

**HUDSON, ESSEX
& TERRAPLANE**

General Technical Information

Tune-up Specifications

Mechanical Specifications

1926 - 1942

HUDSON "TeleFlash" SIGNAL LIGHTS

DESCRIPTION: - These signal lights consist of a Battery Charge Tell-tale and Oil Pressure Tell-tale on the instrument panel which are used instead of gauges to indicate when generator is charging battery and if oil pressure is satisfactory. They are regular lamp bulbs connected to the accessory terminal of the ignition switch (operative only with ignition switch turned on) and are controlled by the generator cutout relay and oil line check-valve as described below.

GENERATOR CHARGE TELL-TALE: - The cutout relay is provided with an extra set of ground contacts above the armature and the tell-tale lamp lead is connected to this contact "T" terminal on the regulator case. The lamp circuit is completed to ground through these contacts. See car wiring diagram or model page for complete wiring circuits.

Operation: - The ground contacts are normally closed with the main contacts open and open when the main contacts close. When the ignition is turned on, the tell-tale lamp lights and remains lighted until the main contacts close and the generator begins to charge the battery. The lamp should remain lighted after the car speed is brought up beyond the cut-in point (approximately 10 MPH).

Trouble Shooting: - If the tell-tale lamp does not light when ignition is turned on, ground tell-tale lamp lead "T": terminal on regulator to the engine (not the "B" terminal). If lamp does not light, check for burned out bulb or loose connections (see car model page wiring diagram). If lamp lights (indicating ground contacts open), main contacts are fused or armature spring is weak broken. If tell-tale lamp does not go out at speeds above cut-in point, ground contacts are

not opening when main contacts close. Check generator performance by connecting accurate test ammeter in charging line. If trouble in regulator, car manufacturer recommends that a new or replacement regulator installed (regulator case is sealed, do not break seal)

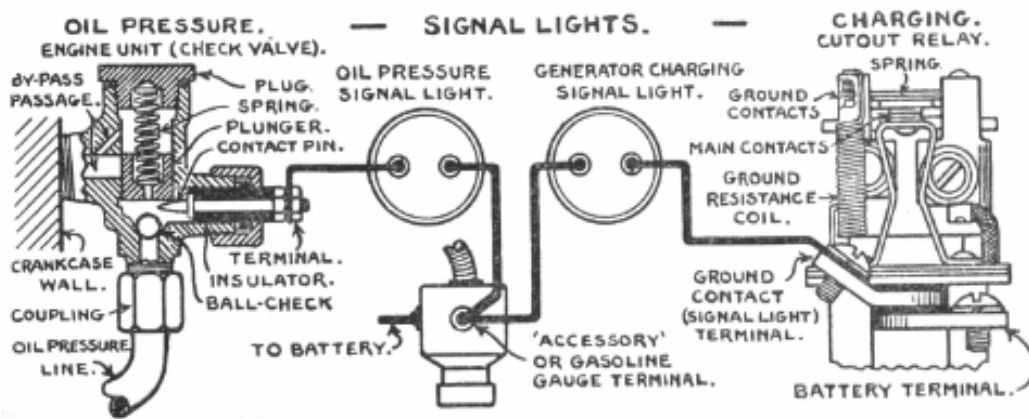
OIL PRESSURE TELL-TALE: - The oil line check valve on the right side of the crankcase is provided with an insulated terminal pin which is grounded by the check-valve plunger when no pressure exists in the oil line. The pressure tell-tale lamp lead is connected to this terminal. A small hole in the check-valve plunger and a by-pass in the body allow the passage of sufficient oil so that the plunger alternately opens and closes the circuit at idling speeds, causing the tell-tale lamp to flash.

Operation: - The plunger rests normally against the pin when no pressure exists in the oil line so that the tell-tale lamp will light when the ignition is turned on. At idling speeds the plunger alternately opens and closes the circuit so that tell-tale lamp flashes.

At speeds above idling (approximately 7 M.P.H.), the oil pressure holds the check-valve plunger off its seat so that the tell-tale lamp does not burn or flash.

Trouble Shooting: - If the tell-tale lamp does not light when the ignition is turned on, ground check-valve terminal to engine. If lamp does not light, replace bulb. If lamp does light, remove terminal pin and see that it is straight and clean. Take off plug on top of check-valve housing, remove plunger and see that it is clean and moves freely up and down. Examine spring above plunger. If tell-tale lamp does not flash at idling speeds, see that small hole in plunger is clean and open.

