

**HEADQUARTERS, DEPARTMENT OF THE ARMY**  
**"NOVEMBER 1977"**

**WARNING**  
**EXHAUST GASES CAN BE DEADLY**

Carbon monoxide exposure symptoms are 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 when fuel burning heater(s) or the engine of any vehicle is operated for maintenance purposes or tactical use.

1. Do not operate heater or engine of vehicle in an enclosed area unless it is adequately ventilated.
2. Do not idle engine for long periods without maintaining adequate ventilation to personnel compartments.
3. Do not drive any vehicle with inspection plates or cover plates removed unless necessary for maintenance purposes.
4. 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, and, if necessary, administer artificial respiration.

The best defense against exhaust gas poisoning is adequate ventilation.

**WARNING**

Serious or fatal injury to personnel may result if the following instructions are not complied with.

1. Exercise extreme care in removing radiator cap, especially when temperature gage reads above 180° F.
2. Always wear leather gloves when handling winch cable. Never allow cable to run through hands. Do not operate winch with less than four turns of cable on the drum.
3. Do not operate truck until the low air pressure warning buzzer is silent, and the air pressure gage indicates pressure of at least 65 psi. Satisfactory braking action depends on this minimum pressure.
4. Do not use hand throttle for vehicle acceleration.
5. Do not park truck with transmission in gear.
6. Do not use aviation grade gasoline.

Change

No. 2

HEADQUARTERS  
DEPARTMENT OF THE ARMY  
Washington, D.C., 2 November 1989

OPERATORS MANUAL  
FOR  
TRUCK 5-TON, 6X6, M39 SERIES  
TRUCK CHASSIS: 5-TON, 6X6, M40, M40A1, M40A1C, M40A2C, M61, M61A1,  
M61A2, M63, M63A1, M63A2, M63C, M63A1C, M63A2C, M139, M139A1,  
M139F, M139A1F, M139A2F; TRUCK, CARGO: M54, M54A1, M54A2, M54A1C,  
M54A2C, M55, M55A2; TRUCK, DUMP: M51, M51A1, M51A2; TRUCK,  
TRACTOR M52, M52A1, M52A2; TRUCK, TRACTOR, WRECKER: M246,  
M246A1, M246A2; TRUCK, VAN, EXPANSIBLE: M291A1, M291A1D, M291A2D;  
TRUCK, WRECKER, MEDIUM: M62, M543, M543A1, M543A2; TRUCK, STAKE,  
BRIDGE TRANSPORTING: M328A1; TRUCK, BOLSTER: M748A1

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By Order of the Secretary of the Army:

CARL E. VUONO  
General, United States Army  
Chief of Staff

Official:

WILLIAM J. MEEHAN II  
Brigadier General, United States Army  
The Adjutant General

Distribution:

To be distributed in accordance with DA Form 12-38-R, Operator maintenance requirements for Truck, Cargo, 5-Ton, 6x6, Multifuel, M39 Series.



CHANGE |

No. 1 |

HEADQUARTERS  
DEPARTMENT OF THE ARMY  
WASHINGTON, DC, 20 August 1982

**OPERATOR'S MANUAL  
FOR  
TRUCK 5-TON, 6X6, M39 SERIES**

**TRUCK CHASSIS: 5-TON, 6X6, M40, M40A1, M40A1C, M40A2C, M61, M61A1, M61A2, M63, M63A1, M63A2, M63C, M63A1C, M63A2C, M139, M139A1, M139F, M139A1F, M139A2F; TRUCK, CARGO: M54, M54A1, M54A2, M54A1C, M54A2C, M55, M55A2; TRUCK, DUMP: M51, M51A1, M51A2; TRUCK, TRACTOR: M52, M52A1, M52A2; TRUCK, TRACTOR, WRECKER: M246, M246A1, M246A2; TRUCK, VAN, EXPANSIBLE: M291A1, M291A1D; TRUCK, WRECKER, MEDIUM: M62, M543, M543A1, M543A2; TRUCK, STAKE, BRIDGE TRANSPORTING: M328A1; TRUCK, BOLSTER: M748A1.**

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B-1 through B-14	B-1 through B-14
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D-1 through D-4	D-1 through D-4
Index 1 through Index 7	Index 1 through Index 7
None	Index 8 through Index 11/(Index 12 blank)
DA Form 2028-2 (Test)	DA Form 2028-2

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*Chief of Staff*

Official: ROBERT M. JOYCE  
*Brigadier General, United States Army*  
*The Adjutant General*

**Distribution:**

To be distributed in accordance with DA Form 12-38, Operators' Maintenance requirements for 5 Ton Truck, M39 Series.

## TECHNICAL MANUAL

NO. 9-2320-211-10

HEADQUARTERS  
DEPARTMENT OF THE ARMY  
WASHINGTON, D.C., 30 NOVEMBER 1977

**OPERATOR'S MANUAL  
FOR  
TRUCK, 5-TON, 6X6, M39 SERIES**

Model		NSN with Winch	NSN without Winch
Chassis, Truck	M40	2320-00-835-8350	2323-00-835-8349
	M40AI	2320-00-880-4597	2320-00-880-4611
	M40A1C	2320-00-880-4616	
	M40A2C		2320-00-969-4114
	M61	2320-00-835-8333	2320-00-835-8332
	M61A1	2320-00-880-4622	2320-00-880-4623
	M61A2	2320-00-965-0321	2320-00-055-9264
	M63	2320-00-835-8331	2320-00-835-8330
	M63A1	2320-00-880-4624	2320-00-880-4629
	M63A2	2320-00-285-3757	2320-00-226-6251
	M63C	2320-00-215-4210	
	M63A1C	2320-00-880-4638	2320-00-880-4641
	M63A2C		2320-00-969-4113
	M139	2320-00-835-8347	
	M139A1	2320-00-880-4649	2320-00-880-4650
	M139F	2320-00-746-6001	
	M139A1F	2320-00-880-4654	
M139A2F	2320-00-226-5648		

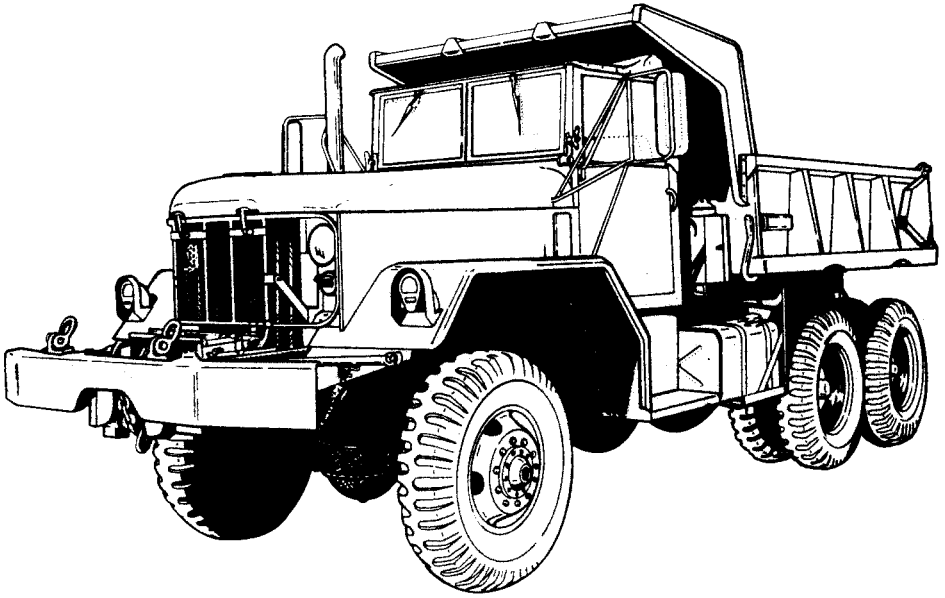
**REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS**

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, 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 Command, ATTN: DRSTA-MBA, Warren, Michigan 48090. A reply will be furnished to you.

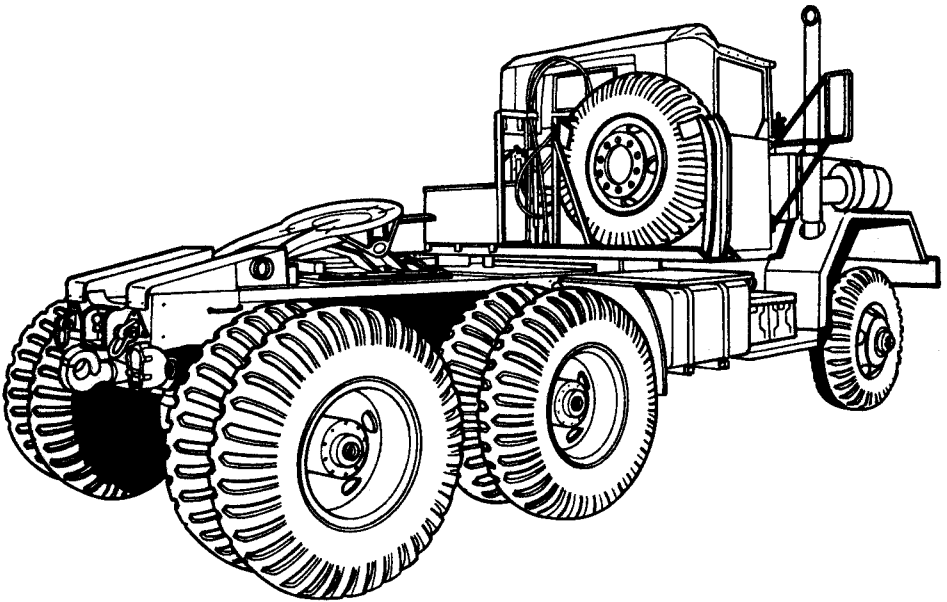
**OPERATOR'S MANUAL  
FOR  
TRUCK, 5-TON, 6x6, M39 SERIES**

Model		NSN with Winch	NSN without Winch
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	M54A1	2320-00-086-7482	2320-00-086-7481
	M54A2	2320-00-055-9265	2320-00-055-9266
	M54A1C	2320-00-880-4612	2320-00-880-4614
	M54A2C	2320-00-926-0874	2320-00-761-2854
	M55	2320-00-391-0570	2320-00-200-1878
	M55A2	2320-00-055-9259	2320-00-073-8476
Truck, Dump	M51	2320-00-835-8337	2320-00-835-8336
	M51A1	2320-00-045-7132	2320-00-045-7131
	M51A2	2320-00-055-9263	2320-00-055-9262
Truck, Tractor	M52	2320-00-835-8329	2320-00-835-8336
	M52A1	23-0-00-086-7480	2320-00-086-7479
	M52A2	2320-00-055-9261	2320-00-055-9260
Truck, Tractor, Wrecker	M246	2320-00-835-8639	
	M246A1	2320-00-695-9375	
	M246A2	2320 -00-073-8251	
Truck, Van, Expansive	M291A1		2320-00-880-4642
	M291A1D		2320-00-880-4647
Truck, Wrecker, Medium	M62	2320-00-835-8325	
	M543	2320-00-445-0866	
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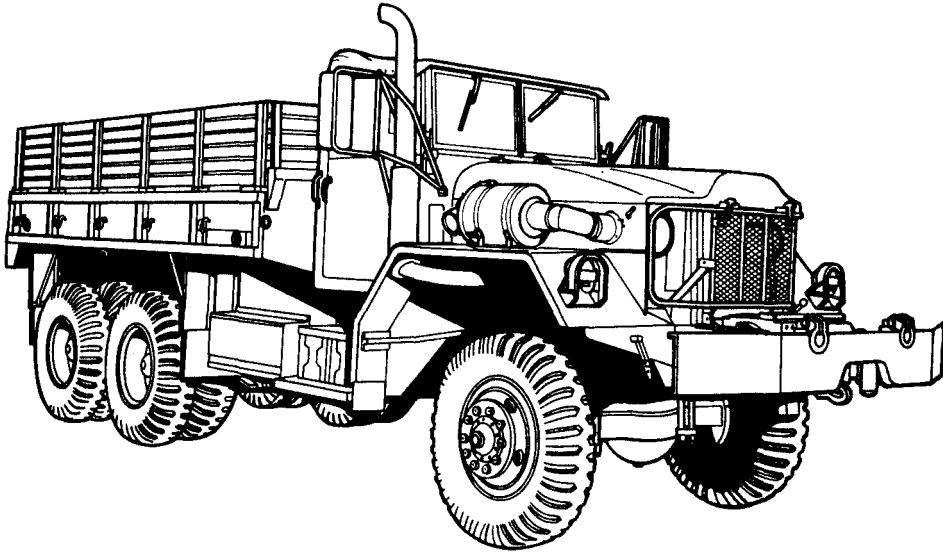




