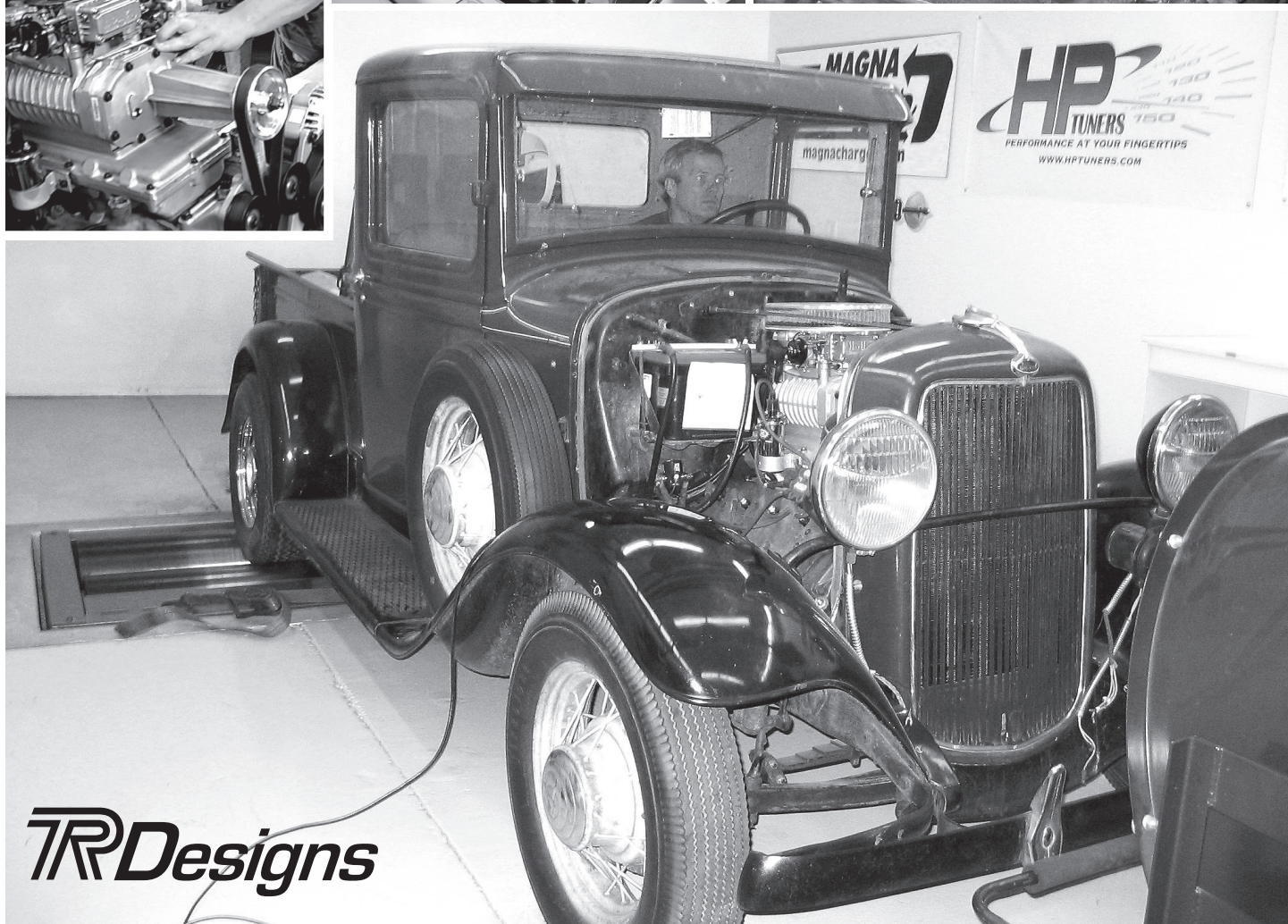
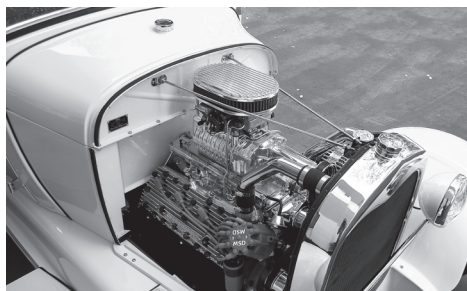
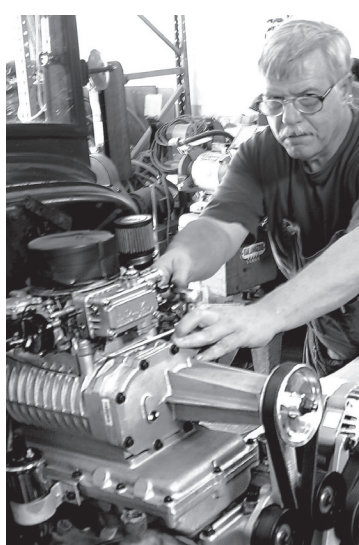
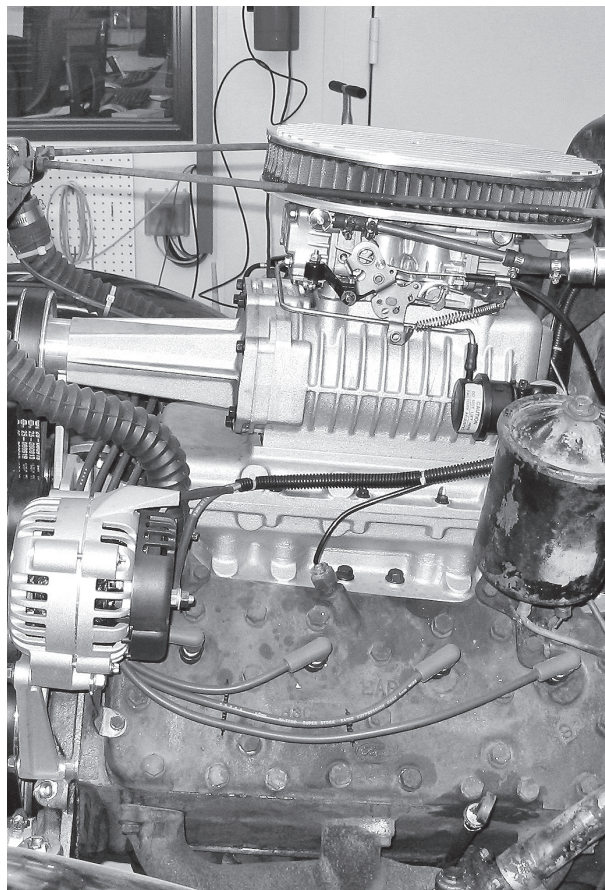
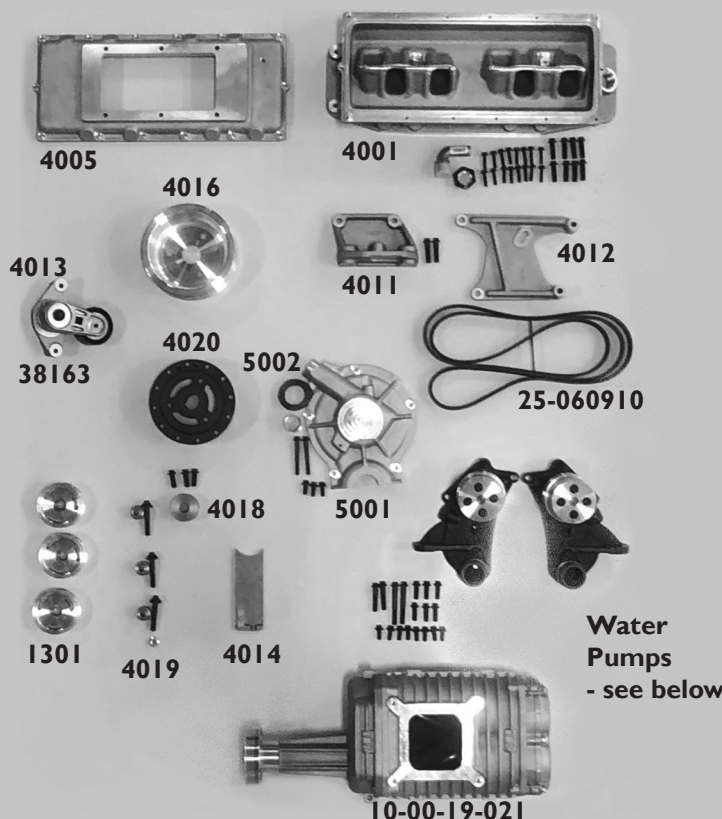


The Ultimate Flathead Ford Supercharger Kit

INSTRUCTION MANUAL



TR Designs



The Ultimate Flathead Ford Supercharger Kit

Tom Roberts Designs • 805/644-8899

tr-designs.com

Complete Supercharger Kit

01-12-95-001 Complete kit \$4975.00
(to polish add \$1650.00)

Individual Supercharger Kit Components

| | | |
|--------------|--------------------------------|-----------|
| 4001 | Lower Manifold | \$800.00 |
| 4005 | Cover top for TVS ??? | \$200.00 |
| 4011 | Idler Manifold Bracket | \$87.50 |
| 4014 | Blower Drive Support | \$45.00 |
| 1301 | Idler Pulley \$60.00 x3 | \$180.00 |
| 4019 | Idler Spacer \$16.25 x3 | \$48.75 |
| 4012 | Alternator Bracket | \$87.50 |
| 4013 | Tensioner Mount Bracket | \$87.50 |
| 38163 | Gates Tensioner | \$99.00 |
| 4020 | Balancer | \$225.00 |
| 4016 | Crank Pulley | \$170.00 |
| 4018 | Crank Spacer | \$40.00 |
| 5001 | Front Cover - 8BA style | \$157.00 |
| 25-06-0910 | Gates Serpentine Belt | \$60.75 |
| 10-00-19-021 | Magnuson TVS 1900 Supercharger | \$2275.00 |
| 5010 | Camshaft Gear & Hub 59A | \$75.00 |

Serpentine Belt Assembly

The serpentine belt assembly is a great addition to a flat head Ford even without the supercharger.
We sell it as a kit—complete with belt—or in pieces.

Complete Serpentine Belt Assembly \$1357.25

Individual Serpentine Kit Components

| | | |
|-------|-------------------------|----------|
| 1301 | Idler Pulley | \$60.00 |
| 4019 | Idler Spacer | \$16.25 |
| 4012 | Alternator Bracket | \$87.50 |
| 4013 | Tensioner Mount Bracket | \$87.50 |
| 38163 | Gates Tensioner | \$99.00 |
| 4020 | Balancer | \$225.00 |
| 4016 | Crank Pulley | \$170.00 |
| 4018 | Crank Spacer | \$40.00 |
| 5001 | Front Cover 8BA style | \$157.00 |

Air Conditioner Compressor

Compressor sold separately (Not included with kit)

| | | |
|------|--------------------------|----------|
| 1301 | Air Conditioner Assembly | \$450.00 |
|------|--------------------------|----------|

For use with Vintage Air 508 Multi-Groove Comp. — P/N: 04808-VMQ

Water Pumps/Engine Mounts on Flathead Fords and Mercurys also served as engine mounts. Complete kits include your choice depending on model. Please choose the corresponding Water Pump Components for your application below.

Water Pump Components

| Early 59A Block | Late 8BA Block, Early Truck Mount | Late 8BA Block, Production Car Mount |
|---|--|--|
| 910-15593 Driver & Passenger @\$127 ea \$255.00 | 910-15592 Driver & Passenger @\$127.50 ea \$255.00 | 910-15594 Driver & Passenger @\$127.50 ea \$255.00 |
| 4017 Pulley x2 @\$80 ea \$160.00 | 4015 Pulley x2 @\$80 ea \$160.00 | 4015 Pulley x2 @\$80 ea \$160.00 |
| 5010 Camshaft Gear & Hub (if needed) \$75.00 | | |