Hudson "TeleFlash" Signal Light Circuit



Hudson Clutch (Own Make)

HUDSON
Used On:

HUDSON SIX, MODELS GH ('35), 63 ('36), 73 ('7)
HUDSON SIX, 83 (1938), 91, 92, 93 (1939)
HUDSON 1112', MODEL 89 (1938), 90 (1939)
HUDSON BUSINESS CARS, 90, 98 (1939), 40, 48 (1940), 10, 18 (1941)
HUDSON SIX, 40, 41, 43 (1940), 10, 11, 12 (1941)
HUDSON SIX, 20, 21, 22, 28 (1942)
HUDSON EIGHT, MODELS HT, HH, HHU (1935)
HUDSON EIGHT, MODELS 64, 65, 66, 67 (1936)
HUDSON EIGHT, MODELS 74, 75, 76, 77 (1937).
HUDSON EIGHT, 84, 85, 87 (1938), 95, 97 (1939)
HUDSON EIGHT, 44, 45, 47 (1940), 14, 15, 17 (1941)
HUDSON EIGHT, 24, 25, 27 (1942),
TERRAPLANE, MODELS G, GU (1935), 61, 62 (1936)
TERRAPLANE, MODELS 70, 71, 72 (1937).
TERRAPLANE, MODELS 80, 81, 82, 88 (1938)

NOTE: - Overdrive Cars 1940-42 - Cars with Overdrive are equipped with new heavier 10" clutch (cover is 10" type and is of new type welded construction has added strengthening ribs and thicker mounting bolt bosses). Driven member used with this clutch (spring dampener on this type has six heavy dampener springs instead of the eight smaller springs used on regular driven member). This clutch is serviced in same manner as other models (see special Clutch Spring data below).

1942 Pressure Plate Driving Lugs (10" Clutch).
 Consist of three rectangular blocks bolted on inner face of clutch cover and engaging slots in pressure plate (replace driving pins in flywheel used on other models and previous 10" clutch design). This clutch serviced in same manner as other types.

DESCRIPTION: - Single plate, cork insert type, operating in oil. Mounted on flywheel face by 16 cap-screws in cover flange. Gasket used under cover flange to secure oil-tight joint and oil seal mounted on throwout collar to retain clutch lubricant. Clutch actuated by 3 clutch fingers pivoted on retainers bolted to cover and linked to pressure plate by pins at outer end,

SERVICING: - Clutch assembly need not be dismantled when replacing driven member unless springs are to be tested or replaced, pressure plate replaced, or other service work performed.

Dismantling: - Check punch marks near outer edge of pressure plate in line with mark on cover flange or make new marks to insure reassembly in same position. Place clutch assembly on special clutch fixture (#J-298-H) or in arbor press supporting pressure plate so

that cover is free. Compress cover slightly, take off 3 nuts on clutch finger retainer bolts on cover, release pressure slowly, lift cover off.

Pressure Plate: - Examine plate, replace if scored. Check for warping (particularly if plate 'blued' due to overheating). Replace if warped more than .010".

Clutch Springs: - Special combinations of large (outer) and small (inner) springs used on different models (inner springs not used on all models). Check springs and replace if pressure less than service limit in table below. Springs should be replaced if pressure plate 'blued' indicating overheating in service.

Spring Specifications 1935-37 Models

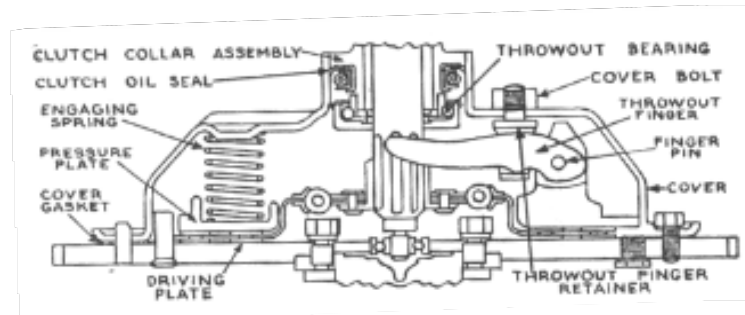
	Pressure (new)	Service Limit	Length
Large Springs	120 lbs	110 lbs	1-5/8"
Small (inner)	75 lbs	60 lbs.	1-5/8"

1938 Models

Car Model	Inner Spring		Main Spring	
	No.	Type	No.	Type
80 Utility Coach & Coupe	6	155224	9	45148
80 Cab Pick-up, Panel Delivery, Station Wagon			9	45149
	6	155224	9	45148
82,88			9	45149
83, 84, 85, 87	3	155224	9	45149
89 (112)	3	155224	9	45148

1939 Models

Car Model	Inner Spring		Outer Spring	
	No. Used	Part No.	No. Used	Part No.
90 '112'	3	155224	9	45148
91, 92	6	155224	9	45148
93			12	45149
95,97	3	155224	12	45149
98 (except Sed.)			12	45149
98 Sedan	3	155224	9	45148



Hudson Clutch (Cont'd)

1940 Models

Model	Inner Spring		Outer Spring	
	No. Used	Part No.	No. Used	Part No.
40	3	155224	9	45148
40 (41 Eng.)	6	155224	9	45148
41	6	155224	9	45148
48			12	45148
40, 41, 48 (O.D.)			12	45148
43			12	45149
44, 45, 47	3	155224	12	45149
43,44,45,47 (O.D.)	3	155224	12	45149

O.D. - Cars with Overdrive Transmission.

