

TECHNICAL MANUAL

**OPERATOR, ORGANIZATIONAL,
DIRECT SUPPORT AND GENERAL SUPPORT
MAINTENANCE MANUAL**

**SEMITRAILER, STAKE: 12-TON, 4-WHEEL,
M127 (2330-00-797-9207), M127A1 (2330-00-048-7743),
M127A1C (2330-00-752-9750) AND
M127A2C (2330-00-788-6299)**

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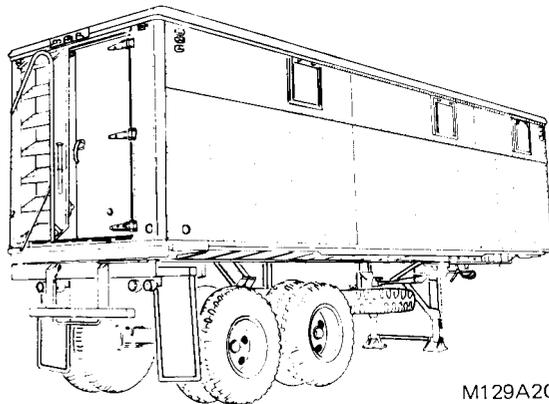
**SEMITRAILER, VAN: CARGO, 12-TON, 4-WHEEL,
M128A1 (2330-00-679-5581), M128A1C (2330-00-752-9751),
AND M128A2C (2330-00-788-6296)**

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M129A1 (2330-00-629-1673), M129A1C (2330-00-752-9752),
AND M129A2C (2330-00-788-6289)**

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HEADQUARTERS, DEPARTMENT OF THE ARMY

FEBRUARY 1983

CARGO HANDLING

WARNING

Use proper cargo handling equipment when loading/unloading the semitrailer. Loading with improper equipment is hazardous and can result in accidental release or shifting of load causing bodily injury or death.

BODY LIGHTS AND WIRING

WARNING

To avoid hazardous driving conditions, do not operate semitrailer with burned out clearance, stop and turn lights.

WARNING (para. 4-18)

Disconnect 110-volt ac electrical power cable from the 110-volt outside receptacle before attempting to remove or replace fuses.

WARNING (para. 5-14)

Remove all power from vehicle prior to making any repairs on electrical system.

TOXIC/FLAMMABLE

WARNING

Dry cleaning solvent (Fed Spec PD-680) is toxic. Use protective goggles, gloves and good ventilation. Avoid contact with skin, eyes, clothes and don't breathe vapors. Use of paint thinner may present an explosion hazard, and therefore is not authorized.

WARNING

Adhesive MIL-A-5092B, Type 1 is toxic and flammable. Use chemical goggles, gloves and good ventilation. Keep container closed; keep sparks, flames and heat away. Keep adhesive off skin, eyes, clothes and don't breathe vapors.

WARNING (para. 5-6)

Do not grind rivet heads off due to asbeston hazard.

TIRE INFLATION/DEFLATION/REMOVAL

WARNING (para. 4-31)

Whenever possible, use a cage for protection and observe caution when inflating tires. Make sure tires are properly seated on rims before inflating. Improperly seated tires can burst with explosive force sufficient to cause death.

WARNING

Deflate tire completely before removing wheel from vehicle. Failure to deflate tire could result in bodily injury when removing from rim.

WARNING (para. 4-31)

Do not attempt to remove the ring until the tire is fully deflated.

WARNING (para. 2-36)

Maintain a firm grip on wrench in lowering tire to prevent injury.

WARNING (para. 2-36)

Place pawl on ratchet when lifting spare tire to prevent injury.

WARNING

Make sure semitrailer will not roll or shift when jacking. Secure with chock blocks.

WARNING

Do not operate semitrailer with improperly inflated or worn tires.

HIGH VELOCITY EXHAUST AIR

WARNING (para. 2-8)

Wear protective goggles when opening the air reservoir drain cock and avoid contact with high velocity air.

WARNING

Safety glasses must be used when cleaning parts with compressed air.

REAR AXLE REMOVAL

WARNING

Weight of semitrailer must be supported by blocking or support stands placed under frame throughout operation. Landing gear must be in lowered position.

COUPLING AND DECOUPLING OPERATIONS

WARNING (para. 2-33)

Be sure all personnel stand clear of the tractor and semitrailer during coupling and decoupling operations.

WARNING

Under no circumstances will the semitrailer be towed or pulled by the rear bumper guard.

WARNING

Do not tow the semitrailer with unsecured cargo.

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M127A1C (2330-00-752-9750, AND
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**SEMITRAILER, VAN: CARGO, 12-TON, 4-WHEEL,
M128A1 (2330-00-679-5581), M128A1C (2330-00-752-9751),
AND M128A2C (2330-00-788-6296)**

**SEMITRAILER, VAN: SUPPLY, 12-TON, 4-WHEEL,
M129A1 (2330-00-629-1673), M129A1C (2330-00-752-9752),
AND M129A2C (2330-00-788-6289)**

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes or if you know of away to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2, located in the back of this manual, direct to: Commander, US Army Tank-Automotive Command, ATTN: DRSTA-MB, Warren, MI 48090. A reply will be furnished to you.

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*This manual supersedes TM 9-2330-207-14, 22 June 1961, including all changes.

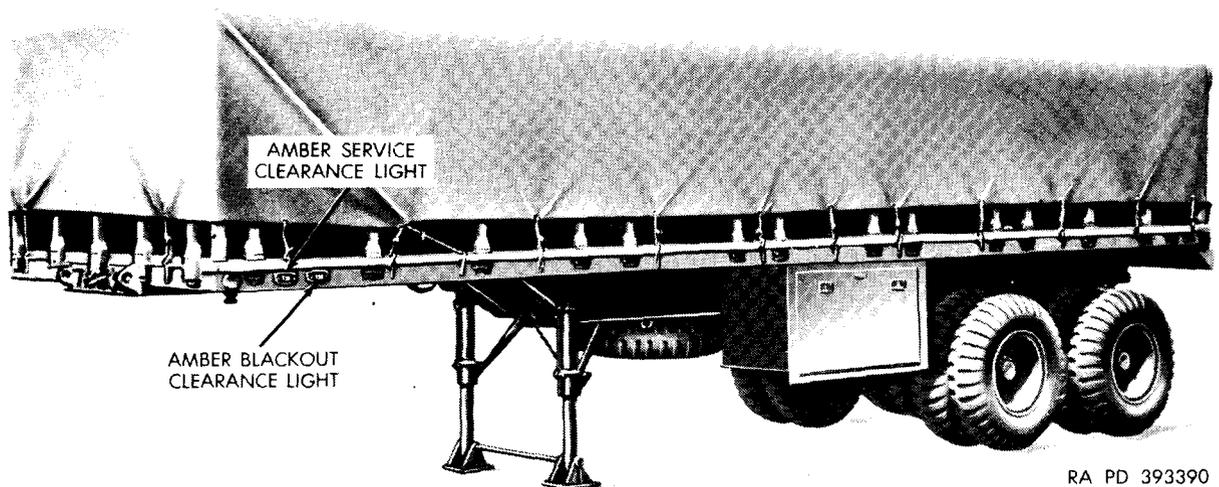
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CHAPTER 1

INTRODUCTION

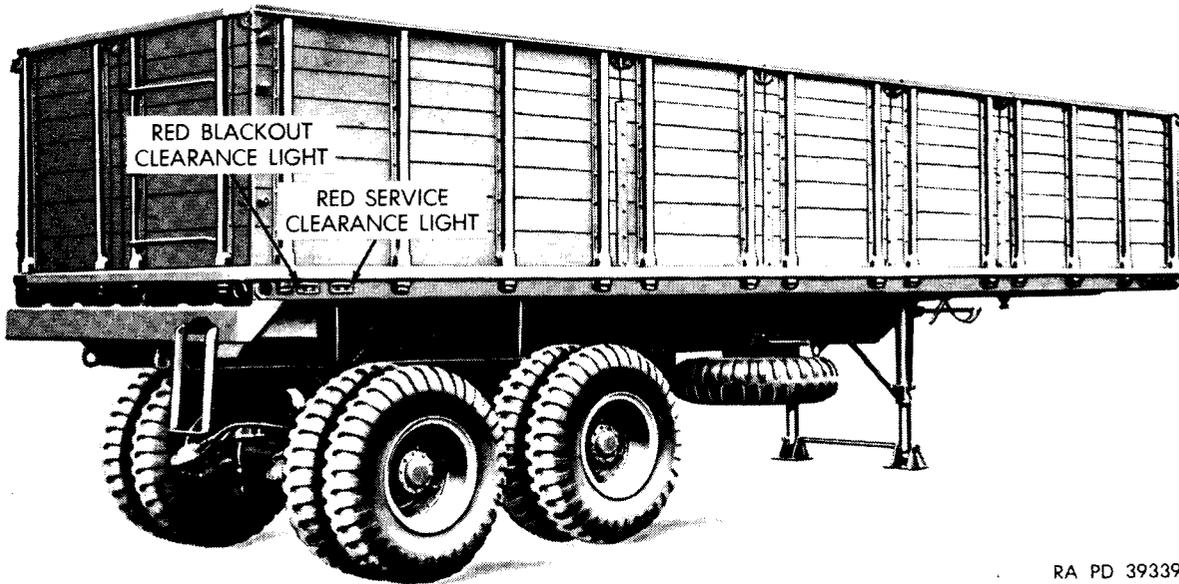
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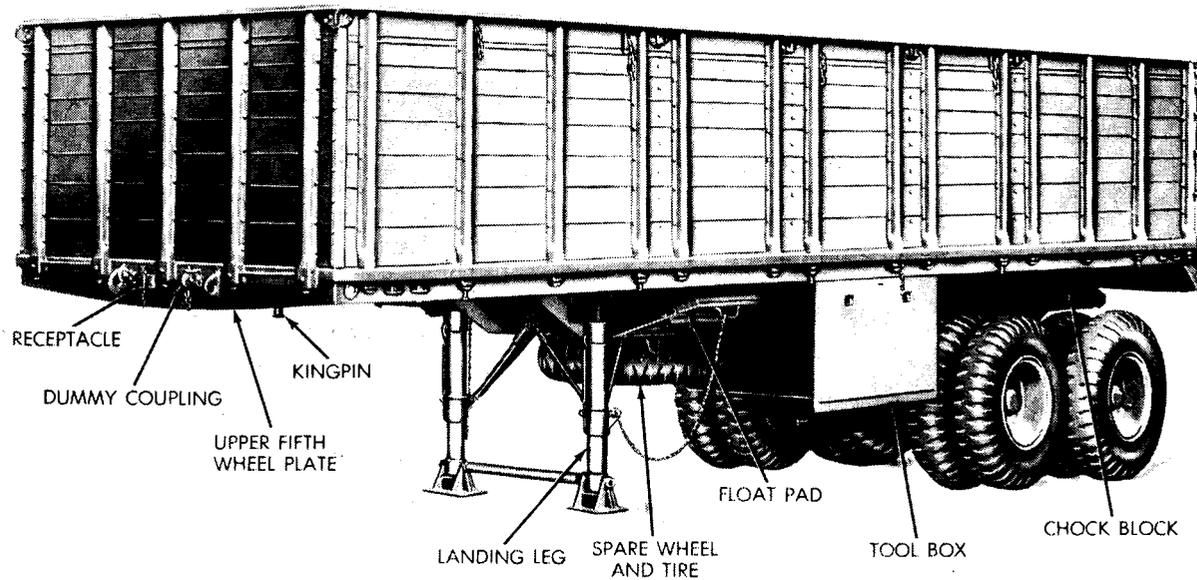
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Figure 1-1. Semitrailer, stake, M127 with paulin, left front view



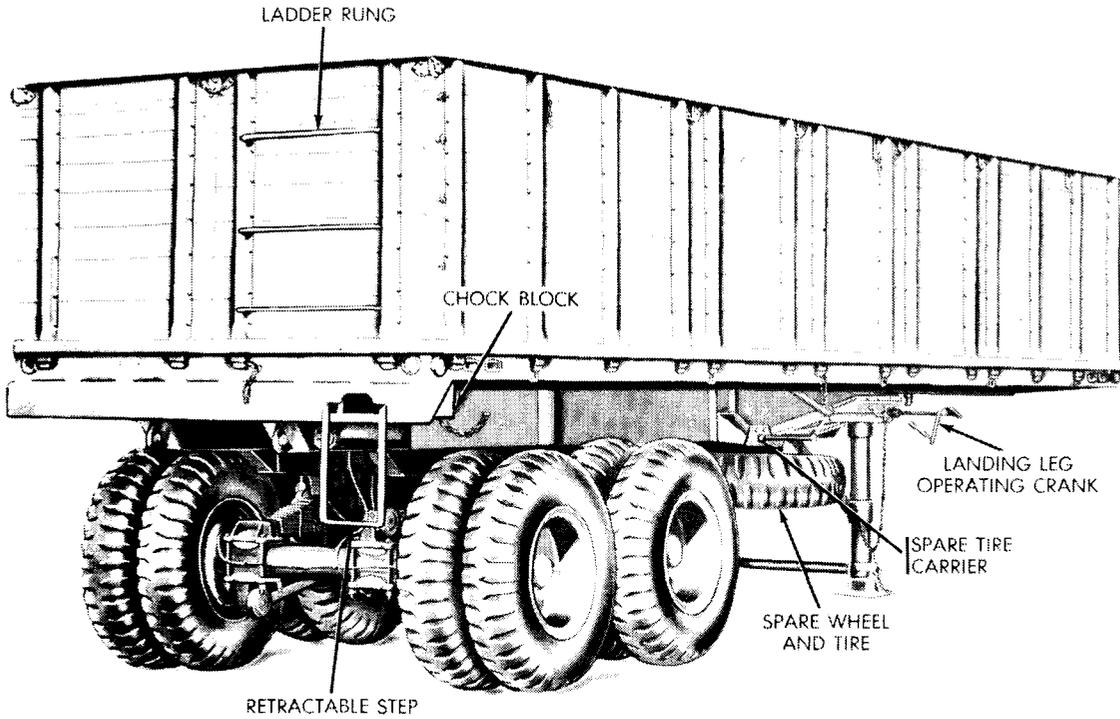
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Figure 1-2. Semitrailer, stake, M127, right rear view



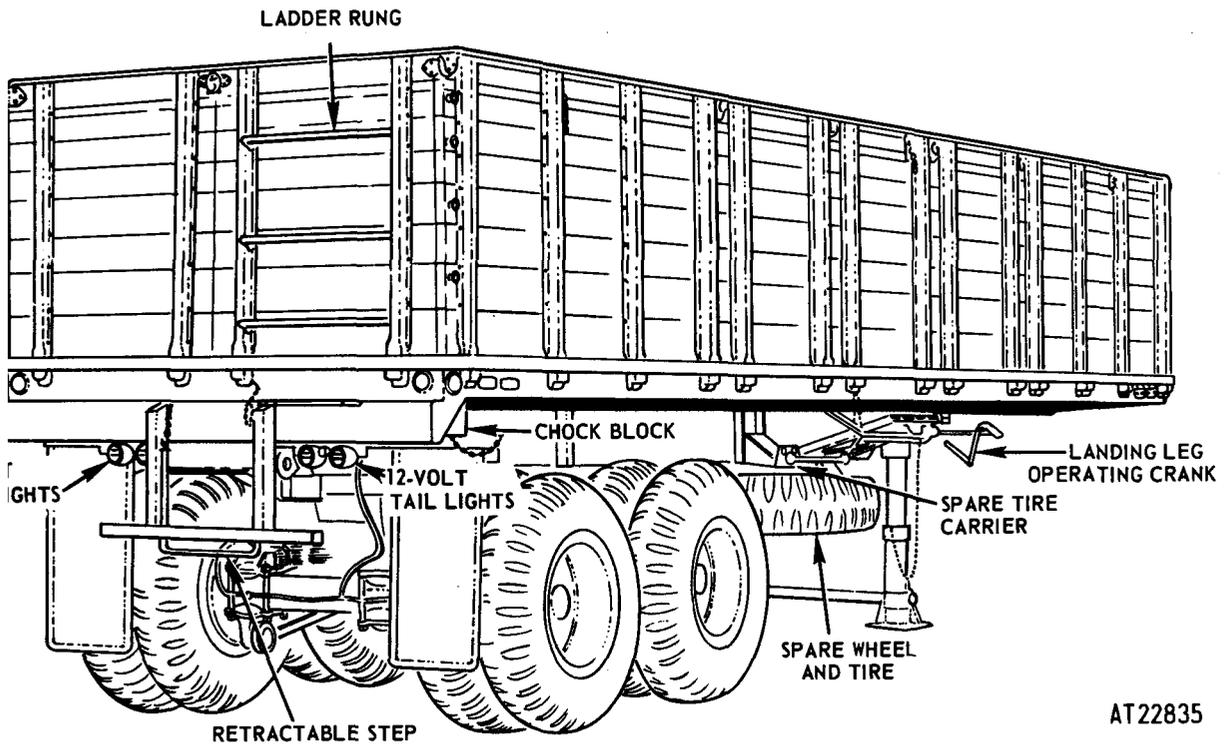
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Figure 1-3. Semitrailer, stake, M127A1, M127A1C, M127A2C, left front view



RA PD 393393

Figure 1-4. Semitrailer, stake, M127A1, M127A1 C, right rear view



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Figure 1-5. Semitrailer, stake, M127A2C, right rear view

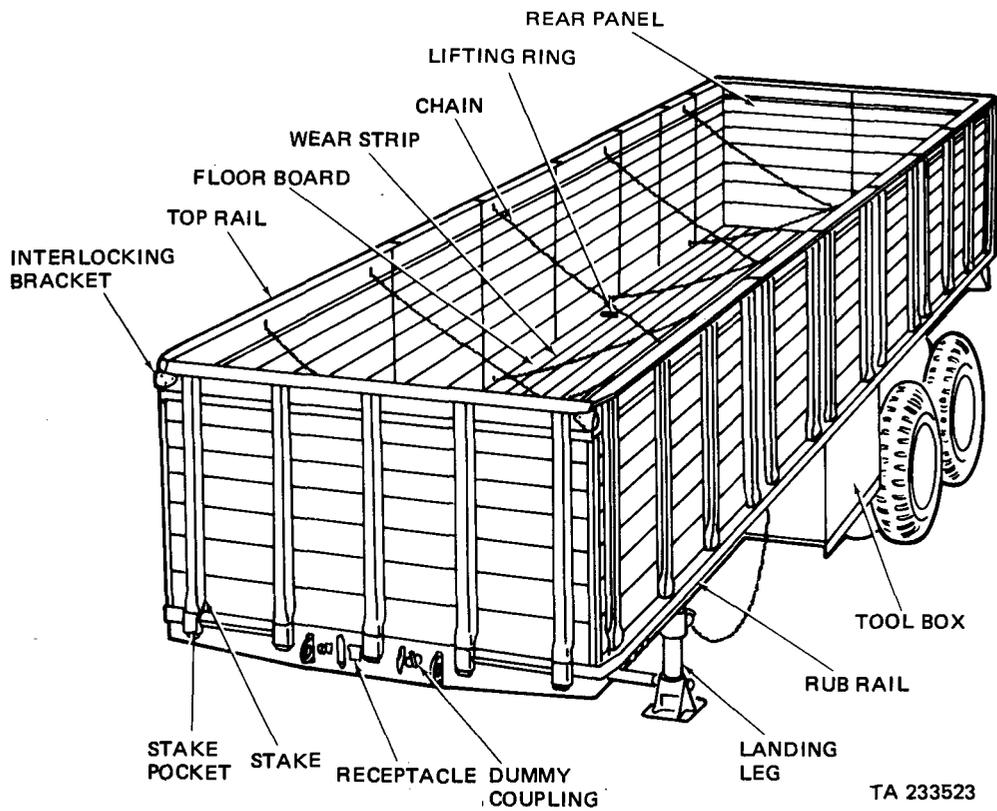


Figure 1-6. Semitrailer, stake, M127A1, top view

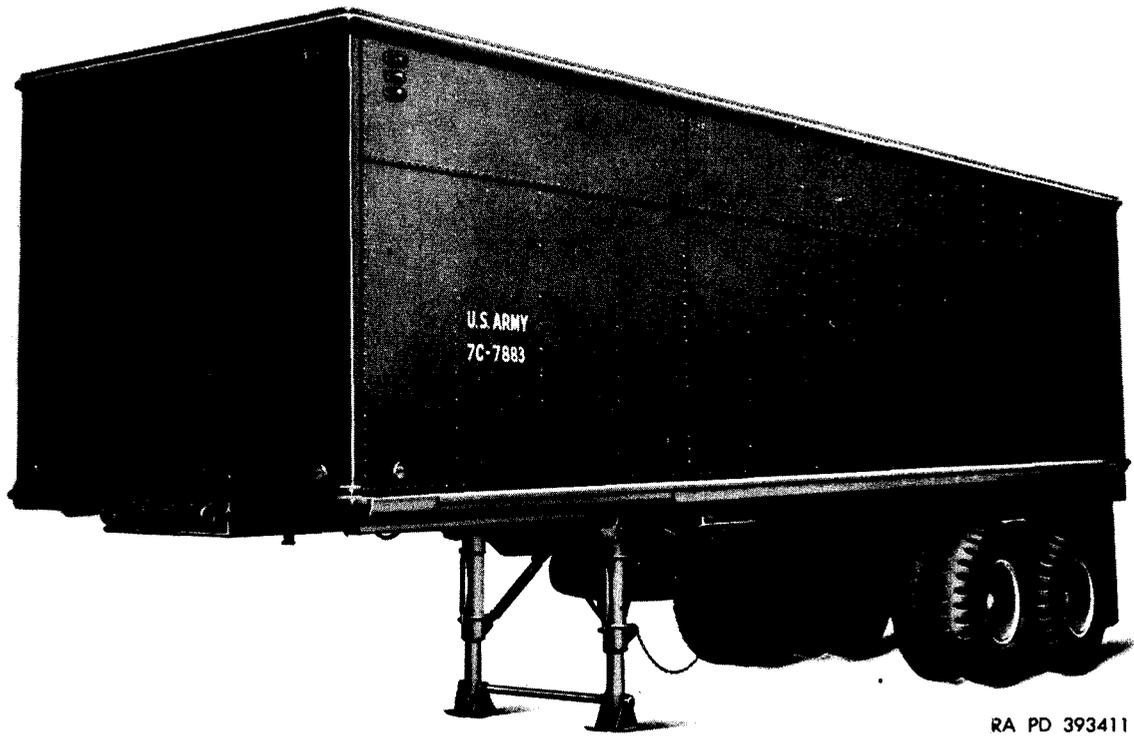
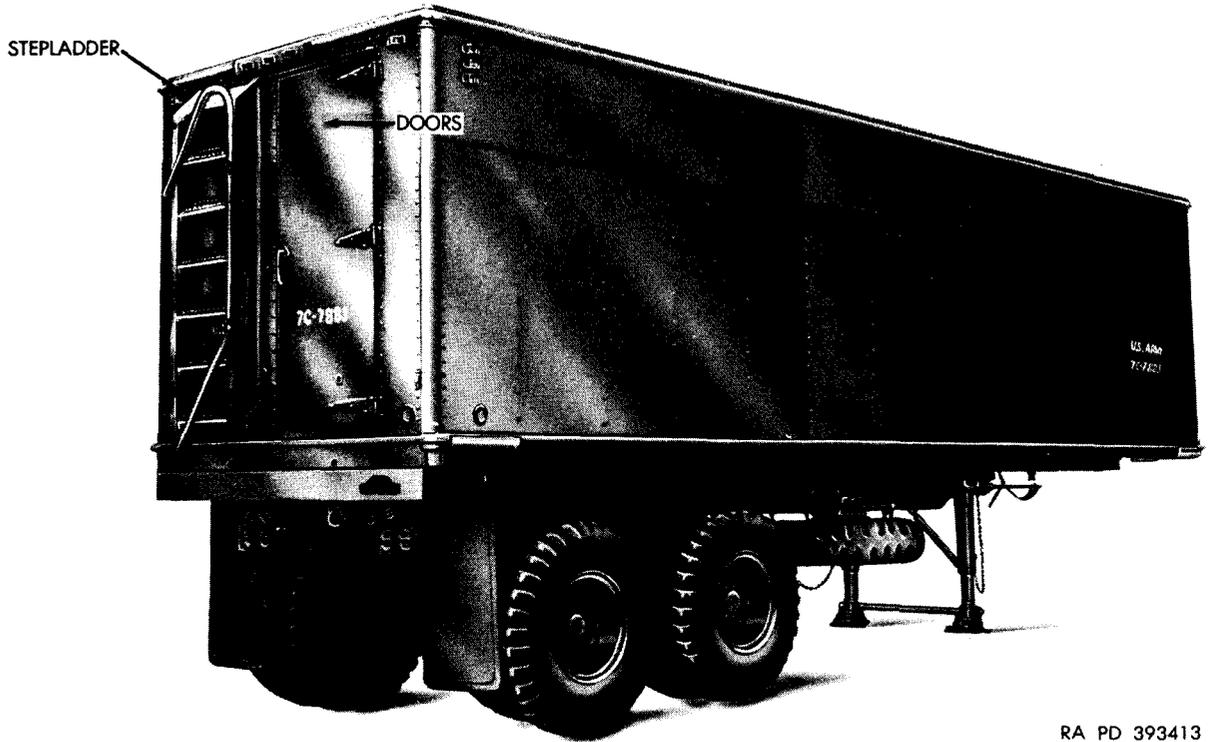
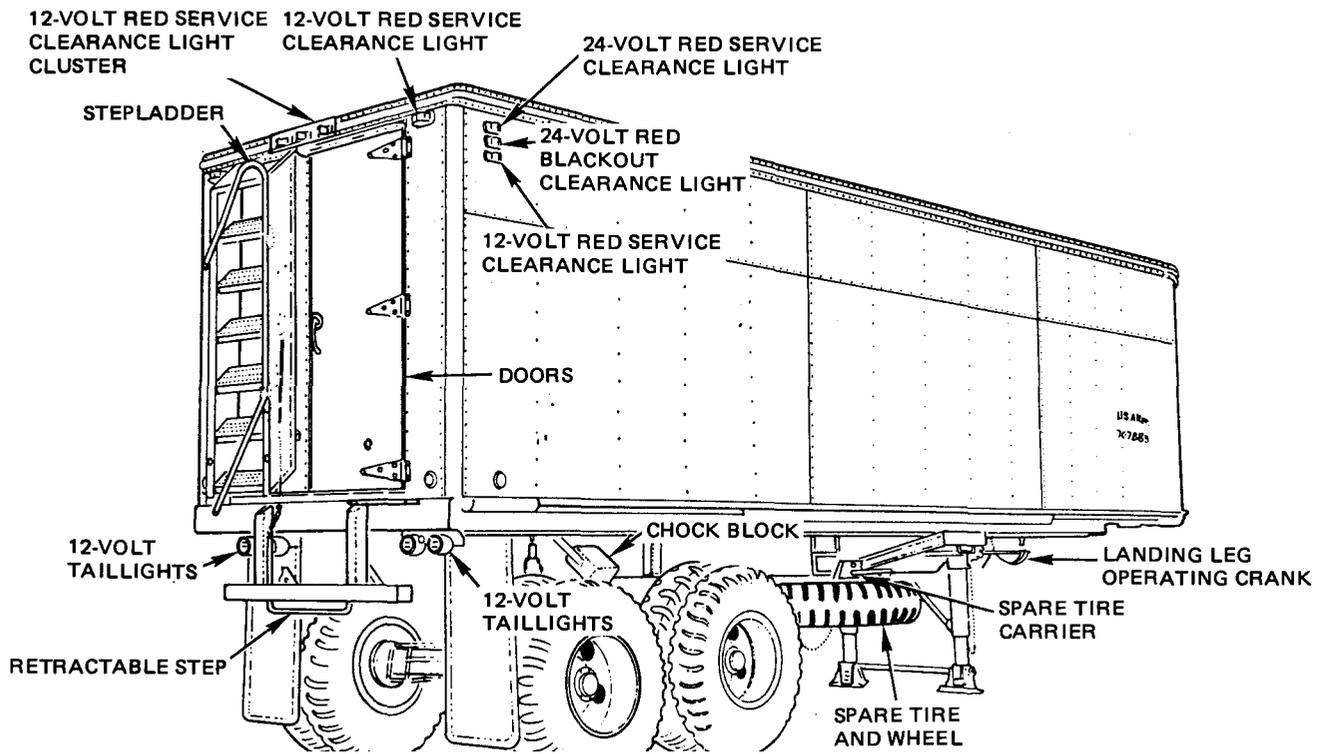


Figure 1-7. Semitrailer, cargo van, M128A1, M128A1C, M128A2C, left front view



RA PD 393413

Figure 1-8. Semitrailer, cargo van, M128A1, M128A1C, right rear view



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Figure 1-9. Semitrailer, cargo van, M128A2C, right rear view

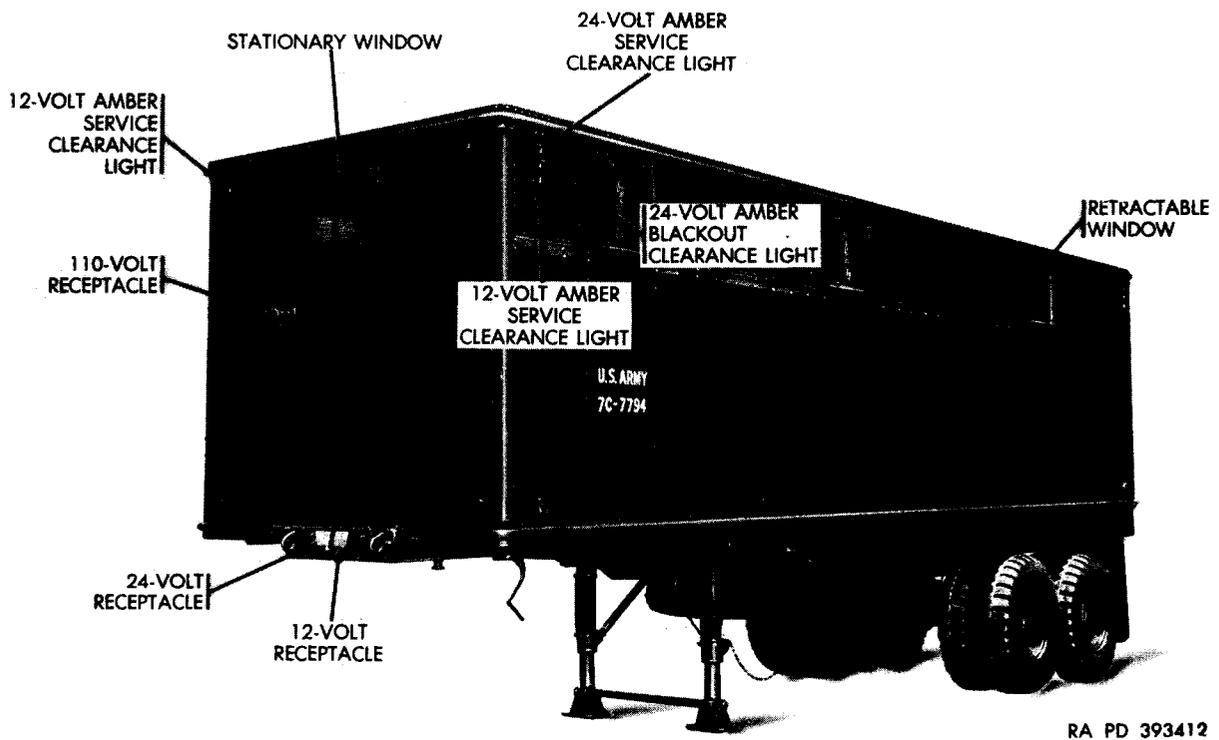


Figure 1-10. Semitrailer, supply van, M129A1, left front view

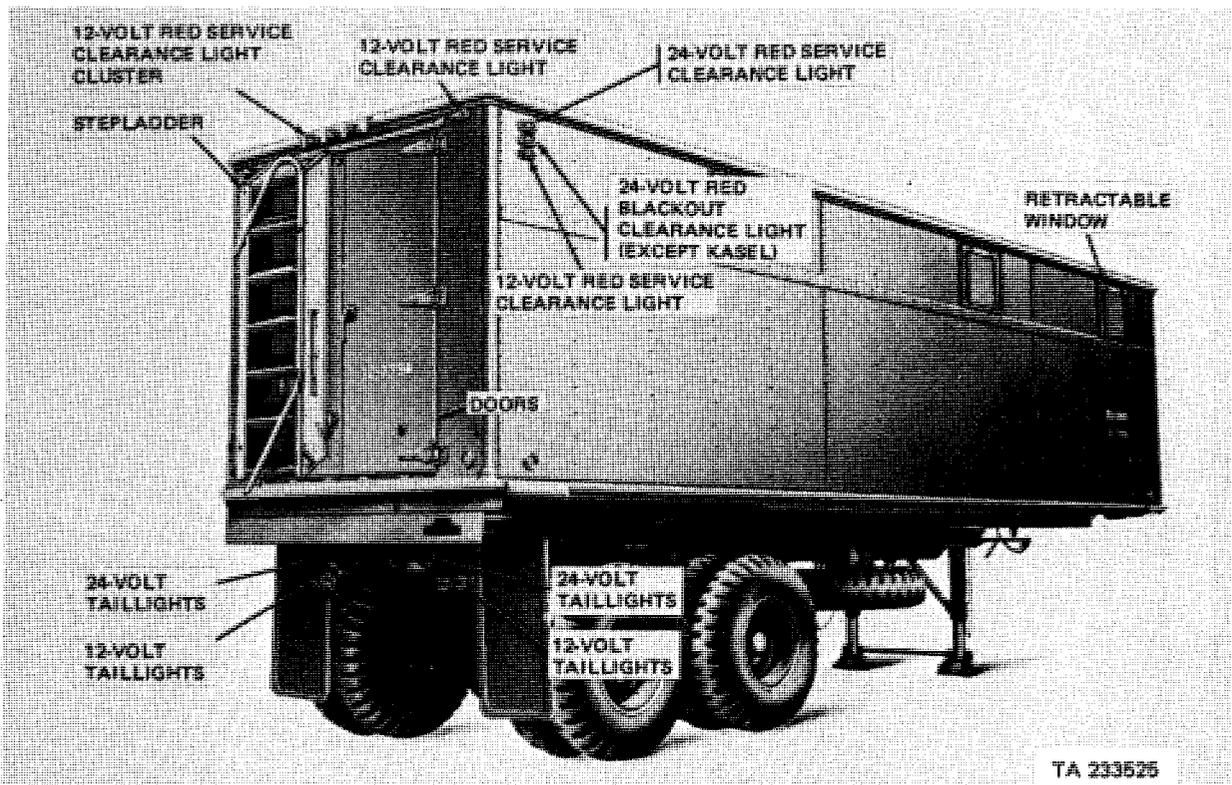


Figure 1-11. Semitrailer, supply van, M129A1, right rear view

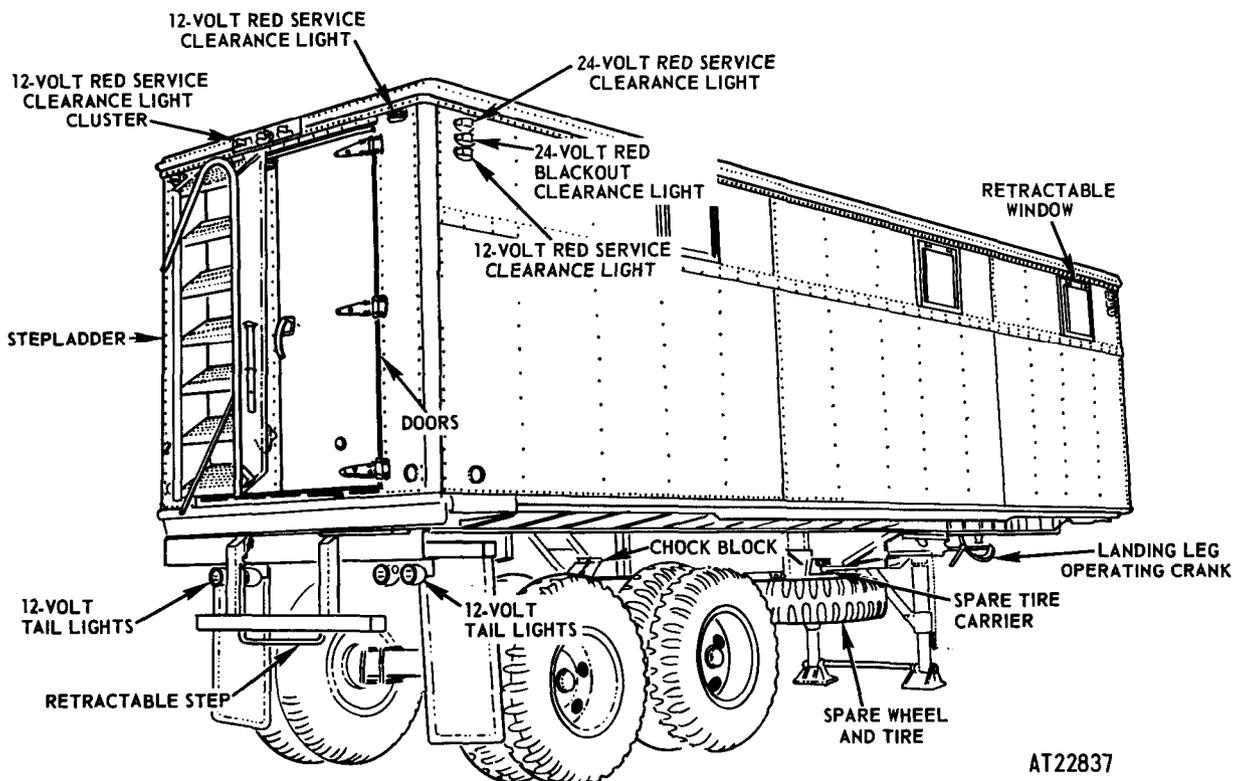


Figure 1-12. Semitrailer, supply van, M129A2C, right rear view

1-1. SCOPE

a. Type of Manual. Operator, Organizational, Direct Support and General Support Maintenance Manual.

b. Model Numbers and Equipment Names.

	Model No.
Semitrailer, Stake: 12-ton, 4-wheel	M127, M127AI, M127A1C, M127A2C
Semitrailer, Van: cargo, 12-ton, 4-wheel	M128A1, M128A1C, M128A2C
Semitrailer, Van: supply, 12-ton, 4-wheel	M129A1, M129A1C, M129A2C
	M129A2C (Kasel Model)

c. Purpose of Equipment. The semitrailers are intended for use in transporting military supplies and general cargo.

d. Special Limitations. Do not exceed the load and speed limitation of the semitrailer. The semitrailer is designed to be towed over smooth, hard-surfaced roads with loads up to 18-tons at speeds as high as 50 mph. It can also be towed over unimproved roads, trails, and open rolling terrain with loads up to 12-tons at a sustained speed of 20 mph. The semitrailer should be operated only after being serviced and equipped for existing climatic conditions.

1-2. MAINTENANCE FORMS AND RECORDS

Department of the Army forms and procedures used for equipment maintenance will be prescribed by TM 38-750, the Army Maintenance Management System (TAMMS).

1-3. DESTRUCTION OF ARMY MATERIEL TO PREVENT ENEMY USE

Refer to TM 750-244-6, Procedures for Destruction of Equipment to Prevent Enemy Use (U.S. Army Tank-Automotive Command).

1-4. PREPARATION FOR STORAGE OR SHIPMENT

See Chapter 6 for storage and shipment information.

1-5. REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR)

If your semitrailer needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design. Put it on an SF368 (Quality Deficiency Report). Mail it to us at: Commanding General, U.S. Army Tank-Automotive Command, Attn: DRSTA-MP, Warren, Michigan 48090. We'll send you a reply.

1-6. NOMENCLATURE CROSS-REFERENCE

Common Name	Official Nomenclature
Semitrailer (M127 Series)	Semitrailer, Stake: 12-Ton, 4-Wheel
Semitrailer (M128 Series)	Semitrailer, Van: Cargo, 12-Ton, 4-Wheel
Semitrailer (M129 Series)	Semitrailer, Van: Supply, 12-Ton, 4-Wheel

Section II. EQUIPMENT DESCRIPTION DATA

Purpose, Capabilities and Features	Page 1-9	Equipment Data	Page 1-11
Differences Between Models	1-10	Location and Description of Major Components	1-15

1-7. PURPOSE, CAPABILITIES AND FEATURES

a. Purpose. The Semitrailer is a supply and general cargo hauling trailer in various models.

- .M127 Series - stake semitrailer (hauls breakbulk cargo)
- . M128 Series - cargo van
- . M129 Series - supply van

b. Capabilities.

(1) Each semitrailer or chassis is to be towed by a 5-ton, 6X6 truck tractor M52 or similar vehicle equipped with fifth wheel, air supply, and a 24-volt electrical system.

(2) If a 24-volt electrical system is not available, an alternate towing vehicle with a 12-volt electrical system may be used.

c. Features (All Models).

(1) General Features of All Models.

- (a) 12-ton, 4-wheel.
- (b) Cross-country payload 24,000 lbs at 20 mph.
- (c) Highway payload 24,000 lbs at 50 mph.
- (d) Fifth wheel plate and king pin coupling.
- (e) Two rear axles on leaf-spring suspension.
- (f) Foot-type retractable landing legs, for front end support.
- (g) Spare tire on winch-type spare tire carrier.
- (h) Chock blocks for parking, chained to chassis.
- (i) Two float pads, for landing leg on soft ground.
- (j) Towing vehicle supplies brake air pressure and control of brakes.
- (k) Chassis frame welded into single integral unit.

(2) Semitrailer M127, M127A1, M17A1C and M127A2C Special Features.

- (a) 12-ton, 4-wheel, stake semitrailer.
- (b) Stake pockets located on the outside of the side rails and on the front and rear crossmembers.
- (c) Thirteen sections of removable body panels; one on front, two on rear, and five on each side.
- (d) Clearance lights located on the front and back portion of each side of the semitrailer are supplied with current and operated from the towing vehicle.
- (e) Hardwood floor fastened directly to body frame.
- (f) Tool box beneath body frame; left side of semitrailer.
- (g) Equipped with rectangular paulin designed to cover areas enclosed by panels.

(3) Semitrailer M128A1, M128A1C and M128A2C Special Features.

- (a) 12-ton 4-wheel, cargo van semitrailer.
- (b) Used as a cargo carrier.
- (c) Body does not have windows or ventilation openings other than ventilation fan.
- (d) 12-volt and 24-volt electrical system.

1-7. PURPOSE, CAPABILITIES AND FEATURES (Cont)

- (4) Semitrailer M129A1, M129A1C, M129A2C Special Features.
- (a) 12-ton, 4-wheel supply van semitrailer.
 - (b) Used as supply van.
 - (c) Body has seven windows with blackout covers.
 - (d) Front window is stationary. Six windows (three each side of trailer) are retractable.
 - (e) Additional 110v ac electrical system with dome lights, wall receptacles, circuit breakers, and switch box.

1-8. DIFFERENCES BETWEEN MODELS

a. Model M127.

- . Straight air brake
- . Timken 36,000 lb tandem bogie suspension with leaf springs
- . Thomas or Westran landing gear
- . Structural weldment frame
- . 24-volt lamps and wiring
- . 4-wheel internal brakes are located within the brake drums and consist of S-cam, 2 shoe, double-anchor expanding-type wheel brake assemblies

b. Model M127A1.

- . Air-over-hydraulic brakes
- . Military standard axles, hub and drum, air chamber (bogie assembly and brakes)
- . 24-volt electrical system
- . Military lights, service, tail and stop
- . Military type blackout lights
- . 4-wheel internal brakes located within brake drum, consists of 4-hydraulic operated self-centering
- . FR2S-type wheel brake assemblies
- . Equipped with chains which support the panels and lifting rings for hoisting the semitrailer

c. Model M127A1C, M128A1, M128A1C, M129A1, M129A1C.

- . 24-volt electrical system and a separate 12-volt lighting system
- . All features of M127A1

d. Model M129A1, M129A1C, M129A2C.

- . Additional 1100-volt ac body wiring for dome lights

e. Model M127A2C, M128A2C, M129A2C.

- . Later design of bogie assembly and service brakes (axle, spring seat, "U" bolts, torque rods, hardware and brakes)
- . Tail lights consist of:
 - (1) Two 24-volt composite tail, stop, turn and marker lights
 - (2) Two 12-volt stop, turn and tail lights

1-9. EQUIPMENT DATA

a. Semitrailers.

Towing vehicle	5 ton 6X6
Towing facilities	kingpin
Kingpin location	2 ft 6 in.
Kingpin to landing leg	6ft 5-1/2 in.
Dimensions overall:	
M127, M127A1, M127A1C and M127A2C:	
Length	28 ft 8-1/4 in.
Width	8 ft 3/4 in.
Height(loaded)	8 ft 9-1/2 in.
M128A1, M128A1C, M128A2C, M129A1, M129A1C, M129A2C:	
Length	28 ft 8-1/4 in.
Width	8 ft
Height	11 ft 7-3/8 in.
Dimensions inside:	
M127, M127A1, M127A1C, M128A2C,	
Length	27 ft 11-13/16 in.
Width	7 ft 4-13/16 in.
Height (to top of panels)	4 ft
M128A1, M128A1C, M128A2C, M129A1, M129A1C, M129A2C:	
Length	28 ft 1-1/2 in.
Width	7 ft 4-1/2 in.
Height	6 ft 5-1/2 in.
Loading Height (empty):	
M127, M127A1, M127A1C, M127A2C	
	5 ft. 3/4 in.
M128A1, M128A1C, M128A2C, M129A1, M129A1C, M129A2C	
	4 ft 10-1/2 in.
Floor height (loaded-floor level):	
M127, M127A1, M127A1C and M127A2C	
	4 ft 9-1/2 in.
M128A1, M128A1C, M128A2C, M129A1, M129A1C, M129A2C	
	4 ft 7-1/4 in.
Upper fifth wheel plate height (loaded):	
M127, M127A1, M127A1 Canal M127A2C	
	4 ft 1/2 in.
M128A1, M128A1C, M128A2C, M129A1, M129A1C, M129A2C	
	3 ft 10 in.
Track (thread-center-to-center of tires)	
	6 ft
Weights:	
M127	13,500 lbs
M127A1	14,400 lbs
M127A1C	14,240 lbs
M128A1	15,480 lbs
M128A1C, M128A2C	15,600 lbs
M129A1	16,020 lbs
M129A1C, M129A2C	15,400 lbs
Payload:	
Hard surface roads	24,000 lbs
Cross/country	24,000 lbs

1-9. EQUIPMENT DATA (Cont)

a. Semitrailers (cent).

Center of gravity from ground (empty)	4 ft
Center of gravity forward of suspension:	
M127, M127A1, M127A1C, M127A2C:	
Loaded	7 ft 10-1/4 in.
Empty	6 ft
M128A1, M128A1C; M128A2C,	
M129A1, M129A1C, M129A2C:	
Loaded	8 ft 1 in.
Empty	6 ft 2-1/2 in.
Angle of departure (loaded)	50 deg

b. Electrical System.

Voltage:	
M127, M127A1	24
M127A1C, M127A2C	12
M128A1, M128A1C, M128A2C	12
M129A1, M129A1C, M129A2C	12
Lamps:	
M127, M127A1	
Right taillight assembly - 24 volt:	
Blackout taillight lamps	3 cp
Blackout stop light lamp	3 cp
Left taillight assembly -24 volt:	
Blackout taillight lamp	3 cp
Service taillight lamp	3 cp
Service stop light lamp	32 cp
All clearance lights - 24 volt	3 cp
M127A1C, M128A1, M128A1C, M129A1, M129A1C	
Right taillight assemblies - 12 volt:	
Service taillight lamp	4 cp
Service stop light lamp.	32 Cp
Turn light lamp	21 cp
Right taillight assemblies - 24 volt:	
Blackout tail and stop light lamps	3 cp
Service taillight lamp	3 cp
Service stop light lamp	32 cp
Blackout taillight lamp	3 cp
Left taillight assemblies -12 volt:	
Service taillight lamp	4 cp
Service stop light lamp	32 cp
Turn light lamp	21 cp
Left taillight assemblies - 24 volt:	
Service taillight lamp	3 cp
Service stop light lamp	32 Cp
Blackout taillight lamp	3 cp
All clearance lights	3 cp
Dome lights:	
24-volt	21 cp
110 volt ac (M129A1, M129A1C, M129A2C)	60 watt

1-9. EQUIPMENT DATA (Cont)

b. Electrical System (cont).

Lamps (cont):

M127A2C, M128A2C, M129A2C

Right and left taillight assemblies - 12 volt:

Service taillight lamp	15cp
Service stop light lamp.	32 cp
Turn light lamp	32 cp

Right and left taillight assemblies - 24 volt:

Blackout marker and stop light lamps	3 cp
Stop and turn signal light lamp	32 cp
Service taillight lamp	3 cp

c. Axles.

Type tubular

Quantity 2

Manufacturer:

M127	Timken Detroit Axle Co.
M127A1, M127A1C, M128A1, M128A1C, M129A1, M129A1C	Standard Forge & Axle Co.
M127A2C, M128A2C, M129A2C	Rockwell-Standard Corp.

Diameter 5-1/2 in.

Spindle diameter. 3-1/2 in.

d. Brakes.

Actuation:

M127 (only)	air
All models (except M127)	air-over-hydraulic

Type of internal brakes:

M127	S-cam, two-shoe, double anchor, expanding self-centering
All models (except M127)	self-centering

Make:

M127	Timken design
M127A1, M127A1C, M128A1, M128A1C, M129A1, M129A1C.	Wagner-Lockheed design
M127A2C, M128A2C, M129A2C	Rockwell-Standard Corp.

e. Wheels.

Type dual, military disk

Manufacturer Budd Co.

Rim size 20 x 7.5

Tire retention and removal split lock ring

Quantity of studs 10

Diameter of stud circle 11-1/4 in.

Wheel bearings:

Type tapered roller

Manufacturer Timken

1-9. EQUIPMENT DATA (Cont)

f. Tires.

Quantity	8
Size	11.00 X 20
Type	NDCC military
Number of ply	12
Tire inflation:	
Highway driving	60 psi
Cross-country driving	40 psi

g. Spare Tire Carrier.

Type	one man, cable lift
Make	Nash
Operated by.	wheel nut wrench

h. Landing Leg.

Type	vertical, two legs w/ feet
Manufacturer	Westran or Thomas
Length to top of floor:	
Retracted	3 ft 9 in.
Extended	5 ft
Operation	handcrank, two-speed
Width at feet (overall)	4 ft 2-5/16 in.

i. Springs.

Type	semielliptic
Quantity of leaves	12

1-10. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS

- (1) CHASSIS FRAME AND BODY FRAME. Constructed of steel. It includes the welded upper fifth wheel plate and king-pin. The M128 and M129 van body mounts on it, or it accepts stake and panels on the M127 series semitrailer. Eight tie-down eyes are welded to frame to secure semitrailer during shipment. A hardwood floor fastens directly to the body frame.
- (2) STAKE AND PANELS (M127 SERIES). Forms a solid wall 48 inches high to retain cargo. The panels are made up of thirteen removable sections; one on front, two on the rear and five on each side.
- (3) REAR AXLE. The semitrailers have two tubular axles. Consists of the suspension system, brake system, axles and tires.

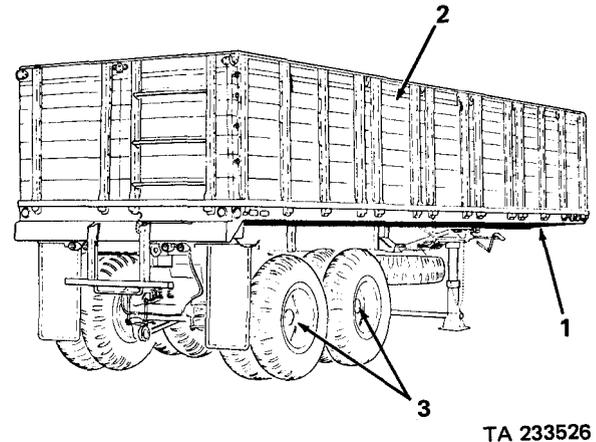


Figure 1-13. Semitrailer, stake, M127, right rear view

- (4) VAN BODY (M128 AND M129 SERIES). Has two doors in rear. Stepladder hangs on left door. M129 series has windows.
- (5) LANDING LEG. Manually extended when semitrailer is unhooked from towing vehicle and manually retracted when the truck tractor is hooked up.
- (6) KINGPIN. Connects the semitrailer to the fifth wheel of the truck tractor.
- (7) SPARE WHEEL AND TIRE. Can be lowered or raised by using the spare tire carrier operating shaft.
- (8) SERVICE LIGHTS. Contain running, back-up, stop, blackout, turn signals and clearance lights on M128 and M129 series. The M127 series contain service, tail and stop, blackout taillights and clearance lights.
- (9) MUD FLAPS. Keeps mud, water, rocks from being splashed off the rear tires during rainy weather or when traveling unimproved roads.

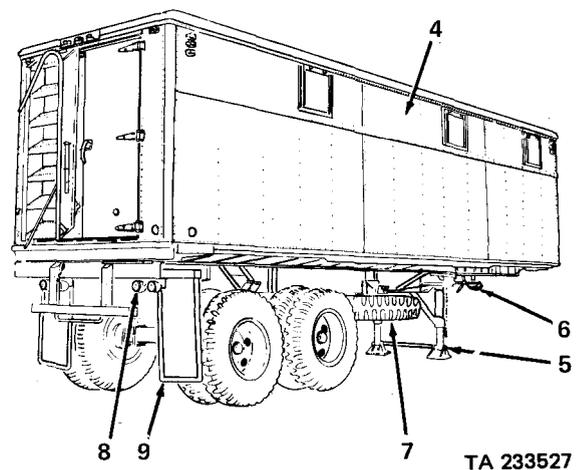


Figure 1-14. Semitrailer, supply van, M129A2C, right rear view

CHAPTER 2

OPERATING INSTRUCTIONS

Section I. DESCRIPTION AND USE OF OPERATOR'S CONTROLS AND INDICATORS

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2-1. OVERVIEW

This section describes the items listed below and their use.

- . 110-volt switch box and circuit breaker load center
- . Dome light switches
- . 110-volt ac external receptacle
- . Intervehicular cable receptacles
- . Brake air hose couplings
- . Dummy couplings
- . Air reservoir drain cock
- . Spare tire carrier operating shaft
- . Landing leg hand crank
- . Float pads
- . Chock blocks
- . Retractable rear step and ladder (M127 and M17A1).
- . Retractable rear step and ladder (M127A1C and M127A2C)
- . Step ladder (M128 and M129 Series)
- . Paulin (M127 series)
- . Tool box
- . Kingpin
- . Panels (M127 series)
- . 24-volt ventilating fan (M128 and M129 series)
- . Service lights
- . Tie-down eyes
- . Van body (M128 and M129 series)
- . Windows (M129 Series only)

2-2. 110-VOLT SWITCH BOX AND CIRCUIT BREAKER LOAD CENTER

a. Purpose. Protects 110-volt electrical circuits.

b. Location. Mounted one above the other inside of M129A1, M129A1C or M129A2C van on the right side of the front window.

c. Switch Box. Contains double-pole, single-throw knife switch and two 60 amp fuses.

d. Circuit Breaker Load Center. Contains four 20 amp switch type circuit breakers.

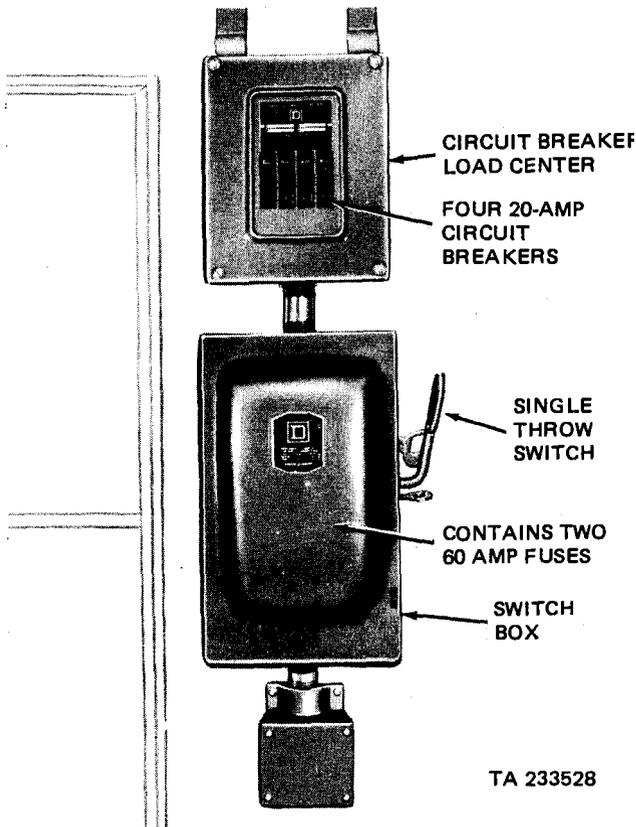


Figure 2-1. 110-volt switch box and circuit breaker load center (M129A1, M129A1C or M129A2C)

2-3. DOME LIGHT SWITCHES

a. 110-Volt Dome Light Switch. Controls eight dome lights in M129 series semitrailer body.

b. 24-Volt Dome Light Switch. Controls four dome lights in M128 and M129 series semi-trailer body.

c. Location. Inside of van on the rear wall.

d. Switch Positions. Both switches have "ON" and "OFF" positions.

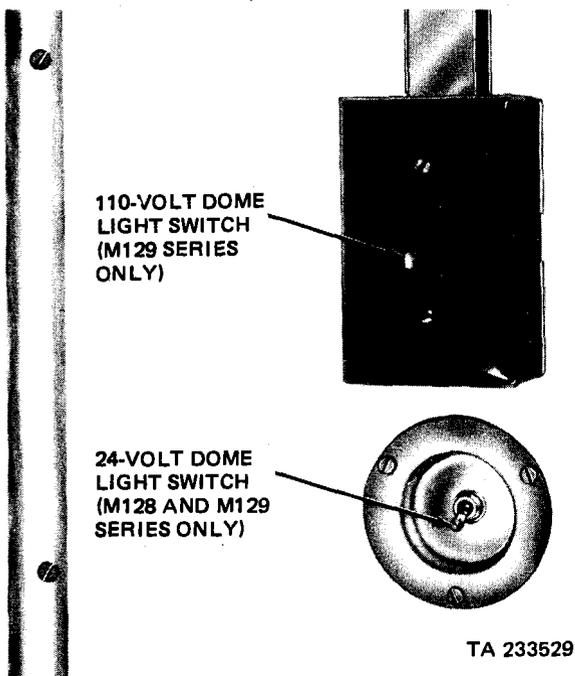


Figure 2-2. Dome light switches

2-4. 110-VOLT AC EXTERNAL RECEPTACLES (M129 SERIES ONLY)

- a. Used for connecting an external 110-volt ac electrical supply to semitrailer (figure 2-3).
- b. Two-pin type.
- c. Mounted on the front of the M129 series semitrailer's body approximately midway up.
- d. Includes dust cover on chain.

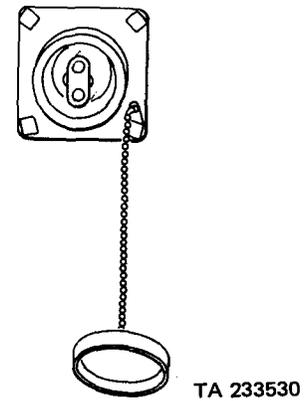


Figure 2-3. 110-volt external receptacle (M129 series)

2-5. INTERVEHICULAR CABLE RECEPTACLES

- a. Used for connecting 12-volt or 24-volt electrical power from towing vehicle to the semitrailer. (All models except M127 and M127A1.)
- b. Located on front chassis crossmember (figure 2-4).
- c. M127 and M127A1 semitrailers have a 24-volt receptacle only (figure 2-5).

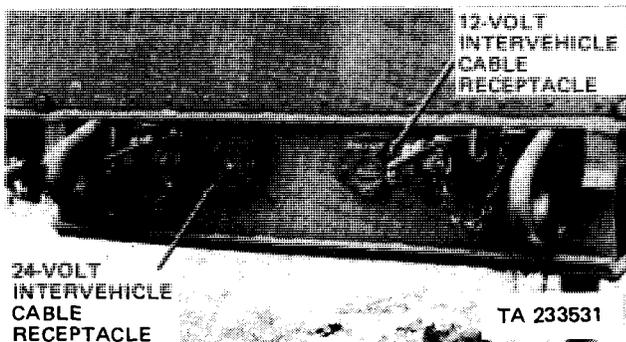


Figure 2-4. Intervehicular cable receptacles (All models except M127 and M127A1)

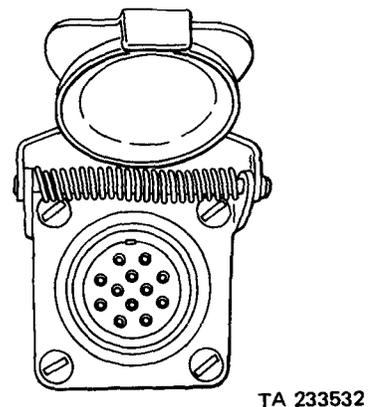


Figure 2-5. Intervehicular cable receptacle (M127 and M127A1)

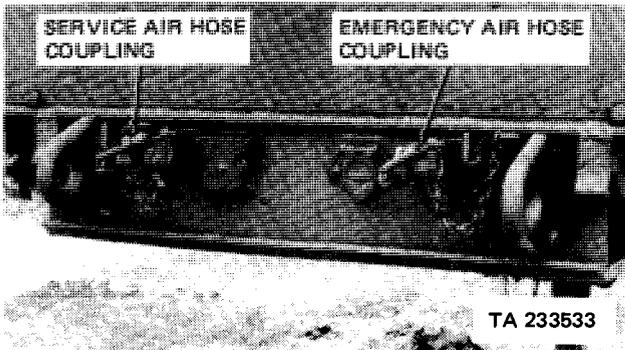


Figure 2-6. Brake air hose couplings

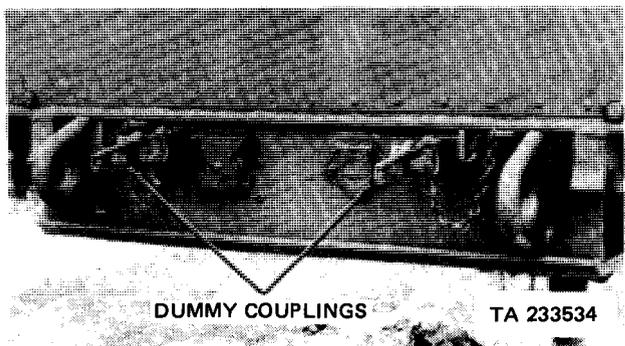


Figure 2-7. Dummy couplings

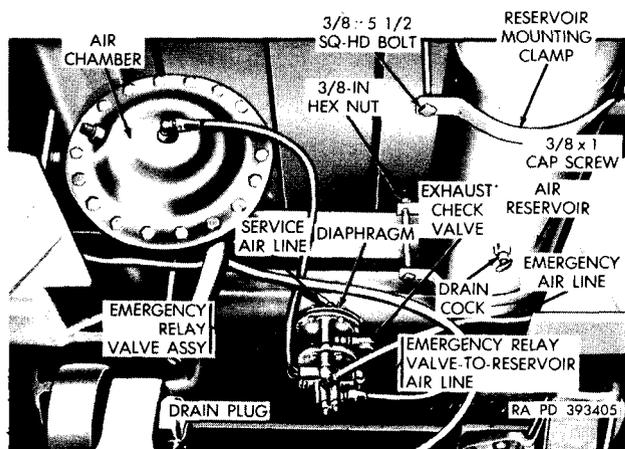


Figure 2-8. Air chamber, emergency relay valve, air reservoir and lines

2-6. BRAKE AIR HOSE COUPLINGS

- a. Two air hose couplings tagged SERVICE and EMERGENCY.
- b. Used for connecting the intervehicular hoses from the towing vehicle to the semitrailer.
- c. After connection of hoses, the service brakes on the semitrailer can be controlled by the brake controls on the towing vehicle.
- d. Located on front cross-member of the chassis frame.

2-7. DUMMY COUPLINGS

- a. Two dummy couplings to be fitted to the SERVICE and EMERGENCY air hose couplings.
- b. Connected when brake air hose couplings are not connected to the towing vehicle.
- c. Used to prevent dirt and moisture from entering the braking system.
- d. Chained to brackets welded to the front cross-member of the chassis frame.

2-8. AIR RESERVOIR DRAIN COCK

WARNING

Wear protective goggles when opening air reservoir drain cock and avoid contact with high velocity air.

- a. Used to relieve air pressure in the semitrailer braking system.
- b. Used for drainage of moisture collected in brake air reservoir.

2-9. SPARE TIRE CARRIER OPERATING SHAFT

- a. Used for raising and lowering spare tire.
- b. Operated with wheel nut wrench.
- c. A metal cable is wound on an operating shaft to lift the tire to carrying position.
- d. Rotating shaft clockwise raises spare tire to the carrying position.
- e. Counterclockwise rotation lowers spare tire to the ground.
- f. Located on right hand side of semitrailer and attached to the main member of the tire carrier.

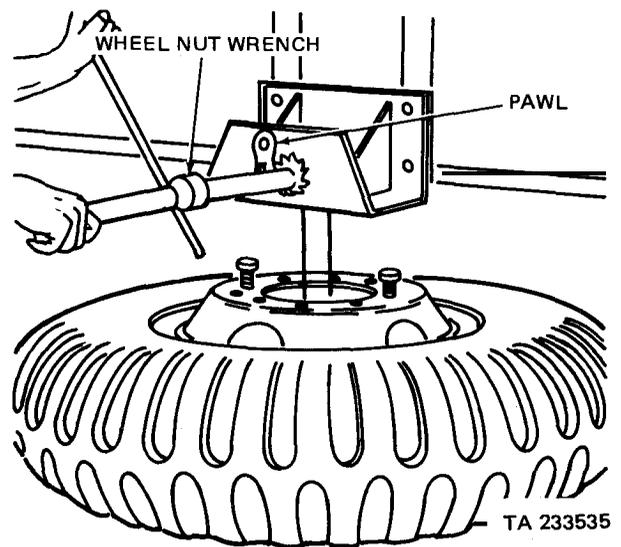


Figure 2-9. Operating spare tire carrier

2-10. LANDING LEG HANDCRANK

- a. Used to raise and lower landing legs.
- b. Rotating handcrank clockwise  lowers landing legs for parking semitrailer.
- c. Counterclockwise  rotation raises legs to towing position.
- d. Pushing operating shaft in engages high speed gear for ease and speed in raising or lowering legs between ground and full up position.
- e. Pulling operating shaft out engages low speed gear for raising or lowering legs when semitrailer is under load.
- f. Located on right side of semitrailer.
- g. Handcrank holder stores handcrank when not in use.

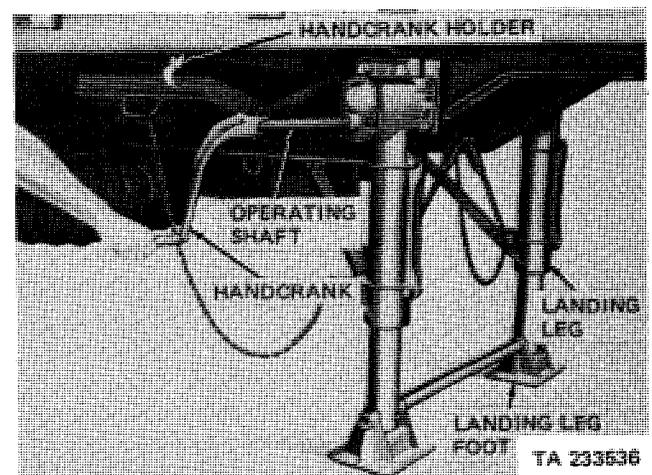


Figure 2-10. Landing leg handcrank

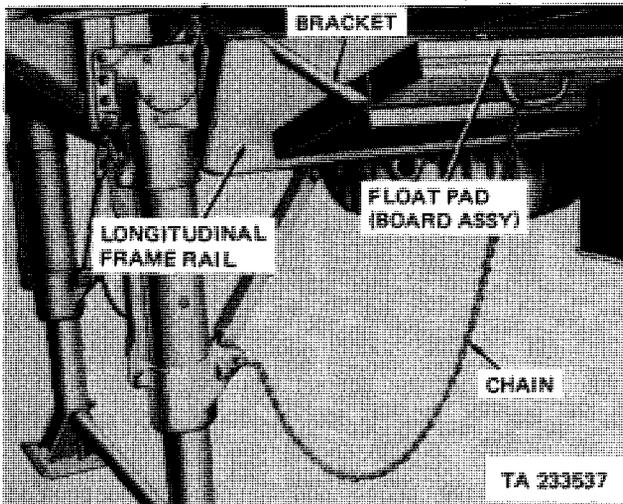


Figure 2-11. Float pads (Board assembly)

2-11. FLOAT PADS (BOARD ASSEMBLY)

- a. Two float pads are provided for placing under landing leg feet to keep them from sinking into soft ground.
- b. Stored in brackets welded to frame.
- c. Secured to landing legs with chains.

2-12. CHOCK BLOCKS

- a. One chock block located on each side of semitrailer.
- b. Depending upon the terrain, place chock blocks firmly behind or forward of wheels on each side of semitrailer.
- c. Helps keep semitrailer from moving when truck tractor is unhooked or when the unit is parked on a hill.
- d. A chain holds the chock block to the semitrailer to keep it from being lost.
- e. Stowage brace stows the chock block when not in use.

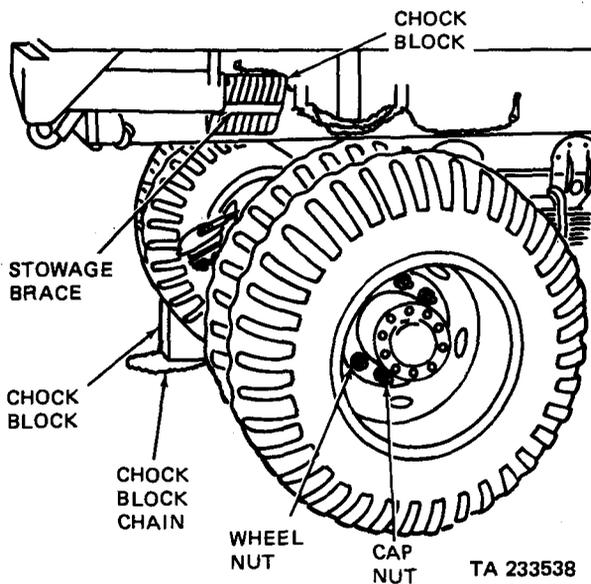


Figure 2-12. Chock blocks

2-13. RETRACTABLE REAR STEP AND LADDER (M127 AND M127A1)

- a. A retractable rear step and three ladder rungs on the right rear panel aids climbing in and out of the body of the semitrailer.
- b. The step, when not in use, is housed in a welded steel box suspended beneath the right rear corner of the body frame. An opening in the rear bumper gives access to the step and also serves as a foothold. A swinging latch, riveted to the inner surface of the bumper above the left side of the opening, secures the step in retracted position.
- c. To use the step, swing the latch aside to release the step, withdraw the step horizontally as far as the stops will permit, then lower the step to a vertical position.
- d. To retract the step, swing it up to a horizontal position and shove forward through the opening past the latch which secures it.
- e. The three ladder rungs are welded to and between the stakes of the right rear panel.

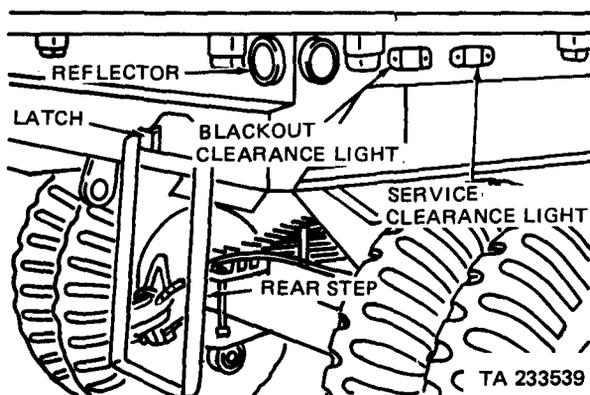


Figure 2-13. Rear step lowered (M127 and M127A1)

2-14. RETRACTABLE REAR STEP AND LADDER (M127A1C AND M127A2C)

The retractable step differs slightly in design on the M127A1C and M127A2C. A chain holds the step up when not in use.

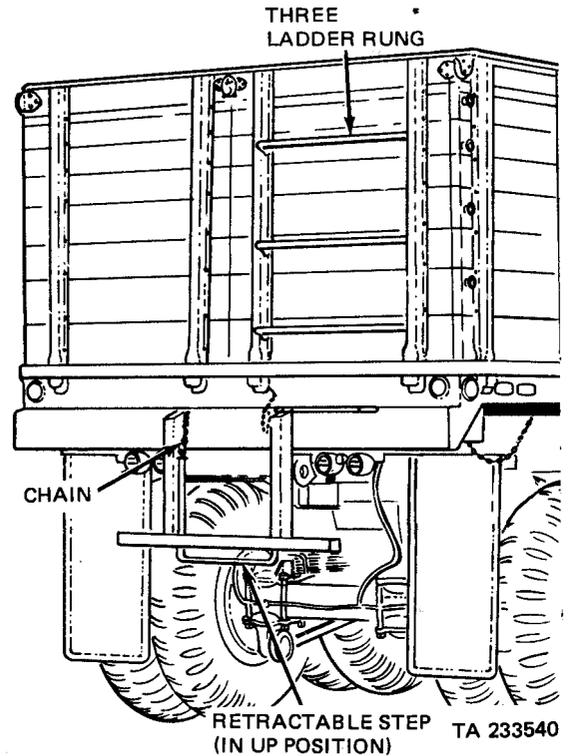


Figure 2-14. Retractable step and ladder (M127A1C and M127A2C)

2-15. STEPLADDER AND RETRACTABLE STEP (M128 AND M129 SERIES)

a. The M128 and M129 series semitrailers have a stepladder to aid in climbing in and out of the van body.

b. The stepladder hangs on the left rear door when not in use. It is held in place by removable pins fastened on a chain to the body.

c. A chain holds up the retractable step when not in use.

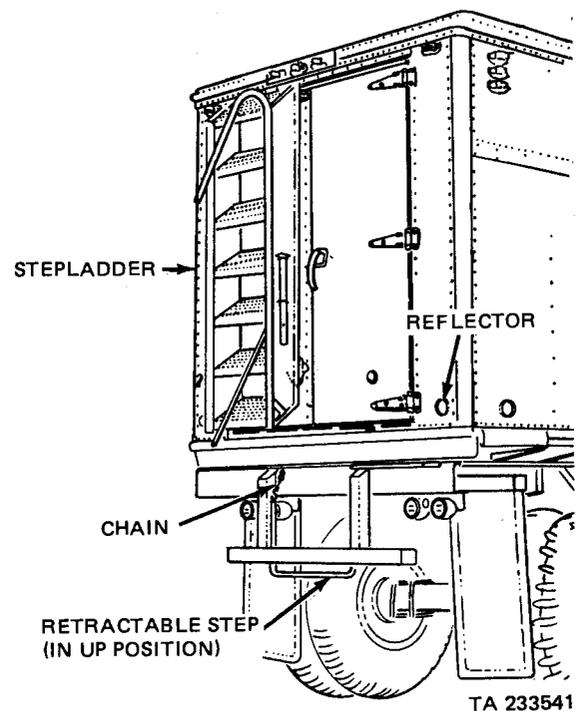


Figure 2-15. Stepladder and retractable step (M128 and M129 Series)

2-16. PAULIN (M127 SERIES)

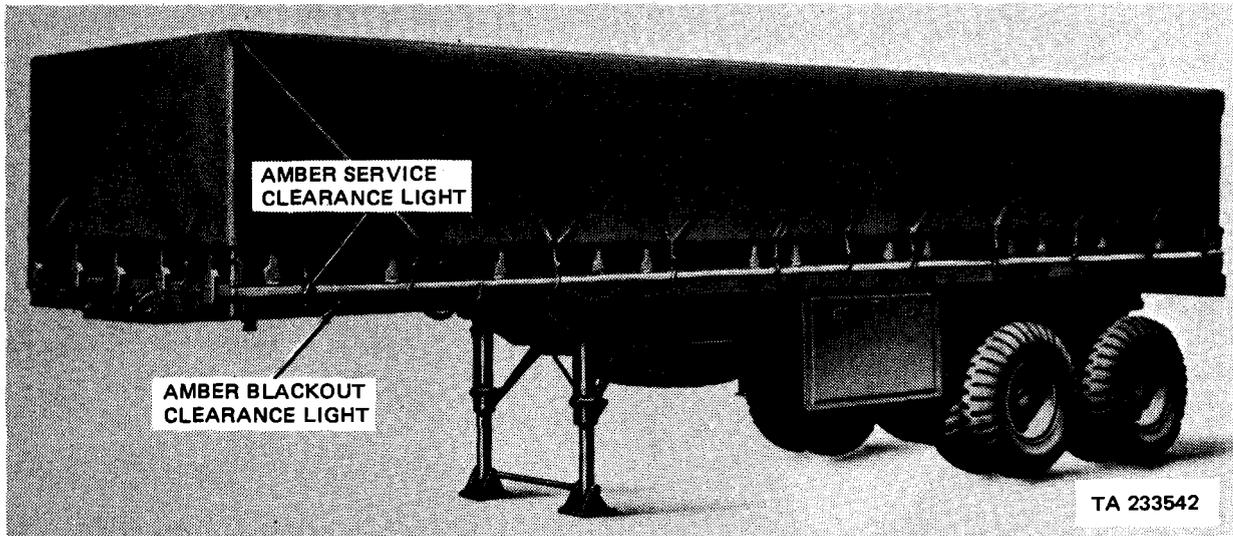


Figure 2-16. Semitrailer, stake, M127 with paulin, left front view

a. The paulin is rectangular, and is designed to cover the area enclosed by the panels, overlap the sides of the panels, and tie down to the rub rail.

b. Cotton rope pigtails are wire-spliced through grommets in the edge of the paulin. Corners of the paulin and points where the paulin bears on the corners of the panels, are reinforced with extra layers of canvas.