ALL PRICES SUBJECT TO CHANGE

Tom Roberts/Magnuson Supercharger Kit Distributors

Baron Racing Equipment
19935 Redwing St
Woodland Hills, CA 91364
818-702-0043

www.baronracingequipment.com

Magnuson Products
1990 Knoll Dr.
Ventura, CA 93003
805-642-8833

www.magnusonproducts.com

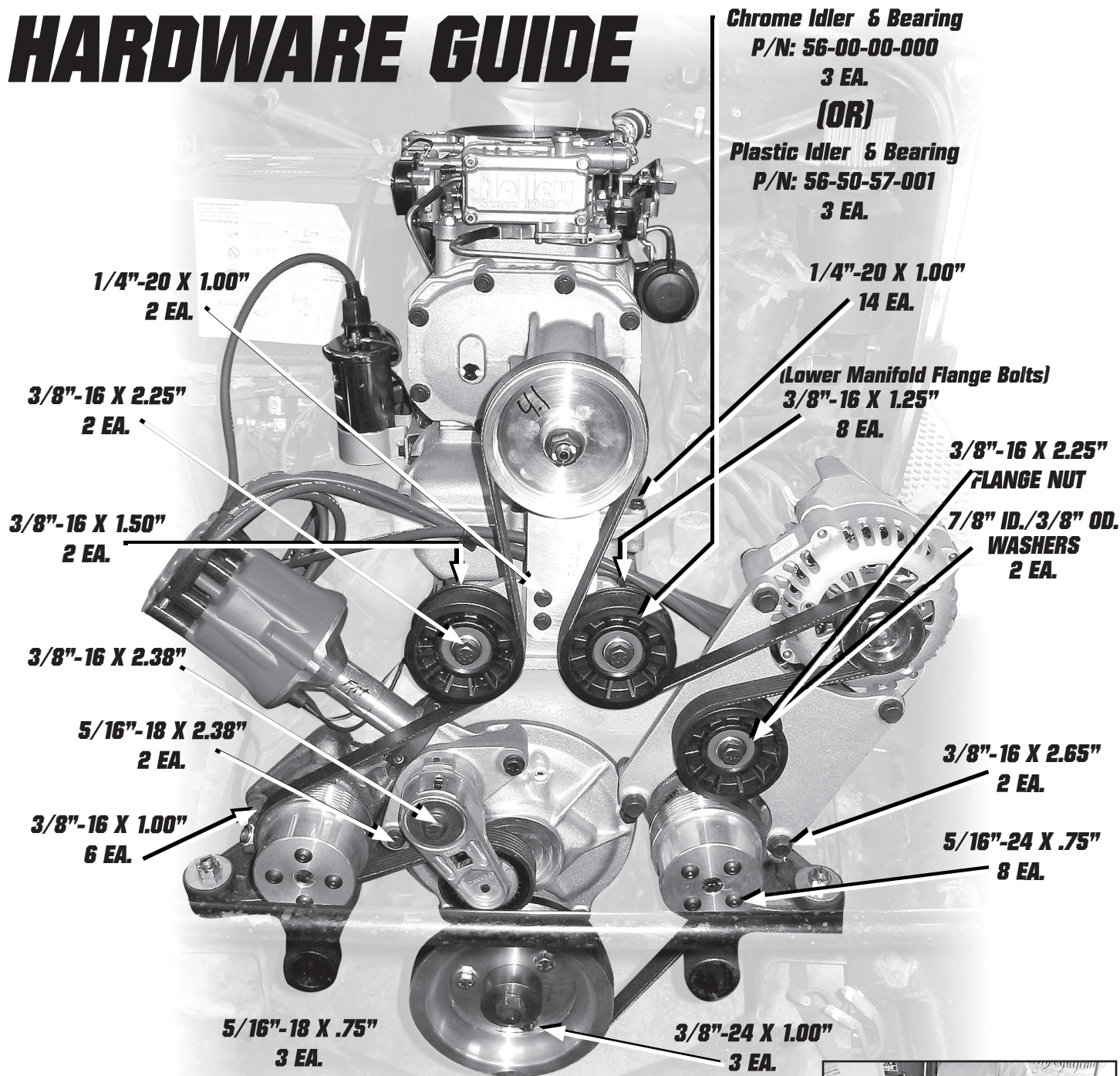
Tatom Custom Engines
14367 Riverbend Rd.
Mt. Vernon, WA 98273
360-770-3760

www.tatom.com

Tom Roberts Designs

1646 Morse Ave #6 • Ventura, CA 93003
805-644-8899 • www.tr-designs.com

HARDWARE GUIDE



- Manifold 4001 & 4005

14 each 1/4"-20 X 1.00"
8 each 3/8"-16 X 1.25"

- Idler Mount 4011 & 4014

2 each 3/8"-16 X 1.50"
2 each 1/4"-20 X 1.00"
2 each 3/8"-16 X 2.25"

- Front Cover Tensioner Mount P/N's (5001, 4013, 38163)

3 each 5/16"-18 X 0.75"
2 each 5/16"-18 X 2.38"
1 each 3/8"-16 X 2.38"

- Water Pumps

6 each 3/8"-16 X 1.00"
2 each 3/8"-16 X 1.75"

- Alt. Mount 4012

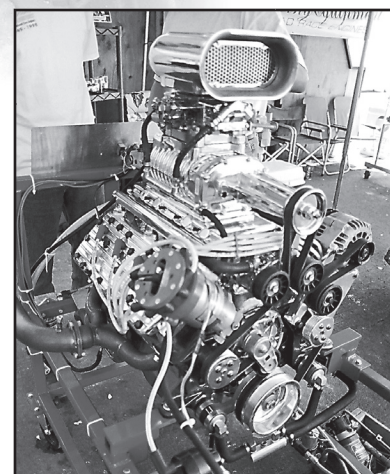
2 each 3/8"-16 X 2.62"
1 each 3/8"-16 X 2.25"
1 each 3/8"-16 Flange Nut

- Water Pump Pulleys 4015 or 4017

8 each 5/16"-24 X 0.75"

- Crank Pulley To Dampner 4016 & 4020

3 each 3/8"-24 X 1.00"



HEIGHT/HOOD CLEARANCE

Air Cleaner

10.50" = 97 Carbs

11.90" = w/Air Cleaners

22.40" = Total Height

16.00"

Holley Carb 3.70"

Spacer 0.40"

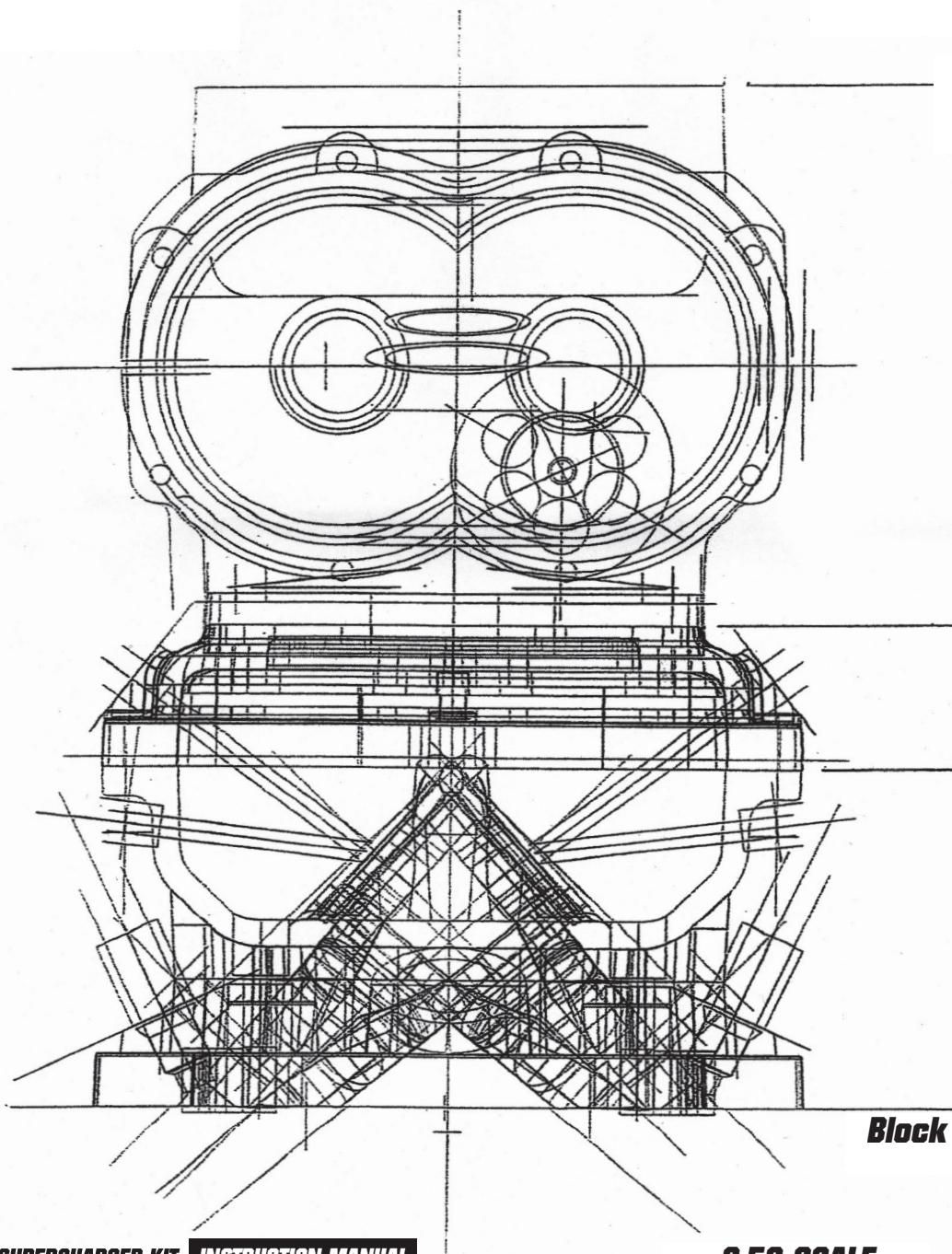
11.90"

5.90"

4.10"

0"

Block



THE SPECS ON OUR TEST TRUCK

1932 Supercharged Ford Pickup Truck

255-cubic-inch Ford Flathead Engine

MagnaCharger FlatHead Supercharger

4.1 MagnaCharger Supercharger Pulley

6-7 lbs. of boost

390 CFM Holley Carburetor part # 0-8007

53 primary jet up from a 51.5

Drilled secondary metering plate to .053

Installed 3.5 power valve

Boost reference power valve

AFR mixture at WOT 11.5-12.0

Timing initial 5 degrees

Total timing 21 degrees

91 Octane Premium Fuel

STOCK: 140.8 ft lb Torque (@ 1750 RPMs) — 66 HP (@ 3,000 RPMs)

SUPERCHARGED: 208 ft lb Torque (@ 2000 RPMs)— 132 HP (@ 3,750 RPMs)

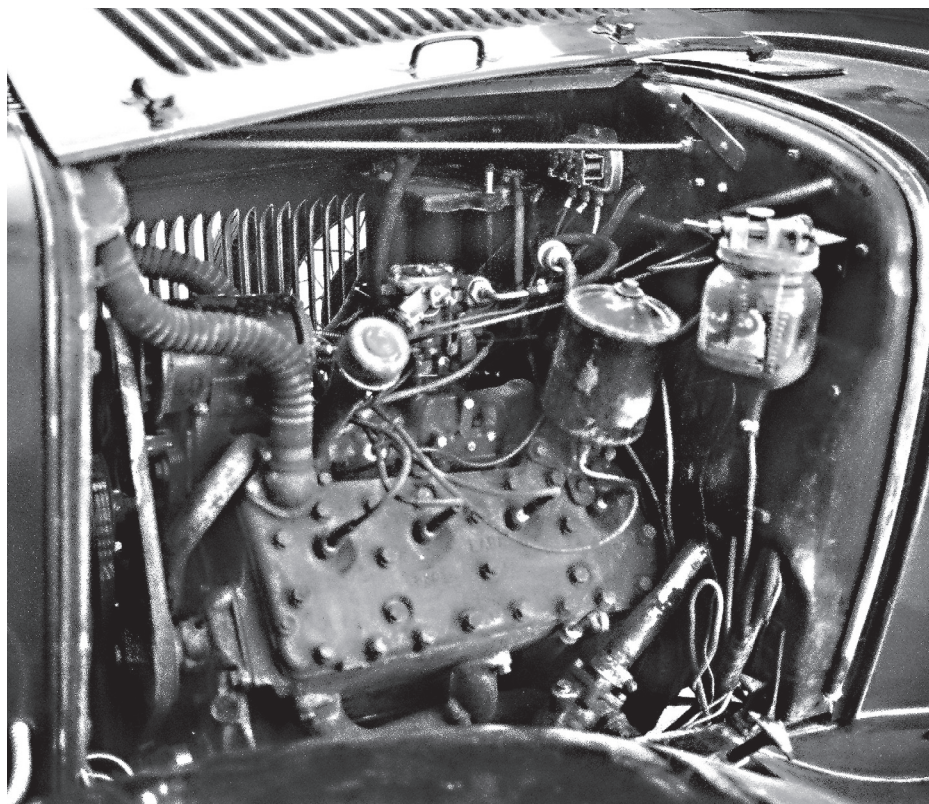
The Ultimate Flathead Ford **INSTALL** *Supercharger Kit*

NOTE: With the wide range of variations found on the Flathead Ford Engine, it is impossible to cover all specific installations. This Installation Manual is intended only to be a basic guide, and will require you to use your own mechanical know-how and think for yourself.

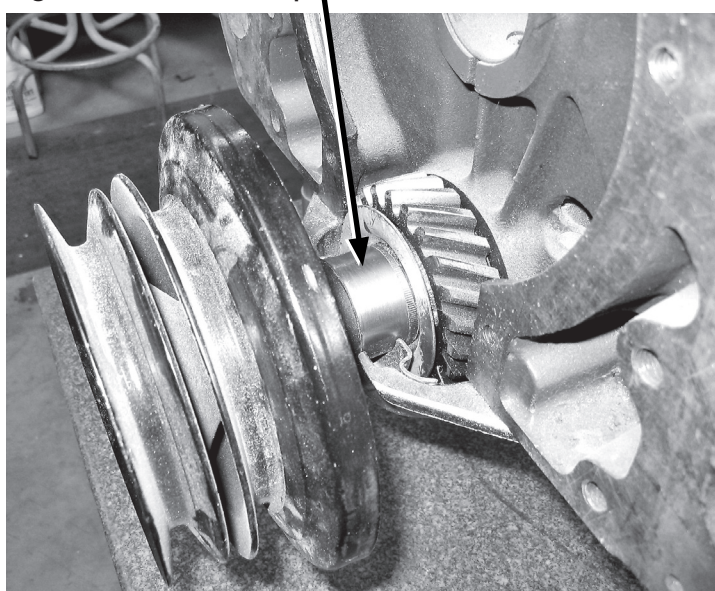
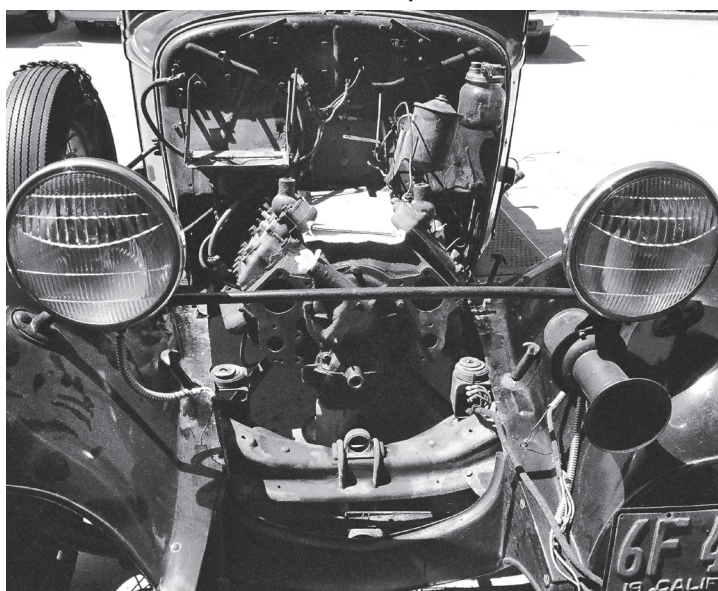


