

DEPARTMENT OF THE ARMY MODIFICATION WORK ORDER  
Department of the Army, Washington 25, D. C. 27 April 1948

TRUCK, 1/4-TON, 4 X 4 (FORD AND WILLYS):  
TO CONVERT ELECTRICAL SYSTEM FROM 6 VOLTS TO 12  
VOLTS ON CERTAIN SPECIFIED VEHICLES

1. Major item affected:

Name	SNL	TM
TRUCK, 1/4-ton, 4 x 4 (Ford and Willys) (See par. 8)---	G-503	9-803
		9-1803A
		9-1803B

2. Part affected:

Name	Drawing No.	Date
ELECTRICAL SYSTEM-----		

3. Purpose of modification: To convert the entire electrical system from 6 volts to 12 volts to provide current for radio equipment.

4. Drawings required to apply modification: Figures 1 to 6 inclusive.

5. Parts affected by modification:

a. New parts required:

Name	KW No.	Package Stock No.	Quantity
KIT, 12-volt conversion-----	G503-W7-----	G503-5700902-----	1
Composed of:			
Name	Part No.	Stock No.	Quantity
BATTERY, storage, lead acid, 6 v., type 2 H.	500901-----	H015-0500901-----	1
BELT, drive, fan and generator.	7713392-----	G503-7713392-----	1
BLOCK, junction (for blackout resistor).	7713500-----	G503-7713500-----	1
BODY, distributor shield, assembly.	7058922-----	-----	1
BODY, ignition coil shield, assembly.	7058927-----	G503-7058927-----	1
BODY, spark plug cover, assembly.	7058923-----	G503-7058923-----	1
BOLT, generator brace to bracket.	7713385-----	G503-7713385-----	1

\*This MWO supersedes MWO ORD G503-W7, 25 May 1944, including Changes No. 1, 20 March 1945.

Name	Part No.	Stock No.	Quantity
BOLT, shoulder, generator mounting, front.	7713899	G503-7713899	1
BOLT, shoulder, generator mounting, rear.	7713900	3320-350340-S2	1
BOLT, sq-hd., unfin., S., ld-ctd., $\frac{1}{8}$ -18NC-2 x $1\frac{1}{8}$ (battery series connector).	432768	H101-0432768	2
BRACE, generator	7713382		1
BRACKET, battery hold-down, center.	7713418		1
BRACKET, battery hold-down, end.	7713397		2
BRACKET, distributor shield, assembly.	7058931		1
BRACKET, distributor shield hold-down.	7058919		1
BRACKET, generator brace	7713395		1
BRACKET, ignition coil shield, assembly.	7058926		1
CABLE, battery ground	7713389	3320-GPWS-14301	1
CABLE, battery to starter switch.	7713417	3320-GPWS-14300B	1
CLIP (battery to starter switch conduit).	7713400		2
COIL, ignition, 12 v.	7713377	G503-7713377	1
CONDENSER, 0.1 mfd. (on ignition coil shield body).	7713393	G503-7713393	1
	or 7713409	or G503-7713409	
CONDENSER, 0.1 mfd. (on ignition coil shield bracket).	7713393	G503-7713393	1
	or 7713409	or G503-7713409	
CONDENSER, 0.1 mfd. (on regulator battery terminal).	7713394	G503-7713394	1
CONDENSER, 0.1 mfd. (on starter switch, battery side).	7713394	G503-7713394	1
CONDUIT, battery to starter switch.	7713408		1
CONNECTOR, battery, series.	7713376	3320-GPWS-14447	1
CONNECTOR, bullet terminal (drive lamp resistor).	7713757	G503-7713757	2
COVER, battery, assembly	7713416	G503-7713416	1
GAGE, fuel.	7713388	G503-7713388	1
GENERATOR, 12 v., assembly.	7713901	G503-7713901	1
HORN, 12 v., assembly	7089882	G504-7089882	1
INSULATOR, generator field terminal.	7713381	G503-7713381	2
INSULATOR, regulator post to rivet body.	7713384	G503-7713384	1
LAMP, 12-16 v., 1 cp., No. 53 (instrument panel).	131282	H104-0131282	2
LAMP, 12-16 v., 3 cp., No. 1247 (blackout marker).	190917	H104-0190917	2

Name	Part No.	Stock No.	Quantity
LAMP-UNIT, 12-16 v., 3 cp. (blackout stop).	504422	H004-0504422	1
LAMP-UNIT, 12-16 v., 3 cp. (blackout tail).	504419	H004-0504419	2
LAMP-UNIT, 12-16 v., 21-6 cp. (service tail and stop).	504416	H004-0504416	1
LAMP-UNIT, headlight, sealed, 12 v., assembly.	7713404	H104-0193153	2
MANUAL, MWO ORD G503-W7.			1
MOTOR, cranking, assembly	7713415	G503-7713415	1
NUT, hex., light, s-fin., S., cd. or zn-pltd., $\frac{1}{8}$ -18NC-2 (battery cover to floor).	120376	H001-4167541	4
NUT, hex., light, s-fin., S., cd. or zn-pltd., $\frac{1}{8}$ -18NC-2 (battery support to floor).	120376	H001-4167541	5
NUT, hex., light, s-fin., S., cd. or zn-pltd., $\frac{1}{8}$ -18NC-2 (generator brace to bracket).	120376	H001-4167541	1
NUT, hex. light, s-fin., S., ld-ctd., $\frac{1}{8}$ -18NC-2 (battery jumper cable).	432769	H101-0432769	2
NUT, hex., light, s-fin., S., phos-ctd., $\frac{1}{8}$ -24NF-2 (generator brace to generator).	115729	H101-0115729	1
NUT, hex., light, s-fin., S., phos-ctd., $\frac{1}{8}$ -24NF-2.	114942	H001-4169605	2
NUT, hex., light, thick, s-fin., S., cd. or zn-pltd., $\frac{1}{4}$ -20NC-2 (conduit clip to floor).	219430	H101-0219430	2
NUT, mach. screw, hex., S., cd. or zn-pltd., No. 10 (0.190)-32NF-3 (clip to fender).	426903		1
NUT, mach. screw, hex., S., cd. or zn-pltd., No. 10 (0.190)-32NF-3 (condenser connection on ignition coil bracket).	426903		1
NUT, mach. screw, hex., S., cd. or zn-pltd., No. 10 (0.190)-32NF-3 (condenser connection on ignition coil cover).	426903		1
NUT, mach. screw, hex., S., cd. or zn-pltd., No. 10 (0.190)-32NF-3 (connecting bracket on distributor bracket assembly).	426903		1
NUT, mach. screw, hex., S., cd. or zn-pltd., No. 10 (0.190)-32NF-3 (distributor bracket to ignition coil bracket).	426903		1

