M.G. Locost

Workshop Manual

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A 1963 Lotus 7 Replica

M.G. Locost Workshop Manual
First Edition 2013

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1. Introduction

The M.G. Locost is a truly unique automobile. We don't mean this in the sense that it's exclusive or necessarily better than any other automobile, but in the sense that it's the only one that exists. The vehicle was built from scratch.

The M.G. Locost is (i.e. will be) registered in the state of California as a specially-constructed vehicle. It has an SPCNS certificate (per SB100) that classifies the car based on its chassis construction as a 1963 Lotus 7 replica. As such, it is required to meet or exceed all safety and emissions standards applicable to a 1963 vehicle.

a. Notes from the Builder

The M.G. Locost was built over the course of three years, 2011 through 2013 (we hope), in Novato, California. It was built primarily from steel tubes, steel and aluminum sheet, and parts from a 1972 MGB roadster. The build also employed several aftermarket parts, each of which is identified in the appropriate section of this Manual.

The car is based on the descriptions and accounts in the book *Build Your Own Sports Car* by Ron Champion. We built our car as true possible to Champion's version of the Locost, although not all aspects of the build are covered in the book, and our use of an M.G. donor necessitated several of our own engineering and design changes. Like a lot of Locost builders, we started the build with virtually no automotive fabrication experience, and very little welding experience. The car should be driven and maintained with this in mind.

We did, fortunately, have a great deal of experience with 1972 MGB roadsters, and many other types of M.G.s and British sports cars. The build itself provided a great deal of fabrication and welding experience, and this allowed us to go back and correct any mistakes or quality issues caused by our earlier inexperience. As a result, if we were to build a second example of the same car (we wouldn't), we're certain the original car would be every bit as solid and reliable as the second. Although possibly a little heavier.

Any questions about the M.G. Locost that are not covered in this manual may be answered by referencing either of two online build logs that were written and posted during the build project. The first log, the more detailed of the two, can be found at www.mglocost.com. The second log was posted in the Builders Log section of the forum at LocostUSA.com, under the heading Nick's MGB Build.

Both of these build logs contain a great deal of information about construction issues and design decisions that we encountered during the build, information which if not entirely useful may at least be entertaining. Building a car from scratch turned out to be a very exciting and rewarding activity, a theme that we hope is evident in these logs.

Several people were instrumental in getting the M.G. Locost built:

- Xin Jin, who TIG welded most of the front suspension
- Adam Silver, who contributed both tools and hours to the project
- Frank Jenkins, whose vast collection of tools and hardware were invaluable
- Kaitlyn Lydell, who not only contributed wonderful ideas and advice throughout the project, but also purchased many of the parts

All of these people were extremely helpful to the project, and all of their efforts had a positive effect on the build. None of them is responsible in any way for any problems with the car, or any content in this manual.

Nick Jenkins
Novato, California
Someday in 2013

b. Use of this Manual

Construction and assembly of the M.G. Locost does not necessarily adhere to modern automotive industry practices. It should not be assumed, based on prior experience with other vehicles, how any component or system on the M.G. Locost is installed or operates. When in doubt, always refer to the appropriate section of this manual.

Many installation, maintenance, repair, and service operations on the M.G. Locost are identical to those on an MGB. These operations are thoroughly detailed in various MGB workshop and repair manuals published over the years by British Leyland and others. As such, this manual does not cover everything. Not by a long shot.

We expect any person who drives or maintains the M.G. Locost to possess a love of cars and reasonable common sense. As such we expect that person to deal appropriately and intelligently with any errors or omissions in this manual, any problems with the car, or any matters of safety with respect to working on or operating a motor vehicle. Be careful and have fun.

2. General Specifications

The M.G. Locost employs a front-engine, rear-wheel-drive configuration that provides a near 50/50 weight distribution, and a more rear-biased distribution with a driver in the vehicle. Combined with a low center of gravity and light weight, this configuration provides exceptional handling and road-holding.

The M.G. B-series 18V engine fitted to the M.G. Locost is a 1.8 litre overhead-valve 4-cylinder engine that produces 94 bhp at the flywheel. The engine is a strong and proven powerplant that provides very capable performance in a car with a 1440 lb. vehicle weight.

Vehicle weight (dry)	1440 lbs.
Engine	1800cc OHV M.G. B-series
Transmission	Full synchro 1st:3.44; 2nd:2.167; 3rd:1.382; 4th:1.00
Rear axle	Salisbury 3.909:1
Brakes	Lockheed disc front, drum rear
Tyres	185/60-14 Dunlop Direzza Star Specs
Electrical	Lucas 12-volt negative ground
Suspension	Double wishbone front, 5-link rear with Panhard rod

Alignment specifications are as follows:

Front caster	5.0 degrees
Front camber	-1.5 degrees
Front toe-in	1/16”

a. Chassis Dimensions

The M.G. Locost is based on the design in the book *Build Your Own Sports Car* by Ron Champion. All dimensions and specifications of the M.G. Locost were taken from the book, where such dimensions and specifications were provided.

Overall length	104” (with spare tyre)
Max width	62-3/4” (with fenders)
Wheelbase	90-3/4’
Front Track	52-1/4’
Rear Track	51-3/4’ (with spacers)

The minimum track for a standard Locost is 50” to 51”, depending on tyres fitted. Because the M.G. Locost uses a stock MGB rear axle, which provides a rear track of only 49-1/4”, wheel spacers are employed to increase the rear track of the M.G. Locost to 51-3/4”. This allows the use of standard MGB wheels with a 23 mm offset, and 185-section tyres with a 7.5” width. Fitting tyres wider than 8”, or wheels with an offset greater than 25 mm may require fitting wider spacers.

b. Fluids and Capacities

Engine	10w30	4 quarts
Transmission	Redline MTL	2 quarts
Rear Axle	90 weight hypoid	1 quart
Cooling System	50/50 water/antifreeze	2 gallons
Fuel	94 octane	10 gallons

c. Donor Specifications

Make	M.G.
Model	MGB
Model Year	1972
Body Style	Roadster (convertible)
Chassis Style	LHD
Original Colour	Harvest Gold
Engine ID Number	
Vehicle ID Number	GHN5UC258652G

3. General Maintenance

Being based on a 1972 MGB, the M.G. Locost will require generally more maintenance than, say, a late model Toyota Camry. But probably not as much as a 1972 MGB. On a positive note, major components are considerably more accessible in the M.G. Locost than in a 1972 MGB, or a Toyota Camry, or for that matter just about every other car made.

With few exceptions, fastening hardware on the M.G. Locost is SAE standard. The rear wheels are attached to hub spacers with 12mm lug nuts, and the dampers are also attached with 12 mm bolts. These items can be removed and installed with either a 21mm or 13/16" spanner. The defroster vents are attached with 6mm nuts, and can be removed with a 10mm spanner. No other metric tools are required for any work on the vehicle.

A suggested maintenance schedule, along with procedures for performing maintenance tasks, is supplied in the following section, appropriately titled *Maintenance Schedule*.

Most components of the vehicle can be accessed by removing either the bonnet or nose cone. In some cases the vehicle will need to be raised up and set on jack stands, or raised up on a lift. Access to some components, such as the steering column, may require removal of the scuttle, which is attached to the frame by 8 bolts. The procedure for removing the scuttle is described in section 10.a. of this manual.

a. Parts Identification and Replacement

Unless otherwise specified in this manual, all parts of the M.G. Locost are from a 1972 MGB roadster with solid steel wheels. When ordering parts, specify that make, model year, and body style. The 1972 model year belongs to the group of MGBs commonly referred to as chrome-bumpered cars, a term which may be useful to identify the correct parts.

If a VIN is required by a parts vendor to differentiate between MGB models, refer to the donor specifications listed in section 2.a. of this manual.

During the manufacture of the M.G. Locost, it was sometimes necessary to modify standard MGB parts to fit the narrower confines of the Locost space frame chassis. All of these modifications are described in the appropriate section of the manual. In most cases, when replacing any of these parts with a new unit, the same modifications will need to be performed.

It is usually acceptable to substitute universal aftermarket parts for some of the MGB parts in the M.G. Locost, particularly in cases where the MGB part is no longer available. It is sometimes possible to substitute MGB parts from an earlier or later model year. For best results, use parts designated for the 1972 model year whenever possible.

b. Removing the Bonnet

To access the engine bay, remove the bonnet from the vehicle by unbuckling the two belts on either side of the vehicle. Beneath each belt is a quarter-turn (Dzus) fastener. Insert a thin coin or large screwdriver into the horizontal slot on each fastener, and rotate a quarter turn counter-clockwise until the slot is vertical and the fastener head pops out.

Once the Dzus fasteners are released, lift the bonnet straight up, taking care not to hook the brake and clutch pedal box support, until it is clear of the engine (this may require two people). Set the bonnet aside. The bonnet is made of thin-gauge aluminium with few reinforcements, so it must be handled with care.

Replace the bonnet by setting it down over the engine, and adjusting the sides until all four Dzus fasteners line up with their respective receptacles. For each Dzus fastener, rotate the head until the slot is vertical, and press it in until the head engages the receptacle wire. Insert a thin coin or large screwdriver into the vertical slot and rotate a quarter turn clockwise until the fastener locks in place.

When all four Dzus fasteners have been engaged, buckle the four belts securely, but not tightly. The belts are an appearance item only. The bonnet is secured entirely by the Dzus fasteners.

c. Removing the Nose Cone

The nose cone is attached to the vehicle by three quarter-turn (Dzus) fasteners, one on either side and one on the bottom. To access the steering rack or radiator, remove the nose cone from the vehicle by inserting a thin coin or large screwdriver into the horizontal slot on each fastener, and rotating a quarter turn counter-clockwise until the slot is vertical and the fastener head pops out.

Once the Dzus fasteners are released, lift the front of the nose slightly, then slip the upper portion of the nose over the front damper mounts on either side, making sure the Dzus fasteners are clear of their receptacles.

The nose should then pull off easily from the front of the vehicle. Do not use excessive force, as it may damage the nose cone. If the nose cone will not easily release, make sure the Dzus fasteners are completely clear of their receptacles.

