

1965-73 BENDIX TANDEM DIAPHRAGM

American Motors (1967-73)
Buick (1972-73)
Cadillac Eldorado (1967-68)
Chrysler Corp. (1965-71 & 1973)
Corvette (1969-73)
Ford Motor Co. (1965-70)
Jeep (1971-73)
Oldsmobile (1967-73)
Pontiac (1966-73)
Studebaker (1965-66)

NOTE — For other units used, see Power Brake Index.

DESCRIPTION

Unit is a self-contained, vacuum-hydraulic power unit and is vacuum-suspended type. It uses engine intake manifold vacuum to take advantage of atmospheric pressure for power. Unit consists of three basic parts: Vacuum power chamber comprised of front and rear shell, center plate, tandem front and rear diaphragms (with plate assembly), hydraulic push rod and vacuum diaphragm, and diaphragm return spring; mechanically actuated control valve, integral with power diaphragms, consisting of single poppet with atmospheric and vacuum ports; tandem master cylinder.

REMOVAL & INSTALLATION

AMERICAN MOTORS

Removal — Disconnect vacuum lines and hydraulic lines at master cylinder. From under instrument panel, disconnect push rod from brake pedal and remove nuts securing power unit to dash.

Installation — Reverse removal procedure and bleed brakes.

CADILLAC ELDORADO

Removal - Disconnect brake lines and vacuum hoses. Remove steering column lower cover and remove cotter pin, washer, and spring spacer that attach power unit pushrod to brake pedal arm. Remove nuts holding power unit to cowl and remove power unit.

Installation - Reverse removal procedure and bleed front and rear brakes.

BUICK, CORVETTE, OLDSMOBILE, PONTIAC

Removal — Disconnect vacuum lines and hydraulic lines. Disconnect rod from brake pedal. Unbolt power unit and remove from vehicle.

Installation — Reverse removal procedure and bleed system.

CHRYSLER CORP.

Removal — Disconnect master cylinder from power unit. Disconnect vacuum line from check valve. From under dash, remove push rod from brake pedal and remove nuts securing power unit to dash.

Installation — Reverse removal procedure and bleed brakes.

FORD, MERCURY & THUNDERBIRD

Removal - Disconnect vacuum line from booster; move brace between cowl and spring tower inboard for clearance. Remove master cylinder from booster. Disconnect booster push rod link from pedal assembly as follows: Disconnect stop light switch. Remove hairpin retainer and slide stop light switch off brake pedal only far enough for switch outer hole to clear pin, then lift switch straight up. Slide master cylinder push rod, washer and bushing from brake pedal pin. Remove booster mounting bolts, and remove booster and bracket assembly by sliding push rod link out from engine side of panel. Remove dust seal from push rod link and install in slot in dash panel.

Installation - Reverse removal procedure and note the following: Leave booster mounting bolts loose until pedal assembly is connected. Stop light switch must straddle push rod with switch slot on pedal pin and switch outer hole just clearing pin.

LINCOLN CONTINENTAL

Removal - Disconnect battery, outlet lines from master cylinder, vacuum hose from booster, power steering return line from steering gear for clearance, and remove master cylinder. Remove fender apron brace and belt that holds compressor and power steering hoses to bracket. From inside car, disconnect booster push rod from brake pedal assembly as follows: Disconnect stop light switch wires at connector, remove C-clip retainer and slide stop light switch off brake pedal pin only enough for switch outer hole to clear pin, and lift switch straight up from pin. Slide master cylinder push rod link, washers and bushing from brake pedal pin. Remove booster mounting bolts, and remove booster.

Installation - Reverse removal procedure and note the following: Leave booster mounting bolts loose until pedal assembly is connected. Stop light switch must straddle push rod with switch slot on pedal pin and switch outer hole just clearing pin.

STUDEBAKER

Removal - Procedure is for removal of power unit, master cylinder, mounting brackets, and power levers as an assembly. Disconnect pushrod from brake pedal by removing shoulder bolt, then remove nylon bushings from pushrod. Disconnect hydraulic and vacuum lines, and stop light switch wires. Remove bolts holding unit to firewall and to suspended pedal bracket and remove complete assembly.

