THEN WE COME BACK TO EBO.

Strange how things turn out; ----SE 492 Chassis 87, EBO had been re-registered back in 1963 and was heavily converted to run with a Triumph 6T engine.

Triumph 6T was an old 1955 650 cc motor bike engine.

Old motor bikes have to be kick started, yes but this one was converted to electric start.

They got around the starting issue with a 1930's Lucas inertia starter motor.
A very rare item used on MG cars, it got snapped up as soon as it went on EBay.

This was set up on home made brackets that slung it under the engine; it must have bounced off every stone or curb it ever met, it was that low.

Its bendix gear was made to engage with an external fly wheel and starter ring gear. It fitted to the crank shaft by adapting the flywheel to fit on the engine sprocket splines.

The engines crank shaft spring damper was now missing and not used.

Flywheel was exposed to any poking fingers or hanging ties, it would have been lethal should the bonnet have been opened with the engine running. The 18 inch flywheel had no guard around it what so ever.

The primary chain used was the Excelsior duplex type that ran in side a crudely attached Arial twin chain case up to an Albion Clutch and a 17 T sprocket on to a TR gear box.

Unlike with the Excelsior engine or a Royal Enfield the gearbox on these normally fits to studs on the crankcases.
This set up had to have an adapter made, a set of engine / gear box plates similar to that of the pre unit contraction motor bikes of the day.

Unfortunately this one was partially made with a piece of 4 x2 steel channels, almost ½ inch thick.
More heavy plates then controlled the Differential. Heavy duty or what.

Bet it never got twisted though.

The drive for more power from the Excelsior two stroke and a move up to a 650cc four stroke could have been forgiven, if that had been carried on into the upgrade of the transmission.

All that effort was unfortunately thrown away by using the two plate Albion clutch. This is as originally used with the HJR 3 speed and reverse box that is the smallest clutch Berkeley ever used, perhaps good for up to 18 HP.

With the Triumph's greater power now available, it must have slipped all the time.

Ok , the gear box was upgraded to a four speed and reverse TR gear box , but these boxes are also known to be very weak . They were derived from the early HJR three speeder boxes. Apparently by using smaller gears in the same case, enough room was made to make it to a four speed box.

Note TR only lasted for a brief spell as, Albion bought out a much bigger VR four speed gearbox , with a three plate clutch, this would go on to be fitted in almost every other Berkeley.

Perhaps the tiny clutch used, is the reason the TR gear box has survived. Even though it had no oil, it was filled with grease. Filler cap still has a grease nipple in it now.

I guess any performance gain or loss, as in this case, did not really matter as the open pipes of the twin exhaust coming out the Triumph 6T would have made a great noise.

Not only did this slant door SE 492 get its power train replaced, but for what ever reason, they found the bigger, later vertical edge doors were required on it.

To make that happen, it looks as if the car's front end was cut off. Cut off across a line drawn from the centre of each wheel arches, removing the dash, scuttle and A post.
A later vertical edge door car was then also cut up and its outer skin, transplanted, the small slant doors were just enlarged to fit, this was done by adding more GRP resin and matt.

In fact during my restoration of this, and just to prove a point, I managed to pull off that poorly bonded GRP mat to expose the original small slant door, hiding inside.

The butt joint, across the front and scuttle and the doors were not the worst of the "Repairs", In fact the punt had been split into three parts, perhaps by bouncing across the fields. It was said to have competed in Auto Cross , (more like a bunch of lads thrashing old cars around in a field) The splits were held together with home made staples and metal strips , tying the GRP splits together every three inches or so, I guess a bit like how they repaired old pots. Then layering more, GRP resin and mat over the top of the split.
The nature of this type repair has meant in some areas, the repair was over one inch thick. , but it lifted off easily with a chisel under it, the joint if you can call it a joint was still covered in oil and paint.
Now that's a lot of GRP on a Berkeley

Perhaps I should not go on about the way it was, after all, that work just might have been done with out any proper tools in the street or back ally. What ever I recon who ever did it, must have had a lot of fun.

The things we used to do.

My restoration hopefully, will get it back to something like the factory had intended.

Triumph 6T Engine



One saving grace in all of this was that the money I got paid for the starter motor and then later on the money I got from selling the 6T engine has more than covered the cost of the car and bits that I had purchased in 2007.

So from now on in we were equal, not that any of us count the cost of restorations.
Nore do we let on, just how much we do really spend on our hobby.
Best not to upset any one.

Car is now inside the workshop, its engine removed



The Hard Tops are nothing to do with EBO,
Note the unique shaped of the bonnet

This car had been purchased by me in 2007 with a load of other bits as I prepared for the LBL rally and stored first under tarps and then in my new wooden double car garage but such was the condition I found it to be in and even though I had rescued other lost cause cars, this one was all a bit much,

This was originally Chassis 87 a Sports SE492 a rare in UK Export spec car. I had been in touch with another owner Phil Mc Cabe in USA who has Chassis 86 over there, and later Gary Storrs who had another also close to it. So I had ready and willing partners to help in sorting out the specifications.
Several things were very different on these few export cars.
All had the later single droop dash; most Sports retained the early double droop dash.
The dashboard instrument and switch layout different
Depending on where it was sold, some cars had to have 7 inch Sealed beam head light and other places the standard 5 inch lamps were allowed
The indicator lights and indicator switch were wired differently
They were not fitted with separate (amber) rear assemblies but instead utilised the high power side of the dual filament rear bulbs as combined (red) brake and indicator lamps.
This requires a completely different indicator switch to that found in UK
The hood sticks were two leg three hoop types.
Opening side window often not always just on driver's side.
The door and sill sealing rubber is again completely different to cars normally found in UK

But we were good to go.

I had decided that the front was so far removed from the original that it was so poor and was only fit for repair sections and it just had to go. There is a GRP company CASCO that offer new made Berkeley panels I got a bonnet from them , very nice to , and promised to make a new front end, after over a year of waiting and asking came to nothing , so went about looking for another option.

Mike Rhodes a Berkeley collector, well he has lots of cars, but still to get around to restoring. Well he had a recently purchased a 328 project shell , the front end of it was off , a different colour to the rear , but never the less was the correct period and shape for me. This car had apparently spent 40 years out side in a pond, not a lot of metal of any type survived, I don't think any even good enough to use as patterns. He had to admit he would never have restored it anyway.
The deal done, I got the shell and bits I purchased home, the bits I wanted and the front end I wanted was put to one side.
The remainder bits, along with all my old spare parts , doors ,bonnets ,boots , fronts and rears that I had collected over the years were laid out. These were photographed and made available for offers as a job lot. Desperate for room now.
Geoff Toyer came with an offer and took it all away; he wanted some and other bits went on to another project he was helping out with. Such is the nature of Berkeley restoration.
The metal inner wings in the donor shell was scrap, the metal inner wings in EBO were good, so both had to be skinned of GRP. The good metal re used and bonded back in to the donor GRP shell. Not easy, but necessary as this kept as much of the original car as possible.

Now see it with export spec single droop dash and most grp repairs made.
Inner wings will be bonded in once it is sat back on the punt.

Skinned donor shell, Now complete with switches, lamps, meters and AC Speedo



With the front off EBO you can see the lower suspension tray is bent and cracked some form of electrical conduit is used to stiffen it.
Red metal is all scrap

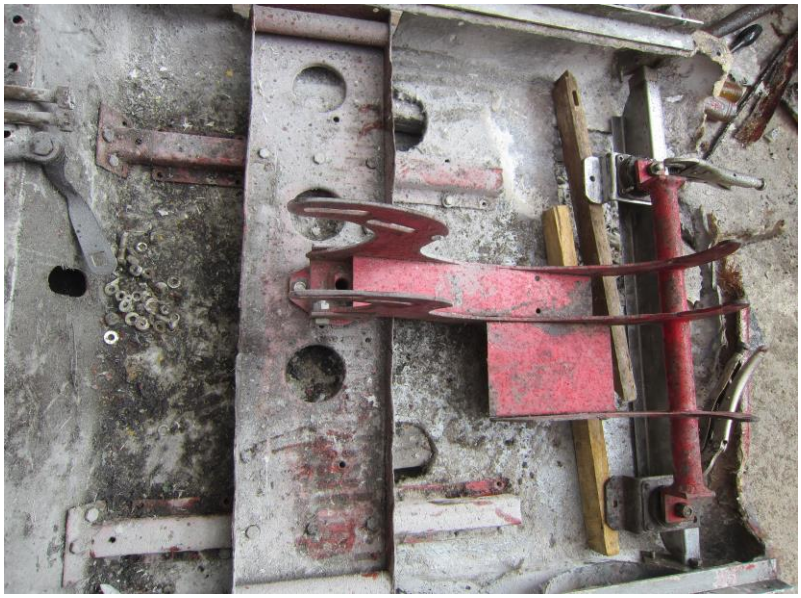


Once the alloy cross members are removed, the extent of the GRP splits was seen.

That said with almost a bare punt now I was able to effectively grind out the old split repairs out, to get good clean grp and carry out some effective repairs.
Any other car, a new punt might have been used, but I want to keep as much originality as possible
Next to repair the front end and engine bay floor, the only way is to cut out the old and now very thick punt floor and make good by laying up a new one with grp and mat.
Starting to see the light.

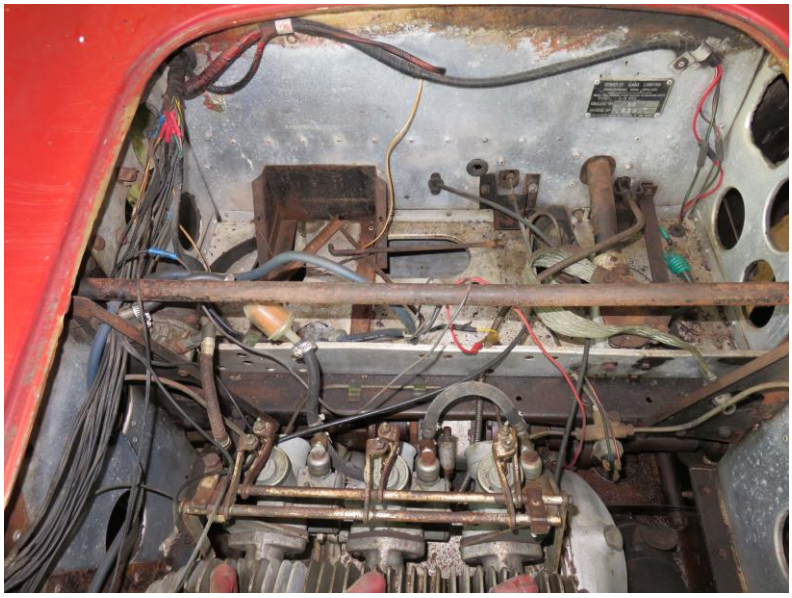


As most of the Excelsior engine bay metal had been taken out new Top Hat section bearers had to be made , its front cross members position had been lost , so by using a spare engine cradle sat on the lower suspension tray, who's position was know, it was easy enough to re position and drill the holes.



The export spec car had a different, but simple layout in the engine bay, EBO had lost all that with the additional of separate oil tank for the Triumph four stroke engine and all the other changes.
Phil came to the rescue with some photos of his un restored car, Chassis 87.
His wiring looks suspect, but everything else looked factory, so this is how it would copy it for EBO, just change it over to LHD.

Simple layout in the engine bay of RHD car Chassis 87

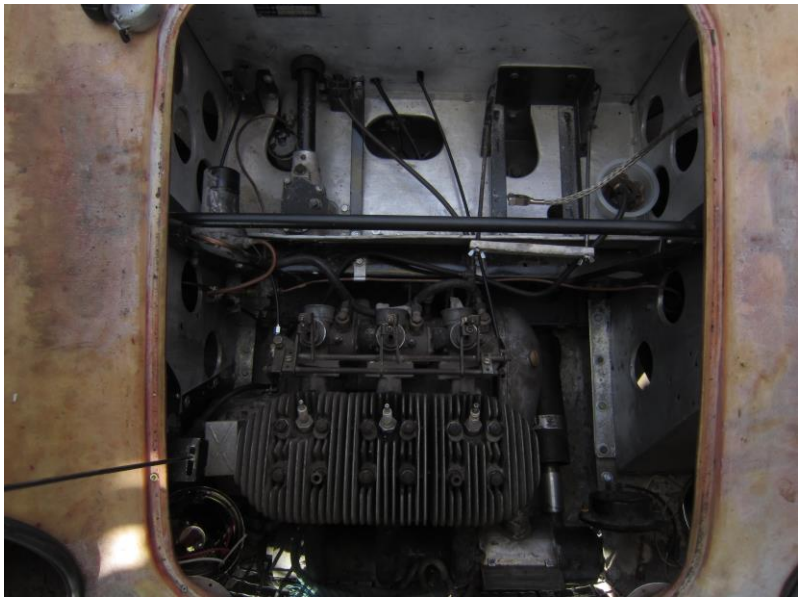


Now with my newly made alloy tray and the newly clad bulkhead in the front end both back in the car.
These cars originally had all the holes in them ready for both left and right hand drive.



Engine is in temporarily fitted in the completed and assembled LHD engine bay.
Next to strip it all out again.
The engine has the Big Points type and has had its Dynastart housing machined out to all most 70mm,

Engine is in temporarily. The rest to be polished or painted.



Getting the export style wiring sorted

A great help came from Garry Storrs in USA.

He has spent hundreds of hours with two of his un molested cars, measuring and recording every fact, length and colour of the wiring looms.

He has presented his findings on the Berkeley USA Yahoo www pages, along with the diagrams.

So good that you can even see the terminals inside all the switches if you zoom in, just great for re wiring, or even fault finding.

I purchased more or less just what he said and made my loom from scratch.

From Auto Sparks and Vehicle Wiring Products

I did have to scratch around for some of the colours but 99 % was found.

Years ago BEC published an explanation of the Export Indicator wiring and I will copy Facts? and Figures Part 9 directly here.

I will copy Garry's written wiring document later, at the end of this section.

Facts? and Figures - Part 9

Export Indicator Wiring

For certain export markets, Berkeley four-wheelers were not fitted with separate (amber) rear indicator assemblies, but instead utilised the high power side of the dual filament rear bulbs as combined (red) Brake/Indicator lamps.

When the indicators are not in operation, both rear lights function as brake lights, with the tail light (low power) filament fed by the light switch.

When indicating without braking, the front and rear lamps on the relevant side both flash in "normal" UK style (apart from the colour).

When braking, indicating takes priority, so the front and rear lamps on the relevant side still both flash, BUT the rear lamp on the other side still functions as a brake light.

This can be confusing for restorers armed only with the UK wiring diagram, as it is achieved by the use of a different switch assembly and, since this is not a UK fitting, we have never seen one to be able to record the differences. Thanks to Colin Overy and Jeff Upton in Ontario - we now have the relevant details.

