




ROUSH AFTERMARKET SUPERCHARGER KIT

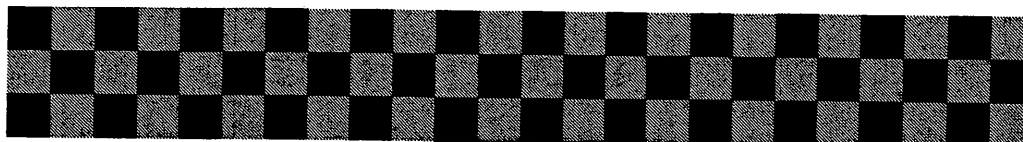
For use only on 2001-2004 Model Year MUSTANGS

(This Kit is intended only for professional installation.)



Roush Performance • 28156 Plymouth Road • Livonia, MI 48150

1-800-59-ROUSH



*The terms MUSTANG and FORD as used in this manual are the registered marks of their owner.

Service Notes

RPP Stage III SuperCharger Kit Kit Part Number SM01-8K446-RM

Thank you for purchasing the Roush Performance Products Stage III SuperCharger Kit. In the winning Roush tradition, we continue to offer the same level of performance and engineering in our retail parts that we use in our racing program. Properly installed, the SuperCharger Kit will provide a dramatic increase in performance. We hope you enjoy having this SuperCharger on your own MUSTANG as much as we have enjoyed bringing it to you!

LIMIT OF LIABILITY STATEMENT

The information contained in this publication was accurate and in effect at the time the publication was approved for printing and is subject to change without notice or liability. Roush Performance Products (RPP) reserves the right to revise the information presented herein or to discontinue the production of parts described at any time.

WARRANTY

Warranty Statement: The Roush Performance Parts ("RPP") Stage III MUSTANG SuperCharger Aftermarket Kit ("Kit") carries a 60-day warranty from date of purchase. This limited warranty covers defects in materials and workmanship of the Kit. This Kit is for professional installation only. This limited warranty does not cover labor to install or remove the Kit and does not include (i) normal wear and tear; (ii) altering or modifying the supercharger's component parts; (iii) defects caused or induced by failures, breakdowns or damage by other parts, components or the vehicle itself. **EXCEPT FOR THE WARRANTIES**

EXPRESSLY STATED IN THIS SECTION, RPP DISCLAIMS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, FOR THE KIT, INCLUDING WITHOUT LIMITATION, THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

IF RPP BREACHES ANY OF THE FOREGOING WARRANTIES IT SHALL, AT ITS SOLE OPTION, REPAIR OR REPLACE THE KIT, PROVIDED THAT CUSTOMER OR DEALER FILES A WARRANTY CLAIM THROUGH RPP'S WARRANTY DEPARTMENT, OBTAINS A RETURN AUTHORIZATION NUMBER AND RETURNS THE ENTIRE KIT PREPAID TO RPP.

RPP SHALL NOT BE LIABLE TO REIMBURSE CUSTOMER OR DEALER FOR ANY DAMAGES INCLUDING, WITHOUT LIMITATION, SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR INDIRECT DAMAGES FOR PERSONAL INJURY, DAMAGES TO THE ENGINE AND/OR ENGINE COMPONENTS, SUPERCHARGER OR VEHICLE ARISING OUT OF THE USE OR IMPROPER INSTALLATION OF THE KIT; EVEN IF RPP HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. IN ANY CASE, RPP'S ENTIRE LIABILITY UNDER ANY CIRCUMSTANCES SHALL BE LIMITED TO THE AMOUNT ACTUALLY PAID BY CUSTOMER OR DEALER FOR THE KIT.

INSTALLATION SUPPORT HELP LINE

For assistance during the supercharger kit installation, contact the Roush Performance Parts Help Desk at (800) 59-ROUSH.

SAFETY REQUIREMENTS

STOP! READ IMPORTANT SAFETY CAUTIONS AND WARNINGS BEFORE PROCEEDING.

IMPORTANT SAFETY NOTICE

Appropriate disassembly, assembly methods and procedures are essential to ensure the personal safety of the individual performing the kit installation. Improper installation due to the failure to correctly follow these instructions could cause personal injury or death. Read each step of the installation manual carefully before starting the actual installation.

- Always wear safety glasses for eye protection.
- Place the ignition switch in the OFF position.
- Always apply the parking brake when working on the vehicle.
- Block the front and rear tire surfaces to prevent unexpected vehicle movement.
- Operate the engine only in well-ventilated areas to avoid exposure to carbon monoxide.
- Do not smoke or use flammable items near or around the fuel system.
- Use chemicals and cleaners only in well-ventilated areas.
- Batteries can produce explosive hydrogen gas, which can cause personal injury. Therefore, do not allow flames, sparks or flammable substances to come near the battery.
- Keep hands and any other objects away from the radiator fan blades.
- Keep yourself and your clothing away from moving parts when the engine is running.
- Do not wear loose clothing or jewelry that can be caught in rotating or moving parts.

IMPORTANT

NOTE 1: The components listed in part Group “A” and part Group “B” are shipped preassembled from the factory with the exception of items 15, 19, 20, 22 and 23 found in part Group “B”. These items are installed later in the engine build procedure.

NOTE 2: The SuperCharger Kit includes a gasket, seal and decal part group. This group is identified as Group “N” in the kit packaging contents under part number SM04-9K000-AA. There is no separate Group “N” parts list in this manual. However, the Group “N” kit packaging contents consists of the following items taken from Groups C, D, K and L.

- Group “C” — Items 37, 39 and 45
- Group “D” — Items 47, 49 and 50
- Group “K” — Items 137 and 140
- Group “L” — Item 148

NOTE 3: The SuperCharger Kit includes a wiring part group. This group is identified as Group “O” in the kit packaging contents under part number SM04-WIREKIT-AA. There is no separate Group “O” parts list in this manual. However, the Group “O” kit packaging contents consists of the following items taken from Groups H, I, J and K.

- Group “H” — Item 112
- Group “I” — Item 127
- Group “J” — Item 134, 135 and 136
- Group “K” — Items 145 and 146



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ROUSH Aftermarket SuperCharger Kit Parts List

This section identifies the parts and their associated part numbers for all assemblies, components, hardware and electrical devices in the ROUSH Aftermarket SuperCharger Kit. The ROUSH Aftermarket SuperCharger Kit is grouped and packaged in part Groups A through O with individual component part numbers identified within each Group.

Most installation procedures will contain a part Group and part number reference. We recommend that the contents of the ROUSH Aftermarket SuperCharger Kit be checked against this list before proceeding with the installation.

Contact Roush Performance Parts Customer Service at (800) 59-ROUSH if any ROUSH Aftermarket SuperCharger Kit parts are missing.

Additional Installation and Operation Requirements

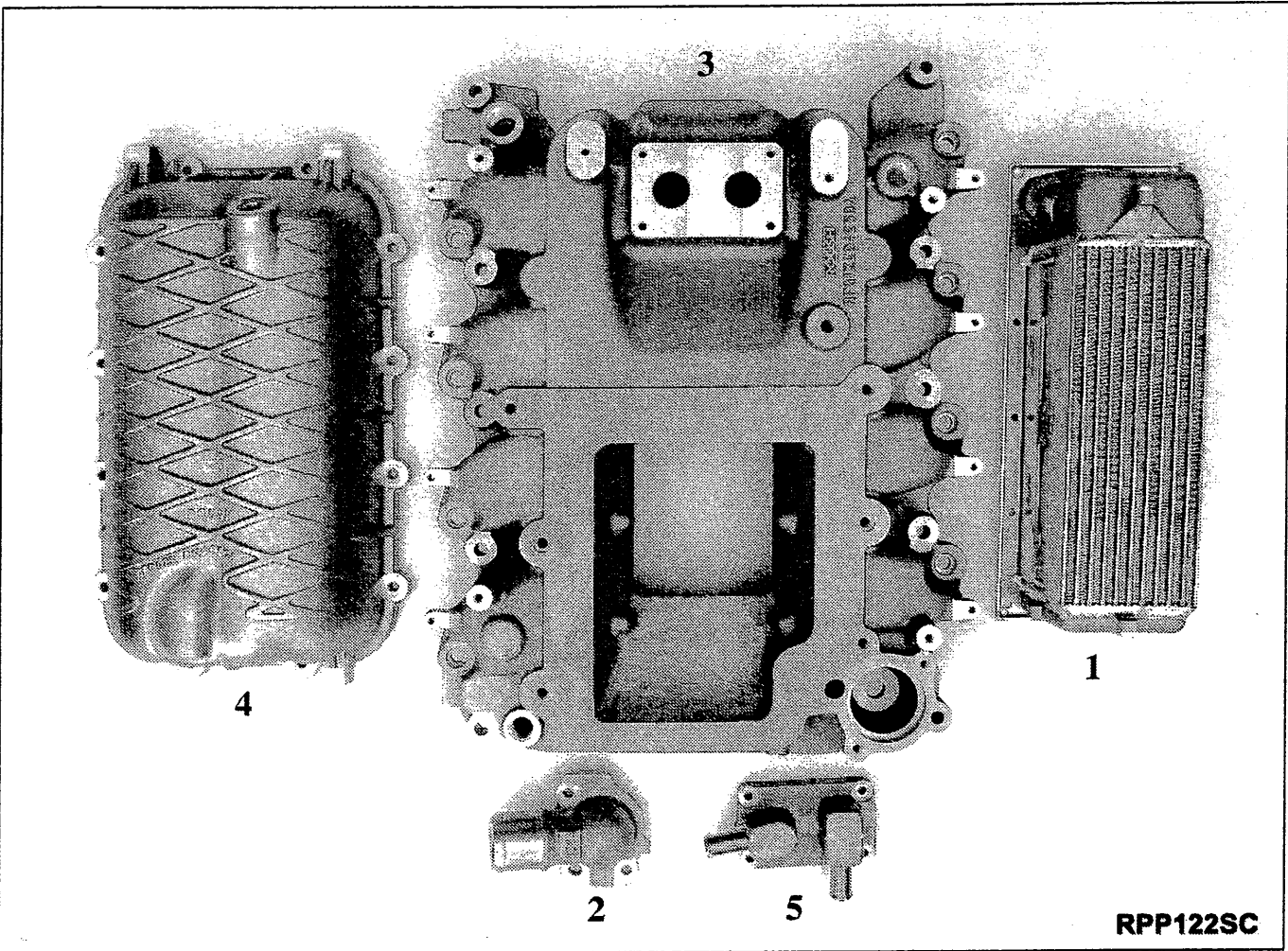
IMPORTANT: Following the reinstallation of the engine assembly, it will be necessary for the customer to purchase a Cobra-style hood to clear the SuperCharger.

IMPORTANT: Before the vehicle will start and continue to run, the security chip (PATS) on the ignition key must be flashed. This identifies the new Powertrain Control Module (PCM) to the vehicle security system allowing the vehicle to start and run normally.

Section I

ROUSH Aftermarket SuperCharger Kit Parts List

Group A — Upper Intake/Intercooler Components



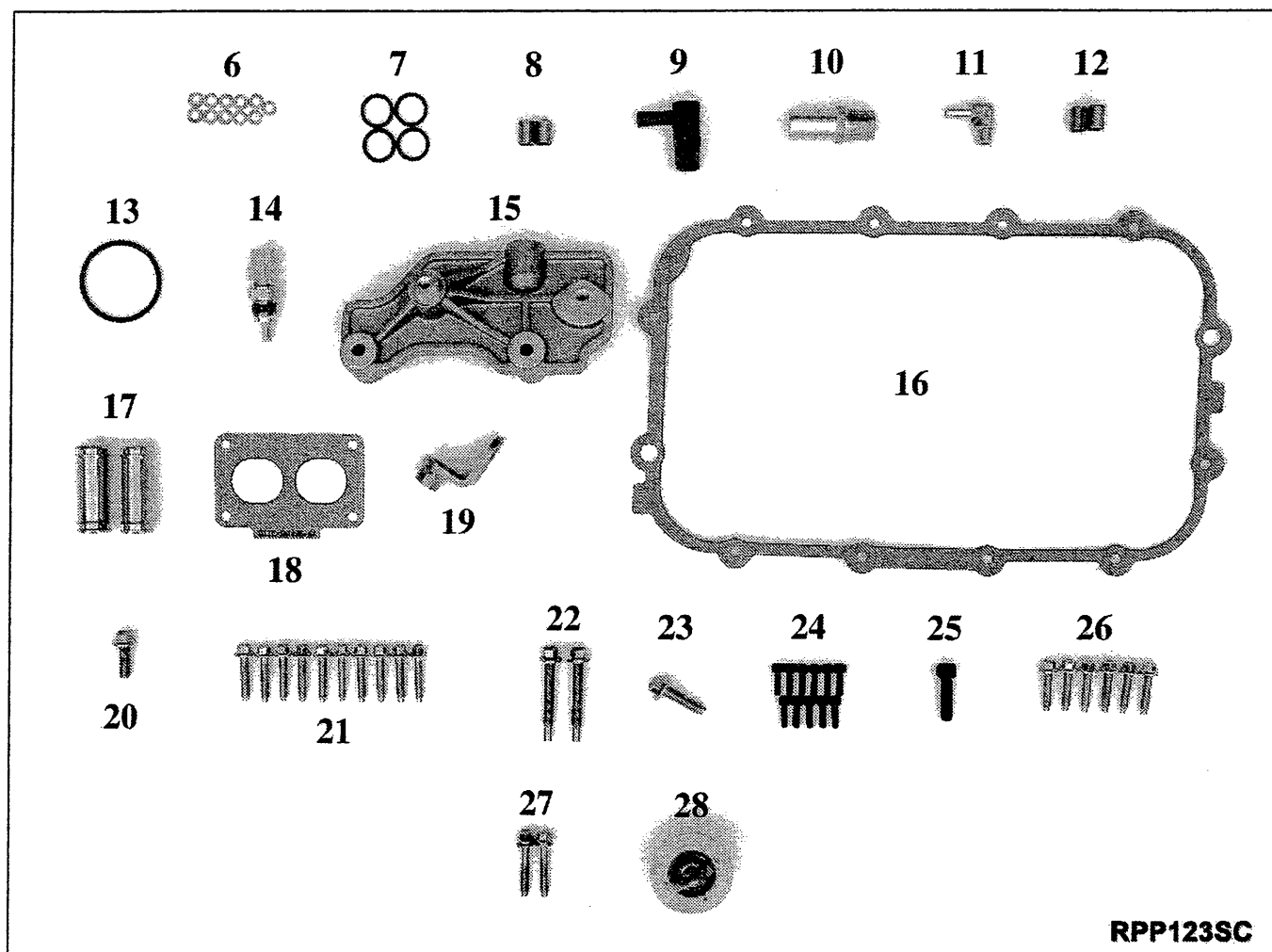
Upper Intake/Intercooler Components			
Part Ref.	Part Number	Description	Qty.
1	G1ZE-6K775-AA	COOLER ASSY, ENGINE CHARGE AIR	1
2	G1ZE-8594-BA	HOUSING - THERMOSTAT	1
3	G1ZE-9425-BC	MANIFOLD ASSY - INTAKE UPPER	1
4	G1ZE-9K461-BA	MANIFOLD, INTAKE LOWER	1
5	G1ZE-9S434-AC	CAP, INTAKE MANIFOLD	1

NOTE: The components listed in part Groups A and B are shipped preassembled from the factory with the exception of item numbers 15, 19, 20, 22 and 23 found in part Group B. These items are installed later in the engine build procedure.

Section I

ROUSH Aftermarket SuperCharger Kit Parts List

Group B — Upper Intake Components



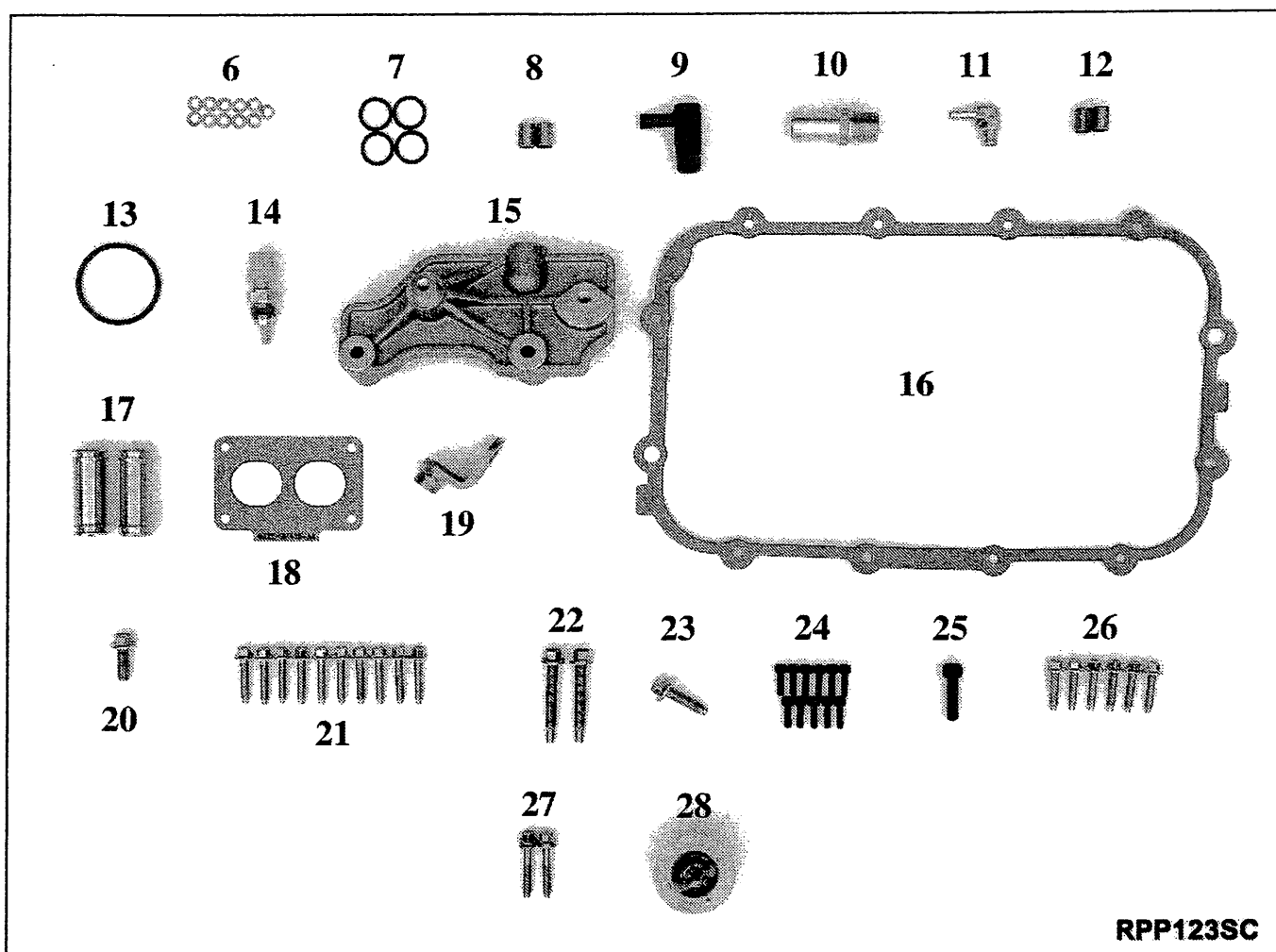
Upper Intake			
Part Ref.	Part Number	Description	Qty.
6	11-452-0033	WASHER, FLAT, M5	11
7	2-115	O-RING	4
8	388192-S	PIN, DOWEL SPLIT	2
9	391273-S100	ELBOW-3/8 HOSE X 3/8 EXT PIPE	1
10	5346K68	CONNECTION-HEATER HOSE	1
11	53525K11	VACUUM FITTING, INTAKE MANIFOLD	1
12	E9SH-19E744-BA	PIN, HOLLOW DOWEL	2
13	F1VY-8255-AA	O-RING	1
14	F6SF-12A697-AB	SENSOR, AIR CHARGE TEMP SENSOR	1

Upper Intake			
Part Ref.	Part Number	Description	Qty.
15	G1ZE-17K813-CA	BRACKET, ALTERNATOR SUPPORT	1
16	G1ZE-9461-BA	GASKET, INTAKE MANIFOLD	1
17	G1ZE-9L442-AA	TUBES FITTING INTERCOOLER CONN	2
18	G1ZE-9M436-AA	GASKET, ENGINE INTERCOOLER	1
19	G1ZE-9S493-AA	BRACKET, INTAKE MANIFOLD	1
20	N605787-S309	BOLT, M8X25 HEX FLG HD	1
21	N605894-S309	BOLT, M6X1.0X32.5 HEX FLANGE P	10
22	N808920-S309	BOLT, M8 X 33	1

Section I

ROUSH Aftermarket SuperCharger Kit Parts List

Group B — Continued



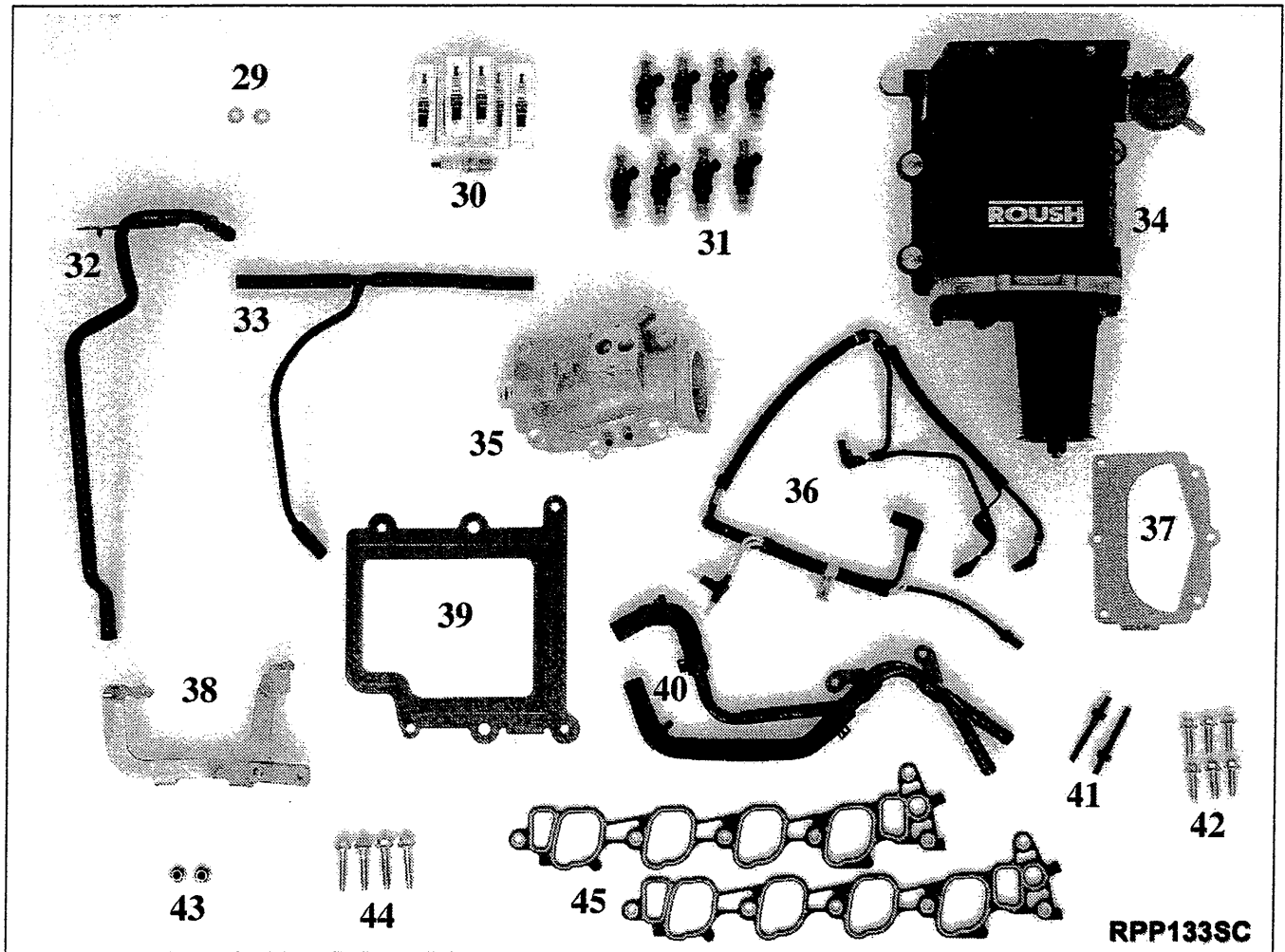
Upper Intake Components— Continued			
Part Ref.	Part Number	Description	Qty.
23	N811334-S309	SCREW, M8 X 59 HEX HEAD W/ WASHER	2
24	SCS-05016-YZ	BOLT, M5 X .8 X 16M, SOCKET HEAD	11
25	SCS-08030-ZY	BOLT, M8 X 30 SOCKET HEAD CAP	1
26	W500215-S309	BOLT, M6X1.0X25 HEX FLG HD	6
27	W704751-S309	BOLT, M6 X 37	2
28	XL3Z-8575-AA	THERMOSTAT, 180° F	1

NOTE: The components listed in part Groups A and B are shipped preassembled from the factory with the exception of item numbers 15, 19, 20, 22 and 23 found in part Group B. These items are installed later in the engine build procedure.

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ROUSH Aftermarket SuperCharger Kit Parts List

Group C — SuperCharger Components



SuperCharger Components			
Part Ref.	Part Number	Description	Qty.
29	11-452-0038	WASHER, FLAT, 5/16"	2
30	AGSF-12FM1	AGSF-12FM1	8
31	F4SE-9F593-BA	INJECTOR ASSY-FUEL-36 LB	8
32	G1ZE-18663-BA	TUBE ASSY. HEATER WATER OUTLET	1
33	G1ZE-6C342-AA	HOSE, ASSY. CRANKCASE VENT	1
34	G1ZE-6F066-AA	SUPERCHARGER ASSY	1
35	G1ZE-9A589-BB	SPACER, THROTTLE BODY	1
36	G1ZE-9E498-AA	CONNECTOR, ASSY. EMISSION VACUUM	1
37	G1ZE-9L437-BA	GASKET, SUPERCHARGER INLET (NOTE)	1
38	G1ZE-9J432-BB	BRACKET, VACUUM REGULATOR- DPF	1

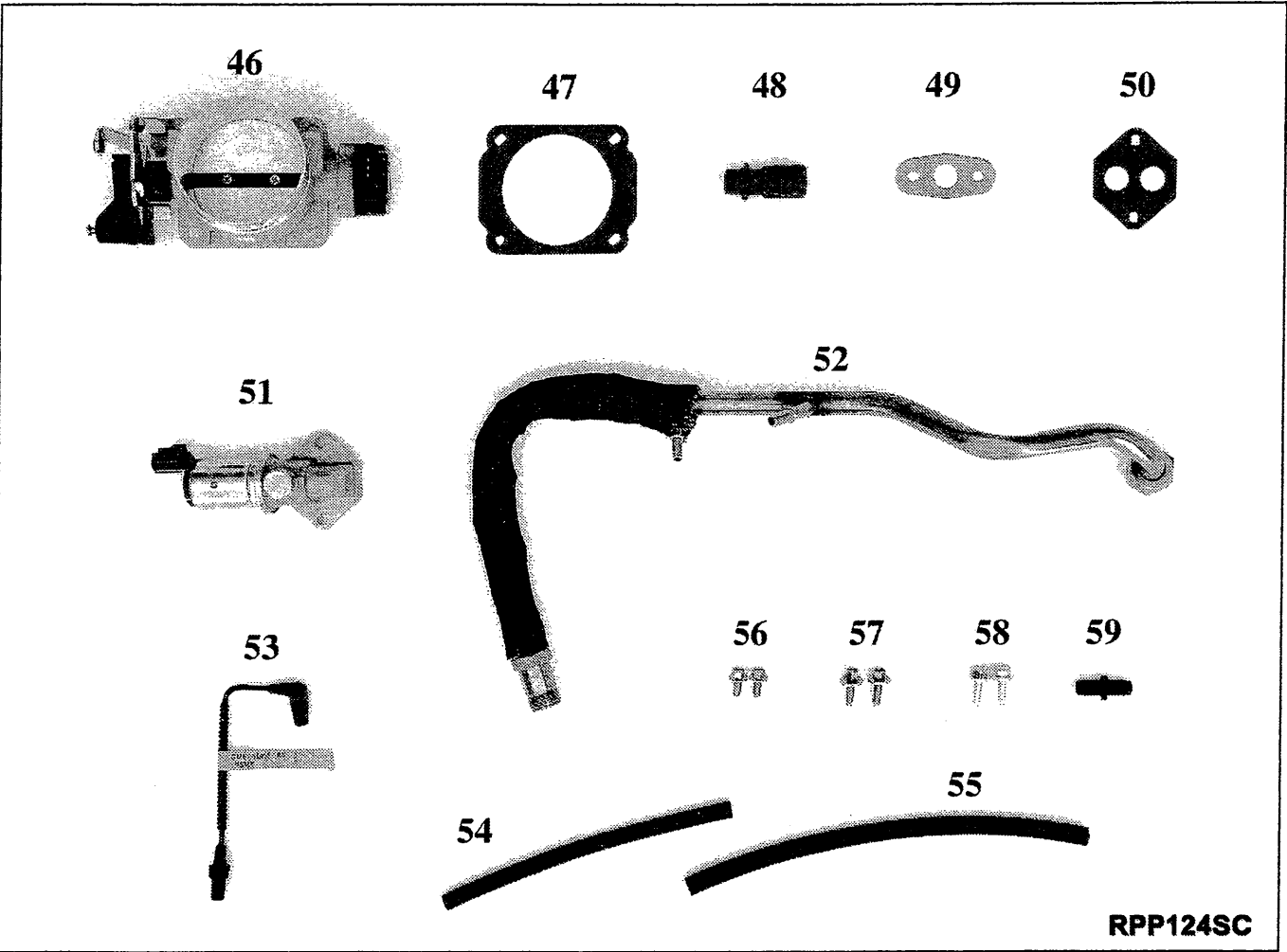
SuperCharger Components			
Part Ref.	Part Number	Description	Qty.
39	G1ZE-9H486-BA	GASKET, SUPERCHARGER OUTLET (NOTE)	1
40	G1ZE-9N491-AB	TUBE ASSY., INTERCOOLER WATER	1
41	N803949-S2	STUD-M8	2
42	N808920-S309	BOLT, M8 X 33	6
43	W520413-S309	NUT, M8X1.25 HEX FLNG	2
44	W705430-S309	BOLT, M8 X 1.25 X 48	4
45	XL3Z-9439-BA	GASKET, INTAKE MANIFOLD (NOTE)	2

NOTE: These items are located in part Group "N" (SM04-9K000-AA).

