SERVICE BULLETIN

SERVICE DEPARTMENT
DODGE
DIVISION OF CHRYSLER CORPORATION

TO ALL DIRECT DEALERS AND DEALERS:

Dec. 11, 1945

No. D-137

REAR AXLE

TWO SPEED AXLE VACUUM GEARSHIFT

All Trucks With Two Speed Axles

Effective with the following serial numbers, a two speed rear axle vacuum shift, which eliminates the shift rods, lever in cab, and other linkage, went into production.

81356779 - WFA
82504395 - WGA, WHA

DESCRIPTION

The vacuum shift consists of the following:

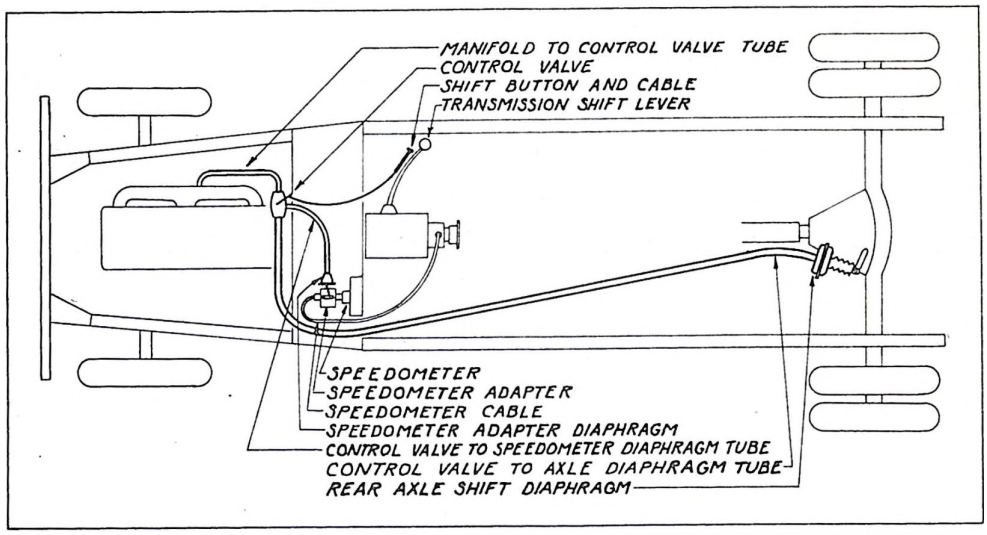
1. A control valve mounted on the front of the dash. It consists, in the main, of a lever-operated plunger by means of which the vacuum line from the intake manifold to the shift diaphragm on the rear axle and to the speedometer adapter can be opened or closed. It also contains a spring operated ball which seats, when the engine vacuum is low, and traps the vacuum in the line to the rear axle and speedometer. There is also a connection to the outside air, which is covered by a curled hair cleaner.
2. A diaphragm, mounted on the rear axle, which shifts the axle into low or high speed. The diaphragm shaft is attached to the shifting lever of the rear axle.
3. A diaphragm mounted on the speedometer adapter. A rod is attached to the diaphragm and to the speedometer adapter lever.
4. Tubing. A tube is connected to the intake manifold and to the control valve - on booster equipped trucks, this tube is attached to the vacuum tee on the dash rather than directly to the manifold. Another tube is connected to the control valve and to the shift diaphragm on the rear axle. Still another tube is connected to the control valve and to the speedometer adapter diaphragm.
5. A button type shift cable which is mounted on the transmission shift lever. It is connected to the lever of the control valve and operates the plunger.

OPERATION

When the button of the shift cable is pulled up it moves the control valve plunger to open the vacuum line from the intake manifold to the rear axle diaphragm and to the speedometer adapter diaphragm. The diaphragm on the rear axle moves forward and shifts the axle into high. At the same time, the speedometer adapter diaphragm moves toward the tube and shifts the adapter so that the speedometer will register correctly.

8938
Prtd. in U.S.A.
14765

OPERATION (Cont'd)



When the button is pushed down, the control valve plunger is moved to close the vacuum line to the rear axle and speedometer adapter diaphragm. At the same time, it opens these lines to atmosphere and air rushes in, displacing the vacuum. A spring, located around the rear axle diaphragm shaft, then forces the diaphragm backward, shifting the axle into low. At the same time, a spring, located under the speedometer adapter diaphragm, forces the diaphragm away from the tube shifting the adapter so the speedometer will register correctly.

GOOD DRIVING PRACTICES

It has been our experience that the most satisfactory results will be obtained if the vacuum shift is handled as follows:

Shifting Into Low Speed

On level or at high truck speeds, keep accelerator pedal down and push shift button down. Then release accelerator pedal and depress again as quickly as possible (Do not operate clutch).

On upgrade or at slow engine speeds, keep accelerator pedal down and push shift button down. Still keeping accelerator pedal down, disengage and re-engage clutch as quickly as possible.

On down grade against engine, keep accelerator pedal up and push shift button down. Press down on accelerator pedal enough to synchronize gears and then immediately release pedal. (Do not operate clutch).

Shifting Into High Speed

On down grade against engine, keep accelerator pedal up and pull shift button up. Still keeping accelerator pedal up, disengage and re-engage clutch.

GOOD DRIVING PRACTICES

Shifting Into High Speed

At any other time except down grade against engine, keep accelerator pedal down and pull shift button up. Then gradually release accelerator pedal. Do not depress accelerator until shift is completed.

Split Shifting

To shift to the next higher transmission gear and from high to low speed axle at the same time, make the transmission shift in the usual way and, just before engaging the clutch, push the shift button down.

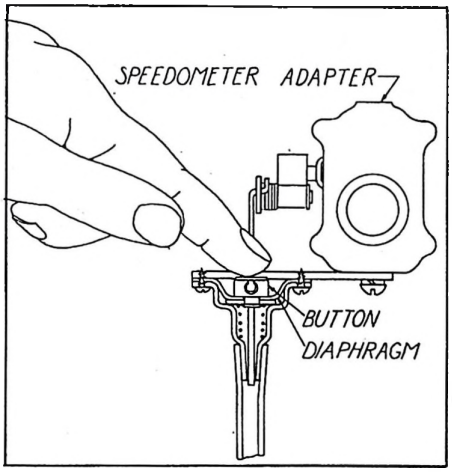
To shift to the next lower transmission gear and from low to high speed axle at the same time, pull the shift button up, release the accelerator pedal, and shift the transmission in the usual way.

SERVICE INSTRUCTIONS

In practically all cases, failure of the vacuum shift to function is due to leakage.

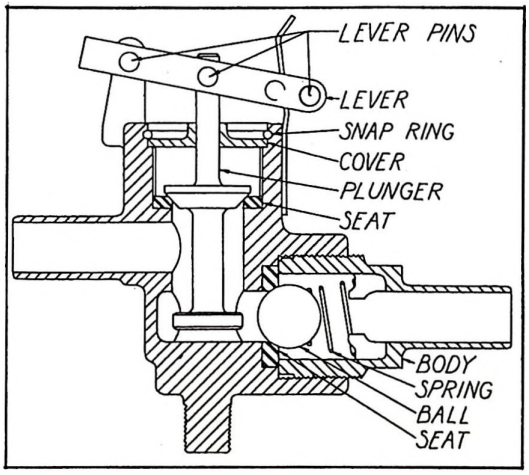
To test for leakage:

1. Make sure all tubing connections are tight.
2. Start the engine and pull the shift cable button up (high speed position).
3. Race engine and then release accelerator to close the throttle. This will charge the vacuum lines.
4. Turn off the engine and place a finger on the button of the speedometer adapter diaphragm and if the diaphragm remains firm against its stop for five minutes, the system can be considered vacuum tight. However, if the button feels "rubbery" before that time, a leak is present.



To eliminate leakage:

1. Replace speedometer adapter diaphragm and vacuum test again.
2. If leakage persists, remove the pins and lever on the control valve. Then remove the cover snap ring, cover and plunger. Inspect the rubber seat in the control body and the seat of the plunger itself to make sure they are free from nicks or dirt - replace, if necessary, making sure that rubber seat is not distorted and is down flat in its recess in the



REAR AXLE

TWO SPEED AXLE
VACUUM GEARSHIFT

All Trucks With
Two Speed Axles

SERVICE INSTRUCTIONS (Cont'd)

To eliminate leakage: (Cont'd)

2. control body. Remove check valve body, spring and ball. Inspect rubber seat for nicks or dirt - replace if necessary. When re-assembling, be sure small end of spring is against ball. Vacuum test again.
3. If leakage is still present, remove the pipe plug from the rear axle diaphragm and apply white or red lead and replace. Vacuum test.
4. If the leakage is not corrected, replace the axle diaphragm.

Enter this bulletin and subject in your truck shop manual under Group - Rear Axle.

B. B. SETTLE.
Director of Service
DODGE DIVISION

8938
Prtd. in U.S.A.