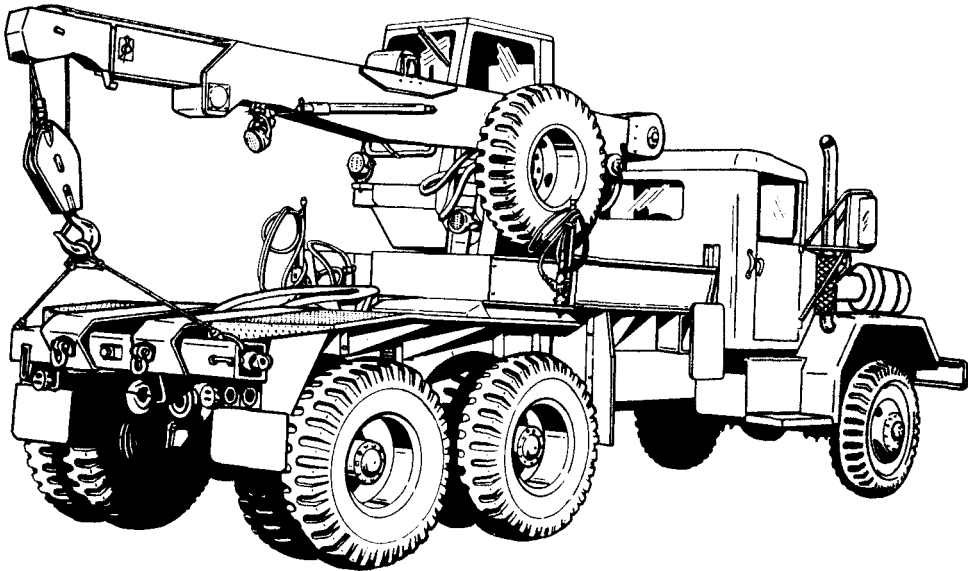
*Typical 5-Ton, 6x6, Dump Truck.*



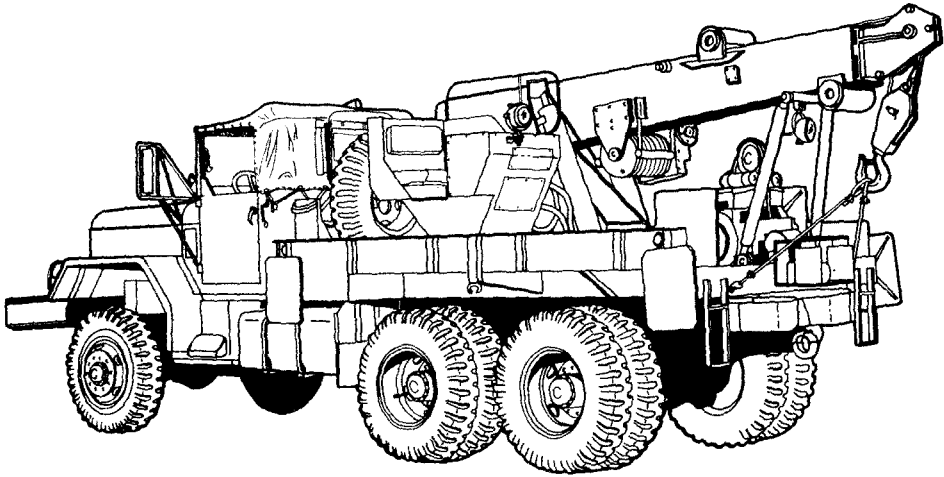
*Typical 5-Ton, 6x6, Tractor Truck.*



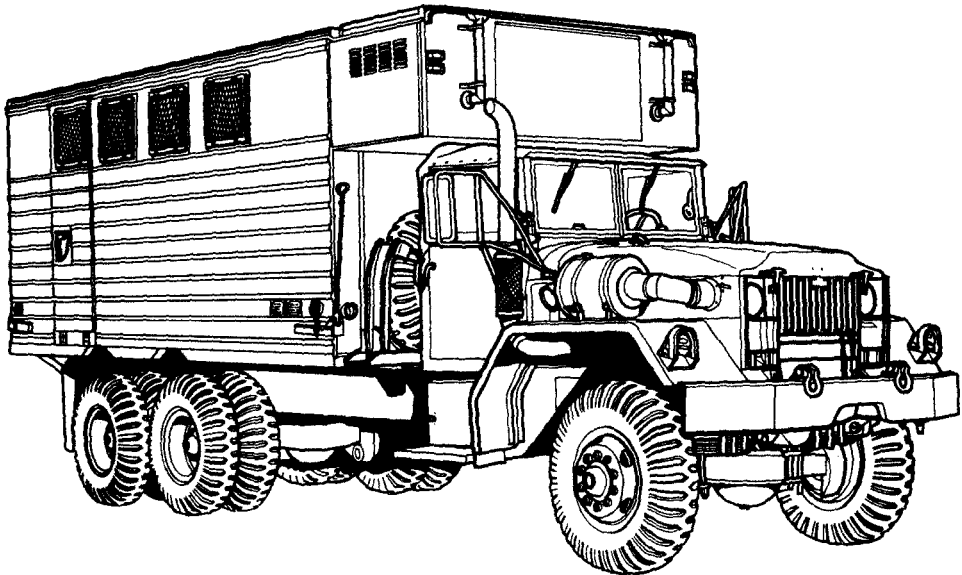
*Typical 5-Ton, 6x6, Cargo Truck.*



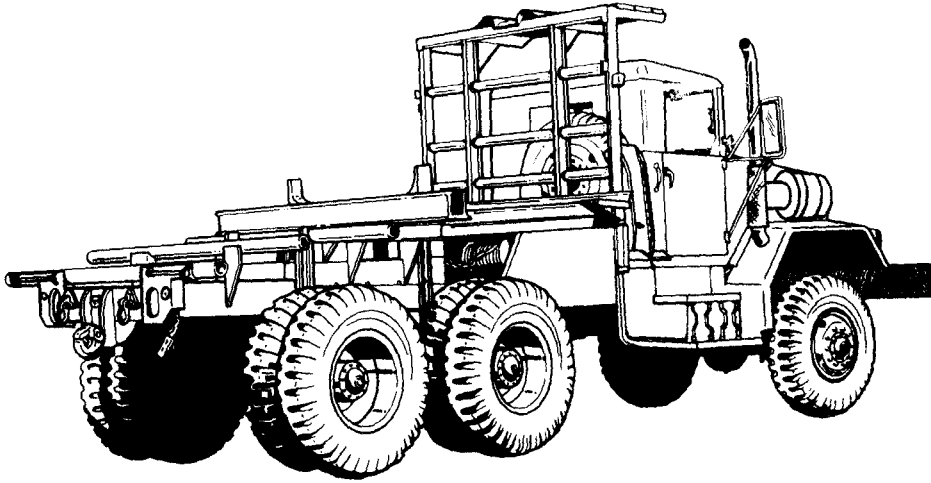
*Typical 5-Ton, 6x6, Tractor Wrecker Truck.*



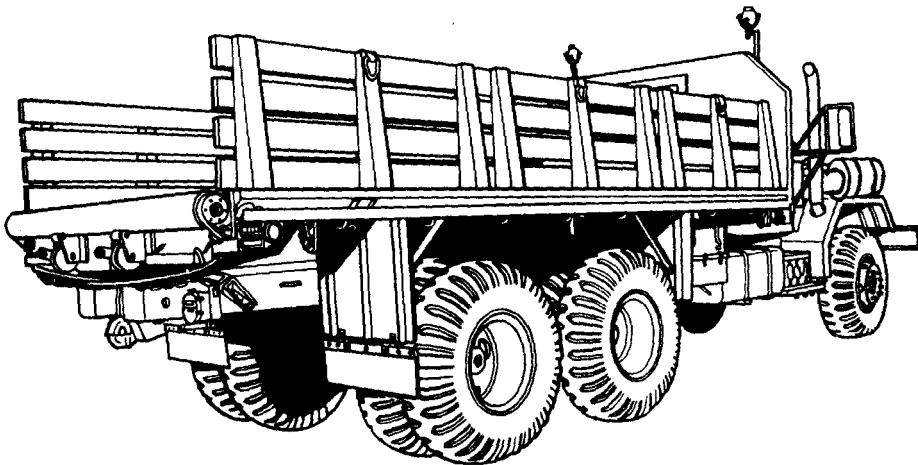
*Typical 5-Ton, 6x6, Medium Wrecker Truck.*



*Typical 5-Ton, 6x6, Expansible Van Truck.*



*Typical 5-Ton , 6x6, Bolster Truck.*



*Typical 5-Ton, 6x6, Bridge Transporting Truck.*

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TECHNICAL MANUAL

OPERATOR'S MANUAL  
FOR  
TRUCK, 5-TON, 6X6, M39 SERIES

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## CHAPTER 1 INTRODUCTICIN

### Section I. GENERAL.

#### 1-1. Scope.

a. This manual is for your use in operating and maintaining the 5-ton, 6x6, M39 Series trucks. The model numbers and equipment names are listed on pages i and ii. Operation and maintenance instructions for special purpose kits arc also included.

#### b. Your manual:

(1) Contains information for safe and efficient operation of your equipment. These instructions provide you with a general knowledge of the equipment, its characteristics, and usual and unusual operation procedures.

(2) Provides you with troubleshooting procedures and authorized repair procedures, so that you can keep your equipment properly operating.

(3) Provides best possible operating instructions under most circumstances. Multiple emergencies, adverse weather, terrain, etc. may require modification of these procedures.

(4) Takes a "positive approach" and normally states only what you cars do. Unusual operations or configurations are prohibited unless specifically included. Before attempting any questionable operation, which is not specifically permitted in this manual, clearance must be obtained from your supervisor.

1-2. **Maintenance Forms and Records.** Department of the Army forms and procedures used for equipment maintenance will be those prescribed by TM 38-750.

1-3. **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.

1-4. **Security of Tactical Wheeled Vehicles.** Refer to TB 9-2300422-20 for requirements and material applications needed to achieve the necessary degree of protection required for tactical wheeled vehicles in all classes.

## Section II. DESCRIPTION

**1-5. Description.** The 5-ton, 6x6, M39 series trucks are designed for use over all types of roads, highways, and cross-country terrain, in all types of weather. They will ford hard bottom water crossings to a depth of 30 inches. The vehicles are powered by a gasoline, diesel or multifuel engine and are discussed separately, where necessary, throughout the manual. All are equipped with a manually operated, five-speed transmission and a two-speed transfer case which transmits power to the front and rear axles. Service brakes are of the air-actuated, hydraulic type. The cab is enclosed with removable canvas tarps. All vehicles are equipped with a spare wheel and tire, and a pintle hook at the rear for towing a trailer.

### 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.

#### 1-6. Differences Between Models.

*a. General.* The 5-ton, 6x6, trucks covered in this manual are of various wheelbases, body styles and engine types.

*b. Dump Truck, M51 Series.* The M51 dump truck has a 167-inch wheelbase, 11:00 x 20 tires and dual rear wheels. A 5-cubic yard capacity dump body and twin-cylinder hoist assembly is mounted on the rear of the chassis.

*c. Tractor Truck, M52 Series.* The M52 tractor truck has a 167-inch wheelbase, 11:00 x 20 tires and dual rear wheels. A fifth wheel assembly, approach plates, and deck plate, suitable for hauling trailers, are mounted on the rear of the chassis. Tractor-to-trailer brake hoses and connections are mounted behind the Lab.

*d. Cargo Truck, M54 Series.* The M54 cargo truck has a 179-inch wheelbase, 11:00x 20 tires and dual rear wheels. A 14-foot flatbed cargo body is mounted on the rear.

*e. Dropside Cargo Truck, M54A1C and M54A2C.* The M54A1C trucks have a 179-inch wheelbase, 11:00 x 20 tires, and dual rear wheels. A 14-foot flatbed cargo body is mounted on the rear. To permit side loading, the cargo sides are hinged along lines where sides and cargo bed join.

*f. Cargo Truck, M55 Series.* The M55 cargo truck has a 215-inch wheelbase with 11:00x 20 tires and dual rear wheels. A 20-foot cargo body is mounted on the rear.

*g. Tractor Wrecker Truck, M246 Series.* The M246 tractor wrecker truck has a 215-inch wheelbase, 12:00 x 20 tires, and dual rear wheels. A hydraulic crane and fifth wheel assembly are mounted on the rear of the chassis.

*h. Medium Wrecker Truck, M62 and M543 Series.* The M62 and M543 medium wrecker trucks have a 179-inch wheelbase, 11:00 x 20 tires, and dual rear wheels. A hydraulic crane and winch assembly are mounted on the rear of the chassis. The M62 and M543 models differ only in design variations in wrecker crane equipment.

*i. Expansible Van Truck, M291A1.* The M291A1 expansible van trucks have a 215-inch wheelbase, 11:00 x 20 tires, and dual rear wheels. The van body is equipped with windows.

*j. Expansible Van Truck, M291A1D.* These vehicles are similar to M291A1 except that a power lift gate is mounted on the rear of the chassis.

*k. Bridge Transporting Truck, M328A1.* The M328A1 bridge transporting truck has a 215-inch wheelbase, 14:00 x 20 tires, and dual rear wheels. It is designed specifically for transporting bridge building equipment.

*l. Bolster Truck, M748A1.* The M748A1 bolster truck has a 215-inch wheelbase, 11:00 20 tires, and dual rear wheels. This vehicle tows a bolster trailer model P-14 equipped with 9:00 x 20 dual wheels. It is equipped with a midship winch used to position the trailer on and off the truck chassis.

**1-7. Detailed Description.** If you need a detailed description of any component of the M39 truck series vehicles, ask your supervisor to see a copy of TM 9-2320-211-20.

#### **1-8. Specifications.**

- a. Weights. See table 1-1.
- b. Dimensions, See table 1-2.
- c. Performance. See table 1 -3.
- d. Engine data. See table 1-4.
- e. Fuel. See table 1-5.
- f. Capacities. See table 1-6.
- g. Tire pressures. See table 1-7.
- h. Shifting speeds. See table 1-8.
- i. Winch. See table 1-9.
- j. Air cleaner data. See table 1-10.
- k. Fuel filter data. See table 1-11.
- l. Maximum downshifting speeds. See table 1-12.

Table 1-1. Weight (Pounds)

Vehicle Models	Net WO/WN	Payload Highway	Payload Cross-Country	Towed Load Highway (Max.)	Towed Load Cross-Country
M51	21,523	20,000	10,000	(e)30,000	(e)15,000
M51A1,M51A2	(a)21,986	20,000	10,000	(e)30,000	(e)15,000
M52	(a)18,313	(b)25,000	(c)15,000	(b)55,000	(b)30,000
M52A1,M52A2	(a)18,560	(b)25,000	(c)15,000	(b)55,000	(b)30,000
M54	(a)19,231	20,000	10,000	(e)30,000	(e)15,000
M54A1,M54A2	(a)19,480	20,000	10,000	(e)30,000	(e)15,000
M54A2C,M54A1C	(a)19,946	20,000	10,000	(e)30,000	(e)15,000
M55	(a)23,349	20,000	10,000	(e)30,000	(e)15,000
M55A2	(a)20,606	20,000	10,000	(e)30,000	(e)15,000
M62	33,325	(d)	(d)	(e)30,000	(e)15,000
M246	32,830	(b,d)16,000	(c,d)12,000	(b)46,000	(b)20,000
M246A1,M246A2	32,087	(b,d)16,000	(c,d)12,000	(b)46,000	(b)20,000
M291A1	26,270	15,000	5,000	(e)30,000	(e)15,000
M291A1D	27,136	15,000	5,000	(e)30,000	(e)15,000
M328A1	26,586	20,000	10,000	(e)30,000	(e)15,000
M543	34,440	(d)	(d)	(e)30,000	(e)15,000
M543A1,M543A2	34,690	(d)	(d)	(e)30,000	(e)15,000
M748A1	(a)20,550	20,000	10,000	(e)30,000	(e)15,000

(a) Add 714 pounds for vehicles equipped with front winch.  
 (b) On fifth wheel.  
 (c) 12,000 and 15,000-pound loads on fifth wheel are for limited cross-country operation.  
 (d) See crane safe load plate.  
 (e) On pintle.

