

# AIR CLEANER

## GENERAL

The air cleaner prevents foreign material from entering the carburetor and engine by trapping airborne dust and dirt in the filter element.

Service air cleaner filter element every 5000 miles (8000 km) or more often if the motorcycle is run in a dusty environment. See [AIR CLEANER FILTER](#) in Section 1 for more information.

## REMOVAL

### ⚠ CAUTION

**Do not run engine without filter element in place. Debris could be drawn into the engine causing damage.**

1. See [Figure 4-15](#). Remove screw and nylon washer on top of air cleaner cover.
2. Remove screw, nylon washer and locknut at rear of air cleaner cover. Remove cover.
3. See [Figure 4-16](#). Detach backplate hoses.
  - a. Detach cylinder head breather hoses from tee fitting.
  - b. Detach snorkel breather hose at snorkel.
  - c. On California models, slide fresh air hose from canister through backplate.
4. See [Figure 4-17](#). Remove two screws and snorkel plate.
5. Remove snorkel and filter box.
6. See [Figure 4-18](#). Remove screw with spacer and gasket.
7. See [Figure 4-19](#). Remove screw under air cleaner support.

### NOTE

Step 7 may require a cut down allen wrench.

8. Draw breather hoses through backplate. Remove backplate.
9. If necessary, remove air cleaner support ring.
  - a. Detach breather hoses from cylinder head breather bolts.
  - b. Remove front breather bolt.
  - c. Loosen rear bolt.
  - d. Slide air cleaner support ring upward and remove.

### NOTE

See [Figure 4-20](#). Air cleaner support ring fits around breather bolts. Fitting on rear breather bolt may not clear the frame if bolt removal is attempted. Do not remove rear breather bolt unless absolutely necessary.