1938-40 Spring Test Data

Spring No.	Pressure	Length
45148	155 lbs. ± 5 lbs	1¾"
45149	135 lbs. ± 5 lbs	1-5/8"
155224	80 lbs. ± 5 lbs	1-5/8"

1941 Models

Outer – Springs – Inner

Car Model	No.	Part No.	No.	Part No.
10 Std.	9	45148	3	155224
10L, 11 Std.	9	45158	6	155224
12 Std.			12	45149
18 Std.			12	45148
10, 11, 12, 18 (OD)	11	45149	3	155224
14, 15, 17 Std. & OD	12	45149	3	155224

NOTE - Model 10L has large (3x5!) engine.

1942 Models

Outer-Springs-Inner

Car Model	No.	Part No.	No.	Part No.
20 Std.	9	45148	3	155224
20L, 21 Std.	9	45148	6	155224
22 Std.	12	45149	3	155224
28 Std.	12	45148	3	155224
20, 21, 22, 28 (OD)	12	45149	1	155224
24, 25, 27 (Std. & OD)	12	45149	6	155224

NOTE - Model 20L has large (3x5") engine.

1941-42 Spring Test Data

Spring Part No.	Pressure & Length
45148	155 lbs. at 1¾"
45149	135 lbs. at 1-5/8"
155224	80 lbs. at 1-5/8"

NOTE: - Pressure Plus or minus 5 lbs.

Assembling: - Check clutch throw-out fingers, see that they are straight and do not show wear at tip or retainer lug. Replace retainer washers if necessary. Place pressure plate on fixture with face down. Assemble springs, clutch fingers, retainers and retainer washers on plate. Place cover on top of pressure plate assembly

(lining up marks on cover and plate), compress cover slowly, guiding retainer bolts through holes in cover, install nuts on retainer bolts, tighten securely. Check clutch finger heights after clutch installed on flywheel.

INSTALLATION & ADJUSTMENT: - Shellac new gasket on face of cover flange, see that flywheel face is smooth and clean, use a clutch aligning arbor inserted through the clutch cover and driven plate to align driven plate, mount clutch assembly on flywheel (engaging two locating dowel pins on flywheel), install 16 cover screws, tighten screws evenly and securely (draw down screws diametrically opposite together to avoid distorting cover). Then align clutch fingers.

Clutch Finger Alignment: - Use special clutch finger adjusting gauge (#J-774) resting gauge on clutch cover so that pin is directly above clutch finger tip, Turn thumbscrew down until pin contacts finger. at other clutch fingers to secure final gauge equal to lowest finger. Turn gauge to higher finger, strike end of retainer bolt with soft hammer until gauge bar rests squarely on cover hub. With final setting, gauge bar should rest squarely on hub over all fingers and clearance between pin and end of thumbscrew must be less than .005" (all fingers equal within this amount-check with feeler gauge).

Throw-out Bearing & Oil Seal: - Insert 1/3 pint Hudsonite through clutch hub before installing throwout collar assembly. Oil seal is pressed on collar behind throw-out bearing. When installing new oil seal, press firmly near inner diameter (pressure at point near rim may distort outer stamping and allow inner stamping and oil seal leather to revolve with shaft, this will cause noise similar to noisy throw-out bearing). Use arbor press to install throwout bearing (do not drive on). See that bearing revolves smoothly and that oil seal inner stamping is tight in outer stamping before installing collar in clutch cover.

DRIVEN PLATE: - Driven plate has spring-dampener type hub and facing consisting of cork inserts. Examine driven member, see that plate runs true and is not warped or distorted, and that springs in hub do not have appreciable free play. See that hub splines are not worn and are free from burrs. Corks must be in good condition. Black glaze indicates use of wrong lubricant. Soak driven plate in Hudsonite and clean corks, or replace driven member.

1938-39 Driven Plate. Heavier damper springs used on driven disc hub and disc is cupped. Two types of discs (with different number of cork inserts) as follows, 9" Models - 90 cork inserts, 10" Models - 108 cork inserts.

1940 Driven Member - Cork insert type. Driven Member used on cars with Overdrive is special type and may be identified by six larger dampener springs in hub assembly (standard type has 8 smaller springs).

