DELOREAN
63-0000

TURBOCHARGER KIT

Installation Instructions for

TURBO-SYSTEMS BY BAE

3032 Kashiwa Street • Torrance, California 90505 • (213) 530-4743 • Telex 181959 BAETURBO TRNC

#40

3032 Kashiwa Street, Torrance, California 90505 (213) 530-4743

INTRODUCTION

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Thank you from B.A.E. You have just purchased the standard of the industry in aftermarket turbocharger systems. Please read the enclosed instructions thoroughly to familiarize yourself with the system hardware and recommended installation procedure. Work precisely and with care for the best end results.

B.A.E. has completed the necessary engineering to provide reliability and lasting endurance. This is done by providing the proper air/fuel ratio throughout the power range, also by reliably controlling boost pressure. The installation and recommended tuning of the B.A.E. turbo system is covered by instructions. B.A.E. has no effective way of insuring that the instructions are followed; however we can assure ease of installation and tuning if the instructions are followed precisely. If it is determined that the instructions are not clear, please call B.A.E. for clarification.

Certain responsibilities must be exercised by any driver of a turbocharged car. It is important to understand that detonation is a sure way to damage any turbocharged car. If repeated detonation is allowed, motor failure is eminent. Detonation can readily be heard, you need only to reduce speed to avoid damage.

The sound of detonation can be described as a loud tinny, metalic sound eminating from engine under load and boost conditions. Technically, detonation os a spontaneous combustion of the air/fuel mixture prior to flame front caused by spark from spark plug. Detonation is accompanied by pressure and temperatures that reach magnitudes of seven to ten times as great as those reached in normal combustion. It is easy to see how damaging detonation can be.

The actual noise heard when detonation occurs is the explosion's shock wave bouncing around the cylinder. B.A.E. has taken every reasonable precaution to insure that your car will not have detonation problems. However, a failed component, a misadjustment or low octane fuel can lead to detonation.

If detonation is ever experienced, find and correct the problem at the earliest opportunity, before resuming operation under boost.

As with all turbocharged engines, when shutting off the engine after any hard running, (freeway driving or "on boost" performance, etc.) let the motor idle for one to three minutes before turning it off. This allows everything to cool down before the oil which lubricates and cools the turbo is shut off. Failure to do so will shorten the turbo life.

63-0000

Delorean Parts List

Item	Qty	Part Number		Description
1	1	63-1000	( )	B.A.E. Exhaust Manifold
2	1	63-2000	( )	B.A.E. Intake Pipe #1
3	1	63-2001	( )	B.A.E. Intake Pipe #2
4	1	63-3000	( )	B.A.E. Discharge Pipe
5	1	63-4000	( )	B.A.E. Exhaust Pipe #1
6	1	63-4001	( )	B.A.E. Exhaust Pipe #2
7	1	63-4005	( )	B.A.E. Turbo Muffler
8	1	63-4008	( )	B.A.E. Wastegate Silencer
9	1	5000	( )	2" silicone hose (2" long)
10	1	5003	( )	2½" silicone hose (2" long)
11	1	5004	( )	3" silicone hose (2" long)
12	1	5005	( )	2 x 2¼" formed silicone hose
13	1		( )	-4 hose 22½" long w/2 st. ends
14	1		( )	-4 hose 46" long w/st. and 90° ends
15	1		( )	-10 hose 3 3/4" long w/45° and 90° end
16	1	7002	( )	-10AN long straight oil drain
17	1	7024	( )	1/8p to -4AN straight
18	2	7025	( )	1/8p to -4AN 45°
19	1	7026	( )	1/8p to -4AN 90°
20	1	7030	( )	1/8 pipe nipple
21	1	7038	( )	1/8 pipe tee
22	1	7080	( )	3/8p to -10AN straight (steel)
23	3	8020	( )	#20 hose clamps
24	3	8028	( )	#28 hose clamps
25	1	8032	( )	#32 hose clamps
26	2	8036	( )	#36 hose clamps
27	2	8044	( )	#44 hose clamps
28	2	8203	( )	2½" muffler clamps
29	2	9204	( )	3/8-16x1¼" hex head bolts
30	1	9207	( )	3/8-16x2" hex head bolts
31	3	9261	( )	3/8-16 nuts
32	4	9273	( )	3/8-16x3/4" header bolts
33	8	9274	( )	3/8-16x1 header bolts
34	1		( )	7mm - 1.0 x 25mm heax head bolts
35	1	10000	( )	oil drain gasket
36	1		( )	B.A.E. discharge plenum
37	1	14020	( )	Wastegate S/N_____
38	1		( )	B.A.E. water pipe
39	1	23000	( )	3" round exhaust flange
40	1	63-25000	( )	Turbo S/N_____
41	1	63-28000	( )	Instruction Manual
42	1	30090	( )	B.A.E. Large Silver Decal
43	1	30091	( )	B.A.E. Small Silver Decal
44	1	30092	( )	B.A.E. Large Clear Decal
45	1	30093	( )	B.A.E. Small Clear Decal
46	6	BP7EFS	( )	Spark Plugs
47	4	9806	( )	10mm - 1.5 x 40mm hex head bolts
			( )	PRESSURE SWITCH

