

**14.2** On Vulcan 750 models, remove the bolts (arrows) and take off the air suction valve cover

the insulator nose (see illustration). Make sure the washer is in place before installing each plug.

7 Since the cylinder heads are made of aluminum, which is soft and easily damaged, thread the plugs into the heads by hand. Since the plugs are quite recessed, slip a short length of hose over the end of the plug to use as a tool to thread it into place (see illustration). The hose will grip the plug well enough to turn it, but will start to slip if the plug begins to cross-thread in the hole - this will prevent damaged threads and the accompanying repair costs.

8 Once the plugs are finger tight, the job can be finished with a socket. If a torque wrench is available, tighten the spark plugs to the torque listed in this Chapter's Specifications. If you do not have a torque wrench, tighten the plugs finger tight (until the washers bottom on the cylinder head) then use a wrench to tighten them an additional 1/4 turn. Regardless of the method used, do not over-tighten them.

9 Reconnect the spark plug caps.

## 14 Air suction valves - check

Refer to illustrations 14.2, 14.3a and 14.3b

1 The air suction valves, installed on US and Swiss models only, are one-way check valves that allow fresh air to flow into the exhaust ports. The suction developed by the exhaust pulses pulls the air from the air filter, through a hose to the air switching valve, through a pair of hoses and a pair of reed valves, and finally into the exhaust ports. The introduction of fresh air helps ignite any fuel that may not have been burned by the normal combustion process.

2 If you're working on a Vulcan 700/750 model, disconnect the hoses from the air suction valves (one on each cylinder) (see illustration). Remove the bolts and lift off the covers.

3 If you're working on a Vulcan 800 model, remove the valve covers (see Chapter 2). Note how each air suction valve is



**14.3a** On Vulcan 800 models, remove the valve covers for access to the air suction valves (arrow)

installed in its seat, then lift it out (see illustrations).

4 Check the valves for cracks, warping, burning or other damage. Check the area where the reeds contact the valve holder for scratches, separation and grooves. If any of these conditions are found, replace the valve.

5 Wash the valves with solvent if carbon has accumulated between the reed and the valve holder.

6 Installation of the valves is the reverse of removal. Be sure to use a new gasket.

## 15 Evaporative emission control system (California models only) - check

1 This system, installed on California models to conform to stringent emission control standards, routes fuel vapors from the fuel system into the engine to be burned, instead of letting them evaporate into the atmosphere. When the engine isn't running, vapors are stored in a carbon canister.

### Hoses

2 To begin the inspection of the system, remove the seat, fuel tank and side covers (see Chapters 4 and 8 if necessary). Inspect the hoses from the fuel tank, carburetors and liquid/vapor separator to the canister for cracking, kinks or other signs of deterioration.

### Component inspection

3 Label and disconnect the hoses, then remove the separator and canister from the machine (see Chapter 4).

4 Check the separator closely for cracks or other signs of damage. If these are found, replace it.

5 Inspect the canister for cracks or other signs of damage. Tip the canister so the nozzles point down. If fuel runs out of the canister, the liquid/vapor separator is probably bad. The fuel inside the canister has probably caused damage, so it would be a good idea to replace it also.



**14.3b** Lift the valve out of the cylinder head for inspection

## 16 Throttle and choke operation/grip freeplay - check and adjustment

### Throttle check

1 With the engine stopped, make sure the throttle grip rotates easily from fully closed to fully open with the front wheel turned at various angles. The grip should return automatically from fully open to fully closed when released. If the throttle sticks, check the throttle cables for cracks or kinks in the housings. Also, make sure the inner cables are clean and well-lubricated.

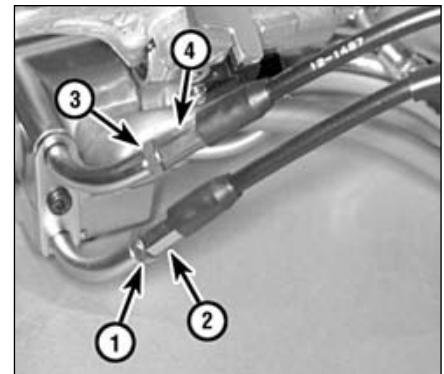
2 Check for a small amount of freeplay at the grip and compare the freeplay to the value listed in this Chapter's Specifications.

### Throttle adjustment

Refer to illustrations 16.3, 16.5a and 16.5b

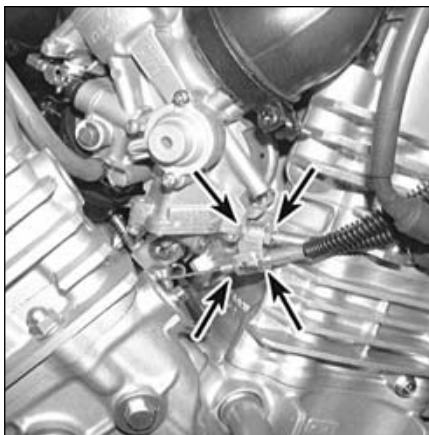
**Note:** These motorcycles use two throttle cables - an accelerator cable and a decelerator cable.

