

## INDUCTION MODULE

## REMOVAL

- Partially remove fuel tank. See Section 9.4 FUEL TANK (FUEL INJECTED), PARTIAL REMOVAL, either FLHXI, FLHT/C/U/I, FLTRI or FLHR/C/S/I.
- Remove air cleaner and backplate. See Section 4.5 AIR CLEANER, REMOVAL.
- Pull purge tube from fitting at top of induction module (California models only). See Figure 9-23.
- Using a needle nose pliers, carefully pull idle cable barrel from upper hole in throttle wheel. Pull throttle cable barrel from lower hole. Using slots, release idle and throttle cables from guides in throttle cable bracket.
- On cruise control equipped models, remove E-clip from sleeve at end of cruise cable housing. Using slot, remove cable housing from cable guide in throttle cable bracket. Push the plastic end fitting on the cruise cable to the outboard side to release from wheel pin. See Figure 9-24.
- Remove IAC connector [87] and MAP sensor connector [80].
- Remove front fuel injector connector [84] and rear fuel injector connector [85].
- Remove TP sensor connector [88] and IAT sensor connector [89].
- Remove right side allen head socket screws from front and rear cylinder head flange adapters. For best results, use the INTAKE MANIFOLD WRENCH (HD-47250), or a long 1/4 inch ball allen head socket with end driver 4 inches long.

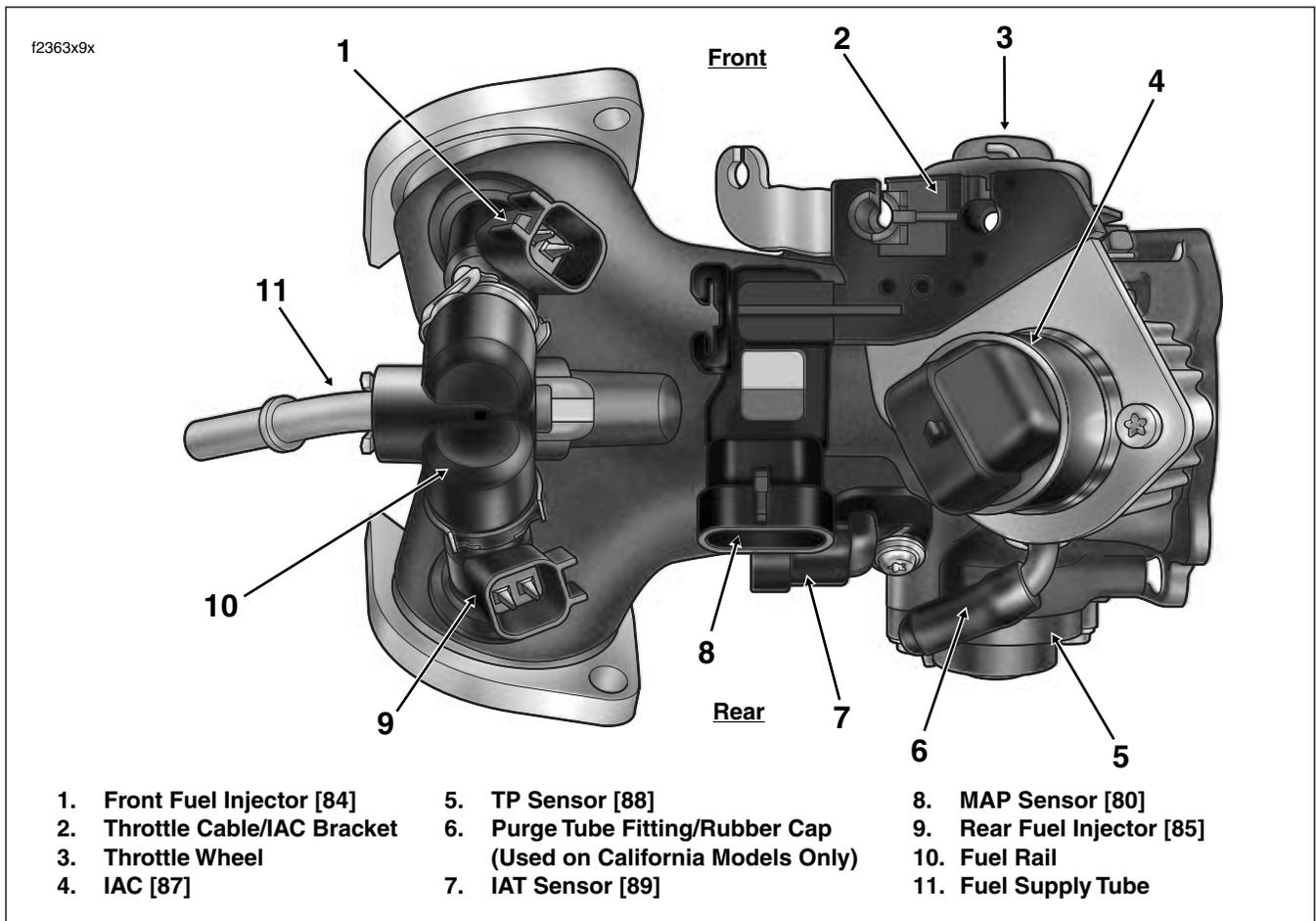
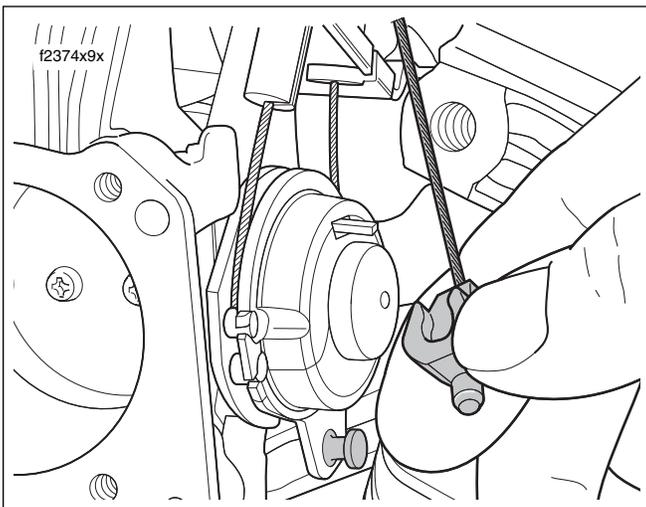


