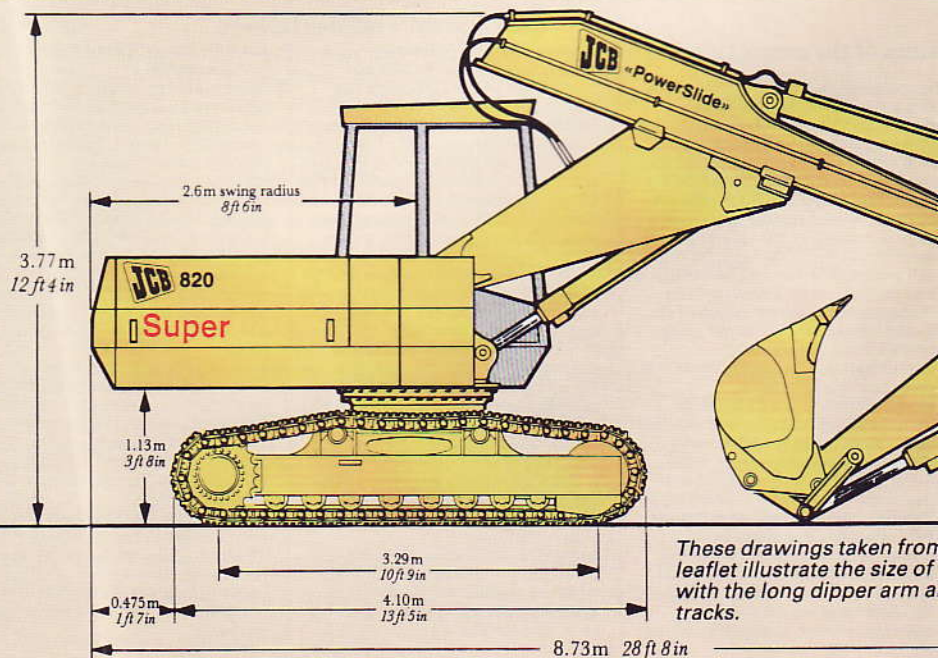
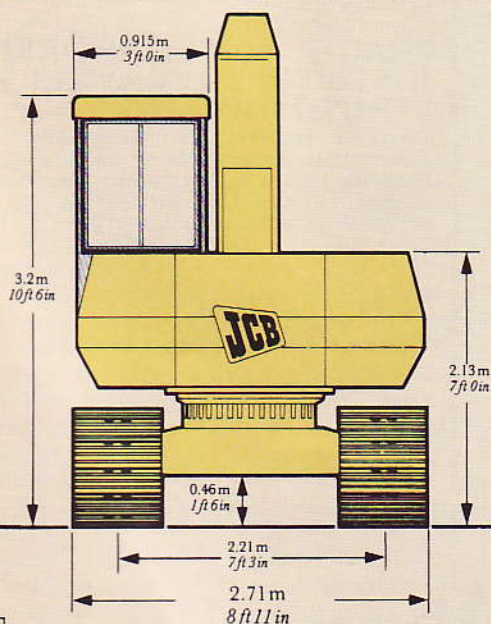
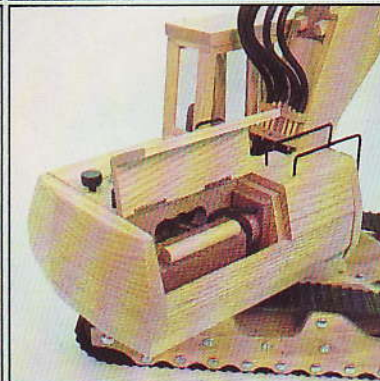
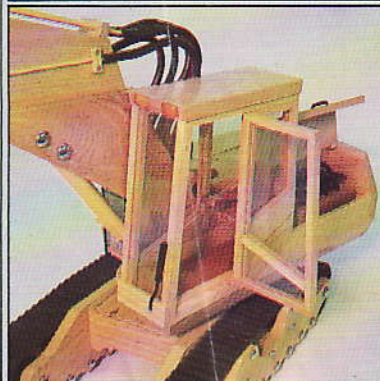
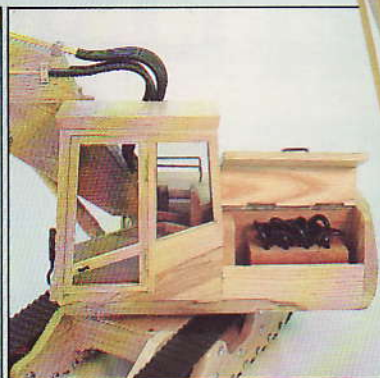
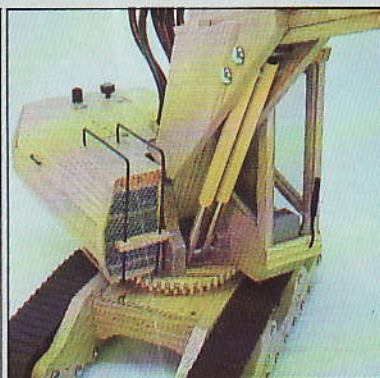
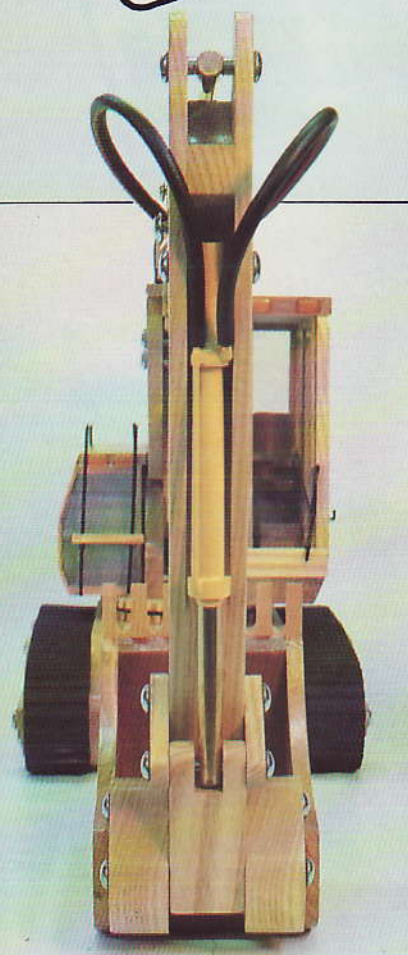




