TM 9-2320-211-10-1
T.O. 36A12-1C-421-1

TECHNICAL MANUAL

OPERATION, INSTALLATION AND REFERENCE DATA

OPERATOR LEVEL

TRUCK, CHASSIS: M40A2C, M61A2, M63A2; TRUCK, CARGO: M54A2, M54A2C, M55A2; TRUCK, DUMP: M51A2; TRUCK, TRACTOR: M52A2; TRUCK, WRECKER, MEDIUM: M543A2

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Introduction

Chapter 2
Description and Data

Chapter 3
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Expendable Supplies and Materials List

DEPARTMENTS OF THE ARMY AND THE AIR FORCE

SEPTEMBER 1980

WARNING

EXHAUST GASES CAN BE DEADLY

Exposure to exhaust gases produces symptoms of headache, dizziness, loss of muscular control, apparent drowsiness, and coma. Permanent brain damage or death can result from severe exposure.

Carbon monoxide occurs in the exhaust fumes of fuel burning heaters and internal combustion engines, and becomes dangerously concentrated under conditions of inadequate ventilation. The following precautions must be observed to insure the safety of personnel whenever fuel burning heater(s) or engine of any vehicle is operated for maintenance purposes or tactical use.

Do not operate heater of engine of vehicle in an enclosed area unless it is adequately ventilated.

Do not idle engine for long periods without maintaining adequate ventilation in personnel compartments.

Do not drive any vehicle with inspection plates or cover plates removed unless necessary for maintenance purposes.

Be alert at all times during vehicle operation for exhaust odors and exposure symptoms. If either are present , immediately ventilate personnel compartments. If symptoms persist, remove affected personnel from vehicle and treat as follows: expose to fresh air; keep warm; do not permit physical exercise; if necessary, administer artifical respiration.

If exposed, seek prompt medical attention for possible delayed onset of acute lung congestion. Administer oxygen if available.

The best defense against exhaust gas poisoning is adequate ventilation.

Use extreme care when removing radiator cap, especially when temperature gage shows above 180°F.

Always wear leather gloves when handling winch cable never allow cable to slip through hands. Do not operate winch with less than four turns of cable drum.

Do not drive truck until the low air pressure warning buzzer is silent and the air pressure gage shows at least 65 PSI. This is the minimum pressure required for safe braking action.

Do not use hand throttle to drive the vehicle.

Do not park truck with front transmission gearshift lever in gear.

When used to carry flammables, explosives, or other hazardous material, equip truck with a fire extinguisher.

If your vehicle class number is greater than the bridge class number, your vehicle is too heavy for the bridge; DO NOT CROSS.

This vehicle has been designed to operate safely and efficiently within the limits specified in this TM. Operation beyond these limits is prohibited IAW AR 70-1 without written approval from the Commander, U.S. Army Tank-Automotive Command, AlT'IN: AMSTA-CM-S, Warren, MI 48397-5000.

TECHNICAL MANUAL
NO. 9-2320-211-10-1

TECHNICAL ORDER
NO. 36A12-lC-421-1

Change

No. 1

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington D. C., 5 ***December 1989***

TECHNICAL MANUAL
OPERATION, INSTALLATION AND REFERENCE DATA
OPERATOR LEVEL
TRUCK, CHASSIS M40A2C, M61A2, M63A2; TRUCK, CARGO: M54A2, M54A2C, M55A2; TRUCK DUMP: M51A2; TRUCK, TRACTOR: M52A2; TRUCK, WRECKER, MEDIUM: M543A2

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General, United States Army
Chief of Staff

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Brigadier General, United States Army
The Adjutant General

Distribution:
To be distributed in accordance with DA Form 12-38-R (Block 209) Operator maintenance requirements for Truck, Cargo, 5-ton, 6x6, Multifuel, M39-series.

TECHNICAL MANUAL
NO. 9-2320-211-10-1
TECHNICAL ORDER
NO. 36A12-1C-421-1

DEPARTMENT OF THE ARMY
A N D
T H E A I R F O R C E
Washington, DC, 5 September 1980

TECHNICAL MANUAL

OPERATION, INSTALLATION AND

REFERENCE DATA

OPERATOR LEVEL

5-TON, 6X6, M39 SERIES TRUCKS
(MULTIFUEL)

Model		NSN without Winch	NSN with Winch
Chassis	M40A2C	2320-00-969-4114	
	M61A2	2320-00-055-9264	2320-00-965-0321
	M63A2	2320-00-226-6251	2320-00-285-3757
Truck, Cargo	M54A2	2320-00-055-9266	2320-00-055-9265
	M54A2C	2320-00-926-0874	2320-00-926-0874
	M55A2	2320-00-073-8476	2320-00-055-9259
Truck, Dump	M51A2	2320-00-055-9262	2320-00-055-9263
Truck, Tractor	M52A2	2320-00-055-9260	2320-00-055-9261
Truck, Wrecker, Medium	M543A2		2320-00-055-9258

Current as of 25 March 1980.

*This manual, together with TM 9-2320-211-10-2, 5 September 1980; -10.3, 5 September 1980; and -10-4, 5 September 1980 supersedes so much of TM 9-2320-211-10, 20 November 1977 as pertains to multifuel vehicles.

REPORTING OF ERRORS AND RECOMMENDING IMPROVEMENTS

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

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CHAPTER 1

INTRODUCTION

1-1. SCOPE. This technical manual contains operating instructions for the 5-ton, 6x6, M39 series trucks (figures 1-1 through 1-5) equipped with multifuel engines, and operator level maintenance instructions in accordance with the maintenance allocation chart. Operating instructions for special purpose kits used with these trucks are also included. The purpose of this manual is to give the operator the information he needs for safe, trouble–free operation of the equipment under usual and unusual conditions.

1-2. FORMS AND RECORDS. Maintenance forms, records and reports which are to be used by maintenance personnel at all levels are listed and prescribed by TM 38-750.

1-3. EQUIPMENT IMPROVEMENT REPORT AND MAINTENANCE DIGEST (EIR MD) AND EQUIPMENT IMPROVEMENT REPORT AND MAINTENANCE SUMMARY (EIR MS). The quarterly Equipment Improvement Report and Maintenance Digest, T-B 43-0001-39 series, contains valuable field information on the equipment covered in this manual. The information in the TB 43-0001-39 series is compiled from some of the Equipment Improvement Reports that you prepared on the vehicles covered in this manual. Many of these articles result from comments, suggestions, and improvement recommendations that you submitted to the EIR program. The TB 43-0001-39 series contains information on equipment improvements, minor alterations, proposed Modification Work Orders (MWO's) , warranties (if applicable), actions taken on some of your DA form 2080's (Recommended Changes to Publications), and advance information on proposed changes that may affect this manual. In addition, the more maintenance significant articles, including minor alterations, field-fixes, etc, that have a more permanent and continuing need in the field are republished in the Equipment Improvement Report and Maintenance Summary (EIR MS) for TARCOM Equipment (TM 43-0143). Refer to both of these publications (TB 43-0001– 39 series and TM 43-0143) periodically, especially the TB 43-0001-39 series, for the most current and authoritative information on your equipment. The information will help you in doing your job better and will help you in keeping you advised of the latest changes to this manual. Also refer to DA Pam 310-4, index of Technical Publications, and Appendix A, References, of this manual.

1-4. REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS. If your truck 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. Tell us why a procedure is hard to perform. Put it on an SF 368 (Quality Deficiency Report). Mail it to us at: Commander, U.S. Army Tank-Automotive Materiel Readiness Command, ATTN: DRSTA-MB, Warren, Michigan 48090. We'll send uou a reply.

1-5. METRIC SYSTEM. The equipment /system described herein is nonmetric and does not require metric common or special tools. Therefore, metric units are not supplied. Tactical instructions, for sake of clarity, will also remain nonmetric.

1-6. DESTRUCTION TO PREVENT ENEMY USE. Follow procedures given in TM 750-244-6 for destruction of Army material to prevent enemy use.

1-7. MANUAL ORGANIZATION . This manual is divided into four volumes. Volumes are divided into chapters and sections depending on the amount of subject material. The content of each volume is as follows:

Volume 1. TM 9-2320-211-10-1
Operation, Installation, and Reference Data

Volume 2. TM 9-2320-211-10-2
Scheduled Maintenance

Volume 3. TM 9-2320-211-10-3
Troubleshooting

Volume 4. TM 9-2320-211-10-4
Maintenance

1-8. VEHICLE/BRIDGE CLASSIFICATION. Refer to table 1-1 and find your vehicle class number. Table columns are marked as follows:

E - Class number of vehicle with no payload.

C - Class number of vehicle with cross country payload.

H - Class number of vehicle with highway payload.

a. Bridges along your route may be marked with a class number. The bridge class number shows the safe capacity of the bridge. If your vehicle class number is equal to or less than the bridge class number, the bridge will hold your vehicle.

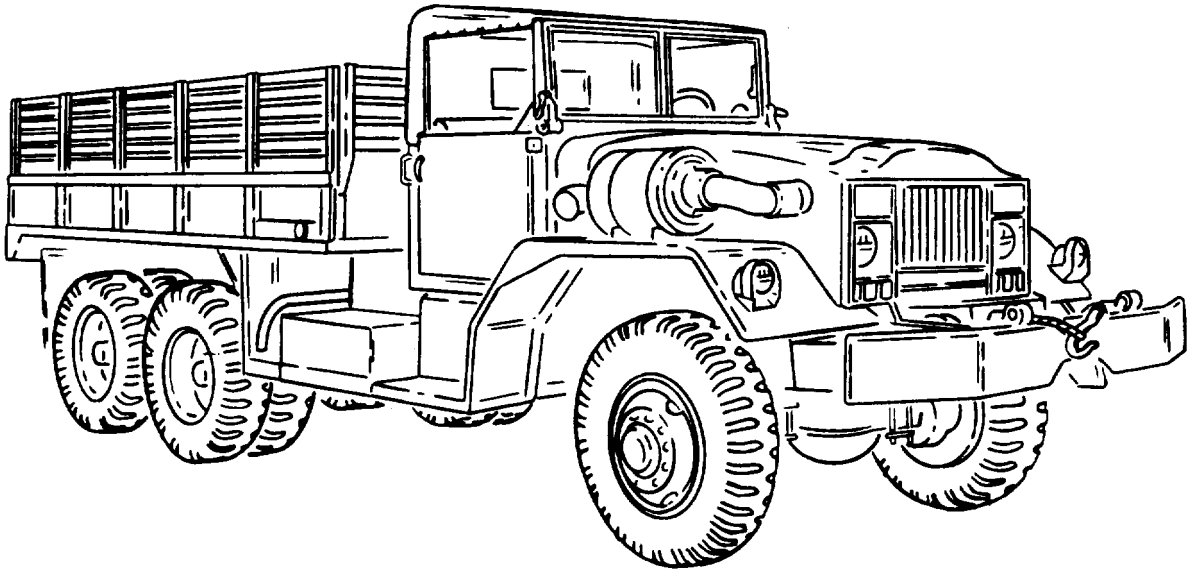
WARNING

If your vehicle class number is greater than the bridge class number, your vehicle is too heavy for the bridge; DO NOT CROSS.

b. For more information refer to FM 5-36.

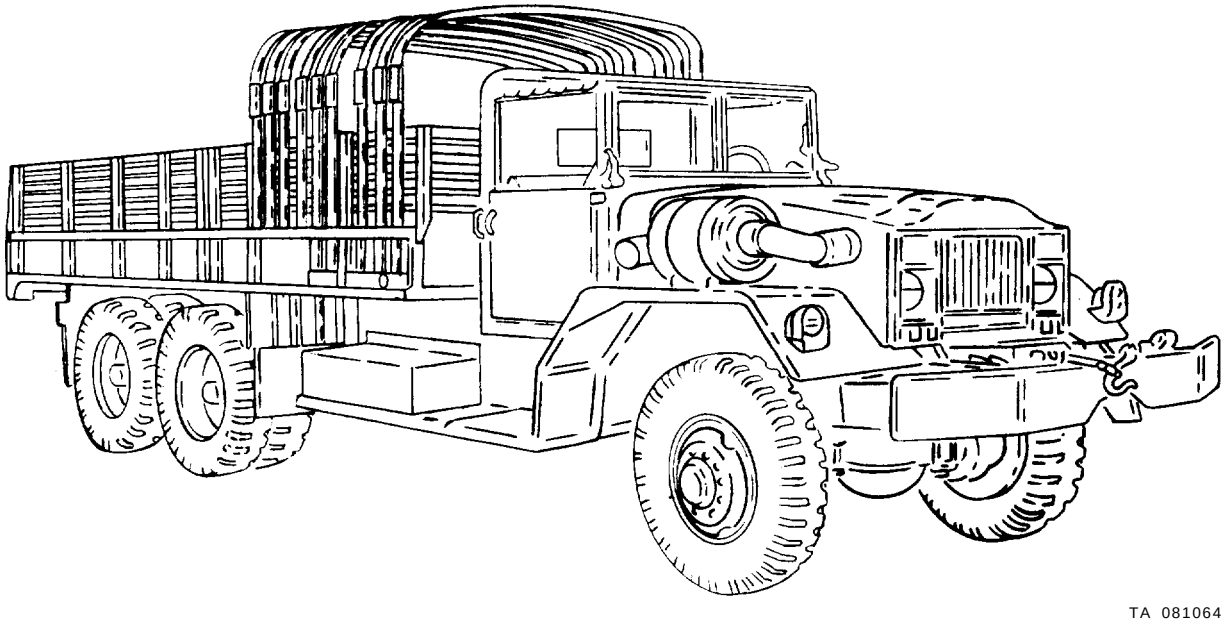
Table 1-1. Vehicle Class Information

Vehicle	Model	NSN	Class Number		
			E	C	H
Cargo	M54A2	2320-00-055-9265	8	14	19
		and 2320-00-055-9266	8	14	19
	M54A2C	2320-00-926-0874	9	15	19
		and 2320-00-761-2854	8	14	19
	M55A2	2320-00-055-9259	10	16	21
		and 2320-00-073-8476	10	16	20
Dump	M51A2	2320-00-055-9263	10	16	22
		and 2320-00-055-9262	10	20	40
Tractor	M52A2	2320-00-055-9261	8	-	-
		and 2320-00-055-9260	7	16	21
Medium Wrecker	M543A2	2320-00-055-9258	17	17	17



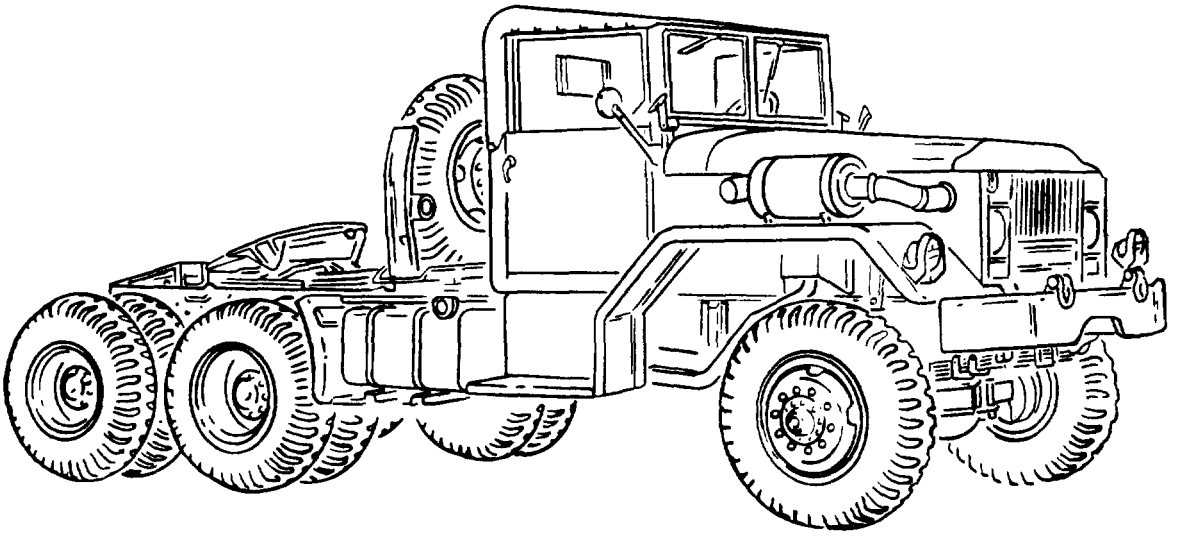
TA 081042

Figure 1-1. Typical 5-Ton, 6x6, Cargo Truck (M54A2, M54A2C).



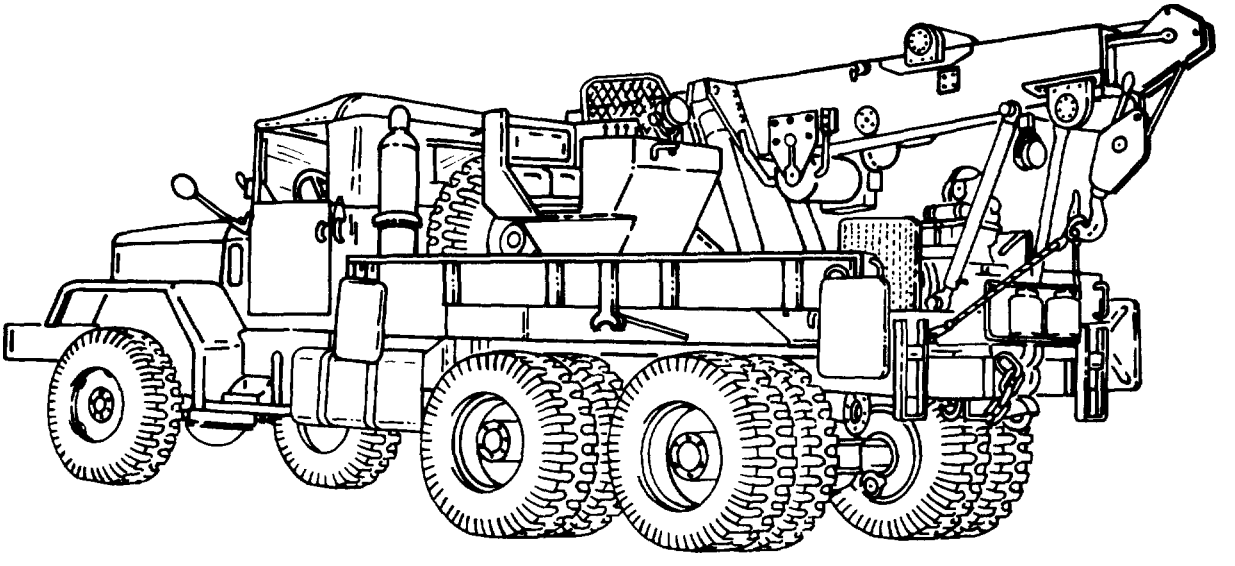
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Figure 1-2. Typical 5-Ton, 6x6, Cargo Truck (M55A2) .



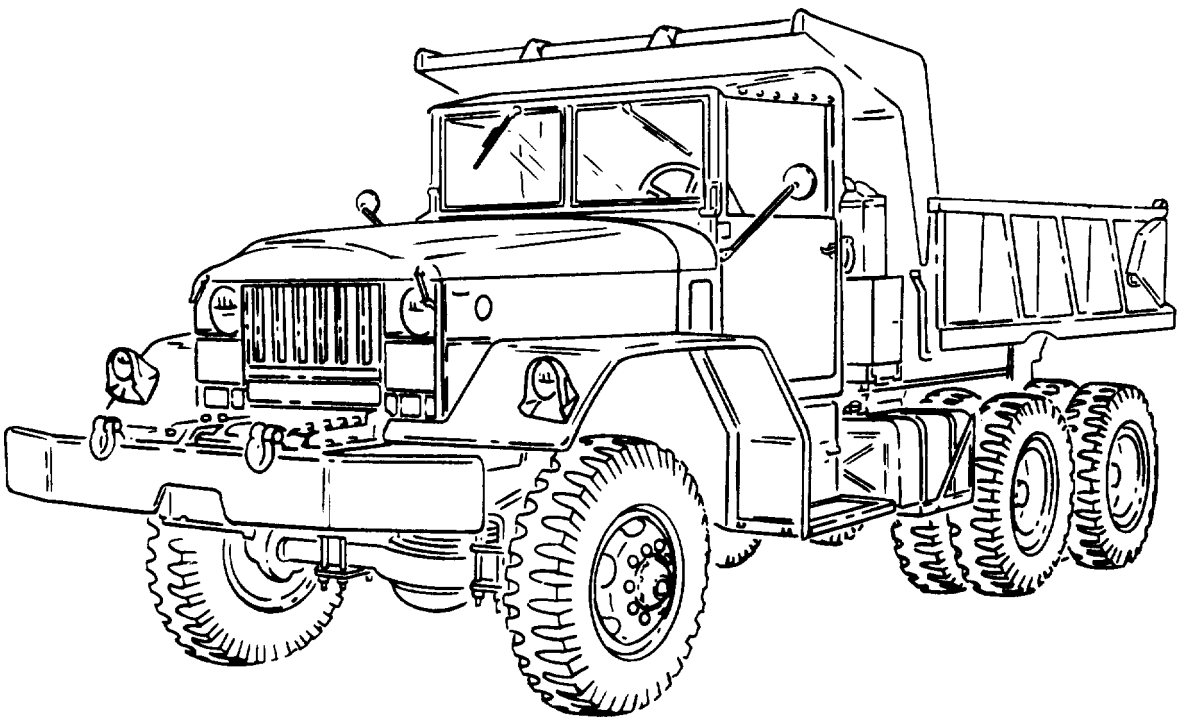
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Figure 1-3. Typical 5-Ton, 6x6, Tractor Truck (M52A2).



TA 081065

Figure 1-4. Typical 5-Ton, 6x6, Medium Wrecker Truck (M543A2).



TA 081044

Figure 1-5. Typical 5-Ton, 6x6, Dump Truck (M51A2) .

CHAPTER 2

DESCRIPTION AND DATA

Section 1. FUNCTIONAL DESCRIPTION

2-1. GENERAL. The 5-ton, 6x6, M39 series trucks are tactical trucks, designed for use on all types of roads, highways, and cross-country terrain. They will ford hard bottom water crossings up to 30 inches deep without special fording equipment. Three basic wheelbase chassis are available for mounting various body types, (cargo, dump, medium wrecker and tractor) . The following paragraphs are provided to give the operator an overall understanding of the equipment and its main functions. The descriptive text is keyed to an overall equipment block diagram , which shows each functional group of the equipment as a block. Arrows are used to show the flow of power to and from each functional block on the diagram.

WARNING

This vehicle has been designed to operate safely and efficiently within the limits specified in this TM. Operation beyond these limits is prohibited IAW AR 70-1 without written approval from the Commander, U.S. Army Tank-Automotive Command, ATTN: AMSTA-CM-S, Warren, MI 48397-5000.

2-2. OVERALL EQUIPMENT FUNCTIONAL DESCRIPTION. (See Fig. 2-1.)

a. Engine The engine supplies power to move the truck and operate equipment

b. Clutch . The clutch by means of mechanical linkage, joins power produced by the engine, to the transmission. The clutch also separates power from the transmission when not needed, or while shifting transmission gears.

c. Electrical System. The 24 volt electrical system supplies electrical current to start the engine, operate lights, equipment and accessories, and to charge the batteries.

d. Fuel System. The fuel system stores fuel in the tanks, delivers fuel to the engine, as required, and returns excess fuel to the tanks.

e. Cooling Svstem. The cooling system removes excess heat produced while the engine is running, and keeps the engine at normal operating temperature. The cooling system also supplies heat to warm the cab or personnel compartment, when required.

f. Exhaust System. The exhaust system collects and removes exhaust gases produced when the engine is operating.

. Transmission System. The transmission system gives the operator a choice of five[9] forward gear combinations (speeds) , reverse, and neutral position for best operation of the truck at all speeds and conditions.

h. Transfer System. The transfer system sends power from the transmission to the propeller shafts to drive the front and rear wheels. The system gives an additional gear combination (speed) for each transmission speed.

i. Transmission Power Takeoff System. This system sends power to the propeller shafts to operate auxiliary equipment.

j. Transfer Power Takeoff System. This system sends power from the transfer unit to the propeller shafts to operate auxiliary equipment and accessories.

k. Propeller Shafts. Propeller shafts are used to send power from the transmission to the transfer system and from the transfer system to the axles. Propeller shafts also send power from the power takeoff assemblies to auxiliary equip-merit and accessories.

1. Steering System. When the operator turns the steering wheel, the steering system sends this action to the front wheels. This system controls the direction of the truck while in motion.

m. Compressed Air System. The compressed air system provides air for service use and also for a power assist to the hydraulic brake system.

n. Brakes System, When the operator steps on service brake pedal, the brakes system slows down or stops the truck. A handbrake, when set to up position by the operator, is used for parking the truck.

o. Axles, Wheels, and Hubs. The axles support the weight of the truck and sends power to the hubs and wheels.

p. Auxiliary Equipment and Accessories. These components do required tasks, such as pulling, lifting, heating, and towing.

Section II. PHYSICAL DESCRIPTION

2-3. GENERAL. The following paragraphs describe systems, units and components of the various trucks. The diagrams show the location of these items on the vehicle.

2-4. OVERALL EQUIPMENT PHYSICAL DESCRIPTION .

a. Engine. M39 series trucks are equipped with US Army LDS 465-1 and LDS 465-1A six-cylinder, in-line, liquid-cooled, multifuel engines. The multifuel engine (fig. 2-2 and 2-3) uses the fuel injection compression-ignition principle which permits the use of various grades of fuel. Refer to table 2-6 for fuel grades to be used.

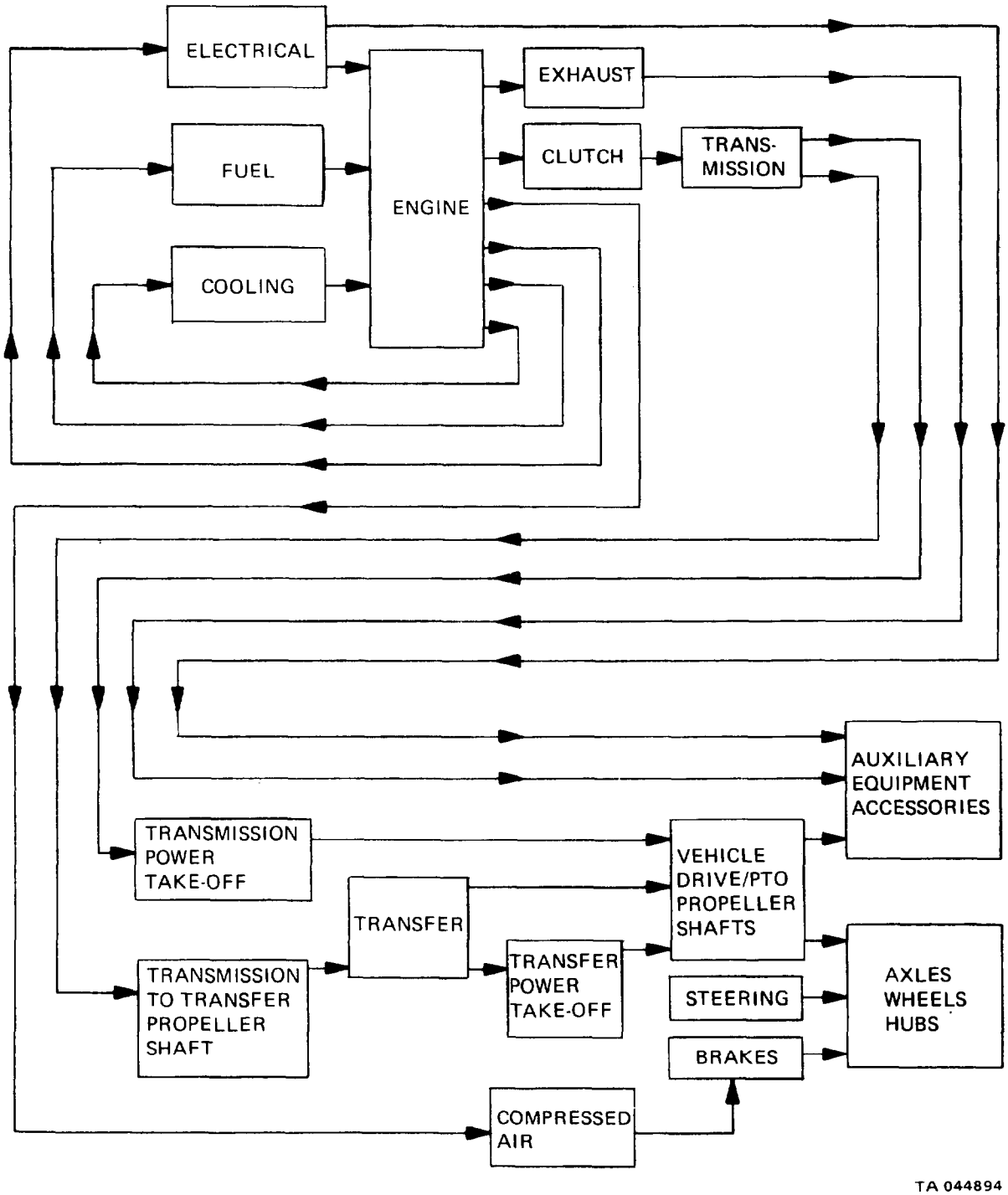
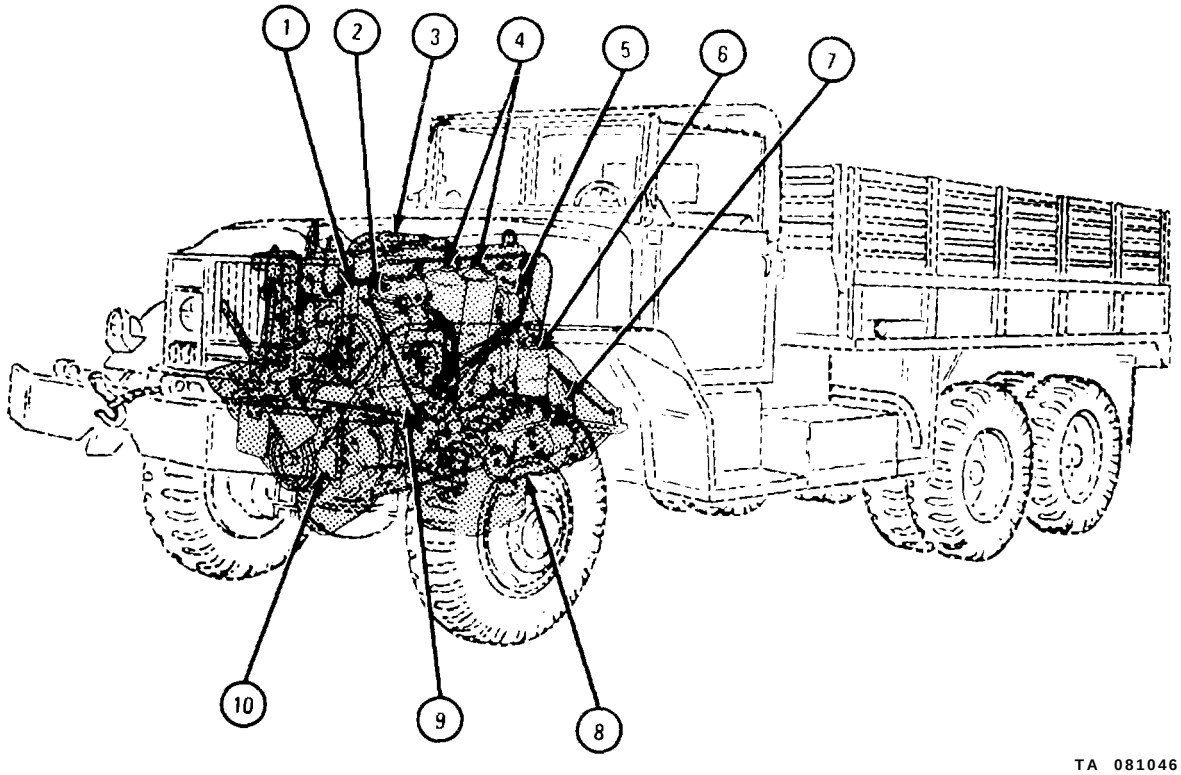
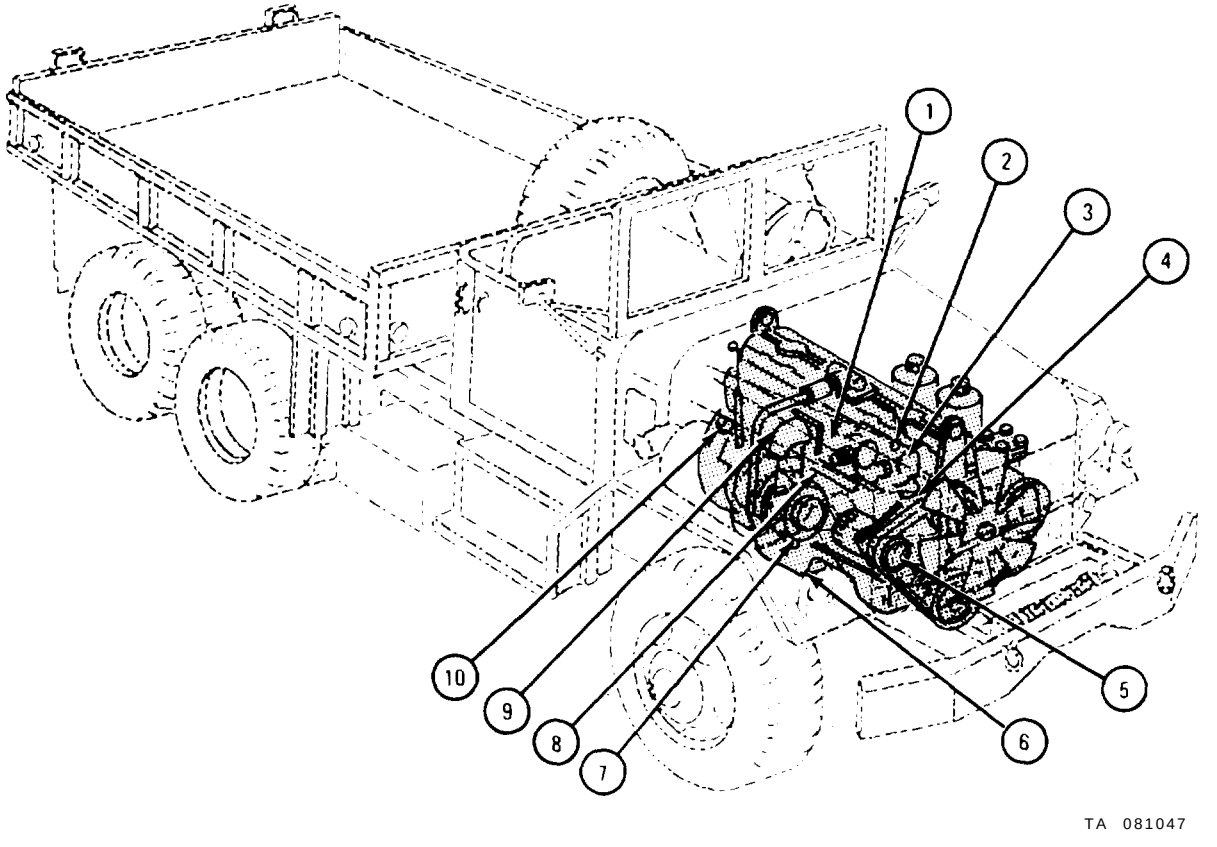


Figure 2-1. Overall Equipment Block Diagram.



1. Cylinder head
2. Air compressor
3. Oil filler cap
4. Oil filter
5. Oil cooler
6. Fuel filter
7. Flywheel housing
8. Starter
9. Crankcase
10. Hydraulic pump (steering system)

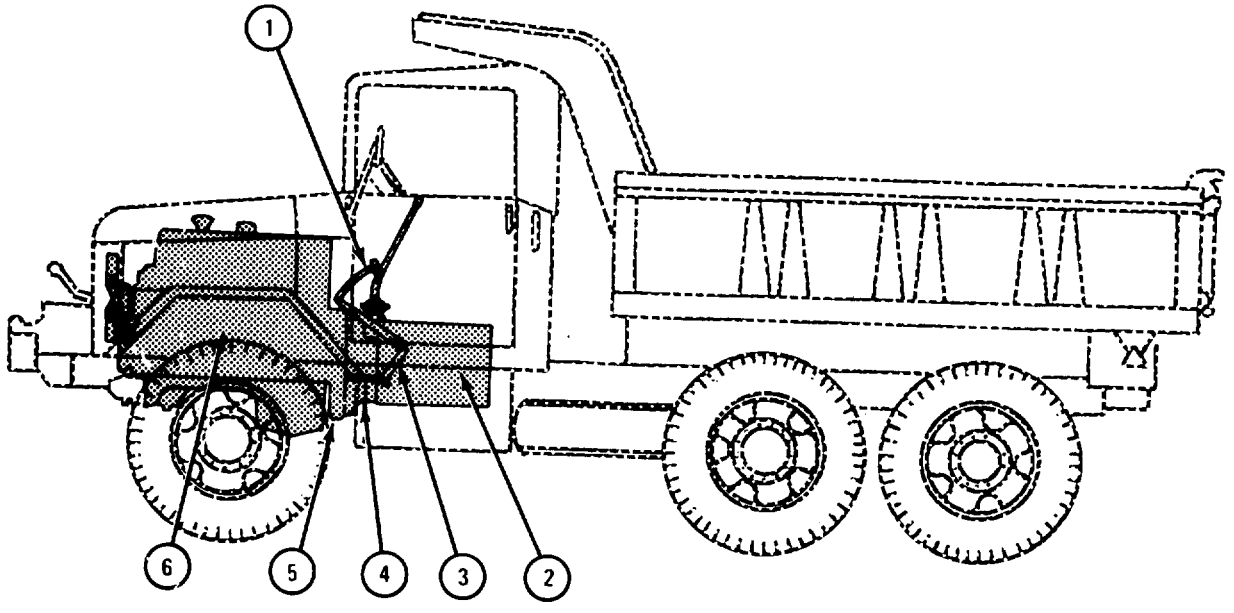
Figure 2-2. Engine Components Location (Left Side).



1. Intake manifold
2. Water temperature sending unit
3, Thermostat housing
4. Water pump
5. Generator
6. Oil pan
7. Turbocharger
8. Exhaust manifold
9, Manifold heater
10. Oil pressure sending unit

Figure 2-3. Engine Components Location (Right Side) .

b . Clutch. The clutch (fig. 2-4) is a single plate, dry disk type. The purpose of the clutch is to separate the engine from the transmission when shifting gears. The disk of the clutch is joined to the engine flywheel. A pressure plate is joined to the input shaft of the transmission. When the clutch pedal is up, the pressure plate is forced against the disk on the flywheel and turns with the flywheel. Pushing the clutch pedal down separates the transmission by separating the pressure plate from the disk. When the transmission is separated from the engine, the transmission gears can be shifted.

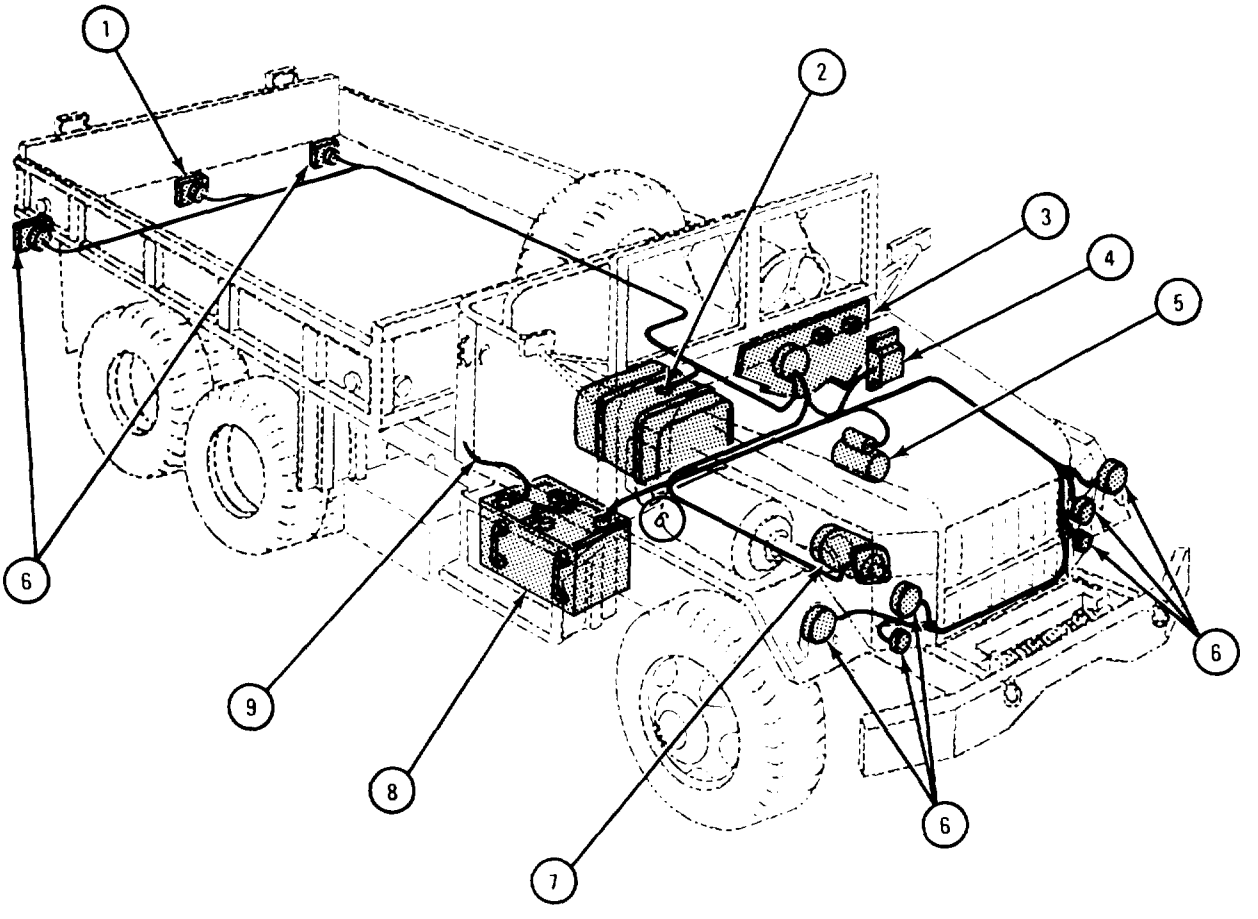


TA 081048

1. Clutch pedal
2. Transmission
3. Clutch linkage
4. Clutch
5. Flywheel housing
6. Engine

Figure 2-4. Clutch Components Location.

c. Electrical System. The electrical system (fig. 2-5) is a 24-volt dc negative ground system. Two 12-volt storage batteries are connected in series to provide 24 volts. The engine starter motor operates directly from the 24-volt source. The system uses a belt-driven, 24-volt generator. A battery generator indicator is found on the instrument panel. Wiring harnesses are used to carry current to operate equipment and accessories. Circuit breakers are included to protect circuits from overload.

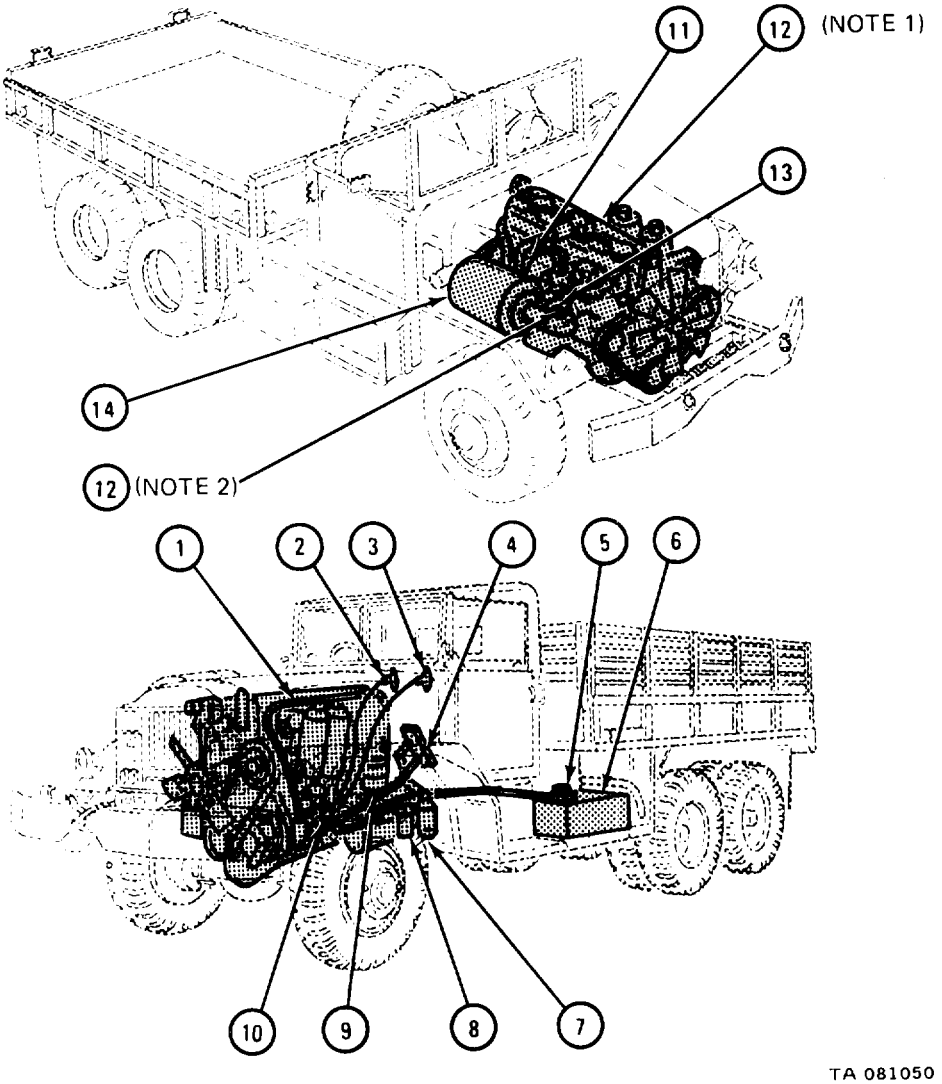


TA 081049

1. Trailer electrical coupling
2. Fuel level sending unit
3. Driver's cent rols and indicators
4. Regulator
5. Starter motor
6. Lights
7. Generator
8. Batteries
9. Battery ground strap

Figure 2-5. Electrical System Components Location.

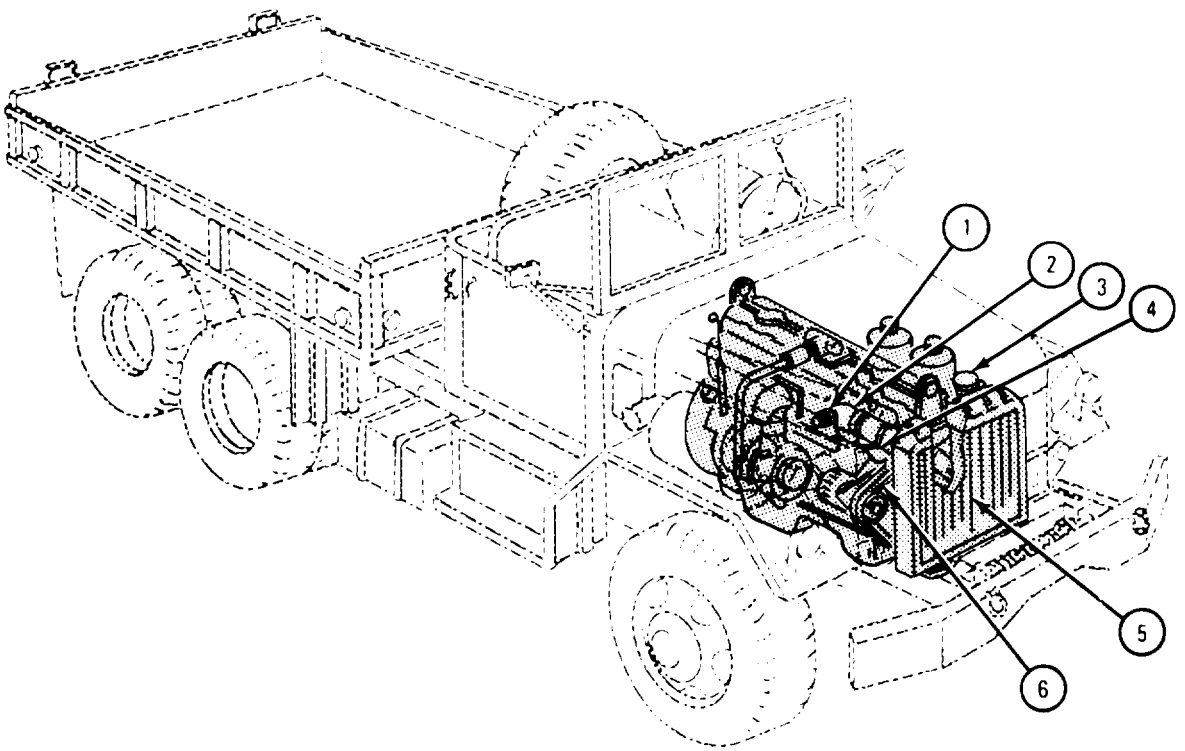
d. Fuel and Air Intake System. The fuel and air intake system (fig. 2-6) includes an intake manifold flame heater, air cleaner, fuel tanks, fuel supply pump, primary, secondary, and final fuel filters, injection pump, nozzle, fuel lines and fittings, accelerator pedal and linkage, engine stop, and hand throttle.



1. Fuel injector nozzles and holder
2. Engine stop control
3. Hand throttle
4. Accelerator pedal and linkage
5. Fuel supply pump
6. Fuel tank
7. Secondary fuel filter
8. Primary fuel filter
9. Final fuel filter
10. Injection pump
11. Intake manifold flame heater
12. Flame heater pump
    (Note 1: On late model trucks)
    (Note 2: On early model trucks)
13. Turbosupercharger
14. Air cleaner

Figure 2-6. Fuel and Air Intake System Components Location.

e. Cooling System. The cooling system (fig. 2-7) is a sealed-type system made up of the radiator, fan, drive belts, thermostat, water pump, temperature gage, and pressure filler cap.

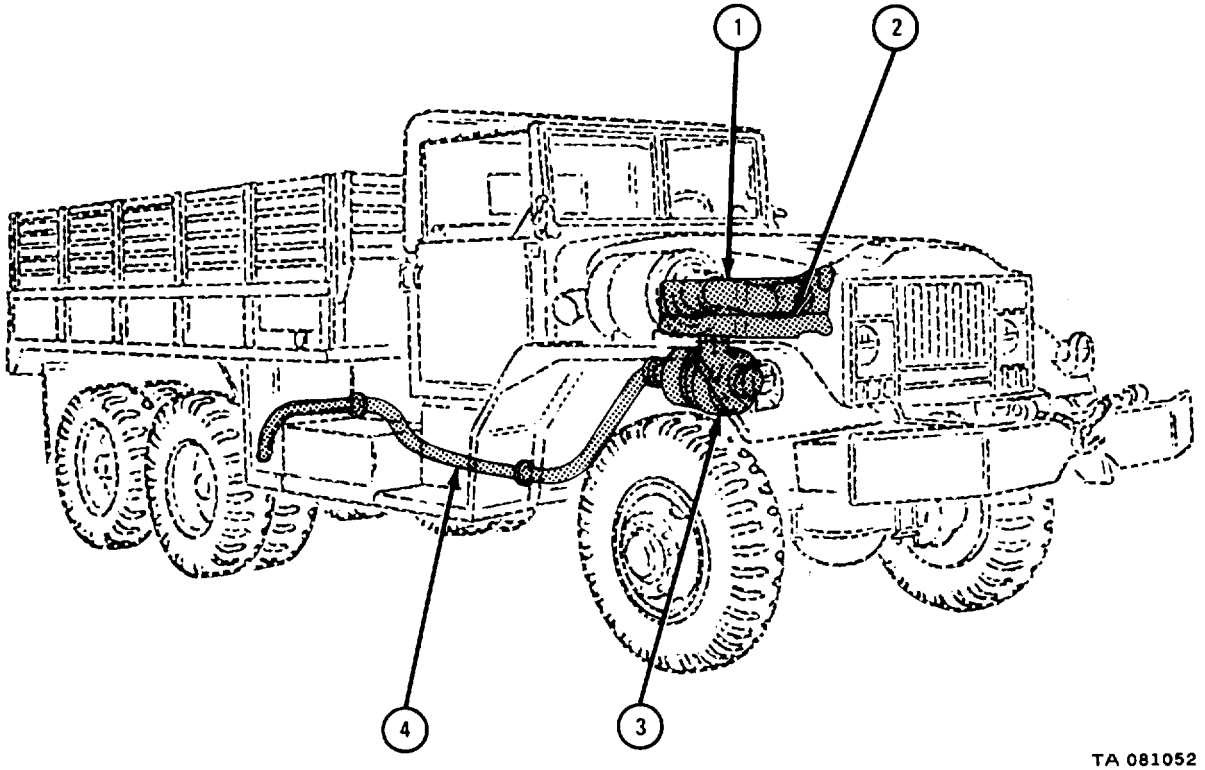


1. Water temperature sending unit
2. Thermostat housing
3. Pressure filler cap
4. Water pump drive belts
5. Radiator /shroud
6. Fan and drive belts

Figure 2-7. Cooling System Components Location.

f. Exhaust System. The exhaust gases of the engine pass from the exhaust manifold into the turbo- supercharger. The pressurized gases drive the turbo-charger and then pass into the exhaust pipe assembly.

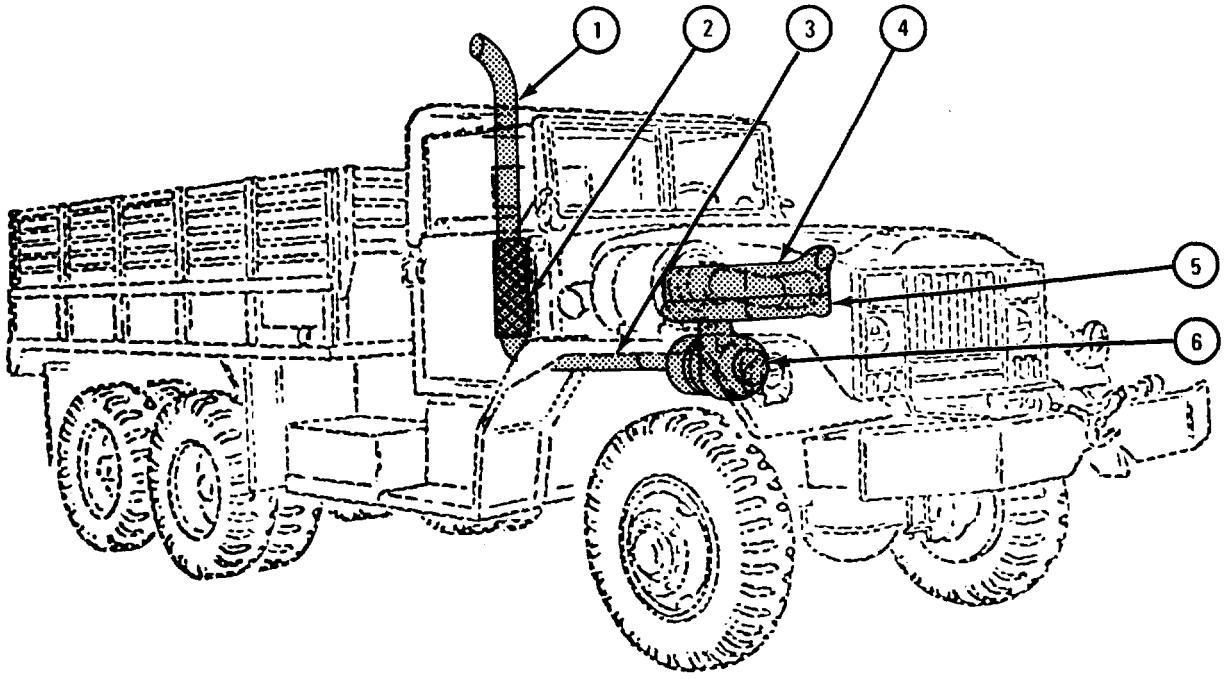
(1) Horizontal exhaust system. The horizontal exhaust system (fig. 2-8) consists of three sections and extends back along the right side of the truck to the outlet located in front of the right rear tandem wheels.



1. Air intake manifold
2. Exhaust manifold
3. Turbosupercharger
4. Exhaust piping

Figure 2-8. Horizontal Exhaust System Components Location.

(2) Vertical exhaust system. Vertical exhaust stack kits are installed on some of the trucks. The vertical exhaust system (fig. 2-9) consists of two sections of pipe with the vertical part mounted on th-e right side of the cab and extending above the cab top.



1. Exhaust pipe extension
2. Shield
3. Exhaust pipe
4. Air intake manifold
5. Exhaust manifold
6. Turbo supercharger

Figure 2-9. Vertical Exhaust System Components Location.

g. Transmission. The transmission (fig. 2-10) is a manually operated synchromesh type mounted on the rear of the engine. The transmission supplies one reverse and five forward speeds.

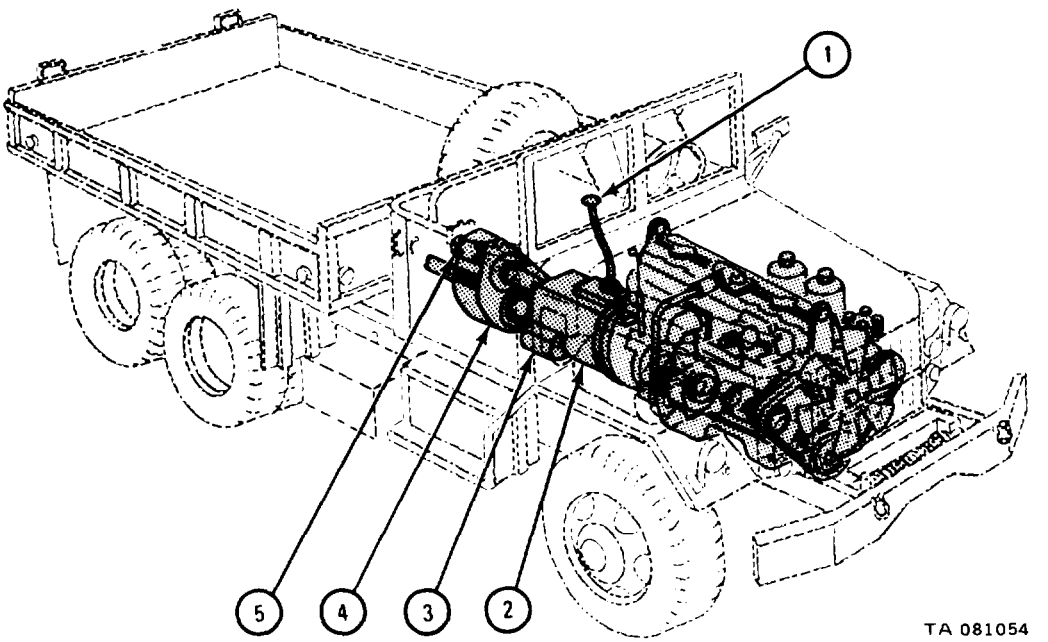
h. Transmission Power Takeoff (Fig. 2- 10) . All trucks, except dump trucks, have single ended transmission power takeoff units. The dump truck has a double-ended unit.

(1) Single-ended unit is a two-speed-and-reverse drive, mounted on the right side of the transmission. It is controlled by a shifting lever in the cab and supplies power to the front winch.

(2) Double-ended unit is mounted on the right side of the transmission. The forward output shaft is a two-speed-and-reverse drive to the front winch with shifting lever in the cab. The rear accessory drive shaft drives the hydraulic hoist pump on dump trucks and is controlled by the driver's dump body control lever in the cab.

i. Transfer. The transfer (fig. 2-10) is a two-speed synchromesh unit driven by the transmission through a propeller shaft. The transfer drives propeller shafts to the front and rear wheels. The handbrake drum is mounted on the transfer rear output companion shaft.

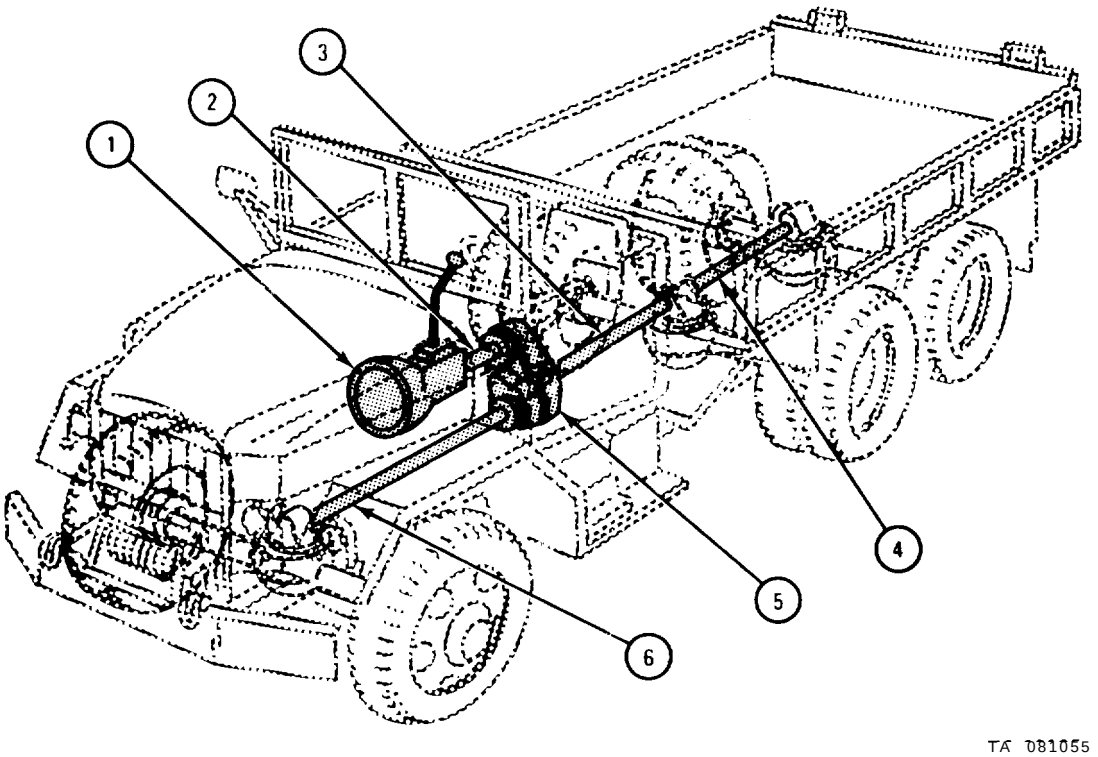
j. Transfer Power Takeoff. The transfer power takeoff (fig. 2-10) is attached to the rear of the transfer, and is controlled by a lever in the cab. The transfer supplies power to auxiliary equipment.



1. Front transmission gearshift lever
2. Transmission
3. Transmission power takeoff' (single-ended or double-ended)
4. Transfer
5. Transfer power takeoff

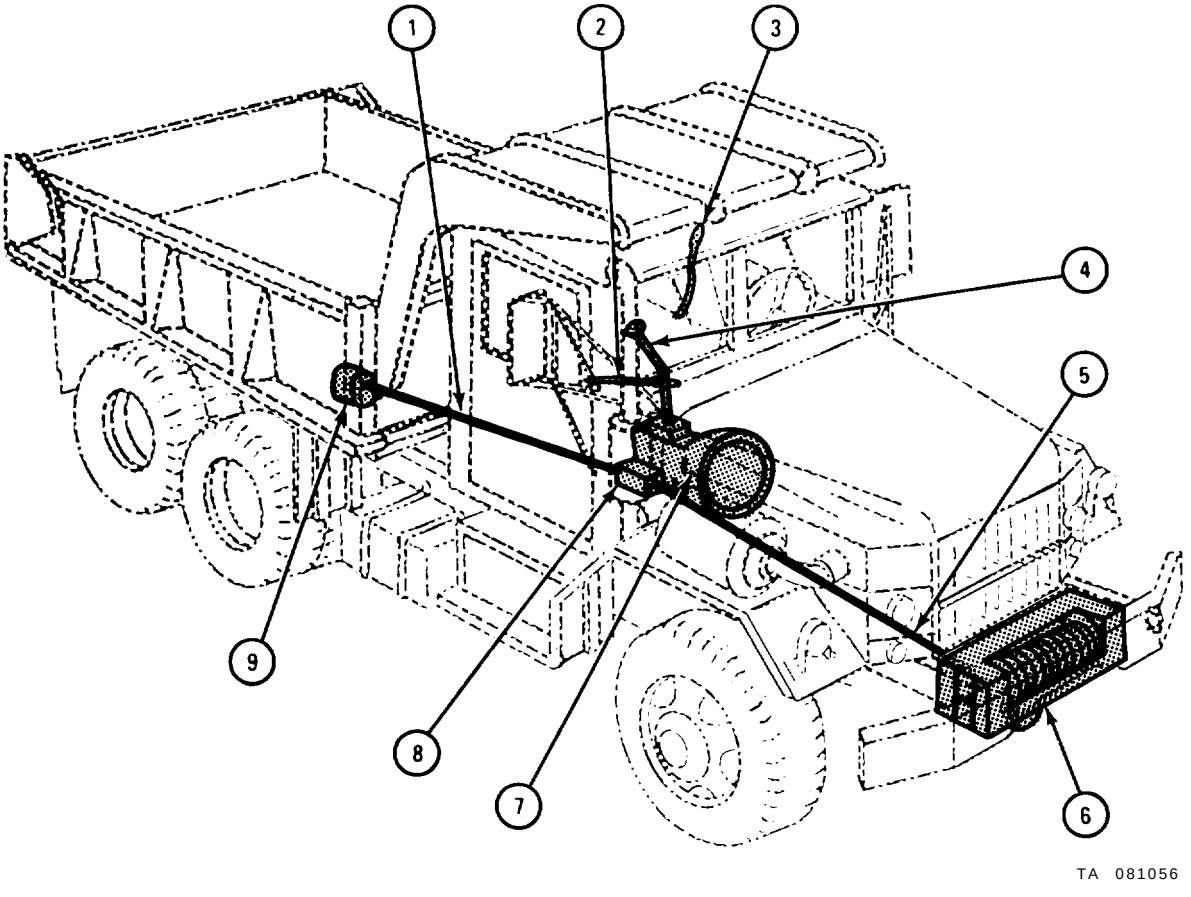
Figure 2-10. Transmission, Transfer and Power Takeoffs Components Location.

k. Propeller and Drive Shaft Systems. All propeller and drive shafts are double universal type. Axle driving propeller shafts are shown in fig. 2-11 and auxiliary equipment propeller shafts in fig. 2-12 and 2– 13.



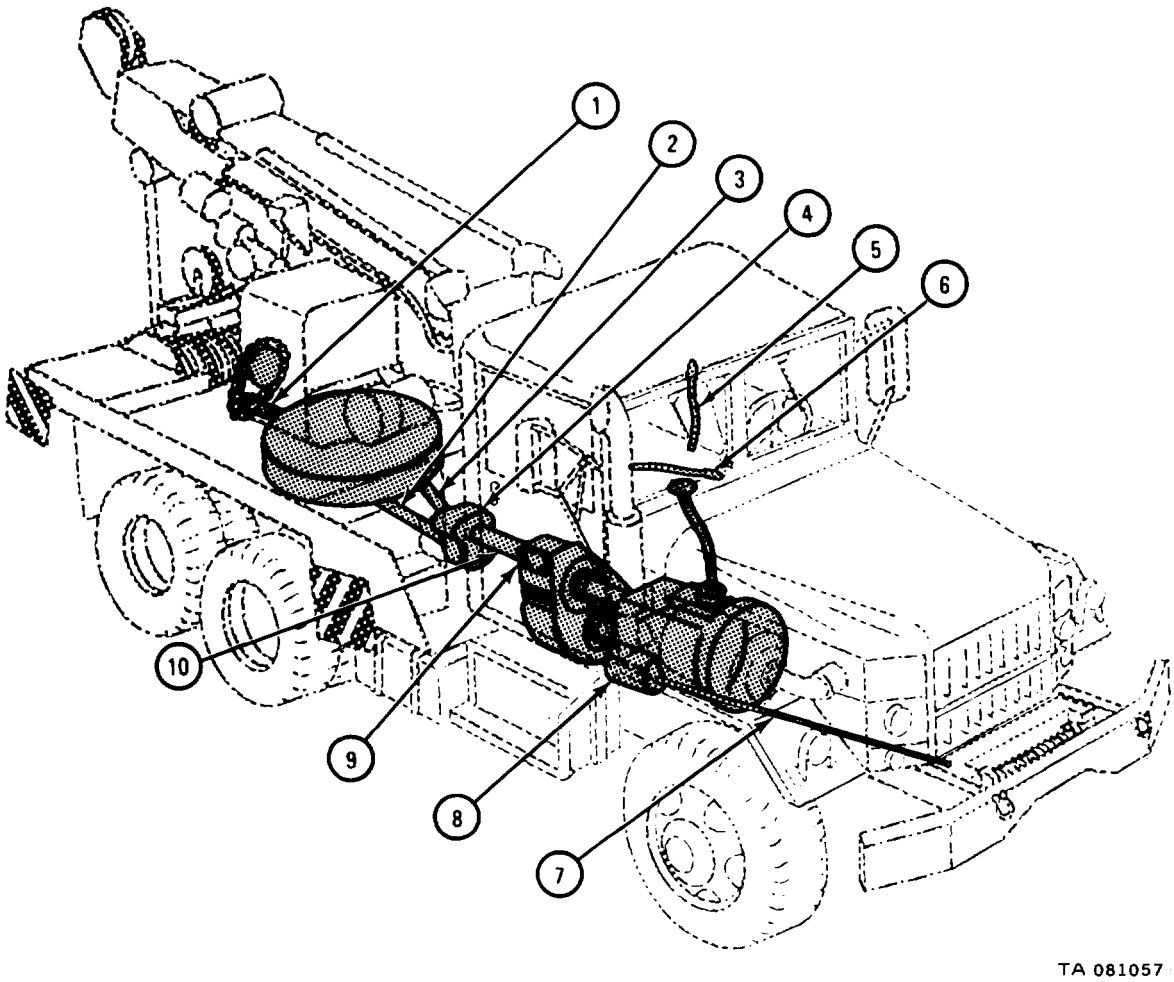
1. Transmission
2. Transmission-to-transfer propeller shaft
3. Transfer-to-forward-rear axle propeller shaft
4. Forward-rear-axle-to-rear-rear axle propeller shaft
5. Transfer
6. Transfer-to-front axle propeller shaft

Figure 2-11. Axle Driving Propeller Shafts Components Location.



1. Transmission power takeoff to hydraulic pump propeller shaft
2. Front winch control lever
3. Dump body control lever
4. Front transmission gearshift lever
5. Transmission power takeoff to front winch propeller shaft
6. Front winch
7. Transmission
8. Transmission power takeoff
9. Hydraulic pump

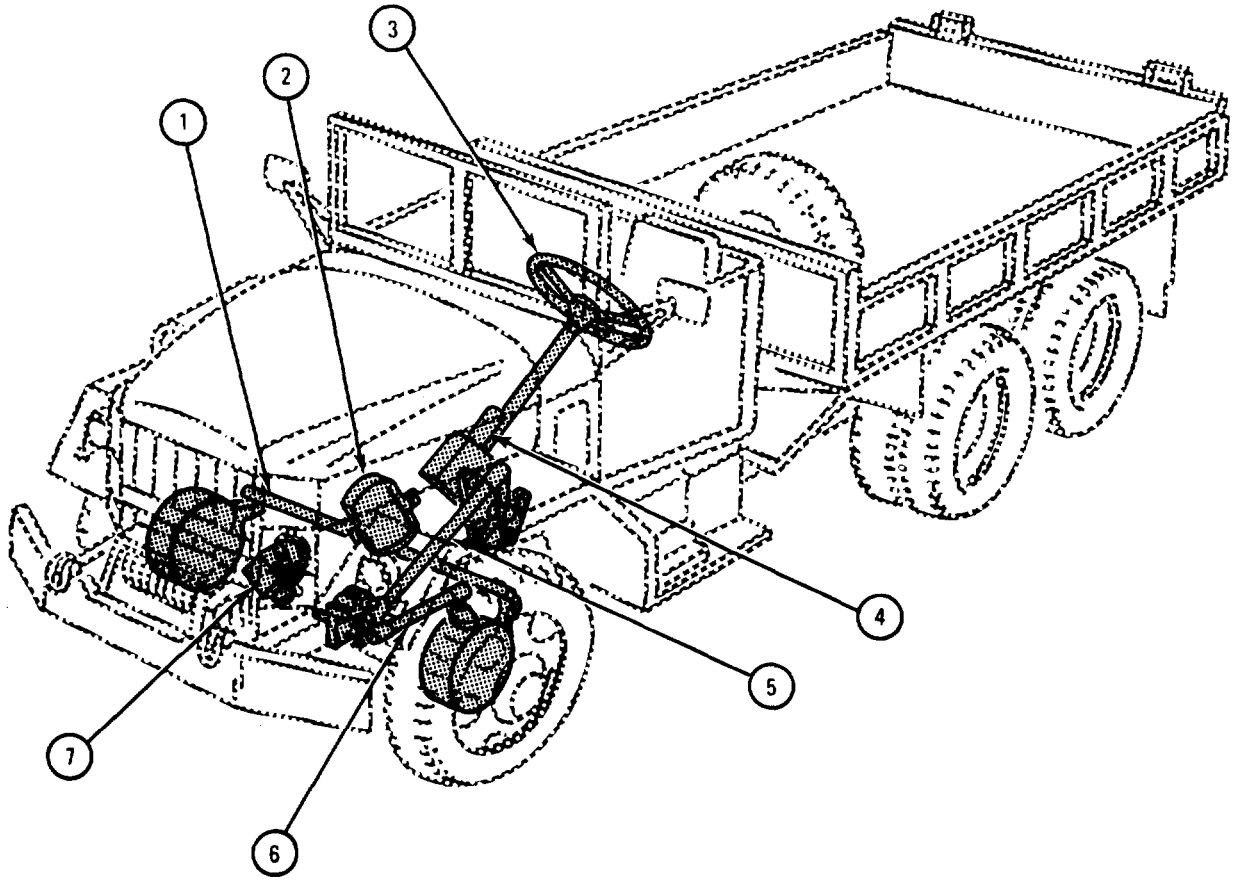
Figure 2-12. Auxiliary Equipment Propeller Shafts Components Location (M51A2) .



1. Pillow block-to-rear winch propeller shaft
2. Power divider-to-crane bevel gearcase propeller shaft
3. Power divider-to-rear pillow block propeller shaft
4. Power divider
5. Power divider control lever
6. Transfer case lever
7. Transmission power takeoff to front winch propeller shaft
8. Transmission power takeoff
9. Transfer power takeoff
10. Transfer takeoff-to-power divider propeller shaft

Figure 2-13. Auxiliary Equipment Propeller Shafts, Components Location (M543A2) .

1. Steering System. The steering system (fig. 2-14) consists of a hydraulically assisted steering gear with pitman arm , steering wheel, hydraulic oil reservoir, hydraulic pump and steering linkage. Turning motion applied to the steering wheel is sent through these components to steer the front wheels.



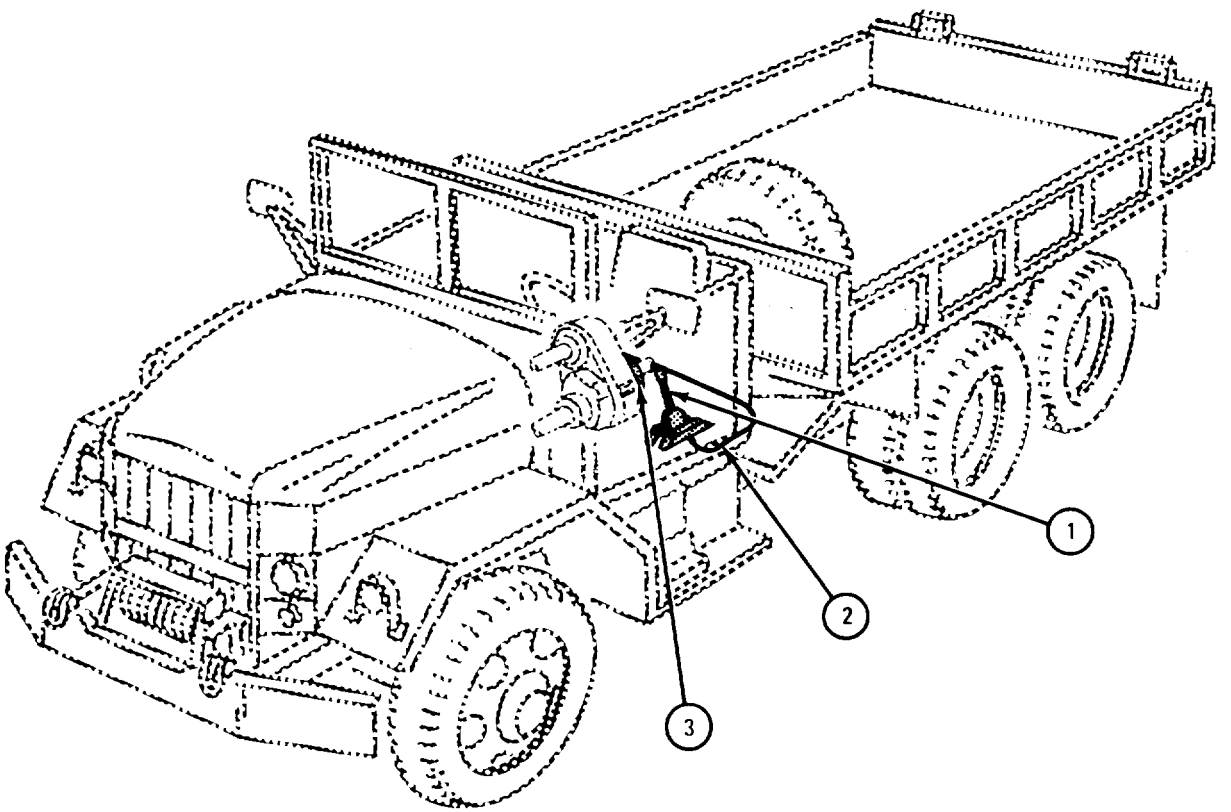
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1. Tie Rod
2. Hydraulic oil reservoir
3. Steering wheel
4. Steering gear housing with pitman arm and power cylinder
5. Upper drag link
6. Lower drag link
7. Hydraulic pump (on engine)

Figure 2-14. Steering System Components Location.

m. Brake System. The brake system (fig 2-15 through 2-18) includes the handbrake and the service brakes. The compressed air system is covered here since it is part of the brake system.

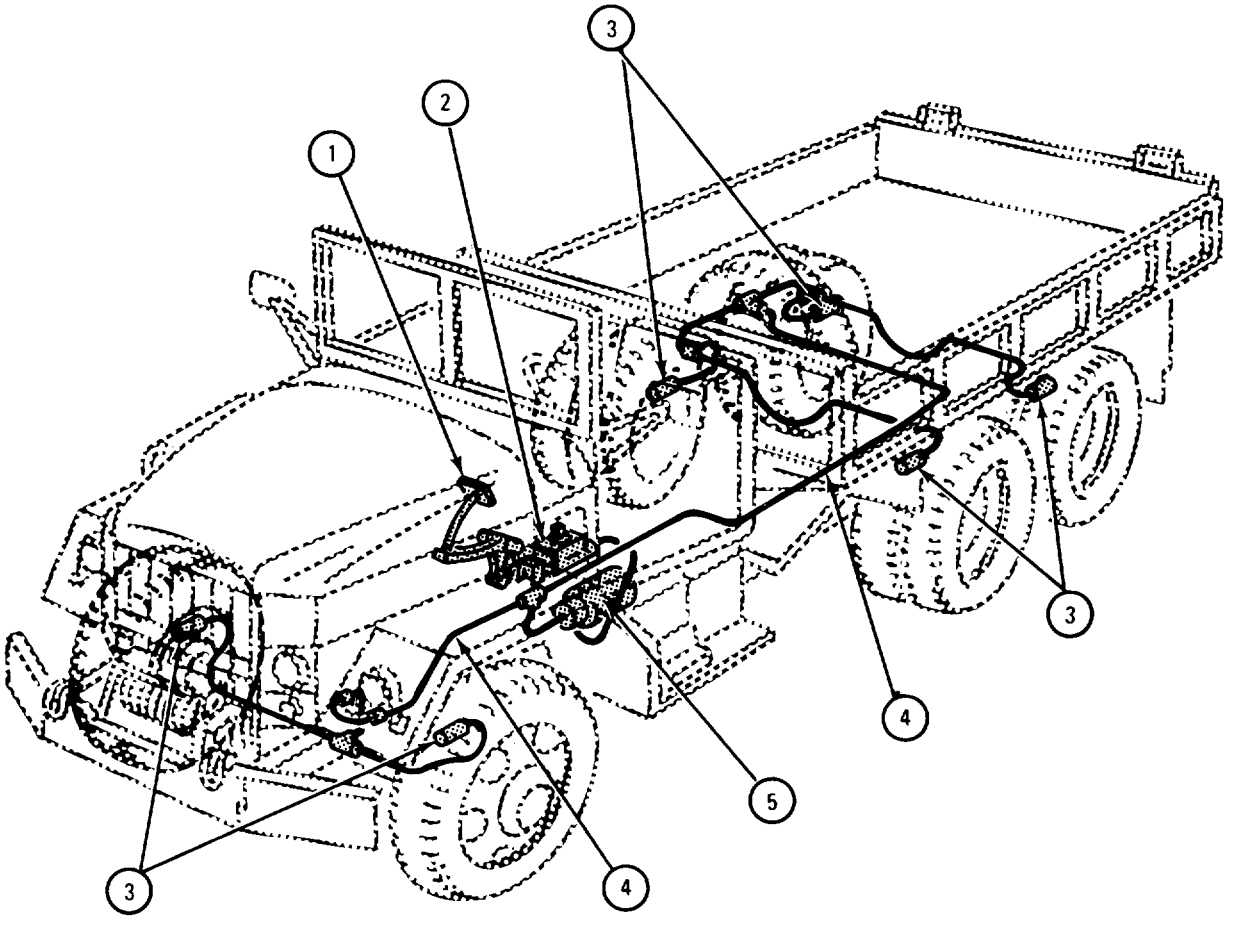
(1) The handbrake system (fig. 2-15) is made up of a handbrake lever and cable, a brakedrum and brake shoes. The drum and brakeshoes are mounted on the rear output shaft of the transfer. The handbrake lever is located inside the cab at the left of the drivers seat, When the handbrake lever is pulled up, the cable is tightened which makes the brakeshoes clamp the brakedrum and lock the rear output shaft. When the handbrake lever is pushed down, the brakeshoes let go and unlock the rear output shaft.



1. Handbrake lever
2. Handbrake cable
3. Handbrake brakeshoes and drum

Figure 2-15. Handbrake System Components Location.

(2) The service brake system is an air-hydraulic system made up of the foot brake pedal, pedal linkage, master cylinder, air-hydraulic cylinder, hydraulic lines to all wheels, wheel cylinders, brake drums, and shoes. The master cylinder contains hydraulic fluid. Pressure on the brake pedal is sent to the air-hydraulic cylinder. The air-hydraulic cylinder increases pressure to the wheel cylinders. The wheel cylinders expand and press the brakeshoes against the drum to slow or stop the truck. The system components are shown in fig. 2-16.

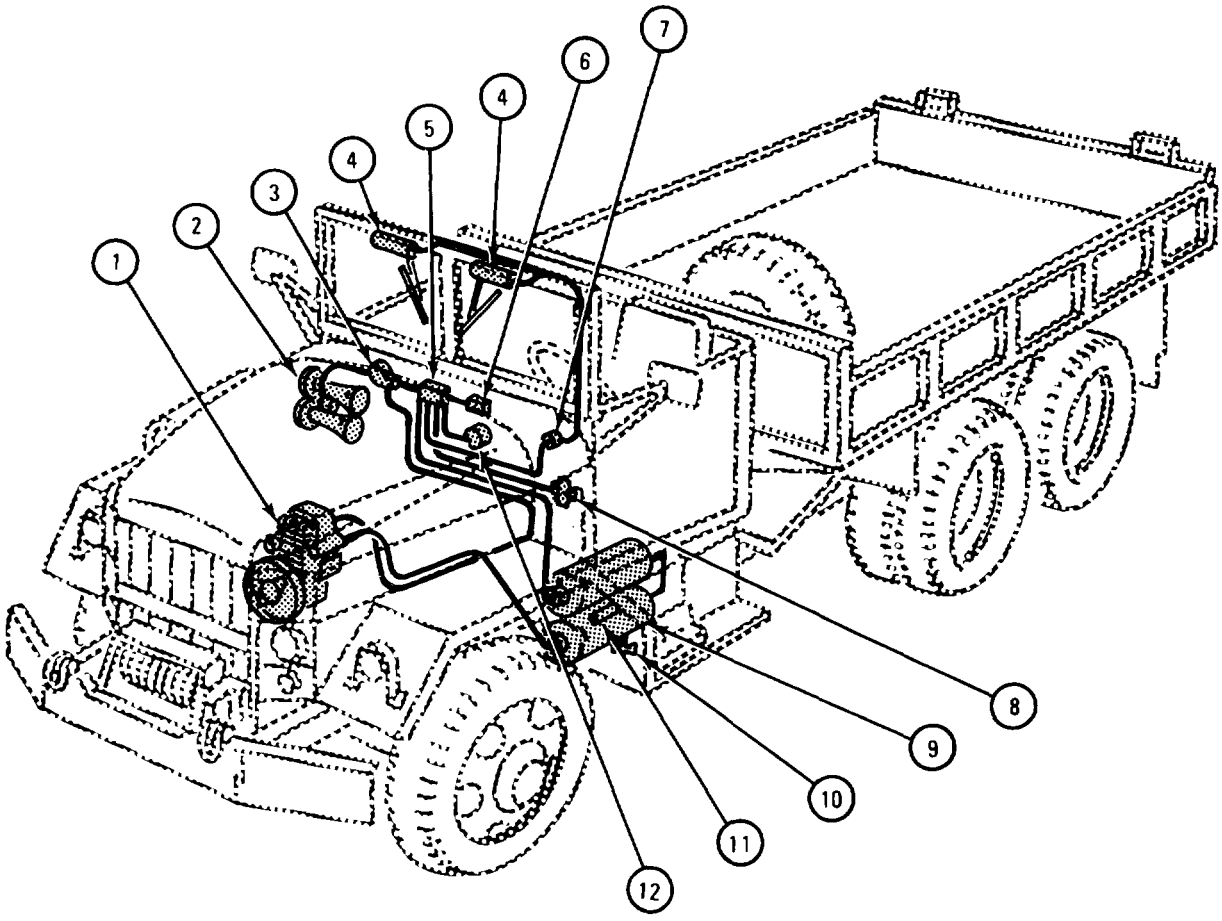


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1. Foot brake pedal
2. Master cylinder
3. Wheel cylinders
4. Hydraulic lines
5. Air-hydraulic brake cylinder

Figure 2-16. Service Brake System Components Location,

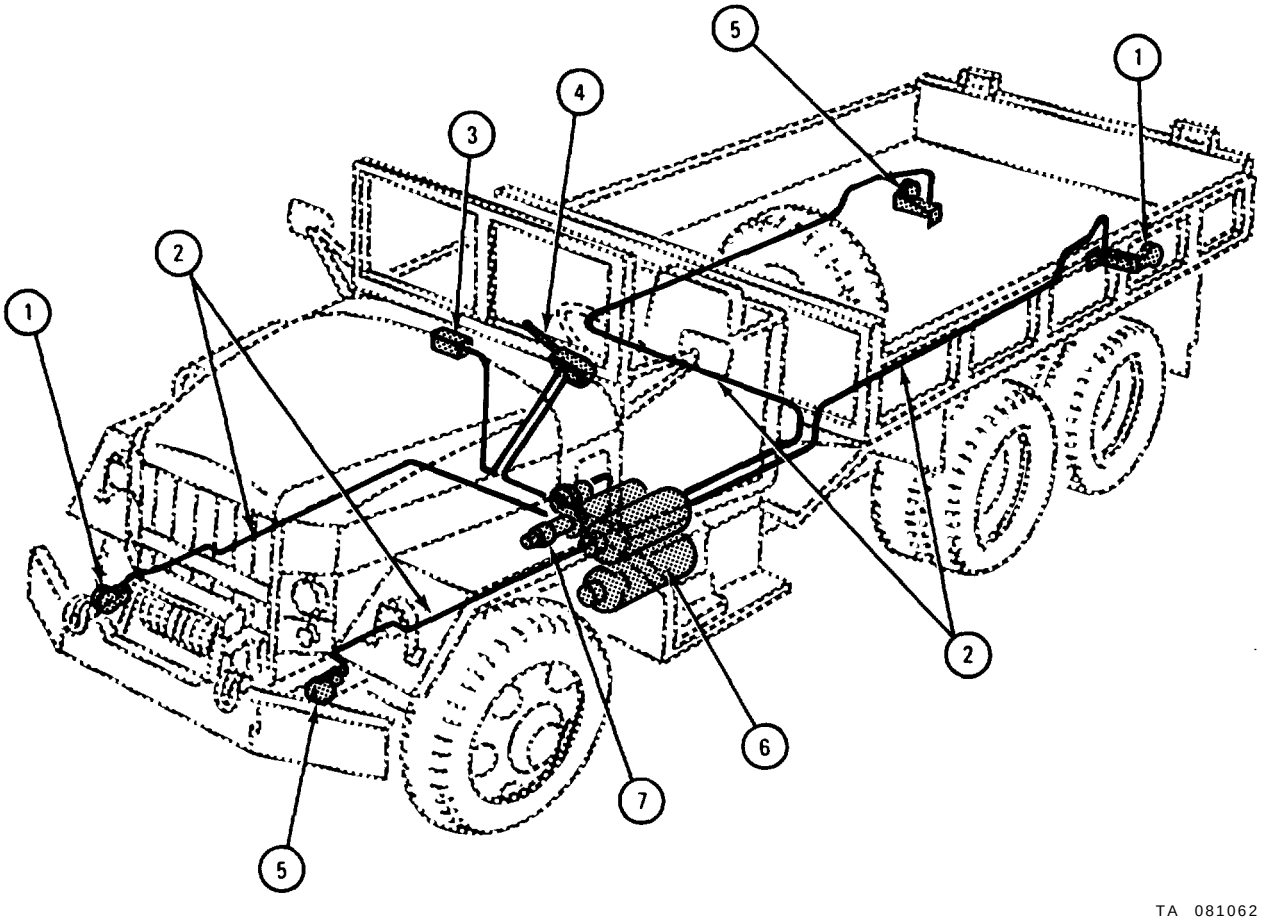
(3) The compressed air system (fig. 2-17 and 2-18) consists of an air compressor, air governor and air reservoirs, and the trailer airbrake components. The compressed air system supplies air to the air-hydraulic cylinder, windshield wiper motors, horn, and air supply valves. Air from the supply valves can be used to inflate the tires. When air pressure in the air reservoir tanks is low , a buzzer is set off in the driver's compartment to warn the driver.



1. Air compressor (on engine)
2. Horn
3. Air governor
4. Windshield wiper motors
5. Compressed air manifold
6. Low air pressure switch
7. Windshield wiper control
8. Air supply valve
9. Air reservoirs
10. Drain cock
11. Safety valve
12. Air pressure gage

Figure 2-17. Compressed Air System Components Location.

(4) The trailer airbrake system (fig. 2- 18) consists of the hand operated airbrake control lever, air-hydraulic cylinder, check valves, air lines, and trailer brake couplings.



1. Trailer brake coupling (SERVICE)
2. Compressed air lines
3. Compressed air manifold
4. Hand operated irbrake control lever
5. Trailer brake coupling (EMERGENCY)
6. Air reservoirs
7. Air hydraulic brake cylinder

Figure 2-18. Trailer Airbrake System Components Location.

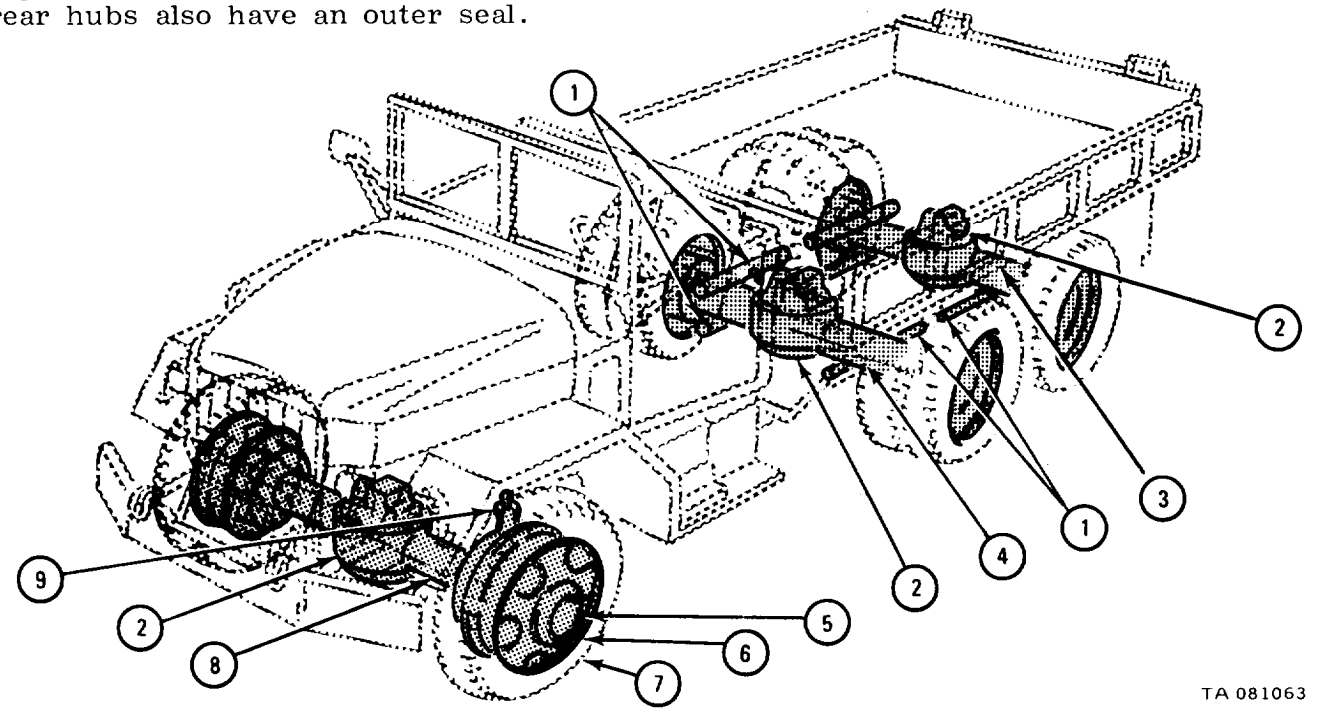
n. Axles, Wheels and Hubs (Fig. 2-19) .

(1) The front axle is made up of a housing, differential and carrier assembly, axle shaft, and universal joint. Power is sent from the differential to the wheels, through the axle shaft. Universal joints permit continuous delivery of power to the wheels while the truck is turning right or left.

(2) Both rear axles are made up of a housing, differential and carrier assembly, and an axle shaft. Forward-rear and rear-rear axles are mounted one behind the other. Torque rods send driving and braking forces to the frame. There are two sets of torque rods on the right and one on the left. Power is sent from the transfer to the front rear differential by a propeller shaft, and from the forward-rear axle to the rear-rear axle differential by another propeller shaft. Axle shafts send power from the differential to the wheels.

(3) The wheels are offset disk-type, fastened by capnuts to ten studs on the wheel hubs. They are equipped with snap-on type side rings for tire mounting. Tire size is 11 x 20. The capnuts can be changed between hubs on the same side, but not between hubs on opposite sides.

(4) The wheel hubs are mounted on roller bearings. Each hub is fastened to an axle with an inner bearing adjusting nut, bearing nut washer, and outer bearing nut washer, and outer bearing adjusting nut. All hubs have inner seals and rear hubs also have an outer seal.



1. Torque rods
2. Differential and carrier
3. Rear-rear axle
4. Front-rear axle
5. Hubs
6. Wheels
7. Tires
8. Front axle
9. Steering knuckle

Figure 2-19. Axles, Wheels and Hubs System Components Location.

Section III. TABULATED DATA

2-5. GENERAL. This section contains reference data, in table form, for use by the operator when using the equipment. Data is given for the following areas:

a. Physical data

b. Functional characteristics

c. Capabilities and limitations

d. Environmental characteristics

2-6. WEIGHT . Table 2-1 gives the weight of all trucks covered in this manual under various conditions.

2-7. DIMENSIONS . Tables 2-2 and 2-3 give overall and operating dimensions for all vehicles covered in this manual.

2-8. CAPACITIES . Table 2-4 gives the liquid capacities for various systems.

2-9. TIRE INFLATION DATA. Table 2-5 gives tire inflation data for all vehicles covered in this manual.

2-10. ENVIRONMENTAL CHARACTERISTICS. Table 2-6 lists the fuels that can be used in all vehicles, under various temperature conditions.

2-11. FUNCTIONAL CHARACTERISTICS. Table 2-7, 2-8, 2-9, and 2-10 give data relating to the functional characteristics of all trucks covered in this manual.

2-12. COMPONENTS OF END ITEM LIST. Integral components and basic issue items required for the 5-ton trucks are listed in appendix B .

2-13. ADDITIONAL AUTHORIZATION LIST. Additional items authorized for the support of the 5-ton trucks are listed in appendix C.

2-14. EXPENDABLE SUPPLIES AND MATERIALS LIST . Expendable supplies and materials needed to operate and maintain the 5-ton trucks are listed in appendix D .

Table 2-1. Weight (Pounds)

Truck Type	Net w /winch	Pay Load		Towed Load	
		High way	Cross-Country	High way	Cross-Country
M51A2	(a) 21986	20,000	10,000	(e) 30,000	(e) 15,000
M52A2	(a) 18560	(b) 25,000	(c) 15,000	(b) 55,000	(b) 30,000
M54A2	(a) 19480	20,000	10,000	(e) 30,000	(e) 15,000
M54A2C	(a) 19946	20,000	10,000	(e) 30,000	(e) 15,000
M55A2	(a) 20606	20,000	10,000	(e) 30,000	(e) 15,000
M543A2	34690	(d)	(d)	(e) 30,000	(e) 15,000

(a) Add 714 pounds for truck equipped with front winch.

(b) On fifth wheel.

(c) 15,000 lb load on fifth wheel for limited cross-country operation.

(d) See crane safe load plate.

(e) On pintle.

Table 2-2. Dimensions (Inches)

Truck Type	Overall Length w /winch	Overall Height	Overall Width	Ground Clearance
M51A2	281 5/8	110 5/8	97 1/4	10 1/2
M52A2	273	103 1/8	97	10 1/2
M54A2	314 1/4	116	97	10 1/2
M54A2C	314 1/4	116	97	10 1/2
M55A2	385 15/16	117 1/2	97 1/2	10 /2
M543A2	349	108 5/8	96 1/4	11

Subtract 15 1/2 inches fro length for truck not equipped with forward winch.

Table 2-3. Operating Dimensions

Truck Type	Wheelbase (inches)	Turning Radius	
		W /Winch	Wo /Winch
M51A2	167	39 ft 3 in.	38 ft 9 in.
M52A2	167	39 ft 3 in.	38 ft 9 in.
M54A2	179	41 ft 7 in.	41 ft 1 in.
M54A2C	179	41 ft 7 in.	41 ft 1 in.
M55A2	215	46 ft 6 in.	46 ft
M543A2	179	46 ft 8 in.	

Table 2-4. Capacities

Description	Capacity	Truck (s)
Cooling system	44 qt	All trucks
Crankcase	18 qt	All trucks
Oil filter (each)	2 qt	All trucks
Differentials (each)	12 qt	All trucks
Fuel tank	78 gal	M54A2, M54A2C , M55A2
Fuel tank	110 gal	M51A2, M52A2 (2 tanks)
Fuel tank	133 gal	M543A2 (2 tanks)
Transmission w/o PTO	9 qt	All trucks
Transfer	5 1/4 qt	All trucks
Front winch	2.6 qt	All trucks
Rear winch	3 qt	M543A2

Table 2-5, Tire Inflation Data

Condition	Pressure (psi)
Highway	70
Cross-country	35
Mud, snow , and sand	25

Table 2-6. Permissible Fuels

Ambient Temperature	Fuel
	Primary Fuels
No Limit	Diesel fuel, VV-F-800, grade DF-A (NATO code no. F-54)
Above - 51°F	Turbine fuel, MIL-T-5624, grade JP-5 (NATO code no. F- 44)
Above - 10°F	Diesel fuel, VV-F-800, grade DF-1 (NATO code no. F-54)
Above +32°F	Diesel fuel, VV-F-800, grade DF-2 (NATO code no F-54)
	Alternate Fuels
Above -76°F	Aviation gasoline, MIL-G-5572, AVGAS 80/87 (NATO code no. F-12)
*	Commercial aviation gasoline (ASTM D910) , grade 80/87
*	Commercial gasoline, leaded, low-lead, or unleaded, when research octane number (RON) is 89 or below, or Octane Number display on retail gasoline pumps in CONUS is 85 or below
Above -58°F	Turbine fuel, aviation, kerosene-type, MIL-T-83133, grade JP-8 (NATO code no. F-34)
Above -46°F	Turbine fuel, low volatility, MIL-T-38219, grade JP-7
*	Commercial aviation turbine fuel (ASTM D1655) , jet A and jet A-1

*Any temperature at which the fuel will flow.

CAUTION

Other fuels may be used to run multifuel engines. If engine runs rough when using a new fuel, add 10% to 30% diesel fuel to smooth engine performance. Failure to add diesel fuel to smooth engine performance will result in burned pistons.

Table 2-6. Permissible Fuels - Cent

Ambient Temperature	Fuel
	Alternate Fuels
Above -10°F	Commercial diesel fuel (ASTM D975) 1-D and no. 1
Above +15°F	Diesel fuel, MIL-F-16884 (NATO code no. F-75 or F-76)
Above +32°F	Commercial diesel fuel (ASTM D975) , 2-D and no. 2
Above +40°F	Distillate fuel, MIL-F-24397, ND (NATO code no. F-85)
*	Any mixture of primary and/or alternate fuels listed above

*Any temperature at which the fuel will flow.

CAUTION

Other fuels may be used to run multifuel engines, If engine runs rough when using a new fuel, add 10% to 30% diesel fuel to smooth engine performance. Failure to add diesel fuel to smooth engine performance will result in burned pistons.

Table 2-7. Performance Data

Model	Maximum Speed (mph)	Maximum Grade (%)	Cruising Range (miles) Diesel	Cruising Range (miles) Gasoline	Idle Speed (rpm)	Engine Operating Temperature
M54A2	54	60	350	290	650-700	160°-180°F
M54A2 w/ towed load	54	47	–		650-700	160°-180°F
M54A2C	54	60	350	290	650-700	160°-180°F
M54A2C w/ towed load	54	47	–	–	650-700	160°-180°F
M55A2	54	60	350	290	650-700	160°-180°F
M55A2 w/ towed load	54	47	–	–	650-700	160°-180°F
M51A2	54	60	477	395	650-700	160°-180°F
M51A2 w/ towed load	54	47	–	–	650-700	160°-180°F
M52A2	54	60	477	395	650-700	160°-180°F
M52A2 w/ towed load	54	47	–	–	650-700	160°-180°F
M543A2	52	61	583	484	650-700	160°-180°F

Fuel consumption (approx)	5 mpg
Fording depth:	
With fording kit	78 in.
Without fording kit	30 in.

Table 2-8. Shifting Speeds in Mph

Transmission	Transfer Low	Transfer High
1st gear	3 1/2	7
2nd gear	6	13
3rd gear	10	21
4th gear	18	35
5th gear	26	53
Reverse	3 1/2	7

Table 2-9. Engine and Radiator Data

Attribute	Specification
Make	Continental
Model	LDS-465-1, LDS-465-1A
Cylinders (in-line)	6
Brake horsepower	175-180 (gross at 2,600 rpm)
Ignition system	Compression
Firing order	1-5- 3-6-2-4
Cooling	Liquid
Thermostat opens	180°F

Table 2-10. Winch Data

Front winch capacity (max) (all models)	20,000 lb
Cable length (M543A2)	280 ft
Cable length (all other models)	200 ft
M543A2 rear winch capacity (max)	45,000 lb
Cable length	280 ft
M543A2 boom hoist winch cable length	95 ft, 5 in.

CHAPTER 3

SERVICE UPON RECEIPT OF EQUIPMENT

3-1. GENERAL. When a new , used or reconditioned truck is first received by the using organization, it is the responsibility of the using organization to see that the truck has been inspected and prepared for service by the supporting service unit. This will be shown on DA Forms 2408-5, 2408-6, 2408-7 and 2408-8, which are a record of all services and corrective maintenance. If not done before, the following services must be done before placing the truck into service:

a. Oil and grease the truck in accordance with lubrication order LO 9-2320-211-12, regardless of interval, except for gearcases and engine crankcase.

b. Check the processing tab for gearcase and engine oil. If the tag shows that the engine oil is good for 500 miles of operation, and is the proper grade for the local climate, check the oil level but do not change the oil.

c. Plan for a second preventive maintenance service on DD Form 314 Preventive Maintenance Schedule and Record, and arrange for an oil change at 500 miles.

d. Services to be done by organizational maintenance personnel when trucks are received are designated in TM 9-2320-211-20. Whenever possible the operator will help organizational maintenance personnel in doing these services.

3-2. BREAK-IN OPERATION.

a. General. Before starting the truck, the operator must become familiar with the truck controls and operation as given in chapter 4.

b. Break-in. When break-in of a new or rebuilt truck is done in normal service, the operator is cautioned to take special care in doing all before operation checks and inspections given in preventive maintenance checks and services , volume 2, chapter 1, of this manual. The following precautions must be taken during break in:

(1) Do not go above the speed shown on the truck instruction and data plate found on the instrument panel directly in front of the driver.

(2) Pick the best gear selection for the driving conditions. Do not skip speeds when shifting gears .

(3) Avoid fast starts and stops.

(4) Avoid sudden stops (unless in an emergency) .

(5) Avoid long runs under other than normal weather, and on rough terrain.

(6) Avoid sudden forced movement of an operating control.

(7) Avoid overheating the engine.

(8) Avoid operating the engine or the power train at full speed.

c. Road Test.

CAUTION

Do not go faster than the maximum allowable speeds shown on the MAXIMUM ROAD SPEED data plate. Refer to paragraph 4-6 d. Do not drive continuously at the maximum allowable speeds. Be alert for signs of equipment failure.

All trucks received by the using organization must be road tested to check operation and condition. For all new or reconditioned trucks, except those driven 50 miles or more during deliver, the road test will be a minimum of 50 miles. For used trucks and trucks driven 50 miles or more during delivery, the road test will be long enough to see vehicle operation and condition. The operator will look at the instrument panel and gages, as often as possible, for signs of unsatisfactory performance. Stops will be made at least every 10 miles to give the operator a chance to check the truck for possible coolant, oil, fuel or exhaust leaks and any signs that may show the engine, transmission, wheel hubs , brakedrums , axle differential or transfer assemblies are overheated. The truck must be checked thoroughly for any control hard to operate and any instrument not operating properly. Unusual noises and vibrations will be noted. All unusual conditions will be told to the organizational maintenance unit.

d. After the Road Test. After the road test, fix any faulty condition which can be done at operator's maintenance level. Tell the organizational maintenance unit about any other faulty conditions.

CHAPTER 4

OPERATING PROCEDURES

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

4-1. GENERAL. Before trying to operate equipment, be sure you know where all controls and indicators are found, what each control does, and what information each indicator is giving.

NOTE

Controls and indicators described in this section are generally the same for all trucks covered in this manual, except where noted.

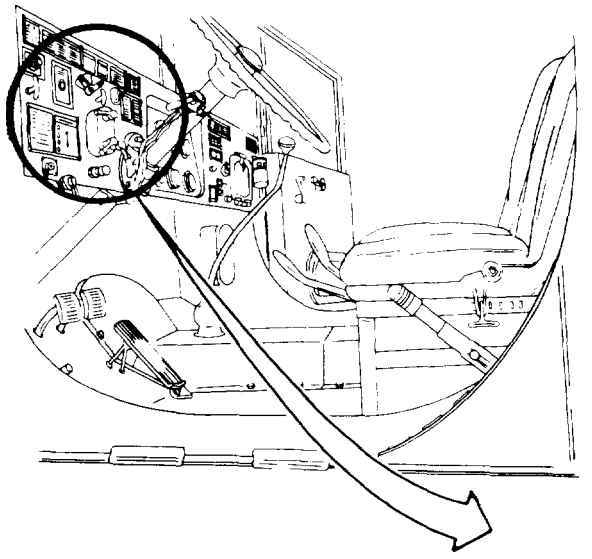
In this manual the term "left" is the driver's side. The term "right" is the opposite side.

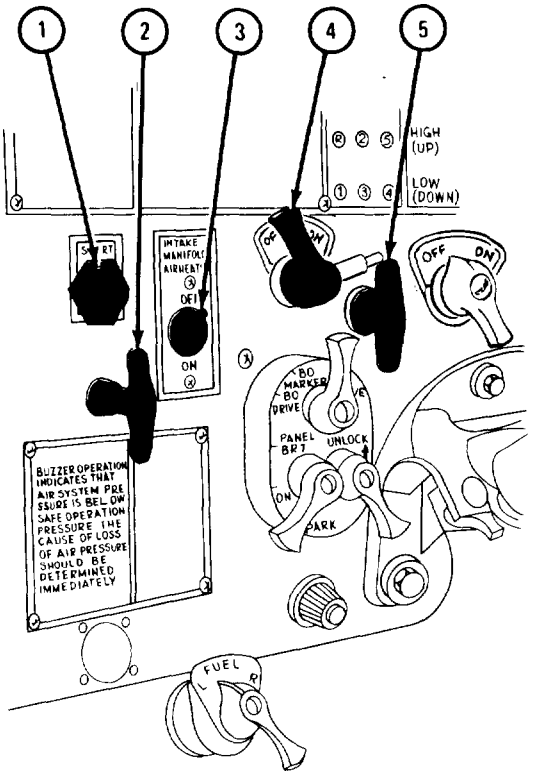
4-2. CHASSIS CONTROLS AND INDICATORS.

a. Instrument Panel.

INSTRUMENT PANEL LEFT SIDE

1. START button. When pressed, electric current is sent to starter to crank engine.
2. THROTTLE control. Lets you set engine to any speed without stepping on accelerator pedal. When THROTTLE control is pulled out, it locks in any engine speed position. Turning control right or left unlocks it.
3. INTAKE MANIFOLD AIRHEATER switch. When held in ON position, turns intake manifold airheater on. Used for starting engine when temperature is below +20°F.
4. BATTERY switch. When set to ON position, power is sent to all electrical circuits except the horn, lights, and intake manifold airheater.
5. ENG. STOP control. When pulled out, stops engine by cutting off fuel to engine.



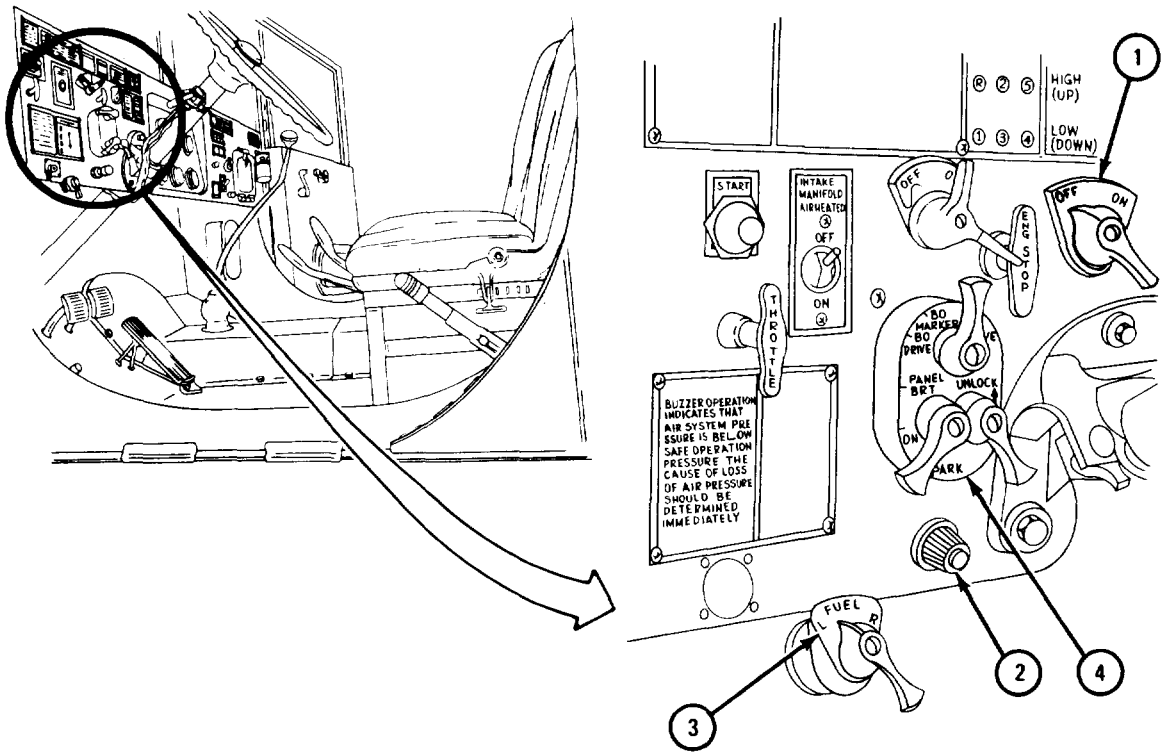


TA 053801

a. Instrument Panel - Cent,

INSTRUMENT PANEL LEFT SIDE - CONT

1. WARNING light switch (on wrecker trucks). When set to ON position, a warning light on left front fender is lit. Used for towing and crane operations.
1. FUEL tank selector switch (on dual fuel tank trucks except wreckers) . When switch is set to L position, fuel gage will show the amount of fuel in the left fuel tank. When set to R position, fuel gage will show the amount of fuel in right fuel tank.
2. Windshield wiper control knob. When turned to the right, starts wipers and makes wipers go faster. When turned to the left, slows down wiper speed and stops wiper.
3. FUEL tank selector switch (on wrecker trucks). Works in same way as FUEL tank selector switch (1) .
4. Vehicle lights switch. Used to turn truck lights on or off.

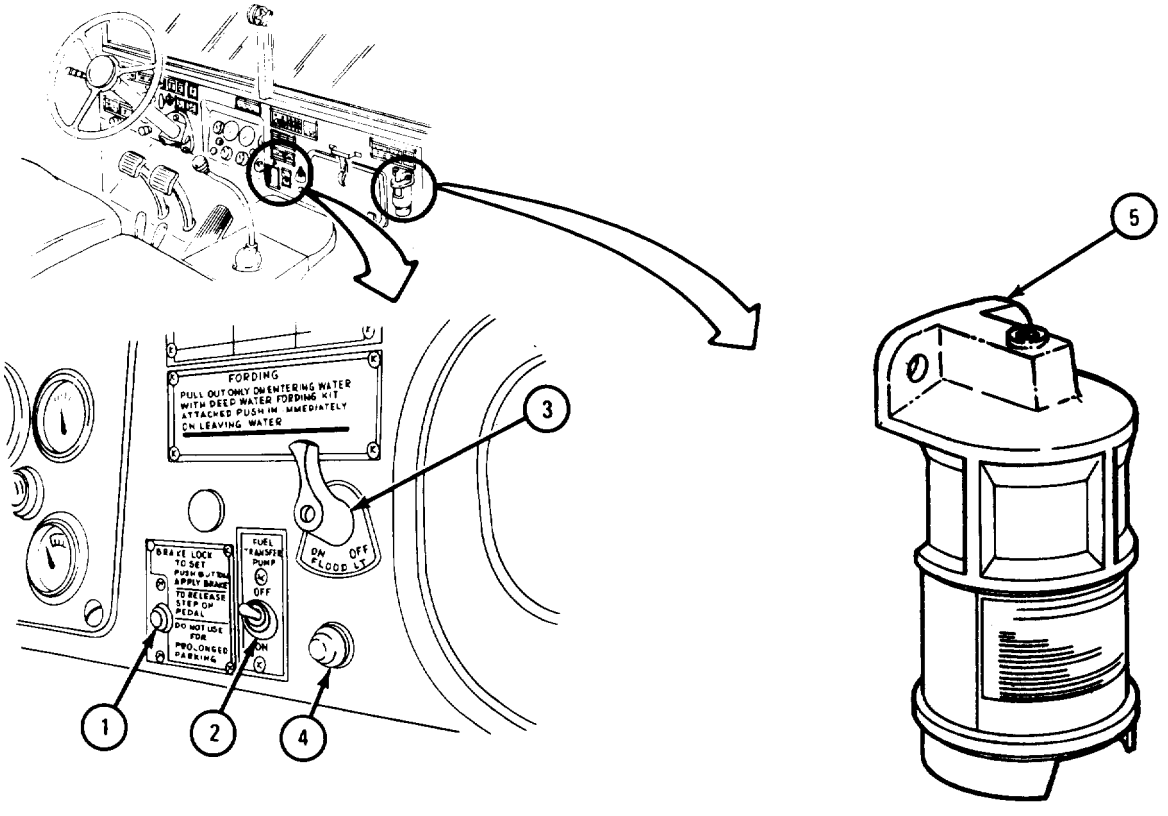


TA 053802

a. Instrument Panel - Cent.

INSTRUMENT PANEL RIGHT SIDE

1. Electric BRAKE LOCK button (on wrecker trucks) . When pressed in at the same time the service brake pedal is pressed, service brakes will lock in hold position. Service brakes become unlocked if service brake pedal is pressed without pressing electric BRAKE LOCK button.
2. FUEL TRANSFER PUMP switch (on dual fuel tank trucks) . When set to ON position, fuel is pumped from reserve tank to main tank. Switch must be kept in OFF position when not in use.
3. FLOOD LT (floodlight) master control switch (on wrecker trucks) When set to ON position, sends electric power to each of three floodlight toggle switches.
4. Fuel transfer pump green indicator light (on trucks with dual fuel tanks) . Is lit when FUEL TRANSFER PUMP switch is turned to ON position.
5. Air restriction indicator. When red band shows in window, engine air filter needs servicing.

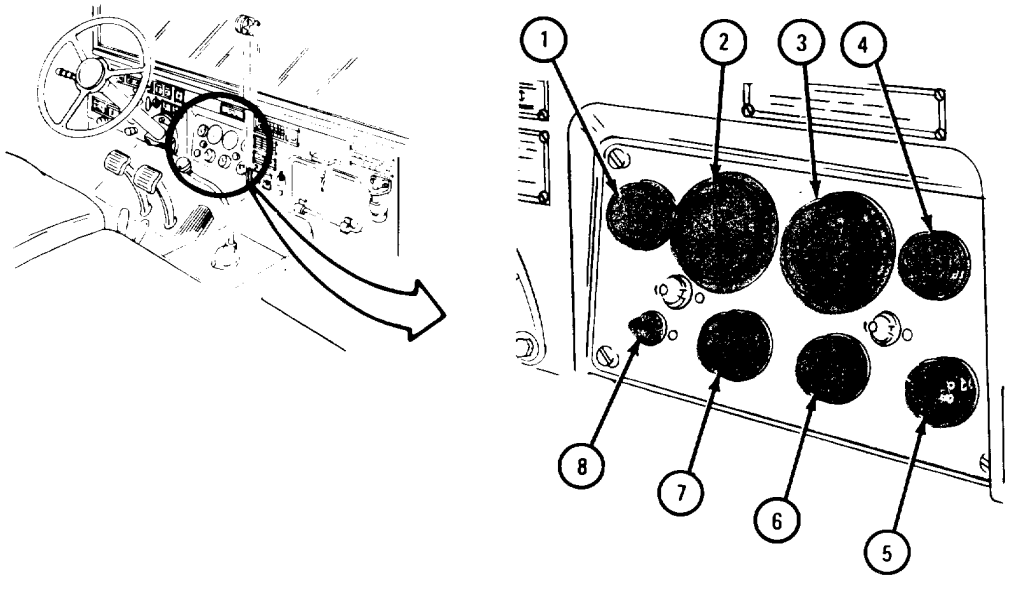


TA 053803

a. Instrument panel controls and Indicators - Cont.

INSTRUMENT PANEL CENTER SECTION
(All trucks except some later model M52A2 tractor trucks)

1. Fuel gage. Shows fuel level in fuel tank(s) .
2. Speedometer-odometer. Speedometer shows truck roadspeed from 0 to 60 miles per hour (mph). Odometer shows total mileage truck has traveled.
3. Tachometer-total engine time meter. Tachometer shows engine speed from 0 to 4000 revolutions per minute (rpm) . Total engine time meter gives total hours engine has run.
4. Water temperature gage. Shows temperature of engine coolant from 120° to 240°F.
5. Battery-generator indicator. When needle stays in green area, it shows batteries and charging system are normal. When needle is in yellow or left red area, it means low battery voltage. When needle is in right red area, it means charging system is overcharging.
6. Air pressure gage. Shows pressure in the compressed air reservoir tanks from 0 to 120 pounds per square inch (psi).
7. Oil pressure gage. Shows engine oil pressure from 0 to 60 psi.
8. High beam indicator. Is lit when headlights are on high beam.

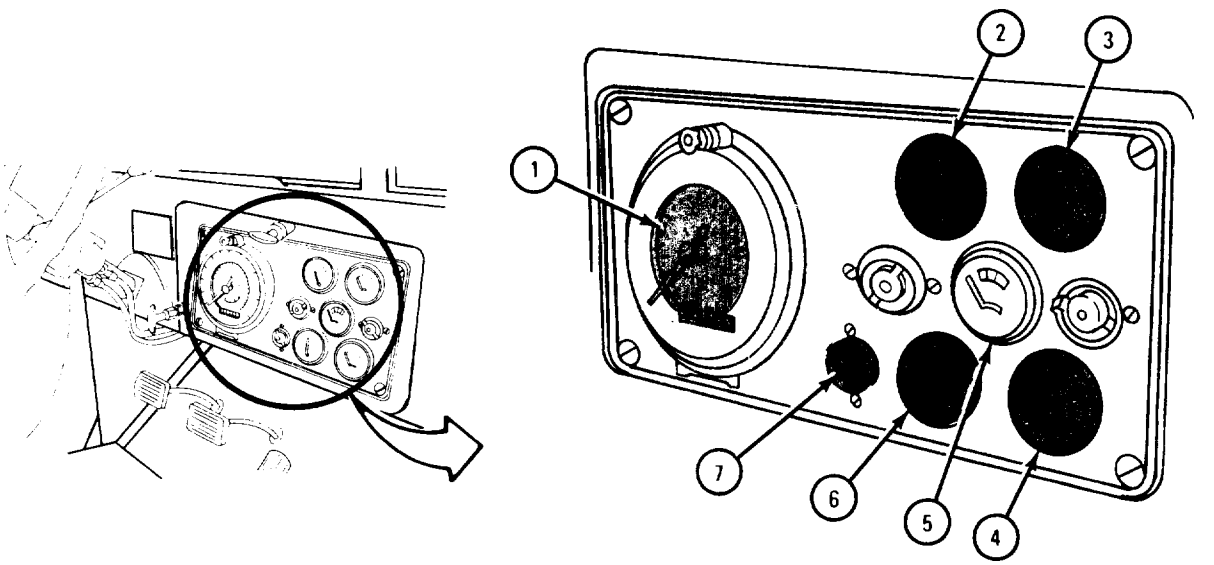


TA 053804

a. Instrument panel - Cent.

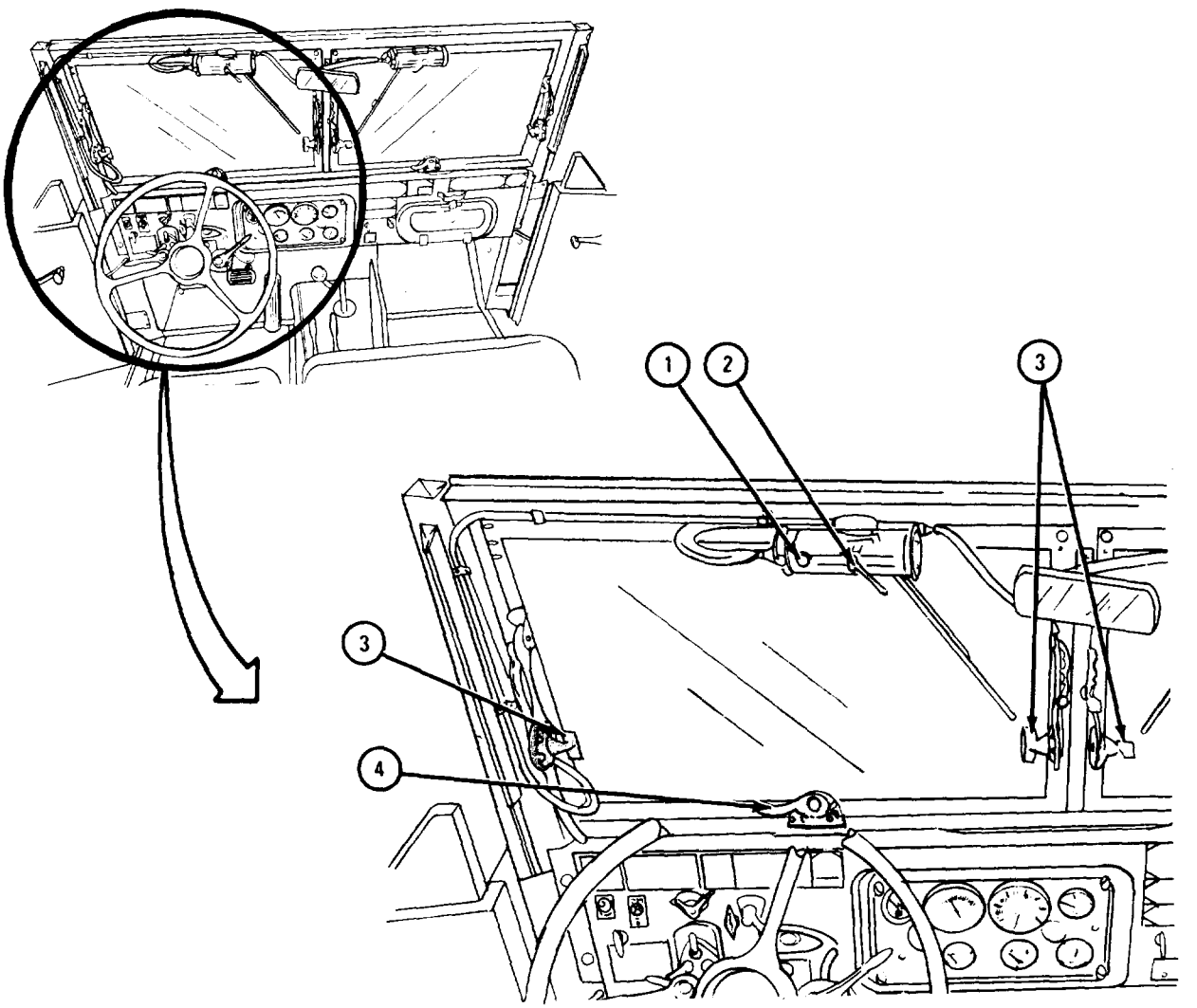
INSTRUMENT PANEL CENTER SECTION
(Some later model M5242 tractor trucks)

1. Tachograph. Shows:
   (a) Truck roadspeed from 0 to 70 mph.
   (b) Total mileage truck has traveled.
   (c) Engine speed from 0 to 2800 rpm.
   (d) Time of day. Inner scale is a clock.
   (e) Engine overspeed warning light. Is lit when engine speed is 3000 rpm or more.
2. Oil pressure gage. Shows engine oil pressure from 0 to 120 psi.
3. Water temperature gage. Shows temperature of engine coolant from 120° to 240°F.
4. Fuel gage. Show fuel level in fuel tanks.
5. Battery-generator indicator. When needle stays in green area, it shows batteries and charging system are normal. When needle is in yellow or left red area it means low battery voltage. When needle is in right red area, it means charging system is overcharging.
6. Air pressure gage. Shows pressure in compressed air reservoir tanks from 0 to 120 psi.
7. High beam indicator. Is lit when headlights are on high beam.



b. Windshield.

