

Hyperdrive Drive System

Step One: Removal of Existing OEM components

Begin by removing all existing OEM front belt systems from your engine except the harmonic balancer.

- Disconnect positive battery cable
- Remove belts and fan
- Remove A/C compressor and alternator
- Remove crankshaft pulley from harmonic balancer

Step Two: Installation of Crankshaft Pulley

Attach the crankshaft pulley onto the harmonic balancer with the bolts, lock washers and flat washers as shown in **Figure 1**.

Note: It is recommended that you use a center bolt and hat washer to secure the pulley and harmonic balancer to the crankshaft.

- | | |
|---|----------------------|
| #1 Harmonic Balancer | #2 Crankshaft Pulley |
| #3 3/8" A-N Flat Washer | #4 3/8" Lock Washer |
| #5 3/8-24 x 7/8" Bolt (3/8-16 x 7/8" for Big Block) | |

Step Three: Installation of Power Steering Pump

The power steering pump is supplied with the hub pre-installed for ease of assembly. Install the pulley to the hub using 6-32 x 1/2" socket head cap screws.

Note: Use removable loctite when installing pulley to hub.

Mount the power steering pump and bracket assembly to the engine using the bolts, lock washers and A-N flat washers. See **Figure 2**

Note: Be sure to follow the bleeding steps at the back of this instruction set.

- | |
|--|
| #3 3/8" A-N Flat Washer (7/16" for Big Block) |
| #4 3/8" Lock Washer (7/16" for Big Block) |
| #6 8mm x 22 Socket Head Cap Screw |
| #7 3/8-16 x 1 3/4" Bolt (7/16-16 x 1 3/4" for Big Block) |
| #8 Power Steering Pump Bracket |
| #9 Power Steering Pump |
| #10 Power Steering Pump Pulley |

Note: Follow diagram on left to install clip on style reservoirs. Clips are spring steel and are designed to fit extremely tight when being installed.

Step Four: Mounting of Main Bracket Assembly and Water Pump

Insert the 4 3/8-16 x 6" bolts with a lock washer and an A-N flat washer through the main mounting bracket. Install the #15 and #16 spacers onto the bolts.

Note: See **Figure 3** and **Figure 3A** for proper orientation of these spacers.

Install the alternator support arm #17 and compressor support arm #18 onto bolts, and then install the #19 spacer. You can now slide this assembly onto the water pump and mount to the engine.

Note: Do not forget to use gasket between water pump and block. Notice that #19 spacer MUST be installed correctly due to the different boss lengths.

Figure 1

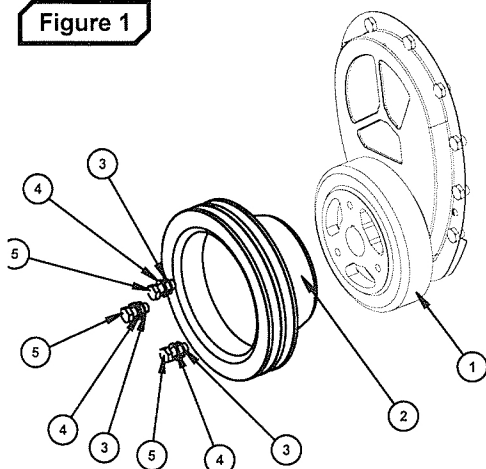


Figure 2

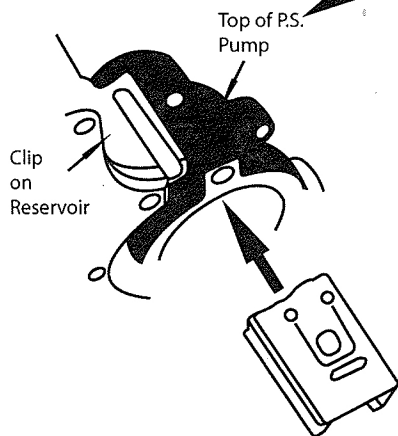
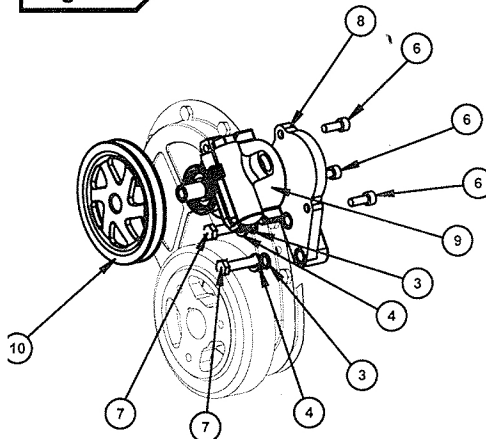
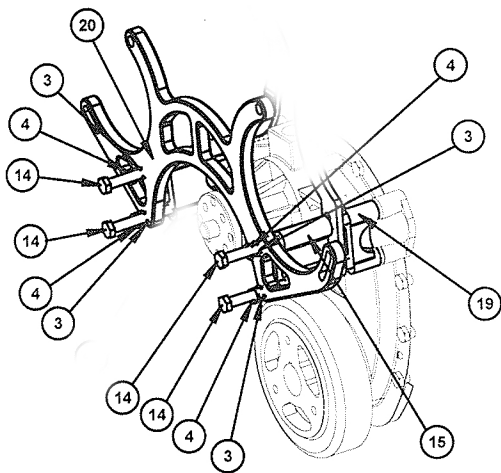


