



LIGHT TRUCK/SUV PARTS

Truck Axle Shims

80199-81099

ZINC TRUCK AXLE SHIMS

These popular heavy-duty axle shims are for Jeep CJs and similar vehicles with 1-3/4" to 2" wide leaf springs.

Six shims per box.



New No.	Old No.	Width	Degree Taper	New No.	Old No.	Width	Degree Taper
80199	801	1-3/4 to 2"	1/2°	80699	806	1-3/4 to 2"	3°
80299	802	1-3/4 to 2"	1°	80799	807	1-3/4 to 2"	3-1/2°
80399	803	1-3/4 to 2"	1-1/2°	80899	808	1-3/4 to 2"	4°
80499	804	1-3/4 to 2"	2°	80999	809	1-3/4 to 2"	5°
80599	805	1-3/4 to 2"	2-1/2°	81099	810	1-3/4 to 2"	6°

Previously **801-810**

Do you specialize in Heavy Duty Trucks or maintain a truck fleet? Check out our Heavy Duty Truck Catalog (Part No. 20076)



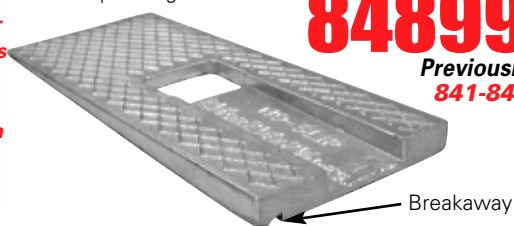
TRUCK AXLE SHIMS (HD ZINC ALLOY)

APPLICATIONS: Any solid axle 2WD or 4WD vehicle.

New No.	Old No.	Width	Degree Taper	Qty Box	Wt Box
84199	841	2-1/4" - 2-1/2"	1/2°	6	1-1/2 lb.
84299	842	2-1/4" - 2-1/2"	1°	6	1-1/2 lb.
84399	843	2-1/4" - 2-1/2"	1-1/2°	6	2 lb.
84499	844	2-1/4" - 2-1/2"	2°	6	2-1/4 lb.
84599	845	2-1/4" - 2-1/2"	2-1/2°	6	2-3/4 lb.
84699	846	2-1/4" - 2-1/2"	3°	6	2-3/4 lb.
84799	847	2-1/4" - 2-1/2"	3-1/2°	6	3-1/4 lb.
84899	848	2-1/4" - 2-1/2"	4°	6	3-1/4 lb.

Note: Ordering one Part Number supplies six shims in a box. When placing order spring pad length and width is needed.

Center Web Eliminates Spreading



84199-84899

Previously **841-848**

89199-89899

Previously **891-898**

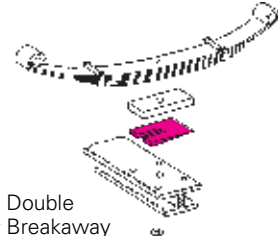
UNI-WEDGE SHIMS (HD ZINC ALLOY)

Twice the coverage - half the inventory. Changes caster positive or negative from 1/2° to 4°.

APPLICATIONS: Any solid axle 2WD or 4WD vehicle.



Center Web Eliminates Spreading



Double Breakaway

New No.	Old No.	Width	Degree Taper	Qty/Box
89199	891	3" - 3-1/2" - 4"	1/2°	6
89299	892	3" - 3-1/2" - 4"	1°	6
89399	893	3" - 3-1/2" - 4"	1-1/2°	6
89499	894	3" - 3-1/2" - 4"	2°	6
89599	895	3" - 3-1/2" - 4"	2-1/2°	6
89699	896	3" - 3-1/2" - 4"	3°	6
89799	897	3" - 3-1/2" - 4"	3-1/2°	6
89899	898	3" - 3-1/2" - 4"	4°	6

Note: Ordering one Part Number supplies six shims in a box. When placing order spring pad length and width is needed.

Sleeve Installation Chart

The illustrations below show where to position the slot in the sleeve to get the amount of camber, caster or both needed. Positions 1, 2, 3 & 4 will change camber/caster the amount stamped on the sleeve. Positions 5, 6, 7 & 8 will change the camber/caster by the following amounts:

FOR SLEEVES:
23000 23100 23120
23130 23180 23220
23230

DEGREE	CHANGE	DEGREE	CHANGE	DEGREE	CHANGE	DEGREE	CHANGE
1/4	3/16	3/4	17/32	1-1/4	7/8	1-3/4	1-7/32
1/2	11/32	1	11/16	1-1/2	1-1/16	2	1-13/32

Sleeve Installation Chart - Slot in sleeve shows direction top of wheel will move				FRONT OF VEHICLE
LEFT/RIGHT WHEEL	LEFT/RIGHT WHEEL	LEFT/RIGHT WHEEL	LEFT/RIGHT WHEEL	
1 (+) CAMBER	3 (+) CASTER	5 (+) CAMBER/CASTER	7 (-) CAMBER (+) CASTER	
2 (-) CAMBER	4 (-) CASTER	6 (+) CAMBER (-) CASTER	8 (-) CAMBER/CASTER	

Adjustment range: Camber/Caster $\pm 1.3^\circ$ to $\pm 1.50^\circ$

Installation time: .5 hr/side Required: 1 per wheel

APPLICATIONS

Jeep 4WD: All 1/2 and 3/4 ton 4x4s w/ball joint suspensions up to 1992, except 1984 - 89 downsize
Chevrolet/GMC 4WD: 1970 - 87 K5, K10, K10, Blazer; 1970 - 91 Suburban; 1988 - 91 V10, V20, V1500, V2500

Dodge/Plymouth 4WD: All 1/2 and 3/4 ton 4x4s w/ball joint suspensions through 1993

Ford 4WD: All 1/2 and 3/4 ton 4x4s w/ball joint suspensions through 1979

International 4WD: All 1/2 and 3/4 ton 4x4s w/ball joint suspensions

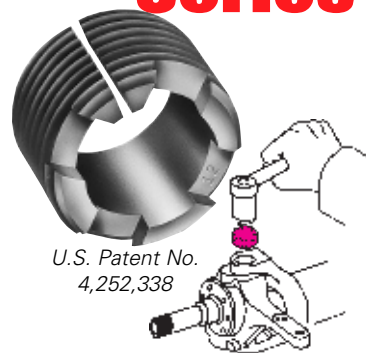


4169 - Spanner Socket, pg 85

4WD SLEEVES

These sleeves change camber and caster on many older model trucks and SUVs with ball joint suspensions. **4169** spanner socket (page 85) is required for sleeve removal. Rotate sleeve to fine tune camber/caster adjustment.

Part No.	Total Change
23002	.25° (1/4°)
23004	.50° (1/2°)
23006	.75° (3/4°)
23008	1.00° (1°)
23010	1.25° (1-1/4°)
23012	1.50° (1-1/2°)



23000 Series

23100

Adjustment range:

Camber/Caster $\pm .25^\circ$ to $\pm 2.75^\circ$

Installation time: .5 hr/side

Required: 1 per wheel

23100 & 24130

APPLICATIONS

Ford 4WD:

1980 - 88 F250, F350

1980 - 03 E250, E350, E450,
full size Bronco with ball joints

1980 - 96 F150, F250 (L/D)

23130

Adjustment range:

Cam./Cas. $\pm .25^\circ$ to $\pm 2.00^\circ$

Installation time: .5 hr/side

Required: 1 per wheel

23130 & 24130

APPLICATIONS

Ford 4WD:

1997 - 98 F250 (H/D)

1999 - 04 F250, F350, F450,

F550 Super Duty 4WD

2000 - 04 Excursion

1992 - 98 F350 Crew Cab

Ford 2WD:

1999 - 02 F450, F550 Super Duty

Dodge 4WD:

1994 - 99 BR2500, BR3500

Dodge 2WD:

1994 - 02 BR3500 w/Mono Beam

24130

Adjustment range:

Cam./Cas. $\pm .75^\circ$ to $\pm 2.75^\circ$

Minimum Adjustment $\pm .75^\circ$

Installation time: .5 hr/side

Required: 1 per wheel

FORD 4WD CAMBER/CASTER SLEEVE SETS (9)

Change camber, caster or both at the same time with these sleeves. Simply remove the tire, cotter pin and upper ball joint stud nut and break the taper free between the stud and sleeve. Using a sleeve puller, remove the existing sleeve. Install zero degree sleeve **23109** or **23139** or to determine the change needed, then install the correct sleeve. To adjust, the sleeve may be lifted and rotated 1/8 turn. Available individually or in MasterPaks of 10.

