MG T-Series Supercharger System

Installation Instructions

For MG-TC & MG-TD

PART # 150-030

440 Rutherford St. Goleta, CA 93117
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NOTE 1: Before beginning the installation, run the vehicle until the tank is nearly empty and refill with 91 US Octane (RON/MON / 2) gasoline.

NOTE 2: Many of the bolts and nuts are Whitworth sized. Whitworth sockets and Whitworth wrenches can be obtained from Moss (Whitworth 5/8" socket for crankshaft nose bolt – 382-220).

NOTE 3: During this install you will have easy access if you would like to change the generator belt, radiator hoses, thermostat, thermostat housing, water pump and other items. If you would like to replace these items, it is easiest to do so while the car is apart.

- Radiator Hose, Upper *434-410*
- Radiator Hose Set, Lower *434-438*
- Thermostat & Housing (Orignal style) *434-168*
- Thermostat & Housing (Replaceable thermo) *434-178*
- Generator belt *434-120*
- Generator belt (slightly longer version) *434-125*
- Water Pump *434-010*
- Starter Solenoid Switch Cable Boots *161-900*

Tools Required

- 1/2″, 18mm sockets, ratchet
- 1/2″, 9/16″, 5/8″ open end wrenches
- Whitworth sockets and wrenches
- Floorjack

CONFIRMATION:

1. Measure your inner choke cable core. If it is shorter than 49 inches, then you will need to purchase a new choke cable. Moss sells MG T-series choke cables for the TC as *331-280* and the TD as *331-290*.

DISASSEMBLY:

2. Remove the hood. Consult factory manual if necessary.

Illustration 2

3. Disconnect the battery.

4. Drain the engine coolant. Then remove the radiator and the right-hand side radiator support. Note: the right-hand side radiator support will not be reinstalled.

Illustration 4

Illustration 4 cont

5. Loosen the generator and remove the generator belt. Source a new generator belt if yours is worn.

Illustration 5

Illustration 5 cont.

6. Remove the crank pulley bolt and the crank pulley using a 5/8" Whitworth socket.

Illustration 6

7. Remove the throttle linkage from the throttle pedal bar. Remove the fuel line from the threaded fitting at the rear carburetor. Remove the choke cable from the rear carburetor.

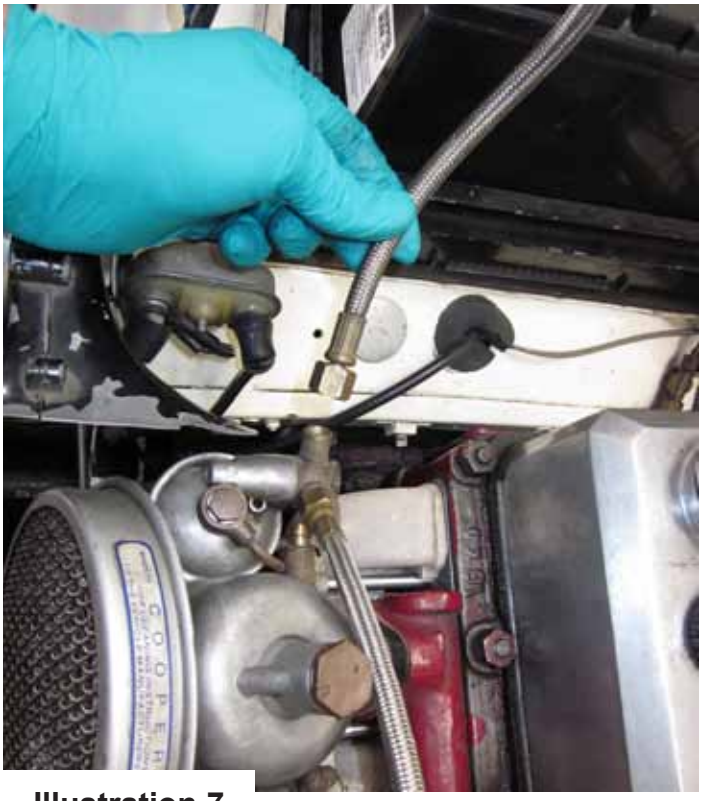


Illustration 7

8. Remove any breather hoses from the air cleaners. Then remove the intake manifold. Save the intake manifold mounting clamps (433-630) and mounting nuts for reuse. Leave the mounting studs (328-760) in place.