Build this 820 SUPER CRAWLER EXCAVATOR



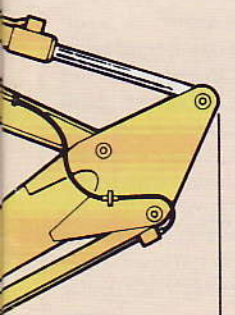
These drawings taken from leaflet illustrate the size of with the long dipper arm a tracks.

*model designed and made by
Richard Blizzard*

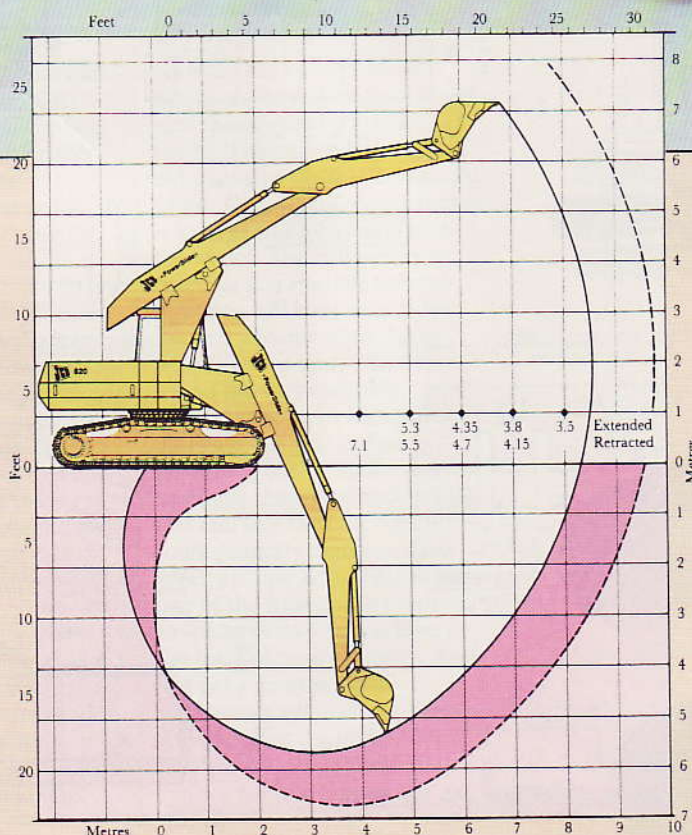


“Whether you build this model to enter it in the competition or simply for your own satisfaction, I wish you good luck and many happy hours in the workshop.”

