



# ATTACHMENTS/CONTROL LINKAGE

## Section 7 - Throttle/Shift Linkage

### Table of Contents

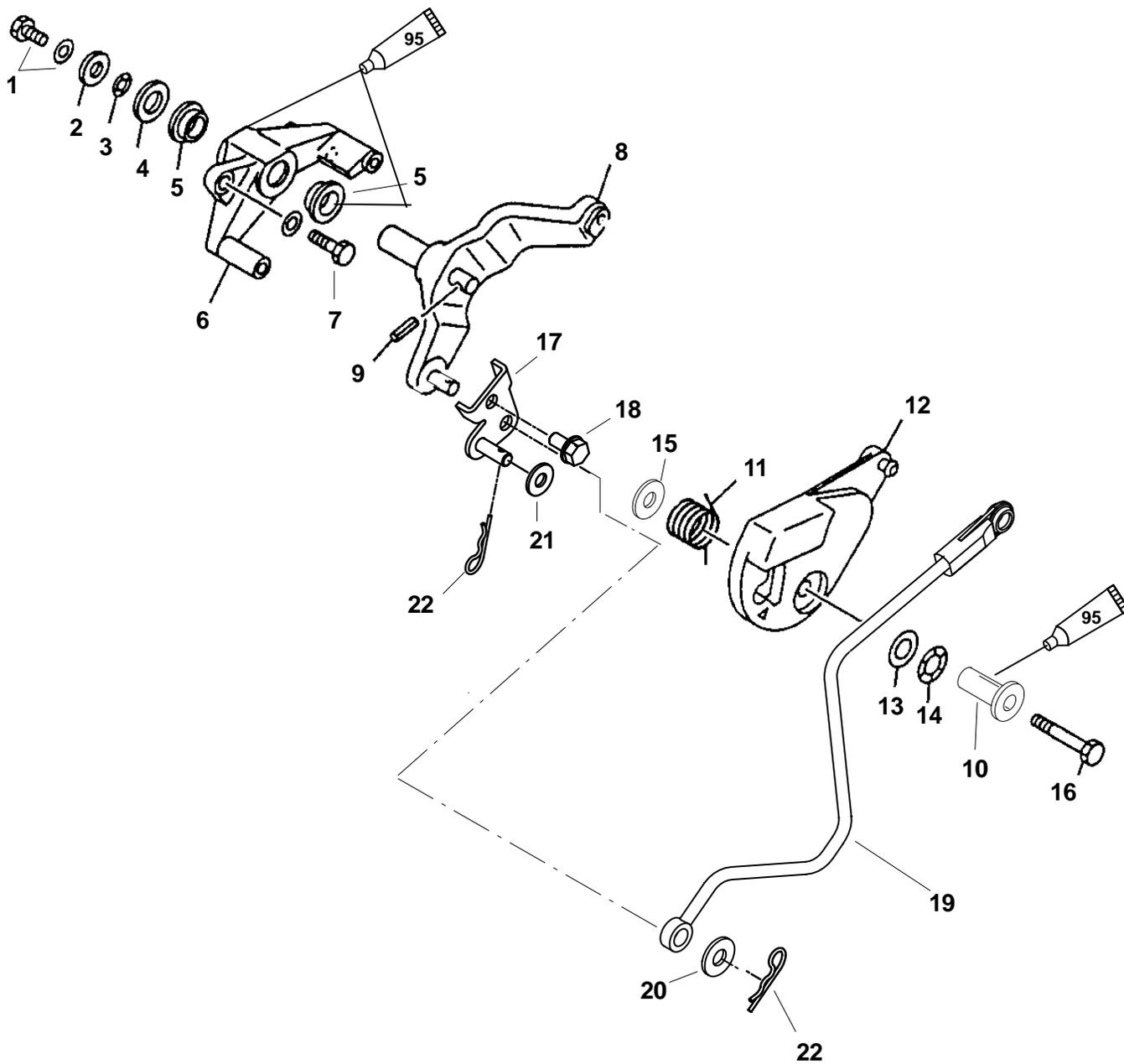
---

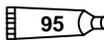
Throttle Lever and Linkage .....	7-2	Inspection .....	7-7
Throttle Position Sensor Adjustments .....	7-4	Throttle Lever and Linkage Assembly .....	7-8
Throttle Lever and Linkage Removal .....	7-5	Throttle Lever and Linkage Installation .....	7-10
Throttle Lever and Linkage Disassembly ...	7-6	Shift Bracket Removal/Installation .....	7-12

