

UNIQUE MANIFOLD AND THROTTLE CONTROL SYSTEM –Patent Pending 0922289.4



From a new throttle pedal and ready-assembled linkages - through to perfectly matched head ports with innovative template method

Over a two year period we have developed our new range, and up-dated our classic manifolds, in conjunction with 6 leading E-Type specialists in UK and USA. We thank them for their combined input in respect of design, fitting, engine performance and driveability, now incorporated in the final manifolds and linkages. The template matching system has been well received.

Manifolds – Quality castings are essential for water jacketed manifolds. Mangoletsi manifolds are specially tooled to be cast by a highly mechanised specialist foundry, who produce original equipment cylinder heads, blocks and manifolds for engine manufacturers, to BS9001 quality standards. Manifolds are cast in heat treated LM25, double impregnated and pressure tested. See website – www.mangoletsimanifolds.com/technical.



**One servo offtake to all six cylinders via unique Mangoletsi cast-in air gallery
Removes servo related flat spots under braking.**

The servo drillings are angled to enter the side of the ports. If drilled directly underneath the port, fuel may enter the servo system.

(Further manifold information – see page 2)

“Out of the Box” Fit – Much of the extensive development time was spent on refining all the components to suit the various different models and then producing dedicated parts, castings, hoses, hoesetails, etc. (see page 3)

All new fully adjustable throttle pedal assembly - unique “sliding set-up” carburettor linkage system(Page 4)

*“I had the pleasure of driving Harry's (E Type UK) EFI demonstrator a few weeks back and was mightily impressed with the smooth throttle response. Partly down to the EFI but also due to the throttle linkage.”
David Jones, Administrator, the E-type Forum.*

MANGOLETSI & JAGUAR GO BACK A LONG WAY

Jaguar World – E-Type 50th Anniversary - February 2011

“The Mangoletsi connection with Jaguar goes back pre-war, when George Mangoletsi, with Jack Harrop and William Currie, brought their Hassan prepared 3 ½ litre saloon home to become the highest British finishers in the 1939 Monte Carlo Rally. George also competed in XKs including the 1951 Tulip Rally. Son John joined the company back in the 1960s, when they were making inlet manifolds to take Weber carburettors. Today the manifolding has been substantially developed to allow the fitment of Weber/Dellorto carbs or injection throttle bodies. There is a choice of 45, 48 or 50mm intakes.”

QUALITY CASTING AND PRECISION MACHINING

The **inlet manifold** has become an important part of the preparation of concours engines. The top surfaces are carefully designed and blended with a flowing smooth profile for easy external polishing. Often the top face of E-Type manifolds has bosses, sensors and wiring on full view. The tapped bosses for sensors and wiring are hidden on the underside of our manifold. Straight ports of equal length for optimum performance – casting length 128mm – for carburettor applications add 8mm for O ring block.

Manifold Port sizes – 45mm, 48mm & 50mm

Most 48mm bore manifolds are often just opened up 45mm castings. **Mangoletsi 48mm and 50mm manifolds** are special new castings, with the port diameter progressively optimised from the carburettor end to the head to deliver maximum power.

Precision Machining



Jaguar 6 cyl. manifolds require very accurate machining; drilling depths above water passages have to be exact; and positioning of port centres and stud clearance holes must be absolutely precise.

For example - The centres of the dowel holes in the port matching template must be accurate within one thousandth of an inch, to match up with the centres of the dowel holes machined in a separate operation in the manifold head face. Otherwise, once the cylinder head has been drilled off the template, the dowels would not engage with the dowel holes in the inlet manifold

The very latest CNC machining stations provide the extreme accuracy required for all aspects of inlet manifolds and fuel rails.

Manifold carburettor ports - CNC machined central to the fixing studs to ensure an exact match.

Manifold outlet ports are CNC machined for matching to the cylinder head ports. The OE head ports are factory bored, but the centres can be slightly out of position to each other, and also to the stud clearance holes. Even if the machining of the cylinder head is reasonably accurate, there is always up to half a millimetre mismatching that can come from the clearances in the stud holes. Perfect alignment is achieved by our unique new head port template matching system. The ports are blended to the CNC boring and then **polished for optimum performance** and a perfect match

MANIFOLD OUTLET PORT to HEAD PORT TEMPLATE MATCHING SYSTEM Simple, accurate and quick to use.