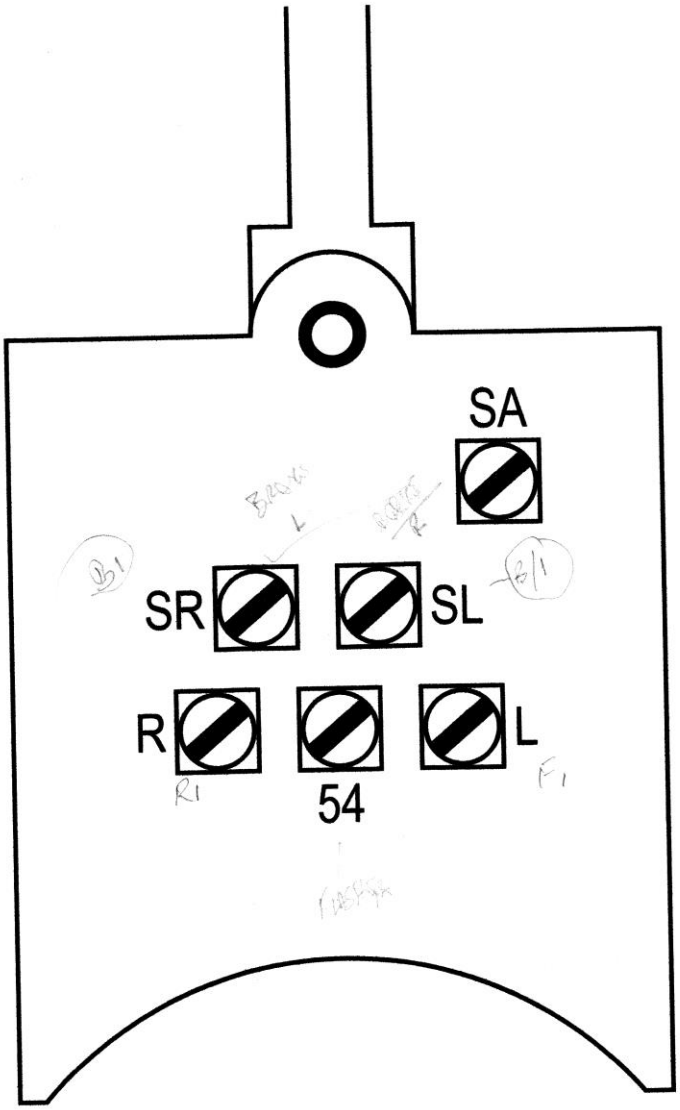
The standard indicator switch input and output terminals are connected to the flasher unit and front lamps (as per UK and all other cars with seperate rear indicator lamps), but an additional input terminal is provided for the brake switch and two seperate output ones for the left and right rear lamps.

Terminal layout, wiring details and switch functionality are shown overleaf, but the overall effect is as follows :-

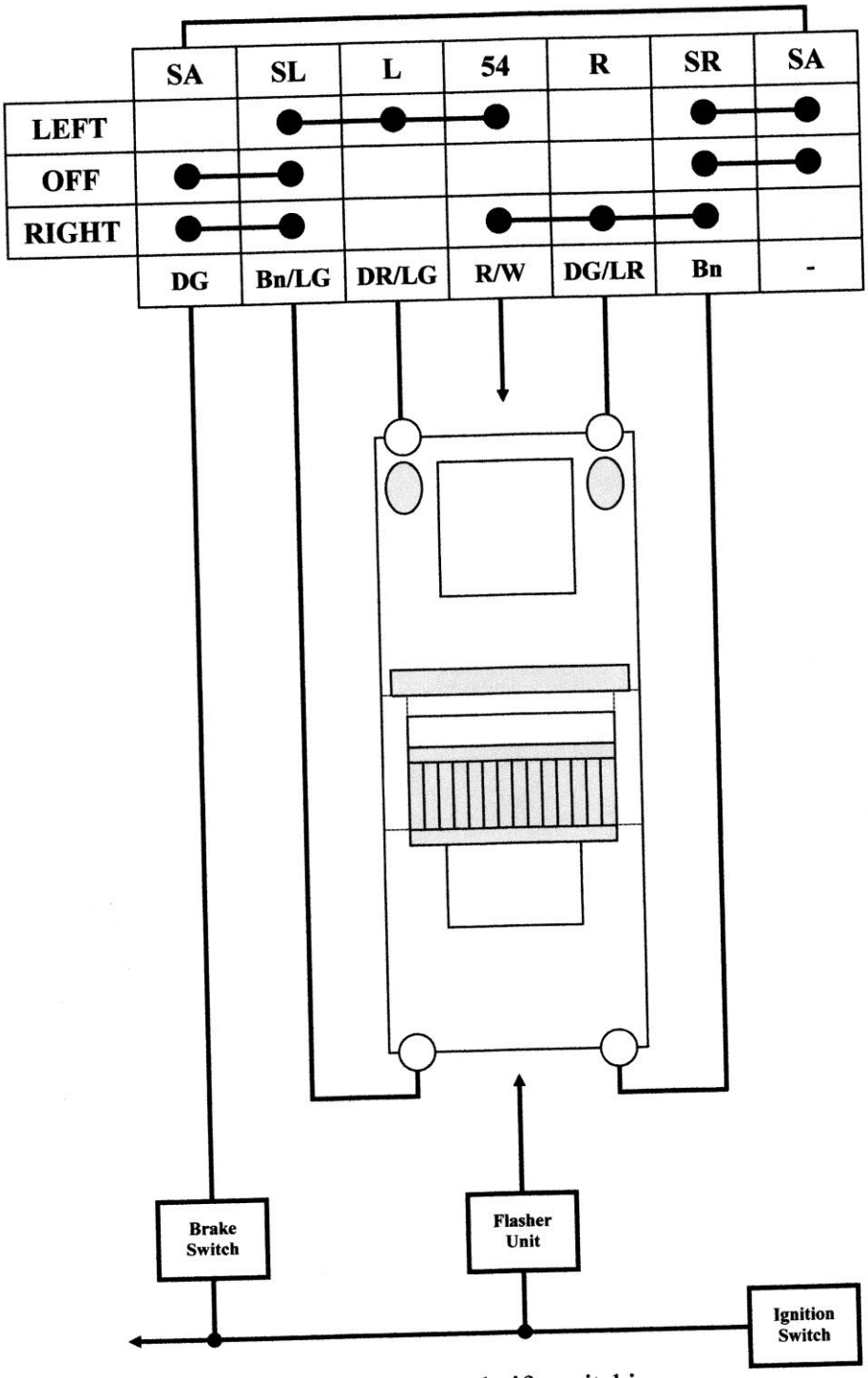
LEFT	Leaves the brake switch connected to the RH rear lamp, but connects the flasher unit to the front and rear LH lamps
OFF	Connects the brake switch to both rear lamps
RIGHT	Leaves the brake switch connected to the LH rear lamp, but connects the flasher unit to the front and rear RH lamps

NOTE

Wire colours stated on the following pages are based on those listed in the club wiring schedule which is thought to be correct for all later cars. However, they are not necessarily those which will be encountered on early models and it should also be noted that the colours may fade or darken with age, depending on where and how the vehicle has been stored over the last forty years or so.



Terminal	Wire Colour	Line Function
54	Red/White	INPUT from Flasher Unit.
SA	Dark Green	INPUT from Brake Switch.
L	Dark Red/Light Green	OUTPUT to LH front indicator lamp.
R	Dark Green/Light Red	OUTPUT to RH front indicator lamp.
SL	Brown/Light Green	OUTPUT to LH rear indicator/brake lamp.
SR	Brown	OUTPUT to RH rear indicator/brake lamp.



NOTE - Terminal SA is shown twice to clarify switching.

HELLA indicator switch
To find the correct HELLA indicator switch as required to make this system work was an impossible find, here in UK, but our friend across the water, by the name of Harry Connors in USA was able to find one and send it to me.

The dash switches and Indicator lamps were found by Nigel Halliday BEC spares.

Impossible finds,
Same issue with the windscreen wiper system, in UK we have worn our wipers out years ago and have stuck just about anything thing on that could be made to work.
To find something original to the car is very difficult.

Again Garry and Phil came to the rescue, Phil in fact at one time had to dig his way through snow, into his garage, to take some measurements for me, I forgot the weather can be far worse in some parts of the USA than here and can hang about longer.
Well we find that originally it had SWF wiper arms fitted, some call them Rat Tail wipers as the arms are just a thin spring steel wire, with cast alloy bases.
These also were used on the very early Porsche Sports cars, asking price on E bay hundreds of pounds, Ouch.

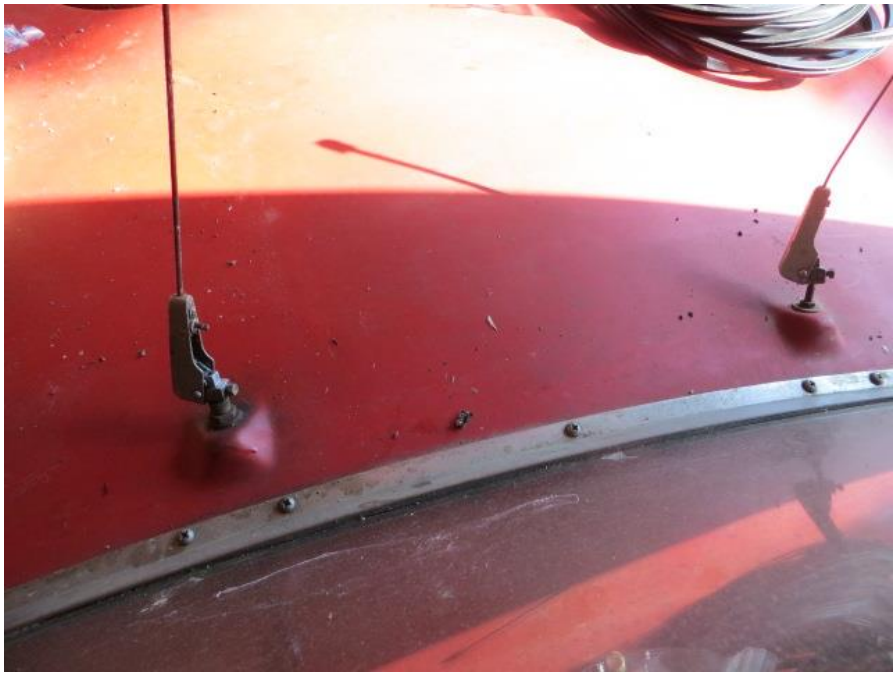
Drivers side is driven directly by a small SWF wiper motor under the dash , with passenger side arm pivoting on a fixed pillar and driven from a arm across the outside of the screen coming from the drivers side , Tandem Wiper style.

As I like to make things, I made a copy of the SWF arms out of brass with some steel bits and soldered it all together. Seems to work fine.

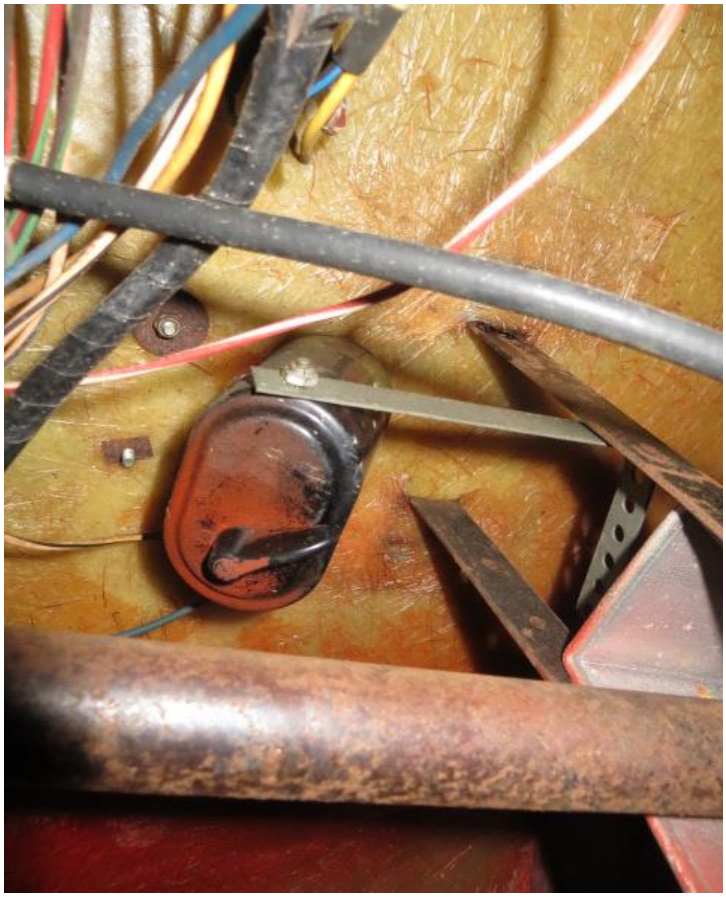
SWF Original Arms USA



SWF Original drive pins USA



The SWF wiper motor under dash in USA



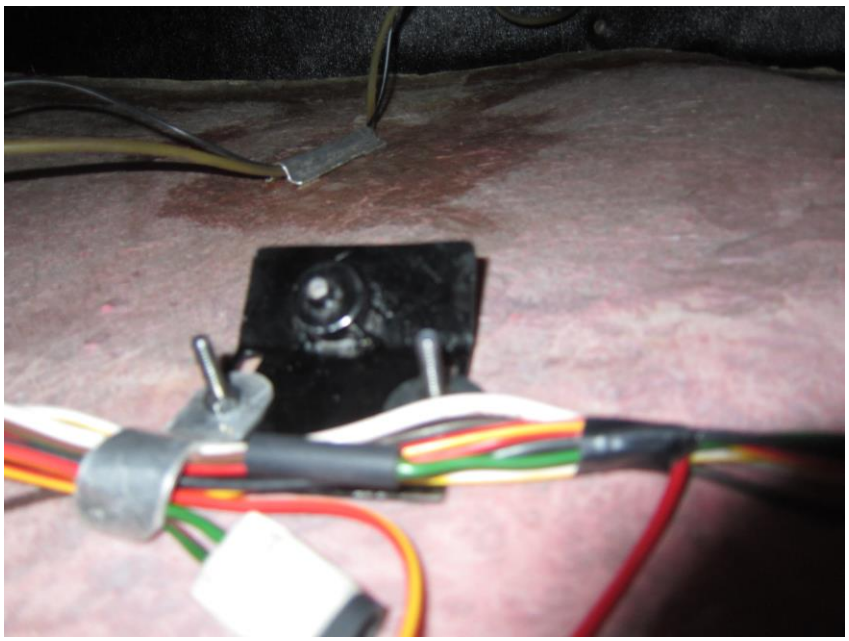
The passenger side idler shaft is fixed, solid. It is the base of the arm that moves around the pin, moved by the rod across the screen. The grove in the pin and a screw in the base stop it from flying off but keep it looses enough to move. It's no wonder not many survived.
I found a better method was to make a small plate under the dash and allow the shaft to rotate in it,
The arm base can now be locked onto the pin, same as drive side with a locking bolt

Fixed idler shaft



Passenger side wiper pivot, moves on the bracket, the arm base can be locked onto it with a locking bolt

Under dash wiper pivot



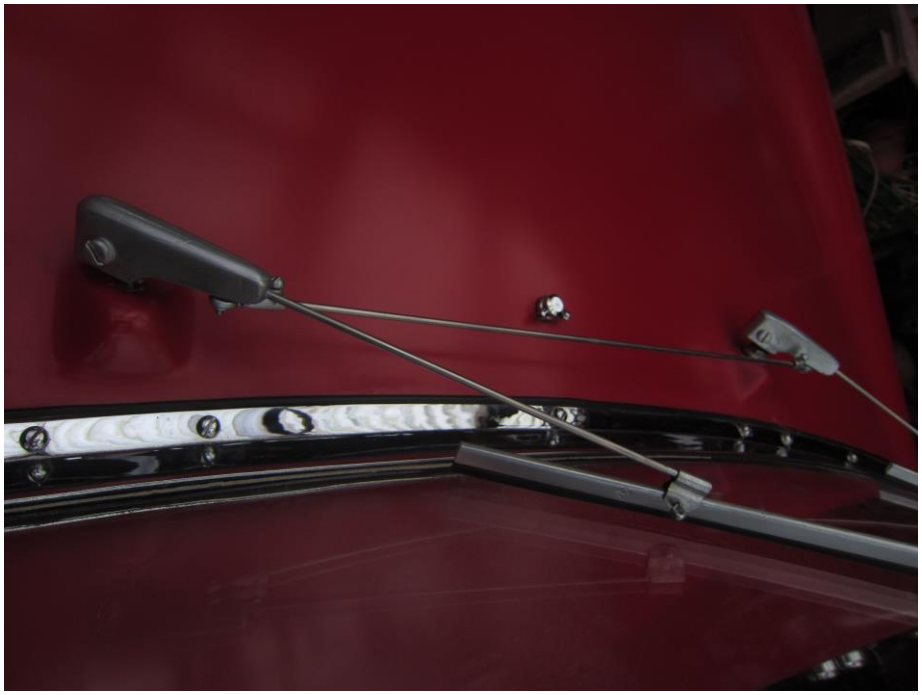
Higgy built copy SWF rat tail arm



Higgy built copy SWF rat tail arm



Painted Higgy built copy SWF tandem wipers on EBO.



