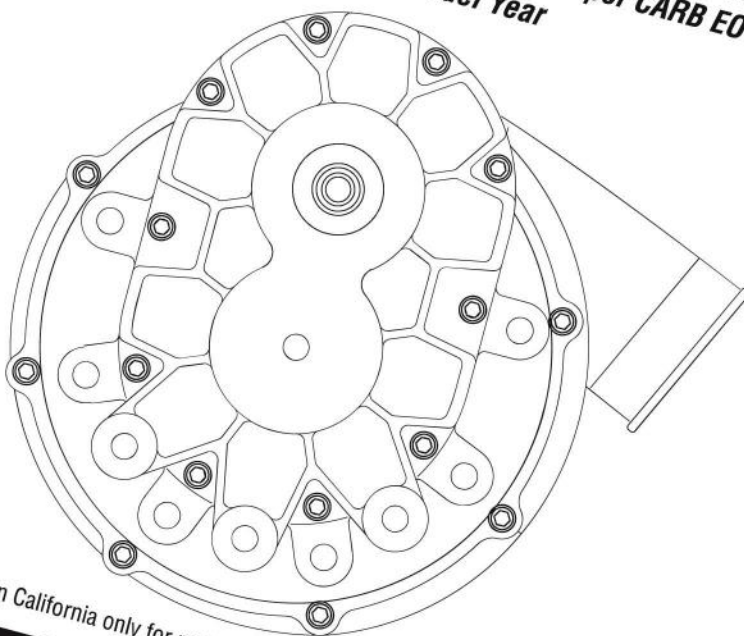


Ford 4.6L 1999-2001 DOHC Mustang Cobra/2003-2004 Mach 1 Supercharger System Installation Instructions

1999 MODEL YEAR - 50 State Smog Legal per CARB EO #D-213-17
2001-2003 MODEL YEAR - 50 State Smog Legal per CARB EO #D-213-20
* 2004 Model Year



* 2004 Models legal in California only for racing vehicles which may never be used upon a highway.



ENGINEERING, INC

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FAX (805) 247-0669 • www.vortechsuperchargers.com • M-F 7:00 AM - 3:30 PM PST

FOREWORD

Proper installation of this supercharger 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 possible installers in your area.

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1999-2004 4.6L DOHC Cobra/Mach1 Mustang

IMPORTANT NOTES

OFF-HIGHWAY USE:

When driving vehicle on non-public roads (off-road applications such as racing/high rpm) Vortech strongly recommends replacing the factory platinum plugs with NGK #4177 or Denso IT20 and reducing the factory spark plug gap down to .032".

This product is protected by state common law, copyright and/or patent. All legal rights therein are reserved. The design, layout, dimensions, geometry, and engineering features shown in this product are the exclusive property of Vortech Engineering, INC . This product may not be copied or duplicated in whole or part, abstractly or fundamentally, intentionally or fortuitously, nor shall any design, dimension, or other information be incorporated into any product or apparatus without prior written consent of Vortech Engineering, INC .

1999-2004 **FORD 4.6L DOHC COBRA/MACH 1 MUSTANG** Installation Instructions

CARB E0 #D-213-17 / CARB E0 #D-213-20 (Except 2004 Models)

Congratulations on selecting the best performing and best backed automotive supercharger available today... the VORTECH® V-2® supercharger!

Before beginning this installation, please read through this entire instruction booklet and the Street Supercharger System Owner's Manual which includes the Limited Warranty Program and the Warranty Registration form.

Vortech supercharger systems are performance improving devices. In most cases, increases in torque of 30 - 35% and horsepower between 35 - 45% can be expected with the boost levels specified by Vortech Engineering. This product is intended for use on healthy, well maintained engines. Installation on a worn-out or damaged engine is not recommended and may result in failure of the engine as well as the supercharger. **Vortech Engineering is not responsible for engine damage.**

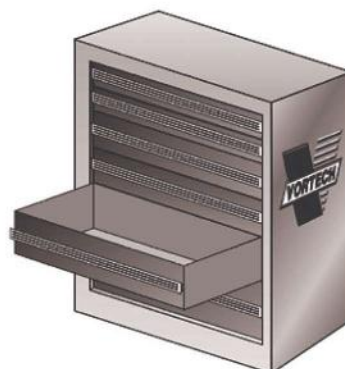
Installation on new vehicles will not harm or adversely affect the break-in period so long as factory break-in procedures are followed.

For best performance and continued durability, please take note of the following key points:

1. Use only premium grade fuel 91 octane or higher (R+M/2).
2. The engine must have stock compression ratio.
3. If the engine has been modified in any way, check with Vortech prior to using this product.
4. **Always** listen for any sign of detonation (pinging) and discontinue hard use (no boost) until problem is resolved. Any knocking (detonation) that occurs will cause engine damage. Sustained knocking will lead to engine failure. Vortech Engineering is not responsible for engine damage or failure.
5. Perform an oil and filter change upon completion of this installation and prior to test driving your vehicle. Thereafter, always use a high grade SF rated engine oil or a high quality synthetic oil, and change the oil and filter at least every 3,000 miles. **Never attempt to extend the oil change interval beyond 3,000 miles, regardless of oil manufacturer's claims as potential damage to the supercharger may result.**
6. Before beginning installation, replace all spark plugs that are older than 1 year or 20,000 miles with original heat range plugs as specified by the manufacturer. **Do not use platinum spark plugs unless they are original equipment.** Change spark plugs at least every 40,000 miles and spark plug wires at least every 60,000 miles.

TOOL & SUPPLY REQUIREMENTS:

- Factory Repair Manual
- 3/8" Socket and Drive Set: SAE & Metric
- 1/2" Socket and Drive Set: SAE & Metric
- 3/8" NPT Tap and Handle
- Adjustable Wrench
- Open End Wrenches: 3/8", 7/16", 1/2", 9/16", 15/16"
- Center Punch and a 5/8" Tapered Punch
- Ford Springlock 3/8" Fuel Fitting Disconnect Tool
- 6 Quarts SH/CF Rated Quality Engine Oil
- Oil Filter and Wrench
- Flat #2 Screwdriver
- Phillips #2 Screwdriver
- Heavy Grease
- Silicone Sealer
- Drill Motor
- 1/8", 3/16", 11/32" Drill Bits
- 1/2" Tube Bender
- 3/16" Allen Wrench
- Wire Strippers and Crimpers
- Utility Knife
- Hacksaw/Cut-Off/Bandsaw





ENGINEERING, INC

1999 Mustang Cobra w/aftercooler Tuner Kit

Part No. 4FR218-100SQ

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	PART NO.	DESCRIPTION	QTY
008444	3YR S/C STRT INFO PKG ASY VOR	1	7S450-200	SLEEVE, 4 1/2 X 2, BLUE	1
008110	SMALL SILVER DIE CUT DECAL	2	7U030-046	5/32" VACUUM LINE	4
008130	LICENSE PLATE FRAME, VORTECH	1	7U034-016	1" GS HEATER HOSE	.25
2E229-170	V2SQ SCI-TRIM ASY, 99-01 4V SA	1	7U034-016	1" GS HEATER HOSE	.66
4FR111-061	'99 MNTG BRCKT ASSY GEN III	1	7U133-090	RUBBER ELBOW, 1" DIA X 90°	1
1210517	ASY, IDLER PLY, SMOOTH 6RIB	1	8D001-004	COMPRESS BYPASS VALVE, G2	1
2A046-113	BELT, 6 RIB X 112.89 EFFECT L.	1	8N106-030	WATER COOLER ASSY, 4.6	1
4FK011-031	MOUNTING BRKT-MACH GEN II 4V	1	7A250-075	1/4-20 X .75 SHCS PLTD	4
4FK016-081	WATER PUMP PULLEY-STOCK	1	7E010-075	#12 X 3/4" SHT METL SCREW HEX	4
4FK017-011	SPACER A, 96-99 4V IDLER G3	1	7F250-021	1/4-20 NYLOCK NUT ZINC PLATED	4
4FK017-021	SPACER B, 96-99 4V IDLER G3	1	7J010-001	#10 FLAT WASHER	4
4FR010-011	PLAQUE, '99+ 4V MNTG BRKT	1	7J250-001	1/4 WASHER, SAE, PLTD	8
7A375-178	3/8-16 X 1-3/4 HXHD G8	3	7P500-026	1/2NPT X 3/4 BARB 90° BRASS	2
7A375-225	3/8-16 X 2-1/4 HXHD G8	2	8N006-010	WATER COOLR, SETRAB SINGLE	1
7C010-052	10-24 X 1/2 BUTTN HEAD CRWW	4	8N010-050	MOUNT TAB, COOLER 4.6/2V	2
7C080-016	M8 X 1.25 X 16 HXHD	2	8N107-020	WATER PUMP ASSY, 4.6	1
7C080-025	M8 X 1.25 X 25 HXHD	2	5W001-002	FUSE TAP	1
7C080-065	M8 X 1.25 X 65 SOC	1	5W001-011	16-14 GA RING TERM .26" HOLSE	1
7C080-070	M8 X 1.25 X 70 HXHD ZINC	2	5W001-012	18-22 GA BUTT CONN RED INSUL	1
7C080-140	M8 X 1.25 X 140 HXHD CL8.8	2	5W001-014	FUSE HOLDER 10 GA WIRE	1
7F008-020	NUT, M8 X 1.25	1	5W001-015	FUSE, BLADE TYPE 20 AMP	1
7J010-001	#10 FLAT WASHER	4	5W001-019	10-12 GA BUTT CONN INSULATED	2
7J312-875	5/16" WASHER, 7/8 OD, CUSTOM	1	5W001-024	MINI ATC FUSE TAP	1
7K312-001	5/16 AN WASHER, PLATED	9	5W001-025	FEM SLIDE, INSUL, MINI, 22-16AWG	1
7K375-040	3/8 AN960 FLAT WASHER PLATED	5	5W001-040	12-10 GA FEMALE SLIDE INSULATED	1
7U313-133	M8 X 1.25 STUD, 4V ALTERNATOR	1	5W018-010	18 GA STRD WIRE RED	8.25
4FH130-026	OIL FEED ASSY	1	7E010-075	#12 X 3/4' SHT METL SCRW HEX	1
7P125-103	1/8NPT X 45° -4SAE FLARE	1	7J010-001	#10 FLAT WASHER	1
7P250-034	1/4 NPT X 1/4 NPT STRT T	1	7R003-027	ADEL CLAMP, 1-11/16"	1
7P250-036	-4 SAE FLARE TO 1/4 NPT	1	7U133-060	3/4" X 90° HOSE 5" X 3.5" LEGS	1
7P250-066	-4 45° FEM SWIVEL X 1/4 HOSE	2	8F001-402	PUMP, WATER, PIERBURG	1
7P250-082	1/4 NPT X -4 SAW X 90°	1	8N105-030	WATER TANK ASSY, 4.6	1
7P525-067	.525 CRIMP FERRULES	2	7E010-075	#12 3/4" SHT METL SCRW HEX	3
7U030-026	1/4" OIL FEED HOSE	2.16	7J010-001	#10 FLAT WASHER	3
4FH130-036	OIL DRAIN ASSY	1	7R003-016	ADEL CLAMP, 1.0"	3
7U030-036	1/2" OIL DRAIN HOSE	1.16	7R007-001	NYLON RATCHET CLAMP 1-1/8'	8
7R001-008	#8 STNLS HOSE CLAMP	2	7U038-000	3/4" HEATER HOSE	20
7P375-042	3/8 NPT MALE X .5 FEM INV FLRE	1	7U100-044	TIE WRAP, 4" NYLON	16
4FH100-010	TUBE NUT ASSY, OIL DRAIN	1	7U100-066	TIE WRAP, 11" NYLON	6
4FR020-010	99,01 COBRA,03-04 MACH1 INST	1	8N105-010	WATER TANK W/FTG, 5.0 MUST	1
4FR112-030	DISCH ASSY, '99+ 4V COOLR	1	8N020-060	MANUAL, '99-'01 4V COOLER	1
4FR012-030	DUCT DISCHARGE B '99 COBRA	1			
7P100-010	1' HOSE BARB UNION	1			
7P156-082	5/32 TEE	1			
7R002-016	#16 SAE TYPE F SS HOSE CLAMP	6			
7R002-044	#44 SAE TYPE F SS HOSE CLAMP	2			
7R002-056	#56 SAE TYPE F SS HOSE CLAMP	1			
7R002-072	#72 SAE TYPE F SS HOSE CLAMP	2			
7S275-300	SLEEVE, 2-3/4" X 3", BLUE	1			

*CONTINUED ON NEXT PAGE



1999 Mustang Cobra w/aftercooler (cont'd) Tuner Kit

Part No. 4FR218-100SQ

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	PART NO.	DESCRIPTION	QTY
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*CONTINUED FROM PREVIOUS PAGE

4FR112-015	AIR INTAKE ASSY, '01 4V	1
4FK012-040	AIR INLET ELBOW 4.6 GEN 2	1
4FR012-010	INLET ELBOW, MOD CAST 4 X 3.5	1
4FR110-050	90MM/4BOLT MAF BRKT ASSY	1
4PFL010-041	BRKT, FAN RESISTOR RELOC	1
7A250-075	1/4-20 X .75 SHCS PLTD	4
7C010-075	10-24 X 3/4 SHCS GR5 ZINC	2
7E010-049	#10 X 3/4" HEX HD SLF DRL SHT MT	2
7F010-024	10-24 NYLOCK NUT	2
7F250-021	1/2-20 NYLOCK NUT ZINC PLATED	4
7J250-001	1/2 WASHER, SAW, PLTD	4
7P750-100	3/4 NPT X 1" HOSE FITTING	1
7R001-008	#8 STNLS HOSE CLAMP	1
7R002-052	#52 SAE TYPE F HOSE CLAMP	2
7R002-056	#56 SAE TYPE F HOSE CLAMP	2
7R002-064	#64 SAE TYPE F HOSE CLAMP	2
7S350-200	SLEEVE, 3-1/2 X 2, BLUE	1
7S400-200	SLEEVE, 4 X 2, BLUE	1
7U035-001	3-1/2" FLEX HOSE	1
7U038-000	3/4" HEATER HOSE	1
7U100-052	7/16 RUBBER GROMMET, FORD IAT	1
7U100-055	TIE WRAP, 7.5" NYLON	10
7U100-056	3/4 PLASTIC VENT TUBE 90°	1
7U375-055	5/8" VACUUM CAP FOR .625 NIPL	1
8A003-040	MAF, '01 LIGHTNING 90MM	1
8H040-235	AIR FILTER, 4" FLG X 7.0L	1
4FR114-012	COOLANT PIPE ASSY '99-'03	1
4FE014-010	RADIATOR PIPE-STAINLESS	1
4FR014-012	'99-'03 4V U-BEND ASSY-COATED	1
4FR014-020	'99-'03 4V L-BEND ASSY-COATED	1
4FR017-061	SPACER, RAD PIPE, 4V MACH1	2
7C060-040	M6 X 1.0 X 40 HXHD CL8.8	2
7F006-093	NUT, M6 X 1.0, NYLOCK, PLATED	2
7J250-001	1/4 WASHER, SAW, PLTD	2
7P375-002	3/8 NPT PLUG STEEL, ZINC PLT	1
7R002-020	#20 SAE TYPE F SS HOSE CLAMP	3
7R002-024	#24 SAE TYPE F SS HOSE CLAMP	3
7U100-046	O-RING, 4.6 4V	2
7U133-050	1.5" X 90° HOSE, LONG LEG	1
8N201-060	PWR COOLR ASSY, '99+ 4V SAT	1
008341	VORTECH CHARGE COOLER DECAL	1
7P500-078	1/2NPT X 3/4 HOSE FIT STRT	2
7R002-048	#48 SAE TYPE F SS HOSE CLAMP	1
7S350-301	REDUCER, 3.50-3.00	1
8N101-060	WELDED CORE ASSY 99+ 4V SAT	1



2003-2004 Mustang Mach 1 Tuner Kit

Part No. 4FR218-110SQ

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	PART NO.	DESCRIPTION	QTY
008444	3YR S/C STRT INFO PKG ASY VOR	1	7F250-021	1/4-20 NYLOCK NUT ZINC PLATED	4
008110	SMALL SILVER DIE CUT DECAL	2	7F250-021	1/4-20 NYLOCK NUT ZINC PLATED	3
008130	LICENSE PLATE FRAME, VORTECH	1	7J250-001	1/4 WASHER, SAE, PLTD	4
4FH130-026	OIL FEED ASSY	1	7J250-001	1/4 WASHER, SAE, PLTD	6
7P125-103	1/8NPT X 45° -4SAE FLARE	1	7P375-106	PCV VALVE, FORD, 3/8" HOSE	1
7P250-034	1/4 NPT X 1/4 NPT STRT T	1	7P625-377	5/8"-3/8" REDUCER BARB UNION	1
7P250-036	-4 SAE FLARE TO 1/4 NPT	1	7P750-100	3/4" NPT X 1" HOSE FITTING	1
7P250-066	-4 45° FEM SWIVEL X 1/4 HOSE	2	7R001-006	#6 STNLS HOSE CLAMP, NARROW	2
7P250-082	1/4 NPT X -4 SAW X 90°	1	7R001-008	#8 STNLS HOSE CLAMP	7
7P525-067	.525 CRIMP FERRULES	2	7R002-052	#52 SAE TYPE F SS HOSE CLAMP	2
7U030-026	1/4" OIL FEED HOSE	2.16	7R002-056	#56 SAE TYPE F SS HOSE CLAMP	2
4FH130-036	OIL DRAIN ASSY	1	7R002-064	#64 SAE TYPE F SS HOSE CLAMP	2
7U030-036	1/2" OIL DRAIN HOSE	1.16	7S350-200	SLEEVE, 3-1/2 X 2, BLUE	1
7R001-008	#8 STNLS HOSE CLAMP	2	7S400-200	SLEEVE, 4 X 2, BLUE	1
7P375-042	3/8 NPT MALE X .5 FEM INV FLRE	1	7U032-016	3/8" EFI FUEL HSE HI PSR	1.666
4FH100-010	TUBE NUT ASSY, OIL DRAIN	1	7U033-010R	HOSE, 5/8" ID FUEL, P/STR RET	2
4FR112-020	DISCH ASSY '99+ 4V COOLR	1	7U033-010R	HOSE, 5/8" ID FUEL, P/STR RET	2
4FR012-020	DUCT DISCHARGE A - CASTING	1	7U035-001	3-1/2" FLEX HOSE	1
4FR012-030	DUCT DISCHARGE B '99 COBRA	1	7U038-000	3/4" HEATER HOSE	1
7P100-010	1" HOSE BARB UNION	1	7U100-052	7/16 RUBBER GROMMET, FORD IAT	1
7P156-082	5/32 TEE	1	7U100-055	TIE WRAP, 7.5" NYLON	10
7R002-016	#16 SAE TYPE F SS HOSE CLAMP	6	7U100-056	3/4 PLASTIC VENT TUBE 90°	1
7R002-044	#44 SAE TYPE F SS HOSE CLAMP	2	7U375-055	5/8 VACUUM CAP FOR .625 NIPL	1
7R002-056	#56 SAE TYPE F SS HOSE CLAMP	2	8A003-040	MAF, '01 LIGHTNING 90MM	1
7R002-072	#72 SAE TYPE F SS HOSE CLAMP	2	8H040-235	AIR FILTER, 4" FLG X 7.0L	1
7S275-300	SLEEVE, 2-3/4" X 3", BLUE	1	4FR114-012	COOLANT PIPE ASSY, '99-03	1
7S350-200	SLEEVE, 3-1/2 X 2, BLUE	1	4FE014-010	RADIATOR PIPE-STAINLESS	1
7S450-200	SLEEVE, 4 1/2 X 2, BLUE	1	4FR014-012	'99-'03 4V U-BEND ASSY-COATED	1
7U030-046	5/32" VACUUM LINE	4	4FR014-020	'99-'03 4V L-BEND ASSY-COATED	1
7U034-016	1" GS HEATER HOSE	.25	4FR017-061	SPACER, RAD PIPE, 4V MACH1	2
7U034-016	1" GS HEATER HOSE	.66	7C060-040	M6 X 1.0 X 40 HXHD CL8.8	2
7U133-090	RUBBER ELBOW, 1" DIA X 90°	1	7F006-093	NUT, M6 X 1.0, NYLOCK, PLATED	2
8D001-004	COMPRESS BYPASS VALVE, G2	1	7J250-001	1/4 WASHER, SAW, PLTD	2
4FR112-017	AIR INTAKE ASSY, '03 MACH1	1	7P375-002	3/8 NPT PLUG STEEL, ZINC PLT	1
4FK012-040	AIR INLET ELBOW 4.6 GEN2	1	7R002-020	#20 SAE TYPE F SS HOSE CLAMP	3
4FR010-030	SHAKER BRKT, P.SIDE 03 MACH 1	1	7R002-024	#24 SAE TYPE F SS HOSE CLAMP	3
4FR010-040	SHAKER, BRKT, D.SIDE 03 MACH 1	1	7U100-046	O-RING, 4.6 4V	2
4FR012-010	INLET ELBOW, MOD CAST 4 X 3.5	1	7U133-050	1.5" X 90° HOSE, LONG LEG	1
4FR014-050	PCV TUBE, 03 MACH 1	1			
4FR110-050	90MM/4BOLT MAF BRKT ASSY	1			
4PFL010-041	BRKT, FAN RESISTOR RELOC	1			
5A002-014	SENSOR, FORD IAT	1			
5W001-007	3/16" HEAT-SHRINK TUBING	.25			
5W001-063	HARNESS, FORD IAT SENSOR	1			
7A250-074	1/4-20 X .75 HHCS PLTD	3			
7A250-075	1/4-20 X .75 SHCS PLTD	4			
7C010-075	10-24 X 3/4 SHCS GR5 ZINC	2			
7E010-049	#10 X 3/4 HEX HD SLF DRL SHT MT	2			
7F010-024	10-24 NYLOCK NUT	2			

