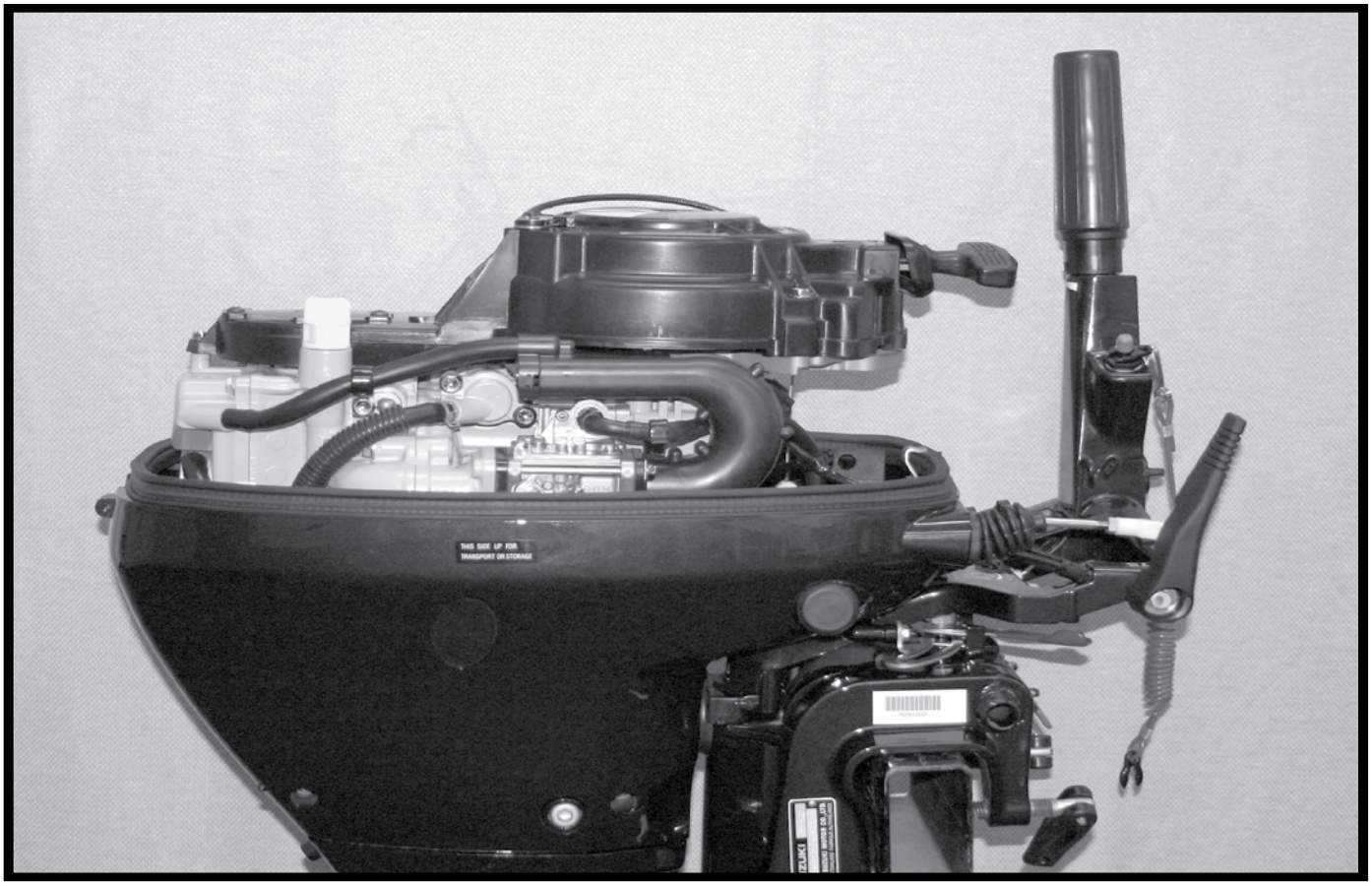
GARMIN™

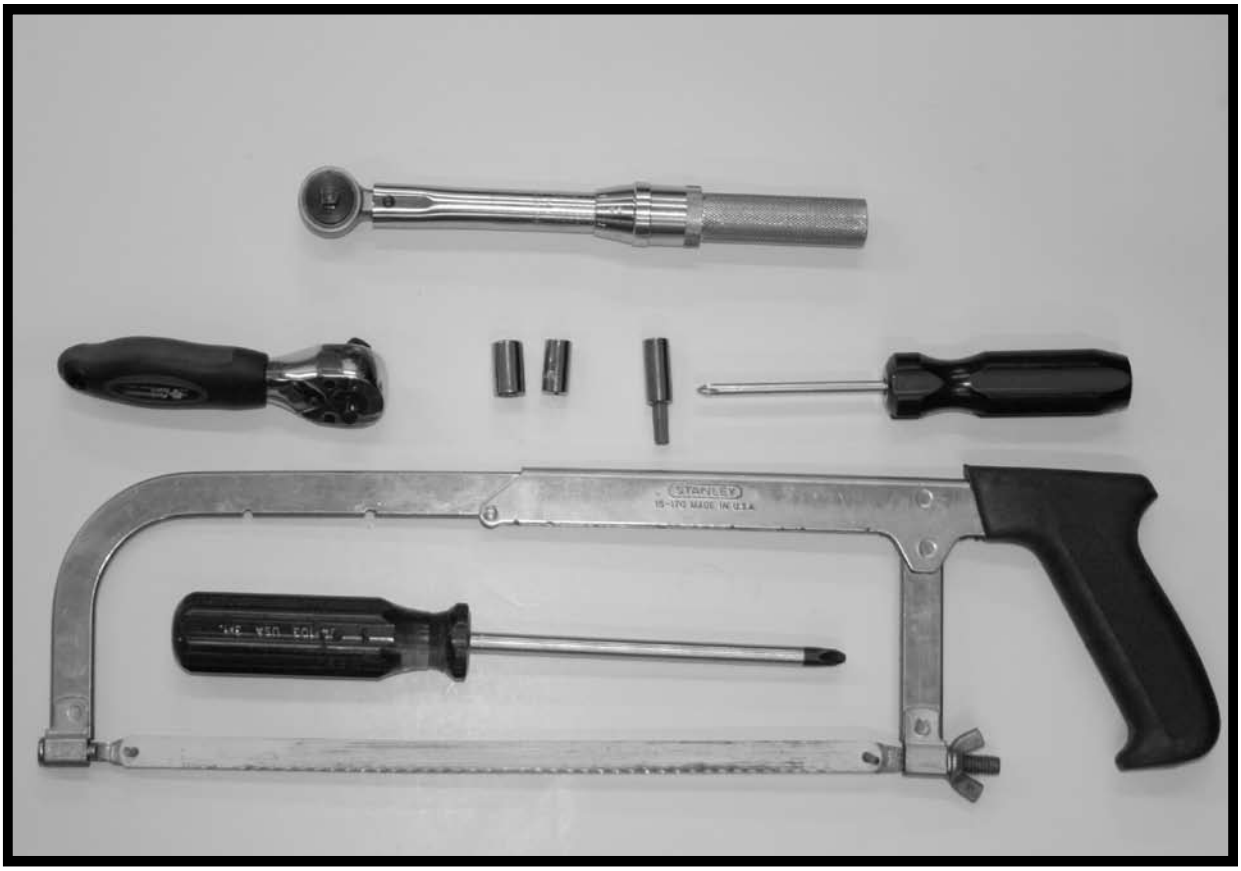
TR-1 Gold

Throttle Actuator Installation Instructions

Suzuki 9.9 2005 and Newer
Suzuki 15 HP 2005 and Newer



Tools Needed:



Vise Grips or Similar
Pliers
Ratchet
12mm socket
10mm socket
Extension
6mm internal Hex Bit (Allen)
Torque Wrench
Hacksaw
#1 Phillips screw driver
#3 Phillips screw driver
Locktite or Similar thread locker

Warning! Please Read. This application can be a difficult throttle installation, and requires the use of a Torque Wrench in the installation. Since this engine is so tightly