**Table 1-2. Dimensions**

Vehicle Models	Height Overall (in.)	Length Overall (in.)w/W	Length Overall (in.)wo/W	Width Overall (in.)	Ground Clearance (in.)
M51 series	110 5/8	281 5/8	266 1/8	97 1/4	10 1/2
M52 series	103 1/8	273	257 1/2	97	10 1/2
M54 series	116	314 1/4	298 3/4	97	10 1/2
M55 series	117 1/2	385 15/16	379 5/16	97 1/2	10 1/2
M62	127 1/8	348		97	10 1/2
M246 series	132	352		97 11/16	11
M291 series	137		371	99	13
M328A1	120 3/4	365 3/4		115	13
M543 series	108 5/8	349		96 1/4	11
M748A1	121	314 1/4		98	10 1/2
			<b>Turning Radius</b>		<b>Wheelbase</b>
			<b>w/W</b>	<b>wo/W</b>	<b>(in.)</b>
M51 series			39'3"	38'9"	167
M52 series			39'3"	38'9"	167
M54 series			41'7"	41'1"	179
M55 series			46'6"	46'	215
M62			41'7"		179
M246 series			46'8"		215
M291 series				46'6 1/2"	215
M328A1			47' 1/2"		215
M543 series			46'8"		179
M748A1			41'7"		215

**Table 1-3. Performance**

Maximum speed:	
Gasoline models	59 mph
Diesel and multifuel	52 mph
Fuel consumption (approx):	
Gasoline	4 miles per gallon
Diesel and multifuel	5 miles per gallon
Fording depth:	
With fording kit	78 in.
Without fording kit	30 in.

**Table 1-4. Engine Data**

Vehicle Models:	Type	Fuel	Idle Speed
M40,M40C,M51,M54,M55,M61 M62,M63,M63C,M139,M139F, M246,M543 . . . . .	Continental R6602	Gasoline	400-450 rpm
M40A1,M40A1C,M51A2,M52A1, M40A1,M40A1C,M51A2,M52A1, M54A1,M61A,M63A1,M63A1C, M139A1,M139A1F,M246A1, M291A1D,M328A1,M748A1 . .	Mack ENDT-673	Diesel	550-600 rpm
M40A2C, M51A2, M52A2, M54A1C, M54A2, M54A2C, M55A2, M61A2, M63A2, M139A2F, M246A2, M543A2 . .	Continental LDS 465-1/LDS 465-1A	Multifuel	650-700 rpm

**Table 1-5. Permissible Fuels**

<b>Diesel Engines:</b>	
<b>Fuel Requirements</b>	<b>Temperature Limits</b>
Grade DF2 fuel (of spec VV-F-800).	Do not use below +32 <sup>o</sup> F.
Grade DF1 fuel (of spec VV-F-800).	Do not use below -10 <sup>o</sup> F.
Grade DFA fuel (of spec VV-F-800).	All temperatures.
<b>Multifuel Engines:</b>	
<b>Fuel Requirements</b>	<b>Temperature Limits</b>
Grade DF2 fuel (of spec VV-F-800).	Do not use below +32 <sup>o</sup> F.
Grade DF1 fuel (of spec VV-F-800).	Do not use below -10 <sup>o</sup> F.
Grade DFA fuel (of spec VV-F-800).	All temperatures.
Gasoline (MIL-G-3056)	All temperatures. (emergency use only)



NOTE

During emergency combat conditions where no other fuel is available, JP-5 aircraft turbine engine fuel is authorized in diesel or multifuel vehicles.

Gasoline Engines:	
Fuel Requirements	Temperature Limits
MOGAS Type I all-purpose gasoline	Above 0°F.
MOGAS type II low-temperature, all-purpose gasoline research octane number (min., type I, II) 91 (spec MIL-G-3056D)	Below 32°F.

Table 1-6. Capacities

Cooling system . . . . .	44 qt.
Crankcase:	
Gasoline engine (wet refill) . . . . .	18 qt.
Diesel engine (wet refill) . . . . .	18 qt.
Multifuel engine (wet refill) . . . . .	22 qt.
Oil filter (each) . . . . .	2 qt.
Air cleaner (gasoline) . . . . .	5 pt.
Differentials, each . . . . .	12 qt.
Transmission w/o power takeoff . . . . .	9 qt.
Transfer . . . . .	5 1/4 qt.
Winch:	
Front . . . . .	2.6 qt.
Rear . . . . .	3 qt.
Fuel tank:	
M54 series, M55 series, M139, M246 series, M291 series, M3281, M748A1 (1 tank) . . . . .	78 gal.
M51 series, M52 series (2 tanks) . . . . .	110 gal.
Late M62, M543 series (2 tanks) . . . . .	133 gal.

**Table 1-7. Tire Pressure (PSI)**

Highway	
M139 . . . . .	45
M328A1 . . . . .	55
M51 series, M52 series, M54 series, M55 series, M543 series . . . . .	70
M246 series . . . . .	75
M748A1 . . . . .	80
M291A1, M291A1D . . . . .	85
Cross-country:	
M139 . . . . .	45
All other models . . . . .	35
Mud, sand, and snow (psi):	
All models (without chains) . . . . .	25

**Table 1-8. Shifting Speeds in MPH**

TRANSMISSION	Gasoline and Multifuel		Diesel	
	Transfer Low	Transfer High	Transfer Low	Transfer High
1st gear	3 1/2	7	3	6
2nd gear	6	13	5	11
3rd gear	10	21	10	22
4th gear	18	36	19	39
5th gear (direct)	26	56	25	50
Reverse	3 1/2	7	3	6

**Table 1-9. Winch**

Front winch:	
Capacity (max) . . . . .	20,000 lb.
Cable length:	
M62, M246 series, M543 series . . . . .	280 ft.
All other models . . . . .	200 ft.
Rear winch:	
Capacity . . . . .	45,000 lb.
Cable length . . . . .	280 ft.
Boom hoist winch:	
Cable length:	
M62, M246 . . . . .	104 ft. 4 1/2 in.
M543 . . . . .	95 ft. 5 in.

**Table 1-10. Air Cleaner Data**

Gasoline:	
Type . . . . .	Oil bath
Oil capacity . . . . .	5 pt.
Location . . . . .	Under engine hood on right side
Diesel and Multifuel:	
Type . . . . .	Dry
Location . . . . .	Right fender
Servicing indicator . . . . .	On right instrument panel

**Table 1-11. Fuel Filter Data**

Gasoline:	
Type . . . . .	Strainer element
Location . . . . .	Left side frame
Diesel:	
Type . . . . .	Replaceable element
Location:	
Primary . . . . .	Left side frame
Secondary . . . . .	Right side engine
Multifuel:	
Primary:	
Types . . . . .	Fluid pressure and scraper
Location . . . . .	Left side frame
Secondary and final:	
Type . . . . .	Replaceable element
Location . . . . .	(1) left side frame; (1) left side engine (LDS 465-1); (2) left side engine (LDS 465-1A)

**Table 1-12. Diesel Engine Downshifting Speeds (RPM)**

Transmission Downshift	Maximum Diesel Engine RPM
5 to 4 . . . . .	1600
4 to 3 . . . . .	1100
3 to 2 . . . . .	1100
2 to 1 . . . . .	1100



## CHAPTER 2 OPERATING INSTRUCTIONS

### Section I. CONTROLS AND INDICATORS

#### 2-1. Know Your Controls and Indicators.

Before attempting to operate your equipment, be sure that you are familiar with the location and function of all controls and indicators. This section describes the location and function of your equipment controls and indicators as follows:

- a. Chassis Controls and Indicators: paragraph 2-2.
- b. Body Equipment, Controls and Indicators: paragraph 2-3.
- c. Special Kits Controls and Indicators: paragraph 2-4.

#### NOTE

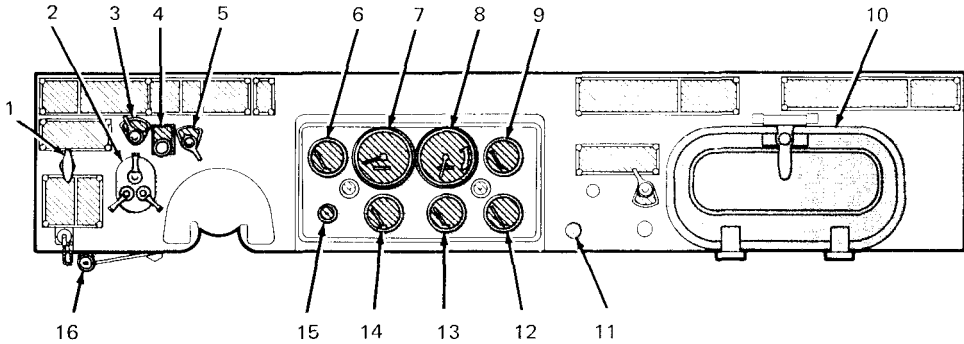
Except where specifically noted, the controls and indicators are generally applicable to all vehicles covered in this manual.

#### NOTE

In this manual, the terms right, left, front or rear indicate direction as viewed from the operator's seat facing forward.

2-2. Chassis Controls and Indicators.

a. Instrument Panel (Gasoline Engine).

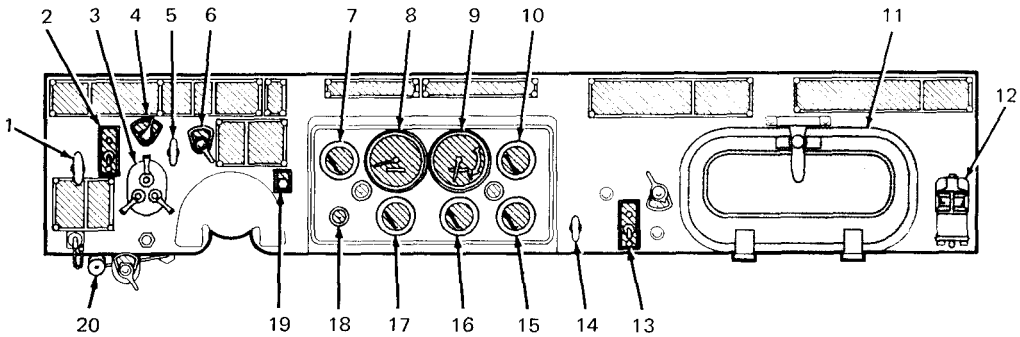


**Key Item and Function**

- 1 *Hand throttle control knob* is used to set engine speed at any desired rpm without maintaining foot pressure on the accelerator pedal. When the throttle control knob is pulled out, it locks in any desired position. Rotating the knob clockwise or counterclockwise unlocks it.
- 2 *Light switch* controls operation of the truck lights (see page 2-48 for lighting chart ).
- 3 *Ignition switch* energizes the engine ignition system. It must be turned to ON position before the engine can be started.
- 4 *Anti-diesel control* cuts off the fuel supply and stops engine when the control knob is pulled Out.
- 5 *Fuel tank selector switch* (dual tank models) provides a fuel level reading on the fuel gage for either left or right fuel tank depending on switch position.
- 6 *Fuel gage* indicates the amount of fuel in the fuel tank.
- 7 *Speedometer /odometer* indicates vehicle speed and total mileage.
- 8 *Tachometer* indicates engine speed in revolutions per minute (rpm)

- 9 *Temperature gage* indicates engine coolant temperature.
- 10 *Glove compartment* provides storage for manuals and forms.
- 11 *Choke control* is used to control operation of the choke to facilitate starting and warmup of a cold engine.
- 12 *Battery-generator indicator* indicates the charging activity of the battery charging system. For normal operation, the indicator should be in the green area.
- 13 *Air pressure gage* indicates the air system pressure. Normal range is 105 to 120 psi with the engine running.
- 14 *Oil pressure gage* indicates the engine oil pressure when the engine is running. Normal operation range is 15 psi at idle speeds and 50 to 65 psi at highway speeds.
- 15 *Headlight high beam indicator* illuminates when headlights are on high beam.
- 16 *Windshield wiper control* activates windshield wipers when the knob is rotated clockwise.

b. Instrument Panel (Diesel and Multifuel Engines).



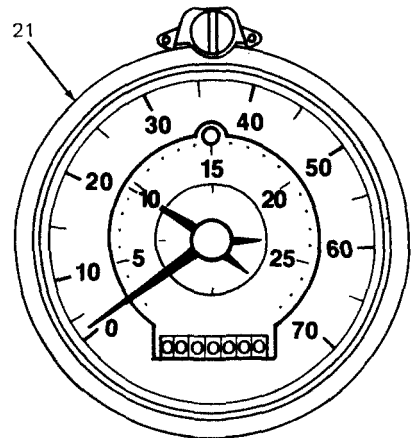
**Key Item and Function**

- 1 *Hand throttle control throttle knob* is used to set engine speed at any desired rpm without maintaining foot pressure on the accelerator pedal. When the throttle control knob is pulled out, it locks in any desired position. Rotating the knob clockwise or counterclockwise unlocks it.
- 2 *Manifold heater switch* controls operation of the manifold heater and is used to facilitate starting and warmup of a cold engine when temperatures are below +20° F.
- 3 *Light switch* controls the operation of the vehicle's lights (see page 2-48 for lighting chart).
- 4 *Battery switch, when in the ON position, energizes all* the vehicle electrical circuits except the horns, lights, and manifold heater.
- 5 *Engine stop control* cuts off the flow of fuel to the fuel injector pump when the control knob is pulled out.
- 6 *Fuel tank selector switch* (multifuel dual-tank models) provides a fuel level reading on the fuel gage for either left or right fuel tank depending on switch position.
- 7 *Fuel gage* indicates the amount of fuel in the fuel tank.
- 8 *Speedometer/odometer* indicates vehicle speed and total mileage.
- 9 *Tachometer* indicates engine speed in revolutions per minute (rpm).
- 10 *Temperature gage* indicates engine coolant temperature.

