Notes on Dax GT40 27.11.89

NOTE - ABOUT NUTS AND BOLTS AND OTHER FASTENERS. We have quoted the nut and bolt sizes in Imperial UNF measurement. Also, UNF sizes are used where threaded inserts, or threaded holes are cut in the chassis and in other components. Rivets, are also measured in Imperial inches and all measurements are quoted in inches or feet.

Tables are supplied at the rear of this manual for conversion to metric and it is quite in order to use metric sized bolts and rivets where this is applicable. However, the correct size of bolt must be used in pre-threaded holes.

NOTE - The DAX 40 is available in either right or left-hand drive form - the pictures and diagrams in this manual may feature either type of chassis. In most cases the build sequence is exactly the same for both types and it merely means that the operation is transferred from one side of the car to the other. The manual will clearly state where this is not the case and all the necessary details will be given.

BUILDING TIP - During the build you will find that some jobs can't be completed until others have been done.

For instance, you can't adjust the pedal box until the seats are in position.

As an aid to your memory we suggest that you either keep a note pad and pen handy so that you can create a 'to do' list as you go along. Or, purchase a number of small luggage labels on which you can write details of the job to be done, then a label can be tied to the particular component involved and only removed when the task has been completed.

For the first couple of tasks we will remind you to make a note or tie a label. From then on, because it can be tedious both for the writer and the reader to make constant reference to the same point, you should remember when a note or a label is required.

BUILDING TIP - After cutting holes in the bulkheads, floor pan or bodyshell for cable and pipe entry, seal the hole around the pipe with some mastic to prevent water ingress

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BUILDING TIP - WUTH ADHESIVE AND SEALING COMPOUND acts as a petrol and oil proof seal. It is also a very good

adhesive and it forms a cushion between components. Use it when fixing panels, mounting components to the skin or chassis and sealing small holes

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KIT CONTENTS

The kit is supplied with the bodyshell fitted to the chassis, the front bonnet, rear engine cover and doors are fitted and gapped but the locks and catches are not fitted.

The scuttle and sills are fitted. Also, mild steel finishing strips are screwed to the upper and lower sill edges; self-tapping screws are used and these can be easily removed when fitting the fuel tank and floor panels.

The front and rear wishbones, uprights, wheel bearings, coil/damper units, modified steering rack and discs are fitted, but the brake calipers are not.

BUILD SEQUENCE

The building sequence for this initial section is:

Fit fuel tanks, fuel filler caps and filler hoses.

Fit floor panels

Fit bulkhead panels

Fit radiator

Fit pedal box, servos, calipers, static pipes, flexible pipes and handbrake

Fit steering column and extension

Fit heater

FUEL TANKS

The tanks are located in the sills in the space formed by the chassis outriggers (see diagram of chassis). They are fitted from under the car and to do this the sills and their steel finishing strips have to be removed. Remove the self tapping screws which secure the strips and sills to the chassis and store them in a safe place.

So that you can see how the tanks are located in the chassis, offer one tank up so that the front of the tank is in line with the front chassis member(?); and ensure that the access hole in the upper sill cover is over the fitting in the tank which accepts the sensor unit. PIC. Measure four inches in from each end of the tank to locate the position of the two outer securing straps, then measure and mark the position for the central strap.

Hold each strap in turn in place and mark the position of the securing holes. ~~Drill and tap the chassis to accept 5/16 inch UNF bolts.~~ Stick a strip of foam rubber along the edges where the tank meets the chassis

rails or use a generous bead of WUTH ADHESIVE AND SEALING COMPOUND (?) and, holding the tank in position (if you are working alone use a well padded trolley jack to hold the tank), secure the straps with 5/16 bolts with shakeproof washers under their heads. Repeat the procedure with the other tank.

Refit the sills and finishing strips

FILLER CAPS AND HOSES

It is best to fit these items before the bulkhead panels because access to the underside of the securing bolts is very much easier.

Close the bonnet. Space out three of pieces of Blutak or plasticine about the size of a pea under the flange of the filler cap. Now place the cap on the top of the scuttle and position it centrally in the cut-out of the bonnet. Press down firmly so that the Blutak holds the cap in position and lift the bonnet. PIC

With a pencil mark the position of the nine bolt holes around the rim of the cap flange. Ensure that the holes when drilled either cleanly pierce the centre of the chassis members or miss them altogether - don't position the cap so that the drill skids down the side of the chassis member or everything will be moved out

of position... and you will probably break a drill bit. DIAG OR PIC

Drill clearance holes for the nine 1/4 inch UNF securing bolts and after putting a bead of WUTH under the flange, bolt the cap in position. Now find the centre of the inner cap bore and cut a ~~2 1/2~~ inch 2 1/4" internal diameter hole through the scuttle top. PIC