packaged, you may wish to have your Suzuki dealer install this for you. Read through the instructions completely before proceeding. If you have any questions, please don't hesitate to call our technical service advisors. 1-800-588-7655

Suzuki Throttle Parts			
Item #	Part Number	Description	Qty.
1	120-1090-05	Throttle Actuator Assembly. Suzuki	1

Figure 1

Step One:

Disconnect motor from battery and or disconnect safety lanyard, to prevent motor from starting during throttle actuator installation

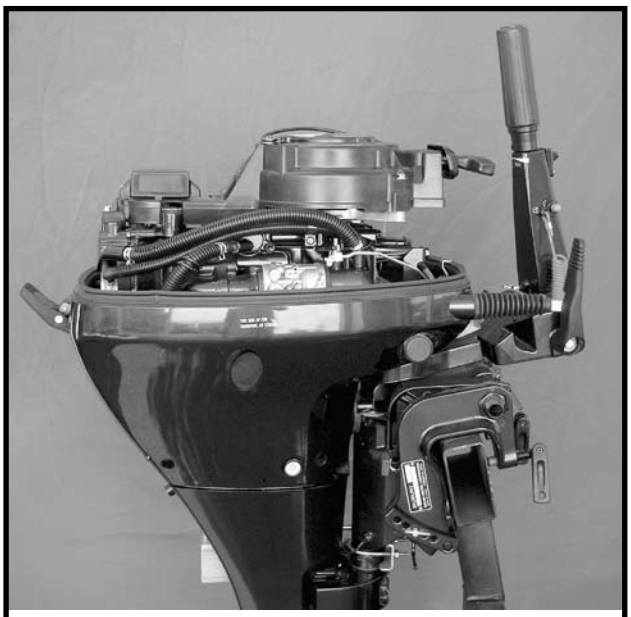


Figure 2

Step Two:

Remove Cover (cowling) from motor.

