QUICK FIX: MULE BATTERY INSTALLATION

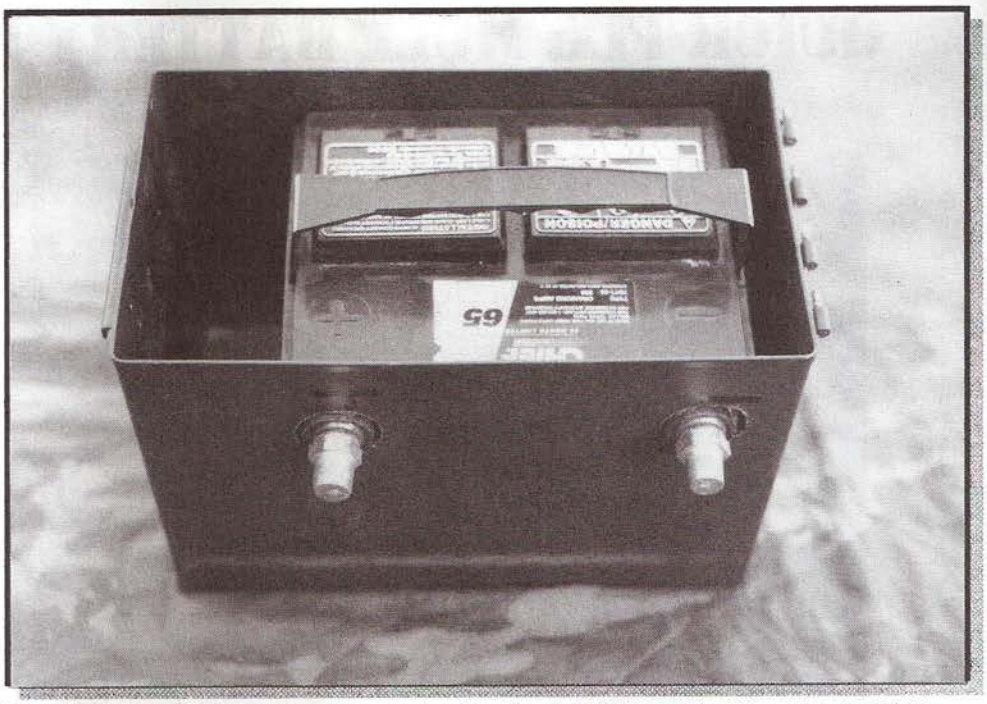
BY PHIL KERN

Simple yet unobtrusive use of an ammunition can as a battery box allows an electric starter to be installed without seriously compromising the appearance of your M274 Mechanical Mule.

Now that your M274 Mule is back up and running, one of the first conclusions most people make is that yanking on a pull start rope is for the birds. If your points, magneto or carburetor are not in tip top shape, you will probably arrive at this conclusion even quicker. While complete bolt-on electric start kits are available at costs that exceed $500, these systems are not that complicated and you can put your own together for much less cost than your first born child. Starter motors are typically either a 12 volt Volkswagen starter modified with an adapter and the pinion gear off the recoil starter, or a starter off a military standard engine which are normally 24 volt. Starter motors for the Mule are readily available from advertisers for as little as $35 apiece. One advantage of the VW starter is that you can use common 12 volt auto or motorcycle batteries instead of less than reliable and uncommon 24 volt military batteries. Another benefit is that you can run regular automotive lights, radios and other equipment off the 12 volt source, although use should be limited until you add an alternator or generator. Once you have obtained a starter, it leaves the question of what to do with the battery as there are few places to mount one on a Mule to begin with, and literally no place on the vehicle where it doesn't show. I think we have arrived at a good solution to this problem, so here is what is required for the installation.

