

# GARMIN™

## TR-1 Gold

### Cylinder and Bracket Mounting Instructions

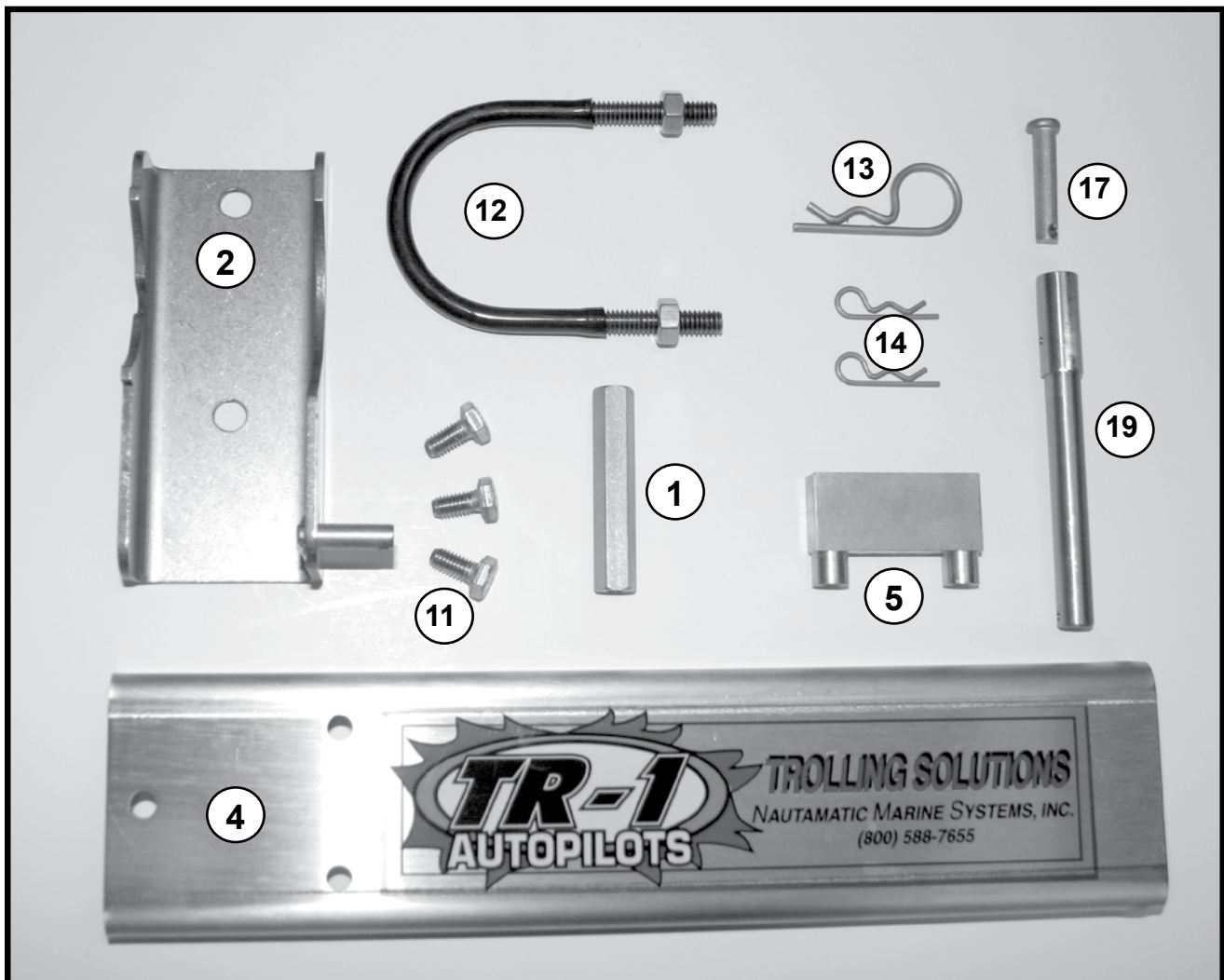
Yamaha T 9.9 HP (High Thrust):  
1993-2004 (Except Canadian T9.9 HP 2004)