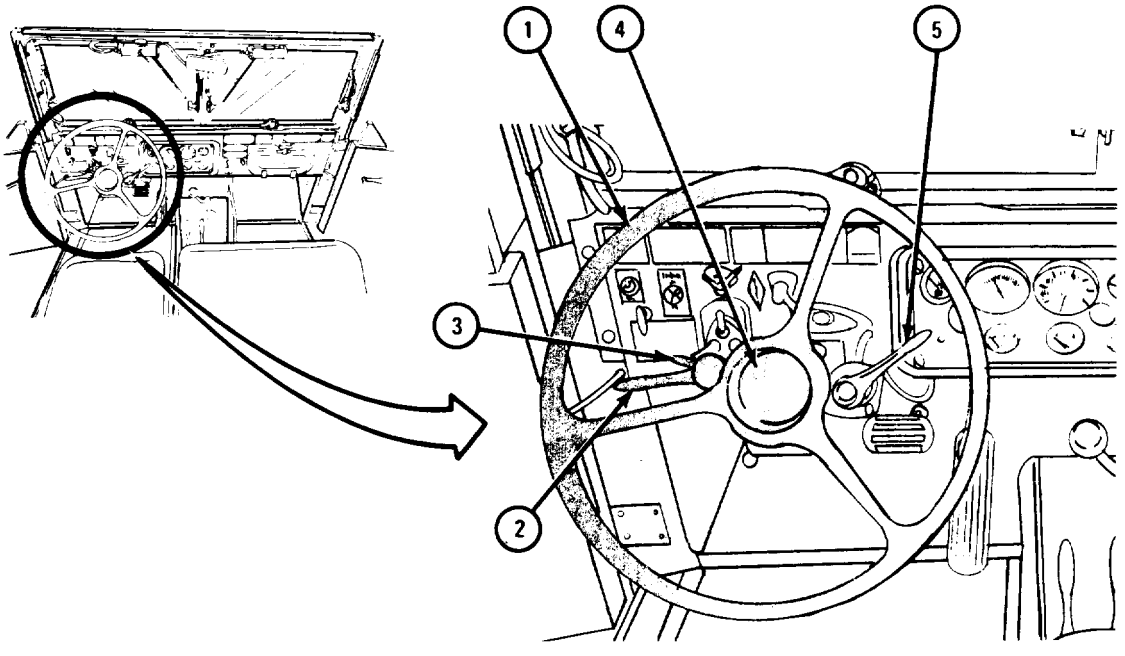
1. Windshield wiper motor reset button. When in the out position, wiper motor will not operate. Press in before turning windshield wiper control knob to ON position.
2. Windshield wiper lever. Gives a way to move the windshield wiper manually.
3. Windshield clamping screws. Locks windshield in any open position.
4. Windshield locking handle. Locks windshield in closed position.



TA 053805

c. Driver's Compartment.

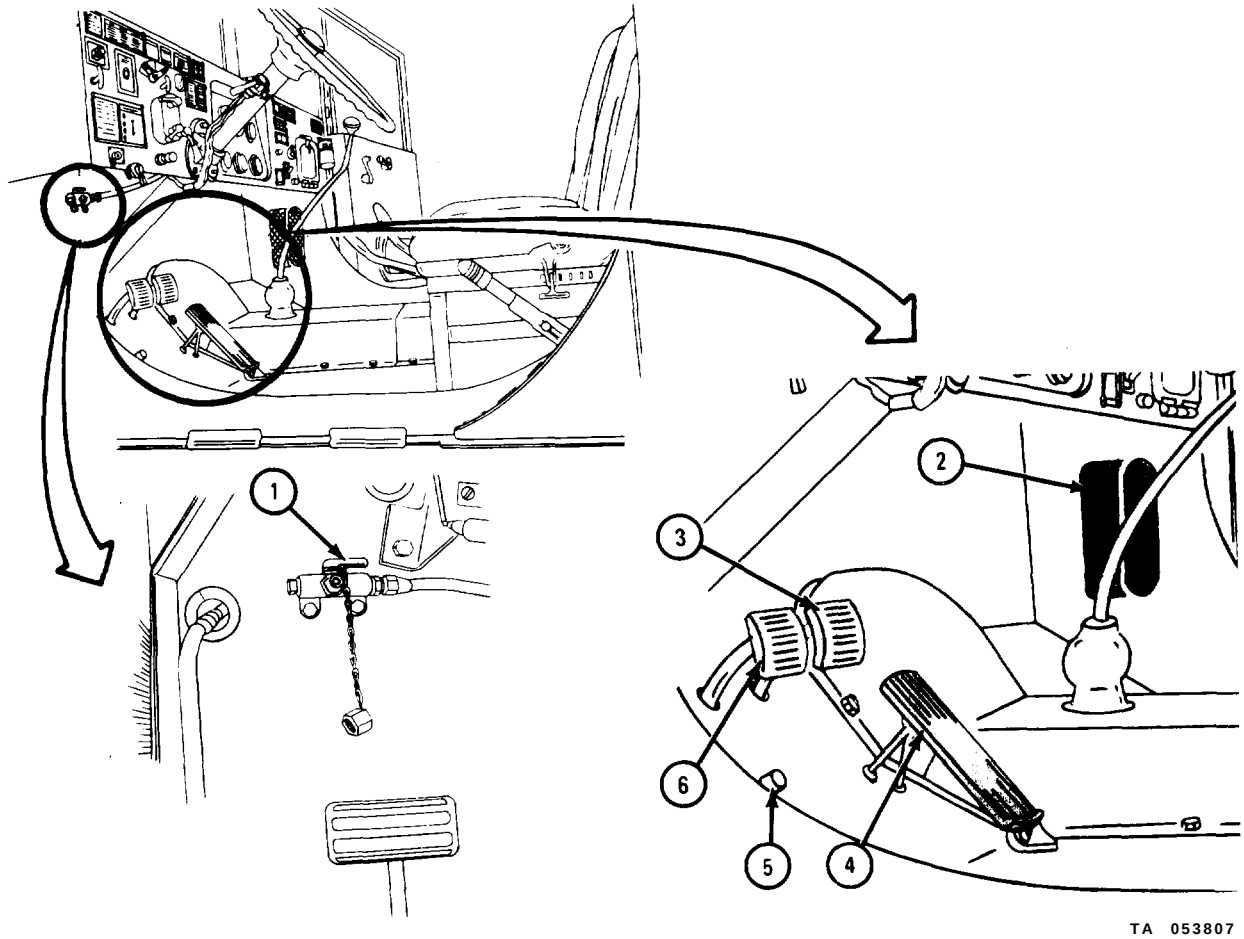
1. Steering wheel. Controls direction of the truck.
2. Directional turn signal control lever. When lever is pushed down, turns left turn signals on. When pushed up turns right turn signals on. Lever must be pushed back to center position (off) when turn is finished.
3. Hazard flasher lever. When lever is pulled and held against directional turn signal control lever and both levers are pulled up, turns hazard flasher signals on. When directional turn signal control lever is pushed down to center position, turns hazard flasher signals off.
4. Horn button. When pressed in, sounds horn.
5. Hand operated air brake control lever (on tractor trucks and some wrecker trucks) . When lever is moved down toward driver, controls air brakes in towed load.



TA 053806

c. Driver's Compartment.

1. Air supply valve. Is an emergency source of compressed air for filling tires with air, cleaning air filters, etc.
2. Cowl ventilators. When open, lets air flow into driver's compartment.
3. Service foot brake. When pressed in, slows down and stops truck.
4. Accelerator foot pedal. When pressed in, engine will speed up. When let go, engine will slow down.
5. Dimmer foot switch. When pressed in, raises or lowers headlight beam.
6. Clutch foot pedal. When pressed in, disconne-cts the clutch so that gears can be shifted.



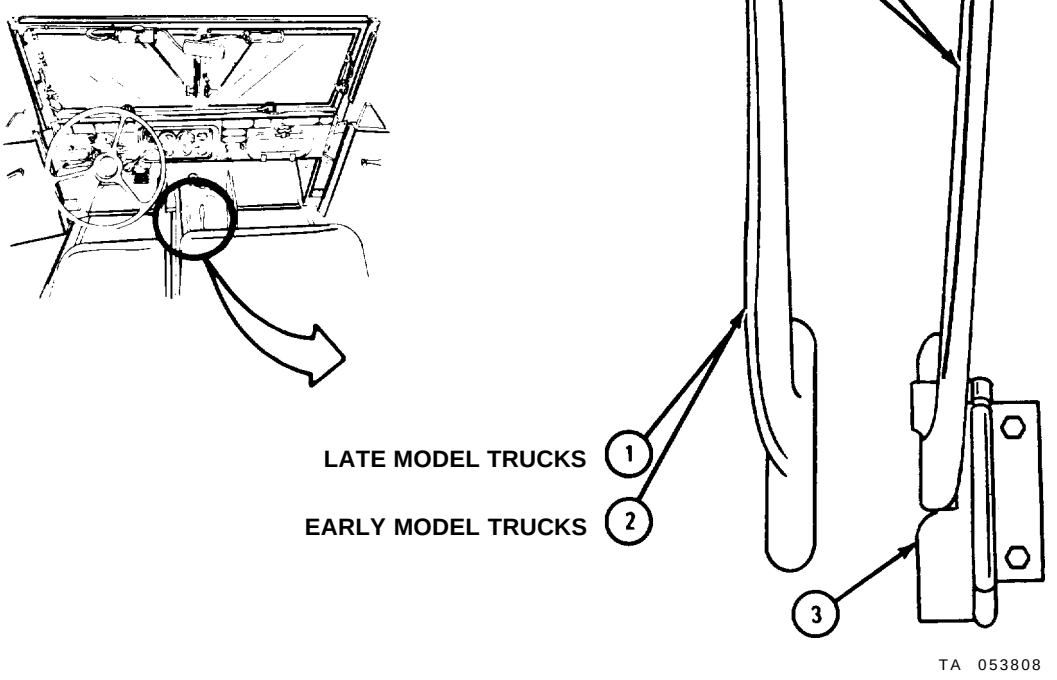
TA 053807

c. Driver's Compartment.

1. TRANSFER CASE lever. Is pushed down to LOW position for heavy load conditions. Is pulled up to HIGH position for light load conditions.
2. Front WINCH CONTROL lever (on trucks with front winch) . Is moved down to H (high) or L (low) position to give power to front winch for reeling in a load. Move to R (reverse) position to let go of a load.
3. Front WINCH CONTROL lever hinge lock . Is used to lock front WINCH CONTROL lever in neutral position when not in use.

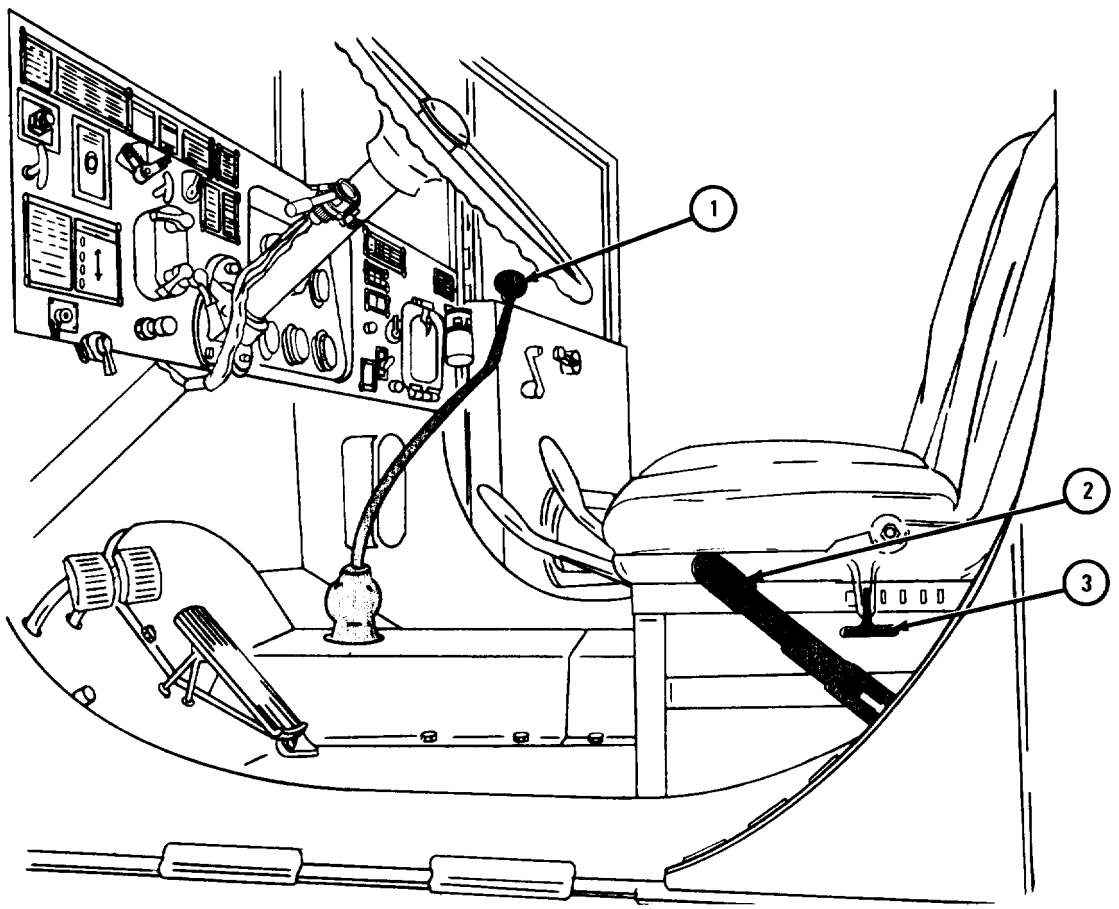
NOTE

The location of the TRANSFER CASE lever and the front WINCH CONTROL lever are reversed on some trucks. There are several differences that help to name the levers. The TRANSFER CASE lever has 3 positions. The front WINCH CONTROL lever has 5 positions and a hinge lock to lock it in neutral position.



c. Driver's Compartment.

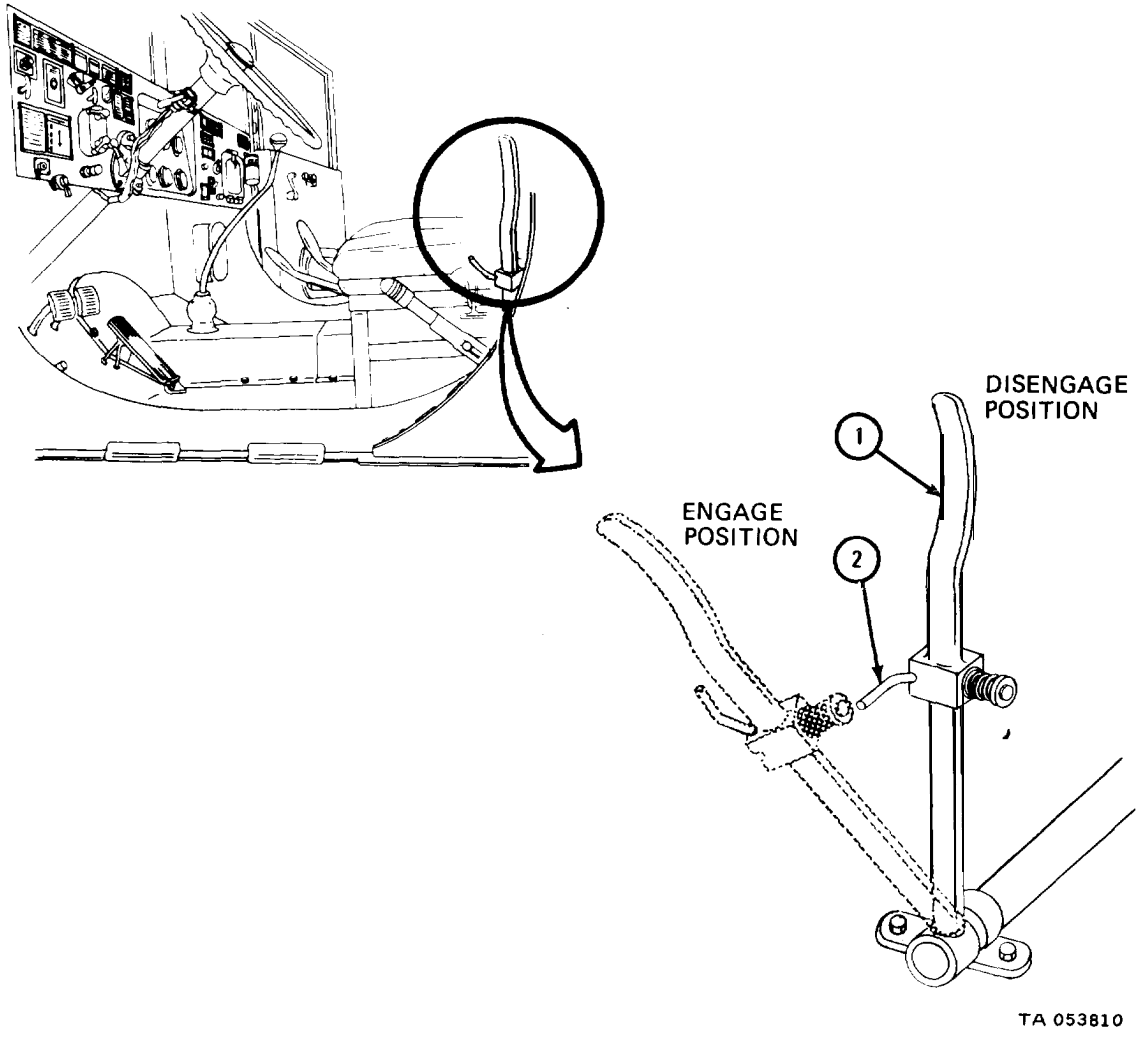
1. FRONT TRANSMISSION gearshift lever. Used to place the transmission in one of five forward positions, reverse or neutral.
2. Handbrake lever. Is pulled up to set handbrake and pushed down to release brakes. Knob at top of handle is turned right to set brake cable tension higher. Knob is turned left to set brake cable tension lower.
3. Operator's seat adjuster handle. When handle is pulled up, seat is unlocked and can be pushed forward or backward. When handle is let go, set will lock in position.



TA 053809

c. Driver's Compartment.

1. POWER DIVIDER control lever (on wrecker trucks). When lever is moved forward to ENGAGE position, the power divider will drive the rear winch and crane hydraulic pump. When lever is moved backward to DISENGAGE position, power to the rear winch and crane hydraulic pump is cut off.
2. Safety lock. Locks POWER DIVIDER control lever in DISENGAGE position when turned to side position.



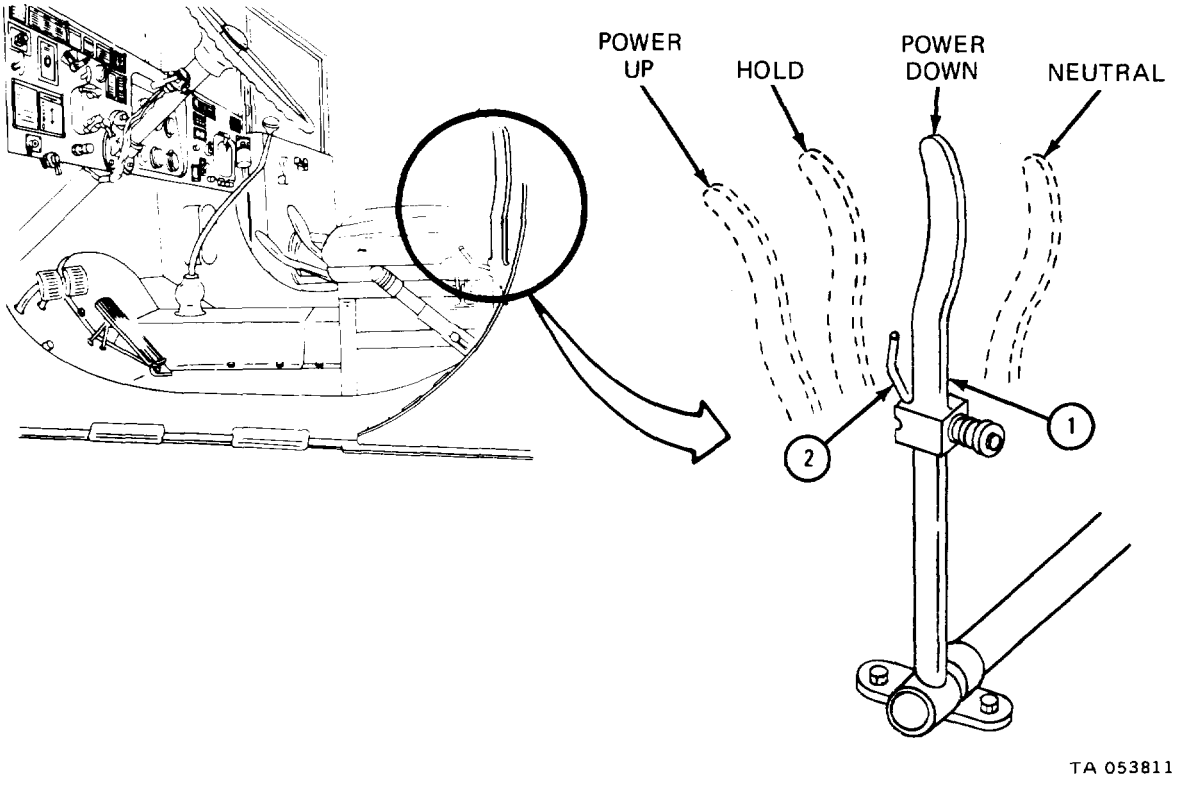
c. Driver's Compartment.

1. Dump body control lever (on dump trucks) . Is moved forward or backward to control dump body.
   (a) POWER UP position raises dump body.
   (b) HOLD position holds dump body up.
   (c) POWER DOWN position lowers dump body.
   (d) NEUTRAL position turns off hydraulic power to dump body .

2. Safety lock. Locks dump body control lever in NEUTRAL position (dump body down) when turned to side position.

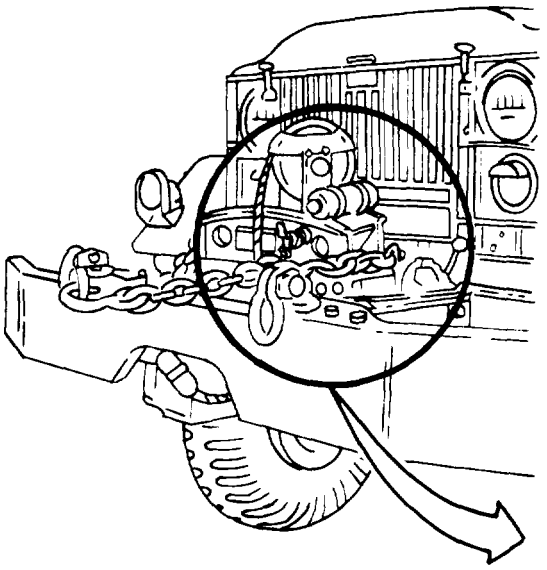
WARNING

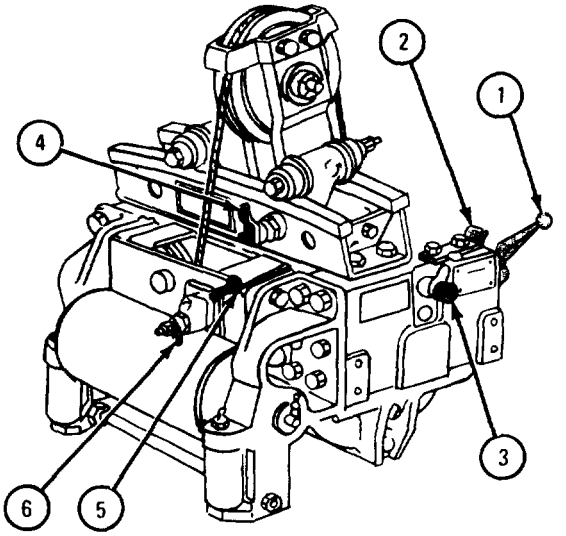
Dump body control lever must always be locked in NEUTRAL position when not in use or when truck is used as a troop transport.



d. Front Winch.

1. Front winch drum clutch lever. Is moved away from winch drum to mesh clutch with drum. Is moved toward drum to free drum.
2. Front winch drum clutch lever hinge lock. Used to lock front winch drum clutch lever (1) in free position,
3. Front winch drum lock knob. Used to lock the drum when front winch is not in use.
4. Front winch level wind lock knob (on trucks with level wind device) , Is used to lock front winch level wind device when not in use.
5. Front winch cable tension control lever (on trucks with level wind device) . Used to put tension on winch cable when rewinding without a load.
6. Front winch cable tension control lever lock knob. Is used to lock front winch cable tension control lever (5) in OFF or in tension position.
7. Front winch control lever (not shown). Refer to driver's compartment controls and indicators, para 4- C ,



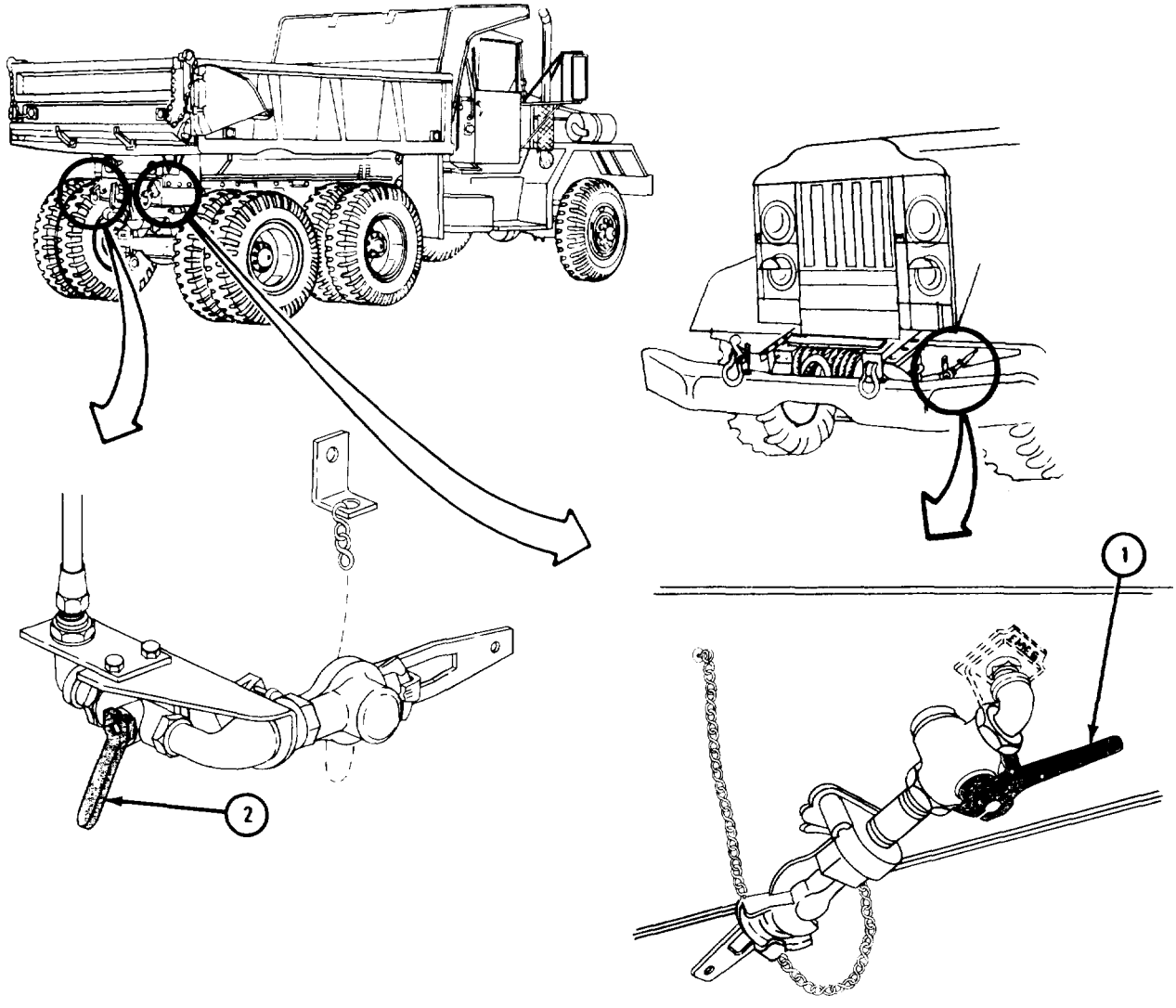


TA 053812

e. Trailer Brake.

1. EMERG. air valve handles. Found on left front and right rear of truck. Valve handle is turned 90° left to open to send or get compressed air from another truck.

2. Service air valve handle. Found on left rear of truck. Valve handle is turned 90° left to open and join brake systems of truck with another truck.

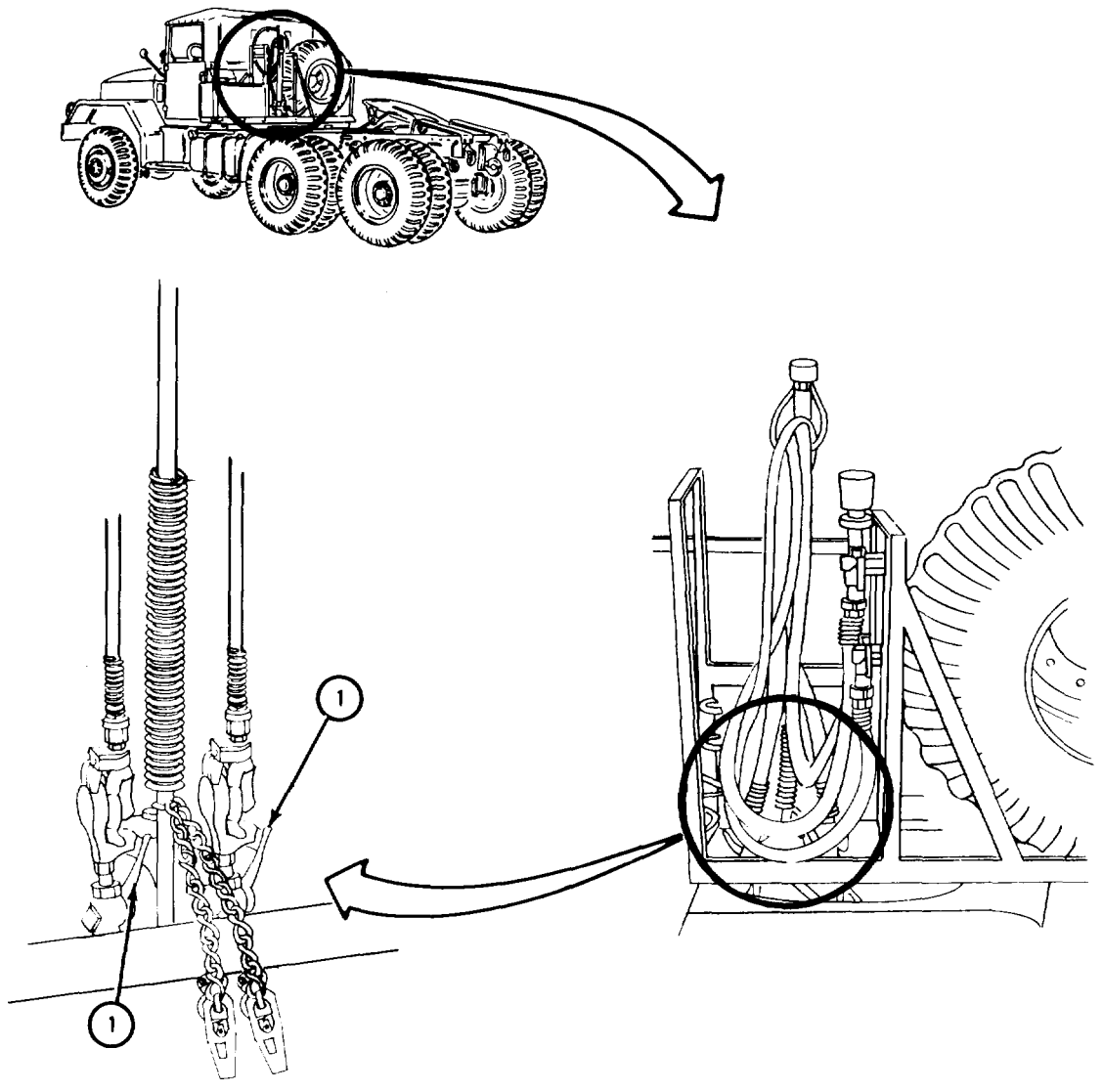


4-3. EQUIPMENT BODY CONTROLS AND INDICATORS .

a. Tractor Truck (M52A2).

1. Airbrake hose coupling shutoff cocks . Are turned on (side position) to let air come in semi-trailer brake system after it is hooked up. Must be turned off (in line, up position) before semi-trailer is unhooked.

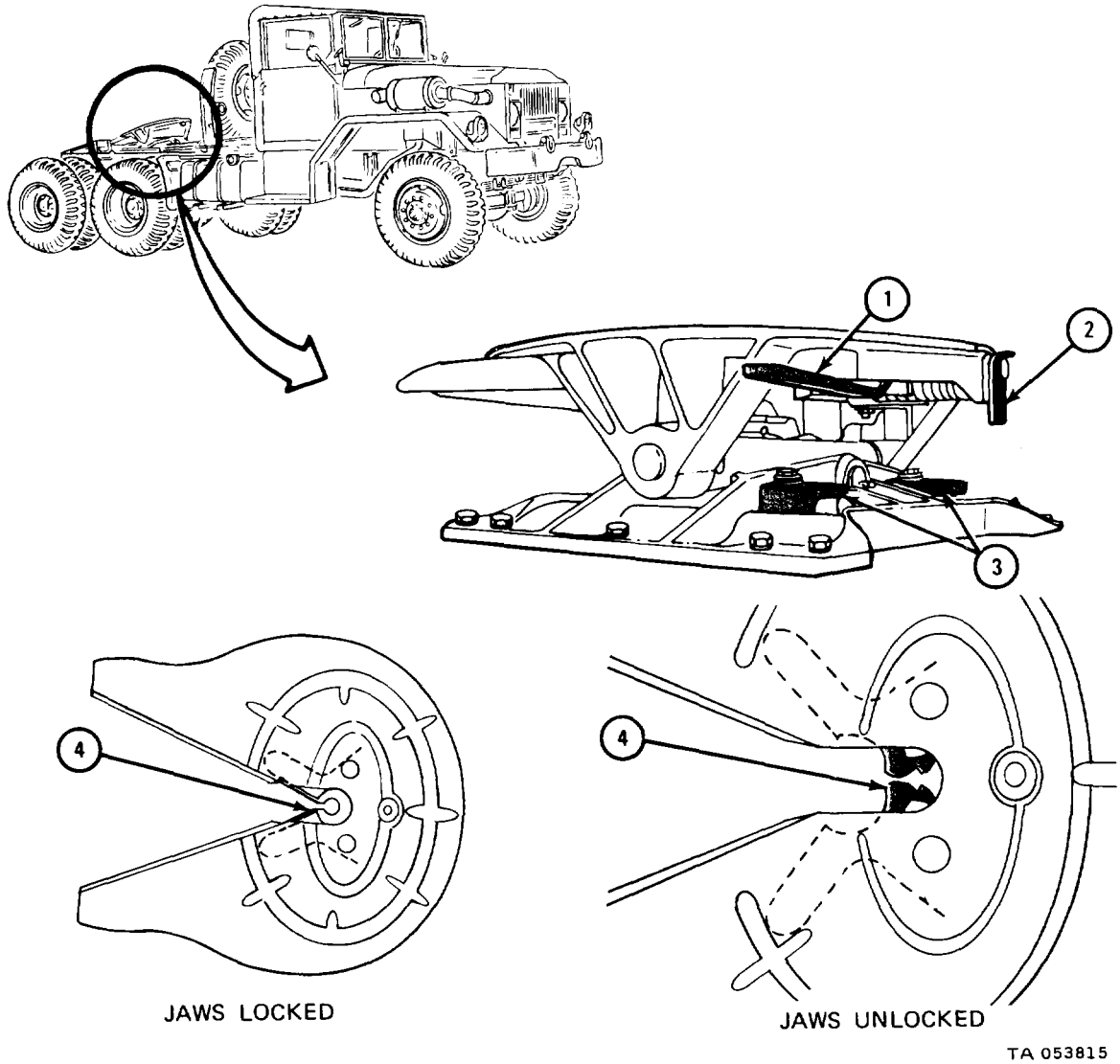
2. Hand operated air brake control lever (not shown). Controls air brakes for towed loads only. Refer to driver's compartment controls and indicators, para 4-2C.



a. Tractor Truck (M52A2) - Cont.

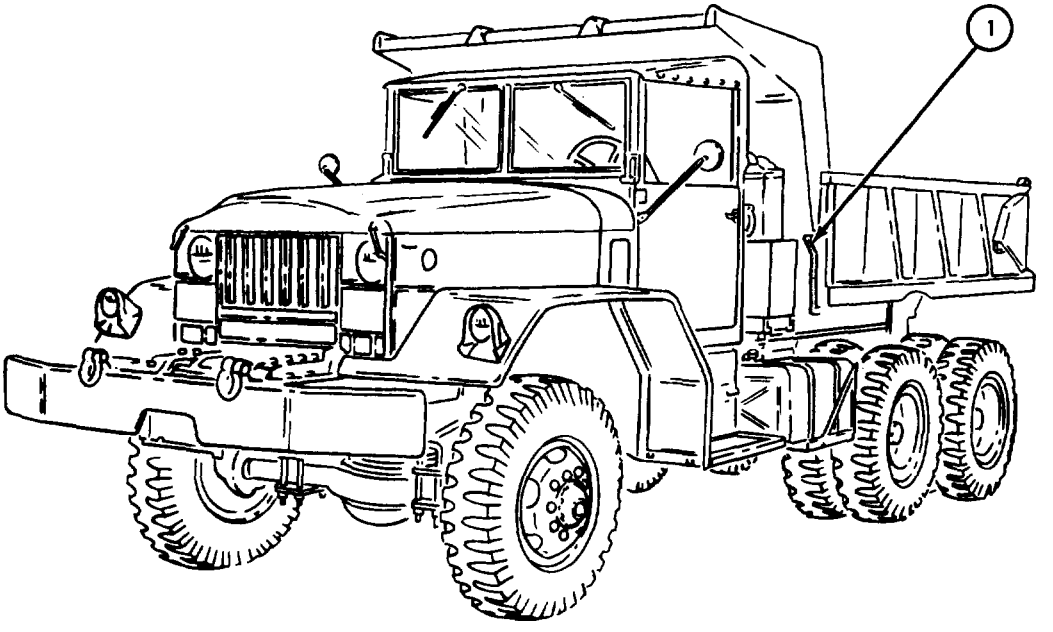
1. Fifth wheel (semitrailer coupler) locking plunger lever. Is pulled forward to make fifth wheel ready for coupling, and to unlock jaws (4) to separate semitrailer from tractor.
2. Locking plunger safety latch. When in down position, keeps jaws from being opened. When latch is moved 90° left or right, jaws can be unlocked by locking plunger lever (1).

Fifth wheel wedges. Full-in position locks walking beam for on-highway travel. Full-out position unlocks walking b earn for off-highway travel.



b. Dump Truck (M51A2) .

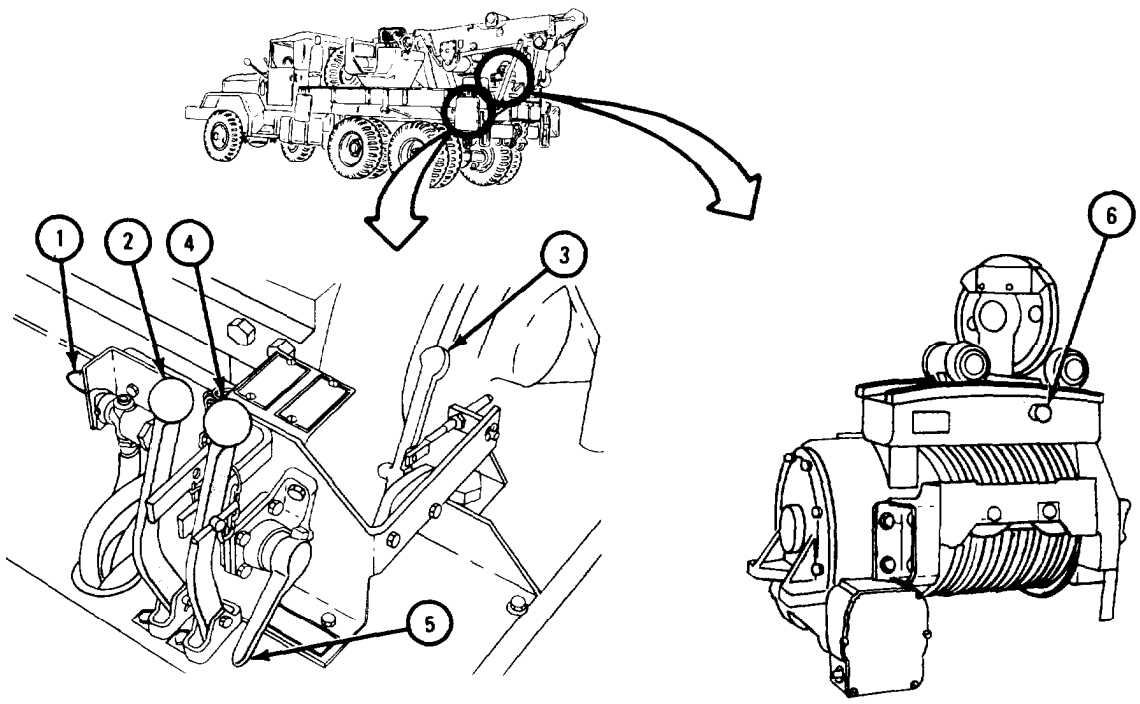
1. Tailgate control rod hand lever. Is pulled forward and down as far as it will go to open the lower tailgate latches.
2. Dump body control lever (not shown) . Refer to driver's compartment controls and indicators, para 4-2c.
3. Dump body control lever safety lock (not shown) . Refer to driver's compartment controls and indicators, para 4-2C.



TA 053816

c. Wrecker Truck (M543A2).

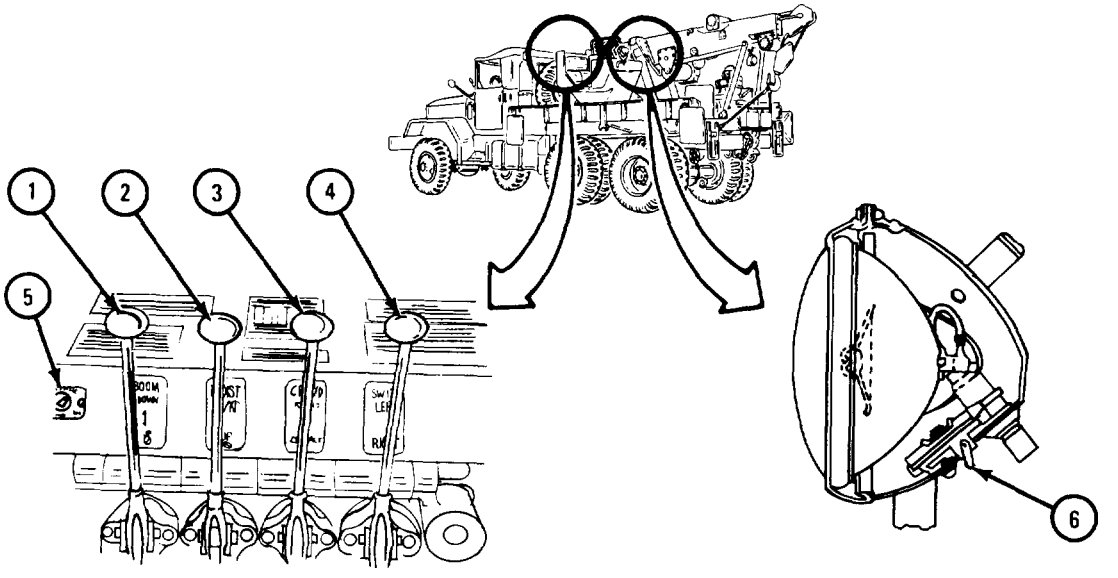
1. Cable tensioner valve control. Used to put tension on rear winch cable when rewinding without a load.
2. CRANE DRIVE hydraulic pump control lever. When pulled toward front of wrecker to ENGAGE position, sends hydraulic power to crane control bank. Is pushed toward rear of wrecker to DISENGAGE position to disconnect hydraulic power for crane.
3. Throttle control lever. Is used to set engine speed for rear winch and crane operation. When pulled toward front of wrecker, speeds up engine. Pushing it back toward rear of wrecker slows engine speed.
4. Rear WINCH SHIFT lever. Is pushed toward rear of wrecker to WIND position to reel in a load. Pulled to UNWIND position to let go of a load.
5. ENGINE CLUTCH CONTROL lever Is pushed down to ENGAGE position to operate rear winch or crane. Is pulled up to DISENGAGE position before shifting rear winch lever or crane hydraulic pump control.
6. Rear winch level wind lock knob. Is used to lock rear winch level wind device when not in use.



TA 053817

c. Wrecker Truck (M543A2) - Cent.

1. B00M control lever. Is pulled toward operator to raise boom and is pushed away from operator to move boom down. Maximum elevation is about 45°.
2. HOIST control lever. Is pulled toward operator to raise cable hook . When lever is pushed away from operator, the cable hook is moved down.
3. CROWD control lever. When lever is pushed away from operator (EXTEND position) , boom extension moves out making boom longer. Is pulled toward operator (RETRACT position) to pull boom extension in. Minimum boom length is 10 feet, maximum is 18 feet.
4. SWITCH control lever. When the lever is pulled toward the operator (RIGHT position) , the boom swings to the right. When the lever is pushed away from the operator (LEFT position) , The beam swings to the left.
5. THROTTLE switch. Is used to cut out (override) the crane engine speed governor. When placed in ON position, engine speed is not controlled by governor.
6. Floodlight switches. On each of three crane floodlights. Used to turn floodlights on or off.
7. Electric BRAKE lock switch (not shown). Refer to instrument panel controls and indicators, para 4-2a.
8. WARNING light switch (not shown). Refer to instrument panel controls and indicators, para 4–2a.
9. FLOOD LT master control switch (not shown). Refer to instrument panel controls and indicators, para 4-2a.
10. POWER DIVIDER control lever (not shown) . Refer to driver's compartment controls and indicator's, para 4-2a.



TA 053818

4-4. SPECIAL KITS CONTROLS AND INDICATORS.

a. Hot Water Personnel Heater Kit.

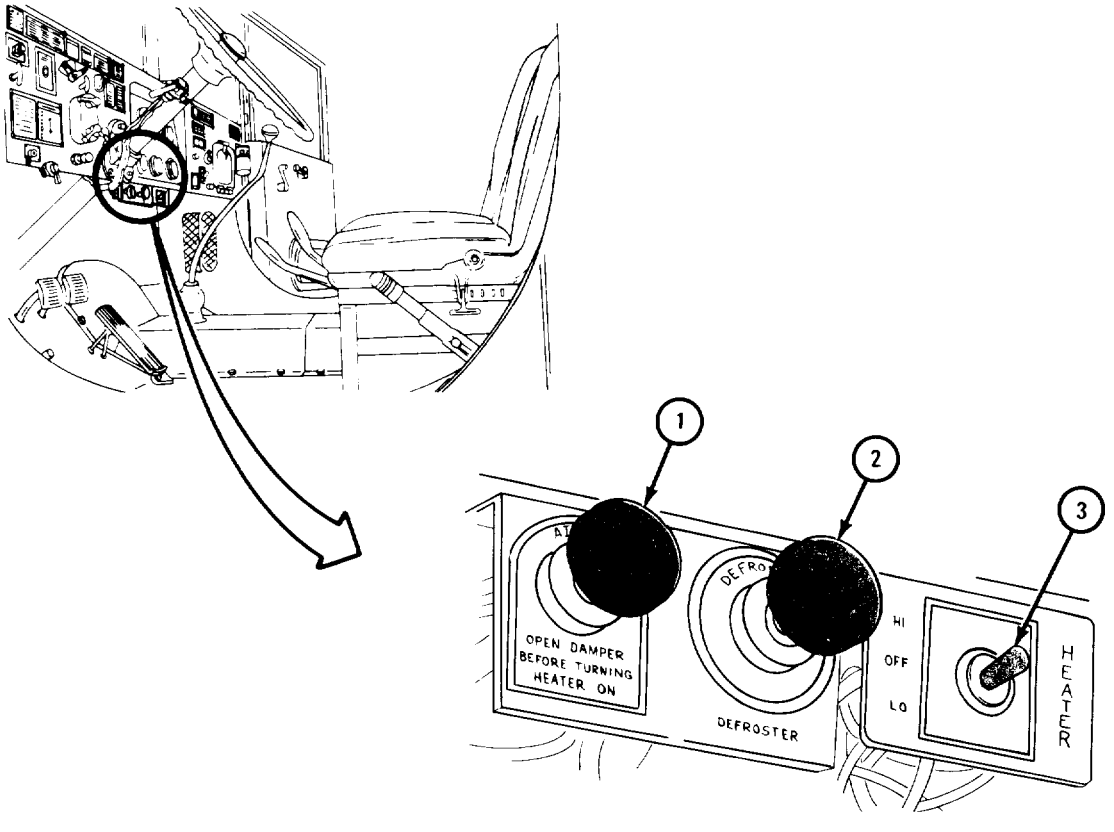
1. AIR knob. Is pulled out all of the way to let maximum amount of heated air into cab.

NOTE

AIR knob is pulled out before HEATER blower switch is turned on.

2. DEFROSTER knob. Is pulled out to send more heated air to windshield and less heated air to cab. Knob should be pulled out about half way to heat both windshield and cab.

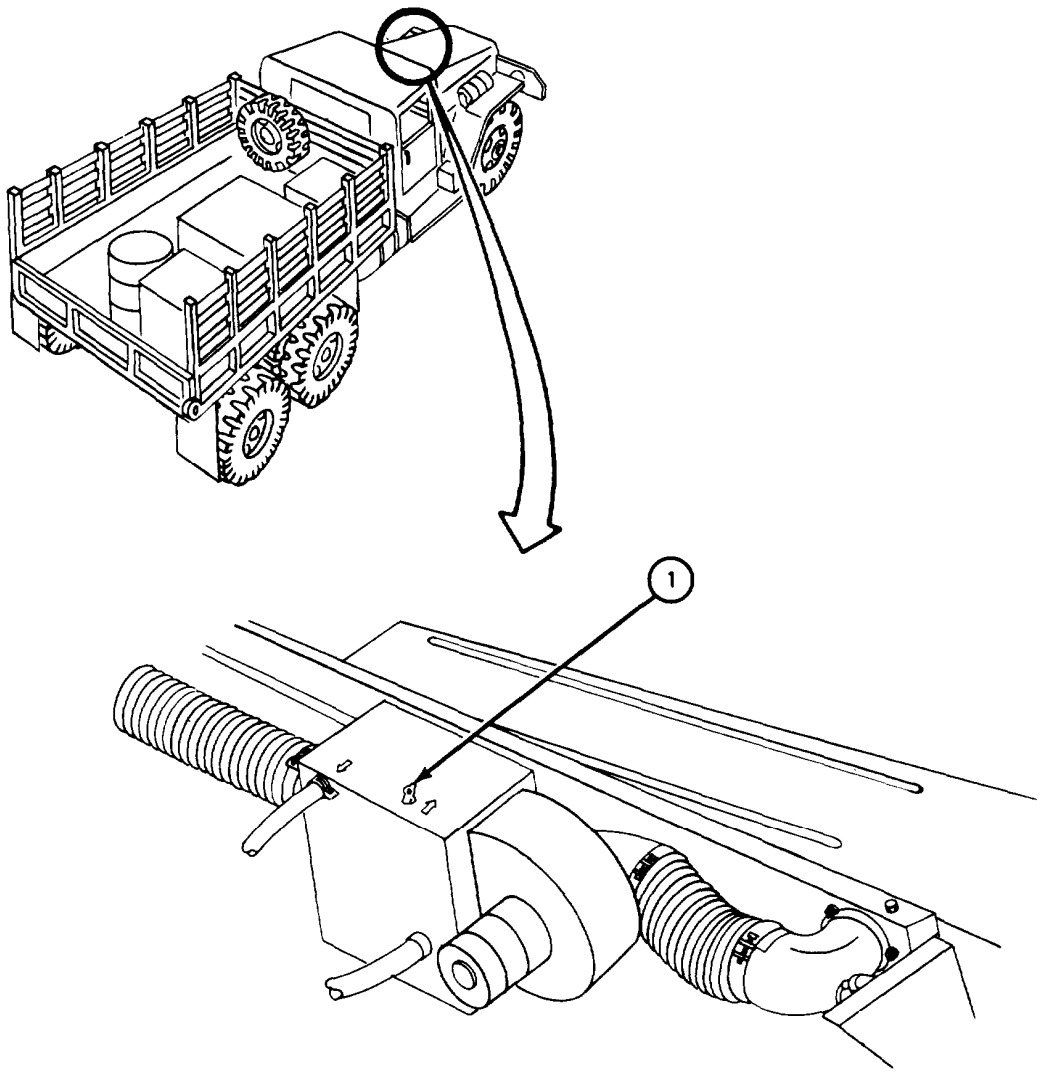
3. HEATER blower switch. Is placed in HI (high) or LO (low) position to control flow of forced air into cab.



TA 053819

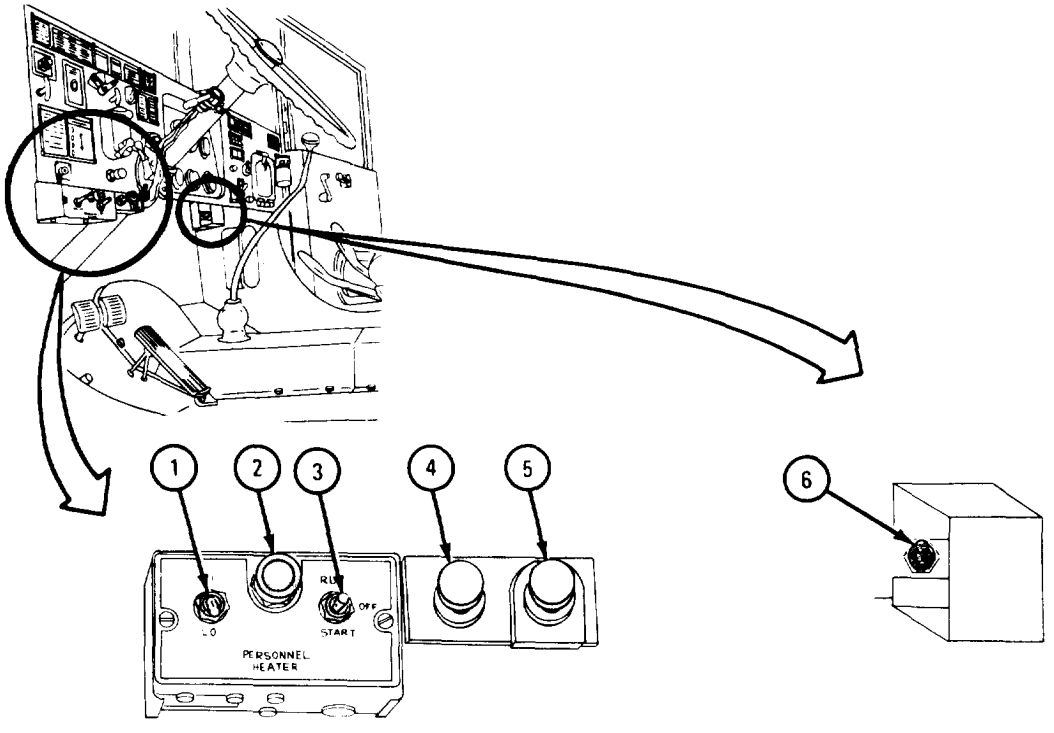
a. Hot Water Personnel Heater Kit - Cont.

. Air bleeder valve. Is opened (turned to left) a small amount while coolant is flowing to let trapped air out of heater. Is turned right to close when coolant comes out in a steady flow.



b. Fuel Burning Personnel Heater Kit.

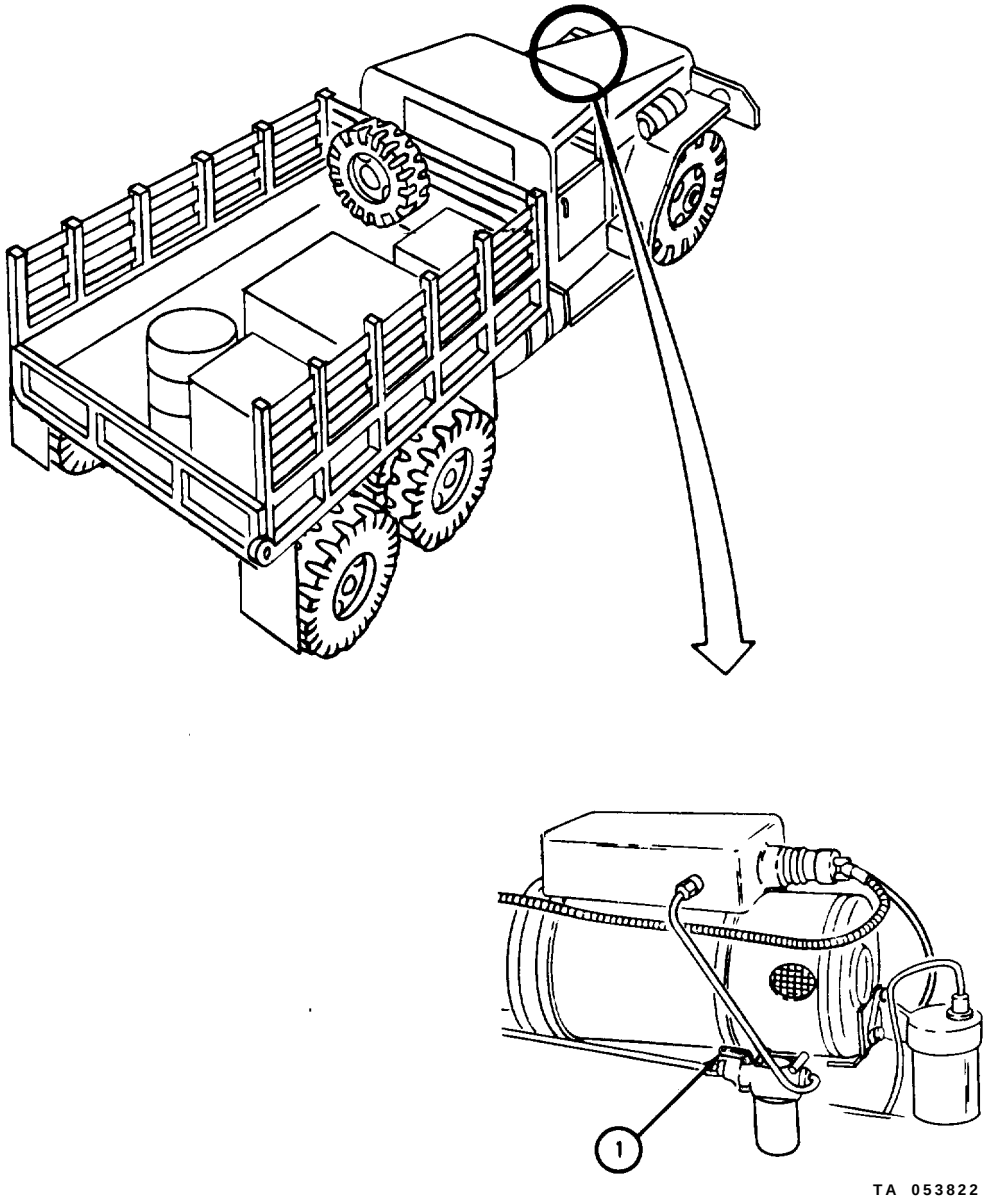
1. HI-LO switch. Controls rate of fuel burning and speed of blower in personnel heater.
2. Red indicator light. Is lit when the personnel heater is running.
3. START-OFF-RUN switch. Is set to START position to start personnel heater. Set to RUN position to run heater and to OFF to stop heater.
4. DEFROSTER control knob. When pulled all the way out, sends maximum heater air to windshield. When pushed all the way in, sends maximum heated air to cab. Is placed half way out to send heated air to both windshield and cab.
5. AIR control knob. Is pulled all the way out to get maximum air flow . Is pushed in to slow or shut off air flow.
6. Emergency switch (on some trucks) . Is used for emergency conditions, only. Switch is pushed down to turn off fuel burning heaters fast. Switch is protected by a metal guard to stop accidental turn off.



TA 053821

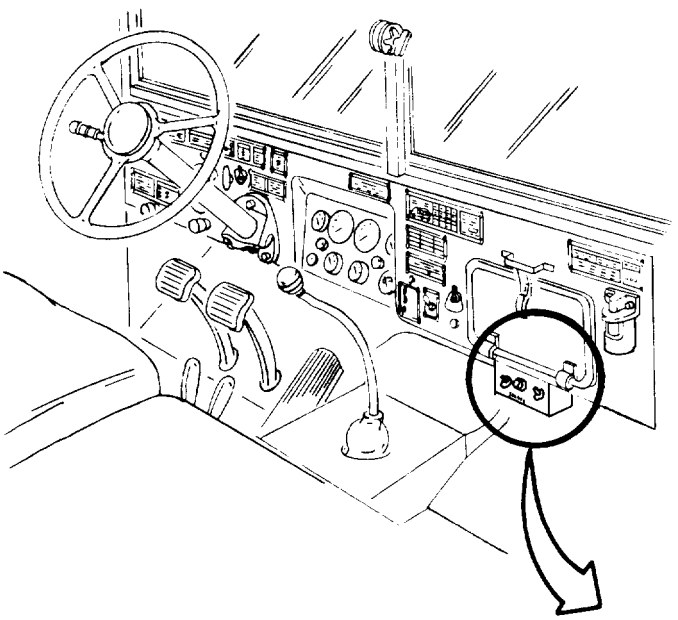
b. Fuel Burning Personnel Heater Kit - Cent.

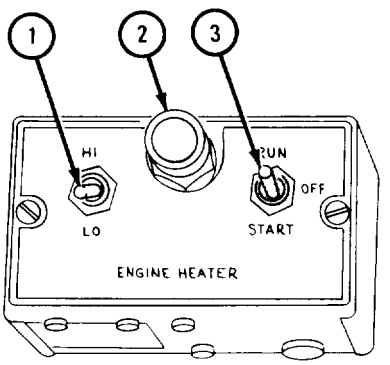
1. Personnel heater main fuel shutoff cock. Is turned left to open and let fuel into personnel heater.



c. Powerplant Heater Kit.

1. HI-LO switch. Controls rate of fuel burning and speed of blower in powerplant heater.
2. Red indicator light. Is lit when the powerplant heater is running.
3. START-OFF-RUN switch. Is set to START position to start powerplant heater. Set to RUN position to run heater and to OFF to stop heater.

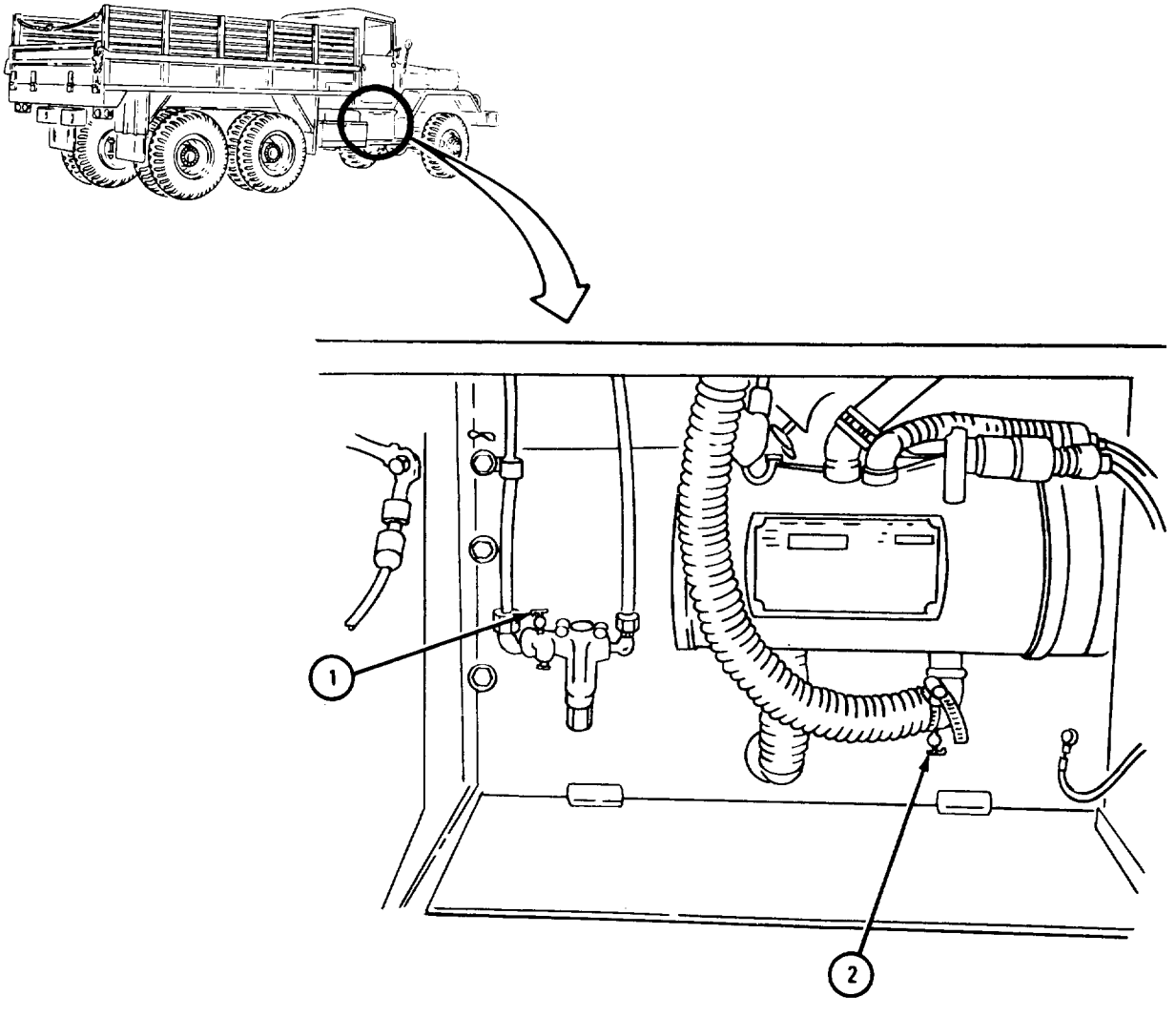




TA 053823

c. Powerplant Heater Kit - Cent.

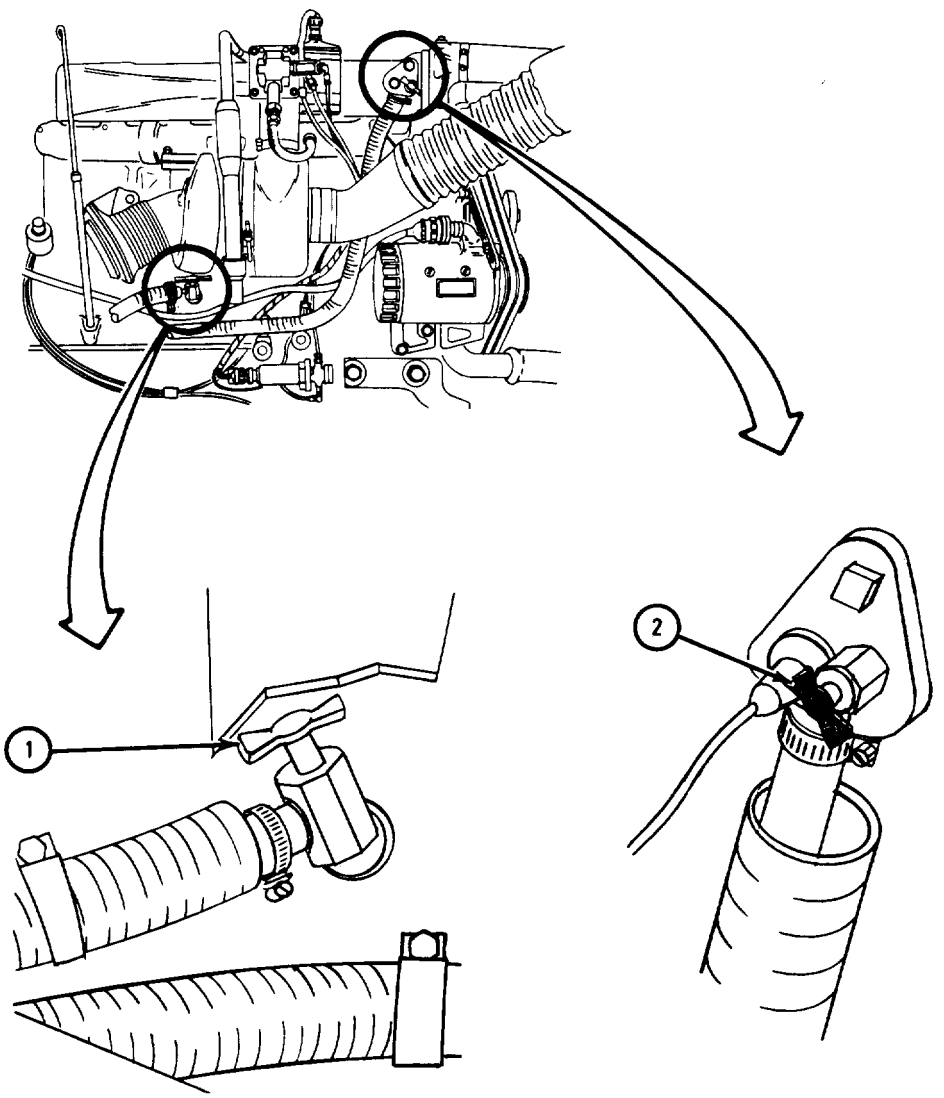
1. Powerplant heater fuel shutoff cock. 2. Is turned left to open and let fuel into powerplant heater.	Powerplant heater coolant shutoff cock . Is turned left to open and let coolant into the powerplant heater.



TA 053824

c. Powerplant Heater Kit - Cent.

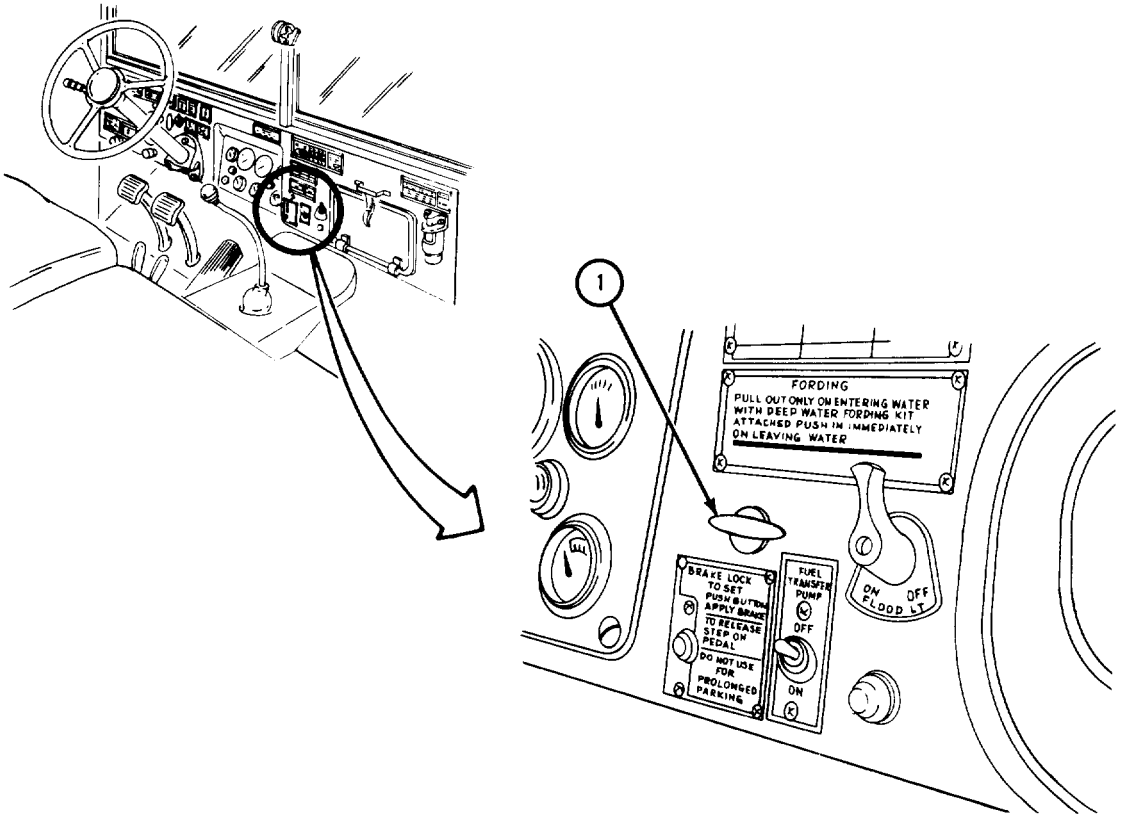
1. Inlet coolant shutoff cock. Is opened (turned left) to let coolant from powerplant cooling system enter heating chamber of powerplant heater.
2. Outlet coolant shutoff cock. Is opened (turned left) to let coolant from heating chamber of powerplant heater enter powerplant cooling system.



TA 053825

d. Deep Water Fording Kit.

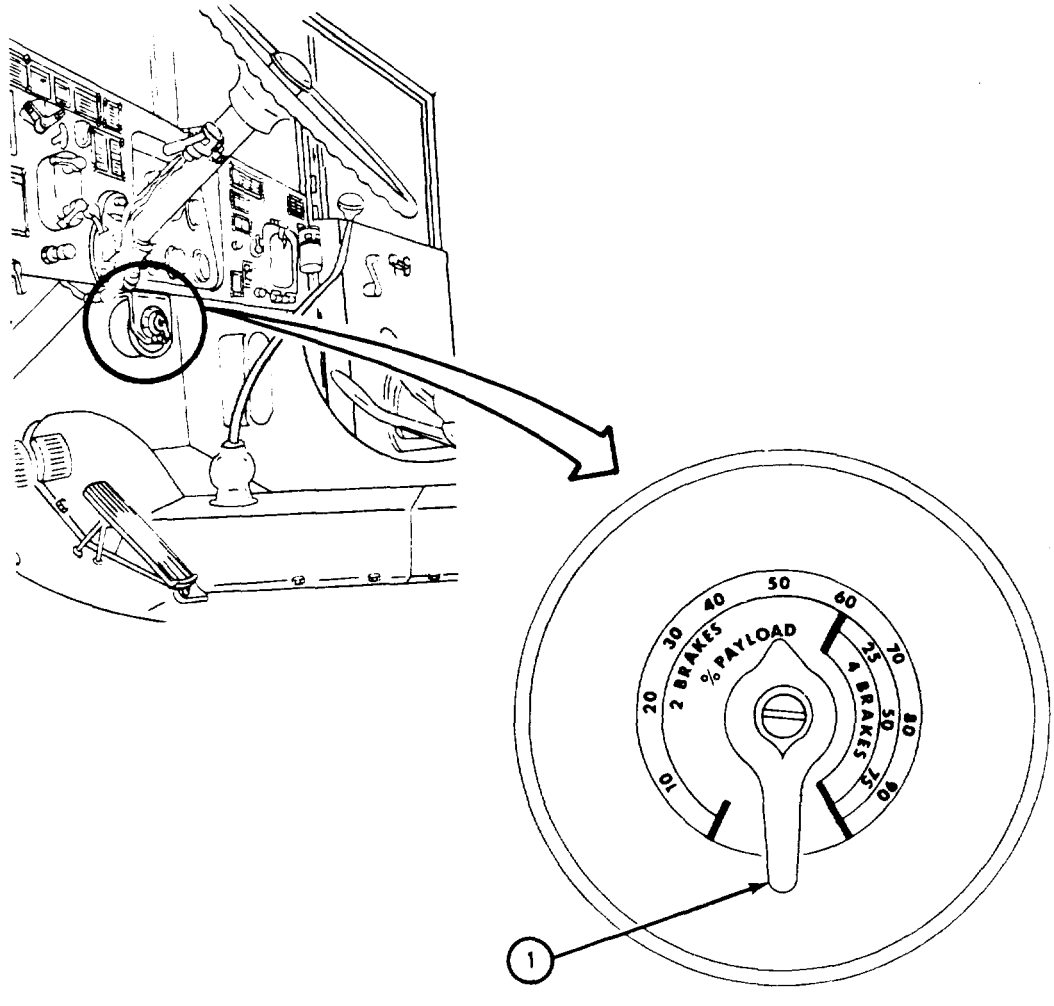
1. Crankcase ventilating shutoff control. Control is pulled out before fording operations and is pushed in after fording.



TA 053826

e. Electric Brake Kit.

1. Rheostat control handle. Is turned to right to increase braking action in towed loads with electric brakes. The lighter the towed load, the lower the number setting. The heavier the towed load, the higher the number setting.



Section II. OPERATION UNDER USUAL CONDITIONS

4-5. SCOPE. This section describes general operating procedures which are the same for all trucks. Operating procedures that apply only to some models will follow under separate paragraph headings. Each frame gives step-by-step instructions and detailed illustrations to cover all operating controls and show how these controls are set for each function.

4-6. GENERAL OPERATING PROCEDURES.

WARNING

This vehicle has been designed to operate safely and efficiently within the limits specified in this TM. Operation beyond these limits is prohibited IAW AR 70-1 without written approval from the Commander, U.S. Army Tank-Automotive Command, ATTN: AMSTA-CM-S, Warren, MI 48397-5000.

NOTE

Before engine start up, be sure that you know where all controls and indicators are, what the purpose of each one is and what it does. Refer to Section 1. Make sure that all preventive maintenance checks and services (PMCS) were done. Refer to PMCS, volume 2, chapter 1. Lock up truck whenever you leave it. Refer to Security of Tactical Wheeled Vehicles, TB 9-2300-422-20.

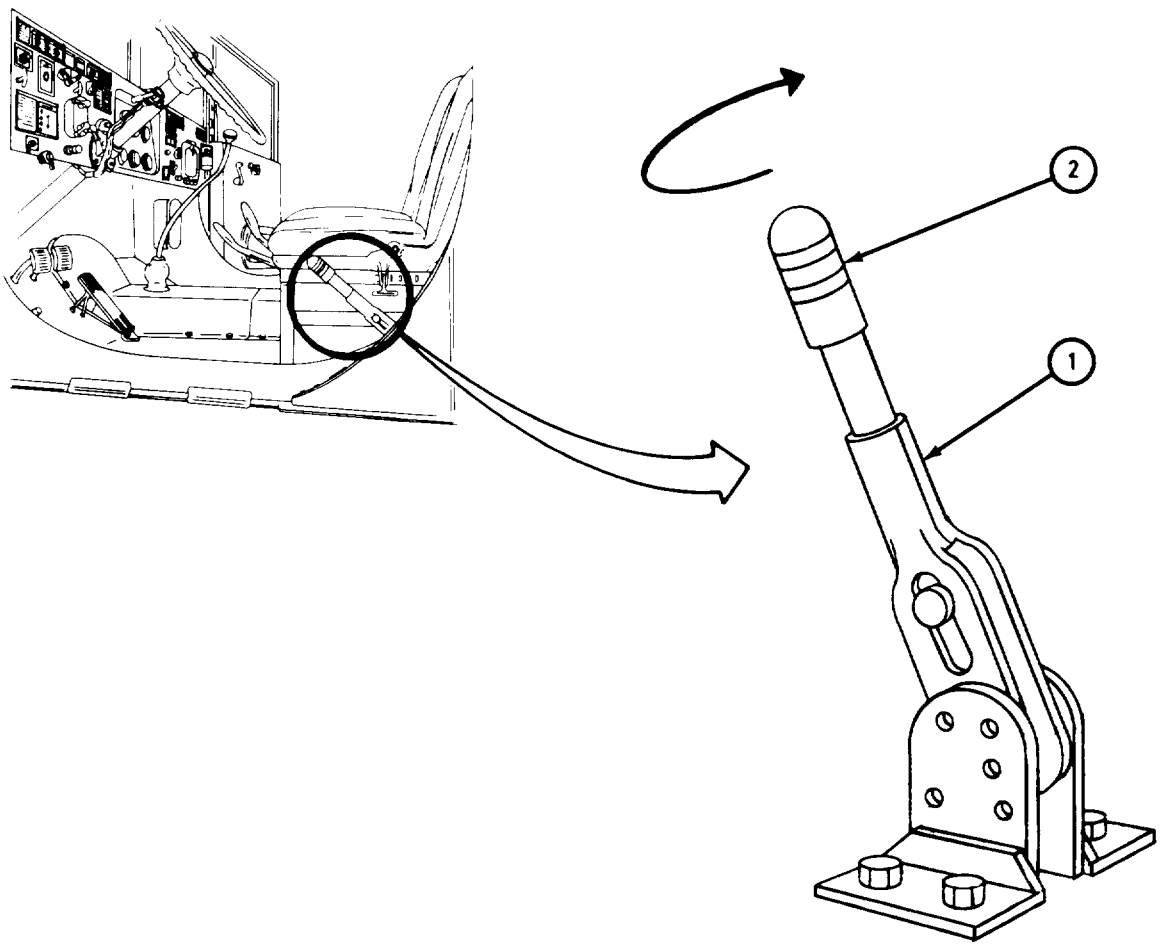
*U.S. GOVERNMENT PRINTING OFFICE: 1990 743-015/00076

a. Before Engine Startup.

FRAME 1

1. Pull handbrake lever (1) up to on position. If handbrake goes more than halfway up, push it down again to off position.
2. Turn knob (2) on top of handbrake lever right one or two turns and pull handbrake lever up again. Repeat as many times as needed to properly adjust hand brake.
3. If handbrake cannot be adjusted, tell organizational maintenance.

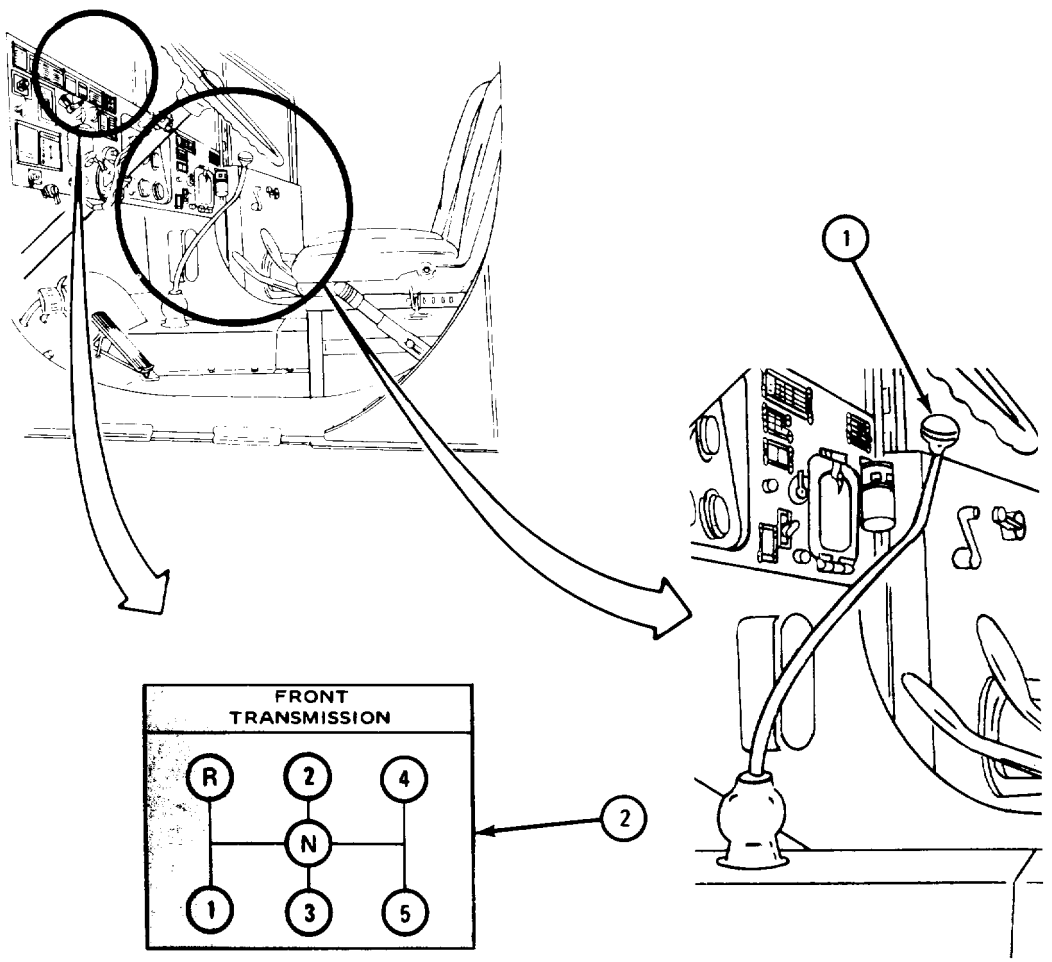
GO TO FRAME 2



FRAME 2

1. Set FRONT TRANSMISSION gearshift lever (1) to N (neutral) position as shown on data plate (2) .

GO TO FRAME 3



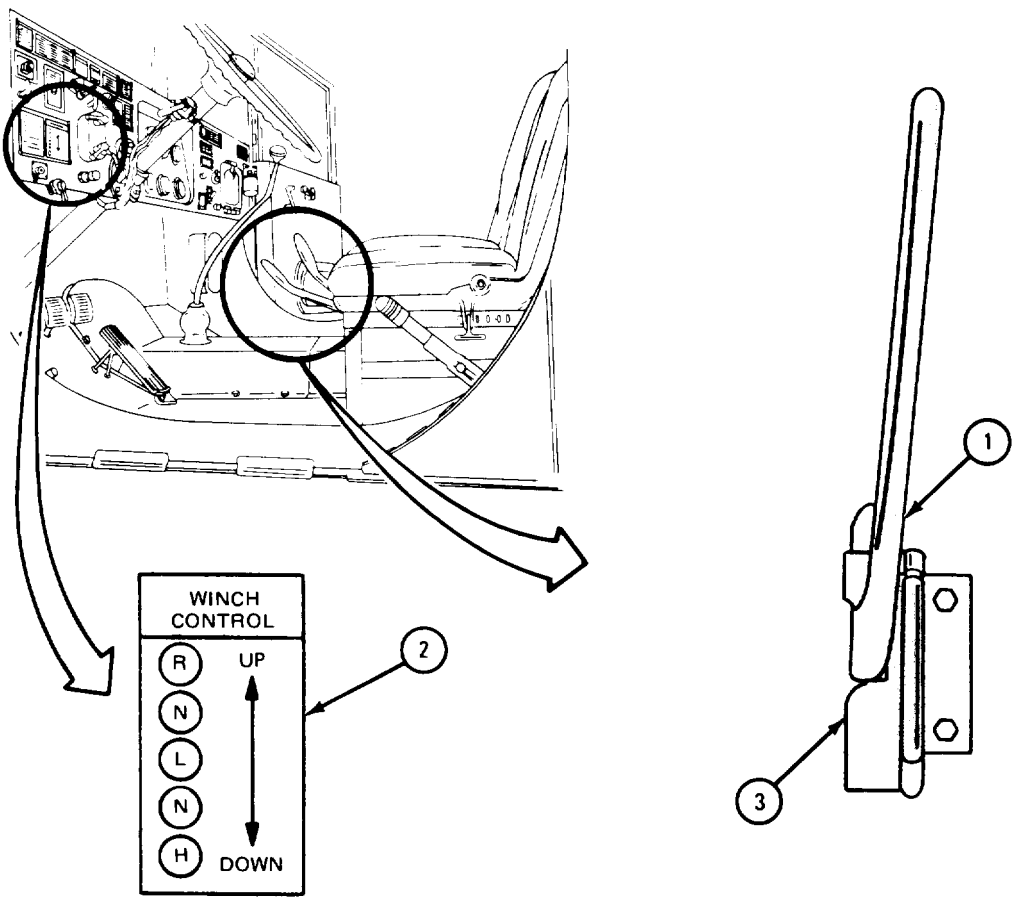
FRAME 3

1. On trucks with a front winch, make sure that front WINCH CONTROL lever (1) is in upper N (neutral) position, as shown on data plate (2) , with hinge lock (3) closed.

NOTE

Location of the WINCH CONTROL lever is different on earlier trucks. Refer to driver's compartment controls and indicators, para 4-2C.

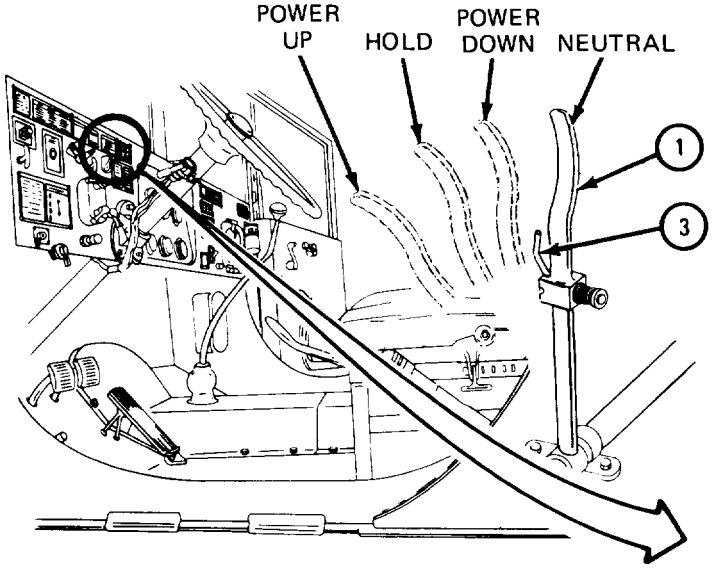
GO TO FRAME 4

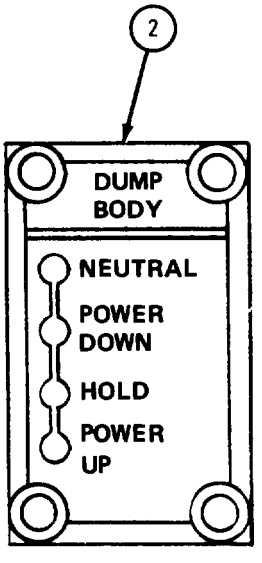


FRAME 4

1. On dump trucks, make sure that dump body is down, with dump body control lever (1) in NEUTRAL position, as shown on data plate (2) , with lock (3) set.

GO TO FRAME 5



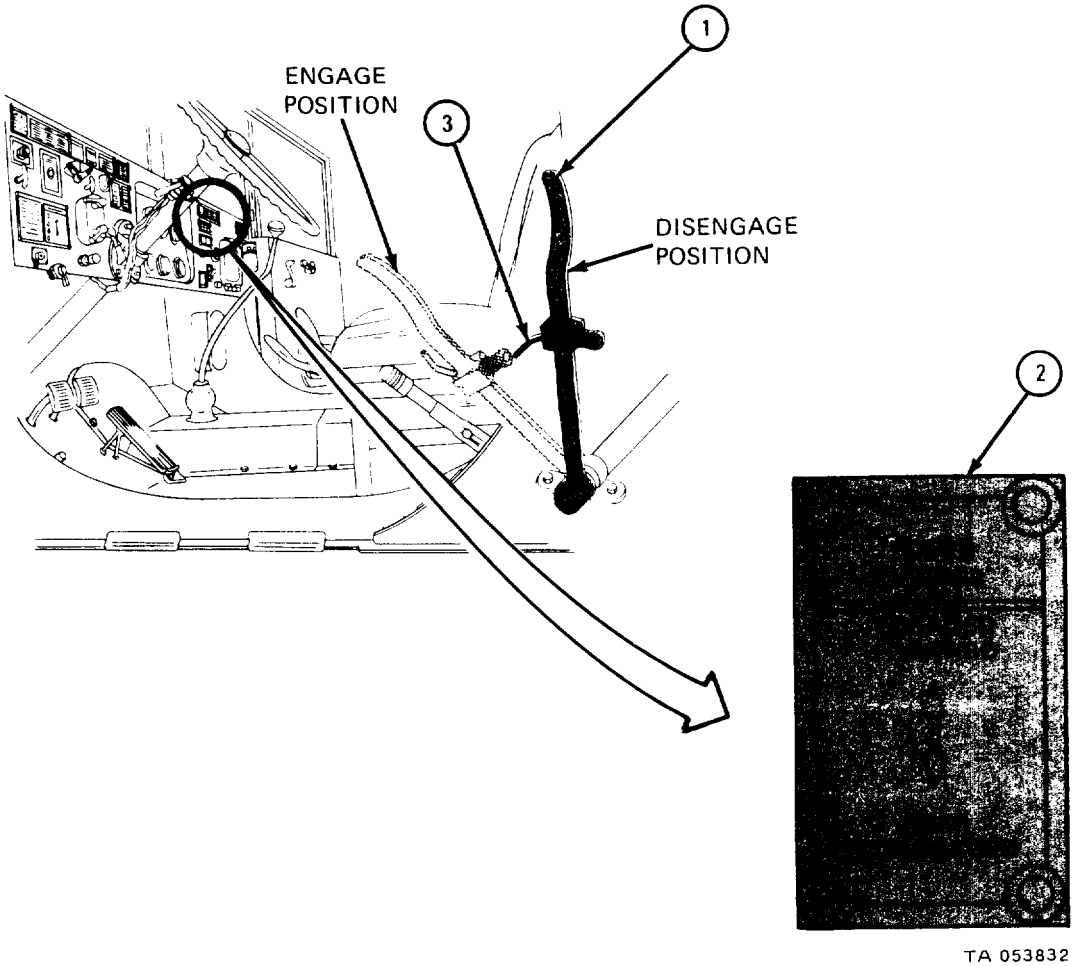


TA 053831

FRAME 5

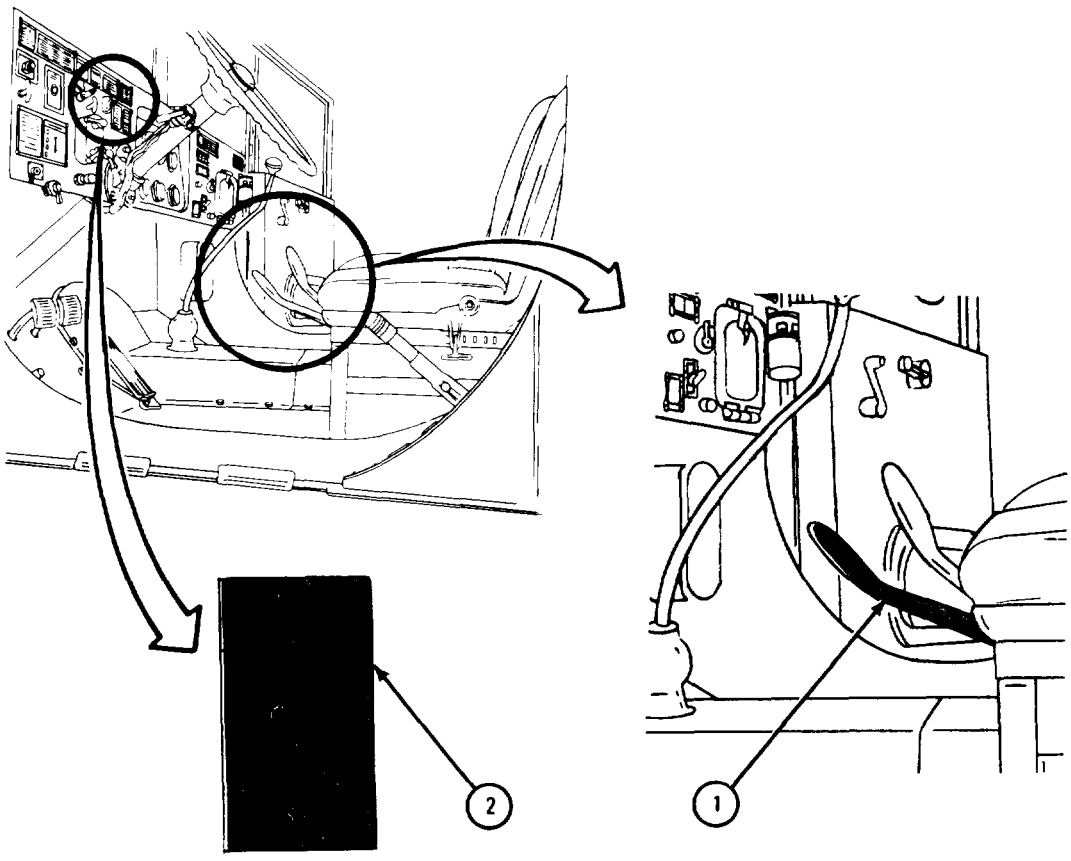
1. On wrecker trucks, make sure that POWER DIVIDER control lever (1) is in DISENGAGE position as shown on data plate (2) with lock (3) set.

GO TO FRAME 6



FRAME 6

1. Set TRANSFER CASE lever (1) in either of 2 positions shown on data plate (2):
   (a) LOW (for greater power, lower speed) or
   (b) HIGH (for greater speed, lower power) .
   The location of the lever (1) is different on early model trucks; refer to driver's compartment controls and indicators, para 4-2C.



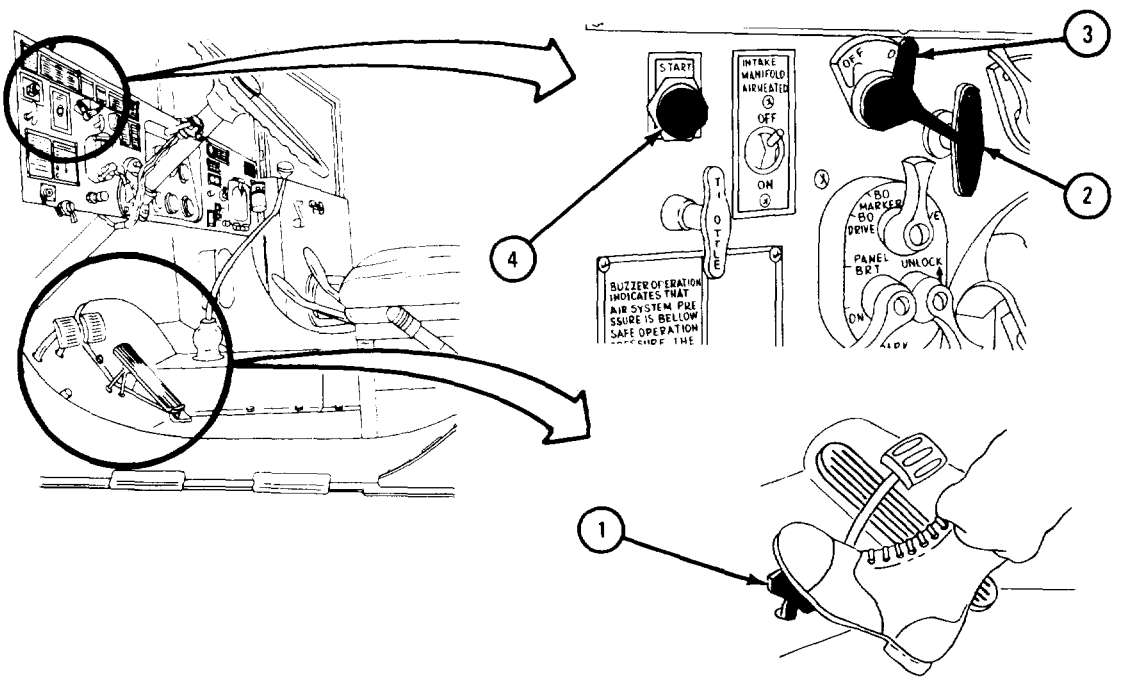
TA 053833

b. Starting the Engine Above +20°F.

FRAME 1

1. Make sure engine is not hydrostatically locked.
2. Step down on clutch pedal (1) , press it all the way down and hold it down.
3. Pull ENG. STOP control (2) out as far as it will go and hold it out.
4. TURN BATTERY switch (3) to ON position.
5. Press engine START button (4) and hold it in for five seconds.
6. Stop cranking immediately if:
   (a) Engine starts to turn over with starter and stops.
   (b) Starter sounds as if it is straining when cranking.
   (c) Engine seems to be binding.
7. Turn BATTERY switch (3) to OFF position and tell organizational maintenance.
8. If there is no sign of hydrostatic lock, push ENG. STOP control (2) all the way in.

GO TO FRAME 2



FRAME 2

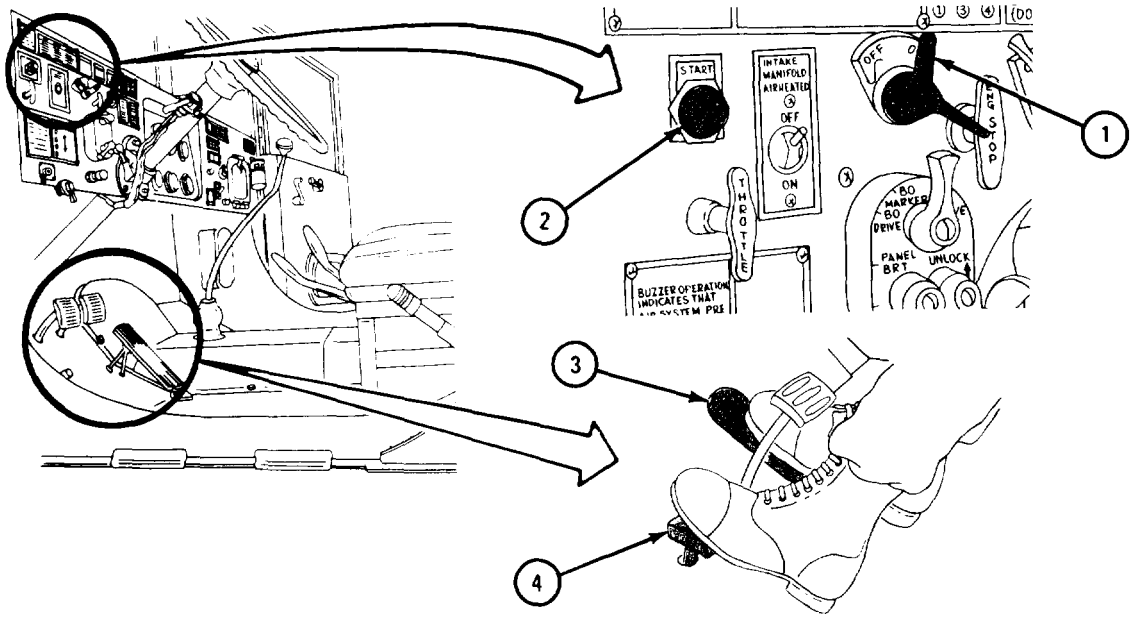
1. Turn BATTERY switch (1) to ON position.

CAUTION

Do not hold START button (2) in for more than ten seconds at one time. If engine does not start in ten seconds, wait two minutes before pressing START button again. Do not press START button while headlights are on. Doing either of the above may cause damage to the starter or battery.

2. Press engine START button (2) to crank engine and step down on accelerator pedal (3) a little until engine starts.
3. Let clutch pedal (4) up slowly as soon as engine starts.

GO TO FRAME 3



TA 053837

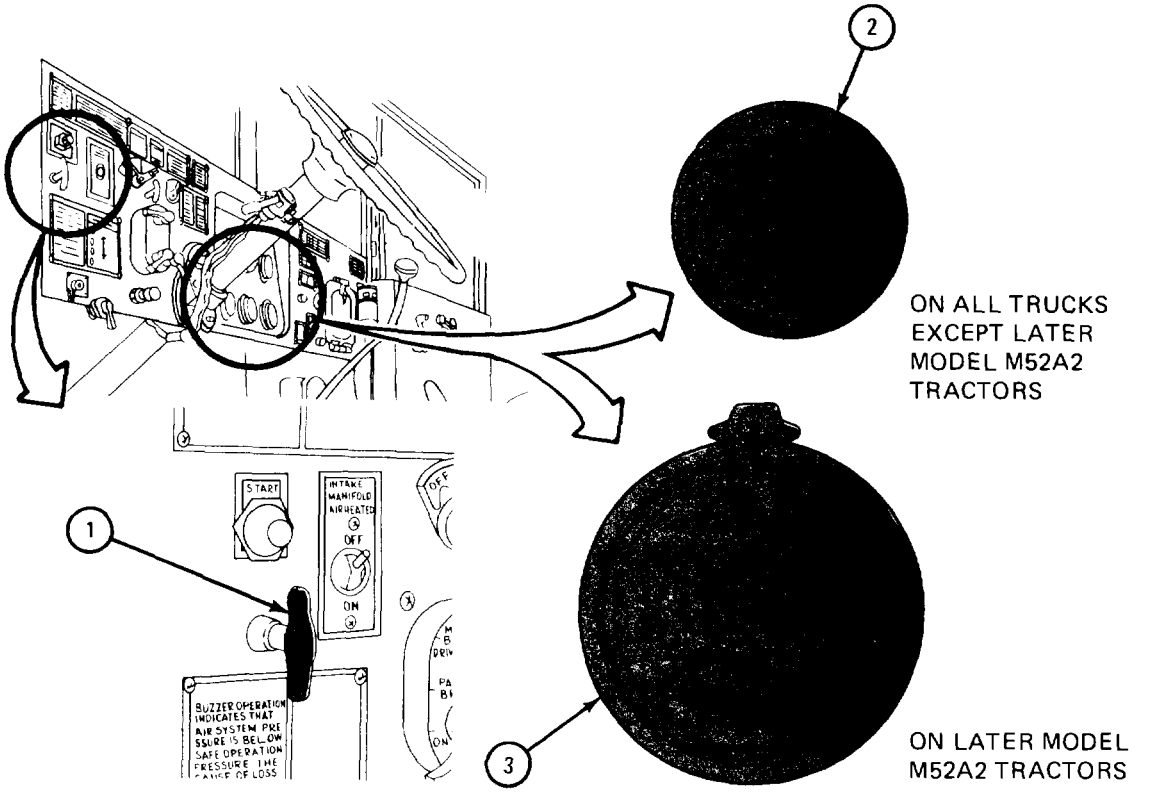
FRAME 3

CAUTION

Use hand THROTTLE (1) for cold engine starting and warm up only, Do not let engine speed get above 1000 rpm on warm up. Never use THROTTLE to control the speed of the truck.

1. To warm up engine, pull hand THROTTLE (1) out until the engine is running at 800 rpm-as shown on tachometer (2) or tachograph (3) ,

GO TO FRAME 4



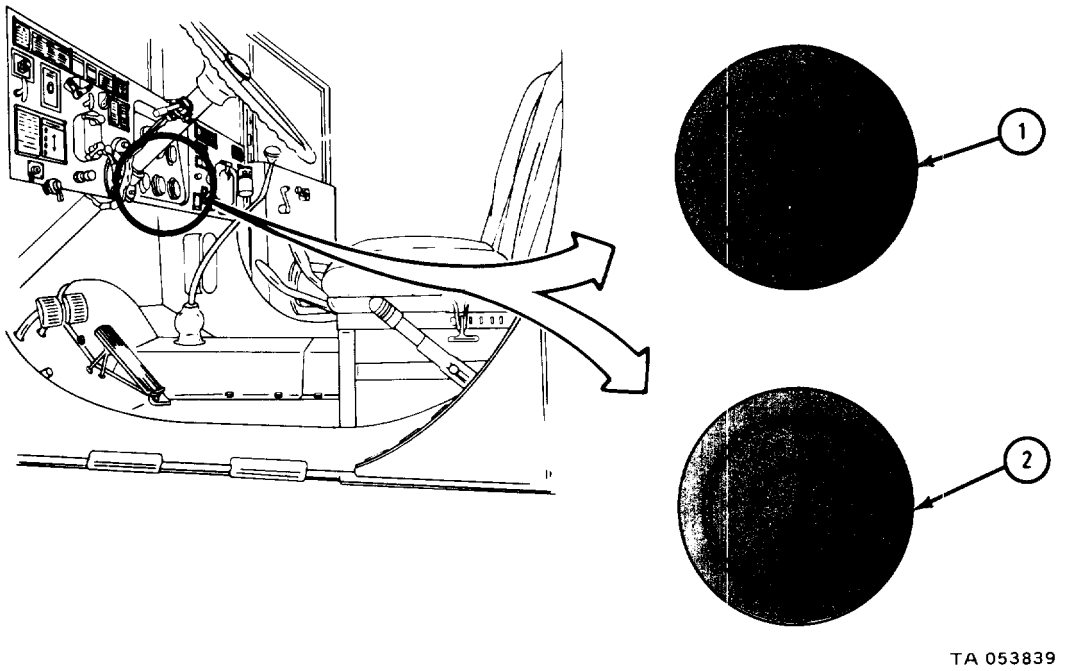
FRAME 4

CAUTION

If oil pressure gage (1) does not show correct pressure within 20 seconds or if you notice any unusual noises, stop the engine immediately.

1. Check oil pressure gage (1). If gage shows less than 15 psi (at idle speed) stop engine immediately (refer to para 4–6e) and tell organizational maintenance.
2. Check battery generator indicator (2). If pointer is not in green area, stop engine (refer to para 4-6e) and tell organizational maintenance.

GO TO FRAME 5



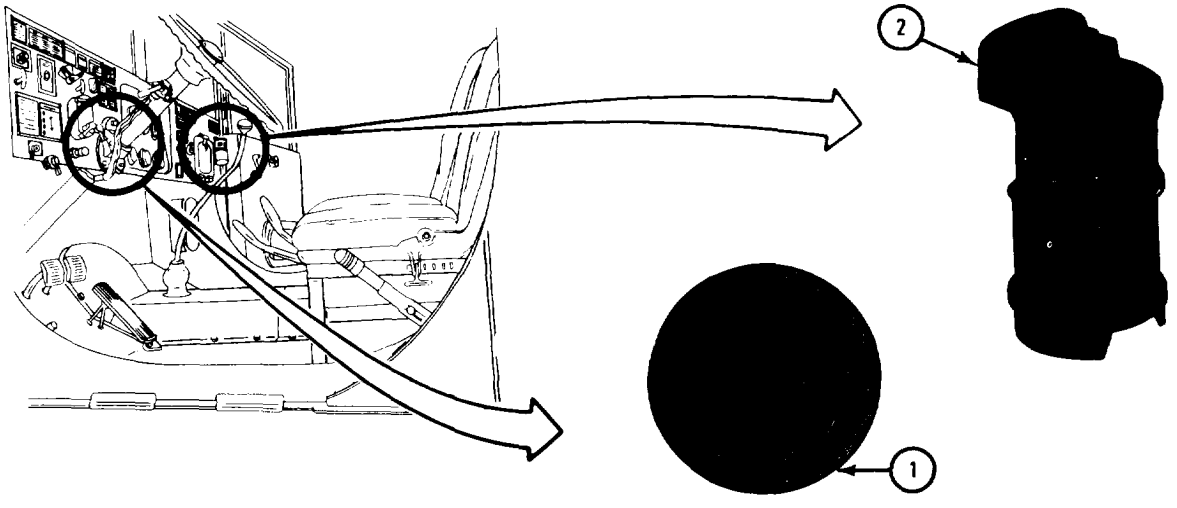
FRAME 5

WARNING

Do not drive truck until air pressure gage (1) shows at least 65 psi and the low air pressure warning buzzer has stopped. Air brakes may not work when air pressure is too low .

1. Check air pressure gage (1).
   (a) If low air pressure buzzer stops before gage shows 60 psi, stop engine (refer to para 4-6e) and tell organizational maintenance.
   (b) If the air pressure will not rise to 65 psi or above, stop engine (refer to para 4-6e) and tell organizational maintenance.
2. Check air restriction indicator (2) . Red band should not show. If red band shows in window, stop engine (refer to para 4-6e) and tell organizational maintenance.

GO TO FRAME 6



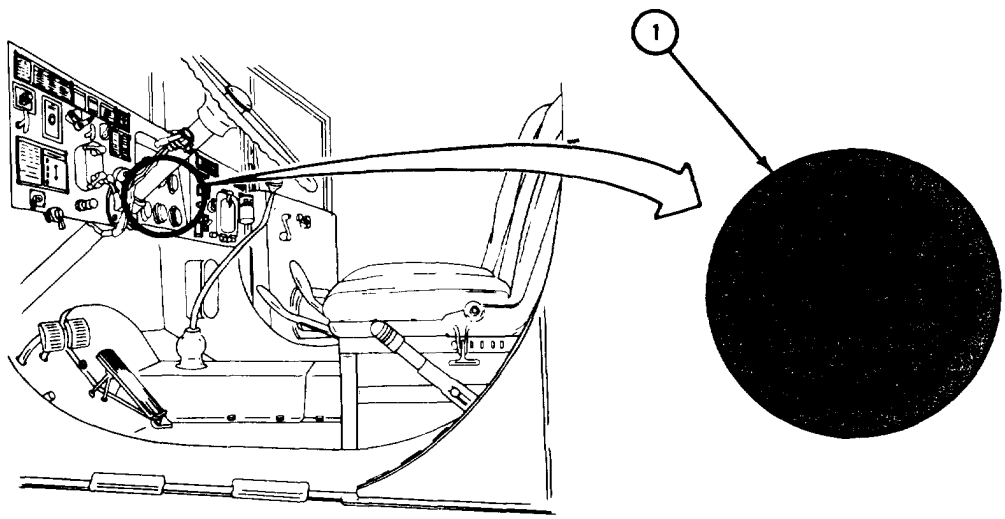
TA 053840

FRAME 6

1. Check temperature gage (1). It should show a slow rise to operating temperature of between 160 and 108°F.

   (a) If gage (1) shows a fast rise in temperature to 180°F or more, stop engine (refer to para 4-6e) and tell organizational maintenance.

   (b) If gage (1) does not show a rise in temperature as engine warms up, stop engine (refer to para 4-6e) and tell organizational maintenance.



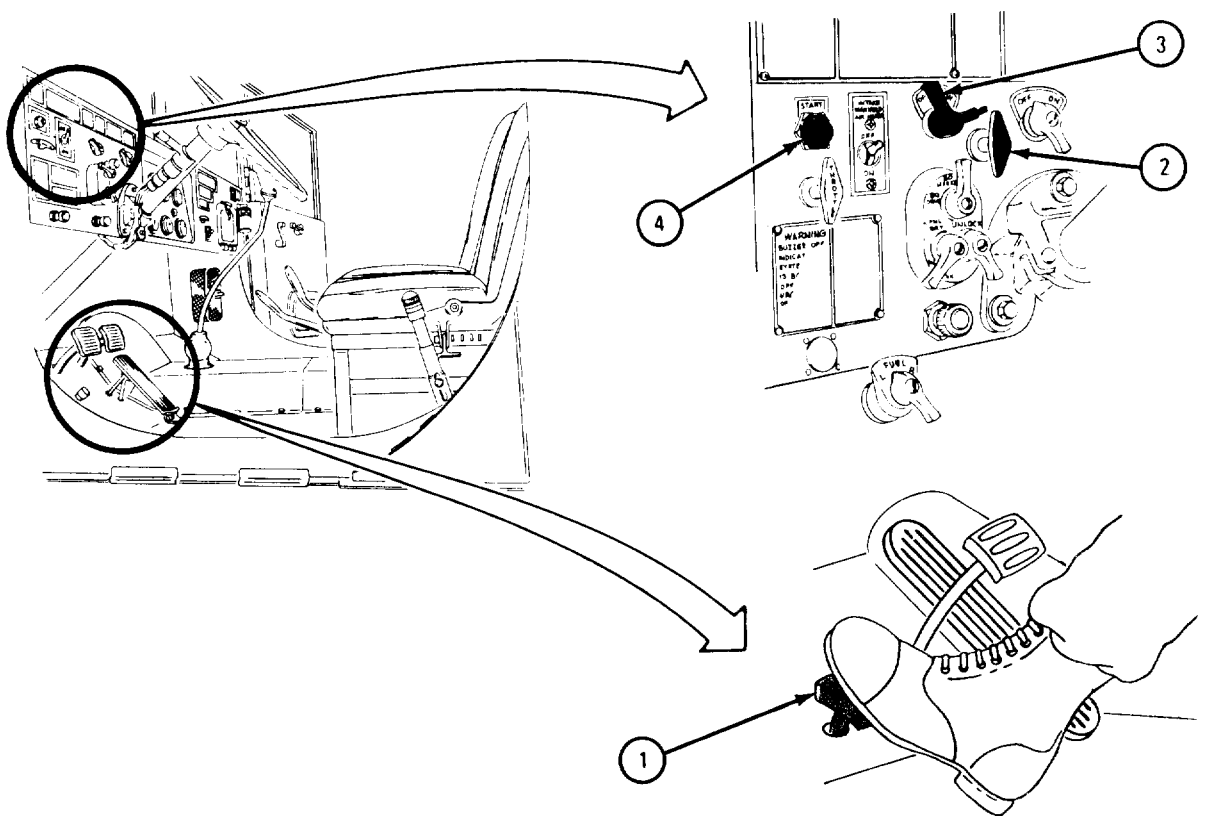
TA 053841

c. Cold Weather Starting Below +20°F.

FRAME 1

1. Make sure engine is not hydrostatically locked.
2. Step on clutch pedal (1) , press it all the way down and hold it down.
3. Pull ENG. STOP control (2) out as far as it will go and hold it out.
4. Turn BATTERY switch (3) to ON position.
5. Press engine START button (4) and hold it in for about 5 seconds.
6. Stop cranking immediately if:
   (a) Engine starts to turn over with starter and stops.
   (b) Starter sounds as if it is straining when cranking.
   (c) Engine seems to be binding.
7. Turn BATTERY switch (3) to OFF position and tell organizational maintenance.
8. If there is no sign of hydrostatic lock, push ENG. STOP control (2) all the way in.

GO TO FRAME 2



FRAME 2

1. Turn BATTERY switch (1) to ON position.
2. Pull hand THROTTLE (2) out half way.
3. Press engine START button (3) to crank engine.
4. While engine is being cranked, do the following:

   (a) Press accelerator pedal (4) down two thirds of the way.

CAUTION

Do not operate intake manifold air heater unless engine is running at low speed or being cranked.

   (b) Turn INTAKE MANIFOLD AIR HEATER switch (5) to ON position,

5. If engine does not start in 30 seconds , do the following:

   (a) Turn INTAKE MANIFOLD AIR HEATER switch (5) to OFF position.

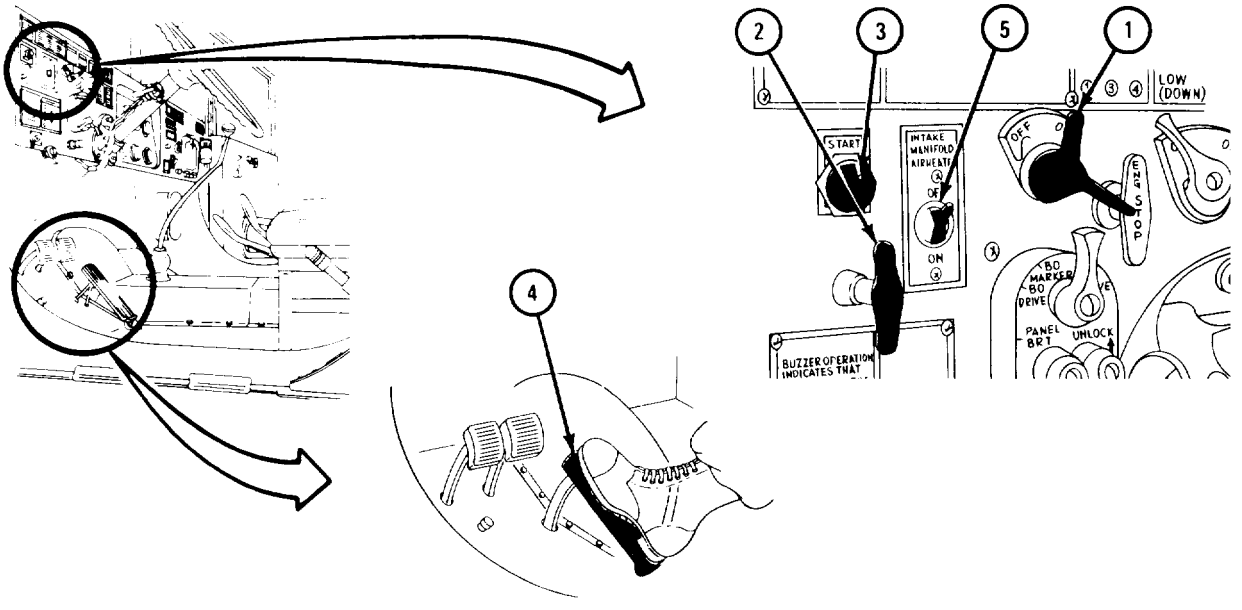
   (b) Let accelerator pedal (4) up,

   (c) Let START button (3) up.

6. Wait two minutes and do steps 3 through 5 again.

NOTE

If engine misses or does not run smoothly after starting, turn INTAKE MANIFOLD AIR HEATER switch (5) to ON position , for 30 seconds, then to OFF position. Wait a few seconds and do it again until engine runs smoothly.



TA 053843

d. Placing and Keeping Truck in Motion.

FRAME 1

1. Check to make sure that all equipment and tools are made fast for travel.
2. Turn hand THROTTLE (1) left or right a little to unlock it and push it all the way in.
3. Set light switch (2) for lighting required, Refer to table 4-1 for switch positions.
4. Step on clutch pedal (3) and press it all the way down.
5. Place FRONT TRANSMISSION gearshift lever (4) in neutral (N) position.
6. Place TRANSFER CASE lever (5) in LOW or HIGH position, depending on load. LOW position is used for heavy loads and HIGH for light loads.

NOTE

Location of TRANSFER CASE lever is different on earlier trucks. Refer to driver's compartment controls and indicators, para 4-2c.

