

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

Purchased by \_\_\_\_\_

Date of Shipment \_\_\_\_\_

Supercharger Serial Number \_\_\_\_\_

CARB EO #D-271-4

(WITH AC)

1994 MUSTANG 5.0 HO V8

INSTALLATION INSTRUCTIONS & OWNERS MANUAL

**THE KENNE BELL TWIN SCREW WHIPPLECHARGER**

**THE ULTIMATE MUSTANG SUPERCHARGER**

**KENNE BELL**

# INSTRUCTION FIG.S AND ILLUSTRATIONS

To assist you in the installation of the Kenne Bell TS-1000 Kit, we've listed the illustrations for quick reference. We have gone to great lengths to provide you with comprehensive, easy to understand instructions.

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**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 5.0 HO and 5 psi and 8 psi Kenne Bell Supercharger Pulley is used.

Engine RPM above 6000 where factory RPM limiter is removed, voids warranty.

An Extended Six (6) Month Limited Warranty is available. Details will be provided on request.

- Supercharger (Blower) Inlet Manifold - 1/4"
- Supercharger Extension Housing - 5mm
- Supercharger Fill Plug - 3mm
- Supercharger Top and Rear - 6mm
- Supercharger Pulley - 8mm (5/16")
- Adjustable Idler Pulley Inner Nut - 9/16"
- Adjustable Idler Pulley Outer Nut - 1 1/16"

Note:

A special wrench (F3140) is required to remove the supercharger pulley. Allen bolt must be torqued to 60 psi.

F3140 Pulley Tool



**BOLT SIZES**

- Ordinary hand tools
- OTC #7363 or Ford Motorcraft CT-1543-B Fuel Line Disconnect Kit
- Drain pan for coolant
- 1/4" T-Handle Allen Ball Wrench included in kit

**TOOLS REQUIRED**

# KENNE BELL

## INSTALLATION INSTRUCTIONS KENNE BELL TS1000 SUPERCHARGER KIT

### INTRODUCTION

Congratulations. You have just purchased the most technically advanced supercharger kit available for the Ford 5.0 L HO.

The supercharger is the latest design 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 system booster) is activated under boost.

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 TS1000 Supercharger kit is a simple, straight forward installation as compared to other kits. It requires removal of the intake manifold (6 bolts) and the throttle body (4 bolts). hook up the 3 vacuum hoses(location marked) connect the fuel system and install the Supercharger Assembly with the new support brackets. That's all there is to it. All necessary gaskets, bolts, brackets, etc. are included. It is not necessary to relocate the MAF sensor, alternator, air intake box, air pump, fuel line brackets, radiator hose, etc., and 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, taking a mere 2 1/2 hours with a little experience. If installing the system yourself the first time, it will take longer. Take your time.

The TS1000-5 (5 psi) kit and the TS1000-8 (8 psi) kit are both 50 State Legal, and utilize the same supercharger. The TS1000-8 (8 psi) kit includes:

1. Retard Ignition System
  2. 155 L In-Tank Fuel Pump
  3. A smaller pulley
  4. A Pressure Switch (activates retard system)
- The instructions, therefore, apply to both kits.

# KENNE BELL INSTALLATION INSTRUCTIONS

## TS1000-8 KIT (8 PSI)

The TS1000-8 (8psi) Kit is identical to the TS1000-5 (5 psi) except for the following:

1. Crane or Mallory Hy Fire Ignition
2. Crane or Mallory Retard Unit
3. Pressure Switch (mounted in outlet (blower) manifold)
4. 155L/HR In-Tank Fuel Pump

### BASIC OPERATION

At approximately 3-4 psi, the pressure switch opens and sends a signal to the Mallory Retard Unit. If any retard is dialed in on the unit, the timing is immediately retarded that amount (1-15) under boost. If there is no evidence of detonation, do not dial in any retard as it will reduce performance.

Note: Since the boost of the Kenne Bell Kit is full boost at any RPM above 2000, and not a progressive boost build up that is dependent on RPM (1 psi at 1000, 2 psi at 2000, 3 psi at 3000, 4 psi at 5000, etc.) we need not concern ourselves with degrees of retard per 1000 RPM as others do. Merely dial in the retard the engine requires under boost and that's it.

### 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. The stock panel filter is OK IF a ram air hose is not connected to it. When using a ram air kit with these panel filters, a high quality Kenne Bell filter, (our own filter - not a K & N or K & N brand) filter MUST be used.
- The Kenne Bell Ram Air Kit with 9" Big Boy" cone filter minimizes restriction, protects the engine and supercharger, and increases horsepower.

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.

# KENNE BELL

## INSTALLATION INSTRUCTIONS

### TS1000 SUPERCHARGER FORD MUSTANG 5.0 1994-95

1. Remove ground strap on rear corner passenger side and underhood insulation panel to provide clearance for supercharger.
2. Remove strut brace. Cobra cars do not have a strut brace. The body structure of these '94-96 cars is such that the brace is not needed.
3. Drain coolant.
4. Unplug intake air temperature sensor (#11). Remove air cleaner outlet tube (#3) and crankcase ventilation tube (#3 and #4) from throttle body (#1) and set aside.
5. Remove EGR feed pipe (connected to bottom of EGR valve) and then the EGR valve (Fig.2)
6. Remove throttle cable bracket (behind EGR) from manifold. (Fig.2)
7. Remove throttle body and set aside. Do not remove from car. (Fig. 2)
8. Disconnect vacuum source line, red plastic line, and regulator line from stock steel manifold tee. (Fig. 3)
9. Remove manifold with PCV lines (they remain on stock manifold.) PCV will pop out with the lines. (Fig.5)
10. Remove PCV from lines and re-install it NOW. It's more difficult to install once the supercharger is installed.
11. Remove idler pulley and belt. They will not be used. (See Fig.6 white arrow)
12. Remove coil and coil wire. Save the 2 bolts. Stock coil wire will not be used. (See Fig. 6 black arrows)
13. Remove thermostat housing and gasket and replace with new housing using 5/16" x 1" bolts, 5/16" washers and new gasket. (See Fig.6 black arrow)
14. Remove left rear (driver's side) manifold bolt and save it. Rear supercharger support bracket will fasten here.
15. Install rear supercharger support bracket on Supercharger. Leave hand tight. (Fig.7)
16. Install new lower manifold gasket with Gasgacinch. Gasket must be secure as supercharger must "slide" under fuel pressure regulator.
17. Pull and bend AC line outward toward driver's side for supercharger clearance. Dipstick tube will move with AC line, then bend stock dipstick tube for 1/4" clearance from AC line. (Fig.9)
18. NOTE: FIRST RELIEVE PRESSURE ON FUEL RAIL TO PREVENT FIRE HAZARD (Fig.11) Disconnect the return fuel line-the one highest on the fuel rail-Fig.10 white arrow, at the push lock fitting using an OTC #7363 or Motorcraft #CT-1543-B Fuel Line Disconnect Kit. Any parts store has them. Leave connection loose for now. Note: This must be done BEFORE installing the supercharger as the line cannot be separated once the supercharger is installed. (Fig.10 & Fig.11)
19. Install supercharger assembly with rear support bracket fastened and slide onto stock manifold from driver's side. Note: Cobra manifolds are wider and require the notched supercharger manifold slide under the fuel pressure regulator. (See black arrow, Fig.8) Note: We recommend using a light coat of anti-seize (Permatex #133 K or equal) moly cam lube, or even oil, on all threaded connections to prevent the threads seizing.
20. Holding Supercharger flat on the manifold, install the longest of the 6 manifold bolts in the middle passenger side manifold hole hand tight. This holds the supercharger up and parallel.

21. Install the shortest of the 6 manifold bolts in the middle driver's side manifold hole. Install the remaining 4 of the manifold bolts and tighten with the T-handle 6mm wrench supplied in the kit.
22. IMPORTANT- THE SUPPORT BRACKET HOLES ARE OVERSIZED SO ANY STRESS ON THE SUPERCHARGER DRIVE IS ELIMINATED. WHEN TIGHTENING THESE BOLTS, BE SURE THEY ARE ALIGNED AND PARALLEL. (Fig.12)
- Slightly loosen and slide front support bracket along the supercharger drive and line up CAREFULLY with the two original coil mounting holes, install the two 5/16" bolts and washers and hand tighten, being sure bracket is flush against the coil bracket. Then tighten allen screw in support bracket. Finally tighten the two 5/16" bracket bolts.
24. Fasten rear support bracket to header bolt. (Fig.7) This is only a support bracket, so be sure the bracket holes line up and it is not binding on the supercharger. Non-stock headers will require the bracket lower hole be modified to fit.]
25. Tighten rear support bracket to the supercharger.
26. Install GT40 throttle body adaptor, using gasket provided with two 5/16"x1" bolts and washers on top and two studs on bottom.(Fig.13)
- Note: Kenne Bell inlet manifolds are designed to accept 70mm and smaller throttle bodies.
27. Re-install throttle body with new gasket provided.
28. Re-install throttle linkage bracket to the GT40 throttle body adaptor.
29. Re-install EGR tube to GT40 throttle body adaptor. Note: There may be some misalignment from bending the EGR tube. Be careful not to cross thread.
30. Install vacuum line assembly (shown in black, Fig.4) and connect to 1. red plastic line (Y fitting) 2. fuel pressure regulator line (Y fitting) and 3. evap. canister line (tee fitting) and then connect to inlet manifold.
- Note: Route the vacuum line assembly down and under the inlet manifold.
31. Connect 11/32" x 11" vacuum tree line to existing 11/32" line from "S" on vacuum tree with coupler supplied. (Fig.4)
- Note: Route line back under inlet manifold toward firewall and connect to existing line.
32. Connect 11/32" x 16" line to PCV. (Fig.4)
- Note: Route line back under inlet manifold.
33. Remove two nuts from studs on front driver's side manifold and discard the "engine removal" bracket.
34. Install coil mounting bracket on this front stud with nut and bracket notch toward front of car. (Fig.14)
35. Install coil on bracket with original coil bracket bolts and install new coil wire supplied. Route under supercharger drive. (Fig.14 white arrow)
36. Install belt starting at the supercharger pulley and follow the arrows from "start" to "finish" ending up back at the supercharger pulley with a loop. (Fig.15)
- To loop the belt over the supercharger pulley, insert a 3/8" breaker bar into the square hole on the drive belt tensioner and turn clockwise (toward driver's side) to loosen tension. (Fig.16)
- Note: Always try to keep belt adjusted to "minimum" (new) drive belt length (see View A, Fig.16)
- Adjustments can be made (belt tightened) by rotating the eccentric idler pulley on the supercharger bracket and/or by moving idler pulley to the driver's side hole. This pulley is factory installed in the passenger side hole.

37. Mount fuel management booster (FMB) between passenger side firewall and shock tower, mark mounting holes, drill two 1/8" holes and fasten with 10 - 32"x 1/2" self tapping screws. Run screw into hole first to establish threads. (Fig.17)  
 Note: There are 2 fuel lines, a supply line from the gas 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 line to the top of the FSB, closes the FSB, thereby shutting off any return flow of fuel to the tank. This increases fuel pressure and forces more fuel out the injectors.
38. As per previous instruction, the return line has been disconnected.  
 A. Connect the fuel line with the male end to the female fuel rail connection, then connect this line to the side of the FSB. (Fig.17 and Fig.4)  
 B. Connect the fuel line with the female end to the male fuel rail connection (fuel tank return) then connect this line to the bottom (center) of the FSB. (Fig.17 and FIG.4)  
 39. IMPORTANT: Install the safety clips (Fig.11) over both.  
 40. Connect 5/32" boost line from top of FSB to supercharger discharge manifold. (Fig.4,17)
41. 1. Cut radiator hose 7 1/2" from thermostat housing end. (Fig.18)  
 2. Slip on clamps  
 3. Connect 7 1/2" end to thermostat housing  
 4. Insert coupling and tighten clamps being sure to rotate adjusting screws to achieve maximum clearance between belt and screws.
42. Install loom clamp (Fig.18) around hose and pull radiator hose away from belt so there is about 1" clearance. Mark hole. The overflow tank is very close to the surface where the hole is drilled.  
 IMPORTANT: Wrap a piece of tape around drill bit several times, 1/8" from the end of bit, then drill hole and install the screw.
43. Re-connect all wires, sensors, etc.  
 44. *Cobra cars only utilize an oil cooler with a pair of steel lines that interfere with the belt. (Fig.19) These lines are replaced with new high pressure hoses that will be routed for increased belt clearance. (Fig.19)*  
 A. Remove only the steel lines from the car. Leave the four rubber hose connectors on the car.  
 B. Using the 3/8" x 5/8" reducer couplings, (white arrows Fig.19) install the two new hoses with clamps routing both hoses in place of and in same location as original steel lines.  
 C. Install the loom clamp (the one with the 3/8" mounting hole) onto the stud (see white arrow) that held the original steel lines. Note: Adjust the hoses for maximum clearance with the belt.
45. The plastic hood support must be notched slightly to clear the supercharger. Cut out area as shown with die grinder. (Fig.20)  
 46. 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 or equal.)  
 DO NOT OVERFILL.
47. Re-fill engine with coolant.
48. CAUTION: turn on engine ignition key, but DO NOT START ENGINE. CHECK FOR FUEL LEAKS at all O-ring connection and the fuel system booster lines.



49. Start the engine and again check carefully for ANY fuel leaks.  
50. You're ready to go! Experience the whisper quiet instant full boost, torque and unsurpassed horsepower of the Kenne Bell Supercharger.