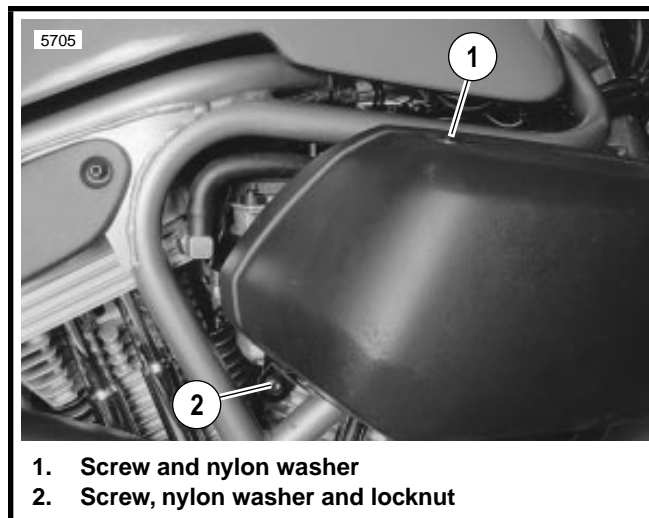


Figure 4-15. Air Cleaner Cover

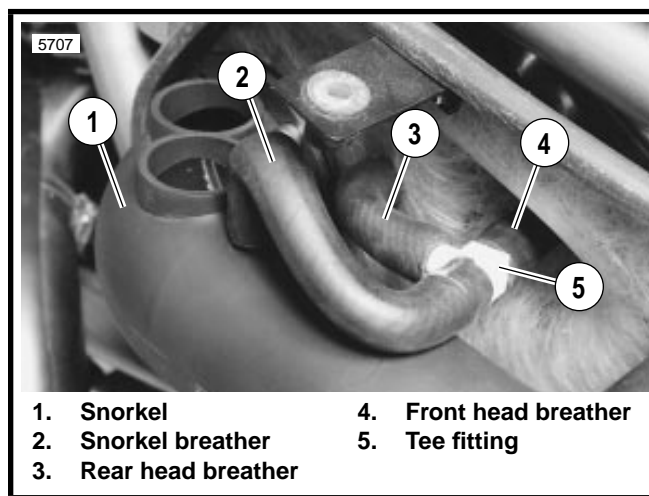


Figure 4-16. Breather Hoses

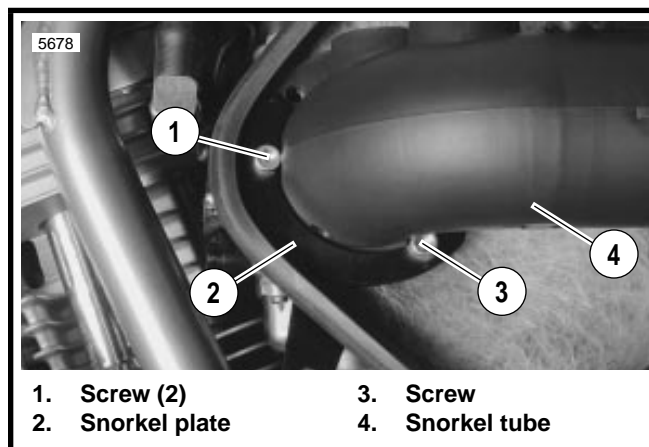


Figure 4-17. Snorkel Ring

## INSTALLATION

1. See [Figure 4-20](#). If removed, apply HYLOMAR to threads of breather bolts. Install air cleaner support ring using breather bolts and washer. Tighten breather bolts to 10-15 ft-lbs (13.6-20.3 Nm).
2. See [Figure 4-16](#). Attach breather hoses.
  - a. If removed, attach hoses to breather bolts in cylinder heads.
  - b. Slide hoses through backplate.
  - c. Connect hoses to tee fitting.
  - d. On California models, insert fresh air hose from canister through backplate.
3. See [Figure 4-19](#). Apply LOCTITE THREADLOCKER 242 (blue) to air cleaner front support screw. Install support/backplate and tighten screw to 3-5 ft-lbs (4.1-6.8 Nm).

### NOTE

*Step 3 may require a cut down allen wrench.*

4. See [Figure 4-18](#). Apply LOCTITE THREADLOCKER 242 (blue) to screw. Install ring with screw through backplate. Tighten to 7-9 ft-lbs (9.5-12.2 Nm).
5. See [Figure 4-17](#). Apply LOCTITE THREADLOCKER 242 (blue) to screws. Fasten snorkel tube with ring and two screws. Tighten to 6-8 ft-lbs (8.1-10.8 Nm).
6. Check air cleaner filter. See [AIR CLEANER FILTER](#) in Section 1. Attach filter box with filter to snorkel tube.
7. Connect breather hose to snorkel tube.
8. See [Figure 4-15](#). Place cover over backplate assembly. Install screw and washer into top well nut.
9. Install screw, nylon washer and locknut at rear mount. Tighten to 6-8 ft-lbs (8.1-10.8 Nm).