Hudson Clutch (Cont'd)

1941 Driven Member - Cork insert type. Two different sizes used on 1941 models as follows:

1941 Driven Member Specifications

Car Model	Outside Diam.	No. of Corks
10, 10L, 11 Std.	9"	90
10, 10L 11 Overdrive	10"	108
12, 18 Std. & OD	10"	108
14, 15, 17 Std. & OD	10"	108

1942 Driven Member - Cork insert type. Two different sizes used on 1942 models as follows:

1942 Driven Member Specifications

Car Model	Outside Diameter	No. of Corks
20, 20L, 21 Std.	9"	90
20 20L, 21 Overdrive	10"	108
22: 28 Std. & Overdrive	10"	108
24, 25, 27 Std. & Overdrive	10"	108

**BENDIX MECHANICAL TYPE.
SINGLE ANCHOR.**

**1935 HUDSON 6, MODEL GH and HUDSON 8,
MODELS HT, HU, HHU
1935 TERRAPLANE 6, MODELS G, GU**

DESCRIPTION AND OPERATION: - **Wheel Brakes** - Two shoes per wheel, connected together by turn buckle type adjusting screw at one end and bearing against single anchor pin at other end. Cable actuated lever concentric with anchor pin forces anchor end of primary shoe against drum when brakes applied. Primary shoe applies secondary. Shoes returned to off position by independent spring hooked to lever and brake shoe. Shoes held in position by coiled springs and clips hooked to backing plate. Adjustments consist of eccentric screw (brake shoe stop) to centralize shoes, and adjusting screw (between shoes) to control clearance between shoes and drum.

Brake Linkage: - Wheel brakes actuated by cables from single cross-shaft or rotary plate or equalizer mounted at center of frame 'X' member. Brake cables protected by flexible conduits between frame and wheel

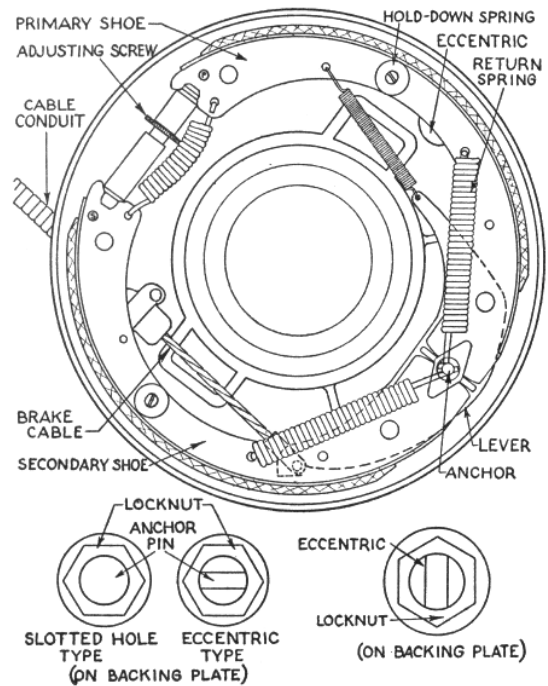
Hand Brake: - Hand Brake lever linked to cross-shaft or equalizer plate applies all four service brakes.

ADJUSTMENT: - Jack up all four wheels, disconnect cables at cross-shaft, remove adjusting screw hole covers on backing plates and inspection hole covers on drums (remove wheels if disc type). Check pedal position with cross-shaft levers against stops. Pedal should clear underside of toe-board by 1/2". Adjust by disconnecting pedal link and changing length. Then proceed as follows:

Minor Adjustment (For Wear): - **1** - At each wheel loosen eccentric locknut, turn eccentric in direction of forward wheel rotation until .010" feeler is snug at both ends of this shoe. Hold eccentric from turning, tighten locknut. Clearance at both ends must be the same within .003" with smaller clearance preferably at anchor end. If variation greater than .003" anchor pin must be relocated (see Major Adjustment below). **NOTE** - If feeler gauge not used, turn eccentric up until slight drag felt when wheel turned by hand, then back eccentric off until wheel is just free.

2 - At each wheel - insert tool or screwdriver in adjusting screw hole, turn notched adjusting screw toward backing plate rim (move outer end of tool up toward center of wheel) until shoes are expanded so that drum can just be turned, pull brake

cables toward cross-shaft to remove all slack, adjust clevis position (loosen locknut, turn clevis, tighten locknut) until pins just enter clevises at cross-shaft lever freely, reconnect brake cables.



3 - Back off adjusting screws same number of notches at each wheel until wheels are free. Apply brakes with hand lever or use pedal. Jack until wheel with least drag can just be turned, equalize brakes by backing off adjusting screws on tight wheels not more than two or three notches. Do not tighten loose wheels.

4 - Check pedal reserve (distance from pedal to floorboard with brakes applied). This should be one half total travel (minimum). Recheck adjustment if less than this amount. Then check hand lever position (below).

