Propeller Shaft Alignment

OLDSMOBILE

All Rear Wheel Drive

DESCRIPTION

To properly measure front and rear universal joint angles, vehicle must be at proper trim height (distance from top of axle tube to bottom of frame). If necessary, add weight to trunk to lower vehicle. With vehicle level and supported at axles, an inclinometer (BT-6902) is used to determine driveline angles. Adjustment may be accomplished by shims between transmission rear bearing retainer and transmission mounting or changing control arms.

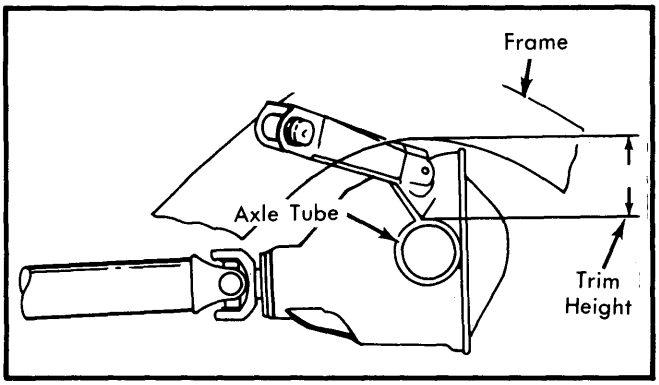

Fig. 1 Location for Measuring Trim Height

CHECKING & ADJUSTING

CHECKING

NOTE – *Vehicles equipped with the 200-4R automatic transmission require use of bearing adapter (BT-7409-1) to measure transmission angle.*

Transmission Angle – 1) Raise and support vehicle and set trim height. Place transmission in neutral. Clean all universal joint bearing caps. Turn propeller shaft until slip yoke bearings are vertical. Center magnetic end of inclinometer on bearing surface with weight and cord centered in slot at gauge end of tool. *See Fig. 2.*

NOTE – *Propeller shaft may be rotated to center cord and weight in slot at gauge end of tool.*

2) Turn knob of inclinometer until weighted end of cord is at "0" marking on gauge. Remove tool(s) from bearing surface and rotate shaft 180°. Reinstall tool(s) and check that cord is still at "0". Any deflection could be caused by nicked or dirty bearing surface. If so, clean and recheck. Remove tool(s) but DO NOT TURN ADJUSTING KNOB.

3) Rotate propeller shaft 90° and attach tool(s) to yoke bearings. Record gauge reading and remove tool(s). To double check, rotate shaft 180°, install tool(s) and check for same reading. *See Propeller Shaft Specifications for correct transmission angles.*

Rear Axle Nose Angle – Use same procedure as for transmission angle. Ensure magnetic end of inclinometer is centered on bearing of shaft yoke. *See Propeller Shaft Specifications for correct nose angle specifications.*

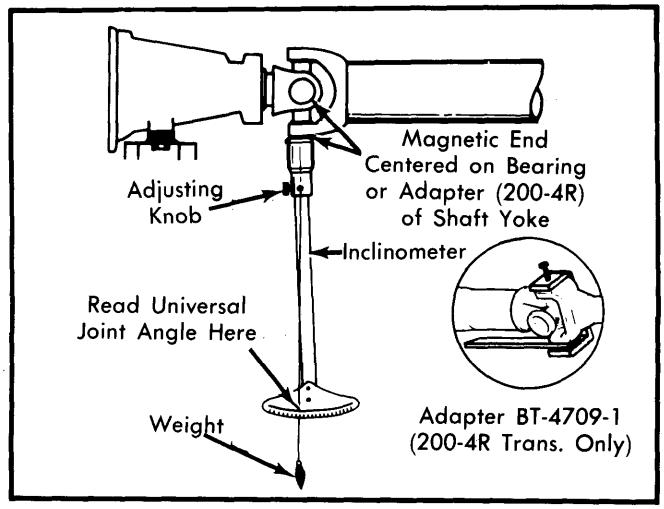

Fig. 2 Checking Transmission Angle Using Inclinometer (BT - 6902)

ADJUSTMENT

Transmission Shimming (Cutlass, 88, 98) – Addition of one shim will change transmission angle -½° and rear axle angle by +¼°. Removal of one shim will change transmission angle +½° and rear axle angle -¼°.

NOTE – *Longer bolts will be required if adding 2 or more shims.*

Differential Nose Angle Adjustment (Cutlass, 88, 98) – If rear axle nose angles are not correct, control arms may be changed to correct this angle.

Rear Upper Control Arm

Application and Arm Type	Front Angle Change	Rear Angle Change
Cutlass		
Short Arm	−½°	+1½°
Long Arm	+½°	−1½°
88 & 98		
Short Arm	−½°	+2°
Long Arm	+½°	−2°

Correct Universal Joint Angle①

Application	Height②	Front Joint	Rear Joint
Cutlass			
Coupe	4⅞"	½°	1¼°
Sedan	4¾"	¾°	1¼°
Wagon	5½"	¼°	1¼°
88			
7½" Axle	6⅛"	2°	2½°
8½", & 8¾" Axle	6⅛"	1¾°	2°
Wagon	4⅞"	2°	3¼°
98			
7½" Axle	5⅞"	2¼°	3½°
8¾" Axle	5⅞"	2¼°	1¾°

① – The above angles may be ± ½°.
② – Axle tube-to-frame height ± ¼".