Mirror
Cars of this period had rear view mirrors mounted on the top rail of the Chrome windscreen surround, on later cars the mirror was changed and was fixed to the dash.

How to find the correct make and size of a top rail mirror, nothing recorded and most owners over time fitted seem to have just fitted what they felt was best.

If you fix a dash type mirror to the windscreen's top rail, its stem will stick in to wards you at eye level, no good if you want to keep both eyes.

The correct version rear view mirror when mounted on the top rail needs be made so its stem hangs down, almost inline with the windscreen glass and the only one to use in that position.
You can understand the reason it changed in all later cars.

Back to USA again. I got sent several photos, of cars with mirrors , that confirmed my thoughts , but then found in among my collection of bits , a mirror stem that looked correct and would fit.

Only the glass mirror its self was missing, using the Brooklands Book and photos as a guide, I could estimate the mirrors proportions and size by comparing it to the thickness of the windscreen frame. Simple mater then of getting that size mirror,

USA rear view mirror



This will poke your eye out



Windscreen top rail Rear view mirror

This is what I made, but then found an original stem



BENCH SEAT

These cars had full frame bench seats, although the Berkeley Sports, slant door cars in UK would have had a single spine seat type with separate Pirelli rubber straps fixed directly into the punt alloy cill and with a separate seat back and seat base.

They were fluted and stuffed to make them like separate cushions.

Some export cars were equipped with the full frame bench seat, perhaps to appeal more to the bigger driver.

These are covered completely with a vinide leather cloth material and to attempt to make it look nicer they had embossed outlines of cushions on to them with a double line.
This embossing process has largely been forgotten about, small embossed door cards or on seat backs can still be made today.
To find someone embossing on to material, 48 inch x 24 inch.

No one had any idea how.

Embossing

For other cars I had replicated these lines with stitches, sewn into on the material.
In an attempt to have lines, no other way was possible

I visited several firms, some would suggest they could do it if there machine was
Big enough, but would not make the tooling, most just not interested.

Eventually I met some one in the motor cycle seat cover manufacturing business, Bob Dillingham , who runs a company MORRETTI, who had a machine that was long enough for all they embossed and would just about get my 48 x 24 of leather cloth on it.
Machine cost £48,000 and it is, key to his business.

Tooling for embossing

The problem was the tooling, it would he said, cost thousands to design and build such a thing I was asking for. I was able to see the various tooling they used on the replica seat covers they were making, and some of the custom seats. All the tooling was made in Italy out of brass. Some heavily engraved and some machined to give the desired effect. It was priced £10 per inch.

For a car bench seat cover, that's a lot of inches.

After some more thinking I asked why, is the tooling made of brass, only because it wears well and produces a sharp image, they make thousands of covers.

I suggested that as I only wanted a small number of covers made and as the effect wanted is only a simple double line, would Aluminium work.

He remembered he had used aluminium before, worked not as well as brass, but worked.

I then said if I was to make the tooling would he use it with his machine.
He agreed he would try it,

I guess hoping that's the last he will see of me; after all he was very busy making motor cycle seat covers.

Now I had seen the tooling and understood what was required I started out by buying some big sheets of thick alloy plate , and mounted on edge some aluminium strips the required thick ness on edge , coping what I had seen in the factory.

Result was two large former tools one for the back part, one for the seat part.

The completed formers for embossing bench seat material.

Now every one can have lines.

Some leather cloth are better than others .Less stretch, the better in my view.



Bench Seat with cover on.

This one of the first covers with embossed lines, my trimming is not that good but the effect is just what I wanted.

Not a cover in the true sense but two pieces of leather cloth with the embossed lines, for you to nail and staple on to your own frame.

They are big enough for a small amount of foam to go under.

Original seat had only ¼ thick foam stuck directly onto the back of the leather cloth.

Always very thin looking.



BEC should have these in stock. In RED TAN BLACK

That said EBO is having his one in GREY

You have to do it twice

As with all these lost cause restoration, you have to build the car at least twice.

Now all the bits have found the correct holes and all is working, its time to strip it all out again for finishing and painting.



First time out side, looking like it should, the engine is back out all ready



Windscreen glass.

Part of the problems of restoration is tracking down obsolete parts and lost information.
The T60 full Hard Top Glass
The SE328 – SE492 Sports screens
B95 and Late SE492 with the Chrome, double channel windscreen frame

We understood at one time were, unavailable.

I had visited Pilkington Classic Glass in 2007 and 2008 to search the archives and collect or get glass made.

T60 Full GRP Hard top I had to use for the LBL
New number made for it is A1349

B95 and Late SE492
Old number is HTO30

T60 with GRP Surround as I used in the Coupe
New number made for it A2062CL

T60 with soft top and Chrome windscreen frame
Old number is HT29

More recently the long lost Sports SE328
Old number HT187 has also been remade.

A number for the Foursome is quoted incorrectly (ht187) in the Pugh's glass guide
And the Bandit as HT243 but there is no other data to get them made.
Next time the Bandit or a Foursome needs a screen it will mean a trip to Pilkington to get copied, Flat forms are the means by which they keep patterns cost £50 on top of the price for the glass itself.

Old glass was approx 5.8mm new glass might be 6.8 mm thick so you could find when fitting glass in the frame it might require different thickness rubber strip

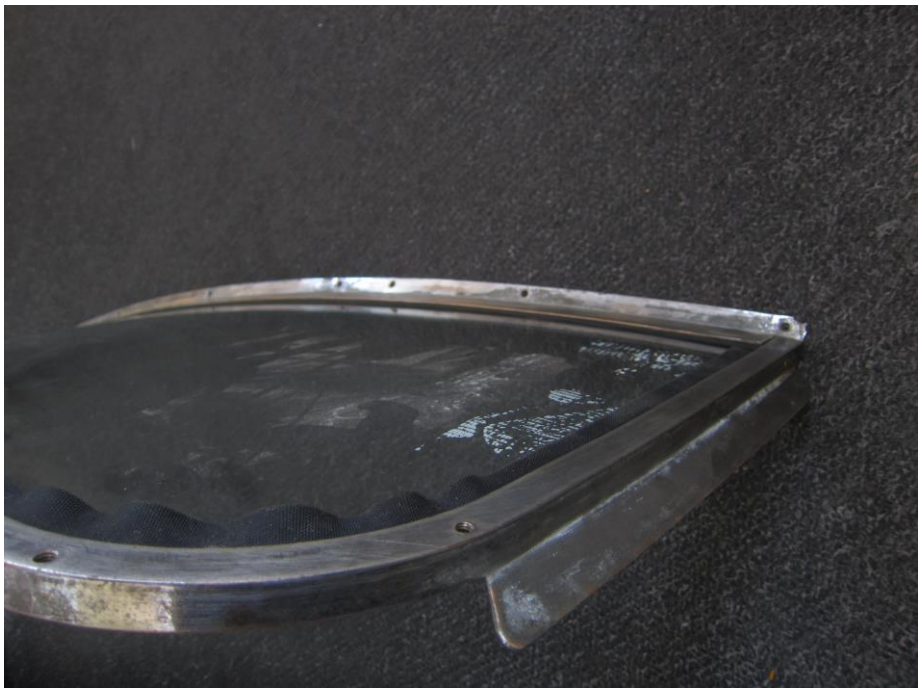
EBO has the Sports SE328 glass was also used in the early SE492
Parts Number is HT 187

Test fitting with new 1 mm thick rubber strip from Woollies, 88-50-1

TIP - Now is the time to repair all the pulled LTD threads and braze up the incorrect holes.

Ensure the Lift the Dots are screwed in a long way first, as they are supposed to be. Packing the glass up to much, and fitting them after could break the Glass.

This was just a test remember.



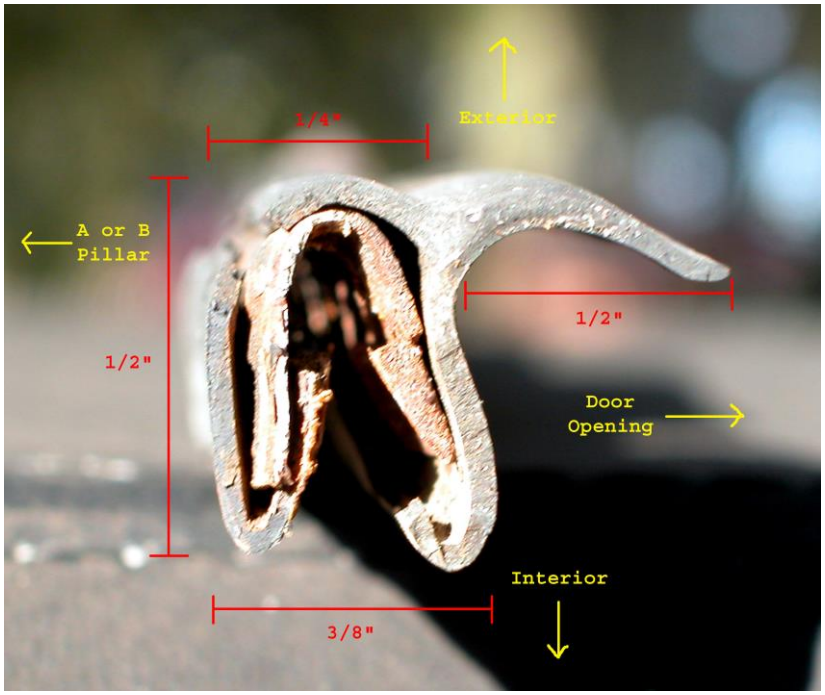
Job done. Next get it to bits again and off for chrome plate.



Home made windscreen stay – Does any one know why they were cast brass.



This is the Export version of the door seal
Long lost, but after several hours walking the NEC car show I found several suppliers.
East Kent Trim 138



The rear fuel tank in EBO,
Was so damaged it is just not worth attempting repairs.

As I had done once before, with a promise of something at Christmas, these two tanks were made after hours or in lunch breaks, Quality work.
Quality final price , but then , if you are going to get bits made get two made and offer to other BEC members . The spare did not hang around long.



Rusty Metal Bits

When you find rusty or split steel parts I found it better to make then new rather than attempting to repair, the top suspension cross member among others.

Making new is not so bad , I tend to just copy what I have, It does not really make sense to worry to much about accuracy , you often find yourself having to tweak even the original parts to get them to fit .

These paper templates used to draw around give hole positions have been sent to Ireland and down to New Zealand to try and help owners out, after they had lost or wanted new parts made locally.

It's just a simple draw around it on steel sheet, drill a few holes and bend it to shape.



Shocking Story

Thinking on Suspension parts, I have used Hagon Shocks again on EBO

As detailed.

SE 492 and B95, B105

Front Shock absorbers 310mm long between centres

170 lb/in (30 kg/cm) springs on the front. Some say you can use heavier.

150lb/in springs on the back (26kg/cm)

To recap and for other cars.

SA 322-SE328 –T60 ---All around
SE 492- B95- B105 ----Rear
You can use 26 kg/cm or 145lb/inch spring rate

B95-B105 – SE492 ---Front
Can use 30kg/cm or 170lb/inch spring rate

There is plenty of conflicting data,
Some records show Enfield engined cars B95-- B105
Using a 35 kg/cm or 195 lb/inch spring rate.

But to my mind that has to be better suited to T60 rear

After all it's the same car; same load, but T60 rear has only one spring.
Surely that spring has to be the strongest—my view only.

HAGON whose records I am not so sure about have a T60 as
310mm long 35 kg/cm 195lb/inch spring, perhaps that's for a T60/4

Who knows --anyone?

The triple 492 cc engine in EBO

The engine is in bits just now so have taken the chance to see how a EI can be fitted, it currently has the Big point Dynastart housing
That's almost 70mm across,

The Stein triple EI like I used in LBL 2008 was for Small point Dynastart housing.

None of which are available any more, perhaps the electronics have gone obsolete.

The kit of parts bridged the hole with a plate and the EI PCB sat on it, that plate also had a support bearing in the plate. All this covered with a big RED plastic cover.

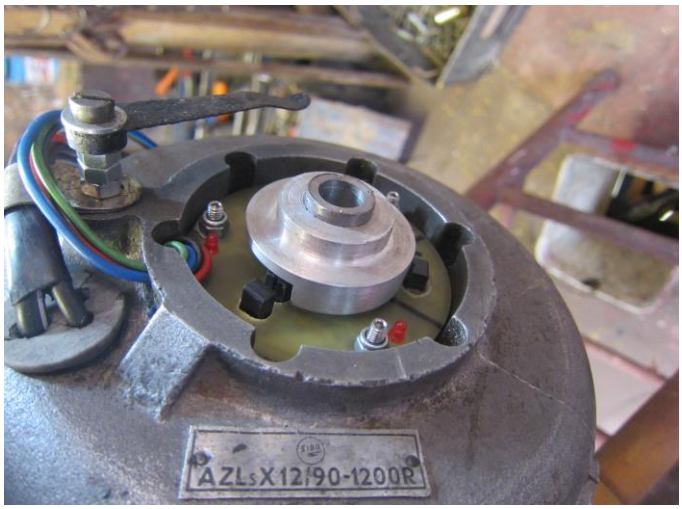


Shame they don't make them any more.

The triple 492 cc engine in EBO

It seemed to me the pcb would all inside the Big Dynastart hole , by making studs to suit the three point plate retaining holes and by using the original spacers I found it will almost disappear inside, I made a new, much shorter replacement cam shaft and a nylon end cover for it. No plate, No support bearing. Perhaps as Patrick's dad had originally planned it.

It will go in



Looks neat .Now if only Patrick would still make them.



If not him, perhaps now is the time to find the bits and try to make one.
A job for 2016 perhaps.

It's an optical system and, what you see is what you get, the total system.

Where the Twin EI from Patrick is magnetic, and needs another big ECU box to be bolted on the car some where.

Finishing touches
Now the wiring is sorted the paint and finishing is underway.

Still to fit on are the wood door edges and side window sockets and lots more.