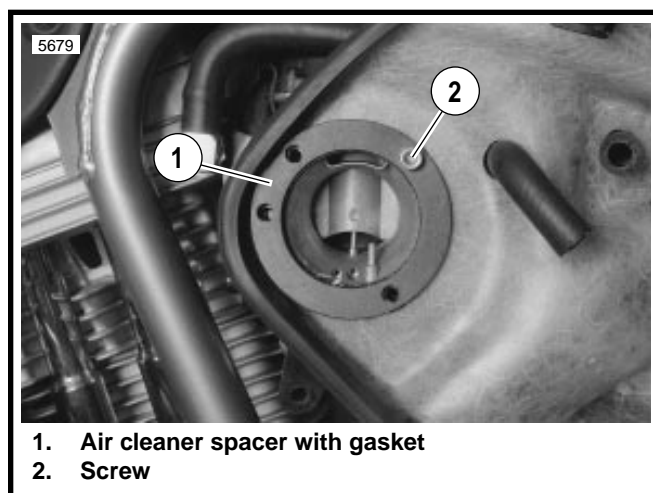


Figure 4-18. Air Cleaner Spacer

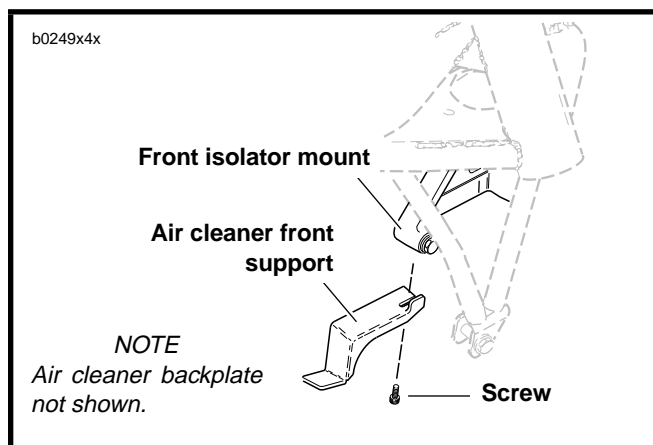


Figure 4-19. Air Cleaner Front Support

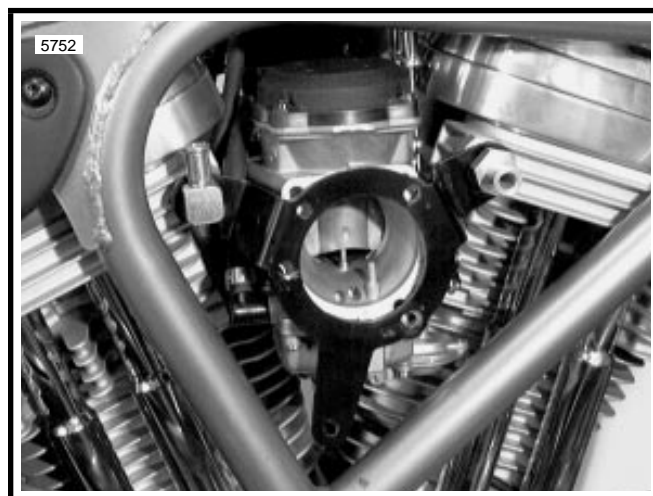


Figure 4-20. Breather Bolts

# FUEL TANK

## GENERAL

### **⚠ WARNING**

Verify that the fuel tank vent hose does not contact hot exhaust or engine parts. The hose contains flammable vapors that can be ignited if damaged, thereby resulting in personal injury.

See Figure 4-21. The fuel tank is vented through a vent valve assembly within the tank. A vent hose connects to the vent valve fitting at the top of the fuel tank. The vent hose is then cable strapped to the left side of the vehicle frame.

## REMOVAL

### **⚠ WARNING**

Gasoline can be extremely flammable and highly explosive. Do not smoke or allow open flame or sparks when refueling or servicing the fuel system. Inadequate safety precautions may result in personal injury.

1. Turn fuel supply valve OFF.

### **⚠ WARNING**

A small amount of gasoline may drain from the fuel hose when disconnected from the carburetor. Thoroughly wipe up any spilt fuel immediately and dispose of rags in a suitable manner. Gasoline can be extremely flammable and highly explosive. Inadequate safety precautions may result in personal injury.

2. Remove fuel hose and hose clamp from fuel supply valve.

### **NOTE**

*Fuel tank can be removed from motorcycle without being drained. Drain tank only when necessary.*

3. Drain fuel from tank.
  - a. Attach an additional length of hose to fuel supply valve. Place free end of drain hose into a proper, clean container of adequate size.
  - b. Turn supply valve to reserve (RES). Drain gasoline from tank into container. Remove temporary drain hose.
4. See Figure 4-21. Remove cable strap (12) holding vent hose (11) to vent valve fitting (10). Disconnect vent hose from vent valve fitting.
5. Remove seat.
6. Remove fuel tank screw (1) and washer (2).

### **⚠ CAUTION**

Use caution when removing fuel tank. If tank should contact other chassis parts, tank finish may be damaged.

