

1968 

**COUGAR
FAIRLANE
FALCON
MONTEGO
MUSTANG**

SHOP MANUAL



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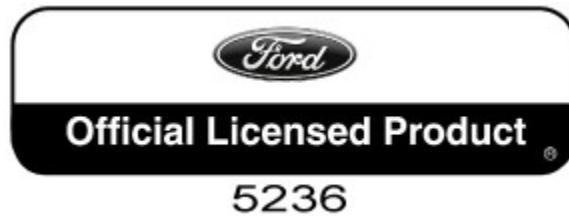
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GROUP INDEX

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ATIONS



MICHIGAN

VEHICLE IDENTIFICATION	1
BRAKES	2
SUSPENSION, STEERING, WHEELS AND TIRES	3
REAR AXLE	4
DRIVE SHAFT AND CLUTCH	5
MANUAL SHIFT TRANSMISSION	6
AUTOMATIC TRANSMISSION	7
ENGINE	8
IGNITION SYSTEM	9
FUEL SYSTEM	10
COOLING SYSTEM	11
EXHAUST SYSTEM	12
CHARGING SYSTEM	13
STARTING SYSTEM	14
LIGHTING SYSTEM, HORNS AND INSTRUMENTS	15
VENTILATING, HEATING AND ACCESSORIES	16
BODY, DOORS AND WINDOWS	17
TRIM, SEATS AND CONVERTIBLE TOP	18
SCHEMATICS	19
SPECIFICATIONS AND SPECIAL SERVICE TOOLS AT END OF EACH GROUP	

FOREWORD

This shop manual provides the Service Technician with information for the proper servicing of the 1968 Cougar, Fairlane, Falcon, Montego and Mustang cars.

The maintenance schedule and procedures for maintenance operations are published in the 1968 Passenger Car Maintenance and Lubrication Manual.

The information in this manual is grouped according to the type of work being performed, such as diagnosis and testing, frequently performed adjustments and repairs, in-vehicle adjustments, overhaul, etc. Specifications and recommended special tools are included.

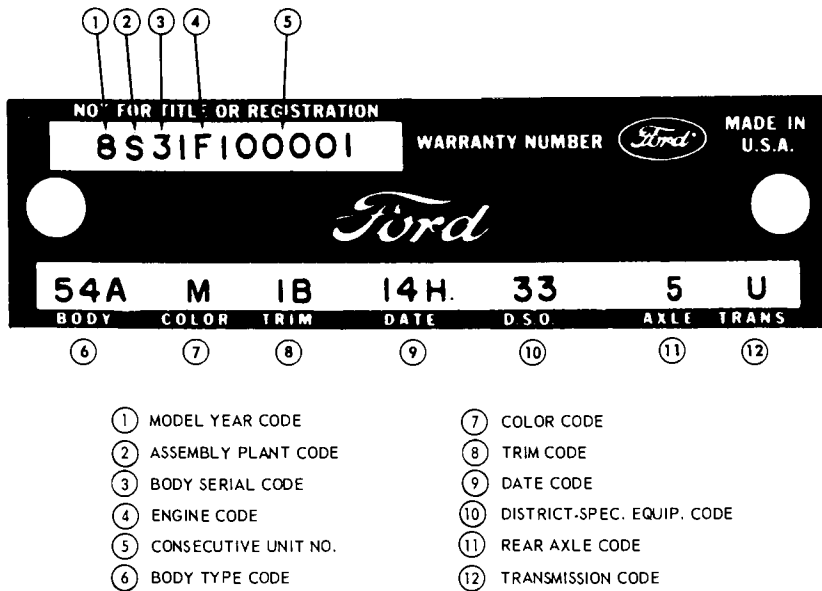
Refer to the opposite page for important vehicle identification data.

The descriptions and specifications in this manual were in effect at the time this manual was approved for printing. Ford Motor Company reserves the right to discontinue models at any time, or change specifications or design, without notice and without incurring obligation.



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<h1>Vehicle Identification</h1>	GROUP 1
---------------------------------	--------------------



- | | |
|------------------------|------------------------------|
| ① MODEL YEAR CODE | ⑦ COLOR CODE |
| ② ASSEMBLY PLANT CODE | ⑧ TRIM CODE |
| ③ BODY SERIAL CODE | ⑨ DATE CODE |
| ④ ENGINE CODE | ⑩ DISTRICT-SPEC. EQUIP. CODE |
| ⑤ CONSECUTIVE UNIT NO. | ⑪ REAR AXLE CODE |
| ⑥ BODY TYPE CODE | ⑫ TRANSMISSION CODE |

N 1672-A

FIG. 1—Typical Warranty Plate — Fairlane Shown



N 1673-A

FIG. 2—Typical Vehicle Identification Number (VIN) Tab—Fairlane Shown

VEHICLE WARRANTY NUMBER

The vehicle warranty number is the first line of numbers and letters appearing on the Warranty Plate (Fig. 1). The Warranty Plate is riveted to the left front door lock face panel. The first number indicates the model year. The letter following the model year number indicates the manufacturing assembly plant. The next two numbers designate the Body Serial Code followed by a letter representing the Engine Code. The group of six digits remaining on the first line indicate the Consecutive Unit Number.

The two-digit number next designates the district in which the car was ordered and may appear in conjunction with a Domestic Special Order or Foreign Special Order number when applicable. The final two spaces indicate the Rear Axle Ratio (numbers for regular axles, letters for locking-types) and the Transmission type (numbers for manual, letters for automatic).

OFFICIAL VEHICLE IDENTIFICATION NUMBER

The official Vehicle Identification Number (VIN) for title and registration purposes will be stamped on an aluminum tab that will be riveted to the instrument panel close to the windshield on the passenger side of the vehicle and will be visible from outside (Fig. 2).

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line on the Warranty Plate. Style. A letter or a number followed by a number. To the right of this code ap-

MODEL YEAR CODE

The number 8 designates 1968.

BODY SERIAL AND STYLE CODES

The two-digit numeral which follows the assembly plant code identifies the body series. This two-digit number is used in conjunction with the Body Style Code, in the Vehicle Date, which consists of a two-digit number with a letter suffix. The following charts list the Body Serial Codes, Body Style Codes and the models.

MONTEGO

Body Serial Code	Body Style Code	Body Type	Model
01	65A	Sports Coupe ①	Comet
02 06 07	54A 54B 65B	Sports Sedan ① 4-Door Sedan ① 2-Door Hardtop ① ③	Montego
10 11 12 11 12	54D 65D 76D 65E 76B	4-Door Sedan ① 2-Door Hardtop ① ③ 2-Door Convertible ① 2-Door Hardtop ② ③ 2-Door Convertible ②	Montego MX
10 11	54C 65C	4-Door Sedan 2-Door Hardtop ③	Brougham
15 17 15 17 15 17	63A 65F 63C 65G 63H 65H	2-Door Hardtop ① 2-Door Hardtop ① ③ 2-Door Hardtop ② 2-Door Hardtop ② ③ 2-Door Hardtop GT ② 2-Door Hardtop GT ② ③	Cyclone
03 08	71B 71C	4-Door Wagon ① ③ 4-Door Wagon ①	Montego MX

① Bench Seat
② Bucket Seat
③ Formal Roof

FAIRLANE

Body Serial Code	Body Style Code	Body Type	Model
31 30	54A 65A	4-Door Sedan ① 2-Door Hardtop ① ③	Fairlane
34 33 35 36 35 33 36	54B 65B 63B 76B 63E 65E 76E	4-Door Sedan ① 2-Door Hardtop ① ③ 2-Door Hardtop ① 2-Door Convertible ① ③ 2-Door Hardtop ② 2-Door Hardtop ② ③ 2-Door Convertible ②	Fairlane 500
40 41	65C 54C	2-Door Hardtop ① ③ 4-Door Sedan ①	Torino
42 44 43	63D 65D 76D	2-Door Hardtop ② 2-Door Hardtop ② ③ 2-Door Convertible ②	Torino GT
	71D	4-Door Wagon ①	Fairlane Fairlane 500 Torina Squire
			Ranchero

COUGAR

Body Serial Code	Body Style Code	Body Type
91 91 91	65A 65B 65C	2-Door Hardtop (Bucket Seat) 2-Door Hardtop (Bucket Seat) 2-Door Hardtop (Bench Seat)

① Luxury Model

MUSTANG

Body Serial Code	Body Style Code	Body Type
02 01 03 02 01 03 01 02 01 02	63A 65A 76A 63B 65B 76B 65C 63C 65D 63D	2-Door Fastback ① 2-Door Hardtop ① 2-Door Convertible ① 2-Door Fastback ① ③ 2-Door Hardtop ① ③ 2-Door Convertible ① ③ 2-Door Hardtop ② 2-Door Fastback ② 2-Door Hardtop ② ③ 2-Door Fastback ② ③

① Bucket Seat
② Bench Seat
③ Luxury Model

FALCON

Body Serial Code	Body Style Code	Body Type	Model
10 11	62A 54A	2-Door Club Coupe ① 4-Door Sedan ①	Standard
20 21	62B 54B	2-Door Club Coupe ① 4-Door Sedan ①	Futura
22	62C	2-Door Sports Coupe ②	
12	71A	4-Door	Wagon (Std.)
23	71B	4-Door	Wagon (Deluxe)

① Bench Seat
② Bucket Seat

CONSECUTIVE UNIT NUMBER

Each model year, each assembly plant begins production with number 500001 (Montego or Cougar) or 100001 (Fairlane, Falcon, Mustang) and continues on for each unit built.

ENGINE CODES

Code	Type
U6 Cyl. 170 Cu. In. (1V)
T6 Cyl. 200 Cu. In. (1V)
Z6 Cyl. ① 200 Cu. In. (1V)
C8 Cyl. 289 Cu. In. (2V)
F8 Cyl. 302 Cu. In. (2V)
68 Cyl. ① 302 Cu. In. (2V)
J8 Cyl. 302 Cu. In. (4V)
Y8 Cyl. 390 Cu. In. (2V)
X8 Cyl. 390 Cu. In. (2V) Prem. Fuel
S8 Cyl. 390 Cu. In. (4V) GT
W8 Cyl. 427 Cu. In. (4V) Hi-Perf.

① Low Compression

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TRANSMISSION CODES

Code	Type
1	3-Speed Manual
5	4-Speed Manual
W	Automatic (C-4)
U	Automatic (C-6)

REAR AXLE RATIO CODES

A number designates a conventional axle, while a letter designates a locking differential.

Code	Ratio	Code	Ratio
1	2.75:1		
2	2.79:1		
4	2.83:1		
5	3.00:1	E	3.00:1
6	3.20:1	F	3.20:1
7	3.25:1	G	3.25:1
8	3.50:1	H	3.50:1
9	3.10:1		

DATE CODES

A number signifying the date precedes the month code letter. A second-year code letter will be used if the model exceeds 12 months.

Month	Code First Year	Code Second Year
January	A	N
February	B	P
March	C	Q
April	D	R
May	E	S
June	F	T
July	G	U
August	H	V
September	J	W
October	K	X
November	L	Y
December	M	Z

DISTRICT CODES (DSO)

Units built on a Domestic Special Order, Foreign Special Order, or other special orders will have the complete order number in this space. Also to appear in this space is the two-digit code number of the District which ordered the unit. If the unit is a regular production unit, only the District code number will appear.

FORD

Code	District
11	Boston
13	New York
15	Newark
16	Philadelphia
17	Washington
21	Atlanta
22	Charlotte
24	Jacksonville
25	Richmond
27	Cincinnati
28	Louisville
32	Cleveland
33	Detroit
34	Indianapolis
35	Lansing
37	Buffalo
38	Pittsburgh
41	Chicago
42	Fargo
43	Milwaukee
44	Twin Cities
45	Davenport
51	Denver
52	Des Moines
53	Kansas City
54	Omaha
55	St. Louis
61	Dallas
62	Houston
63	Memphis
64	New Orleans
65	Oklahoma City
71	Los Angeles
72	San Jose
73	Salt Lake City
74	Seattle
75	Phoenix
81	Ford of Canada
83	Government
84	Home Office Reserve
85	American Red Cross
89	Transportation Services
90-99	Export

MERCURY

Code	District	Code	District
11	Boston	34	Detroit
15	New York	41	Chicago
16	Philadelphia	42	St. Louis
17	Washington	46	Twin Cities
21	Atlanta	51	Denver
22	Dallas	52	Los Angeles
23	Jacksonville	53	Oakland
26	Memphis	54	Seattle
31	Buffalo	84	Home Office Reserve
32	Cincinnati		
33	Cleveland	90	Export

ASSEMBLY PLANT CODES

Code Letter	Code Letter
A	Atlanta
R	Oakville (Canada)
	Ontario Truck
	Dallas
L	Michigan Truck
N	Norfolk
P	Twin Cities
R	San Jose
	Pilot Plant
	Metuchen
	Louisville
	Wayne
	St. Thomas
	Wixom
	St. Louis

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FORD OF CANADA

Code	District	Code	District
B1	Central	B4	Midwestern
B2	Eastern	B6	Western
B3	Atlantic	B7	Pacific
I1 thru I7	Export		

Note: Lincoln-Mercury units will use suffix "A" in place of "B".

EXTERIOR PAINT COLOR CODES

CODE	M-30-J M-32-J	Color
A	1724-A	Black
B	3059-A	Maroon
D	3077-A	Bright Blue Met.
F	3065-A	Bright Aqua Met.
I	2041-A	Lime Green Met.
M	1619-A	White
N	921-A	Diamond Blue
O	2040-A	Light Green
Q	1624-A	Med. Blue Met.
R	3067-A	Dk. Green Met.
T	2008-A	Red
U	1070-A	Med. Aqua Met.
W	3120-A	Yellow
X	3061-A	Dark Blue Met.
Y	3073-A	Gold Met.
3	1730-A	Vermillion
5	1724-G	Low Gloss Black
6	1631-A	Lt. Beige

INTERIOR TRIM CODES

Code	Trim Scheme
1A	Black Cloth and Black Vinyl
1B	Med. Blue Cloth and Lt. Blue Vinyl
1G	Med. Ivy Gold Cloth and Lt. Ivy Gold Vinyl
1K	Lt. Aqua Vinyl
1U	Lt. Parchment Cloth and Pastel Parchment Vinyl
1Y	Lt. Nugget Gold Vinyl
2A	Black Vinyl
2B	Dk. & Lt. Blue Vinyl
2D	Red Vinyl
2F	Med. Saddle Vinyl
2G	Lt. Ivy Gold Vinyl
2K	Lt. Aqua Vinyl
2U	Pastel Parchment Vinyl
2Y	Lt. Nugget Gold Vinyl
3A	Black Vinyl (Montego)
3A	Black Cloth and Black Vinyl (Fairlane)
3B	Lt. Blue Vinyl (Montego)
3B	Med. Blue Cloth and Lt. Blue Vinyl (Falcon, Fairlane)
3D	Dk. Red Vinyl
3G	Med. Ivy Gold Cloth and Lt. Ivy Gold Vinyl
3K	Med. Aqua Cloth and Lt. Aqua Vinyl
3U	Pastel Parchment Vinyl (Montego)
3U	Lt. Parchment Cloth and Pastel Parchment Vinyl (Falcon)
3Y	Lt. Nugget Cloth and Lt. Nugget Vinyl
4A	Black Vinyl
4B	Lt. Blue Vinyl
4D	Dk. Red Vinyl
4G	Lt. Ivy Gold Vinyl
4K	Lt. Aqua Vinyl
4U	Pastel Parchment Vinyl
4Y	Lt. Nugget Gold Vinyl
5A	Black Cloth and Black Vinyl (Montego)
5A	Black Vinyl (Fairlane)
5B	Med. Blue Cloth and Lt. Blue Vinyl (Montego)
5B	Dk. & Lt. Blue Vinyl (Fairlane)
5D	Dk. Red Cloth and Dk. Red Vinyl (Montego)
5D	Dk. Red Vinyl (Fairlane)
5G	Lt. Ivy Gold Cloth and Lt. Ivy Gold Vinyl
5K	Med. Aqua Cloth and Lt. Aqua Vinyl (Montego)
5K	Dk. & Lt. Aqua Vinyl (Fairlane)
5U	Lt. Parchment Cloth and Pastel Parchment Vinyl (Montego)
5U	Pastel Parchment Vinyl (Fairlane)
5Y	Lt. Nugget Gold Cloth and Lt. Nugget Gold Vinyl (Montego)
5Y	Lt. Nugget Gold Vinyl (Fairlane)
5A	Black Vinyl
	Dk. & Lt. Blue Vinyl
	Dk. Red Vinyl

INTERIOR TRIM CODES—(continued)

Code	Trim Scheme
7B	Lt. Blue Vinyl (Cougar)
7B	Med. Blue Cloth and Lt. Blue Vinyl (Fairlane)
7B	Dk. Blue Cloth and Dk. Blue Vinyl (Montego)
7D	Dk. Red Cloth and Dk. Red Vinyl
7G	Med. Ivy Gold Cloth and Lt. Ivy Gold Vinyl
7K	Med. Aqua Cloth and Lt. Aqua Vinyl
7Y	Nugget Gold Cloth and Nugget Gold Vinyl
8A	Black Vinyl
8B	Dk. Blue Vinyl
8D	Dk. Red Vinyl
8F	Med. Saddle Vinyl with Black
8G	Med. & Lt. Ivy Gold Vinyl
8K	Dk. & Lt. Aqua Vinyl
8U	Pastel Parchment Vinyl
8Y	Nugget Gold Vinyl
9A	Black Vinyl
9B	Dk. Blue Vinyl
9D	Dk. Red Vinyl
9U	Parchment Vinyl
9Y	Lt. Nugget Gold Vinyl
AA	Pastel Parchment Vinyl with Black
AB	Pastel Parchment Vinyl with Blue
AD	Pastel Parchment Vinyl with Red
AF	Pastel Parchment Vinyl with Saddle
AG	Pastel Parchment Vinyl with Ivy Gold
AK	Pastel Parchment Vinyl with Aqua
AY	Pastel Parchment Vinyl with Nugget Gold
BU	Pastel Parchment Vinyl
CU	Pastel Parchment Vinyl
DU	Pastel Parchment Vinyl
EU	Pastel Parchment Vinyl
FA	Pastel Parchment Vinyl with Black
FB	Pastel Parchment Vinyl with Blue
FD	Pastel Parchment Vinyl with Red
FF	Pastel Parchment Vinyl with Saddle
FG	Pastel Parchment Vinyl with Ivy Gold
FK	Pastel Parchment Vinyl with Aqua
FU	Pastel Parchment Vinyl
FY	Pastel Parchment Vinyl with Nugget Gold
HA	Black Vinyl
HB	Dk. & Lt. Blue Vinyl
HD	Dk. Red Vinyl
HG	Med. & Lt. Ivy Gold Vinyl
HK	Dk. & Lt. Aqua Vinyl
HU	Pastel Parchment Vinyl
HY	Lt. Nugget Gold Vinyl
JU	Pastel Parchment Vinyl
KB	Med. Blue Cloth and Lt. Blue Vinyl
KG	Med. Ivy Gold Cloth and Lt. Ivy Gold Vinyl
KU	Lt. Parchment Cloth and Pastel Parchment Vinyl (Montego)
KU	Pastel Parchment Vinyl (Fairlane)
LA	Black Vinyl
LB	Lt. Blue Vinyl
LD	Dk. Red Vinyl
LU	Pastel Parchment Vinyl
MA	Black Vinyl
MB	Dk. & Lt. Blue Vinyl
MD	Dk. Red Vinyl
MU	Pastel Parchment Vinyl
OU	Pastel Parchment Vinyl
QA	Black Vinyl
QB	Dk. & Lt. Blue Vinyl
QU	Pastel Parchment Vinyl
RA	Black Vinyl
RB	Lt. Blue Vinyl
RD	Dk. Red Vinyl
RU	Pastel Parchment Vinyl
TU	Pastel Parchment Vinyl
UA	Parchment Vinyl with Black
UB	Parchment Vinyl with Blue
UD	Parchment Vinyl with Red
UF	Parchment Vinyl with Saddle
UG	Parchment Vinyl with Ivy Gold
UK	Parchment Vinyl with Aqua
UU	Pastel Parchment Vinyl
UY	Parchment Vinyl with Nugget Gold
YU	Pastel Parchment Vinyl
ZU	Pastel Parchment Vinyl



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Montego)

Brakes

GROUP

2

PART 2-1	PAGE	PART 2-3	PAGE
General Brake Service	2-1	Specifications	2-34
PART 2-2			
Brake System	2-9		

PART 2-1—General Brake Service

Section	Page	Section	Page
1 Diagnosis and Testing	2-1	Hydraulic System Bleeding and Centralizing of the Differential Valve.....	2-4
Brake System Tests	2-1	3 Cleaning and Inspection.....	2-5
Road Test	2-3	Disc (Front) Brakes	2-5
2 Common Adjustments and Repairs	2-3	Rear Brakes	2-6
Parking Brake Linkage Adjustment	2-3		
Power Brake Master Cylinder Push Rod Adjustment.....	2-4		

1 DIAGNOSIS AND TESTING

BRAKE SYSTEM TESTS

BRAKE FLUID LEVEL AND HYDRAULIC SYSTEM

1. Always check the fluid level in the brake master cylinder reservoirs before performing the test procedures. If the fluid level is not within 1/4 inch of the top of the master cylinder reservoirs, add the specified brake fluid. Add Ford Brake Fluid—Extra Heavy Duty—Part Number C6AZ-19542-A (ESA-M6C25-A) equivalent for all brake applications. **The extra heavy duty brake fluid is colored blue for identification purposes. Do not mix low temperature brake fluids with the specified brake fluid.**

DUAL MASTER CYLINDER BRAKE SYSTEM

1. Turn the ignition switch to the ACC or ON position. If the light on the brake warning lamp remains on, the condition may be caused by a defective switch, grounded switch wires or the differential pressure valve is not centered. Centralize the differential pressure valve as outlined under Hydraulic System Bleeding and Centralizing of the Differ-

If the condition of the wire is good, replace the brake warning lamp switch.

2. Turn the ignition switch to the start position. If the brake warning lamp does not light, check the light and wiring for defects and replace or repair wiring.

3. If the brake warning lamp does not light when a pressure differential condition exists in the brake system, the warning lamp may be burned out, the warning lamp switch is inoperative or the switch to lamp wiring has an open circuit. Check the bulb and replace it, if required. Check the switch to lamp wires for an open circuit and repair or replace them, if required. If the warning lamp still does not light, replace the switch.

BRAKE PEDAL FREE HEIGHT AND TRAVEL MEASUREMENTS

With the engine running for full power brake operation, measure the brake pedal free height, and check the brake pedal travel with the use of the Brake Pedal Pressure Gauge, Tool WRE-500-50 as follows:

Brake Pedal Free Height Measurement

1. Insert a slender, sharp pointed prod through the carpet and sound

deadener to the dash panel metal and measure the distance to the brake pedal (Fig. 1).