3 Freeplay adjustments can be made at the throttle end of the cable. Loosen the locknut on the cable where it leaves the handlebar (see illustration). Turn the adjuster until the desired freeplay is obtained, then

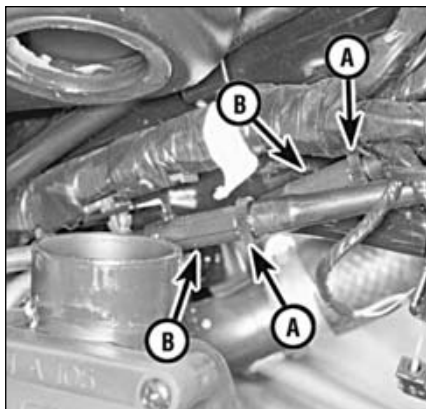


**16.3** Throttle cable adjuster details

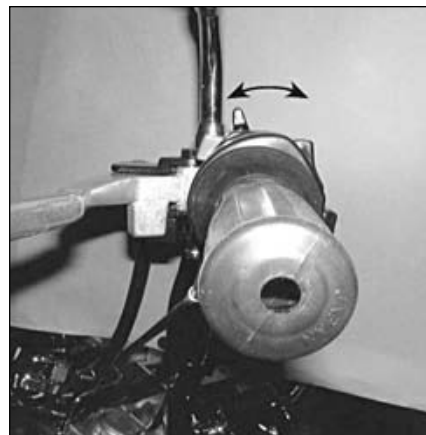
- 1 Decelerator cable locknut
- 2 Decelerator cable adjusting nut
- 3 Accelerator cable locknut
- 4 Accelerator cable adjusting nut



**16.5a** On Vulcan 750 models, loosen the locknuts (arrows) to create slack in both throttle cables at the carburetors



**16.5b** On Vulcan 800 models, loosen the locknuts (A) and turn the adjusters (B) to create slack in both throttle cables at the midline cable adjusters



**16.10** On Vulcan 750 models, check freeplay at the choke lever . . .

retighten the locknut.

4 If the cables can't be adjusted at the grip end, adjust them at the lower ends (Vulcan 700/750) or at the mid-cable adjusters (Vulcan 800). To do this, first remove the fuel tank (see Chapter 4).

5 Loosen the locknuts on both throttle cables (see illustrations), then turn both adjusting nuts in completely. This will create a large amount of freeplay at the throttle grip.

6 Make sure the throttle grip is in the fully closed position.

7 Turn out the adjusting nut of the decelerator cable until the inner cable just becomes tight, then tighten the locknut.

8 Turn the accelerator cable adjusting nut until the desired freeplay is obtained at the throttle grip, then tighten the locknut.

9 Make sure the throttle linkage lever contacts the idle adjusting screw when the throttle grip is in the closed throttle position.  
**Warning:** Turn the handlebars all the way through their travel with the engine idling. Idle speed should not change. If it does, the cables may be routed incorrectly. Correct this condition before riding the bike.

## Choke check

### Vulcan 700/750 models

Refer to illustrations 16.10 and 16.11

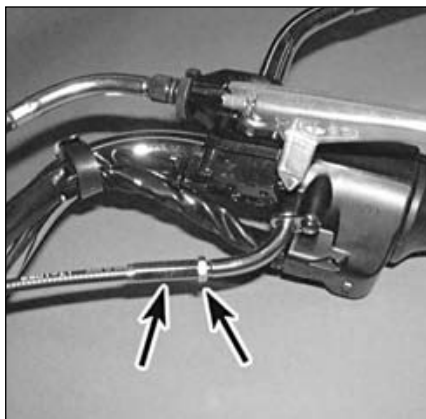
10 Check the freeplay at the choke lever (see illustration). Compare with the value listed in this Chapter's Specifications.

11 If freeplay is incorrect, loosen the locknut on the cable adjuster (see illustration). Turn the adjusting nut to set freeplay, then tighten the locknut.

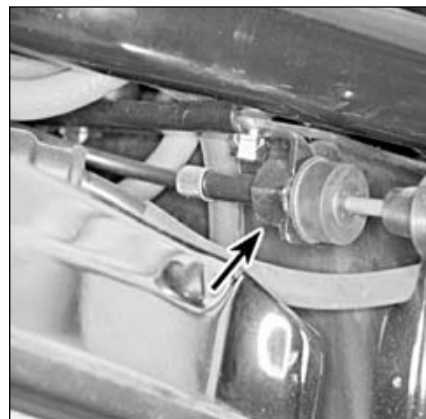
### Vulcan 800 models

Refer to illustration 16.12

12 Inspect the choke knob and cable (see illustration). The choke should pull out easily and stay out by itself. If it doesn't, adjust the knob's tension with the plastic nut behind the knob. If this doesn't help, check the plunger bushing for wear or damage and replace as necessary.



**16.11** . . . and if necessary, loosen the locknut (right) and turn the adjuster (left) to change it



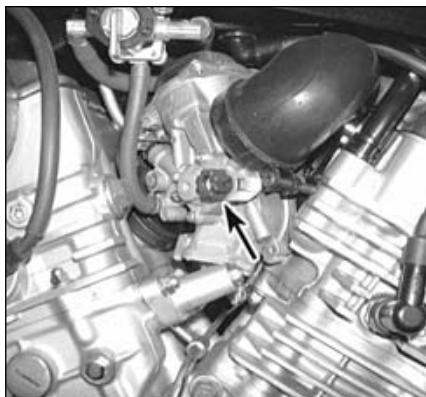
**16.12** Tension of the Vulcan 800 choke knob is adjusted with this nut (arrow)

retors should be synchronized as described in Section 18 as part of the procedure. Before adjusting the idle speed, make sure the valve clearances and spark plug gaps are correct. Also, turn the handlebars back-and-forth and see if the idle speed changes as this is done. If it does, the accelerator cable may not be adjusted correctly, or it may be worn out. Be sure to correct this problem before proceeding.

## 17 Idle speed - check and adjustment

Refer to illustrations 17.3a and 17.3b

1 The idle speed should be checked and adjusted at the specified maintenance intervals and when it is obviously too high or too low. On Vulcan 700/750 models, the carburetors



**17.3a** The Vulcan 750 idle speed knob is mounted on the carburetors (arrow)



**17.3b** The Vulcan 800 idle speed knob is at the end of this stalk