---



# THROTTLE LEVER AND LINKAGE



 2-4-C w/Teflon (92-850736A1)



# THROTTLE LEVER AND LINKAGE

REF. NO.	QTY.	DESCRIPTION	TORQUE		
			lb-in.	lb-ft	Nm
1	1	SCREW (M6 x 12 mm)	70		8
2	1	WASHER			
3	1	WAVE WASHER			
4	1	PLATE			
5	2	BUSHING			
6	1	BRACKET			
7	2	SCREW (M6 x 25 mm)	70		8
8	1	THROTTLE CONTROL LEVER			
9	1	PIN (18.5 mm Long)			
10	1	COLLAR			
11	1	SPRING			
12	1	CAM			
13	1	WASHER			
14	1	WAVE WASHER			
15	1	WASHER			
16	1	SCREW (M6 x 35 mm)	70		8
17	1	THROTTLE LEVER BRACKET			
18	1	SCREW (M6 x 12 mm)	70		8
19	1	THROTTLE LINK			
20	1	WASHER			
21	1	WASHER			
22	2	HAIRPIN COTTER			

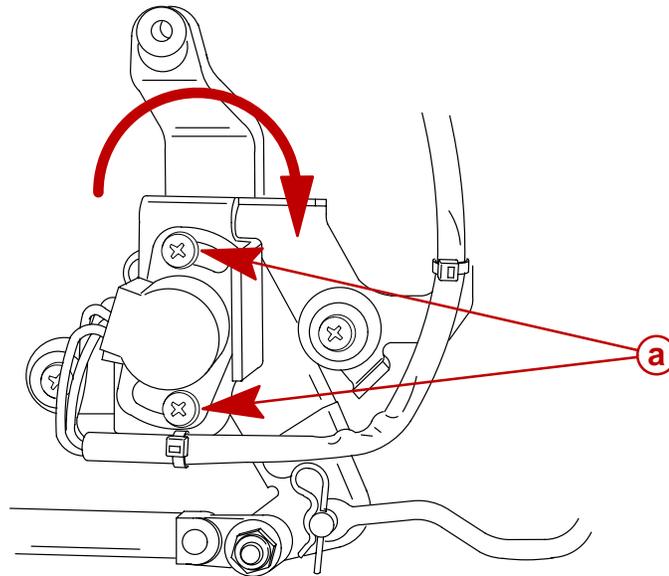
**NOTE: TORQUE TOLERANCE +/- 10%**



## Throttle Position Sensor Adjustments

1. Move the throttle control lever until it contacts the fully-closed stopper (idle position).
2. Loosen TPS mounting screws.
3. Rotate TPS fully clockwise (to end of slot position).
4. Tighten TPS mounting screws.

**NOTE:** Start engine at idle speed and measure the voltage between the PNK and ORN leads. Verify that TPS has been adjusted correctly.