2. If the position of the pedal is not within specification, check the brake pedal linkage for missing, worn or damaged bushings or loose attaching bolts and replace them, if required.

3. If the pedal free height is still out of specification, check the brake pedal booster push rod (if so equipped) or master cylinder to be sure the correct parts are installed. Replace the defective parts as necessary.

Brake Pedal Travel Measurement

1. Install a Brake Pedal Pressure Gauge on the brake pedal pad (Fig. 2).

2. Hook a steel measuring tape to the brake pedal as shown in Fig. 1. Measure and record the distance from the brake pedal free height position to the reference point, which is at the six o'clock position on the steering wheel rim.

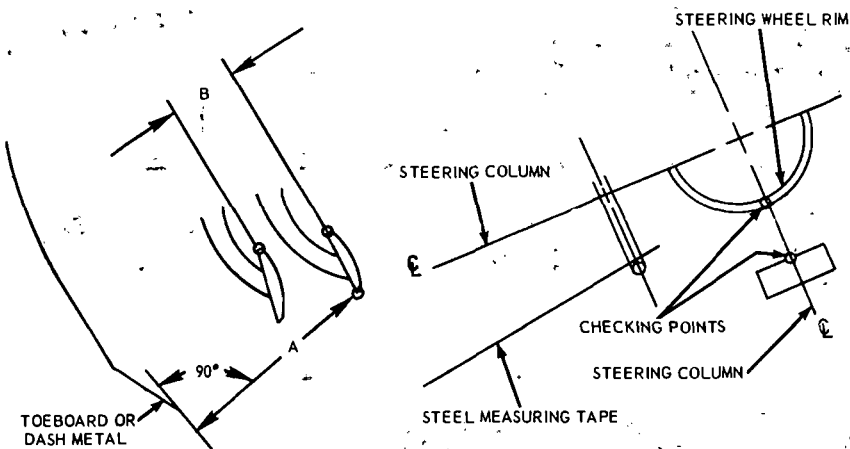
3. With the steel tape still hooked to the brake pedal depress the brake by pressing downward on the brake pedal effort gauge. Apply a 50 pound load to the center of the pedal by observing the pressure gauge, and measure the distance from the brake pedal to the fixed reference point on the steering wheel rim, par-

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VEHICLE	TYPE	PEDAL FREE HEIGHT A	PEDAL TRAVEL B
FALCON— MONTEGO —FAIRLANE	NON-POWER DRUM	8.13 6.91	2.73
FALCON— MONTEGO —FAIRLANE	POWER DISC	7.20 5.82	2.10
MUSTANG—COUGAR	NON-POWER DRUM	7.32 6.37	2.68
MUSTANG—COUGAR	POWER DISC	6.20 5.33	1.85

NOTE: A DIMENSION TO BE MEASURED TO SHEET METAL

B DIMENSION TO BE MEASURED PARALLEL TO THE VERTICAL CENTERLINE OF THE STEERING COLUMN WITH A 50 POUND LOAD APPLIED TO THE CENTERLINE OF THE BRAKE PEDAL PAD. (CHECKS ON POWER BRAKE VEHICLES MADE WITH ENGINE RUNNING) H 1551 - B

FIG. 1—Brake Pedal Height and Travel Measurements

Tool—WRE-500-50

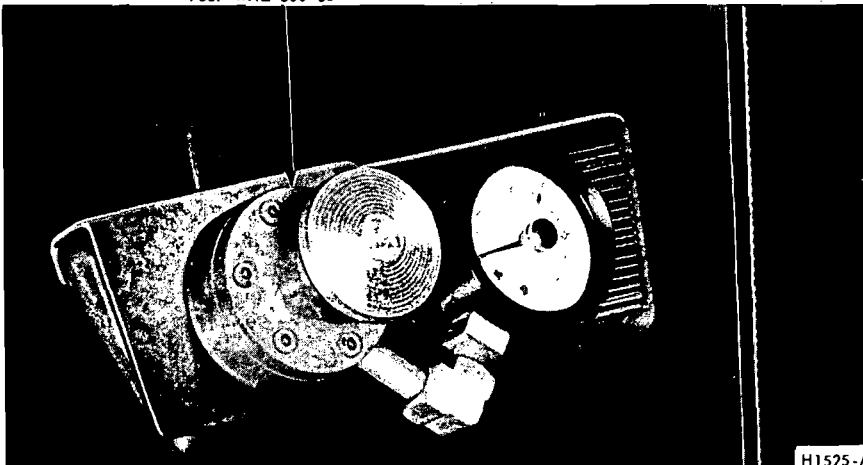


FIG. 2—Brake Pedal Effort Gauge Installed—Typical

allel to the centerline of the steering column.

4. The difference between the brake pedal free height and the depressed pedal measurement under a 50 pound load should be within the specified maximum pedal travel specification B in Fig. 1.

tance of approximately ten feet; then apply the brakes sharply and hold the brake pedal down until the car is completely stopped. This will actuate the brake self-adjusters. If these stops do not bring the brake pedal travel within specification, make several additional forward and reverse stops as outlined above.

6. If the second series of stops do not bring the brake pedal travel within specification, remove the brake drums and check the brake adjusters to make sure they are functioning. Check the brake linings for

wear or damage. Repair or replace all worn or damaged parts and non-functioning adjusters. Adjust the brake lining outside diameter to the approximate inside diameter of the brake drum with Rotunda Tool HRE 8650 (Figs. 11 and 12, Part 2-2).

7. If all the brake adjusters, brake drums and linings are functional and the brake pedal travel is not within specifications, check the pedal linkage for missing, worn or damaged bushings, or loose attachments. Bleed the brake and centralize the differential valve.

POWER BRAKE FUNCTIONAL TEST

1. With the transmission in neutral, stop the engine and apply the parking brake. Depress the brake pedal several times to exhaust all vacuum in the system.

2. With the engine shut off, depress the brake pedal and hold it in the applied position. If the pedal gradually falls away under this pressure, the hydraulic system is leaking. Check all tubing, hoses, calipers (if so equipped), wheel cylinders and connections for leaks.

If the brake pedal movement feels spongy, bleed the hydraulic system to remove air from the system. Refer to Hydraulic System Bleeding, Part 1, Section 2. Also, check for leaks or insufficient fluid.

3. With the engine shut off and all vacuum in the system exhausted, depress the pedal and hold it in the applied position. Start the engine. If the vacuum system is operating, the pedal will tend to fall away under foot pressure and less pressure will be required to hold the pedal in the applied position. If no action is felt, the vacuum booster system is not functioning.

LOCKED WHEEL BRAKE

Should one of the wheel brakes be locked and the vehicle must be moved, open the bleeder screw long enough to let out a few drops of brake fluid. **This bleeding operation will release the brakes but will not correct the cause of trouble.**

PARKING BRAKE

Visually check the operation of the parking brake linkage as the parking brake controls are moved to the applied position. Then, check the operation of the brake linkage when the parking brake controls are moved to

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the released position. These checks should indicate whether the manual parking brake control linkage is operating properly or requires repair or adjustment due to inability of the parking brake to hold against moderate vehicle movement.

ROAD TEST

A road test should only be con-

ducted when the operator is sure the brakes will stop the vehicle.

During a road test, apply the vehicle's brakes at a road speed of 20 mph for all problem conditions listed in Figs. 11 and 12 with the exception of those resolved in the Brake System Tests and brake chatter. To check for brake chatter or surge, apply the brakes lightly at 50 mph. For each of the symptoms encountered, check and

eliminate the causes which are listed in Figs. 11 and 12.

If the road test reveals one or more problem conditions listed in Figs. 11 and 12, correct all malfunctions of the vacuum system, brake booster and hydraulic system prior to removing brake drums, brake calipers (if so equipped), brake shoes and linings or backing plates.

2 COMMON ADJUSTMENTS AND REPAIRS

PARKING BRAKE LINKAGE ADJUSTMENT

MUSTANG—COUGAR

Check the parking brake cables when the parking brakes are fully released. If the cables are loose, adjust them as follows:

1. Fully release the parking brake by turning the handle counterclockwise and pushing it inward.
2. Pull the parking brake handle outward to third notch from its normal released position.
3. Raise the vehicle. Remove the wheel cover. Install Tool T66L-4204-L on the rear wheel (Fig. 3).
4. Turn the locking adjustment nut forward against the cable guide on the equalizer (Fig. 4) until there is 100 ft-lbs break-away torque at the rear wheel when turning the rear wheels in the direction of forward rotation with a torque wrench (Fig. 3). The torque measurement must be made relative to the centerline of the wheel.
5. Release the parking brake and make sure the brake shoes return to the fully released position and no drag is felt when turning the rear wheels.
6. Remove Tool T66L-4204-L. Install the wheel attaching bolts and torque them to specification. Install the wheel cover. Lower the vehicle.

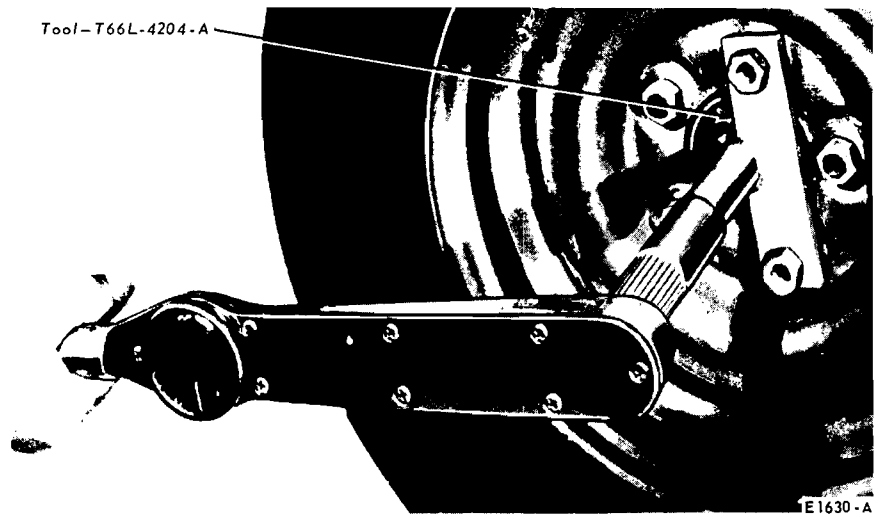


FIG. 3—Checking Parking Brake Break-Away Torque

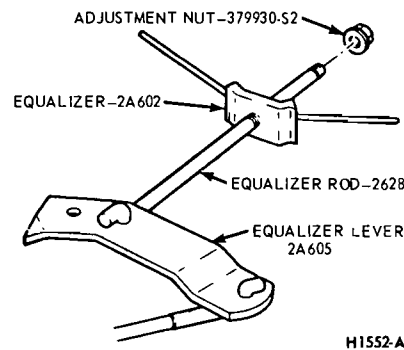


FIG. 4—Parking Brake Linkage Adjustment — Mustang and Cougar

2. Push the parking brake pedal to the first notch from the normal released position.
3. Raise the vehicle. Loosen the equalizer lock nut (Fig. 5) and turn the nut forward against the cable guide on the equalizer until there is 75-100 pounds tension on the left or right cable or there is 100 ft-lbs break-away torque when turning the rear

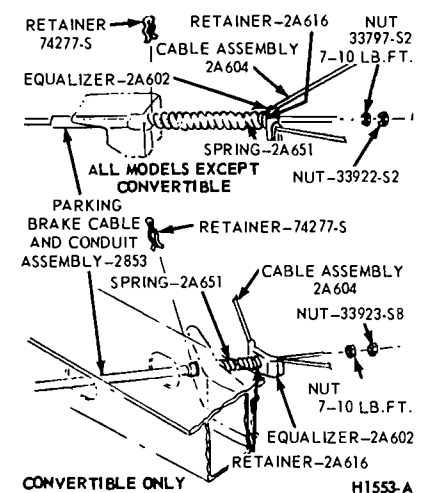


FIG. 5—Parking Brake Linkage Adjustment—Montego, Fairlane and Falcon

wheels in the direction of forward rotation with a torque wrench and Tool T66L-4204-L as shown in Fig. 3.

MONTEGO—FALCON—FAIRLANE

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The torque measurement must be made relative to the centerline of the wheel. Tighten the lock nut.

4. Make sure there is no drag when turning the rear wheels.

5. Lower the vehicle. Remove the torque wrench and Tool T66L-4204-L, if required. Install the wheel attaching nuts and torque them to specification. Install the wheel cover.

POWER BRAKE MASTER CYLINDER PUSH ROD ADJUSTMENT

The push rod is provided with an adjustment screw to maintain the correct relationship between the booster control valve plunger and the master cylinder pistons. Failure to maintain this relationship will prevent the master cylinder piston from completely releasing hydraulic pressure and can cause the brakes to drag, or cause excessive brake pedal travel.

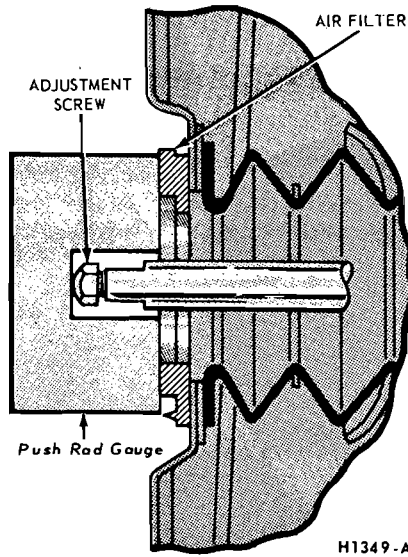


FIG. 7—Push Rod Adjustment—Midland-Ross

the valve plunger.

This is an approximate adjustment only. The push rod should not move more than 0.015 inch as it contacts the master cylinder piston. No movement (exact contact) is ideal.

HYDRAULIC SYSTEM BLEEDING AND CENTRALIZING OF THE DIFFERENTIAL VALVE

When any part of the hydraulic system has been disconnected for repair or replacement, air may enter the system and cause spongy pedal action. Bleed the hydraulic system after it has been properly connected, to be sure that all air is expelled.

MANUAL BLEEDING

The primary and secondary (front and rear) hydraulic brake systems are individual systems and are bled separately. Bleed the longest line first on the individual system being serviced. During the complete bleeding operation, DO NOT allow the reservoir to run dry. Keep the master cylinder reservoirs filled with Rotunda Fluid—Extra Heavy Duty—Part Number C6AZ-19542-A. The extra heavy duty brake fluid is colored blue for identification purposes. Do not mix low temperature brake fluids with the specified fluid during the bleeding operations. Never re-use brake fluid which has been drained from the hydraulic system.

1. Loosen the bleed screw located on the side of the master cylinder. Do not use the secondary piston stop screw, located on the bottom of the master cylinder to bleed the brake

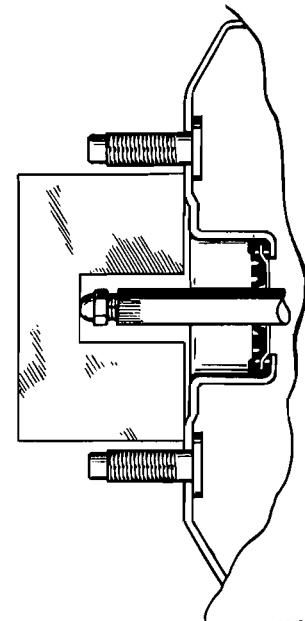


FIG. 8—Push Rod Adjustment—Bendix

system. Loosening or removing this screw could result in damage to the secondary piston or stop screw.

2. To bleed the secondary (rear) brake system, position a suitable 3/8 inch box wrench (Fig. 9) on the bleeder fitting on the brake wheel cylinder. Attach a rubber drain tube to the bleeder fitting. The end of the tube should fit snugly around the bleeder fitting.

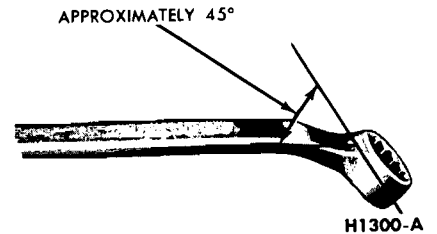


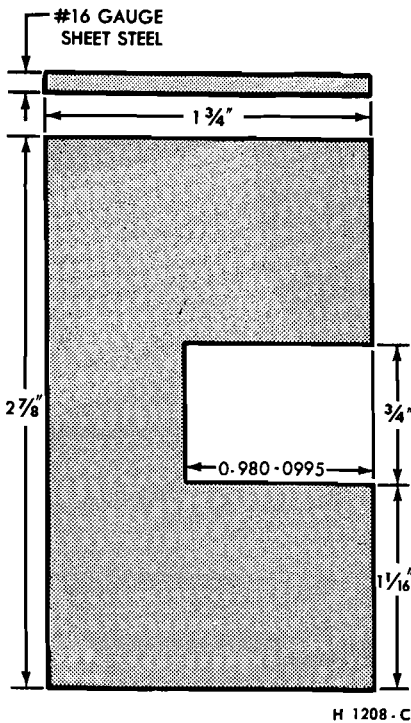
FIG. 9—Wrench for Bleeding Brake Hydraulic System

3. Submerge the free end of the tube in a container partially filled with clean brake fluid, and loosen the bleeder fitting approximately 3/4 turn.

4. Push the brake pedal down slowly through its full travel. Close the bleeder fitting, then return the pedal to the fully-released position. Repeat this operation until air bubbles cease to appear at the submerged end of the bleeder tube.

5. When the fluid is completely free of air bubbles, close the bleeder fitting and remove the bleeder tube.

6. Repeat this procedure at the brake wheel cylinder on the opposite side. Refill the master cylinder reservoir after each wheel cylinder is bled



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FIG. 6—Push Rod Gauge Dimensions

To check the adjustment of the screw, fabricate a gauge of the dimension shown in Fig. 6. Then place the gauge against the master cylinder

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Do not set up side terms on

and install the master cylinder cover and gasket. **Be sure the diaphragm type gasket is properly positioned in the master cylinder cover. When the bleeding operation is completed, the fluid level should be filled to within 1/4 inch from the top of the reservoirs.**

7. If the primary (front brake) system is to be bled, repeat steps 2 through 6 at the right front brake caliper or cylinder and ending at the left front brake caliper or cylinder.

8. On disc brake equipped vehicles be sure that the front brake pistons are returned to their normal positions and that the shoe and lining assemblies are properly seated by depressing the brake pedal several times until normal pedal travel is established.

9. Centralize the pressure differential valve. Refer to the Centralizing the Pressure Differential Valve Procedures which follow.

PRESSURE BLEEDING

Bleed the longest lines first. The bleeder tank should contain enough new Ford Brake Fluid to complete the bleeding operation. Use Ford brake fluid—Extra Heavy Duty · Part Number C6AZ-19542-A or equivalent for all brake applications. **The brake fluid is colored blue for identification purposes. Do not mix low temperature brake fluid with specified brake fluid during the bleeding operations. Never re-use brake fluid that has been drained from the hydraulic system.** The tank should be charged with approximately 10 to 30 pounds of air pressure. **Never exceed 50 pounds pressure.**

1. Clean all dirt from the master cylinder reservoir cover.

2. Remove the master cylinder reservoir cover and rubber gasket, and fill the master cylinder reservoir with the specified brake fluid. Install the pressure bleeder adapter tool to the master cylinder, and attach the bleeder tank hose to the fitting on the adapter.

Master cylinder pressure bleeder adapter tools can be obtained from the various manufacturers of pressure

bleeding equipment. Follow the instructions of the manufacturer when installing the adapter.

3. Loosen the primary and secondary tube nuts at the master cylinder and bleed the master cylinder until the fluid flow is free of air bubbles, then tighten the tube nuts to the specified torque. Refer to Figs. 20 and 21, Part 2-2. **Do not overtighten the nuts.**

4. If the rear wheel cylinders, secondary brake system, are to be bled, position a 3/8 inch box wrench (Fig. 9) on the bleeder fitting on the right rear brake wheel cylinder. Attach a bleeder tube to the bleeder fitting. **The end of the tube should fit snugly around the bleeder fitting.**

5. Open the valve on the bleeder tank to admit pressurized brake fluid to the master cylinder reservoir.

6. Submerge the free end of the tube in a container partially filled with clean brake fluid, and loosen the bleeder fitting.

7. When air bubbles cease to appear in the fluid at the submerged end of the bleeder tube, close the bleeder fitting and remove the tube.

8. Repeat steps 3 through 7 at the left rear wheel cylinder.

9. If the vehicle is equipped with disc brakes, repeat steps 4 through 7, starting at the right front disc caliper and ending at the left front disc caliper.

10. If the vehicle contains drum-type front brakes and the primary (front) brake system is to be bled, repeat steps 4 through 7, starting at the right front wheel cylinder and ending at the left wheel cylinder.

11. When the bleeding operation is completed, close the bleeder tank valve and remove the tank hose from the adapter fitting.

12. On disc brake equipped vehicles, be sure that the front brake pistons are returned to their normal positions and that the shoe and lining assemblies are properly seated by depressing the brake pedal several times until normal pedal travel is obtained.

13. Remove the Pressure Bleeder Adapter Tool. Fill the master cylinder

reservoirs to within 1/4 inch from the top. Install the master cylinder cover and gasket. **Be sure the diaphragm-type gasket is properly positioned in the master cylinder cover.**

14. Centralize the pressure differential valve as follows:

CENTRALIZING THE PRESSURE DIFFERENTIAL VALVE

After a failure of the primary (front brake) or secondary (rear brake) system has been repaired and bled, the dual-brake warning light will usually continue to be illuminated due to the pressure differential valve remaining in an off-center position.

To centralize the pressure differential valve and turn off the warning light after a repair operation, a pressure differential or unbalance condition must be created in the opposite brake system from the one that was repaired and bled last.

1. Turn the ignition switch to the ACC or ON position. Loosen the differential valve assembly brake tube nut at the outlet port on the **opposite side of the brake system that was repaired and/or bled last.** Depress the brake pedal slowly to build line pressure until the pressure differential valve is moved to a centralized position and the brake warning light goes out; then, immediately tighten the outlet port tube nut to the specified torque. Refer to Fig. 18 and 19.

2. Check the fluid level in the master cylinder reservoirs and fill them to within 1/4 inch of the top with the specified brake fluid, if necessary.

3. Turn the ignition switch to the OFF position.

4. Before driving the vehicle, check the operation of the brakes and be sure that a firm pedal is obtained.

CLEANING AND INSPECTION

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thinnest section of the shoe and lining. If the assembly has worn to a thickness of 0.230 inch (shoe and lining together) or 0.030 inch (lining material only) at the thinnest point or if the brake lining shows evidence of brake fluid contamination, replace all four

shoe and lining assemblies on both front wheels.

3. Check the caliper to spindle attaching bolt and torque. Tighten them to the specified torque, if required.

4. To check rotor runout, first

eliminate the wheel bearing end play by tightening the adjusting nut. After tightening the nut check to see that the rotor can still be rotated.