**OUR INSTALLATION
MODEL :**

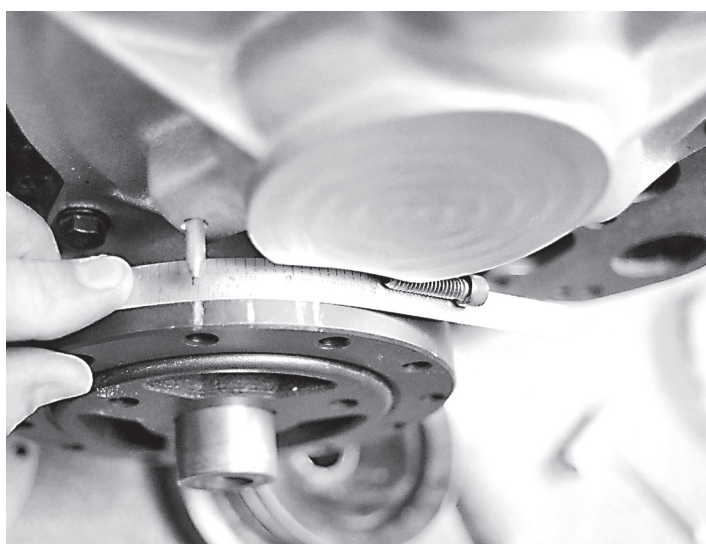
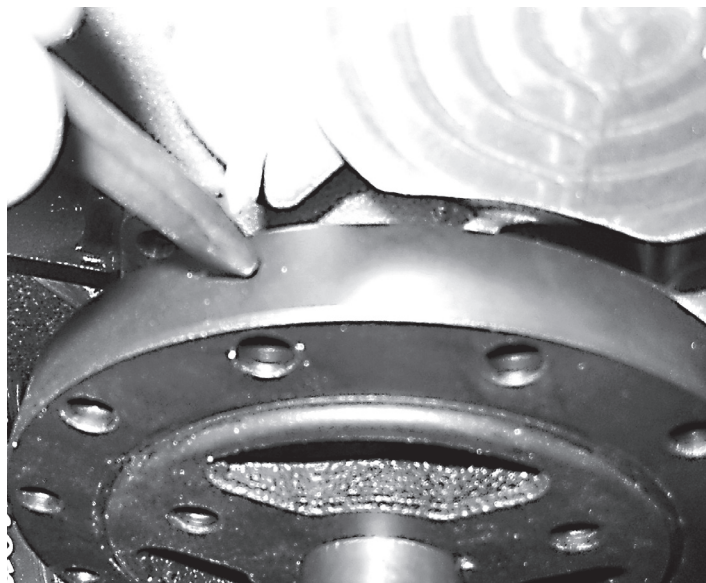
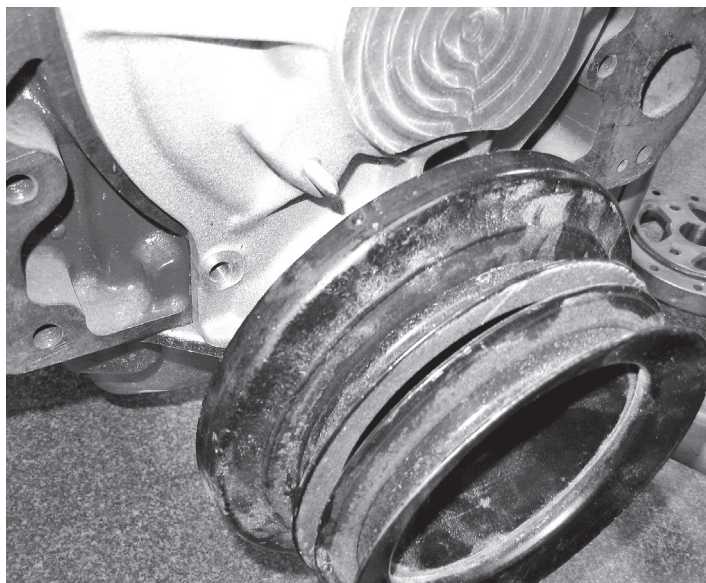
**A Stock Flathead with a 2-Barrel
Carburetor**



Remove Manifold, Distributor, Front Cover, Water Pumps, Crank Pulley and—
(if spacer is in front of cam gear) —Remove Spacer

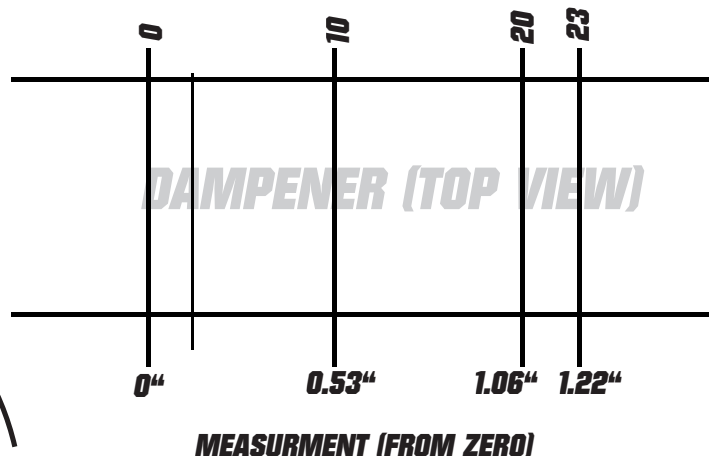


PRE-ASSEMBLY & THINGS TO CHECK

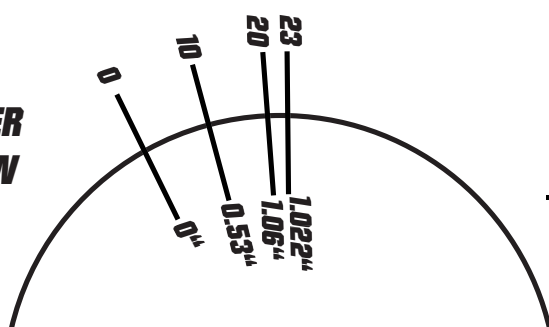


To mark the new dampener for ignition timing marks. Place original pulley on crank, front cover on block rotate pulley to align with pointer and dot on pulley. Remove pulley without rotating Crank. Align new dampener to key, slide in place. You can now mark TDC. Mark degrees on dampener with a scale going from TDC mark.

TIMING MARKS (IN DEGREES)



**DAMPENER
SIDE VIEW**



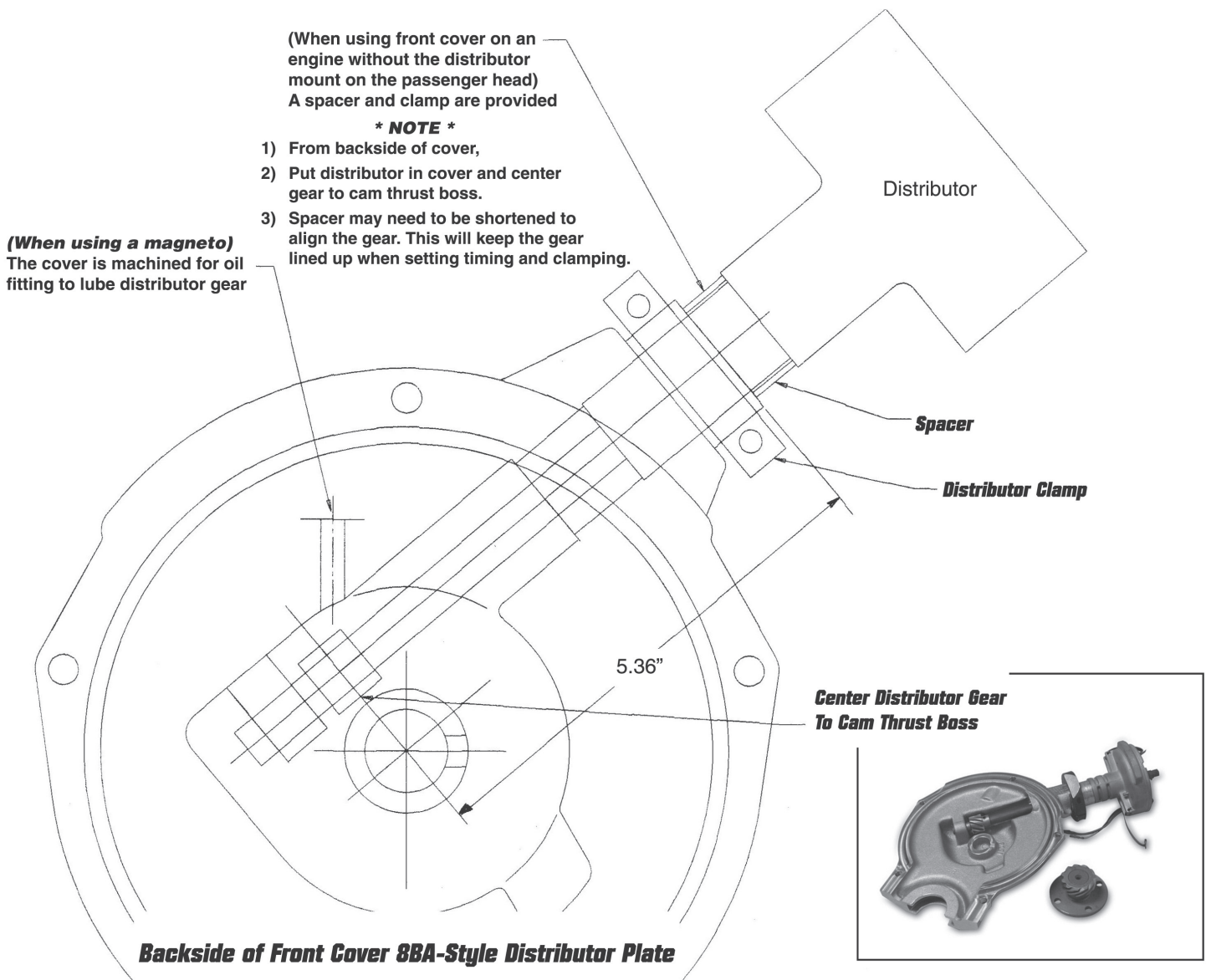
MORE THINGS TO CHECK

Make sure new dampener goes back flush to cam gear. Measure from face of dampener to front of block with calipers, 2.365" With crank pulley on dampener on the crankshaft make sure spacer does not need to be trimmed, check crank bolt. Remove dampener and front cover.

NOTE:

59A Engine

Remove crab distributor drive hub from cam and install distributor gear assembly.



MORE PRE - ASSEMBLY and THINGS TO CHECK

CHECK:

To make sure you plug the rear fuel pump drive shaft hole.

(WITHOUT PLUGGING HOLE oil will squirt out the hole loosing engine oil pressure.)



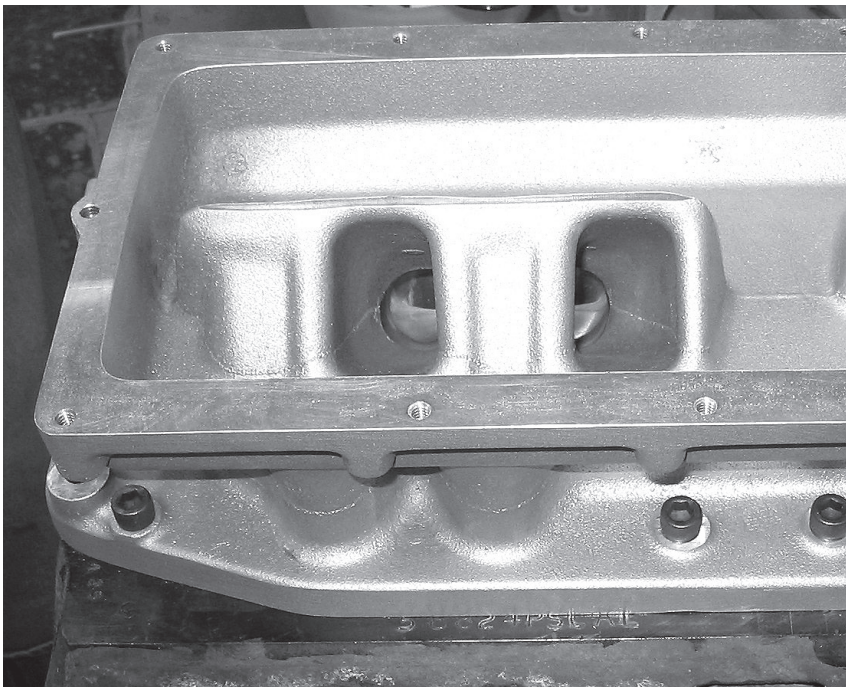
NOTE:

Match port manifold to block if you are porting block.