**a** - Screw (2)

TPS Output Voltage (PNK - ORN)
0.68 - 0.82

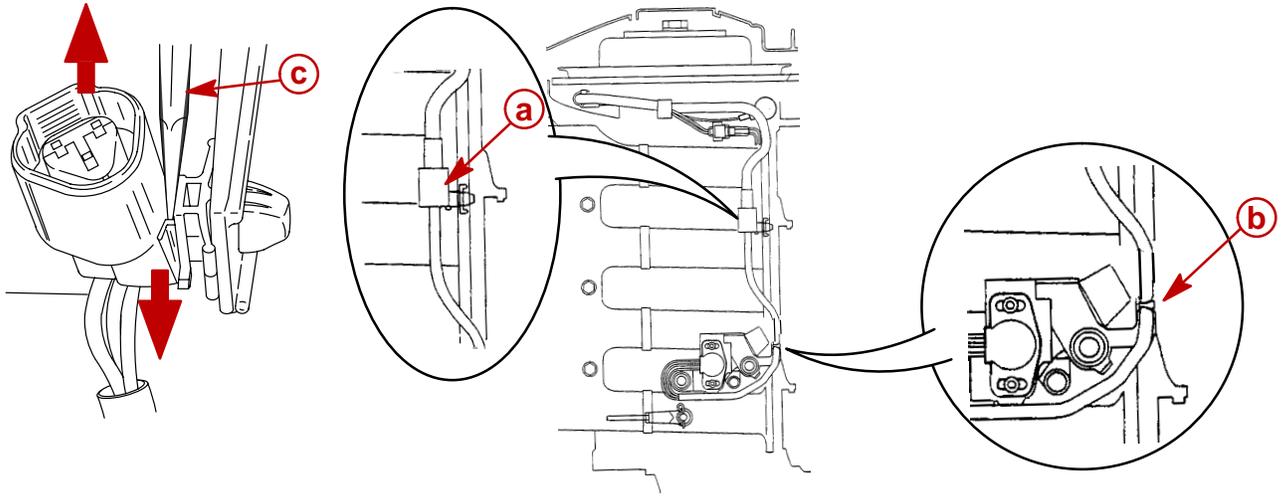
**NOTE:** Refer to **Section 2A** for voltage measurement procedures on the throttle position sensor.



# Throttle Lever and Linkage Removal

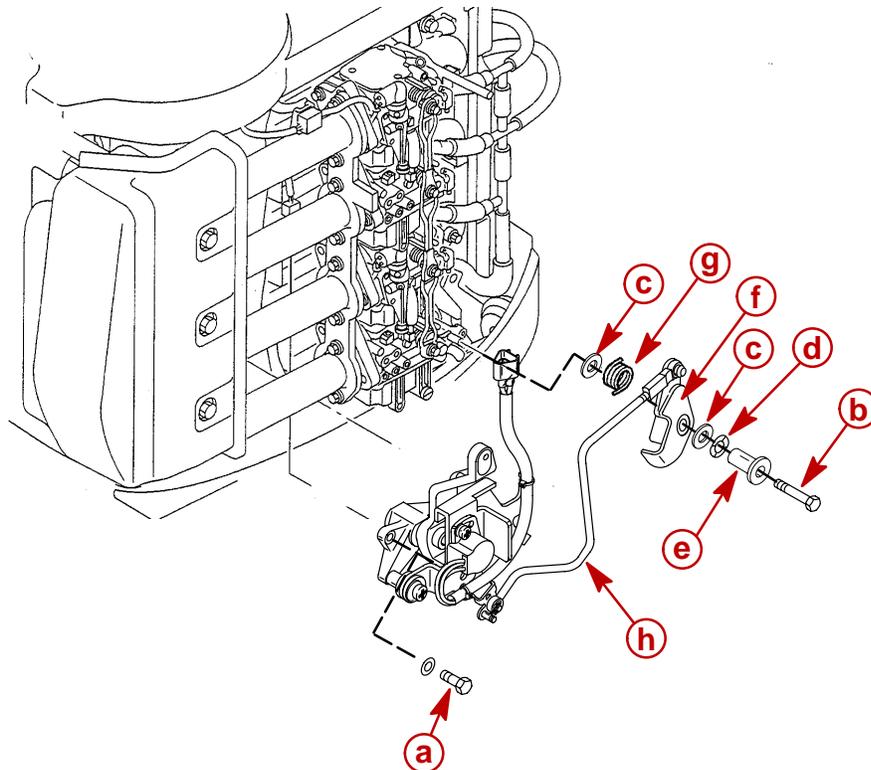
1. Disconnect throttle position sensor (TPS) plug.