Name	Part No.	Stock No.	Quantity
NUT, mach. screw, hex., S., cd. or zn-pltd., No. 10 (0.190)-32NF-3 (distributor shield bracket to spark plug cover).	426903		1
NUT, mach. screw, hex., S., cd. or zn-pltd., No. 10 (0.190)-32NF-3 (ignition wire connection).	426903		3
NUT, mach. screw, hex., S., cd. or zn-pltd., No. 10 (0.190)-32NF-3 (resistor bracket to dash).	426903		2
NUT, shoulder, generator brace bracket.	7713399	G503-7713399	2
NUT, wing, heavy, S., cd. or zn-pltd., $\frac{1}{8}$ -18NC-2 (battery cover to floor).	503513	H001-4052541	4
NUT, wing, heavy, S., cd. or zn-pltd., $\frac{1}{8}$ -16NC-2 (battery hold-down).	503103	H101-0503541	6
PULLEY, engine crankshaft	7713390	G503-7713390	1
PULLEY, fan and water pump.	7713402	G503-7713402	1
PULLEY, generator	7713902	G503-7713902	1
REGULATOR, generator voltage.	C118349	G163-0367413	1
REINFORCEMENT, engine front support bracket, L. H.	7713398		1
REINFORCEMENT, engine front support bracket, R. H.	7713405		1
RESISTOR, blackout driving light.	7713396	G503-7713396	1
SCREW, cap, hex-hd., S., cd. or zn-pltd., $\frac{1}{4}$ -20NC-2 x 1 (conduit clip to floor).	214003	H001-5025541	2
SCREW, cap, hex-hd., S., cd. or zn-pltd., $\frac{1}{8}$ -18NC-2 x 1 (battery cover to floor).	216929	H001-5026141	2
SCREW, cap, hex-hd., S., cd. or zn-pltd., $\frac{1}{8}$ -18NC-2 x 1 (battery support to floor).	216929	H001-5026141	3
SCREW, cap, hex-hd., S., cd. or zn-pltd., $\frac{1}{8}$ -18NC-2 x 1 $\frac{1}{2}$ (battery cover to floor).	214020	H101-0214020	2
SCREW, cap, hex-hd., S., cd. or zn-pltd., $\frac{1}{8}$ -18NC-2 x 1 $\frac{1}{2}$ (battery support to floor).	214020	H101-0214020	1
SCREW, cap, hex-hd., S., phosph., $\frac{1}{8}$ -16NC-3 x 1 $\frac{1}{4}$ (generator brace to generator).	120248	H001-5420605	1

Name	Part No.	Stock No.	Quantity
SCREW, mach., rd-hd., S., cd. or zn-pltd., No. 10 (0.190)-32NF-2 x $\frac{3}{8}$ (condenser connection on ignition coil bracket).	132900	H001-5148831	1
SCREW, mach., rd-hd., S., cd. or zn-pltd., No. 10 (0.190)-32NF-2 x $\frac{3}{8}$ (condenser connection on ignition coil cover).	132900	H001-5148831	1
SCREW, mach., rd-hd., S., cd. or zn-pltd., No. 10 (0.190)-32NF-2 x $\frac{3}{8}$ (connecting bracket on distributor bracket assembly).	132900	H001-5148831	1
SCREW, mach., rd-hd., S., cd. or zn-pltd., No. 10 (0.190)-32NF-2 x $\frac{3}{8}$ (distributor bracket to ignition coil bracket).	132900	H001-5148831	1
SCREW, mach., rd-hd., S., cd. or zn-pltd., No. 10 (0.190)-32NF-2 x 1 (clip to fender).	132923	H001-5148891	1
SCREW, mach., rd-hd., S., cd. or zn-pltd., No. 10 (0.190)-32NF-2 x 1 (distributor shield bracket to spark plug cover).	132923	H001-5148891	1
SCREW, mach., rd-hd., S., cd. or zn-pltd., No. 10 (0.190)-32NF-2 x 1 (ignition wire connection).	132923	H001-5148891	2
SPACER, generator brace	7713380	3320-GPW-10027	1
SPACER, mounting, generator front end plate.	7713903	3320-GPWS-10149	1
SUPPORT, battery assembly	7713387	G503-7713387	1
SUPPORT, generator, assembly.	7713391		1
TERMINAL, battery cable, negative.	7713412	3320-GPA-14451C	1
TERMINAL, battery cable, positive.	7713413	3320-GPA-14450C	1
TERMINAL, battery to starter switch cable.	B208945AA	G503-7734703	1
TOP, spark plug cover, assembly.	7058924		1
WASHER, generator mounting bolt (flat, 0.40).	7713401	G503-7713401	2
WASHER, lock, int-ext-teeth, S., cd. or zn-pltd., No. 10 x 0.610 (clip to fender).	178378	H001-7124621	1

Name	Part No.	Stock No.	Quantity
WASHER, lock, int-ext-teeth, S., cd. or zn-pltd., ¼ in. (conduit clip to floor).	174916-----	H001-7124701-----	4
WASHER, lock, int-ext-teeth, S., cd. or zn-pltd., ⅝ in. (battery cover to floor).	178542-----	H001-7124721-----	12
WASHER, lock, int-ext-teeth, S., cd. or zn-pltd., ⅝ in. (battery support to floor).	178542-----	H001-7124721-----	8
WASHER, lock, med., S., cd. or zn-pltd., No. 10 (0.190) (condenser connection on ignition coil bracket).	120217-----	H001-7025621-----	1
WASHER, lock, med., S., cd. or zn-pltd., No. 10 (0.190) (condenser connection on ignition coil cover).	120217-----	H001-7025621-----	1
WASHER, lock, med., S., cd. or zn-pltd., No. 10 (0.190) (connecting bracket on distributor bracket assembly).	120217-----	H001-7025621-----	1
WASHER, lock, med., S., cd. or zn-pltd., No. 10 (0.190) (distributor bracket to ignition coil bracket).	120217-----	H001-7025621-----	1
WASHER, lock, med., S., cd. or zn-pltd., No. 10 (0.190) (distributor bracket to spark plug cover).	120217-----	H001-7025621-----	1
WASHER, lock, med., S., cd. or zn-pltd., No. 10 (0.190) (ignition wire connection).	120217-----	H001-7025621-----	2
WASHER, lock, med., S., cd. or zn-pltd., No. 10 (0.190) (resistor bracket to dash).	120217-----	H001-7025621-----	2
WASHER, lock, med., S., cd. or zn-pltd., ⅝ in. (battery ground to floor).	120214-----	H001-7025711-----	1
WASHER lock med. S. cd. or zn-pltd. ⅝ in. (generator brace to bracket).	120214-----	H001-7025711-----	1
WASHER lock med. S. phos-ctd. ⅝ in. (battery hold-down).	115093-----	H001-7025745-----	6
WASHER lock med. S. phos-ctd. ⅝ in. (generator brace to generator).	115093-----	H001-7025745-----	1
WASHER lock med. S. phos-ctd., ⅝ in. (generator mounting).	115093-----	H001-7025745-----	2
WASHER, plain, std., S., cd. or zn-pltd., No. 10 (0.190) (ignition wire connection).	120385-----	H001-7045491-----	2

Name	Part No.	Stock No.	Quantity
WASHER, plain, std., S., cd. or zn-pltd., No. 10 (0.190) (resistor bracket to dash).	120385-----	H001-7045491-----	2
WASHER, plain, std., S., cd. or zn-pltd., ⅝ in. (battery ground to floor).	120387-----	H001-7045561-----	2
WASHER, plain, std., S., cd. or zn-pltd., ⅝ in. (generator brace to bracket).	120387-----	H001-7045561-----	1
WASHER, plain, std., S., phos-ctd., ⅝ in. (generator brace to generator).	118666-----	H001-7045595-----	1
WASHER, plain, std., S., phos-ctd., ½ in. (generator mounting).	118668-----	H101-0118668-----	4
WIRE, ignition coil to shield...	7713378-----	3320-GPW-14321--	1
WIRE, primary, distributor to ignition coil, assembly.	7713379-----	G503-7713379-----	1
WIRING, generator to voltage regulator, assembly.	7713904-----	G503-7713904-----	1

