INSTRUCTIONS FOR 1949-51 FORD POWER STEERING BOX CONVERSION

This power steering box is designed to replace the original manual box via a bracket which bolts to both the original frame and the new steering box. Our special pitman arm allows it to connect to either the original steering linkage or the highly recommended and vastly improved tie rod and idler arm conversion we offer. The new box can be connected to either an aftermarket steering column, or the original steering column, including the shift levers, can be shortened to fit this box by using our optional Column Saver kit. Conventional GM or Ford power steering pumps will typically provide the proper 900-1100 psi fluid and are easily connected with an optional hose kit. See below our prototype installation with an original Flathead engine and the original column adapted with the Column Saver kit.

Kit includes:

Borgeson power steering box for 4951 Ford

Fatman pitman arm
Fatman adaptor bracket with

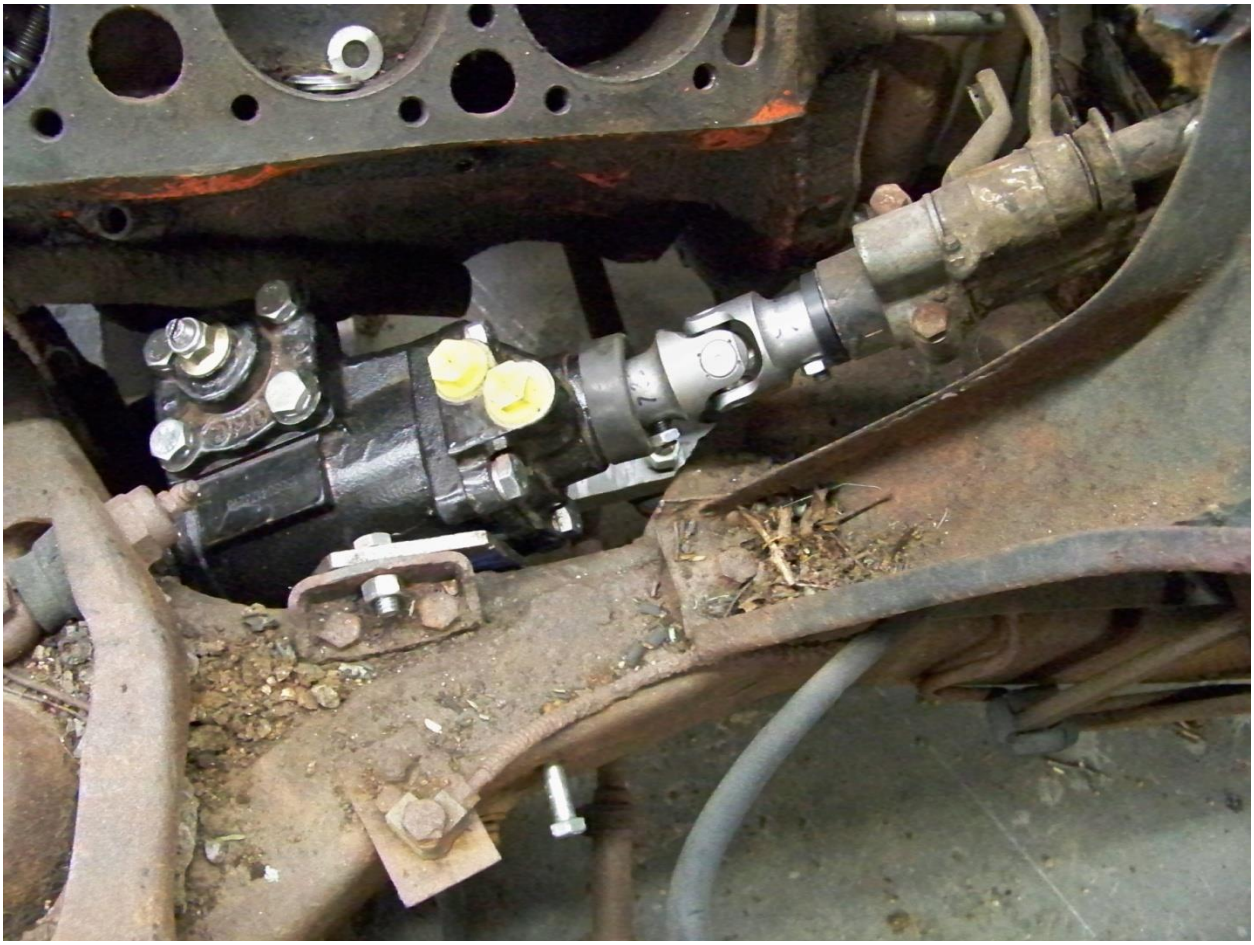
(3) 7/16NC x 1" Grade 5 bolts with flat and lock washers, for steering box
(1) 3/8NF x 1" Grade 5 bolt

(1) 3/8NF x 4" grade 5 bolt
(1) 3/8NF x 4 ½" socket head bolt
for frame side of bracket, all with (2) flat Washers and (1) Nyloc nut

Optional accessory kits:

Borgeson #925108 rubber hose kit
Fatman improved tie rod assembly with idler arm

Fatman column saver kit #990044



Exhaust clearance is extremely tight with a Flathead engine. **So tight that we cannot recommend this kit for use with a Flathead engine**. We have tried repeatedly to make or find a header or cast iron manifold that fits well, but truthfully none really exists. The center exhaust port simply could not be in a worse location to clear this new and slightly larger box. We therefore do NOT RECOMMEND this kit with a Flathead engine. We have made a kit for a '67-'76 Volvo 140 series manual steering box, which fits great, although those steering boxes have become very hard to find.