23100 Series

Set 23100 contains 1 each: **23101, 23102, 23103, 23104, 23105, 23106, 23107, 23108, 23109**

23100 Series:

Part No.	Total Change	Part No.	Total Change
23101	.25° (1/4°)	23107	1.75° (1-3/4°)
23102	.50° (1/2°)	23108	2.00° (2°)
23103	.75° (3/4°)	23109	0.00° (0°)
23104	1.00° (1°)	23111	2.25° (2-1/4°)
23105	1.25° (1-1/4°)	23112	2.50° (2-1/2°)
23106	1.50° (1-1/2°)	23113	2.75° (2-3/4°)



77880 - Sleeve Puller, pg 85

88830 - Sleeve Puller, pg 85

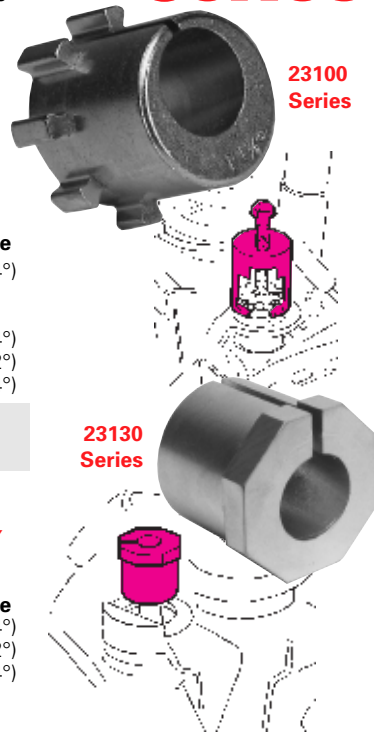
23130 Series

Set 23130 contains 1 each: **23131, 23132, 23133, 23134, 23135, 23136, 23137, 23138, 23139**

23130 Series:

Part No.	Total Change	Part No.	Total Change
23131	.25° (1/4°)	23135	1.25° (1-1/4°)
23132	.50° (1/2°)	23136	1.50° (1-1/2°)
23133	.75° (3/4°)	23137	1.75° (1-3/4°)
23134	1.00° (1°)	23138	2.00° (2°)
		23139	0.00° (0°)

23100 23130 Series

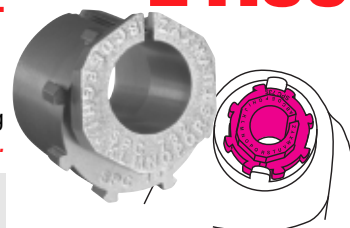


4WD CAMBER/CASTER ADJUSTABLE SLEEVE

Inventory getting out of hand? Just need to fill in a few odd sizes? An Adjustable Sleeve may be just what you need. This sleeve can adjust camber and/or caster in a large variety of combinations. A great solution for saving money and keeping sales. **Replaces up to 24 stock sleeves.**

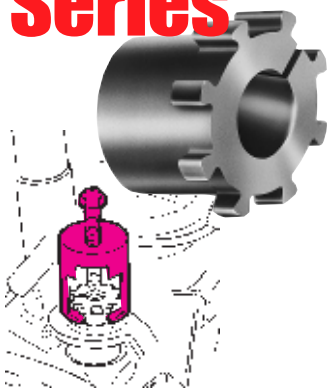


74500 - Adj. Sleeve Wrench, pg 85



24130

23120 Series



CAMBER/CASTER SLEEVE SET (9)

Change camber, caster or both at the same time with these sleeves. Simply remove the tire, cotter pin and upper ball joint stud nut and break the taper free between the stud and sleeve. Using a sleeve puller, remove the existing sleeve. Install zero degree sleeve **23129** to determine the change needed, then install the correct sleeve. To adjust, the sleeve may be lifted and rotated 1/8 turn.

Set 23120 contains 1 each: 23121, 23122, 23123, 23124, 23125, 23126, 23127, 23128, 23129 (No MasterPaks)

23120 Series:

23121	.25° (1/4°)	23126	1.50° (1-1/2°)
23122	.50° (1/2°)	23127	1.75° (1-3/4°)
23123	.75° (3/4°)	23128	2.00° (2°)
23124	1.00° (1°)	23129	0.00° (0°)
23125	1.25° (1-1/4°)		

23120

Adjustment range:

Camber/Caster .25° to 2.00°

Installation time: .5 hr/side

Required: 1 per wheel

23120 & 24120 APPLICATIONS

Ford 4WD:

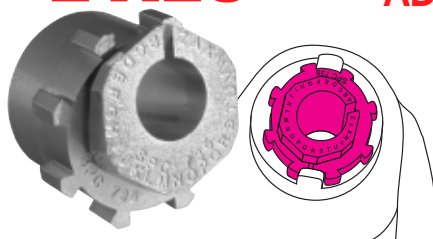
1983 - 89 Bronco II

1990 (Early) Bronco II

1983 - 89 Ranger

77880 - Sleeve Puller, pg 85
88830 - Sleeve Puller, pg 85

24120



FORD 4WD CAMBER/CASTER ADJUSTABLE SLEEVE

Inventory getting out of hand? Just need to fill in a few odd sizes? Adjustable Sleeves maybe just what you need. This sleeve can adjust camber and/or caster in a large variety of combinations. **Replaces up to 5 stock 23120 sleeves.**



74500 - Adj. Sleeve Wrench, pg 85

24120

Adjustment range:

Cam./Cas. ±1.00° to ±2.75°

Minimum Adjustment ±1.00°

Installation time: .5 hr/side

Required: 1 sleeve per wheel

23160 Series



FORD 2WD CAMBER SET (8)

The **23160** series changes camber only from 1/4° up to 2°. Remove the upper ball joint stud nut and break taper free between the stud and sleeve. Calculate change needed and install correct sleeve. Sleeve may be rotated to fine tune camber adjustment.