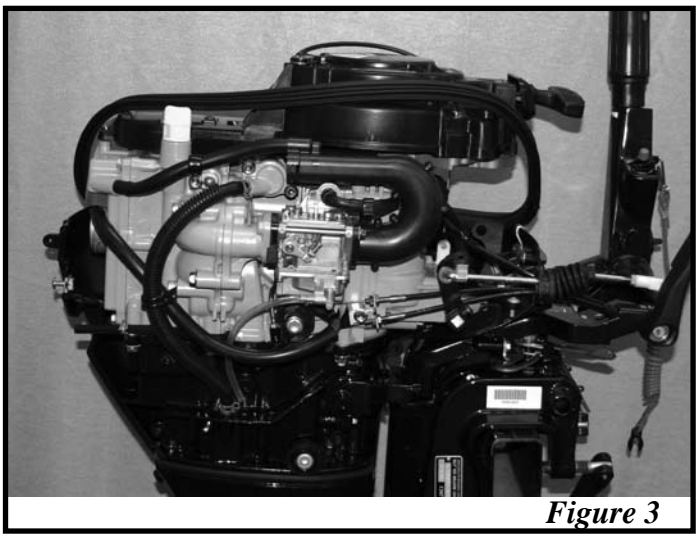


Figure 3

Step Three:

Remove the right side cover as described in the Service Manual.

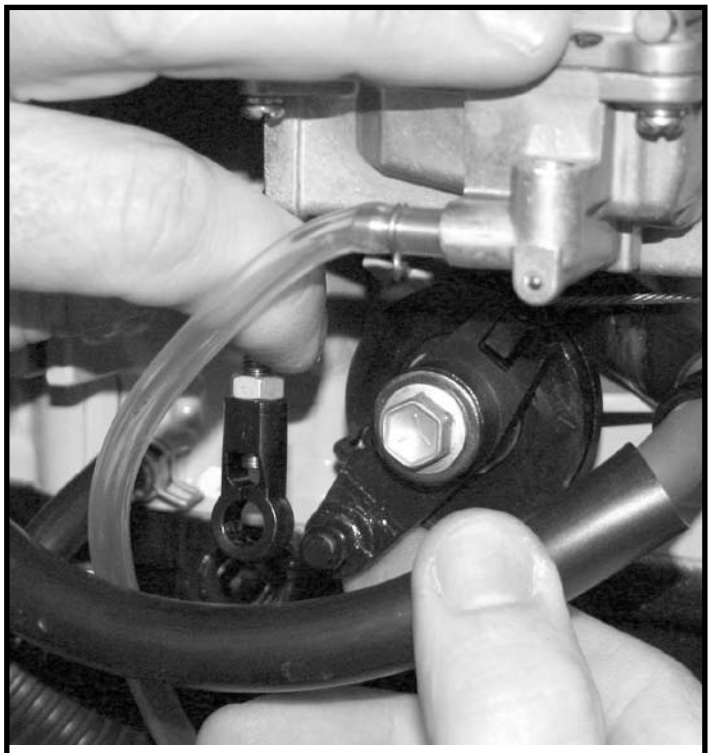


Figure 4

Step Four:

Pop the ring off the ball on the drive arm of the throttle actuator that's located just below the carburetor, as seen in Figure 4.

