

Easy and Inexpensive Tractor-Trailer

The goal of this project is to make an inexpensive and simple tractor-trailer. A stock chassis and motor will be used for the tractor and a scratch-built, a very lightweight trailer made for it to pull.

Step 1: A panel van chassis will be used for the tractor. Disassemble the vehicle and set aside the body: it will not be needed.

Step 2: Cut away the areas outlined in red dashed lines in Figure 4 from the chassis sides, and cut flush at the chassis floor all posts and projections at the chassis floor.

Step 3: Drill a 3/32 - 1/8 inch hole in the center of the chassis, ahead of the motor, as shown. It is best if this hole is ahead of the end of the motor shaft by at least 1/32 inch (Figure 5).

Step 4: A Road Signature brand 1:43 Ford F-1 pickup was used for several reasons. First, it can have a big truck look when fitted on the panel van's wheels (see Chapter 4, Figure 2 and explanation there). Second, as shown in the pickup examples in Chapter 3, it mounts to the panel van chassis using the original front mounting tower in the cab and front mounting hole in the chassis, simplifying conversion. Third, in keeping with the theme of this example it costs only about \$14 including shipping. Any of numerous other 1:43 pickups, such as the Matchbox '56 Chevy in Chapter 3, or the Gearbox Chevy pickup cab shown in Chapter 4, Figure 2, could be used instead).

Disassemble the model and set aside all the parts except the cab, interior, and front bumper. Cut the pickup bed off the cab. (Figure 7).

Step 5: If desired, remove the interior and put a driver and passenger in the seats and then re-

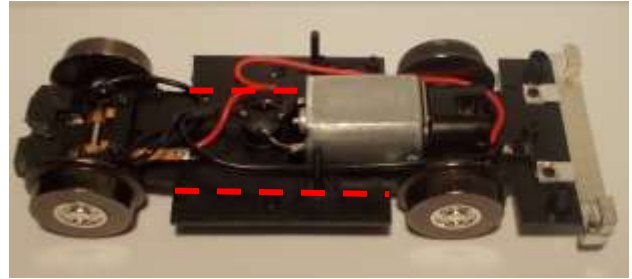


Figure 4: All posts and projections from the chassis are cut flush at chassis floor. Sides should be cut away at the red lines.

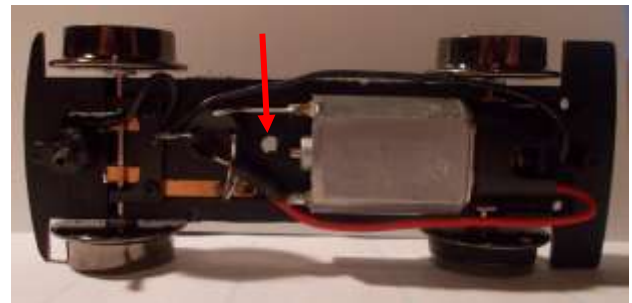


Figure 5: A hole is drilled just ahead of the motor – see text for details.



Figure 6: Fourteen-dollar Road Signature 1:43 Ford F-1 will provide the tractor's cab.



Figure 7: The cab is cut from the pickup bed.

install the interior into the cab. This interior must be retained in its original position – the interior floor will help brace and mount the cab: make certain driver and passenger figures are not so tall they don't let the interior fit up and into the cab as it originally did.

Step 7: Cover the outside of the cab with painter's tape – the epoxy putty used in the next step puts an invisible residue on fingers that *will* leave permanent fingerprints on glossy surfaces.

Step 8: With the windows, dashboard, interior and optional driver if desired located properly in the cab, press Loctite Repair Putty around the front of it and into the crevices at the rear of the interior to lock the interior in place. This does not have to be too neat (see Figure 8).

Now use repair putty to extend the floor of the interior rearward 1/8-5/32 inch as indicated by the red arrow in Figure 9. This does have to be neat and precise. Trim and shape it flat with the floor, and with a ninety degree edge at the rear, etc. as much and as well as possible while it is soft – it is so much easier to work at that time. When epoxy is hard, wash hands, remove tape.

Step 9: place a small pin, just less than half an inch long, temporarily in the cab's mounting tower hole (yellow arrow in Figure 8). Turn the chassis over and fit cab and chassis together with that pin inserted into the mounting tower hole in the chassis: this pin is positioning cab and chassis correctly for this step.