Packed by employeed no._____

( ) 5½ pipe extension

INSTALLATION INSTRUCTIONS

PLEASE READ THROUGH INSTRUCTIONS COMPLETELY BEFORE STARTING INSTALLATION.

I. EQUIPMENT REQUIRED:

Jack
Jack Stands
Basic Metric Hand Tools
Basic American Hand Tools
Drill Motor
9/16" drill bit
3/8" NPT tap

Anti-sieze Compound
Pipe Thread Sealant
Silicone Sealant
6 (ea.) NGK ~~BPR6ES~~ BP7EFS Spark Plugs

II. INSTALLATION:

1. Remove Battery access panel behind passenger's seat and disconnect battery at negative terminal.
2. Jack up car at the rear, and support with jack stands at outer ends of lower control arms.
3. Remove oxygen sensor from exhaust manifold connecting pipe. NOTE 01.04.04
4. Remove muffler clamp from catalytic converter/muffler slip joint.
5. Remove all bolts securing muffler except the mounting bracket above the alternator. The rubber vibration mount is all that needs to be removed at this mounting point.
6. Remove the muffler/bracket assembly as a unit from the catalytic converter.
7. Replace the rubber vibration mount to the bracket above the alternator.
8. Remove the four nuts securing the catalytic converter. Save these nuts. Remove the heat shield that was below the converter.
9. Drain the engine coolant at the pipe/hose connection on the driver's side, just outboard of the transaxle. Save the coolant.
10. Reconnect the hose, and clamp securely. Follow this water pipe up toward the engine, and remove the pipe and hose from just forward of the temperature sending unit located beside the engine, all the way up to the thermostat housing just behind the throttle body. Cut the hose 13 inches from it's small diameter end. Reconnect the large diameter end to the thermostat housing, with the hose routed forward between the air conditioning compressor and the intake plenum, and then over the valve cover just behind the valve cover breather. This is against the law
11. Cut the water pipe 1½" to the rear of the temperature sender and de-burr the pipes end. Reeinstall the sending unit pipe.
12. Locate the B.A.E. water pipe supplied. Cut 3 inches from the unused curved end of the hose, and install the new water pipe., routing it just to the rear of the dipstick, using the #20 hose clamps supplied.
13. Refill the cooling system with the coolant previously drained.

III. OIL DRAIN:

14. Refer to illustration # for the location of the hole to be drilled for the oil drain fitting.

    NOTE: When drilling and tapping this hole, use a heavy grease to keep the metal chips from entering the engine.

    The hole should be tapped perpendicular to the surface the hole is drilled in.
15. When tapping is completed, clean the area surrounding the hole.
16. Use a pipe thread sealant when installing the 3/8" pipe to -10 steel fitting provided.

IV. OIL SUPPLY:

17. Locate the oil pressure sending unit next to the oil filter, and after disconnecting its wire, remove it from the engine. page C11102
18. Install in its place, using pipe thread sealant on all pipe threads, the 1/8" pipe nipple supplied, then the 1/8" pipe tee, then the pressure sender inline with its original location.
19. Into the open side of the tee, which should, when tight, be pointing straight up, install one of the 1/8" pipe to -4, 45° fittings supplied, which when tight should point out directly away from the engine.
20. Reconnect the pressure sender wire.