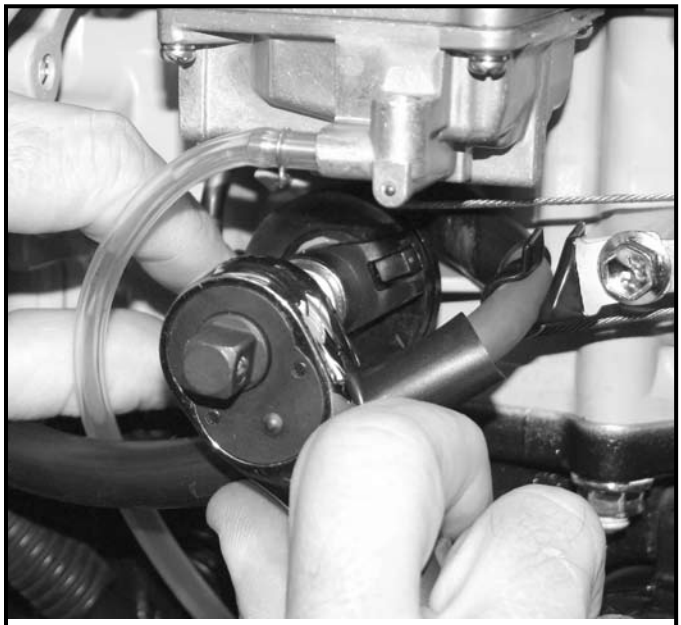


Figure 5

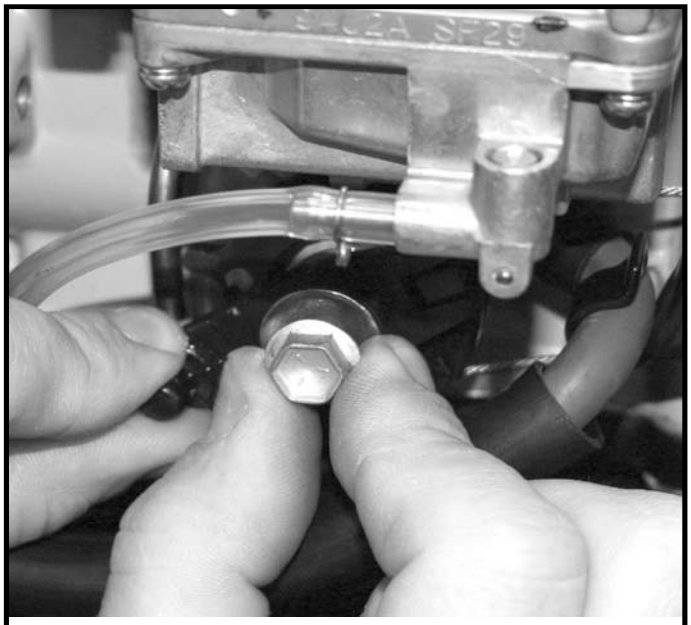


Figure 6

Step Five:

Remove the Hex Cap Screw from the actuator as seen in Figures 5 & 6. Remove the Drive arm.

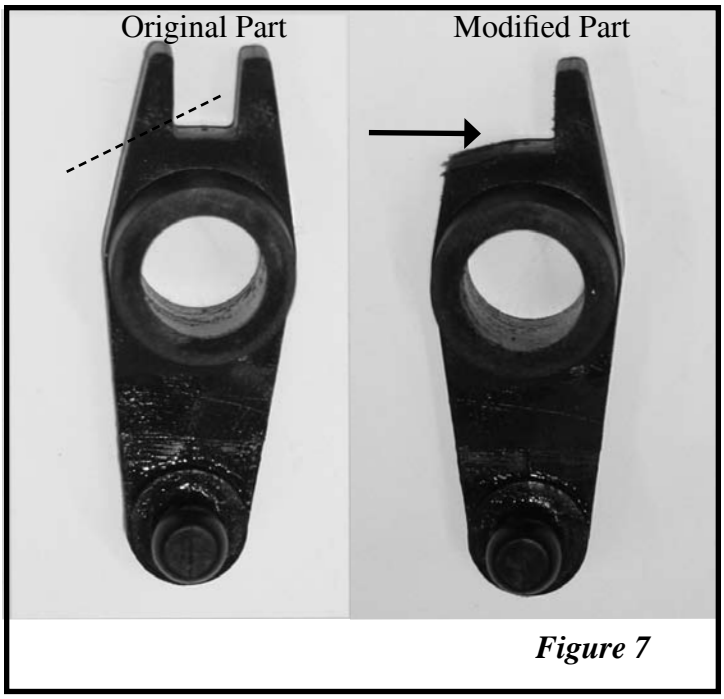


Figure 7

Step Six: Modify drive arm

Use a hack saw or similar to remove the left "ear" of the throttle drive arm. See Figure 7. (You can smooth the edges with a file or a piece of sand paper if needed.

NOTE: The throttle lever must be free to advance with out touching the lug of the Manual throttle advance. See Figure 8

Figure 8

Step Seven: Reinstall Throttle Drive Arm.

Reinstall the throttle drive arm. Be sure the remaining ear is to the **right** of the LUG & tighten hex head screw.