Major Adjustment (New Shoes or Relined Brakes): -

1 - At each wheel loosen anchor pin nut one turn, tap anchor pin out toward drum (slotted hole type with plain end) or turn anchor pin in direction of forward wheel rotation until .0101, feeler snug at both ends of this shoe, hold anchor pin, tighten locknut securely with 16" wrench, hold eccentric from turning, tighten eccentric locknut. Then proceed with (2) and (3) under Wear Adjustment above.

Hand Lever Adjustment: - With hand lever in released position, and cross-shaft levers against stops adjust length of hand lever cable or rod to eliminate all slack.

Bendix Mechanical Brake – 1935 (Cont'd)

RELINING BRAKES: - Manufacturer recommends use of replacement shoes furnished with new linings installed and ground concentrically. If shoes relined, use same type lining as fitted originally (see Car Model article). Lining on primary and secondary shoes may be of different types (woven on primary, moulded on secondary, etc.), or of different lengths. Shoes may be identified by 'P' (primary) IS' (secondary) stamped on rib at adjusting screw end.

Lining Specifications - See Brake specifications on car model page for complete data.

SERVICING: - Brake Linkage - Whenever adjustment made, lubricate brake pedal hand lever, cross-shaft, overrunning linkage and all clevis pins. See that linkage operates freely and returns sharply to stops

when pedal and hand lever released.

Cable Conduits: - Lubricate cable and conduit assemblies through fittings (when so equipped) or disconnect cable at both ends, clean thoroughly, pull cable out at wheel end to expose portion normally in conduit, clean and coat with Bendix Cable Lubricant, or graphite grease, pull cable back and forth to spread lubricant in conduit. See that conduit is bottomed firmly in abutment brackets and that bracket bolts are tight.

Wheel Brakes: - With shoes removed, coat brake cam, anchor pin, cable ramps, eccentric, backing plate shoe edges and all other contact points with Bendix Lubriplate. Examine shoe return springs and see that heavier spring is attached to shoe which covers cable end of brake lever.

**BENDIX HYDRAULIC TYPE BRAKES
DUO-SERVO, SINGLE ANCHOR
(WITH ECCENTRIC ADJUSTMENT)**

Used On:

HUDSON SIX, ALL MODELS (1936 to 1940)

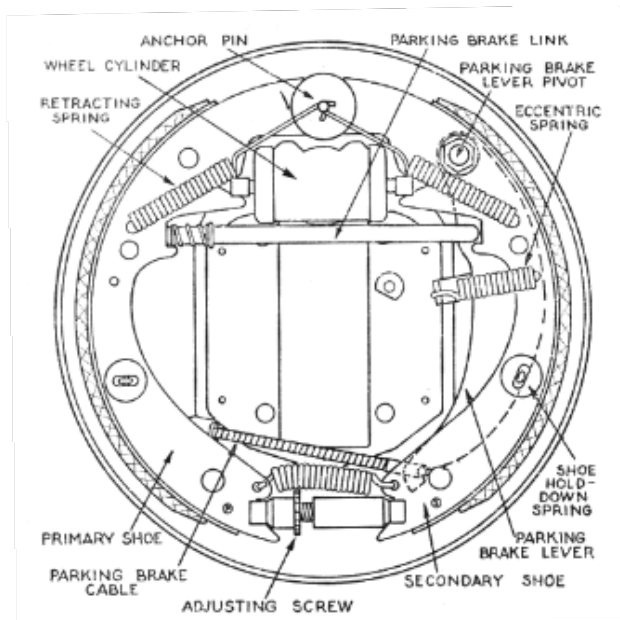
HUDSON 8, ALL MODELS (1936 to 1940)

TERRAPLANE, ALL MODELS (1936-37-38)

Hudson Other Models. All Hudson "112" models, Models 40T & 40P (1940), and Model 90 Utility Coach & Coupe have Bendix Double Anchor type hydraulic brakes.

SPECIAL SERVICE NOTES: - After 1936 Hudson & Terraplane Models. Mechanical follow-up used by which rear wheel brakes are applied by pedal, after hydraulic action, as a reserve. Check setting when brakes adjusted - see section at end. Hill Holder is optional equipment. See separate article for adjustment to insure synchronization of release with clutch engagement.

Hudson & Terraplane 1938. Master cylinder operating lever now has two holes for brake pedal link engagement. For standard adjustment, link is connected to outer hole on lever. Link can be shifted to inner hole on lever for harder brake pedal and less sensitive brakes.



DESCRIPTION AND OPERATION: - Wheel Brakes - Brake shoes used in this type are entirely similar to those used in mechanically operated brakes (see previous article). A rigid type hydraulic cylinder with double opposed pistons is mounted on the backing plate below the anchor bolt. The opposed pistons are

connected to the brake shoes through short struts or studs and force the anchor ends of the brake shoes against the drum when the brake fluid, displaced from the master cylinder by depressing the pedal, flows through the lines to the wheel cylinders. The primary shoe applies the secondary shoe in the usual manner. Shoes are returned to the 'off' position by retracting springs hooked to shoes and anchor pin as on mechanical brakes and are adjusted in the same manner.

