

KENNE BELL

THE ULTIMATE TRUCK SUPERCHARGER

THE KENNE BELL TWIN SCREW WHIPPLECHARGER

INSTALLATION INSTRUCTIONS & OWNERS MANUAL

1987-'94 5.8 TRUCK AND BRONCO

CARB EO #D-271-4

Supercharger Serial Number _____

Date of Shipment: _____

Purchased by _____

Kenne Bell Superchargers - 10743 Bell Court, Rancho Cucamonga, CA 91730

909-941-6646

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INSTRUCTION FIG.S AND ILLUSTRATIONS

To assist you in the installation of the Kenne Bell TS-3000 Kit, we've listed illustrations for quick reference. We have gone to great lengths to provide you with comprehensive easy to understand instructions.

- FIG. 1,1-A,1-B ENGINE AND EXTERNAL ENGINE COMPONENTS**
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KENNE BELL CHIP SWITCH INSTALLATION INSTRUCTIONS

HARNESS CONNECTION

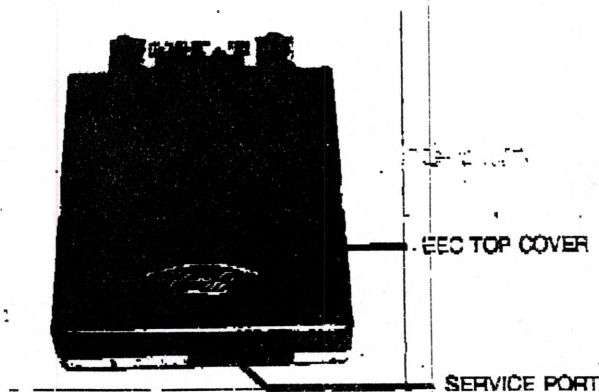


FIG.1 EEC COMPUTER

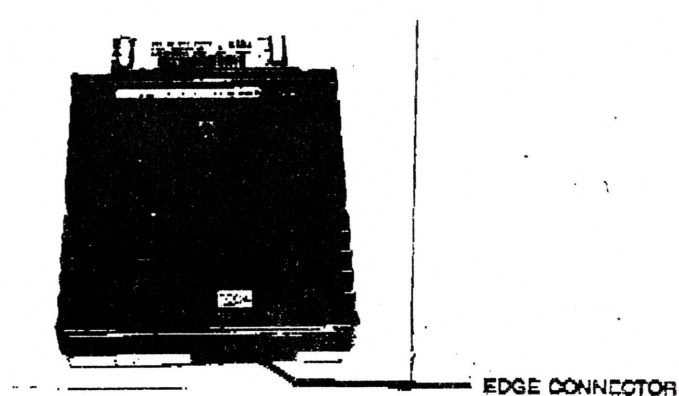


FIG.2 EEC WITH COVER REMOVED

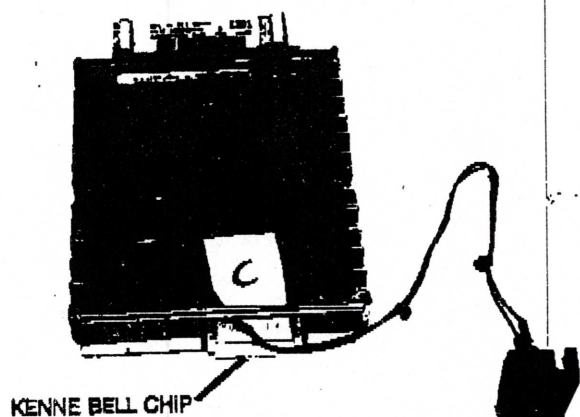


FIG.3 SWITCH CHIP INSTALLED

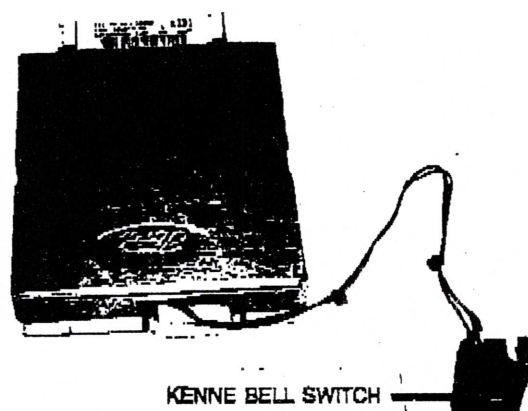


FIG.4 SWITCH CHIP & COVER INSTALLED

1. Remove the EEC cover.
2. Remove plastic coating off edge connector.
3. Remove grease ('94 up) from edge connector with brake cleaner.
4. Lay chip and ribbon (with ribbon toward EEC cover or top) in EEC as shown, route chip connector through service port from the inside out and connect to the EEC edge connector.
5. Route wires (if Kenne Bell SWITCH CHIP) through service port opening and re-install EEC after checking engine operation.
6. Route wires to switch location (your choice) and mount switch.
7. Cut wires to proper length and install on top 2 terminals of switch with connectors. NOTE: Either wire may be connected to the 2 top switch terminals. The switch merely closes a circuit.
8. Mount switch and holder under dash.
9. Be sure ignition timing is stock.
10. Set any "ignition retard" systems to "0." NOTE: Kenne Bell Chip calibrations are based on STOCK ignition timing.
11. Flip switch to POWER or SHOOTOUT depending on fuel used and listen for ANY "pinging" or "detonation." If it detonates GET OFF THE GAS PEDAL IMMEDIATELY IF NOT SOONER. Detonation can destroy engine components and/or blow out head gaskets.
12. Drive vehicle. Results will vary depending on vehicle, application and level of modifications. Give us a call at (909) 941-0985 if you require technical assistance.

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CHIP INSTALLATION INSTRUCTIONS

F-150, F-250, F-350 TRUCKS AND BRONCO, '93-'94 RANGER
(4.0, 5.0, 5.8, 7.5 ENGINES)

Kenne Bell Chips are programmed to provide maximum performance from your engine, supercharged or naturally aspirated. "E" (Electronic) Series Transmissions are also re-calibrated for improved shift feel under hard acceleration (1/3 throttle and more) while maintaining the "soft shift" feel during normal driving. The Kenne Bell Chip installs easily inside the EEC (computer).

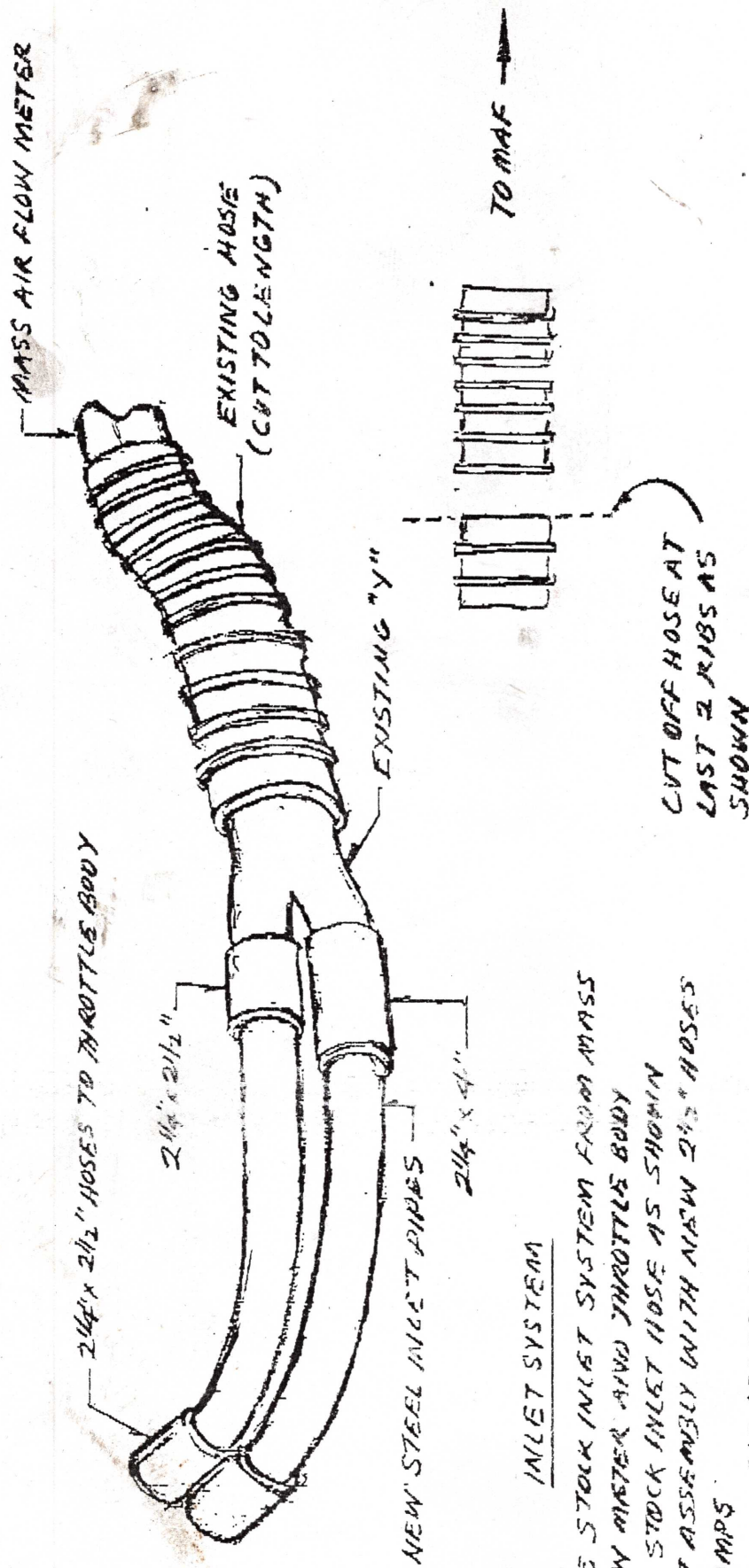
TOOLS REQUIRED: Phillips and flat screwdrivers, 4mm, 7mm and 10mm wrench and #10 and #15 Torx bits, Brake cleaner ('94 and later).

1. Turn the ignition off and disconnect negative battery cable. Be sure ignition timing is set at original factory setting. Spout connector must be removed to time a Ford.
2. Remove the EEC computer (location is noted in the listings).
3. Remove the 10mm bolt that holds the wiring harness to the EEC box.
4. Carefully remove the warranty label that covers the service port and place the label on the outside of the EEC for future use.
5. Remove the screws from the cover from the top of the EEC box and set the cover aside.
6. **IMPORTANT:** ('94 and later) The plastic coating on the edge connector of the EEC (where the chip plugs in) **MUST BE REMOVED**. Also remove any grease with brake cleaner.
7. With the top of the EEC removed lay the Kenne Bell chip inside the EEC. The cover will hold the Kenne Bell chip in place. **CAUTION:** Do not remove the wrapping on the chip. It is a non conductive foam that both protects the chip and safely secures it between the EEC cover and board.
8. Route the chip connector through the service port as shown and connect it to the EEC edge connector with the ribbon and chip pointing to the top of the EEC.

NOTE: The Kenne Bell chip will install either way on the edge connector. Be absolutely sure the ribbon points across the wide part of the EEC and toward the EEC top as shown.

9. **DO NOT** re-install the EEC yet. Hook up the EEC, battery and start engine to be sure it runs O.K. If it doesn't and/or the "check engine" light comes on re-check the edge connector for plastic or grease on the service port connector.
10. Now re-install the EEC.

CAUTION - Use the highest octane premium fuel available (91, 92, 93 or 94). Fuel octane will vary from area to area. Listen for any detonation or ping at full throttle. This can seriously damage your engine. If any detonation is heard, **GET OFF THE THROTTLE IMMEDIATELY AND STAY OUT OF IT UNTIL THE DETONATION OR PINGING PROBLEM IS SOLVED.** Because of factory manufacturing tolerances the timing may be off. You may need to retard the timing 1-2°. If you must drive the vehicle and it is still pinging pour a can of "104 Octane Booster." Use only "#104" brand. It will increase fuel octane by 2-4 points. It should eliminate the pinging until you correct the problem. Consult your dealer or Kenne Bell.



INLET SYSTEM

1. REMOVE STOCK INLET SYSTEM FROM MASS
- AIR FLOW METER AND THROTTLE BODY
2. CUT OFF STOCK INLET HOSE AS SHOWN
3. CONNECT ASSEMBLY WITH NEW 2 1/2\" HOSES
- AND CLAMPS

VS ASSEMBLY

1. VS ASSEMBLY NOT USED ON '95 TRUCKS WHICH
- USE THE MASS AIR FLOW SYSTEM. '87-'93
- TRUCKS USED THE SPEED DENSITY SYSTEM
- WHICH REQUIRED THE VS ASSEMBLY (FIG. 7)
2. ALSO ELIMINATE OR CAP AND CEMENT (WITH
- WEATHERSTRIP ADHESIVE) THE REAR SUPERCHARGER
- MANIFOLD FITTING THE VS ASSEMBLY CONNECTS TO
- (FIG. 7 AND FIG. 12)
3. DISREGARD TEE INTO FSB LINE (FIG. 7) THAT CONNECTS
- TO THE VS ASSEMBLY (NOT USED)

'95 5.8 TRUCK INSTALLATION SUPPLEMENT

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TOOLS REQUIRED

- Ordinary hand tools
- OTC #7363 or Ford Motorcraft CT-1543-B Fuel Line Disconnect Kit
- 1/4" drive T-40 Torx socket with long extension (to remove stock manifold) 302" 5.0 only

BOLT SIZES

- Adjustable Idler Pulley Outer Nut - 1 1/16"
- Adjustable Idler Pulley Inner Nut - 9/16"
- Supercharger Pulley - 8mm (5/16")
- Supercharger Top and Rear - 6mm
- Supercharger Extension Housing - 5mm
- Supercharger (Blower) Inlet Manifold- 1/4"

Note:

A special wrench (F3140) is required to remove the supercharger pulley. Allen bolt must be torqued to 37 psi.

F3140 Pulley Tool

o O o

Warranty

Kenne Bell Whipplechargers warrant that all units sold to original purchaser will be free of defects in material and workmanship for a period of 6 months from date of purchase.

Warranty is void if any attempt is made to dismantle or modify the supercharger.
Warranty is void if any crankshaft pulley other than the stock crankshaft and 5 psi or 8 psi Kenne Bell Supercharger Pulley is used.