# Yamaha T9.9 (High Thrust): 1993-2004

Cylinder Mounting Kit PN 120-1030-00

ITEM	PART NUMBER	Description	QTY
1	330-1031-00	Nut, Standoff	1
2	130-1032-00	Bracket, Rod Eye Mounting	1
4	380-1034-00	Cylinder Mounting Channel	1
5	380-1036-00	Plate, Standoff Nut	1
11	310-0206-12	Hex Cap M6 x 12mm	3
12	130-0082-00	U Bolt 2" ID 1/4-20	1
13	310-0067-01	Hair Pin, Cotter Large	1
14	310-0067-02	Hair Pin, Cotter Med	2
17	310-2501-25	Clevis Pin 1/4 D X 1.25	1
19	330-1033-00	Stern Pivot Pin	1

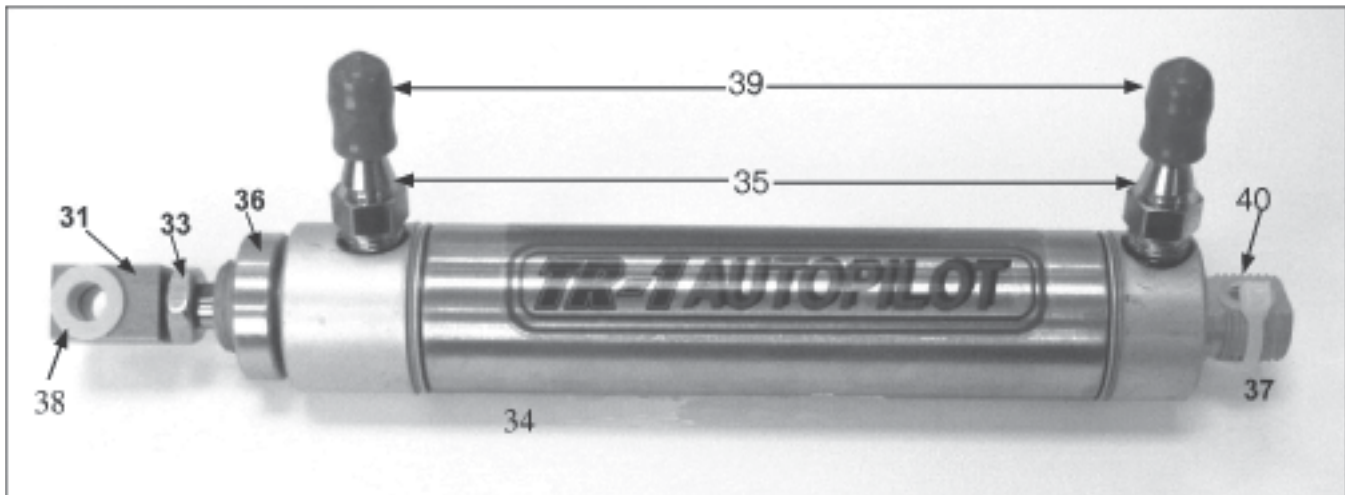


**Figure 3**

**Parts:**

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
39	320-0001-03	2	Vinyl Cap 1/4"
40	328-0902-00	1	Cylinder Tail Bushing