Set 23160 contains 1 each: 23161, 23162, 23163, 23164, 23165, 23166, 23167, 23168

Part No.	Camber change
23161	.25° (1/4°)
23162	.50° (1/2°)
23163	.75° (3/4°)
23164	1.00° (1°)
23165	1.25° (1-1/4°)
23166	1.50° (1-1/2°)
23167	1.75° (1-3/4°)
23168	2.00° (2°)

23160 Sleeve Installation Chart				FRONT OF VEHICLE
LEFT/RIGHT WHEEL	LEFT/RIGHT WHEEL	LEFT/RIGHT WHEEL	LEFT/RIGHT WHEEL	
(-) CAMBER	(+) CAMBER	(-) CAMBER	(+) CAMBER	

23160

Adjustment range:

Camber ±.25° to ±2.00°

Installation time: .5 hr/side

Required: 1 per wheel

23160 & 24160 APPLICATIONS

Ford 2WD:

1983 - 88 Ranger

1986 - 88 Bronco II

1980 - 83 F100 w/ball joint suspension

1980 - 86 F150 w/ball joint suspension

24160



FORD 2WD CAMBER ADJUSTABLE SLEEVE

Inventory getting out of hand? Just need to fill in a few odd sizes? An Adjustable Sleeve may be just what you need. This sleeve can adjust camber and/or caster in a large variety of combinations. A great solution for saving money and keeping sales. **Replaces up to 8 stock sleeves.**



74400 - Adj. Sleeve Wrench, pg 85

24160

Adjustment range:

Camber 0.0° to ±2.25°

Installation time: .5 hr/side

Required: 1 per wheel

23180


Adjustment range:

Cam./Cas. $\pm 25^\circ$ to $\pm 3.50^\circ$

Installation time: .5 hr/side

Required: 1 per wheel

77880 - Sleeve Puller,
pg 85

 **88830** - Sleeve Puller,
pg 85

87175 - Special Socket,
pg 85

23180 & 24180 APPLICATIONS

Ford 2WD: 1987 - 98 F350

2000 - 05 Excursion

1987 - 96 F150, F250 (L/D)

1989 - 90 Bronco II

1992 & Up E150, E250, E350,
E450

1991 - 94 Explorer

1989 - 97 Ranger

1999 - 04 F250, F350 Super
Duty

Mazda 2WD:

1991 - 97 Navajo, Pickup

Ford 4WD:

1991 - 94 Explorer

1990 - 97 Ranger

Mazda 4WD:

1991 - 97 Navajo, Pickup

24180

Adjustment range:

Cam./Cas. $\pm 50^\circ$ to $\pm 2.25^\circ$

Minimum Adjustment $\pm 50^\circ$

Installation time: .5 hr/side

Required: 1 per wheel

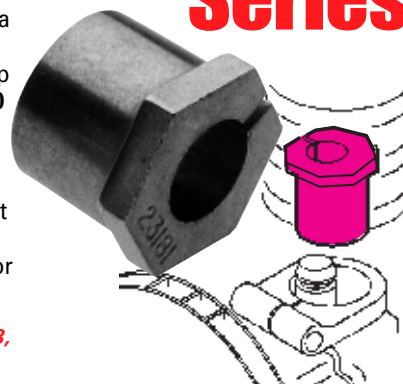
 **74400** - Adj. Sleeve
Wrench, pg 85

74500 - Adj. Sleeve
Wrench, pg 85

FORD/MAZDA 2 & 4WD CAM./CAS. SLEEVE SET (9)

These popular sleeves are widely used to adjust caster and/or camber on many Ford and Mazda 2/4WD trucks. To install, simply loosen and remove upper ball joint pinch bolt. Remove top snap ring if one is present. Use **77880** or **88830** sleeve puller to remove the existing sleeve. To save time during alignment, use **23199** zero degree sleeve to determine initial readings, then install correct sleeve. Note: Sleeves adjust to a smaller degree on Ford 4WD light trucks. Available individually or in MasterPaks of 10 for convenient ordering and restocking.

Set 23180 contains 1 each: 23181, 23182, 23183, 23184, 23185, 23186, 23187, 23188, 23199

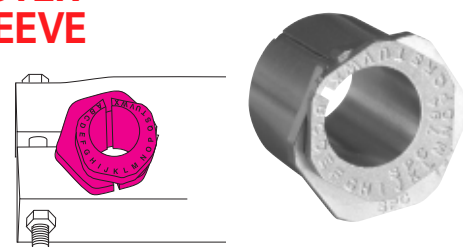


2WD			4WD		
Series	Adjustments	Adjustments	Series	Adjustments	Adjustments
Part No.	Total change	Total change	Part No.	Total change	Total change
23181	.25° (1/4°)	.20°	23188	2.00° (2°)	1.40°
23182	.50° (1/2°)	.40°	23189	2.25° (2-1/4°)	1.60°
23183	.75° (3/4°)	.60°	23190	2.50° (2-1/2°)	1.80°
23184	1.00° (1°)	.75°	23191	2.75° (2-3/4°)	2.00°
23185	1.25° (1-1/4°)	.90°	23192	3.00° (3°)	2.25°
23186	1.50° (1-1/2°)	1.10°	23193	3.25° (3-1/4°)	2.50°
23187	1.75° (1-3/4°)	1.25°	23194	3.50° (3-1/2°)	2.75°
23199 0.00° (0°)					

To save time during alignment, use the 23199 zero sleeve to determine initial readings.

FORD 2 & 4WD CAMBER /CASTER ADJUSTABLE SLEEVE

Inventory getting out of hand? Just need to fill in a few odd sizes? An Adjustable Sleeve may be just what you need. This sleeve can adjust camber and/or caster in a large variety of combinations. A great solution for saving money and keeping sales. **Replaces up to 9 stock 23180 sleeves.**



23220

Adjustment range:

Cam/Cas $\pm 0.25^\circ$ to $\pm 2.25^\circ$

Installation time: .5 hr/side

Required: 1 per wheel

23220 & 24220 APPLICATIONS

Ford 4WD: 2005 & Up F250,
F350 Super Duty

Use 0° sleeve to determine change.

24220

Adjustment range:

Cam./Cas. $\pm 2.50^\circ$

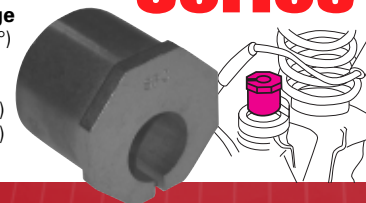
Installation time: .5 hr/side

Required: 1 per wheel

FORD F250, F350 SLEEVES

Ford changed the axle design in 2005 on their Heavy Duty trucks. These sleeves correct camber and caster on the new 4x4 F250 and F350 Super Duty truck.

Part No.	Total Change	Part No.	Total Change
23221	.25° (1/4°)	23227	1.75° (1-3/4°)
23222	.50° (1/2°)	23228	2.00° (2°)
23223	.75° (3/4°)	23229	0.00° (0°)
23224	1.00° (1°)	23211	2.25° (2-1/4°)
23225	1.25° (1-1/4°)	23212	2.50° (2-1/2°)
23226	1.50° (1-1/2°)		



ADJUSTABLE FORD F250, F350 SLEEVES

You can reduce inventory and avoid missed sales by carrying these Ford Super Duty adjustable sleeves.

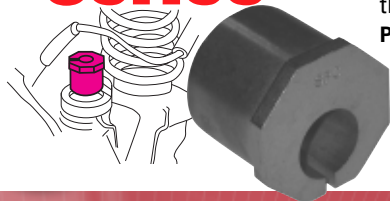


23220 Series

24220



23230 Series



FORD F450, F550 SLEEVES

Camber/caster sleeves to correct alignment problems on the new 4x4 F450 and F550 Super Duty trucks. Use the 0 degree sleeve to determine the amount of change needed.

Part No.	Total Change	Part No.	Total Change
23231	.25° (1/4°)	23236	1.50° (1-1/2°)
23232	.50° (1/2°)	23237	1.75° (1-3/4°)
23233	.75° (3/4°)	23238	2.00° (2°)
23234	1.00° (1°)	23239	0.00° (0°)
23235	1.25° (1-1/4°)		

23230

Adjustment range:
Cam/Cas $\pm 0.25^\circ$ to $\pm 2.00^\circ$

Installation time: .5 hr/side

Required: 1 per wheel

23220 & 24220 APPLICATIONS

Ford 2WD/4WD: 2005 & Up F450, F550 Super Duty

Chevy/GMC 4WD: 2005 & Up Kodiak K4500, Topkick K5500

Use 0° sleeve to determine change.

