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HOWE RACING ENTERPRISES

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STEERING INSTRUCTIONS FOR CHEVELLE FRAME RACE CARS

	Spindles Used	Complete Kit	Howe Billet Pitman	Howe Centerlink	Howe Billet Idler	OEM Idler	Idler Spacer	Howe Tie Rod Assembly	Bump Steer Spacer Kit
OEM Chevelle Mod	Pinto	23501	2345	233973	23428	---	32165	R354150	R366
Repro Chevelle Mod	Pinto	23500	2345	233973	23428	---	912340	R354150	R366
Oem Chevelle	Chevelle	23502	n/a	23397	n/a	23430	---	n/a	n/a

INSTALLATION

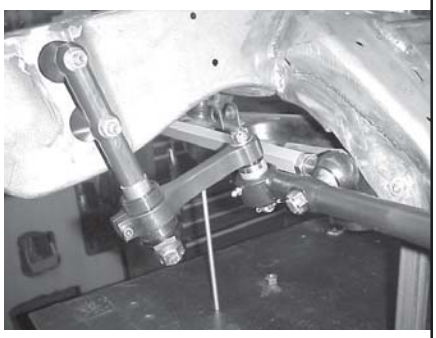
We recommend using a 1994-98 S-10 or 1983-88 Monte Carlo SS steering box..

1. Center the steering box by turning it fully to the left, fully to the right, then to center.
2. Once centered install the correct pitman arm for your application on to the steering box.
3. **a. OEM Frames**: If using the Howe billet idler arm attach it to the frame using the 1.375" frame spacers **(PN: 32165)** and two 7/16"x3" bolts. If you are using an OEM type idler you will not need the spacers.

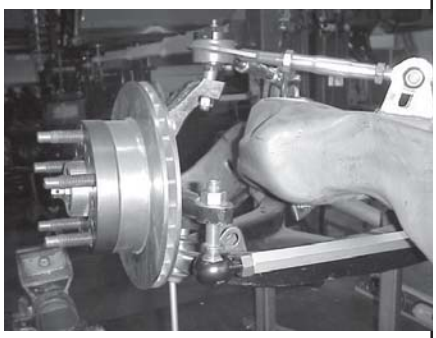
   b. Reproduction Chevelle: The idler arm adapter **(PN: 912340)** is needed to correct the difference from the OEM frame. If using the Howe billet idler arm on either a SWS (reproduction) attach it to the frame using the 1.375" frame spacers **(PN: 32165)** and two 7/16"x3" bolts. If you are using an OEM type idler you will not need the spacers.
4. Install the correct centerlink for your application to the pitman arm and idler arm.
5. Assemble the tie rods to the starting center to center distance for both the left and right assemblies to 17”.
6. Install the tapered end of each tie rod into the rear of the centerlink
7. **a. Aftermarket Pinto Spindles:** Most of these spindle have a 5/8-18 threaded tie rod hole. Install the 3" long shouldered 5/8”-18 EZ bump stud into the bottom of the spindle steering arm. Spacers should be left off until after the bump steer is set. Once the bump is set measure the distance from the tie rod shoulder to the bottom of the steering arm. Remove the tie rod from the spindle and install a spacer or combination of spacers to fit the dimension. Tighten the shouldered stud against the spacers then install a 5/8-18 lock nut onto the stud on the top side of the steering arm.

   b. OEM Spindles: In order to use the recommended Howe EZ Bump tie rod end or to use a 5/8 rod end bearing you will need to drill out the stock tapered hole to 5/8”. Install the tie rod end or bolt and rod end into the bottom of the spindle steering arm. If using the EZ Bump end you will need to install temporary jam nuts on the bottom and top of the steering arm to allow you to adjust the bump steer. Once the bump is set measure the distance from the tie rod shoulder to the bottom of the steering arm. Remove the tie rod from the spindle and install a spacer or combination of spacers to fit the dimension. Tighten the shouldered stud against the spacers then install a 5/8-18 lock nut onto the stud on the top side of the steering arm.

Spacer Length	P/N
.250	R362
.840	R363



Howe Idler installed on a Chevelle reproduction frame with #32165 spacers.



Howe #23284 EZ Bump tie rod end with shouldered stud before installing the spacer..