**NOTE:** To release connector from it's mount, insert flat blade screwdriver next to connector and push down on screwdriver while pulling up on connector.



- a - Throttle Position Sensor Connector
- b - Cable Tie
- c - Flat Blade Screwdriver

2. Remove throttle link from throttle cam.
3. Remove throttle lever/linkage assembly and/or throttle cam as needed.



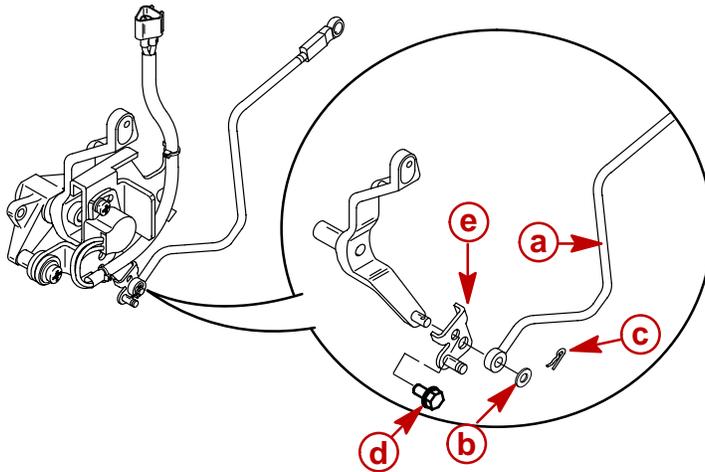
- a - Screw (2) M6 x 25
- b - Screw M6 x 30
- c - Washer (2)
- d - Wave Washer

- e - Bushing
- f - Throttle Cam
- g - Spring
- h - Throttle Link



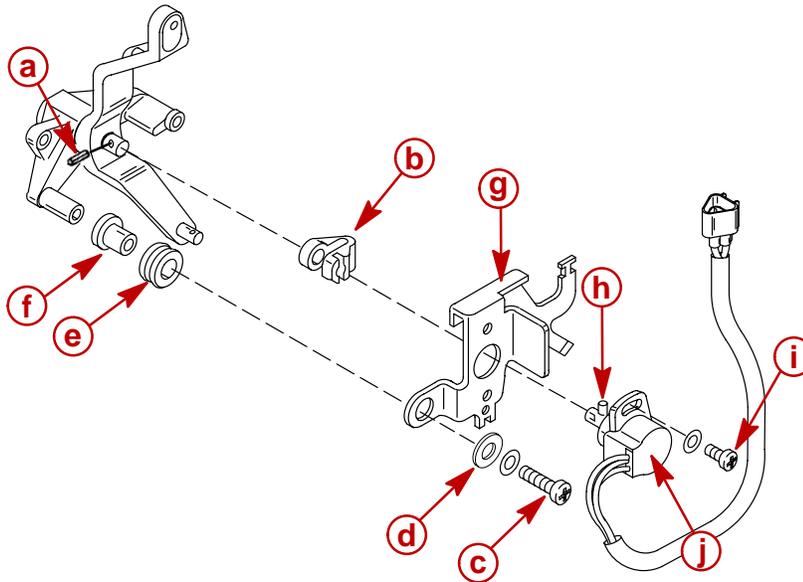
# Throttle Lever and Linkage Disassembly

1. Disassemble throttle lever/linkage assembly.



- a** - Throttle Link
- b** - Washer
- c** - Hairpin Cotter
- d** - Screw M6 x 12
- e** - Throttle Lever Bracket