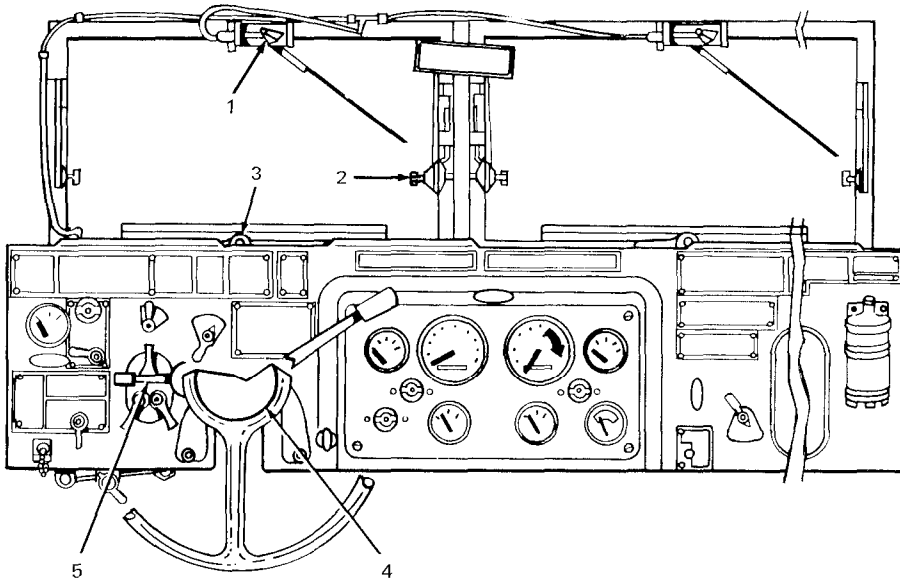


- 11 *Glove compartment* provides storage for manuals and forms
- 12 *Air restriction indicator* indicates the engine air cleaner needs cleaning when the red indicator moves above the green line.
- 13 *Fuel transfer pump switch* (multifuel with dual- fuel tanks) transfers fuel from the auxiliary tank to the main tank when in the ON position.
- 14 *Emergency stop control* (diesel) is used to shut off the fuel supply to the engine's fuel injectors to stop the engine in an emergency situation.
- 15 *Battery-generator indicator* indicates the charging activity of the battery charging system. For normal operation, the indicator should be in the green area.
- 16 *Air pressure gage* indicates the air system pressure. Normal range is 105 to 120 psi with the engine running.
- 17 *Oil pressure gage* indicates the engine oil pressure when the engine is running. Normal operation range is 15 psi at idle speeds and 50 to 65 psi at highway speeds.
- 18 *Headlight high beam indicator* illuminates when headlights are on high beam.
- 19 *Starter button switch* engages starter to crank engine when depressed.
- 20) *Windshield wiper control* activates windshield wipers when the knob is rotated clockwise.

- 21 *Tachograph assembly* replaces the tachometer and speedometer on some M52 models. The tachograph indicates vehicle speed, engine rpm, time, total mileage and includes a red warning light which glows when the engine speed reaches 3,000 rpm.



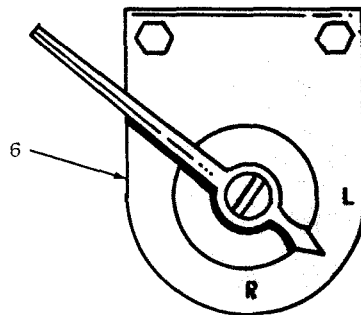
c. Cab Controls.

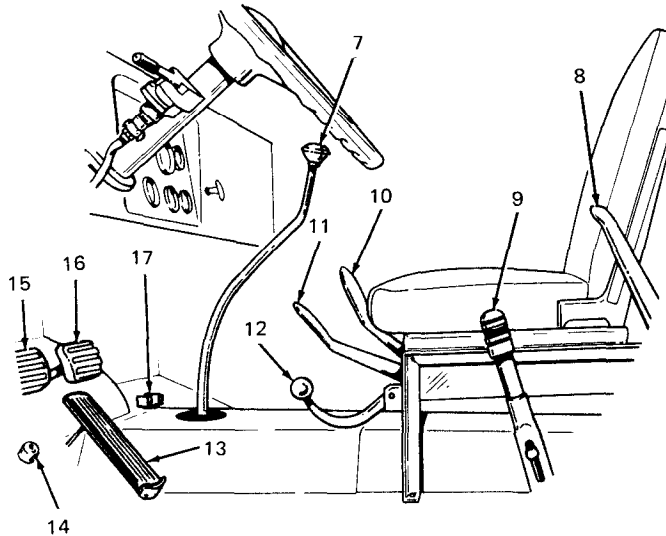


**Key** Item and Function

- 1 Windshield wiper lever provides manual operation of the windshield **wipers**.
- 2 Windshield *clamping screws* lock windshield in any open position.
- 3 *Windsheild locking handle* locks windshield in dosed position.
- 4 *Horn button* activates air horn when dpressed.
- 5 *Directional turn signal control* activates turn signal lights. To indicate left turn *move* lever down. To indicate right turn, move lever up. The control is not self-cancelling, and must be manually returned to center (off) position after completion of turn.

- 6 Fuel tank selector *valve* on models with dual fuel tanks is turned manually L (left) or R (right) to select fuel supply. Valve is located on cab floor near handbrake lever.

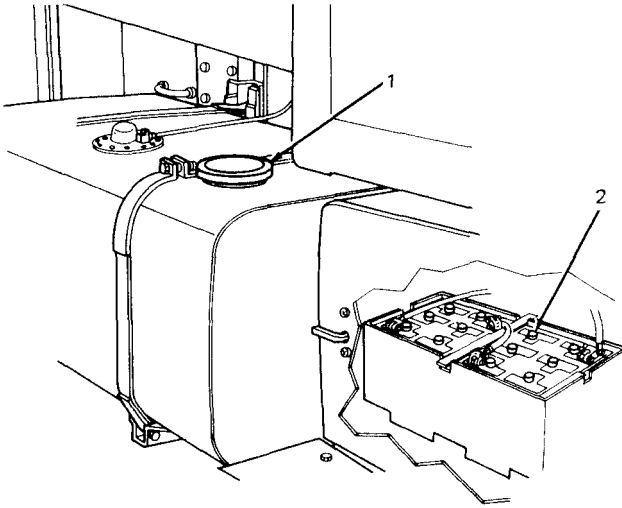




- 7 *Transmission gearshift lever* is used to select proper gear ratio.
- 8 *Transmission and power divider power takeoff control lever* is pulled forward to provide power for auxiliary equipment.
- 9 *Handbrake control lever* is pulled up to set parking brake. Knob on top of handle is turned clockwise to increase braking action, counterclockwise to decrease braking action.
- 10 *Front winch control lever* operates front winch.
- 11 *Transfer shift lever* is pulled up to "high" for light load conditions, down for "low" and heavy load conditions.
- 12 *Transfer power takeoff control lever* is pulled up to provide power for auxiliary equipment.
- 13 *Accelerator pedal* controls engine speed.
- 14 *Dimmer switch* is depressed to raise or lower headlight beam.
- 15 *Clutch pedal* is depressed to disengage clutch and allow shifting to different gear ratio.
- 16 *Service brake pedal* is depressed to brake vehicle.
- 17 *Bracket* is for mounting decontamination apparatus.

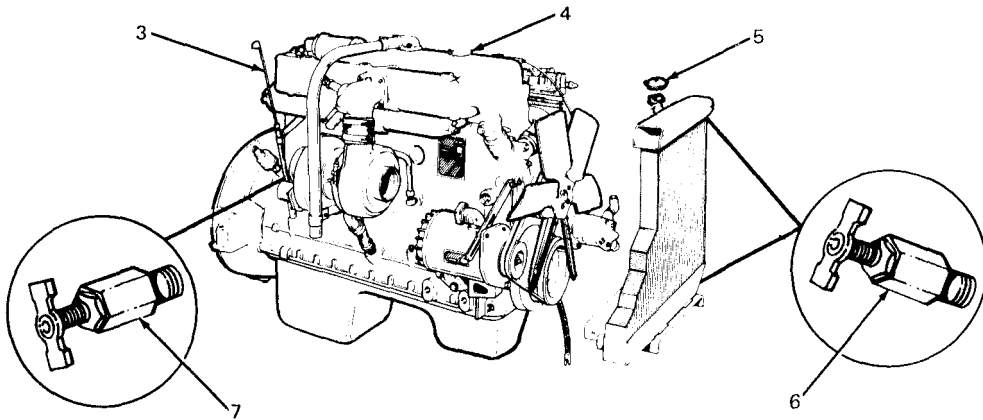
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d. Chassis Controls.

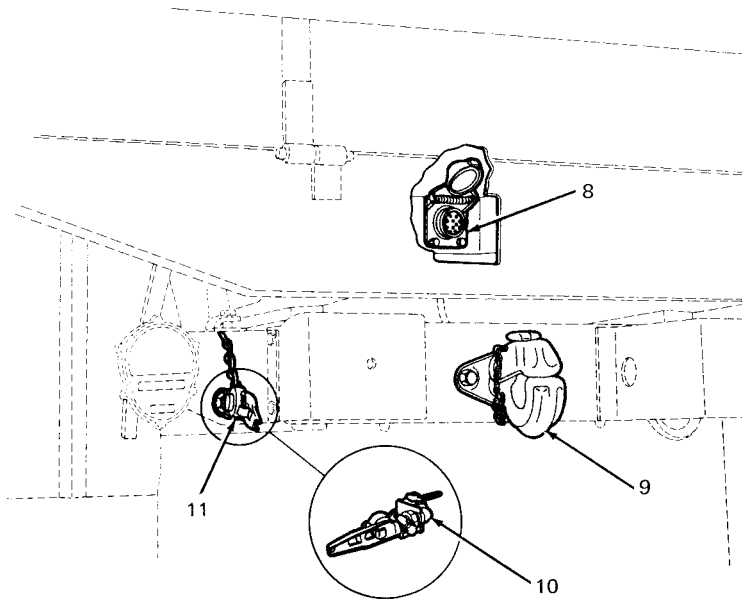


**Key Item and Function**

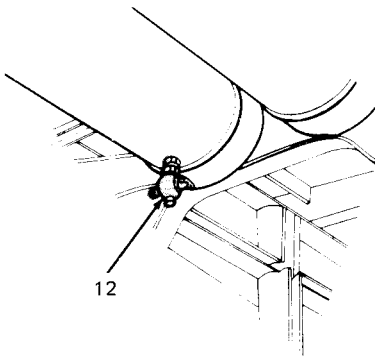
- 1 Fuel tank filler cap is turned counterclockwise to open.
- 2 Battery filler caps are removed to check electrolyte.



- 3 Oil level indicator is located on left-hand side (gasoline and diesel engine) or on the right-hand side (multifuel engine). The oil level indicator is removed to check oil level.
- 4 Oil filler cap is removed to add oil, when required.
- 5 Radiator filler cap is removed to check coolant level and add coolant, when required.
- 6 Radiator drain cock at upper and lower-left side of radiator is turned counterclockwise to drain coolant from radiator.
- 7 Cylinder block drain cock on right side of engine is turned counter-clockwise to drain coolant from engine cylinder block.

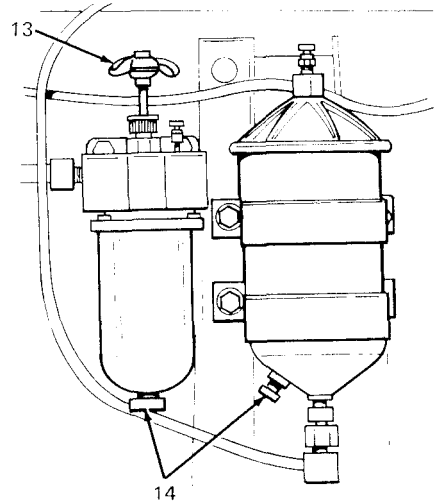


- 8 *Power outlet receptacle* provides electrical power for lights on trailers being towed.
- 9 *Towing pintle hook* is opened to attach trailer lunette, towing bar or chain. When used for towing, the pintle hook must always be locked by pin attached to chain.
- 10 *Trailer air cutoff cock handles* are turned to release compressed air into the trailer airbrake system.
- 11 *Trailer air couplings* provide airbrake system connections for trailer being towed.



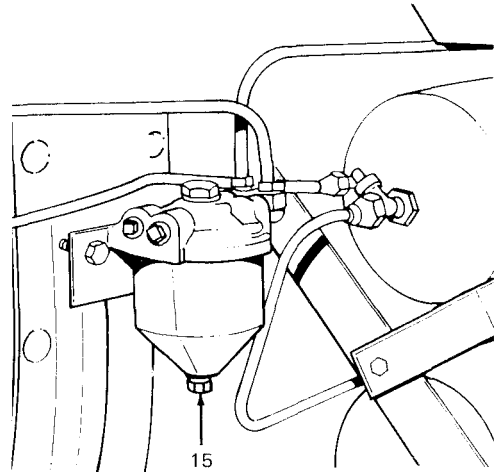
- 12 *Air reservoir drain valve* is opened to release pressure from the air system and to drain accumulated water from reservoirs. Valve is located under left-hand running board.

- 13 *Primary fuel filter scraper handle* (LDS-465-1 multifuel engine) is located on left side of engine and must be rotated two full turns before draining filter.

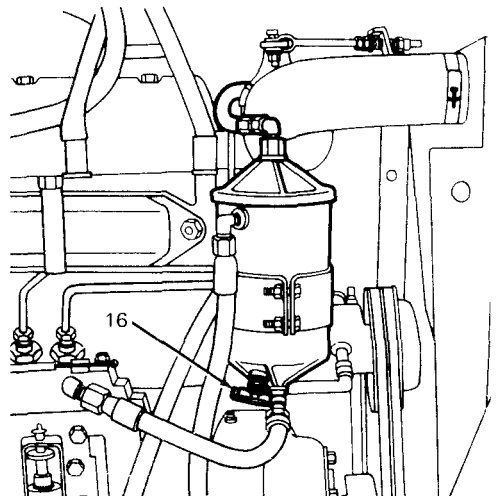


- 14 *Primary and secondary fuel filter drain plugs* are removed to drain accumulated water from filters.

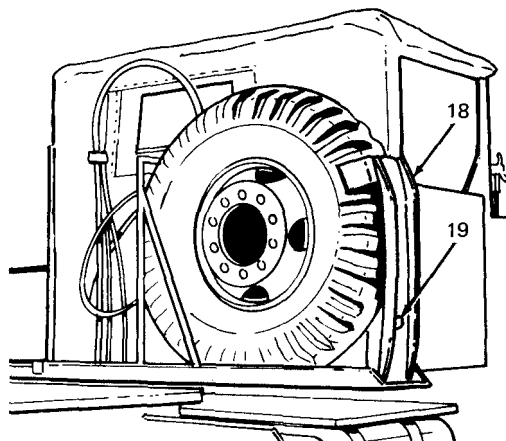
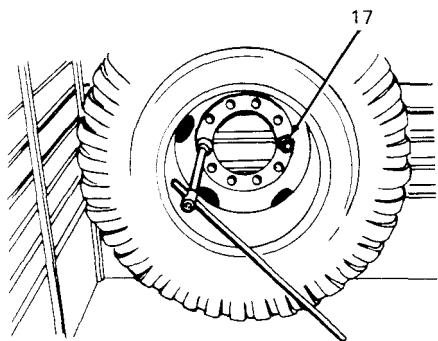
- 15 *Primary fuel filter drain plug* (gasoline and diesel), located under left front fender, is removed to drain accumulated water from filter.



- 16 *Secondary fuel filter drain cock* (diesel) located at front of engine, is turned counterclockwise to drain accumulated water from filter.

