

DEPARTMENT OF THE ARMY TECHNICAL MANUAL
DEPARTMENT OF THE AIR FORCE TECHNICAL ORDER
POWER TRAIN, BODY, AND FRAME FOR 1/4-TON 4 x 4
UTILITY TRUCK M38A1 AND 1/4-TON 4 x 4 FRONT LINE
AMBULANCE M170

TM 9-8015-2 } DEPARTMENTS OF THE ARMY AND
TO 19-75CAJ-5 } THE AIR FORCE
CHANGES No. 1 } WASHINGTON 25, D. C., 12 November 1954

TM 9-8015-2/TO 19-75CAJ-5, 2 August 1954, is changed as follows:

The title is changed to **POWER TRAIN, BODY, AND FRAME FOR 1/4-TON 4 x 4 UTILITY TRUCK M38A1 AND 1/4-TON 4 x 4 FRONT LINE AMBULANCE M170.**

1. Scope

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b. This manual contains a description of and procedures for removal, disassembly, inspection, repair, rebuild, and assembly of the power train, body, and frame of the 1/4-ton 4 x 4 utility truck M38A1 (figs. 1, 2, and 3) and the 1/4-ton 4 x 4 front line ambulance M170 (figs. 3.1 and 3.2). The appendix contains a list of current references, including supply manuals, technical manuals, and other available publications applicable to the materiel.

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4. Description M38A1

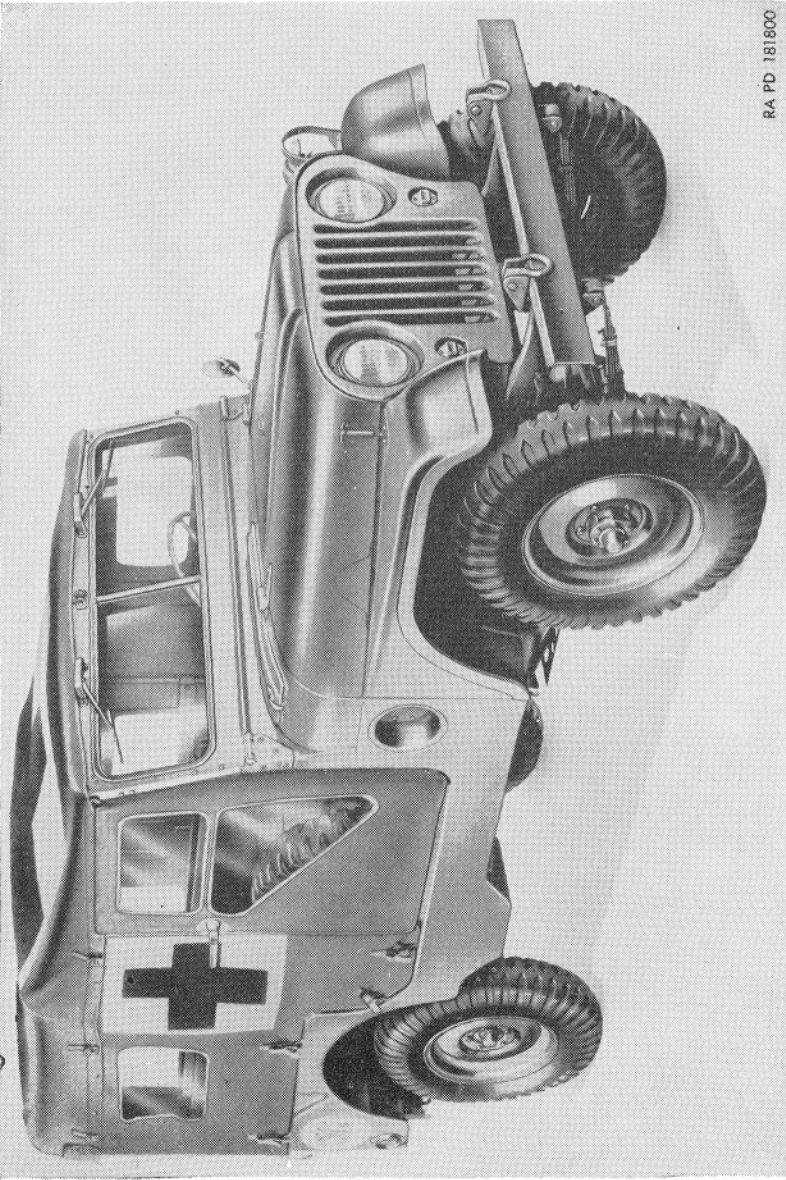
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4.1 Description M170

(Added)

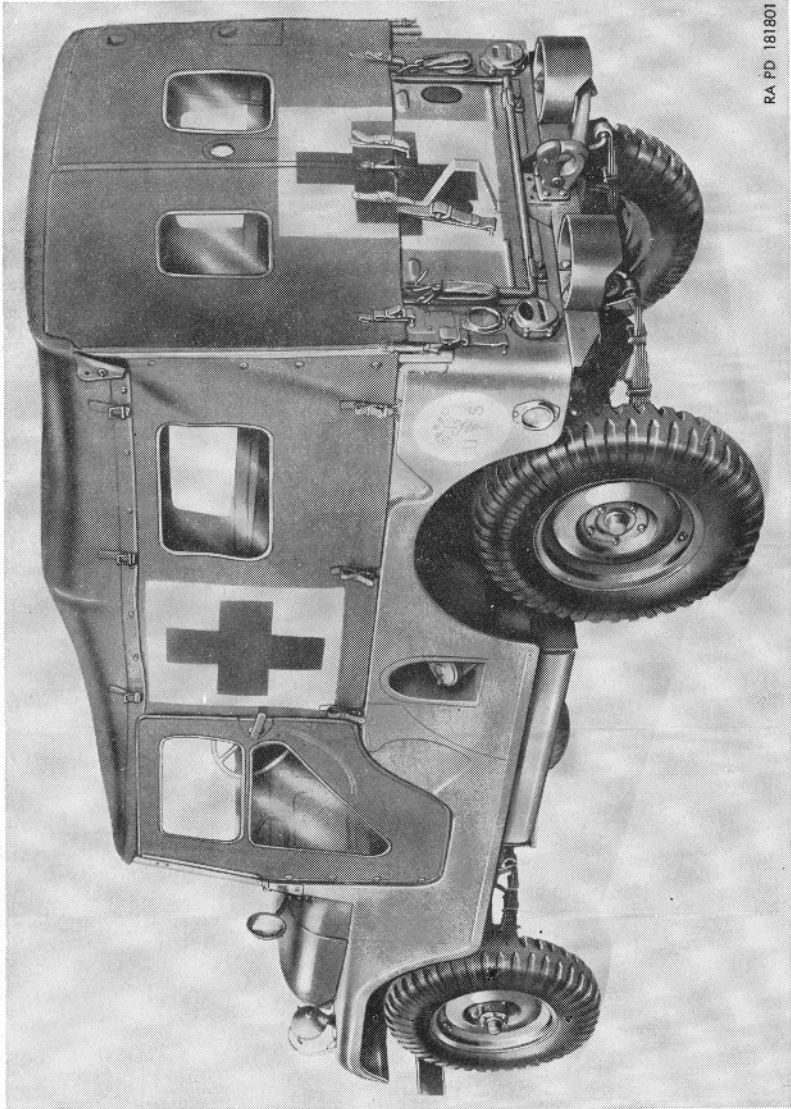
a. The front line ambulance M170 can be distinguished from the utility truck M38A1 by its longer body and frame, designed for use as an ambulance. The longer wheel base and body of the M170 provides accommodation for three litters. The litter carriers can be removed to convert the vehicle to a personnel carrier, accommodating six ambulatory patients in addition to the driver.