Figure 3



- #3 3/8" A-N Flat Washer
- #4 3/8" Lock Washer
- #14 3/8-16 x 6" Bolt

#15 2.030" Spacer (same for Big Block)

- #19 1.219" Spacer (1.137" for Big Block)
- #20 Main Support Bracket

Step Four Continued: Mounting of Main Bracket Assembly and Water Pump

Note: See Figure 3 and Figure 3A for proper orientation of spacers.

Step Five: Mounting of Water Pump Pulley

Using the 5/16-24 x 3/4" flathead socket screws, mount the water pump pulley onto the water pump. See Figure 4.

- #11 Water Pump
- #13 5/16-24 x 3/4 Flathead Socket Screws

#12 Water Pump Pulley

Step Six: Mounting of Alternator

Using the 3/8 -16 x 3 1/4" bolt, and flat washer, mount the alternator to the bracket system as shown in Figure 5. Install lock nut onto bolt. Install the 8mm x 30mm bolt through adjuster slot using a lock washer and a flat washer.

Note: Charging system must be properly wired to operate with a one-wire internally regulated alternator.

- #3 3/8" A-N Flat Washer
- #20 Main Support Bracket
- #22 3/8-16" Nyloc Nut
- #24 8mm x 30mm Bolt
- #26 5/16" A-N Flat Washer

- #21 3/8-16 x 3 1/4" Bolt
- #23 Alternator
- #25 5/16" Lock Washer

Step Seven: Mounting of Compressor

Using the 8mm bolts, lock washers and flat washers mount the compressor to the bracket system as shown in Figure 6. Install lock nut onto the rear bolt. Install the 8mm x 30mm bolt, through the adjuster slot.

Remove the 2 bolts securing the pad connection cover from the compressor. Leave O'Ring in place. Install compressor hardlines using the 8mm x 25 mm bolts, lock washers and flat washers.

Install clutch cover using the 1/4 - 20 x 5/8" low head socket screws as shown in Figure 6.

Note: Loctite should be used on hardware.

- #24 8mm x 30mm Bolt
- #26 5/16" A-N Flat Washer
- #28 8mm Nyloc Nut
- #30 Clutch Cover
- #32 Compressor Hardline
- #57 Compressor Hardline

- #20 Main Support Bracket
- #25 5/16" Lock Washer
- #27 8mm x 40mm Bolt
- #29 Compressor
- #31 1/4 -20 x 5/8" Low Head
- #50 8mm x 30mm Bolt

Figure 3a

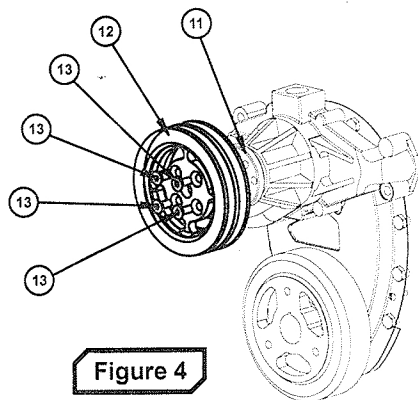
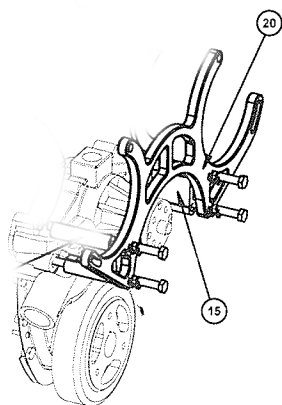
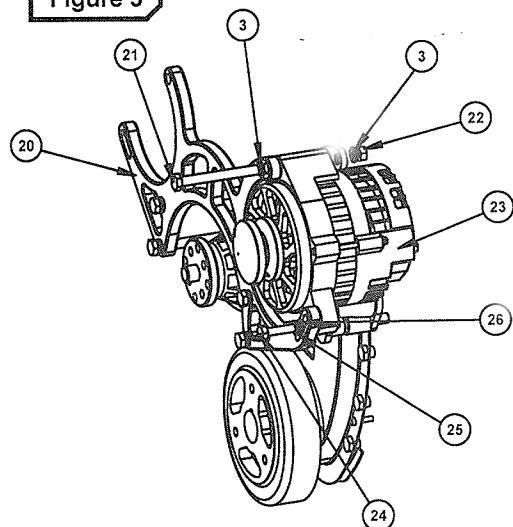


