



BALL JOINT SPECIFICATION CHART

Federal-Mogul Document #2186

Note: These specifications represent OEM recommended procedures where possible. In cases where OEM procedures were not available, Moog recommendations were used.

CARS

APPLICATIONS				LOWER BALL JOINT		UPPER BALL JOINT	
MODEL	YEAR	TYPE	AXIAL	RADIAL	AXIAL	RADIAL	
AMERICAN MOTORS							
ALL EXC. THOSE INDICATED	RWD	81-88	2	*	*	#	.160
	RWD	75-80	2	*	*	.080	.160
ALLIANCE, ENCORE	FWD	83-87	STRUT	*	*	NO UPPER BALL JOINT	
PACER	RWD	75-80	1	WEAR IND.	[1]	*	*
BMW							
ALL EXC. THOSE INDICATED	RWD	75-89	STRUT	.055	[1]	NO UPPER BALL JOINT	
318i, 325, 325e, 325es, 325i, 325is, 325i conv.	RWD	75-90	STRUT	.055	[1]	NO UPPER BALL JOINT	
528e, 533i, 535i, 535is	RWD	82-88	STRUT	.060	[1]	NO UPPER BALL JOINT	
735i, 750i	RWD	87-89	STRUT	.039	[1]	NO UPPER BALL JOINT	
BUICK							
ALL EXC. THOSE INDICATED	RWD	75-96	1	WEAR IND.	[1]	*	*
	(REAR SUSP.) FWD	85-97	STRUT	WEAR IND.	[1]	NO UPPER BALL JOINT	
(FRONT SUSP.)	FWD	85-97	STRUT	*	*	NO UPPER BALL JOINT	
APOLLO, SKYLARK	FWD	80-97	STRUT	*	*	NO UPPER BALL JOINT	
	RWD	75-79	1	WEAR IND.	[1]	*	*
CENTURY	FWD	82-97	STRUT	*	*	NO UPPER BALL JOINT	
	RWD	75-81	1	WEAR IND.	[1]	*	*
OPEL	RWD	76-79	1	.040	[1]	*	*
	RWD	75	1	.080	[1]	*	*
PARK AVENUE	FWD	97	STRUT	*	*	NO UPPER BALL JOINT	
REGAL	FWD	88-97	STRUT	*	*	NO UPPER BALL JOINT	
	RWD	75-87	1	WEAR IND.	[1]	*	*
RIVIERA, REATTA	FWD	86-97	STRUT	*	*	NO UPPER BALL JOINT	
	FWD	79-85	1	.125	[1]	*	*
SKYHAWK, SOMERSET	FWD	82-89	STRUT	*	*	NO UPPER BALL JOINT	
	RWD	75-80	1	WEAR IND.	[1]	*	*
CADILLAC							
ALL EXC. THOSE IND.	RWD	75-96	1	WEAR IND.	[1]	*	*
	(FRONT SUSP.) FWD	85-97	STRUT	*	*	NO UPPER BALL JOINT	
(REAR SUSP.)	FWD	85-97	STRUT	WEAR IND.	[1]	NO UPPER BALL JOINT	
ALLANTE	FWD	87-93	STRUT	*	*	NO UPPER BALL JOINT	
CATERA	FWD	97	STRUT	*	*	NO UPPER BALL JOINT	
CIMARRON	FWD	82-86	STRUT	*	*	NO UPPER BALL JOINT	
ELDORADO	FWD	86-97	STRUT	*	*	NO UPPER BALL JOINT	
	FWD	75-85	1	.125	[1]	*	*
SEVILLE	FWD	86-97	STRUT	*	*	NO UPPER BALL JOINT	
	FWD	80-85	1	.125	[1]	*	*
	RWD	76-79	1	WEAR IND.	[1]	*	*
CHEVROLET							
ALL EXC. THOSE INDICATED	RWD	75-96	1	WEAR IND.	[1]	*	*
BERETTA, CORSICA	FWD	87-96	STRUT	*	*	NO UPPER BALL JOINT	
CAMARO	RWD	95-96	1	*	*	*	*

[1] Do not check for radial movement. #Do not check for axial movement. *No perceptible movement.

CHEVELLE, MALIBU,	RWD	93-94	1	WEAR IND.	[1]	*	*
	RWD	82-92	STRUT	WEAR IND.	[1]	NO UPPER BALL JOINT	
	RWD	75-81	1	WEAR IND.	[1]	*	*
	RWD	75-88	1	WEAR IND.	[1]	*	*