GO TO FRAME 2

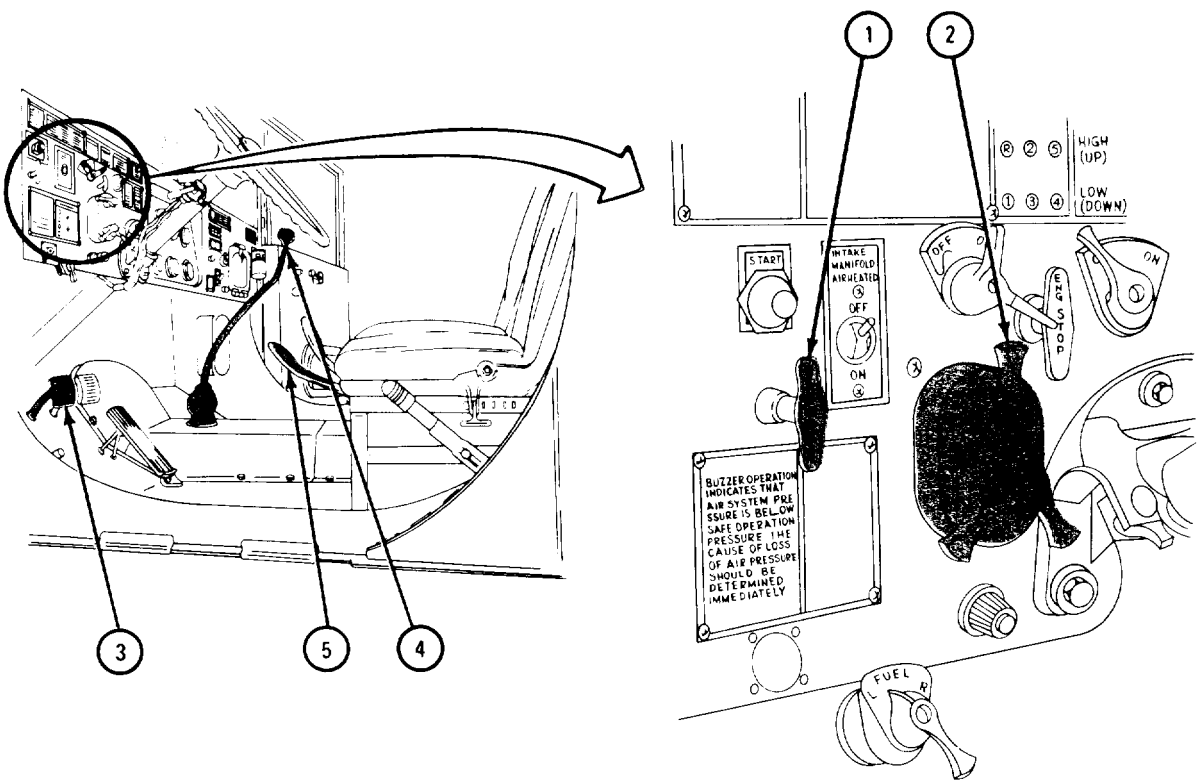
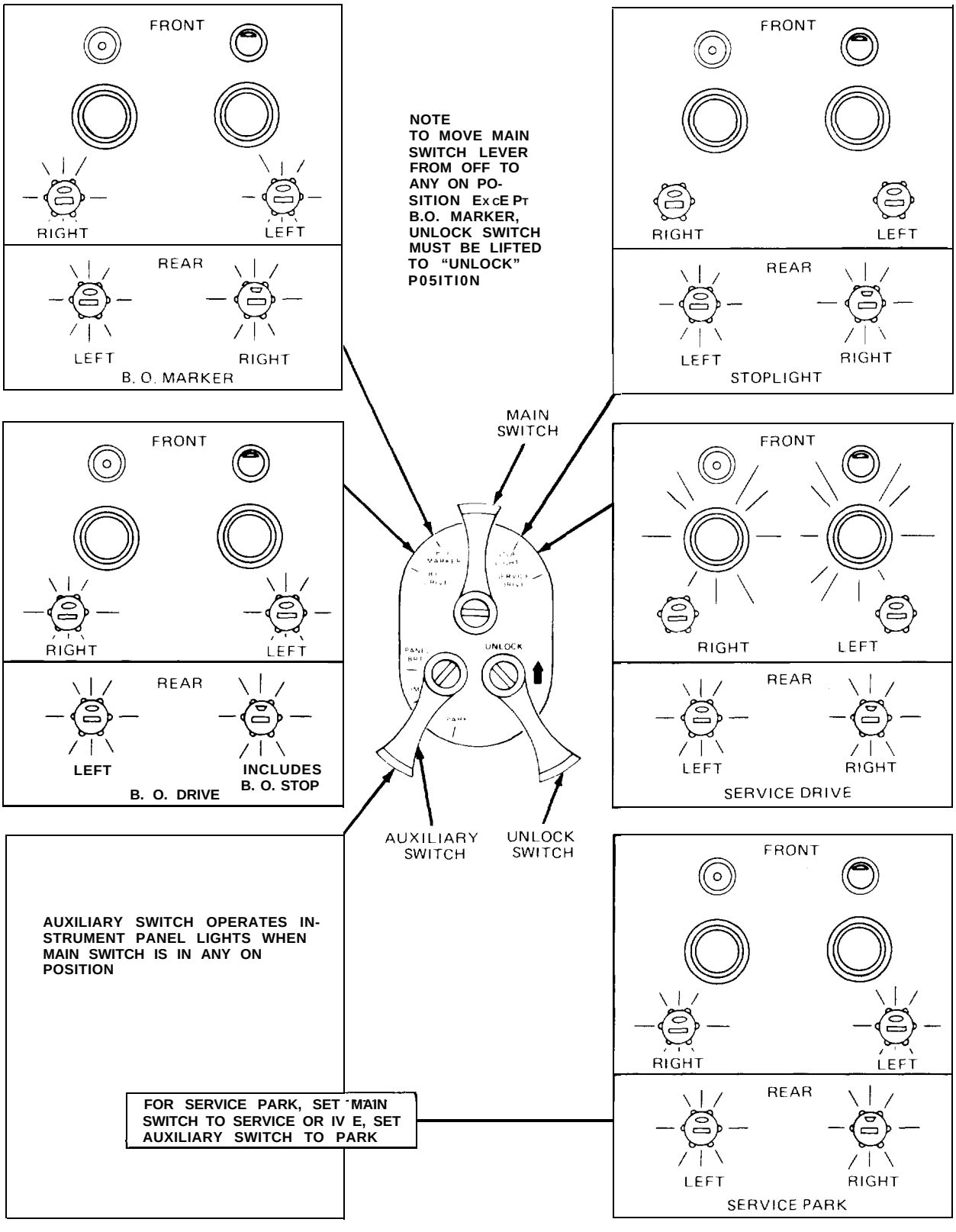
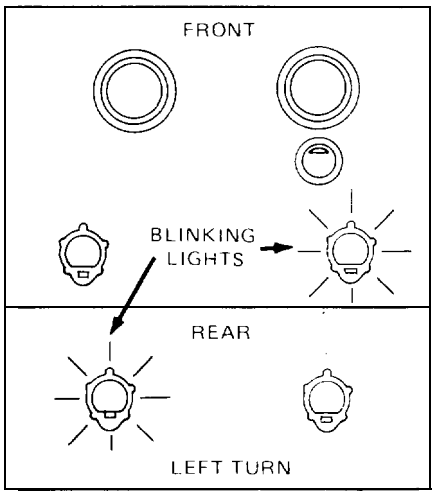


Table 4-1. Vehicle Light Chart

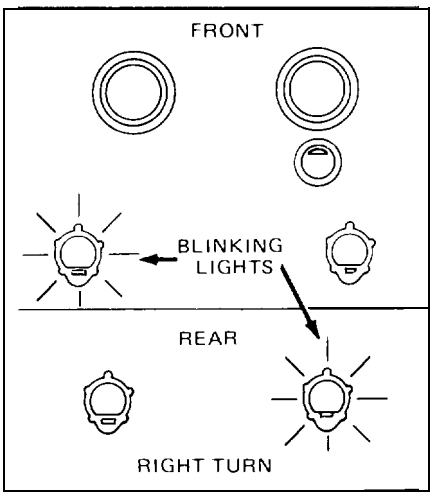


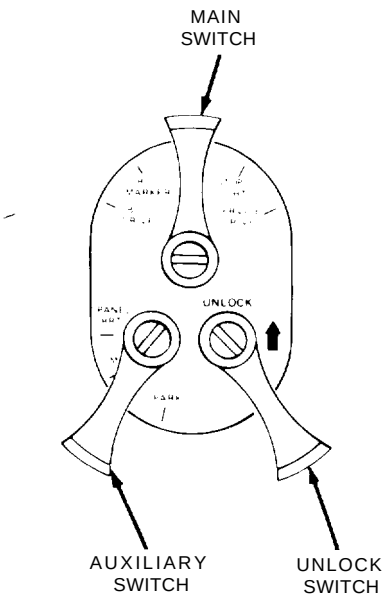
TA 047841-1

Table 4-1. Vehicle Light Chart

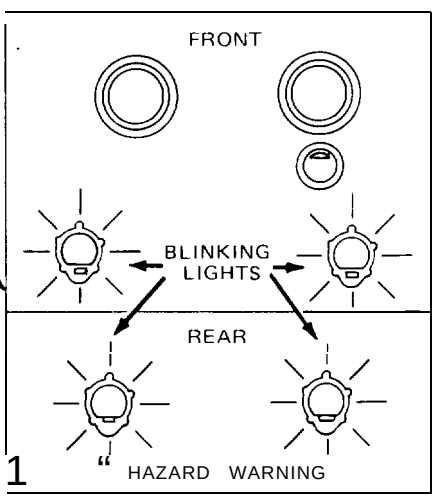


FOR TURN SIGNALS SET MOVE MAIN SWITCH TO EITHER SERVICE DRIVE OR STOPLIGHT POSITION. MOVE SET TURN SIGNAL CONTROL LEVER UP FOR RIGHT TURN ANO OOWN FOR LEFT TURN. SET MOVE TO NEUTRAL TO DEACTIVATE TURN SIGNALS





FOR HAZARD WARNING, SET MOVE MAIN SWITCH TO EITHER SERVICE DRIVE OR STOPLIGHT POSITION. PULL HAZARD FLASHER LEVER AGAINST THE DIRECTIONAL TURN SIGNAL CONTROL LEVER AND PULL BOTH LEVERS UP TO DEACTIVATE PUSH THE DIRECTIONAL TURN SIGNAL CONTROL LEVER D0WN TO CENTER POSITION.



TA 047841-2

FRAME 2

1. To move truck forward on level ground:

   (a) Place FRONT TRANSMISSION gearshift lever (1) in position 1.

   NOTE

   Position 1 (low gear) must always be used to put truck in forward motion.

   (b) Set handbrake lever (2) to down position.

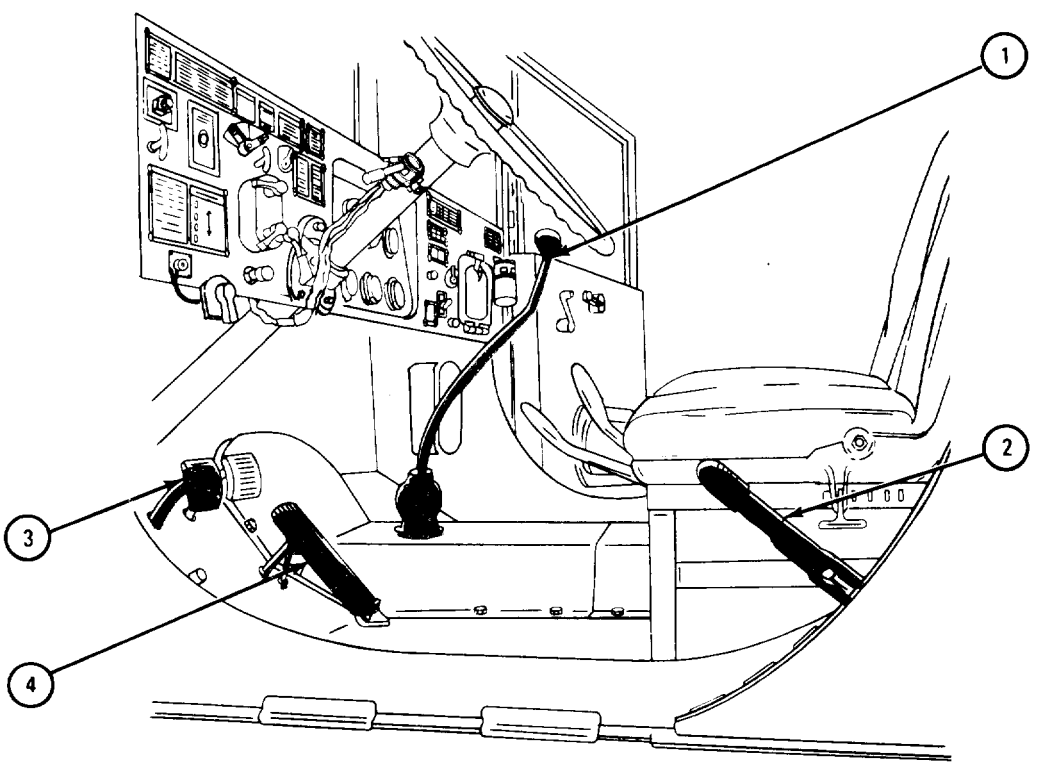
   (C) Let clutch pedal (3) come up slowly, while stepping down on accelerator pedal (4) lightly.

   CAUTION

   The clutch pedal must be all the way up when the truck is moving. Do not ride the clutch pedal.

   (d) Keep pressing down on accelerator pedal (4) to move truck slowly and keep from stalling.

GO TO FRAME 3



TA 053848

FRAME 3

1. To move truck backward on level ground, make sure that condition of truck is:

   Truck stopped.
   Engine running.
   Handbrake on.
   Clutch pedal down.
   FRONT TRANSMISSION gearshift lever in N (neutral) position.
   TRANSFER CASE lever in LOW or HIGH position.

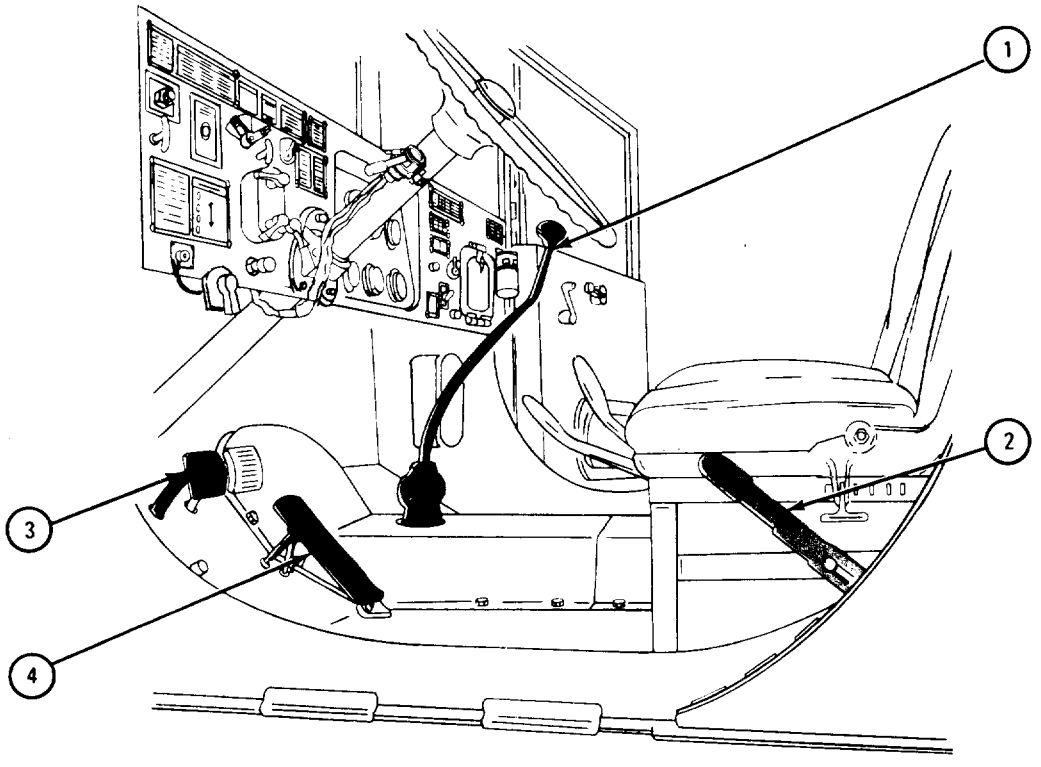
   (a) Place FRONT TRANSMISSION gearshift lever (1) in R (reverse) position.

   (b) Set handbrake lever (2) to down (brake off) position.

   (c) Let clutch pedal (3) come up slowly while stepping down on accelerator pedal (4) .

   (d) Keep pressing down on accelerator pedal (4) to move truck slowly and keep from stalling.

GO TO FRAME 4



TA 053848

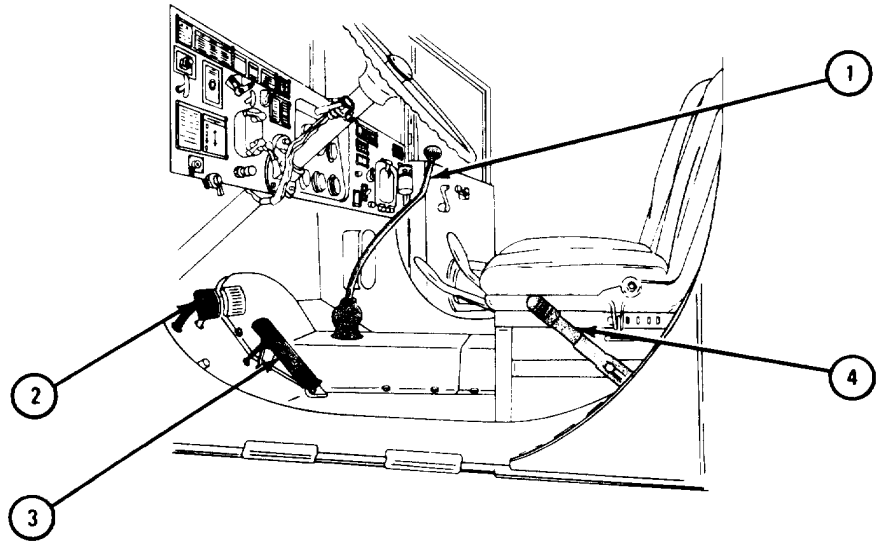
FRAME 4

1. To move truck forward on upgrade terrain, make sure that condition of truck is:

   Truck stopped.
   Engine running.
   Handbrake on.
   Clutch pedal down.
   FRONT TRANSMISSION gearshift lever in N (neutral) position.
   TRANSFER CASE lever in LOW or HIGH position.

2. Place FRONT TRANSMISSION gearshift lever (1) in position 1.
3. Let clutch pedal (2) up slowly.
4. While letting clutch pedal (2) up,
   (a) Press down on accelerator pedal (3) to keep engine from stalling.
   (b) Slowly push handbrake (4) down toward off position.
5. When truck starts to move up grade,
   (a) Push handbrake (4) down all the way.
   (b) Let clutch pedal (2) up all the way.
   (c) Press down on accelerator pedal (3) to increase speed.

GO TO FRAME 5



TA 053849

FRAME 5

1. To move truck backward on downhill terrain, make sure that condition of truck is:

   Truck stopped.
   Engine running.
   Handbrake on.
   Clutch pedal down.
   FRONT TRANSMISSION gear shift lever in N (neutral) position.
   TRANSFER CASE lever in LOW or HIGH position.

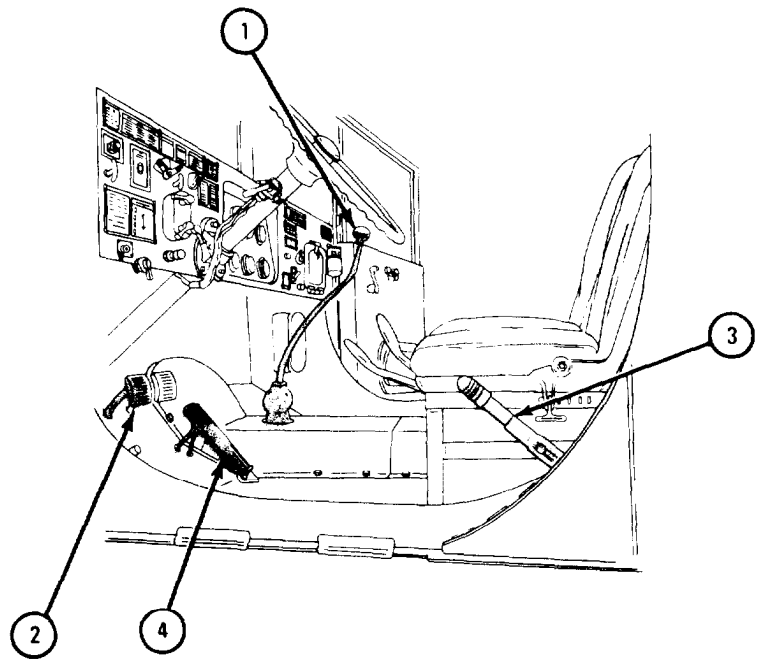
   (a) Place FRONT TRANSMISSION gearshift lever (1) in R position.

   (b) Let clutch pedal (2) up slowly until vehicle starts to move.

   (c) Move handbrake lever (3) to down (brake off) position.

   (d) Step down on accelerator pedal (4) slowly to increase speed.

GO TO FRAME 6



TA 053850

FRAME 6

1. To shift from first gear to second gear, make sure that condition of truck is:

Engine running.
Handbrake off.
Clutch pedal up.
FRONT TRANSMISSION gearshift lever in position 1.
TRANSFER CASE lever in LOW or HIGH position.
Truck moving forward,
Accelerator pedal pressed down a little.

CAUTION

Shift to next highest gear position when truck has reached a speed just below maximum shown on data plate for the position being used. Shifting too soon or too late causes extra heavy wear on engine, transmission and other parts of the vehicle.

(a) When truck speed shown on speedometer (1) or tachograph (2) is just below maximum speed shown on data plate (3) for first gear, step on clutch pedal (4) and press it all the way down.

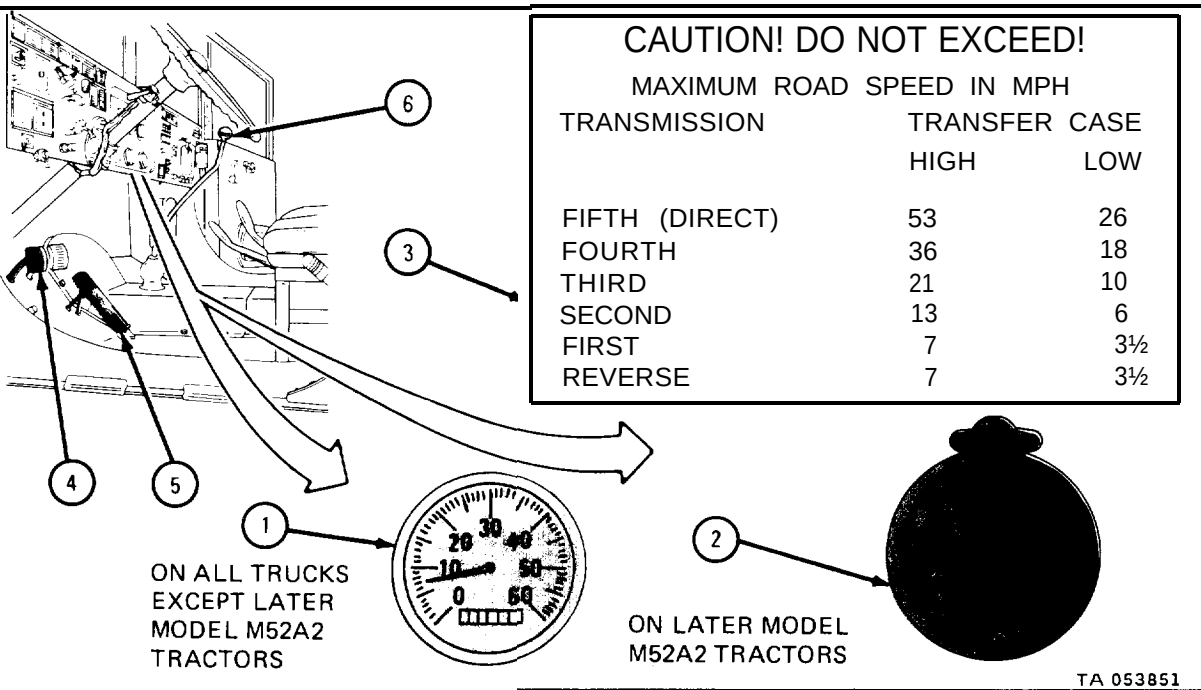
(b) Let accelerator pedal (5) up.

(c) Move the FRONT TRANSMISSION gearshift lever (6) to position 2.

(d) Let clutch pedal (4) up slowly, press down on accelerator pedal (5), bring truck to just below maximum speed for second gear.

(e) Do steps l(a) through l(d) again to shift to third, fourth, and fifth gear.

GO TO FRAME 7



CAUTION! DO NOT EXCEED!

MAXIMUM ROAD SPEED IN MPH

TRANSMISSION	TRANSFER CASE	
	HIGH	LOW
FIFTH (DIRECT)	53	26
FOURTH	36	18
THIRD	21	10
SECOND	13	6
FIRST	7	3½
REVERSE	7	3½

FRAME 7

1. To shift from LOW to HIGH TRANSFER CASE range at any speed:

   (a) Step on clutch pedal (1) and press it all the way down.

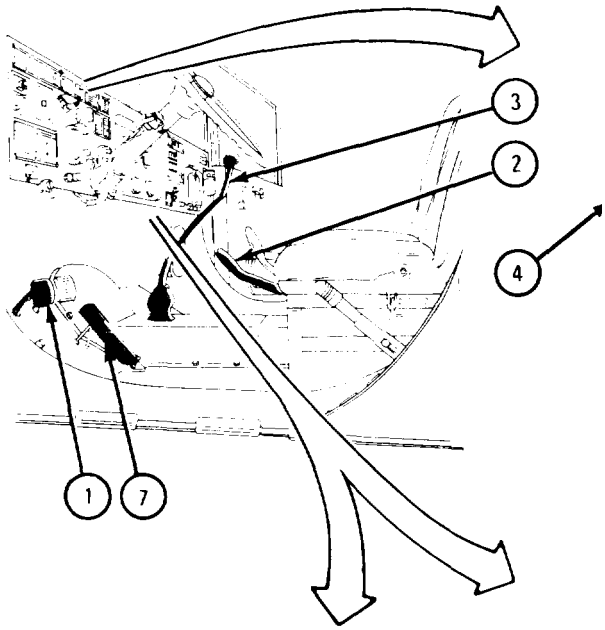
   (b) Move TRANSFER CASE lever (2) up to HIGH position.

   (c) Move FRONT TRANSMISSION gearshift lever (3) to a position, shown on the data plate (4) matching the speed of the truck. The maximum speed of the new FRONT TRANSMISSION gearshift lever position should be just over the truck speed shown on the speedometer (5) or tachograph (6) .

   (d) Press down on accelerator pedal (7) to increase speed of engine to match truck speed.

   (e) Let clutch pedal (1) come up slowly.

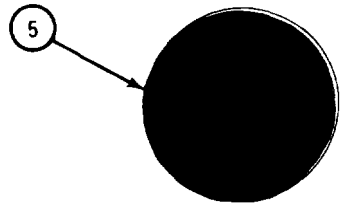
GO TO FRAME 8



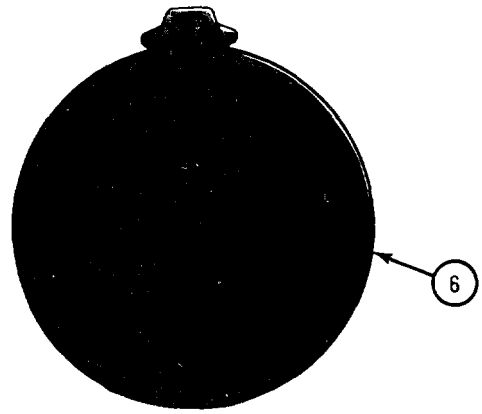
CAUTION! DO NOT EXCEED!

MAXIMUM ROAD SPEED IN MPH

TRANSMISSION	TRANSFER HIGH	CASE LOW
FIFTH (DIRECT)	53	26
FOURTH	36	18
THIRD	21	10
SECOND	13	6
FIRST	7	3½
REVERSE	7	3½



ON ALL TRUCKS EXCEPT LATER MODEL M52A2 TRACTORS



ON LATER MODEL M52A2 TRACTORS

TA 053852

FRAME 8

1. To downshift when truck cannot keep speed:

CAUTION

Do not downshift until engine speed is below 1800 rpm.

(a) Let accelerator pedal (1) up.

(b) Step down on clutch pedal (2).

(c) Move FRONT TRANSMISSION gearshift lever (3) to next lower position.

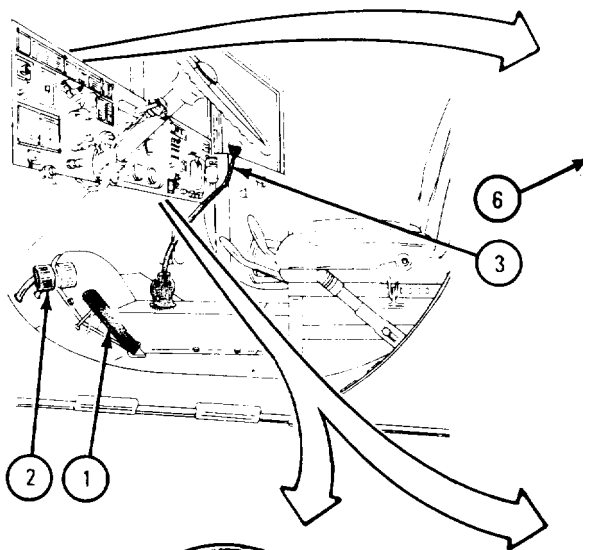
(d) Step down on accelerator pedal (1) to speed up engine to between 1600 and 1800 rpm as shown on tachometer (4) or tachograph (5) .

(e) Let clutch pedal (2) up slowly.

(f) Step down on accelerator pedal (1) to hold truck in new speed range on data plate (6) .

(g) Do steps l(a) through l(f) again if truck cannot hold speed.

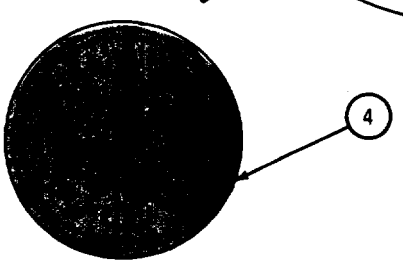
GO TO FRAME 9



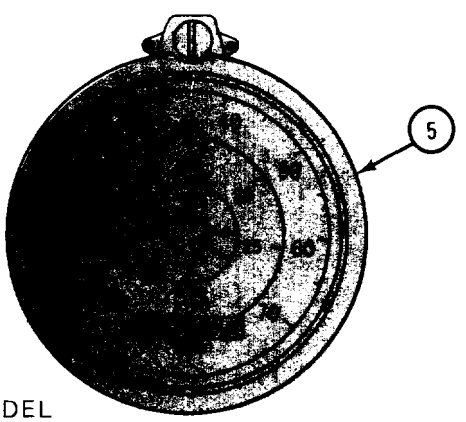
CAUTION! DO NOT EXCEED!

MAXIMUM ROAD SPEED IN MPH

TRANSMISSION	TRANSFER HIGH	CASE LOW
FIFTH (DIRECT)	53	26
FOURTH	36	18
THIRD	21	10
SECOND	13	6
FIRST	7	3½
REVERSE	7	3½



ON ALL TRUCKS EXCEPT LATER MODEL M52A2 TRACTORS



ON LATER MODEL M52A2 TRACTORS

FRAME 9

CAUTION

Do not use engine alone without help of service foot brake to slow down or stop truck. To do so would overspeed the engine and damage it.

1. To downshift for going down a hill:

(a) Let accelerator pedal (1) up.

(b) Press service foot brake (2) to slow truck to next lower speed range as shown on data plate (3) .

(c) Step down on clutch (4).

(d) Move FRONT TRANSMISSION gearshift lever (5) to next lower position.

(e) Step down on accelerator pedal (1) to speed up engine to between 1600 and 1800 rpm as shown on tachometer (6) or tachograph (7) .

(f) Let up clutch pedal (4) slowly.

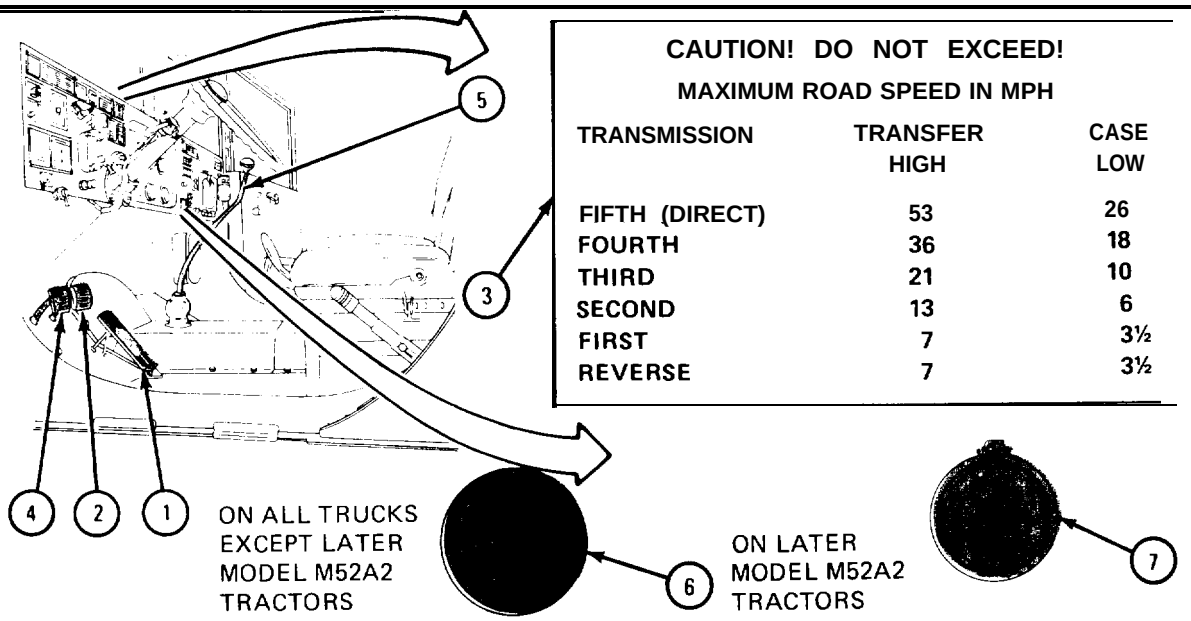
(g) Do steps 1(a) through l(f) again if truck cannot stay in speed range of last FRONT TRANSMISSION gearshift position.

NOTE

To prevent overheating brakeshoe linings when going down a steep hill, keep putting service foot brake off and on as you need it. Do not keep the brake on all of the time.

If you have to step on clutch pedal twice (double clutching) before it works, tell organizational maintenance.

GO TO FRAME 10



CAUTION! DO NOT EXCEED!

MAXIMUM ROAD SPEED IN MPH

TRANSMISSION	TRANSFER HIGH	CASE LOW
FIFTH (DIRECT)	53	26
FOURTH	36	18
THIRD	21	10
SECOND	13	6
FIRST	7	3½
REVERSE	7	3½

FRAME 10

1. To shift from HIGH to LOW TRANSFER CASE position when truck is heavily loaded or if terrain is hilly, soft, or rough:

   (a) Slow truck down to a speed below speed shown on data plate (1):

      (1) Letting up on accelerator pedal (2).

      (2) Pressing down on service foot brake (3) slowly.

   (b) Press clutch pedal (4) down all the way.

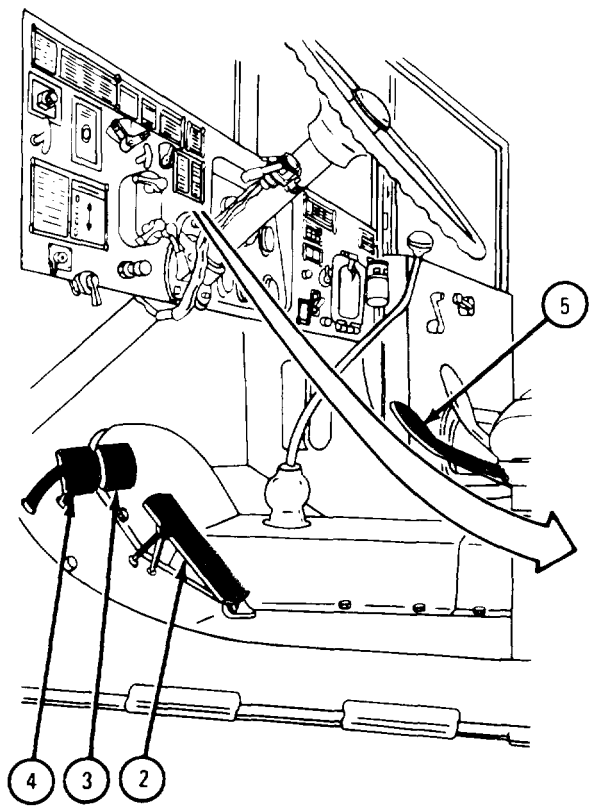
   (c) Move TRANSFER CASE lever (5) down to LOW position.

   (d) Let up on service foot brake (3).

   (e) Let clutch pedal (4) up slowly.

   (f) Step down on accelerator pedal (2) to bring truck to the speed you want.

GO TO FRAME 11



WARNING!

DO NOT SHIFT TRANSFER CASE TO LOW WHEN VEHICLE SPEED IS OVER

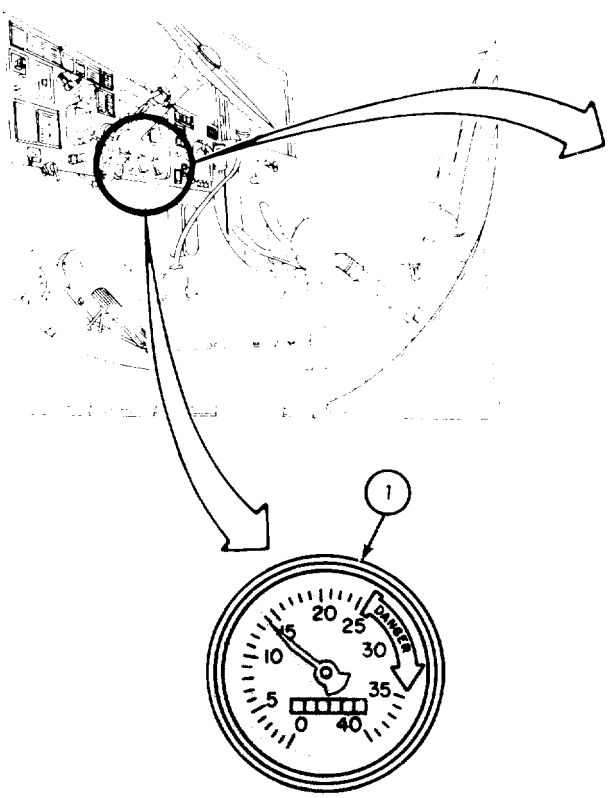
FIFTH	**26 MPH**
FOURTH	**18 MPH**
THIRD	**10 MPH**
SECOND	**6 MPH**
FIRST	**3 MPH**
REVERSE	**3 MPH**

TA 053855

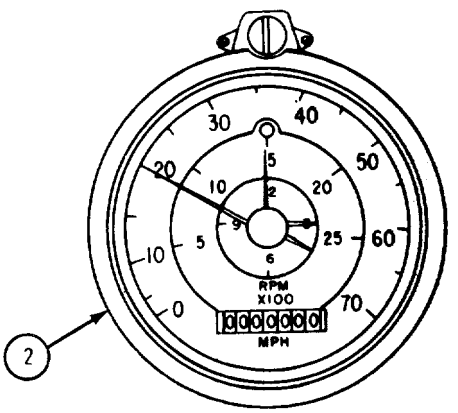
FRAME 11

1. Trucks covered by this rnanual should be operated within the following rpm limits, as shown on tachometer (1) , or tachograph (2) :

(a) 1400	Lowest engine rpm recommended for operating under load.
(b) 1600 to 1800	Engine rpm recommended for downshifting.
(e) 1800 to 2400	Engine rpm recommended for cruising.
(d) 2600	Highest engine operating rpm when under load in any gear.



ON ALL TRUCKS EXCEPT LATER MODEL M52A2 TRACTORS



ON LATER MODEL M52A2 TRACTORS

TA 053856

e. Stopping the Truck and Engine.

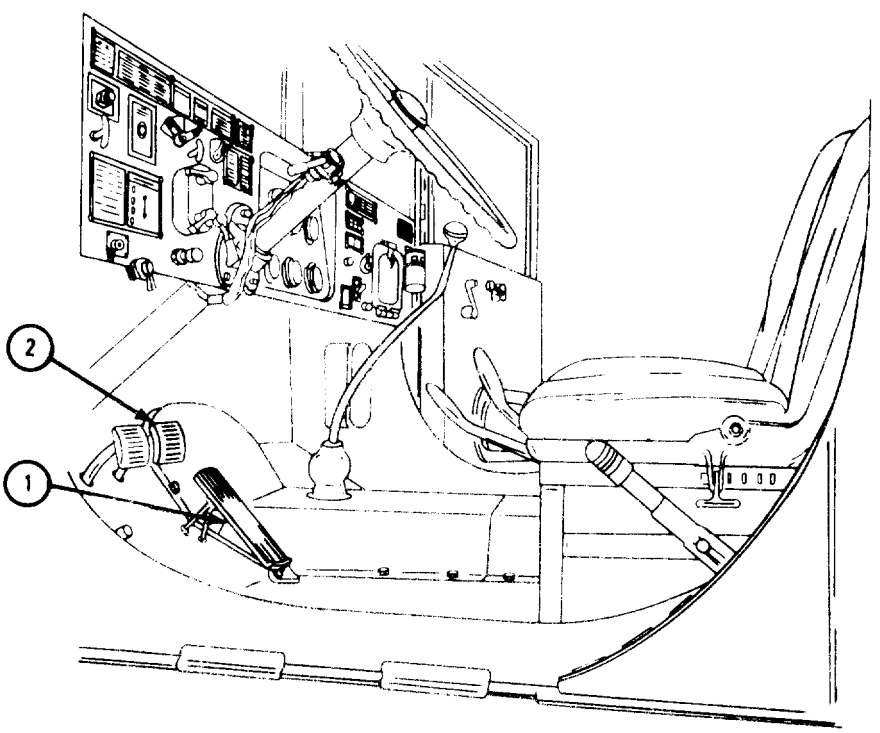
FRAME 1

1. To stop truck, take foot off accelerator pedal (1) .
2. Step on service foot brake (2) and press down evenly.

NOTE

Do not pump service foot brake or press down on clutch pedal yet. When the truck is in gear, the engine helps to slow down the truck .

GO TO FRAME 2



TA 053857

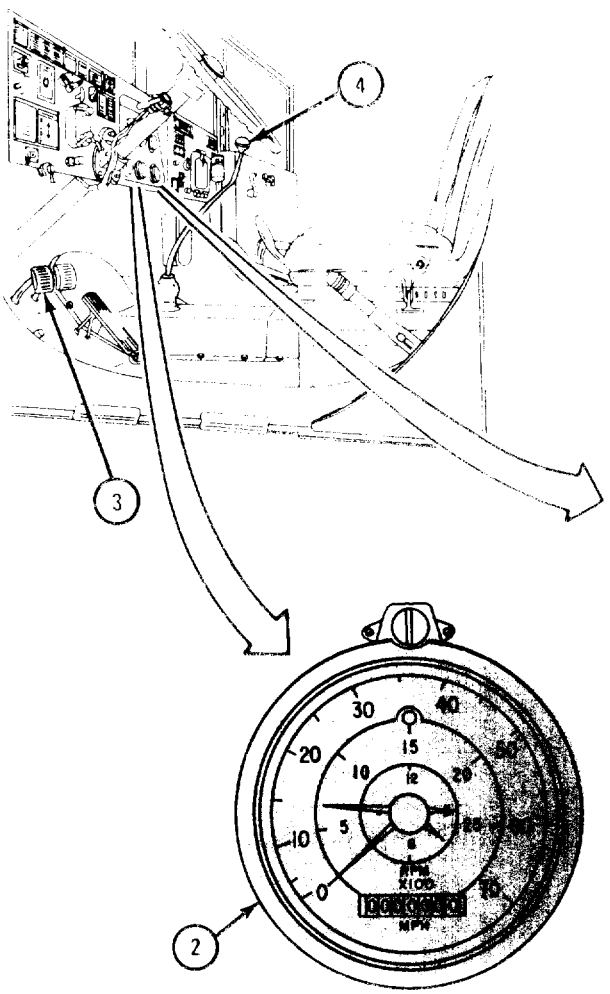
FRAME 2

1. When the truck has been slowed down to where engine runs at near idle speed (600 to 700 rpm) as shown on tachometer (1) or tachograph (2):

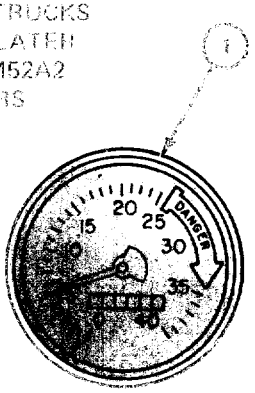
   (a) Step on clutch pedal (3) and press it all the way down.

   (b) Move FRONT TRANSMISSION gearshift lever (4) to N (neutral position).

GO TO FRAME 3



ON ALL TRUCKS EXCEPT LATER MODEL M52A2 TRACTORS



ON LATER MODEL M52A2 TRACTORS

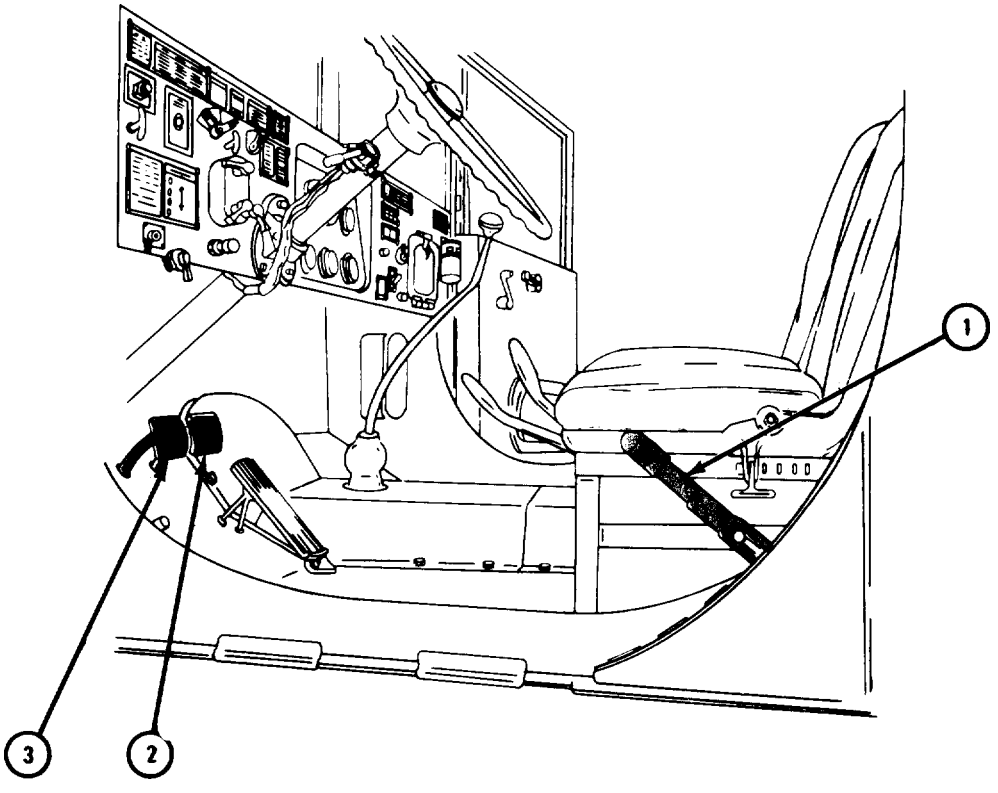
FRAME 3

1. When truck has come to a complete stop, pull handbrake lever (1) up,
2. Take foot off service brake pedal (2) .
3. Let clutch pedal (3) come up.

CAUTION

Do not let truck roll.

GO TO FRAME 4



TA 053859

FRAME 4

CAUTION

After starting an engine, run at slow speed for five minutes before shutdown to prevent damage to turbo-charger. This five minutes at slow speed also lets a hot engine cool off.

1. To stop engine normally after letting it run at idle speed for five minutes:

   (a) Turn BATTERY switch (1) and all other switches in driver's compartment to OFF positions.

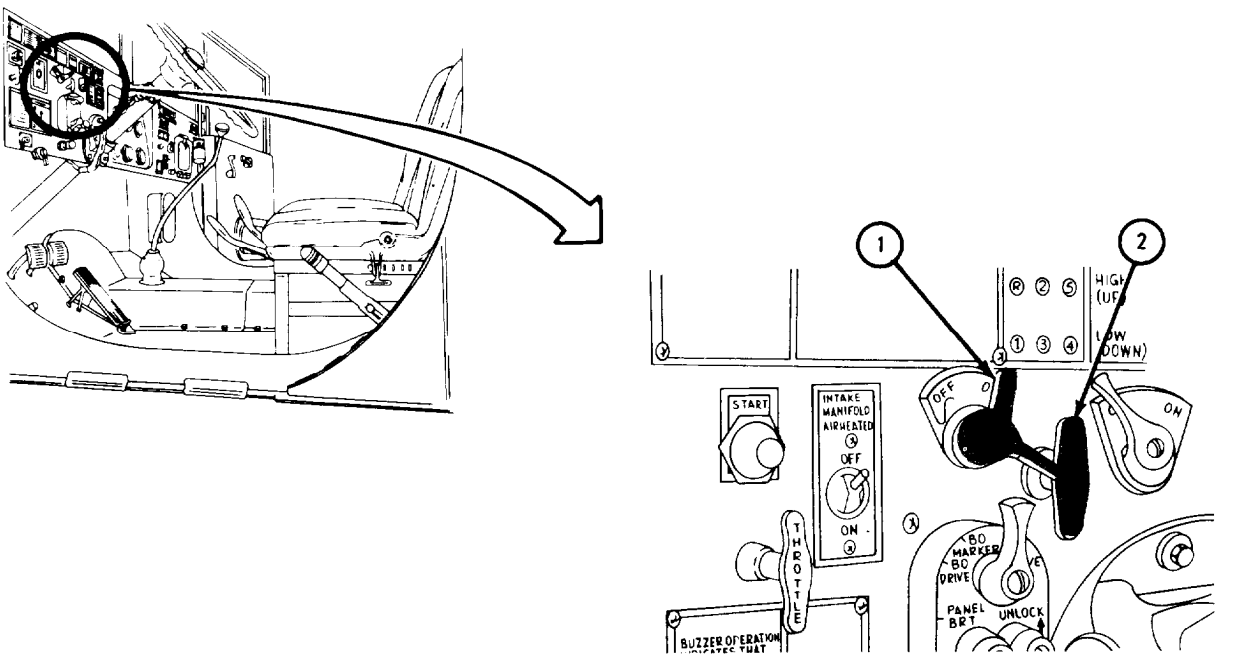
WARNING

If engine does not stop after you have pulled the ENG. STOP control (2) out, leave the truck immediately and take cover to avoid personal injury.

   (b) Pull ENG. STOP control (2) out to cut off flow of fuel. Leave it in out position.

   (c) Do all after-operation preventive maintenance checks and services. Refer to PMCS , vol 2, chapter 1 for procedures.

GO TO FRAME 5



TA 053860

FRAME 5

Immediate engine stop, done to prevent serious damage to engine.

(a) Turn BATTERY switch (1) to OFF position.

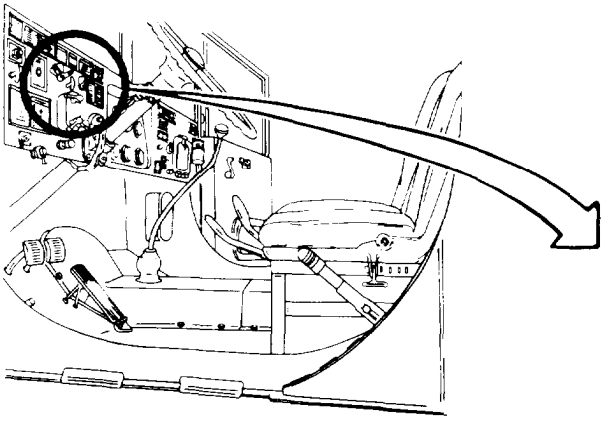
WARNING

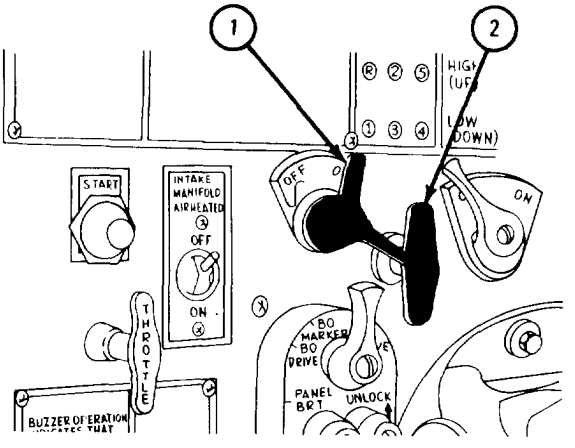
If engine does not stop after you have pulled the ENG. STOP control knob (2) out, leave the truck immediately and take cover to avoid personel injury.

(b) Pull ENG. STOP control knob (2) out to cut off flow of fuel. Leave it in out position.

(c) Turn all other switches in driver's compartment to OFF positions.

(d) Do all after-operation preventive maintenance checks and services. Refer to PMC S , vol 2, chapter 1 for procedures.





TA 053860

4-7. OPERATION OF FRONT WINCH.

a. General. Any of the 5-ton 6 x 6 trucks covered in this manual can be equipped with a front winch. Some of the trucks may also have a level wind device with a cable tensioner joined to the winch. The front winch is mounted on the front of the truck on support brackets joined to the left and right side rail extensions. The level wind devices and tensioner are mounted on the winch. Movement of cable under tension over the level wind sheave causes the sheave trolley to move from side to side and wind the cable in layers. Power to drive the winch drum is supplied through a propellor shaft extending from a power takeoff mounted on the transmission. The control for the power takeoff is located in the driver's compartment. The winch has an automatic safety brake to hold the winch load when the power takeoff is shifted. The winch load capacity is 20,000 pounds with one cable layer on the drum, the capacity becomes less with each additional layer of cable on the drum . Refer to Vehicle Recovery Operations, FM 20–22.

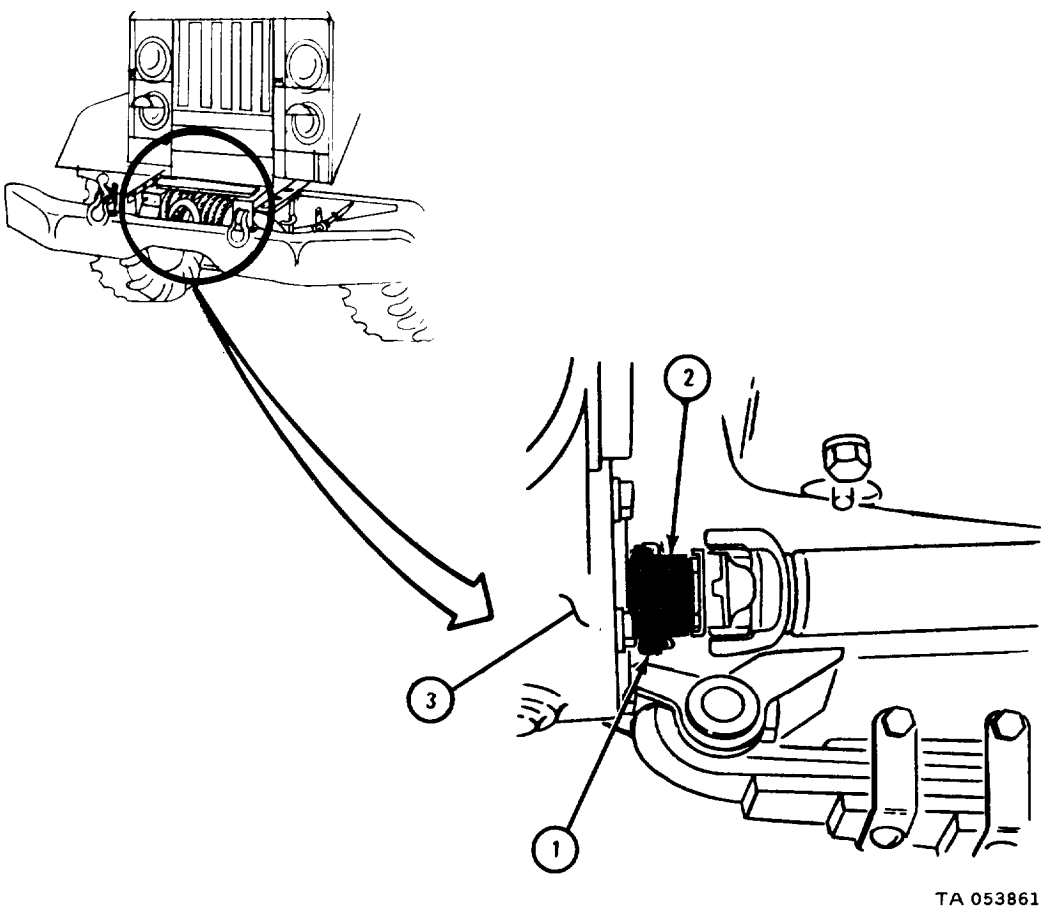
b. Before Operation.

FRAME 1

WARNING

Do not operate winch with a shear pin other than the aluminum alloy pin shown in the parts list for winch being used. Always stand clear of the winch cable under load. A snapped cable can cause serious injury.

1. From underneath truck, check shear pin (1) in universal joint yoke (2) and winch shaft (3) and make sure that it is the aluminum alloy pin called for in parts list.

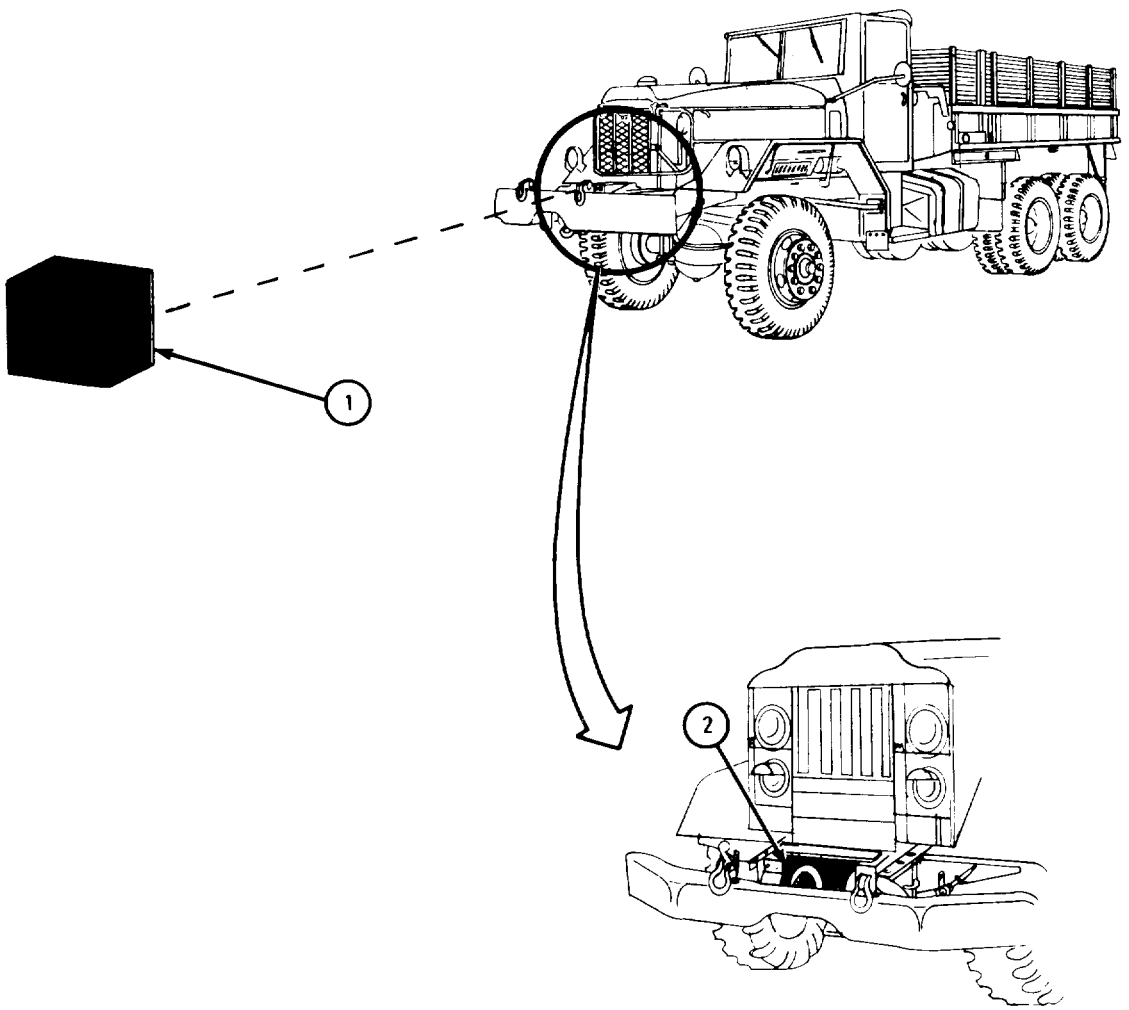


c. Unwinding the Winch Line.

FRAME 1

1. Start engine. Refer to para 4-6a, b.
2. Place truck in line with object (1) to be reeled in. This makes it easier to wind the cable level on winch (2).

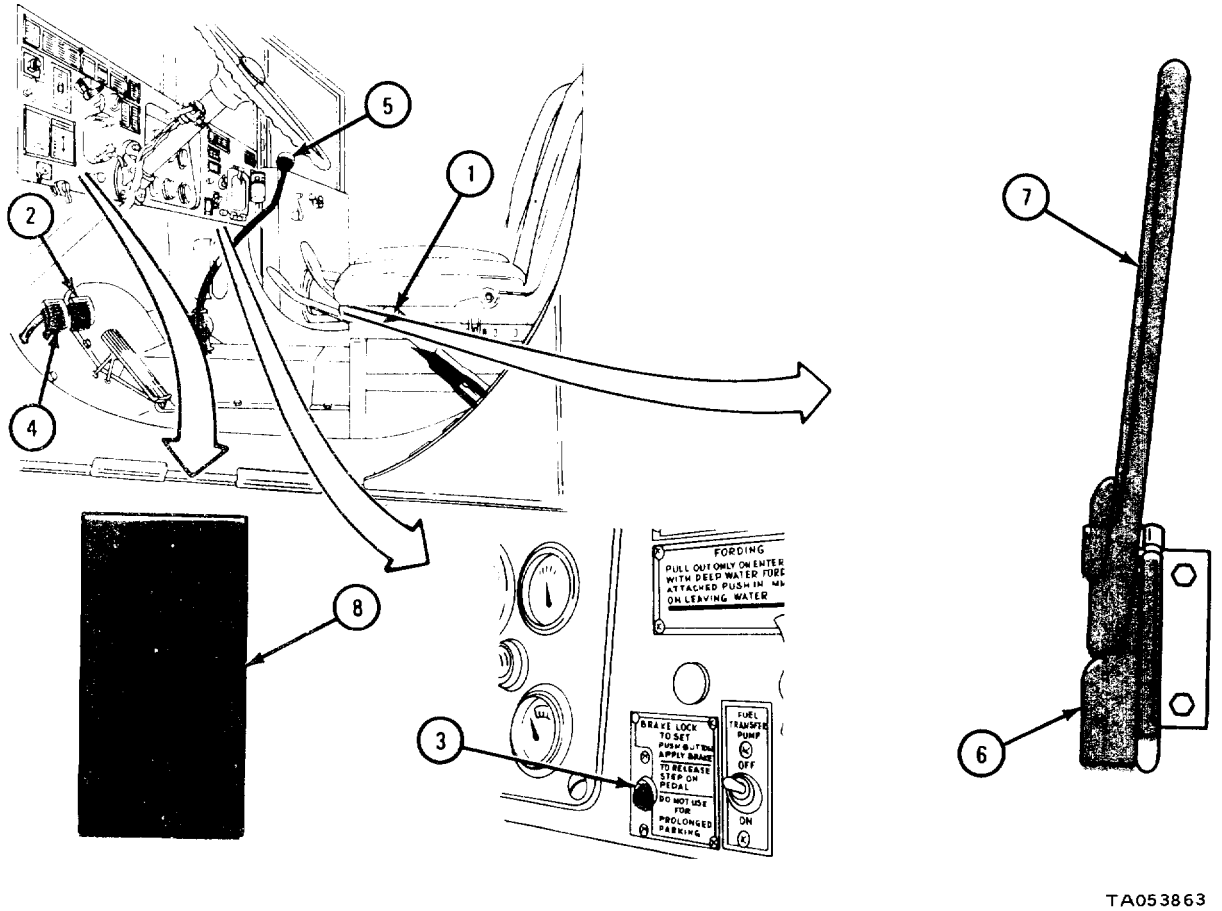
GO TO FRAME 2



FRAME 2

1. Pull handbrake (1) up to on position.
2. On wrecker trucks, set electric brake.
   (a) Press down on service foot brake (2),
   (b) Press electric BRAKE LOCK button (3).
   (c) Let up on service foot brake (2).
   (d) Let up on electric BRAKE LOCK button (3).
3. Press clutch pedal (4) all of the way down.
4. Place FRONT TRANSMISS1ON gearshift lever (5) in N (neutral) position.
5. Let clutch pedal (4) up.
6. Turn front winch control lever hinge lock (6) to unlocked position.
7. Keep front WINCH CONTROL lever (7) in upper N position as shown on data plate (S) .

GO TO FRAME 3

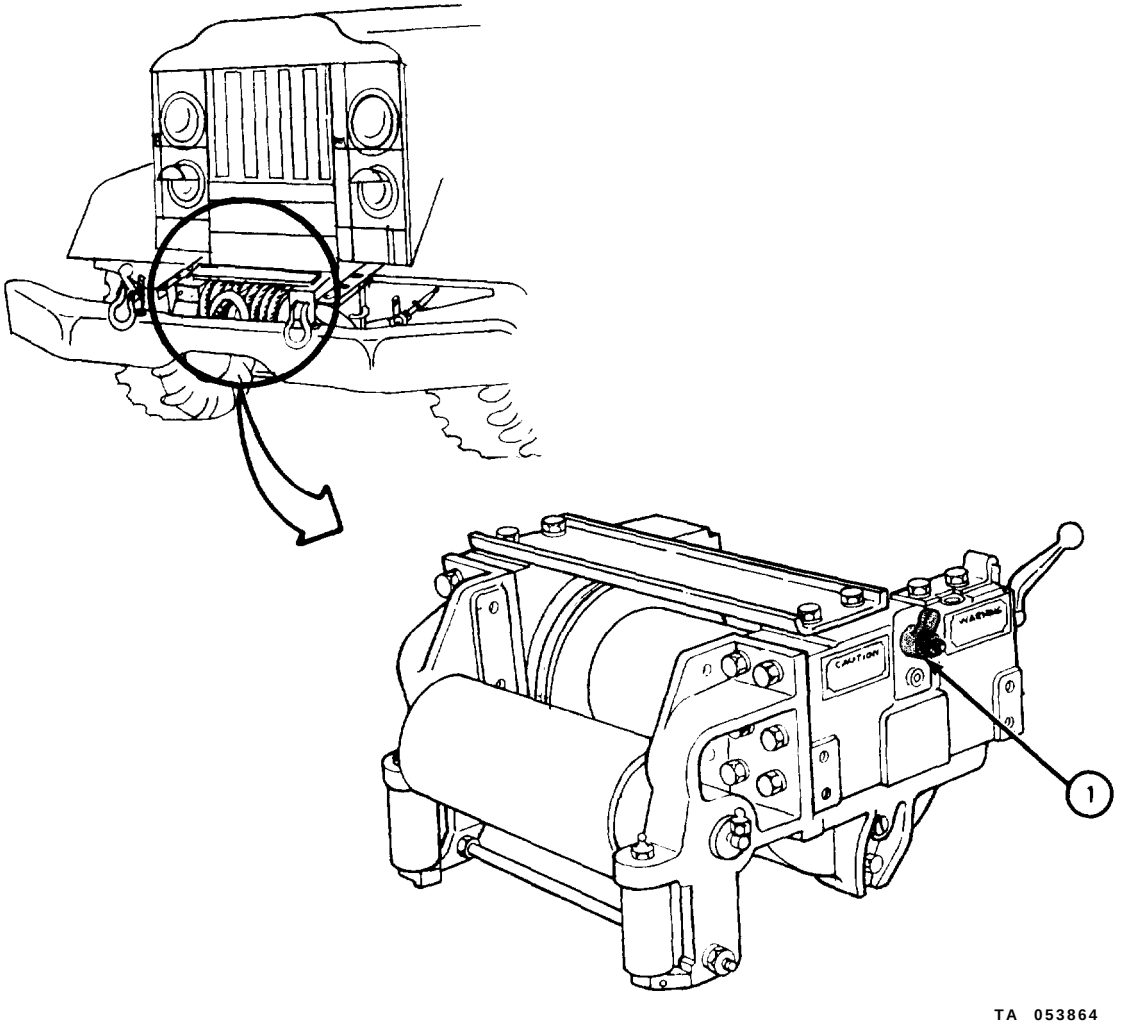


TA053863

FRAME 3

1. Pull front winch drum lock knob (1) out of deep slot, turn it 90°, and let it go into shallow slot (unlocked position).

GO TO FRAME 4



TA 053864

FRAME 4

1. On trucks with level wind device:

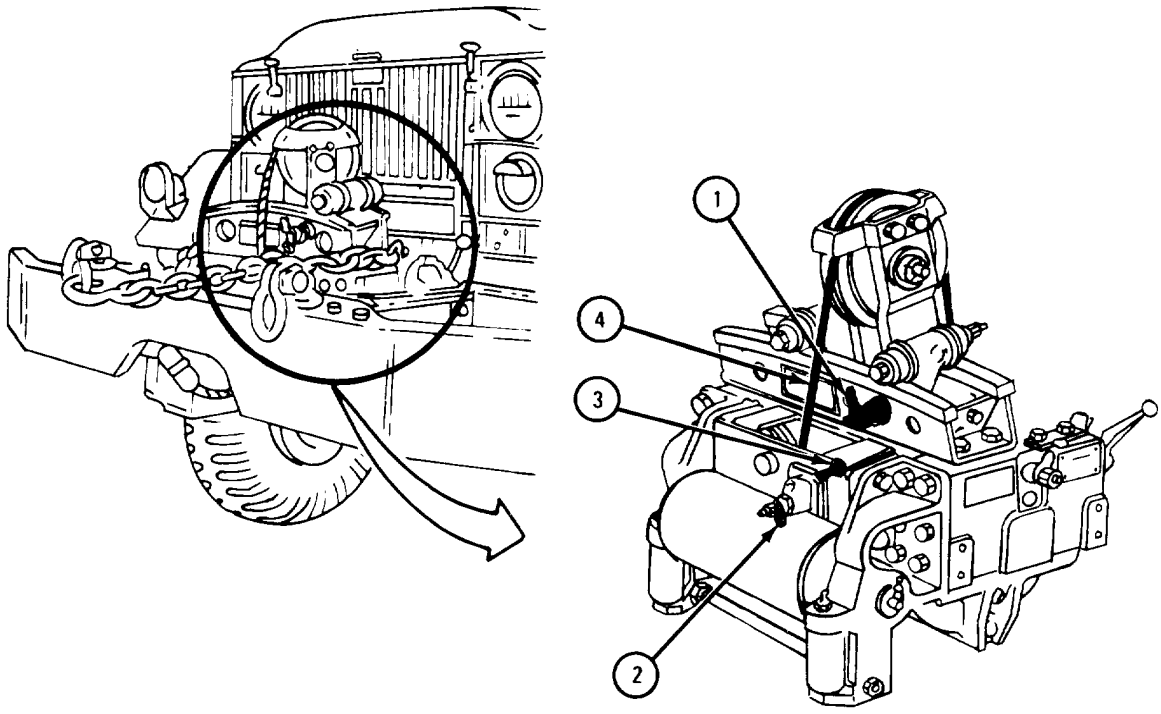
   (a) Pull front winch level wind lock knob (1) out of deep slot, turn it 90°, and let it go into shallow slot to unlock level wind device.

   (b) Pull front winch cable tension control lever latch (2) out, turn it 90°, and let it go into shallow slot to unlock cable tension control lever (2) .

   (c) Move front winch cable tension control lever (3) toward the left side of truck as far as it will go to take tension off the cable (4).

   (d) Pull front winch cable tension control lever latch (2) out , turn it 90°, and let it go into deep slot. Move cable tension control lever' (3) a little so that plunger slips into hole locking lever (3) in off position.

GO TO FRAME 5



TA 053865

FRAME 5

WARNING

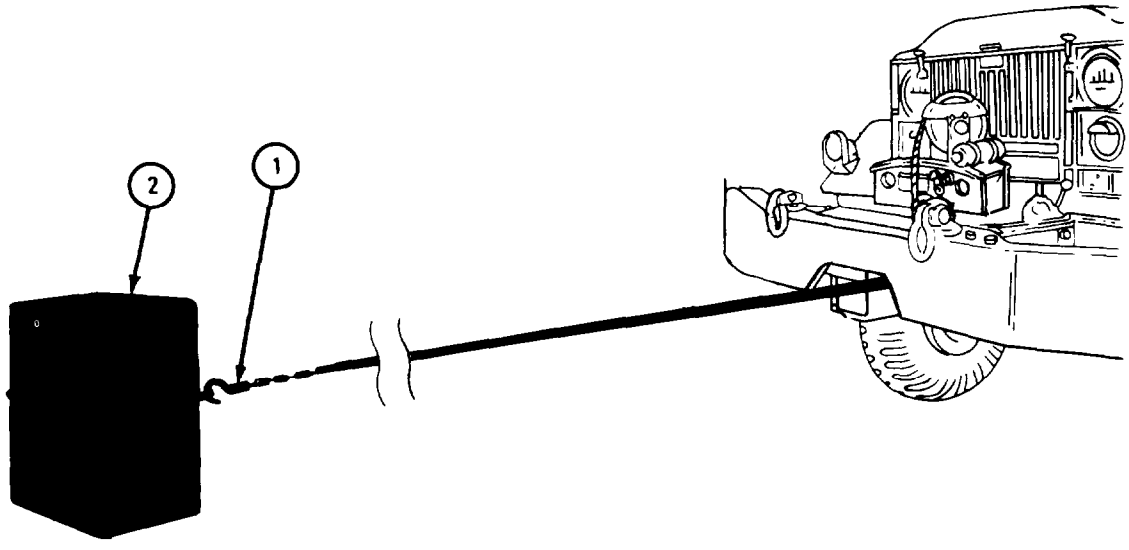
Always wear protective gloves when handling winch cable. Do not let winch cable slip through hands. Rusty or broken wires can cause serious injury.

CAUTION

Do not operate winch with less than four turns of cable on drum. The cable clamp screw alone will not hold against a load. Do not kink winch cable.

1. Pull end of winch cable (1) out to reach object to be pulled (2) .
2. Tie winch cable (1) to object to be pulled (2) and make it fast.

GO TO FRAME 6

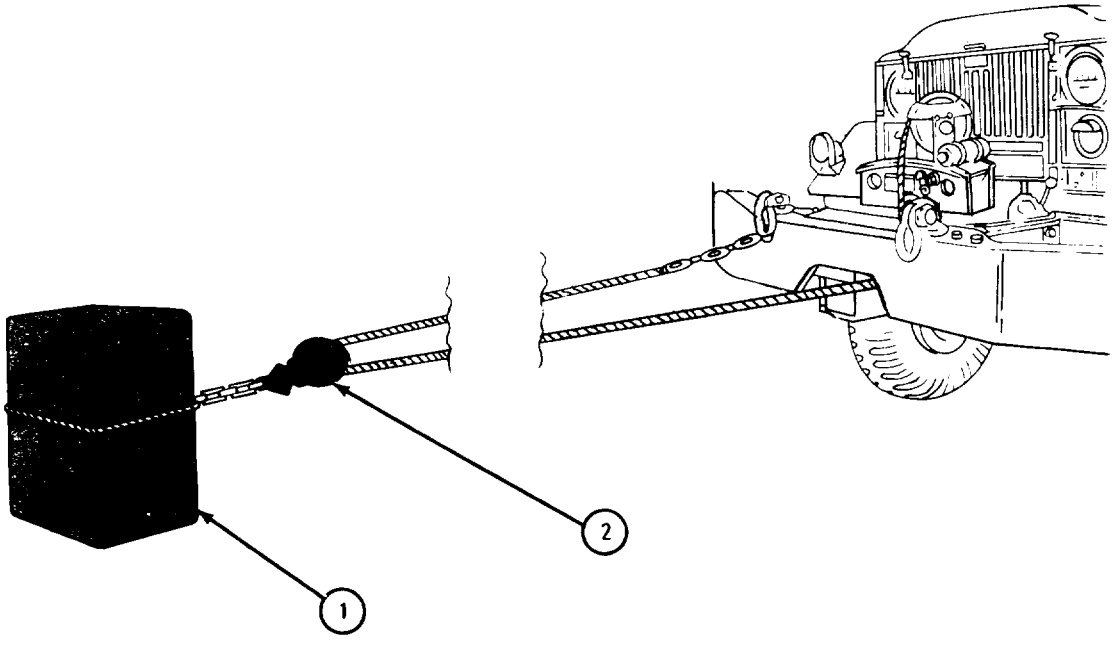


TA 053866

FRAME 6

1. For heavier loads (1) , use a single sheave snatch block (2) as shown.

G0 TO FRAME 7



TA 053867

FRAME 7

1. On wrecker trucks for recovery of heavier loads, if field chocks are needed to hold truck in position:

   (a) Using adjustable wrench, take out stowage bolts (1) holding ball end of field chocks (2) to shipper (3).

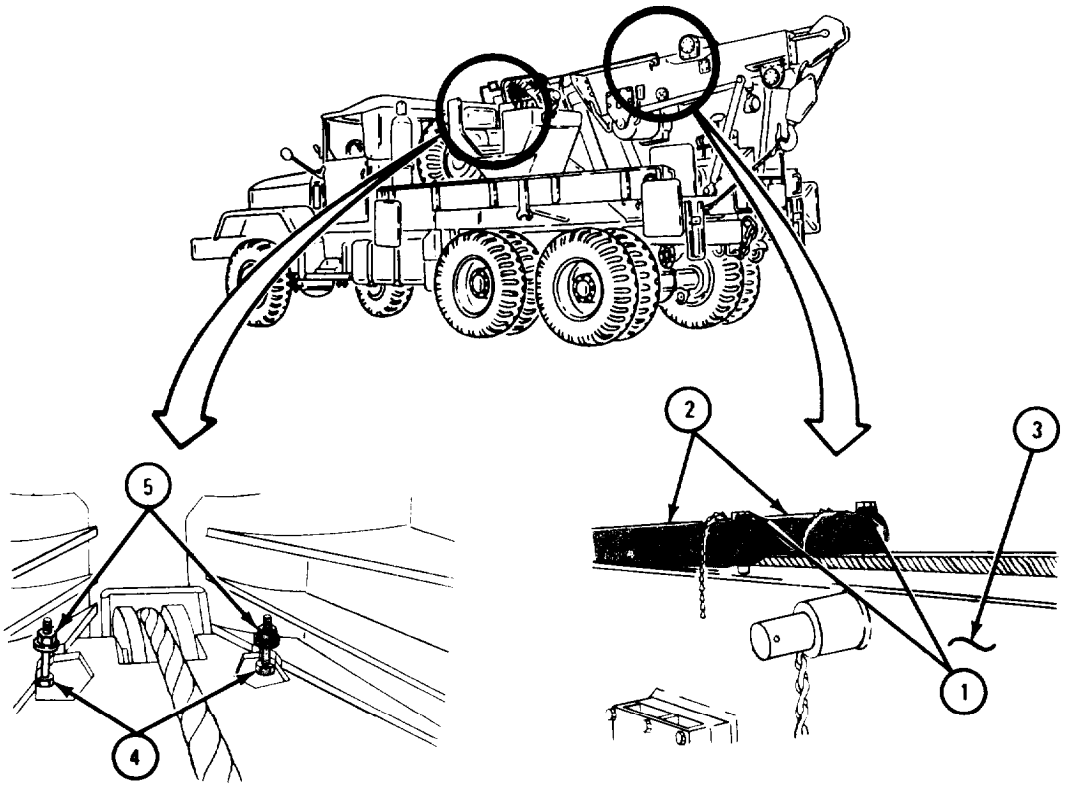
   (b) Using 9/16-inch box wrench and adjustable wrench, take out stowage bolts (4) and nuts (5) holding other end of field chocks (2) to shipper (3).

   (c) Take field chocks (2) off the shipper (3) .

   (d) Screw stowage bolts (1) back into shipper (3) so that they will not get lost .

   (e) Place stowage bolts (4) back into holes in shipper and screw on nuts (5).

GO TO FRAME 8

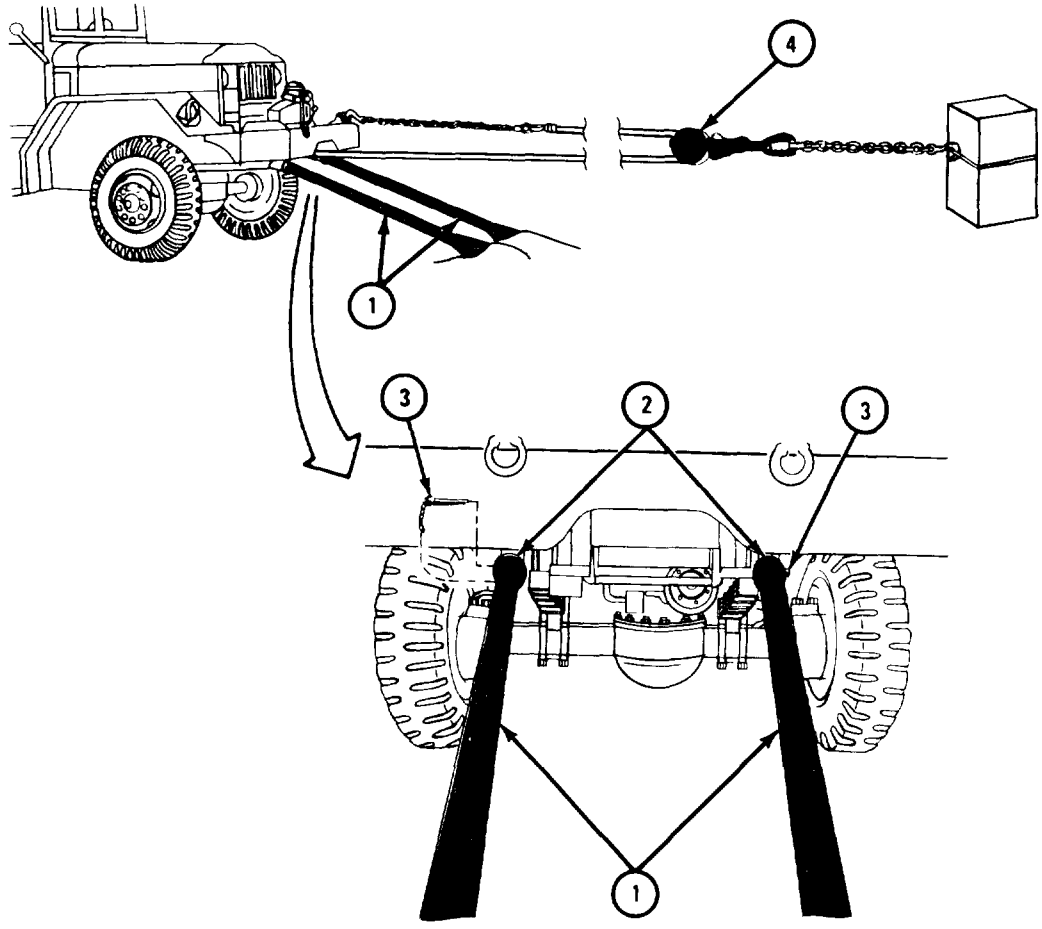


TA 053868

FRAME 8

1. Place two field chocks (1) in brackets (2) on front of truck. Place pins (3) through holes in brackets (2) and field chocks (1) , locking them.
2. Use a single sheave snatch block (4) as shown.

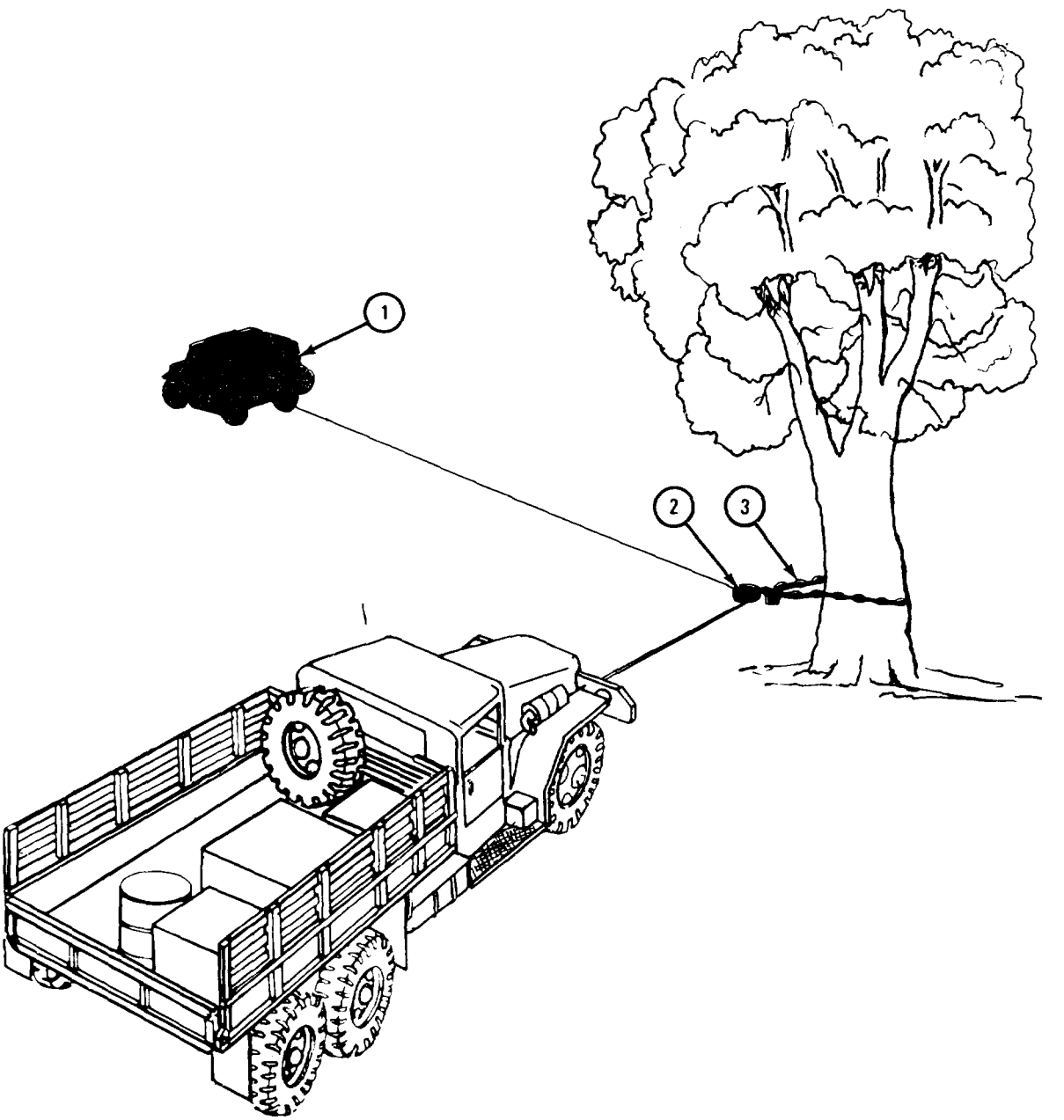
GO TO FRAME 9



TA 053869

FRAME 9

1. To pull an object (1) that is not in a straight line (directional pull) , use snatch block (2) and utility chain (3) , as shown.



d. Pulling the Load,

WARNING

During all winch operations, the instant that slack in winch cable (1) is taken up is critical. Tell all personnel to stand clear of winch cable and load (2).

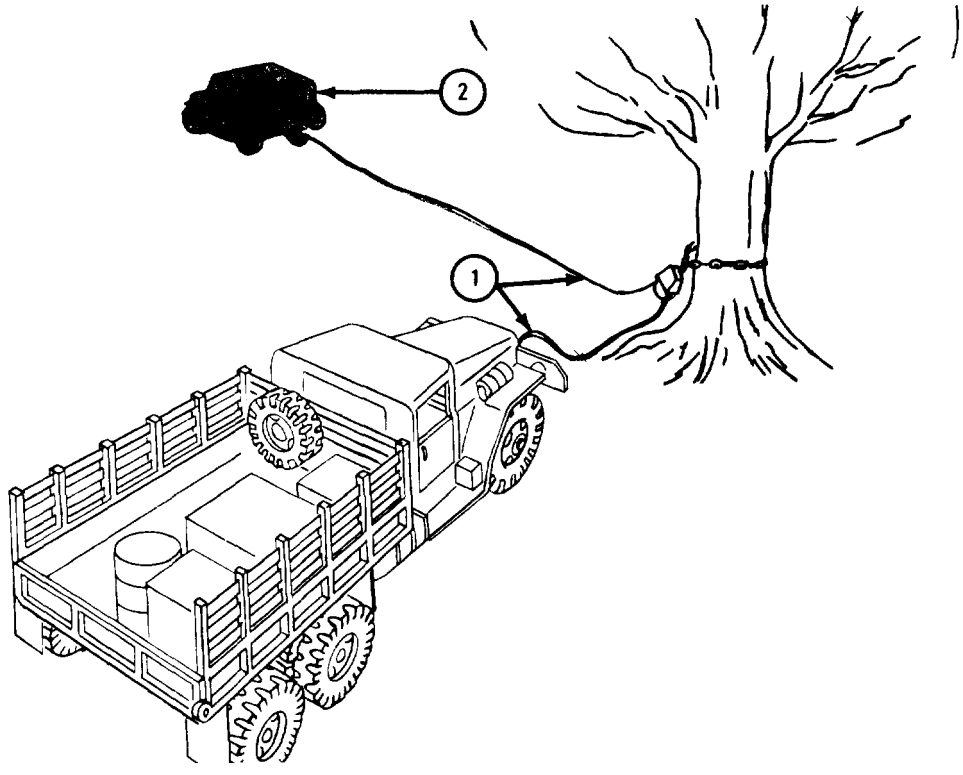
A snapped winch cable or shifting load can be very dangerous. If load shifts to present a hazard, stop pulling and spread load. If any part of the equipment fails, stop operations and tell organizational maintenance.

Stand at least 5 feet from front winch while guiding cable on drum to prevent hands and clothing from being snagged and pulled onto the drum.

FRAME 1

1. Take up slack in winch cable (1) by backing truck slowly, if there is room behind truck and conditions permit.

GO TO FRAME 2



TA 053871

FRAME 2

CAUTION

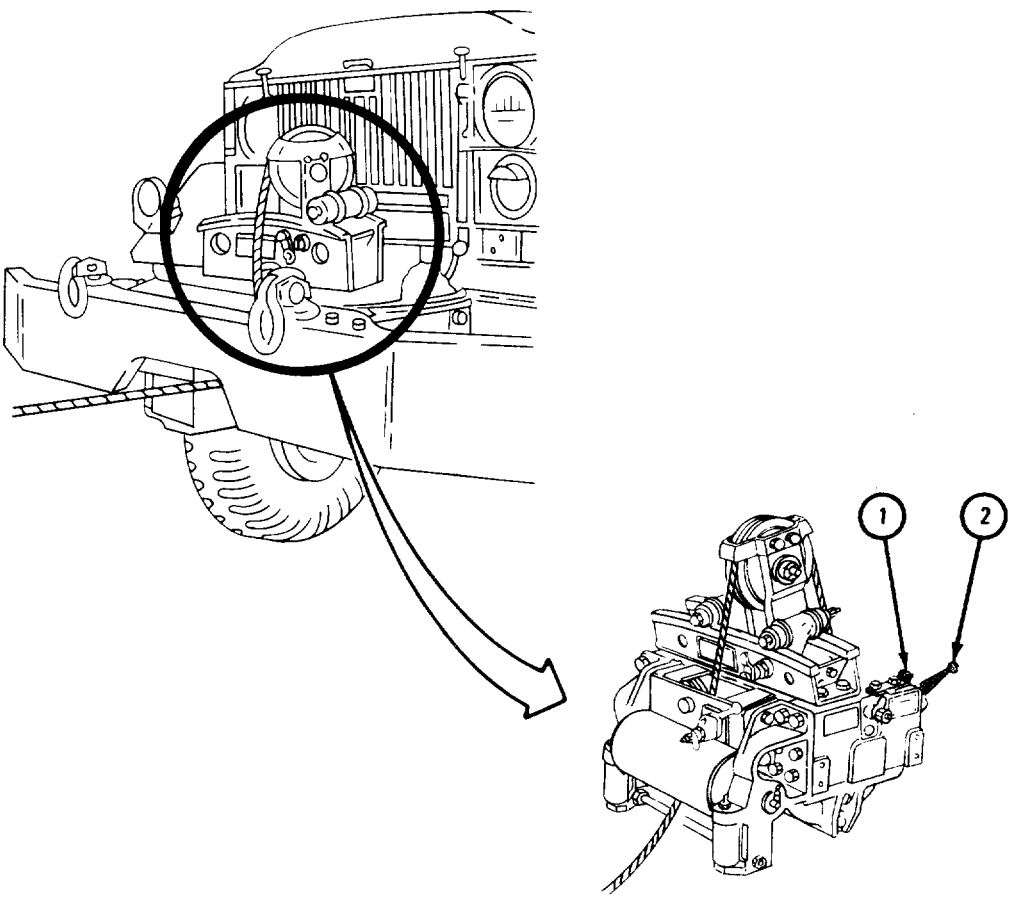
Make sure drum is unlocked before operating winch.

1. Turn front winch drum clutch lever latch (1) up to unlocked position.
2. Move front winch drum clutch lever (2) as far as it will go away from the drum (ENGAGE position) .

NOTE

Never use front winch drum clutch lever (2) to control winch, always use front WINCH CONTROL lever in driver's compartment and engine clutch.

GO TO FRAME 3

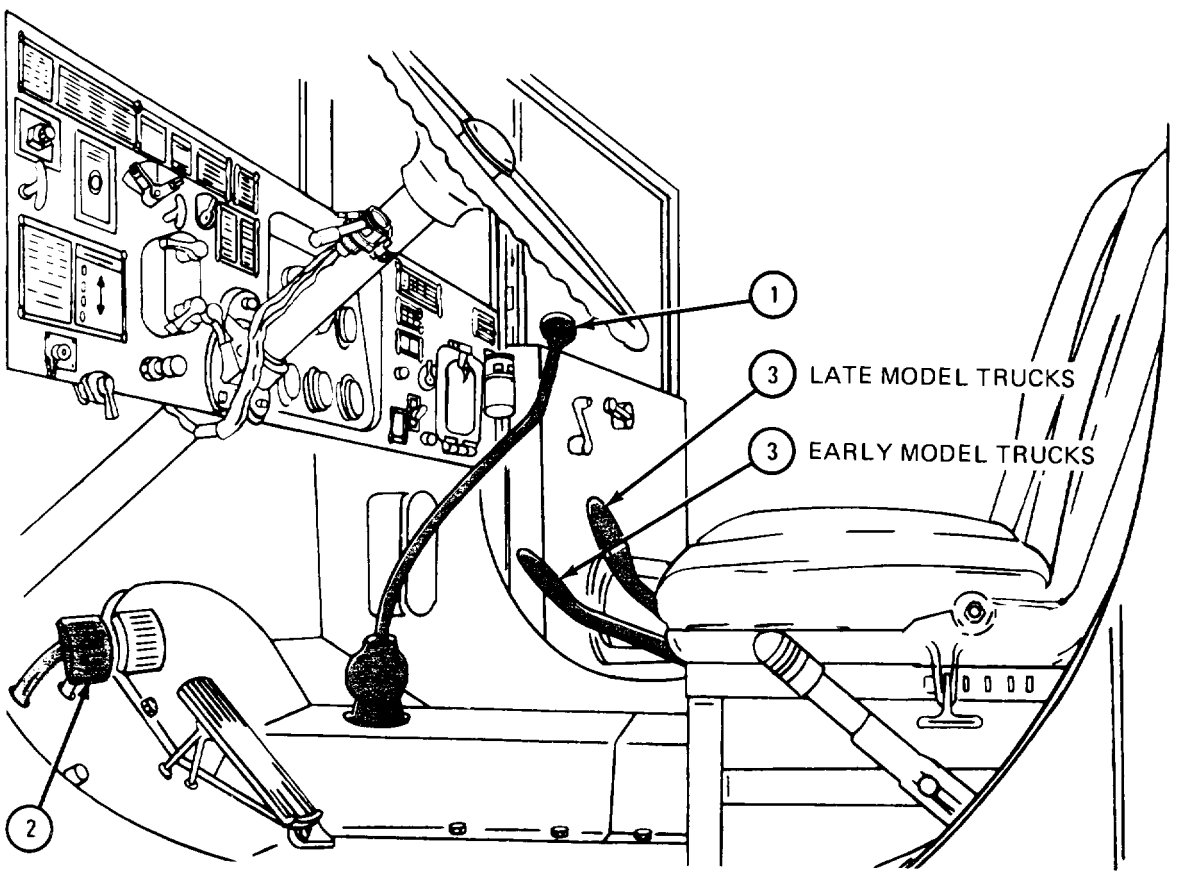


TA 053872

FRAME 3

1. With engine running, leave FRONT TRANSMISSION gearshift lever (1) in N position.
2. Press down on clutch pedal (2).
3. Move front WINCH CONTROL lever (3) to L (low) for heavy loads or H (high) for normal loads. If not sure, use L position.

GO TO FRAME 4



FRAME 4

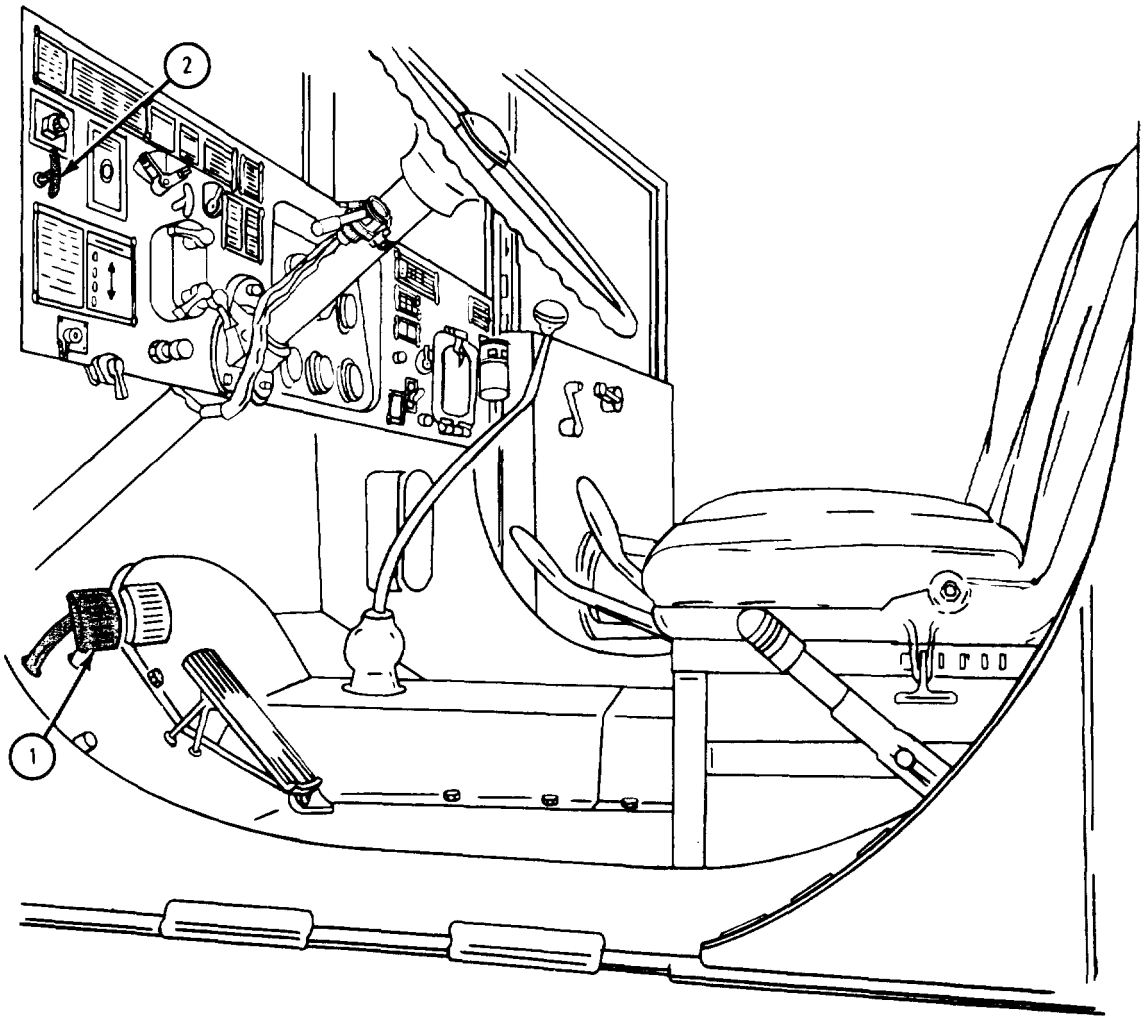
1. Let clutch pedal (1) come up slowly.
2. Wind in winch cable to take up slack.

CAUTION

Always use hand THROTTLE (2) to control engine speed when operating winch. Avoid sudden changes in speed or high speed.

Rough , jerky operation may cause broken shear pins and snapped cables, damage to vehicle, or injury to personnel.

3. Use hand THROTTLE (2) to control speed and continue smooth operation. Wind in winch cable as needed to pull or lift load.

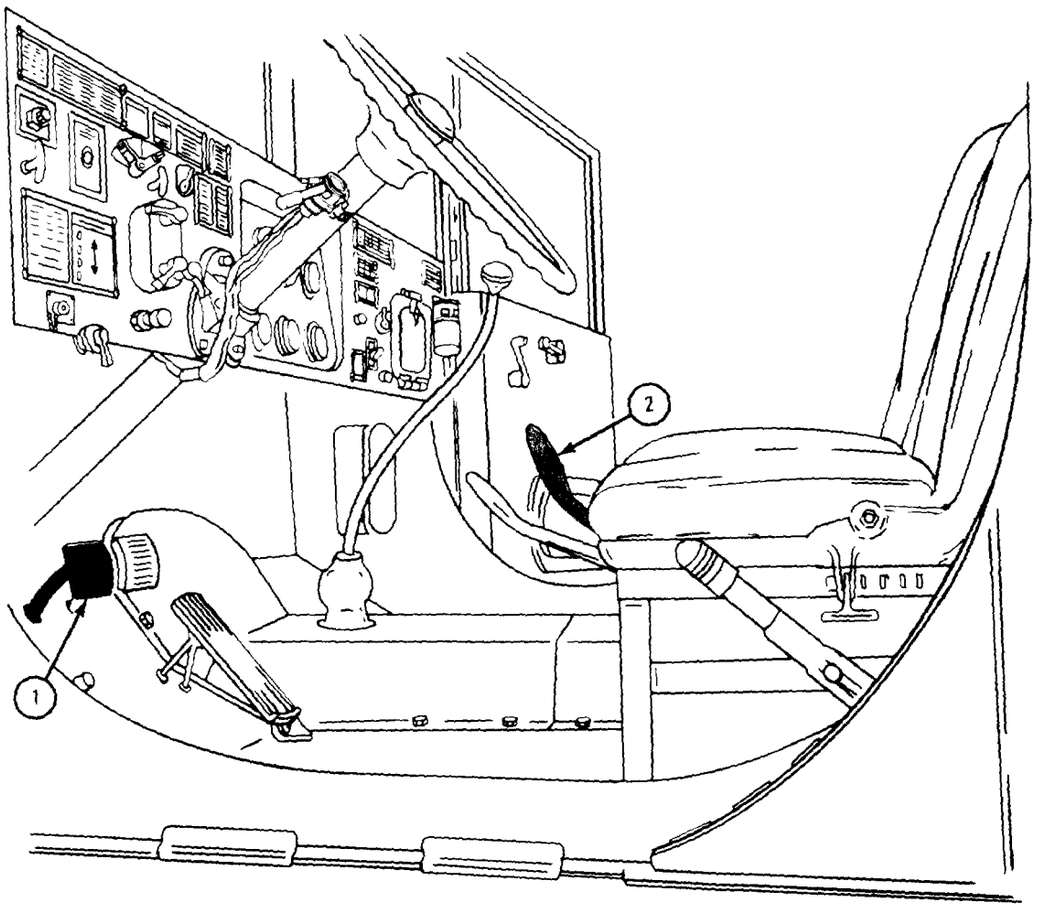


TA 053874

e. Stopping the Winch.

FRAME 1

1. Step on and press clutch pedal (1) all the way down.
   Place front WINCH CONTROL lever (2) in upper N (neutral position) .
   Let clutch pedal (1) come up slowly. The winch automatic safety brake will hold the load.



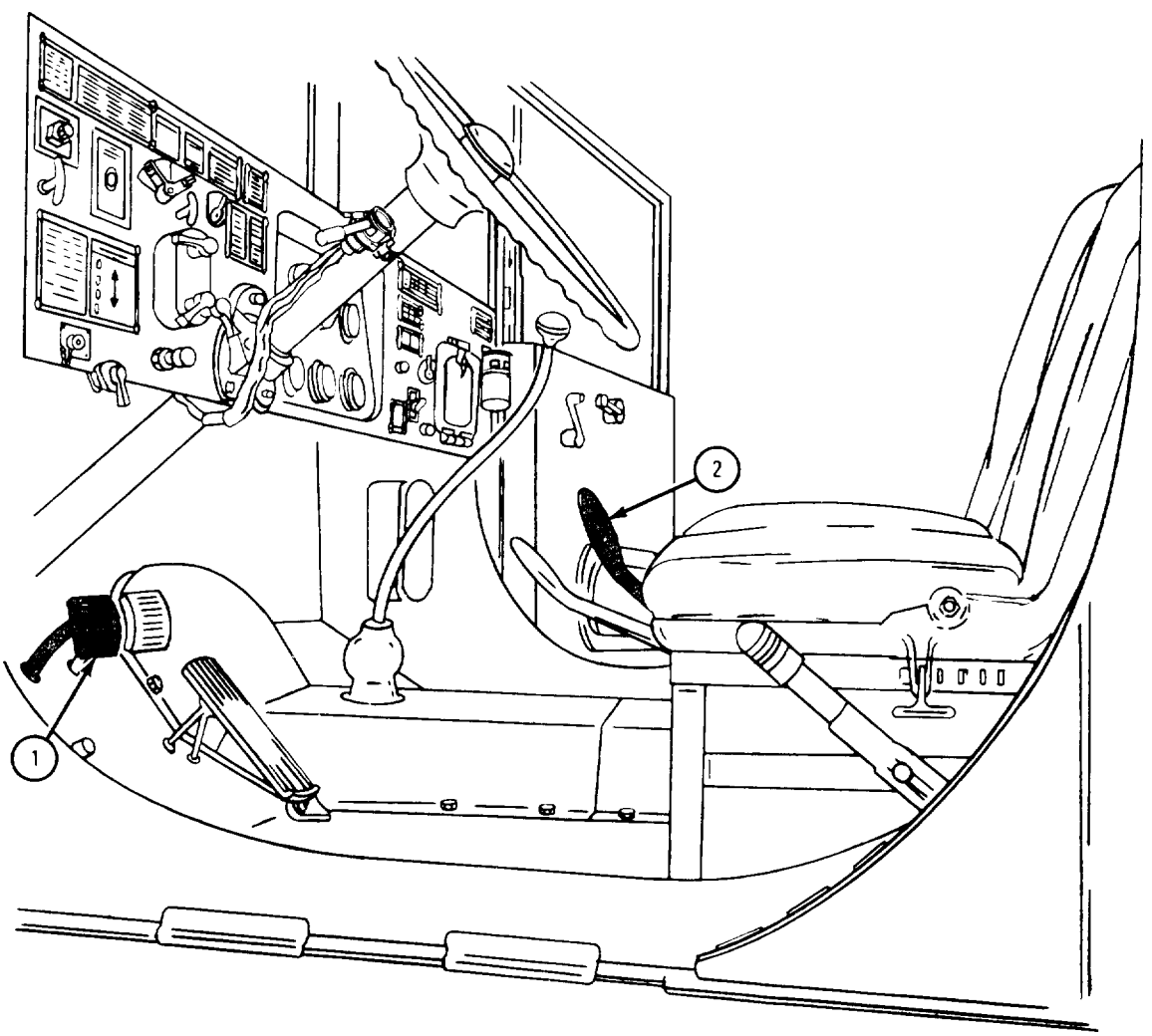
TA 053875

f. Releasing the Load.

FRAME 1

1. Step on and press clutch pedal (1) all the way down.
2. Place front WINCH CONTROL lever (2) in R (reverse) position.
3. Let clutch pedal (1) come up slowly until there is a little slack in the winch cable to the load.
4. Step on and press clutch pedal (1) all the way down.
5. Place front WINCH CONTROL lever (2) in N (neutral) position.
6. Let clutch pedal (1) up.

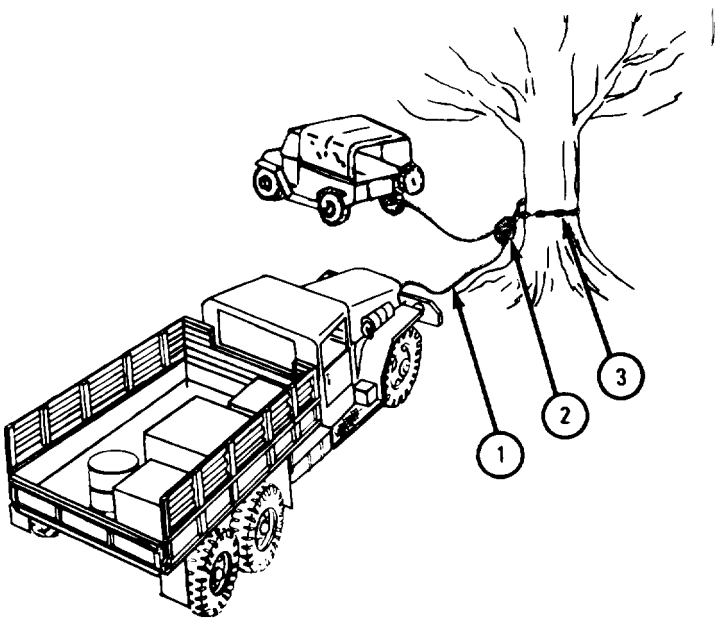
GO TO FRAME 2

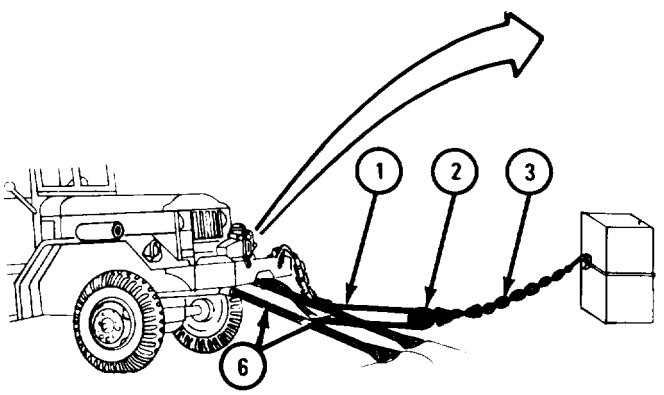


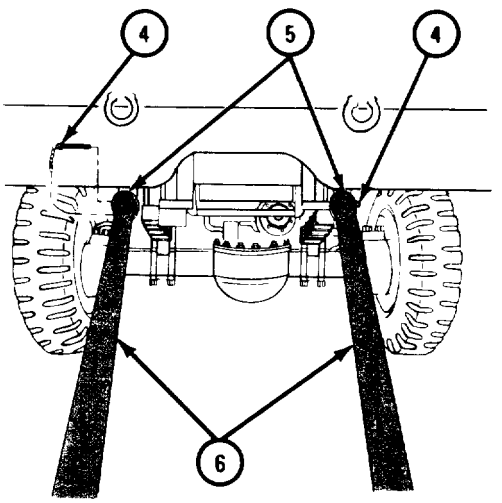
TA 053876

FRAME 2

1. Unhook winch cable (1) and (if used) snatch block (2) and utility chain (3) .
2. If wrecker truck was used with field chocks:
   (a) Back up truck a little to free field chocks from ground. For backing up procedure, refer to para 4-6d, frame 3.
   (b) Pull pins (4) out of holes in brackets (5) and field chocks (6).
   (c) Pull field chocks (6) from brackets (5) .







TA 053877

g. Winding Winch Line on the Drum.

WARNING

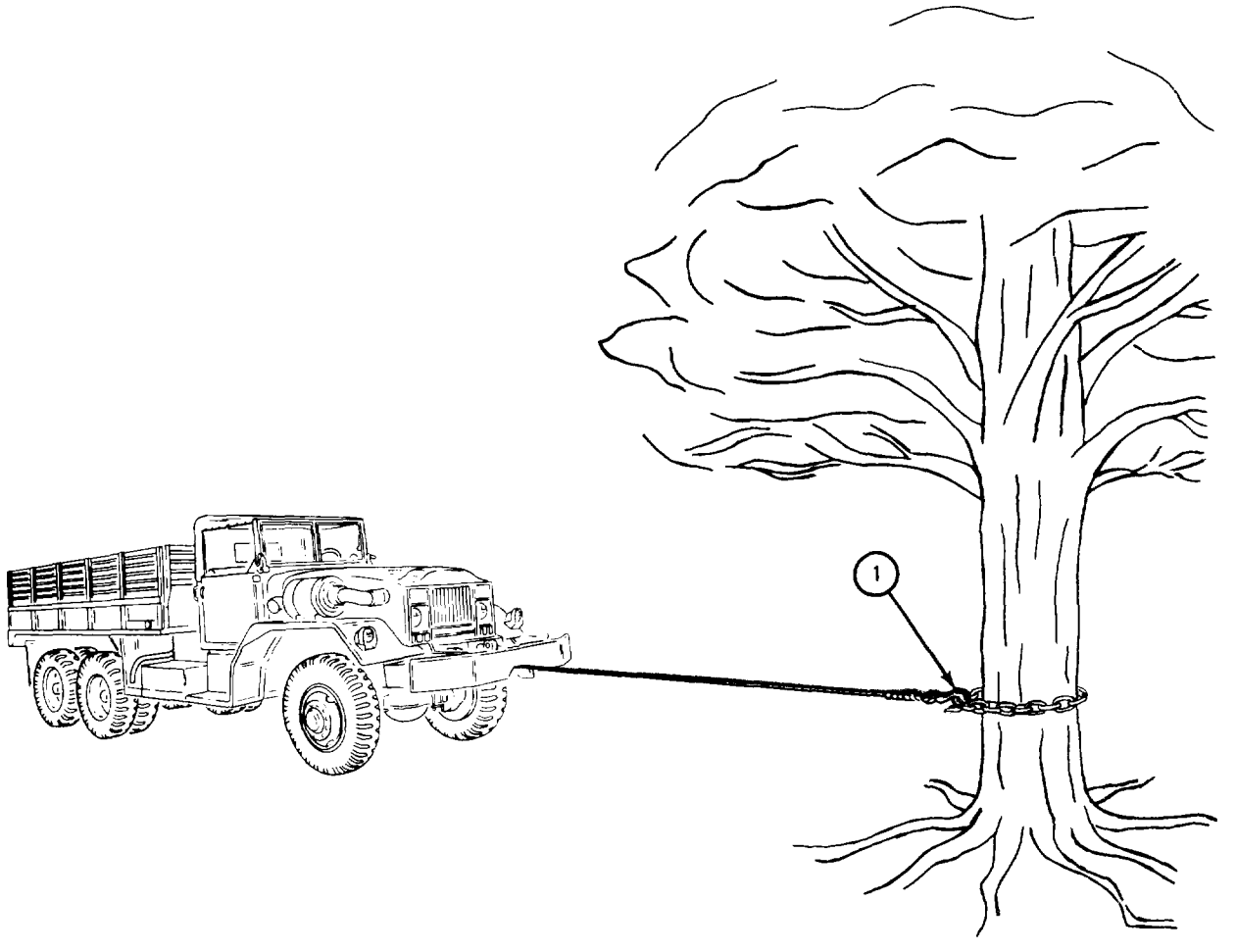
Always wear protective gloves when handling winch cable. Do not allow winch cable to run through hands. Rusty or broken wires can cause serious injury.

Stand at least 5 feet from front winch while guiding cable on drum to prevent hands and clothing from being snagged and pulled onto the drum.

FRAME 1

1. On trucks without level wind device, join a load to end of winch cable (1) . If no load is available, join the cable to a tree or another truck with brakes set.

GO TO FRAME 2



FRAME 2

1. Step on and press clutch pedal (1) all the way down.
2. Make sure that FRONT TRANSMISSION gearshift lever (2) is in N position.
3. Place front WINCH CONTROL lever (3) in H (high) position.
4. Set handbrake lever (4) to down (brake off) position.

WARNING

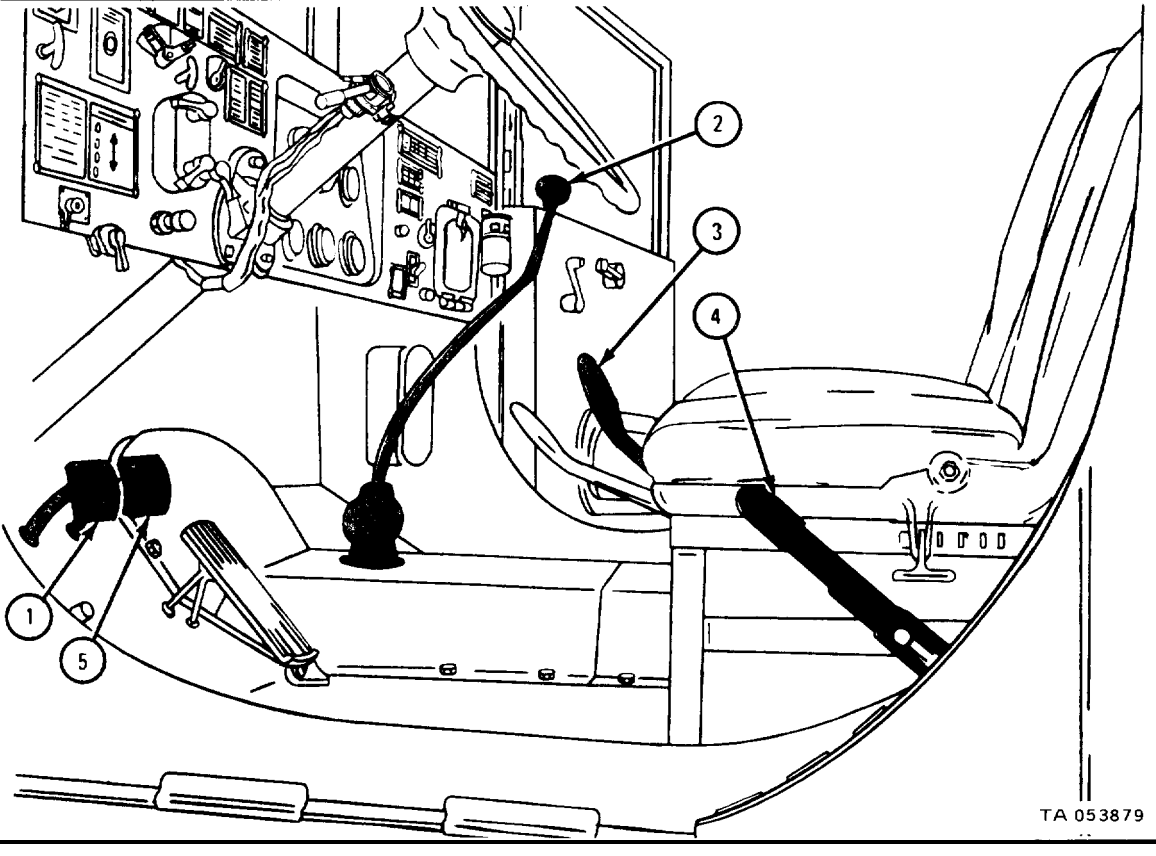
Stand at least 5 feet from front winch, while guiding cable on drum, to stop hands and clothing from being snagged and pulled onto the drum.

NOTE

Make sure that first layer of winch cable goes onto drum in order and that each additional layer starts back across drum. If necessary, use wooden block to push or hammer cable closely wrapped.

5. Let clutch pedal (1) come up slowly. The front winch will pull truck forward and wind winch cable onto drum.
6. Step on service foot brake (5) and press down lightly to make sure of a tight, neat wind.

GO TO FRAME 3



FRAME 3

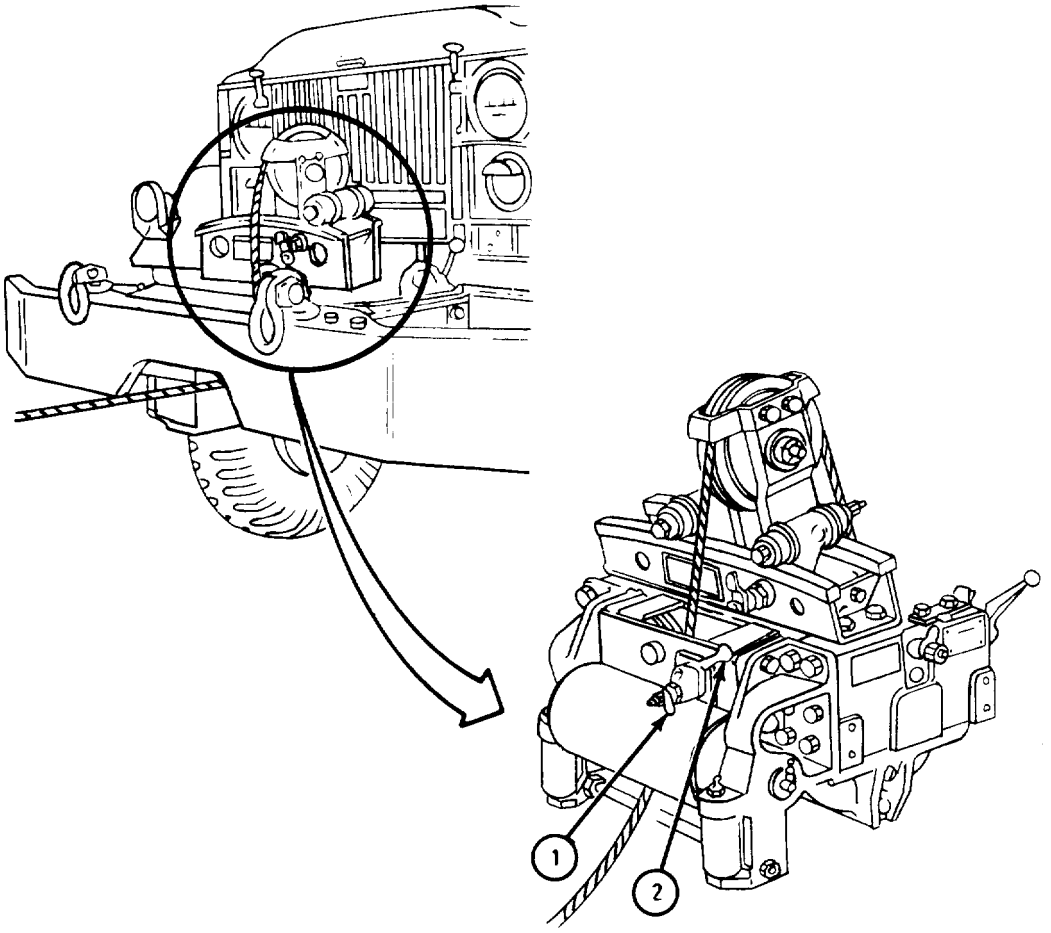
1. On trucks with level wind device and cable tensioner:

   (a) Pull front winch cable tension control lever latch (1) out.

   (b) Hold latch (1) out, and push front winch cable tension control lever (2) toward right side of truck as far as it will go.

   (c) Turn latch (1) 90° and setitin deep slot. Move cable tension control lever (2) a little so that plunger slips into hole, locking lever (2) in ON position.

GO TO FRAME 4

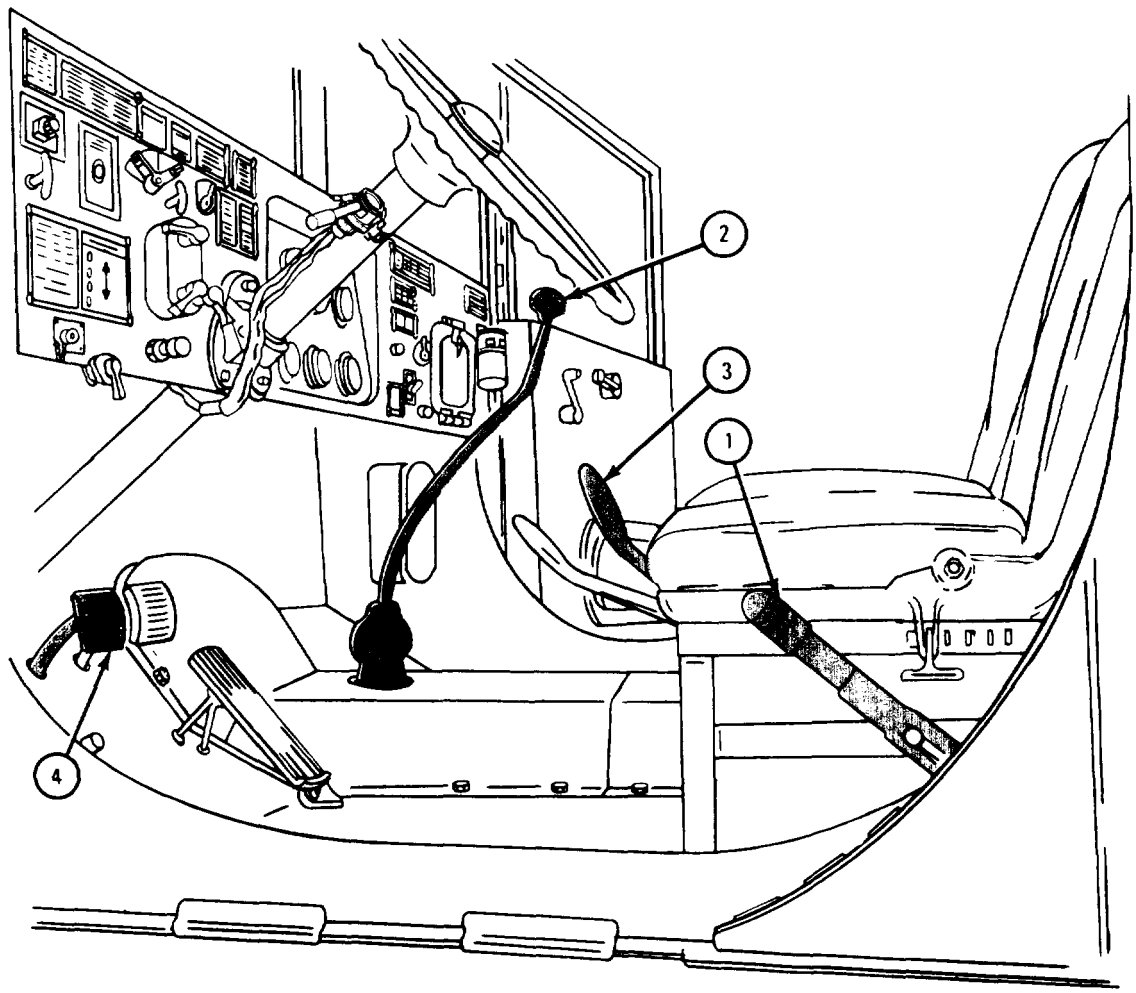


TA 053880

FRAME 4

1. Keep handbrake (1) in ON position.
2. Make sure FRONT TRANSMISSION gearshift lever (2) is in N (neutral) position
3. Place front WINCH CONTROL lever (3) in H (high) position.
4. Let clutch pedal (4) come up slowly. Front winch will begin to wind cable on drum in tight and neat layers.

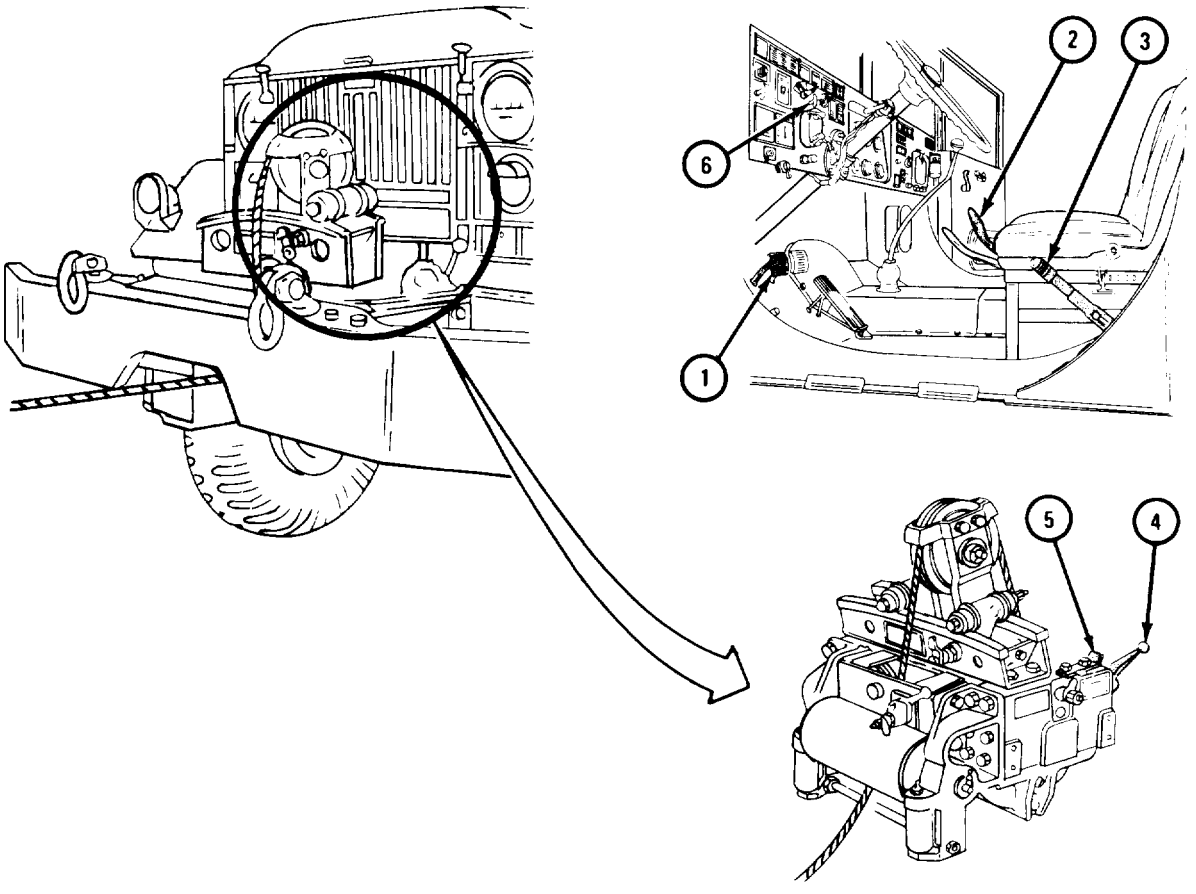
GO TO FRAME 5



TA053B81

FRAME 5

1. When winch cable is fully wound on drum, step on clutch pedal (1) and press it all the way down.
2. Place front WINCH CONTROL lever (2) in upper N (neutral) position.
3. Set handbrake (3) to on position.
4. Push front winch drum clutch lever (4) as far as it will go toward the drum to DISENGAGE position.
5. Turn front winch drum clutch lever latch (5) down to locked position.
6. To stop engine after letting it run at idle speed for 5 minutes :
   (a) Turn all switches in driver's compartment to OFF positions.
   (b) Pull ENG. STOP control (6) out to cut off flow of fuel. Leave it in out position.