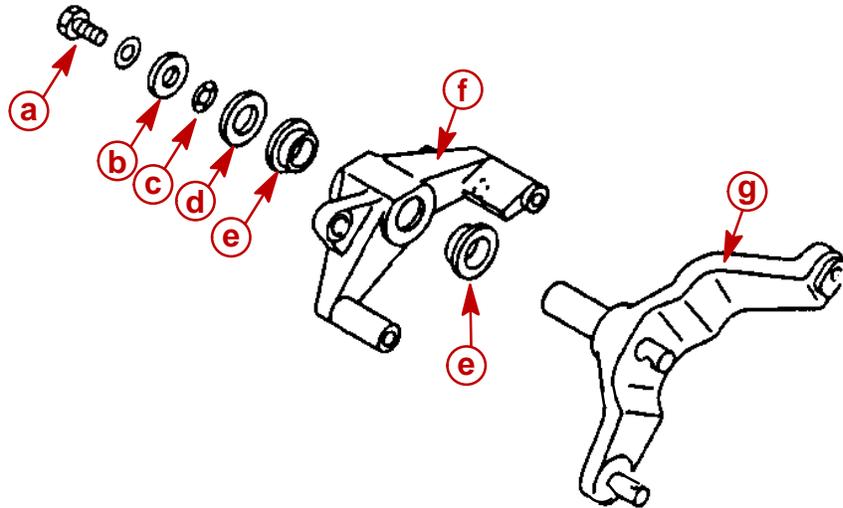
2. Remove throttle position sensor and bracket.



- |                               |                                     |
|-------------------------------|-------------------------------------|
| <b>a</b> - Pin (18.5 mm Long) | <b>f</b> - Collar (2)               |
| <b>b</b> - Lever              | <b>g</b> - Bracket                  |
| <b>c</b> - Screw (2) M5 x 25  | <b>h</b> - Pin (16.5 mm Long)       |
| <b>d</b> - Washer (2)         | <b>i</b> - Screw (2)                |
| <b>e</b> - Grommet (2)        | <b>j</b> - Throttle Position Sensor |



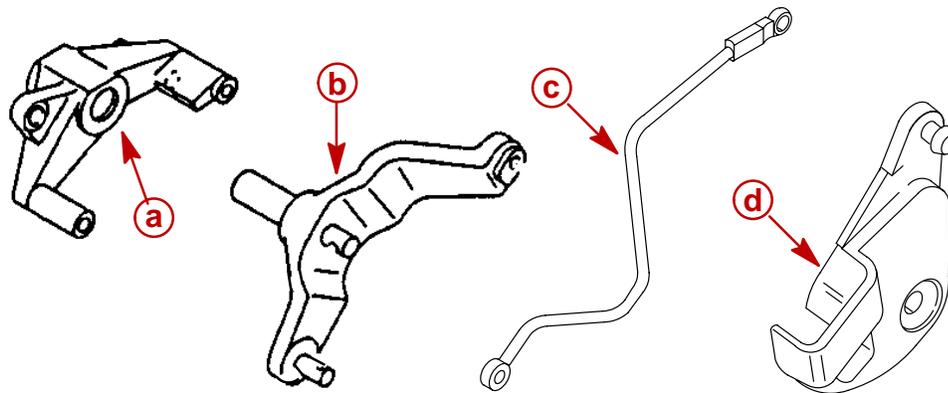
3. Separate throttle control lever from bracket.



- a** - Screw M6 x 12
- b** - Washer
- c** - Wave Washer
- d** - Plate
- e** - Bushing (2)
- f** - Bracket
- g** - Throttle Control Lever