24230

Adjustment range:

Cam./Cas. $\pm 2.75^\circ$

Installation time: .5 hr/side

Required: 1 per wheel

24230



ADJUSTABLE FORD F450, F550 SLEEVES

You can reduce inventory and avoid missed sales by carrying these Ford Super Duty adjustable sleeves.

23268 23269



FIXED CHANGE FORD SUPER DUTY SLEEVES

These sleeves have a fixed positive camber and caster change and are designed specifically to align trucks that have been lifted or to provide more caster change than our standard 23220 Series sleeves.

For maximum drivability and to compensate for road crown, use a **23268** on the driver's side and a **23269** on the passenger's side.

Front Adjustment range:

23268 Cam +.50 / Cas +2.3

23269 Cam +.30 / Cas +2.6

Installation time: .5 hr/side

Required: 1 sleeve per wheel

APPLICATIONS

Ford 4WD: 2005 & Up F250, F350 Super Duty

23410



JEEP ADJ. BALL JOINT

This adjustable ball joint was designed specifically for the new Jeep Grand Cherokee and Commander to provide camber changes for alignment and drivability issues. Our new heavy duty design ensures adjustability for the life of the vehicle.



72509 - Ball joint press, pg 92

Front Adjustment range:

Camber -1.5° to $+1.5^\circ$

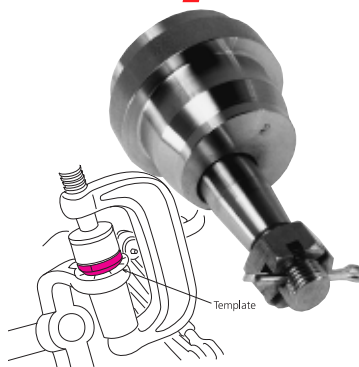
Installation time: .6 hr/side

Required: 1 per wheel

APPLICATIONS

Jeep: 2006 & Up Commander, 2005 & Up Grand Cherokee

Jeep & Dodge Offset Ball Joints



Caster and camber changes are now possible on some of the most popular sport utility vehicles and trucks in the marketplace. This offset ball joint replaces the O.E. upper ball joint to provide camber and caster changes. Use Installation Sleeve set **23580** in conjunction with **72509** Ball Joint Press for removal and installation of all ball joints.

23510 Cam/Cas $\pm .50^\circ$ **23520** Cam/Cas $\pm 1.00^\circ$

23530 Cam/Cas $\pm 1.50^\circ$ **23540** Cam/Cas $\pm 2.00^\circ$

Installation time: 1.0 hr/side Required: 1 per wheel

APPLICATIONS

Jeep 2WD/4WD: 1984 - 01 Cherokee, Comanche, 1987 & Up Wrangler, 1984 - 06 Downsize Wagoneer, 1990 - 96 Renegade, 1993 - 04 Grand Cherokee

Dodge 4WD: 1994 - 01 BR1500 & BR2500 (L/D) Pickups



23580 - Ball joint press sleeves, pg 93

72509 - Ball joint press, pg 92

Dodge Offset Ball Joints

23710 Cam/Cas $\pm 0.50^\circ$ **23720** Cam/Cas $\pm 1.00^\circ$
23730 Cam/Cas $\pm 1.50^\circ$

Installation time: 1.0 hr/side Required: 1 per wheel

APPLICATIONS

Dodge 4WD: 2000 - 02 BR2500, BR3500

23800* Cam/Cas 0.0° **23810** Cam/Cas $\pm 0.50^\circ$
23820 Cam/Cas $\pm 1.00^\circ$ **23830** Cam/Cas $\pm 1.50^\circ$

Installation time: 1.0 hr/side Required: 1 per wheel

APPLICATIONS:

Dodge 4WD: 2003 & Up DR2500, DR3500

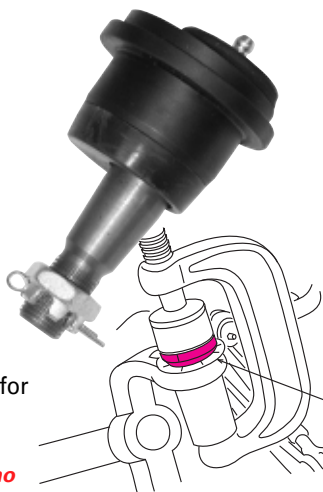


23780 - Ball joint press sleeves, pg 93

72509 - Ball joint press, pg 92

These offset ball joints replace the upper ball joint on late model Dodge Trucks. They come in 1/2 degree increments and provide for independent wheel caster and/or camber changes up to 1-1/2 degrees. Use installation sleeve set **23780** in conjunction with ball joint press **72509** for quick removal and installation of the ball joints. They come with an installation template for accurate changes.

** Note: 23800 is an OEM Replacement Ball Joint with no change in camber.*



Adjustment range:
Camber $\pm 1.00^\circ$ Caster $\pm 1.50^\circ$

Installation time: .3 hr/side

Required: 1 kit per wheel

APPLICATIONS

23755 2 cam/bolt sets

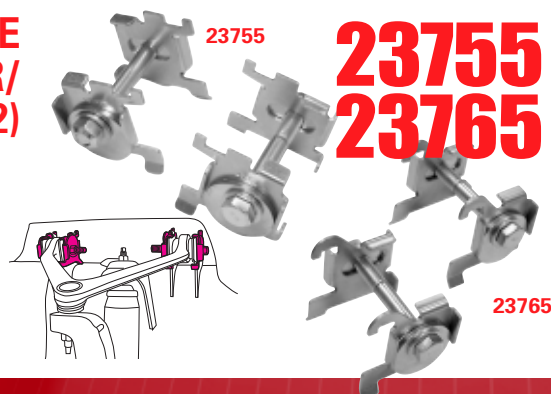
Dodge 4WD: 2002 - 05 DR1500

23765 2 cam/bolt sets

Dodge 2WD: 2002 - 05 DR1500

4X4 & 4X2 DODGE TRUCK CAMBER/CASTER KITS (2)

These heavy duty bolts and brackets replace the upper control arm mounting bolts giving you both camber and caster adjustment. Kit includes 2 cam and bolt sets to cover one side of the vehicle.



Adjustment range:
Camber 0.0° to $+5.00^\circ$
Caster $\pm 2.00^\circ$

Installation time: .8 hr/side

Required: 25470, 25480 - includes Left and Right arms 1 per axle

Required: 25472, 25482 - includes 1 right arm ONLY 1 per axle

Required: 25473, 25483 - includes 1 left arm ONLY 1 per axle

25470, 25472 & 25473

APPLICATIONS

Toyota 4x4: 2005 & Up Tacoma

Toyota 4x2: 2005 & Up PreRunner

25480, 25482 & 25483

APPLICATIONS

Toyota 4x4: 2007 & Up FJ, 2003 & Up 4Runner

Toyota 4x2: 2003 & Up 4Runner

4X4 & 4X2 TOYOTA FRONT UPPER ARMS

Tacoma's, FJ's, and 4Runner's run out of factory adjustment when you install lift kits. With our patent pending design this upper control arm provides an additional $\pm 2^\circ$ of caster and 0° to $+5^\circ$ of camber change. Built with an OE style ball joint and bushings, this arm is designed to correct alignment angles while maintaining factory ride quality. The hybrid tubular and forged steel design is tough enough to race - on or off-road. These remove and replace arms are available in pairs for lifted and off-road applications or individual left and right arms if just one corner needs adjustment.