TA 053882

h. Securing Equipment for Travel.

TOOLS : Adjustable wrench
Box wrench, 9/16-inch

FRAME 1

1. For trucks without level wind device:

(a) Place chain (1) under left frame extension (2) , then put it up and across the top of bumper (3), and hook it to right lifting shackle (4).

(b) Take locking pin (5) out of shackle pin (6).

(c) Take out shackle pin (6) .

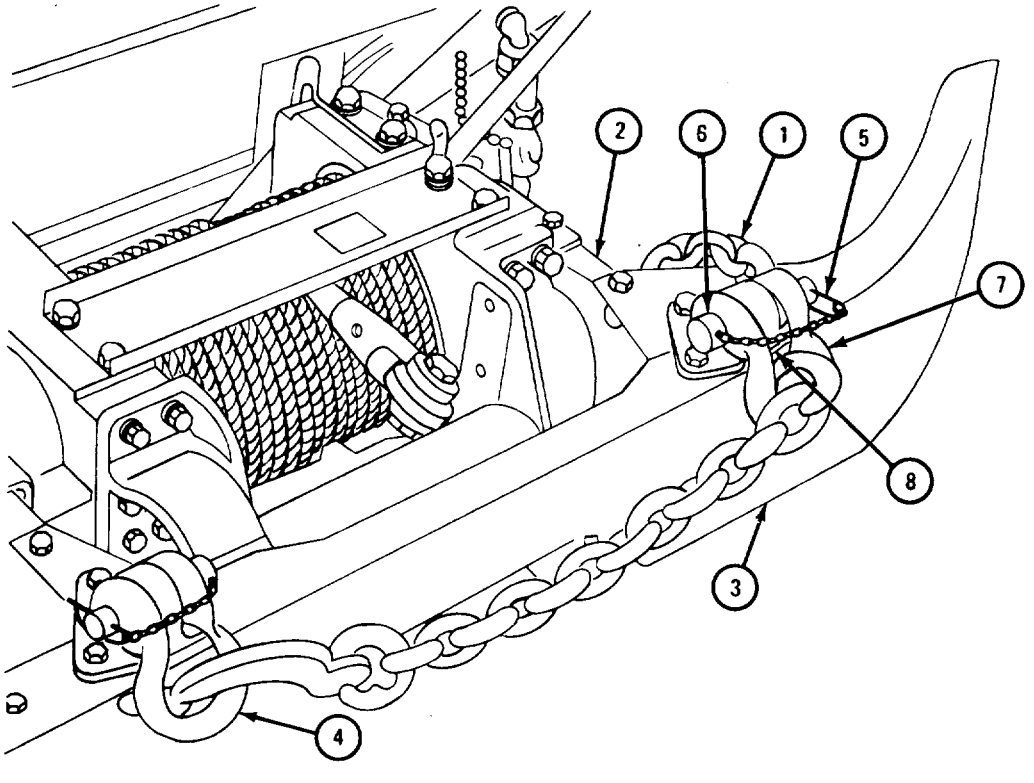
(d) Take off shackle (7) and place it over chain (1).

(e) Aline holes in shackle (7) and bracket (8).

(f) Put shackle pin (6) through holes.

(g) Put locking pin (5) through hole in end of shackle pin (6) and lock pin (5)

GO TO FRAME 2



TA 053883

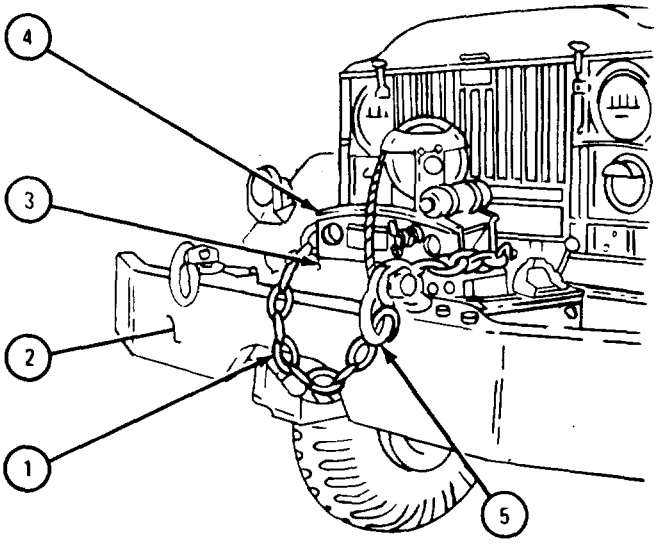
FRAME 2

1. For trucks with level wind device and tensioner:

   (a) Pull chain (1) up between bumper (2) and winch (3) on right side.

   (b) Wind the chain around back of level wind frame (4) and then across front. Hook chain to left lifting shackle (5).

GO TO FRAME 3



TA 053884

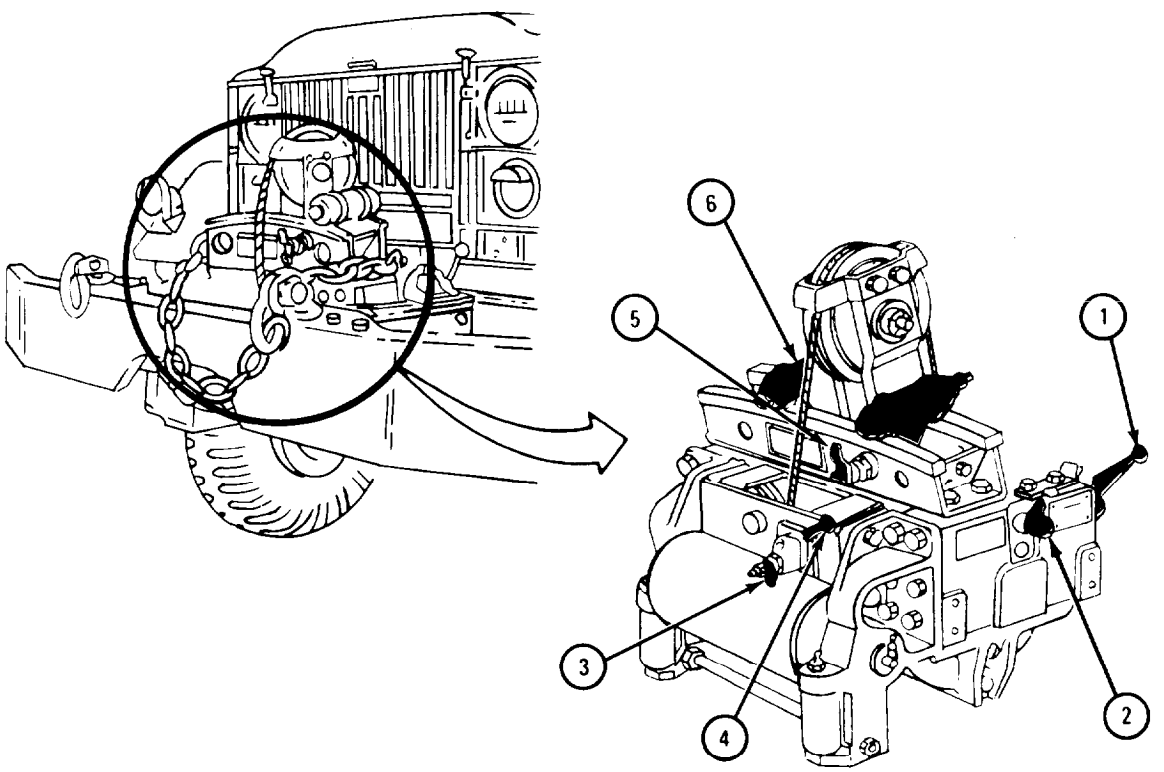
FRAME 3

1. Move front winch drum clutch lever (1) as far as it will go toward winch to take drum out of gear.
2. Pull front winch drum lock knob (2) out, turn it 90°, and set in deep slot. Turn drum left or right a little until plunger slips into a hole on drum flange, locking drum.
3. If winch has a level wind device:

   (a) Pull front winch cable tension control lever latch (3) out and hold it out. Move front winch cable tension control lever (4) toward left side of truck (off position) . Set latch (3) in deep slot to lock lever (4) in off position.

   (b) Pull front winch level wind lock knob (5) out, turn it 90°, and set it in deep slot. Move trolley (6) so that lock plunger slips into hole in trolley (6) , locking it.

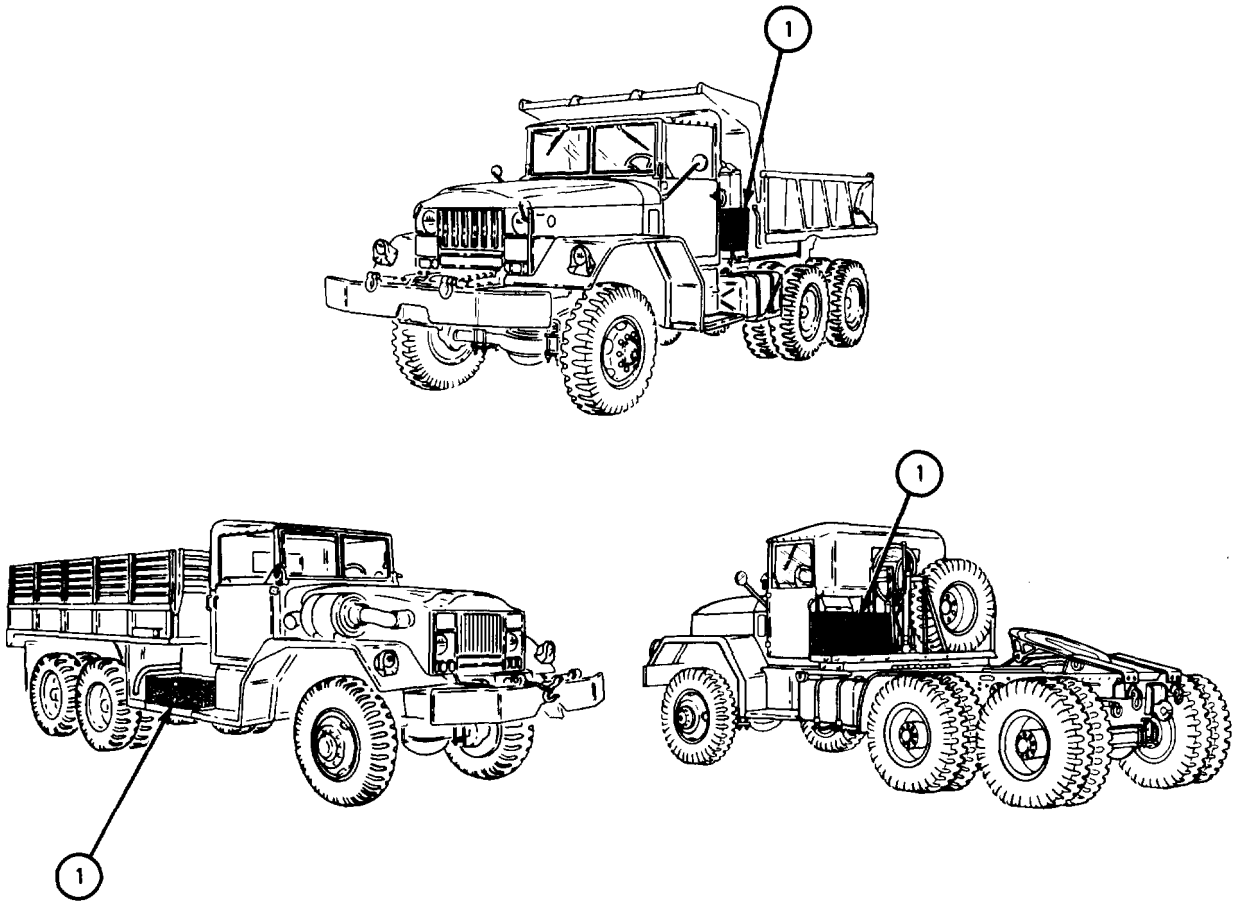
GO TO FRAME 4



TA 053885

FRAME 4

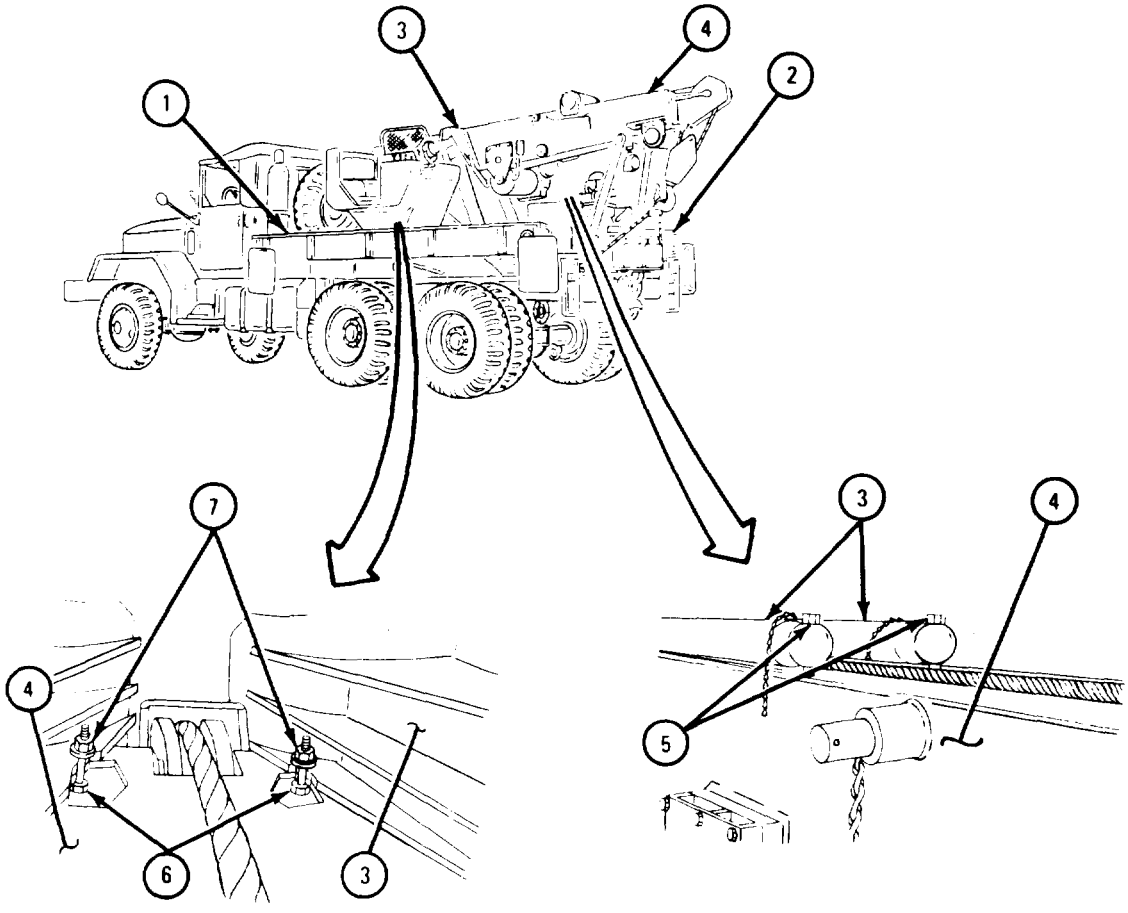
1. On dump trucks, cargo trucks, and tractor trucks, stow utility chain and snatch block (if used) in tool box (1) .



TA 053886

FRAME 5

1. On wrecker trucks:
   (a) Place utility chain (1) on floor near spare tire.
   (b) Place snatch block (2) in compartment 8,
   (c) Place field chocks (3) on top of shipper (4) as shown.
   (d) Using adjustable wrench, place stowage bolts (5) through holes in field chocks (3) and screw in and tighten into threaded holes in shipper (4) .
   (e) Place stowage bolts (6) through holes in shipper (4) and field chocks (3). Screw nuts (7) onto bolts (6) . Using adjustable wrench and 9/16-inch box wrench, hold bolt (6) and tighten nuts (5).



TA 053887

4-8. OPERATION OF CARGO TRUCKS.

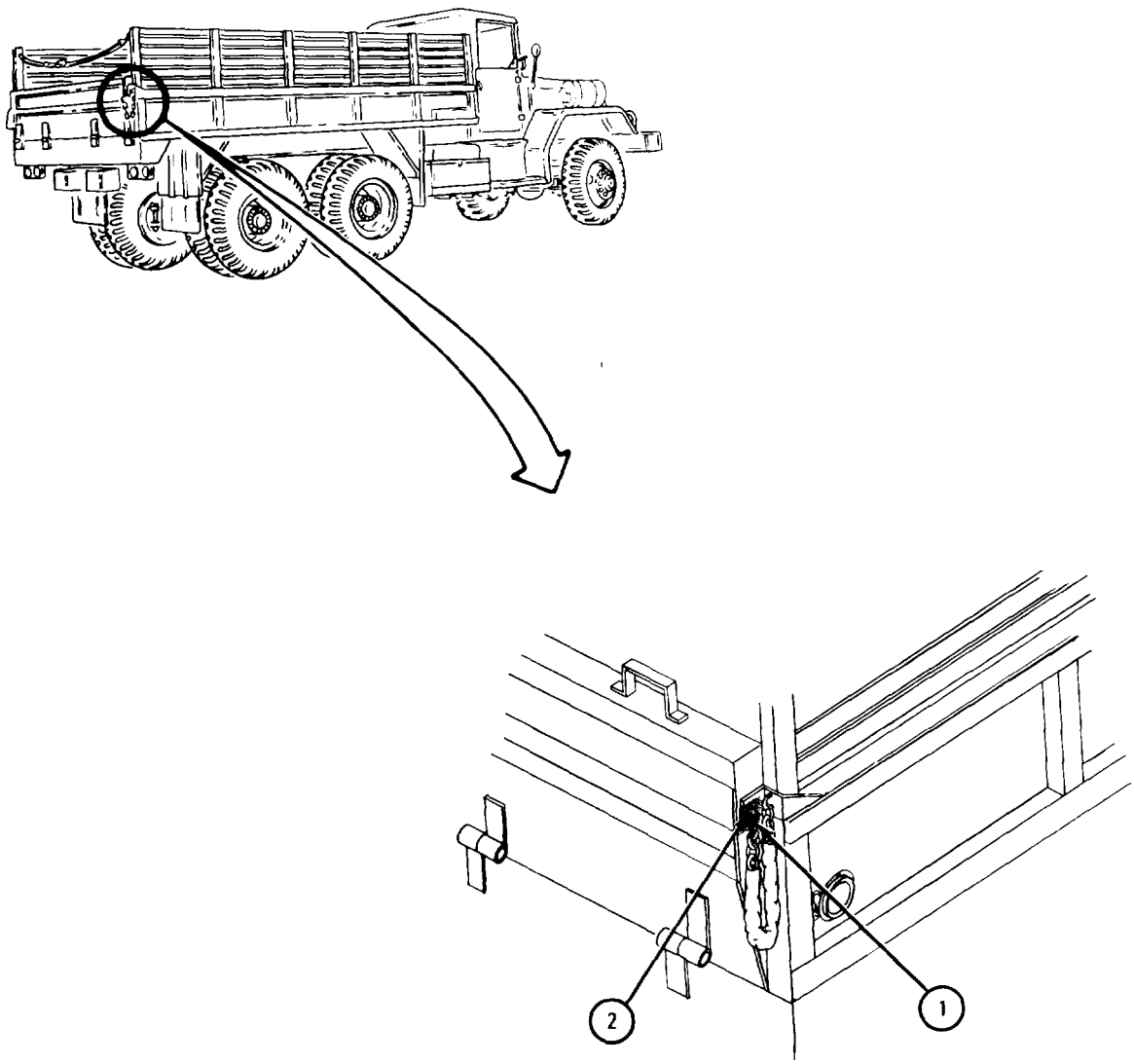
a. General. The M54A2 and M54A2C cargo trucks covered in this manual are equipped with a 7 x 14-foot steel cargo bed. The M55A2 has a 7 x 20-foot steel cargo bed. All trucks have removable front and side racks and a hinged tailgate. The trucks can be equipped with a wood frame and tarpaulin cover for cargo protection. The M 54A2C truck also has hinged drop sides so that it can be loaded or unloaded from either side.

b. Removal of Front and Side Racks.

FRAME 1

1. Take hooks (1) out of retainer slots (2) on both sides of truck.

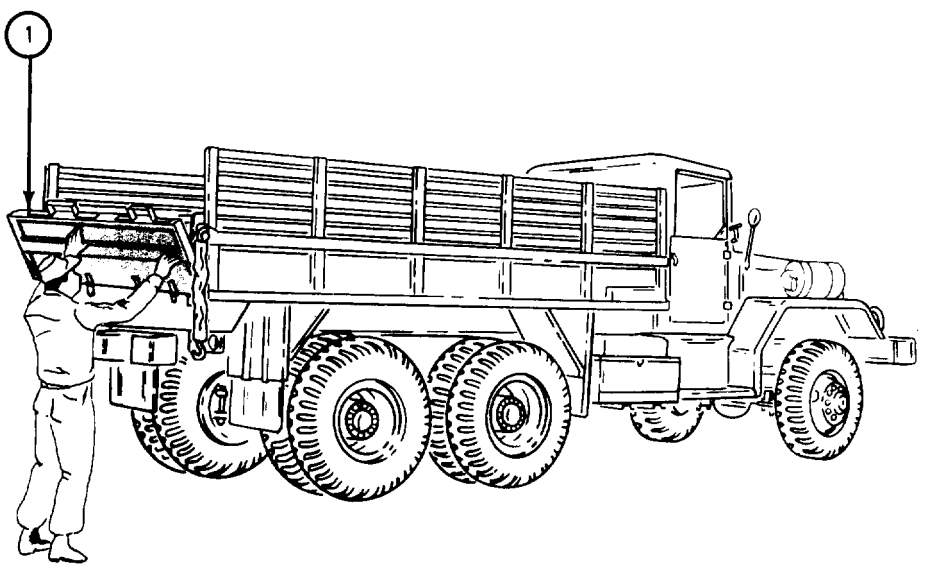
GO TO FRAME 2



FRAME 2

1. Take hold of top of tailgate (1) and pull it toward rear of truck.
2. Let tailgate (1) come down slowly. Do not let it drop.

GO TO FRAME 3

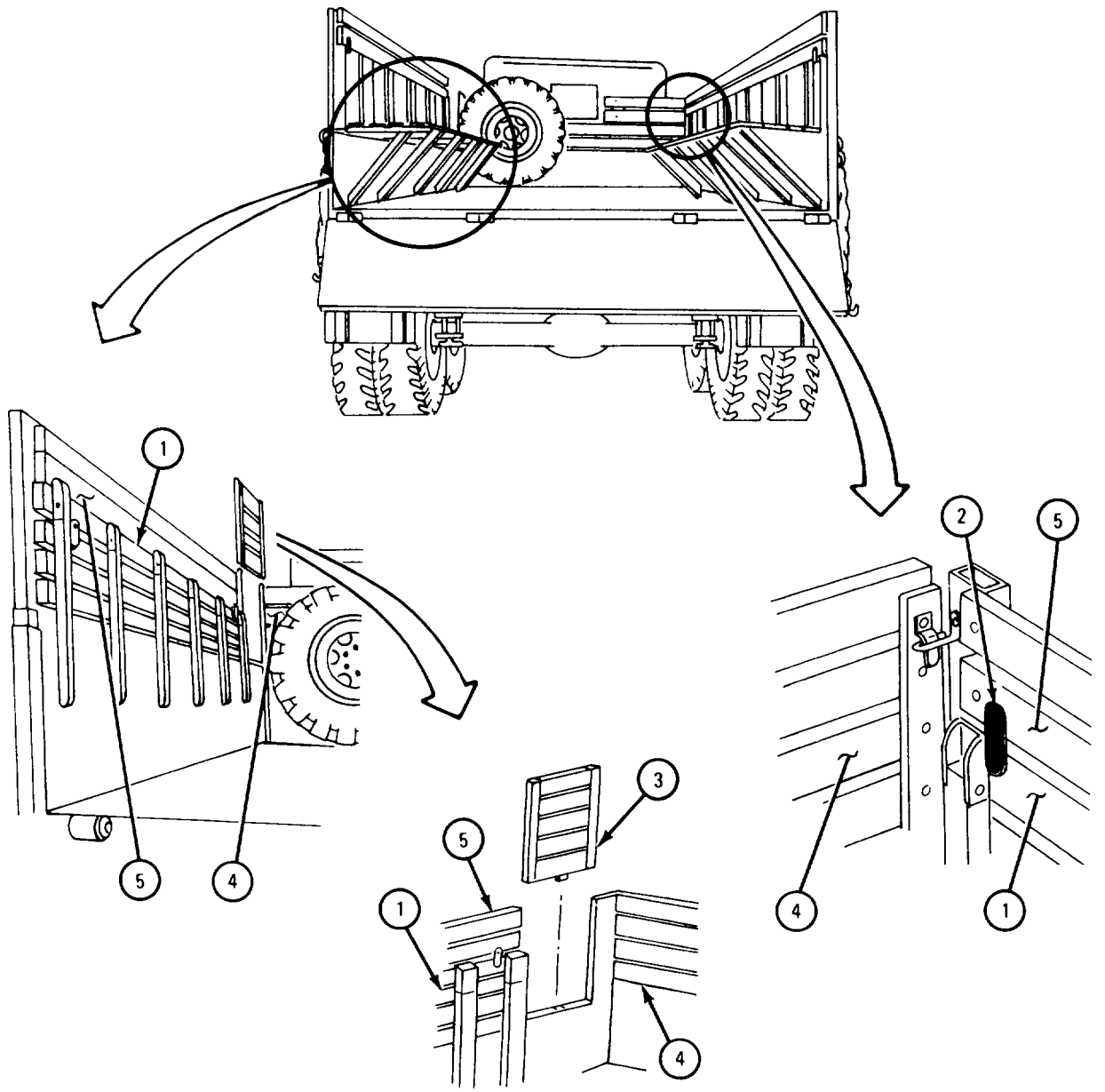


TA 053889

FRAME 3

1. On M54A2 trucks:
   (a) Fold troop seat (1) up and lock it in place with troop seat latches (2),
   (b) Lift and takeoff left side rack gate (3).
   (c) Lift and takeoff front rack (4).
   (d) Lift and take off side racks with seat (5).

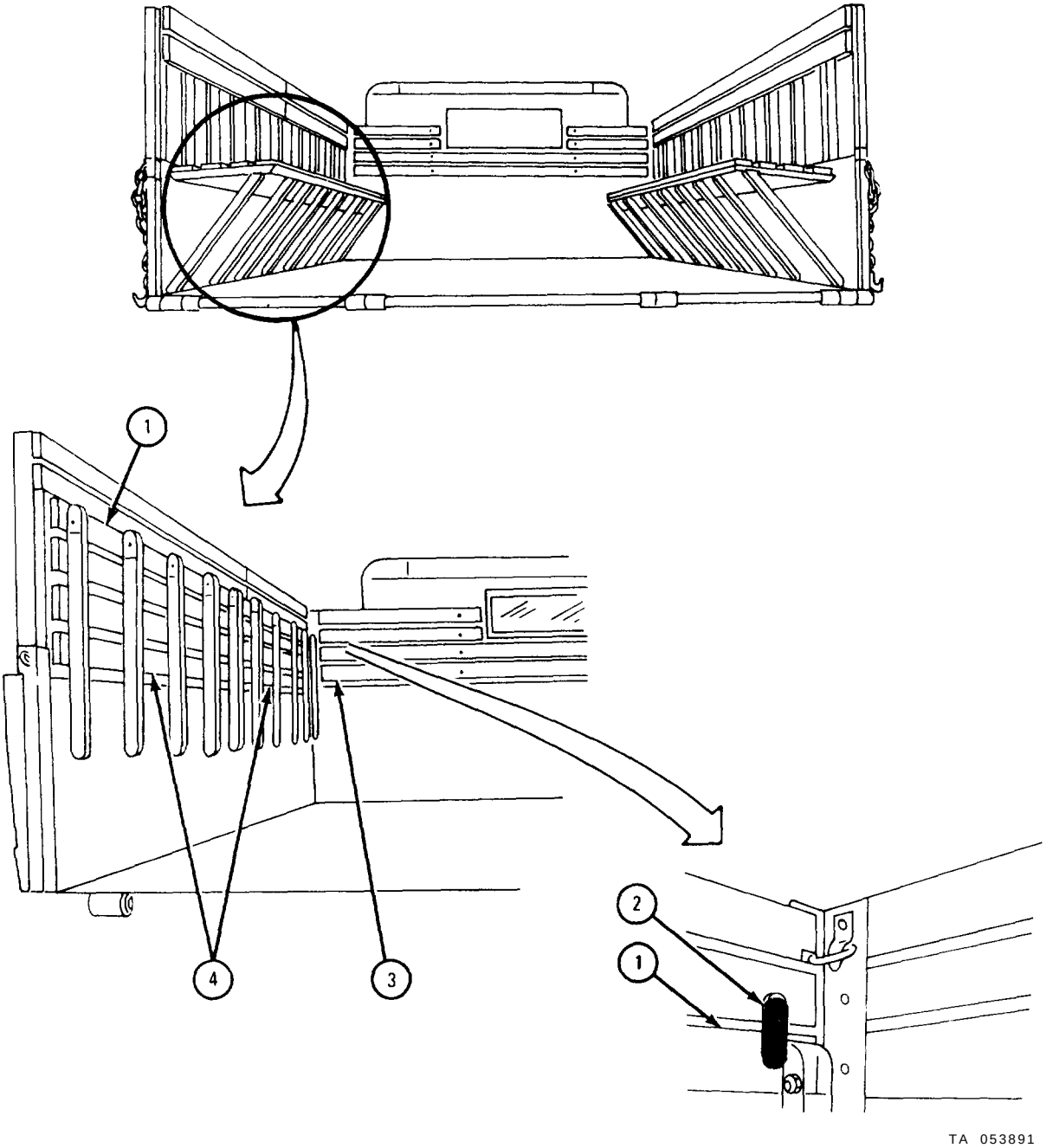
GO TO FRAME 4



TA 053890

FRAME 4

1. On M55A2 trucks:
   (a) Fold troop seat (1) up and lock it in place with troop seat latches (2) .
   (b) Lift and take off front rack (3) .
   (c) Lift and take off side racks with seats (4).

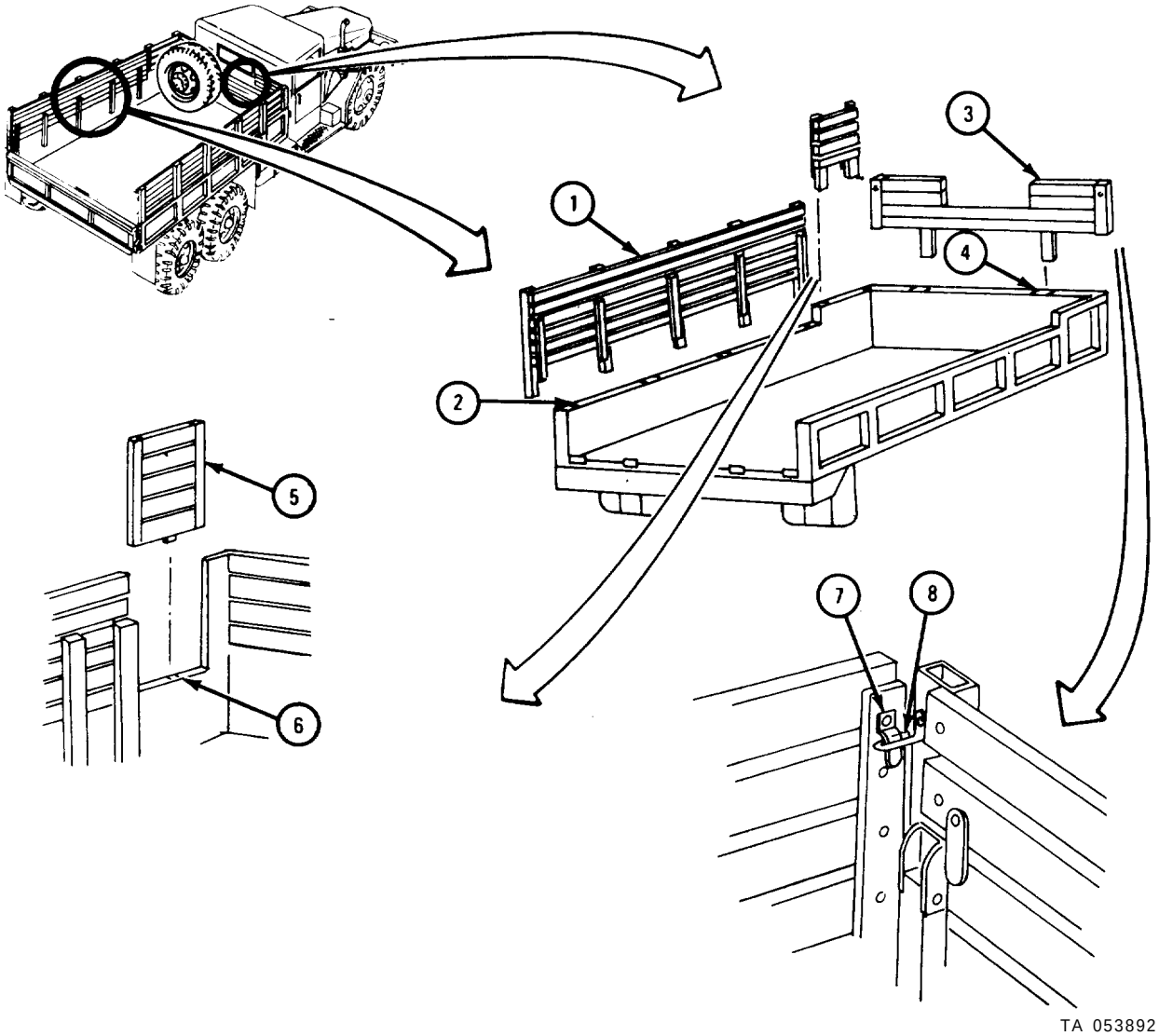


c. Installing Front and Side Racks.

FRAME 1

1. On M54A2 trucks:
   (a) Put side racks with seats (1) into sockets (2) on right and left sides of truck.
   (b) Put front rack (3) into front rack sockets (4).
   (c) Put left side rack gate (5) into gate socket (6).
   (d) Make sure that retainers (7) on front rack go into retainer rings (8) on side rack.

GO TO FRAME 2



FRAME 2

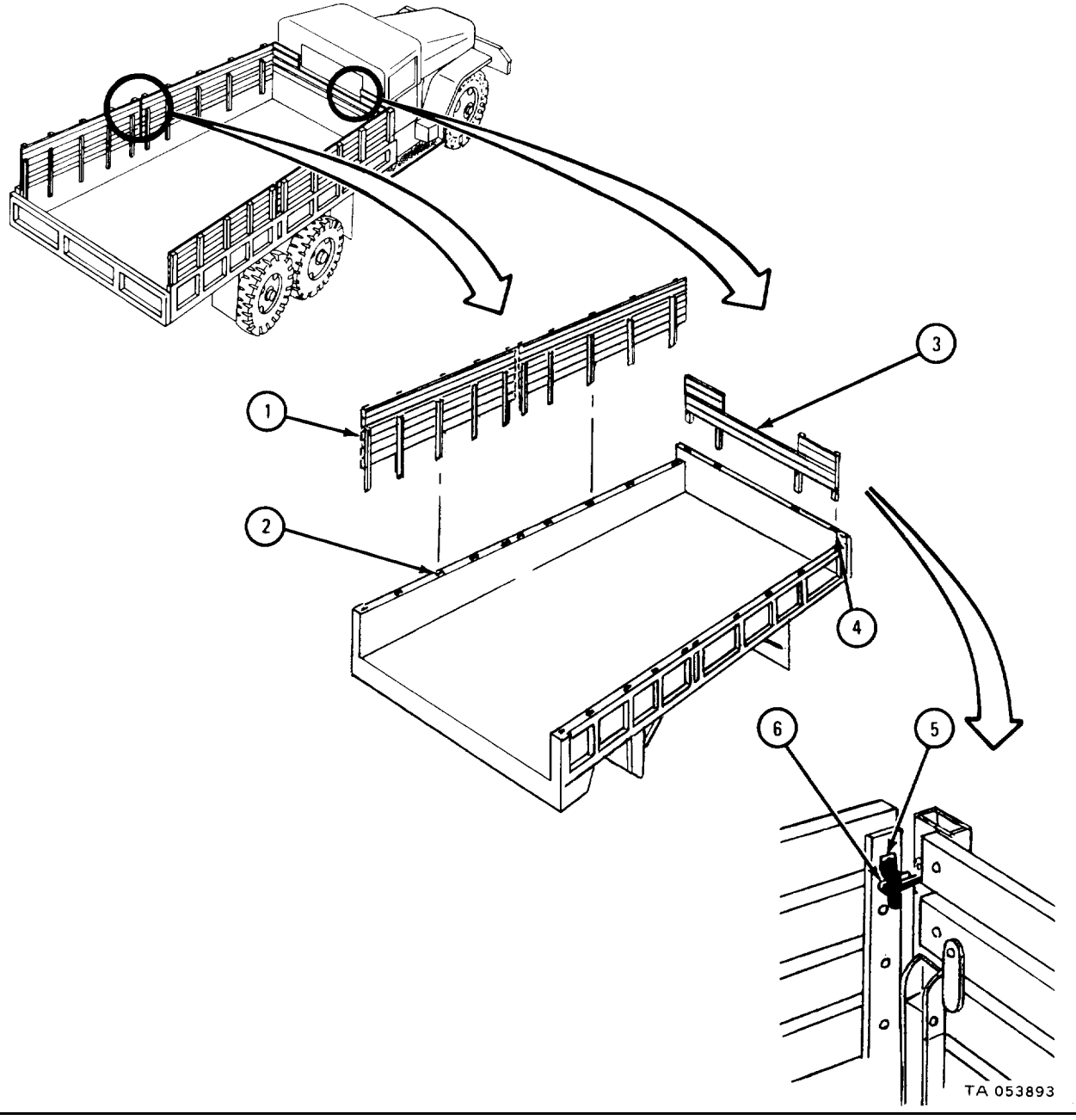
1. On M55A2 trucks:

   (a) Put side racks with seats (1) into sockets (2) on right and left sides of truck.

   (b) Put front rack (3) into front rack sockets (4) .

   (c) Make sure that retainers (5) on front rack go into retainer rings (6) on side rack.

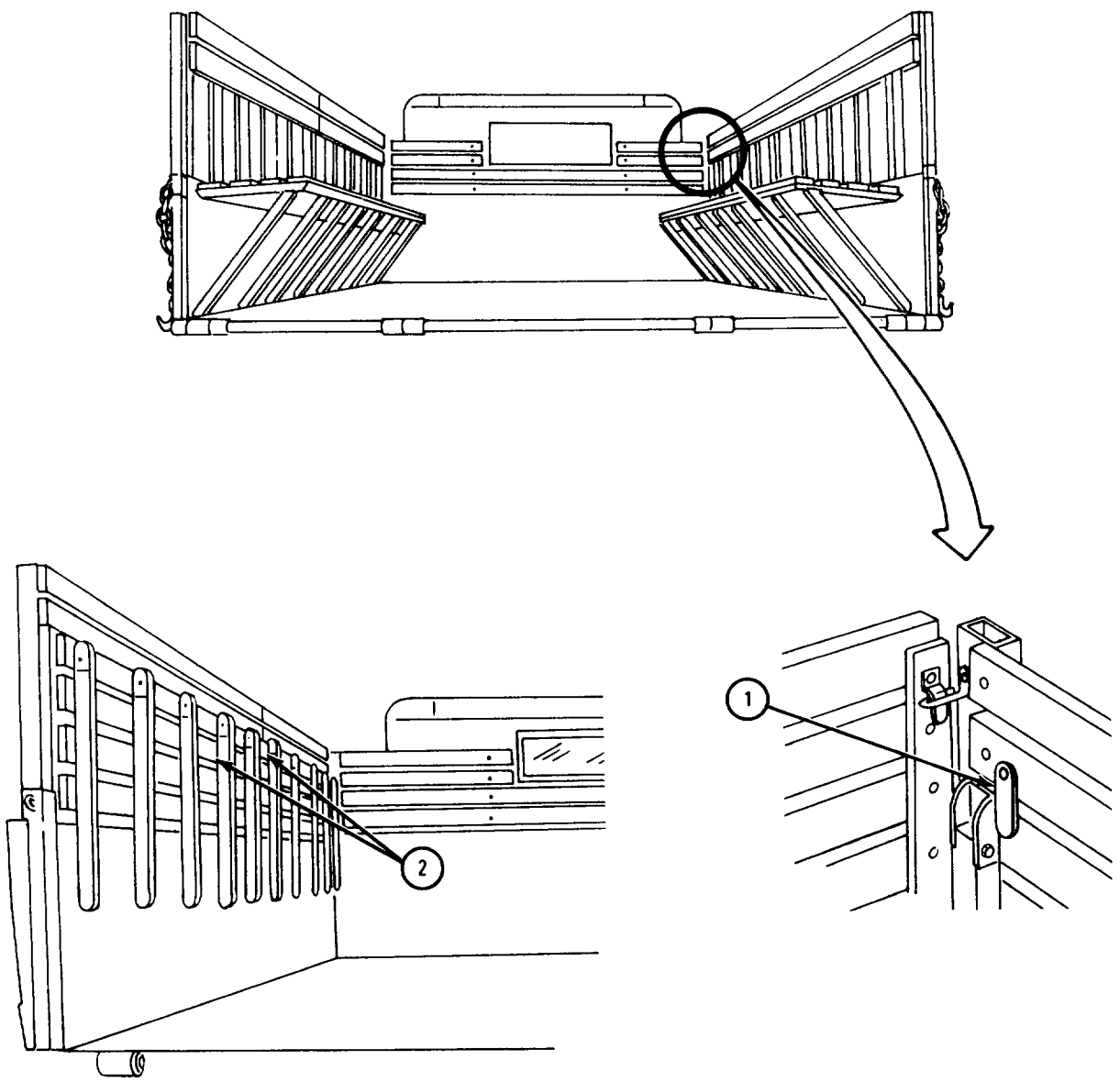
GO TO FRAME 3



FRAME 3

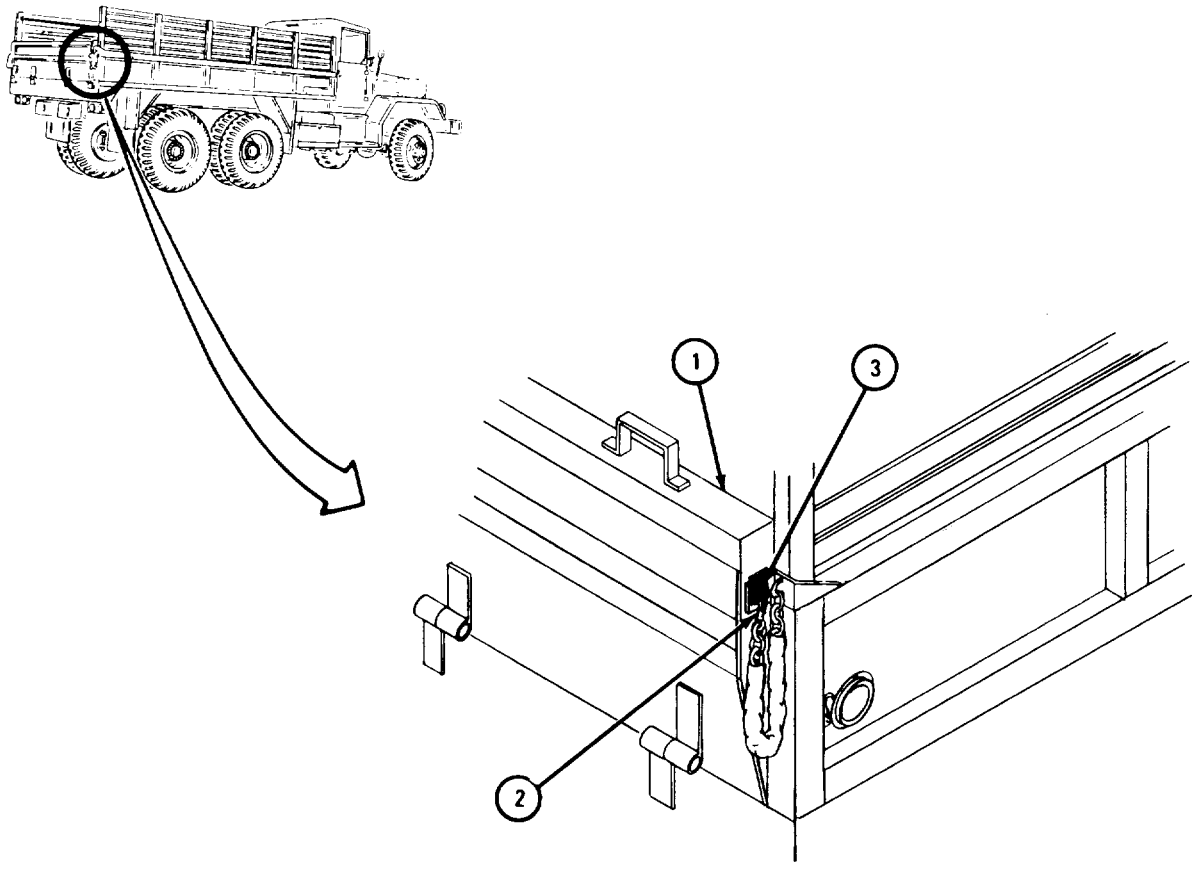
1. M54A2 and M55A2 trucks:
   (a) Turn troop seat latches (1) up.
   (b) Move seats (2) down into position slowly. Do not let them drop.

GO TO FRAME 4



FRAME 4

1. On M54A2 and M55A2 trucks:
   (a) Lift tailgate (1) up to closed position.
   (b) Place hooks (2) through retainer slots (3) .



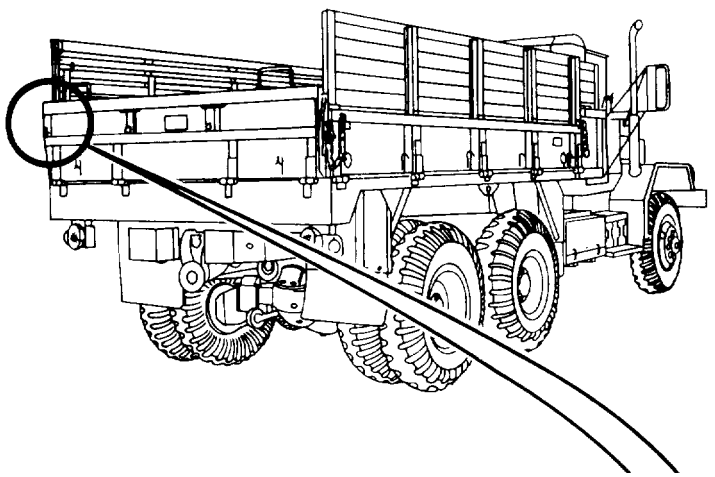
TA 053895

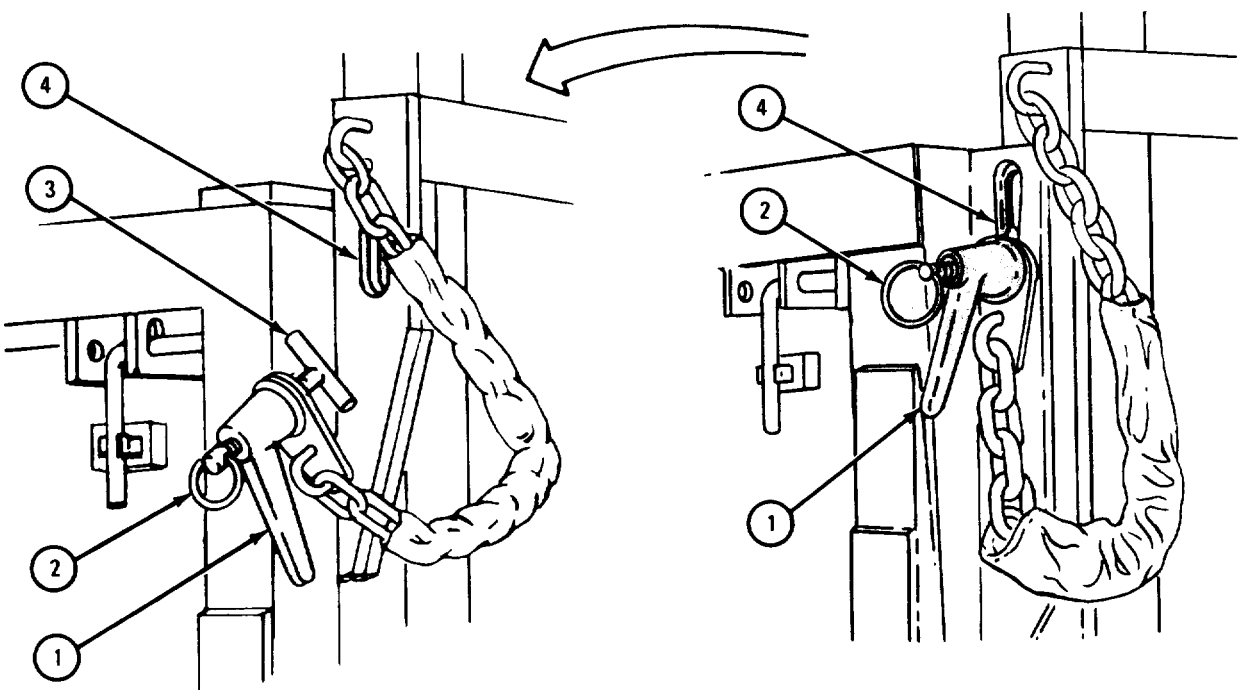
d. Removal of Front and Side Racks from Dropside Type Cargo Trucks.

FRAME 1

1. Turn left and loosen locking handles (1) on each side of tailgate.
2. Turn rings (2) 90° to line up T-bolts (3) with slots (4).
3. Pull T-bolts (3) through slots (4) .

GO TO FRAME 2



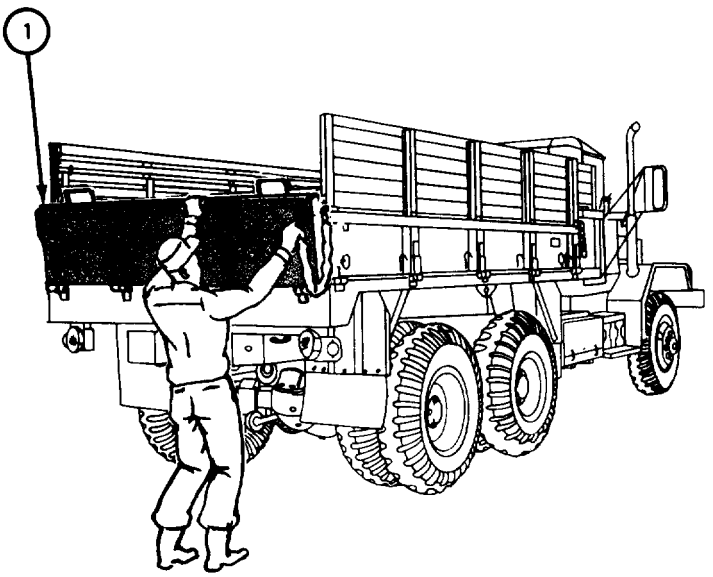


TA 053896

FRAME 2

1. Move tailgate (1) down by taking hold of it on top and pulling toward rear. Let it come down slowly. Do not let it drop.

GO TO FRAME 3

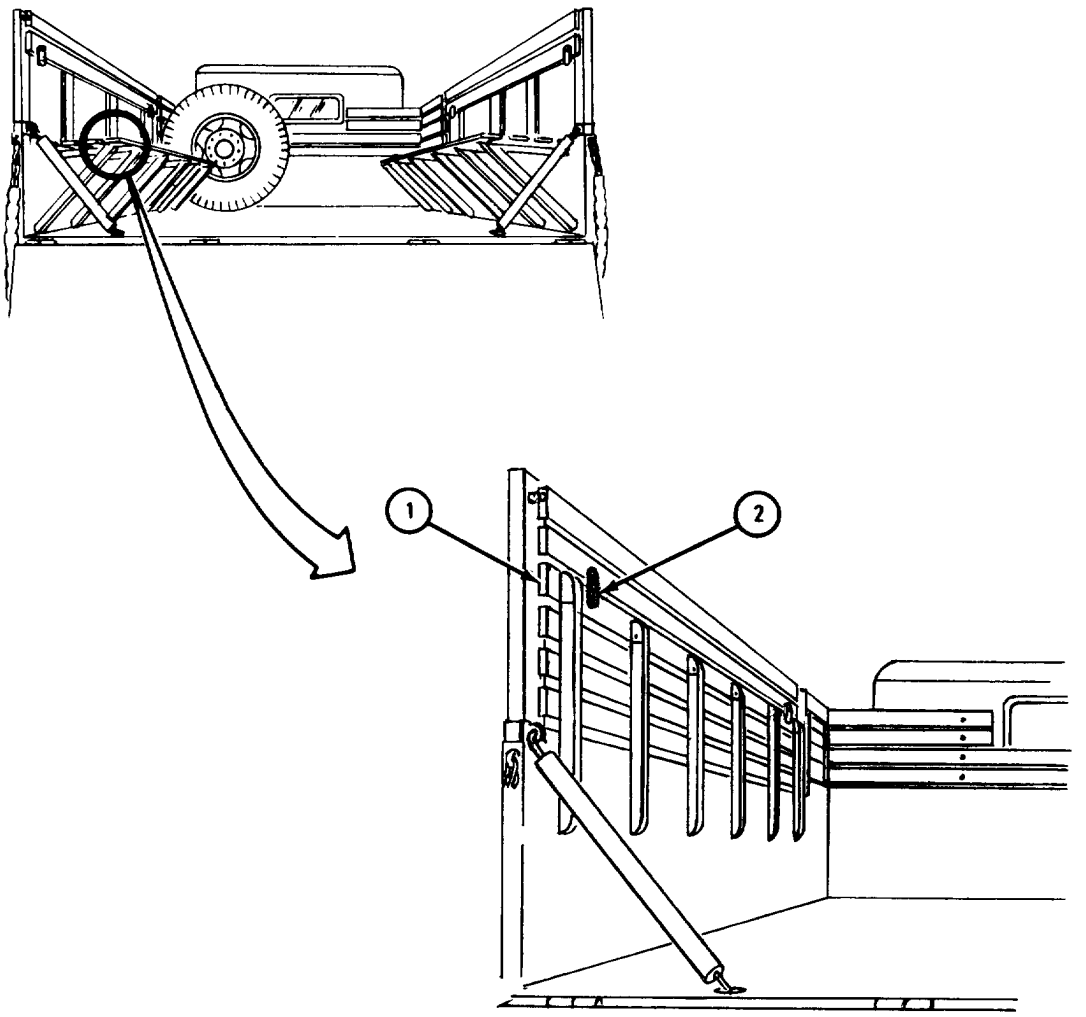


TA 053897

FRAME 3

1. If troop seats (1) are not up and locked, fold the seats (1) up and lock them in place with troop seat latches (2) .

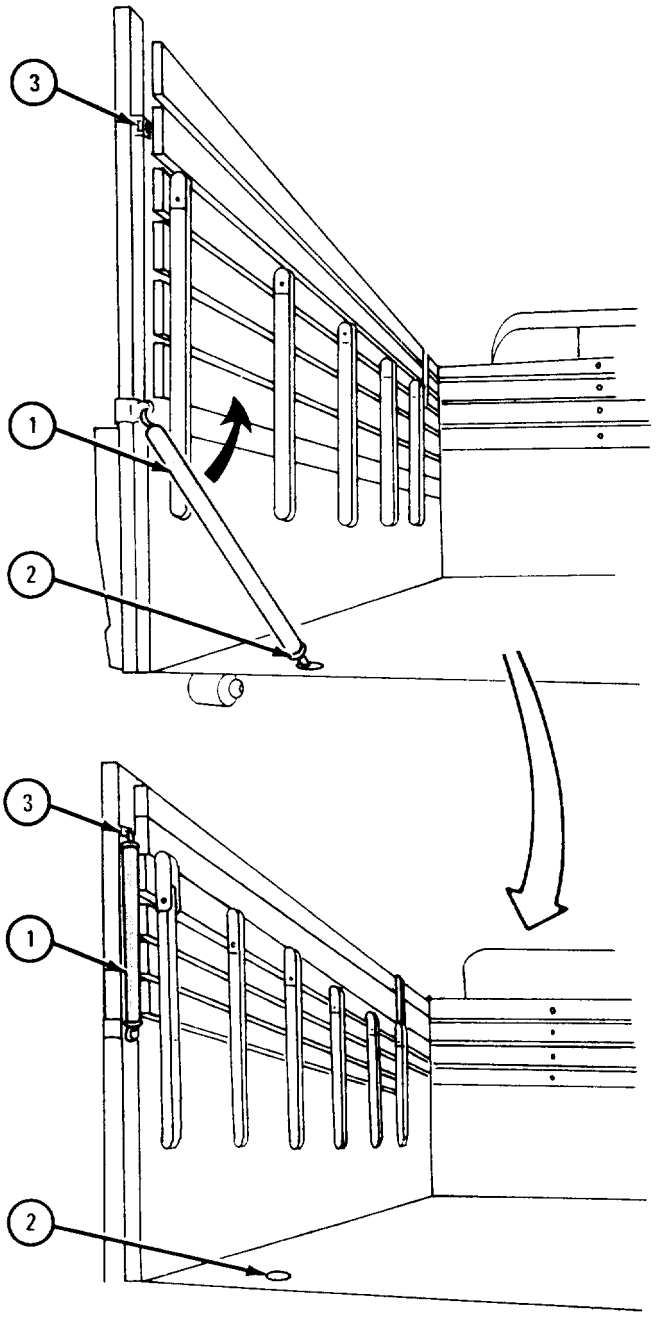
GO TO FRAME 4



FRAME 4

1. Unhook the troop seat locking rods (1) from the troop seat locking rod holes (2) in floor on right and left sides of truck.
2. Turn the rods (1) up and place them in retainers (3).

GO TO FRAME 5

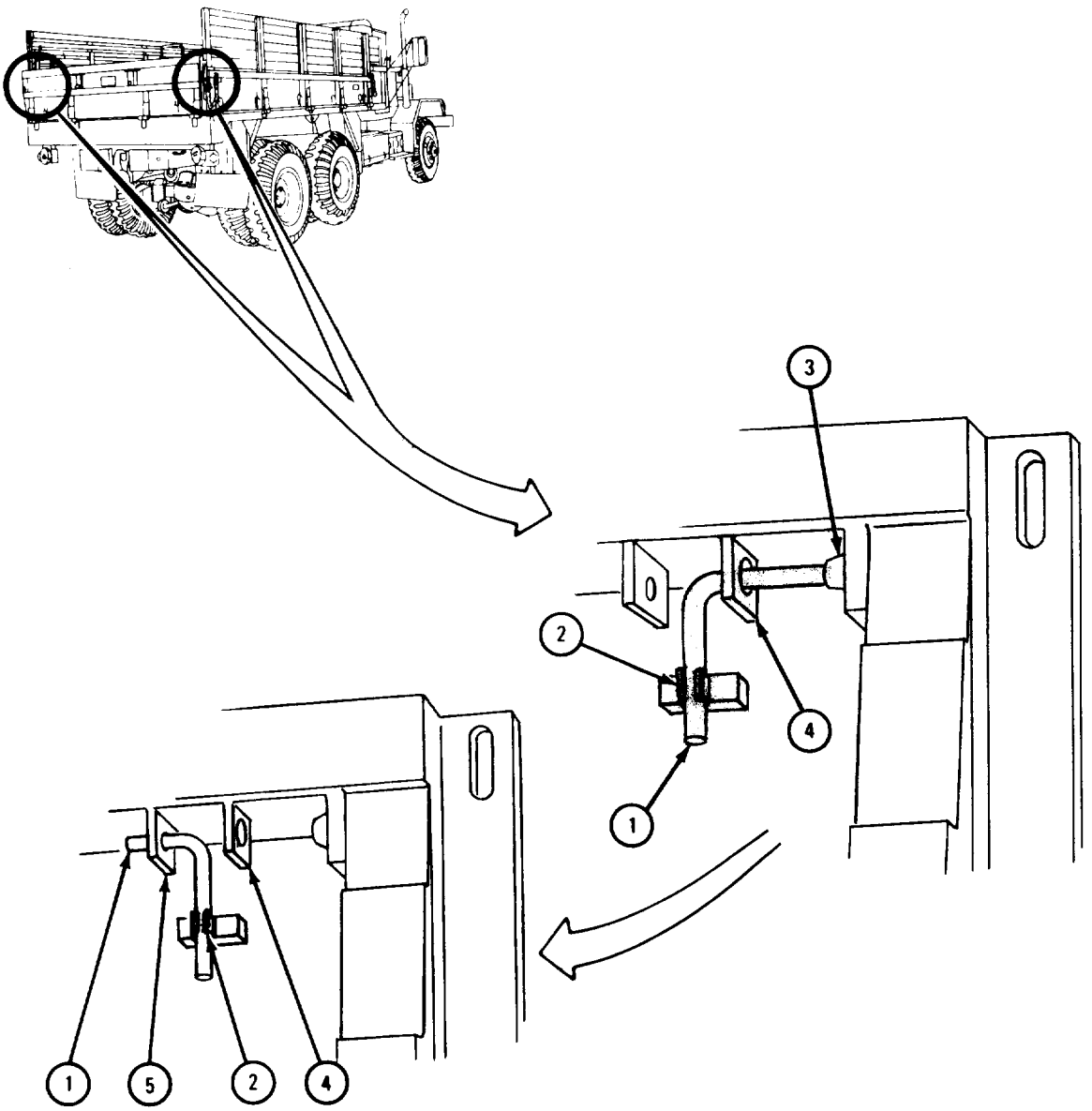


TA 05389!3

FRAME 5

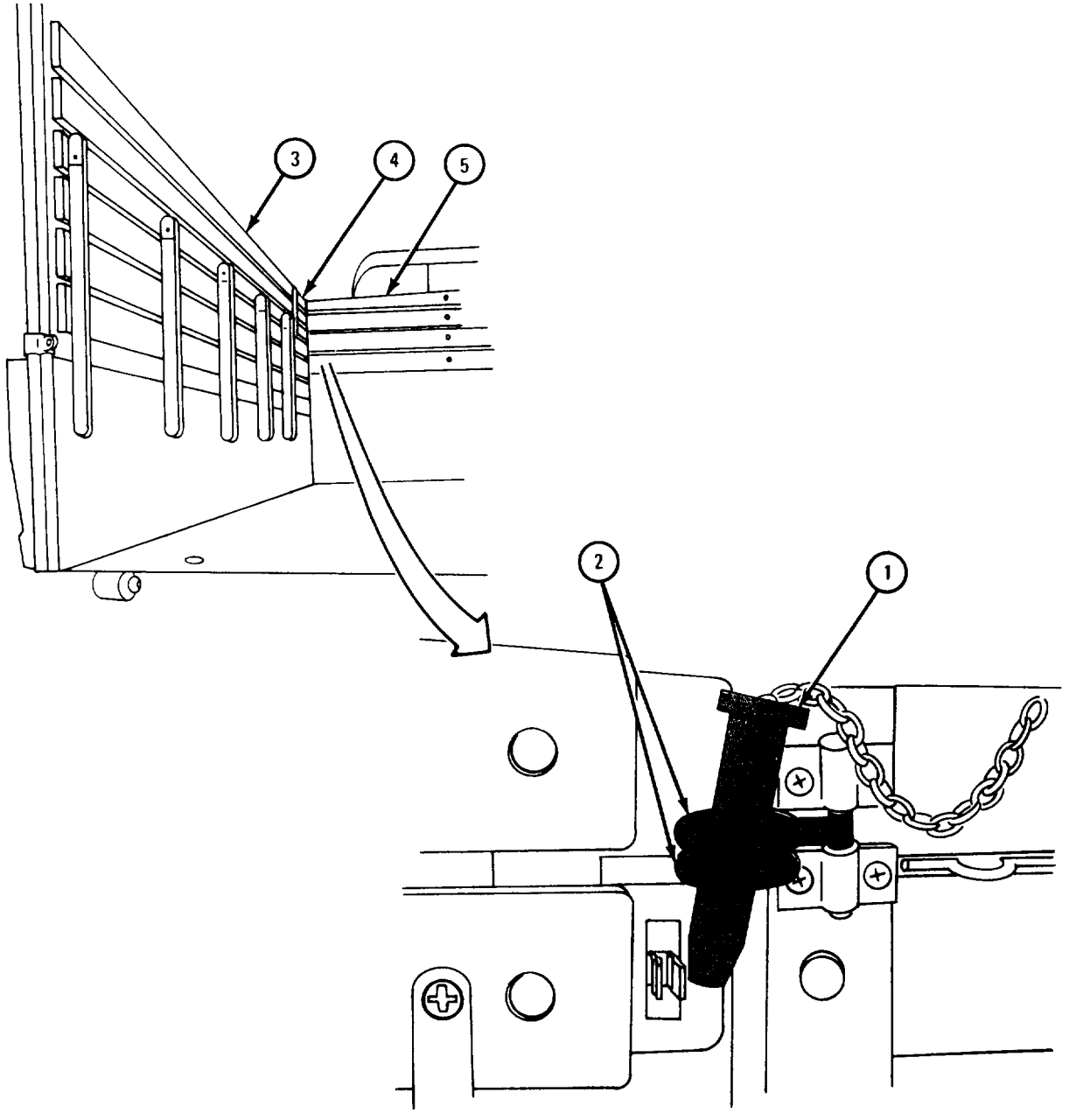
1. Pull side rack locking pins (1) from retainers (2) (front and rear, on both sides of truck) .
2. Move side rack locking pins (1) away from rack sockets (3).
3. Pull pins (1) through holes in brackets (4).
4. Place pins (1) in holes in brackets (5) and in retainers (2).

GO TO FRAME 6



FRAME 6

1. Lift front and side rack locking pins (1) out of retainer rings (2).
2. Swing movable retaining ring (2) away from rack.
3. Lift side rack (3) with seats out of its sockets.
4. Lift bow storage side rack (4) out of its sockets.
5. Lift front rack (5) out of its sockets.

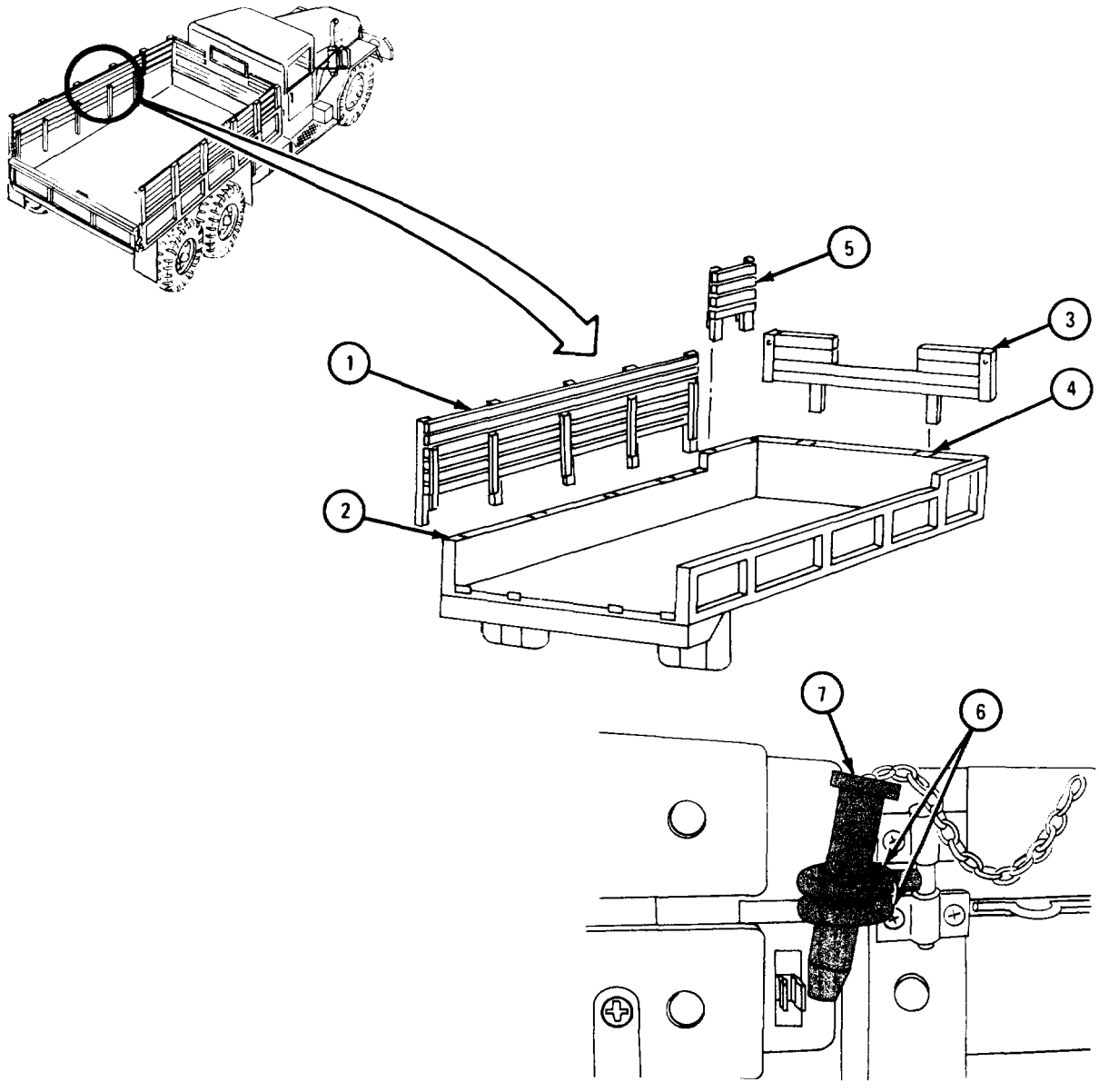


e. Installing Front and Side Racks on Dropside Type Cargo Trucks.

FRAME 1

1. Put side racks with seats (1) into sockets (2) on right and left sides of truck.
2. Put front rack (3) into front rack sockets (4) .
3. Put bow storage side racks (5) into their sockets.
4. Line up retaining rings (6) and lock with locking pins (7) .

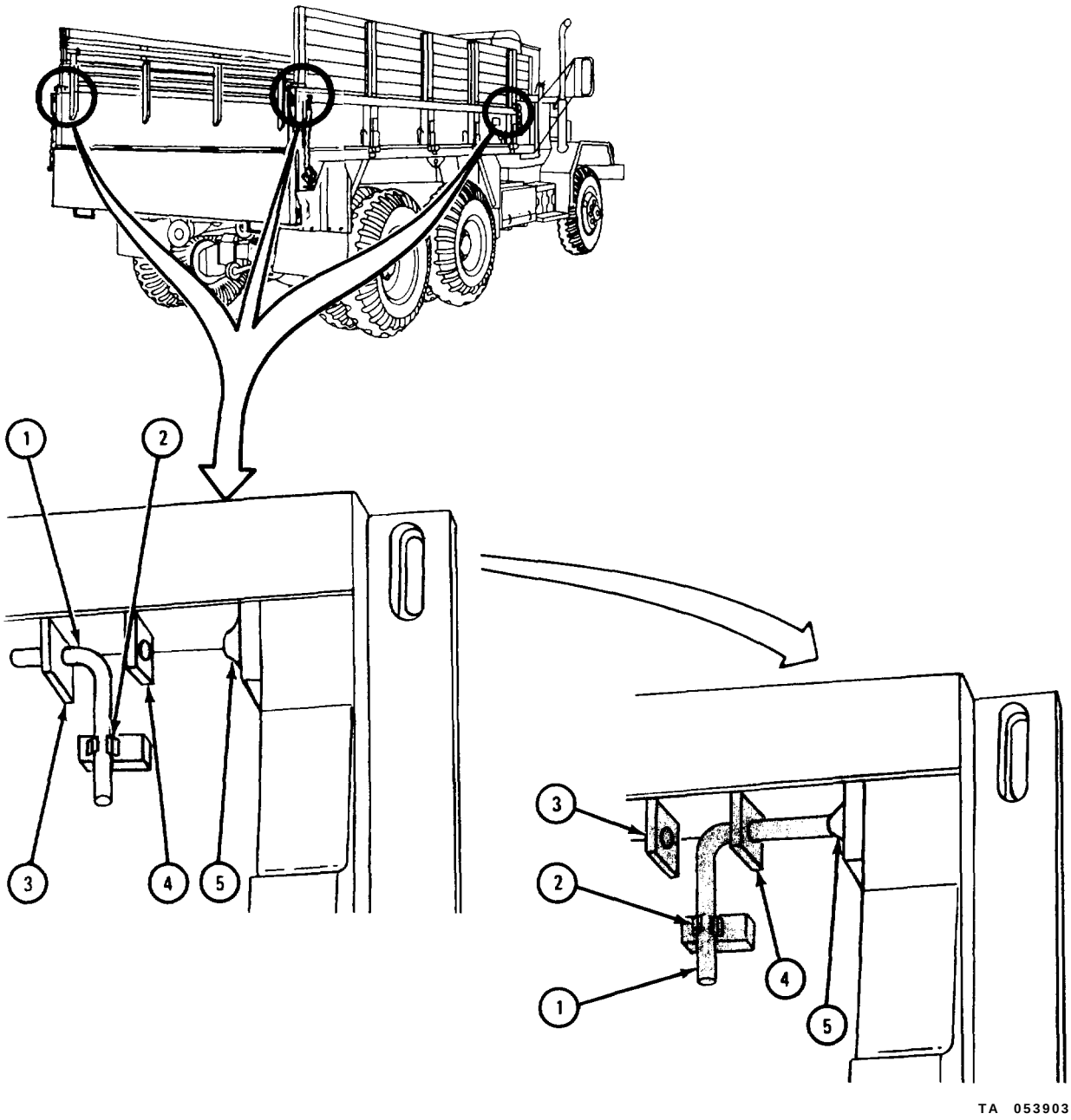
GO TO FRAME 2



FRAME 2

1. Pull side rack locking pins (1) from retainers (2) and from hole in brackets (3) on both sides, front and rear of truck.
2. Place side rack locking pins (1) in holes in brackets (4) , rack sockets (5) , and retainers (2).

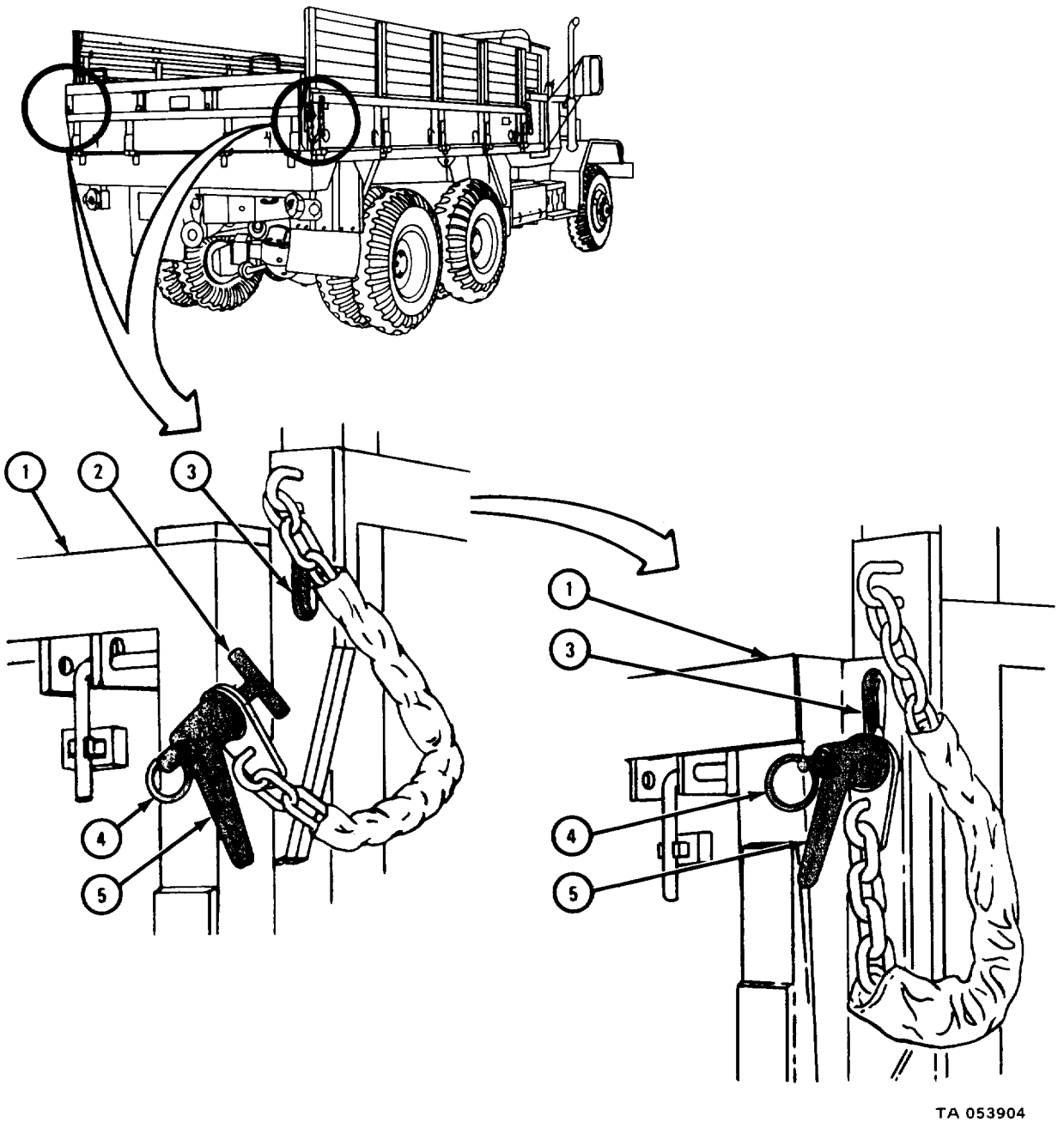
GO TO FRAME 3



FRAME 3

1. Lift tailgate (1) up to closed position.
2. Place T-bolts (2) through slots (3) on both sides of tailgate.
3. Turn rings (4) 90°.
4. Hold rings (4) and turn handles (5) right until they are tight.

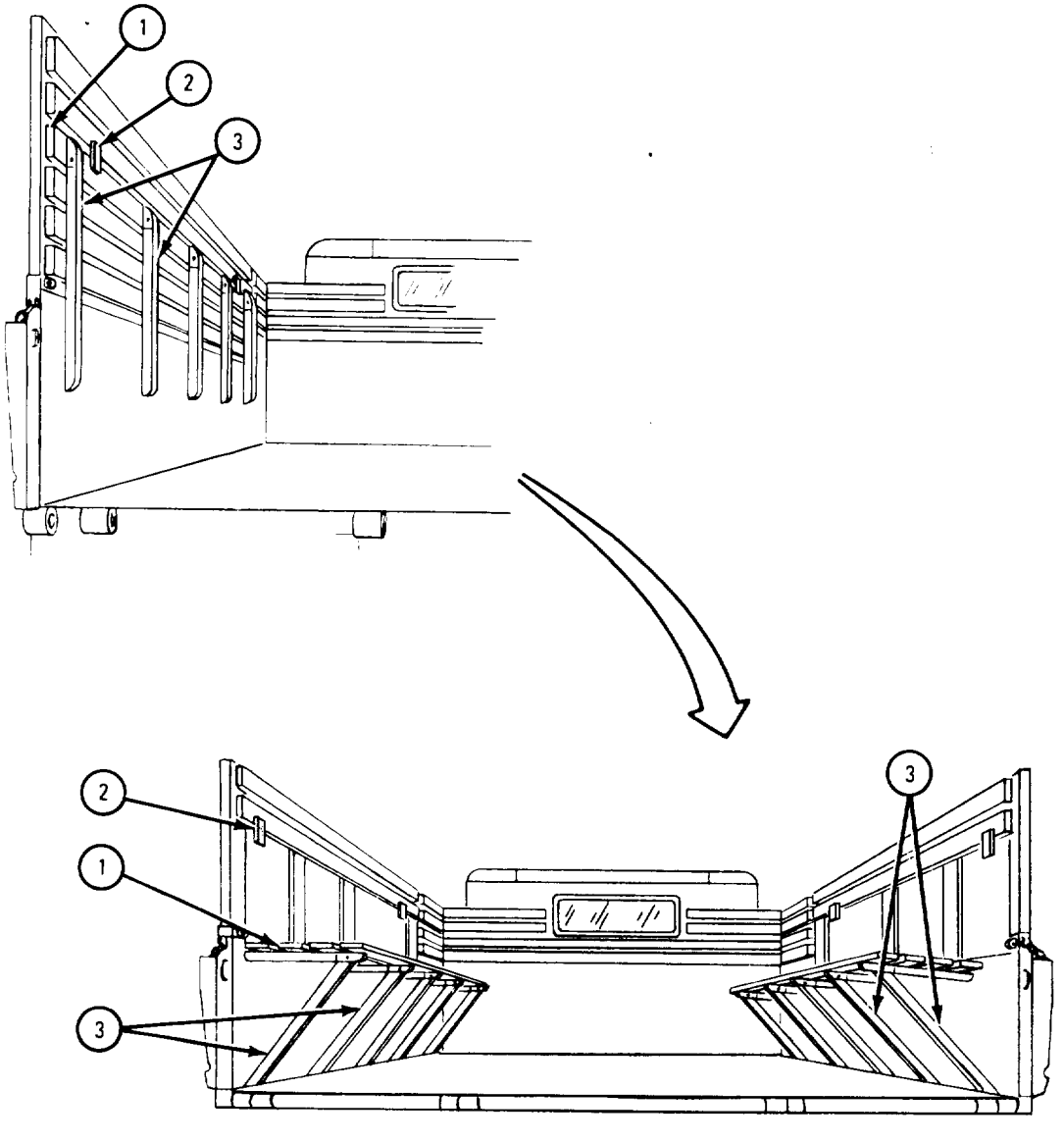
GO TO FRAME 4



FRAME 4

1. Hold the troop seats (1) in up position and turn troop seat latches (2) up to free seats.
2. Set troop seats (1) in down position.
3. Make sure that seat supports (3) touch floor and sides of truck body.

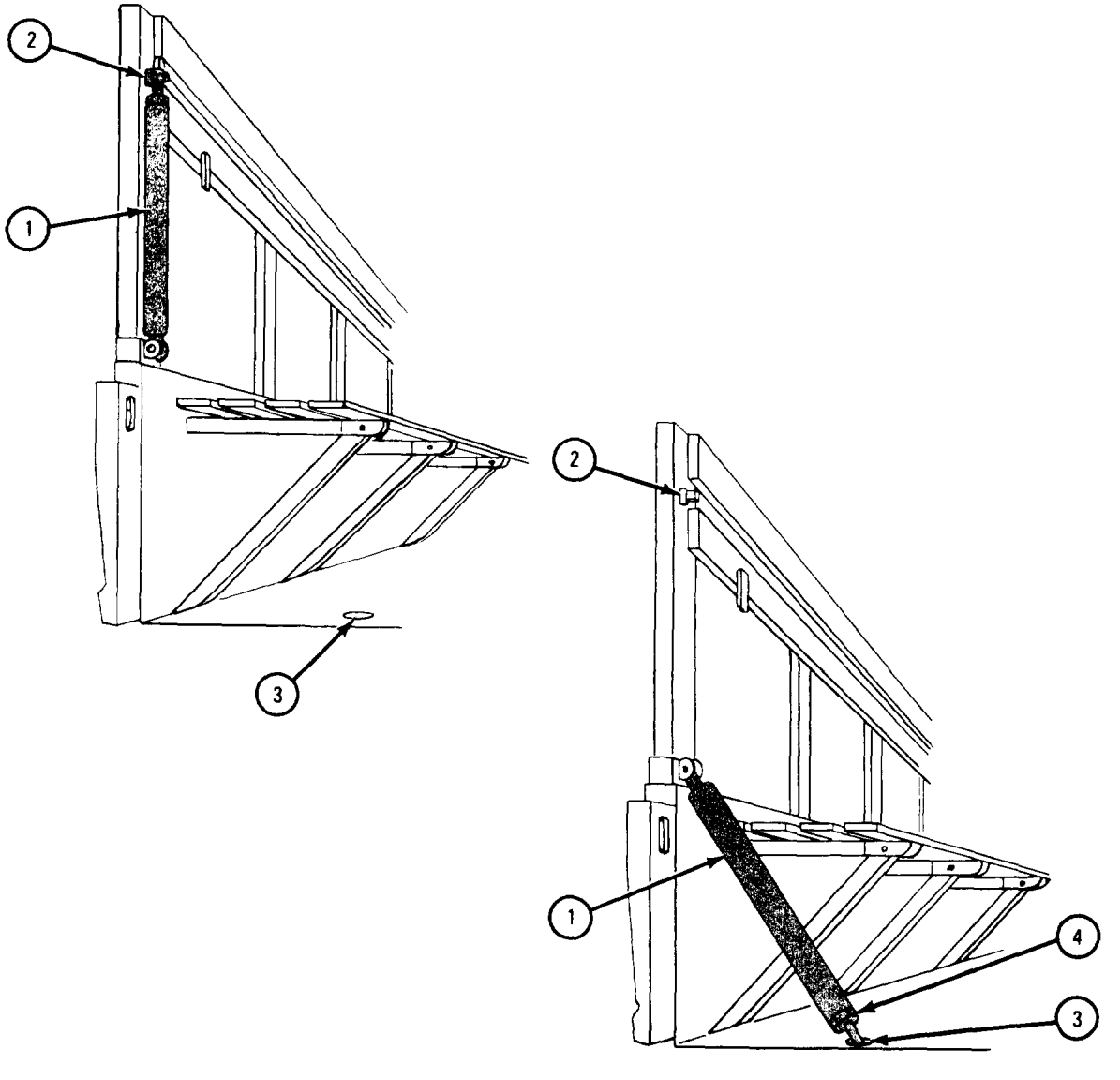
GO TO FRAME 5



TA 053905

FRAME 5

1. Pull troop seat locking rods (1) from retainers (2) on left and right side of truck,
2. Set lower end of rods (1) in troop seat locking rod holes (3) in floor near tailgate.
3. If rod (1) is too short or too long:
   (a) Turn locking nut (4) left to loosen it.
   (b) Turn lower end of rod (1) right to shorten rod, or turn it left to make rod longer.
   (c) When rod (1) is correct length, turn locking nut (4) right to tighten it.
   (d) Set lower end of rod (1) in locking rod hole (3).



f. Lowering Drop sides on Drop side Type Cargo Trucks.

FRAME 1

CAUTION

Use care when putting dropsides down. Put them down slowly . Do not let them fall. Letting sides fall can cause damage to side racks, mud guards, or both.

NOTE

Dropsides can be let down either with side racks in position or after side racks have been taken off. Either drop side can be let down without lowering the tailgate. If both drop-sides are to be let down, the tailgate should be let down first.

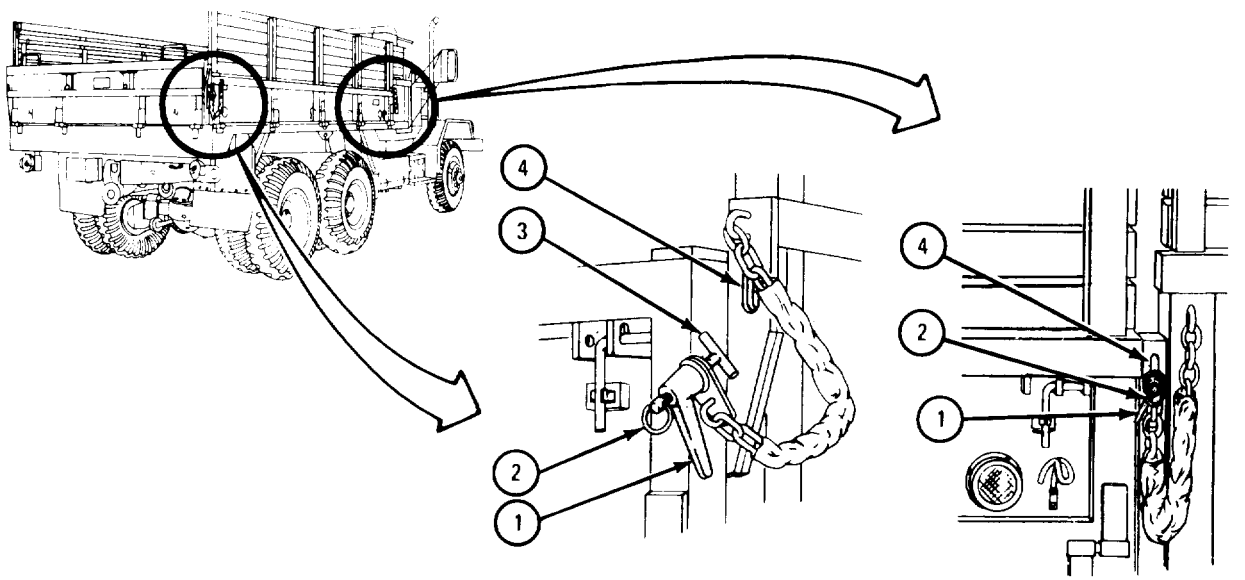
1. Make sure that troop seats are in stowed position. Refer to para 4-8d , frame 3.
2. Make sure that troop seat locking rods are in retainer (stowed position) . Refer to para 4-8d, frame 4.
3. Take out locking pins between side racks and bow storage side rack. Refer to para 4-8d, frame 6.
4. Make sure that side rack locking pins are in locked position. Refer to para 4-8e, frame 2.
5. Letting down one side, left or right:

   (a) Turn locking handles (1) , on each end of dropside, left to loosen it.

   (b) Turn rings (2) 90° to line up T-bolts (3) with slots (4).

   (c) Pull T-bolts (3) from slots (4) .

GO TO FRAME 2

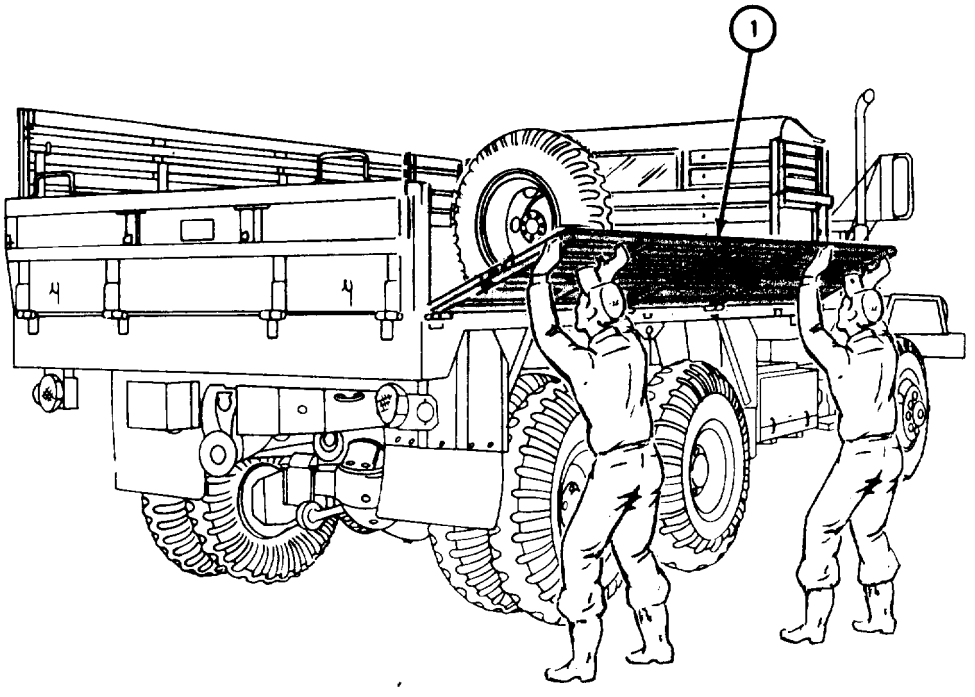


PERSONNEL: Two

FRAME 2

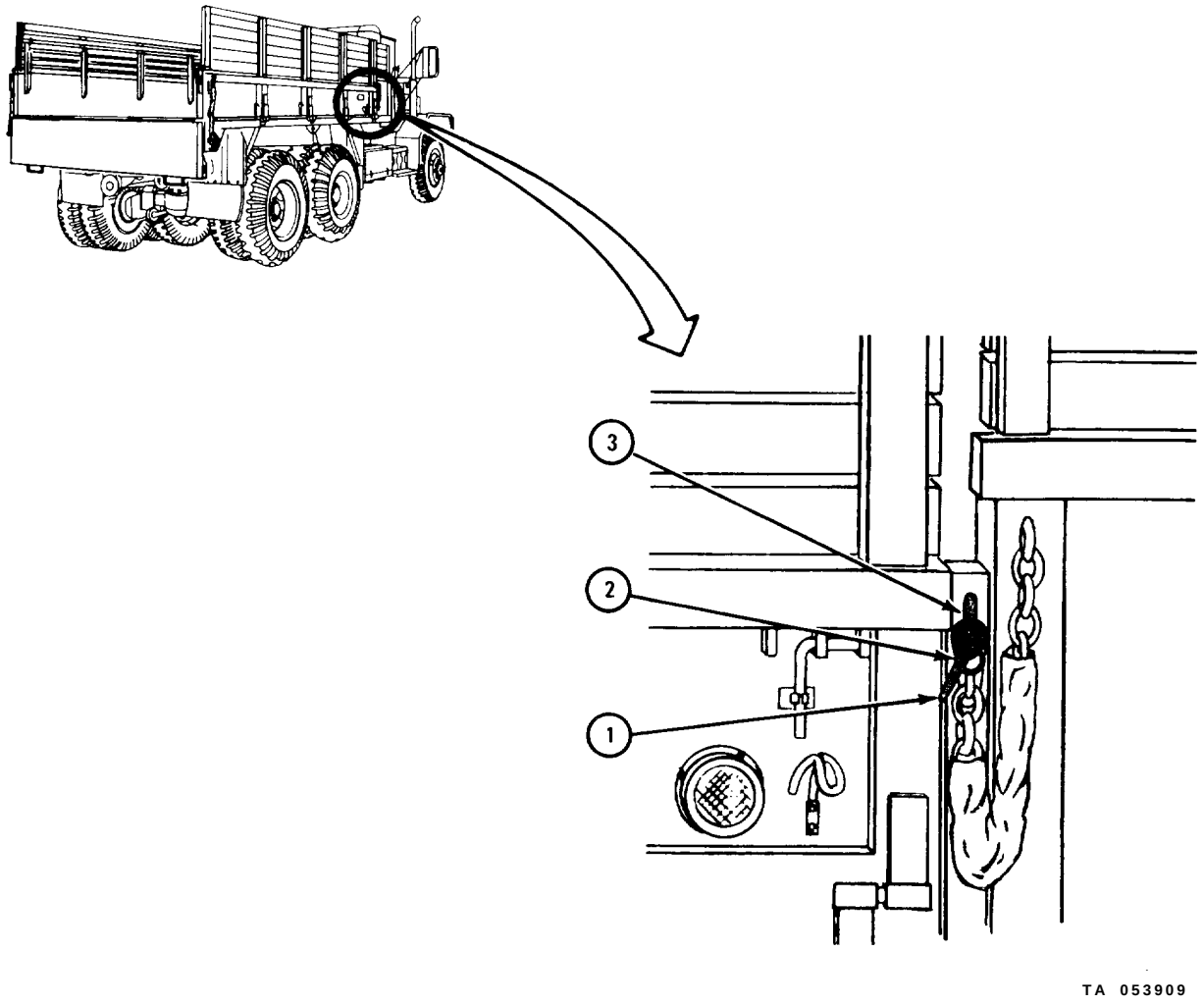
1. Use two soldiers, one on each end of drop side (1) to lower it.
2. Pull side (1) toward you and let it come down slowly. Do not let it drop.

GO TO FRAME 3



FRAME 3

1. When letting down both sides, lower tailgate. Refer to para 4-8d, frames 1 and 2.
2. To lower right dropside:
   (a) Turn forward locking handle (1) , on drop side, left to loosen.
   (b) Turn ring (2) 90° to aline T-bolt with slot (3).
   (c) Pull T-bolt from slot (3).
   (d) Lower right dropside. Refer to frames 1 and 2.
3. To lower left dropside, do steps 2 (a) through 2 (d) again for left side.



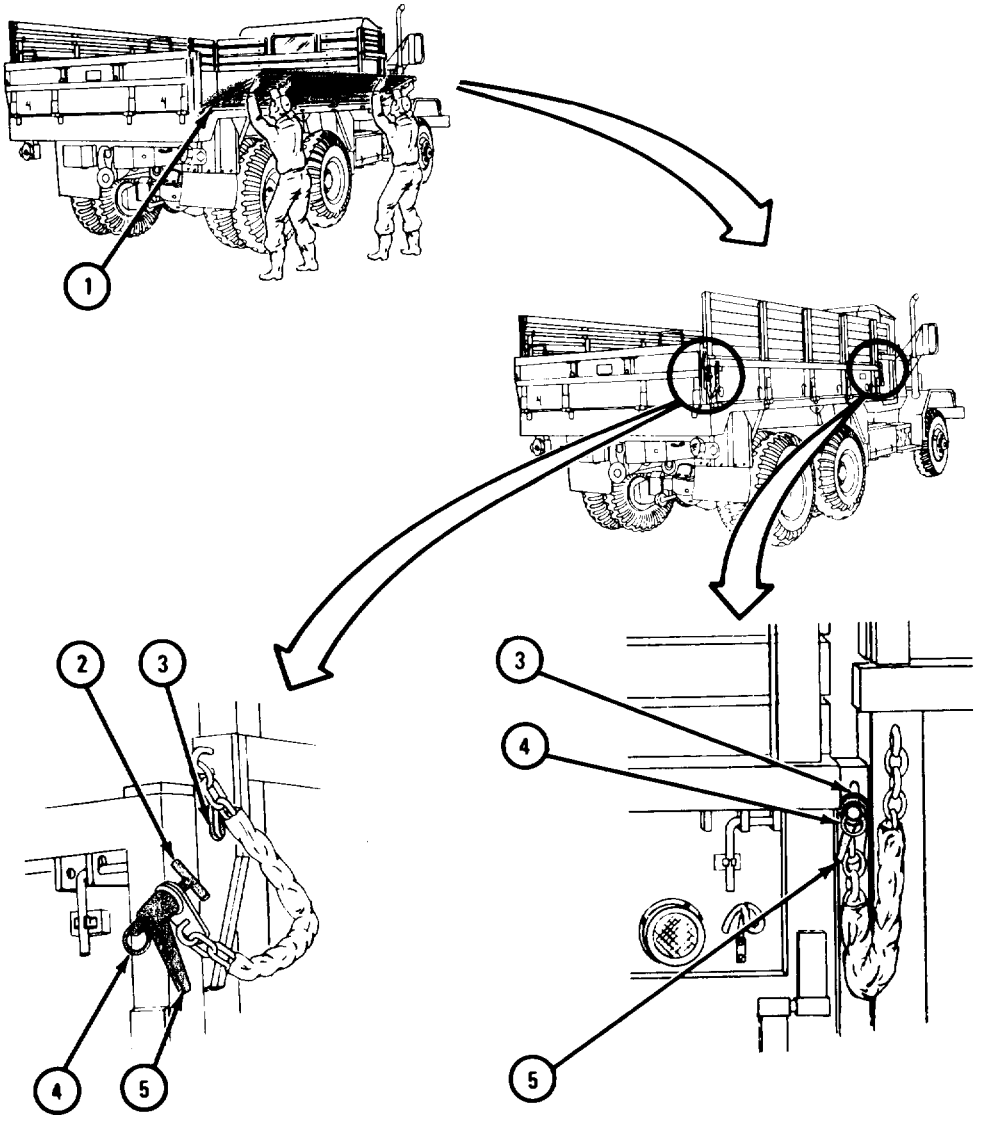
g. Raising Dropsides on Dropside Type Cargo Trucks.

PERSONNEL : two

FRAME 1

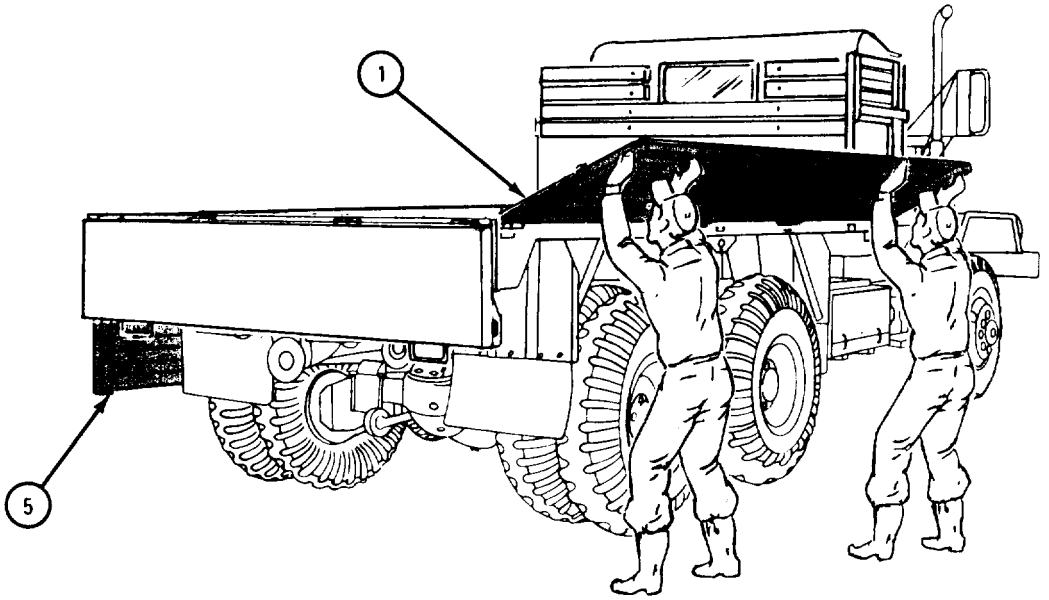
1. If only one dropside is down:
   (a) Use two soldiers to push drop side (1) up into position.
   (b) Place T-bolts (2) through slots (3) on both ends of dropside.
   (c) Turn rings (4) 90°.
   (d) Hold rings (4) and turn handles (5) right until they are tight.

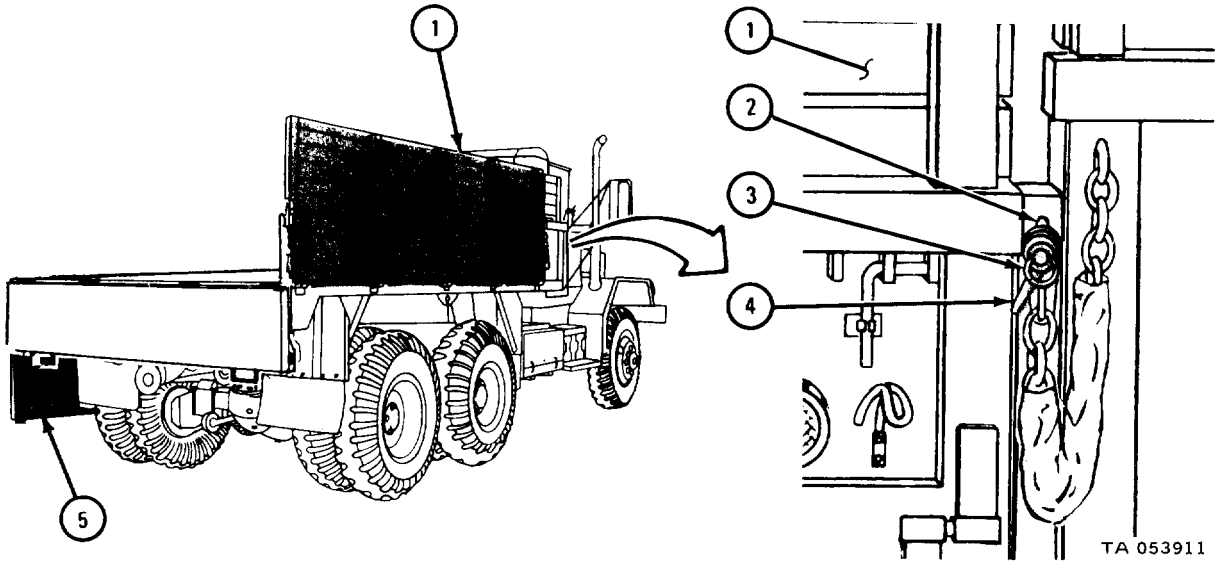
GO TO FRAME 2



FRAME 2

1. If both dropsides are down:
   (a) Use two soldiers to push one of the dropsides (1) up into position.
   (b) Place T-bolt through slots (2) on forward end of dropside.
   (c) Turn ring (3) 90°.
   (d) Hold ring (3) and turn handle (4) right until it is tight.
   (e) Do steps 1 (a) through 1 (d) again for other dropside (5).
   (f) Raise and lock tailgate. Refer to para 4-8e, frame 3.





h. Removing Dropsides, Tailgate or Both.

TOOLS: Pliers

PERSONNEL: Two

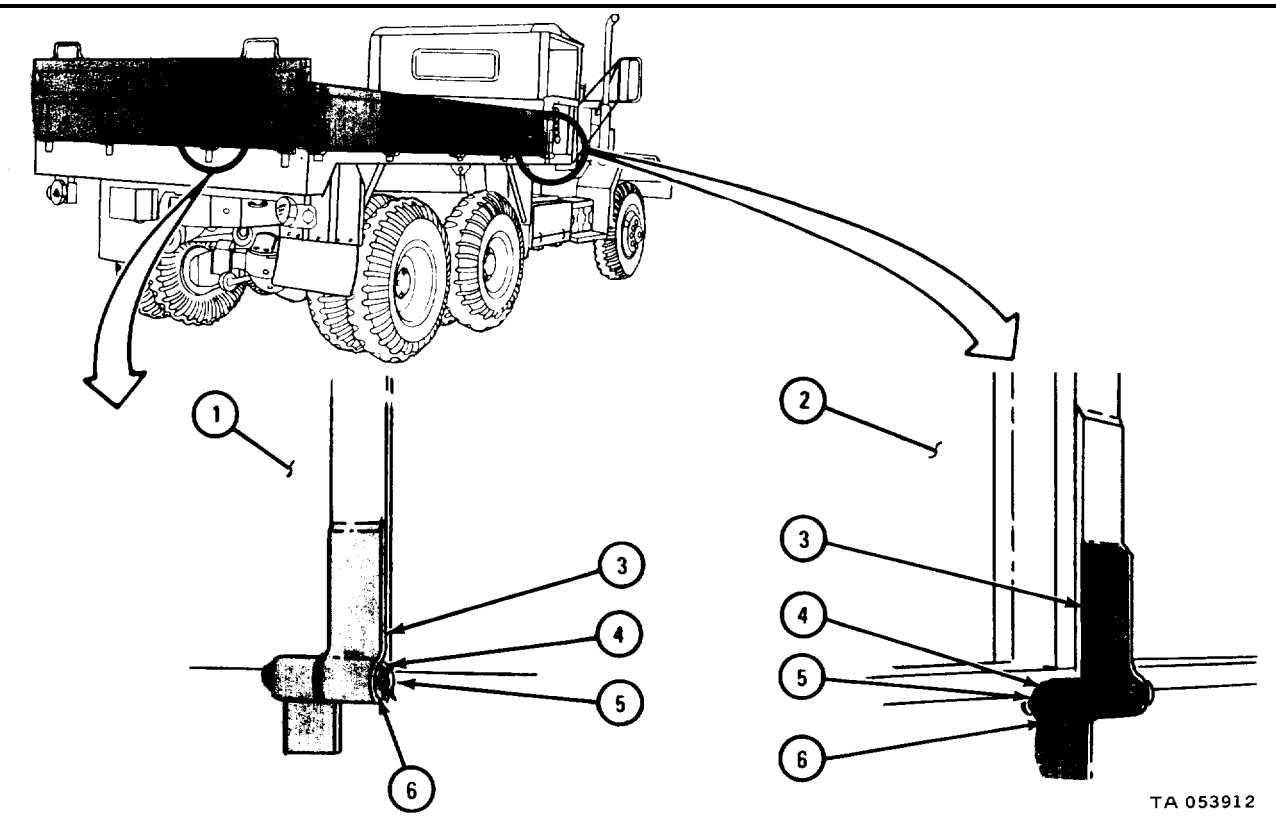
FRAME 1

NOTE

Use two soldiers to do this job. One soldier is needed to keep tailgate or dropside steady while other works on hinges.

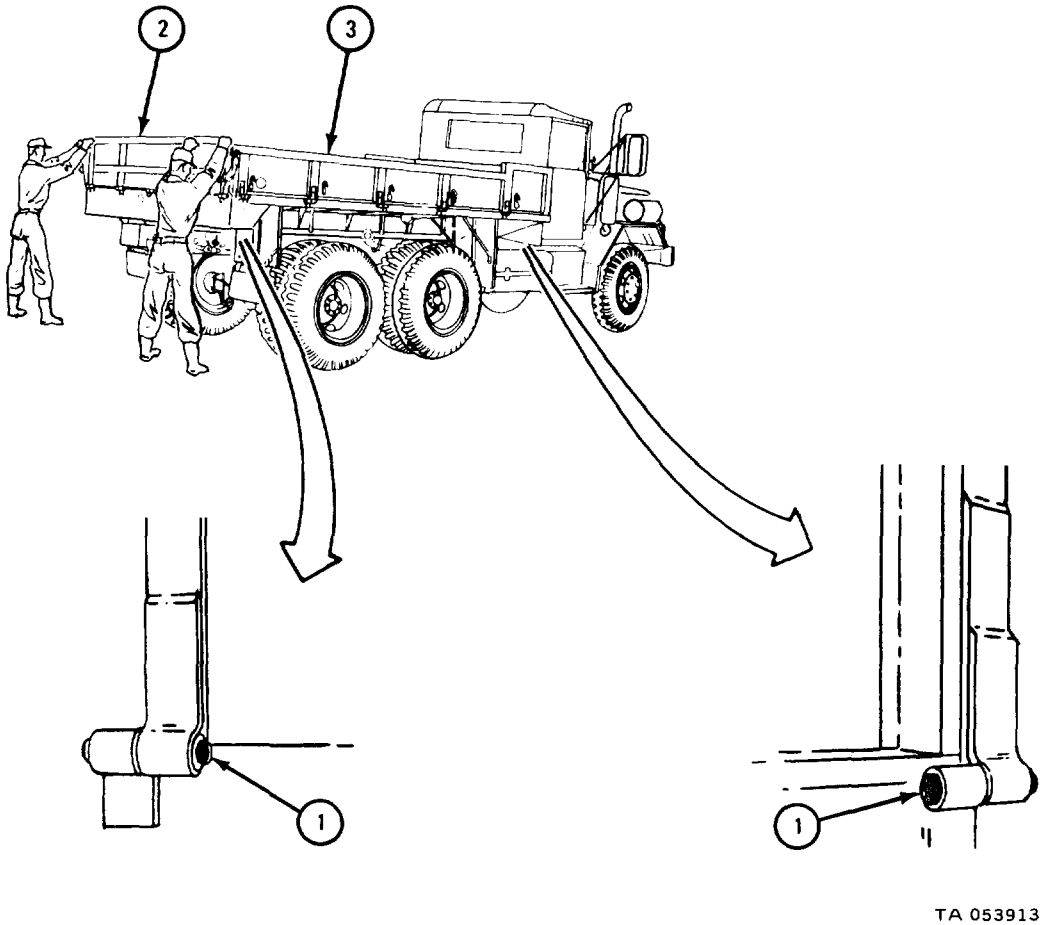
1. On tailgate (1) or dropside (2) to be taken off, on each hinge (3):
   (a) Using pliers, straighten cotter pins (4) on one end of hinge pin (5) .
   (b) Using pliers, pull cotter pin (4) out of hinge pin (5).
   (c) Take washer (6) off hinge pin (5) .
2. Take out all hinge pins (5) except the two on end of tailgate (1) or dropside (2).
3. Unlock tailgate (1) or dropside (2) being taken off.
   (a) For tailgate (1) , refer to para 4-8d, frame 1.
   (b) For dropside (2), refer to para 4-8f, frames 1 and 2.

GO TO FRAME 2



FRAME 2

1. Take out two end hinge pins (1) .
2. Use one soldier at each end of tailgate (2) or dropside (3) to move tailgate or dropside down from cargo bed.



TA 053913

i. Installing Dropsides Tailgate or Both.

TOOLS : Pliers

PERSONNEL: Two

FRAME 1

CAUTION

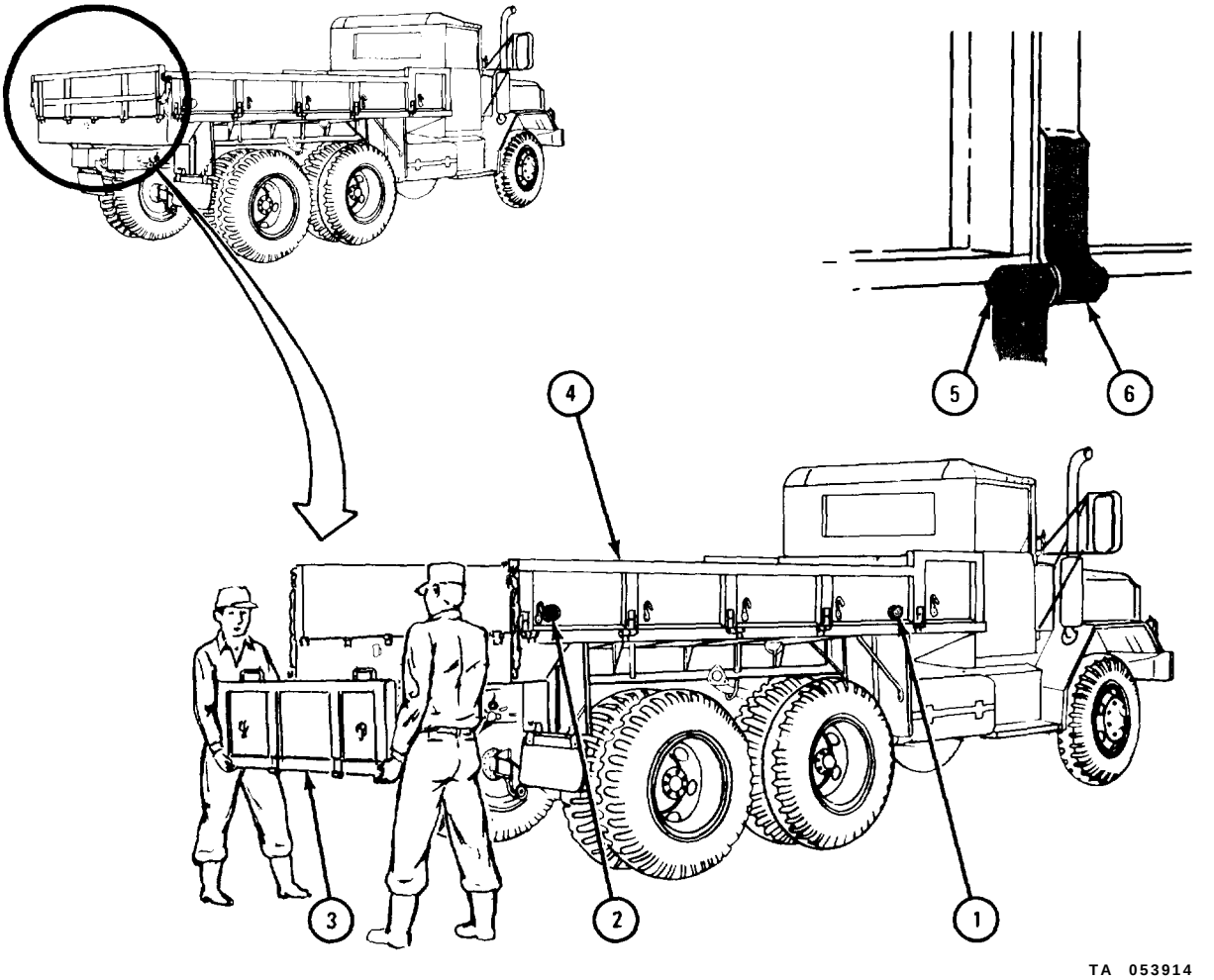
Sides of dropside cargo body are interchangeable. When putting back sides, be sure that amber reflectors (1) are at front of body and red reflectors (2) are at rear of body.

1, Use two soldiers, one at each end of tailgate (3) or dropside (4) to lift them into place and put hinge pins (5) back into hinge (6) .

2. Lock tailgate or dropside when placed in position.

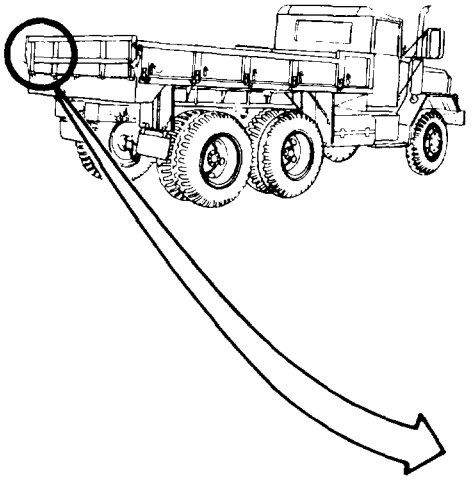
(a) For drop sides, refer to para 4-8g, frame 1.

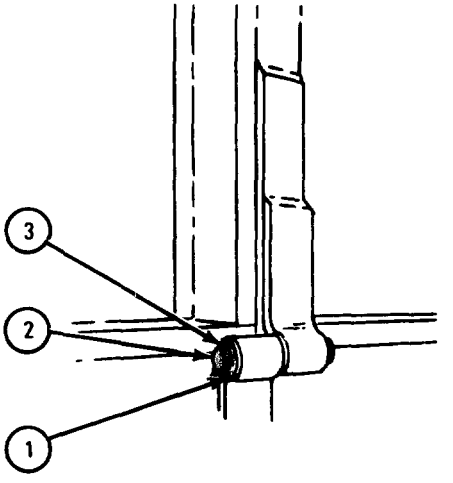
(b) For tailgate, refer to para 4-8e, frame 3.



FRAME 2

1. Put washers (1) and cotter pins (2) back onto hinge pin (3).
2. Using pliers, spread open ends of cotter pin (2) .





TA 053915

4-9, OPERATION OF TRACTOR TRUCKS.

a. General. The M52A1 tractor truck can tow a semitrailer with a maximum travel load of 30,000 pounds for cross-country operations and 55,000 pounds for highway travel.

b. Coupling the Semitrailer,

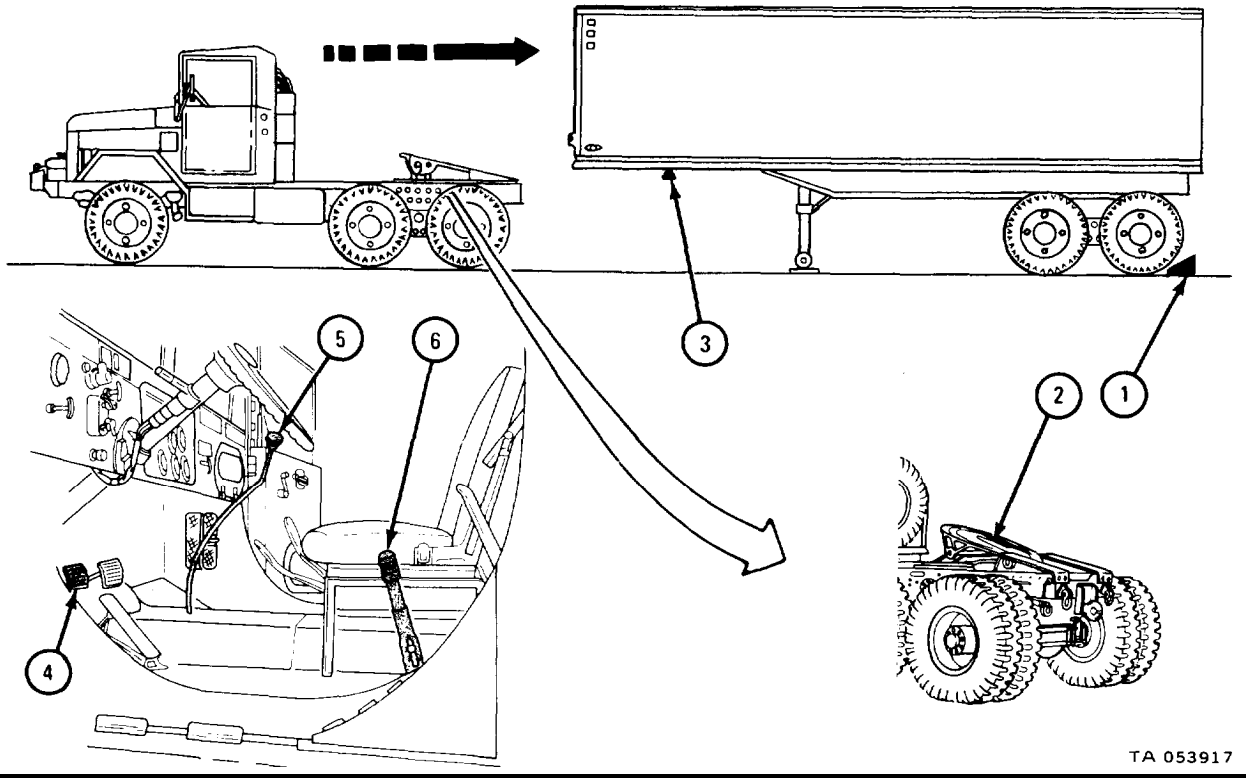
TOOLS : Wheel chocks
Adjustable wrench

PERSONNEL: Two

FRAME 1

1. Make sure wheel chocks (1) are behind semitrailer rear wheels.
2. Start engine. Refer to para 4-6 a, b.
3. Place tractor truck in front of and almost touching the semitrailer with center of fifth wheel (2) in line with semitrailer king pin (3) .
4. Push clutch pedal (4) all the way down.
5. Place FRONT TRANSMISSION gearshift lever (5) in N position.
6. Let clutch pedal (4) up.
7. Pull handbrake lever (6) to up (brake on) position.

GO TO FRAME 2



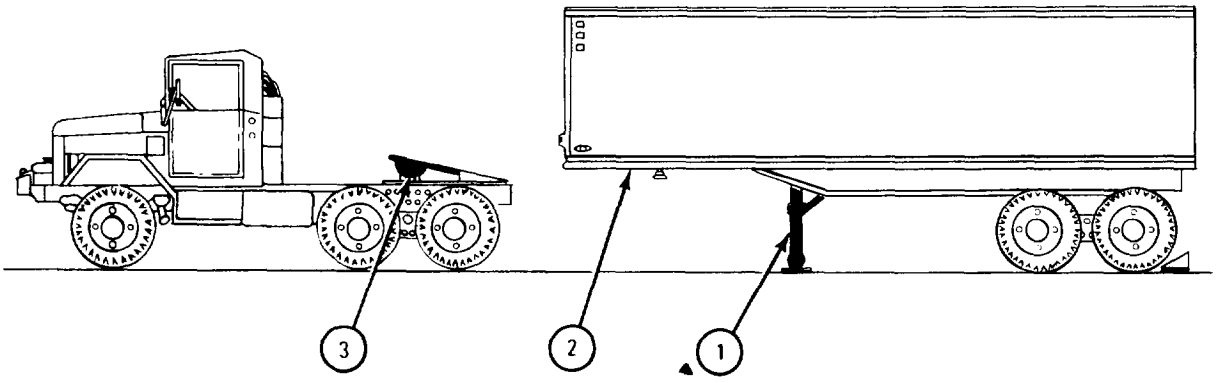
FRAME 2

1. Set semitrailer landing gear (1) to raise or lower semitrailer skid plate (2). Skid plate should be slightly lower than tractor fifth wheel (3).

NOTE

Refer to the operator's manual, for the semitrailer to be coupled, for instructions on how to raise or lower landing gear.

GO TO FRAME 3

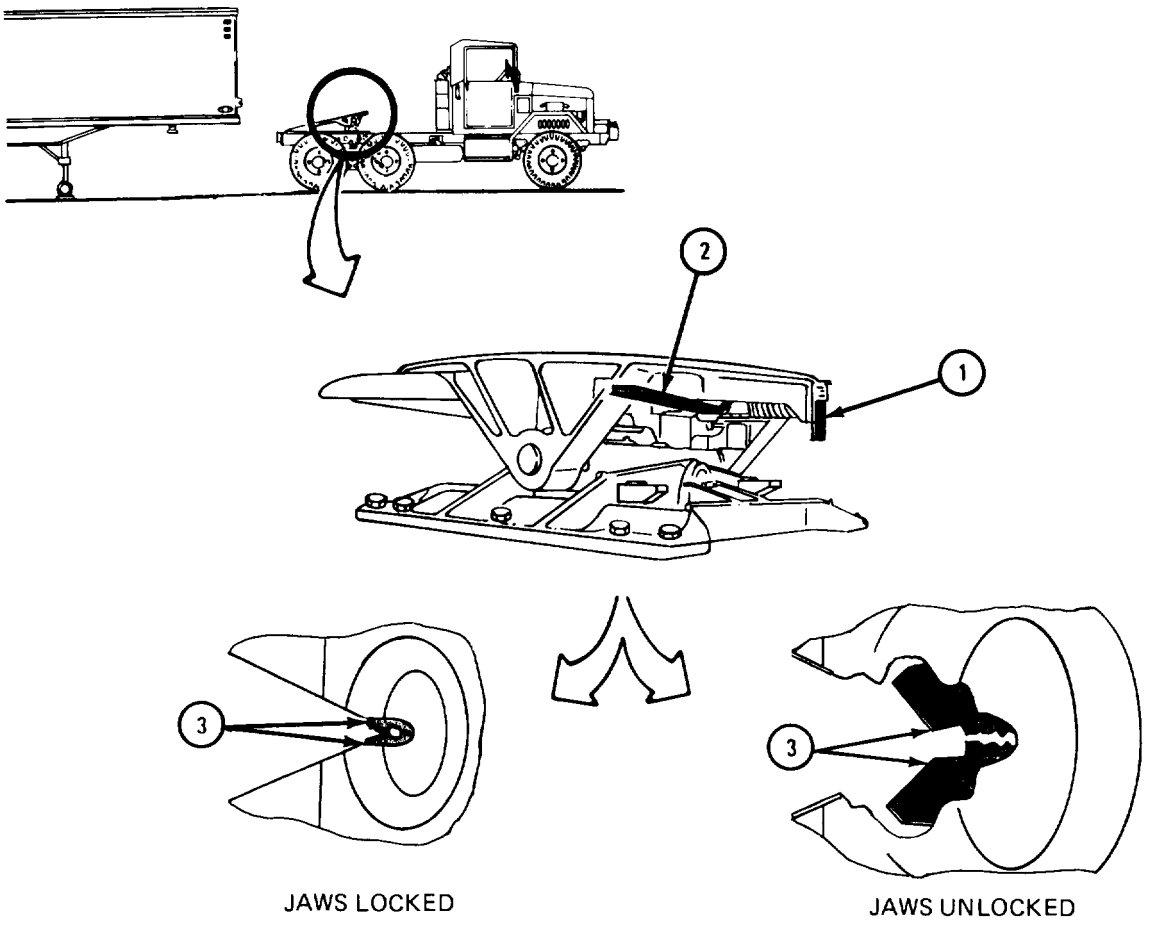


TA 053918

FRAME 3

1. Turn locking plunger operating handle safety latch (1) to right or left to set locking plunger free.
2. Move locking plunger operating handle (2) forward until it stays in forward position. Coupler jaws (3) are now unlocked.

