

# 8-Rib® Drive Upgrade

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## Installation Instructions



**2000-2004 Ford 4.6 Mustang GT**  
**PIN: 4FL116-001**



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# FOREWORD

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Proper installation of this upgrade kit requires general automotive mechanic knowledge and experience. Please browse through each step of this instruction manual prior to beginning the installation to determine if you should refer the job to a professional installer/technician. Please call Vortech Engineering for installers in your area.

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# NOTICES

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## (Read before installation is started)

Included in this kit is an 8-rib supercharger pulley that may be smaller than the one originally supplied. This new pulley is recommended to achieve the best performance results. Removal of the factory sealed pulley will reduce the supercharger warranty from three years to one year unless the supercharger unit (with the original pulley still attached) and new pulley are sent into Vortech for removal, installation and re-sealing. If the supercharger warranty is not a concern or if the supercharger warranty has expired, the pulley may simply be removed and replaced with the new part supplied. Hammering/prying etc. on the supercharger and/or pulley will cause damage to the parts. Light heating of the supercharger pulley with a propane torch (if the pulley is tight on the shaft) will aid removal. A return authorization number is required before the supercharger and pulley are sent into Vortech. Call the Vortech service department at (805) 247-0226 for a return authorization number. Return freight (ground) will be paid by Vortech.

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This product may not be legal for use on public roads in all 50 states.

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## IMPORTANT

- Custom ECM programming and fuel / ignition system upgrades will be required when changing the supercharger drive pulley to any size other than what was originally supplied in the complete supercharger kit.
- Supercharger pulley removal may reduce or void the supercharger unit warranty.
- Pulley Diameter Changes: Careful size selection is mandatory for proper engine and supercharger longevity. Contact the applicable Vortech and Paxton tech line for assistance with impeller speed calculations if necessary.
- A Vortech Maxflow Race or Mondo compressor bypass valve is required for applications producing more than 11-12 psig.

# VORTECH 8-RIB DRIVE UPGRADE

## 2000-2004 Ford Mustang GT Installation Instructions

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### TOOL & SUPPLY REQUIREMENTS:

- Open End Wrench Set: SAE/Metric
- Allen Wrenches: SAE
- Flat #2 Screwdriver
- Phillips #2 Screwdriver
- Utility Knife
- Torque Wrench (in/lbs)
- Tape Measure
- Adjustable Wrench
- Ford Power Steering Puller/Installer
- Crank Pulley Puller/Installer
- 1/2" Drive Ratchet
- Pliers
- Blue Loc-Tite



ENGINEERING, INC

# 8-Rib Upgrade, 2000-2004 4.6L 2V Mustang GT Part No. 4FL116-001 PARTS LIST

**IMPORTANT:** Before beginning installation, verify that all parts are included in the kit. Report any shortages or damaged parts immediately.

PART NO.	DESCRIPTION	QTY.
007043	INSTR., 8-RIB UP-GRD '04 MUS GT	1
2A017-878-08	SPACER, .875"OD x .406"ID x .280"	4
2A038-333	S/C PULLEY, 3.33" 8-GRV	1
2A048-108	BELT, K081079-GATES, 8-RIB 107.	1
8R101-002	PULLEY RETAINER ASY, 8-RIB	1
2A040-011	PULLEY RETAINER, S/C	1
7B375-125	3/8-24 x 1-1/4" HXHD GR8	1
7K375-040	3/8"AN960 FLAT WASHER, PLATED	1
7U100-070	KEY, 3/16" SQUARE x 7/8"LONG	1
7C080-150	M8 x 1.25" x 150mm HXHD CL10.9	3
7C060-060	M6 x 1.0 x 60 HXHD CL8.8	1
2A017-882-01	SPACER, .875"OD x .140"LONG	4
4FU116-031	IDLER ASY, 3" 8-RIB (SMOOTH)	2
4FL017-011	SPACER, SPNG TENS. ASY, .140"	1
4FL017-021	PILOT, TENS., '04 GT 8-RIB	1
4FL016-170	IDLER PULLEY, 8-RIB SMOOTH, Ø3.0	1
4FU016-011	PULLEY, FORD, ALT. 8-RIB, 2.5"OD	1
4FR016-051	PULLEY, 8-RIB W/P SMOOTH, '03 COBRA	1
4FK016-081	WATER, PUMP PULLEY - STOCK	1
4FR016-021	PULLEY, 8-RIB A/C PLY '03 COBRA	1
4FR016-031	PULLEY, 8-RIB P/S '03 COBRA	1
4FR016-041	DAMPER, CRANK, 8-RIB '03 COBRA	1
4FL116-160	IDLER PULLEY, ASY 8-RIB Ø2.6"	1