Template 6mm thick fitted with two drill jig bushes, supplied with two dowels and 5mm drill.

The dowel holes are pre-drilled in the manifold in exact geometric relation to the ports and cylinder head stud holes.

- Step one:** The port windows are slightly larger than the port diameters of the head. Place the template over the studs. Move the template around until the optimum alignment with the cylinder head ports is achieved. Tighten at least six nuts, two in the middle and two at each end adjacent to the dowels.
- Step Two:** Scribe around the port apertures. Drill the two dowel holes
- Step Three:** Remove template. Centralise head ports to the scribed circles with flapwheel (supplied). Insert dowels
- Step Four:** Place manifold over protruding dowels – Bolt up

Reverse Port Matching

The template system has another valuable time-saving use - where the cylinder head has already been opened up, the template can be matched to the cylinder head and the manifold matched to the shape of the template.

See Template Port Matching System Full Instructions – supplied with kit

INSTALLATION AND FIT

Traditionally the standards of engineering and fit of many aftermarket components have relied on the skills of the installer, but with the high cost of labour, this is no longer acceptable. The installation costs can often exceed the cost of the equipment. We would like to thank 6 of the country's leading restorers and engine turners for their patience over two years, assisting us to develop components that would fit straight on "out of the box".

Every effort has been made to speed up the installation times. The linkage cross-bar running in the 3 rose joints comes fully assembled with the aluminium billet levers and the slotted adjustable main operating lever. The throttle pedal assembly is fully built, and fits straight back into the foot-well aperture. Full instructions are supplied, and some useful spares provided.

We accept that inevitably there will be some new situations to address. With each manifold system you receive a Feed-back form. We would welcome any information that leads to improving the product, and it also enables us to give you appropriate advice.

STANDARD E-TYPE COOLING SYSTEMS RETAINED

One of the major problems of changing the manifolding on an E-Type is re-plumbing the cooling system, which passes through the inlet manifold. In most cases the original hoses will not satisfactorily line up with an aftermarket Weber manifold and thermostat housing. With most aftermarket manifold cooling systems the by-pass system is either discarded completely or by-passes the thermostat, feeding back into the top radiator pipe.

The Mangoletsi manifold and thermostat housing are designed to keep exactly to the original cooling system design and flow of each model:-The internal machined slot in the manifold part of the housing is slightly wider than original for a better flow and connects directly to the hose-tail. A rebate in the flange is machined to accept standard thermostats and aftermarket ones, some of which have been found to be oversized on the main diameter. The 3.8, 4.2 Series 1 and Series 2 all have different cooling lay-outs and, for ease of fitting, the correct hose tails and moulded pipes are supplied, as shown below:-



<<< **A four-stud thermostat housing**, for better sealing, is designed with the by-pass hosetails below the main radiator hose. This greatly enhances the look of the engine and is designed with smooth contours to enable a high standard of polishing to be achieved. The by-pass hose-tails, clips, etc., are virtually out of sight from above.

Heater and servo Connections –

Manifold to bulkhead moulded silicon heater pipe and stainless clips >>>
Servo connection positioned neatly over servo tank for RHD cars. Tapped on other side of air gallery and plugged for LHD car



<<< **Thermostat housing** - Showing interchangeable 15mm and 7mm hose tails to connect existing water pipes for the 4.2 Series 1 and Series 2 E-Types. On the 3.8 the 15mm hose tail also connects the by-pass to the water pump via the specially moulded silicon hose

Sensor connections –

Neatly packaged on the manifold underside. Removable plugs fitted. >>>
No. 1 Boss (closest to thermostat housing) tapped 3/8 BSPT
No. 2 Boss (centre) tapped 12 x 1.5mm – injection temperature sensor
No. 3 Boss tapped 5/8 UNF – temperature sensor.



ALL NEW THROTTLE PEDAL ASSEMBLY

Unique design removes lost motion, gives extended leg room, adjustable pedal travel and you can customise the location of the aluminium billet pedal to the brake pedal.