Replace the nose cone by pushing the bottom of the unit against the frame, then slipping the top over the front damper mounts. Do not use excessive force. Be sure all Dzus fasteners are fully extended and clear of their receptacles before attempting to seat the unit.

d. Tyres and Wheels

The M.G. Locost is fitted with the Rostyle steel wheels that were quite popular during the era of the MGB. These are 14x5J wheels with a 7/8” (22mm) offset, and a 4x4-1/2” bolt circle. Rostyle wheels can support a maximum tyre section of 185, and have been fitted to the M.G. Locost with 185/60x14” Dunlop Direzza Star Spec tyres.

Note that wheel hubs on MGBs that were originally supplied with wire wheels are not interchangeable with wheel hubs on the M.G. Locost. The rear axle from a wire wheel car is a different unit altogether.

Wheels with a wider section or larger offset than the Rostyle wheels cannot be fitted to the M.G. Locost without modification. At a minimum, rear wheel spacers wider than the current 1-1/4” will need to be fitted. Wings may also need to be modified or replaced.

Wheel studs for the two front tyres have a thread that measures 1/2"x20. Wheel studs for the rear tyres have a metric 12Mx1.5 thread. Both front and rear lug nuts can be removed or installed with either a 21mm or 13/16” spanner.

A spare tyre is carried at the rear of the vehicle in an adjustable cradle that also supports the license plate mounting panel. To remove the spare tyre, remove the two 1/2" nuts that attach the tyre hub to the rear of the chassis, then lift the tyre out of its support cradle.

When replacing the spare tyre, do not over tighten the two 1/2" nuts at the tyre hub, as this may damage the rear body panel. Secure the tyre only enough to prevent it from moving in its support cradle.

If tyres with a different section width are fitted to the M.G. Locost, the support cradle may need to be adjusted. Adjust the cradle from beneath the vehicle by loosening the locking nuts in back of the cradle attachment brackets, then loosening or tightening the 3/8” bolts to change the length of the cradle arms. When the correct length is achieved, re-tighten the locking nuts.

If tyres with a much wider section are fitted to the vehicle, the bolts securing the spare tyre and cradle may need to be replaced with longer bolts of the same diameter and thread pitch.

e. Jacking Points

Do not attempt to work underneath a vehicle supported only by jacks. The M.G. Locost space frame chassis allows the vehicle to be supported on jack stands from almost any point on the frame. The optimal support points in front are the outer frame rails at the front of the welded steel floor, and in back directly below the rear suspension pickup bracket support posts (Locost M tubes).

To raise both front wheels off the ground, place a jack under the center of the E frame rail, which is the second cross member from the front, just forward of the lower rear suspension pickups. It is preferable to place a 2-foot length of wood between the jack and the E frame rail, the wood extending past the F frame rails.

To raise both rear wheels off the ground, place a jack under the center of the differential case, taking care not to disturb the emergency brake cable pivot.

f. Bump Starting

In the event of a discharged battery or failed starter motor, the M.G. Locost may be started manually using the drive train to rotate the engine.

With a driver in the car, set the ignition switch to the ON position, and place the gearbox in second gear. Depress the clutch pedal, then roll the car up to a speed of 5-10 mph. Immediately release the clutch pedal. This will cause the engine to rotate, and the alternator to supply current to the spark plugs. This should be sufficient to sustain engine operation.

If the battery is discharged and the alternator is functioning properly, the vehicle should be driven for approximately 20 minutes before shutting down.

4. Maintenance Schedule

Regular inspections, tune-ups, and oil changes will help to keep the M.G. Locost in top condition for many years. It would be a good idea to get in the habit of checking the oil and coolant levels at least one a week, and before operating the vehicle after an extended period of disuse.

Prior to the first drive of the day, walk around the vehicle to ascertain the general condition of the chassis and suspension. The rear axle and suspension components are visible through the opening in the bodywork behind the seats. Look particularly for loose bolts, fluid leaks, or cracks in the chassis paint that may indicate a weakness in a welded chassis joint.

a. Inspections

Once a month, and before operating the vehicle after an extended period of disuse, remove the bonnet and nose cone, and raise the vehicle up on jack stands or set it on a lift. Remove the road tyres. Inspect all chassis rails closely for signs of rust or cracking. Pay particular attention to high stress areas such as suspension pickup brackets, motor mounts, and the transmission mount.

Any signs of excessive wear on the chassis should be duly noted, and inspected on a more regular basis to determine if the wear is increasing, and how quickly the wear may be progressing. Complete any necessary repairs before the problem is compounded.

Check coolant and oil levels, and check the hydraulic fluid levels in the brake and clutch master cylinders. Top off as needed. Check the condition of the coolant hoses, brake pipes, clutch lines, and fuel lines. Check the front brake pads for excessive wear. Finally, re-torque all suspension bracket bolts and motor mount bolts.

Note any signs of excessive wear. Failure of any of the above components could result in additional damage, so it is a good idea to repair or replace them before operating the vehicle.

b. Tune-ups

The ignition and fuel management systems on the M.G. Locost are mechanical, not electronic, and may therefore need regular adjustments to ensure they are operating in the correct range. Note also that mechanically operated electrical components in a high voltage environment such as the ignition system undergo wear during normal operation. These components need to be reconditioned or replaced at regular intervals.

A minor tune-up should be performed every 6000 miles. This includes a check of ignition dwell and timing, a check of carburettor settings, and inspection of the spark plugs and distributor. After a tune-up, the car will perform noticeably better.

A major tune-up should be performed every 12000 miles. This includes all procedures for a minor tune-up, plus replacement of the spark plugs, fuel filter, air cleaners, ignition points, and condenser, and removal of the carburettors for cleaning and float adjustments.

Adjusting the Ignition

Adjustments to the ignition system include setting dwell and timing. For these adjustments you will need a flat-blade screwdriver, a .015 thickness measuring gauge, 1-1/4" and 7/16" spanners, and a 12-volt test lamp that can be connected to terminals with alligator clips.

Dwell is a measure of the number of degrees of rotation of the distributor shaft that the ignition points remain open during each charge of the coil. If the points are not open long enough, the coil will not have time to fully charge, resulting in reduced voltage to the spark plugs and reduced engine power. Dwell should be set to 60 degrees, however there is no need to measure dwell directly, as the dwell is correct when the point gap opens to .015" at its maximum.

1. Remove the bonnet and set it aside.
2. Fit a 1-1/4" spanner to the crankshaft bolt at the front of the engine, and turn the engine clockwise until the timing notch on the crankshaft pulley is lined up with the 10 degree BTDC mark on the timing chain cover.
3. Remove the distributor cap by lifting up the ends of the two metal clips until they release from the cap.
4. Pull off the rotor and set it aside.
5. Open the points and inspect both surfaces for pitting or corrosion. Excessive pitting can cause arcing, reducing the voltage to the spark plugs and the rate of fuel burn in the cylinders, which ultimately reduces the amount of power produced by the engine. A weakened condenser can also cause arcing, although condensers rarely fail, unless subjected to external damage. If you are not planning to replace the points, any pitting should be filed smooth.
6. If you plan to replace the points and condenser, remove the clamping screw for each. Remove the screw at the top of the pivot post, and slide off the complete point set and condenser wire. Install the new components, then replace and tighten all screws. Be careful when replacing the condenser wire that the plastic rings or tubes that insulate the points from the pivot post do not also insulate the condenser wire from the post. The condenser wire must be connected to ground.
7. Loosen the 1/4" clamp bolt at the base of the distributor with a 7/16" spanner, until the distributor can be rotated by hand with a small effort.
8. While observing the points, rotate the distributor until the distributor shaft cam opens the points. Continue rotating the distributor back and forth as necessary until the point gap is at its maximum.
9. Loosen the clamping screw at the base of the points only enough to allow adjustment with a flat-blade screwdriver, but not so loose that the points are free to move on their own.

10. Insert a flat blade screwdriver into the adjustment slot at the base of the points, and move the base back and forth until a .015 thickness gauge just fits between the points.
11. Tighten the clamping screw to secure the points in that position.
12. Disconnect the wire that runs between the ignition coil and the distributor points (this is the insulated connector on the side of the distributor). Connect in its place the 12-volt test lamp, attaching one alligator clip to the distributor, and the other to a convenient ground.
13. Inside the vehicle, insert the ignition key and turn it to the ON position. This will be the last detent before the starter motor engages.
14. In the engine bay, the test lamp should be off. Open the points and verify that the lamp illuminates. If the test lamp is already illuminated, slowly rotate the distributor counter-clockwise until the lamp just goes out.
15. Slowly rotate the distributor clockwise until the lamp just illuminates.
16. Tighten the clamping bolt at the base of the distributor.
17. Replace the rotor and distributor cap, then disconnect the test lamp and reconnect the wire between the coil and the distributor.
18. Inside the vehicle, turn the ignition switch to the OFF position.

Adjusting the Carburettors

Adjusting dual carburettors is an iterative process, because adjustments to one will necessitate adjustments to the second, which will in turn necessitate adjustments to the first, and so on. The idea is to get closer to the correct adjustment each time, so that the amount of adjustment is reduced with each iteration.

In practice it is generally unnecessary to perform more than three iterations, and fewer if the carburettors were not that far off to begin with. If good fuel is used consistently, and the fuel filter is replaced regularly, the HIF-style carburettors on the M.G. Locost should require very little adjusting.

Adjustments to the carburettors include setting the idle and mixture of each, and synchronizing airflow between the two. For these adjustments you will need a small flat-blade screwdriver, a short (stubby) Phillips head screwdriver, and a 1/4" spanner. Various tools for synchronizing airflow are available, such as the popular UniSyn gauge, but a one- or two-foot length of rubber hose will suffice. Additional tools for removing the air cleaners may also be required.

1. Remove the bonnet and set it aside.
2. Remove the air cleaners from the carburettors.
3. Start the car and let it warm up for at least 5 minutes.
4. Verify idle speed is between 900 and 1000 RPMs. If more than 50 RPMs outside this range, adjust the idle screw on each carburettor until idle speed is 950 RPMs. Ensure that both idle screws are in contact with their respective stops, and that neither is being supported by the other.