#### b. Discarded parts:

Name	Part No.	Stock No.	Quantity
BELT, drive, fan and generator.	*FM-GPW-8620 **(WO-A-1495).	H017-0509226-----	1
BOLT, battery clamp.	FM-GPW-5175 (WO-A-1164).	-----	2
BRACE, generator, assembly.	FM-GPW-10153-A (WO-A-1491).	-----	1
BRACE, generator, short.	FM-GPW-10143--- (WO-A-1399)	-----	1
CABLE, battery to starting switch.	FM-GPW-14300--- (WO-A-1452)	3320-GPW-14300--	1
CABLE, starting switch to cranking motor.	FM-GPW-14431--- (WO-A-1454)	3320-GPW-14431--	1
COIL, ignition, assembly.	FM-GPW-12000--- (WO-A-1424)	G503-0139784-----	1
FRAME, hold-down battery.	FM-GPW-5165--- (WO-A-1291)	3320-GPW-5165---	1
GAGE, fuel, assembly.	FM-GPW-9280--- (WO-A-1268)	-----	1
GENERATOR, assembly.	FM-GPW-10000-A (WO-A-5992)	G503-0196299-----	1
HORN.	FM-GPW-13802--- (WO-A-1312)	-----	2
LAMP, elec., incand., 6-8 v., 1 cp. (instrument panel).	FM-48-15021----- (WO-52837)	-----	2
LAMP, elec., incand., 6-8 v., 3 cp. (blackout marker light).	FM-B-13466----- (WO-51804)	M001-0213230-----	2
LAMP-UNIT, blackout stop, sealed, 3 cp., 6 v., assembly.	FM-GP-13485-A.. (WO-A-1078)	H004-0504423-----	1

\*FM--Ford Motor Co. part number symbol.

\*\*WO--Willys-Overland Motors, Inc., part number symbol.

Name	Part No.	Stock No.	Quantity
LAMP-UNIT, blackout tail, sealed, 4 opening, 6 v., assembly.	FM-GP-13491-A... (WO-A-1075)	H004-0504420	2
LAMP-UNIT, headlight, sealed, 6 v., assembly.	FM-GPW-13007... (WO-A-1033)	G503-0127853	2
LAMP-UNIT, service tail and stop, sealed, 21-3 cp., assembly.	FM-GPW-13494-A... (WO-A-1074)	H004-0504417	1
MOTOR, cranking, assembly--	FM-GPW-11001-A... (WO-A-1245)	G503-0295835	1
PULLEY, drive generator-----	FM-GPW-10130... (WO-A-1639)		1
PULLEY, engine crankshaft---	FM-GPW-6312... (WO-638113)		1
PULLEY, fan and water pump-	FM-GPW-8509-A... (WO-636299)	3320-GPW-8509A	1
REGULATOR, generator, 6 v., 40 amp., assembly.	FM-GPW-10505... (WO-A-1409)	2980-SP-484	1
SPRING, generator brace-----	FM-GPW-10155... (WO-A-1469)	G121-0367250	1

c. Parts modified: None.

d. Supply of parts required:

(1) Source of supply: Requisitions should be submitted in accordance with SB 9-3. Requisition kits by package stock number G503-5700902. Requisition only in accordance with paragraph 8.

(2) Date available: Now.

(3) Excess modification kits are to be returned to Rossford Ordnance Depot, Toledo 1, Ohio, upon completion of application and not retained as spare parts.

e. Weight and cubage of parts:

(1) Weight: 176 lb.

(2) Cubage: 3% cu. ft.

6. Special tools, jigs, and fixtures required: Test equipment.

7. Special instructions:

a. Applied by: Automotive mechanic.

b. Time required: 10 man-hours.

c. Procedure of operation:

(1) Drain the cooling system.

(2) Remove and discard the items listed below except the battery, air cleaner, water pump, and front seats. Consult TM 9-803 for removal procedure.

Name	Part No.	Stock No.	Quantity
BATTERY-----			1
BELT, drive, fan and generator-----	FM-GPW-8620... (WO-A-1495).		1

Name	Part No.	Stock No.	Quantity
BOLT, battery clamp-----	FM-GPW-5175... (WO-A-1164).		2
BRACE, generator, assembly.	FM-GPW-10153-A... (WO-A-1491)		1
BRACE, generator, short----	FM-GPW-10143... (WO-A-1399)		1
CABLE, battery to starting switch, positive.	FM-GPW-14300... (WO-A-1452)		1
CABLE, starting switch to cranking motor.	FM-GPW-14431... (WO-A-1454)		1
CLEANER, air-----	FM-GPW-18205-B... (WO-A-5621)	6855-613300	1
COIL, ignition, assembly----	FM-GPW-12000... (WO-A-1424)		1
FRAME, hold-down, battery-	FM-GPW-5165... (WO-A-1291)		1
GAGE, fuel, assembly-----	FM-GPW-9280... (WO-A-1268)		1
GENERATOR, assembly----	FM-GPW-10000-A... (WO-A-5992)		1
HORN-----	FM-GPW-13802... (WO-A-1312)		1
Lamp, elec., incand., 6-8v., 1 cp. (instrument panel).	FM-48-15021... (WO-52837)		2
LAMP, elec., incand., 6-8 v., 3 cp., light (blackout marker).	FM-B-13466... (WO-51804)		2
LAMP-UNIT, headlight, sealed, 6 v., assembly.	FM-GPW-13007... (WO-A-1033)		2
LAMP-UNIT, blackout stop, sealed, 3 cp., 6 v., assembly.	FM-GPW-13485-A... (WO-A-1078)		1
LAMP-UNIT, blackout tail, sealed, 4 opening, 6 v., assembly.	FM-GPW-13491-A... (WO-A-1075)		2
LAMP-UNIT, service tail and stop, 21-3 cp., assembly.	FM-GPW-13494-A... (WO-A-1074)		1
MOTOR, cranking, assembly-	FM-GPW-10001-A... (WO-A-1245)		1
PULLEY, engine crankshaft-	FM-GPW-6312... (WO-638113)	3320-GPW-6312	1
PUMP, water-----	FM-GPW-8501... (WO-639992)		1
REGULATOR, generator---	FM-GPW-10505... (WO-A-1409)		1
SEATS, front-----	FM-GPW-1160012-B... (WO-A-3106) FM-GPW-1160016-B (WO-A-3107)		2

NOTE.—It will be necessary to remove the battery support on some vehicles with a cutting torch.

(3) Referring to figure 1, drill all necessary holes and install battery support and batteries with bolts, screws, nuts, washers, and terminals provided.

NOTE.—Some variation in the position of battery support and cover may have to be made to avoid striking the web in the frame cross members when drilling holes.

(4) Slip the battery to starter switch cable 7713417 through the conduit 7713408 and assemble terminal B208945AA to the cable using a staking tool.

(5) Locate a point inside the vehicle on the dash panel approximately  $\frac{3}{4}$  inch toward the center of the vehicle from the filter lower mounting holes and approximately 1 inch above the joint of the toeboard and dash panel.

(6) Drill a 1-inch hole at this point and insert the end of the conduit 7713408 through the hole and lay the conduit in the corner where the floor pan is formed to cover the transmission.

(7) Position two clips 7713400 to secure the conduit to the floor, one clip at the battery end of the conduit and the other clip on the dash. Using the clips as templates, drill two  $\frac{1}{2}$ -inch holes. Install screws, nuts, and washers, and tighten securely.

(8) Install battery ground cable 7713389 and battery series connector 7713376.

(9) Install cranking motor 7713415 with bolts previously removed and tighten securely, leaving off the cylinder block bracket.