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ENGINEERING, INC

2003-2004 Mustang Mach 1(cont'd) Tuner Kit

Part No. 4FR218-110SQ

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	PART NO.	DESCRIPTION	QTY
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**CONTINUED FROM PREVIOUS PAGE*

4FR111-041	'03 MACH1 MNTG BRCKT ASSY	1			
1015530	FAN RESISTOR RELOCATION, ASSY	1			
2A017-016	PILOT, 6203/5 BRG, M10 3/8 SCR	1			
4FR010-011	PLAQUE, '99+ 4V MNTG BRKT	1			
4FR011-021	MACH, MTG BKT, 01 4V	1			
4FR016-011	PULLEY, 03 MACH 1 WATER PUMP	1			
4FR017-031	SPACER, ALT/MTG BRKT, 01 4V	1			
4FR017-041	ALT BRKT, D.SIDE, 01 4V	1			
4FR017-051	ALT BRKT, P.SIDE, 01 4V	1			
4FR111-032	ASSY, IDLER PLATE, 01 4V	1			
4GR016-150	SMOOTH IDLER 3.5" C5 VETTE	1			
7A312-100	5/16-18 X 1 HHCS, GR5, PLATED	1			
7A312-175	5/16-18 X 1-3/4 HXCS G5 ZN PLT	2			
7A375-100	3/8-16 X 1 G5 HHCS, PLT	1			
7A375-178	3/8-16 X 1-3/4 HXHD G8	3			
7A375-225	3/8-16 X 2-1/4 HXHD G8	2			
7C010-052	10-24 X 1/2 BUTTN HEAD CRWW	4			
7C080-016	M8 X 1.25 X 16 HXHD	2			
7C080-025	M8 X 1.25 X 25 HXHD	2			
7C080-065	M8 X 1.25 X 65 SOC	1			
7C080-070	M8 X 1.25 X 70 HXHD ZINC	1			
7C080-130	M8 X 1.25 X 130 HXHD ZINC	1			
7C080-140	M8 X 1.25 X 140 HXHD CL8.8	2			
7F008-020	NUT, M8 X 1.25	1			
7J006-093	6MM WASHER, PLATED	2			
7J010-001	#10 FLAT WASHER	4			
7J312-875	5/16" WASHER, 7/8" OD, CUSTOM	1			
7K312-001	5/16 AN WASHER, PLATED	14			
7K375-040	3/8 AN960 FLAT WASHER PLATED	6			
7U313-133	M8 X 1.25 STUD, 4V ALTERNATOR	1			
2E229-190	V2SQ SCI-TRIM ASY, 03 MACH1 STD	1			
4FR020-010	99,01 COBRA,03-04 MACH1 INST	1			
2A046-115	BELT, K061115, GATES	1			



2003-2004 Mustang Mach 1 w/aftercooler Tuner Kit

Part No. 4FR218-120SQ
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	PART NO.	DESCRIPTION	QTY
008444	3YR S/C STRT INFO PKG ASY VOR	1	7J250-001	1/4 WASHER, SAE, PLTD	4
008110	SMALL SILVER DIE CUT DECAL	2	7J250-001	1/4 WASHER, SAE, PLTD	6
008130	LICENSE PLATE FRAME, VORTECH	1	7P375-106	PCV VALVE, FORD, 3/8" HOSE	1
4FH130-026	OIL FEED ASSY	1	7P625-377	5/8"-3/8" REDUCER BARB UNION	1
7P125-103	1/8NPT X 45° -4SAE FLARE	1	7P750-100	3/4" NPT X 1" HOSE FITTING	1
7P250-034	1/4 NPT X 1/4 NPT STRT T	1	7R001-006	#6 STNLS HOSE CLAMP, NARROW	2
7P250-036	-4 SAE FLARE TO 1/4 NPT	1	7R001-008	#8 STNLS HOSE CLAMP	7
7P250-066	-4 45° FEM SWIVEL X 1/4 HOSE	2	7R002-052	#52 SAE TYPE F SS HOSE CLAMP	2
7P250-082	1/4 NPT X -4 SAW X 90°	1	7R002-056	#56 SAE TYPE F SS HOSE CLAMP	2
7P525-067	.525 CRIMP FERRULES	2	7R002-064	#64 SAE TYPE F SS HOSE CLAMP	2
7U030-026	1/4" OIL FEED HOSE	2.16	7S350-200	SLEEVE, 3-1/2 X 2, BLUE	1
4FH130-036	OIL DRAIN ASSY	1	7S400-200	SLEEVE, 4 X 2, BLUE	1
7U030-036	1/2" OIL DRAIN HOSE	1.16	7U032-016	3/8" EFI FUEL HSE HI PSR	.1666
7R001-008	#8 STNLS HOSE CLAMP	2	7U033-010R	HOSE, 5/8" ID FUEL, P/STR RET	2
7P375-042	3/8 NPT MALE X .5 FEM INV FLRE	1	7U033-010R	HOSE, 5/8" ID FUEL, P/STR RET	2
4FH100-010	TUBE NUT ASSY, OIL DRAIN	1	7U035-001	3-1/2" FLEX HOSE	1
4FR112-030	DISCHARGE ASSY, '99+ 4V COOLR	1	7U038-000	3/4" HEATER HOSE	1
4FR012-030	DUCT DISCHARGE B '99 COBRA	1	7U100-052	7/16 RUBBER GROMMET, FORD IAT	1
7P100-010	1" HOSE BARB UNION	1	7U100-055	TIE WRAP, 7.5" NYLON	10
7P156-082	5/32 TEE	1	7U100-056	3/4 PLASTIC VENT TUBE 90°	1
7R002-016	#16 SAE TYPE F SS HOSE CLAMP	6	7U375-055	5/8 VACUUM CAP FOR .625 NIPL	1
7R002-044	#44 SAE TYPE F SS HOSE CLAMP	2	8A003-040	MAF, '01 LIGHTNING 90MM	1
7R002-056	#56 SAE TYPE F SS HOSE CLAMP	1	8H040-235	AIR FILTER, 4" FLG X 7.0L	1
7R002-072	#72 SAE TYPE F SS HOSE CLAMP	2	4FR114-012	COOLANT PIPE ASSY '99-'03	1
7S275-300	SLEEVE, 2-3/4" X 3", BLUE	1	4FE014-010	RADIATOR PIPE-STAINLESS	1
7S450-200	SLEEVE, 4 1/2 X 2, BLUE	1	4FR014-012	'99-'03 4V U-BEND ASSY-COATED	1
7U030-046	5/32" VACUUM LINE	4	4FR014-020	'99-'03 4V L-BEND ASSY-COATED	1
7U034-016	1" GS HEATER HOSE	.25	4FR017-061	SPACER, RAD PIPE, 4V MACH1	2
7U034-016	1" GS HEATER HOSE	.66	7C060-040	M6 X 1.0 X 40 HXHD CL8.8	2
7U133-090	RUBBER ELBOW, 1" DIA X 90°	1	7F006-093	NUT, M6 X 1.0, NYLOCK, PLATED	2
8D001-004	COMPRESS BYPASS VALVE, G2	1	7J250-001	1/4 WASHER, SAW, PLTD	2
4FR112-017	AIR INTAKE ASSY, '03 MACH 1	1	7P375-002	3/8 NPT PLUG STEEL, ZINC PLT	1
4FK012-040	AIR INLET ELBOW 4.6 GEN2	1	7R002-020	#20 SAE TYPE F SS HOSE CLAMP	3
4FR010-030	SHAKER BRKT, P.SIDE 03 MACH 1	1	7R002-024	#24 SAE TYPE F SS HOSE CLAMP	3
4FR010-040	SHAKER, BRKT, D.SIDE 03 MACH 1	1	7U100-046	O-RING, 4.6 4V	2
4FR012-010	INLET ELBOW, MOD CAST 4 X 3.5	1	7U133-050	1.5" X 90° HOSE, LONG LEG	1
4FR014-050	PCV TUBE, 03 MACH 1	1			
4FR110-050	90MM/4BOLT MAF BRKT ASSY	1			
4PFL010-041	BRKT, FAN RESISTOR RELOC	1			
5A002-014	SENSOR, FORD IAT	1			
5W001-007	3/16" HEAT-SHRINK TUBING	.25			
5W001-063	HARNESS, FORD IAT SENSOR	1			
7A250-074	1/4-20 X .75 HHCS PLTD	3			
7A250-075	1/4-20 X .75 SHCS PLTD	4			
7C010-075	10-24 X 3/4 SHCS GR5 ZINC	2			
7E010-049	#10 X 3/4 HEX HD SLF DRL SHT MT	2			
7F010-024	10-24 NYLOCK NUT	2			
7F250-021	1/4-20 NYLOCK NUT ZINC PLATED	4			
7F250-021	1/4-20 NYLOCK NUT ZINC PLATED	3			

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2003-2004 Mustang Mach 1 w/aftercooler (cont'd) Tuner Kit

Part No. 4FR218-120SQ 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	PART NO.	DESCRIPTION	QTY
<i>*CONTINUED FROM PREVIOUS PAGE</i>			5W001-015	FUSE, BLADE TYPE 20 AMP	1
4FR111-041 '03 MACH 1 MNTG BRCKT ASSY		1	5W001-019	10-12 GA BUTT CONN INSULATED	2
1015530	FAN RESISTOR RELOCATION, ASSY	1	5W001-024	MINI ATC FUSE TAP	1
2A017-016	PILOT, 6203/5 BRG, M10 3/8 SCR	1	5W001-025	FEM SLIDE, INSUL, MINI, 22-16AWG	1
4FR010-011	PLAQUE, '99+ 4V MNTG BRKT	1	5W001-040	12-10 GA FEMALE SLIDE INSULATED	1
4FR011-021	MACH, MTG BKT, 01 4V	1	5W018-010	18 GA STRD WIRE RED	8.25
4FR016-011	PULLEY, 03 MACH 1 WATER PUMP	1	7E010-075	#12 X 3/4" SHT METL SCRW HEX	1
4FR017-031	SPACER, ALT/MTG BRKT, 01 4V	1	7J010-001	#10 FLAT WASHER	1
4FR017-041	ALT BRKT, D.SIDE, 01 4V	1	7R003-027	ADEL CLAMP, 1-11/16"	1
4FR017-051	ALT BRKT, P.SIDE, 01 4V	1	7U133-060	3/4" X 90° HOSE 5" X 3.5" LEGS	1
4FR111-032	ASSY, IDLER PLATE, 01 4V	1	8F001-402	PUMP, WATER, PIERBURG	1
4GR016-150	SMOOTH IDLER 3.5" C5 VETTE	1	8N105-030	WATER TANK ASSY, 4.6	1
7A312-100	5/16-18 X 1 HHCS, GR5, PLATED	1	7E010-075	#12 3/4" SHT METL SCRW HEX	3
7A312-175	5/16-18 X 1-3/4 HXCS G5 ZN PLT	2	7J010-001	#10 FLAT WASHER	3
7A375-100	3/8-16 X 1 G5 HHCS, PLT	1	7R003-016	ADEL CLAMP, 1.0"	3
7A375-178	3/8-16 X 1-3/4 HXHD G8	3	7R007-001	NYLON RATCHET CLAMP 1-1/8"	8
7A375-225	3/8-16 X 2-1/4 HXHD G8	2	7U038-000	3/4" HEATER HOSE	20
7C010-052	10-24 X 1/2 BUTTN HEAD CRWW	4	7U100-044	TIE WRAP, 4" NYLON	16
7C080-016	M8 X 1.25 X 16 HXHD	2	7U100-066	TIE WRAP, 11" NYLON	6
7C080-025	M8 X 1.25 X 25 HXHD	2	8N105-010	WATER TANK W/FTG, 5.0 MUST	1
7C080-065	M8 X 1.25 X 65 SOC	1	8N020-060	MANUAL, '99-'01 4V COOLER	1
7C080-070	M8 X 1.25 X 70 HXHD ZINC	1	8N201-060	PWR COOLR ASSY, '99+ 4V SAT	1
7C080-130	M8 X 1.25 X 130 HXHD ZINC	1	008341	VORTECH CHARGE COOLER DECAL	1
7C080-140	M8 X 1.25 X 140 HXHD CL8.8	2	7P500-078	1/2NPT X 3/4 HOSE FIT STRT	2
7F008-020	NUT, M8 X 1.25	1	7R002-048	#48 SAE TYPE F SS HOSE CLAMP	1
7J006-093	6MM WASHER, PLATED	2	7S350-301	REDUCER, 3.50-3.00	1
7J010-001	#10 FLAT WASHER	4	8N101-060	WELDED CORE ASSY 99+ 4V SAT	1
7J312-875	5/16" WASHER, 7/8" OD, CUSTOM	1	2A046-112	BELT, 6 RIB X 112.01 EFFECT. L	1
7K312-001	5/16 AN WASHER, PLATED	14			
7K375-040	3/8 AN960 FLAT WASHER PLATED	6			
7U313-133	M8 X 1.25 STUD, 4V ALTERNATOR	1			
2E229-200 V2SQ SCI-TRIM ASY, 03 MACH1 H.		1			
4FR020-010 99,01 COBRA,03-04 MACH1 INST		1			
8N106-030	WATER COOLER ASSY, 4.6	1			
7A250-075	1/4-20 X .75 SHCS PLTD	4			
7E010-075	#12 X 3/4" SHT METL SCREW HEX	4			
7F250-021	1/4-20 NYLOCK NUT ZINC PLATED	4			
7J010-001	#10 FLAT WASHER	4			
7J250-001	1/4 WASHER, SAE, PLTD	8			
7P500-026	1/2NPT X 3/4 BARB 90° BRASS	2			
8N006-010	WATER COOLR, SETRAB SINGLE	1			
8N010-050	MOUNT TAB, COOLER 4.6/2V	2			
8N107-020	WATER PUMP ASSY, 4.6	1			
5W001-002	FUSE TAP	1			
5W001-011	16-14 GA RING TERM .26" HOLSE	1			
5W001-012	18-22 GA BUTT CONN RED INSUL	1			
5W001-014	FUSE HOLDER 10 GA WIRE	1			



2001 Mustang Cobra w/aftercooler Tuner Kit

Part No. 4FR218-130SQ

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	PART NO.	DESCRIPTION	QTY
008444	3YR S/C STRT INFO PKG ASY VOR	1	4FR020-010	99,01 COBRA,03-04 MACH1 INST	1
008110	SMALL SILVER DIE CUT DECAL	2	4FR112-030	DISCH ASSY '99+ 4V COOLR	1
008130	LICENSE PLATE FRAME, VORTECH	1	4FR012-030	DUCT DISCHARGE B '99 COBRA	1
2E229-170	V2SQ SCI-TRIM ASY, 99-01 4V SA	1	7P100-010	1' HOSE BARB UNION	1
4FR111-031	'01 4V MNTG BRCKT ASSY	1	7P156-082	5/32 TEE	1
1015530	FAN RESISTOR RELOCATION, ASSY	1	7R002-016	#16 SAE TYPE F SS HOSE CLAMP	6
2A017-016	PILOT, 6203/5 BRG, M10 3/8 SCR	1	7R002-044	#44 SAE TYPE F SS HOSE CLAMP	2
2A046-115	BELT, K061115, GATES	1	7R002-056	#56 SAE TYPE F SS HOSE CLAMP	1
4FH016-150	IDLER PULY, SMOOTH 6RIB 3" FLG	1	7R002-072	#72 SAE TYPE F SS HOSE CLAMP	2
4FR010-011	PLAQUE, '99+ 4V MNTG BRKT	1	7S275-300	SLEEVE, 2-3/4" X 3", BLUE	1
4FR011-021	MACH, MTG BRKT, 01 4V	1	7S450-200	SLEEVE, 4 1/2 X 2, BLUE	1
4FR017-021	SPACER, ALTERNATOR 01 4V	2	7U030-046	5/32" VACUUM LINE	4
4FR017-031	SPACER, ALT/MTG BRKT, 01 4V	1	7U034-016	1" GS HEATER HOSE	.25
4FR017-041	ALT BRKT, D.SIDE, 01 4V	1	7U034-016	1" GS HEATER HOSE	.66
4FR017-051	ALT BRKT, P.SIDE, 01 4V	1	7U133-090	RUBBER ELBOW, 1" DIA X 90°	1
4FR111-032	ASSY, IDLER PLATE, 01 4V	1	8D001-004	COMPRESS BYPASS VALVE, G2	1
7A312-100	5/16-18 X 1 HHCS, GR5, PLATED	1	8N106-030	WATER COOLER ASSY, 4.6	1
7A312-175	5/16-18 X 1-3/4 HXCS G5 ZN PLT	2	7A250-075	1/4-20 X .75 SHCS PLTD	4
7A375-100	3/8-16 X 1 G5 HHCS, PLT	1	7E010-075	#12 X 3/4" SHT METL SCREW HEX	4
7A375-178	3/8-16 X 1-3/4 HXHD G8	3	7F250-021	1/4-20 NYLOCK NUT ZINC PLATED	4
7A375-225	3/8-16 X 2-1/4 HXHD G8	2	7J010-001	#10 FLAT WASHER	4
7C010-052	10-24 X 1/2 BUTTN HEAD CRWW	4	7J250-001	1/4 WASHER, SAE, PLTD	8
7C060-075	M6 X 1.0 X 75 HXHD ZINC PLT CL	2	7P500-026	1/2NPT X 3/4 BARB 90° BRASS	2
7C080-016	M8 X 1.25 X 16 HXHD	2	8N006-010	WATER COOLR, SETRAB SINGLE	1
7C080-025	M8 X 1.25 X 25 HXHD	2	8N010-050	MOUNT TAB, COOLER 4.6/2V	2
7C080-065	M8 X 1.25 X 65 SOC	1	8N107-020	WATER PUMP ASSY, 4.6	1
7C080-070	M8 X 1.25 X 70 HXHD ZINC	1	5W001-002	FUSE TAP	1
7C080-130	M8 X 1.25 X 130 HXHD ZN PLT	1	5W001-011	16-14 GA RING TERM .26" HOLSE	1
7C080-140	M8 X 1.25 X 140 HXHD CL8.8	2	5W001-012	18-22 GA BUTT CONN RED INSUL	1
7F008-020	NUT, M8 X 1.25	1	5W001-014	FUSE HOLDER 10 GA WIRE	1
7J006-093	6MM WASHER, PLATED	2	5W001-015	FUSE, BLADE TYPE 20 AMP	1
7J010-001	#10 FLAT WASHER	4	5W001-019	10-12 GA BUTT CONN INSULATED	2
7J312-875	5/16" WASHER, 7/8" OD, CUSTOM	1	5W001-024	MINI ATC FUSE TAP	1
7K312-001	5/16 AN WASHER, PLATED	14	5W001-025	FEM SLIDE, INSUL, MINI, 22-16AWG	1
7K375-040	3/8 AN960 FLAT WASHER PLATED	6	5W001-040	12-10 GA FEMALE SLIDE INSULATED	1
7U313-133	M8 X 1.25 STUD, 4V ALTERNATOR	1	5W018-010	18 GA STRD WIRE RED	8.25
4FH130-026	OIL FEED ASSY	1	7E010-075	#12 X 3/4' SHT METL SCRW HEX	1
7P125-103	1/8NPT X 45° -4SAE FLARE	1	7J010-001	#10 FLAT WASHER	1
7P250-034	1/4 NPT X 1/4 NPT STRT T	1	7R003-027	ADEL CLAMP, 1-11/16"	1
7P250-036	-4 SAE FLARE TO 1/4 NPT	1	7U133-060	3/4" X 90° HOSE 5" X 3.5" LEGS	1
7P250-066	-4 45° FEM SWIVEL X 1/4 HOSE	2	8F001-402	PUMP, WATER, PIERBURG	1
7P250-082	1/4 NPT X -4 SAW X 90°	1			
7P525-067	.525 CRIMP FERRULES	2			
7U030-026	1/4" OIL FEED HOSE	2.16			
4FH130-036	OIL DRAIN ASSY	1			
7U030-036	1/2" OIL DRAIN HOSE	1.16			
7R001-008	#8 STNLS HOSE CLAMP	2			
7P375-042	3/8 NPT MALE X .5 FEM INV FLRE	1			
4FH100-010	TUBE NUT ASSY, OIL DRAIN	1			