— Richard Blizzard



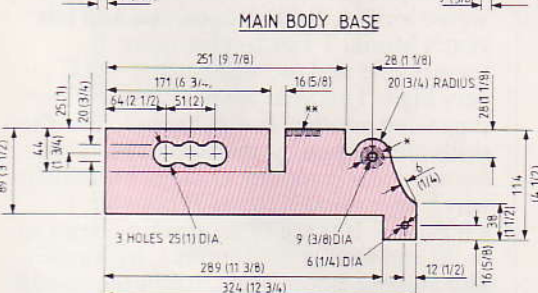
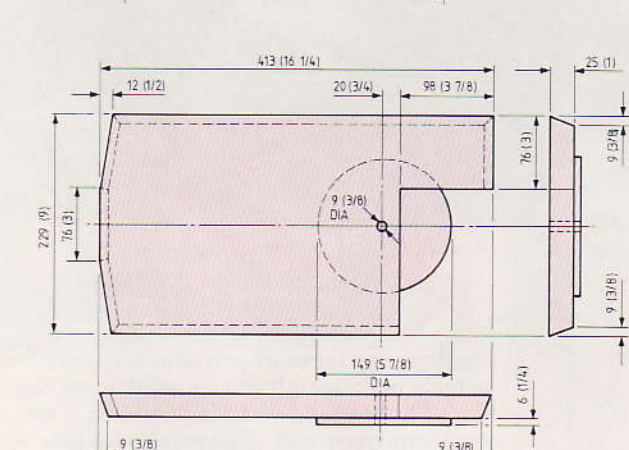
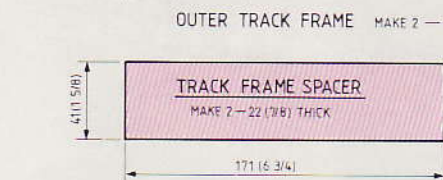
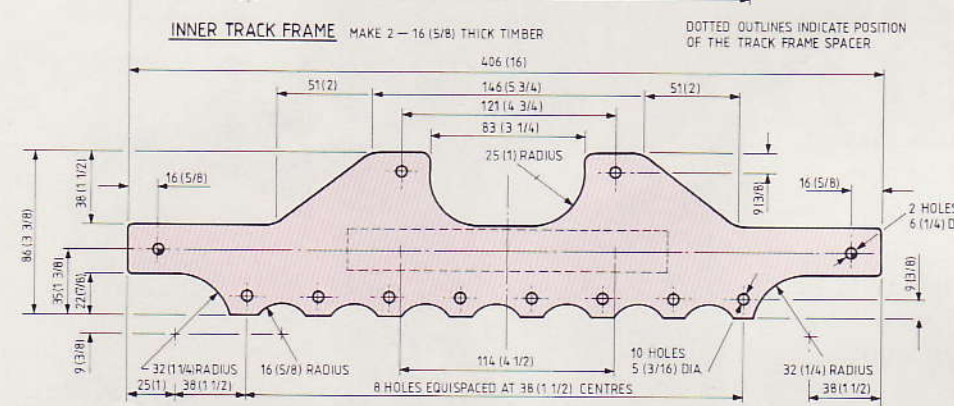
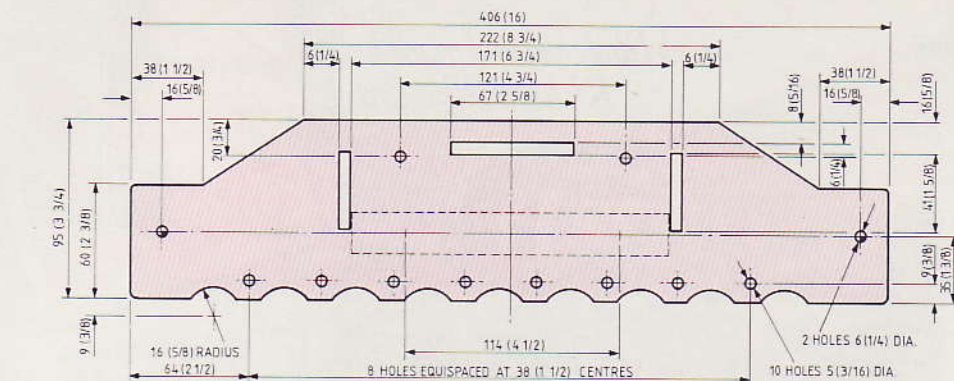
B's specification
real Super 820 fitted
20in. plate width



REGULAR readers of the magazine will probably remember that for the past three years we have set a challenge to those of you who are model vehicle makers to build a model along the lines I have suggested whilst adding your own improvements. The results for the Volvo lorries, Rolls-Royce cars and last year's Model T Fords were quite remarkable and the standard of work very high. This year when the magazine suggested another competition to test the skills and ingenuity of readers, I felt that we needed a complete change, and that is why I have chosen the JCB crawler excavator. It is really an amazing beast to build and with crawler tracks, hydraulics and massive boom arms, it will require all your acquired skills to build.

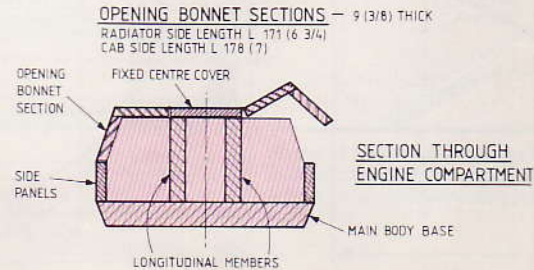
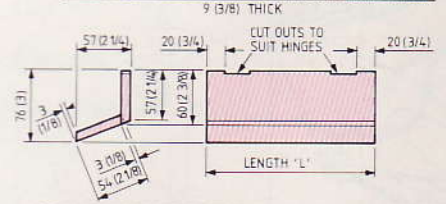
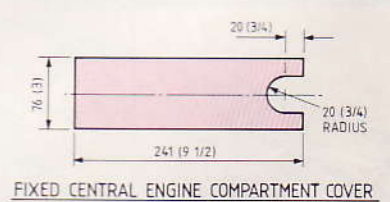
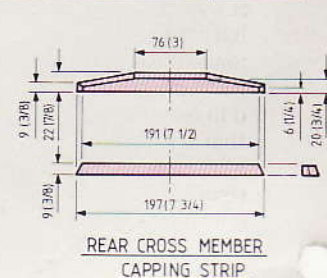
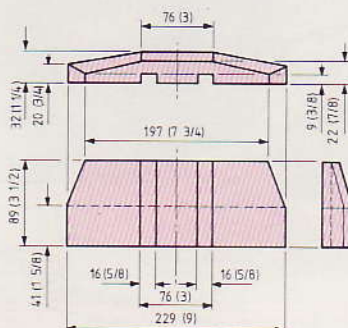
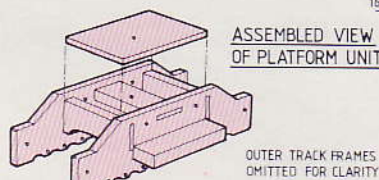
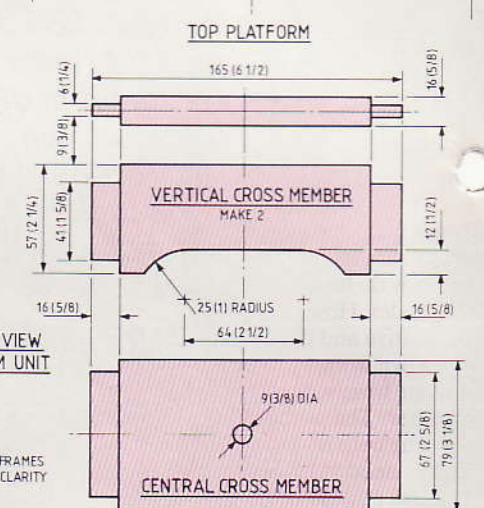
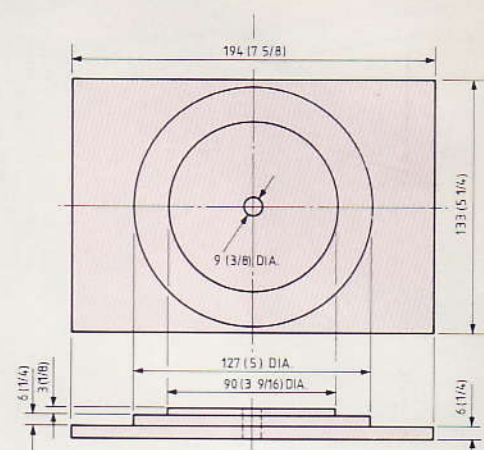
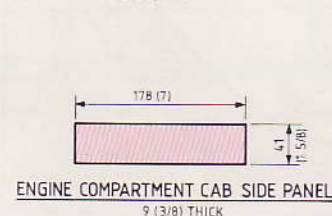
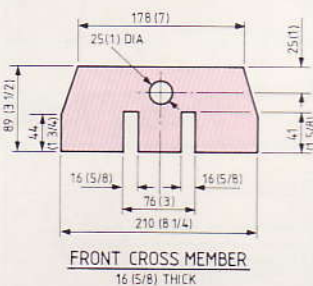
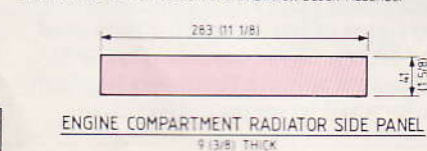
Whilst I have tried to build this model to a scale where standard wheels and components are available, in cases of difficulty then I can supply certain hard-to-find items of hardware (for details of this see later). However I am sure that many makers will use their own ingenuity. I look forward to seeing the results.