From under the scuttle top, offer up the bottom flange and hold it in position so that it mates up with hole just cut. Now ask a helper to trial fit the tank-to-cap filler pipe and check that it clears the curve of the front bulkhead panel. At this stage the front bulkhead panel has not been fitted, but it can be held in place either manually, if you have enough hands, or with a couple of temporary self-tapping screws. DIAGS AND/OR PICS

A clearance of about 1/8 inch between the pipe and the bulkhead is all that is necessary. If there is not sufficient clearance with the holes mating perfectly, just open out the hole in the scuttle top a little so that the lower flange can be fitted and the clearance obtained. DIAGS AND PICS

Put a bead of Wuth around the rim of the lower flange and either bolt (1/4 inch UNF) or rivet (3/16 inch

rivet) the lower flange to the underside of the scuttle top. DIAG OR PIC

Repeat the procedure with the cap on the other side.

FILLER PIPE

Fit the filler pipes using the Jubilee clips and rubber hose connections provided. Keep the filler caps closed to prevent dust and dirt entering the tanks - as an additional precaution it is worth coveing the inlets with masking tape. PIC

FLOOR PANELS

The floor panels are supplied in three sections. The front section, which is made from 14 gauge aluminium sheet, and two main panels made from 12 gauge material. The main panels are designed to leave the bottom of the central tunnel open so that hot air from the cooling system pipes can escape.

It should be noted that the tunnel is not, in fact, central. It is wider on the driver's side; so the aluminium floor panel will be wider on that side, too. And, of course, which is the drivers side will depend upon whether the car is left or righthand drive. The panels are riveted to the underside of the chassis members at 2 1/2 inch intervals using 1/8 aluminium rivets. Again, a bead of WUTH between the chassis members and the floor panel acts as both an adhesive and a water seal. DIAG AND PIC

1/8 for front panel.
3/16 for floor

BULKHEAD PANELS

The front bulkhead is made up of a number of individual GRP panels as follows:

2 footwell panels PIC

2 side panels PIC

1 front panel PIC

1 top panel PIC

The top panels is best fixed by using four Dzus fasteners (two each side as in DIAG). This is because the panel gives access to the brake and clutch reservoirs and the steering rack.

Dzus fasteners are ideal for fastening non-structural access panels such as this and the EHF series do not require special tools in order to fit them. The recently introduced plastic version is best, if you can get them, because they are more tolerant of varying panel thickness. The accompanying diagram is self-explanatory. A self-adhesive rubber strip fitted to the top edge of the panel will prevent any noise

from vibration occuring. PIC and DIAG

The remaining panels can be riveted to the chassis members using 1/8 inch aluminium rivets at 2 inch intervals. Use a bead of WUTh between the chassis members and the GRP panels.

RADIATOR

First stick a length of self-adhesive foam rubber strip to the bottom of the radiator. Locate the radiator on the chassis brackets (PIC) and, using the radiator brackets as templates, mark the position of the holes in the chassis brackets.

Drill 1/4 inch clearance holes in the chassis brackets and with the bottom of the radiator resting on the aluminium bottom panel, bolt the radiator in position using 1/4 inch UNF bolts and nyloc nuts. PIC

NOTE - ALWAYS USE APPROPRIATELY SIZED WASHER UNDER BOLT HEADS AND NUTS TO SPREAD THE LOAD. USE NYLOC NUTS ONLY ONCE, SO WHERE THERE IS A POSSIBILITY OF REMOVAL DURING THE BUILD, USE PLAIN NUTS AS A TEMPORY MEASURE AND REPLACE WITH NYLOCS FOR THE FINAL FIXING.

BRAKES

First fit the calipers to the hubs. The bolts must be tightened to the correct torque loading (see torque loading tables at the rear of this manual) and the proper lock washers fitted. The calipers must be fitted so that the bleed nipples are on the top of the caliper. PIC

Fit the brake servos to the front apron using the brackets provided and 1/4 inch UNF bolts and nyloc nuts. Use the brackets as templates when marking the position of the clearance holes to be drilled in the floor and bulkhead panel.PIC. The exact position of the servos on the front apron is not critical but they should be sited so that they are at the outer edges of the front pan area.

Fit the brake light switch and the rear three-way union in the position shown on the accompanying PIX and DIAGS. It will be necessary to drill and tap a 1/4 UNF thread in the chassis rail at the rear to fix the three-way union. Similarly, the light switch union is fixed by a 1/4 UNF nut and bolt through the bulkhead.

