Building an RCR (Part 2)

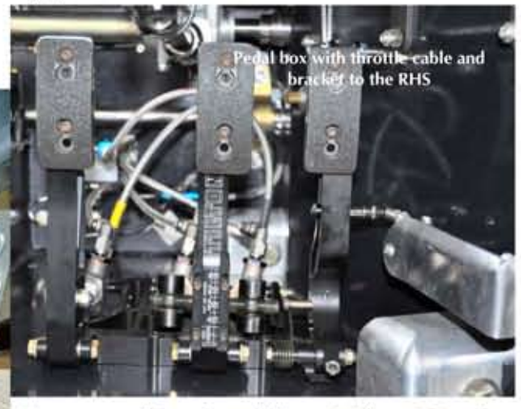
by John Lowe >>

In Part 1, John got his chassis ready and married the engine to the gearbox. Now, they're all ready to come together.....

The engine/drive train was bolted into position, revealing a problem, however. Handbrake cables had previously been mounted, but it was obvious that they would now need to be re-positioned to provide proper clearance round the drive train. The length of the RCR-supplied cables was already marginal because of an earlier decision to replace the standard calipers with Brembo units (at the time of order placement, it was considered that the standard calipers were marginal for IVA, subsequently they have proved just acceptable - another 'king unnecessary cost!) New cables were subsequently purchased and fitted. More on this later. The generous contingency cost I had built into the original estimates was starting to look a bit sick, even at this early stage, but this will come as no surprise to a good '40 man. In addition to the engine mounts and gearbox horseshoe top mounts, it was decided that, because of the power and torque of the LS7, additional strength was required. This is very probably overkill, but will give me peace of mind! A cross member was fabricated which bolted to the lower horseshoe mount and picked up the mounting points on the bell housing.


Jackshaft and mounting plate

Douglas used Kinsler equipment on their LS7 engines, giving a nice, easy and reliable 560bhp on the dyno) had supplied me with a complete 'tanks to injectors' system including Engine Management but excluding pipes, fittings etc. Both Earl and Fran have had considerable personal experience with the LS7. A mounting plate was designed (made by Alan Holley) which extended slightly forward of the V plate for the correct alignment and attachment of the jackshaft linkage, plus later attachment of various EFI sensors.


Pedal box with throttle cable and bracket to the RHS


Support cross member trial mounted to bell housing


Engine and drive train in place

Attention was now given to the throttle actuation part of the fuel injection system. Fran Hall of RCR and Earl Miller of Kinsler (the latter chosen because Gardener

Next up was fitting the pedal box. A Tilton 900 series was ordered by RCR at my request, to replace the standard kit item. The Tilton 900 is a beautifully engineered product and is another superb example of how to blow the budget. This was made less painful by skilful application of the 'you're a long time dead argument' (Younger members unfamiliar with this powerful rationalization tool will come to it in fullness of time. This is a completely natural process and should not alarm you). At this stage it is worth mentioning that RCR proved to be both helpful and flexible in responding to various pre-ordered, non-standard 'stuff' like fitting the aforementioned Brembo calipers, supplying the complete fuel system and LS7 engine mounts.

Fitting the Tilton was pretty straightforward, being subjected to the Heinz approach with particular care in optimizing the pedal positions in a GT40's narrowing pedal box area. All internal brake and clutch connections were then made, linking pedal box to brake pipe and clutch pipe fittings and, externally via the previously installed through-bulkhead fittings, to the reservoirs.

The throttle action is both smooth and progressive; what is known in general parlance as a result.

On now to the rear suspension. The rear anti rollbar comes from RCR and, like the front one, includes links and arms, but without fixing brackets. I looked at a few of the solutions on various build threads which, though functional, didn't impress from the 'look' point of view. As with most GT40 solutions, space was at a premium and the horseshoe is the only practical attachment point, so options were limited. Clearly the bar could only run in front of or behind the horseshoe. Behind had many advantages from a space point of view, but to get a sensible arm length resulted in a rather acute angle between the drop link, arm and lower suspension. Front mounting, with all its space limitations, was the answer. Certainly the gap between header pipes sweeping downwards and the gearbox meant moving from 'Heinz' to 'Heinz²' (actually 3249 measurements, if you're interested) before metal was cut. We sorted out a geometrically correct fitting and overall look, and designed a bracket. Allan Holley was involved in order to ensure the most efficient manufacturing process and that the 2 bearing surfaces would be geometrically correct. After some research igus® plastic bearings were selected. These require an accurate press fit, so the Holley skills were definitely required.

A combination of lengthened horseshoe top and suspension mounting bolts for attachment ensured a robust finished job which looks (IMHO) rather nice.


Roll bar mount

Assembling the rest of the rear suspension and rear undertray was relatively straightforward. The suspension is fully rose-jointed and well engineered, so the only issue was deciding on geometry. Fortunately one


Rear Suspension

NOTES FOR THE TECHNICAL
DEAN LAMPE'S SETTINGS

'I spent the day at the track today, so I thought I would write a little report. Before I get into the performance of the car, let me share some basic chassis set up data with you. I weigh 205lbs and I had 12 gallons of fuel - 6 gals each side.'

Ride height F3.87", R4.5"
Lower front A arm angle 3.5°.
Front left - 650 lbs Front Right - 589 lbs
Rear left - 763 lbs Rear Right - 715 lbs Front 45.6%, Left 52%
Total 2717lbs

Springs Front 550lbs, Rear 375lbs (wheel rate around 280 front and rear)
Ackerman 1° toe out in 10° of turn
Toe F -1/16 (out) Rear 3/64
Camber F-1.9° R -1°
Caster F 5.8° R5.6°

Bump steer left front bounce and droop, inch change
1 = 0.005
.75 = 0.002
.5 = 0.008
.25 = 0.002
0 = 0.000
-.25 = -.017
-.5 = -0.034
-.75 = -0.55
-1 = -0.07

bump steer right front bounce and droop, inch change
1 = -0.012
.75 = 0.001
.5 = 0.003
.25 = 0.005
0 = 0.000
-.25= -0.007
-.5 = -0.02
-.75 = -0.41
-1 = -0.052

To the track

This car drives so well that there are really no words to do it justice.

It went where I turned it, and it behaved very predictably and I was consistently faster than I had been the year before in my Cobra. The car was tight with this setup and had a tendency to push into the corners, although you could kick the rear out with just a little throttle. I'm going to take the rear springs up to 450 to loosen the car a little, but I will also need to increase my front bar to correct a small body roll issue. The goal is to net out a car that is a little less tight, but not by much. I don't think I will make it back to the track tomorrow but today was a screaming success.'

Our thanks to Dean for letting us publish his data.