches
- One; 1/2 In. wrenches (open end)
- Thread lock (Loctite or similar)



Figure 3

Step 1 (Mounting Bracket):

Tip the motor all the way up. Install the Mounting Bracket Assembly (*item 7*) over the motor steering swivel bracket as shown in figure 4. Be sure groove in the Bracket engages the ridge on the motor, the Split Tube Pads (*item 11*) are on the mounting ears, and the pads are on the flats on the rear facing part of the swivel bracket. Tighten all four screws.

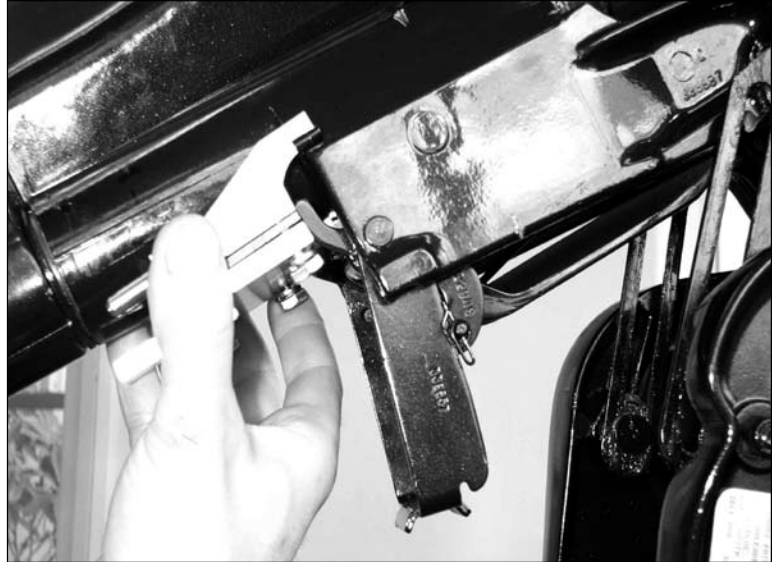


Figure 4

Step 2 (Hose Clamp):

Open the Hose Clamp (*item 14*) and install it around the shank of the motor's steering pivot bracket and over the tab on the bottom of the Mounting Bracket Assembly (*item 7*). Before tightening the Hose Clamp slide the urethane (rubber) pad (*item 10*) under it and the tab on the bottom of the Mounting Bracket Assembly to protect the finish on the motor. With all in place, firmly tighten the Hose Clamp. (*Be sure the Hose Clamp screw does not interfere with the steering rotation when the motor is turned to steer it.*)



Figure 5

Step 3 (Remove Bolts):

Tilt the motor down. Remove the rear two bolts that holds the lower vibration isolation mounting shrouds. Leave the shrouds in place.

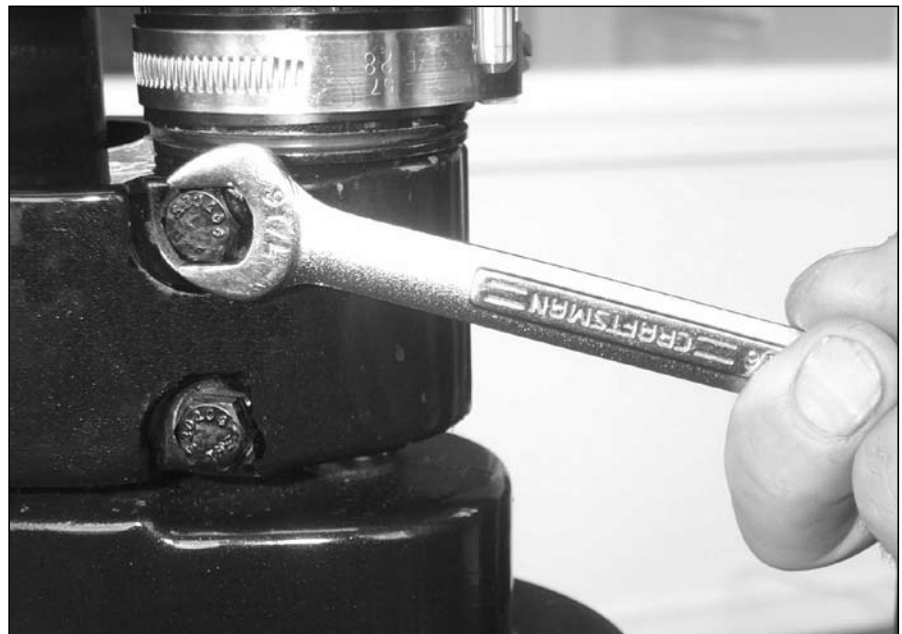


Figure 6

Step 4 (Mounting the Channel):

Slide the two Hex Cap Screws (*item 9*) through the Angle Washer Plate (*item 6*). Keep the thick edge to the right. Now slide the two Hex Cap Screws (*item 9*) through the Cylinder Mounting Channel (*item 4*). (*With the label facing you right side up, through the holes on the left end from the near side.*) Next slide the Screws through the flat side of the Channel Mounting Cushion (*item 5*). Keeping the thin side to the right, apply your thread lock compound to the Screw threads. Last, slide the Screws all the way through the holes in the lower vibration isolation mounting shrouds. (*The holes that you just took the screws out of in the previous step.*) Keep the Channel perpendicular to the motor down shaft and tighten the Screws. You are ready for the Cylinder. (*The thread lock really is needed.*)