b. The tailgate of the ambulance can be lowered to facilitate the loading of the litters. The spare wheel is located inside the ambulance at the right rear of the front passenger seat.



RA PD 181800

Figure 3.1. (Added) 1/4-Ton 4 x 4 front line ambulance M170—right front view.



RA PD 181801

Figure 3.2 (Added) 1/4-Ton 4 x 4 front line ambulance M170—left rear view.

c. The ambulance is equipped with lower rate springs and shock absorbers for easier riding. The hand brake handle is installed in such a manner as to avoid interference with the lower litter. Additional accessories included with the ambulance consist of crash pads and an interior emergency light.

5. Power Train

(fig. 5)

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g. (Added) *Stabilizer Bar Assemblies M170* (fig. 40.1). Stabilizer bar assemblies are installed at the front and rear of the vehicle. The bracket of the front stabilizer bar assembly is mounted to the frame side rail. The bracket of the rear stabilizer bar assembly is mounted to the stabilizer bracket-to-frame bracket. The stabilizer bracket-to-frame bracket is mounted to the frame side rail. Stabilizer bar links connect the bar to a shaft on the U-bolt plates on the springs. The bars help to eliminate body sway and lean when the vehicle is in motion.

6. Body M38A1

(fig. 158)

* * * * *

6.1. Body M170

(fig. 158.1)

(Added)

a. *General.* The body is an all steel, open-type, of seamed and welded construction. The body is equipped with a driver's seat, front passenger seat, and two rear seats for ambulatory patients or passengers, tool compartment, two medical supplies stowage compartments, battery stowage box, and bows for the installation of a top cover, side curtains, and doors. A well in front of the right wheel house provides for mounting the spare wheel and tire inside the body. A two-piece, folding-type windshield, with two windshield wiper vacuum motors, is also a part of the body. The formed sheetmetal hood and front fenders are removable. Access to the rear of the engine compartment, transmission, transfer, master cylinder, and steering gear is provided by removable front floor pan covers and access plates. Reflex reflectors are bolted to the rear and sides of the body.

b. *Ambulance Equipment.*

- (1) *Litter racks.* The lower litter rack is located on the floor on the right side of the body. The upper litter rack is a removable type suspended by a hanger, supports, and retainers above the right wheel house. An auxiliary litter can be mounted above the left wheel house and tailgate. An eye on the right side of the driver's seat, a bracket left of the

driver's seat, and two brackets on the tail gate support the litter. Two holddown straps are provided to tie down the rear of the auxiliary litter.

- (2) *Seats and crash pads.* The vehicle is equipped with a driver's seat, a front passenger seat, and four wheel house cushions which serve as seats for rear passengers. The rear of the driver's seat is equipped with a crash pad and cover for the protection of the patient's head when the auxiliary litter is being used. The front passenger seat is designed to be used either as a passenger seat or, in crash pad arrangement, as a protection for patients when the lower and upper litter racks are in use.
- (3) *Tailgate.* A tailgate is provided for ease of loading patients. Two holes in the tailgate permit the handles of the litter on the lower litter rack to protrude outside the vehicle when the tailgate is in raised position.
- (4) *Medical supplies stowage compartments.* Two medical supplies stowage compartments are provided; one in the rear of the right wheelhouse and the other in the front of the left wheelhouse.

7. Frame M38A1

(fig. 178)

* * * * *

7.1. Frame M170

(Added)

The frame of the M170 is constructed of two heavy channel steel side rails and five cross members. The side rails and cross members are reinforced with welded plates. Two rear reinforcements of a V-shape design are welded to the side rails and rear cross member. All cross members, except the engine rear support cross member, are welded to the side rails. Stabilizer bar assemblies are mounted on the frame at the front and the rear of the vehicle to reduce swaying. Two front lifting shackles and a bumper bar are mounted on the front of the frame. A towing pintle, two rear lifting shackles, and two bumperettes are mounted on the rear of the frame. Brackets and supports provide mounts for the engine, body, shock absorbers, springs, and stabilizer bar assemblies.

8. Engine, Clutch, and Electrical System

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c. *Electrical System M38A1.*

* * * * *

d. (Added) *Electrical System M170.* The 12-volt lead and acid-type batteries, connected in series, supply 24-volts for operating the

electrical components of the vehicle. All components of the electrical system are waterproofed for operation while completely submerged. Two headlights, a blackout driving light, and two signal blackout marker and service parking lights are installed on the front of the vehicle. The blackout tail and stoplight and the service tail and stoplight are located at the rear of the vehicle. An emergency reel lamp is mounted on the body of the front line ambulance at the rear of the driver's seat. Voltage can be obtained at the emergency reel lamp switch only when any one of the switch levers of the light switch is in ON position.

9. Data M38A1

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9.1. Data M170

(Added)

Refer to list below for tabular data pertaining to general characteristics and performance of the vehicle, and major components. TM 9-8015-1 contains descriptive information and tabular data pertaining to the engine and clutch. For detailed information and tabular data pertaining to components covered in this manual refer to the following paragraphs:

	<i>Paragraph</i>
Body.....	216.1
Frame.....	245.1
Front axle assembly.....	146
Propeller shafts.....	141
Rear axle assembly.....	169
Shock absorbers.....	195
Springs.....	195
Steering system.....	201
Transfer.....	110
Transmission.....	81
Universal.....	141

35. Trouble Shooting Before Removal or Operation

* * * * *

b. *Inspect the Vehicle for Sagging.* See if the vehicle sags to one side. Sagging of the vehicle may be caused by one of the following faults:

* * * * *

(3) *Broken spring shackle M38A1.* Replace shackle (ch. 4).

(3.1) (Added) *Broken spring shackle M170.* Replace shackle (par. 62.1 c).