CONTINUED ON PAGE 39



* COUNTER BORE OUTSIDE FACE OF CAB SIDE LONGITUDINAL MEMBER 22 (7/8) DIA. x 6 (1/4) DEEP FOR COACH BOLT HEAD

** 35 (1 3/8) x 12 (1/2) x 6 (1/4) BLOCK ON OUTSIDE FACE OF RADIATOR SIDE LONGITUDINAL MEMBER TO SUPPORT 'RADIATOR BLOCK' ASSEMBLY





820 SUPER CRAWLER EXCAVATOR

FOR construction purposes, this crawler really breaks down into three main parts: the tracked crawler platform, the superstructure which houses the cab and engine, and lastly the booms. The logic is to work upwards, so I will deal with them in that order.

TRACKED CRAWLER PLATFORM

Obviously the most important feature of this machine is the tracks. I have used industrial timing belts that are made by Goodyear for printing presses. These belts are fairly expensive, as they are industrial quality, but they do look rather good on the model. However, there is an alternative and that is to make your own from wood. Each link is made from wood and pinned together. The wooden frames to hold the belts and all the roller wheels need to be fairly strong. The two inner frames are held together by three sections of wood that are through mortised and tenoned into the two inner frames. The two outer frames are held together by spacer blocks that are held in place by screws.

The simplest method of working is to treat the inner and outer frames as pairs and fix them together with tape. Mark in the position of all the roller wheels and drill all the necessary holes for the axles. If you fail to treat the frames as pairs, it is highly unlikely that you will get the axle holes to line up on assembly. Once all axle holes have been drilled, chop out the mortices on the two inner frames. The three sections of wood holding the inner frames together need to be fairly substantial, as they will take all the weight of the machine. The centre section will hold the roller bearing race on which the whole machine swivels.

Once all the mortice and tenons are cut, shaping of each individual piece can start. The outer frames require quite a lot of work with particular attention being paid to the semi-circular shapes between the rollers.