7. Lift rear of tank from frame and remove.

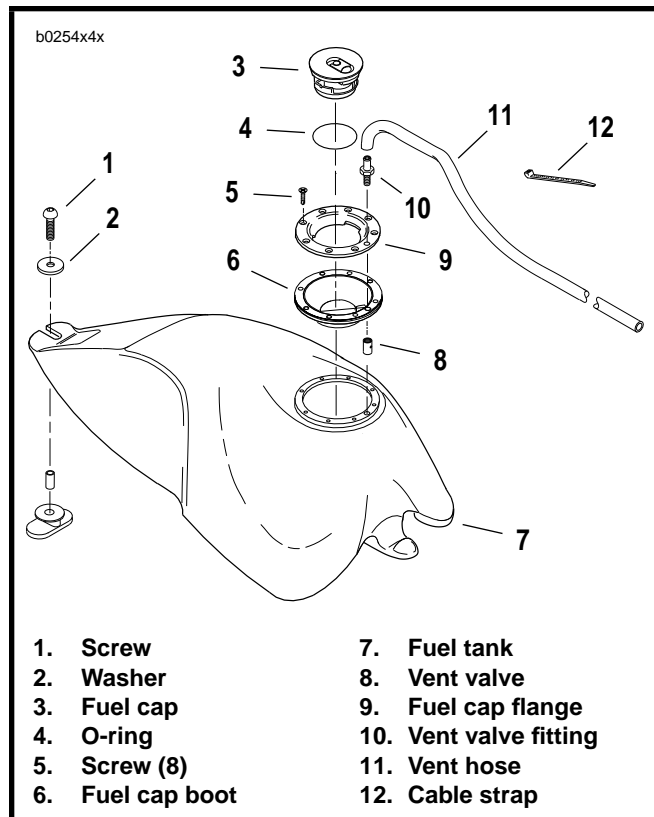


Figure 4-21. Fuel Tank

## DISASSEMBLY/ASSEMBLY

### WARNING

Even with the fuel tank completely drained, a small amount of gasoline may leak from the bore when the fuel supply valve is loosened or removed. Thoroughly wipe up any spilt fuel immediately and dispose of rags in a suitable manner. Gasoline can be extremely flammable and highly explosive. Inadequate safety precautions may result in personal injury.

1. If the fuel supply valve requires cleaning or repair, see [FUEL SUPPLY VALVE, REMOVAL](#) on [page 4-22](#).
2. See [Figure 4-21](#). Remove fuel filler cap (3) and O-ring (4).
3. Remove vent valve fitting (10) and vent valve (8).
4. Remove self-tapping screws (5) from fuel cap flange (9).
5. Remove fuel cap flange and fuel cap boot (6).
6. Assemble in reverse order.
  - a. Apply HYLOMAR to fuel cap boot, fuel cap flange and top of fuel tank.
  - b. See [Figure 4-22](#). Tighten screws to 22-25 in-lbs (2.5-2.8 Nm) in the order shown.

## CLEANING, INSPECTION AND REPAIR

### WARNING

An open flame or spark may cause a fuel tank explosion if all traces of fuel are not purged from the tank. Use extreme caution when servicing fuel tanks. Inadequate safety precautions may result in personal injury.

Clean tank interior with commercial cleaning solvent or a soap and water solution. Plug fuel tank openings. Shake tank to agitate the cleaning agent. Thoroughly flush fuel tank after cleaning. Allow tank to air dry. Carefully inspect fuel hose for damage, wear or general deterioration. Replace as necessary.

## INSTALLATION

1. See [Figure 4-21](#). Place fuel tank on frame. Install fuel tank screw (1) and washer (2). Tighten to 9-11 ft-lbs (12.2-14.9 Nm).

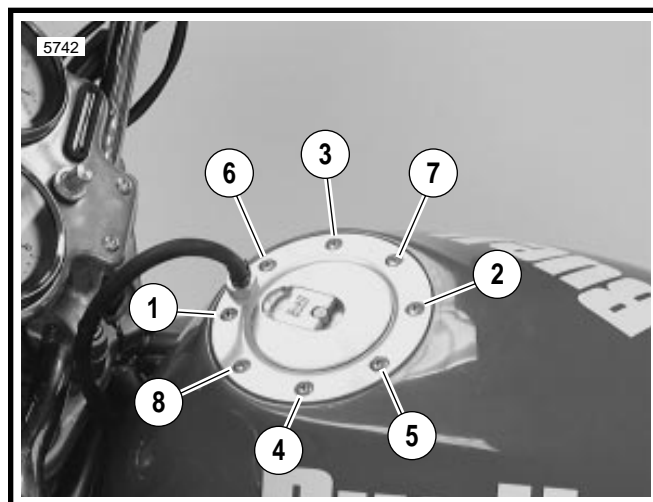


Figure 4-22. Tightening Flange

### CAUTION

Avoid pinching wiring harness and vent hose between fuel tank and frame during tank installation. Pinched hoses will negatively affect vehicle operation.

2. Connect vent hose (11) to vent valve fitting (10). Clamp hose to fitting with a **new** cable strap (12).
3. Connect fuel hose to fuel supply valve with a **new** clamp and HOSE CLAMP PLIERS (Part No. HD-41137)

### WARNING

After installing seat, pull upward on front of seat to be sure it is locked in position. If seat is loose, it could shift during vehicle operation and startle the rider, causing loss of control and personal injury.