LIGHT RACING

Check out our cutting edge off-road suspension solutions. Featuring the JounceShock™ a patented new form of bump shock that will maximize the capacity and performance of all types of suspensions from off-road racing to high capacity fleets. Call and ask for our Light Racing Catalog (Part No. 15009)



Pair 25470
Right 25472
Left 25473
Pair 25480
Right 25482
Left 25483



Wheel Centering Products

No gap between wheel & hub pilot



Large gap between wheel & hub pilot

Our new line of Wheel Centering Products from TruBalance™ is THE solution for erratic tire wear and excessive wheel vibration. These products bypass the hub pilots and centers the wheel to the wheel studs.

Increase fuel mileage
Increase tire life
Decrease tire vibration

WHEEL CENTERING PIN SETS

This is a reusable shop tool that is used when mounting the wheels. Once the wheels have been mounted the three centering pins are removed. One set includes 3 hardened steel pins with case and instructions. Patent #7,178,880

EXTERNAL CENTERING SLEEVES

For steer and drive axles. This wheel centering sleeve slides over the studs and seats against the wheel face. This sleeve stays on the wheel and helps to reduce "wheel-off" condition. Sold in sets of 6 per axle. Zinc plated to resist corrosion. Patent Pending

WHEEL CENTERING PIN SETS

Wheel type	Wheel Size	Stud Threads	Axle Position	Part No.
GMC/GM Kodiak/4500/5500				
Steel or Aluminum	Various	20mm	Steer & Drive	33113
FORD 450/550				
Steel or Aluminum	19.5"	14mm	Steer & Drive	33115

EXTERNAL CENTERING SLEEVES

Wheel type	Wheel Size	Stud Threads	Axle Position	Part No.
GMC/GM Kodiak/4500/5500				
Steel	19.5"/22.5"	20mm	Steer	33155
Steel/Steel	19.5"/22.5"	20mm	Drive	33156
Aluminum	19.5"/22.5"	20mm	Steer	33157
Aluminum/Steel	19.5"/22.5"	20mm	Drive	33158
Aluminum/Aluminum	19.5"/22.5"	20mm	Drive	33159
FORD 450/550				
Steel	19.5"/22.5"	14mm	Steer	33151
Steel/Steel	19.5"/22.5"	14mm	Drive	33150
Aluminum	19.5"/22.5"	14mm	Steer	33152
Aluminum/Steel	19.5"/22.5"	14mm	Drive	33153
Aluminum/Aluminum	19.5"/22.5"	14mm	Drive	33154

For Tractor/Trailer sizes call our customer service department at 800-525-6505 for a free catalog



47240 JEEP CASTER SHIMS

These shims provide positive caster changes on early model downsized Jeeps by installing them between the lower control arm and the frame bracket. Stackable for larger changes.



47240 - 1/32" Qty 6
47241 - 1/16" Qty 6
47242 - 1/8" Qty 6

Adjustment range:
1/32" to 1/8"

Installation time: .3 hr/side

6 shims per box

APPLICATIONS

Jeep: 1984 - 99 Cherokee
1986 - 94 Comanche

All Steel Cosmo Shims

56800 Series



Machined steel takes the punishing 4x4 environment. Install between the steering knuckle and the spindle.

56800 O.D. 4 3/4"

Adjustment range:

Camber -1.50° to +1.50°

Installation time: .8 hr/side

Required: 1 shim per wheel

APPLICATIONS

Jeep: All except
1984 & Up Cherokee,
Comanche, down-size
Wagoneer & Wrangler

Ford: All 1/2 ton through 1975

GM: All 1/2 ton through 1987

International: All 1/2 ton

Part No.	Camber Change Top Hole/Center up	Camber Change Top Hole/Off Center	Part No.	Camber Change Top Hole/Center up	Camber Change Top Hole/Off Center
56800	.13° (1/8°)	.06° (1/16°)	56806	.88° (7/8°)	.75° (3/4°)
56801	.25° (1/4°)	.13° (1/8°)	56807	1.00° (1°)	.88° (7/8°)
56802	.38° (3/8°)	.25° (1/4°)	56808	1.13° (1-1/8°)	1.00° (1°)
56803	.50° (1/2°)	.38° (3/8°)	56809	1.25° (1-1/4°)	1.13° (1-1/8°)
56804	.63° (5/8°)	.50° (1/2°)	56810	1.38° (1-3/8°)	1.25° (1-1/4°)
56805	.75° (3/4°)	.63° (5/8°)	56811	1.50° (1-1/2°)	1.38° (1-3/8°)

Installation time: .5 hr/axle

Required: 1 kit per axle

63020 - 2-3/8" Width

APPLICATIONS

Vehicles with 2-3/8" wide to 2-3/4" wide leaf springs inc. 60mm, 65mm and 70mm leaf springs of import trucks. All passenger vehicles with rear leaf springs.

63030 - 3" Width

APPLICATIONS

Vehicles with 3", 3-1/2" and 3-5/8" wide leaf springs including 80mm, 90mm, and 100mm wide leaf springs.

63040 - 4" Width

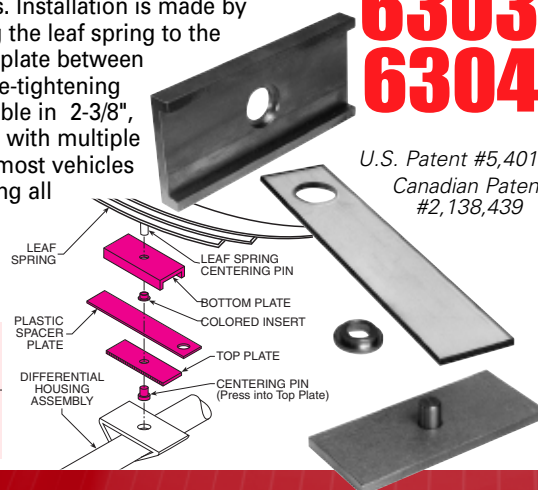
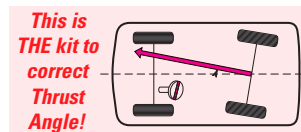
APPLICATIONS

Vehicles with 4" - 5" leaf springs.

THRUST ALIGNMENT PLATE

Our patented thrust alignment plate will allow for corrections of setback and thrust angle on most vehicles with rear leaf springs. Installation is made by loosening the U-bolts holding the leaf spring to the axle, installing the alignment plate between the axle and leaf spring and re-tightening the U-bolts. Widths are available in 2-3/8", 3", and 4" and each kit comes with multiple parts to provide coverage of most vehicles with rear leaf springs, including all early model passenger cars.

NOTE: Allow extra time for rusted bolts. New, longer U-Bolts may be required.



U.S. Patent #5,401,054
Canadian Patent #2,138,439

Rear Adjustment range:
Camber: -4.00° to +4.00°

Installation time: .5 hr/side

Required: 1 per wheel

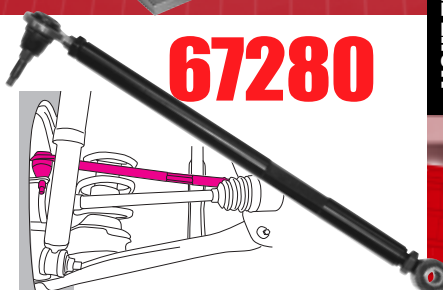
APPLICATIONS

Ford: 2001 & Up Escape

Mazda: 2001 & Up Tribute

ESCAPE/TRIBUTE REAR CAMBER ARM

Simply by removing the stock upper rear control arm and replacing it with this arm allows you to adjust camber either positive or negative with the turnbuckle adjuster. This arm can be used on vehicles with stock ride height or vehicles that have been altered for performance.