* * * * *

c. *Inspect the Vehicle for High Setting on One Side M38A1.* If the vehicle * * * installation. Check and correct as necessary (par. 62).

c.1. (Added) *Inspect the Vehicle for High Setting on One Side M170.* If the vehicle sits high on one side, the spring assembly may have shifted on the axle assembly. Correct as necessary. Be sure **U** bolts are securely tightened. Check stabilizer bar links for looseness or breakage, and correct as needed (par. 57.1).

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39. Troubleshooting Before Removal or Operation

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b. *Inspect for Abnormal Wear of Front Tires.* Excessive or abnormal wear of the front tires can be caused by one of the following:

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(4) *Front springs loose, shifted, or broken M38A1.* Examine springs for proper mounting and damage. Correct malfunction as necessary (pars. 197 and 198).

(5) (Added) *Front Springs Loose, Shifted, or Broken M170.* Examine springs for proper mounting and damage. Correct malfunction as necessary (par. 62.1c).

c. *Inspect for Abnormal Wear of Rear Tires.*

* * * * *

(3) *Rear springs shifted, loose, or broken M38A1.*

* * * * *

(4) (Added) *Rear springs shifted, loose, or broken M170.* Check springs for proper mounting and damage. Repair broken or damaged parts (par. 62.1c).

* * * * *

41. General

a. This section contains information for the guidance of personnel performing major rebuild work on the 1/4-ton 4 x 4 utility truck M38A1 and the 1/4-ton 4 x 4 front line ambulance M170. It provides an * * * must be done.

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44. Remove Batteries

(fig. 13)

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a.1. (Added) *Unclamp and Remove the Cover (fig. 13.1) on the M170.*

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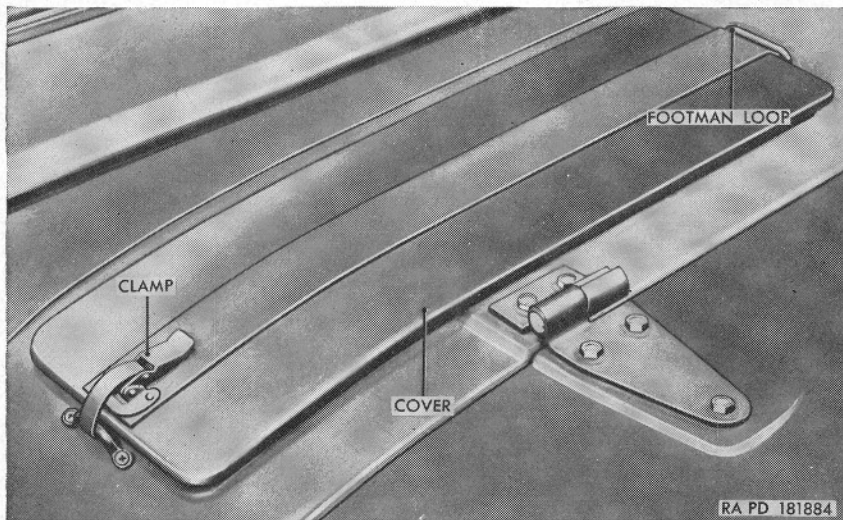


Figure 13.1. (Added) Batteries location—batteries cover installed M170.

45. Remove Spare Wheel and Tire Assembly M38A1 (fig. 14)

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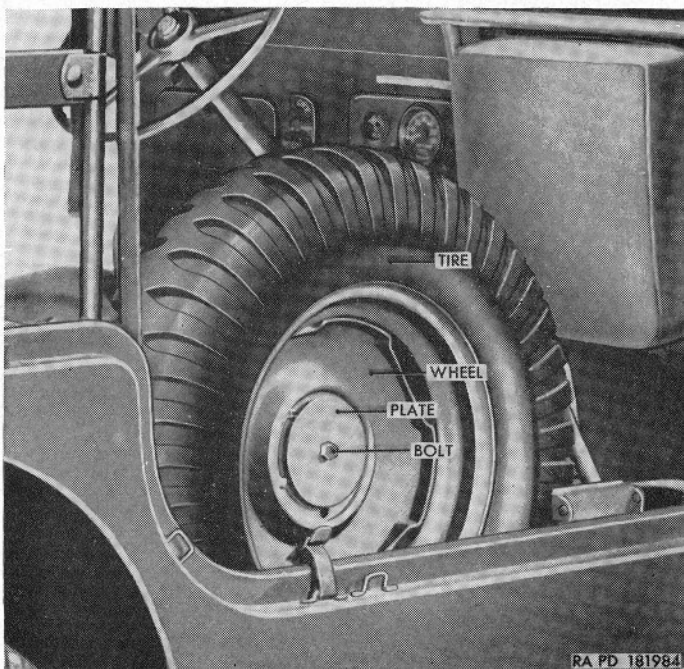


Figure 14.1. (Added) Spare wheel and tire assembly M170—installed.

45.1. Remove Spare Wheel and Tire Assembly M170

(fig. 14.1)

(Added)

Remove the bolt and plate securing the spare wheel and tire to the spare wheel support bracket (fig. 162.1), and remove spare wheel and tire.

46. Remove Fender M38A1

(fig. 15)

* * * * *

46.1. Remove Fender M170

(Added)

Follow procedure in paragraph 46 except *a* (6).

47. Remove Radiator Guard Assembly M38A1

(fig. 16)

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47.1. Remove Radiator Guard Assembly M170

(Added)

a. Remove two bolts from *J* nuts (fig. 16.1) securing radiator to guard panel on each side of radiator.

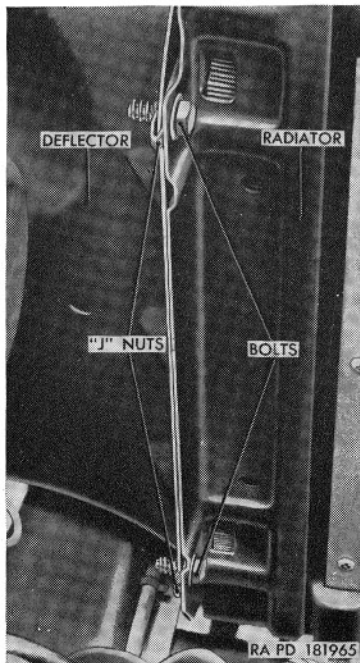


Figure 16.1. (Added) Radiator to guard panel *J* nuts M170—installed.

b. Loosen nuts and slide tie rod (fig. 16.2) out of slot in radiator guard and off bolt and flat washer (fig. 16.3) at front bottom of guard.

c. Remove the three screws and flat washers securing the fender to the radiator guard.