Hand Brake: - When incorporated in wheel brakes (rear wheels only), consists of cable actuated lever, pivoted on one shoe and linked to other shoe by a strut so that the shoes are expanded against drums at anchor ends when brake is applied. Hand brake is adjusted as part of service brake adjustment.

Master Cylinder: - Compensating type.

NOTE - Wheel cylinder must be 'bled' whenever brake line to that particular wheel is disconnected, and entire system (all four wheels) must be bled whenever brake lines are disconnected at master cylinder to remove all air in system and correct springy brake action.

ADJUSTMENT: - Before adjusting, Jack up all four wheels. Disconnect parking brake (hand lever) cables. Remove adjusting screw hole cover on backing plate and feeler gauge hole cover on drum (remove wheels for access to this hole). Adjust as directed below. **CAUTION** - If hand brake cables not disconnected, shoes may be held 'on' by cables (if adjusted too tight) so that correct brake adjustment cannot be secured.

Bleeding Brake System - Required when lines disconnected, to remove wrong type fluid which has been used in system, or to remove air from lines caused by allowing master cylinder supply tank to become dry).

Brake Pedal Clearance: - Brake pedal must have 3/8" free travel before master cylinder piston begins to move. To adjust, loosen locknut at outer end of master cylinder boot, change length of brake pedal rod, tighten locknut. By-pass port between master cylinder and supply tank must be uncovered when piston 'off' to provide compensating action.

Hudson & Terraplane 1938. After adjusting brake pedal link for required 1/4" pedal free travel, make certain that link connected in outer hole on master cylinder operating lever. When connected in inner hole, less sensitive brakes are secured but with harder pedal action.

Bendix Hydraulic Brakes – 1936-1940 (Cont'd)

Hudson 1939-40. Clearance between pedal shank and underside of toe-board should be ¼" with brakes released, To adjust, remove clevis pin and loosen locknut on link connecting pedal and master cylinder bellcrank, turn link until clevis pin can just be inserted with pedal shank ¼" from toe-board and bellcrank against its stop.

Minor Adjustment (For Wear): - Adjust at each wheel as follows:

1. Loosen eccentric locknut on backing plate and turn eccentric in direction of forward wheel rotation until .0101, feeler is snug between lining and drum at each end of this secondary shoe, hold eccentric from turning, tighten locknut. Clearance at both ends of shoe must be alike within .003" with smaller clearance preferably at anchor end. If variation greater than this amount, anchor must be re-located (See Major Adjustment below). If feeler gauge not used, turn eccentric up until heavy brake drag secured, then back eccentric off until wheel is just free of drag. NOTE- When using feeler gauge to check clearance, gauge should be inserted at point approximately 1-½" from end of shoe lining.

2. Insert special tool, or screwdriver, in adjusting screw hole on backing plate, turn adjusting screw by moving outer end of tool up toward center of wheel to expand shoes until wheel can just be turned (if necessary to turn adjusting screw more than 50 notches or clicks, examine linings for wear and replace if necessary). Adjust and connect hand lever cables (see Hand Brake Adjustment below). Then back off adjusting screw until wheel is just free of any drag (approx. 20 notches) or until .010" feeler is snug between lining and drum at center of primary shoe. Check brake equalization by depressing brake pedal (holding pedal with pedal Jack) until wheel with least drag can just be turned by hand, equalize by backing off adjusting screws on tight wheels not more than 2-3 notches. Do not tighten loose wheels.

Note. Check mechanical 'follow-up' setting after adjusting brakes.

3. Hand Brake Adjustment (All Models). Adjust hand brake cables for each model as follows:

Major Adjustment (For New Shoes or relined Brakes): If shoes with new linings being installed, adjusting screw and eccentric adjustment must be backed off to allow drums to be installed. Disconnect parking brake cables, remove adjusting screw cover on backing plate and inspection hole cover on drums. Adjust brakes at each wheel as follows:

1. Anchor Pin & Eccentric Adjustment (All Models). Loosen eccentric locknut, turn eccentric in direction of forward wheel rotation until .010 feeler is just snug at adjusting screw end of this secondary shoe, hold eccentric from turning and tighten locknut. Check clearance at anchor pin end (opposite end) of this same shoe. If clearance not .010" adjust anchor pin as follows: Loosen anchor pin locknut one turn, turn anchor pin in direction of forward wheel rotation (eccentric type with slotted end) or tap anchor pin out toward drum (slotted hole type with plain end) until clearance at anchor pin end of shoe is exactly .01011, hold anchor pin from moving and tighten locknut securely with 16" wrench. Recheck clearance at adjusting screw end of shoe. Make any necessary readjustments at eccentric and anchor until .010" clearance secured at both ends of this shoe. Then proceed with adjustments (2) and (3) as given under Minor (Wear) adjustment above.