5. Verify airflow is the same in each carburettor. You may use a UniSyn-type gauge for this, or insert a length of rubber hose into each carburettor air inlet in turn, and listen at the other end to verify that the sound volume and pitch is the same in each inlet.
6. If airflow is noticeably different, loosen the pinch bolt on one of the throttle connector clamps, and adjust the idle screws on each carburettor individually, until the airflow volume is the same in each, and idle speed is between 900 and 1000 RPMs. Tighten the pinch bolt on the throttle connector clamp.
7. Verify the mixture setting for each carburettor in turn. To do this, raise the piston slightly, using either a small flat-blade screwdriver or the lifting pin on the side of the carburettor body. The reaction to lifting the piston should be a 100 to 300 RPM increase, followed a second or two later by a return to steady idle. This indicates an AFR between about 13.5 and 14, which is optimal for drivability.
8. If the reaction to lifting the piston is an immediate drop in RPMs, the mixture is too lean. Richen the mixture by inserting a short (stubby) Phillips head screwdriver into the mixture adjustment screw and turning it clockwise. Turn the screw only 1/8 to 1/4 turn, blip the throttle, then retest.
9. If the reaction to lifting the piston is a rise in RPMs with no return to idle, the mixture is too rich. Lean the mixture by inserting a short (stubby) Phillips head screwdriver into the mixture adjustment screw and turning the screw counter-clockwise. Turn the screw only 1/8 to 1/4 turn, blip the throttle, then retest.
10. No discernable reaction to lifting the piston (often the case) indicates an AFR between about 14 and 14.5. This is neither lean nor rich, but the car may feel a bit sluggish at this setting.
11. If the mixture adjustment was changed on either carburettor in steps 7 through 10, idle and airflow settings may no longer be correct. Verify by repeating steps 4 through 6. If any idle adjustments are made as a result, repeat steps 7 through 10.
12. Once the idle, mixture, and airflow settings are correct for both carburettors, ensure all bolts and locking nuts are tight, and replace the air cleaners.

Fuel Filter Replacement

A standard fuel filter is located in the nearside rear of the engine bay. Replace the filter annually, or whenever dirt or other debris is found in the filter.

Carburettor Float Adjustment

Carburettor float bowls are integral to the carburettor body in the HIF-style carburettors fitted to the M.G. Locost. As such, the floats can only be adjusted after removing the carburettor from the vehicle.

To adjust the float, remove the four screws on the bottom of the carburettor and pry off the float cover. Turn the carburettor upside down and allow the float to rest on the fuel metering pin. Place a straight edge across the float bowl, and observe or measure the distance between the straight edge and the highest point on the curved section of the float. This distance should be only 1-2 mm.

If the float height requires adjusting, bend the metal attachment tab where it attaches to the float. Recheck the height, and if correct replace the float bowl cover and the four attachment screws.

c. Lube and Oil Changes

Maintaining fresh oil and grease in key components of the M.G. Locost will help greatly to ensure the safety, reliability, and longevity of the vehicle. Lubrication requirements are not extensive, however some type of tool for pressing grease into grease fittings will be needed.

Drive train Lubrication

The engine oil and filter should be replaced every 3000 miles, or every six months if the vehicle is driven less frequently. The differential and transmission oil should be replaced annually. Refer to the General Specifications section of this manual for oil weights and capacities.

There are several different oil filters which can be used with the spin-on type adapter fitted to the M.G. Locost. We recommend the Mobil One M1-204, but the NAPA Gold 1068 will fit, as will the Amsoil SDF-42, Wix 51362, Motocraft FL-300, and several others.

The gearbox has its own dipstick for checking oil level. Access to the dipstick is through the rear engine bay shelf. Remove the large rubber plug next to the battery by pulling up on it, and reach through the access hole to the gearbox dipstick.

The gearbox and rear axle are filled through plugs on the side of the casing. The transmission plug is on the casing nearside, and the rear axle plug is on the differential cover plate. Fill each component with the vehicle sitting on a perfectly level surface, and add oil right up to the bottom of the plug opening.

The remote lever attachment to the M.G. Locost gearbox does not have an oil supply, and the gearbox cannot be filled through this attachment.

Lubricate the propshaft annually by removing the two transmission tunnel covers and pressing grease into the grease fittings on both universal joints.

Chassis Lubrication

The front suspension trunion bushings should be lubricated every six months by pressing grease into the three grease fittings on each swivel axle. The outer front hub bearings should be re-greased annually. The inner hub bearings are continually supplied with grease by the outer hub bearings, so re-greasing the inner hubs is not required.

Rubber bushings in the suspension do not require any servicing, and should last for the life of the vehicle.

Spherical rod ends in the rear suspension should be kept clean and dry, which can be aided by coating them every few weeks with a good penetrating oil. Any excess should be wiped off to prevent the accumulation of dirt. Once a year, these bearings should be cleaned and repacked with fresh grease.

The propshaft has grease fittings on both universal joints These should be lubricated annually.

The distributor and alternator bushings should be lubricated every six months with a drop or two of light machine oil. The distributor bushing is lubricated by first removing the cap and rotor, then applying a drop of oil to the screw in the center of the rotor shaft. The alternator bushing is lubricated through a small hole in the center of the backing plate.

Handbrake components should be cleaned and re-greased annually. The cable has a grease fitting approximately halfway along its length. Grease should be pressed in until it squeezes out the ends, and the excess wiped clean. Remove and grease the handbrake lever pivot and the rear fulcrum pivot at the same time.

5. Engine and Drive train

a. Engine Specifications

The M.G. B-series engine is a cast iron 1.8 litre, 4-cylinder engine with two overhead valves per cylinder operated by solid pushrods and cam followers (lifters). The engine produces only 94 bhp at the flywheel, modest by today's standards, but makes up for it with more than 100 ft-lbs. of torque at 3000 RPMs, providing brisk acceleration.

A cautionary redline of 5600 RPMs should be observed in normal driving. There is very little additional performance to be gained by revving the engine higher. RPMs should be kept above 2000 revolutions in normal driving, and above 2500 at full throttle.

b. Engine Removal

Most engine servicing can be performed with the engine in the vehicle. The head can be removed and serviced separately, and the oil sump can be removed from beneath the vehicle, providing access to the oil pump, pistons, rings, connecting rod bearings, and the center main bearings. Complete engine removal is needed only to replace the outer crankshaft bearings and oil seals, or to remove the transmission.

In the M.G. Locost, the engine and transmission cannot be removed as a unit. Remove the engine first, and the transmission can then be disconnected and slipped out through the engine bay.

Removal of the engine is simple and straightforward, but some sort of lifting tackle with a minimum 500-lb. capacity is required. Tools required include 7/8", 1/2", and 9/16" spanners. Because of the size and configuration of the M.G. Locost engine bay, the engine can be removed from the vehicle with all accessories attached, including the carburettors and exhaust manifold, if necessary.

1. Disconnect the battery.
2. Remove the glassfibre nose cone and drain the radiator. Disconnect the radiator hoses where they attach to the engine block and thermostat housing.
3. Disconnect the wire from the ignition coil to the distributor, and the wires to the alternator and coolant temperature sender unit.
4. Disconnect the oil pressure sender line.
5. Disconnect the throttle and choke cables at the carburettors. It may be easier to do this if you first remove the air cleaners.
6. Disconnect the exhaust by removing the six bolts from the two flanges at the bottom of the exhaust manifold.
7. Remove the starter motor.

8. Remove the nuts from the seven 5/16” bolts that attach the transmission to the engine backing plate. Only one of the seven bolts can be removed from the transmission housing at this time. Slide the remaining six bolts back until they are clear of the engine backing plate.
9. Attach lifting tackle to the two lifting eyes at either end of the cylinder head. Remove all slack from the lifting tackle, but do not lift the engine at this time.
10. Remove the eight 5/16” bolts attaching the engine to the motor mounts.
11. Gently slide the engine forward until it clears the transmission input shaft. As you do this, it is important to maintain equal gaps between the engine and transmission at the top and bottom of the transmission bell housing. A lever such as a flat-bladed screwdriver may be used to help separate the engine from the transmission, but only gentle force should be used.
12. Raise the engine until the bottom of the pan is clear of the upper frame rails, then move it forward or to the side until it clears the vehicle.

When re-installing the engine, arrange the lifting tackle so that the engine is as level as possible, and use care when inserting the transmission input shaft through the center of the clutch friction disc.

c. Engine Overhaul

An M.G. B-series engine is fairly simple to overhaul. Many manuals are available that detail the procedure, however a good mechanic armed with the proper tools and torque specs should be able to disassemble and reassemble the engine with only occasional reference to a manual.

Care should be taken during disassembly of the block to mark or label connecting rods and end caps by cylinder number. Note that the camshaft cannot be removed from the block without first removing the distributor drive shaft. All other disassembly is straightforward.

The rebuilding procedure should include a thorough cleaning of the cast iron block to remove rust, scale, and other debris from the water jacket. Worn cylinders will no longer be completely round and will need to be bored out another .010” to .020”, even if taper is not significant. Pistons and rings up to .060” oversize are available.

Deck surfacing and line boring is generally not required, however it is usually necessary to have the crankshaft journals turned down another .010”.

During reassembly of the engine, use liberal amounts of pre-lubricating oil or grease on the piston rings, bearings, valve train, and cylinder walls. White lithium grease also works well for this. Be sure the rings are installed according the directions, with the chamfered edge of each compression ring at the top.

It is generally not necessary to measure bearing clearance with proprietary products such as plastigauge, however it is important that the crankshaft turn freely with end caps tightened to the correct torque value, and almost as freely with pistons in their bores and connecting rods attached to the crankshaft.

d. Transmission Specifications

The M.G. Locost transmission is a full synchromesh four-speed gearbox operated by a remote lever. This type of transmission was fitted to MGBs from 1968 onward. An earlier style transmission can be fitted without modifications to the chassis, but the first gear synchromesh will be lost.

The gearshift lever has been modified from stock by bending it rearward approximately 1” at the top. If a new gearshift lever is fitted, it may be necessary to perform the same modification in order to provide sufficient clearance between the gearshift knob and the instrument panel.

e. Transmission Removal

Removal of the transmission can only be accomplished with the engine out of the vehicle. Refer to the section on Engine Removal for instructions on how to do this. Once the engine is removed, proceed with the following steps.

1. From inside the vehicle, remove the gearshift knob, then remove the six #10-32 screws on the cover over the transmission turret. Remove the cover, then remove the shift lever by unbolting the three 1/4" transmission shoulder bolts. Replace the shoulder bolts in the transmission turret.
2. Remove the two 3/8” bolts that attach the clutch slave cylinder to the transmission . Move the slave cylinder out of the way, taking care not to stretch the flexible hydraulic line.
3. Disconnect the reverse lamp switch wires from the reverse lamp switch.
4. Disconnect the speedometer cable.
5. Disconnect the propshaft from the rear of the transmission by unbolting the four 5/16” flange bolts.
6. Disconnect the transmission from its mount by removing the four 5/16” bolts that screw directly into the transmission. Do not loosen any other nuts or bolts on the transmission mount at this time.
7. Lift the transmission slightly until it is clear of the mount, then slide the transmission forward into the engine bay.
8. Six of the 5/16” bolts that were used to secure the transmission to the engine should be loose in the bell housing. Remove these bolts, then carefully lift the transmission out of the engine bay.