APPLICATIONS				LOWER BALL JOINT		UPPER BALL JOINT	
MODEL	YEAR	TYPE	AXIAL	RADIAL	AXIAL	RADIAL	
CHEVROLET (CON'T)							
MONTE CARLO							
CHEVETTE	RWD	76-87	1	WEAR IND.	[1]	* *	
CHEVY II, NOVA	RWD	75-79	1	WEAR IND.	[1]	* *	
CITATION, CELEBRITY, CAVALIER, MALIBU	FWD	80-97	STRUT	*	*	NO UPPER BALL JOINT	
CORVETTE	RWD	84-96	1	WEAR IND.	[1]	* *	
	RWD	75-82	1	.062	[1]	* *	
LUMINA, (COUPE & SEDAN)	FWD	90-97	STRUT	*	*	NO UPPER BALL JOINT	
MONTE CARLO	FWD	90-97	STRUT	*	*	NO UPPER BALL JOINT	
VEGA, MONZA	RWD	75-80	1	WEAR IND.	[1]	* *	
CHRYSLER							
ALL EXC. THOSE IND.	FWD	82-95	STRUT	WEAR IND.	[1]	NO UPPER BALL JOINT	
	RWD	77-89	1	.030	[1]	* *	
	RWD	75-76	1	.020	[1]	* *	
CIRRUS, SEBRING CONVERTIBLE	FWD	95-97	1	.059	[1]	WEAR IND. WEAR IND.	
CONCORDE	FWD	93-97	STRUT	*	*	NO UPPER BALL JOINT	
CONQUEST	FWD	89	STRUT	43-69 IN-LBS (TEST D)		NO UPPER BALL JOINT	
NEW YORKER LHS	FWD	94-97	STRUT	*	*	NO UPPER BALL JOINT	
SEBRING (FRONT SUSP.)	FWD	95-97	1	FRONT LOWER ARM 9-30 IN-LBS (TEST D) REAR LOWER ARM 4-22 IN-LBS (TEST D)		3-13 IN-LBS (TEST D)	
(FRONT SUSP.)							
DODGE							
ALL EXC. THOSE INDICATED	FWD	81-95	STRUT	WEAR IND.	[1]	NO UPPER BALL JOINT	
	FWD	78-80	STRUT	.050	[1]	NO UPPER BALL JOINT	
	RWD	77-87	1	.030	[1]	* *	
	RWD	75-76	1	.020	[1]	* *	
AVENGER (FRONT SUSP.)	FWD	95-97	1	FRONT LOWER ARM 9-30 IN-LBS (TEST D) REAR LOWER ARM 4-22 IN-LBS (TEST D)		3-13 IN-LBS (TEST D)	
(FRONT SUSP.)							
CHALLENGER, SAPPORO	FWD	78-83	STRUT	*	*	NO UPPER BALL JOINT	
COLT	FWD	93-96	STRUT	9-56 IN-LBS (TEST D)		NO UPPER BALL JOINT	
	FWD	89-92	STRUT	0-48 IN-LBS (TEST D)		NO UPPER BALL JOINT	
	FWD	79-88	STRUT	*	*	NO UPPER BALL JOINT	
	RWD	75-80	STRUT	*	*	NO UPPER BALL JOINT	
COLT VISTA	FWD	92-96	STRUT	17-78 IN-LBS (TEST D)		NO UPPER BALL JOINT	
	FWD	89-91	STRUT	26-87 IN-LBS (TEST D)		NO UPPER BALL JOINT	
DART, DEMON	RWD	75-76	1	.070	[1]	* *	
INTREPID	FWD	93-97	STRUT	*	*	NO UPPER BALL JOINT	
MONACO	FWD	90-92	STRUT	*	*	NO UPPER BALL JOINT	
NEON	FWD	95-97	STRUT	WEAR IND.	WEAR IND.	NO UPPER BALL JOINT	
STEALTH	FWD	91-96	STRUT	86-191 IN-LBS (TEST D)		NO UPPER BALL JOINT	
STRATUS	FWD	95-97	1	.059	[1]	WEAR IND. WEAR IND.	
VIPER	RWD	94	1	*	*	* *	
EAGLE							
PREMIER	FWD	89-92	STRUT	*	*	NO UPPER BALL JOINT	
SUMMIT (EXC. WAGON)	FWD	93-96	STRUT	9-56 IN-LBS (TEST D)		NO UPPER BALL JOINT	
	FWD	89-92	STRUT	0-48 IN-LBS (TEST D)		NO UPPER BALL JOINT	
SUMMIT WAGON	FWD	92-96	STRUT	17-78 IN-LBS (TEST D)		NO UPPER BALL JOINT	
TALON (FRONT SUSP.)	FWD	97	1	FRONT LOWER 13 IN-LBS OR LESS (TEST D)		3-13 IN-LBS (TEST D)	

(FRONT SUSP.)				REAR LOWER	
(FRONT SUSP.) FWD	95-96	1		4-22 IN-LBS (TEST D)	
				FRONT LOWER	
				9-30 IN-LBS (TEST D)	3-13 IN-LBS (TEST D)

APPLICATIONS				LOWER BALL JOINT		UPPER BALL JOINT	
MODEL	YEAR	TYPE	AXIAL	RADIAL	AXIAL	RADIAL	
EAGLE (CON'T)							
(FRONT SUSP.)			REAR LOWER				
			4-22 IN-LBS (TEST D)				
VISION	FWD	90-94	STRUT	26-87 IN-LBS (TEST D)		NO UPPER BALL JOINT	
	FWD	93-97	STRUT	* *		NO UPPER BALL JOINT	
VISTA WAGON	FWD	89-91	STRUT	26-87 IN-LBS (TEST D)		NO UPPER BALL JOINT	
FORD							
ALL EXC. THOSE INDICATED	RWD	75-78	1	#	.250	* *	
ASPIRE	FWD	94-97	STRUT	16-27 IN-LBS (TEST D)		NO UPPER BALL JOINT	
CONTOUR	FWD	95-97	STRUT	*	*	NO UPPER BALL JOINT	
CROWN VICTORIA	RWD	95-97	1	*	*	* *	
	RWD	79-94	1	WEAR IND.	[1]	* *	
ESCORT	FWD	97	1	[1]	.031	NO UPPER BALL JOINT	
ESCORT, EXP	FWD	94-96	STRUT	*	*	NO UPPER BALL JOINT	
	FWD	92-93	STRUT	14-25 IN-LBS (TEST D)		NO UPPER BALL JOINT	
	FWD	81-91	STRUT	*	*	NO UPPER BALL JOINT	
FAIRMONT	RWD	78-83	STRUT	WEAR IND.	[1]	NO UPPER BALL JOINT	
FESTIVA	FWD	88-93	STRUT	*	*	NO UPPER BALL JOINT	
FIESTA	FWD	78-80	STRUT	*	*	NO UPPER BALL JOINT	
GRANADA	RWD	81-82	STRUT	WEAR IND.	[1]	NO UPPER BALL JOINT	
	RWD	75-80	2	*	*	* *	
LTD	RWD	83-86	STRUT	WEAR IND.	[1]	* *	
MAVERICK	RWD	75-77	2	*	*	# .250	
MUSTANG	RWD	94-97	STRUT	#	.015	NO UPPER BALL JOINT	
	RWD	79-93	STRUT	WEAR IND.	[1]	NO UPPER BALL JOINT	
	RWD	75-78	1	#	.250	* *	
PINTO	RWD	75-80	1	#	.250	* *	
PROBE	FWD	89-97	STRUT	*	*	NO UPPER BALL JOINT	
TAURUS	FWD	86-97	STRUT	*	*	NO UPPER BALL JOINT	
TAURUS WAGON (REAR SUSP.)	FWD	96-97	STRUT	NO LOWER BALL JOINT		* *	
TEMPO	FWD	84-95	STRUT	*	*	NO UPPER BALL JOINT	
THUNDERBIRD	RWD	94-95	1	*	*	* *	
	RWD	89-93	1	#	.015	# .015	
	RWD	80-88	STRUT	WEAR IND.	[1]	NO UPPER BALL JOINT	
	RWD	75-79	1	#	.250	* *	
TORINO, LTD II	RWD	75-79	1	#	.250	* *	
GEO							
METRO	FWD	89-97	STRUT	*	*	NO UPPER BALL JOINT	
PRIZM	FWD	89-97	STRUT	*	*	NO UPPER BALL JOINT	
STORM	FWD	89-93	STRUT	*	*	NO UPPER BALL JOINT	
HONDA							
ACCORD	FWD	76-85	STRUT	.020	[1]	NO UPPER BALL JOINT	
CIVIC	FWD	75-83	STRUT	.020	[1]	NO UPPER BALL JOINT	
PRELUDE	FWD	79-82	STRUT	.020	[1]	NO UPPER BALL JOINT	
HYUNDAI							
ACCENT	FWD	95	STRUT	*	*	NO UPPER BALL JOINT	
ELANTRA	FWD	93-95	STRUT	*	*	NO UPPER BALL JOINT	
EXCEL	FWD	90-94	STRUT	*	*	NO UPPER BALL JOINT	
SCOUPE	FWD	93-95	STRUT	*	*	NO UPPER BALL JOINT	
SONATA	FWD	95	STRUT	17-88 IN-LBS (TEST D)		NO UPPER BALL JOINT	
	FWD	90-94	STRUT	26-87 IN-LBS (TEST D)		NO UPPER BALL JOINT	
INFINITI							
ALL EXC. THOSE INDICATED	FWD	90-96	STRUT	*	*	NO UPPER BALL JOINT	
M 30, J 30	FWD	90-96	STRUT	.051	[1]	NO UPPER BALL JOINT	