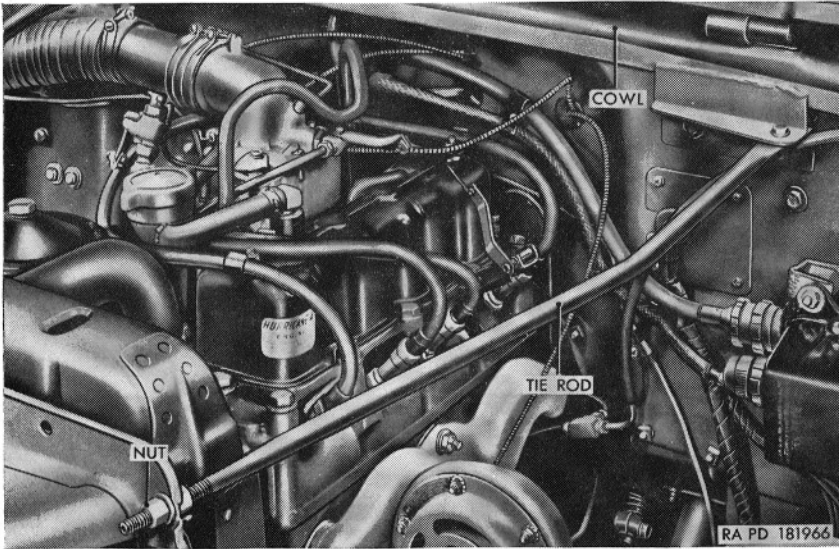


Figure 16.2. (Added) Dash-to-air deflector tie rod M170—installed—left side.

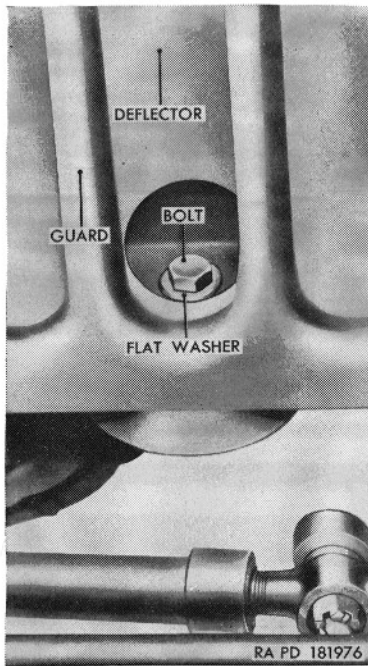


Figure 16.3. (Added) Radiator guard and deflector M170.

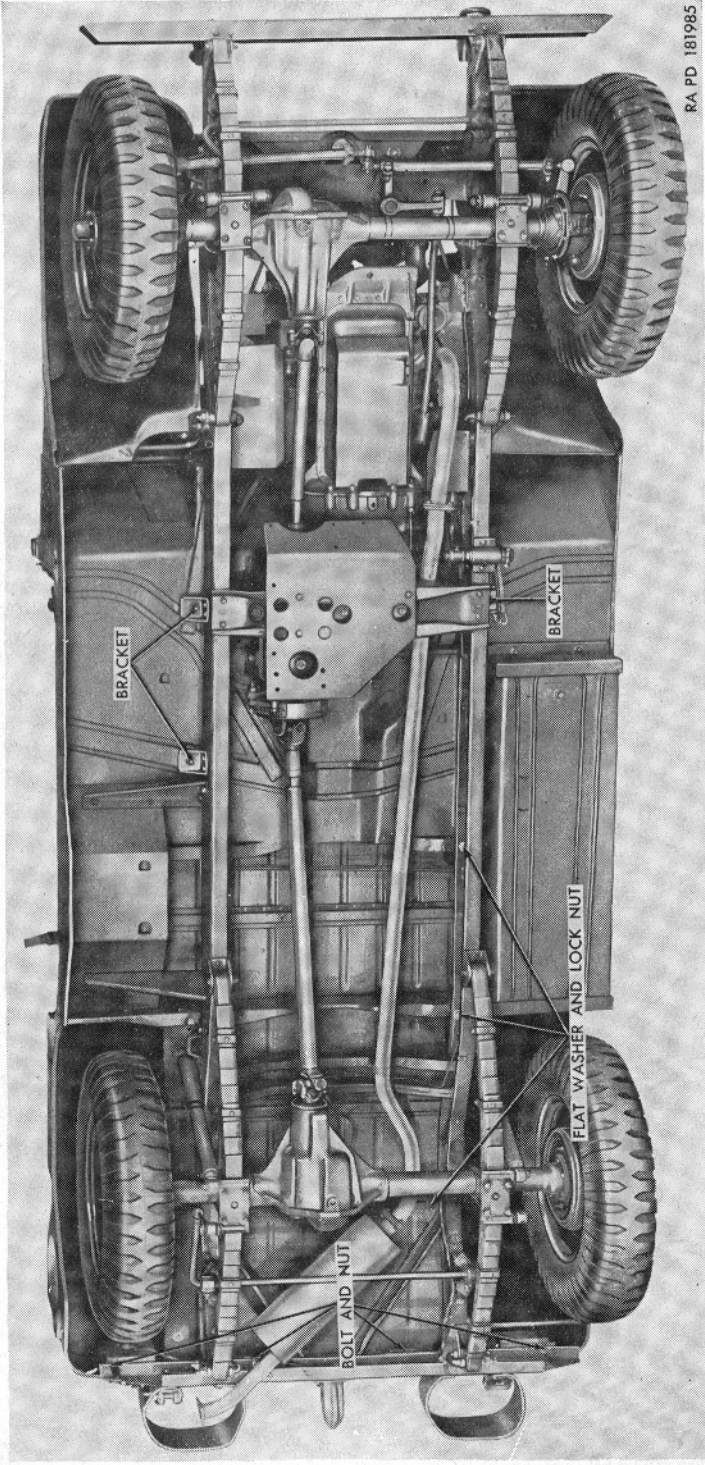


Figure 26.1. (Added) Under side of body—showing hold-down brackets and disconnect points M170.

d. Disconnect the headlight and blackout marker and parking light cables (C, fig. 15) at the left side of the vehicle.

48. Remove Body From Frame M38A1

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48.1. Remove Body From Frame M170

(Added)

a. *Make Disconnects at Right Side of Engine.* Refer to paragraph 48a.

b. *Make Disconnects at Left Side of Engine.* Refer to paragraph 48b.

c. *Make Disconnects Inside of Driver's Compartment.* Refer to paragraph 48c.

d. *Disconnect Body from Frame M170.* Refer to figure 26.1 for general location of body hold-down brackets and other disconnect points at bottom of body.

(1) *Disconnect points right side.*

(a) Remove the locknuts and flat washers from the bolts in the brackets (fig. 26.2). Pull the bolts with flat washers out of the body and brackets.

Note. The bolts are accessible from the right side of the driver's compartment and the tool box, respectively.