RELINING BRAKES: - Manufacturer recommends use of replacement shoes furnished with new linings installed and ground concentrically. If shoes relined, use same type lining as fitted originally (see Car Model article). Lining on primary and secondary shoes may be of different types (woven on primary, moulded on secondary, etc.), or of different lengths. Shoes may be identified by 'P' (primary), 'S' (secondary) stamped on rib at adjusting screw end.

SERVICING: - Linkage - Lubrication of cables same as for mechanical brakes.

BENDIX HYDRAULIC TYPE DOUBLE ANCHOR

Used On:

1938 Hudson '112', Models 89 , 1939 Model 90
1939 Hudson '112', Model 90 Utility Cars
1940 Hudson Six, 40T Traveler 40P Deluxe

NOTE: - Hudson Other Models - Other models equipped with Bendix Hydraulic Single Anchor Brakes (With Eccentric Adjustment - Before 1941), Without Eccentric (1941 & Later Models).

DESCRIPTION: - Wheel Brakes. Two shoes linked together by strut and star adjusting wheel in same manner as on other Bendix Duo-Servo designs. Hydraulic cylinder is mounted on backing plate and has been moved up between shoes at anchor end so that pistons bear directly on ends of brake shoes. Anchor design is new and consists of a short anchor link (for each shoe) pivoted at lower end on anchor bolt (on backing plate) with short stud at opposite end engaging slot in brake shoe web (shoe held against stud when brakes released by short spring hooked between stud and shoe). Shoes are positioned on backing plate by eccentrics (one for each shoe, adjacent to anchor links) and are held against eccentrics by retracting spring hooked between shoes.

Master Cylinder: - Compensating type. Same design as used on other Bendix hydraulic brake systems.

Hand Brake: - Incorporated in rear wheel brakes. Consists of cable actuated lever pivoted on secondary brake shoe anchor link stud and linked to primary shoe by strut. Applies brake shoes mechanically for parking.

OPERATION: - When brake pedal depressed and fluid in wheel cylinder forces piston and shoe out against drum, anchor link stud slides freely in slot in shoe until shoes contact drum. Primary shoe then applies secondary shoe which moves to bring anchor link stud against end of shoe slot and this link serves as anchor for both shoes. Links are mounted so that this braking thrust is in line with link axis so that shoes and anchors are free to swing within limit of eccentric adjustment shoes follow drum and high spots due to irregular drums are eliminated). When brakes are applied with car in reverse motion, the application is exactly the same except that the opposite anchor link comes into use (only one anchor acts at a time).

ADJUSTMENT: - Hydraulic system (Bleeding lines, pedal clearance etc.). These operations performed in same manner as on other hydraulic brake systems.

Minor Adjustment (For Wear): - Jack up all four wheels, remove wheels, remove adjusting hole covers

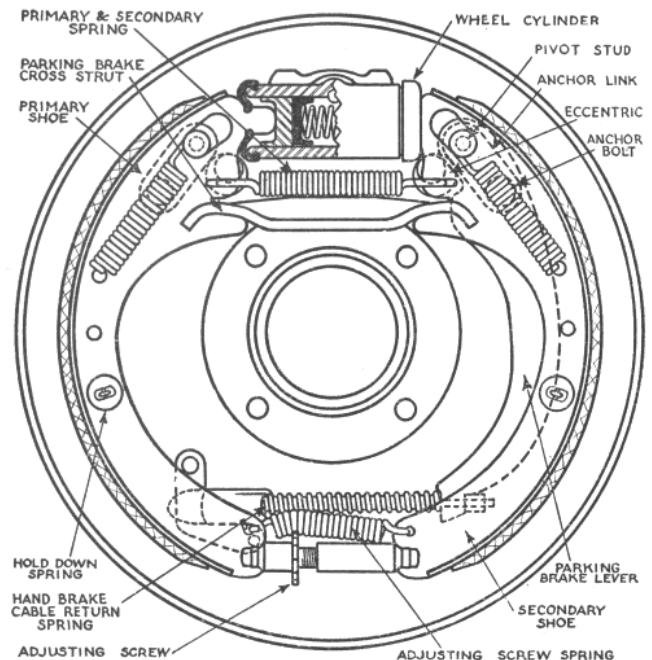
on backing plates and inspection hole covers on drums, disconnect parking brake cables by removing clevis pin in lever toggle at forward end of cables.

CAUTION - If hand brake cables not disconnected, shoes may be held away from eccentrics (if cables adjusted too short) so that correct adjustment cannot be secured.