Q 45 (FRONT SUSP.)	FWD	90-96	STRUT	*	[1]	NO UPPER BALL JOINT
Q 45 (REAR SUSP.)	FWD	90-96	STRUT	*	[1]	NO UPPER BALL JOINT

APPLICATIONS				LOWER BALL JOINT		UPPER BALL JOINT	
MODEL	YEAR	TYPE	AXIAL	RADIAL	AXIAL	RADIAL	
ISUZU							
I-MARK	FWD	86-89	STRUT	*	*	NO UPPER BALL JOINT	
	RWD	81-85	1	.040	[1]	*	*
IMPULSE, STYLUS	RWD	83-92	1	.040	[1]	*	*
LINCOLN							
ALL EXC. THOSE IND.	RWD	80-94	1	WEAR IND.	*	*	*
	RWD	75-79	1	#	.250	*	*
CONTINENTAL (FRONT SUSP.)	FWD	97	STRUT	#	.015	NO UPPER BALL JOINT	
(REAR SUSP.)				NO UPPER BALL JOINT		#	.015
(FRONT SUSP.)	FWD	95-96	STRUT	*	*	NO UPPER BALL JOINT	
(REAR SUSP.)				NO LOWER BALL JOINT		*	*
	FWD	88-94	STRUT	*	*	NO UPPER BALL JOINT	
	RWD	82-87	STRUT	WEAR IND.	[1]	NO UPPER BALL JOINT	
MARK VII	RWD	90-92	STRUT	WEAR IND.	[1]	NO UPPER BALL JOINT	
MARK VIII	RWD	97	1	WEAR IND.	*	*	*
	RWD	95-96	STRUT	#	.015	*	*
	RWD	94	STRUT	*	*	*	*
	RWD	93	STRUT	#	.015	#	.015
TOWN CAR	RWD	95-97	1	*	*	*	*
VERSAILLES	RWD	77-80	2	*	*	*	*
MAZDA							
323, PROTÉGÉ	FWD	90-94	STRUT	14-25 LBS (TEST C)		NO UPPER BALL JOINT	
626	FWD	83-92	STRUT	4.4-7.7 LBS (TEST C)		NO UPPER BALL JOINT	
626, MX6	FWD	93-96	STRUT	2.2-11 LBS (TEST C)		NO UPPER BALL JOINT	
929	FWD	93-95	STRUT	1.1-3.3 LBS (TEST C)		1.1-3.3 LBS (TEST C)	
	FWD	89-92	STRUT	1.1-2.6 LBS (TEST C)		NO UPPER BALL JOINT	
GLC (EXC. WAGON)	FWD	81-85	STRUT	63-109 (TEST A)		NO UPPER BALL JOINT	
GLC WAGON	FWD	81-86	STRUT	.88 LBS MIN (TEST B)		NO UPPER BALL JOINT	
MIATA, MX-5	FWD	90-96	STRUT	1.7-3.3 LBS (TEST C)		NO UPPER BALL JOINT	
MX-6	FWD	90-92	STRUT	4.4-7.7 LBS (TEST C)		NO UPPER BALL JOINT	
RX-7	RWD	86-91	STRUT	4.4-7.7 LBS (TEST C)		NO UPPER BALL JOINT	
	RWD	81-85	STRUT	.88 LBS MIN (TEST B)		NO UPPER BALL JOINT	
MERCURY							
ALL EXC. THOSE INDICATED	RWD	75-78	1	#	.250	*	*
BOBCAT	RWD	75-80	1	#	.250	*	*
CAPRI	FWD	91-92	STRUT	*	*	NO UPPER BALL JOINT	
	RWD	79-86	STRUT	WEAR IND.	[1]	NO UPPER BALL JOINT	
COMET	RWD	75-77	2	*	*	#	.250
COUGAR	RWD	94-95	1	*	*	*	*
	RWD	89-93	1	#	.015	#	.015
	RWD	80-88	STRUT	WEAR IND.	[1]	NO UPPER BALL JOINT	
	RWD	75-77	1	#	.250	*	*
GRAND MARQUIS	RWD	95-97	1	*	*	*	*
	RWD	79-94	1	WEAR IND.	[1]	*	*
LYNX, LN7	FWD	81-89	STRUT	*	*	NO UPPER BALL JOINT	
MARQUIS	RWD	83-86	STRUT	WEAR IND.	[1]	NO UPPER BALL JOINT	
MARQUIS, GRAND MARQUIS	RWD	75-78	1	*	.250	*	*
MONARCH	RWD	81-82	STRUT	WEAR IND.	[1]	NO UPPER BALL JOINT	
	RWD	75-80	2	*	*	*	*
MONTEGO	RWD	75-76	2	#	.250	*	*
MYSTIQUE	FWD	95-97	STRUT	*	*	NO UPPER BALL JOINT	
SABLE	FWD	86-97	STRUT	*	*	NO UPPER BALL JOINT	
SABLE WAGON (REAR SUSP.)	FWD	96-97	STRUT	[1]	.031	NO UPPER BALL JOINT	
TOPAZ	FWD	84-95	STRUT	*	*	NO UPPER BALL JOINT	