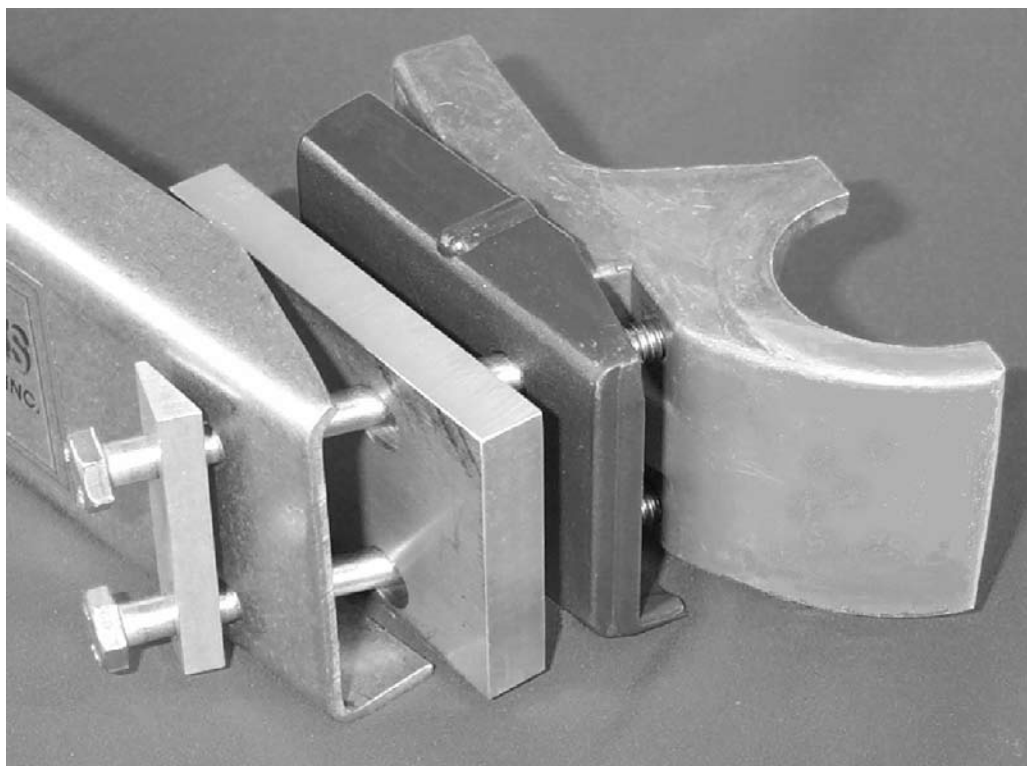


Figure 7

Cylinder Mounting Instructions Supplement

It has been determined that some OMC **9.9-15 four stroke** motors require the addition of a spacer plate between the Channel Mounting Cushion (*item 5* of the OMC instructions) and the Cylinder Mounting Channel (*item 4* of the OMC instructions).

The spacer plate (*item 19*) is installed between the Channel (*item 4*) and the Plastic cushion (*item 5*). The assembly stack in step 4 of the manual will look like the picture to the right.



Step 5 (Stern Pivot Pin):

Slide the Stern Pivot Pin (*item 3*) through the back of the Cylinder Mounting Channel (*item 4*) from the top.

Loosen the steering tension device to the minimum setting. (Refer to your outboard owners manual.)

II. Installing the Cylinder

Tools Needed:

One; ½ In. Open end wrench
(*from above, should be all you need*)

Parts

Step 6 (Cylinder Rod Eye):

Place the Rod Eye (*item 31*) over the vertical pin in the Mounting Bracket Assembly (*item 7*) as shown. (*Leave the cylinder attached.*) Put the plastic Washer (*item 18*) on the pin over the Rod Eye and install the Medium Hair Pin Cotter (*item 18*) through the hole in the vertical pin. Turn the Cylinder (*item 34*) Fittings (*item 35*) up.



Figure 8



Figure 10

Step 7 (Cylinder End Cap):

Line the hole in rear end cap of the Cylinder (*item 34*) with the hole in the top of the Stern Pivot Pin (*item 3*). Slide the Clevis Pin (*item 13*) through the hole into the Stern Pivot Pin. Put the Large Hair Pin Cotter (*item 16*) through the cross holes in both Pins (*Under the Channel flange*).



Figure 11

Step 8 (Full Port and Starboard):

Turn the motor hard over to starboard. That will retract the Cylinder rod into the Cylinder. Check that the Cylinder rod is still free to retract at least a little more. Next turn the motor hard over to port. 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, bent, or dinged the seal will fail.** With the cylinder properly adjusted, secure it by tightening the Hex Jam Nut against the Rod Eye. It is ready for plumbing. We suggest you put the original parts in a container and 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 12



Figure 13