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ROUSH Aftermarket SuperCharger Kit Parts List

Group D — EGR Valve/T-Body/DPFE/EVR Components



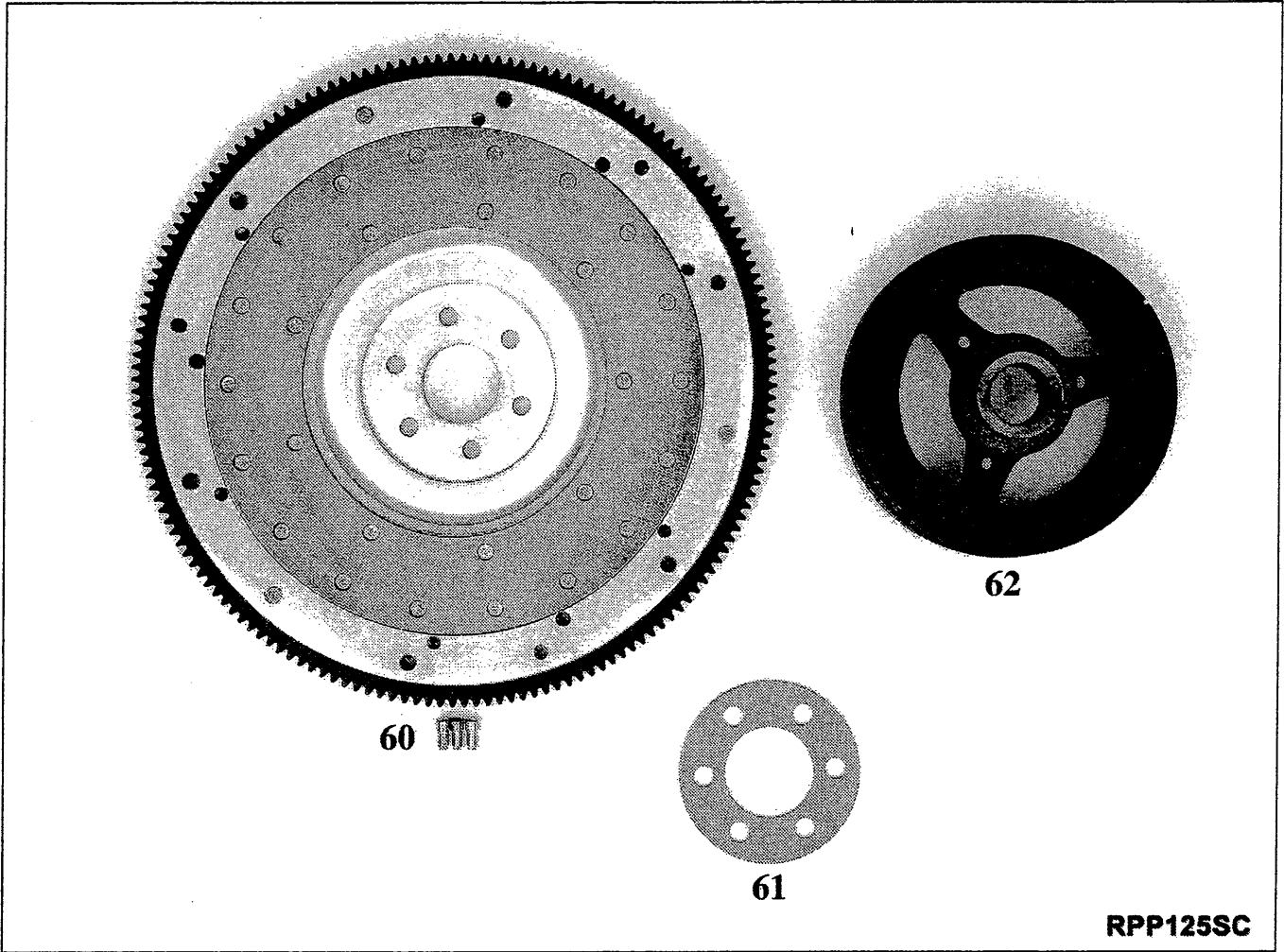
EGR Valve/T-Body/DPFE/EVR Components			
Part Ref.	Part Number	Description	Qty.
46	G3ZE-9E926-AA	THROTTLE BODY, 75 MM VISTEON	1
47	G3ZE-9E936-AA	GASKET, VISTEON THROTTLE BODY (NOTES 1 and 2)	1
48	CS2568	CONNECTOR, PCV	1
49	E6AZ-9D476-B	GASKET-EXHAUST GAS RECIRCULATION (NOTE 2)	1
50	E83Z-9F670-AA	GASKET-AIR BYPASS (NOTE 2)	1
51	F65Z-9F715-EA	VALVE - IDLE AIR	1
52	G1ZE-9D477-BA	TUBE ASSY., EGR	1
53	G1ZE-9E498-BA	CONNECTOR ASSY., VACUUM BOOST	1
54	G1ZE-9P761-AA	DPFE HOSE	1
55	M2D52	HOSE, 3/8" ID RUBBER	1

EGR Valve/T-Body/DPFE/EVR Components			
Part Ref.	Part Number	Description	Qty.
56	N605771-S309	BOLT, M6 X 1.0 X 14, HEX HEAD	2
57	N807131-S309	SCREW, M6 X 1 X 22.5 HEX HEAD	2
58	N807309-S309	BOLT M6X24	2
59	P2233A	CONNECTOR, VACUUM 3/8" X 3/8"	1

NOTE 1: Some ROUSH Aftermarket SuperCharger Kits may contain an equivalent NPN-type gasket with four additional kit-supplied fasteners, to be used in place of the G3ZE-9E936-AA gasket.

NOTE 2: These items are located in part Group "N" (SM04-9K000-AA).

Group E — Flywheel/Damper Components

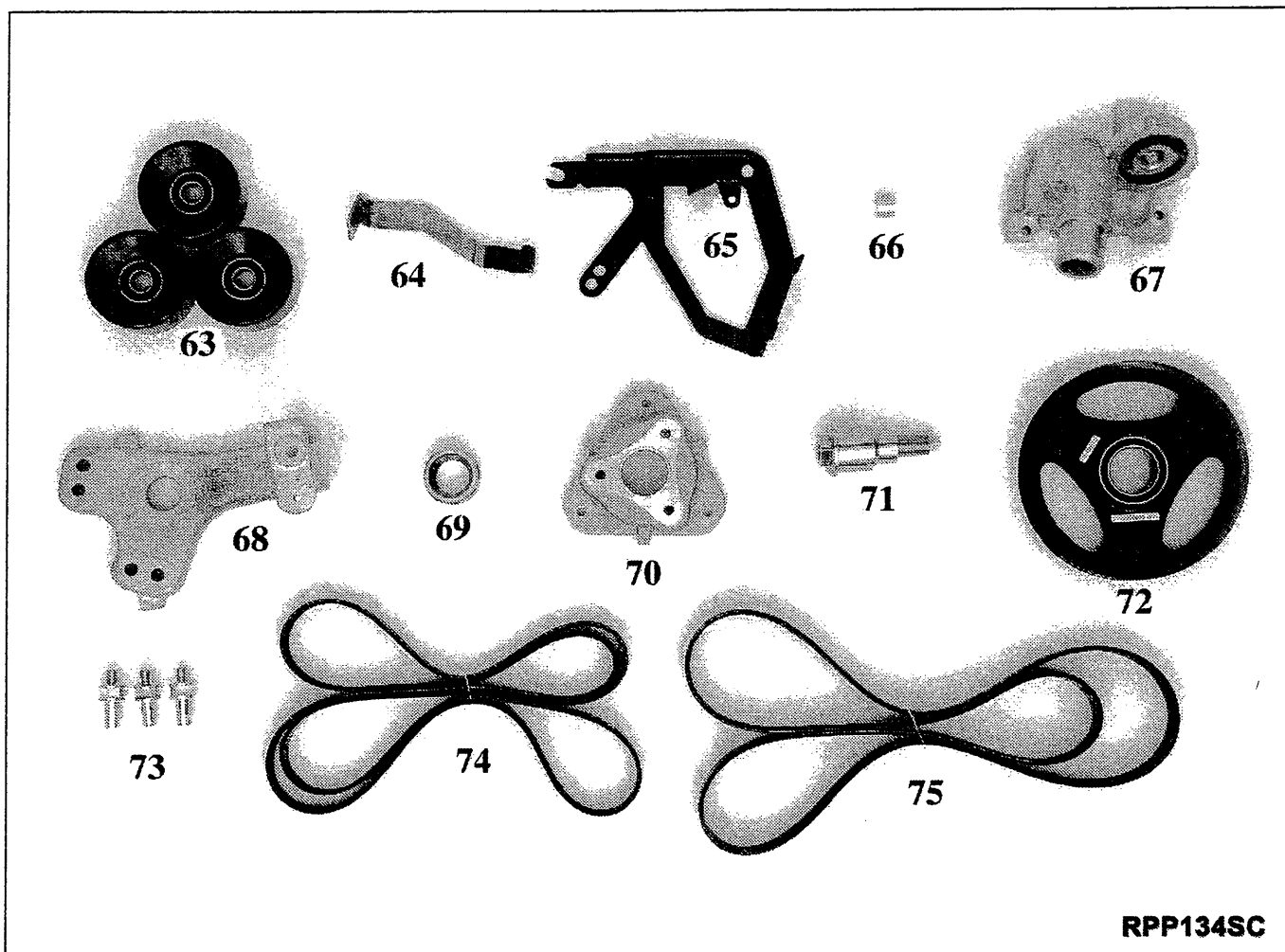


Flywheel/Damper Components			
Part Ref.	Part Number	Description	Qty.
60	563405-M	FLYWHEEL - ALUMINUM - 2003 - M (OPTIONAL)	1
61	F5OP-6A366-AA	WASHER RING, FLYWHEEL- 4.6L (OPTIONAL)	1
62	G1ZE-6316-AA	DAMPER ASSY., CRANKSHAFT VIBRATION	1

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ROUSH Aftermarket SuperCharger Kit Parts List

Group F — Oil Filter Adapter/Front Support Components



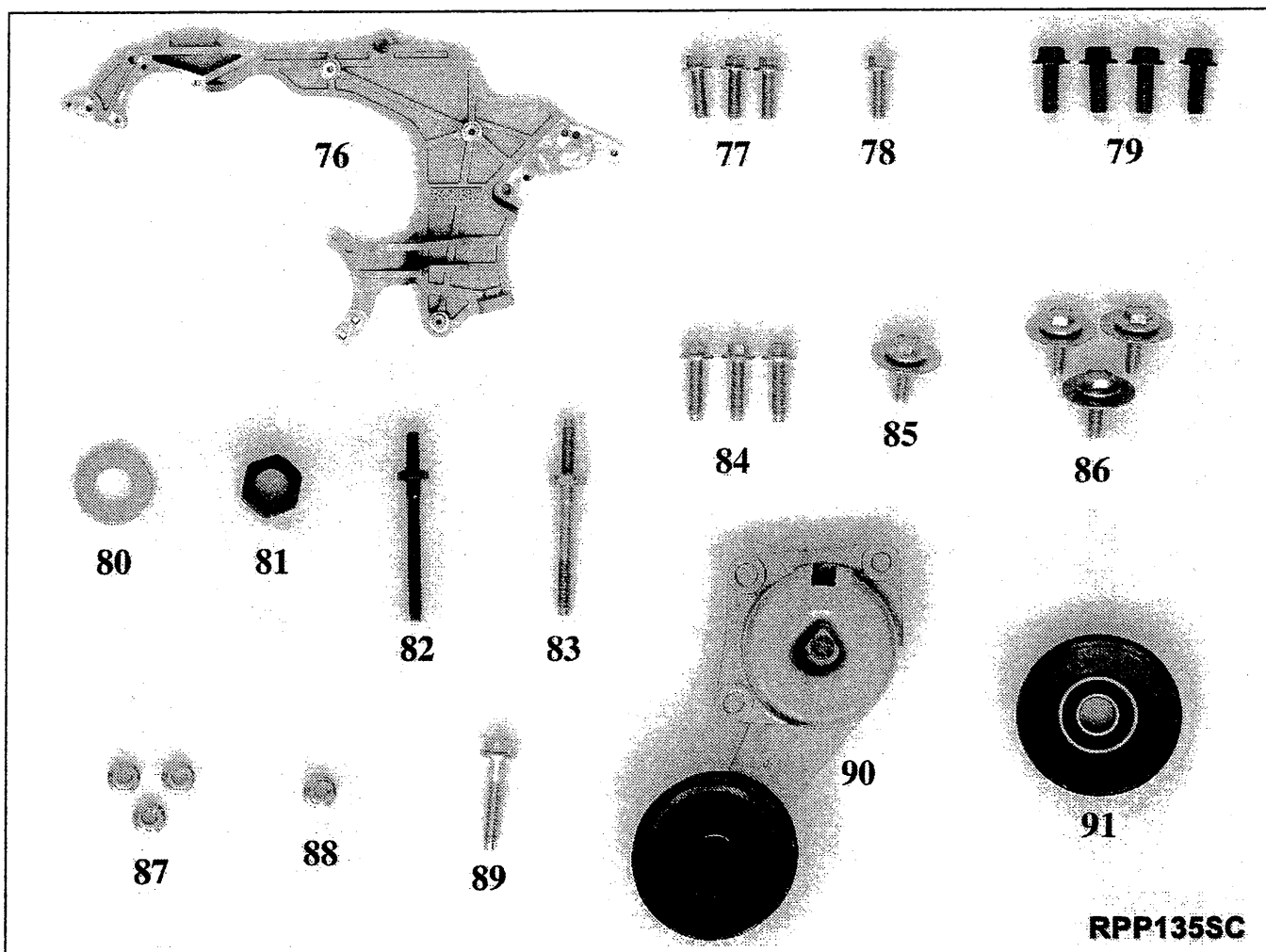
Oil Filter Adapter/Front Support Components			
Part Ref.	Part Number	Description	Qty.
63	F65E-19A216-AA	IDLER ASSY-BELT	3
64	G1ZE-14550-AA	SUPPORT ASSY., STARTER CABLE	1
65	G1ZE-3490-AC	BRACKET, P/S RESERVOIR	1
66	G1ZE-6132-AA	SPACER, CYLINDER FRONT COVER	1
67	G1ZE-6884-BB	ADAPTER, OIL FILTER/WATER OUTLET	1
68	G1ZE-6A057-BA	SUPPORT, ENGINE FRONT	1
69	G1ZE-6A096-AA	SPACER, ENGINE FRONT SUPPORT	1
70	G1ZE-6A329-BA	ADAPTER, CRANKSHAFT DAMPER	1

Oil Filter Adapter/Front Support Components			
Part Ref.	Part Number	Description	Qty.
71	G1ZE-6K230-AA	SHAFT, ENGINE AUXILIARY DRIVE	1
72	G1ZE-6M312-AA	PULLEY, CRANKSHAFT DRIVE	1
73	G1ZE-7N660-AA	PIN, PTO DRIVER OUTPUT SHAFT	3
74	G1ZE-8620-AA	BELT, DRIVE 1ST SHEAVE BELT	1
75	G1ZE-8620-BA	BELT, DRIVE 2ND SHEAVE BELT	1

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ROUSH Aftermarket SuperCharger Kit Parts List

Group F — Continued



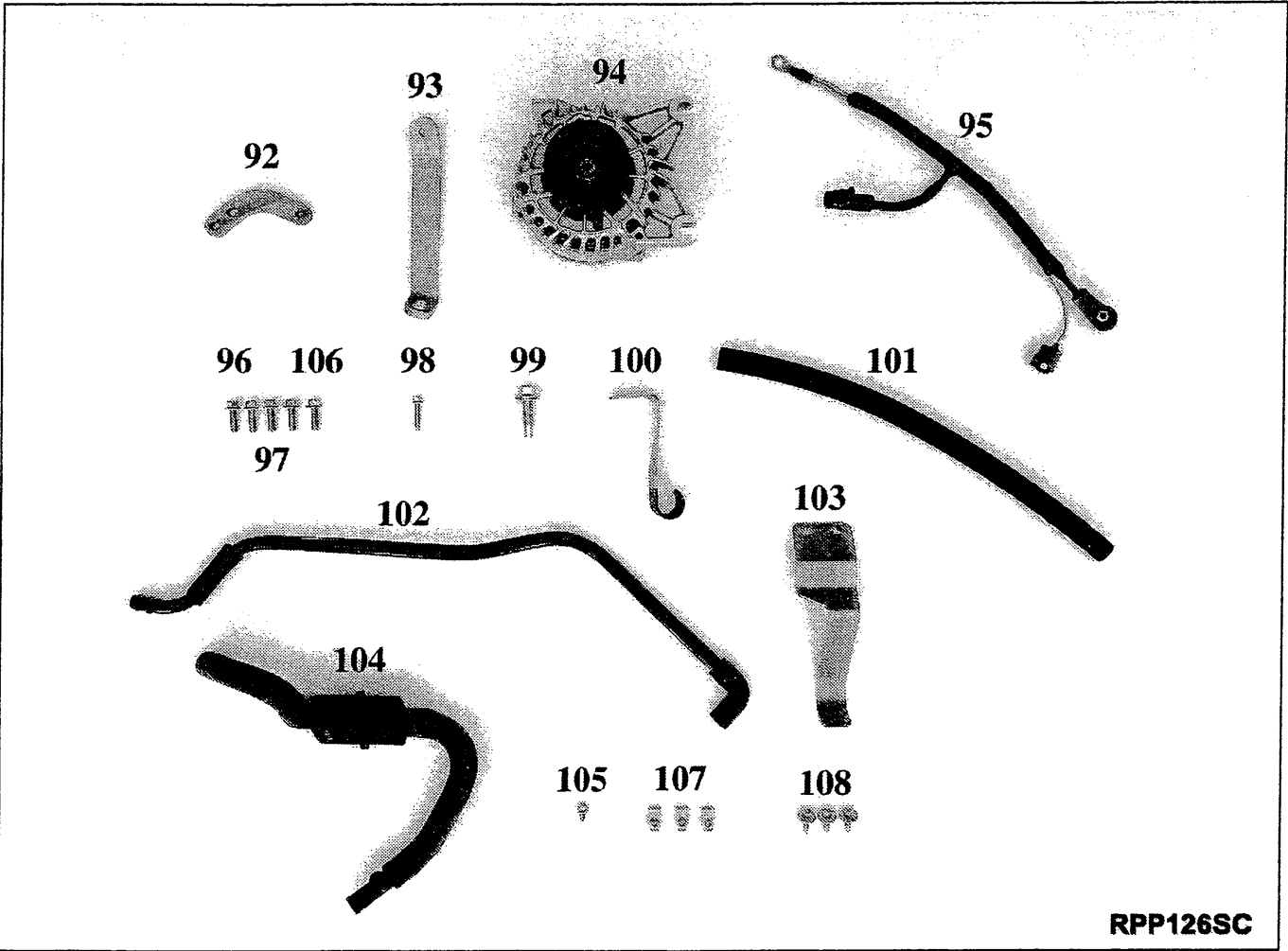
Oil Filter Adapter/Front Support Components — Continued			
Part Ref.	Part Number	Description	Qty.
76	G1ZE-8A653-BA	BRACKET - BELT IDLER SUPPORT	1
77	N605787-S309	BOLT, M8X25 HEX FLG HD	3
78	N605787-S309	BOLT, M8X25 HEX FLG HD	1
79	N605800-S100	BOLT, M10X25 W/ LOCTITE	4
80	N801338-S101	WASHER, SPIDER SHAFT	1
81	N804199-S191	NUT, M20X1.5	1
82	N805112-S2	STUD, M8 X 20 / M8 X 72	1
83	N806300-S-2	STUD, M8 X 1.25 X 91.1	1
84	N605894-S309	BOLT, M8 X 33	3
85	N811493-S309	BOLT, M8 X 28 HEX W/ WASHER	1

Oil Filter Adapter/Front Support Components — Continued			
Part Ref.	Part Number	Description	Qty.
86	N811493-S309	BOLT, M8 X 28 HEX W/ WASHER	3
87	W520413-S309	NUT, M8X1.25 HEX FLNG	3
88	W520413-S309	NUT, M8X1.25 HEX FLNG	1
89	W705430-S309	BOLT, M8 X 1.25 X 48	1
90	XL3Z6B209CA	TENSIONER, PULLEY	1
91	YW7E-19A216-AA	IDLER ASSY-BELT	1

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ROUSH Aftermarket SuperCharger Kit Parts List

Group G — Lower Alternator Support Components



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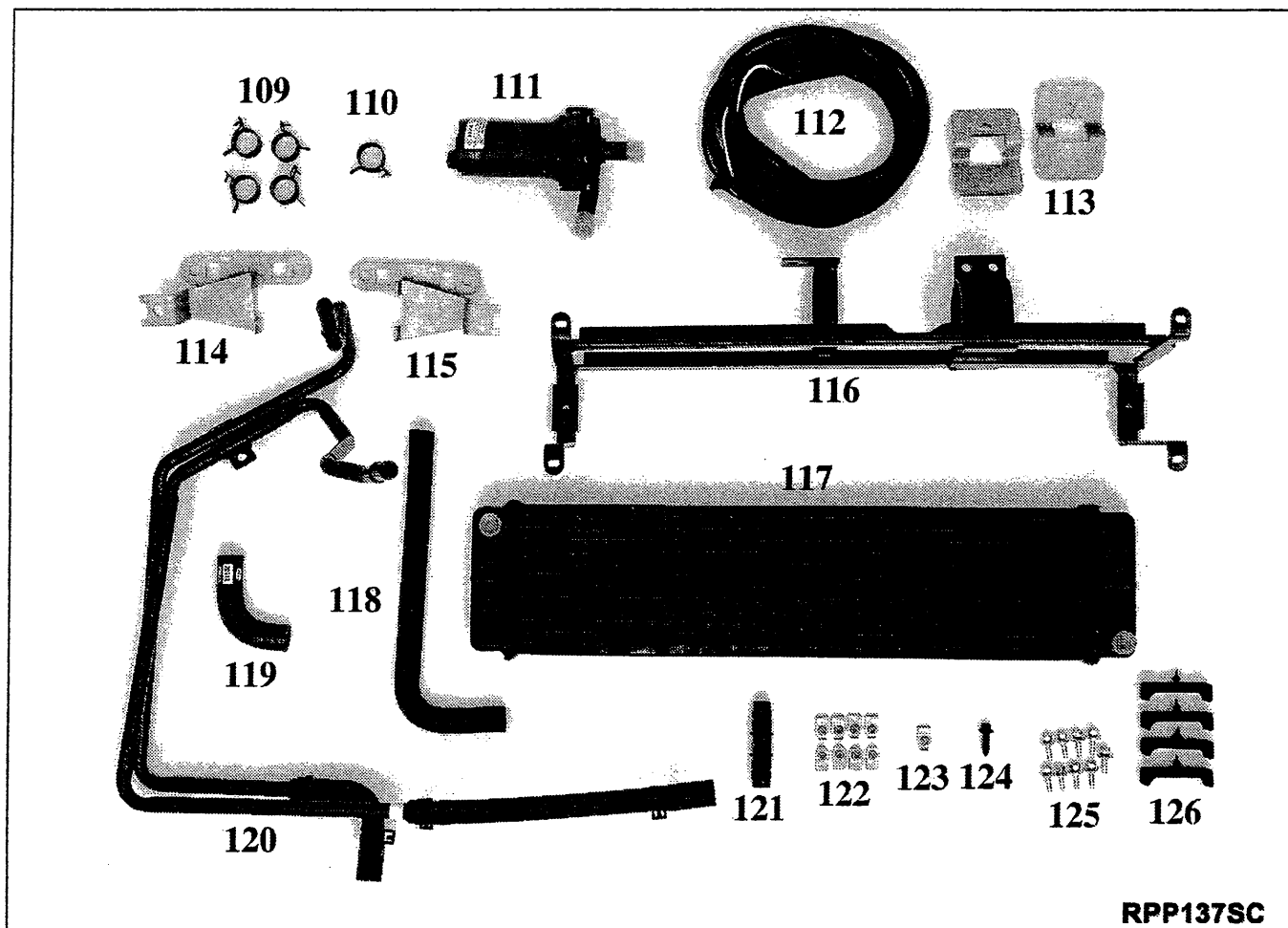
Lower Alternator Support Components			
Part Ref.	Part Number	Description	Qty.
92	G1ZE-10153-BA	BRACKET, ALTERNATOR SUPPORT LO	1
93	G1ZE-10153-CA	BRACKET, ALTERNATOR SUPPORT	1
94	G1ZE-10300-AA	ALTERNATOR	1
95	G1ZE-14305-AA	HARNESS, ALTERNATOR	1
96	N605787-S309	BOLT, M8X25 HEX FLG HD	2
97	N605787-S309	BOLT, M8X25 HEX FLG HD	1
98	W500215-S309	BOLT, M6X1.0X25 HEX FLG HD	1
99	W704186-S309	BOLT, M12X1.75X30 HEX HEAD PIL	1
100	G1ZE-14550-BA	SUPPORT ASSY., STARTER CABLE	1

Lower Alternator Support Components			
Part Ref.	Part Number	Description	Qty.
101	G1ZE-3691-AA	HOSE, P/S RESERVOIR TO PUMP	1
102	G1ZE-6758-AA	CRANKCASE VENT TUBE ASSY.	1
103	G1ZE-8N195-AA	BRACKET, UPPER RADIATOR HOSE	1
104	G1ZE-9H308-AA	TUBE ASSY. AIR BYPASS VALVE	1
105	N605771-S309	BOLT, M6 X 1.0 X 14, HEX HEAD	1
106	N605787-S309	BOLT, M8X25 HEX FLG HD	2
107	N623332-S301	J-CLIP, M6 X 1.0 SHORT	3
108	W704734-S301	BOLT, M6 X 12 HEX	3