Illustration 8

9. If the intake manifold gasket is damaged, remove the exhaust manifold, clean the head and replace the gasket with the new manifold gasket (290-400) supplied in the kit.

Illustration 9

10. Remove the right-hand side horn. It will not be reused. Insulate both of the horn's electrical leads and tape them back to the harness. The horn on the left side will still be functional.

MODIFICATION:

11. Remove the radiator stay bracket from the right side stiffening gusset of the radiator.

Illustration 11

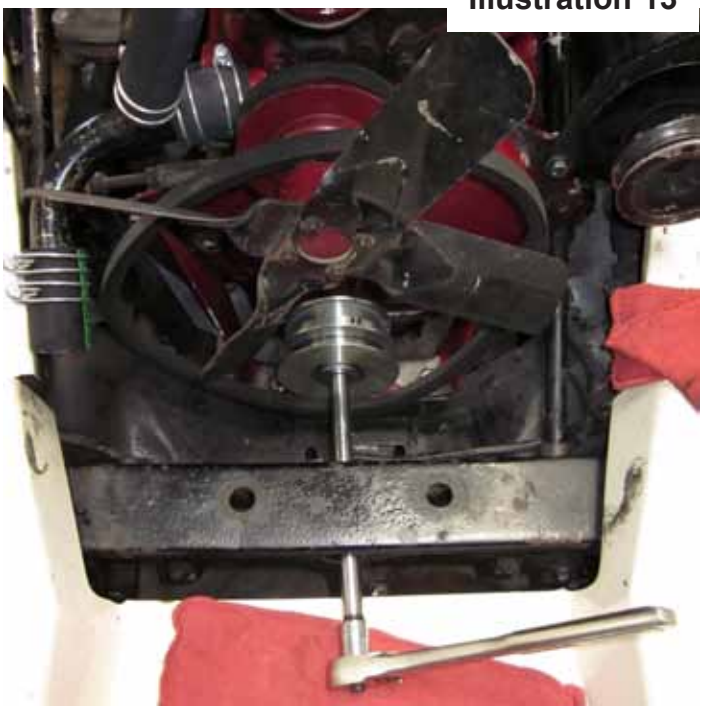
12. Measure three inches rearward from the beginning of the stiffening gusset and draw a vertical line downward. Then draw a horizontal line from the three inch line to the start of the stiffening gusset. Space the line about 1/8 to 1/4 inch away from the head tank.

Illustration 12

REASSEMBLY:

13. Slide the new crank pulley from the supercharger kit over the nose of the crankshaft, making sure that the key stays in the keyway of the crank. Install the new crank pulley washer from the kit and your original crank pulley bolt. Use a 1/2" drive ratchet, 10" extension and 5/8" Whitworth socket to tighten the bolt.