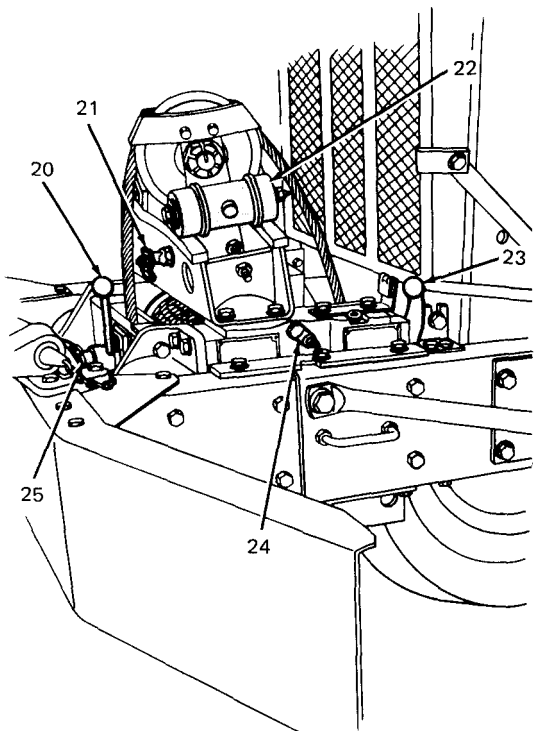


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- 17 *Capnuts* are used to secure spare wheel to spare wheel mount.
- 18 *Spare wheel retaining clamp* is swung open to remove spare wheel.
- 19 *Retaining clamp capnut* is removed to release retaining clamp assembly.

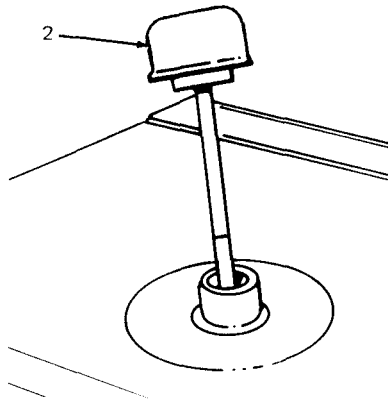
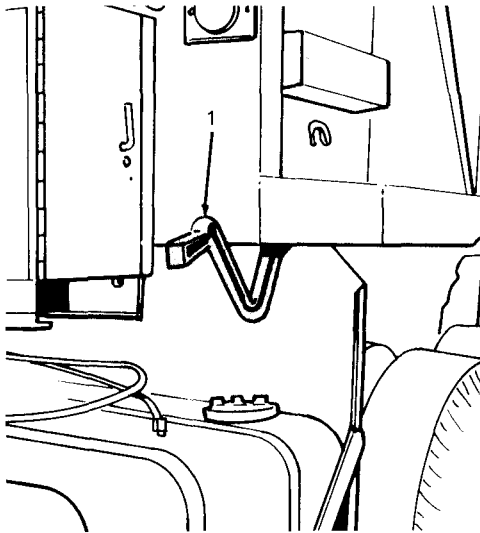
- 20 *Tensioner lever* is used to apply tension on the winch cable during cable rewind without a load.
- 21 *Level wind lock knob* is pulled out and rotated 90° to unlock the level wind assembly.
- 22 *Level wind assembly* feeds winch cable onto drum in tight even coils and layers.
- 23 *Drum clutch lever* is used to engage and disengage the winch drum.
- 24 *Drum lock knob* is pulled out and rotated 90° to unlock winch drum.
- 25 *Tensioner lever latch* is pulled out and rotated 90° to release tensioner lever.



TA 096210

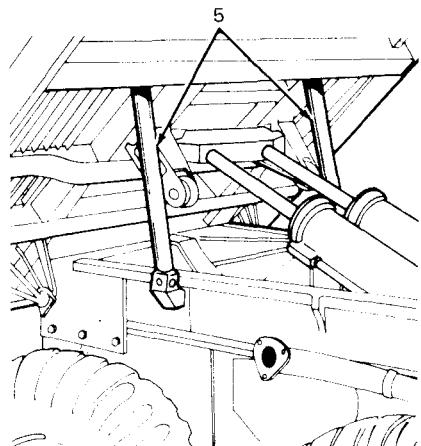
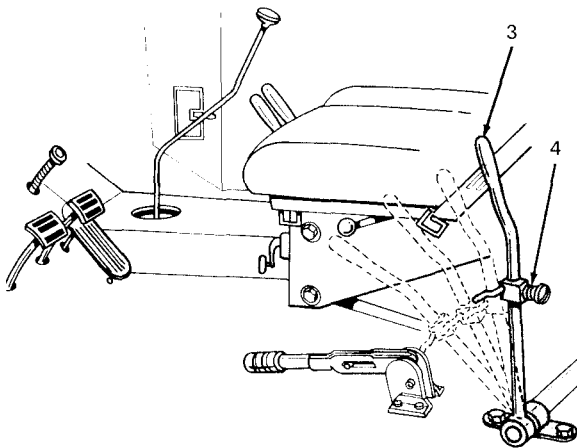
2-3. Body Equipment, Controls and Indicators.

a. Dump Trucks.



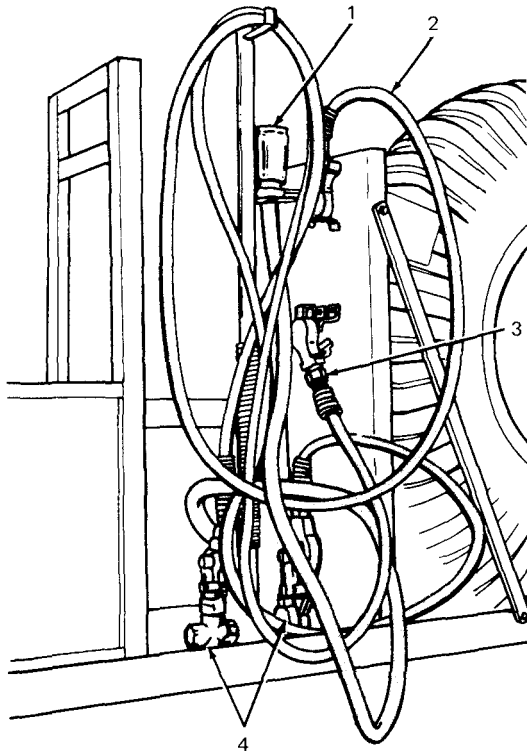
**Key Item and Function**

- 1 *Endgate hand lever* is pulled forward and down to open the endgate.
- 2 *Hydraulic hoist oil level gage* indicates fluid level in the hydraulic fluid reservoir.
- 3 *Dump body control lever* is moved to control the position of the dump body.
- 4 *Safety lock* locks control lever when the dump body is in down position.
- 5 *Dump body safety braces* tire raised to secure the dump body in the up position during maintenance operations

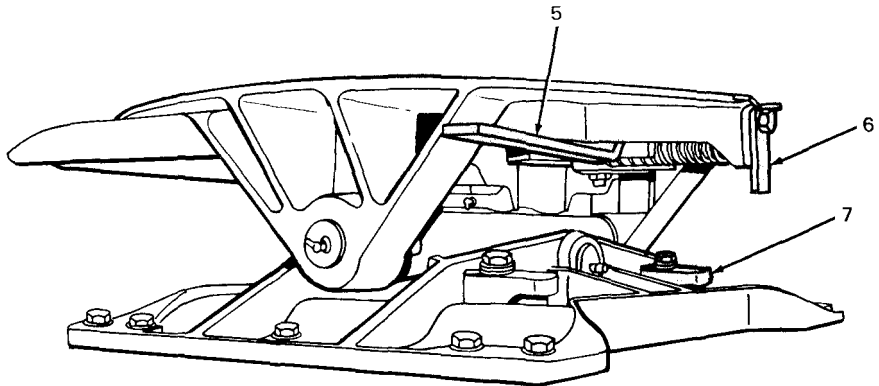




## b. Tractor Trucks



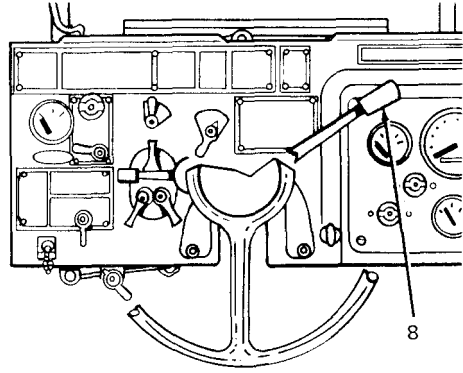
- 1 *Electrical cable and connector is connected to the semitrailer electrical receptacle to provide electrical power to the semitrailer.*
- 2 *Emergency airbrake hose line and coupling is connected to the emergency airbrake coupling on the trailer. The semitrailer emergency brake system is activated when the "regular" air system fails.*
- 3 *Service airbrake hose line and coupling is connected to the service airbrake receptacle on the trailer to provide air to the semitrailer service airbrake system.*
- 4 *Airbrake hose coupling shutoff cocks are turned on to allow air to enter the semitrailer brake system, must be turned off otherwise, except when checking or servicing.*



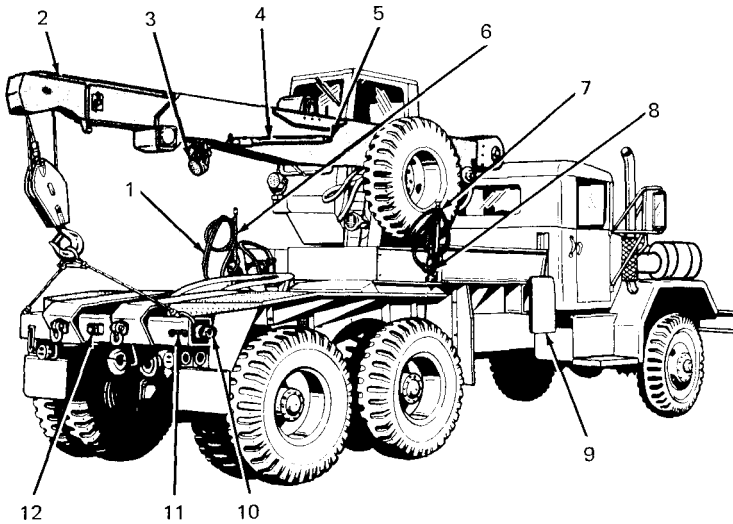
- 5 *Locking plunger lever is pulled forward to unlock fifth wheel coupling jaws and release semitrailer from tractor or allow tractor to be coupled with semitrailer.*
- 6 *Locking plunger safety latch is swung to one side to use locking plunger lever.*
- 7 *Fifth wheel wedges are moved toward the tractor rear for highway travel, toward the front for cross-country operations.*

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- 8 **Airbrake** hand control controls braking on towed trailer or semitrailer. Brakes are applied by moving lever down.



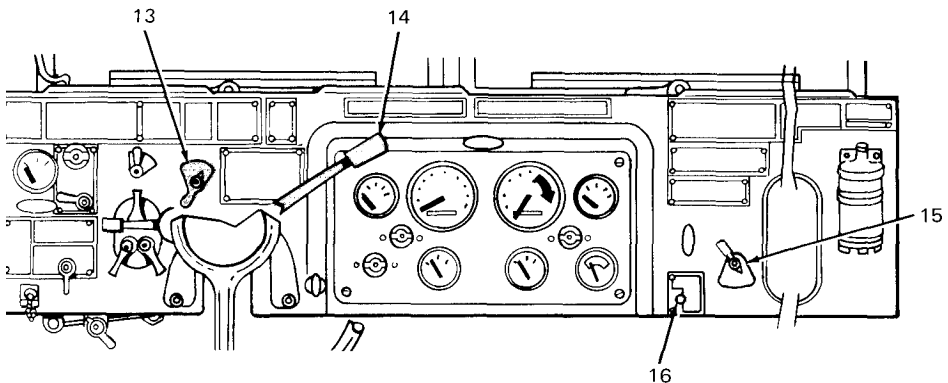
c. Tractor Wrecker Trucks.



Key **Item and Function**

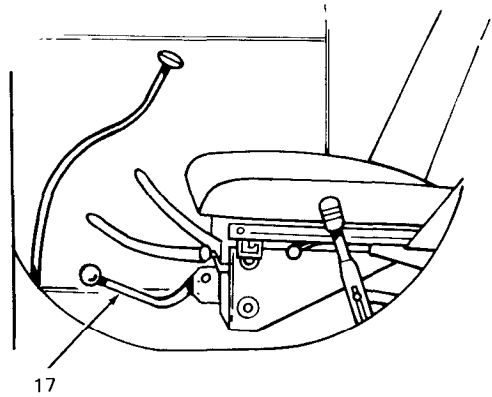
- 1 *Service airbrake hose line and coupling* are connected to the service airbrake receptacle on the right front side of the semitrailer to allow air to enter the semitrailer service airbrake system.
- 2 Crane boom extend from 11 1/2 to 26 feet and elevates to approximately 45°.
- 3 *Floodlights* are used during night operations. Each light is equipped with a toggle switch for independent operation.

- 4 *shipper braces* support boom during heavy real lift operations and during cross-country travel.
- 5 Shipper brace retaining brackets are used to secure shipper braces when not in use.
- 6 *Electrical cable connector* are connected to the semitrailer *electrical* receptacle to provide power for the semitrailer lights,
- 7 *Emergency airbrake hose line and coupling* is connected to the emergency airbrake coupling on the left side of the semitrailer. The semitrailer emergency brake system is activated if the air system fails.
- 8 *Airbrake hose coupling shutoff cocks* are turned on to allow air to enter the semitrailer brake system and must be turned off before the semitrailer can be uncoupled.
- 9 *Outrigger base* provides a firm base to support the outriggers.
- 10 *Outriggers* support truck frame during heavy side lift operations to prevent twisting stains.
- 11 *L-shaped outrigger retaining pins* are used to secure outriggers in frame tubes when not in use.
- 12 *Boom jacks* provide support for crane boom and shipper during heavy side or direct rear lifts.



- 13 *Warning light switch* activates a warning lamp on the left fender during towing operations.
- 14 *Airbrake hand control lever* controls braking action on a semitrailer *or* towed load equipped with airbrakes. Brakes are applied when the lever is moved down.
- 15 *Floodlight master control witch* must be placed in ON position before the individual toggle switch on any floodlight will operate.
- 16 *Electric brake lock switch button* is used to lock service brakes in hold position during crane operation.