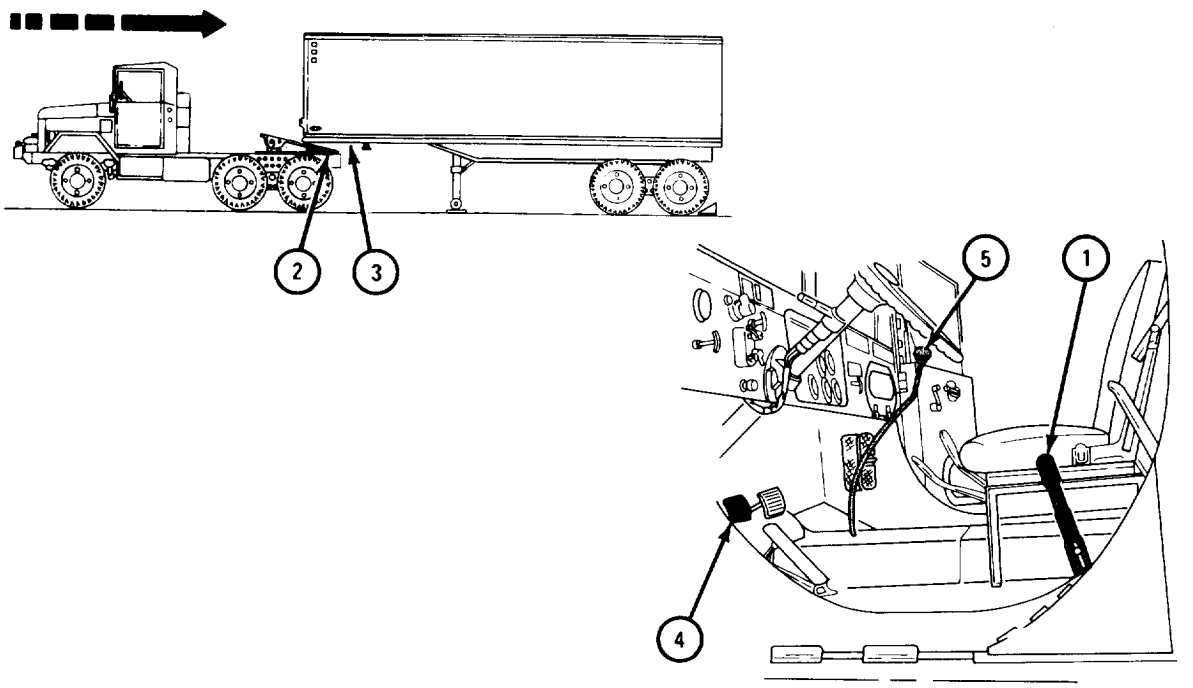
GO TO FRAME 4



FRAME 4

1. Set handbrake lever (1) to down (brake off) position.
2. Slowly back tractor until tractor approach plates (2) just touch semitrailer skid plate (3) .
3. Push down on clutch pedal (4).
4. Place FRONT TRANSMISSION gearshift lever (5) in N position.
5. Let clutch pedal (4) up.
6. Pull handbrake lever (1) to up (brake on) position.

GO TO FRAME 5

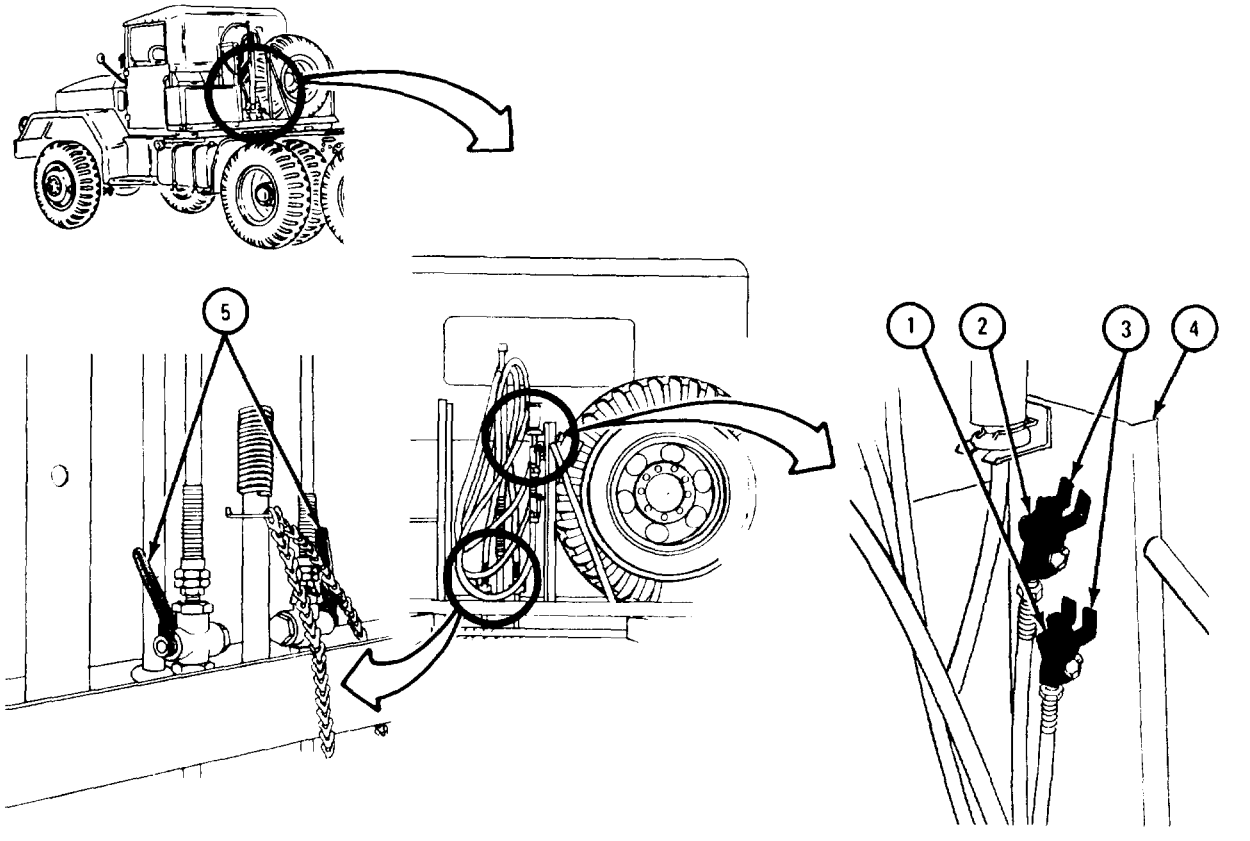


TA 053920

FRAME 5

1. Turn tractor air service hose coupling (1) and emergency air hose coupling (2) left to free them from dummy stowage couplings (3) mounted on air hose rack (4) . Tractor air valves (5) are marked SERVICE or EMERGENCY.

GO TO FRAME 6



TA 053921

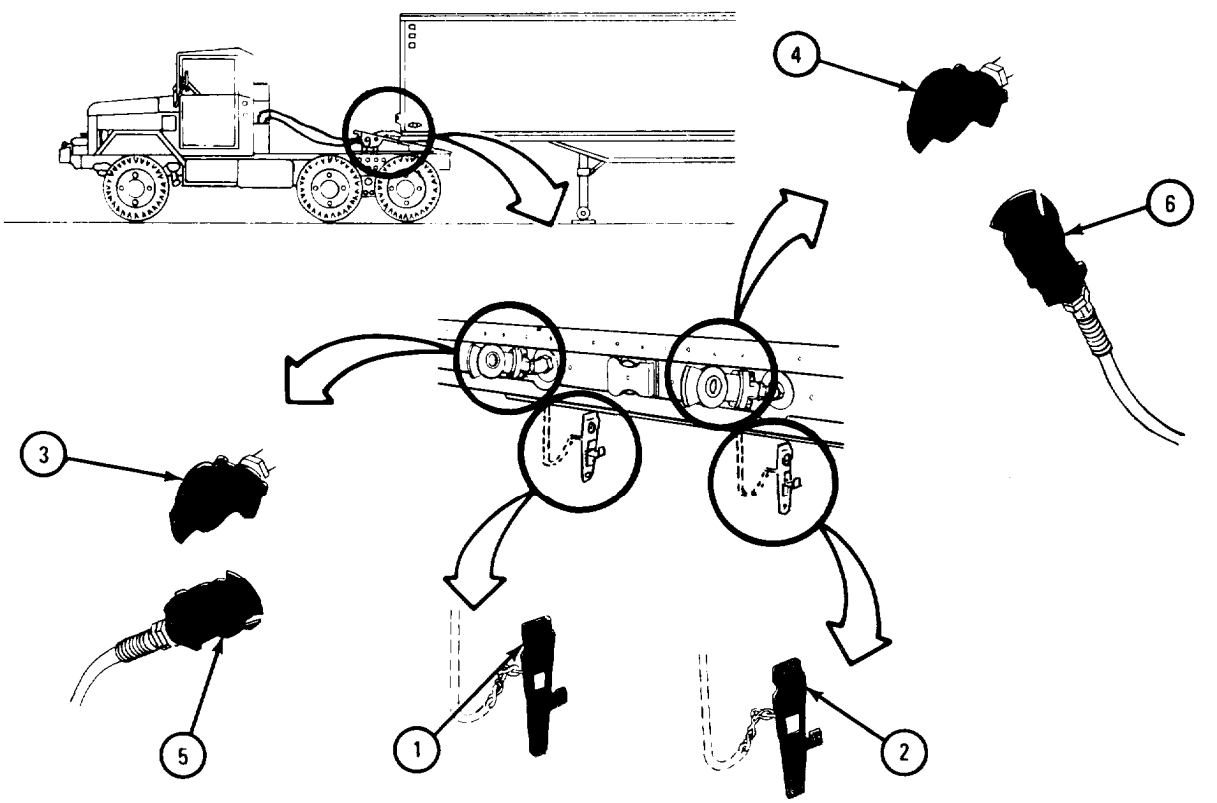
FRAME 6

NOTE

When joining the tractor air hoses to the semitrailer, make sure the tractor service air hose is joined to the service coupling on the semitrailer and that the tractor emergency air hose is joined to the emergency coupling on semitrailer. The service air hose joins the air brake systems of the tractor and semitrailer into one unit. The emergency air hose joins the semitrailer to the tractor air reservoir.

1. Turn the dummy air service (1) and emergency air (2) coupling left (up) to unlock and take them off of semitrailer couplings (3 and 4) . Semitrailer air couplings are marked SERVICE and EMERGENCY or EMERG.
2. Put tractor air service coupling (5) to air service coupling (3) on semitrailer. Turn tractor coupling (5) down to lock in position.
3. Put tractor emergency air coupling (6) to air service coupling (4) on semitrailer Turn tractor coupling (6) down to lock in position.

GO TO FRAME 7



TA 053922

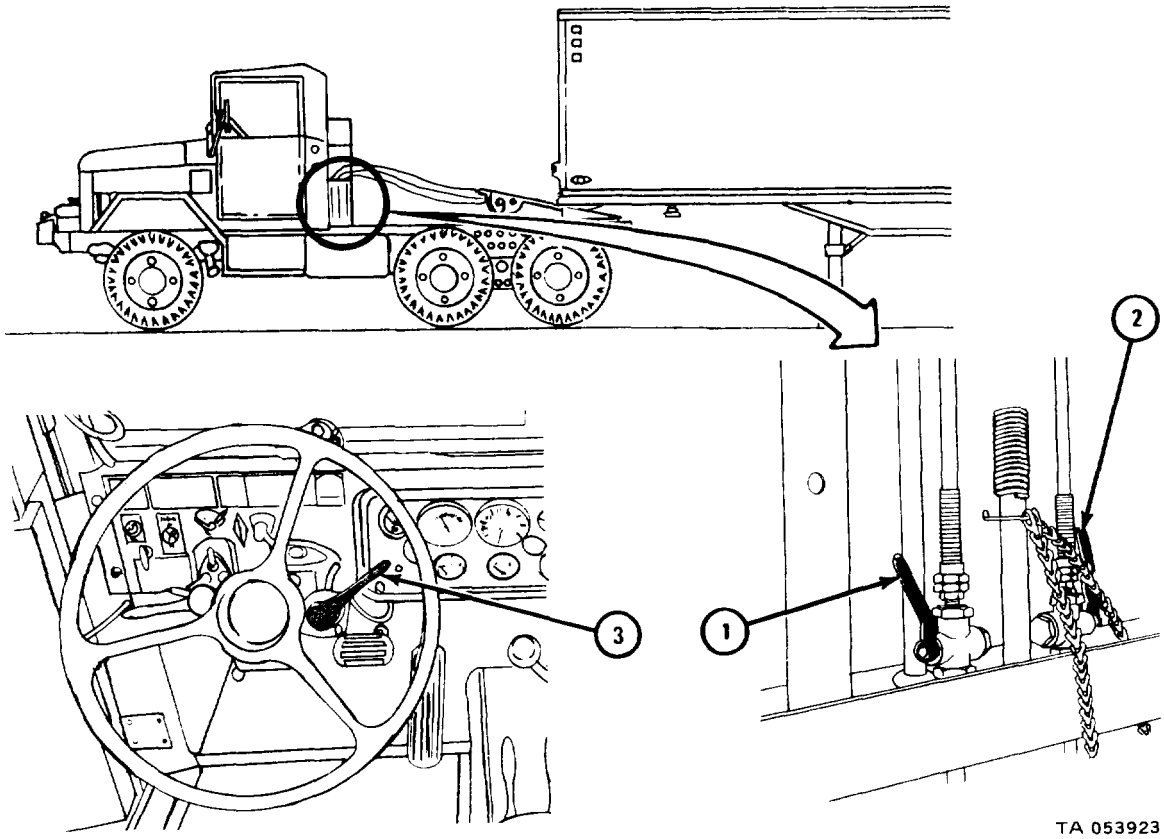
FRAME 7

1. Turn the air service cutoff cock (1) and the emergency cutoff cock (2) left to the side position to open them.
2. Pull hand operated air brake control lever (3) down to check air brake system. Air should be heard passing through air service system.
3. Move air brake control lever (3) to off position.

CAUTION

If air flow is not heard, check hose connections and positions of cutoff cocks . If they are correct, tell organizational maintenance.

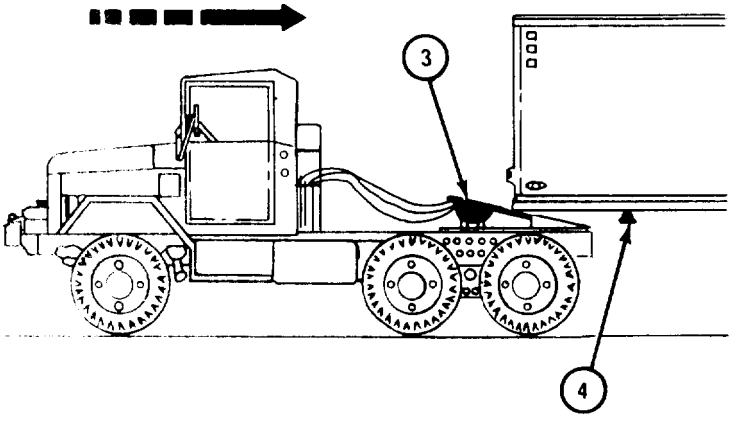
GO TO FRAME 8

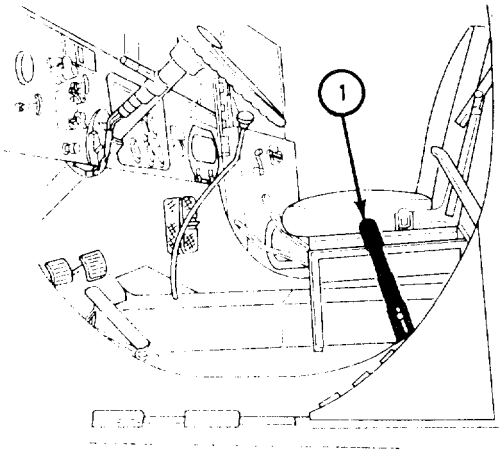


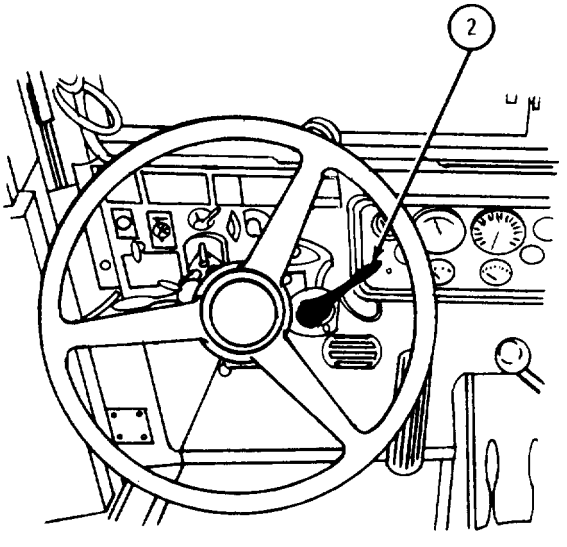
FRAME 8

1. Set handbrake lever (1) to down (brake off) position.
2. Move hand operated air brake control lever (2) down to set semitrailer brakes.
3. Slowly back tractor under semitrailer, keeping center of fifth wheel (3) aligned with king pin (4).
4. Keep backing tractor until king pin (4) slides into center of fifth wheel (3) and frees locking plunger of fifth wheel.

GO TO FRAME 9





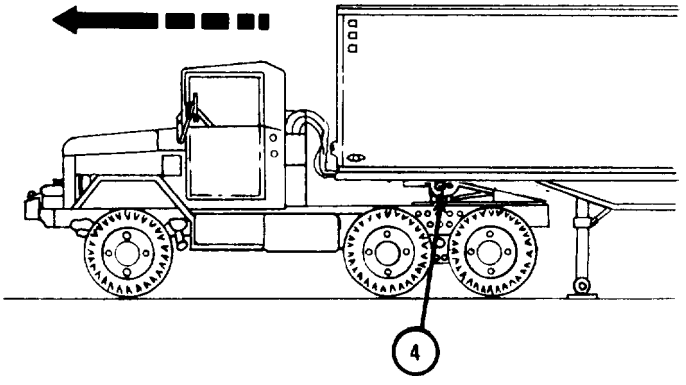


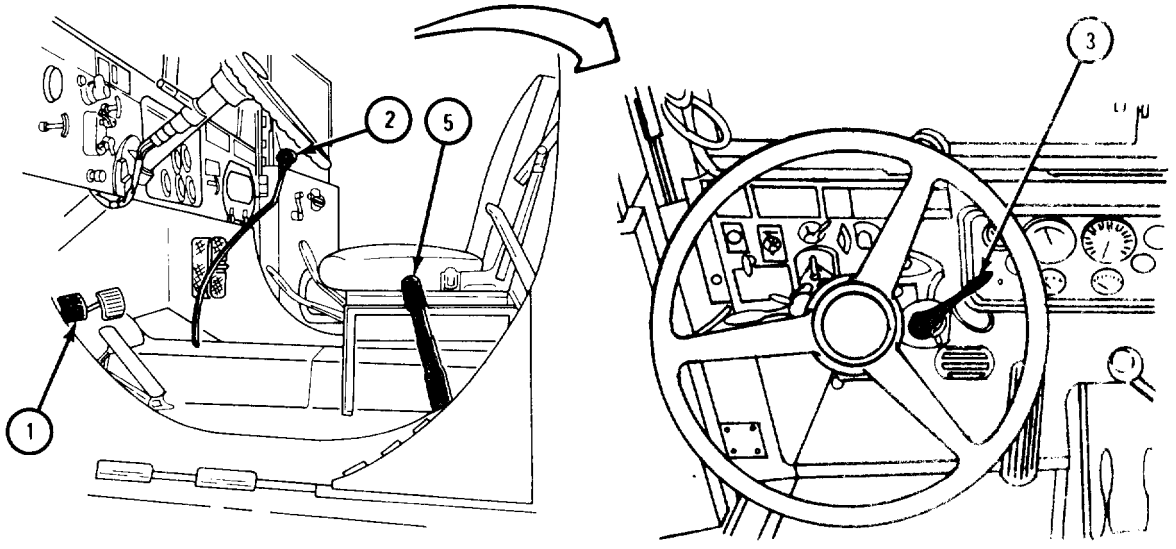
TA 053924

FRAME 9

1. Check that fifth wheel coupler jaws are locked:
   (a) Press down on clutch pedal (1).
   (b) Place FRONT TRANSMISSION gearshift lever (2) in position 1.
   (c) Make sure hand operated air brake control lever (3) is in down position to set semitrailer brakes.
   (d) Let clutch (1) up a little until tractor pulls on semitrailer king pin (4) .
2. Press down on clutch pedal (1) all of the way.
3. Place FRONT TRANSMISSION gearshift lever (2) in N position.
4. Pull handbrake lever (5) to up (brake on) position.
5. Move air brake control lever (3) up to off position.
6. Stop engine. Refer to para 4-6e.

GO TO FRAME 10



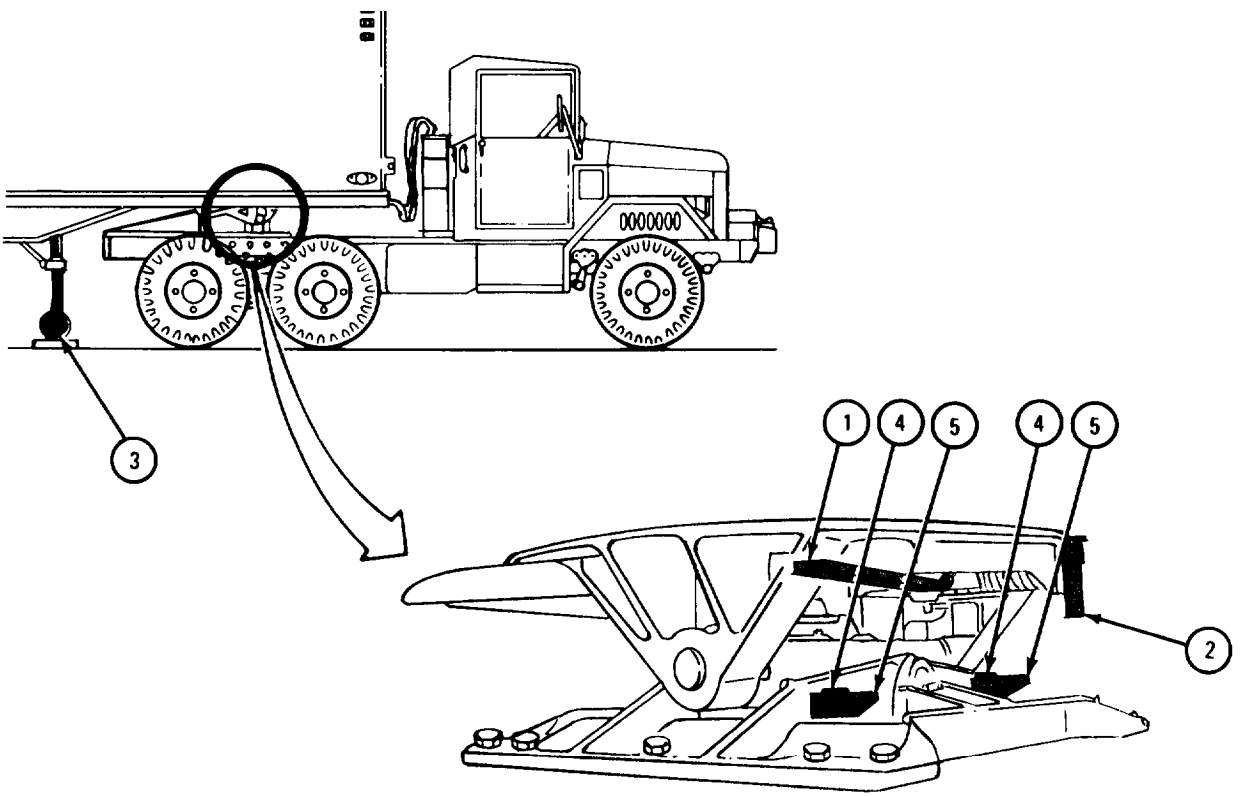


TA053925

FRAME 10

1. Make sure that:
   (a) Locking plunger has pulled locking plunger operating lever (1) to its rear position.
   (b) Locking plunger operating lever safety latch (2) has dropped down to locking position.
2. Raise semitrailer landing gear (3) . Refer to instructions in operating manual for semitrailer.
3. Using adjustable wrench, turn two capscrews (4) left to loosen them.
4. Slide wedges (5) all the way in for highway travel or all the way out for off-highway travel.
5. Using adjustable wrench, turn two capscrews (4) right to tighten them.

GO TO FRAME 11

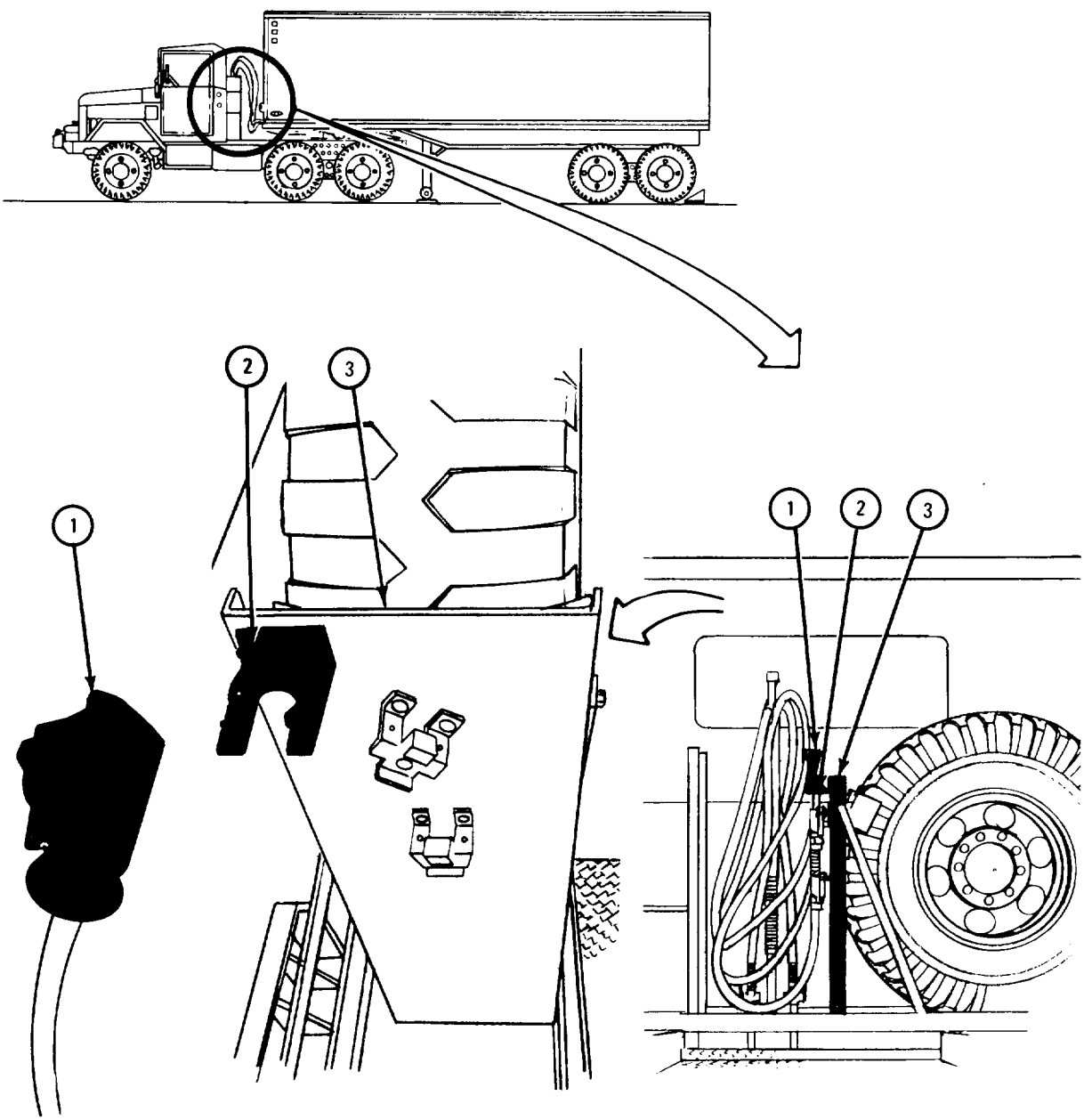


TA 053926

FRAME 11

1. Take tractor electrical cable with connector (1) from retainer (2) on tractor hose rack (3).

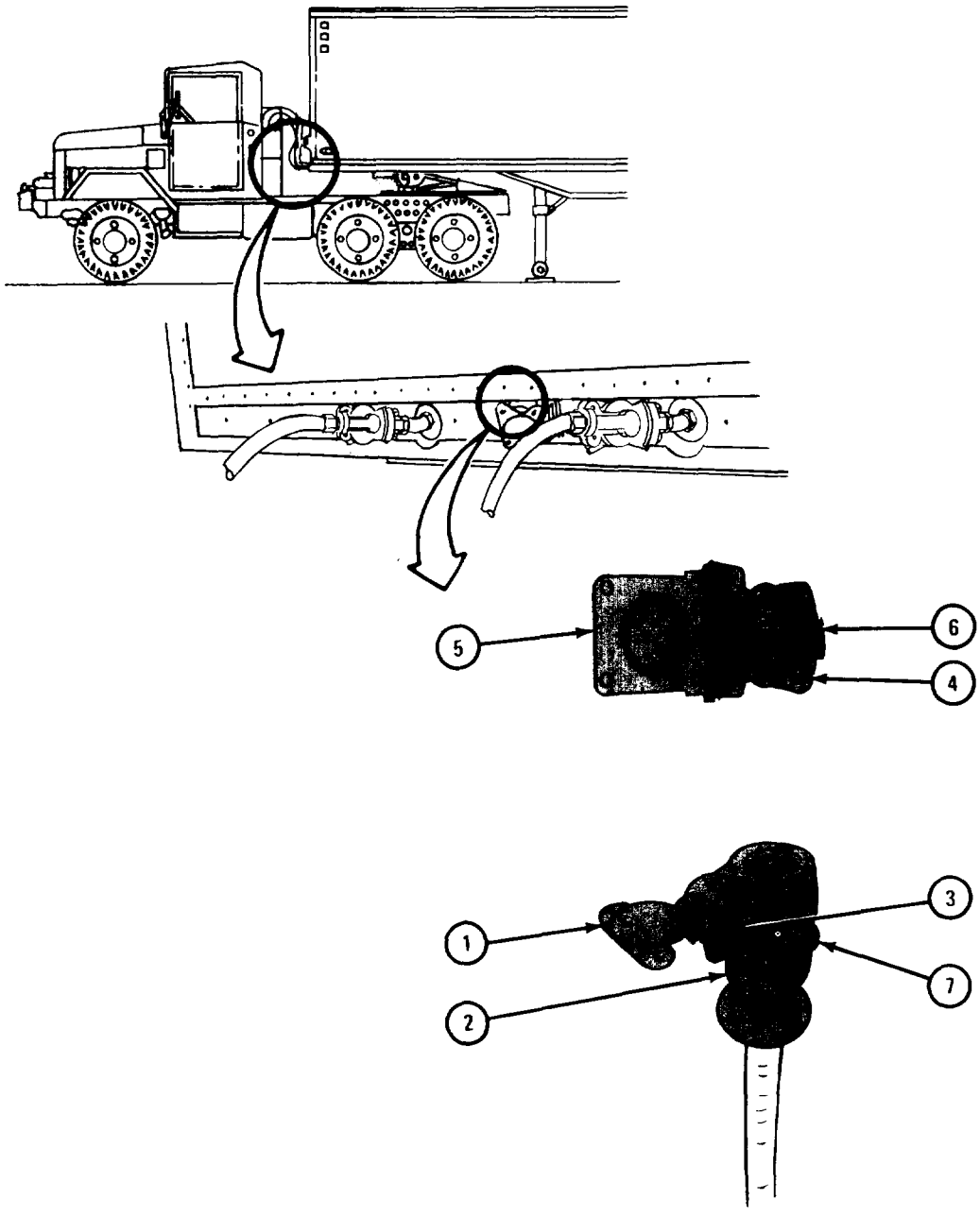
GO TO FRAME 12



FRAME 12

1. Open hinge cover (1) on tractor electrical cable connector (2) and lock cover open with latch (3) .
2. Open hinge cover (4) on electrical connector (5) on semitrailer and hold it open.
3. Plug connector (2) into connector (5) . The lip (6) on cover (4) of connector (5) will lock into slot (7) on connector (2).

GO TO FRAME 13



M

NOTE

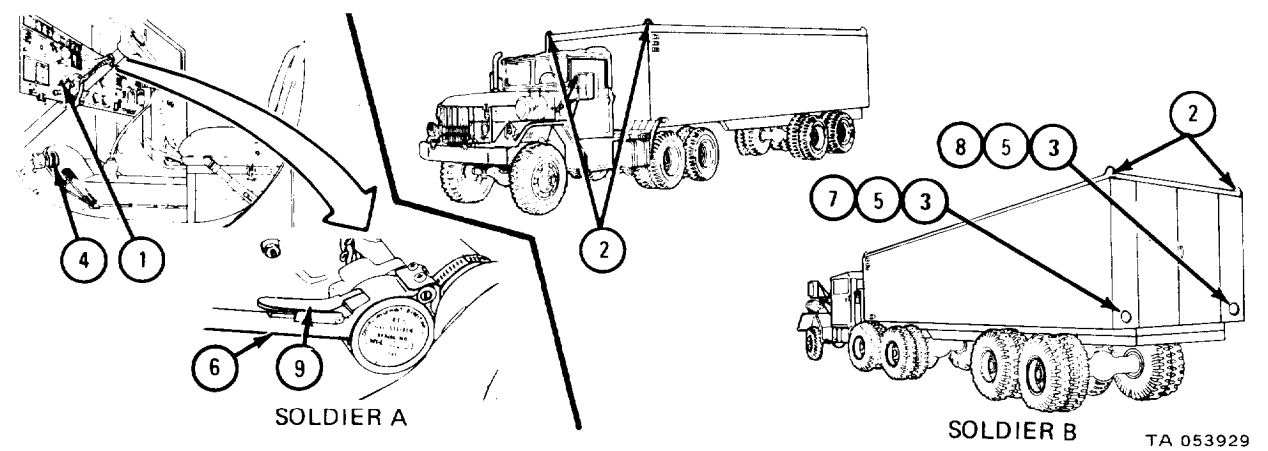
Use two soldiers, one in tractor cab and one at rear of semitrailer.

Soldier A	1.	Turn light switch (1) on and off to SERVICE DRIVE position several times.
Soldier B	2.	Check semitrailer clearance lights (2) , if on semitrailer, and running lights (3) to see if they go on and off.
Soldier A	3.	Turn light switch (1) to STOP LIGHT position and press service foot brake (4) several times.
Soldier B	4.	Check semitrailer stop lights (5) to see if they go on and off.
Soldier A	5.	With light switch (1) in STOP LIGHT position, push directional turn signal control lever (6) down.
Soldier B	6.	Check to see if left turn light (7) blinks.
Soldier A	7.	With light switch (1) in STOP LIGHT position, push directional turn signal control lever (6) up.
Soldier B	8.	Check to see if right turn light (8) blinks.
Soldier A	9.	Push directional turn signal control lever (6) to center (off) position.
	10.	Push hazard flasher lever (9) against directional turn signal control lever (6) and push lever (6) all the way up.
Soldier B	11.	Check to see if turn lights (7 and 8) blink at the same time.
Soldier A	12.	Push directional turn signal control lever (6) to center (off) position.
	13.	Turn light switch (1) to OFF position.

NOTE

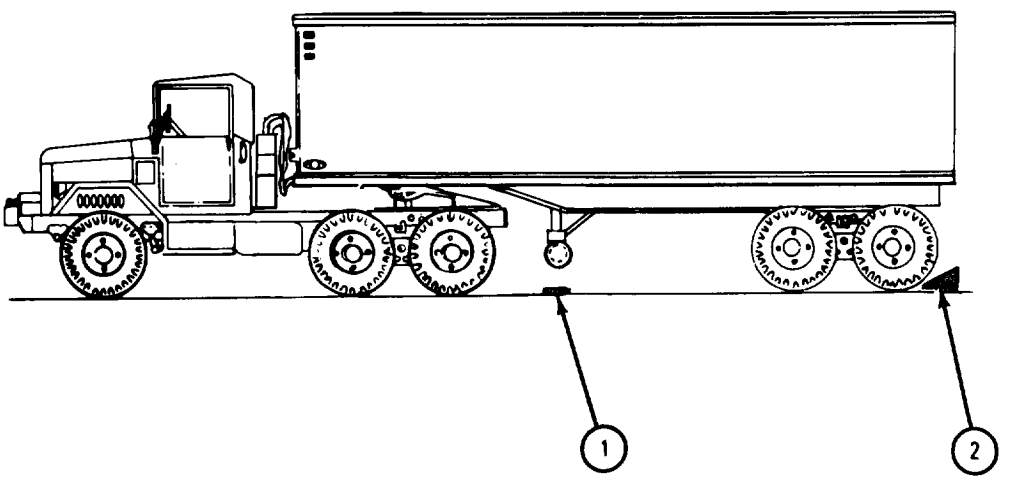
If lights do not work correctly, tell organizational maintenance.

GO TO FRAME 14



FRAME 14

1. Pick up landing gear float pads (1) and wheel chocks (2) and stow on underside of semitrailer. Refer to operating manual on semitrailer for stowage instructions.



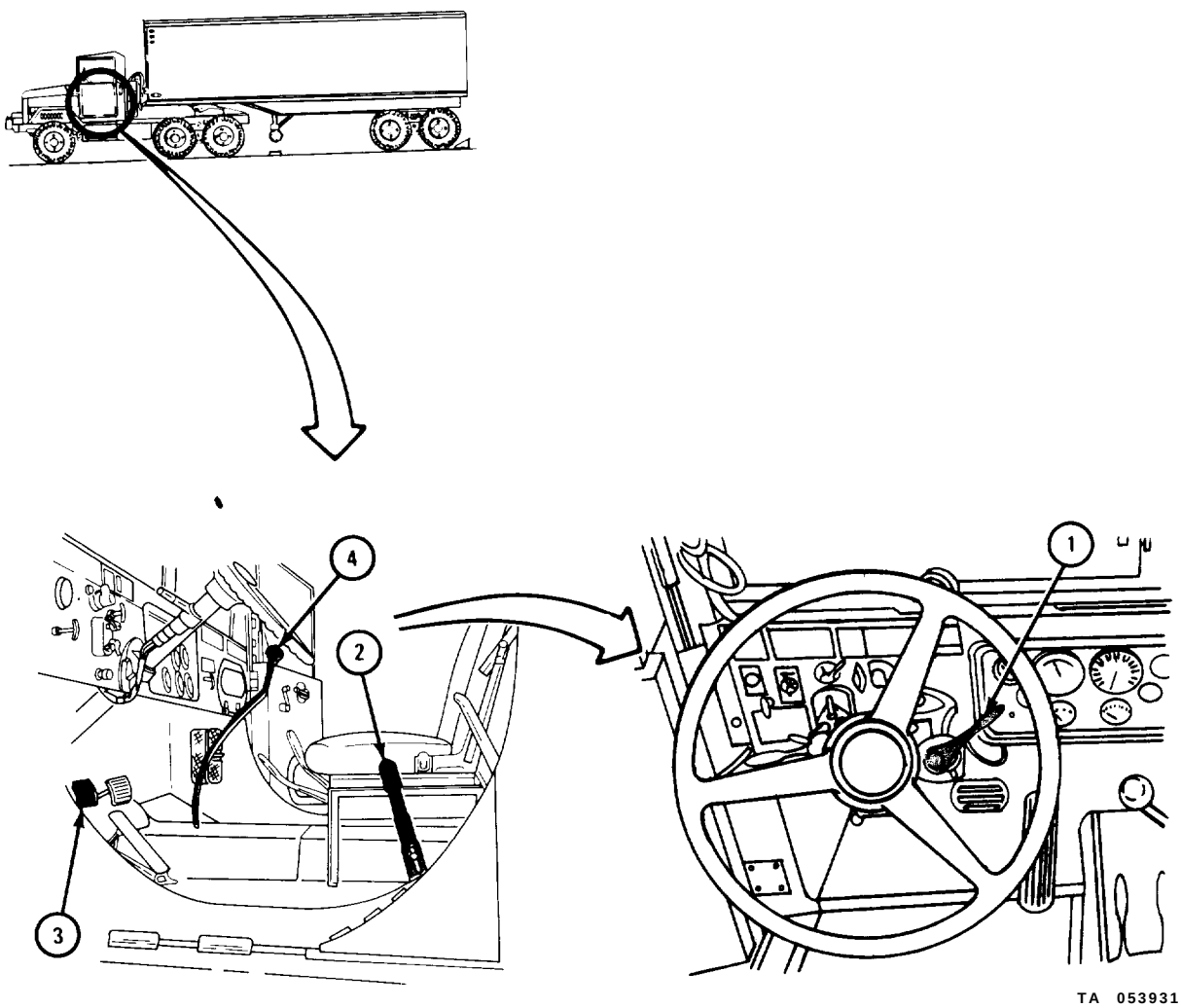
TA 053930

c. Uncoupling Semitrailer.

FRAME 1

1. Start engine. Refer to para 4-6 a, b.
2. Place semitrailer where you want to leave it.
3. Move hand operated air brake control lever (1) to down position to set semi-trailer brakes.
4. Set handbrake lever (2) to up (brake on) position.
5. Push clutch pedal (3) all the way down.
6. Place FRONT TRANSMISSION gearshift lever (4) in N position.
7. Let clutch pedal (3) up.

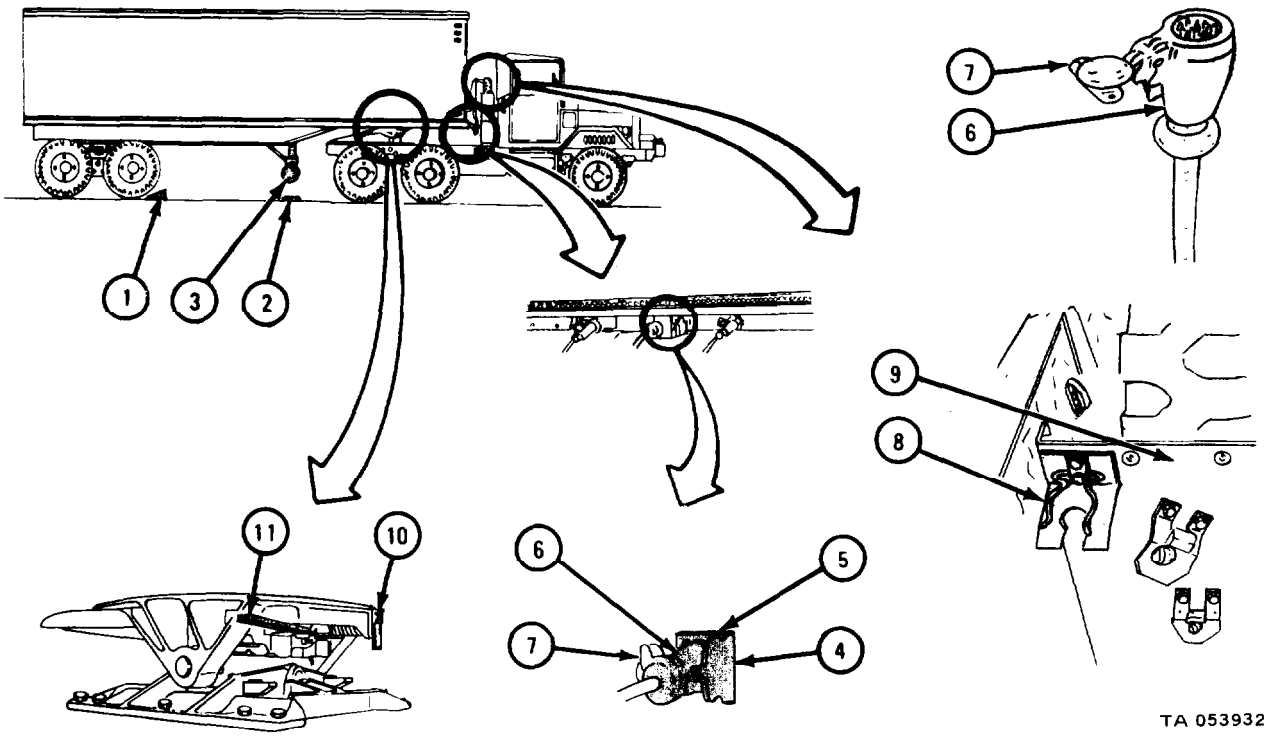
GO TO FRAME 2



FRAME 2

1. Take wheel chocks (1) and float pads (2) from stowage on underside of semitrailer. Refer to operating manual on semitrailer for instructions.
2. Place wheel chocks (1) in front of rear wheels.
3. Place landing gear float pads (2) under landing gear (3) .
4. Move landing gear (3) down. Refer to operating manual on semitrailer for instructions.
5. Pull hinge cover (4) back on semitrailer electrical connector (5). At same time, pull tractor electrical cable connector (6) out of connector (5).
6, Let cover (4) on connector (5) close.
7. Unlatch cover (7) on connector (6) and close cover.
8. Place connector (6) in retainer (8) on air hose mounting rack (9).
9. Unlock fifth wheel jaws:
   (a) Turn locking plunger operating lever safety latch (10) to left or right side
   (b) Move locking plunger operating lever (11) forward until it stays in forward position.

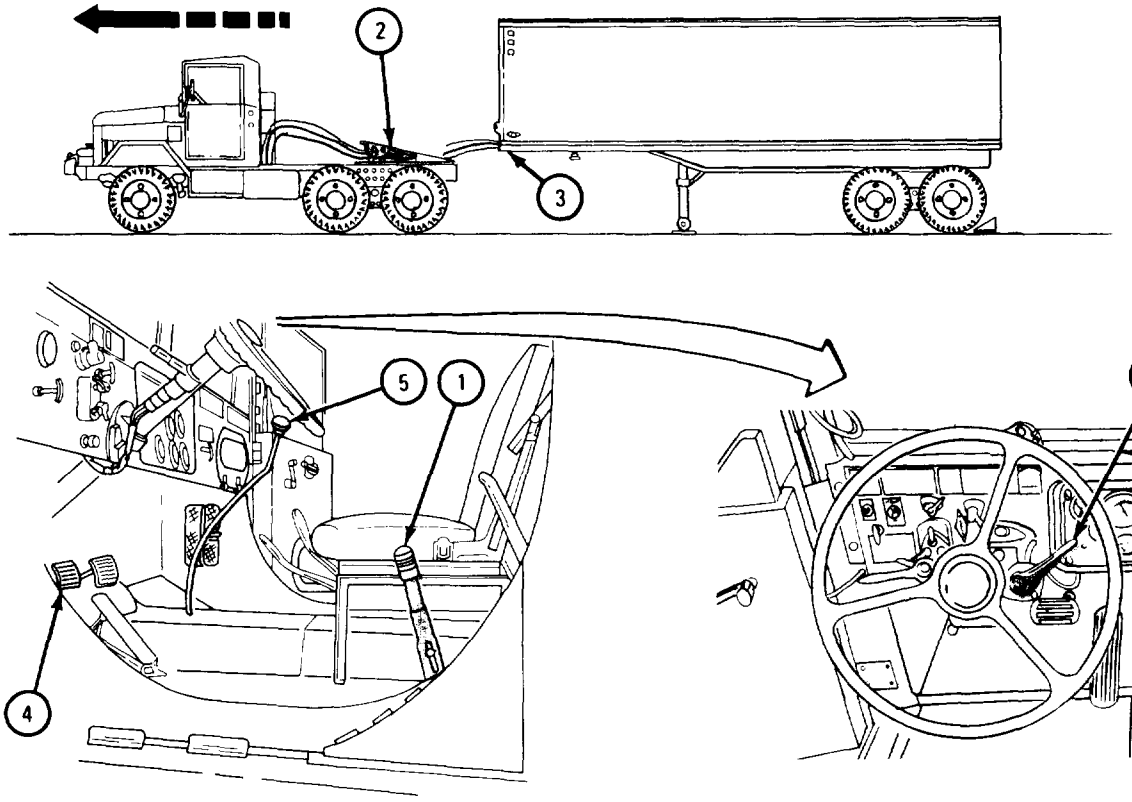
GO TO FRAME 3



FRAME 3

1. Move handbrake lever (1) to down (brake off) positon.
2. Slowly move tractor forward until fifth wheel (2) just clears semitrailer skid plate (3) .
3. Press clutch pedal (4) all the way down.
4. Place FRONT TRANSMISSION gearshift lever (5) in N position.
5. Let clutch pedal (4) up.
6. Set handbrake lever (1) to up (brake on) position.
7. Move hand operated air brake control lever (6) to off (up) position.

GO TO FRAME 4

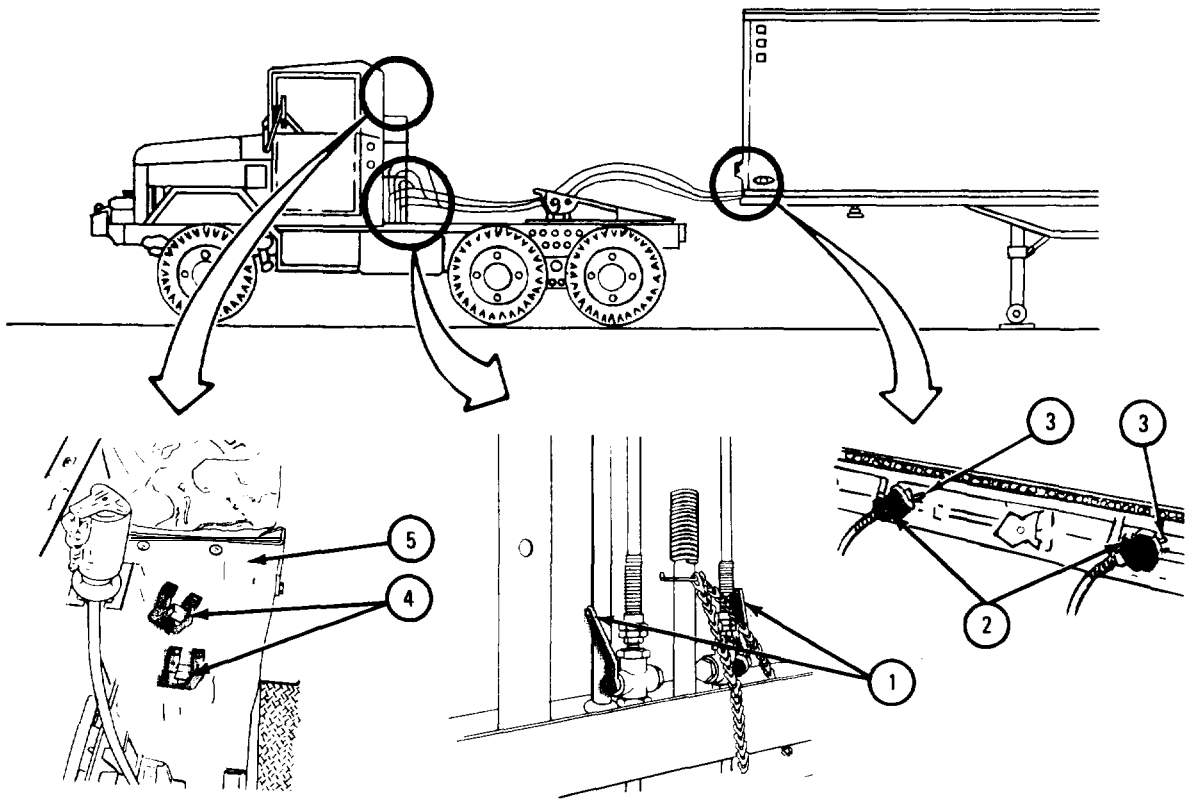


TA 053933

FRAME 4

1. Move both cutoff cocks (1) to off (up and down) position to turn off service air and emergency air to the semitrailer.
2. Unlock and separate tractor emergency air and service air hose coupling halves (2) from semitrailer coupling halves (3) .
3. Join tractor air hose couplings (2) to dummy couplings (4) on air hose mounting rack (5) and turn them left (down) to lock.

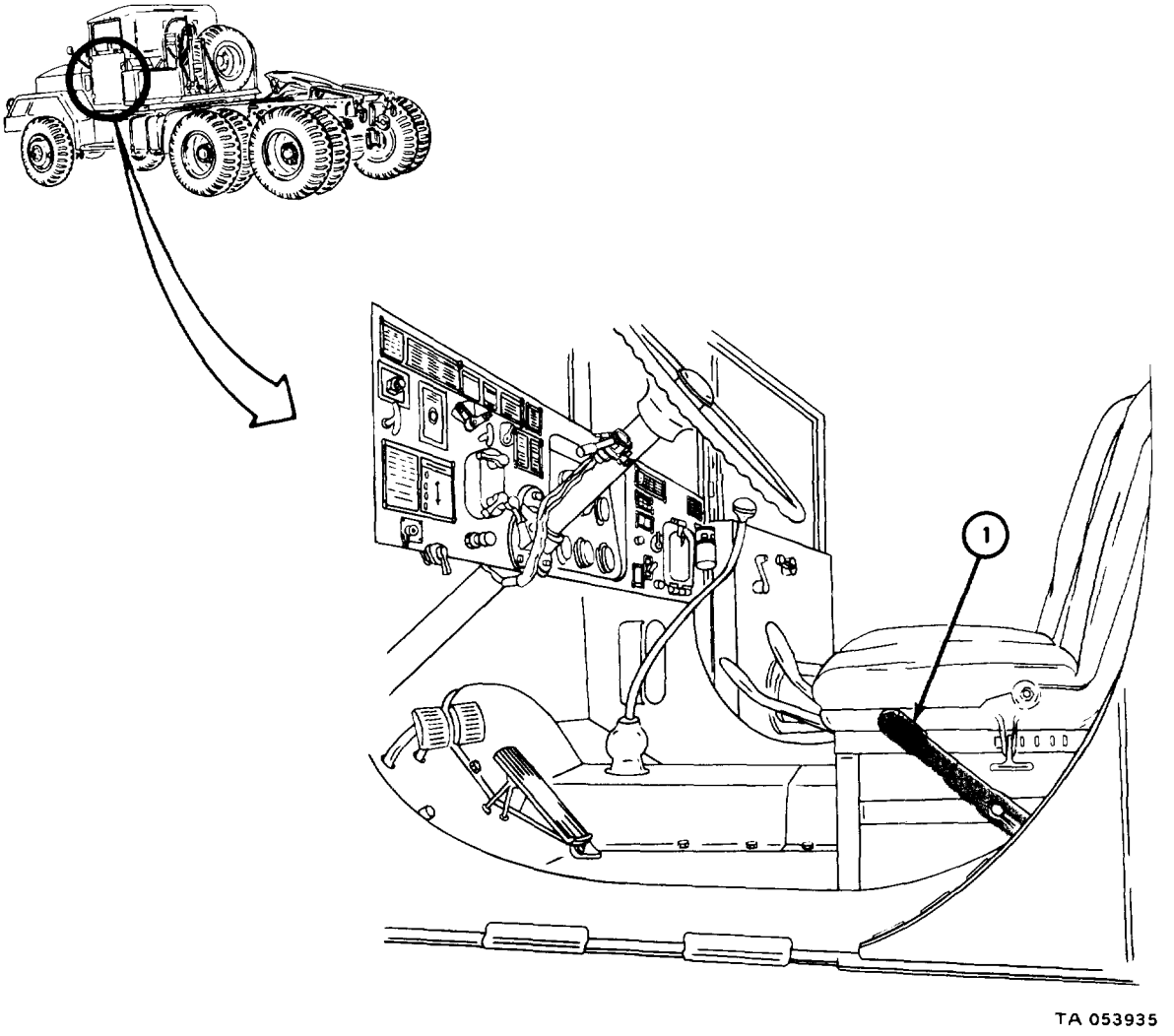
GO TO FRAME 5



TA 053934

FRAME 5

1. Push handbrake (1) to down (brake off) position.
2. Move tractor to where it should be parked.
3. Set handbrake (1) to up (brake on) position.
4. Stop engine. Refer to para 4-6e.



d. Securing Equipment for Travel,

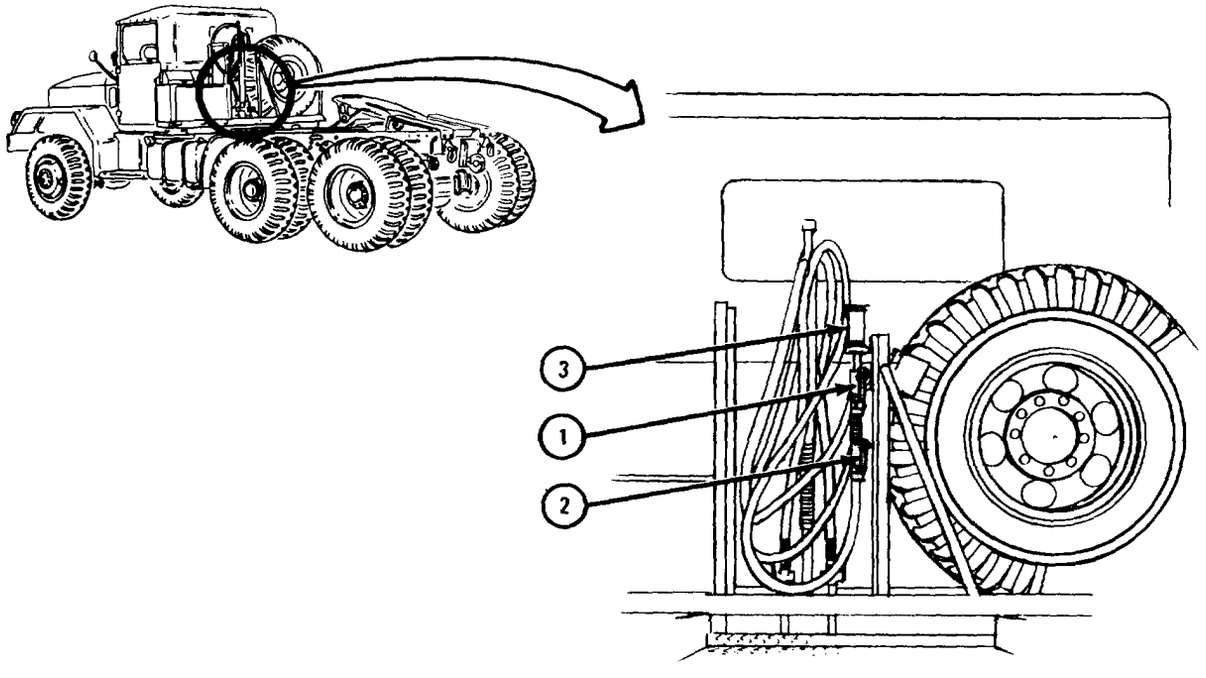
FRAME 1

1. Check to make sure the following have been secured or stowed:

(a) Front winch, if on truck. Refer to securing equipment for travel, para 4-7h.

(b) Tractor air service hose (1) , emerg-ency air hose (2) , and electrical cable (3) , if not attached to semitrailer. Refer to uncoupling semitrailer, para 4-9c.

(c) Any other unstowed equipment or tools should be put in proper stowage place.



TA 053936

4-10. OPERATION OF DUMP TRUCKS.

a. General. The M51A2 dump truck may be used as a regular cargo carrier, or as a regular, rocker type or spreader type dump truck. Payload capacity for cross-country operations is 10,000 pounds. Payload capacity for prepared roads is 20,000 pounds. Payload volume capacity is 5 cubic yards.

WARNING

Dump body control lever must always be locked in NEUTRAL position when not in use or when truck is used as a troop transport.

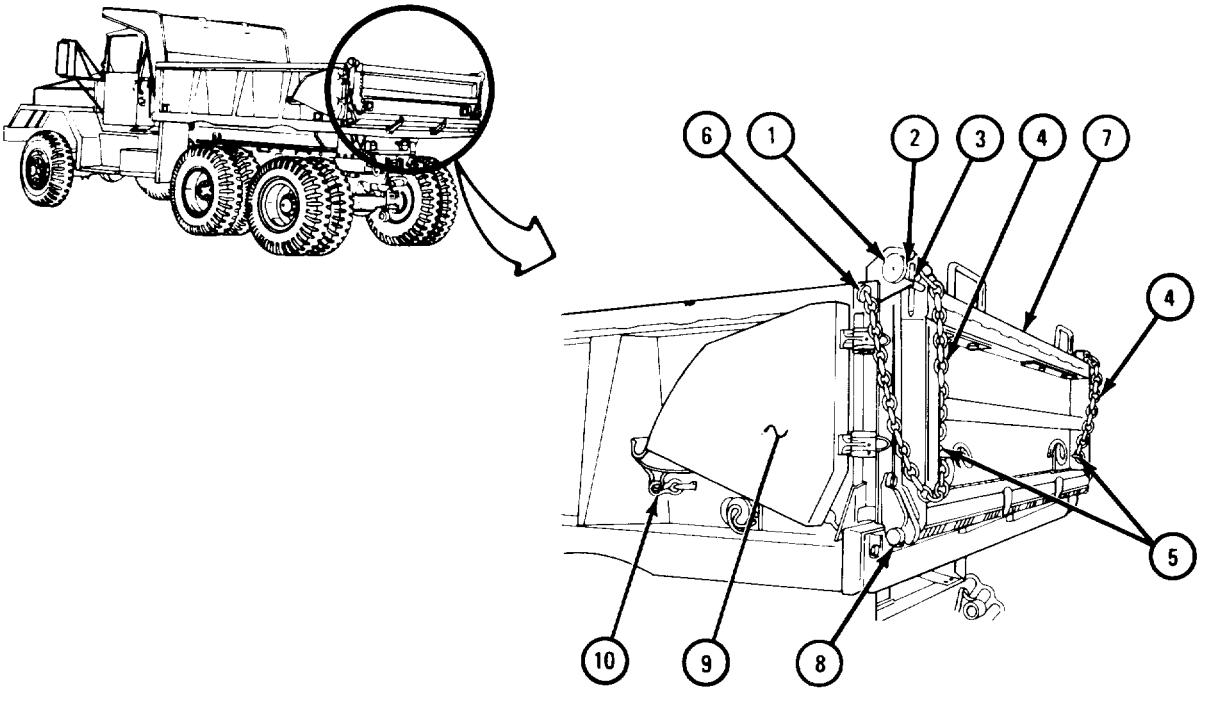
CAUTION

The truck must be stopped and the clutch pedal pressed all the way down to shift the dump body control lever out of NEUTRAL. Once the dump body control lever is in POWER UP, HOLD, or POWER DOWN position, it can be shifted while the truck is moving and without pressing the clutch pedal until it is shifted into NEUTRAL again.

b. Rigging the Tailgate - Regular Dump Operation.

FRAME 1

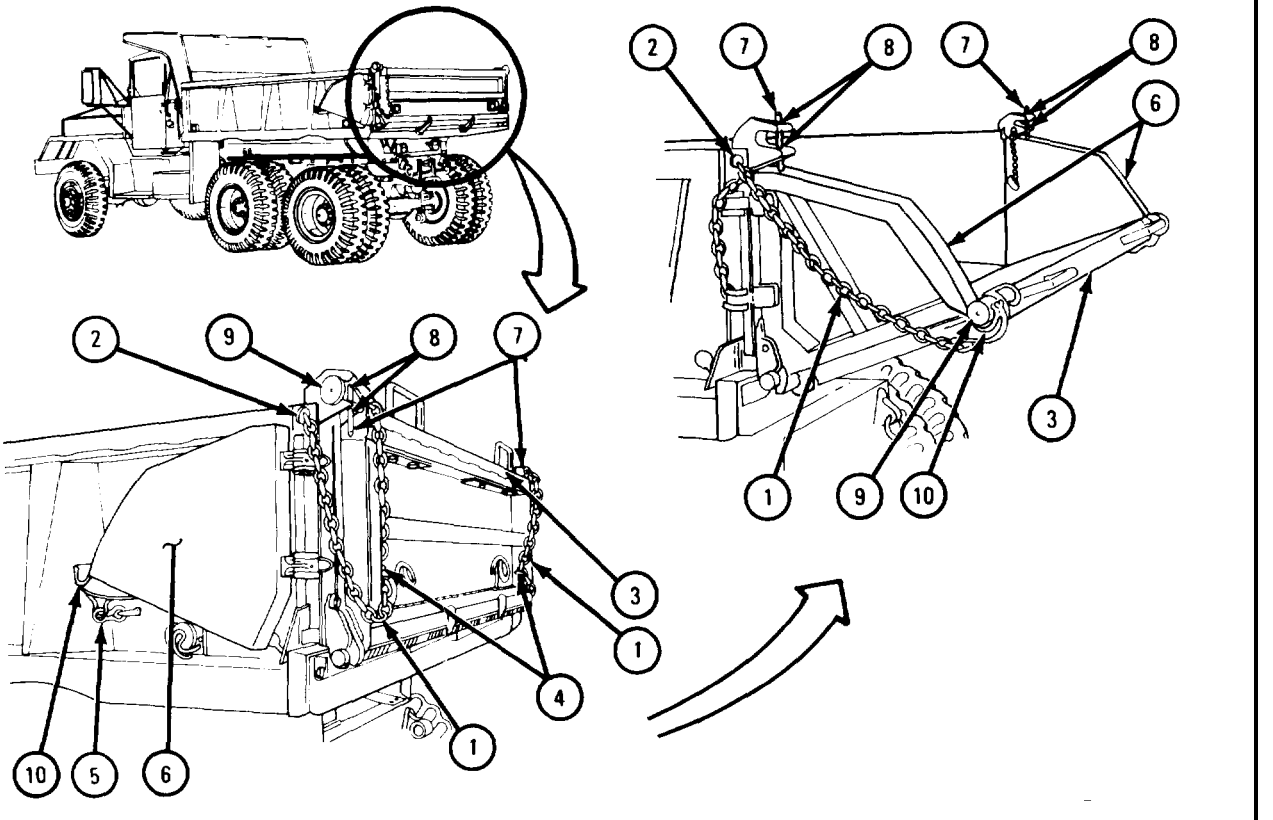
1. Make sure hinge pins (1) are held in slots (2) by retainer pins (3) on both right and left sides.
2. Make sure tailgate chains (4) are under retainer hooks (5) and in holes and slots (6) . Leave just enough slack in chains (4) to let tailgate (7) swing free when lower tailgate latch (8) is unlocked.
3. Make sure tailgate wings (9) are hooked to truck dump body sides by harness hooks (10) .



c. Rigging the Tailgate - Rocker Type Operation,

FRAME 1

1. Starting from regular dump rigging:
   (a) Take tailgate chains (1) from upper holes and slots (2) near tailgate (3) and from retainer hooks (4) on both right and left sides.
   (b) Unhook harness hooks (5) from wing gates (6) .
   (c) Swing wing gates (6) to rear of truck.
   (d) Pull retainer pins (7) out of holes (8) .
   (e) Pull tailgate (3) down so that hinge pins (9) fall into grooves (10) on wing gates (6) .
   (f) Place retainer pins (7) back in holes (8).
   (g) Place end of chains (1) in holes and slots (2). Take up slack in chains (1)



d. Rigging the Tailgate - Spreader Type Operation.

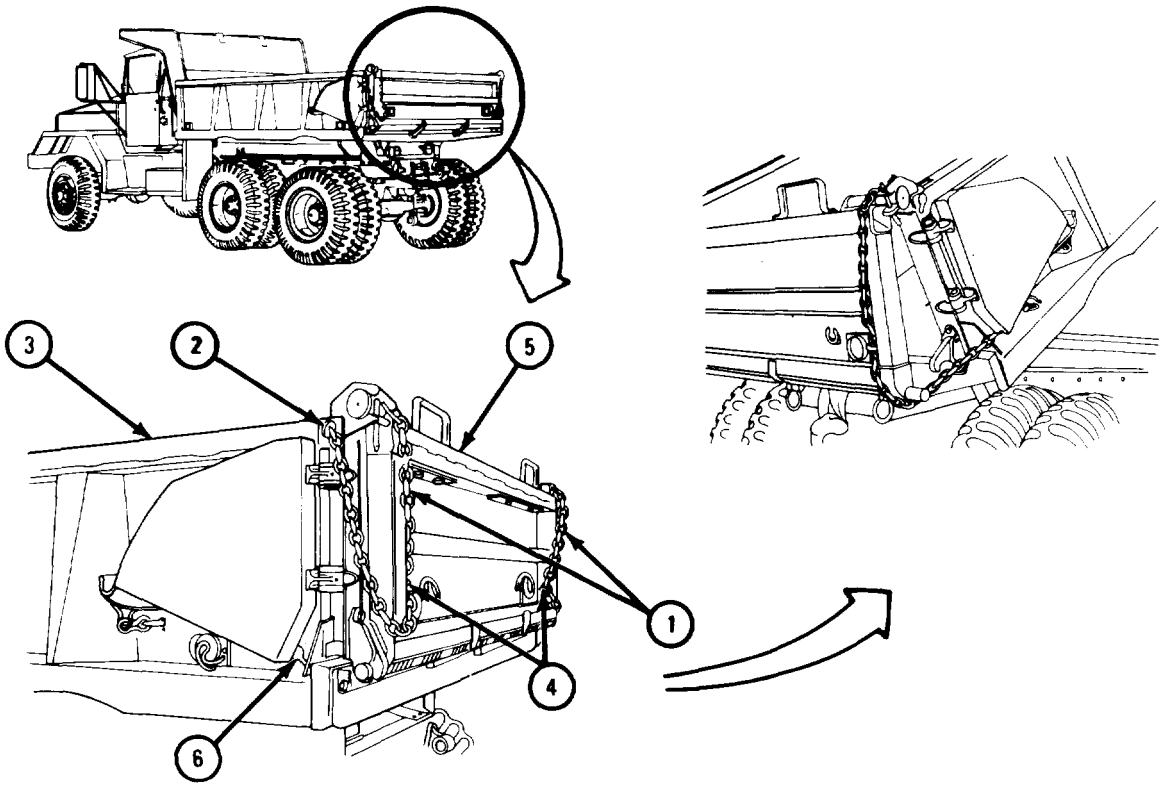
FRAME 1

1. Starting from regular dump rigging:

   (a) Take tailgate chains (1) from holes and slots (2) near top of truck dump body sides (3) on both right and left sides.

   (b) Keep chains (1) in retainer hooks (4) on tailgate (5).

   (c) Place end of chains (1) in holes and slots (6) near bottom of truck dump body sides (3). Set chain (1) lengths so that they will hold tailgate (5) to opening you want for spreader operation.

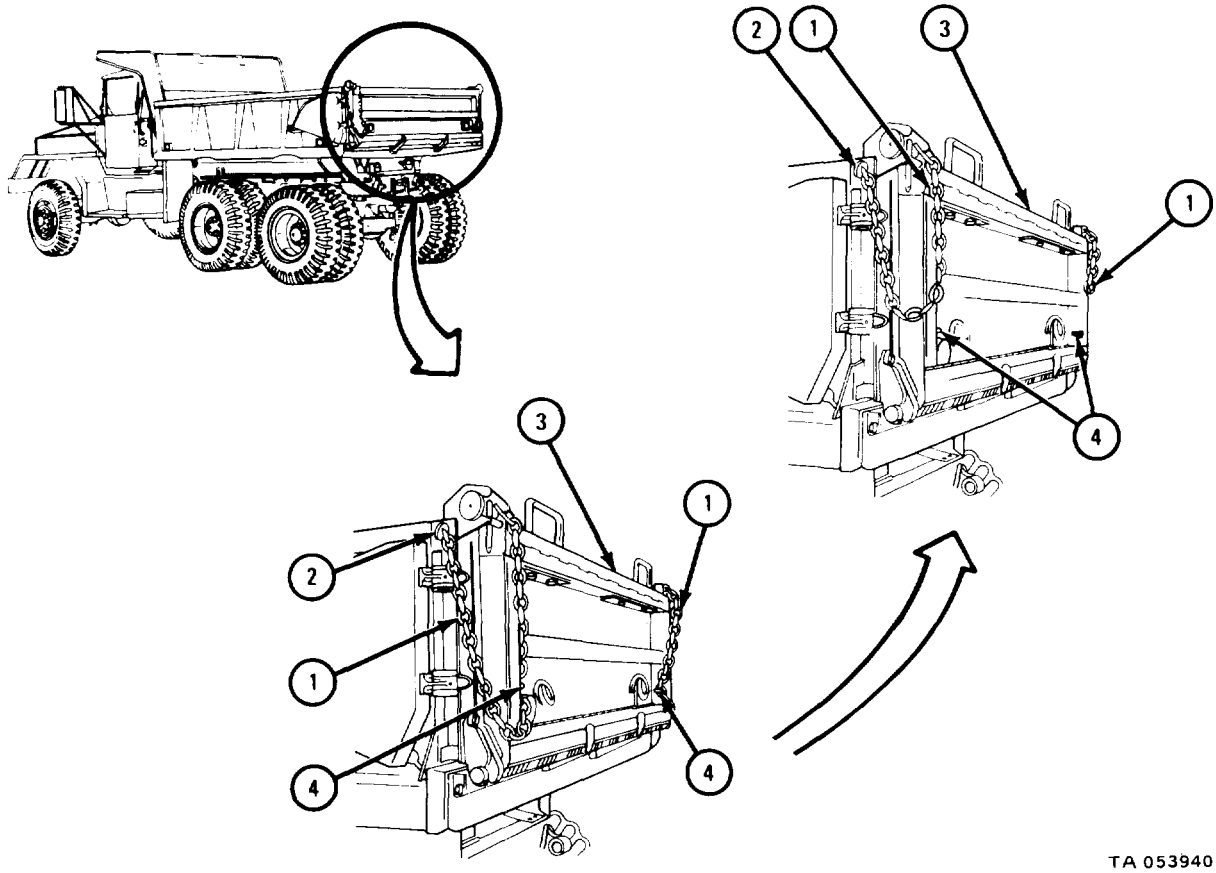


TA 053939

. Rigging the Tailgate - Regular Cargo Operation.

FRAME 1

1. Starting from regular dump rigging.
   (a) Take tailgate chains (1) from upper holes and slots (2) near tailgate (3) and from retainer hooks (4) on both right and left sides.
   (b) Put end of chains (1) back into holes and slots (2). Let enough chain (1) out to hold tailgate (3) in "level position when moved down.

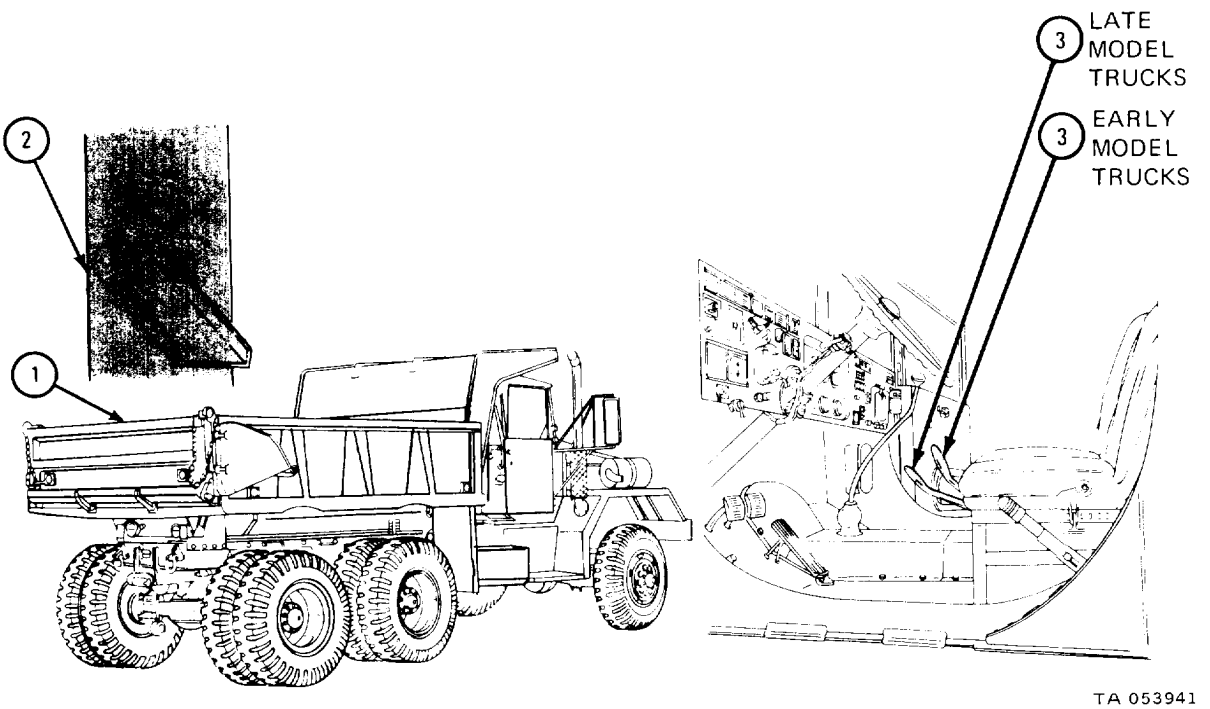


TA 053940

f. Loading the Truck - All Types of Dump Operation.

FRAME 1

1. Rig tailgate for the type of dumping needed. Refer to:
   (a) Rigging the tailgate - regular dump operation, para 4-10b.
   (b) Rigging the tailgate - rocker type operation, para 4-10C.
   (c) Rigging the tailgate - spreader type operation, para 4-10d.
2. Start engine. Refer to paras 4-6a, b.
3. Move truck so that dump body (1) is under loading device (2).
4. Load truck.
5. For heavy loads use LOW position of TRANSFER CASE lever (3). Refer to placing and keeping truck in motion, para 4-6d.
6. Move truck to dumping location.

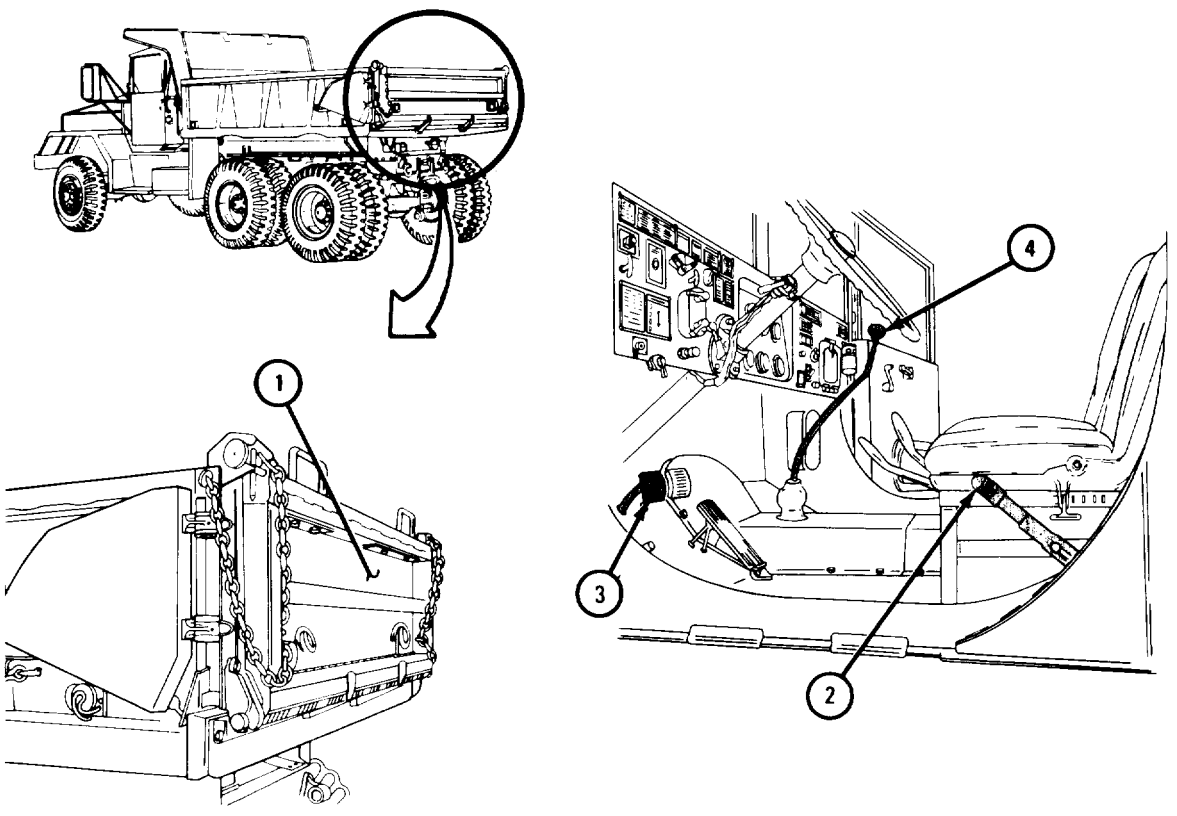


g. Unloading the Truck - Regular Dump Operation.

FRAME 1

1. Place truck so that tailgate (1) is over dumping area.
2. Pull handbrake lever (2) to up (brake on) position.
3. Press clutch pedal (3) down all the way.
4. Place FRONT TRANSMISS1ON gearshift lever (4) in N position.
5. Let clutch pedal (3) come up.

GO TO FRAME 2

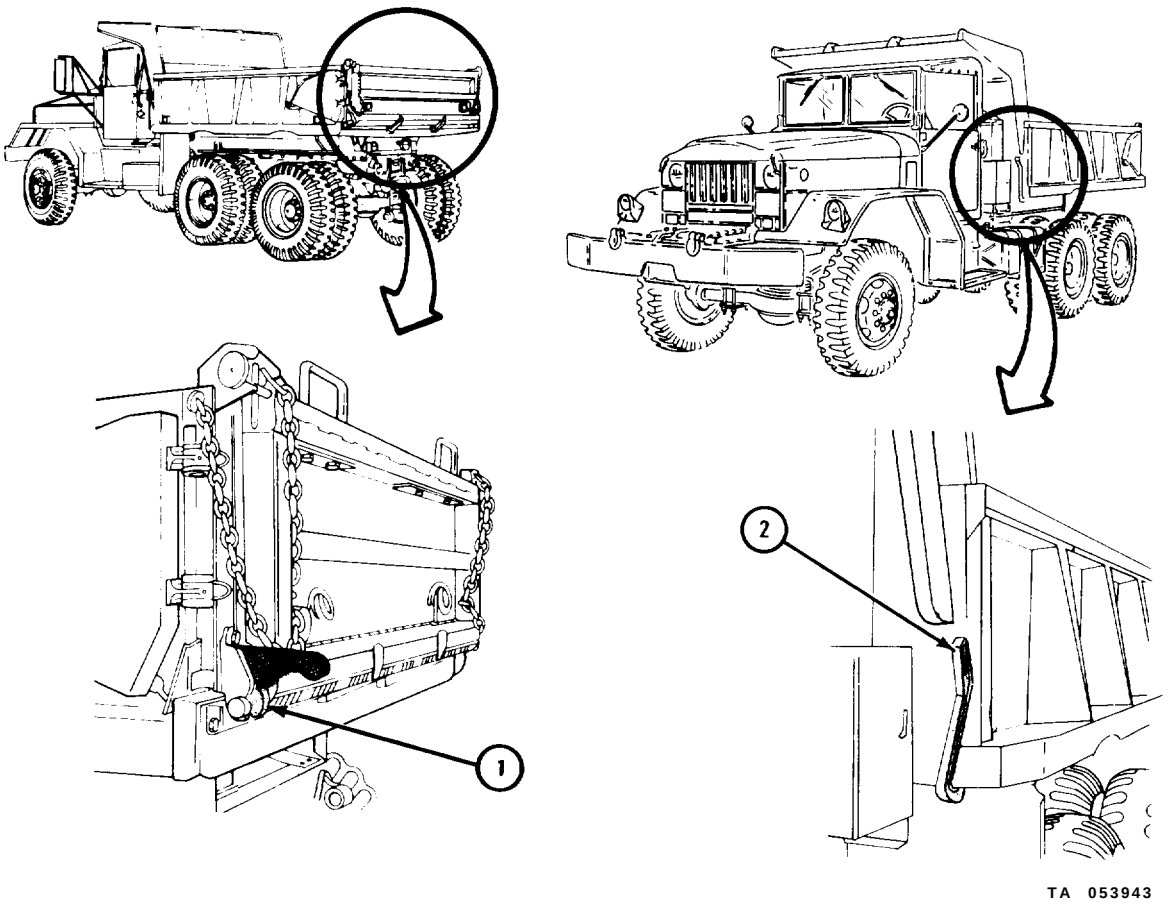


TA 053942

FRAME 2

1. Open lower tailgate latches (1) by pulling tailgate control rod hand lever (2) forward and down as far as it will go.

GO TO FRAME 3



FRAME 3

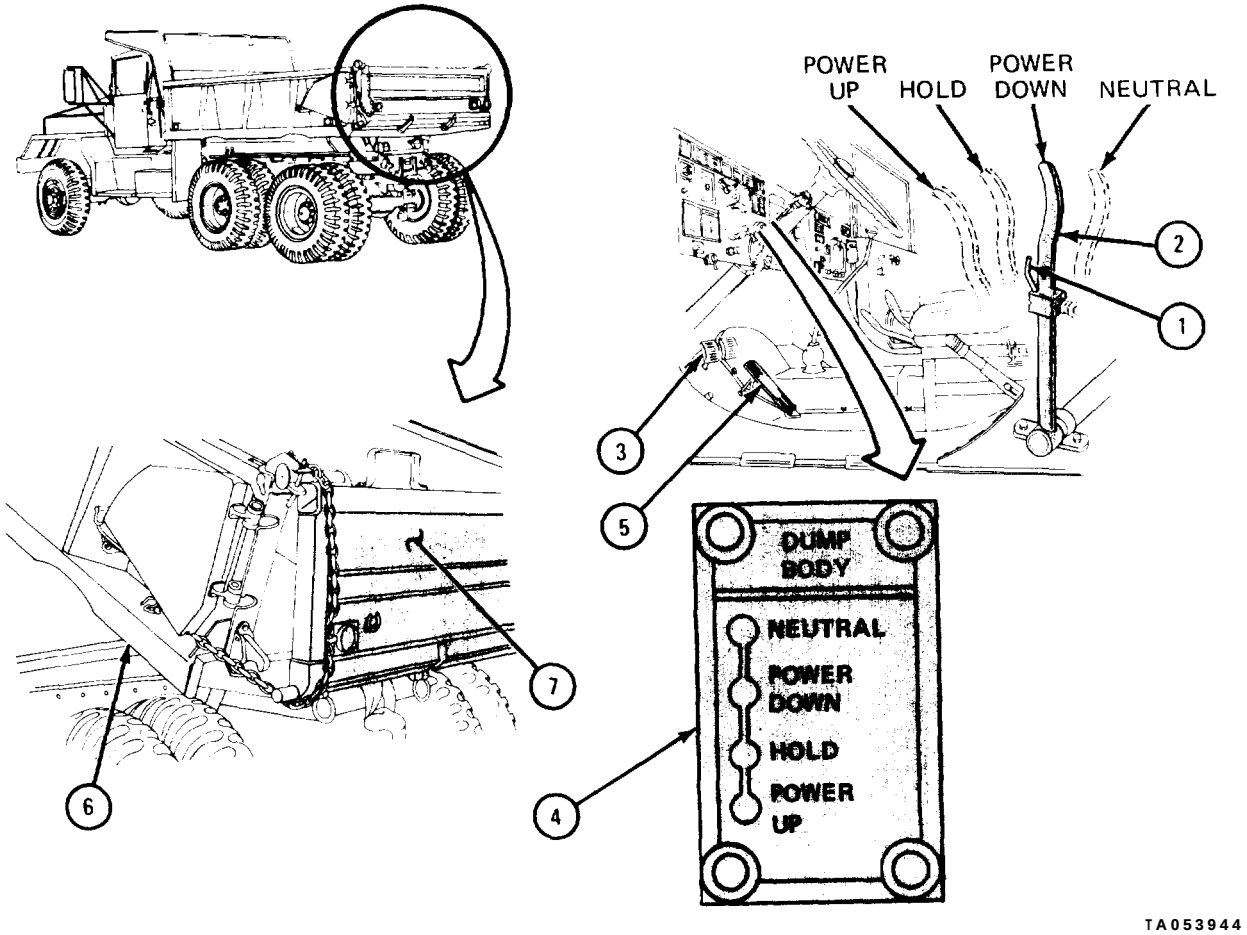
1. Turn safety lock (1) on dump body control lever (2) to unlocked (up) position.
2. Step down on clutch pedal (3) all the way.
3. Move dump body control lever (2) forward to POWER UP position shown on data plate (4) .

NOTE

The dump body will stop rising automatically when it reaches its limit (about 70°) .

4. Let clutch pedal (3) up and step down on accelerator pedal (5) enough to keep engine from stalling.
5. Dump body (6) will start to go Up, tailgate (7) will swing out at bottom, and load will start to spill out.
6. When dump body is up as high as needed to dump load, move lever (2) to HOLD position shown on data plate (4) . Dump body will stop going "up and will stay in position.

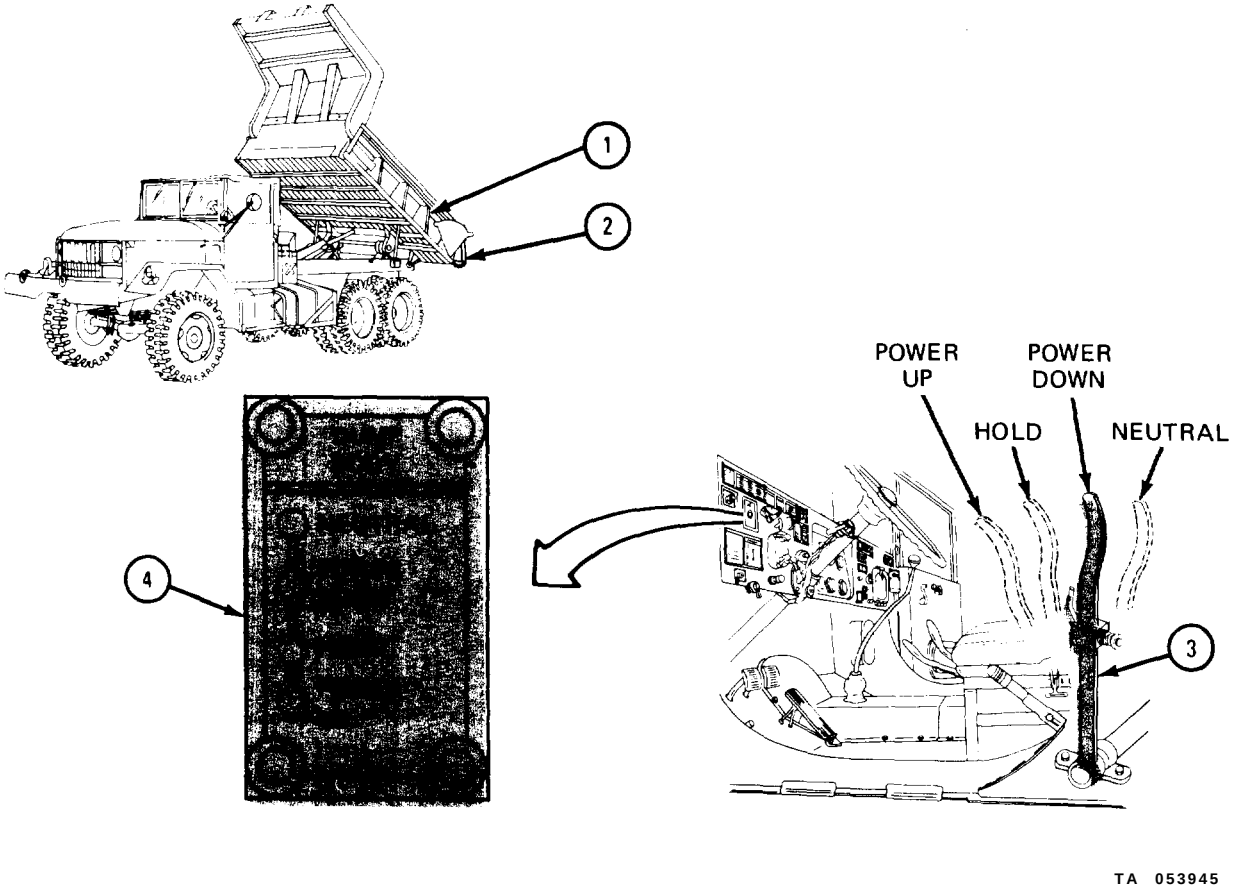
GO TO FRAME 4



FRAME 4

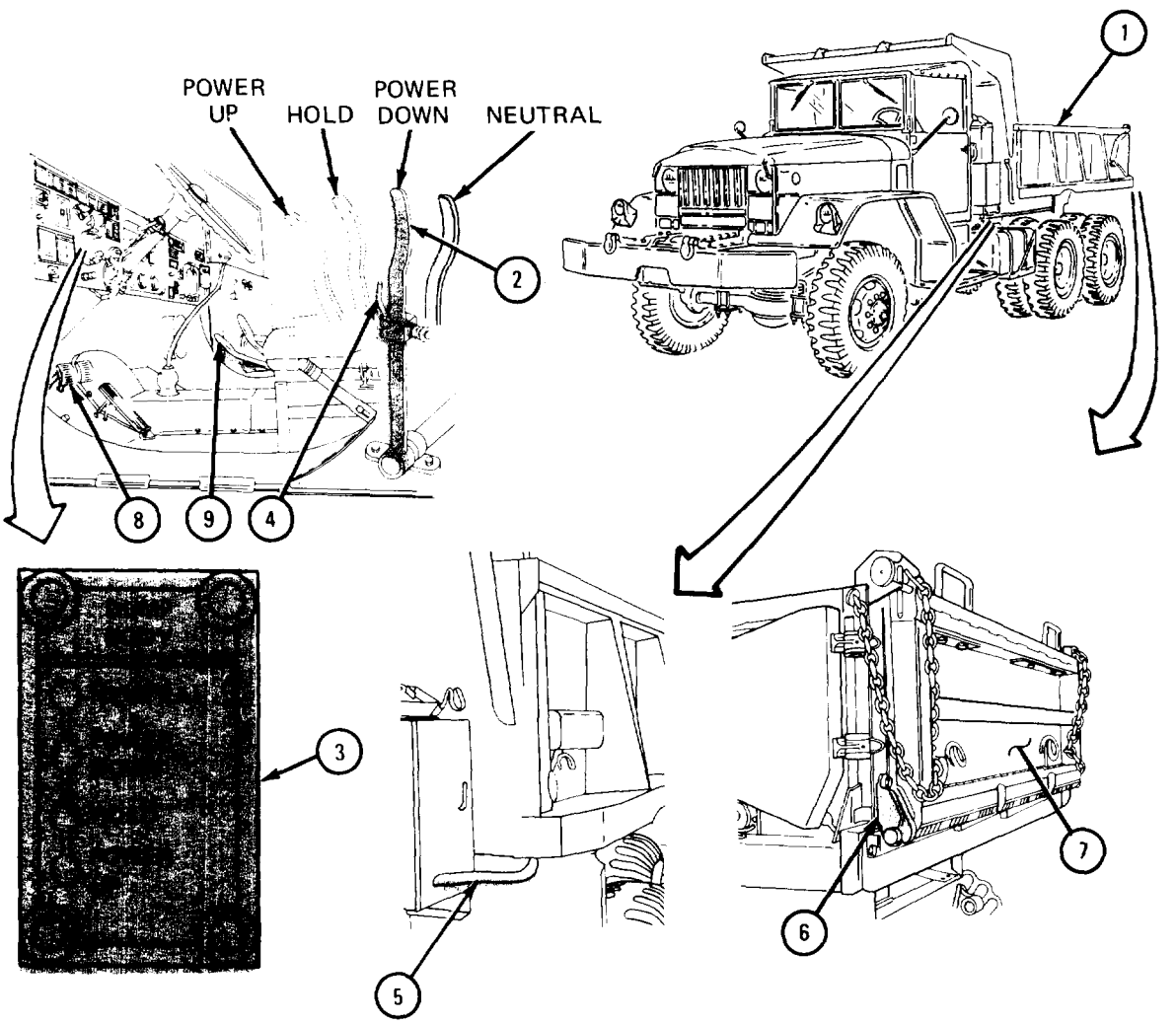
1. After dumping, clear dump body (1) near tailgate (2) of all material.
2. Move dump body control lever (3) to POWER DOWN position shown on data plate (4) to let dump body down.

GO TO FRAME 5



FRAME 5

1. After dump body (1) is down, move dump body control lever (2) to NEUTRAL position shown on data plate (3) .
2. Push safety lock (4) to left side to lock dump body control lever (2) .
3. Push tailgate control rod hand lever (5) up and toward rear of truck to close lower tailgate latches (6) , locking tailgate (7) closed.
4. Step down on clutch pedal (8) all the way.
5. If TRANSFER CASE lever (9) is in LOW position, move it to HIGH.
6. Let clutch pedal (8) up.

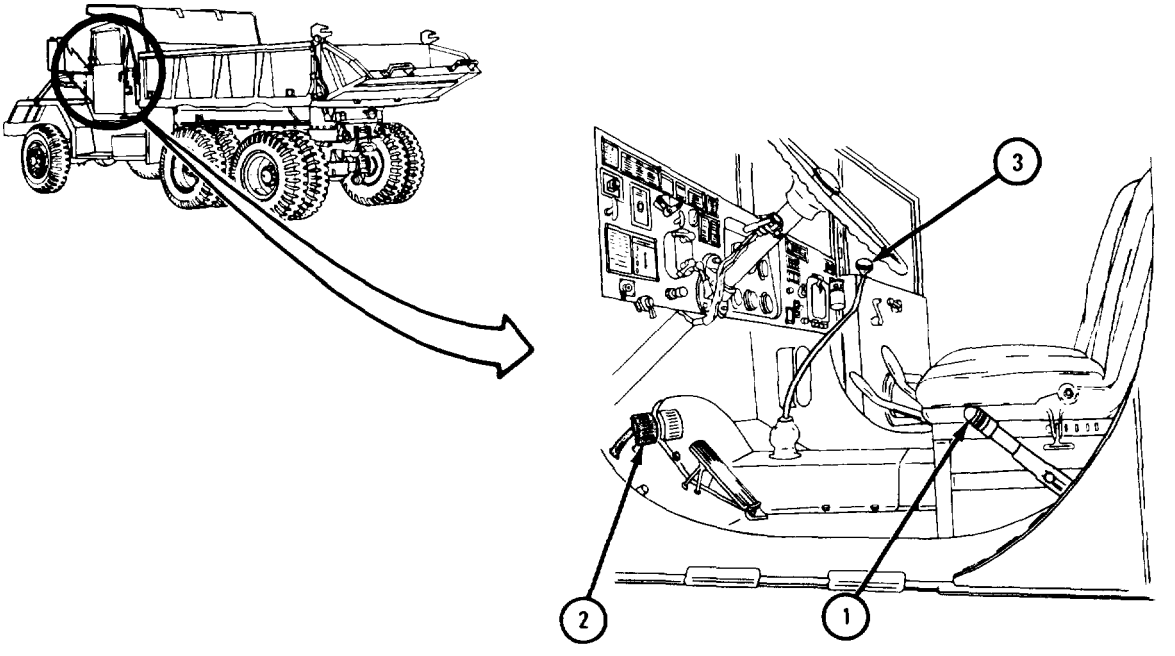


h. Unloading the Dump Truck - Rocker Type Dump Operation.

FRAME 1

1. Place truck in dumping location.
2. Pull handbrake lever (1) to up (brake on) position.
3. Press clutch pedal (2) all the way in.
4. Place FRONT TRANSMISSION gearshift lever (3) in N position.
5. Let clutch pedal (2) come up.

GO TO FRAME 2

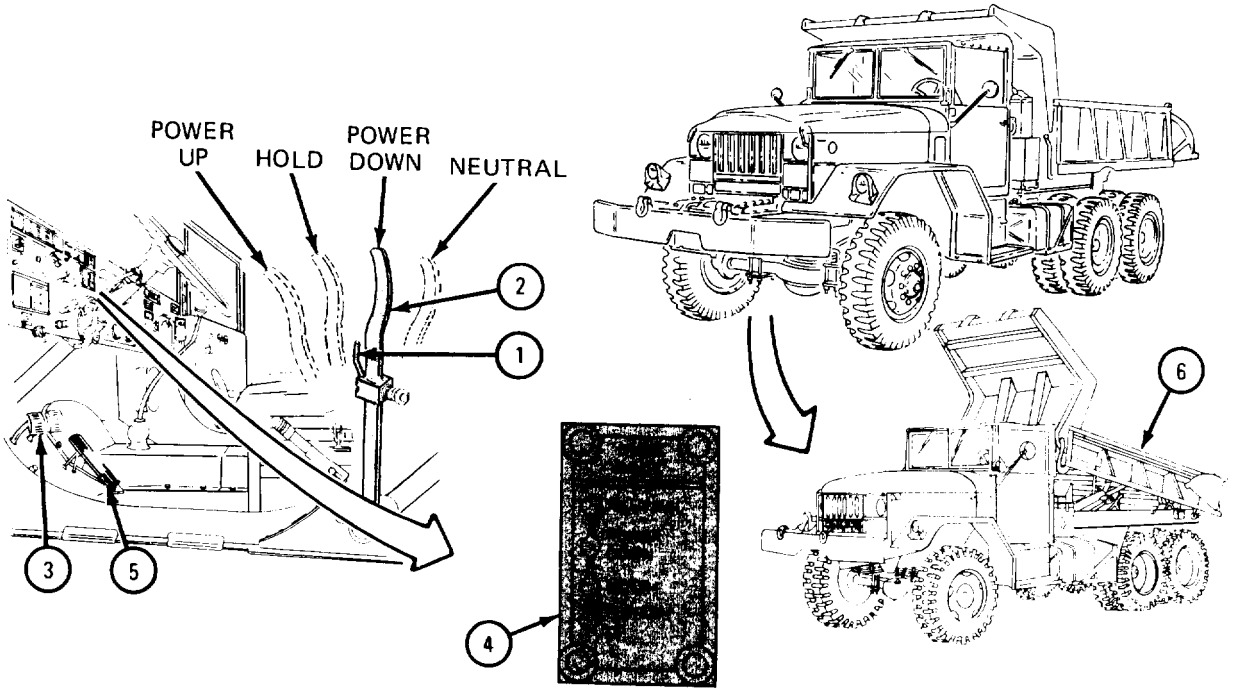


TA 053947

FRAME 2

1. Turn safety lock (1) on dump body control lever (2) to unlocked (up) position.
2. Step down on clutch pedal (3) all the way,
3. Move dump body control lever (2) forward to POWER UP position shown on data plate (4) .
4. Let clutch pedal (3) up and step on accelerator pedal (5) enough to keep engine from stalling.
5. When dump body (6) is up as high as needed to start to dump load, move lever (2) to HOLD position shown on data plate (4) .

GO TO FRAME 3

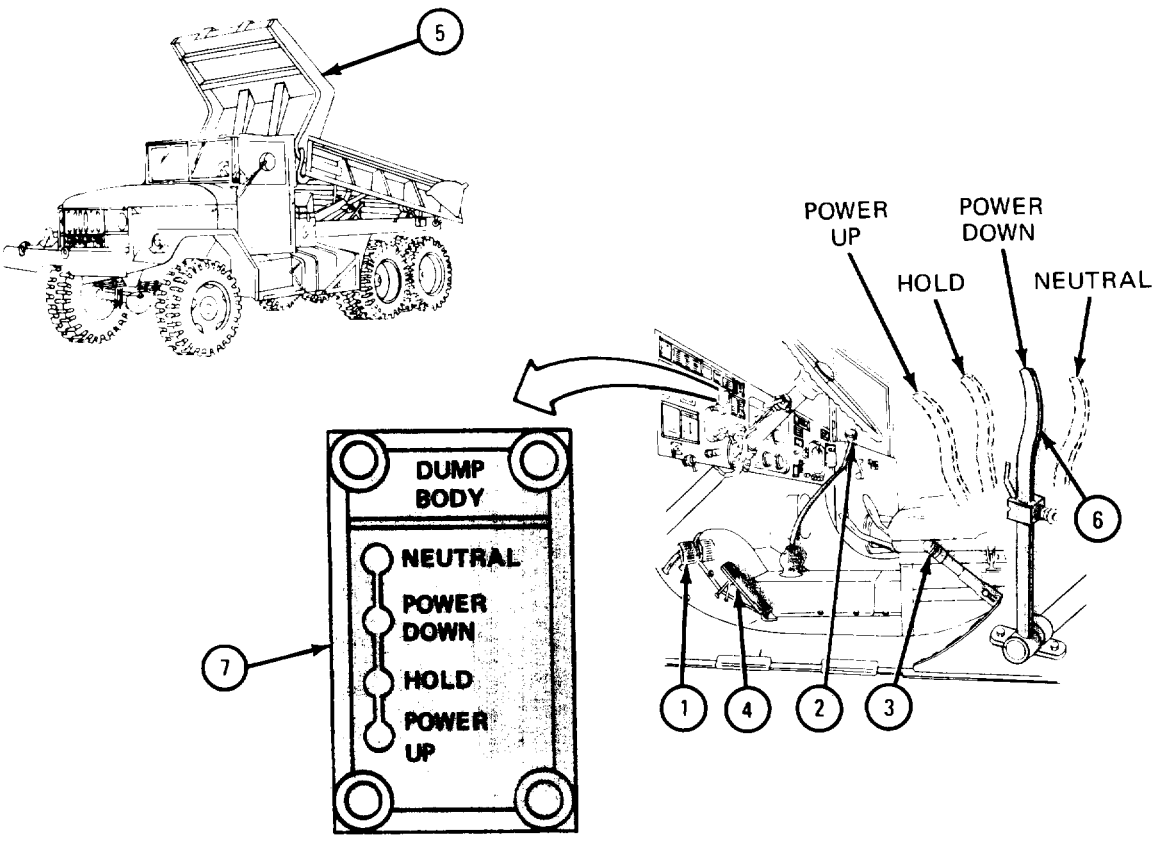


TA 053948

FRAME 3

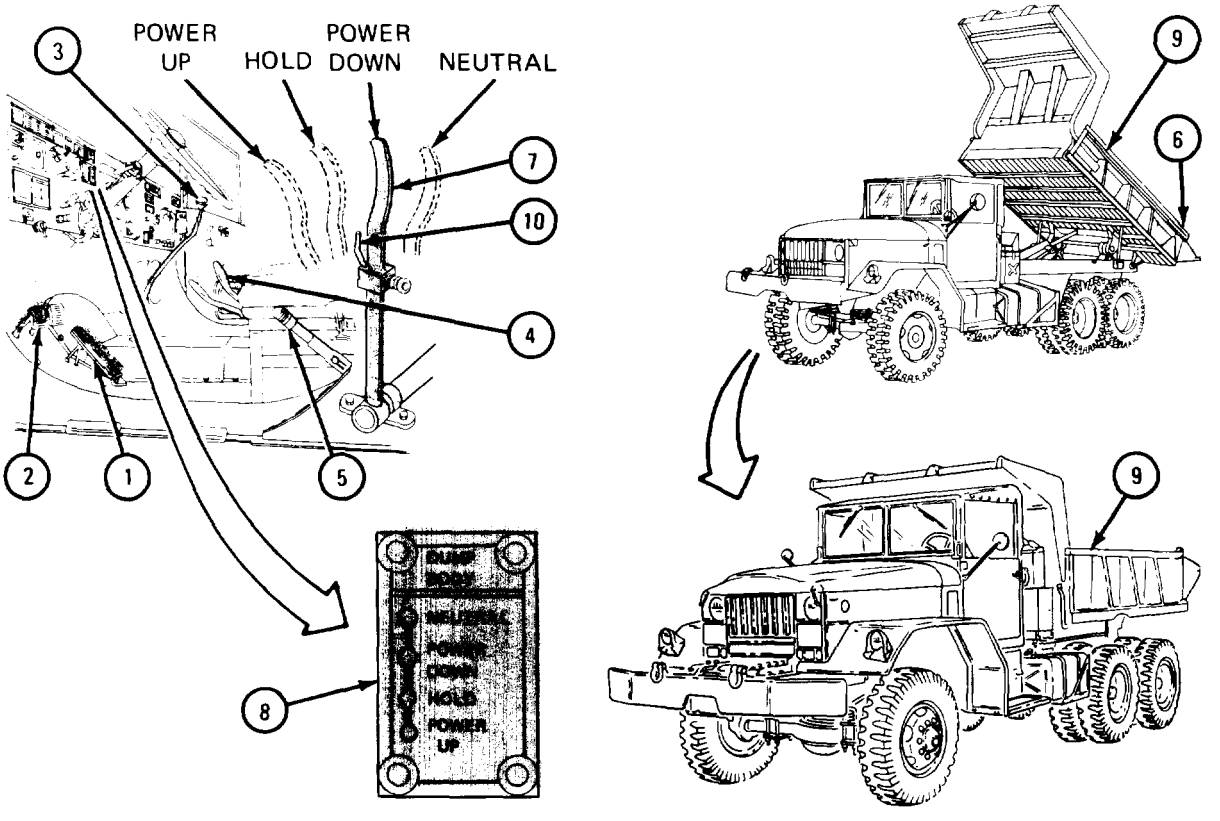
1. Step down on clutch pedal (1) all the way.
2. Place FRONT TRANSMISSION gearshift lever (2) in position 1.
3. Set handbrake lever (3) to down (brake off) position.
4. Step down on accelerator pedal (4) slowly and let clutch pedal (1) up at same time. Keep truck moving forward smoothly.
5. Raise dump body (5) , in steps, to keep dumping load. Do this by moving dump body control lever (6) to POWER UP position shown on data plate (7) and then back to HOLD

GO TO FRAME 4



FRAME 4

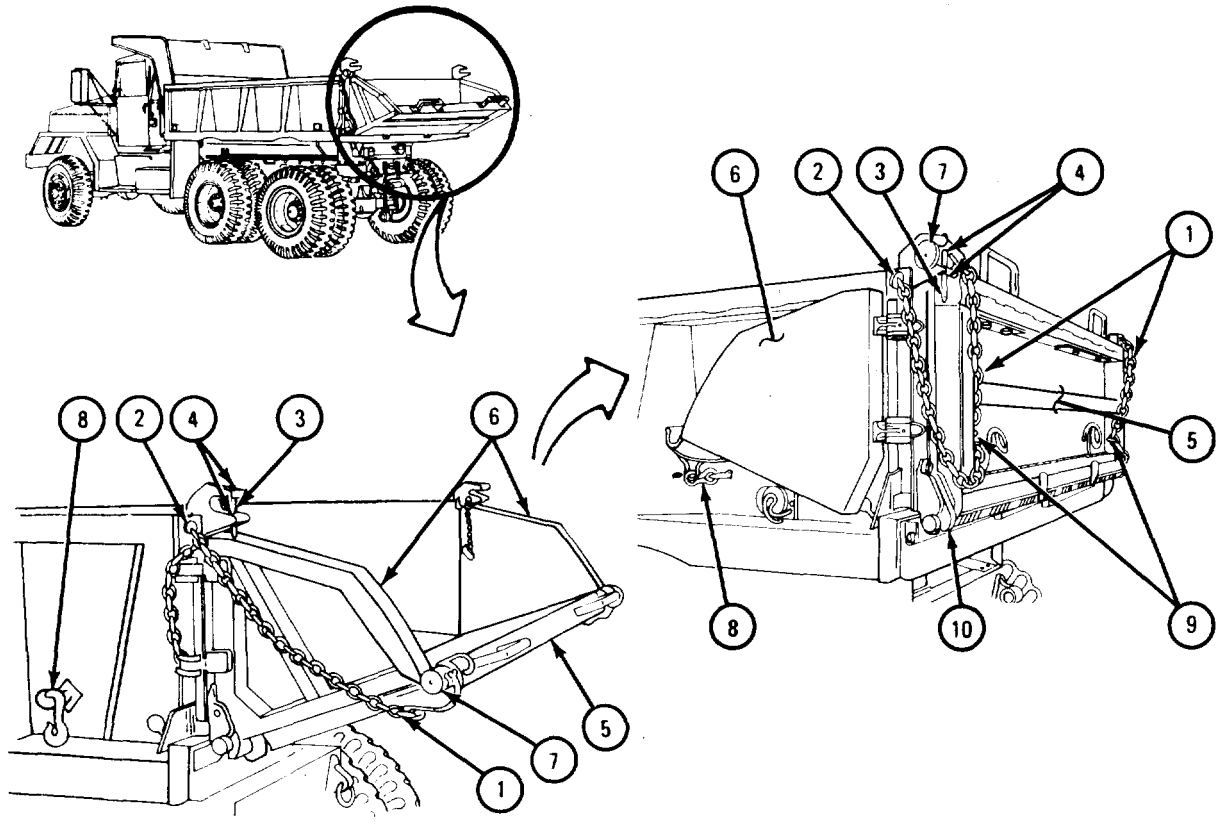
1. After dumping load let accelerator pedal (1) up.
2. Step down on clutch pedal (2) all the way.
3. Place FRONT TRANSMISSION gearshift lever (3) in N position.
4. If TRANSFER CASE lever (4) is in LOW position, move it to HIGH.
5. Let clutch pedal (2) up.
6. Pull handbrake lever (5) to up (brake on) position.
7. Clear tailgate area (6) of all material.
8. Move dump body control lever (7) to POWER DOWN position shown on data plate (8) to let dump body (9) down.
9. After dump body (9) is down, move dump body control lever (7) to NEUTRAL position.
10. Push safety latch (10) to left side to lock dump body control lever (7) in NEUTRAL position.



Changing Tailgate Rigging - Rocker Type Operation.

FRAME 1

1. To change from rocker type rigging to regular dump rigging:
   (a) Take tailgate chains (1) from holes and slots (2) on both right and left sides.
   (b) Pull retainer pins (3) from holes (4) .
   (c) push tailgate (5) up into closed position and at same time swing wing gates (6) toward front of truck.
   (d) Place retainer pins (3) back in holes (4) locking hinge pins (7).
   (e) Hook harness hooks (8) to wing gates (6).
   (f) Place tailgate chains (1) under retainer hooks (9) andin holes and slots (2). Leave just enough slack in chains (1) to let tailgate swing free if lower tailgate latch (10) is unlocked.



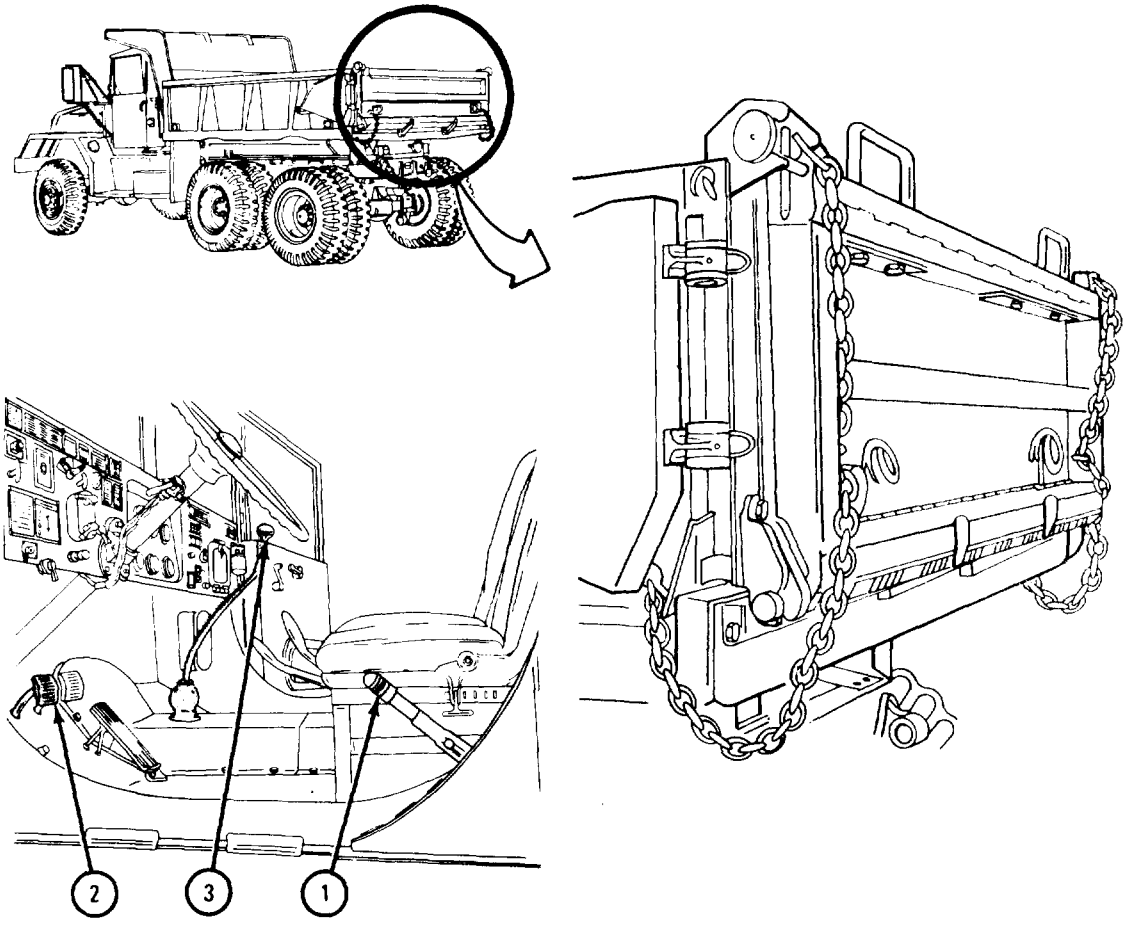
TA 053951

j. Unloading the Truck - Spreader Type Operation.

FRAME 1

1. Place the truck in dumping area.
2. Pull handbrake lever (1) to up (brake on) position.
3. Press clutch pedal (2) all the way in.
4. Place FRONT TRANSMISSION gearshift lever (3) in N position.
5. Let clutch pedal (2) come up,

GO TO FRAME 2



TA 053952

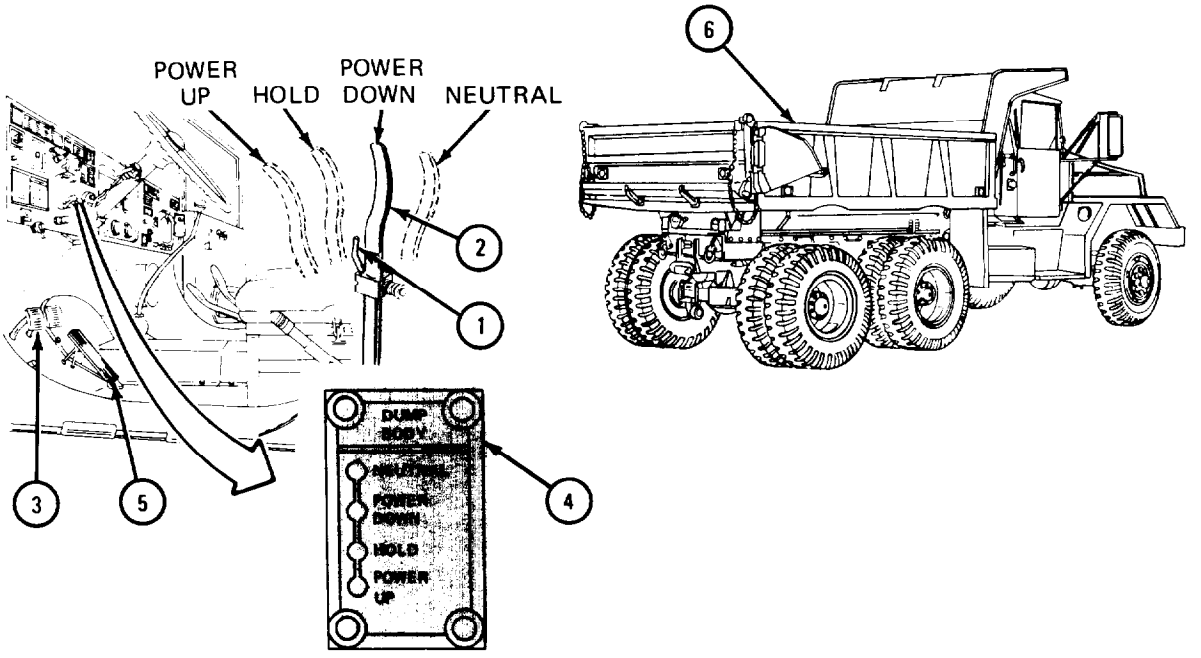
FRAME 2

1. Turn safety lock (1) on dump body control lever (2) to unlocked (up) position.
2. Step down on clutch pedal (3) all the way.
3. Move dump body control lever (2) forward to POWER UP position shown on data plate (4) .
4. Let clutch pedal (3) up and step on accelerator pedal (5) enough to keep engine from stalling.
5. When dump body (6) comes up about two or three feet move dump body control lever (2) to HOLD position.

NOTE

The height needed for best spreading will depend on the material being spread and the tailgate opening. Raise the dump body and change the tailgate opening as needed.

GO TO FRAME 3

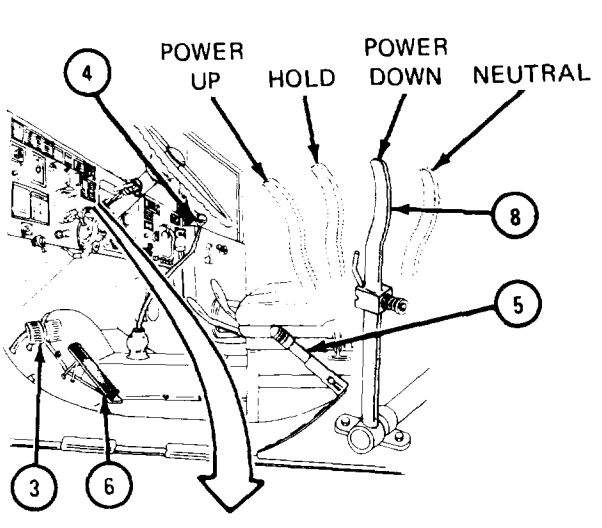


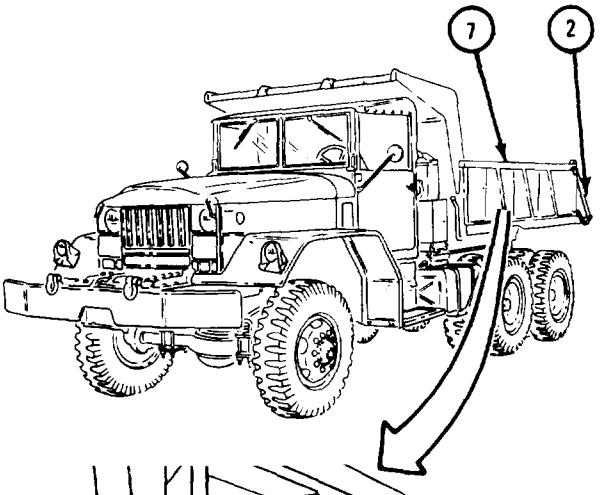
TA 053953

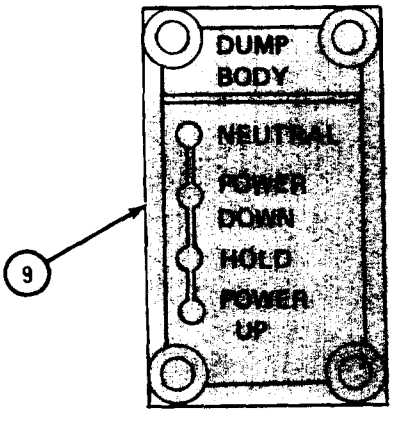
FRAME 3

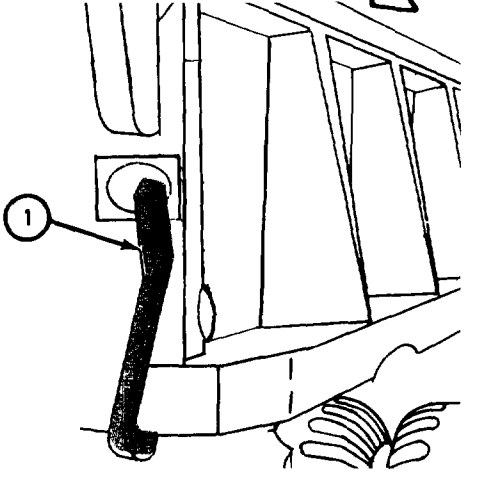
1. Pull tailgate control rod hand lever (1) forward and down as far as it will go to unlock tailgate (2). Tailgate will swing open a little and load should just start to spill out.
2. Step down on clutch pedal (3) all the way.
3. Place FRONT TRANSMISSION gearshift lever (4) in position 1.
4. Push handbrake lever (5) to down (brake off) position.
5. Step down on accelerator pedal (6) slowly and let clutch pedal (3) up at same time, Keep truck moving forward smoothly.
6. Raise dump body (7) in steps to keep spilling load. Do this by moving dump body control lever (8) to POWER UP position, shown on data plate (9) , and then back to HOLD position.

GO TO FRAME 4









TA 053954

FRAME 4

After dumping, let accelerator pedal (1) up.

Step down on clutch pedal (2) all of the way.

Place FRONT TRANSMISSION gearshift lever (3) in N position,

Place TRANSFER CASE lever (4) in HIGH position.

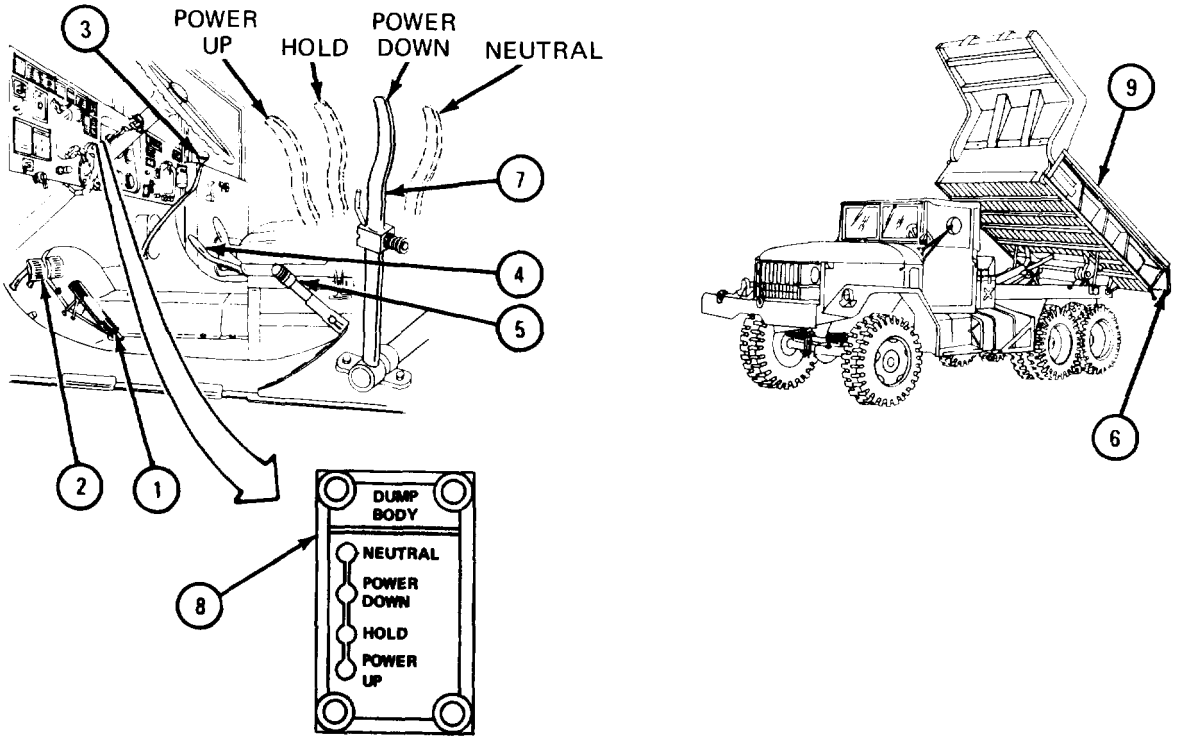
Let clutch pedal (2) up.

