SUBJECT:
Launch Shudder

OVERVIEW:
This bulletin involves adjusting the propeller shaft working angles.

MODELS:

2003 - 2004   (DR)   Ram Truck

NOTE: This bulletin applies to vehicles equipped with a two piece rear driveshaft.

SYMPTOM/CONDITION:
A vehicle may exhibit a drive line shudder or vibrations while accelerating from a stop. The condition is most noticeable under heavy throttle acceleration and is usually only present a low speeds (below 25 m.p.h.).

DIAGNOSIS:
Vehicles equipped with a two piece driveshaft are designed to minimize reaction forces which result from the universal joint transmitting torque at an angle. These forces can not be eliminated entirely because of the necessity to compromise joint angle selection between curb and design loading conditions. When subjected to this vibration, the vehicle experiences a shudder type disturbance, generally occurring less than 25 mph. This disturbance will increase as the suspension moves further from its design load (typically two front passengers). The forces are also torque sensitive, which means the disturbance, will be highest under wide open throttle.

U-joint angles change depending upon the amount of weight applied to the vehicle bed, therefore u-joint angle readings may need to be taken with different vehicle loads in order to obtain a satisfactory compromise. The vehicle should be evaluated under the loaded condition that produces the objectionable disturbance.

PARTS REQUIRED:

Qty.	Part No.	Description
AR	52105717AB	Bracket - 14.7 mm
AR	52105587AB	Bracket - 19.8 mm
AR	52105716AB	Bracket - 84.6 mm
AR	52105583AB	Bracket - 89.8 mm
AR	52105714AB	Bracket - 113.1 mm

Qty.	Part No.	Description
AR	52105584AB	Bracket - 115.3 mm
AR	52105715AB	Bracket - 132.0 mm
AR	52105559AB	Bracket - 133.9 mm

SPECIAL TOOLS/EQUIPMENT REQUIRED:

7663	Inclinometer

REPAIR PROCEDURE:
1. Inspect the suspension and drive line for any signs of worn or damaged parts. Make the necessary repairs.
2. Raise the vehicle on a hoist. The weight of the vehicle must be supported by the suspension. Make sure that the frame is as level as possible.
3. Remove universal joint snap rings if equipped, so Inclinometer No. 7663 base sits flat.
4. Rotate shaft until transmission/transfer case output yoke bearing is facing downward.

NOTE: Always take measurements from front to rear and on the same side of the vehicle.

5. Place inclinometer on yoke bearing cap or pinion flange ring (A) parallel to the shaft . Center the bubble in sight glass and record measurement(Fig. 1).
This measurement will give you the transmission yoke Output Angle .

6. Rotate propeller shaft 90 degrees and place Inclinometer on yoke bearing parallel to the shaft . Center the bubble in sight glass and record measurement. This measurement can also be taken at the rear end of the shaft(Fig. 2).
This measurement will give you the Front Propeller Shaft Angle .

7. Rotate propeller shaft 90 degrees and place Inclinometer on yoke bearing parallel to the rear shaft and center the bubble in the sight glass and record measurement. This measurement can also be taken at the rear end of the shaft.
This measurement will give you the Rear Propeller Shaft Angle .

8. Rotate propeller shaft 90 degrees and place inclinometer on rear axle pinion flange yoke bearing parallel to the shaft(Fig. 3). Center the bubble in sight glass and record measurement.
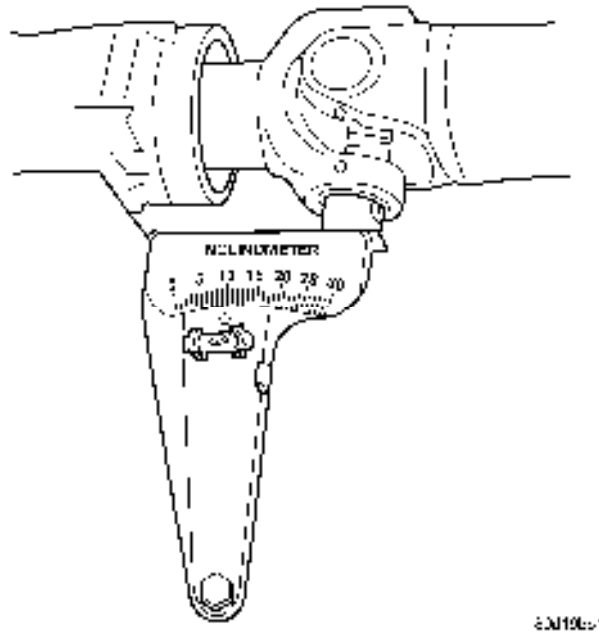**This measurement will give you the Pinion Flange Input Angle or Pinion Angle.**
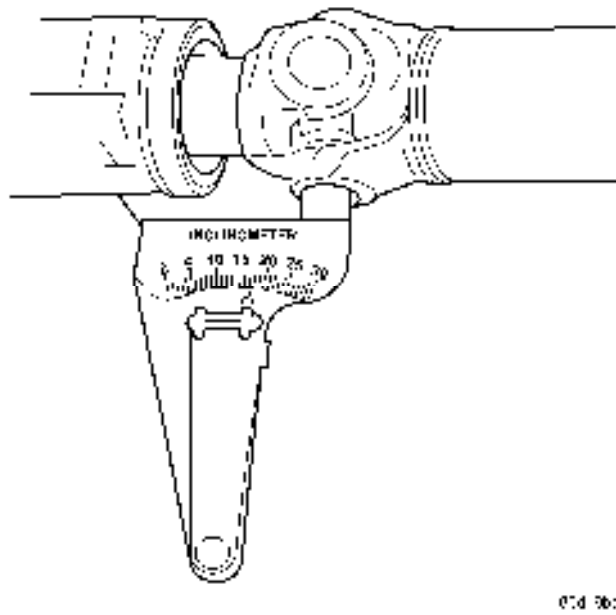
Fig. 1 OUTPUT ANGLE
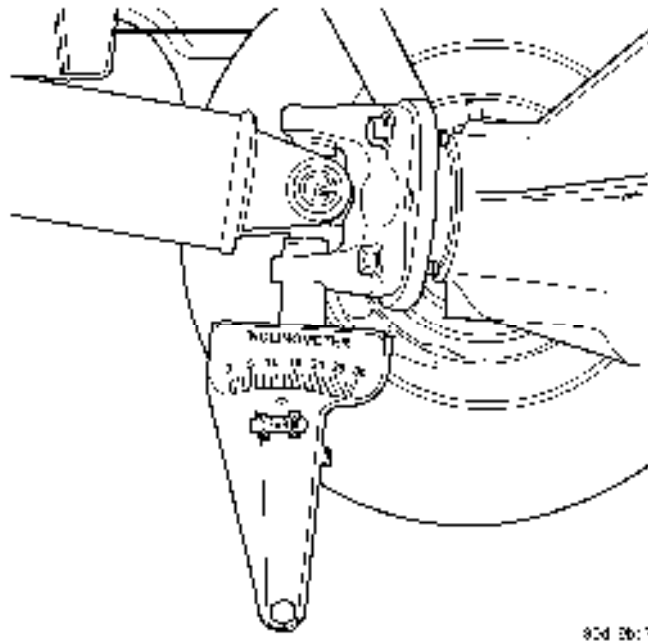