If the transmission mount needs servicing, it can be dismantled by first removing the two 5/16” bolts on the underside of the mount, and then lifting out the center section. Each rubber cushion is attached to the mount by a single 5/16” nut. Access to these nuts is restricted, but they can be removed from the center of the mount with a suitably short 1/2" spanner.

When re-installing the transmission, be sure to insert the 5/16” bolts that secure the transmission to the engine into their respective holes in the bell housing before locating the transmission in its mount. Once the transmission is bolted to its mount, it will not be possible to insert these bolts.

f. Clutch

The clutch in the M.G. Locost uses all components from a stock MGB. The release bearing (throwout bearing) is an aftermarket roller-bearing unit available from Moss Motors. It is interchangeable with the standard graphite ring-style release bearing originally fitted to the MGB.

The clutch master cylinder, slave cylinder and hydraulic lines are standard MGB units. The hydraulic line has been looped near the flexible line junction to accommodate the narrower width of the M.G. Locost chassis

M.G. clutches can be prone to slipping, particularly if the rear main engine seal is compromised. The clutch disc and other internal clutch components can only be serviced by removing the engine, as the transmission cannot be removed on its own. Whenever the clutch friction disc is replaced, it is a good idea to replace the rear main engine seal at the same time.

g. Propshaft

The M.G. Locost uses a stock MGB propshaft that has been shortened to a fully-compressed length of 20-3/4", and then balanced. It is otherwise unmodified. Universal joints can be refurbished using a standard MGB rebuild kit.

The propshaft is accessed from the cockpit by removing both center console panels. Remove the gearshift knob first, then remove the ten #10-32 screws that attach the front and rear panels to the transmission tunnel. Lift the panels clear and set them aside.

With the console panels out of the way, remove the propshaft by disconnecting the eight 5/16" bolts that attach the universal joint flanges to the transmission and differential. Slide the propshaft forward past the transmission and lift the rear end out first.

h. Rear Axle

The rear axle casing in the M.G. Locost is heavily-modified from stock. It can be rebuilt with stock MGB axles, brakes, hubs, bearings, thrust washers, and gears, but the casing itself cannot be replaced. Specify replacement parts for a 1968 or later model MGB, using the same Salisbury type axle with steel wheel hubs. Parts for a wire wheel hub axle may not fit.

The rear axle and differential can be serviced without removing the unit from the vehicle. Should the axle require removal for some other purpose, it will be necessary to remove the brake and hub on one side of the axle, and the axle can then be removed from the opposite side of the vehicle. It will be necessary to rotate the axle, once the differential is clear of the transmission tunnel, until the nose of the differential is at the top.

It is possible to remove the axle with both brakes attached, however contact with the frame is likely as the brake backing plates will not fit between the frame tubes without significantly angling of the axle fore and aft.

Should the axle casing be damaged beyond repair, it will be necessary to obtain another Salisbury axle from a steel wheel MGB, and then fabricate link and damper brackets using the dimensions specified in the book *Build Your Own Sports Car* by Ron Champion. Leaf spring brackets on the replacement axle will need to be removed, and the new link and damper brackets welded in place. Center-to-center distance between the link brackets is 41-3/4".

The handbrake fulcrum bracket attached to the differential cover is not a standard MGB part. If damaged beyond repair, a new bracket will need to be fabricated.

i. Exhaust

The exhaust system on the M.G. Locost is a custom fabrication that uses only the original manifold and manifold flanges from an MGB. Repair or replacement of the exhaust system will require similar fabrication.

The exhaust manifold is a stock cast-iron MGB unit. It cannot be removed without removing the intake manifold at the same time, as both manifolds share the same attachment bolts on the head.

The silencer is a Jones Full Boar Turbo Tube Muffler, part number ATT15S-1. It measures 15" long by 4" diameter, and has centered 1.825" I.D. inlet and outlet pipes, angled at 7 degrees from the silencer centre line. The same silencer can be purchased in 12", 18", and 24" lengths.

Tubing is Dynomax Performance pipe from Walker Exhaust, although any suitable piping in the correct dimensions will work. This tubing has a 1.75" O.D. on one end and a 1.75" I.D. on the other, allowing the end of one tube to slip inside the end of the next. The 2-into-1 branch connector is from Cherry Bomb, part number 429825. Inlet and outlet pipes for this part are all 1.75" I.D., and are connected using 1.75" O.D. internal sleeves.

I.D. of the exhaust manifold is 1.625". Downpipes are therefore constructed beginning with 2" lengths of 1.625" O.D. tubing, which fit inside the manifold. These are pressed into Dynomax Performance exhaust elbows, part number 41000, shortened to fit. Over these are welded 1.75" I.D. flared pipes, to support the exhaust gaskets. Standard MGB exhaust gaskets are fitted.

The exhaust can be removed as a unit by disconnecting the six nuts from the two flanges at the bottom of the exhaust manifold, and disconnecting the silencer from the cotton reel mount on the side of the vehicle. Withdraw the exhaust through the opening in the body panel, rotating the entire unit upward as needed to clear the exhaust manifold flanges.

When re-installing the exhaust, use copper grease or anti-seize compound on the six manifold studs. These studs are easily broken when attempting to remove a seized nut.

6. Cooling System

The engine in the M.G. Locost is cooled in the standard manner, using water circulating between the engine water jacket and a water-to-air radiator. Water is circulated by a pump mounted at the front of the engine. Coolant is sealed in the system with a 14-lb. radiator cap and an expansion tank at the rear of the engine bay.

Coolant cannot be added directly to the radiator. Check the coolant level in the expansion tank mounted on the upper firewall, and if necessary add a 50/50 mix of antifreeze and distilled water to the expansion tank until the level is up to the top mark. To ensure the cooling system is full, rotate the radiator cap to its first detent before adding coolant to the expansion tank. This will allow water to drain from the expansion tank into the radiator.

a. Radiator

A stock crossflow MGB radiator from any model year prior to 1969 can be fitted to the M.G. Locost. Later radiators are not crossflow designs, having both inlet and outlet tubes on the nearside. It is possible to bolt a later radiator in place, but the upper radiator hose will not reach the inlet tube, and will need to be replaced with an alternate design.

A 1-litre expansion tank is mounted to the upper firewall at the back of the engine bay. This is a standard unit, available from most aftermarket automotive suppliers. It can be replaced by a similar unit, but must be mounted in a location sufficiently high to allow coolant to drain back into the radiator.

If a new MGB radiator is fitted to the M.G. Locost, the mounting flanges will need to be trimmed near the bottom by approximately 1/4" to match the flanges on the Locost chassis. Without this modification, the radiator will interfere with the glassfibre nose cone.

b. Cooling Fan

The cooling fan is a 12” model from Hayden Automotive, part number 3680. It is mounted to an aluminum support behind the radiator and pulls air through it.

The fan is wired to and operated by a switch on the dashboard, where it is controlled manually. It should be turned to the on position after the engine is up to normal operating temperature, but may be turned off when driving above 60 mph or on exceptionally cold days.

c. Hoses

Radiator hoses in the M.G. Locost are manufactured by Gates Rubber Company. The upper hose is part number 21439. The lower connection from the radiator to the water pump is made up of two hoses, part numbers 22353 and 22354. The two lower hoses are joined by a 9” length of straight 1.315” O.D. (1” nom.) schedule 10 T-316 stainless steel pipe.

The Gates hoses that are attached to the engine block and thermostat housing can be used as supplied by the manufacturer. The third hose is too long and will need to be shortened by removing the last 6” of the hose at the larger end.

The M.G. Locost does not have a heater, but a stock MGB heater unit could be installed by replacing the blanking plate on the cylinder head offside with an M.G. heater valve. A heater hose would then be installed between the valve and the heater unit inlet. The rearmost lower radiator hose would be replaced with a branching hose, Gates part number 22046, and the outlet line from the heater connected to the .35” I.D. branch.

Some provision would need to be made for directing air from the heater unit into the cockpit, such as cutting a large hole in the rear engine bay shelf. It is important to note that the area below the center of the engine bay shelf is not part of the cockpit, but is occupied by the transmission. Additional ducting may therefore be required.

d. Water Pump

The water pump on the M.G. Locost is a stock MGB unit installed in the stock MGB location on the front of the engine. It uses a cast iron impeller and a graphite seal, both of which are prone to failure.

To replace the water pump, slacken the nut on the adjustable alternator support arm, then remove the fan belt. Unbolt the old water pump from the engine and bolt on the new unit. Replace the gasket at the same time, and use gasket sealing compound only very sparingly. Replace the fan belt and adjust the tension at the alternator. Tension is correct when thumb pressure deflects the belt a distance of 1/4" to 1/2”.

Ordinarily a metal fan is attached to the water pump pulley to draw air through the radiator when the vehicle is not moving or moving slowly. Hence the four bolt holes on the front of the pulley. The distance between the water pump pulley and the radiator in the M.G. Locost is too great for a fan to be effective at this location, so air is drawn through the radiator instead by an electric fan.

7. Fuel System

Fuel is delivered to the engine from a tank at the rear of the vehicle, through an electric pump mounted in the open area behind the passenger seat. No fuel return is fitted.

A standard M.G. fuel gauge and sender unit is used to indicate fuel level. The gauge requires the sender to report 240 ohms at empty, not the standard 90 ohms reported by most aftermarket sender units. It is possible to adapt a 90 ohm sender to the M.G. fuel gauge by adding resistors in series and in parallel with the sending wire, however that procedure is beyond the scope of this manual.

a. Fuel Tank

The fuel tank in the M.G. Locost is a JAZ Products Circle Track fuel cell, part number 200-010-01. Capacity of the cell is ten gallons. Dimensions of the cell are 25” x 9” x 12” high.

The tank is vented to a standard MGB overflow tank. The overflow tank is vented in turn to a carbon canister of the type normally found in the MGB engine bay. In the M.G. Locost, both the overflow tank and canister are mounted to a brackets welded to frame rails in the rear of the vehicle.