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2001 Mustang Cobra w/aftercooler(cont'd) Tuner Kit

Part No. 4FR218-130SQ 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	PART NO.	DESCRIPTION	QTY
<i>*CONTINUED FROM PREVIOUS PAGE</i>					
8N105-030	WATER TANK ASSY, 4.6	1	7R002-024	#24 SAE TYPE F SS HOSE CLAMP	3
7E010-075	#12 3/4" SHT METL SCRWB HEX	3	7U100-046	O-RING, 4.6 4V	2
7J010-001	#10 FLAT WASHER	3	7U133-050	1.5" X 90° HOSE, LONG LEG	1
7R003-016	ADEL CLAMP, 1.0"	3	8N201-060	PWR COOLR ASSY. '99+ 4V SAT	1
7R007-001	NYLON RATCHET CLAMP 1-1/8"	8	008341	VORTECH CHARGE COOLER DECAL	1
7U038-000	3/4" HEATER HOSE	20	7P500-078	1/2NPT X 3/4 HOSE FIT STRT	2
7U100-044	TIE WRAP, 4" NYLON	16	7R002-048	#48 SAE TYPE F SS HOSE CLAMP	1
7U100-066	TIE WRAP, 11" NYLON	6	7S350-301	REDUCER, 3.50-3.00	1
8N105-010	WATER TANK W/FTG, 5.0 MUST	1	8N101-060	WELDED CORE ASSY 99+ 4V SAT	1
8N020-060	MANUAL, '99-'01 4V COOLER	1			
4FR112-015	AIR INTAKE ASSY, '01 4V	1			
4FK012-040	AIR INLET ELBOW 4.6 GEN 2	1			
4FR012-010	INLET ELBOW, MOD CAST 4 X 3.5	1			
4FR110-050	90MM/4BOLT MAF BRKT ASSY	1			
4PFL010-041	BRKT, FAN RESISTOR RELOC	1			
7A250-075	1/4-20 X .75 SHCS PLTD	4			
7C010-075	10-24 X 3/4 SHCS GR5 ZINC	2			
7E010-049	#10 X 3/4" HEX HD SLF DRL SHT MT	2			
7F010-024	10-24 NYLOCK NUT	2			
7F250-021	1/2-20 NYLOCK NUT ZINC PLATED	4			
7J250-001	1/2 WASHER, SAW, PLTD	4			
7P750-100	3/4 NPT X 1" HOSE FITTING	1			
7R001-008	#8 STNLS HOSE CLAMP	1			
7R002-052	#52 SAE TYPE F HOSE CLAMP	2			
7R002-056	#56 SAE TYPE F HOSE CLAMP	2			
7R002-064	#64 SAE TYPE F HOSE CLAMP	2			
7S350-200	SLEEVE, 3-1/2 X 2, BLUE	1			
7S400-200	SLEEVE, 4 X 2, BLUE	1			
7U035-001	3-1/2" FLEX HOSE	1			
7U038-000	3/4" HEATER HOSE	1			
7U100-052	7/16 RUBBER GROMMET, FORD IAT	1			
7U100-055	TIE WRAP, 7.5" NYLON	10			
7U100-056	3/4 PLASTIC VENT TUBE 90°	1			
7U375-055	5/8" VACUUM CAP FOR .625 NIPL	1			
8A003-040	MAF, '01 LIGHTNING 90MM	1			
8H040-235	AIR FILTER, 4" FLG X 7.0L	1			
4FR114-012	COOLANT PIPE ASSY '99-'03	1			
4FE014-010	RADIATOR PIPE-STAINLESS	1			
4FR014-012	'99-'03 4V U-BEND ASSY-COATED	1			
4FR014-020	'99-'03 4V L-BEND ASSY-COATED	1			
4FR017-061	SPACER, RAD PIPE, 4V MACH1	2			
7C060-040	M6 X 1.0 X 40 HXHD CL8.8	2			
7F006-093	NUT, M6 X 1.0, NYLOCK, PLATED	2			
7J250-001	1/4 WASHER, SAW, PLTD	2			
7P375-002	3/8 NPT PLUG STEEL, ZINC PLT	1			
7R002-020	#20 SAE TYPE F SS HOSE CLAMP	3			



ENGINEERING, INC

1999 Mustang Cobra Tuner Kit

Part No. 4FR218-150SQ

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	PART NO.	DESCRIPTION	QTY
008444	3YR S/C STRT INFO PKG ASY VOR	1	7F250-021	1/2-20 NYLOCK NUT ZINC PLATED	4
008110	SMALL SILVER DIE CUT DECAL	2	7J250-001	1/2 WASHER, SAW, PLTD	4
008130	LICENSE PLATE FRAME, VORTECH	1	7P750-100	3/4 NPT X 1" HOSE FITTING	1
2E229-190	V2SQ SCI-TRIM ASY, 03 MACH1 ST	1	7R001-008	#8 STNLS HOSE CLAMP	1
4FH130-026	OIL FEED ASSY	1	7R002-052	#52 SAE TYPE F HOSE CLAMP	2
7P125-103	1/8NPT X 45° -4SAE FLARE	1	7R002-056	#56 SAE TYPE F HOSE CLAMP	2
7P250-034	1/4 NPT X 1/4 NPT STRT T	1	7R002-064	#64 SAE TYPE F HOSE CLAMP	2
7P250-036	-4 SAE FLARE TO 1/4 NPT	1	7S350-200	SLEEVE, 3-1/2 X 2, BLUE	1
7P250-066	-4 45° FEM SWIVEL X 1/4 HOSE	2	7S400-200	SLEEVE, 4 X 2, BLUE	1
7P250-082	1/4 NPT X -4 SAW X 90°	1	7U035-001	3-1/2" FLEX HOSE	1
7P525-067	.525 CRIMP FERRULES	2	7U038-000	3/4" HEATER HOSE	1
7U030-026	1/4" OIL FEED HOSE	2.16	7U100-052	7/16 RUBBER GROMMET, FORD IAT	1
4FH130-036	OIL DRAIN ASSY	1	7U100-055	TIE WRAP, 7.5" NYLON	10
7U030-036	1/2" OIL DRAIN HOSE	1.16	7U100-056	3/4 PLASTIC VENT TUBE 90°	1
7R001-008	#8 STNLS HOSE CLAMP	2	7U375-055	5/8" VACUUM CAP FOR .625 NIPL	1
7P375-042	3/8 NPT MALE X .5 FEM INV FLRE	1	8A003-040	MAF, '01 LIGHTNING 90MM	1
4FH100-010	TUBE NUT ASSY, OIL DRAIN	1	8H040-235	AIR FILTER, 4" FLG X 7.0L	1
4FR020-010	99,01 COBRA,03-04 MACH1 INST	1	4FR112-020	DISCHARGE ASSY '99+ 4V, SAT	1
4FR111-061	'99 MNTG BRCKT ASSY GEN III	1	4FR012-020	DUCT DISCHARGE A - CASTING	1
1210517	ASY, IDLER PLY, SMOOTH 6RIB	1	4FR012-030	DUCT DISCHARGE B '99 COBRA	1
2A046-113	BELT, 6 RIB X 112.89 EFFECT L.	1	7P100-010	1' HOSE BARB UNION	1
4FK011-031	MOUNTING BRKT-MACH GEN II 4V	1	7P156-082	5/32 TEE	1
4FK016-081	WATER PUMP PULLEY-STOCK	1	7R002-016	#16 SAE TYPE F SS HOSE CLAMP	6
4FK017-011	SPACER A, 96-99 4V IDLER G3	1	7R002-044	#44 SAE TYPE F SS HOSE CLAMP	2
4FK017-021	SPACER B, 96-99 4V IDLER G3	1	7R002-056	#56 SAE TYPE F SS HOSE CLAMP	2
4FR010-011	PLAQUE, '99+ 4V MNTG BRKT	1	7R002-072	#72 SAE TYPE F SS HOSE CLAMP	2
7A375-178	3/8-16 X 1-3/4 HXHD G8	3	7S275-300	SLEEVE, 2-3/4" X 3", BLUE	1
7A375-225	3/8-16 X 2-1/4 HXHD G8	2	7S350-200	SLEEVE, 3-1/2 X 2, BLUE	1
7C010-052	10-24 X 1/2 BUTTN HEAD CRWW	4	7S450-200	SLEEVE, 4 1/2 X 2, BLUE	1
7C080-016	M8 X 1.25 X 16 HXHD	2	7U030-046	5/32" VACUUM LINE	4
7C080-025	M8 X 1.25 X 25 HXHD	2	7U034-016	1" GS HEATER HOSE	.25
7C080-065	M8 X 1.25 X 65 SOC	1	7U034-016	1" GS HEATER HOSE	.66
7C080-070	M8 X 1.25 X 70 HXHD ZINC	2	7U133-090	RUBBER ELBOW, 1" DIA X 90°	1
7C080-140	M8 X 1.25 X 140 HXHD CL8.8	2	8D001-004	COMPRESS BYPASS VALVE, G2	1
7F008-020	NUT, M8 X 1.25	1	4FR114-012	COOLANT PIPE ASSY '99-'03	1
7J010-001	#10 FLAT WASHER	4	4FE014-010	RADIATOR PIPE-STAINLESS	1
7J312-875	5/16" WASHER, 7/8" OD, CUSTOM	1	4FR014-012	'99-'03 4V U-BEND ASSY-COATED	1
7K312-001	5/16 AN WASHER, PLATED	9	4FR014-020	'99-'03 4V L-BEND ASSY-COATED	1
7K375-040	3/8 AN960 FLAT WASHER PLATED	5	4FR017-061	SPACER, RAD PIPE, 4V MACH1	2
7U313-133	M8 X 1.25 STUD, 4V ALTERNATOR	1	7C060-040	M6 X 1.0 X 40 HXHD CL8.8	2
4FR112-015	AIR INTAKE ASSY, '01 4V	1	7F006-093	NUT, M6 X 1.0, NYLOCK, PLATED	2
4FK012-040	AIR INLET ELBOW 4.6 GEN 2	1	7J250-001	1/4 WASHER, SAW, PLTD	2
4FR012-010	INLET ELBOW, MOD CAST 4 X 3.5	1	7P375-002	3/8 NPT PLUG STEEL, ZINC PLT	1
4FR110-050	90MM/4BOLT MAF BRKT ASSY	1	7R002-020	#20 SAE TYPE F SS HOSE CLAMP	3
4PFL010-041	BRKT, FAN RESISTOR RELOC	1	7R002-024	#24 SAE TYPE F SS HOSE CLAMP	3
7A250-075	1/4-20 X .75 SHCS PLTD	4	7U100-046	O-RING, 4.6 4V	2
7C010-075	10-24 X 3/4 SHCS GR5 ZINC	2	7U133-050	1.5" X 90° HOSE, LONG LEG	1
7E010-049	#10 X 3/4" HEX HD SLF DRL SHT MT	2			
7F010-024	10-24 NYLOCK NUT	2			



ENGINEERING, INC

2001 Mustang Cobra Tuner Kit

Part No. 4FR218-170SQ

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	PART NO.	DESCRIPTION	QTY
008444	3YR S/C STRT INFO PKG ASY VOR	1	7U313-133	M8 X 1.25 STUD, 4V ALTERNATOR	1
008110	SMALL SILVER DIE CUT DECAL	2	4FR112-015	AIR INTAKE ASSY, '01 4V	1
008130	LICENSE PLATE FRAME, VORTECH	1	4FK012-040	AIR INLET ELBOW 4.6 GEN 2	1
2E229-190	V2SQ SCI-TRIM ASY, 03 MACH1 ST	1	4FR012-010	INLET ELBOW, MOD CAST 4 X 3.5	1
4FH130-026	OIL FEED ASSY	1	4FR110-050	90MM/4BOLT MAF BRKT ASSY	1
7P125-103	1/8NPT X 45° -4SAE FLARE	1	4PFL010-041	BRKT, FAN RESISTOR RELOC	1
7P250-034	1/4 NPT X 1/4 NPT STRT T	1	7A250-075	1/4-20 X .75 SHCS PLTD	4
7P250-036	-4 SAE FLARE TO 1/4 NPT	1	7C010-075	10-24 X 3/4 SHCS GR5 ZINC	2
7P250-066	-4 45° FEM SWIVEL X 1/4 HOSE	2	7E010-049	#10 X 3/4" HEX HD SLF DRL SHT MT	2
7P250-082	1/4 NPT X -4 SAW X 90°	1	7F010-024	10-24 NYLOCK NUT	2
7P525-067	.525 CRIMP FERRULES	2	7F250-021	1/2-20 NYLOCK NUT ZINC PLATED	4
7U030-026	1/4" OIL FEED HOSE	2.16	7J250-001	1/2 WASHER, SAW, PLTD	4
4FH130-036	OIL DRAIN ASSY	1	7P750-100	3/4 NPT X 1" HOSE FITTING	1
7U030-036	1/2" OIL DRAIN HOSE	1.16	7R001-008	#8 STNLS HOSE CLAMP	1
7R001-008	#8 STNLS HOSE CLAMP	2	7R002-052	#52 SAE TYPE F HOSE CLAMP	2
7P375-042	3/8 NPT MALE X .5 FEM INV FLRE	1	7R002-056	#56 SAE TYPE F HOSE CLAMP	2
4FH100-010	TUBE NUT ASSY, OIL DRAIN	1	7R002-064	#64 SAE TYPE F HOSE CLAMP	2
4FR020-010	99,01 COBRA,03-04 MACH1 INST	1	7S350-200	SLEEVE, 3-1/2 X 2, BLUE	1
4FR111-031	'01 4V MNTG BRCKT ASSY	1	7S400-200	SLEEVE, 4 X 2, BLUE	1
1015530	FAN RESISTOR RELOCATION, ASSY	1	7U035-001	3-1/2" FLEX HOSE	1
2A017-016	PILOT, 6203/5 BRG, M10 3/8 SCR	1	7U038-000	3/4" HEATER HOSE	1
2A046-115	BELT, K061115, GATES	1	7U100-052	7/16 RUBBER GROMMET, FORD IAT	1
4FH016-150	IDLER PULY, SMOOTH 6RIB 3" FLG	1	7U100-055	TIE WRAP, 7.5" NYLON	10
4FR010-011	PLAQUE, '99+ 4V MNTG BRKT	1	7U100-056	3/4 PLASTIC VENT TUBE 90°	1
4FR011-021	MACH, MTG BRKT, 01 4V	1	7U375-055	5/8" VACUUM CAP FOR .625 NIPL	1
4FR017-021	SPACER, ALTERNATOR 01 4V	2	8A003-040	MAF, '01 LIGHTNING 90MM	1
4FR017-031	SPACER, ALT/MTG BRKT, 01 4V	1	8H040-235	AIR FILTER, 4" FLG X 7.0L	1
4FR017-041	ALT BRKT, D.SIDE, 01 4V	1			
4FR017-051	ALT BRKT, P.SIDE, 01 4V	1			
4FR111-032	ASSY, IDLER PLATE, 01 4V	1			
7A312-100	5/16-18 X 1 HHCS, GR5, PLATED	1			
7A312-175	5/16-18 X 1-3/4 HXCS G5 ZN PLT	2			
7A375-100	3/8-16 X 1 G5 HHCS, PLT	1			
7A375-178	3/8-16 X 1-3/4 HXHD G8	3			
7A375-225	3/8-16 X 2-1/4 HXHD G8	2			
7C010-052	10-24 X 1/2 BUTTN HEAD CRWW	4			
7C060-075	M6 X 1.0 X 75 HXHD ZINC PLT CL	2			
7C080-016	M8 X 1.25 X 16 HXHD	2			
7C080-025	M8 X 1.25 X 25 HXHD	2			
7C080-065	M8 X 1.25 X 65 SOC	1			
7C080-070	M8 X 1.25 X 70 HXHD ZINC	1			
7C080-130	M8 X 1.25 X 130 HXHD ZN PLT	1			
7C080-140	M8 X 1.25 X 140 HXHD CL8.8	2			
7F008-020	NUT, M8 X 1.25	1			
7J006-093	6MM WASHER, PLATED	2			
7J010-001	#10 FLAT WASHER	4			
7J312-875	5/16" WASHER, 7/8" OD, CUSTOM	1			
7K312-001	5/16 AN WASHER, PLATED	14			
7K375-040	3/8 AN960 FLAT WASHER PLATED	6			

*CONTINUED ON NEXT PAGE



ENGINEERING, INC

2001 Mustang Cobra (cont'd) Tuner Kit

Part No. 4FR218-170SQ

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	PART NO.	DESCRIPTION	QTY
<i>*CONTINUED FROM PREVIOUS PAGE</i>					
4FR112-020	DISCHARGE ASSY '99+ 4V, SAT	1			
4FR012-020	DUCT DISCHARGE A - CASTING	1			
4FR012-030	DUCT DISCHARGE B '99 COBRA	1			
7P100-010	1' HOSE BARB UNION	1			
7P156-082	5/32 TEE	1			
7R002-016	#16 SAE TYPE F SS HOSE CLAMP	6			
7R002-044	#44 SAE TYPE F SS HOSE CLAMP	2			
7R002-056	#56 SAE TYPE F SS HOSE CLAMP	2			
7R002-072	#72 SAE TYPE F SS HOSE CLAMP	2			
7S275-300	SLEEVE, 2-3/4" X 3", BLUE	1			
7S350-200	SLEEVE, 3-1/2 X 2, BLUE	1			
7S450-200	SLEEVE, 4 1/2 X 2, BLUE	1			
7U030-046	5/32" VACUUM LINE	4			
7U034-016	1" GS HEATER HOSE	.25			
7U034-016	1" GS HEATER HOSE	.66			
7U133-090	RUBBER ELBOW, 1" DIA X 90°	1			
8D001-004	COMPRESS BYPASS VALVE, G2	1			
4FR114-012	COOLANT PIPE ASSY '99-'03	1			
4FE014-010	RADIATOR PIPE-STAINLESS	1			
4FR014-012	'99-'03 4V U-BEND ASSY-COATED	1			
4FR014-020	'99-'03 4V L-BEND ASSY-COATED	1			
4FR017-061	SPACER, RAD PIPE, 4V MACH1	2			
7C060-040	M6 X 1.0 X 40 HXHD CL8.8	2			
7F006-093	NUT, M6 X 1.0, NYLOCK, PLATED	2			
7J250-001	1/4 WASHER, SAW, PLTD	2			
7P375-002	3/8 NPT PLUG STEEL, ZINC PLT	1			
7R002-020	#20 SAE TYPE F SS HOSE CLAMP	3			
7R002-024	#24 SAE TYPE F SS HOSE CLAMP	3			
7U100-046	O-RING, 4.6 4V	2			
7U133-050	1.5" X 90° HOSE, LONG LEG	1			

1. PREPARATION/REMOVAL

- A. Disconnect the negative battery cable.
- B. Loosen the water pump pulley bolts.
- C. Remove the accessory drive belt.

