HYDRAULIC BRAKE BLEEDING

DESCRIPTION

Hydraulic system bleeding is necessary any time air has been introduced into system. Bleed brakes at all 4 wheels if master cylinder lines have been disconnected or master cylinder has run dry. Bleeding may be done either by using pressure bleeding equipment or by manually pumping brake pedal and using bleeder tubes.

MANUAL BLEEDING

Fill master cylinder, then install bleeder hose to first bleeder valve to be serviced. See *Bleeding Sequence*. Place other end of hose in clean glass jar, partially filled with clean brake fluid, so end of hose is submerged in fluid. Open bleeder valve ¾-1 turn. Depress brake pedal slowly through its full travel (except as noted in Bleeding Sequence chart). Close bleeder valve, then release pedal. Repeat procedure until flow of fluid shows no signs of air bubbles.

NOTE – *Check fluid level in master cylinder frequently during bleeding sequence to ensure air does not enter system.*

PRESSURE TANK BLEEDING

Clean master cylinder cap and surrounding area, then remove cap. With pressure tank at least ⅓ full, connect master cylinder using suitable adapters. Attach bleeder hose to first bleeder valve to be serviced. See *Bleeding Sequence*. Place other end of hose in clean glass jar, partially filled with clean brake fluid, so end of hose is submerged in fluid. Open release valve on pressure bleeder. Unscrew valve ¾-1 turn, noting fluid flow. When fluid flow from bleeder valve into container is free of bubbles, close bleeder valve securely. Bleed remaining cylinders in correct sequence and in same manner. Remove pressure tank from master cylinder and check fluid level of master cylinder reservoir.

Bleeding Pressures①

Application	psi (kg/cm²)
BMW	
733i	56 (3.9)
All Others	28 (2.0)
Porsche	32 (2.3)
Renault	30 (2.1)
Volvo	50-60 (3.5-4.2)

① – For models not listed, refer to pressure tank manufacturer's specifications.

BLEEDING SEQUENCE

Before bleeding system, exhaust all vacuum from power unit by depressing brake pedal several times. Bleed hyraulic system in the following sequence:

Bleeding Sequence

Application①	Cylinder or Line
Audi & Volkswagen	RR, LR, RF, LF
BMW②	Longest Line First
Chrysler Corp. Imports	
Champ & Colt	LR, RF, RR, LF
All Others③	RR, LR, RF, LF
Courier④	Longest Line First
Datsun	
310	Master Cyl., LR, RF, RR, LF
810	RR, LR, RF, LF
Pickup	Master Cyl., Comb. Valve, Longest Line First
All Others	Master Cyl., Longest Line First
Fiat	Longest Line First
Honda	LF, RR, RF, LR
Isuzu & LUV	Shortest Line First
Jaguar⑤	LR, RR, Front
Mazda⑥	Longest Line First
Mercedes-Benz	Longest Line First
Peugeot⑦	Longest Line First
Porsche⑧	LR, RR, RF, LF
Renault	Longest Line First
Saab	LR, RF, RR, LF
Subaru	Master Cylinder., FR, RF, RR, LF
Toyota	Longest Line First
TR7 & TR8⑨	RF, LF, RR, LR
Volvo⑩	LF, RF, RR, LR

① — Before bleeding rear brakes, push brake pressure regulator in direction of rear axle.
② — The 528i and 633CSi have 3 bleed valves on each front caliper. Bleed lower inboard valve first, then other 2 at same time.
③ — Pickup models do not require bleeding of RR.
④ — Front and rear circuits are independent. Bleed each circuit separately.
⑤ — Engine running at idle speed.
⑥ — GLC has independant front and rear circuits. Bleed each circuit separately.
⑦ — If pressure tank is used, bleed all wheels at the same time.
⑧ — If equipped with inner and outer caliper bleed valves, bleed outer valves first, then inner valves.
⑨ — Remove pressure differential switch before bleeding.
⑩ — Rear wheels must be higher than front wheels. Front calipers are each equipped with 3 bleed valves. Bleed all 3 valves at same time.