# 1. PREPARATION AND REMOVAL

- A. Disconnect the battery.
- B. Locate the coolant drain plug on the passenger's side of the radiator. Next drain the coolant into a clean container. This coolant will be reused in a later step.
- C. Remove the bolts securing the coolant overflow reservoir to the plastic fan shroud. (See Fig. 1-a.)
- D. Loosen the hose clamps securing the supercharger discharge tube/cooler from the supercharger. Disconnect the by-pass valve hose(s) where they connect to the inlet and discharge tubes. Disconnect the by-pass valve vacuum lines where it connects at the fuel rail. Set the by-pass valve(s) aside to be reinstalled in a later step. Remove the discharge tube or tubes/air-water cooler (if equipped), and set aside, to be reinstalled in a later step.
- E. Loosen the hose clamps securing the inlet duct to the supercharger. Remove the inlet duct assembly and set it aside to be reinstalled in a later step.
- F. Disconnect the oil feed and oil drain lines.



Fig. 1-a

**NOTE:** Temporarily cap the oil lines to protect your engine from foreign particles.

- G. Loosen the alternator and water pump pulley retaining hardware.
- H. Using a 1/2" ratchet loosen the accessory belt tensioner and remove the belt from the supercharger pulley.
- I. Remove the four screws that secure the supercharger mounting bracket to the front of the engine. Set the supercharger/bracket assembly on a clean flat work surface with the drive pulley facing up.

## 2. PULLEY AND SPACER INSTALLATION

**NOTE:** Refer to Fig. 2-c on Page 3, for the next few steps.

- A. Remove the original 6-rib supercharger pulley from the supercharger and install the supplied 8-rib pulley (2A038-333) and secure using the provided retainer assembly (8R101-002).

**NOTE:** This kit may include a smaller than originally supplied supercharger pulley. Removal of the factory sealed pulley will reduce the supercharger warranty from three years to one year unless the supercharger unit (with the original pulley still attached) and new pulley are sent into Vortech for removal, installation and re-sealing. If supercharger warranty is not a concern or if the supercharger warranty has expired, the pulley may simply be removed and replaced with the new part supplied. Hammering/prying etc. on the supercharger and/or pulley will cause damage to the parts. Light heating of the supercharger pulley with a propane torch (if the pulley is tight on the shaft) will aid removal. A return authorization number is required before the supercharger and pulley are sent into Vortech. Call the Vortech service department at (805) 247-0226 for return authorization number. Return freight (ground) will be paid by Vortech.

- B. Remove the smooth (steel) idler pulley located on the supercharger mounting bracket and retain the hardware. Install one of the supplied .875"OD x .663"ID x .140" thick spacers (2A017-882-01) and Ø3.0" smooth aluminum idler (4FU116-031) provided. Secure using the hardware previously removed. (See Fig. 2-b.)

**NOTE:** The snap-ring that retains the bearing in the idler should be facing the supercharger mounting bracket.

- C. Remove the factory alternator pulley. Install the supplied Ø2.5" 8-rib alternator pulley and secure using the factory retaining nut.
- D. Remove the smooth idler located just above the spring tensioner and retain the hardware to be reinstalled. Replace with one of the supplied .875"OD x .663"ID x .140" thick spacers (2A017-882-01 and Ø3.0" smooth aluminum idler (4FU116-031) provided. Secure using the hardware previously removed.

**NOTE:** The snap-ring that retains the bearing in the idler should be facing the engine.

- E. Replace the 2.6" 6-rib idler located above the A/C compressor, using a .875"OD x .663"ID x .140" thick spacers (2A017-882-01) and Ø2.6" 8-rib idler pulley (4FL116-160) supplied.

**NOTE:** The snap-ring that retains the bearing in the idler should be facing the engine.

- F. Using a 10mm socket, remove the retaining screw securing the A/C pulley outer clutch. Remove the snap ring that retains the factory A/C pulley. Remove and replace the factory pulley with the 8-rib A/C pulley (4FR016-021) provided. Secure using the factory snap-ring. Reinstall the outer clutch using the factory 10mm headed screw previously removed.
- G. Remove the spring tensioner retaining screw and tensioner. Replace the spring tensioner pulley using one of the supplied .875"OD x .663"ID x .140" thick spacers and Ø3.0" smooth steel idler (4FL116-170) provided. Locate the .280" thick spring tensioner spacer and Pilot (4FL017-011 & 4FL017-021). Reinstall the spring tensioner assembly using the factory retainer and the tensioner spacer and pilot provided. (See Fig. 2-g for pulley orientation).

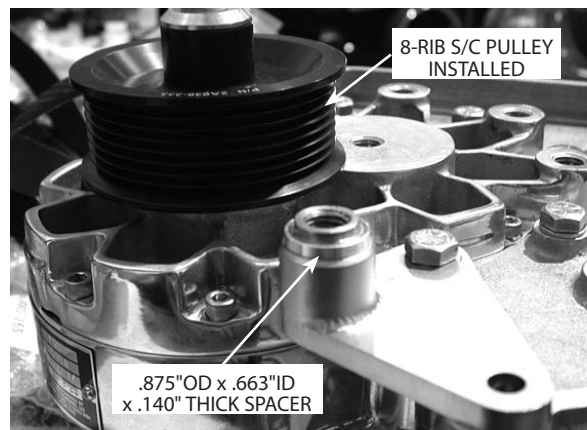


Fig. 2-b

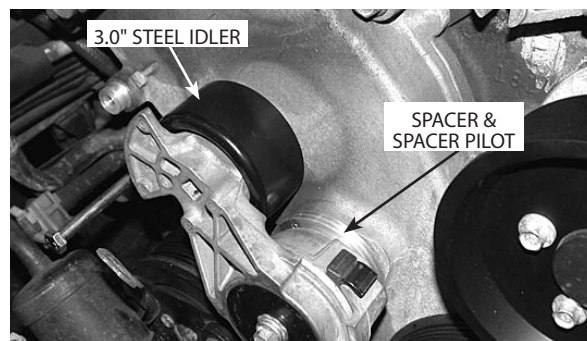


Fig. 2-g



## 2. PULLEY AND SPACER INSTALLATION, cont'd

- H. Remove the crank pulley retaining screw. Using the appropriate crank pulley/puller, remove the factory crank pulley. Locate and install the 8-rib crank pulley (4FR016-041) provided. Secure using the factory retaining screw.

**NOTE:** A small amount of grease on the sealing surface of the pulley is recommended. Also a small amount of silicone sealant should be used on the bore of the pulley and threads of the retaining screw.



Fig. 2-d

- I. Remove the previously loosened water pump pulley retaining hardware. Replace the water pump pulley with the appropriate pulley provided and secure using the factory hardware.

**NOTE:** Two water pump pulleys are provided in this up-grade. 2000-2002 1/2 will use the 4FK016-081 steel pulley, while 2002 1/2 + 2004 will use the 4FR016-051 aluminum pulley.

- J. Using the appropriate power steering pulley puller, remove the factory P/S pulley. Locate the 8-rib P/S pulley (4FR016-031) provided and install using the appropriate pulley installer. (See Fig. 2-d.)

**NOTE:** The end of the P/S pump shaft should be flush with the end of the pulley when properly installed. (See Fig. 2-d.)

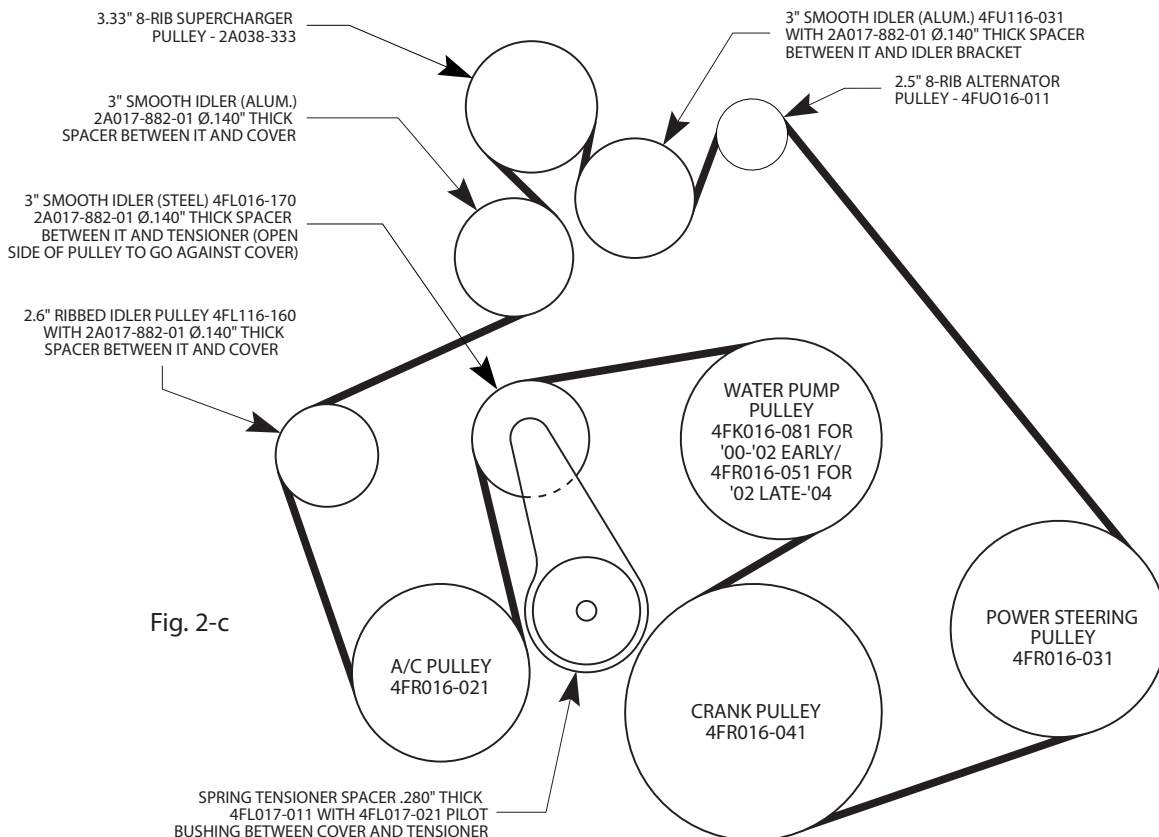


Fig. 2-c

### 3. SUPERCHARGER RE-INSTALLATION

- A. Loosely install the 8-rib drive belt provided using Fig. 2-c for belt route reference.
- B. Refer to Fig. 3-a for hardware and spacer placement and loosely install the supercharger/bracket assembly. Take care to route the drive belt properly. Make sure the bracket and spacers mount flush against their mounting surfaces.
- C. Tighten the supercharger mounting assembly at this time.
- D. Using a 1/2" ratchet, release tension from the factory belt tensioner and install the 8-rib drive belt. Release the tensioner and confirm that the belt is in place and the tensioner is within operating range.
- E. Connect the oil feed and drain lines previously remove.
- F. Reinstall the supercharger discharge tube or tubes/air-water cooler if equipped.
- G. Reinstall the air-inlet duct assembly and secure. Reconnect the by-pass valve(s) hoses where they connect to the supercharger inlet and discharge tubes/air-water cooler. Reconnect the by-pass valve vacuum line.
- H. Reinstall the factory coolant reservoir and secure using the factory hardware. Reconnect all hoses previously removed and secure using the factory hose clamps. Refill the coolant system using the coolant previously removed (if in good condition).

**NOTE:** Not all pulleys are installed at this time

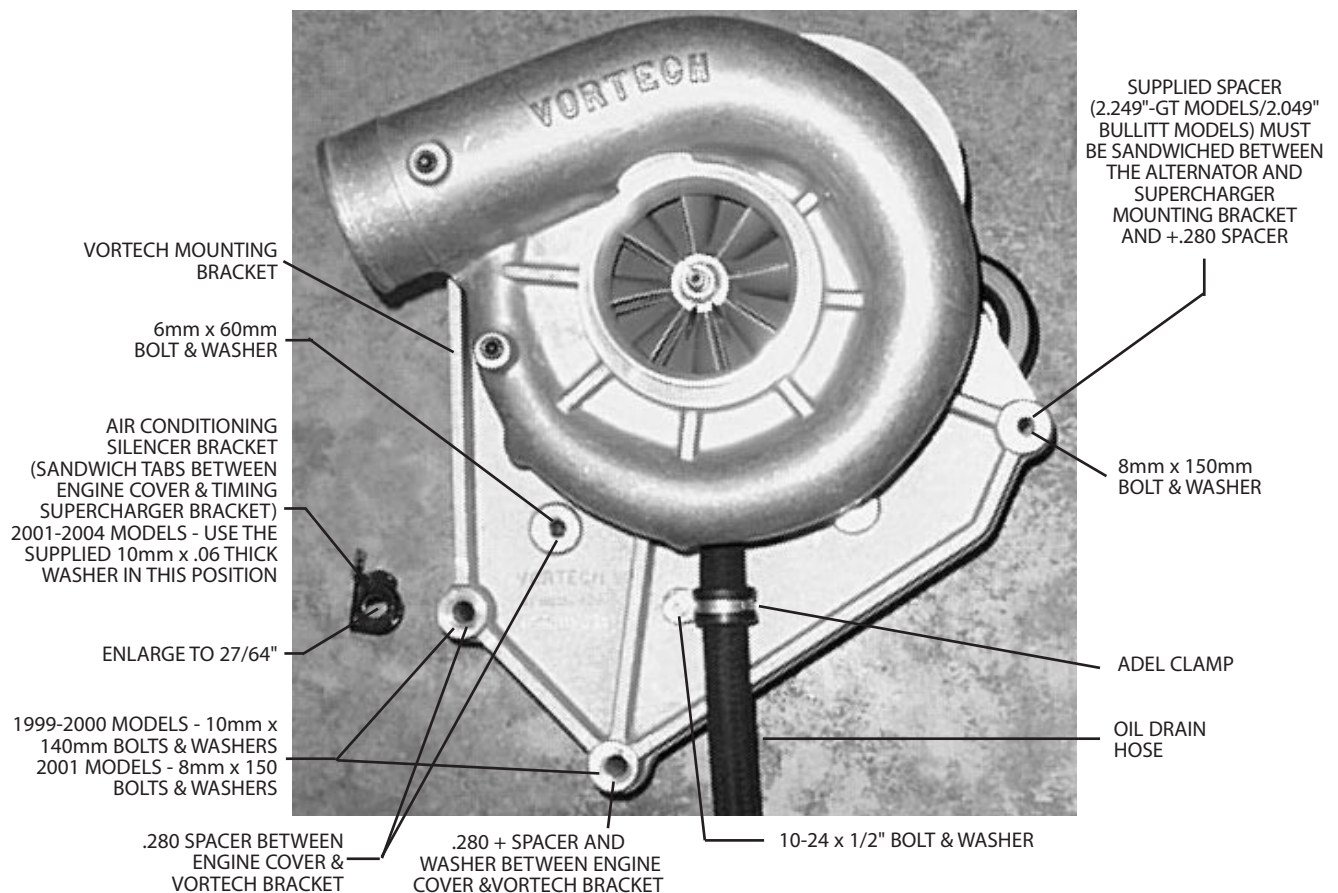


Fig. 3-a / Supercharger-Front View

**NOTE:** When mounting the supercharger bracket assembly to the front cover, make sure the wiring harness support bracket is sandwiched in-between the timing cover and the Vortech aluminum bracket in position. (See Fig. 3-a.)

## 4. FINAL CHECK

**WARNING:** Do not attempt to operate the vehicle until ALL components are installed and ALL operations are completed including the final check.

- Custom ECM programming and fuel / ignition system upgrades will be required when changing the supercharger drive pulley to any size other than what was originally supplied in the complete supercharger kit.
  - A Vortech Maxflow Race or Mondo compressor bypass valve is required for applications producing more than 11-12 psig.
- A. Check all fittings, hose and clamps for tightness and leaks. Make sure all wires and lines are properly secure with clamps or tie-wraps.
  - B. Make sure all wires and hoses are routed away from hot, moving or sharp objects.
  - C. Double check to ensure water is flowing through the CAC system. (If equipped.)
  - D. Test drive the vehicle.
  - E. Always listen carefully for engine detonation. Discontinue heavy throttle usage if detonation is heard.



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