If you still want to try to make this work with a flathead you may be able to get by raising the engine about ½" on the original front mount. Then you may be able to get by with an original left hand single exhaust manifold, which can be used as is or converted to dual exhaust by welding as outlet flange to the rear of that manifold…..truly a job for an experienced welder! Repeated attempts to find or make a tubular exhaust manifold that would fit failed. A log type header could possibly be built as long as it keeps the manifold high off the flanges might work if you prefer to try building your own. A convertible with the X member frame will make this project even more difficult. In the end, these problems are why we do NOT recommend this set up for use with a flathead engine!

The small block Ford and Chevy engines make for an excellent swap in these cars. Since the final engine position varies by the installer or kit used, we can give you the idea that good headers and manifolds for the left hand side need to tuck very close to the engine and exit at the very rear of the engine. The best bets for a Small block Ford would be either a 64-68 cast iron log manifold, Sanderson FF-3 or a Hedman #88406. Small block Chevys can use a Summit/Advanced Adaptors ADD-717053-NP, or Sanderson CC10 header set. The key to both is keeping high off the flanges and then dumping straight out the back.

Advance Adaptors ADD-717053-NP for Small Block Chevy

Hedman 88406 for small Block Ford

1) Detach the drag link rod end from the steering box pitman arm, then remove the original steering box and column as an assembly. This is accomplished by removing the shift linkage and the sheetmetal plate at the floorboard, thus opening up a large enough hole to allow the box to pass upward through the toe board. You can also cut the column loose from the original steering box, leaving the column as long as possible, if you are planning on adapting the old column to the new steering box. As space is tight you may find it easier to fit the new box by removing the left hand exhaust.

2) The box fits quite tightly in the chassis to provide proper location and maximum space for exhaust. Note in the photo below an area of the back left hand side of the original front crossmember. The marked area should be massaged with a hammer to allow a little extra space for the new box. The cutaway lip is the result of several attempts to fit this box. It may be useful to curl that lip down for clearance at the box but there should not be a need to cut it away as we did during the prototype process.

3) Mount the steering box bracket into the frame first, and tighten all 3 bolts, accessing one bolt thru the hole on the steering box mount plate. The 3/8NF x 4 ½" socket bolt will be used to fasten the bracket to the frame, with the socket head accessed thru the notch cut into the steering box mount plate.

4) Drop the steering box into place and start the bolts using the 3/8NC x 1” bolts, flat and lockwashers.

5) Install the new Pitman arm onto the new steering box. The spline for the box will only fit one way, the correct way having the pitman arm bent down to meet the driver side of your steering rod center link. This kit will work with either the original or Fatman Improved tie rod assy. That new tie rod set provides a much better idler arm, all easily replaceable tie rod ends, and improved anti-bumpsteer geometry.

6) Now you can connect the new box to either the original column or an aftermarket replacement. In either case a single U joint connection will join them as shown in an earlier photo with a Borgeson Ujoint splined 11/16 x whatever your column requires. Our column saver kit will be a big help in converting your cut off original column to accept that U joint. Since the column angle is slightly lower at the toe board the original dust cover can be trimmed, although it is often just as easy to make a new one that is stronger in order to securely mount the bottom of you steering column. That lower column mount at the floorboard can be an aftermarket piece of your choosing or a simple tab on the new cover plate with an ordinary hose clamp to secure the column to that tab.

7) Connect your hoses to a normal type PS pump with an output pressure in the 900-12—psi range. That includes GM and Ford PS pumps used with an integral reservoir with conventional steering boxes. Both fittings are 16mm x 1.5 flare, and the return line to the pump is the port nearest the U joint connection. You can save many headaches by using our own braided stainless hose kit which requires #925121 adaptors sold as a pair under that number added to our universal hose kit. We also have a rubber hose kit requiring no extra adaptors as #925108.

8) You should always recheck your alignment after a change in components. Cars in this era lacked power steering, and therefore used negative caster to make it easy to turn the front wheels. This also has the unfortunate tendency to wander at speed. Cars with power steering upgrades and wider, stickier radial tires will drive much better with a positive caster setting. Caster actually lifts the car, and turns the wheels by using the weight of the car to push them out with negative caster, and straight ahead with positive caster. The original suspension design does not allow enough range of adjustment to get the 2-3 degrees positive caster we are looking for. The upper control arms on all the ’49-’53 Fords and Mercurys use a shaft and bushing set that is normally centered within the control arms itself, making them interchange able left and right. To get a more positive beginning caster set up, the “window” of adjustment can be shifted to the rear of the car by turning the shaft forward in its bushings. Since the upper control arm shaft is still mounted to the frame as before, this has the effect of moving the upper arm and the top of the upright toward the rear of the car. This gives us the more positive preliminary caster setting we’re looking for. The upper arms sweep toward the rear of the car, so moving the arms forward also adds a little positive camber, but modern tires, roads, and speeds are better handled with that change. A final setting of 2-3 degrees positive caster, ½ degree positive camber, and 1/8” toe in work pretty well with hot rods.

Our Builder's guide offers many other tips on building these very popular cars, including how the front end alignment is actually made.

You can turn the upper control arm shaft within the bushings to move the entire upper arm back for more caster.

Optional accessory kits:

Borgeson #925108 rubber PS hose kit
Fatman improved tie rod assembly with idler arm

Fatman column saver kit #990044