

HUDSON HILL HOLD

1940 Models

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HILL HOLD — 1940 MODELS

Hydraulic Hill Hold, which is being extensively advertised at this time as "No Roll," is an item of equipment applicable to all 1940 Hudson models and is available either as a factory-installed option or in kit form from the Factory Accessory Department for field installation.

With the exception of certain changes necessitated by the current model car design, this device retains the same fundamental principles and constructional features which have been so thoroughly proved on hundreds of past model Hudson-built cars. The benefits of Hill Hold which so many Hudson owners have enjoyed on their earlier cars together with the current advertising should result in renewed public interest in this item and inquiries are no doubt being received concerning its availability for this year's cars. A brief description of Hudson Hill Hold together with information concerning its operation, installation and servicing follows.

The Hill Hold unit is interposed between the brake master cylinder and the wheel cylinder lines and utilizes the brakes of all four wheels to hold the car from backing when stopped on an upgrade. It does not affect the normal operation of the brakes in any way nor are there any separate buttons or levers to manipulate. Of perhaps greater importance, the driver is not required to change his driving habits in the operation of the brakes or car. As the car is brought to a stop on an upgrade and both clutch and brake pedals are depressed, Hill Hold automatically keeps the brakes applied while the clutch pedal is depressed even if the brake pedal is entirely released. This allows the right foot to remain free to operate the accelerator pedal when the car is again started.

On cars equipped with automatic clutch control in addition to Hill Hold, the clutch pedal must remain depressed while the car is standing.

Operation

Figures 1 and 2 show the various parts of the unit. A is the valve body having an inlet M which is connected direct to the master cylinder and an outlet N which is connected to the wheel cylinder lines.

The valve cage B contains a ball C which is free to slide in the valve body.

Figure 1 shows the position of the various parts when the clutch pedal is not depressed. When the brake pedal is depressed, fluid is forced from the master cylinder into M through the valve seat P and out N to the wheel cylinders applying the brakes.

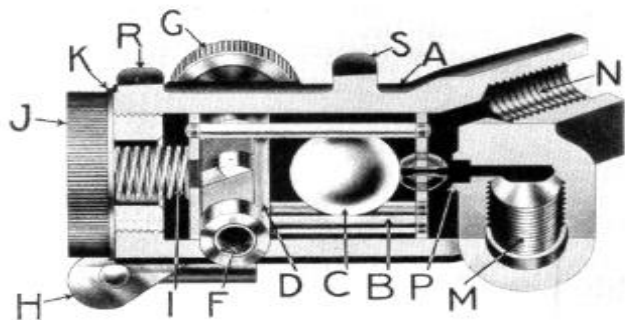


Figure 1

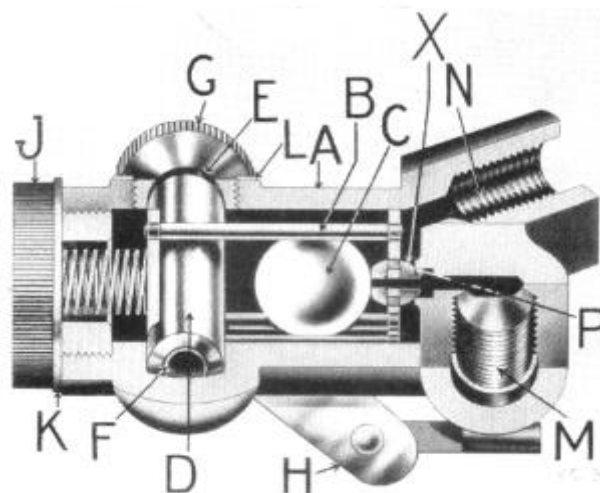


Figure 2

If the clutch pedal was depressed before the brakes were applied, the parts would have been in the position as shown in Figure 2. Here the cage B is seated on the valve seat P so that the brake fluid would force the ball C away from the seat X and the fluid would pass around the cage and out N to apply the brakes.