Engine bay nice and tidy

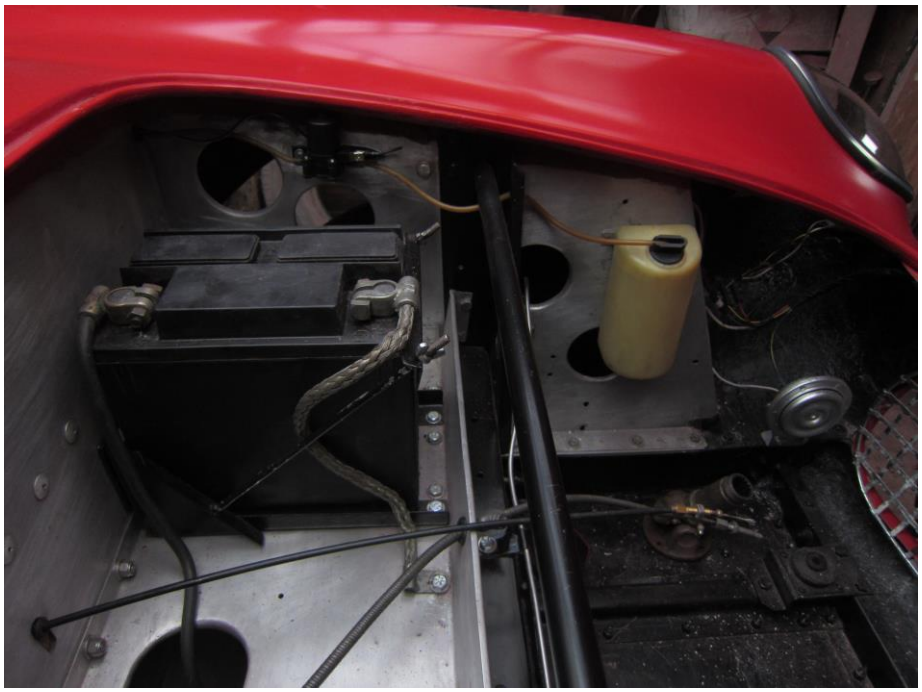


The car is coming back
Note three hoop two leg hood sticks



Still no engine,
Parts with Nametab
The rest gear box diff carbs exhaust, is all overhauled and waiting.

Perhaps EI system as well soon will see how that goes.



GARY STORRS, WIRING STORY.

BERKELEY S-E 492 SPORTS WIRING HARNESS and RELATED WIRING

Berkeley Cars Limited manufactured low production, hand-built sports cars on a much smaller budget than that of larger manufacturers. This document is intended as a guide to originality, but it must be noted that what was original to one car may not be exactly so for the next car on the production line. Such is the case for hand-built cars. It is likely, in fact inevitable, that small variations occurred from car to car due to materials at hand during construction, individual builder technique, etc.

Most of the information presented here was compiled from firsthand observation of two cars: S-E 492 chassis # 70 and S-E 492 chassis # 101. Both cars were U.S. specification, early body style S-E 492s with sloping A-pillars and outside door hinges. Chassis # 70 had a complete, original wiring harness. Chassis # 101 had a mostly complete, mostly original harness. Both harnesses were virtually identical, but in keeping with the above statement, a few minor differences were noted. As can be seen on the diagram, the Hi-beam (Black / Red Tracer) and Low-Beam (Black / Green Tracer) harness wires are connected to both headlight pigtails via matching, single bullet connector sleeves. This was the case for chassis # 101. On chassis # 70, however, the left side headlight pigtail was attached using double bullet connector sleeves like those used on the ground wire (White / Black tracer). Although not necessary, this would obviously work and was probably done due to having the double connectors "on hand" at a moment when the singles were not. The second difference between the two cars was in the grounding of the fuel level sending unit. On chassis # 70 a ground lead (White / Black tracer) connected the sending unit ground to Double Bullet Connector Sleeve 10 at the left side taillight ground wire (White / Black tracer). Alternately on chassis # 101, the sending unit ground lead was connected to Double Bullet Connector Sleeve 11 at the license plate light ground wire (White / Black tracer). Minor differences, but it helps to illustrate the variances that could and did occur.

As can be seen in the diagram, several wires in the harness terminate with no connection. Under the dash a short, constantly energized wire (Brown / White Tracer) extends from Double Bullet Connector Sleeve 6. Its unconnected, flag type eyelet end is insulated with a wrapping of black cloth electrical tape. Similarly, a purple wire emerges from the harness to be terminated by an otherwise unconnected single bullet connector sleeve. This wire is not energized, as its other end terminates as a cut and un-stripped end in the engine bay at the firewall. It is paired at this end with a similarly un-stripped ground wire (White / Black Tracer). In addition, the panel light wiring (Yellow / Red Tracer) has an unconnected lead under the dash, which terminates with a single bullet connector sleeve; and Double Bullet Connector Sleeve 1 has an additional ground lead (White / Black Tracer), which is not connected. All of these wires suggest available (or planned but unrealized) accessories, or possibly applications in markets other than North America. A clock was an advertised accessory which would explai all but the purple wire: a source of constant power (Brown / White at Double Connector Sleeve 6); ground at Double Connector Sleeve 1; and a panel light connection for dial face illumination

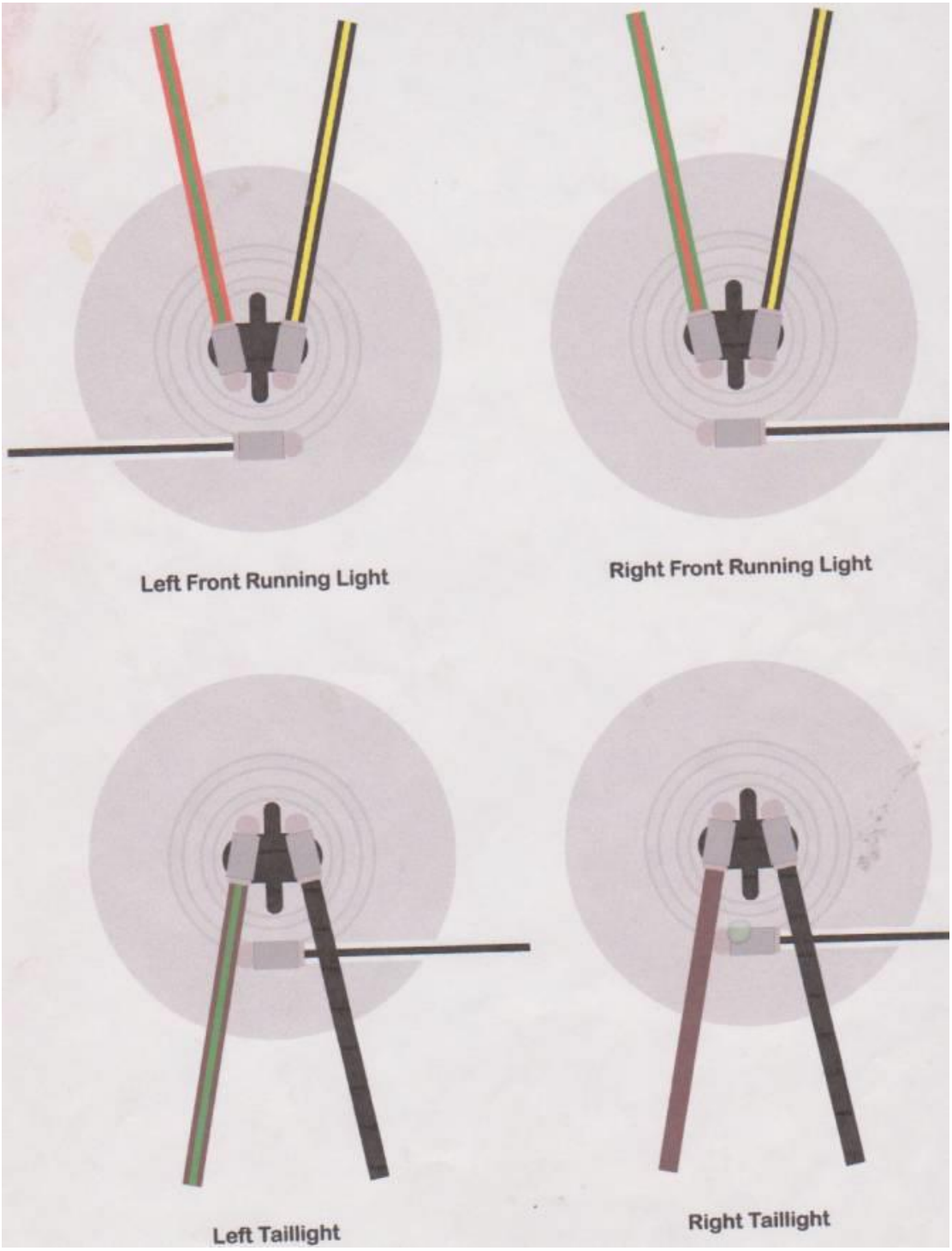
There are other indications that this harness was used in more than the North American market. By the time of the introduction of the S-E 492, evidence shows that all U.S. specification cars had rear mounted gas tanks. However, it is clear from the diagram that the provision for a front mounted tank was still included in the early S-E 492. An unconnected power lead for the fuel level sensor extends into the engine bay and is terminated with a flag type eyelet, which is wrapped in black cloth electrical tape for insulation. In addition, a green wire is incorporated into the rear harness which, on American export cars, terminates at otherwise unconnected Single Bullet Connector Sleeve 20 near the license plate light. On U.K. cars this wire would be used for the separate brake lights seen on previous models. It is logical to deduce that a single harness was used for all early S-E 492s, which included provisions for all markets.

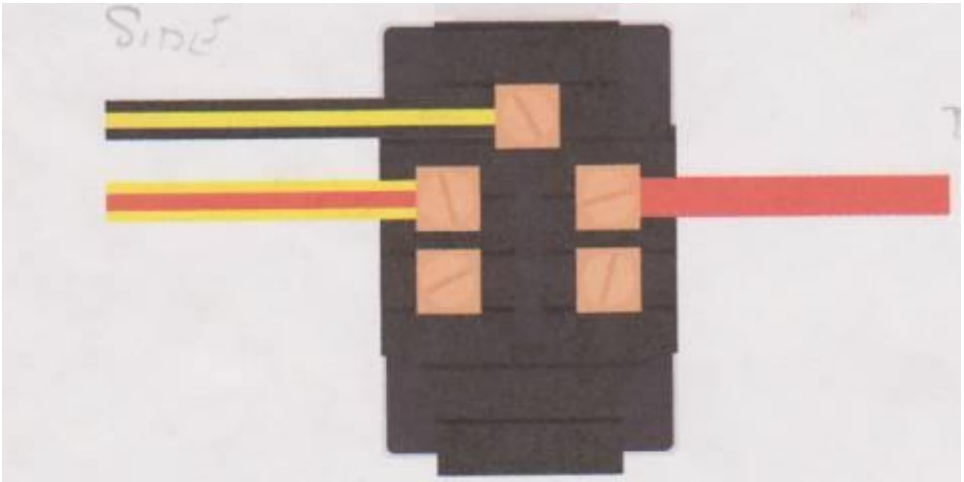
Beginning with the S-E 328 an ammeter was listed as an option. Many U.S. bound cars included this option. Wiring for the ammeter ran separately from the main harness as a twin lead cable. This cable connected the ammeter terminals to the Dynastart medium gauge, black lead wire and to control box terminal 61D+. By the time of the S-E 492, at least on U.S. cars, the ammeter was pretty much a standard fitment. As can be seen in the diagram, ammeter wiring was now incorporated into the main harness.

All wiring on the car, with the exception of the headlight pigtails, is multi-stranded and vinyl insulated. Black cloth electrical tape is used to group the wires together at all branches, branch ends, and periodically along long runs. Over this, the main and rear harnesses are wrapped with non-adhesive, ¾" black vinyl tape which is glued at the branch ends. In the main harness, the branch leading to the headlight dipswitch is stiffened using a hard plastic conduit under the vinyl wrapping. The headlight pigtails are made up of three wires, which are twisted together to form a single cable. The wires are multi-stranded with black vinyl insulation. However, two of the wires have additional woven cloth, outer coverings. The Hi-Beam lead wire has a Blue / White cloth covering and the Low-Beam lead has a Blue / Red cloth covering.

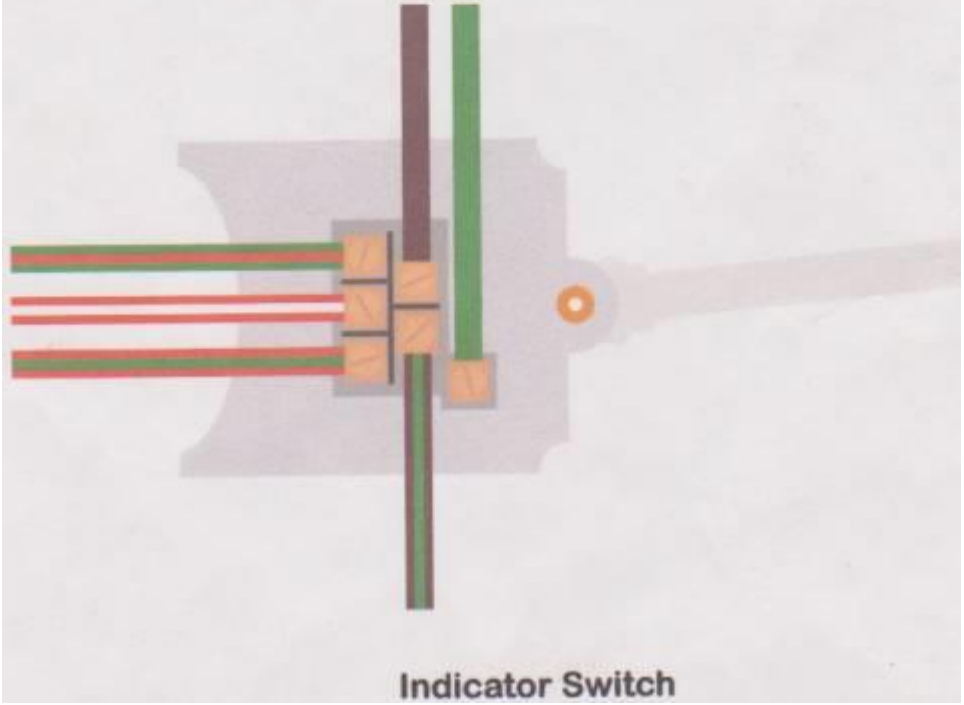


Headlight Pigtail Recepticle

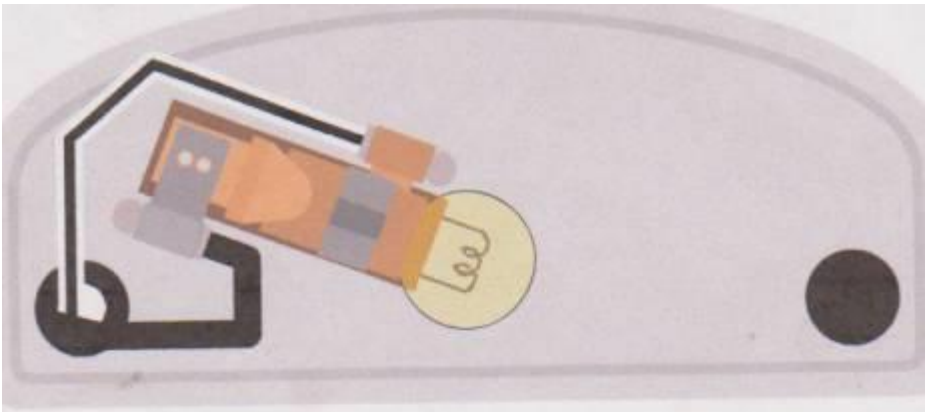

Left Front Running Light
Right Front Running Light
Left Taillight
Right Taillight