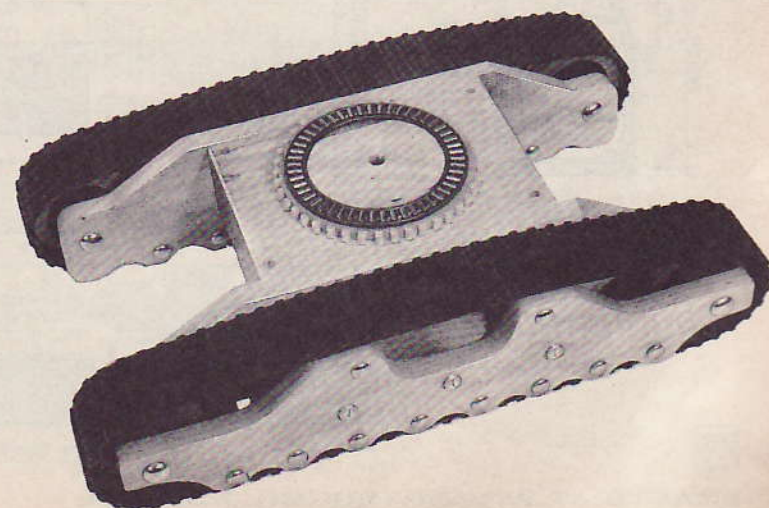
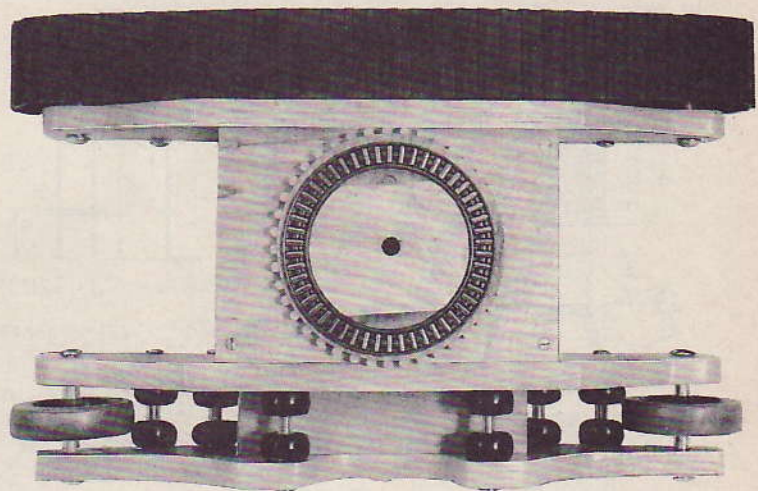
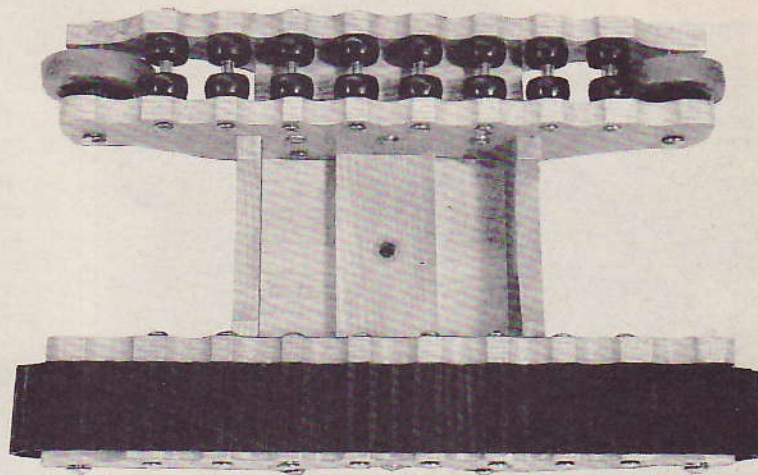
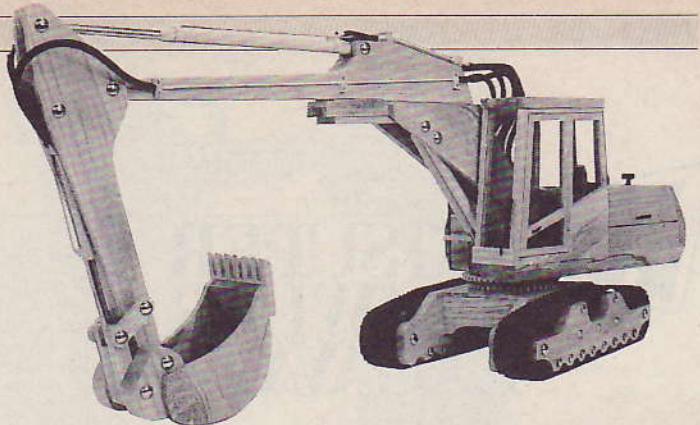
Platform assembly

To start the assembly glue and screw the spacer blocks onto the outside edge of the inner frames. Now glue and cramp the three centre sections holding the inner frames together. Do check that they are square and that there is no twist in the frame. Using the axle offcuts, push the rods into the end holes to align everything before screwing the outer frame to the spacer block. It is very important that the holes are aligned before the outer frame is screwed onto the spacer block. Screw into place the top platform, which ties together all the three centre sections.

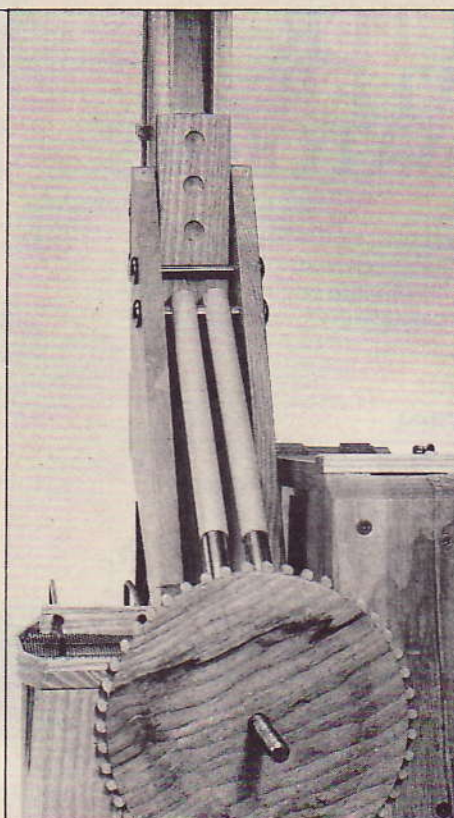
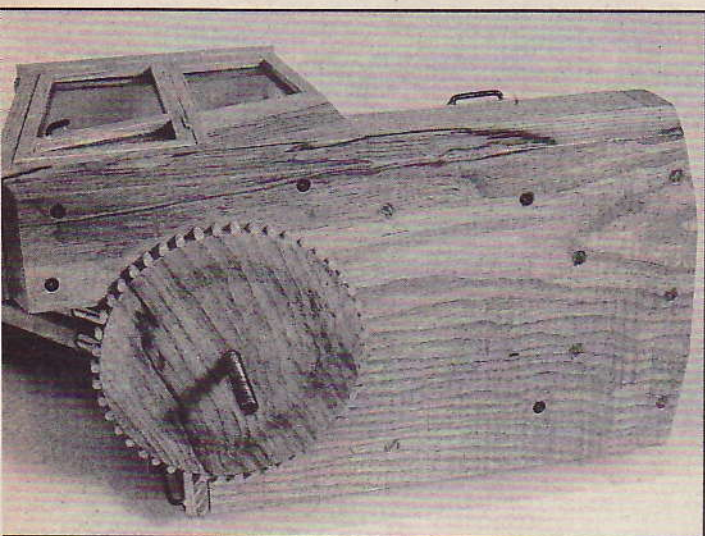
Wheels and belts