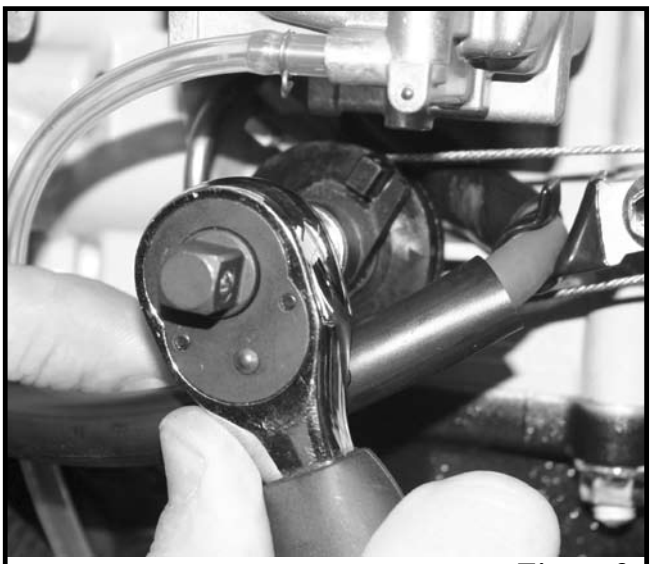


Figure 9

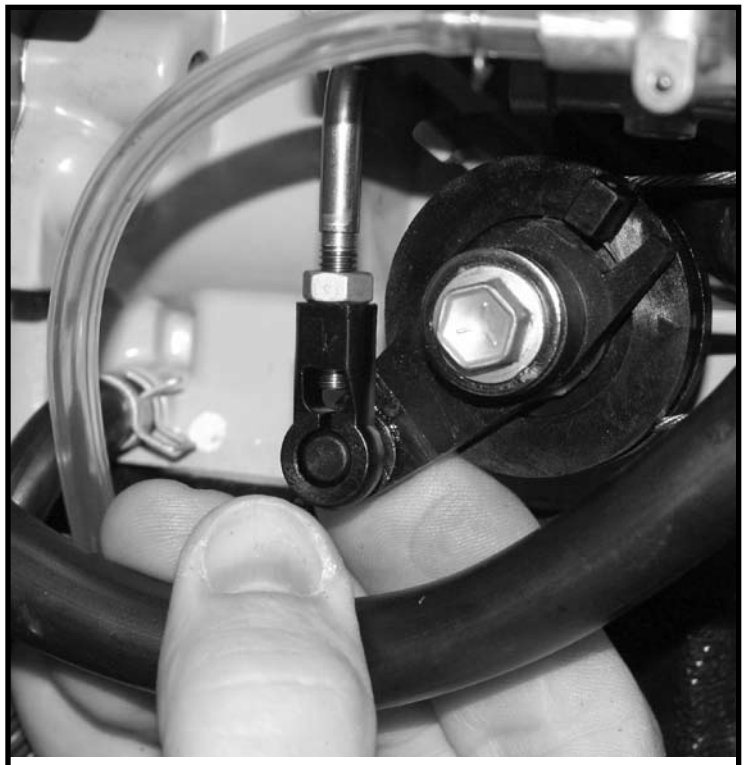


Figure 10

Step Eight:

Push the ring back over the ball on the drive arm, per Figure 10.