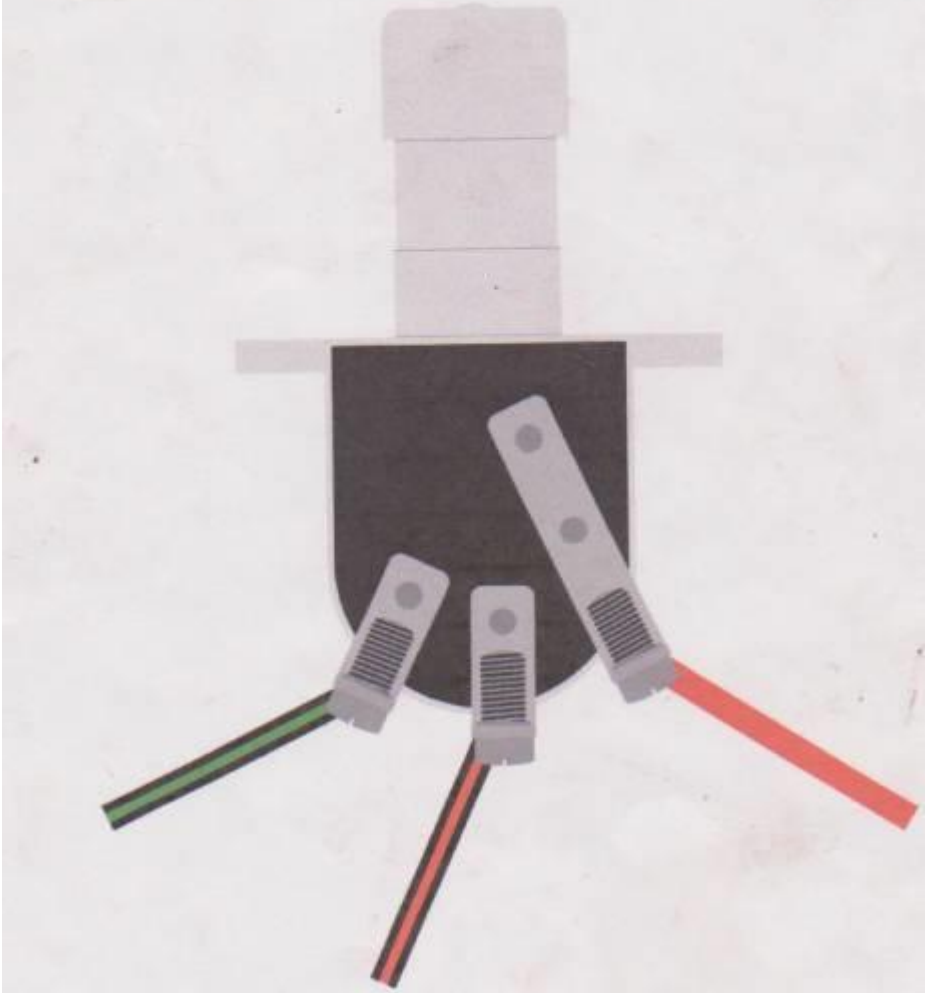
Light Switch



Indicator Switch



License Plate Light



Headlight Dipswitch

BERKELEY S-E 492 SPORTS

(Outside Door Hinge, U.S. Spec)

WIRING LIST

(All wiring is stranded and, unless otherwise indicated, has vinyl sheathing)

FRONT HARNESS

(Wrapped with Black, 3/4", Non-Adhesive Vinyl Tape)

COLOR	GAUGE	LENGTH (inches)	ENDS	LOCATION
White / Black Tracer	12	34	Bullet ; Bullet	Triple Connector 2 to Double Connector 1
White / Black Tracer	12	68.5	Bullet ; Flag Eyelet[3]	Triple Connector 2 to Flag Eyelet at Fuel Pump
White / Black Tracer	14	10	Flag Eyelet[3] ; Flag Eyelet[1]	Flag Eyelet at Fuel Pump to Fuel Pump
White / Black Tracer	14	51	Flag Eyelet[3] ; None	Flag Eyelet at Fuel Pump to Firewall (open)
White / Black Tracer	12	37.75	Flag Eylet[3] ; Flag Eyelet[2]	Flag Eyelet at F. Pump to Flag Eyelet at Dynastart
White / Black Tracer	12	33	Flag Eyelet[2] ; Bullet	Flag Eyelet at Dynastart to Double Connector 9
White / Black Tracer	12	58	Bullet ; Bullet	Double Connector 9 to Double Connector 8
White / Black Tracer	12	42	Bullet ; Stripped 1/4"	Double Connector 8 to Horn
White / Green Tracer	14	39.5	Bullet ; Bullet	Double Connector 4 to Single Connector 10
White / Green Tracer	14	31	Bullet ; Flag Eyelet[2]	Single Connector 10 to Outside Coil terminal "15"
White / Green Tracer	14	5.5	Flag Eyelet[2] ; Flag Eyelet[2]	Outside Coil term."15" to Center Coil term."15"
White / Green Tracer	14	5.5	Flag Eyelet[2] ; Flag Eyelet[1]	Center Coil term."15" to Inside Coil term."15"
White / Red Tracer	14	33	Stripped 1/2" ; Flag Eyelet[1]	Bottom Front Condensor to Inside Coil terminal "1"
White / Blue Tracer	14	33	Stripped 1/2" ; Flag Eyelet[1]	Top Front Condensor to Outside Coil terminal "1"
White	14	33	Stripped 1/2" ; Flag Eyelet[1]	Rear Condensor to Center Coil terminal "1"
Black / Red Tracer	14	59	Bullet ; Bullet	Single Connector 3 to Single Connector 8
Black / Red Tracer	14	68	Bullet ; Bullet	Single Connector 8 to Single Connector 18
Black / Red Tracer	14	61	Bullet ; Bullet	Single Connector 18 to Single Connector 15
Black / Yellow Tracer	14	68	Bullet ; Bullet	Double Connector 7 to Single Connector 16
Black / Yellow Tracer	14	62	Bullet ; Bullet	Single Connector 16 to Left Front Running Light
Black / Green Tracer	14	68	Bullet ; Bullet	Single Connector 7 to Single Connector 17
Black / Green Tracer	14	61	Bullet ; Bullet	Single Connector 17 to Single Connector 14
Black	14	33	Bullet ; Bullet	Triple Connector 2 to Double Connector 7
Black	14	68	Stripped 1/2" ; Flag Eyelet[1]	Ammeter to Control Box terminal "61D+"
Yellow / Red Tracer	14	22.5	Stripped 1/4" ; Bullet	Panel Light Switch to Single Connector 4
Yellow / Red Tracer	14	19	Bullet ; Bullet	Single Connector 4 to Single Connector 5
Yellow / White Tracer	14	34	Bullet ; Bullet	Triple Connector 2 to Double Connector 3
Yellow / White Tracer	14	53.5	Bullet ; Flag Eyelet[1]	Double Connector 3 to (Front Tank - not connected)
Yellow	14	33	Stripped 1/4" ; Fork	Indicator Warning Light to Flasher terminal "P"
Green / Red Tracer	14	55.5	Bullet ; Bullet	Double Connector 2 to Single Connector 11
Green / Red Tracer	14	87	Stripped 1/4" ; Bullet	Indicator Switch to Right Front Indicator Light

FRONT HARNESS (CONTINUED)

COLOR	GAUGE	LENGTH (inches)	ENDS	LOCATION
Green	14	34	Bullet ; Bullet	Triple Connector 1 to Double Connector 2
Green	14	56	Bullet ; Bullet	Double Connector 5 to Single Connector 12
Brown / Green Tracer	14	47.75	Bullet ; Stripped 1/4"	Triple Connector 1 to Indicator Switch
Brown	14	47.75	Bullet ; Stripped 1/4"	Triple Connector 1 to Indicator Switch
Red / White Tracer	14	36	Stripped 1/4" ; Fork	Indicator Switch to Flasher terminal "54L"
Red / Green Tracer	14	121	Stripped 1/4" ; Bullet	Indicator Switch to Left Front Indicator Light
Red / Yellow Tracer	12	66	Bullet ; Flag Eyelet[1]	Double Connector 6 to Control Box terminal "51/30"
Red	14	67	Stripped 1/4" ; Bullet	Light Switch to Single Connector 9
Red	14	68	Stripped 1/2" ; Bullet	Ammeter to Single Connector 13
Purple / Green Tracer	14	68	Bullet ; Flag Eyelet[1]	Single Connector 1 to Control Box terminal "61D+"
Purple	14	72	Bullet ; None	Single Connector 6 to Engine Bay Firewall (open)
Blue / White Tracer	14	71	Stripped 1/4" ; Flag Eyelet[1]	Start Button to Control Box terminal "50"
Blue / Yellow Tracer	14	121	Stripped 1/4" (both ends)	Horn Button to Horn

REAR HARNESS

(Wrapped with Black, 3/4", Non-Adhesive Vinyl Tape)

COLOR	GAUGE	LENGTH (inches)	ENDS	LOCATION
White / Black Tracer	12	85	Bullet ; Bullet	Triple Connector 2 to Double Connector 10
White / Black Tracer	14	22	Bullet ; Bullet	Double Connector 10 to Double Connector 11
White / Black Tracer	14	17.5	Bullet ; Bullet	Double Connector 10 to Left Taillight
White / Black Tracer	14	41	Bullet ; Bullet	Double Connector 11 to Right Taillight
Brown / Green Tracer	14	102	Bullet ; Bullet	Triple Connector 1 to Left Rear Indicator Light
Yellow / White Tracer	14	114	Bullet ; Flag Eyelet[1]	Triple Connector 2 to Fuel Level Sending Unit
Black	14	99	Bullet ; Bullet	Triple Connector 2 to Double Connector 12
Black	14	22	Bullet ; Bullet	Double Connector 12 to Single Connector 19
Black	14	22.5	Bullet ; Bullet	Double Connector 12 to Single Connector 21
Green	14	99	Bullet ; Bullet	Triple Connector 1 to Single Connector 20 (open)
Brown	14	131	Bullet ; Bullet	Triple Connector 1 to Right Rear Indicator Light

ADDITIONAL WIRES (NOT IN HARNESS)

COLOR	GAUGE	LENGTH (inches)	ENDS	LOCATION
White / Black Tracer	14	7.25	Bullet ; Flag Eyelet[1]	Double Connector 1 to Flag Eyelet (not attached)
White / Black Tracer	12	4.75	Bullet ; Flag Eyelet[2]	Double Connector 1 to Fuel Gauge Bracket
White / Black Tracer	14	4.25	Flag Eyelet[2] ; Flag Eyelet[1]	Fuel Gauge Bracket to Speedometer Bracket
White / Black Tracer	14	17.5	Bullet ; Stripped 1" Looped	Double Connector 1 to Wiper Motor
White / Black Tracer	14	12.75	Bullet ; Stripped 1/4"	Double Connector 1 to Hi-Beam Warning Light
White / Black Tracer	14	11.75	Bullet ; Stripped 1/4"	Double Connector 1 to Indicator Warning Light
White / Black Tracer	14	8.25	Bullet ; Bullet	Double Connector 8 to Left Front Running Light
White / Black Tracer	14	8.25	Bullet ; Bullet	Double Connector 9 to Right Front Running Light
White / Black Tracer	12	25	Bullet ; Flag Eyelet[1]	Double Connector 10 to Fuel Sending Unit
White / Black Tracer	14	11.5	Bullet ; Bullet	Double Connector 11 to License Plate Light
White / Green Tracer	14	7.5	Bullet ; Flag Eyelet[1]	Single Connector 10 to Fuel Pump
Black / Blue Tracer	14	6	Stripped 1/2" ; Flag Eyelet*	Fuel Gauge to Ignition Lock
Black / Blue Tracer	14	5	Flag Eyelet* ; Bullet	Ignition Lock to Double Connector 4
Black / Blue Tracer	14	3.5	Bullet ; Bullet	Double Connector 4 to Double Connector 5
Black / Blue Tracer	14	14.5	Bullet ; Fork	Double Connector 5 to Flasher terminal "15X"
Black / Red Tracer	14	16.75	Bullet ; Stripped 1/4"	Single Connector 3 to Hi-Beam Warning Light
Black / Red Tracer	14	8.5	Bullet ; Stripped 1/4"	Single Connector 8 to Headlight Dipswitch
Black / Yellow Tracer	14	9.75	Bullet ; Stripped 1/4"	Double Connector 7 to Light Switch
Black / Yellow Tracer	14	7.25	Bullet ; Bullet	Single Connector 16 to Right Front Running Light
Black / Green Tracer	14	8.5	Bullet ; Stripped 1/4"	Single Connector 7 to Headlight Dipswitch
Black	14	12.5	Bullet ; Stripped 1/4"	Double Connector 7 to Panel Light Switch
Black	14	17.5	Bullet ; Bullet	Single Connector 19 to Left Taillight
Black	14	18	Bullet ; Bullet	Double Connector 12 to License Plate Light
Black	14	19	Bullet ; Bullet	Single Connector 21 to Right Taillight
Brown / White Tracer	14	9	Bullet ; Flag Eyelet[1]	Double Connector 6 to Flag Eyelet (not attached)
Yellow / Red Tracer	14	11	Bullet ; Stripped 1/4"	Double Connector 6 to Light Switch
Yellow / White Tracer	14	3.75	Stripped 1/2" ; Bullet	Fuel Gauge to Double Connector 3
Yellow / Green Tracer	14	7.25	Bullet ; Stripped 1/4"	Double Connector 6 to Horn Button
Green / Red Tracer	14	18.75	Bullet ; Stripped 1/4"	Single Connector 11 to Brake Light Switch
Green / White Tracer	14	5	Bullet ; Stripped 1/4"	Double Connector 4 to Start Button
Green	14	14.75	Stripped 1/4" ; Bullet	Indicator Switch to Double Connector 2
Green	14	18.75	Bullet ; Stripped 1/4"	Single Connector 12 to Brake Light Switch
Red / Yellow Tracer	12	6.5	Bullet ; Flag Eyelet[1]	Double Connector 6 to Ignition Lock
Red	14	8.5	Bullet ; Stripped 1/4"	Single Connector 9 to Headlight Dipswitch
Red	20	6	Bullet ; Lamp Contact	Single Connector 2 to Ignition Warning Light

ADDITIONAL WIRES (CONTINUED)

COLOR	GAUGE	LENGTH (inches)	ENDS	LOCATION
Purple / White Tracer	14	3	Bullet ; Bullet	Double Connector 4 to Single Connector 2
Blue	14	14.5	Bullet ; Stripped 1/4"	Double Connector 5 to Wiper Switch
Blue	14	11.5	Strip 1/4" ; Strip 1" Looped	Wiper Switch to Wiper Motor
Blue	20	6	Bullet ; Lamp Contact	Single Connector 4 to Speedometer Panel Light
Clear	20	5	Bullet ; Lamp Ground Clip	Single Connector 1 to Ignition Warning Light