TRACER

FWD	97	STRUT	[1]	.031	NO UPPER BALL JOINT
FWD	94-96	STRUT	*	*	NO UPPER BALL JOINT
FWD	92-93	STRUT	14-25 FT-LBS (TEST D)		NO UPPER BALL JOINT
FWD	88-91	STRUT	*	*	NO UPPER BALL JOINT

APPLICATIONS				LOWER BALL JOINT		UPPER BALL JOINT	
MODEL	YEAR	TYPE	AXIAL	RADIAL	AXIAL	RADIAL	
MERCURY (CON'T)							
ZEPHYR	RWD	78-83	STRUT	WEAR IND.	[1]	NO UPPER BALL JOINT	
MITSUBISHI							
3000 GT	FWD	91-95	STRUT	86-191 IN-LBS (TEST D)		NO UPPER BALL JOINT	
CORDIA, TREDIA	FWD	83-88	STRUT	*	*	NO UPPER BALL JOINT	
DIAMANTE	FWD	92-95	STRUT	*	*	NO UPPER BALL JOINT	
ECLIPSE (FRONT SUSP.)	FWD	95	1	FRONT LOWER ARM 9-30 IN-LBS (TEST D)		3-13 IN-LBS (TEST D)	
(FRONT SUSP.)				REAR LOWER ARM 4-22 IN-LBS (TEST D)			
	FWD	92-94	STRUT	*	*	NO UPPER BALL JOINT	
EXPO	FWD	92-95	STRUT	17-78 IN-LBS (TEST D)		NO UPPER BALL JOINT	
GALANT (FRONT SUSP.)	FWD	95	1	FRONT LOWER ARM 9-30 IN-LBS (TEST D)		3-13 IN-LBS (TEST D)	
(FRONT SUSP)				REAR LOWER ARM 4-22 IN-LBS (TEST D)			
	FWD	94	STRUT	4-22 IN-LBS (TEST D)		9-30 IN-LBS (TEST D)	
	FWD	85-93	STRUT	*	*	NO UPPER BALL JOINT	
MIRAGE	FWD	93-95	STRUT	9-56 IN-LBS (TEST D)		NO UPPER BALL JOINT	
	FWD	85-92	STRUT	*	*	NO UPPER BALL JOINT	
PRECIS	FWD	90-92	STRUT	*	*	NO UPPER BALL JOINT	
STARION	FWD	83-88	STRUT	*	*	NO UPPER BALL JOINT	
NISSAN							
ALL EXC. THOSE INDICATED	FWD	75-88	STRUT	.040	[1]	NO UPPER BALL JOINT	
200SX	RWD	88	STRUT	.100	[1]	NO UPPER BALL JOINT	
	RWD	86	STRUT	.050	[1]	NO UPPER BALL JOINT	
	RWD	84-85	STRUT	*	*	NO UPPER BALL JOINT	
	RWD	83	STRUT	17-69 IN-LBS (TEST D)		NO UPPER BALL JOINT	
240SX	RWD	89-96	STRUT	*	*	NO UPPER BALL JOINT	
300ZX	RWD	90-96	STRUT	*	*	NO UPPER BALL JOINT	
	RWD	88-89	STRUT	.100	[1]	NO UPPER BALL JOINT	
	RWD	84-86	STRUT	.035	[1]	NO UPPER BALL JOINT	
810/MAXIMA	FWD	83-84	STRUT	35 IN LBS-MIN (TEST D)		NO UPPER BALL JOINT	
B210	RWD	75-78	STRUT	.012	[1]	NO UPPER BALL JOINT	
F10, 310, SENTRA, PULSAR	FWD	76-86	STRUT	.060	[1]	NO UPPER BALL JOINT	
MAXIMA	FWD	89-96	STRUT	*	*	NO UPPER BALL JOINT	
	FWD	88	STRUT	.100	[1]	NO UPPER BALL JOINT	
	FWD	85-87	STRUT	.040	[1]	NO UPPER BALL JOINT	
PULSAR	FWD	88	STRUT	.100	[1]	NO UPPER BALL JOINT	
PULSAR NX	FWD	89-93	STRUT	*	*	NO UPPER BALL JOINT	
SENTRA	FWD	88-96	STRUT	*	*	NO UPPER BALL JOINT	
	FWD	87	STRUT	.030	[1]	NO UPPER BALL JOINT	
STANZA (EXC. WAGON)	FWD	90-92	STRUT	*	*	NO UPPER BALL JOINT	
	FWD	89	STRUT	.040	[1]	NO UPPER BALL JOINT	
	FWD	88	STRUT	.100	[1]	NO UPPER BALL JOINT	
	FWD	87	STRUT	.040	[1]	NO UPPER BALL JOINT	
	FWD	82-86	STRUT	.080	[1]	NO UPPER BALL JOINT	
STANZA ALTIMA	FWD	93-96	STRUT	*	*	NO UPPER BALL JOINT	
STANZA WAGON	FWD	86	STRUT	.040	[1]	NO UPPER BALL JOINT	
OLDSMOBILE							
ALL EXC. THOSE INDICATED	RWD	75-91	1	WEAR IND.	[1]	*	*
(FRONT SUSP)	FWD	85-97	STRUT	*	*	NO UPPER BALL JOINT	
(REAR SUSP)	FWD	85-97	STRUT	WEAR IND.	[1]	NO UPPER BALL JOINT	
AURORA	FWD	96-97	STRUT	*	*	NO UPPER BALL JOINT	

CUTLASS	RWD	75-88	1	WEAR IND.	[1]	*	*
CUTLASS CIERA, CALAIS, FIRENZA, ACHIEVA, OMEGA	FWD	82-97	STRUT	*	*	NO UPPER BALL JOINT	
STARFIRE	RWD	75-80	1	WEAR IND.	[1]	*	*

