

## MCR21 Engineering News Sept. 2020

### The vehicle

MCR21 is still at Ward Jones and work is progressing if somewhat slowly. Most of the lockers are finished and the work on the body and roof prior to painting is virtually done. There is still some work painting the chassis and refitting the fuel tank to be done. One difficult area is the front perspex quarter windows, replacements have to be made.



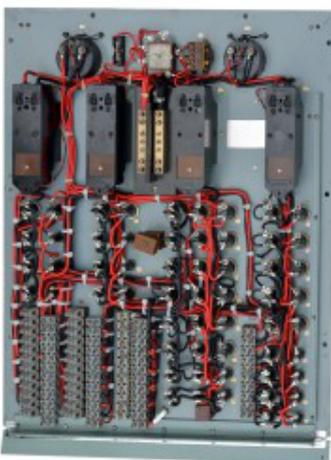
Three pictures of the rear of MCR21 showing progress in the preparation for painting. Close examination shows the hinges have grown masking tape. We are looking forward to getting it back.

**Wiring;** There will still be work to be done, by us on the vehicle, we have promised to do/re-do the vehicle wiring. Lights, hooter etc. I did buy a fuel gauge sender unit for the fuel tank, but there is the suspicion that the meter in the instrument cluster is faulty, to be sorted. Additionally there is the step alarm system which interlocks with the ignition system. Need a 100m drum of black 1.5mm flexible cable for this.

**The dashboard,** which was rebuilt 30 years ago, has been removed to facilitate the rebuild of the front outside skin. This will have to be re-worked and re-installed. It could go back more or less as it was or with varying degrees of accuracy be rebuilt more in line with the original.

**Roof decking;** another task will be to refit it after it has been treated with linseed oil. Or we could paint it Green as per original state. We can either put it back as was or upside down to expose a new surface. We will use oversize stainless screws for this. The supporting cross members will not be in exactly the same position and some thought will need to go into this.

### Mains Power panel



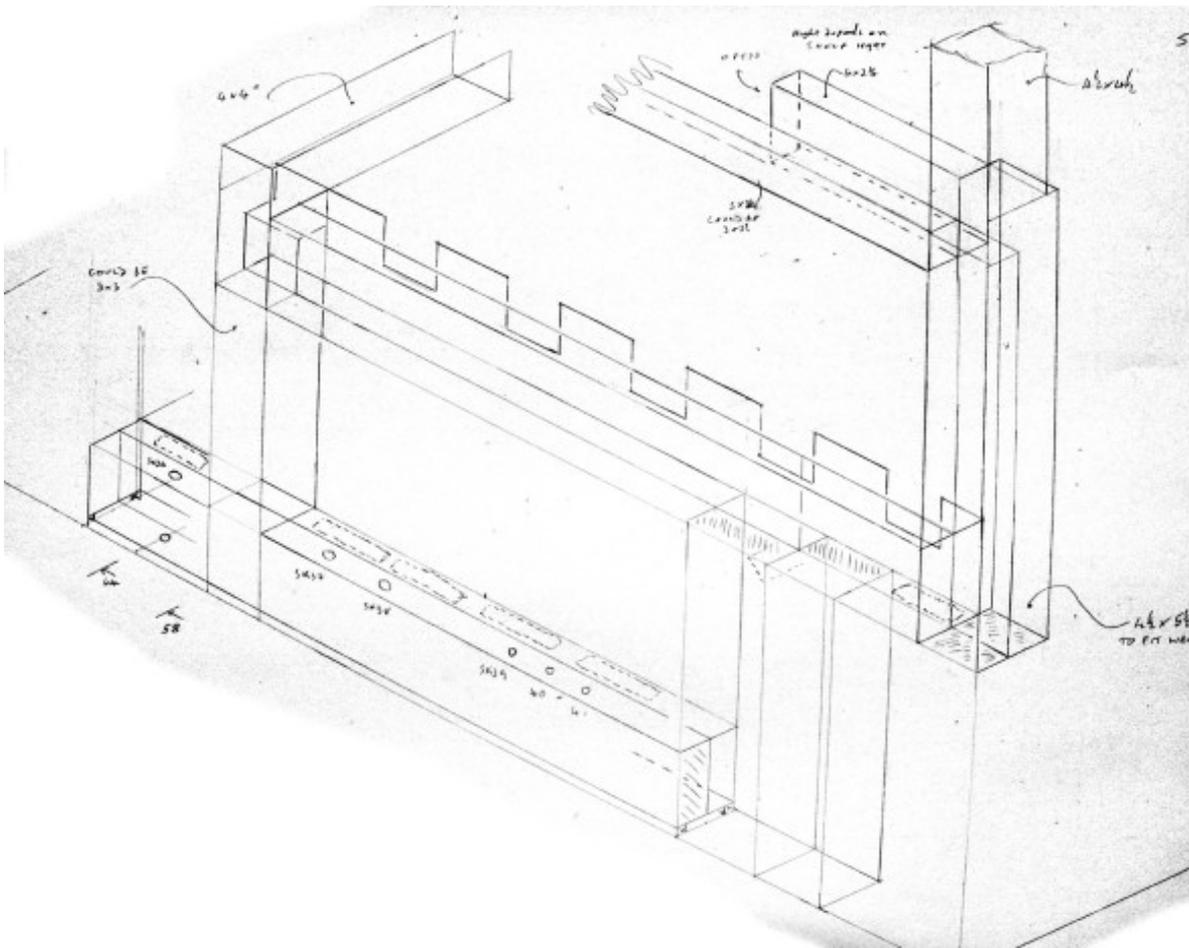
Len has been restoring the internal mains distribution panel, with impressive results:- These two pictures show the front and rear of the internal mains panel after restoration with the voltmeter and ammeter at the top. The 4 main breakers and the distribution fuses below. In 1963 it was the practice to fuse both the live and neutral wires, although we have kept the neutral fuses in place for historical accuracy but we have linked them out. The circuit diagrams for this panel are on our [documentation page](#)