NOTE: The supplied 8mm x 16 bolt can be threaded into the spring tensioner idler hole to remove the accessory drive belt.

- D. Remove the "question mark" shaped crankcase vent hose with attached fittings from between the passenger side valve cover and the air inlet.
- E. Remove all components that lead to the throttle body including the rubber air inlet duct, mass air flow (MAF) sensor, air filter assembly and intake air temperature (IAT) sensor. Separate the MAF and IAT sensors from the intake assembly and set aside.
- F. **Mach 1 Only:** Remove the shaker scoop (upper and lower pieces), steel support bracket attached to the top of the intake manifold and the aluminum support bracket attached to the front cover of the engine. (See Fig. 1-a, 1-b.)
- G. Drain approximately one gallon of coolant from the radiator. Remove the upper and lower radiator hoses from the steel water tube junction located around the alternator. Disconnect the water temperature sensor connector located on the water tube.
- H. Remove the steel water tube assembly from the engine by removing the 2 nuts. Pull the tube directly upwards.
- I. Remove the coolant temperature sensor from the factory water tube and set aside.
- J. Remove the rear attachment screws that secure the steel alternator support to the intake manifold. Remove the two screws that attach the alternator base to the engine block. This will allow for the alternator to be raised. Leave the factory steel bracket attached to the top of the alternator intact (the two front screws will remain).

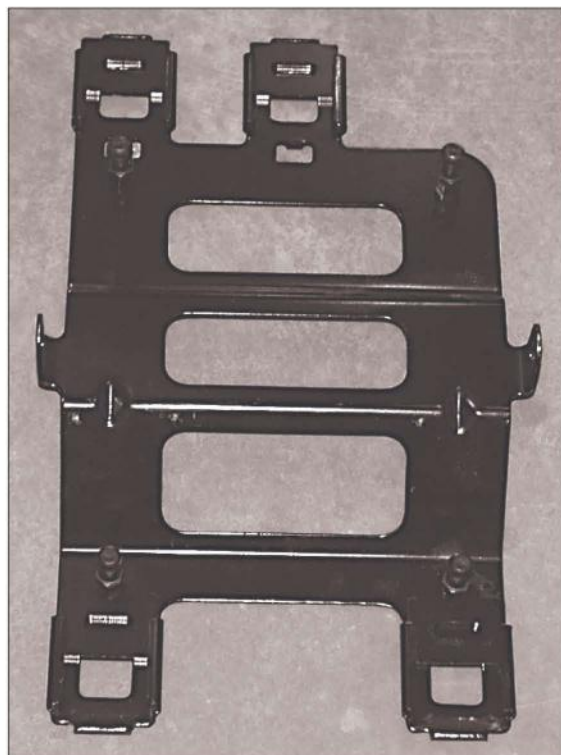


Fig. 1-a / Mach 1 Models Only

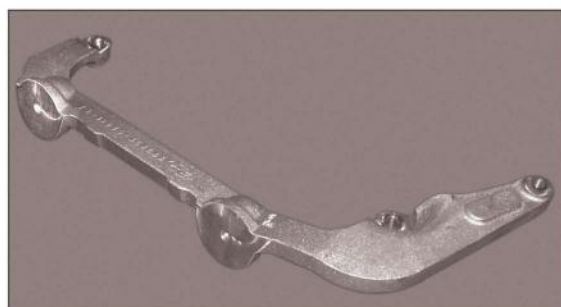


Fig. 1-b / Aluminum Bracket Removed From Front Cover / Mach 1 Models Only

* 1999 Models and Mach 1 only

** 2001-2004 Models only

2. OIL DRAIN

- A. To provide an oil drain for the supercharger, it is necessary to make a hole in the oil pan. Locate and mark the hole per Fig. 2-a. The drain hole must be punched rather than drilled.
- B. Remove the paint around the hole area.
- C. Use a small center punch to perforate the pan and expand hole. Switch to a larger diameter punch and expand the hole further to approximately 9/16" diameter. Most punches are made from hexagon material and may be placed in a socket with an extension to make this procedure easier.
- D. Tap the hole with a 3/8" NPT tap approximately 1/4" deep. Pack the flutes of the tap with heavy grease to hold chips. Use a small magnet to check for any stray chips.

NOTE: This method of rolling over the lip of the hole and tapping it works very well if carefully done and should cause no problems.

- E. Thoroughly clean the threaded area. Apply a small amount of silicone sealer to the new threads. Apply more sealer to the male portion of the 3/8" NPT x 1/2" inverted flare fitting and secure in hole. Make sure a seal is formed all around the fitting.
- F. Thread the tube nut and 1/2" x 90° aluminum tube into the inverted flare fitting by hand. Do not tighten until after the supercharger drain hose has been connected. (See Figs. 2 b, 2 c.)
- G. Drain the engine oil and change the filter.
- H. Temporarily cap off the oil drain fitting to keep out debris until drain hose is attached at a later time.
- I. Refill engine with 5W/30 synthetic or conventional SH/CF rated motor oil.

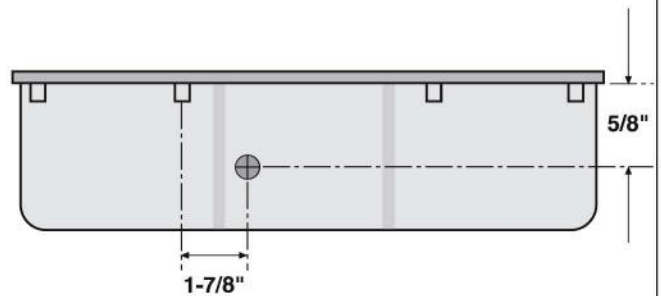


Fig. 2-a - Front of Oil Pan

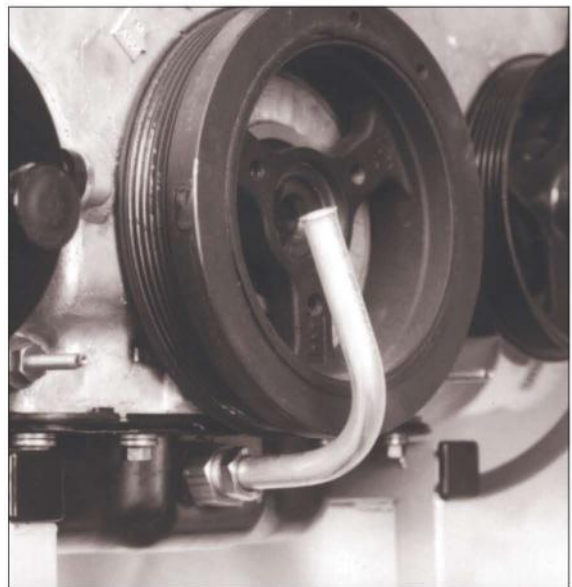


Fig. 2-b

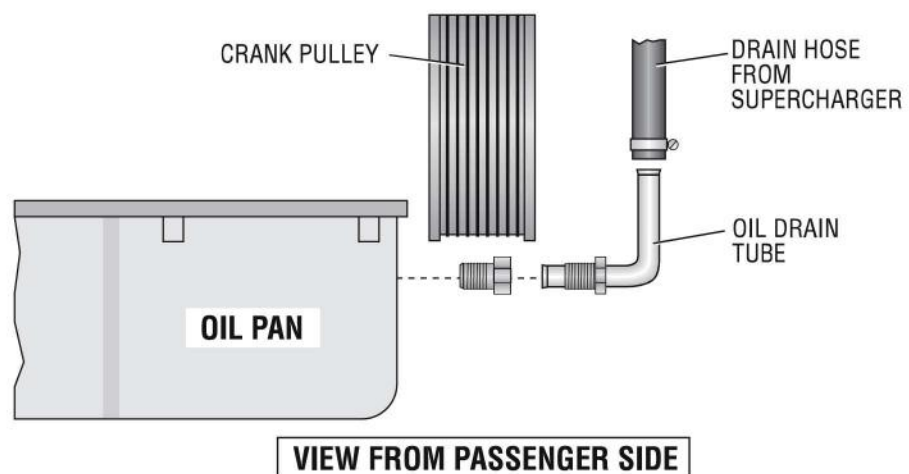
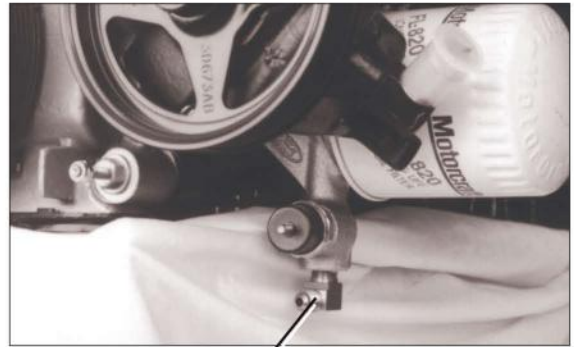


Fig. 2-c

3. OIL FEED

- A. Remove the 1/4" NPT socket head plug located perpendicular to and directly beneath the factory oil pressure sending unit. This is found on the engine's driver's side below the oil filter.
- B. Thread the supplied 1/4" NPT #4 flare x 90° fitting into the pressure sending unit mount using engine oil on the pipe threads (see Fig. 3-a). The use of Teflon tape or other sealants is not recommended as a small piece of either may break loose and cause blockage of the oil feed orifice, resulting in supercharger failure. Rotate the fitting so that the flare points toward the front of the vehicle.
- C. Temporarily cap off the flare fitting to prevent dirt from entering. The oil feed will be connected at a later time.



1/4" NPT x 90° FITTING

Fig. 3-a

4. FUEL PUMP INSTALLATION

NOTE: It is recommended when performing this step that the fuel level in the tank be below 1/4 tank.

- A. Raise the rear of the car and support it with jack-stands.
- B. Open the fuel door and remove the fuel-cap and the three filler neck screws using a 10mm socket.
- C. Remove the fuel filter inlet line with a 3/8 spring-lock tool.
- D. With the weight of the fuel tank supported with a jack, remove the bolts securing the two fuel tank straps.
- E. Slowly lower the fuel tank, allowing it to lean over with the filler side up, until the electrical connections leading to the center mounted fuel pump are revealed. Disconnect these two electrical connections.
- F. Remove the six bolts securing the fuel pump access cover (on top of the fuel tank) with an 8mm wrench. Depress the two clips securing the plastic fuel pump enclosure and slide it out of the tank. The fuel sender float is attached to the fuel pump enclosure and must be handled with care. Ensure that the tank has been lowered enough to remove the fuel pump enclosure.
- G. Remove the two screws securing the plastic fuel pump outlet manifold to the enclosure cap. Pull the manifold up and away from the fuel pump.
- H. Remove the three screws securing the fuel pump enclosure's cover using a 3/16 nut-driver and remove the cover.
- I. Remove the stock fuel pump from its enclosure. Separate the rubber pump support from beneath the filter and install it on the supplied pump. Secure the support with the new filter provided.

4. FUEL PUMP INSTALLATION, cont'd.

- J. Using the supplied fuel pump, reassemble the fuel pump assembly and canister with cap.
- K. Reinstall the canister assembly into the fuel tank and reattach the electrical connections.
- L. Reinstall the fuel tank, reconnect the fuel filter inlet line, reattach the fuel filler neck and reinstall the fuel cap.
- M. Turn the ignition key on and check the fuel pump for leaks.

5. FUEL INJECTOR REPLACEMENT

- A. Disconnect the EGR tube from the EGR valve at the back of the intake manifold. Remove all bolts securing the upper manifold to the lower manifold. Unplug the electrical connector from the throttle body. The upper manifold should now move up enough to access all fuel injectors.
- B. Disconnect the eight (8) fuel injector wiring clips and retainers from the fuel injectors. Release any residual fuel pressure from the rail by opening the schrader valve on the rail. Have a fire extinguisher nearby and use extreme caution.
- C. Remove the bolts holding down the factory fuel rail onto the intake manifold. Lift up on to the rails evenly, removing all eight (8) injectors.
- D. Using a small amount of clean motor oil, lightly lubricate the O-rings on both ends of the Vortech supplied fuel injectors.
- E. Install the new injectors into the fuel rails with the terminals facing outward.
- F. Carefully lower the fuel rail/injector assembly down onto the intake manifold. Check to see that each injector has been seated properly into the manifold.
- G. Tighten down the fuel rail assembly with the original bolts.
- H. Use supplied jumper harnesses to connect the factory fuel injector plug to the newly installed fuel injectors (see Fig. 5-a).
- I. Reinstall all components removed in step A.

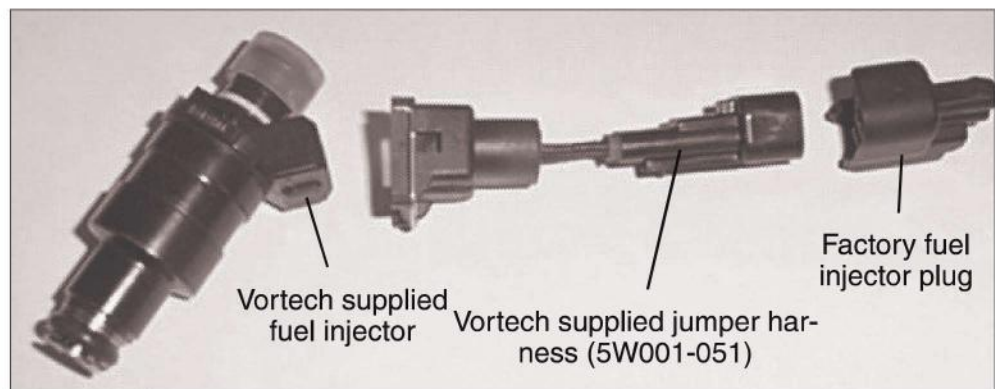


Fig. 5-a

6. AIR CONDITIONING LINE MODIFICATION

NOTE: Air conditioning lines are under high pressure and the fluid is highly toxic. Therefore, use extreme caution when bending the line to avoid kinking or breaking the line. Support the assembly as much as possible while bending for clearance.

- A. Carefully bend the high pressure air conditioning line (the line with the pressure port and cap) so that the pressure port rotates down (for super-charger inlet clearance). (See Fig. 6-a.)

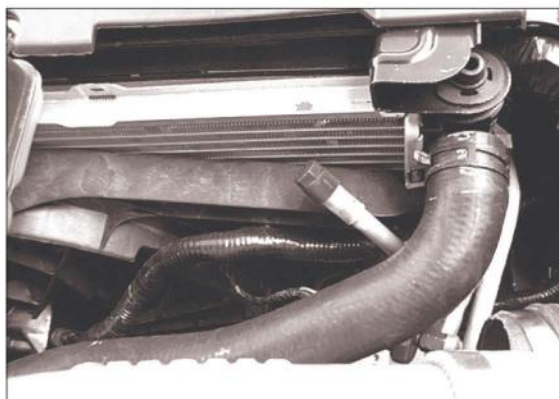


Fig. 6-a

7. FAN RESISTOR RELOCATION (2001 and 2003-2004 Mach 1 models only)

- A. **2003-2004 Mach 1:** In order to remove the fan resistor, you must unbolt the fan shroud from the radiator. Pull the fans forward and remove the resistor for the rear of the fans.
- B. **Cobra:** Unsnap the resistor from the fanshroud bracket. (See Fig. 7-b.) Pull the wire clips securing the wires to the fan away from the shroud so that the resistor can reach down. With the supplied relocation bracket and sheet metal screws mount the resistor (see Fig. 7-a).
- C. **SHROUD MODS:** Trim the plastic which holds the fan high/low resistor as shown in Fig. 7-b to give clearance for the inlet duct.



Fig. 7-a

FACTORY FAN
RESISTOR LOCATION

MODIFY SHROUD
AS SHOWN

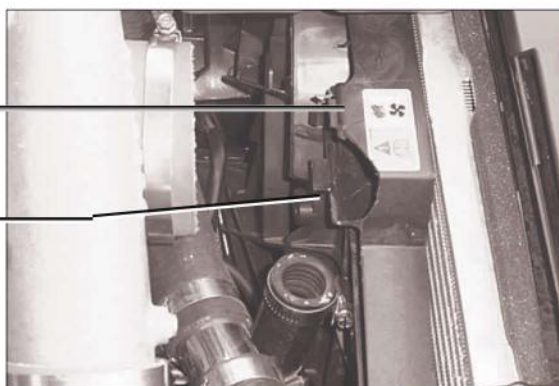


Fig. 7-b

8. MAIN BRACKET ASSEMBLY/DRIVE BELT

- A. Attach the supplied 1/8" NPT x 45° flare fitting and oil feed hose to the oil feed fitting on the supercharger. Rotate the fitting so that it points forward, toward the volute side of the supercharger, perpendicular to the front cover. When tightening fitting, use a 1/2" wrench on the oil feed base for support.

WARNING: When threading the 1/8" NPT x 45° flare fitting into the supercharger, use engine oil on the pipe threads for lubrication. Teflon tape, paste or other sealant is not recommended as it might loosen and cause blockage of the oil feed orifice, resulting in supercharger failure.

- B. Slide the supplied 1/2" oil drain hose onto the supercharger drain and secure with a #8 hose clamp.
- C. Using the supplied 3/8-16 x 1.75, 2.25 bolts and 3/8" AN washers, secure the supercharger to the Vortech aluminum mounting bracket. (See Figs. 8-a, 8-b.) Do not overtighten bolts.