Rear Adjustment range:
Camber: -2.00° to +4.00°

Installation time: .5 hr/side

Required: 1 per wheel

APPLICATIONS

67430

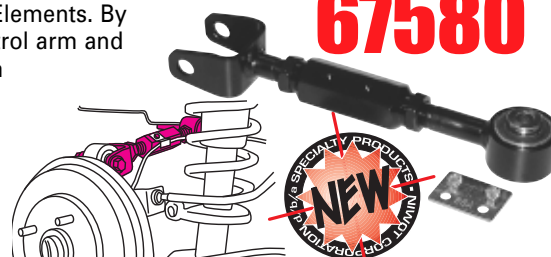
Honda: 2002 - 06 CR-V,
2003 & Up Element

67580

Honda: 2007 & Up CR-V

HONDA CR-V REAR EZ ARM XR™

These arms fit popular CR-Vs and Elements. By removing the stock upper rear control arm and replacing it with the adjustable arm you can adjust camber either positive or negative with the turnbuckle adjuster. This arm can be used on vehicles with stock ride height or vehicles that have been altered for performance.



Rear Adjustment range:
Camber -2.00° to +2.00°

Installation time: .5 hr/axle

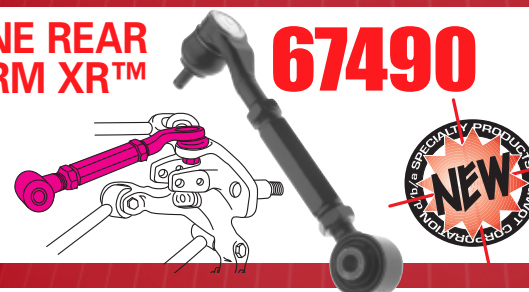
Required: 1 kit per wheel

APPLICATIONS

Honda: 2005 & Up Ridgeline

HONDA RIDGELINE REAR EZ ARM XR™

This new rear camber arm for the Honda Ridgeline has an O.E. style ball joint integrated into it and has a full 4 degrees of camber change using our turnbuckle adjustment system



Rear Adjustment range:
Pinion Angle -2.00° to +2.00°

Installation time: .3 hr/axle


Required: 1 kit per axle

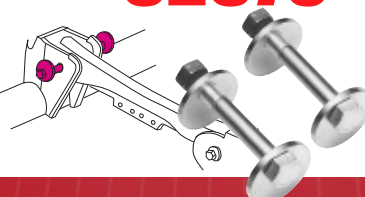
APPLICATIONS

Jeep: 1997 - 06 TJ Series

JEEP REAR PINION ANGLE ADJUSTING BOLTS

Correct the rear pinion angle on the TJ Series by replacing the OEM bolts on the upper trailing arms with these cam bolts rotating to make an adjustment.

 **64225 - Angle Gauge, pg 97**



Light Truck & SUV

82380 82390



JEEP FRONT CASTER AND PINION ANGLE ADJUSTERS

These cams replace the front axle bolt and provide caster and pinion angle (up to $\pm 3.00^\circ$) change. Our **#82380** is for 1997 - 06 Wrangler TJs, 1993 - 98 Grand Cherokees and 1994 - 98 Ram Trucks **with 36mm cams**.

To elongate OEM bolt holes on the **#82390** use our knock out punch - **74910**. Front caster will change as you adjust pinion angle. Use our offset ball joints (**23410-23540** - page 50) for additional caster adjustment and to adjust camber.



64225 - Angle Gauge, pg 97
74910 - Punch, pg 84 (on 82390)

Front Adjustment range:
Camber -1.50° to $+1.50^\circ$
Pinion Angle -1.50° to $+1.50^\circ$
Installation time: .4 hr/axle
Required: 1 kit per axle

82380 APPLICATIONS

Jeep: 1997 - 06 TJ Series,
1993 - 98 Grand Cherokees
Dodge: 1994 - 98 Ram Trucks
with 36mm cams

82390 APPLICATIONS

Jeep 4x4:
2007 & Up Wrangler JK

83790

GM CAMBER/CASTER KIT (PR)

These heavy duty cam bolts replace the upper control arm mounting bolts. This kit has the added convenience of slip-on cams which makes installation easier. Remove the O.E. Bolts and replace them with these cams, rotating to provide camber and caster adjustment. Use **74910** punch to remove the O.E. slugs and elongate the holes. If necessary, **87400** includes 4 cam and bolt assemblies to cover both sides of the vehicle (page 57).



74910 - Punch, pg 84

Front Adjustment range:
Cam./Cas. -2.00° to $+2.00^\circ$
Installation time: .5 hr/side
Required: 1 kit per wheel

APPLICATIONS

GM 4x4: 1988 - 99 1500, 2500,
3500 C & K series 2WD/4WD
trucks, 1990 & Up Safari AWD Van
Chevrolet 4x4: 1990 & Up Astro
AWD Van
GM 4x2: 1996 - 02 610, 620,
630, Savanah

86140

EXPLORER/MOUNTAINEER/ FRONT CASTER/CAMBER KIT

Caster and camber adjustments can be made easily by installing this kit. By replacing the stock alignment washers on the upper control arms, caster and camber can be adjusted by turning the cam nuts to obtain the proper readings. These cam kits give you the full range of caster and camber adjustment and once installed can make alignment changes for the life of the vehicle.

Front Adjustment range:
Camber $\pm .75^\circ$ / Caster $\pm 1.25^\circ$
Installation time: .4 hr/side
Required: 1 kit per axle

APPLICATIONS

Ford: 2002 - 05 Explorer
Lincoln: 2003 - 05 Aviator
Mercury: 2002 - 05 Mountaineer

86180

EXPLORER/MOUNTAINEER REAR CAMBER KIT

This camber adjuster lets you easily adjust camber on the Explorer/Mountaineer fully independent rear suspension systems. Full range of camber adjustment can be made by replacing the stock alignment washer on the rear lower control arm and installing the plate and cam nut. Camber can then be adjusted by turning the cam nut until the desired readings are obtained.

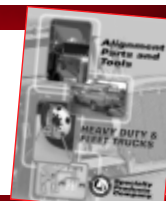
Rear Adjustment range:
Camber $\pm .50^\circ$
Installation time: .2 hr/side
Required: 1 kit per axle

APPLICATIONS

Ford: 2002 - 05 Explorer
Lincoln: 2003 - 05 Aviator
Mercury: 2002 - 05 Mountaineer



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Front Adjustment range:
Camber $\pm 1.00^\circ$ / Caster $\pm 1.50^\circ$
Installation time: .4 hr/side
Required: 1 kit per wheel

86230 APPLICATIONS

Ford: 2007 & Up Expedition
Lincoln: 2007 & Up Navigator

86240 APPLICATIONS

Ford: 2004 & Up F150
Lincoln: 2005 & Up Mark LT

FORD CASTER/CAMBER KIT

Make caster and camber adjustments a breeze on Ford's newly redesigned F150 platform as well as Expeditions and Navigators. This new kit replaces the original lower control arm bolt with this new bolt, cam and adjusting plate. After installation you will be able to adjust camber and caster for the life of the vehicle.



83820 - Adjusting Wrench, pg 85



86230
86240

Rear Adjustment range:
Pinion -2.50° to $+2.50^\circ$

Installation time: .5 hr/axle
Required: 1 kit per axle

APPLICATIONS

Ford: 2004 & Up F150
Lincoln: 2006 & Up Mark LT

F150 PINION ANGLE SHIMS

This wedge -type shim fits between the rear spring and the axle to change pinion angle by ± 2.5 degrees. It fits the unique 2 hole design of the new F150 platform. Recommended to align the driveline on vehicles that have been lowered or lifted.



