

Two Speed Heater Motor Upgrade F217

Kit Contents:

Two Speed Heater Motor	x 1
Adapter Plate	x 1
Harness P Clip	x 1
No 10 Pan Head Screws	x 3
10-32 UNF Screws	x 3
Oversized Impellor	x 1
Impellor Locking R Clip	x 1
Blanking Plug (1976on)	x 1

Optional Upgrades

ARO1994HE	40% Larger Heater Matrix
N200on	Dynamat & Dynaliner

Two Speed Switching Options

BHA4786	Toggle Switch Up to 1971
BHA5113M	Rocker Switch 2 Speed Up to 1976 (Modified)

Heater Box Fixings

SE910201	Heater Box to Bulkhead Screws
WL700101	Heater Box to Bulkhead Spring Washers
GHF306	Heater Box to Bulkhead Plain Washers
SE604051	Heater Box Top Screw
GHF300	Heater Box Top Plain Washer
GHF331	Heater Box Top Spring Washer
AB606021	Air Control Flap Screws
17H1595	Heater Box Clips

Heater Spares

BHA5298	Heater Valve
12H3868	Heater Valve Gasket
GRH903	Hose- Heater to Valve
AHH8761	Hose- Heater to Pipe
GHC507	Jubilee Clip
HSK1	Heater Seal Kit - 17H1797, 17H3714, 7H1993 (x2), AHH6290K, BHH389
27H8831	Heater Box Mesh Grille
27H1193	Heater Cable Clamp
53K126	Heater Cable Clamp Screw
24G1482K	Trunnion Kit
BHH679	Air Control Cable – Metal
BHH1230	Air Control Cable- Plastic
RFR503	Control Cable Grommet
AHH6166	Seal Air Vent

Restoration

A240	Zinc Primer
A020	Hammerite Black 400ml
BML1014	Smiths Stickers

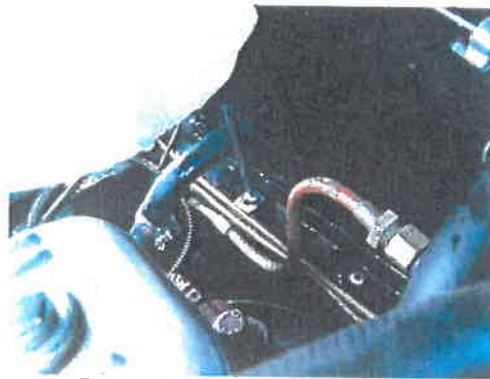
Preparation

1. Installation of the two speed heater motor will require either full or partial removal of the heater box in order to allow removal of the front cover to provide internal access to the heater box casing. Before commencing strip down we recommend that you apply a light penetrating oil to the screws securing the heater box to the bulkhead. Be sure to coat all five lower screws and the screw securing the top of the heater box under the scuttle.
2. Set the heater control knob on the dashboard to the open position. Remove the heater hose on the passenger side from the heater pipe running over the rocker box. Carefully

disconnect the heater hose from the heater valve on the driver's side and direct the hose into a container. Coolant should now drain from the heater matrix. Blow down the heater hose on the passenger side to check the matrix is fully drained. Refit the hoses onto the rocker box pipe and heater valve before disconnecting them from the matrix outlets.

Strip Down

3. Using a Phillips screw driver remove the 5/8" screws securing the heater box to the bulkhead. If these are firmly rusted into place they may require drilling out with a 4mm drill bit. This would then necessitate complete removal of the heater box in order to gain access to the spent threads.

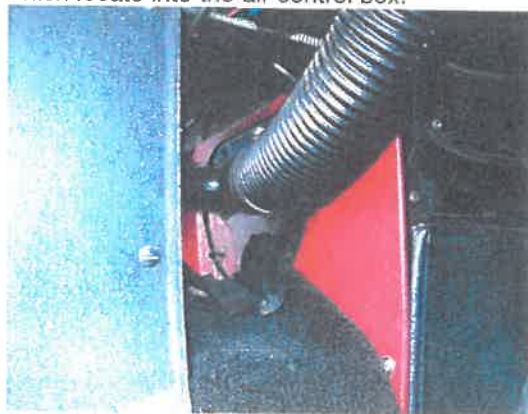


Removing the retaining Screws

4. Gently ease the brake and fuel lines away from the heater box. (On MGBs up to 1974, removal of the fuel/brake pipe heat-shield is required). Using a length of cord or wire tie the lines back so they are clear of the heater box.
5. Isolate the vehicle's power supply before removing the heater motor live and earth from the wiring harness.

Heater Box Removal

6. If the heater box requires complete removal for restoration you should now disconnect the air control cable from the rear of the air control knob located on the dashboard.
7. For early MGBs (62-70) the steel plate holding the two 90 degree rubber demister elbows will require removal with a Phillips screw driver. To access these screws remove the fittings securing the radio fascia to the centre console frame and gently pull towards you, taking care not to inadvertently disconnect the speaker or ancillary wiring. Once the steel plate is free you will then be able to remove and set to one side the two push fit hard plastic pipes which locate into the air control box.