A standard MGB fuel sender unit is attached to the top of the fuel cell. The sender unit has been modified to reach the bottom of the tank, and will go no higher that approximately the center of the tank. As a result, the fuel gauge will indicate a full tank until the fuel level drops to the halfway mark, and will then begin to drop in the normal manner until the fuel cell is empty.

The fuel tank can be removed for servicing or replacement by first disconnecting the wires from the sender, then disconnecting the lines to the fuel pump and overflow tank, and finally disconnecting the filler neck from the tank. Remove the four bolts attaching the fuel tank mounting straps to the chassis, and lift the tank out through the top.

b. Fuel Pump

A standard MGB SU fuel pump is fitted to a bracket in the open area behind the passenger seat. This is a mechanical unit from a 1972 model, which has banjo connectors for the fuel lines and mechanical contact points that regulate the pump mechanism.

Operation of the fuel pump is audible in the vicinity of the pump, and from the cockpit with the vehicle stationary and the engine idling or off. The pump should operate at 1 or 2 cycles per second at zero pressure, and slow to zero cycles per second as pressure increases to maximum.

A pump operating at 10 or more cycles per second indicates an absence of fuel, as when the fuel tank has emptied. The pump should not be allowed to operate in this mode for more than 20 seconds at a time.

Mechanical fuel pump components do not require any service. Over time, the contact points are subject to wear, corrosion, and pitting. This will be evidenced by silence from the pump and a loss of fuel pressure.

The fuel pump can be replaced by a similar unit, or any aftermarket substitute. It can be rebuilt either with new contact points or with electronic components from a suitable rebuild kit.

c. Fuel Lines

Custom fuel lines are fitted to the M.G. Locost. A flexible rubber line connects the fuel cell to the fuel pump inlet, and a flexible line connects the fuel pump outlet to a hard line that is routed through the transmission tunnel and across the rear engine bay shelf. The hard line terminates in the engine bay at an aftermarket fuel filter, and a flexible line delivers fuel from the filter to the forward carburettor.

The main fuel line is attached to the transmission tunnel in five places, and to a bracket mounted on the O3 tube at the rear tunnel exit. From there it joins to a rubber hose that connects it to the fuel pump.

8. Suspension

The M.G. Locost suspension is a fully customised design that uses only the front kingpins, swivel axles, and hubs from a standard MGB. All other suspension components are either fabricated or, in the case of the springs and dampers, purchased from an aftermarket supplier.

a. General Configuration

The M.G. Locost combines an unequal-length double wishbone suspension in front with a 5-link solid axle suspension in the rear. Fore-aft location in the rear is by parallel trailing links, and lateral location is by Panhard bar.

Upper and lower suspension wishbones are custom-built. Replacements must be similarly constructed. Wishbones are interchangeable left to right, so that a wishbone from one side of the car can be used as an example to construct a wishbone for the other side.

Trailing links in the rear suspension are custom units, and all four links are identical. They employ Metalastik bushings where they attach to the chassis, and spherical rod ends where they attach to the axle brackets.

Spherical rod ends in both the front and rear suspensions are 1/2" units with a 1/2"x20 thread, manufactured by QA Industries. They may be replaced by any suitable rod end of the same size. Rod eyes used in the front upper wishbones are also QA units. To prevent unwanted movement of the front suspension under braking, spherical rod ends should not be used in this application.

b. Springs and Dampers

Springs and dampers are GAZ coilover units at all four corners. Free length for all dampers is 11”, with 2” of compression and rebound available. Spring rates in front are 325 lbs./in. with an effective motion ratio of .48. Spring rates in back are 140 lbs./in. with an effective motion ratio of .88. Natural frequencies at gross vehicle weight are 1.8 front and 2.1 rear.

The coil-over units are adjustable for both bump characteristics and ride height. They have been set at the “factory” for optimal handling, but my be adjusted to suit other types of driving. To protect the engine and to ensure the suspension operates as designed, in no case should ground clearance as measured from the bottom of the frame rails be reduced below 4”.

c. Front Suspension Alignment

Front suspension on the M.G. Locost can be adjusted for camber and toe-in. Caster is fixed at 5.0 degrees. Camber is adjusted at the upper wishbones. These are two-piece units connected by a 3/8" bolt.

1. Raise the front of the vehicle until the tires are off the ground.
2. Loosen the 3/8" bolt connecting the two arms of the upper wishbone.
3. Loosen the upper wishbone rod eye jam nuts.
4. Remove the upper trunion bolt and lift the upper wishbone off the trunion.
5. Turn both upper wishbone rod eyes to move them in or out of the upper wishbone arms. Always turn both rod eyes an equal number of turns. Move the rod eyes into the wishbone arms to decrease camber, or out to increase camber. One-half turn will change the camber setting by approximately 0.2 degrees.
6. Replace the wishbone on the upper trunion and insert the trunion bolt.
7. Lower the wheels to the ground and roll the vehicle back and forth a few times to settle the suspension.
8. Check the camber, and if set correctly tighten the upper trunion bolt to the proper torque specifications, and then tighten the 3/8" connecting bolt and the two jam nuts.

Toe-in is adjusted by backing off the jam nuts adjacent to the steering knuckles, and rotating the tie rods by equal amounts until the desired toe-in is achieved. Do not attempt to loosen any other nuts on the tie rods.

d. Front Suspension Removal

Front suspension on the M.G. Locost should not need servicing, but the suspension may be dismantled if any components are damaged and require repair or replacement.

The complete suspension assembly can be removed from either side of the vehicle as a unit, however any servicing of the hubs or brakes should be performed with the suspension attached to the vehicle, as it will be otherwise difficult to remove the hub nut or brake caliper nuts.

1. Raise the front of the vehicle until the tires are off the ground, and remove the road wheels.
2. Remove the bonnet and set it aside.
3. Remove the damper and spring by disconnecting the bolts at the top and bottom of the unit.
4. Remove the brake caliper by bending back the retaining tabs on the tab washer and removing the 7/16" bolts that attach the caliper to the hub. Be sure to support the caliper off the vehicle so that the flexible hydraulic line is not stretched.
5. Remove both upper wishbone pivot bolts. At this point the lower wishbone should be supported from below with a jack or block of wood.

6. Remove the lower wishbone pivot bolts. NOTE: the rear lower pivot bolt will be difficult to extract because of its proximity to the motor mount. It will be easier to extract this bolt if the other three pivot bolts are removed first, and the forward suspension pivots pulled out so that the suspension assembly is angled backward.
7. Extract the suspension assembly out through the holes in the forward body panel.

Re-installation of the suspension is complicated by the use of spacers between the suspension bushings and bushing brackets. Bushings measure 1-7/16” in length, and the inside width of each bracket is 1-3/4”, so spacers totaling 5/16” in width are required.

To meet this requirement, the M.G. Locost is fitted with one 1/8” hardened steel spacer and one 1/32” shim on either side of each bushing, the shim nearest the bushing. Installation may be simplified with the aid of a 3/8” rod cut to 1-3/4” in length. Assemble the bushing, spacers, and shims on the rod, then insert the assembly into the bracket. When everything is lined up, use the suspension bolt to push out the rod.

e. Front Hubs

Front hubs on the M.G. Locost are standard MGB components, employing inner and outer roller bearings separated by a distance tube and one or more shims. The bearing races, distance tube, and shims are under compression from a hub nut torqued to 60 ft.-lbs.. End float of the bearings is adjusted by varying the number and thickness of the shims, and not by adjusting the tightness of the hub nut.

The inner wheel bearings should never need servicing or re-greasing, as grease moves from the outer bearing to the inner bearing during normal driving, and not the other way around. Because of this, the outer bearings will dry out and need re-greasing from time to time.

To service the hub, remove the hub cap, split pin, and hub nut, then withdraw the tab washer and outer bearing. If the bearing race is also pulled out, and shims are attached to it, be sure to replace the shims before replacing the bearing race.

If the outer bearing is completely dry, it will need to be replaced. Otherwise, repack the bearing with fresh wheel bearing grease, and replace the bearing on the hub. Replace the tab washer and the hub nut, and torque the hub nut to 60 ft.-lbs. Check that the wheel turns freely with no play. If you have a dial gauge, check that the hub end float is between.002” and .003”.

If end float is outside this range, or the hub is loose or does not turn freely, it may be necessary to add or remove shims. Shims are available in widths of .010", .005", and .003". Shims are inserted between the outer bearing race and the distance tube that separates the bearings. Use whatever combination of shims are needed to set the end float to .002"-.003" with the hub nut torqued to 60 ft.-lbs.

Once the proper end float is achieved and the hub nut is tightened to the proper torque, insert a split pin through the hub nut and hub. Bend the pin to fit inside the hub, and then replace the hub cap.

A grease seal is fitted inboard of each hub. If it is necessary to replace one of these seals, the hub must be completely removed from the stub axle. To do this it will first be necessary to remove the brake caliper. When removing the hub as a unit, be sure to note the order in which all inner hub components are arranged, so that they can be replaced in the same order.

f. Rear Axle Adjustments

The rear axle is adjustable fore and aft, and also laterally, should any misalignment become apparent. *In no case* should the rear axle centerline be moved farther aft than 90-3/4" from the front axle centerline, as that could cause the propshaft to bind and fail catastrophically.

Fore and aft adjustment is performed by loosening the jam nuts on all four trailing links, and removing the trailing link bolts from their brackets. Turn the spherical rod ends on each trailing link to move the axle forward or backward as needed. Turn all four trailing links an equal number of turns in the same direction, unless an adjustment is required to straighten an axle that is not exactly perpendicular to the centerline of the vehicle.

Lateral adjustment is performed by loosening the jam nut on the Panhard bar, and removing the bolt from the Panhard bar bracket. Turn the spherical rod end on the Panhard bar to move the axle side to side. Note that each half turn will move the axle exactly .025".

g. Rear Axle Service

Most servicing of the rear axle can be performed with the axle installed in the vehicle. Except for regular oil changes, no scheduled service should be needed, however it may be necessary at times to replace oil seals, or to remove play from the sun and planetary gears by replacing worn thrust washers.

To replace an oil seal, it will first be necessary to remove the aluminium wheel spacer from the hub, then remove the split pin from the hub nut, and finally remove the hub nut from the axle. A standard hub puller can be used to remove the splined hub from the axle.

With the hub removed, all brake components, including shoes, slave cylinder, and adjuster mechanism can be removed from the backing plate. After this, remove the four 3/8” bolts from the axle flange and set the backing plate aside.