Materials Required

Group 70/71-65 side post 12 volt auto battery
"Charging posts" (battery terminals)
Ammo box for 4-200 round 5.56mm magazines
51" negative and 54" positive battery cables
1/8"x3"x32" steel strap
2 1" wide OD web straps, minimum 36" long
4 sets 1/4"x2" nuts, bolts and washers



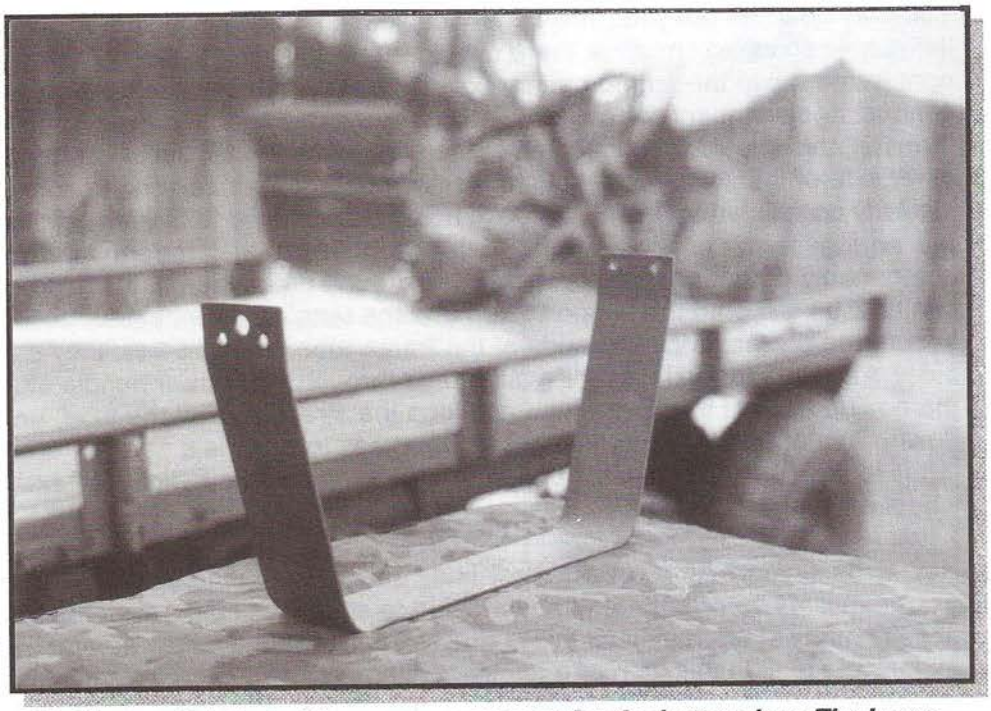
Two holes cut into an ammo can for the Squad Automatic Weapon provide clearance for the terminals of the side post battery. Battery can still be charged while in the can.

Starting with the ammo box, measure the distance between the center of the battery posts, and the depth of the battery from the posts and mark the location of two 1½" diameter holes for the posts. Remove the lid from the can and cut the holes with a hole saw or saber saw on the side opposite the markings on the ammo can. Put the back of the can on a towel or other soft surface while you cut the holes to avoid scratching the side that will show. The holes may be centered lengthwise on the can if you are into symmetry, or I chose to slide them to one end to leave a small amount of room for carrying spare parts or tools in the box. The battery will now just slide into the box with the terminals removed for a nice snug fit. I happened to get my battery at Chief Auto Parts, and it came conveniently equipped with a carrying handle on top for just such a purpose. This particular ammo box is unusually wide and is the only one that will work with this particular size battery, .50 caliber cans are too narrow and 20mm cans too bulky to work in this application. Once the battery is in, the posts can be screwed into the side terminals and tightened. Next, clip the two wire loops holding the handle to the lid of the can, remove the handle and replace the lid. The battery is now securely held and protected by the ammo can, and can be charged when needed without ever removing it from the can.

View of the completed ammo can/battery box arrangement from the outside, no battery terminals or cables will show once it is installed and the 1" web straps match the one used on the Mule's driver seat.