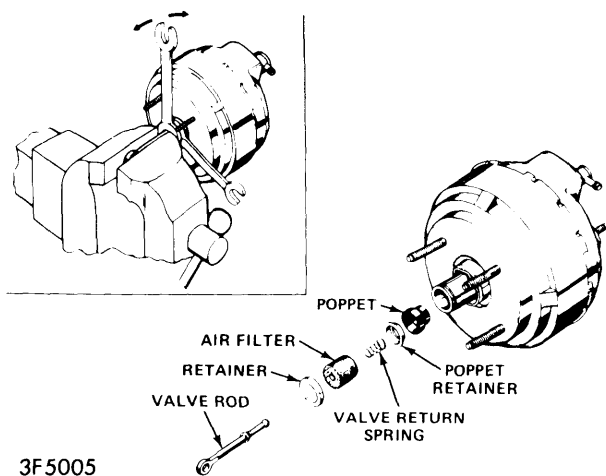
Installation - 1) Attach assembly to firewall and suspend pedal bracket with capscrews and lockwashers. Connect hydraulic and vacuum lines, and stop light switch wires. Install nylon bushings in eye of pushrod and connect pushrod to brake pedal with the special eccentric shoulder bolt. 2) Adjust pedal height as follows: On Synchro-mesh cars, rotate shoulder bolt until brake pedal is at same height as clutch pedal (released position). On Auto. Trans. cars, rotate shoulder bolt so there is 7/8-1" clearance between brake pedal arm and tab on suspended pedal bracket. Hold bolt head and tighten locknut securely.

1965-73 BENDIX TANDEM DIAPHRAGM (Cont.)

OVERHAUL

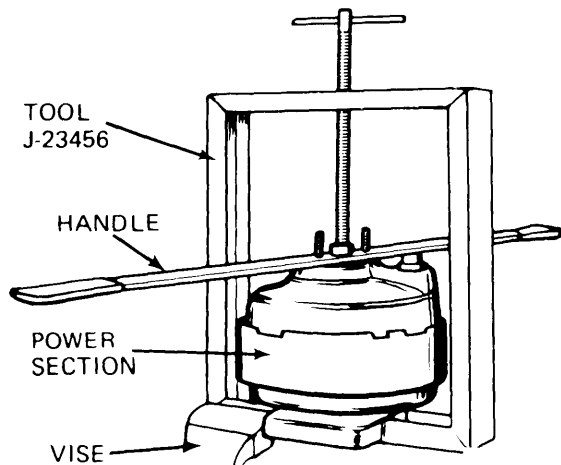
NOTE — American Motors (after 1969), Chrysler Corp. (after 1968), Ford Motor Co. (after 1966), and Studebaker do not recommend overhaul of this power brake unit.

Disassembly — 1) Scribe mark across master cylinder flange and power unit halves for reassembly. Remove master cylinder, then remove push rod and seal. Slide seal from rod. Remove vacuum check valve and grommet, if necessary. From rear housing air valve rod, remove dust boot and filter silencer. Extract air filter retainer, air filter, and silencer, using an awl or other suitable tool. Reinstall steel retainer to hub. Pour alcohol down valve operating rod (to aid removal), place end of rod in vise, and pry rod from unit (see illustration).



VALVE ROD DISASSEMBLY & REMOVAL

2) Straighten four longest tabs on rear housing. Attach suitable separator tool (J-23456), apply slight downward pressure and turn front housing counterclockwise, release pressure on housing, then separate housings. Remove diaphragm assembly from rear housing. If necessary, use



SEPARATING FRONT & REAR HOUSINGS

suitable tool and drive seal from rear housing. Wet rear diaphragm spring retainer with alcohol and remove diaphragm from rear plate (using fingers only).

3) Place 1 1/16" hex stock (2" long) in vise, or other suitable tool (J-22839), set diaphragm and plate assembly on tool, then twist rear plate counterclockwise until plates are loose. Remove assembly from tool and place on bench with front plate down. Lift rear plate from front plate hub. Remove valve plunger and spring. Remove "O" ring. Push out reaction disc. Slide center plate from front plate hub.