**Figure 2**

**I Installing the Cylinder Mounts**

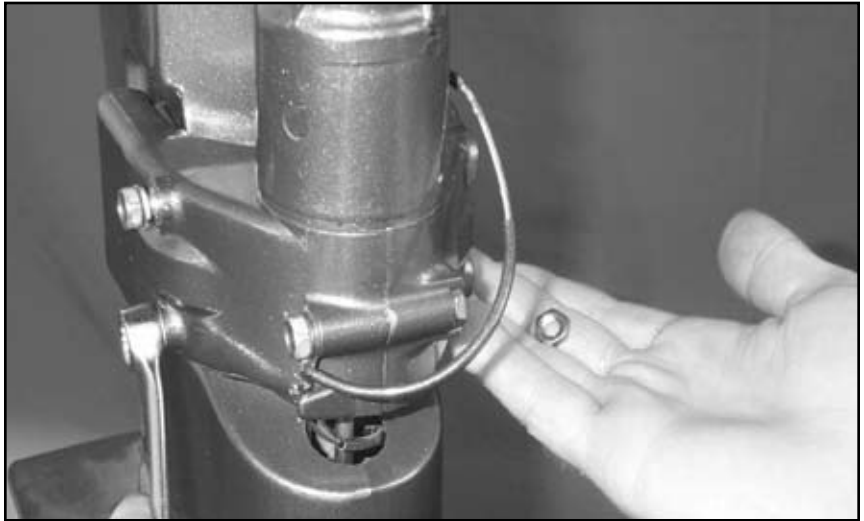
**Tools needed:**

- One; Wrench 7/16 In.
- One; 10 MM Wrenches \*
- One; 1/2 In. Wrenches \* (at least one needs to be open end)
- Thread Lock (Loctite or similar)

## **Installation:**

### **Step 1 (Rear Nuts):**

Tip the motor all the way up. Remove the two rear nuts from the lower motor port side vibration isolation mounting shroud by loosening the screws that come into them from the starboard side. Leave the screws in place.



**Figure 4**

### **Step 2 (Nut Plate):**

Put a little thread lock on the protruding ends of the screws just loosened. Thread the screws into non-flat side of the Standoff Nut Plate (*item 5*) as shown in figure 5 and tighten them.



**Figure 5**

### **Step 3 (Front Screw):**

Remove the forward nuts from the lower motor port side vibration isolation mounting shroud by loosening starboard side. Again, leave the screws in place.



**Figure 6**

#### **Step 4 (Standoff Nut):**

Again, put a little thread lock on the protruding ends of the screws just loosened. Thread the screws one end of the Standoff Nut (*item 1*) as shown in figure 7 and tighten it.



**Figure 7**

#### **Step 5 Mounting the Channel:**

Put a little thread lock on the ends of the three 6 MM Hex CAP Screws (*item 11*) and install them through the Cylinder Mounting Channel Assembly (*item 4*) and into the Standoff Nut and Plate (*item 11 & 5*) as shown in figure 8. (*Channel with the label facing you right side up.*) Keep the Channel perpendicular to the motor down shaft and tighten the nuts.



**Figure 8**

### **Step 6 (Align Mounting Bracket):**

Align the two bumps on the top of the Rod Eye Mounting Bracket (*item 2*) so that they enter the bottom of the grooves on the inside of the gussets on the motor's steering pivot bracket as show in Figure 9.

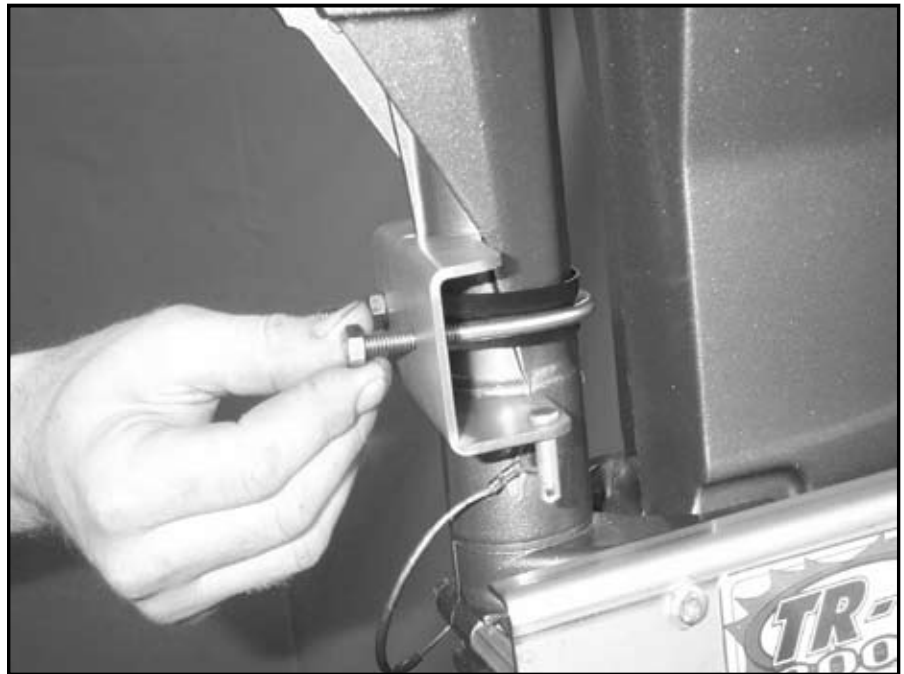


**Figure 9**

### **Step 7 (“U” Bolt):**

Install the “U” Bolt around the pivot bracket neck. Place the Pad (*item 10*) under the “U” Bolt to protect the motor's finish. Put a little thread lock on the protruding screw ends of the “U” Bolt. Mount and tighten the “U” Bolt Nuts.