Fit all the small black roller wheels with a plastic tube spacer between each one. Before fitting all the spring caps, make sure that the wheels rotate freely. The large wheels at either end of the frame are now fitted. Once again plastic tubing is used as a spacer either side of the wheel. The belts are now fitted. If you find the belt too tight you will have to remove the belt and one of the large wheels at one end. Using a round file very carefully elongate the hole. Be careful to elongate the hole the same amount in both frames. Re-assemble the wheel and belt. If you feel that the belt does not track properly then you must 'pack up' one side of the axle in one of the frames. Be prepared to spend a few hours setting up the tracks to run properly. You will get a great sense of satisfaction when all is completed as the belts make a lovely chattering sound as they run over all the tiny roller wheels.

CONTINUED



820 SUPER CRAWLER EXCAVATOR

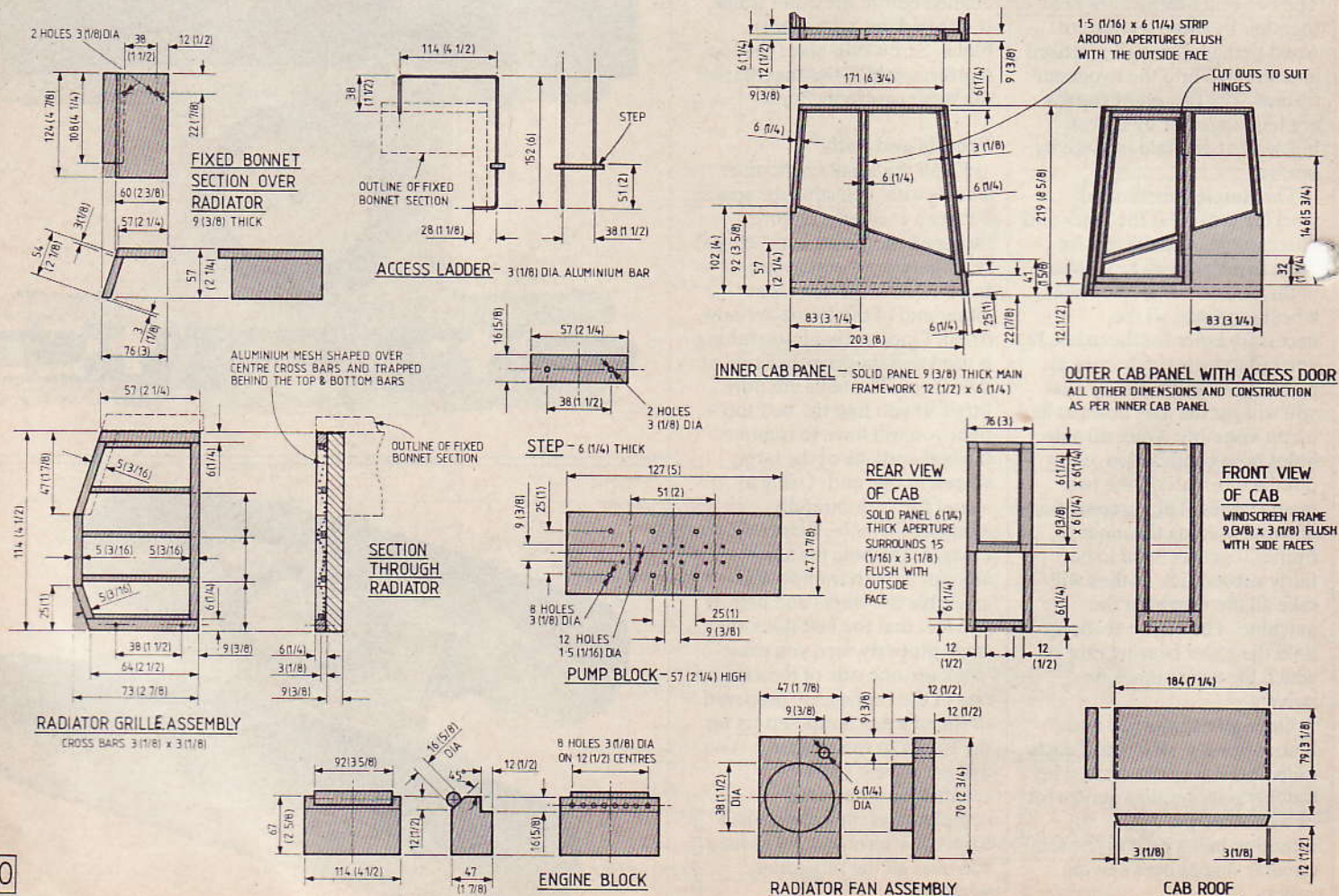


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The base of this is formed by one piece of timber which is bevelled on its underside. From the dimensions given, counterbore all the screw holes, and the hole to take the main bolt holding the superstructure to the crawler platform.