(10) Loosen engine stay cable. Remove the nut that secures the right side of the front engine plate to the engine mount and the two bolts that secure the left motor mount to the frame bracket.

(11) Place a jack under the front end of the oil pan, with a small block of wood between the jack and the oil pan, and raise the engine until the stud on the right motor mount is flush with the top surface of the leg on the engine plate.

(12) Place the generator support 7713391 in position on the side of the cylinder block, and fasten securely with three screws previously removed from same holes (fig. 2). The hole for the motor mount bolt may require filing due to differences in the Ford and Willys model vehicles.

(13) Remove the jack and reinstall nut on right motor stud securely.

(14) Reinstall the bolts securing the left motor mount to the frame. Readjust engine stay cable.

(15) Install pulley 7713902 on the generator and tighten securely.

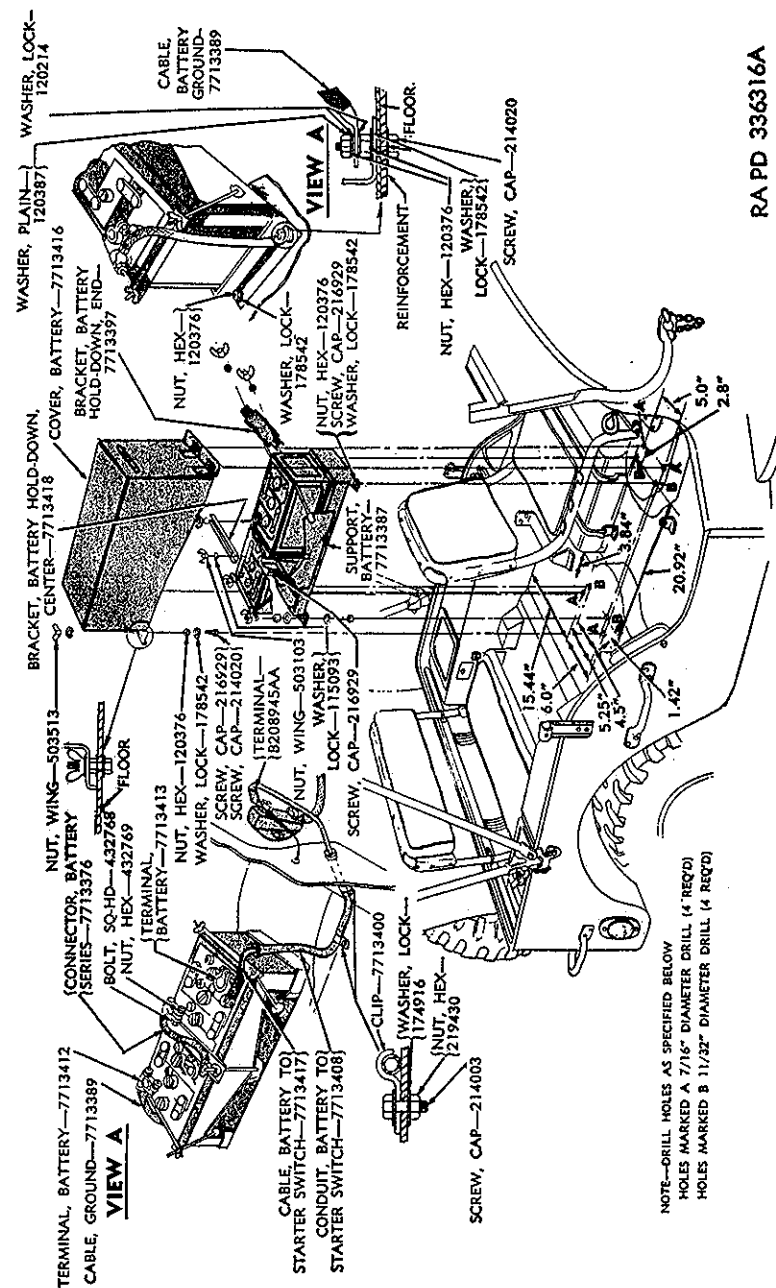


Figure 1. Battery and battery support installation.

RA PD 336316A

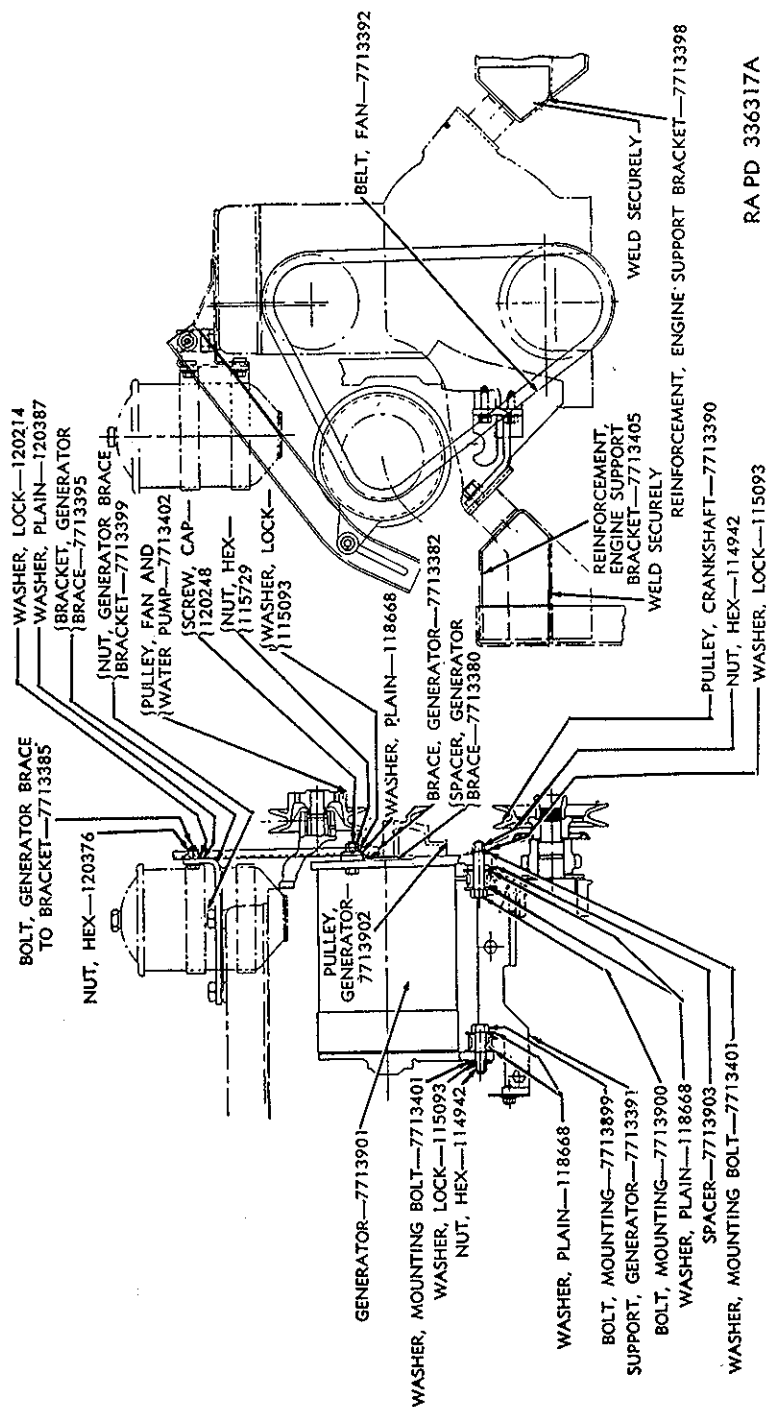


Figure 2. Generator and frame support installation.