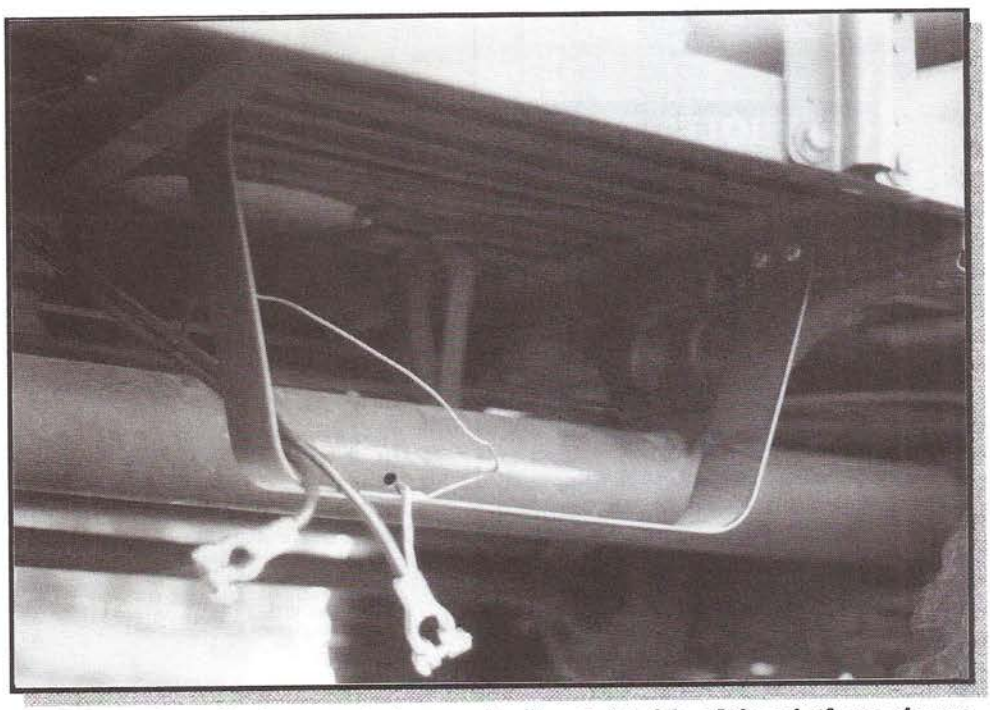
The next task is to fabricate the support strap for new ammo can/battery box which will hang it on the right side of the vehicle. Bend about 10" (an inch or so more than the height of the box) of

each end of the 1/8"x3" strap up to approximately a 75 degree angle, making a squared-off "U" shape. This "U" should measure approximately 12" across the flat bottom (the length of the ammo can), and 18" across the open ends of the "U". Bend the last inch of the open ends of the "U" slightly to be perpendicular to the bottom. This support strap will bolt to the riveted cross member in front, and to one of the magnesium (or aluminum in the case of the M274A5) hat channels welded to the underside of the deck in the rear. The locations for the holes for the 1/4" bolts may now be marked on the support strap so that they can be drilled on the workbench. The front cross member has a series of rivets securing it, also drill a 3/8"-1/2" relief hole in the center of the end of the strap to allow you to center the strap on one of the rivets, otherwise will not mate to the front cross member cleanly. You can then measure the distance from the frame tube and mark the rear holes accordingly to make the strap parallel to the frame tube. The holes on the hat channel and cross member can now be marked and drilled. The edge of the support strap should be approximately 2-3" from the right frame tube. After painting to match the base color of the Mule, go ahead and bolt up the support strap.



1/8"x3" strap fabricated for use as a support for the battery box. The larger third hole on the front (left) end provides clearance from rivets on the front cross member, the other holes are for the attaching bolts.

There are two sacrifices that must be made with this battery installation. The first is that one of the spring loaded clips that hold the foot basket in its stowed position under the right side of the platform must be removed, and the position of the battery eliminates the possibility of this stowage. So what? How many times have you seen a collector walking behind his or her Mule with the seat removed and stowed underneath when they could be riding it? Probably never. The other sacrifice is that the tube for the pull start rope needs to be removed to avoid interference or shorting of the battery terminals. Again, big deal, the whole point of this is to do away with the pull starter and this won't matter one lick until somebody figures out a way to install an electric starter with the pull starter as a backup.