## Inspection

1. Inspect brackets, shaft, and cam. Replace if cracked or damaged.

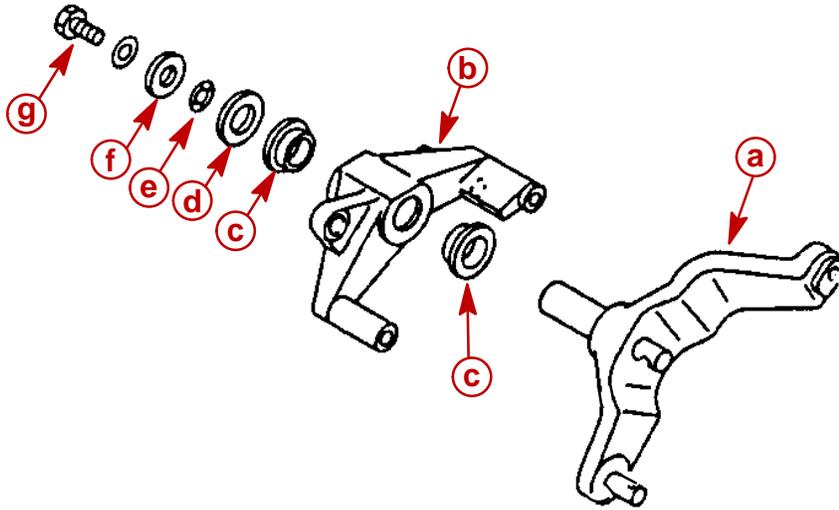


- a** - Bracket
- b** - Throttle Control Lever
- c** - Shaft
- d** - Cam



# Throttle Lever and Linkage Assembly

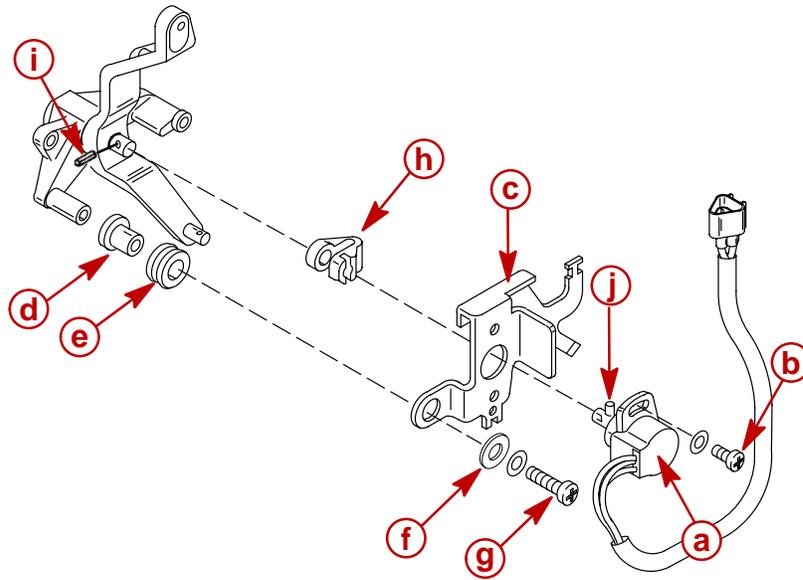
1. Assemble throttle control lever and bracket.



- a** - Throttle Control Lever
- b** - Bracket
- c** - Bushing (2)
- d** - Plate
- e** - Wave Washer
- f** - Washer
- g** - Screw M6 x 12

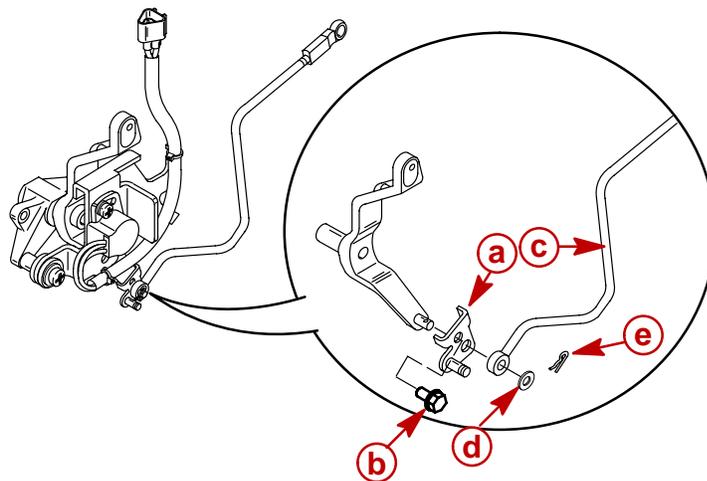


2. Install throttle position sensor and bracket onto control lever assembly.



- a** - Throttle Position Sensor
- b** - Screw (2) M5 x 10
- c** - Bracket
- d** - Collar (2)
- e** - Grommet (2)
- f** - Washer (2)
- g** - Screw (2) M5 x 25
- h** - Lever
- i** - Pin (18.5 mm Long)
- j** - Pin (16.5 mm Long)