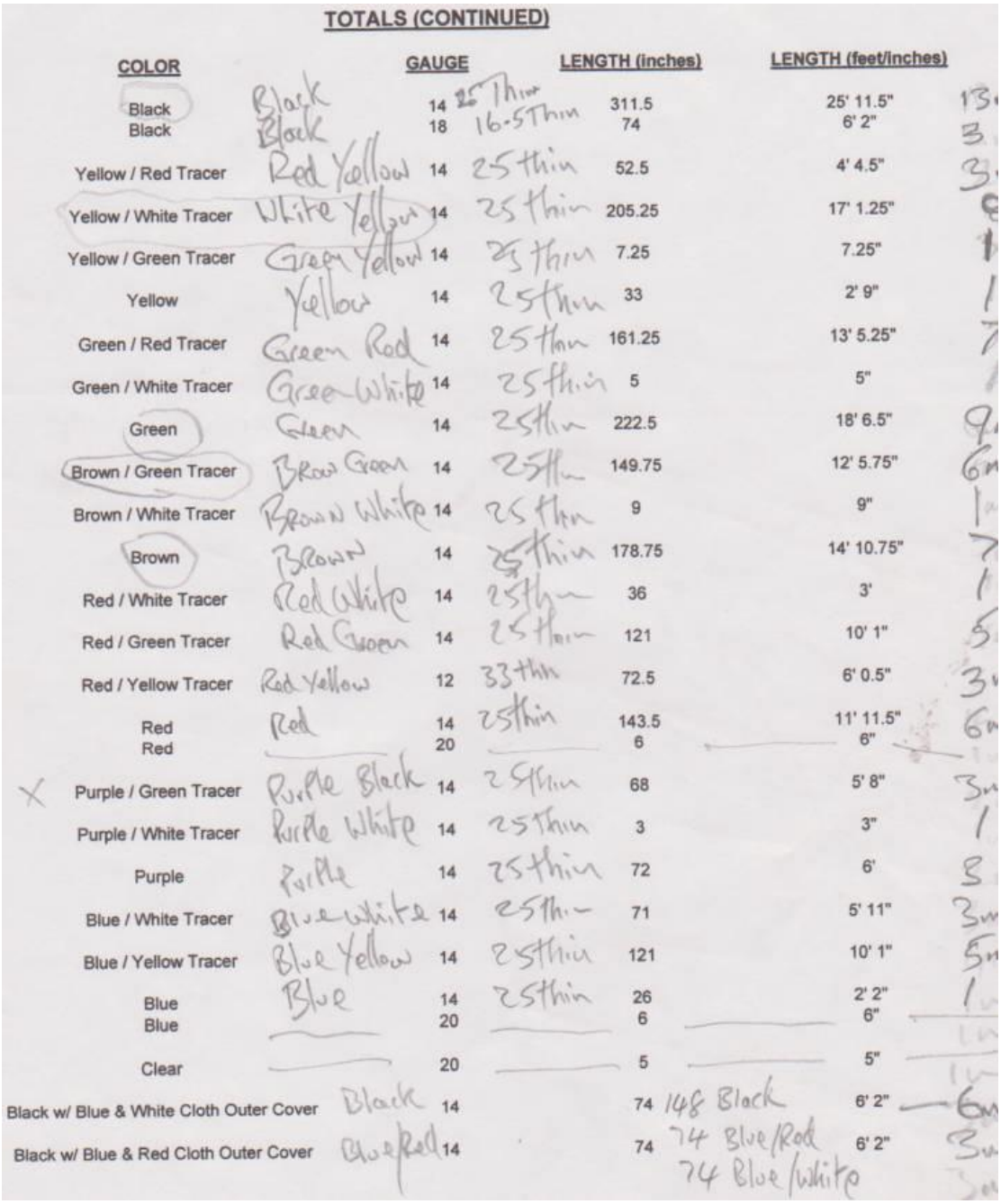
HEADLIGHT PIGTAILS

COLOR	GAUGE	LENGTH	ENDS
Black w/ Blue & White Cloth Outer Cover	14	37" x 2	Bullet ; Headlight Terminal
Black w/ Blue & Red Cloth Outer Cover	14	37" x 2	Bullet ; Headlight Terminal
Black	18	37" x 2	Bullet ; Headlight Terminal

[1] Flag Eyelet (5/8" x 3/8", 3/16" diameter hole) One Wire Connection
[2] Flag Eyelet (3/4" x 3/8", 3/16" diameter hole) Two Wire Connection
[3] Flag Eyelet (1 3/8" x 3/4", 5/16" diameter hole) Multiple Wire Connection
[4] Flag Eyelet (9/16" x 5/16", 3/16" diameter hole) Two Wire Connection (Black / Blue Tracer)

TOTALS

COLOR		GAUGE		LENGTH (inches)	LENGTH (feet/inches)	
White / Black Tracer	White 33Thin	12	33Thin	388	32' 4"	16
White / Black Tracer	Black White	14	25Thin	223	18' 7"	9
White / Green Tracer	White Green	14	25Thin	89	7' 5"	4
White / Red Tracer	White Red	14	25Thin	33	2' 9"	2
White / Blue Tracer	White Blue	14	25Thin	33	2' 9"	2
White	White	14	25Thin	33	2' 9"	2
Black / Blue Tracer	Black Blue	14	25Thin	29	2' 5"	2
Black / Red Tracer	Black Pink	14	25Thin	213.25	17' 9.25"	9
Black / Yellow Tracer	Black Yellow	14	25Thin	147	12' 3"	6
Black / Green Tracer	Black Slate	14	25Thin	137.5	11' 5.5"	6



TOTALS (CONTINUED)

COLOR		GAUGE		LENGTH (inches)		LENGTH (feet/inches)	
Black	Black	14	25 Thin	311.5		25' 11.5"	13
Black	Black	18	16-5Thin	74		6' 2"	3
Yellow / Red Tracer	Red Yellow	14	25thin	52.5		4' 4.5"	3
Yellow / White Tracer	White Yellow	14	25 thin	205.25		17' 1.25"	9
Yellow / Green Tracer	Green Yellow	14	25 thin	7.25		7.25"	1
Yellow	Yellow	14	25thin	33		2' 9"	1
Green / Red Tracer	Green Red	14	25thin	161.25		13' 5.25"	7
Green / White Tracer	Gree White	14	25thin	5		5"	
Green	Green	14	25thin	222.5		18' 6.5"	9
Brown / Green Tracer	Brow Green	14	25thin	149.75		12' 5.75"	6
Brown / White Tracer	Brown White	14	25 thin	9		9"	1
Brown	Brown	14	25thin	178.75		14' 10.75"	7
Red / White Tracer	Red White	14	25thin	36		3'	1
Red / Green Tracer	Red Green	14	25thin	121		10' 1"	5
Red / Yellow Tracer	Red Yellow	12	33thin	72.5		6' 0.5"	3
Red	Red	14	25thin	143.5		11' 11.5"	6
Red		20		6		6"	
Purple / Green Tracer	Purple Black	14	25thin	68		5' 8"	3
Purple / White Tracer	Purple White	14	25thin	3		3"	1
Purple	Purple	14	25thin	72		6'	3
Blue / White Tracer	Blue white	14	25thin	71		5' 11"	3
Blue / Yellow Tracer	Blue Yellow	14	25thin	121		10' 1"	5
Blue	Blue	14	25thin	26		2' 2"	1
Blue		20		6		6"	
Clear		20		5		5"	
Black w/ Blue & White Cloth Outer Cover	Black	14		74	148 Black	6' 2"	6
Black w/ Blue & Red Cloth Outer Cover	Blue/Red	14		74	74 Blue/Red 74 Blue/White	6' 2"	3

The wipers cut to length now miss the chrome fully



The completed inside. Black Hardura is used as the grey is no longer made.



Engine work should be done soon, then its rebuild it, then its, ready to go.

Slant door SE492, Best of the bunch I think.

Gear change and Linkages.

Early cars had a steering Column gear change lever system, with rods and links connecting it to the Three Speed and reverse HJR Gear box, The first few cars had Anzani engines and I can't say if its gearbox was different.

The later floor mounted sequential like gear change quadrant, three speed or four speed, that is seen in most Berkeley Cars often has the casual on look'er guessing, as it looks nothing like a normal H box gear change stick found in your average car.

Is it Automatic they say, No I would call it Problematic.

The gear box drop arms quadrants and linkages on a lot of cars have I think over the years have been mixed up , As few Berkeley part's are actually marked with a parts number , and that can not make things easy for the garage mechanic or restorer.

As I have yet to fully road test the Coupe with TR box still not legal , but on the short runs its had , I was aware it was not engaging gears and landing in the quadrant gate as it should,

This led to me building a Quadrant / Linkage analyser.
Some thing I could use on the bench.

Checking, removing, and adjusting. refitting links and arms when in the car is not good.
It will make you loose the will to live.

Easy enough if you have a spare gearbox to mount up in it on the bench though.

After some time and a few false starts on my part , I began to see some light at the end of the tunnel , It was about that time when some factory parts pages turned up , they been hiding in club archives , giving at least three sets of numbers , for the various gearboxes used , This was still not much use as I still had no idea what the differences were .

BUT THAT WAS A CLUE.

There were at least three set ups, I can assume.

HJR floor mounted 3 speed and reverse
TR 4 Speed and reverse
VR 4 Speed and reverse

My findings and parts numbers along with my description and details is now complete , was with the help of Ian Danaford who kindly loaned me a three speed quadrant to enable me to test it , The three speed floor mounted Quadrant cars are very thin on the ground in UK, most went for export.

I drawn a simple sketch of how they differ and added some more notes on the following pages.

VR Gear box in forth gear attached to the quadrant and gear stick

On the , ANALYSER.

This has confirmed why some Quadrant have two pivot hole positions.
(a bodge)

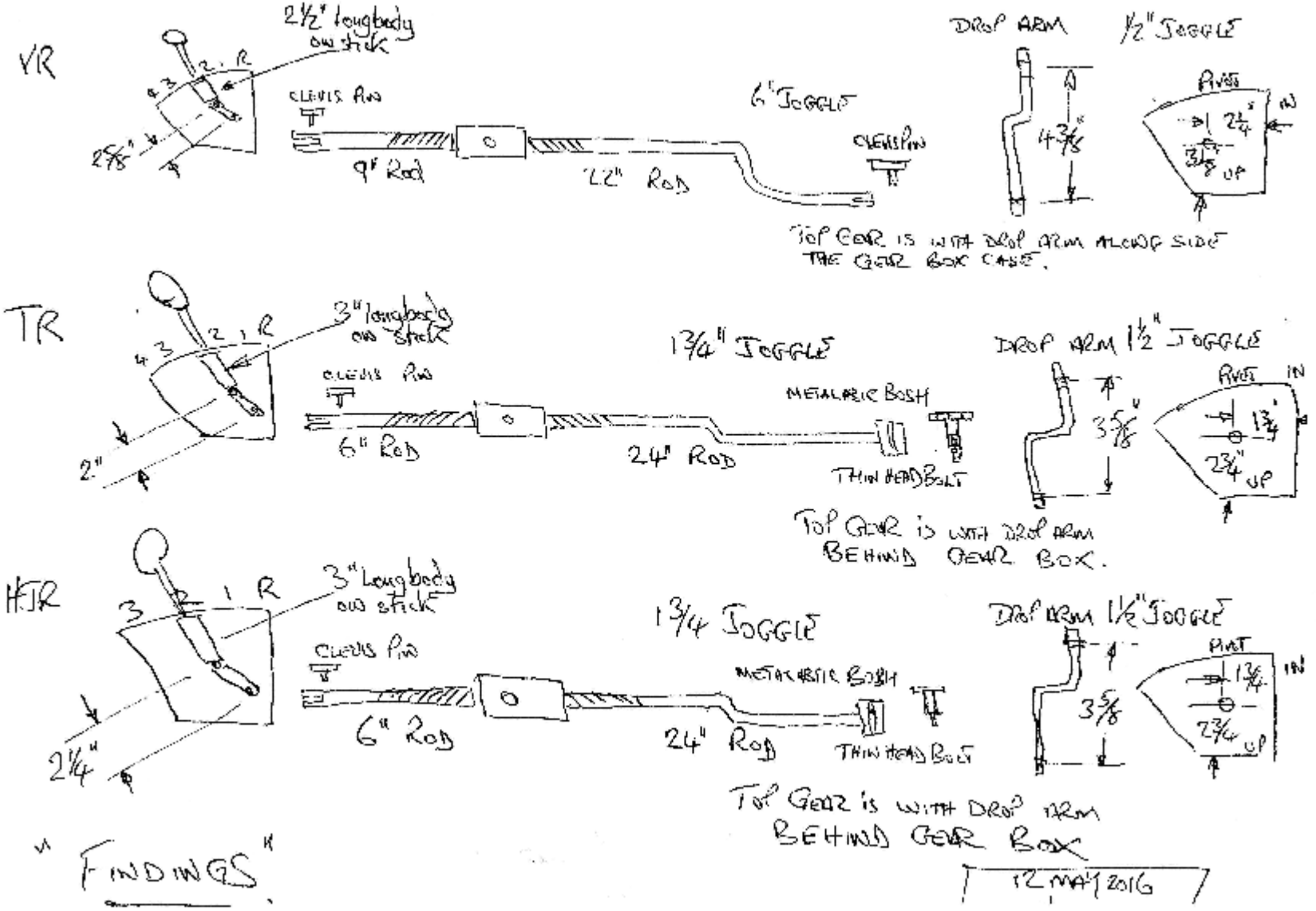
The same Four speeds and Reverse frame could be used for TR and VR with another hole,
But the hub link arm inside are different lengths. HJR TR VR all different

The body part of the gear stick (Quadrant hub) is also different.

The gearbox drop arms are different shapes Some work behind the gear box others alongside, and will have differently spaced hole centres.



Once changing gears as it should –All data is recorded.


VR
2½" longbody
ow stick
CLEVIS PIN
9" Rod
22" Rod
6" JOGGLE
CLEVIS PIN
DROP ARM
½" JOGGLE
RIVET
TOP GEAR IS WITH DROP ARM ALONG SIDE
THE GEAR BOX CASE.
TR
3" longbody
ow stick
CLEVIS PIN
6" Rod
24" Rod
1¾" JOGGLE
METALASTIC BUSH
THIN HEAD BOLT
DROP ARM 1½" JOGGLE
RIVET
TOP GEAR IS WITH DROP ARM
BEHIND GEAR BOX.
HTR
3" Longbody
ow stick
Clevis Pin
6" Rod
24" Rod
1¾ JOGGLE
METALASTIC BUSH
THIN HEAD BOLT
DROP ARM 1½" JOGGLE
RIVET
TOP GEAR IS WITH DROP ARM
BEHIND GEAR BOX
12 MAY 2016
"FINDINGS"

General arrangement notes

VR and TR Four Speed and Reverse Quadrant frames may have the same 4 Speed and Reverse gate.
To accommodate the different length of gear stick arms of 2 inch and 2 5/8 inch respectfully.
The position of the pivot hole has to change if it is to clear the floor or rear cross member.

The gear stick body on VR is 2 ½ inch
The gear stick body on TR is 3 inch

The reason you often find two holes in the frame.

Quadrant frame hole positions,
VR approx 3 1/8 inch UP and 2 ¼ inch IN from the front end.
TR approx 2 ¾ inch UP and 1 ¾ inch IN from the front end.

HJR Three speed and reverse arm gear stick arm is 2 ¼ inch long.

Quadrant frame hole approx 2 ¾ inch UP and 1 ¾ inch IN from the front end.

The gear stick body on HJR is 3 inch.

On VR boxes with the 6 inch Joggle in the control rod, Top gear will be found along side the gearbox case.

On TR and HJR with the 1 ½ inch Joggle in the control rod and metalastic bush, Top gear will be found" behind ", the gearbox case.

That is if the factory parts numbers are used, many cars have other arrangements.
Not all with a positive stop and many with filed gates.