Figure 11-A

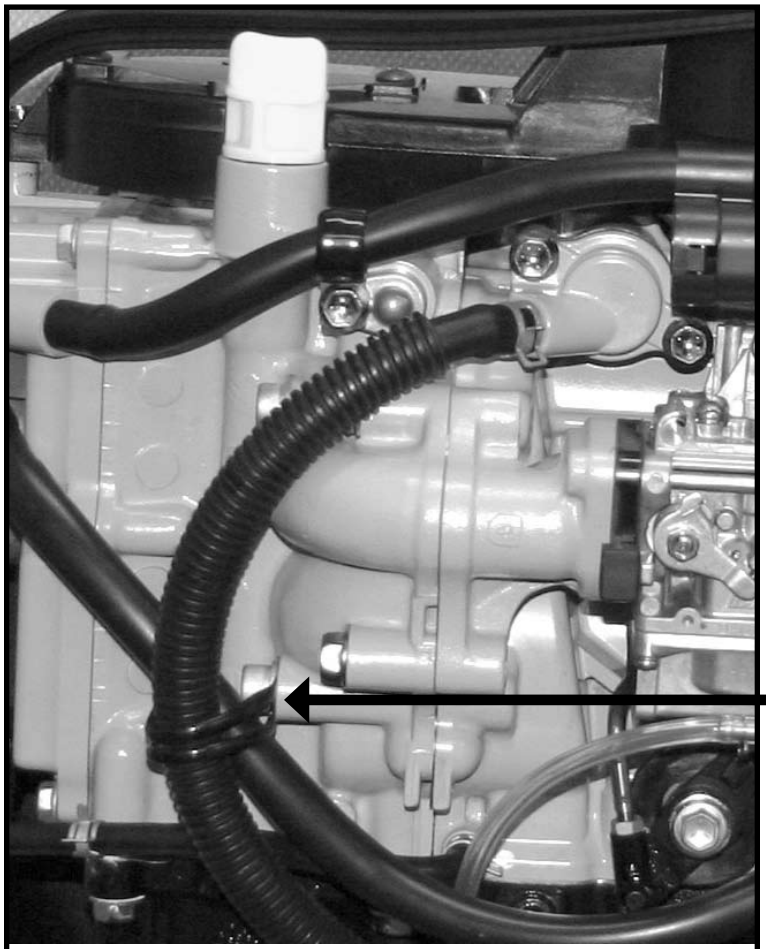


Figure 11

Step Nine:

Remove the head bolt, as indicated in Figure 11 & 11-A.

Figure 12

Step Ten:

Use the removed cylinder head bolt to mount the throttle actuator bracket as shown.

Note: Bend the loom holder out of the way temporarily to gain access to the bolt, and then bend it back into place to hold the wire loom & hose in place away from the throttle actuator as shown in Figure 13.

Torque bolt 30Nm/21.5 ft.lbs

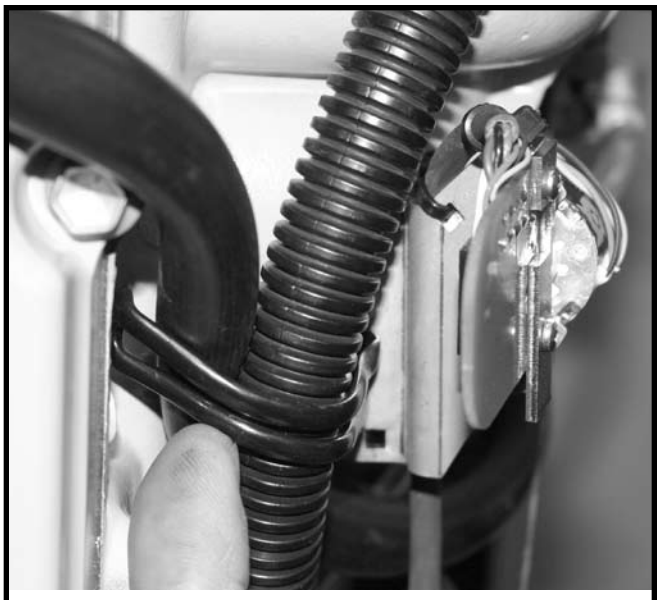


Figure 13

Step Eleven:

Remove the nut & lock washer from the throttle arm of the carburetor as seen in Figures 14 & 15.