2-17. TOOL BOX (M127 SERIES)

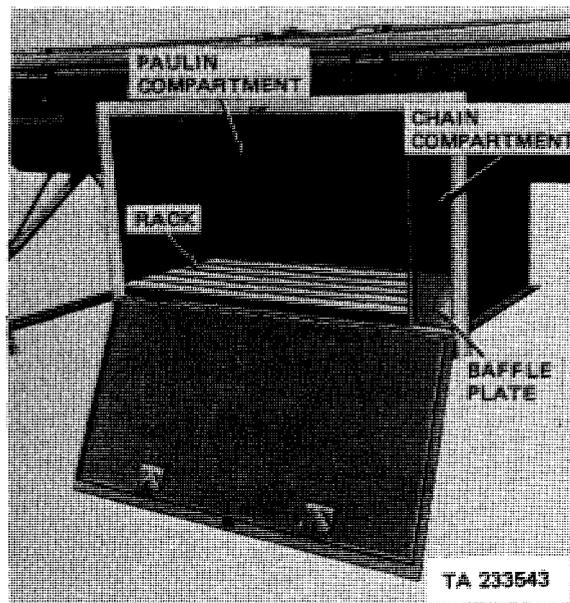
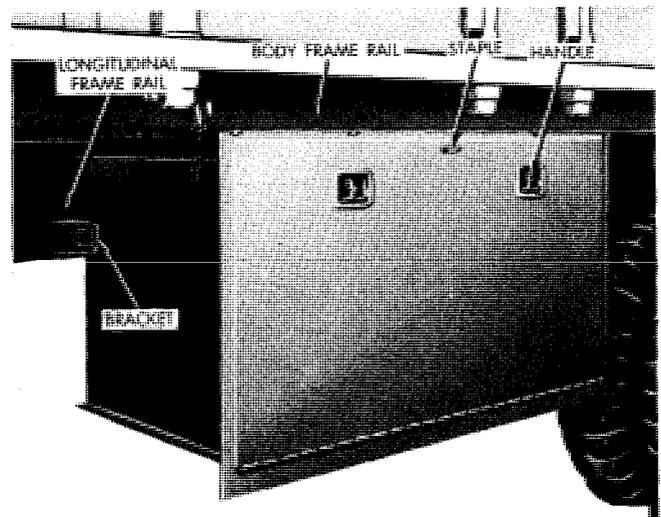


Figure 2-17. Tool box, open (M127 Series) (Sheet 1 of 2)

a. A welded steel tool box is fastened to brackets on the left longitudinal frame rail and to the lower edge of the left side rail.

b. The tool box door is hinged at the bottom with a continuous integral hinge and has a slot in the top center and two rotating latches. The slot fits over a staple in the top edge of the tool box and permits padlocking the door. The rotating latches are operated by folding T-type handles, which when folded, fit into recesses in the door.

c. The tool box for M127A1, M127A1C and M127A2C is divided by a panel into a chain compartment. The paulin compartment has a wooden rack to hold the paulin off the bottom of the tool box.



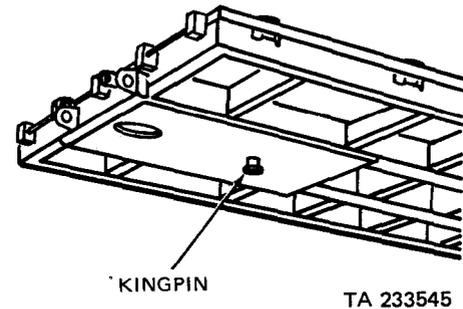
TA 233544

Figure 2-17. Tool box, closed (M127 Series)
(Sheet 2 of 2)

2-18. KINGPIN

a. Used to couple semitrailer to towing vehicle.

b. Protrudes from the center of the fifth wheel upper plate of the semitrailer.



TA 233545

Figure 2-18. Kingpin

2-19. PANELS (M127 SERIES)

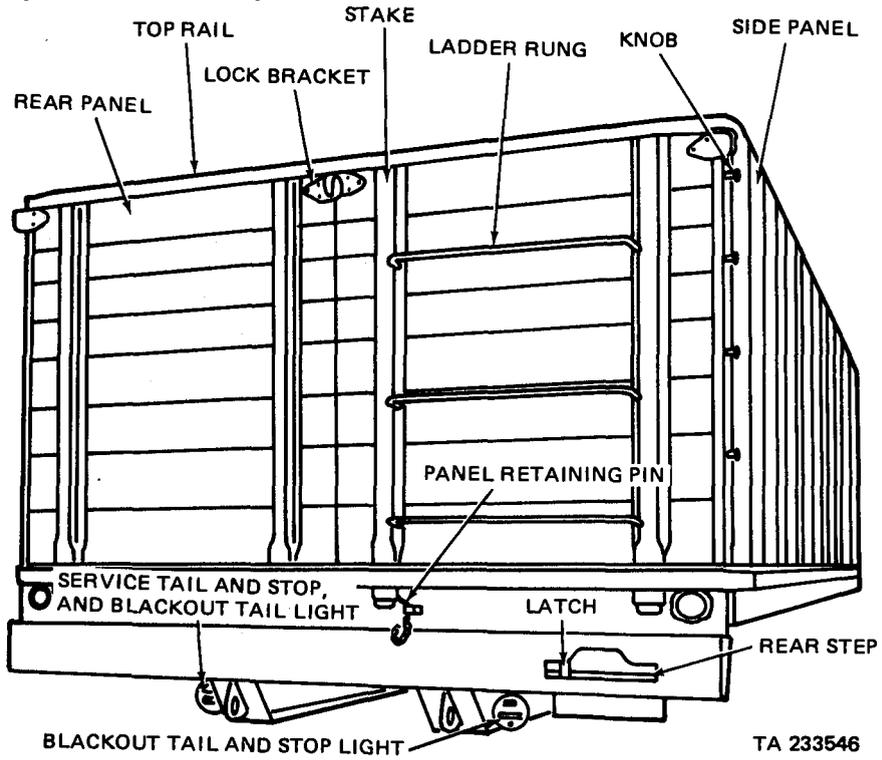


Figure 2-19. Panels, rear view (M127)

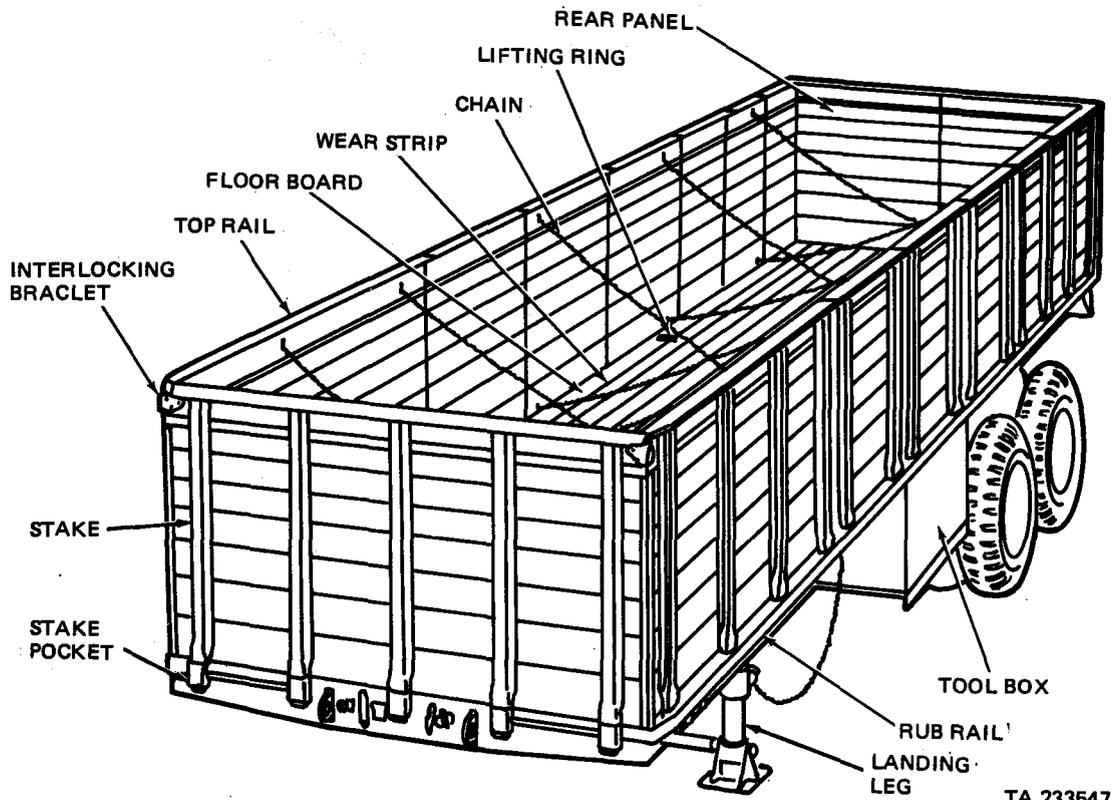


Figure 2-20. Semitrailer, stake, top view (M127A1)

a. Each of the removable panels has eight wood boards, interlocked edge-to-edge with horizontal shiplap joints to form a solid wall 48 inches high. Each panel on M127 semitrailer has a wooden top rail and steel stakes. Each panel on M127A1 thru M127A2C semitrailers has a steel top rail and steel stakes. The boards are secured to the stakes with screws and nuts.

b. Stakes fit into stake pockets set into the outside edge of the body frame. All panels have interlocking brackets at their outer edges near the top rail to connect them with the adjoining panels.

c. A retaining pin is chained to each side rail beneath the center side panel and to the full-width bumper beneath the right rear panel. The stakes of the center side panels are fitted into their stake pockets after all other side panels are in place with their lock brackets interlocked. When the retaining pin is inserted in the hole of the center side panels' stake, all stakes on that side are locked in place. The right rear panel is similarly installed and locked in place after left rear panel. The stakes of the front panel are bolted into their pockets.

d. On the M127A1 thru M127A2C semitrailer, two keyhole-type slots are provided at the top of the front side panels and one slot each in the third, fourth, and fifth side panels. Each slot secures a link of the chain which is anchored to the T-bracket welded on the opposite side rail. The chains brace the side panels and prevent them from pushing outward at the top when the semitrailer is loaded.

e. There are four rope knobs at the rear of each of the rear side panels.

2-20. 24-VOLT VENTILATING FAN (M128 AND M129 SERIES)

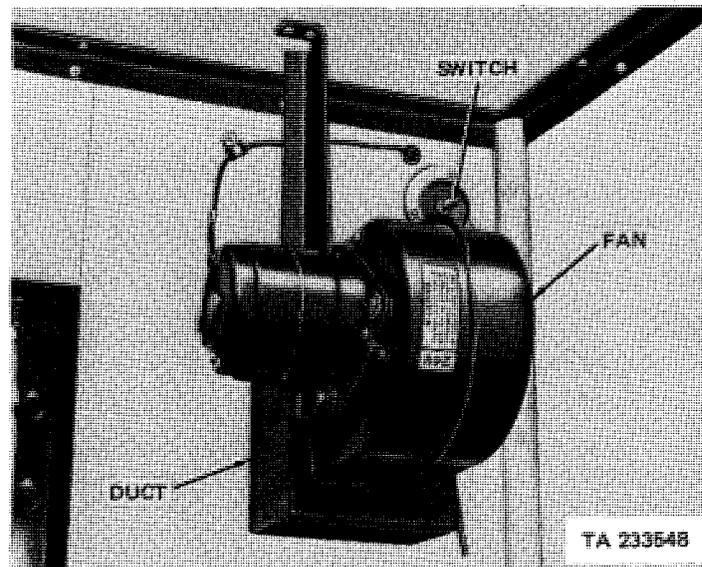


Figure 2-21. 24-volt ventilating fan (M128 and M129 Series)

- a. Provides ventilation for vans.
- b. Toggle switch above fan controls operation.
- c. Located in rear upper left corner of van.

2-21. SERVICE LIGHTS AND ELECTRICAL WIRING (M127 AND M127A1)

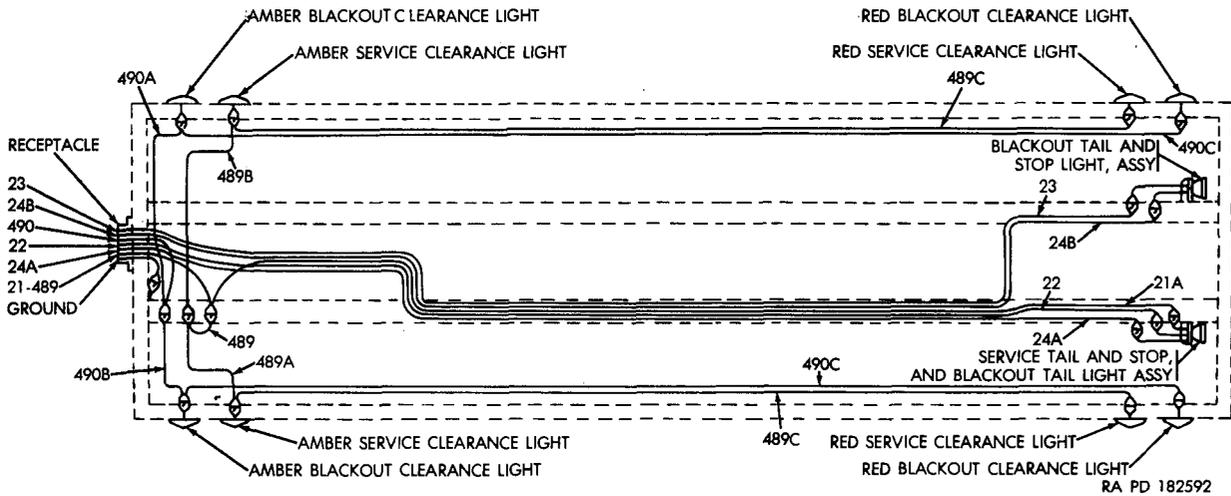


Figure 2-22. Electrical wiring diagram (M127 and M127A1)

a. 24-volt electrical system controlled by a switch and circuit breaker in towing vehicle.

b. A receptacle is located on the front cross-member for connection of the semitrailer electrical system to the towing vehicle.

c. Equipped with a service, tail and stop, and blackout taillight on the left rear and a blackout tail and stop light on the right rear.

d. Amber blackout and service clearance lights are on the front sides.

e. Red blackout and service clearance lights are on the rear sides.

f. Electrical cables are rubber covered with soldered terminals or connectors. The plugs, or sockets, are covered with metal shells with rubber bushings on the M127, and with rubber shells with plastic sleeves on the M127A1 to form watertight joints. Clip assemblies hold the shells in place on the frame. Rubber grommets protect the cables when they pass through crossmember.

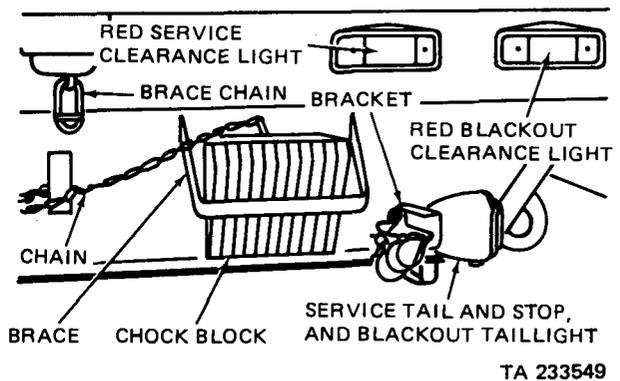


Figure 2-23. Service lights (M127 and M127A1)

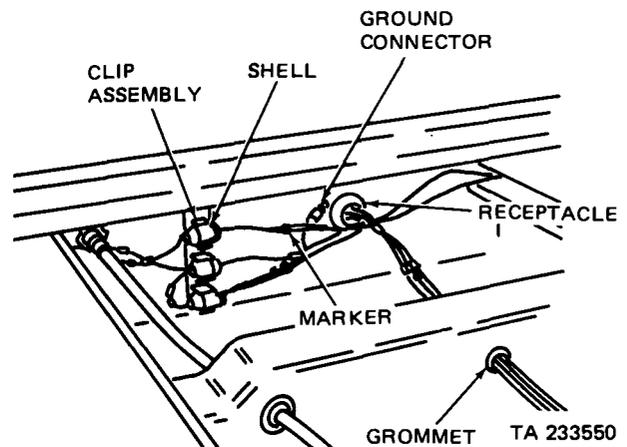


Figure 2-24. Electrical connections at rear of front crossmember (M127 and M127A1)

**2-22. SERVICE LIGHTS AND CHASSIS ELECTRICAL WIRING
(MODELS M127A1C, M128A1, M128A1C, M129A1, M129A1C)**

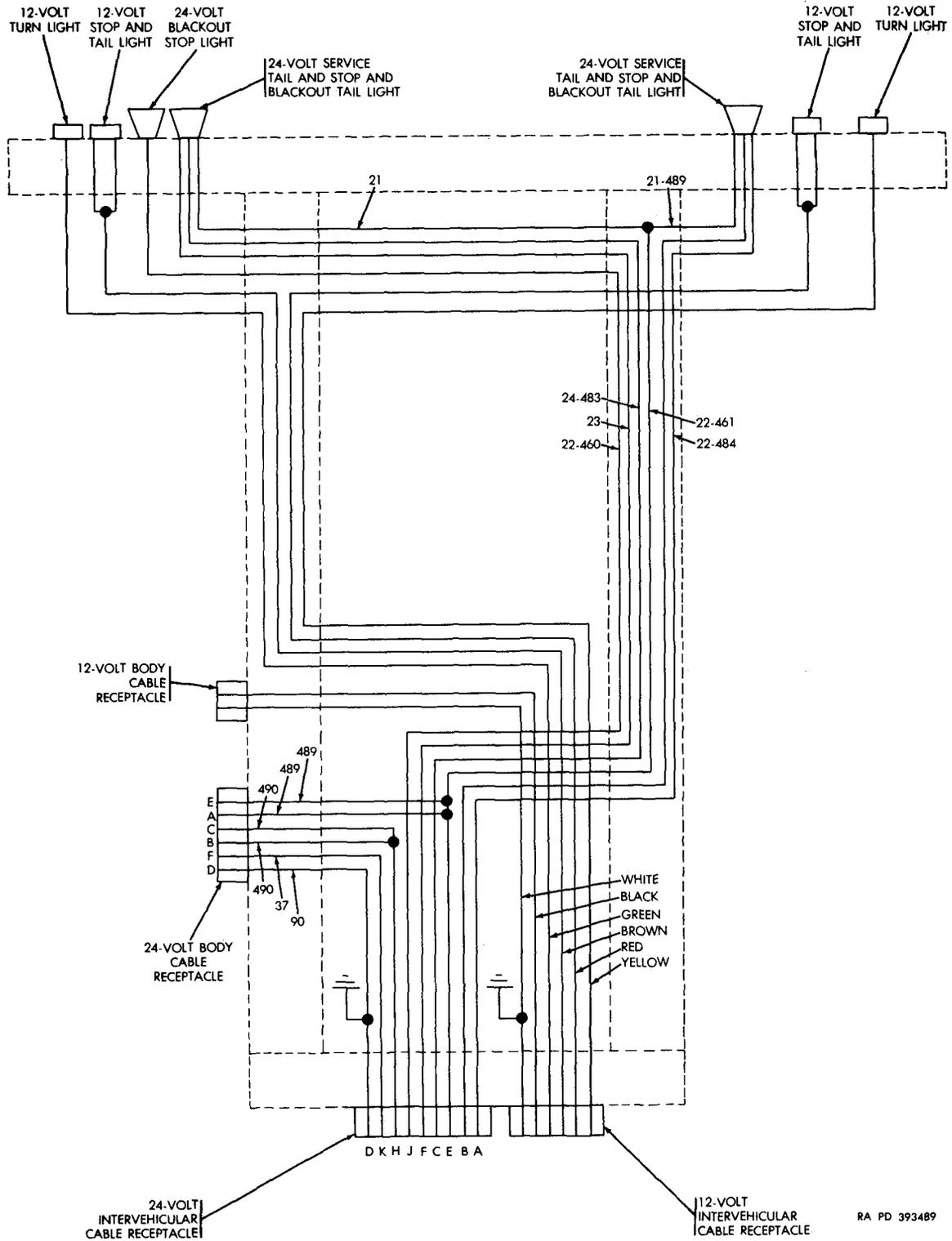


Figure 2-25. Chassis wiring diagram (used on Models M127A1C, M128A1, M128A1C, M129A1, M129A1C)

2-22. SERVICE LIGHTS AND CHASSIS ELECTRICAL WIRING (MODELS M127A1C, M128A1, M128A1C, M129A1, M129A1C) (Cont)

a. 12-Volt and 24-Volt Chassis Lights as follows:

(1) Lights – Chassis Left Rear

- . 12-volt turn light
- . 12-volt stop and taillight
- . 24-volt blackout stop light
- . 24-volt service tail and stop and blackout taillight

(2) Lights – Chassis Right Rear

- . 12-volt turn light
- . 12-volt stop and taillight
- . 24-volt service tail and stop and blackout taillight

b. A 12-volt receptacle and a 24-volt receptacle on-the front crossmember supplies current to chassis wiring from towing vehicle (ref. para.2-5).

c. Current is routed to van body through the 12-volt and 24-volt body receptacle located on the right longitudinal frame rail.

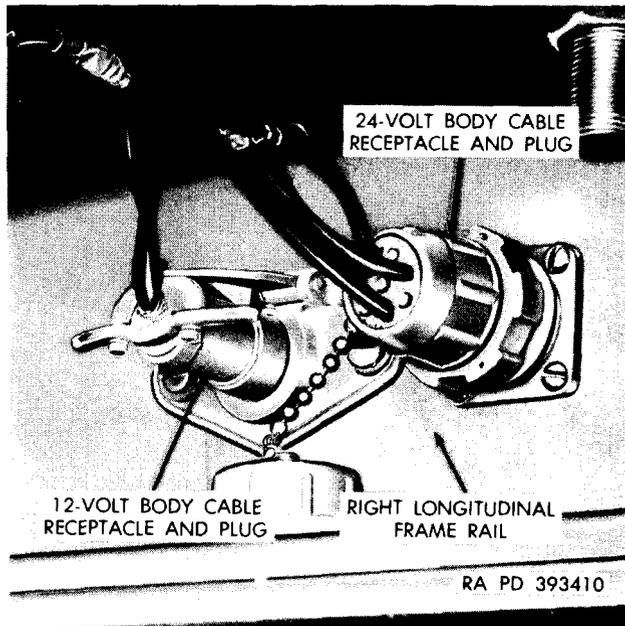


Figure 2-26. 12-volt and 24-volt body cable receptacles and plugs

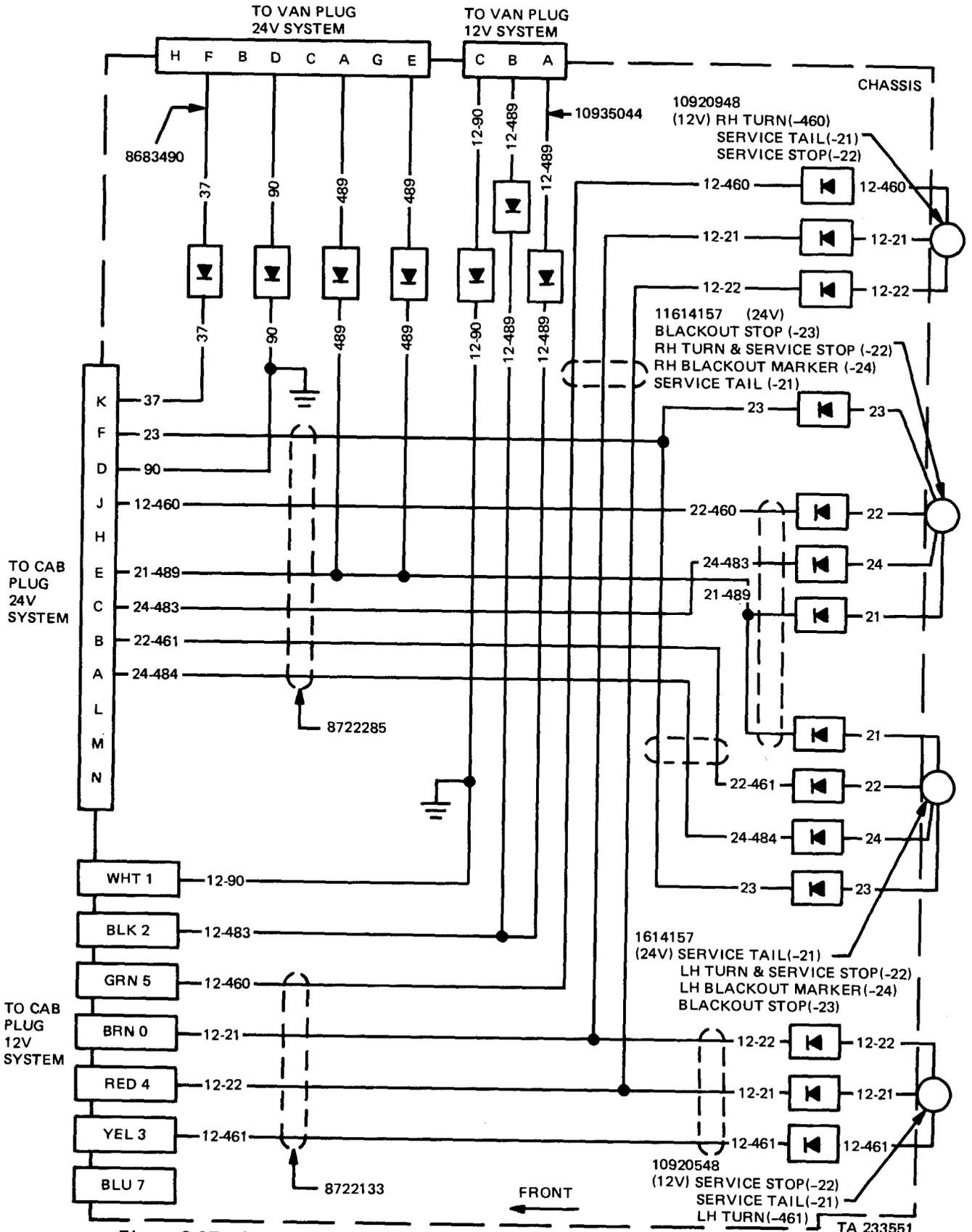


Figure 2-27. Chassis wiring diagram (Models M127A2C, M128A2C, M129A2C)

2-23. SERVICE LIGHTS AND CHASSIS ELECTRICAL WIRING (MODELS M127A2C, M128A2C, M129A2C)

a. 12-Volt and 24-Volt Chassis Lights as follows:

- . 12-volt stop, turn and taillight (two used)
- . 24-volt stop and turn signal, tail blackout marker and blackout stop, composite light assembly (two used)

b. A 12-volt receptacle and a 24-volt receptacle on the front crossmember supplies current to chassis wiring from towing vehicle (para. 2-5).

c. Current is routed to van body wiring thru the 12-volt and 24-volt body receptacle located on the right longitudinal frame rail. (See figure 2-26.)

2-24. 12-VOLT BODY LIGHTS AND WIRING (M128 AND M129 SERIES)

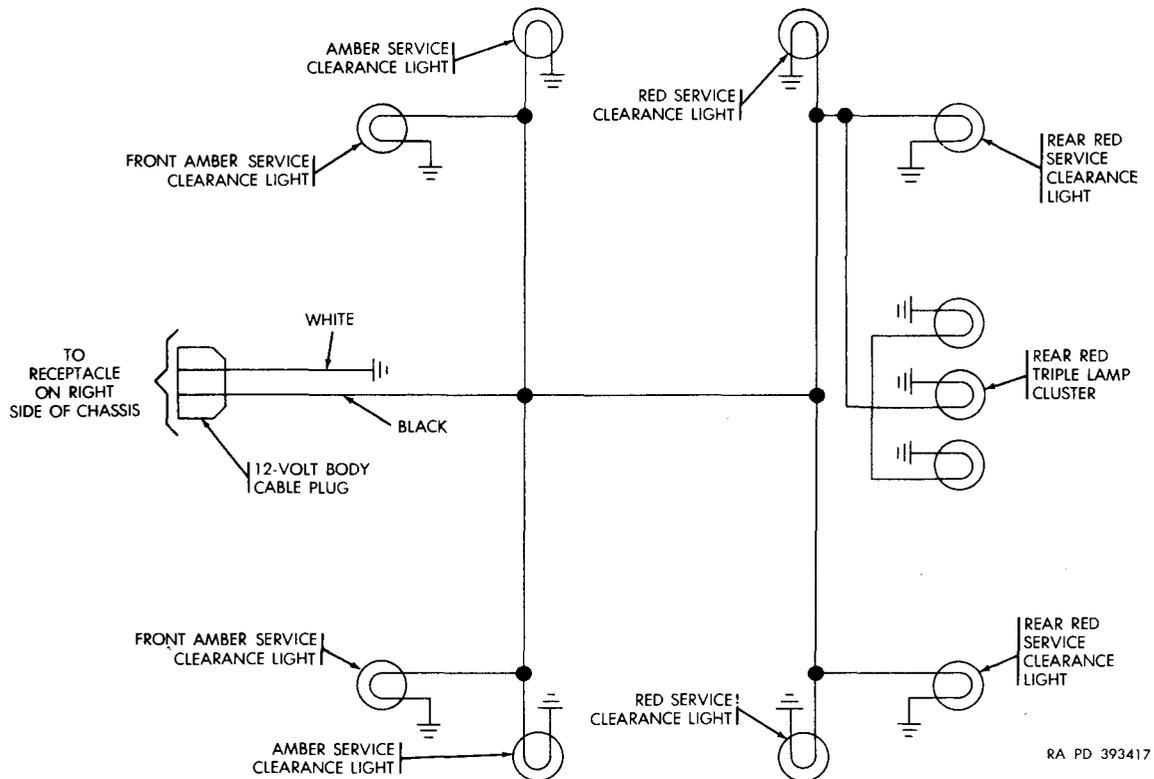


Figure 2-28. 12-volt body wiring diagram (M128 and M129 series)

- a. Circuit receives power through 12-volt receptacle on right longitudinal frame rail.
- b. Eleven 12-volt body clearance lights consisting of:
 - . Two amber service clearance lights (front)
 - . Two amber service clearance lights (front-side)
 - . Two red service clearance lights (rear)
 - . Two red service clearance lights (rear-side)
 - . Three red triple lamp cluster (rear)

2-25. 24-VOLT BODY LIGHTS AND WIRING (M128 AND M129 SERIES)

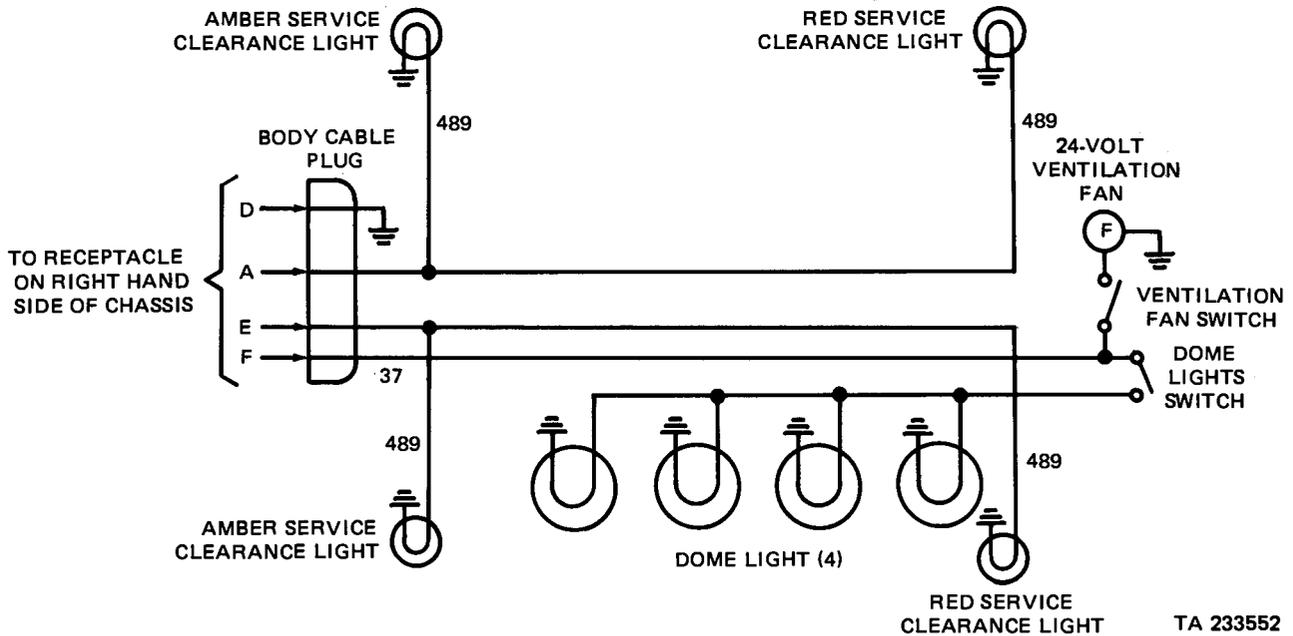


Figure 2-29. 24-volt body wiring diagram (M128 and M129 series)

a. Circuit receives power through 24-volt receptacle on right longitudinal frame rail.

b. 24-volt body electrical system consists of:

- . Four dome lights with switch
- . Ventilating fan with switch
- . Six 24-volt clearance lights (four on Kasel Model M129A2C)

c. 24-volt clearance lights consist of:

- . Two amber service clearance lights (top front sides)
- . Two red service clearance lights (top rear sides)
- . Two red blackout clearance lights (except Kasel model)

2-26. 110-VOLT AC BODY LIGHTS AND WIRING (M129 SERIES) (Cont)

- a. 110-voltage is from external source.
- b. Circuit receives power through 110-volt receptacle located approximately midway upon front of van body (figure 1-10).
- c. 110-volt body electrical system consists of:
 - . Circuit breaker load center with four 20 amp breakers
 - . Switch box with two 60 amp fuses
 - . Eight 110-volt dome lights (van ceiling)
 - . Dome light switch (rear inside van wall)
 - . Eight 110-volt body wall receptacles; four on each side (next to ceiling)

2-27. TIE-DOWN EYES

- a. Used to secure semitrailer to its carrier during shipment.
- b. Eight tie-down eyes welded to frame.
- c. Located as follows:
 - . Two on chassis front crossmember
 - . Four on bottom longitudinal frame rails
 - . Two on rear full-width bumper

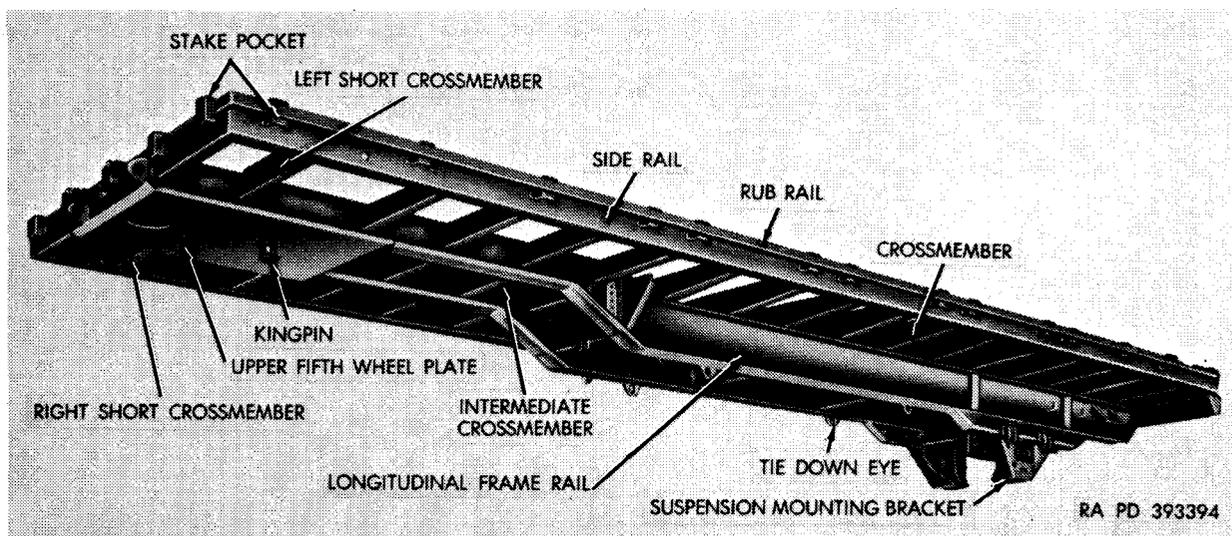


Figure 2-31. Location of tie-down eyes and chassis frame and body frame components (M127 chassis shown)

2-28. VAN BODY (M128 AND M129 SERIES)

- a. Two doors at rear of body.
- b. Door lock, latch and handle on right rear door.
- c. Detachable step ladder with adjustable legs mounted on left rear door. Used in entering and leaving semitrailer.
- d. Floor is made of hardwood boards bolted to body chassis.
- e. Eight reflectors are located on body as follows:
 - . One each corner of front
 - . One each corner of rear
 - . Two on each side
- f. M127 series body has insulated walls and ceiling to protect interior against heat or cold.
- g. M128 series body is not insulated.

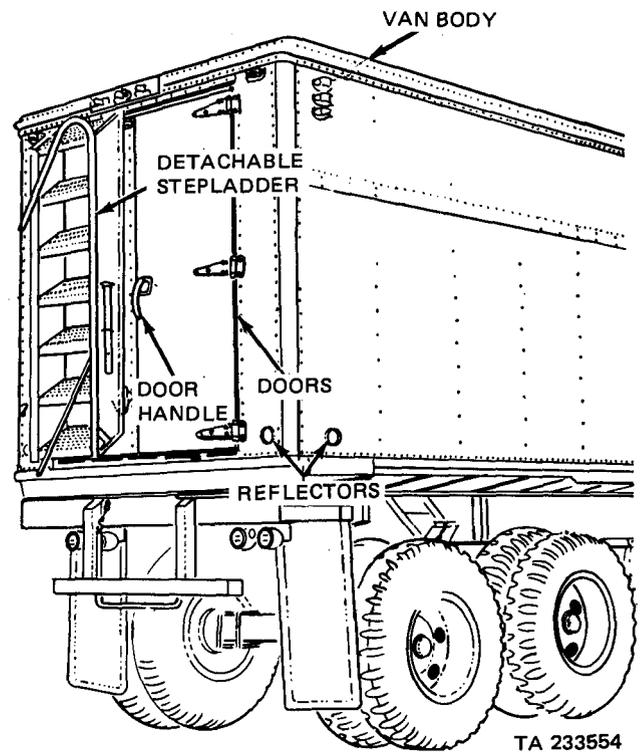


Figure 2-32. Van body (M128 and M129 series)

2-29. WINDOWS (M129 SERIES ONLY)

- a. M129 series vans (figs. 1-10 and 1-11 have seven windows consisting of:
 - . Three retractable windows (right side)
 - . Three retractable windows (left side)
 - . One stationary window (front)
- b. Blackout covers that slide up over each window are provided on the inside of the semitrailer.
- c. A lever is used to open and close retractable window sash.

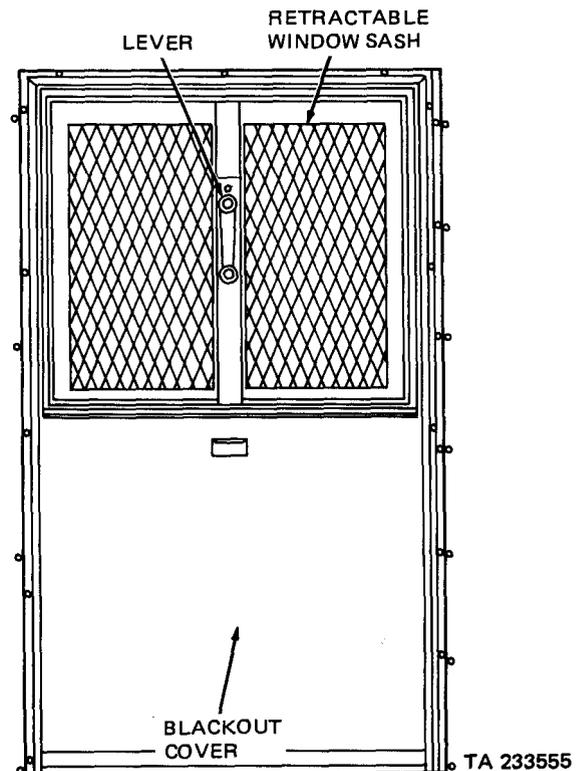


Figure 2-33. Retractable window sash, blackout cover and window - inside view (M129 series only)

Section H. OPERATOR/CREW PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

	Page		Page
Maintenance Forms and Records	2-22	Operator/Crew Preventive Maintenance Checks and Services	2-22

2-30. MAINTENANCE FORMS AND RECORDS

Every mission begins and ends with the paperwork. There isn't much of it, but you have to keep it up. The forms and records you fill out have several uses. They are a permanent record of the services, repairs and modifications made on your vehicle. They are reports to organizational maintenance and to your Commander. And they are a checklist for you when you want to know what is wrong with the vehicle after its last use, and whether those faults have been fixed. For the information you need on forms and records, see TM 38-750.

2-31. OPERATOR/CREW PREVENTIVE MAINTENANCE CHECKS AND SERVICES

a. Do your before (B) PREVENTIVE MAINTENANCE just before you operate the vehicle. Pay attention to the CAUTIONS and WARNINGS.

b. Do your during (D) PREVENTIVE MAINTENANCE during operation. (During operation means to monitor the vehicle and its related components while they are actually being operated.)

c. Do your after (A) PREVENTIVE MAINTENANCE right after operating the vehicle. Pay attention to the CAUTIONS and WARNINGS.

d. Do your weekly (W) PREVENTIVE MAINTENANCE weekly.

e. Do your monthly (M) PREVENTIVE MAINTENANCE once a month.

f. If something doesn't work, troubleshoot it with the instructions in this manual and notify your supervisor.

g. Always do your PREVENTIVE MAINTENANCE in the same order so it gets to be a habit. Once you've had some practice, you'll spot anything wrong in a hurry.

h. If anything looks wrong and you can't fix it, write it on your DA Form 2404. If you find something seriously wrong, report it to organizational maintenance RIGHT NOW.

i. When you do your PREVENTIVE MAINTENANCE, take along the tools you need to make all the checks. You always need a rag or two.

WARNING

Dry cleaning solvent (Fed. Spec PD-680) is both toxic and flammable. Avoid prolonged breathing of vapors. Avoid skin contact. Use only in a well-ventilated area. Keep away from open flame.

- (1) Keep it clean: Dirt, grease, oil and debris only get in the way and may cover up a serious problem. Clean as you work and as needed. Use dry cleaning solvent (PD-680) (item 18, Appendix C) to clean metal surfaces. Use soap and water when you clean rubber or plastic material.

2-31. OPERATOR/CREW PREVENTIVE MAINTENANCE CHECKS AND SERVICES(Cont)

- (2) Bolts, nuts and screws: Check them all for obvious looseness, missing, bent or broken condition. You can't try them all with a tool, of course, but look for chipped paint, bare metal, or rust around bolt heads. If you find one you think is loose, tighten it, or report it to organizational maintenance if you can't tighten it.
- (3) Welds: Look for loose or chipped paint, rust, or gaps where parts are welded together. If you find a bad weld, report it to organizational maintenance.
- (4) Electric wires and connectors: Look for cracked or broken insulation, bare wires and loose or broken connectors. Tighten loose connectors and make sure the wires are in good shape.
- (5) Hoses and fluid lines: Look for wear, damage and leaks, and make sure clamps and fittings are tight. Wet spots show leaks of course. But a stain around a fitting or connector can mean a leak. If a leak comes from a loose fitting or connector, tighten it. If something is broken or worn out, report it to organizational maintenance.

1. It is necessary for you to know how fluid leakage affects the status of your vehicle. The following are definitions of the types/classes of leakage you need to know to be able to determine the status of your vehicle. Learn, then be familiar with them and REMEMBER-WHEN IN DOUBT, NOTIFY YOUR SUPERVISOR!

Leakage Definitions for Operator/Crew PMCS

Class I	Seepage of fluid (as indicated by wetness or discoloration) not great enough to form drops.
Class II	Leakage of fluid great enough to form drops but not enough to cause drops to drip from item being checked/inspected.
Class III	Leakage of fluid great enough to form drops that fall from the item being checked/inspected.



Equipment operation is allowable with minor leakages (Class I or II). Of course, consideration must be given to the fluid capacity in the item/system being checked/inspected. When in doubt, notify your supervisor.

Table 2-1. Operator/Crew Preventive Maintenance Checks and Services

B-Before

D-During

A-After

W-Weekly

M-Monthly

NOTE: Within designated interval, these checks are to be performed in the order listed.

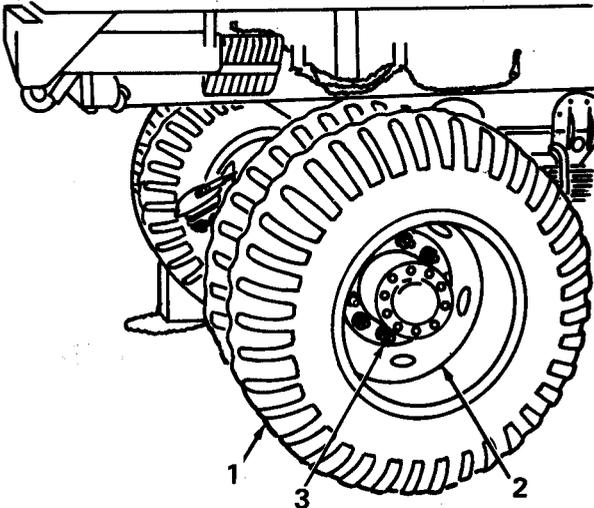
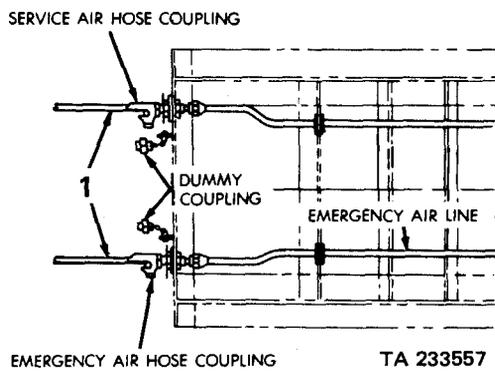
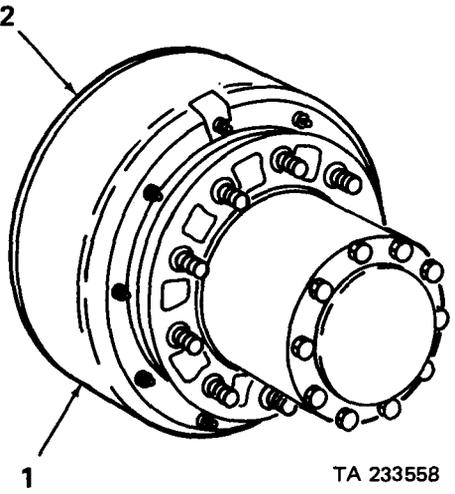
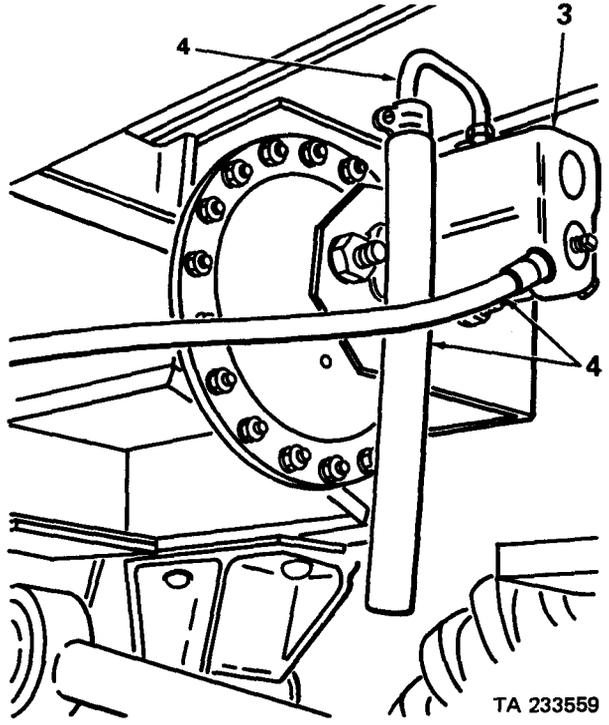
Item No.						Item to be Inspected Procedure: Check for and have repaired, filled, or adjusted as needed	For Readiness Reporting Equipment is Not Ready/ Available If:
	B	D	A	W	M		
						<p>NOTE</p> <p>Perform weekly as well as before PMCS if:</p> <p>a. You are the assigned operator but have not operated the vehicle since the last weekly.</p> <p>b. You are operating the vehicle for the first time.</p>  <p style="text-align: right;">TA 233556</p>	
1	●				●	<p>TIRES</p> <p>a. Check tire pressure (60 PSI) when tires are cool.</p> <p>b. Check tires (1) for cuts, foreign objects or unusual tread wear. Remove any stones from between treads.</p>	
2	●					<p>WHEELS</p> <p>NOTE</p> <p>Left wheel nuts are turned counterclockwise to tighten and clockwise to loosen.</p> <p>Right wheel nuts are turned clockwise to tighten and counterclockwise to loosen.</p> <p>Check wheels (2) for damage and wheel nuts (3) for tightness and presence.</p>	

Table 2-1. Operator/Crew Preventive Maintenance Checks and Services - Continued

B-Before D-During A-After W-Weekly M-Monthly

NOTE: Within designated interval, these checks are to be performed in the order listed,

Item No.	Interval					Item to be Inspected Procedure: Check for and have repaired, filled, or adjusted as needed	For Readiness Reporting Equipment is Not Ready/ Available If:
	B	D	A	W	M		
3	●					<p>AIR HOSES AND CABLES</p> <p>Check intervehicular air hoses (1) and cables for cuts and breaks.</p> 	Air hoses or intervehicular cables are broken or missing.
4	●					<p>BRAKE SYSTEM</p> <p>a. Check for fluid leaks at brake drums (1), backing plate assy (2), master cylinder assy (3) and tubing (4).</p>  	Class III leaks are found,

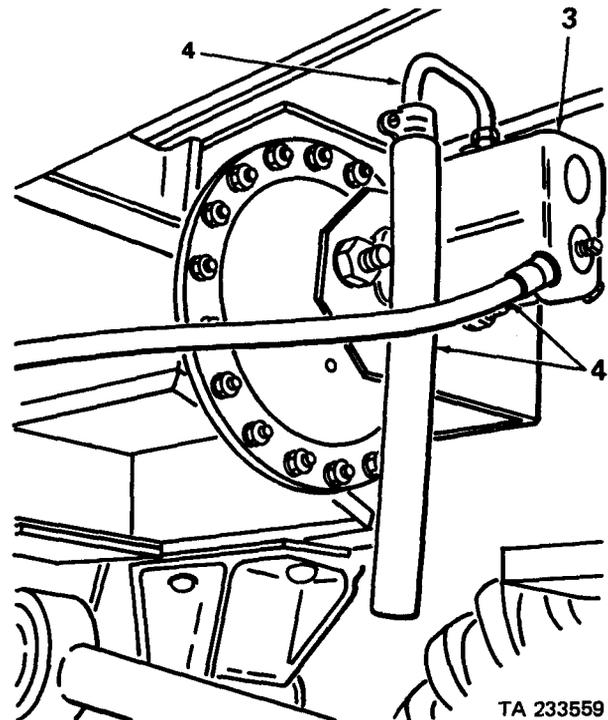
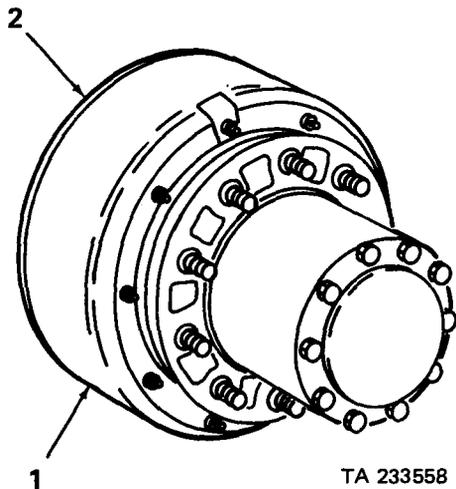
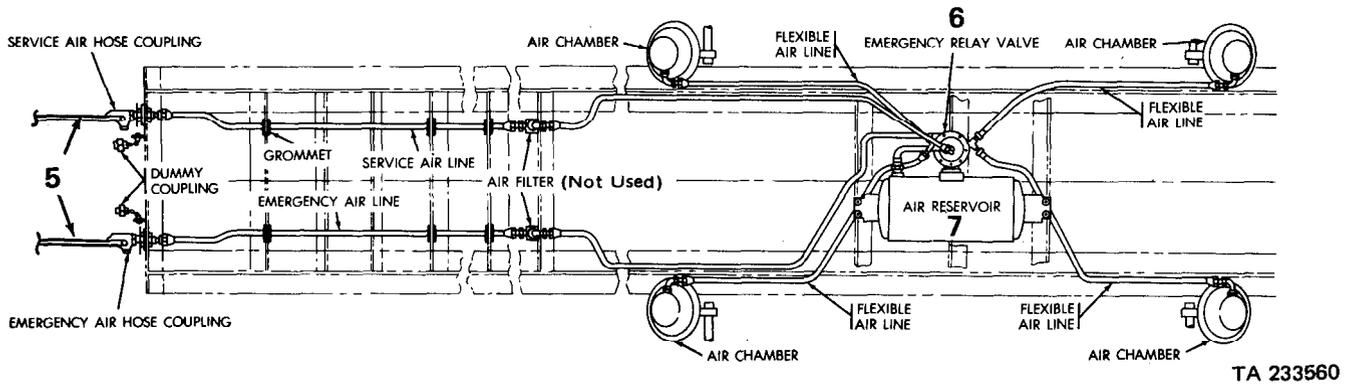


Table 2-1. Operator/Crew Preventive Maintenance Checks and Services - Continued

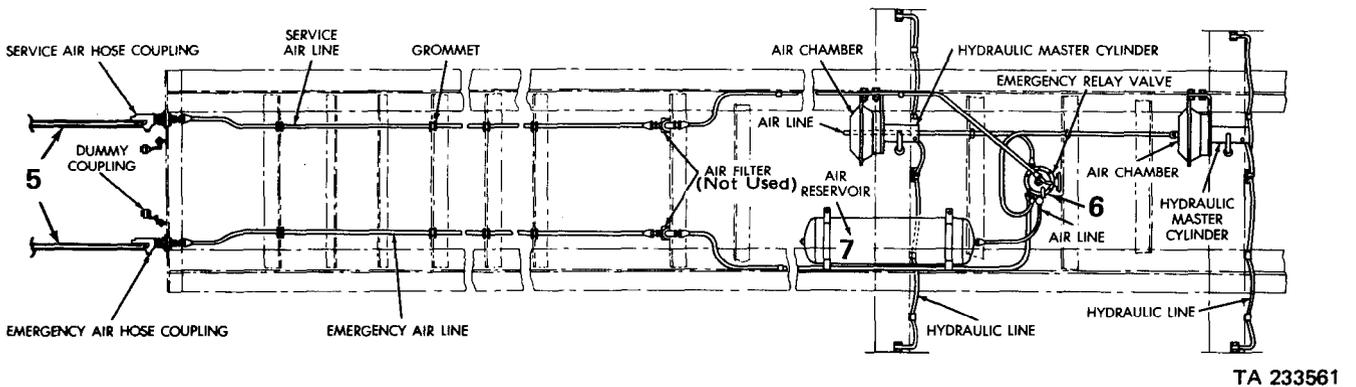
B-Before D-During A-After W-Weekly M-Monthly

NOTE: Within designated interval, these checks are to be performed in the order listed.

Item No.	Interval					Item to be Inspected Procedure: Check for and have repaired, filled, or adjusted as needed	For Readiness Reporting Equipment is Not Ready/ Available If:
	B	D	A	W	M		
4	●					<p>BRAKE SYSTEM (Cont)</p> <p>b. Test brake system by connecting semitrailer to towing vehicle. Check hose connections and make sure the towing vehicle air service line valve is turned on. Actuate the service brakes.</p> <p style="text-align: center;">NOTE</p> <p>Service brakes can be heard to actuate at the semitrailer.</p> <p>c. With semitrailer connected to the towing vehicle, have an assistant actuate the service brakes and listen for air leaks at the intervehicular connecting hoses (5) and at the emergency relay valve (6) and air reservoir (7).</p> <p>d. Be alert for unusual difficulty in stopping that would indicate that the trailer service brakes are malfunctioning.</p>	<p>Service brakes fail to operate.</p> <p>Air leaks are found.</p>



Schematic diagram of brake system (Model M127)



Schematic diagram of brake system (All models except M127)

Table 2-1. Operator/Crew Preventive Maintenance Checks and Services - Continued

B-Before D-During A-After W-Weekly M-Monthly

NOTE: Within designated interval, these checks are to be performed in the order listed.

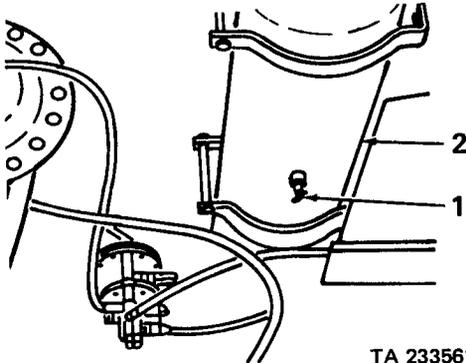
Item No.	Interval					Item to be Inspected Procedure: Check for and have repaired, filled, or adjusted as needed	For Readiness Reporting Equipment is Not Ready/ Available If:
	B	D	A	W	M		
5			●	●		<p>AIR RESERVOIR</p> <div style="border: 1px solid black; padding: 2px; text-align: center; margin: 10px 0;">WARNING</div> <p>Wear protective goggles when opening air reservoir drain cock and avoid contact with high velocity exhaust air.</p> <p>a. Open drain cock (1) on air reservoir (2) to drain condensation. Close drain cock.</p> <p>b. Inspect air reservoir (2) for damage.</p> <div style="text-align: center; margin: 20px 0;">  <p>TA 233562</p> </div>	
6		●			●	<p>LIGHTS AND REFLECTORS</p> <p style="text-align: center;">NOTE</p> <p>An assistant is required while checking the brake lights.</p> <p>a. If tactical situation permits, connect the inter-vehicular cable to the towing vehicle. Operate the vehicle light switch through all settings and check the lights.</p> <p>b. Check for damage and presence of reflectors.</p>	

Table 2-1. Operator/Crew Preventive Maintenance Checks and Services - Continued

B-Before

D-During

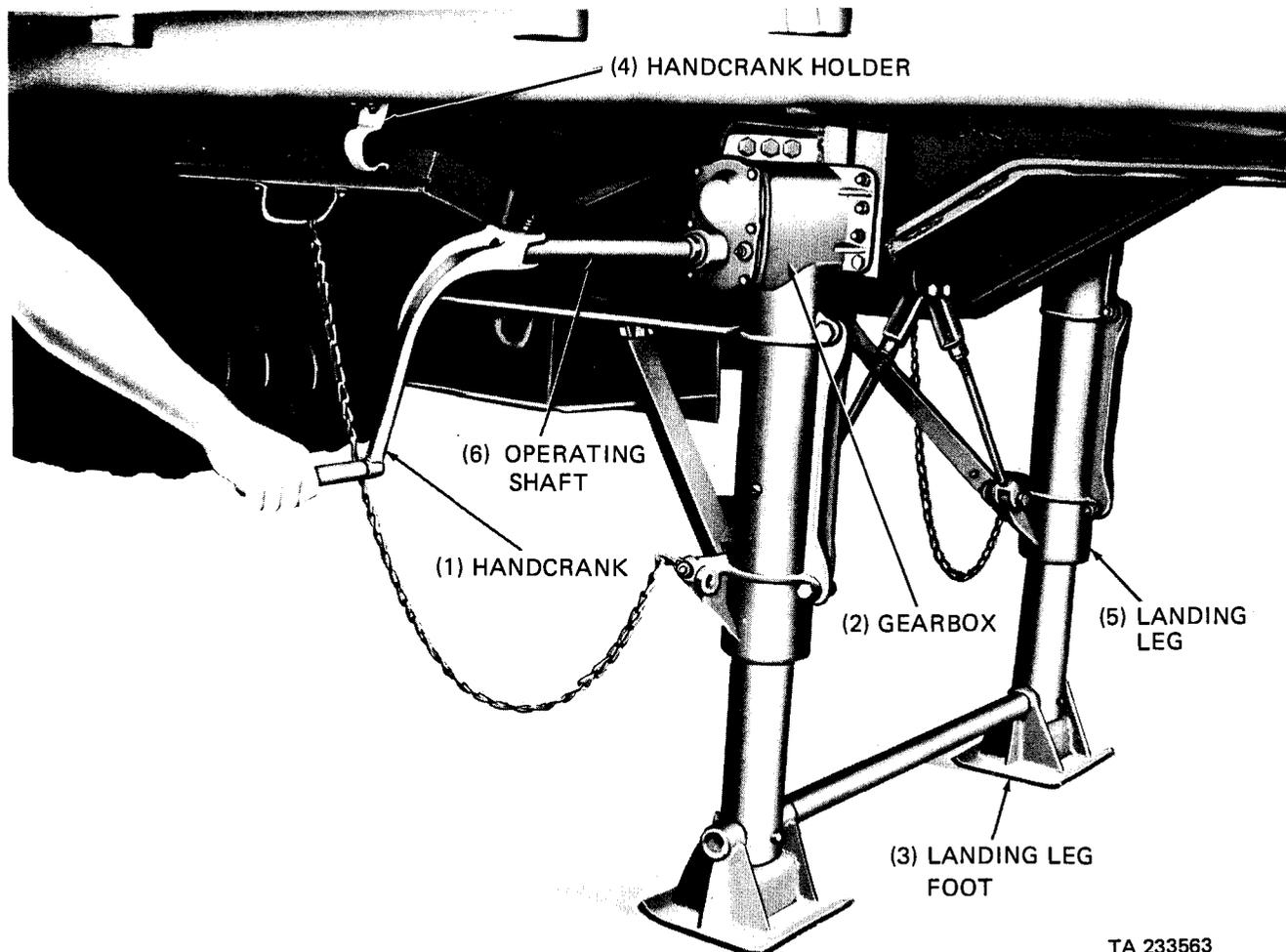
A-After

W-Weekly

M-Monthly

NOTE: Within designated interval, these checks are to be performed in the order listed.

Item No.	Interval					Item to be Inspected Procedure: Check for and have repaired, filled, or adjusted as needed	For Readiness Reporting Equipment is Not Ready/ Available If:
	B	D	A	W	M		
7	●	●				<p>LANDING LEG</p> <p>a. Inspect handcrank (1), gearbox (2) and landing leg foot (3) for secure mounting. Check that handcrank holder (4) stows handcrank (1) securely.</p> <p>b. When cranking landing leg (5), check that each leg moves smoothly and does not bind. Pull out handcrank and check for high speed operation. Push in for low speed operation.</p>	



TA 233563

Table 2-1. Operator/Crew Preventive Maintenance Checks and Services - Continued

B-Before

D-During

A-After

W-Weekly

M-Monthly

NOTE: Within designated interval, these checks are to be performed in the order listed.

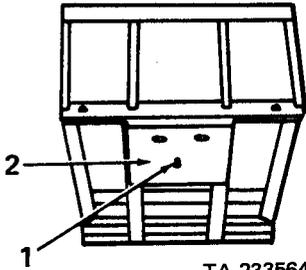
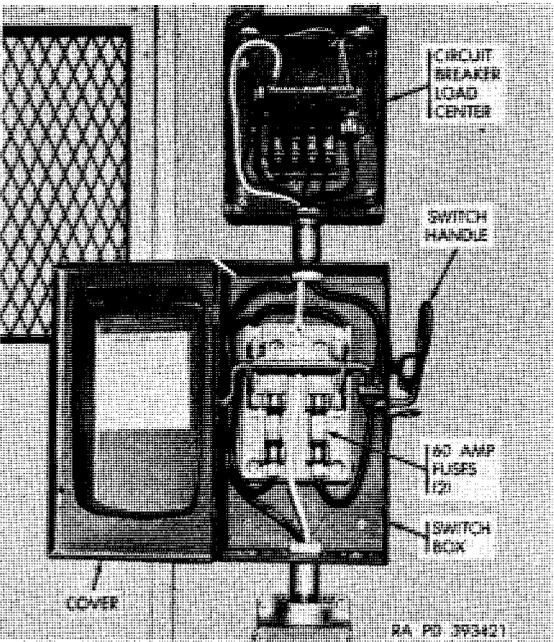
Item No.	Interval					Item to be Inspected Procedure: Check for and have repaired, filled, or adjusted as needed	For Readiness Reporting Equipment is Not Ready/ Available If:
	B	D	A	W	M		
8	●					<p>KINGPIN</p> <p>a. Inspect kingpin (1) for cracks and bends.</p> <p>b. Inspect upper fifth wheel plate (2) for cracks and dents.</p>  <p style="text-align: center;">TA 233564</p>	
9			●			<p>SUSPENSION</p> <p>a. Inspect springs for abnormal sag, broken or shifted leaves, loose or missing leaf clips or U-bolt.</p> <p>b. Inspect torque rods and axles for obvious damage.</p>	
10	●					<p>USES AND CIRCUIT BREAKERS (M129 SERIES ONLY)</p> <p>Check for blown fuses and tripped circuit breakers in 110-volt switch box and circuit breaker load center.</p> 	

Table 2-1. Operator/Crew Preventive Maintenance Checks and Services - Continued
 B-Before D-During A-After W-Weekly M-Monthly
 NOTE: Within designated interval, these checks are to be performed in the order listed.

Item No.	Interval					Item to be Inspected Procedure: Check for and have repaired, filled, or adjusted as needed	For Readiness Reporting Equipment is Not Ready/ Available If:
	B	D	A	W	M		
11						ELECTRICAL WIRING Visually inspect electrical wiring, cables, and receptacles that may have been damaged during operation.	
12	●					BODY (M128 AND M129 SERIES) a. Visually inspect windows for broken glass (M129 series only). b. Check doors and panels for proper operation and security. c. Visually inspect body to see nothing will drag on the ground. d. Check for any tampering or damage that may have occurred since last operation.	
13	●					ACCESSORIES Visually inspect assemblies such as spare tire carrier, tool box, rear step, stepladder and chock blocks for looseness of mountings or connections.	
14		●				OPERATION a. Be alert for any unusual noises when towing semitrailer. Stop and investigate any unusual noises. b. Ensure that semitrailer is tracking correctly with no side pull.	

Section III. OPERATION UNDER USUAL CONDITIONS

	Page		Page
Preparation for Use	2-33	Preparing M129 Series Van Semitrailer for	
Operating Towing Vehicle and Semitrailer	2-36	Stationary Use	2-38
Uncoupling Semitrailer from Towing Vehicle	2-37	Operating Spare Tire Carrier	2-39
		Service and Data Plates	2-40

2-32. OVERVIEW

This section contains the following:

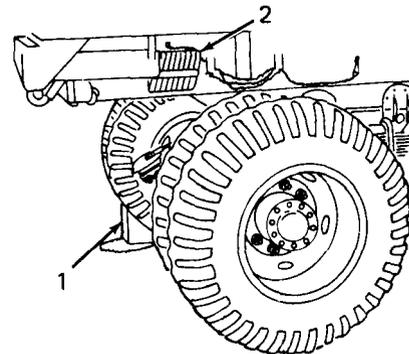
- . Preparing the semitrailer for use
- . Coupling semitrailer to towing vehicle
- . Operating towing vehicle and semitrailer
- . Uncoupling semitrailer from towing vehicle
- . Preparing M129 series van semitrailer for stationary use
- . Operating spare tire carrier
- . Service and data plates

2-33. PREPARATION FOR USE

Perform the preventive maintenance checks and services (B-Before Operation Column) listed in Table 2-1 before doing the following procedures. These checks and services will determine that the semitrailer is ready for operation.

a. Positioning the Chock Blocks.

- (1) Remove the chock block (1) from the stowage bracket (2).
- (2) Depending upon the terrain, place chock blocks (1) firmly behind or forward of wheels on each side of semitrailer.



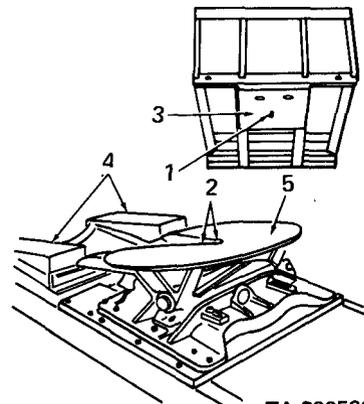
TA 233565

b. Coupling the Semitrailer to Towing Vehicle.



Be sure all personnel stand clear of the tractor and semitrailer during coupling operations.

- (1) Aline the towing vehicle with the semitrailer.
- (2) Slowly back the towing vehicle into position. Be sure the kingpin (1) is in line with the fifth wheel coupler jaws (2).
- (3) Just before the kingpin plate of the semitrailer starts to ride upon the fifth wheel (5) of the towing vehicle, stop the towing vehicle!



TA 233566

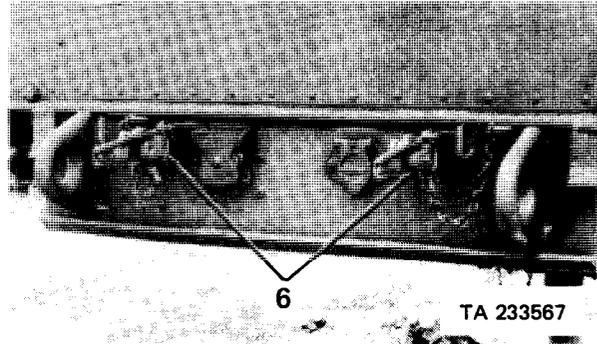
2-33. PREPARATION FOR USE (Cont)

c. Connect Intervehicular Hoses.

CAUTION

This operation is performed at this time to lock the brakes and prevent movement of the semitrailer which might damage the landing legs.

- (1) Connect the two air hoses tagged SERVICE and EMERGENCY on the towing vehicle, to the corresponding air hose couplings (6) on the semitrailer.
- (2) Open the air lines shutoff valves on the towing vehicle.
- (3) If no air leakage is detected, apply the brakes on the semitrailer from the towing vehicle.

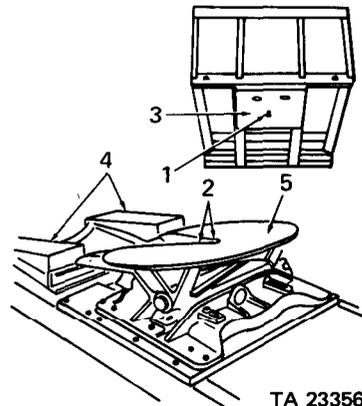


d. Completing Coupling Semitrailer to Towing Vehicle.

- (1) Before the kingpin plate (3) starts to ride the approach ramps (4), check that the kingpin plate (3) is above the approach ramps (4). Adjust the height as needed by using the landing gear. Make sure the towing vehicle fifth wheel coupler jaws (2) are open.
- (2) Slowly back the towing vehicle until the coupler jaws (2) engage the kingpin (1).

CAUTION

Visually check the coupling. You should not be able to see daylight between the fifth wheel and the kingpin plate.



- (3) Make sure the coupling is secure by inching the truck tractor forward. If the coupling is not locked, rock the truck tractor back and forth slowly until the kingpin (1) is locked in the fifth wheel (5).
- (4) Connect intervehicular cables. Check lights. Connect each intervehicular cable by opening the cover on the plug of the intervehicular cable. Lift the spring loaded cover of the 12-volt or 24-volt receptacle, whichever is applicable on the front of the semitrailer. Aline slot on plug with alining key of receptacle. Release cover. Operate lights from the towing vehicle to make certain all are in working order.

NOTE

The intervehicular cable must be connected to the proper receptacle. The 12-volt receptacle is located on the left side and the 24-volt receptacle is located on the right side of the semitrailer front cross-member.

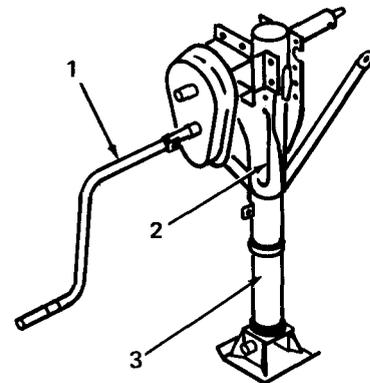


If the coupling operation is not completed and another attempt is to be made, pull the towing vehicle forward carefully, but do not exceed the limits of the air hoses and electrical cables.

- (5) Check the air lines and electrical cables to be sure that they are supported and will not catch or chafe.
- (6) Recheck the fifth wheel/kingpin locking by trying to move the truck tractor and semitrailer forward.

e. Raising the Landing Gear.

- (1) Unhook the crank (1) from the stow bracket (2).
- (2) Raise the crank (1).
- (3) Turn the crank (1) counterclockwise until the legs (3) have been retracted.
- (4) Lower the crank (1) and secure with the stow bracket (2).
- (5) Remove and stow chock blocks and chains. Loop chains around stowage bracket.



TA 233569

2-34. OPERATING TOWING VEHICLE AND SEMITRAILER

a. Driving. When driving the truck tractor and semitrailer, the overall length of the unit must be kept in mind when passing other vehicles and when turning. Because the unit is hinged in the middle, turning and backing are also affected. The semitrailer's payload will affect stopping and off road maneuverability.

b. Turning. When turning corner, allow for the fact that the semitrailer wheels turn inside the turning radius of the truck tractor. To make a right turn at a road intersection, drive the towing vehicle about half-way into the intersection and then cut sharply to the right. This will allow for the shorter turning radius of the semitrailer and will keep it off the curb.

c. Stopping. In normal operation, the brakes of the truck tractor and the semitrailer are applied at the same time when the driver steps on the brake pedal. Brake pressure must be applied gradually and smoothly. The semitrailer brakes may be applied separately by using the brake control lever on the truck tractor steering column. On steep down grades or slippery surfaces, the semitrailer brakes must be applied before the truck tractor brakes. This will reduce the possibility of jack-knifing the semitrailer.

d. Parking. When the truck tractor and the semitrailer are to be parked and left unattended, set the parking brake on the truck tractor and apply the brakes on the semitrailer. Turn off the truck tractor engine before leaving the cab. Block the semitrailer wheels with chock blocks.

e. Backing. Whenever possible, the assistant driver or another person will act as a ground guide to assist and direct the driver. Adjust all rear view mirrors before backing. When backing, the rear of the semitrailer will always move in the opposite direction of that in which the front wheels are turned. When the wheels of the truck tractor are turned to the right, the rear of the semitrailer will go to the left. When the semitrailer has turned and backing in a straight line is required, turn the truck tractor wheels in the direction the semitrailer is moving. This will slowly bring the truck tractor and the semitrailer into a straight line.

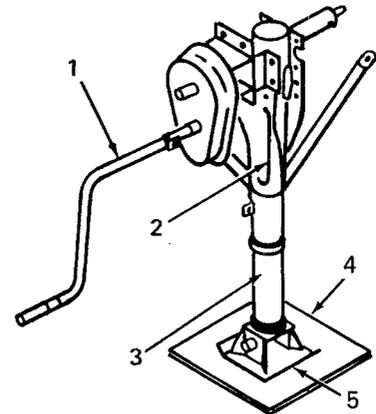
2-35. UNCOUPLING SEMITRAILER FROM TOWING VEHICLE

a. Lowering the Landing Gear.

- (1) Unhook the crank (1) from the stow bracket (2).
- (2) Raise the crank (1).
- (3) Turn the crank (1) clockwise until the legs (3) are extended.

NOTE

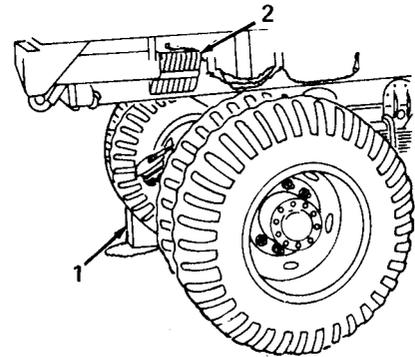
To prevent the semitrailer from sinking on soft ground, place float pads (board assembly) (4) under the landing gear shoes (5).