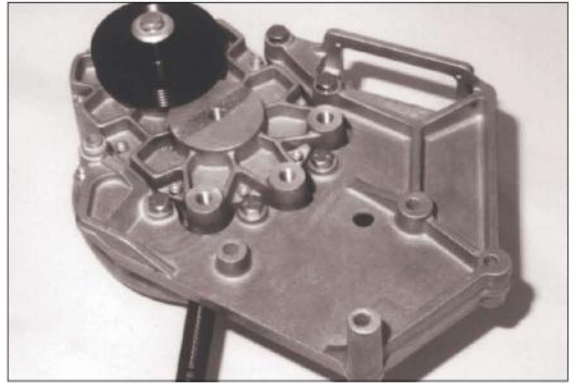


Fig. 8-a



Fig. 8-b

8.1 MAIN BRACKET ASSEMBLY/DRIVE BELT - 1999 Models

- A.** Remove the three timing cover bolts, fixed idler pulley bolt (replace the factory idler pulley bolt with the supplied 8mm x 16 bolt and heavy duty washer) and passenger's side alternator mounting bolt from the front of the engine. Remove the upper bolt/stud located on the factory belt tensioner and replace with the supplied 8mm x 25mm bolt and washer. Remove the middle bolt also located on the belt tensioner. (See Fig. 8.1-a.)
- B.** Remove the air conditioning line silencer bracket and mounting hardware from the silencer and engine front cover. Trim the corner of the bracket per Fig. 8.1-b on the following page. Enlarge the smaller of the two holes on the bracket with an 1 1/32" drill, remove any sharp edges around enlarged hole and reinstall onto the silencer. (See Fig. 8.1-c.)
- C.** Install the supplied M8 x 1.25 threaded stud into the passenger side alternator mount. (Make sure the end with the least number of threads goes into the block.)

NOTE: On 1999 models, a tensioner stop has been added to the tensioner. This must be removed before bracket installation.

NOTE: When mounting the supercharger bracket assembly to the front cover, make sure that the air conditioning line silencer bracket is sandwiched in between the Vortech aluminum bracket and the front cover in positions #1 and #2. See Fig. 8.1-c.

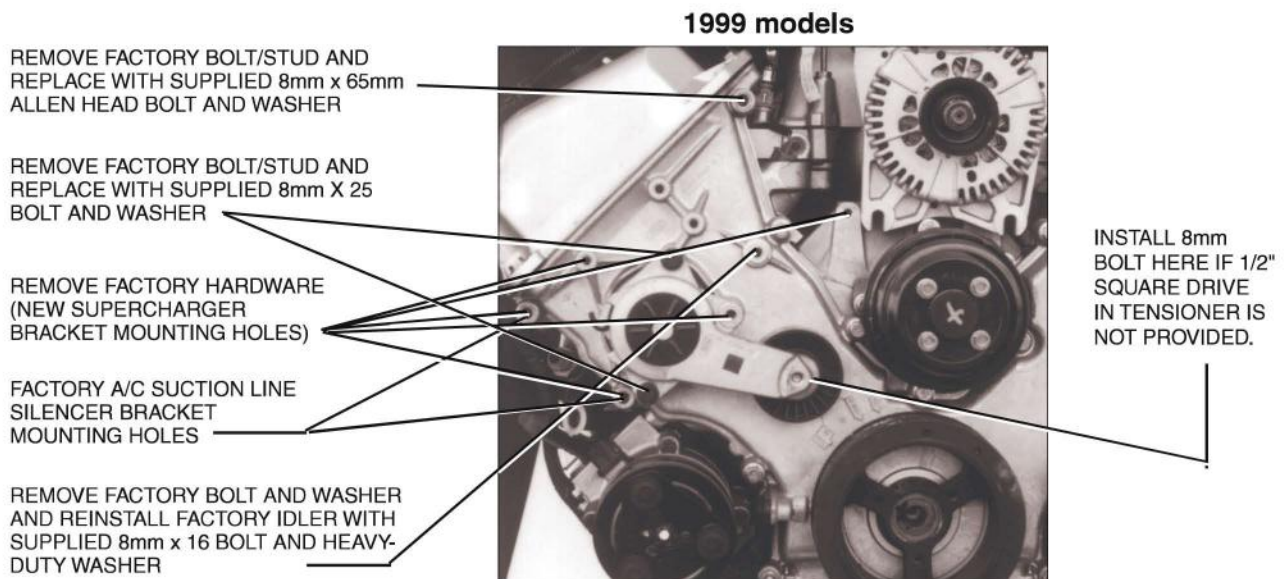


Fig. 8.1-a

8.1 MAIN BRACKET ASSEMBLY/DRIVE BELT - 1999 Models, cont'd.

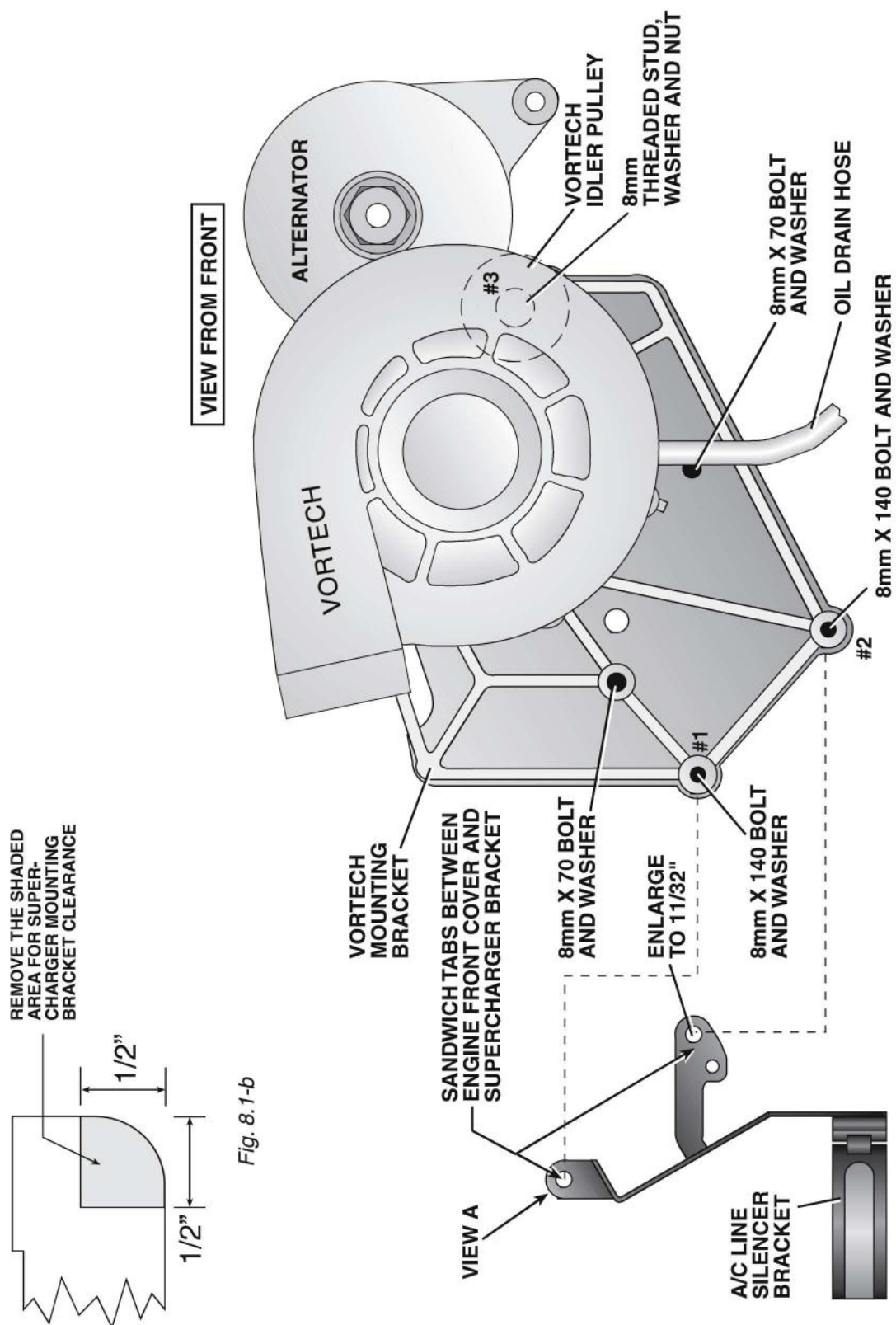


Fig. 8.1-c

8.1 MAIN BRACKET ASSEMBLY/DRIVE BELT - 1999 Models, cont'd.

- E. Loosen and remove the three nuts securing the factory coolant reservoir to the car. Temporarily move aside to provide room to mount the supercharger. (Do not remove any hoses or connectors from reservoir.)
- F. Remove the factory flanged water pump pulley and replace with the supplied non-flanged pulley.
- G. Following *Figs. 8.1-c & 8.1-d*, attach the supercharger/aluminum bracket assembly with the Vortech idler pulley and idler spacer to the alternator stud and front cover using the supplied 8mm hardware. Route the new, longer belt around the outside of the supercharger drive pulley, then around the inside of the Vortech idler. Finish routing the belt around all of the pulleys, except for the water pump. Make sure that the Vortech idler pulley and spacer (located against the alternator base), are seated and located in their proper positions before tightening down the bolts (see *Fig. 8.1-e* for belt routing).

NOTE: When installing the Vortech idler pulley, make sure that the bearing shim located between the bearings in the pulley allows for complete insertion of the idler spacer and bracket pilot. Install the steel idler spacer into the idler pulley and verify that the shim is not interfering with the idler spacer pilot.

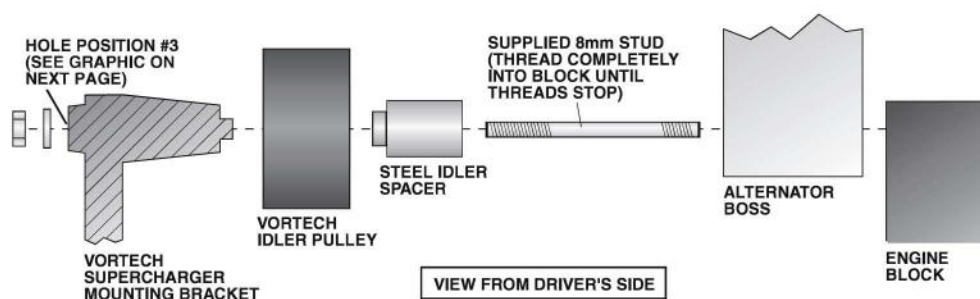


Fig. 8.1-d

1999 Models Only

8.1 MAIN BRACKET ASSEMBLY/DRIVE BELT - 1999 Models, cont'd.

- H. After the bracket has been fully secured (the belt should be properly routed around/under all pulleys except for the water pump), use a 1/2" breaker bar or ratchet to release the belt tension. Push the belt over the top radius of the water pump pulley, underneath the crank pulley, over the top of the tensioner pulley and release the tensioner (see Fig. 8.1-e).
- I. Route the oil drain hose down to the oil pan tube previously installed. The hose must be routed downhill, free from dips and kinks. Trim hose end if necessary, slide onto the drain tube and secure with #8 hose clamp. Support fitting in oil pan with a wrench while tightening the drain tube fitting.



Fig. 8-h

IMPORTANT: It is imperative that the tensioner does not get overloaded when being pulled down during belt installation. Bending of the tensioner may cause belt throwing/shredding problems when vehicle is driven at high speeds.

- J. Route the oil feed hose next to the drain hose, down to the feed fitting and secure. Use tie wraps to fasten the lines together.
- K. Reinstall the factory coolant reservoir and secure.

BELT ROUTING

1999 only

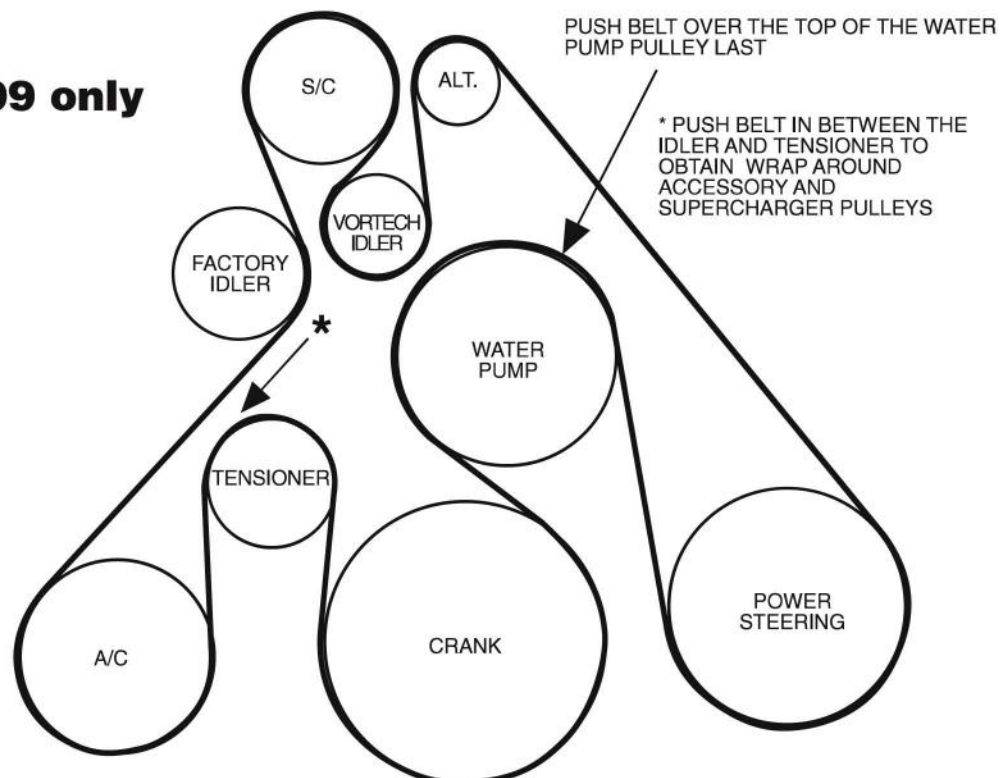


Fig. 8.1-e

8.2 MAIN BRACKET ASSEMBLY/DRIVE BELT - 2001-2004 Models, cont'd.

- A. Remove the three timing cover bolts, fixed idler pulley bolt (replace the factory idler with the supplied Vortech composite idler) and passenger's side alternator mounting bolt from the front of the engine. (See Fig. 8.2-a.)
- B. Remove the air conditioning line silencer and mounting hardware from the engine front cover.
- C. Install the supplied M8 x 1.25 threaded stud into the passenger's side alternator mount. (Make sure the end with the least number of threads goes into the block.)
- D. Loosen and remove the three nuts securing the factory coolant reservoir to the car. Temporarily move aside to provide room to mount the supercharger. (Do not remove any hoses or connectors from the reservoir.)
- E. **Mach 1 Models Only:** Remove the factory water pump pulley and replace with the supplied aluminum pulley. Use the factory bolts.
- F. **Mach 1 Models Only:** Remove the belt tensioner from the front cover. Grind the top belt shield section off as seen in Fig. 8.2-b.
- G. Following Figs. 8.2-c through 8.2-m (**Mach 1 Models Ignore Fig. 8.2-l**), first route the Vortech supplied supercharger belt and then attach the idler relocation assembly and mounting bracket/supercharger assembly to the front cover using the supplied 8mm hardware. Finish by routing around all of the pulleys along with the supercharger pulley, except for the water pump.
- H. After the bracket has been fully secured (the belt should be properly routed around/under all pulleys except the water pump). Use a large pair of channel locks to release the belt tension. Push the belt over the top radius of the water pump pulley, then release the tension. (See Fig. 8.2-n.)
- I. Secure the air conditioner canister to the Vortech mounting bracket as shown in Fig. 8.2-m.

IMPORTANT: It is imperative that the tensioner does not get overloaded when being pulled down during belt installation. Bending of the tensioner may cause belt throwing/shredding problems when vehicle is driven at high speeds.

- J. Route the oil feed hose next to the drain hose down to the feed fitting and secure. Use tie wraps to fasten the lines together.
- K. Reinstall the factory coolant reservoir and secure.