Figure 14

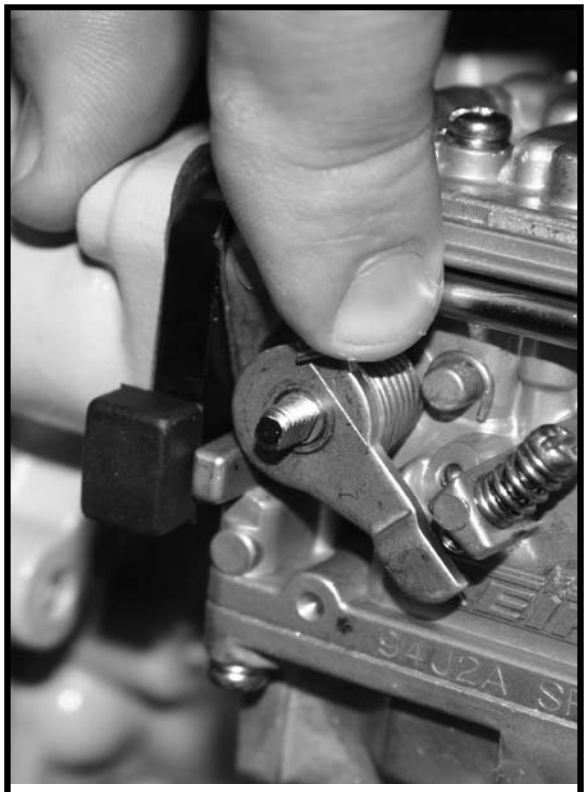


Figure 15

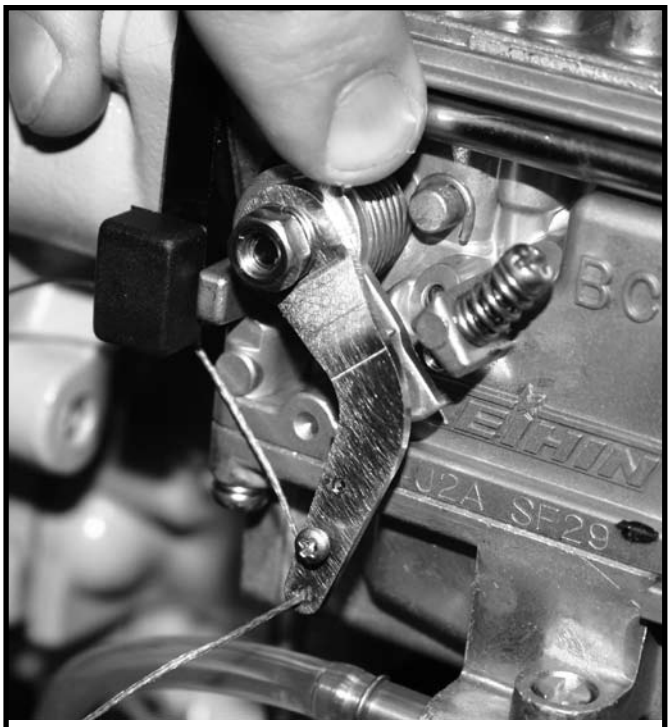


Figure 16

Step Twelve:

Put the Nautamatic Throttle Advance bell crank (at the end of the string on the TR-1 throttle actuator) on to the throttle shaft and reinstall the lock washer and nut as in Figure 16.

Step Thirteen:

Push the actuator shaft (threaded rod) to the fully extended position. Adjust the throttle pull string so there is a 1/16 of an inch bow of slack at full idle and use the screw to lock the string in this position.

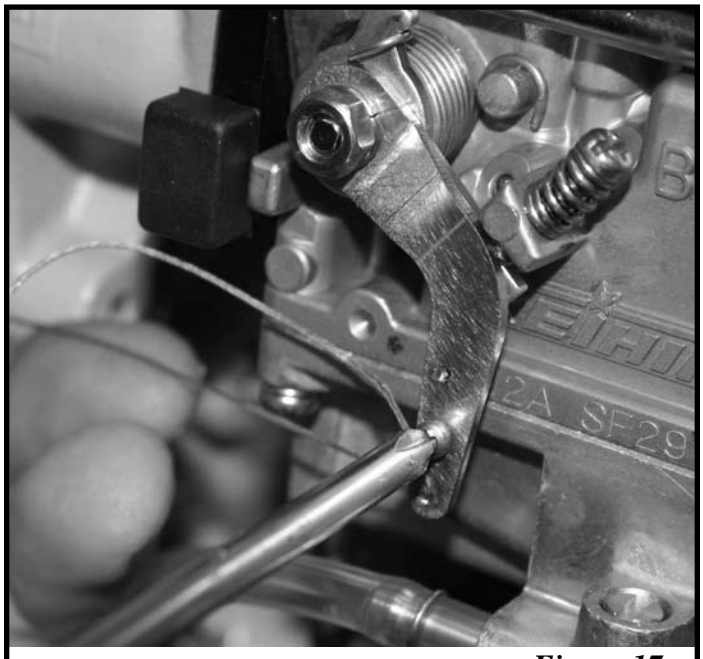


Figure 17

Step Fourteen:

Connect to Electrohydraulic unit at number 2. Be sure to seat this connection firmly.

(Other connections per autopilot installation manual.)

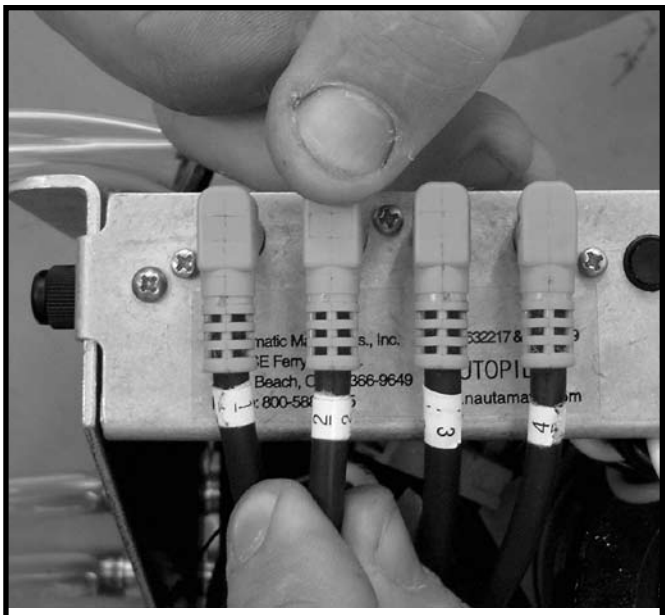


Figure 18

Figure 19

Step Fifteen:

Turn the system on by pressing and releasing the Deckmount button (On/Off switch). The Deckmount will continue to flash for 30 seconds, but the throttle functions will work while it is flashing. With the manual throttle at idle, press and hold the up arrow on the handheld as shown in Figure 19, until the actuator rod (threaded rod) is fully retracted. It should move freely without any binding.