Early MGB Demister Arrangement (62-70)

8. For later cars (70-80) the process is more straightforward. Simply pull the flexible demister pipes into the car by approximately 1-2 inches to clear the rubber heater seal.



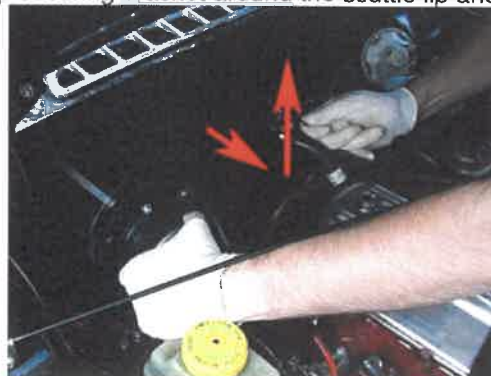
Pull the demister vents into the cabin

9. To fully remove or partially lift the heater box above the bulkhead of the car we recommend roping in a volunteer to feed the air control cable through the bulkhead as the heater box is lifted up. The job is made easier if the bonnet is propped up by using a long stick to afford better access. On later cars where the rubber seal is present you may find the seal has gone hard making removal more difficult. If this is the case, unscrew the foot-well vents and use a long screw driver to prise off the seal from the air control box.



Original seal on later MGBs (70-80)

10. If the heater box is in good condition you can now prise off the retaining clips that hold the front of the heater box to the case and set the front cover to one side. If complete restoration of the box is desired then continue to lift until free of the bulkhead, taking care to guide the top securing bracket around the scuttle lip and out of the car.



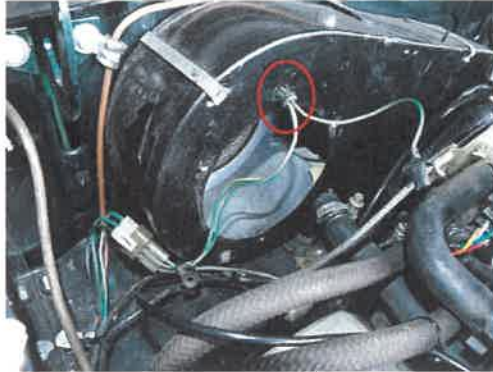
Lifting the heater box

Heater Box Restoration

11. Removal of the heater box allows for a thorough inspection of the bulkhead and removal of the spent threads if drilling out was deemed necessary. As the bulkhead is a structural component of the car we recommend that you take some time to ensure the

lower scuttle area is sound and use the opportunity to carry out repairs and/or preventative treatments. Remember to clear the scuttle drain bung frequently or preferably dispense with it altogether (as this can back up causing the scuttle drain to rot out).

12. Remove the original motor, ceramic heat resistor (1976on MGB only), impellor and heater matrix.

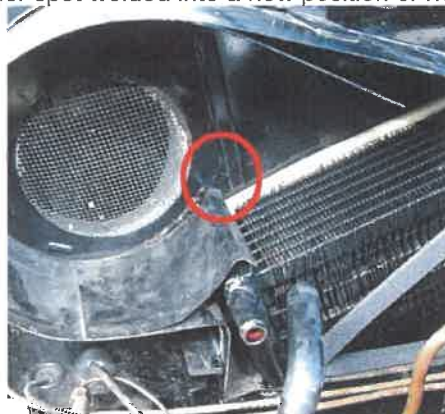


Removing 2 Speed Resistor (1976on)

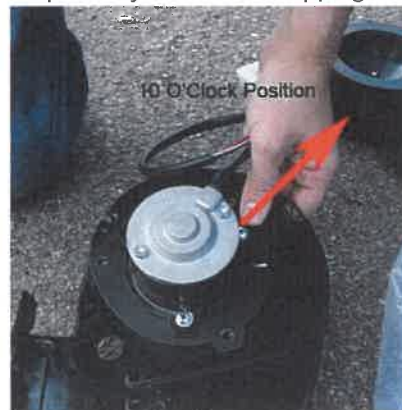


Strip down original system

13. Strip and clean the Smiths heater, both internally and externally using paint stripper and a wire brush mop as necessary.
14. To provide maximum air flow an oversized impellor has been supplied which takes full advantage of the space within the heater box. We strongly recommend you check for rotational clearance of the impellor before commencing final install. If the Smiths box uses self tapping screws to secure the motor to the front cover then a degree of adjustment can be gained by loosening the screws and manoeuvring the motor and impellor to a 10 o'clock position farthest away from the deflector. If threaded screws are used to affix the motor then it may be necessary to twist the deflector using pliers or grind off the spot weld securing the deflector to the casing. The deflector can then be either spot welded into a new position or held in place by a short self tapping screw.