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



**Figure 10**

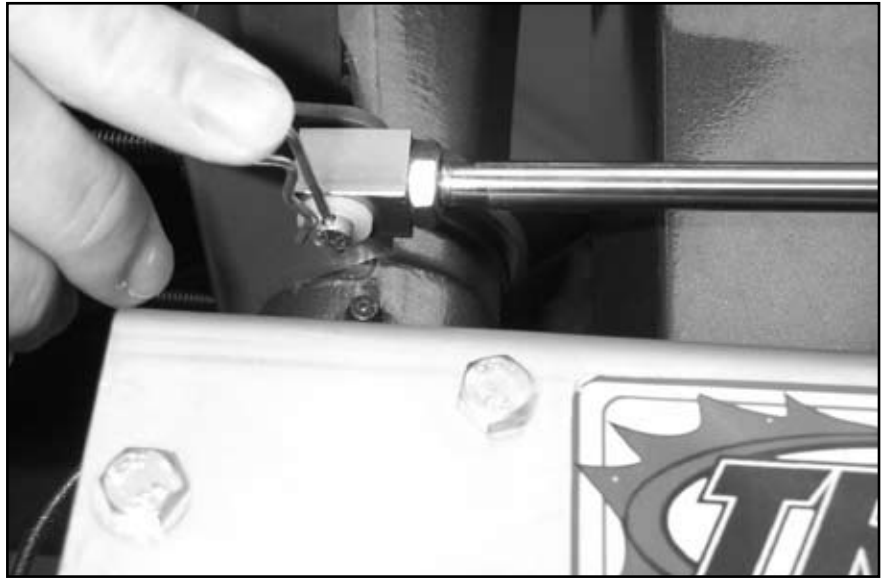
## **II Installing the Cylinder:**

### **Tools needed:**

One; 1/2 In. Open end wrench (*should be all you need*)

### **Step 8 (Cylinder Rod Eye):**

Place the Rod Eye (*item 31*) over the vertical pin in the Rod eye Mounting Bracket (*item 2*) as shown. (Leave the cylinder attached). Install the Medium Hair pin cotter (*item 14*) through the hole in the vertical pin. Turn the cylinder (*item 34*) Fittings (*item 35*) up.



**Figure 11**

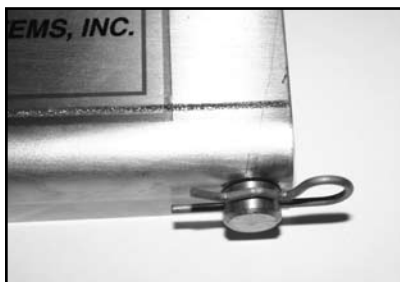
### **Step 9. (Cylinder End Cap):**

Line the hole in rear end cap of the cylinder 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 17*) through the hole and washer that is wire tied to the cylinder eye end (*cut the wire tie first*) into the Stern Pivot Pin (*item 19*). Put the Large Hair Pin Cotter (*item 13*) through the cross holes in both pins See Figure 12.

Put the Med Hair Pin Cotter (*item 14*) through the cross hole in the bottom of the Stern Pivot Pin (*item 19*) See Figure 12-a.



**Figure 12**



**Figure 12-a**

### **Step 10 (Full Port & Starboard):**

Turn the motor hard over to port. That will retract the Cylinder rod into the cylinder (Figure 13). Check that the cylinder rod is still free to retract at least a little more. Next turn the motor hard over to starboard. That will extend the cylinder rod out of the cylinder (Figure 14). 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 now ready for plumbing the hydraulic lines. We suggest you put the original parts in a container and, carefully, store them.



**Figure 13**



**Figure 14**

Note: These pictures do not reflect the newer style Cylinder or fittings.