Never use any other aftermarket supercharger pulley, or warranty is voided!

An Extended Six (6) Month Limited Warranty is available.

Details will be provided on request.

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INSTALLATION ISTRUCTIONS

KENNE BELL TS3000 SUPERCHARGER KIT

INTRODUCTION

Congratulations. You have just purchased the most technically advanced supercharger kit available for the Ford Truck. The supercharger is the latest Whipplecharger Twin Screw design. It is a highly efficient supercharger that delivers boost with considerably lower intake charge temperature than other mechanical designs. Adiabatic efficiency is an enviable 60-70% over the entire RPM range. Torque and boost "come in" earlier than with any other design, without lag or hesitation, so you FEEL the flat torque curve and maximum power even at the lower RPM levels. Life expectancy is as much as 3 times the life of the engine itself when maintained properly.

Fuel pressure and delivery is raised at wide open throttle under boost to compensate for the additional horsepower developed by the engine. To generate the additional fuel an auxiliary fuel pressure device (fuel management booster) is activated under boost. A specially calibrated chip is also included to reduce detonation at wide open throttle and in vehicles that use electronic transmissions, it improves shift quality.

No emissions devices are de-activated or removed; nor is the air fuel ratio or spark timing altered in the EEC-IV.

IMPORTANT

Read over all the installation instruction materials before starting, so you have a better understanding of the kit.

INSTALLATION OVERVIEW

The Kenne Bell Supercharger Kit is a simple, straightforward installation as compared to other kits. All necessary gaskets, bolts, brackets, etc. are included. It is not necessary to relocate alternator, air intake box air pump, fuel line brackets, radiator hose, etc., or to drill holes in the oil pan as with other kits. No external oil coolers or filters are required. The Supercharger features a self-contained, internally lubricated system. Installation time is a fraction of other kits. If installing the system yourself for the first time, it will take longer. Take your time.

The TS3000 Kits are 50 State Legal, and utilize the same supercharger. Only the pulley is changed to increase or decrease boost. The boost of the TS2000 (302" 5.0) and TS3000 (351" 5.8) kits is determined by the pulley size of the supercharger.

INSTALLATION INSTRUCTIONS TS3000 KIT (5, 6 AND 8 PSI)
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BASIC OPERATION

At approximately 3-4 PSI boost the fuel management system (FMB) closes and forces more fuel through the injectors at increased pressure, thereby richening the fuel mixture to compensate for the additional power of the supercharger. During normal operation the FMB is "open."

ILLUSTRATIONS

For those not entirely familiar with the Ford engine, etc., we have included illustrations from the Ford Service Manual to help you with the installation. Sit down and read these instructions before beginning.

BEFORE INSTALLATION

1. Change the air filter but NEVER remove it when operating the engine. Like any supercharger, your new Kenne Bell supercharger demands clean air. NEVER OPERATE THIS SUPERCHARGER WITHOUT A QUALITY AIR FILTER!
2. Check engine timing. Should be 10 degrees BTDC as per manufacturer's recommendations.
3. Remove any aftermarket Chip (Prom)
4. Be sure spark plugs, wires and ignition system are in good condition.
5. The truck engines typically shift at 4500 RPM automatically at peak torque. We do not recommend revving the engine past 4500 RPM.

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INSTALLATION INSTRUCTIONS

TS3000 SUPERCHARGER 1994 FORD 5.8 TRUCKS

1. Start installation when engine is cool.
Drain coolant and save, remove radiator hose and set aside. It is replaced by the new hose supplied.
2. Remove air cleaner outlet tubes (between throttle body and engine air cleaner, Fig. 2); fresh air intake tube will be replaced with a more efficient piece supplied in kit.
3. **CAUTION:** When disconnecting throttle cable from ball stud, use a screwdriver or similar tool close to the stud and pry slowly. Pulling by hand may damage the cable.
4. Remove throttle linkage cover and set aside. It will not be used. Disconnect throttle linkage at throttle ball.
5. Disconnect transmission linkage from throttle body.
6. Remove two bolts securing accelerator cable bracket to intake. This bracket will be replaced with a new Kenne Bell Throttle Linkage bracket. (Fig. 3, white arrow)
7. Disconnect upper intake manifold vacuum fitting connectors by disconnecting all vacuum lines to vacuum tree. Plastic line to MAP sensor will be replaced. Remove vacuum tree from stock manifold (Fig. 4)
8. Disconnect EGR valve to exhaust manifold tube from EGR. (Fig. 13)
9. Remove EGR valve from manifold. Clean surface for new gasket.
10. Remove bolt from upper intake support bracket to upper intake manifold and set aside. This bracket will not be used.
11. Remove distributor cap, rotor and base.
12. Remove cover over front two manifold bolts.
13. The IAT sensor (intake air temperature sensor) will be relocated. Disconnect plug on IAT (Fig. 5, black arrow)
14. Remove six upper intake manifold and bolts and set aside. These will not be used. Cut the wires 3" from the sender and lengthen with the two wires and butt connectors supplied. Use a small dab of silicone sealer in the ends of the butt connectors to seal out moisture. The IAT sender will be installed in the bottom chrome inlet pipe next to the throttle body.

<p>302 ONLY: Center right manifold bolt requires a 1/4" drive T-40 Torx socket and long extension to remove.</p>

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INSTALLATION INSTRUCTIONS

TS3000 SUPERCHARGER 1994 FORD 5.8 TRUCKS

15. Remove intake gasket, clean surface and install new gasket.

16. Remove IAT from intake manifold (Fig.5 black arrow) and plug hole with 3/8" pipe plug using teflon tape or paste on the threads.

17. Mount fuel management booster (FMB) on firewall as shown in Fig. 21. Mark mounting holes, drill two 1/8" holes and fasten with the 10 - 32 x 1 1/2" self tapping screws. Run screw into hole first to establish thread.

Note: There are two fuel lines, a supply line from the tank and a return line that bypasses fuel to the gas tank. The Kenne Bell FMB intercepts, or is "tied into" this return line. At wide open throttle the boost via the line to the top of the FMB closes the FMB thereby shutting off any return flow of fuel to the tank. This increases fuel pressure and forces more fuel out the injectors.

18. NOTE: FIRST RELIEVE PRESSURE ON FUEL RAIL TO PREVENT FIRE HAZARD.
SEE FIG. 11 FOR CORRECT PROCEDURE.

Disconnect the return fuel line, Fig. 11 and Fig. 10, at the female pushlock fitting using an OTC #7363 or Motorcraft #CT-1543-B Fuel Line Disconnect Kit. Any parts store has them.

A. Connect the fuel line with the male end to the female fuel rail connection. This line connects to the side of the FMB (Fig.10)

B. Connect the fuel line with the female end to the male fuel rail connection (fuel tank return.) This line connects to the bottom center of the FMB. (Fig. 10.)

IMPORTANT: Install the safety clips (Fig. 11) over both connectors.

19. Remove Shrader valve from fuel rail and install in the fuel rail elbow furnished in the kit. Then install the fuel rail elbow in the fuel rail with the Shrader valve pointing outward toward the left side of car. (Fig. 12.)

20. Remove the top two water pump bolts (Fig. 8) and replace with the stud/bolts provided. The front support bracket will mount on these studs.

21. Install the two manifold studs in the right front and left rear corners of the intake manifold.

22. Install Supercharger assembly onto the studs with the front support bracket pointing down. It mounts on the top two water pump studs (Fig.8, black arrows.)

23. Install remaining four bolts being sure all are well started in the threads before tightening and tighten bolts.

24. With the Supercharger assembly mounted, CAREFULLY jiggle and slide the front support bracket over the two water pump stud/bolts.

CAUTION: Before tightening the bracket must be positioned flush against both nuts.

25. Install washers and nuts and tighten support bracket to studs.

26. Cinch down the Allen set screw in the bracket. This is already a fairly tight fit so it is not necessary to over tighten the set screw.

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INSTALLATION INSTRUCTIONS

TS3000 SUPERCHARGER 1994 FORD 5.8 TRUCKS

27. Install new radiator hose with large end on radiator and small end on thermostat housing (Fig.9)
28. Reconnect ground strap to rear EGR bolt.
29. Carefully bend EGR tube - with EGR valve connected to line up on Supercharger manifold. Leave tube loose and start bolts in Supercharger inlet manifold. Use new gasket. (Fig. 3)
30. Measure and cut PCV hose to correct and connect to brass fitting in Supercharger inlet manifold. (Fig.15)
31. Discard the power brake booster hose that is connected to the vacuum tree and replace with the new longer 11/32" x 28" hose supplied. (Fig. 14, white arrow)
32. Re-install distributor base, rotor and cap.
33. NOTE: VS ASSEMBLY IS FOR SPEED DENSITY 1987-94 TRUCKS ONLY.
Mark and drill two 1/8" holes. Mount the VS (Vacuum-Solenoid Assembly) on the firewall next to the left side fenderwell, Fig. 6, and route the tubing and wiring as shown in Fig. 7. The VS assembly is factory pre-assembled complete with fittings for ease of installation. Route the lines as required for a clean neat installation.
34. Be sure the throttle linkage support bracket is located all the way to the rear on the supercharger drive (up against the taper) and it is parallel to the top of the Supercharger. (Fig.16)
35. Securely tighten this bracket in place. Re-install linkage in slots, leaving two mount screws hand tight. Round hole is toward front of vehicle. The throttle linkage bracket supplied. **IMPORTANT:** Adjust linkage bracket with linkage connected so idle set screw is bottomed against linkage stop. *Otherwise linkage will hold throttle open and engine will idle too fast.* After adjusting linkage as outlined above, tighten two mounting screws and check for full wide open throttle.

Note: The Kenne Bell inlet system alone is a 20 HP improvement in engine efficiency with the stock air filter and box.
36. Cut off rubber inlet hoses as shown in Fig. 17 and grind down the four horizontal ribs on each hose so the new hose clamp is in full contact with the hose.
37. Install blue hoses with clamps on the hoses onto the throttle body. (Fig.17)
38. Install the IAT sensor into the threaded connection of the inlet tube. This inlet tube is the bottom one. The IAT sensor will be located at the throttle body facing the Supercharger. (Fig.5)
39. Install both steel inlet tubes into the blue hoses and then connect them to the stock cut off rubber inlet hoses. (Fig. 17)

The stock "over the radiator" fresh air intake tube is replaced by a more efficient "through the grill" fresh air intake tube (Fig.17) that plugs into the air cleaner box and the radiator support opening.

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INSTALLATION INSTRUCTIONS

TS3000 SUPERCHARGER 1994 FORD 5.8 TRUCKS

40. Install belt supplied by starting at the Supercharger pulley and following the arrows from "start" to "finish" ending up with a loop around the Supercharger pulley. (Fig. 18)

Note: Always try to keep belt adjusted to "minimum" (new) drive belt length.
Belt tension adjustments may also be made by rotating the eccentric idler pulley on the Supercharger front support bracket. (Fig.19)

41. Remove EEIV computer and install new chip as shown. (Fig. 20)
DO NOT operate truck with Supercharger *without* this chip!
The Kenne Bell Chip does not change any functions during closed loop operation, so emissions are not affected in any way. Under wide open throttle, however, in the open loop mode, the spark and fuel curves are extensively modified to reduce detonation under boost conditions AND improve transmission shifting.
42. Fill the Supercharger gear case with the special oil provided. (Fig. 26 and Fig. 27)
We use Red Line 75W90 Hi Performance Non Foaming Synthetic Gear Lube.
DO NOT OVERFILL or Supercharger WILL be damaged.
Re-connect all wiring, sensors, PVC line (Fig. 15) and Supercharger manifold lines. (Fig. 12)
Re-fill engine coolant.

CAUTION: Turn on engine ignition key but DO NOT START ENGINE. CHECK FOR FUEL LEAKS at all O-ring connections and FMB fuel system booster lines.

Start the engine and again check for any fuel leaks.

You're ready to go. Experience the whisper quiet instant full boost torque and unsurpassed horsepower of the Kenne Bell Whipplecharger. A slight clicking noise may be heard at idle. This is perfectly normal. Nothing is wrong. The noise is due to the crankshaft harmonic balancer reacting on the Supercharger gears.

FUEL

Use ONLY 92 or higher octane. No 87 or 89 octane. We recommend a boost gauge.

Listen for ANY sign of detonation

If ANY detonation is audible, get off the gas pedal! It doesn't take long to damage a gasket OR the engine. Refer to "Troubleshooting Tips" or call your Dealer or Kenne Bell Tech Line (909) 941-0985, or FAX (909) 944-4883.

FUEL OCTANE

Fuel octane and quality varies from area to area. We have pulleys available in 1/8" increments to reduce boost, approximately 1 psi per 1/8".

Also, extreme towing loads and/or hot days may require a pulley change to lower boost levels. 104 Brand Octane Booster is the ONLY fuel additive we recommend.

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TS3000 SUPERCHARGER 1994 FORD 5.8 TRUCKS

351 BOOST RATINGS

BOOST RATINGS ARE NOMINAL AND ARE AS FOLLOWS

<u>KIT</u>	<u>PULLEY SIZE</u>	<u>NOMINAL(RATED)BOOST</u>	<u>ACTUAL MAXIMUM BOOST(SEA LEVEL)</u>
TS3000-5	2 3/4"	5	5.5 @ 4500 RPM
TS3000-6	2 5/8"	6	6.5 @ 4500 RPM
TS3999-8	2 1/2"	8	8.0 @ 4500 RPM
	2 3/8*	9*	9.0 @ 4500 RPM
	2 1/4*	10*	10.0 @ 4500 RPM

*Not 50 State Legal. Racing or off road use only. Not legal in California on pollution controlled motor vehicles. Will require octane boost.

Careful: Engine RPM above 4500 will increase boost but does not necessarily improve performance, i.e., 0-60 or 1/4 mile times. Leave truck shift automatically at 4500 RPM. Altitude will also affect boost, as will ambient temperature.