4. Install seat. See [SEAT, INSTALLATION](#) in Section 2.
5. Fill fuel tank with fuel supply valve turned OFF.
6. Open fuel supply valve and carefully inspect for leaks. Turn valve OFF after the inspection is performed.

# FUEL SUPPLY VALVE

## GENERAL

The fuel supply valve is located on the left side, below the fuel tank. The gasoline supply to the carburetor is shut OFF when the handle is in the vertical position. For gasoline main supply, turn the handle to the 3 o'clock position (horizontal rearward). For gasoline reserve supply, turn the handle to the 9 o'clock position (horizontal forward). Turn valve to OFF position (vertical) when engine is not running.

## REMOVAL

### ⚠ WARNING

Gasoline can be extremely flammable and highly explosive. Do not smoke or allow open flame or sparks when refueling or servicing the fuel system. Inadequate safety precautions may result in personal injury.

1. See [Figure 4-23](#). Turn fuel supply valve OFF.

### ⚠ WARNING

A small amount of gasoline may drain from the fuel hose when disconnected from the carburetor. Thoroughly wipe up any spilt fuel immediately and dispose of rags in a suitable manner. Gasoline can be extremely flammable and highly explosive. Inadequate safety precautions may result in personal injury.

2. Remove fuel hose and clamp from fuel supply valve.
3. Attach an additional length of hose to fuel supply valve. Place free end of drain hose into a proper, clean container of adequate size. Turn supply valve to reserve (RES). Drain gasoline from tank into container. Remove temporary drain hose.

### ⚠ WARNING

Even with the fuel tank completely drained, a small amount of gasoline may leak from the bore when the fuel supply valve is loosened or removed. Thoroughly wipe up any spilt fuel immediately and dispose of rags in a suitable manner. Gasoline can be extremely flammable and highly explosive. Inadequate safety precautions may result in personal injury.

4. Remove two screws and fuel supply valve assembly.

## CLEANING, INSPECTION AND REPAIR

1. Clean or replace filter strainer (located inside fuel tank above fuel supply valve). Filter strainer threads into valve body.
2. Flush fuel tank to remove all dirt.