5 PSI KIT

Boost should be 5-6 psi with no detonation at WOT.

8 PSI KIT

Boost should be 8 psi with no detonation.

Note: If detonation exists GET OUT OF IT. It doesn't take long to damage a gasket OR the engine!

1. Retard Timing

2. Increase fuel octane (104 octane booster, toluene or unleaded 100, etc.)

3. Decrease boost with pulley

If "knocking" or "pinging" occurs, refer to "Troubleshooting Tips," or call Kenne Bell Tech line, (909) 941-0985, or fax (909) 944-4883.

MALLORY IGNITION RETARD SYSTEM

51. Install ignition system as per instructions (Fig.21) Ignition box may be installed under the front seat (preferred) or in place of the battery (if truck mounted.)

CRANE IGNITION RETARD SYSTEM (94'95 MUSTANG ONLY)

51. The Crane Ignition System was designed to mount to the top of the fuse box. (Fig.21B) It can also be mounted under the front seat or in place of the battery (if truck mounted.)

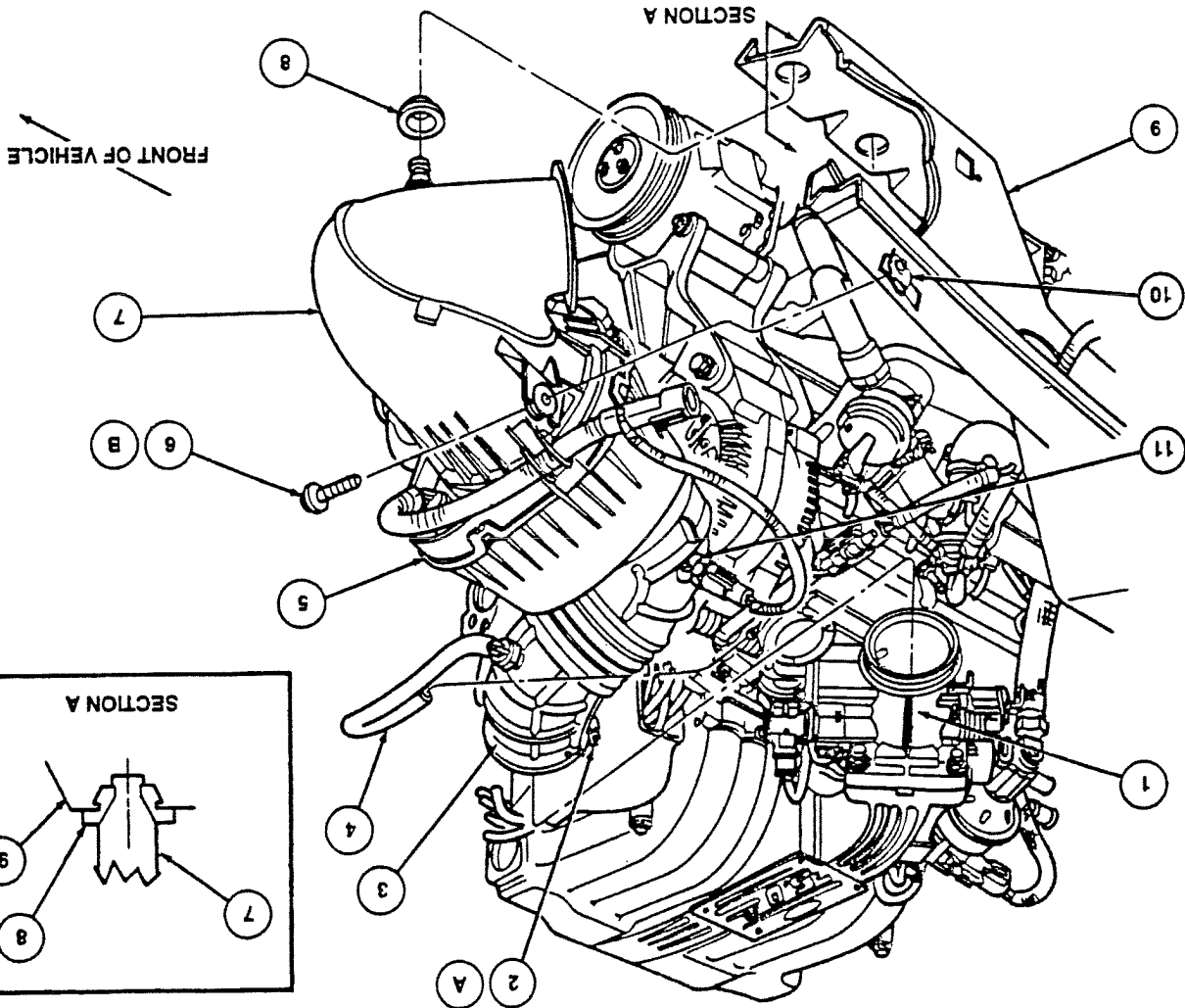
FIG. 1 INTAKE SYSTEM

REMOVAL AND INSTALLATION

5.0L Engine Shown

Item	Part Number	Description
1	9E926	Throttle Body
2A	9C632	Engine Air Cleaner Tube
3	9B659	Air Cleaner Outlet Tube
4	6758	Crankcase Ventilation Tube
5	12B579	Mass Airflow Sensor
6B	N602731-S100	Bolt
7	9A600	Engine Air Tray
8	9P686	Engine Air Cleaner Support Insulator (2 Req'd)

Item	Part Number	Description
9	16055	Front Fender Apron
10	N62333-S56	U-Nut
11	12A697	Intake Air Temperature Sensor
A		Tighten to 2.3-3.2 N.m (20-28 Lb-in)
B		Tighten to 6.8-9.2 N.m (60-81 Lb-in)



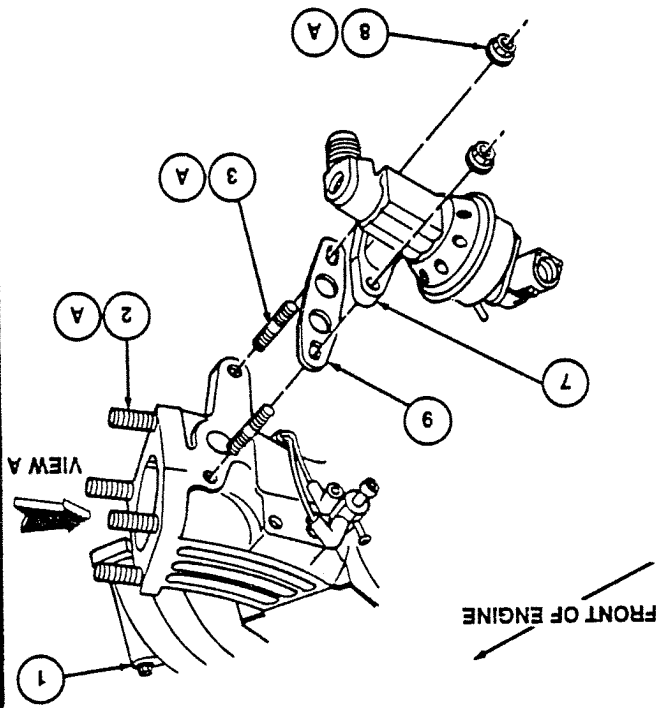
**REMOVAL AND INSTALLATION (Continued)**

**Throttle Body**

**Removal**

1. Remove air cleaner outlet tube (9B659) from throttle body (9E926).
2. Disconnect accelerator cable (9A758) at the throttle lever.
3. Disconnect fuel charging wiring connectors from the throttle position sensor (TP sensor)(9B989) and idle air control valve (IAC valve)(9F715).
4. Remove four throttle body retaining nuts.
5. Carefully separate throttle body from upper intake manifold (9424).
6. Remove and discard throttle body gasket.

Cobra Shown, Mustang Similar



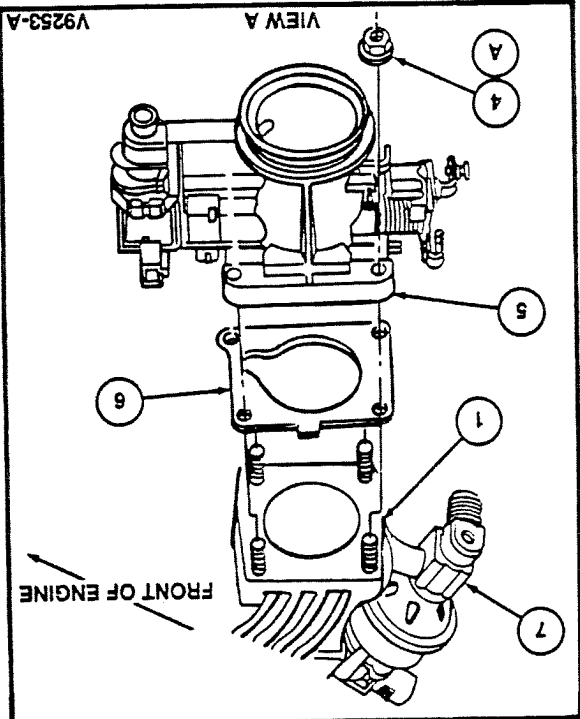
Item	Part Number	Description
1	9424	Upper Intake Manifold
2A	390591-S8	Stud (4 Req'd)
3A	391213	Stud (2 Req'd)
4A	45357	Nut (4 Req'd)
5	9E926	Throttle Body

(Continued)

**FIG. 2 EGR VALVE**

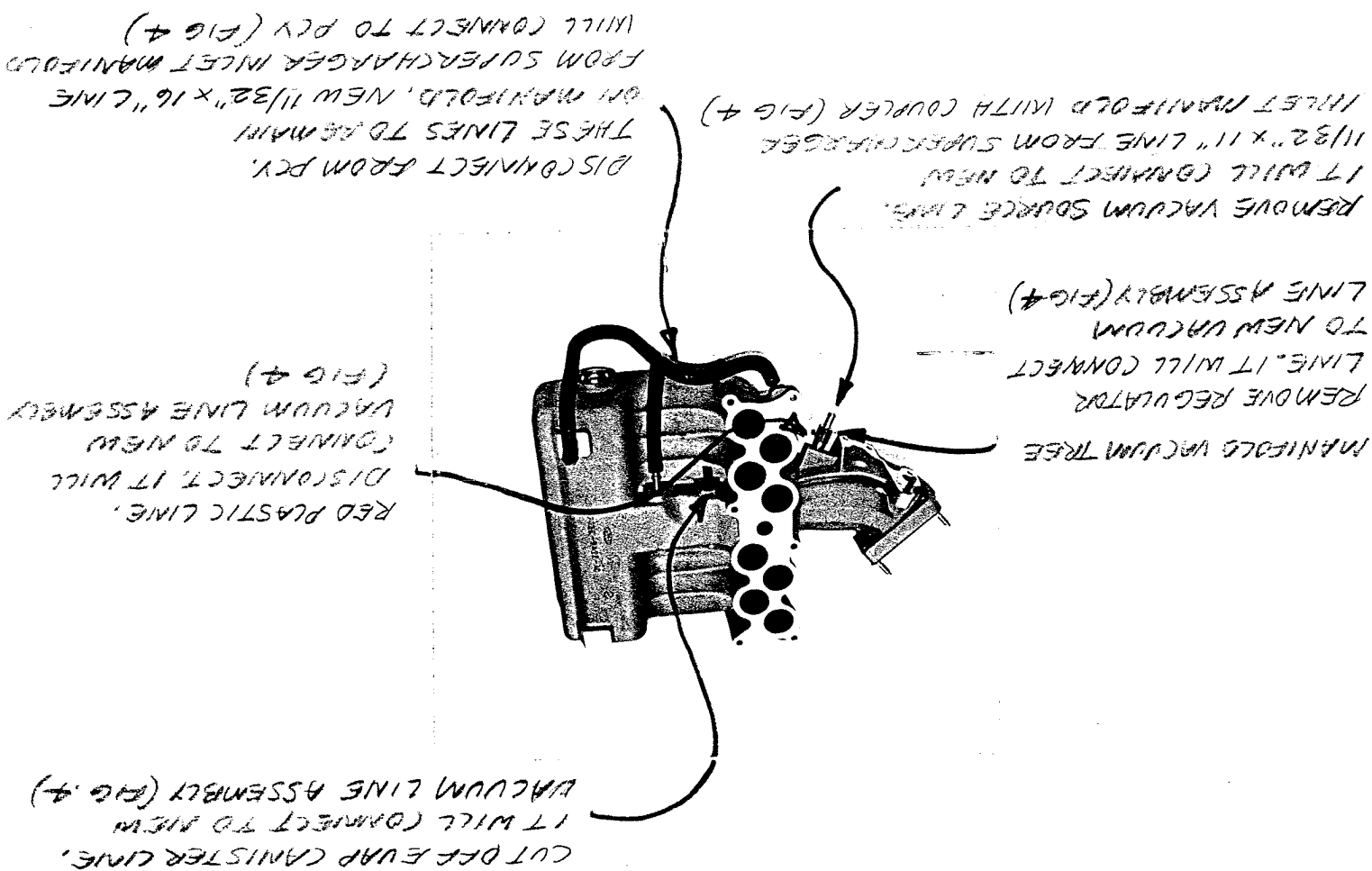
**Installation**

- NOTE: If scraping is necessary, be careful not to damage gasket surfaces or allow material to drop into intake manifolds.
1. Clean throttle body gasket mating surfaces.
  2. Install throttle body with new throttle body gasket on the four studs on upper intake manifold.
  3. Tighten retaining nuts to 16-24 N·m (12-18 lb-ft).
  4. Connect fuel charging wiring (9D930) to throttle position sensor and idle air control valve.
  5. Connect accelerator cable to throttle body.
  6. Install air cleaner outlet tube as outlined in Section 03-12.