5. Clamp a dial indicator to the caliper housing so that the stylus contacts the rotor at a point approximately 1 inch from the outer edge. Rotate the rotor and take an indicator reading. If the reading exceeds 0.002 inch total lateral runout on the indicator, replace or resurface the disc brake rotor. **The following requirements must be met when resurfacing disc brake rotors:**

Rotunda Disc Brake Attachment FRE-2249-2 is the **only approved tool** to be used to refinish the disc brake rotors. The step-by-step resurfacing procedure provided with the tool must be adhered to.

The finished braking surfaces of the rotor must be flat and parallel within 0.0007 inch; lateral runout must not exceed 0.002 inch total indicator reading, and the surface finish of the braking surfaces are to be 85/15 micro inches. **The minimum limiting dimensions (Fig. 10) from the inboard bearing cup to the outboard rotor face (dimension A) and from the inboard bearing cup to the inboard rotor face (dimension B) must be observed when removing material from the rotor braking surfaces.**

When the runout check is finished, be sure to adjust the bearings as outlined in Group 3, in order to prevent bearing failure.

6. Check the rotor for scoring. Minor scores can be removed with a fine emery cloth. If the rotor is excessively scored, refinish it as outlined in step 5 or replace the rotor, if re-

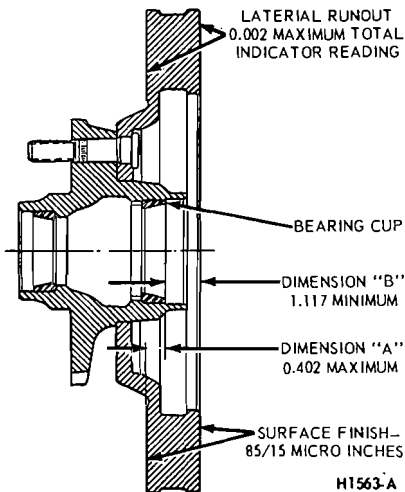


FIG. 10—Disc Brake Rotor Service Limits—Typical

quired.

7. Visually check the caliper. If excess leakage is evident, it should be replaced. Slight leakage around the piston or a seized piston indicates the need for removal and disassembly.

8. If upon disassembly the caliper is found to be distorted or damaged, or if the cylinder bore is scored or excessively worn, replace the assembly.

DRUM BRAKES

1. Remove the wheel from the drum, then remove the drum as outlined in Part 2-2, Section 2.

2. Brush all dust from the backing plates and interior of the brake drums.

3. Inspect the brake shoes for excessive lining wear or shoe damage. If the lining is worn to within 1/32 inch of the rivet heads or if the shoes

are damaged, they must be replaced. Replace any lining that has been contaminated with oil, grease or brake fluid. Replace lining, in axle sets. Prior to replacement of lining, the drum diameter should be checked to determine if oversize linings must be installed.

4. Check the condition of the brake shoes, retracting springs, and drum for signs of overheating. If the springs show any loss of load or change in free length indicating overheating, replacement of the retracting and hold down springs and the parking brake cable is necessary. **Overheated springs lose their pull and could cause the new lining to wear prematurely if they are not replaced.**

5. If the vehicle has 30,000 or more miles of operation, or signs of extreme overheating are present when relining brakes, the wheel cylinders should be disassembled and inspected for wear and dirt in the cylinder. The cylinder cups and other parts contained in the overhaul kit should be replaced thus avoiding future problems.

6. Inspect all other brake parts and replace any that are worn or damaged.

7. Inspect the brake drums and, if necessary, refinish. Refer to Part 2-2, Section 4 for refinishing.

BOOSTER UNIT

Check the booster operation as noted in Part 2-1, Section 1, Power Brake Functional Test. If the brake booster is damaged or defective, replace it with a new booster. **The booster is serviced only as an assembly.**

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Possible Causes Of Trouble	Trouble Symptoms												
	Excessive Pedal Travel	Brake Roughness or Chatter (Pedal Pumping)	Excessive Pedal Effort	Grinding or Grating	Rattle or Click	Brakes Heat Up During Driving and Fail to Release	Leaky Caliper	Grabbing or Uneven Braking Action	No Braking Effect When Pedal is Depressed	Brakes Drag	Pedal Gradually Moves Toward Floor or Dashboard	Warning Lamp Stays Lit	Warning Lamp Does Not Light
Shoe and Lining Knock-back after Violent Cornering or Rough Road Travel	X												
Shoe and Lining Assembly not Properly Seated or Positioned	X				X			X	X				
Air Leak or Insufficient Fluid in System or Caliper	X		X					X		X			
Loose Wheel Bearing Adjustment or Damaged Bearings	X			X									
Damaged or Worn Caliper Piston Seal	X						X	X					
Improper Power Booster Push Rod Adjustment	X								X				
Excessive Rotor Runout or Out of Parallel		X											
Incorrect Tire Pressure				X				X					
Frozen or Seized Pistons			X	X		X		X		X			
Brake Fluid, Oil or Grease on Linings			X	X				X					
Shoe Not Flat to Specifications			X										
Proportioning Valve Malfunction			X					X					
Booster Inoperative			X										
Caliper Out of Alignment with Rotor				X				X					
Loose Caliper Attachment	X	X		X	X			X					
Booster Link Not Connected to Brake Pedal	X								X				
Booster Check Valve Leaking			X										
Shoe Hold Down Clips Missing or Improperly Positioned					X								
Rear Brake Drum Out-of-Round		X											
Worn or Cut Insulators or Broken Stabilizers				X	X								
Corrosion Built-Up in the Cylinder Bore or on the Piston Surface			X	X		X	X						
Bleeder Screw Still Open or Loose Brake Hose							X		X	X			
Caliper Out of Parallel with Rotor				X									
One Section of Dual Brake System is Inoperative									X		X		
Differential Pressure Valve Is Not Centered											X		
Wiring To Warning Lamp or Switch Is Grounded											X		
Warning Lamp Switch Is Grounded											X		
Warning Lamp Circuit												X	
Warning Lamp Switch												X	

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Symptoms and Possible Causes

Possible Causes Of Trouble	Trouble Symptoms															
	One Brake Drags	All Brakes Drag	Hard Pedal	Spongy Pedal	Car Pulls to One Side	One Wheel Locks	Brakes Chatter	Excessive Pedal Travel	Pedal Gradually Goes to Floor	Brakes Uneven	Shoe Click After Release	Noisy or Grabbing Brakes	Brakes Do Not Apply	Brakes For The Respective System Do Not Apply	Warning Lamp Stays Lit	Warning Lamp Does Not Light
Mechanical Resistance at Pedal or Shoes		X	X													
Brake Line Restricted	X	X	X		X											
Leaks or Insufficient Fluid				X			X	X					X			
Improper Tire Pressure					X				X							
Distorted or Improperly Adjusted Brake Shoe	X	X	X		X	X	X				X					
Faulty Retracting Spring	X				X											
Drum Out of Round	X				X		X									
Lining Glazed or Worn			X		X	X	X				X	X				
Oil or Grease on Lining					X	X	X		X		X	X				
Loose Carrier Plate	X					X	X									
Loose Lining							X									
Scored Drum									X		X					
Dirt on Drum-Lining Surface											X					
Faulty Brake Cylinder	X				X	X					X					
Dirty Brake Fluid	X	X							X				X			
Faulty Master Cylinder		X					X	X					X			
Air in Hydraulic System	X			X			X						X			
Self Adjusters Not Operating					X		X									
Insufficient Shoe-to-Carrier Plate Lubrication	X										X	X				
Tire Tread Worn						X										
Poor Lining to Drum Contact							X									
Loose Front Suspension							X									
Threads Left by Drum Turning Tool Pulls Shoes Sideways											X					
Cracked Drum								X								
One Section of Dual Brake System Is Inoperative													X	X		
Differential Pressure Valve Is Not Centered															X	
Wiring To Warning Lamp or Switch Is Grounded															X	
Warning Lamp Switch Is Grounded															X	
Warning Lamp Is Burned Out																X
Open Circuit																X
Short Circuit																X

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PART 2-2—Brake System

Section	Page	Section	Page
1 Description and Operation	2-9	Hydraulic Lines	2-13
Dual-Master Cylinder Brake System	2-9	Brake Tube Replacement	2-20
Disc Brakes	2-10	Brake Hose Replacement	2-20
Hydraulic Self-Adjusting Brake System	2-13	3 Removal and Installation	2-23
Booster System	2-14	Dual Master Cylinder — Standard Brakes	2-23
Parking Brakes	2-14	Dual-Master Cylinder — Power Brakes	2-23
2 In-Vehicle Adjustments and Repairs	2-15	Pressure Differential Valve Assembly	2-23
Disc Brake Caliper Assembly	2-17	Brake Booster	2-24
Front (Disc) Brake Shoe and Lining		Brake Pedal	2-25
Replacement	2-18	Parking Brake Control Assembly	2-26
Front Wheel Hub and Rotor Assembly	2-18	Parking Brake Equalizer to Control Cable	2-27
Disc Brake Rotor Splash Shield	2-18	Parking Brake Equalizer to Rear	
Proportioning Valve	2-19	Wheel Cable	2-28
Brake Shoe Adjustments—Rear Wheels	2-15	4 Major Repair Operations	2-28
Rear Brake Drum	2-15	Brake Drum Refinishing	2-28
Rear Brake Shoe Replacement	2-16	Rotor Refinishing	2-29
Rear Wheel Cylinder Repair	2-19	Brake Shoe Relining	2-29
Rear Wheel Cylinder Replacement	2-19	Dual-Master Cylinder	2-30
Rear Brake Backing Plate Replacement	2-20	Disc Brake Caliper	2-30

1 DESCRIPTION AND OPERATION

Disc brakes are available as optional equipment for the front wheels on all models.

The dual-master cylinder equipped hydraulic brake system employs single-anchor, internal expanding and self-adjusting drum brake assemblies on the rear wheels of vehicles with disc brakes, and on the front and rear wheels of all others.

DUAL-MASTER CYLINDER BRAKE SYSTEM

The dual-master cylinder brake system has been incorporated in all models to provide increased safety. The system consists of a dual-master cylinder, pressure differential valve assembly and a switch. The switch on the differential valve activates a dual-brake system warning light, located on the instrument panel.

The dual-master cylinder brake system is similar to a conventional (single) brake master cylinder system. In the dual-system, two master cylinders are combined in a single cast iron casting (Fig. 1). One portion actuates the front brake system and the other actuates the rear brake (Figs. 18 and 19). Hydraulic leakage or failure of one of

cles equipped with power brakes have the master cylinder outlet ports for the rear brake system located on the bottom of the master cylinder body. Master cylinder hydraulic system bleed screws are located in the outboard side of those master cylinders having secondary (rear brake) system outlet ports in the bottom of the master cylinder castings (Fig. 21).

All Fairlane, Falcon and Montego vehicles equipped with standard drum brakes and all Mustang and Cougar vehicles equipped with power disc, and standard drum brakes have both the primary (front) and secondary (rear) brake system outlet ports located on the outboard side of the dual-master cylinder body castings. These master cylinders do not require master cylinder bleed screws (Figs. 20 and 21).

The external appearance of the dual master cylinders for the various vehicles also differ in configuration of the covers. All vehicles having standard drum brake systems have primary and secondary master cylinder cover domes of equal size. Dual master cylinders for all other vehicles equipped with power disc brake systems have large primary (front brake) and smaller secondary (rear brake) cover domes.

A code letter is stamped on the side or outer end of each master cylinder body casting for easy service identification. The vehicle application, type of brakes and the identification code are shown in Fig. 2.

A brake pressure differential valve assembly (Fig. 3) incorporating an hydraulically operated mechanical switch is utilized to operate a dual-brake warning light, located on the instrument panel.

Hydraulic pressure for both front wheel brakes is provided from the primary system (front) brake outlet port and line, located opposite the primary system inlet port of the differential valve.

Hydraulic pressure for both rear wheel brakes is provided from the single secondary (rear brake) outlet line, located opposite the secondary system inlet port of the differential valve. On disc brake equipped vehicles, a proportioning valve is located in the secondary (rear brake) system line that leads to the brake hose bracket on the rear axle housing. The brake hose bracket serves as a junction point for the individual brake lines that lead to the wheel cylinders of right and left rear brake components.

When the brake pedal is depressed, both the primary (front brake) and secondary (rear brake) master cylinder pistons are moved simultaneously to exert hydraulic fluid pressure on their respective independent hydraulic system. The fluid displacement of the dual-master cylinders is proportioned to fulfill the requirements of each of the two independent hydraulic brake systems (Fig. 1).

If a failure of the rear (secondary) brake system should occur, initial

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THE DUAL-MASTER CYLINDER USED ON

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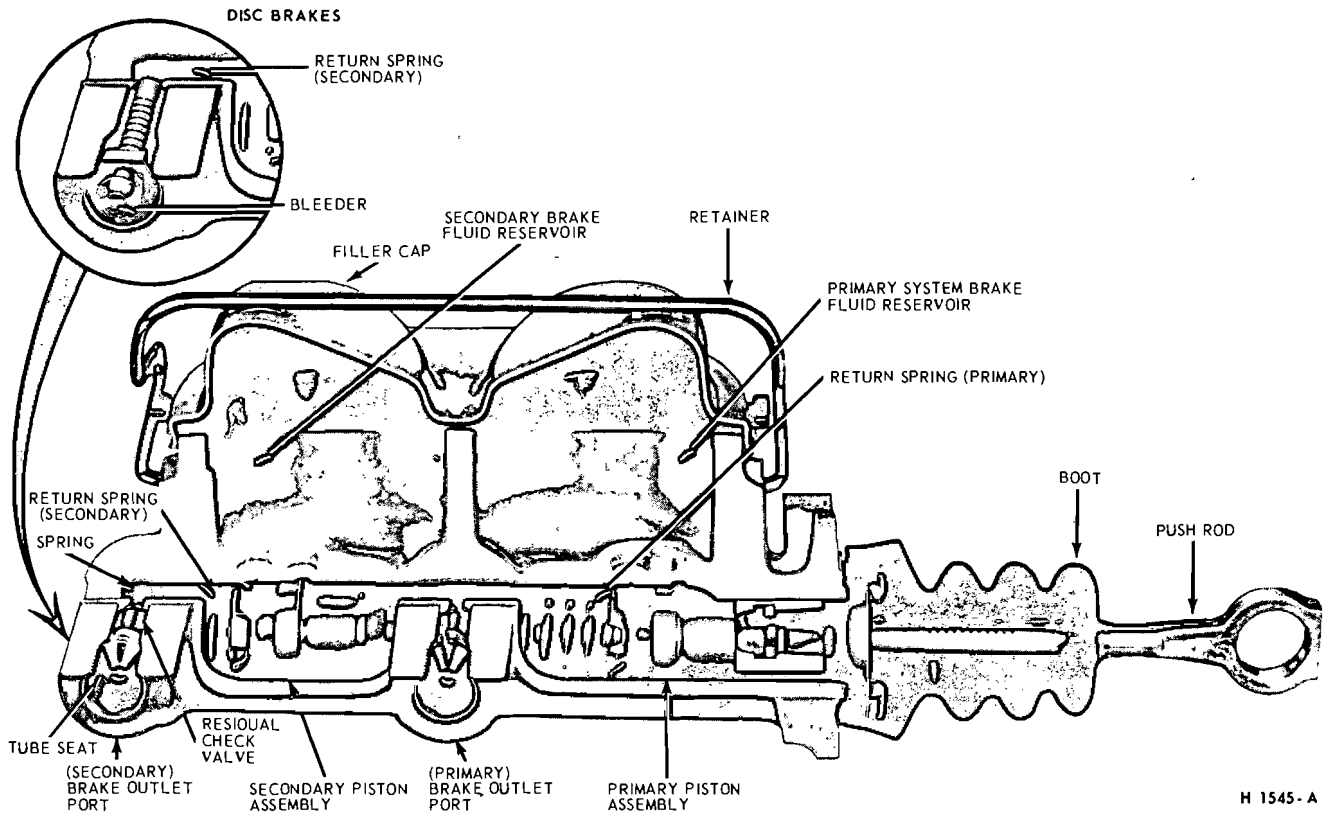


FIG. 1—Dual-Master Cylinder

brake pedal movement causes the unrestricted secondary piston to bottom in the master cylinder bore. Primary piston movement displaces hydraulic fluid in the primary section of the dual-master cylinder to actuate the front brake system.

Should the front (primary) brake system fail, initial brake pedal movement causes the unrestricted primary piston to bottom out against the secondary piston. Continued downward movement of the brake pedal moves the secondary piston to displace hydraulic fluid in the rear brake system, actuating the rear brakes.

On disc brake equipped vehicles, the pressure differential valve will move to the low pressure area of the front system. This movement uncovers the rear brake system outlet passage and provides a direct passage from the rear inlet passage to the outlet passage, by passing the proportioning valve. This provides full hydraulic pressure to the rear brake system.

The increased pedal travel and the reduced pedal effort required to com-

plete the stop is functional. When the ignition switch is turned to the ON or ACC position, a dual-brake warning light on the instrument panel also provides a visual indication if one portion of the dual-brake system has become inoperative.

Should a failure of either the front or rear brake hydraulic system occur, the hydraulic fluid pressure differential resulting from the pressure loss of the failed brake system forces the valve toward the low pressure area to illuminate the brake warning light (Fig. 3).

A mechanically operated electrical switch is located on the side of the pressure differential valve assembly. The inner-end of the spring loaded switch plunger contacts the bottom of a tapered shoulder groove in the center of the valve (Fig. 3). O-ring seals are retained in the seal ring lands of the valve.

Should a failure of the rear brake system occur, hydraulic fluid pressure in the rear brake system would drop. During brake pedal operation the fluid pressure build-up of the front brake system forces the valve to move toward the low pressure area, or toward the rear brake system outlet port (Fig. 3). Movement of the differential valve forces the switch plunger upward over the tapered shoulder of the valve to

close the switch electrical contacts and light the dual brake warning lamp, signalling a brake system failure.

In the event a front brake system failure should occur, greater pressure from the rear brake system during brake pedal operation forces the valve forward moving the switch plunger upward onto the valve ramp to light the brake system warning lamp. **However, failure of either the front or rear system does not impair operation of the other brake system.**

DISC BRAKE ASSEMBLIES

Disc brakes are available as optional equipment for the front wheels. The hydraulic brake system employs single anchor, internal expanding and self-adjusting drum brake assemblies on the rear wheels of vehicles with disc brakes, and on the front and rear wheels of all others.

A vacuum booster is available as optional equipment.

The master cylinder converts physical force from the brake pedal (and booster if so equipped) into hydraulic pressure against the pistons in the calipers (disc brakes) or in the wheel cylinders (drum brakes). The pistons in turn convert hydraulic pressure back into physical force at the brake shoes.

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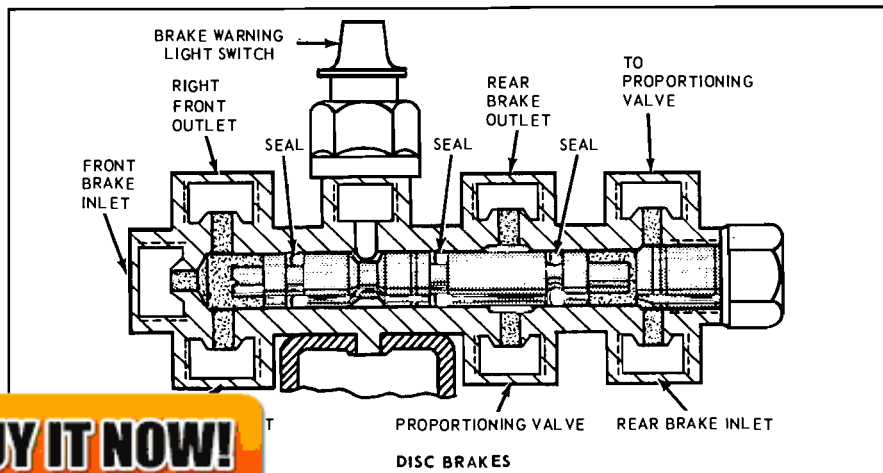
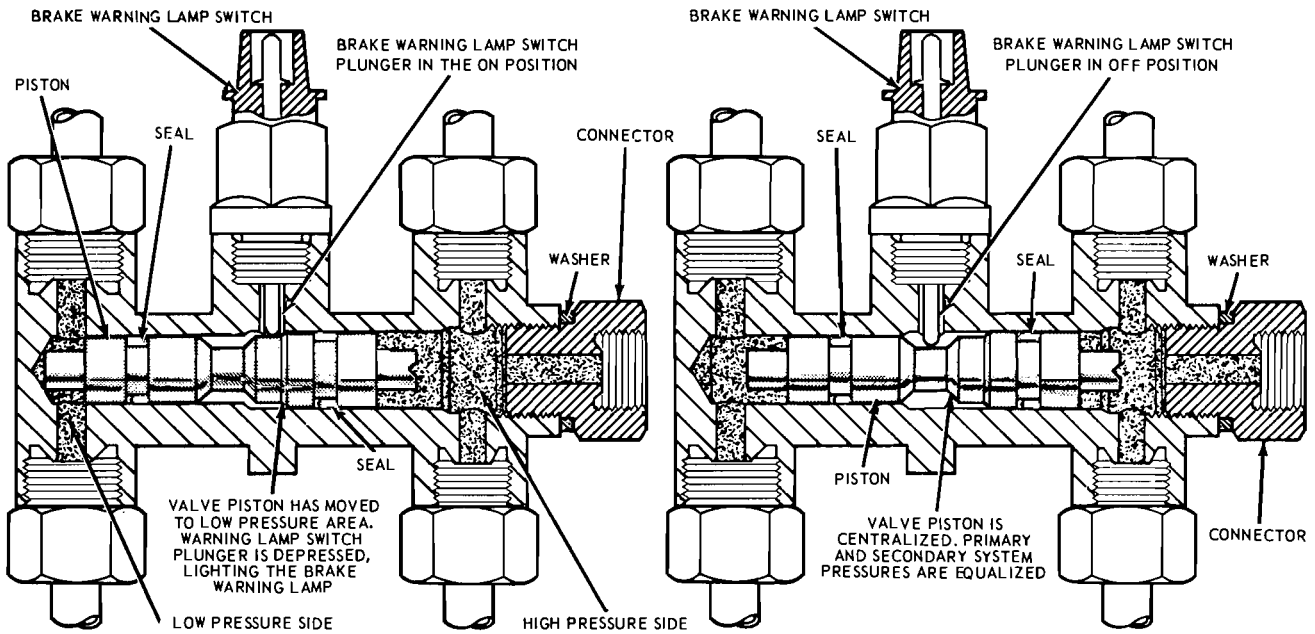
Car Model	Type Of Brake	Identification Code
Fairlane and Falcon	Power Disc	B
	Standard Drum	T
Mustang	Power Disc	M
	Standard Drum	T
Montego	Power Disc	B
	Standard Drum	T
Cougar	Power Disc	M
	Standard Drum	T

RELATION AND FUNCTION OF COMPONENT PARTS

The disc brake is a floating caliper, single piston, ventilated disc-type, actuated by a hydraulic system. Fig. 4.