Pull handbrake lever (5) to up (brake on) position.

Clear tailgate (6) of all material.

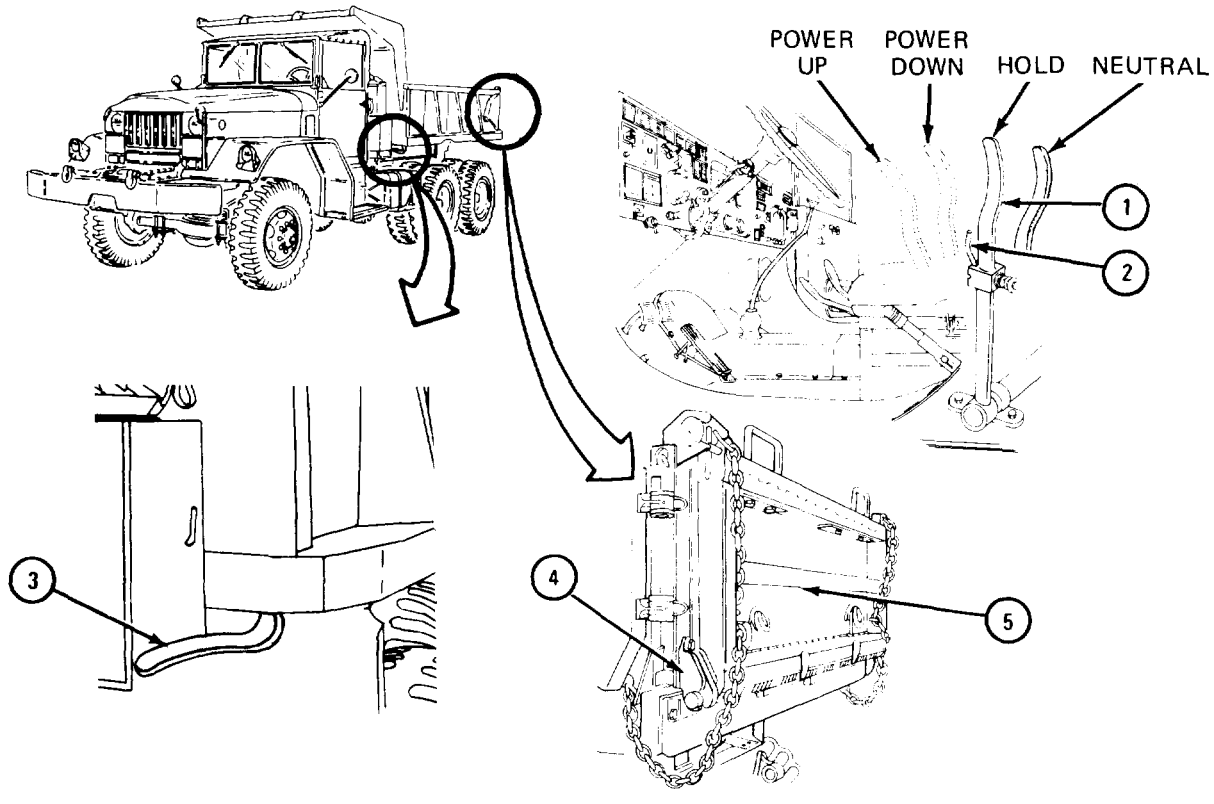
Move dump body control lever (7) to POWER DOWN position shown on data plate (8) to let dump body (9) down.

TO FRAME 5



FRAME 5

1. After dump body is down, move dump body control lever (1) to NEUTRAL position.
2. Push safety lock (2) to left side to lock dump body control lever (1) in NEUTRAL position.
3. Push tailgate control rod hand lever (3) up and back, as far as it will go, to close lower tailgate latches (4) , locking tailgate (5) closed.

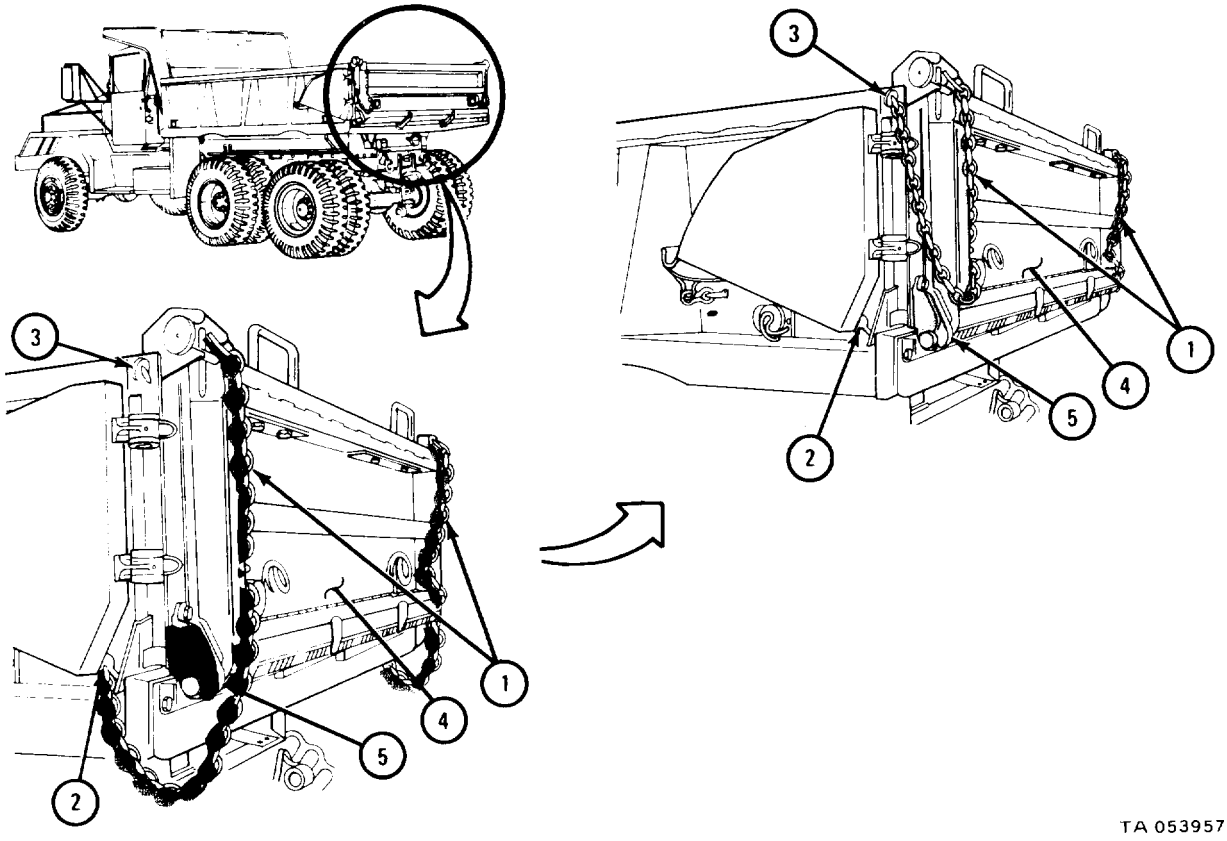


TA 053956

. Changing Tailgate Rigging - Spreader Type Operation.

FRAME 1

1. To change from spreader type rigging to regular dump rigging:
   (a) Take tailgate chains (1) from holes and slots (2) on both right and left sides.
   (b) place tailgate chains (1) in holes and slots (3). Leave just enough slack in chains to let tailgate (4) swing free if lower tailgate latch (5) is unlocked.

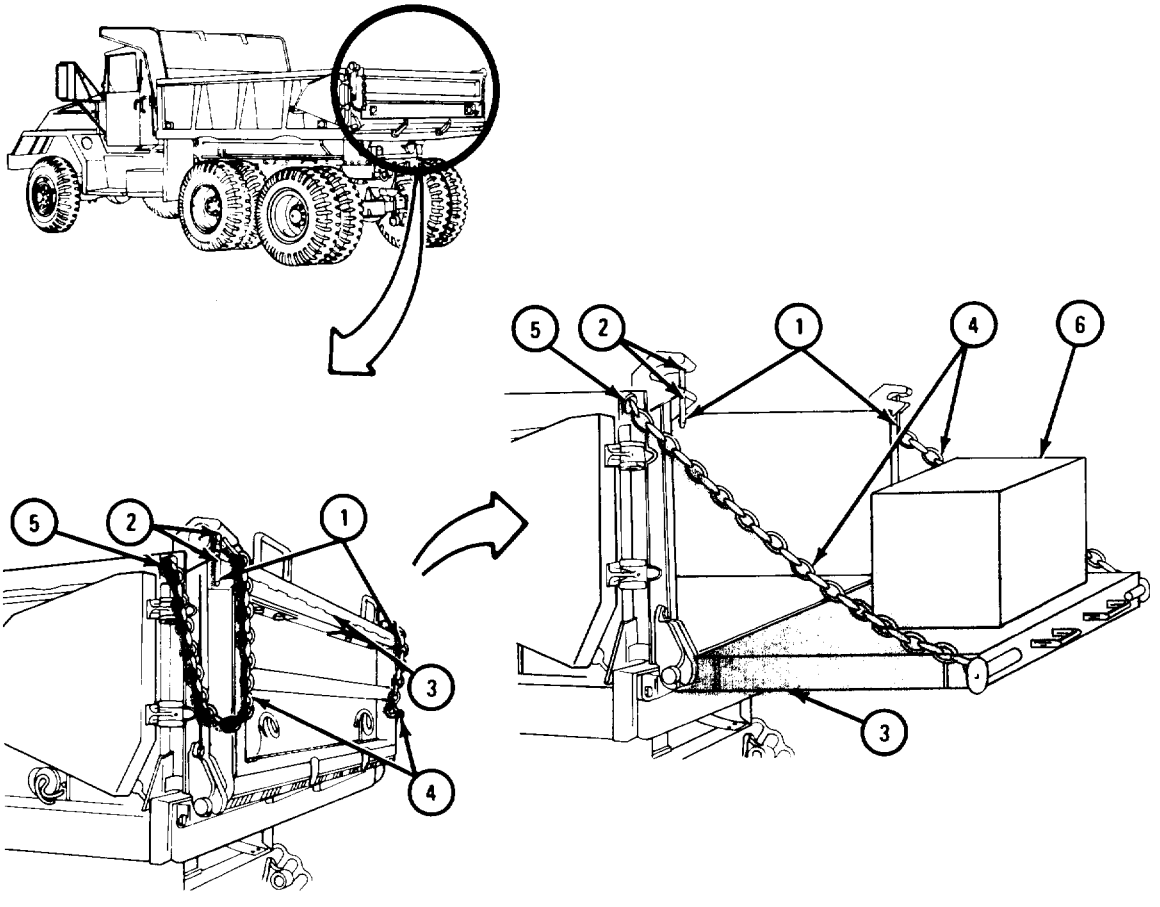


TA 053957

1. Lowering the Tailgate - Regular Cargo Operation.

FRAME 1

1. Pull retainer pins (1) out of holes (2) on both left and right sides.
2. Slowly lower tailgate (3) . Do not let it drop.
3. Put retainer pins (1) back in holes (2).
4. Change tailgate chain (4) length, if needed to make tailgate level, by putting more or less chain in holes and slots (5) .
5. Cargo (6) can be loaded and unloaded from lowered tailgate (3).

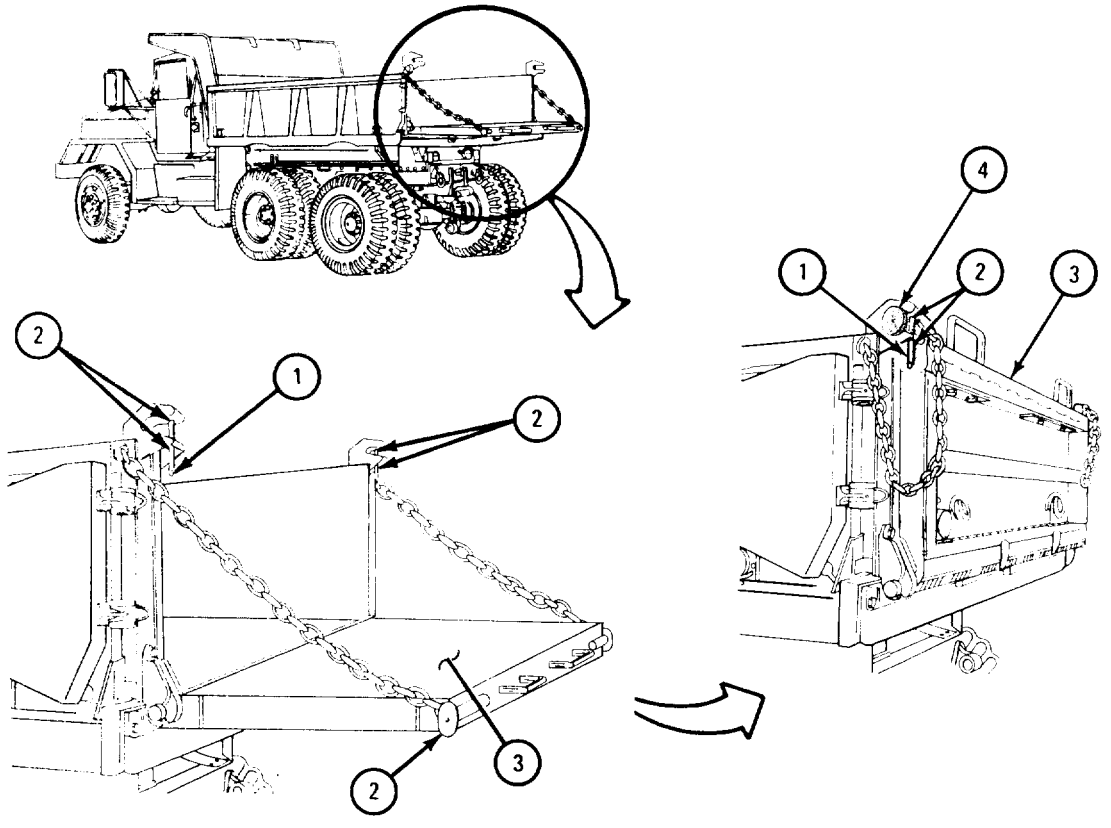


TA 053958

m. Raising the Tailgate - Regular Cargo Operation.

FRAME 1

1. Take retainer pins (1) out of holes (2) on both right and left sides.
2. Push tailgate (3) up to closed position.
3. Place retainer pins (1) back in holes (2) to lock hinge pins (4) in position.

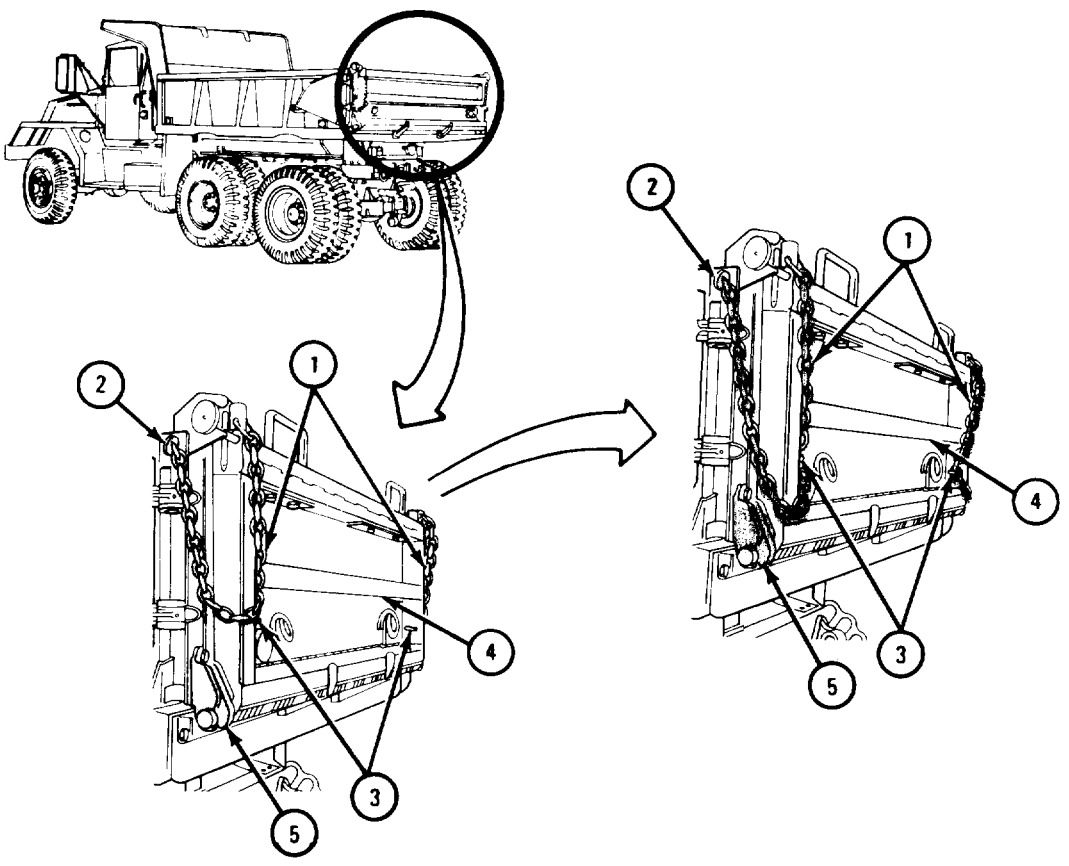


TA 053959

n. Changing Tailgate Rigging - Regular Cargo Operation.

FRAME 1

1. To change from regular cargo rigging to regular dump rigging.
   (a) Take tailgate chains (1) from holes and slots (2) on both left and right sides.
   (b) Place chains (1) under retainer hooks (3) and in holes and slots (2). Leave just enough slack in chains to let tailgate (4) swing free when lower tailgate latch (5) is unlocked.



TA 053960

4-11. M543A2 MEDIUM WRECKER REAR WINCH OPERATION .

a. General. The rear winch is a worm-geared type with a horizontal drum. Power to drive the winch drum is supplied through a propeller shaft extending from the power divider through a drive sprocket chain link to the winch drive shaft. The power divider control is found in the driver's compartment. The winch has an automatic safety brake to hold the winch load when the winch shift lever is being ussed. It also has a level wind and a pneumatically controlled cable tensioner. Maximum rated pull for the winch is 45,000 pounds when the drum has only one cable layer,

. Before Operation.

FRAME 1

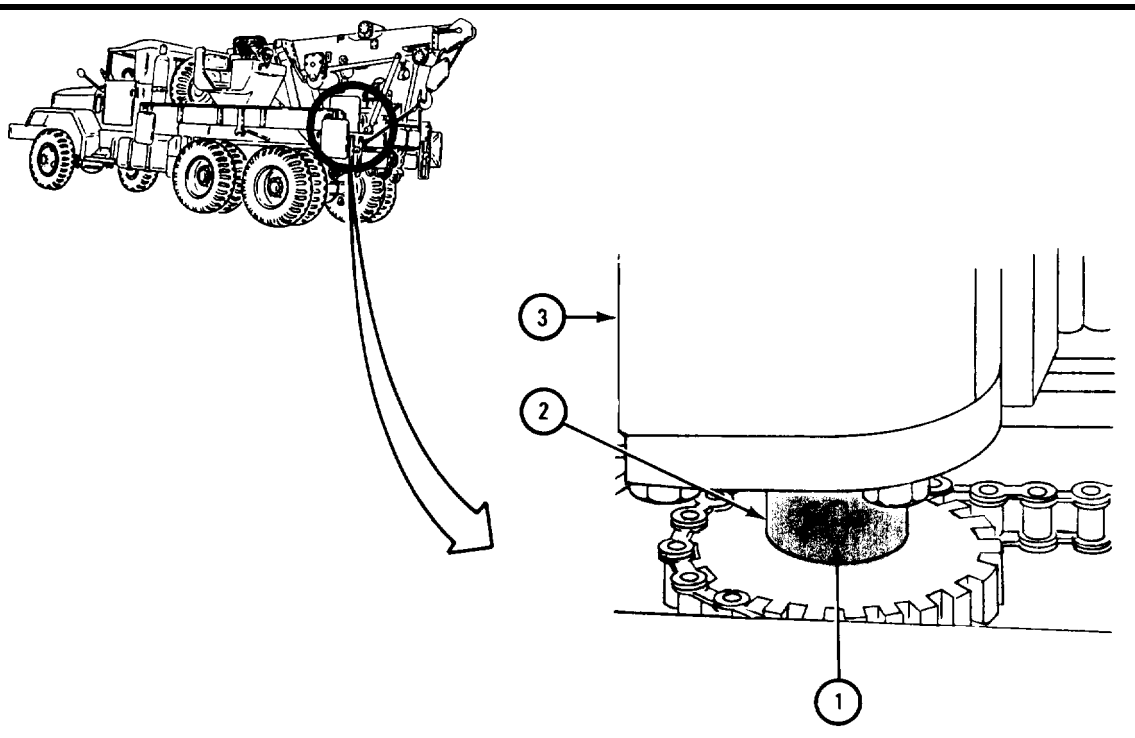
NOTE

General instructions for winching, towing, and lifting are given in Vehicle Recovery Operations, FM 20-22.

WARNING

Do not operate winch with a shear pin other than the aluminum pin shown in the parts list for winch being used. Always stand clear of the winch cable under load. A snapped cable can cause serious injury.

1. From underneath truck, check shear pin (1) in sprocket gear hub (2) and winch (3) shaft and make sure that it is the aluminum alloy pin called for in parts list.



c. Unwinding the Winch Cable.

PERSONNEL : Two

FRAME 1

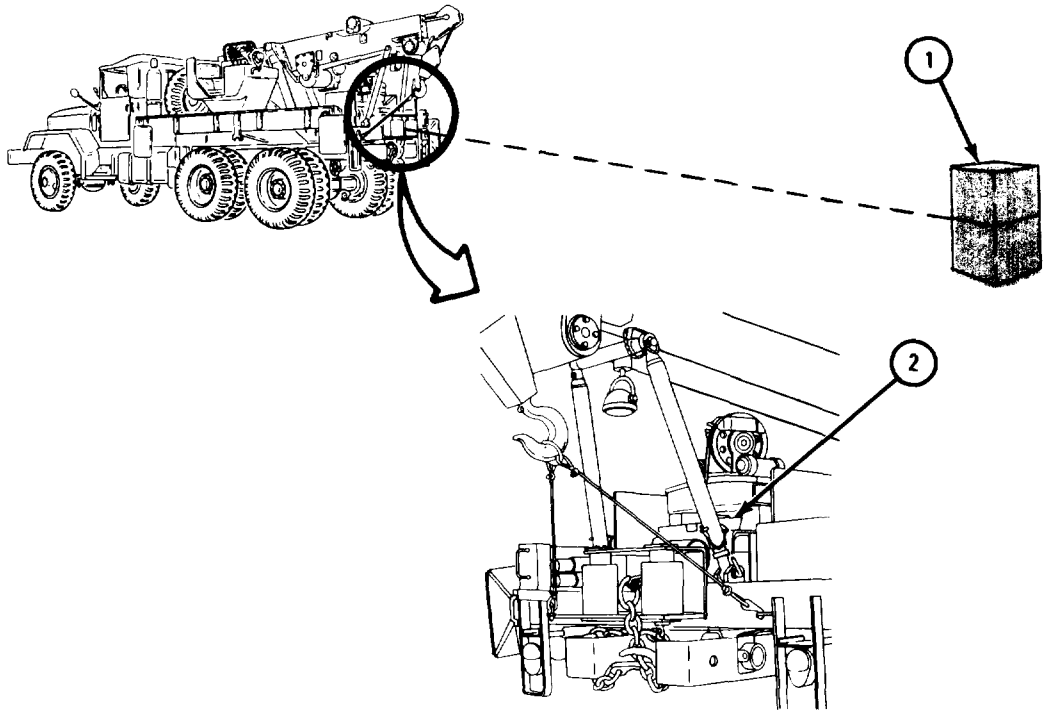
1. Start engine. Refer to para 4-6a, b.

NOTE

To use the winch at maximum capacity, place truck with load directly behind and in line with truck. Guide rollers on the rear winch to allow pulling a load at any angle up to 90° left or right or any angle 60° above or below the horizontal centerline of the winch at reduced winch capacity.

2. Place truck in front of load (1) with rear winch (2) in line with the load to be reeled in.

GO TO FRAME 2

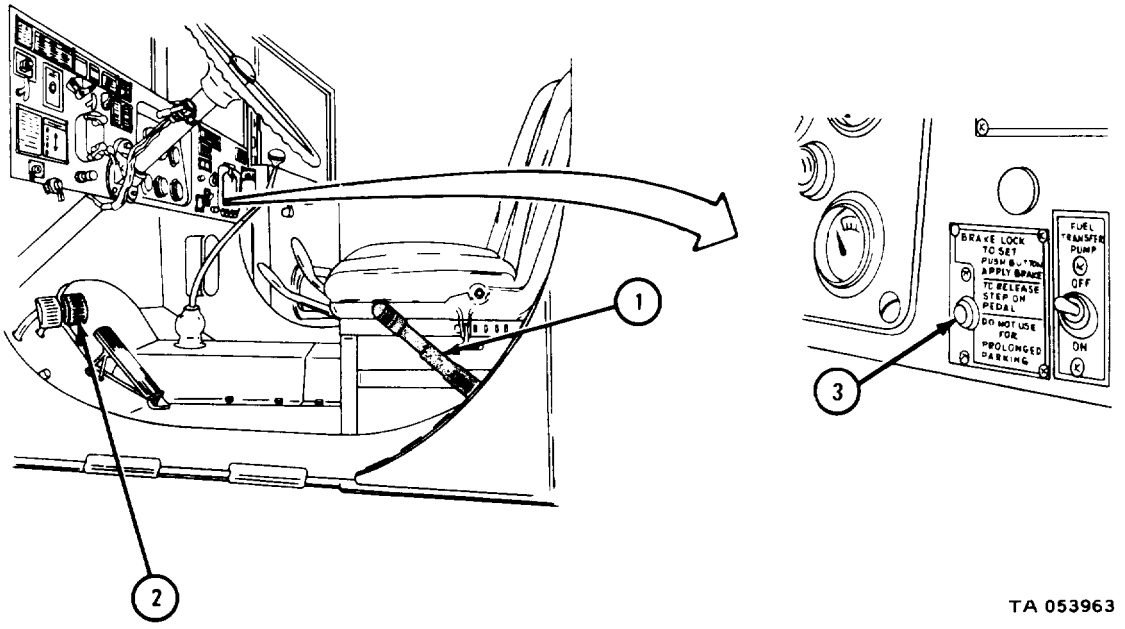


TA 053962

FRAME 2

1. Pull handbrake (1) to up (brake on) position.
2. Set electric brake:
   (a) Press downon service foot brake (2).
   (b) Press electric BRAKE LOCK button (3) .
   (c) Let up on service foot brake (2).
   (d) Let upon electric BRAKE LOCK button (3).

GO TO FRAME 3

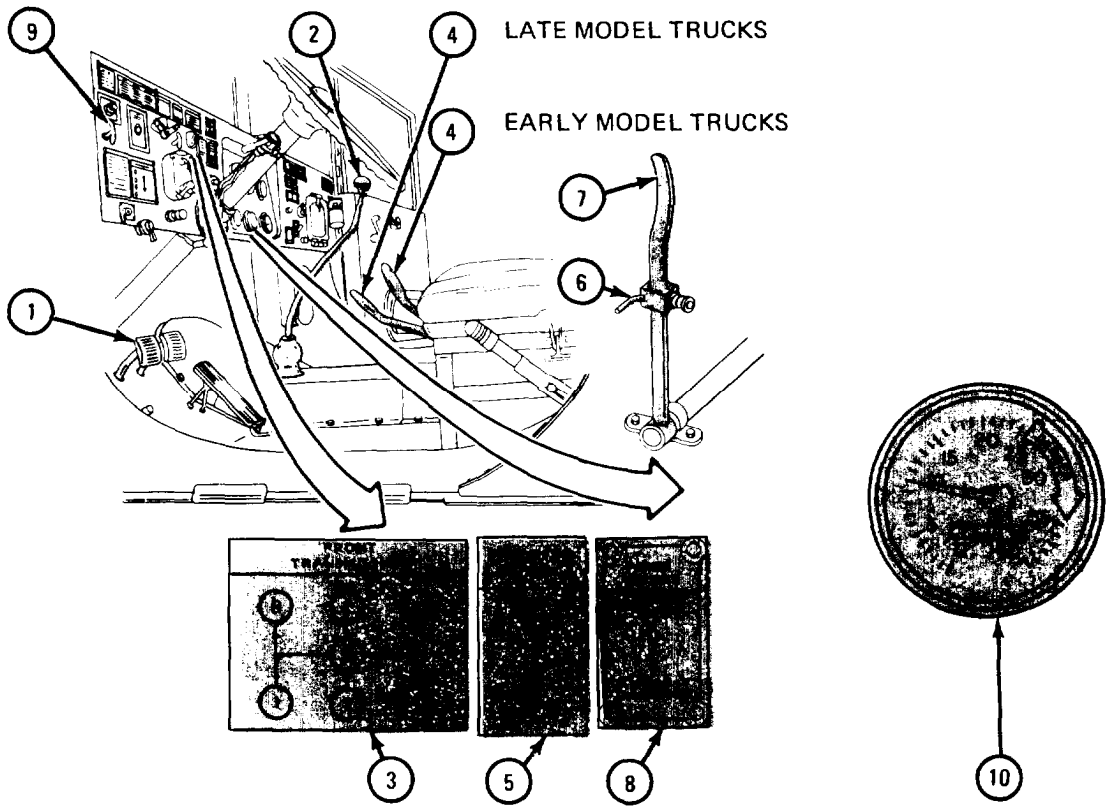


TA 053963

FRAME 3

1. Press clutch pedal (1) all the way down.
2. Place FRONT TRANSMISSION gear shift lever (2) in 5 position for light loads or 3 position for heavy loads. Positions are shown on data plate (3).
3. Place TRANSFER CASE lever (4) in neutral position (half way between HIGH and LOW shown on data plate (5) .
4. Turn POWER DIVIDER control lever safety lock (6) up.
5. Move POWER DIVIDER control lever (7) forward to ENGAGE position shown on data plate (8) .
6. Let clutch pedal (1) up.
7. Place throttle control (9) so that tachometer (10) shows engine speed of 1000 rpm.

GO TO FRAME 4



FRAME 4

1. Pull out level wind lock knob (1) , turn it 90°, and let it go.
2. Lift CLUTCH CONTROL lever (2) to DISENGAGE position shown on data plate (3).
3. Take out pin (4) from WINCH SHIFT control lever (5) .
4. Move WINCH SHIFT control lever (5) to UNWIND position shown on data plate (6).
5. Move cable tensioner valve control (7) to OFF position,

WARNING

Always wear protective gloves when handling winch cable. Do not let winch cable slip through hands. Rusty or broken wires can cause serious injury.

6. Move CLUTCH CONTROL lever (2) to ENGAGE position.
7. Drum (8) will now turn and unwind cable (9) .

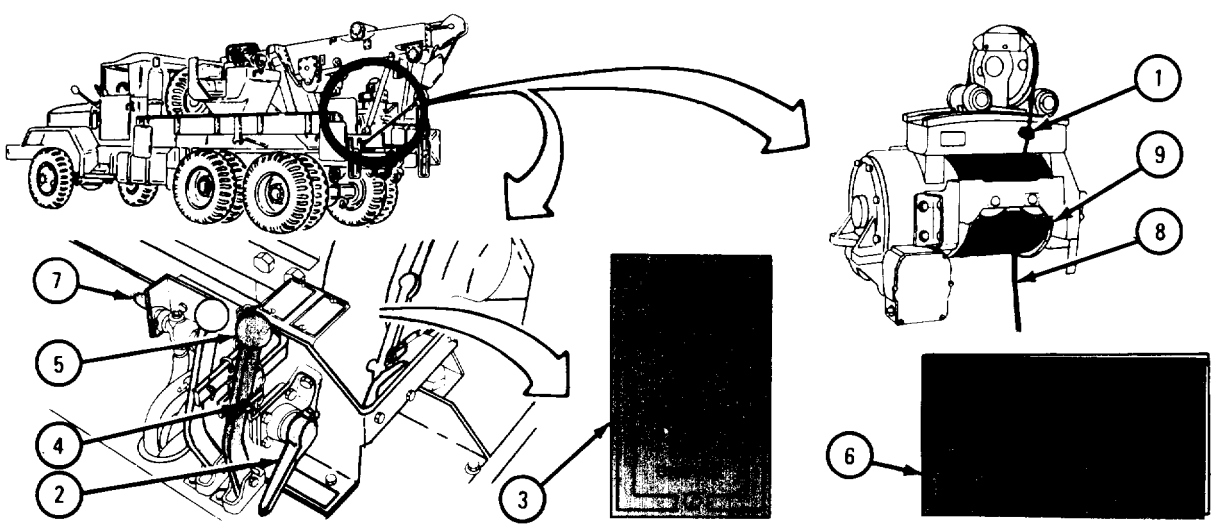
CAUTION

Do not operate winch with less than four turns of cable on drum. The cable clamp screw alone will not hold against a load.

NOTE

Keep tension on cable while drum is turning to prevent kinks or snarled cable on drum.

8. After enough cable is unwound, move CLUTCH CONTROL lever (2) to DISENGAGE position.
9. Move WINCH SHIFT control lever (5) to NEUTRAL position.



TA 053965

d. Rigging the Winch Cable and Wrecker.

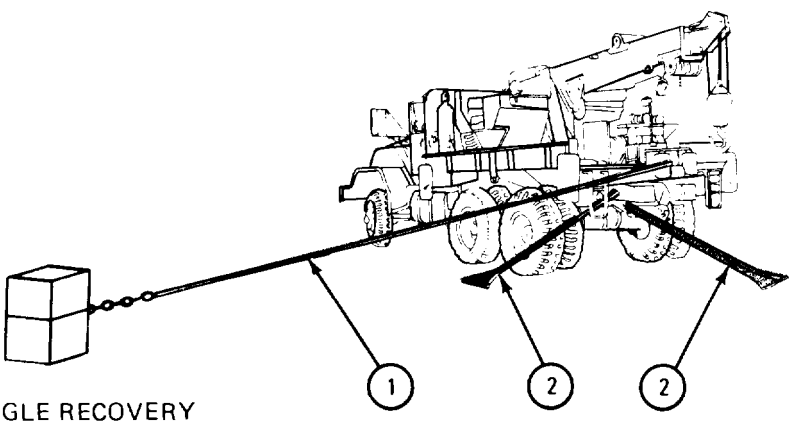
NOTE

Rigging of the winch cable and truck will depend on size and type of load, direction of pull, terrain, weather, and how well the wrecker is anchored. Different ways to do the rigging one given in the following instructions. If you need more information refer to FM 20-22.

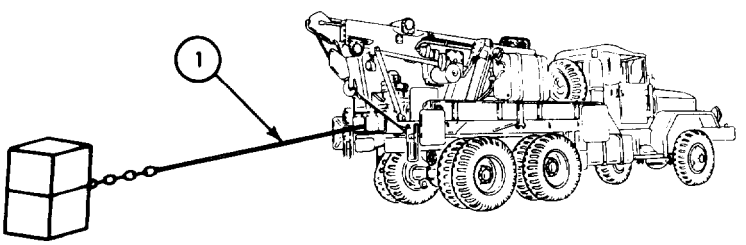
(1) For light loads.

FRAME 1

1. For light loads, hook winch cable (1) to object to be pulled.
2. For light load angle recovery:
   (a) Hook winch cable (1) to load.
   (b) Use field chocks (2) as shown, one toward rear and one toward side. Steps for putting field chocks (2) in rear are same as for the front. Refer to operation of front winch, para 4-7C.



LIGHT LOAD ANGLE RECOVERY



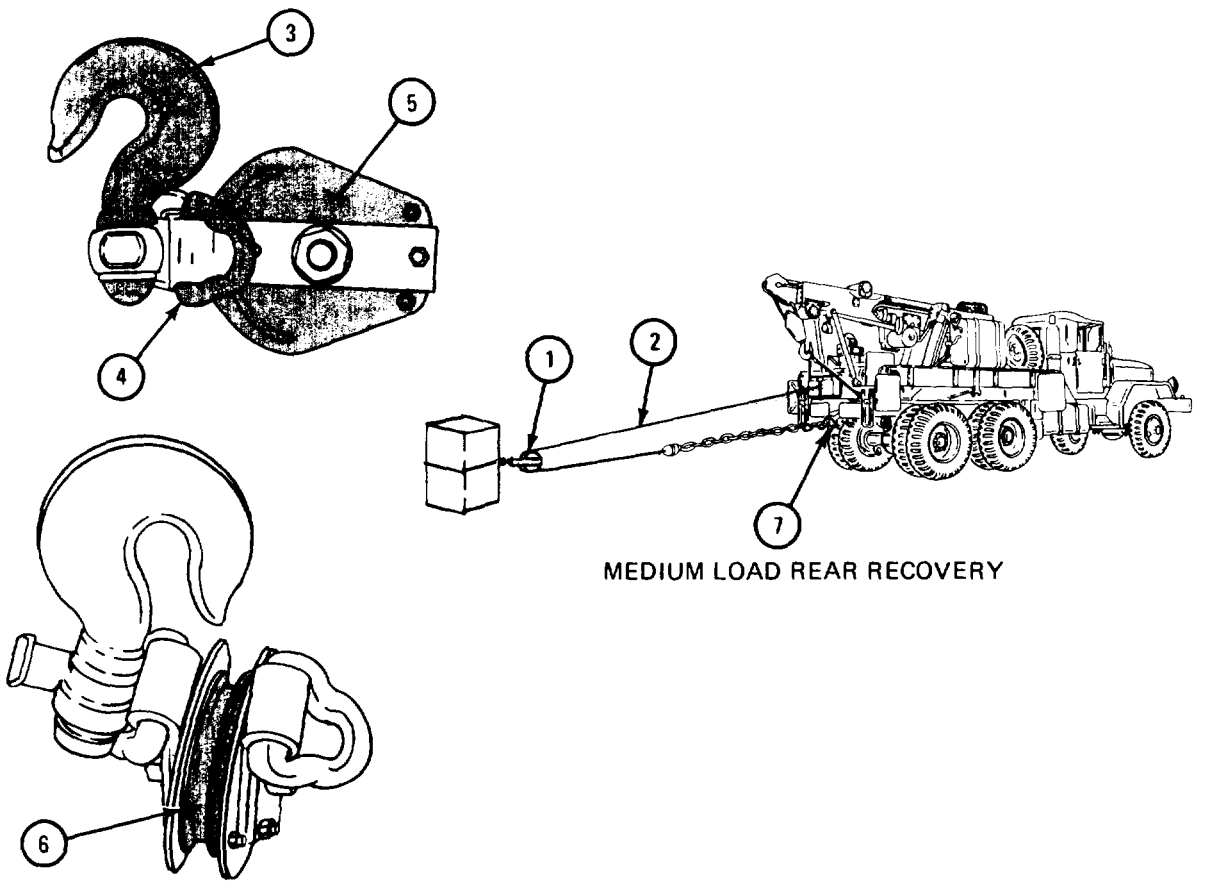
LIGHT LOAD REAR RECOVERY

TA 053966

(2) For medium loads.

FRAME 1

1. For medium loads, use a snatch block (1) to rig winch cable (2).
   (a) Turn hook (3) of snatch block (1) to the right and lift latch (4) up.
   (b) Open shell (5) on one side of snatch block (l). Put cable (2) over sheave (6). Close latch (4) and straighten hook (3) to lock it.
   (c) Run snatch block (1) to load. Hook snatch block to load and hook cable (2) with chain and hook to pintle (7) of anchor vehicle.



MEDIUM LOAD REAR RECOVERY

(3) For heavy loads.

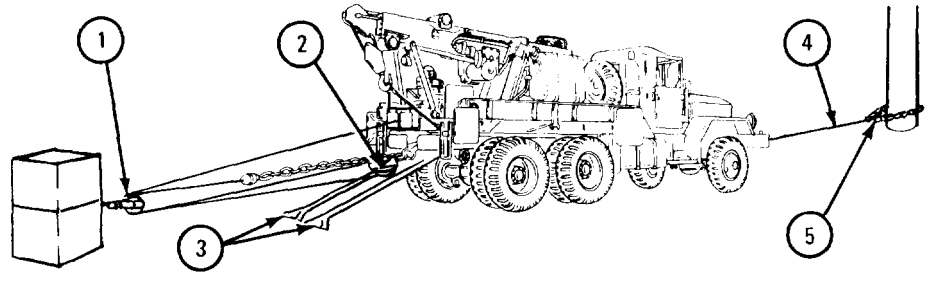
FRAME 1

1. For heavy loads:

   (a) Use a double sheave snatch block (1) and a single sheave snatch block (2) as shown.

   (b) Use field chocks (3) at the rear of the truck. Steps for putting field chocks (3) in rear are the same as for the front. Refer to operation of front winch, para 4-7C.

   (c) Hook front winch cable (4) to a utility pole, tree, or ground anchor with utility chain (5) and take up cable (4) slack. Refer to operation of front winch, para 4-7C.



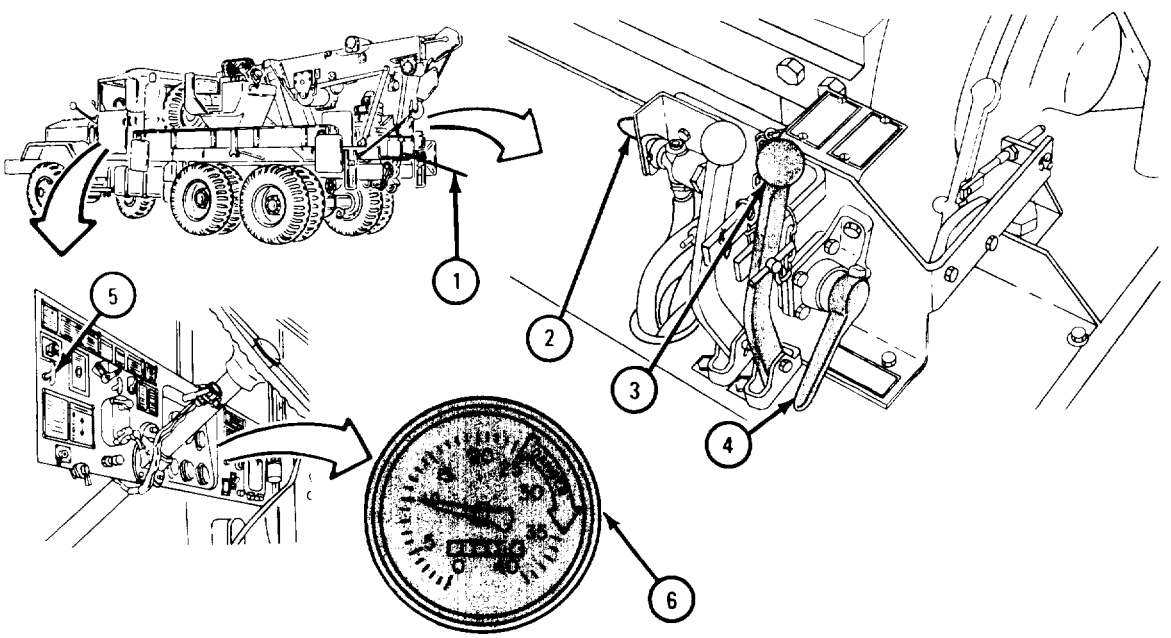
HEAVY LOAD REAR RECOVERY

TA 081009

e. Pulling in the Load.

FRAME 1

1. Take up all slack in winch cable (1).
   (a) Place cable tensioner valve control (2) to ON position.
   (b) Move WINCH SHIFT control lever (3) to WIND position.
   (c) Place CLUTCH CONTROL lever (4) in ENGAGE position.
   (d) After all cable slack is taken up, move CLUTCH CONTROL lever (4) to DISENGAGE position.
   (e) Move cable tensioner valve control (2) to OFF position.
2. Pull in the load:
   (a) Move CLUTCH CONTROL lever (4) to ENGAGE position.
   (b) Pull THROTTLE control (5) out as necessary to keep up engine speed while pulling load in.
   (c) After load is pulled in, move CLUTCH CONTROL lever (4) to DISENGAGE position.
   (d) Twist THROTTLE control a little left or right and push it in when tachometer (6) shows 1000 rpm.
   (e) Move WINCH SHIFT control lever (3) to NEUTRAL position.



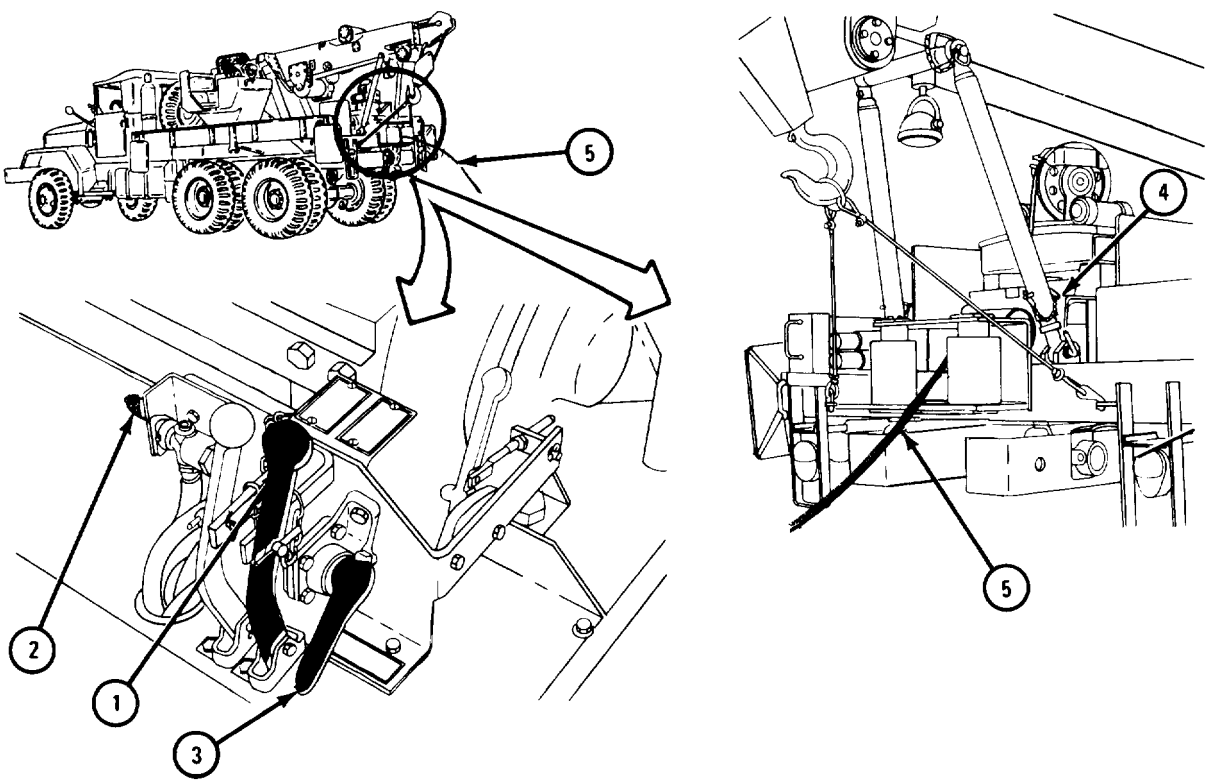
TA 053967

f. Releasing the Load.

FRAME 1

1. Place WINCH SHIFT control lever (1) to UNWIND position.
2. Check that cable tensioner valve control (2) is in OFF position.
3. Move CLUTCH CONTROL lever (3) to ENGAGE position.
4. Let drum (4) unwind a couple of turns to put slack in winch cable (5) .
5. Move CLUTCH CONTROL lever (3) to DISENGAGE position.
6. Move WINCH SHIFT control lever (1) to NEUTRAL position.

GO TO FRAME 2



TA 053968

FRAME 2

1. Unhook rigging:
   (a) Unhook rear winch cable (1) from truck.
   (b) Unhook cable (1) from snatch block (2).
   (c) Unhook single sheave snatch block (2) and double sheave snatch block (3).
   (d) Take off field chocks (4). Refer to operation of front winch, para 4-7d.
   (e) Unhook and rewind front winch cable (5). Refer to operation of front winch, para 4-7d.
   (f) Unhook utility chain (6).

LIGHT LOAD

REAR RECOVERY

MEDIUM LOAD

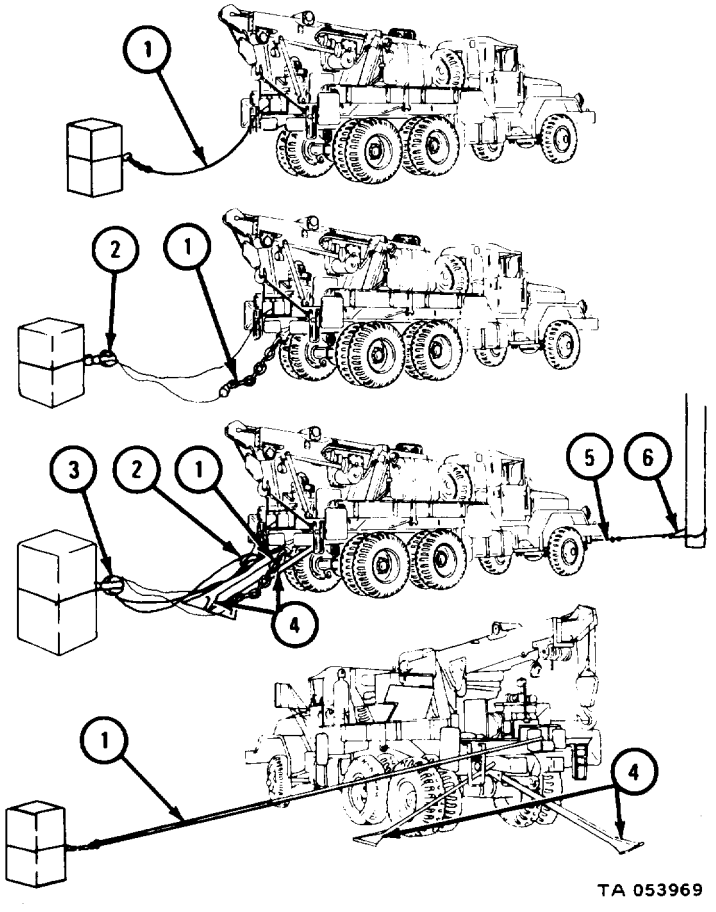
REAR RECOVERY

HEAVY LOAD

REAR RECOVERY

LIGHT LOAD

ANGLE RECOVERY



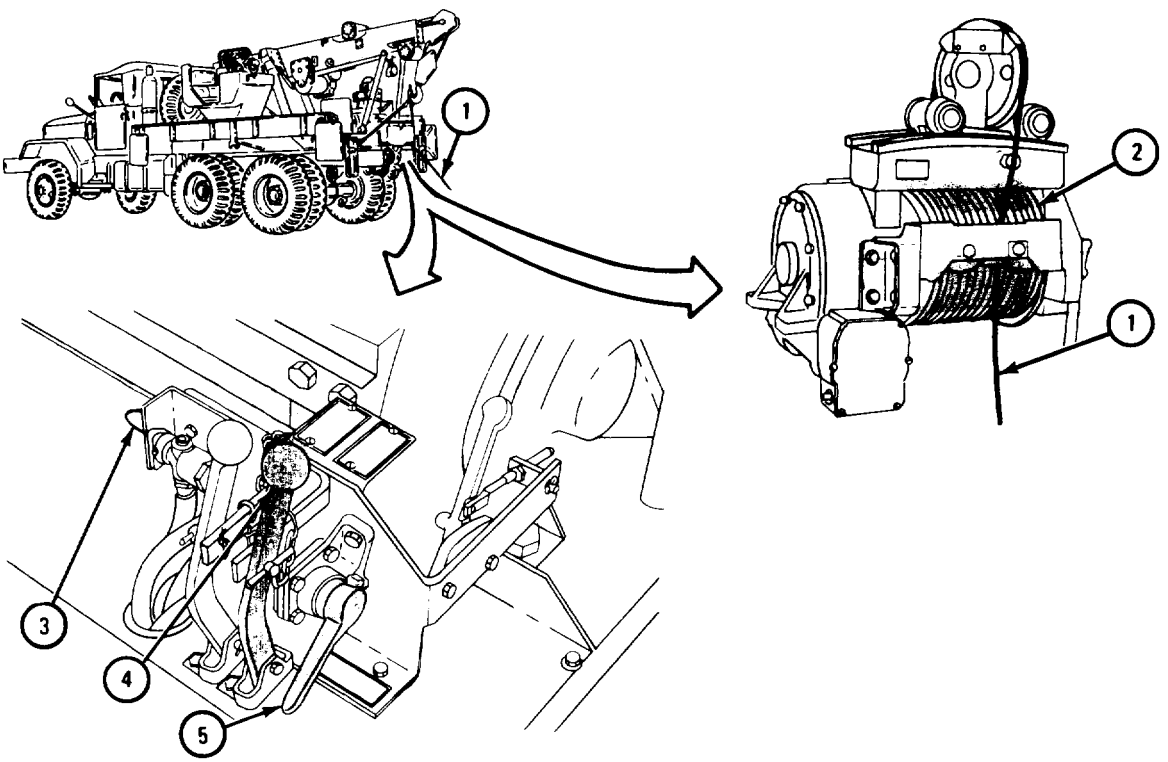
TA 053969

g. Securing for Travel.

FRAME 1

1. Check that the last couple of coils of cable (1) on the winch drum (2) are in position.
2. Place cable tensioner valve control (3) to ON position.
3. Move WINCH SHIFT control lever (4) to WIND position.
4. Move CLUTCH CONTROL lever (5) to ENGAGE position.
5. When chain of winch cable (1) reaches rollers, move CLUTCH CONTROL lever (5) to DISENGAGE position.

GO TO FRAME 2

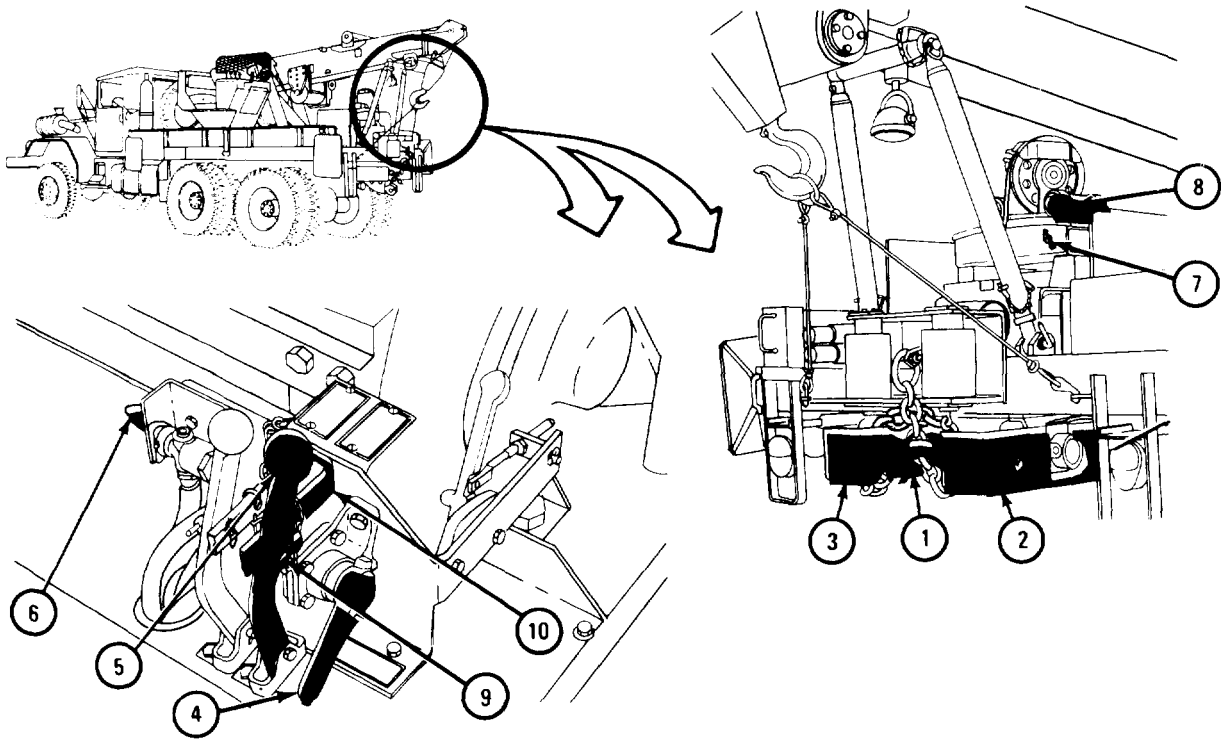


TA 053970

FRAME 2

1. Pull cable hook (1) up through right bumperette (2) across and down through left bumperette (3).
2. Put cable hook (1) around chain between bumperettes (2 and 3).
3. Move CLUTCH CONTROL lever (4) to ENGAGE position to take up any cable slack.
4. When cable is snug, move CLUTCH CONTROL lever (4) to DISENGAGE position.
5. Place WINCH SHIFT control lever (5) in NEUTRAL position.
6. Place cable tensioner valve (6) in OFF position.
7. Pull level wind lock knob (7), turn it 90°, and let it go into deep slot to lock level wind trolley (8).
8. Push pin (9) through holes in WINCH SHIFT control lever (5) and bracket (10) to lock lever (5).
9. Move CLUTCH CONTROL lever (4) to ENGAGE position.

GO TO FRAME 3

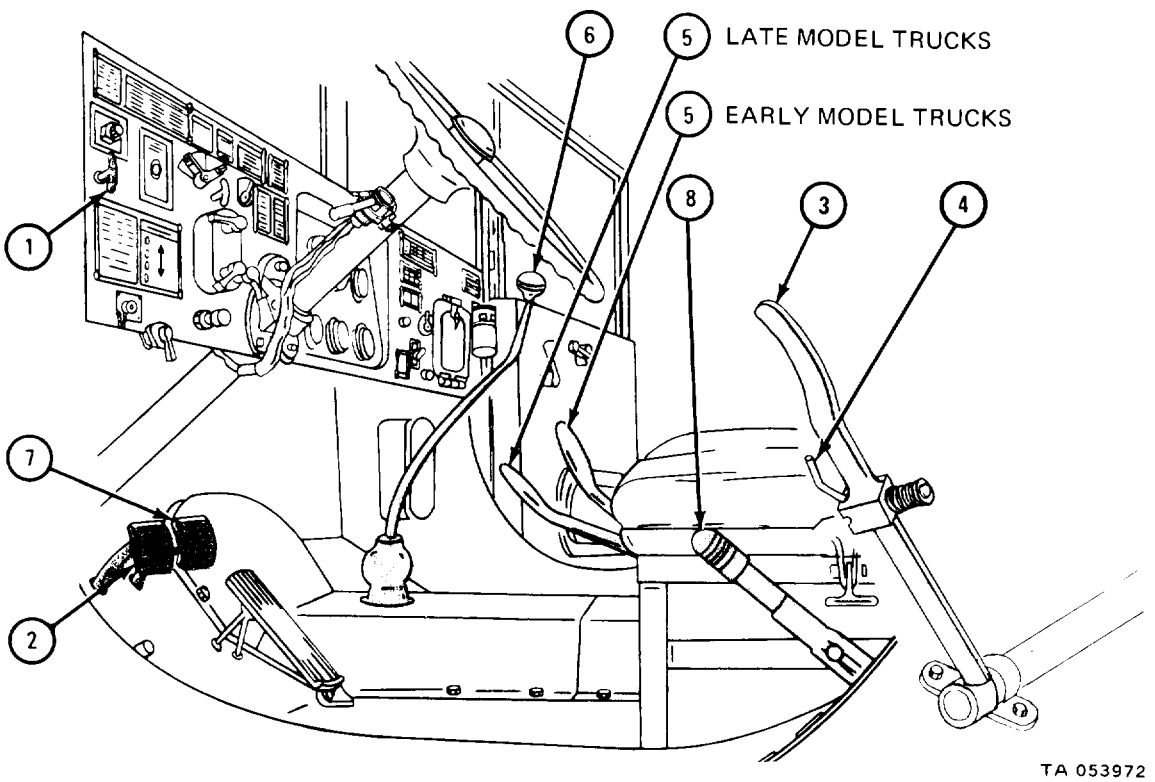


TA 053971

FRAME 3

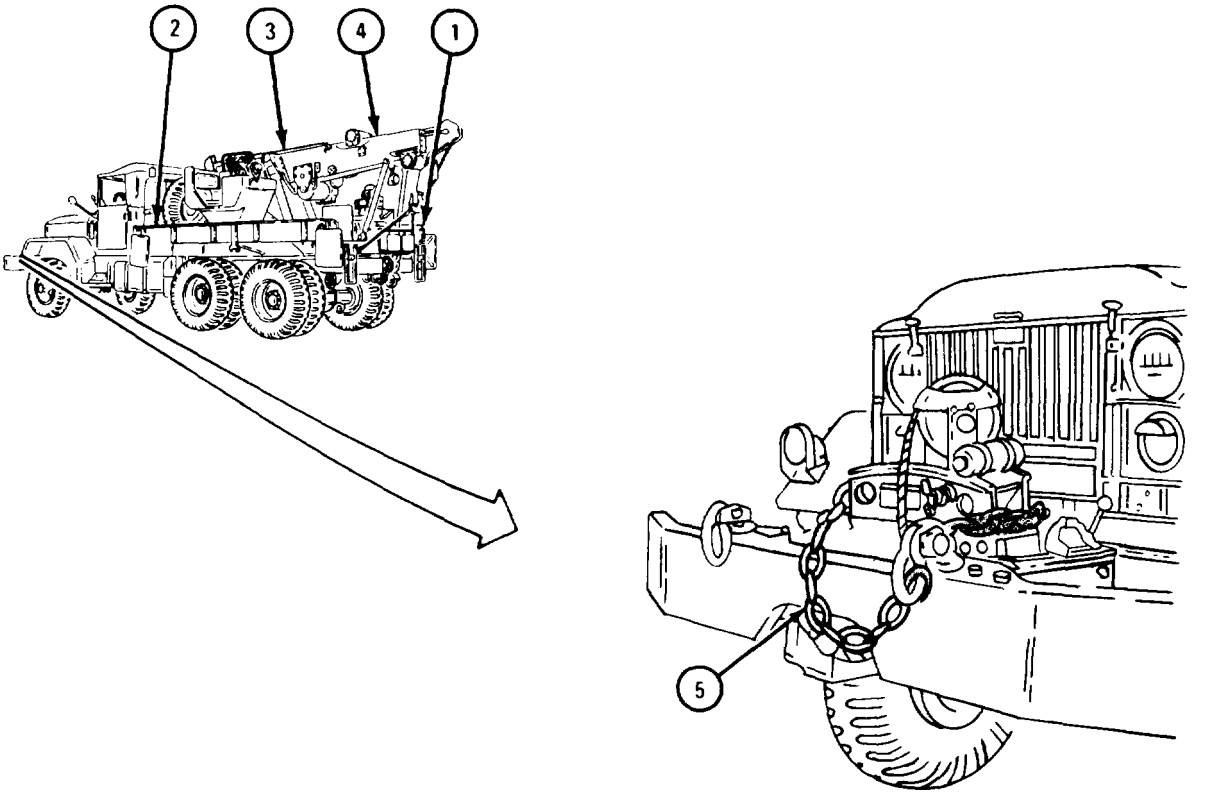
1. Twist throttle control (1) left or right a little and push it in all of the way.
2. Press clutch pedal (2) down all the way.
3. Push POWER DIVIDER control lever (3) back to DISENGAGE position.
4. Place POWER DIVIDER control lever safety lock (4) in side position to lock lever (3) .
5. Place TRANSFER CASE lever (5) in HIGH or LOW position,
6. Move FRONT TRANSMISSION gearshift lever (6) to N (neutral) position.
7. Let clutch pedal (2) up.
8. Step on service foot brake (7) , then let it up to unlock electric brake.
9. Check that handbrake (8) is in up (brake on) position.

GO TO FRAME 4



FRAME 4

1. Stow single sheeve snatch block and double sheeve snatch block in compartment 6 (l).
2. Stow utility chain on floor near spare tire (2).
3. Stow field chocks (3) on top of shipper (4). Refer to operation of front winch, para 4-7h.
4. Stow front winch chain (5). Refer to operation of front winch, para 4-7h.
5. Stow all other tools or equipment used in proper stowage Place.
6. Operation is now completed. Stop engine (refer to paragraph 4-6e).



TA 053973

4-12. M543A2 MEDIUM WRECKER CRANE OPERATION.

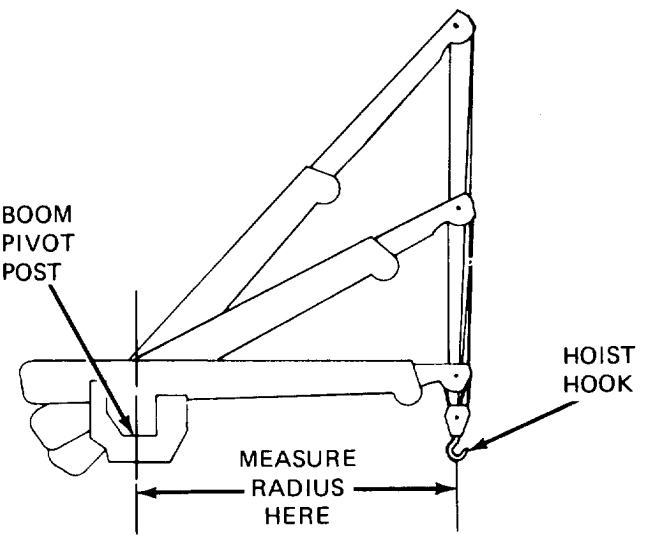
a. General. The crane of the M543A2 medium wrecker is engine driven and hydraulically operated. It is capable of 360° rotation and approximately 45° elevation. The boom is extendable from 10 to 18-feet. Maximum lifting loads are shown on the CRANE CAPACITY data chart located at the crane operator's station.

FRAME 1

NOTE

General instructions for winching, towing, and lifting are given in Vehicle Recovery Operations, FM 20-22.

Crane load capacity becomes less as the beam radius is increased as shown on the CRANE CAPACITY data plate located at the crane operator's station. Beam radius is measured as shown. The wrecker must be positioned for the type of operation required within the safe beam radius and on as firm and level ground as possible.



NOTE: SAFE LOAD RADIUS FOR OPERATING THE CRANE IS THE HORIZONTAL DISTANCE BETWEEN THE PIVOT POST CENTERLINE AND THE HOIST HOOK REGARDLESS OF THE BOOM ANGLE OR LENGTH.

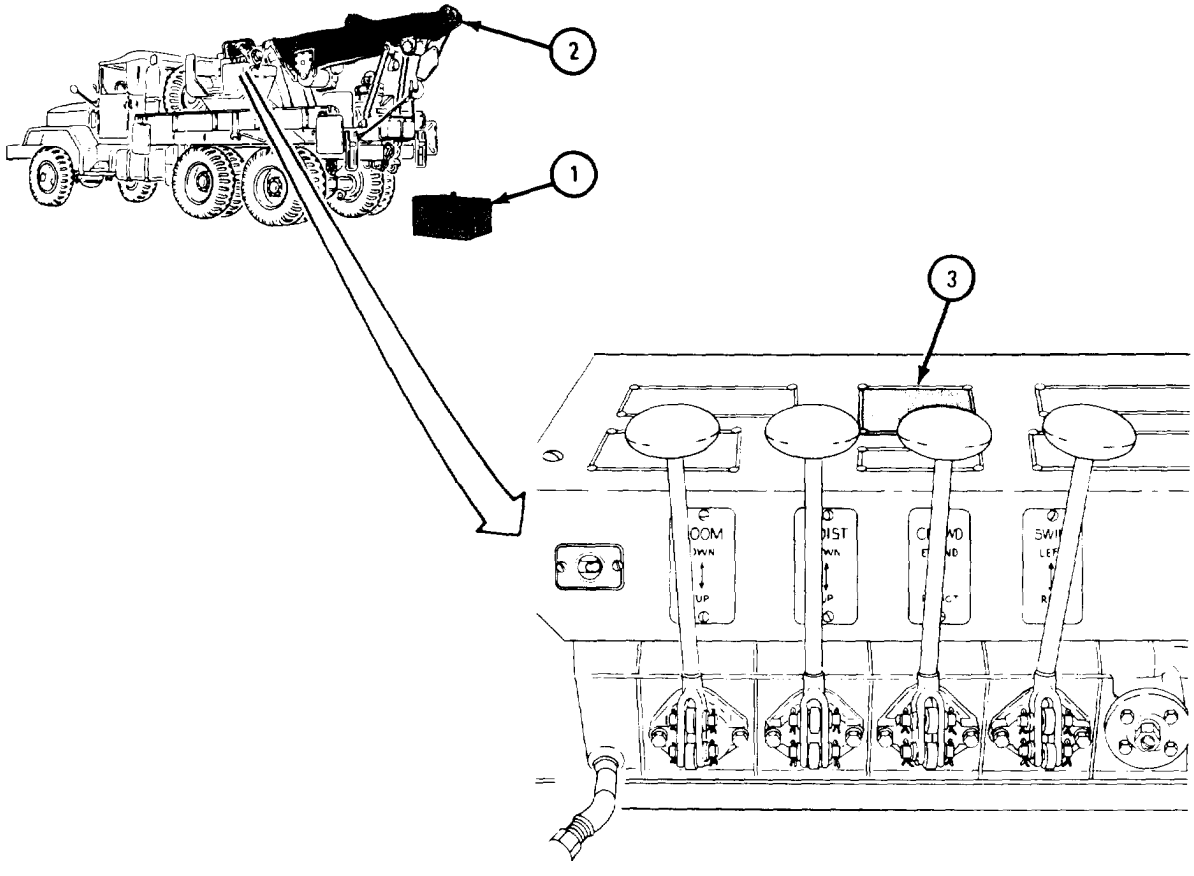
TA 053974

b. Direct Rear Lift.

FRAME 1

1. Start engine. Refer to para 4-6a, b.
2. Place wrecker so that load (1) is directly behind and in line with crane (2) and within safe beam radius shown on CRANE CAPACITY data plate (3) .

GO TO FRAME 2

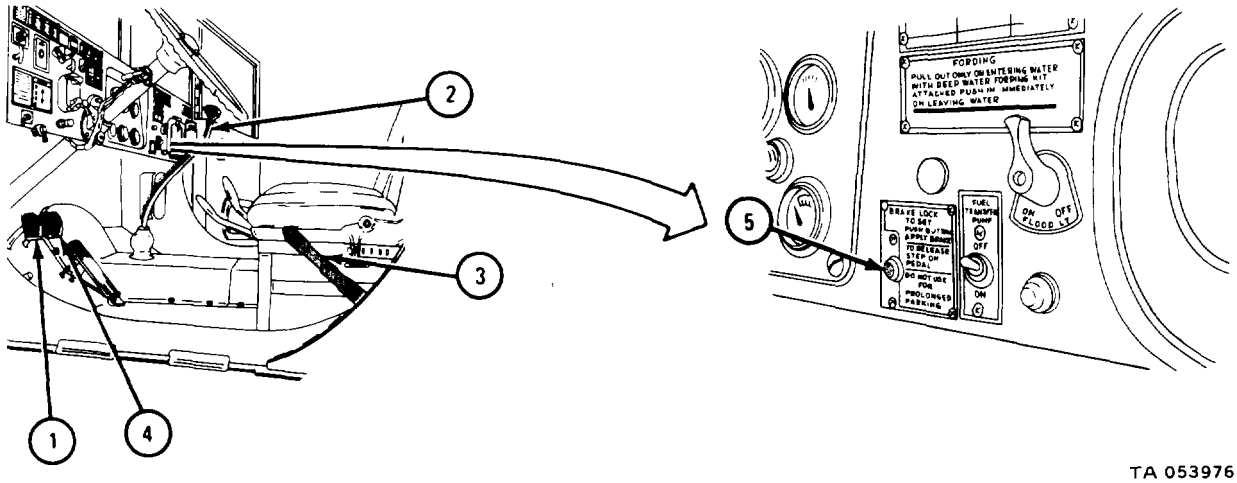


TA 053975

FRAME 2

1. Step on clutch pedal (1) and push it all the way down.
2. Place FRONT TRANSMISSION gearshift lever (2) in N position.
3. Let clutch pedal (1) up.
4. Pull handbrake (3) to up (brake on) position.
5. Set electric brake:
   (a) Press down on service foot brake (4).
   (b) Press electric BRAKE LOCK button (5).
   (c) Let up on service foot brake (4).
   (d) Let up on electric BRAKE LOCK button (5).

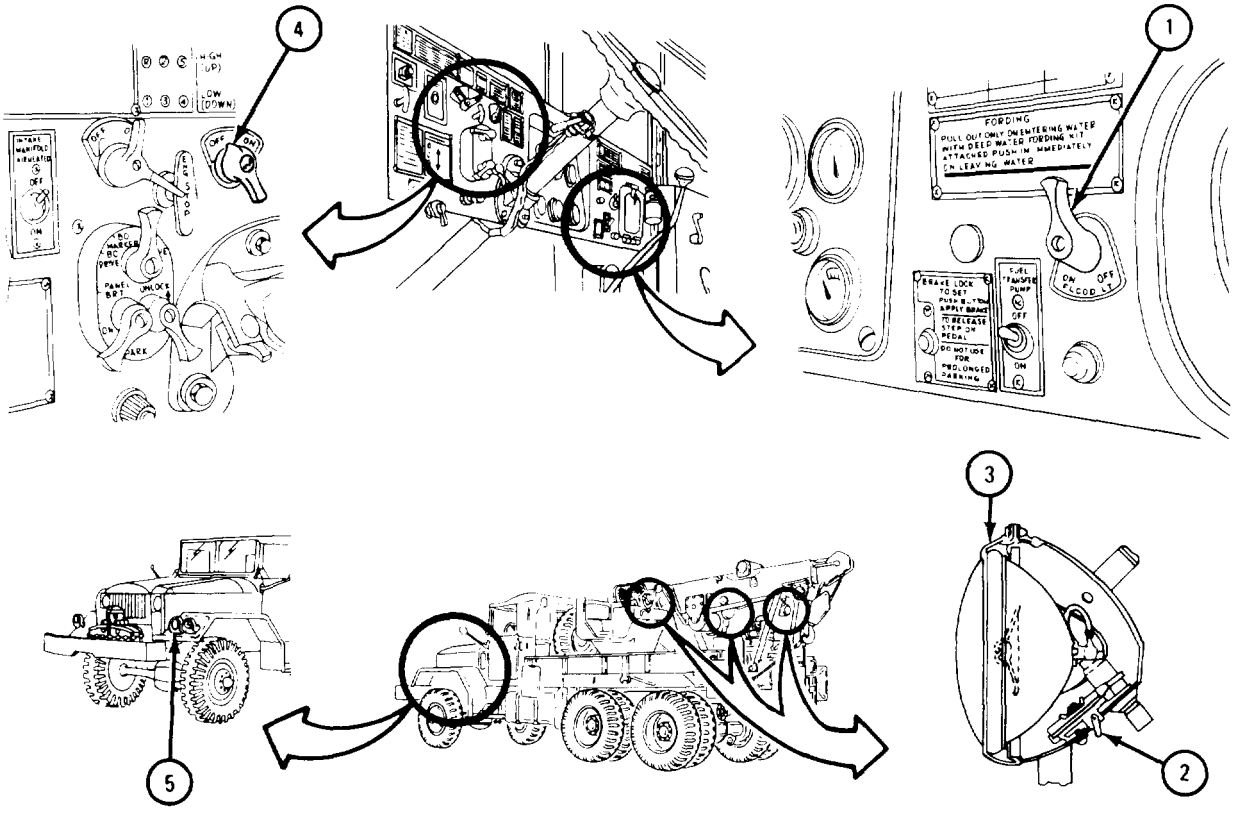
GO TO FRAME 3



TA 053976

1. If floodlights are needed:
   (a) Turn FLOOD LT master control switch (1) to ON position.
   (b) Push switch (2) on floodlights (3) to on position.
2. Turn WARNING light switch (4) to ON position to light warning signal lamp (5) on left front fender.

GO TO FRAME 4



TA 053977

RAME 4

Positioning outriggers for heavy rear lift:

(a) Take pin (1) from end of L-shaped retaining pin (2).

(b) Take L-shaped retaining pin (2) out of outrigger frame tube (3) .

(c) Pull outrigger (4) out until it hits stop (5).

(d) Turn outrigger (4) toward the ground.

(e) Aline holes in outrigger (4) and frame tube (3).

(f) Put L-shaped retaining pin (2) through holes.

(g) Place pin (1) through hole in end of pin (2) and close pin.

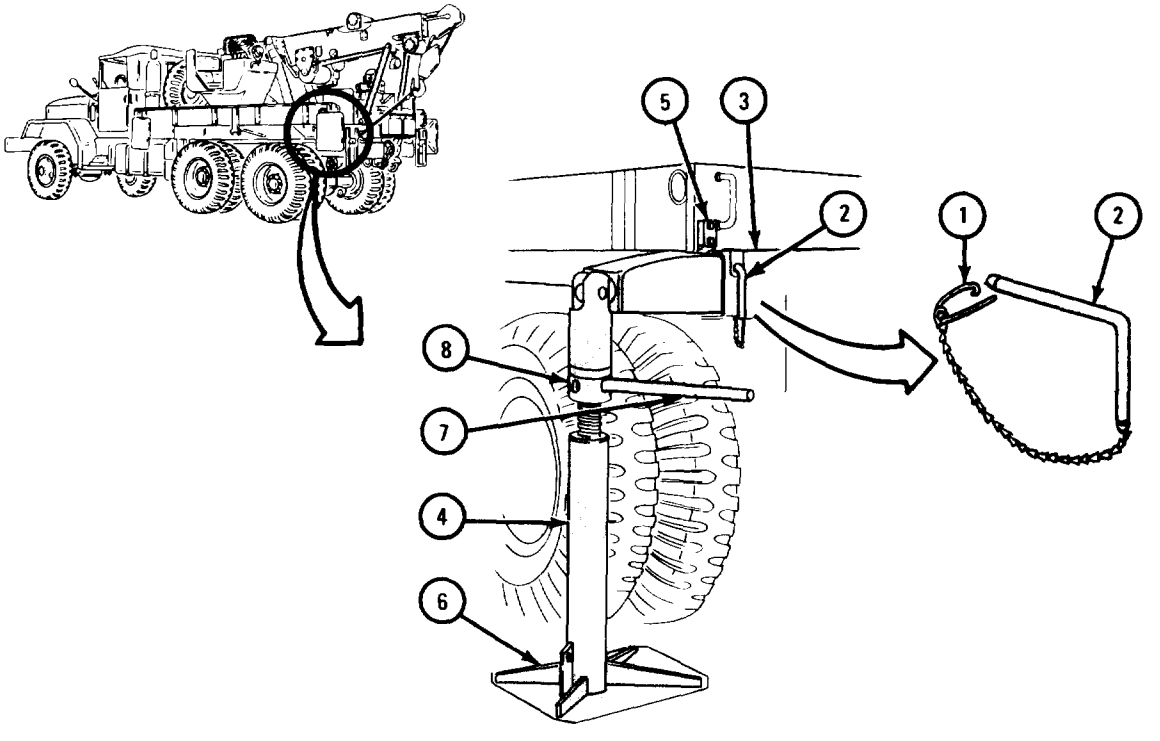
(h) Turn base (6) until it reaches the ground.

(i) Put jack adjusting bar (7) in hole in adjusting screw (8).

(j) Turn bar (7) until there is a little pressure between base (6) and ground.

(k) Do steps (a) through (j) again for three other outriggers.

GO TO FRAME 5

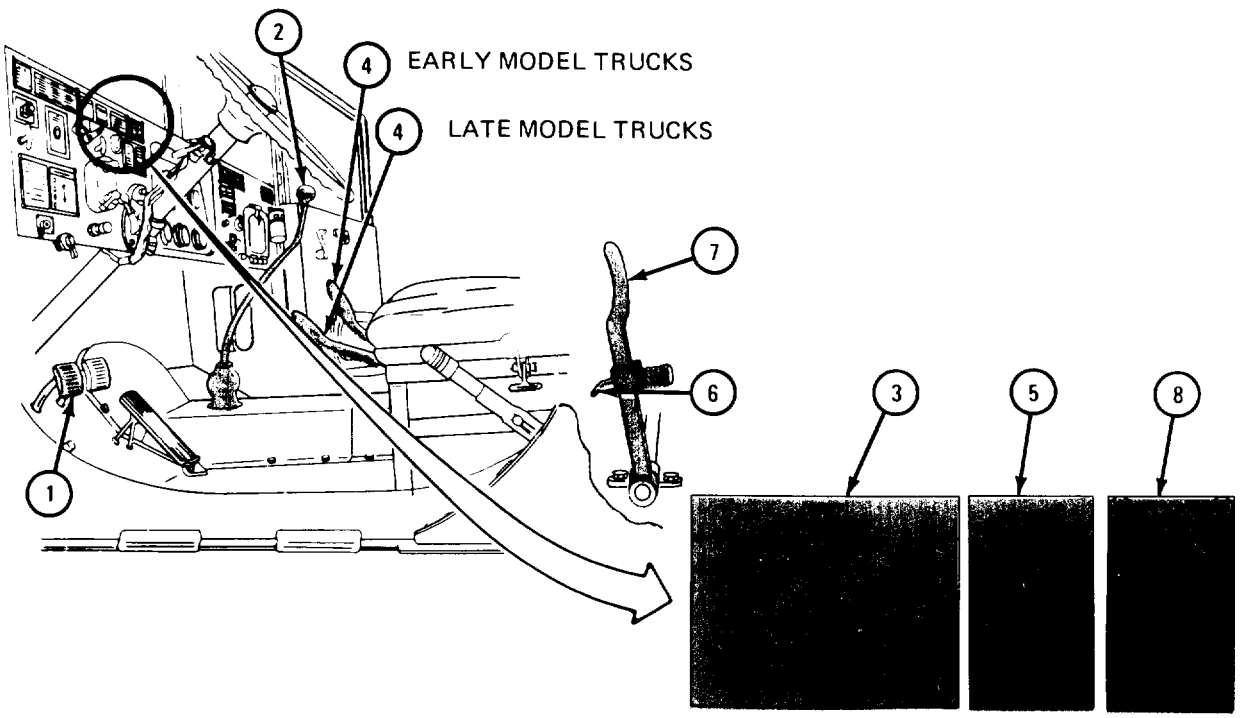


TA 053978

FRAME 5

1. Press clutch pedal (1) all the way down.
2. Place FRONT TRANSMISSION gearshift lever (2) in 4 position. Positions are shown on data plate (3) .
3. Place TRANSFER CASE lever (4) in neutral position, half way between HIGH and LOW shown on data plate (5) .
4. Turn POWER DIVIDER control lever safety lock (6) up.
5. Move POWER DIVIDER control lever (7) forward to ENGAGE position shown on data plate (8) .
6. Let clutch pedal (1) up.

GO TO FRAME 6



FRAME 6

1. At rear of wrecker, check that CLUTCH CONTROL lever (1) is in DISENGAGE position shown on data plate (2).
2. Pull lock pin (3) from CRANE DRIVE hydraulic pump control lever (4) .
3. Move CRANE DRIVE hydraulic pump control lever (4) to ENGAGE position shown on data plate (5) .
4. Move CLUTCH CONTROL lever (1) to ENGAGE position.
5. Pull hand THROTTLE control lever (6) toward operator to full open position. No-load engine speed must be 1600 plus or minus 50 rpm shown on tachometer (7) .

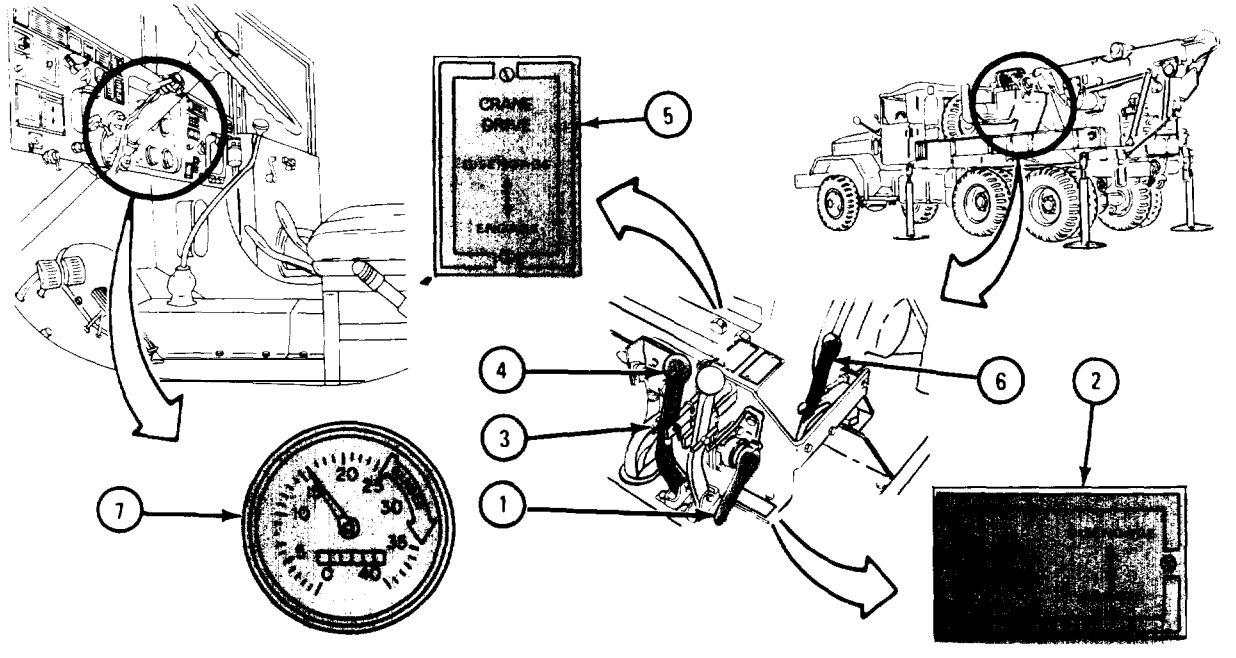
NOTE

Engine governor will govern engine rpm at various loads to crane.

When smoother operation is required for handling loads weighing 8000 pounds or less, use a three-part line (refer to para 4-11e , frame 2) and adjust hand THROTTLE control lever to give an engine speed of 1250 rpm.

Do not attempt to operate crane at low engine idle speeds because hydraulic pump will not give enough pressure for proper crane operation.

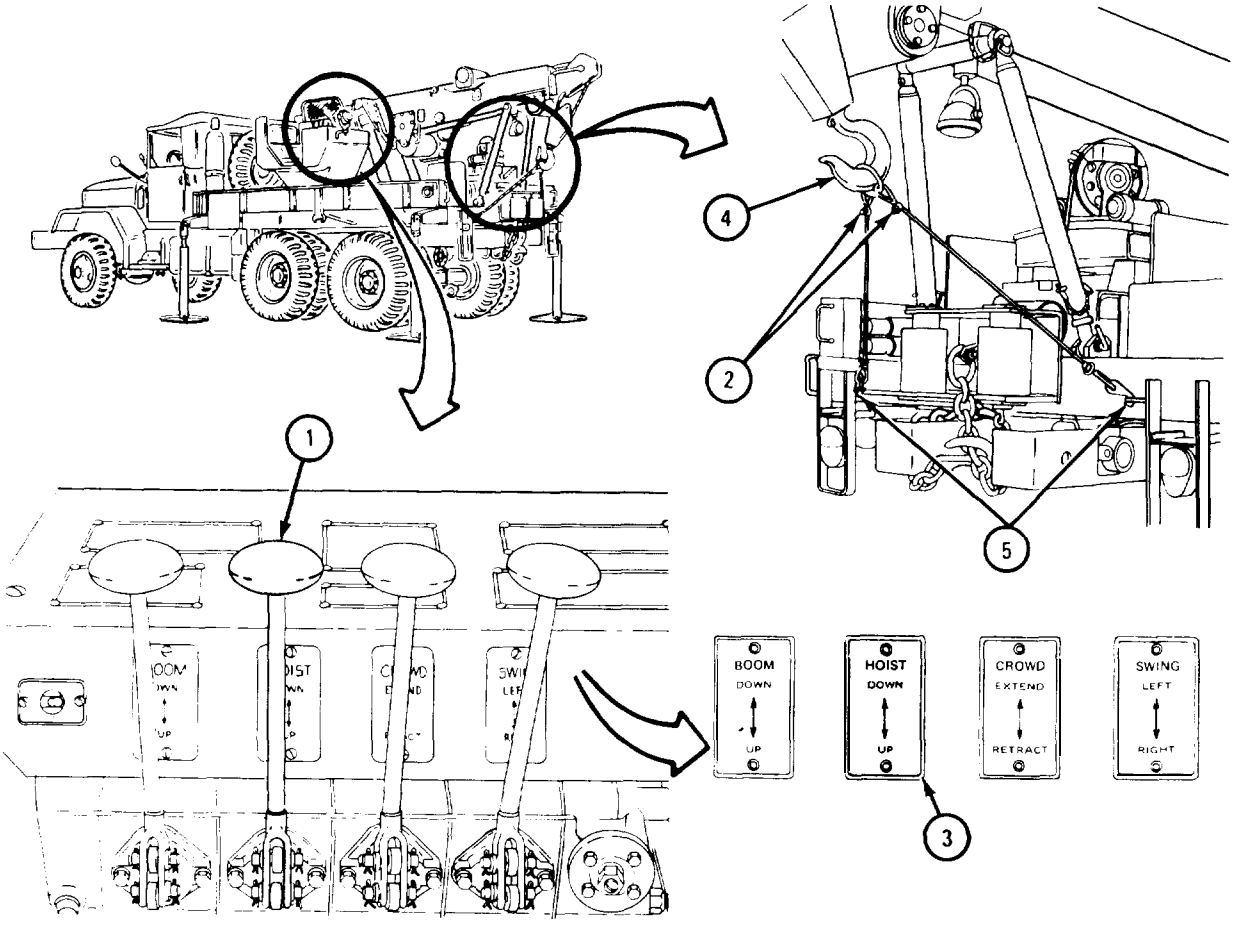
GO TO FRAME 7



FRAME 7

1. Push HOIST control lever (1) away from operator a little to loosen lifting sling (2). Let lever come back to neutral. Refer to data plate (3).
2. Take lifting sling (2) off of cable hook (4) and outrigger frame tube eyes (5).

GO TO FRAME 6

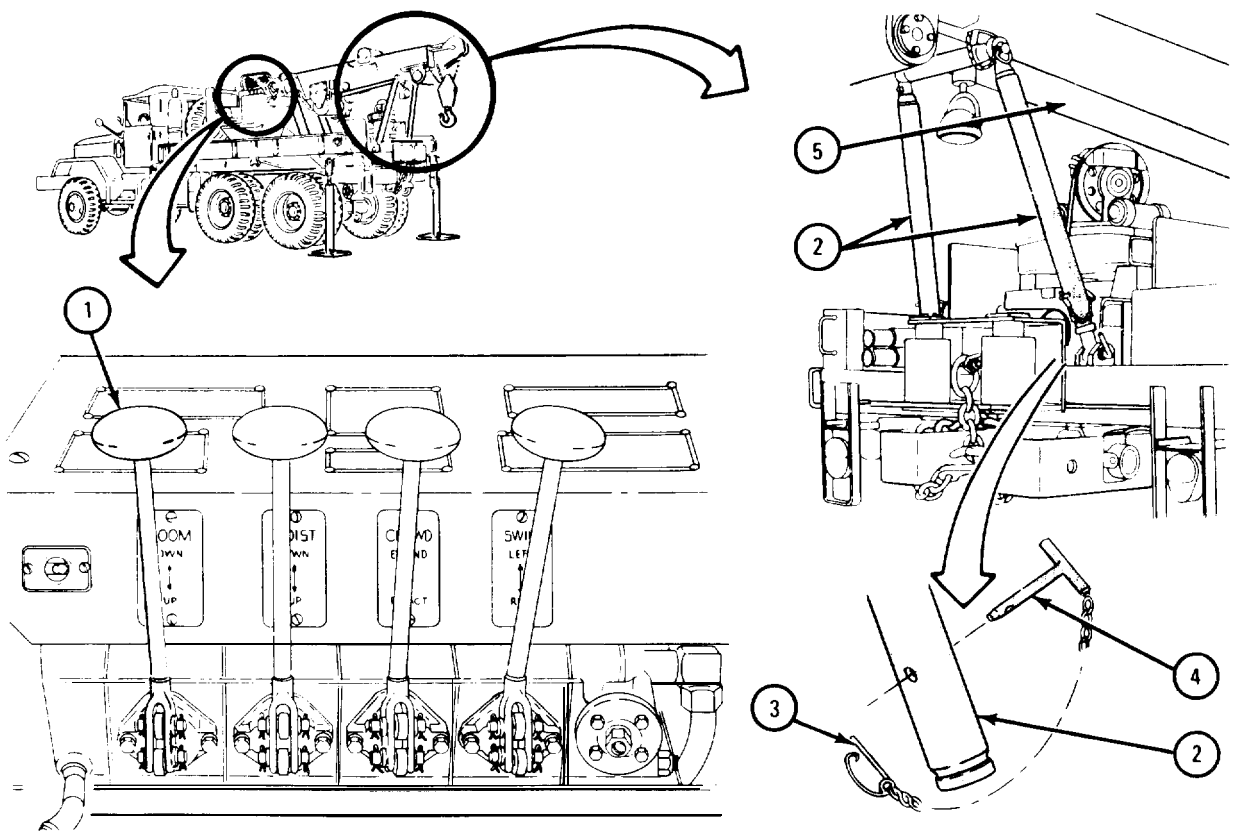


TA 053981

FRAME 8

1. Pull BOOM control lever (1) toward operator a little to take load off shipper braces (2) .
2. Unlock pin (3) and pull it from hole in T-pin (4).
3. Pull T-pin (4) from telescoping shipper braces (2).
4. Pull BOOM control lever (1) toward operator until boom (5) reaches height needed.
5. Aline holes in telescoping shipper braces (2) and push T-pins (4) through holes.
6. Push pin (3) through hole in end of T-pin (4) and lock pin (3).
7. Push BOOM control lever (1) away from operator a little to slightly lower boom (5) to put boom load on shipper braces (2).

GO TO FRAME 9



FRAME 9

WARNING

During crane operation, tell all personnel to stand clear of crane or load. A strapped cable, or shifting or swinging load can cause serious injury.

Never go above the crane safe load limits.

NOTE

Do not let hoist cable unwind after hook has reached load or ground or cable coils on hoist drum will loosen.

1. To lift load:

   (a) Push HOIST control lever (1) away from operator until hook (2) is moved down to load (3) .

   (b) Secure hook (2) to load (3).

CAUTION

B e careful not to jam hoist block (4) against boom sheaves (5) ,

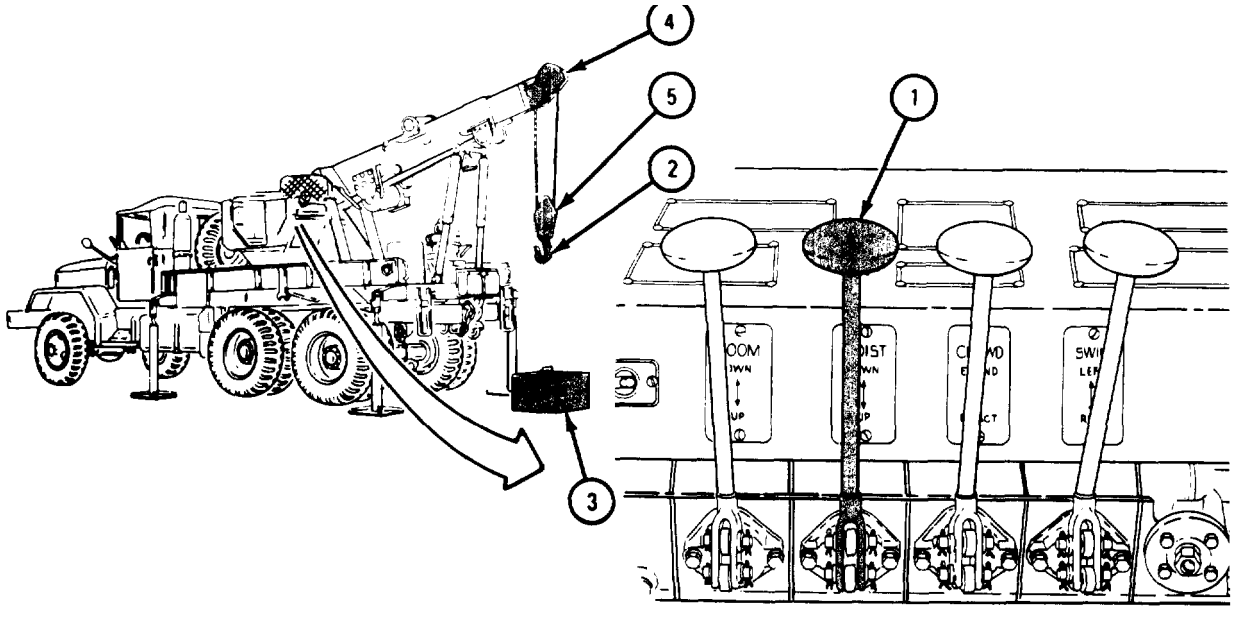
   (c) Pull HOIST control lever (1) toward operator to lift load (3).

2. To lower load:

   (a) Push HOIST control lever (1) away from operator to move load down lower load (3) to the resting place.

   (b) Block load (3) as needed to keep it from tipping or shifting.

   (c) Take hoist hook (2) from load (3).



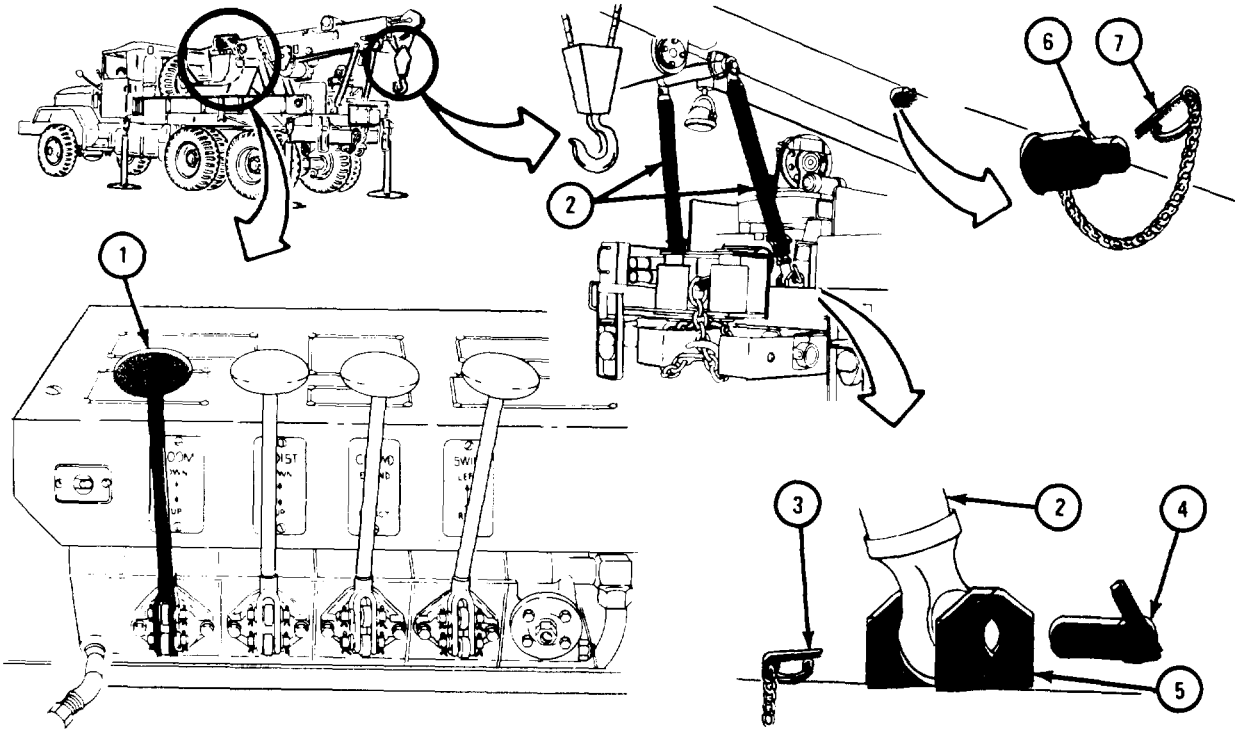
TA 053983

c. Lifting and Swinging.

FRAME 1

1. Do para 4-12b, frames 1 through 7.
2. Pull BOOM control lever (1) toward operator a little to take load off shipper braces (2) .
3. Pull pins (3) from L-shaped pins (4) on right and left sides.
4. Pull L-shaped pins (4) out of shipper brace brackets (5).
5. Swing shipper braces (2) and place them on shipper brace retainer brackets (6) .
6. Push pins (7) through hole in retainer bracket (6).
7. Push L-shaped pins (4) in holes in shipper brace bracket (5).
8. Push pins (3) through holes in end of L-shaped pins (4).

GO TO FRAME 2



TA053984

FRAME 2

CAUTION

Do not move boom up or down with load lifted. Always put load down with hoist if boom angle is to be changed or boom hydraulic cylinder can become damaged.

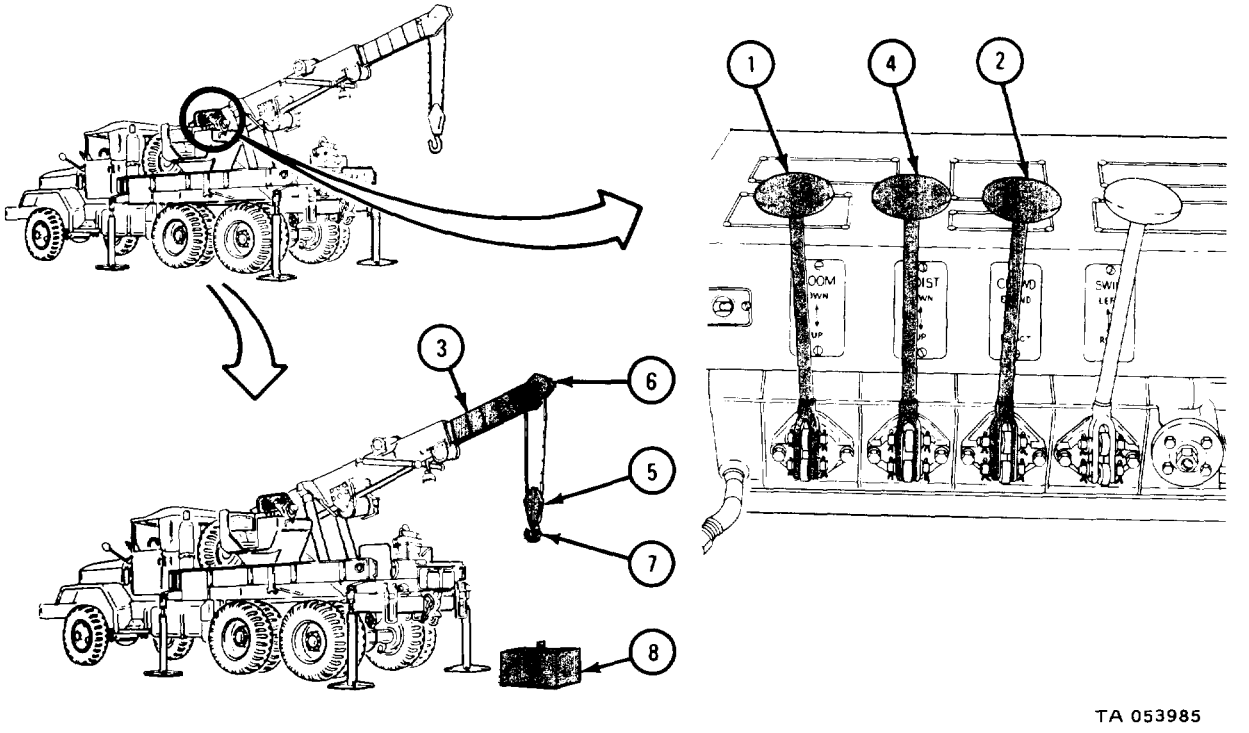
1. Push BOOM control lever (1) toward operator to raise boom to elevation needed.

CAUTION

When operating the CROWD control lever, be careful that hoist block does not jam into the boom sheaves. To stop a jam, move hoist block down when extending boom.

2. Push CROWD control lever (2) away from operator to extend boom (3) to position needed. At same time, push HOIST control lever (4) away from operator to keep hoist block (5) at same distance from boom sheaves (6) .
3. Push HOIST control lever (4) away from operator to move lower hoist hook (7) down to load (8).

GO TO FRAME 3



TA 053985

FRAME 3

1. To lift load:

   (a) Join hook (1) to load (2).

   (b) Pull HOIST control lever (3) toward operator to lift load.

   (c) Move SWING control lever (4) away or toward operator to swing crane left or right as needed.

   (d) Move HOIST control lever (3) and CROWD control lever (5) as needed to position load.

NOTE

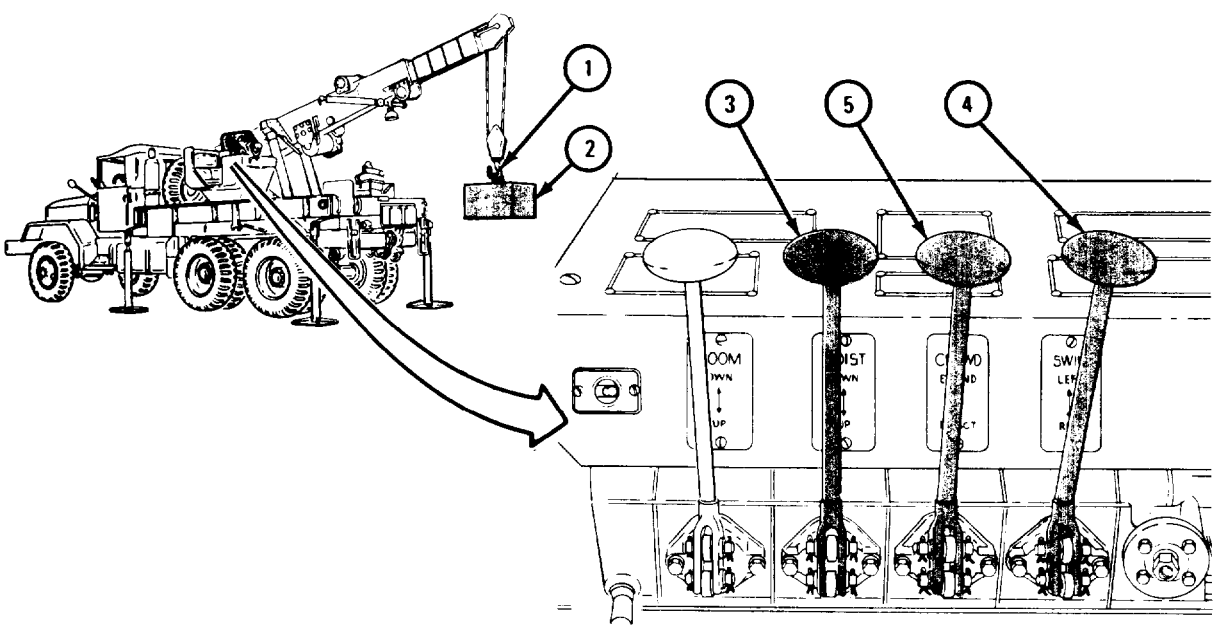
Boom elevation may change due to oil leakage in the hydraulic system. If the boom settlement (rate of descent) with a 10,000 pound load at 10-foot beam radius and oil temperature at 100°F, is more than 3 inches in 6 minutes, tell organizational maintenance.

2. To move load down:

   (a) Push HOIST control lever (3) away from operator to move load (2) down to its resting place.

   (b) Block load (2) as needed to keep it from tipping or shifting.

   (c) Take hoist hook (1) from load (2).



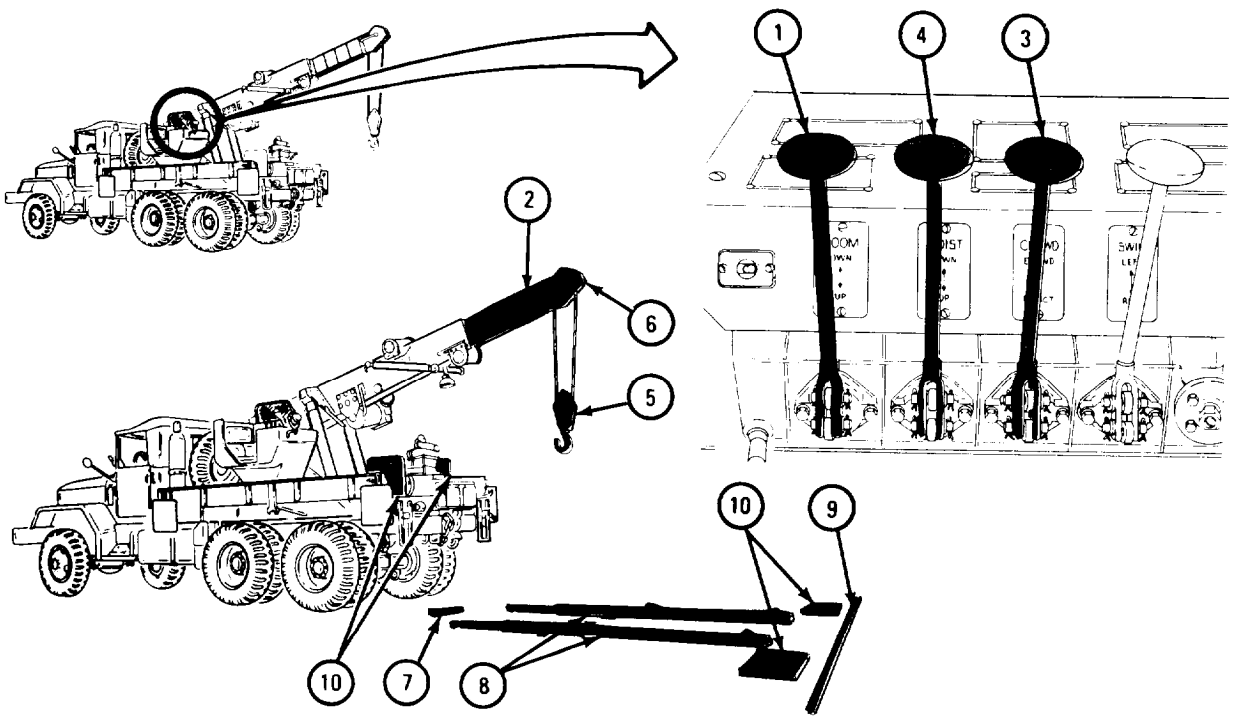
TA 053986

d. Heavy Rear Lift with Boom Jacks.

FRAME 1

1. Do para 4-12b, frames 1, 2, 3, 5, 6, and 7, Do not do frame 4 since outriggers are not needed.
2. Move BOOM control lever (1) away from operator and bring boom (2) down to lowest position.
3. Move CROWD control lever (3) away from operator to extend boom (2) so that 15-foot marker shows. Move HOIST control lever (4) at same time so that hoist block (5) does not jam against boom sheaves (6).
4. Take inner jack pin (7) from number 7 left rear storage compartment.
5. Take boom jacks (8) and tie bar (9) from stowed position along left side of wrecker body.
6. Put boom jacks (8) on ground under boom (2) in line with the boom and with base plate ends away from truck.
7. Take boom jack base plates (10) from locating pins at each side of rear winch.

GO TO FRAME 2

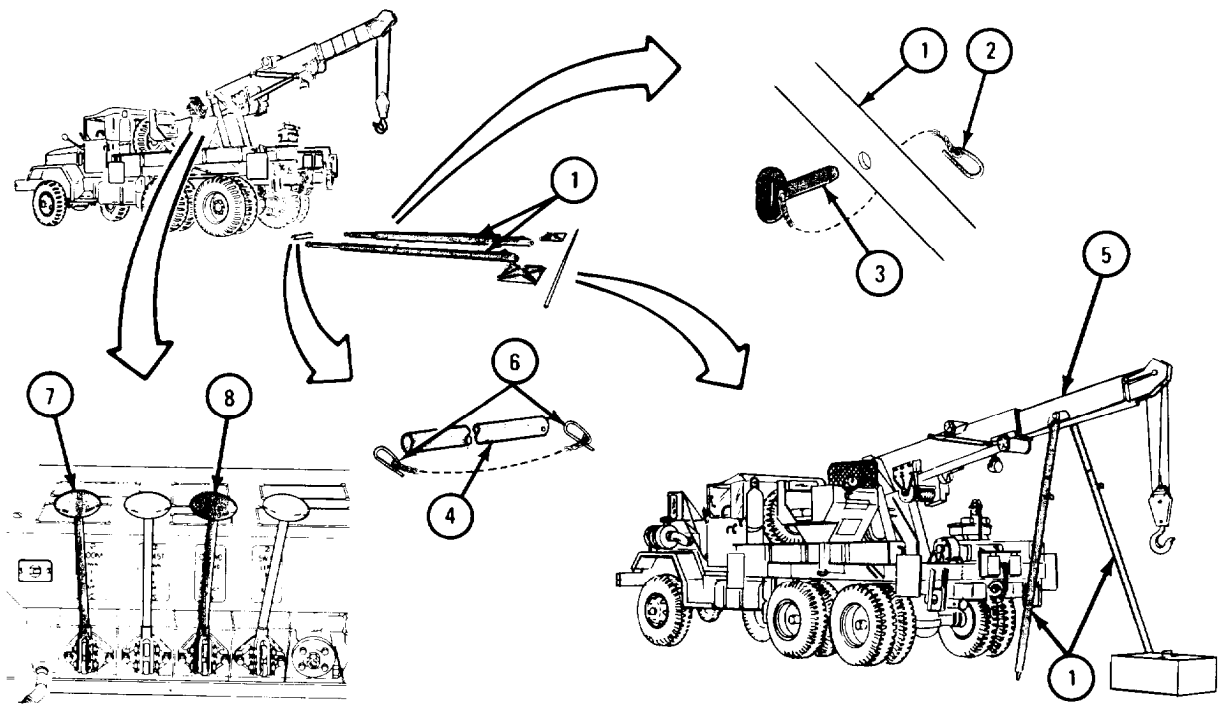


TA 053987

FRAME 2

1. Change length of telescoping boom jacks (1) to length needed:
   (a) Take pins (2) from T-shaped pins (3).
   (b) Pull T-shaped pins (3) out.
   (c) Move inner section of boom jacks (1) to change overall length to that needed.
   (d) Aline holes in two sections of boom jacks (1).
   (e) Put T-pins (3) through holes.
   (f) Put pins (2) through holes in end of T-pins (3).
2. Put inner jack pin (4) through hole in boom (5) near 12-foot mark.
3. Put upper ends of boom jacks (1) over inner jack pin (4).
4. Place pins (6) through holes in inner jack pin (4).
5. Push BOOM control lever (7) away from operator to raise boom (5) to height needed.
6. Change boom jack (1) length if needed. Refer to steps (a) through (f) above.
7. Push CROWD control lever (8) away from operator to draw boom (5) out if needed.

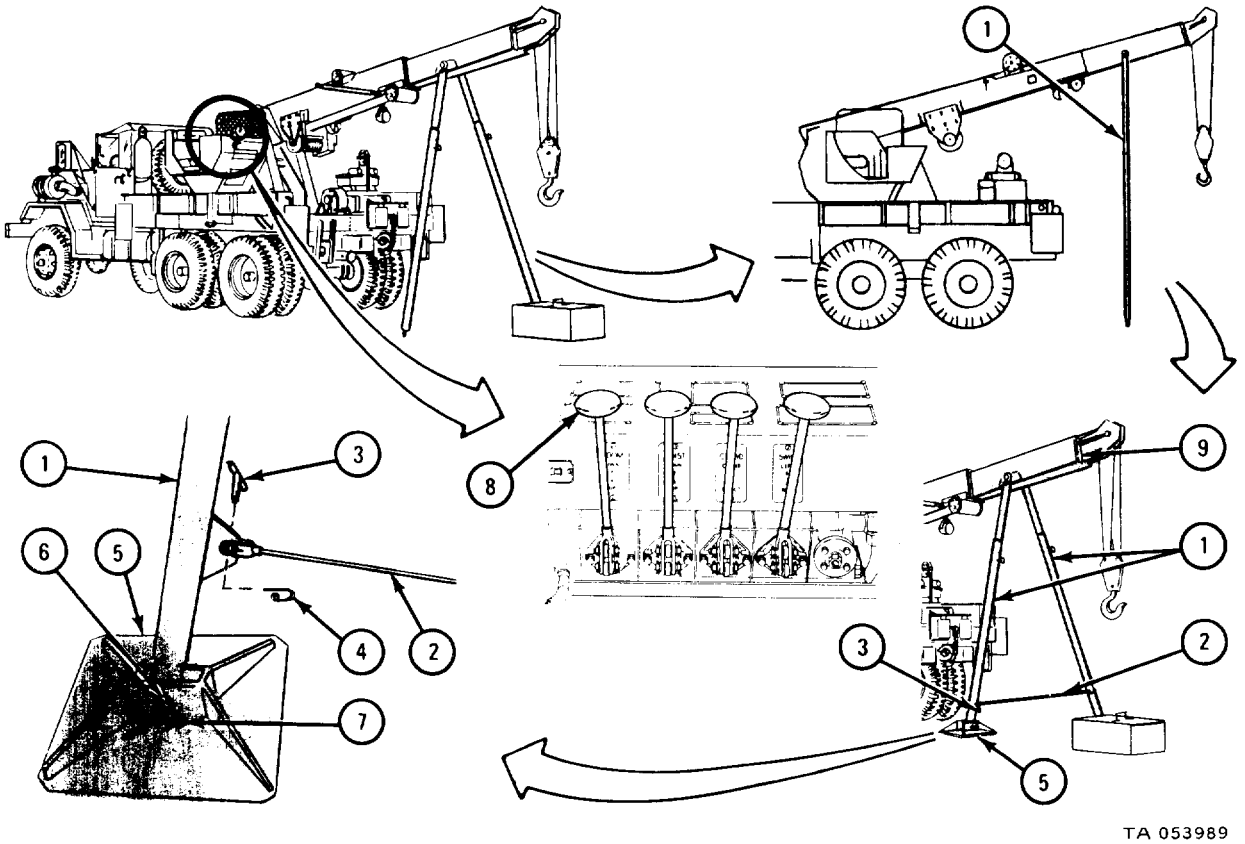
GO TO FRAME 3



FRAME 3

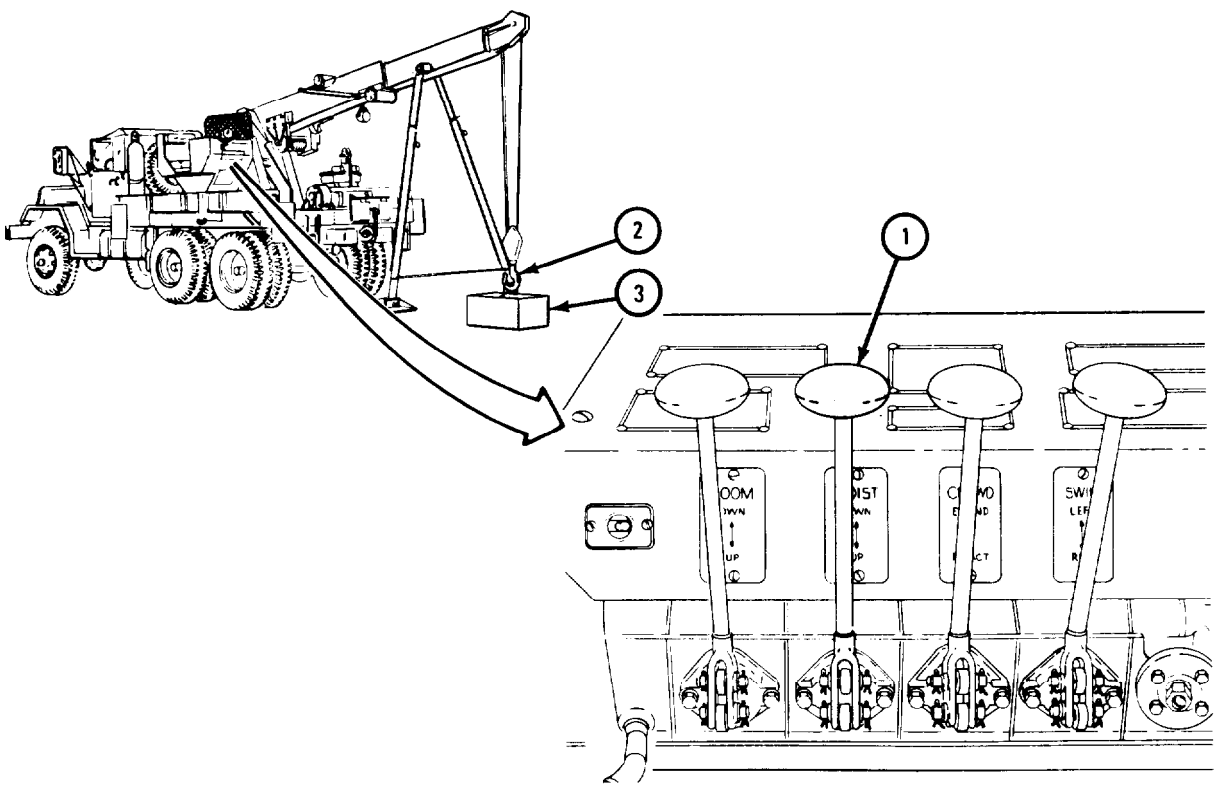
1. Place boom jacks (1) at right angles to ground.
2. Place tie bar (2) between boom jacks (1) and aline holes.
3. Place tie bar pins (3) through holes and make fast with pins (4).
4. Place boom jack base plates (5) on ends of boom jacks (1) and aline holes.
5. Put boom jack pins (6) through holes and make fast with pins (7).
6. Push BOOM control lever (8) away from operator to lower boom (9) slightly to put boom load on boom jacks (1).

GO TO FRAME 4



FRAME 4

1. To lift load:
   (a) Push HOIST control lever (1) away from operator to move hook (2) down to load (3).
   (b) Join hook (2) to load (3).
   (c) Pull HOIST control lever (1) toward operator to lift load (3).
2. To move load down:
   (a) Push HOIST control lever (1) away from operator to move load (3) down to the resting place.
   (b) Block load (3) as needed to keep it from tipping or shifting.
   (c) Take hook (2) from load (3).

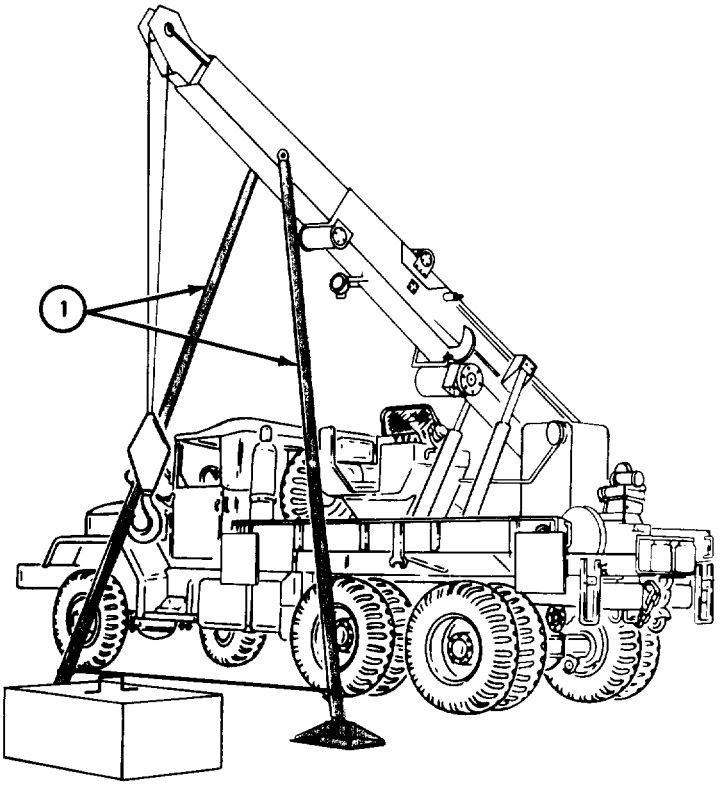


TA 053990

e. Side Lift with Boom Jacks.

FRAME 1

Operations for heavy side lifts are same as for heavy rear lifts except that boom jacks (1) are placed on right or left side of wrecker. Refer to heavy rear lift with boom jacks, para 4-12d, frames 1 through 4.



TA 053991

f. Rigging Crane Lines.