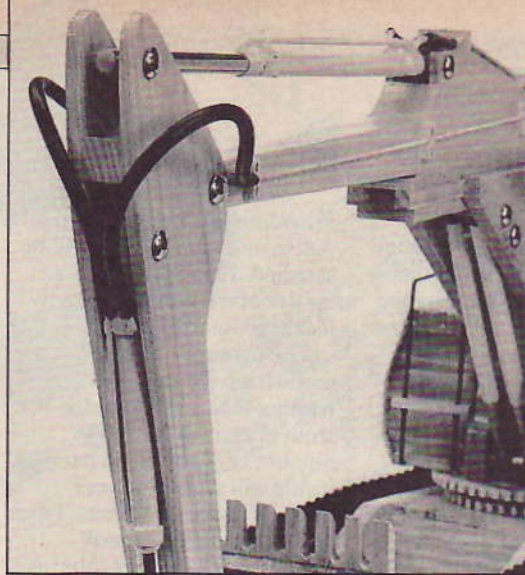
Cut out and shape up the two longitudinal members that hold the boom arm in place. It's best to work on them as a pair. Holes must be bored in these pieces to take the pipes from the engine to the compressor.

The two longitudinal members are held together at the front by a single piece of timber that runs the full width of the base. Halving joints are now cut in both longitudinal members and the cross-member. At the back of the machine, the longitudinal members are housed into the back of the engine compartment. The back of the engine compartment is a solid piece of timber which has to be



The longitudinal members, front cross-member and engine compartment are now secured onto the base by screws that pass through on the underside. The side pieces of the engine compartment are now glued into place. The opening bonnet sections are now shaped up, and hinged in place. The radiator is made and the grille mesh cut and fitted. You will find aluminium mesh of the type used to repair cars ideal for this job.

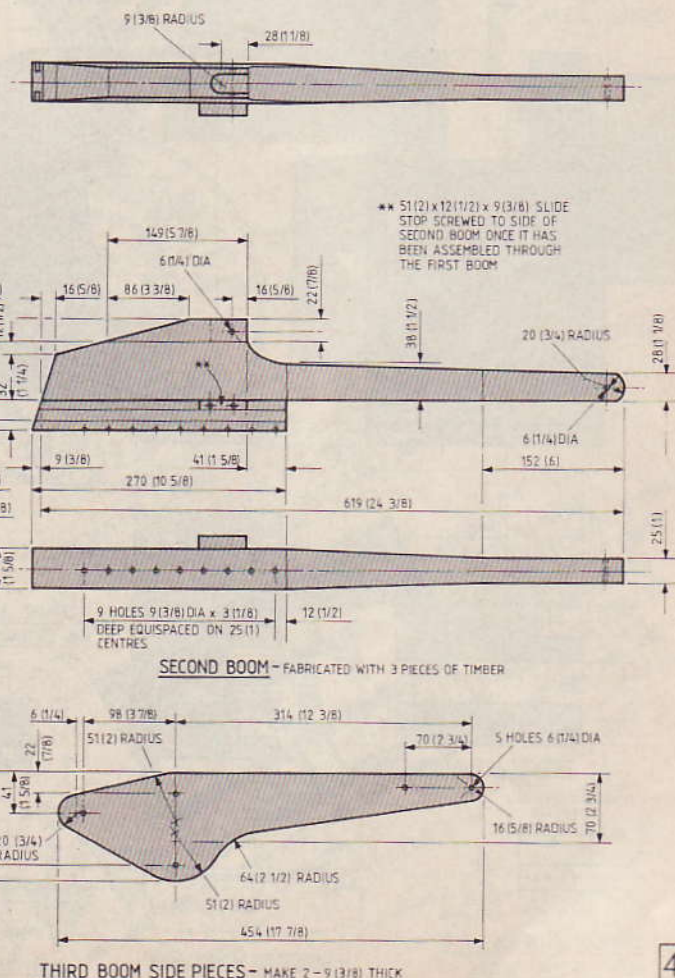
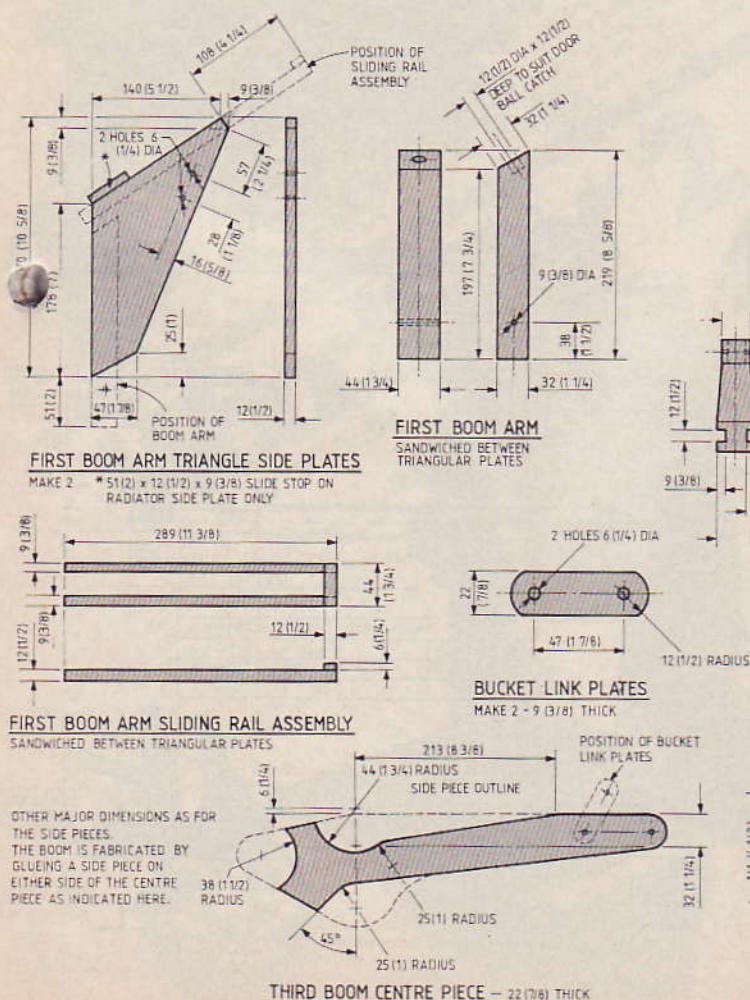
The cab is made from sections of timber glued and butt jointed together. Make a full-size drawing of the cab and glue the pieces of timber together over the drawings. Use a piece of greaseproof paper to cover the