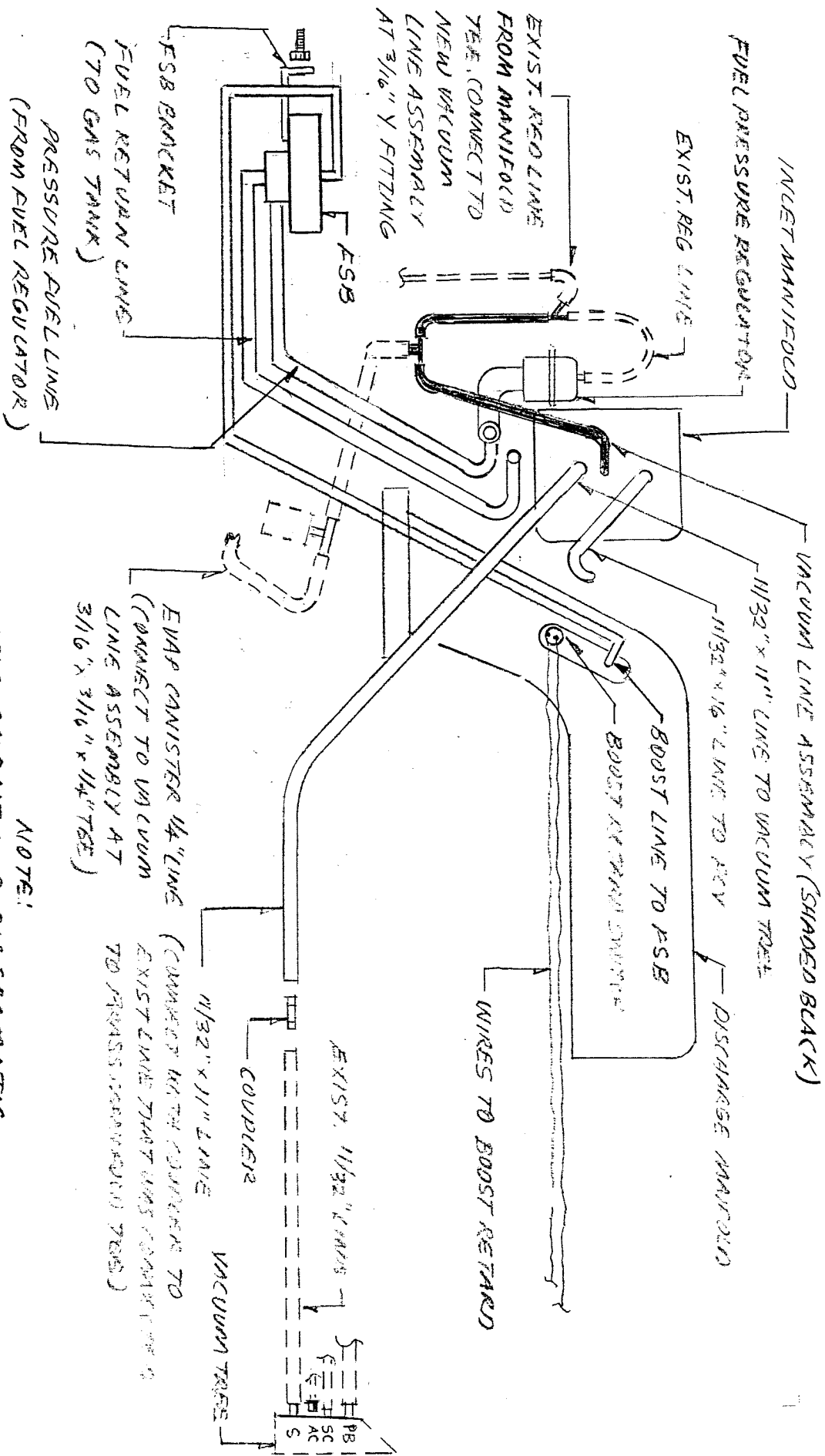


Item	Part Number	Description
6	9E936	Throttle Body Gasket
7	9D475	EGR Valve
8A	376838	Nut (2 Req'd)
9	9D476	EGR Valve Gasket
A		Tighten to 16-24 N·m (12-18 Lb-Ft)

FIG. 3 VACUUM LINES (STOCK MANIFOLD)



**FIG. 4 LINE SCHEMATIC (VACUUM, BOOST, ETC.)**

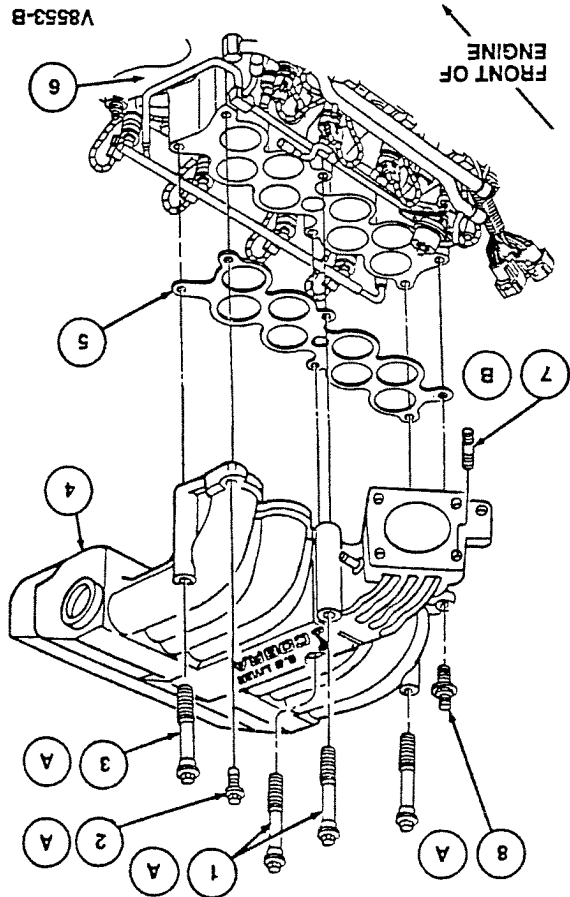


**NOTE:**

THIS SCHEMATIC IS DIAGRAMATIC.  
SEE INSTRUCTIONS FOR ACTUAL ROUTING  
OF LINES.

**FIG. 5 STOCK MANIFOLD**

Item	Part Number	Description
1A	39 1448	Bolt (2 Req'd)
2A	390358	Bolt
3A	390653	Bolt (2 Req'd)
4	9424	Upper Intake Manifold
5	9H486	Intake Manifold Upper
6	9424	Lower Intake Manifold
7B	39 1454	Stud (4 Req'd)
8A	390589	Stud Bolt
A		Tighten to 16-24 N.m (12-18 Lb-ft)
B		Tighten to 2.7-5.4 N.m (2-4 Lb-ft)

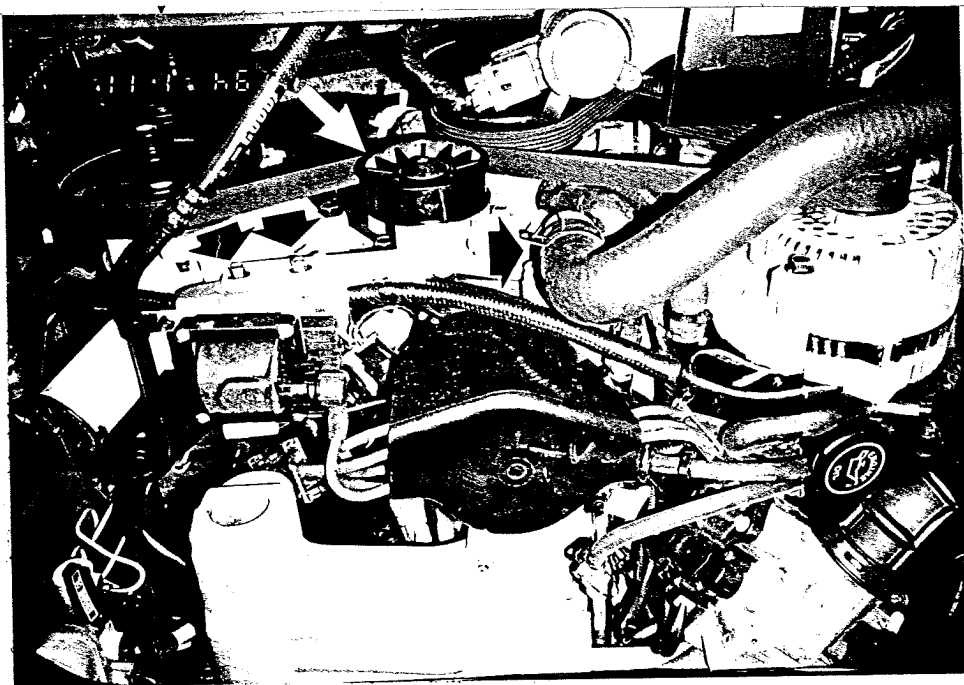


Cobra

**WARNING: RELIEVE FUEL LINE PRESSURE BEFORE DISASSEMBLING CONNECTIONS, DISCONNECT AND CAP FUEL SUPPLY AND RETURN LINES. REFER TO SECTION 03-13 FOR PROCEDURES.**

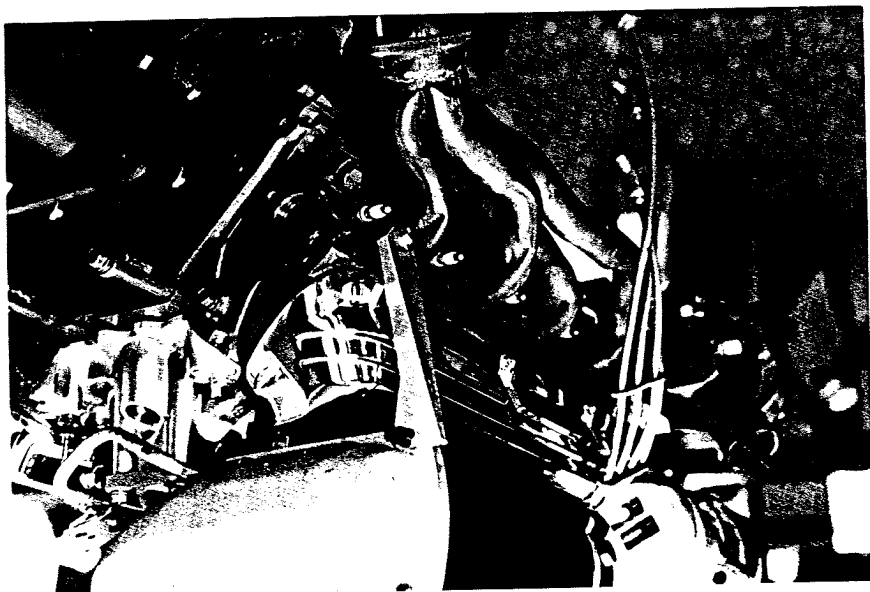
- Removal**
1. Drain the engine cooling system.
  2. Remove upper intake manifold as outlined.

FIG. 6 STOCK IDLER PULLEY AND BELT



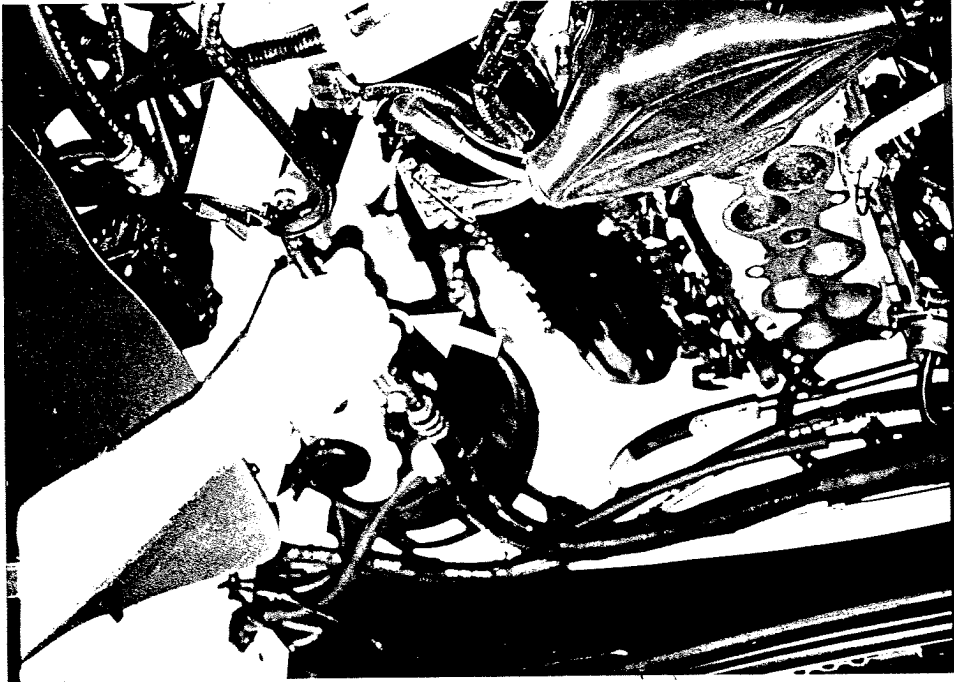
**FIG. 7 REAR BRACKET MOUNT (SUPERCHARGER)**

1. BOLT UPPER PART OF BRACKET TO THE LOWER LEFT OF THE INLET MANIFOLD, HAND TIGHT, AS SHOWN
- NOTE: BOLT THIS BRACKET ON FIRST.
- LEAVE LOWER INLET MANIFOLD BRACKET BOLT LOOSE.
2. BOLT LOWER PART OF BRACKET TO REAR HEADER BOLT.
- NOTE: BRACKET MAY HAVE TO BE MODIFIED FOR NON-STOCK HEADERS AS THE FLANGE AND BOLT ARRANGEMENT AND LOCATION VARY.