64225 - Angle Gauge, pg 97



86255

Locks in OEMA adjustment.

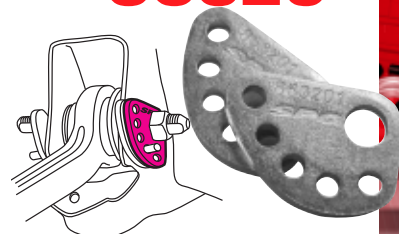
Installation time: .3 hr/side Required: 1 kit per wheel

APPLICATIONS

Chevrolet/GMC 4WD: 2002 & Up Avalanche, 1999 & Up K1500, 1999 & Up K2500 & K3500 Standard & Heavy Duty, 2000 & Up Suburban, 2000 & Up Tahoe/Yukon
Chevrolet/GMC 2WD: 2002 & Up Avalanche, 1999 & Up C1500, 1999 & Up C2500 & C3500 Standard & Heavy Duty, 2000 & Up Suburban, 2000 & Up Tahoe/Yukon

GMC ALIGNMENT CAM LOCK PLATE

This lock plate is designed to keep the front alignment angles in position by replacing the existing slotted cam. For newer models of GMC's 1500, 2500 and 3500 vehicles.



86320

Replacement Part

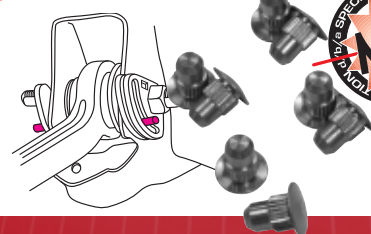
Installation time: .3 hr/side 8 pins per package

APPLICATIONS

Chevrolet/GMC 4WD: 2002 & Up Avalanche, 1999 & Up K1500, 1999 & Up K2500 & K3500 Standard & Heavy Duty, 2000 & Up Suburban, 2000 & Up Tahoe/Yukon
Chevrolet/GMC 2WD: 2002 & Up Avalanche, 1999 & Up C1500, 1999 & Up C2500 & C3500 Standard & Heavy Duty, 2000 & Up Suburban, 2000 & Up Tahoe/Yukon

GMC ALIGNMENT PINS

These pins replace the alignment pins in the GM vehicles listed. The pins make it easier to align the vehicle and often become bent or crushed and need to be replaced. **Includes 8 pins.**



86325

Front Adjustment range: Camber -1.00° to $+1.00^\circ$

Installation time: .8 hr/side Required: 1 kit per wheel

86330 APPLICATIONS

Chevrolet/GMC 4WD: 1999 & Up K2500 & K3500 Standard & Heavy Duty

Chevrolet/GMC 2WD: 1999 & Up C2500 & C3500 Standard & Heavy Duty

86350 APPLICATIONS

Chevrolet/GMC 4WD: 2002 & Up Avalanche, 1999 & Up K1500, 2000 & Up Suburban, 2000 & Up Tahoe/Yukon
Chevrolet/GMC 2WD: 2002 & Up Avalanche, 1999 & Up C1500, 2000 & Up Suburban, 2000 & Up Tahoe/Yukon

GMC 2WD/4WD FRONT CAMBER BUSHINGS

Replace the upper OE bushings with these offset control arm bushings to get -1.0° to $+1.0^\circ$ of **additional** camber change. OE style rubber maintains the original ride characteristics.



79500 - Bushing Sleeves, pg 93
72509 - Bushing Sleeves, pg 92



86330
86350

Light Truck & SUV

86370

GMC VAN ALIGNMENT CAM PLATE (EACH)

Designed to be easily adjusted with a 3/8" drive breaker bar, this cam makes the difficult to align 2003 and up GMC Savana and Chevy Express Vans a snap. Simply replace the OE cam on the forward bushing with this cam and you will be able to dial in camber and caster. These cams can also be used as replacement cams for 1999 & up full size Chevrolet/GMC Trucks and SUVs.

Front Adjustment range:
Cam/Cas -1.50° to +1.50°

Installation time: .3 hr/side

Required: 1 kit per wheel

APPLICATIONS

Chevrolet/GMC 2 & 4WD:
2003 & Up Express & Savana
1500, 2500, 3500

86375

GMC REPLACEMENT FRONT ALIGNMENT PLATE AND CAM (PAIR)

The **86375** kit is a stock OE replacement cam/bolt kit for newer GM 1/2, 3/4, and 1 ton truck and van applications from 1999 and up. These kits are for camber and caster adjustment. Fast, simple installation. For additional range see our bushings **86330** & **86350** (page 55).

Front Adjustment range: Cam/Cas -1.50° to +1.50°

Installation time: .3 hr/side Required: 1 kit per wheel

APPLICATIONS - TRUCKS

Chevrolet/GMC 2 & 4WD: 2002 & Up Avalanche, 1999 & Up C & K 1500, C & K 2500 and C & K3500 Standard and Heavy Duty
2000 & Up Suburban, 2000 & Up Tahoe/Yukon

APPLICATIONS - VANS

Chevrolet/GMC 2 & 4WD:
2003 & Up Express & Savana 1500, 2500, 3500

86640

FRONT CAMBER/CASTER EXPEDITION KIT

This kit allows for easy adjustment of the lower control arm to make camber and caster changes. Uses the OE bolts with the new cams and adjusting plates to give you lifetime camber and caster adjustments.

Front Adjustment range:
Camber -1.00° to +1.00°
Caster -1.50° to +1.50°

Installation time: .4 hr/side

Required: 1 kit per wheel

APPLICATIONS

Ford: 2002 - 06 Expedition
Lincoln: 2003 - 06 Navigator

86680

REAR CAMBER EXPEDITION KIT

This rear camber kit replaces the bolt on the upper control arm near the wheel. The adjusting plate locks into existing holes in the rear knuckle assembly making this a very easy-to-use and time saving kit.

Rear Adjustment range:
Camber -1.00° to +1.00°

Installation time: .3 hr/side

Required: 1 kit per wheel

APPLICATIONS

Ford: 2002 - 06 Expedition
Lincoln: 2003 - 06 Navigator

87225 87275

FORD CASTER BUSHINGS (2 PAIR)

This set of eccentric bushings replace the O.E. radius arm bushings and provides up to 1° caster change.

Front Adjustment range: Caster -1.00° to +1.00°

Installation time: .7 hr/side Required: 1 kit per axle

87225 APPLICATIONS

Ford 2WD: 1981 - 86 F100, F250, F350, 1981 - 88 F150

Ford 4WD: 1981 - 88 F150; 1981 - 83 F250, F350

87275 APPLICATIONS

Ford 2WD/4WD: All twin I-beams with coil springs not listed above, except E-Series Vans.

Installation time: .4 hr/side

Required: 1 kit per axle

APPLICATIONS

Ford: Twin I-Beam

RESILIENT RADIUS ARM TENSIONERS (PAIR)

87270

Correct wander and extend radius arm bushing life on trucks with radius arms and strut rod suspensions using bushings 1/2" or thicker, and approx. 2-1/4" diameter. Installed next to bushing, behind the washer and nut.