The caliper assembly is made up of a floating caliper assembly and an anchor plate. The anchor plate is bolted to the wheel spindle arm by two bolts. The floating caliper is attached to the anchor plate through a spring steel stabilizer. The floating caliper slides on two guide pins which also attach to the stabilizer. The floating caliper contains the single cylinder and piston assembly. The cylinder bore contains a piston with a molded rubber dust boot to seal the cylinder

FIG. 2 Dual Master Cylinder Identification



Brake Warning Lamp Switch Operation

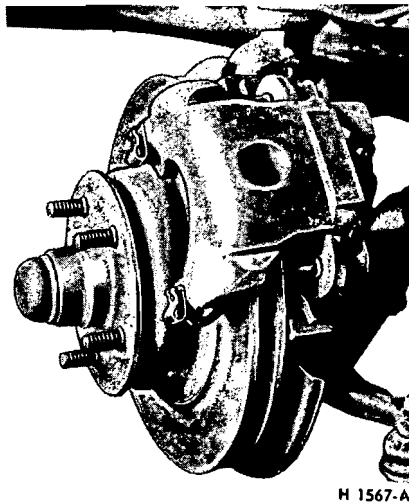
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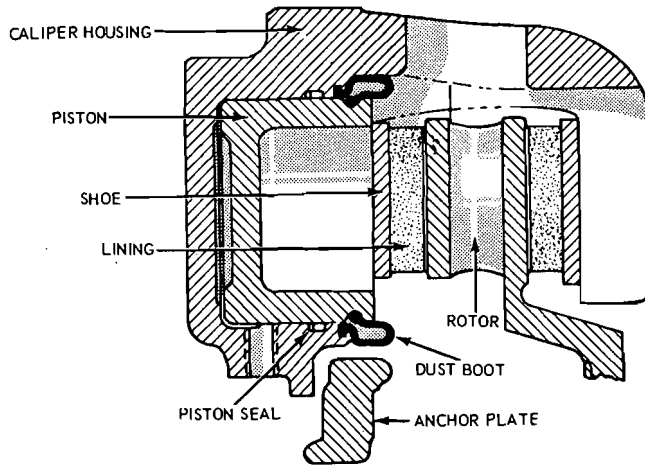
H 1567-A

FIG. 4—Typical Disc Brake Assembly

bore from contamination and also to return the piston to the released position when hydraulic pressure is released. Also a rubber piston seal is used to provide sealing between the cylinder and piston (Fig. 5).

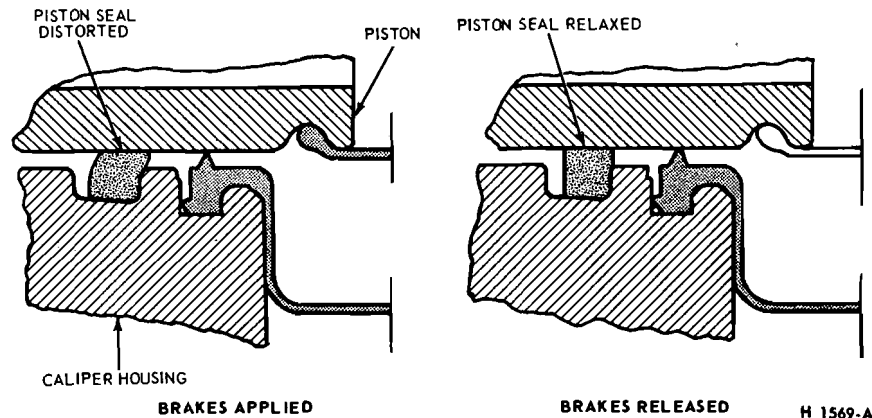
The shoe and lining assemblies are mounted in two different ways. The outboard shoe and lining is fixed to the floating caliper and is retained by two pins and spring clips. The inboard shoe and lining attaches to the end of the cylinder piston and is retained by two hold-down clips (Fig. 16). The shoe and lining assembly consists of friction material bonded to a metal plate called the shoe. It is replaced as a unit.

The cast iron disc is of the ventilated rotor type incorporating forty fins and is attached to, and rotates with the wheel hub. The outside diameter of the rotor is 11 1/4 inches and the inside diameter is 7 3/8 inches. This type of design increases cooling area and permits circulation of air through the rotor resulting in rapid cooling of the brake. A shield bolted to the spindle



H 1568-A

FIG. 5—Typical Caliper Assembly— Sectional View



H 1569-A

FIG. 6—Function of Piston Seal

cylinder forces the piston out of the bore. The inboard shoe and lining, being attached to the piston, is forced against the rotor. When the inboard shoe is against the rotor hydraulic pressure equalizes and moves the entire floating caliper assembly inward. The outboard shoe and lining assembly attached to the floating caliper assembly is thereby forced against the rotor. Hydraulic pressure forcing the piston-mounted shoe and lining outward and the caliper-mounted shoe and lining inward creates a squeezing action against the rotor, effecting braking action.

During braking action the rubber piston seal stretches as the piston moves outward (Fig. 6). When hydraulic pressure is released the seal relaxes and pulls the inboard shoe and lining

away from the rotor. When brakes are applied, hydraulic pressure moves the floating caliper, overcoming the tension of the stabilizer. When hydraulic pressure is released, the stabilizer moves the caliper back to its normal position. Since the outboard shoe and lining is attached to the caliper it is moved away from the rotor. In addition, inherent rotor runout will aid in maintaining running clearances between the rotor and the shoe and lining assemblies.

Automatic adjustment is achieved by the piston sliding in the seal outward from the cylinder bores. The piston gradually changes its position relative to the seal as the lining wears and, thus, maintains the correct adjustment location at all times.

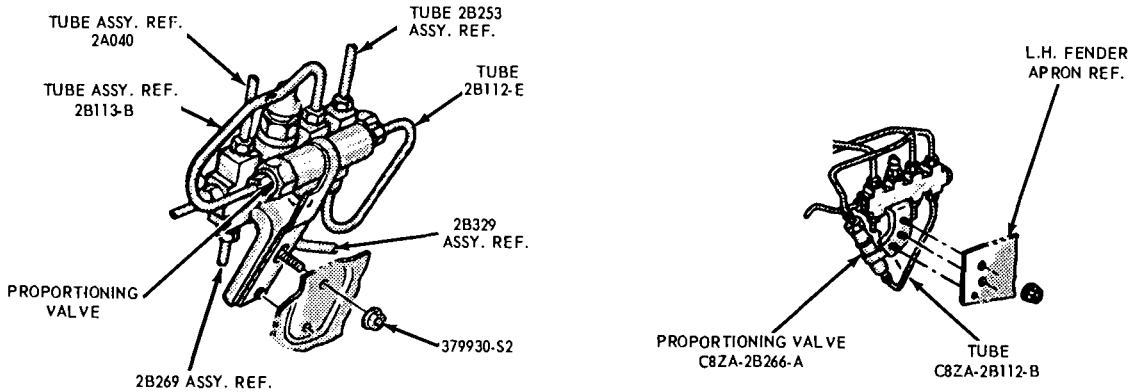
When the brakes are in the un-

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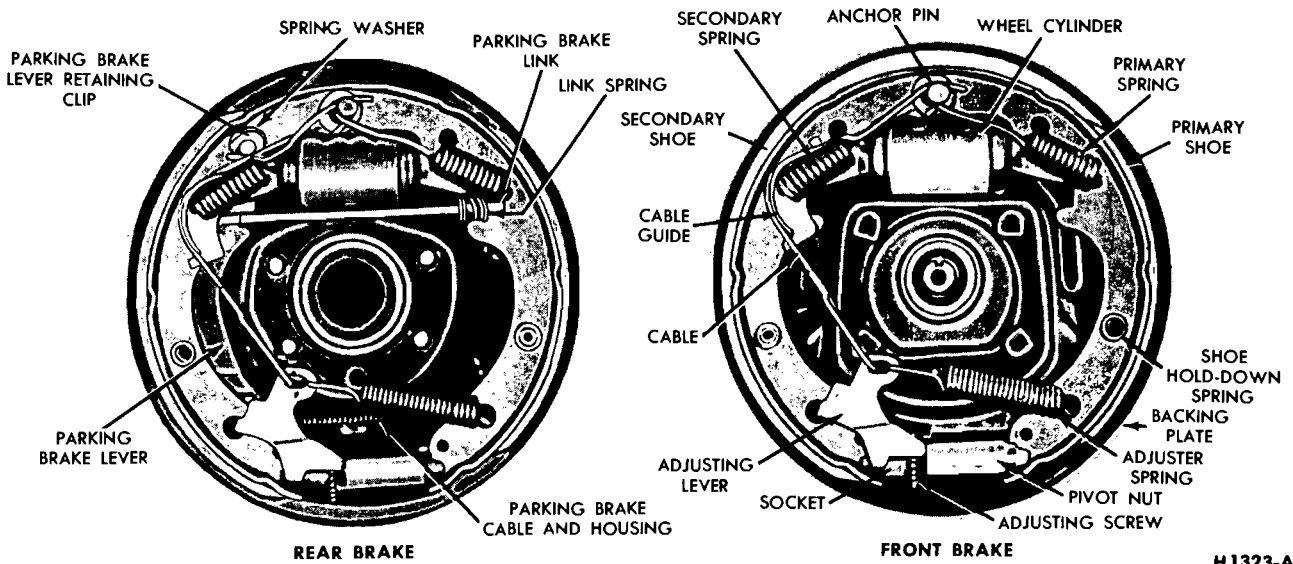
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As the brake pedal is depressed,



H 1579-A

FIG. 7—Disc Brake Proportion Valve



H1323-A

FIG. 8—Self-Adjusting Brake Assemblies — 9 Inch Drum

applied position, there is no hydraulic pressure to the calipers because there is no residual check valve in the front brake system.

A disc brake pressure control valve located between the pressure differential valve and the rear brake wheel cylinders provides balanced braking action between the front and the rear brakes under a wide range of braking conditions (Fig. 7). By regulating the hydraulic pressure applied to the rear wheel cylinders, the valve limits rear braking action when high pressures are required at the front brakes. In this manner, premature rear wheel

nism consists of a cable, cable guide, adjusting lever, and adjuster spring (Figs. 8 and 9). The cable is hooked over the anchor pin at the top and is connected to the lever at the bottom.

The cable is routed along the web of the secondary brake shoe by means of the cable guide. The adjuster spring is hooked to the primary brake shoe and to the lever. The automatic adjuster operates only when the brakes are applied while the car is moving rearward and only when the secondary shoe is free to move toward the drum on a predetermined point.

With the vehicle moving rearward and the brakes applied, the wrap-around action of the shoes following the drum forces the upper end of the primary shoe against the anchor pin. The action of the wheel cylinder moves the upper end of the

secondary shoe away from the anchor pin. The movement of the secondary shoe causes the cable to pull the adjusting lever upward and against the end of a tooth on the adjusting screw star-wheel. The upward travel of the lever increases as lining wear increases. When the lever can move upward far enough, it passes over the end of the tooth and engages the tooth. When the brakes are released, the adjusting spring pulls the lever downward causing the star-wheel to turn and expand the shoes. The star-wheel is turned one tooth at a time as the linings progressively wear.

With the vehicle moving forward and the brakes applied, the secondary shoe is against the anchor pin and the primary shoe is moved toward the drum. Therefore, the adjuster

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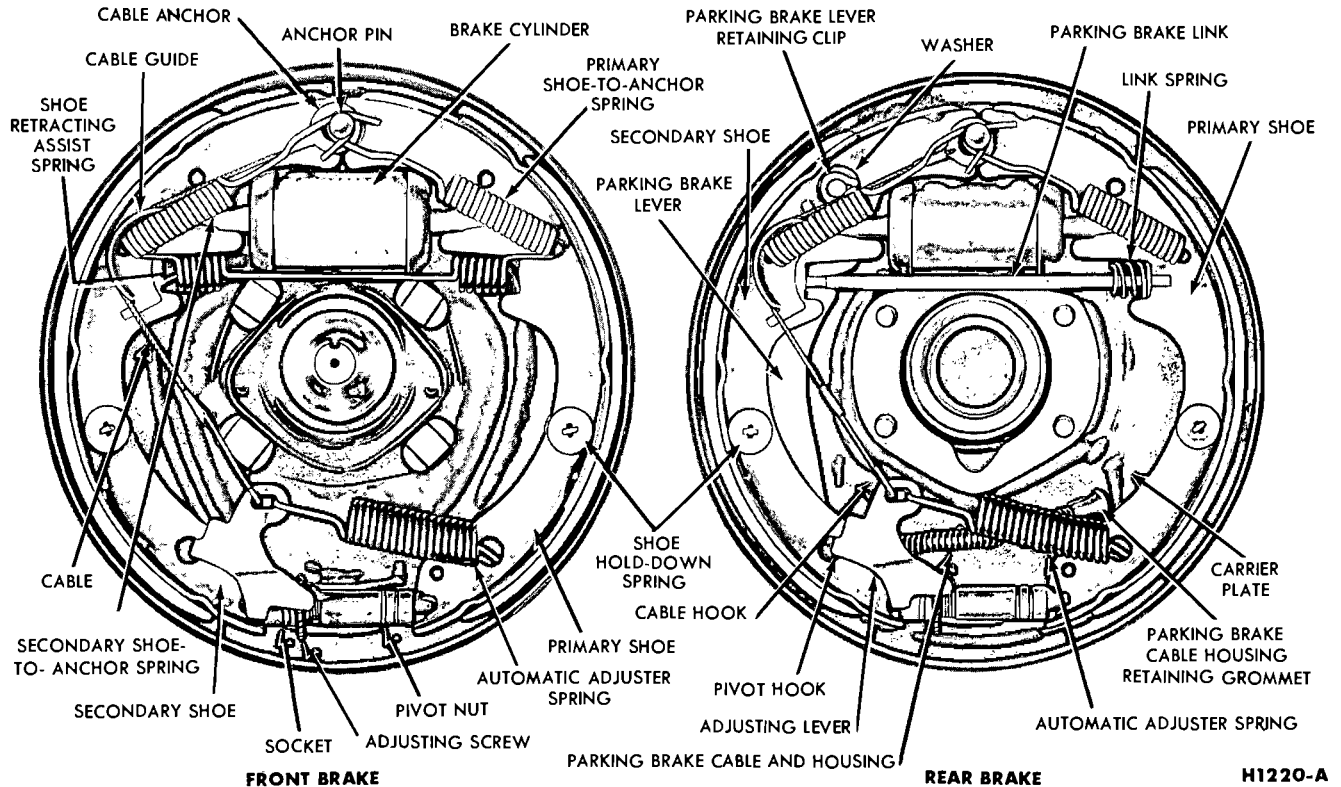


FIG. 9—Self Adjusting Brake Assemblies—10 Inch Drum

does not operate.

The rear brake assembly is basically the same as the front brake. The conventional parking brake lever, link and spring are used in the rear brake.

The anchor pins on all brakes are fixed and are non-adjustable.

BRAKE BOOSTER SYSTEM

The diaphragm-type brake booster is a self-contained vacuum-hydraulic braking unit mounted on the engine side of the dash panel. The brake booster is of the vacuum suspended type which utilizes engine intake manifold vacuum and atmospheric pressure for its power.

Adjustment of the push rod is the only service permitted on a brake booster. The booster unit is to be changed when it is inspected, checked and found to be defective.

each rear secondary shoe (Fig. 8). When the pedal is depressed the primary and secondary brake shoes are forced against the rear brake drums. The pedal is held in the applied position by the engagement of a spring-loaded pawl with a ratchet in the control assembly (Fig. 32).

When the handle is pulled the primary and secondary brake shoes are forced against the rear brake drums. The handle is held in the applied position by the engagement of a spring loaded pawl with a ratchet. Turning the handle counterclockwise disengages the pawl from the ratchet to release the brakes.

PARKING BRAKES— MONTEGO, FAIRLANE AND FALCON

An independent foot-operated parking brake control actuates the rear wheel brake shoes through a cable linkage. The operating cable is routed from the parking brake control assembly to the equalizer. The rear brake cables connect the equalizer assembly to the parking brake lever at

each rear secondary shoe (Fig. 8).

When the pedal is depressed the primary and secondary brake shoes are forced against the rear brake drums. The pedal is held in the applied position by the engagement of a spring-loaded pawl with a ratchet in the control assembly (Fig. 32).

The parking brake control assembly is mounted to the cowl inner side panel. The pedal pivots on a stationary pedal mount. A spring-loaded pawl and a release lever are assembled to the pedal. A ratchet is assembled to the upper end of the pedal. The pawl contacts the ratchet at such an angle that the ratchet teeth will slide over the pawl as the pedal is depressed; however, when the applying motion stops and the pedal starts to release, the pawl engages the ratchet and thus locks the brakes in the applied position.

When the manual release lever is pulled back (Fig. 32), the cam action of the lever on the pawl cam pin will disengage the pawl from the ratchet to release the brakes.

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An independent hand-operated parking brake control actuates the rear wheel brake shoes through a cable linkage. The operating cable is routed from the parking brake control assembly to the equalizer. The rear brake cables connect the equalizer assembly to the parking brake lever at

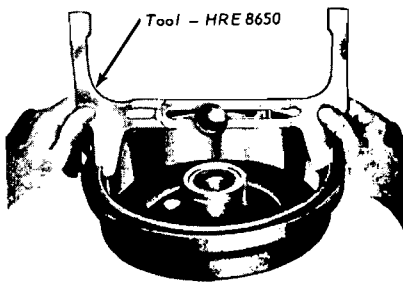
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2 IN-VEHICLE ADJUSTMENTS AND REPAIRS

After any brake service work, obtain a firm brake pedal before moving the vehicle. Riding the brake pedal (common on left foot applications) should be avoided when driving the vehicle.

BRAKE SHOE ADJUSTMENTS —DRUM BRAKE

The hydraulic service brakes are self-adjusting and require a manual adjustment only after the brake shoes have been relined, replaced, or when the length of the adjusting screw has been changed while performing some other service operation. The manual adjustment is performed with the drums removed, using the tool and the procedure detailed below.



H 1411-B

FIG. 10—Measuring Drum

When adjusting the rear brake shoes, check the parking brake cables for proper adjustment. Refer to Parking Brake Linkage Adjustment, Part 2-1, Section 2. Make sure that the equalizer operates freely.

To adjust the brake shoes:

1. Using Rotunda Tool HRE 8650, (Fig. 10) determine the inside diameter of the drum braking surface.

2. Reverse the tool as shown in Fig. 11 and adjust the brake shoe diameter to fit the gauge. Hold the automatic adjusting lever out of engagement while rotating the adjusting screw, to prevent burring the screw slots. Make sure the adjusting screw rotates freely. If necessary, lubricate the adjusting screw

where the shoes contact the backing plate and anchor pin, being careful not to get the lubricant on the linings.

5. Install the drums. Install the Tinnerman nuts and tighten securely. Install the wheel on the drum and tighten the mounting nuts to specification.

6. Complete the adjustment by applying the brakes several times with a minimum of 50 lbs pressure on the pedal while backing the car. After each stop, the vehicle must be moved forward.

7. After the brake shoes have been properly adjusted, check the operation of the brakes by making several stops while operating in a forward direction.

FRONT BRAKE DRUM

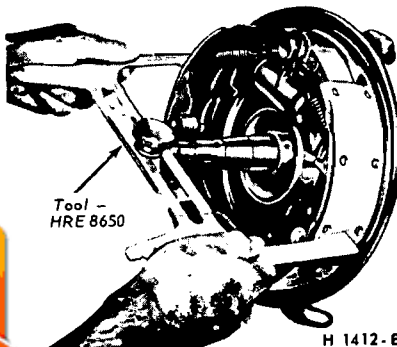
REMOVAL

1. Raise the vehicle until the wheel and tire clear the floor. Remove the wheel cover or hub cap, and remove the wheel and tire from the drum.

2. Remove the grease cap from the hub. Remove the cotter pin, nut lock, adjusting nut, and flat washer from the spindle. Remove the outer bearing cone and roller assembly.

3. Pull the hub and drum assembly off the wheel spindle.

4. If the drum will not come off, pry the rubber cover from the brake backing plate. Insert a narrow screwdriver through the slot and disengage the adjusting lever from the adjusting screw. While holding the adjusting lever away from the screw, back off the adjusting screw with the brake adjusting tool (Fig. 12). **Be very careful not to burr, chip, or damage the notches in the adjusting screws; otherwise the self-adjusting mechanism will not function properly.**



H 1412-B

FIG. 11—Measuring Shoes

INSTALLATION

If the drum is being replaced, remove the protective coating from the new drum with carburetor degreaser; then, sand lightly and wipe with a cloth soaked with denatured alcohol. Install new bearings and grease seal. Apply a light coat of wheel bearing grease to the new seal prior to installing it. Pack the wheel bearings, install the inner bearing cone and roller assembly in the inner cup, and install the new grease seal. See Part 3-5, Section 4 for procedure.

If the original drum is being installed, make sure that the grease in the hub is clean and adequate.

2. Adjust the brakes and install the drum assembly as outlined under Brake Shoe Adjustments in this section.

3. Install the outer wheel bearing, washer and adjusting nut.

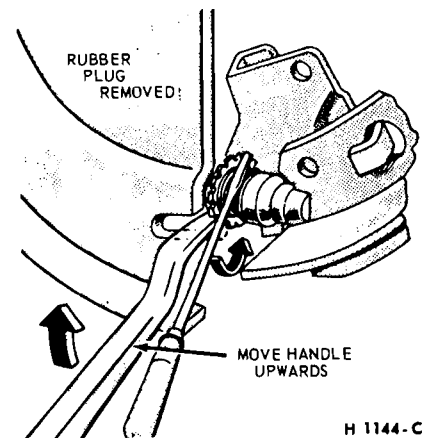
4. Adjust the wheel bearing as outlined in Part 3-5, Section 2, then install the grease cap. Install the wheel and hub cap or cover.

REAR BRAKE DRUM

REMOVAL

1. Raise the vehicle so that the tire is clear of the floor.

2. Remove the hub cap and wheel. Remove the three Tinnerman nuts and remove the brake drum. If the drum will not come off pry the rubber cover from the backing plate. Insert a narrow screwdriver through the hole in the backing plate, and disengage the adjusting lever from the adjusting screws. While holding



H 1144-C

FIG. 12—Backing Off Brake Adjustment

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the adjusting lever away from the adjusting screw, back off the adjusting screw with the brake adjusting tool (Fig. 12). **Be very careful not to burr, chip or damage the notches in the adjusting screw; otherwise, the self-adjusting mechanism will not function properly.**

INSTALLATION

1. Remove the protective coating from a new drum with carburetor degreaser; then, sand lightly and wipe with a cloth soaked in denatured alcohol.

2. Adjust the brakes as outlined under Brake Shoe Adjustments in this section.

3. Place the drum over the brake assembly and into position. Install the three Tinnerman nuts and tighten them securely. Install the wheel on the axle shaft flange studs against the drum, and tighten the attaching nuts to specifications.