With the brakes applied and the clutch pedal depressed, the foot can be removed from the brake pedal and the fluid still will be retained in the wheel cylinders, since the cage B is on its seat P and the ball C blocks the return of the fluid through the cage-valve X.

When the clutch pedal is released, the cage B is moved forward by the rotation of camshaft D, permitting the fluid to return to the master cylinder from the wheel cylinders, as shown in Figure 1, from N through P to M.

It should be noted that the ball C is free to roll in cage B. When the car is headed upgrade, the ball will always roll back against the seat X and operation will be as previously described. If the car is headed downhill, the ball will roll to the front of the cage, so that the passage will always be open, and the brakes will not remain applied, so that the device does not function during the normal operation of the car except to prevent roll back when starting on an upgrade.

Installation

1. Place car on level floor. If car must be raised, all four wheels should be raised an equal amount.
2. Remove the short tube from the master cylinder to the frame tee.
3. Assemble the Hill Hold unit—Figure 3—to the master cylinder by inserting bolt C. Bolts C and D should be drawn up snug but not tight, to permit leveling of the unit. Unit body should be above the master cylinder outlet hole.
4. Place level across bosses R and S and turn the unit on bolt D until the bubble is in zero position in the level and tighten bolt D securely. Remove level.
5. Place level crosswise on boss R and turn unit on bolt C until the bubble is in zero position in the level and tighten bolt C securely. Remove level.
6. Recheck operation No. 4.
7. Install new brake tube from frame tee to Hill