TA 233570

b. Positioning the Chock Blocks.

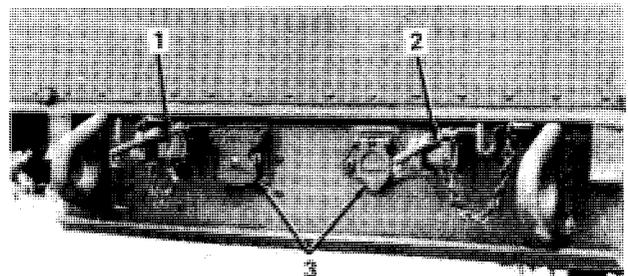
- (1) Remove the chock block (1) from the stowage rack (2).
- (2) Depending upon terrain, place chock blocks (1) firmly behind or forward of wheels on each side of semitrailer.



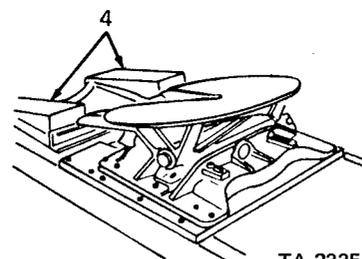
TA 233571

c. Unhooking the Semitrailer From the Towing Vehicle.

- (1) Close the shutoff valves for the service and emergency air supply located on the towing vehicle.
- (2) Disconnect both the service air hose and the emergency air hose from the air hose coupling (1 and 2).
- (3) Disconnect the electrical cable by pulling straight out from either connector (3).
- (4) Be sure the covers on the electrical connectors are closed.
- (5) Release the semitrailer kingpin from the towing vehicle fifth wheel. Refer to Operator's Manual for prime mover.
- (6) Slowly drive the towing vehicle forward until the semitrailer is clear of the approach ramps (4).

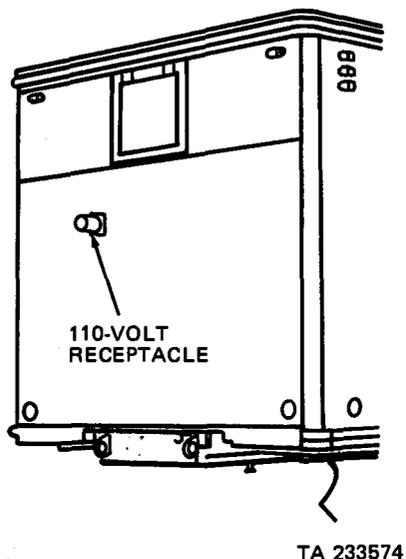


TA 233572



TA 233573

2-36. PREPARING M129 SERIES VAN SEMI TRAILER FOR STATIONARY USE



a. Connecting 110-Volt AC External Power Source.

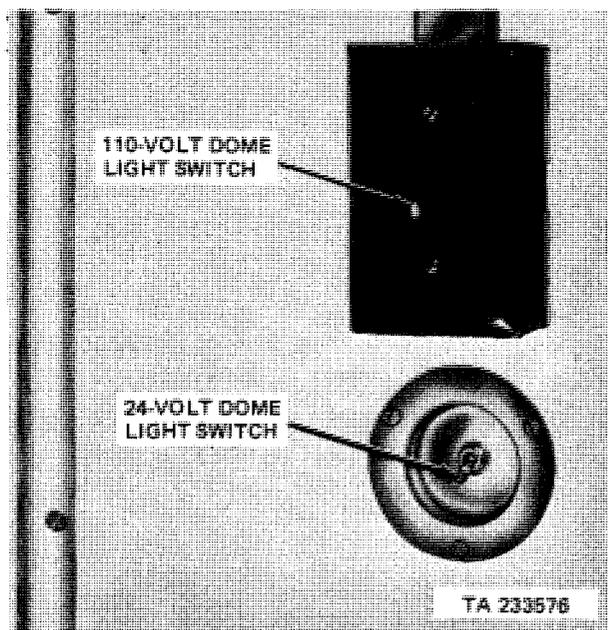
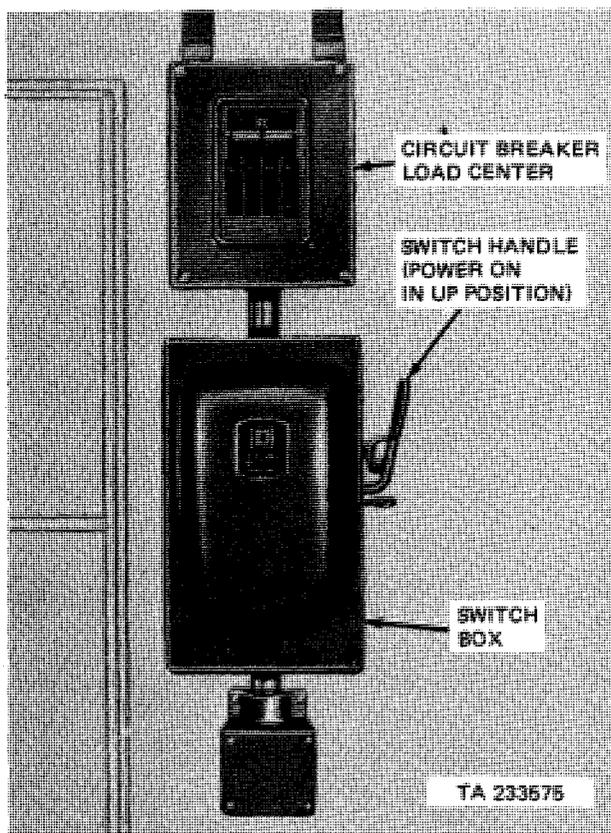
- (1) Unscrew dust cover from the 110-volt ac external receptacle.
- (2) Connect an external 110-volt power supply to the receptacle.

b. Turning Dome Lights On.

- (1) Move switch handle up on the 110-volt switch box for ON.
- (2) Check the ON-OFF position of the circuit breakers. An overload may have tripped the circuit breakers causing them to be in the OFF position. The circuit breakers may be placed in an operating condition by returning their switch arms to the ON position.
- (3) Place the 110-volt dome light switch on the rear wall in the ON position.

NOTE

The 24-volt dome light switch can be used when the semitrailer is coupled to a towing vehicle with a 24-volt system.



2-37. OPERATING SPARE TIRE CARRIER

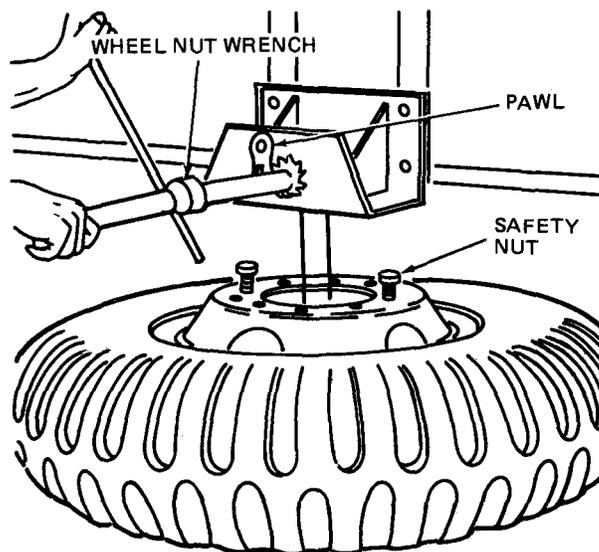
a. Removing Spare Tire.

- (1) With wheel nut wrench, loosen two safety nuts which secure the studs of the pickup member in the main member.
- (2) Rotate the tire slightly to free the studs from the slots.



Maintain a firm grip on wrench in lowering tire to prevent injury.

- (3) Fit the wheel nut wrench on the operating shaft, lift the pawl, and permit the tire to lower itself on its cable to the ground.
- (4) Remove the safety nuts and release pickup member from the hub opening in the wheel.



TA 233577

b. Installing Tire.

- (1) Insert the pickup member in the hub opening and fit the securing studs in two stud holes in the wheel.
- (2) Screw the safety nuts loosely on the studs.



Place the pawl on ratchet when lifting spare tire to prevent injury.

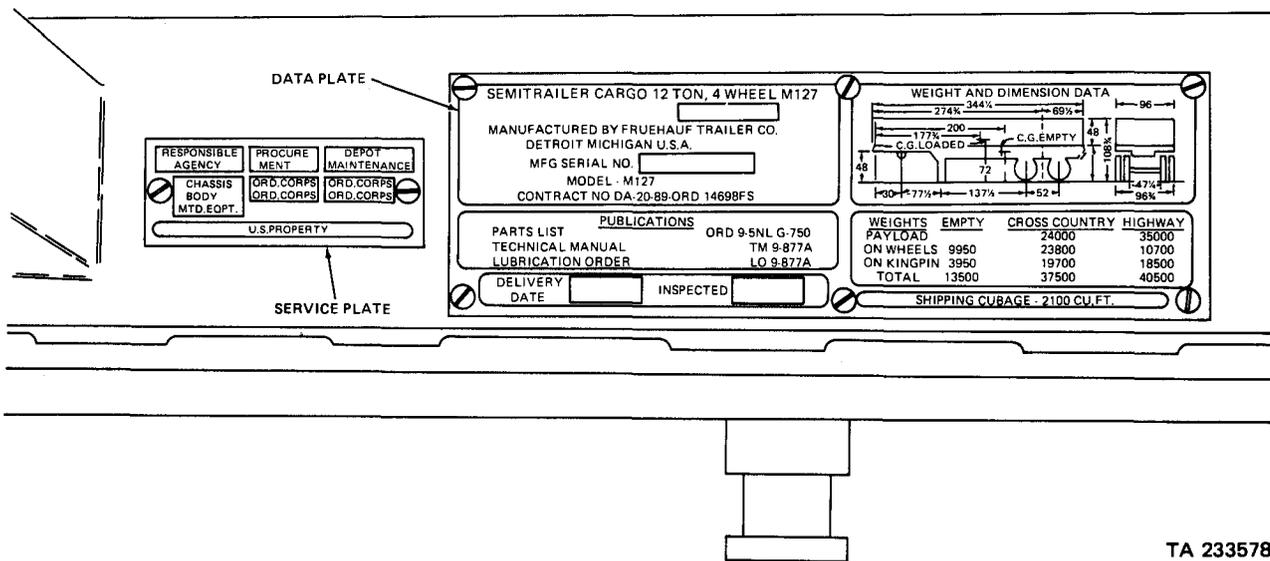
- (3) With the wheel nut wrench, rotate the operating shaft clockwise to lift the wheel and pickup member until the studs and nuts pass through the holes in the main member.
- (4) Rotate the studs in the slots and anchor in place by tightening the safety nuts.

2-38. SERVICE AND DATA PLATES

a. Service Plate. The service plate is located on the chassis longitudinal frame rail, just to the rear of the data plate. It designates the responsible agency for procurement and depot maintenance.

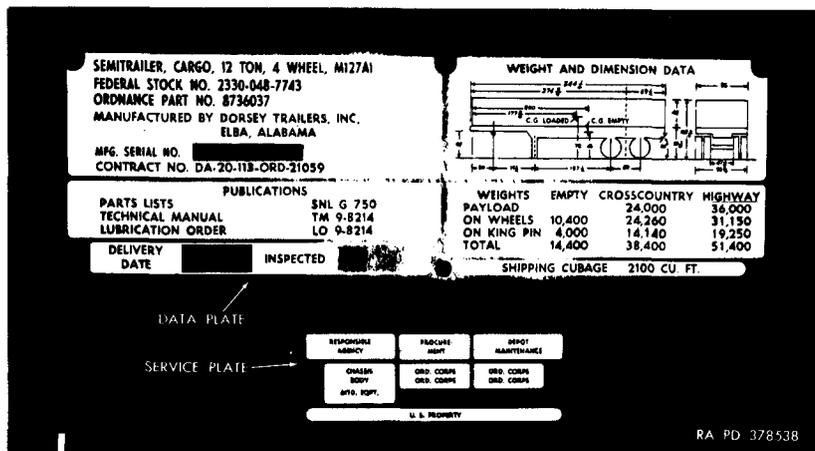
b. Data Plate. The data plate is located on the right side of the front end of the chassis longitudinal frame rail. The data plate furnishes the ordnance stock number, manufacturer's name and serial number, weight and dimension data, shipping cubage, publications pertaining to the vehicle, delivery date, and inspector's initials.

c. The following are illustrations of typical service and data plates for various models.



TA 233578

Service and data plates - M127



RA PD 378538

Service and data plates - M127A1

SEMITRAILER, VAN: CARGO, 12 TON, 4 WHEEL, M128A1
FEDERAL STOCK NO. G2330-679-5581

MANUFACTURED BY DORSEY TRAILERS, INC.
 ELBA, ALABAMA

MFG. SERIAL NO. [REDACTED]
 CONTRACT NO. DA-20-113-ORD-25192

PUBLICATIONS
 PARTS LISTS TM9-2330-207-24P
 TECHNICAL MANUAL TM2330-207-14

DELIVERY DATE [REDACTED] INSPECTED [REDACTED]

WEIGHT AND DIMENSION DATA

WEIGHTS	EMPTY	CROSS COUNTRY	HIGHWAY
PAYLOAD		24,000	36,000
ON WHEELS	10,890	24,857	31,840
ON KING PIN	4,560	14,593	19,610
TOTAL	15,450	39,450	51,450

SHIPPING CUBAGE 2683 CU. FT.

DATA PLATE

RESPONSIBLE AGENCY	PROCUREMENT	DEPOT MAINTENANCE
CHASSIS BODY	ORD CORPS	000000
MTD. EQPT.	000 000	000 000
U.S. PROPERTY		

SERVICE PLATE

RA PD 393418

Service and data plates – M128 series (Typical)

SEMITRAILER, VAN: SUPPLY, 12 TON, 4 WHEEL, M129A1
FEDERAL STOCK NO. G2330-629-1673

MANUFACTURED BY DORSEY TRAILERS, INC.
 ELBA, ALABAMA

MFG. SERIAL NO. [REDACTED]
 CONTRACT NO. DA-20-113-ORD-25192

PUBLICATIONS
 PARTS LISTS TM9-2330-207-24P
 TECHNICAL MANUAL TM2330-207-14

DELIVERY DATE [REDACTED] INSPECTED [REDACTED]

WEIGHT AND DIMENSION DATA

WEIGHTS	EMPTY	CROSS COUNTRY	HIGHWAY
PAYLOAD		24,000	36,000
ON WHEELS	11,230	25,197	32,180
ON KING PIN	4,760	14,793	19,810
TOTAL	15,990	38,990	51,990

SHIPPING CUBAGE 2683 CU. FT.

DATA PLATE

RESPONSIBLE AGENCY	PROCUREMENT	DEPOT MAINTENANCE
CHASSIS BODY	ORD CORPS	000000
MTD. EQPT.	000 000	000 000
U.S. PROPERTY		

SERVICE PLATE

RA PD 393419

Service and data plates – M129 series (Typical)

Section IV. OPERATION UNDER UNUSUAL CONDITIONS

	Page		Page
Overview	2-42	Operation in Salt Water Areas	2-43
Operation in Extreme Cold	2-42	Operation in Snow	2-43
Operation in Extreme Heat	2-42	Operation in Mud	2-43
Operation in Rainy or Humid Conditions	2-43	Operation in Dusty or Sandy Areas	2-43
		Fording Operations	2-43

2-39. OVERVIEW

This section contains information on the following:

- . Operation in Extreme Cold
- . Operation in Extreme Heat
- . Operation in Rainy or Humid Conditions
- . Operation in Salt Water Areas
- . Operation in Snow
- . Operation in Mud
- . Operation in Dusty or Sandy Areas
- . Fording Operations

2-40. OPERATION IN EXTREME COLD

a. Operation.

- (1) Be careful when placing the semitrailer in motion after a shutdown. Congealed lubricants can cause part failure.
- (2) Tires may be frozen to the ground or with a flat spot if they were under-inflated.
- (3) Brakeshoes maybe frozen to the brake drums and will require preheating by using a torch to avoid damage.
- (4) Refer to FM 9-207 and FM 21-305 for special instructions on driving hazards in snow and ice that may be encountered during extremely cold weather conditions.

b. At-Halt Parking.

- (1) For short shutdown periods, park in a sheltered spot out of the wind.
- (2) For long shutdown periods, if high dry ground is not available, prepare a footing of planks or brush.
- (3) Remove all built-up ice and snow as soon as possible after shutdown.
- (4) Cover and shield the semitrailer with canvas covers but keep the ends of the covers off the ground to prevent them from freezing to the ground.

2-41. OPERATION IN EXTREME HEAT

a. Do not park the semitrailer in the sun for long periods of time as heat and sunlight will shorten the life of the tires.

b. Cover the semitrailer with canvas to protect it from heat, sun and dust.

2-42. OPERATION IN RAINY OR HUMID CONDITIONS

- a. Frequently inspect, clean, and lubricate inactive equipment to prevent rust and fungus accumulation.
- b. Canvas covers should be checked periodically for deterioration and damage. Refer to FM 10-16.

2-43. OPERATION IN SALT WATER AREAS

Salt water will cause metal parts to rust and corrode. Clean, inspect, and lubricate frequently.

2-44. OPERATION IN SNOW

Refer to FM 21-305 for special instructions on operations in snow.

2-45. OPERATION IN MUD



Under no circumstances will the semitrailer be towed, pulled, or pushed by the rear bumper.

- a. If one or more wheels sink into the mud, it may be required to jack up the mired wheel and insert planking or matting beneath it.
- b. Clean off all mud as soon after operation as possible.

2-46. OPERATION IN DUSTY OR SANDY AREAS



Under no circumstances will the semitrailer be towed, pulled, or pushed by the rear bumper.

Frequently clean, inspect and lubricate the semitrailer.

2-47. FORDING OPERATIONS

a. Normal Fording.

- (1) Wheel bearings should be cleaned and repacked with lubricant as specified on the lubrication chart after each submersion.
- (2) Cables and terminals must be protected by spraying with ignition insulation compound.

b. Deep Water Fording. Do not drive the semitrailer through more than 30 inches of water.

CHAPTER 3

OPERATOR MAINTENANCE INSTRUCTIONS

Section I. OPERATOR TROUBLESHOOTING PROCEDURES

Overview	Page		Page
Symptom Index	3-1	Troubleshooting Table	3-2
	3-1		

3-1. OVERVIEW

a. The table in this section lists the common malfunctions which you may find during the operation or maintenance of the semitrailer or its components. You should perform the tests or inspections and corrective maintenance in the order listed.

b. This manual cannot list all malfunctions that may occur, nor all tests or inspections and corrective actions. If a malfunction is not listed or it is not corrected by the listed corrective actions, notify your supervisor.

3-2. SYMPTOM INDEX

	Page No.
ELECTRICAL SYSTEM:	
All lamps do not light	3-2
One or more (but not all) lights will not light	3-2
Dim or flickering lights	3-2
BRAKES:	
Brakes will not release	3-3
Grabbing brakes	3-3
LANDING GEAR:	
Difficulty in lowering landing gear	3-4
Difficulty in raising landing gear	3-4
TIRES:	
Excessively worn, scuffed, or cupped tires	3-4

3-3. TROUBLESHOOTING TABLE

Table 3-1. Operator Troubleshooting Table

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
ELECTRICAL SYSTEM		
1. ALL LAMPS DO NOT LIGHT.	Step 1. Check lights on truck tractor including turn signals and stop lights. If truck tractor lights do not light, notify organizational maintenance. If truck tractor lights come on, proceed to step 2.	Step 2. Check electrical connection at intervehicular cable receptacle. If cables are not properly connected, reconnect electrical cables. If cables are properly connected, proceed to step 3.
	Step 3. Check connectors for dirty or corroded pins. Check for damaged pins. If pins are dirty or corroded, clean the pins (see para. 3-5). If pins are damaged, notify organizational maintenance. If the above steps do not correct the malfunction, notify organizational maintenance.	
2. ONE OR MORE (BUT NOT ALL) LAMPS WILL NOT LIGHT.	Step 1. Check for burned out or defective bulbs. If bulbs are burned out or defective, notify organizational maintenance. If bulbs are not burned out or defective, proceed to step 2.	Step 2. Check for broken lead wires or loose connections. If connections are loose, tighten connections. If lead wires are broken, notify organizational maintenance. If connections are not loose or broken, proceed to step 3.
	Step 3. Check lens and light assembly for damage. If lens or light assembly is damaged, notify organizational maintenance. If lens and light assembly are not damaged, proceed to step 4.	Step 4. Check for dirty or corroded bulb socket. If socket is dirty, clean socket (para. 3-5). If the above steps do not correct the malfunction, notify organizational maintenance.
3. DIM OR FLICKERING LIGHTS,	Step 1. Check electrical connections for loose, dirty or corroded pins. If connections are loose, tighten connections. If connector pins are dirty or corroded, clean pins (para. 3-5). If connections are tight and clean, proceed to step 2.	Step 2. Check for defective bulb. If bulb is defective, notify organizational maintenance. If bulb is not defective, and malfunction is not corrected, notify organizational maintenance.

Table 3-1. Operator Troubleshooting Table (Cont)

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
-------------	--------------------	-------------------

BRAKES

1. BRAKES WILL NOT RELEASE.

Step 1. Check that tractor to semitrailer air supply is turned on.

If air is shut off, turn on air supply.
 If air supply is on, proceed to step 2.

Step 2. Check air pressure of truck tractor.

If pressure is low, build up air pressure to normal level.
 If pressure is normal, proceed to step 3.

Step 3. Check connections of air lines to air hose couplings.

If air lines are not properly connected (Emergency to Emergency, Service to Service), connect air lines.
 If air lines are connected properly, proceed to step 4.

Step 4. Check for dirty or leaking air hose couplings.

If coupling is dirty, clean coupling (para. 3-7).
 If coupling is leaking, notify organizational maintenance.
 If coupling is clean and not leaking, proceed to step 5.

Step 5. Inspect brake hoses and connectors for leaks.

If hoses or connectors are leaking, notify organizational maintenance.
 If hoses or connectors are good, proceed to step 6.

Step 6. Check semitrailer air reservoirs for open drain cock.

If drain cock is open, close it.
 If drain cock is closed, notify organizational maintenance.

2. GRABBING BRAKES.

Check for moisture in air reservoir by opening drain cock (para. 3-8).

If moisture is in reservoir, allow to drain.
 If reservoir is dry and malfunction is not corrected, notify organizational maintenance.

Table 3-1. Operator Troubleshooting Table (Cont)

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
LANDING GEAR		
1. LANDING GEAR IS DIFFICULT TO LOWER.		<p>Step 1. Check for misaligned or broken crank handle.</p> <p style="padding-left: 40px;">If handle is misaligned or broken, notify organizational maintenance. If handle is not misaligned or broken, proceed to step 2.</p> <p>Step 2. Check for misaligned, bent, or damaged legs.</p> <p style="padding-left: 40px;">If legs are misaligned, bent, or damaged, notify organizational maintenance.</p>
2. LANDING GEAR IS DIFFICULT TO RAISE.		<p>Step 1. Check for misaligned or broken crank handle.</p> <p style="padding-left: 40px;">If handle is misaligned or broken, notify organizational maintenance. If handle is not misaligned or broken, proceed to step 2.</p> <p>Step 2. Check for dirt on lower landing gear leg.</p> <p style="padding-left: 40px;">If lower landing gear leg is dirty, clean leg (para. 3-6). If lower landing gear leg is clean, proceed to step 3.</p> <p>Step 3. Check for misaligned, damaged, or bent landing gear legs.</p> <p style="padding-left: 40px;">If legs are misaligned, damaged, or bent, notify organizational maintenance.</p>
TIRES		
EXCESSIVELY WORN, SCUFFED, OR CUPPED TIRES.		
		<p>Step 1. Check tire pressure.</p> <p style="padding-left: 40px;">If tire pressure is not 60 psi, inflate tires to 60 psi. If tire pressure is 60 psi, proceed to step 2.</p> <p>Step 2. Check for loose, cracked, or broken wheels.</p> <p style="padding-left: 40px;">If wheels are loose, tighten nuts. If wheel is cracked or broken, notify organizational maintenance. If wheel is secure and not cracked or broken, proceed to step 3.</p> <p>Step 3. Check suspension system for damaged rubber bushings, springs, and loose or missing bolts and nuts.</p> <p style="padding-left: 40px;">If suspension system is damaged or has loose or missing bolts and nuts, notify organizational maintenance. If suspension system is not damaged and all hardware is complete and secure, proceed to step 4.</p> <p>Step 4. Check tracking for indication of axle misalignment.</p> <p style="padding-left: 40px;">If axle appears to be misaligned, notify organizational maintenance. If the above steps do not correct the malfunction, notify organizational maintenance.</p>

Section II. MAINTENANCE PROCEDURES

Overview	Page		Page
Cleaning of Electrical Connectors	3-5	Cleaning of Air Hose Couplings	3-6
Cleaning of Landing Gear Legs	3-5	Servicing of Air Reservoir	3-6
	3-6		

3-4. OVERVIEW

This section contains maintenance procedures to be performed by the operator which consist of the following:

- Cleaning of electrical connectors
- Cleaning of landing gear legs
- Cleaning of air hose couplings
- Servicing of air reservoir

3-5. CLEANING OF ELECTRICAL CONNECTORS



Remove all power from vehicle prior to making any repairs on electrical system.

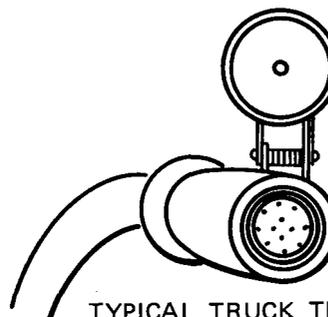
a. Use a soft cloth to remove any buildup of grease, dirt, etc.



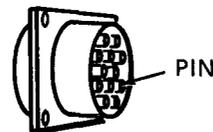
Cleaning solvent (Fed.Spec PD-680) is both toxic and flammable. Avoid prolonged breathing of vapors. Avoid skin contact. Use only in well-ventilated area. Keep away from open flame.

b. Use a small brush and cleaning solvent (PD-680) (item 18, Appendix C) to thoroughly clean the connector.

c. Allow to dry.

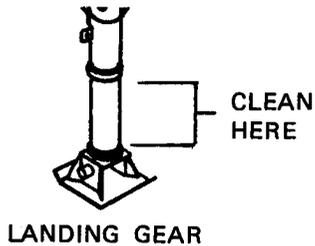


TYPICAL TRUCK TRACTOR CABLE CONNECTOR



TYPICAL WALL CONNECTOR

TA 233579



LANDING GEAR

TA 233580

3-6. CLEANING OF LANDING GEAR LEGS

a. Use a soft cloth to remove any buildup of grease, dirt, etc.

WARNING

Cleaning solvent (Fed.Spec PD-680) is both toxic and flammable. Avoid prolonged breathing of vapors. Avoid skin contact. Use only in a well-ventilated area. Keep away from open flame.

b. Use a small brush and cleaning solvent (PD-680) (item 18, Appendix C) to thoroughly clean the landing gear leg.

c. Allow to dry.

3-7. CLEANING OF AIR HOSE COUPLINGS

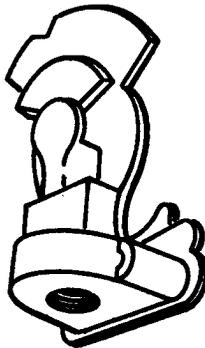
a. Disconnect air hose from couplings. dirt, etc.

WARNING

Cleaning solvent (Fed.Spec PD-680) is both toxic and flammable. Avoid prolonged breathing of vapors. Avoid skin contact. Use only in a well-ventilated area. Keep away from open flame.

b. Use a soft cloth moistened with cleaning solvent (PD-680) (item 18,Appendix C) to thoroughly clean the couplings.

c. Allow to dry.



AIR HOSE COUPLING

TA 233581

3-8. SERVICING OF AIR RESERVOIR

a. Disconnect air hose from couplings.

WARNING

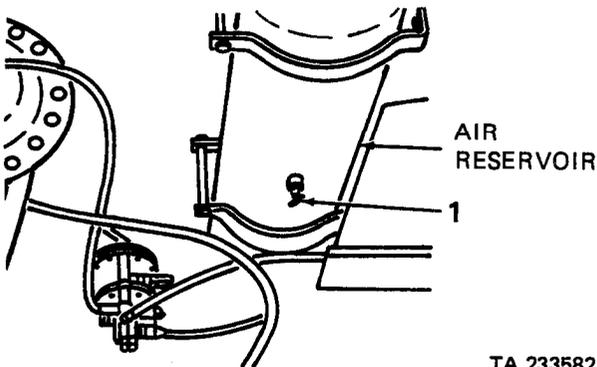
Wear protective goggles when opening drain cock (1) and avoid air blast.

b. Open drain cock (1) and allow air pressure to fully drain.

c. Close drain cock (1).

d. Connect couplings and air hoses.

e. Pressurize brake system and check drain cock (1) for secureness and leaks. Apply soap solution to check for leaks.



TA 233582

CHAPTER 4

ORGANIZATIONAL MAINTENANCE INSTRUCTIONS

Section 1. LUBRICATION INSTRUCTIONS

	Page			Page
Overview	4-1	Lubrication Chart		4-1
Lubrication Instructions	4-1			

4-1. OVERVIEW

This section consists of the following:

- . Lubrication Instructions
- . Lubrication Chart

4-2. LUBRICATION INSTRUCTIONS

NOTE

These instructions are mandatory.

a. General. Keep all lubricants in closed containers and store in a clean dry place away from external heat. Keep container covers clean and allow no dust, dirt, or other foreign material to mix with the lubricants. Keep all lubrication equipment clean and ready for use.

b. Cleaning. Keep all external parts, not requiring lubrication, free of lubricants. Before lubricating the equipment, wipe all lubrication points free of dirt and grease. Clean all lubrication points after servicing to prevent accumulation of foreign matter.

c. Lubrication Points. Service the lubrication points at the proper intervals as specified in the lubrication chart. The intervals specified are based on operation under normal conditions. Modification of the recommended intervals may be required under unusual operating conditions.

4-3. LUBRICATION CHART

a. For lubrication under normal conditions, refer to the lubrication chart on the following page.

b. For instructions on lubrication in weather below 0°F (-18°C), refer to FM 9-207.

c. For lubrication before and after fording, refer to TM 9-238.

d. After operating in mud, dust, sand or other unusual conditions, clean and inspect all lubrication points. Lubricate semitrailer in accordance with the lubrication chart.

LUBRICATION CHART

SEMITRAILER, STAKE, 12-TON, 4-WHEEL, M127, M127A1, M127A1C, M127A2C
SEMITRAILER, VAN, CARGO, 12-TON, 4-WHEEL, M128A1, M128A1C, M128A2C
SEMITRAILER, VAN, SUPPLY, 12-TON, 4-WHEEL, M129A1, M129A1C, M129A2C

Intervals are based on normal operation. Reduce to compensate for abnormal operation and severe conditions or contaminated lubricants. During inactive periods, intervals may be extended commensurate with adequate preservation. Relubricate after washing or fording.

Clean fittings before lubricating. Clean parts with PD-680, SD-2 SOLVENT, dry cleaning. Dry before lubricating. Lubricate dotted arrow points on both sides of the equipment.

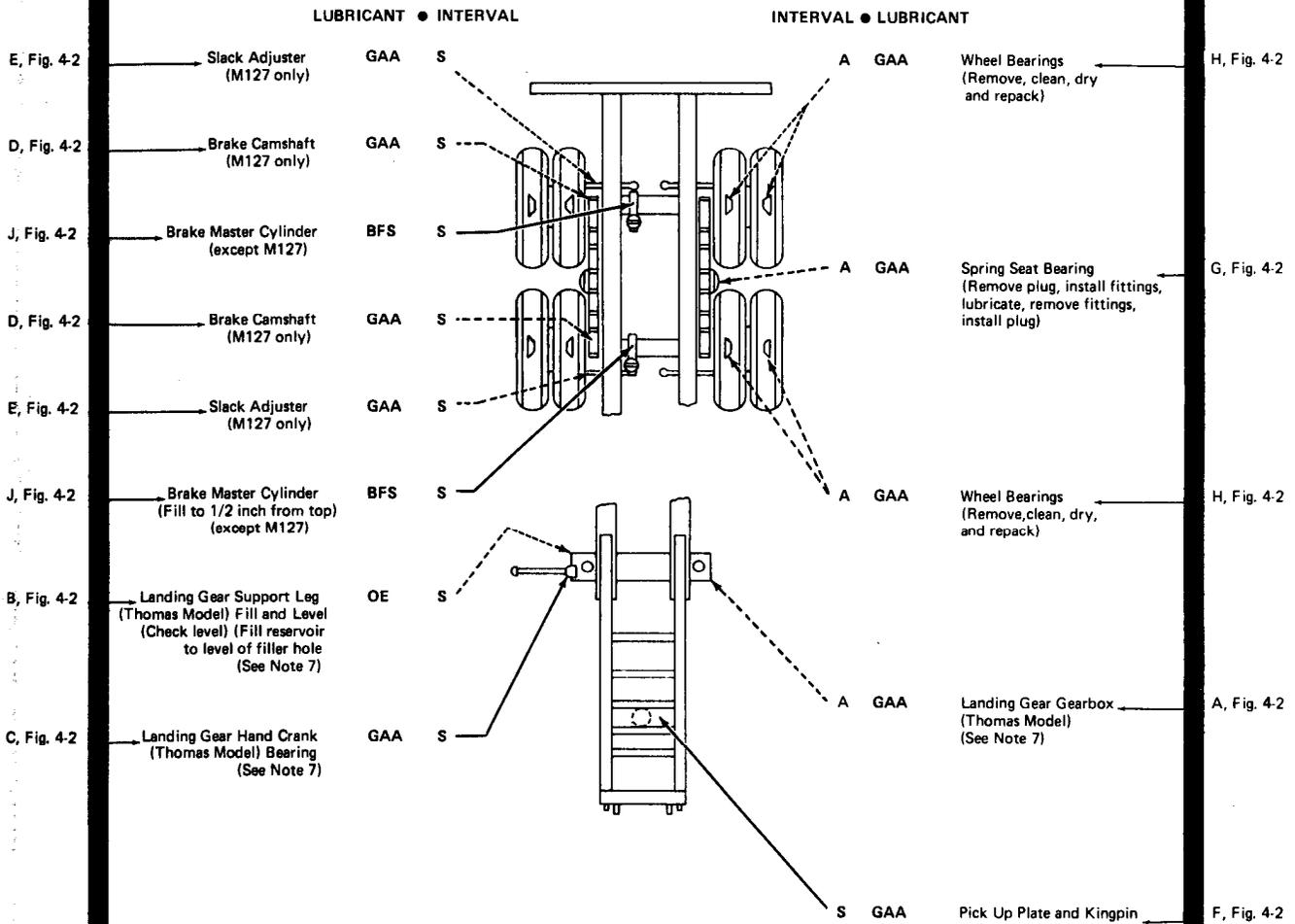


Figure 4-1. Lubrication chart (Sheet 1 of 2)

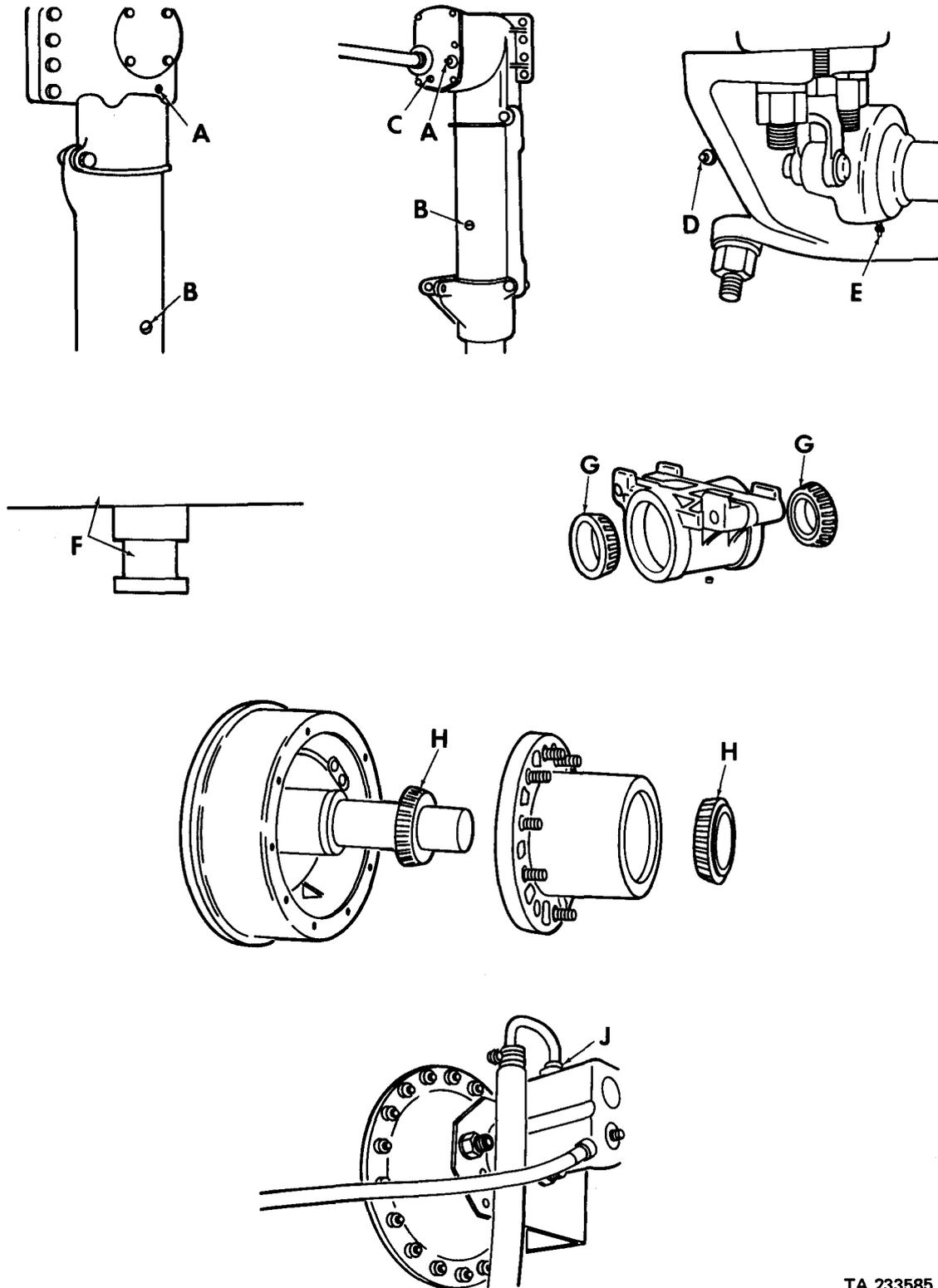
-KEY-

LUBRICANTS	EXPECTED TEMPERATURE			FOR ARTIC OPERATION Refer to FM 9-207	LUBRICANTS	INTERVALS
	above + 32°F.	+40°F. to -10°F.	0°F. to -65°F.			
OE-OIL, LUBR, ENGINE MIL-L-2104	OE 30	OE 10			OEA-OIL, LUBR, ENGINE, SUB-ZERO	S - Semiannually A - Annually (Every 2nd "S" P. M. Service)
OEA-OIL, LUBR, ENGINE -SUB-ZERO			OEA			
GAA-GREASE, LUBR, AUTOMOTIVE & ARTILLERY MIL-G-10924	GAA	GAA	GAA			
BFS-FLUID, SILICONE BRAKE MIL-B-46176	BFS	BFS	BFS			

NOTES:

1. **OIL CAN POINTS**
Quarterly lubricate hinges and latches, landing gear foot and crank assemblies, spare wheel and tire carrier with OE 30.
2. **LUBRICATION INTERVALS**
Intervals marked "S" may be lubricated by the operator if supervised by a qualified mechanic.
3. Use silicone base brake fluid only.
4. **DO NOT LUBRICATE**
Springs
5. **LUBRICATED AT TIME OF DISASSEMBLY BY ORDNANCE PERSONNEL**
Clean retractable support gear housing and leveling support jack gear housing and repack with LUBRICANT GAA.
6. **INTERVALS**
Points requiring lubrication at 12 months will be lubricated at time of the "S" P.M. service.
7. Units with a Westran Model Landing Gear Support Leg, Landing Gear Hand Crank Bearing and Landing Gear Gearbox are sealed and require no internal lubrication. All external moving parts are to be lubricated with OE 30 oil as indicated in Note 1 above.

Figure 4-1. Lubrication chart (Sheet 2 of 2)



TA 233585

Figure 4-2. Localized lubrication points (A thru J)

Section II. REPAIR PARTS, SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

	Page		Page
Overview	4-5	Special Tools, TMDE, and Support Equipment	4-5
Common Tools and Equipment	4-5	Repair Parts	4-6

4-4. OVERVIEW

This section contains information on the following items that are required for use in maintaining the semi-trailer at the organizational level.

- . Common tools and equipment.
- . Special tool, TMDE and support equipment.
- . Repair parts.

4-5. COMMON TOOLS AND EQUIPMENT

For authorized common tools and equipment, refer to the Modified Table of Organization and Equipment (MTOE) applicable to your unit.

4-6. SPECIAL TOOLS, TMDE AND SUPPORT EQUIPMENT

a. Certain tools and equipment especially designed for organizational maintenance, repair and general use with the materiel are listed in Table 4-1 for information only. This list is not to be used for requisitioning replacements.

b. Special tools for organizational maintenance are listed in TM 9-2330-207-24P, which is the authority for requisitioning replacements.

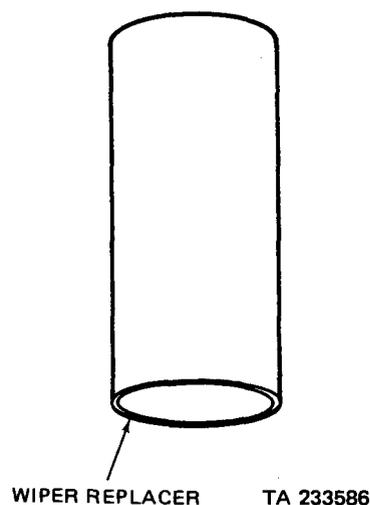


Figure 4-3. Special tool and equipment for organizational maintenance

4-6. SPECIAL TOOLS, TMDE AND SUPPORT EQUIPMENT (Cont)

Table 4-1. Special Tools and Equipment

Item	References		Use
	Fig.	Para.	
REPLACER, wiper, axle oil seal (7950136)	4-3	4-36	Installing oil seal wiper on axle

4-7. REPAIR PARTS

Repair parts are listed and illustrated in TM9-2330-207-24P.

Section III. SERVICE UPON RECEIPT OF MATERIEL

Overview	Page 4-7	Servicing the Equipment	Page 4-7
Unpacking and Checking the Equipment	4-7		

4-8. OVERVIEW

This section contains information on the following:

- Unpacking and checking the equipment
- Servicing the equipment

4-9. UNPACKING AND CHECKING THE EQUIPMENT

a. Remove any metal strapping, plywood, tapes, seals, wrapping paper or any other shipping and protective items.



Cleaning solvent (Fed.Spec PD-680) is both toxic and flammable. Avoid prolonged breathing of vapors. Avoid skin contact. Use only in a well-ventilated area. Keep away from open flame.

b. If any exterior parts are coated with rust preventive compound, remove it with cleaning solvent (PD-680) (item 18, Appendix C).

c. Read and follow all instructions contained in DD Form 1397, which is attached to a conspicuous part of the semitrailer.

d. Inspect the equipment for damage incurred during shipping. If the equipment has been damaged, report the damage on DD Form 6, Packing Improvement Report.

e. Check the equipment against the packing slip to see if the shipment is complete. Report all discrepancies in accordance with the instructions of TM 38-750.

4-10. SERVICING THE EQUIPMENT

a. Perform the preventive maintenance checks and services contained in Tables 2-1 and 4-2.

b. Lubricate all points as shown in the Lubrication Chart (figure 4-1), regardless of interval.

c. Schedule the next preventive maintenance checks and services on DD Form 314, Preventive Maintenance Schedule and Record.

d. Report all deficiencies on DA Form 2407 if the deficiencies appear to involve unsatisfactory design.

e. Perform a break-in road test of 25 miles at a maximum speed of 50 miles per hour.

Section IV. ORGANIZATIONAL PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

	Page		Page
General	4-8	Organizational Preventive Maintenance Checks and Services	4-8

4-11. GENERAL

To ensure that the semitrailer is ready for operation at all times, it must be inspected systematically so that defects may be discovered and corrected before they result in serious damage or failure. Table 4-2 contains a tabulated listing of preventive maintenance checks and services to be performed by organizational maintenance personnel. All deficiencies and shortcomings will be recorded as well as the corrective action taken on DA Form 2404 at the earliest possible opportunity.

4-12. ORGANIZATIONAL PREVENTIVE MAINTENANCE CHECKS AND SERVICES

a. The item numbers of table 4-2 indicate the sequence of the PMCS. Perform at the intervals shown below:

- (1) Do your (S) PREVENTIVE MAINTENANCE once each 6 months.
- (2) Do your (A) PREVENTIVE MAINTENANCE once each year.

b. If something doesn't work, troubleshoot it with the instructions in this manual or notify your supervisor.

c. Always do your preventive maintenance in the same order, so it gets to be a habit. Once you've had some practice, you'll spot anything wrong in a hurry.

d. If anything looks wrong and you can't fix it, write it down on your DA Form 2404. If you find something seriously wrong, report it to direct support as soon as possible.

WARNING

Cleaning solvent (Fed.Spec PD-680) is both toxic and flammable. Avoid prolonged breathing of vapors. Avoid skin contact. Use only in a well-ventilated area. Keep away from open flame.

- (1) Keep it clean: Dirt, grease, oil and debris only get in the way and may cover up a serious problem. Clean as you work and as needed. Use dry cleaning solvent (PD-680) (item 18, Appendix C) to clean metal surfaces. Use soap and water when you clean rubber or plastic material.
- (2) Bolts, nuts and screws: Check that they are not loose, missing, bent or broken. You can't try them all with a tool of course, but look for chipped paint, bare metal, or rust around bolt heads. Tighten any that you find loose.
- (3) Welds: Look for loose or chipped paint, rust, or gaps where parts are welded together. If you find a bad weld, report it to direct support.
- (4) Electric wires and connectors. Look for cracked or broken insulation, bare wires, and loose or broken connectors. Tighten loose connections and make sure the wires are in good condition.
- (5) Hoses and fluid lines. Look for wear, damage and leaks. Make sure clamps and fittings are tight. Wet spots show leaks of course, but a stain around a fitting or connector can mean a leak. If a leak comes from a loose fitting or connector, tighten it. If something is broken or worn out, either correct it or report it to direct support (refer to MAC, Appendix B).

e. It is necessary for you to know how fluid leaks affect the status of your equipment. The following are definitions of the types/classes of leakage you need to know to be able to determine the status of your equipment. Learn and be familiar with them and REMEMBER - When in doubt, notify your supervisor!

Leakage Definitions for Organizational PMCS

- CLASS I Seepage of fluid (as indicated by wetness or discoloration) not great enough to form drops.
- CLASS II Leakage of fluid great enough to form drops but not enough to cause drops to drip from the item being checked/inspected.
- CLASS III Leakage of fluid great enough to form drops that fall from the item being checked/inspected.



Equipment operation is allowable with minor leakages (Class I or Class II). Of course, consideration must be given to the fluid capacity in the item/system being checked/inspected. When in doubt, notify your supervisor.

Table 4-2. Organizational Preventive Maintenance Checks and Services

Item No.			Item To Be Inspected Procedure: Check for and have repaired, filled, or adjusted as needed.
	S	A	
			NOTE
			Perform operator/crew PMCS prior to or in conjunction with organizational PMCS if:
			a. There is a delay between the daily operation of the equipment and the organizational PMCS.
			b. Regular operator is not assisting/participating.
1			LIGHTS AND REFLECTORS
	●		a. Check for any broken, cracked lenses, or unserviceable lights and replace if necessary.
	●		b. Replace any cracked or broken reflectors.
2			AIR RESERVOIR AND LINES
	●		Check air reservoir and air lines for damage and tight connections.
3			WHEELS
	●		a. Check for missing lug nuts.
	●		b. Check lug nuts for tightness. Torque to 450 lb-ft.
	●		c. Check wheels for damage. Replace wheels if found to be defective.
		●	d. Check wheel bearings. Clean, repack, install and adjust.
	●		e. Check brakes. Replace damaged or worn parts.

Table 4-2. Organizational Preventive Maintenance Checks and Services - Continued

Item No.			Item To Be Inspected Procedure: Check for and have repaired, filled, or adjusted as needed.
	S	A	
4	●		<p>SPRINGS</p> <p>a. Check springs for any evidence of damage or sagging.</p> <p>b. Check for loose clips for shifted leaves.</p>
5	●		<p>DATA PLATES</p> <p>Assure legibility and condition of data plates. Replace damaged or disfigured plates.</p>
6	●		<p>ROAD TEST</p> <p>a. Perform road test. Give special attention to items that were repaired or adjusted.</p> <p>b. Check brake drums and hubs immediately after road test; cautiously feel brake drums and hubs.</p> <p>c. Be alert during road tests for any unusual noises that may indicate damage or looseness in springs.</p> <p style="text-align: center;">NOTE</p> <p>An overheated wheel hub and brake drum indicates an improperly adjusted or defective brake or dry wheel bearing. An abnormally cool condition indicates an inoperative brake.</p>

Section V. ORGANIZATIONAL TROUBLESHOOTING PROCEDURES

Overview	Page 4-11	Troubleshooting Table	Page 4-12
Symptom Index	4-11		

4-13. OVERVIEW

a. The table in this section lists the common malfunctions which may be found during the operation or maintenance of the semitrailer or components. You should perform the tests or inspections and corrective actions in the order listed.

b. This manual cannot list all malfunctions that may occur, nor all tests or inspections and corrective actions. If a malfunction is not listed, or it is not corrected by the listed corrective actions, notify your supervisor.

4-14. SYMPTOM INDEX

	Page No.
a. <u>Electrical System.</u>	
. 12- or 24-volt lamps do not light	4-12
. One or more lamps on chassis or body will not light	4-12
. All 12- or 24-volt lamps on van bodies do not light and taillights operate normally	4-13
. All 24-volt dome lamps do not light but clearance lamps operate normally	4-13
. 110-volt dome lamps do not light and 110-volts ac not present at wall receptacle	4-13
. All 110-volt dome lamps do not light but 110-volts ac is present at wall receptacle	4-14
. 110-volts ac not present at wall receptacles but 110-volt dome lamps light	4-14
. Dim or flickering lights	4-14
b. <u>Brake System.</u>	
. Brakes will not release	4-14
. No brakes or weak brakes	4-15
. Slow brake application or release	4-16
. Grabbing brakes	4-17
. Brakes drag and one or more brake drums running hot	4-18
c. <u>Landing Leg</u>	
. Difficulty in turning handcrank	4-18
d. <u>Springs, Shock Absorbers, and Wheels.</u>	
. Hard pulling	4-19
. Improper spring action	4-19
. Excessively worn, scuffed, or cupped tires	4-20

4-15. TROUBLESHOOTING TABLE

Table 4-3. Organizational Troubleshooting Table

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
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ELECTRICAL SYSTEM (See schematics as follows:)

Fig. No.

- 2-22 Electrical wiring diagram (M127 and M127A1)
- 2-25 Chassis wiring diagram (M127A1C, M128A1, M128A1C, M129A1, M129A1C)
- 2-27 Chassis wiring diagram (M127A2C, M128A2C, M129A2C)
- 2-28 12-volt body wiring diagram (M128 and M129 Series)
- 2-29 24-volt body wiring diagram (M128 and M129 Series)
- 2-30 110-volt ac body wiring diagram (M129 Series)

1. 12- OR 24-VOLT LAMPS DO NOT LIGHT.

Step 1. Check intervehicular cable receptacles for proper connections.

- Pull plug out and reinsert fully.
- If receptacles not defective, proceed to step 2.

Step 2. Check setting of light switch on towing vehicle.

- Set light switch properly.
- If light switch is set properly, proceed to step 3.

Step 3. Check circuit breaker and wiring on towing vehicle.

- If circuit breaker open, reset circuit breaker.
- If circuit breaker not open, proceed to step 4.

Step 4. Check wiring for bare spots in insulation.

- Repair wiring if defective. Refer to para. 4-26.
- If wiring not defective, proceed to step 5.

Step 5. Check ground connector for loose or broken connections.

- Repair or tighten ground connector (para 4-26c).

2. ONE OR MORE LAMPS ON CHASSIS OR BODY WILL NOT LIGHT.

Step 1. Check for burned out lamp.

- Replace lamp if defective (para. 4-19, 4-20, 4-21).
- If lamp does not light, proceed to step 2.

Step 2. Check for broken or shorted wire in cable or loose connection in plug or receptacle.

- Tighten, repair or replace as necessary (para. 4-26).
- If wiring and connections not damaged, proceed to step 3.

Step 3. Check for damaged light assembly.

- Replace light assembly, if damaged (figs. 4-11 thru 4-20).
- If light assembly not damaged, proceed to step 4.

Table 4-3. Organizational Troubleshooting Table - Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
2. ONE OR MORE LAMPS ON CHASSIS OR BODY WILL NOT LIGHT (cont).		
	Step 4. Check lamp socket for dirt and corrosion.	Remove lamp and clean contacts. If lamp socket is clean, proceed to step 5.
	Step 5. Check plug and/or receptacle for dirty or corroded contacts.	Clean contacts if dirty or corroded. If contacts are not damaged, proceed to step 6.
	Step 6. Check for loose or broken ground wire at light assembly.	Repair or tighten ground wire, if defective.
3. ALL 12- OR 24-VOLT LAMPS ON VAN BODIES DO NOT LIGHT AND TAILLIGHTS OPERATE NORMALLY.		
	Step 1. Check that body cables are properly plugged into chassis receptacle.	
	Step 2. Pull plug out and reinsert it fully.	If plug is secure, proceed to step 3.
	Step 3. Check for broken or loose ground wire at chassis receptacle.	Repair or tighten ground wire. If ground wire not broken or loose, proceed to step 4.
	Step 4. Check wiring for bare spots in insulation.	Repair wiring if defective (para. 4-26).
4. ALL 24-VOLT DOME LAMPS DO NOT LIGHT BUT CLEARANCE LAMPS OPERATE NORMALLY.		
	Check for improperly positioned or defective dome light switch. Properly position or replace dome light switch (para. 4-22), if defective.	
5. 110-VOLT DOME LAMPS DO NOT LIGHT AND 110-VOLTS AC NOT PRESENT AT WALL RECEPTACLE.		
	Step 1. Check for defective external power source.	Replace or repair external power source. If external power source not defective, proceed to step 2.
	Step 2. Check that plug is properly seated in external 110-volt receptacle.	Pull plug out and reinsert it fully. If plug is properly seated, proceed to step 3.
	Step 3. Check fuse box for blown 60 amp fuse (one or both).	Replace fuse(s) (para. 4-18), if defective.

Table 4-3. Organizational Troubleshooting Table - Continued

MALFUNCTION		
TEST OR INSPECTION		
CORRECTIVE ACTION		

ELECTRICAL SYSTEM (Cont)

6. ALL 110-VOLT DOME LAMPS DO NOT LIGHT BUT 110-VOLTS AC IS PRESENT AT WALL RECEPTACLE.

Step 1. Check for improperly positioned or defective dome light switch.
 Properly position or replace dome light switch (para. 4-22b).
 If dome light switch properly positioned, proceed to step 2.

Step 2. Check for tripped dome light circuit breaker.
 Place dome light circuit breaker in ON position.

7. 110-VOLTS AC NOT PRESENT AT WALL RECEPTACLES BUT 110-VOLT DOME LAMPS LIGHT.

Check for tripped wall receptacle circuit breaker.
 Place wall receptacle circuit breaker in ON position.

8. DIM OR FLICKERING LIGHTS.

Step 1. Check for loose, dirty or corroded terminals.
 Clean and tighten terminals.
 If clean and tight, proceed to step 2.

Step 2. Check ground cables for poor or loose ground.
 Clean and tighten terminals on all short ground cables.

BRAKE SYSTEM

1. BRAKES WILL NOT RELEASE.

Step 1. Check for defective emergency relay valve.
 Build up pressure in semitrailer brake system if semitrailer is coupled. Open drain cock on semitrailer air reservoir if semitrailer is uncoupled. Refer to para. 4-39g.
 If emergency relay valve operating, proceed to step 2.

Step 2. Check intervehicular air hose connections to towing vehicle.
 Connect intervehicular air hoses properly.
 If air hoses are connected properly, proceed to step 3.

Step 3. Check position of brake valve on towing vehicle.
 Move brake valve to release position.
 If brake valve is correctly positioned, proceed to step 4.

Step 4. Check for restriction in service air and emergency air lines.
 If air lines or hoses are restricted, replace or repair as required. Refer to para. 4-39d.
 If air lines or hoses are free of restriction, proceed to step 5.

Table 4-3. Organizational Troubleshooting Table - Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
1. BRAKES WILL NOT RELEASE (cont).		
	Step 5. Check for closed shutoff valves on towing vehicle.	Open valves if closed. If valves are open, proceed to step 6.
	Step 6. Check for weak or broken brake shoe tension spring.	Replace spring if defective. See para. 4-40.
2. NO BRAKES OR WEAK BRAKES.		
	Step 1. Check for closed shutoff valves on towing vehicle.	Open valves. If valves are open, proceed to step 2.
	Step 2. Check intervehicular air hoses for proper connection to towing vehicle.	Connect hoses properly. If hoses are properly connected, proceed to step 3.
	Step 3. Check for open drain cock in semitrailer air reservoir.	Close drain cock. If drain cock closed, proceed to step 4.
	Step 4. Check air pressure gage on towing vehicle for low air pressure indication.	Check air lines/connectors for restrictions and/or leakage. Tighten connections; remove any restrictions from hoses and repair or replace as necessary. If air pressure gage indicates normal, proceed to step 5.
	Step 5. Check for defective emergency relay valve (para. 4-39g).	If emergency relay valve is defective, replace (para. 4-47). If emergency relay valve is not defective, proceed to step 6.
	Step 6. Check for air in hydraulic brake system (all models except M127).	Bleed hydraulic brake system (para. 4-39b). If no air in hydraulic brake system, proceed to step 7.
	Step 7. Check for leaks in hydraulic system (all models except M127) (para. 4-39d).	Locate leak and tighten or replace broken flexible line or hydraulic line. If not leaking, proceed to step 8.
	Step 8. Check for grease on brake lining.	Replace brakeshoe (para. 4-40) and oil seal (para. 4-32), if defective. If brake lining shows no grease, proceed to step 9.

Table 4-3. Organizational Troubleshooting Table - Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
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2. NO BRAKES OR WEAK BRAKES (Cont).

Step 9. Check for worn/worn out brake lining.

- If brake lining is worn, adjust brakes (para. 4-39a).
- If brake lining is worn out, replace brake shoes (para. 4-40).
- If brake lining is not worn, proceed to step 10.

Step 10. Check for air leakage in air chamber (para. 4-39f).

- If air chamber is leaking, tighten connections.
- If air chamber is not defective, proceed to step 11.

Step 11. Check for leaking brake wheel cylinder (all models except M127).

- If brake wheel cylinder is leaking, replace (para. 4-40a(4)).
- If brake wheel cylinder not defective, proceed to step 12.

Step 12. Check for defective or ineffective hydraulic master cylinder or air chamber (para. 4-39f).

- Replace defective master cylinder (all models except M127) or air chamber. (para. 4-41 or 4-46).
- If master cylinder or air chamber not defective, proceed to step 13.

Step 13. Visually check for broken or frozen camshaft follower roller (model M127).

- If camshaft follower roller is broken or frozen, notify Direct Support maintenance.

3. SLOW BRAKE APPLICATION OR RELEASE.

Step 1. Check for low air pressure indication on air pressure gage in towing vehicle.

- Check air lines/connectors for restrictions and/or leakage.
- Tighten connections; remove any restrictions from hoses and repair or replace as necessary.
- If air pressure gage indicates normal, proceed to step 2.

Step 2. Check operation of emergency relay valve (para. 4-39g).

- If emergency relay valve is defective, replace valve (para. 4-47).
- If emergency relay valve is not defective, proceed to step 3.

Step 3. Check for weak or broken brake shoe tension spring (para. 4-40).

- If spring is weak or broken, replace spring (para. 4-40).
- If spring is not defective, proceed to step 4.

Step 4. Check for air in hydraulic brake system (all models except M127).

- Bleed hydraulic brake system (para. 4-39b).
- If no air in hydraulic brake system, proceed to step 5.

Step 5. Check for defective air chamber (para. 4-39f).

- If air chamber is defective, replace air chamber (para. 4-41 or 4-46).
- If air chamber is not defective, proceed to step 6.

Table 4-3. Organizational Troubleshooting Table - Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
3. SLOW BRAKE APPLICATION OR RELEASE (cont).		
	Step 6. Check for leaking brake wheel cylinder (all models except M127).	If leaking, replace brake wheel cylinder (para 4-40a(4)). If brake wheel cylinder is not leaking, proceed to step 7.
	Step 7. Check for defective or ineffective hydraulic master cylinder or air chamber (para. 4-39f).	Replace defective master cylinder (all models except MI 27) or air chamber (para. 4-41 or 4-46). If master cylinder or air chamber not defective, proceed to step 8.
	Step 8. Visually check for broken or frozen camshaft follower roller (M 127 only).	If camshaft follower roller is broken or frozen, notify Direct Support maintenance.
4. GRABBING BRAKES.		
	Step 1. Check for moisture in emergency relay valve or reservoir (para. 4-39g).	Remove drain plug for drainage of moisture from emergency relay valve. Open drain cock for drainage of moisture from air reservoir. If no moisture is present, proceed to step 2.
	Step 2. Check brake adjustment (para. 4-39a).	If brakes are out of adjustment, adjust brakes (para. 4-39a). If brakes are not out of adjustment, proceed to step 3,
	Step 3. Check for grease on brake lining.	If grease is present, replace brake shoes (para. 4-40) and oil seals (para. 4-32). If grease is not present, proceed to step 4.
	Step 4. Check for loose or worn wheel bearings (para. 4-32),	If wheel bearings are loose, adjust bearings (para. 4-32). If wheel bearings cannot be adjusted, replace bearings (para. 4-32). If wheel bearings are not loose or worn, proceed to step 5.
	Step 5. Check for cracked, scored, or deformed brake drum (para. 4-32),	If brake drum is cracked or deformed, replace drum (para. 4-32). If brake drum is scored, notify Direct Support maintenance. If brake drum is not defective, proceed to step 6.
	Step 6. Check for loose or worn brake lining.	Replace brake shoes (para. 4-40). If brake lining is not loose or worn, proceed to step 7.
	Step 7. Visually check for broken or frozen camshaft follower roller (M 127 only).	If camshaft follower roller is broken or frozen, notify Direct Support maintenance. If not defective, proceed to step 8.

Table 4-3. Organizational Troubleshooting Table - Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
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4, GRABBING BRAKES (cont).

- Step 8. Check for leaking brake wheel cylinder (all models except M127).
If leaking, replace brake wheel cylinder (para. 4-40a(4)).

5. BRAKES DRAG AND ONE OR MORE BRAKE DRUMS RUNNING HOT.

- Step 1. Check brake adjustment (para. 4-39a).
If brakes are out of adjustment or adjusted too tightly, correctly adjust brakes (para.4-39a).
If brakes are not out of adjustment, proceed to step 2.
- Step 2. Check for weak or broken brake shoe tension spring.
If tension spring is defective, replace spring (para. 4-40).
If tension spring is not defective, proceed to step 3.
- Step 3. Visually check for broken or frozen camshaft follower (M127 only).
If camshaft follower roller is broken or frozen, notify Direct Support maintenance.
If camshaft follower roller is not defective, proceed to step 4.
- Step 4. Check for leaking brake wheel cylinder (all models except M127).
If brake wheel cylinder is leaking, replace (para. 4-40a(4)).
If brake wheel cylinder is not defective, proceed to step 5.
- Step 5. Check for cracked, scored or deformed brake drum.
If brake drum is cracked or deformed, replace brake drum (para. 4-32).
If brake drum is scored, notify Direct Support maintenance.

LANDING LEG

DIFFICULTY IN TURNING HANDCRANK.

- Step 1. Check for lack of lubrication.
Refer to lubrication chart (fig. 4-1). Remove lubricating fittings from gear boxes and legs and insert a wire as an oil gage to determine amount and condition of lubricant in the unit.
If lubrication is correct, proceed to step 2.
- Step 2. Check for bent crank operating shaft (Thomas only) or bent connecting shaft.
Replace shafts if bent (para. 4-61 or 4-62).
If shafts are not defective, proceed to step 3.
- Step 3. Check for bent lower leg.
Replace lower leg if bent (Thomas only (para. 4-59).
Replace landing leg (Westran) (para. 4-62).
If lower leg is not bent, proceed to step 4.

Table 4-3. Organizational Troubleshooting Table - Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
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DIFFICULTY IN TURNING HANDCRANK (cont).

Step 4. Check for worn gears or bearings in landing leg gear box.

If worn or damaged, replace damaged gears and/or bearings (Thomas only) (para. 4-60 or 4-61).

Replace complete gear box (Westran) (para. 4-62).

If landing leg gear box gears and bearings not damaged, proceed to step 5.

Step 5. Check for bent operating screw (Thomas).

If operating screw is bent, replace operating screw (para. 4-59).

SPRINGS, SHOCK ABSORBERS AND WHEELS

1. HARD PULLING.

Step 1. Check for dragging brakes (side pull or hot drum).

If brakes are dragging, adjust brakes (para. 4-39a).

If brakes are not dragging, proceed to step 2.

Step 2. Check wheel bearing adjustment (para. 4-32).

If wheel bearings are out of adjustment, adjust wheel bearings (para. 4-32).

If wheel bearings are not out of adjustment, proceed to step 3.

Step 3. Check for loose trunnion tube bracket bolts.

Aline trunnion tube (para. 4-68) and tighten bolts, if loose.

If trunnion tube bracket bolts are secure, proceed to step 4.

Step 4. Check for loose springs (para. 4-65).

If loose, aline springs and tighten U-bolt nuts (para. 4-65).

If springs are secure, proceed to step 5.

Step 5. Check for broken or disconnected torque rods (para. 4-67).

If torque rods are broken, replace torque rods (para. 4-67).

2. IMPROPER SPRING ACTION.

Step 1. Check for loose U-bolts (para. 4-65).

If U-bolts are loose, tighten U-bolt nuts (para. 4-65).

If u-bolts are secure, proceed to step 2.

Step 2. Visually check for uneven load distribution.

If load distribution uneven, distribute load properly.

If load distribution is even, proceed to step 3.

Table 4-3. Organizational Troubleshooting Table - Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
2. IMPROPER SPRING ACTION (cont).		
Step 3. Check springs for broken leaves, center bolts or clips (para. 4-65).		
If leaves are broken, replace springs (para. 4-65).		
If center bolts, or clips are broken, replace center bolts or clips (para. 4-65).		
3. EXCESSIVELY WORN, SCUFFED, OR CUPPED TIRES.		
Step 1. Check tire pressure.		
If tire pressure is not 60 psi, inflate tires to 60 psi.		
If tire pressure is 60 psi, proceed to step 2.		
Step 2. Check for loose wheels.		
If wheels are loose, tighten wheel rim nuts and cap nuts (para. 4-30).		
If wheels are not loose, proceed to step 3.		
Step 3. Check for loose wheel bearings.		
If wheel bearings are loose, adjust wheel bearings (para. 4-32).		
If wheel bearings are not loose, proceed to step 4.		
Step 4. Check for bent wheel.		
Replace wheel if bent (para. 4-30).		
If wheel is not bent, proceed to step 5.		
Step 5. Check for deformed, cracked or scored brake drum.		
If brake drum is cracked or deformed, replace brake drum (para. 4-32).		
If brake drum is scored, notify Direct Support maintenance.		
If brake drum is not defective, proceed to step 6.		
Step 6. Check for broken or disconnected torque rod.		
Replace torque rod if broken (para. 4-67).		

Section VI. MAINTENANCE OF ELECTRICAL SYSTEM

	Page		Page
Overview	4-21	Dome Light Lamp Replacement	4-24
Contact Adjustments	4-21	Dome Light Switch Replacement	4-26
Fuse Replacement (M129 Series)	4-21	Taillight Assemblies	4-28
Taillight Lamp Replacement	4-22	Clearance Light Assembly	4-36
Clearance Light Lamp Replacement	4-23	Dome Light Assemblies	4-38
		Wiring Harness	4-40

4-16. OVERVIEW

This section contains information on the removal, disassembly, cleaning, inspection, repair, assembly, and installation (where authorized by the MAC, Appendix B) of the following items at the organizational level.

- . Taillights
- . Clearance lights
- . Dome lights
- . Associated circuitry and switches

4-17. CONTACT ADJUSTMENTS

Good connectors are essential for satisfactory operation of lights. If a single lamp does not function properly, determine if contact in receptacles and contacts in plugs are in proper positions. If not, remove all electrical power from semitrailer, then carefully grasp contact with pliers and pull it to the proper position. Do not deform contact of sleeves. Check terminals in connector of cable and individual lamp wire. Check ground cable connection which must make clean contact with frame.

4-18. FUSE REPLACEMENT (M129 SERIES ONLY)

WARNING

Disconnect 110-volt ac electrical power cable from the 110-volt outside receptacle before attempting to remove or replace fuses.

- a. Place switch handle in OFF position.
- b. Release pressure of snap fastener holding switch box cover closed and open cover.
- c. Grasp fuse firmly in the center and pull from clips.
- d. Holding new fuse in the center, press into clips.
- e. Close cover and place switch handle in the ON position.

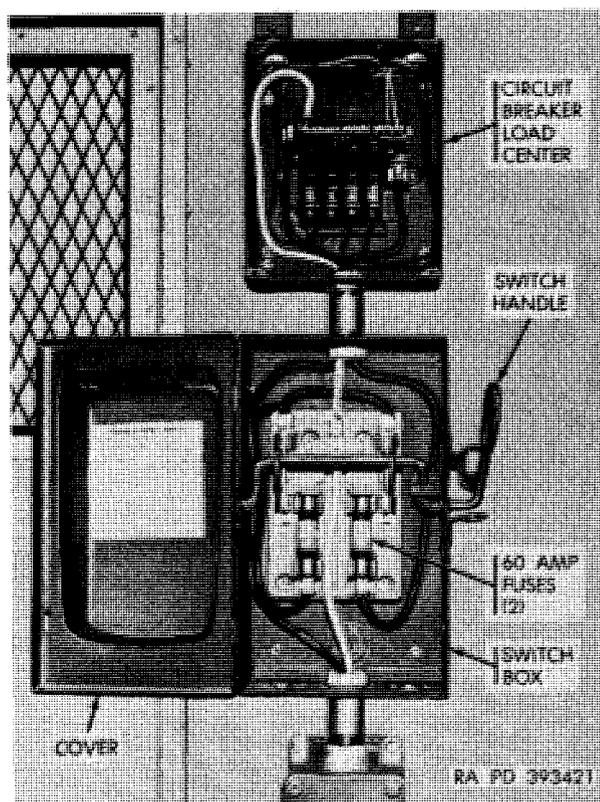
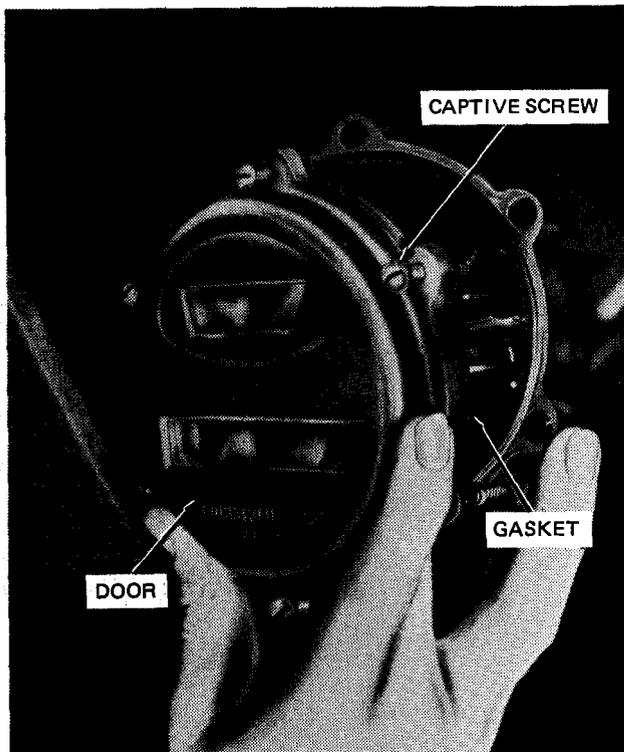


Figure 4-4. Switch box and circuit breaker load center, covers open (M129 series)

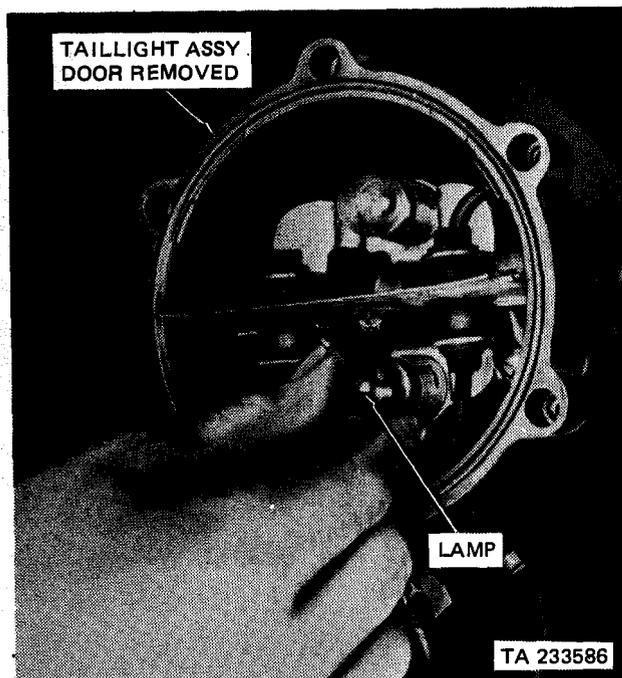


REMOVING OR INSTALLING
TAILLIGHT DOOR AND GASKET

4-19. TAILLIGHT LAMP REPLACEMENT

Replace taillight lamp by following procedures shown in figure 4-5.

STEP 1. LOOSEN SIX CAPTIVE SCREWS AND REMOVE TAILLIGHT DOOR AND GASKET.



REMOVING OR INSTALLING LAMP

STEP 2. TO REMOVE LAMP, PUSH IN AND TURN COUNTERCLOCKWISE AND REMOVE LAMP FROM SOCKET.

STEP 3. TO INSTALL LAMP, INSERT LAMP IN SOCKET AND TURN CLOCKWISE.

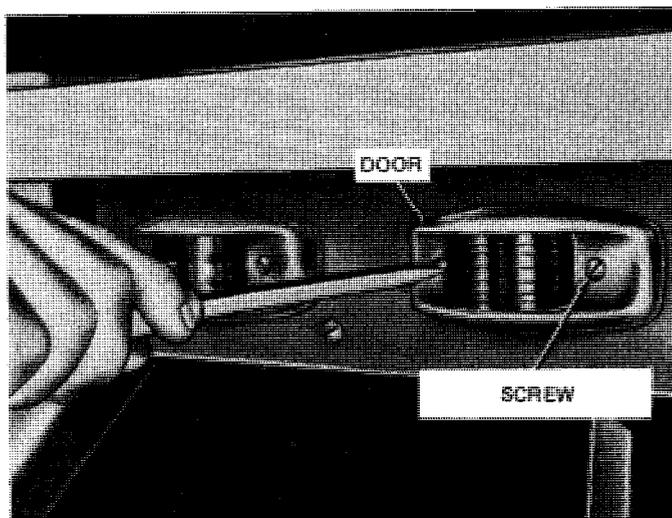
STEP 4. INSTALL DOOR AND GASKET REMOVED IN STEP 1 ABOVE.

Figure 4-5. Taillight lamp replacement

4-20. CLEARANCE LIGHT LAMP REPLACEMENT

Replace clearance light lamp by following procedures shown in figure 4-6.

STEP 1. REMOVE TWO OVAL-HEAD SCREWS SECURING CLEARANCE LIGHT DOOR AND LENS ASSY AND REMOVE DOOR.

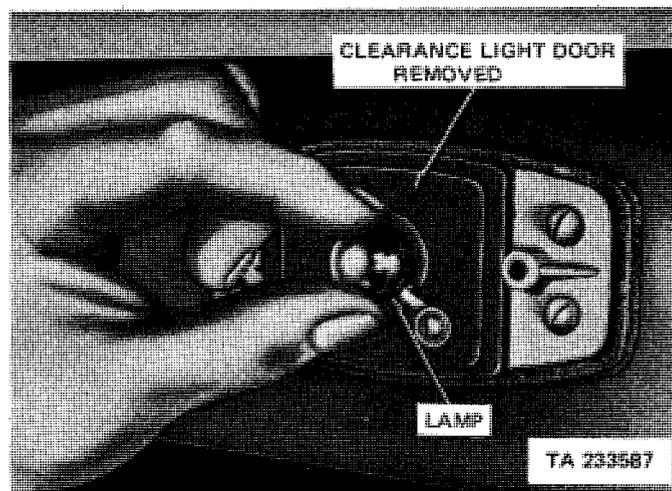


REMOVING OR INSTALLING CLEARANCE LIGHT DOOR

STEP 2. REMOVE LAMP BY PUSHING IN AND TURNING COUNTER-CLOCKWISE.