### Cable trunking & woodwork

One of the areas of uncertainty is just how the trunking was arranged at the rear of zone one behind

the driver's cab. There were 4 horizontal trunking rows, one on the floor, one on the ceiling and two intermediate ones. These align with the horizontal wooden support shelves.



The attached sketch, viewed as if you were in the front passengers door, shows the floor and first intermediate with part of the second intermediate one. the duct to the right goes up to the ceiling one which is quite simple. The two main risers come up from the underfloor ducting that runs towards the rear of the vehicle. One for power and one for audio and video.

To the left is a longitudinal duct (marked 4x4) The internal mains fusing and distribution panel goes above this. Most of the cables go from this via the intermediate duct to the rising power duct on the right.

Most of the ducts have a central divider with power on the front one and audio and video in the rear one. Its not altogether clear how some of the crossovers work. The notches in the intermediate duct align with the CCUs cables.

The ducts are a non standard size, mostly 4.5 inches wide ( 2x2.25) and 5- 7 inches tall and will have to be fabricated to fit. It is our intention, were possible, to use the old fixing screw holes left from the original build.

Conventional electrical trunking is normally nut & bolted together, this was not how the original MCR21 ducting was made, What few surviving sections we have were spot welded together, anyone got a spot welder? The fall back will be pop-rivets.

The same applies to the woodwork, there are marks, holes and slots which indicate the original positions which we will follow as closely as possible. Inevitably there will be a certain amount of measure cut & fit to be done.

We need to find a close match to the original laminate colour and pattern. The Pye handbook says it is Sycamore 825. Several sheets will be needed as there is the monitor stack fascia to do as well. If we can't find a very near match, would it be best to use say, a plain magnolia type laminate. As we intend to use real plywood it may be that we have to apply the laminate ourselves and then there is the edging strip to worry about. I wish I was as confident about the laminate as I am about the ducting..... **Do we have a Formica expert amongst us?**

## Locks

I thought this would be easy, but not so. There are ten of these around MCR21, all of them are in poor to bad condition. I had hoped to find them on eBay, Yale type 229, but alas no. So, eventually, they will have to be restored. I never had the correct key, so we don't have a key to fit but it is the similar shaped blank as the TX.98 key. Can the key be reverse engineered?

**Is there a locksmith out there ?**



## Metal

There are numerous bits that need making, Mounting trays, Mains connector panels (several different ones) Blanking plates, some just need refurbishing or modification. One seat needs attention. UMD's Under Monitor Displays, 7 to make.

## Fabric

We have 3 of the 4 seats used in the production area and there are the engineers benches, the driver and passenger seats and the benches at the rear. about ten in total. They are in varying states of disarray. In the long run most or all will all need recovering to the original style and colour.

## AVRs

There are 3 of these, all need TLC Another heavy but important item. They are mostly mechanical, motor transformers and a three transistor control box. The input voltage range is 170 to 260V for 240V output  $\pm 0.5\%$  @ 17.5A.

They were made by Claude Lyons type TS-3.

The [Handbook](#) is on the MCR21 website for download. They live in the rear nearside locker and they weigh a ton!



## Our Website

I have just added an "[our supporters](#)" page for companies that have donated money, goods, or even goodwill. One area that we have been giving thought to is a friends page. Other museums, like the <https://earlytelevision.org/friends.html> have a friends page, whilst we are not that well organised yet, if you wish to make a small **regular donation**, that would be most welcome and a way of sustaining our actives into the future.

A separate strand to the restoration work, is recording the history of the people who worked on BBC MCR21 and the programs they made. A list of programs can be found at [www.mcr21.org.uk/programs/](http://www.mcr21.org.uk/programs/) Can you can help to fill in the gaps?

## Storage/workshop

This is another difficult one, when MCR21 comes back, hopefully it will not be too long, we will need somewhere secure to work on it in the dry over winter. Ideally not to far from Camberley. On the subject of working on it, just how are we going to do Coved social spacing.....

## News

The project got a mention in RADCOM last month and I have written a short piece for CQ-TV issue 269. We are pleased to have received a small grant from the Garfield Weston Foundation whom we thank for their support. This brings us a little closer to meeting our share of the HLF grant. We have registered with HMRC so we will be able to reclaim Gift Aid on the donations we receive.

**>>> Your help is needed! <<<**