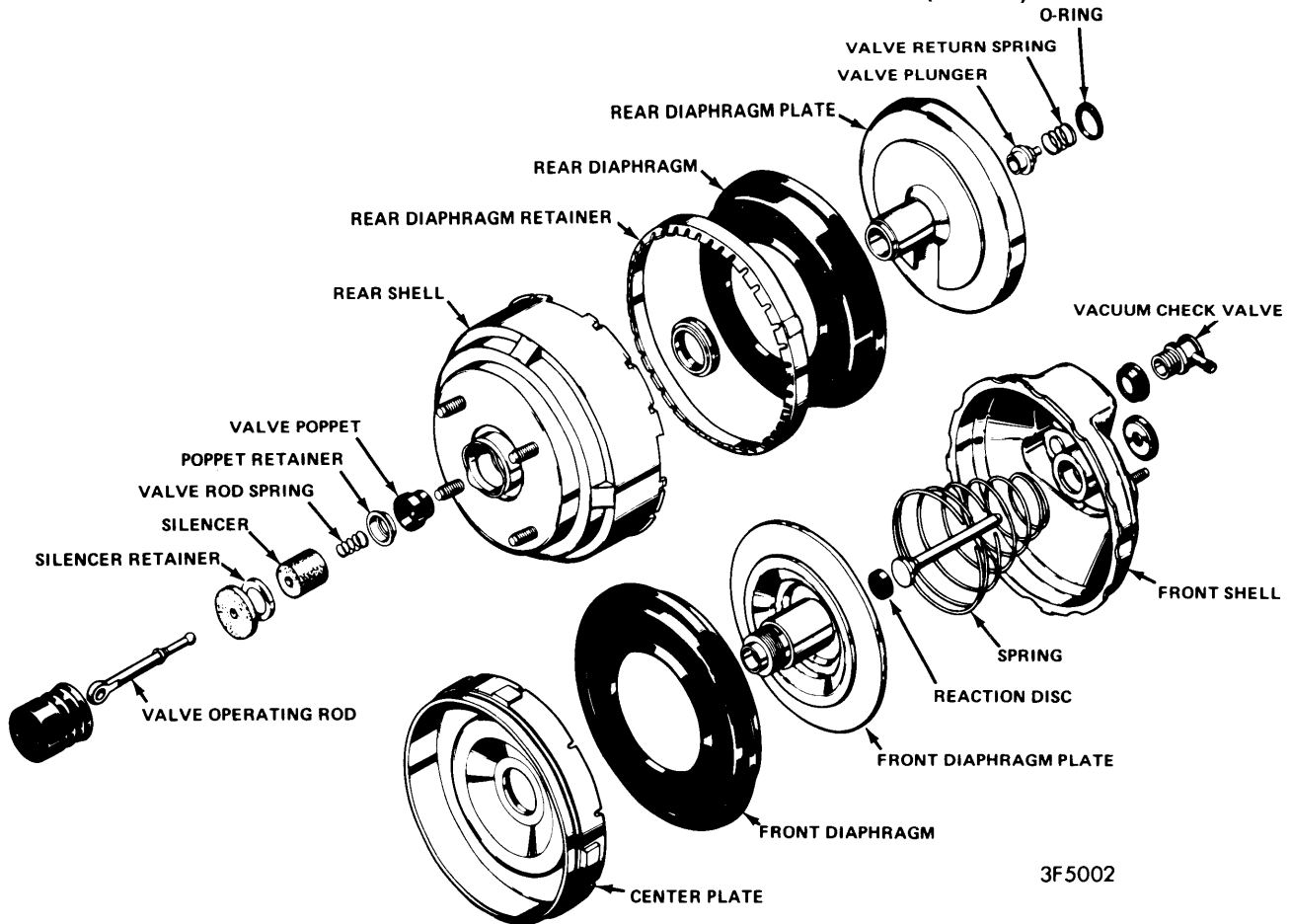
Cleaning & Inspection — Clean all metal and rubber parts in alcohol. Remove rusted or corroded spots from metal areas with crocus or emery cloth. Dry all components with compressed air. Just before reassembly, rewash all metal components coming in contact with hydraulic fluid, in clean alcohol. Dry with compressed air. Use all parts included in repair kit and discard all old rubber parts.