The oil seal is pressed into a thin cast housing that can be separated from the axle with a chisel or drift. Punch out the old seal and press in a new one, then replace the housing on the axle so that the bolt holes line up. Reattach the backing plate, then replace the four 3/8” bolts

Note that these 3/8” bolts are normally oriented with the head against the backing plate and the nuts inboard, however the rearmost bolts in the M.G. Locost will not fit in this manner due to interference with the link brackets. These bolts must be reversed. Be sure any replacement bolt is only long enough to secure the nut, and does not interfere with the brake shoes or springs.

Lash adjustments to the differential gears should not be necessary, but if the gears are noisy and it is felt that an adjustment is needed, the rear axle housing will need to be removed from the vehicle and handed over to a service shop, where a special case stretching tool can be used to extract the differential.

9. Brakes

Hydraulic brakes in the M.G. Locost are standard for MGBs built between 1972 and 1974. All parts are unmodified. The number and arrangement of brake lines in the M.G. Locost are the same as those in an MGB, although the lines have been looped at various locations to accommodate the smaller chassis of the M.G. Locost.

a. General Configuration

A redundant master cylinder delivers hydraulic pressure through two separate lines to a junction box mounted on the rear engine bay shelf. Hydraulic pressure is distributed from there to each front wheel through individual brake lines, and to the rear wheels through a single brake line. The rear brake line branches to each rear wheel at a junction box bolted to the rear axle.

A switch on the main junction box closes a circuit to a warning lamp mounted on the dash when hydraulic pressure in one inlet line falls below the pressure level of the other inlet line.

To help maintain the life of brake system components in the M.G. Locost, use only Castrol LMA or GTX hydraulic fluid.

b. Master Cylinder

The master cylinder in the M.G. Locost is bolted to a standard MGB pedal box located on a platform above the rear engine bay shelf. It can be removed and replaced by first removing the pedal box cover, and then disconnecting the two brake lines attached to it. Remove the two bolts that attach the cylinder to the pedal box, and withdraw the unit from the upper firewall recess.

A brake lamp indicator switch is mounted on the pedal box cover. It opens the circuit to the brake lamps when the pin on the switch is pushed in, as when the brake pedal is in the rest position, and closes the circuit to the brake lamps when the pin is released, as when the brake pedal is depressed.

If the brake lamps are illuminated with the brake pedal at rest, the position of the switch will need to be adjusted by slacking off the jam nut and turning the switch clockwise until the pin is pushed in by the brake pedal. Once the brake lamps have been extinguished, tighten the jam nut to lock the switch in place.

Note that the master cylinder from this model MGB is cannot normally be rebuilt without special tools. Rebuild kits may be purchased and a rebuild attempted, but if the rebuilt unit leaks or supplies insufficient hydraulic pressure to the wheels, it should be replaced with a new unit.

c. Brake Lines

Two 1/4" copper brake lines are routed from the master cylinder to the main junction box mounted on the rear engine bay shelf. Three 1/4" copper brake lines are routed from the junction box to brackets mounted on the chassis, two in front and one in the rear behind the nearside aluminium bulkhead.

The main brake line is mounted to the inside of the transmission tunnel in five places, and to the O3 tube at the rear tunnel exit. It terminates at a junction on the offside end of the O3 tube.

Flexible brake lines connect the copper line from each forward bracket to the corresponding front brake caliper, and another flexible brake line connects the copper pipe at the rear bracket to a junction box mounted on the rear axle. Two 1/4" copper brake lines connect the junction box to each rear wheel cylinder.

d. Front Brake Service

The front brake pads should be replaced when the friction material is less than 1/8” thick. Pads can be replaced without removing the brake caliper, however it will be necessary to press the caliper pistons back into the caliper body when replacing worn pads with new. Remove the bonnet and ensure that hydraulic fluid in the brake master cylinder does not rise above the maximum level when compressing the caliper pistons.

When replacing brake pads, inspect the surface of the brake discs for excessive scoring or wear, and replace as needed.

e. Front Brake Removal

Front brake calipers and discs can be removed without removing the front hubs. Remove the caliper first by flattening the locking tabs on the tab washer, and removing the two bolts that attach the caliper to the hub.

If the caliper is to be completely removed from the vehicle, disconnect the flexible brake line from the copper brake line, and remove the locking nut securing the flexible line fitting to the support tab.

If the caliper has been removed only to access the hub, disc, or other components, do not disconnect the flexible brake line from the copper brake line, but be sure to provide sufficient support for the caliper so that the caliper does not hang from the flexible brake line.

f. Rear Brake Service

The rear brake shoes should be replaced when the friction material is less than 1/8” thick. The rear brakes may need servicing more often to lubricate the braking mechanism, or to adjust the distance between the brake shoes and the brake drums as the shoes wear.

The rear brakes can be adjusted without disassembling any brake system components, using the square adjuster pin that protrudes from the rear of each brake backing plate.

To adjust the brakes, first disengage the handbrake, and raise the vehicle on jack stands or a lift. On each rear brake, rotate the adjustment pin with a 1/4" spanner in a clockwise direction as viewed from behind the backing plate, until the wheel will not spin at all by hand. Rotate the pin counter-clockwise one half turn, or until the wheel is free to spin.

Check the adjustment by applying the handbrake. The handbrake should fully engage after no more than four or five ratchet stops. If both rear brakes are correctly adjusted and the handbrake does not readily engage, it may be necessary to adjust the handbrake itself. Refer to section 9.h. of this manual for handbrake adjustment instructions.

g. Rear Brake Removal

Complete removal of the rear brakes requires the rear hubs to be removed from the splined axle shafts. This procedure is described in section 8.g. of this manual.

h. Brake Bleeding

Whenever any brake lines have been disconnected, whether from the master cylinder, wheel cylinder, caliper, or junction box, it will be necessary to purge air from the system after all of the brake lines have been reconnected. This will require a three-foot length of 1/4" clear flexible tubing, a suitable receptacle for hydraulic fluid, and a 1/4" spanner. A second person is also helpful.

Remove the bonnet and set it aside. Remove the cap on the brake master cylinder and fill as needed with fresh hydraulic fluid.

Begin the process at the nearside rear of the vehicle. Attach one end the 1/4" clear flexible tubing to the rear brake bleeder screw extending behind the brake backing plate. Place the other end of the tube into a small receptacle. Loosen the bleeder screw until hydraulic fluid is just visible in the clear tubing, then tighten the bleeder screw 1/2 turn.

From inside the vehicle, depress the brake pedal several times in rapid succession, and stop with the brake pedal fully depressed. If a second person is available, this person should remain in the vehicle to ensure pressure is maintained on the brake pedal.

At the rear wheel, loosen the bleeder screw until hydraulic fluid enters the clear tubing. Brake pedal pressure will drop to zero and the brake pedal will fall forward. Tighten the bleeder screw 1/2 turn before allowing the brake pedal to return.

Inspect the hydraulic fluid in the clear tubing for bubbles, which indicate the presence of air in the fluid. Repeat the pressurization and release process until three successive cycles result in the complete absence of bubbles in the fluid. When bleeding is complete, secure the bleeder screw fully hand tight with the 1/4" spanner.

Inspect the brake master cylinder, and fill as needed with fresh brake fluid. Repeat the bleeding process on the nearside rear brake, the offside front caliper, and the nearside front caliper, checking the level of hydraulic fluid in the brake master cylinder regularly, and refilling as needed.

i. Handbrake

The M.G. Locost handbrake is a standard MGB unit, modified for the shorter length of the Locost chassis.

All cable ends on the handbrake are swaged, so the main cable has been shortened by removing the swaging for the nearside brake clevis and replacing it with a Dorman Products 1/8” cable clamp.

The cable housing has been shortened from 56” to 32”. Both ends were trimmed an equal amount (12”) so that the grease fitting remains in the center of the housing. The cable was shortened by a similar amount, but some excess was left protruding from the aftermarket cable clamp.

The handbrake pivot stop was relocated to the top of the differential housing, to provide clearance for the Panhard rod.

If both rear brakes are correctly adjusted and the handbrake does not engage within four to five ratchet stops, it may be necessary to adjust the handbrake lever. Remove the driveshaft cover and turn the bronze adjusting screw at the forward end of the handbrake cable inwards Every four rotations will move the handbrake engagement point by approximately one ratchet stop.

10. Controls

The steering and pedal arrangement in the M.G. Locost is a custom design. It incorporates many components from an MGB, although many of those have been modified to fit the smaller confines of a Locost chassis. Controls are fixed in place for a standard driver, and cannot be moved or adjusted.

Due to space limitations in the control system, removal or replacement of some components, such as the steering column, may be difficult or impossible without first removing of the scuttle.

a. Scuttle

The Locost scuttle is a separate chassis component that is attached to the main chassis by eight bolts located beneath the dashboard. These bolts are secured to the chassis rails by rivet nuts. Special care must be taken when installing the bolts not to cross threads or torque any bolt higher than 10 foot-pounds.

The scuttle comprises several components, including the dashboard mount, the upper engine bay firewall, the steering column mount, and the windscreen assembly. Removal of the scuttle must consider all auxiliary systems supported by these components.

1. Remove bonnet and set it aside.
2. Drain coolant from the radiator until the expansion tank attached to the upper engine bay firewall is completely drained.
3. Remove all components attached to the upper engine bay firewall, including the coolant expansion tank.
4. Remove the three screws securing the pedal box cover, and remove the cover taking care not to disturb the brake lamp switch.
5. From beneath the dashboard, remove the two 1/4" bolts connecting the pedal box to the upper firewall recess. Only one of these bolts is visible with the dashboard in place. The other bolt is 6” to the right of the visible bolt, and can be found by reaching over the steering column support plate from underneath the dashboard. Alternately, it can be seen by removing the Tachometer gauge.
6. Remove the six 1/4" bolts attaching the clutch and brake pedal box to the pedal box support.
7. Remove the 3/8" pedal pivot bolt from the pedal box, and allow the clutch and brake pedals to drop into the cockpit area.
8. Slide the pedal box forward until it clears the upper firewall recess, taking care not to disturb the brake and clutch hydraulic lines.
9. Remove the six #10 screws attaching the aluminium steering column cover plate to the firewall and rear engine bay shelf, and lift off the cover.
10. Disconnect the dashboard where it attaches to the transmission tunnel by removing the three #10 screws. From beneath the dash, remove the three 3/8” bolts that attach the steering column mount to the scuttle. These bolts are attached with captive nuts.
11. Remove the eight 1/4" bolts that attach the scuttle to the frame.