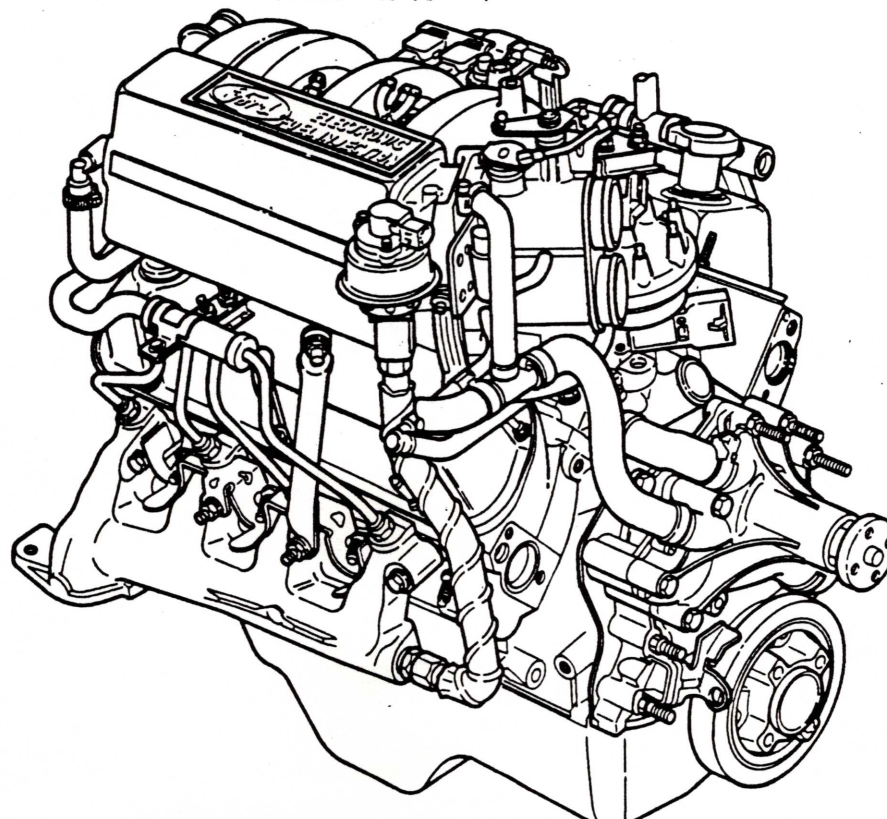
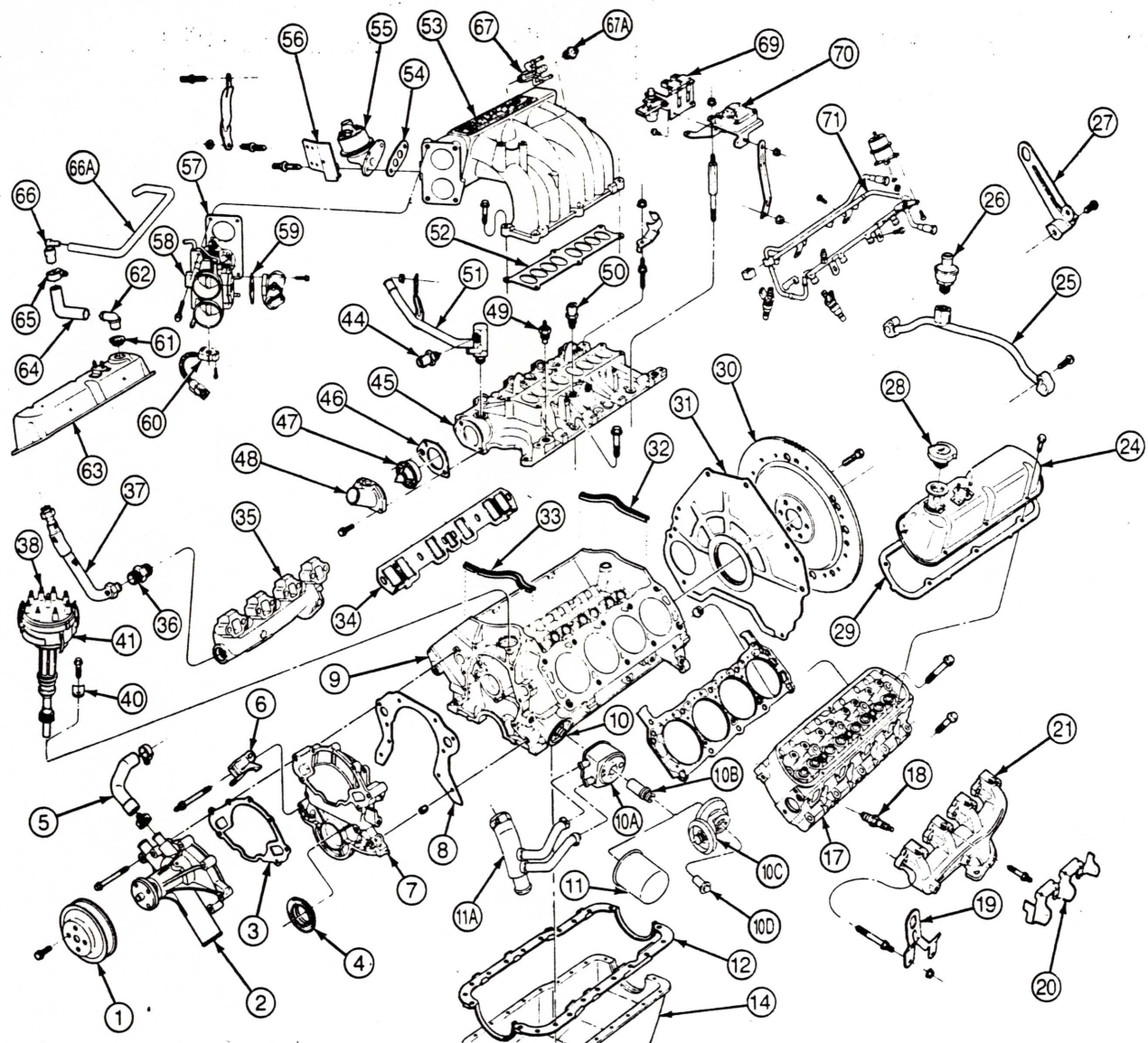


FIG. 1 ENGINE AND EXTERNAL ENGINE COMPONENTS

Item	Part Number	Description
1	8509	Pulley — Water Pump
2	8501	Pump Assembly — Water
3	8507	Gasket — Water Pump Housing
8	6020	Engine Timing Cover Gasket
9	6010	Cylinder Block
10	6890	Insert — Oil Filter Mounting
10A	6A642	Oil Cooler Assembly (E and F-Series)
10B	6L626	Oil Cooler Insert (E and F-Series)
10C	6884	Oil Filter Adapter (E Series)
10D	6894	Oil Filter Adapter Mounting Bolt (E-Series)
11	6714	Filter Assembly — Oil
11A	6K741	Oil Cooler Adapter (E and F-Series)
12	6710	Gasket — Oil Pan
14	6675	Pan Assembly — Oil
15	6734	Gasket — Oil Pan Drain Plug
16	6730	Plug — Oil Pan Drain
17	6049	Head — Cylinder
18	12405	Spark Plug
19	17A084	Lifting Eye
20	12A087	Spark Plug Heat Shield
21	9431	Manifold — Exhaust (LH)
24	6582	Valve Cover
25	9B449	Secondary Air Injection Manifold Tube
26	9A487	Secondary Air Injection Check Valve
27	17K004	Lifting Eye
28	6766	Oil Filler Cap
29	6584	Valve Cover Gasket
30	6375	Flywheel Assembly
31	6A372	Plate Assembly — Engine Rear
32	9A424	Gasket — Manifold Rear
33	9A425	Gasket — Manifold Front
34	9439	Intake Manifold Gasket
35	9430	Manifold — Exhaust (RH)
36	9F485	EGR Valve Tube to Manifold Connector
37	9D477	EGR Valve to Exhaust Manifold Tube
38	12160	Cap — Distributor

(Continued)

Item	Part Number	Description
4	6700	Crankshaft Front Seal
5	8597	Water Bypass Tube Or Hose
6	6023	Pointer — Timing
7	6059	Engine Front Cover
40	12170	Clamp — Distributor
41	12A217	Adaptor — Distributor Assembly
44	12A648	Sensor Assembly — Engine Coolant Temperature
45	9K461	Lower Intake Manifold Assembly
46	8255	Gasket — Water Outlet Connection
47	8575	Thermostat — Water
48	8592	Connection — Water Outlet
49	10884	Sensor — Water Temperature Indicator
50	12A697	Sensor Assembly — Intake Air Temperature
51	18B402	Tube — Heater Hot Water
52	9H486	Gasket — Intake Manifold Upper
53	9K461	Manifold — Intake
54	9D476	Gasket — EGR Valve Assembly
55	9F483	EGR External Pressure Valve
56	14A163	Retainer — Wiring Harness
57	9E936	Throttle Body Gasket
58	9E926	Throttle Body Assembly
59	9F670	Gasket — Air By-Pass Valve
60	9B989	Position Sensor — Throttle
61	6K780	Crankcase Ventilation Grommet
62	6762	Elbow — PCV
63	6532	Cover Assembly — Valve Rocker Arm (RH)
64	6A886	Extension Tube — PCV
65	389772	Clamp
66	6B890	Positive Crankcase Ventilation Valve
66A	6A664	Hose
67	9D446	Tree — Vacuum
67A	391016	Vacuum Fitting
69	9J459/9S448	Solenoid Assembly
70	12A310	Coil — Assembly
71	9S441	Manifold — Fuel Injection Supply
72	9F593	Fuel Injector