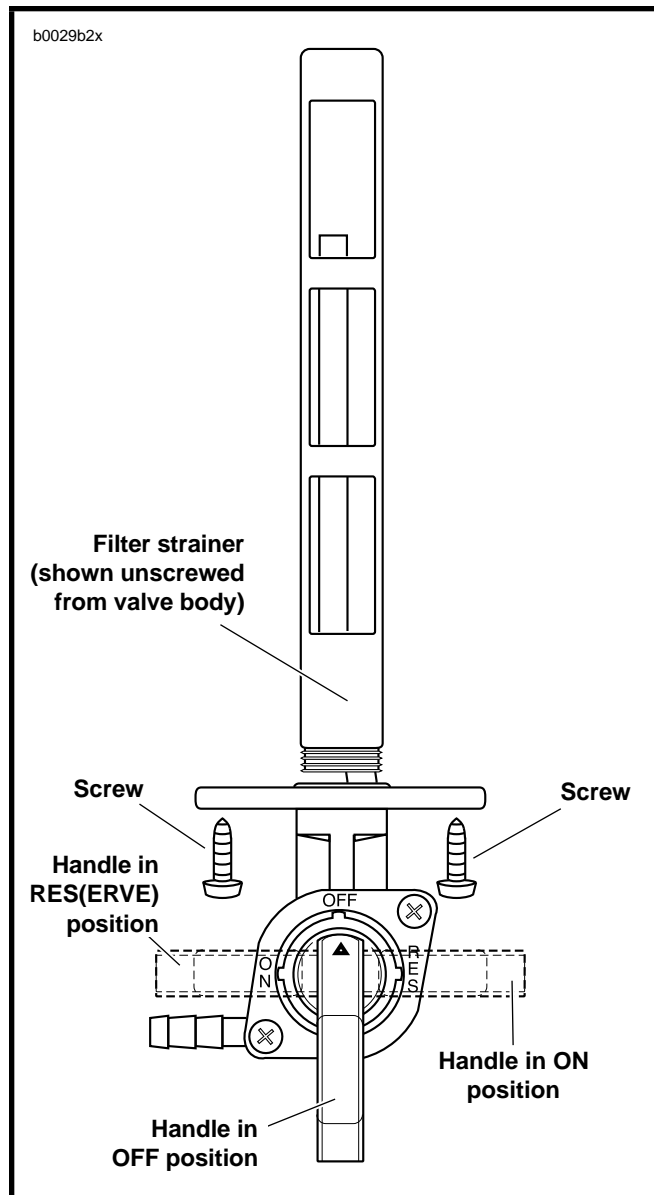


Figure 4-23. Fuel Supply Valve

## INSTALLATION

1. See [Figure 4-23](#). Attach fuel supply valve to tank with two screws. Tighten to 34-37 in-lbs (3.8-4.2 Nm).

### ⚠ CAUTION

Screws thread directly into plastic fuel tank. Overtightening screws will strip the tank threads and require a replacement fuel tank to be installed upon subsequent removal of the fuel supply valve.

2. Connect fuel hose with a **new** clamp and HOSE CLAMP PLIERS (Part No. HD-41137).



# EVAPORATIVE EMISSIONS CONTROL CALIFORNIA MODELS

## GENERAL

Buell motorcycles sold in the state of California are equipped with an evaporative (EVAP) emissions control system. The EVAP system prevents fuel hydrocarbon vapors from escaping into the atmosphere and is designed to meet the California Air Resource Board (CARB) regulations in effect at the time of manufacture.

The EVAP functions in the following manner:

- See [Figure 4-24](#). Hydrocarbon vapors in the fuel tank are directed through the vent valve and stored in the carbon canister. If the vehicle is tipped at an abnormal angle, the vent valve closes to prevent liquid gasoline from leaking out of the fuel tank through the vapor vent hose.
- See [Figure 4-25](#). When the engine is running, carburetor venturi negative pressure (vacuum) slowly draws off the hydrocarbon vapors from the carbon canister through the vent hose. These vapors pass through the carburetor and are burned as part of normal combustion in the engine. The large diameter canister-to-air cleaner hose (canister clean air inlet hose) supplies the canister with fresh air from the air cleaner.

## TROUBLESHOOTING

### WARNING

Verify that the evaporative emissions vent hoses do not contact hot exhaust or engine parts. The hoses contain flammable vapors that can be ignited if damaged, thereby resulting in personal injury.

The system has been designed to operate with a minimum of maintenance. Check that all hoses are properly routed and connected and are not pinched or kinked.