Section I

ROUSH Aftermarket SuperCharger Kit Parts List

Group H — Intercooler Radiator Assembly Components



Intercooler Radiator Assembly Components			
Part Ref.	Part Number	Description	Qty.
109	E7EE-8287-AA	CLAMP, 27MM CONSTANT TENSION	4
110	E7EE-8287-AA	CLAMP, 27MM CONSTANT TENSION	1
111	F8YZ-8501-AA	PUMP ASSY, WATER	1
112	G1ZE-12B637-AA	HARNESS, ENGINE CONTROL (NOTE)	1
113	G1ZE-8C383-AA	CLAMP, BUMPER REINF. UPPER	2
114	G1ZE-8C384-AA	CLAMP ASSY., BUMPER REINF. LOW	1
115	G1ZE-8C385-AA	CLAMP ASSY., BUMPER REINF. LOW	1
116	G1ZE-8C386-AA	RETAINER ASSY., INTERCOOLER RADIATOR	1
117	G1ZE-8K226-AA	RADIATOR ASSY., INTERCOOLER	1

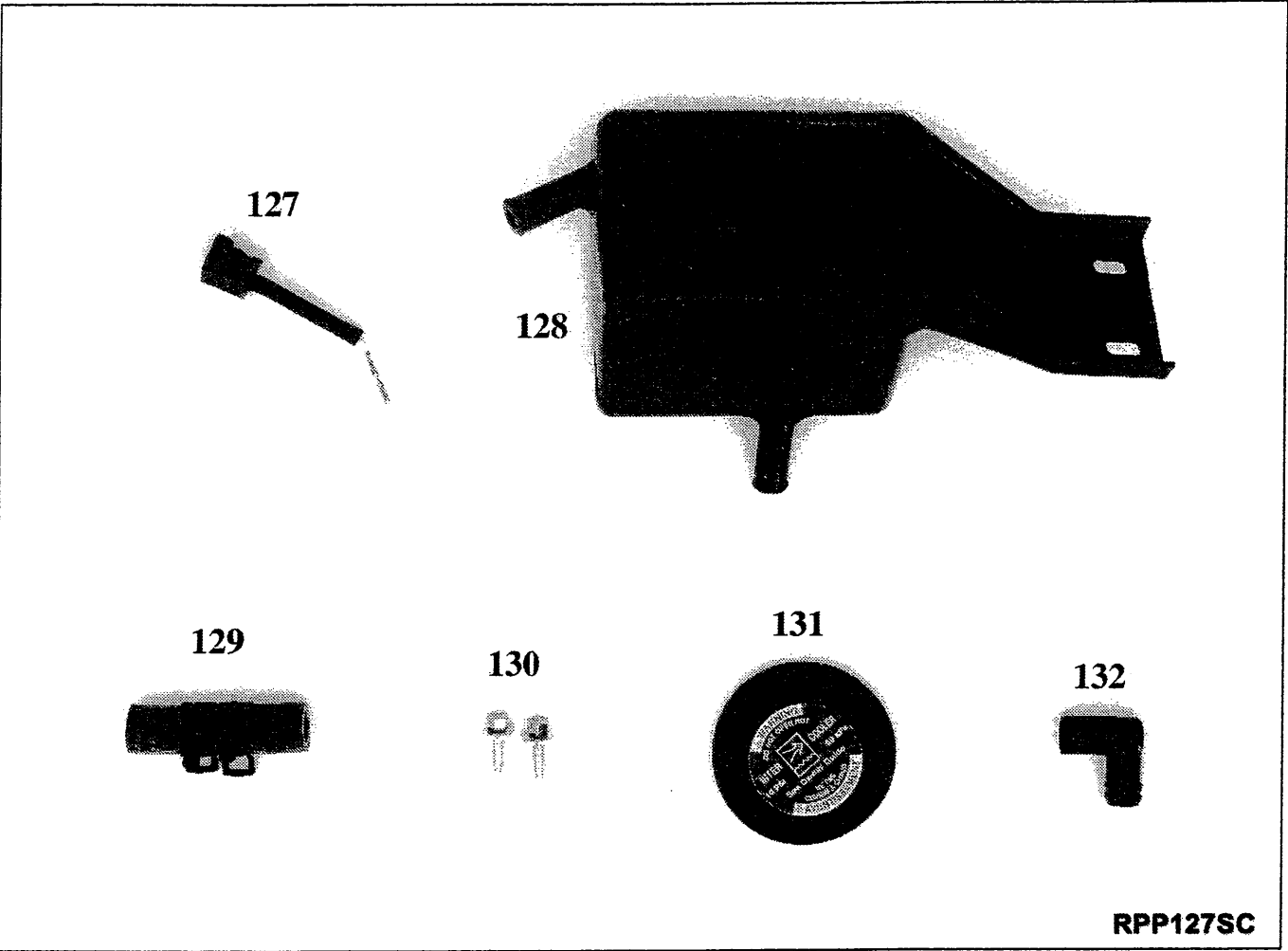
Intercooler Radiator Assembly Components			
Part Ref.	Part Number	Description	Qty.
118	G1ZE-9L443-AA	HOSE, INTAKE MANIFOLD INTERCOOLER	1
119	G1ZE-9L443-JA	HOSE AND CLAMP ASSY, INTERCOOLER	1
120	G1ZE-9N491-BB	TUBE ASSY., INTERCOOLER WATER, LOWER	1
121	KY2	CONNECTION-WATER OUTLET	1
122	N623332-S301	J-CLIP, M6 X 1.0 SHORT	8
123	N623332-S301	J-CLIP, M6 X 1.0 SHORT	1
124	N802455-S2	SCREW, M8 X 27 SELF TAPPING	1
125	N807309-S309	BOLT M6X24	9
126	XL3Z-8124-AA	ISOLATOR-INTERCOOLER RADIATOR	4

NOTE: This item is located in part Group "O" (SM04-WIREKIT-AA).

Section I

ROUSH Aftermarket SuperCharger Kit Parts List

Group I — Intercooler Reservoir Assembly Components



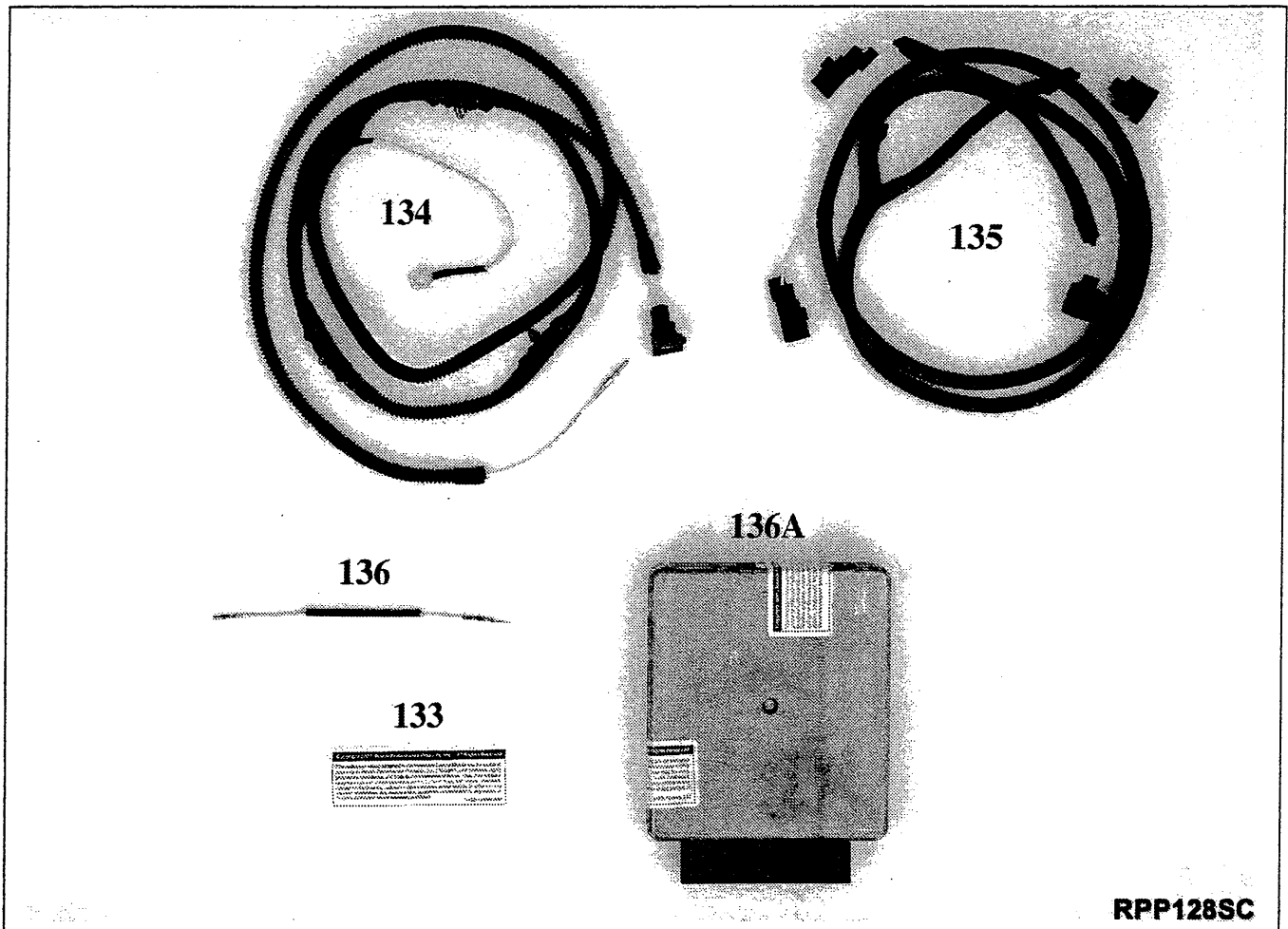
Intercooler Reservoir Assembly Components			
Part Ref.	Part Number	Description	Qty.
127	G1ZE-6B379-BA	OIL PRESSURE JUMPER (NOTE)	1
128	G1ZE-8A080-AA	RESERVOIR ASSY., INTERCOOLER	1
129	G1ZE-9L443-FA	HOSE, INTERCOOLER WATER	1
130	N807309-S309	BOLT M6X24	2
131	XL3Z-8100-AA	INTERCOOLER RESERVOIR CAP	1
132	YL8E-6B892-AC	ELBOW - CCV	1

NOTE: This item is located in part Group “O”
(SM04-WIREKIT-AA)

Section I

ROUSH Aftermarket SuperCharger Kit Parts List

Group J — Electrical Components



Electrical Components			
Part Ref.	Part Number	Description	Qty.
133	G1ZE-12A645-AA	DECAL, PROTECTION CALIBRATION (NOTE 1)	2
134	G1ZE-6B379-CA	HARNESS, INTERCOOLER (NOTE 3)	1
135	G1ZE-6B379-DA	HARNESS, FUEL PUMP (NOTE 3)	1
136	G2ZE-6B379-AA	JUMPER, EEC PROCESSOR (NOTES 2 and 3)	1
136A	G2ZE-12A650-AA	PROCESSOR	1

NOTE 3: These items are located in part Group "O" (SM04-WIREKIT-AA).

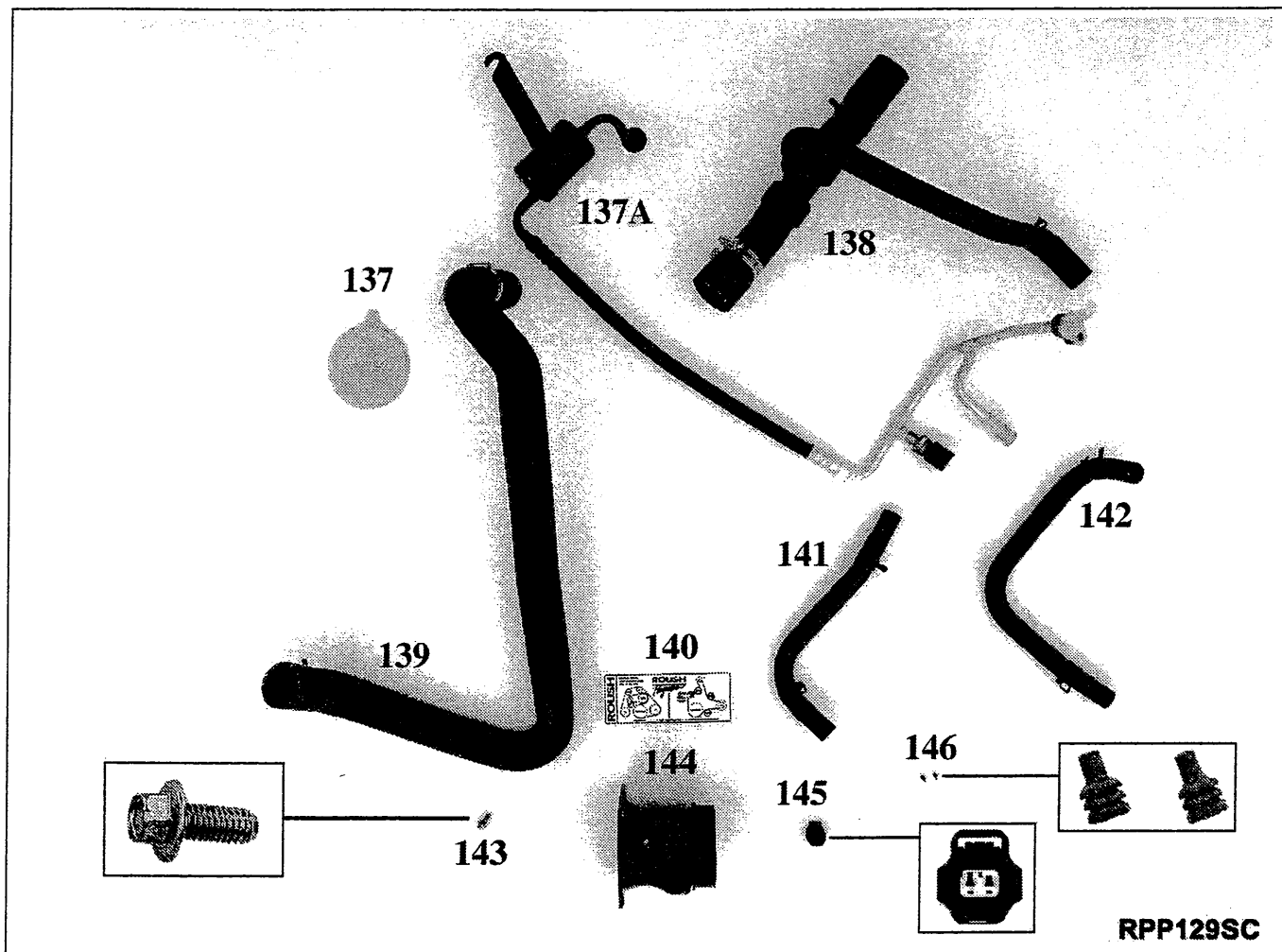
NOTE 1: Shipped affixed to item number 136A.

NOTE 2: NOT used for 2001 model year MUSTANG.

Section I

ROUSH Aftermarket SuperCharger Kit Parts List

Group K — Miscellaneous Components



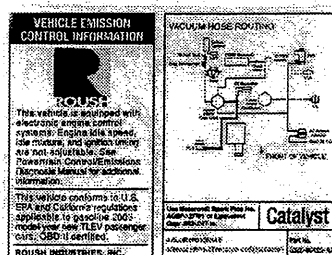
Miscellaneous Components			
Part Ref.	Part Number	Description	Qty.
137	388898-S	SEAL, POWER STEERING FITTING (NOTE 1)	2
137A	G1ZE-19972-AA	TUBE ASSY. A/C REFRIGERANT	1
138	G1ZE-8B273-AA	RADIATOR HOSE- LOWER	1
139	G1ZE-8B274-AA	HOSE ASSY. RADIATOR UPPER	1
140	G1ZE-8B656-AA	DECAL, FEAD BELT ROUTING (NOTE 1)	1
141	G1ZE-9L443-DA	HOSE, INTAKE MANIFOLD INTERCOOLER	1
142	G1ZE-9L443-EA	HOSE, INTERCOOLER WATER	1
143	N605771-S309	BOLT, M6 X 1.0 X 14, HEX HEAD	1
144	XL3Z-12B579-AA	SENSOR, MAF 80 MM 99	1

Miscellaneous Components			
Part Ref.	Part Number	Description	Qty.
145	184004-1	CONNECTOR, ENGINE CONTROL (NOTE 2)	1
146	172748-1	TERMINAL PLUG (NOTE 2)	2

NOTE 1: These items are located in part Group "N" (SM04-9K000-AA).

NOTE 2: These items are located in part Group "O" (SM04-WIREKIT-AA).

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RPP130SC 2

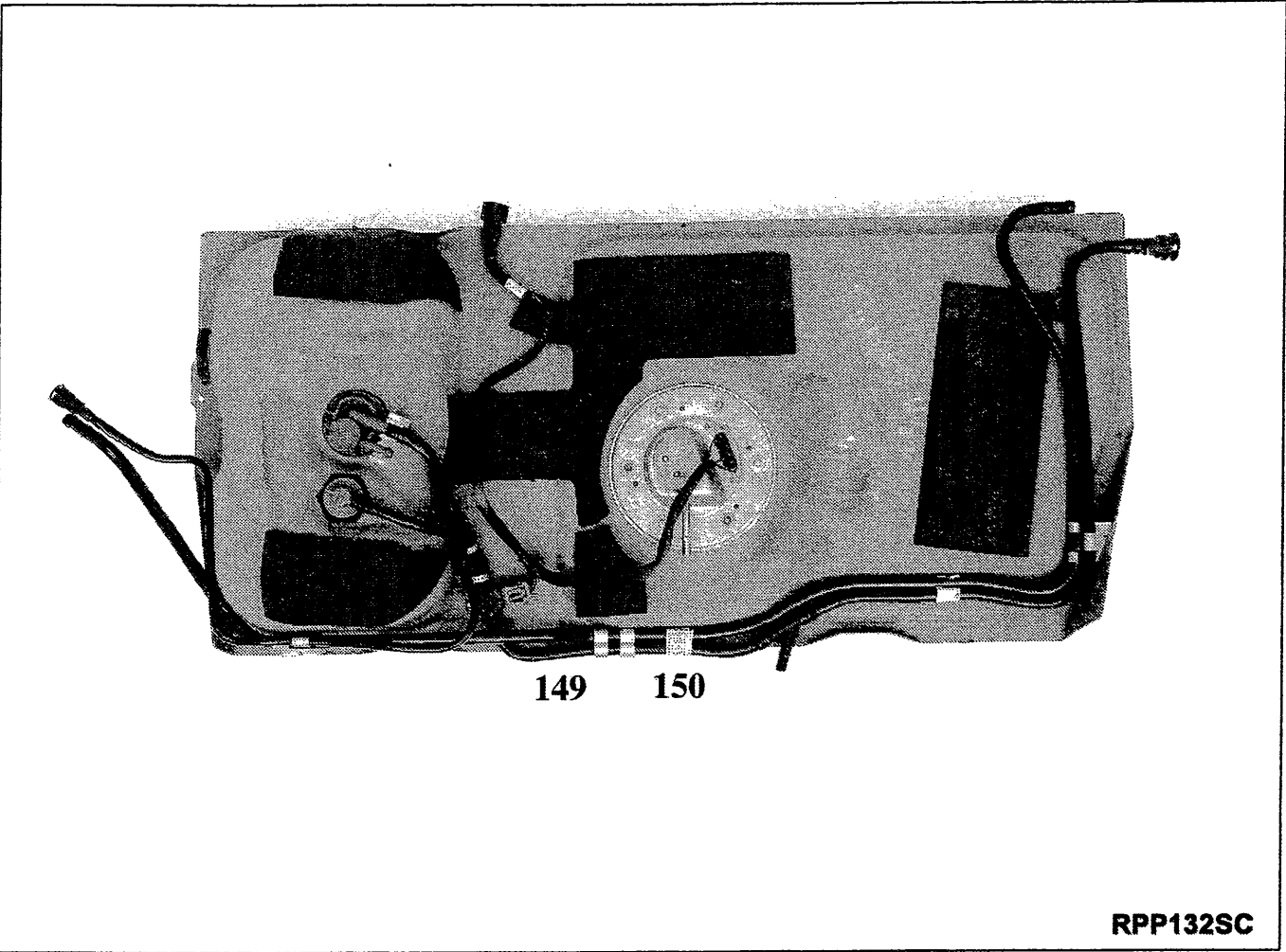
Vacuum Emission Decal			
Part Ref.	Part Number	Description	Qty.
148	G2ZE-9C485-AA	DECAL, 2003 VACUUM EMISSION (NOTE)	1

NOTE: This item is located in part Group "N"
(SM04-9K000-AA).

Section I

ROUSH Aftermarket SuperCharger Kit Parts List

Group M — Fuel Tank Assembly Components



Fuel Tank Assembly Components			
Part Ref.	Part Number	Description	Qty.
149	SM01-9002-TOA	TANK- FUEL- MUSTANG	1
150	SM01-9H307-AE	PUMP AND SENDER ASSEMBLY - FUEL	1

Special Installation Tools and FORD Shop Manual Requirements

Special Tools

The following specialized tools are required to install the ROUSH Aftermarket SuperCharger Kit.

- Crankshaft damper remover / installer
- AC hose quick disconnect tools
- 3/8-inch torque wrench
- Fuel line quick disconnect tools
- 1/2-inch torque wrench
- Extra thin 7/8-inch open end wrench
- AC recovery machine
- Clutch alignment tool
- Coolant recovery machine
- Flywheel wrench

All necessary shop manual information can be ordered through the Helm Corporation at: www.helminc.com.

Address: 14310 Hamilton Ave.
Highland Park, MI 48203

Tel: (800) 782-4356

Fax: (313) 865-5927

For questions that require an answer by a Helm customer service representative, email them at: feedback@helminc.com.

To submit an order by phone, call (800) 782-4356 or fax order to (313) 865-5927.

Customer Service hours are 8:00 a.m. to 6:00 p.m. Eastern time, Monday through Friday.

Installation Supplies and Materials

- Silicone-based spray lubricant
- Silicone sealant
- Pipe Threaded Sealer (PTFE)
- Loctite™
- Engine Oil
- Oil Filter
- Engine Coolant
- Cable ties
- AC Refrigerant

FORD Shop Manual

FORD shop manuals for model years 2001-2004 will be required for referencing the procedures necessary to remove and replace the:

- Engine, shield and transmission;
- Required “take-off” components and assemblies (including AC refrigerant, engine oil, engine coolant) from the engine;
 - AC recovery and recharge
 - Coolant recovery and fill
 - Engine oil drain and fill
 - Engine oil filter change
- Stock clutch assembly and flywheel;
- Fuel tank, fuel pump and sender assembly;
- Rear seats;
- Interior carpeting.

Section 3

Introduction

Professional Installation

The Roush Performance Parts (RPP) Stage III SuperCharger Aftermarket Kit is designed for installation in U.S. FORD MUSTANGS for model years 2001-2004.

This ROUSH Aftermarket SuperCharger Kit is intended for professional installation only. We recommend that the installation be performed by a certified FORD master mechanic with the proper facilities to perform the necessary procedures contained in this manual.

Vehicle Preparation Procedures (Take-Off Parts)

A number of engine and other components will be removed during the vehicle preparation procedure. Many of these components will be reused during the ROUSH Aftermarket SuperCharger Kit installation. Other parts will be returned to Roush for credit and some parts will be discarded.

It is recommended that all take-off engine and vehicle components, and associated mounting hardware, be grouped and tagged for easier identification later during the ROUSH Aftermarket SuperCharger Kit installation and vehicle preparation processes. This applies to reused and returned parts only.

1. Purge and recover all refrigerant from the AC system. Refer to the appropriate FORD shop manual for the necessary procedural information.
2. Remove the engine and transmission from the vehicle. Refer to the appropriate FORD shop manual for the necessary procedural information.
3. Remove the transmission and stock clutch assembly. Refer to the appropriate FORD shop manual for the necessary procedural information.
4. Remove the fuel tank, fuel pump and sender assembly. Refer to the appropriate FORD shop manual for the necessary procedural information.
5. Remove the rear seating from the vehicle. Refer to the appropriate FORD shop manual for the necessary procedural information.
6. Mount the engine on a suitable engine stand.

NOTE: The next three steps require the removal (take-off parts) of a number of stock engine components. Some of these components will be returned to Roush Performance Parts for credit, others will be reused during the SuperCharger installation and vehicle preparation processes, and others will be discarded.

Save and Reuse Take-Off Parts

Remove the following parts from the stock powertrain assembly. These parts, and their associated mounting hardware, are saved and reused during the installation of the ROUSH Aftermarket SuperCharger Kit. Saved and reused parts are referred to as carryover parts in the procedures to follow. Refer to the appropriate FORD shop manual for the necessary removal information.

- Heater hoses
- Flywheel bolts
- Heater tube mounting bolt
- Air cleaner assembly
- Canister vent hose
- Power steering return hose
- Fuel rail and fasteners
- Alternator (lower) mounting bolts
- EGR valve and fasteners
- Oil pressure sending unit
- Spark plug coil packs and fasteners
- Oil filter adapter
- EVR sensor and fasteners
- Stud mount bolt from A/C line clamp
- DPFE sensor and fasteners
- Four throttle body bolts (some ROUSH Aftermarket SuperCharger Kits may provide four bolts with the equivalent NPN-type throttle body gasket)
- Intake manifold bolts
- One wiring harness bracket
- Idler pulley (6-spline ribbed) and bolt
- One throttle cable bracket
- ECT sensor
- One alternator binding post brass nut
- Power steering reservoir
- Four push pins from the radiator cowl cover
- Power steering hose clamps
- MAF sensor fasteners
- Crankshaft damper bolt
- Harmonic damper bolt and washer

Save and Return Take-Off Parts

Remove the following parts from the stock powertrain assembly/vehicle by referring to the appropriate FORD shop manual for the necessary procedural information.

These parts are saved and returned by the retail customer to Roush Performance Parts for credit. A Powertrain Control Module (PCM) shipping box, core charge checklist card and Federal Express Billable Stamp are included to facilitate the return of the parts listed below.

Use these shipping materials to ensure that the core charge credit for your new SuperCharger system is processed correctly and in full.

- Crankshaft harmonic damper
- Alternator wiring harness
- Powertrain Control Module (PCM)
- Alternator

Discard Take-Off Parts

Remove the following parts from the stock powertrain assembly. These parts are not reused during the installation of the Roush SuperCharger package and may be discarded, if desired. Refer to the appropriate FORD shop manual for the necessary procedural information.

- Alternator
- Fuel tank and sending unit
- Thermostat housing
- Idler pulley
- Throttle body and sensor
- Wiring harness clamps
- IAC
- DPFE mounting bracket
- Intake manifold gaskets
- ACT
- Spark plugs
- EGR valve
- Heater tube
- DPFE/EVR bracket
- Power steering mounting bracket
- Lower harness clamp and stud mount

NOTE: Following installation of the ROUSH Aftermarket SuperCharger Kit, the vehicle will require a Cobra-style hood to clear the SuperCharger drive assembly. The hood can be ordered from your local FORD dealership.

Section 4

Groups A and B — Upper Intake and Intercooler Installation

Before You Begin

The upper intake and intercooler component groups are shipped preassembled from the factory. The procedures in this section are provided in the event removal and replacement of any upper intake or intercooler components are required in the future. Proceed to Section 5.

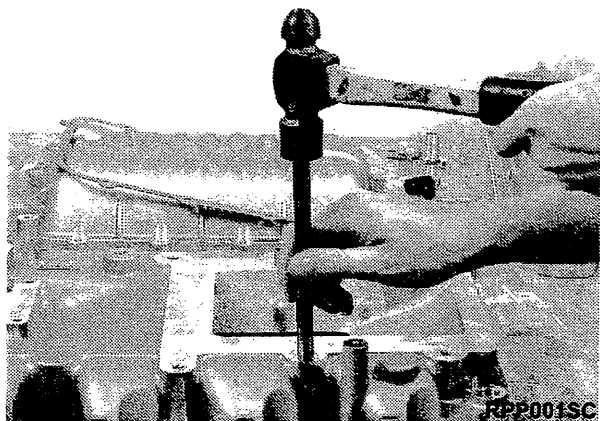
Provide a suitable surface to lay out the parts in the order required by each sequential group of installation procedures. The ROUSH Aftermarket SuperCharger Kit parts are grouped and packaged in a series of containers labeled "A" through "N". Open only those containers required by the immediate procedure and check the contents against the parts list found at the front of this manual.

