



Weights & Loading of The M880 Series Vehicles

(Addendum to Project #40)

Roscommon Equipment Center
Northeast Forest Fire Supervisors
in Cooperation with

In 1980, the Roscommon Equipment Center (REC) published Project 40 "M880 Series (Dodge W-200) Tanker Handbook". The design contained in that report was developed around the Dodge W-200 truck, a commercial version of the military unit. Military M880's were not available to REC at that time. The State of Pennsylvania purchased the W-200 for the prototype,

helping REC get a jump on design and evaluation before M880's became common through Federal Excess Personal Property (FEPP). Now that FEPP availability is common, some additional weight and loading concerns are apparent. This document serves to highlight these concerns and should also be considered an addendum to the Project #40 report.

Gross Vehicle And Axle Weight Ratings

The W-200 commercial version of the M880 that was used for the prototype unit had a Gross Vehicle Weight Rating (GVWR) of 8400 Lbs. This compares to 8000 Lbs. for the military's M880 version. Since the completed prototype unit was near GVWR, for the W-200 model, it would be well overweight for the M880 version *if all parts of the design were installed*. A statement to this effect is found somewhat obscurely on page 0-618 of the Project #40 report.

In our experience all the M880 series vehicles have a dash plate (unless removed) that

shows the GVWR. Many of these vehicles do not have a dash plate that shows the axle weight ratings. If the dash plate states the axle and gross weight ratings, use and **DO NOT EXCEED** those figures. If the axle ratings are not stated, use the following:^{1, 2}

Front Axle Weight Rating
(FAWR) = 3100 Lbs.

Rear Axle Weight Rating
(RAWR) = 5000 Lbs.

Gross Vehicle Weight Rating
(GVWR) = 8000 Lbs.

1 *M880 1-1/4 Ton Commercial Truck Systems*, Office of Product Manager, USATACOM, Warren, MI., February, 1976.

2 *1979 Dodge Body Builders Book*, Chrysler Corporation, Detroit, MI., October, 1978

Water Tanks And Loads

The above weight ratings are sufficient for the M880 to carry a properly located water tank of 200 gallons, along with its pump and hose reel. Additional items, such as a full compliment of brush armor may cause overloading. Project #40 shows a full compliment of brush guarding, plus a large tool chest. These items plus the tank, if all included, would overload an M880. Reducing the amount of armor, water capacity or storage would be needed for proper loading. Note that commercially available fiberglass slip-on tanks (including reel & pump systems) are similar in weight to the REC steel tank design. Hence, you can

expect similar water capacity when using commercial slip-on units. Table 1 shows the approximate weights of these units.

If full brush armor is a requirement for your purpose, consider removing the cargo box and installing a flat bed. The cargo box weighs about 500 Lbs. The bed will weigh somewhat more, but will not need protective brush guards. This will help save weight. Check applicable laws pertaining to flat bed construction. This may include under-ride protection, clearance, running lights and reflectors.

Table 1 Capacities and Weights of Typical Fiberglass Slip-on Tanks (with Reel and Hose)

Water Capacity	Weight (approx.) Filled W/Water
125 Gal.	1650 Lbs.
150 Gal.	1900 Lbs.
200 Gal.	2350 Lbs.

Planning And Finishing The Vehicle

REC Newsnote #3 "Designing Forest Fire Engines" is a publication that expands the discussion concerning planning and constructing an engine.

Before constructing the unit, weigh the base vehicle. Find the curb weight and weight at each axle. The difference between these

weights and the corresponding rating is the available load.

After constructing the unit, weigh the vehicle again with all equipment, full fluid capacities and expected occupancy. If the weight or axle ratings are exceeded, make adjustments to bring the system to rated load limits.