

Bolted tipper wagon body build instructions

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Most of the laser cut mild steel parts are supplied pickled and oiled, you will find it easier to clean and degrease them before bolting up the assemblies. To aid paint adhesion consider cleaning any dark coating off the cut edges and lightly sanding or scouring the surfaces before fabrication, it is a lot easier than doing it afterwards.

As development of the design is continuous, some of the parts supplied to you might not look exactly as they do in the construction photographs.

Use thin 'form B' washers under every screw head, it prevents the screw marking the paint and gives the screws the correct clearances in the slots.

Remove the nibs left by the laser cutting process from all parts, including inside holes.

An electric screwdriver or electric drill fitted with a torque limiting clutch (which is most of them these days) with 2mm hexagon bit and 8mm socket will speed up the assembly no end.

Tools required

I am assuming that you already have the basics, drill, spanners, screwdrivers etc

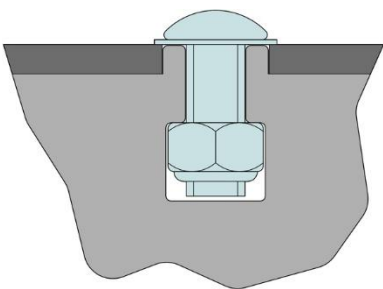
An angle grinder with a flap disc is handy for removing sharp edges.

A battery drill or screwdriver with adapters for allen keys and a small socket set will speed things up a lot.

With M5 screws I find it easier to hold the screw with an Allen key and use the screwdriver with an 8mm socket to tighten the nut. Doing it the other way often leads to the socket in the screw head getting rounded off.

Need I remind you, SAFETY GEAR, buy it and wear it, especially gauntlets and goggles when using an angle grinder.

The basic construction method

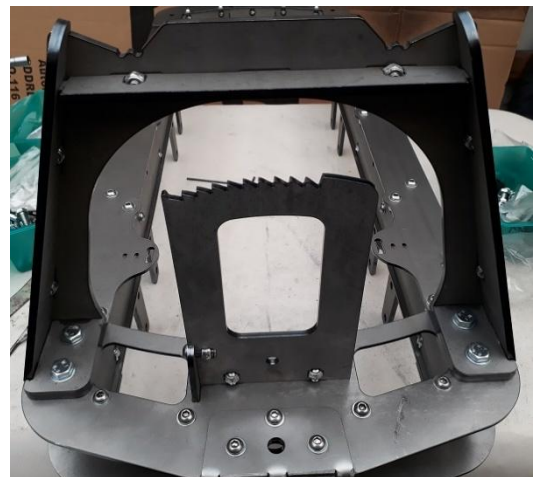


The end frames are bolted together as shown, unless otherwise stated use M6 x 16 button head screws with thin (form B) washers and nyloc nuts. The tab is inserted in the slot, the nyloc nut slid into place and the screw with the washer fitted is tightened finger tight at first, then once all the screws for the current operation are in place they are tightened with a battery screwdriver or electric drill set on it's highest torque setting. If you are using a battery screwdriver you may need to do an extra tighten by hand just to make sure that the screws are fully home, they don't need to be super tight.

End frames.



The end frame, cross rib and legs simply slot together as shown. Before screwing it all up add the 4mm thick feet as shown left below. The 5mm foot piece (right below) is kept loose and used as a packing piece.



The packing pieces are placed in top of the frame, and the end frames bolted in place with M8 x 25 screws.

The

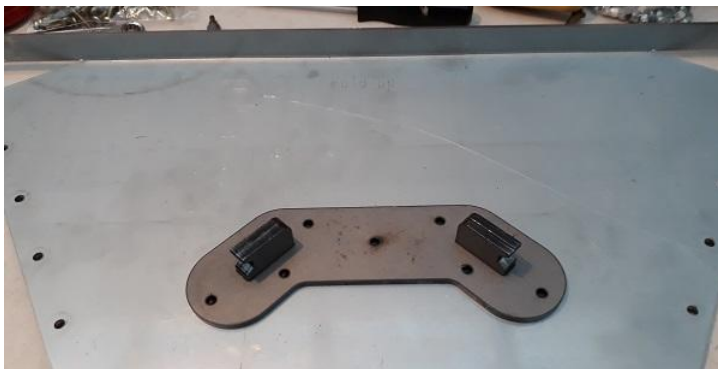


Take one of the four doubling plates and slot into it four of the pivot lugs, these are intended to be a tight fit and may need some help with a hammer.

Body



The flanges on the top edges of the body are pre-folded, but you need to bend the ends to follow the body profile as shown.

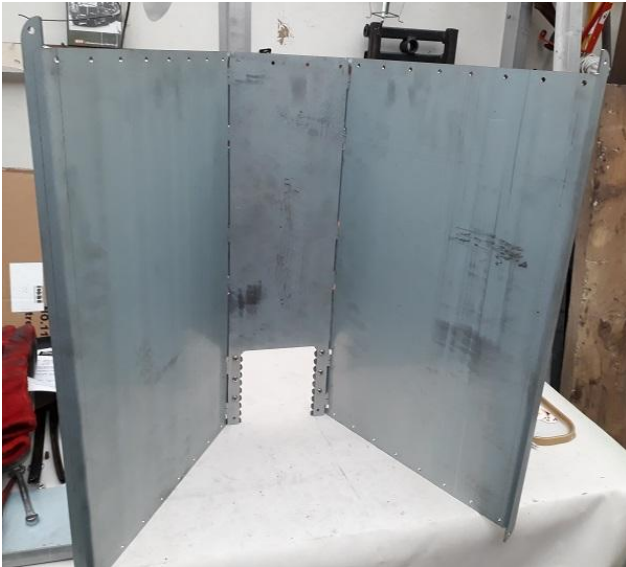


Push the above assembly through the body end from the inside (note the position of the flange in the photo), add another doubler and bolt in place with nine M5 x 25 button head screws and plain nuts, the heads being on the outside. Repeat for the other end.