There are major problems with the original equipment throttle pedal assembly and rod linkage system. The basic design already has 3 areas of substantial lost motion in transmitting accelerator pedal pressure through to the injection/carburettor levers, before taking into account the excessive wear that also occurs :-

- The pedal lever can travel up to 15mm before it engages with the linkage lever
- The RHD cast pedal box is not fitted with bearings and wears quickly
- The pedal and linkage levers, and another bush, rotate on the threaded portion of the 8mm cross-bolt.

Next, the ball end joints and swivel tree levers also have substantial lost motion, even when new. Further adverse features include:-

- A very flimsy throttle pedal lever, which bends easily, and is not normally in a good position for operating the brake and accelerator pedals simultaneously
- Many drivers find the lack of pedal travel gives very cramped leg room.
- With some Weber and injection conversions, the proximity of the end of the linkage cross-shaft to the bulkhead can, under certain circumstances, cause the throttle to open randomly under hard cornering.



The new cast pedal box replicates the original design and fits directly back on to the original bolt holes. An integral cast arm holds the outer cables. The pedal box is fitted with 22mm oilite bushes, which carry a solid flanged cross-shaft that passes through a sleeve attached to the pedal lever. Therefore there is zero lost motion, or opportunity for wear, between the two levers.

For ease of installation the pedal box comes pre-assembled, and the pedal lever has a flat section, which passes through the rectangular hole. The side view of the lever shows the new profile, which enables the lever to reach the end of the foot-well, giving substantially more leg room. A curved aluminium billet throttle plate attaches to a second pedal lever, which replicates the profile of, and bolts to, the primary lever.

The lever backing plate, to which the billet throttle plate attaches, has a matrix of three rows of three holes, so the plate can be moved laterally and up or down to provide the optimum relationship to the brake pedal.



The rotation of the pedal box linkage lever is controlled by an adjustable stop for the fully open position, and another adjustable stop for fully closed. This permits a pedal travel of between 30 – 50mm. These two stops also control the distance of the pedal plate from the end of the footwell and its relationship to the brake pedal.



High precision low friction rose joints attach the inner cables to the linkage lever. The outer cable carriers are fitted into a bushed swivel to reduce friction on the inner cable, and the outer cables (nylon lined) are supported to stop cable sag.

RHD cars – please specify when ordering.

3.8 cars with Kelsey Hayes servo - **Part no 4496**

3.8 cars without KHS and all 4.2s – **Part no 4494**

LHD cars – 3.8 and 4.2 – Part No. 4495

A new direct replacement cast pedal box has the same features as the RHD pedal box. On the LHD cars the unsatisfactory organ throttle pedal is discarded and the pendant pedal (as illustrated) replaces it.

SLIDING SET-UP LINKAGE SYSTEM Patent Pending 0922289.4

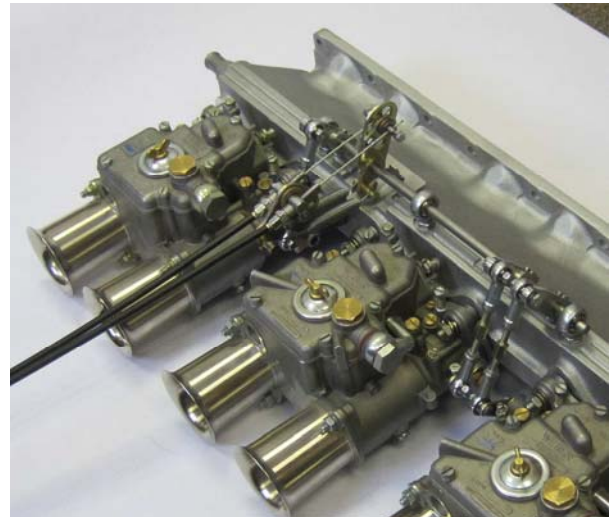
Linkage fits only Mangoletsi manifolds – not sold separately

The Mangoletsi linkage system is designed and engineered as a complete throttle control system from pedal to carburettors or injector throttle bodies.

For immediate throttle response-

Most ball joints have built-in end float, and normally rose joint spherical bearings are very stiff to rotate. Mangoletsi use aircraft standard rose joints, which rotate smoothly with zero end float. These are the heart of the system.