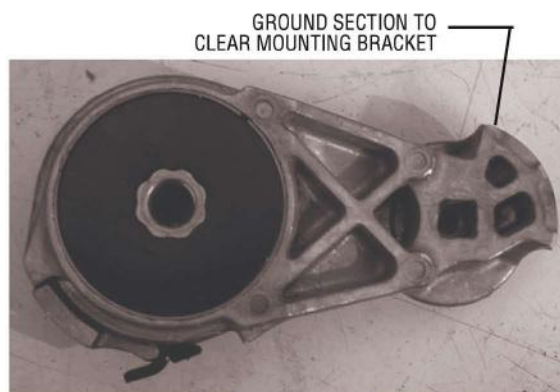


Fig. 8.2-b / Mach 1 Only

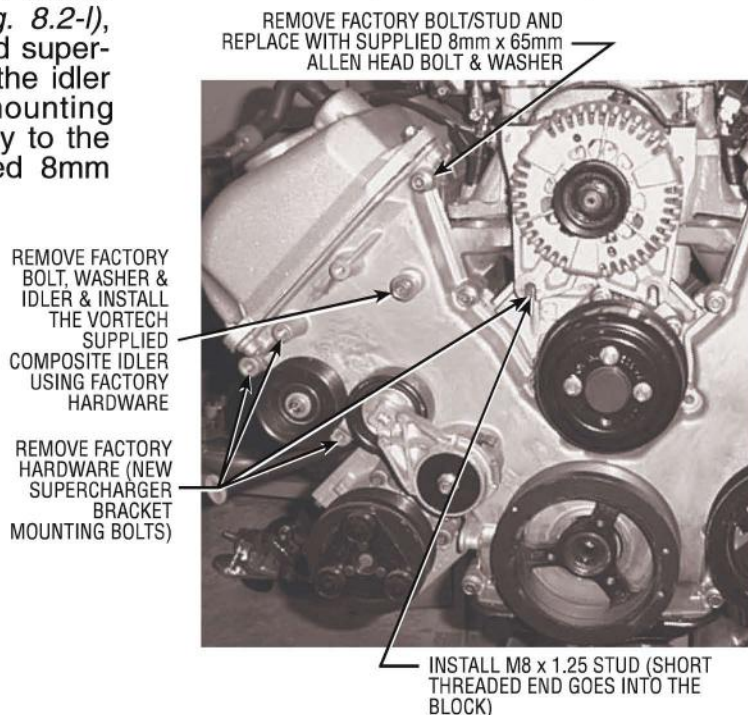


Fig. 8.2-a

8.2 MAIN BRACKET ASSEMBLY/DRIVE BELT - 2001-2004 Models

2001-2004 ONLY

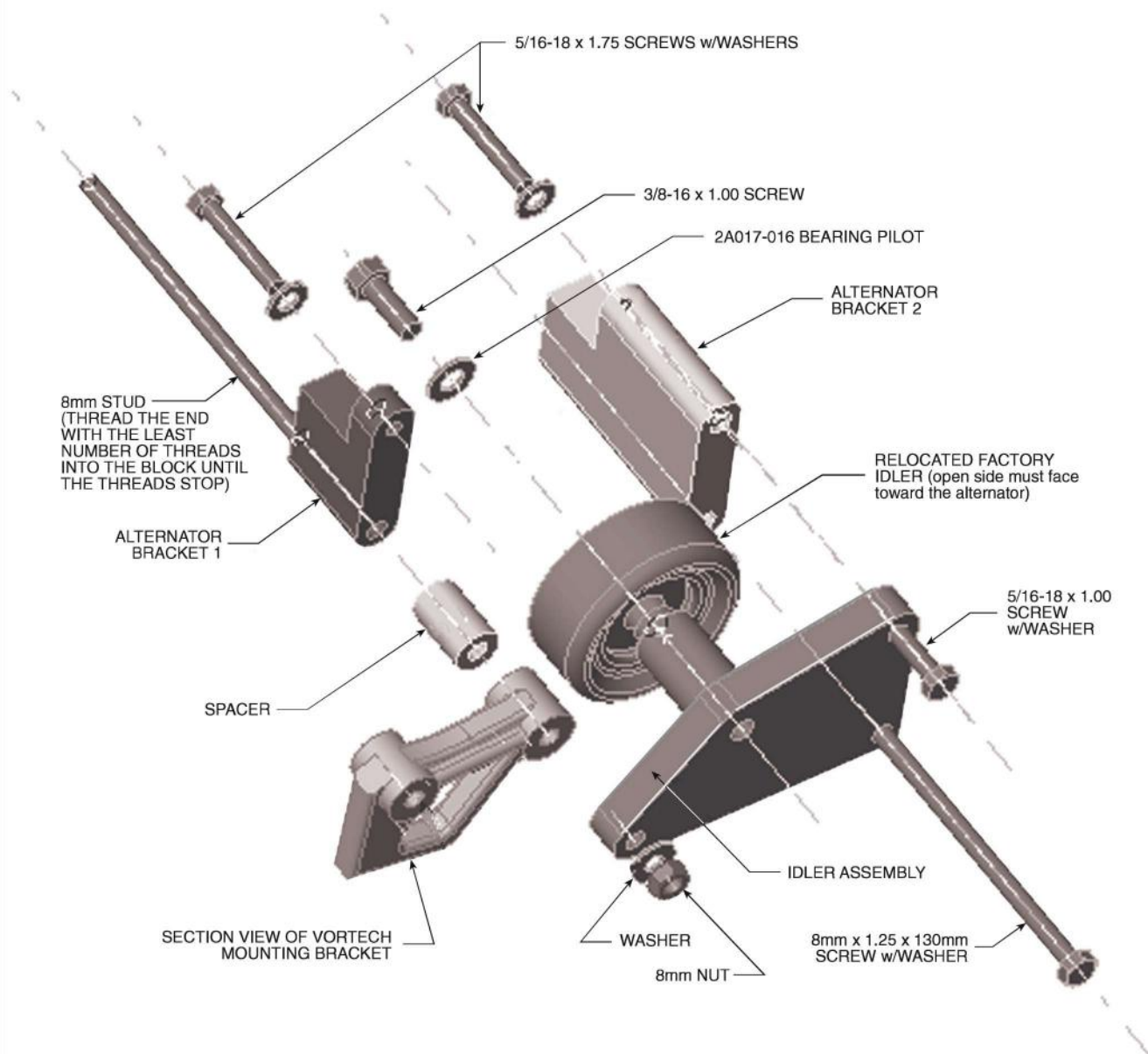


Fig. 8.2-c

8.2 MAIN BRACKET ASSEMBLY/DRIVE BELT - 2001-2004 Models, cont'd.

INSTALL SUPPLIED COMPOSITE
IDLER USING FACTORY HARDWARE

ROUTE BELT BEFORE
INSTALLING BRACKETRY

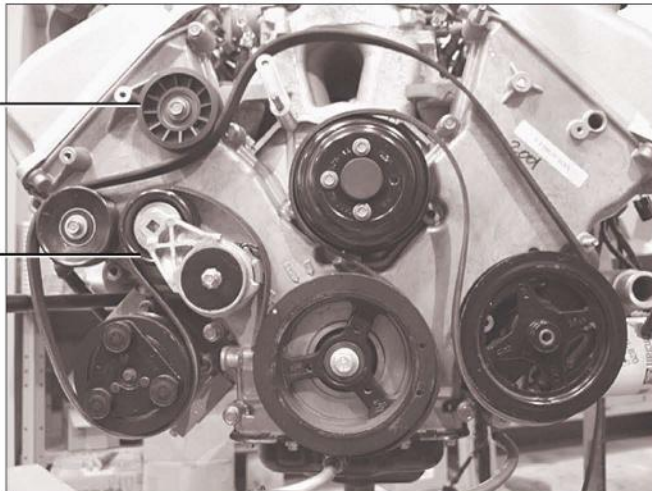


Fig 8.2-d / Step 1

ALTERNATOR BRACKET AND SPACER

SUPPLIED STUD
(THREADED TIGHTLY INTO BLOCK
W/SHORT THREADED END)

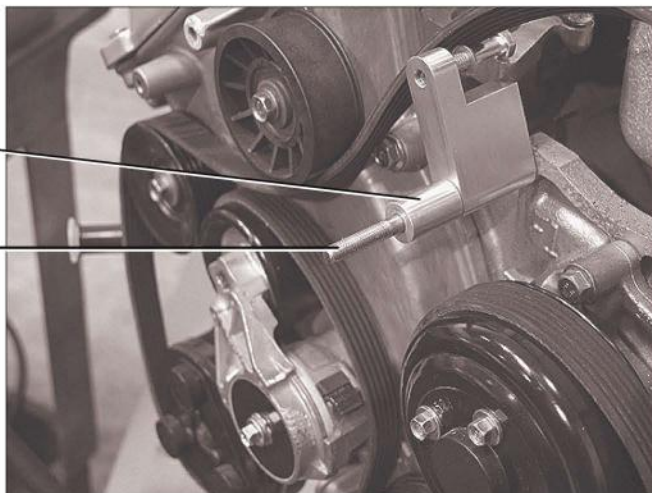
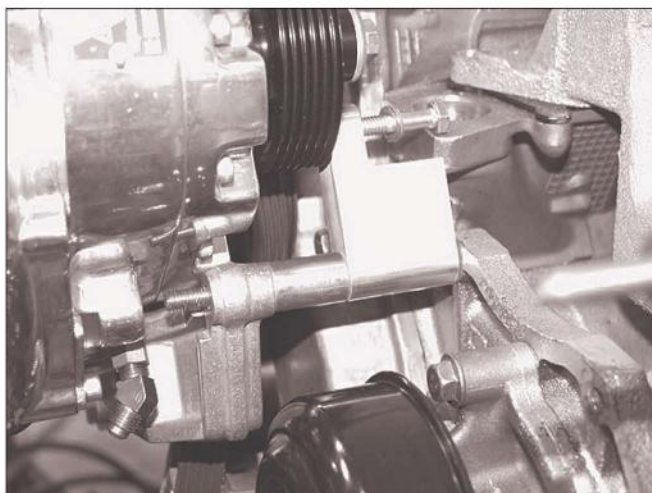


Fig 8.2-e / Step 2



*Fig 8.2-f / Step 3 - Install supercharger/bracket
assembly as shown*

8.2 MAIN BRACKET ASSEMBLY/DRIVE BELT - 2001-2004 Models, cont'd.

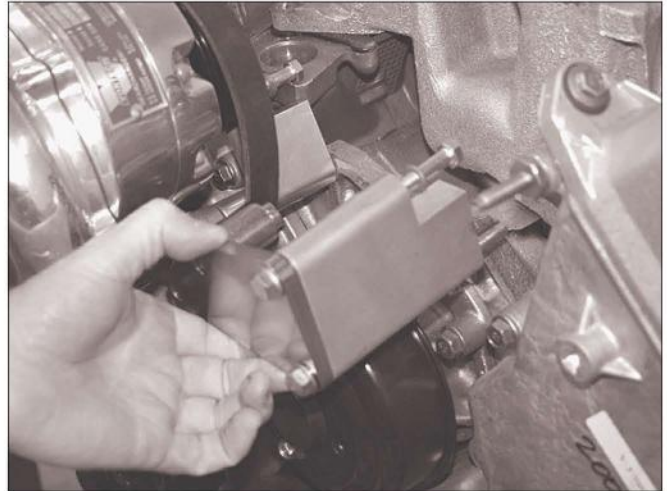


Fig. 8.2-g / Step 4 - Install alternator bracket 2 with idler plate assembly

5/16-18 x 1.75 BOLTS/WASHERS
LOOSELY INSTALLED

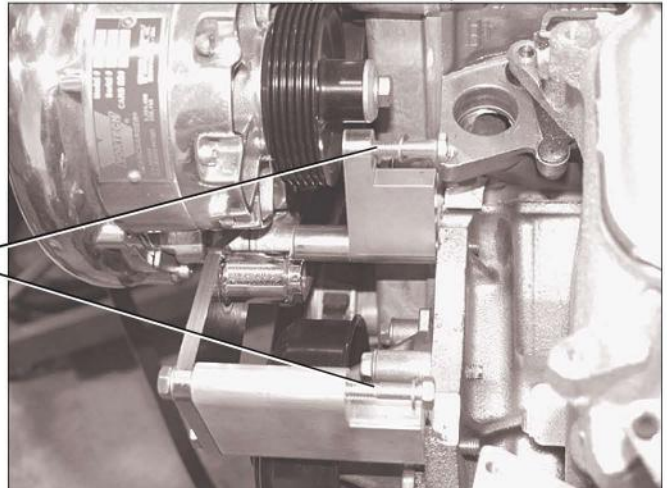


Fig. 8.2-h / Step 5

INSTALL w/"OPEN" SIDE
TOWARD ENGINE

BEARING PILOT WASHER
(STEP FITS INTO BEARING BORE)

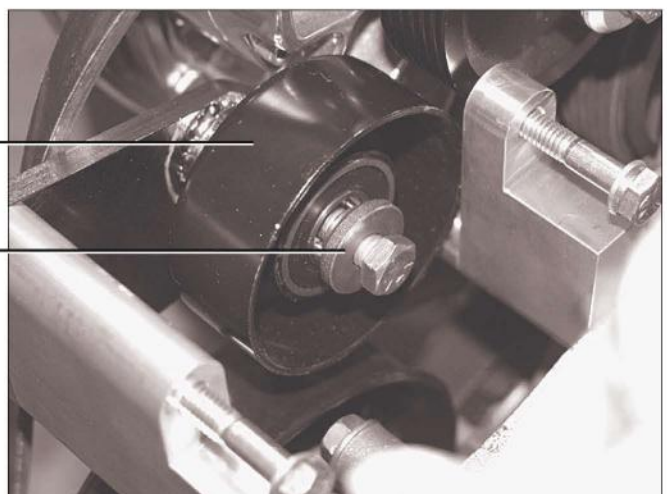


Fig. 8.2-i / Step 6

8.2 MAIN BRACKET ASSEMBLY/DRIVE BELT - 2001-2004 Models, cont'd.

M8 NUT w/ WASHER
ROUTE BELT AS SHOWN

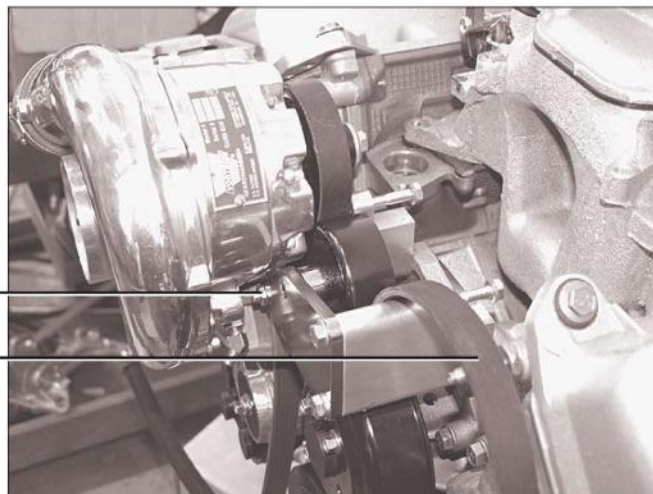


Fig. 8.2-j / Step 7

PLACE ALTERNATOR DOWN ONTO
THE 5/16-18 SCREWS AND SECURE
(MAKE SURE THE WASHERS ARE
PROPERLY LOCATED UNDER SCREW
HEADS)

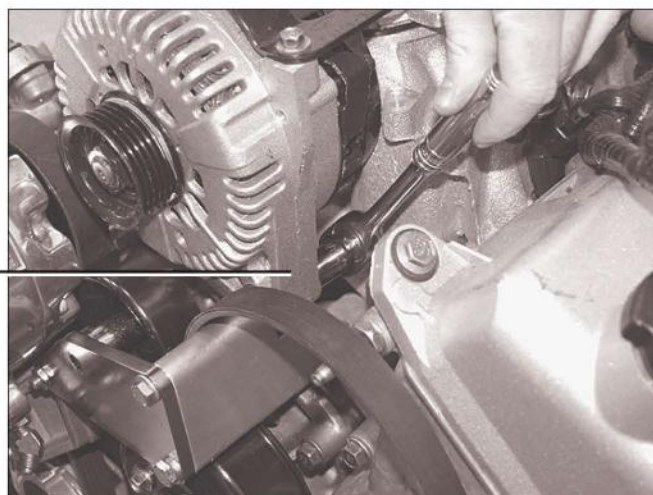


Fig. 8.2-k / Step 8 - Complete tightening hardware

SECURE BRACKETRY USING SUPPLIED
M6 x 1.00 x 75 SCREWS W/WASHERS
SUPPLIED SPACER (ONE EACH SIDE)

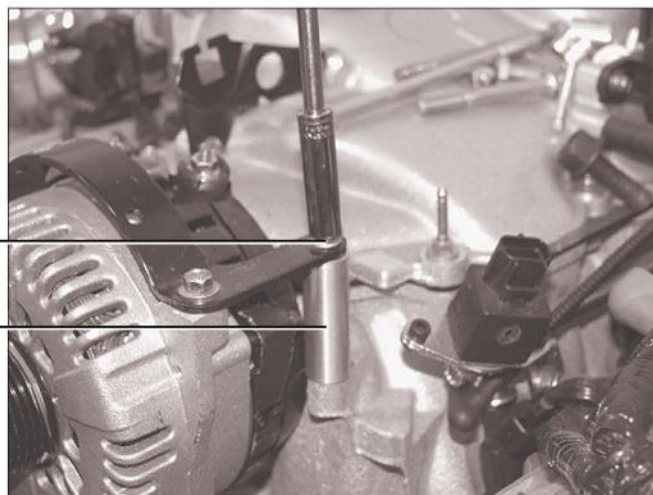


Fig. 8.2-l / Step 9 (Cobra Models Only)

8.2 MAIN BRACKET ASSEMBLY/DRIVE BELT - 2001-2004 Models, cont'd.

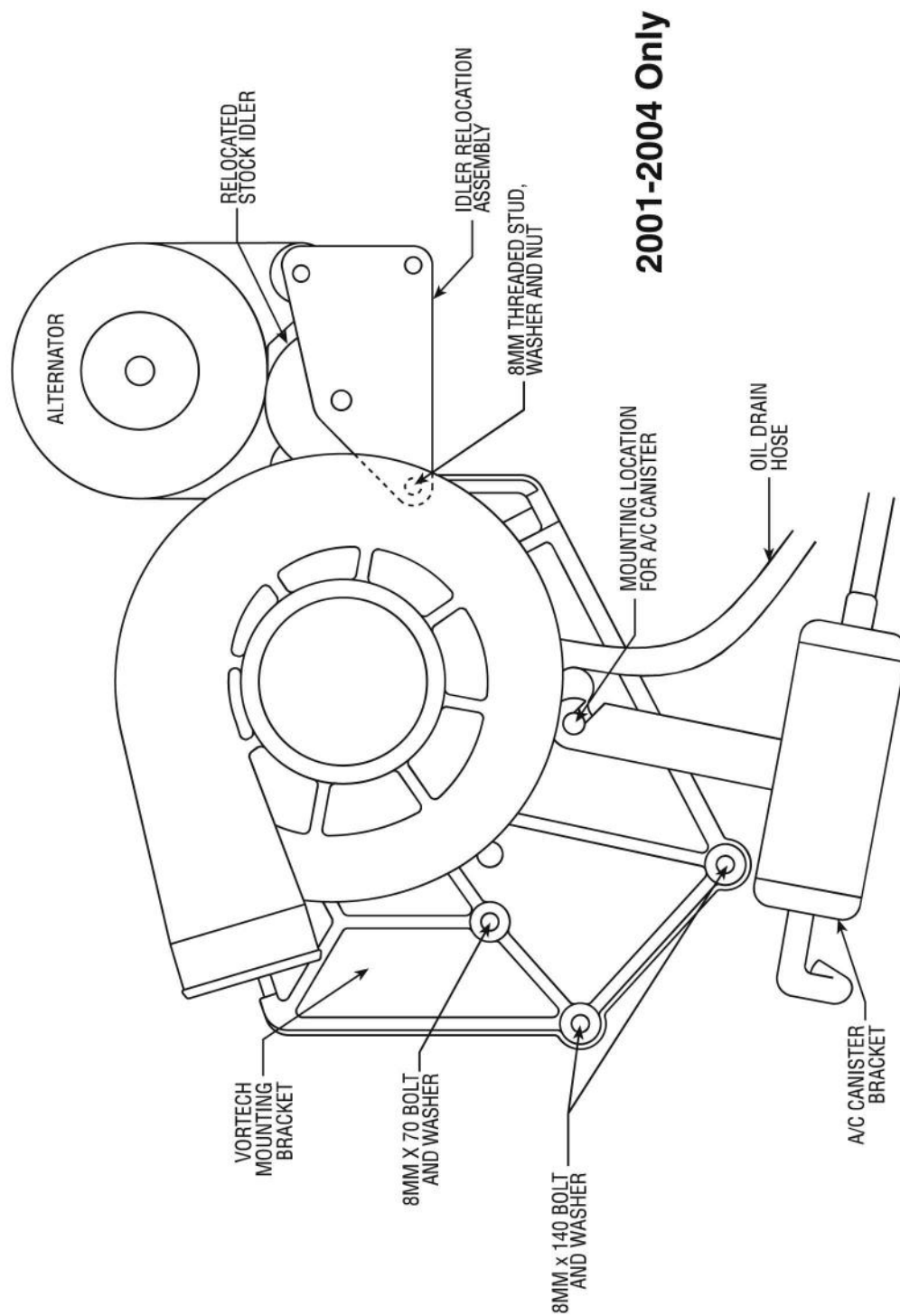


Fig. 8.2-m

8.2 MAIN BRACKET ASSEMBLY/DRIVE BELT - 2001-2004 Models, cont'd.

BELT ROUTING

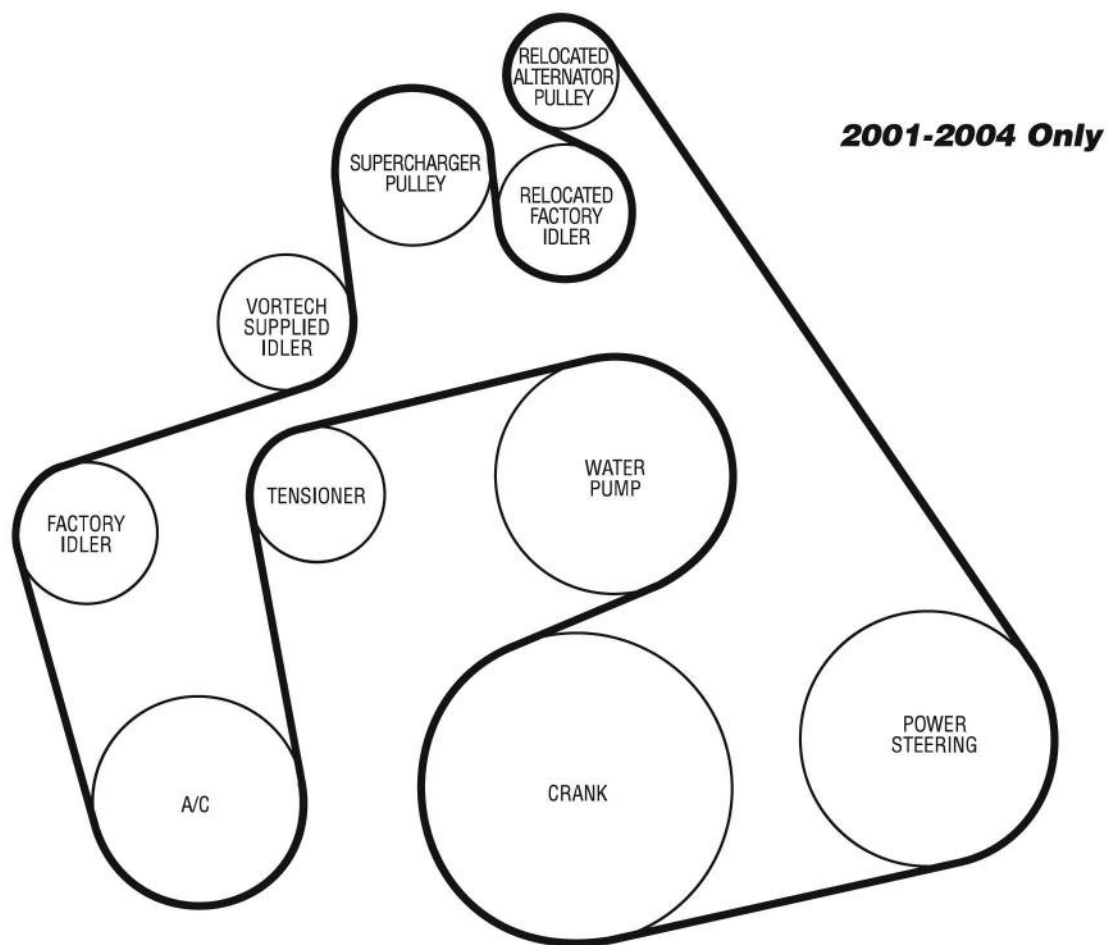
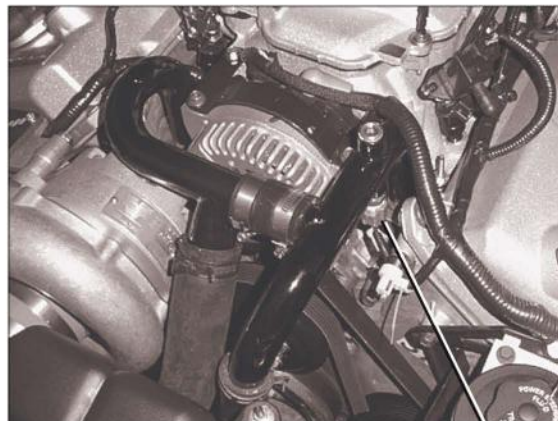


