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## TECHNICAL BULLETIN # 1010

**WARRANTY:** ONE (1) YEAR FROM DATE OF PURCHASE. REPLACEMENT OF PRODUCT DEEMED DEFECTIVE BY THE FACTORY. *ANY LABOR INCURRED IS SPECIFICALLY EXCLUDED.*

**STEERING BOX INSTALLATION INSTRUCTIONS** – Performance Vega Ball Socket Gear Box – FR1499BS, FR1500BS

**Kit Includes:**

Ball Socket Pitman Arm, NEW Vega Performance steering box

**Tools Required:**

Pitman arm puller, 3/8" drive socket set, Open/Closed box wrench set, Needle-nose pliers, permanent marker ("Sharpie" pen), slip-joint pliers, emery cloth, hack saw, 3/8" power drill, 1/4" & 5/16" high speed twist drill bits, torque wrench, red threadlocker, floor jack, 4 jack stands (Optional: Prick punch, Ball-Peen Hammer)

**NEEDED PARTS;** (not supplied): Double universal joint – P/N1798-148 for tilt steering shaft; P/N1798-100 for straight steering column, cotter pin.

**IMPORTANT:** Make sure your wheels are straight ahead before beginning and the vehicle is properly supported on jack stands.

**NOTE:** All boxes are pre-lubricated and pre-adjusted to factory specifications.  
**DO NOT ADJUST THE STEERING BOX!!!**

### PREPARATION

1. Center the steering wheel by turning the wheel to the right (clockwise) until the stop is reached. Turn the wheel to the left (counterclockwise) and counting the number of full turns until the stop is reached. Divide the number of turns by two and turn the wheel back to the right by that number. The steering wheel is centered. Mark the top of the wheel with a piece of tape for reference in installation.
2. Remove the center link from the pitman arm (Discard cotter pin)
3. Remove the original rag-joint from steering box and column (**See Installation Notes below**)
4. Remove the original pitman arm, using the pitman arm puller tool. Remove the original steering box (SAVE MOUNTING BOLTS)
5. If the car is equipped with power steering, remove the steering box, hoses, pump, etc.

### Important Installation Notes

It is important to determine which style column is used to establish the correct installation procedure for the vehicle.

1. If a **tilt-style steering column**, the factory rag joint is removable, use a 1"-48 splined double universal joint with a 5/8"-36 yoke on the opposite end — P/N1798-148 (Figure A).
2. If a **straight-style steering column**, the factory rag joint is fixed to the end of the steering column, use a 1"-smooth double universal joint with a 5/8"-36 yoke on the opposite end — P/N1798-100, and the following steps **MUST** be followed:
  - a. Using a hacksaw (or a die-cutter) cut the flange at two points, opposite each other (Figure B). **USE CAUTION! DO NOT CUT THROUGH THE COLUMN SHAFT!**
  - b. Using pliers, separate the flange from the column shaft.

- c. The column shaft end is flared which must be removed. Make a mark 1/8" from the end of the shaft and cut the shaft at this point with a hack saw. (Figure C) Clean the cut end with emery cloth to remove any burrs.
  - d. Install the double universal joint (NOT supplied with the kit) by sliding the smooth 1" end over the shaft. **DO NOT HAMMER THE UNIVERSAL JOINT TO INSTALL!!** If there is interference, use emery cloth on the shaft to remove the interference. (Honing the smooth yoke opening on the universal joint may also help)
  - e. **NOTE:** The 1" smooth end of the u-joint has a hole to install the 5/16" shoulder bolt that will secure the shaft and the u-joint.
3. Before installing the U-joint onto the column shaft, measure 7/8" from the end of the column shaft and mark with a permanent marker. This will be the depth at which the shaft will be inserted into the yoke.
  4. After marking the shaft, slide the u-joint into place. On the **P/N1798-100** u-joint, the smooth end yoke has a hole to accept the 5/16" shoulder bolt. Using the permanent marker, mark the location of the hole on the shaft. On the **P/N1798-148** u-joint, there is a setscrew that will secure the yoke to the shaft.
  5. If using the **P/N1798-100** u-joint, remove the joint, and using a prick punch and hammer, mark a pilot point to drill through the column. Using a 3/8" drill and a 1/4" high-speed drill bit, drill a pilot hole. Remove the 1/4" bit and replace with a 5/16" drill bit and enlarge the hole to accept the 5/16" shoulder bolt.

## INSTALLATION

**IMPORTANT!** Center the steering box before installation. Refer to Flaming River Technical Bulletin #1001 (enclosed) and follow the procedures to center the steering box's sector (output) shaft.

1. Loosely bolt (finger tight) the Flaming River FR1499BS or FR1500BS steering box to the frame, using the original steering box mounting bolts.
2. Install the pitman arm onto the sector shaft and install the nut. Tighten the nut finger tight.
3. Reconnect the center link. Tighten the nut finger tight.
4. Loosen the bolts securing the steering box to the frame to allow installation of the double u-joint onto the steering shaft and the input shaft of the steering box. Once the u-joint is on the steering box/steering column, retighten finger tight.
5. Once the steering wheel and steering box sector shaft are centered, begin the final assembly.
6. Apply red threadlocker to all setscrews.
7. Tighten the bolts securing the new Flaming River Vega steering box to the frame. Torque mounting bolts to 50-65 ft-lb.
8. Using the torque wrench, tighten the pitman arm nut bolt to 115 ft-lb.
9. Install the double u-joint as follows:
  - a. Match the yoke shoulder to the mark at 7/8" in the column shaft. The shafts **MUST NOT** extend past the bottom of the yoke.
  - b. Do not tighten the setscrew on the steering box end at this time.
  - c. Install the 5/16" shoulder bolt, lock washer and nut to the steering shaft/u-joint yoke. Torque the nut to 25 ft-lb.
  - d. Tighten the setscrew at the steering box end. Torque to 25 ft-lb. Tighten the jam nut.
11. Tighten the nut on the center link to 40-45 ft-lb. Install **NEW** cotter pin and bend ends.

**NOTE:** Front-end alignment by a service professional following installation is advised.

**NOTE:** Flaming River recommends periodic inspection of all u-joint setscrews for tightness.

### Warranty Disclaimer

Because of their intended usage, the manufacturer makes no warranties whatsoever expressed or implied, oral or written, to purchasers of their products regarding performance, safety, fit, merchantability, or length of service. Purchasers are responsible for selection of proper goods and must rely on their own skill or judgment that such goods are suitable for the purchaser's application.