FIG. 1-A ENGINE AND EXTERNAL ENGINE COMPONENTS

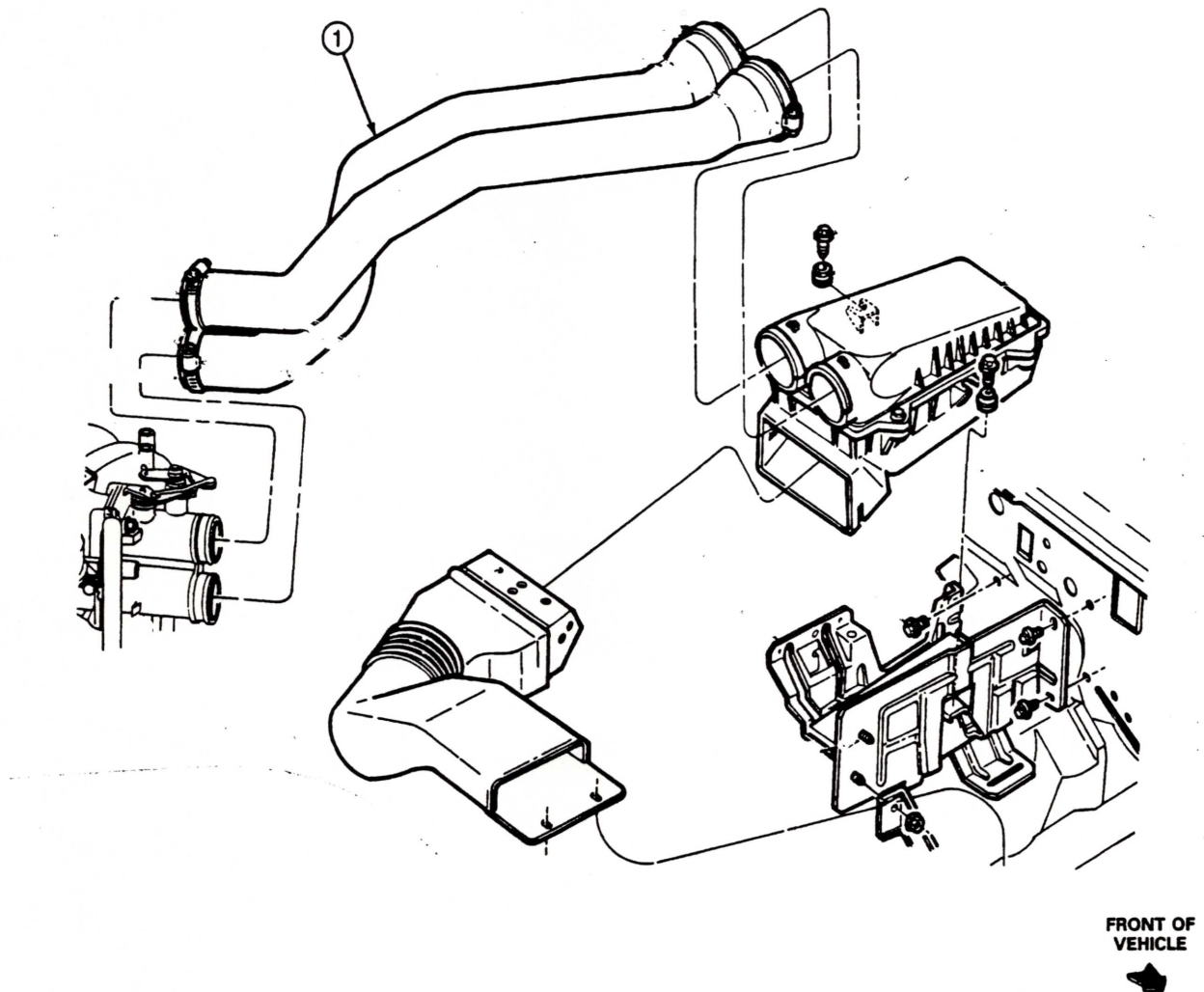


FIG. 2 STOCK FRESH AIR INLET TUBES

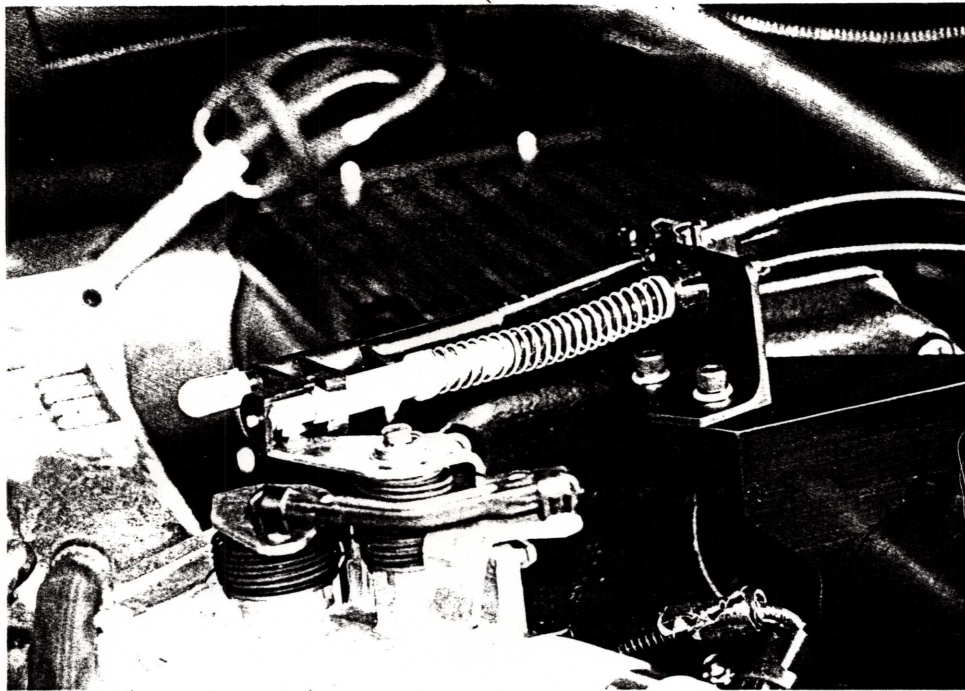


FIG. 3 THROTTLE CABLE

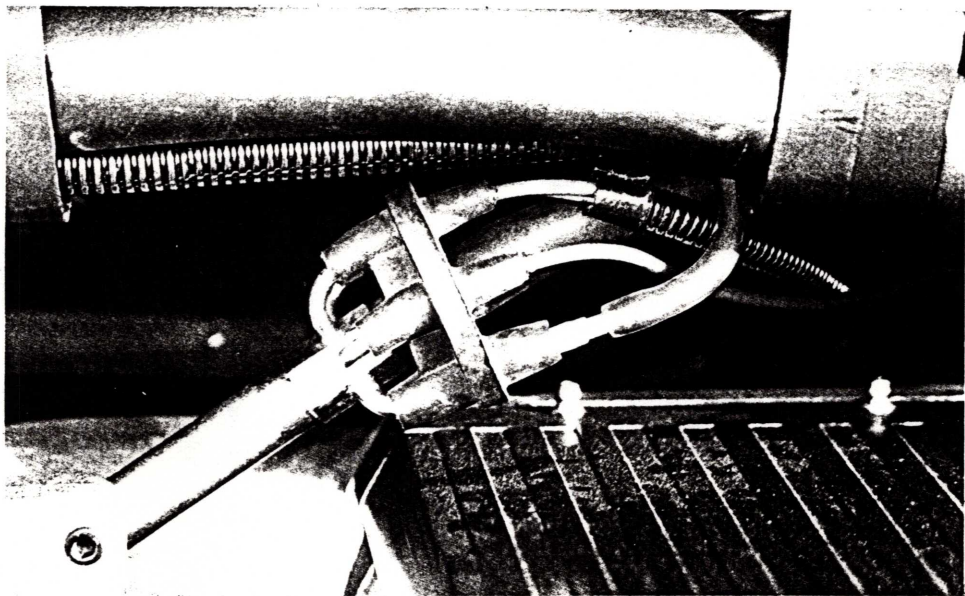
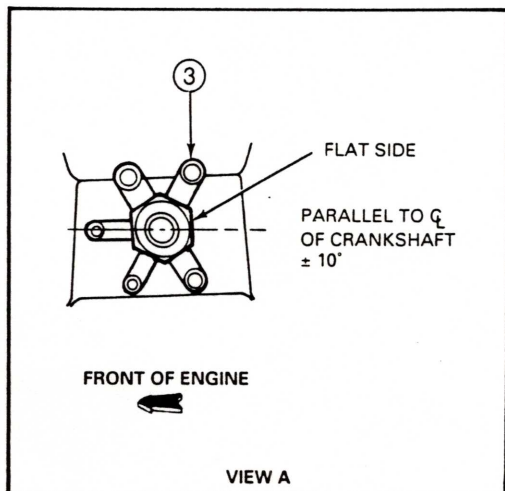
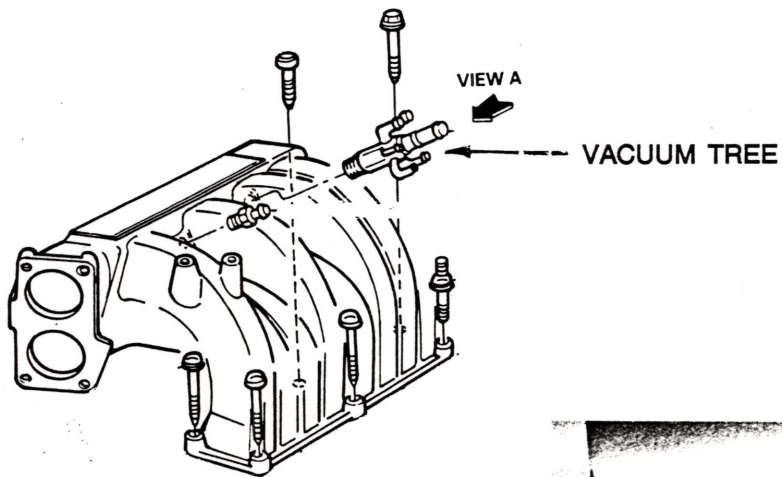
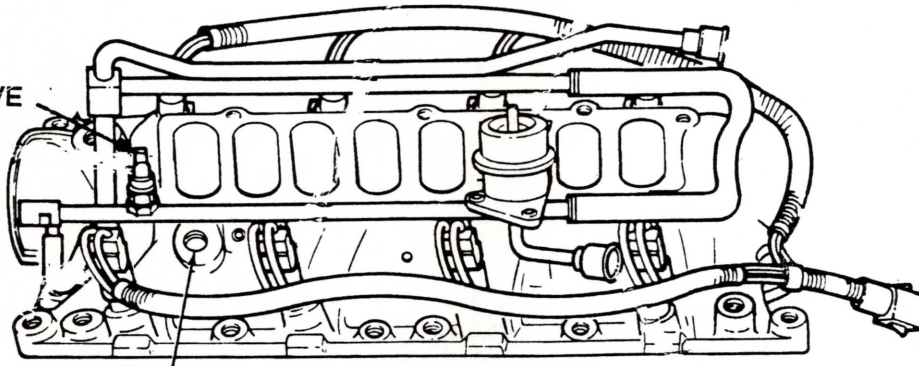


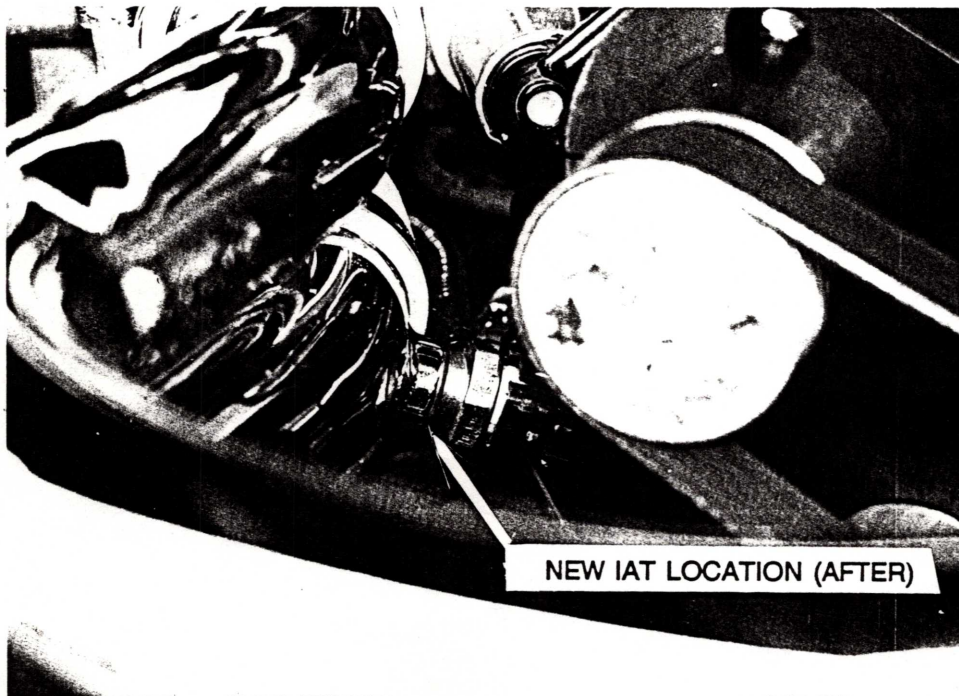
FIG. 4 VACUUM TREE

SHRADER VALVE



IAT SENSOR (BEFORE)

REMOVE IAT SENSOR AND RELOCATE WITH 20" WIRE EXTENSIONS AND BUTT CONNECTORS TO NEW LOWER STEEL INLET PIPE AT THROTTLE BODY



NEW IAT LOCATION (AFTER)

FIG. 5 IAT SENSOR (BEFORE & AFTER)

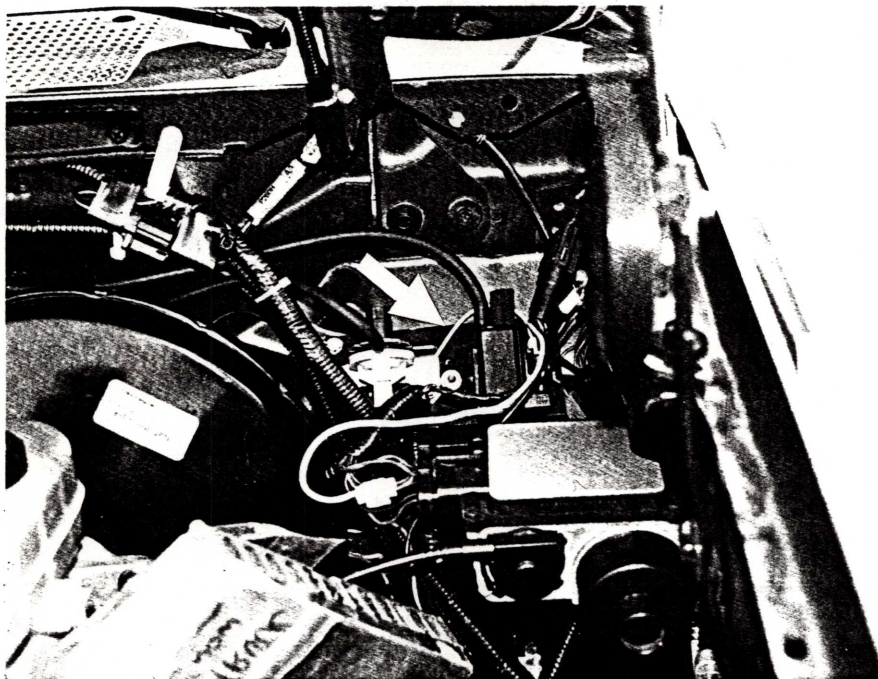


FIG. 6 VS ASSEMBLY (MOUNTING)

REPLACE BOLTS WITH
STUD/BOLTS FROM KIT
FRONT SUPPORT BRACKET
THEN MOUNTS TO THESE STUDS

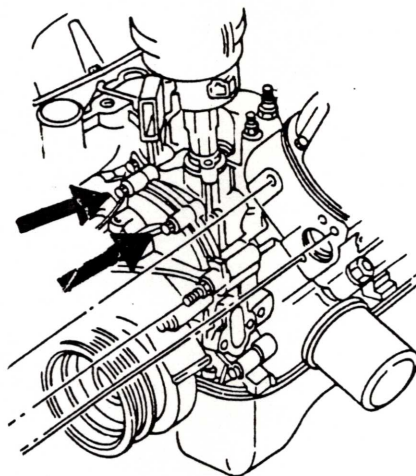


FIG. 8 FRONT SUPPORT BRACKET TO WATER PUMP MOUNT.