FRAME 1

1. To rig two-part line:

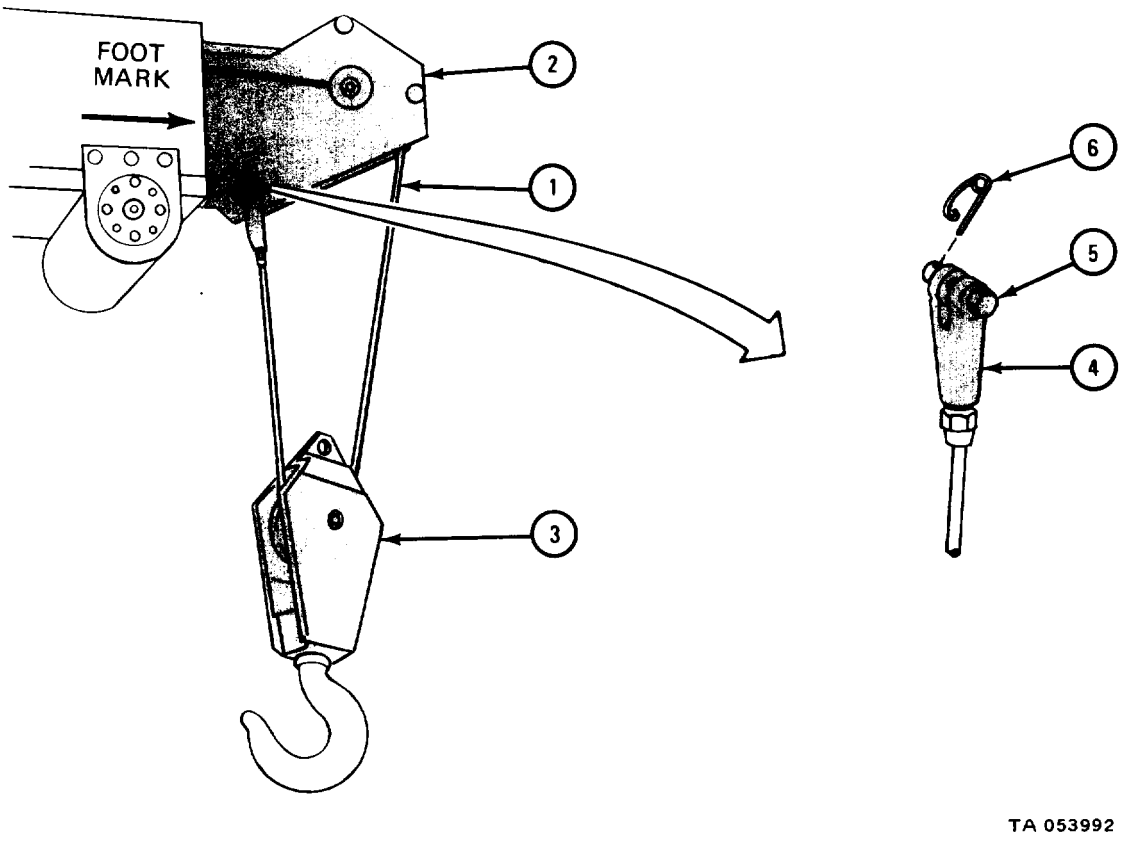
(a) Place crane hoist cable (1) over one boom sheave and down through boom (2) end.

(b) Put crane hoist cable around block sheave (3).

(c) Aline holes in clevis (4) and boom (2) and place anchor pin (5) through holes.

(d) Put pin (6) through hole in anchor pin (5) and close pin.

GO TO FRAME 2



FRAME 2

1. To rig three-part line:

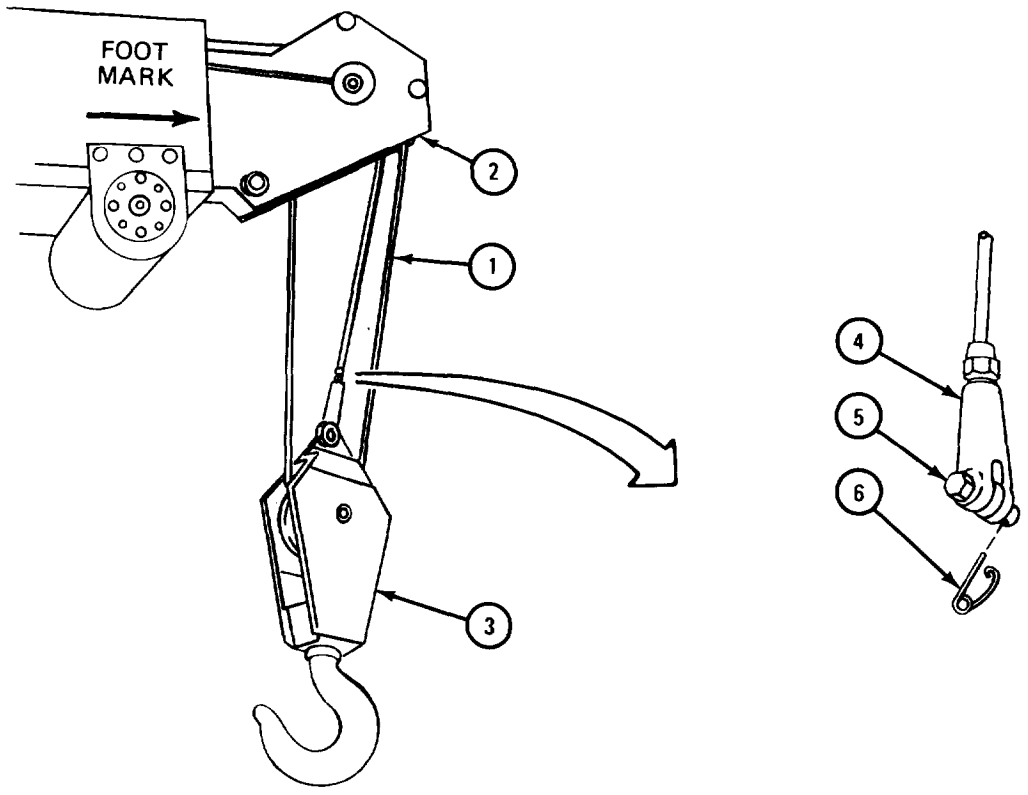
   (a) Place crane hoist cable (1) over one boom sheave and down through boom (2) end.

   (b) Place crane hoist cable around block sheave (3).

   (c) Put cable (1) up over second boom sheave and down through boom (2) end.

   (d) Aline holes in clevis (4) and block sheave (3) and place anchor pin (5) through holes.

   (e) Put pin (6) through hole in anchor pin (5) and close pin.



TA 053993

g. Making Fast for Travel - Rear Lift.

FRAME 1

1. To lower shipper braces:

(a) Move BOOM control lever (1) slightly toward operator to take load off shipper braces (2).

(b) Pull pins (3) from T-pins (4).

(c) Pull T-pins (4) out of shipper braces (2).

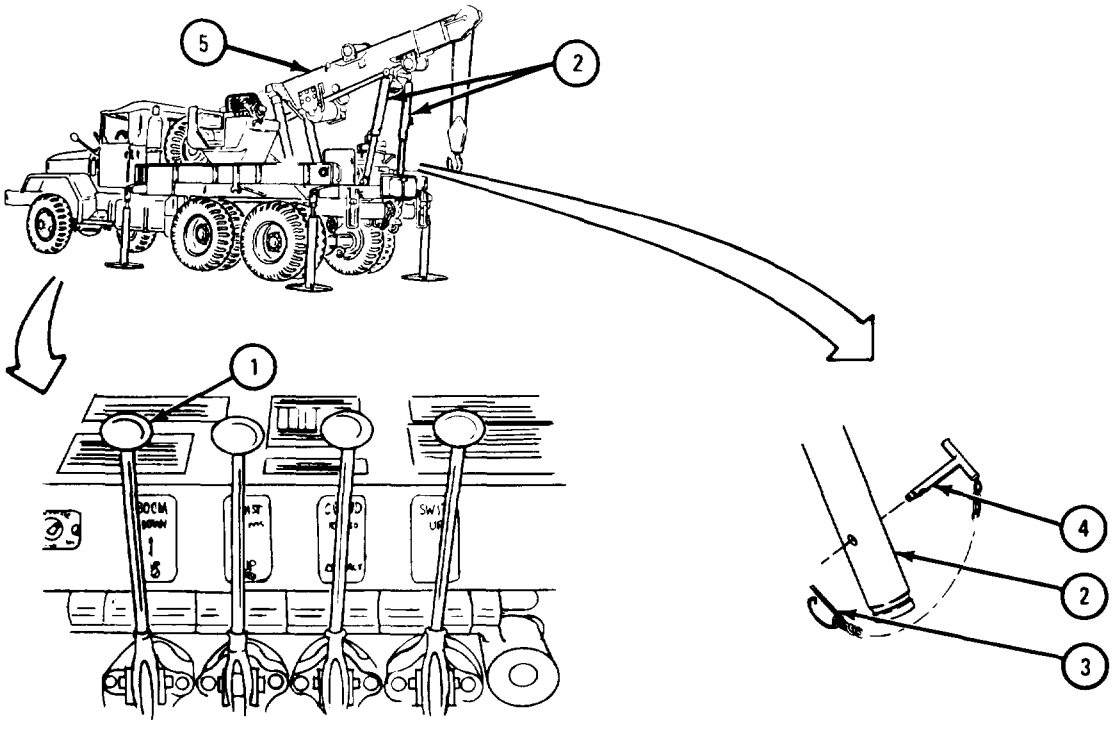
(d) Move BOOM control lever (1) away from operator and lower boom (5) all the way.

(e) Move BOOM control lever (1) slightly toward operator a little to aline holes in shipper braces (2).

(f) Put T-pins (4) through holes.

(g) Put pins (3) through holes in T-Pins (4) and lock pins.

GO TO FRAME 2



TA 053994

FRAME 2

1. To make outriggers fast:

   (a) Put jack adjusting bar (1) in hole in adjusting screw (2).

   (b) Turn adjusting screw (2) with bar (1) until base (3) does not touch ground.

   (c) Turn base (3) by hand as far as it will go to raise it further off the ground.

   (d) Unlock pin (4) and take it from the end of L-shaped retaining pin (5).

   (e) Pull out L-shaped retaining pin (5).

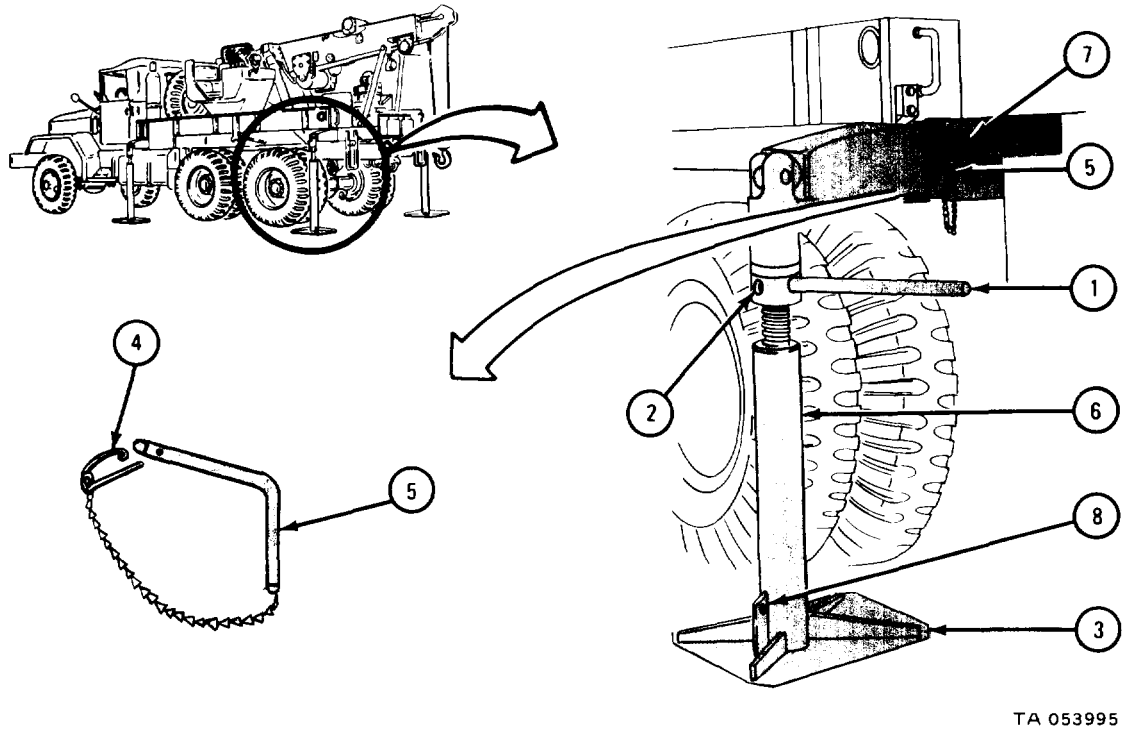
   (f) Lift outrigger (6) up to level position and push it into outrigger frame tube (7).

   (g) Aline holes in outrigger frame tube (7) and hole (8) in base of outrigger (6).

   (h) Push L-shaped retaining pin (5) through holes.

   (i) Push pin (4) through hole in end of L-shaped retaining pin (5) and lock it.

GO TO FRAME 3



TA 053995

FRAME 3

1. To make block sheave and hook fast:

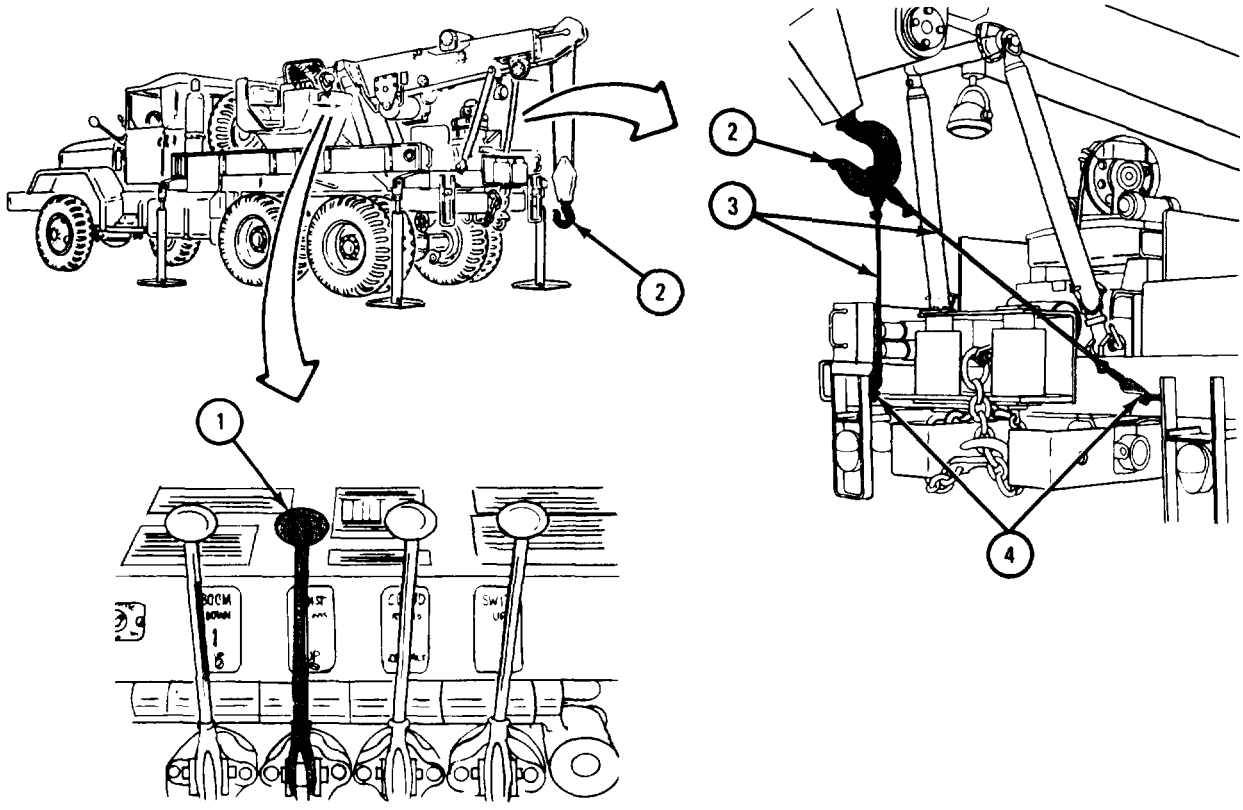
   (a) Pull HOIST control lever (1) toward operator to raise cable hook (2) until it is about arm level.

   (b) Place ring of lifting sling (3) on hook (2).

   (c) Place hooks of lifting sling (3) in outrigger frame tube eyes (4).

   (d) Push HOIST control lever (1) away from operator until lifting sling (3) holds hook (2) securely.

GO TO FRAME 4

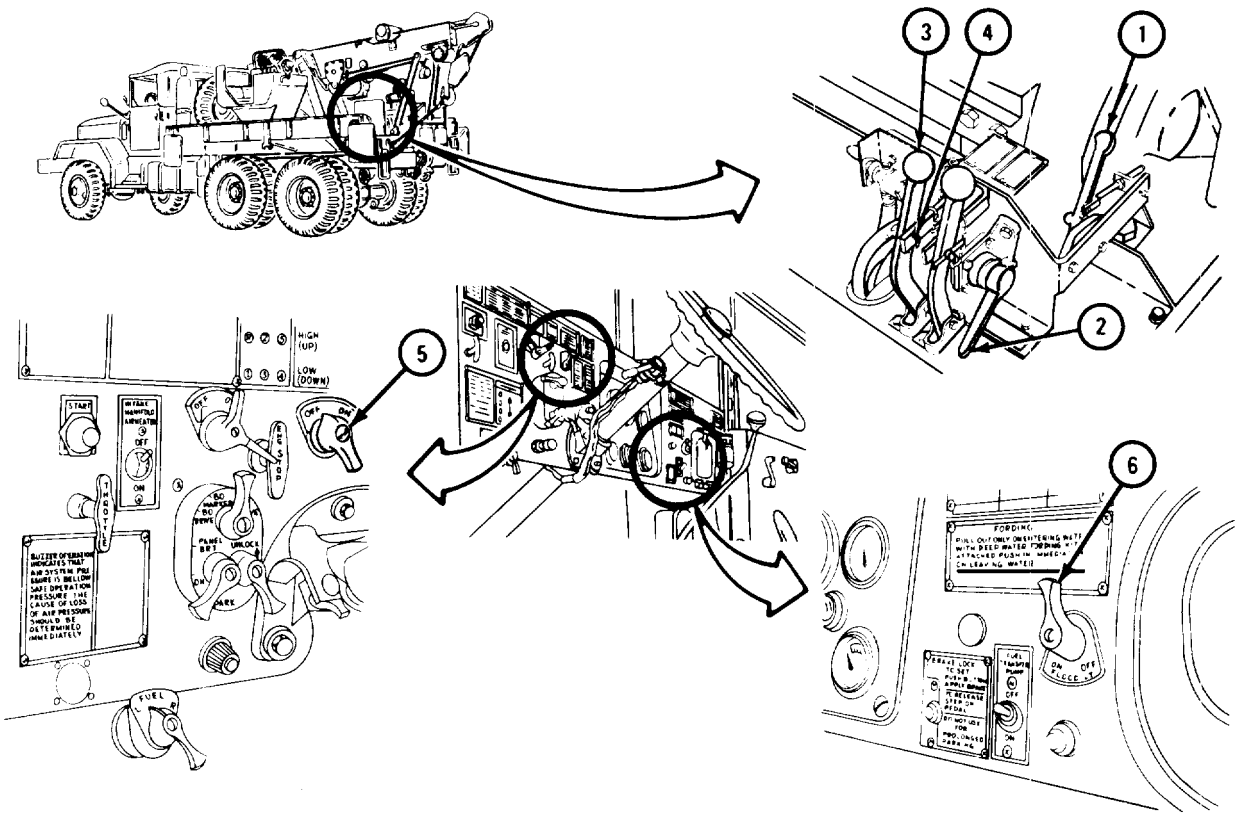


TA 053996

FRAME 4

1. Move hand THROTTLE control lever (1) to closed position.
2. Move CLUTCH CONTROL lever (2) to DISENGAGE position.
3. Move CRANE DRIVE hydraulic pump control lever (3) to DISENGAGE position and lock it with pin (4).
4. Turn WARNING light switch (5) to OFF position.
5. Turn FLOOD LT master control switch (6) to OFF position.

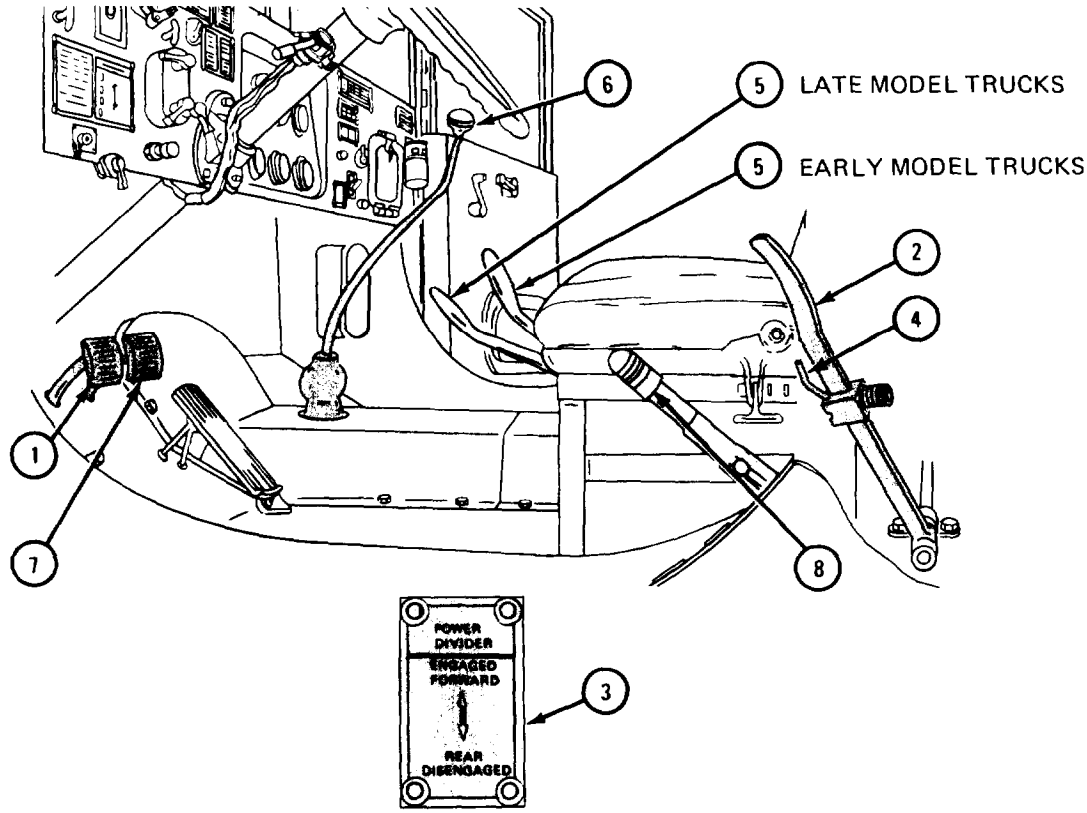
GO TO FRAME 5



TA 053997

FRAME 5

1. Press clutch pedal (1) all the way down.
2. Move POWER DIVIDER control lever (2) toward the rear to DISENGAGE position shown on data plate (3).
3. Move safety lock (4) toward left side to lock POWER DIVIDER control lever (2) in DISENGAGE position.
4. Move TRANSFER CASE lever (5) to HIGH or LOW position.
5. Move FRONT TRANSMISSION gearshift lever (6) to N position.
6. Let clutch pedal (1) up.
7. Step on service foot brake (7) and then let it up to unlock electric brake.
8. Pull handbrake (8) up to on position.
9. Operation is now completed. Stop engine, refer to para 4-6e.

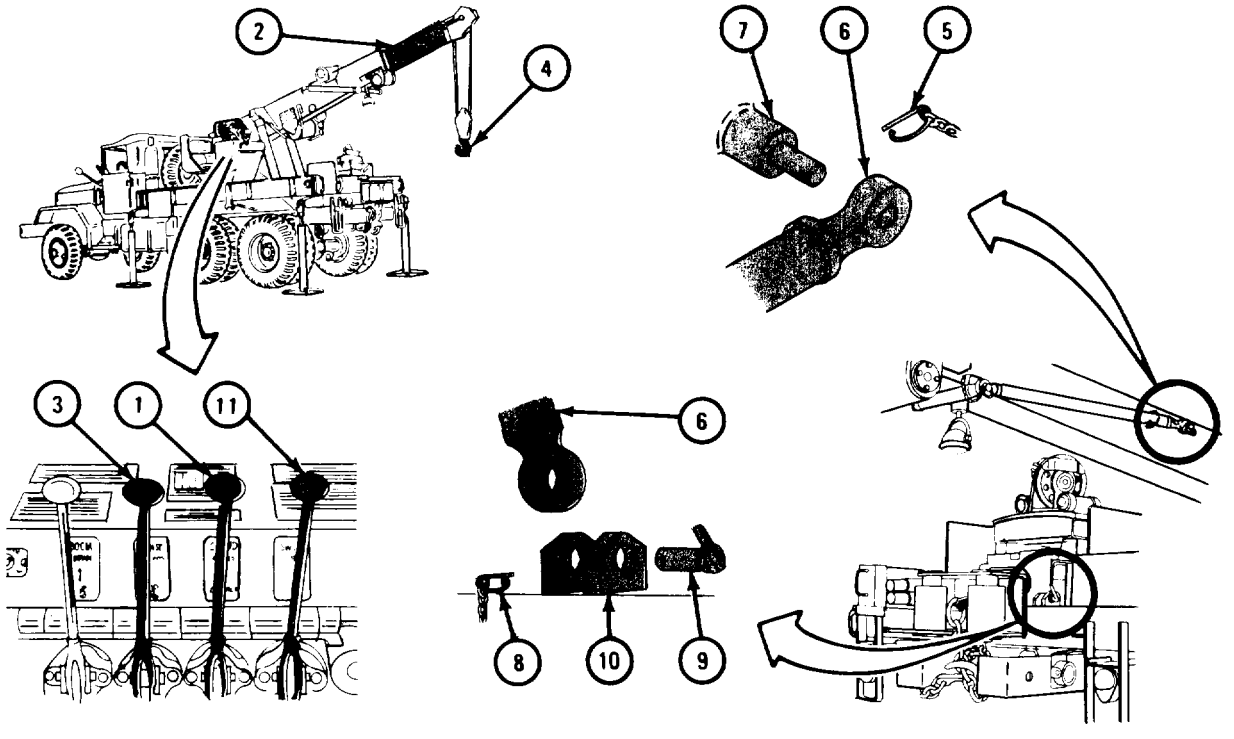


h. Making Fast for Travel - Lift and Swing.

FRAME 1

1. To move shipper braces down:
   (a) Pull CROWD control lever (1) toward operator to retract boom (2) all the way. At same time, push HOIST control lever (3) away from operator to raise cable hook (4)
   (b) Pull pins (5) out.
   (c) Take shipper braces (6) from shipper brace retainer brackets (7).
   (d) Put pins (5) back in bracket (7).
   (e) Swing shipper braces (6) down.
   (f) Pull pins (8) from L-shaped pins (9).
   (g) Take L-shaped pins (9) from shipper brace bracket (10).
   (h) Aline holes in shipper braces (6) and brackets (10) and place L-shaped pins (9) through holes.
   (i) Put pins (8) through holes in L-shaped pins (9).
   (j) Move SWING control lever (11) away or toward operator so that boom (2) points straight back.

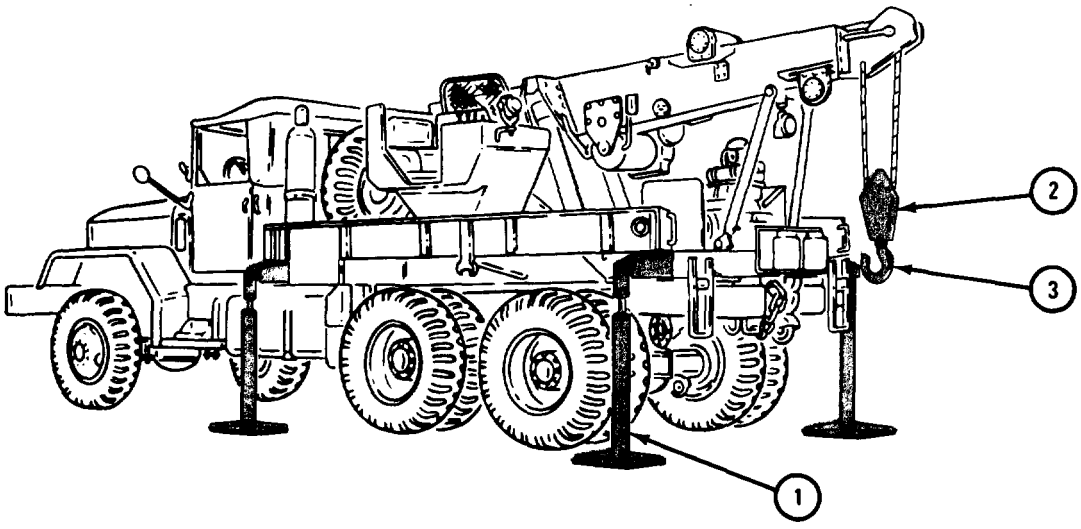
GO TO FRAME 2



TA 053999

FRAME 2

1. To make outriggers (1) fast refer to para 4-12g, frame 2.
2. To make block sheave (2) and hook (3) fast, refer to para 4-12g, frame 3.
3. Make crane controls fast on rear of wrecker and in driver's compartment. Refer to para 4-12g, frames 4 and 5.



TA 054000

i. Making Fast for Travel - Heavy Rear Lift with Boom Jacks.

PERSONNEL: Two

FRAME 1

1. To take down boom jacks:

Soldier A (a) Pull BOOM control lever (1) slightly toward operator to take boom load off boom jacks (2).

Soldier B (b) Take out pins (3) from tie bar pins (4).

(c) Take out tie bar pins (4) from tie bar (5).

(d) Take off tie bar (5).

(e) Take off pins (6) from base plate pins (7).

(f) Take out base plate pins (7) from boom jack base plates (8).

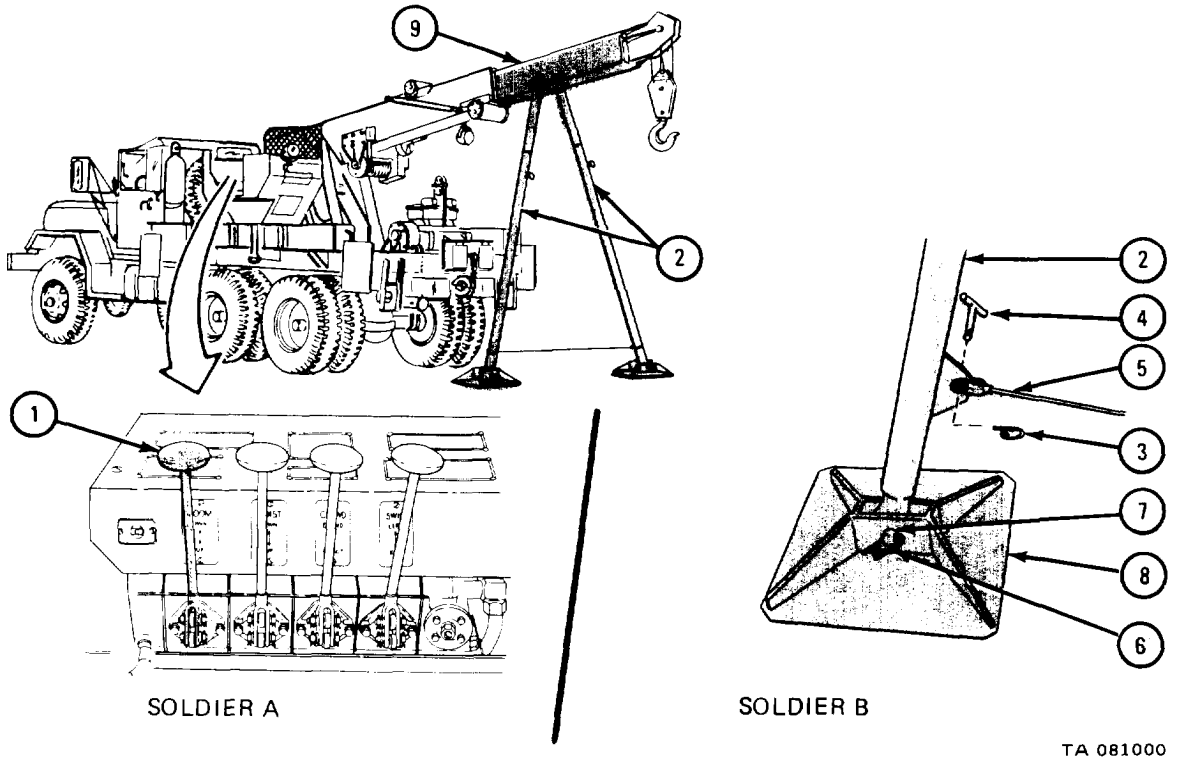
(g) Take off boom jack base plates (8).

(h) Hold lower ends of boom jacks (2) away from truck and in line with boom (9).

Soldier A (i) Push BOOM control lever (1) away from operator and bring boom (9) down all the way.

Soldier B (j) Place lower ends of boom jacks (2) on the ground.

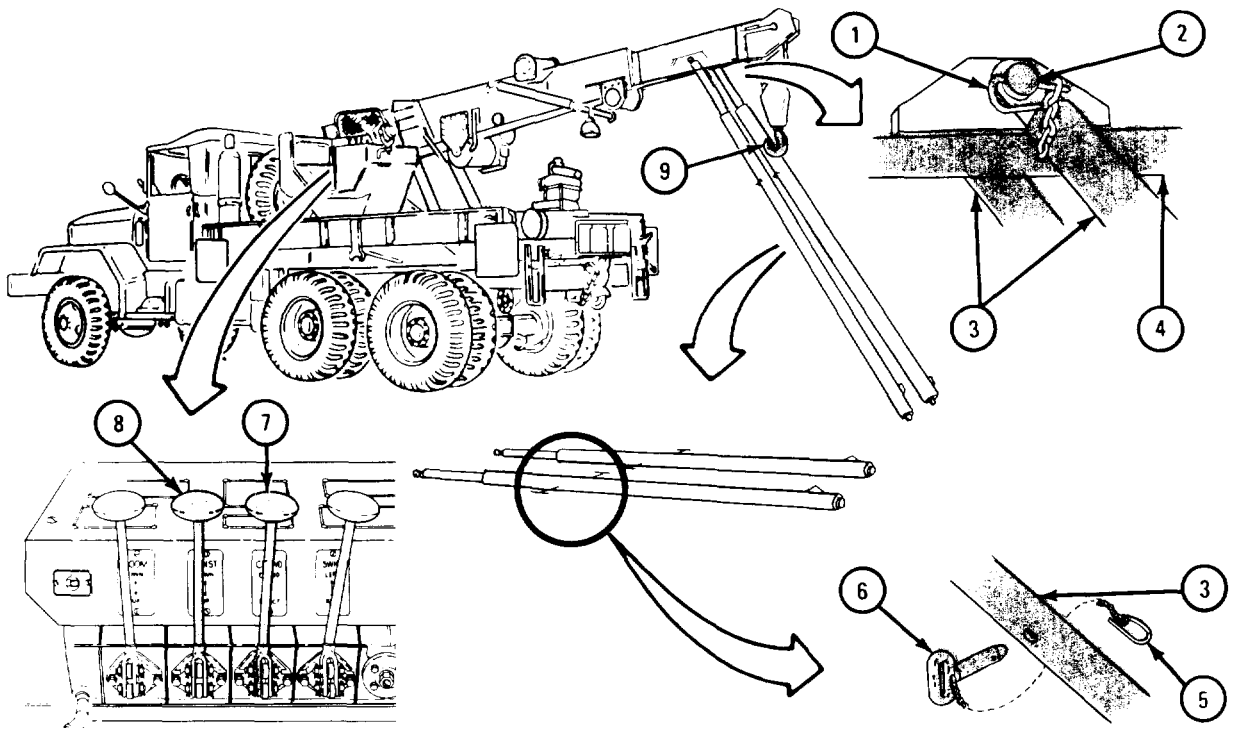
GO TO FRAME 2



FRAME 2

1. Take out pins (1) from inner jack pin (2).
2. Take boom jacks (3) from inner jack pin (2).
3. Take inner jack pin (2) from boom extension (4).
4. Take pins (5) from T-pins (6).
5. Take T-pins (6) from boom jacks (3).
6. Push inner section of boom jacks (3) into outer section until last holes line up.
7. Push T-pins (6) through holes.
8. Push pins (5) through holes in T-pins (6) and lock them.
9. Pull CROWD control lever (7) toward operator to pull boom extension (4) in all the way. At same time, pull HOIST control lever (8) toward operator to keep cable hook (9) from hitting load or ground.

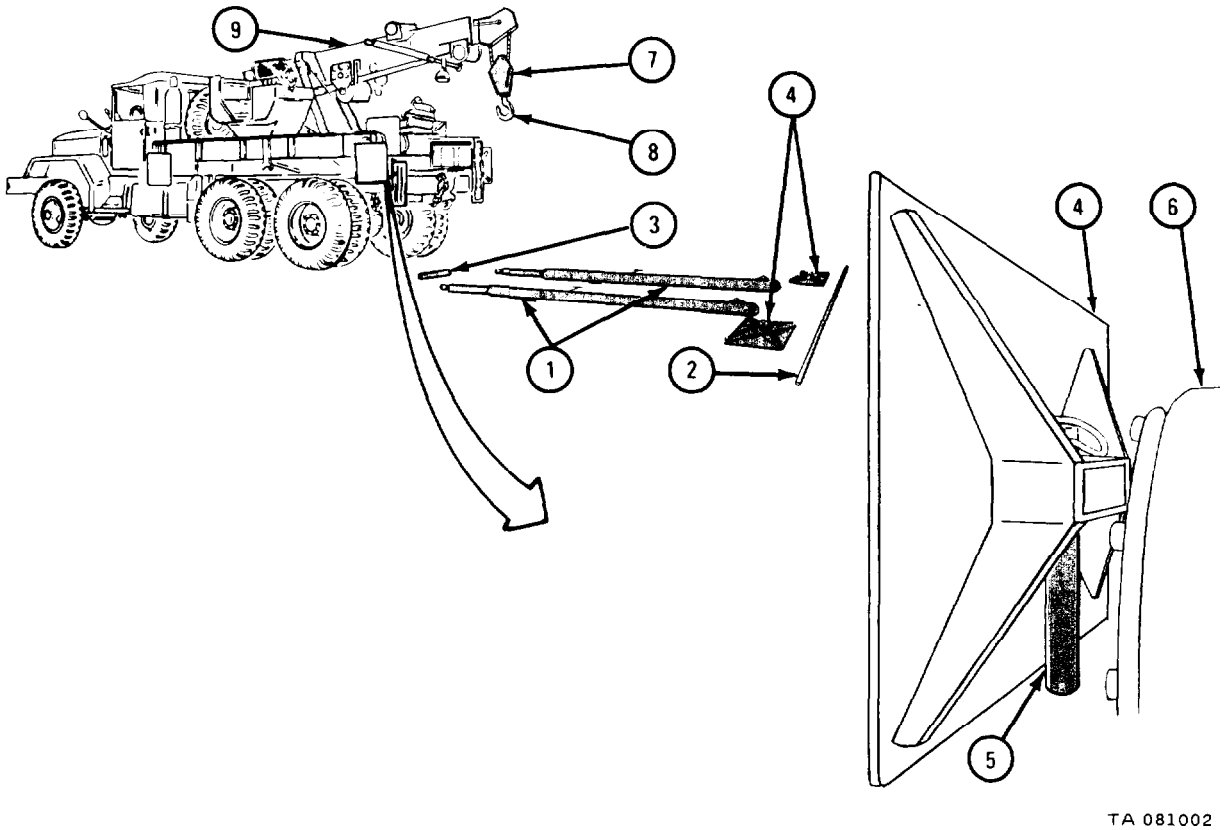
GO TO FRAME 3



TA 081001

FRAME 3

1. Stow boom jacks (1) and tie bar (2) on floor along left side of wrecker body.
2. Stow inner jack pin (3) in number 7 left rear storage compartment.
3. Stow boom jack base plates (4) on finding pins (5) on each side of rear winch (6).
4. To make block sheave (7) and hook (8) fast, refer to para 4-12g, frame 3.
5. To make shipper brace (9) fast, refer to para 4-12h, frame 1.
6. Make crane controls fast on rear of wrecker and in driver's compartment. Refer to para 4-12g, frames 4 and 5.

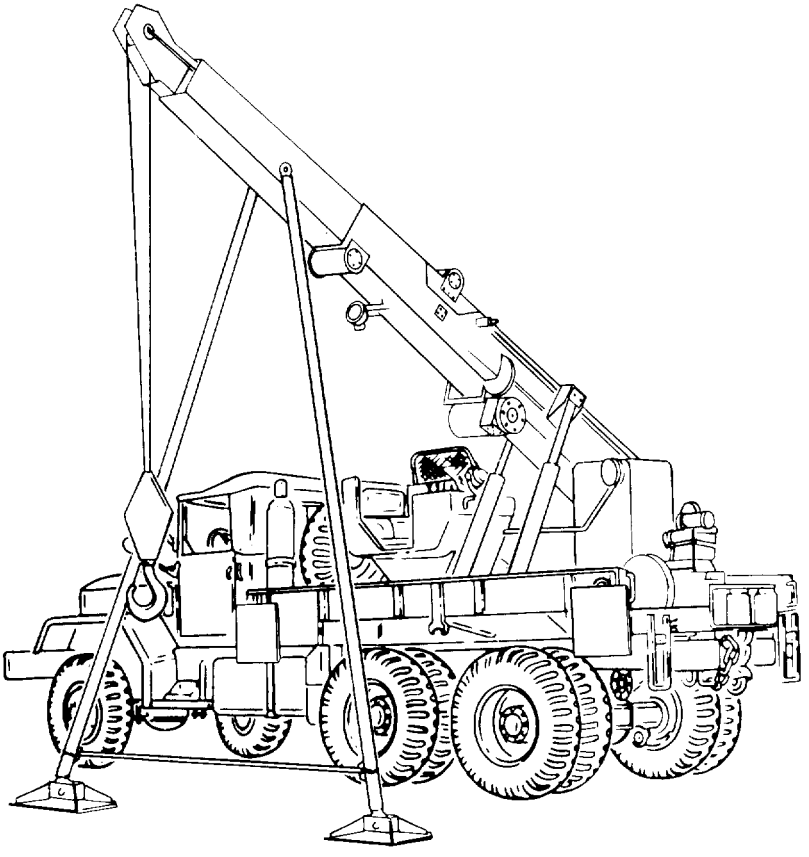


TA 081002

j. Making Fast for Travel - Heavy Side Lift with Boom Jacks.

FRAME 1

1. Making fast for travel from heavy side lift with boom jacks is the same as for heavy rear lift with boom jacks. Refer to para 4-12i, frames 1, 2, and 3.



TA 081003

4-13. OPERATION OF HOT WATER PERSONNEL HEATER KIT.

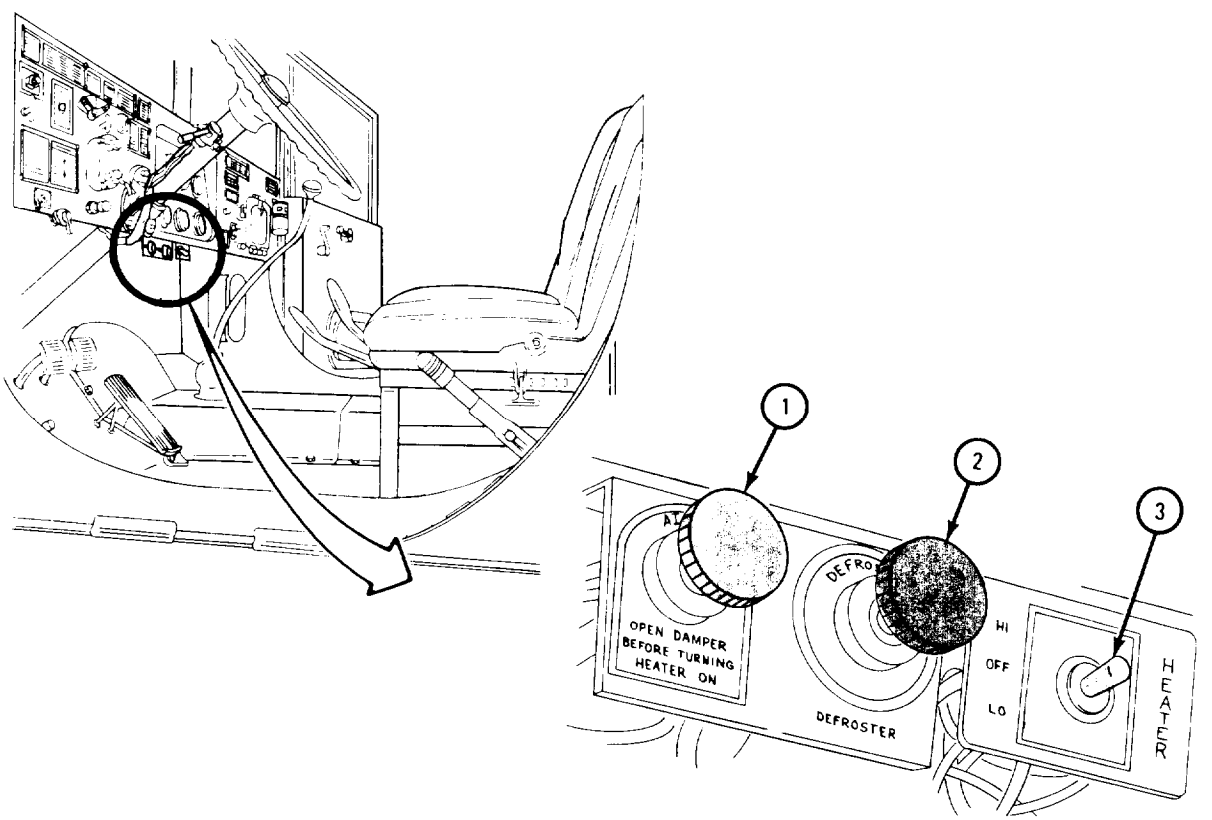
FRAME 1

1. Start engine and let it warm up. Refer to paras 4-6a, b.

CAUTION

In ice, snow, or 0°F weather do not damage glass by making sudden changes in temperature. Let more heated air flow to personnel compartment than to the windshield.

2. Pull AIR knob (1) out to let warm air flow to personnel compartment.
3. Pull DEFROSTER knob (2) out to let warm air flow to windshield.
4. Move AIR knob (1) and DEFROSTER knob (2) in or out to control amount of warm air to windshield or personnel compartment.
5. Set HEATER (blower motor) switch (3) in HI or LO position as needed.
6. To stop heating or defrosting action, set HEATER (blower motor) switch (3) in OFF position.
7. Stop engine. Refer to para 4-6e.



4-14. OPERATION OF ARCTIC WINTERIZATION KIT.

a. General. The arctic winterization kit is designed for use in areas where the average temperature is -25°F to –65°F.

NOTE

Installation of engine compartment cover is done at direct support maintenance level.

b. Operating Radiator Brushguard Cover.

FRAME 1

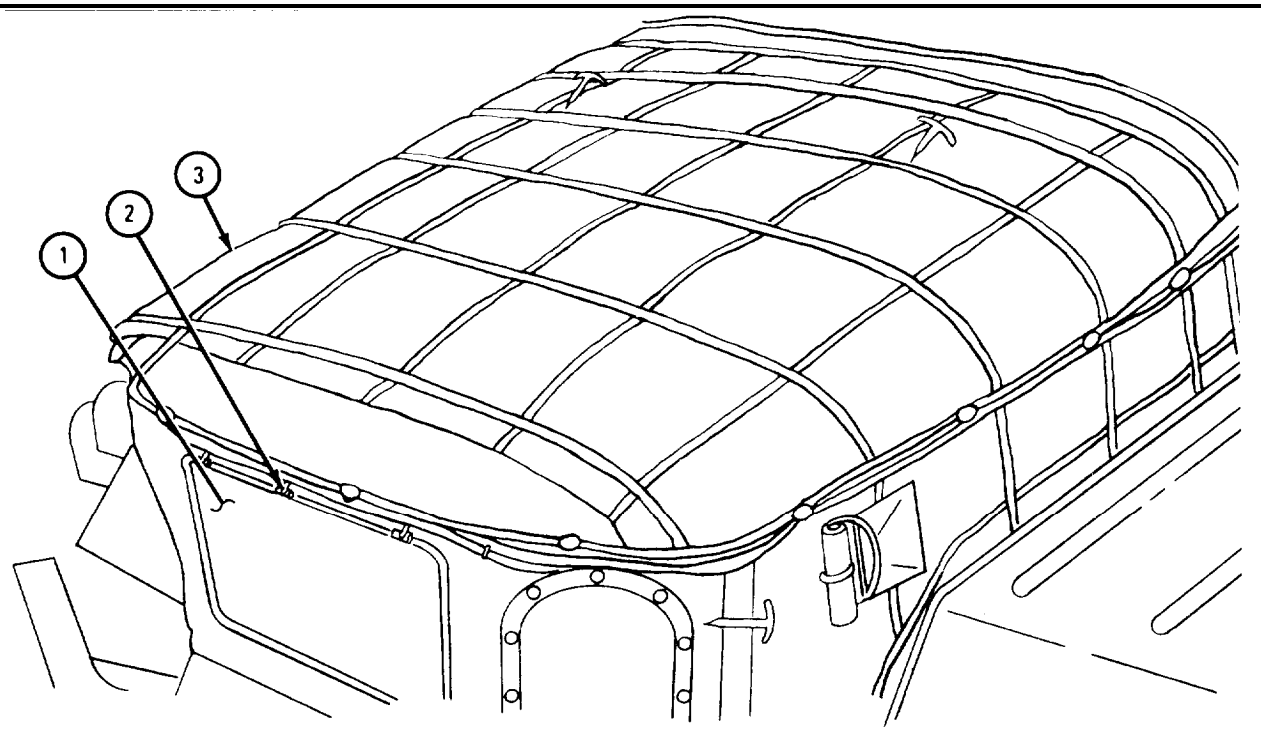
1. Open (roll up) aperture flap (1) and tie with webbing straps (2) when engine temperature goes above 180°F.

CAUTION

If engine temperature continues to rise after opening aperture flap (1), take off engine compartment cover (3) completely so that engine does not overheat. Refer to para 4-14c.

2. Close (unroll) aperture flap (1) and secure with webbing straps (2) when engine opening temperature stays below 180°F.

3. Close (unroll) aperture flap (1) and secure with webbing straps (2) during standby periods and overnight.



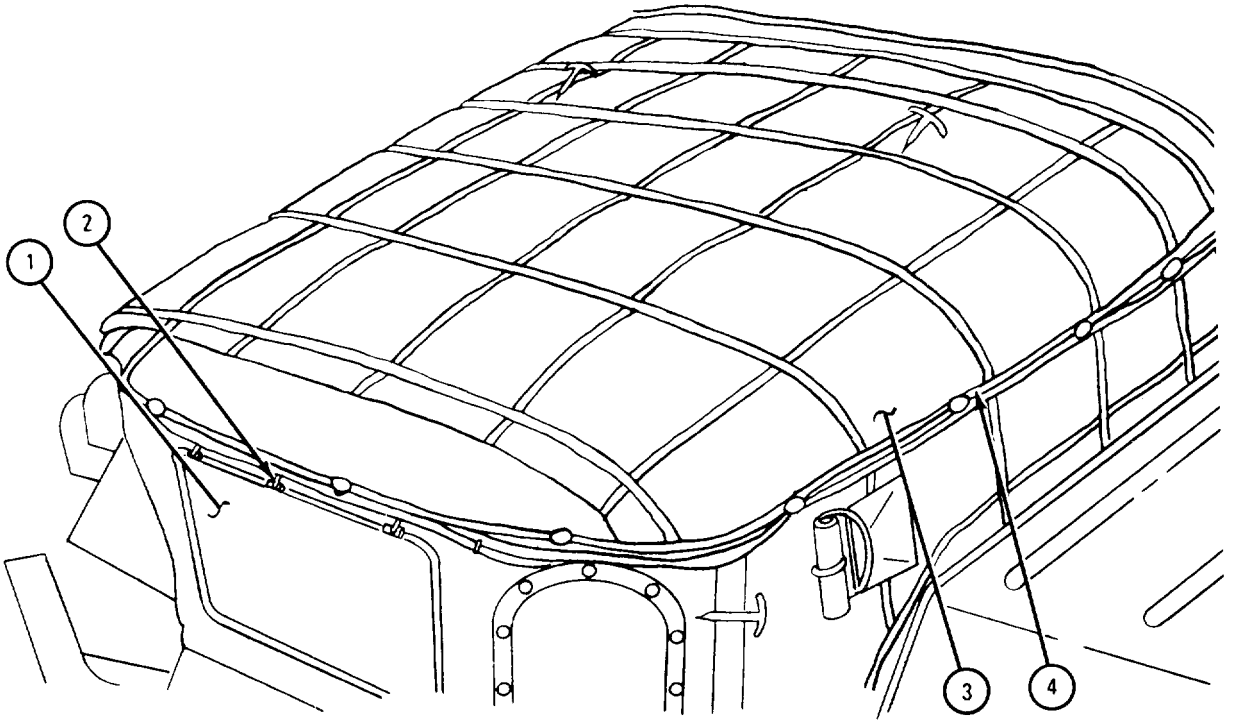
c. Using the Engine Compartment Cover.

FRAME 1

CAUTION

Open aperture flap (1) when engine temperature goes up above 180°F. If engine temperature keeps going up, take off engine compartment cover (3) completely, so that engine does not overheat.

1. Open (roll up) aperture flap (1), when necessary, and tie flap with webbing straps (2).
2. To take off engine compartment cover (3), when necessary, loosen lashing ropes (4) and pull off cover.



TA 081006

d. Operation of Fuel-Burning Personnel Heater.

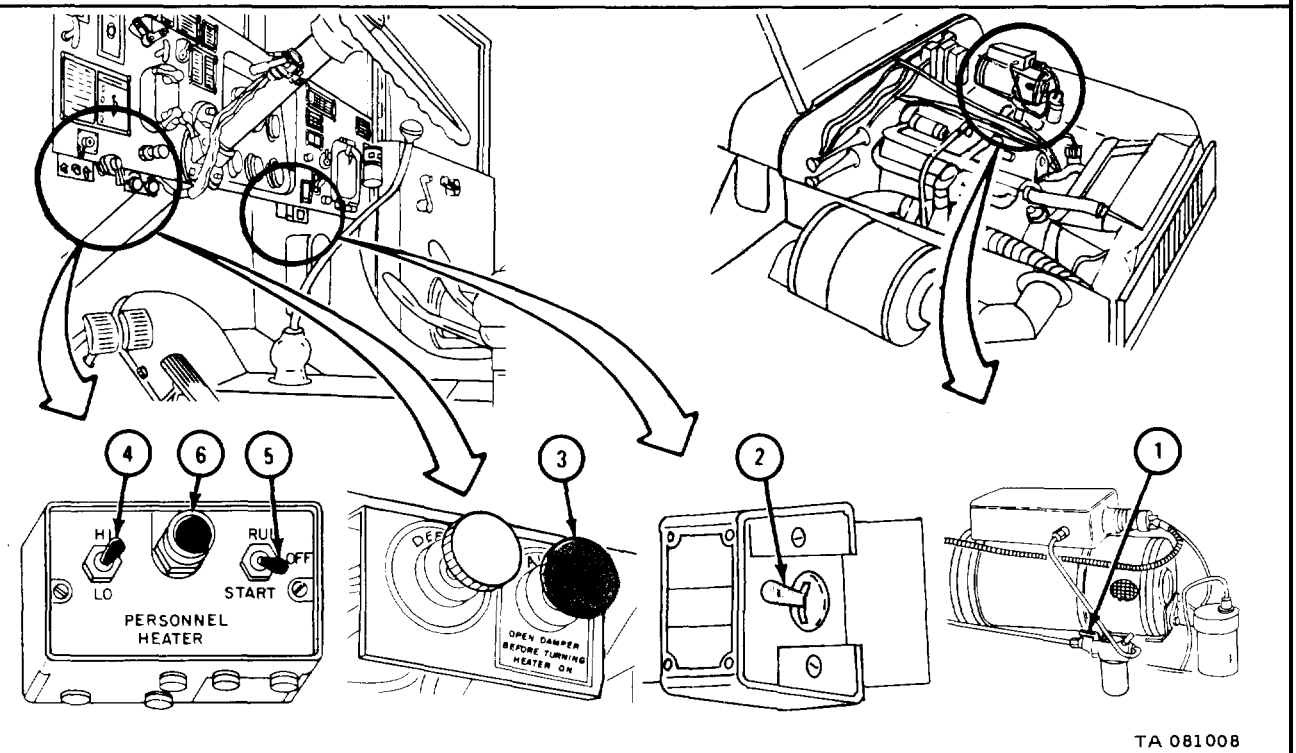
FRAME 1

1. Open fuel shutoff cock (1) by turning it to the left.
2. Make sure that personnel heater EMERGENCY switch (2) is in the up position.
3. Pull AIR knob (3) to full out position.
4. Place HI-LO switch (4) in HI or LO position, depending on heat needed.
5. Hold START-OFF-RUN switch (5) in START position until indicator light (6) comes on. START-OFF-RUN switch is spring loaded and must be held in position.
6. As soon as the indicator light (6) comes on, move START-OFF-RUN switch (5) quickly to RUN position.

NOTE

Moving START-OFF-RUN switch (5) lever from START position to RUN position too slowly will result in a heater shutdown. Move switch lever quickly. Warm air should be felt at the heat outlet within three minutes. If heater fails to start within two minutes (indicator light (6) remains off), move START–OFF–RUN switch to OFF position. Wait three minutes before trying to start heater again.

GO TO FRAME 2



FRAME 2

1. Pull AIR knob (1) out to get more heated air from the heat outlet.
2. Push AIR knob (1) in to lower amount of heated air coming from the heat outlet.

NOTE

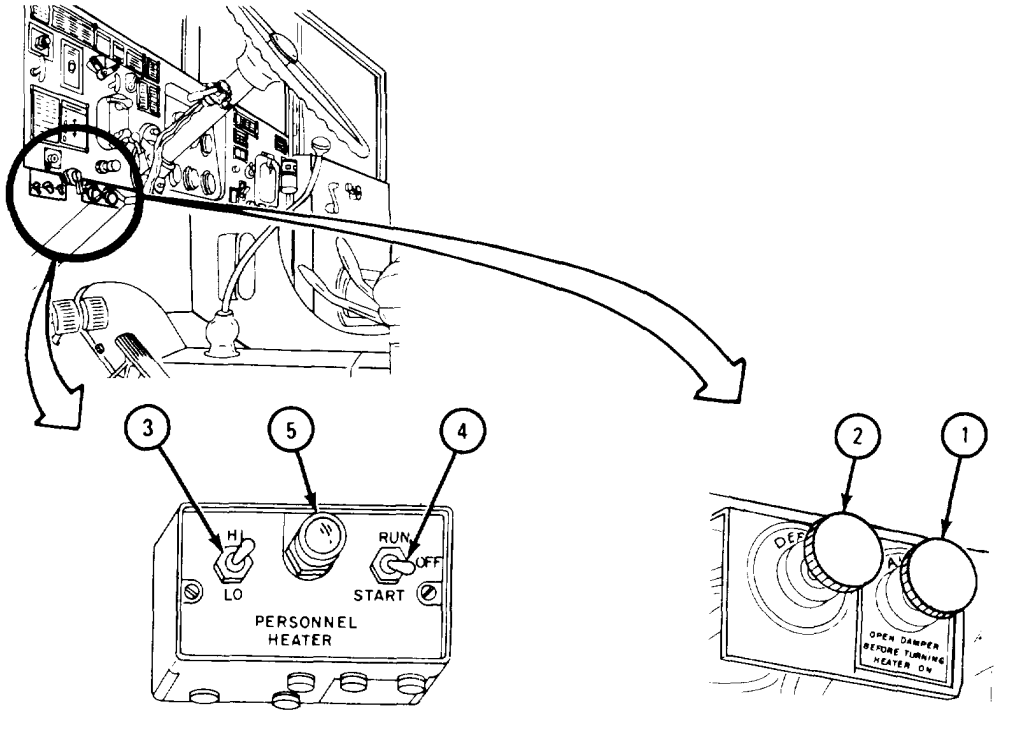
Do not operate the heater with the AIR knob (1) pushed all the way in. The unit does not work best with knob in this position.

3. Pull DEFROSTER knob (2) out all the way for maximum defrosting. For even heating and defrosting, push DEFROSTER knob half way in.
4. To stop the heater, set the HI-LO switch (3) in the LO position, and set the START-OFF-RUN switch (4) to OFF position.
5. The burner will stop in a few seconds but indicator light (5) will stay on.
6. When burner is cool and all unused gas is out, indicator light (5) will go out.

NOTE

Wait until indicator light (5) goes out before trying to restart heater.

GO TO FRAME 3



TA 081010

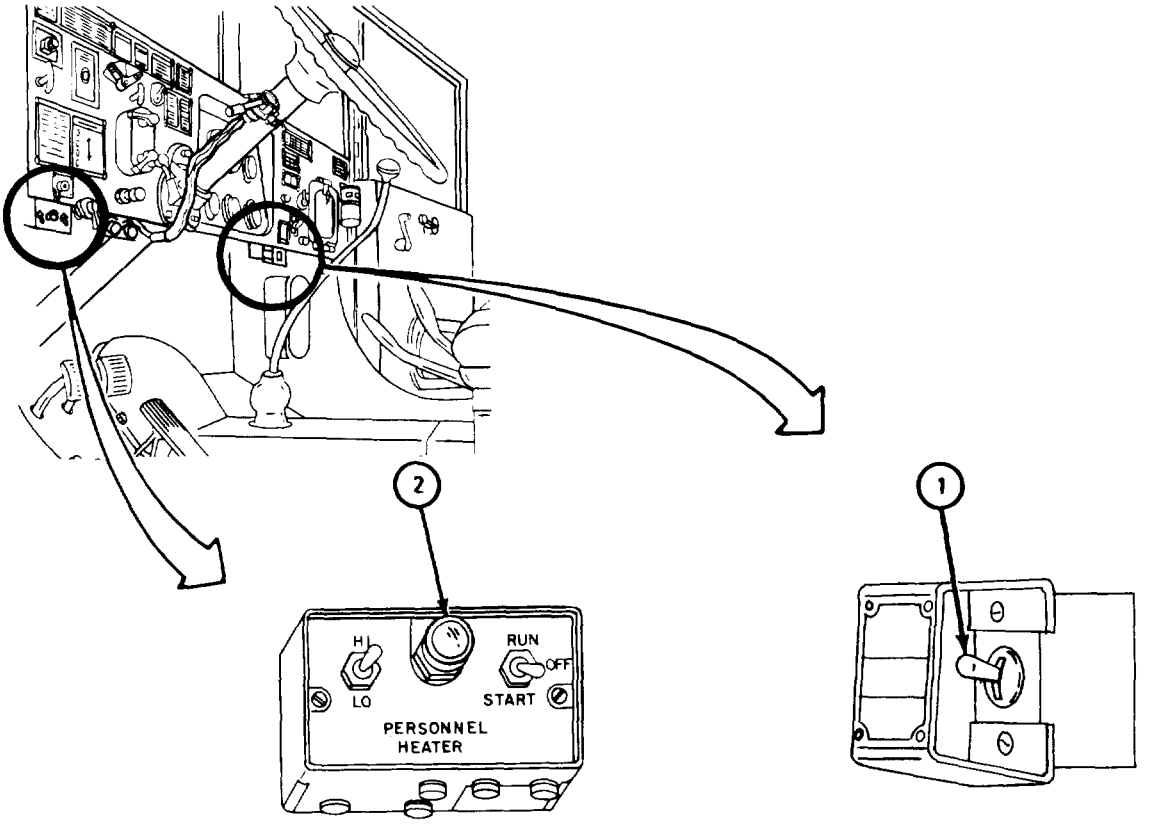
FRAME 3

CAUTION

Under normal conditions do not stop heater by setting personnel heater EMERGENCY switch (1) in off (down) position. Damage to equipment may result.

In case of an emergency condition, set personnel heater EMERGENCY switch (1) in off (down) position. This may cause damage to equipment but crew compartment personnel will be better protected.

1. If heater fails to start or goes out after a short run, wait until indicator light (2) goes out.
2. Try to restart heater. Refer to frame 1. If heater fails to operate after third try, notify direct support maintenance unit.



TA 081011

e. Operation of Fuel-Burning Power Plant Heater.

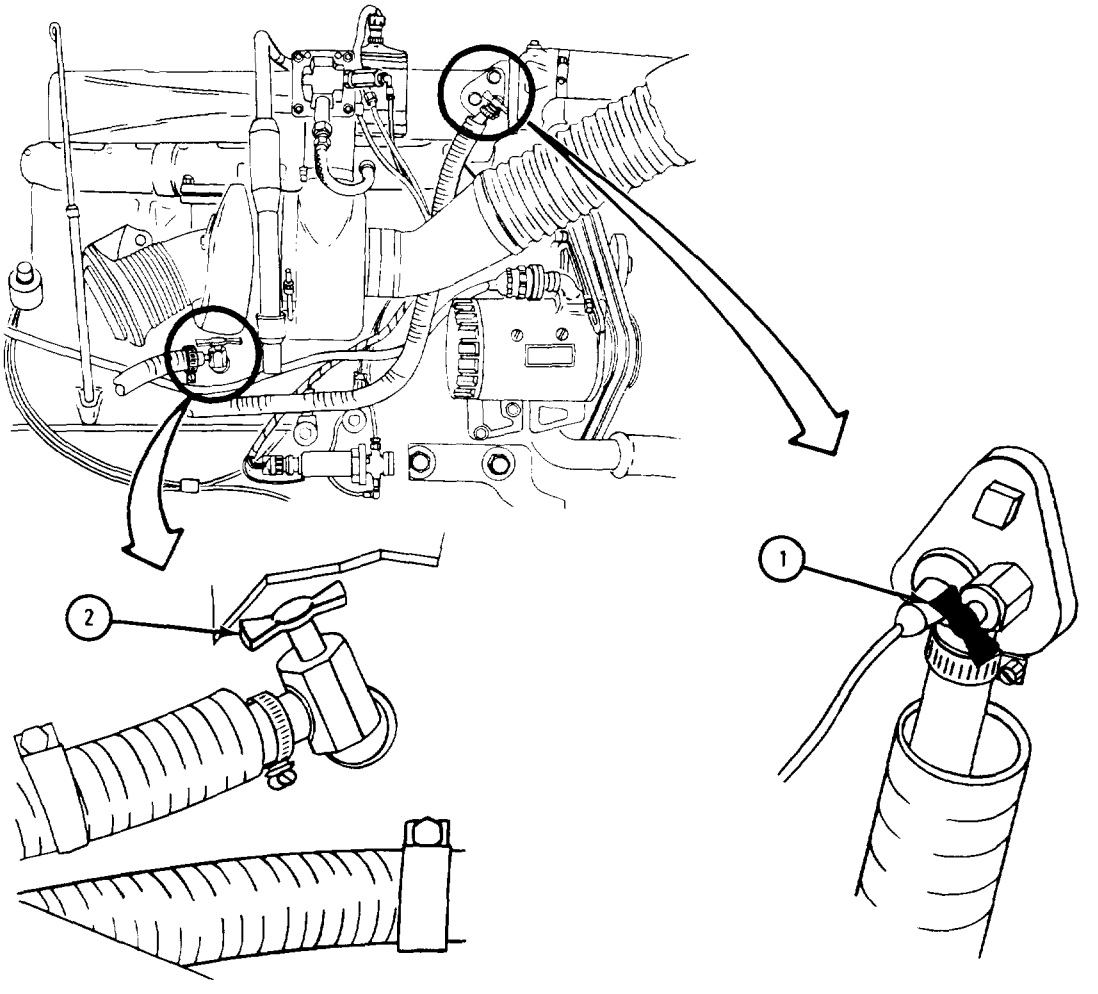
FRAME 1

NOTE

The fuel-burning power plant heater is designed to keep the engine compartment warm when truck is not in use. This heater should not be used while operating the truck.

1. Make sure heater coolant outlet shutoff cock (1) is fully open (turn left).
2. Make sure heater coolant inlet shutoff cock (2) is fully open (turn left).

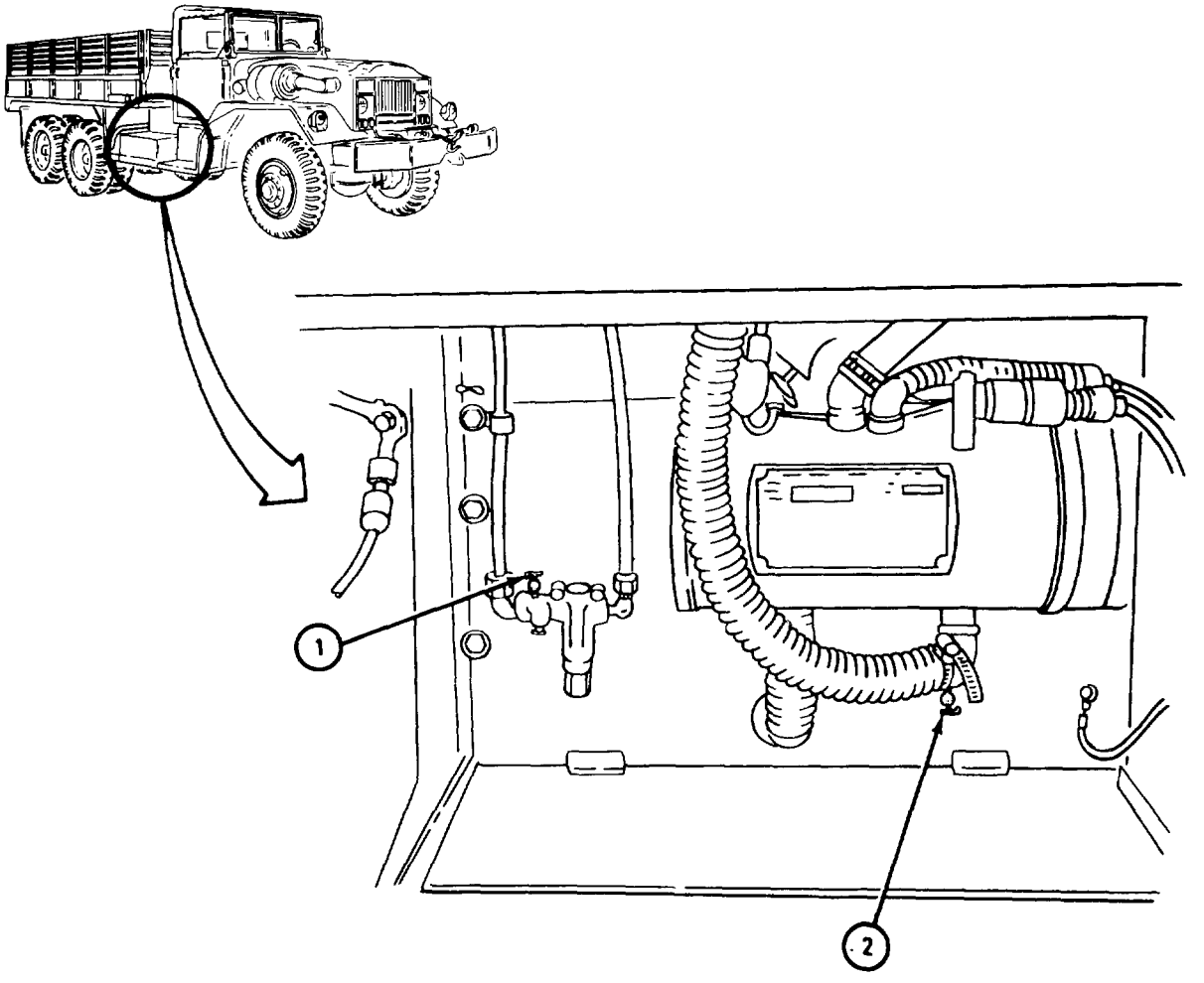
GO TO FRAME 2



FRAME 2

1. Turn power plant heater fuel shutoff cock (1) left to open position.
2. Turn power plant heater coolant inlet cock (2) left to open position.

GO TO FRAME 3



TA 081013

FRAME 3

1. Set HI-LO switch (1) to LO position.
2. Hold START-OFF-RUN switch (2) in START position until indicator light (3) comes on. Indicator light should come on within two minutes.

NOTE

START-OFF-RUN switch (2) is spring loaded and must be held in position.

3. As soon as indicator light (3) comes on, quickly move START-OFF-RUN switch (2) to RUN position.

NOTE

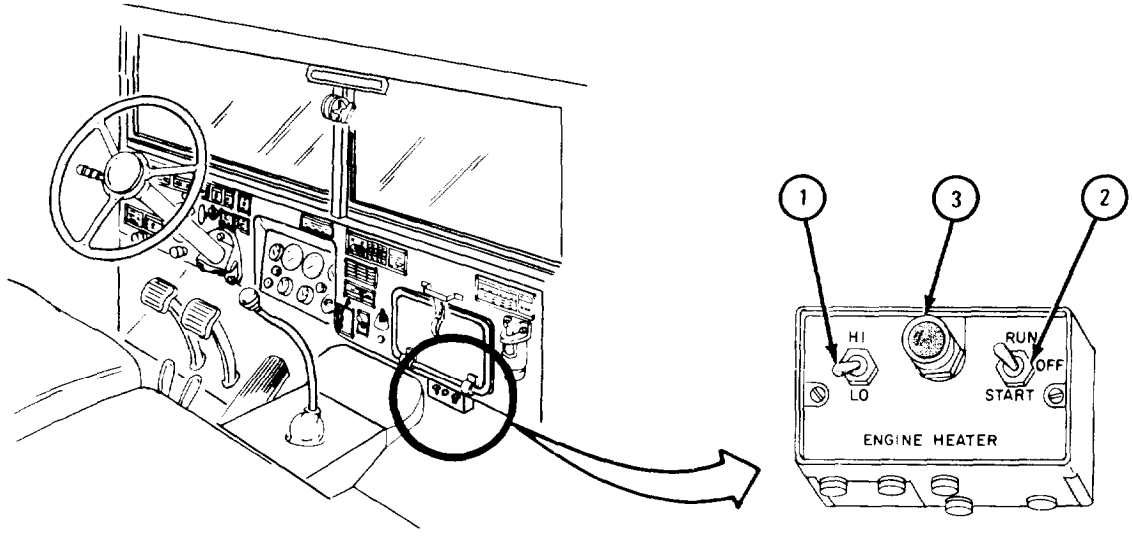
Moving switch (2) lever from START to RUN too slowly will result in a heater shutdown. Warm air should be felt at the heat outlet within three minutes.

4. If heater fails to start within two minutes (indicator light (3) will remain off), move START-OFF-RUN switch (2) to OFF position. Wait until three minutes before trying to start heater again.
5. Set HI-LO switch (1) to HI or LO depending on heat needed.

NOTE

LO position of HI-LO switch (1) is suitable for standby periods when heater will operate for a long period of time.

GO TO FRAME 4



TA 081014

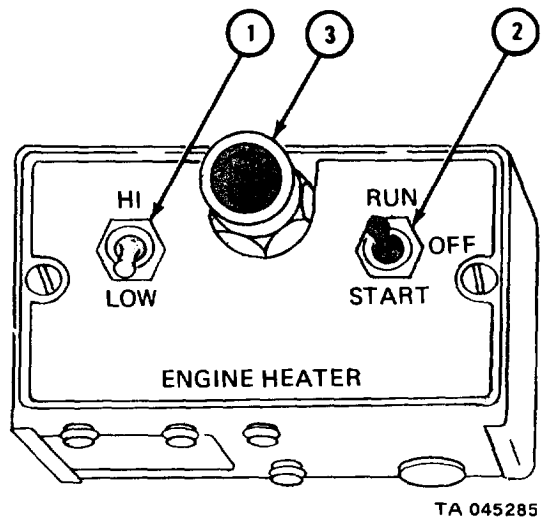
FRAME 4

1. To stop the power plant heater, set the HI-LO switch (1) to LO position.
2. Set START-OFF-RUN switch (2) to OFF position. Burner will stop within a few seconds.
3. Indicator light (3) will remain on. Blower will keep running until burner cools and unburned gases are out.

NOTE

Always wait until indicator light (3) goes out before trying to restart power plant heater.

4. If heater fails to start after three tries or stops after a short run, tell direct support maintenance.



f. Using the Slave Receptacle.

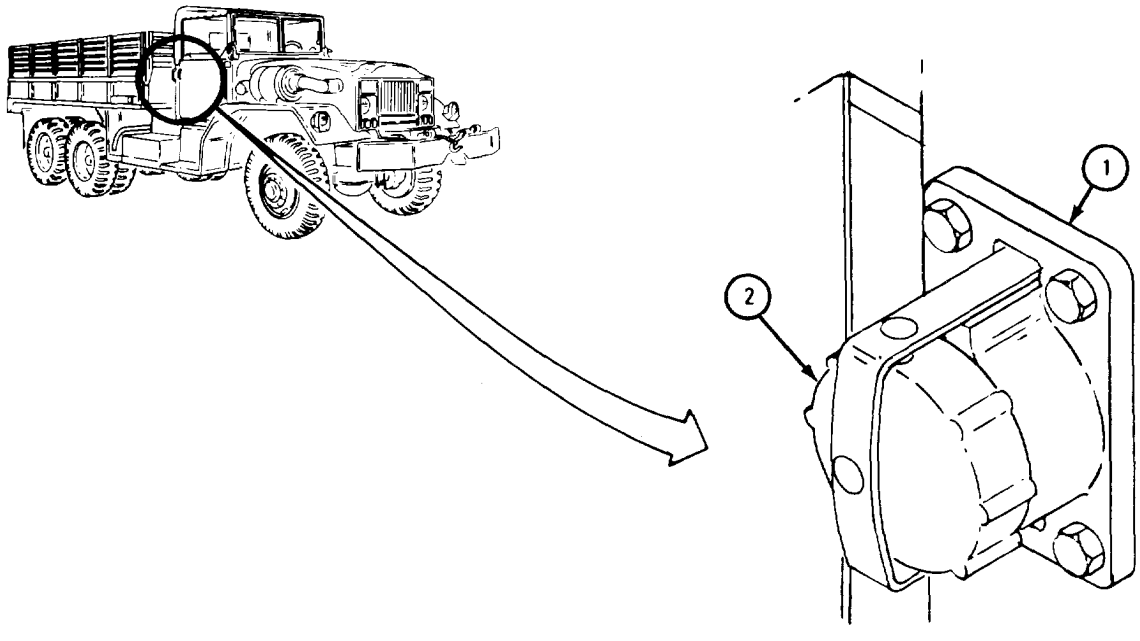
FRAME 1

NOTE

A truck with discharged batteries can get power from another truck through the slave receptacle.

1. Start engine. Refer to para 4-6 a, b.
2. Place truck so that slave receptacle (1) faces slave receptacle of disabled truck.
3. Stop engine. Refer to para 4-6e.
4. Turn left, unscrew protective cap (2) and swing it to the side.

GO TO FRAME 2

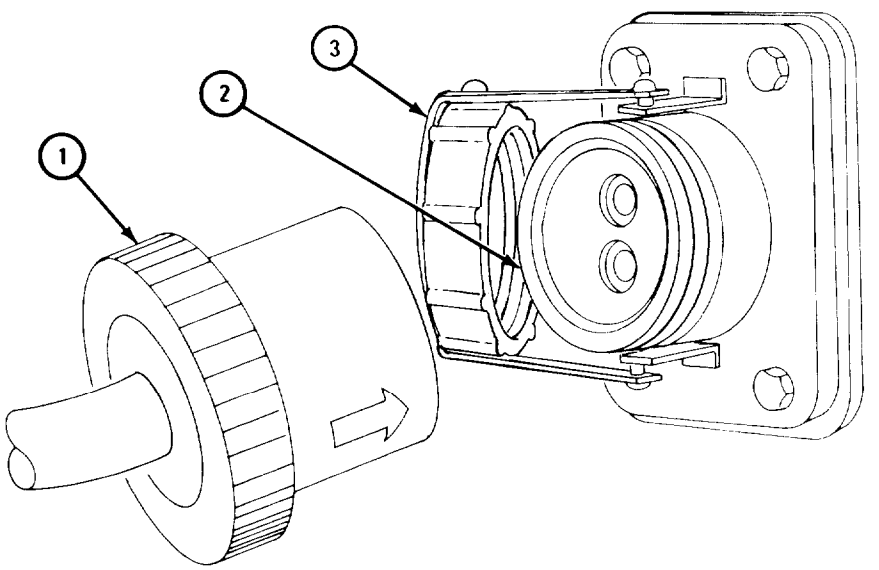


TA 081015

FRAME 2

1. Plug service cable connectors (1) into slave receptacle (2) on each truck.
2. Start engine of slaving truck. Refer to para 4-6a, b.
3. Set idle speed at 1000 to 1100 rpm.
4. Start engine of disabled truck. Refer to para 4-6a, b.
5. As soon as engine is running smoothly, remove service cable connectors (1) from receptacles (2).
6. Swing protective caps (3) back into position and screw cap onto receptacles (2).
7. Stop engine on slaving truck. Refer to para 4-6e.

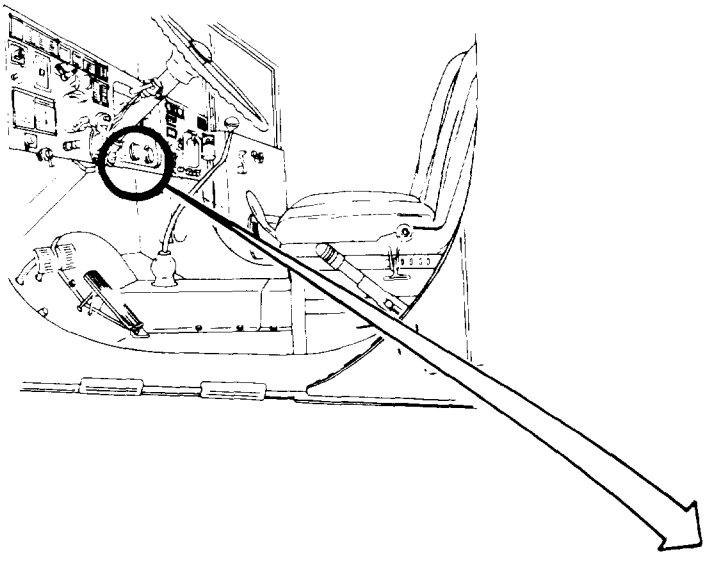
GO TO FRAME 3

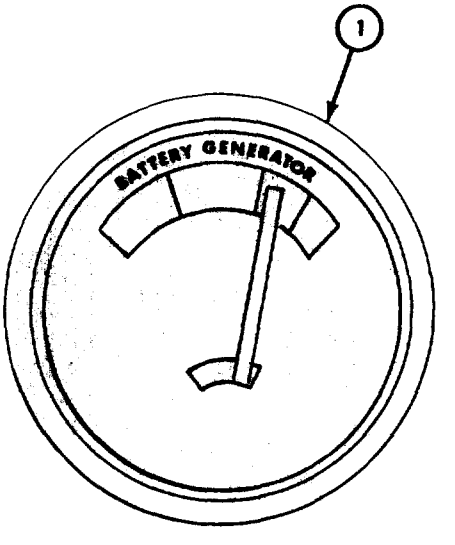


TA 045287

FRAME 3

1. Check battery generator indicator (1) on slaved truck. If indicator reading is in the yellow or red, stop engine (para 4-6e) and tell organizational maintenance.





TA 081016

4-15. OPERATION OF DEEP WATER FORDING KIT.

TOOLS: 1/2-inch square drive ratchet wrench.

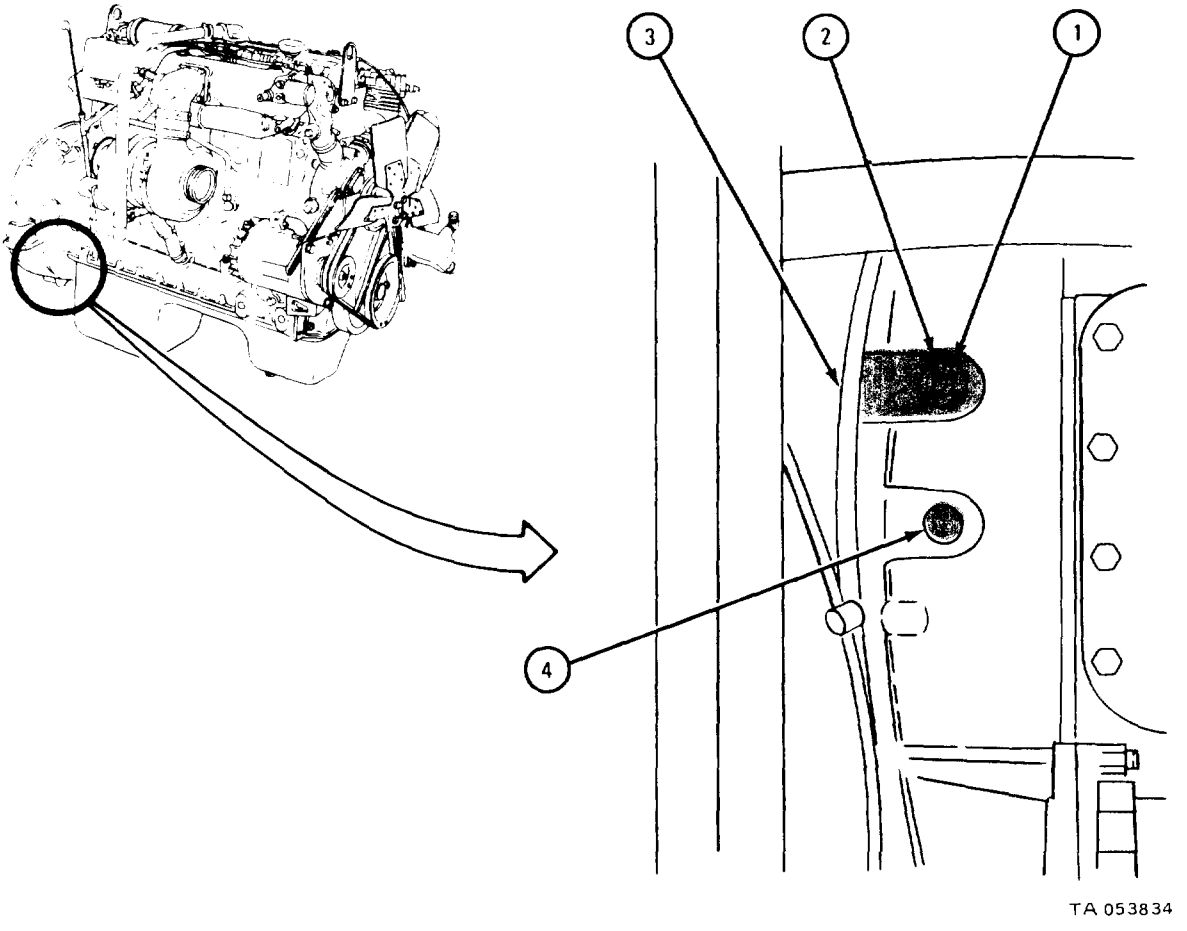
FRAME 1

NOTE

Trucks with deep water fording kits can ford hard bottom crossings up to 72 inches deep. Refer to TM 9-238 for general deep-water fording information.

1. From underneath truck, using 1/2-inch square drive ratchet wrench, unscrew drain plug (1) from storage boss (2) on engine flywheel housing (3).
2. Screw drain plug (1) into drain port (4).

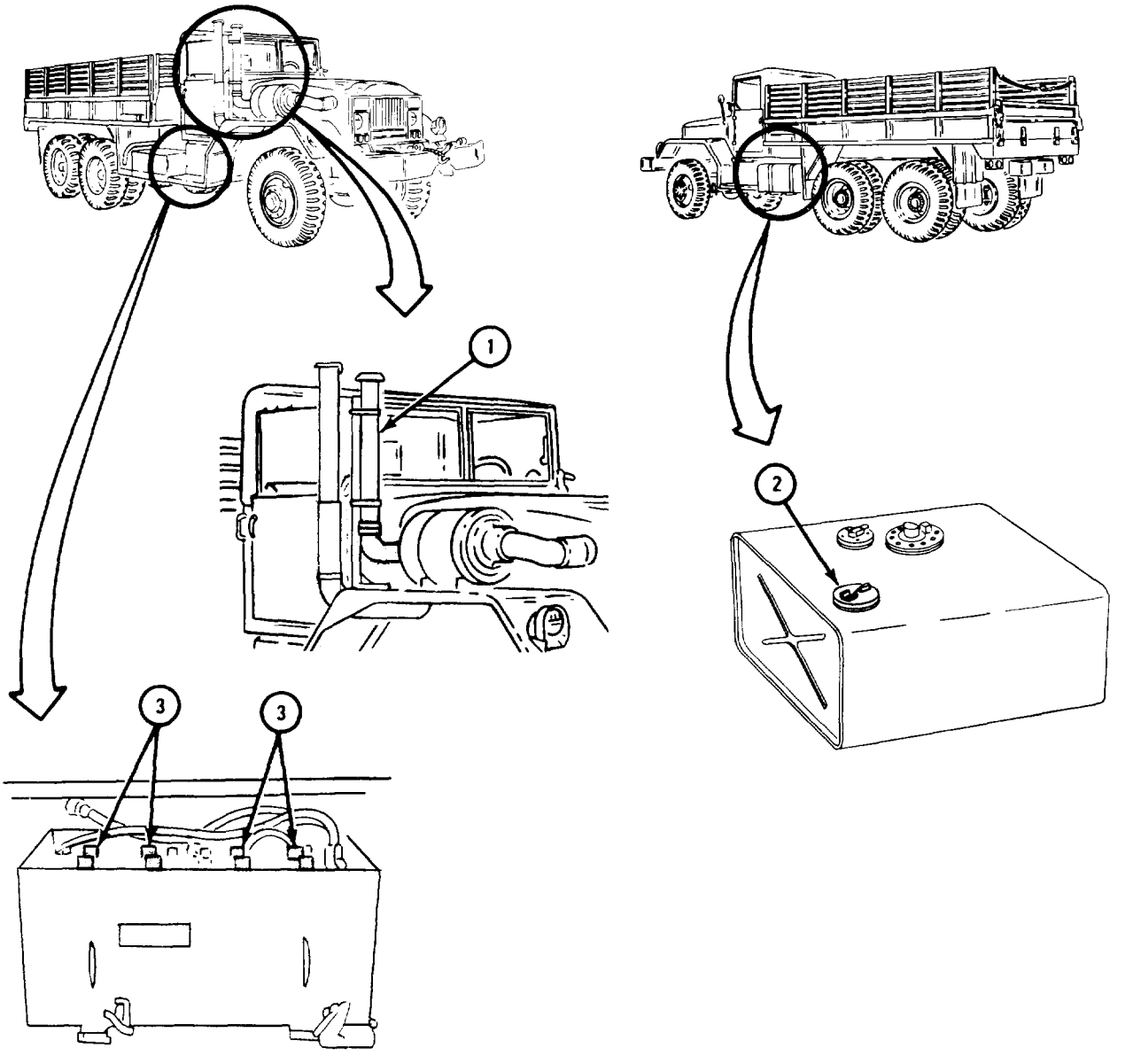
GO TO FRAME 2



FRAME 2

1. Make fast all loose objects to the truck.
2. Make sure the air intake extension (1) is secure.
3. Tighten fuel tank filler cap(s) (2) securely.
4. Make sure all battery filler caps (3) are all on securely.

GO TO FRAME 3

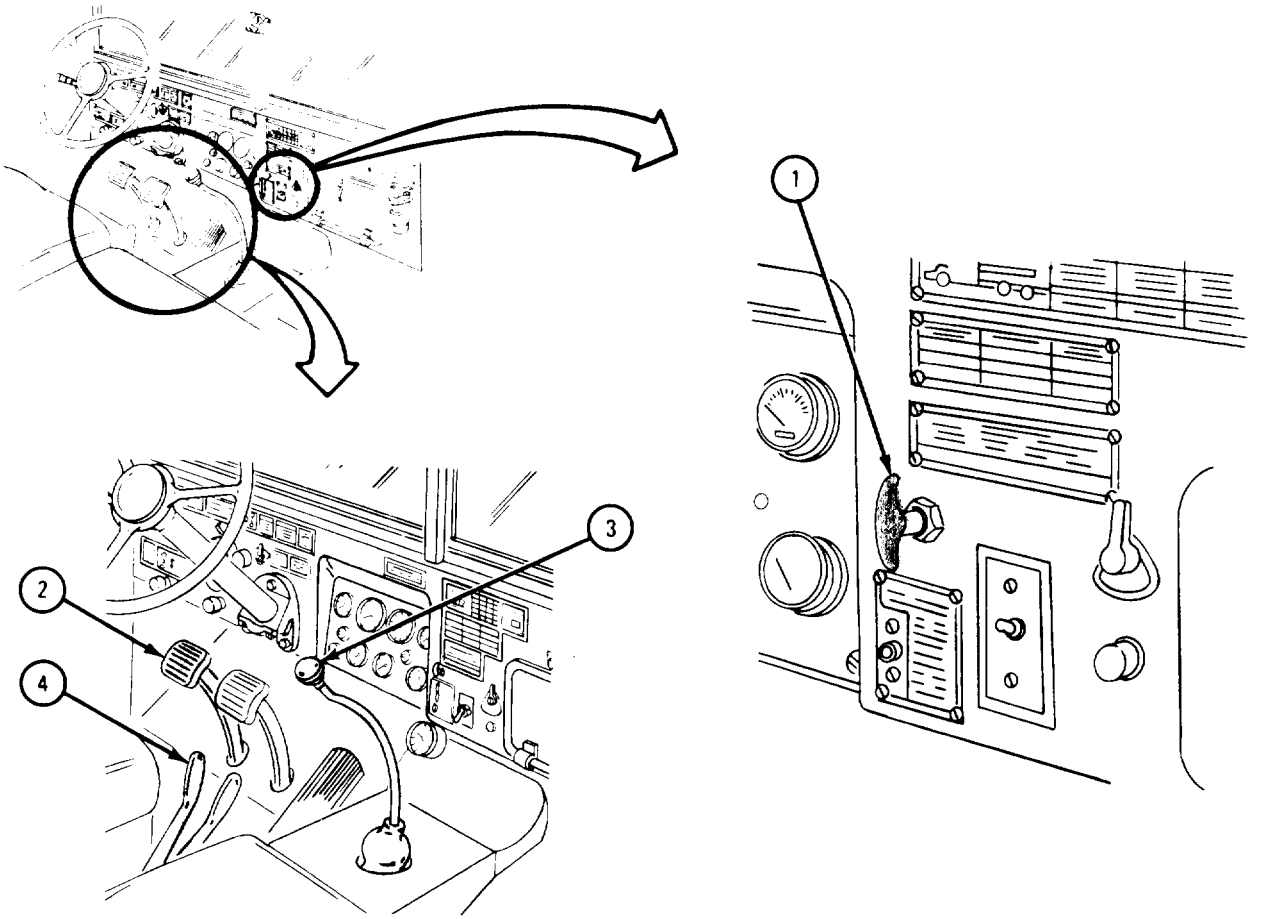


TA 053836

FRAME 3

1. Start engine. Refer to para 4-6a and 4-6b.
2. Pull FORDING valve control cable handle (1) out.
3. Step on and press clutch pedal (2) all the way down.
4. Place FRONT TRANSMISSION gearshift lever (3) in position 1.
5. Move TRANSFER CASE shifting lever (4) to LOW position.

GO TO FRAME 4



TA 053842

FRAME 4

WARNING

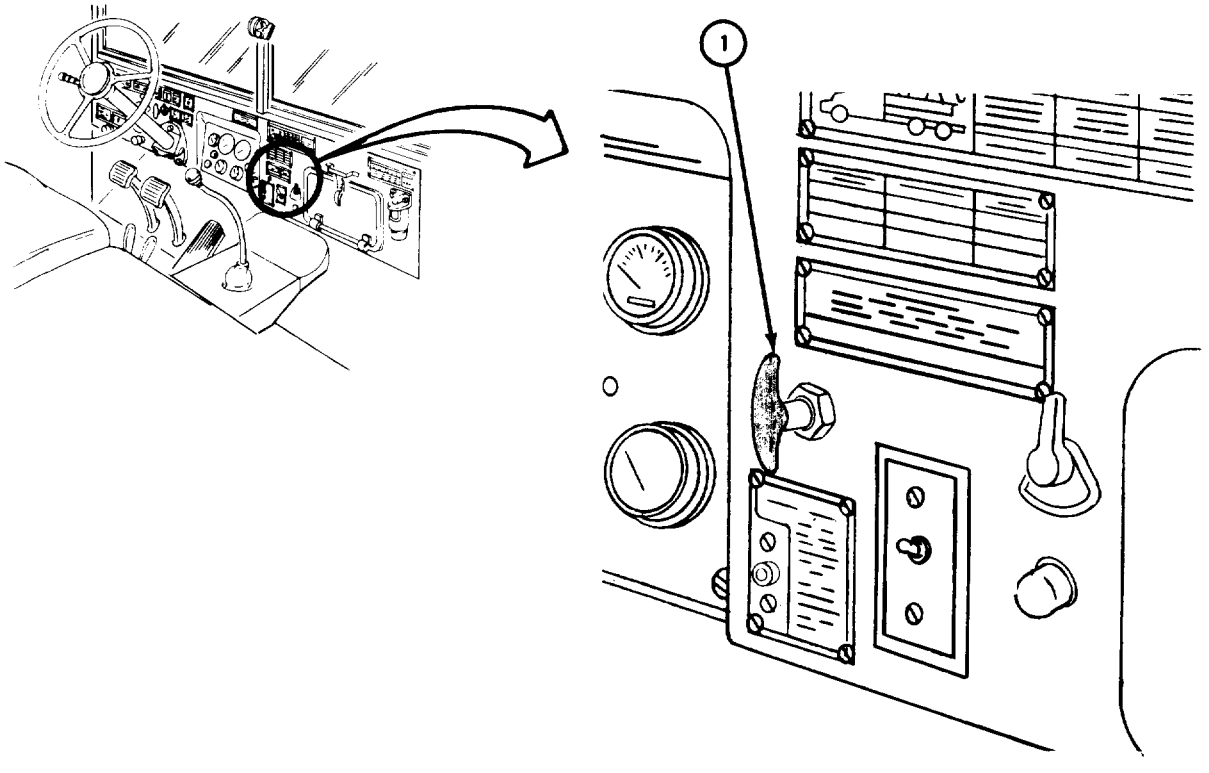
Do not attempt to ford your truck in depths greater than 72-inches. While fording, keep your speed down to 3 or 4 miles per hour.

After fording, do not rely on brakes until they dry out. Keep putting them on and letting them go until truck stops without brakes grabbing.

Failure to see these warnings could result in injury to personnel and damage to equipment.

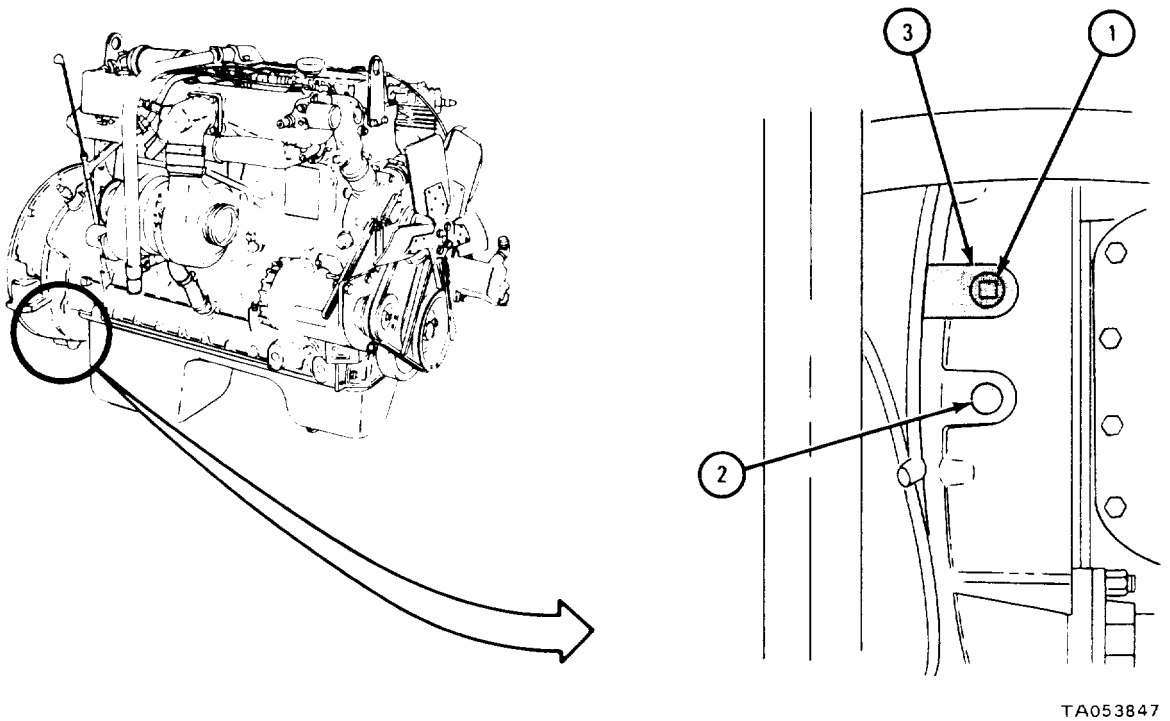
1. Make sure your engine is running correctly and start fording. Refer to placing and keeping truck in motion, para 4-6d.
2. After leaving the water, push FORDING valve control cable handle (1) in.
3. Stop engine. Refer to para 4-6e.

GO TO FRAME 5



FRAME 5

1. From underneath truck, using 1/2-inch square drive ratchet wrench, unscrew flywheel housing drain plug (1) from drain port (2).
2. Screw drain plug (1) into storage boss (3).
3. Wash off all salt water and salt deposits from every part of vehicle.
4. As soon after fording as possible, take vehicle to organizational maintenance for lubrication and servicing. Be sure to tell organizational maintenance that truck has been used in fording operations.



4-16. OPERATING THE ELECTRIC BRAKE KIT.

FRAME 1

NOTE

The electric brake kit is installed on trucks used to move trailers or semitrailers.

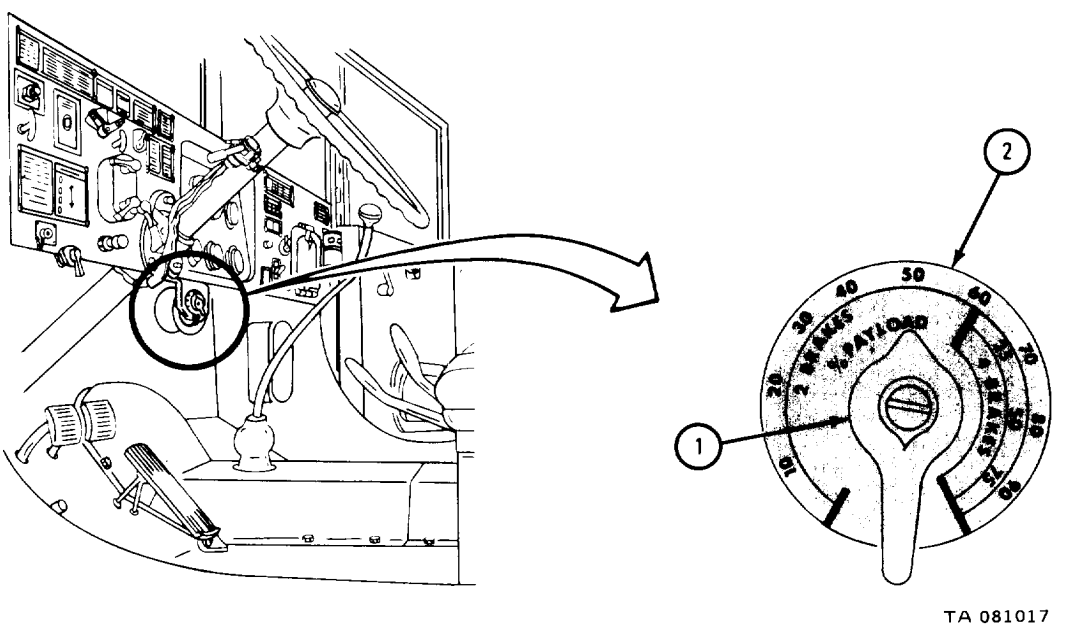
CAUTION

Electric brakes on towed trucks operate when service brake pedal is pressed down, not when rheostat control handle (1) is turned. Make sure brakes work correctly at the number you set the rheostat to.

1. Turn rheostat control handle (1) to setting shown on data plate (2).

NOTE

Exact setting needed for each load must be found by experience. Heavier loads need high number settings.



TA 081017

Section III. OPERATION UNDER UNUSUAL CONDITIONS

4-17. SCOPE. Extremes of temperature, humidity and terrain conditions require special operating procedures. Instructions for operating under these unusual conditions are contained in this section.

a. Refer to FM 55-30 for instruction on driver selection, training, and supervision.

b. Refer to FM 21-305 for special driving instructions for operation of wheeled trucks under unusual conditions.

4-18. GENERAL. When operating under unusual conditions, pay particular attention to all gages and indicators for signs of trouble.

4-19. OPERATION IN EXTREME COLD WEATHER.

a. General. Extreme cold weather will cause:

(1) Lubricants to thicken or get hard.

(2) Batteries to freeze and keep them from supplying enough current for starting.

(3) Electrical insulation to open a bit and cause short circuits.

(4) Fuel not to vaporize and mix with air to form a combustible mixture for starting.

b. Related Publications. Refer to the following for information relating to operation of a truck in cold weather conditions.

FM 31-70	Basic Cold Weather Manual
FM 31-71	Northern Operations
FM 90-6(HTF)	Mountain Operations (How To Fight)
TM 9-207	Operation and Maintenance of Army Materiel in Extreme Cold Weather (0°F to -65°F)

WARNING

FM 9-207 contains general information which applies to all Army Materiel. This information must be considered part of this manual.

These practices and precautions must be followed for safe cold weather operation so that personnel will not be injured or equipment damaged.

c. Winterization Kits. Special winterization equipment is given in kit form when protection against extreme cold (0°F to –65°F) is needed.

(1) Refer to para 4-13 operating instructions for hot water personnel heater kits.

(2) Refer to para 4-14 operating instructions for arctic winterization kits.

d. Moving the Truck.

FRAME 1

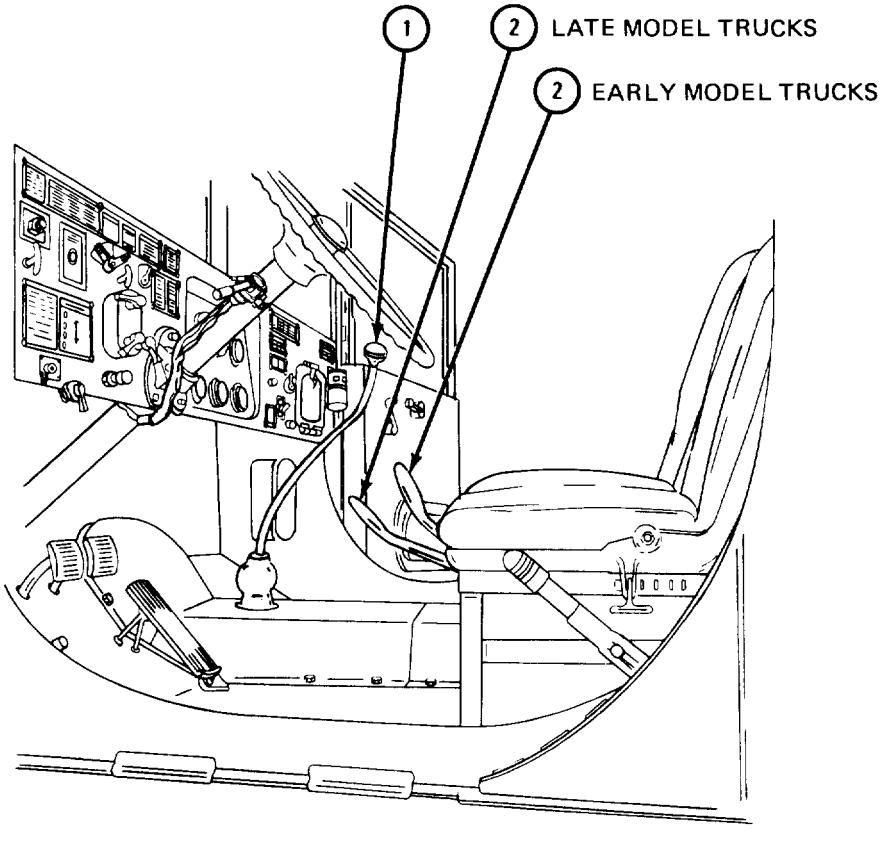
CAUTION

After shutdown for long periods of time, lubricants harden and brakes and tires may freeze fast. Take each condition into account before moving truck so that equipment will not be damaged.

NOTE

Check that PMCS that apply to operation in extreme cold weather have been done.

1. Start engine (refer to paras 4-6a and b) and let it warm up thoroughly.
2. Place FRONT TRANSMISSION gearshift lever (1) in position 1.
3. Place TRANSFER CASE lever (2) to LOW position.
4. Drive truck at lowest speed possible for about 100 yards. Be careful not to stall engine. This should heat gears and tires for normal operation.



e. Parking.

(1) Park truck in a sheltered area out of the wind, where possible. If no shelter is available, park truck so that it does not face into the wind.

(2) Park truck on high dry ground, if possible. If high dry ground is not available, spread out planks or brush and put wheel chocks in place, if needed.

(3) Park truck on level ground so that body does not twist.

(4) Place all control levers in neutral position to stop freezing in gear due to water condensation.

(5) In areas where temperatures reach -50°F or colder, put an extra 20 pounds of air (above normal) in tires for long standby periods or overnight. Refer to vol 2, chapter 1, table 1-1.

(6) Let the extra air out of tires before starting normal operations. Do not let air out when tires are hot.

(7) Turn power plant heater on. Refer to para 4-14e.

(8) If truck does not have an arctic winterization kit, tell organizational maintenance to take batteries out. Store batteries in a warm place.

(9) The cooling system must be serviced and protected for temperatures below 32°F. Refer to TB 750-651 and TM 9-207 for special procedures.

(10) If no approved antifreeze solution is available, tell organizational maintenance to drain radiator and block.

f. Refueling.

FRAME 1

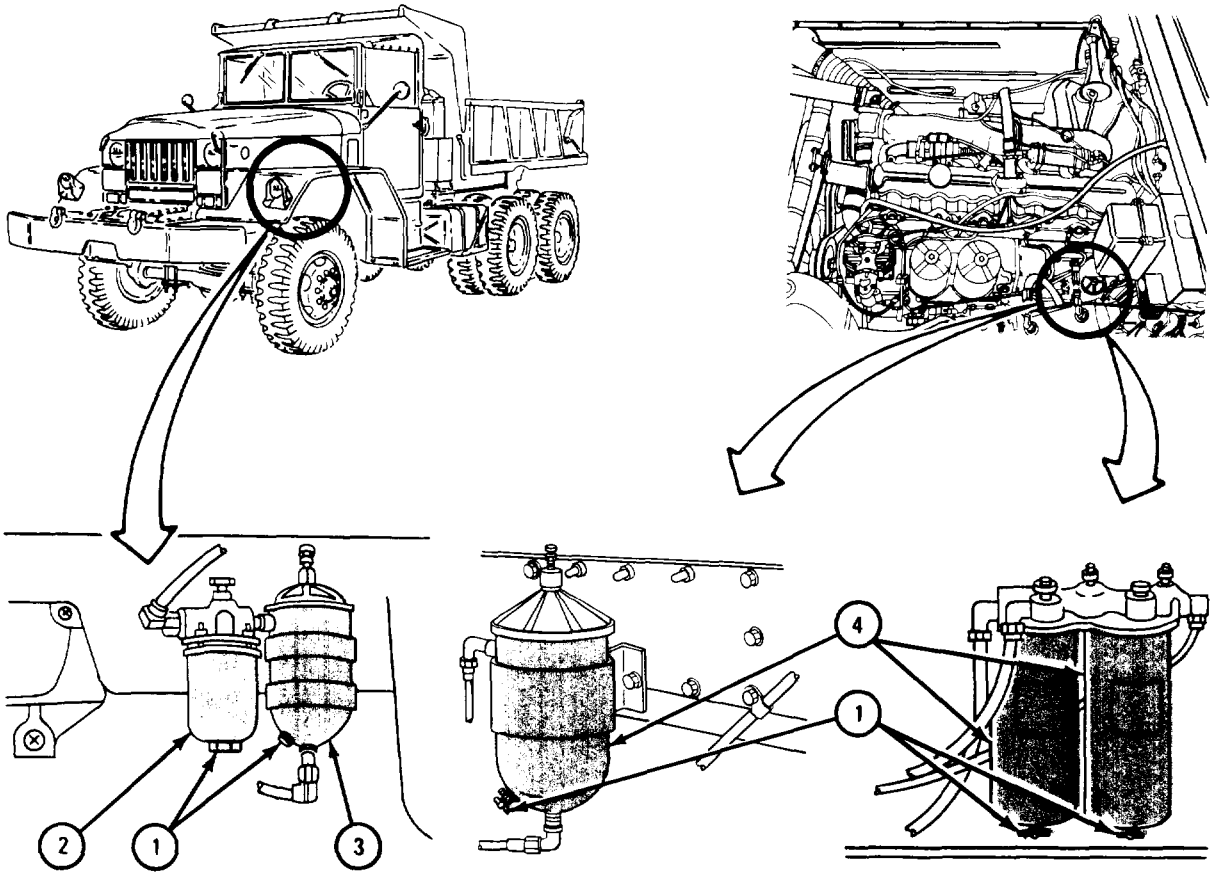
WARNING

Authorized procedures must be used to get rid of drained fuel. Serious injury to personnel and damage to equipment may result if correct procedure is not used.

NOTE

Before refueling tell organizational maintenance to drain fuel tank of any water.

1. Refuel immediately after operation to take away condensation that may form in fuel tank.
2. Open drain cocks or plugs (1) to drain water from primary (2), secondary (3), and final (4) fuel filters before fuel system cools below freezing point.



EARLY MODEL TRUCKS

LATE MODEL TRUCKS

TA 081019

4-20. OPERATION IN EXTREME HOT WEATHER.

WARNING

When engine temperature is above 180°F use extreme care in taking off cooling system filter cap so that you do not get burned/scalded or both.

a. General. Continuous operation of truck at high speeds, or under long hard pulls in low gear ratios on steep grades or in soft terrain may cause engine to overheat. Try not to use low gear ratios for long periods, when possible. Always watch for overheating. Halt equipment for a cooling-off period whenever necessary and tactical situation permits.

b. Cooling System.

WARNING

When engine temperature is above 195°F, use great care in taking off cooling system filler cap so that you do not get burned.

CAUTION

Do not add coolant to a hot engine unless the engine is running. You may damage the engine if you do not obey this caution.

Scale and rust forms quicker in extremely high temperatures. Always add corrosion-inhibiter compound to cooling liquid. Do not use water that contains alkali. Fill radiator with rain water whenever possible. Refer to TB 750-651 for engine cleaning compound to be used.

(1) Check cooling system often. Look for following:

(a) Proper coolant level in radiator.

(b) Leaking hose connections.

(c) Proper fan belt tension.

(d) Cracked or leaking hose lines.

(2) If engine is always overheating, check and clean radiator fins with compressed air to get rid of sand, dust, and insects.

(3) If engine still overheats, tell organizational maintenance.

c. Batteries.

(1) In very hot zones check level of electrolyte in battery cells daily. If they are low, add distilled water. If distilled water is not available, use rain or drinking water. Use of water with a high mineral content will damage batteries.

NOTE

The use of water with high mineral content will do less damage to a battery than letting electrolyte level drop below the plates. A battery left dry has a short life.

(2) A battery will discharge faster if it is left standing for long periods at high temperatures. If necessary to park for several days, tell organizational maintenance to take out batteries and store them in a cool place.

d. Body and Chassis. In hot damp climates, corrosion takes place quickly, especially during rainy seasons. Check often for the following:

(1) Signs of pitting or paint blistering on metal surfaces.

(2) Signs of mildew, mold, or fungus on fabrics, rubber, and glass.

If you find signs of any of these, tell organizational maintenance.

e. Parking the Truck.

(1) Do not park truck in the sun for long periods. Heat and sunlight will shorten the life of tires. When possible, park under cover to keep truck from sun, sand, and dust.

(2) Cover trucks not being used with tarpaulins if no other suitable shelter is available. When entire truck cannot be covered, cover window glass to stop etching of glass by sand, and cover engine compartment to keep out sand.

(3) Correct tire inflation. Refer to table 2-5.

NOTE

When checking tire pressure do not let out air if tire is hot.

4-21. OPERATION ON UNUSUAL TERRAIN.

a. Operation in Deep Snow or Mud.

(1) Choose a FRONT TRANSMISSION position low enough to keep engine speed above recommended minimum speed (rpm) without making the wheels spin.

(2) Take care to keep spinning wheels from becoming buried up to the axle housing.

CAUTION

Do not let too much air out of tire so as to damage equipment. Refill tires to recommended pressure after emergency.

(3) If necessary, let some air out. Refer to table 2-5.

CAUTION

Do not drive with chains on only one wheel of a driving axle. This may result in damage to the tire or power train or both.

(4) Tire chains should be used at all times when driving in deep snow, mud, or soft sand.

WARNING

Do not jam sticks or stones under a spinning wheel. This can cause injury to personnel or unnecessary tire wear.

(5) If one or more tires become stuck, use another truck to tow or winch the stuck truck. If a truck is not available, jack up stuck truck and put planking or matting under the wheel.

(6) After operating truck on muddy or snowy surfaces, clean ice, snow, or mud from wheels, axles, radiator core, engine compartment steering knuckles and arms, air cleaner intake, and electrical connections.

b. Operation on Hard Baked Sand. When driving on hard baked sand, try not to break through the crust. A roadbed of canvas or planking should be set down for short distances.

c. Operation on Ice.

(1) General. Skidding and loss of steering control are the main troubles found when driving on icy roads. Due to lack of traction, the truck may continue in a straight direction no matter which way you turn the wheels. When the wheels reach a point where you get traction back, the truck may veer sharply to left or right or stall.

(2) Skidding. When the rear end of the truck skids to either right or left, instantly turn the front wheels in the same direction in which the rear end is skidding. Take your foot off the accelerator pedal but do not step down on the clutch pedal. Step down on the brakes very lightly.

d. Dusty or Sandy Roads.

(1) When operating truck on dusty or sandy terrain, clean air filter daily.

e. Operating on Rocks and Boulders.

CAUTION

Too much pressure in tires will cause more shock through the moving truck. Not enough pressure in tires can cause internal breaking of the tires or damage to the tube.

(1) Refer to table 2-5 and fill the tires properly.

(2) Check tire pressure when tires are cold.

(3) Do not let out air when tires are hot.

f. Operation in High Altitudes.

(1) High altitude operation requires careful maintenance of the cooling system. As you go to a higher altitude, the boiling point of your coolant will become lower. The pressurized cooling system of your truck will operate at 220°F when taken care of in the right way.

(2) Check all hose connections for leaks daily and be sure that radiator cap is closed properly.

4-22. FORDING OPERATION.

a. General. Your truck can ford bodies of water up to a depth of 30-inches without the use of special equipment. Special kits are available for deep water fording. Refer to TM 9-238.

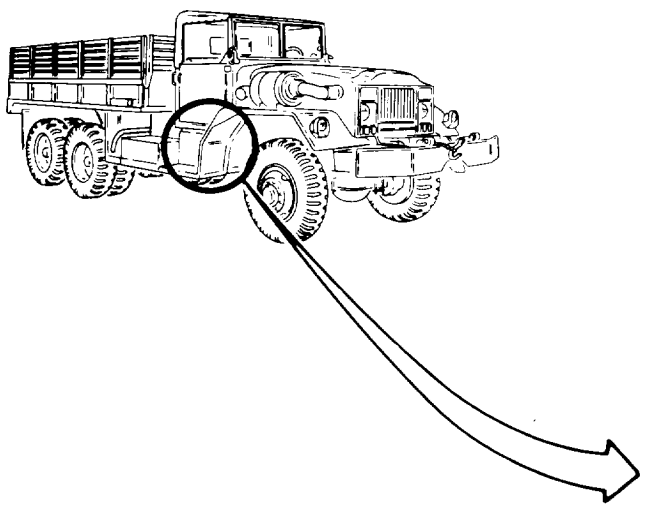
b. Normal Fording through 30 Inches of Water or Less.

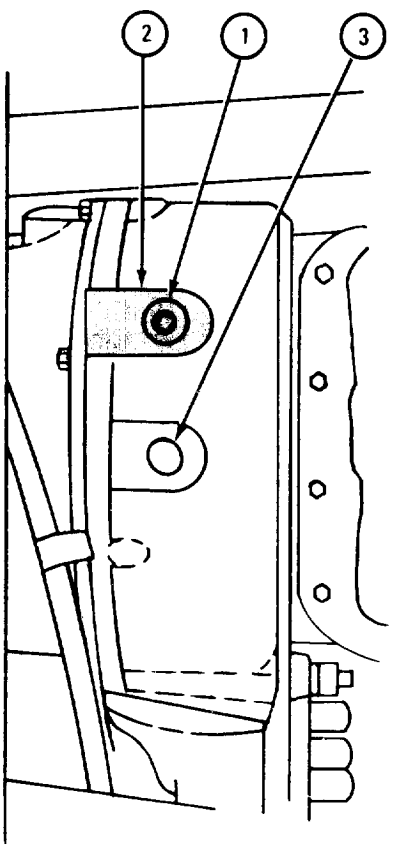
TOOLS: Straight bar plug wrench
Ratchet wrench

FRAME 1

1. Using straight bar plug wrench and ratchet wrench, unscrew drain plug (1) from storage boss (2) on flywheel housing.
2. Screw drain plug (1) into drain port (3).

GO TO FRAME 2





TA 081020

FRAME 2

1. Start engine. Refer to para 4-6a, b.
2. Step on clutch pedal (1) and press it all the way down.
3. Place FRONT TRANSMISSION gearshift lever (2) in position 1.
4. Move TRANSFER CASE lever (3) down to LOW position.
5. Let clutch pedal (1) up.
5. Push handbrake (4) to down (brake off) position.

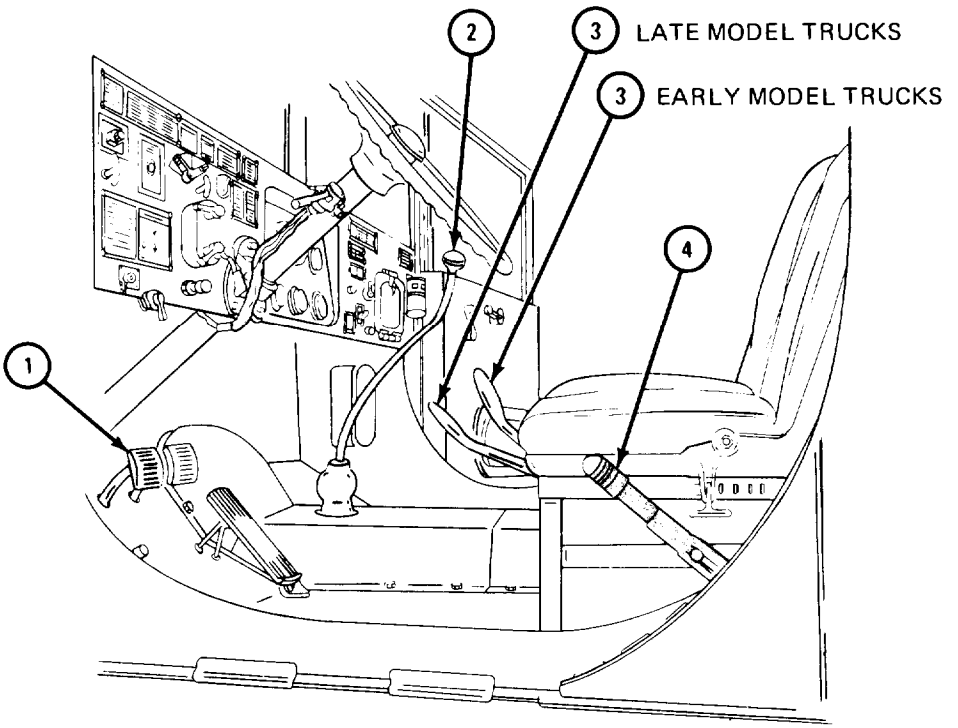
WARNING

Do not attempt to ford your truck in depths greater than 30-inches without a deep water fording kit installed. Keep your speed, while fording, down to 3 to 4 miles per hour.

After fording do not rely on brakes until they dry out. Keep putting them on until truck stops without brakes grabbing.

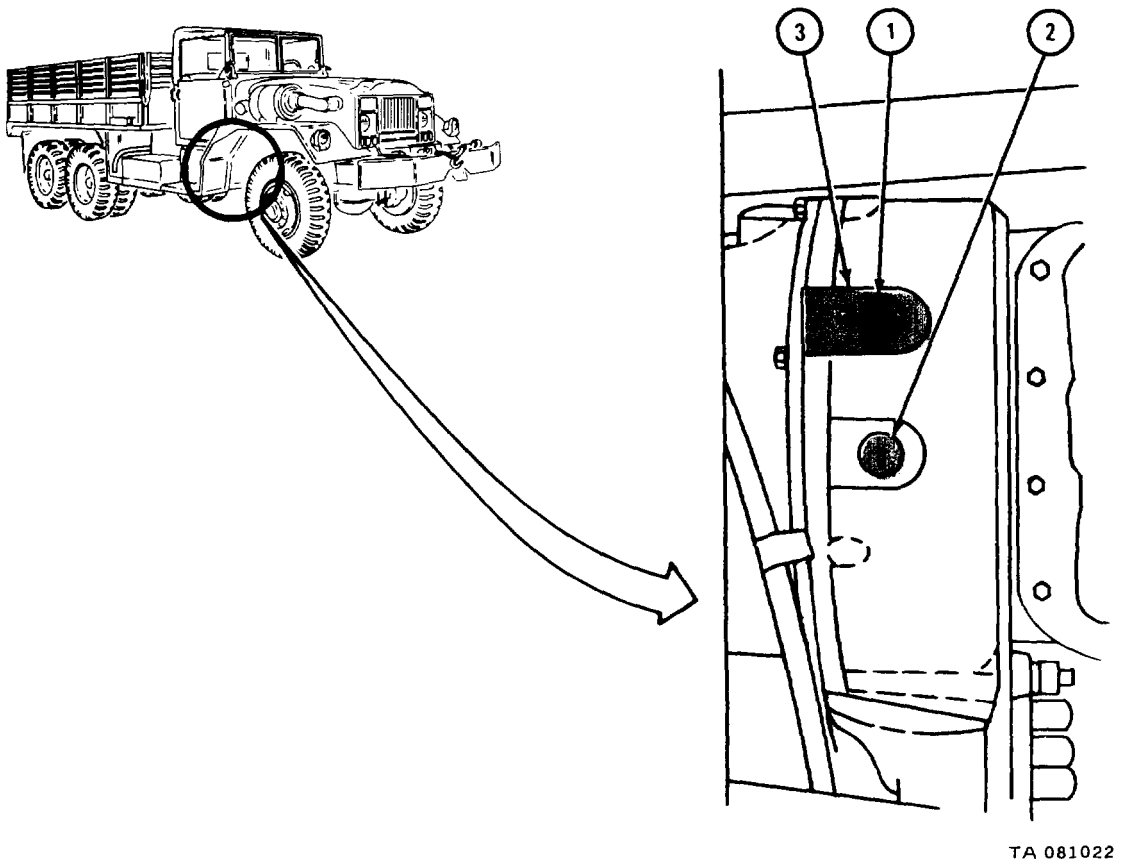
7. Make sure your engine is running correctly and start fording.
8. After leaving the water, stop engine. Refer to para 4-6e.

GO TO FRAME 3



FRAME 3

1. Using straight bar plug wrench and ratchet wrench unscrew flywheel housing drain plug (1) from drain port (2).
2. Screw drain plug (1) into storage boss (3).
3. Wash off all salt water and salt deposits from every part of truck.



4-23. EMERGENCY PROCEDURES.

a. Using Slave Receptacle to Start the Engine. (Refer to para 4-14f.)