Add a corner angle to each side using the M5 x 10 button head screws and plain nuts, the nuts being on the outside. By the time that you have done both ends you will be glad that you are using an electric screwdriver.



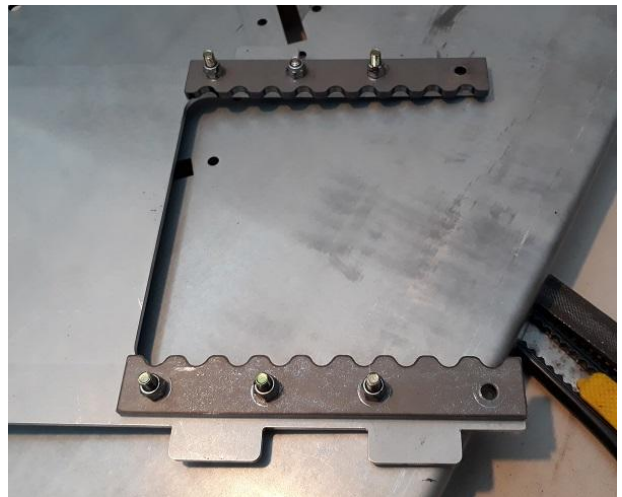
To form the slide for the bottom door place the two thin packing pieces on the baseplate and add the serrated slides. Fit just six of the bolts as shown, heads to the inside. The serrations allow dirt to drop through and not jam the sliding door.



Drop the completed end into place. The lip on the bottom sits above the baseplate, and the corner flanges sit above the flanges on the sides. Add a few M5 x 10 button head screws and nuts to the corner flanges to hold things in place with the heads on the inside, turn it over and do the other end. Then insert the rest of the screws and tighten them all.



Finally add four screws to the top corners.



Slot the base into place in the slots in the sides, either way round but with the slides on the bottom. Note that the ends are hanging over the front edge of the bench so that they sit comfortably. Having another pair of hands to help is useful at this stage.





Now comes the noisy part. I wanted to keep the main part of the inside of the body clean and free of screw heads so that you can shovel the contents out without your spade striking a screw head and jarring your arms. With this in mind instead of screws this joint is held together by means of tabs which need to be beaten over with a hammer, first making sure that the sides are pressed close to the base.

It helps to hold another hammer inside the tab you are beating to death to take the force of the blow. The tabs need a good bashing, they need to be tightened as much as possible so that the joint is a good one.



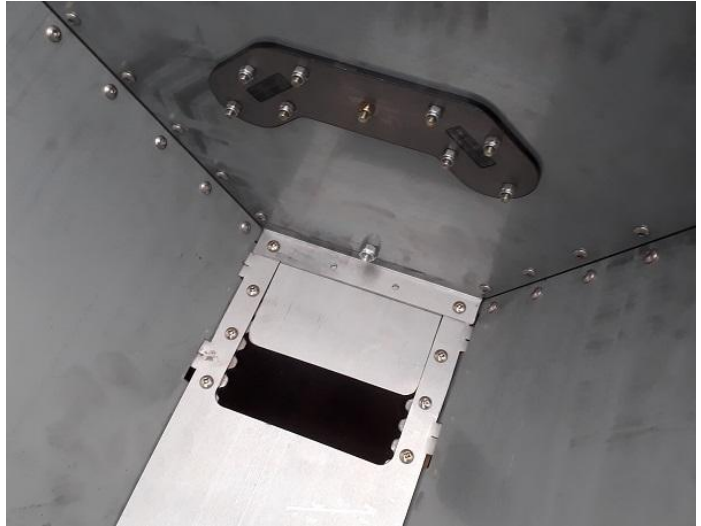
Finally add the slide and the toggle, with a spacer washers and a nyloc nut on the inside. This is just enough to stop the slide jiggling out when the wagon is empty. Only put a slight bend in the latch or it will foul on the support when the wagon is tipped.



The body sits on the end frames with the sliding door at the opposite end to the brake handle.



The body is designed to tip close to the rails, and the sliding door in the bottom allows a controlled amount of ballast to be dribbled between the rails.



Shopping list

M8 x 25 screws, (these fasten the end frames down and replace the 20mm long bolts usually used to bolt the frame together.)

M6 x 16 button head stainless screws

M6 stainless thin washers

M6 nyloc nuts

M5 x 10 button head stainless screws

M5 x 25 button head stainless screws

M5 stainless washers

M5 plain nuts

M8 x 20 screw with washers and nyloc nut

M10 x 100 screw for coupling pin

8 off (Use the original washers and nuts)

12 off

12 off

12 off

70 off

30 off

100 off

100 off

1 off

2 off