Figure 9-23. Induction Module Assembly



**Figure 9-24. Remove End Fitting From Wheel Pin**

10. Moving to opposite side of motorcycle, just loosen left side allen head socket screws from flange adapters. Slots in flanges make removal of left side screws unnecessary. To better access bolts, loosen acorn nut and swing horn assembly out of the way.
11. Slide induction module out from right side of motorcycle. Use caution around horn bracket to prevent damage to fuel supply line.

**⚠ WARNING**

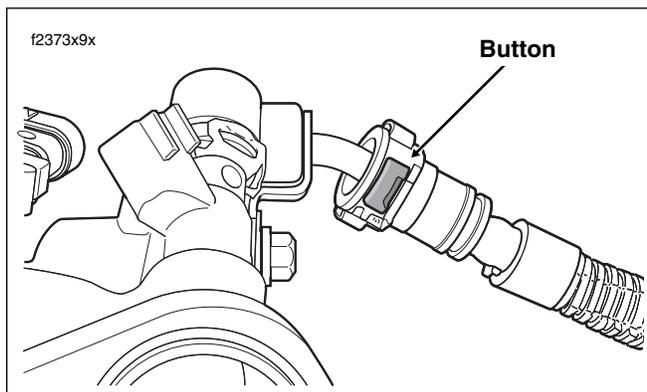
**A small amount of gasoline will drain from the fuel supply line when disconnected from the fuel supply tube. Thoroughly wipe up any spilled fuel immediately. Dispose of rags in a suitable manner. Gasoline is extremely flammable and highly explosive. Inadequate safety precautions could result in death or serious injury.**

12. Depress button on fuel supply line and remove from fuel supply tube. See [Figure 9-25](#).
13. Remove seals from flange adapters. Discard seals. Remove flange adapters from outlet ports of induction module.