Reassembly — 1) If rear bearing and seal were removed, install new parts, using suitable driver (J-22677). Install reaction disc to front plate hub, with small tip toward hole. Mount front plate on hex stock or other suitable tool (J-22839). Position diaphragm on front plate, with long fold facing down). Place suitable seal protector tool (J-22733) over hub threads, apply light coat of suitable lubricant to hub and seal in center plate, then guide center plate, seal first, onto hub. Lightly lube air valve plunger bearing surfaces (avoid lubing inner rubber grommet). Install vacuum "O" ring seal on shoulder of front plate hub, and insert valve plunger and return spring in base of front plate hub. Screw rear plate onto front plate hub, by hand (torque to 150 in. lbs.). Check travel of valve plunger with finger.

2) Assemble rear diaphragm to rear plate (place diaphragm lip in plate groove). Install rear diaphragm retainer. Apply talcum powder to inner wall of rear housing, and suitable lubricant to scallop cutouts and rear housing seal. Assemble diaphragm and plate assembly into rear housing (align center plate bosses between rear housing lances). Using screwdriver, work outer rim of diaphragm into rear housing. On Imperial, install small end of diaphragm return spring over center plate hub nut. On Lincoln and Thunderbird, install small end of diaphragm return spring over front shell hub. Attach rear housing to suitable tool (as used during separation — J-23456). Insert diaphragm return spring. Place front housing over rear housing (note location of scribe marks). Apply downward pressure until diaphragm edge is fully compressed, then rotate bar clockwise to lock housings. Remove from tool and bend four deep tabs back to original locking position.

3) Dip poppet valve in clean alcohol and install in rear plate hub (small end first). Dip poppet retainer in alcohol and install it in poppet. Assemble retainer, filters, silencers, and return spring on valve rod. Dip valve plunger grommet in alcohol and install valve rod into plunger. Tap end of valve rod with plastic hammer to lock ball in grommet. Press filters and silencers into hub and install outer retainer. Assemble silencer in dust boot, wet boot with alcohol, and assemble on rod and over rear flange. Install check valve, if removed. Apply lubricant to piston end of hydraulic push rod and insert in cavity in front plate. Twist rod to eliminate air bubbles at reaction disc. Assemble seal over push rod and press into front housing recess.

1965-73 BENDIX TANDEM DIAPHRAGM (Cont.)



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BENDIX TANDEM DIAPHRAGM UNIT

PUSH ROD ADJUSTMENT

Check or adjust push rod height whenever master cylinder and power unit are separated, or braking problems are diagnosed as possible push rod maladjustment. Use suitable gauging tool, as indicated, to determine push rod height. If out of adjustment, turn adjusting nut to obtain proper setting. If push rod does not have adjusting nut, obtain adjustable service push rod, or standard replacement push rod, as applicable.

Push Rod Gauge

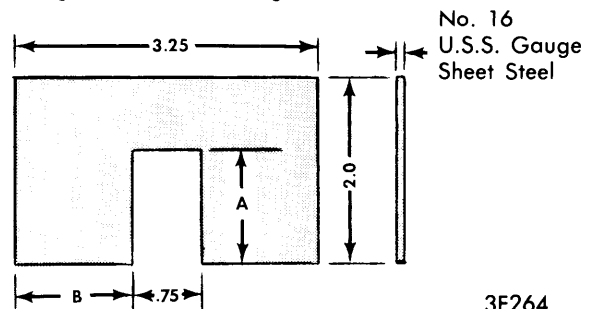
Application	Tool No.
American Motors	J-7723-01
Buick	J-22647
Cadillac.....	J-7723-01
Chevrolet.....	J-7723-01
Corvette	J-21183
Oldsmobile	
1967-68	J-7723-01
1969-73	J-22647
Pontiac	
1969-73 ①.....	J-22647

① — 1967-68 gauge must be made to dimensions in following table.

Push Rod Gauge Specifications

Application	Dimensions (In.)	
	A	B
Ford Motor Co.		
1966.....	.990-.995	1.0625
1967-69 ①.....	.098-.995	1.0625
1967-69 ②.....	.970-.985	1.0625
1970.....	.980-.995	1.0625
Jeep980-.995	1.0625
Pontiac (1967-68).....	1.185-1.200	1.0938
Studebaker.....	1.245-1.250	1.2500

- ① — Exc. Cougar, Falcon, Mustang.
- ② — Cougar, Falcon, Mustang.



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PUSH ROD GAUGE TOOL