NAPA AutoCare TechTips

NN-10-2-82

NAPA TECHNICAL TIP

GM QUICK TAKE-UP MASTER CYLINDER

Beginning in 1980, GM introduced low drag calipers to retract the caliper piston further so that the brake pads don't drag against the rotor. Because of this change, to improve fuel economy, GM vehicles X, J, and some 1981-82 models and light trucks except diesels have a quick take-up master cylinder. This master cylinder must be bench bled and a bleeding sequence followed after overhauling or replacing the master cylinder.

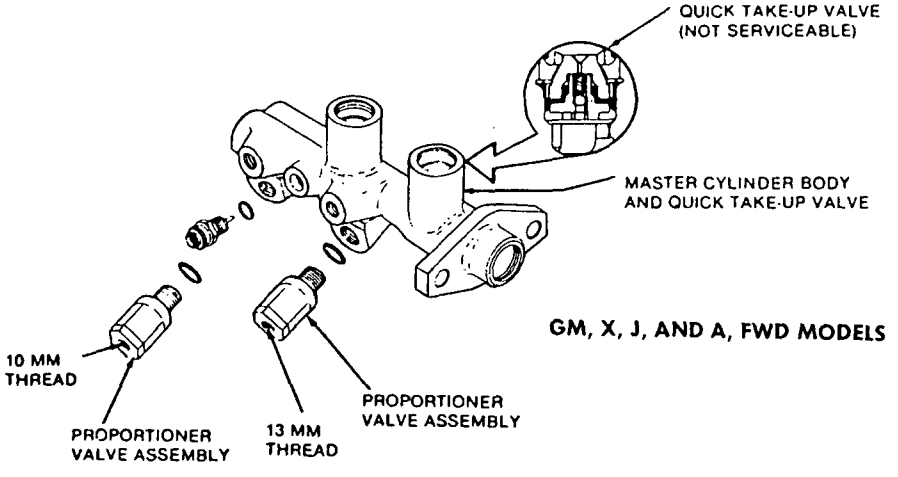
There are two types of quick take-up master cylinders — one with four outlet ports and the other with two outlet ports. To bench bleed a master cylinder with four outlet ports, plug the two proportioner ports and lead tubes from the front outlet ports to the reservoir. The other type of master cylinder can be bled by leading tubes from the outlet ports to the master cylinder reservoir. Bench bleed the cylinder until there is no air. Remount the master cylinder and replace the hydraulic lines. With a power bleeder, use United's bleeder adapter with about 20-25 psi in the tank. On the four outlet port master cylinder bleed the right rear, left front, left rear, right front wheels. And on the two outlet port master cylinder bleed the right rear, left rear, right front, left front wheels. Using these bleeding procedures will get all the air out of the brake system.

If using manual bleeding techniques, the master cylinder may be bled on the car. The strokes should be quick strokes with a slow return. It is necessary to wait 15 seconds between each stroke. Bleed the wheels in the same sequence as mentioned, waiting fifteen seconds between pumps to allow fluid to return past the quick take-up valve.

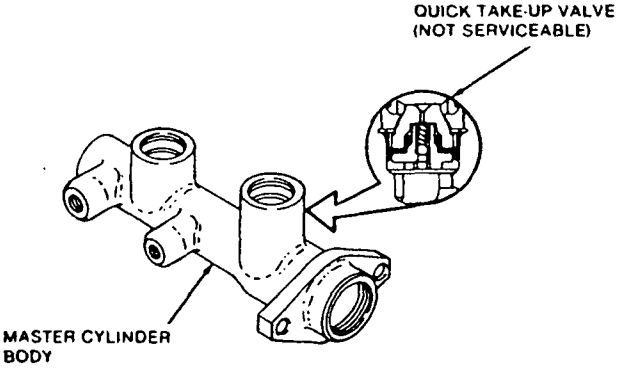
To bleed the X/J/A master cylinder, the two front (upper) master cylinder lines have to be purged of air prior to bleeding wheels. Disconnect the left front port and allow fluid to flow out. Reconnect the tube and tighten. Press the brake pedal, and, as it is held down, loosen the connection again to purge the air. Retighten it and slowly release the pedal. Wait fifteen seconds and repeat the procedure. Continue until all the air is removed from the master cylinder bore, doing the right front connection in the same way.

Because these quick take-up master cylinders are mounted at an angle, it is necessary to raise the rear of the car so the master cylinder is level before the master cylinder or wheels are **manually** bled.

In summary, when bench bleeding and using a pressure bleeder, it is necessary to use the proper bleeding sequence. When manually bleeding the master, it is necessary to purge the lines of the master cylinder waiting 15 seconds between pedal applications, and then bleeding each wheel in sequence waiting 15 seconds between strokes until all air is removed from the brake system.



GM, X, J, AND A, FWD MODELS



GM 1981-1982 MODELS AND SOME LIGHT TRUCK MODELS