

# 14<sup>th</sup> scale Oshkosh FMTV Cargo Military Truck

Built by Pete Dickinson



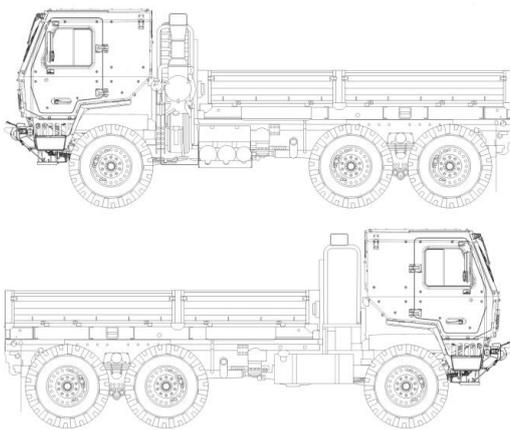
Having spent over 430 hours sourcing parts and scratch building the H-Series snow blower I decided to take a step back and scratch build another of Oshkosh's products on a commercially available chassis.

The chassis that fitted the profile of the FMTV (Family of Medium Tactical Vehicles) Cargo truck was a kit marketed by an American company called RC4WD and is listed as 'The Beast'.

I was very impressed with the chassis and drive components but was happy to discard the rather plain and almost toy-like body deciding to scratch build my own.

Having built up the donor chassis I checked out that it ran as intended and it was at that point that I discovered that on our polished wooden floor the vehicle tended to continue in a straight line despite the driven front wheels being turned full lock. Upon investigation I discovered that the supplied axles were not differential ones being simply crown wheel and pinion which caused the issue. Unhappy that such an expensive kit was degraded by the inclusion of inferior axles I sourced a full set of three differential axles and spent a lot of time fitting them into the truck frames and suspension units.

Unfortunately as this is an in-service military vehicle I was not allowed to have sight of the Oshkosh drawings and whilst collecting all available images of the vehicle on-line I discovered a company called Model-Copy (<https://model-copy/info>) that had a massive database of drawings of thousands of vehicles including the two side views of the very truck I wanted to build and I could download a hi-resolution drawing of these for only €5. The photo opposite it a very clear one of the front of the FMTV and was used to get the model as close to the full size as possible.



The modified chassis only needed a small alteration for the track and wheelbase to match the Oshkosh vehicle and so the build began.

I did as I always do by scaling the various parts of the drawing to be exactly the printed size of the 14th scale model and began to trace through carbon paper the various shapes and outlines onto some 1.5mm styrene sheet. With only the side view

available I used some of the photos of the full size vehicle to produce the shapes I needed for the front and back of the cab which are slightly complicated by the fact that all the panels of the cab are angled outwards by a few degrees along the centre line.

The cab build was further complicated buy my decision to build it with opening cab doors which involved some considerable trial and error to design the door hinges which have to be made specifically to cater for the angular form of the cab sides.

Having made all the ancillary parts for the exterior of the cab and fitted them to the structure I began to look round for some very small screws and nuts to mimic those studding the front and sides of the real vehicle which I believe are to hold the sheets of armour plating to the cab.





Unfortunately the smallest I could find are slightly oversize but allowing for that, without close comparison, they look fine.

The cab was then sprayed with a plastic primer ready to receive its top coat of matt camouflage sand.

The truck bed was attached to the chassis with scratch made hinge plates and a metal geared servo fitted, with



sufficient power to lift the bed up when needed. I decided that the version I would build is of the kind in the photo on the right. This has an extended truck bed and a canvas cover over a framework. This entailed some modifications which were made and the result is the next image.



The next job was to begin on the front mudguards which are of a fairly convoluted design being sloping and tapered towards the front step area. Between the cab and the upper step there is a fluted ventilation panel and this was made using my small modellers



lathe tool in milling format and cutting the flutes out using that to achieve a clean cut in the styrene sheet.

As the only drawings I could find were only of the exterior of the vehicle I began to search around for images of the interior of the cab. Eventually I found a YouTube video of an American show where one of the FMTV's was being demonstrated to the public and using that I managed to work out roughly the set-up of the interior seating and dashboard.



The model had to be finished in the correct colour so I bought some Humbrol Acrylic spray #93 Desert Yellow and sprayed the entire vehicle which meant taking all the wheels apart to remove the tyres. I then reassembled them and after looking closely at the full size wheel fabricated a short pipe and valve assembly to align with the original.