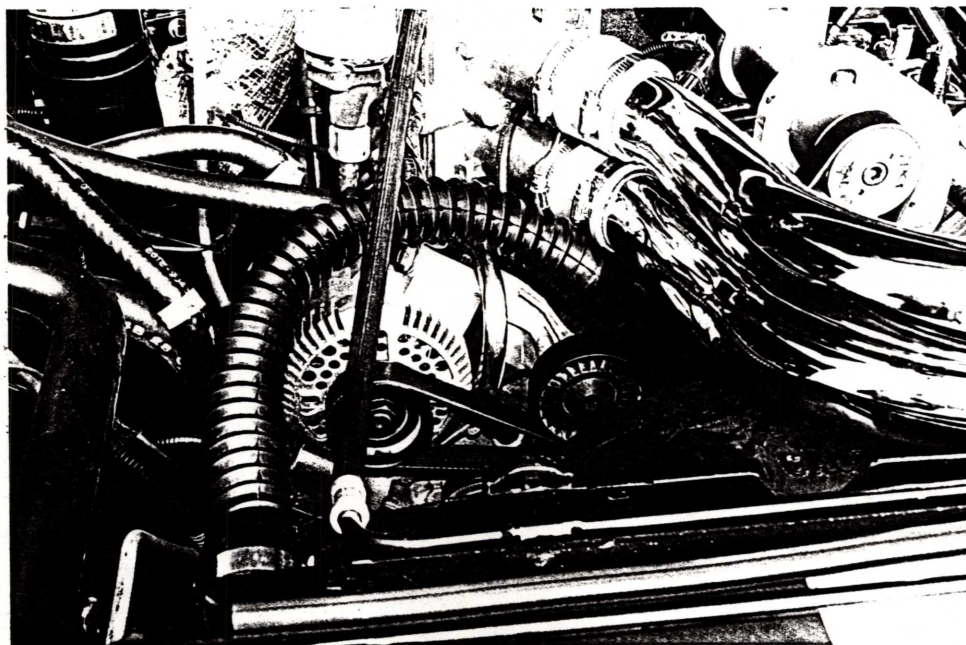


FIG. 9 RADIATOR HOSE

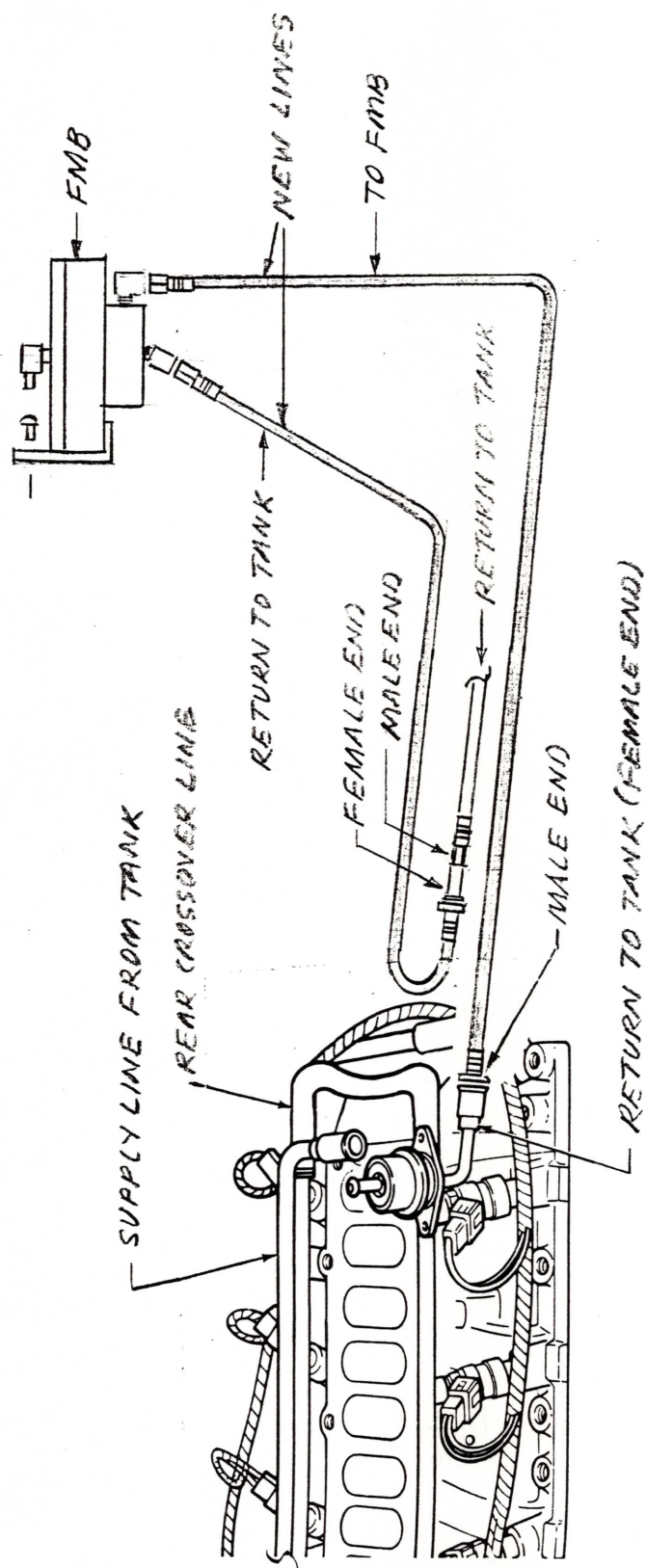
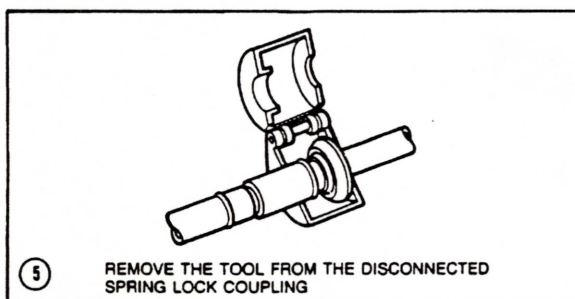
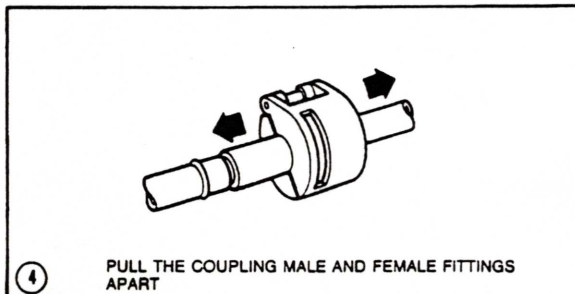
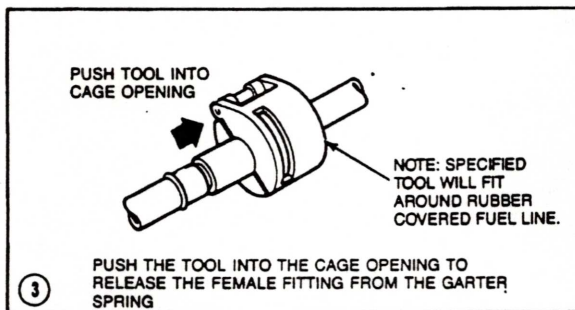
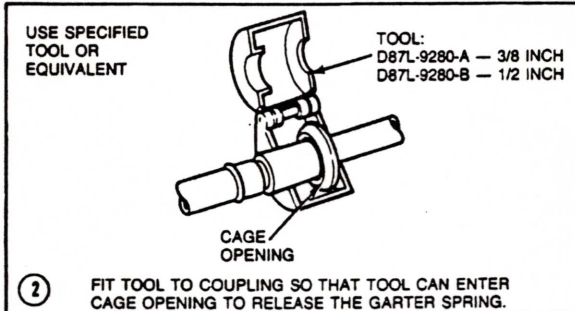
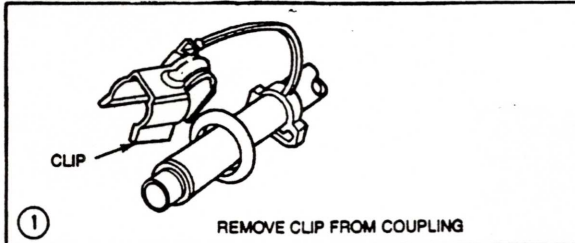


FIG. 10 FUEL LINE CONNECTION TO FMB

REMOVAL AND INSTALLATION

TO DISCONNECT COUPLING
CAUTION — RELIEVE FUEL PRESSURE BEFORE DISCONNECTING COUPLING



TO CONNECT COUPLING

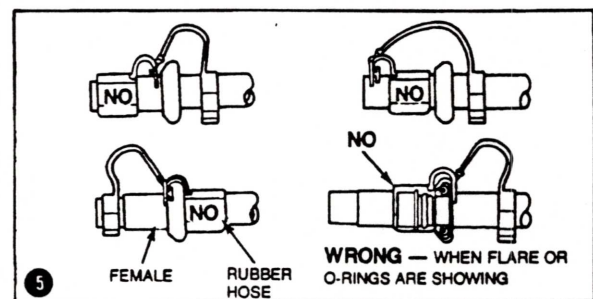
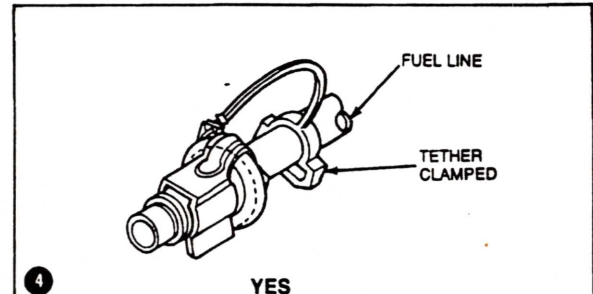
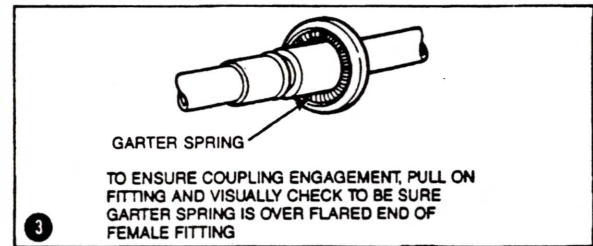
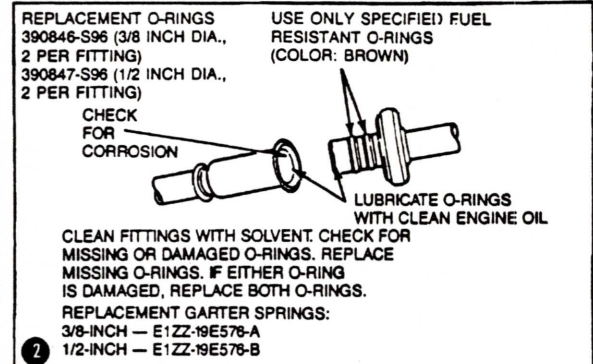
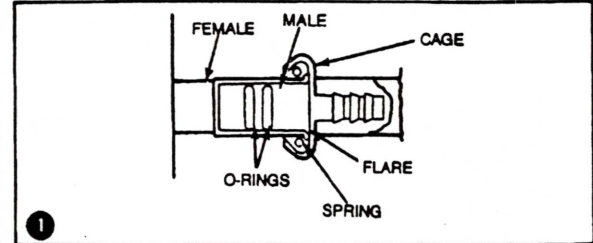
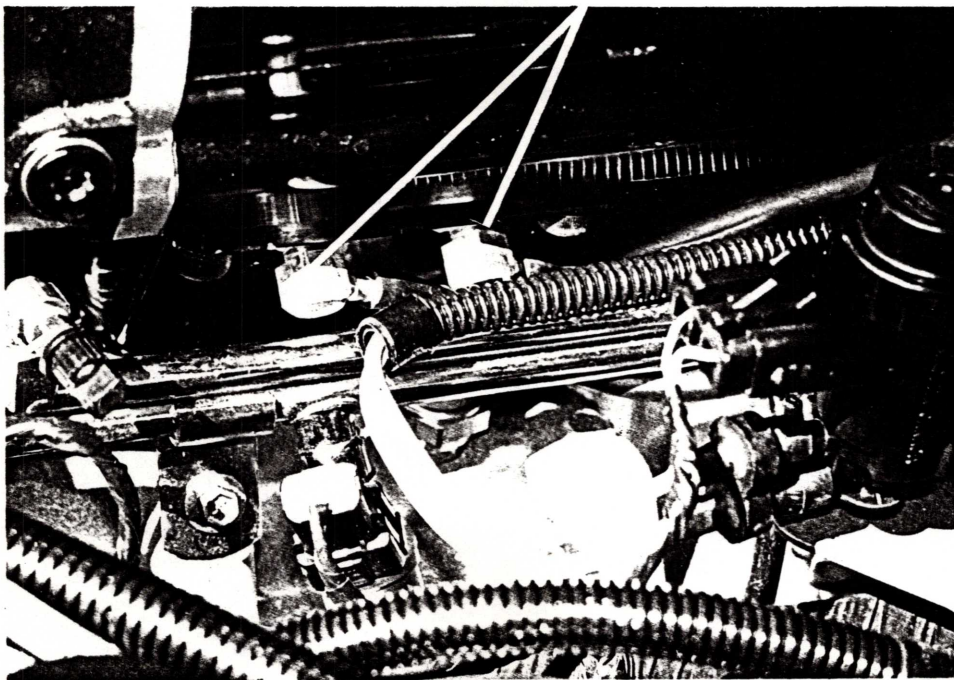