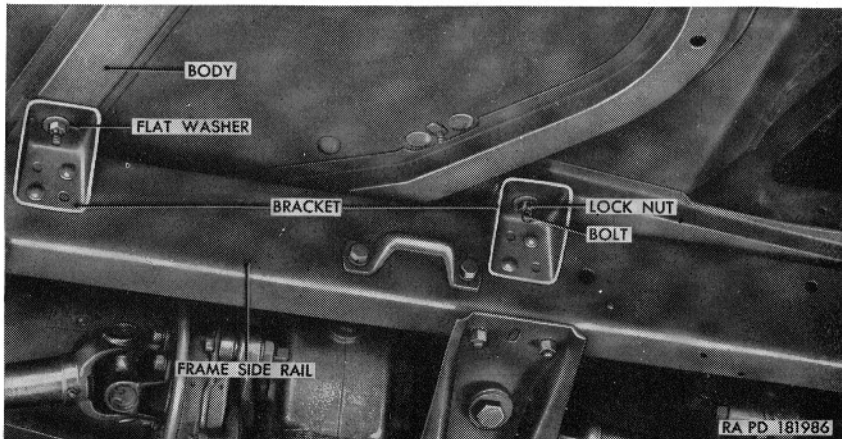


Figure 26.2. (Added) Body hold-down brackets M170—right side.

(b) Remove three locknuts and flat washers from the bolts (fig. 26.3) securing the body to the frame side rail and remove the bolts with flat washers.

(c) Remove four lockwasher bolts from the front and rear spare wheel well-to-frame side rail brackets (fig. 26.4).

(2) *Disconnect points left side.*

(a) Remove the locknut (fig. 26.5) and flat washer from the bolt in the bracket and remove the bolt with flat washer.

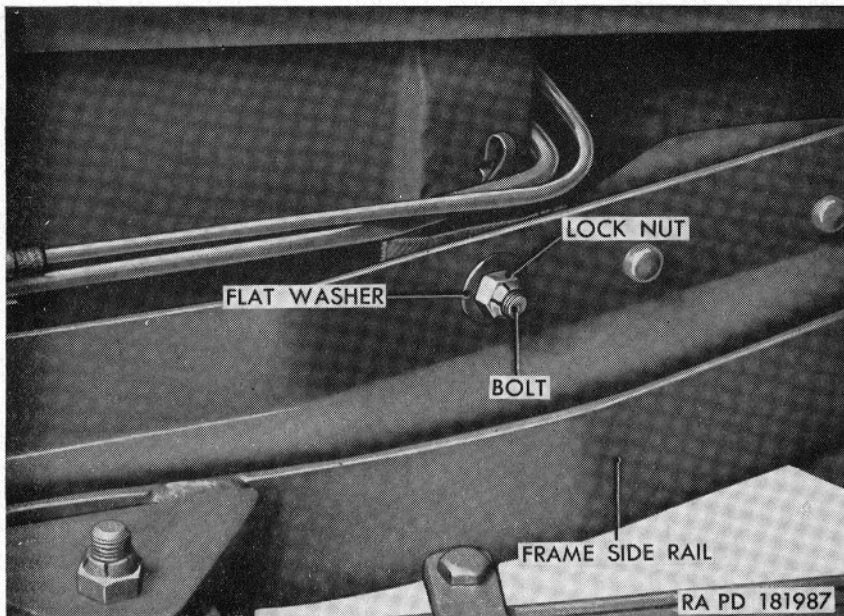


Figure 26.3. (Added) Body hold-down bolts M170—frame side rail.

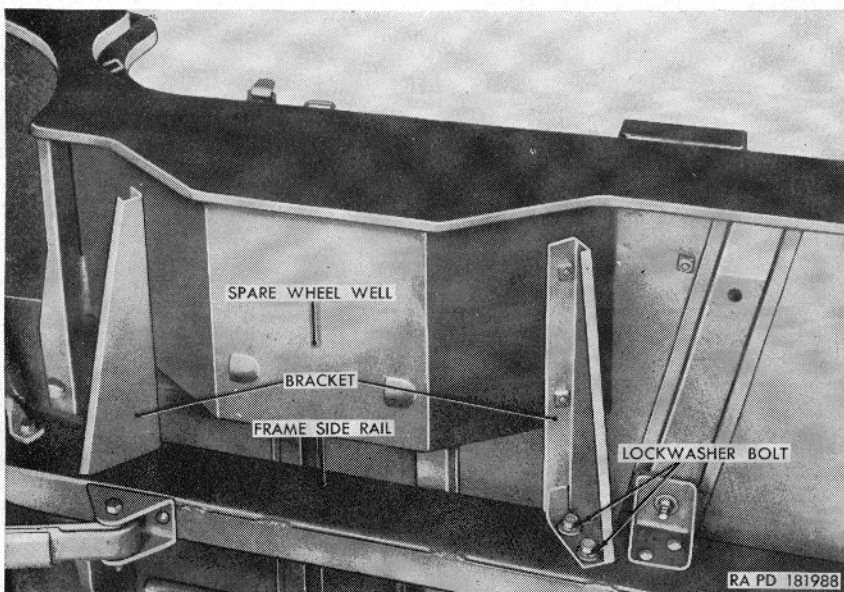


Figure 26.4. (Added) Spare wheel well-to-frame side rail brackets M170.

- (b) Remove four locknuts and flat washers (fig. 26.3) from the bolts securing the body to the frame side rail and remove the bolts with flat washers.

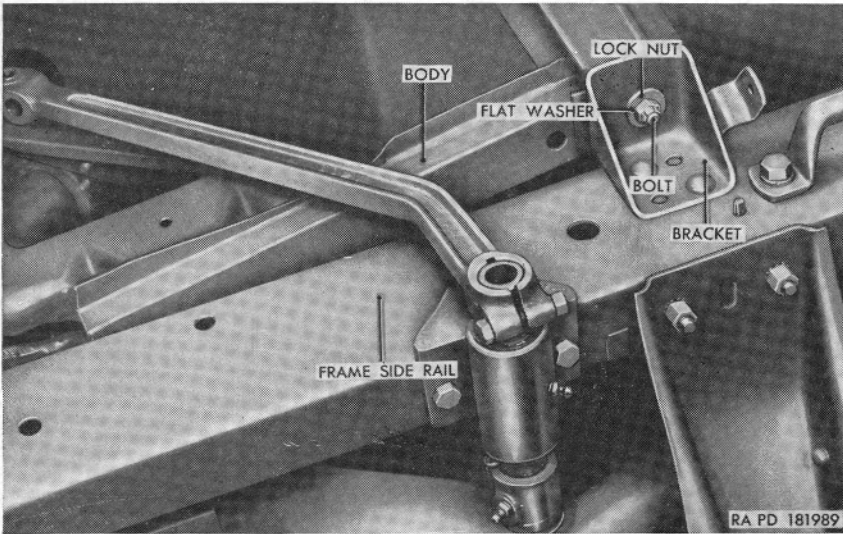


Figure 26.5. (Added) Body hold-down bracket M170—left side.