STEP 3. INSTALL LAMP BY INSERTING LAMP IN SOCKET AND TURNING CLOCKWISE.

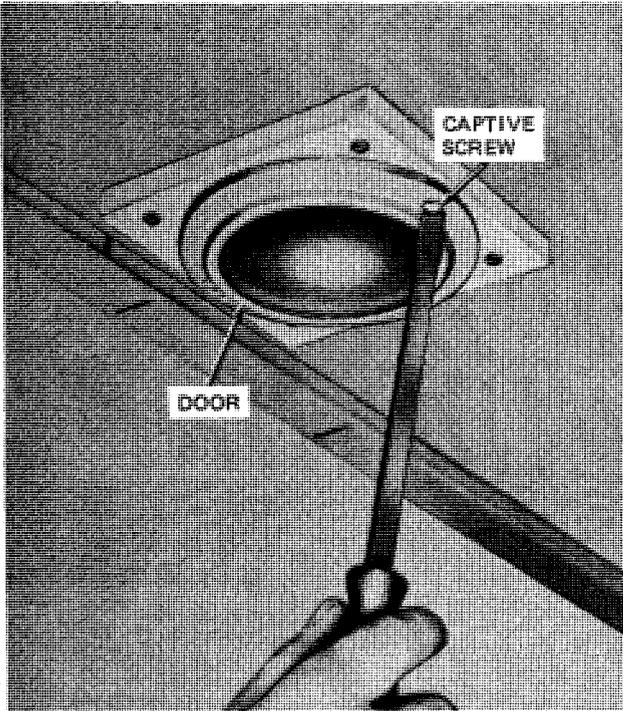
STEP 4. INSTALL DOOR REMOVED IN STEP 1 ABOVE.



REMOVING OR INSTALLING LAMP

Figure 4-6. Clearance light lamp replacement

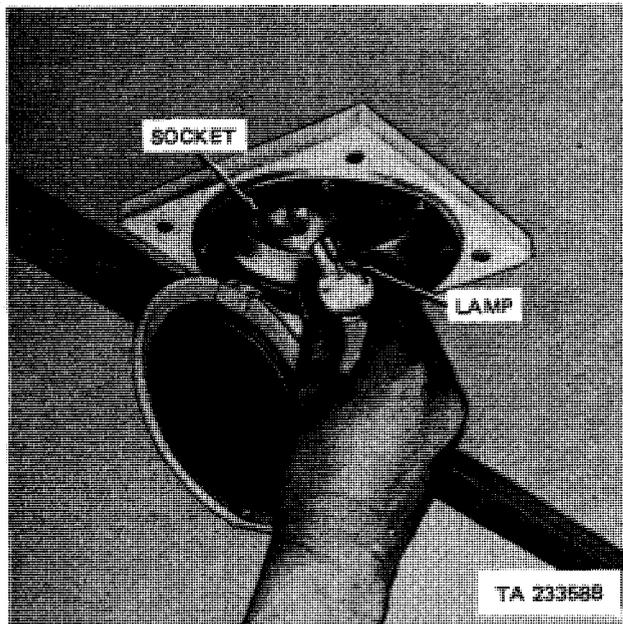
4-21. DOME LIGHT LAMP REPLACEMENT



REMOVING OR INSTALLING
24-VOLT DOME LIGHT DOOR

a. 24-Volt (M128 and M129 Series). Replace the 24-volt dome light lamp by following procedures shown in figure 4-7.

STEP 1. LOOSEN CAPTIVE SCREW AND SWING DOOR DOWN OUT OF WAY,



REMOVING OR INSTALLING
24-VOLT DOME LIGHT LAMP

STEP 2. TO REMOVE LAMP, PUSH IN AND TURN COUNTERCLOCKWISE AND REMOVE LAMP FROM SOCKET.

STEP 3. TO INSTALL LAMP, INSERT LAMP IN SOCKET AND TURN CLOCKWISE.

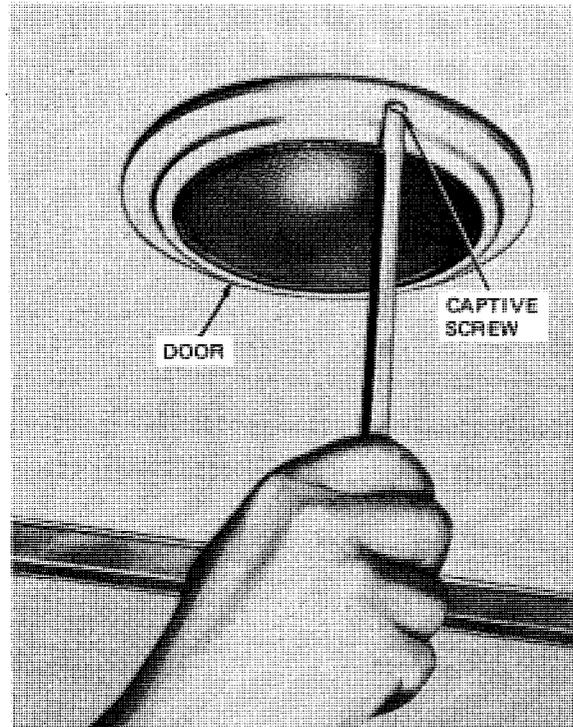
STEP 4. INSTALL DOOR REMOVED IN STEP 1 ABOVE.

Figure 4-7. 24-volt dome light lamp replacement

b. 110-volt (M129 Series). Replace the 110-volt dome light lamp by following procedures shown in figure 4-8.

STEP 1. LOOSEN CAPTIVE SCREW AND SWING DOWN OUT OF WAY.

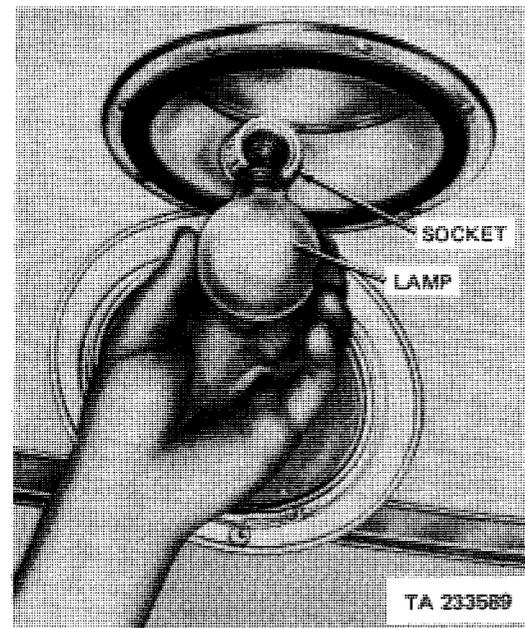
STEP 2. TO REMOVE LAMP, UNSCREW BY TURNING LAMP COUNTER-CLOCKWISE AND REMOVE FROM SOCKET.



REMOVING OR INSTALLING
110-VOLT DOME LIGHT DOOR

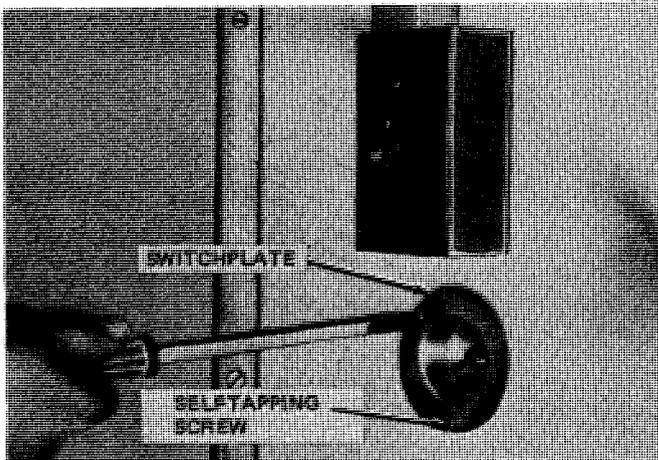
STEP 3. TO INSTALL LAMP, INSERT LAMP IN SOCKET AND SCREW IN TURNING CLOCKWISE.

STEP 4. INSTALL DOOR REMOVED IN STEP 1 ABOVE.

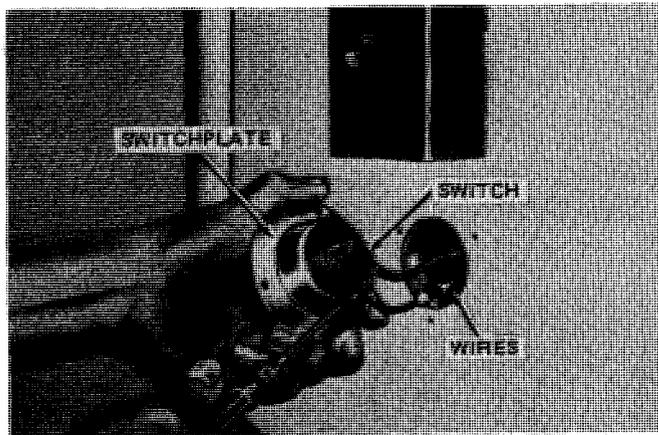


REMOVING OR INSTALLING
110-VOLT DOME LIGHT LAMP

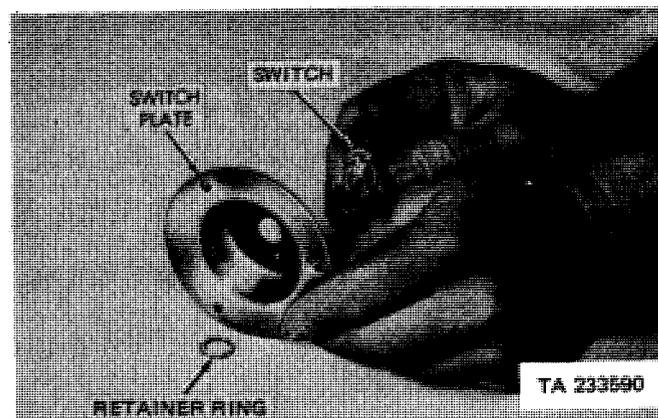
Figure 4-8. 110-volt dome light lamp replacement



REMOVING OR INSTALLING
24-VOLT DOME LIGHT SWITCH



REMOVING OR INSTALLING WIRES



SEPARATING OR SECURING
SWITCH AND SWITCH PLATE

4-22. DOME LIGHT SWITCH REPLACEMENT

a. 24-Volt Dome light Switch (M128 and M129 Series). Remove and install the 24-volt dome light switch by following procedures in figure 4-9.

STEP 1. REMOVE THREE SELF-TAPPING SCREWS SECURING SWITCH PLATE TO WALL.

STEP 2. PULL SWITCH PLATE FROM WALL AND REMOVE TWO WIRES FROM SWITCH.

STEP 3. REMOVE KNURLED RETAINER RING SECURING SWITCH TO SWITCH PLATE AND SEPARATE SWITCH AND PLATE.

STEP 4. SECURE SWITCH AND SWITCH PLATE TOGETHER WITH RETAINER RING REMOVED IN STEP 3. ABOVE.

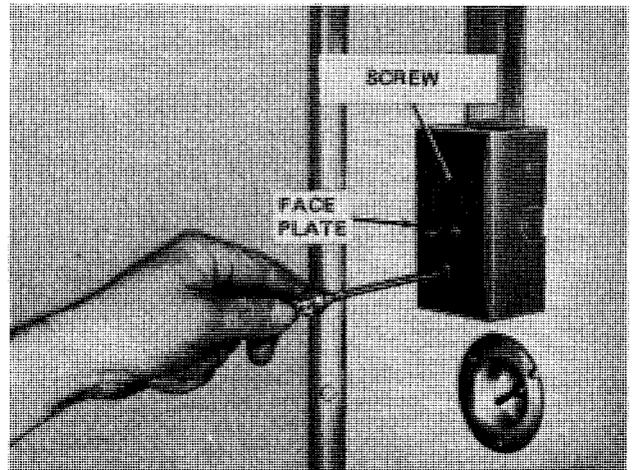
STEP 5. INSTALL WIRES REMOVED IN STEP 2 ABOVE.

STEP 6. SECURE SWITCH PLATE TO WALL WITH THREE SCREWS REMOVED IN STEP 1 ABOVE.

Figure 4-9. 24-volt dome light switch replacement

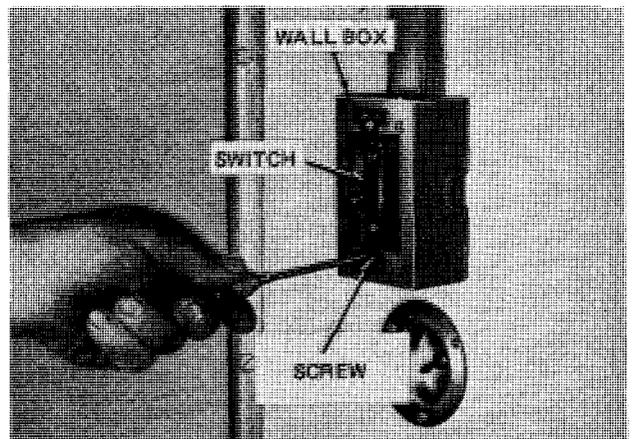
b. 110-Volt Dome Light Switch (M129 Series).
 Remove and install the 110-volt dome light switch
 by following procedures shown in figure 4-10.

STEP 1. REMOVE TWO SCREWS SECURING
 SWITCH FACE PLATE. REMOVE
 FACE PLATE.



REMOVING OR INSTALLING
 SWITCH FACE PLATE

STEP 2. REMOVE TWO SCREWS SECURING
 SWITCH TO WALL BOX.



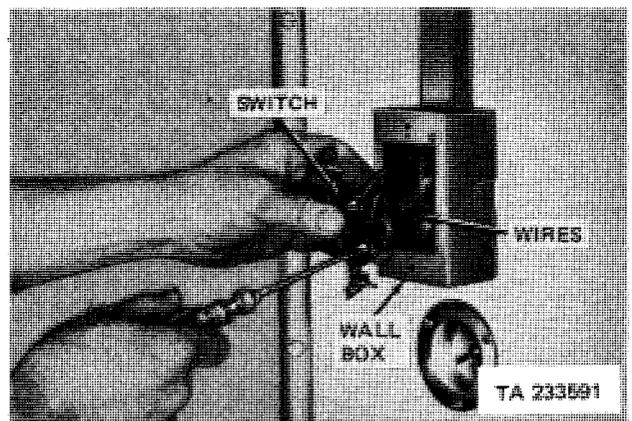
REMOVING OR INSTALLING SWITCH

STEP 3. PULL SWITCH FROM WALL BOX
 AND LOOSEN TWO CAPTIVE SCREWS
 SECURING TWO WIRES TO SWITCH.
 REMOVE WIRES, THEN REMOVE
 SWITCH.

STEP 4. INSTALL TWO WIRES REMOVED IN
 STEP 3 ABOVE.

STEP 5. INSTALL SWITCH IN WALL BOX
 AND SECURE WITH TWO SCREWS
 REMOVED IN STEP 2 ABOVE.

STEP 6. INSTALL SWITCH FACE PLATE
 REMOVED IN STEP 1 ABOVE.



REMOVING OR INSTALLING WIRES

Figure 4-10. 110-volt dome light switch replacement

4-23. TAILLIGHT ASSEMBLIES

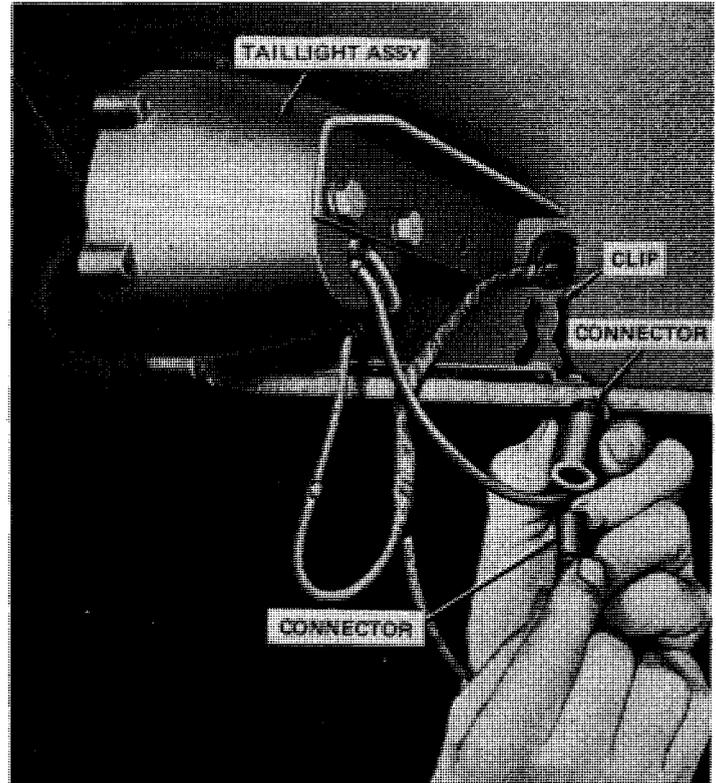
a. Difference Data. Various combinations of lights are used on the various models of semitrailers. The following difference data table indicates the semitrailer model and its taillight usage.

DIFFERENCE DATA
TAILLIGHT APPLICATIONS
(Models Used On)

Stoplight-Taillight, 24-Volt, MS51330-1	Stoplight-Taillight, 24-Volt, MS51329-1	Blackout-Stoplight, 24-Volt, MS51302-1	Stop, Turn & Taillight 12-Volt, 10920548	Composite Marker Light, 24-Volts 11614157
M127	M127			M127
M127A1	M127A1			M127A1
	M127A1C		M127A1C	M127A1C
	M127A2C		M127A2C	M127A2C
	M128A1	M128A1	M128A1	M128A1
	M128A1C	M128A1C	M128A1C	M128A1C
	M128A2C	M128A2C	M128A2C	M128A2C
	M129A1	M129A1	M129A1	M129A1
	M129A1C	M129A1C	M129A1C	M129A1C
	M129A2C	M129A2C	M129A2C Kasel Model	M129A2C Kasel Model

b. Remove and install the taillight assemblies by following the procedures shown in figure 4-11.

STEP 1. DISCONNECT CABLE CONNECTORS AFTER REMOVING FROM CLIP.

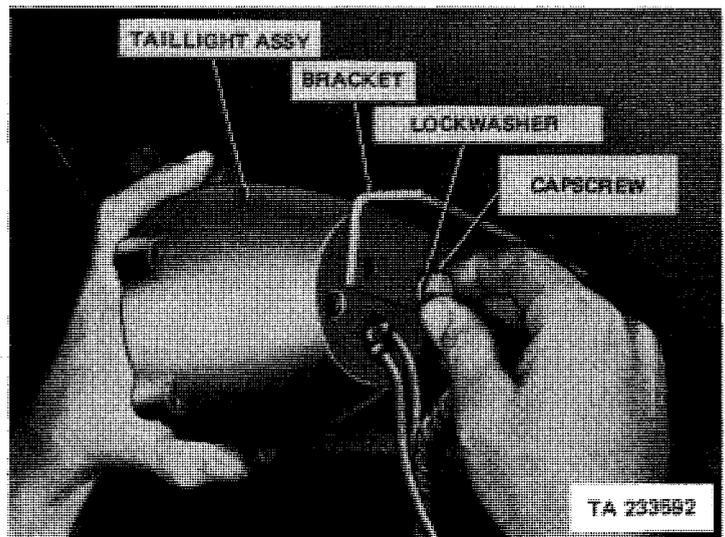


DISCONNECTING OR CONNECTING TAILLIGHT CABLE CONNECTORS

STEP 2. REMOVE TWO CAP SCREWS AND LOCKWASHERS SECURING TAILLIGHT ASSEMBLY TO BRACKET.

STEP 3. INSTALL TAILLIGHT ASSY ON BRACKET WITH TWO CAP SCREWS AND LOCKWASHERS REMOVED IN STEP 2 ABOVE.

STEP 4. CONNECT CABLE CONNECTORS DISCONNECTED IN STEP 1 ABOVE AND PLACE CONNECTORS IN CLIP.



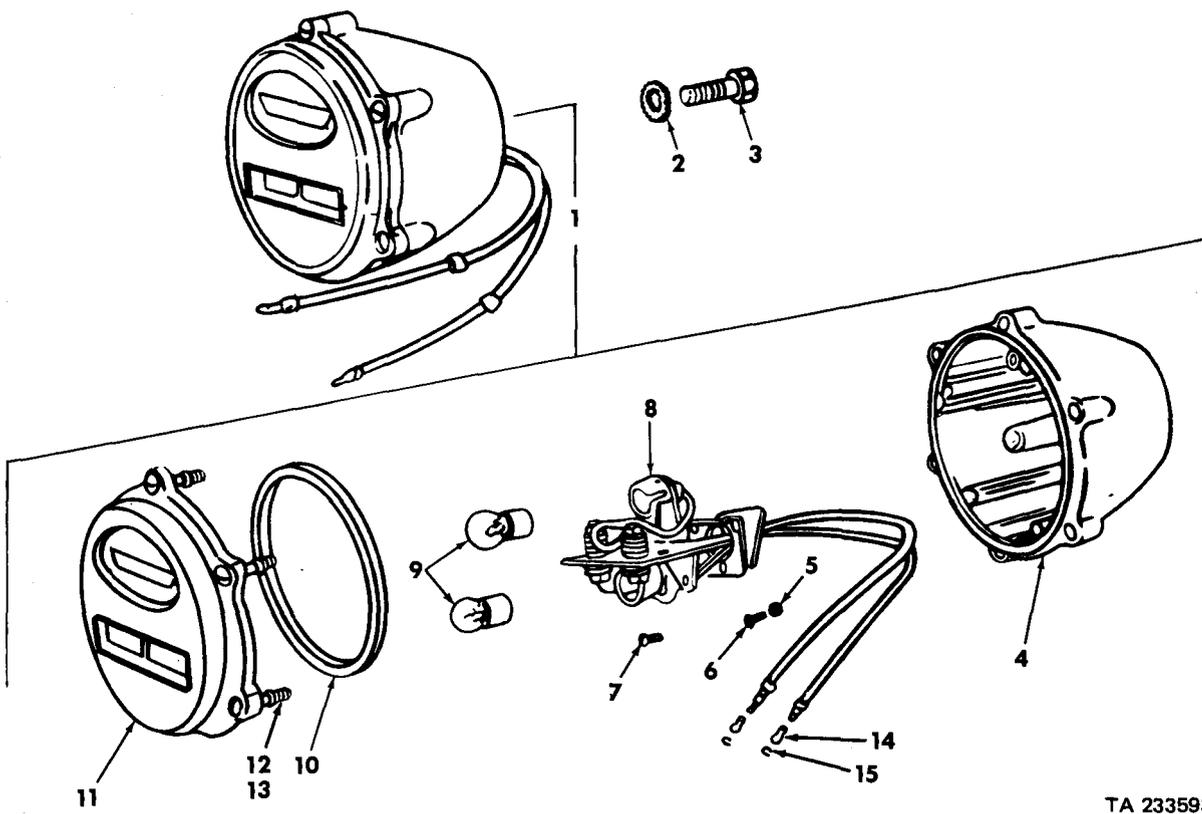
REMOVING OR INSTALLING TAILLIGHT ASSEMBLY

Figure 4-11. Typical taillight assembly replacement (24-volt taillight shown)

4-23. TAILLIGHT ASSEMBLIES (Cont)

c. Stoplight-Taillight, 24-Volt MS51330-1 (M127, M127A1). Disassemble light using figure 4-12 as follows:

- (1) Unscrew six captive screws (12) on door (11).
- (2) Remove door (11) and gasket (10). Captive screws (12) are fitted with retaining rings (13) and will remain in door.
- (3) Remove lamps (9) from their sockets (8).
- (4) Remove slotted washers (15) from ends of the two cables.
- (5) Remove shells (14) from ends of cables.
- (6) Remove two screws (6 and 7) and washers (5) securing socket and wiring assembly (8) in body (4).



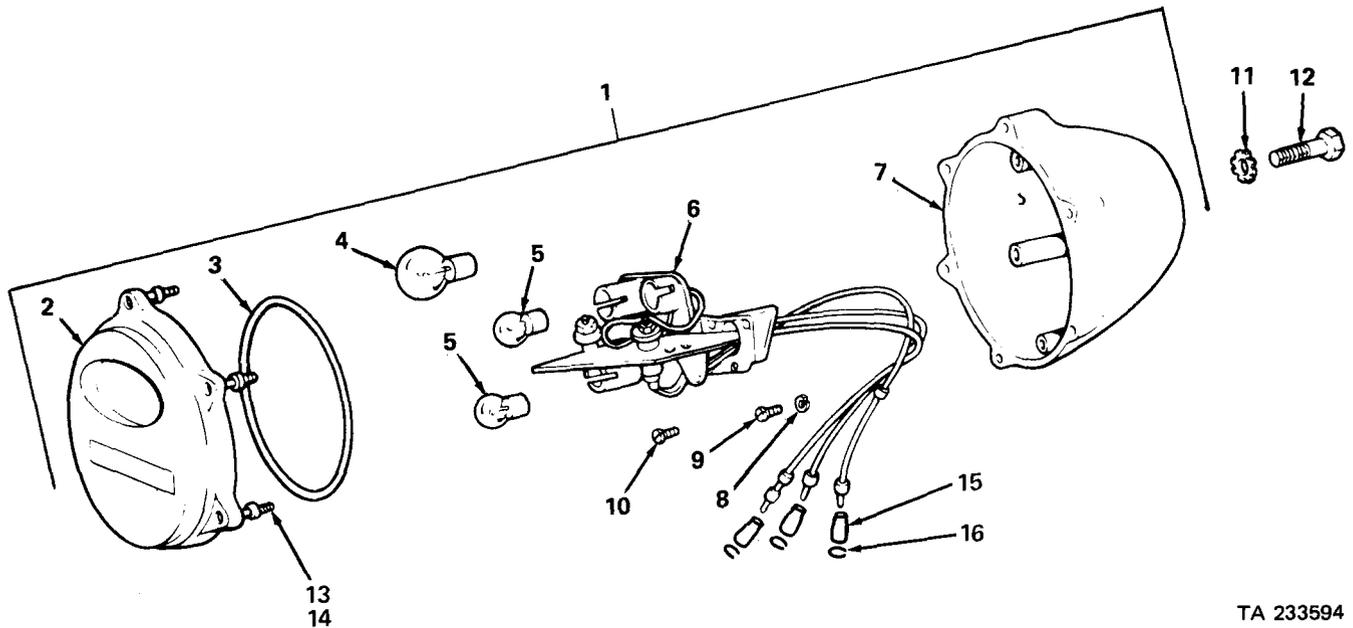
TA 233593

- | | | |
|-----------------------------|-------------------------------|---------------------|
| 1. Stoplight-Taillight Assy | 6. Screw | 11. Door |
| 2. Washer, lock | 7. Screw | 12. Screw, captive |
| 3. Screw | 8. Socket and Wiring Assembly | 13. Ring, retaining |
| 4. Body | 9. Lamps | 14. Shell |
| 5. Washer | 10. Gasket | 15. Washer, slotted |

Figure 4-12. Stoplight-taillight, 24-volt MS51330-1 (M127, M127A1)

d. Stoplight-Taillight, 24-Volt, MS51329-1 (All Models Except Kasel M129A2C). Disassemble light using figure 4-13 as follows:

- (1) Unscrew six captive screws (13) on door (2).
- (2) Remove door (2) and gasket (3). Captive screws (13) are fitted with retaining rings (14) and will remain in door.
- (3) Remove lamps (4) and (5) from their sockets (6).
- (4) Remove slotted washers (16) from ends of three cables.
- (5) Remove shells (15) from ends of cables.
- (6) Remove two screws and washers (9 and 8) and three screws (10) securing socket and wiring assembly (6).
- (7) Remove socket and wiring assembly (6) from body (7).



TA 233594

1. Stoplight-Taillight Assembly
2. Door
3. Gasket
4. Lamp
5. Lamp
6. Socket and Wiring Assembly

7. Body
8. Washer
9. Screw
10. Screw
11. Washer, lock
12. Screw

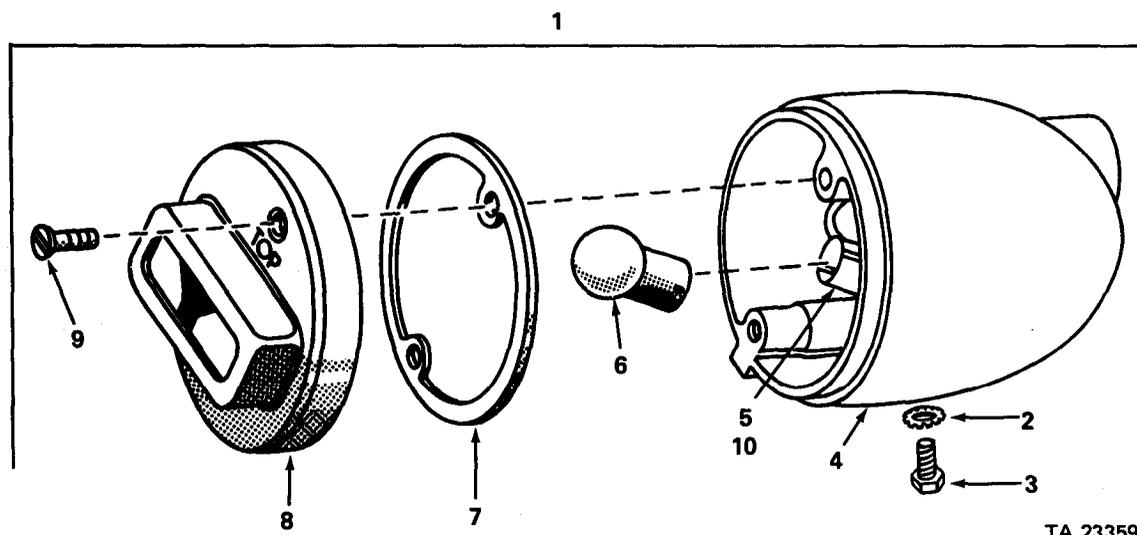
13. Screw, captive
14. Ring, retaining
15. Shell
16. Washer, slotted

Figure 4-13. Stoplight-taillight, 24-volt, MS51329-1
(All Models except Kasel M129A2C)

4-23. TAILLIGHT ASSEMBLIES (Cont)

e. Blackout-Stoplight, 24-Volt, MS51302-1 (M128 and M129 Series except Kasel M129A2C). Disassemble light using figure 4-14 as follows:

- (1) Unscrew two screws (9) securing door (8) to body (4).
- (2) Remove door (8) and gasket (7).
- (3) Remove lamp (6).
- (4) Remove two screws (10) securing socket and wiring assembly (5) in body.
- (5) Remove socket and wiring assembly.



TA 233595

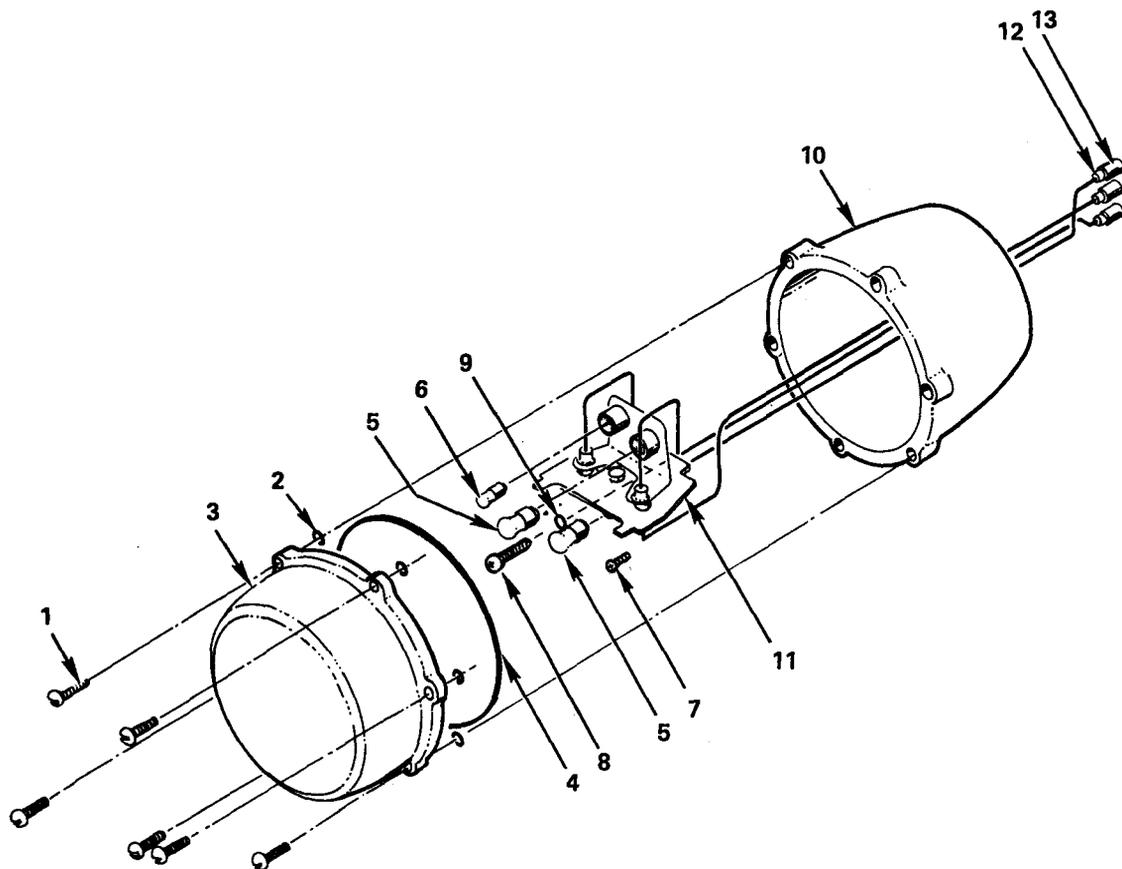
1. Blackout-Stoplight Assembly
2. Washer, lock
3. Screw
4. Body
5. Socket and Wiring Assembly

6. Lamp
7. Gasket
8. Door
9. Screw
10. Screw

Figure 4-14. Blackout-stoplight, 24-volt, MS51302-1
(MI 28 and MI 29 Series except Kasel M129A2C)

f. Stop, Turn and Taillight, 12-Volt, 10920548 (All Models Except M127 and M127A1). Disassemble light using figure 4-15 as follows:

- (1) Unscrew six captive screws (1) on lens (3).
- (2) Remove lens (3) and gasket (4). Captive screws (1) are fitted with retaining rings (2) and will remain in lens.
- (3) Remove lamps (5) and (6) from their sockets (11).
- (4) Remove slotted washers (12) from ends of cables.
- (5) Remove shells (13) from ends of cables.
- (6) Remove two screws (8) and lockwashers (9) and three screws (7) securing socket and wiring assembly (11).
- (7) Remove socket and wiring assembly (11) from body (10).



TA 233596

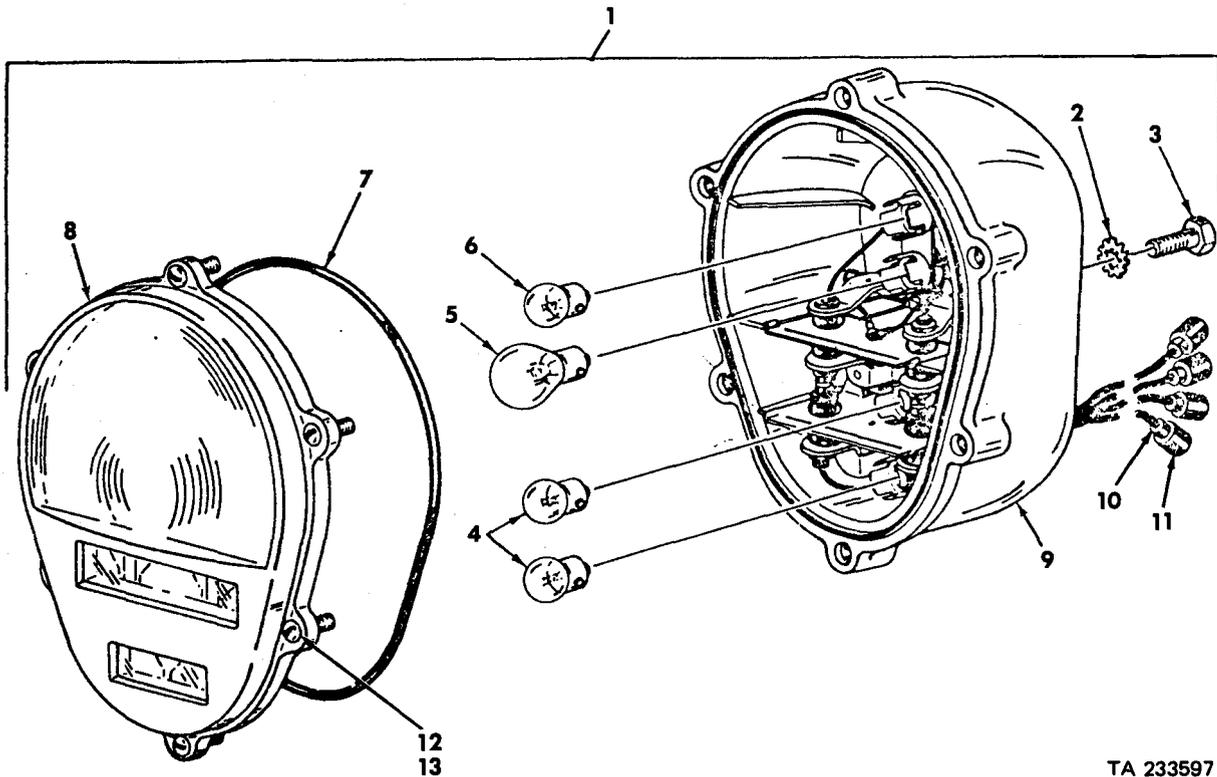
- | | | |
|--------------------|----------|----------------------------|
| 1. Screw | 5. Lamp | 9. Washer, lock |
| 2. Ring, retaining | 6. Lamp | 10. Body |
| 3. Lens | 7. Screw | 11. Socket and Wiring Assy |
| 4. Gasket | 8. Screw | 12. Washer |
| | | 13. Shell |

Figure 4-15. Stop, turn and taillight, 12-volt, 10920548
(All models except M127 and M127A1)

4-23. TAILLIGHT ASSEMBLIES (Cont)

g. Composite Marker Light Assembly, 24-Volt, 11614157 (All Models). Disassemble light using figure 4-16 as follows:

- (1) Unscrew six captive screws (12) on door (8).
- (2) Remove door (8) and gasket (7). Captive screws (12) are fitted with retaining rings (13) and will remain in door.
- (3) Remove lamps (4), (5) and (6) from their sockets.
- (4) If body replacement is necessary, remove two screws and washers (2 and 3).
- (5) Remove washers (10) securing shells (11).



TA 233597

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|--|--------------------------------|---------------------|
| 1. Composite Marker Light Assy | 5. Lamp (stop and turn signal) | 9. Body |
| 2. Washer, lock | 6. Lamp (tail) | 10. Washer |
| 3. Screw | 7. Gasket | 11. Shell |
| 4. Lamp (blackout marker, blackout stop) | 8. Door | 12. Screw, captive |
| | | 13. Ring, retaining |

Figure 4-16. Composite marker light assembly, 24-volt, 11614157 (All models)

h. Cleaning.

- (1) Remove all buildup of dirt, grease, etc., by wiping with a soft cloth.

WARNING

Cleaning solvent (Fed Spec PD-680) is toxic and flammable. Use solvent only in a well-ventilated area. Avoid prolonged breathing of vapors. Keep solvent away from flame. Do not use solvent in excessive amounts.

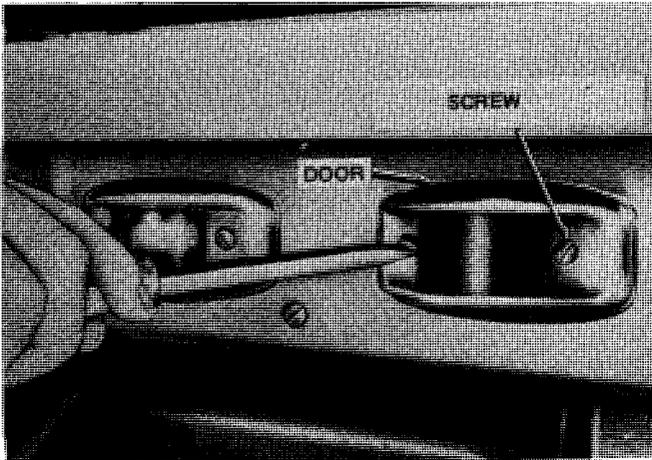
- (2) Clean using a clean, soft cloth or a medium-bristle brush and cleaning solvent (PD-680) (item 18, Appendix C).
- (3) Allow to dry.

i. Inspection.

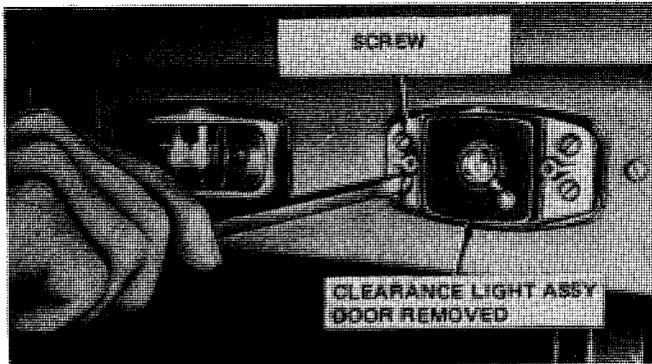
- (1) Inspect for loose, missing, or damaged hardware.
- (2) Inspect wiring for damaged, deteriorated insulation and broken or frayed conductor.
- (3) Inspect for cracked, broken, or crazed lens.
- (4) Inspect door and body for dents, holes, worn spots, scratches, marred finish, cracks, rust and corrosion.

j. Repair. Repair is limited to the replacement of unserviceable parts.

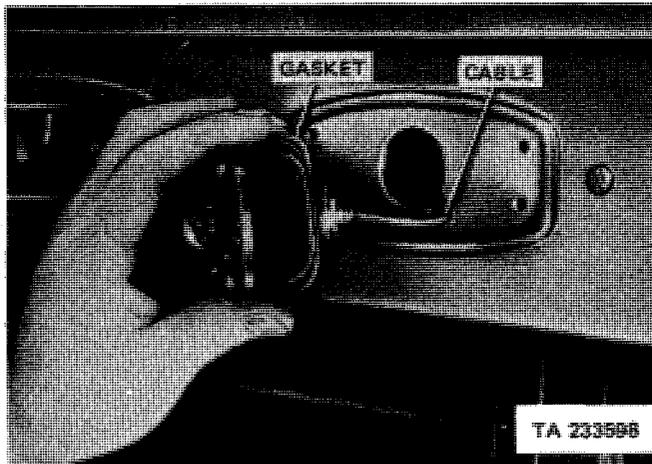
k. Assembly. Reassemble taillight using the appropriate exploded view figure and reversing the disassembly procedure.



REMOVING OR INSTALLING
CLEARANCE LIGHT DOOR



REMOVING OR INSTALLING
CLEARANCE LIGHT ASSY



REMOVING OR INSTALLING
CLEARANCE LIGHT CABLE

4-24. CLEARANCE LIGHT ASSEMBLY

a. Removal and Installation. Follow steps in figure 4-17.

STEP 1. REMOVE TWO SCREWS SECURING DOOR. LIFT OFF DOOR.

STEP 2. REMOVE FOUR SCREWS SECURING PLATE TO SEMITRAILER BODY.

STEP 3. LIFT OFF LIGHT ASSEMBLY AND GASKET. DISCONNECT LIGHT CABLE CONNECTORS AND WITHDRAW CABLE FROM SEMITRAILER.

STEP 4. INSERT LIGHT CABLE THROUGH HOLE AND CONNECT CONNECTORS DISCONNECTED IN STEP 3.

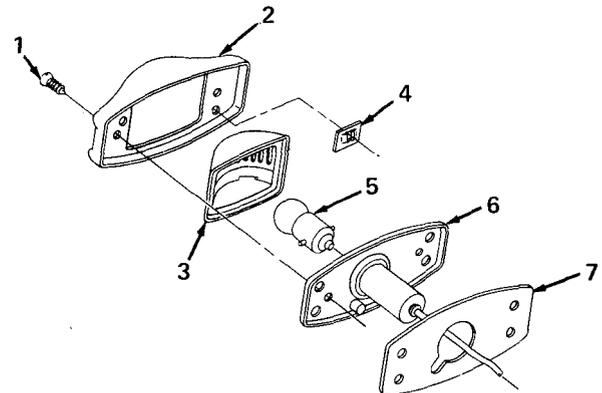
STEP 5. POSITION LIGHT ASSEMBLY AND GASKET ON SEMITRAILER AND SECURE WITH FOUR SCREWS REMOVED IN STEP 2.

STEP 6. POSITION DOOR ON LIGHT ASSEMBLY AND SECURE WITH TWO SCREWS REMOVED IN STEP 1.

Figure 4-17. Clearance light assembly replacement

b. Disassemble (fig. 4-18).

- (1) Remove two screws (1) securing door (2).
- (2) Lens (3) is clipped to door (2) by push-on nuts (4). Pry off nuts to remove lens from door.
- (3) Remove lamp (5) from lampholder (6).
- (4) Pry out gasket (7) from lampholder (6).



TA 233599

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|-----------------|---------------|
| 1. Screw | 5. Lamp |
| 2. Door | 6. Lampholder |
| 3. Lens | 7. Gasket |
| 4. Nut, push-on | |

Figure 4-18. Clearance light disassembly

c. Cleaning.

- (1) Remove all buildup of dirt, grease, etc., by wiping with a soft cloth.

WARNING

Cleaning solvent (Fed Spec PD-680) is toxic and flammable. Use solvent only in a well-ventilated area. Avoid prolonged breathing of solvent vapors. Keep solvent away from flame. Do not use solvent in excessive amounts.

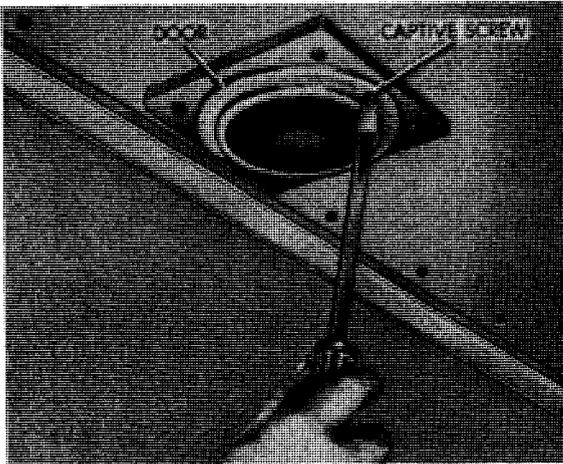
- (2) Clean, using a clean, soft cloth, or a medium-bristle brush and cleaning solvent (PD-680) (item 18, Appendix C).
- (3) Allow to dry.

d. Inspection.

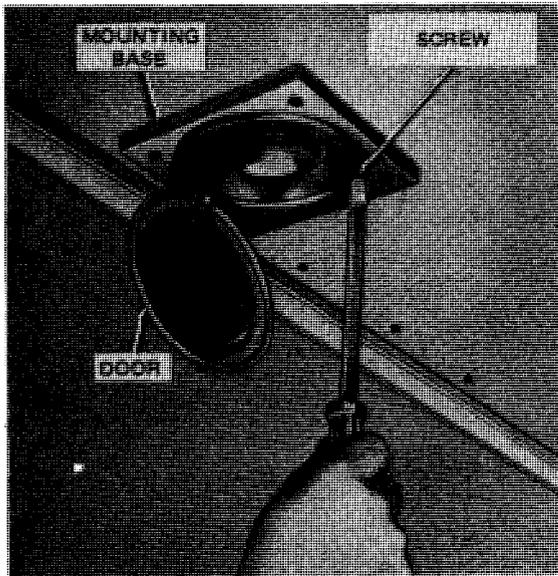
- (1) Inspect for loose, missing, or damaged hardware.
- (2) Inspect wiring for damaged, deteriorated insulation and broken or frayed conductor.
- (3) Inspect for cracked, broken or crazed lens.
- (4) Inspect door for dents, holes, worn spots, scratches, marred finish, cracks, rust and corrosion.

e. Repair. Repair is limited to the replacement of unserviceable parts.

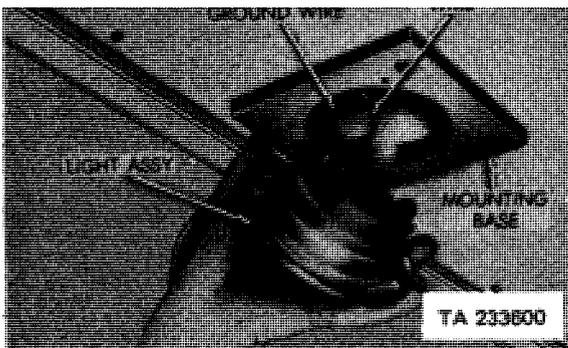
f. Assembly. Reassemble clearance light using figure 4-18.



REMOVING OR INSTALLING DOOR



REMOVING OR INSTALLING
24-VOLT DOME LIGHT ASSY



REMOVING OR INSTALLING WIRES

4-25. DOME LIGHT ASSEMBLIES

a. 24-Volt Dome Light Assemblies. Follow steps 1 thru 3 in figure 4-19 for removal and steps 4 thru 6 for installation.

STEP 1. LOOSEN CAPTIVE SCREW SECURING DOOR. SWING DOOR DOWN OUT OF WAY.

STEP 2. REMOVE FOUR SCREWS SECURING LIGHT ASSEMBLY TO MOUNTING BASE.

STEP 3. REMOVE LIGHT ASSY FROM MOUNTING BASE AND DISCONNECT POSITIVE WIRE. GROUND WIRE WAS SECURED BY SCREW REMOVED IN STEP 2.

STEP 4. CONNECT POSITIVE WIRE REMOVED IN STEP 3.

STEP 5. POSITION LIGHT ASSY ON MOUNTING BASE AND SECURE GROUND WIRE WITH ONE OF THE FOUR SCREWS REMOVED IN STEP 2. THEN SECURE LIGHT ASSEMBLY WITH THREE REMAINING SCREWS.

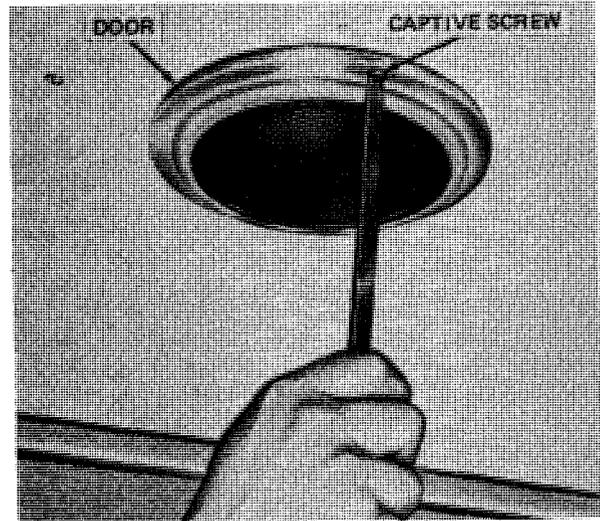
STEP 6. SWING DOOR UP AND SECURE WITH CAPTIVE SCREW LOOSENED IN STEP 1.

Figure 4-19. 24-volt dome light assembly replacement

b. 110-Volt Dome Light Assembly Replacement.

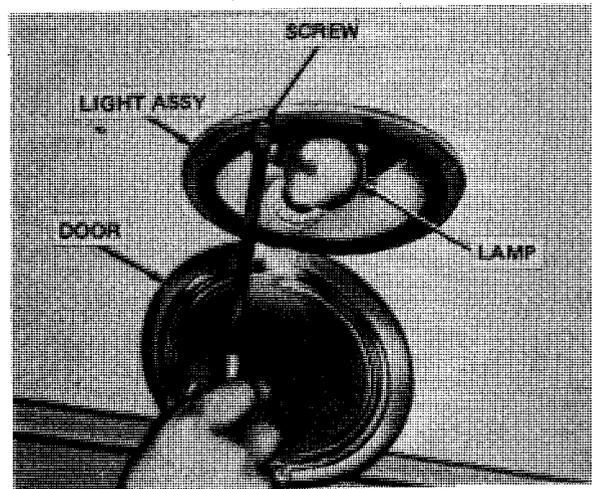
Follow steps 1 thru 3 in figure 4-20 for removal and steps 4 thru 6 for installation.

STEP 1. LOOSEN CAPTIVE SCREW SECURING DOOR, SWING DOOR DOWN OUT OF WAY.



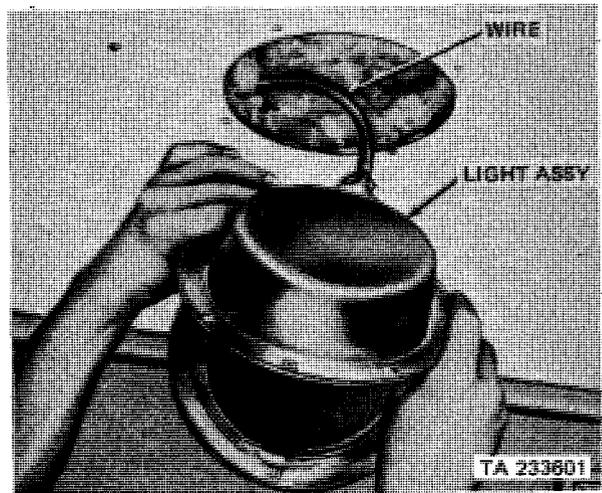
REMOVING OR INSTALLING DOOR

STEP 2. REMOVE LIGHT ASSEMBLY LAMP TO PREVENT DAMAGE. REMOVE FOUR SCREWS SECURING LIGHT ASSEMBLY TO CEILING.



REMOVING OR INSTALLING
110-VOLT DOME LIGHT ASSY

- STEP 3. REMOVE LIGHT ASSEMBLY FROM CEILING AND DISCONNECT WIRE.
- STEP 4. CONNECT WIRE REMOVED IN STEP 3.
- STEP 5. POSITION LIGHT ASSEMBLY IN CEILING AND SECURE WITH FOUR SCREWS REMOVED IN STEP 2.
- STEP 6. SWING DOOR UP AND SECURE WITH CAPTIVE SCREW LOOSENED IN STEP 1.



REMOVING OR INSTALLING WIRE

Figure 4-20. 110-volt dome light assembly replacement

4-26. WIRING HARNESS

a. Removal.

- (1) Clearance light cables (M127 and M127A1) (figs. 4-21 and 2-22).
 - (a) Disconnect connector shell (2) from clip (1).
 - (b) Twist one part of connector counterclockwise and withdraw from other part.
 - (c) Remove grommet from connector shell (2) and pull cable out of shell.
 - (d) Repeat this procedure for connectors at the clearance lights.
 - (e) Release cables where attached to frame with clips, and draw cable out of grommets (3) in frame members.

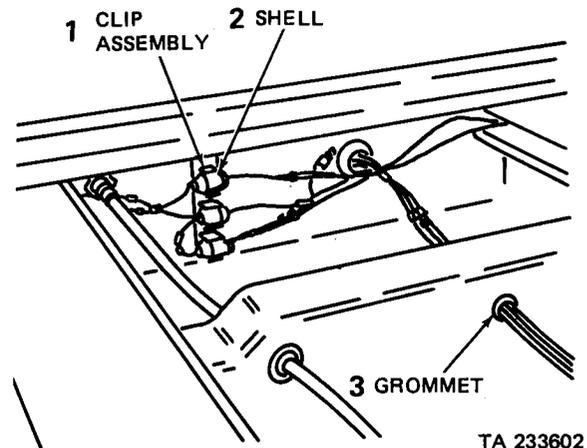


Figure 4-21. Electrical connections at rear of front crossmember (M127 and M127A1)

- (2) Intervehicular cable receptacles and wiring (all models) (figs. 2-22, 2-25 and 2-27).
 - (a) To remove wiring with receptacles, remove all clearance light cables. Refer to para. (1) above for M127 and M127A1.
 - (b) Remove attached connectors from clips near taillights and disconnect cables by twisting one part of connector counterclockwise and withdrawing from mating part (fig. 4-11, step 1).
 - (c) Remove grommet and bushing from connector shell and pull cable out of shell. Remove other connectors in similar manner.
 - (d) Release cables where attached to rear of crossmember.
 - (e) Remove four nuts and screws which secure receptacles (fig. 2-4) to front crossmember and withdraw receptacles. Cables can be drawn through grommets in crossmembers and withdrawn with receptacles.
- (3) Body side cable 12-volt and 24-volt receptacles and wiring (M128 and M129 Series) (figs. 2-25 and 2-26).
 - (a) To remove the two body cable receptacles, remove attached connectors from clips near the taillights.
 - (b) Disconnect cables by twisting one part of connector counterclockwise and withdrawing from mating part.
 - (c) Remove grommets from connector shells and pull cables out of shells.
 - (d) Disconnect ground cables where attached to side of right longitudinal frame rail.
 - (e) Disconnect body cable plugs from receptacles. Remove four nuts, washers and screws securing each receptacle to longitudinal frame rail and withdraw receptacle.
 - (f) Cables can be withdrawn with receptacles.

b. Repair. Receptacle pins, receptacle sockets, and terminals are always soldered to ends of wires or cables. All are replaced in essentially the same manner.

c. Installation.

- (1) Intervehicular cable receptacles and wiring (all models) (figs. 2-22, 2-25 and 2-27).
 - (a) Insert the terminal ends of cables in opening in front crossmember and thread through grommets in succeeding crossmembers.

- (b) Lead cables along left chassis longitudinal frame rail to crossmember over trunnion tube.
 - (c) Secure cables with clips and No. 10 X 3/4 tapping screws.
 - (d) Position cables going to right taillights along crossmember over the trunnion tube and secure with clips and No. 10 X 3/4 tapping screws.
 - (e) Then position cables going to right taillights along right longitudinal frame rail and back to connector clips near right taillights. Secure with clips and No. 10 X 3/4 tapping screws.
 - (f) Cables going to left taillights continue along the left longitudinal frame rail to connector clips near the left taillights. Secure with clips and No. 10 X 3/4 tapping screws.
 - (g) Insert cables into connector shells and install grommets and bushings, pull tightly into shells. Note numbers of cables and match with similar numbers on taillight cable connector and position connectors in connector clips.
 - (h) Position receptacles on front of crossmember. Connect ground cables to rear of front crossmember. Secure each receptacle with four 1/4-28NF-2 nuts, 1/4 washers and 1/4-28NF-2 X 7/8 screws.
- (2) Body cable receptacles and wiring (M128 and M129 series) (figs. 2-25 and 2-26).
- (a) Insert the terminal ends of cables through openings in side of right longitudinal frame rail.
 - (b) position receptacles in openings and secure each with four No. 10-24NC nuts, No. 10 washers and No. 10-24NC X 3/4 screws.
 - (c) Connect ground cables to side of frame rail.
 - (d) Insert cables into connector shells and install grommets; pull cables tightly into shells. Note numbers on cables and match with similar numbers on cables at connector clip near back of intervehicular cable receptacle.
 - (e) Connect with connectors and position in connector clip.
- (3) Clearance light cables (M127 and M127A1) (figs. 2-22 and 4-21).
- (a) To install cables for amber right and red right blackout clearance lights, install terminal of cable No.490A in connector at end of cable No.490. Cable No.490 originates at the receptacle.
 - (b) Position cable No. 490C along right longitudinal frame rail to red blackout clearance light. Install terminal in connector shell and couple with mating part on light cable.
 - (c) To install cables for amber left and red left blackout clearance lights, connect cable No.490B to connector on cable No. 490. Position the other cable No. 490C along left longitudinal frame rail to red blackout clearance light. Install terminal in connector shell and couple with mating part on light cable.
 - (d) To install cables for amber left and red left service clearance lights, connect cable No. 489 with connector on cable Nos. 489 and 21 of the receptacle. Cable No. 489A is connected to connector clips near light, and cable No. 489C is positioned along left longitudinal frame rail to connector clips near red left service clearance light. install terminal in connector and couple with mating part on light cable.
 - (e) To install cables for amber right service clearance light, connect connector on cable No. 489B to connector on cable Nos. 489 and 489A. Position cable No. 489C along right longitudinal frame rail to red service clearance light. Install terminal in connector shell and couple with light cable connector part.

NOTE

Make certain that marker numbers on corresponding cables match when coupling connectors. Make sure cables passing through holes in frame are protected from wear by a grommet in each hole and that clips and No. 10 X 3/4 tapping screws holding cables to frame, grip cables securely.

Section VII. WHEELS, HUBS, AND DRUMS

	Page		Page
Overview	4-42	Wheels	4-43
Description	4-42	Tires	4-46
Tire Pressure	4-43	Brake Drum and Hub	4-48

4-27. OVERVIEW

This section pertains to organizational maintenance of the semitrailers' wheels, hubs and brake drums. Included are organizational maintenance procedures for tires and bearings.

4-28. DESCRIPTION

a. General. The brake drums and wheels are mounted on the hubs. Each hub is mounted on the spindle of its axle on two tapered roller bearings. The wheels are mounted on the hub with 10 wheel studs, cap nuts, and wheel nuts. Cap nuts and wheel nuts on the right side of the semitrailer have right hand threads and are marked "R". Those on the left side have left hand threads and are marked "L". Wheel nuts and cap nuts must be turned in the opposite direction to the normal rotation of the wheel to be loosened or removed. The weight of the semitrailer and load is carried on two opposed tapered roller bearings in each hub. The bearing cups are a press fit in the hubs. The bearing cones and roller assemblies are removable for cleaning, inspection, and lubrication. An adjusting nut with pin, a locking washer with holes to accommodate the pin of the adjusting nut, and a jamnut secure the hub with bearings on the spindle. A grease seal and wiper are fitted behind the inner bearing to protect the brake linings from lubricant.

b. Brake Drums.

(1) M127. The brake drum (fig. 4-22) is attached to the hub through a dished brake drum adapter. The adapter is secured to the hub by 10 cap screws and lockwashers and to the drum by 10 bolts and lock-nuts. These bolts also secure the oil slinger to the adapter and one of them retains the inspection hole cover. The oil slinger is a metal plate with a hole in the center, which protects the brake lining from lubricant. The inspection hole permits the brake lining clearance to be checked. A hub cap and gasket, fastened by 10 cap screws and lockwashers over the center of the hub, excludes moisture and foreign matter.

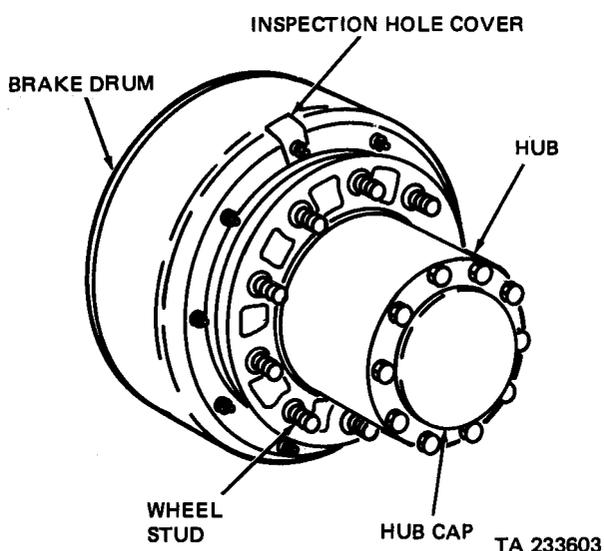


Figure 4-22. Hub and brake drum (M127)

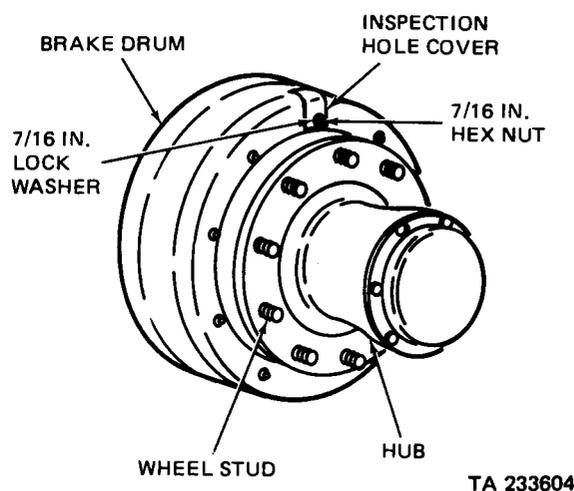


Figure 4-23. Hub and brake drum (All models except M127)

(2) All models except M127. The brake drum (fig. 4-23) is attached to the hub through a dished brake drum adapter. The adapter is secured to the hub by 10 wheel studs and to the drum by 10 bolts, lockwashers, and nuts. One of these bolts also secures the inspection hole cover to the drum. The inspection hole permits the brake lining clearance to be checked. A hub cap and gasket, fastened by six cap screws and lockwashers over the center of the hub, excludes moisture and foreign matter.

c. Wheels. Two offset disk-type wheels are mounted to each hub. The inside wheel is mounted with the convex side out, and the other wheel is mounted with the concave side out. The inside wheel is mounted on the wheel studs in the hub and secured by cap nuts. The outer wheel is mounted on the cap nuts and secured by wheel nuts. The wheels have removable split lock rings to secure the tires to the wheel rims.

d. Tires. Tires are military pneumatic type, cross-country non-directional tread design, size 11.00 X 20, 12-ply rating with controlled bead. The tires are equipped with tubes and continuous flaps.

4-29. TIRE PRESSURE

Pressure in all tires must be equal. When checking tire pressure, do not reduce pressure if tires are hot unless pressure must be reduced to increase traction on ground in cross-country driving or in operation over sand. Tire inflation is as follows:

- Highway driving - 60 PSI
- Cross-country driving - 40 PSI
- Sand driving - 40 PSI

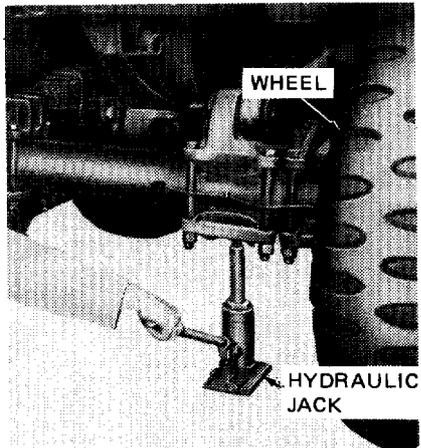
4-30. WHEELS

a. Removal. Remove wheels by following procedures shown in steps 1 thru 5 of figure 4-24.

b. Cleaning, Inspection and Repair.

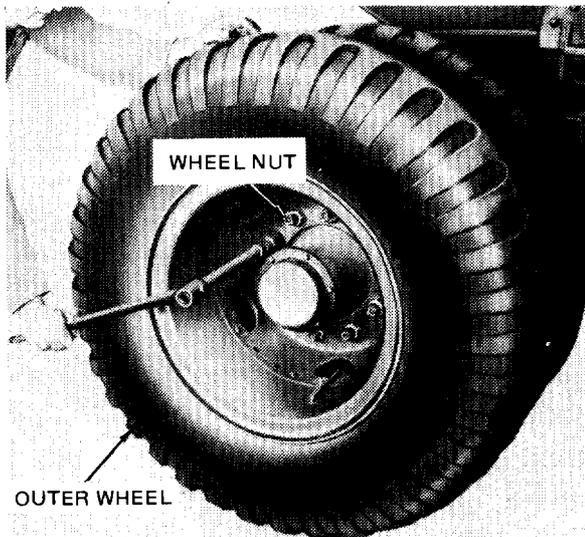
- (1) Remove tire from wheel (para. 4-31) before proceeding with cleaning, inspection and repair.
- (2) Clean wheel with soap and water, then dry thoroughly.
- (3) Inspect wheel carefully for distortion and replace if damaged.
- (4) Check condition of paint and repaint if chipped or cracked paint or bare metal is found.
- (5) Inspect mounting stud holes for apparent wear due to loose mounting; replace wheel if worn.
- (6) Check split retaining ring for wear or distortion and replace if wear or distortion are such as to prevent ring from holding tire effectively,
- (7) Replace tire on wheel (para. 4-31).

c. Installation. Install wheels by following procedures shown in steps 6 thru 10 of figure 4-24.



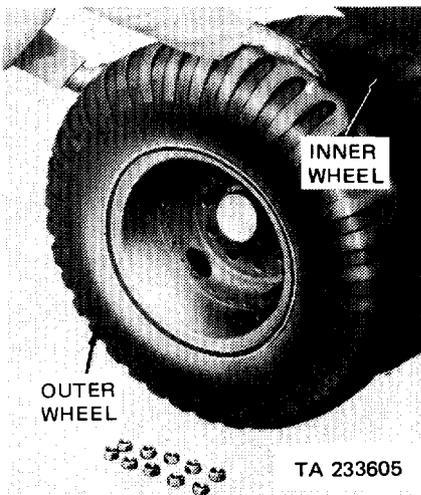
JACKING WHEELS

STEP 1. LOOSEN TEN WHEEL NUTS;
THEN JACK WHEEL CLEAR
OF GROUND.



REMOVING OR INSTALLING WHEEL NUTS

STEP 2. REMOVE TEN WHEEL NUTS SECUR-
ING OUTER WHEELS.

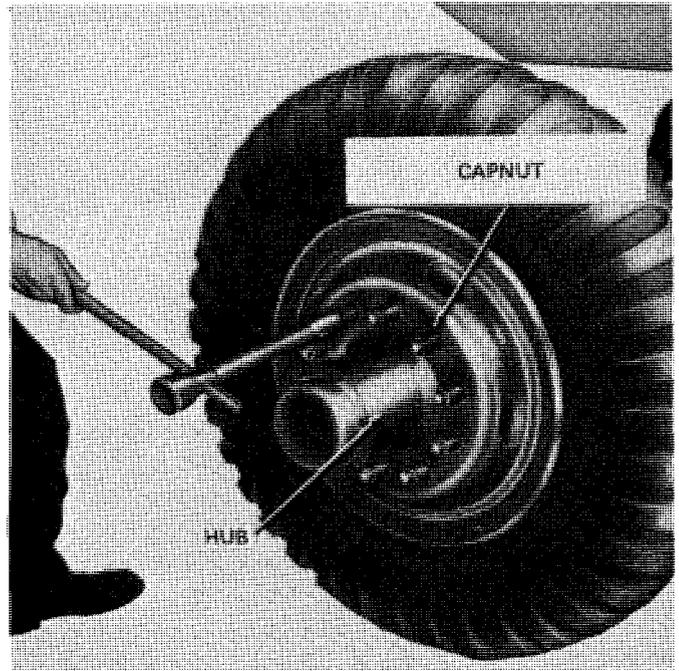


REMOVING OR INSTALLING
OUTER WHEEL

STEP 3. REMOVE OUTER WHEEL.

Figure 4-24. Wheel replacement (Sheet 1 of 2)

STEP 4. REMOVE TEN CAPNUTS
SECURING INNER WHEEL.



REMOVING OR INSTALLING INNER WHEEL

STEP 5. REMOVE INNER WHEEL.

STEP 6. POSITION INNER WHEEL ON
HUB.

STEP 7. SECURE INNER WHEEL WITH
TEN CAPNUTS REMOVED IN
STEP 4. TIGHTEN CAPNUTS
TO 450-500 LB-FT TORQUE.

STEP 8. POSITION OUTER WHEEL ON
HUB.

STEP 9. SECURE OUTER WHEEL WITH
TEN WHEEL NUTS REMOVED
IN STEP 2.

STEP 10. LOWER WHEELS TO GROUND
AND TIGHTEN TEN WHEEL
NUTS INSTALLED IN STEP 9.
TIGHTEN NUTS TO 450-500
LB-FT TORQUE.



REMOVING OR INSTALLING CAPNUTS

Figure 4-24. Wheel replacement (Sheet 2 of 2)

4-31. TIRES

a. Removal (fig. 4-25).

- (1) Remove the valve core and allow the tire to fully deflate.



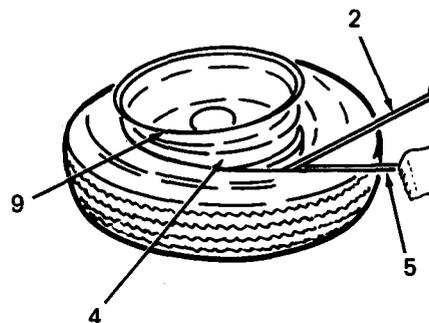
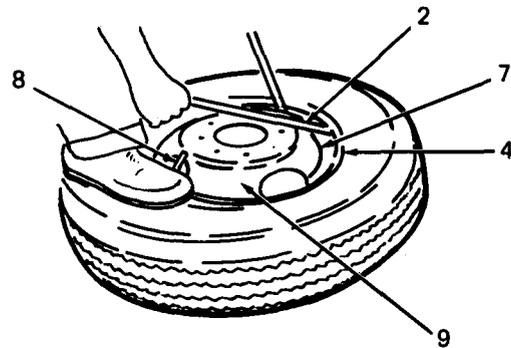
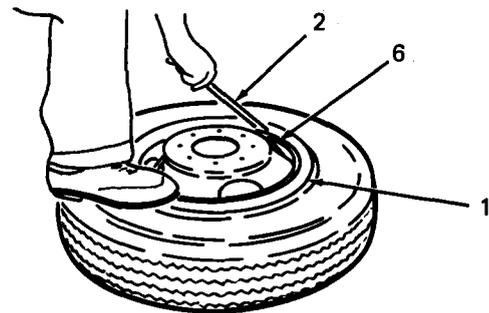
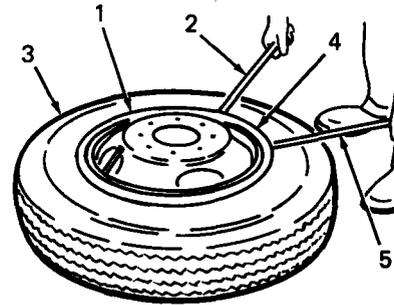
Do not attempt to remove the ring until the tire is fully deflated.

- (2) Place tire and wheel on floor with ring (1) up.
- (3) Drive hooked end of rim tool (2) between tire (3) and ring (1).
- (4) Press downward on bead (4). Progress around rim ring (1) using two tools (2 and 5) until bead (4) is completely free.
- (5) Insert tool (2) into notch (6).
- (6) Force ring (1) into gutter and then pry off.



Do not bend ring (1).

- (7) Pry out and upon ring (1).
- (8) Force upper tire bead (4) into well (7) opposite valve (8).
- (9) Insert tire tool (2) and pry bead (4) over edge of rim (9).
- (10) Remove tube.
- (11) Turn tire over.
- (12) Using rim tools (2 and 5), loosen bead (4).
- (13) Work tools around rim until tire is free.
- (14) Using tools (2 and 5), pry rim (9) from tire.



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Figure 4-25. Tire removal

b. Cleaning.

- (1) Remove all buildup of dirt, grease and foreign material from wheel using a stiff bristle or wire brush.
- (2) Remove all foreign material from inside of tire. Clean bead area with a stiff bristle brush.

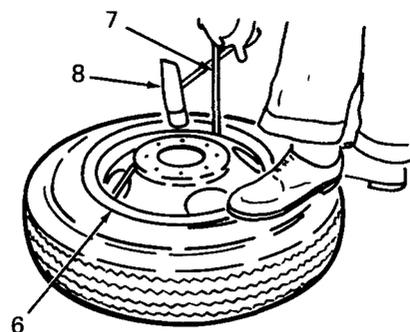
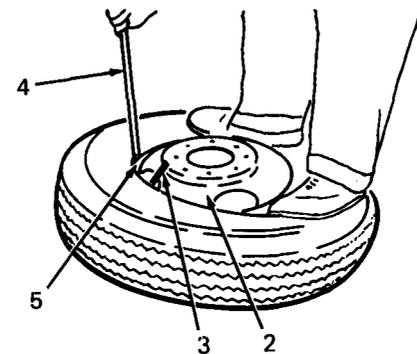
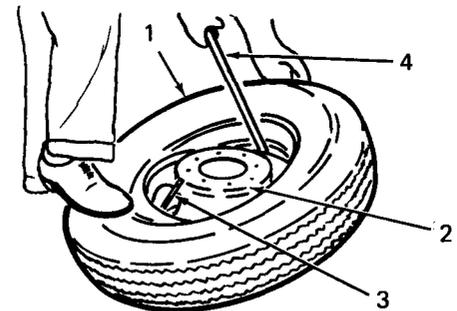
c. Inspection.

- (1) Wheels.
 - (a) Inspect wheels for cracks, dents and warps.
 - (b) Inspect wheels for deformed lug bolt holes.
 - (c) Inspect wheels for rust, corrosion and marred paint.
- (2) Tires.
 - (a) Inspect tires for cracks, holes and signs of separation.
 - (b) Inspect tires for uneven wear.
 - (c) Inspect tires and tubes for deterioration.

d. Repair. Tires and tubes are to be repaired in accordance with TM 9-2610-200-20. No repair is authorized at the organizational level for the rims.

e. Installation

- (1) Place tire (1) on rim (2) and install bottom bead onto rim.
- (2) Install tube so that valve (3) is in line with valve hole.
- (3) Insert valve (3) into valve hole. Valve must point to ring side of wheel.
- (4) Force bead down into well of rim near valve (3).
- (5) Using a tire tool (4), work tire bead over rim (2).
- (6) Start at point opposite valve (3) and press bead (5) over rim (2).
- (7) Using tire tool (4), mount remainder of bead (5) over rim (2). Use extreme care so as not to damage tube.
- (8) Place half of ring (6) in rim gutter.
- (9) Using rim tool (7), pull ring (6) outward, then strike ring (6) with a lead, brass or composition type mallet (8) to seat ring (6).