APPLICATIONS				LOWER BALL JOINT		UPPER BALL JOINT	
MODEL	YEAR	TYPE	AXIAL	RADIAL	AXIAL	RADIAL	
OLDSMOBILE (CON'T)							
TORONADO	FWD	86-92	STRUT	*	*	NO UPPER BALL JOINT	
	FWD	75-85	1	.125	[1]	* *	
PLYMOUTH							
ALL EXC. THOSE INDICATED	RWD	82-89	1	.030	[1]	* *	
	RWD	75-81	1	.020	[1]	* *	
	FWD	81-95	STRUT	WEAR IND.	WEAR IND.	NO UPPER BALL JOINT	
	FWD	78-80	STRUT	.050	[1]	NO UPPER BALL JOINT	
ARROW	RWD	76-80	STRUT	*	*	NO UPPER BALL JOINT	
BREEZE	FWD	95-97	1	.059	[1]	WEAR IND. WEAR IND.	
CHAMP	FWD	79-82	STRUT	*	*	NO UPPER BALL JOINT	
COLT	FWD	93-96	STRUT	9-56 IN-LBS (TEST D)		NO UPPER BALL JOINT	
	FWD	89-92	STRUT	0-48 IN-LBS (TEST D)		NO UPPER BALL JOINT	
COLT VISTA	FWD	92-96	STRUT	17-78 IN-LBS (TEST D)		NO UPPER BALL JOINT	
	FWD	89-91	STRUT	26-87 IN-LBS (TEST D)		NO UPPER BALL JOINT	
LASER	FWD	90-94	STRUT	26-87 IN-LBS (TEST D)		NO UPPER BALL JOINT	
VALIANT, DUSTER	RWD	75-76	1	.070	[1]	* *	
PONTIAC							
ALL EXC. THOSE INDICATED	RWD	75-81	1	WEAR IND.	[1]	* *	
6000	FWD	82-91	STRUT	*	*	NO UPPER BALL JOINT	
ASTRE, SUNBIRD	RWD	75-80	1	WEAR IND.	[1]	* *	
BONNEVILLE (FRONT SUSP)	FWD	85-97	STRUT	*	*	NO UPPER BALL JOINT	
BONNEVILLE (REAR SUSP)	FWD	85-97	STRUT	WEAR IND.	[1]	NO UPPER BALL JOINT	
BONNEVILLE, PARISIENNE, SAFARI WAGON	RWD	82-89	1	WEAR IND.	[1]	* *	
FIERO (FRONT SUSP)	RWD	84-88	STRUT	*	*	NO UPPER BALL JOINT	
FIERO (REAR SUSP)	RWD	84-88	STRUT	*	*	NO UPPER BALL JOINT	
FIREBIRD	RWD	95-96	1	*	*	* *	
	RWD	93-94	1	WEAR IND.	[1]	* *	
	RWD	82-92	STRUT	WEAR IND.	[1]	NO UPPER BALL JOINT	
	RWD	75-81	1	WEAR IND.	[1]	* *	
GRAND PRIX	FWD	87-96	STRUT	*	*	NO UPPER BALL JOINT	
	RWD	75-86	1	WEAR IND.	[1]	* *	
J2000, 2000, SUNBIRD	FWD	82-94	STRUT	*	*	NO UPPER BALL JOINT	
LEMANS, TEMPEST, GRAND AM	FWD	85-95	STRUT	*	*	NO UPPER BALL JOINT	
	RWD	75-81	1	WEAR IND.	[1]	* *	
PHOENIX	FWD	80-85	STRUT	*	*	NO UPPER BALL JOINT	
PHOENIX, VENTURA	RWD	75-79	1	WEAR IND.	[1]	* *	
SUNFIRE	FWD	95-97	STRUT	*	*	NO UPPER BALL JOINT	
T1000, 1000	RWD	81-87	1	WEAR IND.	[1]	* *	
SATURN							
ALL MODELS	FWD	91-96	STRUT	*	*	NO UPPER BALL JOINT	
SUBARU							
ALL MODELS	FWD	75-84	STRUT	#	#	NO UPPER BALL JOINT	
ALL MODELS (EXC. JUSTY)	FWD	85-90	STRUT	.012	#	NO UPPER BALL JOINT	
JUSTY	FWD	87-90	STRUT	.016	#	NO UPPER BALL JOINT	
TOYOTA							
AVALON	FWD	95-97	STRUT	8.8-30 IN-LBS (TEST D)		NO UPPER BALL JOINT	
CAMRY	FWD	92-97	STRUT	8.7-26 IN-LBS (TEST D)		NO UPPER BALL JOINT	
	FWD	83-91	STRUT	*	*	NO UPPER BALL JOINT	
CELICA	FWD	94-97	STRUT	8.7-26 IN-LBS (TEST D)		NO UPPER BALL JOINT	
	FWD	86-93	STRUT	*	*	NO UPPER BALL JOINT	
	RWD	75-85	STRUT	.100	[1]	NO UPPER BALL JOINT	
COROLLA	FWD	94-97	STRUT	6.9-26 IN-LBS (TEST D)		NO UPPER BALL JOINT	

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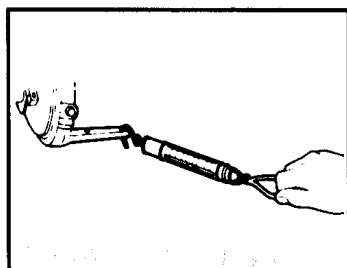
FWD	93	STRUT	8.7-26 IN-LBS (TEST D)		NO UPPER BALL JOINT
FWD	84-92	STRUT	*	*	NO UPPER BALL JOINT
RWD	75-86	STRUT	.100	[1]	NO UPPER BALL JOINT
RWD	78-92	STRUT	.100	[1]	NO UPPER BALL JOINT