The scuttle can now be lifted one or two inches above the chassis. Lifting any farther should be avoided, so as not to disturb any electrical or mechanical connections to the dashboard.

The scuttle can be removed completely by either one of two methods. The first is to detach the dashboard from the scuttle, resting it on the steering column and chassis. The second is to disconnect each electrical and mechanical connection to the dashboard, including the choke cable.

For either method, it will be necessary to disconnect all wiring in the engine bay, and to feed the wires back through the opening in the scuttle firewall. Remove any fittings attached to the three distance bars located just beneath the scuttle sheeting. It may also be easier to remove the scuttle with the windscreen detached.

When reinstalling the scuttle, it is important to insert and tighten the eight attachment bolts correctly. Because of the configuration of this specific scuttle frame, the offside bolt closest to the transmission tunnel should be attached first. The three remaining forward bolts can then be attached, followed by the four side bolts.

Be sure each bolt is inserted straight, and apply pressure to the scuttle frame as needed to ensure each bolt lines up with its respective rivet nut. Each bolt should be turned by hand, engaging the threads through at least two complete revolutions, before any torque is applied to the bolt with a spanner.

If reattaching the scuttle becomes difficult or impossible due to misalignment of the bolts, do not use force, as it is easy to strip or otherwise disable the rivet nuts that secure the scuttle. If necessary, it is acceptable to drill larger holes in the scuttle attachment tabs, to a maximum of 5/16”.

b. Steering

The steering system in the M.G. Locost employs a standard MGB steering rack and steering column from the 1968-1974 model years. The steering column is mounted farther back in the M.G. Locost, so a 10” extension shaft has been inserted between the steering column and rack column, and connected using a second MGB steering shaft universal joint.

The steering rack has been modified for the wider track of the M.G. Locost. The tie rods have been shortened by 1-1/4” on either side, and an 2-1/2” extension rod connected to each shortened end using a 1-1/4” forged steel coupling nut secured by two grade strength 8 jam nuts.

The flange at the forward end of the steering column has been modified to fit through a narrow opening in the rear engine bay shelf. The left edge of the flange has been trimmed 1/2", and the outer edge of the flange has been trimmed 3/32” around one-fourth of its circumference. Any replacement steering column will need to be similarly modified. No other modifications are required.

The steering column can only be removed after removing the brake and clutch pedal box, the pedal box support plate, the steering column cover, and the scuttle. Once these components have been removed, disconnect the universal joint at the forward end of the column, then remove the two 5/16” bolts securing the steering column flange to the firewall. The nuts for the 5/16” bolts must be held in place from the engine bay with a 1/2" spanner.

With everything disconnected, rotate the column until the flattened edge of the forward attachment flange is at the top, then withdraw the column, raising it slightly to clear the lower firewall attachment bracket.

Once the column is clear of the lower firewall, work the flange out through the 2-1/2” wide slot in the rear engine bay shelf by holding the column vertical and moving it back and forth to clear one side of the flange, and then the other.

Note that the reverse of this rotational positioning will be required when the column is reinstalled.

The steering rack can be removed by first removing the glassfibre nose cone. Disconnect the universal joint at the end of the steering rack column, and separate the ball joints at either end of the rack with an appropriate ball joint splitting tool. Remove the four 5/16” bolts that attach the rack to the chassis, and extract the rack, taking care not to disturb the coolant hoses.

c. Pedals

Pedals in the M.G. Locost are standard MGB units. Rubber pedal pads are standard and are interchangeable between all three pedals. Return springs are also standard MGB units. Brake and clutch pedals have been modified by drilling a 1/8” hole for the return springs 1” below the standard spring holes.

The brake and clutch pedal box and cover are standard MGB units. The pedal box cover has been trimmed on one side to fit beneath the Locost bonnet. The accelerator pedal box is a custom design for the M.G. Locost, however the pedal itself is standard.

Brake and clutch pedals can be removed by disconnecting the return spring, disconnecting the clevis at the top of each pedal, and removing the 3/8” pivot bolt from the brake and clutch pedal box.

The accelerator pedal can be removed by disconnecting the throttle cable and removing the 5/16” pivot bolt from the accelerator pedal box. The pedal can then be withdrawn by lowering it into the drivers foot well.

With pedals and master cylinders removed from the vehicle, the brake and clutch pedal box can be removed by disconnecting the 6 1/4" bolts that attach the pedal box to the pedal box support plate. These are bolted into captive nuts welded to the support plate.

The pedal box support plate can be removed by disconnecting the six 1/4" bolts that attach the support plate to the pedal box riser, and the two 1/4" bolts that attach the support plate to the accelerator pedal box. Note that these two bolts are SAE coarse thread, and they are screwed into rivet nuts in the accelerator pedal box. Care must be taken to use bolts with the correct thread, and to not over-torque these bolts.

The accelerator pedal box can be removed by disconnecting the throttle cable, and removing the rubber pedal pad. Remove the 7 3/32” bolts that attach the accelerator pedal box to the engine bay shelf. Lift the accelerator pedal box, rotate it 90 degrees, and withdraw the accelerator pedal through the opening in the engine bay shelf, using the provided notch for the pedal arm.

A clutch dead pedal is bolted to a support welded to the outer framework of the nearside footwell. Should the dead pedal interfere with normal operation of the clutch pedal, it can be removed by extracting the two 5/16” bolts that secure it to the support plate.

d. Dashboard

The dashboard in the M.G. Locost is an .010 6016-T6 aluminium panel with wood veneer, attached to the scuttle with eleven 1/4” screws and nuts, and to the transmission tunnel with an additional three #10-32 screws secured by captive nuts.

All gauges fitted to the dashboard are MGB units from the 1968 model year or later. The tachometer is an electronic unit. The fuel level and coolant temperature gauges are electric. The speedometer and oil pressure gauges are mechanical.

The fuel gauge is connected by wire to a 240 ohm sender unit in the fuel tank. The coolant temperature gauge is connected by wire to a sender unit just below the engine thermostat housing. The speedometer is connected by a rotating cable to a fitting on the transmission case offside. The oil pressure gauge is connected to an oil-filled line routed to a junction on the rear engine bay shelf, where it joins a flexible oil line connected to a fitting on the engine block.

Switches on the instrument panel are supplied for lights, coolant fan, fuel pump, defroster, and interior map light. Electrical fittings in the dashboard are described in the following section of this manual.

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11. Electrical System

The electrical system in the M.G. Locost is similar to the system in the MGB. Faults can generally be diagnosed using a standard MGB wiring diagram from the 1972 model year.

The wiring loom, fuse box, starter motor, and alternator in the M.G. Locost are standard MGB units developed by Lucas. Most of the minor components, such as relays, horns, and switches, are standard units as well. All lighting fixtures, other than the license plate illumination lamps, were obtained from aftermarket suppliers. This includes indicator lamps on the dashboard.

a. General Configuration

The M.G. Locost employs a 12-volt, negative ground electrical system. A single 12-volt lead-acid battery provides sufficient current and amperage to charge the ignition system and start the engine. A 14-volt engine-driven alternator with built-in regulator provides up to 35 amps to maintain battery voltage and to supply current to all vehicle electrical components while the engine is running.

b. Battery

The M.G. Locost battery is mounted on the offside rear engine bay shelf. A black cable connects the negative (-) battery terminal to the base of the offside engine mount. A red cable connects the positive (+) battery terminal directly to the positive lead on the starter motor relay. A second 12-volt cable connects the positive lead on the starter motor to the fuse box main bus.

The M.G. Locost battery is a low-maintenance type which cannot be serviced by adding electrolyte or distilled water. If the condition of the battery is such that it fails to hold a charge, it must be replaced. Note the position of the positive and negative terminals on the battery when purchasing a replacement.

c. Starter

The MGB starter motor on the M.G. Locost has a built-in solenoid that drives the starter pinion into the flywheel gear and then immediately closes the starter motor relay. This sequencing ensures that the gears are fully engaged before the motor begins to turn.

Worn gears on either the flywheel or starter pinion can cause the engagement to bind, preventing the relay from closing and the starter motor from turning. This can sometimes be remedied by loosening the two bolts that attach the starter motor to the clutch bell housing, freeing the motor by hand, and retightening the starter bolts. A better gear engagement may then be possible on another segment of the flywheel.

d. Alternator

The MGB alternator in the M.G. Locost has a built-in voltage regulator and therefore requires no external controls.

Correct operation of the alternator is indicated by a red lamp on the dashboard above the steering wheel. The lamp illuminates when the ignition is switched on. When the engine is started and revolutions increase above 500 RPMs, the lamp should extinguish.

If the lamp remains illuminated, first check the inline fuses in the wiring harness. If both of these fuses are operational, the alternator is not producing its full voltage, and will need to be serviced or replaced.

e. Fuses

The Lucas fuse box in the M.G. Locost is mounted on the offside lower firewall. It contains fuses for four circuits, however only two are in use. Each of these two circuits supplies current to a number of individual components. Failure of a single fuse may therefore disable several electrical components.

The wiring harness contains two additional in-line fuses, located close to the fuse box. If an electrical component fails to operate and all four fuses in the fuse box are in good condition, check each of the inline fuses for a possible cause for the failure.

Failure of a fuse is due to a 12-volt circuit that has come into contact with a ground source. This circuit must be identified and removed from the ground source before the disabled fuse can be replaced. Always replace a fuse with another fuse of the same amperage rating.

f. Wiring

The wiring loom in the M.G. Locost is a standard MGB unit. It is assembled from two separate components, a front loom that runs through the engine bay and under the dashboard, and a rear loom that runs through the transmission tunnel and across the rear trunk area. These two components are connected at a junction just ahead of the offside footwell.

The wiring loom in the M.G. Locost is used in the same condition as it was found when extracted from the donor vehicle. It has previously been modified from a standard MGB wiring loom in ways that are not always apparent.

Among the modifications was a black wire soldered to a 12-volt terminal on the ignition switch, and routed directly to the fuel pump. This wire originally ran across the floor of the MGB to the battery compartment. In the M.G. Locost the wire has been shortened and attached to a switch on the instrument panel. A second wire from the switch is attached to the fuel pump wire in the rear wiring harness, so that the fuel pump operates only when the switch is closed.