- (3) *Disconnect points frame, rear cross member.* Remove four lock nuts and flat washers from the bolts securing the body to the frame rear cross member and remove the bolts with flat washers.
- (4) *Disconnect electrical cables* (fig. 26.6).
 - (a) *Blackout tail and stoplight* (right side). Disconnect the two blackout tail and stoplight cables at the connectors under the body. Remove the cables from the clips on the mounting bracket.

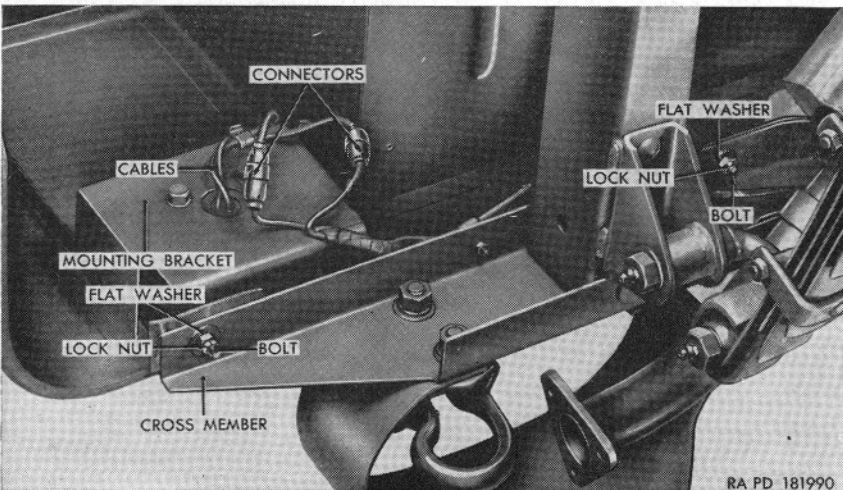


Figure 26.6. (Added) Body hold-down bolts rear cross member and blackout tail and stoplight cables M170.

(b) *Service tail and stoplight (left side).*

1. Raise the wheelhouse cushion (fig. 158.1) at the left rear side and remove the two lockwasher screws from the wheelhouse.
2. Remove the two lockwasher screws from the inner panel of the wheelhouse (fig. 158.1) from the inside of the body.
3. Remove the lockwasher screw from the bracket on the outer edge of the taillight and trailer connection guard under the wheelhouse and remove the guard.
4. Disconnect the three cables at the connectors for the service tail and stoplight (fig. 26.7). Remove the bolt and nut securing each trailer receptacle cable to the body.

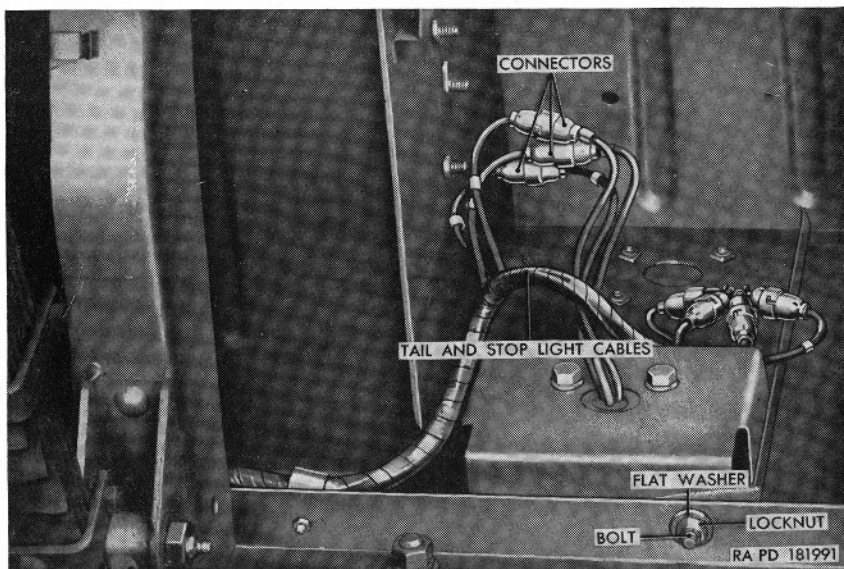


Figure 26.7. (Added) Body hold-down bolts rear cross member, service tail and stoplight, and trailer electrical coupling cables M170.

- (5) *Make disconnects under body.*
 - (a) Remove the tension spring (fig. 26.8) from the skid plate and the cotter pin through the hand brake cable.
 - (b) Remove the cotter pin and clevis pin from the yoke of the hand brake cable and the hand brake lever.
 - (c) Remove the lockwasher screw securing the hand brake cable to the bracket on the rear of the transfer.
 - (d) Disconnect the tee-to-elbow fuel line (fig. 26.9) at the elbow and tie line down to the propeller shaft.

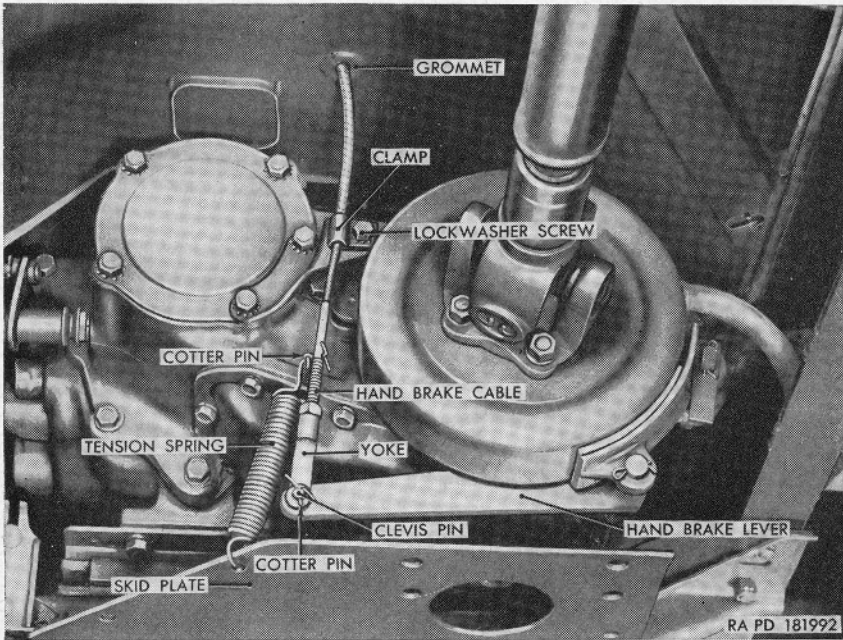


Figure 26.8. (Added) Disconnect points under body M170.