RA PD 336317A

(16) Press fan and water pump pulley GPW-8509-A from water pump shaft and install new pulley 7713402 (fig. 2). Press new pulley on pump shaft until pulley hub is flush with end of shaft.

(17) Apply gasket and assemble water pump to engine. Install engine crankshaft pulley 7713390, making certain that the key is in place.

(18) Raise the front end of vehicle by the bumper, to allow the axle to drop down, and to allow ample clearance for using welding equipment (fig. 2). Place engine support bracket reinforcements 7713405 and 7713398 approximately  $\frac{1}{8}$  inch inside the forward edge of engine support and electric weld securely all around.

**Caution:** Care will be exercised not to damage brake hose and rubber bumpers when welding.

(19) Install generator 7713901 and brace 7713382 with bolts, nuts, lock washers, flat washers, and spacers (fig. 2).

NOTE.—When installing generator mounting bolts 7713900 and 7713899, it is advisable to soap the bolts thoroughly before forcing through the rubber generator support insulators GPW-10178. Insulators will be removed from the old supports and reinstalled in the new supports.

(20) Install fan belt 7713392. Bend down the shielding, away from under the crankshaft pulley to make belt clearance place the belt over the fan and water pump pulley, then over the generator pulley, and crank it on over the crankshaft pulley.

NOTE.—The fan belt should not be put on until all shielding is applied.

(21) Install generator voltage regulator C118349 in the same location as the original regulator with original bolts, washers, and nuts.

(22) Install blackout driving light resistor 7713396 as follows:

(a) Locate the resistor on the engine side of the dash perpendicularly between the two looms located to the rear of the horn.

(b) Drill two  $\frac{1}{32}$ -inch holes in the dash using the resistor bracket for a template.

(c) Install resistor to dash with machine screws 132923, hexagon nuts 426903, plain washers 120385, and lock washer 120217.

(d) Separate the black-out driving light wire (black wire) at the bullet connector.

(e) Attach connectors 7713757 to each terminal on the resistor, and attach the loose ends of the black-out wire to these terminals.

- (f) Install fuel gage 7713388 in instrument panel and connect wires.
- (g) Disconnect the trailer socket at the socket, and tape the wires.
- (h) Install the following lamps and lamp-unit assemblies:

Name	Part No.	Quantity
LAMP, blackout front marker light.....	190917	2
LAMP, instrument panel.....	131282	2
LAMP-UNIT, blackout stop.....	504422	1
LAMP-UNIT, blackout tail.....	504419	2
LAMP-UNIT, headlight, sealed, assembly.....	7713404	2
LAMP-UNIT, service tail and stop.....	504416	1

- (23) Referring to figure 1, connect battery ground cable 7713389 and battery to starter switch cable 7713417. Install battery cover 7713416 and reinstall front seats.
- (24) Refill cooling system and check for leaks.
- (25) Install suppression shielding (fig. 3).

NOTE.—When installing spark plug cover body assembly 7058923 on the Willys, it will be necessary to grind the word "Jeep" off the cylinder head, as this body assembly must set flat on the cylinder head of either the Willys or Ford. (Be sure spark plug holes are closed.)

When installing condenser 7713393 (or 7713409) to ignition coil shield body 7058927, locate condenser so that it will not short on coil terminal. Remove entire distributor assembly including wires, and install distributor shield bracket 7058931. Reinstall distributor assembly in its original position.

(26) Drill spark plug cover body assembly 7058923 and distributor shield bracket 7058931 and bolt together with machine screw 132923, hexagon nut 426903, and lock washer 120217 (fig. 3).

(27) Install coil shield bracket 7058926, ignition coil 7713377, and coil shield body assembly 7058927 on cylinder block and tighten securely.

(28) Install distributor shield body assembly 7058922 and spark plug cover top assembly 7058924.

NOTE.—The distributor shield bracket 7058931 and the distributor shield body assembly 7058922 should be close fitting on all contact surfaces to retain their effectiveness.

(29) Install condenser 7713394 to engine block under existing bolt which holds the cranking motor to engine and attach condenser lead to battery side of cranking motor switch terminal under existing brass nut and lock washer.

(30) Install the other condenser 7713394 to regulator mounting screw and attach lead to battery terminal of regulator.

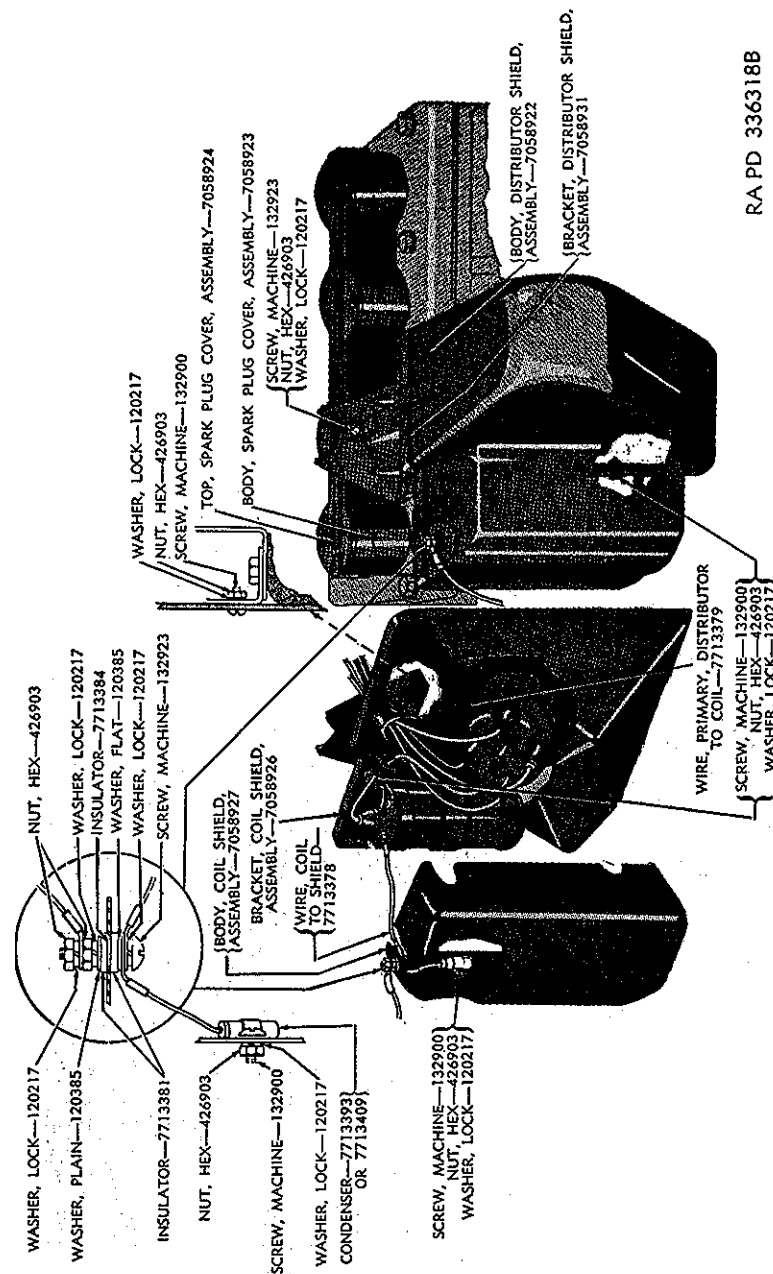


Figure 8. Radio shielding installation

RA PD 336318B



(31) Install generator to regulator armature lead wire 7713904 and solder a clip on each end of braided shielding. Fasten one clip on rear of generator and locate the other clip on body of vehicle  $\frac{1}{2}$  inch from regulator terminals.