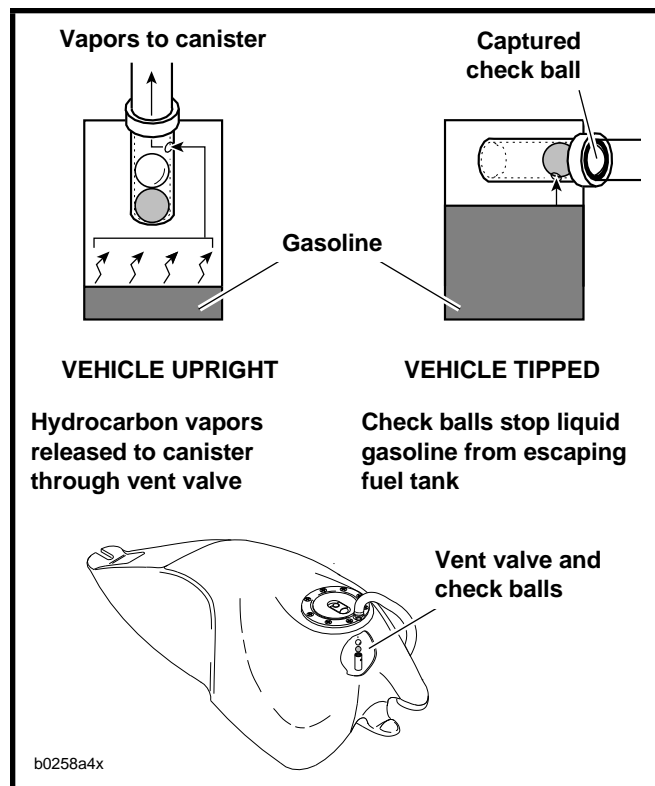


Figure 4-24. Vent Valve Operation

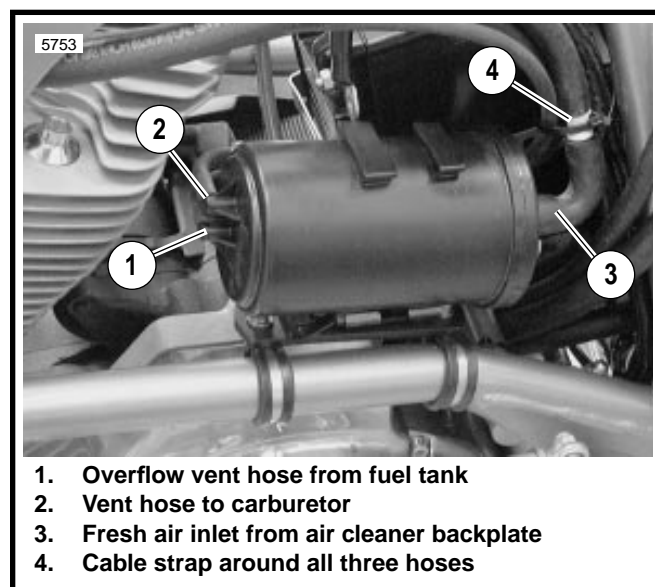


Figure 4-25. Carbon Canister

## REMOVAL

### Vent Valve

1. See [Figure 4-26](#). The vent valve fitting (5) is screwed into the top of the fuel tank.
2. Remove vent hose cable strap. Disconnect hose (6) from fitting. Remove fitting.
3. Remove check balls (4, 3) from vent valve.
4. Remove fuel filler cap and O-ring. Remove vent valve.
5. If necessary, label overflow vent hose connected to canister and remove from canister fitting.

### Canister

1. See [Figure 4-25](#). The canister assembly mounts on a frame tube along the left side of the motorcycle.
2. Label the three hoses connected to canister. Disconnect hoses from canister.
3. Depress locking tab at the front end of the canister mounting bracket. Slide canister towards the front wheel until it disengages from the bracket and remove.
4. See [Figure 4-27](#). Remove screws, washers and locknuts (5) to detach mounting plate (2) from clamps (1).
5. Remove countersunk screws and locknuts (4) to separate bracket (3) from mounting plate (2).

## INSTALLATION

### Vent Valve

#### WARNING

Verify that the fuel tank vapor vent hose does not contact hot exhaust or engine parts. The hose contains flammable vapors that can be ignited if damaged, thereby resulting in personal injury.

1. See [Figure 4-26](#). Screw vent valve (2) into fuel tank.
2. Drop check balls (3, 4) into vent valve.
3. Attach vent valve fitting (5).
4. Install fuel cap and **new** O-ring.
5. Attach overflow vent hose to fitting with a **new** cable strap.
6. Attach overflow vent hose to bottom fitting on canister if disconnected.