Figure 20

Step Sixteen:

Now test the Idle/Resume function by pressing and releasing the Idle/Res on the handheld. See figure 20. Be sure the Carburetor returns to the full Idle Position. Press the Idle/Res button again, the throttle should advance until the actuator is fully retracted.

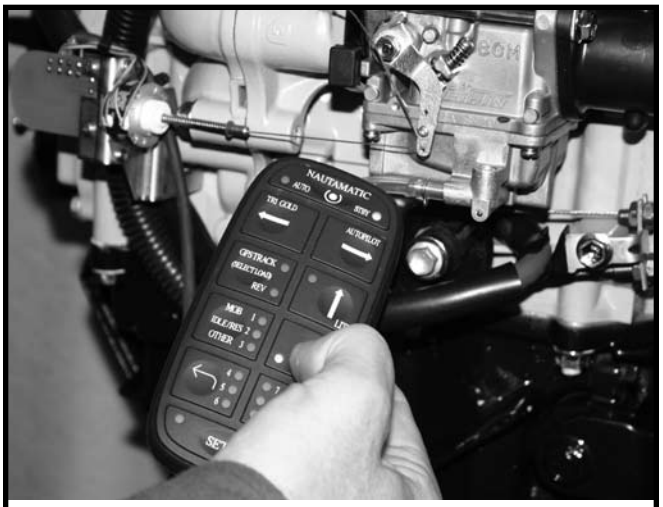


Figure 21

Step Seventeen:

Press the down arrow till the actuator rod is out about 1/4 inch. Press the Idle/Resume to confirm function. Re-adjust string (or parts) if necessary. Return throttle to Idle position by pressing the Idle/Res button.

Step Eighteen:

Use the factory standard throttle (tiller or remote throttle) to manually advance and reduce the throttle setting. See figure 22.

Note: Which ever mechanism is set for the highest throttle setting will have control of the carburetor (tiller, remote throttle, or TR-1 throttle control.) If your motor does not idle down fully when using the autopilot throttle, check your manual throttle to be sure it is set at full Idle.

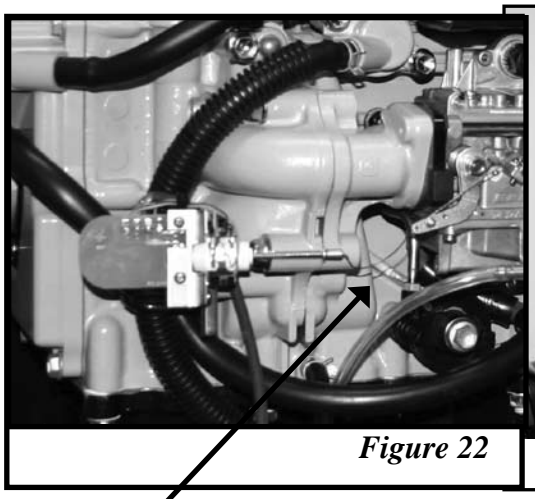


Figure 22

Slack in throttle string at full idle.

Figure 23

Figure 24

Step Nineteen:

Re-install the lower covers of the motor. Secure Throttle cable in a position where it will not get damaged, cause problems with other parts, or get pinched between the motor frame and the covers.

Reconfirm that the throttle returns freely to full Idle.

Step Twenty:

Route the throttle control wire out of the motor covers and to the Electrohydraulic Unit. Secure the wire and be sure the routing to the box allows for full travel of the motor in both directions plus tilt. Take care that the wire does not get kinked, twisted or pinched.

Replace cover (cowling). Re-connect the lanyard and/or
Re-connect motor to battery.

Testing the Actuator Functions:

Please refer to the startup section of your owner's manual before operating your handheld and running the throttle actuator.

1. With the outboard in the water, or with a proper coolant flush device connected, start the outboard and let it warm up to operating conditions. Be prepared to kill the outboard ignition if the idle speed is too high when the engine starts.

2. With the outboard in idle position make sure there is proper slack in the pull string on the throttle actuator. If the motor does not go to idle, reposition the string by loosening the pinch screw on the brass pivot.

3. Using the UP ARROW button on the Handheld verify that the engine rpm's go up. Using the IDLE/ RESUME button on the handheld verify that the engine returns to idle. Check the throttle up and down several times along with the idle/res and verify that you don't have any problems.