WARNING

Before inflating tires, check to be sure that tire is seated on rim, the tube is not pinched, and rim is not damaged.

- (10) Install tire valve.

WARNING

Use a safety cage or a clip-on type tire valve to inflate the tire. Do not stand on ring side of tire when inflating.

- (11) Inflate tires to 60 psi.

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Figure 4-26. Tire mounting

4-32. BRAKE DRUM AND HUB

a. Removal of Brake Drum and Hub From Axle. Jack wheels clear of ground and remove wheels from hub (fig. 4-24); then remove brake drum and hub from axle by following procedures shown in steps 1 thru 7 of figure 4-27.

b. Removal of Brake Drum From Hub.

- (1) Remove brake drum and hub from axle (fig. 4-27).
- (2) Remove brake drum from hub by following procedures shown on figure 4-28.

c. Removal of Bearing Cup From Hub.

- (1) With hub removed from brake drum (fig. 4-27), place hub on blocks; then drive bearing cup from hub.
- (2) Turn hub over and repeat the process to remove the opposite cup.

d. Cleaning, Inspection and Repair.

WARNING

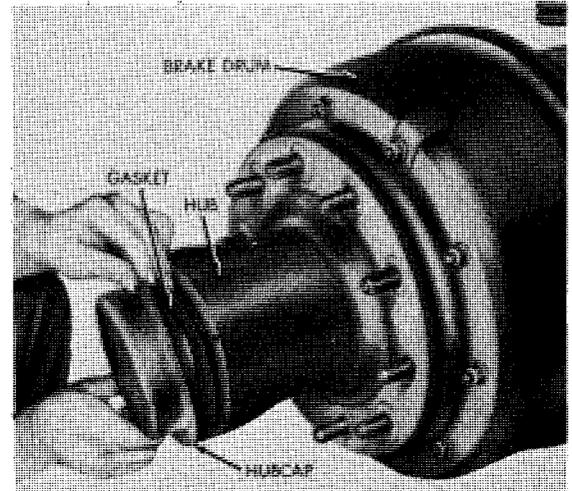
Cleaning solvent (Fed Spec PD-680) is both toxic and flammable. Avoid prolonged breathing of vapors. Avoid skin contact. Use only in well-ventilated area. Keep away from open flame.

- (1) Cleaning. Wash hub, brake drum, and bearings thoroughly with dry-cleaning solvent (PD-680) (item 18, Appendix C) and allow to dry.
- (2) Inspection and repair.
 - (a) Hubs. Inspect hub and adapter carefully for cracks and other damage. Inspect bearing cups for cracks, chipped spots, or wear caused by contact with bearing rollers. Make sure cups fit tightly in hub. If cups are damaged or worn, replace. Oil the bearing cones and rollers lightly and rotate by hand to test for tightness. Replace if there is evidence of scoring, pitting, or wear. Inspect oil seals to make sure contact material is intact and pliable. Inspect threads on wheel studs, capnuts, and wheel nuts; replace if stripped or damaged.
 - (b) Brake drums. Inspect brake drum for warpage, cracks, or scored braking surfaces. Replace drum if cracked or deformed. If scored, notify Direct Support maintenance.

e. Installation of Bearing Cup in Hub.

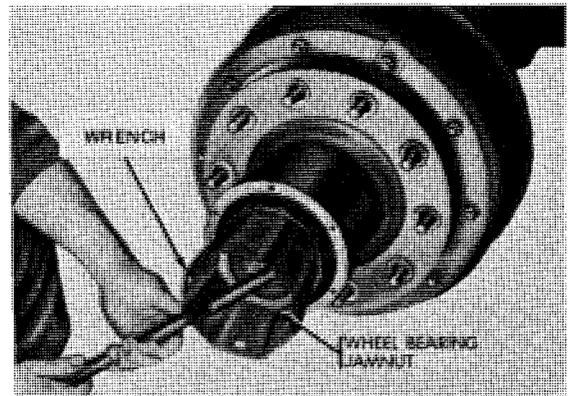
- (1) With hub placed on a solid surface, position cup over cup seat and press into place. Make certain the cup is fully seated.
- (2) Turn hub over and repeat procedure for opposite cup.

STEP 1. REMOVE SIX CAPSCREWS AND LOCKWASHERS (ALL MODELS EXCEPT M127) OR TEN CAPSCREWS AND LOCKWASHERS (M127) WHICH SECURE HUBCAP. REMOVE HUBCAP AND GASKET.



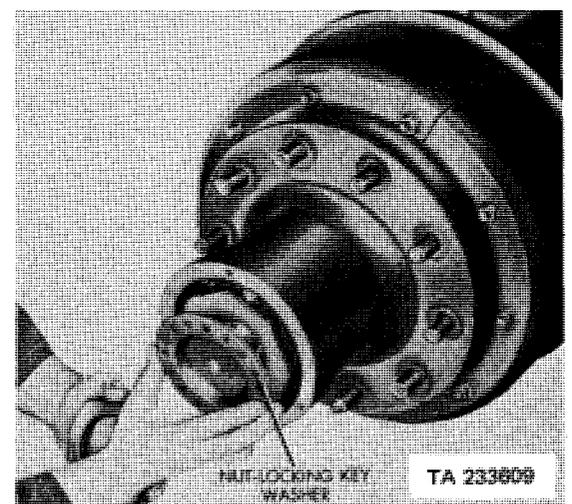
REMOVING OR INSTALLING HUBCAP AND GASKET

STEP 2. USING SMALL END OF WHEEL BEARING NUT WRENCH, REMOVE WHEEL BEARING JAMNUT.



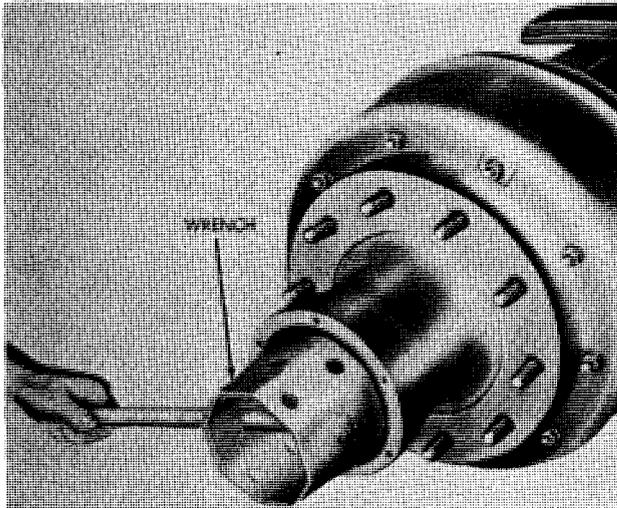
REMOVING OR INSTALLING WHEEL BEARING JAMNUT

STEP 3. SLIDE OFF NUT-LOCKING KEY WASHER.



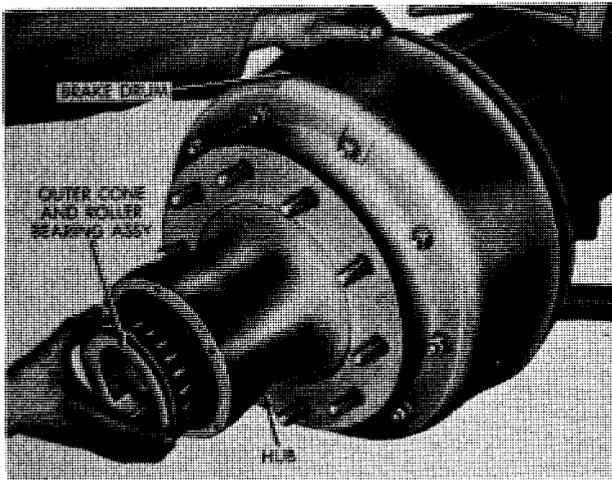
REMOVING OR INSTALLING NUT-LOCKING KEY WASHER

Figure 4-27. Hub and brake drum replacement (Sheet 1 of 3)



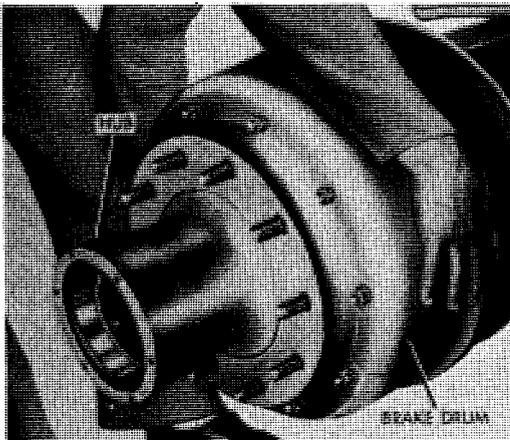
REMOVING OR INSTALLING WHEEL BEARING ADJUSTMENT NUT

STEP 4. WITH LARGE END OF WHEEL BEARING NUT WRENCH, REMOVE WHEEL BEARING ADJUSTING NUT.



REMOVING OR INSTALLING OUTER CONE AND ROLLER BEARING ASSY

STEP 5. MOVE HUB AND BRAKE DRUM ON AXLE SPINDLE TO LOOSEN OUTER CONE AND ROLLER BEARING ASSEMBLY. REMOVE OUTER CONE AND ROLLER BEARING ASSEMBLY.



REMOVING OR INSTALLING HUB AND BRAKE DRUM

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STEP 6. REMOVE HUB AND BRAKE DRUM FROM AXLE SPINDLE.

Figure 4-27, Hub and brake drum replacement (Sheet 2 of 3)

STEP 7. DRIVE OIL SEAL OUT OF HUB; THEN REMOVE INNER CONE AND ROLLER BEARING ASSEMBLY.

STEP 8. REPLACE INNER CONE AND ROLLER BEARING ASSEMBLY REMOVED IN STEP 7; THEN REPLACE OIL SEAL. OIL SEAL SHOULD BE CAREFULLY PRESSED INTO PLACE TO PREVENT DAMAGE.

STEP 9. REPLACE HUB AND BRAKE DRUM REMOVED IN STEP 6 ON AXLE SPINDLE, TAKING CARE THAT OIL SEAL SLIPS ON WITHOUT DAMAGE.

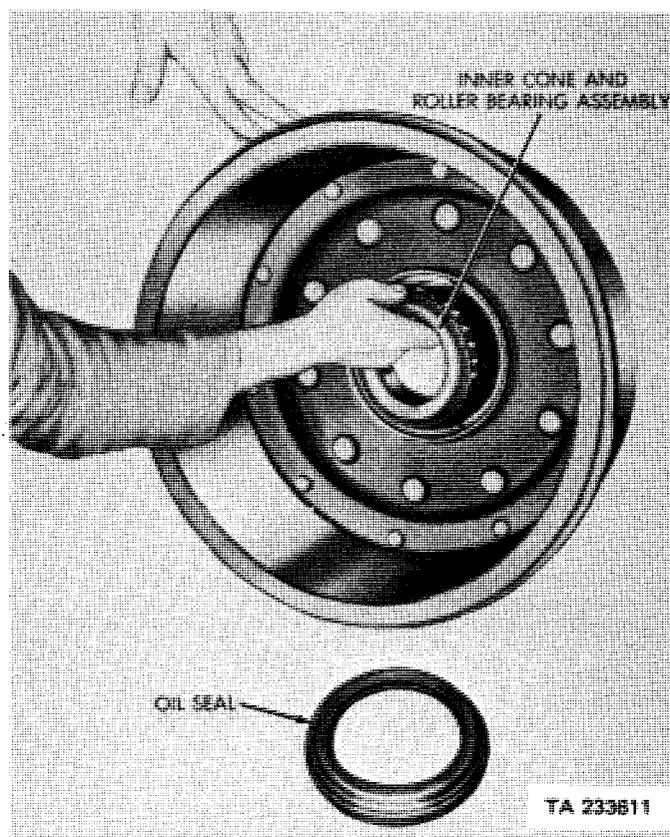
STEP 10. REPLACE OUTER CONE AND ROLLER BEARING ASSEMBLY REMOVED IN STEP 5.

STEP 11. WITH LARGE END OF WHEEL BEARING NUT WRENCH, TIGHTEN WHEEL BEARING ADJUSTING NUT ON AXLE SPINDLE WHILE TURNING HUB AND BRAKE DRUM. WHEN HUB BINDS, BACK OFF NUT APPROXIMATELY ONE-EIGHTH ($1/8$) TURN. CHECK ADJUSTMENT BY ATTEMPTING TO ROCK HUB AND BRAKE DRUM ON AXLE SPINDLE.

STEP 12. REPLACE NUT-LOCKING KEY WASHER REMOVED IN STEP 3. ADJUST WHEEL BEARING ADJUSTING NUT SO THAT PIN OF NUT WILL MATE WITH NEAREST HOLE IN KEY WASHER.

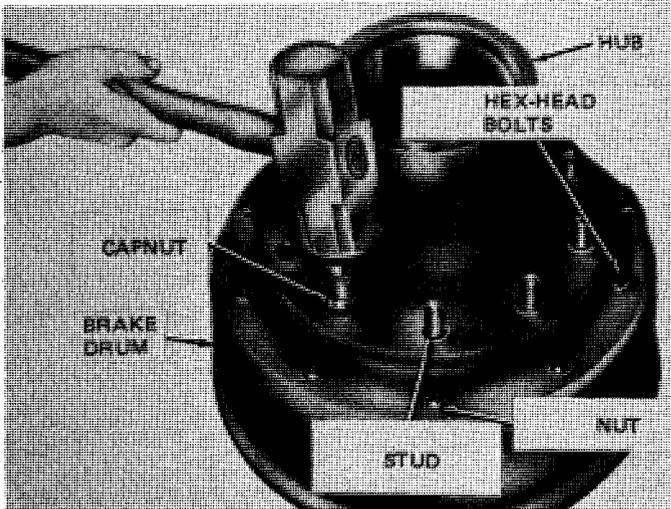
STEP 13. USING SMALL END OF WHEEL BEARING NUT WRENCH, TIGHTEN WHEEL BEARING JAMNUT REMOVED IN STEP 2, TO BEAR AGAINST NUT-LOCKING KEY WASHER.

STEP 14. INSTALL HUBCAP AND GASKET REMOVED IN STEP 1. SECURE WITH CAPSCREWS AND LOCK-WASHERS REMOVED IN STEP 1.



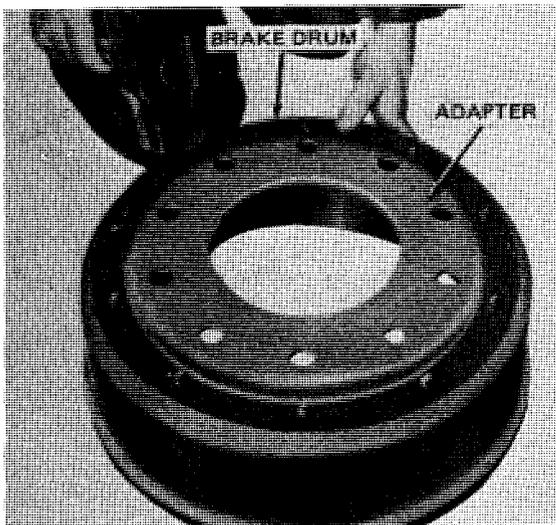
REMOVING OR INSTALLING OIL SEAL AND INNER CONE AND ROLLER BEARING ASSY

Figure 4-27. Hub and brake drum replacement (Sheet 3 of 3)



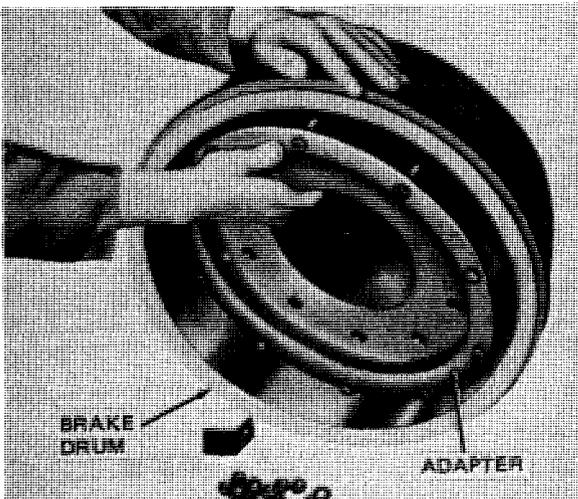
REMOVING HUB FROM BRAKE DRUM

STEP 1. PLACE CAPNUTS OVER TEN STUDS AND DRIVE STUDS FROM HUB AND BRAKE DRUM. REMOVE HUB.



LOOSENING ADAPTER FROM BRAKE DRUM

STEP 2. REMOVE TEN HEX-HEAD BOLTS, LOCKWASHERS AND NUTS THAT SECURE ADAPTER AND OIL DEFLECTOR (M127) TO BRAKE DRUM. TAP ADAPTER TO LOOSEN FROM BRAKE DRUM. FOR ALL OTHER MODELS, SEPARATE ADAPTER FROM BRAKE DRUM.



SEPARATING ADAPTER AND BRAKE DRUM

STEP 3. SEPARATE ADAPTER AND DEFLECTOR FROM BRAKE DRUM (M127 ONLY). SEPARATE ADAPTER FROM BRAKE DRUM (ALL OTHER MODELS).

Figure 4-28. Removal of brake drum from hub

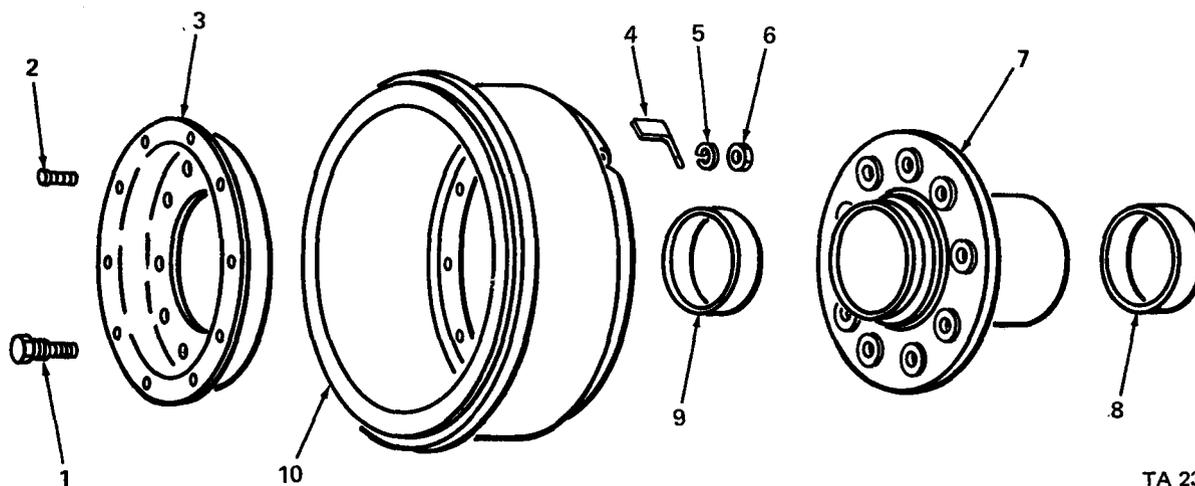
f. Installation of Brake Drum on Hub.

NOTE

The key numbers shown below in parentheses refer to figure 4-29.

- (1) Position adapter (3) and oil deflector (M127 only) in brake drum (10) and secure with ten 7/16 X 1/2-inch bolts (2), 7/16-inch lockwashers (5) and 7/16-inch nuts (6). Assure that inspection hole cover (4) is secured at this time.
- (2) Place ten wheel studs (1) in adapter taking care that serrations in studs match with those in the adapter. A slight tap may be required to drive the studs in.
- (3) Position hub (7) on the ten wheel studs, again making sure that serrations match.

g. Installation of Brake Drum and Hub on Axle. Install brake drum and hub on axle by following procedures shown in step 8 thru 14 of figure 4-27; then replace wheels on hub (fig. 4-24) and lower wheels to ground.



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- | | |
|---------------------------|----------------|
| 1. Stud, wheel | 6. Nut |
| 2. Bolt, hex head | 7. Hub |
| 3. Adapter | 8. Cup |
| 4. Cover, inspection hole | 9. cup |
| 5. Lockwasher | 10. Brake Drum |

Figure 4-29. Hub and Brake drum, typical - exploded view

Section VIII. AXLES

	Page		Page
Overview	4-54	Axle Replacement	4-54
Description of Rear Axle	4-54	Wiper Replacement	4-57

4-33. OVERVIEW

This section pertains to organizational maintenance of the semitrailers' axles. Included are removal and installation procedures for the axles and oil seal wiper. Removal and installation procedures for both the forward rear, and rear rear axle are the same.

4-34. DESCRIPTION OF REAR AXLE

The semitrailers have two tubular axles, the forward rear axle and the rear rear axle (fig. 4-30), with six adapters and two flanges each welded to their external surface. The adapters provide seating surfaces for spring guide brackets, torque rod brackets and torque rod mounting brackets. The flanges are provided for mounting brake backing plates to the axles.

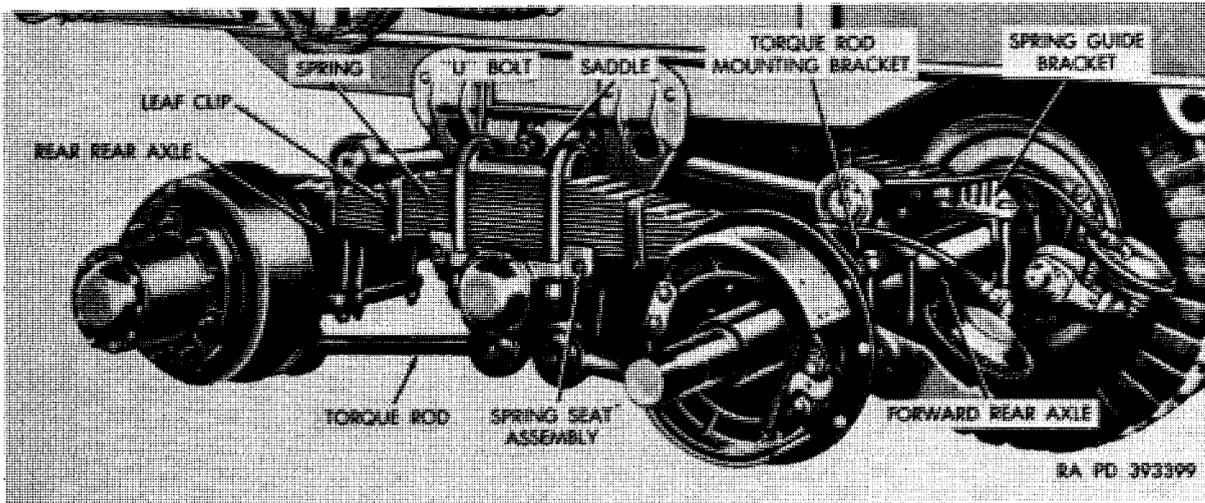


Figure 4-30. Rear axles and suspension (M127)

4-35. AXLE REPLACEMENT

Bearing surface on spindle of axle should not exceed wear limits given in repair and rebuild standards (para. 5-17). If bearing surfaces exceed wear limits, or if any portion of axle is damaged to the extent that it is unsafe for use, remove and replace axle (see a and b below).

a. Removal.

- (1) Models except M127. Remove wheels (fig.4-24); then remove axles by following procedures shown in steps 1 thru 7 of fig. 4-32.
- (2) Models M127.
 - (a) Disconnect flexible air lines at air chambers (fig. 4-31).
 - (b) Follow removal procedures shown in steps 4 thru 7 of figure 4-32.

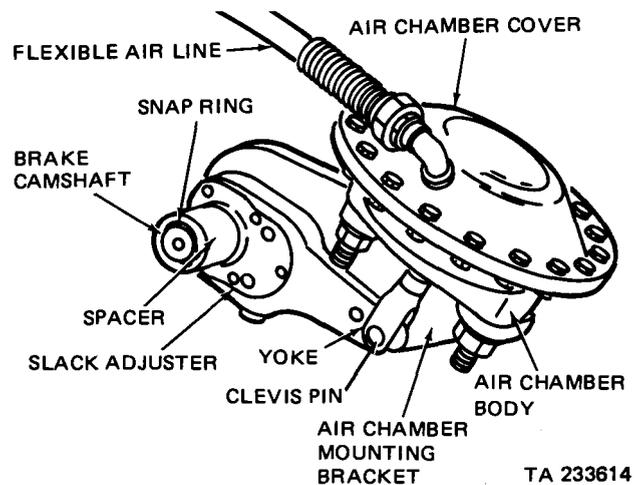
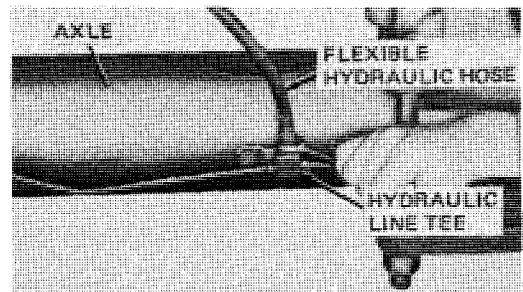


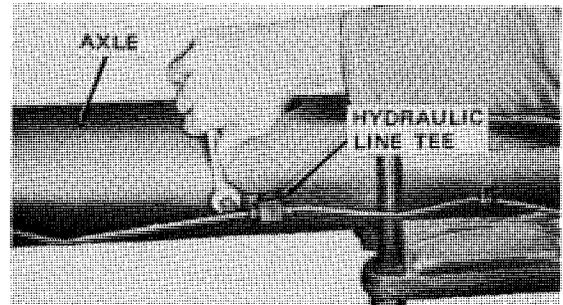
Figure 4-31. Slack adjuster and air chamber (M127)

STEP 1. DISCONNECT HYDRAULIC LINES AT FITTINGS IN WHEEL CYLINDERS; THEN DISCONNECT FLEXIBLE HYDRAULIC HOSE AT HYDRAULIC LINE TEE MOUNTED ON REAR OF AXLE.



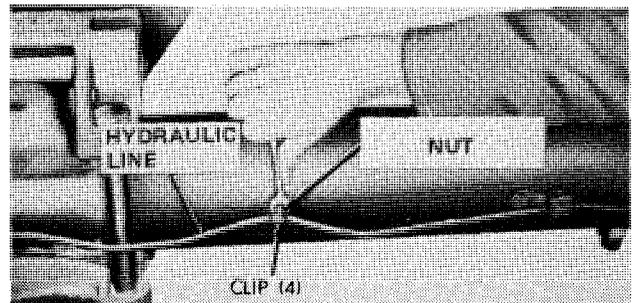
DISCONNECTING OR CONNECTING FLEXIBLE HYDRAULIC HOSE

STEP 2. REMOVE HYDRAULIC LINE TEE FROM AXLE.



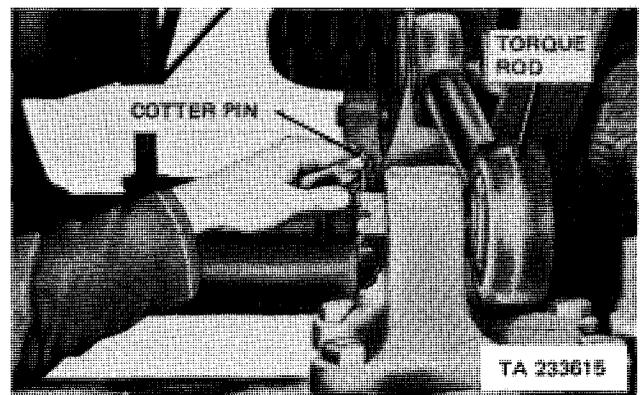
REMOVING OR INSTALLING HYDRAULIC LINE TEE

STEP 3. REMOVE FOUR NUTS SECURING FOUR HYDRAULIC LINE CLIPS; REMOVE CLIPS AND HYDRAULIC LINE.



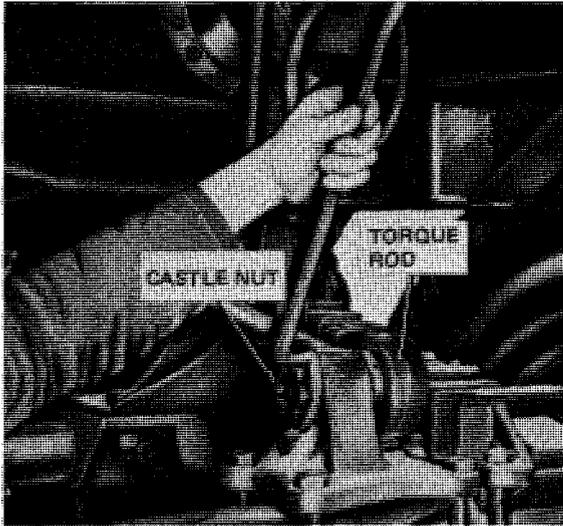
REMOVING OR INSTALLING HYDRAULIC LINES AND CLIPS

STEP 4. REMOVE SIX COTTER PINS FROM THREADED PORTION OF TORQUE ROD BALLS.



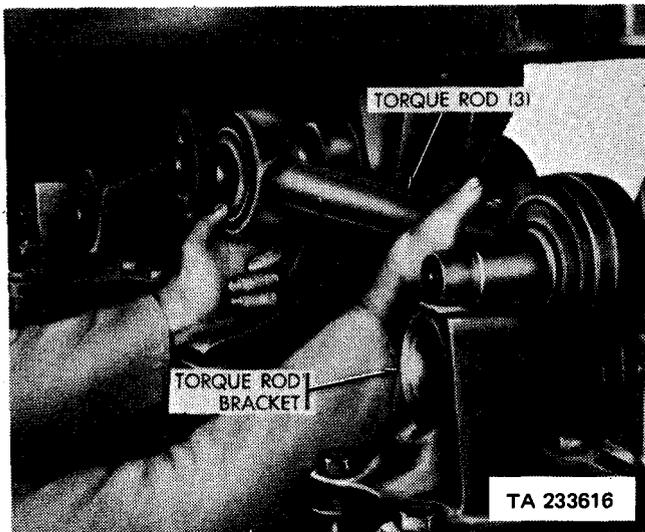
REMOVING OR INSTALLING COTTER PINS

Figure 4-32. Axle replacement (Sheet 1 of 3)



REMOVING OR INSTALLING
CASTLE NUTS

STEP 5. REMOVE SIX CASTLE NUTS
SECURING THREE TORQUE RODS.

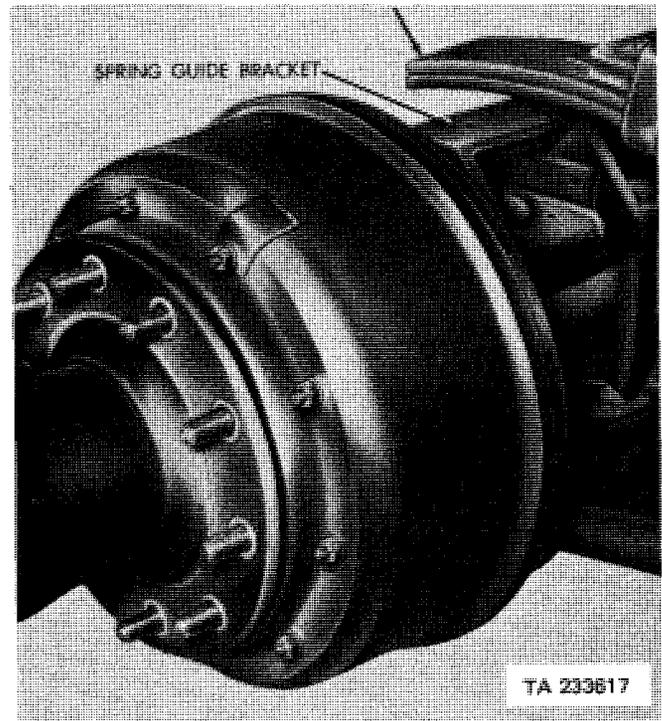


REMOVING OR INSTALLING
TORQUE RODS

STEP 6. REMOVE THREE TORQUE RODS
FROM TORQUE ROD BRACKETS.

Figure 4-32. Axle replacement (Sheet 2 of 3)

- STEP 7. MOVE AXLE ON HYDRAULIC DOLLY TO FREE ENDS OF SPRINGS FROM SPRING GUIDE BRACKETS. ROLL AXLE FROM UNDER SEMITRAILER.
- STEP 8. USING HYDRAULIC DOLLY, ROLL AXLE UNDER SEMITRAILER SO THAT ENDS OF SPRINGS FIT INTO SPRING GUIDE BRACKETS.
- STEP 9. INSTALL THREE TORQUE RODS REMOVED IN STEP 6.
- STEP 10. SECURE TORQUE RODS WITH SIX CASTLE NUTS REMOVED IN STEP 5.
- STEP 11. INSTALL COTTER PINS REMOVED IN STEP 4.
- STEP 12. INSTALL HYDRAULIC LINE AND CLIPS REMOVED IN STEP 3.
- STEP 13. INSTALL HYDRAULIC LINE TEE REMOVED IN STEP 2.
- STEP 14. CONNECT FLEXIBLE HYDRAULIC LINE DISCONNECTED IN STEP 1, AT TEE AND HYDRAULIC LINES, DISCONNECTED IN STEP 1, AT WHEEL CYLINDER FITTINGS.



REMOVING OR INSTALLING AXLE

Figure 4-32. Axle replacement (Sheet 3 of 3)

4-35. AXLE REPLACEMENT (Cont)

b. Installation.

- (1) All Models except M127. Install axles by following procedures shown in step 8 thru 14 of fig. 4-32; then install wheels (fig. 4-24) .
- (2) Model M127.
 - (a) Follow installation procedures shown in steps 8 thru 11 of fig.4-32.
 - (b) Connect flexible air lines at air chambers (fig. 4-31) .

4-36. WIPER REPLACEMENT

a. Removal. Using a hammer, drive wiper off axle. A new wiper will be used for replacement. Therefore, if necessary, a cold chisel may be used to cut old wiper off axle.

b. Installation. Install new oil seal wiper on axle using wiper replacer (fig. 4-33).

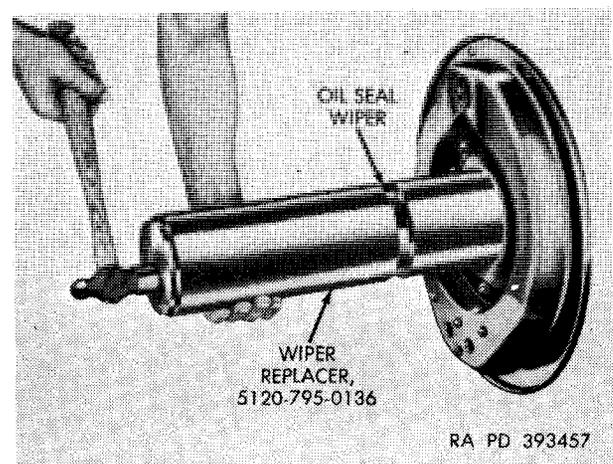


Figure 4-33. Installing oil seal wiper using wiper replacer

Section IX. BRAKES

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4-37. OVERVIEW

This section covers organizational maintenance of components of both the air and the air-over-hydraulic brake systems. Included in this section is information on:

- . Description
- . Adjustment
- . Tests
- . Removal
- . Repair
- . Installation

4-38. DESCRIPTION OF BRAKES

a. General. When the brake system of the semitrailer is properly connected to the service brake system of the towing vehicle, the service brake pedal on the towing vehicle controls the brakes on both vehicles. All units needed to produce and maintain a constant supply of compressed air are located on the towing vehicle and must operate effectively to insure proper performance of the semitrailer brakes.

b. Type of Brakes.

- (1) M127. The brakes are the air-actuated type (fig. 4-34). Air pressure is used to operate the mechanical internal brakes at the semitrailer wheels. The brakes are applied in proportion to the foot pressure applied to the brake pedal of the towing vehicle.
- (2) All Models except M127. The brakes are the air-over-hydraulic type (fig. 4-35). Two hydraulic master cylinders, with air chambers operate the hydraulically actuated internal brakes.

c. Brake system Units.

- (1) M127. The brake system consists of the internal brakes, slack adjusters, service air line, emergency air line, air chambers, emergency relay valve, air reservoir, and connections.
- (2) All Models except M127. The brake system consists of the internal brakes, hydraulic master cylinder, hydraulic lines, service air line, emergency air line, air chambers, emergency relay valve, air reservoir, and connections.

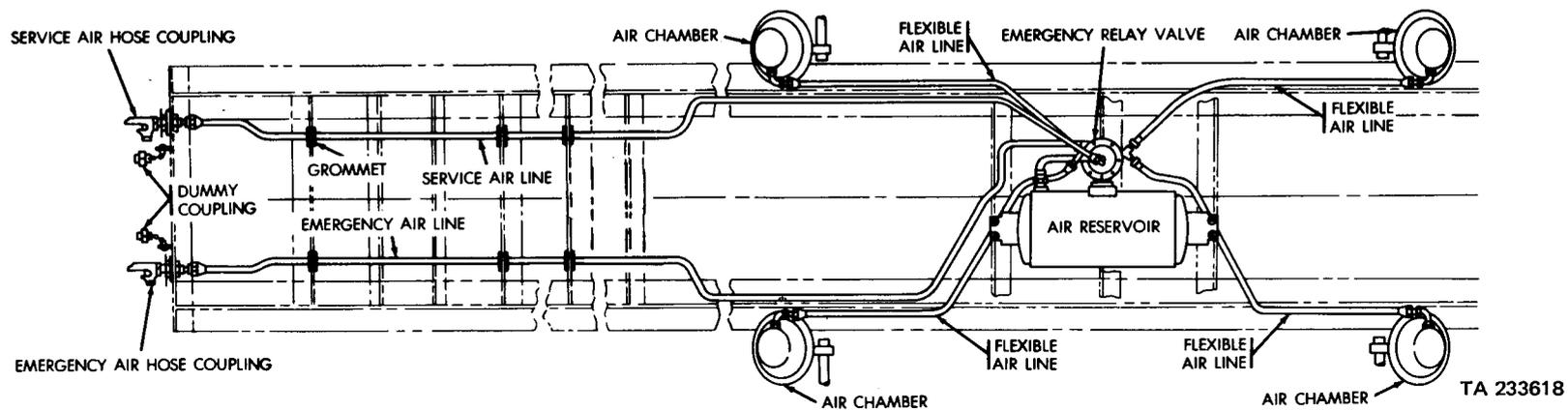


Figure 4-34. Schematic diagram of brake system (M127)

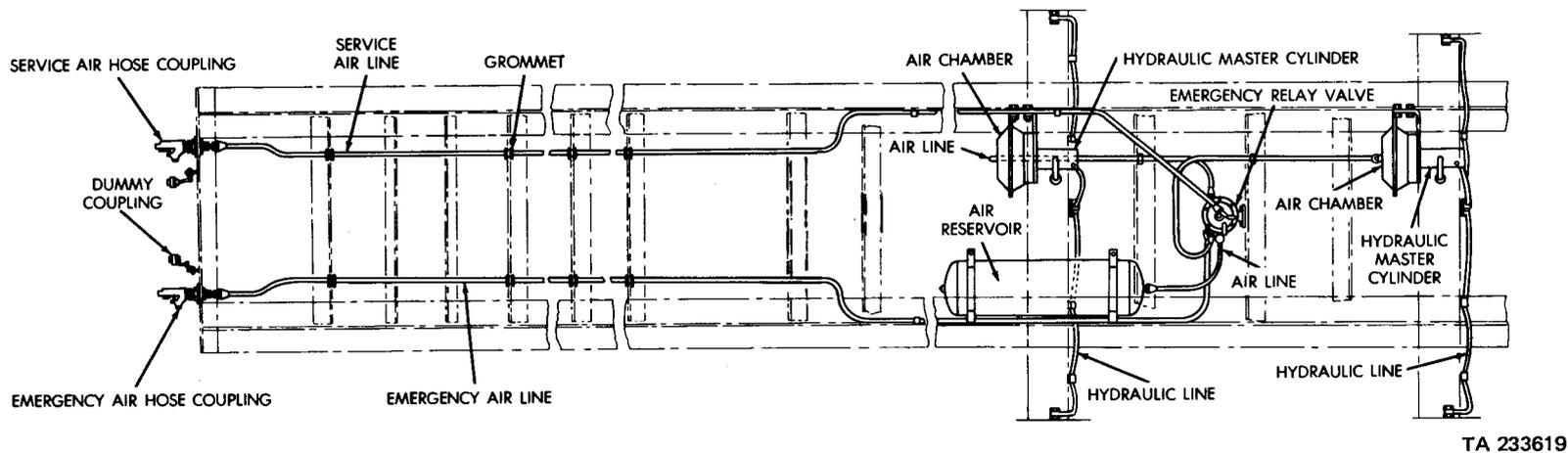


Figure 4-35. Schematic diagram of brake system (All models except M127)

4-38. DESCRIPTION OF BRAKES (Cont)

d. Internal Brakes.

(1) M127 (fig. 4-36).

- (a) The internal brakes are located within the brake drums and are supported by the backing plates which are riveted to flanges on the axles. Camshaft mounting brackets, riveted to the back of the backing plates, carry the brake camshafts on needle bearings.
- (b) Each internal brake has two brake shoes, the outer surfaces of which are fitted with brake linings. Each shoe is anchored at one end on an eccentric anchor pin on which it pivots. The other end of each shoe is free to be pushed out or pulled.
- (c) An S-shaped cam on the end of the camshaft is mounted between the free ends of the two shoes. Rotation of the cam forces the shoes out causing the brake linings to contact the drum.
- (d) A brake shoe tension spring, hooked on spring anchor pins, near the free ends of the brake shoes, retracts the shoes from the drum and holds them in a retracted position until the brakes are applied again.
- (e) The free ends of the brake shoes are fitted with follower rollers which ride on the S-shaped cam. The contour of the cam is so designed that the positions of the brake shoes with relation to the drum are determined by the points on which the cam follower rests on the cam. Minor adjustment of the brake (para. 4-39) adjusts the cam in the proper position to eliminate excessive movement when the brakes are applied.
- (f) The eccentric anchor pins at the pivoted ends of the brake shoes relate the brake shoe arc to the contour of the brake drum.

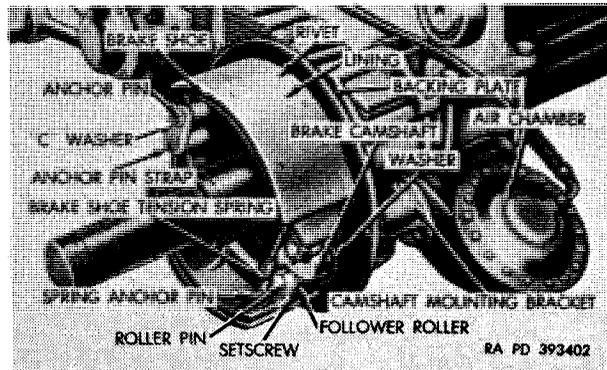


Figure 4-36. Internal brakes (M127)

(2) All Models except M127 (fig. 4-37).

- (a) The internal brakes are the self-centering type. This type of brake has two identical brake shoes and two identical wheel cylinder assemblies. The brake shoes are arranged with the toes opposite each other on the brake drum diameter. Each double-end wheel cylinder is placed between the toe of one brake shoe and the heel of the other brake shoe. The brake shoes are always forward-acting and independently actuated in the direction of drum rotation. The brake shoes are anchored at either toe or heel, depending on the direction of rotation of the drum.

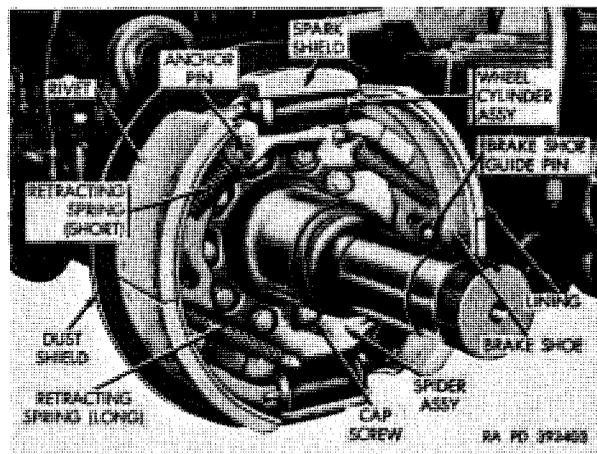


Figure 4-37. Internal brakes
(All models except M127)

- (b) When brakes are applied, each wheel cylinder's piston applies equal force against the toe and heel of each brake shoe. As the brake shoe linings come into contact with the brake drum, self-energization develops. Rotation of the brake drum pulls the brake shoe against the brake drum's surface to augment the hydraulic force acting on the brake shoes to produce additional braking action.
- (c) The brake shoes are of the floating type, each being held in position by a brake shoe guide pin, plain washer, C-washer, and two retracting springs. Each short retracting spring is hooked to the anchor end of the brake shoe and to a projection on the brake shoe anchor pin. Each long retracting spring is hooked to an anchor support at one end and the center portions of a brake shoe at the opposite end.

e. Hydraulic Master Cylinder (All Models Except M127). The hydraulic master cylinders (fig. 4-38) are installed and secured with the two air chambers to mounting brackets secured to chassis frame cross-members. Movement within the air chamber causes a corresponding movement of a piston in the hydraulic master cylinder. This movement causes hydraulic fluid in the hydraulic master cylinder to be put under pressure and forced into the wheel cylinders for a brake application. A filler cap is provided at the top of the hydraulic master cylinder's body for use when filling the cylinder with hydraulic fluid.

f. Wheel Cylinders (All Models Except M127). The wheel cylinders (fig. 4-37) are self-centering. The wheel cylinder components include a piston return spring, piston cups, long and short pistons, and boots. The piston which actuates the toes of the brake shoes has a longer cylinder bore than the shorter piston in order to compensate for greater movement of the shoe toe resulting from brake adjustment for wear of lining. The bleeder screw and inlet ports are offset in the cylinder, toward the short piston end.

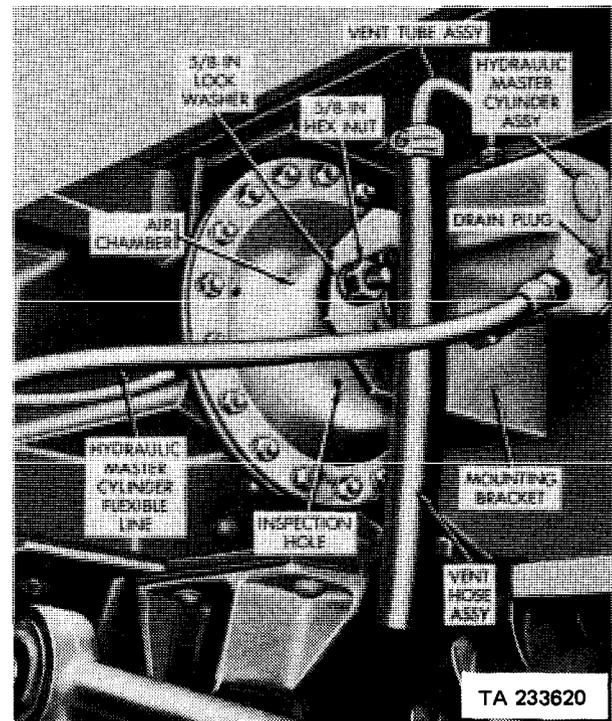


Figure 4-38. Hydraulic master cylinder
(All Models except M127)

g. Hydraulic Lines (All Models Except M127). The hydraulic lines (fig. 4-35) consist of two flexible lines and two rigid lines. The two flexible lines connect between each hydraulic master cylinder and a rigid hydraulic line mounted on each axle. A rigid line, with a tee in the center for connection to the flexible line is mounted on each of the axles. These rigid lines transmit hydraulic fluid to each internal brake assembly.

4-38. DESCRIPTION OF BRAKES (Cont)

h. Slack Adjusters (M127). The slack adjusters (fig. 4-39) are levers mounted on the brake camshafts. Push rods of the air chambers operate the slack adjusters which in turn rotate the camshafts causing the cams to press the brake shoes against the brake drums. Provision is made to adjust the angle of the slack adjuster on the camshaft to afford the most efficient brake operation. This is obtained when the travel of the arm of the slack adjuster is held to a minimum and full leverage is used. Such adjustment is termed the "minor" adjustment of the brakes. Gearing in the housing of the slack adjuster permits positioning it at precise angles on the camshaft. A round opening through the body of the slack adjuster exposes the splined hub of a worm wheel. The splines in the worm wheel engage the splines on the brake camshaft. A worm gear in the housing engages the worm wheel. The worm gear is mounted on a worm shaft, one end of which protrudes through the slack adjuster. When the worm shaft is turned with a wrench, the worm gear causes the housing to rotate around the worm wheel. The worm shaft is locked against undesirable turning by a lock spring.

i. Service Air Line. The service air line (figs. 4-34 and 4-35) on the semitrailer extends from the air hose coupling (tagged SERVICE), on the right side of the front crossmember, along the right chassis longitudinal frame rail to an elbow in the top of the emergency relay valve (figs. 4-40 and 4-41). Its purpose is to transmit changes in air pressure originated in the towing vehicle, which causes the emergency relay valve to function.

j. Emergency Air Line. The emergency air line (figs. 4-34 and 4-35) on the semitrailer extends from its air hose coupling (tagged EMERGENCY), on the left side of the front crossmember, along the left longitudinal frame rail to a threaded opening near the bottom of the emergency relay valve (figs. 4-40 and 4-41). This air line transmits compressed air to fill the semitrailer reservoir and to maintain the proper air pressure, under control of the emergency relay valve, to apply the brakes on the semitrailer.

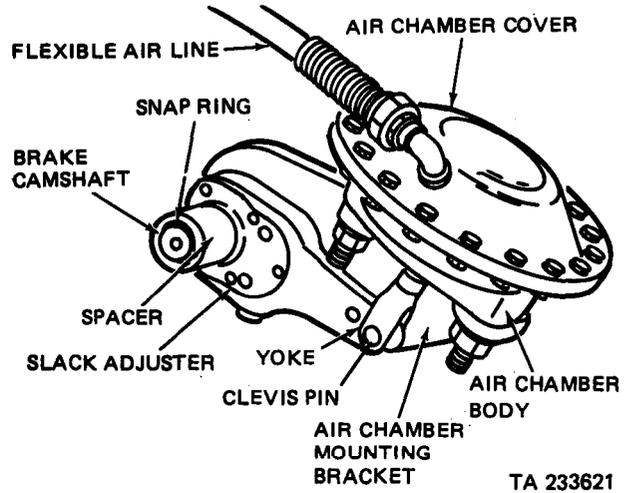


Figure 4-39. Slack adjuster and air chamber (M127)

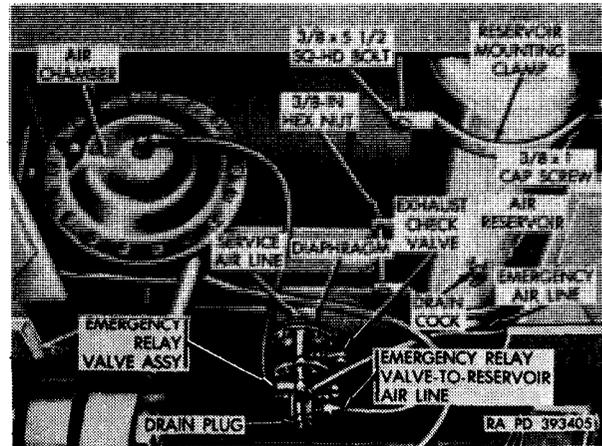


Figure 4-40. Air chamber, emergency relay valve, air reservoir and lines (All models except M127)

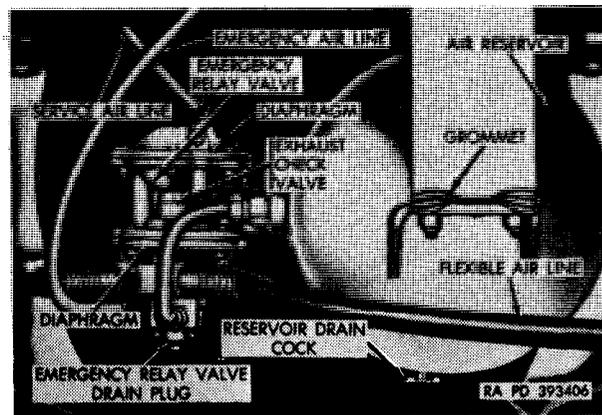


Figure 4-41. Emergency relay valve, air reservoir and lines (M127)

k. Air Chamber (M127). Air chambers (fig. 4-39) are mounted on brackets adjacent to the internal wheel brakes in front of the forward-rear axle and at the back of the rear rear axle. These air chambers convert air pressure into mechanical motion to operate the slack adjusters when applying brakes.

l. Air Chamber (All Models except M127). These air chambers (fig. 4-38) are installed and secured with the two hydraulic master cylinders to mounting brackets secured to chassis frame crossmembers. Compressed air admitted into the air chamber acts against a diaphragm to which a push rod is attached. Movement of this push rod in turn causes a corresponding movement of a piston in the hydraulic master cylinder thereby converting air pressure into hydraulic pressure for actuation of the brakes.

m. Emergency Relay Valve. The emergency relay valve on M 127 semitrailers is mounted on the semitrailer air reservoir. The emergency relay valve (fig.4-40) on all models except M127 semitrailers, is mounted on a crossmember of the chassis frame at a point above and between the axles. The valve performs the same basic function on all of the above semitrailers. The valve directly controls the service brakes on the semitrailer. It speeds brake action by releasing air from the air reservoir, on the semitrailer directly to the air chambers. This eliminates the loss of time that would result if sufficient air to operate the brakes had to travel from an air reservoir on the towing vehicle to the air chambers. Also this valve controls the flow of air to and from the semitrailer air reservoir, and automatically applies the brakes if the semitrailer breaks away from the towing vehicle or if there is a serious leak in the emergency air line.

n. Air Filters. No longer used. See para. 4-48b.

o. Air Reservoir. The air reservoir (figs. 4-34 and 4-41) on M127 semitrailers, is mounted on brackets attached to the chassis frame between the suspension mounting brackets. The air reservoir (figs. 4-35 and 4-41) on all models except M127 semitrailers, is secured by mounting clamps mounted on the left longitudinal frame rail just forward of the front-rear axle. The air reservoir is connected by a tube to the emergency relay valve and provides a supply of air on the semitrailer through the valve for applying the brakes. It is equipped with a drain cock for draining accumulations of moisture and for releasing air pressure in the semitrailer brake system, in the event of locked brakes.

4-39. MAINTENANCE AND ADJUSTMENTS

a. Brake Adjustments.

- (1) General. Brake adjustment to compensate for normal wear is termed "minor adjustment". Following a rebuild or when new linings are installed, each brake shoe must be adjusted to center brake shoe arc in relation to the brakedrum. This is called "major adjustment".

NOTE

A satisfactory brake adjustment cannot be obtained unless wheel bearings are in proper adjustment (fig.4-27 step 11). Do not adjust brakes when drums are hot.

- (2) Model M127.

(a) Minor adjustment (fig. 4-42).

1. Release brakes. Jack up axle so that wheels may be rotated freely.
2. With wrench, depress spring lock on adjusting worm shaft of brake adjuster and turn worm shaft until wheel cannot be turned freely by hand. Back off on shaft just enough so wheel can be turned freely by hand. After completing adjustment, make certain that head of shaft is in position to fit into slot of lock and that lock is in position to prevent further turning on shaft.
3. Repeat this procedure with brake at opposite end of same axle. Make adjustment of each brake as uniform as possible. Repeat procedure on brakes on other axle.

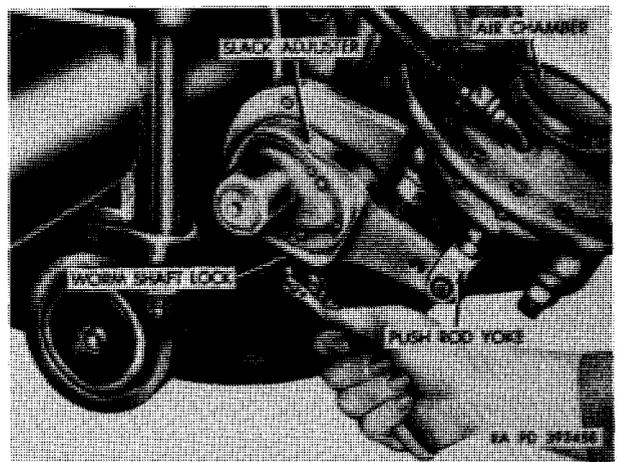


Figure 4-42. Minor brake adjustment (M127)

4-39. MAINTENANCE AND ADJUSTMENTS (Cont)

(b) Major adjustment (figs. 4-43 and 4-44). Wheels must be removed from hub (fig. 4-24) before making major adjustment to give access to inspection hole in drum.

1. Remove nut and lockwasher which secure inspection hole cover over inspection hole in brake drum.
2. Loosen locknut on brake shoe anchor pin (fig.4-43). Rotate brake drum until opening is 1½ inch from end of one brake lining, nearest anchor pin. Insert 0.005-inch feeler gage (fig.4-44) between surface of drum and brake lining and with wrench, turn anchor pin until 0.005-inch clearance is obtained. Hold anchor pin with one wrench and with a second wrench tighten locknut. Check clearance again.
3. Rotate drum until inspection hole is 1½ inch from other end of same brake shoe, nearest camshaft. Insert 0.010-inch feeler gage (fig. 4-44) and turn worm shaft (fig. 4-42) of slack adjuster until 0.010-inch clearance is obtained. Recheck clearance (2 above) at other end of brakeshoe.
4. Repeat procedure outlined in 2 and 3 above on each hole of each brake. Check all anchor pin locknuts and make certain worm shaft of each slack adjuster is locked.

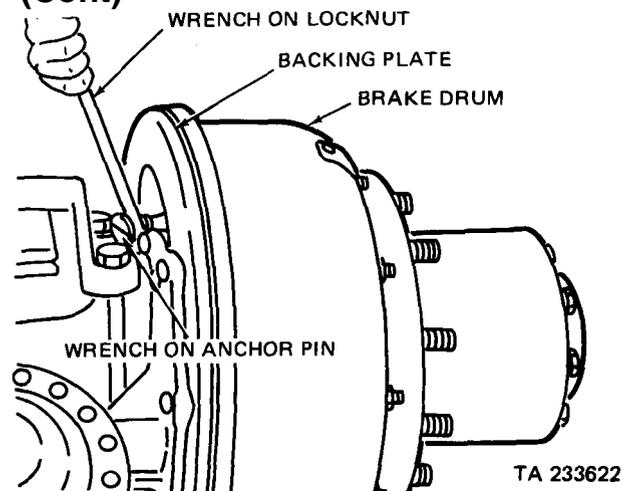


Figure 4-43. Major brake adjustment (Model M127)

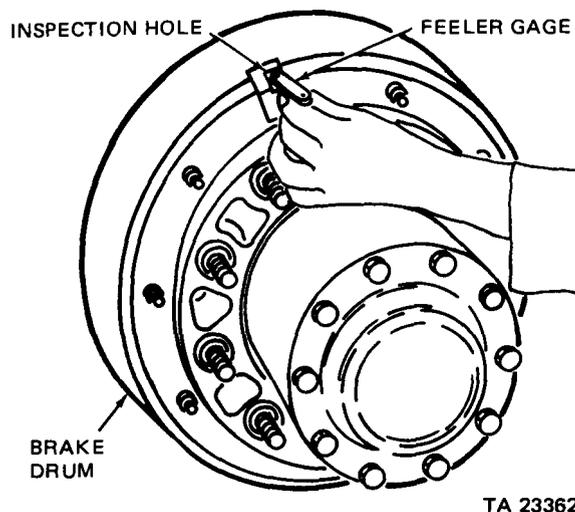


Figure 4-44. Checking brake lining clearance with feeler gage (Model M127)

(3) All Models except M127.

(a) General. Two adjusting shafts protrude from back of brake spider and dust shield enclosure of the brake assembly. Each shaft provides the lining clearance adjustment for one brake shoe.

(b) Brake lining clearance adjustment.

1. Release brakes on towing vehicle. Jack up axle so that wheels may be rotated freely.
2. Engage adjusting shaft (fig. 4-45) with a 3/8-inch socket wrench. Rotate shaft in direction of forward wheel rotation to decrease brake lining clearance until lining drags on drum. Check drag on drum by rotating wheel in forward direction of rotation. Make a brake application to be certain shoes are centered; adjust as required.

3. Relieve drag on drum by rotating shaft in opposite direction. Then rotate shaft one complete turn (two complete turns with a new lining) to provide correct lining clearance.
4. Adjust both shoes in each brake to as near same lining-to-drum clearance as possible.

b. Bleeding of Hydraulic Brake System.

- (1) The semitrailer brake system must be connected to the brake system of the towing vehicle for manual bleeding operations since the brake pedal must be pressed and released to actuate the system. The master cylinder reservoir must be kept full during bleeding operations or air will enter the system and make rebleeding necessary.
- (2) Clean bleeder screw (fig. 4-45) at bottom of brake dust shield enclosure.
- (3) Place an end of a length of rubber tubing over the bleeder screw. Submerge the free end of the tube in a bottle or jar partially filled with hydraulic brake fluid (fig. 4-46).
- (4) Remove vent tube assembly and filler cap from top of reservoir of hydraulic master cylinder (fig. 4-38). Fill reservoir with hydraulic brake fluid to within one-half inch of top.
- (5) While brake pedal on towing vehicle is being pumped slowly up and down, open bleeder screw three-quarter turn clockwise. Liquid will be forced through line to expel air which will show as bubbles in fluid coming out of tube.
- (6) Observe flow, keeping tube submerged in fluid. When air bubbles cease and stream is a clean, solid mass, close bleeder screw tightly. Remove tube.
- (7) Repeat operation at each wheel, replenishing the fluid in master cylinder reservoir as necessary.
- (8) Install filler cap and vent tube assembly in top of master cylinder reservoir.

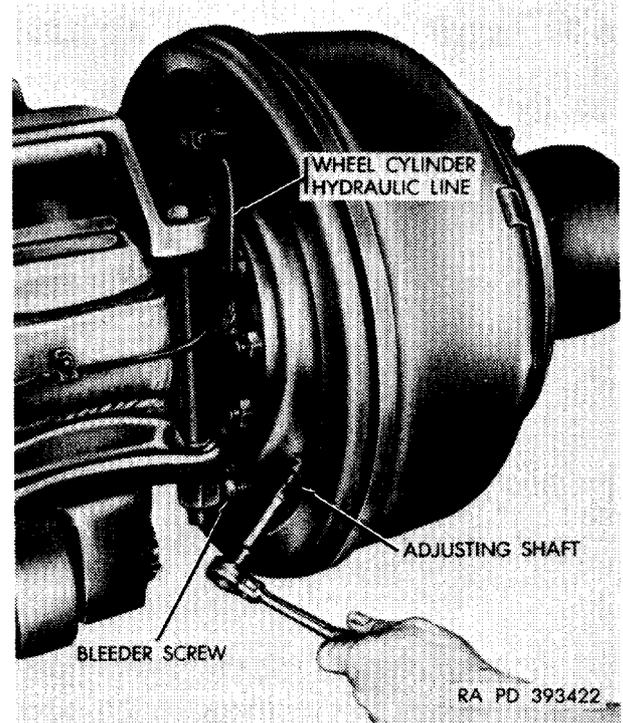


Figure 4-45. Brake lining clearance adjustment
(All models except M127)

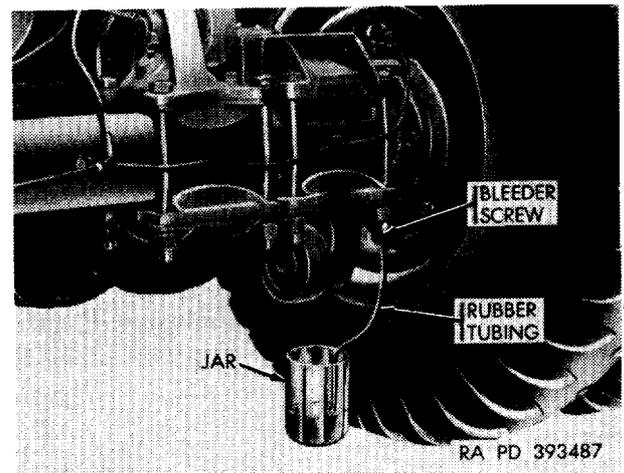


Figure 4-46. Bleeding hydraulic brake system

4-39. MAINTENANCE AND ADJUSTMENTS (Cont)

c. Refilling Hydraulic Brake System.

- (1) Prior to refilling, the entire hydraulic system should be flushed with clean denatured alcohol.



Use denatured alcohol only, as other cleaning agents will swell and soften rubber parts in the system necessitating replacement of the part.

- (2) To flush, remove vent tube assembly (fig. 4-38) and filler cap from top of hydraulic master cylinder and fill cylinder reservoir with denatured alcohol. As in bleeding procedures (b above), open each wheel cylinder bleeding screw in turn and pump brake slowly until the passage of clean fluid indicates a clean system. After flushing, repeat process using clean silicone brake fluid to force all of the flushing agent from the system.
- (3) To refill, remove vent tube assembly and filler cap from master hydraulic cylinder and add silicone brake fluid to a level of 1/2 to 3/8 inch below top of cylinder reservoir. Bleed system (b above). Install filler cap and vent tube assembly.

d. Air and Hydraulic Lines and Fittings Tests and Checks.

- (1) With air hose couplings (fig. 2-6) connected to towing vehicle and brakes applied, coat air lines, couplings, and connections with soapsuds. No leakage is permissible.
- (2) Leakage at couplings is usually caused by worn, damaged, or improperly installed gaskets. Install new gaskets to stop leaks.
- (3) Tighten air line connectors to stop leakage.
- (4) Tighten fittings on air lines and air and hydraulic hose. Inspect lines for partial restrictions caused by dents or kinks. inspect hose for wear, cuts, or breaks. Replace with new piece of tubing, hose or fitting if damaged or if leak cannot be stopped.

e. Slack Adjuster Operating Test. Adjust brakes (a above). Apply brakes several times and note adjuster. Push rod should move 3/4 inch but not over two inches for full application of brakes. If slack adjuster moves without turning brake camshaft, replace slack adjuster.

f. Air Chamber Tests.

- (1) Model M127.
 - (a) Leakage test. With air hose couplings (fig. 2-6) connected to towing vehicle and brakes applied, coat air chamber's flanges, connections, and plug with soapsuds to check for leakage. No leakage is permissible. If leakage is found at flanges, tighten flange screws evenly and sufficiently to stop leak. If leakage is found at connection or plug, tighten connector and plug.



Do not tighten flange screws too tight, as it will distort flanges and cause new leakage.

- (b) Air chamber push rod travel tests.
 1. Purpose. Excessive air chamber push rod travel will result in damage to rubber cup in hydraulic master cylinder. Insufficient travel will result in ineffective brakes.

2. Test. With brakes released, insert a small testing rod through one of two inspection holes in air chamber. Mark testing rod at surface of mounting bracket when testing rod contacts push rod in air chamber. Apply brakes and again mark testing rod at surface of mounting bracket with testing rod in contact with push rod. Withdraw testing rod and measure distance between marks. The distance between marks will indicate amount of push rod travel. Brakes should be adjusted to permit a minimum of 1/2 inch travel and a maximum of 7/8-inch travel. Adjust brakes (a above) as necessary).

g. Emergency Relay Valve, Drainage of Moisture and Tests.

- (1) Drainage of moisture. To drain accumulated moisture, remove drain plug. Install plug after draining.
- (2) Operating tests.
 - (a) With air hose couplings (fig. 2-6) connected to towing vehicle, apply brakes and check to be sure that brakes of all semitrailer wheels apply properly.
 - (b) Release brakes and check to be sure that each brake releases promptly.
 - (c) With brake system fully charged, close shutoff cock in emergency line on towing vehicle and disconnect air hose coupling tagged EMERGENCY (fig. 2-6). Check to be sure semitrailer brakes apply automatically.
 - (d) Connect air hose coupling tagged EMERGENCY, open shutoff cock on towing vehicle, and check to be sure brakes release automatically.
- (3) Leakage tests.
 - (a) With air brake system connected, apply soapy water to flanges which hold diaphragm (figs. 4-40 and 4-41) and to service air line coupling. No leakage is permitted. Tighten nuts on flanges and tighten coupling as required.
 - (b) Coat exhaust check valve (figs. 4-40 and 4-41) with soapsuds. Apply brakes.
 - (c) Release brakes and apply coating of soapsuds to exhaust port.
 - (d) With emergency relay valve in emergency position (para. g(2)(c) above), coat exhaust port with soapsuds.
 - (e) Leakage tests must not exceed a 1-inch bubble in 3 seconds. If excess leakage is found, replace emergency relay valve.

h. Air Reservoir, Drainage of Moisture and Tests.

- (1) Drainage of moisture. Open drain cock (figs. 4-40 and 4-41) on air reservoir. Close drain cock after drainage.
- (2) Test and check for serviceability. With air brake system connected to towing vehicle, coat drain neck, pipe plugs, connections between emergency relay valve and reservoir, connector attaching air line to air reservoir, and outside of air reservoir (figs. 4-40 and 4-41) with soapsuds. No leakage is permissible. Tighten any leaking connections. Inspect for damage or corrosion. Replace reservoir if it leaks or if any damage or corrosion is found that would weaken reservoir.

4-40. INTERNAL BRAKES

a. Removal.

- (1) Brake shoes (Model M127).

WARNING

Before attempting to remove brake shoes, wear protective goggles and open drain cock on air reservoir and avoid contact with high velocity air.

- (a) Remove wheels (fig. 4-24).
- (b) Remove hub and brake drum (fig. 4-27).
- (c) Using brake shoe spring remover and replacer, remove brake shoe tension spring (fig.4-36).
- (d) Remove C-washers and anchor pin strap from anchor pins (fig. 4-36).
- (e) Remove brake shoes.

- (2) Brake shoes (Models M127A1, M127A1C, M128A1, M128A1C, M129A1, M129A1C).

WARNING

Before attempting to remove brake shoes, wear protective goggles and open drain cock on air reservoir and avoid contact with high velocity air.

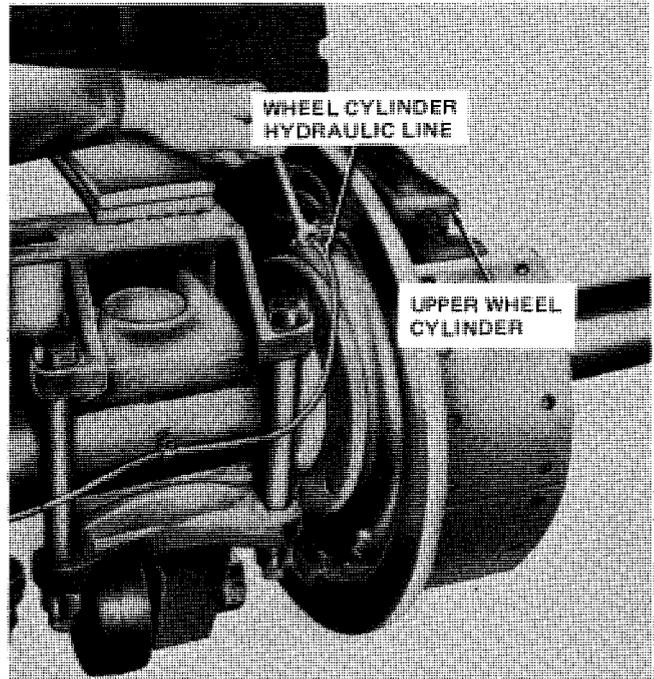
- (a) Remove wheels (fig. 4-24).
- (b) Remove hub and brake drum (fig. 4-27).
- (c) Unhook brake shoe retracting springs and remove springs from the heel and toe ends of brake shoes, using remover and replacer.
- (d) pry off shoe guide spring C-washers and lift shoe guide pin washers off shoe guide pins.
- (e) Back off adjusting mechanism to "0" adjustment.
- (f) Remove brake shoes.

- (3) Brake shoes (Models M127A2C, M128A2C, M129A2C).

Before attempting to remove brake shoes, wear protective goggles and open drain cock on air reservoir and avoid contact with high velocity air.

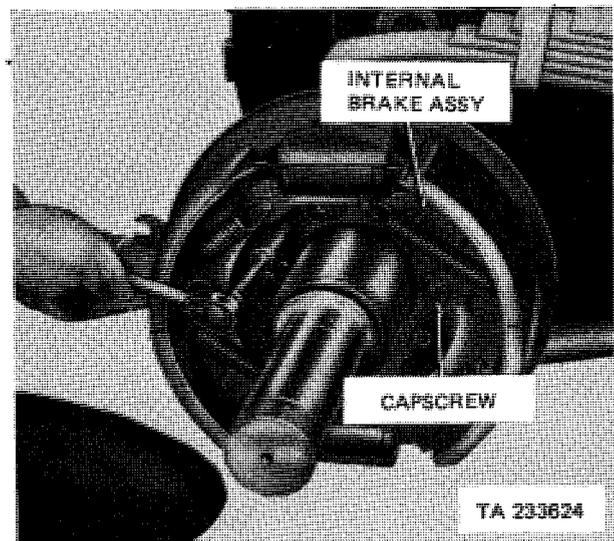
- (a) Remove wheels (fig. 4-24).
- (b) Remove hub and brake drum (fig. 4-27).
- (c) Remove brake shoe tension spring, using remover and replacer.
- (d) Spread the guide pin C-washers and remove from the brake shoe anchor and guide pins.
- (e) Remove the anchor pin strap.
- (f) Disengage the piston-shoe links from the brake shoes and withdraw links from wheel cylinder.
- (g) Remove brake shoes.

STEP 1. DISCONNECT WHEEL CYLINDER HYDRAULIC LINE AT UPPER WHEEL CYLINDER.



DISCONNECTING OR CONNECTING WHEEL CYLINDER HYDRAULIC LINE

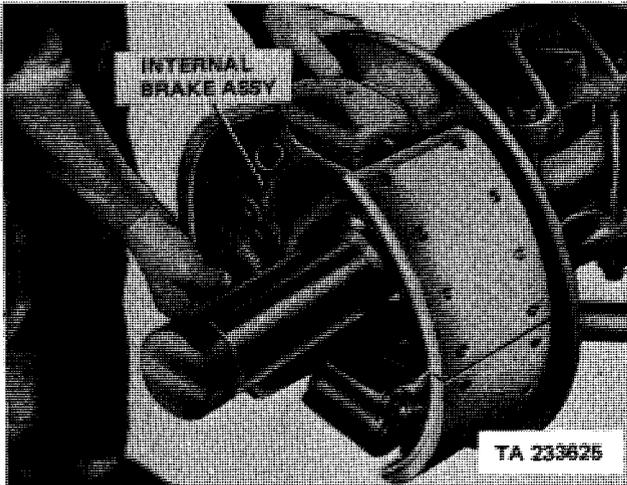
STEP 2. USING AN OPEN END WRENCH AND A SOCKET WRENCH, REMOVE TEN SAFETY NUTS (REAR OF AXLE FLANGE) AND TEN CAPSCREWS SECURING INTERNAL BRAKE ASSEMBLY TO FLANGE OF AXLE.



REMOVING OR INSTALLING SAFETY NUTS AND CAPSCREWS SECURING INTERNAL BRAKE ASSEMBLY

Figure 4-47. internal brake assembly replacement (All models except M127) (Sheet 1 of 2)

4-40. INTERNAL BRAKES (Cont)



REMOVING OR INSTALLING
INTERNAL BRAKE ASSY

- STEP 3. REMOVE INTERNAL BRAKE ASSY FROM AXLE.
- STEP 4. POSITION INTERNAL BRAKE ASSY ON AXLE.
- STEP 5. SECURE INTERNAL BRAKE ASSY TO FLANGE OF AXLE WITH TEN NUTS AND CAPSCREWS REMOVED IN STEP 2.
- STEP 6. CONNECT WHEEL CYLINDER HYDRAULIC LINE DISCONNECTED IN STEP 1.

Figure 4-47. Internal brake assembly replacement (All models except M127) (Sheet 2 of 2)

(4) Wheel cylinder (All models except M127).

- (a) Disconnect hydraulic lines on the back side of the brake backing plate (fig. 4-47, step 1).
- (b) Remove wheel cylinder screws and lockwashers which fasten the wheel cylinder to the brake backing plate and remove wheel cylinder from backing plate.

(5) Internal brakes (All models except M127). Remove wheels from hub (fig. 4-24) and hub and brake drum from axle (fig. 4-27); then remove the internal brakes by following procedures shown in steps 1 thru 3 of figure 4-47.

b. Installation.

(1) Brake shoes (Model M127).

- (a) Coat anchor pins and anchor pin strap with light film of grease. Install shoes on anchor pins. Install strap on anchor pins and secure with C-washers. Using brake shoe spring remover and replacer, replace brake shoe tension spring.
- (b) Loosen anchor pins by backing off anchor pin locknuts and turn anchor pins to give minimum distance between ends of brake shoes at this point. Turn worm shaft of slack adjuster to give minimum distance between roller ends of brake shoes.
- (c) Install hub and brake drum (fig. 4-27).
- (d) Adjust brakes (para. 4-39a(2)(b)).
- (e) Install wheels (fig. 4-24).