BRAKE SHOES AND ADJUSTING SCREW

REMOVAL

1. With the wheel and drum removed, install a clamp over the ends of the wheel cylinder as shown in Fig. 13.

2. Remove the brake retracting springs using Tool 2035-N or 2086-L (Fig. 13).

3. Disconnect the brake shoe hold-down springs and remove the brake shoe assemblies along with the complete automatic adjustment mechanism.

4. Disassemble the brake shoes.

5. On rear brakes, remove the parking brake link and spring from the brake assemblies. Disconnect the parking brake cable from the parking brake lever.

6. After removing the rear brake shoes disassemble the parking brake lever from the secondary shoe by removing the retaining clip and spring washer (Figs. 8 and 9).

INSTALLATION

1. Before installing the rear brake shoes, assemble the parking brake

3. Position the brake shoes on the backing plate and secure them with the hold down springs. On the rear brake, install the parking brake link and spring. Connect the parking brake cable to the parking brake lever (Figs. 8 and 9).

4. Install the cable guide on the secondary shoe web with the flanged hole properly fitted into the hole in the secondary shoe web. Install the secondary spring (secondary shoe to anchor spring) (Figs. 8 and 9).

5. Place the cable eye over the anchor pin with the crimped side toward the backing plate. Install the primary shoe to anchor spring with the tool shown in Fig. 14.

6. Thread the cable around the cable guide groove.

It is imperative that the cable be positioned in this groove and not between the guide and the shoe web. Be certain that the cable eye is not cocked or binding on the anchor pin when installed. All parts should be flat on the anchor pin. Remove the brake cylinder clamp.

7. Apply a small amount of high-temperature grease (Part Number CIAZ-19580-B) to the threads and the socket end of the adjusting screw. Turn the adjusting screw into the adjusting pivot nut to the limit of the threads and then back off 1/2 turn.

Interchanging the brake shoe adjusting screw assemblies from one side of the vehicle to the other would cause the brake shoes to retract rather than expand each time the automatic adjusting mechanism operated. To prevent accidental installation of the adjusting screw on the wrong side of the vehicle the socket end of the adjusting screw is stamped with an R or L (Fig. 15). The adjusting pivot nuts can be distinguished by the number of grooves machined around the body of the nut. Two grooves indicate a right-hand nut; one groove indicates a left-hand nut.

8. Place the adjusting socket on the screw and install this assembly between the shoe ends with the adjusting screw toothed wheel nearest the secondary shoe.

9. Hook the cable hook into the hole in the adjusting lever. The adjusting levers are stamped with an R or L to indicate their installation on a right or left brake assembly (Fig. 15).

10. Position the hooked end of the adjuster spring completely into the large hole in the primary shoe

web. The last coil of the spring should be at the edge of the hole. Connect the loop end of the spring to the adjuster lever hole (Figs. 8 and 9).

11. Pull the adjuster lever, cable and automatic adjuster spring down and toward the rear to engage the pivot hook in the large hole in the secondary shoe web.

12. After installation, check the action of the adjuster by pulling the section of the cable between the cable guide and the anchor pin toward the secondary shoe web far enough to lift the lever past a tooth on the adjusting screw wheel. The lever should snap into position behind the next tooth, and release of the cable should cause the adjuster spring to return the lever to its original position. This return action of the lever will turn the adjusting screw one tooth.

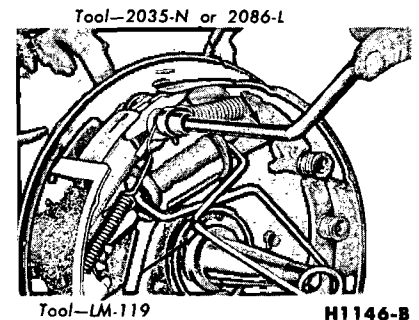


FIG. 13—Retracting Spring Removal—Typical

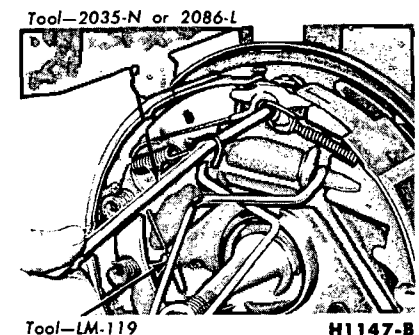


FIG. 14—Retracting Spring Installation—Typical

If pulling the cable does not produce the action described, or if the lever action is sluggish instead of positive and sharp, check the position of the lever on the adjusting screw toothed wheel. With the brake in a vertical position (anchor at the top), the lever should contact the adjusting wheel 3/16 inch (plus or minus 1/32 inch) above the centerline of the screw. If the contact point is below the centerline, the lever will not lock on the teeth

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where the brake shoes contact the

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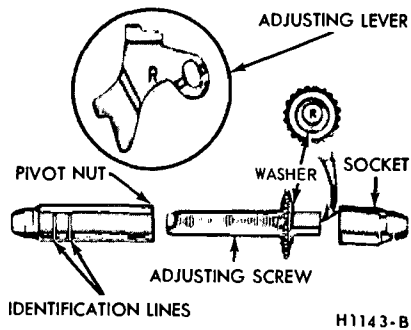


FIG. 15—Adjusting Screw and Lever Identification

in the adjusting screw wheel, and the screw will not be turned as the lever is actuated by the cable.

To determine the cause of this condition:

a. Check the cable end fittings. The cable should completely fill or extend slightly beyond the crimped section of the fittings. If it does not meet this specification, possible damage is indicated and the cable assembly should be replaced.

b. Check the cable length. The cable should measure 8 13/32 inches on 9 inch brakes or 9 3/4 inches on 10 inch brakes from the end of the cable anchor to the end of the cable hook.

c. Check the cable guide for damage. The cable groove should be parallel to the shoe web, and the body of the guide should lie flat against the web. Replace the guide if it shows damage.

d. Check the pivot hook on the lever. The hook surfaces should be square with the body of the lever for proper pivoting. Replace the lever if the hook shows damage.

e. See that the adjusting screw socket is properly seated in the notch in the shoe web.

DISC BRAKE CALIPER ASSEMBLY

DISC BRAKE SERVICE PRECAUTIONS

1. After any brake service work, pump the brake pedal to obtain a firm pedal before moving the car. Riding the brake pedal (common on left foot applications) should be avoided when driving the car.

2. Grease or any other foreign material must be kept off the caliper assembly, surfaces of the rotor and external surfaces of the hub during service operations. Handling of the rotor and caliper assemblies should be done in a way to avoid deformation of the brake rotor and nicking or scratching of brake linings.

3. If the piston is removed for any reason, the piston seal must be replaced.

4. During removal and installation of a wheel assembly, exercise care not to interfere with and damage the caliper splash shield, or the bleeder screw

fitting.

5. Front wheel bearing end play is critical and must be within specifications.

6. Be sure the vehicle is centered on the hoist before servicing any front end components, to avoid bending or damaging the rotor splash shield on full right or left wheel turns.

7. The proportioning valve should not be disassembled or adjustments attempted on it.

8. The wheel and tire must be removed separately from the brake rotor, unlike drum brakes where the wheel, tire and drum are removed as a unit.

9. Whenever the caliper is removed the caliper guide pin insulators and the stabilizer should be inspected for wear or damage.

10. The caliper assembly must be removed from the spindle prior to removal of the shoe and lining assemblies.

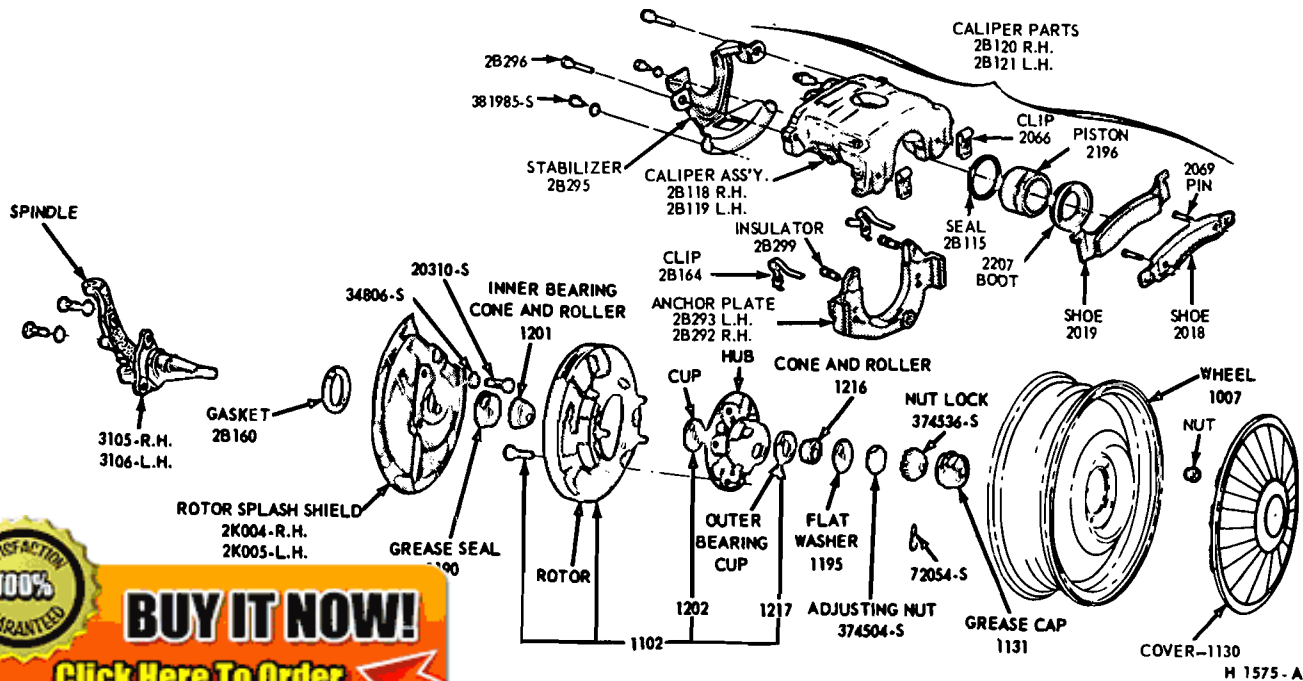
11. Do not attempt to clean or restore oil or grease soaked brake linings. When contaminated linings are found, they must be replaced in complete axle sets.

REMOVAL

Refer to Fig. 16.

1. Remove the wheel and tire from the hub and rotor assembly.

2. Disconnect the brake line from the caliper.



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3. Remove the safety wire from the caliper to spindle attaching bolts, then remove the bolts.

4. Carefully lift the caliper assembly off the hub and rotor.

INSTALLATION

1. Position the caliper assembly on the hub and rotor.

2. Mount the caliper assembly on the spindle. Install the attaching bolts and torque them to specification. **The upper bolt must be tightened first.**

3. Install the safety wire securing the attaching bolts and **twist the wire ends at least five turns.**

4. Install a new copper washer on each side of the brake hose connector and position it on the caliper. Install the attaching bolt and torque it to specification.

5. Bleed the brake system and centralize the differential valve as outlined in Part 2-1. Check the master cylinder fluid level and add the specified fluid as required. **Pump the brake several times to actuate the piston seal and to position the shoe and lining assemblies.**

6. Install the wheel and tire assembly and wheel cover.

7. Road test the vehicle.

DISC BRAKE SHOE AND LINING REPLACEMENT

1. Remove the wheel and tire from the hub and rotor assembly.

2. Remove the caliper from the hub and rotor following the procedures outlined under Disc Brake Caliper Assembly.

3. Slide the inner brake shoe outward until it is clear of the hold-down spring, then remove the brake shoe.

4. Slide the two outer shoe retaining clips off the retaining pins (Fig. 16).

5. Remove the two retaining pins from the outer shoe, then remove the shoe from the caliper.

6. Remove the caliper guide pins and stabilizer attaching bolts from the anchor plate. Remove the stabilizer and discard it.

7. Remove the caliper guide pin insulators from the anchor plate.

the anchor plate and install the retaining bolts.

4. Apply the specified fluid to the caliper guide pins and install them loosely in the anchor plate. **Be sure the guide pins are free of oil, grease or dirt.**

5. Position the outer brake shoe on the caliper and install the two retaining pins and clips.

6. Install the inner brake shoe so that the ears of the shoe are on top of the anchor plate bosses and under the shoe hold-down springs.

7. Position the shoe and lining assemblies so that the caliper assembly can be placed over the rotor. Rotate a hammer handle between the linings to provide the proper clearance.

8. Install the caliper as detailed in Caliper Assembly Installation.

9. With moderate pressure applied to the brake pedal, torque the stabilizer attaching bolts and caliper guide pins to specification.

10. Install the wheel and tire assembly.

11. Road test the vehicle.

FRONT WHEEL HUB AND ROTOR ASSEMBLY—DISC BRAKES

REMOVAL

1. Remove the wheel and tire from the hub and rotor assembly (Fig. 16). **Be careful to avoid damage or interference with the caliper splash shield or bleeder screw fitting.**

2. Remove the caliper assembly from the spindle and the rotor. If the caliper does not require servicing, it is not necessary to disconnect the brake hose or remove the caliper from the vehicle. Position the caliper out of the way, and support it with a wire to avoid damaging the caliper or stretching the hose. Insert a **clean** cardboard spacer between the linings to prevent the piston from coming out of the cylinder bore while the caliper is removed.

Handle the rotor and caliper assemblies in such a way as to avoid deformation of the rotor and nicking, scratching or contamination of the brake linings.

3. Remove the grease cap from the hub. Remove the cotter pin, nut lock, adjusting nut, and flat washer from the spindle. Remove the outer bearing cone and roller assembly.

4. Remove the hub and rotor assembly from the spindle.

INSTALLATION

1. If the rotor is being replaced, remove the protective coating from the new rotor with carburetor degreaser. Pack a new set of bearings with specified grease, and install the inner bearing cone and roller assembly in the inner cup. Pack grease lightly between the lips of a new grease seal and install the seal (Fig. 16).

If the original rotor is being installed, make sure that the grease in the hub is clean and adequate, that the inner bearing and grease retainer are lubricated and in good condition, and that the rotor braking surfaces are clean.

2. Install the hub and rotor assembly on the spindle.

3. Lubricate and install the outer wheel bearing, washer and adjusting nut.

4. Adjust the wheel bearings to specification, and then install the nut lock, cotter pin, and grease cap. **The wheel bearing adjustment is especially important with disc brakes.**

5. Mount the caliper assembly on the spindle and torque the two attaching bolts to specification. If necessary, push the caliper piston into the cylinder bore to obtain clearance between the shoe and lining assemblies and the rotor. Be sure that the shoe and lining assemblies are seated on the bridges. Check the flexible hose for correct routing.

6. Install the wheel, tire and cover on the hub and rotor assembly.

7. Pump the brake pedal as required to establish the proper pedal height.

8. Fill the master cylinder to the proper level with the specified fluid.

DISC BRAKE ROTOR SPLASH SHIELD

REMOVAL

1. Remove the caliper and the hub and rotor assembly as outlined under Removal in the foregoing procedure.

2. Remove the three nuts that attach the splash shield to the spindle and remove the shield (Fig. 16).

3. Remove the gasket.

INSTALLATION

1. Install the gasket.

2. If the shield is bent, straighten it out before installation. Position the shield to the spindle, install the attaching nuts, and torque to specification (Fig. 16).

3. Install the hub and rotor assembly and the caliper as outlined under Installation in the foregoing procedure.



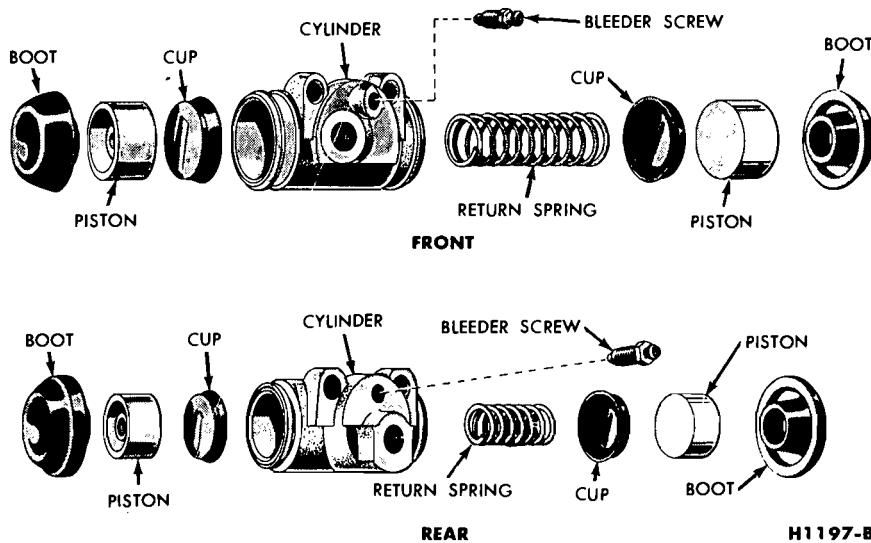


FIG. 17—Front and Rear Wheel Cylinders

PROPORTIONING VALVE

The proportioning valve is serviced as an assembly and is never adjusted or overhauled.

Refer to View P of Fig. 18 for the Fairlane, Falcon and Montego disc brake pressure control valve installation. View R of Fig. 19 shows the installation of the Mustang and Cougar disc brake pressure control valve.

REMOVAL

1. Disconnect the brake tubes at the proportioning valve. On a Mustang and Cougar vehicle, remove the control valve.

2. On a Fairlane, Falcon or Montego vehicle, remove the attaching bolt and clip and remove the proportioning valve.

INSTALLATION

1. On a Fairlane, Falcon or Montego vehicle, position the disc brake pressure control valve, clip and attaching bolt as shown in Fig. 19, View P, and tighten the attaching bolt.

2. Connect the brake lines to the proportioning valve, and torque the connector nuts to specification (Figs. 18 and 19).

3. Bleed the brake system and cen-

tered unless they are leaking or unless new cups and boots are to be installed.

It is not necessary to remove the wheel cylinder from the backing plate to disassemble, inspect and overhaul it. Removal is necessary only when the cylinder is damaged or scored beyond repair.

DISASSEMBLY

1. With the wheel in a raised position, remove the wheel and the drum.

2. Place a clamp over the ends of the brake cylinder as shown in Fig. 13.

3. Remove the brake shoe assemblies following procedure outlined in this section.

4. The 6-cylinder Falcon and Mustang models are not provided with links. Remove the rubber boots from the ends of the piston.

On 8-cylinder models and on all Montego and Fairlanes, remove the links and rubber boots from the ends of the piston. Remove the pistons, cups, and return spring from the cylinder bore (Fig. 17).

5. Remove the bleeder screw from the cylinder.

INSPECTION

1. Wash all parts in clean specified brake fluid. Dry with compressed air.

2. Check all the internal parts for excessive wear or damage. Replace scored pistons. Always replace the rubber cups and dust boots. If any of the internal parts require replacing, the cylinder should be replaced.

3. Inspect the cylinder bore for

score marks or rust. If either condition is present, the cylinder bore must be honed. However, the cylinder should not be honed more than 0.003 inch beyond its original diameter. A baffle in the front wheel cylinder of the 6-cylinder Falcon and Mustang models prevents honing; therefore, the cylinder must be replaced.

4. Check the bleeder hole to be sure that it is open.

ASSEMBLY

1. Apply a light coating of heavy-duty brake fluid to all internal parts.

2. Thread the bleeder screw into the cylinder and tighten securely.

3. Insert the return spring, cups, and pistons into their respective positions in the cylinder bore (Fig. 17). Place a boot over each end of the cylinder. On 8-cylinder model Mustangs, Cougars, Falcons and all Montego and Fairlanes, install the links in the ends of the brake cylinders.

4. Install the shoe and adjuster assemblies, then adjust the shoes as outlined in this section.

5. Install the brake drum and wheel, then bleed the brakes and centralize the differential valve (Part 2-1, Section 2).

WHEEL CYLINDER REPLACEMENT

REMOVAL

1. With the wheel in a raised position, remove the wheel and the drum.

2. Place a clamp over the ends of the wheel cylinder as shown in Fig. 13).

3. Remove the brake shoe assemblies following procedures outlined in this section.

4. Disconnect the brake line from the brake cylinder.

To disconnect the hose at a front cylinder, remove the tube fitting that connects the opposite end of the hose to the brake tube at a bracket on the side rail. Remove the horse-shoe-type retaining clip from the hose and bracket, disengage the hose from the bracket, then unscrew the entire hose assembly from the front wheel cylinder.

At a rear cylinder, unscrew the tube fitting that connects the tube to the cylinder. Do not pull the metal tube away from the cylinder. Pulling the tube out of the cylinder connection will bend the metal tube and make installation difficult. The tube will separate from the cylinder when the cylinder is removed from the backing plate.

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5. Remove the wheel cylinder attaching bolts and lock washers and remove the cylinder.

INSTALLATION

Wipe the end(s) of the hydraulic line to remove any foreign matter before making connections.

To install a front cylinder:

1. To install a front wheel cylinder position the cylinder in place against the backing plate. Install the two lock washers and attaching bolts. Torque them to specifications.

2. Install a new copper gasket over the hose fitting. Thread the hose assembly into the cylinder and tighten it to specified torque (Figs. 18 and 19).

3. Engage the opposite end of the hose to the bracket on the frame. **The stripe on the hose assembly must show no evidence of twist. The brake hose must not touch any other parts during a turn, jounce or rebound.** Install the horseshoe-type retaining clip, and connect the brake tube to the hose with the tube fitting nut. Tighten the nut to specifications with Tool 1112-144.

4. To install a rear wheel cylinder position the rear wheel cylinder in place against the backing plate. Enter the tubing into the cylinder, and start the tube fitting nut into the threads of the cylinder.

5. Secure the cylinder to the backing plate with the attaching bolts and lock washers.

6. Tighten the tube fitting nut to specifications.

7. Install the links in the ends of the wheel cylinder (8-cylinder models only on Falcon, Mustang, Cougar and all Montego and Fairlane Models).

8. Install the brake shoes as detailed in this section.

9. Adjust the brakes as detailed in Part 2-2, Section 2.

10. Install the brake drums and wheels.

11. Bleed the brakes and centralize the differential valve as detailed in Part 2-1, Section 2.

BRAKE BACKING PLATE REPLACEMENT

REMOVAL

drum. Disconnect the brake line from the brake cylinder.

2. Remove the brake shoe and adjuster assemblies and the wheel cylinder as outlined in this section. On the rear wheels, disconnect the parking brake lever from the cable.

3. If the rear backing plate is being replaced, rotate the axle shaft so that the hole in the axle shaft flange lines up with the carrier plate retaining nuts and remove the nuts. Pull the axle shaft assembly out of the housing with tool 4235-C and a slide hammer (Part 4-2), then remove the backing plate. **Use care to prevent damage to the rear axle bearing seal.**

If the front backing plate is being replaced, remove the bolts and nuts that secure the plate to the front wheel spindle and remove the plate.