NOTE:

59A BLOCK

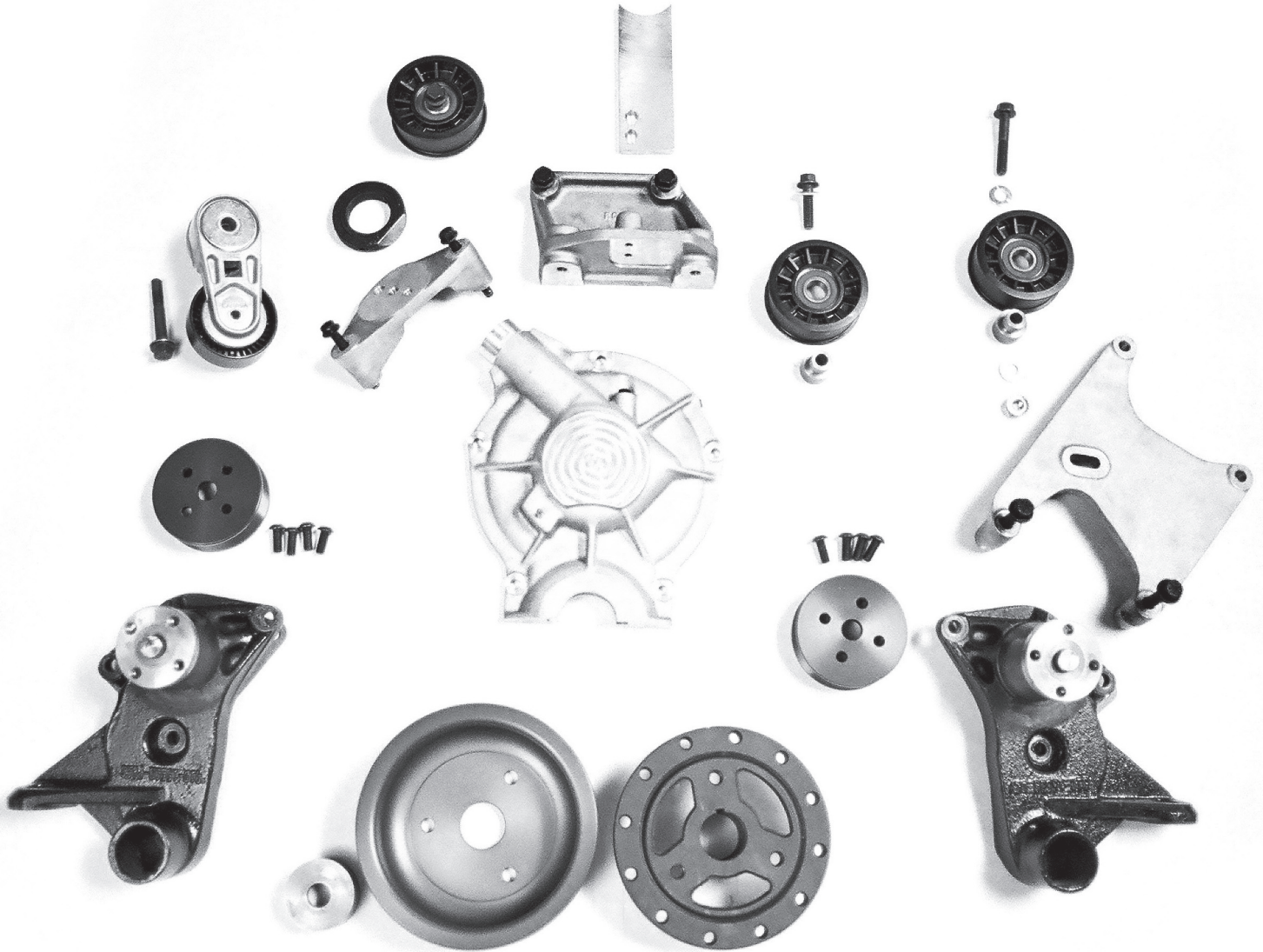
Lower intake manifold flange may need to be cleared for water outlets bosses on some after market heads.



PARTS LAYOUT FOR FRONT OF BLOCK

NOTE:

59A water pumps are shown but the 2 each 8BA styles go together the same.

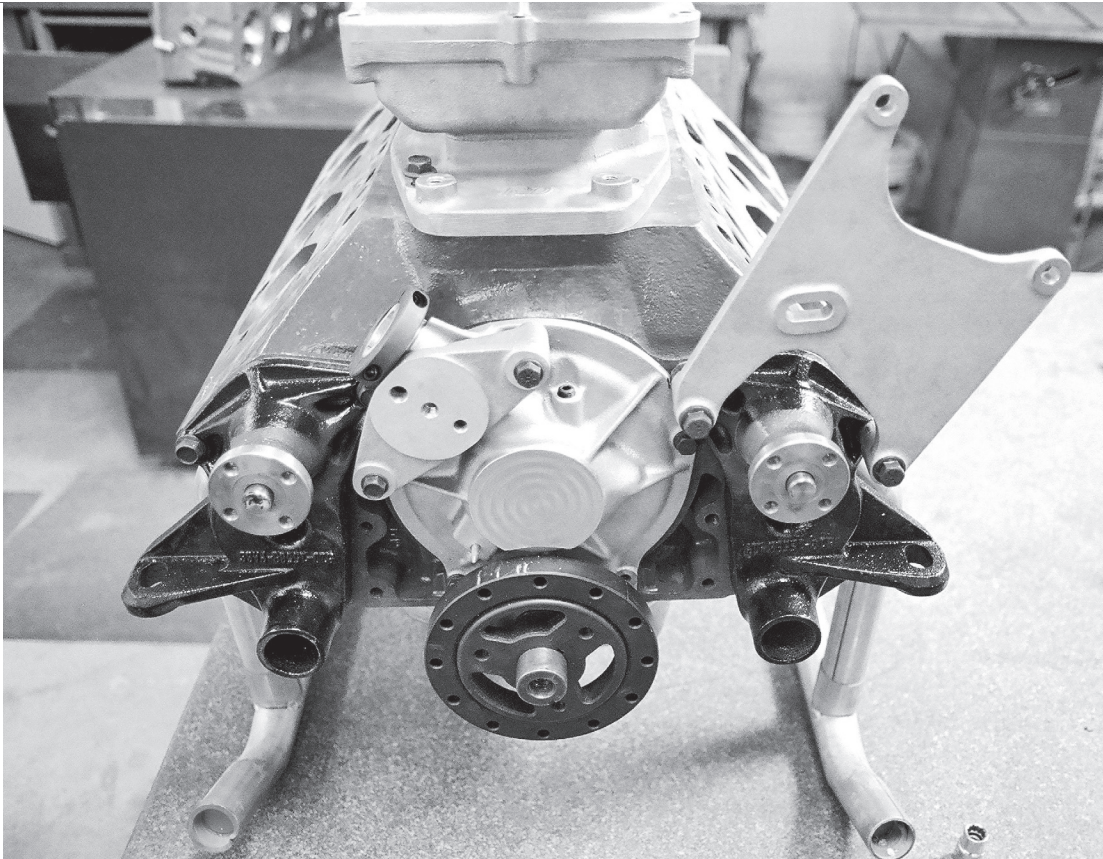


NOTE:

This is what the Front Block Parts (above photo) will look like, once assembled.



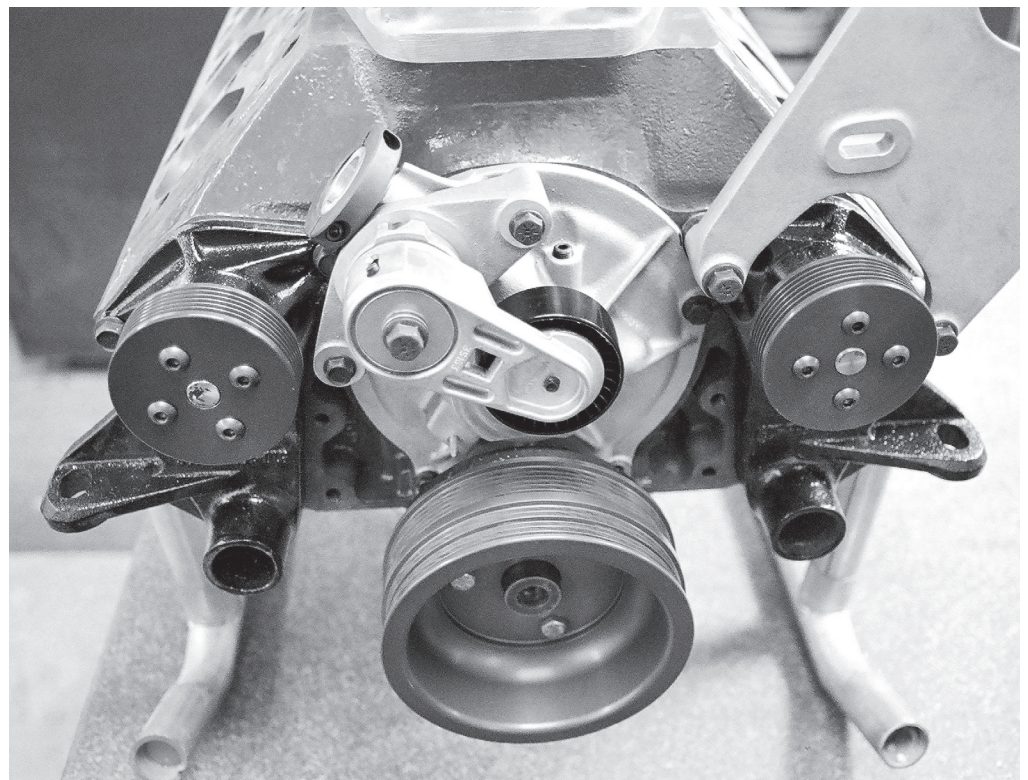
Install front cover with tensioner bracket.
Install drivers water pump with altnator bracket.
Install passenger water pump.



mount pulleys on water
pumps, crank dampener
and install spacer on crank
with bolt.

NOTE:

Idler slot in alternator bracket



Install intake manifold on block.

Install the 2 ring dowels. Install "O" ring, silicon where it comes together and 5 or 6 other spots to hold in place **"LET DRY"**.



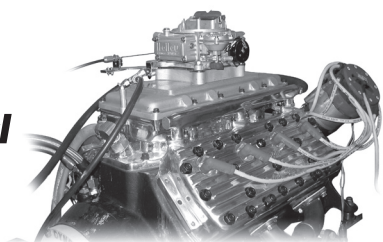
THIS SUPERCHARGER WAS SERVICED, RUN-TESTED AND SEALED AT MAGNUSON PRODUCTS.

The Supercharger and manifold will arrive bolted together. You will unbolt the top cover from the lower manifold and lift off. **Remove tape from bottom of supercharger and carb flange Before final assembly.** Install top cover and supercharger to lower manifold.

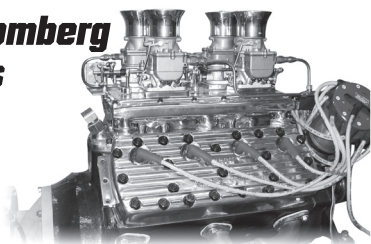
NOTE: Pop off valve at rear of supercharger, set at 10 PSI and bypass valve to unload supercharger when engine does not have load on it. **Helps save gas.**

TRDesigns also offers manifold top covers for the following configurations

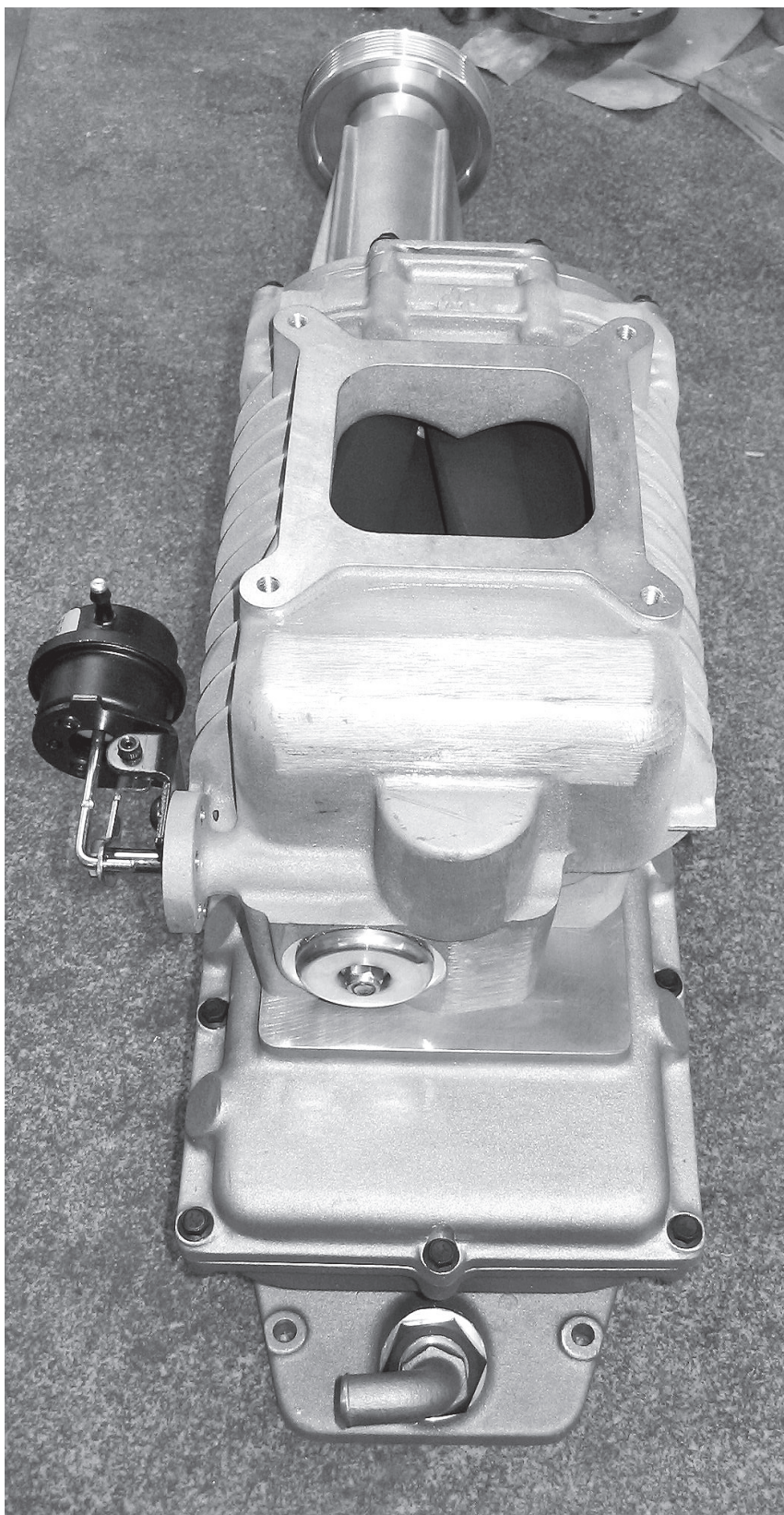
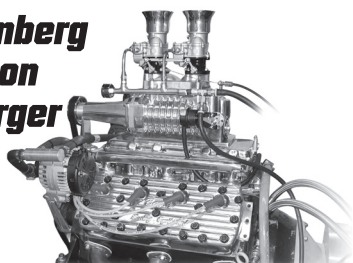
***Single
4-Barrel
Carb***