V. INSTALLATION (CONTINUED):

21. Remove the casting that connects the throttle body to the two intake plenums.

    Important Note: Make sure you don't lose these bolts! (7mm bolts are extremely scare in most area.)
22. Remove the O-rings and plastic spacers from the two steel tubes.
23. Heat this casting to 300°F and remove the two steel tubes, taking care not to damage them.
24. Locate the B.A.E. intake pipe #1 that will be the new connection to the throttle body.
25. Heat it to 300°F, and install the two steel tubes ½ inch into the holes in the flange.
26. Cool the new intake pipe, install the plastic spacer rings, coat the O-rings with a light grease, and install them.
27. Using the 7mm bolt provided, install the new intake pipe onto the throttle body.
28. Install the B.A.E. turbo manifold where the catalytic converter was originally, using the four 10mm-1.5 X 40mm bolts supplied and the original nuts. Reinstall the oxygen sensor in its original location.

This is where the CATALYTIC CONVERTER GOES IF IT IS DONE AWAY WITH, (AGAINST THE LAW)

VI. TURBO PREPARATION:

29. Locate the turbocharger, loosen the V-band clamp nut, and rotate until the oil supply and oil drain holes on the bearing housing are accessable.
30. Remove the plastic plugs.
31. Locate one of the 1/8" pipe to -4 straight fittings, the aluminum oil drain fitting, the oil drain gasket, and two of the 3/8-16 X 1" header bolts.
32. Using pipe thread sealant on the pipe threads, install the 1/8" pipe to -4 straight oil supply fitting into the tapped oil supply hole in the turbo bearing housing.
33. Install the oil drain fitting, using the gasket and 1" header bolts with the threaded end facing the compressor half of the turbo.
34. Remove the V-band clamp, and separate the two halves of the turbo.
35. Set the turbo aside and cover it up to prevent bearing contamination.

VII. TURBO INSTALLATION:

36. Using the four 3/8-16 X 3/4" header bolts supplied, and coating the threads liberally with a high-temp anti sieze compound, install the turbine housing onto the turbo manifold.
37. Torque these bolts to 30 lb. ft. Install the other half of the turbo, making sure the gasket is in place. Don't completely tighten the V-band clamp as yet.

VIII. WASTEGATE INSTALLATION:

38. Install the wastegate, with its exit pointing to the rear, using two of the 3/8-16 X 1" header bolts provided.
39. Install the wastegate silencer using the 3/8-16 X 1¼" bolts and nuts provided.
40. Install the remaining 1/8" pipe to -4, 45° fitting into the tapped hole in the iron portion of the wastegate.
41. Remove the plastic plug from the wastegate top and tighten down the adjusting screw jam nut.

IX. INSTALLATION (CONTINUED):

42. Install the -10 oil drain hose with the 90° fitting connected to the fitting installed in the engine block.
43. Don't tighten the hose ends yet.
44. Install the oil supply hose between the oil supply fitting next to the oil filter, and the turbo, routing it behind the alternator, over the valve cover, under the intake pipe and water hose, under the air conditioning compressor and to the turbo, using the 90° fitting at the turbo.
45. Install the B.A.E. intake pipe #2 between the turbo compressor inlet and the #1 intake pipe, using the lengths of 2½" and 3" silicone hose, and the two #36 and two #44 hose clamps supplied.

IX. INSTALLATION (CONTINUED):

46. Coat the original plenum gaskets with silicone sealant, and using the original 7mm bolts, install the B.A.E. discharge plenum.
47. Install the B.A.E. discharge pipe between the compressor discharge and the plenum, using the molded 2¼" to 2" silicone hose, and #28 and #32 hose clamps at the turbo, and the length of 2" silicone hose, and the two #28 hose clamps at the plenum.
48. Tighten the V-band clamp nut until ½" of thread protrudes.
49. Tighten the oil drain hose ends.