- 17 *Power takeoff control lever is pulled up to engage the power takeoff and drive the crane hydraulic pump.*

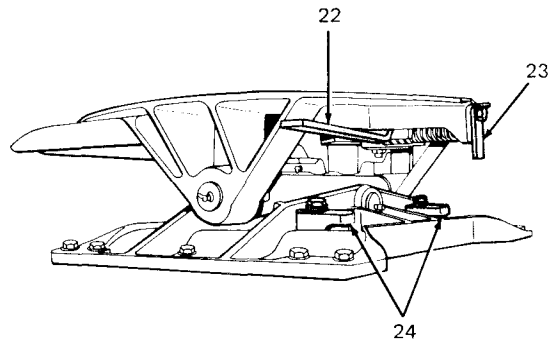
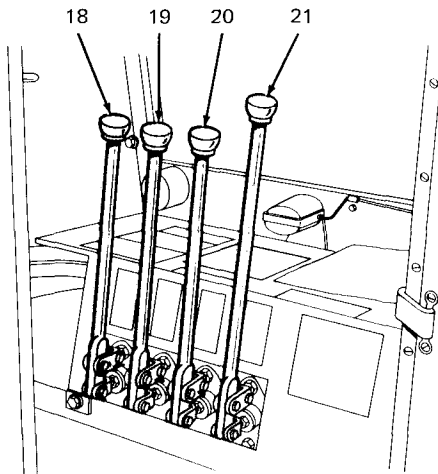


- 18 *Boom control lever controls the up and down movement of crane boom. Pulling lever toward operator raises boom. Pushing lever away from operator lowers boom.*

- 19 *Hoist control lever controls raising and lowering of crane cable hook. Pulling lever toward operator raises cable hook. Pushing lever away from operator lowers cable hook.*

- 20 *Crowd control lever controls the extension or retraction of boom assembly. Pulling lever toward operator retracts boom. Pushing lever away from operator extends boom.*

- 21 *Swing control lever controls the direction of crane assembly swing. Pulling lever toward operator swings crane assembly to right. Pushing lever away from operator swings crane assembly to left.*

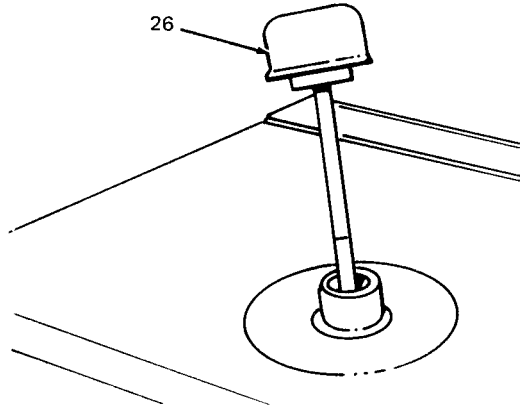
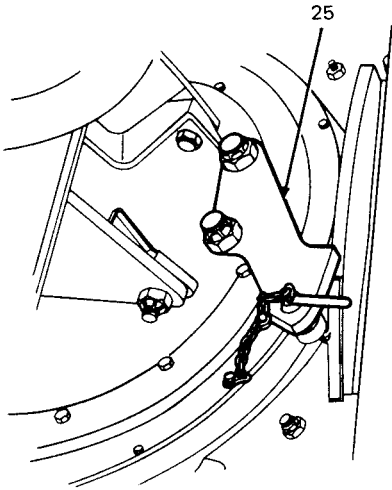


- 22 *Locking plunger lever is pulled forward to open the fifth wheel coupling jaws.*

- 23 *Locking plunger safety latch assures positive locking of the fifth wheel coupling jaws. The latch must be moved right or left to operate the locking plunger lever.*

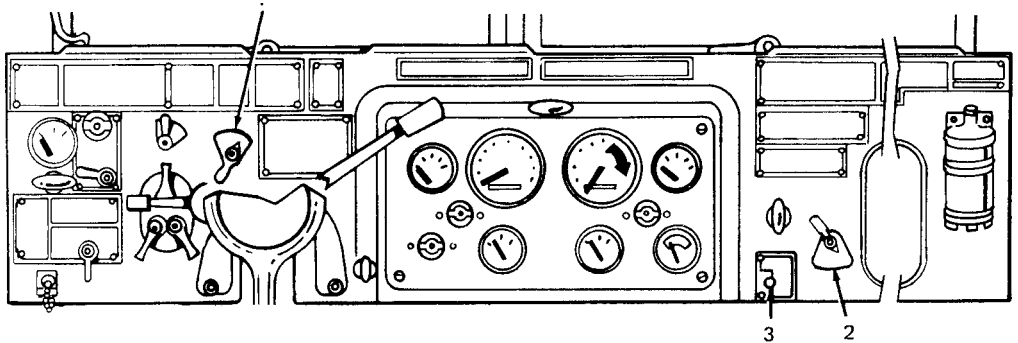
- 24 *Fifth wheel wedges are adjusted to permit or restrict lateral movement of the walking beam.*

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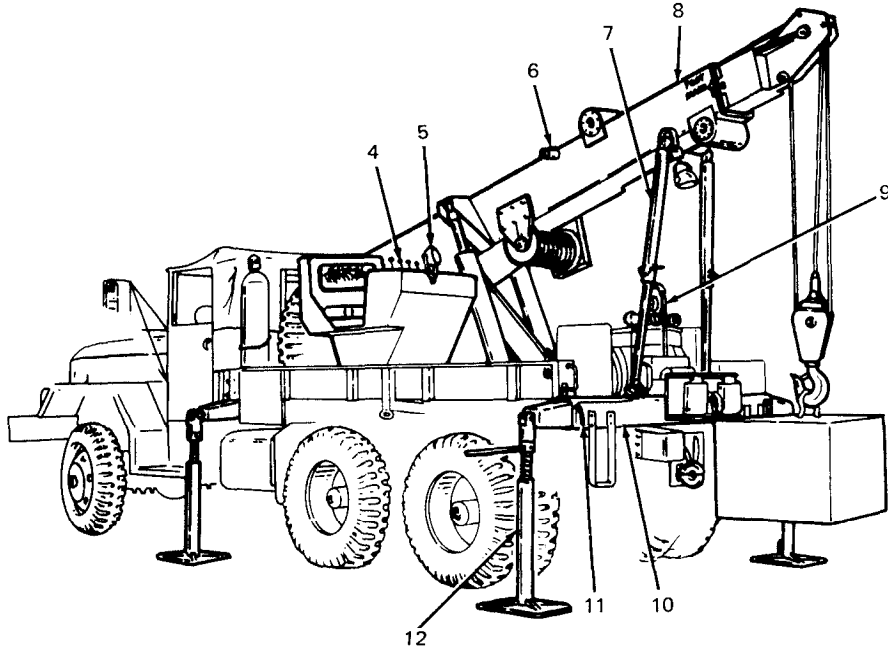
- 25 **Pivot post lock** stabilizes the crane revolving structure during travel and must be removed before operating crane.
- 26 **Hydraulic oil level indicator** is removed to check crane reservoir oil level.

d. Medium Wreckers.



**Key Item and Function**

- 1 **Warning light switch** controls operation of amber warning light on left front fender when wrecker crane is operating or disabled vehicle being towed. Switch is on when turned clockwise, off when turned counterclockwise.
- 2 **Flood light master control switch** turns clockwise to turn on, counterclockwise to turn off. Each floodlight has an individual control. (See item 5, next page.)
- 3 **Electric brake lock switch** locks vehicle service brakes in hold position when wrecker crane is in use. Switch is on when pushed in.

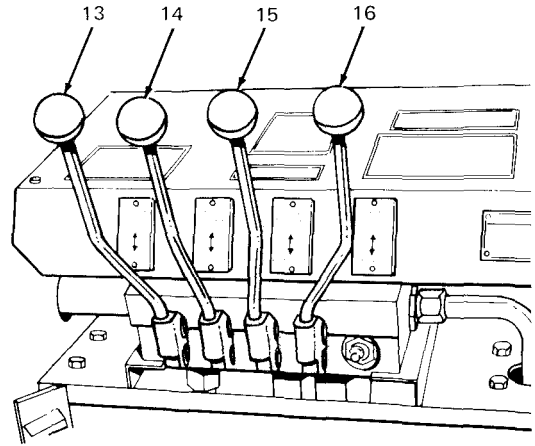


- 4 *Crane control valve bank assembly* controls crane boom, hoist, crowd, and swing operations.
- 5 *Floodlights* are used during night operations. Each light is equipped with a toggle switch for independent operation. Master switch is on instrument panel.
- 6 *Shipper brace retaining brackets* are used to secure shipper braces when not in use.
- 7 *Shipper braces* support boom during heavy rear lift operations or during cross-country travel.
- 8 *Crane boom* extends from 10 to 18 feet and elevates to approximately 45°.
- 9 *Rear winch cable tensioner* applies tension on the rear winch cable by squeezing the cable between a pair of sheaves mounted on front of winch.
- 10 *Outrigger frame tubes* provide stowage for outriggers when not in use.
- 11 *L-shaped outrigger retaining pins* are used to secure outriggers in frame tubes when not in use.
- 12 *Outriggers* support truck frame during heavy side lift operations to prevent twisting strains

13 Boom control lever raises boom when pulled toward operator, lowers boom when moved away from operator. See 4 on facing page

14 Hoist control lever raises boom hook when pulled toward operator, lowers hook when moved away from operator.

15 Crowed control lever retracts boom when pulled toward operator extends boom when moved away from operator.



16 Swing control lever swings crane assembly RIGHT when pulled toward operator, swings crane assembly LEFT when moved away from operator.

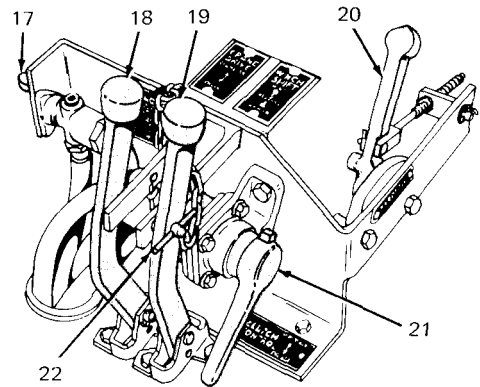
17 Cable tensioner control valve controls pressure on rear winch cable by two sheaves. Lever is pulled up to release pressure, down to apply tension to winch cable.

18 Crane drive control lever is moved away from rear winch to operate crane, after engine clutch control lever is disengaged and power divider is engaged.

19 Rear winch shift lever controls direction of rotation of rear winch drum. Control is moved away from rear winch to UNWIND, toward rear winch to WIND. Center position is NEUTRAL.

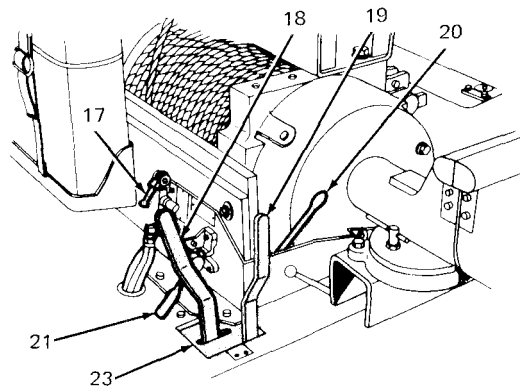
20 Throttle control lever controls engine speed and, as a result, winch speed.

21 Clutch control lever permits engine clutch operation from rear of vehicle Push lever clown to engage engine clutch. Pull lever up to disengage engine clutch.



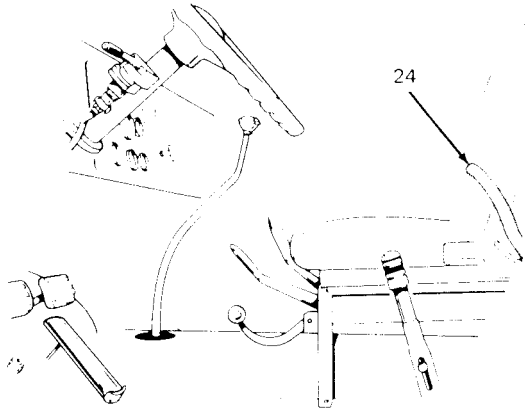
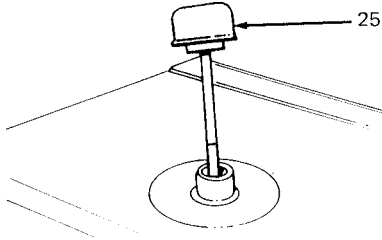
22 Control lever lockpin (M543) locks the winch shift lever in NEUTRAL position and the pump control lever in DISENGAGE position when neither is in use.

23 Control lever lockplate (M62) secures the pump control lever in DISENGAGE position and the rear winch control lever in NEUTRAL position when neither is in use.



24 *Power divider control lever* is moved down to engage the power divider that drives the rear winch and crane hydraulic pump.

25 *Hydraulic oil level indicator* is removed to check reservoir oil level,

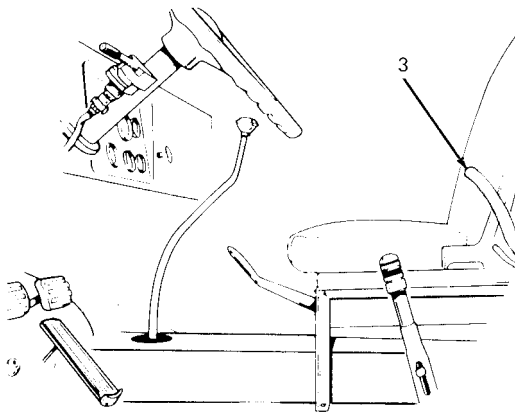
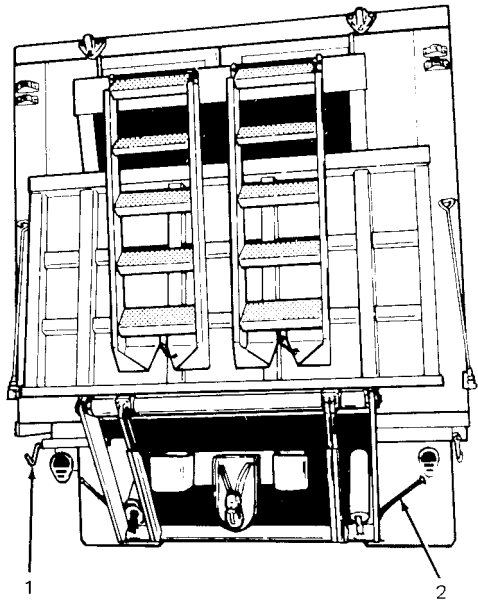


e. Expansive Van Trucks.