APPLICATIONS				LOWER BALL JOINT		UPPER BALL JOINT	
MODEL	YEAR	TYPE	AXIAL	RADIAL	AXIAL	RADIAL	
TOYOTA (CON'T)							
MR2	RWD	95	1	9-30 IN-LBS (TEST D)		9-30 IN-LBS (TEST D)	
	RWD	90-94	STRUT	*	*	NO UPPER BALL JOINT	
PASEO	RWD	85-89	STRUT	*	*	NO UPPER BALL JOINT	
	FWD	95-97	STRUT	7-26 IN-LBS (TEST D)		NO UPPER BALL JOINT	
	FWD	94	STRUT	8.7-26 IN-LBS (TEST D)		NO UPPER BALL JOINT	
	FWD	92-93	STRUT	10.4-31.2 IN-LBS (TEST D)		NO UPPER BALL JOINT	
STARLET	RWD	81-84	STRUT	*	*	NO UPPER BALL JOINT	
SUPRA	RWD	94-95	1	9-30 IN-LBS (TEST D)		9-30 IN-LBS (TEST D)	
	RWD	87-93	STRUT	.012	[1]	*	*
	RWD	82-86	STRUT	.100	*	NO UPPER BALL JOINT	
TERCEL	FWD	95-97	STRUT	7-22 IN-LBS (TEST D)		NO UPPER BALL JOINT	
	FWD	91-94	STRUT	8.7-26 IN-LBS (TEST D)		NO UPPER BALL JOINT	
	FWD	80-90	STRUT	*	*	NO UPPER BALL JOINT	
VOLKSWAGEN							
CORRADO	FWD	90-94	STRUT	*	*	NO UPPER BALL JOINT	
DASHER	FWD	74-79	STRUT	.100	[1]	NO UPPER BALL JOINT	
FOX	FWD	87-93	STRUT	.040	[1]	NO UPPER BALL JOINT	
GOLF, GTI, CABRIOLET	FWD	85-93	STRUT	.100	[1]	NO UPPER BALL JOINT	
JETTA	FWD	80-93	STRUT	.100	[1]	NO UPPER BALL JOINT	
PASSAT	FWD	90-92	STRUT	*	*	NO UPPER BALL JOINT	
RABBIT	FWD	75-84	STRUT	.100	[1]	NO UPPER BALL JOINT	
SCIROCCO	FWD	75-93	STRUT	.100	[1]	NO UPPER BALL JOINT	
VOLVO							
ALL MODELS	RWD	75-88	STRUT	.118	[1]	NO UPPER BALL JOINT	
TRUCKS							
DATSUN/NISSAN							
PATHFINDER	RWD	96	STRUT	*	[1]	NO UPPER BALL JOINT	
	4WD	96	STRUT	*	[1]	NO UPPER BALL JOINT	
PATHFINDER 2WD	RWD	91-95	1	.063	[1]	.063	[1]
PATHFINDER 4WD	4WD	88-95	1	.020	[1]	.063	[1]
PICKUP 2WD	RWD	96	1	.018	[1]	.021	[1]
	RWD	87-95	1	.063	[1]	.063	[1]
	RWD	85-86	1	.040	[1]	*	*
	RWD	84	1	*	*	*	*
	RWD	79-83	1	.040	[1]	*	*
	PICKUP 4WD	4WD	96	1	.008	[1]	.021
PICKUP 4WD	4WD	87-95	1	.020	[1]	.063	[1]
	4WD	85-86	1	.040	[1]	.040	[1]
	4WD	84	1	*	*	*	*
	4WD	79-83	1	.040	[1]	*	*
QUEST	FWD	93-96	STRUT	*	*	NO UPPER BALL JOINT	
VAN	RWD	88-90	1	.063	[1]	.063	[1]
DODGE/PLYMOUTH							
ALL THRU 1 TON 2WD	RWD	96-97	1	.030	[1]	[1]	.030
	RWD	75-95	1	.020	[1]	*	*
ALL THRU 1 TON 4WD	4WD	75-97	AXLE	*	*	*	*
CARAVAN, VOYAGER, TOWN & COUNTRY MINI-VANS	FWD	84-97	STRUT	WEAR IND.	[1]	NO UPPER BALL JOINT	
DAKOTA	RWD	87-97	1	.020	[1]	*	*
	4WD	87-97	1	.060	[1]	*	*

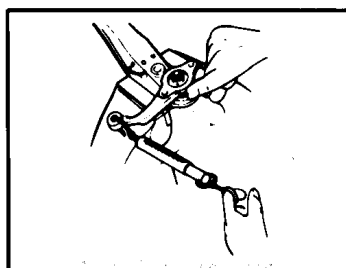
RAMPAGE, SCAMP	FWD	82-84	STRUT	*	*	NO UPPER BALL JOINT	
FORD							
AEROSTAR 2WD	RWD	86-96	1	#	.031	#	.031
AEROSTAR 4WD	4WD	90-96	1	#	.031	#	.031
APPLICATIONS				LOWER BALL JOINT		UPPER BALL JOINT	
MODEL	YEAR	TYPE	AXIAL	RADIAL	AXIAL	RADIAL	
FORD (cont'd)							
BRONCO	4WD	80-96	TWIN I-BEAM	#	.031	#	.031
	4WD	75-79	AXLE	*	*	*	*
BRONCO II 2WD	RWD	87-91	TWIN I-BEAM	#	.031	#	.031
BRONCO II 4WD	4WD	84-90	TWIN I-BEAM	#	.031	#	.031
E150,E250,E350 VANS	RWD	92-97	TWIN I-BEAM	#	.031	#	.031
EXPEDITION 2WD	RWD	97	1	#	.031	#	.031
EXPEDITION 4WD	4WD	97	1	#	.031	#	.031
EXPLORER 2WD	RWD	95-97	1	#	.031	#	.031
	RWD	91-94	TWIN I-BEAM	#	.031	#	.031
EXPLORER 4WD	4WD	95-97	1	#	.031	#	.031
	4WD	91-94	TWIN I-BEAM	#	.031	#	.031
F100 2WD	RWD	81-83	TWIN I-BEAM	#	.031	#	.031
F100 4WD	4WD	75-77	AXLE	*	*	*	*
F150 2WD	RWD	97	1	#	.031	#	.031
F150 4WD	4WD	97	1	#	.031	#	.031
F150, F250 4WD	4WD	80-96	TWIN I-BEAM	#	.031	#	.031
F150, F250 4WD	4WD	76-79	AXLE	*	*	*	*
F150, F250, F350 2WD	RWD	81-96	TWIN I-BEAM	#	.031	#	.031
F350 4WD	4WD	80-85	TWIN I-BEAM	#	.031	#	.031
RANGER 2WD	RWD	83-96	TWIN I-BEAM	#	.031	#	.031
RANGER 4WD	4WD	83-96	TWIN I-BEAM	#	.031	#	.031
VILLAGER	FWD	93-97	STRUT	*	*	NO UPPER BALL JOINT	
WIND STAR	FWD	95-96	STRUT	*	*	NO UPPER BALL JOINT	
GENERAL MOTORS							
10, 20 SERIES 4WD PICKUPS & BLAZER & JIMMY	4WD	75-87	AXLE	*	*	*	*
10, 20, 30 SERIES 2WD PICKUPS & BLAZER & JIMMY	RWD	75-87	1	.093	[1]	*	*
ASTRO, SAFARI 2WD	RWD	85-97	1	WEAR IND.	[1]	*	*
ASTRO, SAFARI 4WD	4WD	90-93	1	.080	[1]	*	*
C1500, C2500 SUBURBANS & C3500 4 DR PICKUPS	RWD	92-97	1	.080	[1]	*	*
C1500, C2500, C3500 PICKUPS	RWD	88-97	1	.080	[1]	*	*
EL CAMINO, SPRINT, CABALLERO	RWD	75-87	1	WEAR IND.	[1]	*	*
G10, G20, G30 VANS	RWD	96-97	1	.080	[1]	*	*
	RWD	93-95	1	WEAR IND.	[1]	*	*
	RWD	88-92	1	.093	[1]	*	*

