

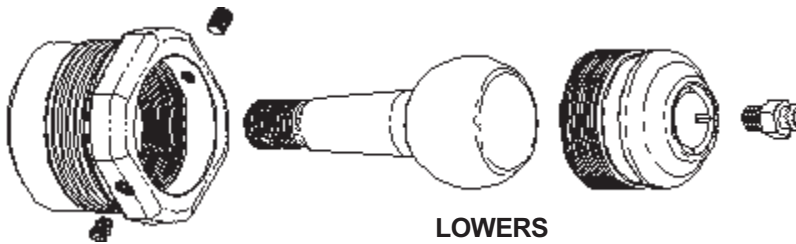


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## HOWE PRECISION BALL JOINT MAINTENANCE INSTRUCTIONS



### UPPERS

Unit	Style	Housing	Cap	Stud	Taper
22300	4 bolt 63-71 GM truck	223220	22321	22330	1.5 in/ft.
22301	4 bolt 73-95 GM truck	223220	22321	22350	2.0 in/ft.
22302	4 bolt Metric GM car	223221	22321	22360	2.0 in/ft.
22303	4 bolt GM car	223221	22321	22380	
22304	3 bolt Vette, Impala		22321	22390	
22305	3 bolt Ford	223222	22321	22370	1.5 in/ft.
22306	Screw In IMCA	22322	22321	22360	2.0 in/ft.
22320	Screw In Chrysler	22322	22321	22330	1.5 in/ft.

### LOWERS

Unit	Style	Housing	Cap	Stud	Taper	Adapter
22410	71-76 GM car	22417	22415	22430	2.0 in/ft.	22411
22412	60-66 Mopar	22417	22415	22440	1.5 in/ft.	22411
22413	71-76 GM car	22490	22415	22430	2.0 in/ft.	Press In
22418	70-80 Mopar	22322	22321	22451	1.5 in/ft.	22340
22419	GM Truck	22492	22415	22460	2.0 in/ft.	Press In
22420	GM Car / Mini	224170	22321	22470	2.0 in/ft.	Press In
22421	GM Car / Mod		22321	22480	1.6 in/ft.	Press In
22422	Dodge Truck		22415			Press In
22429	IMCA	224170	22321	22429S	2.0 in/ft.	Press In

**Common Parts:** Grease Zerk **22328**, Set Screw **22325**, Boot **22399**, O-ring **22326**

**Warning!** On screw in ball joints, use a Howe ball joint socket (#2152 upper, #2153 lower) to install or remove ball joints from the a-frame. Do not use a 1/2" drive wrench in the adjuster cap, the 1/2" broach is for removing and replacing the cap only and will not withstand additional torque. *Be certain that the spindle has the proper taper to match the taper of the ball stud! Improperly seated studs can become damaged to the point of failure!*

#### Installation - Screw In

- 1) Assembled ball joints are shipped from Howe Racing Enterprises internally lubricated, adjusted and ready to install.
- 2) Apply Anti-Seize to the threads of the Housing.
- 3) Install the ball joint in the upper a-frame and torque to 100 ft. lb. clockwise using a ball joint socket.

#### Installation - Bolt In

- 1) Install the ball joint on the topside of the upper a-frame & torque the 5/16 bolts to 15 ft. lbs. and on metric ball joints torque the 1/4" bolts to 9 ft. lbs.

#### Installation - Press In

- 1) Install the ball joint on the topside of the upper a-frame being sure that you are pressing squarely only on the ball joint housing. When pressing in the ball joint **do not** press on the adjuster cap or you will damage it. An object with a 1-3/4" or greater I.D. should be sufficient.

#### Connecting to the Spindle

Make sure that the stud is in contact with the spindle from top to bottom. If the taper is larger than the stud it will appear to be tight but will have a gap at the large end and will eventually break.

#### Disconnecting from the Spindle

- 1) Remove the spring and shock.
- 2) Place a jack stand under the lower a-frame for support.
- 3) Make sure the a-frame is near level and the taper of the ball joint is centered in the housing.
- 4) Use a pickle fork to push evenly on both sides of the housing until the taper is free from the spindle.
- 5) The taper of a Howe ball joint is more precise than other ball joints, which can cause it to be more difficult to remove. Difficult tapers may be separated from the spindle by wedging a pickle fork between the ball joint and the spindle to hold pressure, and then apply heat to the tapered area of the spindle until they separate.

#### Removing from the A-frame - Screw In

Unscrew the housing from the a-frame using a ball joint socket to turn the ball joint counter clockwise.

#### Removing from the A-frame - Bolt In

Remove 5/16" bolts using two 1/2" wrenches.

Metric - Remove each of the 1/4" bolts using two 7/16" wrenches.

#### Maintenance

Grease after every 300 to 400 laps with low friction grease. We use Citgo MP Lithoplex 3 or Red Line CV2. Unlike conventional ball joints, a Howe ball joint will only accept grease until it is full (typically, one pump or less is required). Once the grease passages are full they will not vent, the pressure from the grease gun can make it difficult to remove the gun from the zerk. To relieve the pressure work the ball stud around to vent grease onto the ball, if the ball joint is on the vehicle, bounce the suspension for the same result. Disassemble annually or every 2000 laps to adjust the lash.

#### Adjusting the Lash

Lash can be set with the a-frame attached to the car if the spring is unloaded and the ball joint taper is free from the spindle. If you choose to remove the ball joint from the a-frame, gently clamp the housing by the flat sides in a vise to disassemble.

#### Disassembly

- 1) Use a 3/32" allen wrench to remove the setscrews from the housing.
- 2) With a 1/2" drive ratchet turn adjuster cap counterclockwise to remove.
- 3) Clean moving parts to inspect for excessive wear. Replace any parts that are worn or damaged. The ball stud is concentric and should be checked for straightness. Install the ball stud upside down in the housing and spin the stud against the side of the housing with your fingers. If the ball stud is bent, you will see it wobble.

#### Assembly

- 1) Install the housing into the a-frame or gently clamp the housing by the flats into a vise.
- 2) Install the ball stud into the housing without grease.
- 3) Apply a small amount of light lubricant to the threads of the cap, install and tighten until it contacts the top of the ball.
- 4) Set the lash on the ball by loosening the cap 1/8 turn.
- 5) Install the setscrews into the housing tightening them evenly. If you have a steel adjuster cap apply blue loctite to setscrews before installing.
- 6) Using a grease gun, grease and rotate the ball stud by hand until the grease is visible on the bottom of the ball.