INSTALLATION

1. Position a new rear backing plate on the attaching bolts in the axle housing flange. Insert the axle shaft into the housing so that the splines engage the differential side gear with the bearing retainer sliding onto the retaining bolts and against the backing plate. **Use care to prevent damage to the rear axle bearing seal. Install the attaching nuts through the access hole in the axle shaft flange.**

Refer to Group 4, Part 4-2 for the proper installation procedure.

Position a new **front** backing plate to the wheel spindle and install the attaching bolts and nuts.

2. Install the wheel cylinder and connect the brake line as outlined in this section.

3. Install the brake shoe and adjuster assemblies as outlined in this section. On a rear brake, connect the parking brake cable to the lever.

4. Adjust the brake shoes (Section 2).

5. Install the brake drum and wheel. Bleed the brake system and centralize the differential valve as outlined in Part 2-1, Section 2.

BRAKE TUBE REPLACEMENT

Steel tubing is used throughout the brake system with exception of the flexible hoses at the front wheels and at the rear axle housing brake tube

connector (Figs. 18 and 19).

Always bleed the applicable primary (front) or secondary (rear) brake system after a primary or secondary brake system hose or line replacement. Centralize the differential valve after bleeding the brake system because vibration will cause tube failure. When bending brake tubing to fit underbody or rear axle contours, be careful not to kink or crack the tube.

All brake tubing should be properly double-flared at both ends to provide good leak-proof connections. Clean the brake tubing by flushing with clean brake fluiding before installation.

When connecting a tube to a hose, tube connector, disc caliper, or brake cylinder, tighten the tube fitting nut to specified torque (Figs. 18 and 19) with Milbar tool 1112-144 or equivalent.

BRAKE HOSE REPLACEMENT

When installing a new front brake hose, make certain it is replaced with the proper hose assembly. Install a new gasket over the hose fitting and torque the hose assembly to the wheel cylinder or caliper connection as noted in Figs. 18 and 19. Install the hose into the bracket on the side rail. **Make sure the stripe on the hose shows no evidence of twist.** Install the retaining clip. Connect the tube assembly to the hose, and torque the connector to specification (Figs. 18 and 19).

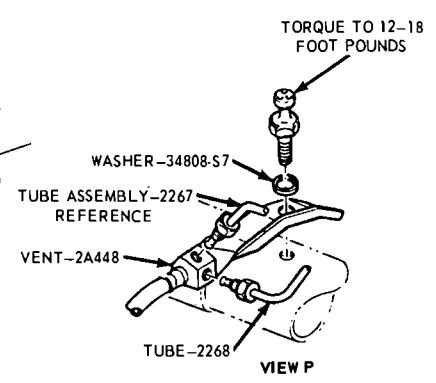
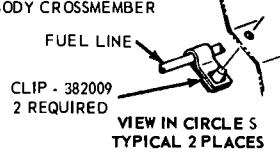
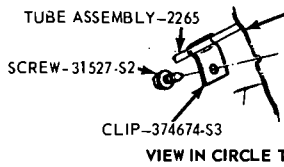
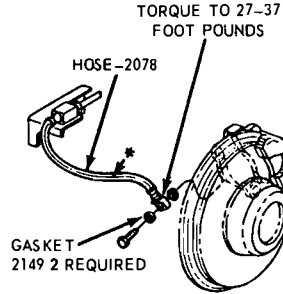
A rear brake hose should be installed so that it does not touch the muffler outlet pipe or shock absorber.

Since the rear brake hose is integral with the rear brake tube connector, the entire hose and connector is replaced as an assembly. Mount the connector to the rear axle housing with the attaching bolt (axle vent) and lock washer. Connect the two rear wheel brake tubes to the connector. Install the hose in the D slot in the rear hose bracket. Install clip. Connect the tube assembly to the hose, and torque the connector to specification (Figs. 18 and 19).

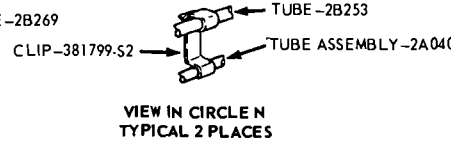
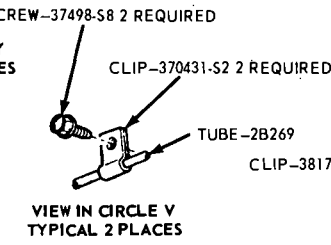
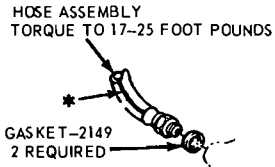


TIGHTEN ALL HYDRAULIC LINE CONNECTIONS AS FOLLOWS:

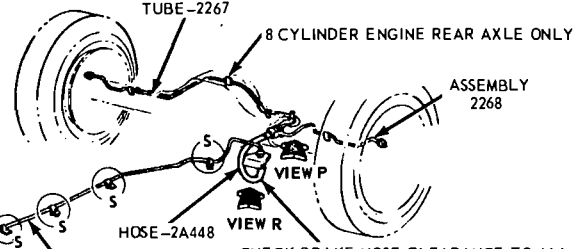
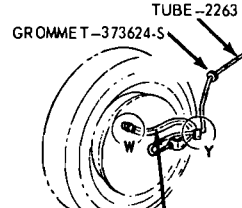
- 3/8-24 THREAD 8-15 FOOT POUNDS
- 7/16-24 THREAD 10-18 FOOT POUNDS
- 1/2-20 THREAD 12-20 FOOT POUNDS
- 9/16-18 THREAD 15-25 FOOT POUNDS



INSTALLATION-DISC BRAKES ONLY
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CONNECTOR-87583-S
FOR INSTALLATION ON POWER
DRUM AND STANDARD BRAKES ONLY



CHECK BRAKE HOSE CLEARANCE TO ALL
COMPONENTS IN METAL/METAL JOUCE
AND METAL/METAL REBOUND.

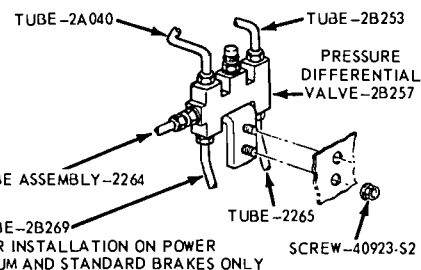
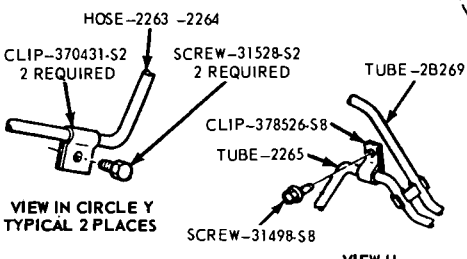
CHECK BRAKE HOSE CLEARANCE
TO ALL COMPONENTS IN METAL/METAL
JOUNCE, METAL/METAL REBOUND
AND FULL INSIDE AND OUTSIDE TURNS.

1/4" MINIMUM CLEARANCE
BETWEEN TUBES

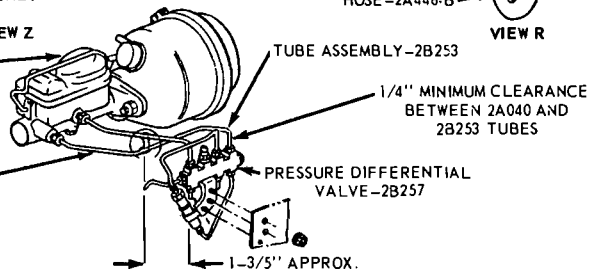
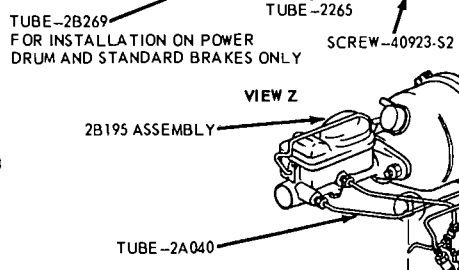
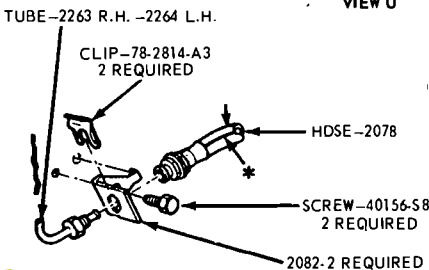
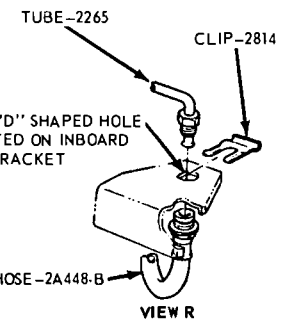
BEND CLIP TO RETAIN
TUBE AS MARKED

PROPORTIONING VALVE
C8ZA-2B266-A

L.H. FENDER
APRON REF.



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Mustang and Cougar

3 REMOVAL AND INSTALLATION

DUAL MASTER CYLINDER— STANDARD BRAKES

REMOVAL

Refer to Figs. 25 and 26.

1. Working from inside the vehicle below the instrument panel, disconnect the master cylinder push rod from the brake pedal assembly. **The push rod cannot be removed from the master cylinder.**

2. Disconnect the stoplight switch wires at the connector. Remove the hairpin retainer. Slide the stop light switch off the brake pedal pin just far enough to clear the end of the pin, then lift the switch straight upward from the pin. **Use care to avoid switch damage during removal.**

3. Slide the master cylinder push rod and the nylon washers and bushings of the brake pedal pin.

4. Remove the brake tubes from the primary and secondary outlet ports of the master cylinder.

5. Remove the lock nuts or screws that secure the master cylinder to the dash panel and lift the cylinder forward and upward from the car.

INSTALLATION

Refer to Figs. 20 and 21.

1. Position the boot on the push rod and secure the boot to the master cylinder. Carefully insert the master cylinder push rod and boot through the dash panel opening.

2. On Fairlane, Falcon or Montego models, position the master cylinder on the mounting studs on the dash panel. Install the lock nuts on the studs at the dash panel and torque them to specification.

3. On Mustang or Cougar models, position the master cylinder on the dash panel. Install the retaining screws and torque them to specification. Coat the nylon bushings with SAE 10W oil. Install the nylon washer and bushing on the brake pedal pin.

Position the stop light switch on the brake pedal pin, install the

7. Fill the master cylinder with the specified brake fluid to within 1/4 inch of the top of the dual reservoirs. Use Ford Brake Fluid — Extra Heavy Duty — Part Number C6AZ-19542-A for all brake applications. **The brake fluid is colored blue for identification. Do not mix low temperature brake fluids with the specified fluid for the brake system.**

8. Bleed the dual-master cylinder and the primary and secondary brake systems. Centralize the pressure differential valve. Refer to Hydraulic System Bleeding and Centralizing of the Differential Valve, Part 2-1, Section 2 for the proper procedure.

9. Operate the brakes several times, then check for external hydraulic leaks.

DUAL MASTER CYLINDER— POWER BRAKES

Refer to Figs. 25 and 26.

REMOVAL

1. Remove the brake tubes from the primary and secondary outlet ports of the master cylinder.

2. Remove the two nuts attaching the master cylinder to the brake booster assembly.

3. Slide the master cylinder forward and upward from the vehicle.

INSTALLATION

1. Before installing the master cylinder, check the distance from the outer end of the booster assembly push rod to the master cylinder mounting surface. Turn the push rod adjusting screw in or out as required to obtain the specified length. Refer to Part 2-1, Section 2, Power Brake Master Cylinder Push Rod Adjustment for the proper procedure.

2. Position the master cylinder assembly over the booster push rod and onto the two studs on the booster assembly.

3. Install the attaching nuts and torque them to specifications.

4. Install the primary (front) and secondary (rear) brake tubes to the master cylinder outlet fittings, and torque them to specification.

5. Fill the master cylinder with the specified brake fluid to within 1/4

inch of the top of the dual reservoirs. Use Ford Brake Fluid — Extra Heavy Duty — Part Number C6AZ-

19542-A for all brake applications. **The brake fluid is colored blue for identification. Do not mix low temperature brake fluids with the specified fluid for the brake system.**

6. Bleed the dual-master cylinder and the primary and secondary brake systems. Centralize the pressure differential valve. Refer to Hydraulic System Bleeding and Centralizing of the Differential Valve, Part 2-1, Section 2 for the proper procedure.

7. Operate the brakes several times, then check for external hydraulic leaks.

PRESSURE DIFFERENTIAL VALVE ASSEMBLY

Refer to Figs. 18 and 19.

REMOVAL

1. Disconnect the brake warning light wire from the pressure differential valve assembly switch. **To prevent damage to the brake warning switch wire connector, expand the plastic lugs to allow removal of the shell-wire connector from the switch body.**

2. Loosen the tube nut connecting the primary (front brake) system inlet tube at the top of the pressure differential valve assembly and disconnect the tube.

3. Disconnect the primary system left front brake outlet tube from the top side of the pressure differential valve assembly.

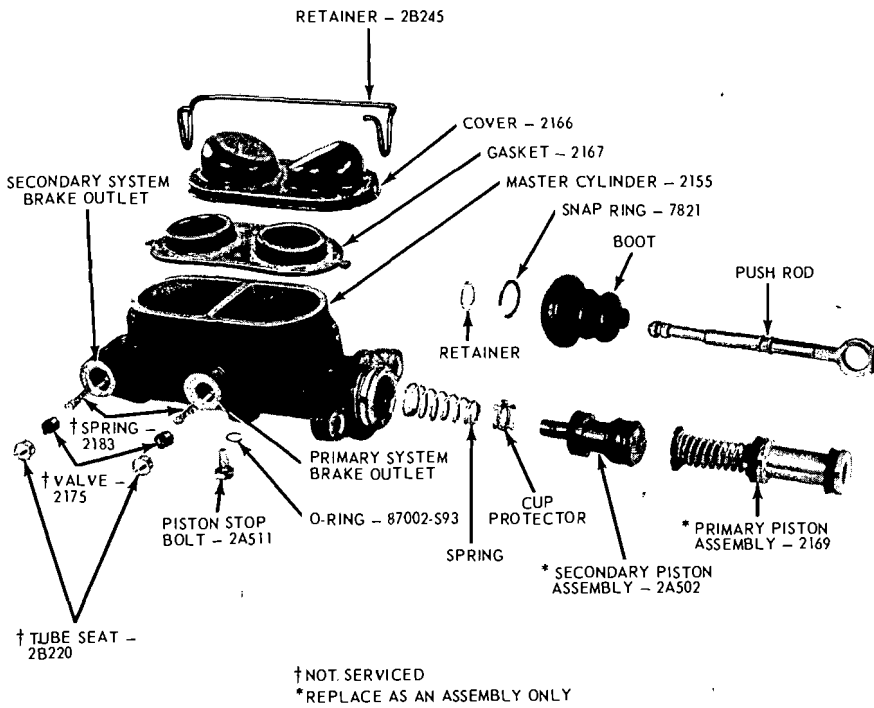
4. Disconnect the primary system right front brake outlet tube from the top side of the differential valve assembly.

5. Disconnect the secondary (rear brake) system inlet tube at the lower side of the pressure differential valve assembly.

6. Disconnect the secondary system rear brake outlet tube from the lower side pressure differential valve assembly.

7. Remove the screw retaining the pressure differential valve assembly to the vehicle and remove the differential valve assembly.

8. If the differential valve is to be replaced, remove the brake warning lamp switch and install the switch in the new differential valve. **The pressure differential valve assembly and the brake warning lamp switch are separate units and each is serviced as a separate assembly only.**



H 1499-B

FIG. 20—Dual Master Cylinder Disassembled—Except Disc Brakes

valve tube nuts at the differential valve and at the proportioning valve. Remove the proportioning valve from the mounting.

INSTALLATION

1. On disc brake equipped vehicles, connect the proportioning valve inlet and outlet tubes to the proportioning valve and differential valve bodies. Tighten the tube nuts to specification.

2. Mount the pressure differential valve assembly on the vehicle and tighten the attaching screw.

3. Connect the rear brake system inlet tube to the pressure differential valve assembly and tighten the tube nut to the specified torque (Refer to Part 2-3).

4. Connect the rear brake system outlet tube to the pressure differential valve assembly. Tighten the tube nut to the specified torque.

5. Connect the front brake system inlet tube to the pressure differential valve assembly and tighten the tube nut to the specified torque.

6. Connect the right front brake outlet tube to the pressure differential valve assembly. Tighten the tube nut to the specified torque.

7. Connect the left front brake outlet tube to the pressure differential valve assembly. Tighten the tube nut to the specified torque.

8. Connect the shell-wire connector to the brake warning lamp switch. **Make sure the plastic lugs on the connector hold the connector securely to the switch.**

9. Bleed the brakes and centralize the pressure differential valve (Part 2-1, Section 2).

10. On disc brake equipped cars, install front wheel and tire assemblies, and torque the retaining nuts to specification. Install wheel covers.

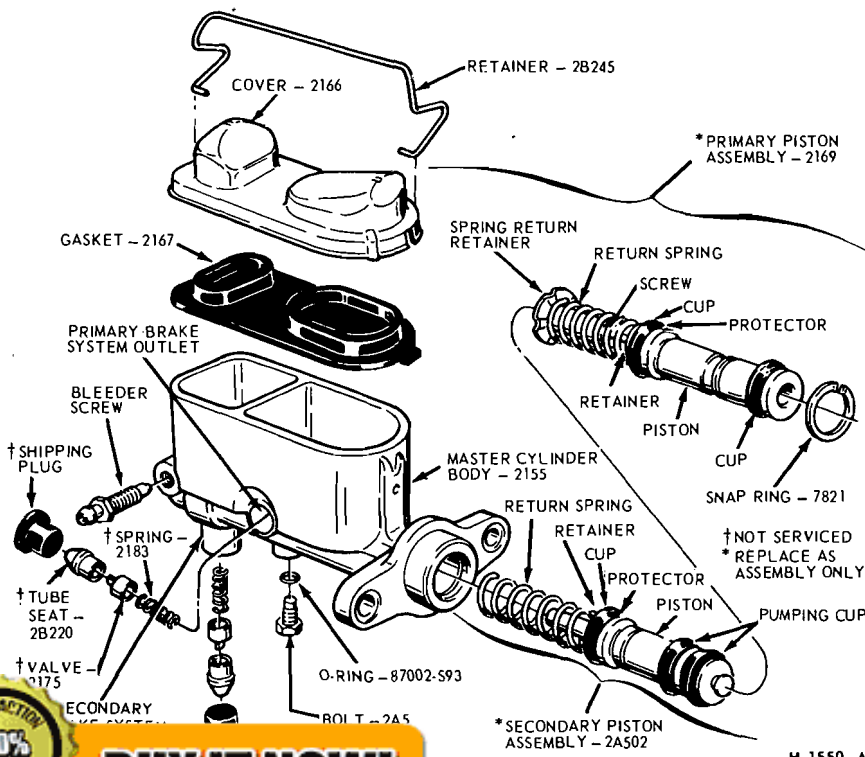
BRAKE BOOSTER

Refer to Figs. 27 and 28.

REMOVAL

1. Working from inside the vehicle below the instrument panel, disconnect the booster push rod link from the brake pedal assembly. To do this, proceed as follows:

Disconnect the stop light switch wires at the connector. Remove the hairpin retainer. Slide the stop light switch off from the brake pedal pin just far enough for the switch outer hole to clear the pin, and then lift the



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assembled—Disc Brakes

valve assembly and mounting bracket in a vise. Loosen the proportioning

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switch straight **upward** from the pin. Be careful not to damage the switch during removal. Slide the booster push rod and the nylon washers and bushing off the brake pedal pin.

2. Open the hood. Disconnect the master cylinder outlet front and rear tubes from the master cylinder and the differential valve. Remove the master cylinder from the booster. Secure it to one side without disturbing the hydraulic lines.

3. Disconnect the manifold vacuum hose from the booster unit. If the vehicle is equipped with an automatic transmission disconnect the transmission vacuum unit hose.

4. On Falcon, Fairlane and Montego vehicles, remove the four bracket-to-dash panel attaching nuts or bolts. Remove the booster and bracket assembly from the dash panel, sliding the push rod link out from the engine side of the dash panel.

5. Remove the push rod link boot from the dash panel.

INSTALLATION

1. Install the push rod link boot in the hole in the dash panel.

2. On Falcon, Montego, Fairlane vehicles, mount the booster and bracket assembly to the dash panel by sliding the bracket onto the mounting studs and the push rod link in through the hole and boot in the dash panel. Install the bracket-to-dash panel attaching locknuts and torque them to specification.

3. On Mustang and Cougar vehicles, mount the booster and bracket assembly to the dash panel by sliding the push rod link and boot through the hole and boot in the dash panel. Install the screw through the booster mounting bracket to the dash panel and torque it to specification. Install the four nuts on the booster mounting bracket to dash panel attaching bolts and torque them to specifications. When installing the booster, take care not to hit the booster input shaft and guide as internal damage to the booster can result. Connect the manifold vacuum hose to the booster. If the vehicle is equipped with an automatic transmission, connect the transmission vacuum unit hose.

the master cylinder and torque the attaching nuts to specifications.

5. Working from inside the vehicle below the instrument panel, connect the booster push rod link to the brake pedal assembly. To do this, proceed as follows:

Apply a coating of SAE 10 engine oil to the bushings. Install the inner nylon washer, the Booster push rod, and the bushing on the brake pedal pin. Position the switch so that it straddles the push rod with the switch slot on the pedal pin and the

switch outer hole just clearing the pin. Slide the switch completely onto the pin, and install the nylon washer. **Be careful not to bend or deform the switch.** Secure these parts to the pin with the hairpin retainer. Connect the stop light switch wires to the connector and install the wires in the retaining clip.

6. Connect the master cylinder outlet front and rear tubes to the master cylinder and the differential valve. Torque the brake tube fittings to specification (Figs. 18 and 19). Bleed the brake system and centralize the pressure differential valve.

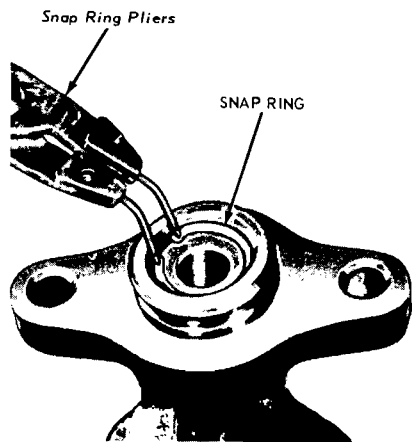
7. Check the brake booster for proper operation. Check the vacuum lines for leakage.