HJR 3 Speeds and Reverse

Gear box drop arm 1 1/2 inch Joggle and 3 5/8 inch centres.



In top gear Third.



FROM DAVE PERRIN

SE328
######
MB1048 Gearbox Drop Arm*.
MB1050 Gear Lever Bracket (quadrant assy).
MB1054 Adjusting Sleeve.
MB1045 Gearchange Tie Rod Forward.
MB1004 Gearchange Eye Pin
*missed this yesterday, so would appear that no Borkeleys actually use the original Albion HR.94 Control Lever shown in all the Excelsior gearbox parts lists.

SE492 TR
#########
MB1111/3 Gearbox Drop Arm.
MB1111 Gearchange Assembly.
MB1111/1 Gear Lever Bracket (main housing).
MB1111/5 Distance Piece.
MB1111/6 Shackle Pin.
MB1111/7 Gearchange Tie Rod Rear.
MB1111/8 Gear Rod Cover.
MB1045 Gearchange Tie Rod Forward.
MB1004/2 Silent Bloc (2030).
MB1111/4 Gear Change Eye Pin
MB1047 Gear Lever.
MB1047/3 Gear Lever Knob.
MB1049 Gear Lever Hub (inc. quadrant drop arm).
MB313 Compression Spring.
MB1054 Adjusting Sleeve.
MB405/85 1/2" Nut.
MB1045/3 LH Nut.
MB405/84 2" x 5/16" Nut & Bolt.

SE492 VR
#########
MB1166/12 Gearbox Drop Arm.
MB1166 Gearchange Assembly.
MB1166/15 Gear Lever Bracket (main housing).
MB1166/13 Shackle Pin.
MB1111/6 Shackle Pin (DP NOTE: don't think this is needed, as probably replaced by MB1166/13)

MB1166/5 Gearchange Tie Rod Rear.
MB1111/8 Gear Rod Cover.
MB1166/1 Gearchange Tie Rod Forward.
MB1166/9 Gear Lever.
MB1047/3 Gear Lever Knob.
MB1166/2 Gear Lever Hub (inc. quadrant drop arm).
MB313 Compression Spring.
MB1054 Adjusting Sleeve.
MB405/85 1/2" Nut.
MB1045/3 LH Nut.
MB405/84 2" x 5/16" Nut & Bolt.

Dave

[Quoted text hidden]

20/5/2016

Albion Four Speed Boxes - Quadrants and gear linkages

VR Gear box

My Parts description	Measurements	Berkeley Parts Number
Gear Box drop arm Hole center to Hole center	4 3/8 inch with 1/2 inch Joggle	MB1166/12
Spacer	na	na
Metalastic Bush	na	na
Drop Arm to Pull Rod bolt-Pin	1/4 inch clevis pin	MB1166/13
Long Pull rod LHT	22 inch long 8 inch joggle and fork end	MB1166/1
Turnbuckle	LHT - RHT	MB1054
Short Pull rod RHT	9 inch long	MB1166/5
Quadrant Hub arm clevis pin	5/16 inch dia	MB1111/6
Quadrant gate frame	4 Speed and Reverse	MB1166/15
Quadrant frame With pivot hole location	3 1/8 inch UP 2 1/4 inch IN	MB1166
Quadrant Hub arm Hole center to Hole center	2 5/8 inch	MB1166/2
Gear Lever		MB1166/9
Gear lever Knob		MB1047/3
Compression Spring		MB313
NUT	1/2 inch	MB405/86
Left hand slot	1/2 inch	MB1045/3
Nuts		MB405/84
Gear rod cover		MB1111/8
Gear stick body is 2 1/2 inch long		Gear stick body is 3 inch long

HJR Gear Box

3 speed and Reverse Floor mounted

My Parts description	Measurements	Berkeley Parts Number
Gear Box drop arm Hole center to Hole center	3 5/8 inch with 1 1/2 inch joggle	MB 1048
Spacer	na	
Metalastic Bush	3/8 dia hole	MB1004
Drop Arm to Pull Rod bolt-Pin	Thin head Stepped bolt	MB1113/4
Long Pull rod LHT	24 inch long 1 3/4 inch joggle and Bush end	MB1045
Turnbuckle	LHT - RHT	MB1054
Short Pull rod RHT	6 inch long	MB1111/7
Quadrant Hub arm clevis pin	5/16 inch dia	MB1111/8
Quadrant gate frame	3 Speed and Reverse	MB105C
Quadrant frame pivot hole location	2 3/4 inch UP 1 3/4 inch IN	
Quadrant Hub arm Hole center to Hole center	2 1/4 inch	
Gear stick body is 3 inch long		

TR Gear box

Measurements	Berkeley Parts Number
3 5/8 inch with 1 1/2 inch joggle	MB1113/3
	MB1113/5
3/8 dia hole	MB1004/2 (2030)
Thin head Stepped bolt	MB1113/4
24 inch long 1 3/4 inch joggle and Bush end	MB1045
LHT- RHT	MB1054
6 inch long	MB1111/7
5/16 inch dia	MB1111/8
4 Speed and Reverse	MB1111/4
2 3/4 inch UP 1 3/4 inch IN	MB1111
2 inch	MB1048
	MB1047
	MB1047/3
	MB313
	MB405/85
	MB1045/3
	MB405/84
	MB1111/8

Latest Hood Sticks and Hoods.

The T60 hood that DON HOOD make fits well I am told

The rest are a nightmare.

T60 Hood sticks are a two leg two hoop type.
The notable measurement up the flat leg to the pivot rivet is 7 ¼ inch

When hood sticks are in position on my T60, they are 40 inch approx across.

The hood sticks measurements are almost the same as found on both Ray Bells B105 and are exact same as Mike Stringers B95's sticks when measured on there cars.

To conclude,
I think Two Leg Two hoop hood sticks are the same shape size for B95 B105 T60 and SE492

The hood sold by DON HOOD for a B95 / B105/ SE492 has proved not to been fitting correctly as it is to small, so buyer beware.

The hood front fixing for a T60 is very much different to that of a B95 B105, SE492
So these are not the same.

The data from Ray Bells and Mike Stringers B95 B105 Cars

It must be noted that a raise in temperature will allow the materials to stretch a lot.
This test was done over a cold winter time.
To avoid disappointment, it's worth a note,

Original hoods will have shrunk if not been kept fitted on , by inches, so will be important to make it fit by cutting and adding material first, before going to the trimmer to have a copy made.

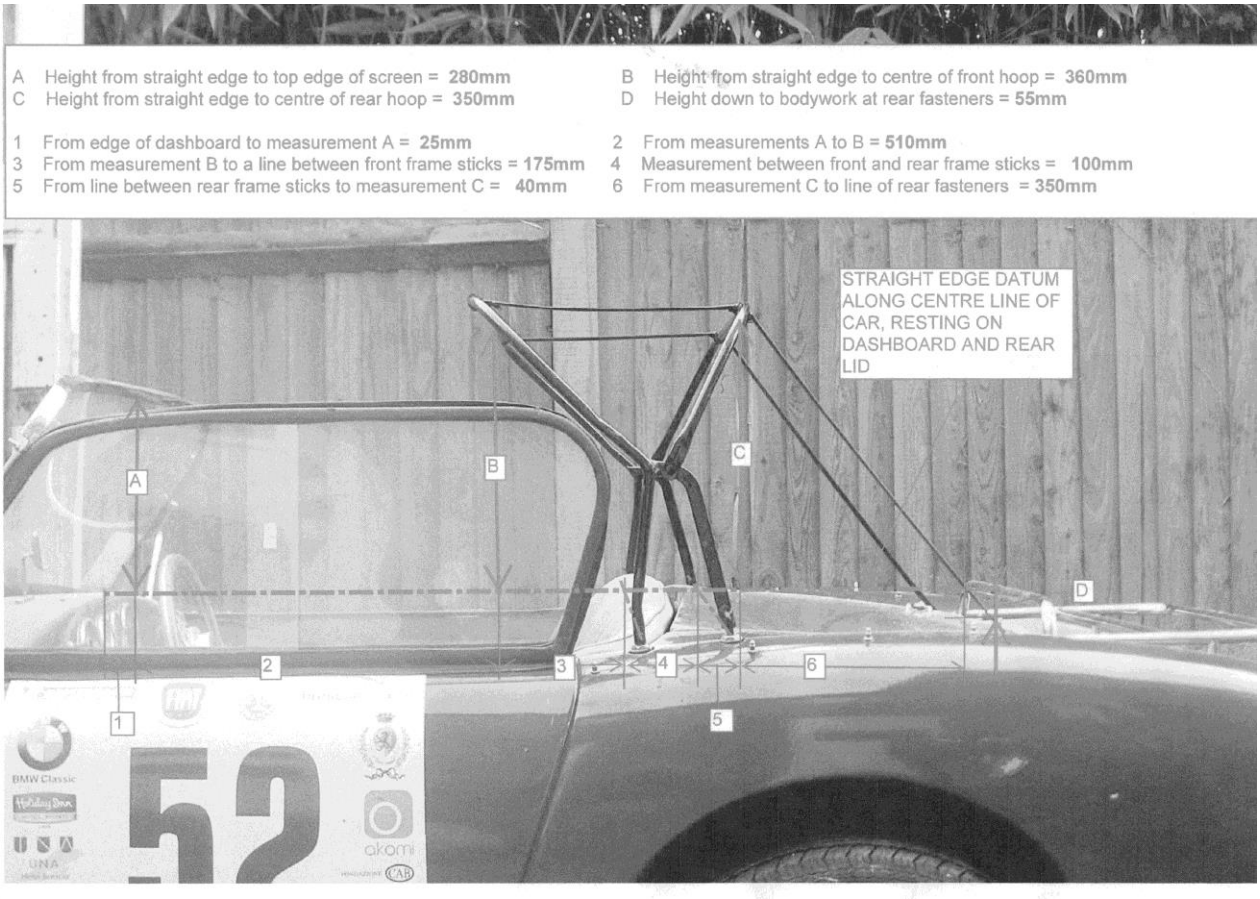
Ray Bells and Mike Stringers B95 B105 Cars



More general data from Ray Bells B105

It should be noted, my own, but custom made Hood , fits my car well , but only just about fitted both these cars.

The DON HOOD sold to Per Lysel in Norway was found way to small.



Early cars had single leg three hoop hood sticks.

Later still cars had two leg three hoop hood sticks

With consideration to the hood itself, I doubt (not proven,) if they made a different hood for each.

The early slant door car 328 Sports hood could use either set of sticks. But you would need to use the front hole in a two leg car if you wanted to use a single leg set of hood sticks.

The hood sold by DON HOODS for SE328 is also found to be much too small, buyer beware.

Some others cars are found with much taller hood frames.

When measured from the pivot rivet, that's normally 7 ¼ they are 10 1/4 Inch.

Still a 2 leg 3 hoop set of hood stick's but a taller option. (Has taller side window to suit)

Perhaps so our oversize cousins, from across the pond could fit in !

And in use will require a much bigger hood.

Tall side window



Taller hood frame and side window.



Then there is the foursome, two leg three hoop set of hood sticks, As you would expect, that's almost 6 inch wider and longer than all others.

That's another completely different hood shape

The T60/4 I understand has a pram type hood frame, different again.

And there are perhaps more versions.

DON HOODS tell me they have an Anzani hood pattern, what ever that's for.

Checking five cars that have three hoop frames, when measured from the boot lid to each hoop in its folded up position a lot of different results were recorded.

Front Bow	19 ¾	20	19 1/2	20	20 1/4
Middle Bow	14 ½	14 ½	13 3/4	15	15
Rear Bow	15 3/4	17 1/2	15	17 3/8	17 3/8

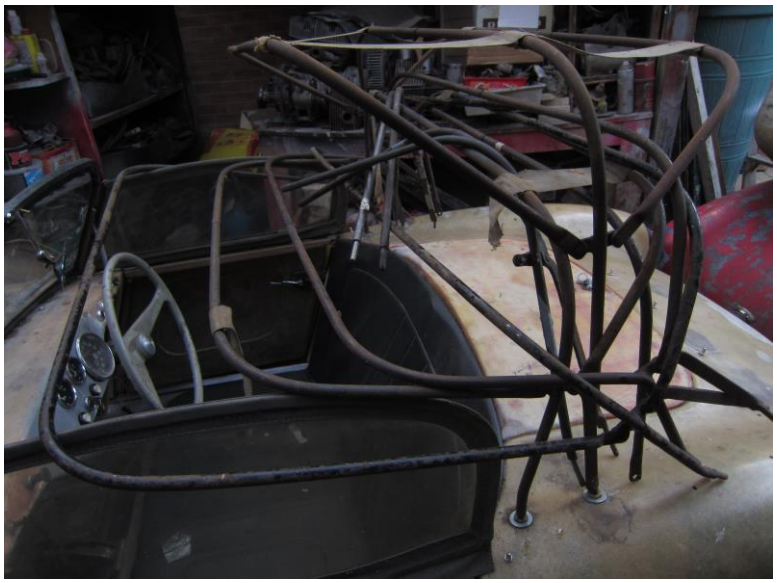
(this is a single stick set.)

Note B95 B95 T60 Late SE 492 are all 40 inches across the rear body

SA SE 328 and early SE492 are all 37 inches across the rear body

We have no chance.

Will get something to fit one day



EBO Lots of money later, from another well known trimmer.



Made from an old hood pattern.

But then trimmers are just not interested in anything odd or unusual ,

I asked that they did not damage the pattern , they cut it up any way !

I asked that they made new patterns, so future hoods can be ordered.

Last time I checked they can't find the patterns, perhaps never made in the first place.

Always to busy with contract work, (that's anything easy, quick money) above was almost a year in the making. We do need to find some one else who understands.

Mrs Stanerstreet might be the one.

The Berkeley Heater

This heater was developed only for use on cars fitted with the TRIPLE 492 engine.

One that had the latest exhaust system MB1115

Only a very few cars had a heater fitted , One can be clearly seen in the factory car used for the Monte Carlo rally , VNM 414, and probably used in other rally cars .

I am sure by the holes left in the bulkhead; one was once fitted in the Coupe.

Perhaps when testing the first heater.