Groups A and B

These procedures are concerned with the upper intake and intercooler installation.

1. Locate and lay out all ROUSH Aftermarket SuperCharger Kit part groups identified by the "A" and "B" designations.
2. Install two split dowel pins from Group "B" (part no. 388192-S) on the top surface of the upper intake manifold assembly from Group "A" (part no. G1ZE-9425-BC) using a dowel pin installation tool. **Figure 1.**

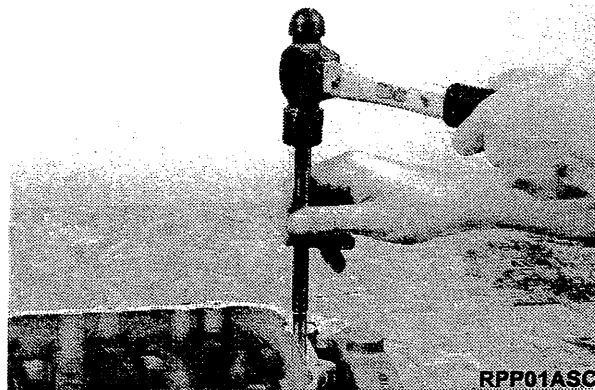
Figure 1



3. Turn the upper intake manifold assembly over and insert two hollow dowel pins from Group "B" (part no. E9SH-19E744-BA) using a dowel installation tool. **Figure 2.**

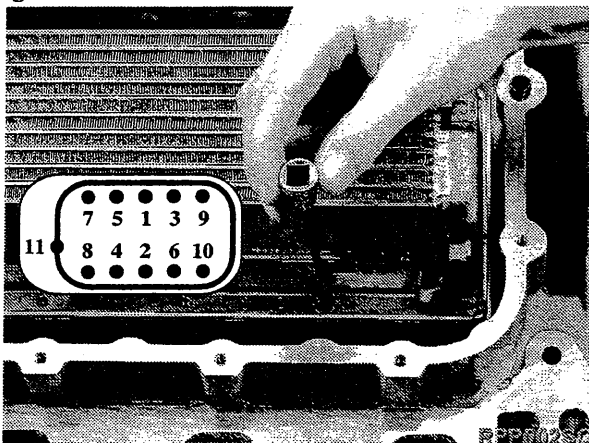
4. Inspect the engine charge air cooler assembly (intercooler) from Group "A" (part no. G1ZE-6K775-AA) for any signs of radiator fin damage, cracked welds or damaged sealer.

Figure 2



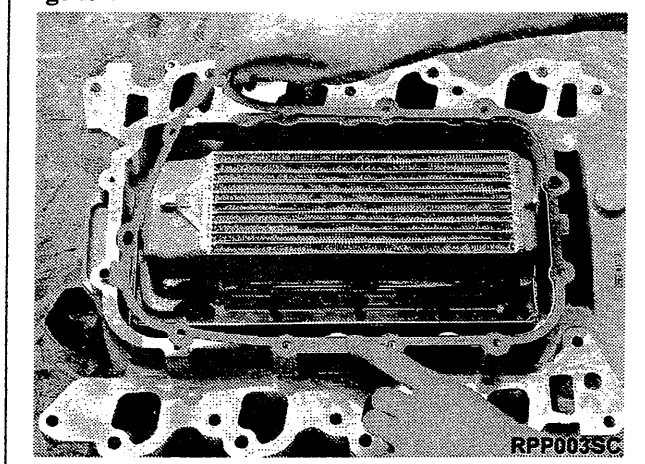
5. Install the charge air cooler assembly (intercooler) using eleven bolts from Group "B" (part no. SCS-05016-YZ) and eleven flat washers from Group "B" (part no. 11-452-0033). Apply red Loctite® to the bolt threads prior to installation. Torque to 5-7 newton-meters (N•m). **Figure 3.**

Figure 3

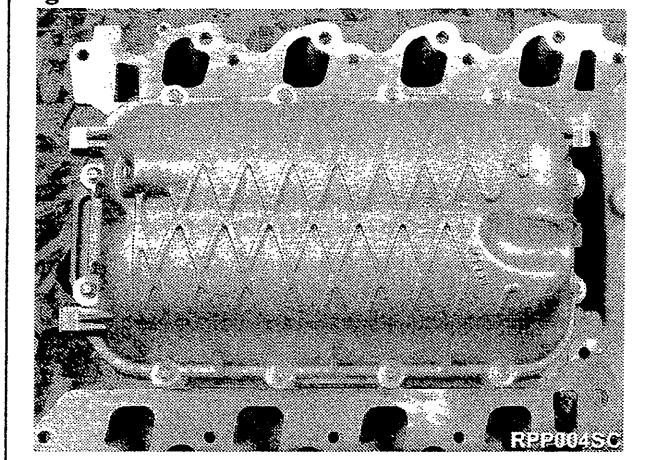


Groups A and B — Upper Intake and Intercooler Installation

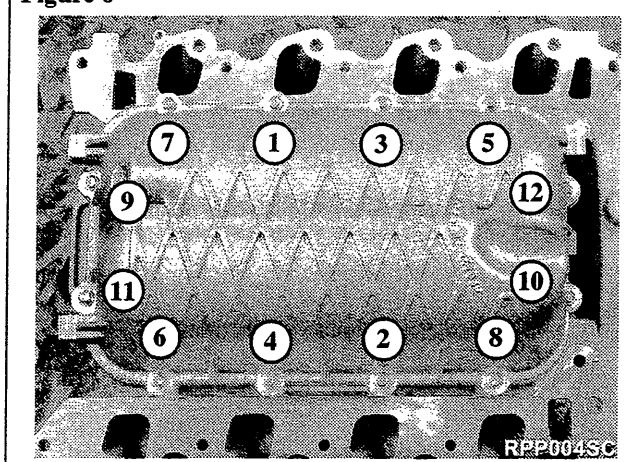
6. Install the lower manifold gasket from Group “B” (part no. G1ZE-9461-BA). **Figure 4.**

Figure 4

7. Install the lower intake manifold from Group “A” (part no. G1ZE-9K461-BA). **Figure 5.**

Figure 5

8. Secure the lower intake manifold by installing two long bolts and washers from Group “B” (part no. W704751-S309) into the dowel pins. Torque to 8-12 N•m
9. Install ten bolts from Group “B” (part no. M605894-S309). Torque to 8-12 N•m **Figure 6.**

Figure 6

10. Apply a small amount of pipe thread sealer (PTFE) to the end thread of the vacuum extension pipe elbow fitting from Group “B” (part no. 391273-S100).
11. Install the vacuum extension pipe elbow fitting and rotate the fitting so that it is tightened (seated) in the six o'clock position. **Figure 7.**

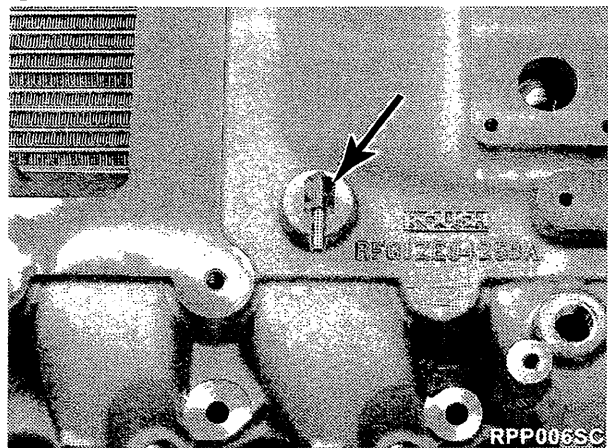
Figure 7

Section 4

Groups A and B — Upper Intake and Intercooler Installation

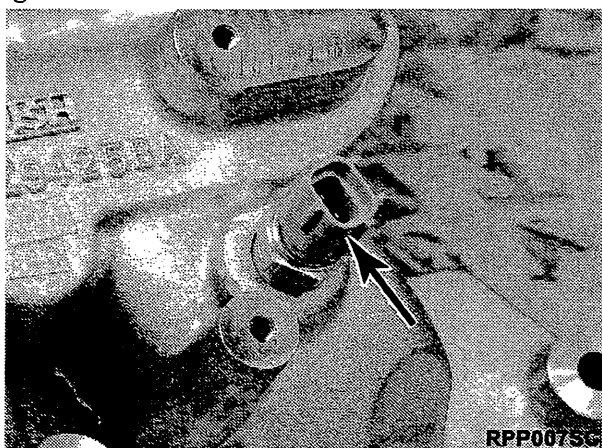
12. Turn the intake manifold back over and apply PTFE sealant to the brass intake manifold vacuum fitting from Group "B" (part no. 53525K11).
13. Install the brass vacuum fitting and rotate the fitting so that it is tightened (seated) in the six o'clock position. **Figure 8.**

Figure 8



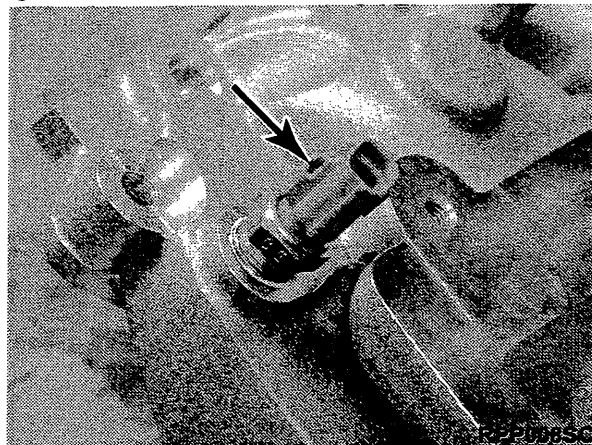
14. Apply a small amount of PTFE sealer to the end thread of the air charge temperature (ACT) sensor from Group "B" (part no. F6SF-12A697-AB).
15. Install the ACT sensor. Torque to 13-17 N•m **Figure 9.**

Figure 9



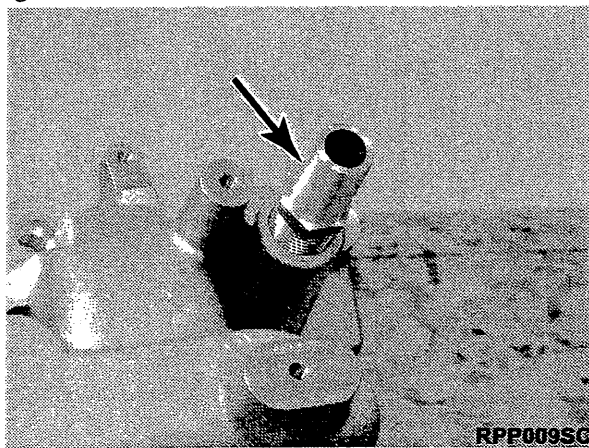
16. Apply PTFE sealer to the thread body of the carryover ECT sensor.
17. Install the ECT sensor. Torque to 13-17 N•m **Figure 10.**

Figure 10



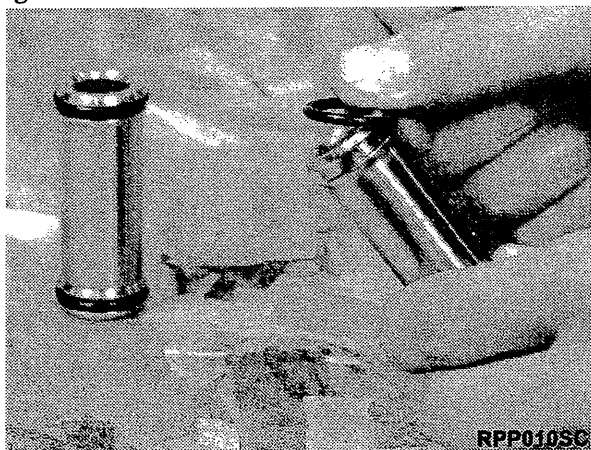
18. Apply PTFE sealant to the brass water outlet (coolant) fitting from Group "B" (part no. 5346K68).
19. Install the brass water outlet fitting. Torque to 13-17 N•m **Figure 11.**

Figure 11

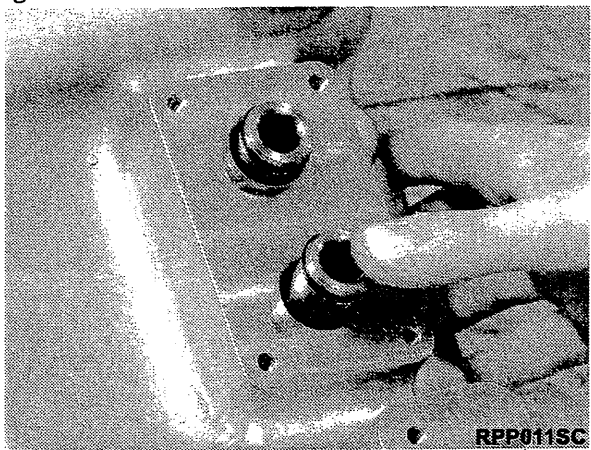


Groups A and B — Upper Intake and Intercooler Installation

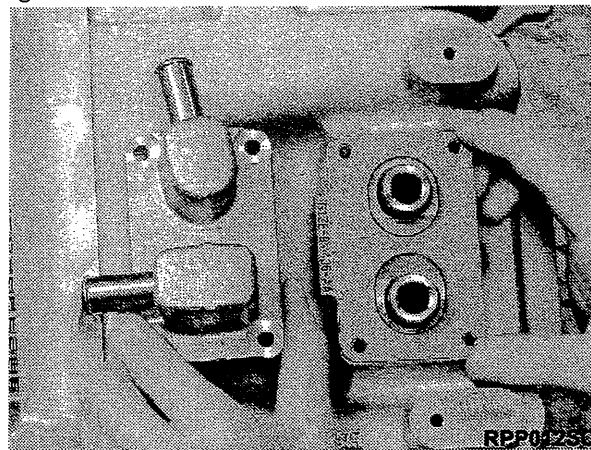
20. Install two O-rings from Group “B” (part no. 2-115) on each of the two intercooler connection tubes. Spray lubricate both ends of each of the tubes from Group “B” (part no. G1ZE-9L442-AA). **Figure 12.**

Figure 12

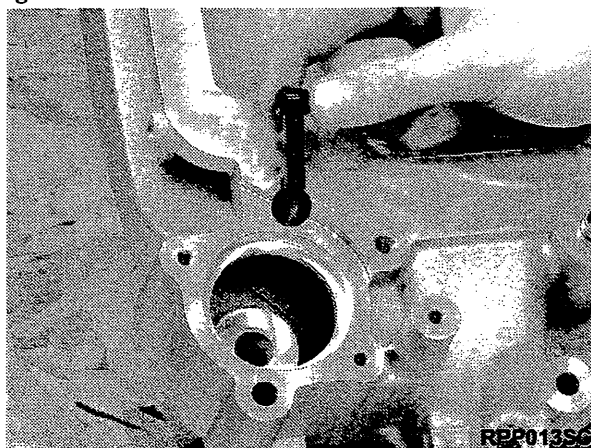
21. Insert the intercooler tubes by pushing the lubricated ends into the mating surface until it seats. **Figure 13.**

Figure 13

22. Inspect and install the engine intercooler gasket for the outlet cap from Group “B” (part no. G1ZE-9M436-AA). **Figure 14.**

Figure 14

23. Install the intake manifold outlet cap from Group “A” (part no. G1ZE-9S434-AC) with the cap oriented as shown using four outlet cap fasteners from Group “B” (part no. W500215-S309). Torque to 8-12 N•m
24. Install the hidden intake manifold bolt from Group “B” (part no. SCS-08030-ZY) near the thermostat housing as shown. **Figure 15.**

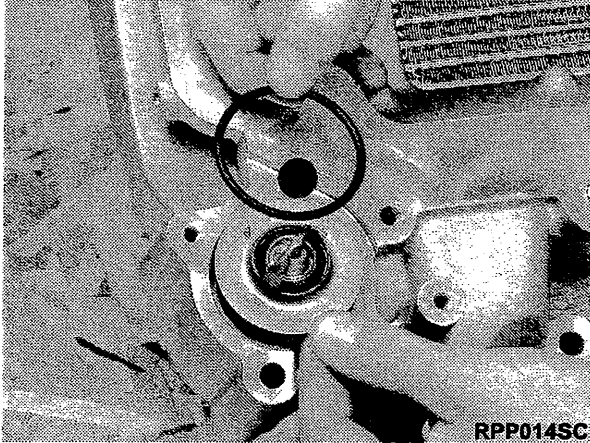
Figure 15

Section 4

Groups A and B — Upper Intake and Intercooler Installation

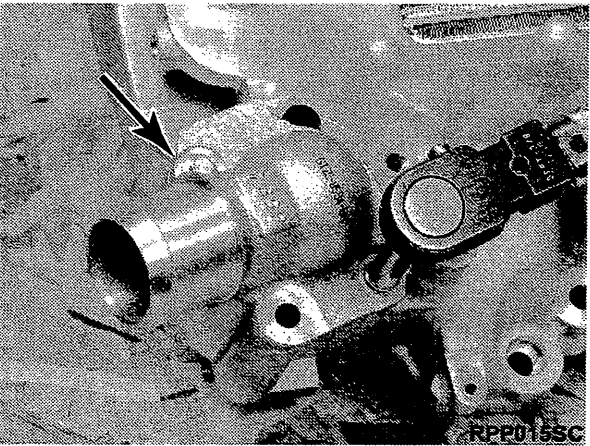
25. Install the thermostat from Group "B" (part no. XL3Z-8575-AA) followed by the thermostat O-ring from Group "B" (part no. F1VY-8255-AA). **Figure 16.**

Figure 16



26. Install the thermostat housing from Group "A" (part no. G1ZE-8594-BA) using two thermostat housing fasteners from Group "B" (part no. W500215-S309). Torque to 8-12 N•m. **Figure 17.**

Figure 17

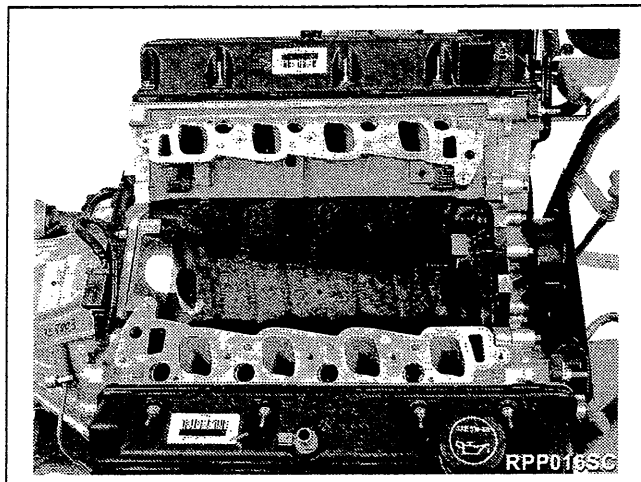


This completes the intake manifold build operation. Set the assembly aside and continue with the next series of build steps.

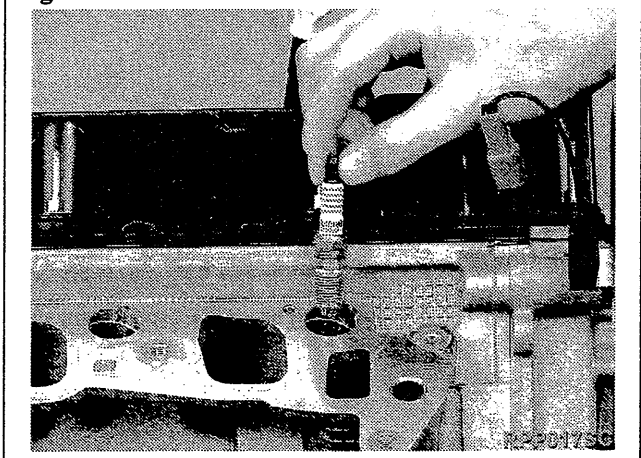
Groups C and D — SuperCharger, EGR Valve, T-Body, DPFE and EVR Installation

Groups C and D

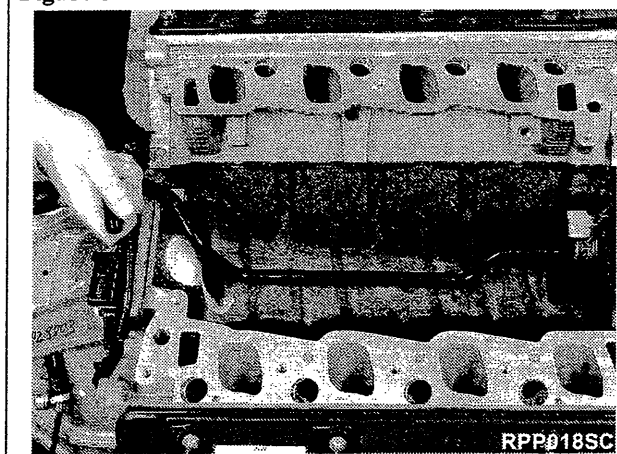
These procedures are concerned with the SuperCharger and EGR Valve/T-Body/DPFE/and EVR installation.



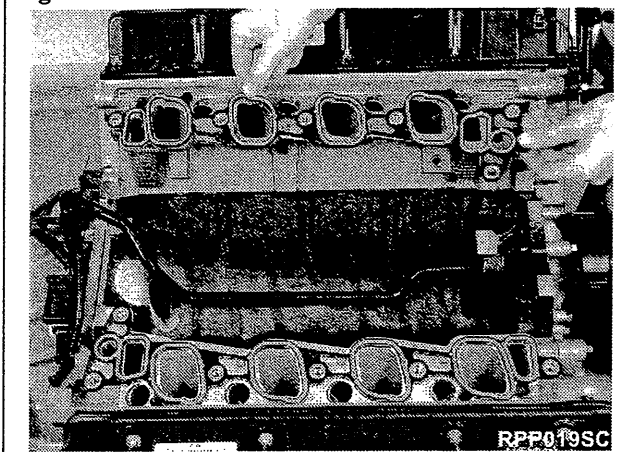
1. Locate and lay out all ROUSH Aftermarket SuperCharger Kit part Groups identified by the "C" and "D" designations. Some parts from Group "B" are used here.
2. Gap eight spark plugs from Group "C" (part no. AGSF-12FM1) to 0.044 ± 0.002 inches and install. Torque to 20-30 N•m **Figure 18**.

Figure 18

3. Install one heater water outlet tube assembly from Group "C" (part no. G1ZE-18663-BA) by reusing the take-off mounting bolt from the stock tube. Torque to 20-30 N•m **Figure 19**.

Figure 19

4. Clean the intake manifold mounting surface and install two intake manifold gaskets from Group "N" (part no. XL3Z-9439-BA). **Figure 20**.

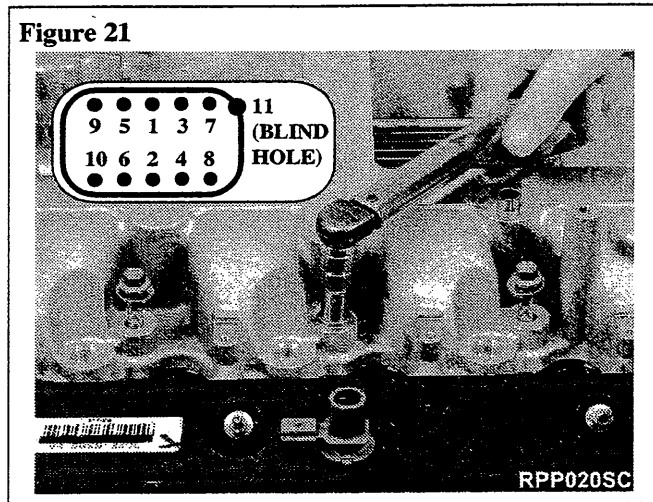
Figure 20

Section 5

Groups C and D — SuperCharger, EGR Valve, T-Body, DPFE and EVR Installation

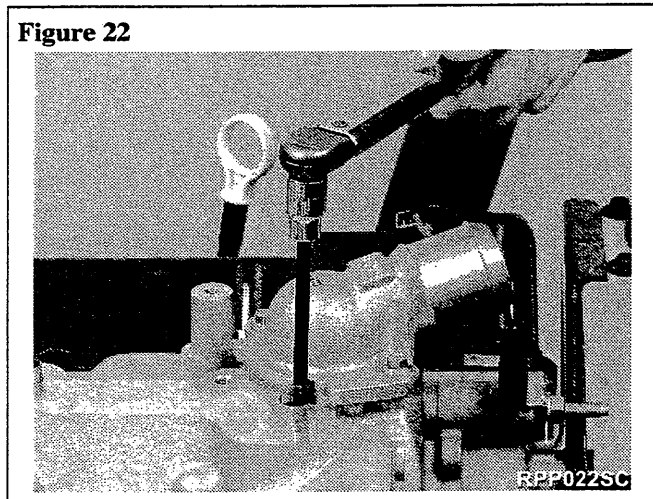
5. Install the intake manifold assembly with one carryover long bolt installed through the thermostat housing. Install the remaining ten carryover stock intake manifold fasteners and torque to 20-30 N•m using the torquing sequence shown below. **Figure 21.**

Figure 21



6. Torque the hidden bolt previously installed (blind hole next to the thermostat housing) to 20-30 N•m **Figure 22.**

Figure 22

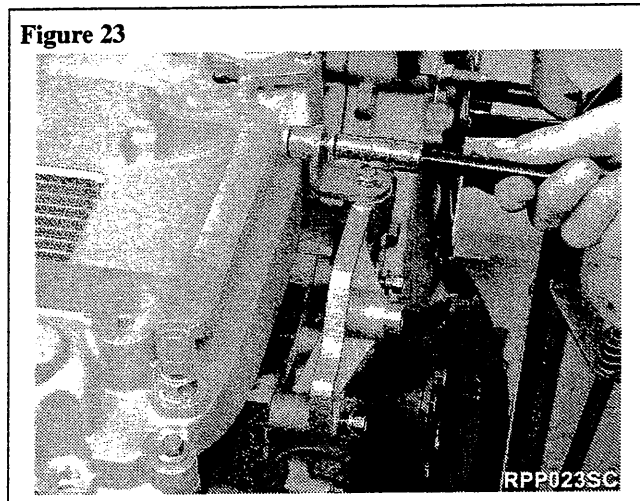


7. Install the small FEAD front engine accessory drive from Group "B" (part no. G1ZE-17K813-CA) with two bolts from Group "B" (part no. N811334-S309). Torque to 20-30 N•m.

A. Install the intake manifold support bracket from Group "B" (part no. G1ZE-9S493-AA) using one bolt from Group "B" (part no. N605787-S309) to attach the support bracket to the FEAD. Torque to 20-30 N•m.