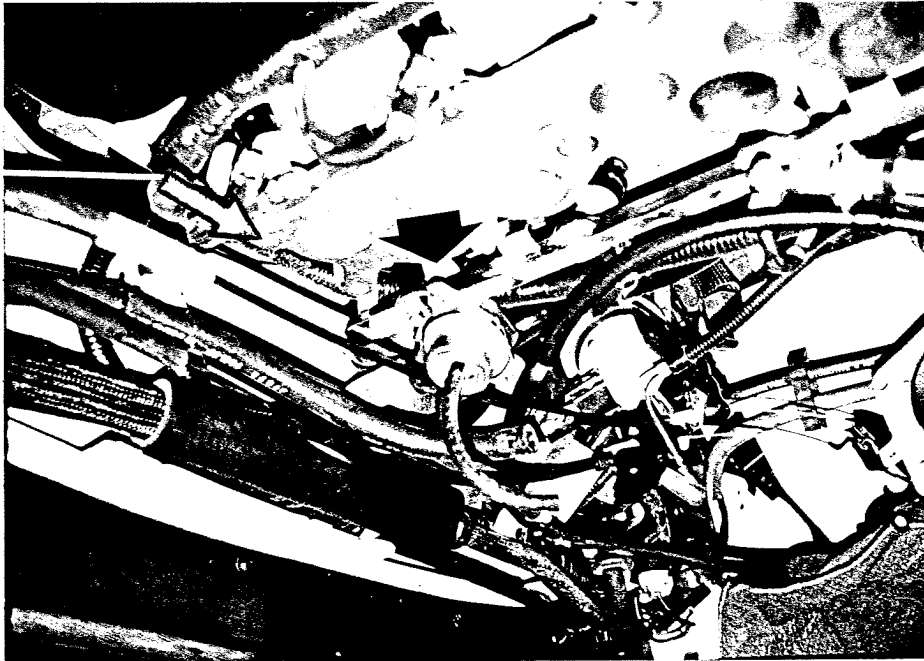




**FIG. 9 AC LINE AND OIL DIPSTICK**



**FIG. 8 SUPERCHARGER INSTALL ON MANIFOLD**

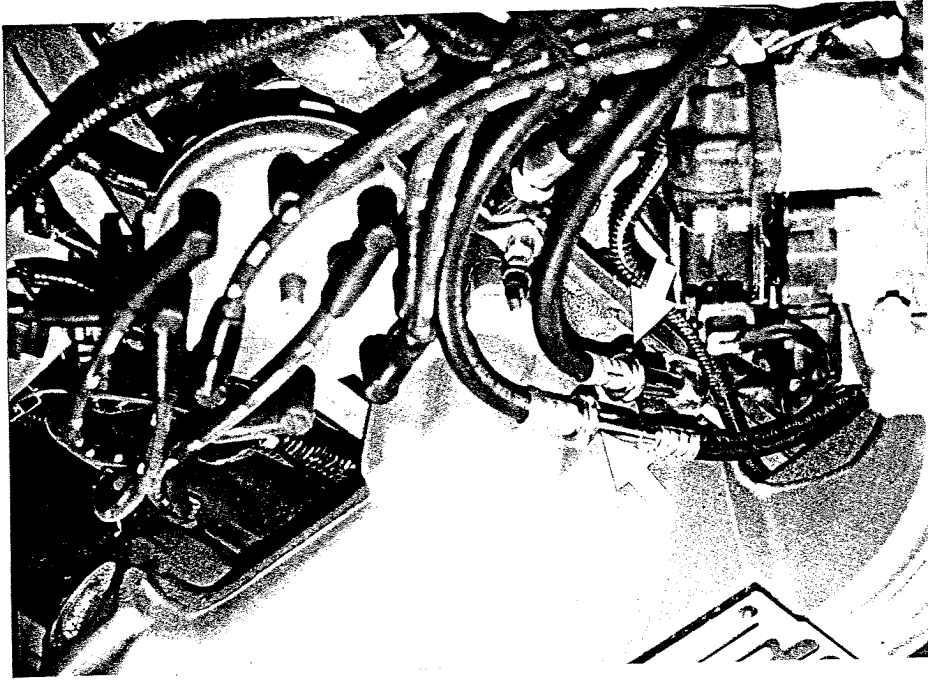


INSTALL STUD IN THIS  
LOCATION

17  
**FIG. 10 FUEL LINE DISCONNECT**

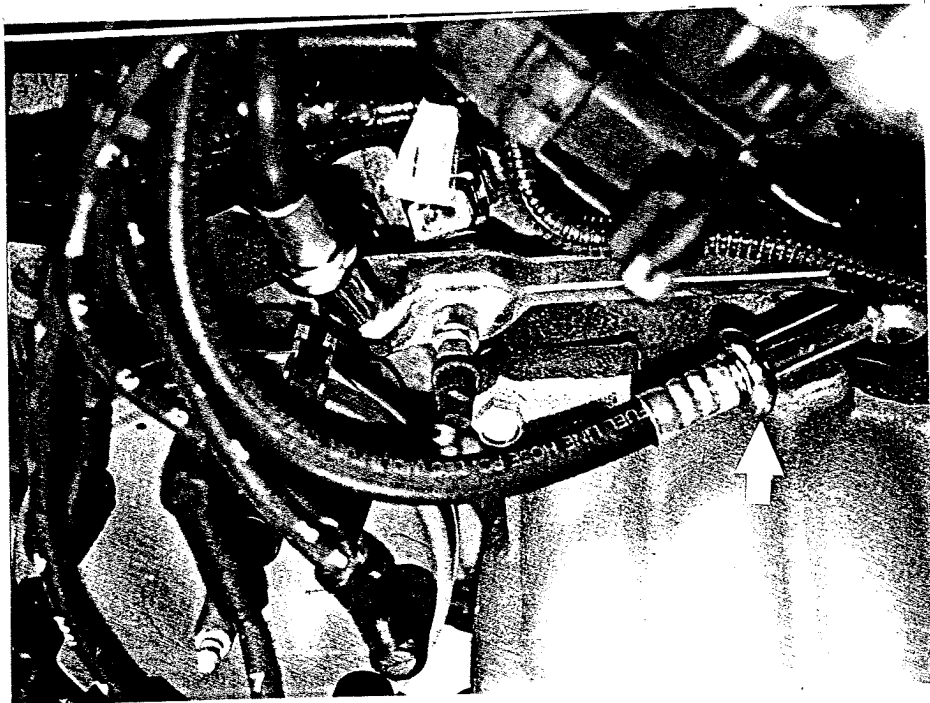
RETURN FUEL LINE AFTER DISASSEMBLY.  
RECONNECT LINES AS SHOWN BY ARROWS

AFTER

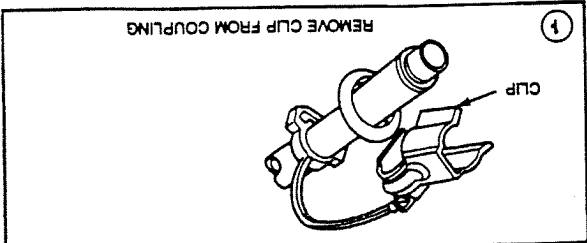


RETURN FUEL LINE BEFORE DISASSEMBLY.  
DISCONNECT LINE SHOWN BY ARROW.

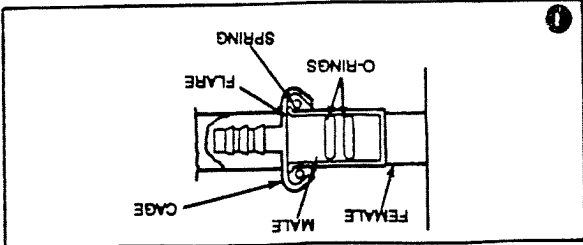
BEFORE



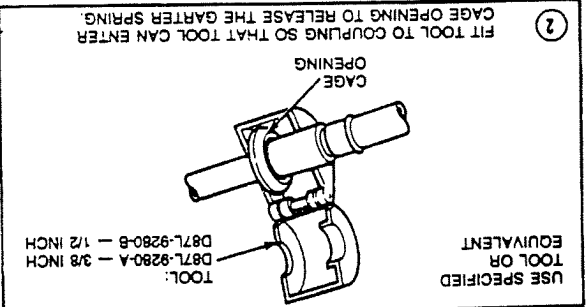
**TO DISCONNECT COUPLING**  
CAUTION — RELIEVE FUEL PRESSURE BEFORE DISCONNECTING COUPLING



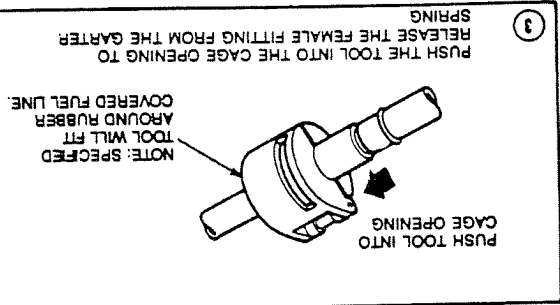
REMOVE CLIP FROM COUPLING



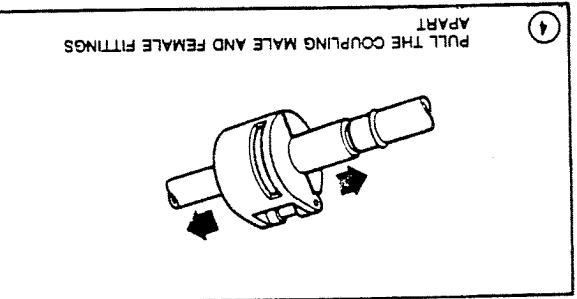
**TO CONNECT COUPLING**



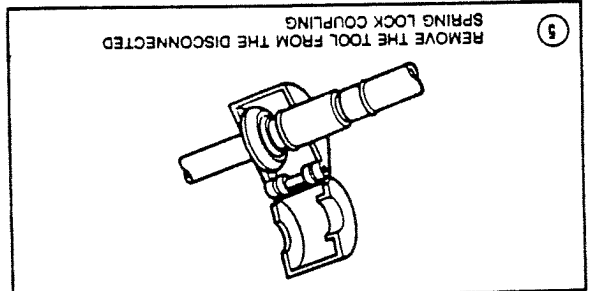
FIT TOOL TO COUPLING SO THAT TOOL CAN ENTER CAGE OPENING TO RELEASE THE GARTER SPRING



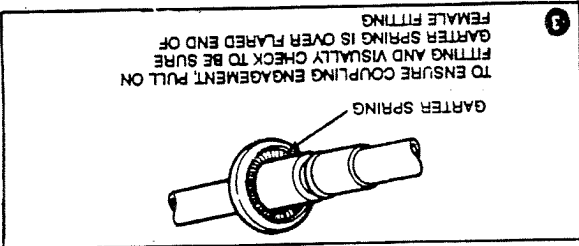
PUSH THE TOOL INTO THE CAGE OPENING TO RELEASE THE FEMALE FITTING FROM THE GARTER SPRING



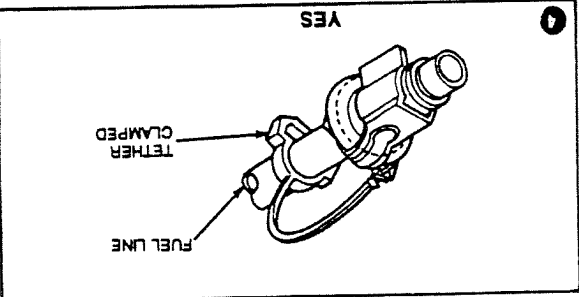
PULL THE COUPLING MALE AND FEMALE FITTINGS APART



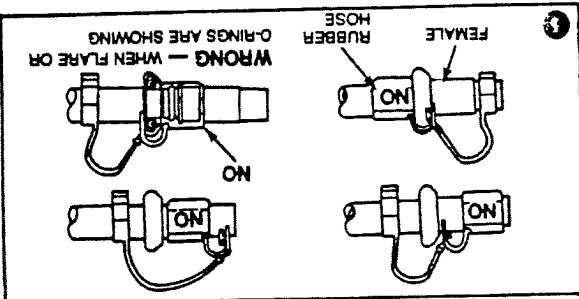
REMOVE LOCK COUPLING SPRING FROM THE DISCONNECTED



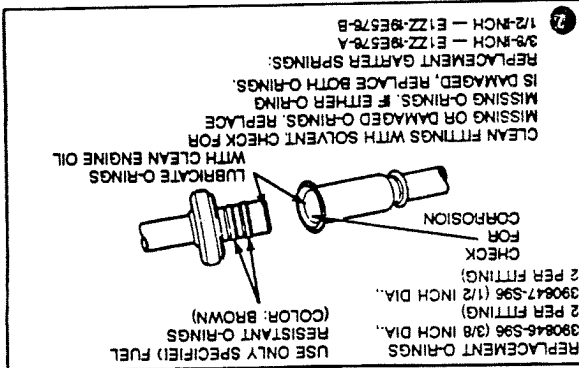
TO ENSURE COUPLING ENGAGEMENT, PULL ON FITTING AND VISUALLY CHECK TO BE SURE GARTER SPRING IS OVER FLARED END OF FEMALE FITTING