Center the back of the cab on the chassis so the cab is correctly aligned side to side on the chassis. Using a pin vice drill or similar, put a drill bit through the hole in the chassis (Step 3, Figure 6) and start a hole aligned with it in the bottom of the interior floor. Once that is done, separate the cab from the chassis and drill out the hole (black arrow in Figure 9).

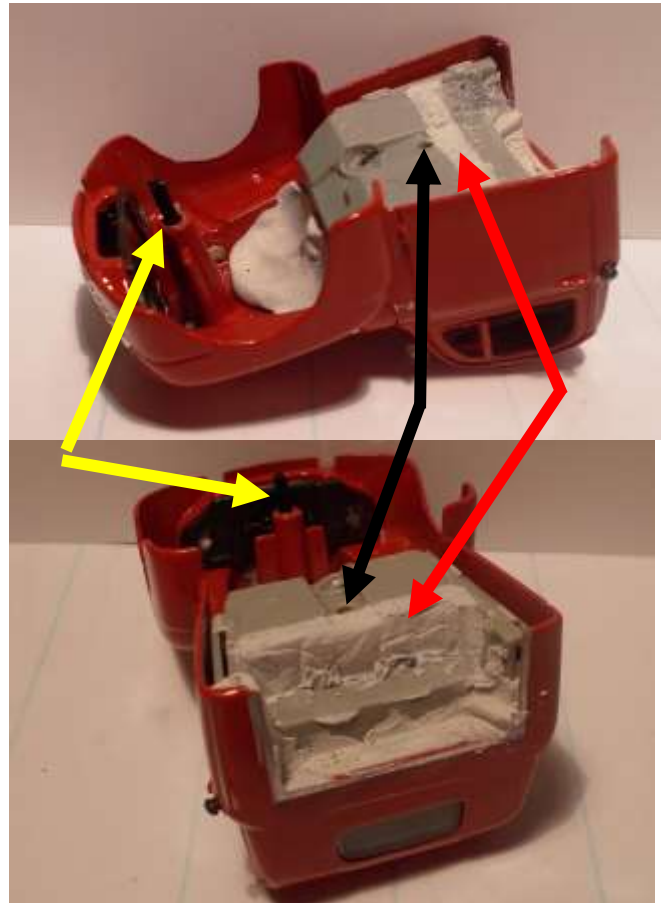


Figure 8: Two views of the cab after Steps 8, 9 and 10. See text for explanation of arrows.

Step 10: *This step is information only.* The cab will be mounted using the pin already made to align the chassis' original front mounting tower with the cab's original mounting tower – they align *perfectly* – and a single screw inserted through the hole drilled in the chassis in Step 3 into the hole drilled in the cab floor.

As was explained in Chapter 4, Figure 2, the ride height of a cab above its wheels determines how "big" a truck looks. Here, exactly how far above the chassis and its wheels the cab sits – and thus how "big" it looks, is controlled by: 1) trimming off a tiny bit of the top of the chassis mounting tower, 2) the thickness of a shim placed between the top of the motor and the bottom of the interior at the back of the cab.

Step 11: Place the cab and chassis together (the pin – yellow arrow in Figure 8 - helps get the correct alignment) and look at the ride height – the gap between fender and wheels tells this tale. (Check that the pin is not so long that it is keeping the two mounting towers from meeting firmly. If so trim a tiny bit off it).

Trim or shim the top of the front mounting tower on the chassis a bit lower or raise the ride height to where desired – it is a matter of personal preference. Make a shim, if needed, to place between the top of the motor and the underside of the cab interior to adjust that height so the cab is level. (The author adjusted the front so that no shim is needed at the rear).

Finally, trim the front extension of the mounting tower off (Figure 9).

Step 12: Put the bumper on the cab – the piece slips on with the hole in its back end around the cab’s front mounting tower. It is best to glue it in place (Duco Cement works well) in place with the cab upside down and let the cement harden for 15 minutes or so first).

Now position the cab on the chassis, with the bumper on, the pin in place in both mounting towers, and the back of the cab centered side-to-side. Run a screw through the hole in the bottom of the chassis and into that on the cab interior floor and gently tighten it.

Step 13: Build the small piece shown in Figure 10a out of styrene at least 1/10 inch thick, and mount it as shown on the rear of the chassis, using the original screw mounting holes in the bottom of the chassis. Once mounted, add the mounting platform atop it shown in Step 10b.

The basic tractor is done. Modeling details to complete its appearance will be added later. Check that it runs well.