3. Assemble throttle lever/linkage assembly.



- a** - Throttle Lever Bracket
- b** - Screw M6 x 12
- c** - Throttle Link
- d** - Washer
- e** - Hairpin Cotter

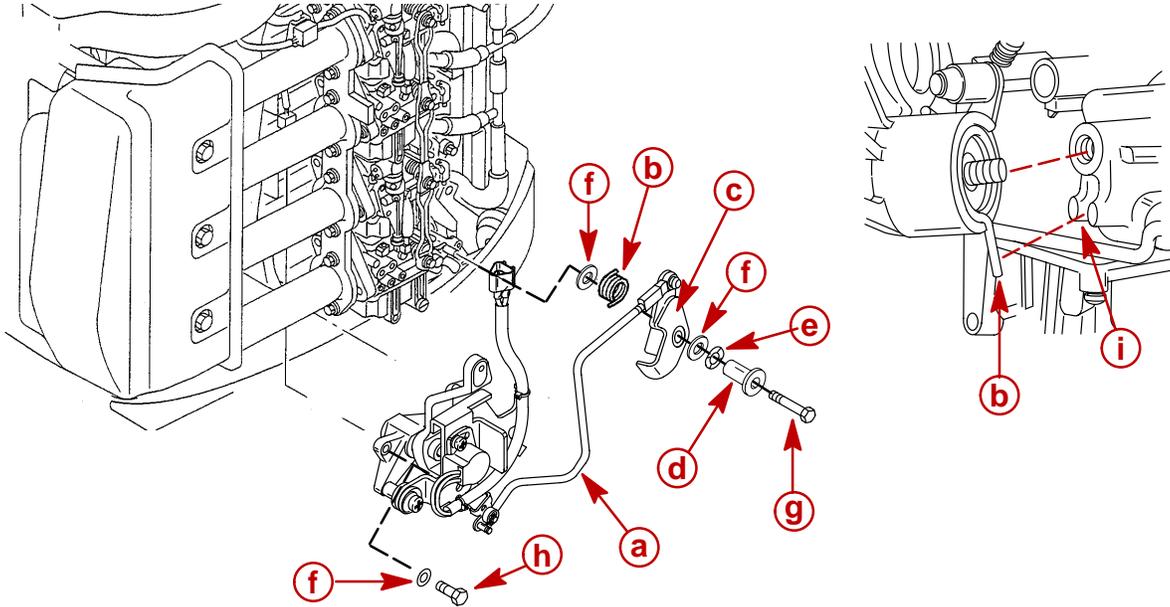


# Throttle Lever and Linkage Installation

1. Install cam over roller of cam follower and secure cam to boss on intake manifold. Tighten screw to specified torque.

**NOTE:** Position longer end of spring in recess of cylinder block as shown.

2. Install throttle lever/linkage assembly and connect throttle link to throttle cam.

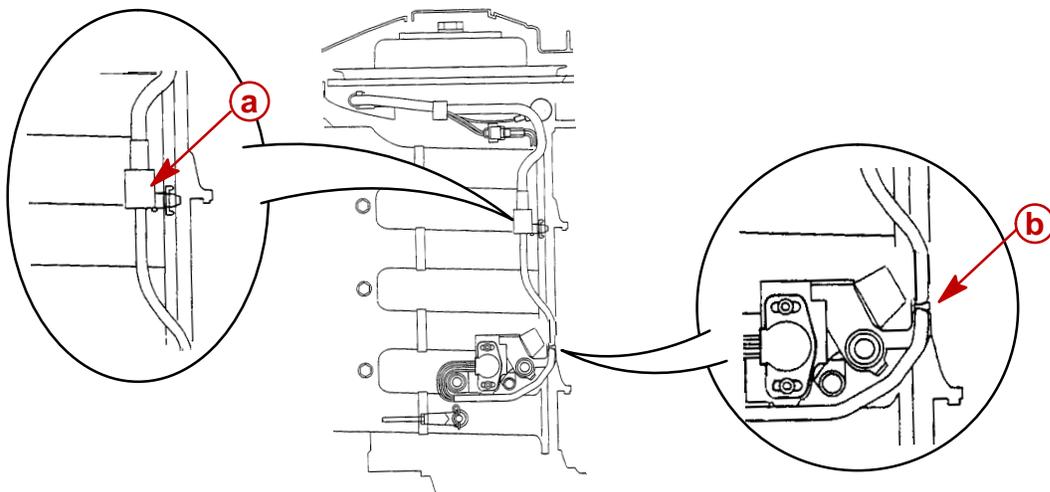


- a** - Throttle Link
- b** - Spring
- c** - Cam
- d** - Bushing
- e** - Wave Washer
- f** - Washer
- g** - Throttle Cam Screw M6 x 35
- h** - Throttle Bracket Screw (2) M6 x 25