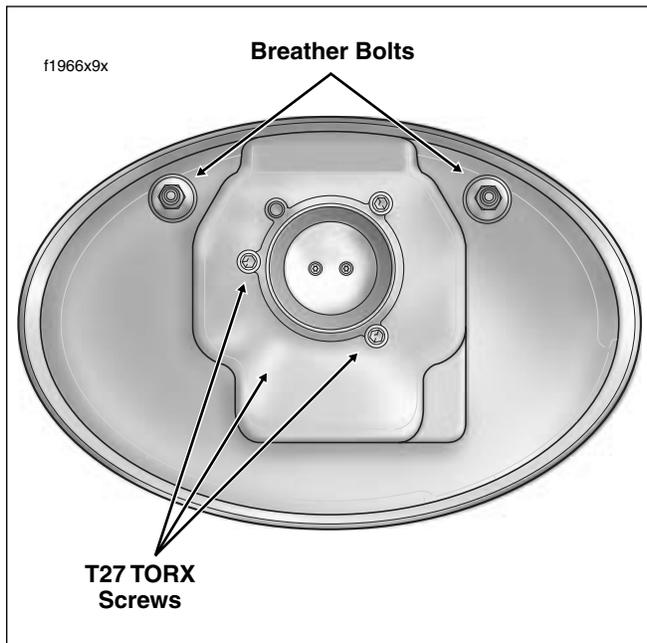
## INSTALLATION

1. Slide fuel supply line onto fuel supply tube of induction module. A slight tug will verify that the line is locked in place.
2. Orientate the induction module as shown in [Figure 9-23](#). With the counterbore facing outward, slide cylinder head flange adapters onto outlet ports of induction module. The flange adapters are not interchangeable. Look next to the slotted bolt hole for a stamp that indicates F(ront) and R(ear) cylinder.

3. Place a **new** seal in each flange adapter with the beveled side in against the counterbore.
4. Standing on right side of engine, slide induction module toward installed position so that open-ended slots on flange adapters begin to engage allen head socket screws loosely installed on left side. Use caution around horn bracket to prevent damage to fuel supply line.
5. Install sleeve on throttle cable housing into cable guide at top of throttle cable bracket. Drawing throttle cable downward, fit barrel end into lower hole in throttle wheel. Install sleeve and spring on idle cable housing into cable guide at bottom of throttle cable bracket inserting barrel end into upper hole in throttle wheel.
6. On cruise control equipped models, slide groove in cruise cable end fitting over cap of wheel pin. Push on end fitting until it snaps in place. Using slot, slip cruise cable housing into cable guide in throttle cable bracket. At bottom of bracket, install **new** E-clip on sleeve at end of cruise cable housing.
7. Align fixed holes in flange adapters with those in cylinder heads and start allen head socket screws. For best results, use the INTAKE MANIFOLD WRENCH (HD-47250), or a long 1/4 inch ball allen head socket with end driver 4 inches long.
8. Use the air cleaner backplate to properly locate induction module. Install two breather bolts to fasten backplate to front and rear cylinder heads. Install three T27 TORX screws to secure backplate to face of induction module. See [Figure 9-26](#).
9. Tighten allen head socket screw in fixed holes of flange adapters until snug. Moving to left side of engine, tighten screws in slotted holes to 96-144 **in-lbs** (10.9-16.3 Nm). If moved, swing horn assembly back into position and tighten acorn nut.



**Figure 9-25. Remove Fuel Supply Line From Supply Tube**



**Figure 9-26. Install Backplate to Align Induction Module**

10. Remove breather bolts and T27 TORX screws to remove backplate.
11. Tighten allen head socket screws in fixed holes of flange adapters to 96-144 **in-lbs** (10.9-16.3 Nm).
12. Install rear fuel injector connector [85] and front fuel injector connector [84].
13. Install MAP sensor connector [80] and IAC connector [87].
14. Install IAT sensor connector [89] and TP sensor connector [88].
15. Connect purge tube to fitting at top of induction module (California models only).