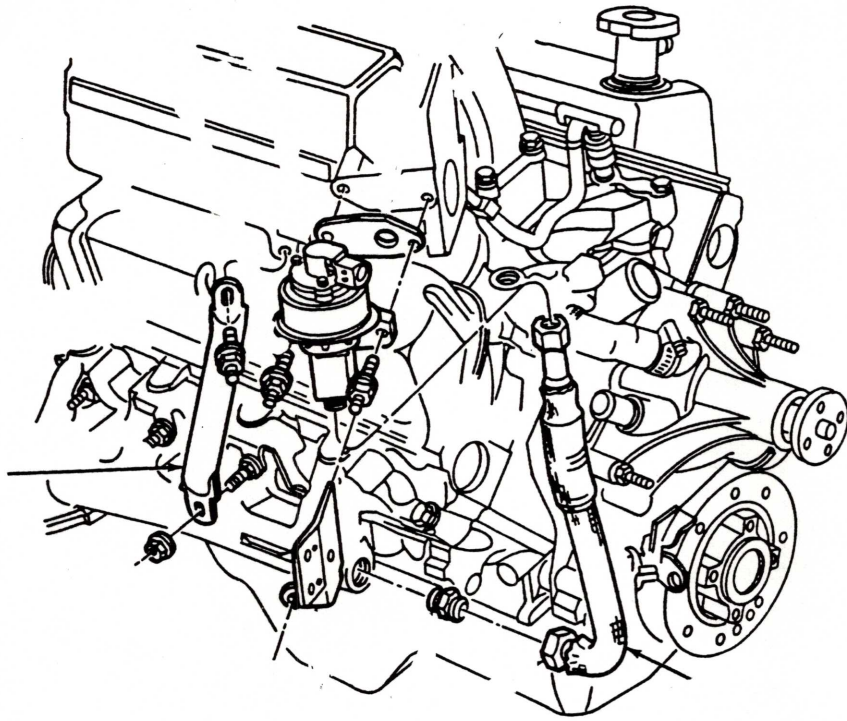
FIG. 11 FUELLINE DISCONNECT AND CONNECT PROCEDURE

SUPERCHARGER MANIFOLD VACUUM FITTINGS
REAR FITTING CONNECTS TO MAP SENSOR
FRONT FITTING CONNECTS TO FMB

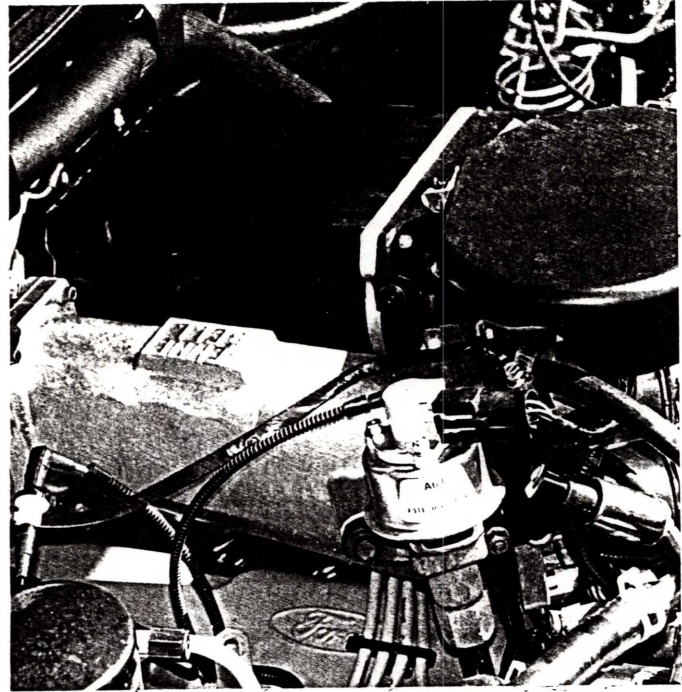


NEW ELBOW AND
SHRADER VALVE

FIG. 12 SHRADER VALVE AND SUPERCHARGER MANIFOLD FITTINGS



STOCK EGR



EGR ON KENNE BELL KIT

FIG. 13 EGR

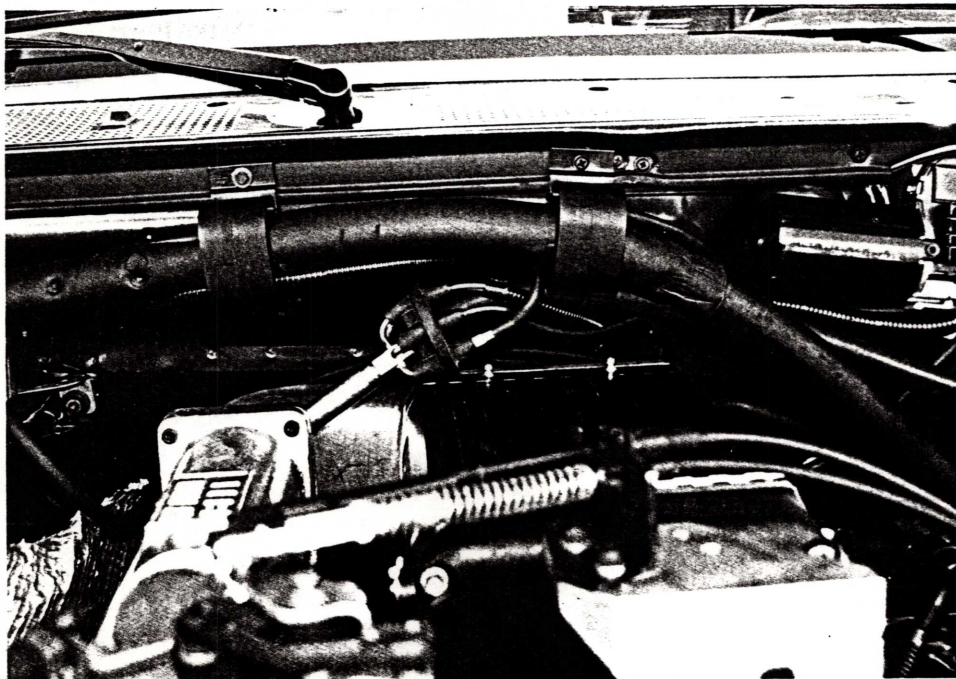
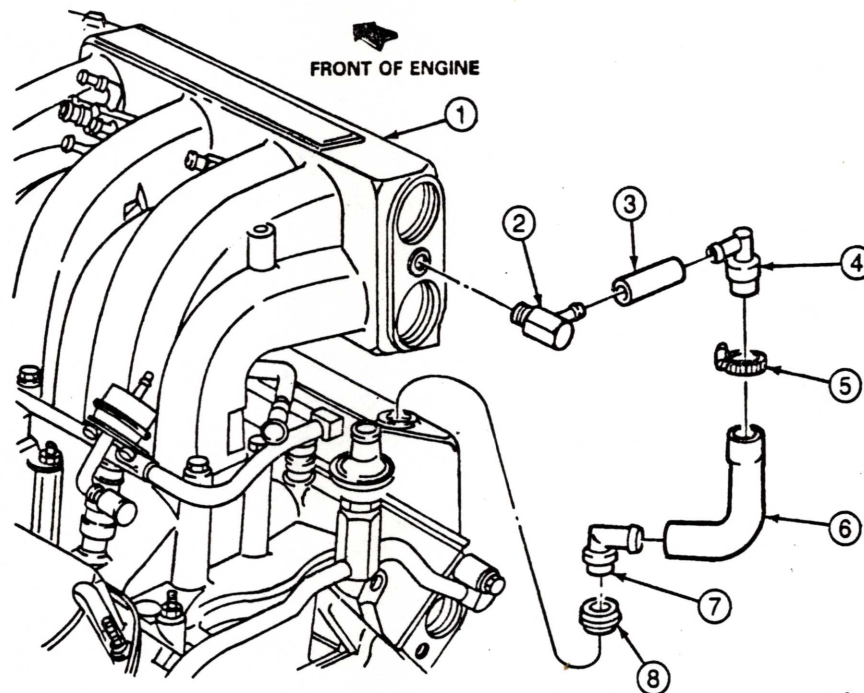


FIG. 14 BRAKE BOOSTER HOSE AND VACUUM TREE



A15804-A

Item	Part Number	Description
1	9K461	Upper Intake Manifold
2	9A474	Intake Manifold Vacuum Outlet Fitting and Cap Apply

Item	Part Number	Description
3	381188	Hose
4	6A666	Positive Crankcase Ventilation Valve
5	8287	Clamp
6	6A664	Oil Separator Hose
7	6762	Elbow
8	6A892	Crankcase Ventilation Grommet

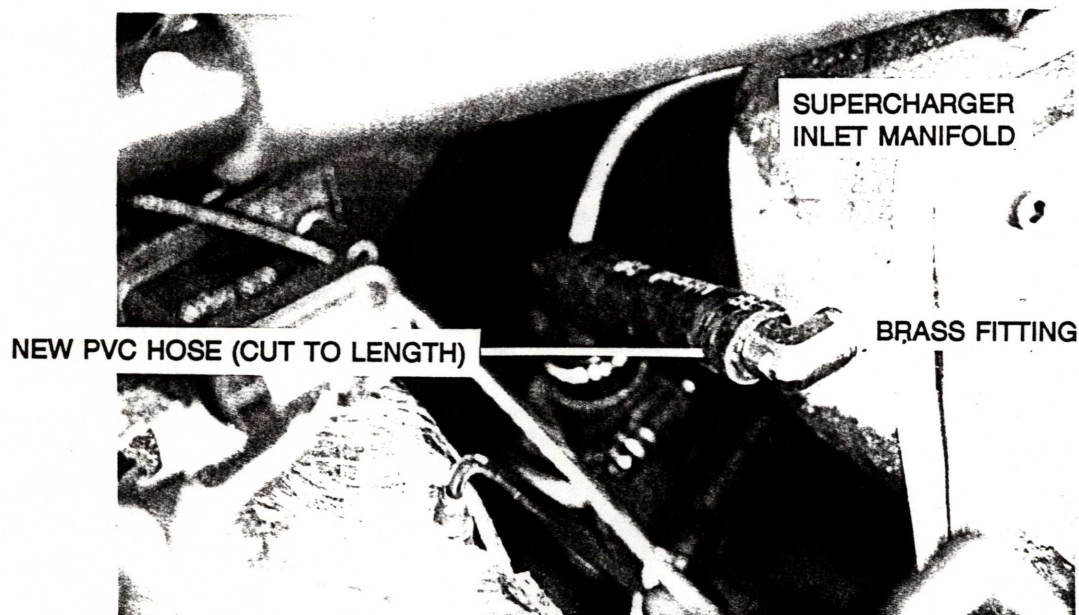


FIG. 15 PCV

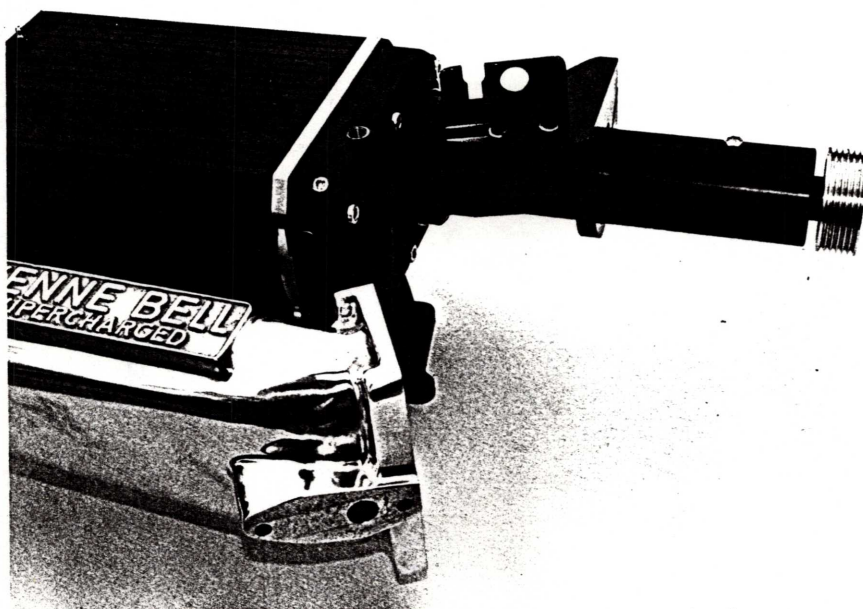


FIG. 16 THROTTLE LINKAGE SUPPORT BRACKET

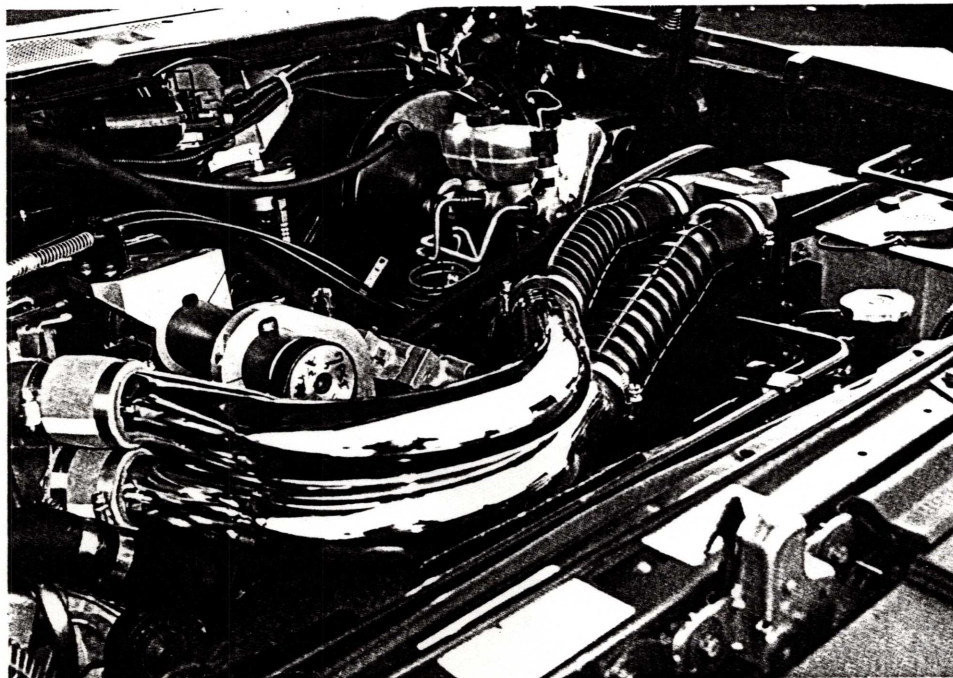
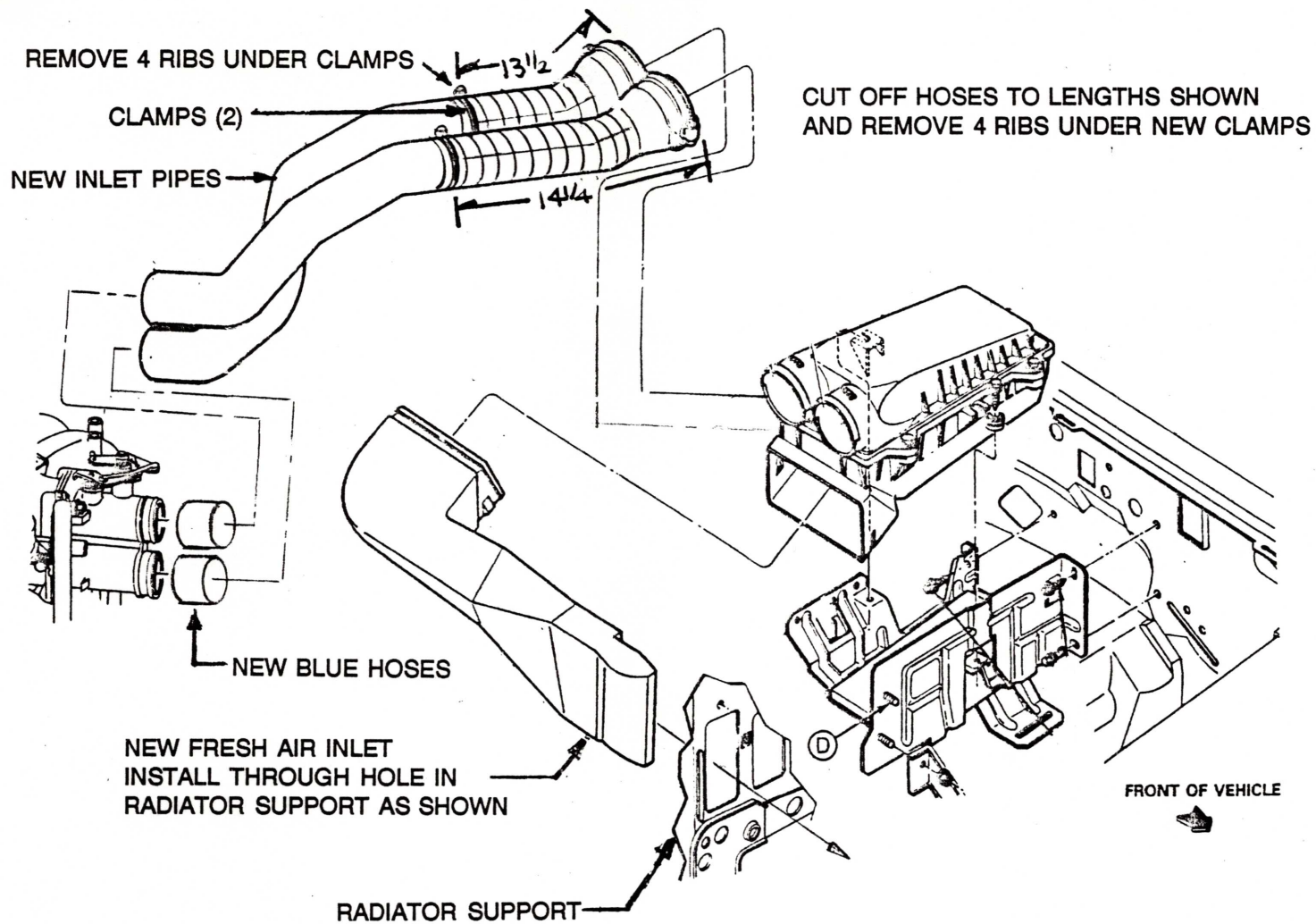
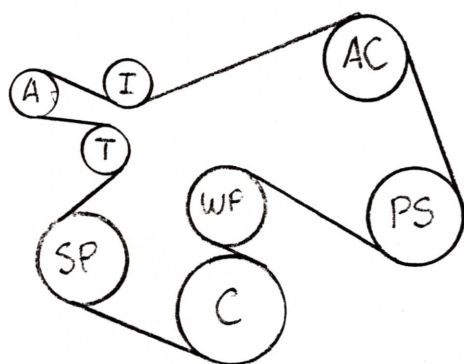
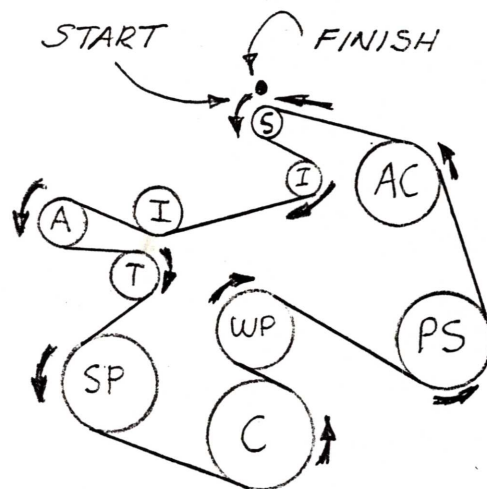