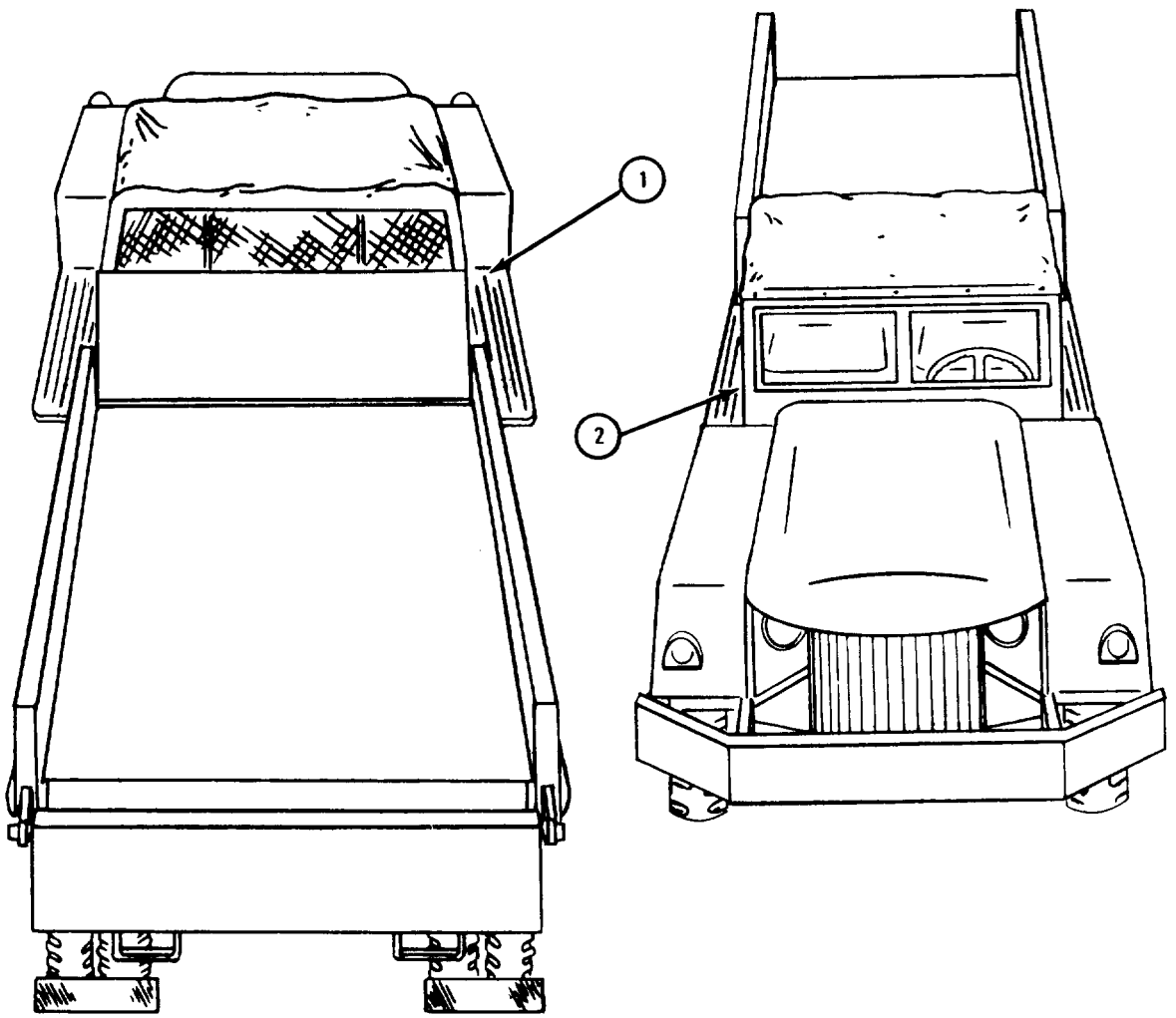
b. Using Jumper Cables to Start the Engine.

TOOLS: Jumper cables

FRAME 1

1. Start engine. Refer to para 4-6a, b.
2. Position slave truck so that its batteries (1) are directly opposite batteries (2) of disabled truck.
3. Stop engine. Refer to para 4-6e.

GO TO FRAME 2

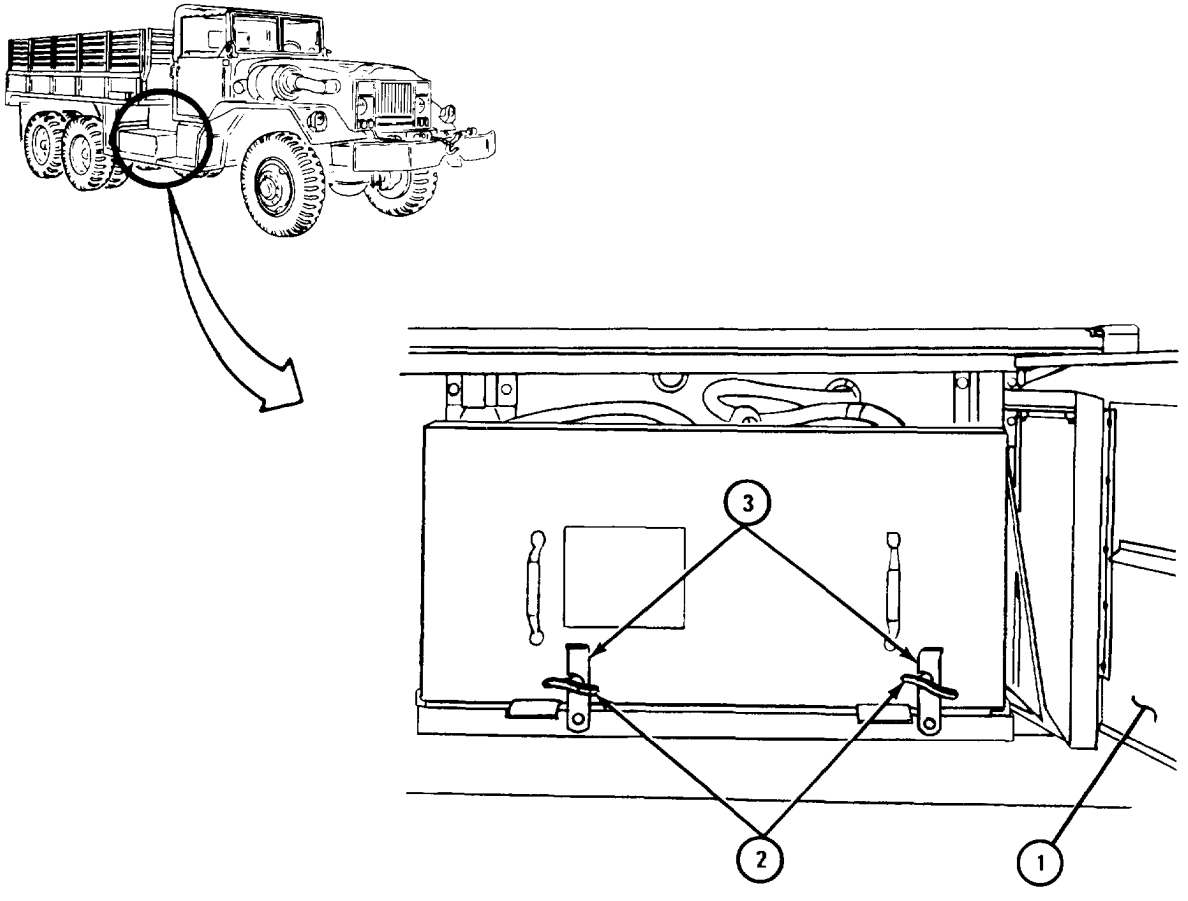


TA 044910

FRAME 2

1. Open battery compartment doors (1) of both trucks.
2. Loosen thumbscrews (2).
3. Move clamps (3) as far as they go to the right.

GO TO FRAME 3



TA 081023

FRAME 3

1. Pull battery boxes (1) of both trucks out far enough for battery posts to be reached.

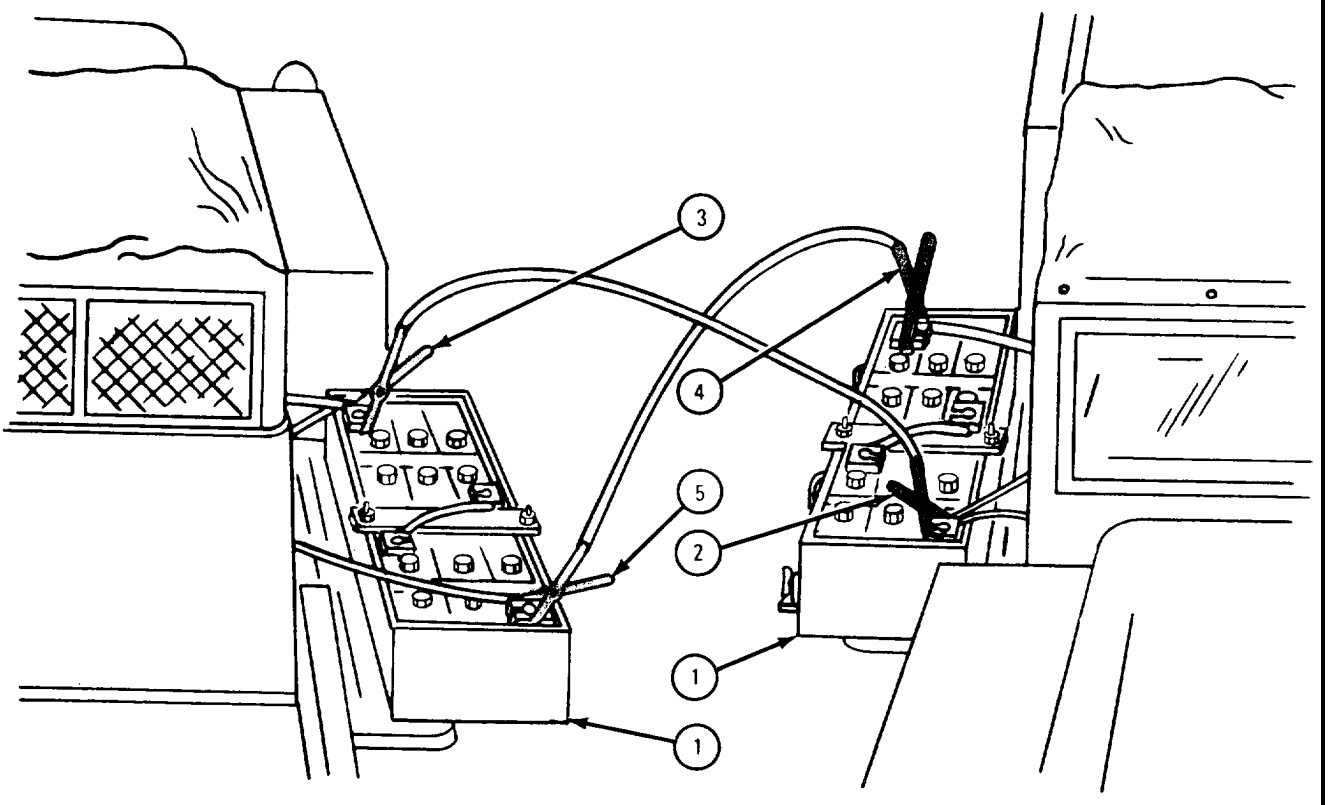
CAUTION

Be sure to join positive post of disabled truck battery to positive post of slave truck battery, and negative post of disabled truck battery to negative post of slave truck. This will stop damage to truck battery alternator and other equipment.

2. Clamp one end of positve (red) jumper cable (2) to positive battery post of disabled truck. Clamp other end (3) to positive battery post of slave truck.

3. Clamp one end of negative (black) jumper cable (4) to negative battery post of disabled truck. Clamp other end (5) of jumper cable to negative battery post of slave truck.

GO TO FRAME 4



TA 081024

FRAME 4

1. Start engine of slave truck. Refer to paras 4-6a, b.
2. Start engine of disabled truck. Refer to paras 4-6a, b.

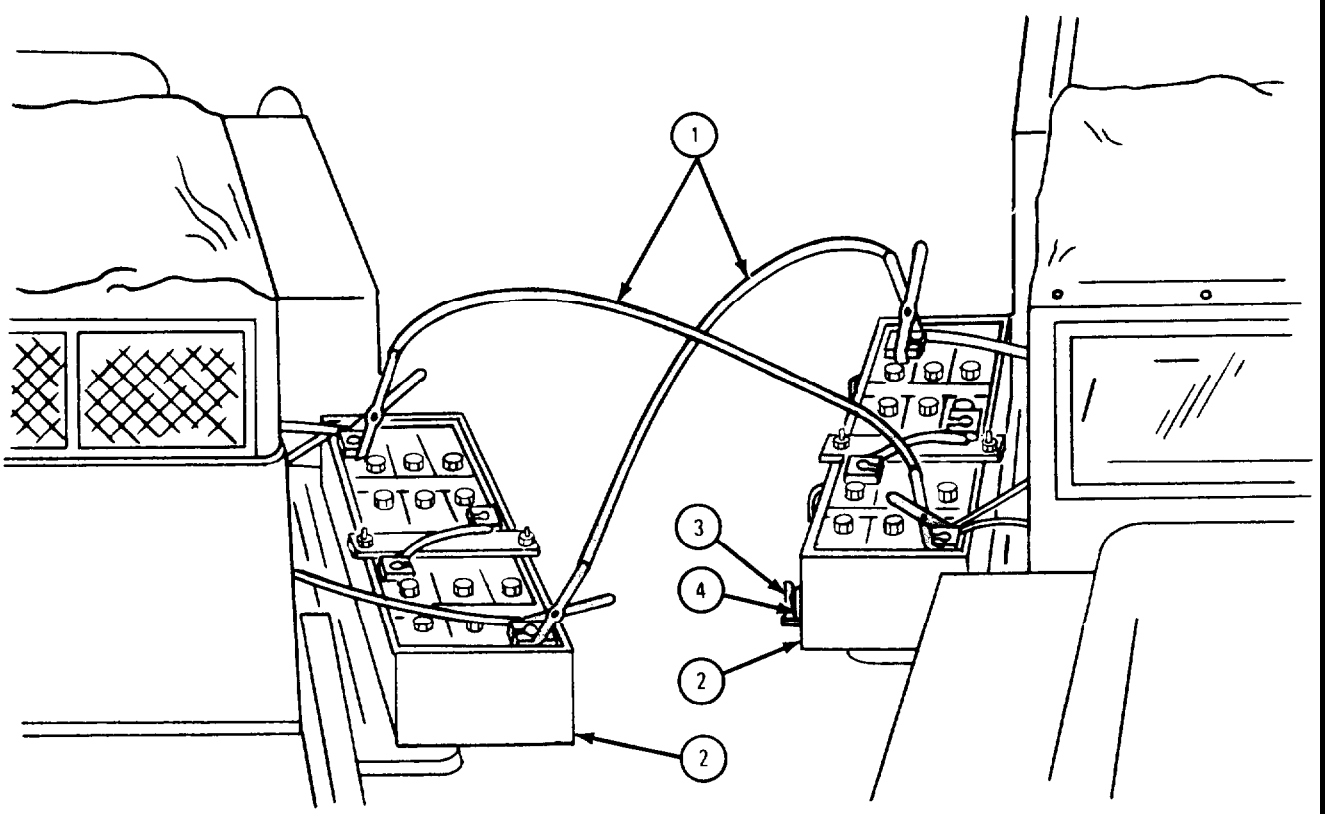
NOTE

If engine of disabled truck does not start after three or four tries, tell organizational maintenance.

WARNING

Completely take off one jumper cable at a time so that ends of positive (red) and negative (black) cables do not touch each other. Shorting of battery can cause serious damage to alternator and injury to personnel.

3. Take off jumper cables (1).
4. Push battery boxes (2) back into place.
5. Make battery boxes (2) fast with clamps (3) and thumbscrews (4).
6. Close battery compartment doors.



TA 081025

c. Towing Truck to Start Engine.

TOOLS: 7/16-inch open end wrench
5/8-inch open end wrench
Pliers

PERSONNEL: Two

FRAME 1

CAUTION

Do not try to tow a disabled truck with a tow chain wrapped around the center of the bumper.

Do not try to push a disabled truck. Tow only. Power train can be damaged by pushing a truck.

NOTE

Approval from maintenance officer must be obtained before towing your truck to start engine.

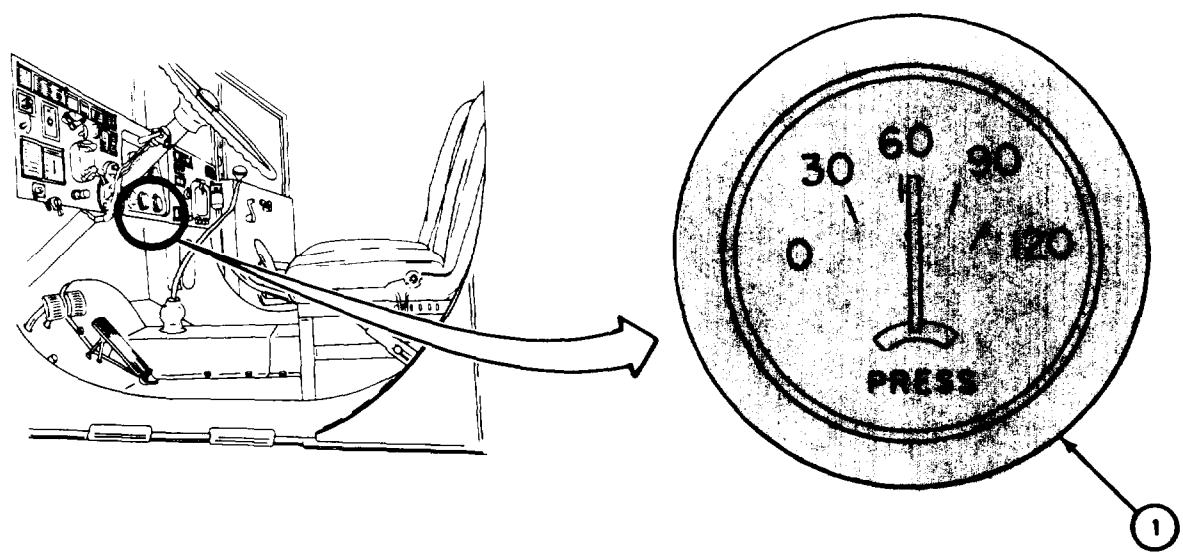
Be sure that service brakes are operating properly before towing.

Trucks with an inoperative compressed air system can be towed only with a tow bar.

To tow a disabled truck with a tow chain, the disabled truck should have at least 75 psi in the air reservoirs.

Soldier A 1. Check to see if air pressure gage (1) reads 75 psi.

GO TO FRAME 2



FRAME 2

NOTE

Air supply in disabled truck can be charged from towing truck. This can be done through trailer emergency air couplings or by using tire inflation hose.

1. To build up disabled truck air pressure through the emergency air couplings:

Soldier B (a) Turn dummy couplings (1) left and take them from emergency air couplings (2) on disabled truck (left front) and towing truck (right rear).

(b) Place coupling halves (3) of intravehicular air hose to emergency couplings (2) of both trucks and turn right to lock.

Soldier A (c) Check that engine is running on towing truck.

Soldier B (d) Turn emergency air valve handles (4) on both trucks 1/4-turn left to open.

Soldier A (e) Let air pressure in disabled truck build up to 100 psi shown on pressure gage (5).

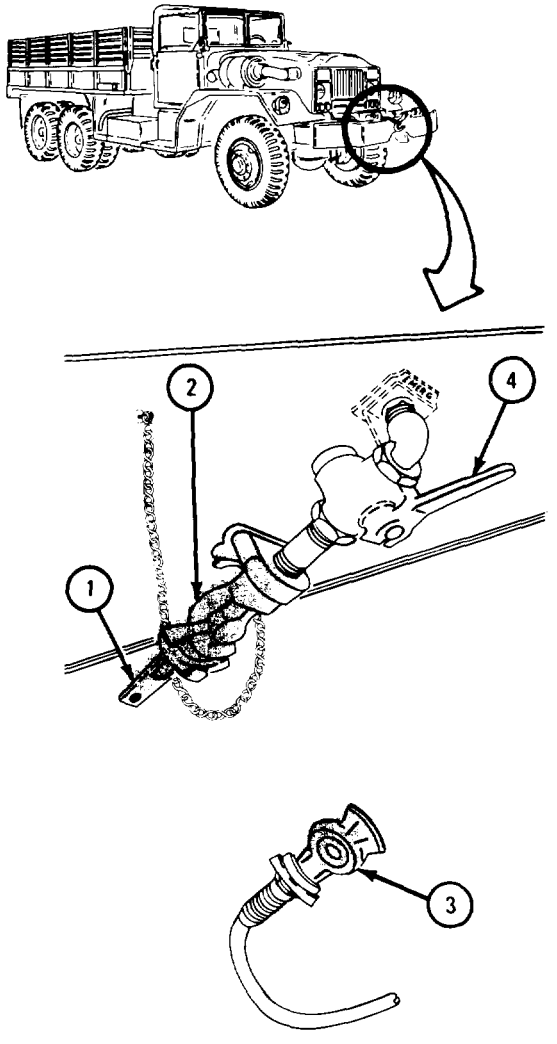
Soldier B (f) Turn emergency air valve handles (4) on both trucks 1/4-turn to right to close valves.

(g) Turn coupling halves (3) of intravehicular air hose left and take them off.

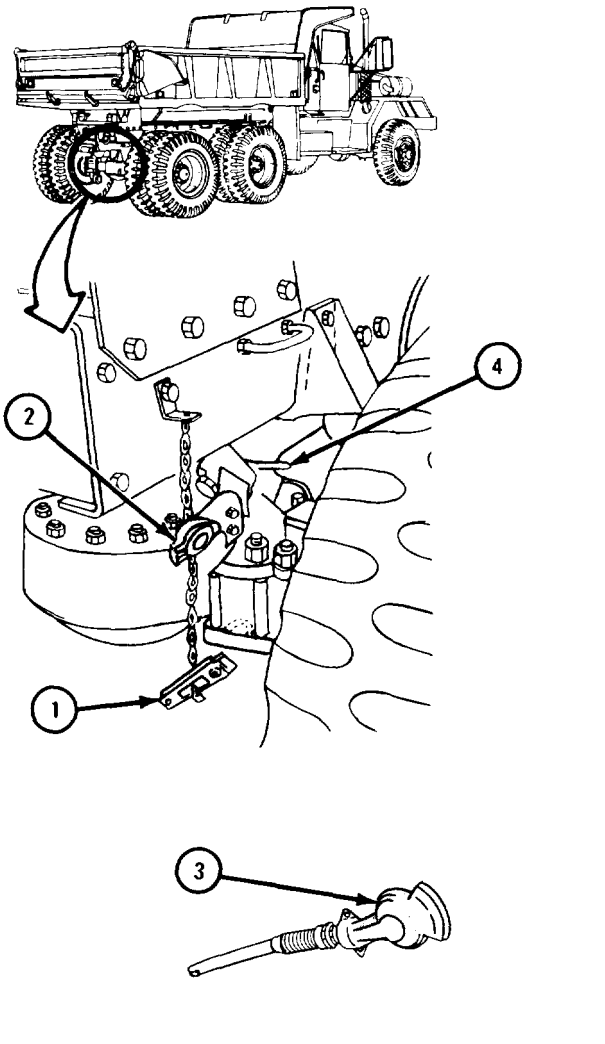
(h) Put dummy couplings (1) on emergency air coupling halves (2) and turn them right to lock.

GO TO FRAME 3

FRAME 2 - Continued



DISABLED TRUCK



TOWING TRUCK

TA 081027

FRAME 3

1. To build up disabled truck air pressure using air inflation hose:

Soldier A
(a) Unscrew cap (1) from towing truck air valve (2).

(b) Screw inflation hose coupling nut (3) on towing truck air valve (2).

Soldier B
(c) Using 7/16-inch wrench, unscrew disabled truck air valve pipe plug (4).

(d) Using 5/8-inch wrench, hold inflation hose fitting (5) and unscrew inflation gage (6).

(e) Using 5/8-inch wrench, screw inflation hose fitting (5) into disabled truck air valve (7).

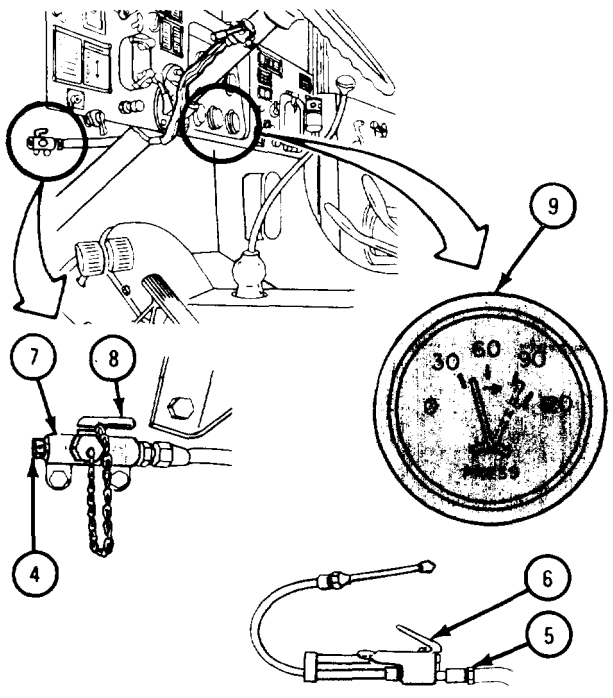
Soldier A
(f) Check that towing truck engine is running.

Soldiers A and B
(g) Turn air valve handles (8) on both trucks 1/4-inch right to open valves.

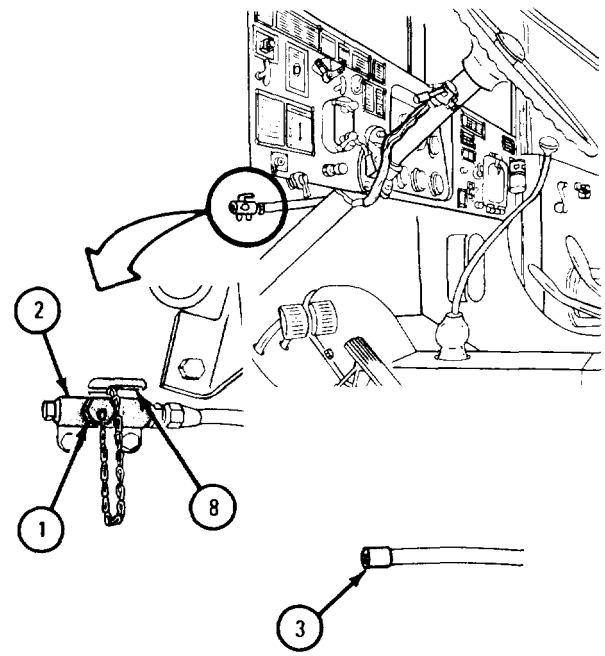
Soldier B
(h) Let air pressure in disabled truck build up to 100 psi as shown on air pressure gage (9).

Soldiers A and B
(i) Turn air valve handles (8) on both trucks 1/4-turn left to close valves (2 and 7).

GO TO FRAME 4



DISABLED TRUCK



TOWING TRUCK

TA 081028

FRAME 4

Soldier B 1. Using 5/8-inch wrench, unscrew inflation hose fitting (1) from disabled truck air valve (2).

2. Using 7/16-inch wrench, screw pipe plug (3) into air valve (2).

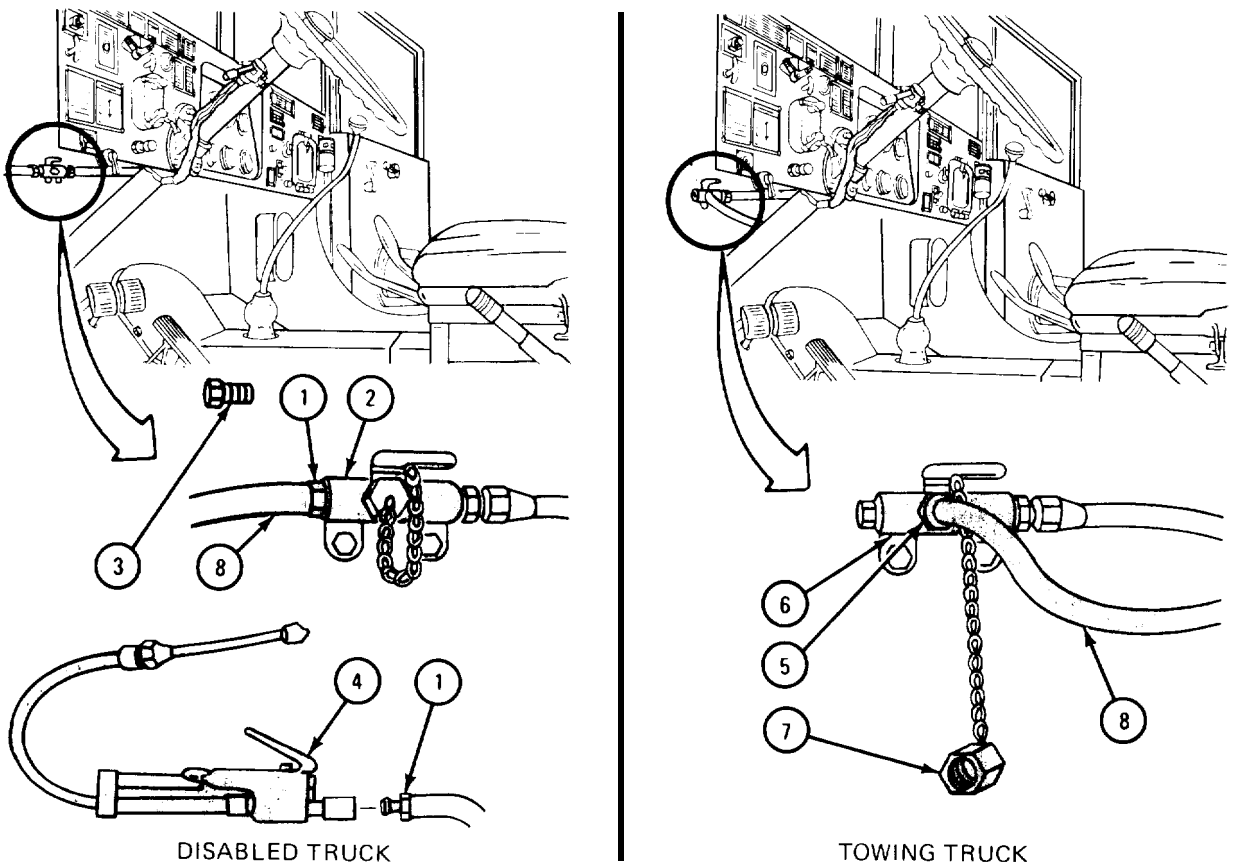
3. Using 5/8-inch wrench, hold fitting (1) and screw inflation gage (4) to fitting.

Soldier A 4. Unscrew inflation hose coupling nut (5) from towing truck air valve (6).

5. Screw cap (7) on air valve (6).

6. Stow inflation hose (8) in tool box.

GO TO FRAME 5



DISABLED TRUCK

TOWING TRUCK

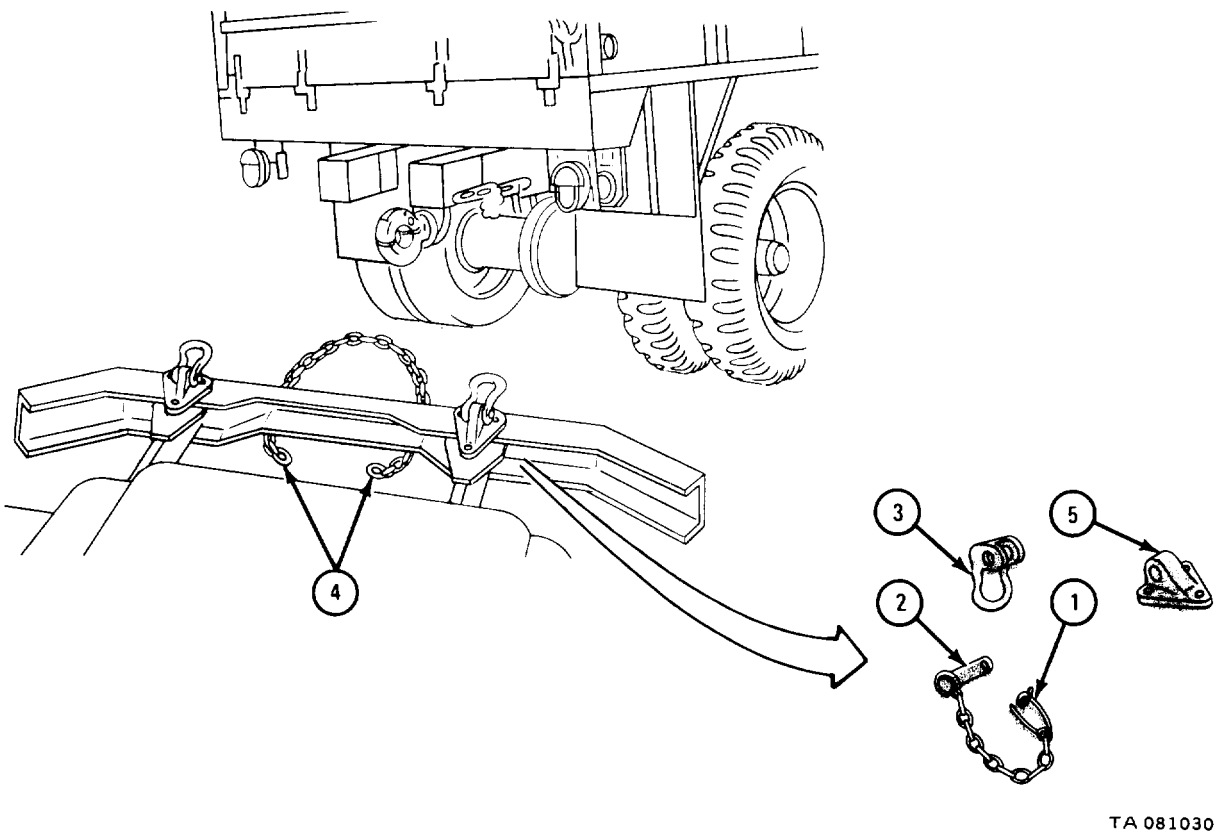
TA 081029

FRAME 5

Soldier B

1. Take locking pins (1) out of front shackle pins (2) on both right and left sides of disabled truck.
2. Take shackle pins (2) out.
3. Take shackles (3) off.
4. Put shackles (3) through end links of chain (4).
5. Place shackles (3) on brackets (5) and aline holes.
6. Place shackle pins (2) through holes.
7. Place locking pins (1) through holes in shackle pins (2) and lock pins.

GO TO FRAME 6

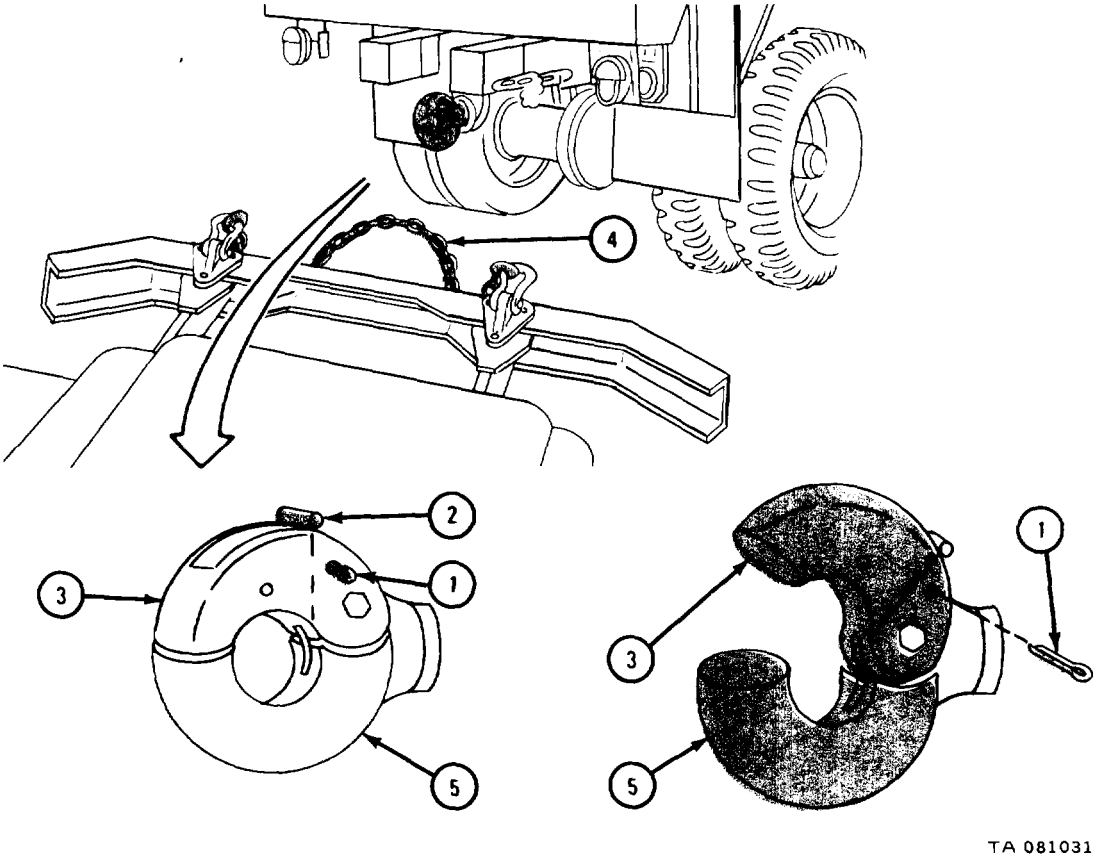


TA 081030

FRAME 6

1. Using pliers, straighten end of cotter pin (1) on towing truck and pull it out.
2. Pull up hook latch (2) and lock (3).
3. Place center of chain (4) in hook (5) of towing truck.
4. Push latch (2) and lock (3) down and aline holes in latch and lock.
5. Using pliers, put cotter pin (1) through holes and bend open ends of cotter pin.

GO TO FRAME 7

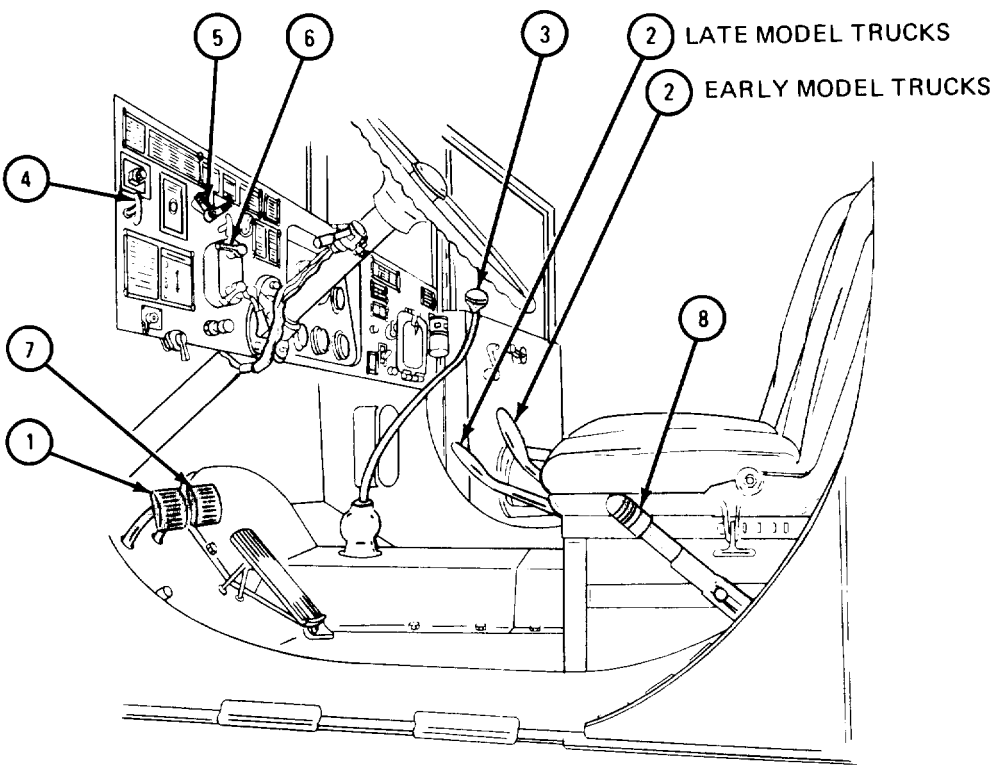


TA 081031

FRAME 7

1. Step down on clutch pedal (1) of disabled truck all the way.
2. Place TRANSFER CASE lever (2) in HIGH position.
3. Place FRONT TRANSMISSION gearshift lever (3) in position 5.
4. Pull hand THROTTLE control (4) out one-third of the way.
5. Turn BATTERY switch (5) to ON position.
6. Turn light switch (6) to STOP LIGHT position.
7. Step down on service foot brake (7) to keep truck from coasting.
8. Put handbrake (8) to down (brake off) position.

GO TO FRAME 8



FRAME 8

1. As soon as towing begins, let up service foot brake (1) of disabled truck.
2. Hold clutch pedal (2) in until truck speed reaches 10-miles per hour.
3. Let clutch pedal (2) up slowly and operate accelerator pedal (3) as necessary.

NOTE

For cold weather starting, move INTAKE MANIFOLD AIR-HEATER switch (4) to ON position as soon as clutch pedal (2) is up.

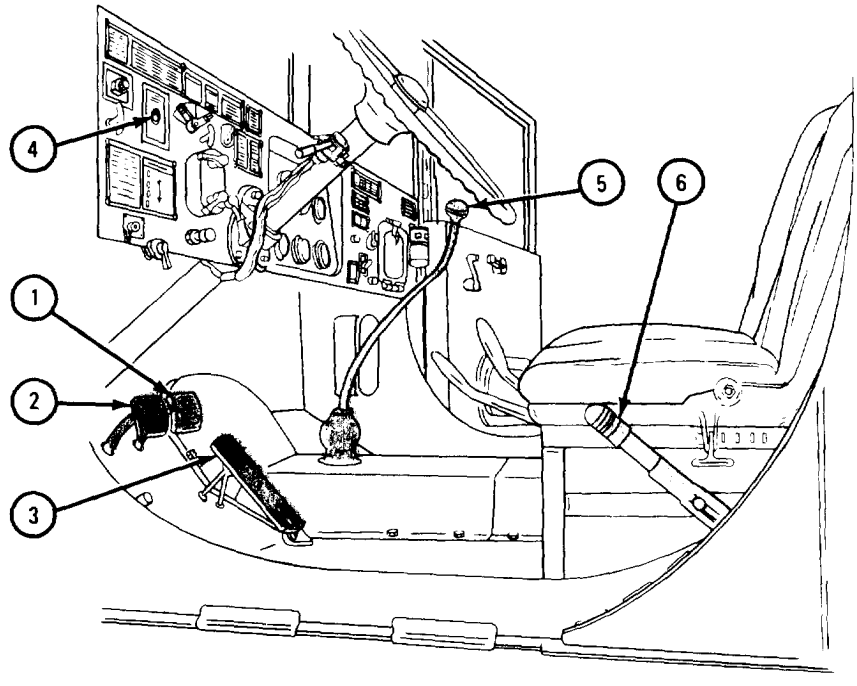
The towed truck should start within 100 yards. If it fails to start, stop towing operation and notify organizational maintenance.

4. When engine starts, step down on clutch pedal (2).
5. Put FRONT TRANSMISSION gearshift lever (5) to N position.
6. Signal to towing truck.
7. Step on service foot brake (1) slowly and stop both trucks.
8. Pull handbrake (6) to up (brake on) position.

NOTE

During cold weather turn INTAKE MANIFOLD AIR-HEATER switch (4) ON and OFF until engine runs smoothly.

GO TO FRAME 9

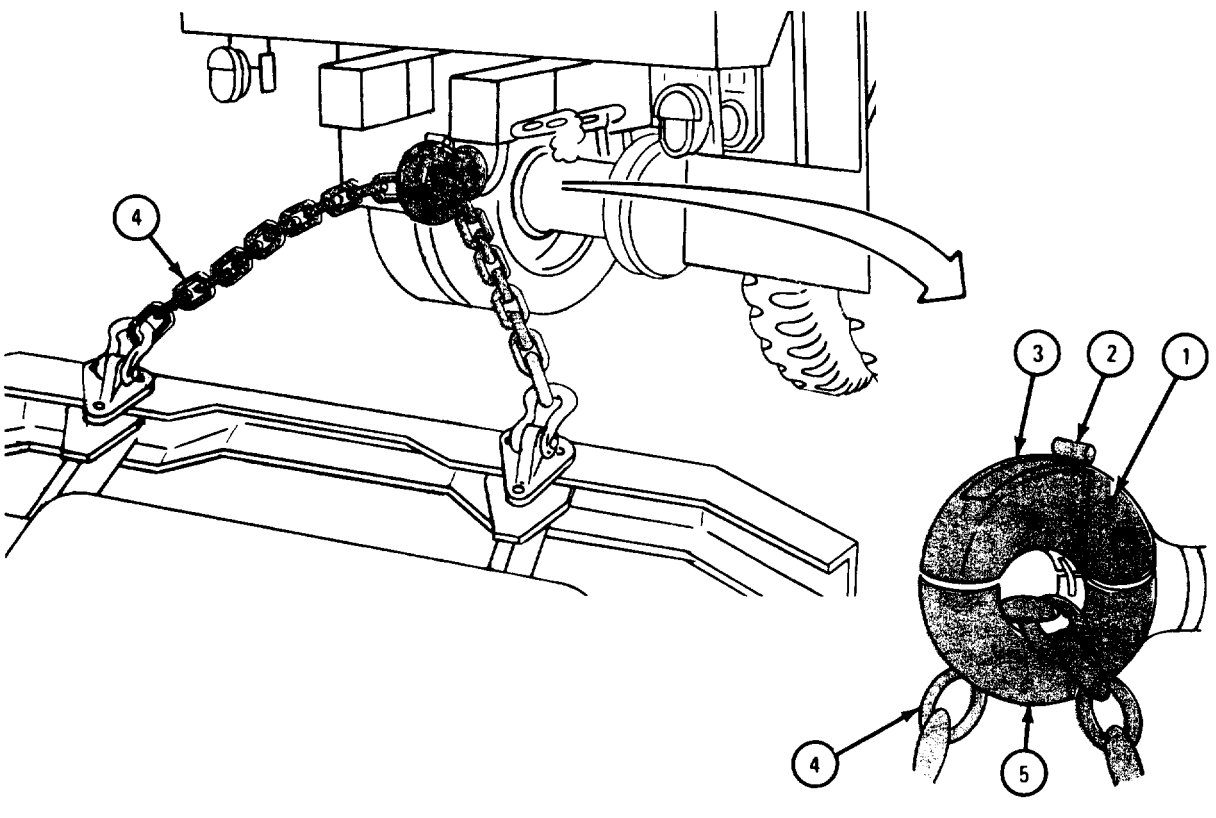


TA 081033

FRAME 9

1. Using pliers, straighten end of cotter pin (1) and pull it out.
2. Pull up hook latch (2) and lock (3).
3. Take chain (4) from hook (5).
4. Push latch (2) and lock (3) down and aline holes in latch and lock.
5. Using pliers, put cotter pin (1) through holes and bend open ends of cotter pin.

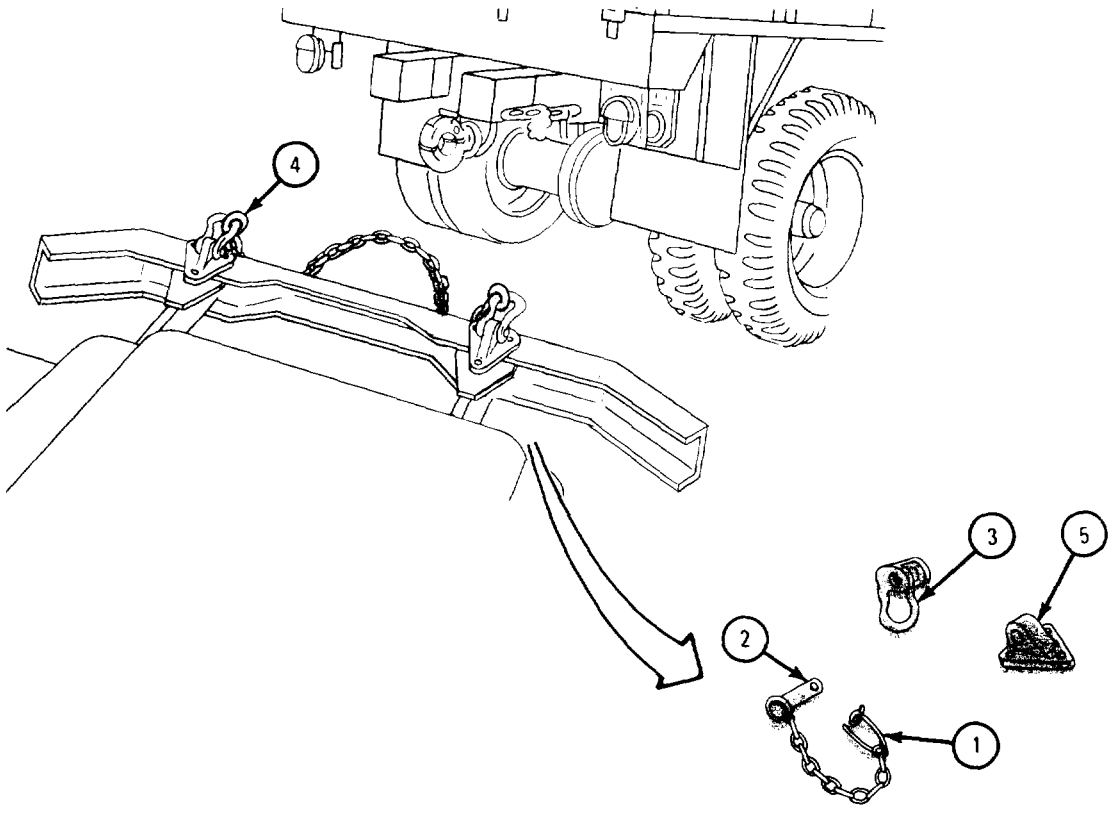
GO TO FRAME 10



TA 081034

FRAME 10

1. Take locking pins (1) out of front shackle pins (2) on both right and left sides.
2. Take out shackle pins (2).
3. Take off shackles (3).
4. Take chain (4) from shackles (3).
5. Place shackles (3) on bracket (5) and aline holes and put shackle pins (2) through holes.
6. Place locking pins (1) through holes in shackle pins (2) and lock pins.



d. Highway Towing.

TOOLS: Tow bar
Pliers

PERSONNEL: Two

FRAME 1

CAUTION

Do not tow a truck that has become disabled because of a damaged transfer, axle, or transmission. Tell direct support maintenance.

Do not try to tow with front or rear wheels off the ground. Tell direct support maintenance.

Do not push a disabled truck. Using towing procedure only.

Do not go over 20 mph when towing.

Soldier A 1. Take locking pins (1) out of holes in front shackle pins (2) on both right and left sides of disabled truck.

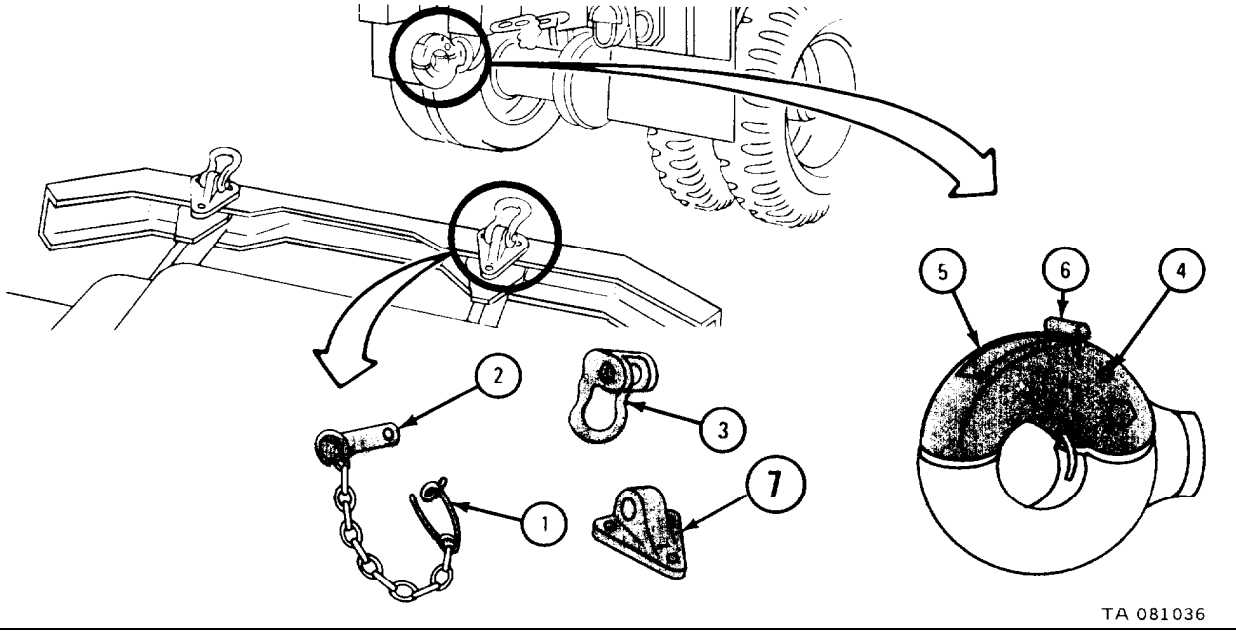
2. Take out shackle pins (2), from shackle brackets (7)

3. Take off shackles (3).

4. Using pliers, straighten end of cotter pin (4) in pintle lock (5) of towing truck and pull out pin.

5. Pull hook latch (6) and lock (5) to up position.

GO TO FRAME 2



TA 081036

FRAME 2

Soldiers A and B

1. Aline holes in tow bar brackets (1) with holes in shackle brackets (2) and put shackle pins (3) through holes.
2. Place locking pins (4) through holes in end of shackle pins (3) and lock pins.

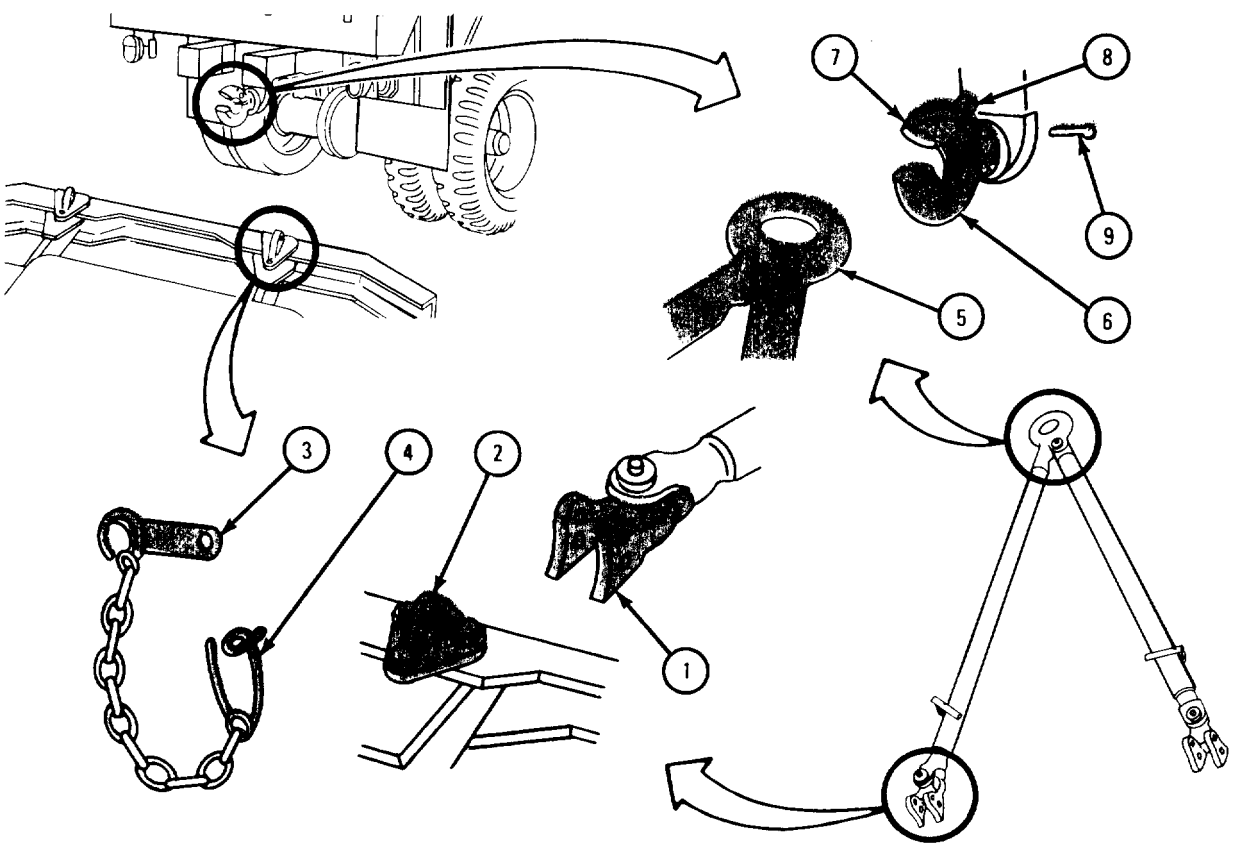
Soldier A

3. Move towing truck so that tow bar ring (5) will go on pintle hook (6).

Soldier B

4. Place tow bar ring (5) in pintle hook (6) and push lock (7) and latch (8) down.
5. Aline holes in pintle lock (7) and latch (8).
6. Using pliers, push cotter pin (9) through holes and bend open ends of cotter pin.

GO TO FRAME 3



FRAME 3

Soldier B 1. Step down on disabled truck clutch pedal (1) all the way.

2. Place FRONT TRANSMISSION gearshift lever (2) in N position.

3. Place TRANSFER CASE lever (3) in neutral position, half way between HIGH and LOW positions.

4. Let clutch pedal (1) up.

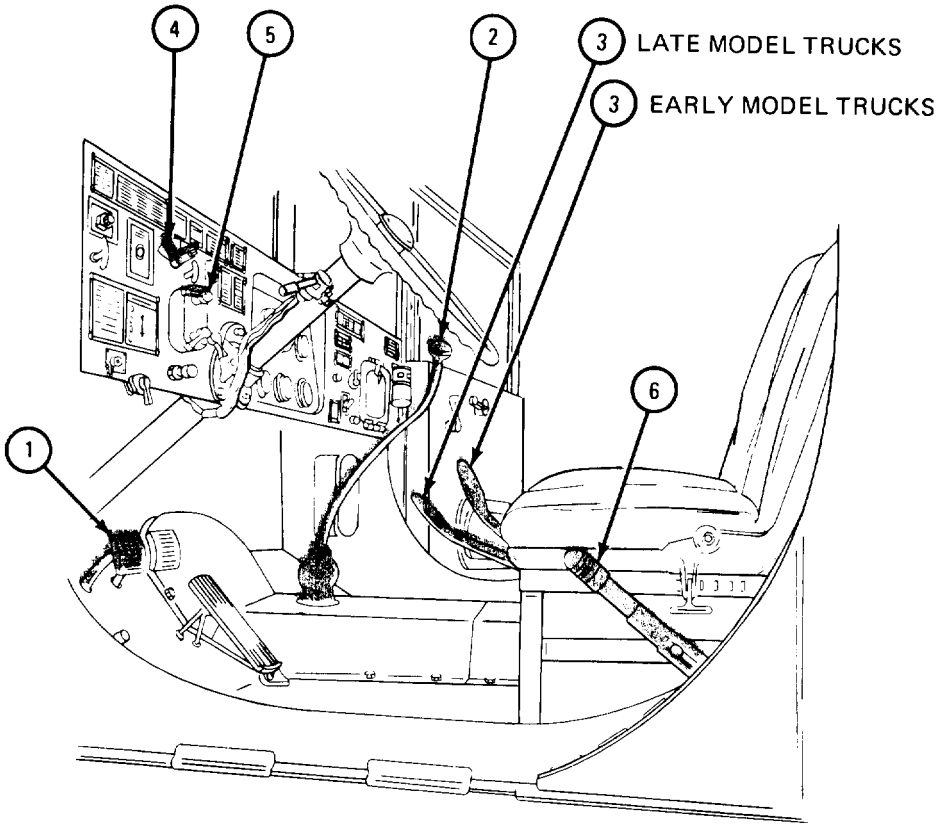
5. Turn BATTERY switch (4) to ON position.

6. Turn light switch (5) to STOP LIGHT position.

7. Push handbrake (6) to down (brake off) position.

8. Signal to towing truck to start towing.

GO TO FRAME 4

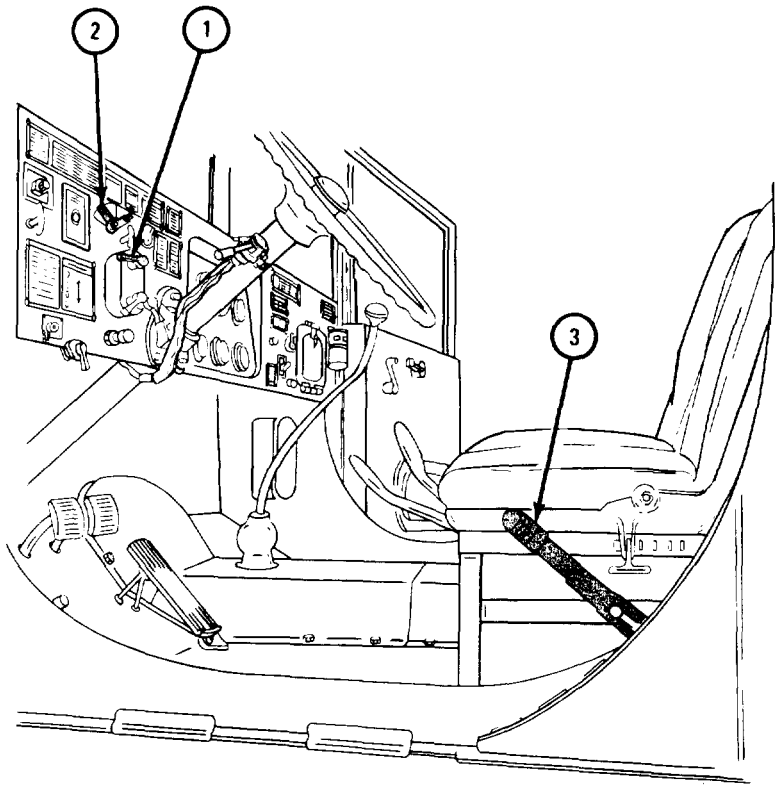


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FRAME 4

1. When towing operation is completed:
   (a) Turn disabled truck light switch (1) to OFF position.
   (b) Turn BATTERY switch (2) to OFF position.
   (c) Pull handbrake (3) to up (brake on) position.

GO TO FRAME 5



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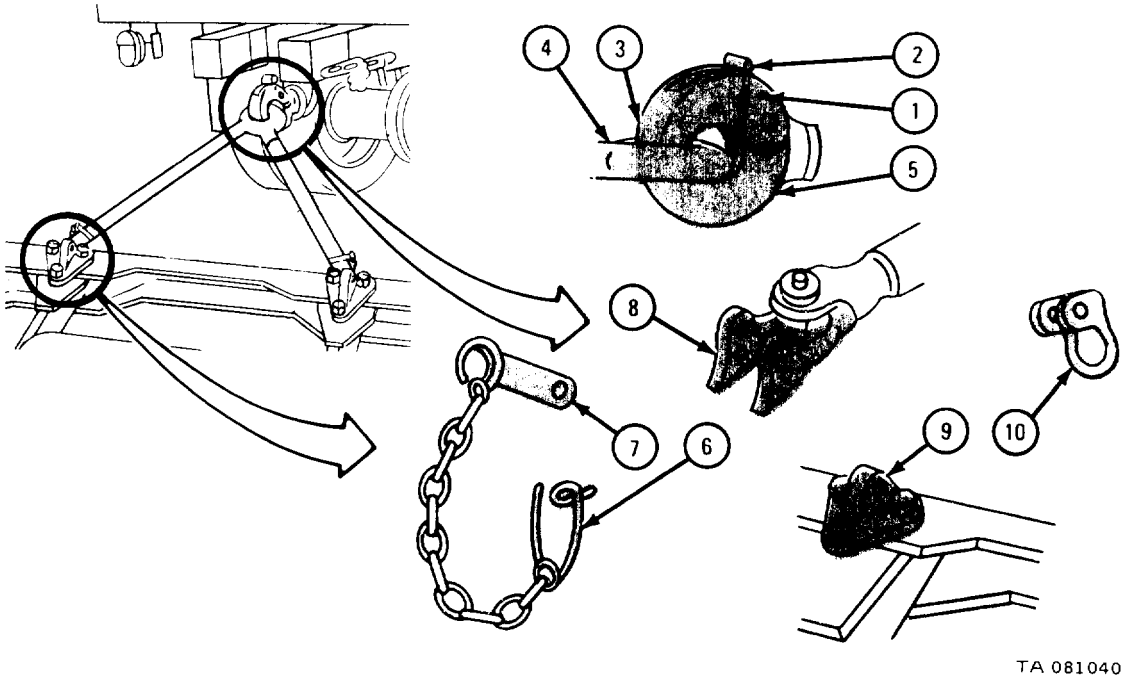
FRAME 5

1. Using pliers, straighten ends of cotter pin (1) and pull it out.
2. Pull up hook latch (2) and lock (3).
3. Take tow bar ring (4) off pintle hook (5).
4. Push latch (2) and lock (3) down and aline holes in latch and lock.
5. Using pliers, put cotter pin (1) through holes and bend open ends of cotter pin.
6. Take locking pins (6) out of front shackle pins (7) on both right and left sides.
7. Take shackle pins (7) out of tow bar brackets (8) and shackle brackets (9).

Soldiers A and B 8. Take tow bar brackets (8) from shackle brackets (9).

Soldier B 9. Place shackle (10) on shackle bracket (9) and aline holes.

10. Place shackle pins (7) through holes in shackle (10) and shackle bracket (9).
11. Put locking pins (6) in holes in end of shackle pins (7) and lock pins.



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APPENDIX A

REFERENCES

A-1. PUBLICATION INDEXES and GENERAL REFERENCE.

Indexes should be checked often for the latest changes or revisions of references given in this appendix and for new publications on materiel covered in this technical manual.

a. Military Publications Indexes.

Index of Blank Forms.... . . . . DA Pam 310-2

Military Publications:

Index of Technical Manuals, Technical Bulletins, Supply Bulletins, and Lubrication Orders . . . . . DA Pam 310-4

b. General Reference.

Authorization Abbreviations and Brevity Codes . . . . . AR 310-50

Dictionary of United States Army Terms. . . . . AR 310-25

A-2. FORMS.

The following forms are for this materiel (refer to DA Pamphlet 310-2 for index of blank forms and to TM 38-750 for explanation of their use).

Recommended Changes to Publications . . . . . DA Form 2028

Maintenance Request - Continuation Sheet . . . . . DA Form 2407-1

Equipment Log Assembly (Records) . . . . . DA Form 2408

A-3. OTHER PUBLICATIONS.

a. Truck.

Lubrication Order . . . . . LO 9-2320-211-12

b. General.

Basic Cold Weather Manual . . . . . FM 31-70

Northern Operations . . . . . FM 31-71

Mountain Operations How To Fight . . . . . FM 90-6(HTF)

Security of Tactical Wheeled Vehicles . . . . . TB 9-2300-422-20

Use of Antifreeze Solutions and Cleaning Compounds in Engine Cooling System . . . . . TB 750-651

Operation and Maintenance of Ordnance Materiel in Cold Weather (0° to -65°F) . . . . . FM 9-207

Vehicle Recovery Operation . . . . . FM 20-22

Deep Water Fording of Ordnance Materiel . . . . . TM 9-238

Material used for Cleaning, Preserving, Abrading, and Cementing Ordnance Materiel and Related materials Including Chemicals. . . . . TM 9-247

Operating and Maintenance Instructions for Portable Decontaminating Eguipment . . . . . TM 3-4230-204-12&P

Use and Care of Handtools and Measuring tools . . . . . TM 9-243

Army Motor Transport Units and Operations . . . . . FM 55-30

Manual for the Wheeled Vehicle Driver . . . . . FM 21-305

Army Maintenance Management System . . . . . TM 38-750

Equipment Improvement Report and Maintenance Summary for TARCOM Equipment . . . . . TM 43-0143

APPENDIX B

COMPONENTS OF END ITEM LIST

Section I. INTRODUCTION

B-1. SCOPE. This appendix lists integral components of and basic issue items for the 5-ton, 6 x 6, M39 series trucks (multifuel) to help you find items needed for safe and efficient operation.

B-2. GENERAL. This Components of End Item List is broken down into the following sections:

a. Section II. Integral Components of the End Item. These items, when put on the truck, are part of the truck and must go with it whenever it is moved to another site or turned in. The illustration will help you find these items.

b. Section III. Basic Issue Items. These are the minimum basic items needed to place the truck in operation, to operate it, and to do emergency repairs. Although packed and shipped separately, they must go with the truck during operation and whenever it is turned over to another accountable officer. The illustrations will help you with hard-to-find items. This manual is your authority to order replacement BII, based on TOE/MTOE authorization of the end item.

B-3. EXPLANATION OF COLUMNS.

a. Illustration. This column is broken down as follows:

(1) Figure Number. The number of the illustration on which the item is shown.

(2) Item Number. The number of the item called out in the illustration.

b. National Stock Number. The National stock number given to the item which will be used to order the item.

c. Part Number. The primary number used by the manufacturer which controls the design and characteristics of the item by means of its engineering drawings, specifications, standards, and inspection requirements to pin point the item or range of items.

d. Description. Gives the Federal Item Name and, if needed, a minimum description of the item.

e. Location. The location on the truck of each item listed is given in this column. The lists are made up to show all items in one area of the major item before moving on to the next area.

f. Usable on Code. Usable On codes are given to help you find which component items are used on the different models. The codes used in these lists are as follows:

Code	Used On
A	All
AA	All w/w
AB	M51A2 wo/w
AC	M51A2 w/w
AD	M52A2 wo/w
AE	M54A2 wo/w
AF	M54A2 w/w
AG	M54A2C wo/w
AH	M54A2C w/w
AI	M55A2 wo/w
AJ	M55A2 w/w
AK	M543A2 w/w

g. Quantity Required (Reqd Qty). This column lists the quantity of each item needed for a complete major item.

h. Quantity. This column is left blank and is to be used during an inventory. In the Rev'd column, list the quantity you actually get on your major item. The Date columns are for your use when you make an inventory of the major item at a later date, such as for shipment to another site.

B-4. ABBREVIATIONS. The following abbreviations are found in the lists:

Abbreviation	Explanation
assy	assembly
compt	compartment
dbl	double
dia	diameter
ft	foot, feet
gal	gallon(s)
hex	hexagon(al)
in	inch(es)
L	left
lb	pound(s)
lg	long
max	maximum
RD	round
sq	square
w	with
w/o	without

Section II. INTEGRAL COMPONENTS OF THE END ITEM

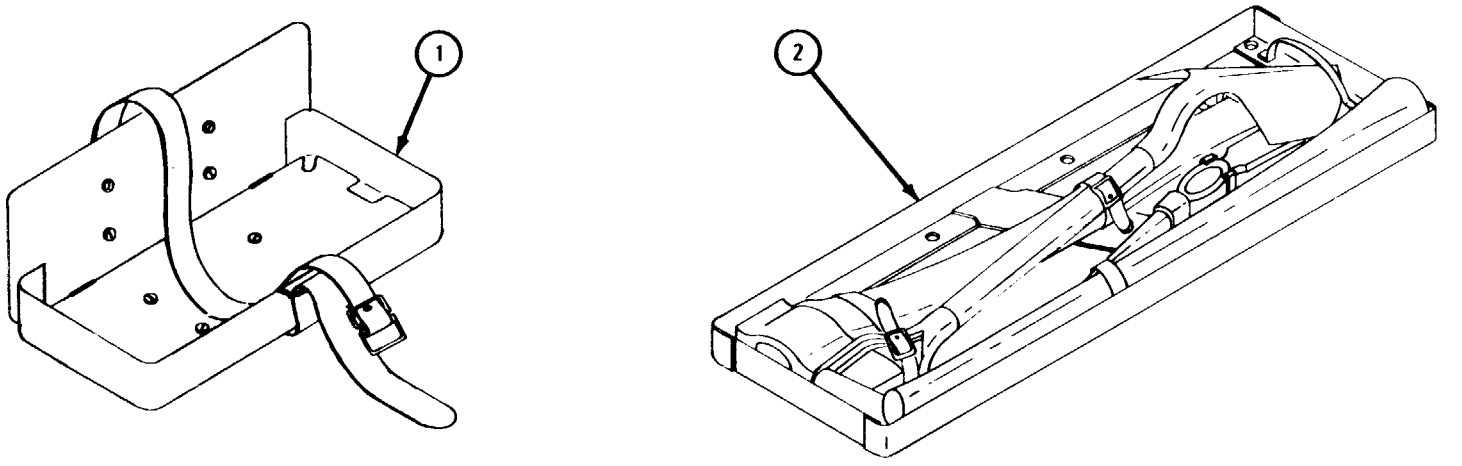


Figure B-1. Integral Components

Section II. INTEGRAL COMPONENTS OF THE END ITEM

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8) QUANTITY			
(a) FIGURE NO.	(b) ITEM NO.	NATIONAL STOCK NUMBER	PART NO.	DESCRIPTION	LOCATION	USABLE ON CODE	REQD QTY	RCV'D	DATE	DATE	DATE
B-1	1	2590-00-473-6331	MS53052-1 (96906)	BRACKET, DRUM, INFLAMMABLE, LIQUID: S, welded, w/strap	On 1 running board	A (except AK)	1				
	2	4910-00-357-5494	7346922	BRACKET: Pioneer tools	M51 - Side dump body; M52 - on tire carrier; M54, M55 - on tool box compartment behind cab; M453 - compt 3	A	1				

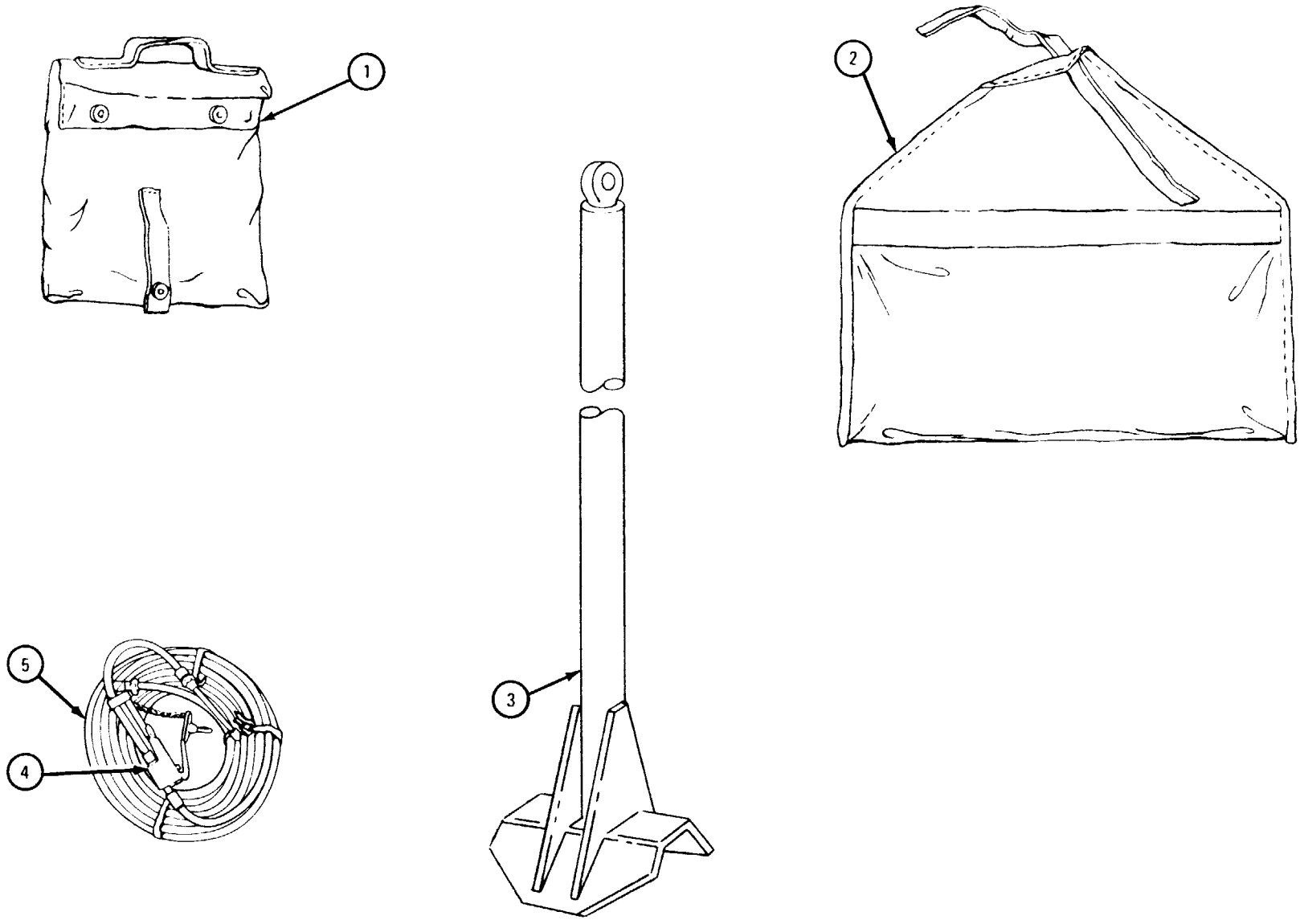


Figure B-2. Tools and Equipment Used on All Trucks (Sheet 1 of 2)

Section III. BASIC ISSUE ITEMS - Cont

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8) QUANTITY			
(a) FIGURE NO.	(b) ITEM NO.	NATIONAL STOCK NUMBER	PART NO.	DESCRIPTION	LOCATION	USABLE ON CODE	REQD QTY	RCV'D	DATE	DATE	DATE
B-2	1	2540-00-670-2459	7961712 (19207)	BAG ASSEMBLY, PAMPHLET: Canvas	On front of and/or inside tool compt under driver's seat	A	1				
	2	5140-00-772-4142	MIL-B-43648-4 (81349)	BAG, TOOL: Canvas, 10 x 20 in, w/flap	In tool compt (box)	A	1				
	3	2540-00-315-2306	8330150 (19207)	CHOCK, FIELD: Wheel	In compt 4, R front side, on deck	A	2				
	4	4910-00-204-2547	GGG91TY 3CLBSTY 2 (81348)	GAGE: Tire inflation	In tool compt under driver's seat	A	1				
	5	4720-00-092-9265	7540832 (81348)	HOSE: Tire inflation, 30-ft lg	In tool compt under driver's seat	A	1				

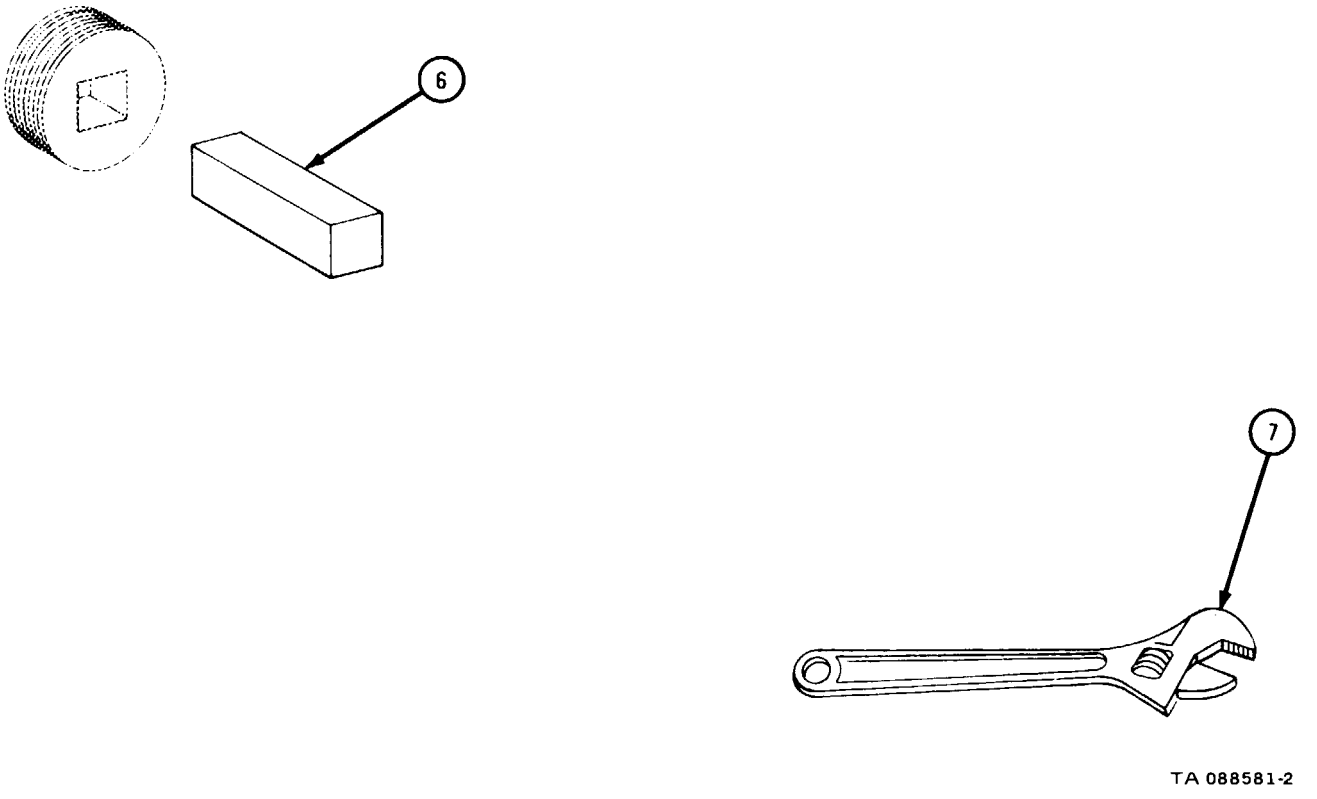


Figure B-2. Tools and Equipment Used on All Trucks (Sheet 2 of 2)

Section III. BASIC ISSUE ITEMS - Cont

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8) QUANTITY			
(a) FIGURE NO.	(b) ITEM NO.	NATIONAL STOCK NUMBER	PART NO.	DESCRIPTION	LOCATION	USABLE ON CODE	REQD QTY	RCV'D	DATE	DATE	DATE
B-2	6	5120-00-708-3302	7083302 (19207)	WRENCH, PLUG: Straight bar, sq 1/2-in.plug, 2 1/2-in.lg	In tool compt (box)	A	1				
		5315-00-732-1019	MS20066-543	WRENCH (KEY) DRAIN PLUG: Straight bar, 1/2-in. sq, 2 1/2-in.lg	In tool compt (box)	A	1				
	7	5120-00-449-8083	41-W-487 (80244)	WRENCH, OPEN END, ADJUSTABLE: Heavy duty, S-head type, 0-1.135-in. opening, 10-in.lg	In tool compt (box)	A	1				

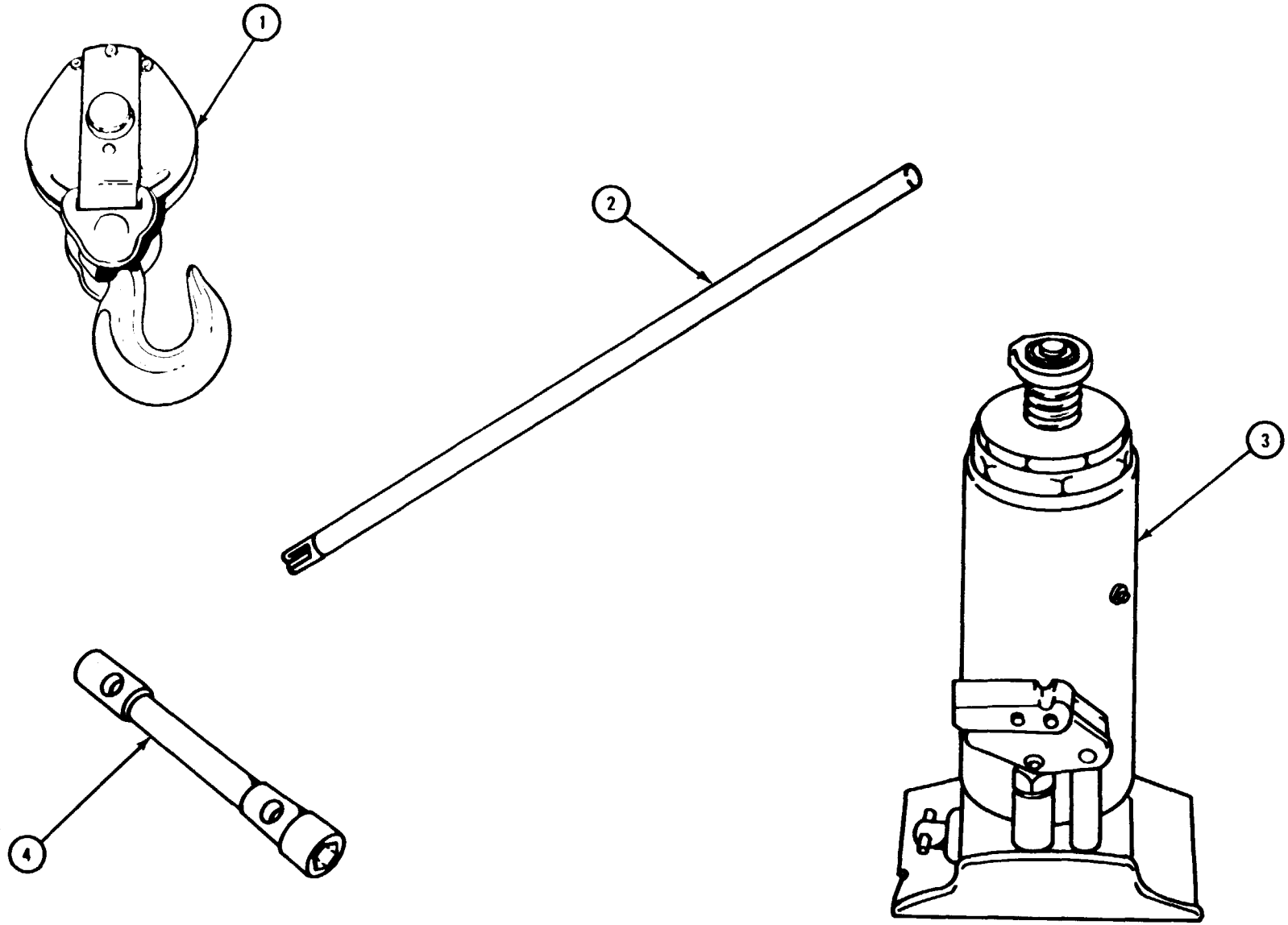
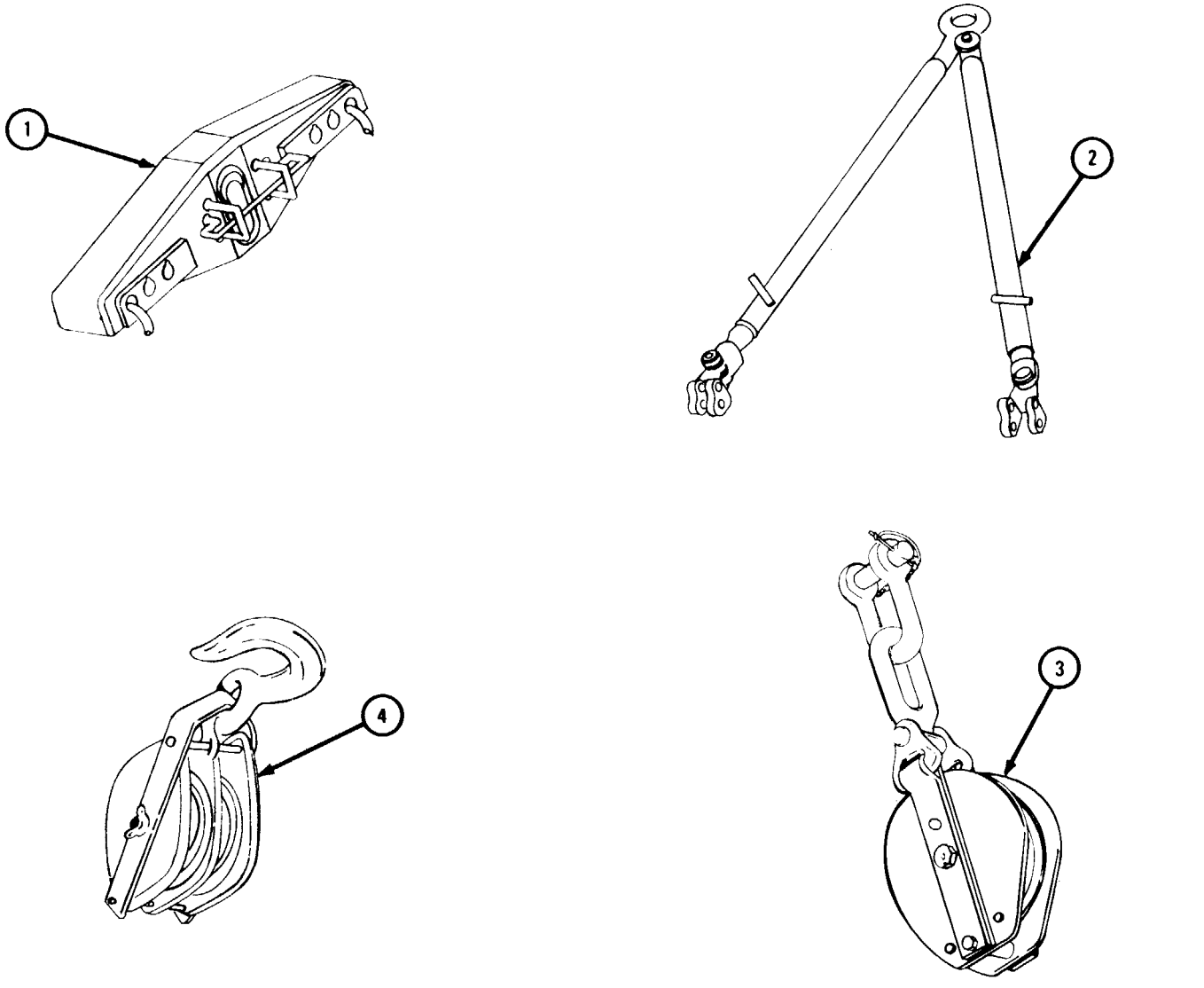


Figure B-3. Miscellaneous Tools and Equipment

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8) QUANTITY			
(a) FIGURE NO.	(b) ITEM NO.	NATIONAL STOCK NUMBER	PART NO.	DESCRIPTION	LOCATION	USABLE ON CODE	REQD QTY	RCV'D	DATE	DATE	DATE
B-3	1	3940-00-630-9931	8337020 (19207)	BLOCK, SNATCH: Wire rope, S shell, S 8-in.sheave w/swivel hook, 5/8-in.dia rope, 10-ton working load	In tool compt above L running board	AA	1				
	2	5120-00-243-2419	41-W-1541-10 (80244)	BAR, SOCKET WRENCH HANDLE: 3/4-in.dia, 30-in.lg (used w/wheel stud nut wrench)	In tool compt (box)	A	1				
	3	5120-00-595-8396	MS16283-9 (96906)	JACK, HYDRAULIC, HAND: Self-contained, 8-ton, 11-in.closed (max), 23 1/8-in.open (min), w/operating lever	In tool compt (box)	A (except AI, AJ, AK)	1				
		5120-00-224-7330	GGGJ63 (96906)	JACK, HYDRAULIC: Self-contained, 12-ton, 11 1/4-in. closed, 16 1/4-in. extended, pump, w/screw extension	In tool compt (box)	A	1				
	4	5120-00-316-9217	MIL-W-43105 (81349)	WRENCH, WHEEL STUD NUT: Dbl-head socket, 1 1/2-in. hex opening nominal, 1 3/16-in. sq opening (nominal), 18 3/8-in.lg	In tool compt (box)	A	1				



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Figure B-4. Wrecker Tools and Equipment (M543A2) (Sheet 1 of 2)

Section III. BASIC ISSUE ITEMS - Cont

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8) QUANTITY			
(a) FIGURE NO.	(b) ITEM NO.	NATIONAL STOCK NUMBER	PART NO.	DESCRIPTION	LOCATION	USABLE ON CODE	REQD QTY	RCV'D	DATE	DATE	DATE
B-4	1	4910-00-347-9703	8690061 (19207)	BAR: Hoisting, whiffletree	In compt 4, R front side, on deck	AK	2				
	2	4910-00-433-7094	7356056 (19207)	BAR: Tow, motor vehicle, V-type (light duty)	In compt 4, R front side, on deck	AK	1				
	3	3940-00-899-1352	8333238 (19207)	BLOCK: Tackle, gear, winch, S-shell wire rope, S 10-in sheave w/shackle end, 3/4-in. dia rope, 15-ton cap.	In compt 5, R rear side, on deck	AK	2				
	4	3940-00-926-3719	GGGB490 (81348)	BLOCK: Tackle, manila rope, dbl 4 3/4-in. sheaves, 1-in. dia. rope, 3-in. circum, w/loose side hook wo/beckert, 2540-lb cap.	In compt 3A, behind spare wheel, L side	AK	1				

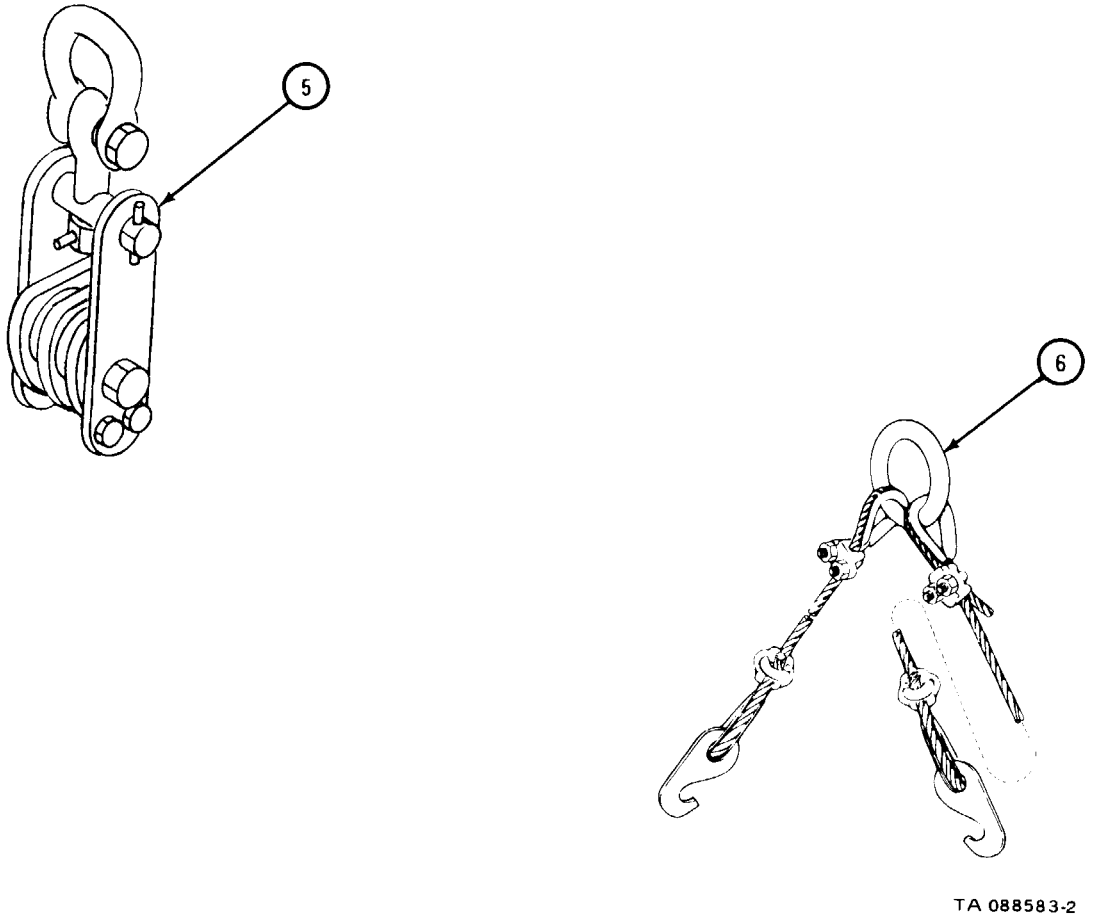


Figure B-4. Wrecker Tools and Equipment (M543A2) (Sheet 2 of 2)

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8) QUANTITY			
(a) FIGURE NO.	(b) ITEM NO.	NATIONAL STOCK NUMBER	PART NO.	DESCRIPTION	LOCATION	USABLE ON CODE	REQD QTY	RCV'D	DATE	DATE	DATE
B-4	5	3940-00-792-9881	8379923 (19207)	BLOCK: Tackle, wire rope, dbl 7 3/4-in. dia sheaves w/swivel shackle, 5/8-in. dia rope, 25-ton cap.	In compt 4, R front side, on deck	AK	2				
	6	2590-00-040-2297	8330151 (19207)	SLING: Wire rope, dbl leg, w/ring and 2 hooks	Attached to hoisting block hook and rear of vehicle	AK	1				

APPENDIX C

ADDITIONAL AUTHORIZATION LIST

Section 1. INTRODUCTION

C-1. Scope.

This appendix lists additional items you are authorized for the support of the 5-ton, 6x6, M39 series truck.

C-2. General.

This list identifies items that do not have to accompany the truck and that do not have to be turned in with it. These items are authorized to you by CTA, MTOE, TDA, or JTA.

C-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. 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
A	M543A2

Section II. ADDITIONAL AUTHORIZATION LIST

(1) NATIONAL STOCK NUMBER	(2) DESCRIPTION PART NUMBER & FSCM	USABLE ON CODE	(3) U/M	(4) QTY AUTH
2540-00-040-2298	BAR: tie boom jack 8330152 (19207)	A	Ea	1
2540-00-040-2299	BASE: boom jack (grd-support) 8330155 (19207)	A	Ea	2
4010-00-473-6166	CHAIN, UTILITY: 5/8 in. link, 16 ft lg 7077062 (19207)	A	Ea	1
5315-00-316-1014	PIN : boom jack, upper 8333071 (19207)	A	Ea	1
5315-00-740-9834	PIN: boom jack, w /lock pin 7409834 (19207)	A	Ea	2
5315-00-316-1008	PIN : boom jack, w /lock pin 8327939 (19207)	A	Ea	2
5315-00-854-4431	PIN : inner boom jack, w /lock pins 10876413 (19207)	A	Ea	1
2540-00-318-0326	SHACKLE: anchor, rd-pin, 7/8 in. dia 7357967 (19207)	A	Ea	2
2540-00-860-2359	SHAFT: cranking outrigger, 1/2 in. dia, 12 in. lg 10900233 (19207)	A	Ea	2
2540-00-040-2301	TUBE: boom jack (bottom) 8330158 (19207)	A	Ea	2
2540-00-040-2300	TUBE: boom jack (top) 8330157 (19207)	A	Ea	2
2590-00-101-5594	TUBE: boom jack (bottom) 10910347 (19207)	A	Ea	2
	(MISCELLANEOUS TOOLS AND EQUIPMENT)			
9905-00-148-9546	REFLECTOR TRIANGLE WARNING KIT: reflector type, w/plastic box RRW-1817 (19207)	A	Ea	1

Section II. ADDITIONAL AUTHORIZATION LIST - Cont

(1) NATIONAL STOCK NUMBER	(2) DESCRIPTION PART NUMBER & FSCM	USABLE ON CODE	(3) U/M	(4) QTY AUTH
5120-00-188-1790	JACK: hydraulic, hand, self-contained, 30-ton cap. w / operating lever GGG-J-63 (81348)	A	Ea	1
6230-00-498-9408	LANTERN: electric, hand, 7-volt, w/lamp MIL-L-18838 (81349)	A	Ea	1
4930-00-266-9182	OILER: hand, push-button type, 1/2 pt cap. MS15764 (96906)	A	Ea	1
5120-00-197-9473	PUNCH: blacksmith's, round hdle, 1/4 in. dia cutting edge GGG-T-563 (81348)	A	Ea	1
5110-00-242-7147	SAW: crosscut, 1-man, 4 1/2 ft blade, 5-ft lg, w /supplementary hdl GGG-S-0064 (81348)	A	Ea	1
5120-00-243-9072	VISE: bench and pipe, swv-base , 5 in. jaw width, 6 in. opng, 1/8 to 1/4 pipe cap. GGG-V-410 (81348)	A	Ea	1
5120-00-264-3793	WRENCH: auto, adj, 0 to 3 in. jaw opng, 15 in. lg GGG-W-631 (81348)	A	Ea	1
5120-00-277-1461	WRENCH: pipe, hvy-duty, adj, 1 to 2 in. pipe cap. 18 in. lg GGG-W-651 (81348)	A	Ea	1
5120-00-277-1244	WRENCH: open end, fixed sgl-hd, 15 deg hd-angle, 1-5/8 in. opng, 14-7/8 in. lg GGG-W-636 (81348)	A	Ea	1
	TOOLS AND EQUIPMENT FOR WELDING AND CUTTING			
6830-00-264-6751	ACETYLENE, TECHNICAL: gas filled, acetylene, comp w /valve (to be refilled locally) DGA-106 (81348)	A	Ea	1

Section II. ADDITIONAL AUTHORIZATION LIST - Cont

(1) NATIONAL STOCK NUMBER	(2) DESCRIPTION PART NUMBER & FSCM	USABLE ON CODE	(3) U/M	(4) QTY AUTH
	TOOLS AND EQUIPMENT FOR WELDING AND CUTTING - Cont			
4720-00-356-8572	HOSE ASSEMBLY, RUBBER: braided green, w /rh thd female connections on both ends, attached by crimped on ferrules, 9/16-18 NF-3 thd, 5/16 in. id, 25 ft lg ZZ-H-461 (80244)	A	Ea	1
4720-00-356-8571	HOSE ASSEMBLY, RUBBER: braided w /lh thd female connections each end attached by br ferrules, 9/16-18 NF-3 thd, 5/16 in. id, 25 ft lg ZZ-H-461 (80244)	A	Ea	1
6830-00-292-0129	OXYGEN, TECHNICAL: gas filled, oxygen, 220 cu ft, comp w /valve (to be refilled locally) DGO-925	A	Ea	1
4820-00-285-6067	REGULATOR : pressure, compressed gas, acetylene, 2-stage, w /coupling, adapter and outlet VT S410-968	A	Ea	1
4820-00-641-3519	REGULATOR : pressure compressed gas, oxygen, 2-stage w/coupling, adapter and outlet MIL-R-13877	A	Ea	1
5180-00-754-0661	TOOL KIT : welder's components may be requisitioned separately 7540661 (19207)	A	Ea	1
5120-00-965-0603	1 BOX FLINT TIP, FRICTION IGNITER : w /holder, sleeve type, threaded, 5-40NC , 6 per box, GGG-1271 (81348)		Ea	
7920-00-291-5815	1 BRUSH, WIRE: scratch, S-wire, curved hdl, wire lg outside block, 1-1/8 to 1-1/4 in. 4-rows w, 18 rows lg, 14 in. lg, WB-178 (81348)		Ea	

Section II. ADDITIONAL AUTHORIZATION LIST - Cont

(1) NATIONAL STOCK NUMBER	(2) DESCRIPTION PART NUMBER & FSCM	USABLE ON CODE	(3) U/M	(4) QTY AUTH
	TOOLS AND EQUIPMENT FOR WELDING AND CUTTING - Cont			
5110-00-186-7107	1 CHISEL, HAND, COLD: 1/2 in. cut,5-3/4 in. lg (min) GGG-C-00313 (96906)		Ea	
5110-00-236-3272	1 CHISEL, HAND, COLD: 3/4 in cut, 6-1/2 in. lg 3/4-in. lg (min) GGG-C-00313 (96906)		Ea	
3437-00-270-6047	1 CLEANER SET , WELDING AND CUTTING TIPS : sgl-end, 75 to 49 drill sizes, 12 (in metal case) MIL-C-17223 (81349)		Ea	
5110-00-234-6539	1 FILE , HAND: American patt, flat type, dbl-cut bastard faces, sgl-cut bastard edges, 12 in. lg, heel to point GGG-F-00325 (81348)	A	Ea	
5110-00-242-5386	1 FILE, HAND: American patt, mill type, dbl-cut bastard faces, sgl-cut bastard edges, 12 in. lg, heel to point GGG-F-00325 (81348)	A	Ea	
5110-00-234-6557	1 FILE, HAND: American patt, rd-type, 1/2 in. dia large sect, dbl-cut bastard face, 12 in. lg, heel to point GGG-F-325 (81348)	A	Ea	
8415-00-263-7859	1 GLOVES: welder's leather, gauntlet, large size KKG-486 (81348)	A	Ea	
4240-00-203-3804	1 GOGGLES: (welder's) , w /eye - cups, plastic , ventilated, w / hardened glass filter lens, w / hardened glass cover lens, head-band supported over spectacle type, w/o case GGGG-513 (81458)	A	Ea	
5120-00-224-4047	1 HAMMER, HAND : machinist's ball-peen , 2-lb , 16 in. lg, GGG-H-86 (81348)	A	Ea	

Section II. ADDITIONAL AUTHORIZATION LIST - Cont

(1) NATIONAL STOCK NUMBER	(2) DESCRIPTION PART NUMBER & FSCM USABLE ON CODE	(3) U/M	(4) QTY AUTH
	TOOLS AND EQUIPMENT FOR WELDING AND CUTTING - Cont		
5120-00-585-2383	1 HAMMER, HAND : Welder's, 14-oz stght-peen and punch-point, sgl-bevel, w/coiled S-hdle, 10 in. lg GGG-H-35 (81348) A	Ea	
5110-00-263-0341	1 HANDLE, FILE, WOOD: 1-1/2 in. dia, 5-1/2 in. lg, large size KKH-00106 A	Ea	
5120-00-965-0326	1 IGNITER, FRICTION: wire frame style, sgl-flint, round file, hooded type A	Ea	
5120-00-223-7298	1 PLIERS, SLIP-JOINT: stght-nose, comb, w/cutter, 10 in. lg MS5382-2 (96906) A	Ea	
5120-00-293-0448	1 PUNCH, DRIFT: 3/16 in. dia pt, 3/8 in. dia stk, 10 in. lg GGG-P-831 (81348) A	Ea	
5210-00-239-0439	1 RULE, MULTIPLE FOLDING: steel, 3-ft extended lg, 6-sect, smallest unit of grad-1/16 GGG-R-00791 (81348) A	Ea	
5905-00-222-8071	1 SCREWDRIVER, FLAT TIP: metal, w/wood insert-hdl, 7/16-in. tip width, 10-in. blade, 16-1/2-in. lg A	Ea	
5120-00-596-1543	1 SCRIBER: machinist's dbl-pt, screwed, 1-stght and 1-reg bent, removable, 8 to 9 in. lg GGG-S-131 A	Ea	
5210-00-221-2060	1 SQUARE: comb. 12 in. lg, 1/64, 1/32, 1/16 and 1/8 in. grad edges, sq and Miter head, with scriber and level. GGG-S-656 (81348) A	Ea	
5140-00-498-8772	TOOL BOX: mechanic's general, w/ tote tray, 21 in. lg, 8-1/2 in. w, 7-3/8 in. deep , od finish. GGG-T-558-2 A	Ea	

Section II. ADDITIONAL AUTHORIZATION LIST - Cont

(1) NATIONAL STOCK NUMBER	(2) DESCRIPTION PART NUMBER & FSCM USABLE ON CODE	(3) U/M	(4) QTY AUTH
	TOOLS AND EQUIPMENT FOR WELDING AND CUTTING - Cont		
5120-00-224-3153	1 WRENCH, BOX: dbl-hd, 12-pt , short-lg, 3/8 and 7/16 in. opng, 4 in. lg. GGG-W-636 (96906) A	Ea	
5120-00-224-3154	1 WRENCH BOX: dbl-offset, dbl-hd, 12-pt, short-lg, 1/2 and 9/16 in. opng, 4 3/4 in. lg GGG-W-636 (96906) A	Ea	
5120-00-224-3137	1 WRENCH BOX: dbl-offset, dbl-hd, 12-pt, short lg, 5/8 and 3/4 in. opng, 6 in. lg GGG-W-636 (96906) A	Ea	
5120-00-240-5328	1 WRENCH, OPEN END: adj, sgl-hd type, 0.947 in. jaw opng, 12 in. lg GGG-W-631 (81348) A	Ea	
5120-00-264-3796	1 WRENCH, OPEN END: adj, sgl-hd type, 0 to 1.322 in. jaw opng, 12 in. lg GGG-W-631 (81348) A	Ea	
5120-00-277-2342	1 WRENCH, OPEN END: fixed, dbl-hd, 15 deg-hd-angle, 3/8 and 7/16 in opng, 4 1/8 in. lg GGG-W-636 (81348) A	Ea	
5120-00-187-7124	1 WRENCH, OPEN END: fixed, dbl-hd, 15 deg-hd-angle, 1/2 and 9/16 in opng, 5 1/2 in. lg GGG-W-636 (81348) A	Ea	
5120-00-277-8301	1 WRENCH, OPEN END: fixed, dbl-hd angle, 5/8 and 11/16 in opng, 7 in. lg GGG-W-636 (81348) A	Ea	
5120-00-494-1911	1 WRENCH, PLIER : curved jaw style, w /wire cutter, 8 1/2 in. lg GGG-P-00471. A	Ea	

Section II. ADDITIONAL AUTHORIZATION LIST - Cont

(1) NATIONAL STOCK NUMBER	(2) DESCRIPTION PART NUMBER & FSCM USABLE ON CODE	(3) U/M	(4) QTY AUTH
	TOOLS AND EQUIPMENT FOR WELDING AND CUTTING - Cont		
3433-00-294-6743	TORCH SET: cutting and welding, oxygen-acetylene, med duty, w/ cutting attachments, tips and wrench W68117 A Composed of: 1 CUTTING ATTACHMENT: welding torch, angle of hd-90 deg, w/universal mixer (18075-6652391) 1 TIP, OXYGEN ACETYLENE, CUTTING: drill size-68/73 (18075-1C) 1 TIP, OXYGEN ACETYLENE, CUTTING: drill size-64/68 (18075-2C) 1 TIP, OXYGEN ACETYLENE, CUTTING: drill size-60/64 (18075-3C) 1 TIP, OXYGEN ACETYLENE, WELDING: drill size 65-70 (18075-2E) 1 TIP, OXYGEN ACETYLENE, WELDING: drill size-60/65 (18075-3E) 1 TIP, OXYGEN ACETYLENE, WELDING: drill size-52-58 (DOC-5E) 1 TIP, OXYGEN ACETYLENE, WELDING: drill size-45/50 (18075-7E) 1 TIP, OXYGEN ACETYLENE, WELDING: drill size-40/45 (18075-8E) 1 TIP, OXYGEN ACETYLENE, WELDING: drill size-35/40 (18075-10E) 1 TORCH HANDLE, WELDING: w/universal mixer (18075-6650841) 1 TORCH WRENCH, WELDING: 6-way, opng - 1/2-3/4-7/8-7/16-11/16 and 1 1/8 in. (18075-970)	Ea	

Section II. ADDITIONAL AUTHORIZATION LIST - Cont

(1) NATIONAL STOCK NUMBER	(2) DESCRIPTION PART NUMBER & FSCM	USABLE ON CODE	(3) U/M	(4) QTY AUTH
	TOOLS AND EQUIPMENT FOR WELDING AND CUTTING - Cont			
3433-00-391-1216	1 MIXING HEAD, OXYGEN ACETYLENE WELDING TORCH: for tip size 72 to 31, no. 42527-54-5	A	Ea	
3433-00-373-1726	1 TIP, OXYGEN ACETYLENE, CUTTING: drill size 46, no. 42527-250-46	A	Ea	
3433-00-373-1731	1 TIP, OXYGEN ACETYLENE, WELDING: drill size 42, no. 42527-GXU-42	A	Ea	
3433-00-373-1733	1 TIP, OXYGEN ACETYLENE, WELDING: drill size 50, no. 42527-870-50	A	Ea	
3433-00-373-1734	1 TIP, OXYGEN ACETYLENE, WELDING: drill size 53, no. 42527-GXU-50	A	Ea	
3433-00-373-1737	1 TIP, OXYGEN ACETYLENE, WELDING: drill size 58, no. 42527-GXU-58	A	Ea	
3433-00-373-1739	1 TIP, OXYGEN ACETYLENE, WELDING: drill size 62, no. 42527-GXU-62	A	Ea	
3433-00-391-1217	1 TORCH HANDLE, WELDING: no. 42527-54	A	Ea	
3433-00-391-1218	1 TORCH WRENCH, OXYGEN ACETYLENE: no. 42527-7810	A	Ea	
5120-00-277-2694	1 WRENCH, OPEN END, FIXED: 15 deg angle, dble-hd type, spear-hd, alloy-S, 1 1/8 in. and 1 1/4 in. opngs, 1/2 in. thk, 12 in. nom lg over-all GGG-W-636 (81348)	A	Ea	

Section II. ADDITIONAL AUTHORIZATION LIST -Cont

(1) NATIONAL STOCK NUMBER	(2) DESCRIPTION PART NUMBER & FSCM	USABLE ON CODE	(3) U/M	(4) QTY AUTH
	TOOLS AND EQUIPMENT FOR WELDING AND CUTTING - Cont			
3433-00-391-1219	1 CUTTING ATTACHMENT, WELDING: angle of hd-75 deg, no. 63026 -C-145 0-100, use w/ TORCH HANDLE 3433-391-1220	A	Ea	
3433-00-373-1729	1 TIP, OXYGEN ACETYLENE, CUTTING: drill size 54, no. 63026- 3-100-1	A	Ea	
3433-00-373-1728	2 TIP, OXYGEN ACETYLENE, CUTTING: drill size 52, no. 63036 -3-101-2	A	Ea	
3433-00-373-1725	1 TIP, OXYGEN ACETYLENE, CUTTING: drill size 45, no. 63036 -3-101-4	A	Ea	
3433-00-373-1740	1 TIP, OXYGEN ACETYLENE, WELDING: drill size 65, no. 63026-13-0	A	Ea	
3433-00-373-1738	1 TIP, OXYGEN ACETYLENE, WELDING: drill size 60, no. 63026 -13-1	A	Ea	
3433-00-373-1736	1 TIP, OXYGEN ACETYLENE, WELDING: drill size 56, no. 63026- 13-2	A	Ea	
3433-00-373-1735	1 TIP, OXYGEN ACETYLENE, WELDING: drill size 53, no. 63026 -13-3	A	Ea	
3433-00-373-1732	1 TIP, OXYGEN ACETYLENE, WELDING: drill size 43, no. 63026 -13-5	A	Ea	
3433-00-391-1220	1 TORCH HANDLE WELDING: no. 63026-100	A	Ea	
5120-00-316-9204	WRENCH: acetylene tank valve key, 9/32 in. sq-opng (110473)	A	Ea	1

APPENDIX D

EXPENDABLE SUPPLIES AND MATERIALS LIST

Section I. INTRODUCTION

D-1. SCOPE. This appendix lists expendable supplies and materials you will need to operate and maintain the 5-ton, 6 x 6, M39 series trucks (multifuel). These items are authorized to you by CTA 50-970, Expendable Items (Except Medical, Class V, Repair Parts, and Heraldic Items).

D-2. EXPLANATION OF COLUMNS.

a. Column 1 - Item number. This number is given to the entry in the listing.

b. Column 2- Level. This is the lowest level of maintenance that needs the listed item.

C - Operator/Crew

c. Column 3 - National Stock Number. This is the National stock number given to the item; use it to order the item.

d. Column 4 - Description. Shows the Federal item name and, if needed, a description to give more details about the item. The last line for each item shows the part number, followed by the Federal Supply Code for Manufacturer (FSCM) in brackets, if it applies.

e. Column 5 - Unit of Measure (U/M). Shows the measure used in doing the actual maintenance function. This measure is shown by an alphabetical abbreviation (ea, in., qt). If the unit of measure is different from the unit of issue, order the lowest unit of issue that will give you what you need.

Section II. EXPENDABLE SUPPLIES AND MATERIALS LIST

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION	(5) U/M
1	C	4930-00-204-2550	ADAPTER: grease gun, rigid, thin-stem 6 in. lg 5349744 (19207)	EA
2	C	4930-00-228-1511	ADAPTER GREASE GUN COUPLING: lubr, flex hose, sleeve type, hyd to hyd, 12 in. lg (M543) 41-E-485-12 (80244)	EA
3	C	5110-00-293-2336	AXE, SINGLE BIT: chopping hdl, sgle bit, 4 lb brkt on frt lh side of body; (M543) 6150925 (19207)	EA
4	C	5110-00-293-2336	AXE, SINGLE BIT: M51, brkt frt lh side of dump body; (M52)	EA
5	C	5120-00-224-1384	BAR, PINCH: bent chisel and taper, 1 in. dia 26 in. lg (M543) GGG-B-101 (81348)	EA
6	C	5120-00 242-0762	BAR: wrecking, gooseneck, and pinch point w /claw, 3/4 in. hex stk 36 in. lg (M543) 41-B-336 (80244)	EA
7	C	6135-00-120-1020	BATTERY: dry 1.5-volt (M543, in flashlights) MS75059 (96906)	EA
8	C	6135-00 050-3280	BATTERY: lantern, 6-volt (M543, in lantern) BA200U (81350)	EA
9	C	5110-00-243-0901	BLADE: hacksaw (hand) 12 in. lg (M543) GGG-B-451 (81348)	EA
10	C	7240-00-222-3088	CAN: gasoline, military type, 5 gal (in brkt, lh running board) 42-C-2124 (80244)	EA
11	C	7240-00-242-6153	CAN: water, military type, 5 gal (M543, brkt on rear deck, rh side) 64C281 (80244)	EA

Section II. EXPENDABLE SUPPLIES AND MATERIALS LIST - Cont

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION	(5) U/M
12	C	2540-00 860-2354	CASE: crosscut saw, cotton duck 63 3/4 in. lg (closed) 10876420 (19207) (M543)	EA
13	C	5110-00-221-1075	CHISEL, BLACKSMITH'S : hdl, cold, 1 1/2 in. cut (M543) GGG-T-00563 (81348)	EA
14	C	5110-00 244-6034	CHISEL, MACHINIST'S: cold, hand, 1 in. cutting edge. 24 in. lg (M543) GGG-B-101 (96906)	EA
15	C	6230-00-274-4018	LIGHT: inspection, w/sgl plug and plug and socket, 25 ft lg w/o lamp (M543) 17 C35079-47 (80244)	EA
16	C	6230- 00-548-0387	CABLE : electrical extension, w / single contact plug and socket, 25 ft lg (M543) 7326618 (19207)	EA
17	C	5120-00-224-1390	CROWBAR : pinch pt, 1 1/14 in. dia 59 to 62 in. lg (M543) 9150189 (18876)	EA
18	C	5110-00-188-2524	CUTTER: bolt, rigid-hd type, clipper cut type, 35 to 39 in. lg 9/16 in. dia (M543) GGGC740 (81348)	EA
19	C	4910-00-474-9135	EXTENSION CABLE: elec 24-volt, 20 ft lg w/cplg (slave) (M543) 6257839 (19204)	EA
20	C	6230-00-264-8261	FLASHLIGHT : hand, 2-cell w / lamp, w/o batteries (M543) - in map compartment MX991U (81349)	EA
21	C	5110-00-289-9657	FRAME : hacksaw, adj, pistol grip hdl, thumb nut tension style, 8 to 12 in. cap. (M543) GGG-G-671 (81348)	EA

Section II. EXPENDABLE SUPPLIES AND MATERIALS LIST - Cont

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION	(5) U/M
22	C	4930-00-253-2478	GREASE GUN: hand, lever operated, 15-oz, 7000 psi, w/6 in. extension (M543) 1008370 (10001)	EA
23	C	5120-00-230-7843	HAMMER, HAND : blacksmith's, dble face, sledge, 20 lb nom hd wt (M543) TADX1D (19207)	EA
24	C	5120-00-288-6574	HANDLE : mattock-pick, railroad or clay pick NNH 0093 (81348)	EA
25	C	4720-00-899-6721	HOSE : tank drain, hyd oil, 1 3/16 in. od x 60 in. lg (M543) 10900093 (19207)	EA
26	C	6230-00-498-9408	LANTERN : hand, elec, 6 volts, w/lamp, w/o battery (M543) - compt 2 MIL L 18838B (81349)	EA
27	C	5120-00-243-2395	MATTOCK : pick type, 5 lb, w/o handle GGG-H-506 (81348)	EA
28	C	5120-00-223-7398	PLIERS : slip-joint, stght nose, comb w /cutter, 10 in. lg (in tool bag) 41 P1654 (80244)	EA
29	C	5110-00-223-5349	SAW : crosscut, 1-man, 4 1/2-ft blade, 5 ft lg w /supplementary handle (M543) GGG-S-64 (81348)	EA
30	C	4020-00-231-2581	ROPE : manila, 3 strand, 3/8-in. dia, 1 1/8-in. circum , 50 ft lg. 325-lb safe work cap. (M543) TR605 (81348)	EA
31	C	4020-00 238-7734	ROPE : manila, 3 strand, 3/4 in. dia, 2-1/4 in. circum , (100 ft lg) , 1350-lb safe work cap. (M543) TR605 (81348)	EA

Section II. EXPENDABLE SUPPLIES AND MATERIALS LIST - Cont

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION	(5) U/M
32	C	4020-00-231-9014	ROPE: manila,3 strand 1-in. dia, 3-in. circum, 300 ft lg, 2250-lb safe cap. (M543) TR605 (81348)	EA
33	C	5120-00-227-7338	SCREWDRIVER , FLAT-TIP: hv-duty, flared sides, steel hdl w / wood inserts, sq-blade, 1/2-in. tip , 5-in. blade, 9-1/2 in. lg (in tool box) D339 (77948)	EA
34	C	5120-00-234-8912	SCREWDRIVER, CROSS-TIP: recessed screw Phillips No. 3 tip, comm, slow burning pastic hdl, 6-in. blade (in tool bag) GGG S121 (81348)	EA
35	C	5120-00-234-8913	SCREWDRIVER, CROSS-TIP : Phillips type tip, plastic hdl, no. 2 size tip, 4-in. lg blade (in tool bag)	EA
36	C	5120-00-222-8852	SCREWDRIVER, FLAT TIP: com-mon, flared sides, plastic hdl, rd-blade, 1 /4-in. w /tip, 4-in. blade, 7 3/4-in. lg (nom)	EA
37	C	5120-00-293-3336	SHOVEL : hand, rd-pt, d-hdl, short size (M543-brkt on boom) GGG-S-326 (81348)	EA
38	C	7240-00-177-6154	SPOUT : can, flexible, gasoline (M51, M52, M54 - tool compt be-hind cab, lh side: M55 - tool compt behind cab, rh side; M543 - compt 1) 838A7511 (09647)	EA
39	C	5120-00-264-3796	WRENCH, OPEN END, ADJUST-ABLE: sgle-hd, 12 in. lg over-all, 1 15/16 in. opng (in tool bag) 5323324 (19207)	EA

Section II. EXPENDABLE SUPPLIES AND MATERIAL LIST - Cont

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION	(5) U/M
40	C	5120-00-277-1242	WRENCH: open end, fixed, sgle-hd, 15-deg hd-angle, 1 13/16 in. opng, 16 3/8 in lg (M543)	EA
41	C	5120-00-277-1245	WRENCH : open end, fixed sgl-hd, 15 deg hd angle, 1-11/16 in. opng 14-7/8 in. lg (M543) TKBX3A (19207)	EA

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4-71	4-7		

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Change illustration callouts.
Reason: callouts for transmission power takeoff (8) and transfer power takeoff (9) are reversed.

Chart gives temperature for thermostat opening as 160°F. Should be 180°F.

FRAME 7, step 1(d) reads "Screw bolts (1) into shipper (3)." Should read "Screw stowage bolts (1) back into shipper (3) so that they will not get lost."

SAMPLE

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THE METRIC SYSTEM AND EQUIVALENTS

LINEAR MEASURE

1 Centimeter = 10 Millimeters = 0.01 Meters = 0.3937 Inches
1 Meter = 100 Centimeters = 1,000 Millimeters = 39.37 Inches
1 Kilo Meter = 1,000 Meters = 0.621 Miles

WEIGHTS

1 Gram = 0.001 Kilograms = 1,000 Milligrams = 0.035 Ounces
1 Kilogram = 1,000 Grams = 2.2 Lb
1 Metric Ton = 1,000 Kilograms = 1 Megagram = 1.1 Short Tons

LIQUID MEASURE

1 Milliliter = 0.001 Liters = 0.0338 Fluid Ounces
1 Liter = 1,000 Milliliters = 33.82 Fluid Ounces

SQUARE MEASURE

1 Sq Centimeter = 100 Sq Millimeters = 0.155 Sq Inches
1 Sq Meter = 10,000 Sq Centimeters = 10.76 Sq Feet
1 Sq Kilometer = 1,000,000 Sq Meters = 0.386 Sq Miles

CUBIC MEASURE

1 Cu Centimeter = 1,000 Cu Millimeters = 0.06 Cu Inches
1 Cu Meter = 1,000,000 Cu Centimeters = 35.31 Cu Feet

TEMPERATURE

5/9 (°F -32) = °C
212° Fahrenheit is equivalent to 100° Celsius
90° Fahrenheit is equivalent to 32.2° Celsius
32° Fahrenheit is equivalent to 0° Celsius
9/5 C° +32 = F°

APPROXIMATE CONVERSION FACTORS

TO CHANGE	TO	MULTIPLY BY
Inches	Centimeters	2.540
Feet	Meters	0.305
Yards	Meters	0.914
Miles	Kilometers	1.609
Square Inches	Square Centimeters	6.451
Square Feet	Square Meters	0.093
Square Yards	Square Meters	0.836
Square Miles	Square Kilometers	2.590
Acres	Square Hectometers	0.405
Cubic Feet	Cubic Meters	0.028
Cubic Yards	Cubic Meters	0.765
Fluid Ounces	Milliliters	29.573
Pints	Liters	0.473
Quarts	Liters	0.946
Gallons	Liters	3.785
Ounces	Grams	28.349
Pounds	Kilograms	0.454
Short Tons	Metric Tons	0.907
Pound-Feet	Newton-Meters	1.356
Pounds Per Square Inch	Kilopascals	6.895
Miles Per Gallon	Kilometers Per Liter	0.425
Miles Per Hour	Kilometers Per Hour	1.609

TO CHANGE	TO	MULTIPLY BY
Centimeters	Inches	0.394
Meters	Feet	3.280
Meters	Yards	1.094
Kilometers	Miles	0.621
Square Centimeters	Square Inches	0.155
Square Meters	Square Feet	10.764
Square Meters	Square Yards	1.196
Square Kilometers	Square Miles	0.386
Square Hectometers	Acres	2.471
Cubic Meters	Cubic Feet	35.315
Cubic Meters	Cubic Yards	1.308
Millimeters	Fluid Ounces	0.034
Liters	Pints	2.113
Liters	Quarts	1.057
Liters	Gallons	0.264
Grams	Ounces	0.035
Kilograms	Pounds	2.205
Metric Tons	Short Tons	1.102
Newton-Meters	Pound-Feet	0.738
Kilopascals	Pounds Per Square Inch	0.145
Kilometers Per Liter	Miles Per Gallon	2.354
Kilometers Per Hour	Miles Per Hour	0.621

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