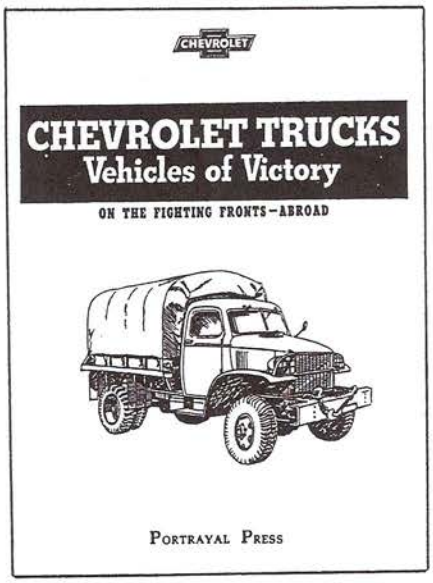


View of the installed support strap under the right side of the platform shows hat channel at the rear and cross member in front to which it is attached, as well as the battery cables.

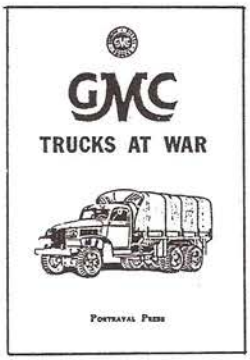
You may now pull out your new battery cables for installation. The positive cable connects to a large terminal on the starter solenoid and from there should be routed over to the right side of the vehicle and forward along the right frame rail to the ammo/battery box. Leave enough slack in the cable so that the box can be pulled out to connect or disconnect the cables. The positive cable should have a small pigtail lead coming off the battery terminal, this should be connected to the wire to the starter switch at the drivers position. The wire from the other side of the switch connects to a small push-on terminal on the solenoid. The negative cable should be similarly connected to one of the bolts holding the starter to the bellhousing and run to the battery box. I prefer this arrangement to using a shorter cable grounded to the platform near the box, the different metals and components do not provide a very reliable ground path when cutting corners this way. The ammo/battery box can now be slid onto the support strap and the terminals connected, positive first. After the slack is adjusted, secure the cables to the backside of the frame tube with wire ties, they shouldn't show when viewed from the side. After threading the two 1" web straps through the former handle attachments on the lid of the box, push the box up against the frame tube and loop the straps behind the tube, under the support strap and tighten them down. Trim or hide any extra length in the straps to provide a sanitary appearance, and you're done. All that's left is to flip the ignition switch and push the starter button to light off your Mule and enjoy the thrills of four wheel drive and steering.

How does it work? After restoring my Mule and installing the electric start and battery I tested it for three days at a large military vehicle meet. It never failed to start, and I did not have to charge the battery while I was there despite many starts. I believe this is due to the use of the larger automotive battery rather than a 12 volt motorcycle unit. Installation of a compact alternator with internal regulator may be in the cards in the near future for the Mule. Finally, I would be remiss in not recognizing highly respected military vehicle collector Dan Solis of Escondido, California for developing the original idea for the ammo box for concealing a non-original battery. Hopefully it will work as well for you as it has for us. Happy Mulin'...

THE END



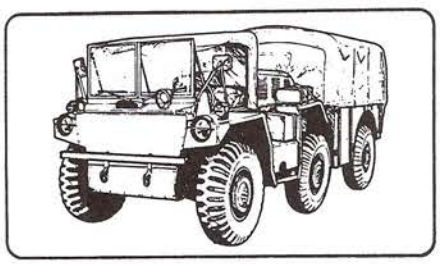
Chevrolet military trucks in WW2. Well illustrated model identification reference. 40 pages. Only $14.95 #620-CHEV



G.M.C. TRUCKS AT WAR. Complete listings and illus. of all WW2 GMC trucks of U.S. Army, with registration numbers and production figures. NEW high quality reprint. Expanded 2nd edition with 13 extra illustrated pages. 47 pages. 8x11". $16.95 #620-0655A

Gama Goat

Note correct spelling! (One 'm')



Unique collection of over 12 newspaper and journal photos and articles on the highly controversial development, and history of the Gama Goat (which even included U.S. Congressional hearings) with all its good and bad points revealed! 8 pages. $7.95 #620-GAMA

Trade inquiries welcome.

Available from Portrayal Press - Kindly use Order Form on page 41