(2) Brake shoes (M127A1, M127A1C, M128A1, M128A1C, M129A1, M129A1C).

- (a) Install brake shoe on brake support, making sure that toe is aligned with the shoe adjusting screw and the heel aligned with the slot in the anchor pin. Slip shoe guide pin through spider and guide hole in shoe web. Install shoe guide pin washer and new shoe guide spring C-washer.
- (b) Install brake shoe retracting springs.

NOTE

When installing brake shoe retracting springs, place the short ends of the springs in the notched holes in the brake shoes and, with remover and replacer, slip the long looped ends over the anchor pin or anchor pin projection, as required. Each brake shoe has one long toe spring which loops over the shoe retracting spring pin in a centered location on the brake support, and one short heel spring which loops over a projection on the anchor pin.

- (c) Install hub and brake drum (fig. 4-27).
 - (d) Adjust brakes (para. 4-39a (2)(b)).
 - (e) Install wheels (fig. 4-24).
- (3) Brake shoes (M127A2C, M128A2C, M129A2C).
- (a) Place brake shoes and linings over the brake shoe anchor pins and rotate shoes into position.
 - (b) Install piston-to-shoe links, making certain that the end which goes through wheel cylinder boot is firmly seated in the wheel cylinder piston.
 - (c) install anchor pin strap and new guide pin C-washer.
 - (d) Install shoe tension spring, using remover and replacer.
 - (e) Install hub and brake drum (fig. 4-27).
 - (f) Adjust brakes (para. 4-39a(2)(b)).
 - (g) Install wheels (fig. 4-24).
- (4) Wheel cylinder (All models except M127).
- (a) Mount wheel cylinder in position and install wheel cylinder screws and lockwashers which fasten wheel cylinder to backing plate. Tighten securely.
 - (b) Connect hydraulic line to wheel cylinder (fig. 4-47, step 6).
 - (c) Refer to para. 4-39b for bleeding of hydraulic system.
- (5) Internal brakes (All models except M127). Install the internal brakes by following procedures shown in steps 4 thru 6 of figure 4-47; then install hub and brake drum on axle (fig. 4-27) and wheels on hub (fig. 4-24).

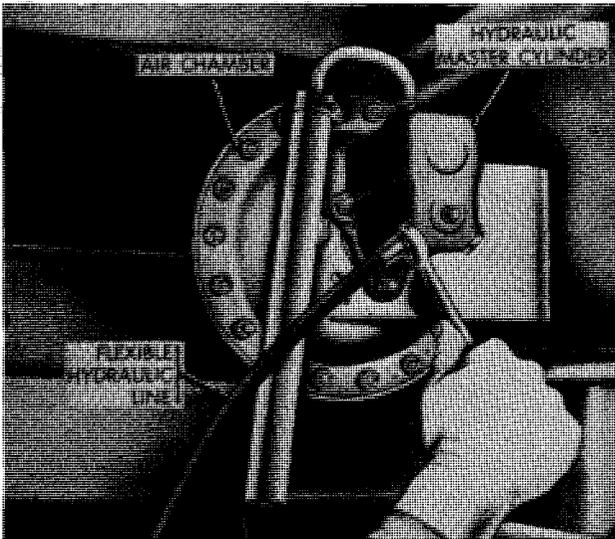
4-41. HYDRAULIC MASTER CYLINDER AND AIR CHAMBER (ALL MODELS EXCEPT M127)

CAUTION

Before attempting to remove the hydraulic master cylinder and air chamber, open drain cock on air reservoir to release air pressure from system.

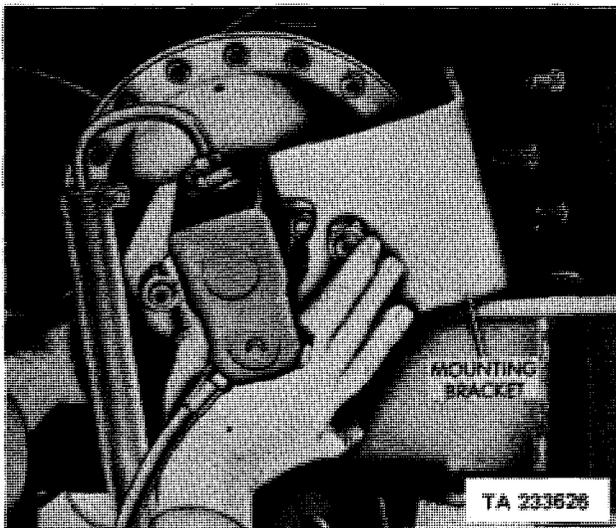
a. Removal. Remove the hydraulic master cylinder and air chamber by following procedures shown in steps 1 thru 4 of figure 4-48.

b. Installation. Install the hydraulic master cylinder and air chamber by following procedures shown in steps 5 thru 8 of figure 4-48.



DISCONNECTING OR CONNECTING
FLEXIBLE HYDRAULIC LINE

STEP 1. DISCONNECT AIR LINE AT ELBOW IN COVER OF AIR CHAMBER. THEN DISCONNECT FLEXIBLE HYDRAULIC LINE FROM HYDRAULIC MASTER CYLINDER.

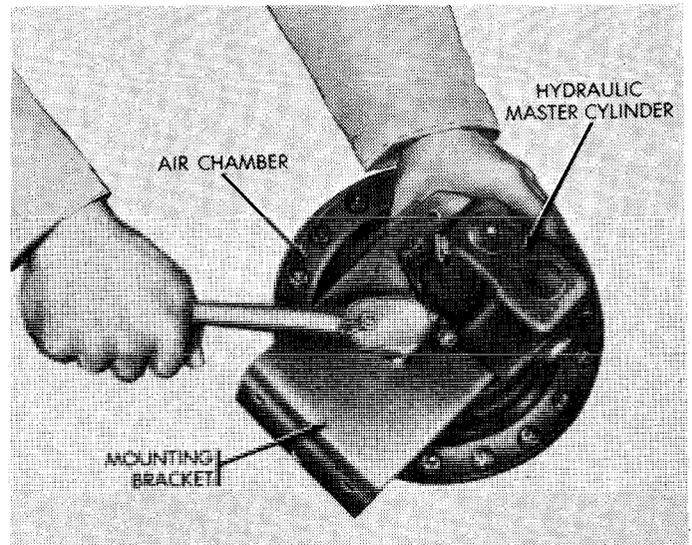


REMOVING OR INSTALLING AIR CHAMBER
AND HYDRAULIC MASTER CYLINDER AS A UNIT

STEP 2. REMOVE THREE HEX NUTS AND LOCKWASHERS SECURING MOUNTING BRACKET TO CHASSIS FRAME. LIFT OFF AIR CHAMBER, HYDRAULIC MASTER CYLINDER, AND MOUNTING BRACKET AS A UNIT.

Figure 4-48. Hydraulic master cylinder and air chamber replacement (All models except M127)
(Sheet 1 of 2)

STEP 3. REMOVE TWO HEX NUTS AND LOCKWASHERS SECURING AIR CHAMBER TO MOUNTING BRACKET.



REMOVING OR INSTALLING HEX NUTS SECURING AIR CHAMBER

STEP 4. SEPARATE AIR CHAMBER AND HYDRAULIC MASTER CYLINDER BY PULLING APART.

STEP 5. INSERT BODY OF HYDRAULIC MASTER CYLINDER THROUGH AIR CHAMBER OPENING.

STEP 6. SECURE AIR CHAMBER TO MOUNTING BRACKET WITH TWO HEX NUTS AND LOCKWASHERS REMOVED IN STEP 3.

STEP 7. POSITION AIR CHAMBER, HYDRAULIC MASTER CYLINDER, AND MOUNTING BRACKET ON CHASSIS FRAME AND SECURE WITH THREE HEX NUTS AND LOCKWASHERS REMOVED IN STEP 2.

STEP 8. CONNECT FLEXIBLE HYDRAULIC LINE, DISCONNECTED IN STEP 1, TO HYDRAULIC MASTER CYLINDER. CONNECT AIR LINE DISCONNECTED IN STEP 1, TO ELBOW IN COVER OF AIR CHAMBER.



SEPARATING OR INSTALLING AIR CHAMBER

Figure 4-48. Hydraulic master cylinder and air chamber replacement (All models except M127)
(Sheet 2 of 2)

4-42. HYDRAULIC LINES AND FITTINGS

Hydraulic lines and fittings are not ordinarily removed except for replacement. Bent, kinked, or damaged rigid lines or fittings must be replaced. Frayed, deteriorated, and broken or cut flexible lines must be replaced. All lines must be tightly attached and connected.

4-43. SLACK ADJUSTERS

a. Removal.

- (1) Disconnect slack adjuster (fig. 4-39) from air chamber push rod by removing cotter pin and clevis pin.
- (2) Remove snap ring from splined end of brake camshaft extending through slack adjuster.
- (3) Remove washer and slide off slack adjuster.

b. Installation.

- (1) Coat splined end of brake camshaft with light film of oil and slide slack adjuster into position. A slight rotary motion of slack adjuster as it reaches camshaft splines will allow splines in adjuster to mesh with splines on camshaft. Install washer and snap ring on camshaft (fig. 4-39).
- (2) Connect slack adjuster to yoke of air chamber with 1/2 X 1-13/64-inch clevis pin and 1/8 X 7/8 inch cotter pin.
- (3) Adjust brakes (para. 4-39a(2)).
- (4) Perform operating test of slack adjuster (para. 4-39e).

4-44. AIR HOSE COUPLING

a. Removal.

- (1) Unscrew connector nut at rear of air hose coupling (fig. 2-6) and slide nut back on air line tubing.
- (2) Unscrew nut at front of crossmember, until pressure has been relieved on lockwasher.
- (3) Unscrew nut (back of crossmember) on nipple connecting air line tubing to coupling.
- (4) Withdraw air hose coupling, with nipple, from front crossmember.
- (5) Remove nut, lockwasher, and tag from nipple. Separate coupling and nipple.

b. Cleaning and Inspection. Clean with dry cleaning solvent (PD-680) (item 18, Appendix C). Check for damage to air hose coupling.

WARNING

Cleaning solvent (Fed Spec PD-680) is both toxic and flammable. Avoid prolonged breathing of vapors. Avoid skin contact. Use only in well-ventilated area. Keep away from open flame.

c. Installation.

- (1) Apply pipe compound to threads at ends of nipple. Screw nipple into air hose coupling and install nut and lockwasher on nipple.
- (2) Position tag over opening in front crossmember and insert assembled coupling and nipple through tag and opening.

CAUTION

Make certain tags are on proper lines. The tag marked SERVICE must be on right side coupling. The tag marked EMERGENCY must be on left side coupling.

- (3) position air line tubing against nipple in coupling and tighten nut.
- (4) Slide connector nut off tubing onto connector and tighten nut until it is snug against rear of front crossmember. Then tighten nut at front of crossmember until coupling is secure.
- (5) The open side of each air hose coupling should be in a vertical position facing the center of the trailer. Cover opening with dummy coupling unless connection to air supply is to be made at once.

4-45. AIR LINES AND FITTINGS

Air lines and air line fittings are not ordinarily removed except for replacement. Bent, kinked, or damaged lines and fittings must be replaced. Lines must be kept tightly attached and connected.

4-46. AIR CHAMBER (MODEL M127)

a. Removal.



Before attempting to remove air chamber, open drain cock on air reservoir to release pressure from system.

- (1) Disconnect flexible air line at air chamber (fig. 4-39).
- (2) Disconnect push rod yoke at slack adjuster by removing one cotter pin and clevis pin.
- (3) Remove two hex nuts and lockwashers, from mounting bolts beneath air chamber, and lift chamber off mounting bracket.

b. Installation.

- (1) Position air chamber on mounting bracket (fig. 4-39) and secure with two 5/8 lockwashers and 5/8-18NF-2 hex nuts, on mounting bolts beneath chamber.
- (2) Connect yoke of push rod to slack adjuster with 1/2 X 1-13/64 clevis pin and 1/8 X 7/8 cotter pin.
- (3) Connect flexible line to air chamber.
- (4) Adjust brakes (para. 4-39a).
- (5) Perform leakage tests (para. 4-39f).

4-47. EMERGENCY RELAY VALVE

a. Removal.



Before attempting to remove relay emergency valve open drain cock on air reservoir to release air pressure from system.

- (1) Model M127 (fig. 4-41).
 - (a) Disconnect service and emergency air lines and four hose assemblies, leading to air chambers at elbows in emergency relay valve.
 - (b) Remove three hex nuts and lockwashers which secure emergency relay valve to studs in valve mounting bracket welded to reservoir.
 - (c) Lift off emergency relay valve and remove O-ring gasket from its seat in valve mounting

4-47. EMERGENCY RELAY VALVE (Cont)

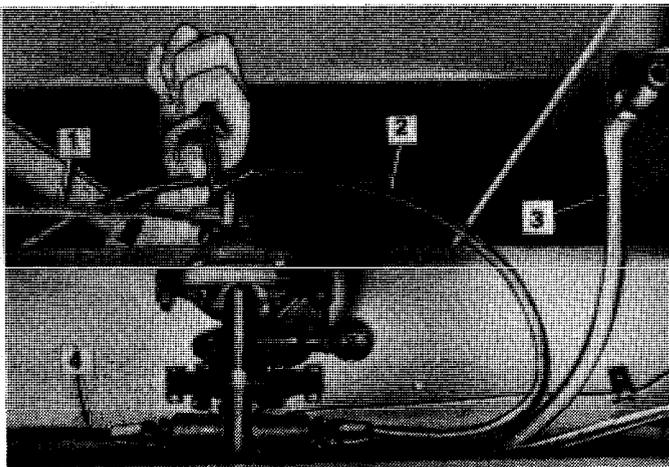
(2) All models except M127. Remove emergency relay valve by following procedures shown in steps 1 and 2 of figure 4-49,

b. Installation.

(1) Model M127 (fig. 4-41).

- (a) Position O-ring gasket in its seat in valve mounting bracket.
- (b) Position emergency relay valve on studs of valve mounting bracket and secure with three 3/8 lockwashers and 3/8-24UNF-2A hex nuts.
- (c) Connect four hose assemblies leading to air chambers and emergency and service air lines, to elbows in emergency relay valve.
- (d) Make operating and leakage tests (para. 4-39g).

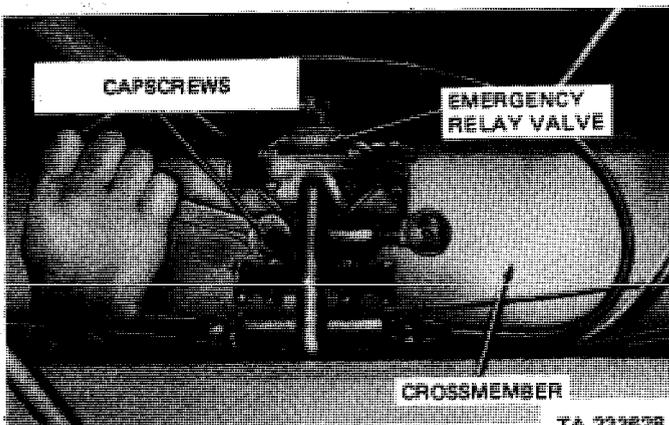
(2) All models except M 127. Install emergency relay valve by following procedures shown in steps 3 and 4 of figure 4-49.



DISCONNECTING OR CONNECTING AIR LINES

- 1-Service air line
- 2-Emergency air line
- 3-Emergency relay valve-to-reservoir air line
- 4-Emergency relay valve-to-air chamber air line

STEP 1. DISCONNECT AIR LINES 1, 2, 3 and 4 FROM THE EMERGENCY RELAY VALVE.



REMOVING OR INSTALLING EMERGENCY RELAY VALVE

STEP 2. REMOVE TWO CAPSCREWS AND LOCKWASHERS SECURING EMERGENCY RELAY VALVE TO CROSSMEMBER. LIFT OFF VALVE.

STEP 3. POSITION EMERGENCY RELAY VALVE ON CROSSMEMBER AND SECURE WITH TWO CAPSCREWS AND LOCKWASHERS REMOVED IN STEP 2.

STEP 4. CONNECT AIR LINES 1,2,3 and 4 DISCONNECTED IN" STEP 1.

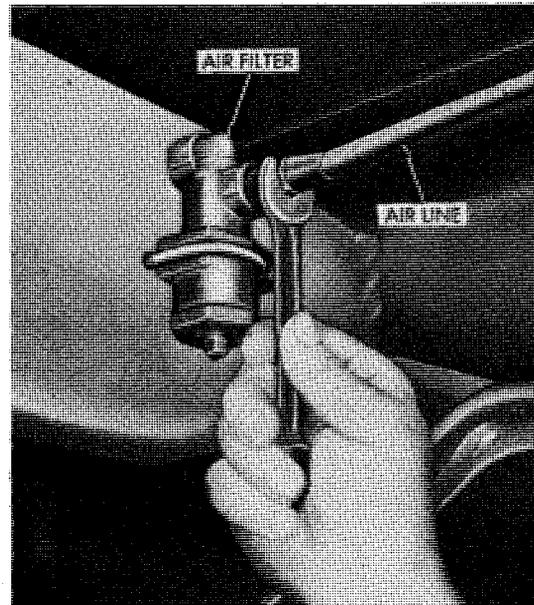
Figure 4-49. Emergency relay valve replacement (All models except M 127)

4-48. AIR FILTERS

a. General. It is no longer considered necessary to refill the air supply. Therefore, air filter maintenance requirements are rescinded. The complete air filter can be replaced with tubing, or the filter element can be removed and not replaced.

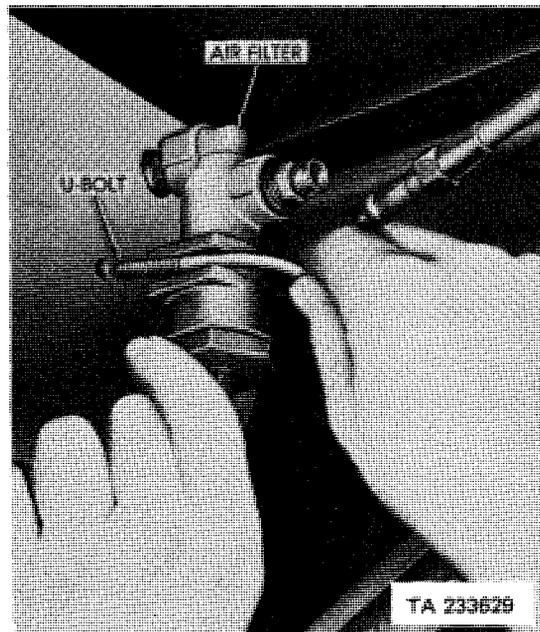
b. Removal. Remove air filters by following procedures shown in steps 1 and 2 of figure 4-50.

STEP 1. DISCONNECT AIR LINE CONNECTORS FROM BOTH SIDES OF AIR FILTER (FRONT AND BACK OF CROSSMEMBER) AND DRAW LINES AWAY FROM AIR FILTER.



DISCONNECTING OR CONNECTING AIR LINE

STEP 2. REMOVE TWO HEX NUTS AND LOCKWASHERS FROM U-BOLT SECURING AIR FILTER TO CROSSMEMBER. REMOVE U-BOLT AND AIR FILTER.



REMOVING AIR FILTER

Figure 4-50. Air filter removal

4-48. AIR FILTERS (Cont)

C. Disassembly. When performing routine air filter maintenance, the filter element (2,fig. 4-51), centering washer (3) and spring (4) may be removed without replacement.

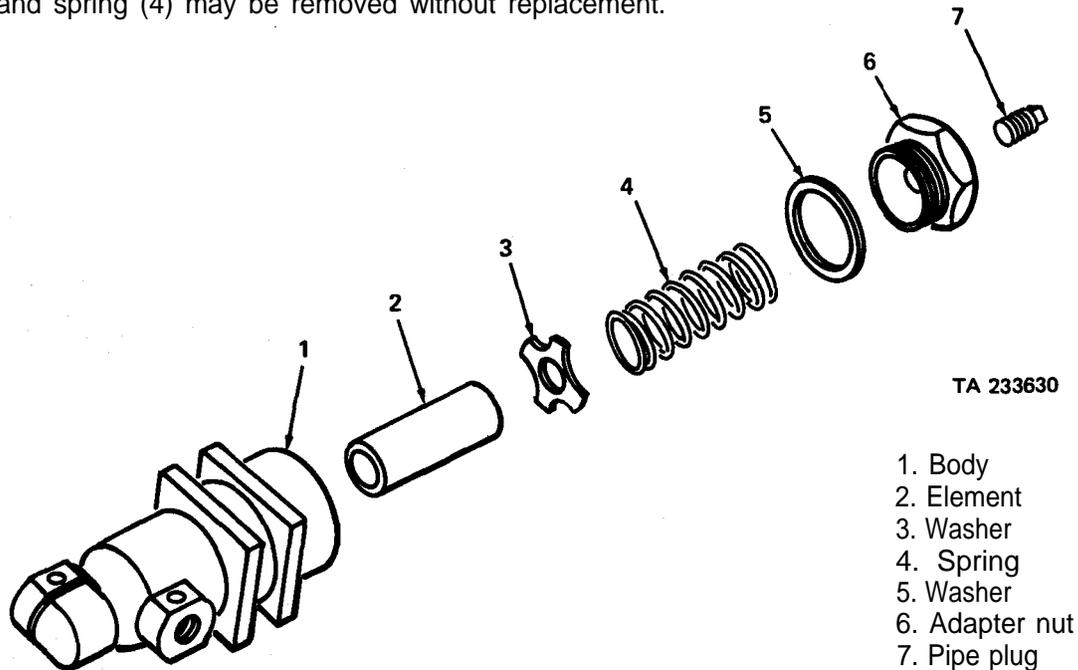


Figure 4-51. Air filter, exploded view

d. Replacement of Air Filter with Tubing.

(1) When replacement of the 3/8 inch metal lines or filter assemblies is required, substitute a suitable length of nylon tubing using the following materials.

- . Nylon tubing P/N CPR103709-3
- . Union assembly P/N MS39187-2
- . Insert P/N CPR102321-1

(2) Procedure for splicing air line.

(a) Disconnect air line connector from both sides of air filter. Remove U-bolt securing air filter to crossmember and remove air filter assembly (fig. 4-50).

NOTE

Insert not needed on copper tube.

(b) Cut 12 inches from copper tube going forward and install new nut and sleeve. Install sleeve 1/4 inch from end of tube.

NOTE

The tubing on rear side of crossmember need not be cut. Original nut and sleeve can be used.

- (c) Cut required length of nylon tubing and install nut, sleeve, and insert both ends.
- (d) Install nylon tubing (fig. 4-52) in place of removed filter assembly..
- (e) Upon completion of splicing, final check for air leaking using leak detector solution MIL-L-25567C, Type 2.

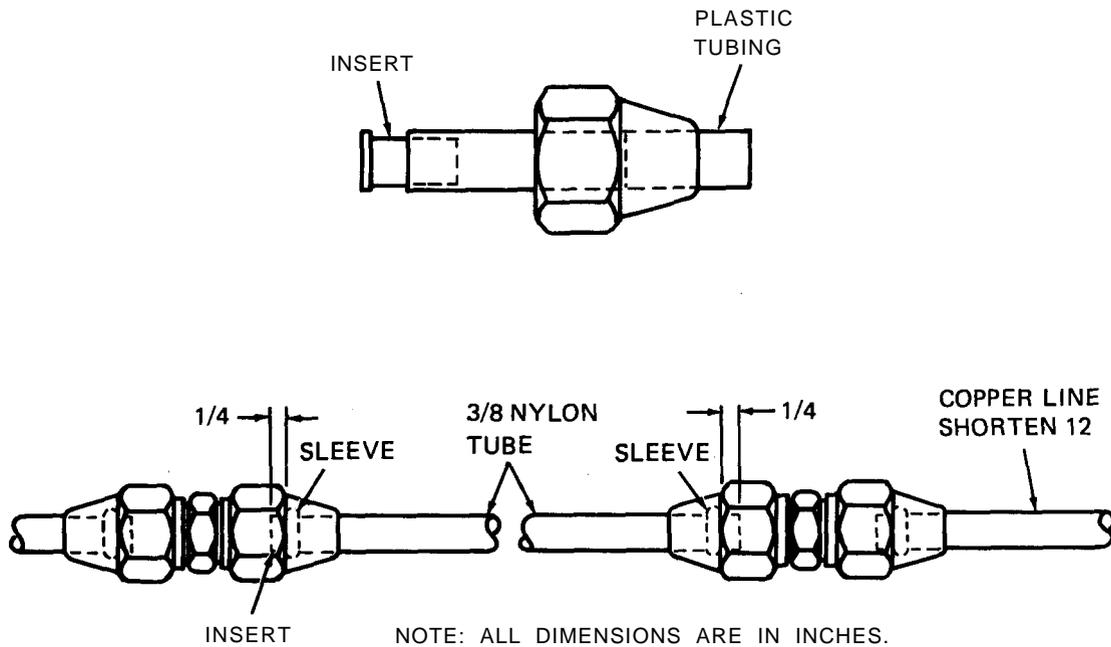


Figure 4-52. Assembly of nylon tubing

4-49. AIR RESERVOIR

a. Removal.



Before attempting to remove the air reservoir, open drain cock on air reservoir to release air pressure from system.

(1) Model M127.

- (a) Remove emergency relay valve (para. 4-47a).
- (b) Remove four hex head bolts, plain washers, and safety nuts which secure air reservoir (fig. 4-41) to two brackets welded to crossmembers.
- (c) Lower reservoir and remove two grommets from top of each bracket extending from end of reservoir and two cushioned clips securing hose assemblies to brackets.

(2) All models except M127. Remove air reservoir by following procedures shown in steps 1 thru 3 of figure 4-53.

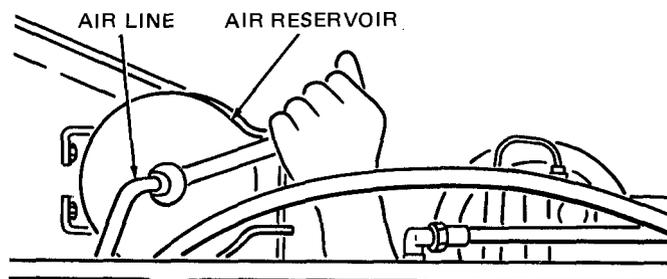
b. Installation.

(1) Model M127.

- (a) Place two grommets on top of bracket extending from each end of reservoir. Position reservoir under two brackets welded to crossmembers (fig. 4-41) and aline grommets and holes in brackets.
- (b) Insert four 3/8-24NF-3 X 1¼ hex head bolts, down through brackets.
- (c) Install one 3/8-inch plain washer, one cushioned clip with hose assembly attached, and one 3/8-24NF-3 safety nut, on each inner hex head bolt.
- (d) Install one 3/8-24NF-3 safety nut and one 3/8-inch plain washer on each remaining bolt.
- (e) Perform leakage test (para. 4-39h).

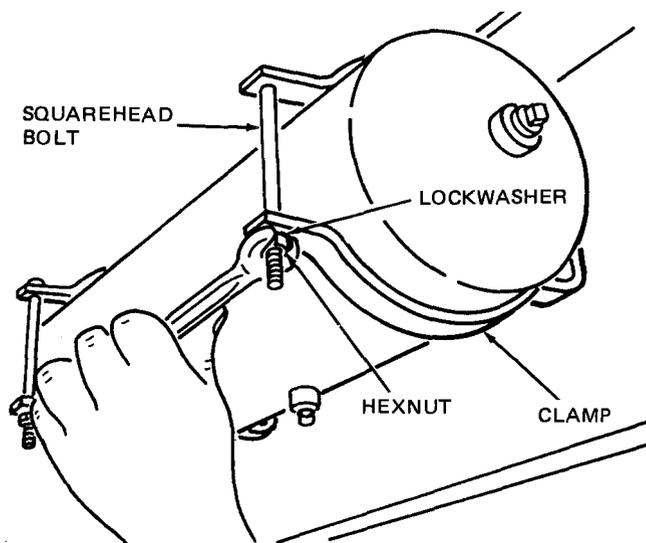
(2) All models except M127. Install air reservoir by following procedures shown in steps 4 thru 6 of figure 4-53.

STEP 1. DISCONNECT AIR LINE LEADING TO EMERGENCY RELAY VALVE.



DISCONNECTING OR CONNECTING AIR LINE

STEP 2. REMOVE TWO SQUAREHEAD BOLTS, LOCKWASHERS AND HEX NUTS FROM CLAMPS MOUNTING AIR RESERVOIR TO LONGITUDINAL FRAME RAIL.



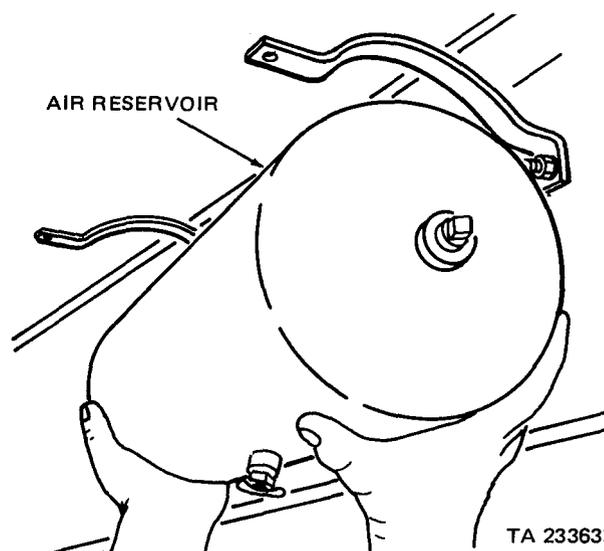
REMOVING OR INSTALLING SQUAREHEAD BOLT AND HEX NUT SECURING AIR RESERVOIR

STEP 3. REMOVE TWO CAPSCREWS, LOCKWASHERS AND HEX NUTS SECURING LOWER CLAMPS TO LONGITUDINAL FRAME RAIL. REMOVE CLAMPS AND AIR RESERVOIR.

STEP 4. INSTALL CLAMPS AND AIR RESERVOIR REMOVED IN STEP 3.

STEP 5. SECURE AIR RESERVOIR IN CLAMPS WITH TWO SQUARE-HEAD BOLTS, LOCKWASHERS, AND NUTS REMOVED IN STEP 2.

STEP 6. CONNECTOR LINE DISCONNECTED IN STEP 1.



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REMOVING OR INSTALLING AIR RESERVOIR

Figure 4-53. Air reservoir replacement (All models except M127)

Section X. SPARE TIRE CARRIER

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Maintenance and Adjustment	4-82	Assembly 4-84
Removal	4-82	Installation 4-84
Disassembly	4-83	

4-50. GENERAL

This section pertains to organizational maintenance of the semitrailers' spare tire carrier. Included are organizational maintenance procedures for replacement of cable removal, disassembly, cleaning inspection and repair, assembly, and installation of the spare tire carrier.

4-51. MAINTENANCE AND ADJUSTMENT

The following instructions pertain to replacing an old cable on the spare tire carrier with a new cable. This maintenance is performed without removing the spare tire carrier from the semitrailer.

NOTE

The key numbers shown below in parentheses refer to figure 4-54.

- a. Lower spare tire and wheel to ground (figure 2-9); then remove spare tire and wheel from pickup member (7).
- b. Release cable assembly (1) from pickup member (7) by removing hex nuts (11) and lockwashers (10) from U-bolts (9).
- c. Draw cable assembly (1) from holes in operating shaft (15).
- d. Make a wire cable, with ferrules (1B) to prevent unraveling, from 6 feet of 3/16-inch diameter, 7 X 19 aircraft-type, preformed cable.
- e. Thread new cable assembly, through hole in operating shaft (15), until both ends are of equal length.
- f. Thread ends of cable assembly, through holes in pickup member (7).
- g. Twist ends of cable assembly in loose, single knot across pickup member (7) in such a manner that both ends may be clamped with both U-bolts (9).
- h. Secure cable assembly to pickup member (7) with two U-bolts (9), four lockwashers (10) and hex nuts (11).
- i. Secure pickup member to spare tire and wheel; then raise spare tire and wheel to the carry position (para. 2-9).

4-52. REMOVAL

NOTE

The key numbers shown below in parentheses refer to figure 4-54.

- a. Lower spare tire and wheel to ground (fig. 2-9).
- b. Remove four hex nuts (5), lockwashers (4) and cap screws (2) attaching main member (3) to right longitudinal frame rail.

4-53. DISASSEMBLY

NOTE

The key numbers shown below in parentheses refer to figure 4-54.

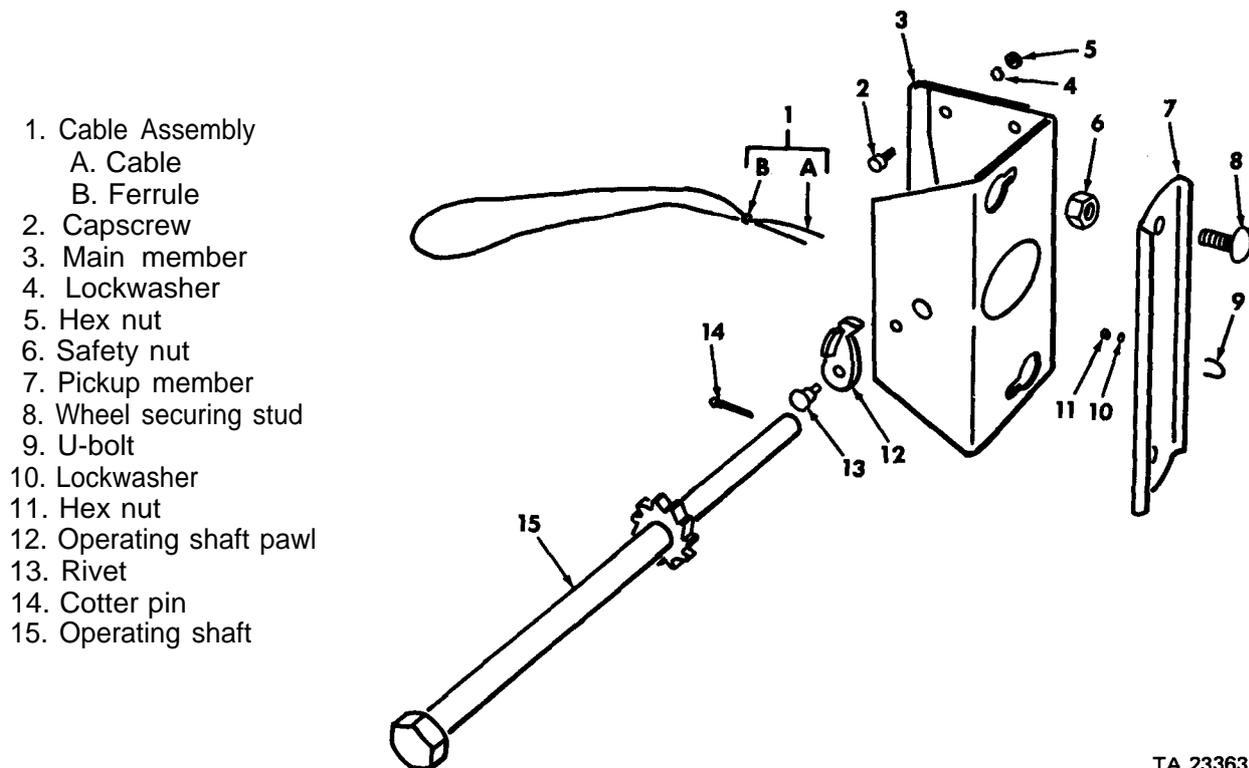
- a. Remove two safety nuts (6) and wheel-securing studs (8) from pickup member (7).
- b. Remove two hex nuts (11) and 1/4 lockwashers (10) from each U-bolt (9), which secures cable assembly (1) to pickup member (7).
- c. Draw cable assembly (1) from hole in operating shaft (15).
- d. Remove cotter pin (14) from operating shaft (15) and remove operating shaft from main member (3).
- e. Drill out rivet (13) which secures shaft pawl (12) to main member (3) and remove shaft pawl.

4-54. CLEANING, INSPECTION AND REPAIR

a. Cleaning. Use steam or water with a stiff brush to remove dirt. Use dry cleaning solvent (PD-680) (item 18, Appendix C) to remove grease.

b. Inspection. Inspect for frayed cable and loose U-bolts. Check main member for bends, or cracks, and for damaged paint. Check operating shaft for straightness and make sure shaft pawl swings freely on its mounting rivet. Check threads on bolts and nuts of pickup member.

c. Repair. Replace cable (para. 4-51) if any broken strands are apparent. Tighten U-bolts if loose. Main member can be reshaped if bent, but should be replaced if it cannot be returned to proper working condition. If ratchet on operating shaft is broken or damaged, replace operating shaft. If shaft pawl does not swing freely, replace pawl. Replace any bolts or nuts which have seriously damaged threads.



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Figure 4-54. Spare tire carrier, exploded view

4-55. ASSEMBLY

NOTE

The key numbers shown below in parentheses refer to figure 4-54.

- a. Position shaft pawl (12) on main member (3) and secure with rivet (13).
- b. Insert operating shaft through main member (3) and secure with 1/8 X 1½ cotter pin (14).
- c. Replace cable assembly (1) in operating shaft (15) and secure to pickup member (7) with two U-bolts, 1/4 lockwashers (10) and 1/4-20NC-2 hex nuts (11) (para. 4-51).
- d. Install two wheel-securing studs (8) and 3/4-16NF-2 safety nuts (6] on pickup member (7).

4-56. INSTALLATION (FIG. 4-54)

- a. Attach main member (3) to right longitudinal frame rail with four 1/2-20NF-3 X 1½ cap screws (2), 1/2 lockwashers (4) and 1/2-20NF-2 hex nuts (5).
- b. Raise spare tire and wheel to a carry position (fig. 2-9).

Section XI. LANDING LEG

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Landing Leg Foot (Thomas)	4-85	Right Landing Leg Gear Box (Thomas)	4-90
Landing Leg (Thomas)	4-85	Landing Leg (Westran)	4-92

4-57. OVERVIEW

This section pertains to organizational maintenance of the semitrailers' landing leg. Included are organizational maintenance procedures for the landing leg foot, landing leg, and gear boxes. Information is provided for two different models of the landing leg as follows:

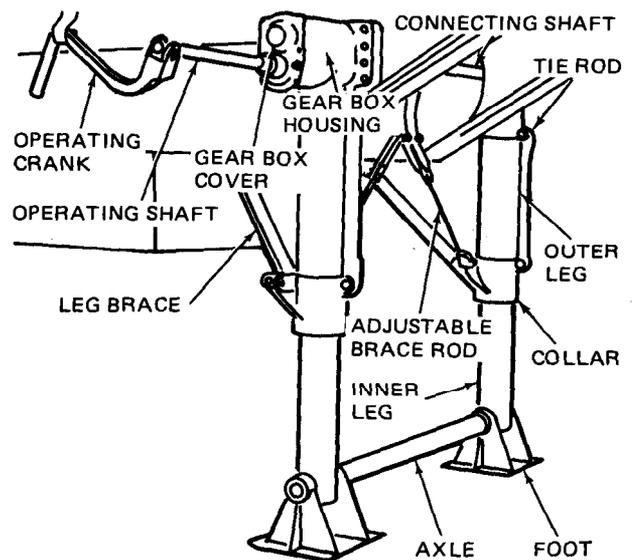
Thomas Landing Leg Assembly
Westran Landing Leg Assembly

4-58. LANDING LEG FOOT (THOMAS)

a. Removal (fig. 4-55). Block wheels to prevent movement of semitrailer. Lift front end of semitrailer with jacks and blocks. Remove two locknuts on screws through lower ends of legs and axle, and remove screws. Withdraw axle out of foot to be removed.

b. Cleaning, Inspection and Repair. Wipe axle and both feet clean. Where old lubricant has hardened, clean with dry-cleaning solvent (PD-680) (item 18, Appendix C). Inspect axle and feet for wear, distortion, and cracks. Check for chipped paint. Replace and repaint as necessary to return parts to serviceability.

c. Installation (fig. 4-55). Position each foot at end of landing leg. Insert axle through one side of foot to other leg and foot. Match screw holes in legs and axles and insert two 1/2-20NF-3X5 screws. Screw 1/2-20NF-3 locknuts onto screws and tighten.



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Figure 4-55. Landing leg (Thomas), installed view

4-59. LANDING LEG (THOMAS)

a. Removal (fig. 4-55).

- (1) Remove foot of leg to be removed (para. 4-58a).
- (2) Remove adjustable brace rod and leg brace from leg by removing nuts, lockwashers and screws attaching braces to leg. If rod and brace cannot be swung out of the way, loosen nuts on ends attached to semitrailer frame.
- (3) Remove two locknuts and capscrews from connecting shaft between legs and from operating shaft extending gear box of leg.
- (4) Remove seven nuts, lockwashers and capscrews which attach gear box of leg to semitrailer. Slide leg and gear box outward and off of semitrailer.

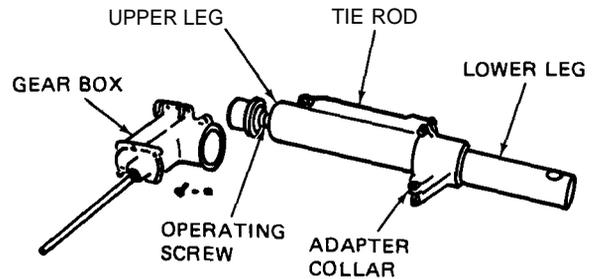
4-59. LANDING LEG (THOMAS) (Cont)

b. Disassembly (fig. 4-55 and 4-56).

NOTE

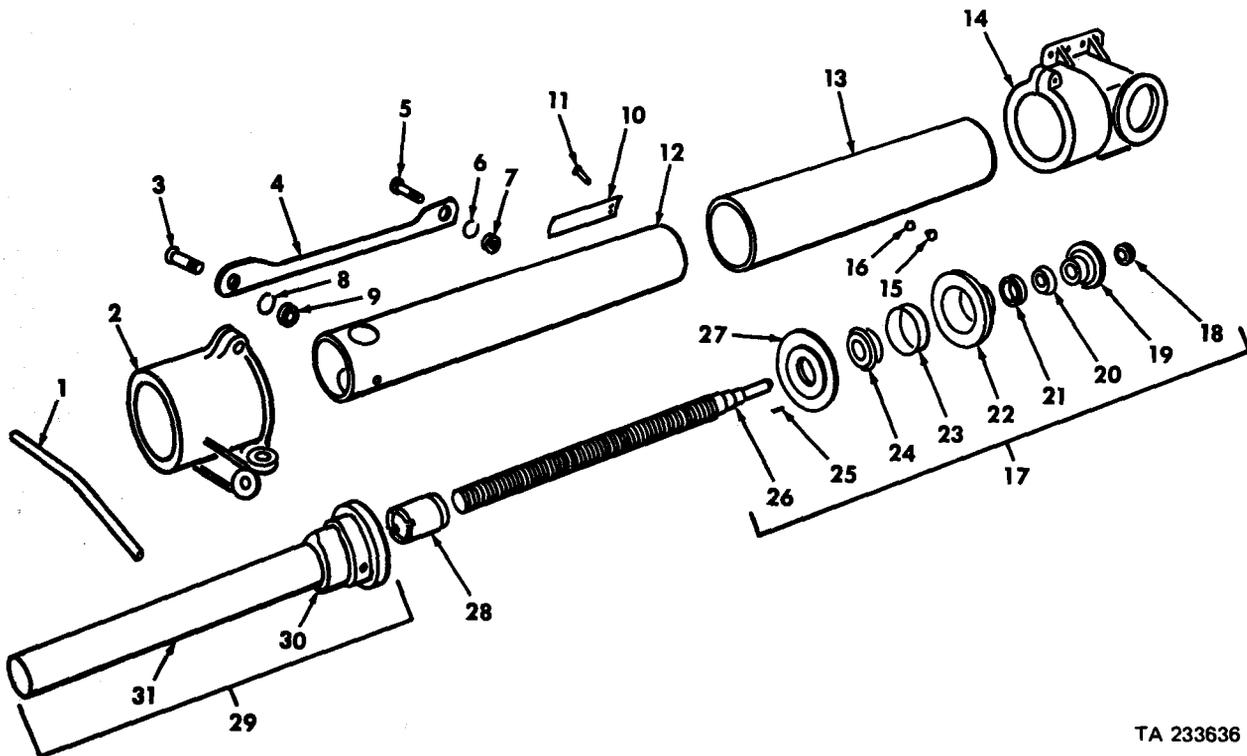
The key numbers shown below in parentheses refer to figure 4-57 unless otherwise indicated.

- (1) Rest upper end of leg on block and remove one nut and washer from one end of tie rod.
- (2) Withdraw gear box assembly from upper end of leg (fig. 4-56).
- (3) Unscrew operating screw assembly.
- (4) Remove adapter collar (2) from upper leg (13) and withdraw lower leg (12) from upper leg. If collar binds on leg, use tool in slot to pry open.



TA 233635

Figure 4-56. Landing leg assembly (Thomas) removed



TA 233636

- | | | | |
|--------------------------|-----------------------|--------------------------|--------------------------|
| 1. Felt, sealing | 9. Nut | 17. Operating Screw Assy | 25. Key, Woodruff |
| 2. Collar, adapter | 10. Stop plate, limit | 18. Nut | 26. Screw, operating |
| 3. Screw, rod-to-collar | 11. Pin, retaining | 19. Bevel gear | 27. Oil seal |
| 4. Tie rod | 12. Lower leg | 20. Bearing cone, upper | 28. Screw nut, operating |
| 5. Screw, rod-to-housing | 13. Upper leg | 21. Bearing cup, upper | 29. Oil reservoir |
| 6. Lockwasher | 14. Housing, gear box | 22. Retainer, bearing | 30. Retainer |
| 7. Nut | 15. Screw, oil hole | 23. Bearing cup, lower | 31. Tube |
| 8. Lockwasher | 16. Lockwasher | 24. Bearing cone, lower | |

Figure 4-57. Landing leg assembly (Thomas), exploded view

- (5) Remove two retaining pins (11) from upper end of lower leg and disassemble limit top plate (10) operating screw nut (28) and oil reservoir (29).

NOTE

Oil reservoir is partially filled with fluid. Provision should be made to pour it out when disassembly is begun, or to work over a pan in which oil can be collected.

- (6) Slide seal (27) off of operating screw (26).
- (7) To remove bevel gear (19) from operating screw, file off punch marks at end of screw, and unscrew nut (18).
- (8) Pull gear from screw, removing woodruff key (25).
- (9) Slide off upper bearing cone (20).
- (10) Remove bearing retainer (22).
- (11) Remove bearing cups (21) and (23) with puller if damaged.

c. Cleaning, Inspection and Repair.

- (1) Cleaning. Wipe all parts clean. Where old lubricant has hardened, clean with dry cleaning solvent (PD-680) (item 18, Appendix C). Clean roller bearing assemblies thoroughly.
- (2) Inspection and repair. Inspect all parts for wear, distortion, and cracks. With fine file, hand-chase threads at gear end of operating screw, if necessary. Check gear retaining nut for damage and replace if necessary. Check operating screw for bend by rolling on flat surface. Inspect bearings and cups for wear and replace if unserviceable. Inspect bevel gear and replace if worn or damaged. File off any burrs or distortions on operating screw threads. Check seal to make sure contact material is intact and pliable; if not, replace with new seal assembly. Make sure surface of screw which contacts seal is smooth; if not, remove distortion and finish with fine abrasive. Check felt in collar to make sure it is pliable and not compressed or worn below the inner surface of the collar. Clean and inspect all exterior surfaces for chipped or checked paint. Scrape loose paint to metal and repaint. Check lubrication fittings for serviceability.

d. Assembly (fig. 4-56 and 4-57).

NOTE

The key numbers shown below in parentheses refer to figure 4-57.

- (1) Install lower bearing cone (24) on operating screw, if it has been removed. Lubricate with indicated lubricant (figs. 4-1 and 4-2) working thoroughly into all openings.
- (2) Install bearing retainer (22) and bearing cups (21) and (23). Lubricate upper cone (20) and bearing and position on shaft.
- (3) Press bevel gear (19) and woodruff key (25) onto shaft of screw and secure with 7/8-14NF nut (18).



Do not tighten nut to extent that it will cause bearings to bind.

- (4) Secure nut (18) by punch marks on end of screw (26).
- (5) Position seal and operating screw nut (28) on operating screw (26), running it about three-quarters up length of thread.

4-59. LANDING LEG (THOMAS) (Cont)

- (6) position oil reservoir (29) and stop on operating nut. Aline holes and insert two retaining pins (11). Insert this entire assembly into lower leg (12).
- (7) Position adapter collar (2) on upper leg (13) and insert lower leg (12) into upper end of upper leg, and through collar. Use care in passing end of lower leg through collar so as not to displace sealing felt (1) in collar.
- (8) Slide operating screw and attached parts into lower leg until seal is seated.
- (9) position gear box (fig. 4-55) and secure entire assembly with tie rod and 3/4-10NF-2 nut, 3/4-16 NF-3 X 2-3/4 screw and 3/4 lockwashers.

e. Installation (fig. 4-55).

- (1) Position leg by inserting shaft extending from gear box of leg through opening in semitrailer frame and into end of connecting shaft between legs. Match holes in leg gear box with holes in semi-trailer frame and insert seven 1/2-20NF-2 X 1-3/4 cap screws, 1/2 lockwashers and 1/2-20NF-2 nuts.
- (2) Attach landing gear leg foot (para. 4-58c).
- (3) Aline hole in connecting shaft between legs and hole in gear shaft extending from gear box and in insert two 3/8-24NF-3 X 2 cap screws. Screw on 3/8-24NF-3 locknuts and tighten by hand. Aline-ment of these holes can be affected by turning shaft with crank.

NOTE

Make certain that legs are extended equally before holes are alined and screw inserted. This can be checked by measurment between axle and fittings at lower end of outer legs.

- (4) Attach ends of leg brace and adjustable brace rod to leg with 3/4-16NF-2X 2 screws, 3/4 lockwashers, and 3/4-16NF-2 nuts. Tighten nuts on cap screws which secure gear box to frame. Tighten locknut on connecting shaft and gear shaft. Tighten nuts on screws attaching rod and brace to frame.
- (5) Remove jacks and blocking.
- (6) Fill oil reservoir with proper lubricant (figs. 4-1 and 4-2).

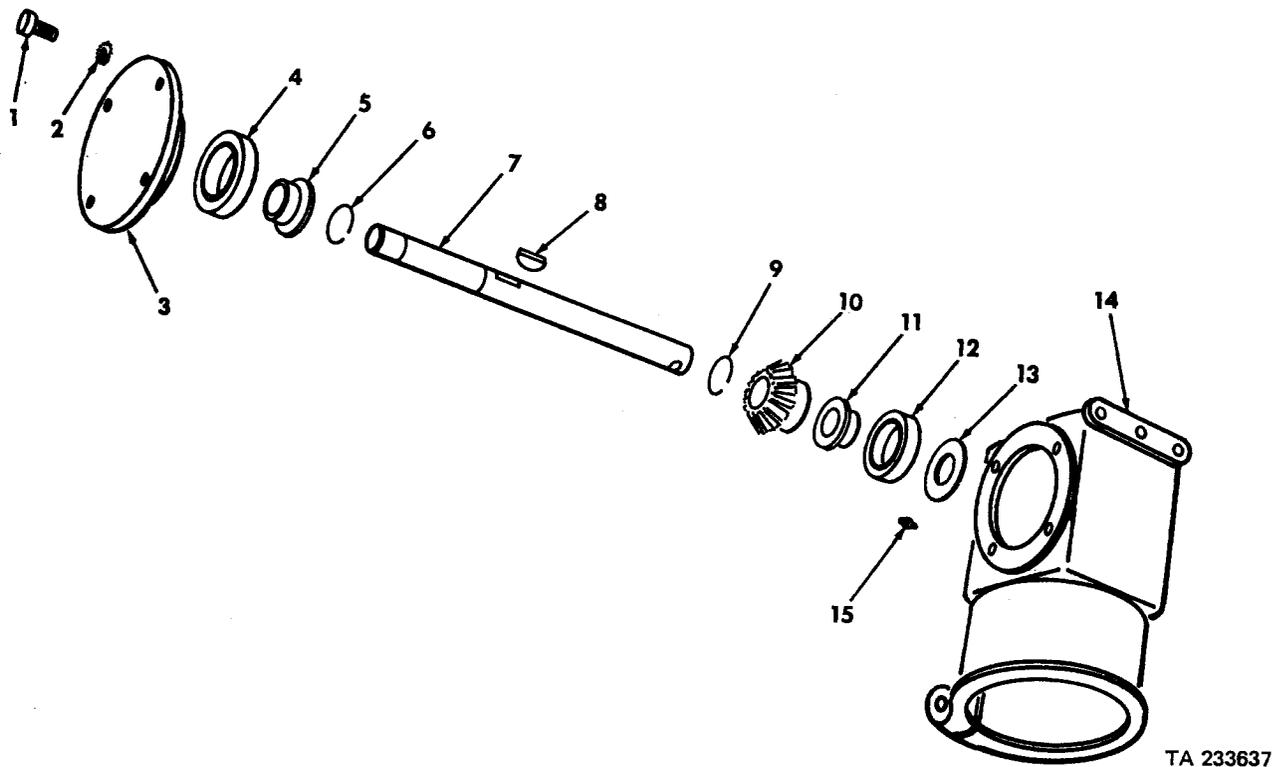
4-60. LEFT LANDING LEG GEAR BOX (THOMAS)

NOTE

The key numbers shown below in parentheses refer to figure 4-58.

a. Disassembly.

- (1) Remove four capscrews (1) and lockwashers (2) securing cover (3); lift off cover taking care that bearing assembly (4) does not fall out.
- (2) Withdraw screw drive shaft (7) and connected parts.
- (3) Remove ball bearing assembly (12) and bearing adjusting shim (13) from gear box housing (14) and ball bearing assembly from gear box cover (3).
- (4) Slide off bearing sleeves (5 and 11).
- (5) Pull off gear (10) which is secured with woodruff key (8) and remove two snap rings (6 and 9).



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- | | | | |
|----------------------|-----------------------|-----------------------|------------------------|
| 1. Screw | 5. Sleeve, bearing | 9. Snap ring | 13. Shim, bearing adj. |
| 2. LockWasher | 6. Snap ring | 10. Gear | 14. Housing, gear box |
| 3. Cover, gear box | 7. Shaft, screw drive | 11. Sleeve, bearing | 15. Fitting |
| 4. Ball Bearing Assy | 8. Key, woodruff | 12. Ball Bearing Assy | |

Figure 4-58. Left landing leg gear box (Thomas), exploded view

b. Cleaning, Inspection and Repair.

- (1) Cleaning. Wipe off grease and clean all parts thoroughly with dry cleaning solvent (PD-680) (item 18, Appendix C).
- (2) Inspection and repair. Inspect bearings for wear or damage. Rollers should spin freely; if unserviceable, replace. Inspect shaft and gear for wear, burrs, or distortion. Roll shaft on flat surface to inspect for straightness. Remove burrs with fine file. Replace damaged part. Check lubrication fitting to make sure it is free of obstructions.

c. Assembly.

- (1) Coat parts with light film of oil.
- (2) Install two snap rings (6 and 9) on screw drive shaft (7).
- (3) Position gear (10) and screw drive shaft, and secure with woodruff key (8).
- (4) Slide bearing sleeves (5 and 11) into position on screw drive shaft.
- (5) Install bearing adjusting shim (13) and ball bearing assembly (12) in gear box housing (14). Install ball bearing assembly (4) in gear box cover (3).
- (6) Insert end of screw drive shaft in bearing in gear box housing and position other end of shaft in cover bearing. Press entire assembly into position.
- (7) With gear box cover held tightly in place on gear box housing, test fit of bearings on shaft by turning protruding end of shaft. Shaft should turn freely and have slight end play. Should shaft appear to be restricted in turning, remove shaft and take out shim behind bearing. Should end play be excessive, install another shim behind bearing.
- (8) Secure cover (3) to gear box housing (14) with four 5/16-18NC-2 X 7/8 capscrews (1) and 5/16 lockwashers (2).

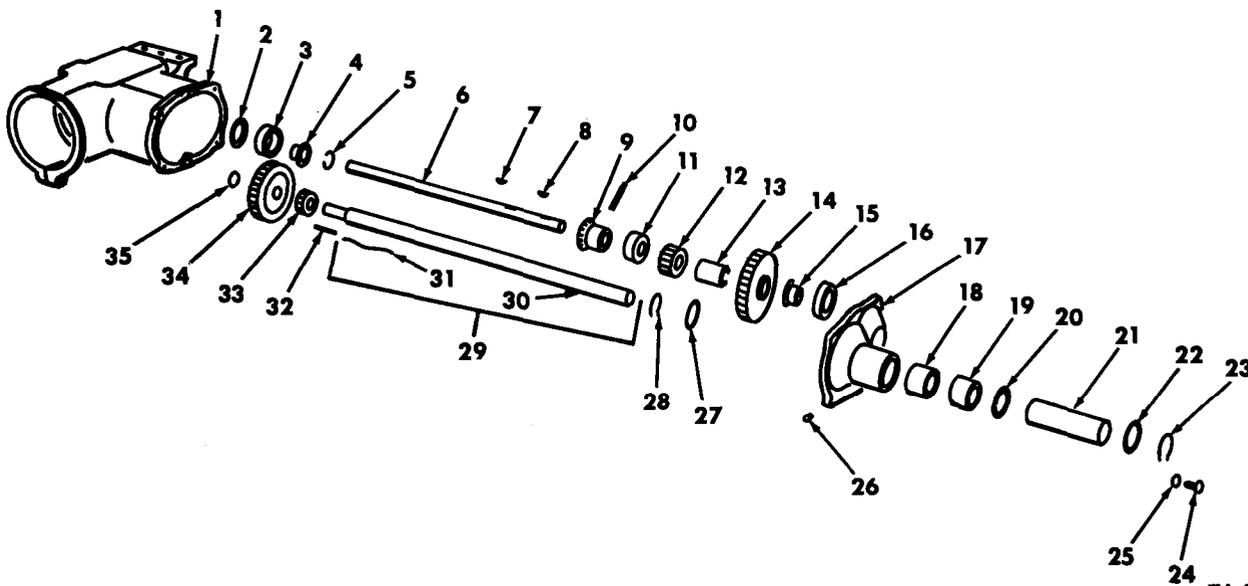
4-61. RIGHT LANDING LEG GEAR BOX (THOMAS)

NOTE

The key numbers shown below in parentheses refer to figure 4-59.

a. Disassembly.

- (1) Remove operating crank and disconnect connecting shaft.
- (2) Remove snap ring (23) on operating shaft assembly (29).
- (3) Remove six 5/16-18NC-2 X 7/8 capscrews (24) and 5/16 lockwashers (25) which secure gear box cover (17).
- (4) Hold operating shaft sleeve (21) and remove gear box cover (17).
- (5) Withdraw screw drive shaft (6) and attached parts, using care that ball bearing assemblies (3 and 16) do not fall out.
- (6) To disassemble gear box cover and operating shaft sleeve, withdraw operating shaft sleeve from inner side of cover; push out sleeve.
- (7) Remove snap ring (35) on gear end of operating shaft (29) and remove spur gears (33 and 34) and key (32). Remove needle bearings (18 and 19) and oil seal (20) from gear box cover (17) with puller.
- (8) To disassemble screw drive shaft and attached parts, remove bearing sleeves (4 and 15) and gears (14, 12 and 9) and spacers (13 and 11). Spur gears (14 and 12) are secured with woodruff keys (7 and 8). Bevel gear (9) is retained by tapered groove pin (10). Drive out pin.



- | | | | |
|----------------------------|-----------------------|-----------------------------|--------------------------|
| 1. Housing, gear box | 10. Pin, Taper groove | 19. Bearing, needle | 28. Snap ring |
| 2. Shim, bearing adjusting | 11. Spacer | 20. Oil seal | 29. Operating Shaft Assy |
| 3. Ball Bearing Assy | 12. Gear, spur | 21. Sleeve, operating shaft | 30. Shaft |
| 4. Sleeve, bearing | 13. Spacer | 22. Washer | 31. Spring |
| 5. Snap ring | 14. Gear, spur | 23. Snap ring | 32. Key, square |
| 6. Shaft, screw drive | 15. Sleeve, bearing | 24. Screw | 33. Gear, spur |
| 7. Woodruff key | 16. Ball Bearing Assy | 25. Lockwasher | 34. Gear, spur |
| 8. Woodruff key | 17. Cover, gear box | 26. Fitting, lube | 35. Snap ring |
| 9. Gear, bevel | 18. Bearing, needle | 27. Washer | |

TA 233638

Figure 4-59. Right landing leg gear box (Thomas) exploded view

b. Cleaning, Inspection and Repair.

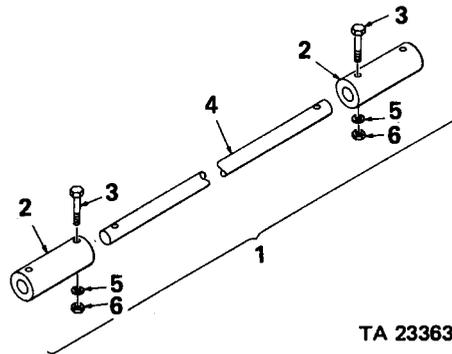
- (1) Cleaning. Wipe off grease and clean all parts thoroughly with dry-cleaning solvent (PD-680) (item 18, Appendix C).
- (2) Inspection and repair. Inspect bearings for wear or damage. Rollers should spin freely. If bearings are unserviceable, replace them. Inspect shafts and gears for wear, burrs, or distortion. Roll shafts on flat surface to inspect for straightness. Remove burrs with fine file. Replace damaged parts. Inspect operating shaft locking spring for cracks or loss of resiliency. It can be removed by prying out with screwdriver. Replace spring if unserviceable. (Check lubrication fitting (26) for serviceability.) See para. 4-60b(2).

c. Assembly.

- (1) Assemble screw drive shaft and attached parts.
 - (a) Coat parts with light film of oil.
 - (b) Install bevel gear (9) on screw drive shaft (6) and secure with taper groove pin (10).
 - (c) Install snap ring (5).
 - (d) Slide short spacer (11) on screw drive shaft and press on small spur gear (12) securing it with one woodruff key (8).
 - (e) Slide on long spacer (13) and install large spur gear (14), securing it with one woodruff key
 - (f) Slide bearing sleeves (4 and 15) into position, one on each end of screw drive shaft (6).
 - (g) Install bearing adjusting shim (2), and ball bearing assembly (3) in seat in gear box housing (1) and ball bearing assembly (16) in seat in gear box cover (17).
- (2) Assemble operating shaft and attached parts.
 - (a) Coat parts with light film of oil.
 - (b) Make sure shaft locking spring (31) is in place, and slide operating shaft sleeve (21) into position on shaft.
 - (c) Install inner snap ring (28) on sleeve
 - (d) Install small spur gear (33) and large spur gear (34) in order on shaft over square key (32), and position snap ring (35).
 - (e) Lubricate needle bearings (18) and (19), as specified in lubrication chart (fig. 4-1).
 - (f) Press ball bearing assembly into each end of hole in cover (17) and press into position. Inside bearing should be pressed in flush with surface. Outer bearing is to be pressed in 1/8-inch past surface.
 - (g) Position oil seal (20) over recessed outer bearing.
 - (h) Slide washer (27) onto operating shaft sleeve (21) and against ring.
 - (i) Insert shaft and sleeve assembly through inside face of cover and position.
 - (j) Apply washer (22) and outer snap ring (23) on shaft at outer end.
- (3) Assemble unit.
 - (a) Insert end of screw drive shaft (6) into bearing in housing. Hold in position.
 - (b) Place cover (17) and operating shaft assembly (29) in approximate position in relation to screw drive shaft; large spur gear (34) on operating shaft (29), behind large spur gear (14) on screw drive shaft.
 - (c) Locate front end of screw drive shaft (6) in cover bearing and slide entire assembly into position. Cover (17) must fit tightly against face of gear box housing (1).
 - (d) Hold cover in position tightly and test fit of bearings on screw drive shaft by turning protruding end of shaft. Shaft should turn freely and have slight end play. If shaft is restricted in turning, remove shafts and take out shim behind bearing assembly (3) in housing. If endplay is excessive, install another shim (2) behind bearing.
 - (e) Secure gear box mechanism by attaching cover (17) with six 5/16-18NC-2 X 7/8 capscrews (24) and 5/16 lockwashers (25).

4-62. LANDING LEG (WESTRAN)

a. Removal of Drive Shaft and Coupling (Westran) (fig. 4-60).



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Figure 4-60. Drive shaft and coupling (Westran)

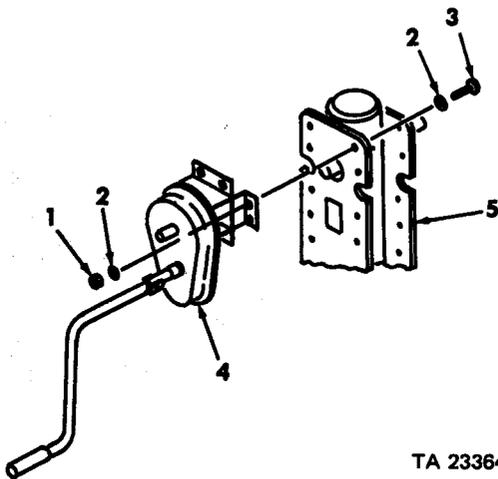
- (1) Block the semitrailer on support stands.
- (2) Block wheels to prevent movement of semitrailer.
- (3) Crank the landing leg up slightly.
- (4) Remove nuts (6), washers (5) and bolts (3).
- (5) Remove drive shaft (4) and coupling (2).

b. Gear Box Removal (Westran) (fig. 4-61).

- (1) Remove four nuts (1), eight washers (2) and four bolts (3).
- (2) Remove gear box (4) from leg (5).

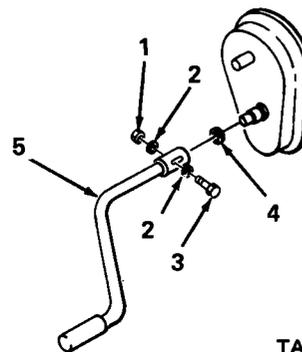
c. Crank Removal and Repair (Westran) (fig. 4-62).

- (1) Remove nut (1), washers (2) and bolt (3).
- (2) Remove crank (5) and seal (4).
- (3) Replace parts as required.
- (4) Install new seal (4) and then install crank (5).
- (5) Install two washers (2), bolt (3) and nut (1).



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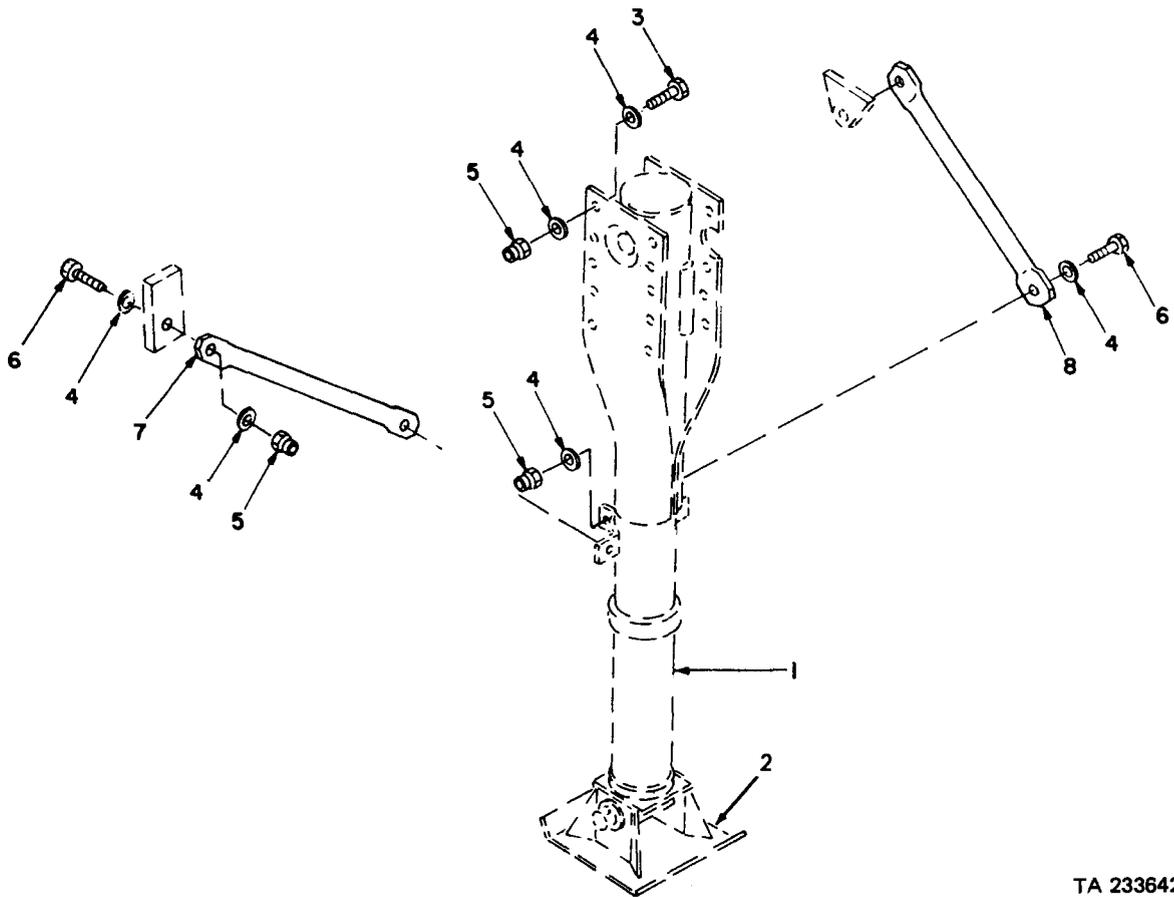
Figure 4-61. Gear box (Westran), removal



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Figure 4-62. Crank removal (Westran)

d. Landing Leg Removal (Westran) (fig. 4-63).



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- | | |
|----------------|----------|
| 1. Landing leg | 5. Nut |
| 2. Shoe | 6. Bolt |
| 3. Bolt | 7. Brace |
| 4. Washer | 8. Brace |

Figure 4-63. Landing leg removal (Westran)

- (1) Remove four bolts (6), four nuts (5) and eight flat washers (4) holding braces (7) and (8).
- (2) Remove eight bolts (3), eight nuts (5) and sixteen flat washers (4) holding landing leg (1) to frame.
- (3) Remove landing leg (1) from frame and repeat steps (1) thru (3) for other leg.

4-62. LANDING LEG (WESTRAN) (Cont)

e. Repair of Landing Leg (Westran) (fig. 4-64).

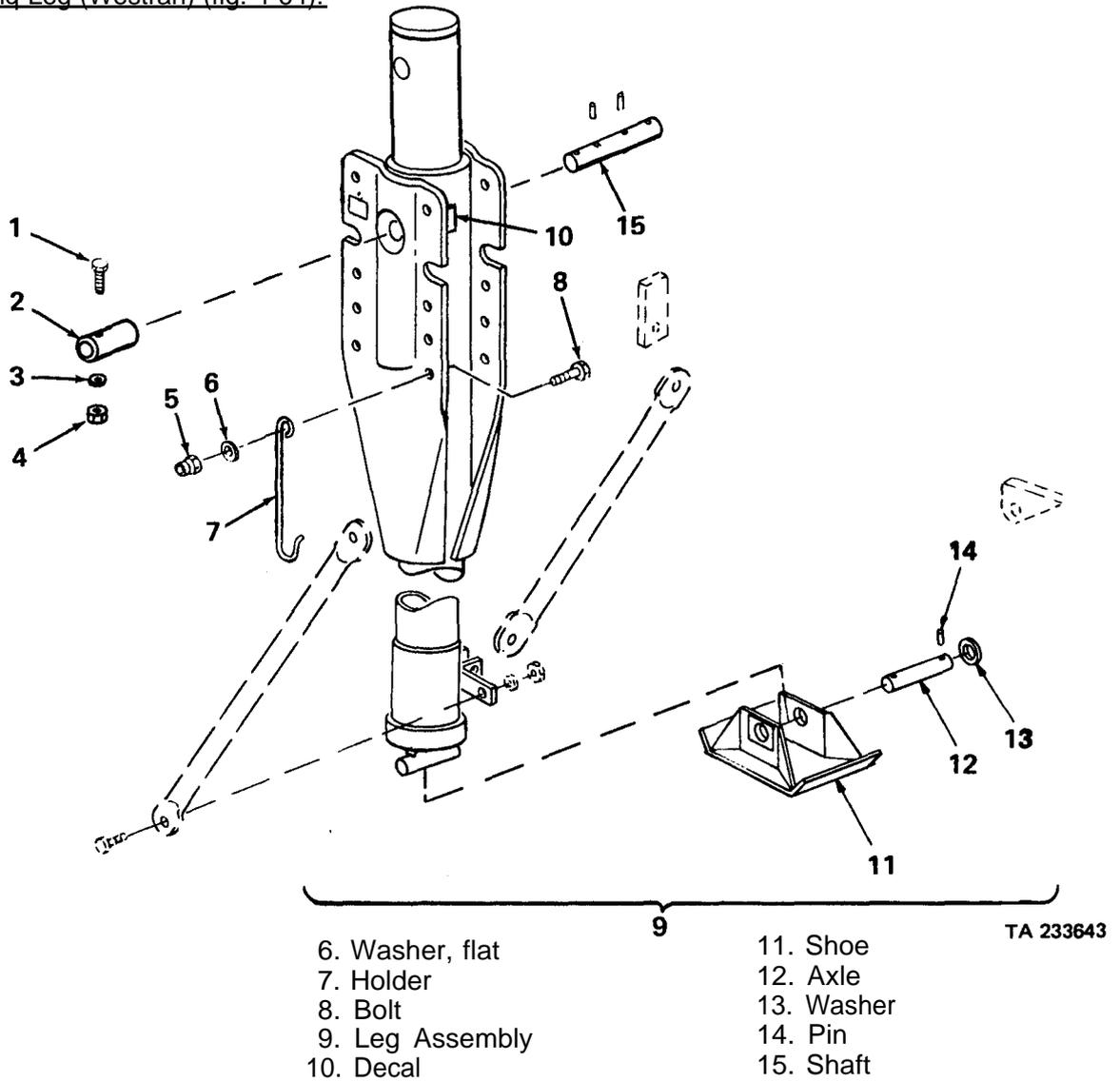


Figure 4-64. Landing leg disassembly and reassembly (Westran)

- (1) Remove bolt (1), washer (3) and nut (4) holding coupling (2) to shaft (15).
- (2) Remove bolt (8), washer (6) and nut (5) to release holder (7).
- (3) Remove two pins (14) holding two washers (13). Remove washers (13) from axle (12).
- (4) Pull out axle (12) to remove shoe (11).

f. Cleaning.

- (1) Remove all buildup of dirt, grease, etc., by wiping with a soft cloth.

WARNING

Cleaning solvent (Fed Spec PD-680) is toxic and flammable. Use solvent only in a well-ventilated room. Avoid prolonged breathing of solvent vapors. Keep solvent away from flame. Do not use solvent in excessive amounts.

- (2) Clean, using a clean, soft cloth or a medium bristle brush and cleaning solvent (PD-680) (item 18, Appendix C).
- (3) Allow to dry.

g. Inspection.

- (1) Inspect for cracks, dents, holes, broken parts and warps.
- (2) Inspect for loose, missing or damaged hardware.
- (3) Inspect for rust, corrosion and marred paint.

h. Reassembly of Landing Leg (Westran) (fig. 4-64).

- (1) Install shoe (11) and axle (12) to landing leg with two pins (14) and two washers (13).
- (2) install holder (7) with bolt (8), nut (5) and washer (6).
- (3) Install coupling (2) with bolt (1), nut (4) and washer (3).

i. Installation of Landing Leg (Westran) (fig. 4-63).

- (1) Reassemble landing leg (1) to frame of semitrailer with eight bolts (3), sixteen washers (4) and eight nuts (5). Torque nuts to 150-160 lb-ft.
- (2) Install braces (7) and (8) with four bolts (6), eight washers (4) and four nuts (5). Torque nuts to 150-160 lb-ft.

j. Installation of Gear Box (Westran) (fig. 4-61).

- (1) Install crank on gear box (para. 4-62c(4)).
- (2) Install gear box (4) to landing leg (5) with four bolts (3), eight washers (2) and four nuts (1). Torque nuts to 150-160 lb-ft.

k. Installation of Drive Shaft and Coupling (Westran) (fig. 4-60).

- (1) Assemble and position shaft (4) and couplings (2) on landing legs.
- (2) Secure shaft (4) and couplings (2) with four bolts (3), four washers (5) and four nuts (6).
- (3) Crank down lower landing leg and lubricate lower landing leg with grease per lubrication chart (fig. 4-1).
- (4) Perform operation checks on landing gear installation referring to para. 2-10 and table 2-1, item 7.

Section XII. SPRINGS AND SHOCK ABSORBERS

Overview	Page	Page
Description of Springs	4-96 Spring Seat and Bearings	4-99
Spring Repair	4-96 Torque Rods	4-103
	4-96 Trunion Tube	4-104

4-63. OVERVIEW

This section provides organizational maintenance information on:

- . Springs
- . Spring Seat and Bearings
- . Torque Rods
- . Trunion Tubes

4-64. DESCRIPTION OF SPRINGS

a. The springs (fig. 4-30) are the semielliptic-type with twelve leaves held together by a center bolt and two large leaf clips. The center bolt end is peened over its hex nut to prevent it from coming loose. The four leaf clips, two riveted to the fourth leaf and two to the seventh leaf, are closed at the top by hex-head bolts which pass through clips and clip spacers.

b. The center of the springs seat in, and are clamped to the spring seat assemblies which are secured to each end of the trunion tube. Each end of the spring seats in spring guide brackets secured to the axles.

c. A U-bolt on each side of each spring holds the springs in position on the spring seat assemblies. The U-bolts fit over a spring saddle on top of the springs, down the side of the springs, and through the spring seat assemblies. The U-bolts are secured with lockwashers and nuts.