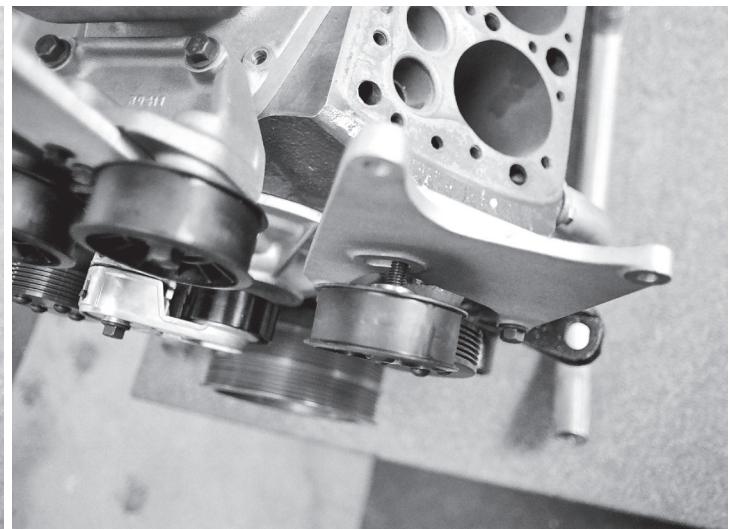
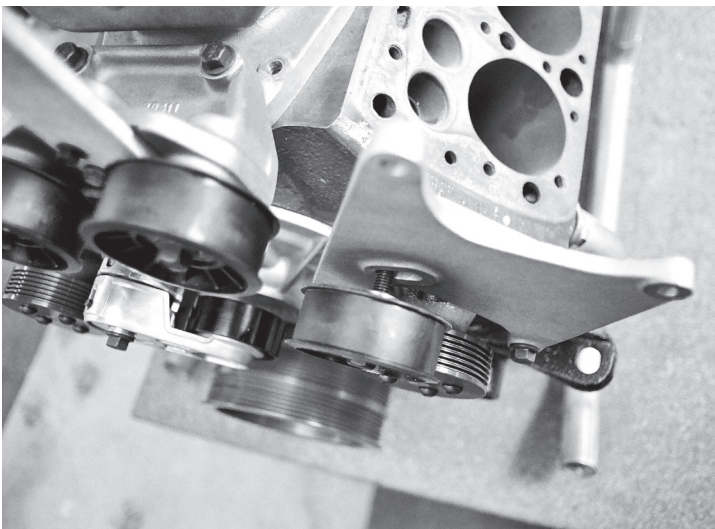
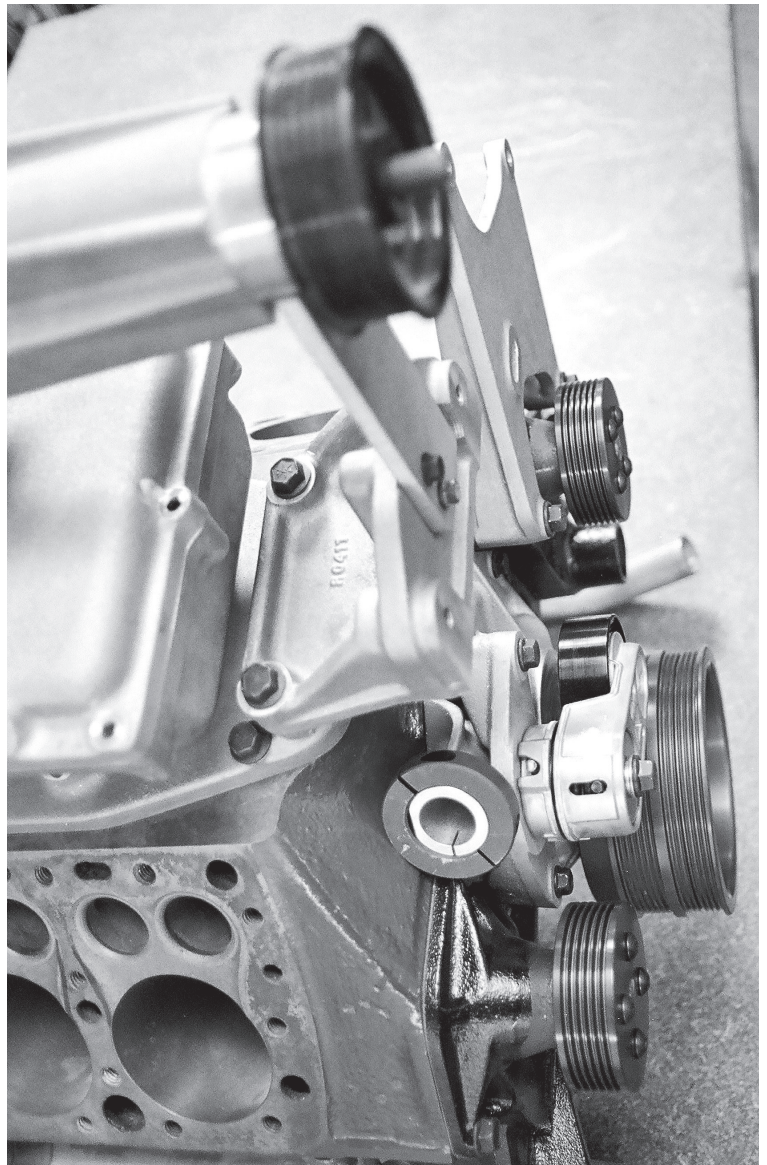
***Four Stromberg
97 Carbs***



***Two Stromberg
97 Carbs on
Supercharger***

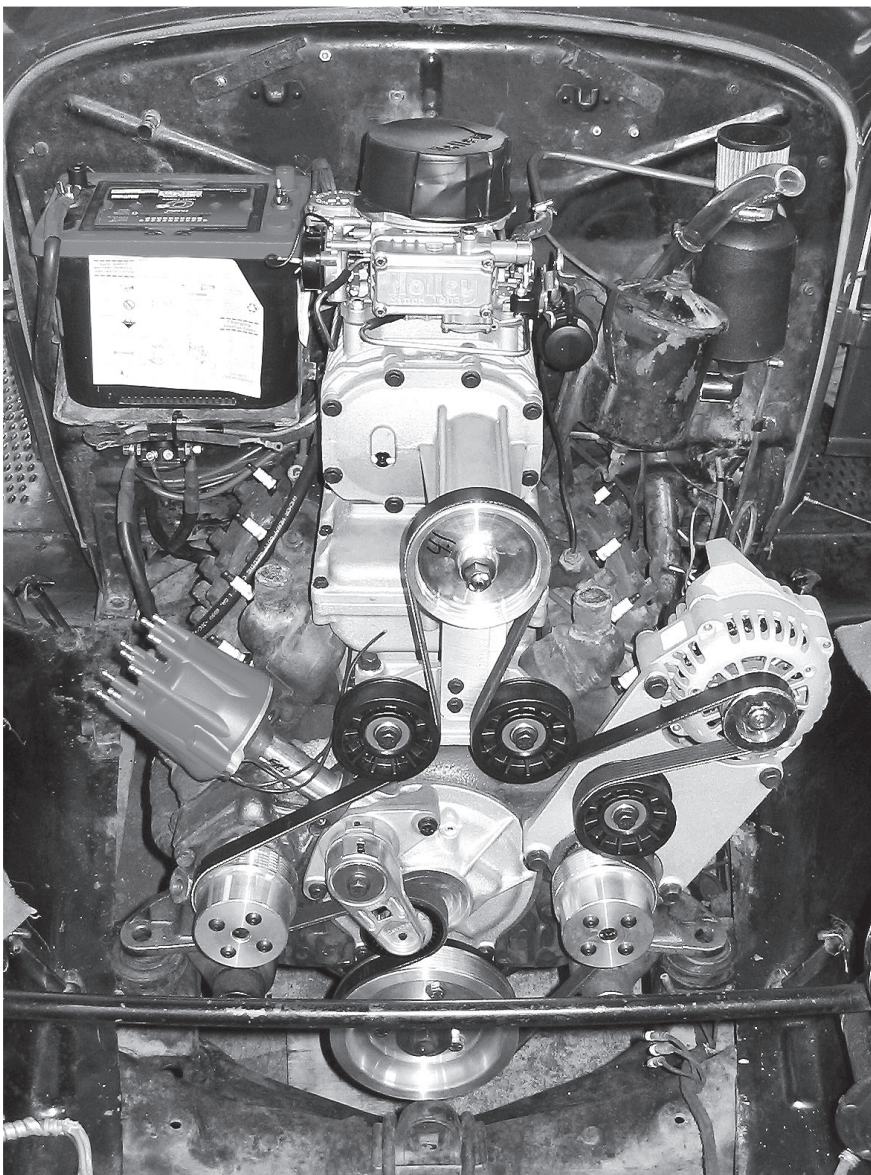
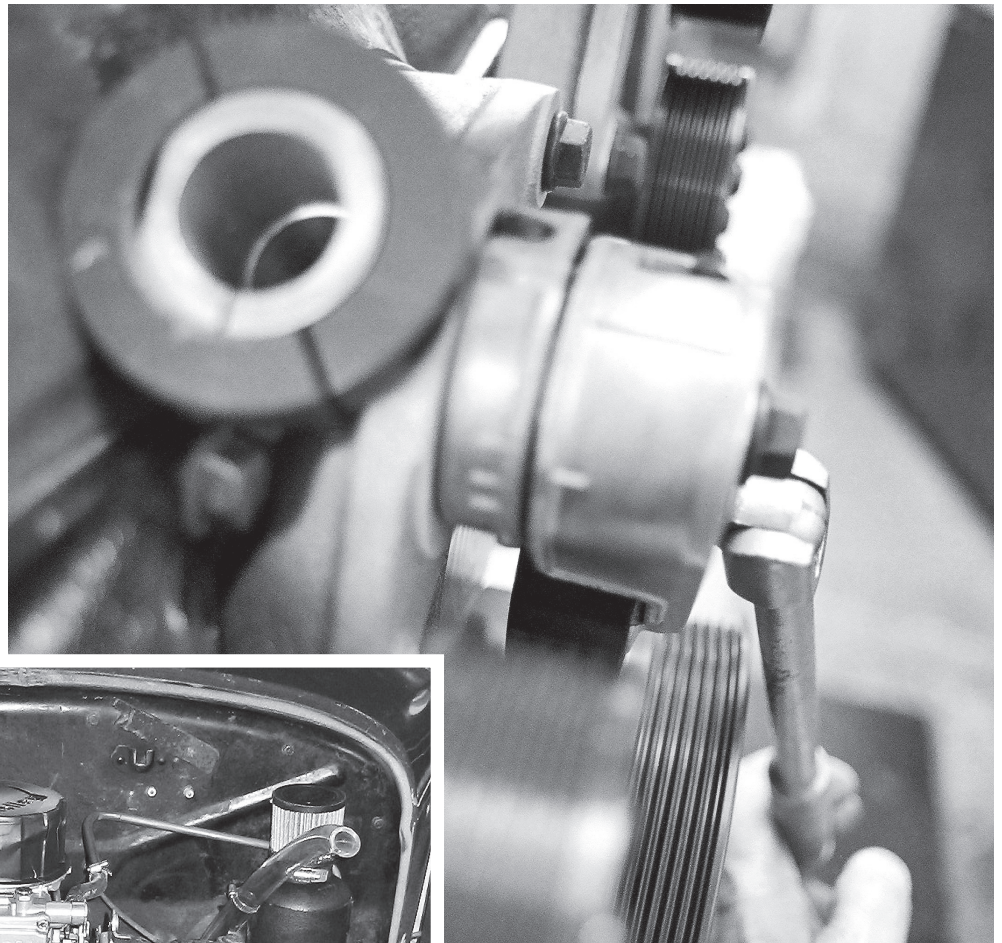