YES

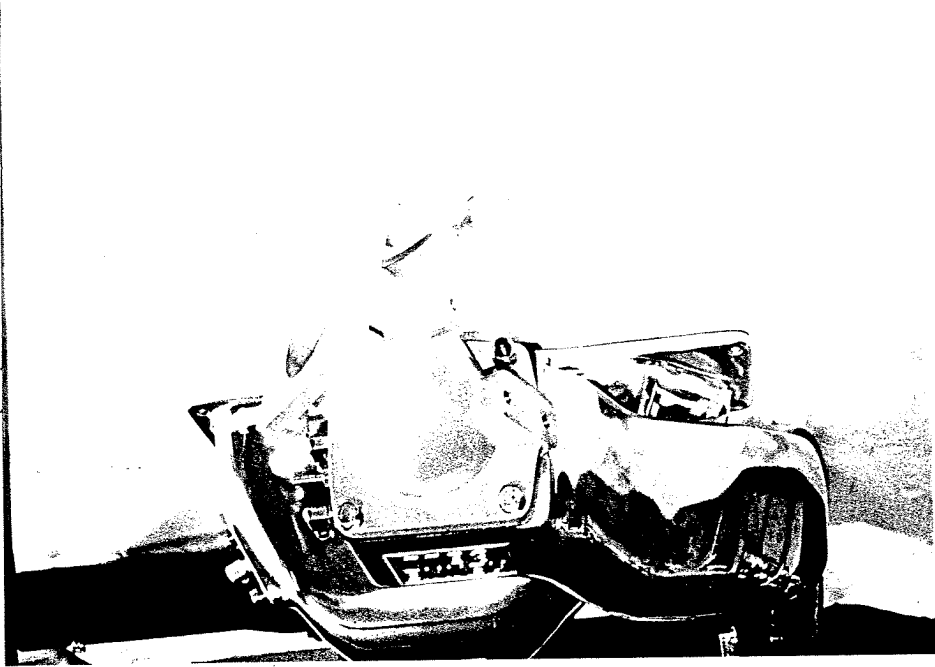


WRONG — WHEN FLARE OR O-RINGS ARE SHOWING

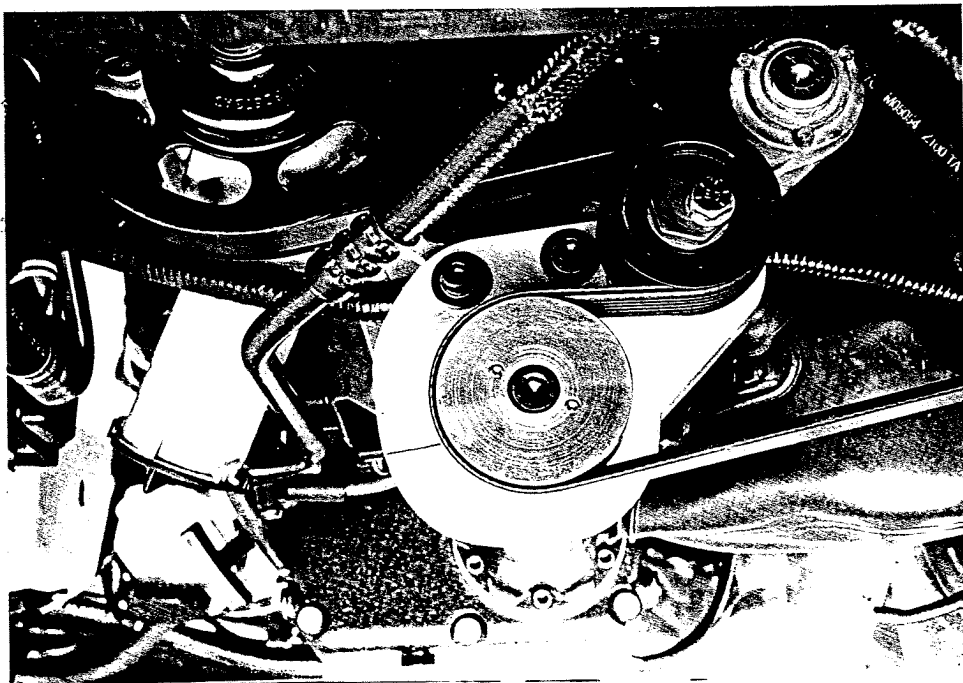


REPLACEMENT O-RINGS  
CHECK FOR CORROSION  
LUBRICATE O-RINGS WITH CLEAN ENGINE OIL  
CLEAN FITTINGS WITH SOLVENT CHECK FOR MISSING OR DAMAGED O-RINGS. REPLACE MISSING O-RINGS. IF EITHER O-RING IS DAMAGED, REPLACE BOTH O-RINGS.  
REPLACEMENT GARTER SPRINGS:  
3/8-INCH — E1ZZ-9B578-A  
1/2-INCH — E1ZZ-9B578-B  
390A4-S96 (3/8 INCH DIA., RESISTANT O-RINGS (COLOR: BROWN))  
2 PER FITTING  
390A47-S96 (1/2 INCH DIA., 2 PER FITTING)  
CHECK FOR CORROSION  
LUBRICATE O-RINGS WITH CLEAN ENGINE OIL  
CLEAN FITTINGS WITH SOLVENT CHECK FOR MISSING OR DAMAGED O-RINGS. REPLACE MISSING O-RINGS. IF EITHER O-RING IS DAMAGED, REPLACE BOTH O-RINGS.  
REPLACEMENT GARTER SPRINGS:  
3/8-INCH — E1ZZ-9B578-A  
1/2-INCH — E1ZZ-9B578-B

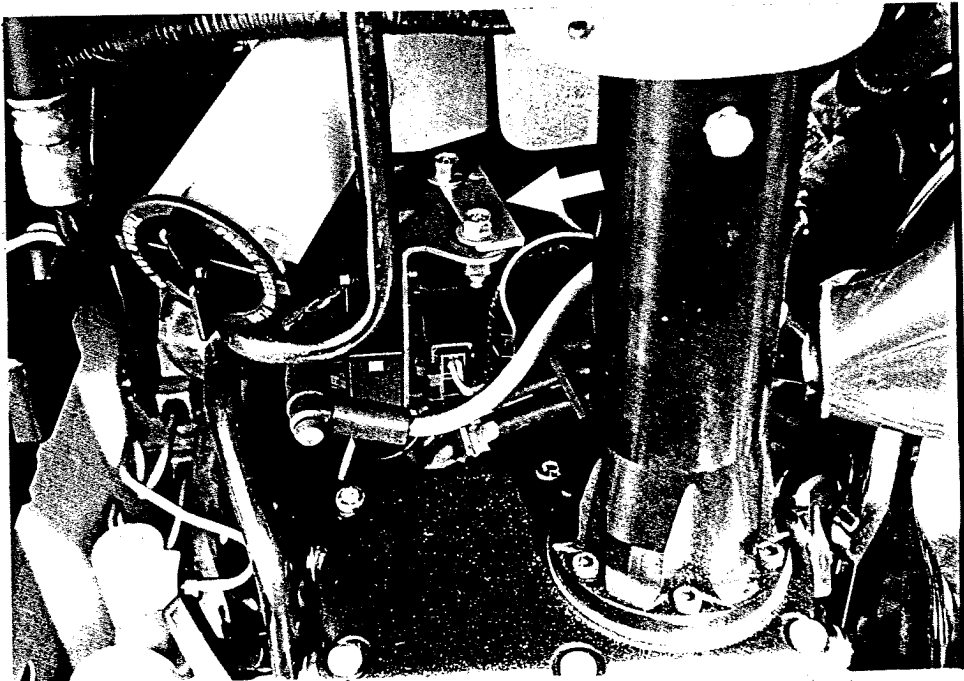
**FIG. 13 G140 THROTTLE BODY ADAPTOR**



**FIG. 12 FRONT SUPPORT BRACKET**



**FIG. 14 COIL MOUNTING BRACKET**



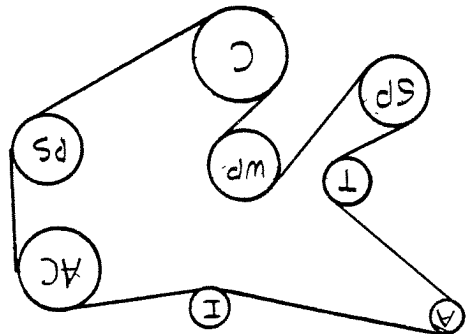
# FIG. 15 BELT ROUTING

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

## BELT INSTALLATION (KENNE BELL WITH AC)

- 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

STOCK WITH AC



KENNE BELL WITH AC

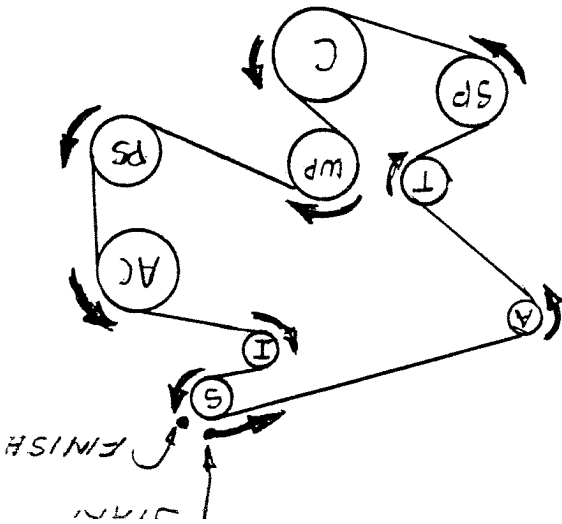


FIG. 16 BELT TENSION AND DIAGNOSIS

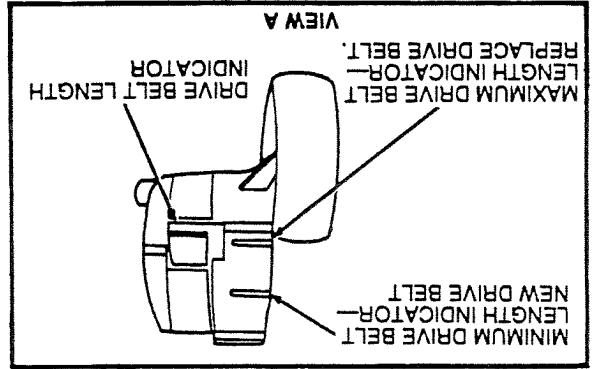
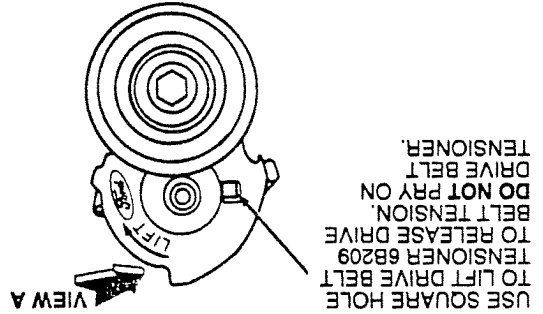
REMOVAL AND INSTALLATION

To remove a drive belt, rotate the drive belt tensioner away from the drive belt.

ADJUSTMENTS

**Drive Belt Tension Adjustment**  
 Serpentine Drive Belt  
 Drive belts (8620) have automatic drive belt tensioners (8B209) and do not require adjustments.  
**Drive Belt Tensioner, Automatic**  
 Check indicator marks on drive belt tensioner. If mark is not between indicator lines, drive belt is worn or incorrect drive belt is installed. Replace drive belt as outlined.  
 Automatic drive belt tensioners are spring loaded devices which set and maintain the drive belt tension. The drive belt does not require tension adjustment for the life of the drive belt. Automatic drive belt tensioners have wear indicator marks. If the drive belt length indicator mark is not above the one percent drive belt strength indicator, the drive belt is worn or an incorrect drive belt has been installed. Replace drive belt as outlined.

Drive Belt Wear Indicator Marks



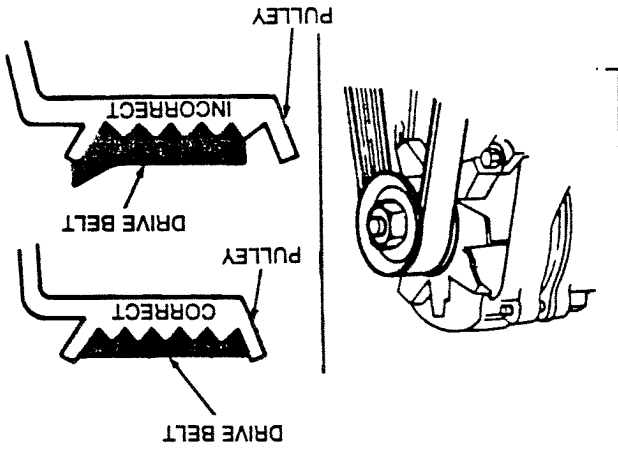
DIAGNOSIS

1. With the engine running, observe drive belt tensioner movement. The drive belt tensioner should move (respond) when the A/C compressor cycles or when the engine is accelerated rapidly. If the drive belt tensioner movement is constant and excessive, a pulley or shaft is probably bent or a pulley is out of round. In rare cases, excessive drive belt rideout (uneven depth of grooves in drive belt (8620)) can cause excessive drive belt tensioner movement. This condition can be checked by replacing the suspect drive belt with a known good original equipment drive belt and repeating the observation.
2. With engine off, check for proper drive belt routing. Refer to the illustrations under Removal and Installation. Service as required.
3. Visually inspect the drive belt tensioner wear indicator as outlined, to ensure the drive belt is within operating range. Replace the drive belt as required.
4. Rotate the drive belt tensioner and check for a binding or frozen condition. Replace drive belt tensioner as required.