B. Use one bolt from Group "B" (part no. N808920-S309) to attach the support bracket to the upper intake manifold. Torque to 20-30 N•m **Figure 23.**

Figure 23



8. Install the carryover wiring harness bracket using the carryover bolt and washer. Torque to 20-30 N•m **Figure 24.**

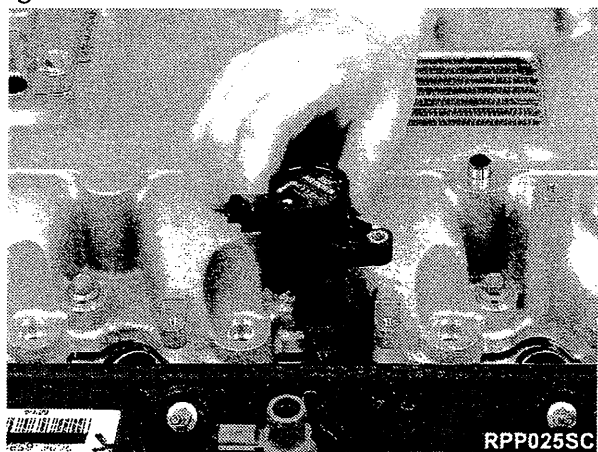
Figure 24



Groups C and D — SuperCharger, EGR Valve, T-Body, DPFE and EVR Installation

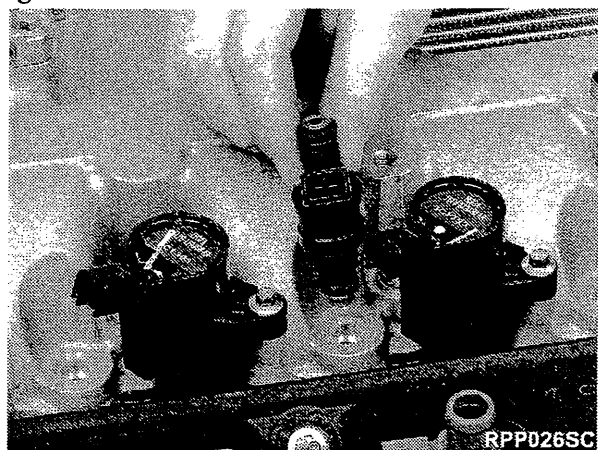
9. Install the eight carryover spark plug coil packs using the carryover hardware and fasteners. Torque to 5-7 N•m **Figure 25.**

Figure 25



10. Lubricate the O-rings of eight fuel injectors from Group "C" (part no. F4SE-9F593-BA) with a silicone-based spray lubricant and seat into their respective injector ports. **Figure 26.**

Figure 26



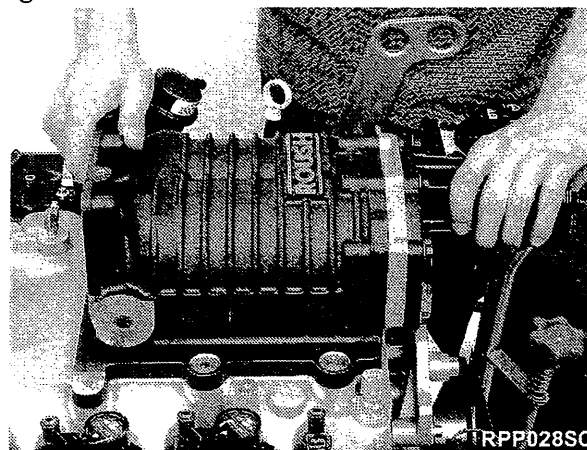
11. Install the SuperCharger outlet gasket from Group "N" (part no. G1ZE-9H486-BA). **Figure 27.**

Figure 27



12. Place the SuperCharger from Group "C" (part no. G1ZE-6F066-AA) into position on the gasket. **Figure 28.**

Figure 28

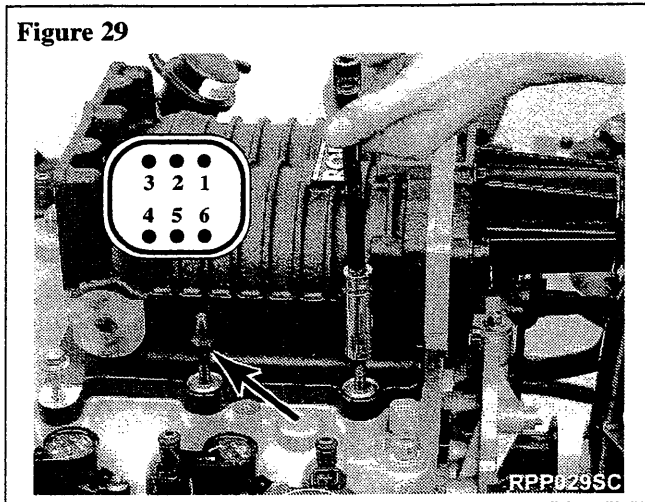


Section 5

Groups C and D — SuperCharger, EGR Valve, T-Body, DPFE and EVR Installation

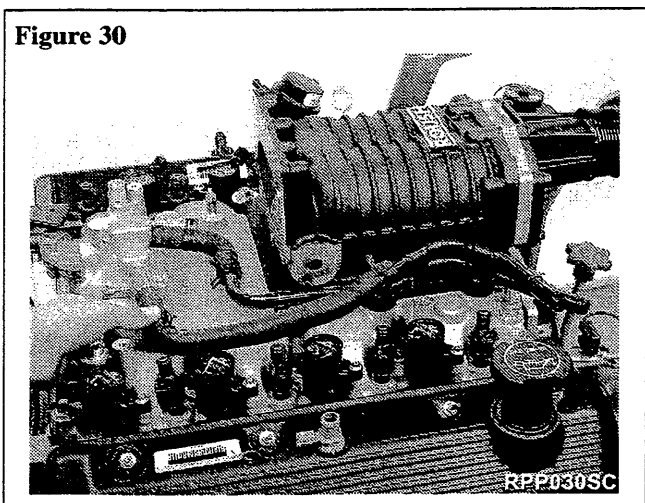
13. Place one washer from Group “C” (part no. 11-452-0038) on each of two stud mount bolts (part no. N803949-S2). Apply a drop of Loctite® to the bolt threads and install finger tight in the positions shown. **Figure 29.**

Figure 29



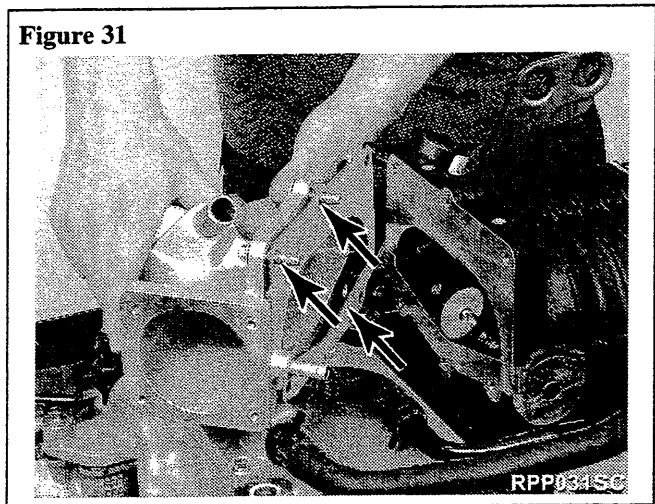
14. Apply a drop of Loctite® to the remaining four attachment bolt threads from Group “C” (part no. W705430-S309). Torque all SuperCharger mounting fasteners to 20-30 N•m
15. Install the intercooler water tube assembly from Group “C” (part no. G1ZE-9N491-AB) on the intercooler tube housing. DO NOT bolt the hose assembly down until after the throttle body is installed. Secure with the attached clamps. **Figure 30.**

Figure 30



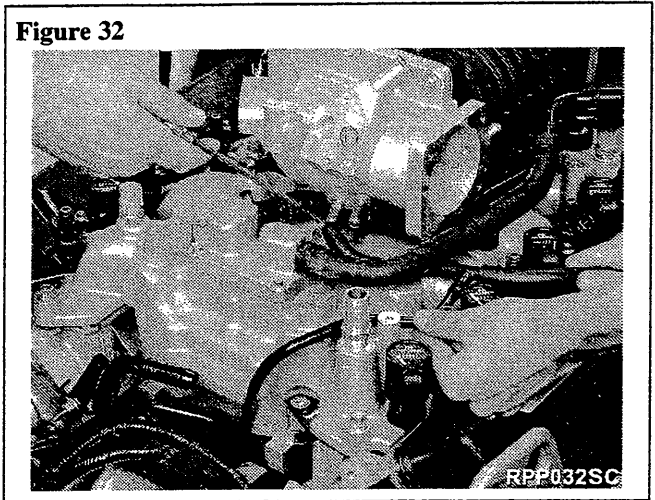
16. Install the SuperCharger inlet gasket from Group “N” (part no. G1ZE-9L437-BA) and throttle body spacer from Group “C” (part no. G1ZE-9A589-BB) onto the SuperCharger using the six bolts (part no. N808920-S309) to hold the gasket in place. Apply a drop of Loctite® to the bolt threads. Torque to 20-30 N•m **Figure 31.**

Figure 31



17. Install the crankcase vent hose assembly from Group “C” (part no. G1ZE-6C342-AA). Attach the large boot end of the “T” to the bottom vacuum fitting located at the base of the intake manifold assembly. Route the “T” section under the intercooler tube house to the left port on the throttle body spacer. **Figure 32.**

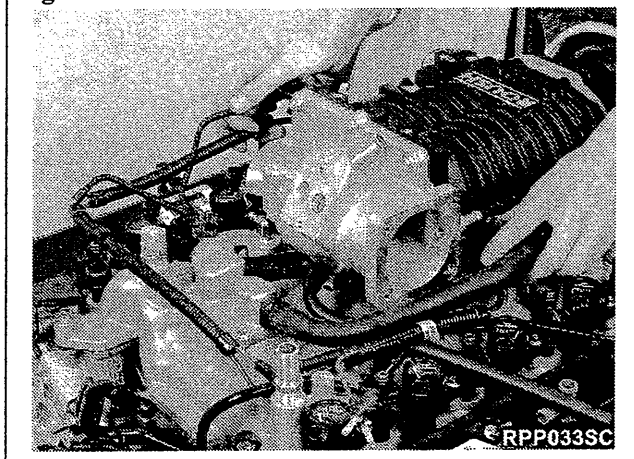
Figure 32



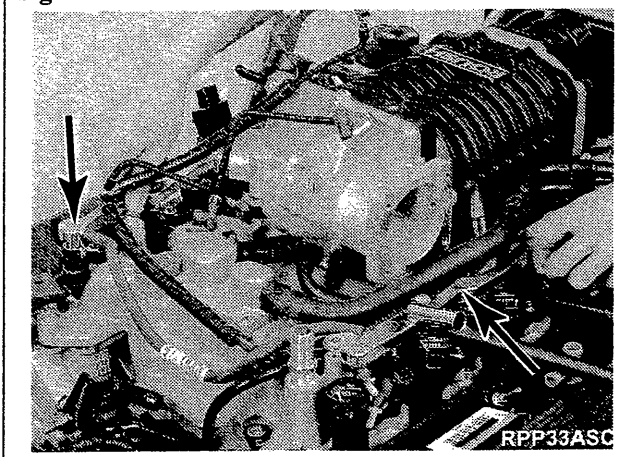
Groups C and D — SuperCharger, EGR Valve, T-Body, DPFE and EVR Installation

18. Install the emission vacuum connector assembly (part no. G1ZE-9E498-AA). There are nine vacuum harness connection points. Route the harness underneath the intercooler hose and connect to the throttle body spacer vacuum hose fitting.

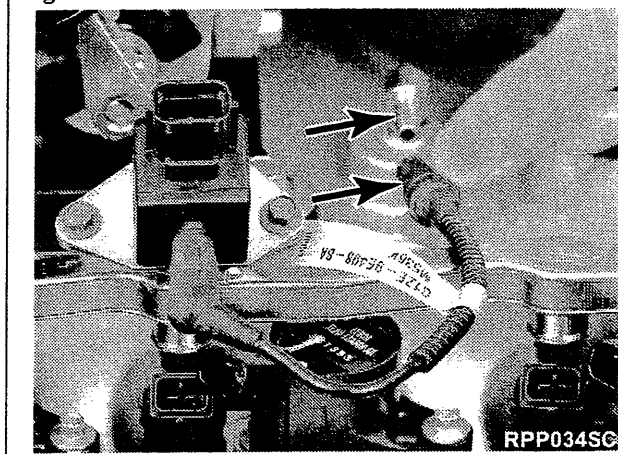
NOTE: Pull the vacuum harness up over the top of the SuperCharger in preparation for installing the fuel rail. **Figure 33.**

Figure 33

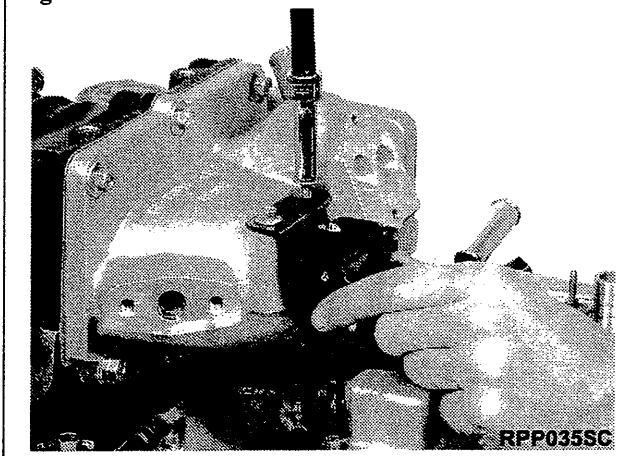
19. Install the carryover fuel rail below the vacuum harness. Spray lubricate the tops of the fuel injectors prior to the installation of the fuel rails. Push the fuel rails onto each injector and secure with the carryover mounting bolts. Torque to 5-7 N•m. **Figure 34.**

Figure 34

20. Connect the emission vacuum connector assembly from Group "D" (part no. G1ZE-9E948-BA) from the fuel pressure regulator to the small brass fitting on the intake manifold. **Figure 35.**

Figure 35

21. Attach the carryover throttle cable bracket to the throttle body spacer with two bolts from Group "D" (part no. N605771-S309). Torque to 8-12 N•m. **Figure 36.**

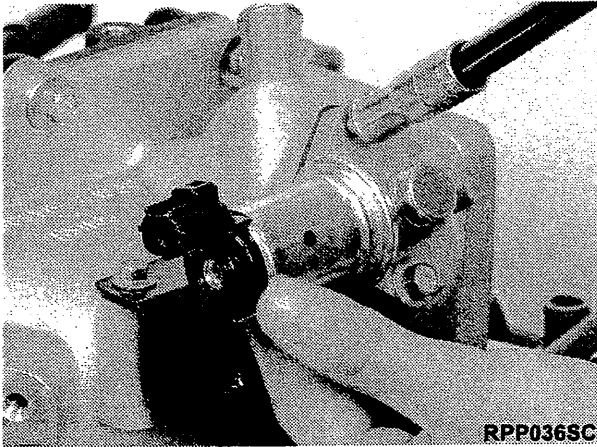
Figure 36

Section 5

Groups C and D — SuperCharger, EGR Valve, T-Body, DPFE and EVR Installation

22. Install the IAC gasket from Group “N” (part no. E83Z-9F670-AA) and motor from Group “D” (part no. F65Z-9F715-EA) onto the throttle body spacer mounting flange using two bolts from Group “D” (part no. N807309-S309). Torque to 8-12 N•m **Figure 37**.

Figure 37



Groups C and D — SuperCharger, EGR Valve, T-Body, DPFE, EVR Installation

Group D

EGR Valve/T-Body/DPFE/EVR Installation

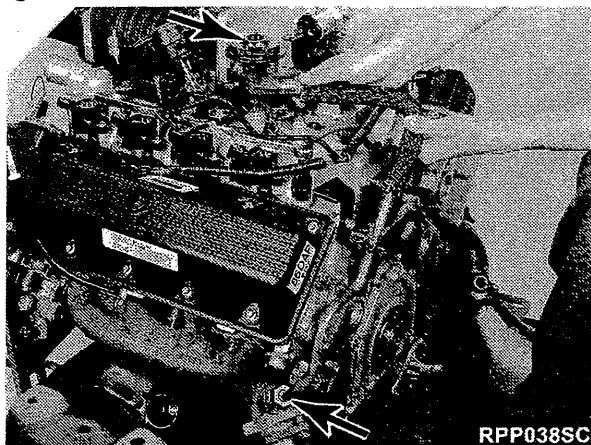
1. Continue assembling the remaining components in Group "D". Some components from Group "C" are installed in this section.
2. Install the new EGR gasket from Group "N" (part no. E6AZ-9D476-B) and valve to the throttle body spacer mounting flange with two carryover bolts. Torque to 20-30 N•m. **Figure 38.**

Figure 38



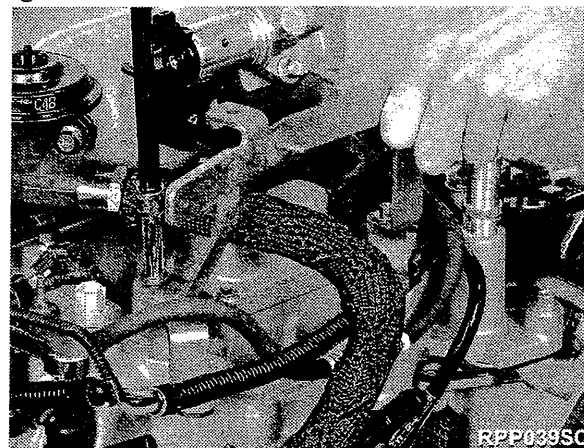
3. Install the EGR tube assembly (part no. G1ZE-9D477-BA) from the EGR valve to the exhaust manifold. Tighten with a wrench. **Figure 39.**

Figure 39



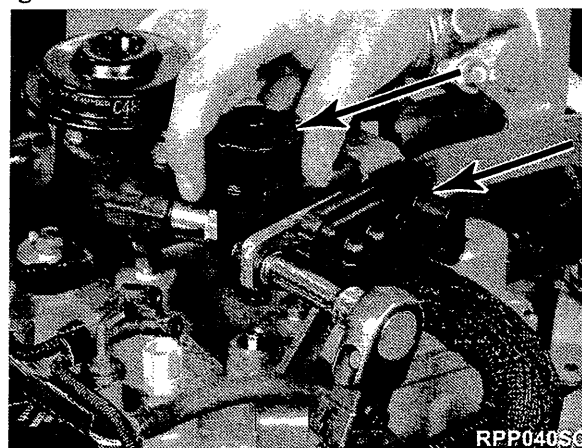
4. Install the DPFE/EVR mounting bracket from Group "C" (part no. G1ZE-9J432-BB) using two bolts from Group "D" (part no. N807131-S309). Torque to 8-12 N•m. **Figure 40.**

Figure 40



5. Install the carryover DPFE and carryover EVR onto the mounting bracket with one carryover bolt and three carryover nuts. Torque to 8-12 N•m. **Figure 41.**

Figure 41

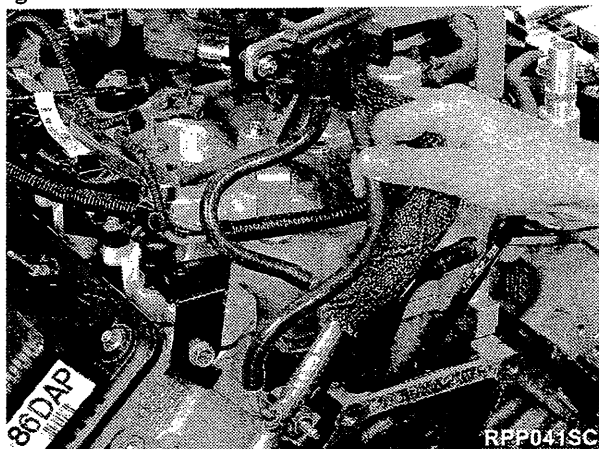


Section 5

Groups C and D — SuperCharger, EGR Valve, T-Body, DPFE, EVR Installation

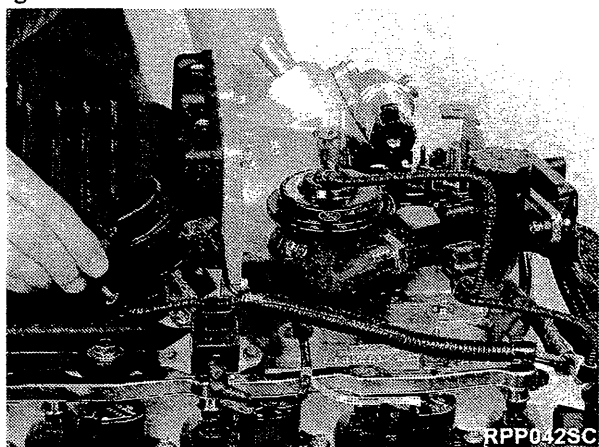
6. Install the two vacuum lines (part nos. M2D52 and G1ZE-9P761-AA) from the EVR to the EGR tube.
Figure 42.

Figure 42



7. Connect the DPFE to the vacuum line harness (two connections). Connect the EGR valve to the vacuum line harness (one connection). Connect the vacuum pot (throttle plate actuator) to the vacuum line harness (two connections). **Figure 43.**

Figure 43

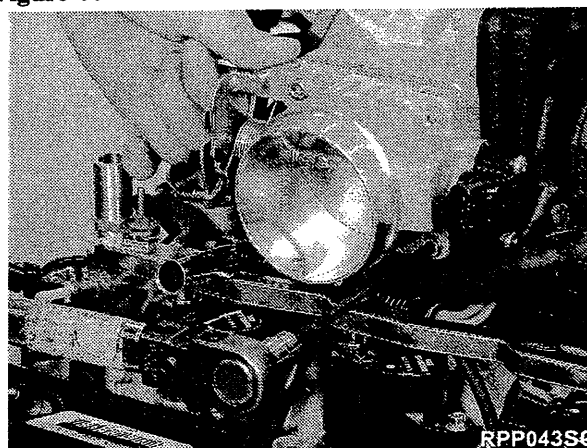


8. Mount the throttle body gasket from Group "N" (part no. G3ZE-9E936-AA) and throttle body assembly (part no. G3ZE-9E926-AA) to the throttle body spacer with four carryover bolts.

NOTE: Some ROUSH Aftermarket SuperCharger Kits may come with an equivalent NPN-type gasket and four fasteners.

It may be necessary to adjust the intercooler hoses to provide sufficient clearance to mount the throttle body. Torque to 8-12 N•m. **Figure 44.**

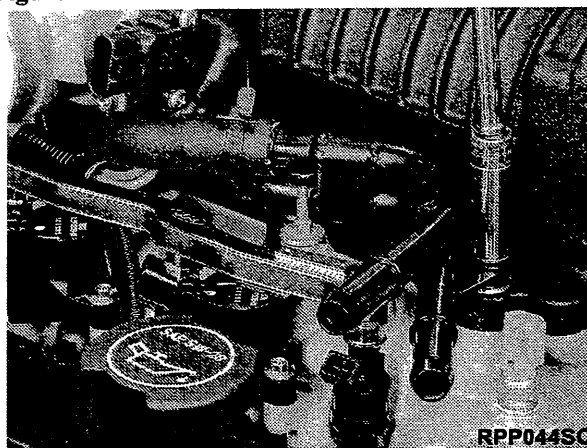
Figure 44



9. Secure the intercooler hose assembly to the stud mounts on the SuperCharger with two nuts (part no. W520413-S309).

NOTE: Do not tighten the nuts until after the throttle body is mounted to the throttle body spacer. Following this, torque the nuts to 20-30 N•m. **Figure 45.**

Figure 45



Section 6

Group E — Flywheel and Damper

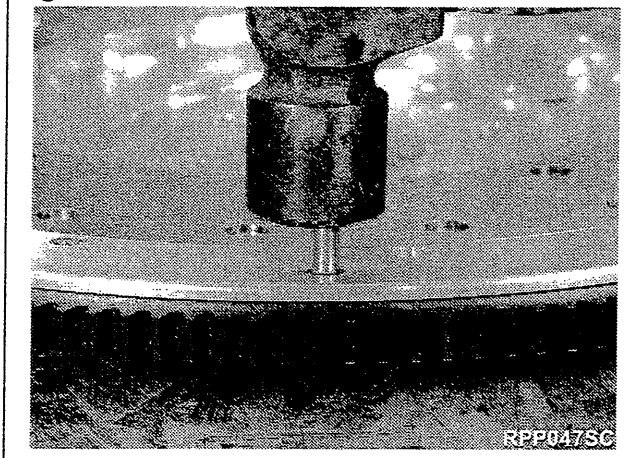
Group E

These procedures are concerned with the flywheel and damper installation.

NOTE: Steps 1-4 apply only if the optional flywheel and flywheel washer ring were purchased.

1. Locate and lay out all ROUSH Aftermarket Super-Charger Kit part Groups identified by the "E" designation.
2. Tap three dowel pins into the outer ring edge of the flywheel (part no. 563405-M) until they seat. **Figure 46.**

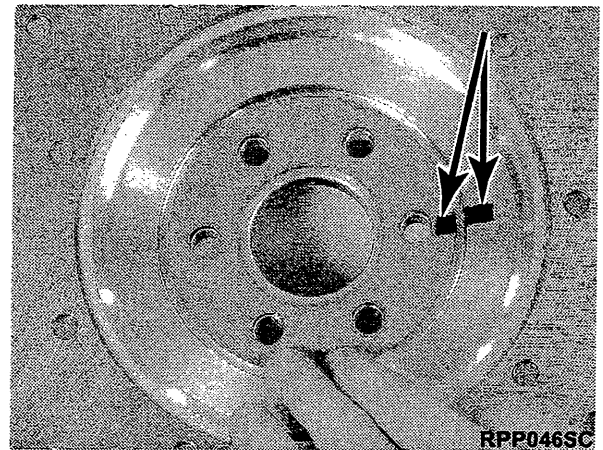
Figure 46



3. Align the flywheel washer ring (part no. F5OP-6A366-AA) bolt pattern to that of the flywheel bolt pattern and mark the point of alignment with a magic marker.

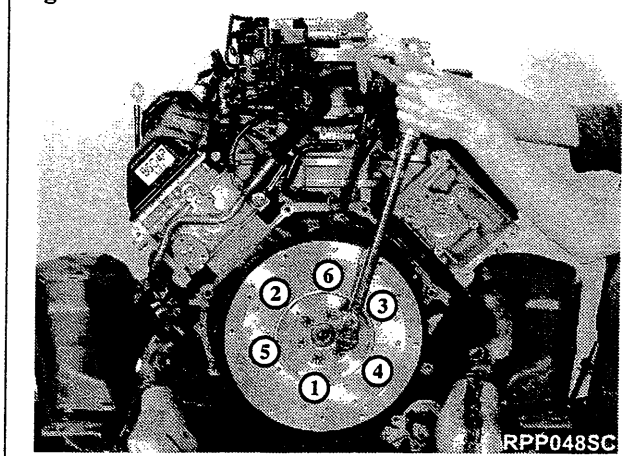
NOTE: This is necessary due to the offset in the flywheel washer ring bolt pattern relative to the flywheel bolt pattern. **Figure 47.**

Figure 47



4. Remove the OEM flywheel. Mount the new flywheel to the crankshaft. Align the bolt pattern on the flywheel to the crankshaft mounting flange.
 - A. Attach the flywheel washer ring with the correct bolt hole alignment from the previous step (match alignment mark on flywheel washer ring with alignment mark on flywheel).
 - B. Apply a drop of Loctite® to and install six carryover bolts. Torque to 73-87 N•m. **Figure 48.**

Figure 48



Section 6

Group E — Flywheel and Damper

5. Remove the OEM harmonic damper and set aside for return to Roush. Apply a bead of silicone sealant to the harmonic damper (part no. G1ZE-6316-AA) keyway. Install the new harmonic damper, using the carryover bolt and washer, by aligning the damper keyway with the shaft key. Push the damper onto the key. Final assembly and seating of the damper requires the following torquing procedure:
 - A. Torque the mounting bolt to 47-53 N•m.
 - B. Untighten the mounting bolt.
 - C. Torque the mounting bolt again to 41 N•m.
 - D. Continue to tighten the mounting bolt by rotating it an additional 90° past the point at which a 41 N•m reading is indicated. **Figure 49.**

Figure 49

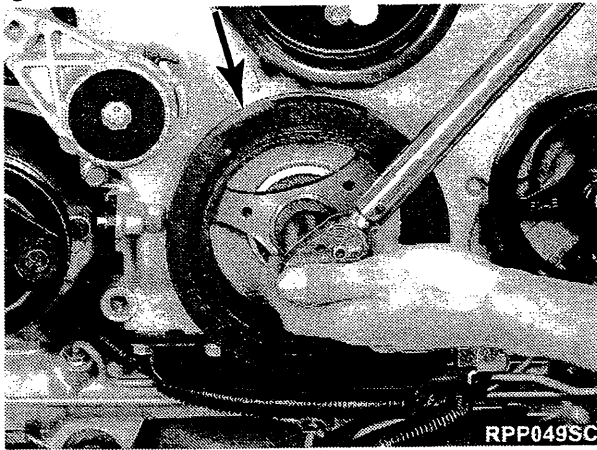
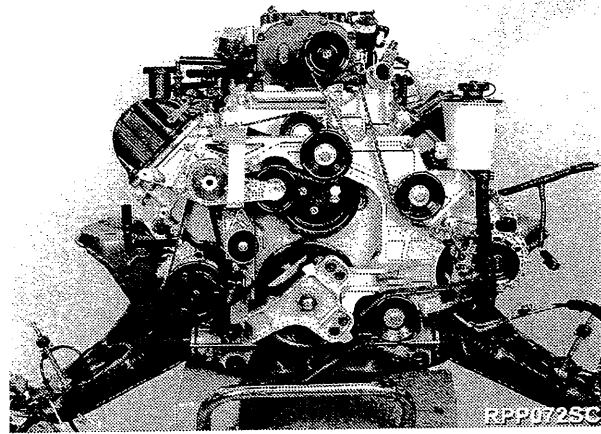


Figure 50



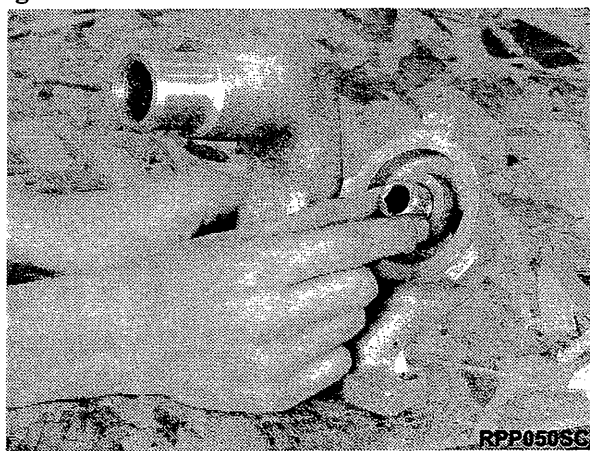
This completes the engine build portion of the Super-Charger installation procedure. **Figure 50.** Continue with the following vehicle preparation procedures.

Group F — Oil Filter Adapter and Front Support

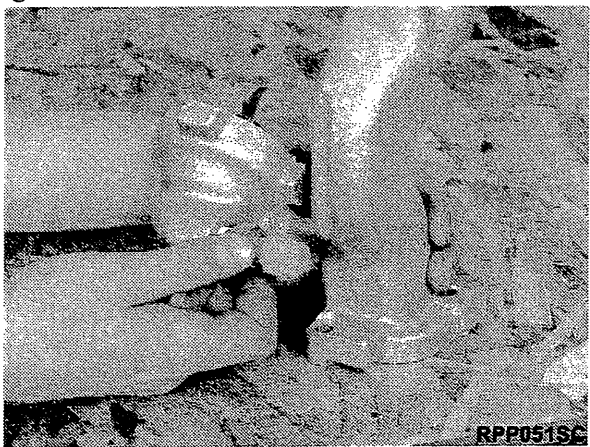
Group F

These procedures are concerned with the oil filter adapter and front support installation.

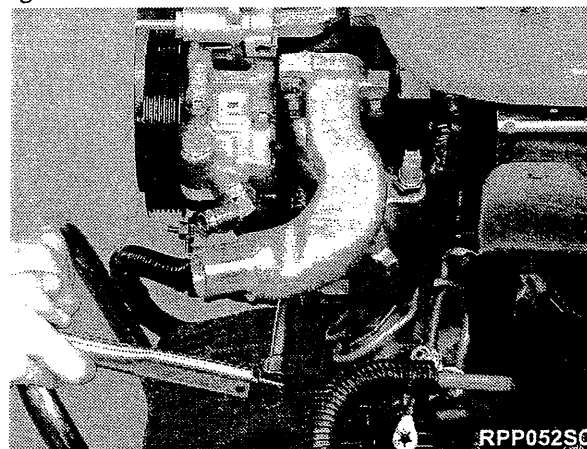
1. Locate and lay out all ROUSH Aftermarket Super-Charger Kit part Groups identified by the "F" designation.
2. Install the carryover oil filter adapter nut on the oil filter/water outlet adapter (part no. G1ZE-6884-BB). Torque to 20-30 N•m. **Figure 51.**

Figure 51

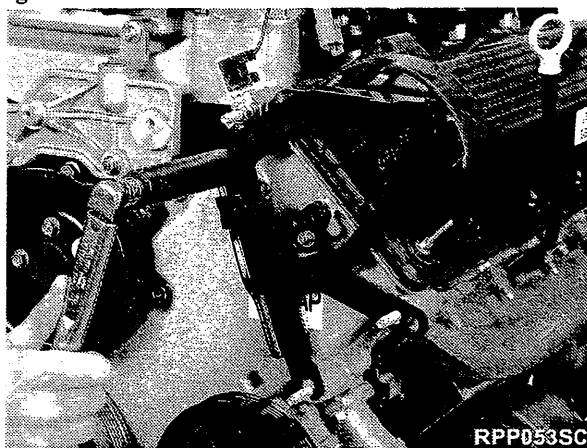
3. Apply pipe thread sealer to the threads of the carryover oil pressure sending unit. Install the sending unit on the oil filter/water outlet adapter. Torque the sending unit to 13-17 N•m. **Figure 52.**

Figure 52

4. Mount the carryover oil filter/water outlet adapter gasket and new adapter assembly to the engine block with four carryover bolts. Torque to 20-30 N•m. Rotate the brass power steering hose connection fitting approximately 90° so that it is parallel with the coolant outlet. **Figure 53.**

Figure 53

5. With a deep socket, install the power steering reservoir bracket (part no. G1ZE-3490-AC) using ONLY the stud mount bolt (part no. N805112-S2). Torque to 20-30 N•m. **Figure 54.**

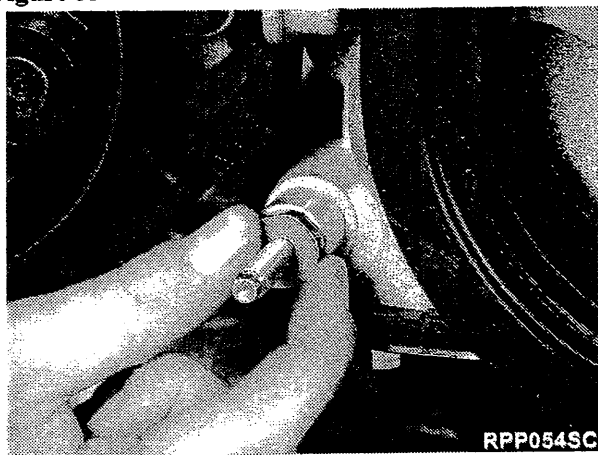
Figure 54

6. Install the front engine support stud mount (part no. N806300-S2) with spacer (part no. G1ZE-6132-AA). Torque to 20-30 N•m. **Figure 55.**

Section 7

Group F — Oil Filter Adapter and Front Support

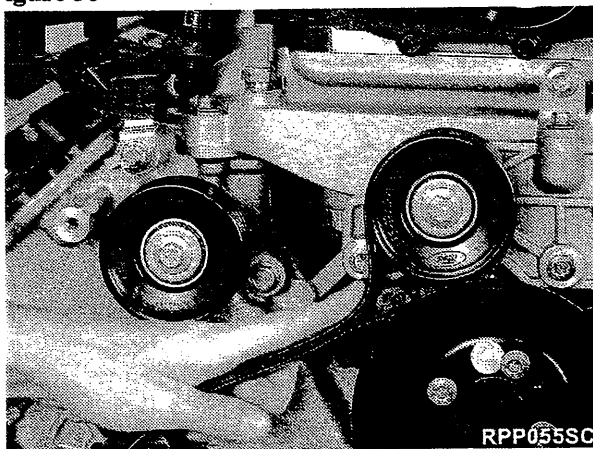
Figure 55



7. Install two crankshaft drive idler pulleys. One ribbed side pulley (tensioner) is a carryover part and one is a ribbed, serpentine belt idler pulley supplied with the ROUSH Aftermarket SuperCharger Kit

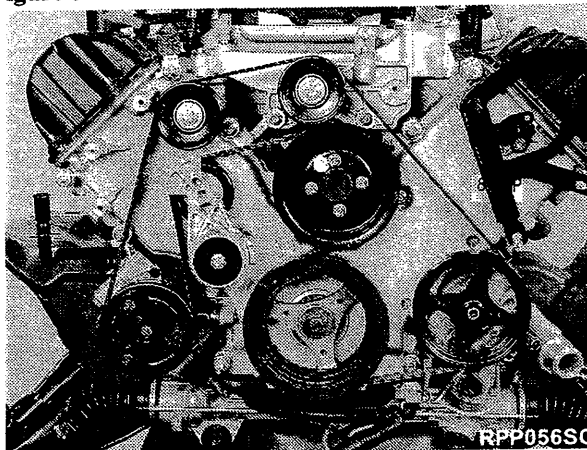
- A. Install the ROUSH Aftermarket SuperCharger Kit-supplied ribbed pulley (part no. YW7E-19A216-AA) with one bolt (part no. N811493-S309) at the 12 o'clock position. Torque to 20-30 N•m.
- B. Wrap the drive belt (part no. G1ZE-8620-AA) around the pulley.
- C. Install the carryover side tensioner pulley with the carryover bolt. Torque to 20-30 N•m. **Figure 56.**

Figure 56



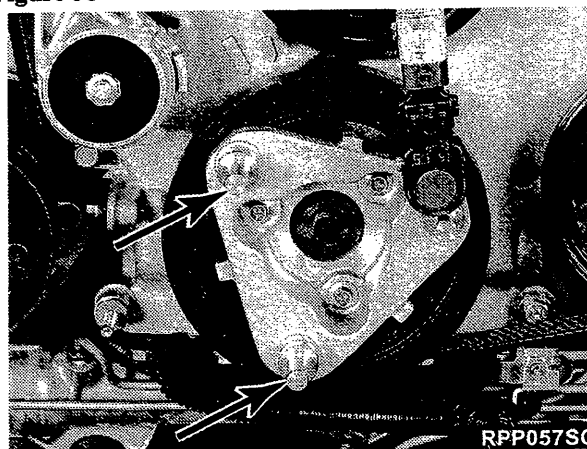
8. Route the main drive belt as indicated below. **Figure 57.**

Figure 57



9. Apply Loctite® to three crankshaft damper adapter bolts (part no. N605787-S309).
- A. Mount the crankshaft damper adapter (part no. G1ZE-6A329-BA) to the damper. Torque to 20-30 N•m.
 - B. Install three PTO driver output shaft pins (part no. G1ZE-7N660-AA) on the crankshaft damper adapter flange. Torque to 45-55 N•m. **Figure 58.**

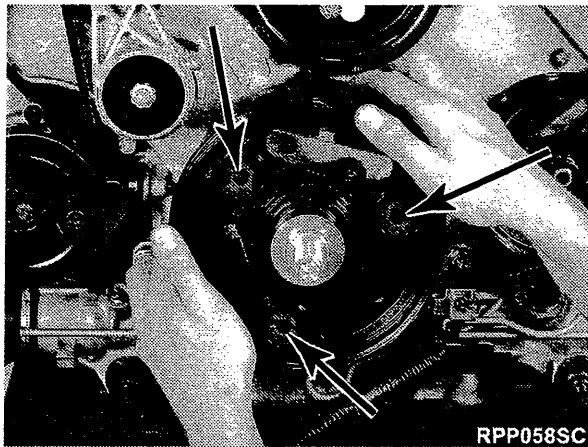
Figure 58



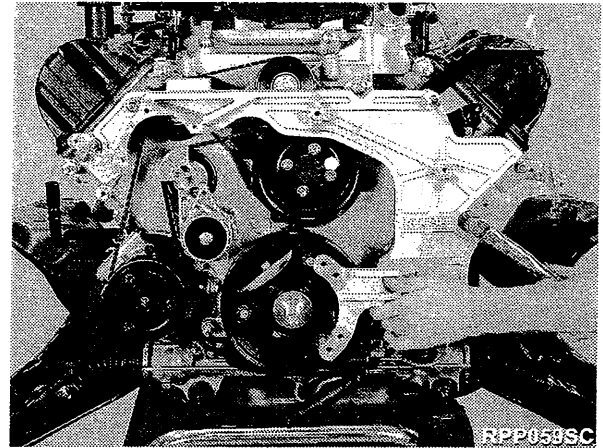
Group F — Oil Filter Adapter and Front Support

10. Install the engine auxiliary drive shaft (part no. G1ZE-6K230-AA) through the hub of the crankshaft drive pulley (part no. G1ZE-6M312-AA).

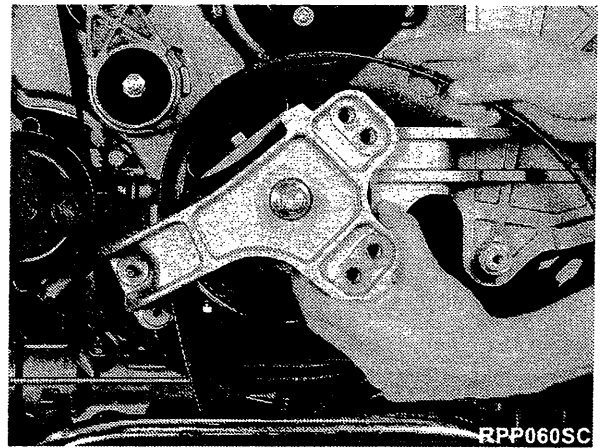
- A. Install the drive shaft through the number side of the pulley. Mount the engine auxiliary drive shaft spacer (part no. G1ZE-6A096-AA) over the threaded end of the engine auxiliary drive shaft. The threaded end will face outward from the front of the engine.
- B. Mount the completed engine auxiliary drive shaft assembly onto the crankshaft adapter. Spray lubricate the bushings, and then push the drive pins through the rubber bushings on the auxiliary drive shaft assembly. **Figure 59.**

Figure 59

11. Mount the belt idler support bracket (part no. G1ZE-8A653-BA). There are six mounting points.
- A. From left-to-right, install the carryover stud mount bolt. Torque to 8-12 N•m.
 - B. Torque two remaining nuts (upper and lower) (part no. W520413-S309), one long bolt (part no. W705430-S309) and one short bolt (part no. N605787-S309) to 20-30 N•m.
 - C. Install the brass wiring harness bracket (part no. G1ZE-14550-AA) over the stud mount bolt and secure with one nut (part no. W520413-S309). Torque to 20-30 N•m. **Figure 60.**

Figure 60

12. Arrange the SuperCharger drive belt (part no. G1ZE-8620-BA) so that it rests loosely over the crankshaft drive pulley. Mount the engine front support (part no. G1ZE-6A057-BA) over the previously installed brass stud bolt. Secure with one nut (part no. W520413-S309) and four bolts (part no. N605800-S100). Torque the nut to 20-30 N•m. Torque the four bolts to 45-50 N•m. **Figure 61.**

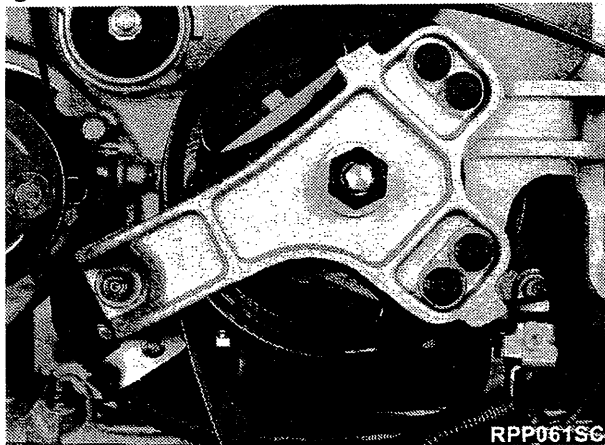
Figure 61

Section 7

Group F — Oil Filter Adapter and Front Support

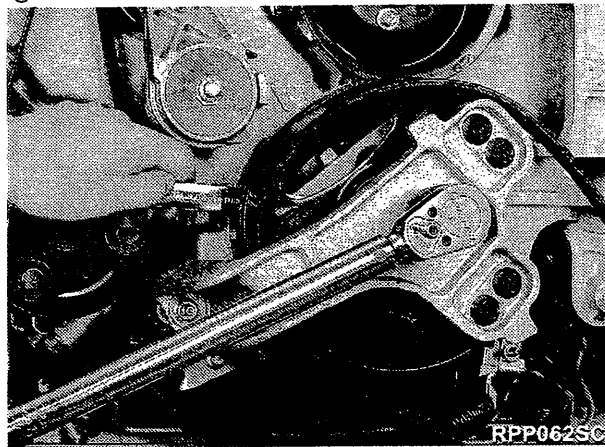
13. Mount the lower wiring harness bracket (part no. G1ZE-14550-BA) to the engine front support with one bolt (part no. N605771-S309). Torque to 8-12 N•m. **Figure 62.**

Figure 62



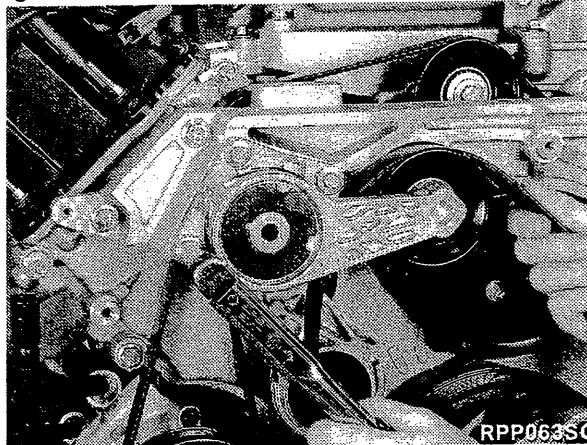
14. Secure the engine front support with the engine auxiliary drive shaft washer (part no. N810338-S301) and nut (part no. N804199-S191). Before torquing the nut, use a thin profile 7/8-inch open-end wrench to access the area behind the drive pulley and crankshaft damper to lock the shaft in preparation for torquing the engine auxiliary drive shaft nut. Torque the nut to 180 N•m. **Figure 63.**

Figure 63



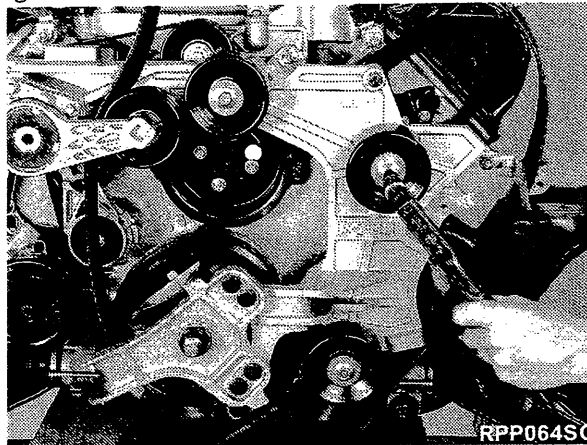
15. Install the belt tensioner pulley assembly (part no. XL3Z6B209CA) for the SuperCharger drive. Before installing, loop the SuperCharger drive belt over the belt tensioner pulley. Secure with three bolts (part no. N808920-S309). Torque to 20-30 N•m. **Figure 64.**

Figure 64



16. Install three fixed-position idler pulleys (part no. F65E-19A216-AA). Secure with one bolt (part no. N811493-S309) each. Torque to 20-30 N•m. **Figure 65.**

Figure 65



Section 8

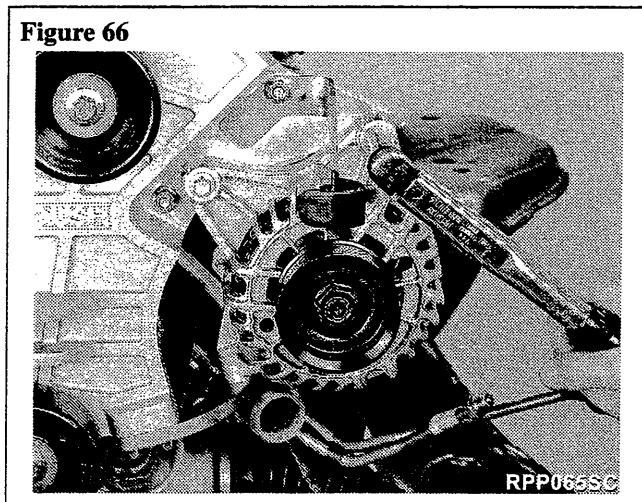
Group G — Lower Alternator Support

Group G

These procedures are concerned with the lower alternator support bracket installation.

1. Locate and lay out all ROUSH Aftermarket SuperCharger Kit part Groups identified by the "G" designation.
2. Install the lower alternator support bracket (part no. G1ZE-10153-BA) with two flange head hex bolts (part no. N605787-S309). Torque the bolts to 20-30 N•m.
 - A. Install the lower alternator carryover bolt and torque to 20-30 N•m.
 - B. Mount the ROUSH Aftermarket SuperCharger Kit-supplied alternator (part no. G1ZE-10300-AA) to the bracket with three bolts (part no. W500215-S309). Torque the lower bolt to 8-12 N•m. Torque the upper bolts to 20-30 N•m.

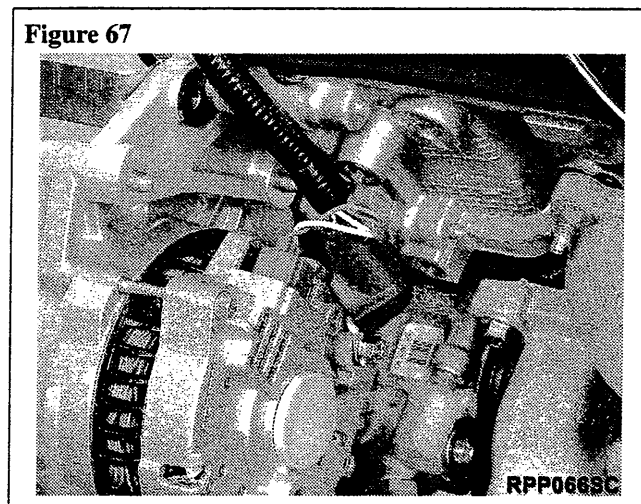
Figure 66



3. Install the alternator wiring harness (part no. G1ZE-14305-AA). Attach the wiring harness lug wire to the alternator binding post with the carryover brass nut. Torque to 8-12 N•m. Pull the rubber insulating boot over the lug and nut. Connect the female harness connector to the male connector on the alternator.

Figure 67.

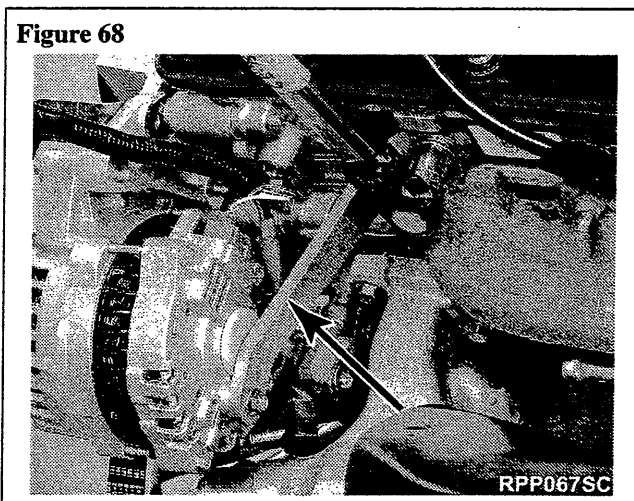
Figure 67



4. Mount the rear alternator support bracket (part no. G1ZE-10153-CA) to the alternator and engine block with two bolts (part nos. W704186-S309 and N605787-S309). Torque the engine block bolt to 65-75 N•m. Torque the alternator bolt to 20-30 N•m.

Figure 68.

Figure 68

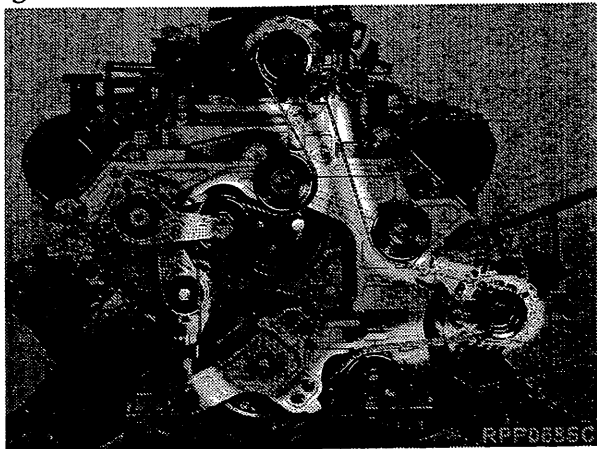


Section 8

Group G — Lower Alternator Support

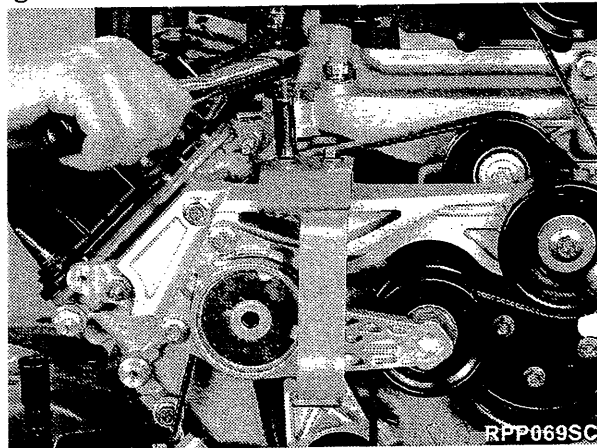
5. Route the SuperCharger drive belt as shown below. Release the belt tensioner to allow routing of the belt under the second fixed idler pulley. **Figure 69.**

Figure 69



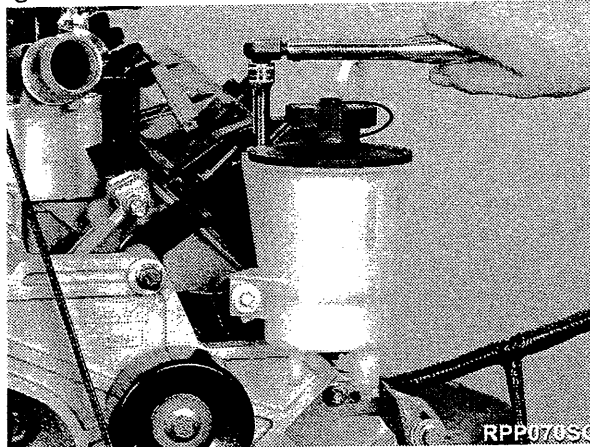
6. Install the upper radiator hose (support) bracket (part no. G1ZE-8N195-AA) with two flange head hex bolts (part no. N605787-S309). Torque to 20-30 N•m. **Figure 70.**

Figure 70



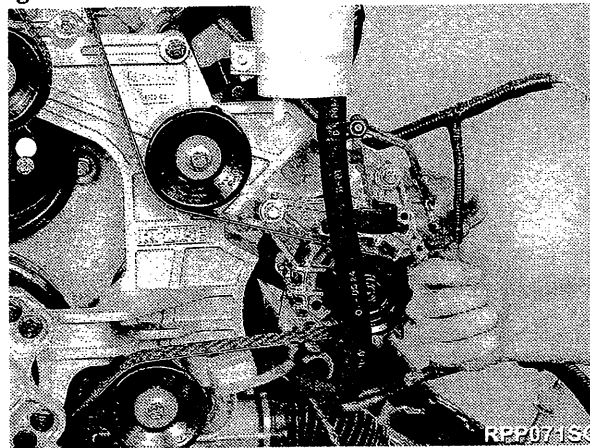
7. Attach three “J” clips (part no. N623332-S301) to the power steering reservoir mounting bracket. Mount the carryover power steering reservoir to the bracket with three bolts (part no. W704734-S301). Torque to 8-12 N•m. **Figure 71.**

Figure 71



8. Attach the power steering reservoir supply hose to the large outlet on the reservoir (part no. G1ZE-3691-AA) and the lower 90° brass fitting on the power steering pump with spring-type hose clamps. **Figure 72.**

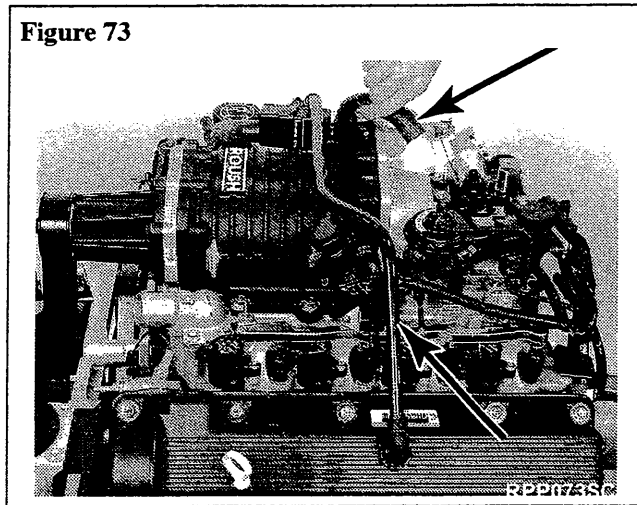
Figure 72



Section 8

Group G — Lower Alternator Support

9. Install the air bypass valve tube assembly (part no. G1ZE-9H308-AA) and the crankcase vent tube assembly (part no. G1ZE-6758-AA). **Figure 73.**



Section 9

Groups H-M — Vehicle Preparation Procedures

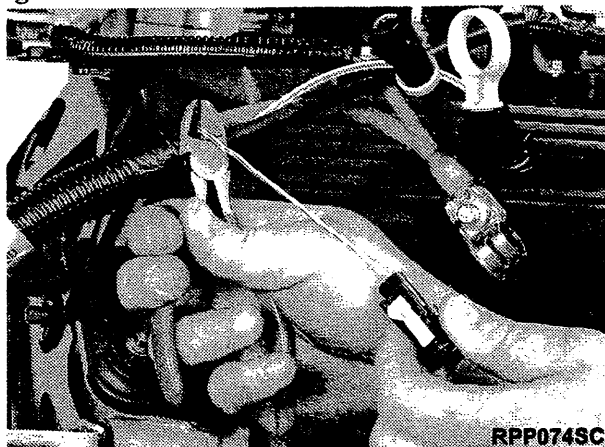
Groups H-M

These procedures are concerned with a series of vehicle modification and assembly installations.