The brackets which hold the unions which make the connections between the braided flexible hoses from the calipers and the static lines can now be riveted in the position shown in the diagram. Use three 1/8 inch aluminium rivets and either avoid the triangulation member which runs behind the side panel, or drill through the centre of it. (PIC) Also, make sure that the static pipe connecting the flexible to the front three-way union is positioned high enough to miss the bellows of the steering rack - which tend to increase in diameter on full lock.

Our pedal box comes as a completely assembled unit which is ready to be fitted to the car. We use a Tilton unit, manufactured in the USA, which is available from us at a competitive price, but it can also be obtained from from various other sources.

It is loosely bolted to the chassis using the 5/16 inch UNF bolts, washers and nyloc nuts provided. As you will see from the PIC, the unit is mounted on brackets which have elongated holes in them for full adjustment of the fore and aft position of the pedal box.

A generous radius in the static pipes leading from the master cylinders to the servos allow for this adjustment to be made with the pipes insitu, so don't

clip these too near the union in the master cylinder as this tends to fix their position. You may prefer to fit these particular pipes later on in the build when the seating position has been established and the ideal pedal box position found for the driver.????? Make a note on your 'to do' list or tie on a label.

Refer to the accompanying DIAGS to establish the positions of the static brake lines and how the components are connected. The brake pipes should be clipped at nine inch intervals using the plastic clips provided and to do this it will be necessary to drill the chassis members with a 3/16? hole to accept the shank of the clip.

Carefully measure and bend the pipes to follow the route marked on the diagram. Don't make sharp bends so that the pipes become kinked, use both thumbs to create bends with a minimum internal radius of one inch. If a pipe becomes kinked it should be discarded; also, avoid repeated straightening and bending a pipe because it will become work hardened and crack.

Measure twice and bend once is a good rule to follow. If you are worried about making a mistake use a piece of stiff wire to experiment with to ensure that you have the correct shape: then use this as a template to bend the actual brake pipe.

When connecting the unions use your fingers to start the nuts on the threads and tighten as far as you can by hand. Then use a spanner and tighten the nut a one further turn - do not overtighten because it is easy to strip the thread.

The system will be checked for leaks as part of the final tests and any further tightening which is necessary can be done then. If when you initially try to start the thread it does not turn easily, don't be tempted to use a spanner. Disengage the two parts, lubricate the thread with a little brake fluid - NEVER USE ANY OTHER LUBRICANT, ESPECIALLY OIL OR GREASE - and try again.

Bracket for rear flexible to static connections ??????

The flexible brake pipes can now be connected to the front and rear calipers and to the unions on the static pipes. PIC

HANDBRAKE

I haven't a clue how this goes together.

Connect the operating cable with its specially formed end to the fitment on the end of the handbrake lever.

The handbrake lever is bolted in position to the bracket on the chassis using two 3/8 inch UNF bolts and nyloc washers and the cable fed out through the rear of the tunnel. PIC

Lay the operating cable in position (PIC) and connect the caliper end as shown in the diagram. The yoke on the end of the cable is designed to take the loop in the cable from the handbrake. Final adjustment can be made later.

IN THE MIDDLE OF

STEERING COLUMN

The steering column is supplied in two parts - the main column and the extension.

Two brackets are provided for the main column on the cockpit side of the front bulkhead. (PIC) Offer up the column and loosely fit the U bolts, now fit the universal joins to the column extension but to not tighten the bolts on the splines. Connect the UJs to the steering rack spline and to the spline on the end of the main column. It will be seen that there is a small amount of column adjustment possible by sliding the UJs along the spline. This adjustment can be made later when the driving position has been determined. Meanwhile make a note on your 'to do' list or tie a reminder label to the column.

HEATER

The heater is fitted under dashboard and is carried on two brackets which run from the cross member under the scuttle to the chassis rail immediately ahead of it. DIAG. As you can see, the brackets are L-shaped in order that the heater lies parallel to the chassis. This is to ensure that air pockets do not form in the matrix and impair the efficiency of the heater.

Bolt the heater to the brackets using 1/4 inch UNF bolts and nylocs and locate the heater so that it sits centrally under the scuttle. Mark off the position of the fixing holes on the chassis members then drill and tap chassis to accept 1/4 inch UNF fixing bolts. Bolt the heater in place using lock washers under the head of the bolts. PIC

The heater supply and return pipes should follow the route shown in the DIAG. They run across the top of the footwell and enter the cockpit to go down either the left or righthand side of the car to emerge at the rear bulkhead. At this stage leave them loose in the engine bay area for connection to the engine cooling system later.