4-65. SPRING REPAIR

a. Removal. Position semitrailer on level surface with front end resting on landing leg. Jack up each rear axle so wheels on side from which spring is to be removed can be taken off. Place jacks or hydraulic dolly under trunion cross tube and take up weight. Block up rear corners of body frame with support stands or support by overhead crane. Remove wheels (fig. 4-24); then remove springs by following procedures shown in steps 1 thru 5 of figure 4-65.

b. Disassembly (fig. 4-66). Generally springs will not be disassembled into separate leaves for replacement of broken leaves.

- (1) Leaf clips (1) and (5) with associated rivets (2), nuts (3) and bolts (4) can be replaced if necessary.
- (2) Center bolt (6) and nut (7) can also be replaced if necessary.

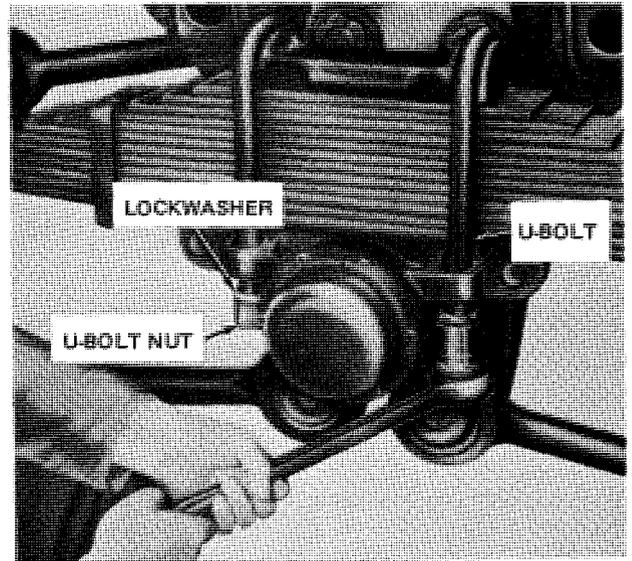
c. Cleaning, Inspection and Repair.

WARNING

Cleaning solvent (Fed Spec PD-680) is toxic and flammable. Use solvent only in a well-ventilated room. Avoid prolonged breathing of solvent vapors. Keep solvent away from flame. Do not use solvent in excessive amounts.

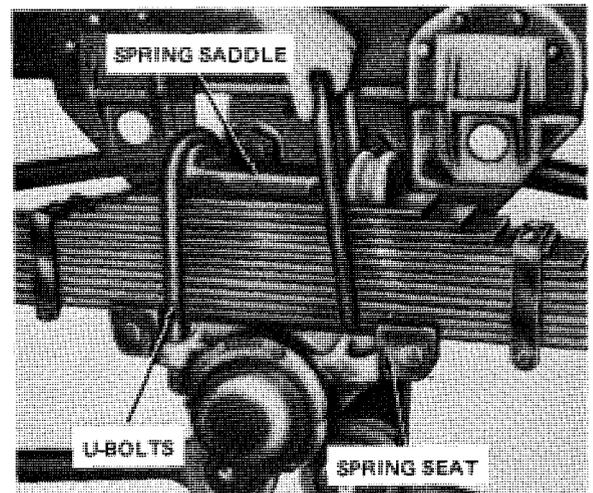
- (1) Cleaning. Clean mud and dirt from parts of spring with water and stiff brush. After mud and dirt have been removed, clean each leaf with dry cleaning solvent (PD-680) (item 18, Appendix C). Brush or buff rust and corrosion from leaves.

STEP 1. REMOVE FOUR U-BOLT NUTS AND LOCKWASHERS SECURING TWO U-BOLTS.



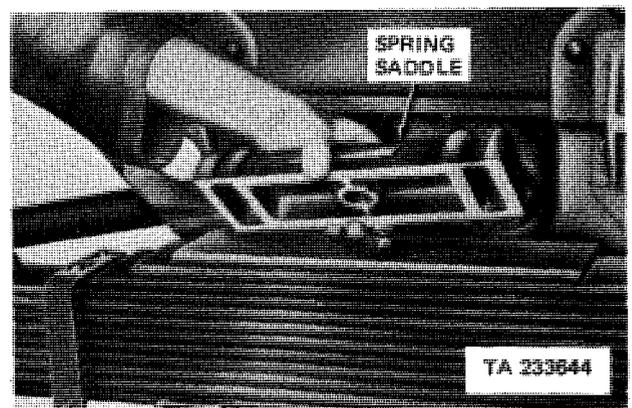
REMOVING OR INSTALLING U-BOLTS

STEP 2. REMOVE TWO U-BOLTS.



REMOVING OR INSTALLING U-BOLTS

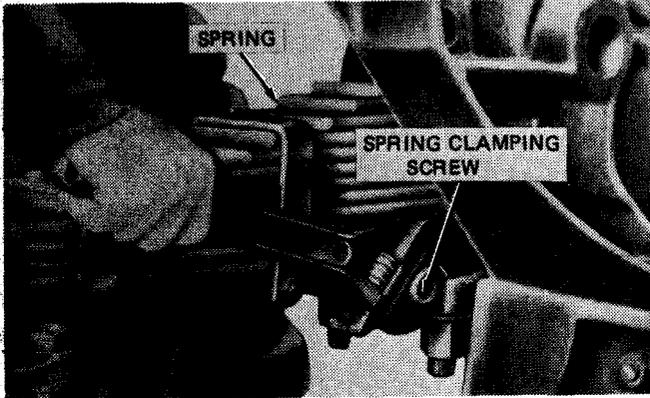
STEP 3. REMOVE SPRING SADDLE.



REMOVING OR INSTALLING SPRING SADDLE

Figure 4-65. Spring replacement (Sheet 1 of 2)

4-65. SPRING REPAIR (Cont)



LOOSENING OR TIGHTENING
SPRING CLAMPING SCREWS

STEP 4. LOOSEN TWO SPRINGS CLAMPING SCREWS WHICH CLAMP SPRING IN SPRING SEAT. JACK AXLE HIGHER TO FORCE SPRING OUT OF SPRING SEAT IF SIEZED.

STEP 5. REMOVE UPPER TORQUE ROD (FIG. 4-68); THEN REVOLVE AXLE TO FREE END OF SPRING FROM SPRING GUIDE BRACKET. REMOVE SPRING WITHDRAWING OTHER END OF SPRING FROM SPRING GUIDE BRACKET ON THE OTHER AXLE.

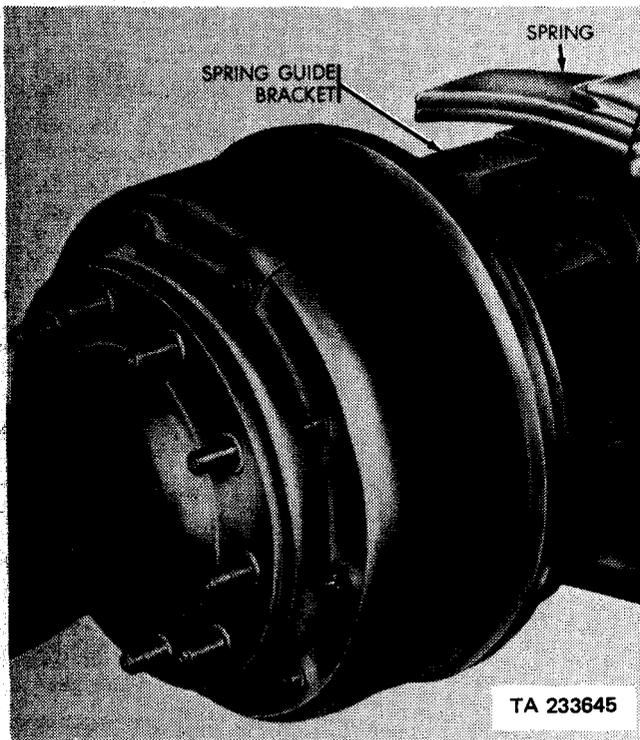
STEP 6. INSERT END OF SPRING WITH LARGE LEAF DOWN INTO THE SPRING GUIDE BRACKET WITHDRAWN IN STEP 5. POSITION SPRING SO THAT CENTER BOLT MAY BE DEPRESSED INTO RECESS IN SPRING SEAT. REVOLVE AXLE REVOLVED IN STEP 5 SO END OF SPRING WILL ENTER OPENING IN SPRING GUIDE BRACKET. INSTALL UPPER TORQUE ROD (FIG. 4-68).

STEP 7. POSITION SPRING SADDLE REMOVED IN STEP 3 ON SPRING. MAKE SURE THAT THE CENTER BOLT'S NUT FITS INTO RECESS IN SPRING SADDLE.

STEP 8. POSITION TWO U-BOLTS REMOVED IN STEP 2 OVER SPRING SADDLE, AND THRU HOLES IN SPRING SEAT.

STEP 9. SECURE TWO U-BOLTS WITH FOUR U-BOLT NUTS AND LOCKWASHERS REMOVED IN STEP 1.

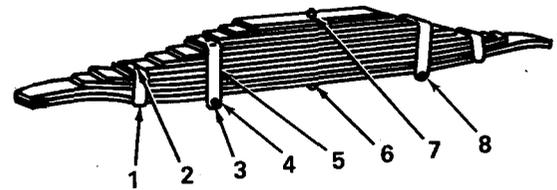
STEP 10. TIGHTEN TWO SPRING CLAMPING SCREWS LOOSENED IN STEP 4.



REMOVING OR INSTALLING SPRING

Figure 4-65. Spring replacement (Sheet 2 of 2)

- (2) Inspection and repair. Inspect each leaf for cracks or breaks. Note whether excessive wear is apparent on lower leaf (fig. 4-66) at contact of spring bearing plate. Replace complete spring assembly, if any leaves are defective. Make sure rivets (2, fig. 4-66) hold clips (1 and 5) tightly. Check leaf clips for cracks. Cut out and replace any defective 3/8 X 5/16-inch button head rivets (2).



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- | | |
|---------------------|---------------------|
| 1. Leaf clip, small | 5. Leaf clip, large |
| 2. Rivet | 6. Bolt, center |
| 3. Nut, hex | 7. Nut, hex, center |
| 4. Bolt, hex head | 8. Clip spacer |

Figure 4-66. Spring

d. Installation. Install springs by following procedures shown in steps 6 thru 10 of figure 4-65; then install wheels (fig. 4-24); remove blocks, lower semitrailer to ground and remove jacks.

4-66. SPRING SEAT AND BEARINGS

a. Removal. Position semitrailer on level surface with front end resting on landing leg. Jack up each rear axle so wheels on side from which spring seat is to be removed can be taken off. Place jacks or hydraulic dolly under trunnion tube and take up weight. Block up semitrailer. Remove wheels (fig. 4-24) and loosen springs from spring seat (fig. 4-65, steps 1 thru 4); then remove spring seat and bearings by following procedures shown in steps 1 thru 8 of figure 4-67.

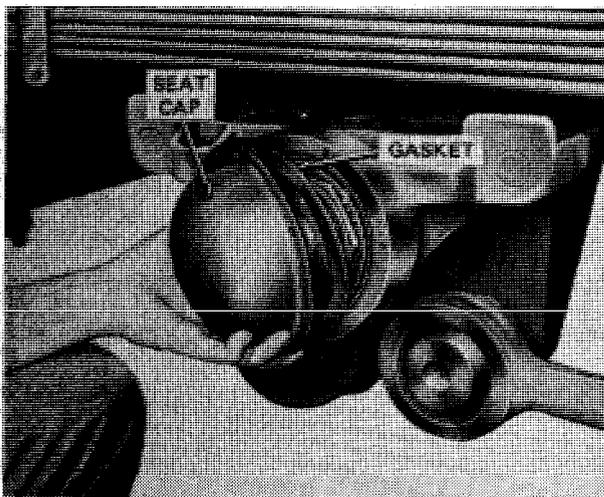
b. Cleaning, Inspection and Repair.

WARNING

Cleaning solvent (Fed Spec PD-680) is toxic and flammable. Use solvent only in a well-ventilated room. Avoid prolonged breathing of solvent vapors. Keep solvent away from flame. Do not use solvent in excessive amounts.

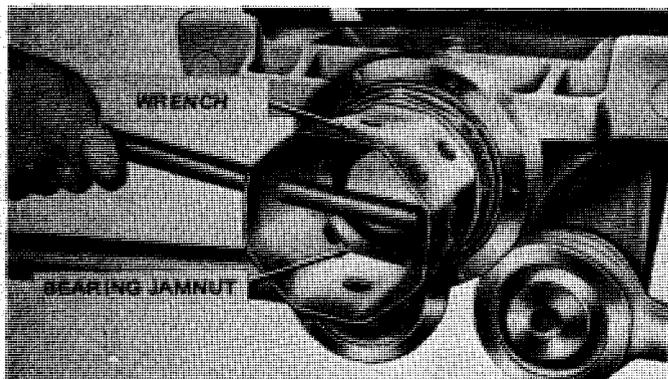
- (1) Cleaning. Wash spring seat and bearings thoroughly with dry cleaning solvent (PD-680) (item 18, Appendix C).
- (2) Inspection and repair. Inspect spring seat for cracks or other indications of damage. Replace if damaged. Inspect bearing cups for cracks, chipped spots, or wear caused by contact with bearing rollers. Make sure cups fit tightly in seat. If cups are damaged or worn, replace them. Oil cone and roller bearing assemblies lightly and rotate by hand to test serviceability; replace if there is evidence of scoring, pitting or wear. Inspect oil seal to make sure contact material is intact and pliable.

c. Installation. Lubricate cone and roller bearing assemblies, and spring seat in accordance with lubrication chart (fig. 4-1). Install spring seat and bearings by following procedures shown in steps 9 thru 16 of fig. 4-67. Secure spring to spring seat (fig. 4-65, steps 7 thru 10); install wheels (fig. 4-24); remove blocks, lower semitrailer to ground and remove jacks.



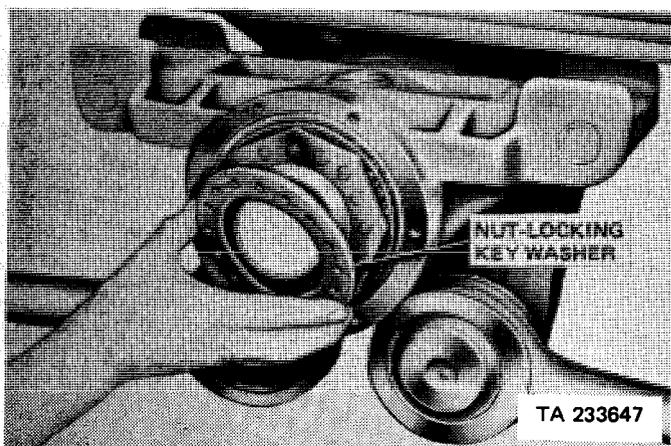
REMOVING OR INSTALLING
SEAT CAP AND GASKET

STEP 1. REMOVE SIX HEX HD BOLTS
AND LOCKWASHERS SECUR-
ING SEAT CAP. REMOVE SEAT
CAP AND GASKET.



REMOVING OR INSTALLING
BEARING JAMNUT

STEP 2. USING SMALL END OF WHEEL
BEARING NUT WRENCH, RE-
MOVE BEARING JAMNUT.

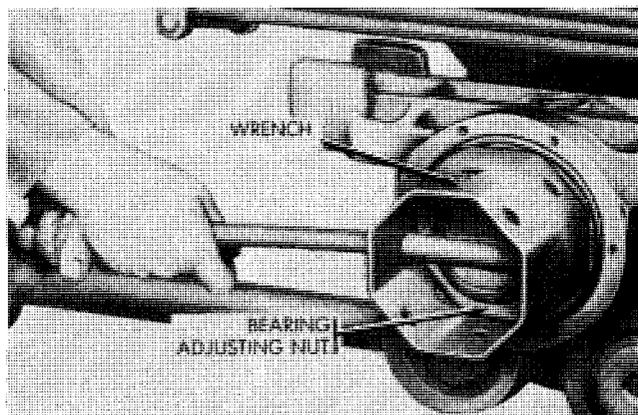


REMOVING OR INSTALLING
NUT-LOCKING KEY WASHER

STEP 3. REMOVE NUT-LOCKING KEY
WASHER.

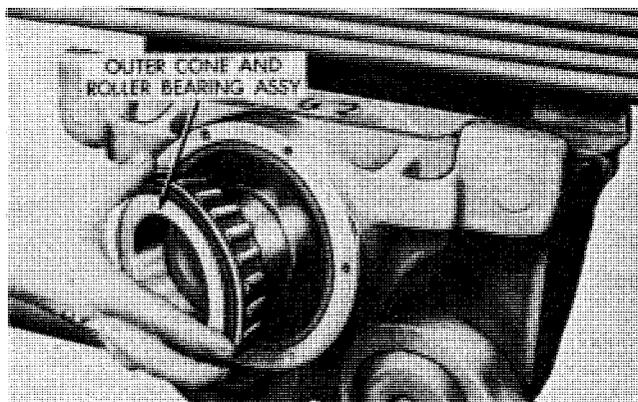
Figure 4-67. Spring seat and bearing replacement (Sheet 1 of 3)

STEP 4. USING LARGE END OF WHEEL BEARING NUT WRENCH, REMOVE BEARING ADJUSTING NUT.



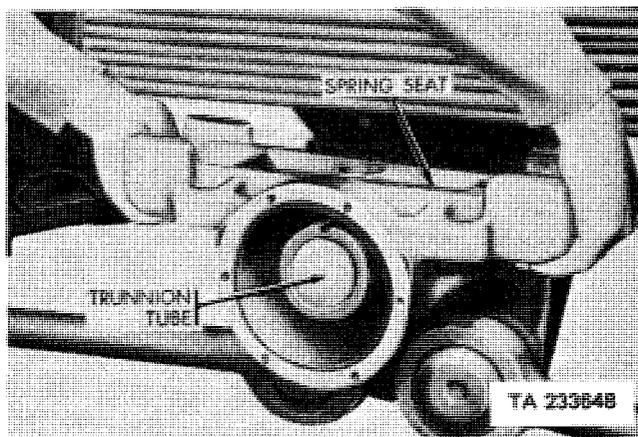
REMOVING OR INSTALLING BEARING ADJUSTING NUT

STEP 5. REMOVE OUTER CONE AND ROLLER BEARING ASSEMBLY.



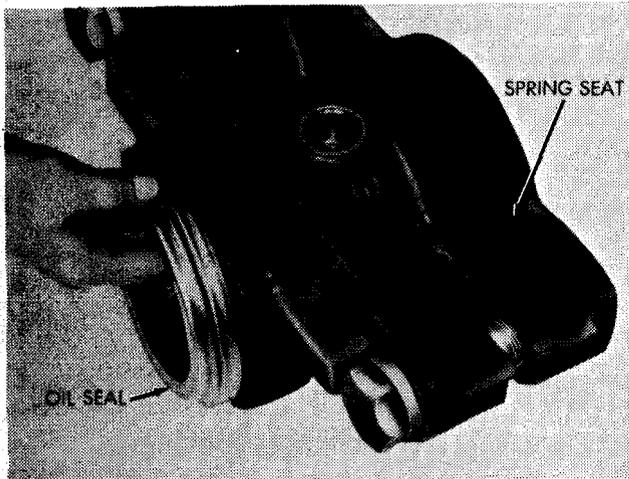
REMOVING OR INSTALLING OUTER CONE AND ROLLER BEARING ASSY

STEP 6. USING A SLIGHT ROTARY MOTION, CAREFULLY SLIDE SPRING SEAT OFF OF TRUNNION TUBE.

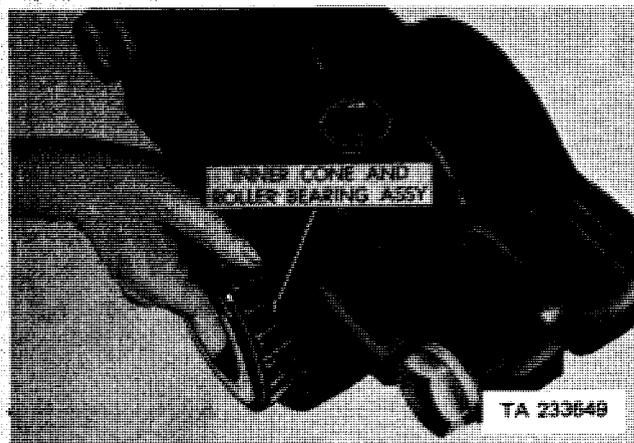


REMOVING OR INSTALLING SPRING SEAT

Figure 4-67. Spring seat and bearing replacement (Sheet 2 of 3)



REMOVING OR INSTALLING OIL SEAL



REMOVING INNER CONE AND ROLLER BEARING ASSY

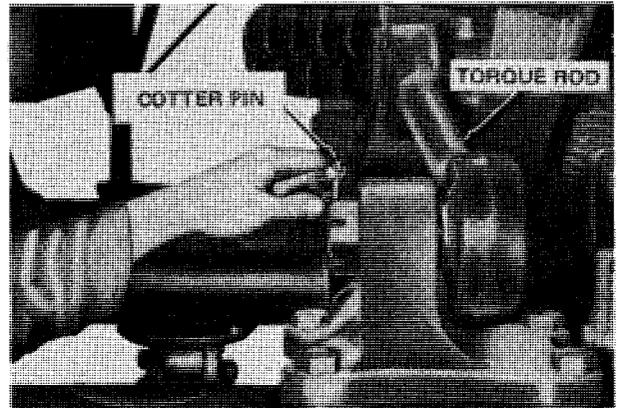
- STEP 7. REMOVE OIL SEAL. SHOULD IT BE NECESSARY TO DRIVE OIL SEAL FROM SPRING SEAT, CAUTION SHOULD BE TAKEN NOT TO DAMAGE THE INNER CONE AND ROLLER BEARING ASSEMBLY.
- STEP 8. REMOVE INNER CONE AND ROLLER BEARING ASSEMBLY.
- STEP 9. INSTALL INNER CONE AND ROLLER BEARING ASSY REMOVED IN STEP 8.
- STEP 10. POSITION A NEW OIL SEAL (OLD OIL SEAL REMOVED IN STEP 7) OVER INNER CONE AND ROLLER BEARING ASSY, AND USING A WOODEN BLOCK OR DISCARDED OIL SEAL, PRESS INTO PLACE.
- STEP 11. HOLDING SPRING SEAT LEVEL, AND WITH A ROTARY MOTION, SLIDE SPRING SEAT REMOVED IN STEP 6 ONTO TRUNNION TUBE. USE CAUTION TO PREVENT DAMAGE TO FELT SEAL RETAINER AND OIL SEAL WIPER ON THE TRUNNION TUBE.
- STEP 12. INSTALL OUTER CONE AND ROLLER BEARING ASSY REMOVED IN STEP 5,
- STEP 13. INSTALL BEARING ADJUSTING NUT REMOVED IN STEP 4. TIGHTEN NUT SUFFICIENTLY TO FORCE INNER CONE AND ROLLER BEARING ASSY INTO PLACE; THEN BACK OFF NUT UNTIL SPRING SEAT CAN BE TURNED FREELY WITHOUT ANY APPARENT LATERAL MOVEMENT.
- STEP 14. INSTALL NUT-LOCKING KEY WASHER REMOVED IN STEP 3.
- STEP 15. INSTALL BEARING JAMNUT REMOVED IN STEP 2.
- STEP 16. INSTALL A NEW GASKET AND SECURE SEAT CAP AND GASKET WITH SIX HEX HD BOLTS AND LOCKWASHERS REMOVED IN STEP 1.

Figure 4-67. Spring seat and bearing replacement (Sheet 3 of 3)

4-67. TORQUE RODS

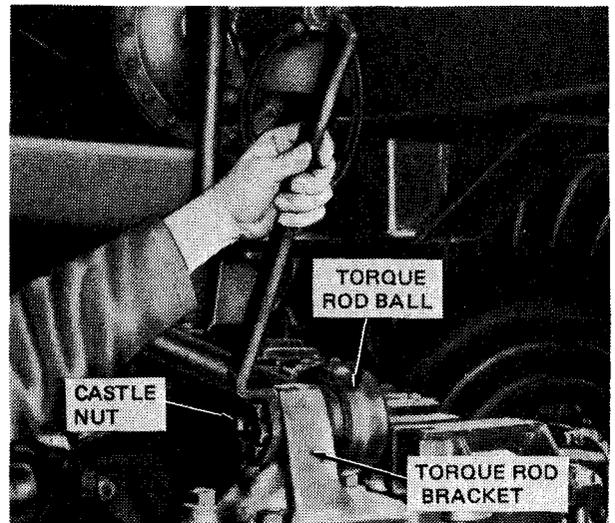
- a. Removal. Remove torque rods by following procedures shown in steps 1 thru 3 of figure 4-68.
- b. Installation. Install torque rods by following procedures shown in step 4 thru 6 of figure 4-68.

STEP 1. REMOVE TWO COTTER PINS FROM EACH END OF TORQUE ROD.



REMOVING OR INSTALLING COTTER PIN

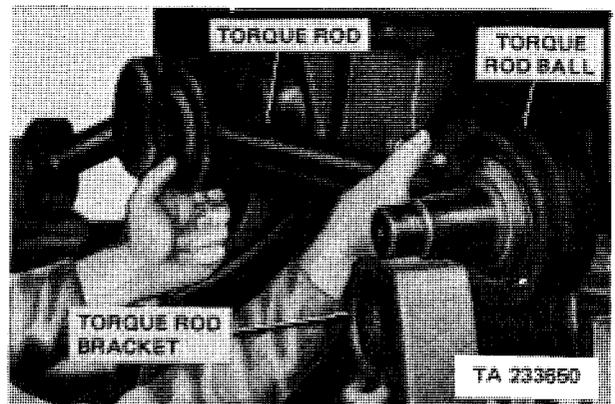
STEP 2. REMOVE TWO CASTLE NUTS; THEN TAP THREADED END OF TORQUE ROD BALL TO LOOSEN BALL IN TORQUE ROD BRACKET.



REMOVING OR INSTALLING CASTLE NUT

STEP 3. USE CROWBAR OR COLD CHISEL TO PRY ONE END OF TORQUE ROD OUT OF BRACKET. TORQUE ROD BALLS ARE MOUNTED IN RUBBER AND CAN BE BENT OUT OF NORMAL ALINEMENT FOR REMOVAL OR REPLACEMENT. SLIDE OTHER END OF TORQUE ROD OUT OF TORQUE ROD BRACKET AND REMOVE TORQUE ROD.

STEP 4. INSERT THREADED PORTION OF TORQUE ROD BALL, AT ONE END, IN HOLE IN TORQUE ROD BRACKET. USING TORQUE ROD AS A LEVER, BEND BALL OUT OF ALINEMENT SO BALL AT OTHER END IS CLOSE TO HOLE IN BRACKET. USING CROWBAR OR COLD CHISEL, BEND BALL OUT OF ALINEMENT TO ENTER HOLE. USE CARE NOT TO DAMAGE THREADS.



REMOVING OR INSTALLING TORQUE ROD

STEP 5. SECURE TORQUE ROD REMOVED IN STEP 3 WITH TWO CASTLE NUTS REMOVED IN STEP 2.

STEP 6. LOCK EACH CASTLE NUT INSTALLED IN STEP 5 WITH A COTTER PIN REMOVED IN STEP 1.

Figure 4-68. Torque rod replacement

4-68. TRUNNION TUBE

a. Removal.

- (1) Position chassis on level surface with front end resting on landing gear.
- (2) Jack up chassis and support under rear corners.
- (3) Remove wheels (fig. 4-24).
- (4) Remove torque rods (para. 4-67a).
- (5) Remove axles (fig. 4-32).
- (6) Remove springs (fig. 4-65).
- (7) Remove spring seat (fig. 4-67).
- (8) Remove eight hex nuts (23), lockwashers (22) and hex head bolts (21, fig. 4-69) which secure the trunnion tube to brackets riveted to chassis frame. Lift out trunnion tube with brackets attached.

b. Cleaning, Inspection and Repair.

- (1) Cleaning. Clean mud and dirt from trunnion tube with water and stiff brush. Remove grease from spindles of tube and retaining parts with dry cleaning solvent (PD-680) (item 18, Appendix C).
- (2) inspection and repair. Check bearing seats and oil seal wiper for roughness or damage (refer to para. 5-19 for wear limits of bearing surfaces). File or grind smooth, high spots, burrs or roughness. Check threads or spindles of tube for wear, crossed threads or damage. Using fine file, file off burrs or hand-chase threads if necessary. Check tube for bend. Spindles of tube which are bent, but not cracked, can be straightened. Carefully cut badly damaged oil seal wiper with a chisel and remove. Use wiper replacer (fig. 4-33) to drive new wiper into place. Frame bearing surface on both tube brackets must be on same plane. Check with straightedge across both brackets. Check holes in brackets for wear (refer to para. 5-19 for wear limits). Should brackets be out of line or holes in bracket worn to extent that bolts do not fit tightly, replace with new tube.

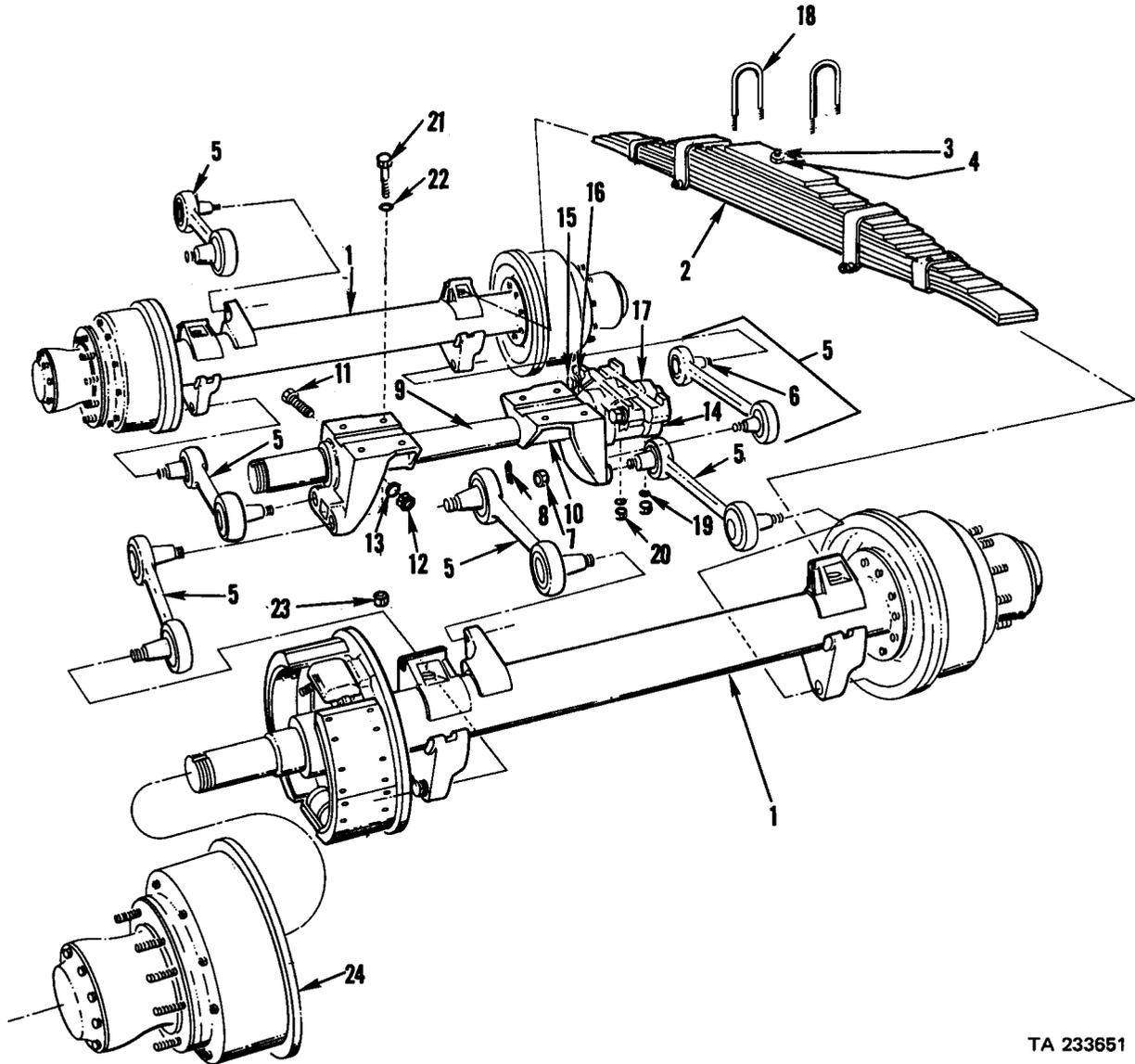
c. Installation.

- (1) position trunnion tube (9, fig. 4-69) on brackets riveted to chassis frame and secure with eight 3/4-16NF-3 X 5-3/8 hex head bolts (21), 3/4 lockwashers (22), 3/4-16NF-3 hex nuts (23).

NOTE

To install a new trunnion tube, mounting holes in new brackets on the tube must be line-reamed in position to 1.125 to 1.128-inch diameter.

- (2) install spring seat (fig. 4-67).
- (3) Install springs (fig. 4-65).
- (4) Install axles (fig. 4-32).
- (5) Install torque rods (para. 4-67b).
- (6) Install wheels (fig. 4-24).
- (7) Remove blocking and jacks and return semitrailer to level position,



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|---------------------|-----------------------|-----------------------|
| 1. Axle Assembly | 9. Trunnion tube | 17. Seat |
| 2. Spring | 10. Bracket | 18. U-Bolt |
| 3. Bolt | 11. Bolt | 19. Washer, lock |
| 4. Nut | 12. Nut | 20. Nut |
| 5. Torque Rod Assy | 13. Washer | 21. Bolt |
| 6. Ball and bushing | 14. Seat Assy, spring | 22. Washer |
| 7. Nut | 15. Screw | 23. Nut |
| 8. Pin, cotter | 16. Washer | 24. Hub and Drum Assy |

Figure 4-69. Bogie assembly, torque rods and trunnion tube, exploded view, typical

Section XIII. BODY

	Page	Page
Overview	4-106 Windows (M129 Series)	4-109
Tool Box (M127 Series)	4-106 Door Assy, Right (M128 and M129 Series)	4-110
Blackout Covers (M129 Series)	4.108 Door Assy, Left (M128 and M129 Series)	4-112

4-69. OVERVIEW

This section pertains to organizational maintenance of the semitrailers' body. Included are organizational maintenance procedures for the tool box, blackout covers and windows.

4-70. TOOL BOX (M127 SERIES)

NOTE

The key numbers shown below in parentheses refer to figure 4-70 unless otherwise indicated.

a. Removal.

- (1) Remove five capscrews along top of tool box that secure it to the body frame rail.
- (2) Remove eight capscrews, lockwashers and nuts that secure tool box to two brackets on the left longitudinal frame rail. Remove tool box.

b. Disassembly.

- (1) Withdraw hinge pin (2) and remove door (13) from box (1).
- (2) Remove hex nut (3) and washer (4) from lock shank (8); then remove lock tumbler (5) and hub (6).
- (3) Withdraw handle (12) and shank (8) from door (13).

NOTE

Metal around the lock may have to be slightly deformed to remove lock but, if done carefully, it can be returned to proper form after installation of lock without damage to door.

- (4) Remove button head rivet (11) from handle (12) and separate shank (8), ball (9) and spring (10) from handle.

c. Cleaning, Inspection and Repair.

- (1) Cleaning. Use steam or water and stiff brush to remove dirt. Use dry cleaning solvent (PD-680) (item 18, Appendix C) to remove grease.
- (2) inspection. Inspect areas around attaching parts for bent or cracked metal. Inspect entire unit for bare metal or damaged paint. Inspect locks for serviceability. Inspect racks (M127A1) for broken or rotted boards.
- (3) Repair. Straighten bends in metal and repair if cracked. Refer to TM 9-237 for welding theory and application. Clean, prime and paint as required. Replace any damaged boards in the rack (M127A1).

d. Assembly.

- (1) Position spring (10), ball (9), shank (8) and handle (12) together and secure with 7/32 X 1-1/8 button head rivet.
- (2) Insert handle and shank in door (13).

- (3) Place hub (6) and tumbler (5) on shank (8) and secure with 5/16-18NC-2 hex nut (3) and 5/16 washer (4).

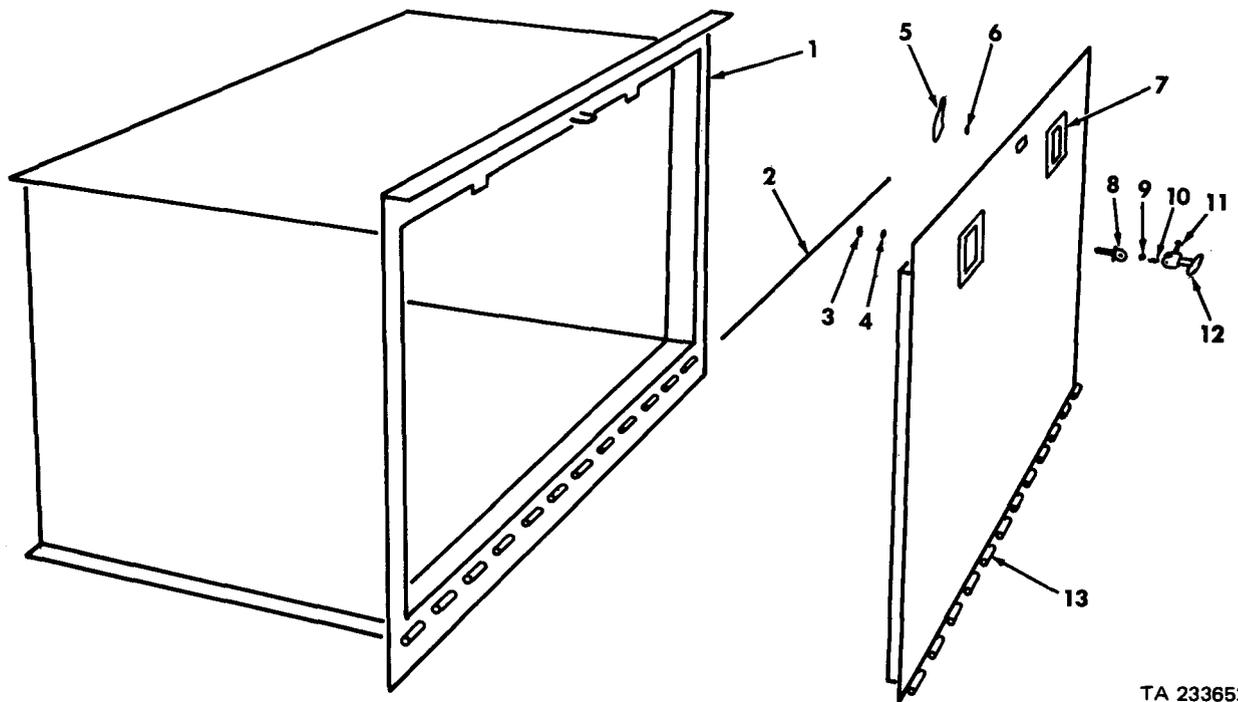
NOTE

If metal around lock was slightly deformed during removal, return it to a serviceable condition.

- (4) Position door (13) on box (1) and insert a 1/4 X 49½-inch hinge pin (2) through the hinge.

e. Installation.

- (1) Position tool box against mounting brackets and loosely secure with eight 3/8-16NC-3 X 1 cap screws, 3/8 lockwashers and 3/8-16NC-2 nuts.
- (2) Align the five holes along top of tool box with the nuts welded to the body frame weld. Insert five 3/8-16NC-3 X 1 cap screws in these holes and tighten.
- (3) Tighten the eight cap screws and nuts, securing tool box to brackets.



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|------------|------------|
| 1. Box | 8. Shank |
| 2. Pin | 9. Ball |
| 3. Nut | 10. Spring |
| 4. Washer | 11. Rivet |
| 5. Tumbler | 12. Handle |
| 6. Hub | 13. Door |
| 7. Lock | |

Figure 4-70. Tool box (M127 Series), exploded view

4-71. BLACKOUT COVERS (M127 SERIES)

a. Removal (fig. 4-71).

- (1) Remove 15 binding head screws around outside of blackout cover frame.
- (2) Lift off blackout cover.

b. Installation (fig. 4-71).

- (1) Position blackout cover over window and match holes.
- (2) Secure blackout cover with 15 No. 8 X 3/4 binding head screws (retractable sash window) or 15 No. 8 X 3/4-inch binding head screws (stationary sash window) inserted around outside of blackout cover frame.

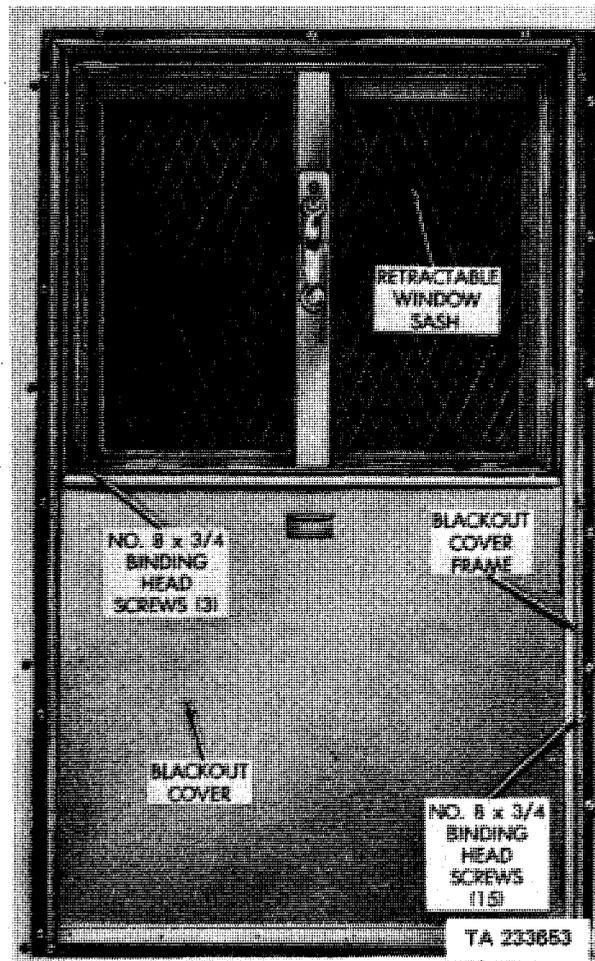


Figure 4-71. Blackout cover and window, inside view

4-72. WINDOWS (M129 SERIES)

a. Removal.

(1) Retractable sash.

- (a) Remove three binding head screws from inside of window at bottom of sash (fig. 4-71).
- (b) Remove 18 binding head screws from around outside of sash (fig. 4-72).
- (c) Remove retractable sash from outside.

(2) Stationary sash.

- (a) Remove three binding head screws from inside of window at bottom of sash.
- (b) Remove 18 binding head screws from around outside of sash (fig. 4-73).
- (c) Remove stationary sash from outside.

b. Installation.

(1) Retractable sash.

- (a) Position retractable sash from the outside and match with holes in semitrailer.
- (b) Insert 18 No. 8 X 3/4 binding head screws around outside of sash (fig. 4-72); do not tighten.
- (c) Insert three No. 8 X 3/4 binding head screws on the inside at bottom of sash (fig. 4-71) and tighten.
- (d) Tighten the 18 outside screws.

(2) Stationary sash.

- (a) Position stationary sash from the outside and match with holes in semitrailer.
- (b) Insert 18 No. 10 X 3/4 binding head screws around outside of sash (fig. 4-73); do not tighten.
- (c) Insert three No. 8 X 3/4 binding head screws on the outside at bottom of sash (fig. 4-71) and tighten.
- (d) Tighten the 18 outside screws.

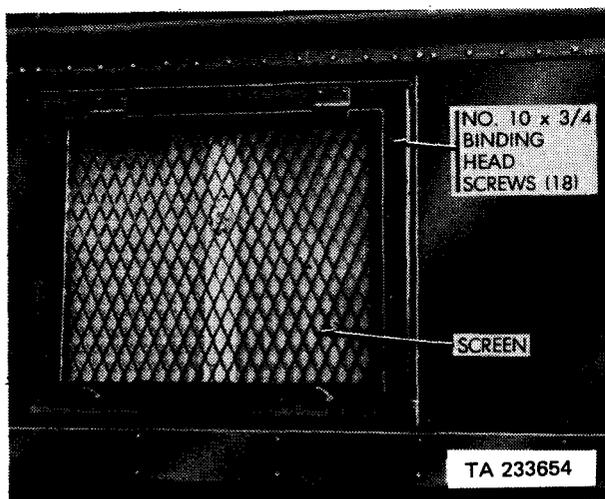


Figure 4-72. Retractable sash window, outside view

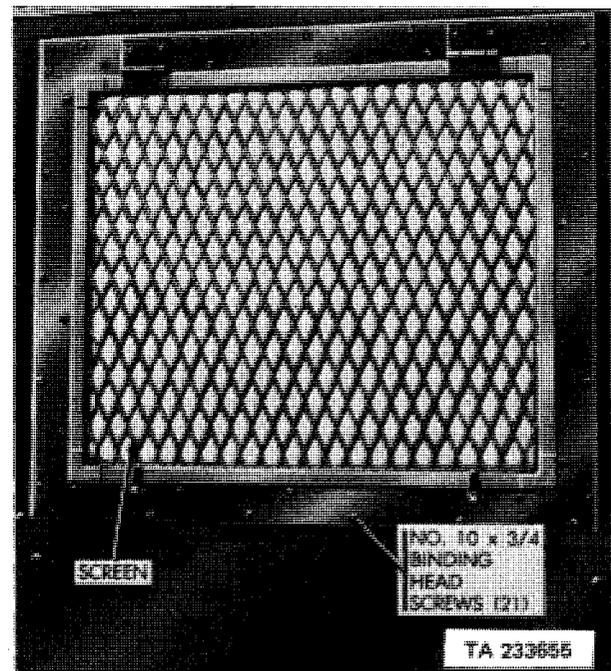


Figure 4-73. Stationary sash window, outside view

4-73. DOOR ASSEMBLY, RIGHT (M128 AND M129 SERIES) (FIG. 4-74)

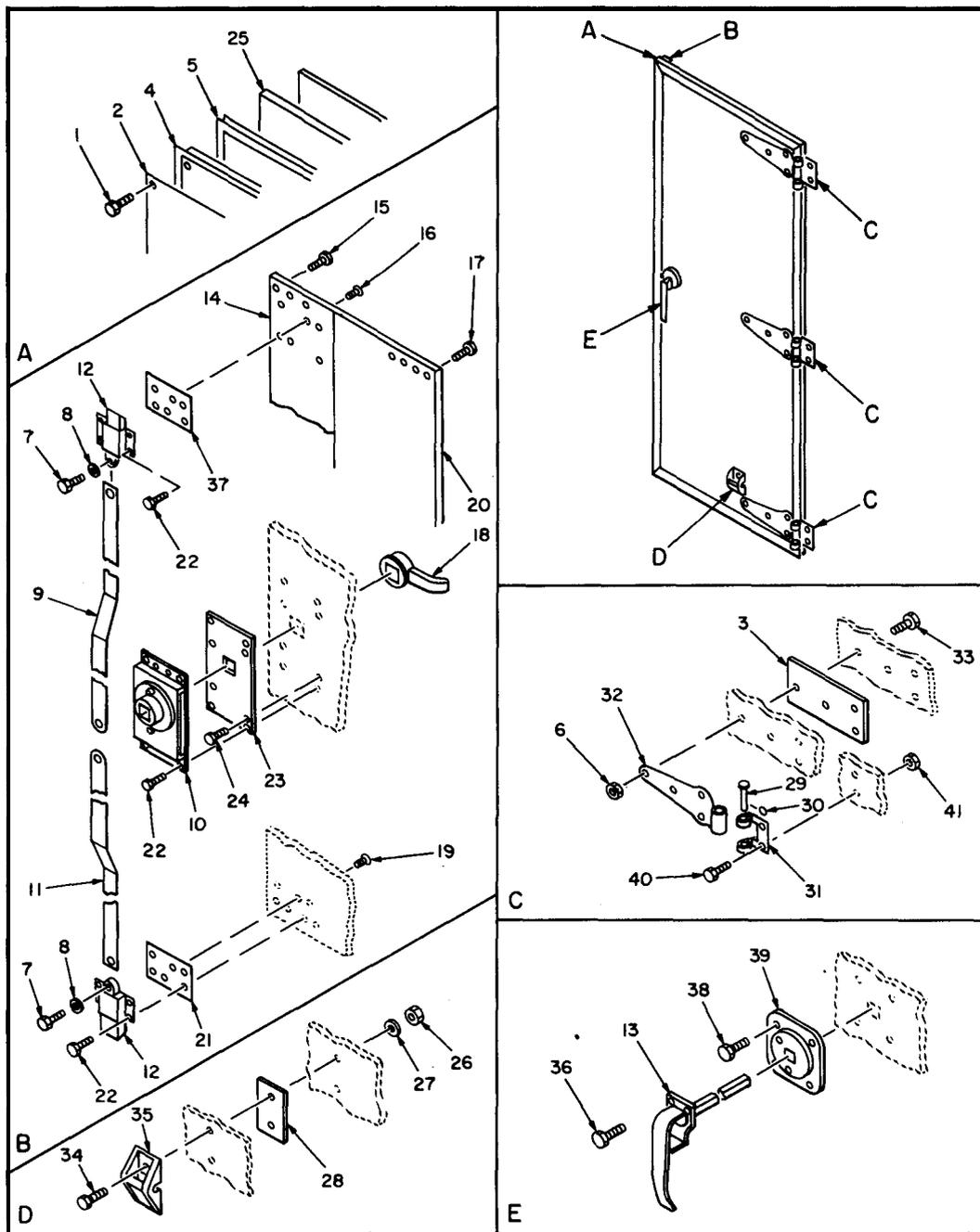
a. General. Organizational maintenance consists of replacement of handles, holdback door bracket, seals, hinges, hinge pins and hinge butt. Remove and replace only defective parts.

b. Removal.

- (1) Support door and remove three cotter pins (30) and hinge pins (29).
- (2) Remove door.
- (3) Remove three hinges (32) by removing twelve screws (33) and twelve nuts (6).
- (4) Remove three hinge butts (31) by removing six screws (40) and six nuts (41).
- (5) Remove door handle (18) by loosening its setscrew and sliding handle off shaft.
- (6) Remove two screws (34), nuts (26) and washers (27) to remove door holdback bracket (35).
- (7) Check condition of door seal (5). Remove only if defective.

c. Installation.

- (1) Install three hinges (32) to door with twelve screws (33) and nuts (6).
- (2) Install three hinge butts (31) to van body with six screws (40) and nuts (41).
- (3) Install door assembly on van body with three hinge pins (29) and three cotter pins (30).
- (4) Install door holdback bracket (35) with two screws (34), nuts (26) and washers (27).
- (5) Position door handle on door handle shaft and fasten with door handle setscrew.
- (6) Install door seal (5) with adhesive (MIL-A-5092B, type I) (item 21, Appendix C).



- | | | | |
|----------------------|-----------------------------|-----------------|-----------------|
| 1. Rivet | 11. Rod | 21. Plate | 31. Butt, hinge |
| 2. Skin | 12. Case Assy Slide w/screw | 22. Screw | 32. Hinge |
| 3. Spacer | 13. Handle, door | 23. Plate | 33. Screw |
| 4. Frame | 14. Cover, lock | 24. Screw | 34. Screw |
| 5. Seal | 15. Screw | 25. Insulation | 35. Bracket |
| 6. Nut | 16. Screw | 26. Nut | 36. Screw |
| 7. Screw | 17. Screw | 27. Washer | 37. Plate |
| 8. Washer | 18. Handle | 28. Spacer | 38. Screw |
| 9. Rod | 19. Screw | 29. Pin, hinge | 39. Adapter |
| 10. Case, center, RH | 20. Panel | 30. Pin, cotter | 40. Screw |
| | | | 41. Nut |

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Figure 4-74. Door assembly, right (M128 and M129 Series)

4-74. DOOR ASSEMBLY, LEFT (M128 AND M129 SERIES) (FIG. 4-75)

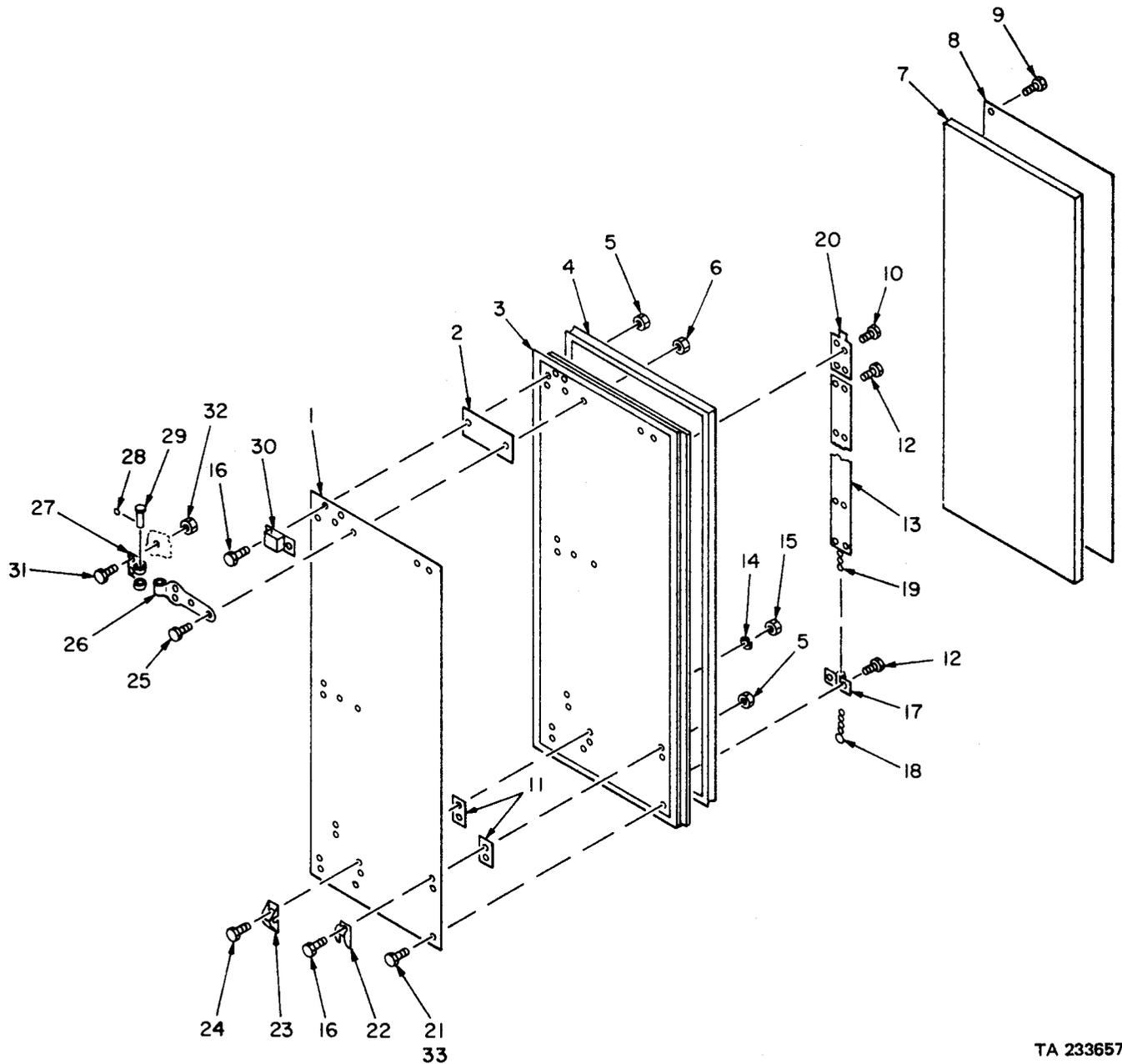
a. General. Organizational maintenance consists of replacement of hinges, pins, hinge butts, seals, hold-back door bracket, chain bolt assembly and its associated hardware. Remove and replace only defective parts.

b. Removal.

- (1) Support door and remove three cotter pins (28) and hinge pins (29).
- (2) Remove door.
- (3) Remove three hinges (26) by removing twelve screws (25) and nuts (6).
- (4) Remove three hinge butts (27) by removing six screws (31) and six nuts (32).
- (5) Remove two screws (24), washers (14) and nuts (15) to remove door holdback bracket (23).
- (6) Remove two screws (12). Remove keeper (17).
- (7) Remove twenty screws (12) to loosen housing (13) from door assembly.
- (8) Remove four screws (10) to loosen chain bolt (20).
- (9) Remove chain bolt components (18, 19, 20) from door.
- (10) Check condition of door seal (4). Remove only if defective.

c. Installation.

- (1) Install three hinges (26) to door with twelve screws (25) and nuts (6).
- (2) Install three hinge butts (27) to van body with six screws (31) and nuts (32).
- (3) Install door assembly on van body with three hinge pins (29) and three cotter pins (28).
- (4) install door holdback bracket (23) with two screws (24), washers (14) and nuts (15).
- (5) Install housing (13) with twenty screws (12).
- (6) Drop chain (19) through housing (13).
- (7) Install chain bolt (20) with four screws (10).
- (8) Install keeper (17) around chain (19) with two screws (12).
- (9) Install door seal (4) with adhesive (MIL-A-5092B, type I) (item 21, Appendix C).



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|---------------|-------------|----------------|-----------------|
| 1. Skin | 9. Screw | 17. Keeper | 25. Screw |
| 2. Spacer | 10. Screw | 18. Hook | 26. Hinge |
| 3. Frame | 11. Spacer | 19. Chain | 27. Butt |
| 4. Seal | 12. Screw | 20. Chain bolt | 28. Pin, cotter |
| 5. Nut | 13. Housing | 21. Rivet | 29. Pin, Hinge |
| 6. Nut | 14. Washer | 22. Bracket | 30. Bracket |
| 7. Insulation | 15. Nut | 23. Bracket | 31. Screw |
| 8. Panel | 16. Screw | 24. Screw | 32. Nut |
| | | | 33. Rivet |

Figure 4-75. Door assembly, left (M 128 and M129 Series)

Section XIV. MISCELLANEOUS BODY ACCESSORIES

Overview	Page 4-114	Vehicle Data Plates	Page 4-114
Reflectors	4-114		

4-75. OVERVIEW

This section pertains to organizational maintenance of miscellaneous body accessories for the semitrailers. Included are organizational maintenance procedures for the replacement of reflectors and vehicle data plates.

4-76. REFLECTORS

a. Removal.

- (1) M127 Series. Remove two screws, lockwashers and nuts securing reflector (fig. 2-13); then remove reflector.
- (2) M128 and M129 Series. Cut and remove two aluminum rivets or remove screws, nuts and washers securing reflector; then remove reflector (fig. 2-15).

b. Installation.

- (1) M127 Series. Position reflector and secure with two No. 10-24NC-2 X 1 screws, No. 10 lockwashers, and No. 10-24NC-2 nuts.
- (2) M128 and M129 Series. Position reflector and secure with two 3/16 X 1 aluminum rivets, or screws, nuts and washers per original installation.

4-77. VEHICLE DATA PLATES

(See Typical Data Plate 1 Illustrations in para. 2-38).

a. Removal.

- (1) Data plate. Remove six screws or rivets securing data plate; then remove data plate.
- (2) Service plate. Remove two screws securing service plate; then remove service plate.

b. Installation.

- (1) Data plate. Position data plate and secure with six No. 12-24NC-2 X 3/8 screws or rivets per original installation.
- (2) Service plate. Position service plate and secure with two No. 12-24NC-2 X 3/8 screws.

Section XV. MAINTENANCE UNDER UNUSUAL CONDITIONS

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Extreme Hot Weather Maintenance	4-115	Maintenance After Operation on Unusual Terrain	4-116

4-78. EXTREME COLD WEATHER MAINTENANCE

a. The importance of maintenance must be impressed on all concerned. Maintenance of mechanical equipment in extreme cold is exceptionally difficult in the field. Even shop maintenance cannot be completed with normal speed because the equipment must be allowed to thaw out and warm up before the mechanic can make satisfactory repairs. In the field, maintenance must be undertaken under the most difficult of conditions. Bare hands stick to cold metal. Fuel in contact with the hands results in supercooling due to evaporation, and the hands can be painfully frozen in a matter of minutes. Engine oils, except subzero grade, are unpourable at temperatures below -40° F. Ordinary greases become as solid as cold butter.

b. These difficulties increase the time required to perform maintenance. At temperatures below -400° F., maintenance requires up to five times the normal amount of time. Complete winterization, diligent maintenance, and well-trained crews are the key to efficient Arctic-winter operation.

c. Refer to FM 9-207 for general information on extreme cold weather maintenance procedures.

It is imperative that the approved maintenance procedures be followed. FM 9-207 contains general information which is specifically applicable to this materiel as well as all other materiel. It must be considered an essential part of this technical manual, not merely an explanatory supplement to it.

4-79. EXTREME HOT WEATHER MAINTENANCE

a. Corrosion. In hot, damp climates, corrosive action will occur on all parts of the materiel and will be accelerated during rainy seasons. Evidence will appear in the form of rust, paint blisters, mildew, mold and fungus growth.

b. Protective Action. Remove the corrosion from exterior metal surfaces with abrasive paper or cloth and apply a protective coating of paint, or touch up the existing paint. Keep a film of preservative oil, (item 14 or 15, Appendix C) on unfinished exposed metal surfaces. Cables and terminals should be protected by spraying with ignition insulation compound.

4-80. MAINTENANCE AFTER FORDING

a. General. Although the materiel unit housings are sealed to prevent the free flow of water into the housings, it must be realized that due to the necessary design of these assemblies, some water may enter, especially during submersion. The following services should be accomplished on all materiel which has been exposed to some depth of water or completely submerged, especially in salt water. Precautions should be taken as soon as practicable to halt deterioration and avoid damage before the materiel is driven extensively in regular service.

b. Lubricate. Clean and lubricate all parts as specified on the lubrication chart. Remove wheels; clean and repack bearings. Make sure that lubricant is generously forced into each lubrication fitting to force out any water present.

4-80. MAINTENANCE AFTER FORDING (Cont)

c. Electrical Connections. Check all electrical connections for corrosion, particularly the bayonet-type connectors.

d. Paint. Clean all exposed painted surfaces and touch up paint where necessary. Coat unpainted metal parts with preservative oil, item 14 or 15, Appendix C.

e. Aluminum or Magnesium Parts. If vehicle remains in salt water for any appreciable length of time, aluminum or magnesium parts which were exposed to the water will probably be unfit for further use and must be replaced.

4-81. MAINTENANCE AFTER OPERATION ON UNUSUAL TERRAIN

a. Mud. Thorough cleaning and lubrication of all parts affected must be accomplished as soon as possible after operation in mud, particularly when a sea of liquid mud has been traversed. Clean all suspension components and lubricate as specified on the lubrication order. Repack wheel bearings, if necessary.

b. Sand or Dust. Touch up all painted surfaces damaged by sand. Lubricate completely to force out lubricants contaminated by sand or dust.

CHAPTER 5

DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE INSTRUCTIONS

Section I. REPAIR PARTS, SPECIAL TOOLS, TMDE AND SUPPORT EQUIPMENT

Overview	Page		Page
Overview	5-1	Special Tools, TMDE, And Support Equipment	5-1
Common Tools & Equipment	5-1	Repair Parts	5-2

5-1. OVERVIEW

This section contains information on the following items that are required for use in maintaining the semitrailer at the direct support and general support levels.

- . Common tools and equipment
- . Special tools, TMDE, and support equipment
- . Repair parts

5-2. COMMON TOOLS AND EQUIPMENT

For authorized common tools and equipment, refer to the Modified Table of Organization and Equipment (MTOE) applicable to your unit.

5-3. SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

a. Certain tools and equipment especially designed for Direct Support and General Support maintenance, repair, and general use with materiel are listed in Table 5-1, for information only. This list is not to be used for requisitioning replacements.

b. Special tools for Direct Support and General Support are listed in TM9-2330-207-24P which is the authority for requisitioning replacement.

5-3. SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT (Cont)

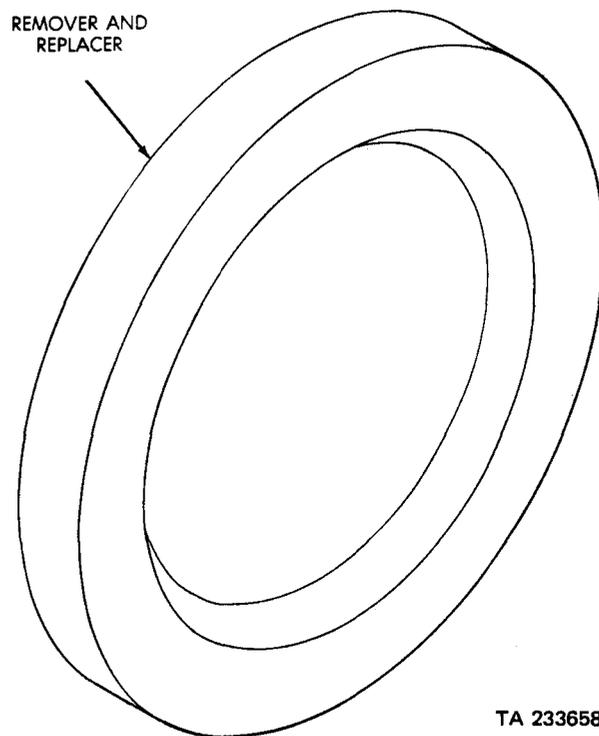


Figure 5-1. Special tool for Direct Support maintenance

Table 5-1. Special Tools and Equipment for Direct Support Maintenance

Item	Identifying Number	References		Use
		Fig.	Para.	
REMOVER AND REPLACER, torque rod bushing	5120-00-707-6223 (7950060)	5-1, 5-6	5-11	Removing and installing ball and bushing assembly in torque rod

5-4. REPAIR PARTS

Repair parts are listed and illustrated in TM9-2330-207-24P.

Section II. REPAIR AND REBUILD OF BRAKES

Overview	Page 5-3	Internal Brakes	Page 5-3
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5-5. OVERVIEW

This section covers the repair and rebuild of the internal brakes including the relining of brake shoes.

5-6. INTERNAL BRAKES

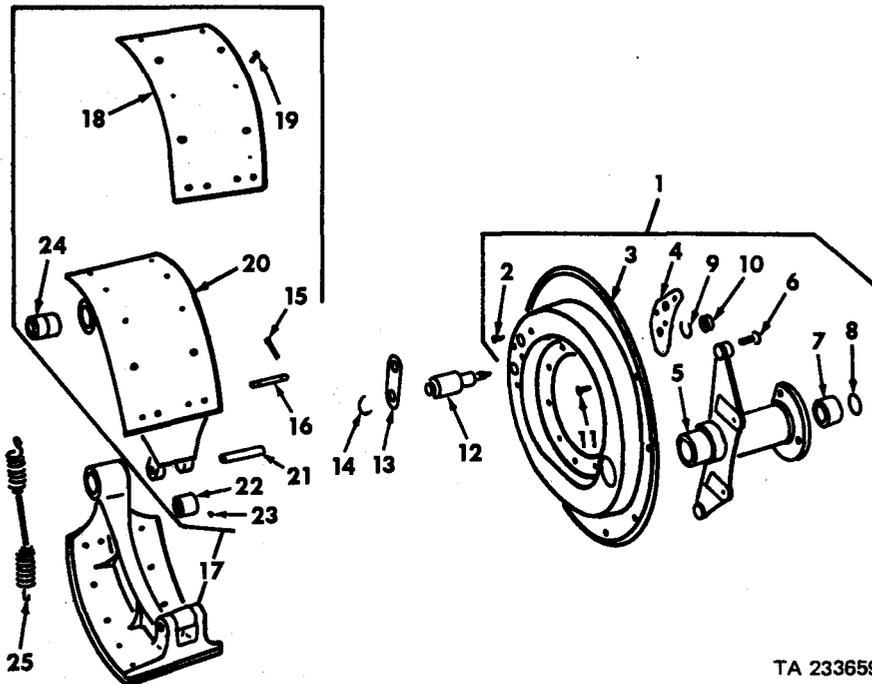
NOTE

The key numbers shown below in parentheses refer to figure 5-2 unless otherwise indicated.

a. Disassembly.

- (1) Model M127.
 - (a) Remove brake shoes (para. 4-40a).
 - (b) Using snap ring pliers, remove snap ring from splined end of camshaft (fig. 4-39) and remove washer.
 - (c) Disconnect slack adjuster (fig. 4-39) from air chamber yoke by removing cotter pin and clevis pin. Slide off slack adjuster, spacer and two washers.
 - (d) Withdraw camshaft (fig. 4-36) from outer side of backing plate and remove washer from camshaft. Mark camshaft to insure installation at original location.
 - (e) Drill out ten rivets (11) which secure the backing plate assembly (1) to flange of axle and remove plate from axle.
 - (f) Drill out four rivets (6) which secure the camshaft mounting bracket (5) to the backing plate (3) and remove bracket from plate.
 - (g) Remove hex nuts (10) and lockwashers (9) securing anchor pins (12) in backing plate (3) and remove anchor pins.
 - (h) Drill out four rivets (2) securing anchor pin bracket (4) to backing plate (3) and remove bracket from plate.
- (2) All models except M127 (fig. 4-47).
 - (a) Refer to para. 4-40a(5) for removal of internal brakes.
 - (b) Refer to figure 5-3 for disassembly and assembly of individual parts in internal brake assembly for Models M127A1, M127A1C, M128A1, M128A1C, M129A1, and M129A1C.
 - (c) Refer to figure 5-4 for disassembly and assembly of individual parts in internal brake assembly for Models M127A2C, M128A2C and M129A2C.
 - (d) Refer to figure 5-5 for disassembly and assembly of individual parts in internal brake assembly for Kasel Mfg. Model M129A2C.

5-6. INTERNAL BRAKES (Cont)



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- | | | |
|------------------------------|-----------------------|------------------------------|
| 1. Backing Plate Assy | 9. Lockwasher | 17. Shoe W/Lining Assy |
| 2. Rivet | 10. Nut, hex | 18. Lining |
| 3. Backing plate | 11. Rivet | 19. Tubular rivet |
| 4. Anchor pin bracket | 12. Anchor pin | 20. Brake shoe |
| 5. Camshaft mounting bracket | 13. Anchor pin strap | 21. Roller pin |
| 6. Rivet | 14. C-washer | 22. Camshaft follower roller |
| 7. Needle bearing (2) | 15. Cotter pin | 23. Setscrew |
| 8. Oil seal (2) | 16. Spring return pin | 24. Bushing |
| | | 25. Shoe tension spring |

Figure 5-2. Internal brakes, Model M127, exploded view

b. Cleaning.

Cleaning solvent (Fed Spec PD-680) is both toxic and flammable. Avoid prolonged breathing of vapors. Avoid skin contact. Use only in well-ventilated area. Keep away from open flame.

Clean all parts with dry cleaning solvent (PD-680) (item 18, Appendix C). Dry parts thoroughly before inspecting or installing them.

c. Inspection.

- (1) Model M127. Inspect for broken or ineffective shoe tension spring (25). Inspect lining (18) for wear. The minimum thickness of lining before relining cannot be specified exactly and is a matter of judgement, depending upon usage and amount of time before next regular inspection. Check fit of brake shoe (20) on anchor pin (12). Check for tolerance of bushing (24) specified in para. 5-18. Inspect for bent backing plate (3). Inspect oil seals (8) and for pliability of packing and general condition.

d. Repair.

(1) Model M127.

- (a) Brakes. Replace damaged or worn parts. If excessive wear of anchor pin (12) and bushing (24) is apparent, replace bushing and/or anchor pin and burnish bushing to tolerance specified in para. 5-18. If braking surface of lining is near heads of rivets, replace lining (see(b) below). If backing plate (3) is bent, carefully straighten plate. Repaint if chipped or cracked paint or bare metal is found.
- (b) Brake shoes.



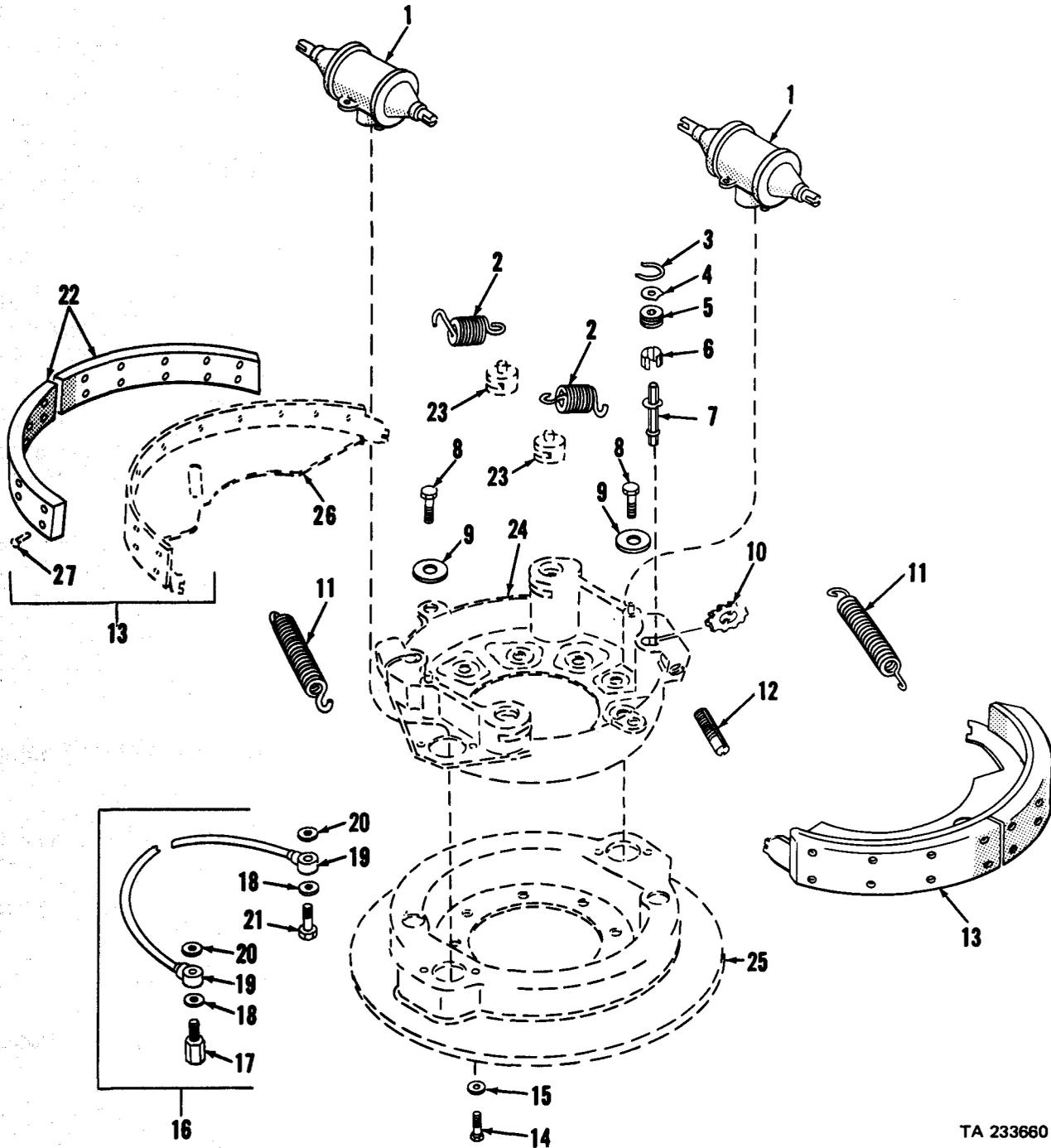
Do not grind rivet heads off due to asbestos hazard.

1. Remove 16 tubular rivets (19) from each lining (18) and strip lining from shoe.
 2. If excessive wear has been found between shoe and anchor pin, drive out bushing (24).
 3. If excessive wear has been found or if camshaft follower roller (22) is damaged, remove setscrew (23) securing roller pin (21) in shoe. Drive out roller pin and remove camshaft follower roller.
 4. Position new camshaft follower roller (22) in opening in shoe. Aline holes in shoe and roller and install roller pin (21). Secure roller pin in shoe with setscrew (23).
 5. Using an arbor press, press bushing (24) into shoe. Burnish bushing to tolerance given in para. 5-18.
 6. Install new lining (18) on both brake shoes.
 7. Aline the end rivet holes in brake shoe (20) and lining and clamp lining in place with suitable clamp.
 8. Install the end tubular rivets (19) in lining. Remove clamp and install 15 remaining tubular rivets.
 9. After relining brake shoes, check contact of lining with shoe after riveting. A 0.010-inch feeler gage should not enter between shoe and lining at any point. Brake lining should be ground concentric with drum center with suitable grinder after installation on axle.
- (2) All models except M127 (figs. 5-3 thru 5-5).
- (a) Remove 16 tubular rivets from each lining and strip lining from shoe.
 - (b) Install new lining on both brake shoes.
 - (c) After relining brake shoes, check riveting. A 0.010-inch feeler gage should not enter between shoe and lining at any point. Brake lining should be ground concentric with drum center with suitable grinder after installation on axle.

e. Assembly.