REMOVAL AND INSTALLATION

Drive Belt Replacement  
 Drive Belt, Serpentine

**CAUTION: Ensure belt is properly installed before starting engine, otherwise belt damage will occur.**  
 Conditions requiring drive belt replacement are excessive wear, rib chunk-out, severe glazing, frayed cords, etc. Replace any drive belt (8620) exhibiting one of these conditions.  
**NOTE: Minor cracks in the V-grooved portion of the drive belt are considered normal and acceptable. If the drive belt has chunks missing from the ribs it should be replaced.**  
**NOTE: When installing drive belts on pulley, ensure that all V-grooves make proper contact with pulleys. Removal and installation**  
**CAUTION: Do not allow drive belt tensioner (8B209) to snap back, as damage to drive belt tensioner could result.**



**FIG. 17 FUEL MANAGEMENT BOOSTER (FSB)**

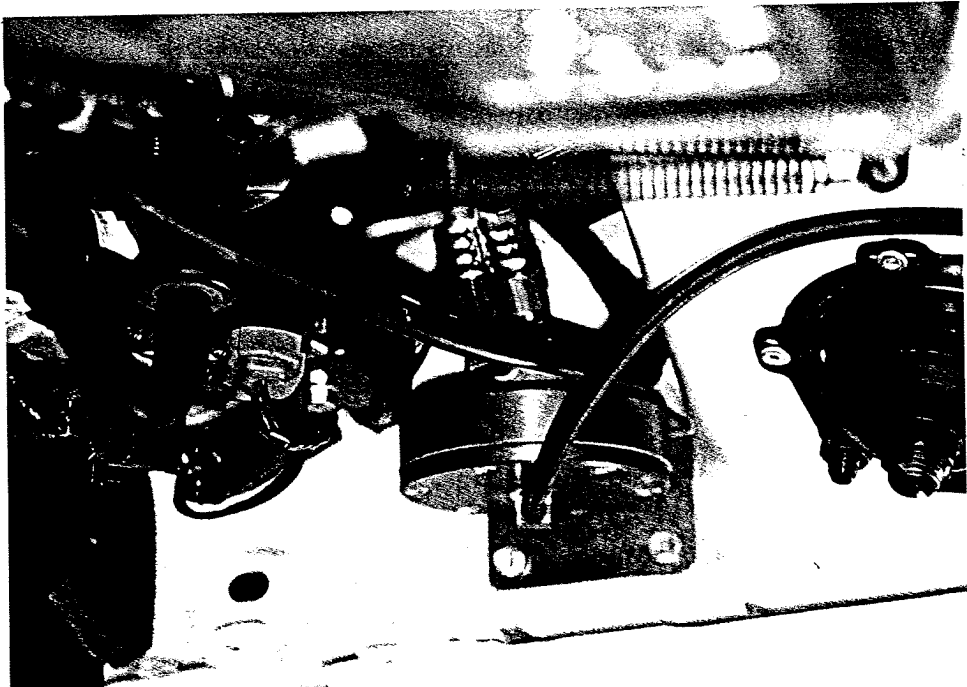
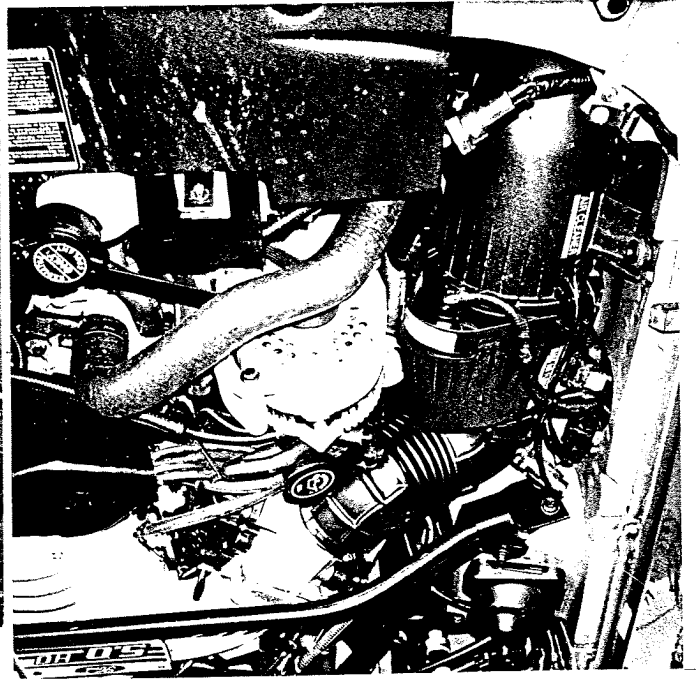




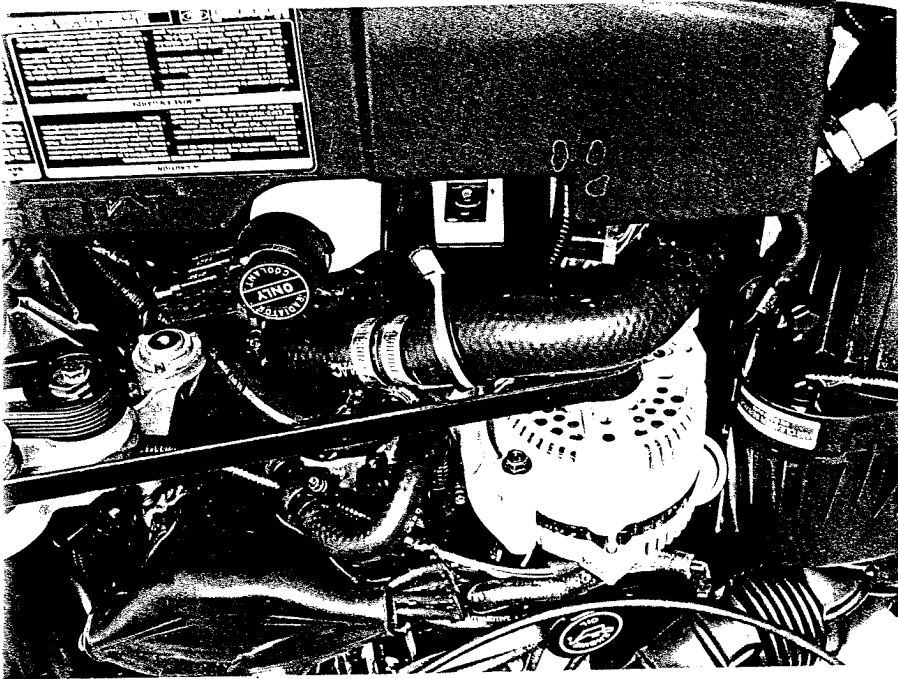
FIG. 18 RADIATOR HOSE

BEFORE



AFTER

(CUT HOSE WITH LOOM CLAMP)



MODIFIED RADIATOR HOSE WITH NEW THERMOSTAT HOUSING

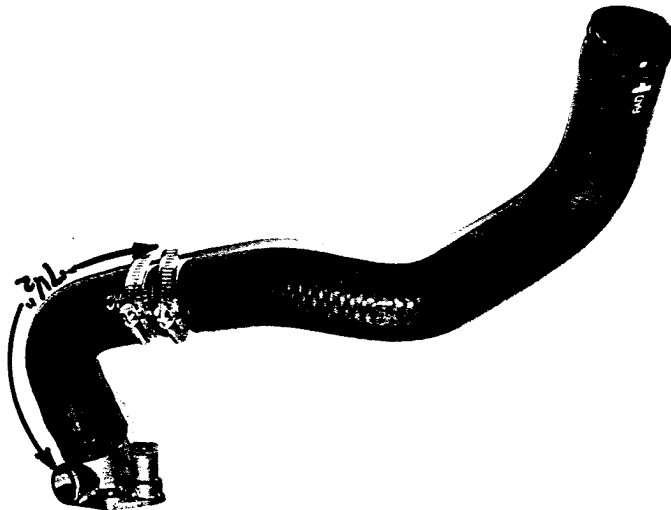
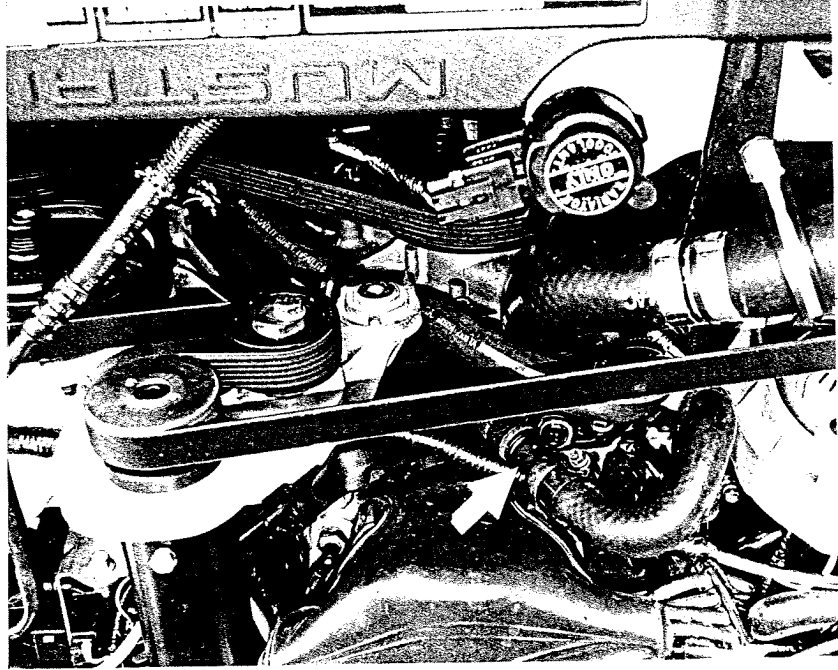
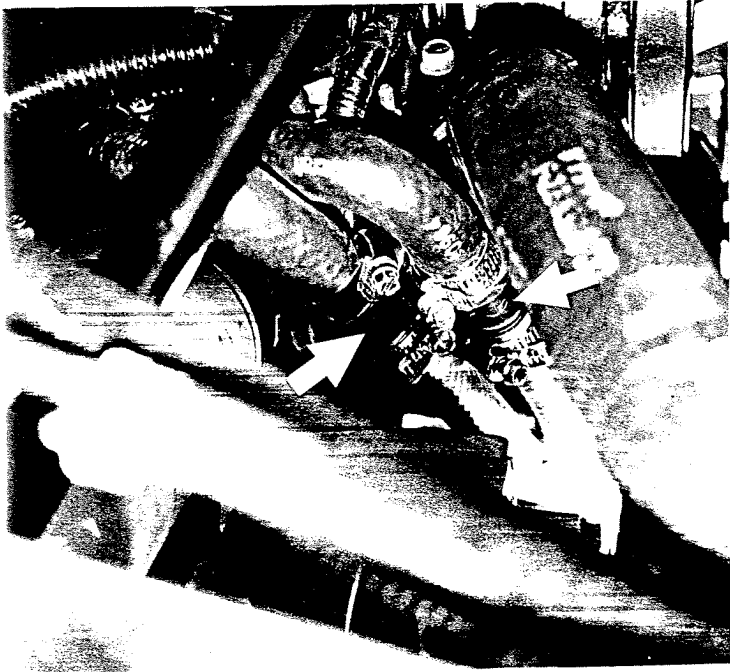


FIG. 19 OIL COOLER LINES (COBRA ONLY)

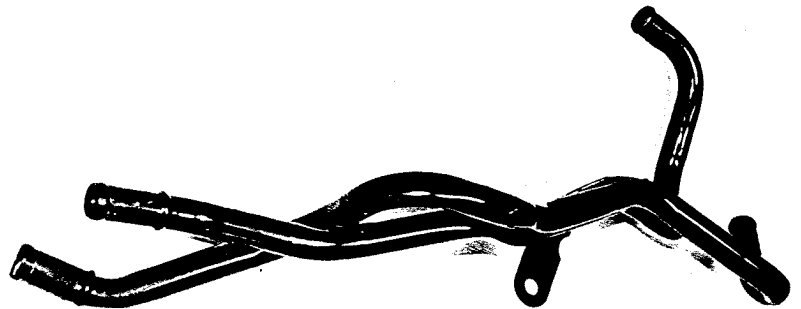
OIL COOLER (TOP CONNECTIONS)



OIL COOLER (BOTTOM CONNECTIONS)



STOCK COBRA OIL COOLER LINES



NEW COBRA COOLER LINES  
(WITH STUD MOUNTED LOOM CLAMP)