The main stainless steel operating cross-shaft runs in 3 closely positioned rose joints, for minimum deflection, and CNC'd perfectly in line for friction free rotation. The aluminium CNC billet levers are clamped and also permanently located with grub screws in countersinks on to the cross-shaft, all at the same angle, and in line with the carburettor levers (supplied). A left/right hand threaded hexagon adjusting bar connects the rose joints to the levers. The slotted main operating lever is bolted in to the cross-shaft. The 3 rose joints, cross-shaft and levers come ready assembled on the manifold.



“Sliding set-up”- absolute simplicity to set Pedal Travel Spring Tension Linkage Stop

- Pedal Travel** Slide cable clamp assembly along slots until throttle's fully open and fully closed positions achieved - tighten
- Spring tension** Slide spring/cable carrier assembly until a good balance between idle shut off and pedal feel is obtained – tighten.
- Linkage stop** Having set the above, adjust the full throttle stop screw on the linkage bracket and lock it in position when the lever strikes it with the throttles are full open

All rotating components run in replaceable oilite bushes for long life and smooth operation.

SETTINGS - MANGOLETSI SLIDING SET-UP LINKAGE SYSTEM

LINKAGES AS WE KNOW THEM

Usually aftermarket linkages arrive as a bag of parts with little detailed information on assembly and set-ups to obtain optimum drivability. This table is only an illustration of the surprisingly dramatic changes that occur when relatively small changes are made to lengths, angles, etc. They create widely different rates of throttle travel and consequently, pedal feel, response, and performance progression.

DRIVING STYLE OPTIONS For illustration purposes only	Aluminium levers Hole 1-3	Rose joint hex adjusting bar centres	Throttle pedal travel
Long pedal travel – progressive response	1	88 mm	48 mm
Neutral characteristics	2	93 mm	40 mm
Short pedal travel – very quick response	3	90 mm	30 mm

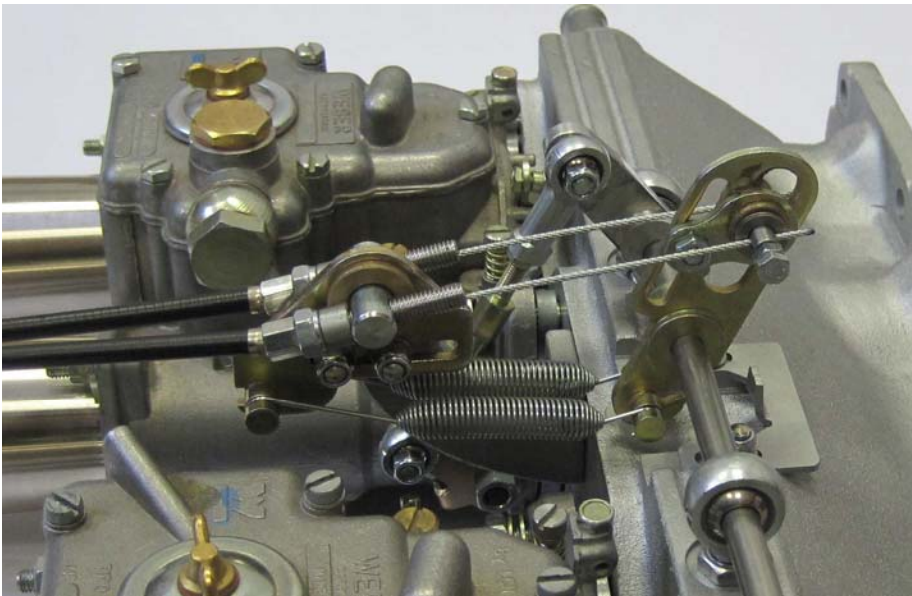
THE MANGOLETSI SOLUTION FOR SETTING-UP LINKAGES EASILY AND CORRECTLY

Full instructions come with a simple table of settings. There are 3 options to provide for shorter or longer pedal travel and a slower or faster rate of throttle opening. These allow variations throughout the rev range to match your driving requirements and the engine performance curve. The ability to make these changes can transform the feel and drivability. The choice is now yours to suit your driving requirements. The unique ability to easily adjust your linkage opens up a new dimension in performance tuning.