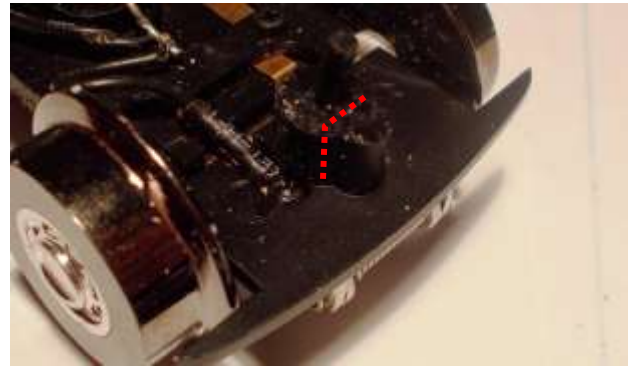


Figure 9: Detail of the front mounting tower with the pin in it and some of its top trimmed away. Portion forward of the red line has to be removed so the back of the bumper piece will fit.



Figure 9: Cab mounted on chassis. The author has trimmed the chassis narrower behind the rear wheels (compare to Figures 5 and 6).

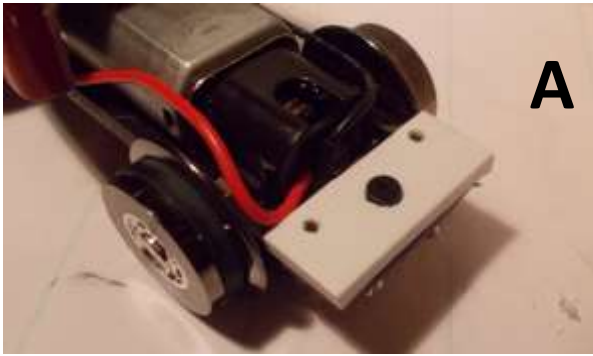


Figure 10: Scratch-built styrene trailer mounting platform is screwed on from beneath.

Step 14. Make the trailer frame shown in Figure 11 out of styrene at least 1/16th inch thick. Width is 13/16 inch, length can be as desired, but around 4 1/2 inches is recommended.

Find a flanged-wheel axle combination to use for the trailer. The author had a spare panel van axle, which is ideal since it matches the look of the wheels used on the cab. The axle shown has a gear and bearings but they are unimportant here. It is mounted on the trailer held in by thin styrene plates glued on as shown in Figure 12. About 1/4 inch back from the front, drill a hole and insert a screw that protrudes about 1/4 out on the bottom side: it hooks into the tractor.



Figure 11: Frame of trailer is simple: three styrene parts all scratch built.



Figure 12: Trailer is completed as described in text.

Step 15: Test run the completed basic tractor-trailer as shown in Figure 13.



Figure 13: Completed basic tractor trailer is tested. Trailer should track well.

Step 16: At this point the tractor-trailer is basically a modeling project to complete as the owner wishes. The tractor can be detailed and the trailer completed as a freight box, tanker, dump or gondola, etc. The completion shown in Figure 14 is given only as a guideline.

Tractor: The author made gas tanks for both sides, attached step plates made from scrap chrome parts salvaged from other models, etc. A chrome exhaust was added.

Trailer. The trailer shown in Figure 16 was made by cutting a plastic display case that contained a 1:43 diecast car to a scale 7 feet wide, scribing some lines on it, and mounting it on the trailer frame. It was primed and painted. A rear bumper was added, spare tires were mounted under the trailer, etc.

Flat black paint was used to paint the tractor and the trailer's lower frame, etc., to make irrelevant details less noticeable.

The model is complete.

This design, was kept simple and the length and weight of this tractor trailer kept low so as

to avoid problems: the author's runs as well as a stock panel van. But it is near several limits for a stock motor-chassis. It is not *at* them – it can be “pushed” a bit by:

- a) adding electrical pickup to the trailer's wheels and a center pickup, or,
- b) making the trailer longer and/or heavier.

But either, and certainly both together, would complicate matters immensely. The author expected this rig to have serious wheel spin in D-16 curves, but it has only a trace. And it is common for the front wheels on lightweight tractors (this is, relatively) pulling a significant trailer (this is not) to sometimes jump the rails on tight curves.

The solution to both problems if they occur is to add weight as low as possible over and just ahead of the tractor's rear axle, putting it in the tractor and/or the trailer. (The stock motor can tolerate another four ounces of weight here). Readers “pushing” this design should expect to have to experiment, perhaps extensively, with both how much to weight to add, and where, and that it might be frustrating to find a solution if they push this design too far.



Figure 14: Finished model with trailer completed and details added to trailer and tractor.