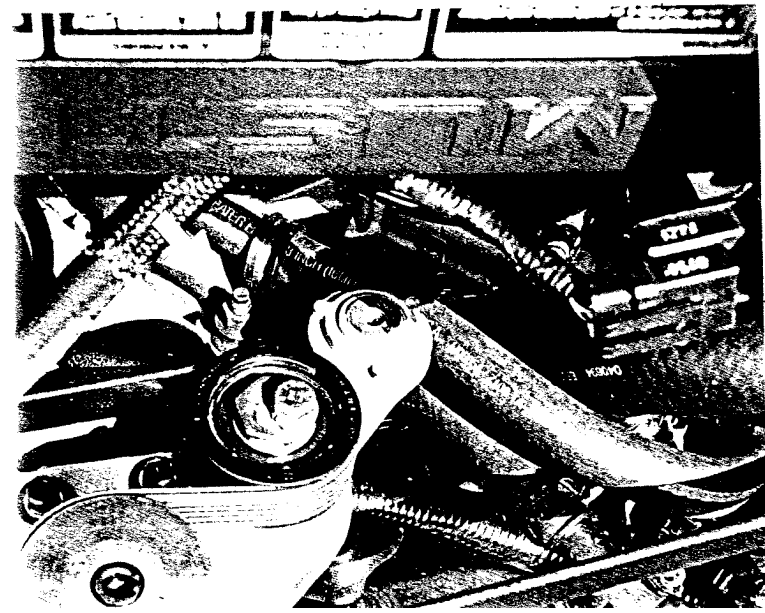
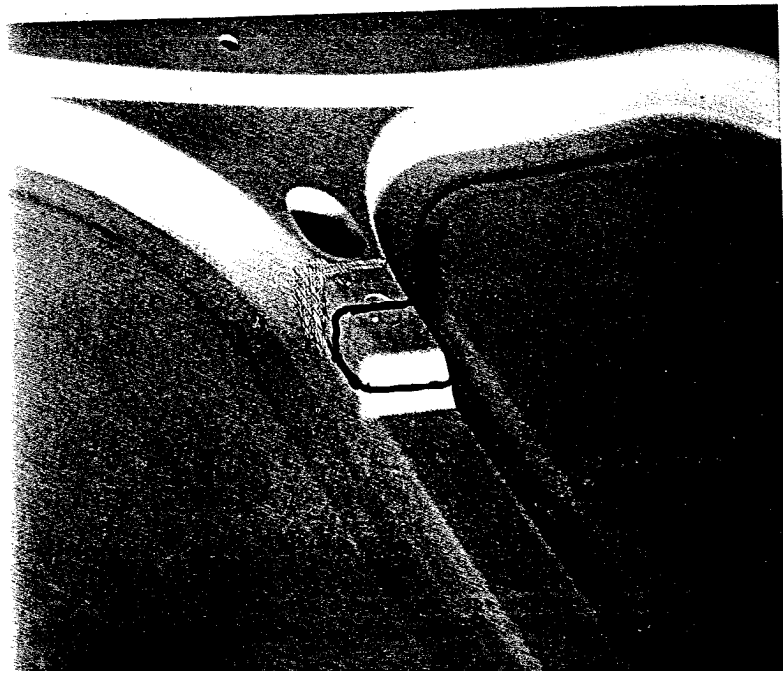
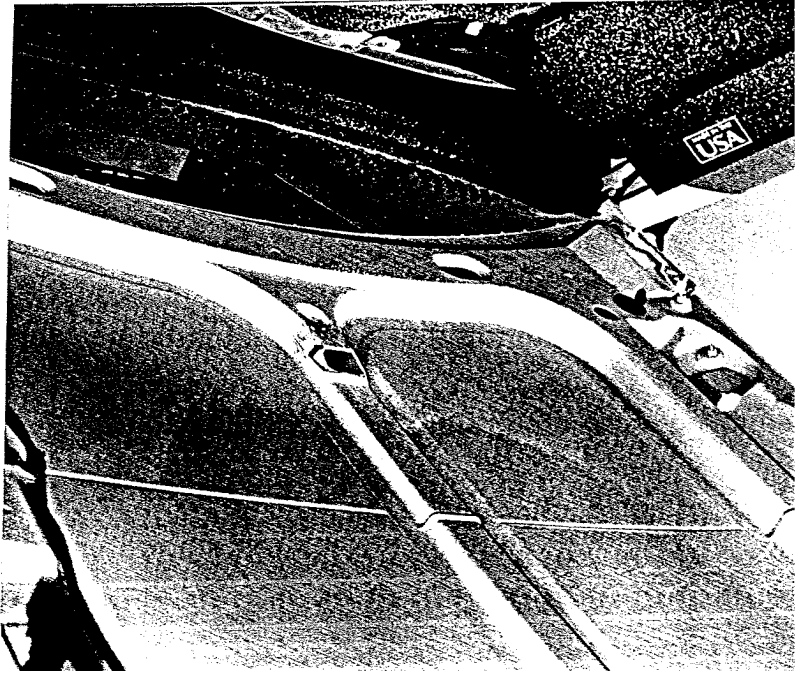


FIG. 20 HOOD CLEARANCE NOTCH

NOTCH REMOVED

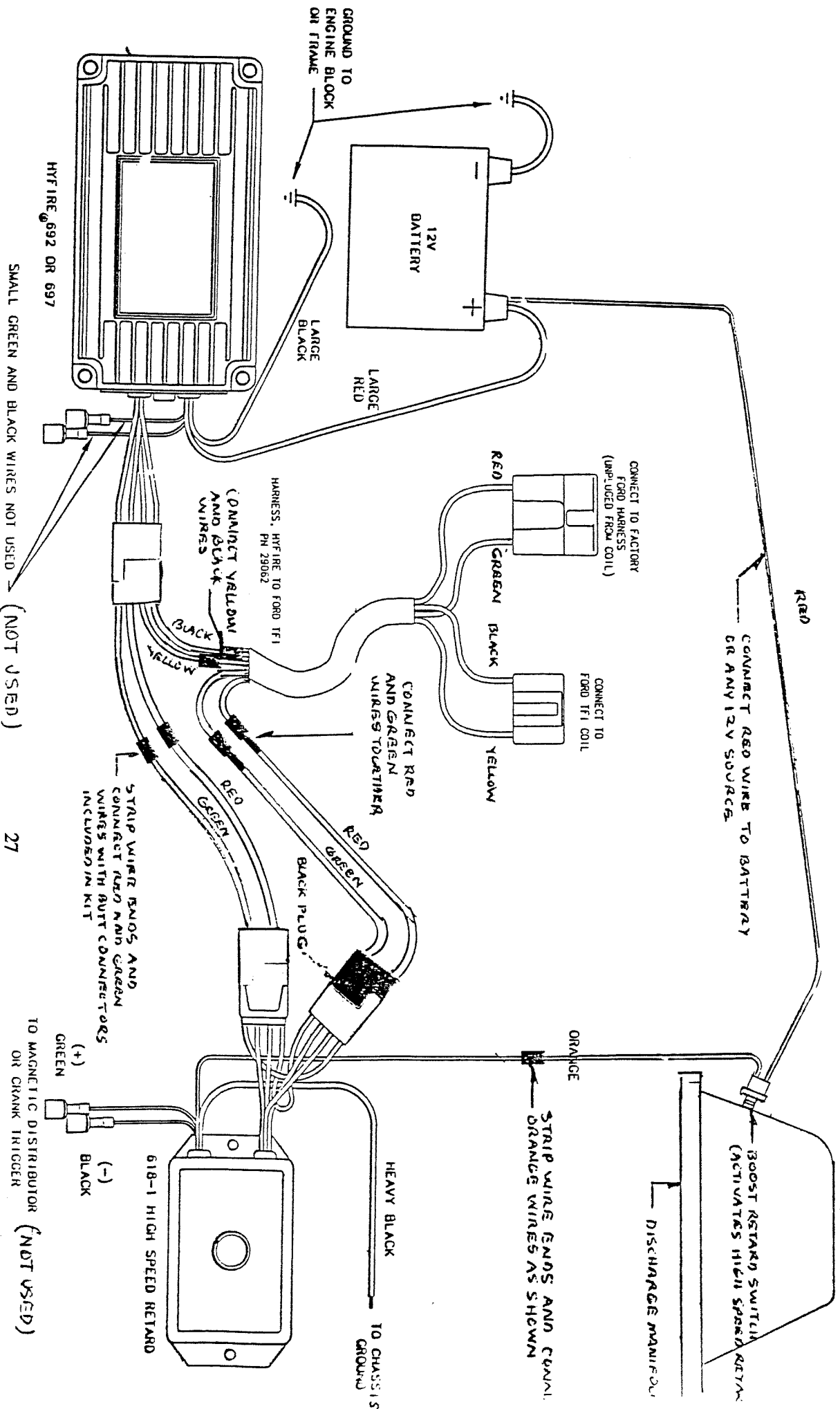


OUTLINE OF NOTCH



**FIG. 21 MALLORY/KENNE BELL IGNITION/RETARD WIRING SCHEMATIC**  
**(KENNE BELL TS1000 KIT-MUSTANG '94-'95)**

This is a system specially designed for Kenne Bell by Mallory. The High Speed Retard Module has extra long leads so it may be mounted in the cockpit. If the battery is re-located, the Hyfire can be mounted in the battery box.



## INSTRUCTION UPDATES

### FIG. 22

We are constantly monitoring installations of the Kenne Bell TS1000 Supercharger Kit with our customers. Following are some useful hints, updates and suggestions.

**USEFUL INSTALLATION HINTS** - The rear supercharger bracket is designed for stock header manifolds. If using aftermarket headers, check out and modify the bracket before installing the supercharger, as it's much easier that way. **ALWAYS INSTALL THIS BRACKET LAST.**

**UPDATE** - Do not be concerned about a light intermittent clacking noise at idle from the supercharger. This is perfectly normal. It's merely the gear lash absorbing pulses from the crankshaft.

**CAUTION - DO NOT OVERFILL** the oil reservoir in the supercharger, or damage to the bearings may result. Fill to the level outlined in the instructions, i.e., oil should not flow out of the drain-check plug. **DO NOT** use ordinary grease in the rear Zerk fittings. Use **ONLY** Kenne Bell grease.

**LACK OF BOOST OR LOW BOOST CONDITION** -

1. Restricted air filter
2. Oil on belt
3. Belt tension too low
4. Worn belt
5. Loose outlet manifold to supercharger bolts.
6. Loose manifold (outlet manifold to lower manifold) bolts or blown gasket
7. Blown manifold gasket (lower intake to head)
8. Blown head gasket

**VENT** - The small brass 1/8" vent on the end of the supercharger snout or drive vents the snout. A little oil around the fitting is normal.

**GREASE FITTINGS** - The two grease fittings at the rear of the supercharger are for lubricating the lifetime bearings. These should not need lubricating for 25,000 miles, if then.

**RACING** - Icing down or cooling the discharge manifold helps performance.

**SPARK PLUGS** - 1 Heat range cooler (Autolite) works very well. Set gap at .035". Copper multi-heat range plugs such as the NGK also work well.

**ENGINE MISFIRE AT IDLE, OR LOW IDLE WITH BIG CAMS** - May cause the supercharger to be noisier at idle. Set idle as per Ford's instructions.

**MANIFOLD SEALANT** - The red sealant between the Kenne Bell manifolds and supercharger is Loctite Gasket Eliminator #518 Sealant. This is a precision fit requiring no gaskets.

**IDLE NOISE** - The supercharger may emit a slight clicking noise at idle. That is perfectly normal and won't hurt a thing. The crankshaft pulses merely take up the Supercharger drive gear lash via the drive belt.

**TFS HEADS** - These heads (aluminum and steel) are taller than the stock heads requiring a spacer between the stock lower manifold and Kenne Bell outlet manifold be used to space the supercharger assembly up from the valve cover. A special front and rear supercharger bracket is also required to accommodate the additional height. Supercharger to hood clearance is also decreased approximately 5/16".

# KENNE BELL MUSTANG SUPERCHARGER SUPPLEMENTAL TUNING TIPS

## NOTE:

The recommendations are for RACING APPLICATIONS ONLY, and NOT RECOMMENDED FOR STREET USE.

The Kenne Bell TS1000 Kits are 50 State Legal. Altering the fuel system can render the kit emissions illegal. This information is intended to help you tune your Mustang for competition only in full throttle-open loop-boost conditions.

### FUEL SYSTEM BOOSTER

We have included a "fine tune" kit for adjusting fuel pressure at wide open throttle under boost conditions. Our kit is supplied with the needle valve fully closed. A percentage of fuel is always bypassed through the stock fuel pressure regulator into the return line. The Fuel System Booster in our kit merely shuts off or restricts the fuel supply return line to the gas tank. Boost pressure directed to the upper chamber of the valve forces it to close or restrict the return line flow, thereby increasing pressure to the fuel injectors.

### 19LB/HR / FACTORY INJECTORS

When used with the stock factory injectors, the FSB effectively increases fuel pressure under boost from approximately 40 psi to 60-75 psi, and injector flow to approximately 24 lb/hr. This higher pressure supplies the additional fuel required for the added horsepower of the supercharger. If using 24 lb/hr injectors (rated at 45 psi) the FSB also raises fuel pressure under boost to 60-75 psi, injector flow is approximately 28 lb/hr at this higher pressure. Therefore, 30 lb/hr injectors become 35 lb/hr and 35 lb/hr become 40 lb/hr, as raising pressure 30-35 lbs adds approximately 4-5 lb/hr to the injector rating. The actual fuel pressure will be determined by the condition and size (capacity) of the fuel pump. Note: The stock computer will not "trim" an injector over 24 lbs/hr at 40 psi in closed loop operation. *Driveability will be affected because of the overly rich condition.* Correct or ideal injector size and flow for maximum performance will depend on the engine horsepower, type of fuel, etc. (See Kenne Bell "Mustang Tech Tips.")