1. Loosen locknut on primary brake shoe (forward shoe) eccentric, turn eccentric in direction of forward wheel rotation until wheel can just be turned by hand, then turn eccentric slowly in opposite direction until wheel is just free of drag, hold eccentric in this position and tighten locknut. If feeler gauge used, insert .010" feeler between shoe and drum at anchor (upper) end of shoe, adjust eccentric until feeler gauge is snug, hold eccentric from turning and tighten locknut.

2. Adjust secondary shoe eccentric in same manner as primary shoe (above).

3. Remove adjusting hole cover on backing plate, use Tool HM-13985 (or screwdriver) and turn star wheel until brake shoes are expanded tightly against drum (move outer end of tool toward axle to expand shoes, in opposite direction to release shoes). Connect and adjust hand rake cables (see Parking Brake Adjustment below). Back off star wheel until drum is free of any drag (approximately 12 notches, both rear wheels must be adjusted exactly alike to maintain hand brake balance). Install wheels and road test car for equalization.



**Bendix Hydraulic Brake – 1938-1939 Hudson “112”,
1940 Hudson 40T, 40P (Cont’d)**

Complete Adjustment (For Wear or when New Shoes or Linings Installed): - Whenever new shoes or linings installed, or if adjustment does not give satisfactory operation, wheel brakes and cables should be cleaned and lubricated (see Servicing directions below). Jack up all four wheels, disconnect parking brake cable to each rear wheel at equalizer bar. Make following adjustments in order, repeating adjustment at each wheel as noted.

CAUTION - If hand brake cables not disconnected, shoes may be held away from eccentrics (if cables adjusted too short) so that correct brake adjustment cannot be secured.

1. At each wheel, remove Inspection hole cover on brake drum, insert .0101, feeler between drum and primary shoe (front shoe) near anchor end. Loosen eccentric locknut, turn eccentric in direction of forward wheel rotation until feeler is just snug, hold eccentric in this position, tighten locknut.

2. At each wheel, adjust secondary shoe (rear shoe) eccentric in same manner as primary shoe (above) using same .010" feeler.

3. At each wheel, remove adjusting hole cover on backing plate, use tool HM-13985 (or screwdriver), turn star wheel until brake shoes are expanded tightly against drums (move outer end of tool toward axle to expand shoes, in opposite direction to release shoes). Connect and adjust hand brake cables (see Parking Brake Adjustment below).

4. At each wheel, back off star adjusting wheel until wheel is just free of any drag with parking brake lever in released position. Check parking brake equalization by pulling on lever until wheels can just be turned by hand and noting if drag on rear wheels is equal. Check brakes for balance.

Parking Brake Adjustment --With brake shoes expanded so that drums can just be turned, pull hand brake lever 'on' two notches so that clearance between hand brake cable lever and end of slot in guide plate is 1/8", pull cables tight, adjust clevis at forward end of each cable so that clevis pins just enter holes in toggle on lever, connect cables, back off

adjusting screws until wheels are free and check equalization.

Mechanical Follow-up Adjustment: - Turn adjusting nut on pushrod until clearance between face of nut and end of pushrod tube is 1-7/16" (1938-39), 1 1/4" (1940), tighten locknut. See separate article for complete Follow up data.

SERVICING: - Brake Shoes. To remove shoes, Install clamp (HMO- 145) on wheel cylinder (this will make it unnecessary to bleed lines when shoes installed if brakes not applied with shoes off). Remove retracting spring and shoe anchor link springs, release hold-down springs and remove shoe retaining washers, pull anchor shoes free from wheel cylinder, lift shoe assembly out. Install shoes in same manner making certain that eccentrics are turned so that high side is away from anchor links.

NOTE - Beginning with 90906, heavier (25 lbs.) spring used on secondary shoe. Lighter (20 lbs.) spring continued for primary shoes.

Backing Plate and Linkage. Remove anchor links by removing anchor bolt nuts on backing plate. Apply thin film of Bendix Lubri-plate to backing plate side of anchor links, shoe support ledges on backing plate, eccentrics, parking brake cable ramp, and all other moving or sliding parts. When installing anchor links, tighten anchor bolt nuts so that all sideplay removed but make certain that anchor links move freely.

Parking Brake Linkage. Disconnect brake cables at equalizer bar, clean exposed portion of cable, pull cable through conduit at wheel end until portion in conduit is exposed, clean and lubricate this part of cable with Bendix Cable Lubricant, push cable back into conduit. To connect cable (after shoes installed), move cable return spring away from cable end, place cable end in groove in end of brake operating lever, allow return spring to come back against lever to hold cable in place. Lubricate cable ramp with Bendix Lubri-plate. Adjust brakes and connect cables to equalizer bar.