X. FINISHING UP:

50. Drain the engine oil.
51. Using the remaining four 3/8-16 X 1" header bolts, with a liberal coating of anti-sieze compound on their threads, install the B.A.E. exhaust pipe #1 with the tapered I.D. of the round exhaust flange facinng the turbo.
52. Tighten securely when the end of this pipe is exactly parallel with the rear of the car.
53. Install the B.A.E. turbo muffler with the heat shield facing the engine.
54. Install the B.A.E. exhaust pipe #2 into the muffler, and mount this pipe to the original above alternator bracket, using the 3/8-16 X2" bolt and nut supplied.
55. Make sure the pipe is centered in the body cut out, and there is at least 1/8" clearance between the muffler heat shield and the belt pulley.
56. When this relationship is reached, use the two 2½" muffler clamps supplied to secure the exhaust system in place.
57. Refill the crankcase with engine oil.
58. Remove the 1/8" brass pipe plug from the outboard rear of the driver's side intake plenum, and in its place install the 1/8" pipe to -4 90° fitting supplied.
59. Install between this fitting and the wastegate fitting, the wastegate pressure hose.
60. Reconnect the battery, and replace the access cover and carpet.
61. Install NGK PLUGS
62. Start engine, DO NOT RACE MOTOR. Check for oil pressure. Allow to warm up.
63. Reset timing to stock V° with vacuum hose disconnected.
64. Recheck all clamps, and hose fittings. Check for oil leaks.

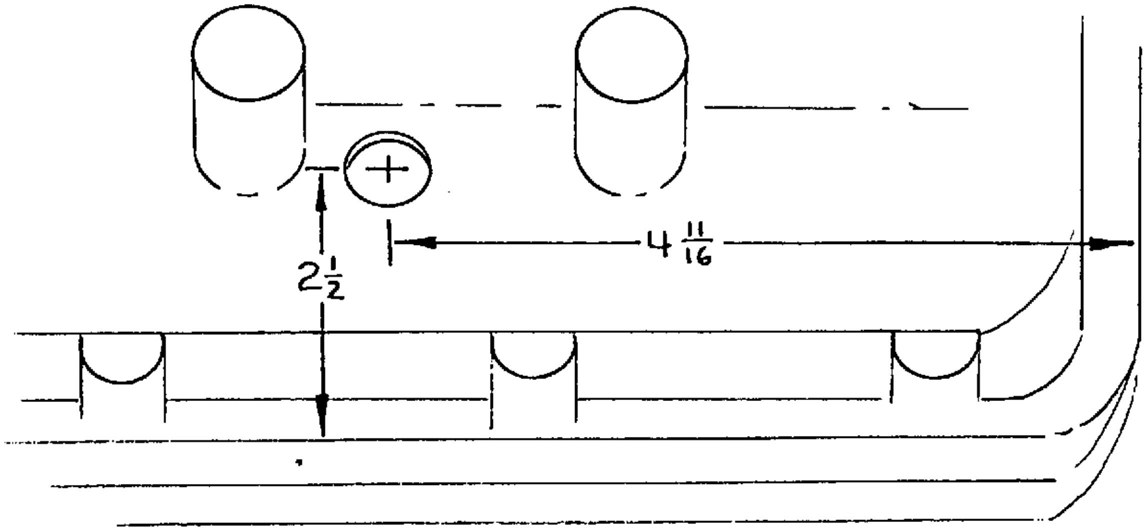
NOTE: If detonation (pinging) occurs at any time, stop motor immediately (especially "on boost").

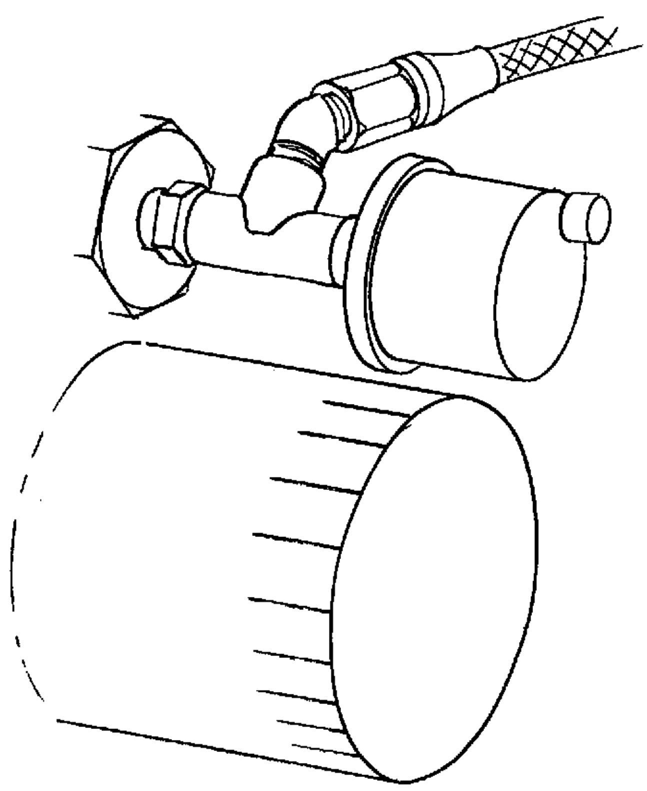
64. Oil should be changed at 2000 mile intervals.
65. There are no special cautions to be noted, however, when shutting off the motor after any hard running (highway running or "on boost" performance, etc.), let the motor idle for a minute or more before turning it off, (or run for one half mile at 20-40 miles per hour). This allows everything to cool down before the oil which lubricates and cools the turbo is shut off.