- i** - Recess for Spring

<b>Throttle Cam and Throttle Bracket Screw Torque</b>
70 lb-in. (8 Nm)



3. Connect throttle position sensor (TPS) leads.



**a** - Throttle Position Sensor Connector

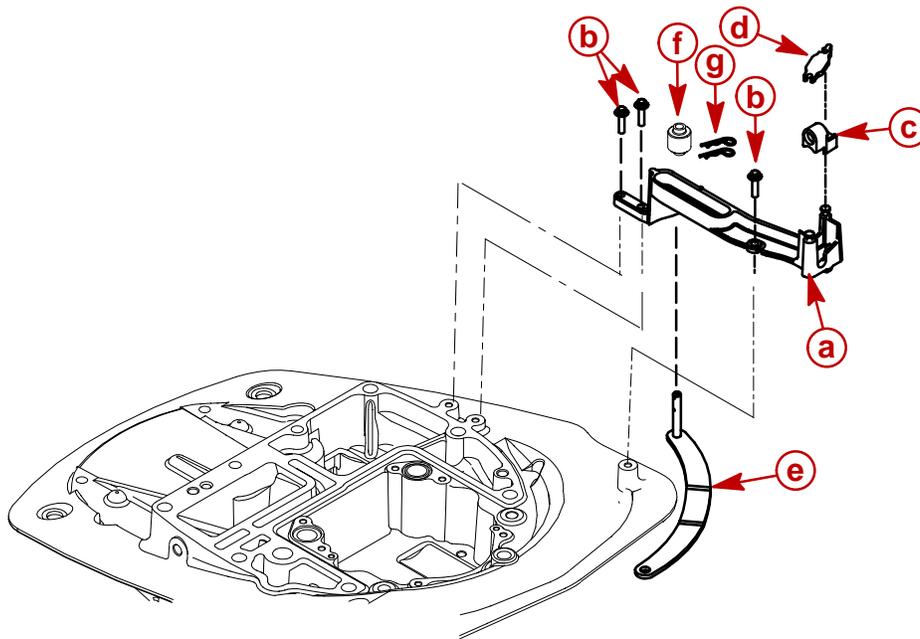
**b** - Cable Tie

**NOTE:** After reinstalling throttle linkage refer to section **2C-Timing, Synchronizing, and Adjusting** for proper setup.



# Shift Bracket Removal/Installation

1. Remove/install shift bracket as shown.



- a** - Shift Linkage Bracket
- b** - Screw (3) M6 x 20
- c** - Retainer
- d** - Latch
- e** - Shift Link
- f** - Roller
- g** - Cotter Pin (2)

Shift Bracket Screw Torque
80 lb-in. (9 Nm)

**NOTE:** Refer to section “1D-Outboard Installation” for proper installation of shift and throttle cables.