(32) Using a clip as a template, drill a  $\frac{1}{4}$ -inch hole in fender skirt and secure clip to skirt with machine screw 132923, lock washer 178378, and hexagon nut 426903 and tighten securely.

(33) Reinstall air cleaner GPW-18205-B and horn 7089882 with original bolts, nuts, and washers.

NOTE.—When radio interference is experienced, it can be eliminated by following the instructions in steps (34) to (39). (The bonding straps, bolts, and internal-external-tooth lock washers referred to will be procured locally).

(34) Drill a  $\frac{1}{4}$ -inch hole in the front right side of the spark plug cover body assembly 7058923 and install a  $\frac{1}{4}$ -inch bolt in hole.

(35) Attach one end of bond strap to bolt just installed, using internal-external-tooth lock washers and nut, and attach other end of bond to stud that is part of oil filter bracket. Tighten bolt and stud securely (fig. 4).

(36) Drill a  $\frac{1}{4}$ -inch hole in the lower right-hand corner of the

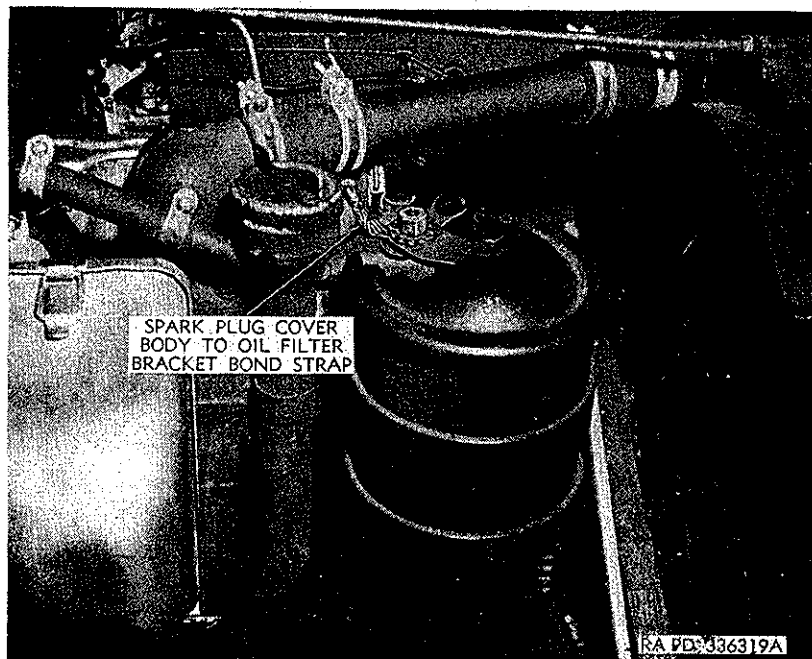


Figure 4. View showing installation of bond strap to engine.

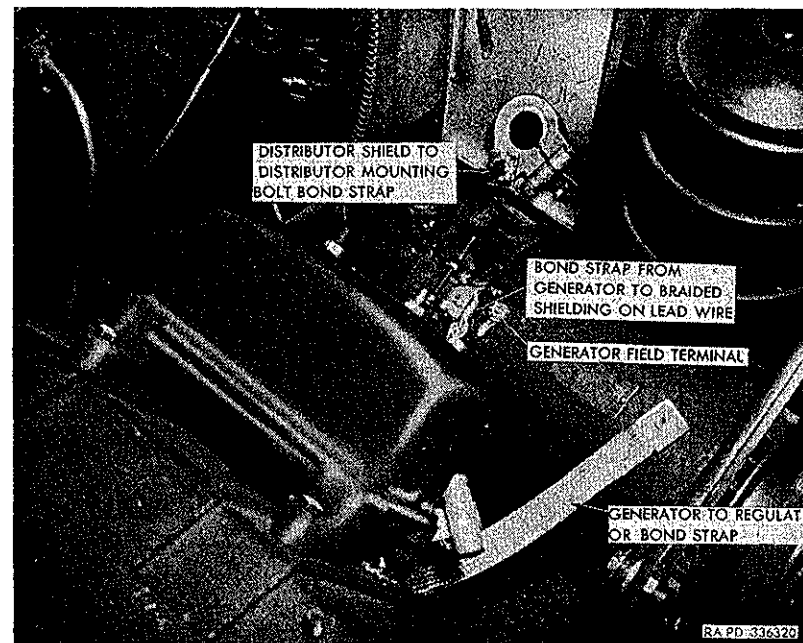


Figure 5. View showing front generator to regulator bond.

distributor shield bracket 7058931 and install a  $\frac{1}{4}$ -inch bolt. (37) Attach one end of bond strap to bolt just installed, using internal-external-tooth lock washer and nut, and attach other end of bond strap to distributor mounting bolt. Tighten both ends securely (fig. 5).

(38) Drill and tap a No. 8-32 hole in the generator housing opposite the field terminal and between the openings of the inspection cover. Attach one end of a bond strap to hole just drilled with No. 8-32 screw and internal-external-tooth lock washer, and solder the other end of bond strap to braided shielding which is part of lead wire 7713904 (figs. 5 and 6).

(39) Install generator to regulator bond strap as shown in figure 5.

- d. Category of maintenance: Field or higher.
- e. Comments with reference to published modification work orders: These instructions supersede MWO ORD G503-W7, 25 May 1944, including C1, 20 March 1945.
- f. Disposal of discarded parts:
  - (1) Disposal of discarded parts removed from major item: If serviceable, parts removed will be returned to local stock for reissue. Dispose of unserviceable parts in accordance with SB 9-5.

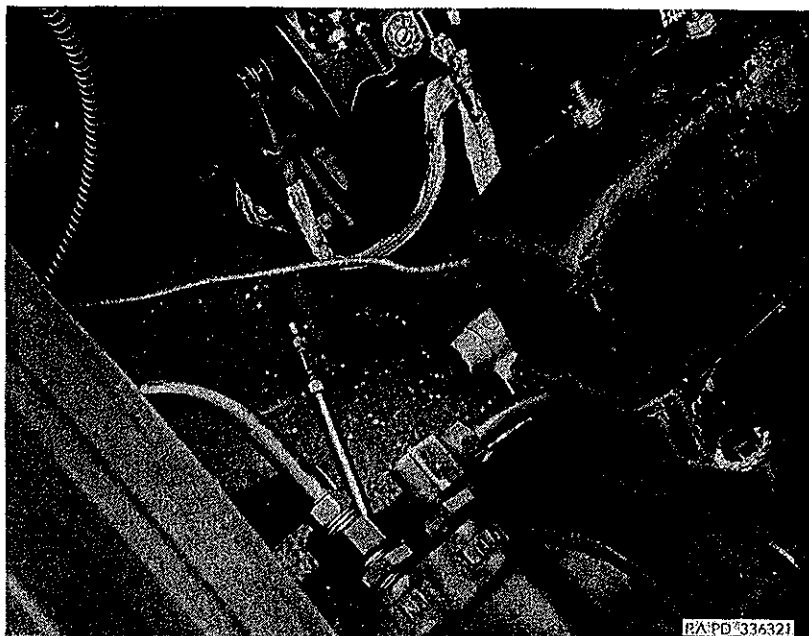


Figure 6. View showing rear generator to regulator bond.