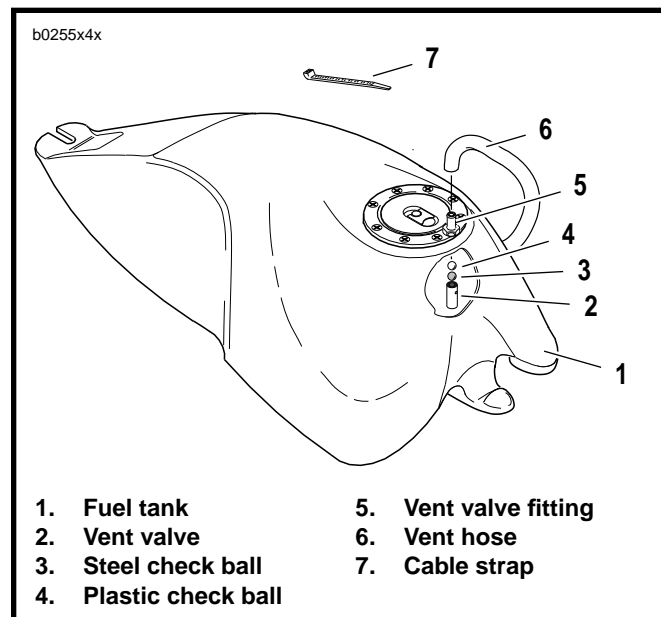


Figure 4-26. Vapor Vent Valve

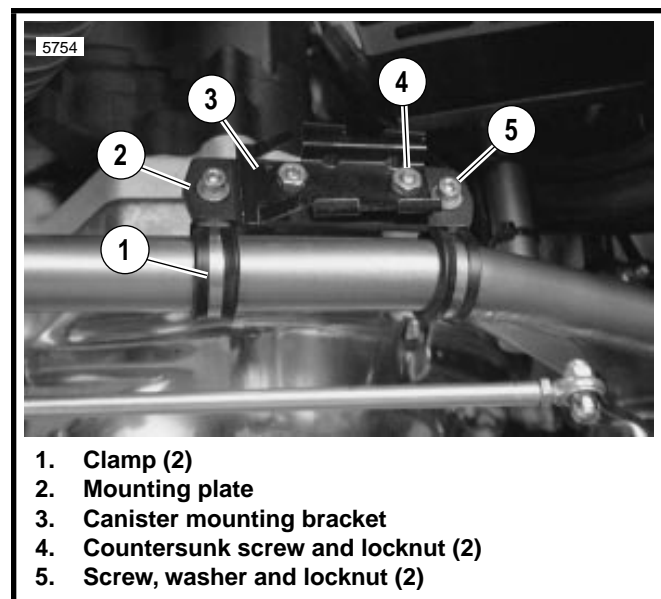


Figure 4-27. Carbon Canister Mounting

## Canister

1. See [Figure 4-27](#). Install canister bracket (3) on mounting plate (2) with countersunk screws and locknuts (4).
2. Install mounting plate assembly on frame by attaching mounting clamps (1) using screws, washers and locknuts (2). Tighten to 6-8 ft-lbs (8.1-10.8 Nm).
3. See [Figure 4-25](#). Depress locking tab and slide canister into locked position on canister bracket. Clip on canister bracket must engage canister; bend clip outward somewhat if canister is not held securely.
4. Connect the three marked hoses to the canister.

## HOSE ROUTING

### Carburetor

See [Figure 4-28](#). Route the evaporative emissions control hoses at the carburetor as shown. To gain access to the V.O.E.S. and hoses, remove the fuel tank and/or air cleaner/backplate assembly if necessary.

### Canister Hose Routings

1. See [Figure 4-25](#). Connect one end of the canister clean air inlet hose to the carbon canister.
2. Connect overflow vent hose and canister vent hose to fittings on carbon canister. Canister vent hose attaches to top fitting. Route both hoses towards fresh air hose on rear of canister.
3. Cable strap the three hoses where the hose connector attaches the two pieces of fresh air hose.
4. Route the smaller hoses forward along the top left frame tube. The vent and overflow hoses run together until the vent hose turns between the cylinders. Connect vent hose to elbow fitting on carburetor. Connect overflow vent hose to vent valve fitting using a **new** cable strap.
5. Route fresh air hose upward and forward along the left frame tube. Continue running hose to air cleaner backplate fitting. Secure hose using **new** cable straps.

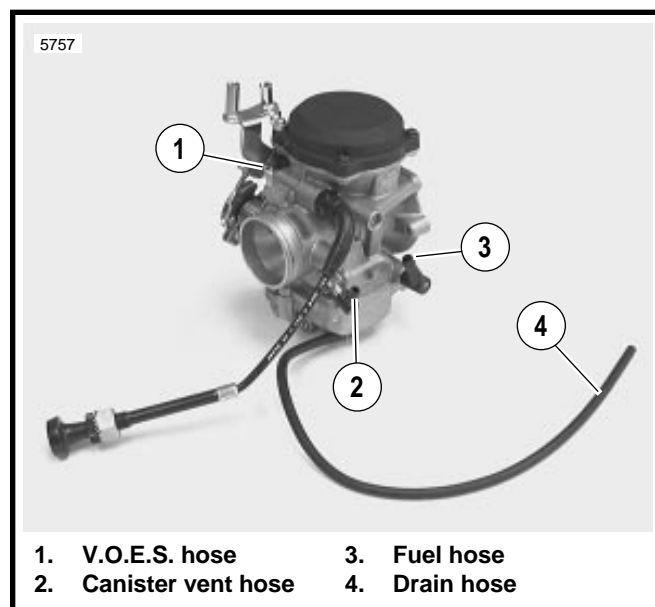


Figure 4-28. Emissions Hose Routing at Carburetor