Illustration 13



14. Install the generator belt. Tension the belt and then retighten the generator mounting hardware.

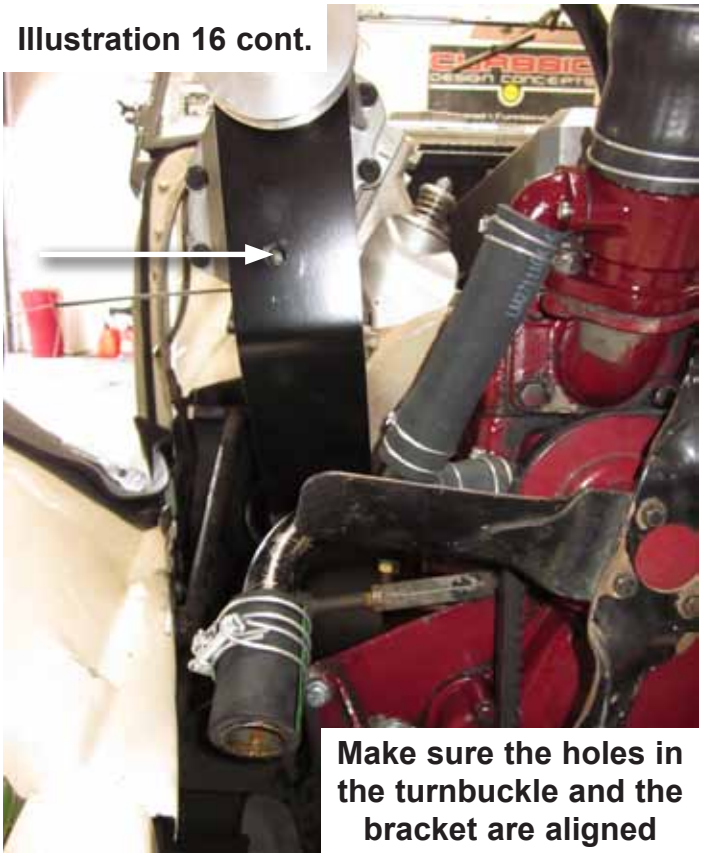
15. Gather the intake manifold & supercharger assembly and the factory intake manifold mounting clamps and factory manifold mounting nuts removed earlier. Bolt the intake manifold to car, securing it in place with the OEM mounting hardware.

Illustration 15

16. Use a floor jack and a block of wood to support the weight of the engine. Remove the upper and lower bolts on the right-hand side of the forward engine mount. Run the locknut all the way down the bolt and spin the tensioner turnbuckle up against the SC to make room for the SC nose support bracket. Gather three 5/16-18 x 1.0" bolts, three 5/16" lockwashers, two 5/16" flat washers, three 5/16-18 hex nuts, and one thick 5/16" spacer. Slide two 5/16" flat washers over two of the bolts. Insert those bolts through the SC nose support bracket at the two locations where the OEM bolts were removed. Lift the SC nose support bracket upward so that its top is butted up against the bottom of the supercharger nose and then tighten the bolts to 19 ft-lbs after installing a lockwasher and nut. Slide the thick 5/16" spacer over the third 5/16" bolt. Then install that bolt through larger hole in the forward engine mount and SC nose support bracket and tighten with a 5/16" lockwasher and nut. Note that the nut on the backside is very close to the engine block. If you are having trouble getting the bolt started through the nut with the lockwasher on the backside, move the lockwasher to under the head of the bolt on the front side.

Illustration 16

Illustration 16 cont.



Make sure the holes in the turnbuckle and the bracket are aligned

17. Once the SC nose support bracket and its bolts have been installed, remove the jack and block of wood from under the engine.

18. Turn the tensioner turnbuckle out until it just contacts the supercharger nose support brace. Then use a 5/8" open end wrench to hold the turnbuckle from turning and gently snug the locknut up against the tensioner turnbuckle using a 9/16" open end wrench.

19. Locate the tensioner assembly in the kit. Remove the tubing retaining the 3/8-24 bolt. Insert the bolt through the SC nose support bracket and thread it into the tensioner turnbuckle until it is finger tight.

Illustration 19

20. Install the supplied supercharger v-belt around the forward groove of the crank pulley and around the supercharger pulley. Use an 18mm socket and ratchet to roll the v-belt into the groove on the supercharger pulley. Push the tensioner pulley against the back side of the belt to apply tension to the v-belt. Hold the tensioner assy in place against the belt and tighten the mounting bolt that goes through the SC nose support bracket to secure the tensioner assembly in place.

Illustration 20

Illustration 20 cont

21. ***NOTE: You may need to adjust your radiator hoses or connecting pipe in order to clear the SC nose support bracket, tensioner assembly and/ or belt. Loosen the hose clamps and adjust if necessary.***

Illustration 21

22. Check for clearance between the starter switch and the linkage on the bottom of the carburetor. Make sure that there is adequate clearance between the starter switch and the bottom of the carburetor. You may need to loosen the starter switch and slide it up the firewall and/or adjust the position of the battery/ starter cables. Now would be a good time to replace the rubber boots on the starter solenoid switch if yours have disintegrated.