Front Adjustment range:
Caster $\pm 2.00^\circ$

Installation time: .7 hr/side

Required: 1 kit per axle

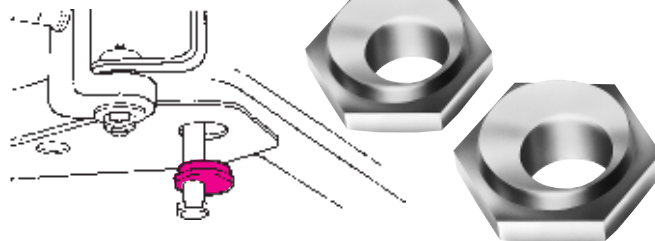
APPLICATIONS

2WD Ford: 1992 - 96 F150
1992 - 97 Rangers
1992 - 96 F250 (L/D)
1992 - 98 F250 (H/D), F350
1992 - 98 E-Series vans

FORD TRUCK 2WD CASTER KIT

87280

This part (number **87280**) fits many late model Ford truck and vans with 20mm bolts. With this kit you can adjust caster up to $\pm 2.0^\circ$.



Front Adjustment range:
Camber/Caster $\pm 1.75^\circ$

Installation time: .3 hr/side

Required: 1 kit per axle

APPLICATIONS

Ford 2WD & 4WD:
1995 - 01 Explorer, 1998 - 00
Ranger, 2001 - 02 Sport Trac
Mercury 2WD & 4WD:
1995 - 01 Mountaineer
Mazda 2WD & 4WD:
1998 & Up B-Series Pickup

EXPLORER CAMBER/CASTER KIT (4)

87310

This set of 4 cams allows for quick installation without having to remove the upper control arm bolt. Change camber and caster up to $\pm 1.75^\circ$. Use wrench **87155** (page 85) to adjust.



87155 - 21mm Wrench, pg 89

Front Adjustment range:
Camber/Caster $\pm 2.00^\circ$

Installation time: .4 hr/side

Required: 1 kit per axle

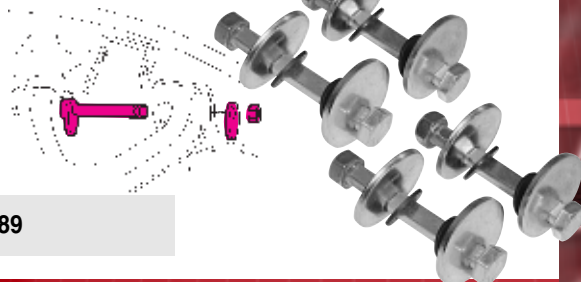
APPLICATIONS

Ford 2WD & 4WD:
1997 - 03 F150, F250 (L/D)
1997 - 02 Expedition
2004 F150 Heritage
Lincoln 2WD & 4WD:
1997 - 02 Navigator

F150/250 (L/D) 2/4WD CAMBER/CASTER KIT (4)

87385

Use this kit to change caster and/or camber on these vehicles. Simply replace the existing upper control arm mounting bolts with these cam bolts for caster/camber changes up to 2.0° .



87155 - 21mm Wrench, pg 89

Front Adjustment range:
Camber/Caster $\pm 2.00^\circ$

Installation time: .4 hr/side

Required: 1 kit per axle

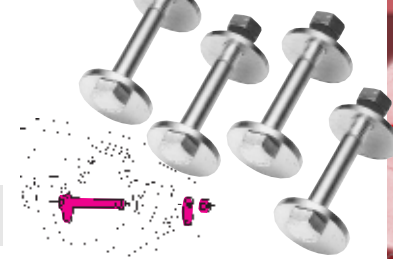
APPLICATIONS

GM 2WD/4WD:
1988 - 99 C&K 1500, 2500, 3500
1990 & Up Safari AWD Van
Chevrolet:
1990 & Up Astro AWD Van

GM 2WD AND 4WD CAMBER/CASTER KIT (4)

87400

These heavy duty cams replace the upper control arm mounting bolts. Remove the O.E. bolts and replace with cams, rotating to provide camber and/or caster adjustment. It may be necessary to remove O.E. slugs and elongate the bolt holes with **74910** punch. **83790** includes 2 cams to cover one side of the vehicle (page 54).



74910 - Punch, pg 84

87500

FORD EXPLORER CAMBER/CASTER KIT (4)

These Ford Explorers and Rangers have a torsion bar suspension with limited caster and no camber adjustment. This kit will provide up to 2° positive or negative camber/caster adjustment. Simply replace the O.E. upper control arm mounting bolts with the **87500** cam bolts for fast and efficient adjustment now and in the future. One kit covers both sides of the vehicle. Use wrench **87155** to adjust.



87155 - 21mm Wrench, pg 89

Front Adjustment range:
Camber/Caster $\pm 2.00^\circ$

Installation time:
Passenger Side: .4 hr/side
Driver Side: .7 hr/side

Required: 1 kit per axle

APPLICATIONS

Ford 2WD & 4WD:

1995 - 01 Explorer, 1998 & up Ranger, 2001 & Up Sport Trac

Mercury 2WD & 4WD:

1996 - 01 Mountaineer

Mazda 2WD & 4WD:

1998 & Up B-Series Pickup

87520

NISSAN CAMBER/CASTER KIT (2)

These cams are designed to install in the lower control arms for camber and caster adjustment. They replace the original non-adjustable lower control arm bolts.

Front Adjustment range:
Camber/Caster $\pm 2.00^\circ$

Installation time: .3 hr/side

Required: 1 kit per wheel

APPLICATIONS

Nissan 2 & 4WD: 2004 & Up Titan, 2005 & Up Armada, Frontier, Pathfinder, Xterra

88901 88902 88903 88904

TOYOTA MONOBEAM

These sleeves fit Toyota 4WD with series 40, 60, or 70 monobeam axles. Dismantle the hub assembly and press out the upper and lower bearing races. Replace with the correct offset races. Install the new bearings and reassemble the hub.

Front Adj. range: **88901** Cam./Cas. $\pm 1.20^\circ$
88902 Cam./Cas. $\pm 1.50^\circ$
88903 Cam./Cas. $\pm 1.80^\circ$
88904 Cam./Cas. $\pm 2.20^\circ$

Installation time: 1.4 hr/side Required: 1 per wheel

APPLICATIONS

Toyota 4WD: 1979 - 90 w/ 40, 60 or 70 series monobeam axle

Licensed Under U.S. Patent No. 4,953,889

88905 88906

SUZUKI SAMURAI 4WD

Samurai 4WD combination sleeves come in two different sizes to change camber, caster or both without causing a binding in the steering.

Front Adj. range: **88905** Cam./Cas. $\pm 1.00^\circ$
88906 Cam./Cas. $\pm 1.50^\circ$

Installation time: 1.4 hr/side Required: 1 per wheel

APPLICATIONS

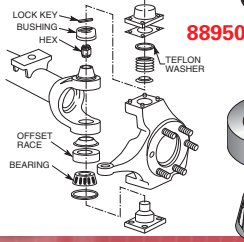
Suzuki 4WD: 1986 - 96 Samurai

Licensed Under U.S. Patent No. 4,953,889

88940 88950

DANA 60 AXLE CAM/CAS KITS

These exclusive kits provide a camber and caster change for Dana 60 Axles. Replace the O.E. bushing with the correct eccentric bushing, rotate to adjust caster/camber and lock in place. These kits provide full adjustment for future alignments.



Front Adj. range: **88940** Cam./Cas. $\pm 1.00^\circ$
88950 Cam./Cas. $\pm 1.50^\circ$

Installation time: **88940** .4 hr/side
88950 1.4 hr/side

Required: 1 per wheel

MONOBEAM - DANA 60 APPLICATIONS

Ford: 1976 & up F250/350

Chevrolet: 1977 - 94 K/V 30

GMC: 1977 - 94 K/V 3500

Dodge: 1975 - 93 W300/350