BRAKE PEDAL

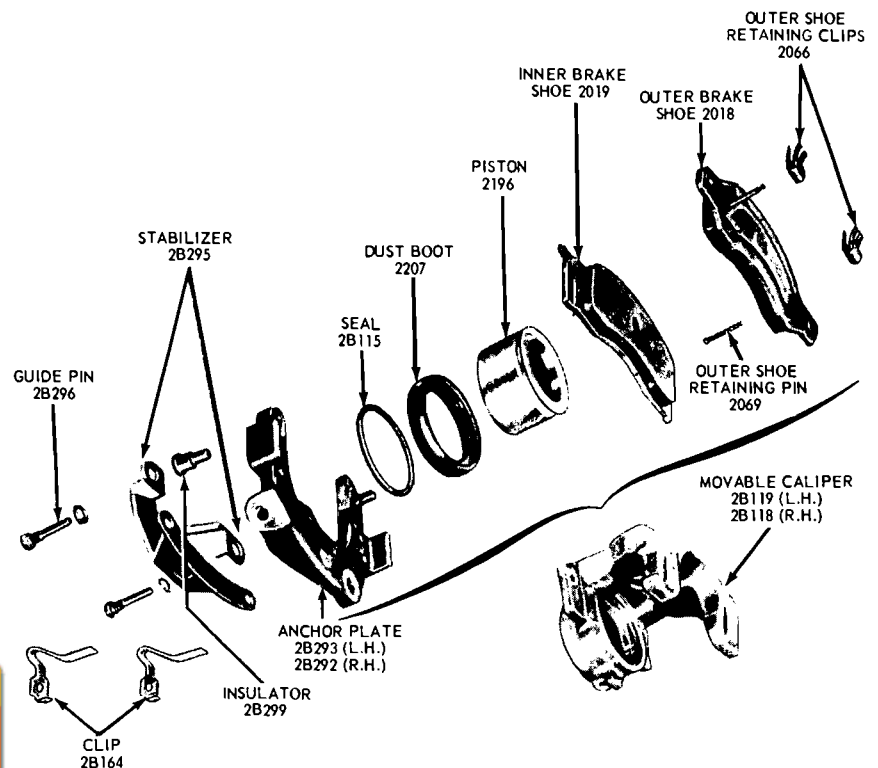
REMOVAL—MANUAL SHIFT TRANSMISSION

1. On a Falcon, Montego or Fairlane, remove the clutch pedal assist spring.

On a Mustang, remove the pedal bumper and bracket assembly from the pedal support bracket to relieve the tension on the assist spring, and then remove the spring.



H1477-B
FIG. 22—Removing Snap Ring—Typical



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FIG. 23—Caliper Assembly—Disassembled

2. Disconnect the clutch pedal-to-equalizer rod at the clutch pedal by removing the retainer and bushing.

3. Disconnect the stop light switch wires at the connector.

4. Remove the switch retainer, and slide the stop light switch off the brake pedal pin **just far enough for the switch outer hole to clear the pin. Then lower the switch away from the pin.**

5. Slide the master cylinder or booster push rod and the nylon washers and bushing off from the brake pedal pin (Figs. 25 and 26).

6. Remove the self-locking pin and washer from the clutch and brake pedal shaft, then remove the clutch pedal and shaft assembly, the brake pedal assembly, and the bushings from the pedal support bracket (Figs. 25 and 26).

INSTALLATION

1. Apply a coating of SAE 10 engine oil to the bushings and locate all bushings in their proper places on the clutch and brake pedal assemblies.

2. Position the brake pedal to the support bracket, then install the clutch pedal and shaft assembly through the support bracket and brake pedal assembly. Install the spring clip (Figs. 25 and 26).

3. Install the split bushing in the spring groove of the clutch pedal. Hook the clutch assist spring to the groove and to the spring retainer.

4. Connect the clutch pedal to equalizer rod to the clutch pedal assembly with the bushing and the spring clip retainer. Apply SAE 10 engine oil to the bushing.

5. Install the inner nylon washer, the master cylinder or booster push rod, and the bushing on the brake pedal pin. Position the switch so that it straddles the push rod with the switch slot on the pedal pin and the switch outer hole just clearing the pin. Slide the switch completely onto the pin, and install the outer nylon washer as shown in Figs. 25 and 26. Secure these parts to the pin with the self-locking pin.

Connect the stop light switch to the connector, and install

REMOVAL—AUTOMATIC TRANSMISSION

1. Disconnect the stop light switch wires at the connector.

2. Remove the self-locking pin and slide the stop light switch off the brake pedal pin **just far enough for the switch outer hole to clear the pin.** Then lower the switch away from the pin. Slide the master cylinder or booster push rod and the nylon washers and bushing off from the brake pedal pin (Fig. 25 and 26).

3. On all vehicles except Mustang and Cougar with power brakes, remove the self-locking pin and washer from the brake pedal shaft, then remove the shaft, the brake pedal assembly and the bushings from the pedal support bracket. On Mustang and Cougar vehicles with power brakes, remove the locknut and bolt from the pedal. Remove the pedal assembly from the support bracket.

INSTALLATION

1. Apply a coating of SAE 10 engine oil to the bushings and locate all the bushings in their proper places on the pedal assembly and pedal support bracket (Fig. 25).

2. Position the brake pedal assembly to the support bracket, then install the pedal shaft or bolt through the support bracket and brake pedal assembly. Install the retainer or locknut.

3. Install the inner nylon washer, the master cylinder or booster push rod, and the bushing on the brake pedal pin. Position the switch so that it straddles the push rod with the switch slot on the pedal pin, and the switch outer hole just clearing the pin. Slide the switch completely onto the pin, and install the outer nylon washer as shown in Fig. 25. Secure these parts to the pin with the self-locking pin.

4. Connect the stop light switch wires to the connector, and install the wires in the retaining clip.

Check the Brake Pedal Free Height and Travel Measurements, Part 2, Section 1.

PARKING BRAKE CONTROL ASSEMBLY

REMOVAL—MUSTANG AND COUGAR

Refer to Fig. 29.

1. Remove the two screws and nuts

that hold the control bracket on the instrument panel.

2. Remove the two nuts that secure the control to the dash panel.

3. Remove the hairpin clip and clevis pin that secures the pulley to the control handle assembly.

4. Disengage the locking pawl. Slide the rod forward and remove the ball on the cable from the slot on the control assembly. Remove the control from the vehicle.

INSTALLATION

1. Disengage the locking pawl. Slide the rod forward and connect the ball end of the cable to the slot in the control assembly and pull the rod rearward, engaging the pawl in the ratchet.

2. Assemble the pulley to the control handle and the clevis pin. Install the clevis retainer.

3. Position the assembly against the dash panel and instrument panel. Secure the assembly to the instrument panel with the two screws and nuts.

4. Working under the hood, install the two parking brake control to dash panel attaching nuts.

5. Check the parking brake for proper operation. Adjust the parking brake (Part 2-1, Section 2).

REMOVAL—FAIRLANE, FALCON AND MONTEGO

Refer to Fig. 30.

1. Make sure the parking brake is completely released.

2. Remove the left cowl side (kick) panel. Disconnect the wire lead at the parking brake light switch.

3. Remove the parking brake cable ball hair-pin retainer. Disconnect the cable ball from the brake assembly.

4. Remove the parking brake light switch and the attaching screw.

5. Remove the three screws that attach the control assembly to the left cowl inner side panel.

6. Pull the control away from the cowl panel. Remove the hair-pin retainer securing the cable housing to the control assembly. Remove the control assembly.

INSTALLATION

1. Connect the ball-end of the parking brake cable to the control, and install the hair-pin retainer.

2. Position the control assembly to the cowl inner side panel and install the three attaching screws. Torque the

Connect the stop light switch to the connector, and install

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screws to specification.

3. Position the parking brake light switch and install the attaching screw. Connect the switch wire lead.

4. Position the cable ball in the brake assembly.

5. Install the cowl side (kick) panel.

6. Check the operation of the parking brake switch and the parking brake. Adjust the parking brake, as required (Part 2-1, Section 2).

PARKING BRAKE EQUALIZER TO CONTROL CABLE

REMOVAL—MUSTANG AND COUGAR

1. Remove the attaching screws and insulator-bracket from the dash panel (Fig. 30).

2. Remove the parking brake control assembly and disengage the cable from the handle as outlined under Parking Brake Control in this section.

3. Pull the cable down through the hole in the dash panel.

4. Raise the vehicle on a hoist. Remove the hairpin retainer, and disengage the cable and conduit assembly from the bracket on the inner side rail.

5. Disconnect the cable stepped-rod from the equalizer lever. Pull the cable forward through the crossmember and remove the cable from the vehicle.

side rail and secure with the spring clip retainer.

3. Push the upper end of the cable up through the hole in the dash panel.

4. Connect the cable upper ball to the parking brake control assembly, and install the control assembly as outlined in this section.

5. Position the cable insulator in the dash panel cable hole and secure the insulator to the dash panel with two attaching screws.

REMOVAL—FAIRLANE, MONTEGO, FALCON

Refer to Fig. 30.

1. Working from inside the vehicle, position the floor cover back and remove the retaining screws securing the cable shield plate to the dash panel.

2. Position the parking brake in the ON position.

3. Position the parking brake in the OFF position and remove the cable ball from the notch in the brake control assembly.

4. Remove the hairpin retainer and remove the cable housing from the brake assembly.

5. Raise the vehicle on a hoist. Remove the two nuts that attach the cable to the equalizer and spring. Remove the rear cable retainer, spring seat and spring.

6. Remove the hairpin retainer holding the cable housing to the body bracket and remove the cable assembly from the vehicle.

INSTALLATION

1. Position the cable housing through the opening in the floor and pull the cable grommet into position from under the vehicle.

2. Position the cable on the body bracket and install the hairpin retainer.

3. Position the spring, spring seat and the rear cable retainer. Install the two retaining (adjusting) nuts.

4. Lower the vehicle.

5. Connect the cable housing to the brake control assembly and install the hairpin retainer. Position the ball-end of the cable to the brake control assembly.

6. Position the cable shield plate to the dash panel and install the retaining screws. Position the floor covering.

7. Raise the vehicle and adjust the parking brake. Refer to Parking Brake

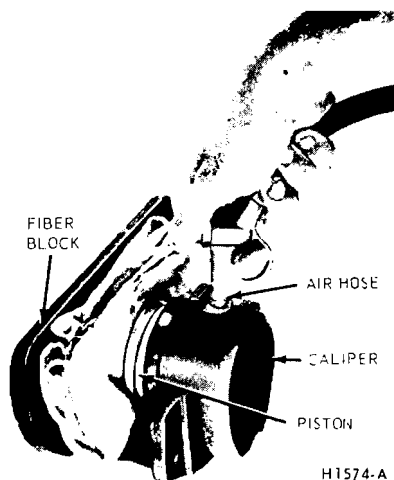


FIG. 24—Removing Piston

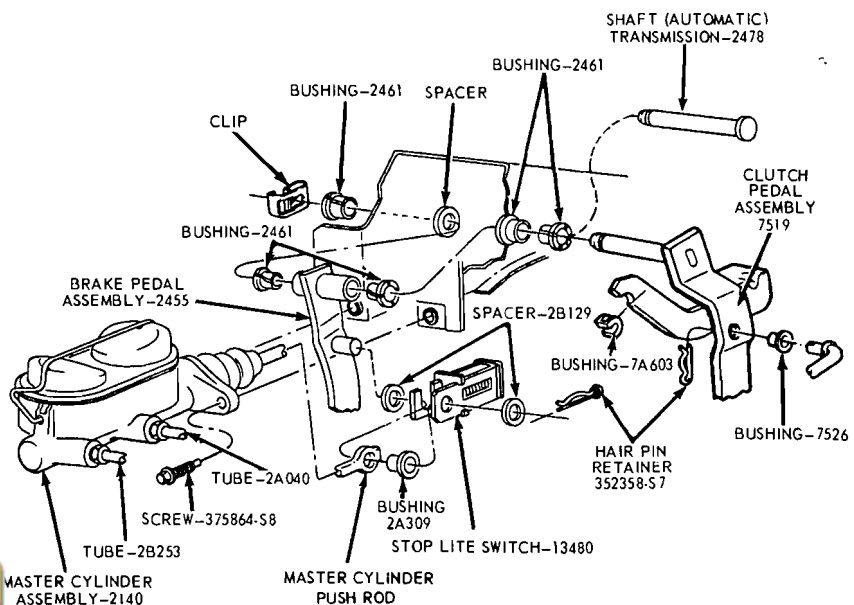


FIG. 25—Dual-Brake System Master Cylinder Installation—Mustang and Cougar Without Power Brakes

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Linkage Adjustment, Part 2-1, Section 2 for proper procedure.

- Lower the vehicle.

PARKING BRAKE EQUALIZER TO REAR WHEEL CABLE

A single cable passing through the equalizer and cable guides connects both parking brake assemblies on Montego and Fairlane station wagons and on Falcon vehicles. Separate cables for each parking brake are used on Mustang, Cougar, Montego and Fairlane passenger models.

FAIRLANE AND MONTEGO PASSENGER MODELS

Removal

- Remove the equalizer lock nut and adjusting nut, equalizer, spring and spring seat.

- With the cables slack, disconnect the ball-ends from the connector (Fig. 30).

- Remove the cable from the retainer hooks (station wagon models) and the underbody guide (convertible models) if required.

- Remove the hairpin lock retaining the cable housing to the side rail bracket.

- Remove the wheel cover, wheel and tire and the rear brake drum as outlined in Section 2.

- Remove self-adjuster springs to allow clearance to remove cable retainer from the backing plate. Disconnect the rear end of the cable from the parking brake lever on the brake shoe. Disengage the cable housing retaining grommet or steel-pronged Hi-Hat from the backing plate and withdraw the cable and housing from the inboard side of the backing plate.

- Slide the cable and housing out of the side rail bracket.

Installation

- Insert the rear end of the cable

through the side rail bracket and pull the cable and housing into position.

- Insert the rear end of the cable and housing through the hole in the backing plate from the inboard side.

- Connect the cable to the parking brake lever on the brake shoe and install the cable housing retaining grommet or steel-pronged Hi-Hat in the backing plate.

- Install the self-adjuster springs. Position the cable housing in the side rail bracket and install the hairpin type retainer.

- Install rear hub and drum assembly, wheel and tire assemblies and wheel cover as outlined in Section 2.

- Position the cable retainer hooks (station wagon models) in the underbody guide (convertible models) and install the connector, thus hooking the two cables together.

- Insert the cable into the equalizer and install the equalizer, spring seat, spring, adjusting nut and lock nut to the front, parking brake control cable.

- Adjust the parking brake as directed in Part 2-1, Section 2.

FAIRLANE AND MONTEGO STATION WAGONS AND FALCON PASSENGER MODELS

Removal And Installation

Generally follow the procedure given above, omitting separation of the cables, since the parking brake rear cable assemblies supplied for these models is in one piece. Removal and installation of both rear wheels, tires and drums will also be required.

MUSTANG AND COUGAR

Refer to Fig. 29.

Removal

- Raise the vehicle on a hoist.

- Position the parking brake in the OFF position.

- Loosen the adjusting nut and remove rear parking brake cable ball end from the connector.

- Remove the adjusting nut from the equalizer rod and remove the cable from the equalizer.

- Remove the hairpin retainer securing the rear cable to the frame bracket. Remove the cable from the bracket.

- Remove the wheel cover, wheel and tire, and rear brake drum as outlined in Section 2.

- Remove the self-adjuster springs to allow clearance to remove the cable retainer from the backing plate. Disconnect the rear end of the cable from the parking brake lever on the brake shoe.

- Disengage the cable housing pronged-retainer grommet from the backing plate and withdraw the cable and housing from the inboard side of the backing plate. Remove the cable from the vehicle.

Installation

- On convertible models, insert the rear end of the cable through the underbody crossmember guide holes.

- Insert the rear end of the cable and housing through the hole in the backing plate from the inboard side.

- Connect the cable to the parking brake lever on the brake shoe, and securely install the cable housing pronged retainer in the backing plate.

- Install the self-adjuster springs. Position the cable housing in the side rail bracket and install the hairpin type retainer.

- Install the rear drum assembly, wheel and tire assemblies and wheel cover as outlined in Section 2.

- Insert the cable ball ends in the connector. Position the equalizer on the equalizer rod. Insert the cable into the equalizer, and install the adjusting lock nut.

- Adjust the parking brake as directed in Part 2-1, Section 2.

4 MAJOR REPAIR OPERATIONS



be removed with a fine emery cloth. A drum that is excessively scored or shows a total indicator runout of over .0007 inch should be turned down. Remove only enough stock to eliminate the scores and true up the drum. The refinished diameter must

not exceed 0.060 inch oversize.

If the drum diameter is less than 0.030 inch oversize 9.030 inches 6-cylinder Falcon or Mustang, or 10.030 inches on other models after refinishing, standard lining may be installed. If the drum diameter is

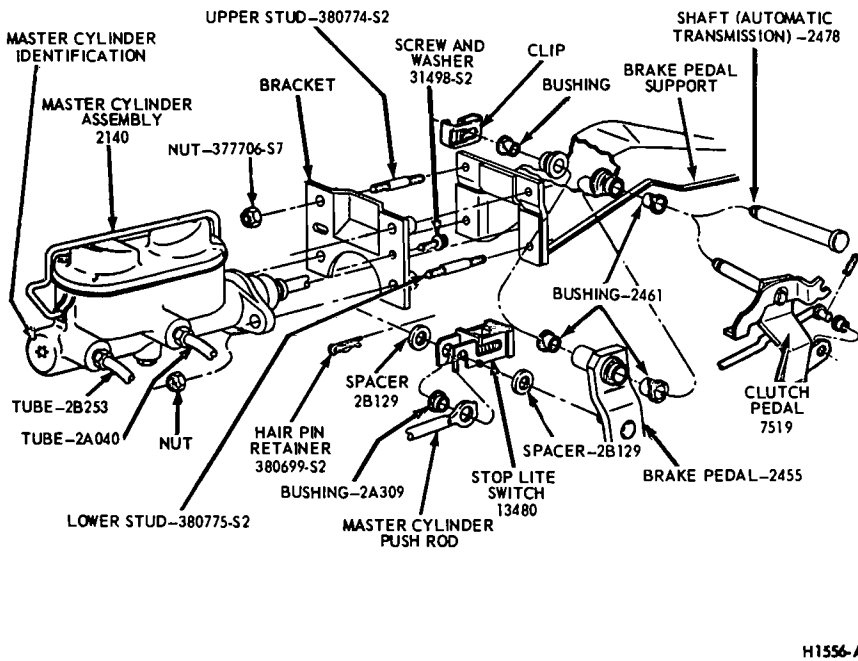


FIG. 26—Dual-Brake System Master Cylinder Installation— Falcon, Fairlane and Montego Without Power Brakes

more than 9.030 inches or 10.030 inches, oversize linings must be installed.

After a drum is turned down, wipe the refinished surface with a cloth soaked in clean denatured alcohol. If one drum is turned down the opposite drum on the same axle should also be cut down to the same size.

ROTOR REFINISHING

Rotunda Disc Brake Attachment, FRE2249-2, is the **only recommended tool** to be used to refinish disc brake rotors. The step-by-step resurfacing procedure provided with the tool must be adhered to.

The finished braking surfaces of the rotor must be flat and parallel within 0.0007 inch; lateral runout must not exceed 0.002 inch total indicator reading, and the surface finish of the braking surfaces are to be 85/15 micro inches. The minimum limiting dimensions (Fig. 1, Part 2-1) from the inboard bearing cup to the outboard rotor face (dimension A) and from the inboard rotor face (dimension B) must be observed when removing material from the rotor braking surfaces.

BRAKE SHOE RELINING

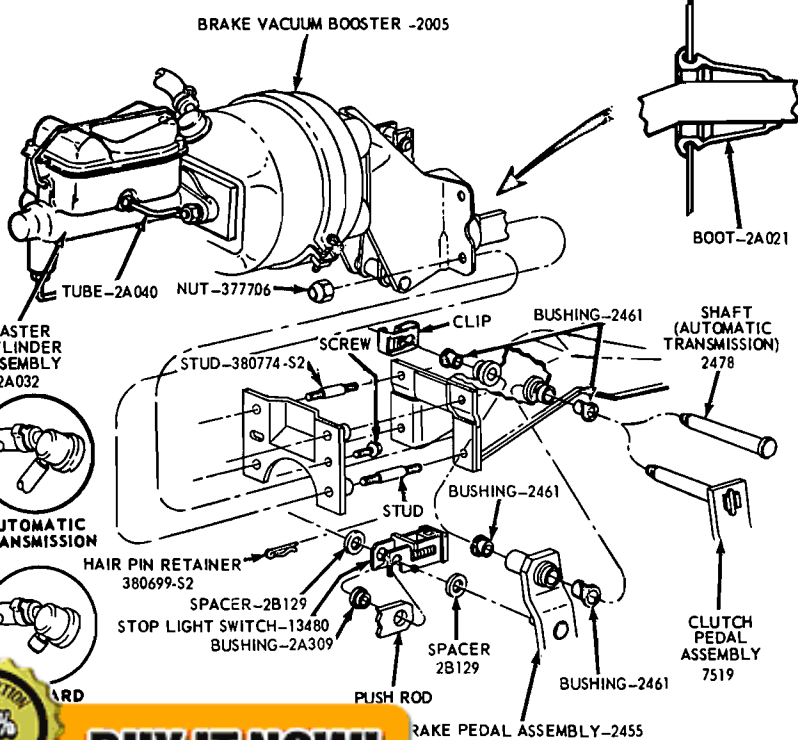
Brake linings that are worn to within 1/32 inch of any rivet or have been contaminated with brake fluid, grease or oil should be replaced. Failure to replace worn linings will result in a scored drum. **When it is necessary to replace linings on one side, they must also be replaced on the wheel on the opposite side of the vehicle.**

Inspect brake shoes for distortion, cracks, or looseness. If this condition exists, the shoe must be discarded. **Do not attempt to repair a defective brake shoe.**

1. Wash the brake shoes thoroughly in a clean solvent. Remove all burrs or rough spots from the shoes.

2. Check the inside diameter of the brake drum with a brake drum micrometer (tool FRE-1431). If the diameter is less than 0.030 oversize, standard lining may be installed. If the diameter is 0.060-0.090 oversize, oversize lining should be installed.

3. Position the new lining on the shoe. Starting in the center, insert and secure the rivets, working alternately towards each end. **Replacement linings are ground and no further grinding is required.**



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tion—Montego, Fairlane

4. Check the clearance between the shoe and lining. The lining must seat tightly against the shoe with not more than 0.008 inch clearance between any two rivets.

DUAL MASTER CYLINDER

DISASSEMBLY

1. Clean the outside of the master cylinder and remove the filler cover and diaphragm. Pour out any brake fluid that remains in the cylinder.

2. Remove the secondary piston stop bolt from the bottom of the cylinder (Figs. 20 and 21).

3. Remove the bleed screws, if required.

4. Remove the snap ring from the retaining groove at the rear of the master cylinder bore (Fig. 20). Remove the push rod and the primary piston assembly from the master cylinder bore. **Do not remove the screw that retains the primary return spring retainer, return spring, primary cup retainer, primary cup and protector on the primary piston. This assembly is factory pre-adjusted and should not be disassembled.**

5. Remove the secondary piston, assembly.

INSPECTION AND REPAIR

1. Clean all parts in clean denatured alcohol, and inspect the parts for chipping, excessive wear or damage. Replace them as required. **When using a master cylinder repair kit, install all the parts supplied.**

2. Check all recesses, openings and internal passages to be sure they are open and free of foreign matter. Use an air hose to blow out dirt and cleaning solvent. Place all parts on a clean pan or paper.