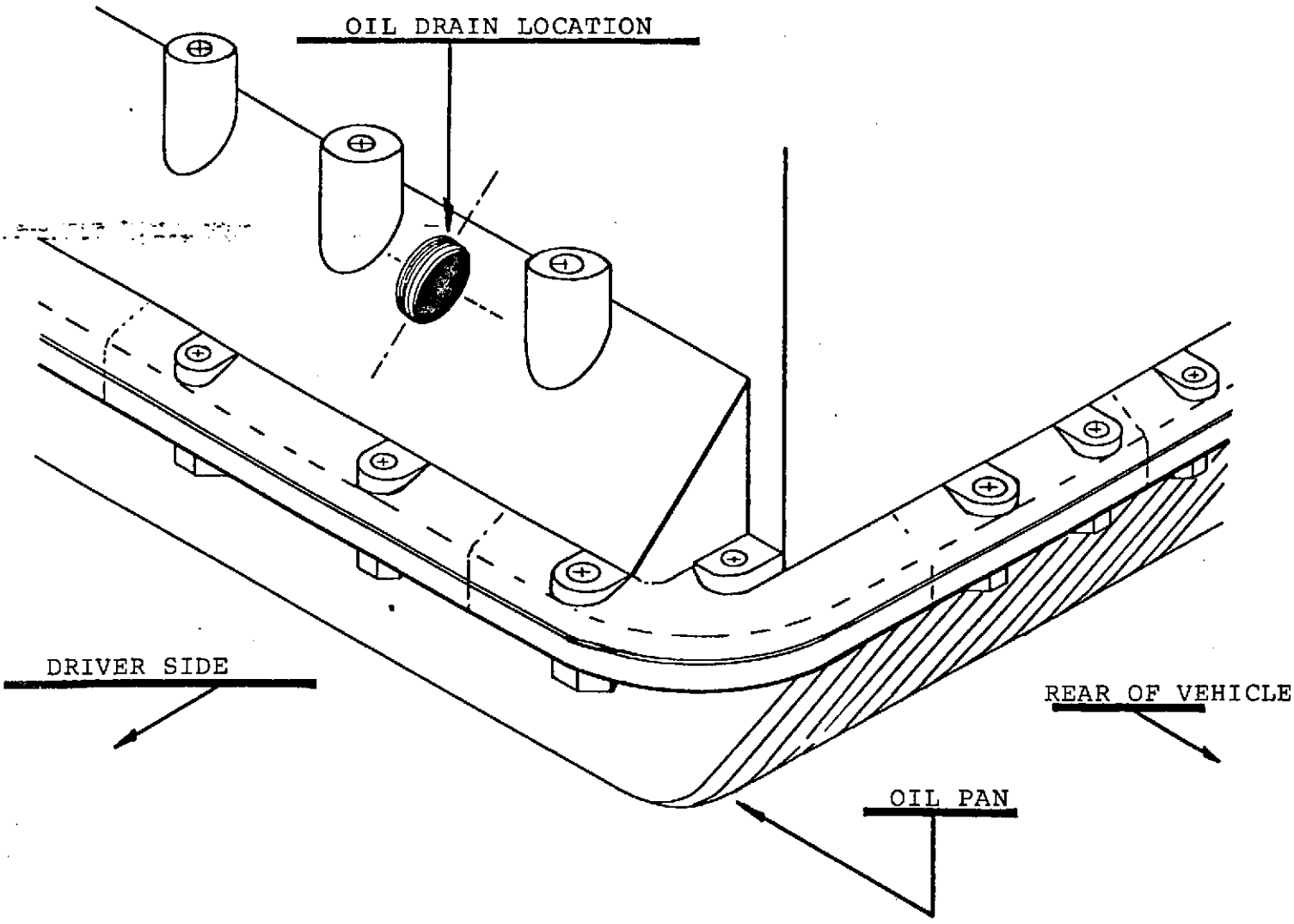
DELOREAN SUPPLEMENT TO STEP # 63

Note this paragraph !!!