Illustration 22

23. Make sure that there is adequate clearance between the air filter and the fuel pump.

Illustration 23

Illustration 23 cont.

24. Attach the existing fuel line from the fuel pump to the banjo fitting on the new carburetor. Adjust the banjo fitting on the carburetor and/or at the elbow on the fuel pump to keep the line from kinking or interfering with the hood, carburetor, etc. We have provided a push-on style 5/16" banjo fitting and seals if your stock fuel line does not have threads. ***NOTE: If you ever remove the banjo fitting at the carburetor, be aware that one side is flat and the other side recessed. You will need to be sure that the flat side of the banjo fitting is pointing toward the carburetor and the recessed side is pointing toward the head of the banjo bolt. Also, don't forget to include fiber washer seals!***

Illustration 24

25. Attach the carburetor linkage to the throttle pedal bar. Have an assistance gently depress the throttle pedal to full. When the carburetor is at wide open throttle (the throttle stop is touching), the throttle pedal should be at or near the floorboard. If not, adjust the linkage so that it is. This will avoid bending or overstressing the throttle pedal bar. Next confirm that when you lift off of the throttle, that the carburetor closes completely against the idle speed adjustment screw. There is a throttle return spring on the carburetor throttle shaft. Make sure that your factory throttle return spring is also in place and attached to the throttle pedal bar as a secondary closing mechanism.

Illustration 25

26. Install the new (or reroute your 49" or longer factory) choke cable so that it exits through the firewall at the hole on the left-hand side instead of the right-hand side. Attach the rerouted choke cable to the choke cable linkage at the bottom of the SU carburetor. Operate the choke to make sure that the jet is pulling out when opened and that it fully seats when closed.

Illustration 26

27. If your car does not have a valve cover breather, remove the plastic 5/8" hose barb and rubber grommet from the back of the air filter backing plate and install the provided stainless steel round insert. If your car does have a valve cover breather, we have supplied a 5/8" hose for you to connect between your valve cover breather and the air filter backing plate. We have included two hose clamps to secure the ends with. There is also a P-clamp hold the hose and an M8 x 1.25 x 12mm bolt to secure the P-clamp with. Run the 5/8" hose through the P-clamp and then bolt the P-clamp in place at a spare hole location on the top of the supercharger.

Illustration 27

FINAL PREP & STARTUP:

28. Reinstall the radiator and radiator hoses. Readjust the radiator hoses and pipes if necessary. Refill the radiator with water and coolant.

29. Locate the provided bottle of SAE 90 weight dashpot oil. Fill the dashpot with the oil until its about 1/2" from the top of the dashpot. ***NOTE: This is not the same thing as 1/2" from the top of the carburetor "milk can." The heavier oil slows the movement of the slide, which prevents the engine from running lean at the hit of the gas. This accomplishes a similar mission as an accelerator pump, but on an SU carburetor.***

30. Start the engine and warm it up. Check for any leaks. Adjust the idle speed screw to bring the idle speed up to ~900 RPM. The additional load from turning the supercharger brings the idle down more quickly when the throttle is closed. If your vehicle ever stalls when you lift off of the throttle, you will need to adjust the idle speed higher.

