



U.S. PRO EMOTT BUILDS A TOP LINE FRAME FOR 'MODEL CARS'

THIS $3\frac{3}{8}$ in. wheelbase chassis is almost a duplicate of the one Bob Emott ran at the last Tottenham Open which he so easily won. It only differs in the diameter of axles used and the fact that unlike the Tottenham frame which used flat section piano wire this one was built using conventional round wire. Surprisingly, Bob reckons that round wire works in this particular sort of frame better than flat; he had one of each type at the Tottenham Open and the round wire frame was simply just too fast on the King Circuit, so he used the flat wire version.

Bob visited our office every day for nearly a week to put together this photo/construction feature and we are indebted to him for his patience with us; by the Friday it became a real headache, and a weary Emott didn't arrive back in his London hotel until about 4 o'clock on the Saturday morning! We join Bob in hoping that anyone tempted to build this top line frame enjoys as much success in competitions as Bob himself.

BASIC FRAME

- Centre jig motor and rear axle assembly on building jig. Centre swing arm and tape to jig through centre hole. Cut two pieces of .047 in. wire to lengths of $3\frac{1}{2}$ in. and $3\frac{3}{8}$ in. These are the inner main chassis rails. Lay these against swing arm. See picture 1.
- Make bend of slightly less than 90 deg. $\frac{7}{16}$ in. from the end of a piece of $\frac{1}{16}$ in. piano wire.
- Place wire between gear and motor bracket with bent up part against rear axle tube. Mark wire as in picture 2 so that after it is bent it will lay alongside inner chassis rail.
- Bend wire on mark and check to be sure of correct fit. Picture 3. Cut off excess wire about 1 in. from bend. Solder rail to rear axle tube and motor bracket.
- Repeat step 2 using technique learned in step 3 with bent up part against rear axle tube.
- Place wire against can end of motor and mark wire at rear corner of can. Bend as in step 4 and check to be sure wire will lay alongside end of can.
- With wire along end of can and laying on top of the swing arm, mark and bend so wire lays along outside of .047 in. main chassis rail. Cut off excess wire about 1 in. from bend - solder rail to rear axle tube. Be sure rail lays flat on jig.
- Take assembly out of jig, remove jig wheels and put on wheels and tyres to check that there is clearance between tyres, gears and chassis rails, and that rails lay along motor bracket and can. See photo 4.
- Put jig wheels back on assembly and put back in jig. Cut a short piece of $\frac{1}{16}$ in. wire to fit between rear chassis rails just in front of the motor. On this chassis it was $1\frac{1}{2}$ in. long. Use a short piece of $\frac{1}{16}$ in. rod to space this rail away from the motor and solder cross-rail to rear chassis rails.
- Measure $\frac{1}{2}$ in. forward from cross rail and mark. Cut off rear chassis rails at marks.
- Butt inner main chassis rails back against cross-rail and solder to rear chassis rails. *Don't solder to drop arm.* Cut two 1 in. pieces of rod for use as spacer rails and lay them along inner frame rails.
- Cut two rails of .055 in. piano wire to lengths of 4 in. and $4\frac{1}{8}$ in. These are the outer main frame rails. Mark the $4\frac{1}{8}$ in. piece $\frac{1}{2}$ in. from the end and make a shallow angle bend 10 deg. or less. Lay this rail on the endbell side of the chassis along the rear chassis rail and the spacer piece. Adjust the bend in the rail until it lays flush alongside the rear chassis rail. Solder in place to rear chassis rail - don't solder to spacer rail.
- Mark the 4 in. .055 in. rail $\frac{1}{4}$ in. from the end and bend to a shallow angle. Lay this rail along the can side of the chassis and adjust bend until the rail lays along the rear chassis rail. Solder in place to rear chassis rail. Photo 5.
- Put front axle locating pins in jig and put front jig wheel, axle and tubing assembly in place against pins. If you are using a jig like mine, drilled for a 4 in. wheelbase, use a piece of $\frac{1}{8}$ in. o.d. tubing soldered to the front posts to reduce chassis wheelbase to $3\frac{3}{4}$ in.
- Mark two 3 in. pieces of $\frac{1}{16}$ in. wire $\frac{1}{16}$ in. from the end and bend to a 90 deg. angle. Take one of these L pieces and hold in place behind axle tube on right side of chassis with the short leg of the L facing forward between the chassis rails and laying flat on jig. Be sure chassis rails also lay flat on jig. Solder L to both chassis rails. Centre front axle tube over chassis rails and solder long side of L to axle tube. See photo 6.
- Repeat on other side of chassis and cut off excess wire above axle tube and grind or file flush.
- Cut a $1\frac{1}{2}$ in. long piece of $\frac{1}{16}$ in. wire and lay behind L's on chassis rails and swing arm and solder to L's and chassis rails. *Do not solder to swing arm.* This rail acts as a tie bar to prevent side loads on guide during cornering from spreading chassis rails.
- Take swing arm out of jig. Mark two 3 in. pieces of $1/16$ in. wire about $\frac{1}{2}$ in. from the end. Take one L and lay it between the chassis rails on the left side with the short leg up and the long leg forward. Photo 7. Bend to slightly less than 90 deg. Adjust bend so that when the short leg of the L is against the front of the axle tube, the bend itself is against the end of the L now in chassis and the long leg lays flat on the jig. Solder to chassis rails and then to axle tube.
- Repeat step 18 on right side and cut or grind off excess wire above axle tube and at front of chassis.
- Cut a strip of .025 or .032 thick by $\frac{1}{2}$ in. wide brass $1\frac{1}{2}$ in. long. Cut or file the ends at an angle so the strip fits between the chassis rails and against the chassis cross rail in front of the motor.
- Put chassis back in jig and put swing arm in place. Check that when plumber hinge tubes are against chassis rail ends, the guide lead is still $\frac{1}{4}$ in. Lay swing arm on chassis with hole for guide flag $\frac{1}{4}$ in. from the