FIG. 17 MODIFIED FRESH AIR SYSTEM



STOCK



KENNE BELL

PULLEY ID

- A - Alternator
- I - Idler (stock and Kenne Bell)
- T - Tensioner
- SP- Smog Pump
- C - Crankshaft
- WP- Water Pump
- PS - Power Stecum
- AC - Air Conditioner
- S - Supercharger

BELT INSTALLATION (KENNE BELL WITH AC)

SEE ILLUSTRATION ABOVE FOR BELT ROUTING. START AT THE SUPERCHARGER AND FOLLOW THE ARROWS. YOU WILL END UP WITH THE BELT LOOPED AT THE SUPERCHARGER PULLEY. USE A 3/8" BREAKERBAR ON THE STOCK TENSIONER TO RELIEVE TENSION AND INSTALL THE BELT. CHECK TO BE SURE BELT IS IN ALL THE PULLEY GROOVES AND THE TENSION IS CORRECT ON THE INDICATOR

FIG. 18 BELT ROUTING

With the engine running, check drive belt tracking (the position of the drive belt on the drive belt tensioner). If the edge of the drive belt rides beyond the edge of the drive belt tensioner, this can cause noise and premature wear. If a drive belt tracking condition exists, visually check the drive belt tensioner for damage, especially the mounting pad surface. If the drive belt tensioner is not installed correctly with the locating pins in the locating holes, the mounting surface pad will be out of position. This will result in drive belt tension and chirp and squeal noises.

If the above procedures do not correct the drive belt noise, try replacing the drive belt with a known good original equipment drive belt. However, the drive belt noise may return again (with mileage) if one of the above conditions still exists uncorrected.

- With engine running, visually observe the grooves in the pulleys (not the pulley flanges) for excessive wobble. Replace components as required.
- Check all accessories, mounting brackets and drive belt tensioner for any interference that would prevent the component from mounting properly. Correct any interference condition and recheck belt tracking.
- Tighten all accessories mounting brackets and drive belt tensioner retaining hardware to specification. Recheck drive belt tracking.
- Check drive belt tension as described in this section.

REMOVAL AND INSTALLATION

Drive Belt Replacement

Conditions requiring drive belt replacement are rib chunk out, excessive wear, severe glazing, frayed cords. Replace any drive belt exhibiting any of these conditions. Minor cracks in the ribbed side of V-grooved portion of the drive belt are considered acceptable.

Drive Belt Tensioner, Automatic

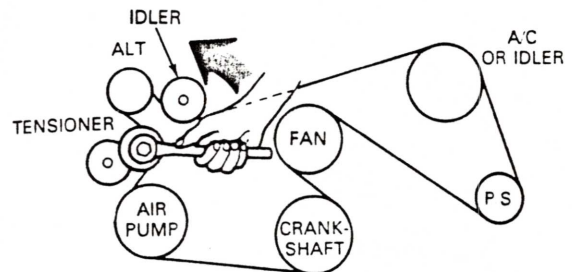
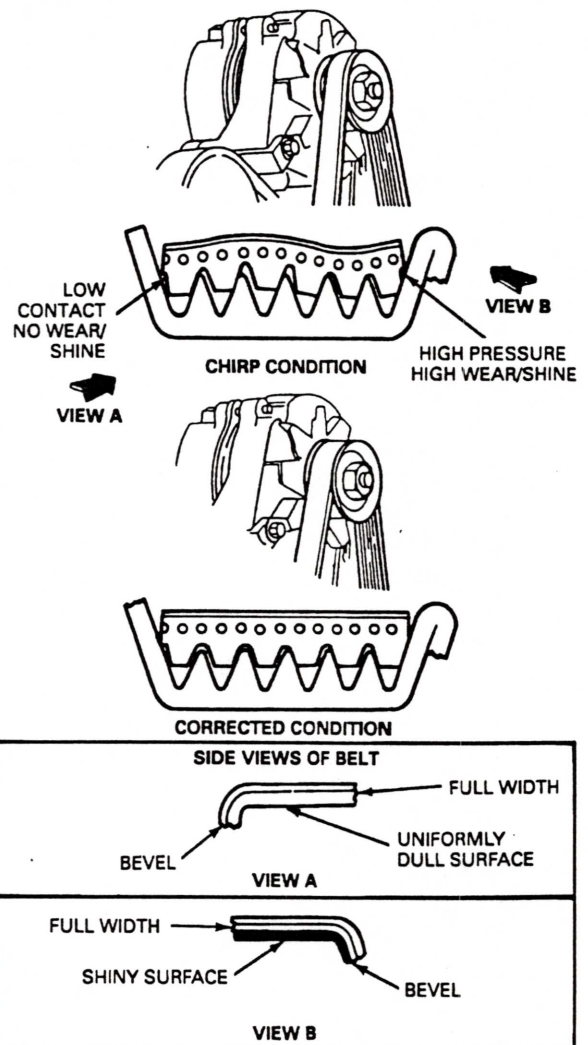
Removal and Installation

1. Install a closed end wrench on the tensioner pulley bolt and lift the tensioner arm away from the drive belt.
2. Remove old drive belt. Release drive belt tensioner slowly. Do not allow drive belt tensioner to snap back after the drive belt is removed because this may damage the drive belt tensioner.

CAUTION: Make sure the drive belt is properly seated on all pulleys. One revolution of the engine with an incorrectly seated drive belt may snap tensile members in the drive belt.

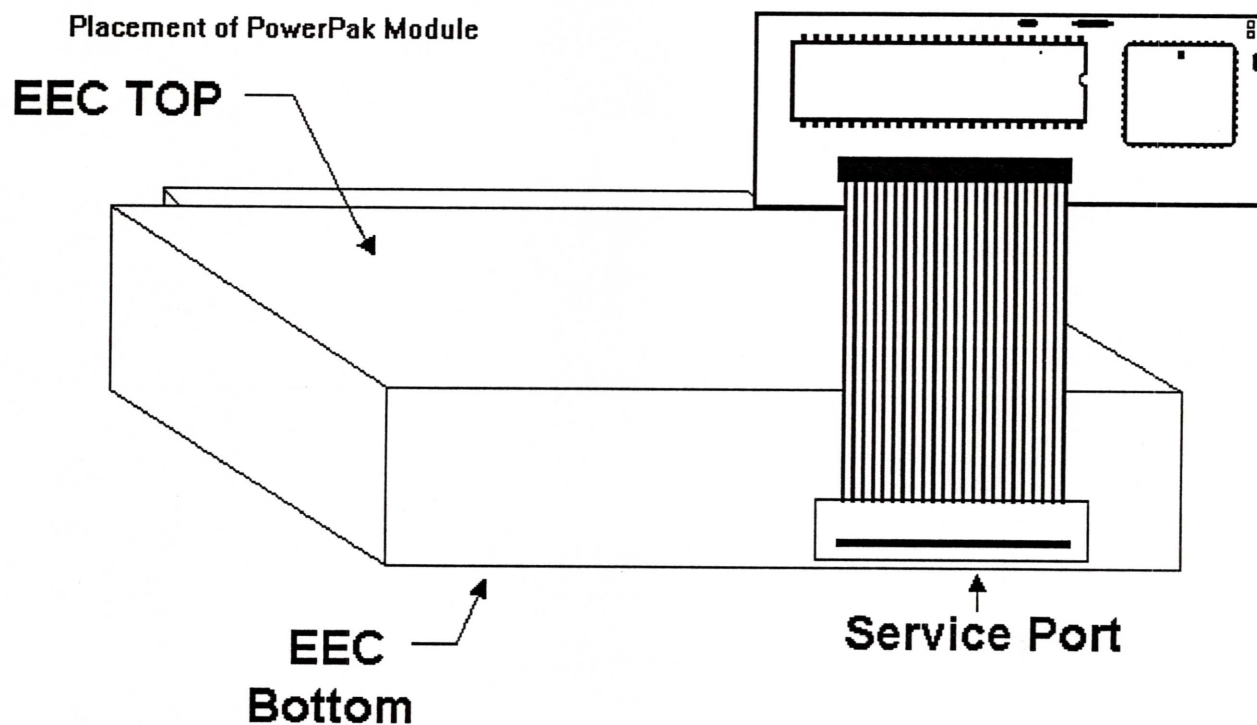
3. Install new drive belt over pulleys making sure that all belt ribs are correctly seated in the pulley grooves.

Poly-V Belt Alignment



5.0L AND 5.8L DRIVE BELT

FIG. 19 BELT TENSION AND DIAGNOSIS



CONSULT FORD SERVICE MANUAL FOR LOCATION AND REMOVAL PROCEDURE
INSTALL CHIP AS SHOWN WITH RIBBON ACROSS WIDEST PART OF EEC
CAREFULLY LAY CHIP MODULE INSIDE THE EEC OPENING AND RE-INSTALL

FIG. 20 CHIP INSTALLATION

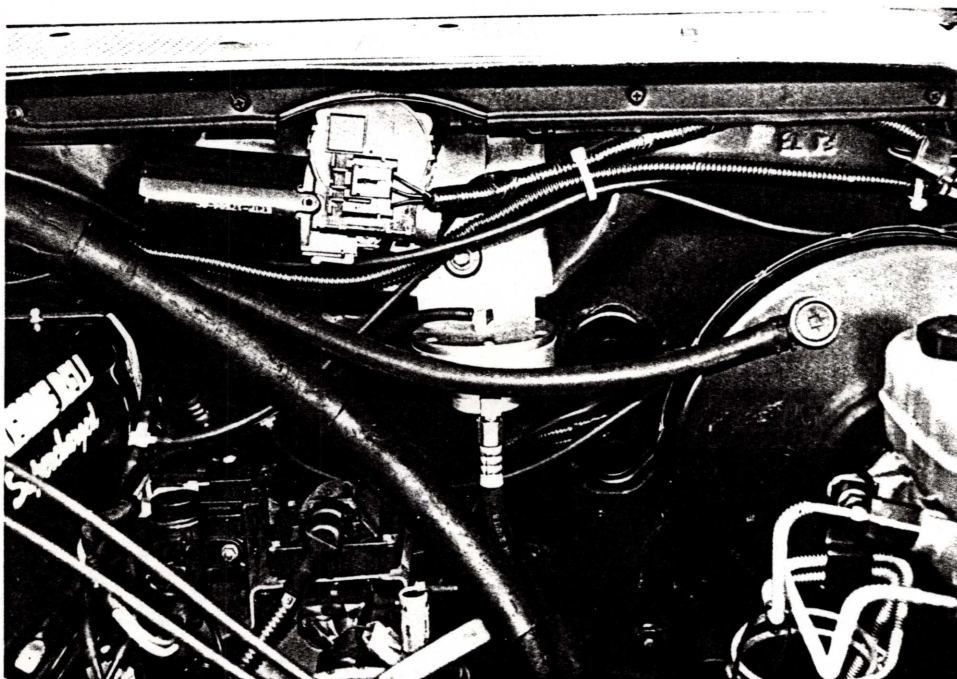
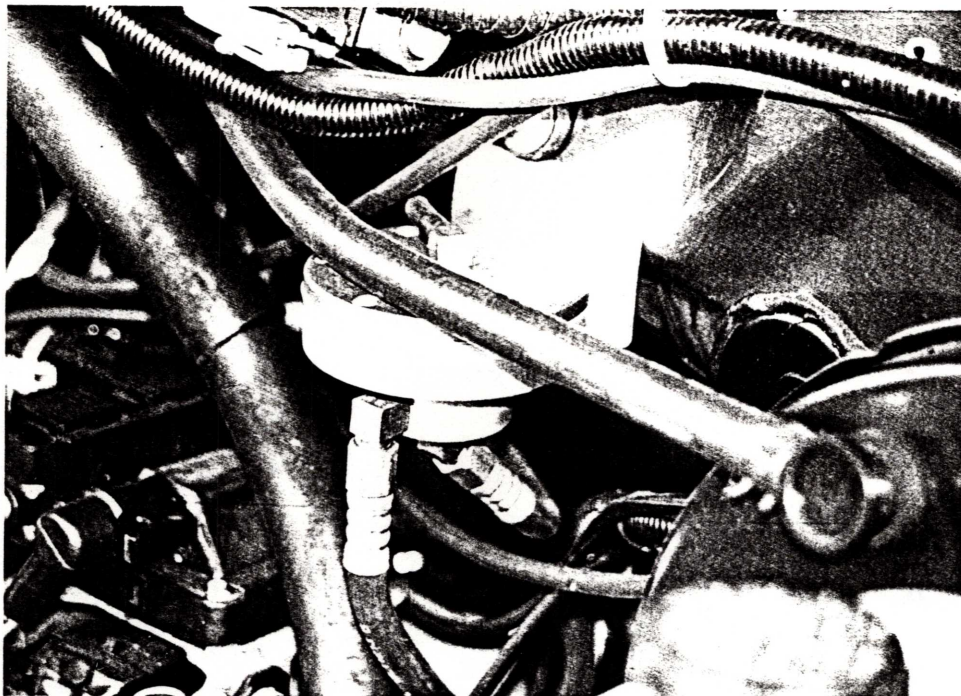