(2) Disposal of depot stocks of items affected by modification: None.

g. Classification: See paragraph 8.

h. Serial numbers required on status reports: None.

i. Report required: None.

#### 8. Remarks:

a. This modification will be applied only to meet requirements of T/O & E's and T/A's and other requirements as authorized by Director of Logistics, General Staff, United States Army.

b. The additional 6-volt battery is to be procured locally.

[AG 300.4 (9 Apr 48)]

#### OFFICIAL:

OMAR N. BRADLEY  
EDWARD F. WITSELL *Chief of Staff, United States Army*  
*Major General*  
*The Adjutant General*

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17, 19, 44, 55 (1); C 2-11, 17, 19, 44, 55 (1); FC (1); Class  
II Instls 9 (3); USMA (2); Sch (5); Gen Dep 9 (4); Tng  
Ctr (2); PE (Ord O) (5); SPECIAL DISTRIBUTION.

##### Air Force:

USAF (5); USAF Maj Comd (2); USAF Sub Comd (3); W (1);  
G (1); S (1); LS (1); BU (1).

For explanation of distribution formula see TM 38-405.

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## DEPARTMENT OF THE ARMY MODIFICATION WORK ORDER

Department of the Army • Washington 25, D. C. • 26 Oct. 1948

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### TRUCK, 1/4-TON, 4 x 4 (FORD AND WILLYS): TO CONVERT ELECTRICAL SYSTEM FROM 6 VOLTS TO 12 VOLTS ON CERTAIN SPECIFIED VEHICLES

*Effective date of information: 10 September 1948*

Department of the Army Modification Work Order G503-W7, 27 April 1948, is changed as follows:

**Page 1:**

**5a:** Delete BATTERY, storage, lead acid, 6 v., type 2H, Part No. 500901, Stock No. H015-0500901, Quantity 1. (This is not furnished as a component of KIT, 12-volt conversion, G503-5700902.)

**Page 2:**

Change part number for BRACE, generator, from 7713382 to 7721596.

**Page 7:**

**5b:** Delete BRACE, generator, short, FM-GPW-10148 (WO-A-1399), Quantity 1. (This brace together with earlier brace 7713382 will be modified and reinstalled in the vehicle as outlined in paragraph 7c (19) (b).)

**Page 12:**

On *figure 2*, change part number for BRACE, GENERATOR from 7713382 to 7721596.

**7. Special instructions:**

\* \* \* \* \*

**c. Procedure of operation:**

\* \* \* \* \*

- (19) (Superseded.) (a) Install generator 7713901 and brace 7721596 with bolts, nuts, lock washers, flat washers, and spacers (fig. 2).

*Note.* When installing generator mounting bolts 7713900 and 7713899, it is advisable to soap the bolts thoroughly before forcing them through the rubber generator support insulators GPW-10178. Insulators will be removed from the old supports and reinstalled in the new supports.

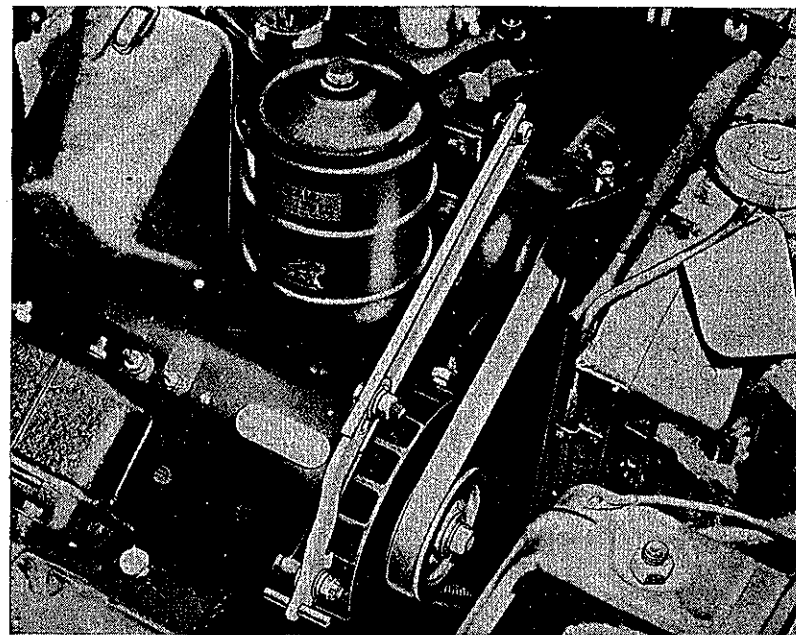
(b) Conversion kits may be furnished with either the early type brace 7713382 or later type 7721596. If brace 7713382 is furnished, it and the old brace (FM-GPW-10143) removed from the vehicle, must be modified as follows before being installed: Cut a 10-inch length from the straight section of the brace. Drill a  $\frac{3}{8}$ -inch hole  $8\frac{1}{2}$  inches from hole end of brace, and  $\frac{1}{2}$  inch from inside channel edge of brace, as shown in B, figure 2.1.

The slot on end of old generator brace (FM-GPW-10143) will be welded closed (B, fig. 2.1), except for a hole large enough for the body of a  $\frac{3}{8}$ -inch cap screw to pass through. Grind off excessive metal to form a flat surface on both sides of brace. Loosely assemble the two modified braces using a  $\frac{3}{8}$ -24NF-2 x  $\frac{7}{8}$ -inch cadmium-plated cap screw (213925),  $\frac{3}{8}$ -inch cadmium-plated lock washer (120381),  $\frac{3}{8}$ -inch-cadmium-plated plain washer (128388), and a  $\frac{3}{8}$ -inch-cadmium-plated hexagon nut (225381).

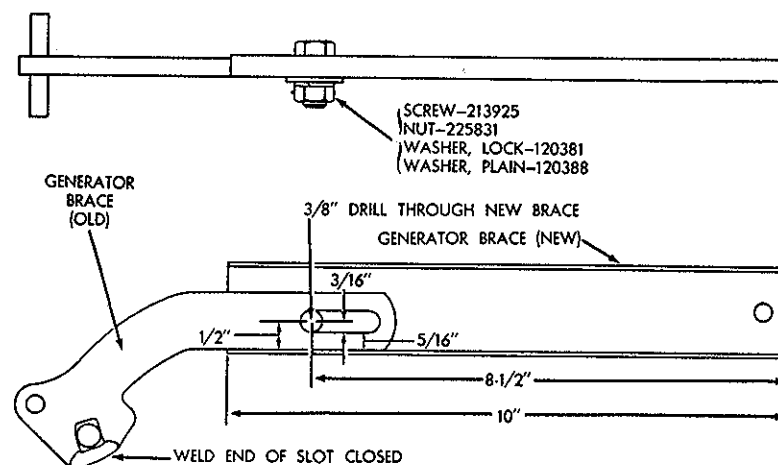
*Note.* The above four items are not furnished with the kit. Install generator 7713901 and modified brace assembly with bolts, nuts, lock washers, flat washers, and spacers (A and B, fig. 2.1).

## 8. Remarks:

- b. (Superseded.) The additional 6-volt battery is to be procured through normal supply channels unless otherwise authorized.  
[A. G. 300.4 (28 Sep 48)]



A. MODIFIED BRACE ASSEMBLY INSTALLED



B. DETAILS FOR MODIFYING BRACES

RAPD 354754

Figure 2.1. (Added) Modified brace assembly.