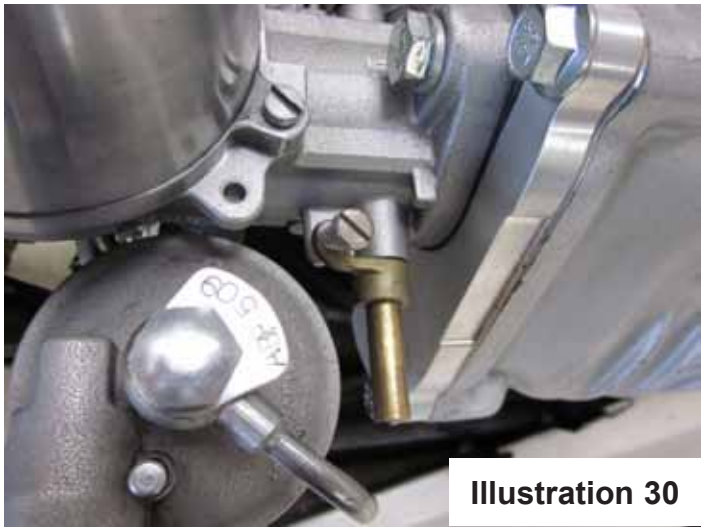


Illustration 30

31. Your SU carburetor's fuel mixture should be preset out of the box. However, if you make adjustments or lose your place, the base setting is ~1.25 turns from fully screwed in. The large brass nut on the bottom of the carburetor controls mixture. Screwing the nut out (counterclockwise) richens the mixture. Going in the clockwise direction will lean the mixture out.

32. Set your cars timing at 1000rpm to 12 degrees BTDC and verify that the total timing at 3500rpm stays below 35 degrees. If you hear detonation or pinging under acceleration, retard the timing 2 degrees. Our vehicle's advance curve measured out to the following:

12 degrees @ 1000rpm	28 degrees @ 3000rpm
20 degrees @ 2000rpm	31 degrees @ 3500rpm

33. Take note of where the belt rides while the engine is running. The objective will be to adjust the tensioner turnbuckle so that the belt rides straight from the crank pulley to the blower pulley without bending forward or rearward. Note that this path will not necessarily result in the belt riding down the center of the tensioner pulley. At a minimum, you do not want the belt to ever ride against either outside gate of the tensioner pulley.

Illustration 33

Needs Adjustment

Good Alignment

34. If you have determined that the path of the belt needs to be adjusted, begin by turning off the engine. Loosen the tensioner bolt and the tensioner turnbuckle jamnut/locknut. Rotate the tensioner turnbuckle so that it is closer or farther from the front face of the supercharger, which will result in the SC nose support bracket moving forward or rearward once the system is retightened. This will also result in the belt riding farther rearward or forward on the tensioner pulley. It may take multiple adjustments to achieve. Flipping the tensioner bracket can also have an effect on belt alignment. Then retighten the tensioner bolt and tensioner turnbuckle jamnut/locknut.

35. If there are no leaks, the belt is alignned and the idle is stable, reinstall the hood and do a short test drive. Then, upon returning, check all fasteners for proper torque and check belt tension. Do not overtighten the belt.

GASOLINE, OPERATION & MAINTENANCE:

36. A supercharged MG T-Series can be operated like a naturally-aspirated MG T-Series with a few caveats. FIRST, YOU MUST USE PREMIUM 91 US OCTANE (RON+MON / 2) OR BETTER GASOLINE. Using 93 or 94 octane gasoline is even safer. Use of lower than 91 octane gasoline can lead to pre-ignition / detonation / pinging events which are not good for the longevity of the engine.

37. Second, allow the engine to warm up before high-rpm, heavy throttle usage (similar to how you would use a naturally aspirated T-series). The engine is now capable of outputting much more power and torque through the drivetrain and it will be easier and safer for the transmission and differential if they are up to operating temperature before high-rpm and heavy throttle usage.

38. Be sure that your brakes, steering and suspension components are in good working order. They will have to deal with the additional speed and acceleration made available by the supercharged engine.

Kit Contents

NUMBER	DESCRIPTION	QUANTITY	UNIT
053-337	CRANK PULLEY, 1.33-1, T-SERIES	1	EACH
053-356	BELT, MG T-SERIES S/C	1	EACH
053-376	PULLEY, FLAT IDLER, ASSY	1	EACH
290-400	GASKET, MANIFOLD	1	EACH
052-336	BOTTLE, FLUID, 2 OZ	1	EACH
052-337	OIL, SAE 90 WEIGHT	2	OZ-01
053-371	INSTRUCTIONS, MG TD SC (MP45)	1	EACH