3. Inspect the master cylinder bore for signs of etching, pitting, scoring or rust. If it is necessary to hone the master cylinder bore to repair damage, do not exceed allowable hone specifications.

ASSEMBLY

1. Dip all parts except the master cylinder body in clean Ford Extra Heavy Duty Brake Fluid.

2. Carefully insert the complete secondary piston and return spring assembly in the master cylinder bore.

3. Install the primary piston and return spring assembly in the master cylinder bore.

4. Install the push rod retainer on the push rod, if so equipped. Install

the push rod assembly in the cylinder bore. **Make sure the retainer is properly seated and holding the push rod securely.**

5. Depress the primary piston and install the snap ring in the cylinder bore groove.

6. Position the inner end of the push rod boot (if so equipped) in the master cylinder body retaining groove.

7. Install the secondary piston stop bolt and gasket in the bottom of the master cylinder.

8. Install the bleed screw (if so equipped). Install the gasket (diaphragm) in the master cylinder filler cover. Position the gasket as shown in Figs. 20 and 21. **Make sure the gasket is securely seated.**

9. Install the cover and gasket on the master cylinder and secure the cover into position with the retainer.

DISC BRAKE CALIPER

DISASSEMBLY

1. Remove the caliper assembly from the vehicle as outlined in Section 2.

2. Remove the caliper guide pins from the caliper assembly and lift the anchor plate from the caliper.

3. Slide the two outer shoe retaining clips off the retaining pins (Fig. 23).

4. Remove the two retaining pins, then remove the outer brake shoe from the caliper.

5. Slide the inner brake shoe outward until it is free of the hold-down springs, then remove the brake shoe.

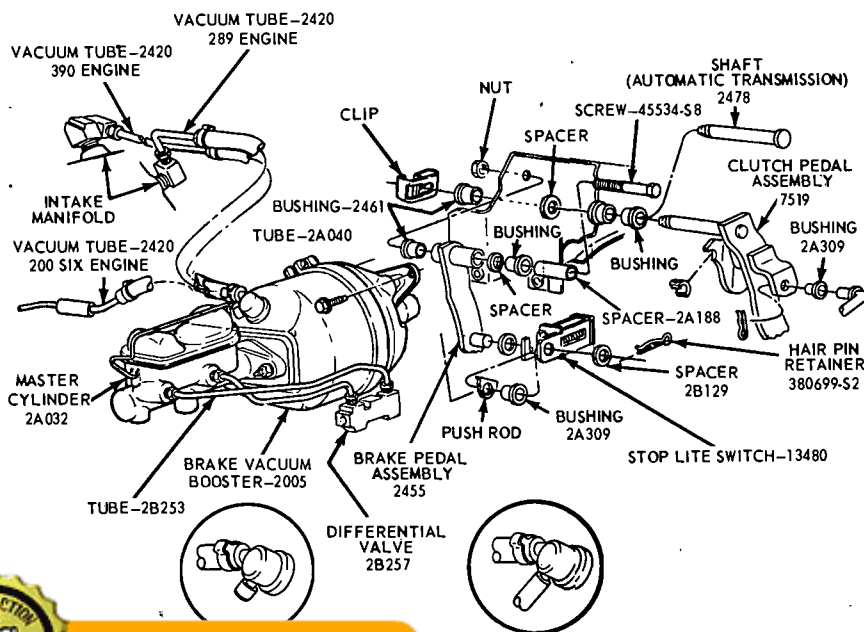
6. Apply air pressure to the fluid port in the caliper as shown in Fig. 29 to remove the piston. Place a cloth over the piston before applying air pressure to prevent damage to the piston. If the piston is seized and cannot be forced from the caliper, tap lightly around the piston while applying air pressure. **Care should be taken because the piston can develop considerable force due to pressure build-up.**

7. Remove the dust boot from the caliper assembly.

8. Remove the rubber piston seal from the cylinder and discard it.

CLEANING AND INSPECTION

Clean all metal parts with brake fluid or a suitable solvent. Use clean, dry, compressed air to clean out and dry the grooves and passageways. Be sure that the caliper bore and



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component parts are completely free of any foreign material.

Check the cylinder bores and pistons for damage or excessive wear. Replace the piston if it is pitted, scored, or the chrome plating is worn off.

ASSEMBLY

1. Apply a film of clean brake fluid to the new caliper piston seal and install it in the cylinder bore. **Be sure the seal does not become twisted and that it is seated fully in the groove.**

2. Install a new dust boot by setting the flange squarely in the outer groove of the caliper bore.

3. Coat the piston with the specified fluid and install the piston in the cylinder bore. Spread the dust boot over the piston as it is installed. Seat the dust boot in the piston groove.

4. Position the inner brake shoe so that the ears of the shoe rests on the top of the anchor plate bosses and beneath the hold-down springs.

6. Install new caliper guide pin insulators in the anchor plate.

7. Position the caliper on the

anchor plate and install a new stabilizer.

8. Apply the specified fluid (C6AZ-19542-A) to the caliper guide pins and install them loosely in the anchor plate. **Be sure the guide pins are free of oil, grease or dirt.**

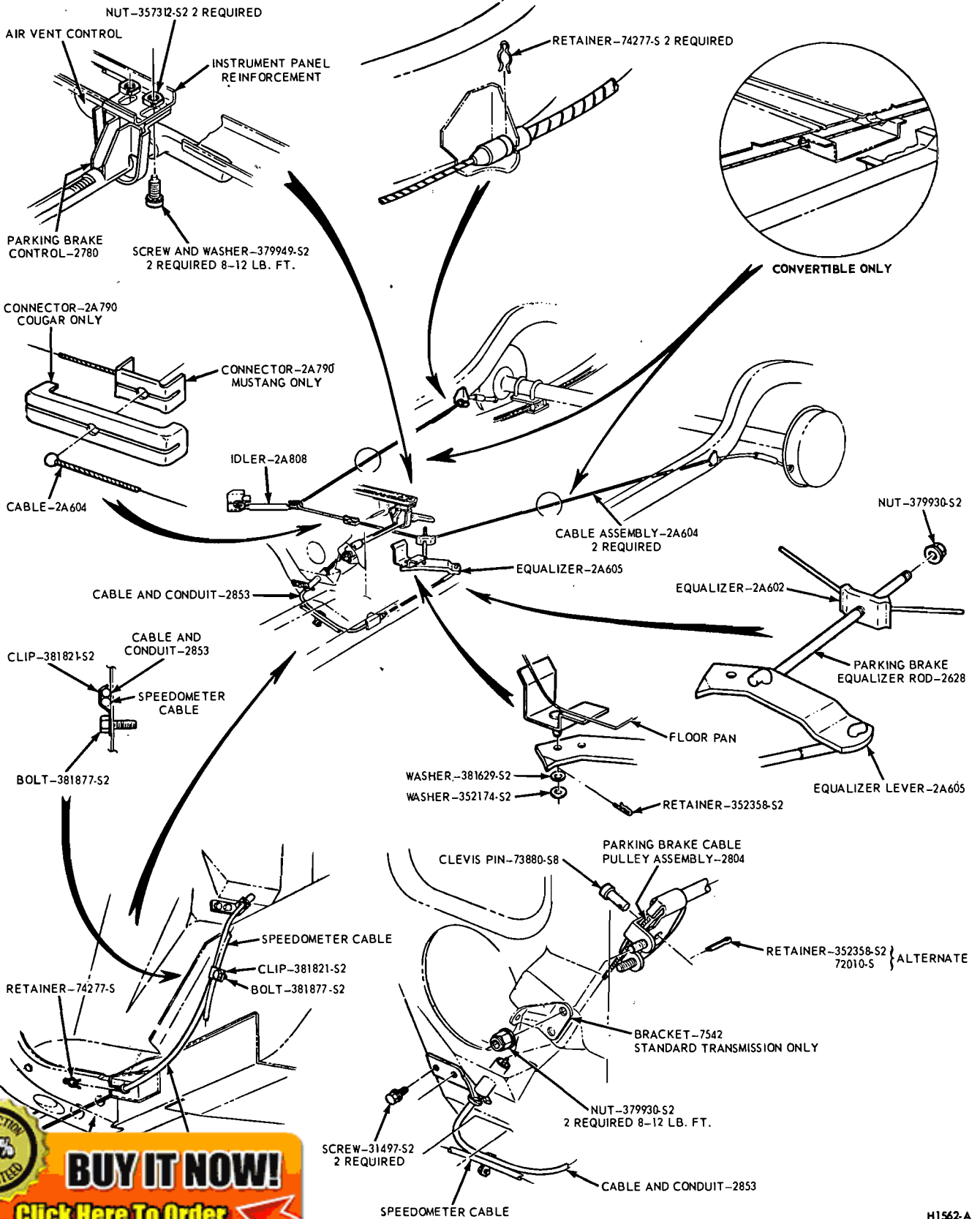
9. Install the caliper on the spindle as outlined under Disc Brake Caliper Assembly.

10. With moderate pressure applied to the brake pedal, torque the stabilizer attaching bolts and caliper guide pins to specification.

11. Install the wheel and tire assembly.

12. Road test the vehicle.



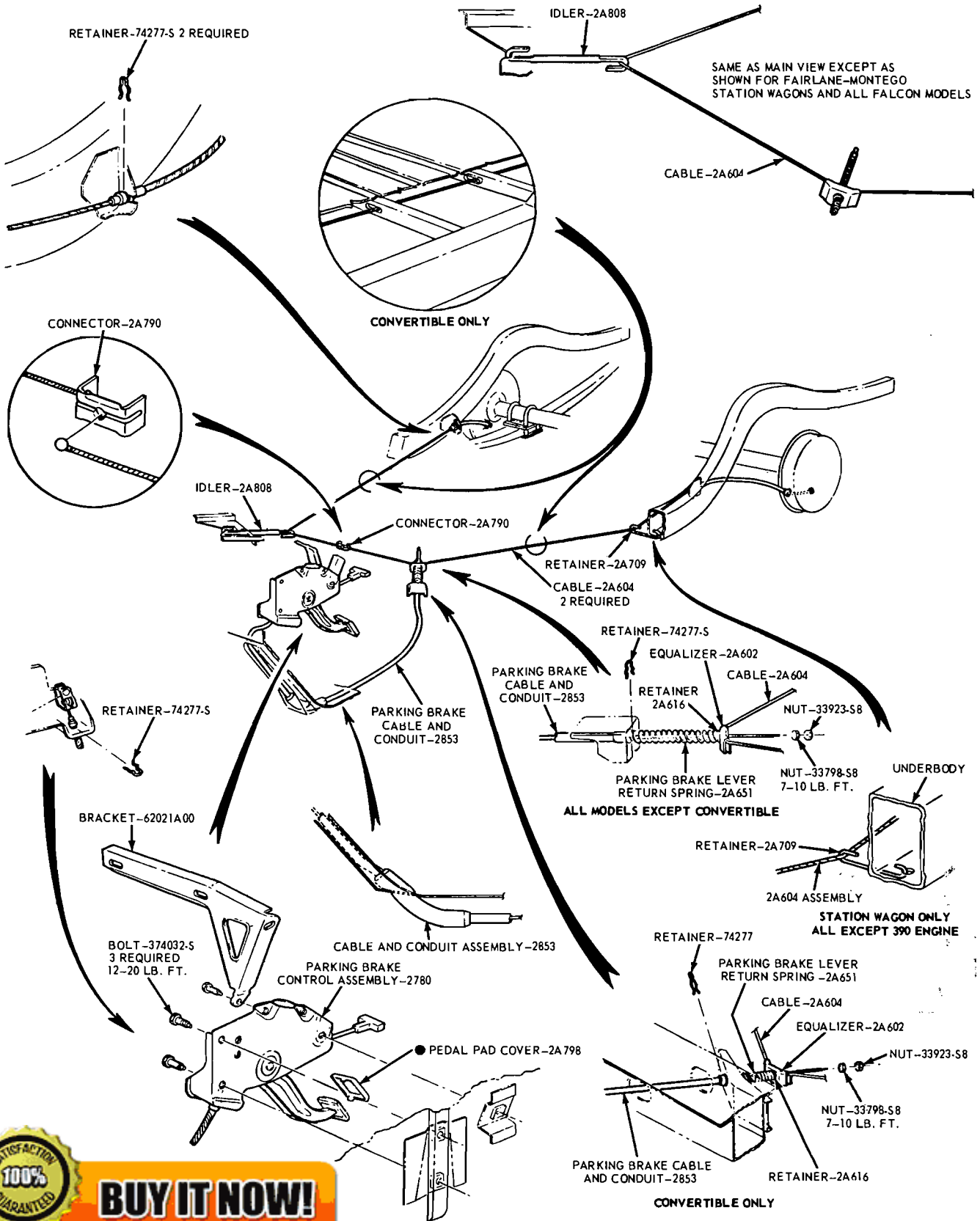


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PART 2-3— Specifications

CHECKS AND ADJUSTMENT—INCHES

Description	Montego, Falcon, Fairlane	Cougar, Mustang
Brake Pedal Height and Travel Measurements	①	
Power Brake Push Rod Adjustment Bendix 0.980–0.995 Midland Ross 0.980–0.995		
Lining Maximum Wear Limit (From Top of Rivets or Shoe Rim)	1/32	1/32
Lining Maximum Clearance to Shoe	0.008	0.008
Drum Diameter	10	10
Self Adjustment Cable Length— End Cable Anchor to End of Cable Hook	9 3/4 ②	9 3/4 ②
① Refer to Part 2-1, Section 1, Brake Pedal Free Height and Travel Measurements for the specifications and measurement procedures.	② 8 13/32 6-Cylinder Falcon, Mustang	

BORE DIAMETERS—BRAKE DRUM, WHEEL CYLINDER AND MASTER CYLINDER

Models	Brake Drum		Wheel Cylinder Bore Dia.		Master Cylinder Bore Dia.		
	Inside Diameter	Boring Limit ① (Max.)	③ Front	③ Rear	With Power Brake ②	Less Power Brake ②	
Montego and Fairlane	Pass. except Conv. (200 & 289 CID Engines)	10.000	10.060	1.125	0.906	③	1.000
	Pass. and Conv. (390 CID Engine)	10.000	10.060	1.094	0.875	③	1.000
	Convertible (Except 390 CID Engine)	10.000	10.060	1.094	0.906	③	1.000
	Station and Ranch Wagons (Except 390 CID)	10.000	10.060	1.094	0.938	③	1.000
Falcon	9 Inch Brake (200 CID Engine)	9.000	9.060	1.062 ④	0.844 ④	③	1.000
	10 Inch Brake — Station Wagon	10.000	10.060	1.094	0.938	③	1.000
	10 Inch Brake — Passenger Car	10.000	10.060	1.125	0.906	③	1.000
Mustang and Cougar	6 Cylinder — Mustang Only	9.000	9.060	1.062 ④	0.844 ④	1.000	1.000
	8 Cylinder — 390 CID Engine	10.000	10.060	1.094	0.813	1.000	1.000
	289 CID Engine	10.000	10.060	1.125	0.875	1.000	1.000

① Max. Runout 0.007 ② Max. Allowable Hone 0.003
 ③ 0.9375 for Cars With Power-Disc or Power Drum
 Falcon and Mustang Front Wheel Cylinder on 6-Cyl. Cars, or Cars with 9 inch Brake, Cannot be Honed.

LINING DIMENSIONS—DRUM BRAKES—INCHES

Falcon	Position	Front	Rear	Color Code
Sedan and Hardtop 6-Cyl.	Primary	2.25 x 7.62	1.50 x 7.62	Red-Blue
	Secondary	2.25 x 9.77	1.50 x 9.77	Green
Station Wagon 6-Cyl.	Primary	2.50 x 8.43	2.00 x 8.43	Yellow-Black
	Secondary	2.50 x 10.82	2.00 x 10.82	Blue-Blue
Sedan and Hardtop 8-Cyl.	Primary	2.25 x 8.43	1.75 x 8.43	Yellow-Black
	Secondary	2.25 x 10.82	1.75 x 10.82	Blue-Blue
Station Wagon 8-Cyl.	Primary	2.50 x 8.43	2.50 x 8.43	Yellow-Black
	Secondary	2.50 x 10.82	2.50 x 10.75	Blue-Blue
Mustang And Cougar	Primary	2.25 x 7.62	1.50 x 7.62	Red-Blue
	Secondary	2.25 x 9.77	1.50 x 9.77	Green
Cylinder	Primary	2.25 x 8.43	1.75 x 8.43	Yellow-Black
	Secondary	2.25 x 10.82	1.75 x 10.82	Blue-Blue
	Primary	2.50 x 8.43	1.75 x 8.43	Yellow-Black
	Secondary	2.50 x 10.82	1.75 x 10.82	Blue-Blue

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LINING DIMENSIONS—DRUM BRAKES—INCHES (CONTINUED)

Montego and Fairlane	Position	Front	Rear	Color Code
Passenger Car (200, 289 & 302 CID Engine)—Except Convertible	Primary	2.25 x 8.43	1.75 x 8.43	Yellow-Black
	Secondary	2.25 x 10.82	1.75 x 10.82	Blue-Blue
Passenger Car (390 CID Engine), Station Wagon and Convertible (200, 289 & 302 Engines), LPO Police—Max Fade Resistance	Primary	2.50 x 8.43	2.00 x 8.43	Yellow-Black
	Secondary	2.50 x 10.82	2.00 x 10.82	Blue-Blue
Fairlane-Montego LPO Taxi—Maximum Wear Resistance (Bonded)	Primary	2.50 x 9.18	2.00 x 9.18	Red
	Secondary	2.50 x 10.82	2.00 x 10.82	White
Station Wagon (390 CID Engine)	Primary	2.50 x 8.43	2.50 x 8.43	Yellow-Black
	Secondary	2.50 x 10.82	2.50 x 10.82	Blue-Blue

SHOE AND LINING DIMENSIONS—DISC BRAKES—INCHES

	Fairlane Montego, Falcon	Cougar, Mustang
Lining Material	Bonded FoMoCo	Bonded FoMoCo
Lining Size	4.82 x 1.84	4.82 x 1.84
Lining Area-Square Inches per Segment	9.11	9.11
Lining Thickness—Nominal	0.362	0.362
Lining Wear Limit (Front Surface of Shoe) — Max	0.030	0.030

CALIPER CYLINDER BORE DIAMETER—INCHES

Mustang, Cougar, Falcon, Fairlane and Montego	2.375
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ROTOR

Car Line	Thickness	Diameter	
		Outside	Inside
Mustang, Cougar, Fairlane, Falcon, Montego	0.810	11.29	7.35
Rotor Runout-Maximum Allowable-.0025 for Mustang, Cougar, Fairlane, Falcon and Montego			

TORQUE LIMITS—DISC BRAKES (FT-LBS)

Description	Ft-Lbs	Description	Ft-Lbs
Caliper Assembly to Spindle	Upper 110–140	Hub and Rotor Assembly to Front Wheel Spindle	Rotate rotor while torquing to 17-25 ft-lbs. Back off the adjusting nut 1/2 turn and retighten to 10-15 inch pounds while rotating wheel. Selectively position nut retainer on adjusting nut so that a set of slots are in line with cotter pin hole. Adjusting nut should not be rotated in this operation. Lock adjusting nut and nut retainer with cotter pin so that the cotter pin end does not interfere with seating of wheel static collector in spindle hole.
	Lower 60–70		
Caliper Guide Pins	25–35		
Caliper Bleeder Screw	6–15 Max (Must be leakproof)		
Caliper Brake Shoe Clips	6–10		
Rotor Splash Shield to Spindle	9–14		
Wheel Assembly to Front Wheel Hub and Rotor Assembly	70–115		
Brake Tube Fitting Nuts to Proportioning Valve	70 in-lbs (Max. Must be leakproof)		
Stabilizer to Anchor Plate	8–11		



TORQUE LIMITS (FT-LBS)—GENERAL

Description	Montego Fairlane	Falcon	Cougar Mustang
Parking Brake Control Assembly Mounting Bolt	15-20	15-20	15-20
Master Cylinder to Dash Panel Bolts	15-20	18-25	18-25
Brake Pedal Support Bracket to Instrument Panel	9-13	9-13	9-13
Wheel to Hub and Drum Nut 4-Lug 5-Lug	70-115	55-85 70-115	55-85 70-115
Hydraulic Line Connections —Nut Sizes ① 3/8-24		8-15	
7/16-24		10-18	
1/2-20		12-20	
9/16-18		15-25	
Brake Hose Connections Wheel Cylinder		17-25	
Caliper		27-32	
Front Brakes—Drum Type Backing Plate to Spindle Nut	28-42	28-42	28-42
Wheel, Hub and Drum Assembly to Wheel Spindle Nut	Rotate wheel and drum while torquing the wheel bearing adjusting nut to 17-25 ft-lbs torque. Back off the adjusting nut 1/2 turn and re-tighten to 10-15 inch pounds while rotating the drum and wheel. Selectively position nut retainer on adjusting nut so that a set of slots are in line with cotter pin hole. Adjusting nut should not be rotated in this operation. Lock the adjusting nut and retainer with cotter pin so that cotter pin end does not interfere with seating of wheel static collector in spindle hole.		
Rear Brake—Drum Type Drum to Axle Shaft Speed Nut			Hand Push Fit
Brake Cylinder to Brake Backing Plate Bolt	10-20	5-7 10-20	(9 inch brake) (10 inch brake)
Brake Backing Plate to Axle Housing 6-Cyl 8-Cyl		30-40 30-40	
Brake Line Connection to Axle Housing Bolt		12-18	12-18
POWER BRAKES: Master Cylinder to Booster Body	②	②	②
Brake Booster to Pedal Support Bracket or Dash		18-25	18-25

- ① All hydraulic line connections (nuts) must be torqued to the specified value and free of fluid leakage.
 ② Purchased as an assembly.

SERVICE TOOLS

Ford Tool No.	Former No.	Description
Rotunda HRE 8650		Brake Adjusting Gauge
	LM-119	Brake Cylinder Retaining Clamp
	2018-A	Brake Adjusting Tool
	2162	Adapter Cap
	2035-N	Brake Shoe R & R Spring
TOOL 33621	33621	Internal Snap Ring Pliers
	Milbar 1112-144	Inch-lb torque wrench
TOOL 4235-C	4235-C	Axle Shaft Remover
Rotunda FRE 1431		Brake Drum Micrometer

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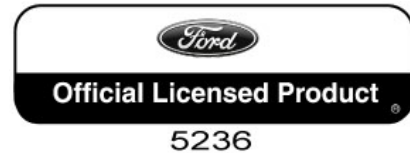
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