I now moved on to provide the five orange lights mounted over the windscreens. Using skills obtained from earlier models I 3D printed the lenses and then soldered hair like wires to the SMD LEDs before mounting them and after providing SMD dropper

resistors of 1K for each led connected the entire assembly and powered up the lights.

They did seem rather bright so I've also added a further common dropper resistor of 1.8K to reduce the applied voltage, so now with all LEDs on they only draw 4mA and the lights look more to scale.

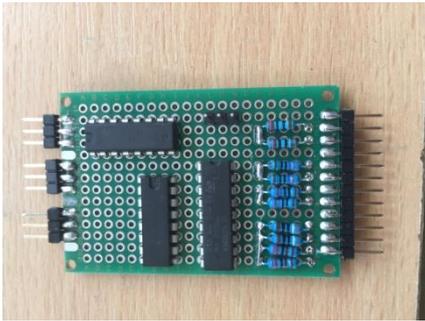
I bought in a Tamiya 14th scale truck driver kit and assembled him, painting him to match the US military combat gear and fitted him on a 3D printed truck seat. You can just make him out in the photo here.

I now began the long job of glazing the cab which was made more



difficult because the windscreens are flush with the cab body and spent a lot of time cutting and forming the 1mm sheet acrylic to be an interference fit in the body. The side windows were a lot simpler as only the front part of the glass needed to be trimmed to a close fit as it has a sliding section rather like the early Mini cars.

The task now was to make the entire inside of the cab, including a steering wheel and the various controls and panels. Lit as always to achieve a little realism.



I next scratch built the electronic control board for all the lights and managed to fit it by the side of the main drive motor under the tilting cab. This is controlled from two channels on the receiver. The unfinished board is shown here and it contains a flasher for the indicators. The control for selecting the left and right indicators was performed by a modified circuit board from a miniature servo. The connectors on the right are for the multiway plugs that are cabled to the various parts of the vehicle and those on the left are the inputs from the receiver and power

An item I have been putting off building is the front fender which contains the vehicle lights and is a rather convoluted shape. Having made the main part I then added the lights. The headlights are 10mm hi-bright leds whose faces have been turn flat in the lathe and polished. This makes the beam very directional as a real headlight is. The leds are mounted in 10mm metal rings sold as awning eyelets. The side lights and indicators are constructed of 5mm leds which have been flattened along one side and attached to each other so that they fit tightly into a short length of tube fitted to the assembly.



The entire assembly was then fitted to the chassis members.



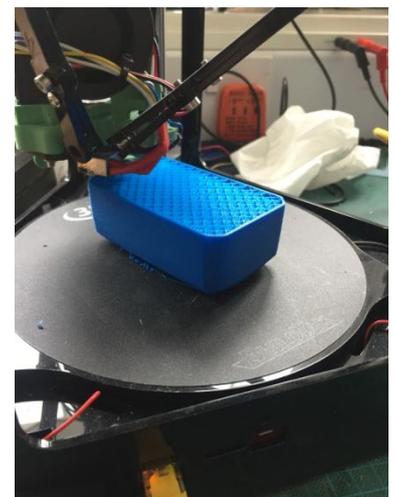
The rear lights are mounted on the rear bumper. If the truck bed lifts the bumper is fixed to the rear chassis member, if the bed is static the lights are fitted under the rear of the bed floor. I then made up the rear bumper bar adding, with a guess, the position of the lights from the various photos I have and after connecting all the lighting up tested that it functioned as intended.

There is a winch hook situated on the lower plate so I 3D printed one to size and attached it as a non-functional part.

All that really remained was making up all the parts that adorn the vehicle from the exhaust stack and pressure tanks to the fuel tank and mechanism for tilting the cab and removing the spare wheel.

The Fuel tank is 3D printed, which took over 3 hours but the rest of the items were scratch built from plasticard sheet and rod to represent the parts I could see on the many photos I have of the full size vehicle.

As there are so many versions of the vehicle I've had to use some guesswork as in some photos of the actual truck there are items that don't appear in others



The model is now complete and fully functional but sadly not as accurate as I usually like to build. The photos following are of it in its finished state, with the removable truck bed cover made and fitted.