A unique feature of this JCB is the sliding boom which gives the real machine the ability to reach much further without the need to change booms. However, in the model it does create a considerable amount of

Onto the inside of the triangular pieces are glued two strips of timber that act as slides for the boom. At the top of the boom arm, a brass roller ball is fitted which locates in countersunk holes on the underside of the sliding boom. It is advisable to make all the parts for the two booms before gluing anything up as some careful adjustment of parts will be necessary.

CONTINUED



CONTINUED

Having prepared the first arm, now tackle the second one that actually slides. From the dimensions given, shape up the second arm. Carefully machine the block on the underside of the arm to fit exactly into the slide rails of the first boom. Great care is necessary when gluing the slide rails onto the triangular sections of the first boom arm. In practice I did this using greaseproof paper to prevent the glue sticking in slideways and to the sides of the machined block.

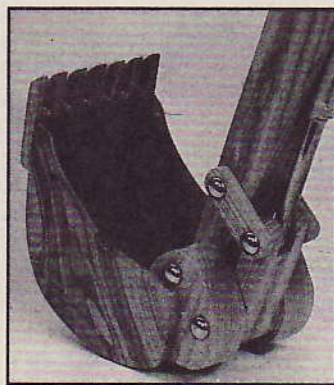
Having constructed two arms, the third arm is comparatively simple. The bucket requires careful shaping and in my case laminating together two pieces of mahogany to get sufficient width from which to cut the shape.

Hydraulic pistons and linkage

If this project was to appear in *Model Engineer* then I have no doubt that everything would work, but as this is basically a woodworking project then

providing that the arms actually pull in and out I for one will be satisfied. However, this is a matter of choice and certainly leaves room for ingenuity.

The hydraulic cylinders were made from copper central heating tube and the piston rods from brass rod. A certain amount of rubber strip packing inside will give some very realistic hydraulic effects. Pipes and hydraulic tubes look realistic in black coax cable as used in car ignition systems or vacuum tubing also used in cars.



JCB 820 SUPER CRAWLER EXCAVATOR

HARDWARE AND MISCELLANEOUS ITEMS

- ★ End wheels 3in. dia. 4 off,
- ★ Roller wheels 1 1/2in. dia. 40 off.
- Axle material 5mm (3/16in.) dia. and 6mm (1/4in.) dia. m.s. rod.
- Spring caps 30 off to suit 6mm (1/4in.) dia. rod. 40 off to suit 5mm (3/16in.) dia. rod.
- ★ Roller bearing race (or lazy Susan) for turntable bearing.
- Studding 9mm (3/8in.) dia. bolts with nuts for securing boom arms.
- Brass sprung roller ball catch for sliding boom extension. 25mm (1in.) brass butt hinges 6 off. Plastic tubing to act as spacers on axles. 15mm o/dia. copper pipe for hydraulic cylinders. 12mm brass rod for hydraulic pistons. Black rubber tubing for flexible hydraulic hose (vacuum tubing for cars). 3mm (1/8in.) dia. aluminium rod for handles, pipes and other details. Aluminium mesh for grille (as used with car filler repairs).
- ★ Timing belt for tracks.
- ★ Perspex for cab windows.

ITEMS AVAILABLE FROM RICHARD BLIZZARD ★

| | |
|--|--------|
| Set of two timing belts suitable for JCB 820 | £32.50 |
| Set of four 3in. dia. wheels with eight spring caps | £6.50 |
| Set of forty 1 1/2in. dia. roller wheels with 40 spring caps | £17.50 |
| Other axle pivots and 20 spring caps | £12.50 |
| Roller bearing race | £13.00 |

All prices include VAT, postage and packing. Please state your exact requirements when ordering from: *R. Blizzard (Wheels), PO Box 5, Gloucester.* Please allow 28 days for delivery.