INTAKE & SUPERCHARGER ASSEMBLY

053-333	PULLEY, SC, 2.92, T-SERIES SC	1	EACH
053-362	CARB, SU H4, MG-TD S/C MOD	1	EACH
053-370	S/C GEN4 MP45CW, 7.96 NOSE	1	EACH
053-365	GASKET, H4 TO FILTER, CORK	1	EACH
294-700	GASKET, CARB TO MANIFOLD	1	EACH
053-360	SET SCREW, M5 X 0.8 X 5MM,ZINC	2	EACH
052-834	INLET GASKET, MP45 & MP62 GEN4	1	EACH
052-835	OUTLET GASKET, MP45 GEN4	1	EACH
051-587	WASHER, LOCK, 5/16 IN	4	EACH
052-252	BOLT, HEX, 5/16-18 X 1.0	4	EACH
771-687	GROMMET, 7/16ID X 11/16 HOLE	1	EACH
771-488	NUT, 5/16-18 X 17/64 HT	2	EACH
770-576	STUD, POP-OFF VALVE	1	EACH
051-142	HOSE BARB, 5/32 VACUUM	3	EACH
051-151	CAP, VACUUM, RUBBER, 5/32	3	EACH
051-505	BOLT,HEX FLANGE,M8 X 1.25 X 25	10	EACH
051-719	O-RING, VITON, NO. 202	1	EACH
051-720	O-RING, VITON, NO. 218	1	EACH
770-577	NUT, NYLOC, 1/4 UNF	1	EACH
770-343	NUT, JAM, 3/8-24, G2	2	EACH
053-358	BYPASS ELIMINATOR BLOCK	1	EACH
053-339	FILTER, W/PLATE, MACHINED, H4	1	EACH
051-438	SPRING, AFPR	1	EACH
770-601	HOSE BARB, NYLON, NO THREADS	1	EACH
053-338	ADAPTER, SU H4 TO MP45	1	EACH
770-572	VALVE BODY, POP-OFF	1	EACH
770-573	RETAINER, SPRING	1	EACH
053-340	TENSIONER BRACE, SC MOUNT	1	EACH
053-378	BOLT, HEX, 3/8-24 X 1 3/4, G5	1	EACH
378-120	UNION, BANJO, SINGLE OUTLET	1	EACH
771-364	BOLT,HEX FLANGE,M8 X 1.25 X 65	2	EACH
051-016	CABLE TIE, 4IN.	2	EACH
053-332	INTAKE MANIFOLD, MG-TD SC	1	EACH

HARDWARE AND HOSE BAG

051-577	BALL SWIVEL END - #10	2	EACH
052-252	BOLT, HEX, 5/16-18 X 1.0	3	EACH
771-488	NUT, 5/16-18 X 17/64 HT	3	EACH
052-041	BOLT,HEX,M8 X 1.25 X 12, ZINC	1	EACH
051-254	SPACER, UPPER, ALTERNATOR	1	EACH
310-115	NUT, HEX, 10-32, ZINC, 3/8” AF	4	EACH
433-460	WASHER, CRANKSHAFT	1	EACH
434-451	HOSE, FUEL, ETHANOL PROOF,5/16	18	INCH
052-042	HOSE, PCV, 5/8IN., BULK	24	INCH
053-353	TENSIONER TURNBUCKLE	1	EACH
375-108	STOP ASSY,CABLE,W/NUT & WASHER	1	EACH
053-372	P-CLAMP, 1.0 ID,.406HOLE,.63WD	1	EACH
053-350	THROTTLE LINK, MG T-SERIES SC	1	EACH
051-513	CLAMP, HOSE, SAE NO. 10	4	EACH
328-400	PLUG, BLANKING, 3/4 IN HOLE	1	EACH
324-010	WASHER, LOCK, #10, GR 5	2	EACH
051-587	WASHER, LOCK, 5/16 IN	3	EACH
051-588	WASHER, FLAT, 5/16 IN., SAE	3	EACH
053-335	BRACKET, NOSE SUPPORT,T-SERIES	1	EACH