**Key Item and Function**

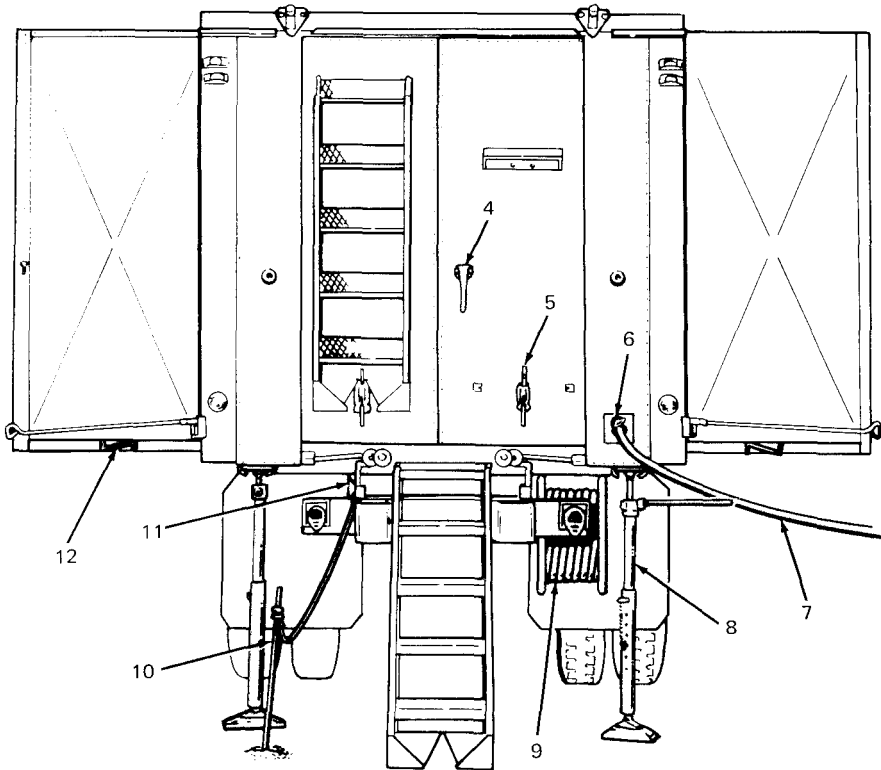
1 *Lift gate lowering and elevating lever (M291A2D)* is used to raise or lower the hydraulic lift gate. Push lever down to lower lift gate. Pull lever up to raise lift gate.

2 *Lift gate opening and closing lever (M291A2D)* controls the locked and unlocked positions of the lift gate. Push lever down to unlock and swing lift gate open. Pull lever up to swing lift gate up and lock in a vertical position.

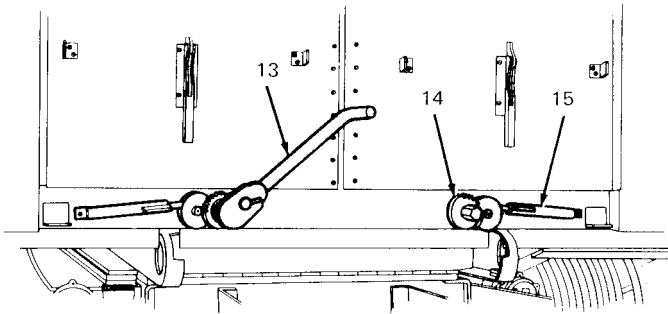


3 *Power takeoff control lever (M291A2D)* is moved down to engage the power takeoff and drive the lift gate hydraulic pump.



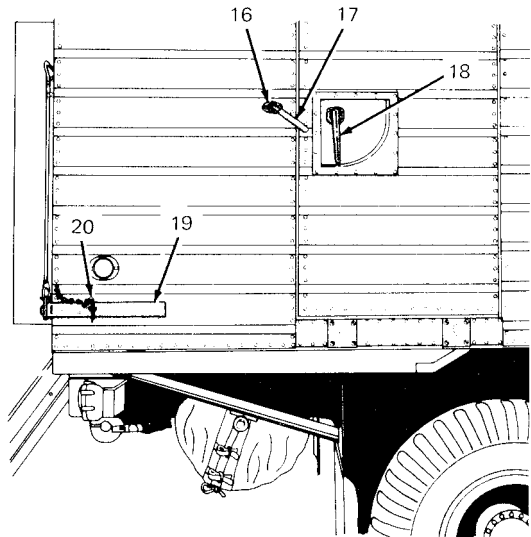


- 4 *Rear door lock handle* is turned 90° counterclockwise to unlock and open door,
- 5 *Ladder toggle clamps* are used to hold van ladders in stowed position. Pull clamp handle up to release ladder from clamp. Push clamp handle down to secure ladder in clamp.
- 6 *Power entrance receptacle* is used to couple power to van 110- 208-volt electrical system.
- 7 *Power cable* is connected between an external power source and van entrance receptacle to power van electrical system.
- 8 *Leveling jack* is used to level and stabilize van body.
- 9 *Power cable reel* is used to stow power cable when not in use.
- 10 *Ground cable and ground spike* are used to ground the van electrical circuits.
- 11 *Jack storage box* is used to stow leveling jacks when not in use.
- 12 *Hook holder* is used to hold side panel end doors in open position while extending van body floor and roof panels.



- 13 *Retractable beam drive shaft wrench* is used to turn the *retractable* beam drive shaft. The wrench is stowed in a bracket on the inside of the left rear door.
- 14 *Retractable beam drive shaft* is turned to expand or retract the van side panels. Turn drive shaft counterclockwise to expand and clockwise to retract side panel.
- 15 *Locking plunger* locks retractable beam drive shaft against rotation *and* secures side panels in either the expanded or retracted position. Push locking plunger down to unlock. Push locking plunger up to lock.

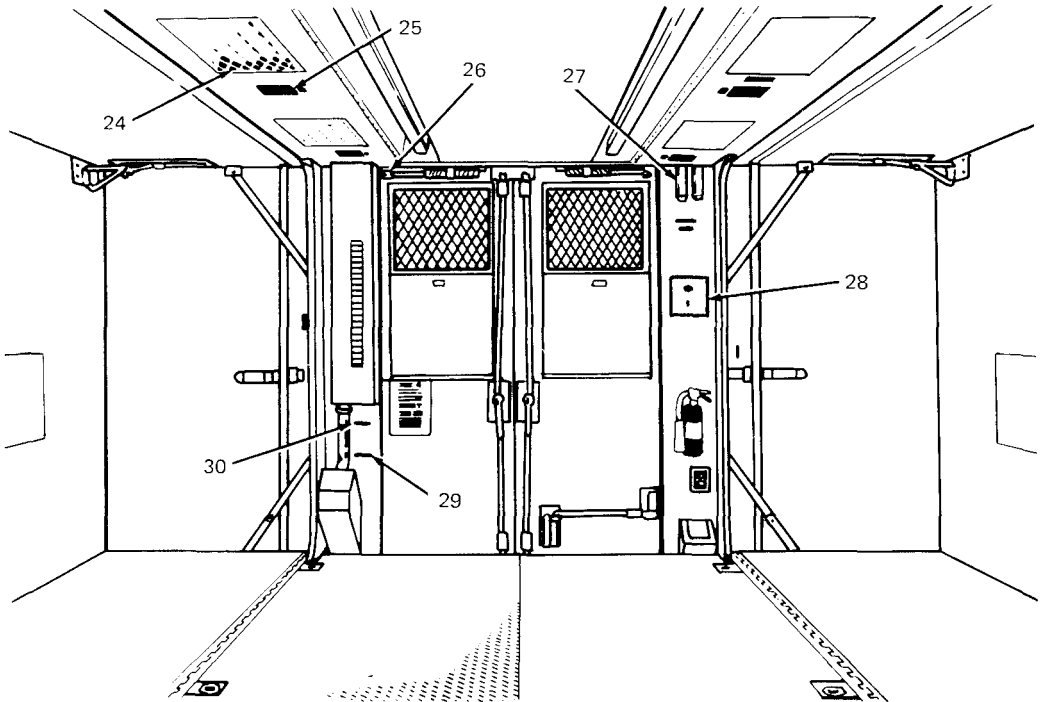
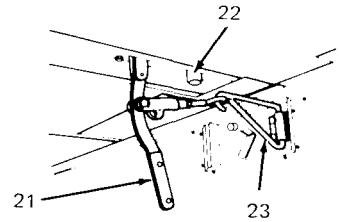
- 16 *Side panel lock* secures body side panels in retracted position. Turn lock shaft 90° counterclockwise to unlock, and 90° clockwise to lock side panel.



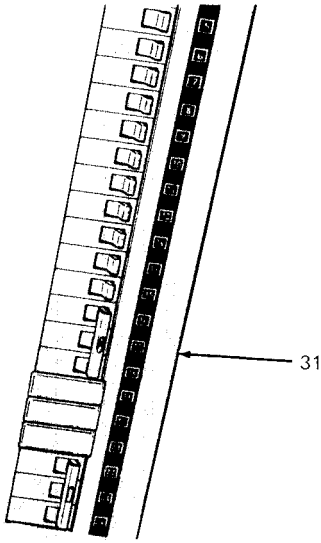
- 17 *Side panel lock wrench* is used to turn side panel lock. The wrench is stowed in a bracket on the inside of the left rear door.
- 18 *Side door lock handle* on right side is turned 90° counterclockwise to open, and on left side is turned 90° clockwise to open side door.
- 19 *Side panel lock handle* must be released before extending or retracting side panels.

- 20 *Pin and chain assembly* secures side panel lock handle in locked position,
- 21 *Toggle clamp* is attached to a swivel hook to draw up and hold the sealing edge of the side panel tight against the sealing edge of the roof panel. Pull clamp handle away from swivel hook to tighten clamp. Pull clamp handle towards swivel hook to release clamp.
- 22 *Toggle clamp holder post* is used to stow toggle clamp.
- 23 *Swivel hook* is stowed in niche near upper edge of side panel.

- 24 *Ceiling light switches* are located in the ceiling light fixture next to the light it controls. Each switch is of the "push-to-operate" type and can be reached without removing the mesh guard.



- 25 *Service receptacle blackout switch* provides blackout control of each service receptacle circuit independent of the main blackout circuit switch.
- 26 *Door operated blackout switch* turns off the ceiling light and service receptacle circuits when the van door is opened.
- 27 *Heater thermostats* control the output temperature of the van heaters.
- 28 *Hydraulic lift gate auxiliary pump switch (M291A2D)* controls the ON or OFF operation of the auxiliary hydraulic pump used to power lift gate when the vehicle is connected to an external electrical supply source.
- 29 *Emergency light switch* controls operation of the 24-volt emergency light which is powered from vehicle batteries.
- 30 *Main blackout circuit switch* is used to control the electrical system blackout circuits. In the ON position, the switch connects the blackout relay in the ceiling light and service receptacle circuits so that the circuits are turned off when the doors are opened.



31 *Circuit breaker switch box* controls circuits receiving external power through the external power cable. ON/OFF switches are combined with circuit breakers to control three 100-ampere capacity circuit breakers for the 208-volt main circuit, fifteen 20-ampere capacity circuit breakers for the van 120-volt system, and three 40-ampere capacity circuit breakers for the van air conditioner. Switch box is located on right rear van wall.

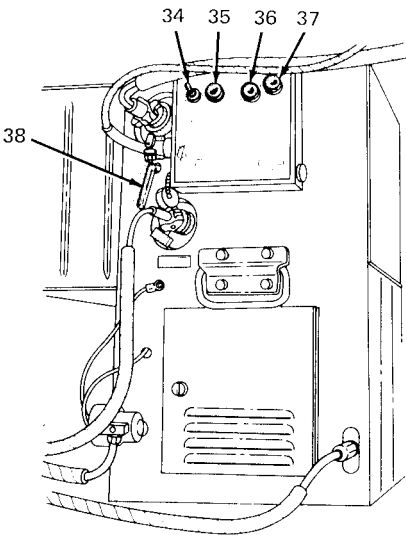
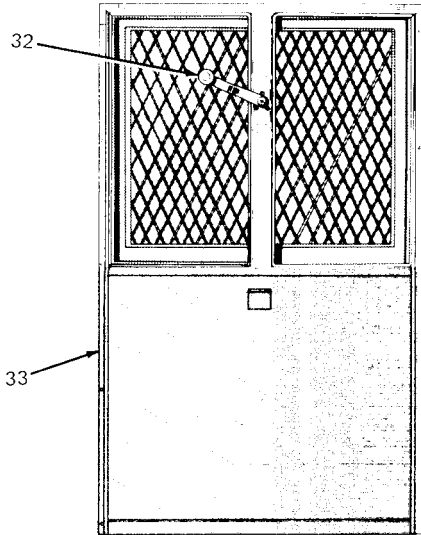
**NOTE**

An instruction plate near the switch box lists switch numbers and circuits controlled by each switch.

32 *Window regulator (M820, M820A2)* opens window when turned clockwise, closes window when turned counterclockwise.

33 *Blackout panel* is raised to cover window during blackout operation.

34 *Heater control switch* controls air circulation. HEATER position circulates heated air, FAN position unheated air. In OFF position heater and fan are inoperative.



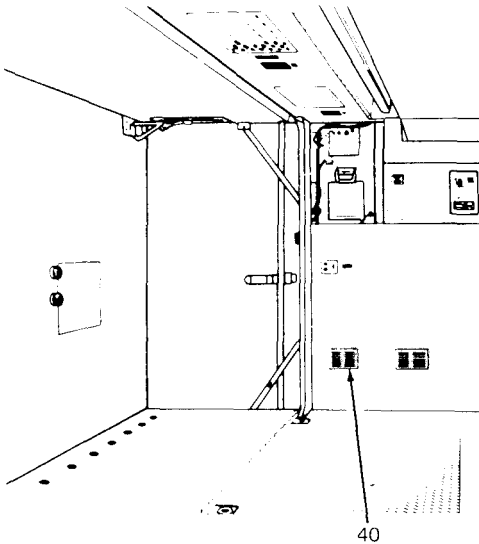
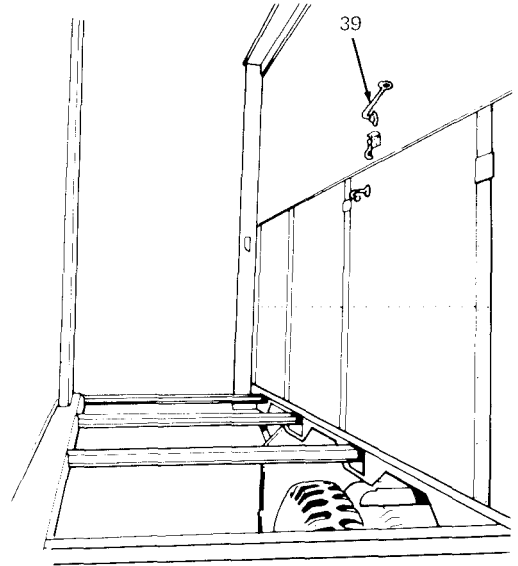
35 *White indicator light* glows when heater is operating properly.