(1) Model M127 (fig. 5-2).

- (a) Position anchor pin bracket (4) on backing plate (3) and secure with four 3/8 X 1-1/8 rivets.
- (b) Drive anchor pins (12) into backing plate (3) and through bracket (4) and secure each with a 3/4 hex nut (10) and a 3/4 lockwasher (9).
- (c) Position camshaft mounting bracket (5) on backing plate (3) and secure with four 1/2 X 1-5/8 rivets (6).
- (d) Position backing plate assembly (1) against outer surface of flange of axle. Aline holes and secure with ten 9/16 X 1-5/8 rivets (11).



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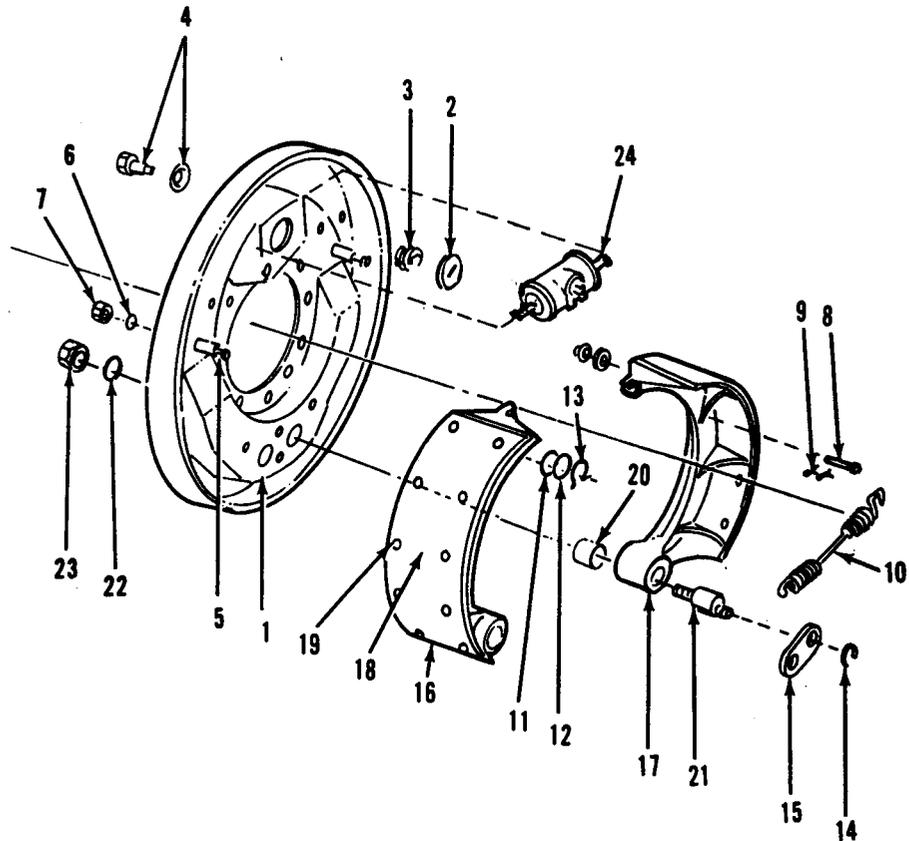
- | | | | |
|--------------------|---------------------|---------------|------------------------|
| 1. Wheel cylinder | 8. Bolt | 15. Washer | 22. Lining, brake shoe |
| 2. Spring | 9. Washer | 16. Tube Assy | 23. Pivot pin |
| 3. Ring, retaining | 10. Gear | 17. Bolt | 24. Spider |
| 4. Washer | 11. Spring | 18. Gasket | 25. Shield |
| 5. Gear, worm | 12. Screw | 19. Connector | 26. Web and Table Assy |
| 6. Sleeve | 13. Brake Shoe Assy | 20. Washer | 27. Rivet |
| 7. Stud | 14. Screw | 21. Bolt | |

Figure 5-3. Internal brakes (M127A1, M127A1C, M128A1, M128A1C, M129A1, M129A1C)

5-6. INTERNAL BRAKES (Cont)

- (e) Place washer on camshaft (fig. 4-39). Following marks made at removal, insert camshaft into mounting bracket from outer side of backing plate. Slide camshaft into place carefully using rotary motion to position it in bearings and seals without damage.
- (f) Install two washers and one spacer over splined end of camshaft and against camshaft mounting bracket.
- (g) Apply a thin coat of oil on splined end of camshaft and slide slack adjuster (fig. 4-39) into position. A slight rotary motion of slack adjuster will allow splines in slack adjuster to mesh with splines on camshaft.
- (h) Position washer on splined end of camshaft and install snap ring.
- (i) Turn worm shaft of slack adjuster (fig. 4-42) until arm can be positioned in brake air chamber yoke. Coat 1/2 X 1-13/64 clevis pin with light film of oil and attach arm of slack adjuster to yoke (fig. 4-39). Secure clevis pin with 1/8 X 7/8 cotter pin.
- (j) Install brake shoes (para. 4-40b).

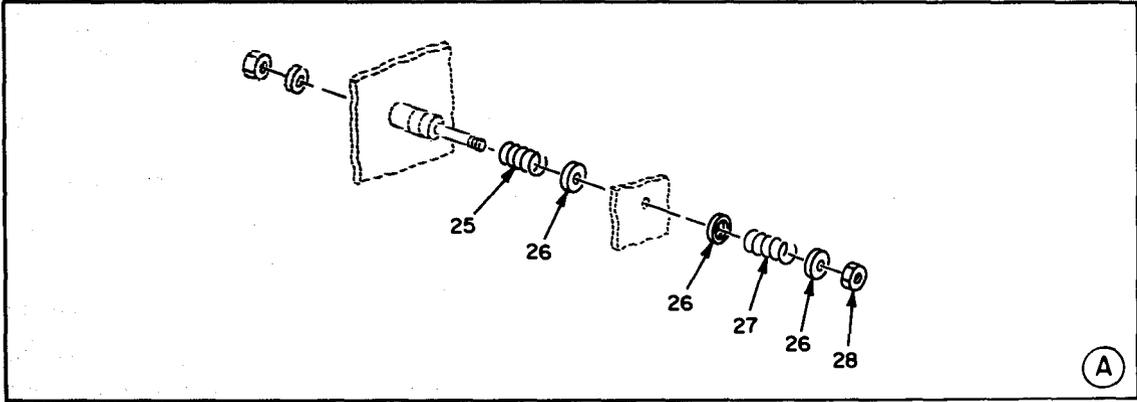
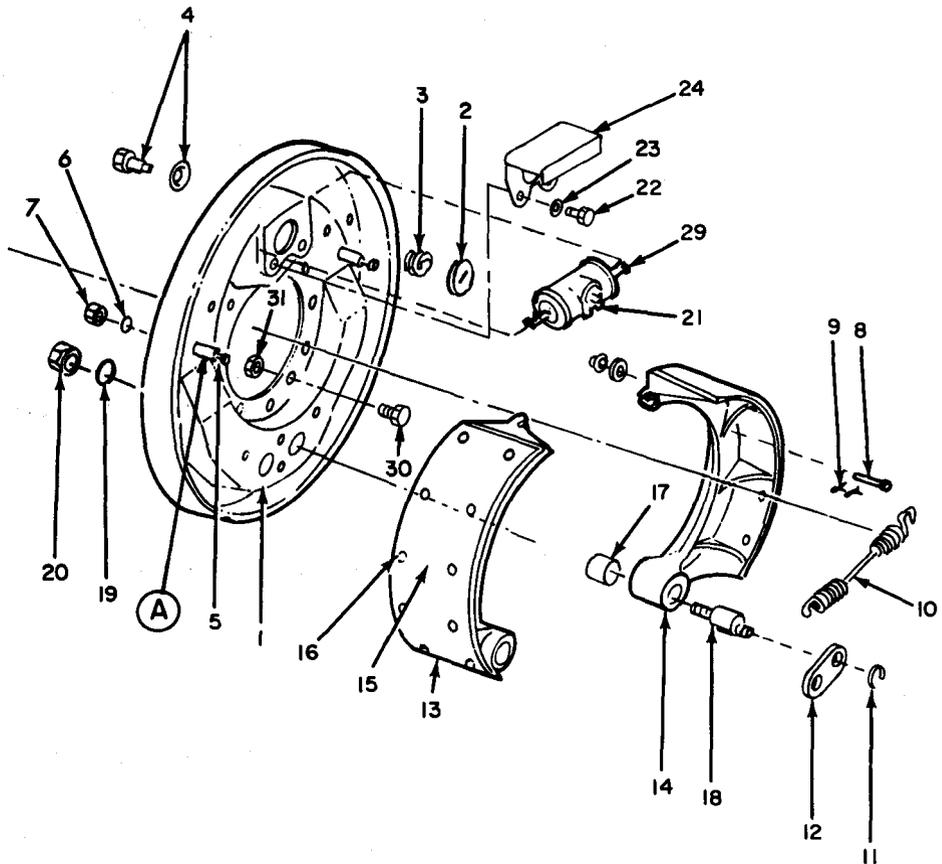
5-7. INTERNAL BRAKES (A2C MODELS)



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- | | | | |
|-----------------|----------------|---------------------|--------------------|
| 1. Plate Assy | 7. Nut | 13. Ring | 19. Rivet |
| 2. Cam | 8. Pin, spring | 14. Washer | 20. Bushing |
| 3. Spring | 9. Pin, round | 15. Strap | 21. Pin |
| 4. Pin & Washer | 10. Spring | 16. Brake Shoe Assy | 22. Washer, lock |
| 5. Pin | 11. Washer | 17. Shoe, brake | 23. Nut |
| 6. Washer, lock | 12. Washer | 18. Lining, brake | 24. Wheel cylinder |

Figure 5-4. Internal brakes (M127A2C, M128A2C, M129A2C)



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- | | | | |
|-----------------|---------------------------|-------------------------|----------------------|
| 1. Plate Assy | 9. Pin, cotter | 17. Bushing | 25. Spring |
| 2. Cam | 10. Spring | 18. Pin | 26. Washer, retainer |
| 3. Spring | 11. Washer | 19. Washer, lock, split | 27. Spring |
| 4. Pin & Washer | 12. Strap | 20. Nut | 28. Nut, hex |
| 5. Pin guide | 13. Lining & Shoe Assy | 21. Wheel cylinder | 29. Yoke & Pin |
| 6. Washer, Lock | 14. Brake Shoe w/o lining | 22. Screw | 30. Screw |
| 7. Nut | 15. Lining, friction | 23. Washer | 31. Nut |
| 8. Pin | 16. Rivet, tubular | 24. Cover, dust | |

Figure 5-5. Internal brakes (Kasel M129A2C)

Section III. REPAIR OF BRAKE DRUMS

5-8. INSPECTION

Inspect brake drum for warpage, cracks, or scored braking surface. Place drum in lathe and check runout of braking surface. Runout must not exceed amount specified in paragraph 5-18. Check inside diameter of braking surface. Diameter must not exceed wear limit specified in paragraph 5-18.

5-9. REPAIR

Refinish braking surface on lathe if scored or if runout exceeds 0.007 inch. If refinishing requires removal of more than 3/32 inch of metal (3/16 inch on diameter), or if braking surface is greater than specified in paragraph 5-18, replace drum.

Section IV. REPAIR OF TORQUE RODS

5-10. INSPECTION

Examine rubber for loss of elasticity or breaks in material. Make certain ball with bushing assembly is securely mounted in rod. Inspect threads for damage.

5-11. REPAIR

Remove burrs or hand-chase damaged threads with fine file or thread restorer. If damage to thread cannot be corrected, if rubber is hard or cracked, or if ball with bushing assembly is loose in rod, install new ball with bushing assembly. To install new ball assembly, perform the following;

- a. Using remover and replacer (fig. 5-1 and 5-6) press out ball with bushing assembly.
- b. Position new ball with bushing assembly and press into rod with remover and replacer.

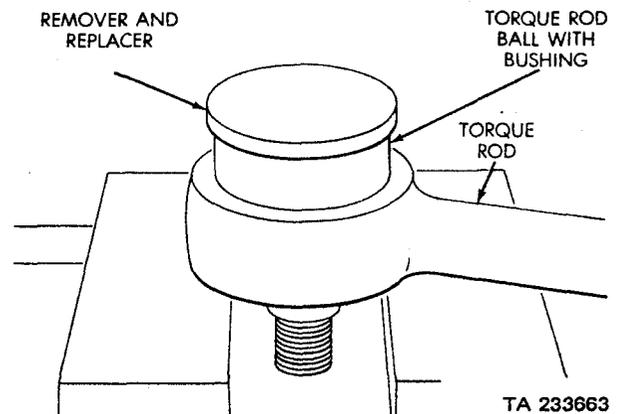


Figure 5-6. Removing or installing torque rod ball with bushing using remover and replacer

Section V. REPAIR OF BODY

5-12. PANELS (M127, M127A1, M127A1C AND M127A2C)

a. Inspection. Inspect panels for cracked or damaged boards and top rails, bent or damaged stakes and loose fastenings. Inspect for deformed, broken and loose lock brackets, joint covers, knobs, pins and chains.

b. Repair. Repair panel boards with wood or metal cleats or, should such repairs be impractical or interfere with function of panels, replace with new board. Bent lock brackets may be reshaped but, if cracked or broken, must be welded or replaced. To heat for bending or in welding, brackets should be removed so a adjacent wood will not be burned. Clean and repaint metal parts which may be bare or where paint has been destroyed in heating.

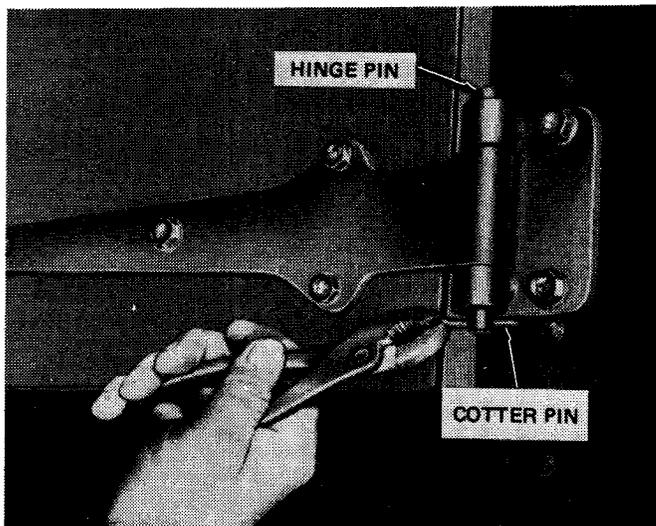
5-13. DOORS

a. Inspection. Inspect for dented or torn panels. Check all hardware for visual defects. Check for warpage of doors and uneven fit around edges.

b. Repair.

- (1) Removal. Remove doors by following procedures shown in steps 1 and 2 of figure 5-7.

STEP 1. REMOVE THREE COTTER PINS FROM HINGE PINS



REMOVING OR INSTALLING COTTER PIN

STEP 2. WITH DOOR SUPPORTED, REMOVE THREE HINGE PINS SECURING EACH DOOR. REMOVE DOOR.

STEP 3. POSITION DOOR REMOVED IN STEP 2 ON HINGES AND INSERT THREE HINGE PINS REMOVED IN STEP 2 IN HINGES.

STEP 4. SECURE HINGE PINS WITH THREE COTTER PINS REMOVED IN STEP 1.



REMOVING OR INSTALLING HINGE PIN

Figure 5-7. Door replacement

- (2) Replacement of lock plate assembly.
 - (a) Remove three screws (36, fig. 4-74) on outside of right hand door that secures the door handle (13, fig. 4-74). Slide off door handle.
 - (b) Remove 24 screws from around edge of lock plate assembly (fig. 5-8) on inside of right hand door.
 - (c) Remove lock plate assembly.
 - (d) position new or repaired lock plate assembly on inside of right hand door (fig. 5-8) and secure with 24 No. 10 X 3/4 screws.
 - (e) Slide door handle (13, fig. 4-74) into place from the outside of door and secure with three No. 14 X 3/4 screws (36, fig. 4-74).
- (3) Repair. Straighten bent metal parts if feasible. Repair cracks or fractures by welding. Repair or replace defective lock plate assembly (see (2) above). Remove adjacent wood parts to prevent charring when welding. Clean and repaint metal and/or wood parts which may be bare or where paint has been destroyed during welding.
- (4) Installation, Install doors by following procedures shown in steps 3 and 4 of figure 5-7.

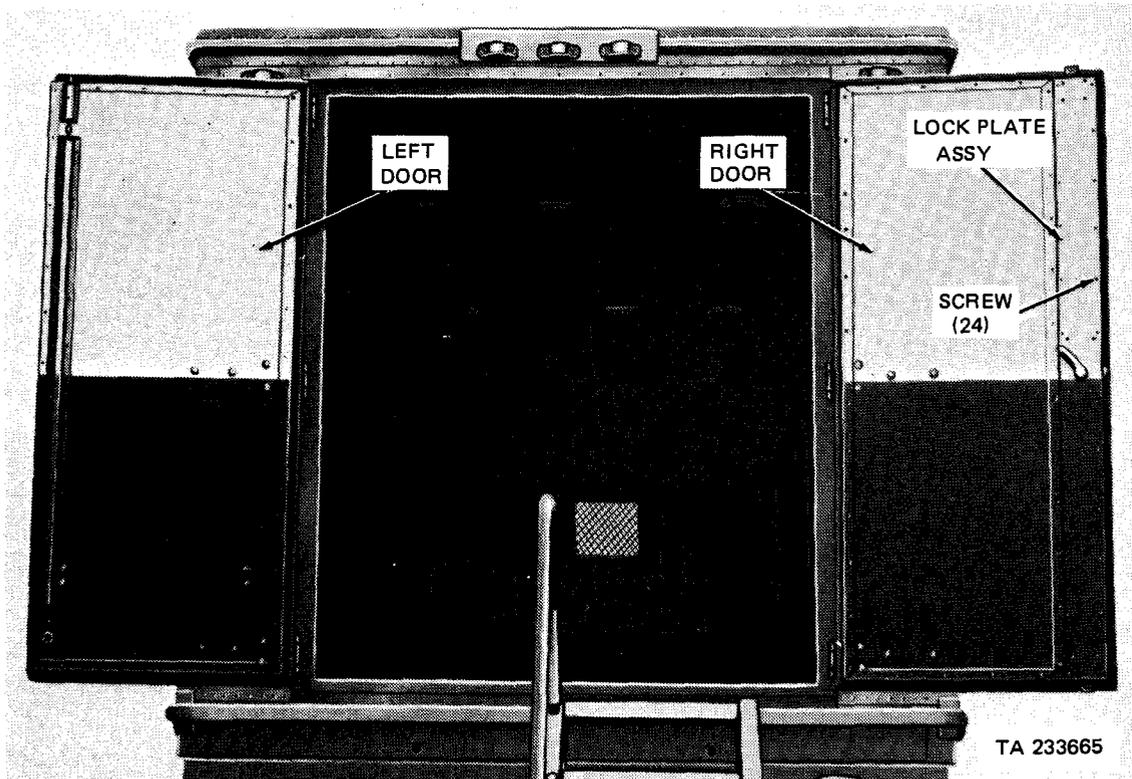


Figure 5-8. Rear doors, open

5-14. BODY WIRING (M128 AND M129 SERIES)

a. Inspection. Examine body cable plugs for loose connections or bent and damaged pins. Visually inspect insides of 110-volt switch box and circuit breaker load center for any signs of arcing and loose connections. Check 110-volt wall receptacles for security and signs of over-heating or shorting. Inspect the external 110-volt power receptacle for security and serviceability.

b. Repair.

WARNING

Remove all power from vehicle prior to making any repairs on electrical system.

- (1) 110-volt switch box and circuit breaker load center (M129 Series, fig. 5-9). Replace any defective circuit breakers. To replace a circuit breaker, pull circuit breaker out and snap a new one into place. If knife switch in switch box makes loose contact, press contacts closer together. If either circuit breaker load center or switch box are damaged beyond serviceability, remove and replace as follows:

(a) Removal.

1. Disconnect all internal wiring and tag to facilitate installation.
2. Unscrew lock nut securing rigid coupling to switch box and slide off of wiring.
3. Unscrew one close nipple inside switch box and three inside circuit breaker load center and slide off of wiring.
4. Loosen two locknuts on rigid coupling between switch box and circuit breaker load center.
5. Remove two locknuts from inside top of circuit breaker load center and slide off of wiring.

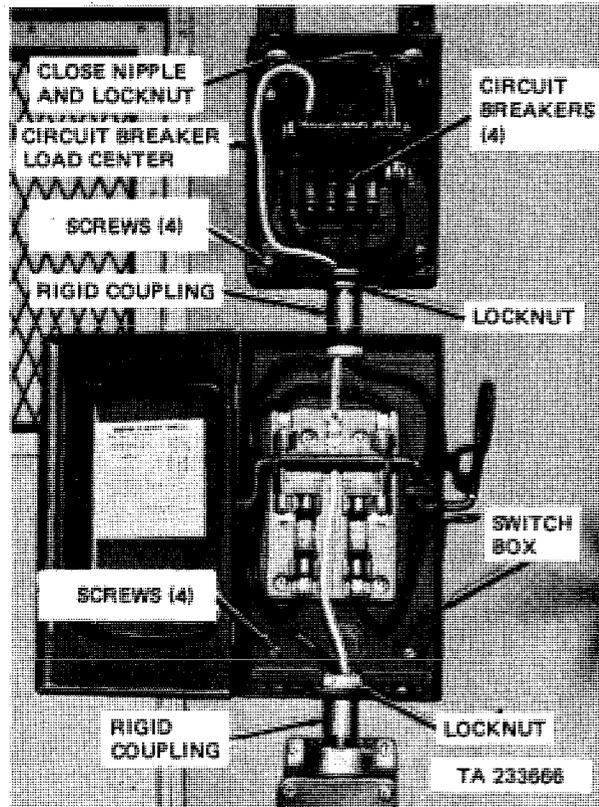


Figure 5-9. 110-volt switch box and circuit breaker load center, M129 Series - internal view

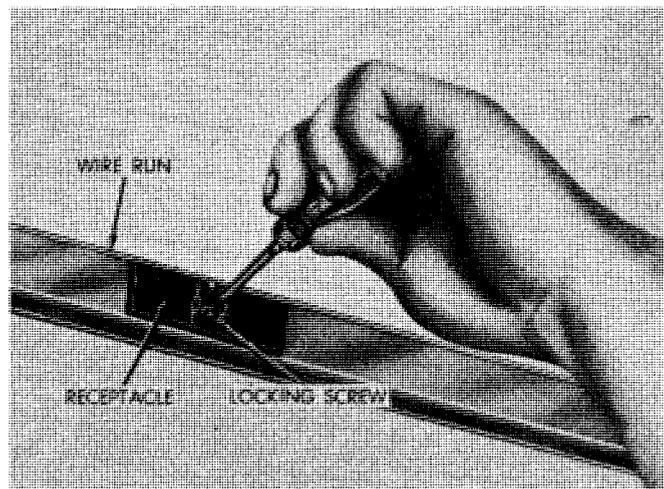
6. Remove four flat-head screws securing switch box. Remove switch box.
7. Remove four flat-head screws securing circuit breaker load center. Remove circuit breaker load center.

(b) Installation.

1. Position circuit breaker load center on wall and insert wiring through holes in top; then secure in place with four No. 12-11 X 3/4 flat-head screws.
2. Insert interconnecting wiring through hole in bottom of load center; slide close nipple over the wiring; then connect the interconnecting wiring inside the circuit breaker load center.

3. Slide two locknuts over wiring at top of circuit breaker load center and screw up tight; then slide two close nipples over the wiring and screw up tight. Connect wiring.
 4. Slide rigid coupling over interconnecting wiring and loosely attach to close nipple at bottom of load center.
 5. Insert wiring through top and bottom of switch box; then position box on wall and secure with four No. 12-11 X 3/4 flat-head screws.
 6. Slide close coupling over interconnecting wiring and screw onto rigid coupling. Tighten locknuts and close nipples on both ends of the rigid coupling.
 7. Slide locknut over wiring at bottom of switch box and tighten on rigid coupling.
 8. Connect all internal wiring in switch box.
- (2) 110-volt wall receptacle (M129 Series). If wall receptacle is damaged beyond serviceability, remove and replace by following procedures shown in steps 1 and 2 of figure 5-10.

STEP 1. TURN LOCKING SCREW ONE QUARTER TURN TO UNLOCK RECEPTACLE IN WIRE RUN.

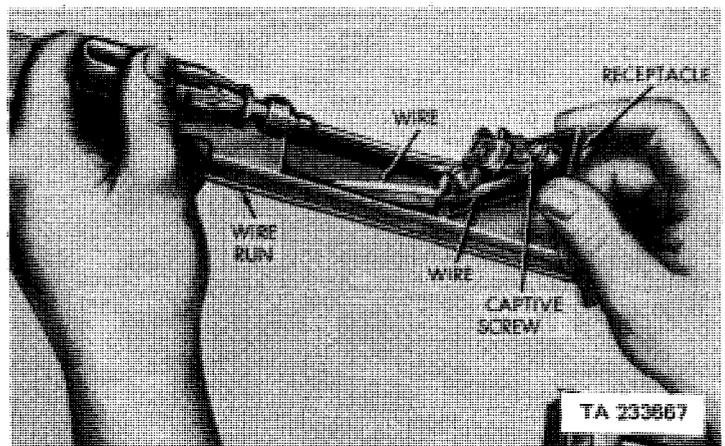


UNLOCKING OR LOCKING RECEPTACLE

STEP 2. PULL RECEPTACLE FROM WIRE RUN. LOOSEN TWO CAPTIVE SCREWS SECURING TWO WIRES. REMOVE RECEPTACLE FROM WIRE RUN.

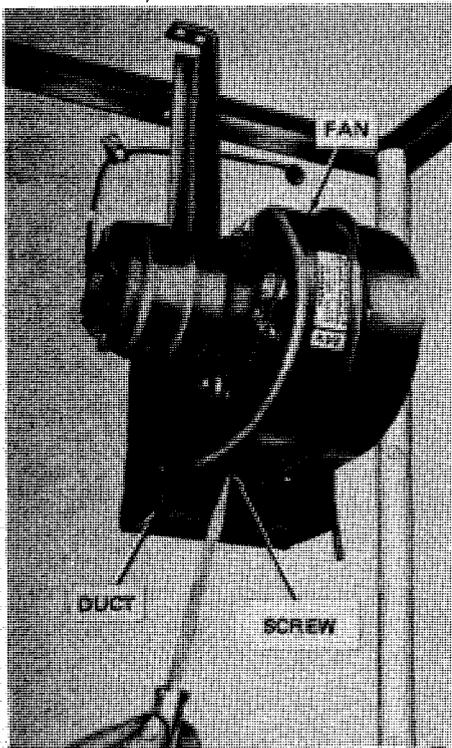
STEP 3. CONNECT TWO WIRES DISCONNECTED IN STEP 2 TO RECEPTACLE AND SECURE BY TIGHTENING TWO CAPTIVE SCREWS.

STEP 4. PLACE RECEPTACLE IN WIRE RUN OPENING AND LOCK IN PLACE BY TURNING LOCKING SCREW ONE QUARTER TURN.



DISCONNECTING OR CONNECTING WIRES

Figure 5-10. 110-volt wall receptacle replacement (M129 series)



REMOVING OR INSTALLING
FAN OR DUCT

5-15. 24-VOLT VENTILATING FAN

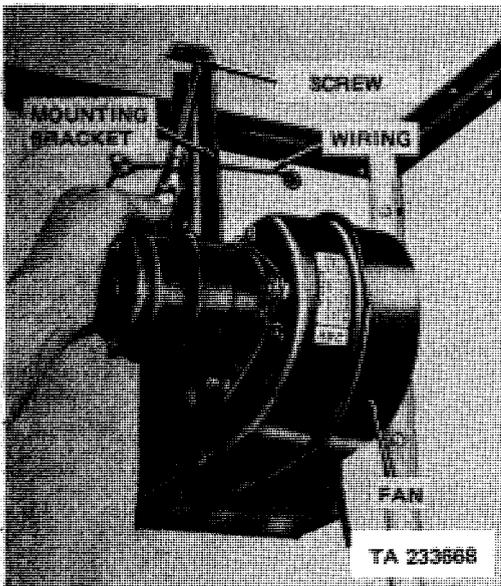
a. Inspection. Operate fan and listen for unusual noises and notice any undue vibrations. Check for overheating.

b. Removal. Remove ventilating fan by following procedures shown in steps 1 thru 4 of figure 5-11.

c. Installation. Install ventilating fan by following procedures shown in steps 5 thru 8 of figure 5-11.

WARNING

Be sure electrical current is off prior to removing fan.



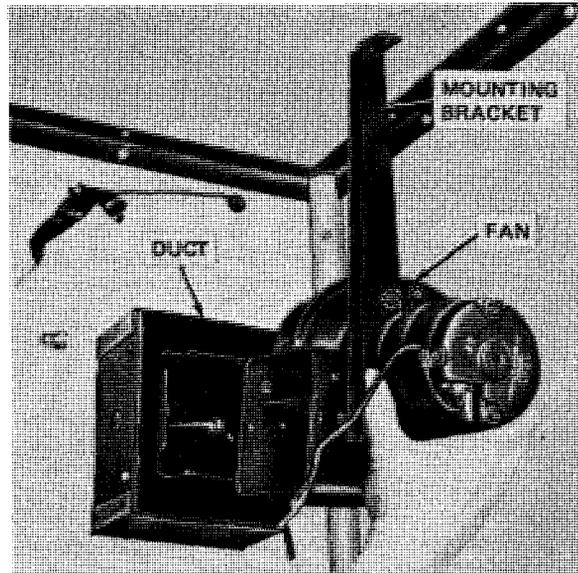
REMOVING OR INSTALLING
MOUNTING BRACKET ON CEILING

STEP 1. REMOVE SIX SCREWS AND SCREW SIZE LOCKWASHERS SECURING FAN TO DUCT.

STEP 2. REMOVE WIRING FROM FAN; THEN REMOVE TWO SCREWS AND SCREW SIZE LOCKWASHERS SECURING MOUNTING BRACKET TO CEILING.

Figure 5-11. 24-volt ventilating fan replacement (Sheet 1 of 2)

STEP 3. LIFT OFF MOUNTING BRACKET AND FAN AS A UNIT.



REMOVING OR INSTALLING MOUNTING BRACKET ON FAN

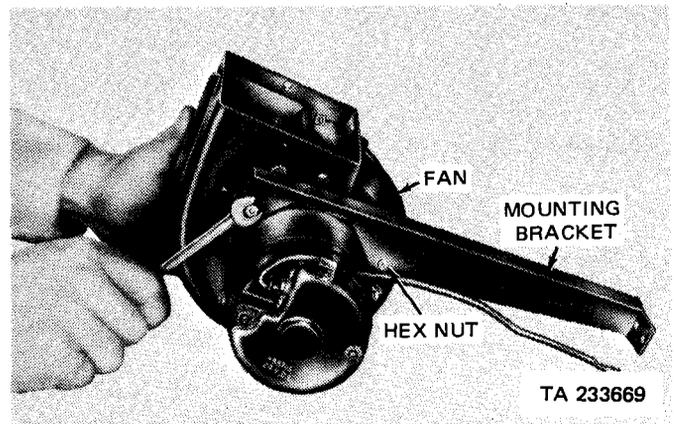
STEP 4. REMOVE TWO HEX NUTS SECURING MOUNTING BRACKET TO FAN. SEPARATE MOUNTING BRACKET AND FAN.

STEP 5. TO INSTALL MOUNTING BRACKET AND FAN, POSITION MOUNTING BRACKET ON FAN AND SECURE WITH TWO HEX NUTS REMOVED IN STEP 4.

STEP 6. POSITION FAN AND MOUNTING BRACKET REMOVED IN STEP 3 ON DUCT.

STEP 7. SECURE MOUNTING BRACKET TO CEILING WITH TWO SCREWS AND LOCKWASHERS REMOVED IN STEP 2. CONNECT WIRING REMOVED IN STEP 2 TO FAN.

STEP 8. SECURE FAN TO DUCT WITH SIX SCREWS AND LOCKWASHERS REMOVED IN STEP 1.



REMOVING OR INSTALLING MOUNTING BRACKET ON FAN

Figure 5-11. 24-volt ventilating fan replacement (Sheet 2 of 2)

Section VI. REPAIR STANDARDS

5-16. GENERAL

The repair standards included herein give the minimum, maximum and key clearances of new or rebuilt parts. They also give wear limits which indicate that point to which a part or parts may be worn before replacement, in order to receive maximum service with minimum replacement. Normally, all parts which have not been worn beyond the dimensions shown in the wear limits column or damaged from corrosion, will be approved for service.

5-17. AXLES (PARA. 4-35)

Figure No.	Ref. No.	Points of Measurement	Sizes and Fits of New Parts	Wear Limits
5-12	C	Outside diameter of inner bearing surface . . .	3.4998 to 3.4988	3.464
5-12	D	Outside diameter of outer bearing surface . . .	3.3748 to 3.3738	3.348

5-18. BRAKES (PARA. 5-6 AND 5-8)

a. Brake Shoe Bushing

5-12	A	Inside diameter of bushing	1.373 to 1.374	1.406
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b. Brake Drum.

5-12	B	Inside diameter of braking surface	16.495 to 16.05	16.730
		Runout of braking surface		0.007

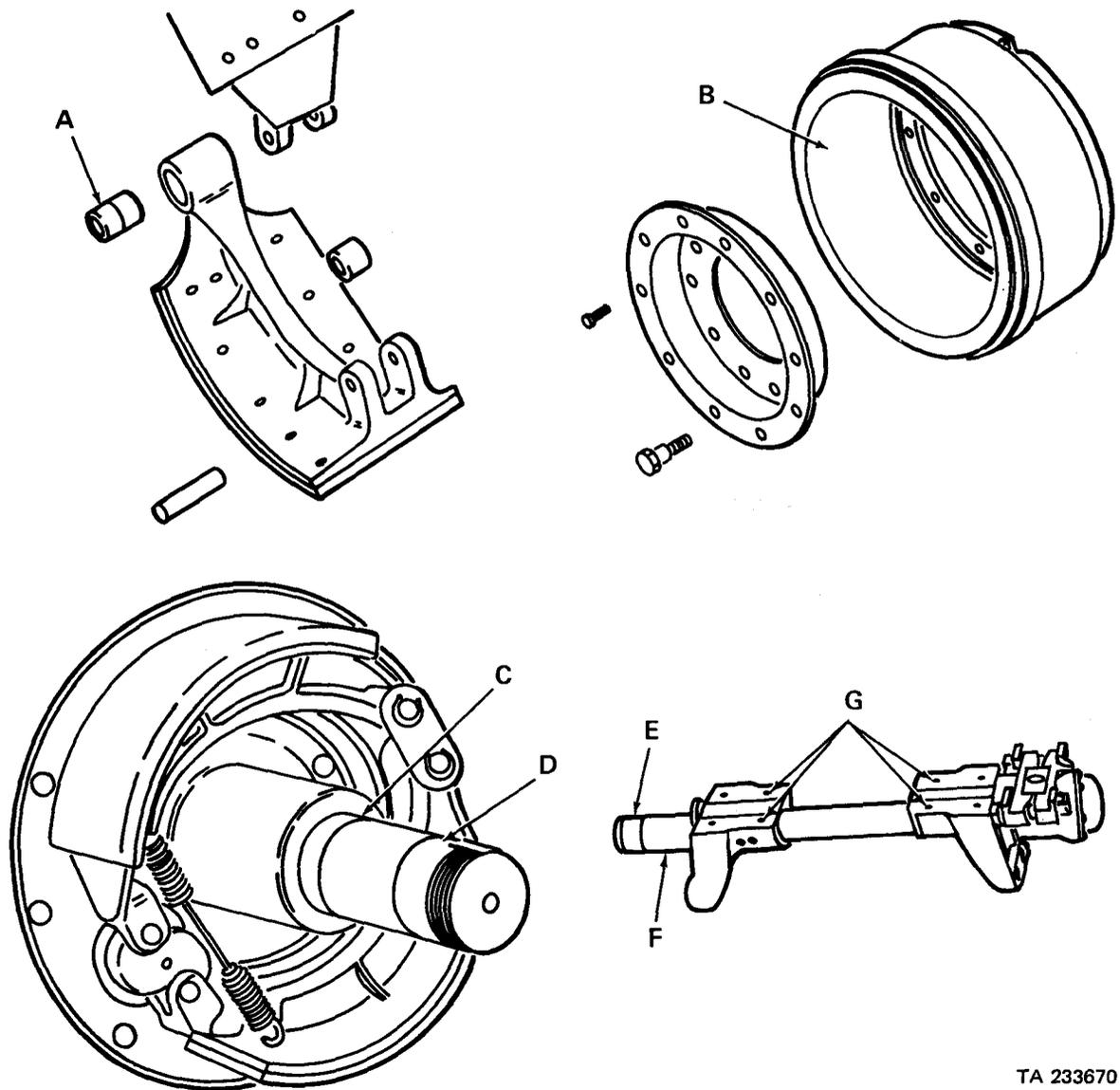
5-19. TRUNNION TUBE (PARA. 4-68)

a. Spindle.

5-12	F	Outside diameter of inner bearing surface . . .	3.4998 to 3.4988	3.464
5-12	E	Outside diameter of outer bearing surface . . .	3.3748 to 3.3738	3.348

b. Mounting Bracket

5-12	G	Inside diameter of holes	1.125 to 1.128	1.160
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TA 233670

Figure 5-12. Repair standard points of measurement

Section VII. REPAIR AND REBUILD OF WOOD DECKING (FLOOR BOARDS)

5-20. GENERAL

This section covers instructions for repair and rebuild of wood decking (floor boards) on M127, M128 and M129 series semitrailer.

5-21. REPAIR

a. The wood decking can be repaired by cutting out any damaged section of floor board and replacing it with a new board of same width and length. Similarly, damaged metal wear strips can be cut to size for replacement.

b. Replace any damaged bolt with bolt of same size and length.

5-22. REBUILD OF COMPLETE DECK

a. Materials Required.

- (1) Approximately 250 linear feet of wood decking boards is required for complete deck replacement. The metal wear strips are available in thirty foot lengths and may be cut to size.
- (2) All items for repair and redecking of the vehicle are available through normal supply channels and are identified as follows:

MATERIEL LIST

Description	Part Number	Qty	U/M
Bolt, Carriage, 5/16 X 2½	MS35751-47 (96906)	248	EA
Bolt, Carriage, 5/16 X 3½	MS35751-51 (96906)	20	EA
Nut, Plain Hex, 5/16	MS51967-5 (96906)	268	EA
Washer, Lock, 5/16	MS35338-140 (96906)	268	EA
Clip	60507 (82465)	268	EA
Strip, Floor, 30 Ft Lgth	7979182 (19207)	14	EA
Hardwood, 2" X 8"	MIL-W-3912D, Class A	250	FT

b. Rebuild.

- (1) Groove replacement board to accept metal strip.
- (2) Lay board in place with end resting on crossmember, making sure adjacent boards do not end on the same crossmember. Staggering the boards will increase the overall deck strength.
- (3) Fit metal strip into grooved board at edge
- (4) Drill holes through strip and board at edge of each crossmember as the clip will overlap the crossmember.
- (5) Insert bolts from above, through recess in strip channel and hole in floor board.
- (6) Attach clips, washers and nuts from underneath crossmembers.

CHAPTER 6

PREPARATION FOR STORAGE OR SHIPMENT

Section I. PREPARATION FOR STORAGE

6-1. OVERVIEW

Commanders are responsible for insuring that all materiel issued or assigned to their command is maintained in a serviceable condition and properly cared for, and that personnel under their command comply with technical instructions. Lack of time, lack of trained personnel, or lack of proper tools may result in a unit being incapable of performing maintenance for which it is responsible. In such cases, unit commanders, with approval of major commanders, may place materiel that is beyond the maintenance capability of the unit, in administrative storage or return it to supply agencies. When preparing the semitrailer for administrative storage or for shipment, the unit commander will be responsible for processing the materiel, including all tools and equipment, in such a manner as to protect it against corrosion, deterioration, and physical damage during shipment or during periods of administrative storage.

6-2. ADMINISTRATIVE STORAGE INSTRUCTIONS

a. Time Limitations. Administrative storage is restricted to a period of 90 days and must not be extended unless the vehicle is reprocessed in accordance with b below.

b. Storage Procedure. Disassembly will be limited to that necessary to clean and preserve surfaces. Except as otherwise noted, and to the maximum extent consistent with safe storage, materiel will be placed in administrative storage in as nearly a completely assembled condition as practicable. Equipment will be installed and adjustments made so that the materiel may be placed in service and operated with a minimum of delay.

- (1) Materiel must be stored on level ground in the most favorable location available, preferably one which affords protection from exposure to the elements and from pilferage.
- (2) Perform a semiannual preventive maintenance (PM) service on materiel intended for administrative storage. This maintenance will consist of inspecting, cleaning, servicing, preserving, lubricating, adjusting, and minor replacement of repair parts, if required.
- (3) Provide adequate drainage for materiel.
- (4) Secure all doors.
- (5) Inflate mounted tires to 10 pounds above normal operating pressure.
- (6) All boxed materiel in outdoor storage will be stored on suitable dunnage.
- (7) Protect the materiel with covers provided.
- (8) Provide access to the materiel to permit inspection, servicing and subsequent removal from storage.
- (9) Mark the materiel "Administrative Storage" (tagged, or other convenient method). Materiel so marked will not be operated while in this category.

c. Inspection in Administrative Storage.

- (1) Visual inspection of materiel in administrative storage must be conducted at least once each month and immediately following hard rains, heavy snow storms, windstorms, or other severe weather conditions. Disassembly will be performed as necessary to ascertain fully the extent of any deterioration or damage found. A record of these inspections will be maintained for each materiel in administrative storage and attached to the materiel in such a manner as to protect the record from the elements.

6-2. ADMINISTRATIVE STORAGE INSTRUCTIONS (Cont)

- (2) When rust or deterioration is found on any unpainted area, necessary reprocessing for administrative storage will be immediately accomplished. Damages caused to the materiel by severe weather conditions will be promptly repaired. Deterioration or damage to on-vehicle materiel (OVM) packaging will be repaired as necessary. Painted surfaces showing evidence of deterioration will be thoroughly cleaned and dried and repainted, using paint of the same quality and color as the original paint.

Section II. PREPARATION FOR SHIPMENT

6-3. SHIPPING INSTRUCTIONS

a. Preparation for Shipment. Preservation and other protective measures taken in the preparation of materiel and accompanying tools and equipment for shipment must be sufficient to protect the materiel against deterioration and physical damage during shipment.

- (1) **Cleaning.** Use dry cleaning solvent (PD-680) (item 18, Appendix C) to clean or wash grease or oil from all metal parts. All exposed machined surfaces must be cleaned to insure removal of corrosion, soil, grease, residues, perspiration, or other acid or alkali residues.
- (2) **Drying.** After cleaning, use cold water to rinse off any solution which remains. Using clean cloths, dry all parts thoroughly.
- (3) **Lubrication.** Lubricate items specified on lubrication chart (fig. 4-1).
- (4) **Preservation.**
 - (a) All critical unpainted metal surfaces must be protected during shipment. Oil or grease covered in the lubrication section (para. 4-2) may be used for this purpose but it is effective for only a few days and equipment so protected must be closely watched for signs of corrosion. Selection of preservatives will be such that their application, use, or removal will not damage the surface to which they are applied.
 - (b) Coat lower portion of landing leg assembly with corrosion preventive compound 8030-00-244-1300.
 - (c) Coat chassis and frame with corrosion preventive compound 8030-00-244-1300.
 - (d) Coat exterior hardware sparingly with corrosion preventive compound 8030-00-244-1300. applied with brush.
 - (e) Apply corrosion preventive compound 8030-00-244-1300 to surfaces of suspension system.
 - (f) Spray data plates with a thin coating of ignition insulation compound. Control overspray to avoid coating adjacent surfaces.
 - (g) Cover all exterior reflectors and lights with tape.
 - (h) Coat rubber door seals on series M128 and M129 semitrailers with powdered talc 6810-00-270-9988. Coat doors operating mechanism and hinges with automotive and artillery grease (GAA). Apply sparingly.
- (5) **Packaging.**
 - (a) Remove side, rear, and front panels from M127 series semitrailers and pack in bundles of two each. Place pieces of 1 X 6 boards between panels to permit air circulation. Wire or bolt panels together.
 - (b) Dry, fold, or roll paulin and wrap in waterproof barrier-materiel. Tie and stow in tool box.
- (6) **Marking.** Refer to AR 746-80 for Marking of Supplies for Shipment.

b. Army Shipping Documents. Prepare all Army shipping documents accompanying freight in accordance with AR 725-5.

c. Securing Semitrailers on TTX or "Piggy-Back" Railroad Cards for Transportation. The semitrailers are all secured on TTX or "Piggy-Back" railroad cars as shown in figs. 6-1 and 6-2. There are only three points of attachment. The kingpin of semitrailer is secured to a metal stand, which is a part of the railroad car (fig. 6-1). Chassis are furnished with the railroad car and are secured to the main frame of the semitrailer at the rear portion (fig. 6-2) to prevent shifting of the rear of semitrailer. These chains are attached to the sides of the railroad cars.

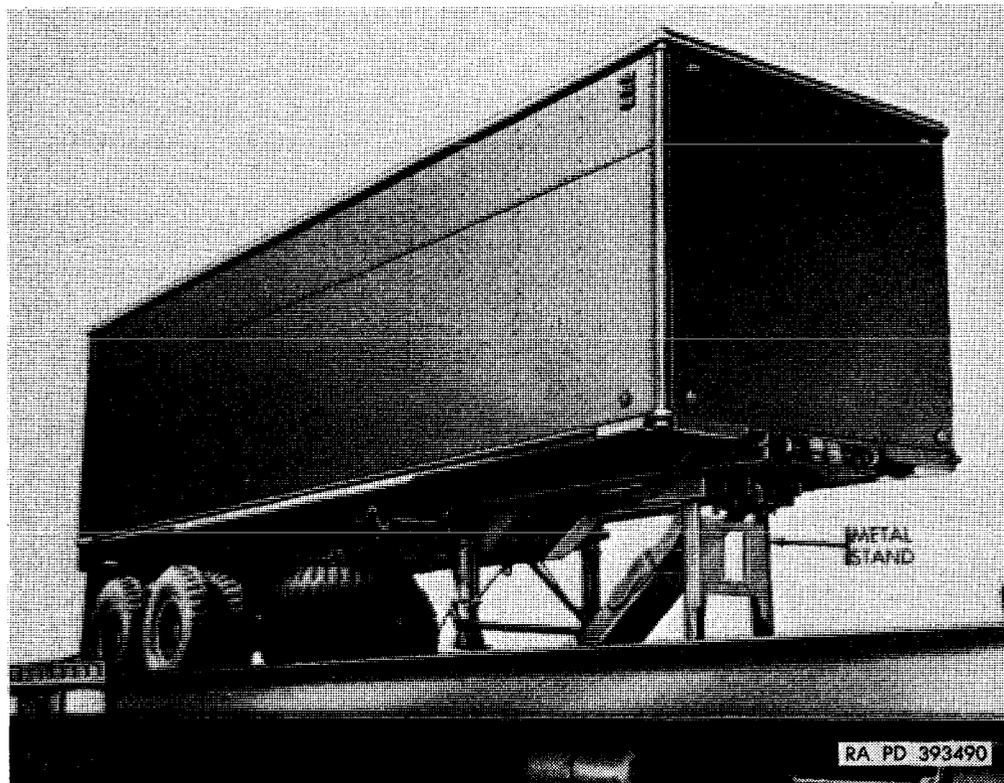


Figure 6-1. Semitrailer M128A1 loaded on TTX railroad car for shipment - right front view

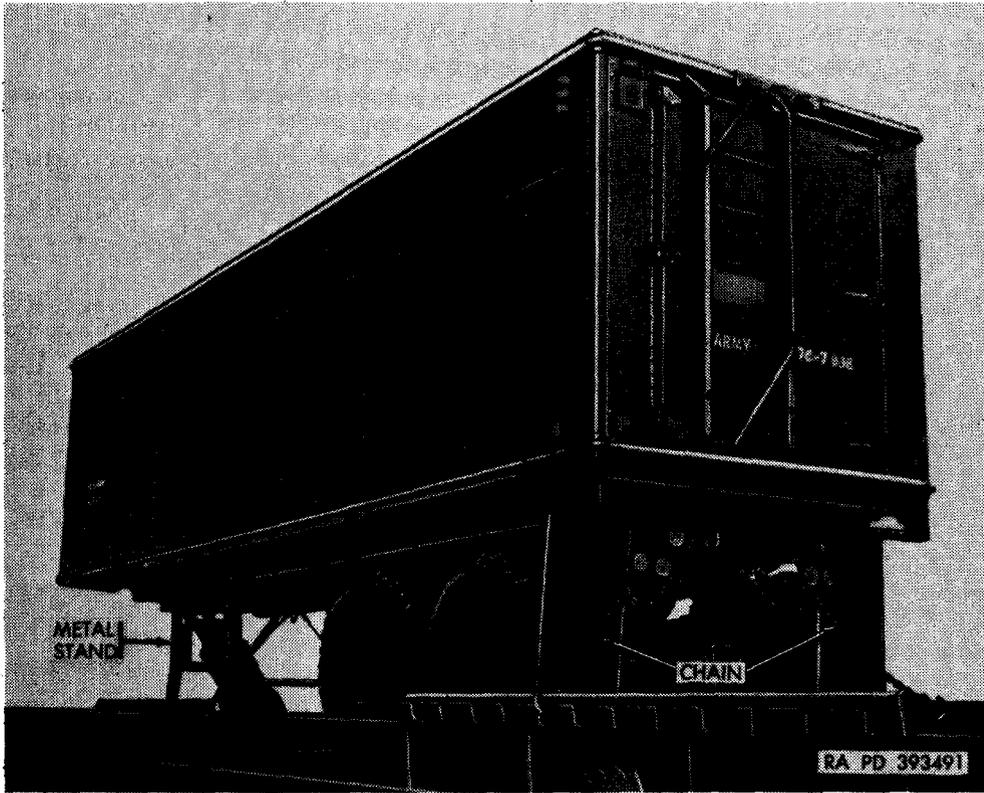


Figure 6-2. Semitrailer M128A1 loaded on TTX railroad car for shipment - left rear view

**APPENDIX A
REFERENCES**

A-1. Publication Indexes and General References.

Indexes should be consulted frequently for latest changes or revisions of references given in this appendix and for new publications relating to materiel covered in this publication.

a. Military Publication Indexes.

Index of Administrative Publication	DA PAM 310-1
Index of Blank Forms	DA PAM 310-2
Index of Doctrinal, Training, and Organizational Publications	DA PAM 310-3
Index of Technical Manuals, Technical Bulletins, Supply Manuals (Types 7, 8 and 9) Supply Bulletins, and Lubrication OrdersDA PAM 310-4
Index and Description of Army Training DevicesDA PAM 310-12

b. General References.

Techniques of Military Instruction	FM 21-6
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A-2 Forms.

Refer to TM 38-750. The Army Maintenance Management System (TAMMS), for instructions on the use of maintenance forms pertaining to the materiel.

A-3. Other Publications.

The following publications contain information pertinent to the major item materiel and associated equipment.

a. Vehicle.

Organizational, Direct Support and General Support Maintenance Repair Parts and Special Tools List	TM9-2330-207-24P
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b. Camouflage.

Camouflage	FM 5-20
Color, Marking and Camouflage Painting of Military Vehicles, Construction Equipment and Materiel Handling Equipment	TB 43-0209

c. Decontamination.

Chemical, Biological, and Radiological (CBR) Decontamination	TM 3-220
Chemical, Biological, Radiological, and Nuclear Defense	FM 21-40

d. General.

Basic Cold Weather Manual	FM 31-70
Manual for Wheeled Vehicle Driver	FM 21-305
Northern Operations	FM 31-71
Operation and Maintenance of Ordnance Materiel in Cold Weather (0 ° to -65°F)	FM 9-207
Procedures for Destruction of Tank Automotive Equipment to Prevent Enemy Use . . .	TM 750-244-6

A-3. Other Publications (Cont).

e. Maintenance and Repair.

Brake Fluid, Silicone (BFS) Conversion Procedures for Tank-Automotive Equipment . .	TB 43-0002-87
General Repair of Tents, Canvas, and Webbing	FM10-16
Organizational Care, Maintenance and Repair of Pneumatic Tires and Inner Tubes. . .	TM9-2610-200-20
Description, Use, Bonding Techniques, and the Properties of Adhesives	TB ORD 1032
Inspection, Care, and Maintenance of Antifriction Bearings	TM 9-214
Materials Used for Cleaning, Preserving, Abrading, and Cementing Ordnance	
Material and Related Materials Including Chemicals	TM 9-247
Welding Theory and Application	TM 9-237

f. Administrative Storage.

Administrative Storage of Equipment	TM 740-90-1
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APPENDIX B MAINTENANCE ALLOCATION CHART

Section I. INTRODUCTION

B-1. General.

a. This section provides a general explanation of all maintenance and repair functions authorized at various maintenance categories.

b. The Maintenance Allocation Chart (MAC) in section II designates overall authority and responsibility for the performance of maintenance functions on the identified end item or component. The application of the maintenance functions to the end item or component will be consistent with the capacities and capabilities of the designated maintenance categories.

c. Section III lists the tools and test equipment (both special tools and common tool sets) required for each maintenance function as referenced from section II.

d. Section IV contains supplemental instructions and explanatory notes for a particular maintenance function.

B-2. Maintenance Functions. Maintenance functions will be limited to and defined as follows:

a. Inspect. To determine the serviceability of an item by comparing its physical, mechanical, and/or electrical characteristics with established standards through examination (e.g., by sight, sound, or feel).

b. Test. To verify serviceability by measuring the mechanical, pneumatic, hydraulic, or electrical characteristics of an item and comparing those characteristics with prescribed standards.

c. Service. Operations required periodically to keep an item in proper operating condition, i.e., to clean (includes decontaminate, when required), to preserve, to drain, to paint, or to replenish fuel, lubricants, chemical fluids, or gases.

d. Adjust. To maintain or regulate, within prescribed limits, by bringing into proper or exact position, or by setting the operating characteristics to specified parameters.

e. Aline. To adjust specified variable elements of an item to bring about optimum or desired performance.

f. Calibrate. To determine and cause corrections to be made or to be adjusted on instruments or test, measuring, and diagnostic equipments used in precision measurement. Consists of comparisons of two instruments, one of which is a certified standard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument being compared.

g. Remove/Install. To remove and install the same item when required to perform service or other maintenance functions. Install may be the act of emplacing, seating, or fixing into position a spare, repair part, or module (component or assembly) in a manner to allow the proper functioning of an equipment or system.

h. Replace. To remove an unserviceable item and install a serviceable counterpart in its place. "Replace" is authorized by the MAC and is shown as the 3d position code of the SMR code.

i. Repair. The application of maintenance services including fault location/troubleshooting, removal/installation, and disassembly/assembly procedures, and maintenance actions to identify troubles and restore serviceability to an item by correcting specific damage, fault, malfunction, or failure in a part, subassembly, module (component or assembly), end item, or system.

j. Overhaul. That maintenance effort (service/action) prescribed to restore an item to a completely serviceable/operational condition as required by maintenance standards in appropriate technical publications (i.e., DMWR). Overhaul is normally the highest degree of maintenance performed by the Army. Overhaul does not normally return an item to like new condition.

k. Rebuild. Consists of those services/actions necessary for the restoration of unserviceable equipment to a like new condition in accordance with original manufacturing standards. Rebuild is the highest degree of materiel maintenance applied to Army equipment. The rebuild operation includes the act of returning to zero those age measurements (hours/miles,etc,) considered in classifying Army equipment/components.

B-3. Explanation of Columns in the MAC, Section 11.

a. Column 1, Group Number. Column 1 lists functional group code numbers, the purpose of which is to identify maintenance significant components, assemblies, subassemblies, and modules with the next higher assembly. End item group number shall be "00".

b. Column 2, Component/Assembly. Column 2 contains the names of components, assemblies, subassemblies and modules for which maintenance is authorized,

c. Column 3, Maintenance Function. Column 3 lists the functions to be performed on the item listed in Column 2. (For detailed explanation of these functions, see paragraph B-2.)

d. Column 4, Maintenance Level. Column 4 specifies by the listing of a work time figure in the appropriate subcolumn(s), the category of maintenance authorized to perform the function listed in Column 3. This figure represents the active time required to perform that maintenance function at the indicated category of maintenance. If the number or complexity of the tasks within the listed maintenance function vary at different maintenance categories, appropriate work time figures will be shown for each category. The work time figure represents the average time required to restore an item (assembly, subassembly, component, module, end item, or system) to a serviceable condition under typical field operating conditions. This time includes preparation time (including any necessary disassembly/assembly time), troubleshooting/fault location time, and quality assurance/quality control time in addition to the time required to perform the specific tasks identified for the maintenance functions authorized in the maintenance allocation chart. The symbol designations for the various maintenance categories areas follows:

- C Operator or crew
- O Organizational maintenance
- F Direct Support maintenance
- H General Support maintenance
- D Depot maintenance

e. Column 5, Tools and Equipment. Column 5 specifies by code, those common tool sets (not individual tools) and special tools, TMDE, and support equipment required to perform the designated function.

f. Column 6, Remarks. This column shall, when applicable, contain a letter code, in alphabetic order, which shall be keyed to the remarks contained in Section IV.

B-4. Explanation of Columns in Tool and Test Equipment Requirements, Section III.

a. Column 1, Reference Code. The tool and test equipment reference code correlates with a code used in the MAC, Section II, Column 5.

b. Column 2, Level Maintenance. The lowest category of maintenance authorized to use the tool or test equipment.

c. Column 3, Nomenclature. Name or identification of the tool or test equipment.

d. Column 4, National Stock Number. The National stock number of the tool or test equipment.

e. Column 5, Tool Number. The manufacturer's part number.

B-5. Explanation of Columns in Remarks, Section IV.

a. Column 1, Reference Code. The code recorded in column 6, Section II.

b. Column 2, Remarks. This column lists information pertinent to the maintenance function being performed as indicated in the MAC, Section II.

Section II. MAINTENANCE ALLOCATION CHART

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINT. FUNCTION	(4) MAINTENANCE LEVEL					(5) Tools & EQUIP.	(6) REMARKS
			C	O	F	H	D		
06	ELECTRICAL SYSTEM							1,2,3	A
0608	Body Wiring	Inspect Replace Repair	0.1		3.0				
	Blower	Inspect Replace Repair	0.1		2.0				
0609	Lights	Inspect Replace Repair	0.1		0.3 0.2				
0613	Chassis Wiring Harness	Inspect Replace Repair	0.1		3.0				
	Cable Assemblies, 12 volt and 24 volt	Inspect Replace Repair	0.2		3.0				
	Receptacle Assemblies, 12 volt and 24 volt	Inspect Replace Repair	0.1		1.5				
11	REAR AXLE							1,2, 3,4	
1100	Rear Axle	Inspect Replace		0.2 10.0					
12	BRAKES							1,2,3,	A
1202	Service Brakes	Replace Repair		2.0	1.0				
	Shoe Assembly	Replace		2.0					
	Brake Lining	Replace			1.0				
	Wheel Cylinder	Replace		2.0					
1206	Slack Adjuster (M127)	Adjust		0.2					
1208	Hydraulic Air Brakes	Inspect Test Replace Repair	0.1 0.1		3.0				
					2.0				

Section II. MAINTENANCE ALLOCATION CHART (Cont)

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINT. FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS & EQUIP.	(6) REMARKS
			C	O	F	H	D		
12	BRAKES (CONT)								
	Air Lines and Fittings	Replace		0.2					
	Air Couplings	Inspect Replace	0.1	0.2					
	Air Reservoir	Service Replace	0.1	2.0					
	Drain Cock	Replace		0.2					
	Air Chamber	Inspect Replace	0.1	1.0					
	Master Cylinder	Inspect Replace	0.1	1.0					
	Emergency Relay Valve	Replace		1.0					
13	WHEELS						1,2,3	A, B	
1311	Wheel Assembly	Inspect Replace	0.1	0.5					
	Bearing, Wheel	Adjust Replace		0.2 1.5					
	Drum, Brake	Replace Repair		3.0	1.5				
	Hub	Service Replace	0.3	0.5					
	Seal Oil, Inside	Replace		1.0					
	Seal Oil, Outside	Replace		0.5					
	Wheel	Replace		0.5					
1313	Tires, Tubes	Inspect Service	0.1 0.1						
	Tires	Replace Repair		0.5		6.0			
	Tubes	Replace Repair		0.5 0.7					
15	FRAME						1,2,3	A, B	
1501	Frame Assembly	Repair				8.0			
	Board Assy, Landing Gear	Inspect Replace	0.1	0.5					
	Wheel Chock Blocks	Replace Repair		0.3 0.5					

Section II. MAINTENANCE ALLOCATION CHART (Cont)

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINT. FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS & EQUIP.	(6) REMARKS
			C	O	F	H	D		
15	FRAME (CONT)								
1504	Tire Carrier Assembly	Inspect Replace Repair	0.1	0.3 0.5					
	Kingpin	Service Replace	0.2			3,0			
1507	Landing Leg	Inspect Service Replace Repair	0.1 0.2	4.0 6.0					
	Gear Box, Landing Leg	Inspect Replace	0.1	0.5					
16	SPRINGS AND SHOCK ABSORBERS								
	Springs	Inspect Replace	0.2	4.0					
	U-Bolts	Replace		2.0					
	Tube, Trunnion	Replace		4.0					
1605	Rods, Torque	Inspect Adjust Replace Repair		0.1 0.2 3.0	1.0				
18	BODY						1,2,3	A, B	
1801	Body Assembly	Repair				10,0			
	Door Assembly	Inspect Replace Repair	0.1		1.0 2.0				
	Door Hinges, Handles, Brackets	Replace		1.0					
	Sash Installation	Inspect Replace Repair	0.1	2.0 1.5					
	Blackout Panel	Replace		0.5					

Section II. MAINTENANCE ALLOCATION CHART (Cont)

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINT. FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS & EQUIP.	(6) REMARKS
			C	O	F	H	D		
18	BODY (CONT)								
1805	Floors	Replace Repair		4.0		5.0			
1810	Panels & Stakes	Repair			1.5				
22	BODY ACCESSORIES						1,2,3		
2202	Reflectors	Replace		0.2					

Section III. TOOL AND TEST EQUIPMENT REQUIREMENTS

(1) REFERENCE CODE	(2) LEVEL MAINTENANCE	(3) NOMENCLATURE	(4) NATIONAL/NATO STOCK NUMBER	(5) TOO L NUMBER
		COMMON TOOLS:		
1	O, F, H	Tool Kit, Mechanics Gen	5180-00-177-7033	
2	O, F, H	Shop Equipment, Common Set No. 1	4910-00-754-0654	
3	O, F, H	Shop Equipment, Supplement Set No. 1	4910-00-754-0653	
		SPECIAL TOOLS:		
4	O	Wiper Replacer, Axle Oil Seal	5120-00-795-0136	7950136
5	F	Remover/Replacer, Torque Rod Bushing	5120-00-707-6223	7950060

Section IV. REMARKS

REFERENCE CODE	REMARKS
A	Direct Support (F) maintenance includes replacement of repairable assemblies, repair of components of assemblies considered uneconomical to evacuate further. Performs adjustments of systems for which organizational maintenance does not possess skills or test equipment.
B	General Support (H) maintenance includes repair of most replaceable assemblies. Overhaul of assemblies which require extensive work in terms of man hours, skills and testing of overhauled assemblies will be accomplished at depots.

APPENDIX C EXPENDABLE SUPPLIES AND MATERIALS LIST

C-1. Scope.

This appendix lists expendable supplies and materials you will need to operate and maintain the semi-trailers. These items are authorized to you by CTA 50-970, Expendable Items (Except Medical, Class V, Repair Parts, and Heraldic Items).

C-2. Explanation of Columns.

a. Column (1) Item Number. This number is assigned to the entry in the listing and is referenced in the narrative instructions to identify the materiel (e.g., "Use cleaning compound, item 5, App. C").

b. Column (2) Level. This column identifies the lowest level of maintenance that requires the listed item. Enter as applicable:

- C - Operator/Crew
- O - Organizational Maintenance
- F - Direct Support Maintenance
- H - General Support Maintenance

c. Column (3) National Stock Number. This is the National stock number assigned to the item; use it to request or requisition the item.

d. Column (4) Description. Indicates the Federal item name and, if required, a description to identify the item. The last line for each item indicates the Federal Supply Code for Manufacturer (FSCM) in parentheses followed by the part number.

e. column (5) Unit of Measure (U/M). Indicates the measure used in performing the actual maintenance function. This measure is expressed by a two-character alphabetical abbreviation (e.g., ea, in, pr). If the unit of measure differs from the unit of issue, requisition the lowest unit of issue that will satisfy your requirements.

(1) ITEM No.	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION	(5) U/M
			GAA, GREASE, AUTOMOTVE AND ARTILLERY MIL-G-10924 (81349)	
1	o	9150-00-190-0904	1 LB CAN	EA
2	0	9150-00-190-0905	5 LB CAN	EA
3	0	9150-00-190-0907	35 LB PAIL	EA
			OIL, LUBRICATING, ENGINE MIL-L-2104, OE/HDO-30-(81349)	
4	0	9150-00-186-6681	1 QT CAN, TYPE I	EA
5	0	9150-00-188-9858	5 GAL CAN	EA
			HYDRAULIC FLUID, NON-PETROLEUM BASE, AUTOMOTIVE (HB) VV-F-451a	
6	0	9150-01-059-2586	1 GAL CAN	EA
			HYDRAULIC FLUID, AUTOMOTIVE (SILICONE TYPE) MIL-B-46176)	
7	0	9150-00-252-6375	1 GAL CAN	EA
8	0	9150-00-188-9859	55 GAL DRUM (16Ga)	EA
9	0	9150-00-189-6759	55 GAL DRUM (18Ga)	EA
			LUBRICATING OIL, INTERNAL COMBUSTION ENGINE, APD PD No. 1 Sub Zero	
10	0	9150-00-402-4478	1 QT CAN, TYPE I	EA
11	0	9150-00-402-2372	5 GAL CAN	EA
12	0	9150-00-407-0972	55 GAL DRUM (16Ga)	EA
13	0	9150-00-491-7197	55 GAL DRUM (18Ga)	EA
			PRESERVATIVE, LUBRICATING, LIGHT OIL	
14	0	9150-00-231-6689	1 QT CAN	EA
15	0	9150-00-231-9062	1 GAL CAN	EA

(1) ITEM NO.	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION	(5) U/M
			CLEANING EQUIPMENT	
16	c	7920-00-291-5815	BRUSH, WIRE: Scratch, S-Wire, curved hall, wire lg outside block: 1-1/8 to 1-1/4 in. 4 rows wide, 18 rows lg, 14 in. lg	EA
17	c	7920-00-205-1711	RAGS, COTTON: Wiping	BL
18	c	6850-00-264-9038	SOLVENT; Dry Cleaning, Fed Spec PD-680, 1 Gal Can	EA
19	0	6850-00-285-6056	COMPOUND, CLEANING: PC444A, 1 Gal Can	EA
			MAINTENANCE SUPPLIES	
			ADHESIVE, Rubber Base, General Purpose MIL-A-5092B Type I	
20	0	8040-00-262-9025	4 OZ TUBE	EA
21	0	8040-00-262-9028	1 PT CAN	EA
22	0	8040-00-262-9031	1 QT CAN	EA
23	0	8020-00-207-6658	BRUSH, PAINT: Oval, 1-1/8 in, wd	EA
24	0	8020-00-559-0389	BRUSH, PAINT: 2 in. wide	EA
25	0	5350-00-192-5052	CLOTH, ABRASIVE: Crocus, ferric oxide and quartz jean-cloth backing, exposed coat, 9 X 11 sh, 50-sh sheave (81349) P-C-458A, 42-C-20420-50	EA
			CLOTH, ABRASIVE: Al-oxide, jean-cloth backing, closed coat, 9 X 11 sh, 50-sh sheave, P-C-451A, Type 1, Class 1	
26	0	5350-00-192-5047	GRIT NO. 80(GR 1/0)	EA
27	0	5050-00-192-5049	GRIT NO. 120 (GR 3/0)	EA
28	0	5050-00-192-5051	GRIT NO. 180 (GR 5/0)	EA
29	0	8030-00-833-9116	COMPOUND, LOCKING: GRADE AV RED (MIL-S-22473) 6 oz tube	EA
30	0	8010-00-297-2124	ENAMEL: Green Color No. 2430 (81340) Fed Std No. 595 brush and spray application (81348) TT-E-485, Type 11, 1 Gal Can	EA
31	F	3439-00-853-2718	ELECTRODE, WELDING: 5/32 MIL-E-22-200-1 (81349)	EA

APPENDIX D
TORQUE LIMITS

HUB-TO-DRUM BOLTS	190 lb-ft to 210 lb-ft
WHEEL RIM NUTS	200 lb-ft to 225 lb-ft
BEARING NUT, OUTER	200 lb-ft to 225 lb-ft
BEARING NUT, INNER	50 lb-ft and back-off 1/4 turn
GEAR BOX-TO-LANDING LEG NUTS	150 lb-ft to 160 lb-ft
LANDING LEG TO FRAME	150 lb-ft to 160 lb-ft
LANDING LEG BRACES	150 lb-ft to 160 lb-ft
U-BOLTS AND NUTS	500 lb-ft to 600 lb-ft (lubricated)
SPRING CLAMPING SCREWS	650 lb-ft to 750 lb-ft (lubricated)
TORQUE ARM BOLTS	350 lb-ft to 400 lb-ft (lubricated)

APPENDIX E

COMPONENTS OF END ITEM AND BASIC ISSUE ITEMS LISTS

Section 1. INTRODUCTION

E-1. Scope.

This appendix lists components of end item and basic issue items for the semitrailers to help you inventory items required for safe and efficient operation.

E-2. General.

The Components of End Item and Basic Issue Items Lists are divided into the following sections:

a. Section 11. Components of End Item. This listing is for information purposes only, and is not authority to requisition replacements. These items are part of the end item, but are removed and separately packaged for transportation or shipment. As part of the end item, these items must be with the end item whenever it is issued or transferred between property accounts. Illustrations are furnished to assist you in identifying the items.

b. Section III. Basic Issue Items. These are the minimum essential items required to place the semitrailers in operation, to operate it, and to perform emergency repairs. Although shipped separately packaged, BII must be with the semitrailers during operation and whenever it is transferred between property accounts. The illustrations will assist you with hard-to-identify items. This manual is your authority to request/requisition replacement BII, based on TOE/MTOE authorization of the end item.

E-3. Explanation of Columns.

The following provides an explanation of columns found in the tabular listings:

a. Column (1) Illustration Number (Illus Number). This column indicates the number of the illustration on which the item is shown.

b. Column (2) National Stock Number. Indicates the National stock number assigned to the item and will be used for requisitioning purposes.

c. Column (3) Description. Indicates the Federal item name and, if required, a minimum description to identify and locate the item. The last line for each item indicates the FSCM (in parentheses) followed by the part number. If item needed differs for different models of this equipment, the model is shown under the "Usable On" heading in this column. These codes are identified as:

Code	Used On	Code	Used On
260	M127	673	M128A1C
680	M127A1	131	M128A2C
671	M127A1C	682	M129A1
684	M127A2C	674	M128A1C
681	M128A1	133	M129A2C

d. Column (4) Unit of Measure (U/M). Indicates the measure used in performing the actual operational/maintenance function. This measure is expressed by a two-character alphabetical abbreviation (e.g., ea,in,pr).

e. Column (5) Quantity required (Qty rqr). Indicates the quantity of the item authorized to be used with/on the equipment.

Section II. COMPONENTS OF END ITEM

(None Authorized)

Section III. BASIC ISSUE ITEMS

(1) Illus Number	(2) National Stock Number	(3) Description FSCM and Part Number	Usable On Code	(4) U/M	(5) Qty rqr
	2540-00-854-4445	LADDER, VEHICLE BOARDING (19207) 8722222	681,673,131, 682,674,133	EA	1
	2540-00-797-9195	PAULIN: CARGO BODY 15 FT X 35FT (19207) 7979195	260,680, 671,684	EA	1

APPENDIX F

ADDITIONAL AUTHORIZATION LIST

Section 1. INTRODUCTION

F-1. Scope.

This appendix lists additional items you are authorized for the support of the semitrailers.

F-2. General.

This list identifies items that do not have to accompany the semitrailer and that do not have to be turned in with it. These items are all authorized to you by CTA, MTOE, TDA, or JTA.

F-3. Explanation of Listing.

National stock numbers, descriptions, and quantities are provided to help you identify and request the additional items you require to support this equipment. The items are listed in alphabetical sequence by item name under the type document (i.e., CTA, MTOE, TDA, or JTA) which authorizes the item(s) to you. If item required differs for different models of this equipment, the model is shown under the "Usable on" heading in the description column. These codes are identified as:

Code	Used On
680	M127A1
671	M127A1C
684	M127A2C

Section II. ADDITIONAL AUTHORIZATION LIST

(1) National Stock Number	(2) Description FSCM & Part Number	Usable on Code	(3) U/M	(4) QTY AUTH
2540-00-930-5409	CHAIN, SINGLE LEG, 1/4 IN. LINK X 10 FT (19207) 8739382	680,671,684	EA	10
	RACK, FLOOR, TOOL BOX, WOOD, 23-1/2 X 42-1/2 IN. (19207) 8739428	680,671,684	EA	1
2590-00-104-4572	CABLE ASSY, POWER, 110V, 50 FT (19207) 7096967		EA	1

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Chief of Staff

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The Adjutant General

Distribution

To be distributed in accordance with DA Form 12-39 Technical Manuals requirements for Semitrailer, Chassis, Stake and Van 12 Ton, M126, A1, A1C, M127, A1, A1C, A2C, M128A1, A1C, A2C, M129A1, A1C, A2C.

The Metric System and Equivalents

Linear Measure

1 centimeter = 10 millimeters = .39 inch
 1 decimeter = 10 centimeters = 3.94 inches
 1 meter = 10 decimeters = 39.37 inches
 1 dekameter = 10 meters = 32.8 feet
 1 hectometer = 10 dekameters = 328.08 feet
 1 kilometer = 10 hectometers = 3,280.8 feet

Liquid Measure

1 centiliter = 10 milliliters = .34 fl. ounce
 1 deciliter = 10 centiliters = 3.38 fl. ounces
 1 liter = 10 deciliters = 33.82 fl. ounces
 1 dekaliter = 10 liters = 2.64 gallons
 1 hectoliter = 10 dekaliters = 26.42 gallons
 1 kiloliter = 10 hectoliters = 264.18 gallons

Weights

1 centigram = 10 milligrams = 1.5 grain
 1 decigram = 10 centigrams = 1.54 grains
 1 gram = 10 decigrams = .035 ounce
 1 dekagram = 10 grams = .35 ounce
 1 hectogram = 10 dekagrams = 3.52 ounces
 1 kilogram = 10 hectograms = 2.2 pounds
 1 quintal = 100 kilograms = 220.46 pounds
 1 metric ton = 10 quintals = 1.1 short tons

Square Measure

1 sq. centimeter = 100 sq. millimeters = .155 sq. inch
 1 sq. decimeter = 100 sq. centimeters = 15.5 sq. inches
 1 sq. meter (centare) = 100 sq. decimeters = 10.76 sq. ft.
 1 sq. dekameter (are) = 100 sq. meters = 1,076.4 sq. ft.
 1 sq. hectometer (hectare) = 100 sq. dekameters = 2.47 acres
 1 sq. kilometer = 100 sq. hectometers = .386 sq. mile

Cubic Measure

1 cu. centimeter = 1000 cu. millimeters = .06 cu. inch
 1 cu. decimeter = 1000 cu. centimeters = 61.02 cu. inches
 1 cu. meter = 1000 cu. decimeters = 35.31 cu. feet

Approximate Conversion Factors

To change	To	Multiply by	To change	To	Multiply by
inches	centimeters	2.540	centimeters	inches	.394
feet	meters	.305	meters	feet	3.280
yards	meters	.914	meters	yards	1.094
miles	kilometers	1.609	kilometers	miles	.621
square inches	square centimeters	6.451	square centimeters	square inches	.155
square feet	square meters	.093	square meters	square feet	10.764
square yards	square meters	.836	square meters	square yards	1.196
square miles	square kilometers	2.590	square kilometers	square miles	.386
acres	square hectometers	.405	square hectometers	acres	2.471
cubic feet	cubic meters	.028	cubic meters	cubic feet	35.315
cubic yards	cubic meters	.765	cubic meters	cubic yards	1.308
fluid ounces	milliliters	29.573	milliliters	fluid ounces	.034
pints	liters	.473	liters	pints	2.113
quarts	liters	.946	liters	quarts	1.057
gallons	liters	3.785	liters	gallons	.264
ounces	grams	28.349	grams	ounces	.035
pounds	kilograms	.454	kilograms	pounds	2.205
short tons	metric tons	.907	metric tons	short tons	1.102

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PKG SIZE 2436	ITEM NO.	BULK/Rcpt DATE	SLAGPC CONTROL NO. ID-3126-51191	

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