Electrical Modifications

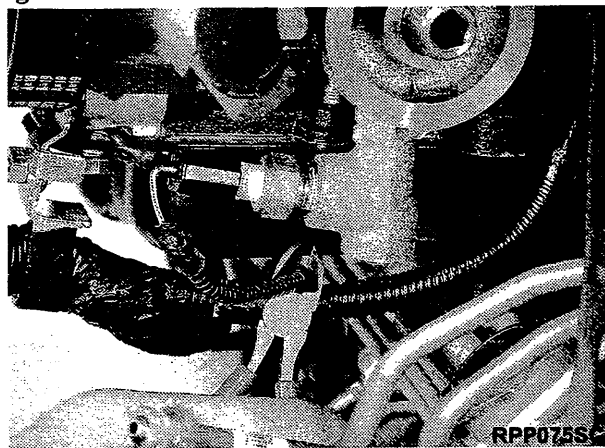
1. Locate and lay out all ROUSH Aftermarket Super-Charger Kit part Groups identified by the "H" through "M" designations.
2. Locate the signal wire for the oil pressure switch. This is the smallest white wire with a red tracer in the engine wiring harness assembly. **Figure 74.**

Figure 74



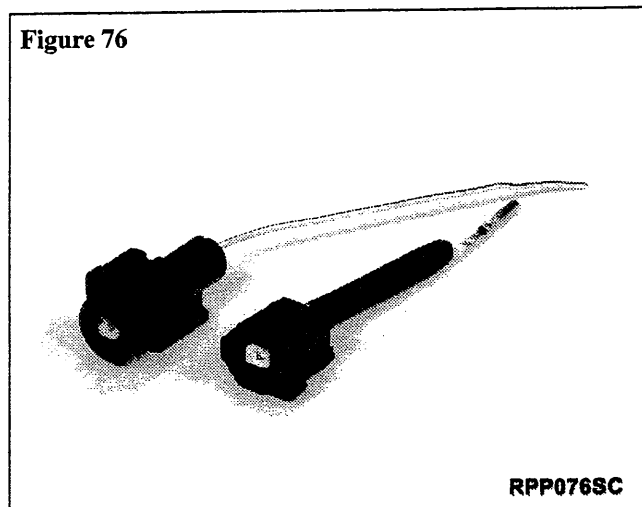
3. Trace the oil pressure switch signal wire back through the oil filter bracket to the oil filter area. **Figure 75.**

Figure 75



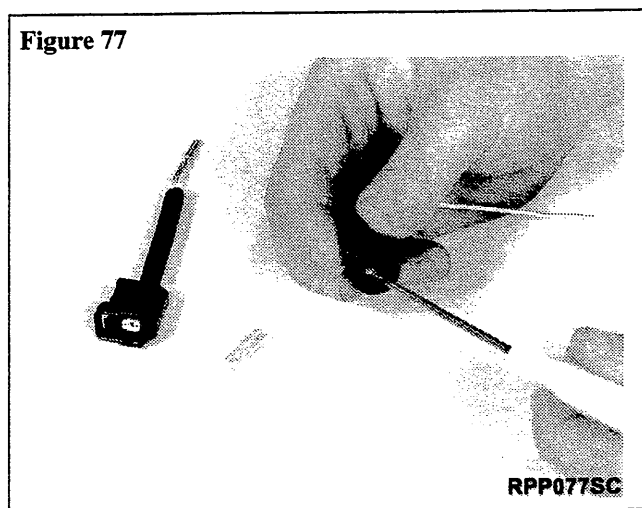
4. Disconnect the upper electrical connector. Remove the connector from the harness with approximately 6 inches of lead wire attached. **Figure 76.**

Figure 76



5. Remove the red plastic wire lock. Remove the oil pressure switch signal wire (white wire with red tracer) from the rear of the connector body. **Figure 77.**

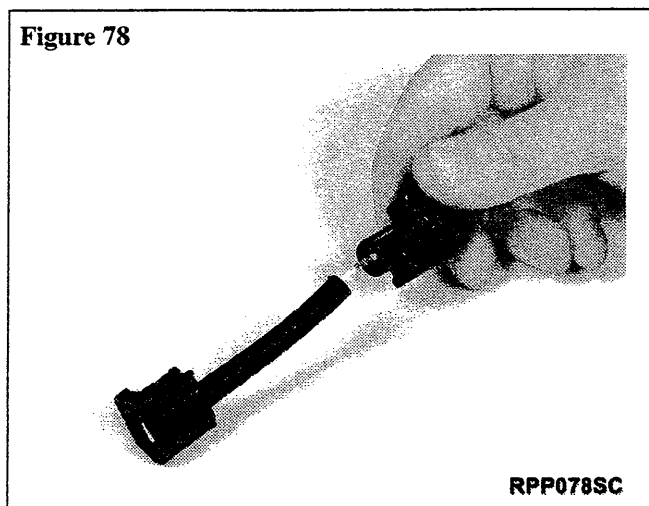
Figure 77



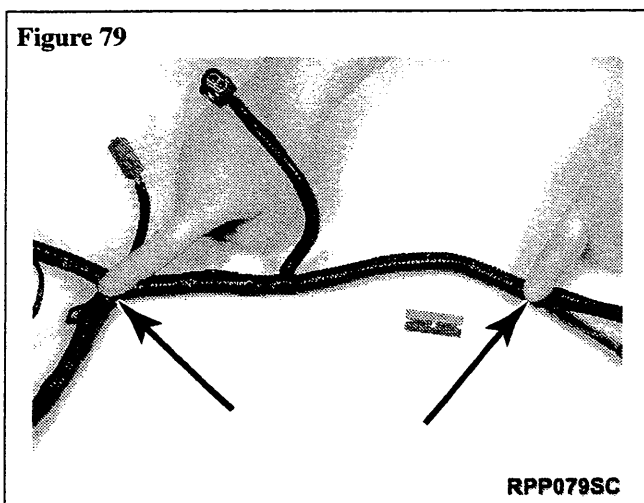
Section 9

Groups H-M — Vehicle Preparation Procedures

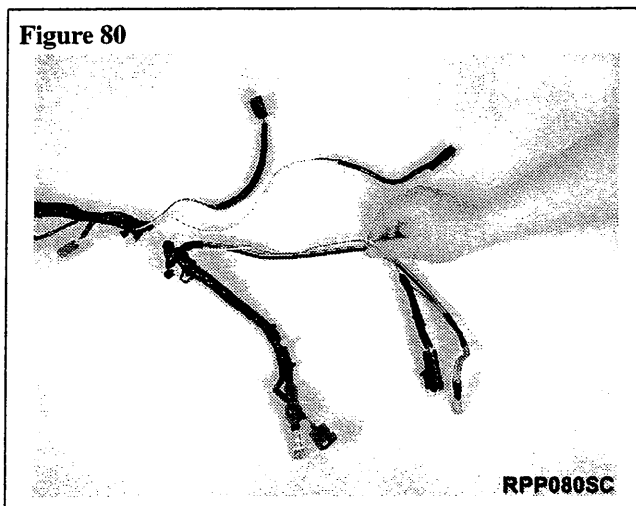
6. Insert the oil pressure switch jumper wire from Group "O" (part no. G1ZE-6B379-BA) into the connector body in the same location as was previously occupied by the oil pressure switch signal wire (white wire with red tracer). Reinstall the red plastic wire lock in the connector body. **Figure 78.**



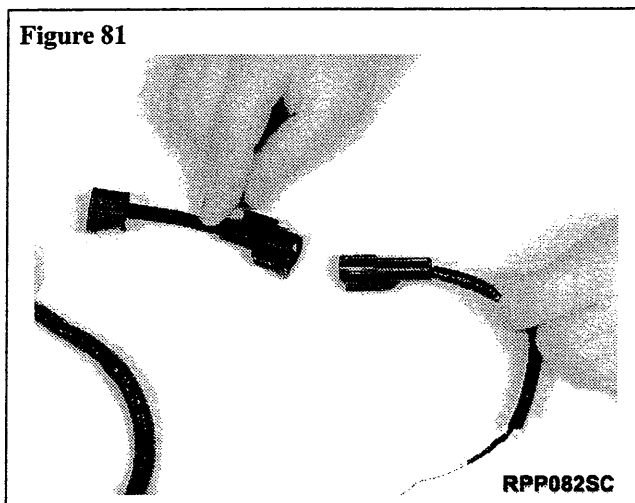
7. Remove the alternator wiring harness from the engine wiring harness. **DO NOT CUT ANY WIRES.** **Figure 79.**



8. Using a razor or utility knife, carefully slit the tape on the engine wiring harness to the point where the alternator wiring harness branches. Remove the tape and the inner plastic shield to expose the internal wiring. **Figure 80.**



9. Connect the oil pressure jumper assembly to the longer of the two remaining connectors on the engine wiring harness. Check that there is pin-to-pin alignment between the two mating connectors. **Figure 81.**



Section 9

Groups H-M — Vehicle Preparation Procedures

10. Reinstall the plastic wire shield and retape the entire reworked area of the harness. **Figure 82.**

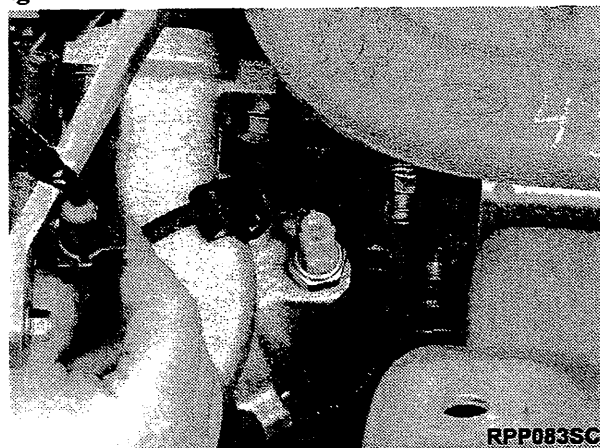
Figure 82



RPP082SC

11. Connect the oil pressure jumper connector assembly to the oil pressure sending unit connector. Zip tie all excess wiring (especially wiring near the exhaust manifold). **Figure 83.**

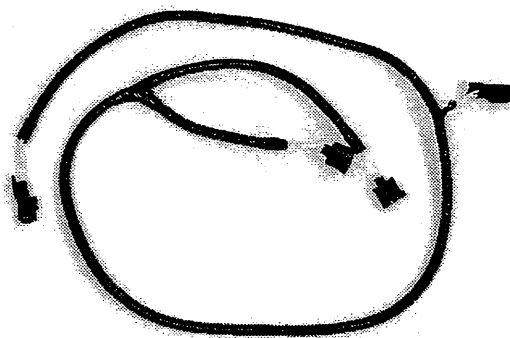
Figure 83



RPP083SC

12. Locate the engine control harness in Group "O" (part no. G1ZE-12B637-AA). This harness contains all wiring for the vacuum pump, coolant sensor, MAF sensor and throttle body. **Figure 84.**

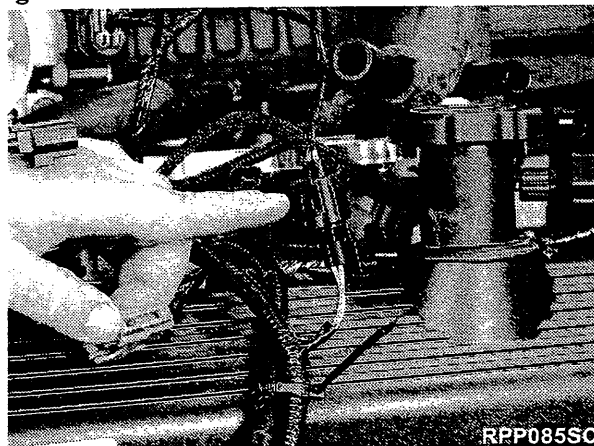
Figure 84



RPP084SC

13. The stub end of the engine control harness contains the wiring for the MAF sensor and throttle body. Connect the short cable to the throttle body harness. The long cable will be connected later in the installation procedure. **Figure 85.**

Figure 85



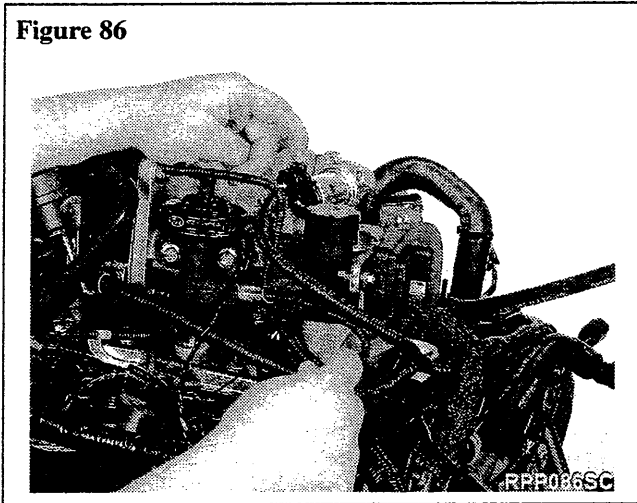
RPP085SC

Section 9

Groups H-M — Vehicle Preparation Procedures

14. At the “Y”-connection end of the engine control harness, connect the long cable to the vacuum pump. Connect the short cable to the coolant sensor. **Figure 86.**

Figure 86

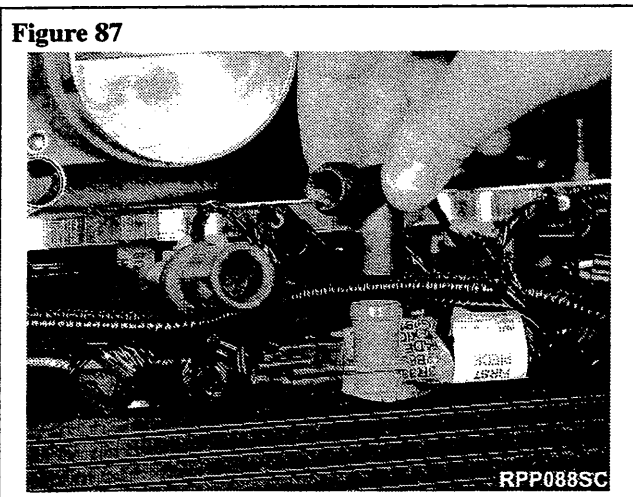


15. For 2003 Stage III engines and newer, install a PCV elbow from Group “I” (part no. YL8E-6B892-AC). Place the elbow in hot water to soften the plastic. Insert the elbow onto the PCV.

NOTE: Disregard this step for 2001 and 2002 model years. The elbow is not needed with the PCV for these model years.

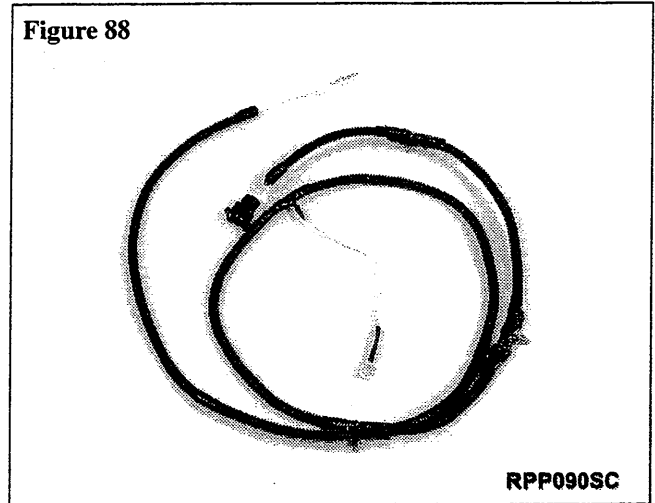
Insert the PCV connector from Group “D” (part no. CS2568) onto the PCV valve for 2001 and 2002 model years or the supplied elbow for 2003 or newer model years. Install the vacuum connector from Group “D” (part no. P2233A) into the PCV connector up to the side pins of the connector. Attach the crankcase vent hose. **Figure 87.**

Figure 87



16. Install the intercooler wiring harness from Group “O” (part no. G1ZE-6B379-CA). **Figure 88.**

Figure 88

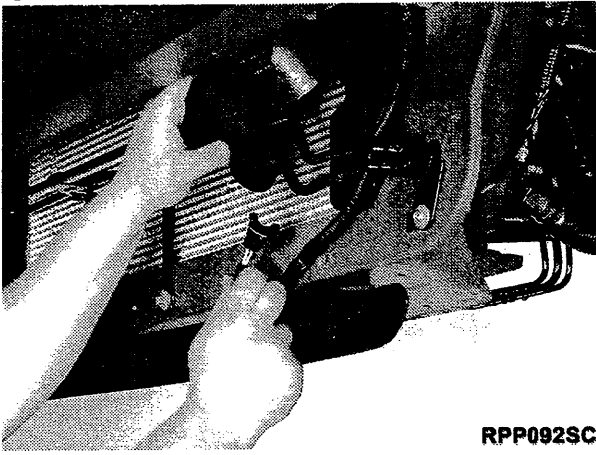


17. Route the connector end of the intercooler wiring harness to the intercooler pump.
- A. Using push-in-type cable straps to secure the harness to the body, route the harness according to the push-in cable strap hole path through the inside of the right bumper support member into the engine compartment.
 - B. Follow the body harness to the driver’s side bulkhead. Zip tie the intercooler wiring harness to the body harness after the bulkhead connector is reached.
 - C. The pin-end wire will be routed to the driver’s side bulkhead connector as is described in the following steps. The ground lug is attached to the chassis ground after the engine assembly is reinstalled in the vehicle. **Figure 89.**

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Figure 89



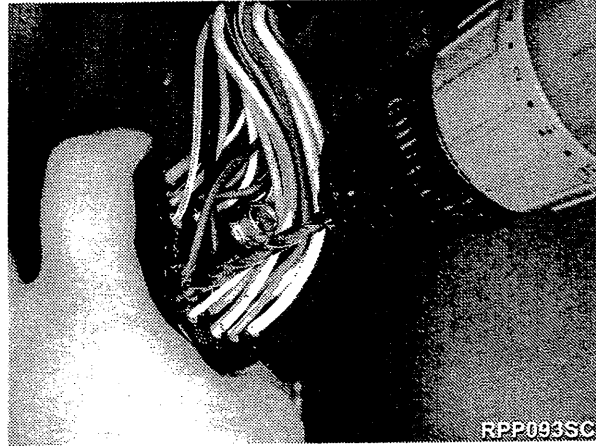
18. Remove the snap-down cover from the bulkhead connector. Remove the locking bolt from the top of the bulkhead connector cap. Remove the bulkhead connector cap assembly. Use a 90-degree pick to remove the red cable lock. **Figure 90.**

Figure 90



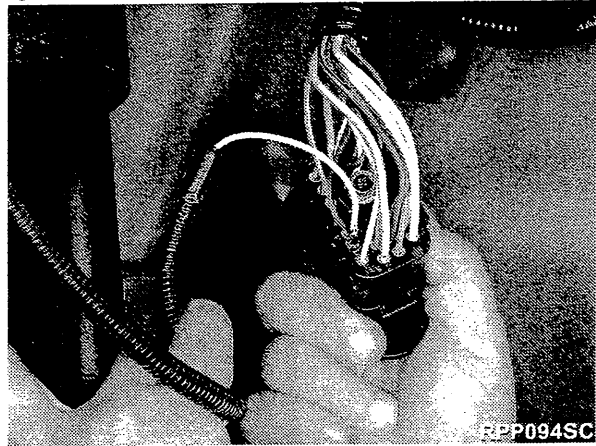
19. At the pin 5 location on the bulkhead connector, drill an 11/64-inch hole just through the top of the connector. DO NOT penetrate any further than the top surface of the cap or the cap will be destroyed. **Figure 91.**

Figure 91



20. Push the intercooler harness pin-end wire through the 11/64-inch hole in the bulkhead connector until it seats. **Figure 92.**

Figure 92



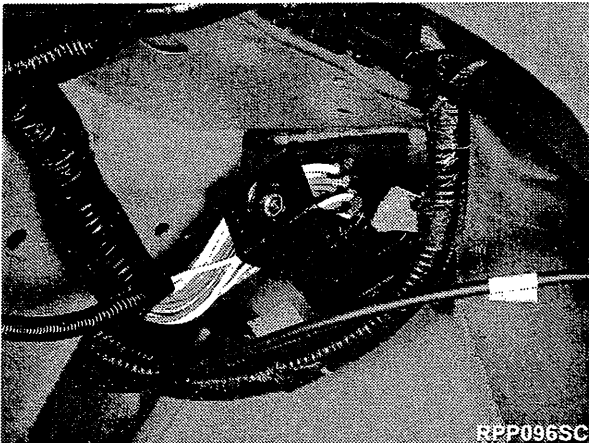
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21. Reinstall the red cable lock. Secure the bulkhead connector cap with the locking bolt. Reattach the snap-down cover. Zip tie the intercooler wires to the body harness.

NOTE: The ground lug is connected after the engine is re-installed in the vehicle. **Figure 93.**

Figure 93



NOTE: Use Step 22 through Step 24 for 2002 and newer model year vehicles only.

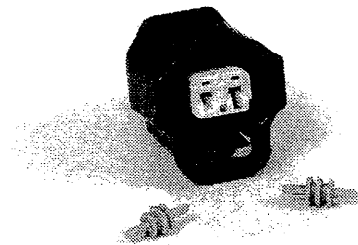
22. Locate the stock MAF sensor connector and remove the yellow cable lock from the connector. Remove both outside wires (gray wire and gray wire with red tracer). **Figure 94.**

Figure 94



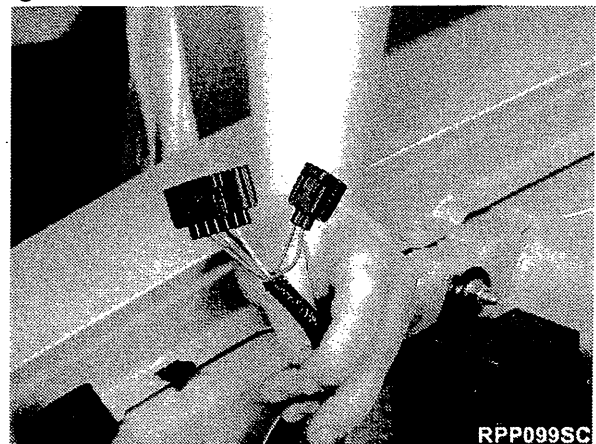
23. To water seal the connector, insert one cavity plug from Group "O" (part no. 172748-1) into each hole of the stock MAF sensor connector left vacant when the gray wire and gray wire with red tracer wires were removed. Reinstall the yellow cable lock. **Figure 95.**

Figure 95



24. Remove the cable lock from the MAF sensor engine overlay harness connector found in Group "O" (part no. 184004-1). Install the two wires removed from the stock MAF connector in the corresponding locations in the ROUSH Aftermarket SuperCharger Kit-supplied MAF sensor connector. Reinstall the cable lock. **Figure 96.**

Figure 96



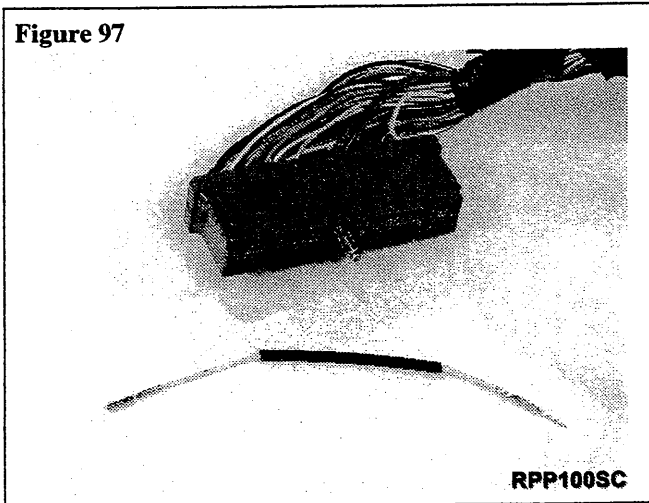
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Powertrain Control Module (PCM) Fan Jumper Installation (2002 and Newer Models)

25. Remove the passenger's side kick panel.
 - A. Remove the PCM module.
 - B. Disconnect the PCM connector and locate pin 28 (blue wire). Remove pin 28 from the connector.
 - C. Use a pick to create a small access hole in the pin 19 position of the connector.
 - D. Install the jumper wire from Group "O" (part no. G2ZE-6B379-AA) from pin 19 to pin 28 on the connector.
 - E. Reinstall the PCM module. Replace the kick panel.
- Figure 97.**

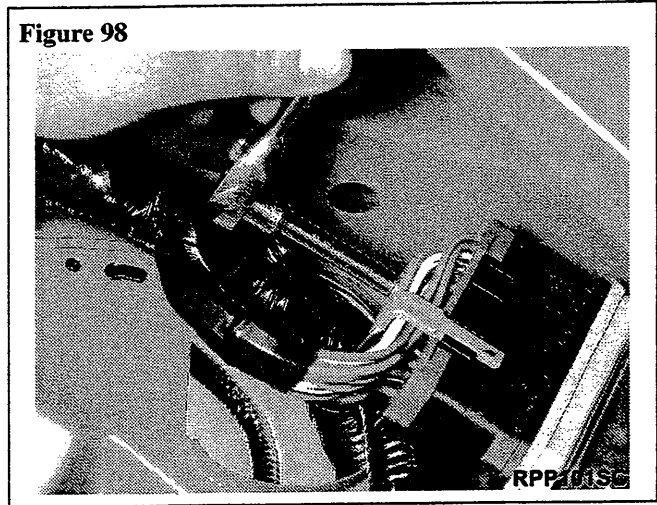
Figure 97



Fuel Pump Overlay Harness Installation

26. Refer to the appropriate FORD shop manuals to perform the following operations:
 - A. Remove all trunk panels.
 - B. Remove the rear seats.
 - C. Remove the lower sill trim plate on the driver's side of the vehicle (coupes only.)
 27. Using a 5 mm socket wrench, remove the CCRM module located in the passenger's side wheel well.
- Figure 98.**