BY ORDER OF THE SECRETARY OF THE ARMY:

OFFICIAL:

EDWARD F. WITSELL  
Major General  
The Adjutant General

OMAR N. BRADLEY

Chief of Staff, United States Army

DISTRIBUTION:

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Air Force:

USAF (5); USAF Maj Comd (2); USAF Sub Comd (3); W (1); G (1); S (1); BU (1).

For explanation of distribution formula see TM 38-405.

# MWO ORD G503-W7

Changes No. 2

**NORMAL**

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## DEPARTMENT OF THE ARMY MODIFICATION WORK ORDER

Department of the Army, Washington 25, D. C. • • 26 July 1951

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MWO ORD G503-W7, 27 April 1948, is changed as follows:

Page 1:

### 5. Parts affected by modification:

#### a. New parts required:

Change stock number for KIT, 12-volt conversion from G503-5700902 to G503-5701384.

Change part number for BELT, drive, fan and generator from 7713392 to 7351915 and stock number from G503-7713392 to G503-7351915.

Page 2:

Change part number for BRACE, generator from 7721596 to 7352388.

Add: BRACKET, extension, air cleaner, Part No. 7375122, Stock No G704-7375122, Quantity 1.

Add: HOSE, flexible, air cleaner to air intake pipe, Part No. 7375119, Stock No. G704-7375119, Quantity 1.

Page 3:

Add: NUT, hex, light, s-fin, S, cd- or zn-pltd, ¼-28NF-2 (extension bracket to air cleaner), Part No. 120367, Stock No. H001-4167521, Quantity 2.

Page 4:

Add: SCREW, cap, hex-head, S, cd- or zn-pltd, ¼-28NF-2 x ¾ (extension bracket to air cleaner), Part No. 213878, Stock No. H101-O213878, Quantity 2.

Page 6:

Add: WASHER, lock, medium, S, cd- or zn-pltd, ¼-inch (extension bracket to air cleaner), Part No. 120380, Stock No. H001-7025681, Quantity 2.

Add: WASHER, plain, S, cd- or zn-pltd, ¼-inch, Part No. 120392, Stock No. H001-7043681, Quantity 2.

Page 7:

5 b. Discarded parts:

Add: HOSE, air cleaner tube to cleaner, Part No. FM-GPW-9652-B (WO-A-1311), Stock No. 3320-GPW-9652, Quantity 1.

Page 8:

5 c. Part modified: (Superseded)

Name	Part No.	Stock No.	Quantity
TRAY, battery (Ford and Willys before Serial No. 120700).	7697854-----	G503-7697854-----	1
TRAY, battery (Willys, after Serial No. 120700).	7744585-----	G503-7744585-----	1

5 d. Supply of parts required:

Change stock number for kit from G503-5700902 to G503-5701384.

Page 9:

7 c. Procedure of operation:

Add: HOSE, air cleaner tube to cleaner, Part No. FM-GPW-9652-B (WO-A-1311), Stock No. 3320-GPW-9652, Quantity 1.

Page 12:

On figure 2, change part number for BRACE, GENERATOR, as changed in changes No. 1, 26 Oct. 48, from 7721596 to 7352388. On figure 2, change part number for BELT, FAN from 7713392 to 7351915.

Page 13:

7 c. (18) (Superseded)

(a) Raise the front end of vehicle by the bumper to allow the axle to drop down and to allow ample clearance for using welding equipment (fig. 2). Place engine support bracket reinforcements, 7713405 and 7713398 approximately ¼-inch inside the forward edge of engine support and electric weld securely.

(b) Using a cutting torch, cut away enough of the corner of the battery tray to assure free movement of generator. On some vehicles it may be necessary to cut a small recess in the right engine support if it interferes with the generator movement.

**CAUTION.** Care should be exercised during all cutting and welding operations to protect brake hose, rubber bumper, and radiator core. Shield these parts with sheet asbestos during welding and cutting.

(19) (Superseded). Install generator 7713901. Check to determine that generator has free movement without obstruction

by battery tray or right engine support. If generator has adjustment clearance, install brace 7352388 with bolts, nuts, spacers, and washers (fig. 2).

*Note.* When installing generator mounting bolts, 7713900 and 7713899, it is advisable to soap the bolts thoroughly before forcing through the rubber generator support insulators, GPW-10178A. Insulators will be removed from old supports and installed in the new supports.

(20) Change part number for fan belt from 7713392 to 7351915.

Page 16:

7 c (33) (Superseded). Drill two new holes in the right hand support ear of air cleaner, 1¼ inches in from their present position. Attach the air cleaner extension bracket 7375122 to air cleaner 7007562 on side of mounting strap nearest outlet tube, using two ¼ x ¾ hex-head cap screws 213878, two ¼-inch plain washers 120392 and two ¼-inch lock washers, 120380. Install the air cleaner 7007562 using original bolts, nuts, and washers.

*Note.* On vehicles having the fuel strainer mounted on the dash, it may be necessary to cut away approximately ½ inch from the right hand mounting ear to prevent interference of the strainer with the air cleaner.

Install the flexible hose 7375119 between the air cleaner and air intake pipe. Install horn 7728528 using original bolts, nuts, and washers.

[AG 3004 (11 July 51)]

BY ORDER OF THE SECRETARY OF THE ARMY:

OFFICIAL:

WM. E. BERGIN

Major General, USA

Acting The Adjutant General

J. LAWTON COLLINS

Chief of Staff, United States Army

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For explanation of distribution formula, see SR 310-90-1.

# MWO ORD G503-W7

Changes No. 3

NORMAL

## DEPARTMENT OF THE ARMY MODIFICATION WORK ORDER

Department of the Army, Washington 25, D. C.

3 January 1952

### TRUCK, 1/4-TON, 4 X 4 (FORD AND WILLYS): TO CONVERT ELECTRICAL SYSTEM FROM 6 VOLTS TO 12 VOLTS ON CERTAIN SPECIFIED VEHICLES

MWO ORD G503-W7, 27 April 1948, pertaining to truck, 1/4-ton, 4 x 4 (Ford and Willys) is changed as follows:

The classification of MWO ORD G503-W7, 27 April 1948, and Changes No 1, 26 October 1948, is changed to RESTRICTED Security Information.

#### 7. Special instructions:

\* \* \* \* \*

#### c. Procedure of operation.

\* \* \* \* \*

(4) (Superseded) Before installing the battery-to-starter switch cable conduit 7713408 as described in (5) to (7) below, place it in position temporarily in order to determine which will be its lowest section when installed. Drill a 1/8-inch hole in this section as a preventive measure against the accumulation of water or moisture in the conduit. Slip the battery-to-starter switch cable 7713417 through the conduit, and assemble terminal B208945AA to the cable by using a staking tool.

(4.1) (Added) Remove conduit 7713408 from vehicles that have previously been converted to the 12-volt electrical system in accordance with this modification work order. Remove the battery-to-starter switch cable 7713417 from the conduit and inspect it thoroughly. If the cable is found to be defective, replace it with a new cable. Prior to installing the cable in

the conduit, drill a 1/8-inch hole in the lowest section of conduit 7713408 as described in (4) above.

\* \* \* \* \*

[AG 300.4 (26 Dec 51)]

BY ORDER OF THE SECRETARY OF THE ARMY:

#### OFFICIAL:

WM. E. BERGIN  
Major General, USA  
The Adjutant General

J. LAWTON COLLINS

Chief of Staff, United States Army

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For explanation of distribution formula, see SR 310-90-1.