Mount idler bracket
on lower intake

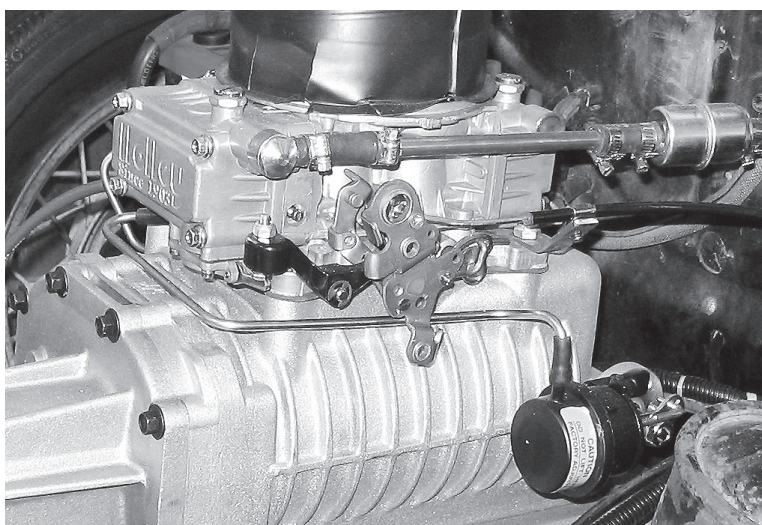
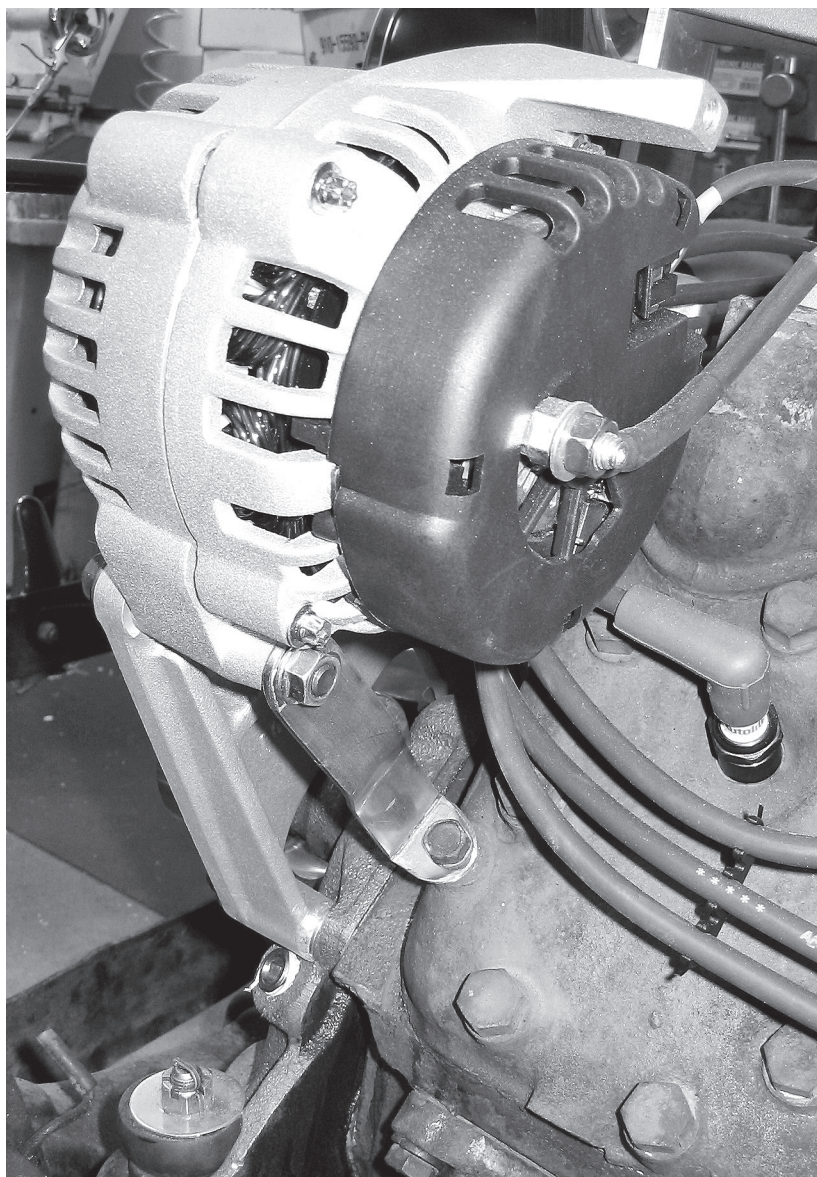


The Idler mount on alternator bracket has been slotted.
This is to allow for different length belts to used with the system.

Put belt on pulleys, by moving fixed idler in slot on alternator bracket will let you get the tensioner alignment marks lined up.



With alternator in place, a bracket needs to be made to attach back-side of alternator to head you need to support the back side of alternator because of the load of serpentine belt driving the supercharger.

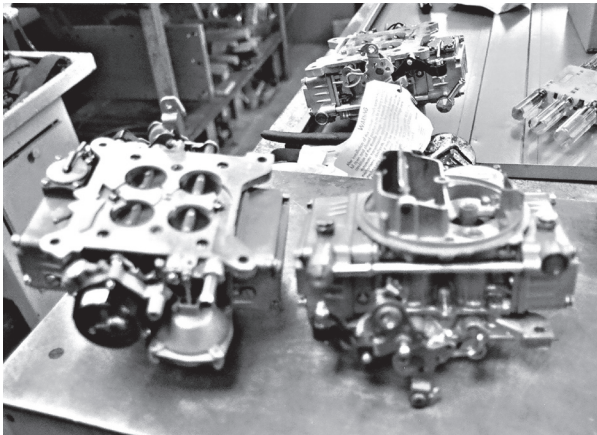
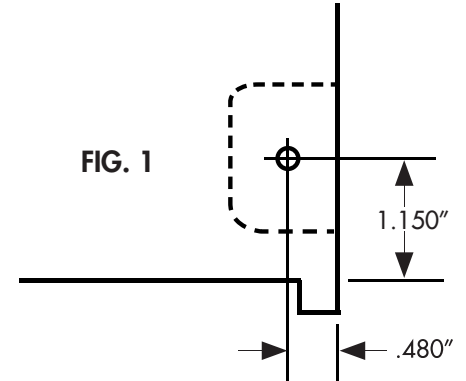


The Holley 390 CFM carburetor. A vacuum line from carburetor to bypass actuator needs to be made.

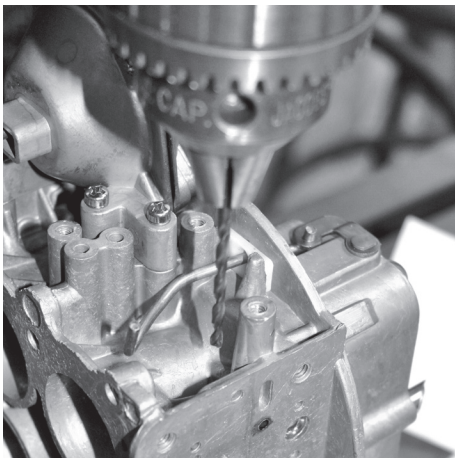
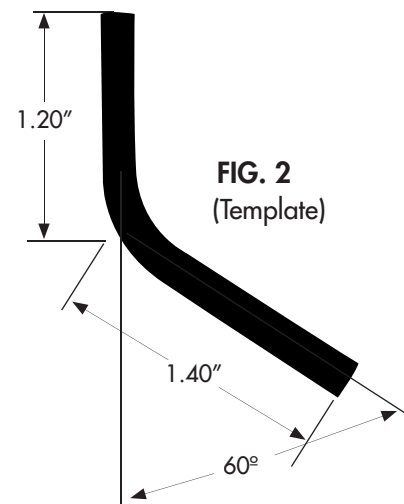
HOLLEY 390 CARBURETOR MODIFICATIONS

A line sensing plenum manifold pressure to the backside of power valve in the carburetor needs to be made.

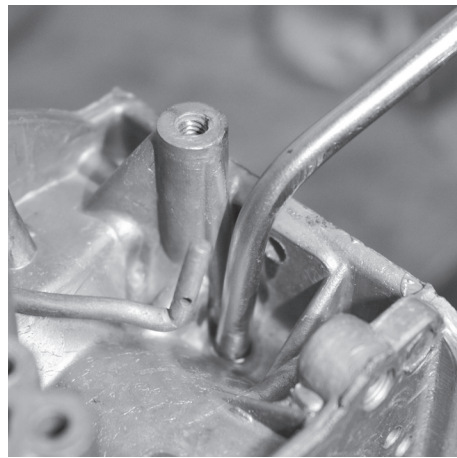
- 1) Disassemble carburetor
- 2) Set carburetor body in vise to drill into power valve cavity.
- 3) Using a Drill bit size: #30, drill completely through (FIG. 1)
- 4) Using a #12 size bit, drill 0.360" deep
- 6) Clean out shavings and chips
- 7) Using Red LocTite, Press in a 3/16-inch angled tube (FIG. 2)



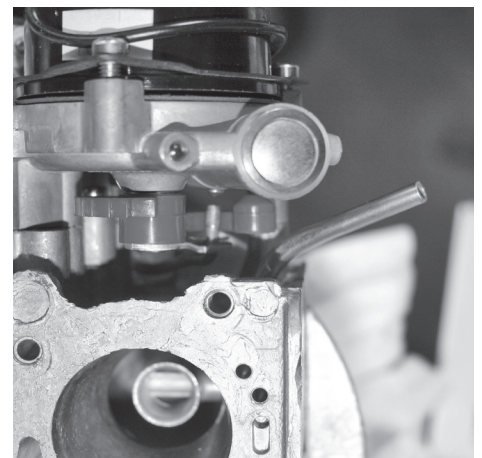
Disassemble Carburetor



Drill at specified location



Press in 3/16-inch tube using Red LocTite

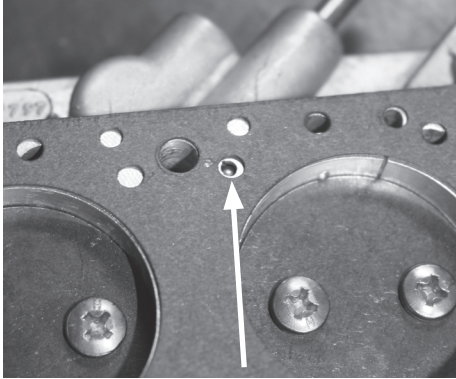


Check clearance of red plastic mechanism

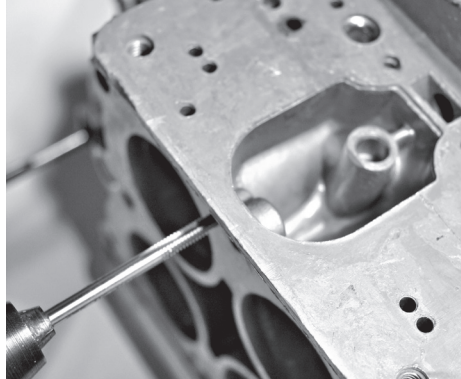
HOLLEY 390 CARBURETOR MODIFICATIONS (Continued)

Plug vacuum hole in main housing to power valve cavity

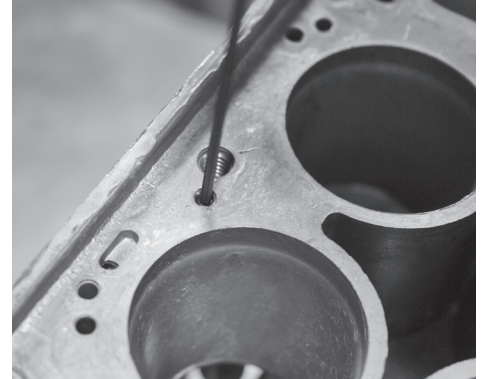
- 1) In carburetor body, tap original hole with 6-32 and clean out shavings and chips
- 2) Install 6-32 set screw as a plug (To return to stock setup, simply remove set screw)



This small 1-way valve in the throttle-plate will be sealed off with our modification. This plate & valve remain stock.



Tap hole with 6-32 and clean shavings



Insert set screw down into hole

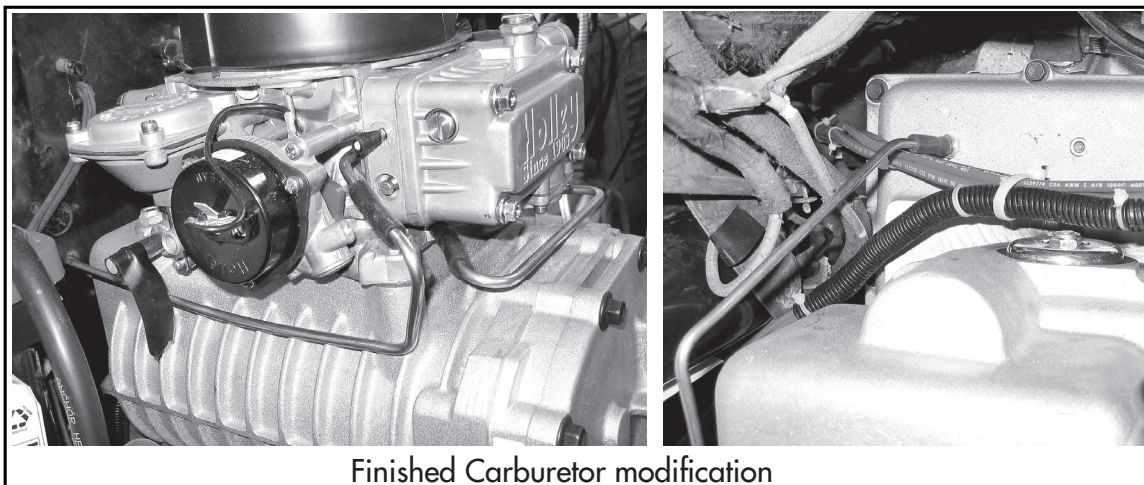
Install new, different parts

53 Primary Jets (up from 51.5)

Install 3.5 Power valve

Check secondary metering plate with a .053 drill. Drill if needed and clean out all shavings.

Reassemble carburetor



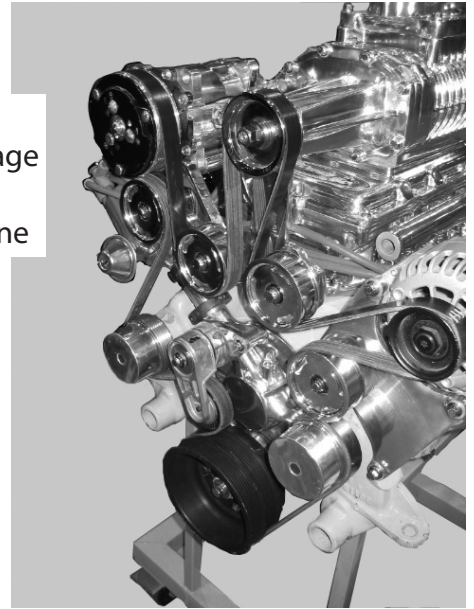
Finished Carburetor modification

OPTIONAL AIR CONDITIONING BRACKET KIT

Keep your ride cool with Air Conditioning!