Deflector Spot Weld



Moving Motor

15. Finally apply a rust inhibitor such as zinc primer before painting.

Re-Assembly

16. If you have restored and re-painted your heater box we recommend you allow it to fully harden before commencing re-assembly.
17. To minimise thermal loss and ensure complete isolation we recommend that Dynamat Extreme is applied on the inside and rear bulkhead side of the heater box and Dynaliner

applied on both sides of the air control flap. Using Dynamat provides a considerable advantage over the standard specified seals which have a much shorter lifespan.



Using Dynamat & Dynaliner

18. Refer to step 14 to mount the motor. As originally specified a P clip should be used on the motor plate to retain the heater motor harness. Slide the impellor over the motor spindle and lock into place using the R clip



Fitting the Locking R Clip

19. On MGBs fitted with an original two speed motor (1976on) it will be necessary to remove the now redundant resistor and plug the hole with the supplied rubber blanking plug.
20. If you have removed the heater box, use contact adhesive (evo-stick) to glue a new foam seal onto the rear of the case. This seal provides a dual function, isolating the heater case from the bulkhead; ensuring only fresh air is drawn into the heater box and not re-circulated air from the engine. The metal mesh should be replaced if it lacks integrity to avoid debris being blown through the matrix and into the cabin. Affix new seals around the base of the heater box to isolate the unit from the bulkhead.
21. On later cars, a rubber heater seal (BHH389) is used to locate the demister pipes into the air control box. (NB the seal is supplied as standard in the heater seal kit HSK1). The rubber seal however is not required for early cars (62-70) where the demister elbow arrangement is present. On later cars (70-80) the air control cable should be left attached to the air control box and the new seal fed over the cable. Fix the new seal into place using contact adhesive. We advise that you test the seal for fit before final installation to ensure that the air control flap functions correctly.
22. If you have removed the heater box ask an assistant to feed the Air Control Cable through either the elliptical whole on the driver's side (62-70) or the small oblong whole (70-80) and into the cockpit of the car. Replace the service grommet if necessary and re-attach the cable to the Air Control knob behind the dash. Finally check for correct operation by looking through the foot-well vents with a torch.
23. Push the heater box fully down onto the bulkhead and re-assemble the demister pipe arrangement reversing steps 7/8 as applicable.

24. Carefully slide a new heater matrix foam into place and then fit the heater matrix into the casing replacing the rubber inlet/outlet grommets on the front.



Matrix with new foam seal

25. Check the operation of the air control flap. If the flap fouls the lower matrix tank apply additional foam to the lower corner to move the matrix up and to the right hand corner of the heater box. Or use tin snips to trim a few mm of material.



Check Air Control Flap Operation

26. Re-fit the front panel by using five heater box clips (avoid damaging the front panel by snapping the clips onto the rear of the heater box).



Refitting the front Panel

27. Re-position the brake and fuel lines.
28. Secure the box to the bulkhead using 10-32 UNF screws, refitting the brake/fuel pipe heat-shield as necessary and secure the top fixing under the scuttle

Switching

MGBs manufactured prior to 1976 were fitted with single speed heater motors. To take advantage of the solid state two speed switching on the up-rated motor chrome bumper cars and early rubber bumper cars will require a two speed switch supplied separately and an additional live made up using crimped female spade connectors fed from the red wire of the motor, through the dash to the rear of the switch. A three position toggle switch (BHA4786)

is available for chrome bumper cars up to 1971 and a modified rocker switch (BHA5113M) for cars from 1972-1976.

Switch Positions

First Position	Off
Second Position	Half Speed
Third Position	Full Speed

Harness Colours

Early Models	Green/Brown	Full Speed
Later Models	Green/Yellow	Full Speed
All Models	Black	Earth

Motor Wiring

Grey wire	Half Speed
Red wire	Full Speed
Black wire	Earth

NB It is worth establishing motor speeds by connecting a 12volt supply first before making final connections.

Toggle Switch (BHA4786)

Pin 4	Power Feed In
Pin 6	Half Speed
Pin 8	Full Speed

Rocker Switch (BHA5113M)

Pin 1/5	Power Feed In
Pin 2	Half Speed
Pin 4	Full Speed

NB It is not critical which pins the wires connect to as the switch is just a distribution point so you cannot do any damage.

Later cars fitted with the factory two speed motor just require the original three wires feeding the old fan motor to be fitted to the new motor as follows:

Green/Yellow	Grey
Green/Brown	Red
Black	Black

Final Checks

29. Reconnect the vehicle's power supply to test switch function
30. Top-up coolant
31. Start engine and test function after initial warm up.

NB Remember a split demister pipe, degraded fresh air vent seal, perished bulkhead service grommet, faulty heater valve, sludged up or leaking heater matrix, degraded felt/foam heater box seals, a hole in the floor or bulkhead will reduce the effectiveness of the heater upgrade.