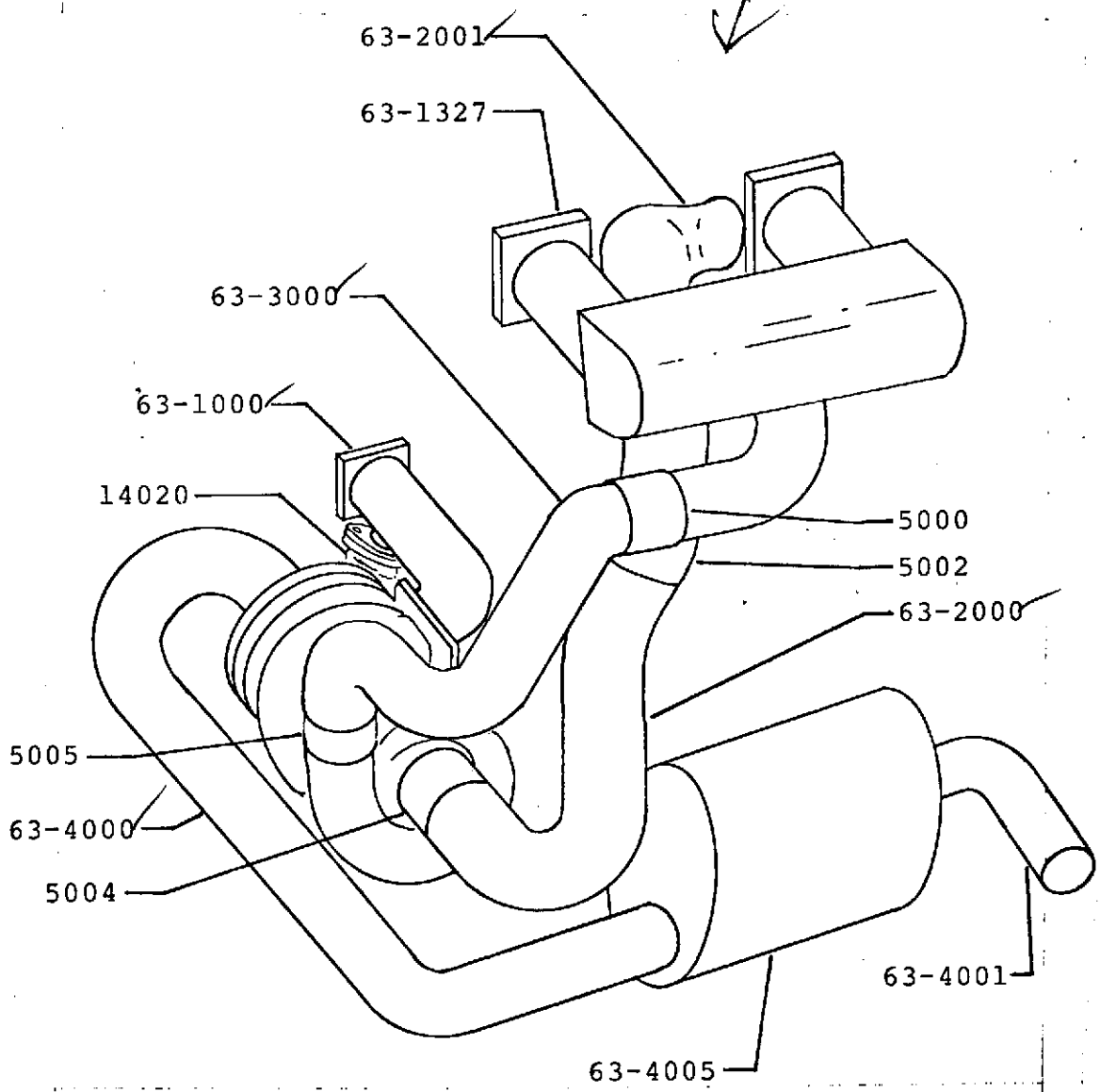
Remove the distributor, place on distributor machine. With no vacuum line connected run the distributor at idle. Slowly increase the RPM's. Watch what RPM level it starts advancing, usually around 1500 to 2000 RPM's and continues advancing until 3000 to 3500 RPM's. Continue increasing RPM's until 5000 RPM. It will start advancing again. This second advancing mode is what has to be stopped. On the side of the distributor you'll find a pressed on view plate, the lower one of the two is the one you want. Rotate the distributor by hand, notice the arms that have no springs connected to the top of them. With a hammer and a punch bend one of the arms in just a little, in order to figure out that the one you bend is the right one. What your bending is the centrifugal weight stop. If you bend the wrong one pry it back out to the same position. Bend the other arm in until the advance at 5000 does not advance any more. Set the timing to stock specs.