Air Conditioning Bracket and Vintage Air Compressor Installed on engine



Air Conditioning Bracket Installed on Idler Manifold Bracket

THE AIR CONDITIONING BRACKET KIT:

CNC Aluminum Brackets, Idler Pulley Spacer & ARP Stainless Nuts & Bolts



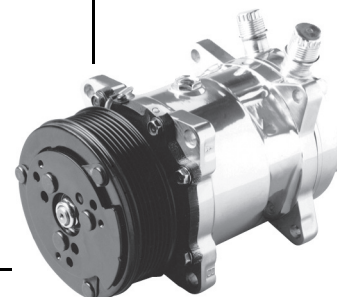
Part Number: R8024



AC Bracket Side View

AC COMPRESSOR FROM VINTAGE AIR

Sold Separately



Sanden SD 508 Compressor

This compressor is recommended for all Vintage Air systems. It pumps 8.4 cubic inches per revolution with a maximum 6000 sustained RPM range. Available in standard finish or polished. Fits all Vintage Air brackets

Vintage Air Part Number: 04808-VMQ

Installation is a BREEZE!

Simply bolt the rear AC bracket onto the Idler Manifold Bracket using the supplied bolts. Then bolt on the front AC bracket behind the Idler Pulley using the supplied spacer and bolts...

Now, you're ready to bolt on the compressor

INSTALLATION COMPLETE

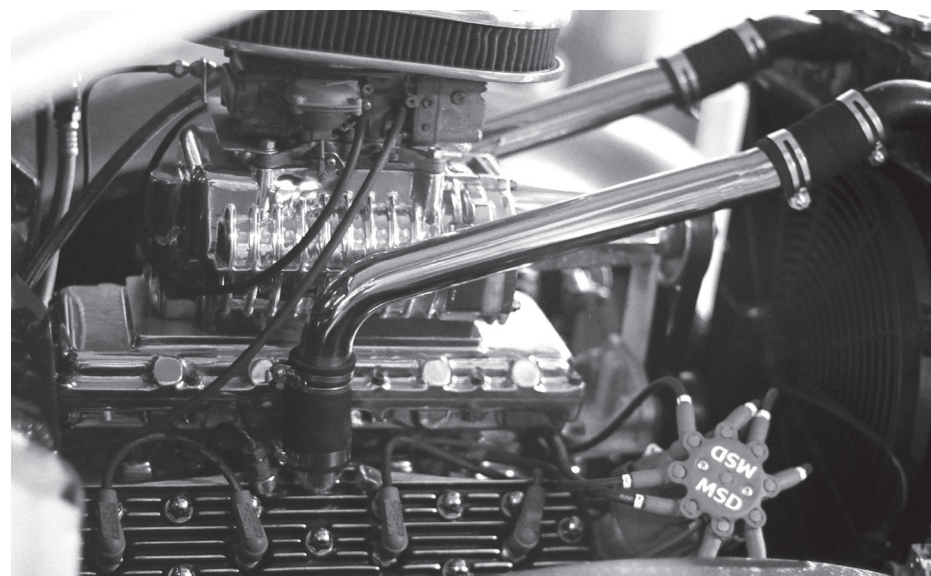
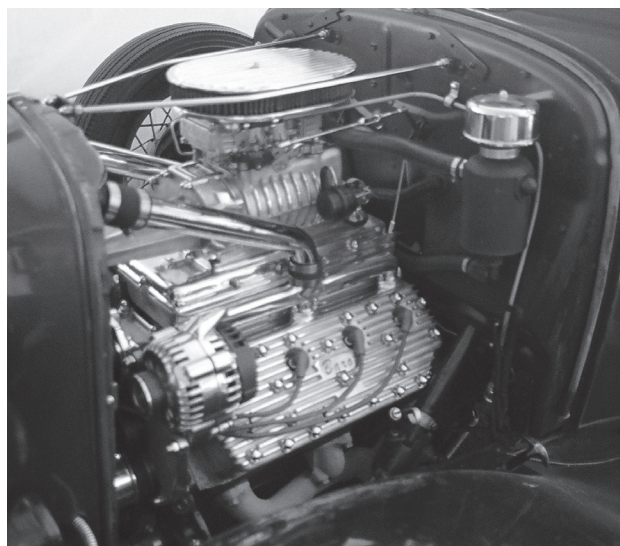
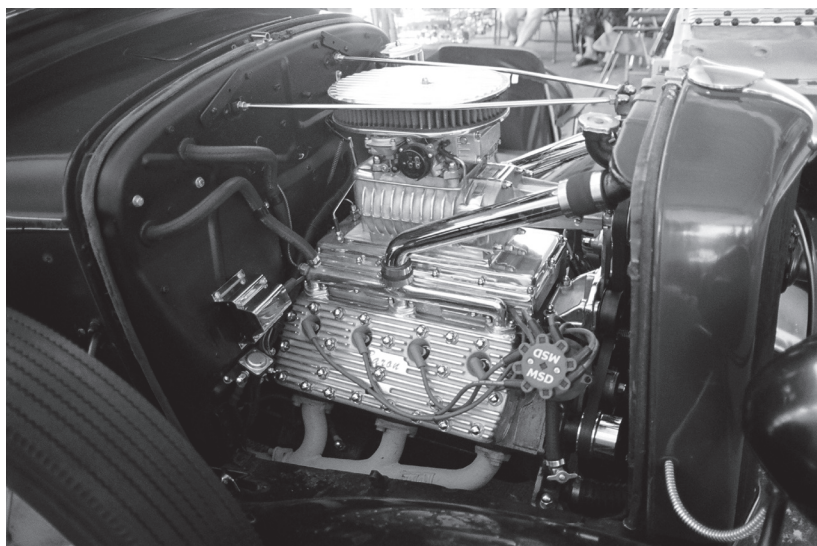
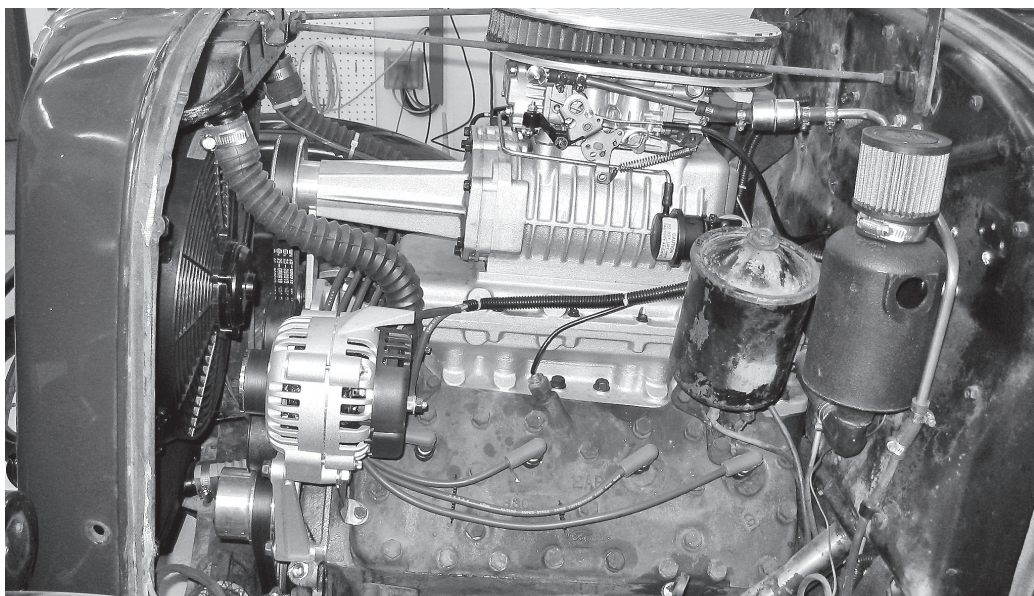
Installed on a 1932 Ford pickup with a stock 8BA '53 Mercury engine.

Right-

This is what the completed installation looks like on a bone-stock engine.

Below-

This is the same '32 pickup with polished parts, Baron Racing Equipment heads and a little elbow grease.

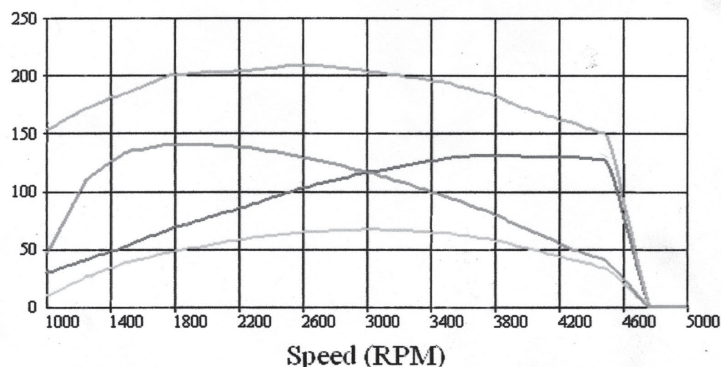


Water Outlet Routing

Left-

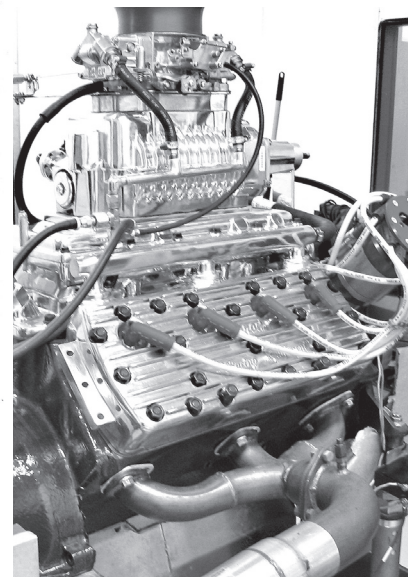
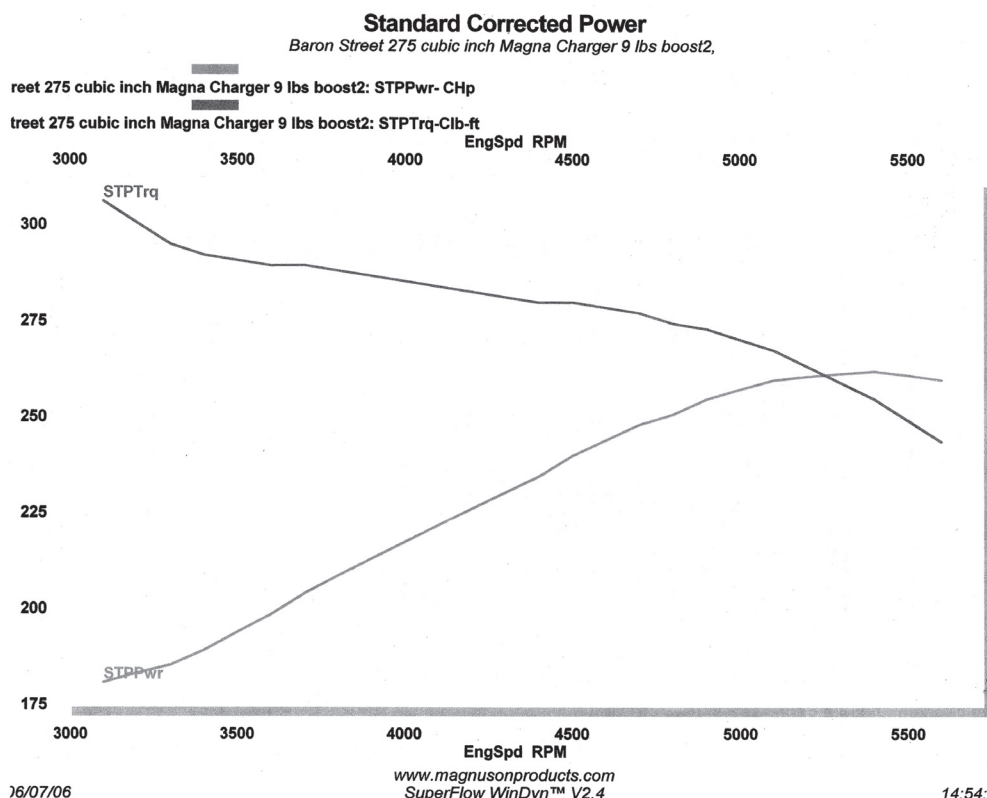
This photo shows the routing of the water outlets on 59A heads. Plenty of clearance for the intake manifold.

OUR DYNO RESULTS



Our test vehicle started as a bone-stock '32 Ford pick up. Over the period of a few months we outfitted the flathead V8 with one of our kits. The results speak quite loudly. To begin with the only piece of non-stock hardware on the '32 truck was a pair of cast iron Fenton headers. Keep in mind, that torque jerks you off the starting line. In this case, maximum torque came at 1750 rpm and was recorded to be 140.8 ft-lbs. Continuing to compare apples to apples; with the supercharger kit installed maximum torque came at 2500 rpm and was nearly flat for the next 1000 rpm. A top reading of 208 ft-lbs shows the value of the supercharger in a stock, streetable drivetrain. The stock (base) horsepower rating for our truck came to a whopping 66 HP @ 3,000 RPMs. With the Ultimate Flathead Supercharger installed, we were astonished at the results. At 3,750 RPMs the little truck pumped out an amazing **132 HP!**

A Performance 275 cubic-inch Flathead Ford, built by Baron Racing Equipment



MORE DYNO RESULTS

by
TATOM CUSTOM ENGINES

ENGINE DYNO TEST

These tests were performed on an 8BA,
284-cubic inch Flathead Ford engine.