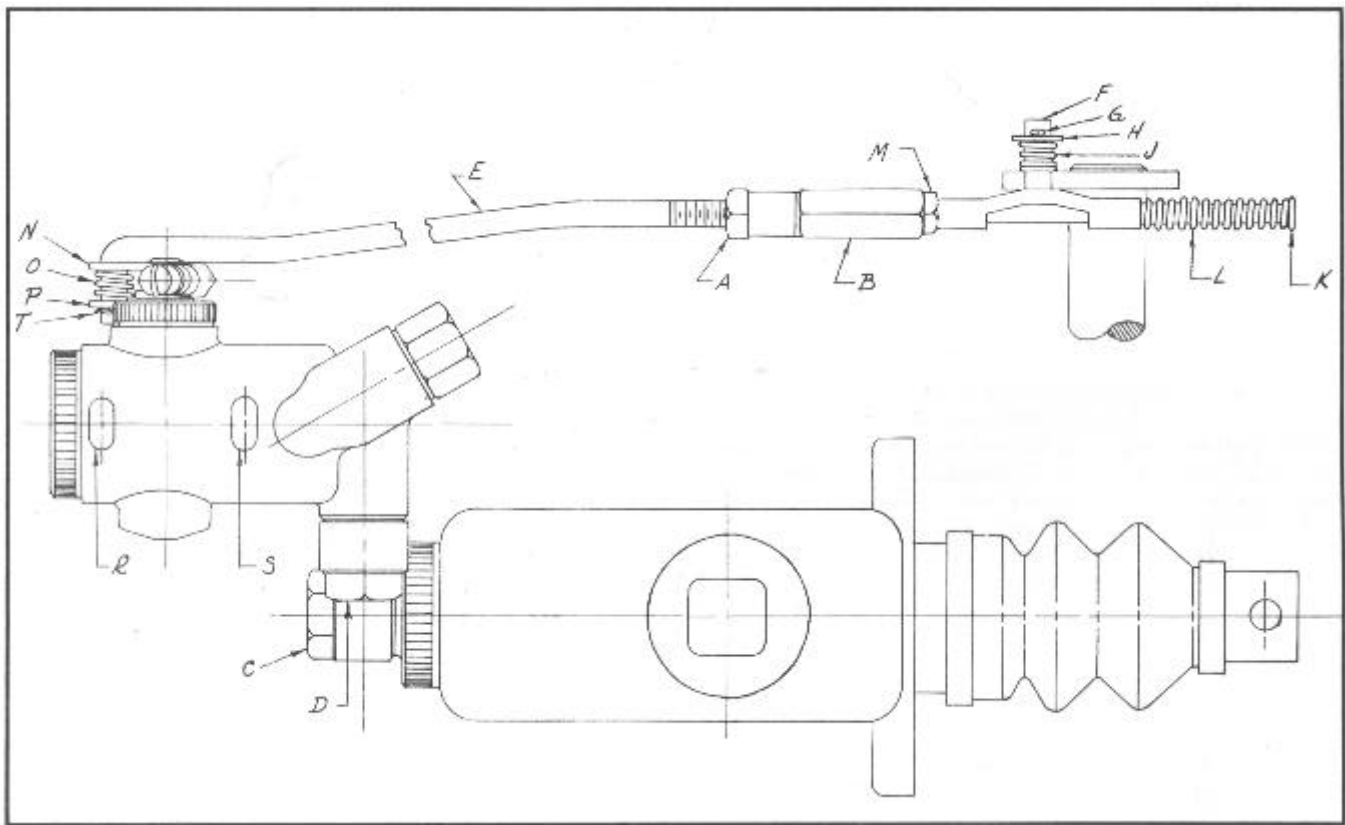


Figure 3

- Hold outlet, tightening all fittings securely. Recheck unit for level.
8. Fill master cylinder reservoir and bleed the brake lines at all four wheel cylinders.
 9. Wipe all connections dry. Hold brake applied for one minute and examine connections for leaks.
 10. Install operating rod assembly, threading rod E into connector sleeve B for approximately half of the thread length and install connector sleeve to end lever in clutch cross shaft with anti-rattle spring J, washer H and cotter pin G.
 11. Install hook end of operating rod to operating arm of Hill Hold unit and secure with spring O, washer P and cotter key T.
 12. Place car heading up incline and apply brakes and disengage clutch.
 13. If car rolls backward when attempting to start forward by engaging the clutch while depressing the accelerator, shorten rod E by backing off nut A and turning sleeve B so that it screws onto rod E.
 14. If the brakes are delayed in disengaging as the clutch is engaged, lengthen rod E by turning sleeve B off rod E one or two turns as necessary. Tighten nut A.
 15. When the Hydraulic Hill Hold is properly adjusted the brakes will release as the clutch engages.

Service Operations

There are only two major adjustments to be made on this unit.

1. Proper leveling. See steps 4 and 5 under Installation. This is important to insure the ball C being on its seat at the back of cage B when the car is headed upgrade and off its seat when headed downgrade. The proper position will also insure the ball rolling forward when the brakes are applied when the car is moving forward.
2. Proper rod adjustment. See steps 13 and 14 under Installation. This

This is important to insure proper timing, permitting the application and release of the unit with clutch engagement and disengagement.

Removal from Car

1. Disconnect brake tube from frame tee to Hill Hold outlet at Hill Hold.
2. Remove cotter key T, washer P and spring O — Figure 3 — and remove operating rod from operating arm.
3. Remove bolt C and remove unit.

To Disassemble Unit

1. Remove valve lever H—Figure 1—center punch shaft and lever to aid in reassembly.
2. Loosen lock screw in lever H and remove lever.
3. Remove head J, gasket K and spring I.
4. Remove camshaft plug G, camshaft D and spring F.
5. Remove ball cage B and ball C.
5. Clean and inspect all parts, particularly the valve seat X in the cage. Replace parts as necessary.

To Reassemble Unit

1. Insert ball cage B, Figure 1, being sure the two large ball rails are on the underside of the camshaft D.
2. Insert spring F in camshaft D and insert both in the housing. Be sure spring F remains in place in the shaft.
3. Install plug G.
4. Replace valve lever H, being sure it is in the same position on the camshaft D as when taken off and pointing downwards.
5. Place a new gasket K on head J and put spring I in head and install in body.
6. For installation to car, follow installation instructions.

The Hudson Hill Hold Kit, part number 160243, carries a list price of \$10.00 and the flat rate time covering its installation on the 1940 Hudson models is 1.8 hours.