FIG. 21 FMB FUEL MANAGEMENT BOOSTER

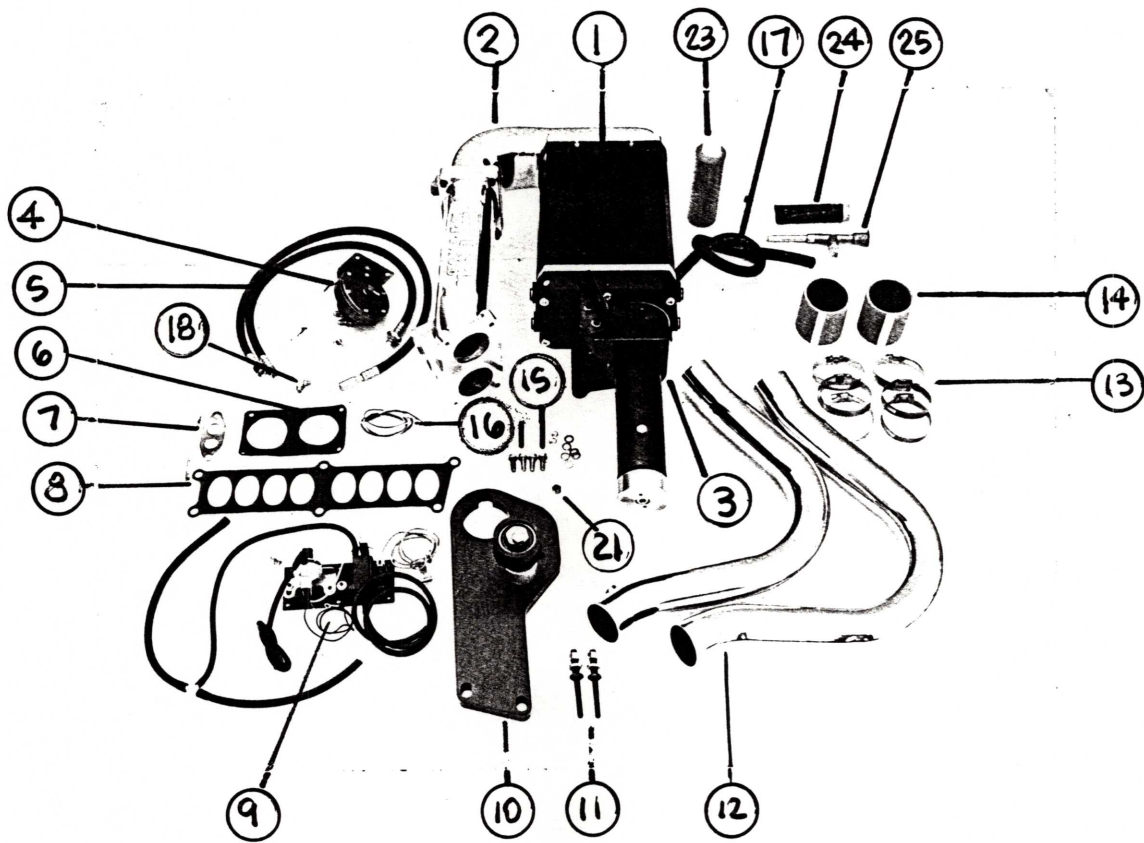


FIG. 22 SUPERCHARGER KIT COMPONENTS

KENNE BELL
FIG. 23 SUPERCHARGER KIT PARTS LIST
TS3000 SUPERCHARGER KIT COMPONENTS ('94-'95 MUSTANG)

TS3000 Supercharger Assembly includes the following:

Note: Refer to photo for letter designation of parts

<u>DESIGNATION</u>	<u>PART DESCRIPTION</u>
1	Supercharger
2	Aluminum Inlet Manifold
3	Aluminum Discharge "Blower" Manifold
4	Fuel Management Booster
5	Fuel Management Booster Lines
6	Throttle Body Gasket
7	EGR Gasket
8	Intake Manifold Gasket
9	Vacuum/Solenoid Assembly
10	Front Superecharger Support Btacket Kit
11	Front Supercharger Support Bracket Stud/Bolts
12	Inlet Pipes
13	Inlet Hose Clamps
14	Throttle Body Hoses
15	Intake Bolts and Studs
16	AIT Wire Extensions and Butt Connectors
17	Power Steering Hose
18	Shrader Valve Elbow
19	Drive Belt (not shown)
20	Fuel line Safety Clip (not shown)
21	AIT Plug
22	Radiator Hose (not shown)
23	Supercharger Lube
24	Bearing Grease
25	Grease Pump

FIG. 24

KENNE BELL

TROUBLESHOOTING TIPS

KENNE BELL TS3000 SUPERCHARGER KIT

IF ENGINE MISSES OR DETONATES:

1. Check spark plugs (close gap to .035") Try a plug one heat-range cooler
2. Check ignition module
3. Check spark plug wires (check for arcing at night)
4. Check fuel pressure (should be 60-70 psi at WOT with 19 lb. injectors)
5. Check injectors. They may be clogged, worn or not functioning.
One injector may be lean (plugged)
6. Check air cleaner for restriction
7. Check fuel quality (must be 92 octane or better)
8. Check ignition Timing (10 deg. maximum)
9. Check for aftermarket chip (they advance timing)
10. Check catalytic converters
11. Check valve springs for tension
12. Check boost. Higher boost levels require improved ignition.
13. Add 104 Octane Booster to reduce detonation. Good for 2 - 4 octane for detonation.
14. Check TPS setting
15. Hotter than normal engine temperature, high towing loads, or poor fuel quality also cause detonation
16. Install 1/8" larger pulley to reduce boost 1 psi.
17. Truck kits MUST use Kenne Bell Chip

Call your Kenne Bell Dealer or Kenne Bell Tech Line (909) 941-0985 or FAX us at (909)944-4883 if you require attional assistance.

IMPORTANT WARRANTY AND SAFETY INFORMATION

- DO NOT attempt to alter the stock crankshaft pulley ratios.
- DO NOT overfill the Supercharger. Fill to the correct level on dipstick.
- DO NOT operate the Kenne Bell Supercharger without a filter.
The Supercharger will not tolerate debris.

KENNE BELL

FIG. 25 INSTALLATION & OPERATION TIPS

KENNE BELL TS3000 SUPERCHARGER KIT

- Use only 92 octane or higher (R&M/2) fuel. If engine detonates, check fuel pressure, injectors, fuel filter, engine temperature, air filter and vacuum leaks (Refer to "Troubleshooting" Section for more detailed recommendations.)
- Kit is designed for stock compression ratio. Higher ratios will cause increased detonation.
- Oil recommended is Mobil 1 or Redline Synthetic. Change oil and filter every 3000 miles. If using conventional oil, use Valvoline Turbo Oil and change every 2000 miles. DO NOT exceed these recommendations, as changing oil frequently reduces engine wear in any performance engine.
- Use Kenne Bell or Redline 75W90 Synthetic Hi-Performance gear oil or equal, in the Supercharger. Change every 12,000 miles.
- We recommend installing a new set of Autolite Copper Plugs. Change them every 20,000 miles.
- If engine has over 40,000 miles we recommend changing to Kenne Bell "Red Hot" Turbo wires.
- Kit is designed for use with the factory crank pulley. A smaller aftermarket pulley will reduce performance (boost) as it does not spin the supercharger as fast. Consult us for special pulley applications.
- Check belt tension every 2,500 miles. The idler pulley on the front support plate may be adjusted to compensate for stretch.
- The stock ignition module often loses efficiency. If engine misses under boost, check on scope. Needs 5K rise time. Quick partial fix is to close up the spark plug gaps to .035". If that doesn't do it - it's time for a better ignition system. An ignition coil alone won't cure it.
- DO NOT advance ignition timing over the factory setting.

WARNING! - - - NEVER USE ANY OTHER AFTERMARKET CHIP;
IT MAY RESULT IN SERIOUS ENGINE DAMAGE.

KENNE BELL SUPERCHARGER PRODUCTS, INC. **LUBRICATION INSTRUCTIONS**

OVERFILLING **FRONT GEAR CASE** MAY DAMAGE SUPERCHARGER! DO NOT OVERFILL SUPERCHARGER. FLUID LEVEL MUST BE NO HIGHER THAN BOTTOM OF CHECK-DRAIN PLUG HOLE.

REAR LUBE FITTINGS

SUPERCHARGER BEARINGS ARE PRE-LUBED FROM THE FACTORY, AND WON'T NEED LUBRICATION FOR AT LEAST 25,000 MILES; THEY REQUIRE A SPECIAL GREASE, SUPPLIED ONLY BY

KENNE BELL SUPERCHARGER PRODUCTS
OR WHIPPLE INDUSTRIES.

DO NOT use any other grease, or the Supercharger may be damaged. Lubricate with this special Kenne Bell grease every 25,000 miles.

<h2> <p>REAR SUPERCHARGER BEARINGS LUBRICATING INSTRUCTIONS</p> </h2>
--

Bearings are pre-lubed from the factory so DO NOT lube the bearings. Lubricate the rear bearings every 25,000 miles, as indicated above. We have included a grease pump and tube of special supercharger grease for lubricating the rear supercharger bearings (see Fig.11).

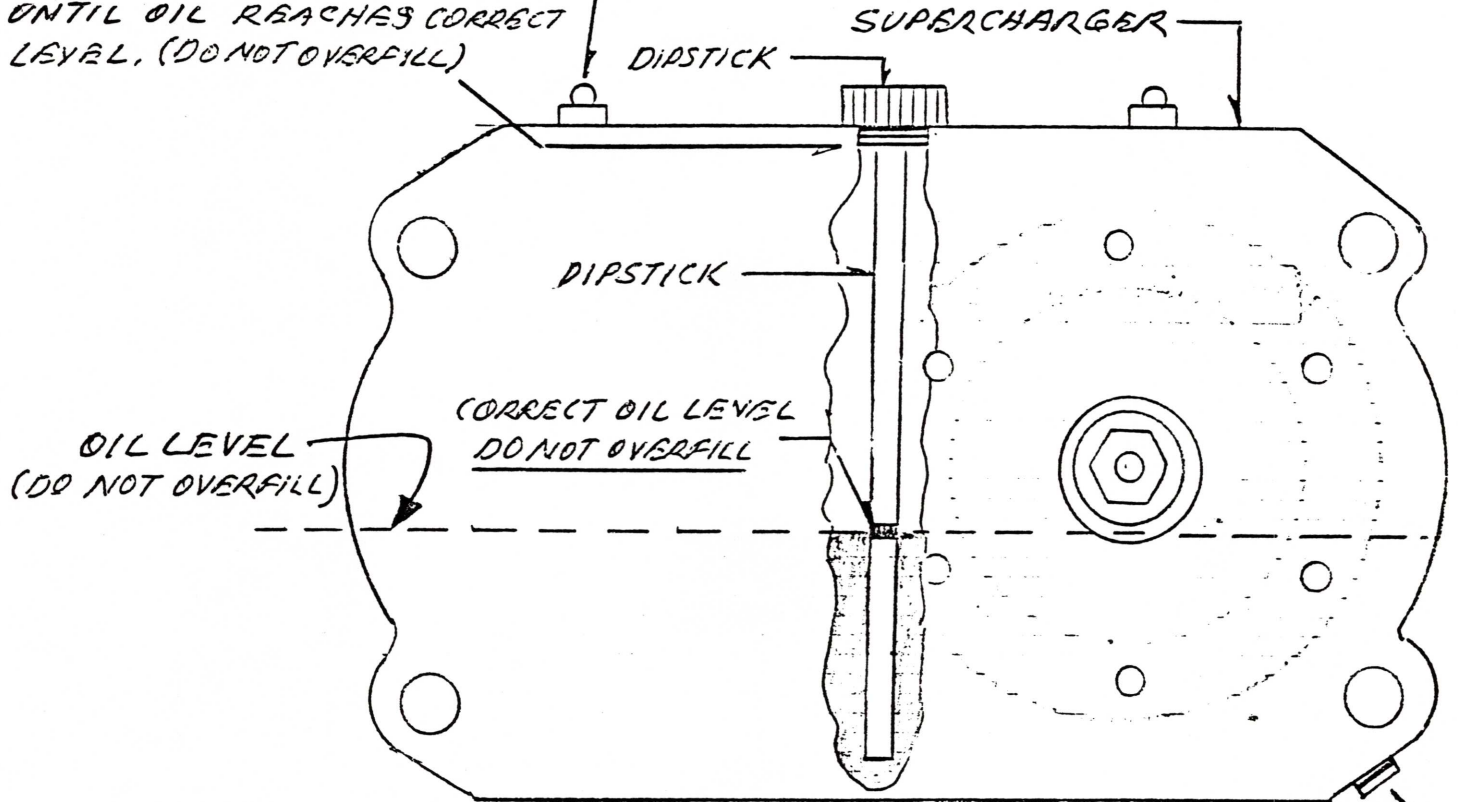
1. Remove cap from grease tube and screw onto the pump connection.
2. Squeeze tube to prime pump. Pump slowly to avoid wasting any grease once pump primes. Pump is primed once the grease begins to flow out the pump.
3. Start the engine and let idle.
4. Place pump over grease fitting, and with engine idling, pump six (6) strokes (squirts) into each fitting. NO MORE for "good measure." 6 strokes. That's all!

GREASE FITTINGS

USE ONLY SPECIAL KENNEBELL GREASE
DO NOT USE ANY OTHER TYPE GREASE
LUBE EVERY 25,000 MILES

FILL PLUG

FILL WITH SMALL FUNNEL
UNTIL OIL REACHES CORRECT
LEVEL. (DO NOT OVERFILL)



DRAIN PLUG

DRAIN OIL WITH A $\frac{1}{4}$ " HOSE
CONNECTED TO A SUCTION GUN
SLIGHTLY JACKING UP RIGHT
SIDE OF CAR WILL GIVE AN
INDICATION OF OIL LEVEL

DO NOT OVERFILL

FIG. 27 SUPERCHARGER OIL LEVEL