ENGINE SPECIFICATIONS:

DISPLACEMENT: 284 cu in

3-5/16" bore, 4-1/8" stroke

HEADS: Edelbrock Open Chamber

CAMSHAFT: Tatom Custom Engines

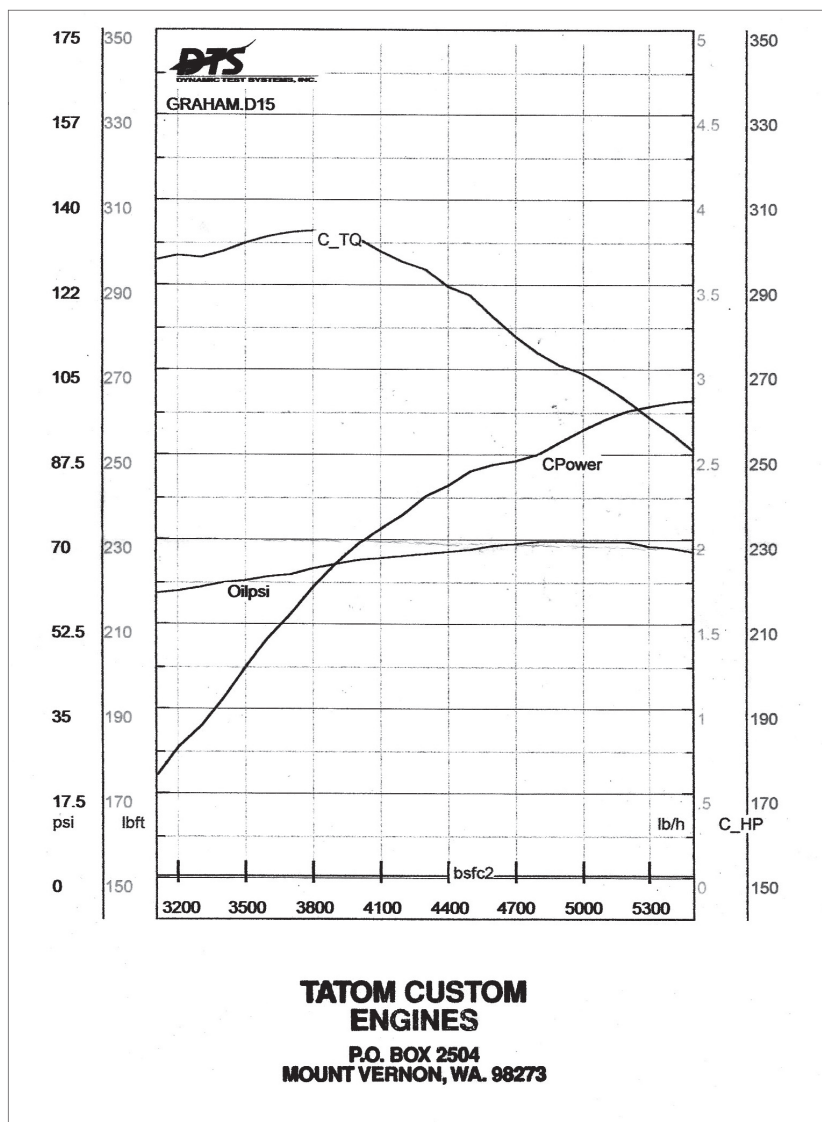
0.395-Lift, 270-intake, 260-exhaust

VALVE SIZE: 1.6-intake, 1.5-exhaust

COMPRESSION: 7.8:1

CARBURETOR: 525 Road Demon Jr.

IGNITION: MSD Stand-Alone



Date : 02-26-2008
Inf = .43

CARB:Demon 570 MAIN JET:P65
BLOWER: EATON 112 IGNITION:MSD INDUCTIV
TIMING:17 SPK PLUG:NGKB40S
GAP:.032 HEADER:TATOM EQUAL
VALVE LASH:.010/.012 OIL:DELO 4
00 15/40

FileName : GRAHAM.D15

| Speed rpm | C_TQ lbft | CPower C_HP | Oilpsi psi | Water°F °F | VACUME °Hg | FuelPrLoA/F PSI | bsfc1 lb/hp |
|--------------|--------------|----------------|---------------|---------------|---------------|--------------------|----------------|
| *3000 | 292.8 | 167.2 | 57.9 | 180 | -8.62 | 6 | 15.72 |
| *3100 | 295.6 | 174.4 | 58.6 | 180 | -8.69 | 6 | 15.73 |
| *3200 | 296.4 | 180.6 | 59.2 | 180 | -8.77 | 6 | 15.79 |
| *3300 | 295.9 | 185.9 | 60 | 180 | -8.78 | 6 | 15.84 |
| *3400 | 297.4 | 192.5 | 60.7 | 181 | -8.81 | 6 | 15.86 |
| *3500 | 299.5 | 199.6 | 61.4 | 182 | -8.85 | 5.9 | 15.87 |
| *3600 | 300.8 | 206.2 | 62 | 182 | -8.91 | 5.9 | 15.81 |
| *3700 | 301.6 | 212.4 | 62.8 | 182 | -9.02 | 5.9 | 15.61 |
| *3800 | 302.1 | 218.5 | 63.8 | 182 | -9.17 | 5.9 | 15.18 |
| *3900 | 301.4 | 223.8 | 64.7 | 182 | -9.31 | 5.9 | 14.93 |
| *4000 | 300.3 | 228.7 | 65.5 | 182 | -9.5 | 5.8 | 14.8 |
| *4100 | 297.4 | 232.1 | 65.9 | 182 | -9.69 | 5.8 | 14.75 |
| *4200 | 294.9 | 235.8 | 66.5 | 182 | -9.96 | 5.7 | 14.73 |
| *4300 | 292.9 | 239.8 | 66.8 | 182 | -10.24 | 5.7 | 14.72 |
| *4400 | 289.1 | 242.2 | 67.2 | 182 | -10.53 | 5.7 | 14.72 |
| *4500 | 287.1 | 246 | 67.8 | 182 | -10.98 | 5.7 | 14.65 |
| *4600 | 282.1 | 247 | 68.5 | 182 | -11.37 | 5.7 | 14.6 |
| *4700 | 277.3 | 248.1 | 69 | 182 | -11.69 | 5.7 | 14.58 |
| *4800 | 273.4 | 249.8 | 69.3 | 182 | -12.01 | 5.7 | 14.62 |
| *4900 | 270.7 | 252.6 | 69.5 | 182 | -12.4 | 5.6 | 14.68 |
| *5000 | 268.9 | 255.6 | 69.5 | 182 | -12.8 | 5.6 | 14.68 |
| *5100 | 265.8 | 258.1 | 69.4 | 183 | -13.36 | 5.6 | 14.63 |
| *5200 | 262.3 | 259.7 | 69.4 | 184 | -14.05 | 5.5 | 14.55 |
| *5300 | 258.7 | 261 | 68.7 | 184 | -14.89 | 5.5 | 14.47 |
| *5400 | 254.6 | 261.8 | 68.1 | 184 | -15.69 | 5.4 | 14.37 |
| *5500 | 250.6 | 262.4 | 67.3 | 184 | -16.371 | 5.4 | 14.26 |

Average data in * band
4250 285 228.58 65.36 182 -10.95 5.75 15 .49

Date : 02-26-2008
Inf = .43

CARB:Demon 570 MAIN JET:P65
BLOWER: EATON 112 IGNITION:MSD INDUCTIV
TIMING:17 SPK PLUG:NGKB40S
GAP:.032 HEADER:TATOM EQUAL
VALVE LASH:.010/.012 OIL:DELO 4
00 15/40

FileName : GRAHAM.D15

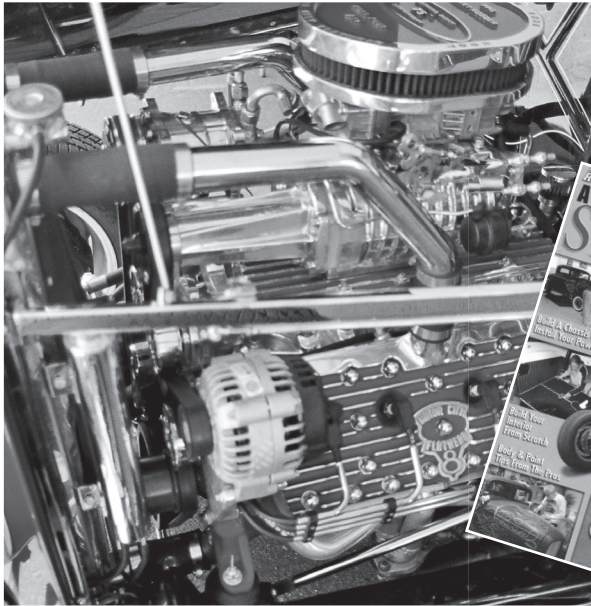
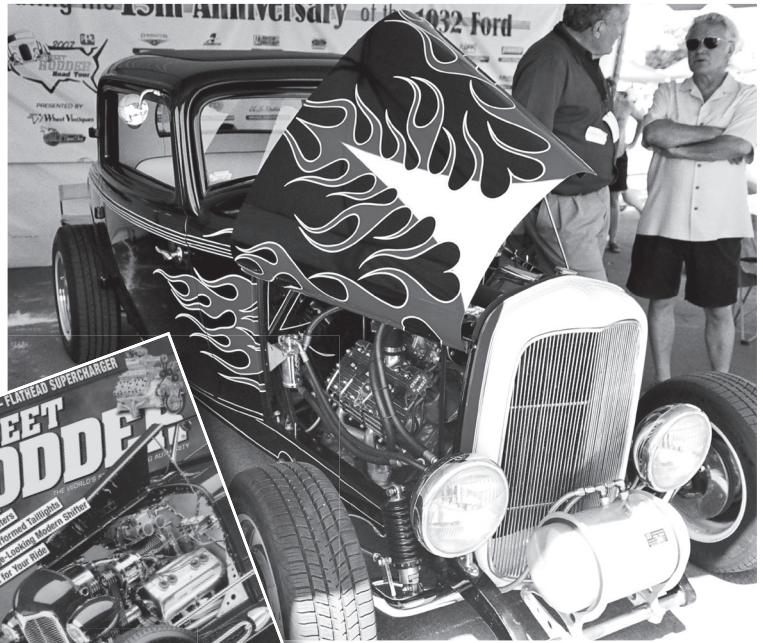
| Speed rpm | EGT 1 °F | EGT 2 °F | EGT 3 °F | EGT 4 °F | EGT 5 °F | EGT 6 °F | EGT 7 °F | EGT 8 °F |
|--------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| *3000 | 825 | 960 | 908 | 908 | 991 | 919 | 62 | 62 |
| *3100 | 828 | 966 | 911 | 910 | 996 | 920 | 62 | 62 |
| *3200 | 831 | 975 | 918 | 913 | 1005 | 926 | 62 | 64 |
| *3300 | 836 | 985 | 923 | 917 | 1015 | 930 | 62 | 62 |
| *3400 | 842 | 997 | 932 | 921 | 1026 | 936 | 62 | 62 |
| *3500 | 846 | 1007 | 939 | 926 | 1033 | 942 | 62 | 62 |
| *3600 | 850 | 1018 | 947 | 930 | 1042 | 947 | 62 | 62 |
| *3700 | 853 | 1025 | 953 | 933 | 1049 | 951 | 62 | 62 |
| *3800 | 860 | 1037 | 963 | 939 | 1058 | 959 | 62 | 62 |
| *3900 | 867 | 1050 | 973 | 946 | 1070 | 969 | 62 | 62 |
| *4000 | 871 | 1064 | 981 | 954 | 1081 | 979 | 62 | 62 |
| *4100 | 873 | 1068 | 984 | 957 | 1085 | 982 | 62 | 62 |
| *4200 | 880 | 1085 | 993 | 965 | 1096 | 993 | 62 | 62 |
| *4300 | 889 | 1098 | 1003 | 974 | 1109 | 1004 | 62 | 62 |
| *4400 | 898 | 1114 | 1013 | 985 | 1122 | 1013 | 62 | 62 |
| *4500 | 908 | 1128 | 1021 | 994 | 1133 | 1023 | 62 | 62 |
| *4600 | 918 | 1145 | 1029 | 1007 | 1144 | 1032 | 62 | 62 |
| *4700 | 926 | 1158 | 1037 | 1018 | 1155 | 1038 | 62 | 62 |
| *4800 | 935 | 1170 | 1043 | 1029 | 1165 | 1041 | 62 | 62 |
| *4900 | 947 | 1185 | 1049 | 1041 | 1176 | 1045 | 62 | 62 |
| *5000 | 959 | 1199 | 1055 | 1054 | 1188 | 1049 | 62 | 62 |
| *5100 | 974 | 1215 | 1061 | 1070 | 1203 | 1053 | 62 | 62 |
| *5200 | 987 | 1228 | 1067 | 1083 | 1214 | 1057 | 62 | 63 |
| *5300 | 1002 | 1243 | 1075 | 1096 | 1224 | 1064 | 62 | 62 |
| *5400 | 1018 | 1257 | 1080 | 1109 | 1235 | 1073 | 62 | 63 |
| *5500 | 1030 | 1269 | 1087 | 1122 | 1246 | 1080 | 62 | 62 |

Average data in * band
4250 902.03 1101 997.88 988.5 1110 997.11 62 62.15

IN THE MEDIA

STREETRODDER MAGAZINE

When Streetrodder Magazine decided to build the ultimate ride to celebrate the car's 75th anniversary of the '32 Ford, they just had to use The Ultimate Flathead Supercharger Kit!



HORSEPOWER TV

HorsePower TV made the TR-Designs Ultimate Supercharger Kit famous when they featured it on the "Project Rat Attack" buildup.

HOT ROD MAGAZINE

The November 2005 issue of Hot Rod Magazine featured the TR Designs Ultimate Supercharger Kit in its Flathead Builder's Guide.



HOT ROD DELUXE MAGAZINE

The debut premier issue of Hot Rod Deluxe Magazine featured the TR Designs Ultimate Supercharger Kit in its Guide To Flathead Power.

NOTES:
