

## **Hub-lock Operation**

With the hublocks in the AUTO position, the 4WD **ESOF** system uses timed vacuum sequences to lock and unlock the wheel ends when switching the instrument panel MSS between 2WD and 4WD modes. A high vacuum level (8.75" Hg and greater) is applied to the hublocks to lock the internal spring mechanism that engages the hublocks for 4WD mode. A lower vacuum level ( 5.9" to 7.1" Hg) is applied to unlock the spring mechanism that disengages the hublocks for 2WD mode. The vacuum signals are supplied to the hublocks by system components, including the 4X4 control module, Vacuum pump, wiring harness, solenoid, vacuum lines and vacuum seals. As a first step in service, eliminate obvious items such as loose wiring connections, loose vacuum connections or damaged vacuum lines.

## **Hublock Engagement/Disengagement Time**

With the hublock dials in the AUTO position, switching the instrument panel MSS to 4X4 High or 4X4 Low results in the high vacuum level being applied to the hublocks, which lasts for at least 51 seconds (including a venting cycle). The hublocks should engage during this time through the spring mechanism. Switching the MSS to 2WD less than 51 seconds after the MSS has been switched to 4X4 High or 4X4 Low will not interrupt the high vacuum level; instead, the lower vacuum level will be applied after the high vacuum level cycle is completed.

With the hublocks in the AUTO position, switching the MSS to 2WD results in the lower vacuum level being applied to the hublocks, which lasts for about 15 seconds. However, the actual time required for the hublocks to disengage by spring force can vary considerably due to the effects of driveline wind up. Road bumps, vehicle speed, acceleration cycles or momentary reversal of direction can assist this process. Switching the MSS to 4X4 High or 4X4 Low always overrides the lower vacuum level cycle and results in an immediate high-vacuum level engaging the hublocks.

## **Manual Override**

The AUTO hublocks have a manual override selector on each hub, which when turned to the LOCK position, will keep the hublocks locked (through the selector) at all times, regardless of the position of the instrument panel MSS. (Always set both hub-lock selectors to the same position.) If the hublock selectors are manually turned from AUTO to the LOCK position, and the high vacuum level is applied to the hublocks by switching the MSS

from 2WD to 4X4 High or 4X4 Low, the hublocks will be locked through the dial as well as through the internal spring mechanism. In this case, turning the hublock dials back to the AUTO position will leave the hublocks in the locked mode until the lower vacuum level is applied to the hublocks by moving the MSS back 2WD. Alternatively, the hublock mechanism can be reset to free mode at any time by turning the hublock selector from AUTO to LOCK to AUTO at least 2 times.