The linkage and pedal assembly come pre-set for neutral characteristics. Fit – Turn the key – and then experiment at your leisure

CHOOSE OPTION for required driving style

1. **Set** pedal travel on new pedal assembly.
2. **Select** hole in 3 cross shaft levers
3. **Set** centres of rose joint hex adjusting bar
4. **Set** carburettor throttle plates – open half a turn
5. **Slide** cable clamp plate along slots in main operating lever to match pre-set pedal travel
6. **Set** main operating lever pedal travel stop.
7. **Adjust** pedal pressure by sliding twin spring tension carrier plate



See full set-up information,
supplied with the kit

Mangoletsi

DESIGN

The unique Mangoletsi designs are protected by international copyright law
and Patent Pending No. 0922289.4 .

APPLICATION & PRICE LIST 2012

UNIQUE MANIFOLD AND THROTTLE CONTROL SYSTEMS Patent Pending 0922289.4



A complete kit from a new throttle pedal and ready-assembled linkages - through to perfectly matched head ports with innovative template method

Weber carburettor manifold kit Includes:- Carburettor levers, O ring blocks and rings; studs, nylok nuts, double coil washers	When ordering please specify:- 3.8 or 4.2 RHD or LHD	PART NO.	GB£ ex- VAT
		4490-45	990
		4490-48	1,020
		4490-50	1,050

Fill in Enquiry Form (end of document) confirming specification of your car to determine which kit you require

Specification Includes:-

All models	Twin cables; (specify RHD or LHD) Spares kit – oilite bushes; Specialised hardware – nuts, washers, grub screws, Allen keys, etc. Throttle pedal assembly includes adjustable long reach lever with adjustable billet aluminium pedal plate. Silicon moulded hose with new hose tail from manifold to bulkhead – stainless Jubilee clips. Servo hosetail fitted on side of air gallery for easy connection to servo tank. Bosses on underside of manifold 5/8 UNF, 3/8 BSP, 12 x 1.5mm with removable plugs.
3.8	Thermostat housing, new hosetail, silicon moulded hose to water pump – stainless Jubilee clips.
4.2 Series 1	Thermostat housing, new hosetail to connect to 15mm original pipework,
4.2 Series 2	Thermostat housing, new hosetail to connect to 6mm original pipework.

Full instructions & Customer feed back form supplied with each kit - Over a two year period we have developed our new range, and up-dated our classic manifolds, in conjunction with 6 leading E-Type specialists in UK and USA. We thank them for their combined input in respect of design, fitting, engine performance and driveability, now incorporated in the final manifolds and linkages. The template matching system has been well received. However the final judgement is by the customer –,if you have any comments about the installation, we would like to hear from you. JOHN MANGOLETSI
avtman@talktalk.net

Fits “Out of the Box”

Many pre-assembled components - Quick set-up and tuning - Save time and money!

The unique Mangoletsi designs are protected by international copyright law and Patent Pending No. 0922289.4 .



MANGOLETSI JAGUAR E-TYPE 6 CYLINDER MANIFOLD KITS

ENQUIRY FORM

Return to avtman@talktalk.net

MODEL 3.8 YEAR _____ CHASSIS NO _____

Application	LHD	RHD	Bore	Part No. Bore options
Carburettors				4490-45/48/50
Classic				4490-45/48/50 CL
Head Port Injection				4497-45/48/50 HP
Injector in throttle body				4498-45/48/50 TB

MODEL 4.2 Series 1 YEAR _____ CHASSIS NO _____

Application	LHD	RHD	Bore	Part No. Bore options
Carburettors				4490-45/48/50
Classic				4490-45/48/50 CL
Head Port Injection				4497-45/48/50 HP
Injector in throttle body				4498-45/48/50 TB

MODEL 4.2 Series 2 YEAR _____ CHASSIS NO _____

Application	LHD	RHD	Bore	Part No. Bore options
Carburettors				4490-45/48/50
Classic				4490-45/48/50 H
Head Port Injection				4497-45/48/50 HP
Injector in throttle body				4498-45/48/50 TB

NOTES – Please give any information that may affect installation space

NAME _____

COMPANY _____

LANDLINE _____ MOBILE _____

EMAIL _____ FAX _____