$2\frac{1}{2}$
$4\frac{11}{16}$




OIL DRAIN LOCATION
DRIVER SIDE
REAR OF VEHICLE
OIL PAN

ALL of this equipment HANGS 3 SMALL BELTS IN The ALUMINUM INTAKE MANIFOLD.

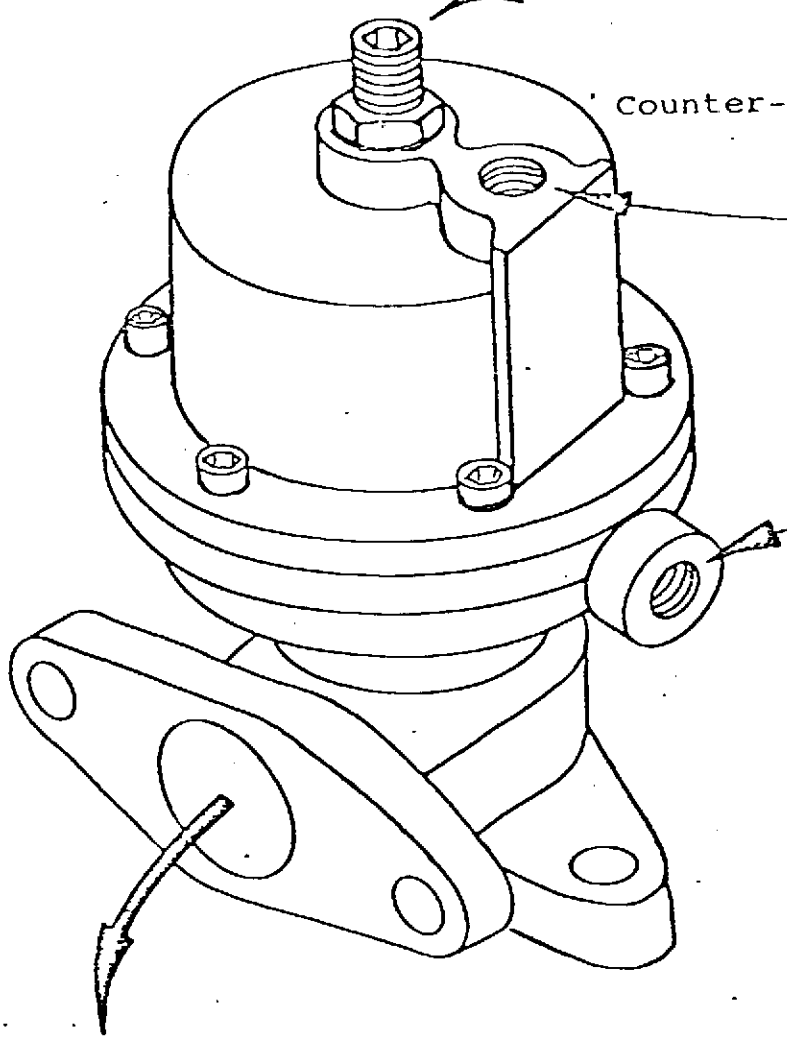


B.A.E. Turbocharger System

De Lorean

P/N 63-0000

B.A.E. Supplemental Wastegate Manifold Connection
and adjustment proceedure



Pressure Adjusting Screw
and Lock Nut

Clockwise = Higher Boost Pressure

Counter-Clockwise = Lower Boost Pressure

Vent Hole - Leave this hole
open to the atmosphere

Connect Line from
Intake Manifold to here

TURBOCHARGED BY BAE

Exhaust Out