Fig. 8.2-n

9. RADIATOR HOSE/WATER TUBE

- A. Remove the upper radiator hose from the radiator and modify (cut) as shown in *Fig. 9-b* on page 19.
- B. With the lower radiator hose still connected to the radiator, remove 2" from the end previously connected to the factory water tube. Set the 2" section aside.
- C. Following *Fig. 9-c* on page 19, pre-assemble the Vortech supplied "L" and "U" bent water tubes using the 2" hose (section removed in the previous step) and the supplied #20 clamps. Do not tighten clamps until assembly is mounted on the engine.
- D. Thread the factory coolant temperature sensor into the Vortech water tube using pipe thread sealant on the sensor threads. Make sure that the sensor is installed into the underside of the "U" bend (see *Fig. 9-a*).
- E. **99-01 Cobra:** Install the two supplied O-rings into the O-ring grooves located on each end of the Vortech water tube assembly. Apply a small amount of anti-freeze around each O-ring to act as a lubricant for easier installation. With the "U" and "L" bends put together as one assembly, install the unit into the engine block in the factory water tube location making sure that both pipe tabs are aligned onto the intake manifold holes. Push both pipes down until the tabs and/or pipes hit bottom. Secure the assembly with the two factory nuts, or supplied 6mm nuts and washers if the factory water tube was originally attached to the alternator.

(2003-2004) Mach 1 Models: Install the two supplied O-rings into the O-ring grooves located on each end of the Vortech water tube assembly. Apply a small amount of anti-freeze around each O-ring to act as a lubricant for easier installation. Place the two supplied aluminum spacers (.28" thick) between the bottom of each of the water pipe mounting tabs and the intake manifold flange where the factory water pipes were originally attached. With the "U" and "L" bends put together as one assembly, install the unit into the engine block in the factory water tube location making sure that both pipe tabs are aligned onto the intake manifold holes. Push both pipes down until the tabs and/or pipes hit bottom. Make sure that the tabs are on the top of the supplied .28" spacers. Secure the assembly with the two factory screws.



COOLANT TEMPERATURE SENSOR

Fig. 9-a

- F. Reattach the factory coolant sensor connector.
- G. Reinstall the modified upper radiator hose to the radiator with the factory clamp.
- H. As shown in *Fig. 9-d* on the next page, remove 2-1/2" from the long leg of the Vortech supplied 1-1/2" diameter x 90° hose. Attach the hose, along with the factory radiator hose, to the supplied 1-1/2" splice using #24 clamps. Connect the entire assembly to the new Vortech water tube.
- I. Attach the open end of the lower radiator hose to the remaining barb on the Vortech water tube and secure with a #20 hose clamp.
- J. Refill radiator. Completely fill engine block through the 3/8" NPT water fill port on the Vortech water tube. Plug fill port with supplied 3/8" NPT plug.

9. RADIATOR HOSE/COOLANT TUBE, cont'd.

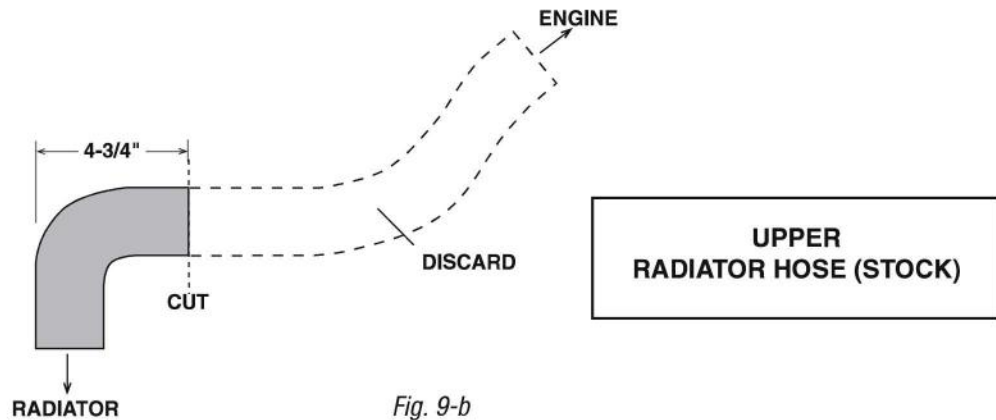


Fig. 9-b

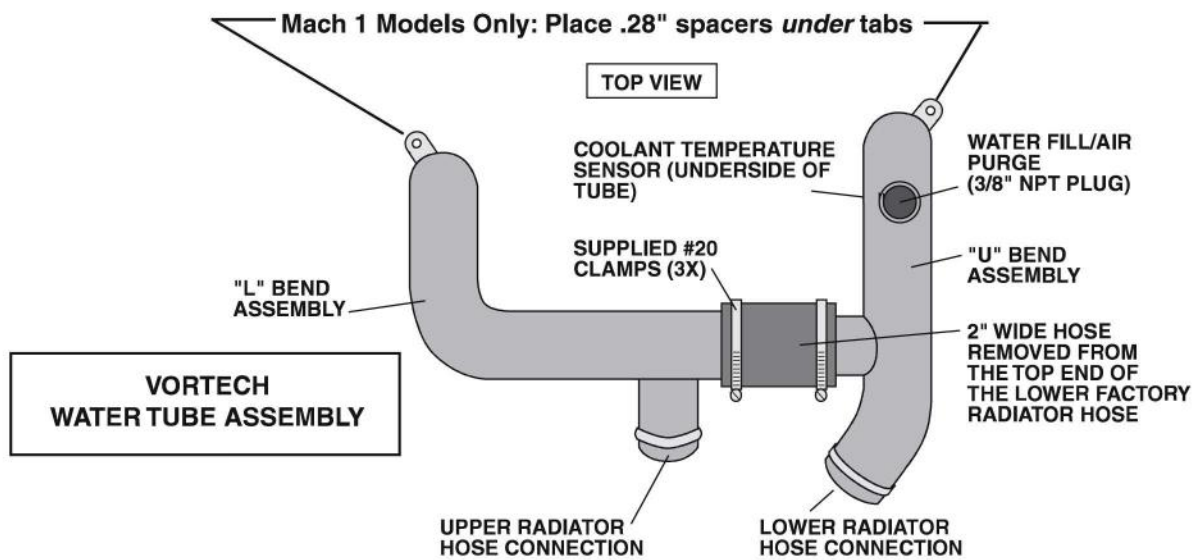


Fig. 9-c

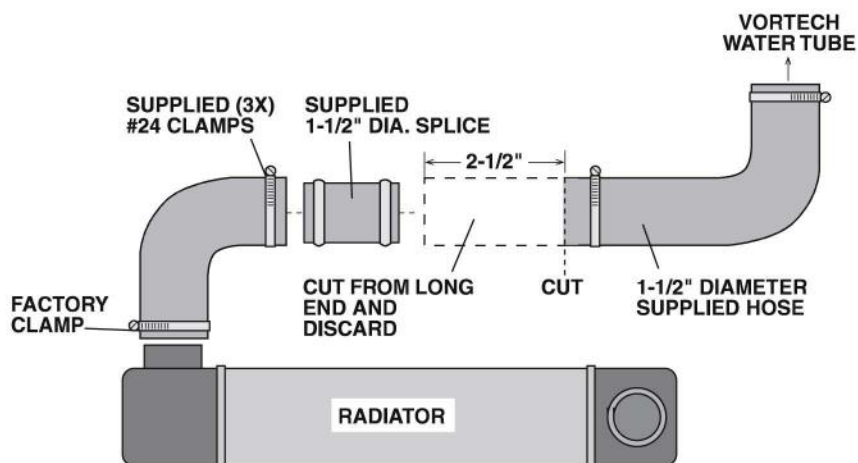


Fig. 9-d

10. AIR INLET

- A. Using the supplied 1/4-20 hardware, mount the supplied MAF meter to the Vortech MAF bracket and secure (see Fig. 10-a for orientation). Remove the factory MAF screen before attaching the meter to the new MAF bracket.
- B. Attach the supplied K & N air filter, 4" sleeve, 90° x 3-1/2" x 4" elbow and #64 hose clamps to the MAF and secure.
- C. **Mach 1 Models Only:** Cut the outer two wires attached to the MAF harness plug approximately 2" from the MAF connector. (See Fig. 10-h.) Connect the gray with red stripe wire coming from the main harness to the red wire in the supplied IAT sensor harness using solder and the supplied shrink sleeve. Connect the gray wire coming from the main harness to the black/brown wire on the supplied IAT sensor harness using solder and the supplied shrink sleeve.
- D. Insert the factory air temperature sensor into the rubber grommet located on the side of the 90° elbow. Lubricate it for easier fit.
- E. Working from beneath the vehicle, remove the two factory nuts and washers from the passenger side lower fender valence. Mount the MAF/bracket assembly onto the existing studs using the same washers and nuts originally removed. (See Fig. 10-a).
- F. Using a #52 hose clamp, connect the piece of 3-1/2" flex hose to the elbow attached to the MAF meter and route it through the opening in the right side inner fender toward the supercharger. Make sure that the 3-1/2" flex hose does not contact or rub on the edge of the inner fender opening (eventual hose failure will result if the hose is not properly routed).
- G. Route the factory temperature sensor and MAF sensor connectors out through the inner fender opening. Reattach the connectors to the relocated sensors.
- H. Connect the supplied molded inlet duct onto the supercharger inlet (see Fig. 10-b) using the 3-1/2" sleeve and #56 hose clamps provided.
- I. Attach the supplied 1" x 90° rubber hose and #16 hose clamp to the 3/4" x 1" straight hose fitting located on the inlet duct. (See Fig. 10-c.)
- J. Connect the previously installed 3-1/2" flex hose to the inlet duct and secure with the #52 clamp.
- K. Install the supplied length of 3/4" hose from the inlet duct to the crankcase breather fitting (see Fig. 10-d). Trim hose length as necessary.
- L. Take the supplied 5/8" rubber end cap and install it on the 5/8" boss on the molded inlet duct.

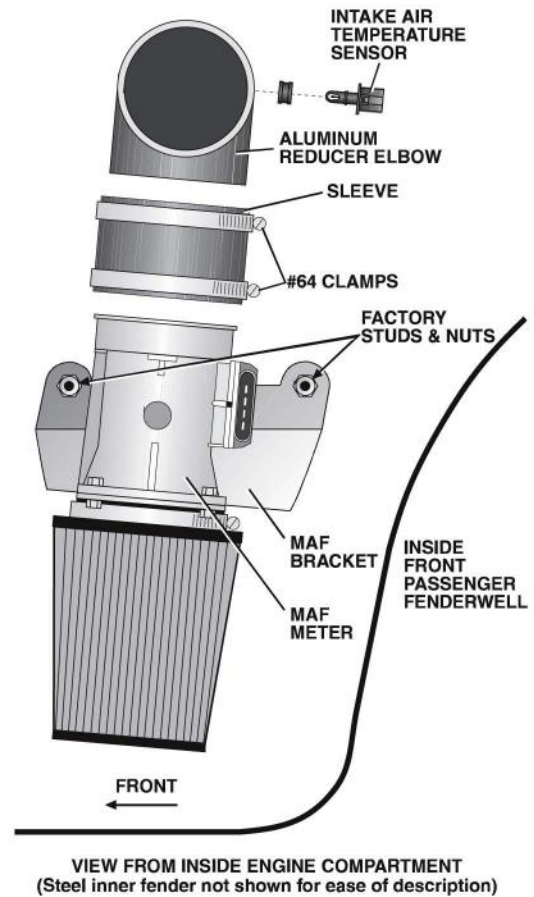


Fig. 10-a



Fig. 10-b

10. AIR INLET, cont'd.

1999-2004 4V FORD MUSTANG AFTERCOOLED AND NON-AFTERCOOLED AIR INLET/BYPASS ASSEMBLY

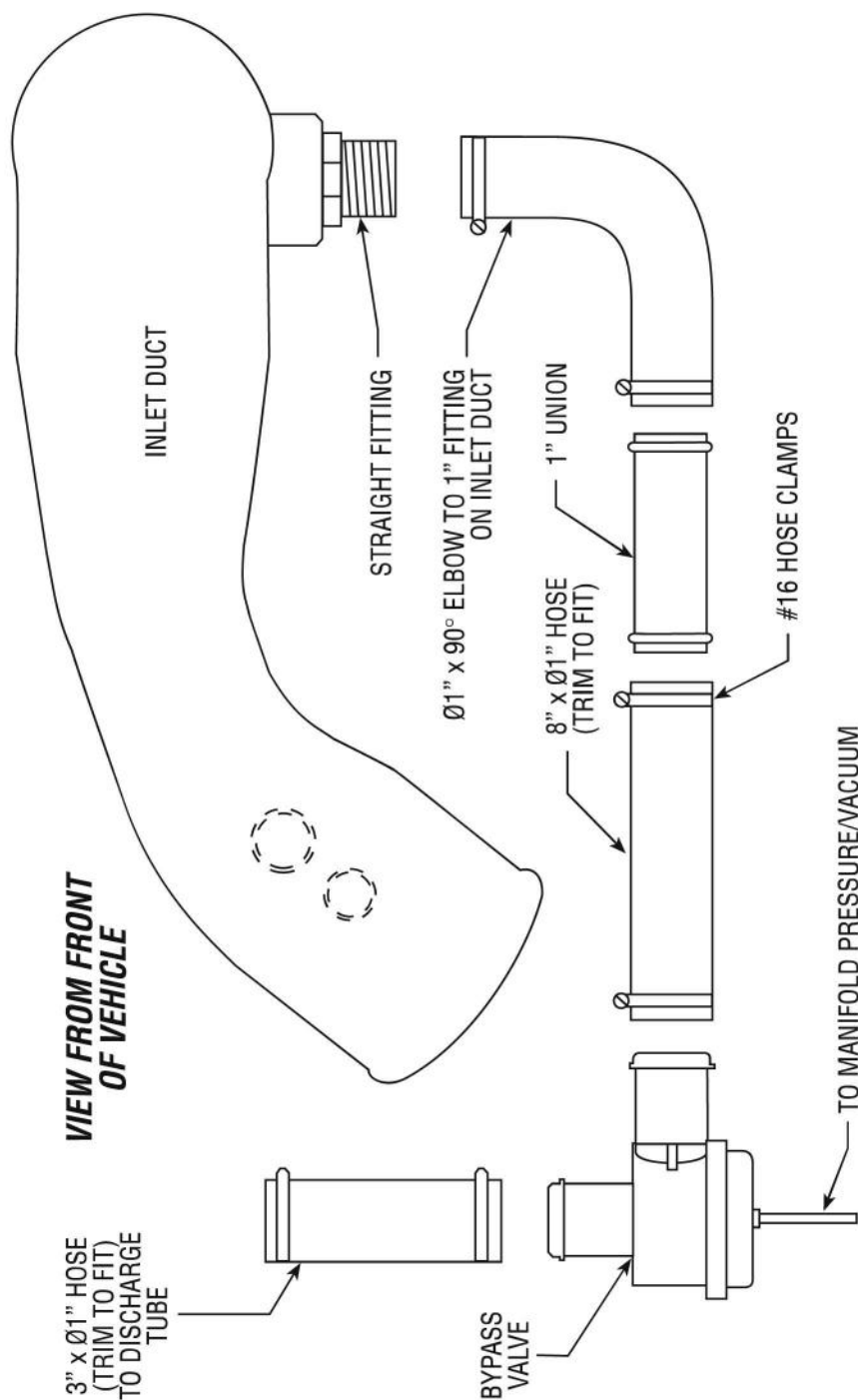
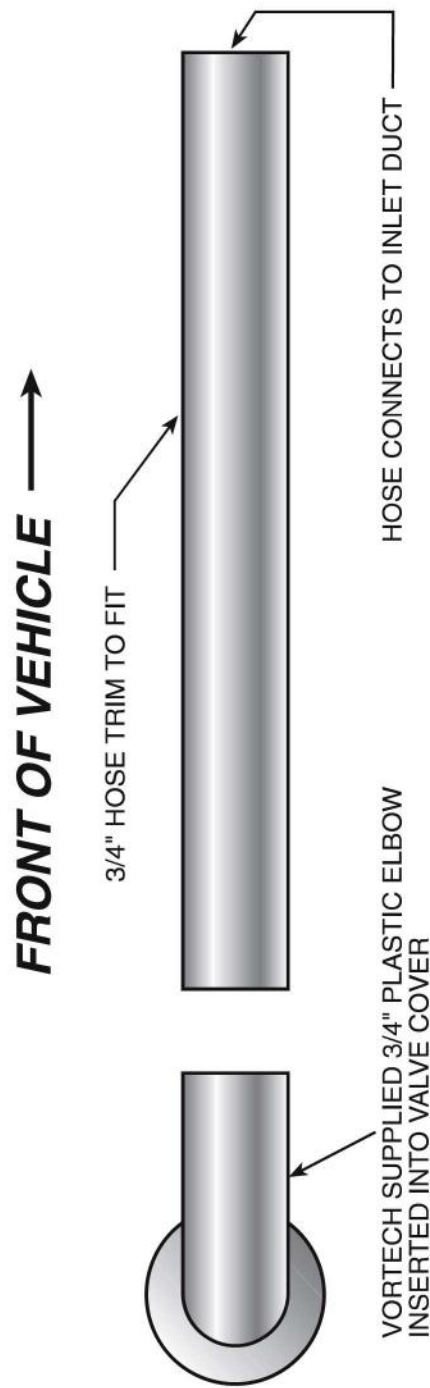


Fig. 10-c

10. AIR INLET, cont'd.



RIGHT SIDE VALVE COVER BREATHER

Fig. 10-d

10. AIR INLET, cont'd.

M. (Mach 1 Models Only):

1. Remove the factory plastic PCV tube from the driver side of the engine and discard. Insert the large end of the supplied PCV valve into the factory rubber PCV elbow attached to the rear of the driver's side valve cover. Attach the supplied 5/8" bent tube to the intake manifold port previously connected to the plastic PCV tube using the supplied short length of 5/8" hose, 3/8" hose piece and the brass 3/8" to 5/8" reducer as shown. (See *Figs. 10-e, 10-f.*) Secure the hoses with the supplied #6 hose clamps.
2. Mark and modify the aluminum air scoop base as shown. (See *Fig. 10-g*). If you have access to a machine shop with a milling machine, this is the ideal method. If not, drill the marked location with a hole saw at each corner and then cut the remaining portion out with an abrasive cut-off wheel, grinder or jigsaw. This is an alternative way to provide a clean hole.

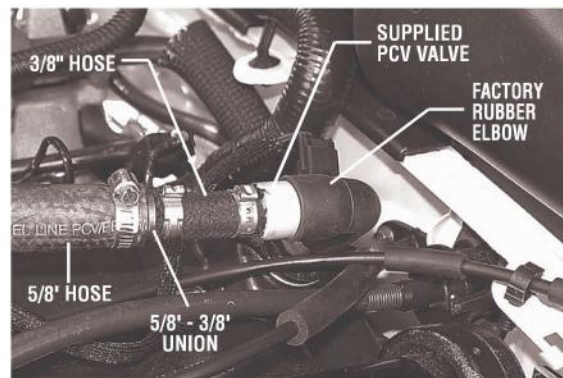


Fig. 10-e / (Mach 1 Models Only)

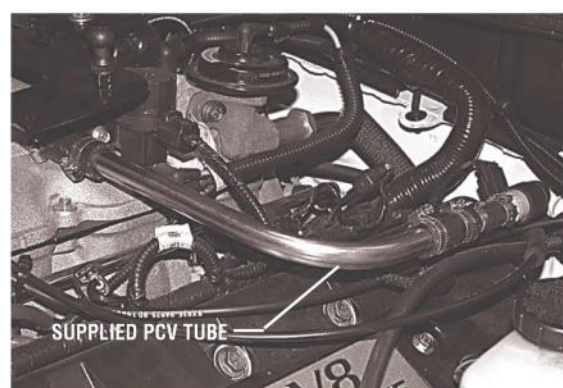
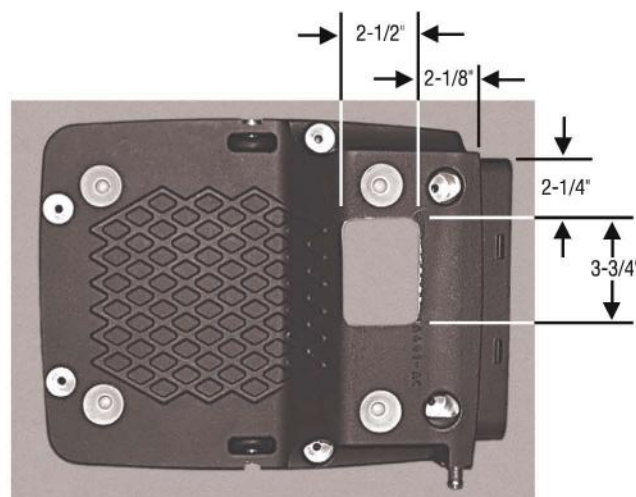


Fig. 10-f / (Mach 1 Models Only)



*Fig. 10-g / Modify Air Scoop Base as Shown
(Mach 1 Models Only)*

10. AIR INLET, cont'd.

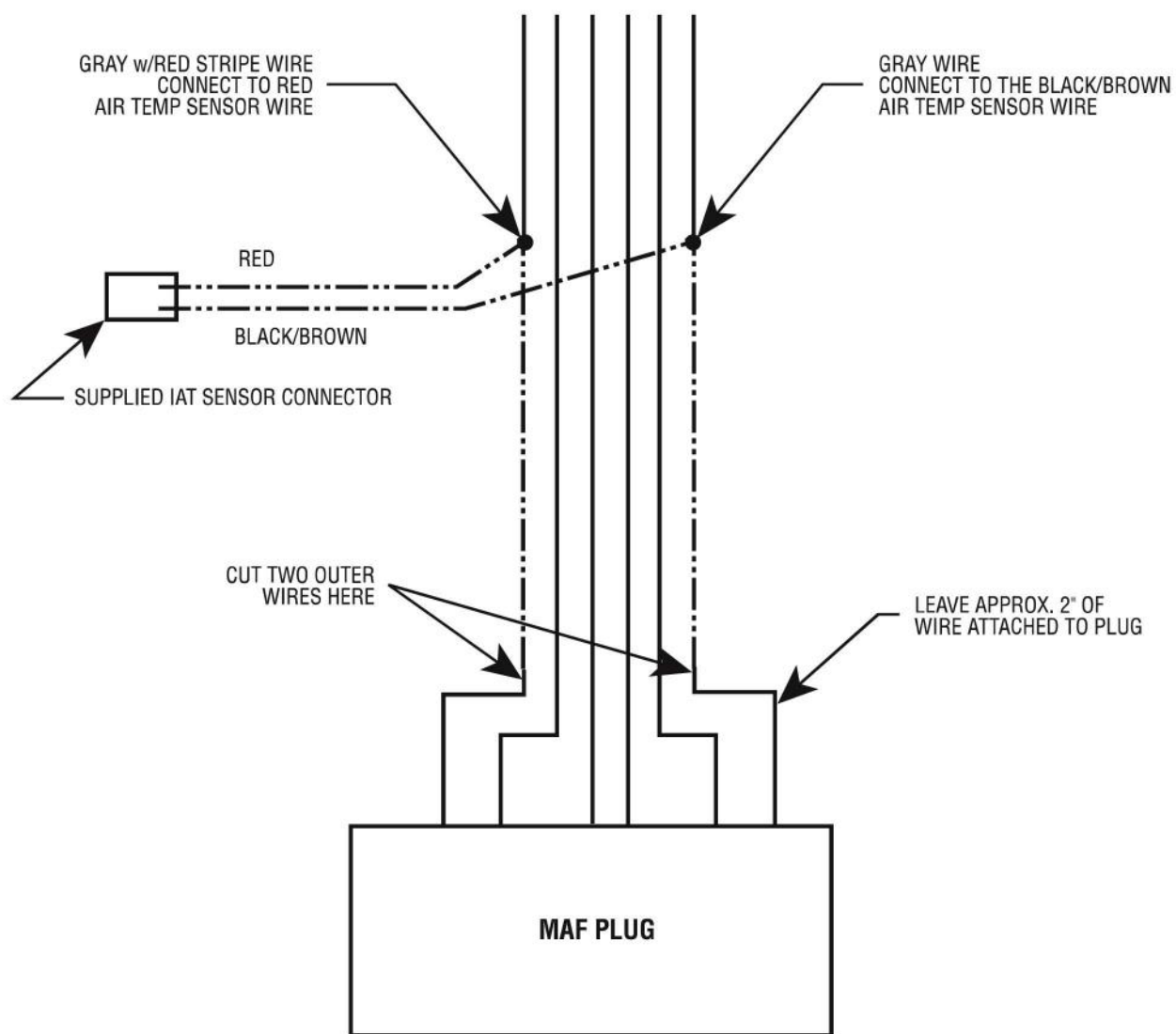
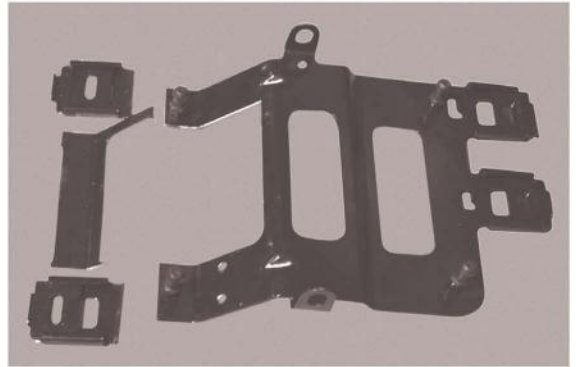


Fig. 10-h / MAF Modifications
(Mach 1 Models Only)

10. AIR INLET, cont'd

3. Modify the steel air scoop base mount as shown. (See *Figs. 10-i, 10-j.*) A bandsaw is the best tool to use. An abrasive cut-off wheel or hacksaw may also be used.
4. Temporarily place the modified steel air scoop base into its factory location on top of the intake manifold. Loosely install the two factory screws that secure the rear of the bracket to the intake manifold (do not tighten at this time). The two supplied relocation brackets must be attached to the modified steel scoop base.



*Fig. 10-i / Modified Shaker Bracket
(Mach 1 Models Only)*

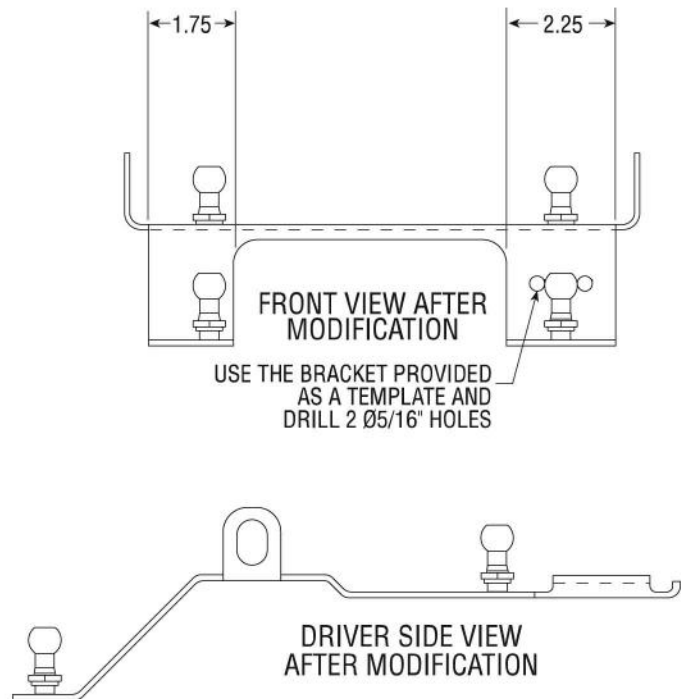
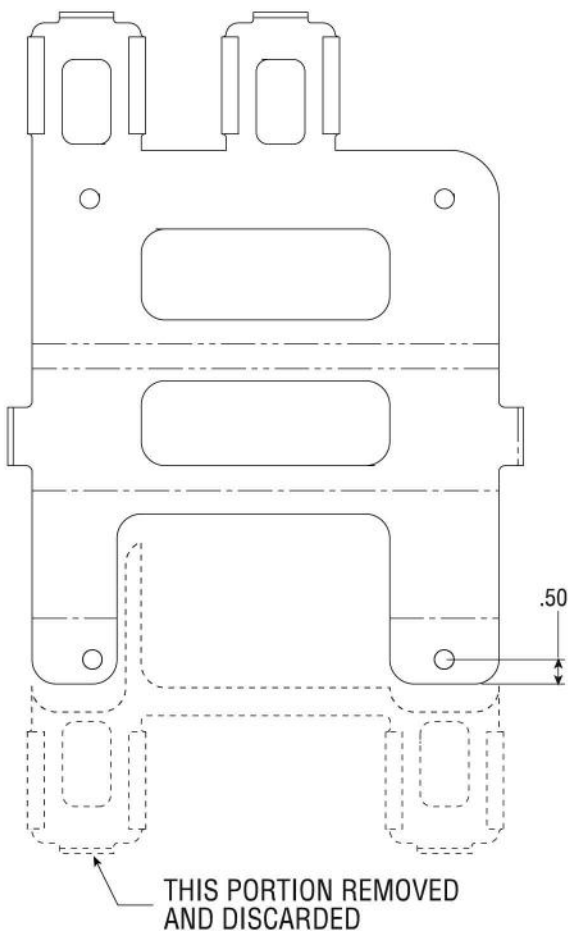


Fig. 10-j / Bracket mods (Mach 1 Only)

10. AIR INLET, cont'd

Referring to *Figs. 10-k, 10-l*, attach the driver's side relocation bracket to the alternator and the underside of the modified steel air scoop base and align. Mark and drill two 5/16" holes in the modified scoop base. Permanently attach the relocation bracket to the modified steel air scoop base using the 1/4-20 x .75 screws, nuts and washers.

5. Remove the front passenger's side intake manifold cover bolt. (See *Fig. 10-m*.) Locate the driver's side relocation bracket in between the bottom of the modified steel air scoop base and the front passenger's side intake manifold cover bolt. Re-install the intake manifold cover bolt through the new bracket. Mark and drill a 5/16" hole in the modified steel air scoop base. Permanently attach the relocation bracket to the modified steel air scoop base using the 1/4-20 x .75" screw, nut and washer. Tighten the two factory screws securing the steel air scoop base at the rear of the intake manifold.
6. Re-install the modified aluminum shaker scoop assembly onto the modified steel air scoop base using the factory hardware and rubber grommets. Ensure the assembly alignment by carefully closing the hood. Adjust the scoop base if necessary.

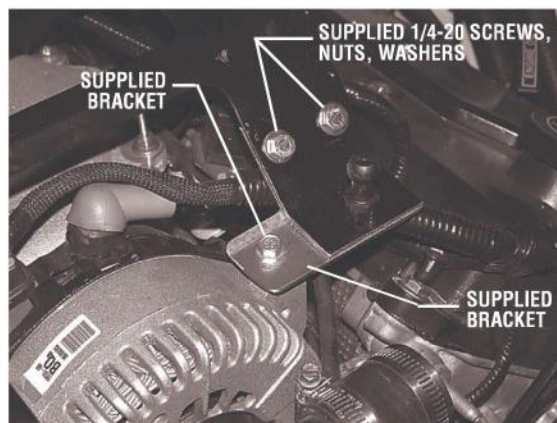


Fig. 10-k / (Mach 1 Models Only)

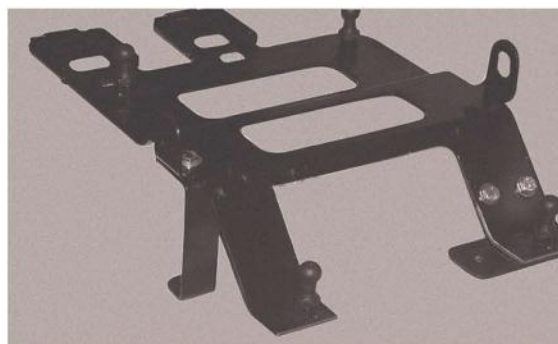


Fig. 10-l / Modified Shaker Bracket w/Vortech Brackets Attached (Mach 1 Models Only)

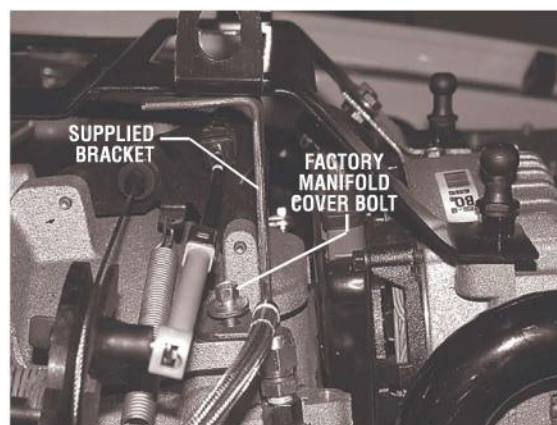


Fig. 10-m / (Mach 1 Models Only)

AFTERCOOLER KITS ONLY: If an aftercooler kit is being installed, please substitute the supplied "Maxflow Power Cooler" instructions in place of step 11. Resume at step 12 after the completion of the Aftercooler installation.

11. SUPERCHARGER DISCHARGE

- A. Slide the 4-1/2" diameter sleeve and #72 hose clamps onto the throttle body. Slide the 2-3/4" sleeve and #44 hose clamps onto the supercharger discharge.
- B. Install the 1" x 3" hose, #16 hose clamps and bypass valve onto the discharge tube with the 5/32" nipple on the valve pointing down.
- C. Install the aluminum discharge tube onto the throttle body. Slide the 3-1/2" sleeve and #56 clamps onto the round end of the tube. Next, connect the supercharger to the aluminum tube using the long discharge tube/bypass valve assembly. Align the bypass valve, all hoses and, tighten all clamps. If necessary, trim the 1" bypass hose lengths for best fit. (See Fig. 11-a.)
- D. Attach the supplied 5/32" vacuum line to the bypass valve. Using the supplied 5/32" TEE, connect the hose to the fuel pressure sensor (located on the fuel rail) vacuum port.
- E. Install supplied laser-etched plaque on top of mounting bracket using the supplied #10 screws.

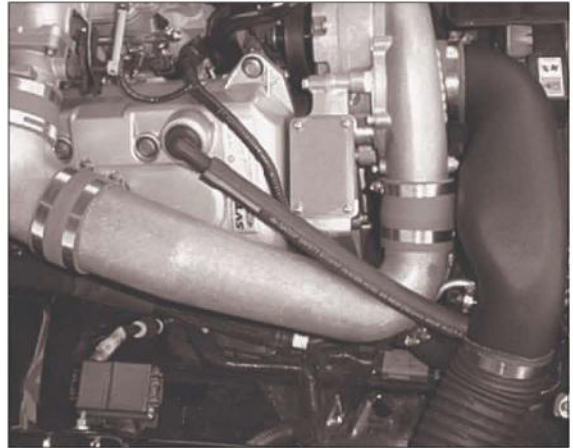


Fig. 11-a

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

12. FINAL CHECK

NOTE: ECM programming is not included with this system. You must have the ECM professionally tuned prior to start-up. Failure to do so will result in improper vehicle operation & risk of damage to major components.

- A. Reconnect the battery.
- B. If your vehicle has gone over 20,000 miles since its last spark plug change, you will need to change the spark plugs now before test driving the vehicle.
- C. Check all fittings, nuts, bolts and clamps for tightness. Pay particular attention to oil and fuel lines around moving parts, sharp edges and exhaust system parts. Make sure all wires and lines are properly secured with clamps or tie wraps.
- D. Double check water pump pulley bolts for tightness.
- E. Check all fluid levels, making sure that your tank(s) is/are filled with 91 octane or higher fuel before commencing test drive.
- F. Start the engine and allow to idle a few minutes, then shut off.
- G. Recheck to be sure that no hoses, wires, etc. are near exhaust headers or moving parts and for signs of any fluid leakage. (See Fig. 13-a.)
- H. **PLEASE TAKE SPECIAL NOTE:** Operating the vehicle without ALL the subassemblies completely and properly installed may cause **FAILURE OF MAJOR COMPONENTS**.
- I. Test drive the vehicle.
- J. Read the **STREET SUPERCHARGER SYSTEM OWNER'S MANUAL AND RETURN THE COMPLETED WARRANTY REGISTRATION FORM** within thirty (30) days of purchasing your supercharger system .



Fig. 12-a

For internally lubricated V3 units only

This supercharger has been factory pre-filled with special Vortech synthetic lubricant. Oil does not need to be added to a brand new unit, however a fluid level check should be performed.

Prior to operating the supercharger on the vehicle and after installation onto the vehicle:

Remove the factory installed flat-head brass shipping plug (not the dip stick) from the top of the supercharger case. replace the sealed shipping plug with the supplied vented plug. Do not operate the supercharger without it. Check the supercharger fluid level using the dipstick as follows:

Fluid level checking procedure:

1. Ensure that the .06" copper sealing washer is located on the dipstick base.
2. Thread the clean dipstick into the unit until it seats.
3. Once the dipstick has seated, remove the dipstick from the unit. Fluid should register in the crosshatched area on the dipstick.
4. **DO NOT OVERFILL!!!** Drain excess fluid from the unit if it is above the maximum level on the dipstick.

Check the fluid level using the dipstick at least every 2,500 miles. The supercharger fluid must be changed every 7,500 miles maximum thereafter.

Drain the fluid, refill the unit with a 4 oz. bottle of Vortech V3 lubricating fluid, and then confirm proper oil level using the dipstick. **DO NOT OVER-FILL!!!**

WARNING: Use of any fluid other than the special Vortech lubricant will void the warranty and may cause component failure.



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