A solid red wire has been soldered to the positive lead on the alternator and routed to the fuse box. This wire has been attached to the harness branch that carries the ignition, alternator and temperature sensor wires.

Wiring to electrical components that have not been installed in the M.G. Locost, such as the side indicator lamps, has been insulated and secured to the wiring loom with electrical tape. Split loom has been fitted to the harness to provide further protection from the elements.

Although the original wiring loom was modified from a standard MGB loom, these modifications are not be required if a new loom is fitted. The main power wire (solid beige) to the fuse box will need to be extended by 3" on the new loom, however. Wire extensions to the radiator fan and defroster unit are not part of the MGB loom, and will need to be retained if the loom is replaced.

Chassis Grounds

The wiring loom contains three chassis grounding straps. Failure of electrical components not indicated by a failed fuse may be due to insufficient grounding, and each of the grounds should be checked and cleaned as needed to ensure proper connectivity.

The first ground is located in the trunk area, attached to the center of the rearmost upper tube. The second ground is located in the offside footwell, on the frame rail to which the removable scuttle is attached. The third ground is located just forward of the rear engine bay shelf, in front of the fuse box.

g. Electrical Components

Most smaller electrical components in the M.G. Locost are standard MGB parts. Many of these parts are specific to a model year, and should be replaced with components intended for a 1972 MGB.

The M.G. Locost uses MGB horns from any model year. There are two horns, each with a distinct tone, mounted on either side of the car between the two front upper wishbone pickup brackets. The horns are marked L (low) and H (high) to indicate tone, not position. The low-tone horn is mounted on the vehicle offside, and the high-tone horn is mounted on the nearside.

Windscreen wipers are operated by a two-position switch on the steering column switchgear. The position of the switch controls the frequency of the wipers.

A 12-volt ignition controlled power supply is available beneath the dashboard for use with an auxiliary component such as a radio receiver.

h. Headlights and Taillights

Headlights on the M.G. Locost are universal aftermarket units that employ sealed beam lamps. They are attached to a steel cross bar that is bolted to the upper front damper mounts. They can be adjusted for direction and height where they attach to the cross bar.

The headlight cross bar can be removed by first removing the nose cone, disconnecting all of the wiring, and then removing the four 5/16" bolts that attach the bar to the front upper damper mounting brackets.

When replacing the bar, note that it can only be attached one way. The upper damper mounting brackets are angled back five degrees to provide caster to the front suspension. For this reason, the base of the headlight bar is also angled back five degrees. If the bar is mounted incorrectly, the headlight supports will be angled back 10 degrees. When mounted correctly, the headlight supports should be level.

Taillights are Britax units supplied by Kinetic Vehicles in Cave Junction, Oregon. They are attached to the rear wings. Each contains a red rear position lamp, a brake lamp located in the same housing as the position lamp, a red reflector, and an amber direction indicator lamp.

Headlights, marker lamps, and taillights are operated by a two-position switch on the instrument panel. Taillights and front position lamps are illuminated in the first switch position, and headlights are illuminated in the second position. Headlights are dimmed by pulling back on the left side steering column stalk.

Note that the headlight switch is wired in series with the headlight circuit, and as such is subject to the full current drawn by the headlights.

i. Brake Lamps

Brake lamps are illuminated when the brake pedal is depressed, using a mechanically-actuated, spring-loaded switch mounted to the brake and clutch pedal box cover. The switch is closed when the switch pin is extended, and open when the pin is depressed.

Whenever the brake and clutch pedal box cover is removed or disturbed, check that the brake lamps illuminate when the brake pedal is depressed, and are not illuminated when the brake pedal is at rest. The switch is mounted on a 5/16" threaded rod that can be adjusted so that the brake pedal just opens the switch at rest.

j. Turn Indicator Lamps

The turn indicator lamps are standard Lucas L488 units, as fitted to many British vehicles in the 1950s and 1960s. They are operated by a two-position switch on the steering column switchgear. Green lamps on the dashboard to the left and right of the steering column flash when the corresponding indicator is flashing.

k. Reverse Lamps

Reverse lamps are illuminated when reverse gear is selected at the gearbox. The lamps are operated by a switch mounted on the gearbox case.

l. License Plate Lamps

Two lamps on either side of the license plate mounting plate are illuminated when the headlight switch is activated. These lamps are standard MGB units found on most model years.

12. Interior

a. General Description

The M.G. Locost incorporates a period-correct interior that is primarily covered in vinyl and wood grain veneer.

b. Seats

Seats in the M.G. Locost are custom built and non-adjustable. They consist of three sections, a single seat back attached to the rear bulkhead, and two seat squabs bolted to channels in the floor.

To remove the seat squabs, unsnap the seat covers and fold back the covering and foam to expose the four 5/16” bolts that attach the seat squab to the floor. Remove the bolts and lift up the seat squab. When replacing the seat, do not use bolts longer than 3/4” as this may damage the floor.

Aftermarket seats can be used to overcome the adjustment limitations of the fixed seats. It is possible to mount a new seat by removing only the seat squab, and leaving the seat back in place.

Aftermarket seats can be installed using either side mount flanges bolted to the floor channels, or by bolting the seat directly to the floor channels. Adjuster channels may also be used, but they will have to be fitted to the M.G. Locost’s 9” x 10” bolt pattern.

c. Seat Belts

Seat belts in the M.G. Locost are non-retractable 3-point units from Summit Racing. They are attached to the rear side panel in the drivers compartment and transmission tunnel in the passenger compartment using standard 7/16” seat belt bolts and captive nuts. Upper mounts are attached to roll bar brackets using 7/16” bolts and nuts. Receptacles are attached to the transmission tunnel in the drivers compartment and the rear side panel in the passenger compartment using standard 7/16” seat belt bolts and captive nuts.

d. Console

The center console in the M.G. Locost is made from two sections of .010 aluminium, covered in an oak veneer. They are bolted to the top of the transmission tunnel with ten #10 machine screws. The shift boot is attached to the forward console cover with four #10 screws and nuts. Do not attempt to remove the forward console cover without first removing the shift knob.

e. Interior Panels

Interior panels are constructed from 1/4" pressboard covered with 1/4" foam rubber and vinyl. They are attached to the interior using sheet metal screws and cup washers.

f. Mirrors

The rear view mirror mounted to the scuttle is a standard BMC unit as fitted to the MGA and other cars of the era. It is attached to the scuttle by two #10 machine screws and nuts. Side mirrors are aftermarket units.

g. Windscreen

The windscreen in the M.G. Locost was supplied by Kinetic Vehicles in Cave Junction, Oregon. It is attached by sheet metal screws to two stanchions on either side of the scuttle. Stanchions are attached to the scuttle by three 1/4" bolts and nuts.

h. Defroster

The defroster unit in the M.G. Locost incorporates standard MGB vents and nozzles. They are supplied with warm air by an electrical heater and fan unit attached to the top of the forward transmission tunnel. The heater and fan unit is operated by a switch on the instrument panel labeled DEFROST.

13. Body and Chassis

a. General Description

The M.G. Locost incorporates a one-piece steel space frame chassis and a separate body structure comprising aluminium, steel, and glassfibre panels. The body and chassis are custom fabrications, with no M.G. components other than the cut-down transmission cross-member that is welded to the bottom transmission tunnel rails.

The chassis derives most of its structural strength from the space frame constructed primarily from 1" square 16 gauge mild steel (A36) tubing. Additional strength is supplied by welded steel panels that include the floor, engine bay shelf, lower firewalls, and transmission tunnel panels. Aluminium body panels are not stressed members.

The floor and sides of the M.G. Locost are water tight. Any water or other liquid found in the passenger compartment must be removed immediately to avoid corrosion.

Two bolted-in frame members help to brace the chassis against front suspension stresses. A steel bar is bolted to the upper front damper mounts, and a steel tube is bolted between the lower rear suspension pickup brackets. The upper brace also serves as the headlight support bar.

Except for the nose cone and wings, all body panels are permanently affixed to the chassis with rivets. If any panel is damaged beyond repair and must be replaced, the rivets for that panel will need to be drilled out with a 1/8" drill bit.

b. Nose Cone

The M.G. Locost glassfibre nose cone was supplied by Kinetic Vehicles in Cave Junction, Oregon. It has been fitted with modifications for attachment fittings and clearance for the upper front damper attachment brackets. It is secured to the chassis by three quarter-turn (Dzus) fasteners.

A wire mesh grille is attached to the front of the nose cone by six 3/32" screws and nuts. The grille cannot be removed without first removing the nose cone. Removal of the nose cone is described in section 3.c. of this manual.

c. Wings

Front and rear wings are removable units. Aluminium front wings were supplied by Fenders 'n More. These are custom made, measuring 9" wide by 26" long, with a 33" circumference. They are attached to wing stays using 4 chrome head bolts and nuts each.

Wing stays are attached to the front suspension swivel axles at the steering arm attachment points. The stock 7/16” MGB steering arm bolts have been replaced with AN7-32 bolts to accommodate the wing stay mounts.

Glassfibre rear wings were supplied by Kinetic Vehicles in Cave Junction, Oregon. These are two-piece units. A glassfibre flange bolts to the rear aluminium sheet metal body panels using 12 #10 screws and nuts. The wing bolts to the flange using 8 #10 screws and nuts. Vinyl piping serves as a gasket between the flange and body panels.

d. Removable Scuttle

The scuttle is a separate unit attached to the space frame chassis by eight 1/4" bolts. Instructions for removal of the scuttle are described in section 10.a. of this manual.

The scuttle comprises the dashboard, upper firewall, and steering column mount. The windscreen assembly is bolted to the scuttle by six 1/4" bolts.

e. Roll-over Bar

A racing-approved roll-over bar is attached to the chassis at four points, using 3/8” grade 8 bolts and nylock nuts. To remove of the bar, first unbolt the upper seat belt anchors. Take care when extracting the bar to avoid contact between the rear mounting pads and the bodywork.

f. Body Repairs

Aluminium body panels can be straightened and filled using standard body repair tools and materials. Bare aluminium must be etched prior to painting. A self-etching primer can be used for this purpose, although better results may be obtained using a commercially available etching solution.

g. Paint

The M.G. Locost is painted in a shade of British Racing Green that was popular in the 1960s and 1970s. This particular shade is defined by any of the following manufacturers’ paint codes:

PPG Ditzler 43342
DuPont 8193
AWBG 21677
ICI 8120
RM 6607, BM079