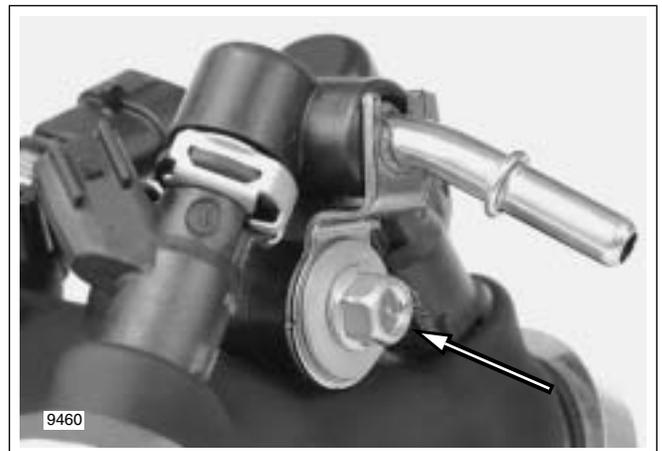
On non-California models, inspect rubber cap for tears, cracks or signs of deterioration. Replace cap if damaged or missing. [Figure 9-23](#). Operation without cap can result in engine damage.

16. Install fuel tank. See Section 9.4 [FUEL TANK \(FUEL INJECTED\)](#), [INSTALLATION \(AFTER PARTIAL REMOVAL\)](#), [FLHXI](#), [FLHT/C/U/I](#), [FLTRI](#) or [FLHR/C/S/I](#).
17. Turn the Ignition/Light Key Switch to ON and then back to OFF to reset IAC to park position.
18. Install backplate and air cleaner. See Section 4.5 [AIR CLEANER, INSTALLATION](#).
19. Check throttle and idle cable adjustment. Check cruise cable adjustment.

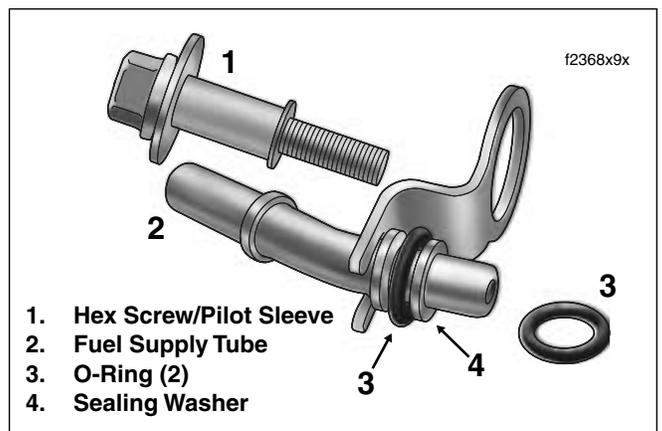
## FUEL SUPPLY TUBE/FUEL RAIL/ FUEL INJECTORS

### REMOVAL

1. Remove induction module. See [INDUCTION MODULE, REMOVAL](#).
2. Remove hex screw (with pilot sleeve) to release fuel supply tube clamp. See [Figure 9-27](#).
3. Pull fuel supply tube from fuel rail. Remove sealing washer and O-ring from fuel supply tube. Remove second O-ring from fuel rail bore. Discard sealing washer and O-rings. See [Figure 9-28](#).
4. Pull fuel injectors with attached fuel rail from induction module. To overcome the resistance of the bottom O-ring on both fuel injectors, gently rock assembly back and forth while pulling.
5. Remove spring clips from fuel injectors. Pull fuel injectors from fuel rail. To overcome the resistance of the top O-ring, gently rock each fuel injector while pulling.



**Figure 9-27. Fuel Supply Tube Clamp Hex Screw**



**Figure 9-28. Fuel Supply Tube Assembly**

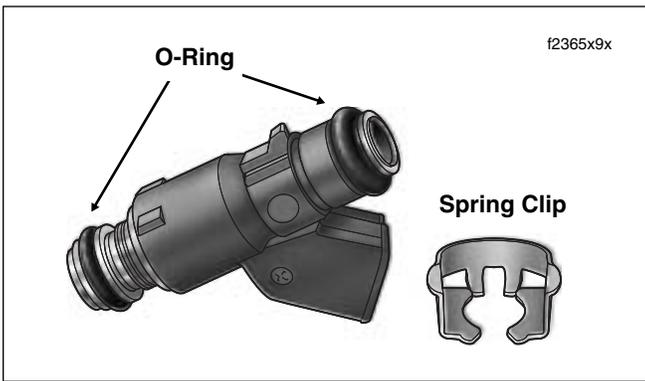


Figure 9-29. Fuel Injector Assembly



Figure 9-30. Install Spring Clips

- Remove O-rings from fuel injectors. Discard O-rings. See [Figure 9-29](#).

## INSTALLATION

- Apply a thin coat of clean engine oil to **new** O-rings. Install O-rings on fuel injectors, the thicker O-ring with the smaller ID going on the fuel rail (high pressure) side. See [Figure 9-29](#).
- Push electrical connector side of fuel injectors into fuel rail.
- With the concave side toward the fuel rail, install spring clip into slot on fuel injector. In the installed position, openings in sides of clip engage lip on fuel rail, while fork at back of clip captures tab on fuel injector. See [Figure 9-30](#).
- Rotate fuel injectors, so that the electrical connectors are on the outboard side. Push fuel injectors into induction module bores until tab on fuel rail engages machined slot at top of induction module.
- Slide **new** O-ring down shorter neck of the fuel supply tube until it contacts the collar. Slide **new** sealing washer down tube until it contacts O-ring. Install second O-ring in fuel rail bore. See [Figure 9-28](#).

- Push fuel supply tube into fuel rail bore until clamp is seated on round step of fuel rail. Install hex screw (with pilot sleeve) and tighten to 90-110 **in-lbs** (10.2-12.4 Nm). See [Figure 9-27](#).
- Install induction module. See [INDUCTION MODULE, INSTALLATION](#).

## IAT SENSOR

### REMOVAL

- Remove maxi-fuse. See Section [8.3 SYSTEM FUSES, MAXI-FUSE, REMOVAL](#).
- Remove air cleaner and backplate. See Section [4.5 AIR CLEANER, REMOVAL](#).
- Remove IAT sensor connector [89].
- Remove T20 TORX screw (with captive washer) to release IAT sensor from induction module. Discard screw. See [Figure 9-23](#).

### INSTALLATION

- Inspect O-ring in groove of IAT sensor for cuts, tears or signs of deterioration. Install **new** O-ring if necessary. See [Figure 9-31](#).
- Insert sensor into induction module with electrical connector facing toward the left side of the motorcycle. See [Figure 9-23](#).
- Install **new** T20 TORX screw (with captive washer) to fasten IAT sensor to induction module. Tighten screw to 15-20 **in-lbs** (1.7-2.3 Nm).
- Install IAT sensor connector [89].

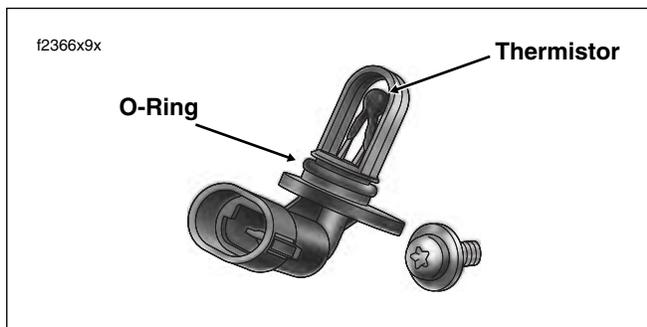


Figure 9-31. IAT Sensor

5. Install backplate and air cleaner. See Section [4.5 AIR CLEANER, INSTALLATION](#).
6. Install maxi-fuse. See Section [8.3 SYSTEM FUSES, MAXI-FUSE, INSTALLATION](#).

## TP SENSOR

### REMOVAL

1. Remove maxi-fuse. See Section [8.3 SYSTEM FUSES, MAXI-FUSE, REMOVAL](#).
2. Remove air cleaner and backplate. See Section [4.5 AIR CLEANER, REMOVAL](#).
3. Remove TP sensor connector [88].
4. Remove two T20 TORX screws (with captive washers) to release TP sensor from induction module. Discard screws. See [Figure 9-23](#).

### INSTALLATION

1. Inspect O-ring in groove of TP sensor for cuts, tears or signs of deterioration. Install **new** O-ring if necessary. See [Figure 9-32](#).
2. Fit pocket of TP sensor over throttle shaft engaging index pin with hole on machined flange of induction module.
3. Install two **new** T20 TORX screws (with captive washers) to fasten TP sensor to induction module. Alternately tighten screws to 15-20 **in-lbs** (1.7-2.3 Nm). See [Figure 9-23](#).
4. Using the throttle lever mechanism, open and close the throttle plates to check for proper operation. Be sure that the mechanism operates smoothly without binding or sticking.

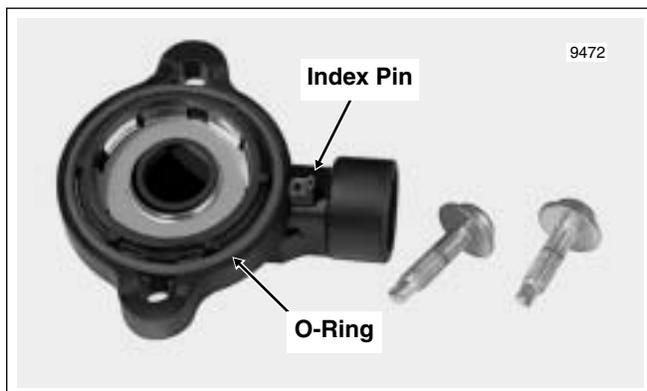


Figure 9-32. TP Sensor

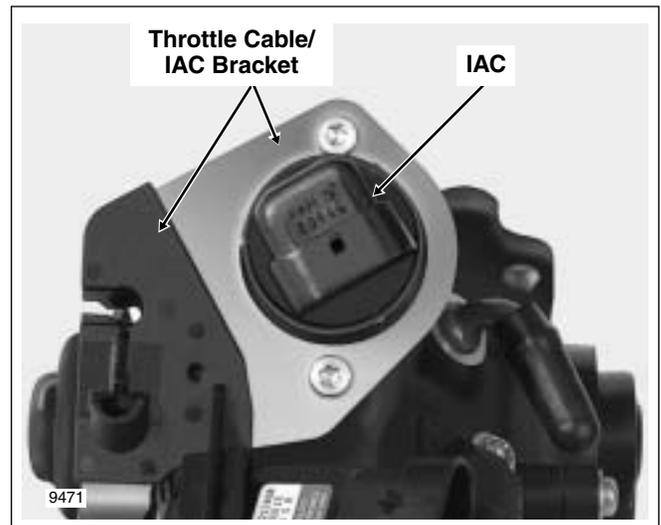


Figure 9-33. Remove Screws to Release Bracket

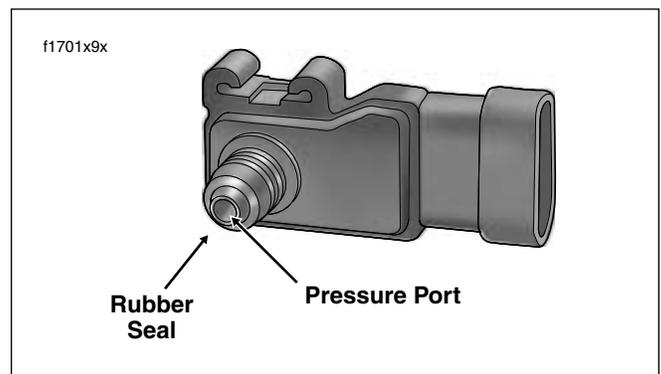


Figure 9-34. MAP Sensor

5. Install TP sensor connector [88].
6. Install backplate and air cleaner. See Section [4.5 AIR CLEANER, INSTALLATION](#).
7. Install maxi-fuse. See Section [8.3 SYSTEM FUSES, MAXI-FUSE, INSTALLATION](#).

## MAP SENSOR

### REMOVAL

1. Remove induction module. See [INDUCTION MODULE, REMOVAL](#).
2. Remove two T20 TORX screws to release throttle cable/IAC bracket from induction module. Discard screws. See [Figure 9-33](#).
3. Pull pressure port on MAP sensor from hole in induction module. See [Figure 9-34](#).

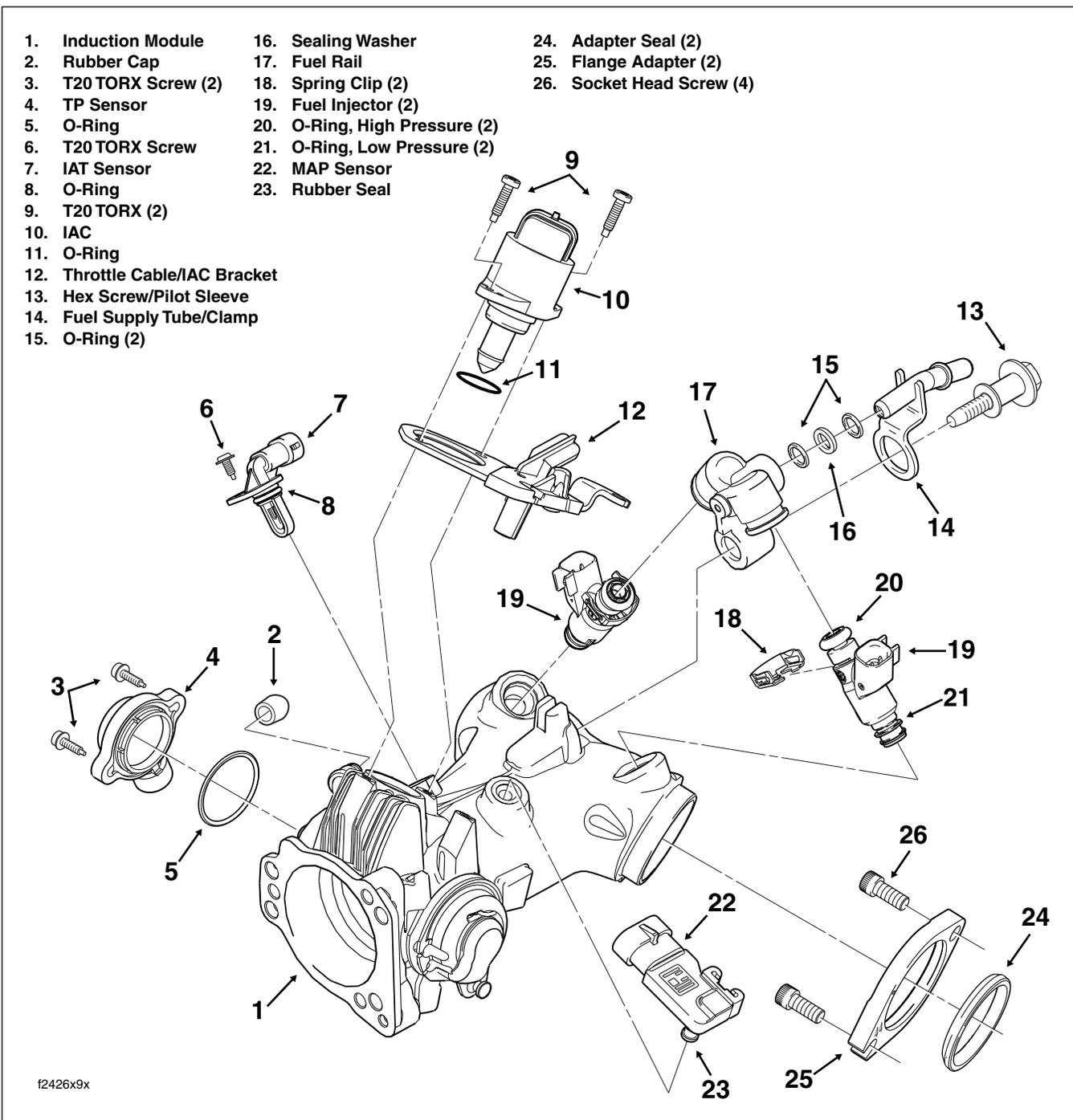


Figure 9-35. Induction Module Assembly

## INSTALLATION

1. Inspect rubber seal on pressure port for cuts, tears or signs of deterioration. Install **new** rubber seal if necessary. See [Figure 9-34](#).
2. With the electrical connector facing toward the rear of the induction module (side opposite throttle wheel), insert pressure port on MAP sensor into hole in induction module.
3. Insert index pin at bottom of throttle cable/IAC bracket into hole in boss at top of induction module. See [Figure 9-36](#).
4. Align holes in throttle cable/IAC bracket with thru holes in flange of IAC. See [Figure 9-33](#).
5. Install two **new** T20 TORX screws and alternately tighten to 20-35 **in-lbs** (2.3-4.0 Nm). See [Figure 9-33](#).

6. Install induction module. See [INDUCTION MODULE, INSTALLATION](#).

## IAC

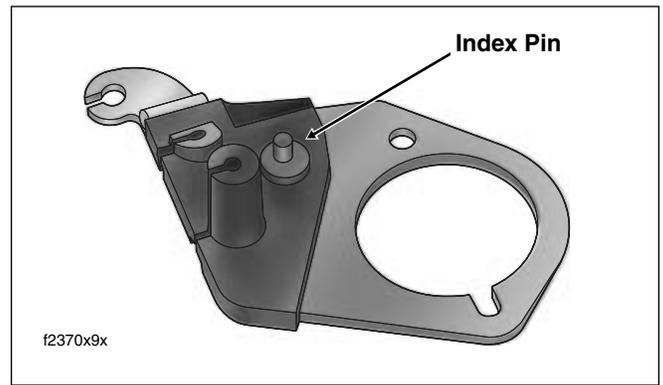
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### REMOVAL

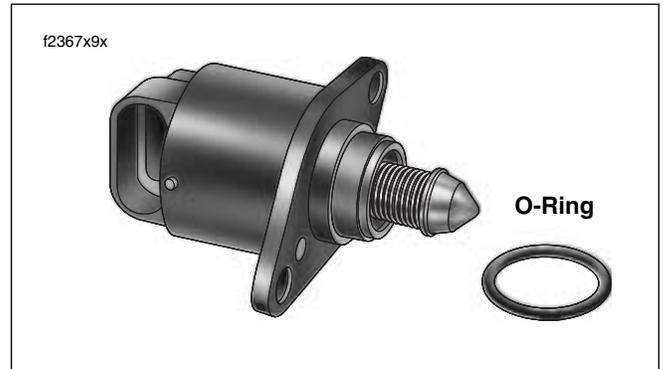
1. Remove induction module. See [INDUCTION MODULE, REMOVAL](#).
2. Remove two T20 TORX screws to release throttle cable/IAC bracket from induction module. Discard screws. See [Figure 9-33](#).
3. Pull IAC from bore of induction module. Remove O-ring from counterbore. Discard O-ring. See [Figure 9-37](#).

### INSTALLATION

1. Apply a thin coat of clean engine oil to **new** O-ring. Install O-ring in counterbore of induction module.
2. With the electrical connector facing the rear left side of the induction module, install IAC into bore.
3. Insert index pin at bottom of throttle cable/IAC bracket into hole in boss at top of induction module. See [Figure 9-36](#).
4. Align holes in throttle cable/IAC bracket with thru holes in flange of IAC.
5. Install two **new** T20 TORX screws and alternately tighten to 20-35 **in-lbs** (2.3-4.0 Nm). See [Figure 9-33](#).
6. Install induction module. See [INDUCTION MODULE, INSTALLATION](#).



**Figure 9-36. Throttle Cable/IAC Bracket**



**Figure 9-37. IAC**

# NOTES

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