### AFTERMARKET MAF METERS

The ever popular Pro M 77mm Mass Air Flow can be calibrated for 19 or 30 lb injectors. This unit develops more HP than any other meter we've tested.

### ADJUSTING FUEL PRESSURE

As mentioned previously, a boost condition increases fuel pressure by pressurizing the upper bonnet of the FSB and restricting the fuel flow back to the gas tank. Actual fuel pressure increase will be determined by test. You'll need a fuel pressure gauge to check wide open throttle fuel pressure under boost. Note: Fuel pressure may be increased at idle, part throttle, by adjusting the Kenne Bell Billet Aluminum Regulator, if used. This is the best method.

### IDLE FUEL PRESSURE

The Kenne Bell Kits are factory designed to work with 19 lb injectors (5.0), and 24 lb injectors (Cobra), and stock fuel pressure settings, i.e., approximately 34 psi with vacuum line on and 44 psi with vacuum line off. The boost reference vacuum line remains functional and is connected between the stock regulator and a vacuum port on the Kenne Bell Intake Manifold. Idle pressure is best controlled with a Kenne Bell F1051 Billet Aluminum Fuel Pressure Regulator.

### THERMOSTATS

A 160° thermostat will reduce detonation and will improve performance.

## FIG. 24

### KENNE BELL

#### TROUBLESHOOTING TIPS

KENNE BELL TS1000 SUPERCHARGER KIT

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 70 psi at WOT with 19 lb injectors)
5. Check injectors. They may be clogged, worn or not functioning. One injector can 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.
14. Check TPS setting
15. Retard timing 2 deg.
16. Install 1/8" smaller pulley to reduce boost 1 psi.

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

#### IMPORTANT WARRANTY AND SAFETY INFORMATION

- + DO NOT attempt to alter the stock crankshaft or supercharger pulley ratios from the original TS1000-5 (5 psi) and TS1000-8 (8psi) DO NOT remove the factory rev-limiter. The TS1000 kits were designed for 6200 RPM maximum (factory cut off RPM)
- + DO NOT operate the Kenne Bell Supercharger without a filter. The Supercharger will not tolerate debris.

## KENNE BELL INSTALLATION AND OPERATION TIPS

KENNE BELL TS1000 SUPERCHARGER KIT

### FIG. 25

• 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. A Kenne Bell F1001 Ram Air Kit is HIGHLY RECOMMENDED as it improves performance up to 25HP and .25 sec/2.5mph in the 1/4 mile. The Prom 77 mm Mass Air Flow Sensor really helps performance by freeing up the intake restriction. Our data logger drag strip tests indicated up to .3 sec/3 mph (30 HP) with no other change.

• 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 Redline 75W90 Synthetic Hi-Performance gear oil or equal, in the Supercharger. Change every 12000 miles.

• We recommend installing a new set of Autolite #24 or Champion RV17YC6 Copper plugs. Change them every 20,000 miles. Close plug gaps to .035".

• 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 such as the Kenne Bell 4 3/4" crank pulley will reduce performance (boost) as it does not spin the supercharger as fast. Consult us for special pulley applications.

• Check belt tension every 2500 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.

• DO NOT use aftermarket "chips" that alter ignition timing.



**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.**

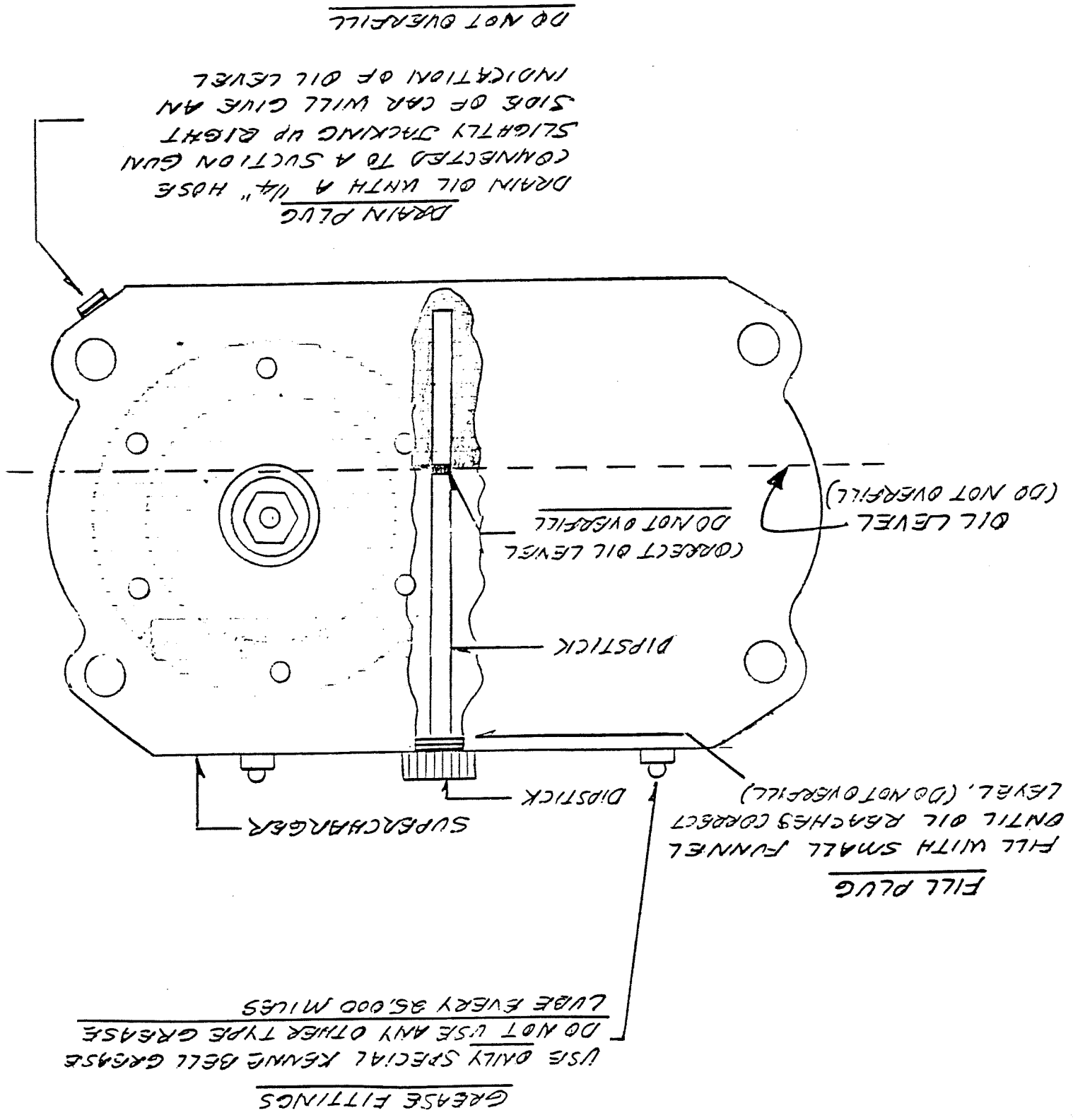
**REAR SUPERCHARGER BEARINGS  
LUBRICATING INSTRUCTIONS**

**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!

FIG. 27 SUPERCHARGER OIL LEVEL

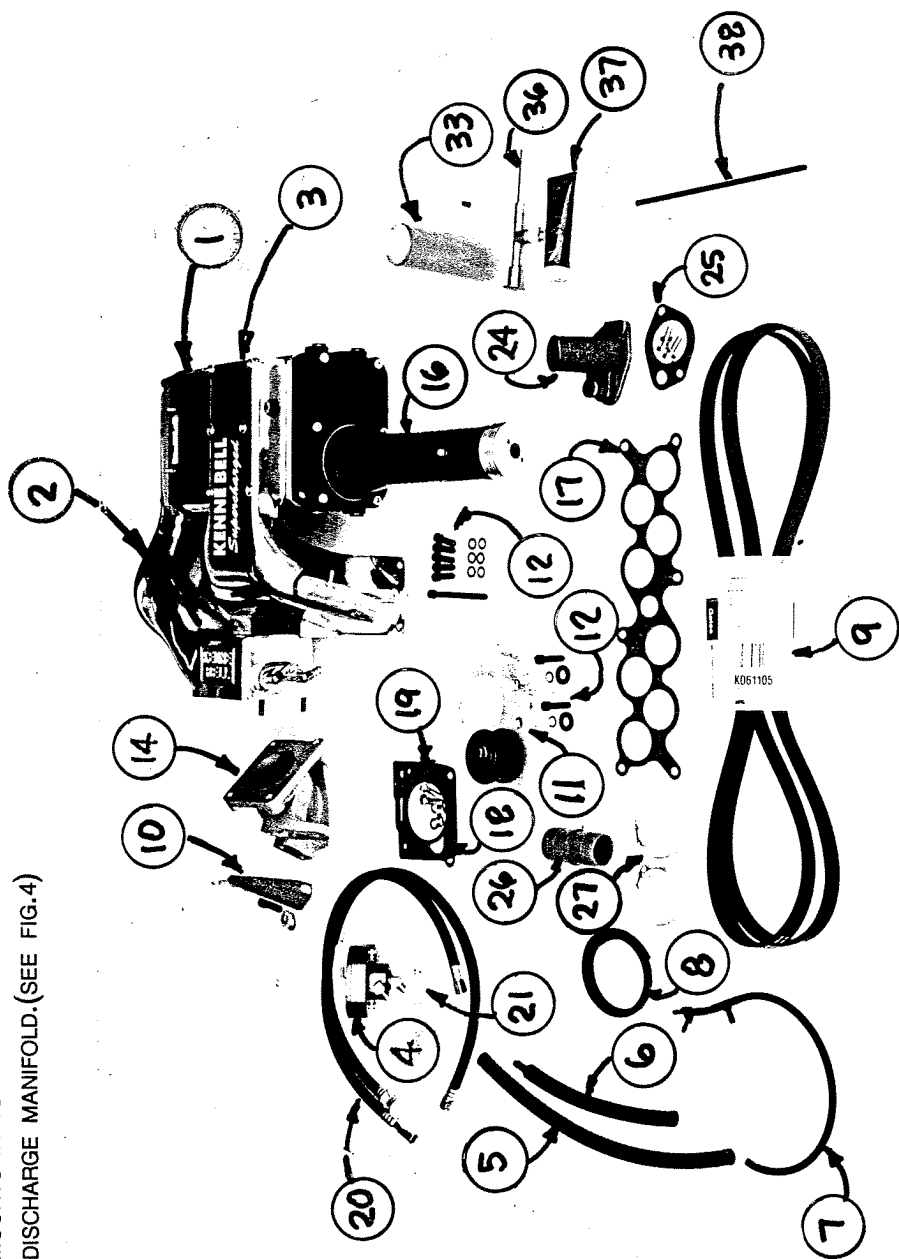


DRAIN PLUG  
 DRAIN OIL WITH A 1/4" HOSE  
 CONNECTED TO A SUCTION GUN  
 SLIGHTLY JACKING UP RIGHT  
 SIDE OF CAR WILL GIVE AN  
 INDICATION OF OIL LEVEL  
DO NOT OVERFILL

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

GREASE FITTINGS  
 USE ONLY SPECIAL KENNEDY BELL GREASE  
 DO NOT USE ANY OTHER TYPE GREASE  
 LUBE EVERY 35,000 MILES

RETARD SWITCH (8PSI KIT ONLY)  
 MOUNTS IN TOP 1/8" HOLE IN  
 DISCHARGE MANIFOLD.(SEE FIG.4)



NOTE: SEE NEXT PAGE FOR PARTS LISTING AND DESCRIPTIONS

**FIG. 28 SUPERCHARGER KIT COMPONENTS  
 '94-95 MUSTANG 5.0/COBRA**

# KENNE BELL

**FIG. 29 SUPERCHARGER KIT PARTS LIST**  
 TS1000 SUPERCHARGER KIT COMPONENTS ('94-'95 MUSTANG)

TS1000 Supercharger Assembly includes the following:  
 Note: Refer to photo for letter designation of parts

DESIGNATION	PART DESCRIPTION
1	Supercharger
2	Aluminum Inlet Manifold (70 mm)
3	Aluminum Discharge "Blower" Manifold
4	Fuel System Booster
5	1 1/32" x 16" Line (to PCV)
6	1 1/32" x 11" Line and Coupler (to Vacuum Tree)
7	Vacuum Line Assembly
8	Boost line to FSB
9	New Drive Belt
10	Rear Supercharger Support Bracket Kit
11	Front Supercharger Support Bracket Assembly
12	Front Supercharger Support Bracket Hardware
13	Manifold Bolts
14	GT40 Throttle Body Adaptor Kit (with bolts & studs)
16	Supercharger Shaft, Housing and Pulley
17	Lower Intake Manifold Gasket (GT40 shown)
18	EGR Plate Gasket
19	Throttle Body Gasket and Bolts
20	Fuel System Booster Lines (2)
21	Fuel System Mounting Screws (2)
23	Fuel Line Safety Clip (not shown)
24	Thermostat Housing
25	Thermostat Housing Gasket and Bolts
26	Radiator Hose Sleeve
27	Radiator Hose Clamps (2)
28	Radiator Hose Loom Clamp (not shown)
29	Coil Bracket (not shown)
30	Coil Wire (not shown)
31	Oil Cooler Lines - Cobra only (not shown)
32	Oil Cooler Line Loom - Cobra only (not shown)
33	Fuel Pump and Screen (8 psi kit only)
34	Boost Retard Switch (8 psi kit only)
36	Grease Pump
37	Bearing Grease
38	T-Handle Wrench