Figure 98

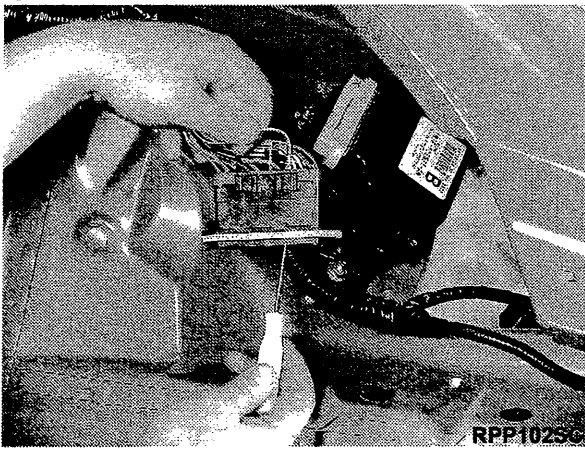


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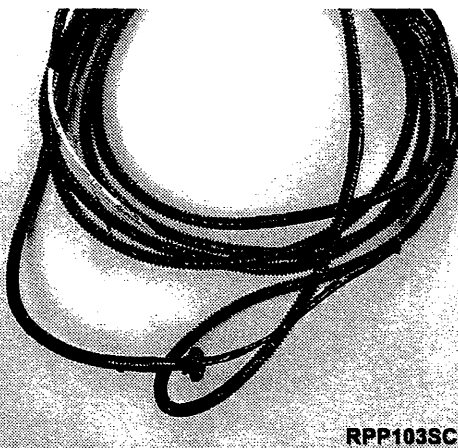
28. Disconnect the harness connector from the CCRM module.
 - A. Remove the top wire clamp. Remove the red plastic wire lock from the green wire with yellow tracer (number 5 wire).
 - B. Use a pick to extract the green wire with yellow tracer from the number 5 connector position.**Figure 99.**

Figure 99



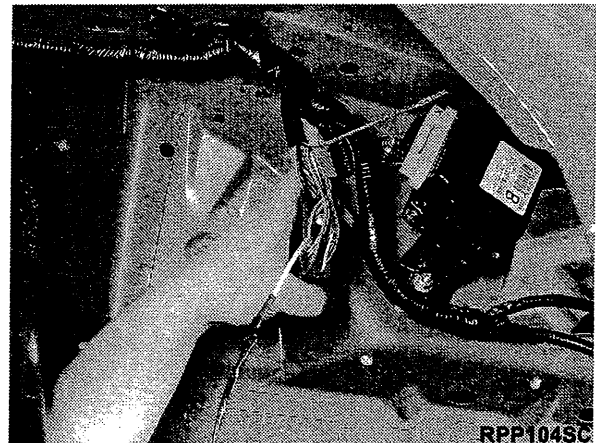
29. The fuel pump overlay wiring harness from Group "O" (part no. G1ZE-6B379-DA) is shown in the next illustration. **Figure 100.**

Figure 100



30. Insert the pin-end of the fuel pump overlay harness into pin 5 of the CCRM connector.
 - A. Cut back the green wire with yellow tracer to the point where the tape starts.
 - B. Reinstall the red wire lock and top wire clamp.
 - C. Connect the CCRM connector to the CCRM module.
 - D. Mount the CCRM module back into its original position in the passenger's side wheel well and secure with the 5 mm bolt. **Figure 101.**

Figure 101

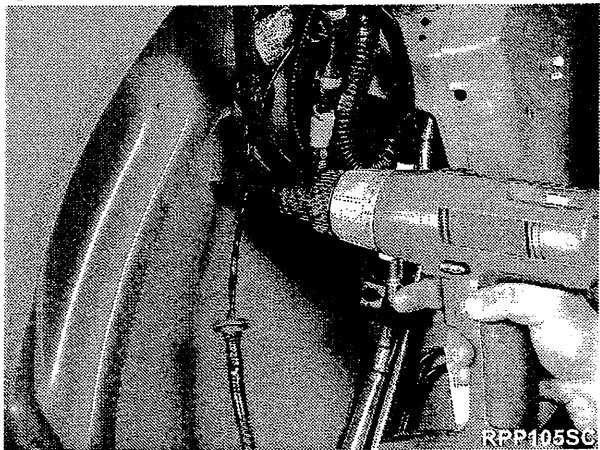


31. Drill a one-eighth inch pilot hole just below the passenger's side wiring harness. Monitor the drill depth carefully.
 - A. Enlarge the hole to one-half inch.
 - B. Slip the connector end through the hole into the passenger's compartment.
 - C. Weather seal the hole with the attached grommet. Zip tie the harness as required. **Figure 102.**

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Figure 102

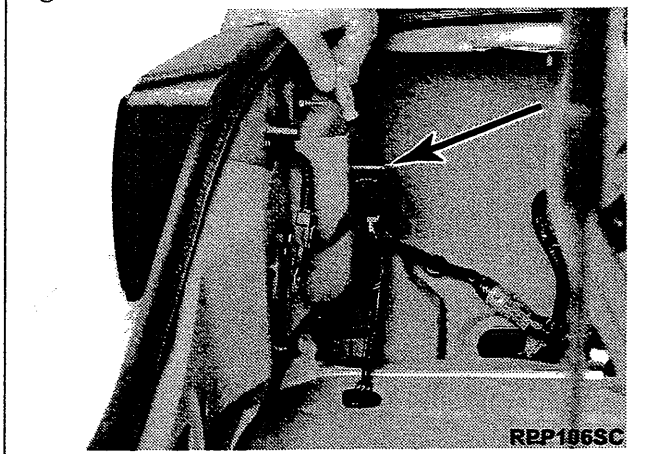


32. Pull the harness under the carpet to the center floorpan brace (under the rear seat) and follow the passenger's side sill.
- A. At the center floorpan brace, route the harness across the top of the brace (follow the routing of the current harness in this area).
 - B. Continue moving toward the driver's side of the vehicle (on the trunk side of the brace) and into the driver's side trunk area.

NOTE: Use caution when routing the wiring harness to avoid any pinch points, especially when reinstalling the rear seat.

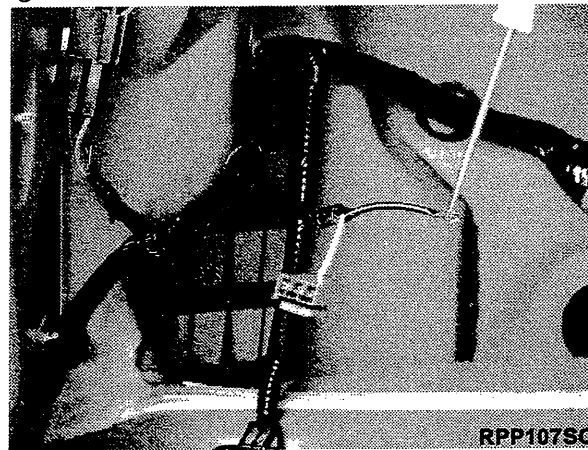
33. Locate the inertia switch (black module with red button) on the driver's side of the trunk just behind the tail light assembly. **Figure 103.**

Figure 103



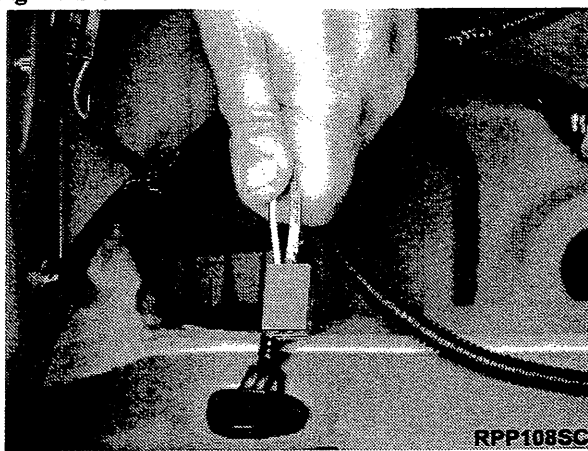
34. Remove the connector from the inertia switch. Remove the black wire lock from the connector. De-pin the green and yellow wire from the connector. **Figure 104.**

Figure 104



35. Cut and discard the green and yellow wire.
- A. Insert the fuel pump overlay harness wire into the (center) inertia switch connector hole formerly occupied by the green and yellow wire.
 - B. Replace the black wire lock.
 - C. Insert the connector back into the inertia switch body. Zip tie as required. **Figure 105.**

Figure 105



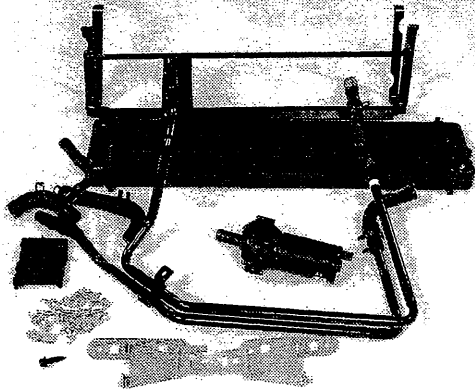
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Intercooler Assembly and Installation

1. The various components of the intercooler assembly are shown below. **Figure 106.**

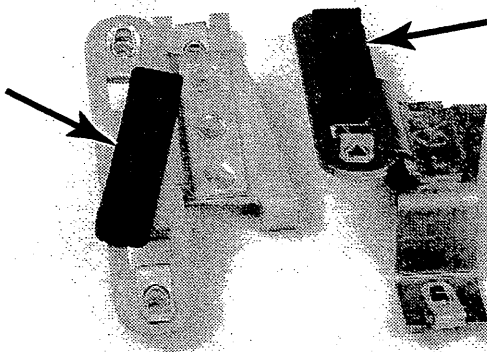
Figure 106



RPP109SC

2. Spray lubricate the push-in tabs on two rubber inter-cooler radiator isolators from Group "H" (part no. XL3Z-8124-AA).
 - A. Install three J-clips (part no. N623332-S301) onto each bumper reinforcement clamp with the clip threads facing up.
 - B. Mount the isolators onto two bumper reinforcement clamp assemblies from Group "H" (part nos. G1ZE-8C384-AA and G1ZE-8C385-AA). **Figure 107.**

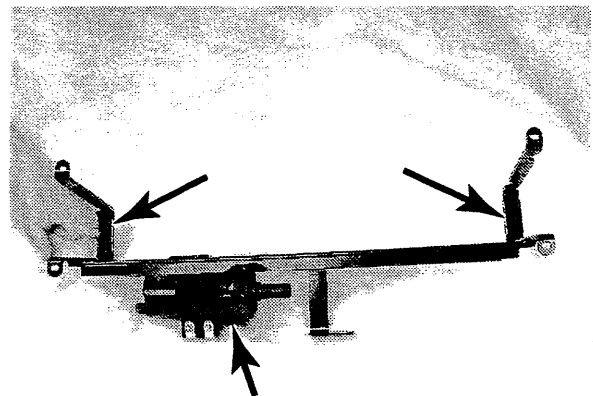
Figure 107



RPP110SC

3. Spray lubricate the push-in tabs on two rubber inter-cooler radiator isolators from Group "H" (part no. XL3Z-8124-AA).
 - A. Install the isolators on the intercooler radiator retainer assembly from Group "H" (part no. G1ZE-8C386-AA) at the locations shown.
 - B. Install two "J" clips from Group "H" (part no. N623332-S301) on the water pump mounting bracket.
 - C. Install the water pump assembly from Group "H" (part no. F8YZ-8501-AA) on the mounting bracket using two bolts in Group "H" (part no. N807309-S309). Do not tighten the bolts. **Figure 108.**

Figure 108



RPP111SC

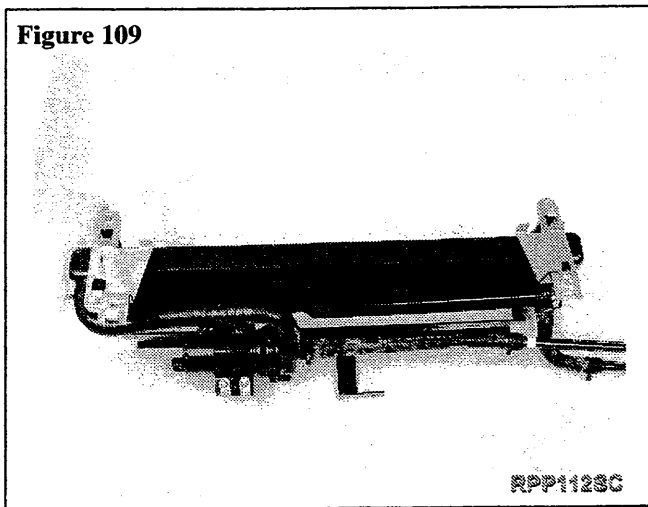
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4. Set the intercooler radiator assembly from Group “H” (part no. G1ZE-8K226-AA) in the retainer bracket. Attach the two bumper reinforcement clamp assemblies to the retainer bracket and secure with two bolts each from Group “H” (part no. N807309-S309).

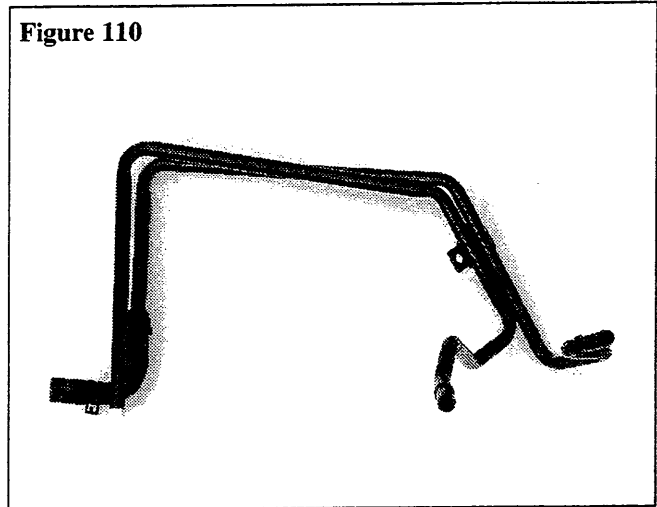
NOTE: Ensure that the two bumper reinforcement clamp assemblies are mounted onto the retainer bracket so that they are inboard facing the pump. **Figure 109.**

Figure 109



5. Connect the intercooler water pump to the intercooler radiator inlet (upper passage) by assembling the following parts from Group “H”.
 - A. Cut approximately 5-1/2 inches from the long end and approximately 1 inch from the short end of the intake manifold intercooler hose (part no. G1ZE-9L443-AA).
 - B. Install one hose clamp (part no. E7EE-8287-AA) onto each end of the hose.
 - C. Connect the short end of the hose to the intercooler radiator inlet (upper passage) and secure with one clamp. Connect the water outlet connector (part no. KY2) to the intercooler hose and secure with one clamp.
 - D. Install one hose clamp (part no. E7EE-8287-AA) onto each end of the intercooler hose (part no. G1ZE-9L443-JA).
 - E. Connect the intercooler hose to the water outlet connector and secure with one clamp. Connect the opposite end of the hose to the intercooler water pump and secure with one clamp. **Figure 110.**

Figure 110

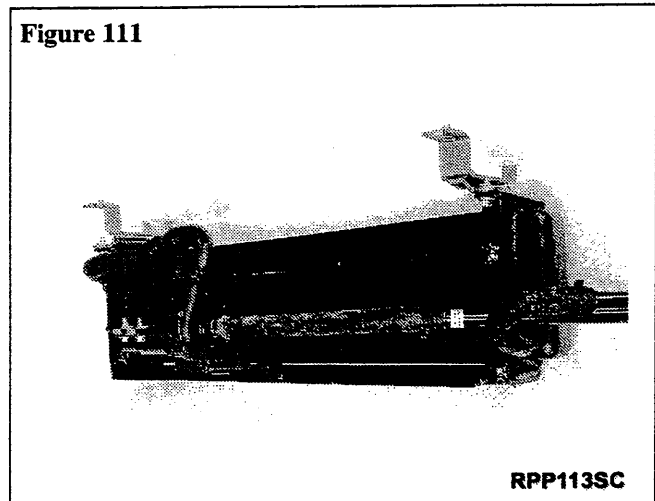


6. Connect the lower intercooler water tube assembly from Group “H” (part no. G1ZE-9N491-BB) to the intercooler water pump (long hose) and the intercooler radiator (short hose). Secure with the attached clamps.

NOTE: The hoses may need to be cut to fit.

7. Tighten the water pump bracket bolts following installation of the lower intercooler water tube assembly. **Figure 111.**

Figure 111

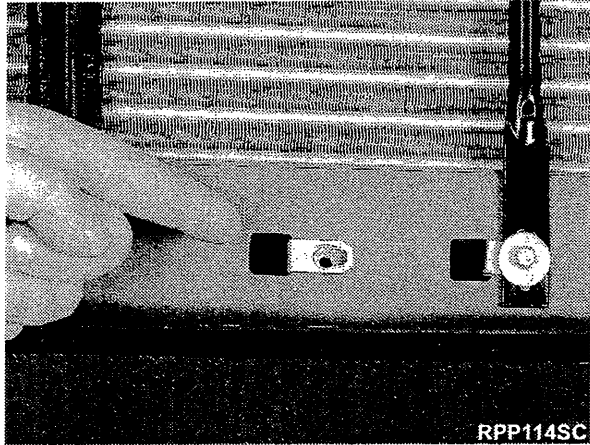


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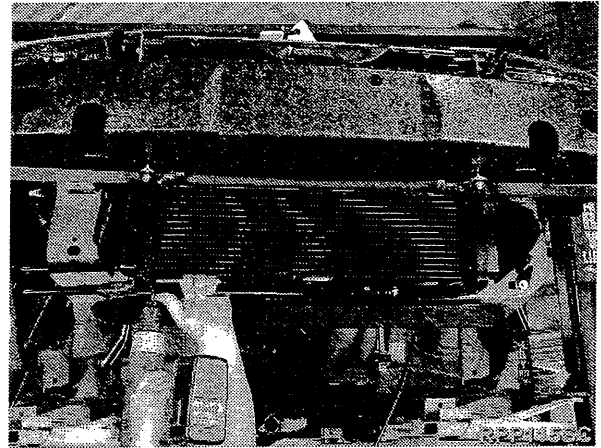
8. Install one “J” clip from Group “H” (part no. N623332-S301) in the lower radiator support as shown. **Figure 112.**

Figure 112



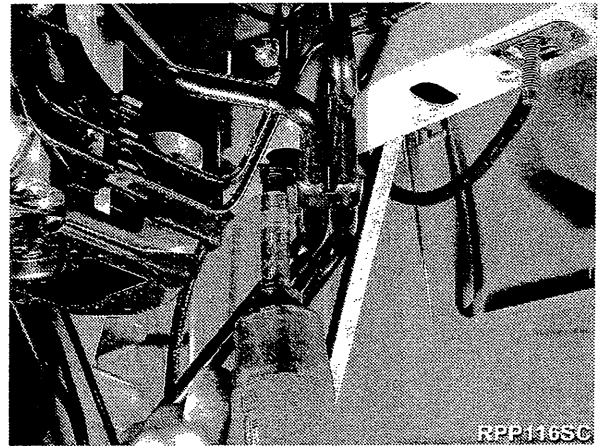
9. Place the intercooler assembly in position on the vehicle so that the two bumper reinforcement clamp assemblies line up with the bumper support. Align the lower intercooler radiator retainer assembly bracket mounting hole with the “J” clip on the lower radiator support.
10. Push the two bumper reinforcement clamp assemblies into the bumper support. Secure the intercooler radiator retainer mounting bracket to the lower radiator support with a mounting bolt from Group “H” (part no. N807309-S309).
11. Install one interlocking upper bumper reinforcement clamp from Group “H” (part no. G1ZE-8C383-AA) over the top of each upper radiator support and secure with one bolt each from Group “H” (part no. N807309-S309). Connect the pump motor wiring harness connector from Group “H” (part no. G1ZE-6B379-CA) to the intercooler water pump. **Figure 113.**

Figure 113



12. Install one self-tapping screw from Group “H” (part no. N802455-S2) through the intercooler line mounting bracket to secure the intercooler lines to the passenger side frame. **Figure 114.**

Figure 114



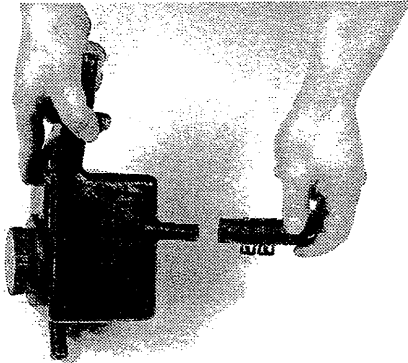
13. Remove the radiator cowl cover from the upper radiator support by removing four push pins. The push pins are carryover items and will be reused when the cowl cover is reinstalled in a later step.

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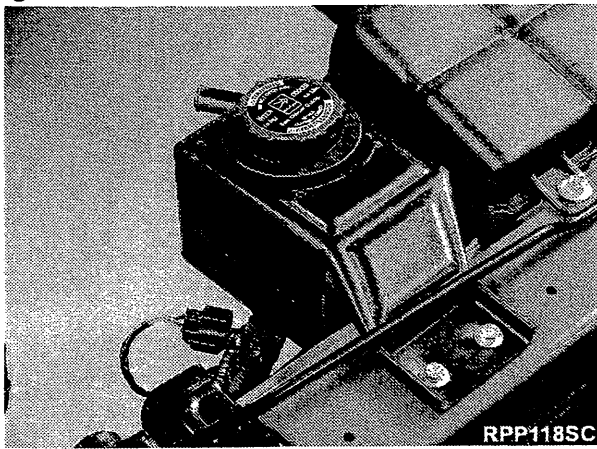
14. Connect the 4-inch intercooler water hose from Group "T" (part no. G1ZE-9L443-FA) to the intercooler reservoir assembly from Group "T" (part no. G1ZE-8A080-AA) and secure with a clamp. Install the intercooler reservoir cap from Group "T" (part no. XL3Z-8100-AA) on the reservoir. **Figure 115.**

Figure 115



15. Mount the intercooler reservoir assembly on the upper radiator support, located on the passenger's side of the vehicle, with two bolts from Group "T" (part no. N807309-S309). Connect the 4-inch intercooler water hose to the lower reservoir outlet and secure with a clamp. **Figure 116.**

Figure 116



16. Reinstall the radiator cowl cover on the upper radiator support using four carryover push pins.
17. Clean the radiator cowl cover and apply the FEAD belt routing decal from Group "N" (part no. G1ZE-8B656-AA).
18. Install the lower radiator hose from Group "K" (part no. G1ZE-8B273-AA). Connect the end with the constant tension clamp to the oil filter adaptor. Connect the end with the worm gear clamp to the radiator.

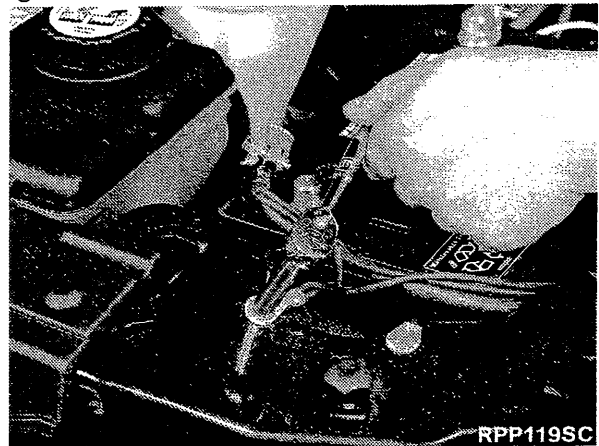
NOTE: The small hose will be connected to the coolant reservoir in a later step.

19. Remove the old power steering seals from the factory power steering line fittings. Replace with two new power steering seals from Group "N" (part no. 388898-S).
20. Reinstall the SuperCharger-prepared engine and transmission in the vehicle using the proper model year FORD shop manual reference material to perform these procedures.

Final "Engine-In" Connections

1. Connect the intercooler pump motor ground (white) wire together with the battery ground to the chassis as shown. **Figure 117.**

Figure 117



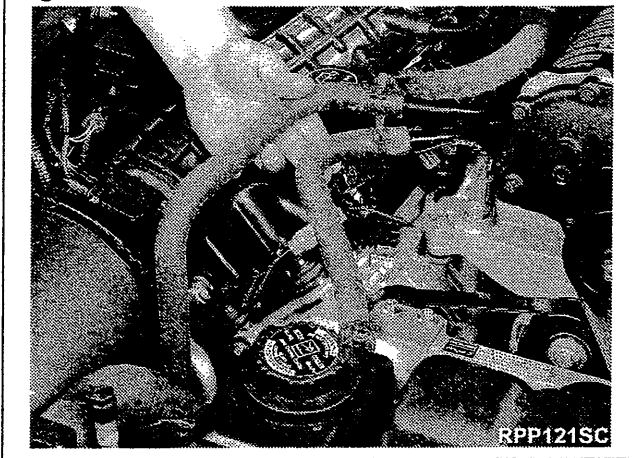
2. Install the A/C refrigerant tube assembly from Group "K" (part no. G1ZE-19972-AA). Bolt it to the idler support bracket using one bolt (part no. N605771-S309). Reconnect the A/C tube.

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3. Install the upper radiator hose from Group “K” (part no. G1ZE-8B274-AA). Attach the end with the constant tension clamp to the engine. Attach the end with the worm gear clamp to the radiator.
4. Install the intercooler water hoses from Group “K”. Connect the hose (part no. G1ZE-9L443-DA) from the intercooler reservoir to the right side tube of the upper intercooler water tube. Connect the hose (part no. G1ZE-9L443-EA), starting with the straight end of the hose, from the lower intercooler tube to the left side tube of the upper intercooler water tube. **Figure 118.**
6. Connect the new MAF sensor from Group “K” (part no. XL3Z-12B579-AA) to the air box using the carryover fasteners. Connect the carryover air tube assembly to the new MAF sensor.
7. Install the fuel tank pump and sender assembly from Group “M” (part no. SM01-9H307-AE) into the MUSTANG fuel tank in Group “M” (part no. SM01-9002-TOA). **Figure 120.**

Figure 118



5. Connect the engine overlay harness connector to the previously installed MAF sensor harness. **Figure 119.**

Figure 119

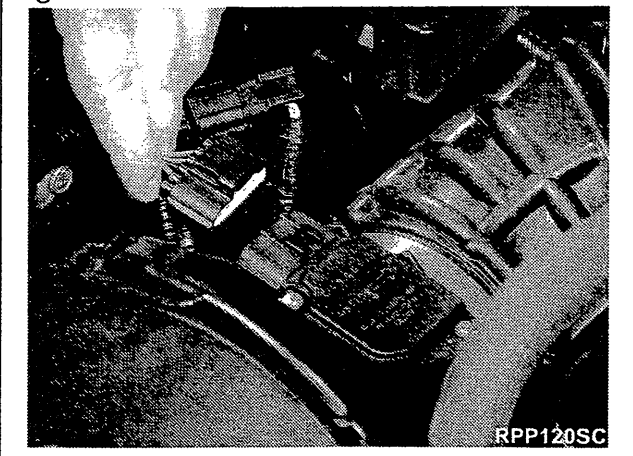
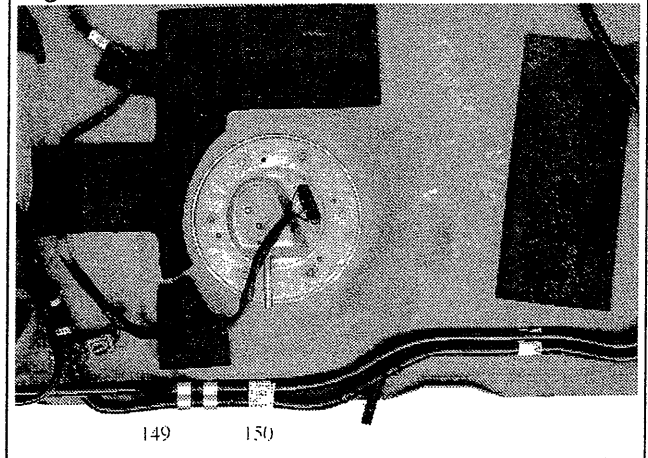


Figure 120



8. Use the appropriate FORD shop manual reference to install the new fuel tank and make the necessary fuel line connections.
9. Use the appropriate FORD shop manual references to:
 - A. Drain the engine oil, install a new filter and refill the new oil.
 - B. Refill the engine cooling system with the proper amount, ratio and type of engine coolant.
 - C. Recharge the AC system.

NOTE: Before the vehicle will start and continue to run, the security chip (PATS) on the ignition key must be flashed at your local FORD dealership. This identifies the new Powertrain Control Module (PCM) to the vehicle security system.

**SUPERCHARGER INSTALLATION PROCEDURE
COMPLETE**