VNM 414



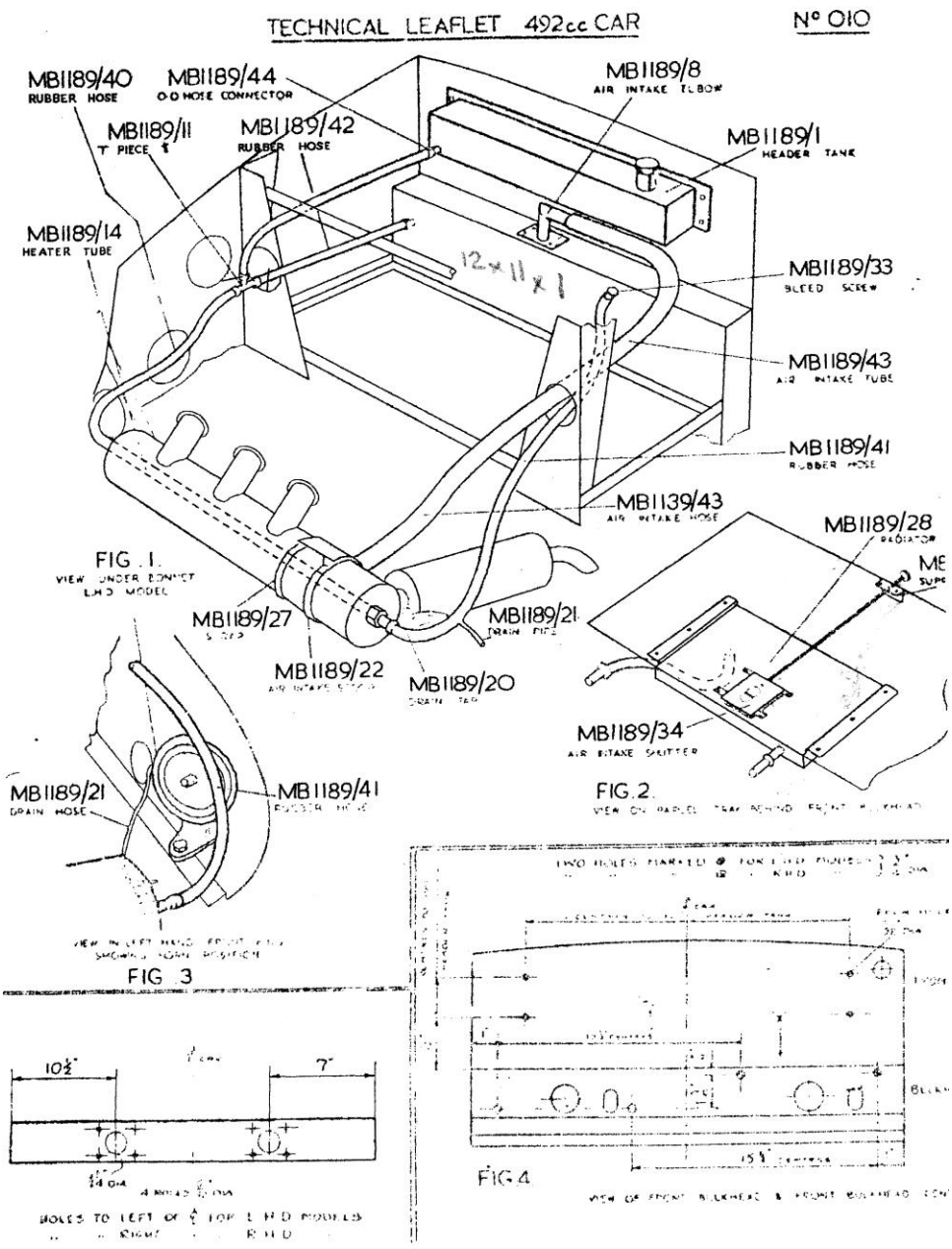
No original example of a heater exists, as far as I know.

BEC found reference material in archives,

Parts list, an Installation guide, illustrated technical leaflet and interestingly

A “Distributor and Dealers only “, performance quote.

TECHNICAL LAYOUT

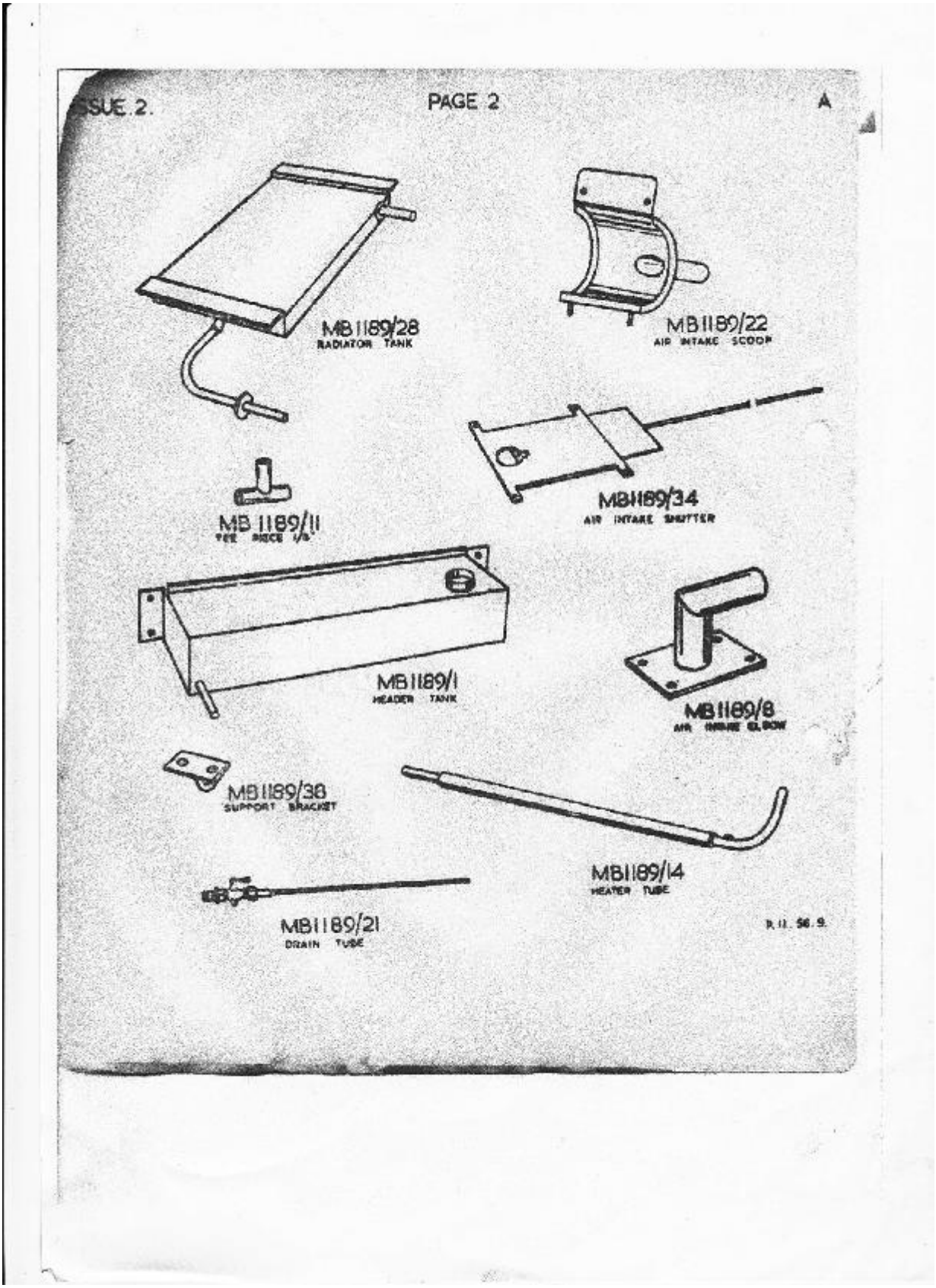


INSTALLATION GUIDE

Heater Installation 492cc Cars

1) Remove horn (lhs front wing) and reverse bracket to face forward and refit.
2) Remove expansion chamber and exhaust silencer , clean out centre tube and insert heater tube with drain tap at silencer end ,keeping head vertical.
3) Fit intake scoop with straps using screws and nuts.
4) Refit expansion chamber and exhaust silencer.
5) Fit drain pipe to tap to lead out through hole in lhs wing bulk head.
6) Drill two holes ¾ dia through the front bulk head centre to accept tubes of radiator tank
7) Cut one 1 ¼ dia hole through top of front bulk head centre for air intake above radiator tank. Position air intake elbow centrally over this hole and mark off and drill four 5/32 holes
8) Fit air intake elbow and at the same time fit air intake shutter under parcel tray using screws and nuts
NOTE The two front holes in the air intake elbow flange to pick up with the front holes in the shutter to ensure that the shutter works over 11/4 dia hole mentioned in instruction 7.
Two holes 5/32 dia must be drilled through the parcel tray to secure rear of shutter.
Mark off and drill two holes 5/32 for bracket at front of parcel tray and fit bracket complete with grommet and operating knob using screws nuts and washers.
9) Unscrew and remove bleed screwfrom lhs pipe of the rad tank and position tank beneath the parcel tray with both pipes through front bulkhead centre.Mark off and drill four 7/32 dia holes through parcel tray and fit tank using screws and nuts and washers , refit bleed screw.
10) Position header tank and drill four holes 7/32 dia through front bulk head , secure tank to bulhead with screws nuts and washers.
11) Fit four lengths of ½ dia hose , arrange as shown incorporating T piece and secure with clips.
12) Fit air intake hose
13) Fill hot water system as follows
a- remove header tank filler cap and fill with a mixture of water and anti freeze 3-1 Total capacity 5 pints.
b- Open drain tap until mixture flows and then close. Remove the bleed screw to release air and when mixture flows free of air refit screw and tighten
c- Check the mixture level in the header tank (water level shown on exterior of tank) and replace filler cap
d- When starting with engine cold , keep the air box shutter closed for about five minutes (3 miles) to allow system to heat up.
(Operating knob is attached to the parcel tray front edge is pushed forwards to close shutter and pulled back to open shutter)
After five minutes, pull out the shutter knob.
e) To cut off heater whilst travelling ,push in operating knob (this shuts off the air flow from the air intake
f) To empty system
Remove filler cap and open drain tap. When system is empty tighten drain tap and replace filler cap.
No damage can be caused to the heater system if car is run with the heater system empty.

PARTS ILLUSTRATION



ISSUE 2 PAGE 2 A

QTY.	DESCRIPTION.	FITTED O.G.	C.K.	RET. PRICE £. s. d.	PART NO.
1	Glazetite handle			1. 7. 0.	AB 400/24
1	Glazetite Hold rest			9. 0.	AB 400/25
1	Glazetite Small Eye			3. 0.	AB 400/26
1	Glazetite Barge Eye			6. 0.	AB 400/27
1	Glazetite Hook			7. 0.	AB 400/28
1	Revecounter Complete Assy.			8. 0. 0.	AB 1159
1	Revecounter Head Assy.			3.1.. 6.	AB 1159/6
1	Revecounter gearbox			2.17. 6.	AB 1159/1
1	Flexible Drive Comp. Assy 56'			1. 3. 6.	AB 1159/2
1	Flexible Inner Cable Only			11. 0.	AB 1159/4
1	Drive Nut			4. 6.	AB 1159/5
1	Revecounter Head Assy Glass Only			2. 6.	AB 1159/5
1	Bezel Disc	✓70		1. 0.	AB 526/5
1	Bezel Ring	✓70		1. 0.	AB 526/6
2	Embellisher Bracket Rear			2. 6.	AB 1177/5
4	Imitation Knock On			11. 3.	AB 1177/6
4	Ventalated Wheel Disce			8. 0. 0.	AB 1177/7
1	Heater Complete			11. 5. 0.	AB 1189
1	Header tank			3. 5. 0.	AB 1189/1
1	Air Intake elbow			10. 6.	AB 1189/8
1	'T' piece ½"			5. 6.	AB 1189/11
1	Heater tube			7. 6.	AB 1189/14
1	Drain tap			6. 6.	AB 1189/20
1	Drain pipe			2. 6.	AB 1189/21
1	Air intake scoop			18. 0.	AB 1189/22
1	Strap			2. 0.	AB 1189/27
1	Radiator tank			3.12. 6.	AB 1189/28
1	Bleed screw			6.	AB 1189/33
1	Air intake shutter			15. 0.	AB 1189/34
1	Rubber hose (Header tank to 'T' piece)			3. 0.	AB 1189/39
1	Rubber hose ('T' piece to heater tube)			3. 0.	AB 1189/40
1	Rubber hose (Heater tube to radiator tank)			3. 0.	AB 1189/41
1	Rubber hose (Radiator tank to 'T' piece)			3. 0.	AB 1189/42
1	Air intake hose			8. 6.	AB 1189/43
1	"OO" hose connector			9.	AB 1189/44
1	Hard top complete comprising			30. 0. 0.	AB 1186
1	R.H. gutter			7. 0.	AB 1186/1
1	L.H. gutter			7. 0.	AB 1186/2
1	Chrome trim			1.10. 0.	AB 1186/3
1	Rear window			4. 0. 0.	AB 1186/4
1	Ceiling strip			1. 5. 0.	AB 1186/5
1	R.H. side screen			4.15. 0.	AB 1186/1
1	L.H. side screen			4.15. 0.	AB 1186/2
2	Locking handle			2. 0.	AB 1209/7
2	Stub plate			3. 0.	AB 1209/8
4	Side screen escutcheon plate			2. 0.	AB 1209/9
2	Draft excluder		each	5. 6	AB 1246/5
1	Mirror			6. 6.	AB 1253/1

This a typed copy of a very faded, Technical Leaflet No 010

DISTRIBUTORS AND DEALERS ONLY

PERFORMANCE

Test carried out with this heater system have shown that the temperature inside the car will rise as follows

From 32degree Fahr to 52 degree Fahr after 20 minutes (12 miles)

From 32degree Fahr to 57 degree Fahr after 35 minutes (21 miles approx)

Well, with a performance like that you just have to have one, don't you?

Perhaps better to invest in hat and gloves.

But as you do, with all that information, I set out to make a replica.

HOSES



HEADER TANK



RADIATOR TANK



RADIATOR TANK in and out PIPES



HEATER TUBE DRAIN



HEATER TUBE



AIR SHUTTER



AIR TUBE INCOMING



AIR SCOOP CLIPS AROUND SILENCER

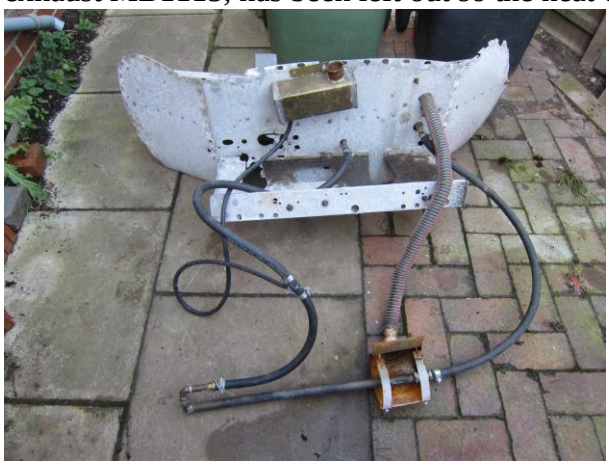


AIR SCOOP



LAID BARE

HEADER TANK AND WATER HOSES Heater tube passes through the exhaust MB1115, has been left out so the heat exchange idea can be seen.



AIR TUBE FROM SCOOP TO RADIATOR TANK



RADIATOR TANK AND AIR SHUTTER CONTROL



The testing I did was outside with temperature around freezing,

Under dash temperature was raised to 18 degree C fairly quickly with a propane gas torch pretending to be an Excelsior triple 492 engine.

Some more work required to balance the heat available from the exhaust and the size of the expansion or header tank. The single point of heat from the propane torch made water boil and that makes gas in the water, and that causes an over flow situation.

Surprised after all just how robust it was and it if on a long run would make a difference inside the car. That's with windows in and hood up.

LOOKING BACK,

Five cars and a Caravette, recovered from lost cause conditions, in the past sixteen years.

I am told I must get out more.

The Old Sunbeam S8 that pulls the Caravette is not included, that I have had since 1968, and it got restored then. Only have to include the Watsonian Sidecar as a recent restoration.

That said, soon it will be time to knock some of the Shed down and build a proper veranda to keep some or the cars under.

Still have my eye on one more car that I would like to own.

And my Ducati I had when 19 (boy racer) is found again and I hope will come home when space is made to park it.

Seems as if this collection of stories, reports and findings that I have been recording could I suppose be called a Berkeley Ramble, sorry if it went on a bit, but that's what it's like in my shed.

Hope some of the bits were of interest.

Keep Smiling.

Graham Higgs 09/05/2016.
To be continued.