Fig. 2 PROPELLER SHAFT ANGLE

Fig. 3 PINION ANGLE

9. To calculate the operating angle for the transmission output to front propeller shaft (A)(Fig. 4), subtract front propeller shaft angle from the transmission output shaft. To calculate the operating angle for the front to rear propeller shaft (B)(Fig. 4), subtract the front prop. rear propeller shaft angel from the front. To calculate the operating angle for the rear prop. shaft to pinion angle (C)(Fig. 4), subtract the pinion angle from the rear prop. shaft angle. The operating angles can be adjusted by moving the center carrier bearing up or down. The center bearing brackets, listed above, are available in a variety of heights. The working angles should be adjusted to provide the lowest angle possible for the output shaft to front propeller shaft, front propeller shaft to rear propeller shaft and rear propeller shaft to axle pinion. The angles must be below 3 degrees but must have a minimum angle of 1/2 degree to provide for universal joint lubrication. Determine which direction you need to move the center bearing to optimize the angles and install the appropriate bracket to obtain the minimum working angle, but still maintain at least 1/2 degree to assure that there will be some movement in the U-joint bearings(Fig. 4).
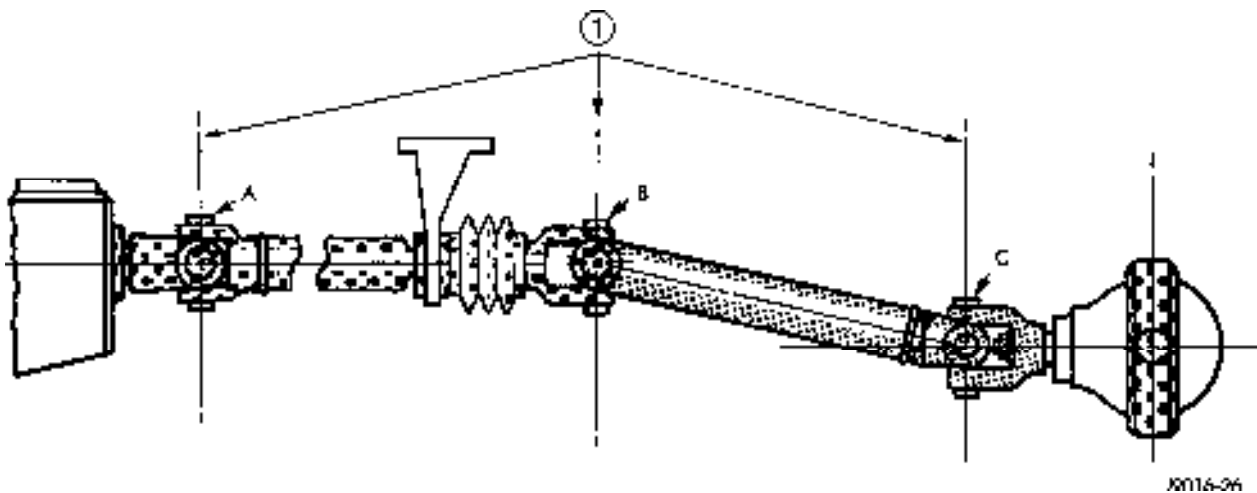
Fig. 4 UNIVERSAL JOINT ANGLE

1 - YOKES MUST BE IN SAME PLANE

TORQUE SPECIFICATIONS

		Ft. Lbs.
Center Bearing Bolts	54	40
Transfer Case Flange Bolts	88	65
LD - Front Pinion Flange Bolts	115	85
HD - Front Pinion Flange Bolts	28	21
Rear Pinion Flange Bolts	115	85
Rear Pinion Yoke Bolts	29	22

POLICY:
Reimbursable within the provisions of the warranty.

TIME ALLOWANCE:

Labor Operation No:	Description	Amount
16-50-10-91	Adjust Angles and Replace Bracket,	0.5 Hrs.

FAILURE CODE:

2X	Vibration