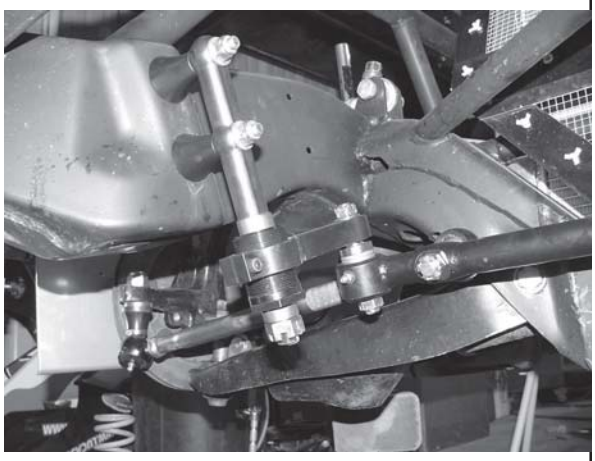
Howe #23284 EZ Bump tie rod end with spacer installed.

SEE BACK OF THIS PAGE FOR BUMP INSTRUCTIONS

SETTING BUMP STEER

A good starting spot is to adjust both left and right outer tie rods so that they are 1" from the bottom of the steering arm to the shoulder on the EZ bump tie rod.

1. Due to variations in frames the idler arm requires a large range of adjustment. On Howe Idler arms made after 2009 there is an aluminum range spacer that can be installed above or below the arm to provide addition adjustment. In order to achieve tolerable bump steer characteristics you will need to use the adjustment in the idler and centerlink that will place the center of the inner tie rod ends above the center of the lower a frame bolt by 1/8 to 1/4".
2. Adjust the billet idler arm by loosening the 1/4" allen bolt and turning the 1-1/2" hex head housing until the billet idler arm is centered on the threaded housing.
3. Set the car on jack stands, remove the springs and shocks and detach the sway bar. Set the suspension to ride height with a jack. If you have Howe ball joints you can jack the suspension up under the lower a-frame but if using stock type ball joints you must jack under the brake rotor to prevent the ball joint from unseating and distorting the reading. Start with the right side.
4. From ride height raise the suspension 3". The total bump steer reading should be .060 to .080 out. See the table below for the adjustments needed to make corrections.
4. Repeat steps 3 & 4 on the left front.
6. Install necessary spacers, tighten all bolt and install cotter pins or safety wire.



Idler arm shown in the low range position with the aluminum spacer on top. This is common to the aftermarket frames.

The height of the inner ends of the tie rods can be adjusted by moving shims on the Howe centerlink.

To Increase Tow Out:

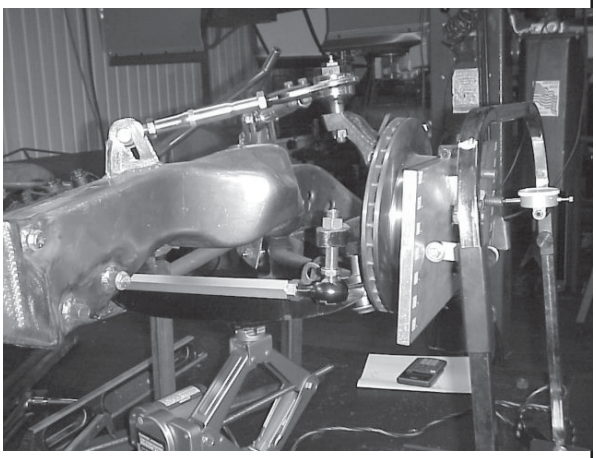
First lower the spindle (outer) tie rod end or raise the centerlink (inner) tie rod end. Note that moving the center link on either end will also affect the opposite side but to a lesser extent. If both spindles require excessively long spacers at the spindle you may raise both sides of the center link to reduce spacer length.

To Decrease Tow Out:

First raise the spindle (outer) tie rod end or lower the centerlink (inner) tie rod end. Note that moving the center link on either end will also affect the opposite side but to a lesser extent. If both spindles require no spacers at the spindle you may lower both sides of the center link to increase spacer length.

Quick Reference Table

	Left		Right	
	+ Bump Out	- Bump Out	+ Bump Out	- Bump Out
Outer End	Lower	Raise	Lower	Raise
Inner End	Raise	Lower	Raise	Lower



We prefer to use a single dial bump steer gauge, Dual dial gauges require subtracting one measurement from the other.

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