K1500, K2500 SUBURBANS & K1500 BLAZER, TAHOE, YUKON & K3500 4 DR PICKUPS	4WD	92-97	1	.080	[1]	*	*
K1500, K2500, K3500 PICKUPS LUMINA, SILHOUETTE & TRANS SPORT MINI-VAN	4WD FWD	88-97 90-97	1 STRUT	.080 *	[1] *	NO UPPER BALL JOINT	
P20, P30 (EXCEPT I-BEAM)	RWD	88-93	1	.093	[1]	*	*

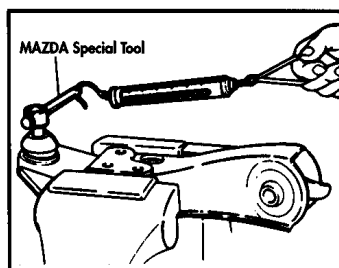
APPLICATIONS				LOWER BALL JOINT		UPPER BALL JOINT	
MODEL	YEAR	TYPE	AXIAL	RADIAL	AXIAL	RADIAL	
GENERAL MOTORS (con't)							
R10, R20, R1500, R2500, SUBURBANS & R30, R3500 4 DR PICKUPS	RWD	87-91	1	.093	[1]	*	*
S10, S15, S10 BLAZER, S15 JIMMY & SONOMA	RWD	82-97	1	WEAR IND.	[1]	*	*
S10, S15, S10 BLAZER, S15 JIMMY, SONOMA, SYCLONE & TYPHOON	4WD	82-97	1	.125	[1]	*	*
V10, V20, V1500, V2500, SUBURBANS & V1500 BLAZER, JIMMY & V30, V3500 4 DR PICKUPS	4WD	87-91	AXLE	*	*	*	*
MAZDA							
B2300, B3000, B4000	2&4 V	91-94	TWIN I-BEAM	#	.031	#	.031
NAVAJO	2&4 V	91-94	TWIN I-BEAM	#	.031	#	.031
TOYOTA							
FOUR RUNNER	4WD	95-97	1	4-35 IN-LBS (TEST D)		6-39 IN-LBS (TEST D)	
	4WD	91-93	1	.091	[1]	*	*
	4WD	86-90	1	*	*	.091	[1]
PICKUP 2WD	RWD	95	1	4-43 IN-LBS (TEST D)		17-35 IN-LBS (TEST D)	
	RWD	81-94	1	.091	[1]	.091	[1]
PICKUP 4WD	4WD	95	1	26-52 IN-LBS (TEST D)		17-35 IN-LBS (TEST D)	
	4WD	91-94	1	.091	[1]	*	*
	4WD	86-90	1	*	*	*	*
T-100 2WD	RWD	95-97	1	17-61 IN-LBS (TEST D)		17-34 IN-LBS (TEST D)	
	RWD	94	1	*	*	*	*
T-100 4WD	4WD	95-97	1	4-22 IN-LBS (TEST D)		17-34 IN-LBS (TEST D)	
T-100 4WD	4WD	94	1	.091	[1]	*	*
TACOMA 2WD	RWD	96-97	1	4-30 IN-LBS (TEST D)		4-30 IN-LBS (TEST D)	
TACOMA 4WD	4WD	97	1	1-22 IN-LBS (TEST D)		6-39 IN-LBS (TEST D)	
	4WD	96	1	4-35 IN-LBS (TEST D)		6-39 IN-LBS (TEST D)	



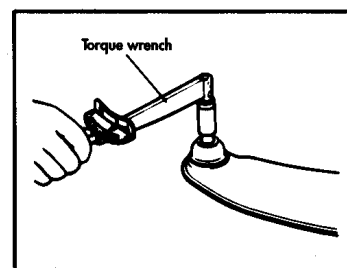
Test A Measure the turning force at the end of ball joint arm by using a pull scale (see illustration).



Test B Measure the turning force at the end of knuckle by using a pull scale (see illustration).



Test C Install the Mazda special tool to the ball stud, and then measure by using a pull scale.



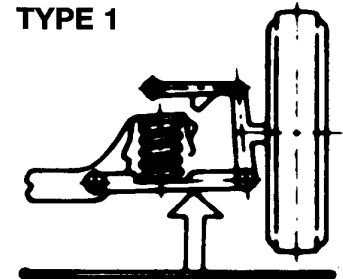
Test D Measure the stud rotational torque on the end of the stud.

HOW TO CHECK

LOAD CARRYING BALL JOINTS WITHOUT WEAR INDICATOR

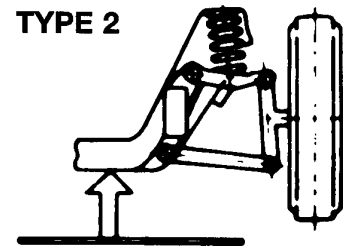
TYPE 1 • Lower Load Carrying Ball Joint

Type One vehicles have the coil spring or torsion bar acting directly on the lower control arm. Thus, the lower ball joint is the load carrying joint. Lower ball joints without wear indicators must be "unloaded" to check for looseness. Raise vehicle and place supports under both lower control arms as close to the wheels as possible to unload ball joints. These ball joints require a ball joint checking gauge and must be checked as shown.



TYPE 2 • Upper Load Carrying Ball Joint

Type Two vehicles have the coil spring or torsion bar acting directly on the upper control arm. The upper ball joint is the load carrying joint and must be unloaded to check for looseness. Place T-458 wedges or equivalent between frame and both upper control arms. Raise and support both sides of vehicle on the frame or cross-member. The ball joints require a ball joint checking gauge and must be checked as shown.