Figure 4

Figure 5



BLEEDING YOUR POWER STEERING SYSTEM

- #1 Do not start the engine until the system is fully bled. Doing so may cause damage to the power steering components. The internal of the pump is metal on metal. Any air in the system can cause metal on metal contact and damage.
- #2 Raise the front wheels off the ground.
- #3 Turn the steering wheel fully to the left.
- #4 Fill the fluid reservoir. Leave the cap off.
- #5 With someone checking the fluid level, turn the steering wheel slowly and smoothly lock to lock until fluid level drops in the pump reservoir. If the fluid level has not dropped, no fluid has moved through the system. This normally indicates a large bubble in the reservoir or pump. Until this bubble passes, no fluid will circulate through the system.
 - *Do not turn the steering wheel fast as this will cause the fluid to overflow the reservoir. Trapped air may cause fluid to overflow. Thoroughly clean any spilled fluid to allow for leak checks.*
- #6 Check fluid consistently to ensure proper level and that no air bubbles exist.
 - *If you see any signs of bubbles, recheck all connections then repeat the steps above.*
 - *Fluid levels should be steady.*
- #7 Disable engine from starting. (Non Hydro Boost Brake Systems)
 - *Crank engine several revolutions. If fluid drops, there is compressed air trapped in the system. Repeat above steps until fluid level is stable.*
 - *If fluid foams while cranking, wait 10 minutes or more until dispersed air has time to accumulate and purge through the reservoir.*
- #8 Continue above steps until fluid level remains constant and no air bubbles are visible.
- #9 If you have a hydro boost brake system continue, if not skip to #11

HYDRO BOOST SYSTEMS ONLY

These Hydro Boost specific instructions must be followed. Failure to follow these steps can cause your new pump to become damaged. Do not turn the steering wheel while performing these procedures.

- *Discharge the Hydro Boost brake unit by performing three full presses on the brake pedal.*
- *Watch power steering reservoir for any bubbling, foaming or burping.*
- *Once foam clears, crank engine until it just catches and shut off.*
- *Discharge Hydro Boost unit with three full presses of the brake pedal.*
- *Repeat these steps until no air or foam is seen in the reservoir.*
- *If brake pedal feels soft or spongy, system is not fully bled.*
- *Repeat above steps.*
- #10 Enable engine to start. With engine idling, maintain fluid level.
- #11 Reinstall reservoir cap.
- #12 Return wheels to center.
- #13 Lower front wheels to ground.
- #14 Run engine for two minutes. Turn steering wheel in both directions.
- #15 Do not hold steering wheel against the stops.
- #16 Verify the following conditions:
 - *Smooth power assist, noiseless operation, proper fluid level, no system leaks, proper fluid condition, no bubbles or foam.*

SPECIAL CONDITIONS

If you experience any of the conditions listed below, there is still air in the system.

- Foam or bubbles in the fluid (fluid must be completely free of bubbles).
- Power steering fluid should not rise in the reservoir when the engine is turned off. If this occurs, there is air trapped in the system.
- Be alert to periodic bubbles that could indicate a loose connection, leaky o-ring, or a bad flare seat in either the pressure or return hose.
- Discolored fluid (milky or opaque).

ELIMINATING AIR IN THE POWER STEERING SYSTEM

Follow the steps below to eliminate air in the power steering system.

- #1** Turn ignition off. Wait thirty minutes. Recheck hose connections. Repeat start up procedures. If problem still exists, replace or check for possible causes including:
- Return hose clamps
 - Return hose o-ring or flare seat
 - Pressure hose o-ring or flare seat
 - All other connections
- #2** Fill system and repeat bleeding procedure for each possible cause.

ELIMINATING NOISE IN THE POWER STEERING SYSTEM

If you hear a whining or groaning noise originating from the pump after all air is out of the system (if air is not out, see Special Conditions), then do the following:

- #1** Check belts for slippage.
- #2** Mark pulley and make sure it is not slipping on the shaft.
- #3** With the engine running, recheck hoses for possible contact with frame, body, or engine. If no contact is found, cool fluid and repressurize system.
- #4** After cooling fluid, start engine to come up to operating temperature and recheck.

2GPM FLOW CONTROL VALVE

The GM style power steering pump exceeds recommended "flow" for a Ford rack resulting in quick turning and a "twitchy" feel while turning. This flow control valve will currently reduce flow to the OEM spec of 2 gpm. Check with the vendor you purchased this drive through for this valve.



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