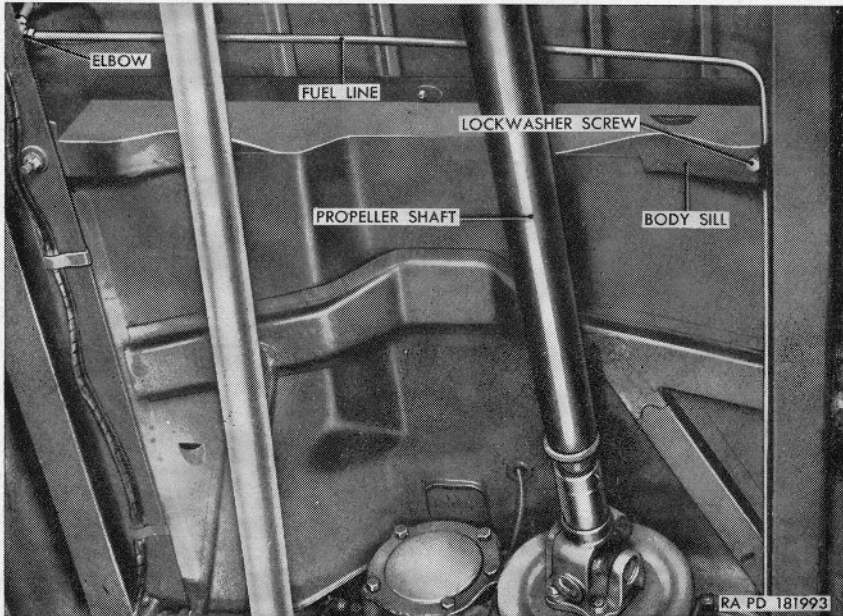
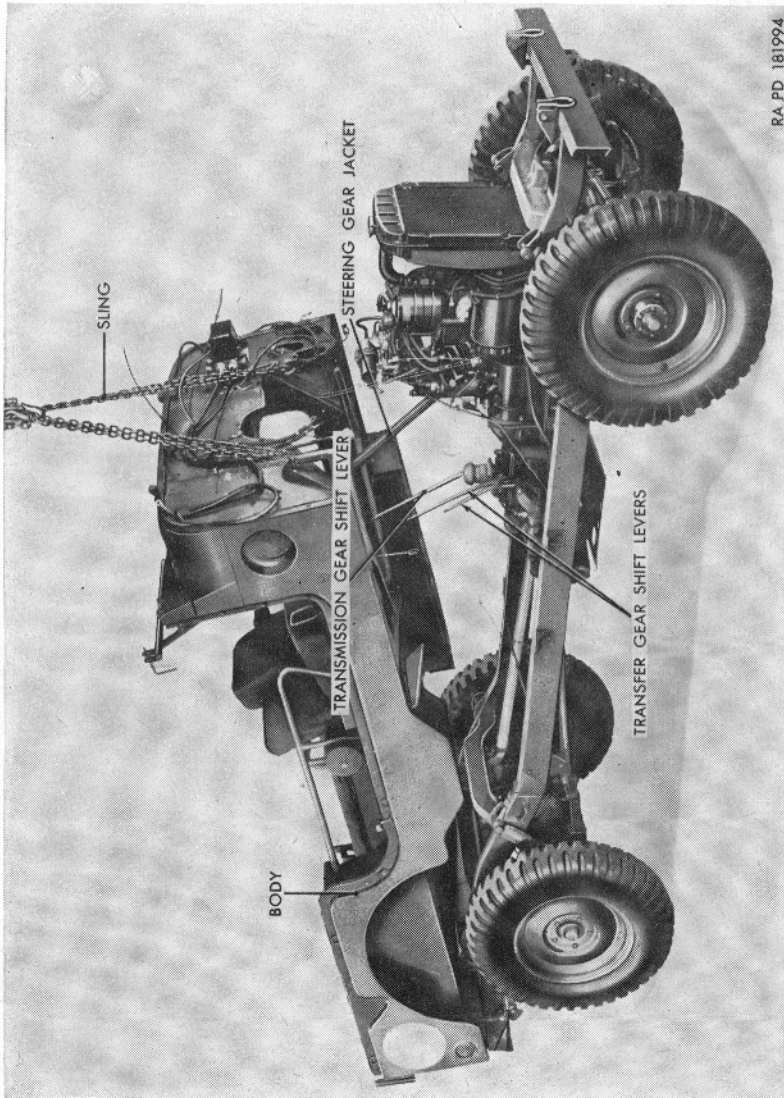
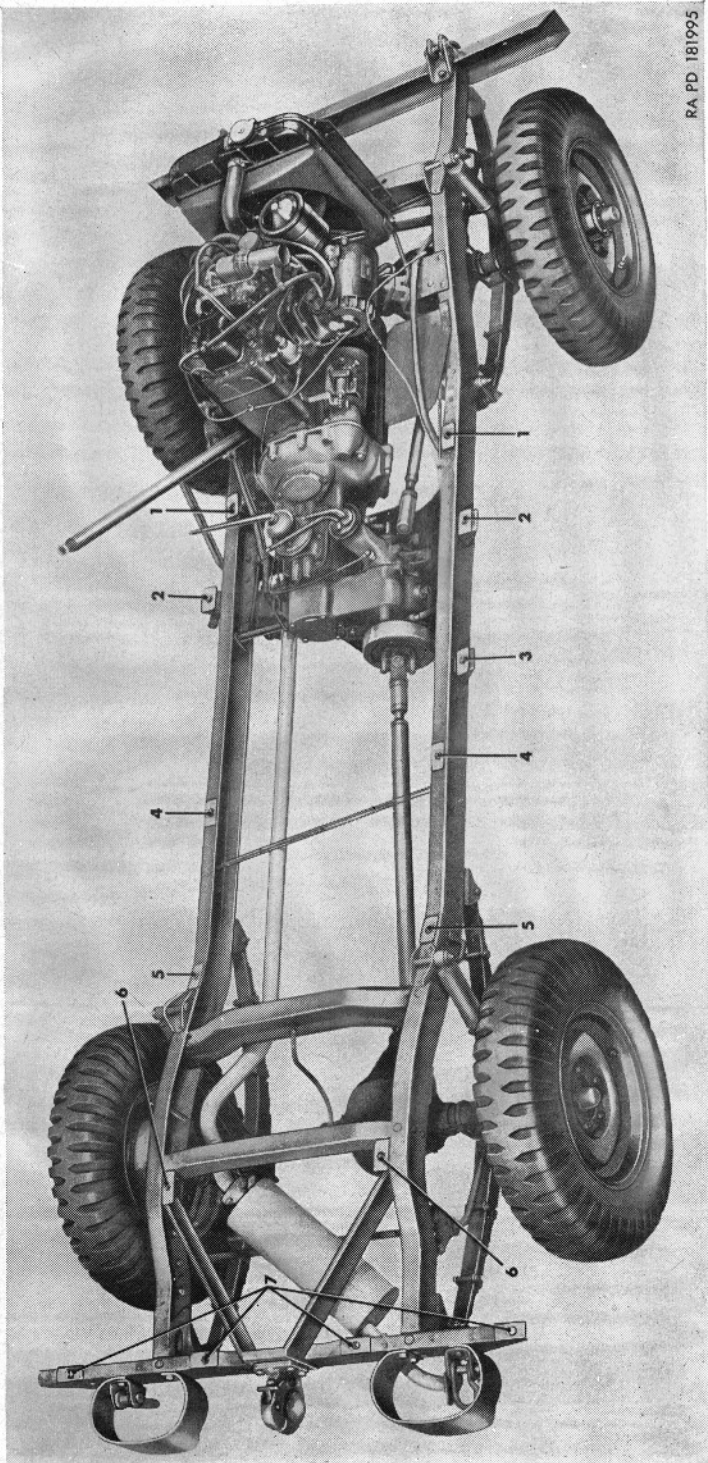


Figure 26.9. (Added) Fuel line disconnect point under body M170.



RA PD 181994

Figure 26.10. (Added) Front of body lifted from Frame M170.



RA PD 181995

Figure 26.11. (Added) Body sill liner positions and hold-down location points M170.

- (6) *Lift body from frame.* Attach a suitable sling to dash panel as shown in figure 26.10. Raise front end of body until opening in front floor panel clears transmission gear shift lever, transfer gear shift levers, and steering gear jacket. Have two men lift rear of body while another pushes chassis out from under body. When chassis is clear of body, lower rear end of body to floor or suitable support. Then lower front end of body. Remove the nine body mounting bracket shims and six body mounting cushions (fig. 26.11).

49. Remove Generator Regulator Assembly M38A1 (fig. 27)

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49.1. Remove Generator Regulator Assembly M170 (fig. 27.1) (Added)

Remove four lockwasher screws securing the generator regulator and mounting brackets to the dash panel and remove the regulator and brackets from the dash panel.

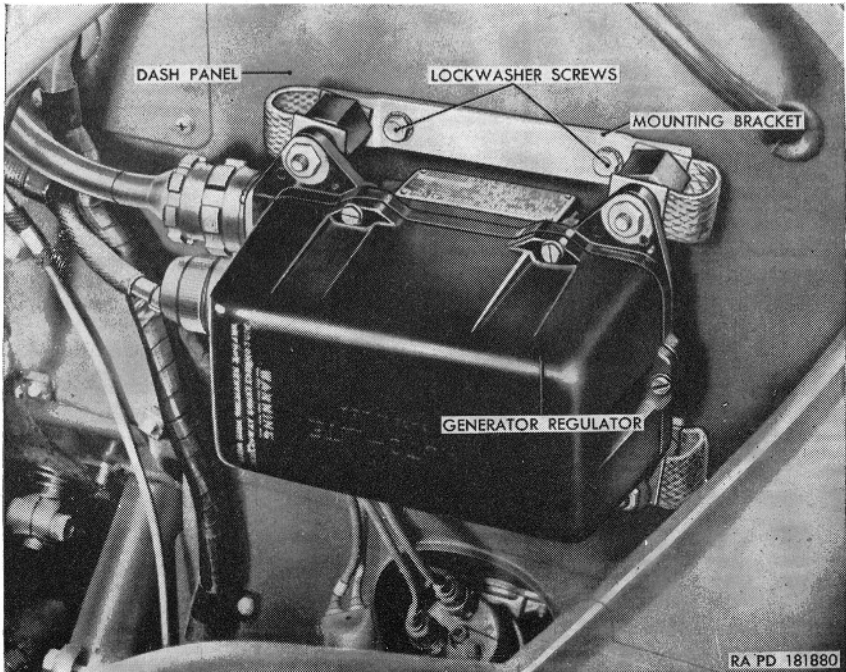


Figure 27.1. (Added) Generator regulator assembly M170—installed.

57.1. Remove Stabilizer Bars, Brackets, and Links M170 (Added)

Note. The key letters noted in parentheses are in figure 40.1.

a. Bar (Rear).

- (1) Remove the cotter pin (S) and nut (T) at the upper end of the links (H and P) on the right and the left side of the vehicle.
- (2) Remove the cup shaped washer (R) and the link grommet (Q) from the links (H and P).
- (3) Swing the stabilizer bar (D) up and off the links and remove the grommet (F) and cup shaped washer (G) from the links.
- (4) Remove the four nuts (W), lockwashers, and bolts (V) securing the bracket (U) of the bar assembly to the bracket-to-frame bracket (E), and remove the bar assembly from the vehicle.

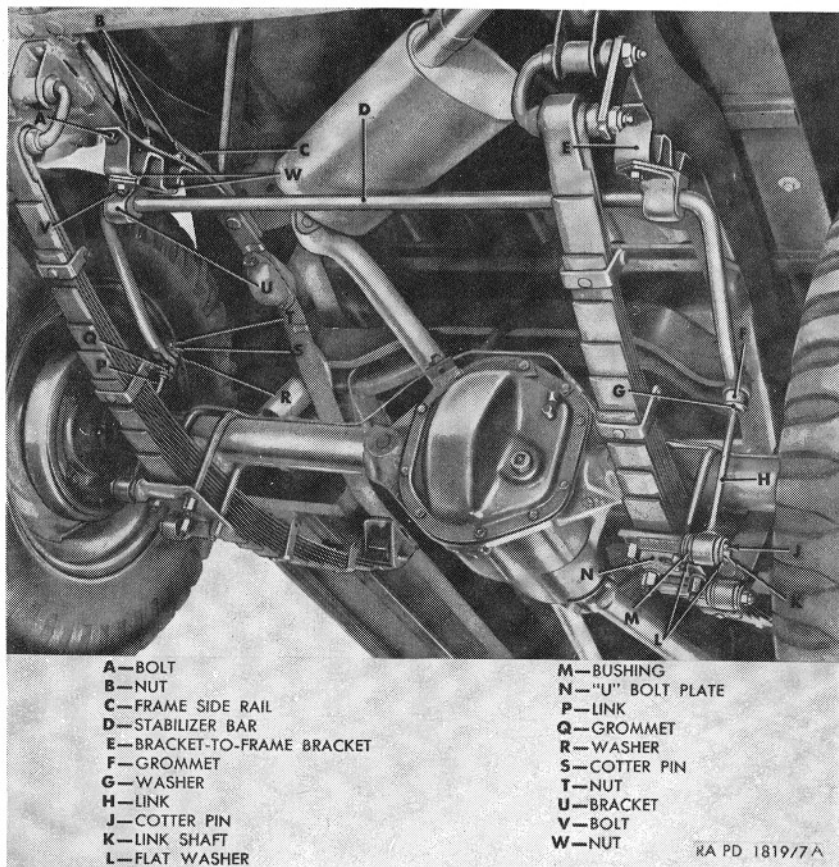


Figure 40.1 Stabilizer bar, brackets, and link M170—rear.