AXIAL CHECK

(Exc. Ball Joints with Wear Indicators)

Attach dial indicator to the control arm of the ball joint being checked. Position and adjust plunger of dial indicator in a vertical position, either on spindle knuckle adjacent to stud nut (Ford and GM products) or on ball joint housing adjacent to lube fitting (Chrysler products). Slip dial ring to zero marking. Move wheel up and down and note the amount of ball joint axial looseness registered on the dial.#

RADIAL CHECK

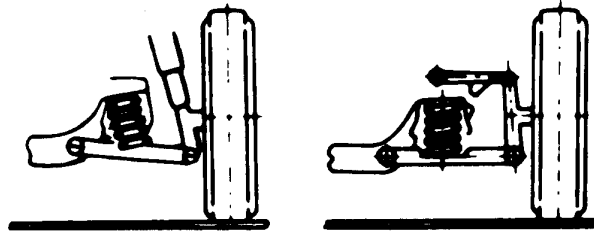
(Exc. Ball Joints with Wear Indicators)

Attach dial indicator to the control arm of the ball joint being checked. Position and adjust plunger of dial indicator against edge of wheel rim nearest to ball joint being checked. Slip dial ring to zero marking. Move the wheel in and out and note the amount of ball joint radial looseness registered on the dial. **CAUTION:** Tighten wheel bearings or apply brakes to prevent false readings on radial check.

WEAR INDICATOR

BALL JOINTS WITH WEAR INDICATORS

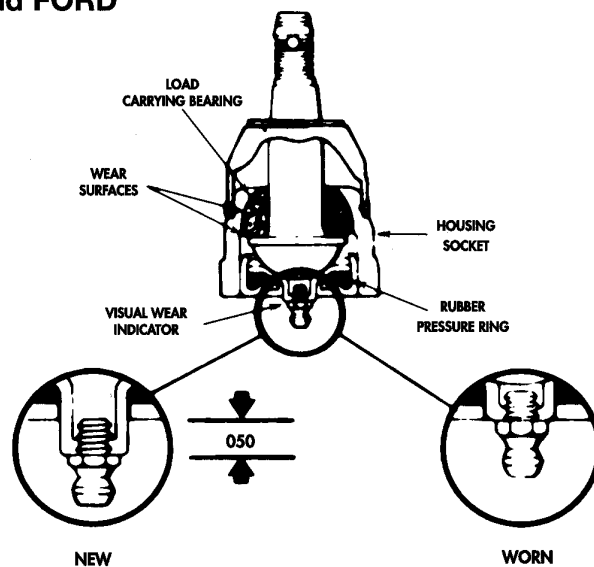
Lower ball joints with wear indicators, must remain "loaded" to check for wear. It is not necessary to raise or support the vehicle. The ball joint should be checked with the suspension at curb height. The lower ball joint is inspected for wear by visual observation alone.



VISUAL OBSERVATION CHECK

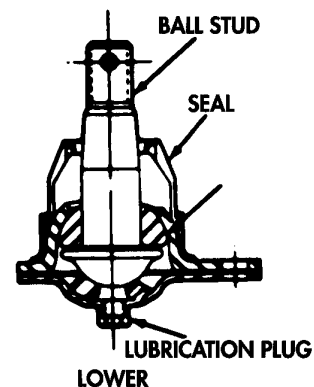
G.M. and FORD

Wear is indicated by the protrusion of the 1/2" diameter boss into which the grease fitting is threaded. This round boss (WEAR INDICATOR) projects beyond the surface of the ball joint cover on a new, unworn joint. Normal wear will result in the surface of this boss retreating very slowly inward. To inspect for wear, wipe the grease fitting and boss free of dirt and grease as for a grease job. Observe or scrape a screwdriver, scale, or fingernail across the cover. If the round boss is flush or inside the cover surface, replace the ball joint.



AMERICAN MOTORS PACER

FOR AMC PACER: Remove lubrication plug from lower ball joint. Check ball joint clearance by inserting stiff wire or thin rod into lubrication plug hole until it contacts ball stud. Accurately mark rod with knife or scribe where it is aligned with outer edge of plug hole. Distance from ball stud to outer edge of plug hole is ball joint clearance. Measure distance from mark to end of rod. If distance measured is 7/16 or more, replace ball joint.



HOW TO CHECK

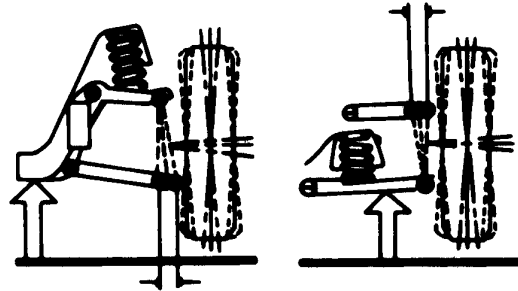
FOLLOWER BALL JOINTS

(NON-LOAD CARRYING)

The "follower" is the non-load carrying joint. It's construction prevents "unloading" and special checking is required.

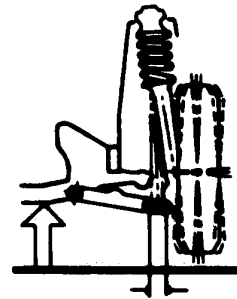
ALL EXC. MAC PHERSON STRUT

With the vehicle raise "unloading" the load carrier, grasp the wheel at the top and/or bottom. Rock wheel and tire in and out while observing "follower" joint. Any perceptible movement between stud and housing indicates excessive wear and replacement is recommended.



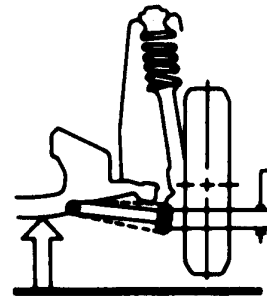
MAC PHERSON STRUT — EXCEPT CHRYSLER

The lower ball joint is the "follower" or non-load carrying joint. With the vehicle raised "unloading" the load carrier (upper mount), grasp the wheel at the top and/or bottom. Rock wheel and tire in and out while observing the follower joint. Any perceptible movement between stud and housing indicates excessive wear and replacement is recommended.



MAC PHERSON STRUT — 1978-80 OMNI, HORIZON

The lower ball joint is the "follower" or non-load carrying joint. With the vehicle raised "unloading" the load carrier (upper mount), attach a dial indicator to the lower control arm. Position the dial indicator plunger in a vertical position against the steering knuckle leg adjacent to ball joint stud. "Zero" the dial indicator. Grasp the lower control arm and push it up and down. If the total reading on the dial exceeds .050 axial looseness, the ball joint should be replaced.



MAC PHERSON STRUT — 1981 & LATER CHRYSLER PRODUCTS

With the weight of the vehicle resting on the wheels, grasp the grease fitting as shown and attempt to move the fitting. If the ball joint is worn, the grease fitting will move easily. If movement is noted, replace the ball joint. No mechanical assistance or added force is necessary.