36 *Red indicator light* glows when heater stops operating because of fuel or ignition trouble.

37 *Reset button* restarts heater when fuel or ignition trouble has been corrected.

38 *Lower operating handles* on each side of heater control mix of inside and outside air.

- 39 *Hinged roof lock* is used to secure each hinged roof section in the retracted position. Turn lock handle counterclockwise to release roof section. Turn lock handle clockwise to secure roof section.

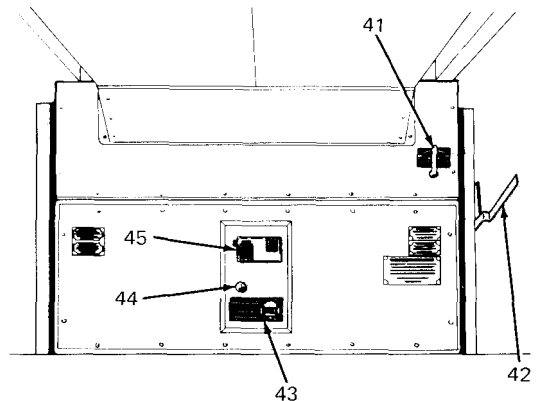


- 40 *Heat register controls* are pulled up to open register and direct hot air in van. The controls are pushed down to close register and direct heat under van floor to provide radiant floor heat.

- 41 *Damper control* governs mix of fresh and recirculated air into air conditioner.

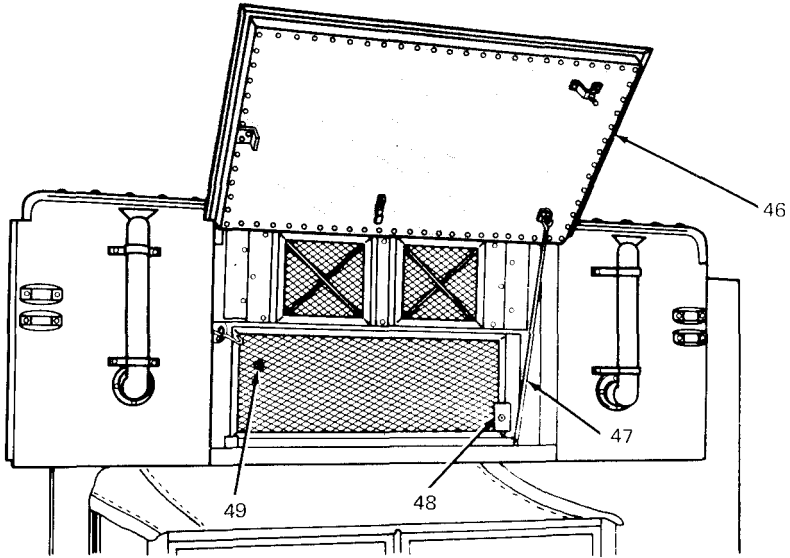
- 42 *Bomet door control handle* opens and closes bonnet door.

- 43 *Selector switch* circulates cooled air in COOL position, recirculates in FAN position.



- 44 *Warning lamp* glows if electrical or other trouble develops in air conditioner.

- 45 *Thermostat* is set at desired temperture to control air conditioner action

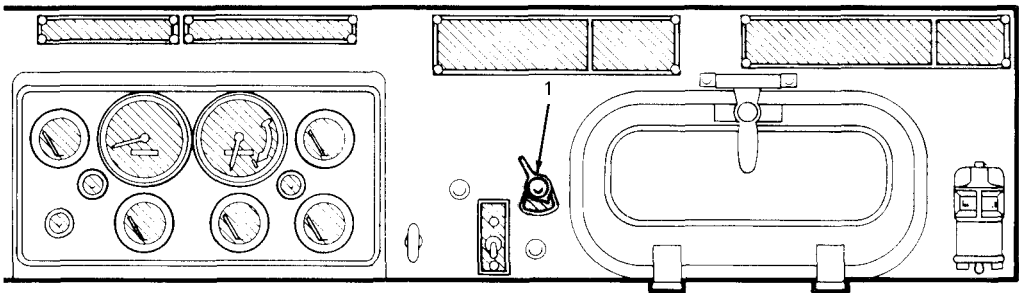


- 46 *Bonnet front door* must be opened before turning the air conditioner on
- 47 *Door support rod* supports bonnet front door in open position.
- 48 *Air conditioner cutout switch* is actuated by opening and closing bonnet front door. and turns on the air conditioning warning light inside van when the bonnet door is closed.
- 49 *Air conditioner reset button* is used to restart compressor motor after it is stopped by improper operation of the air conditioner.

f. Bridge Transporting Truck.

Key **Item and Function**

- 1 *Floodlight control switch* must be on for floodlights on bulkhead to operate.



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2 *Floodlights* are used during night operations. Each light is controlled by a toggle switch for independent operation.

3 *Stake racks* can be removed when loading extra wide material.

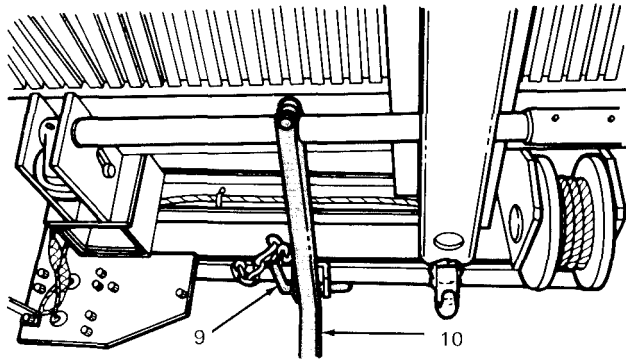
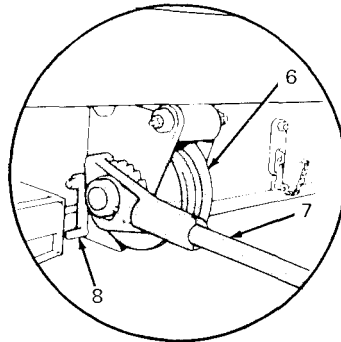
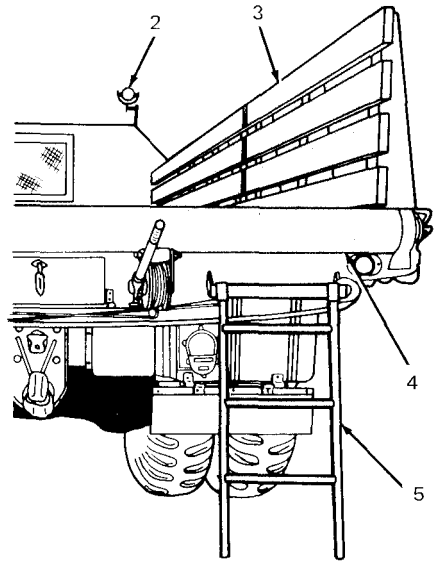
4 *Tailboard roller* is used to facilitate loading and unloading from the rear.

5 *Ladder* is used to assist in loading and unloading operations. Ladders are stowed in compartment at rear of truck.

6 *Manual winch* is used to snug and secure winch cable over load, and to secure cable end to truck lashing hooks.

7 *Manual winch handle* is moved down to wind cable on drum.

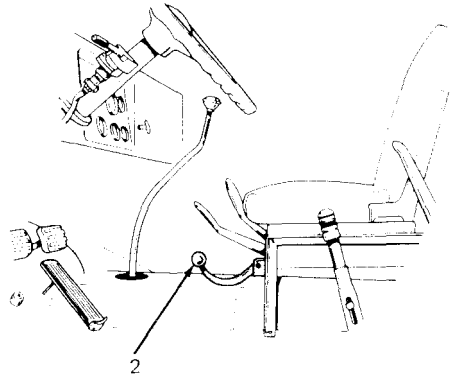
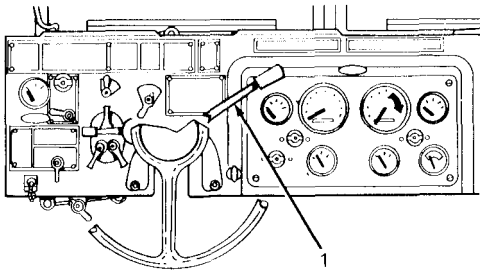
8 *Manual winch ratchet lever* is pushed down to release ratchet pawl when unreeling cable from drum.



9 *Stake rack locking lever pin* secures locking lever in locked position. It must be removed to operate locking lever.

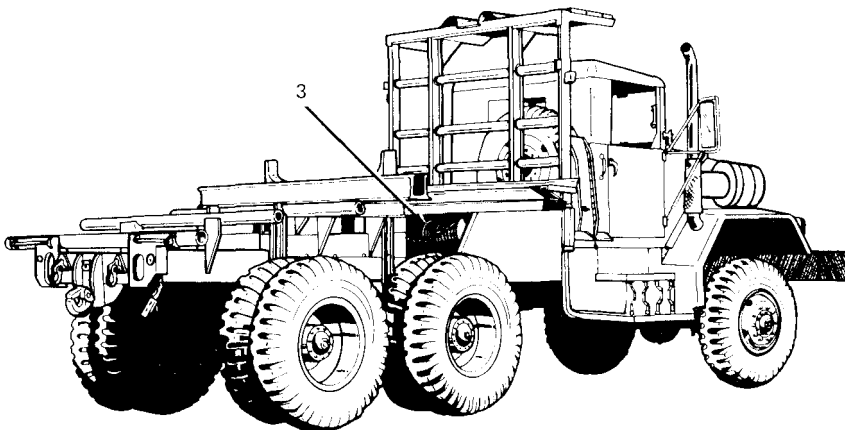
10 *Stake rack locking lever* must be pushed down to release stake racks for removal.

g. Bolster Trucks.



**Key**     **Item and Function**

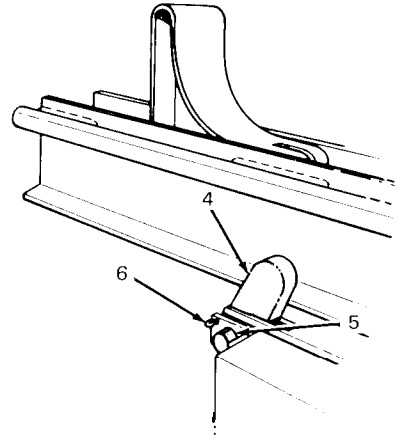
- 1     *Airbrake hand control lever* controls braking action on the P-14 bolster trailer. Brakes are applied when the lever is moved down.
- 2     *Power takeoff control lever* is pulled up to engage the power takeoff and drive the midships winch.



- 3     *Midships winch* is used for loading and unloading the bolster trailer. The winch controls are located on the right side of vehicle.

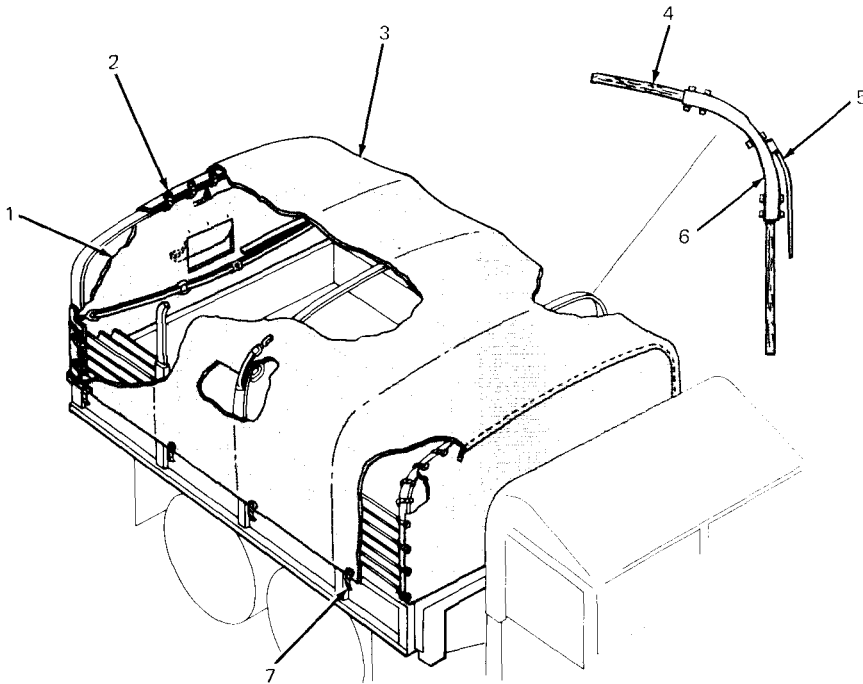


- 4 *Bolster travel locks* prevent bolster fifth wheel from turning and must be released when hauling logs. Locks are on the side of the bolster fifth wheel base frame.
- 5 *Latch* secures bolster travel locks.
- 6 *Cotter pins* are removed, lock pivoted down, and cotter pins replaced on both sides to release travel lock.



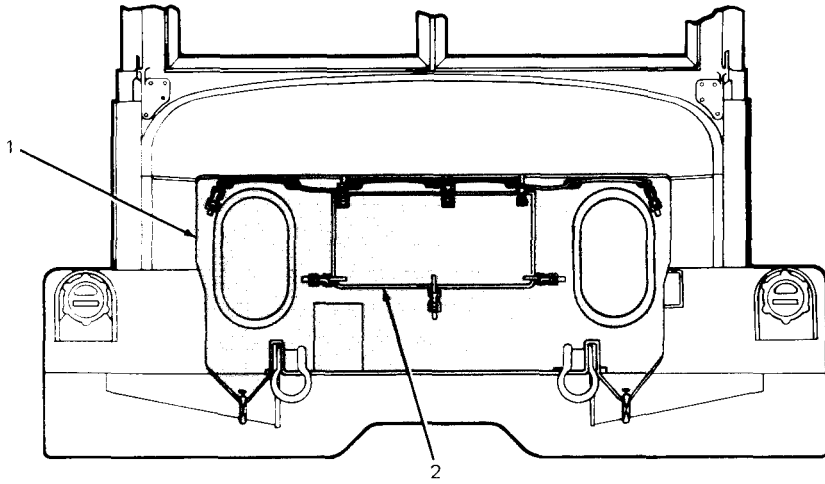
2-4. Auxiliary Equipment Controls and Indicators (Special Kits).

a. Bow and Tarp Kits.



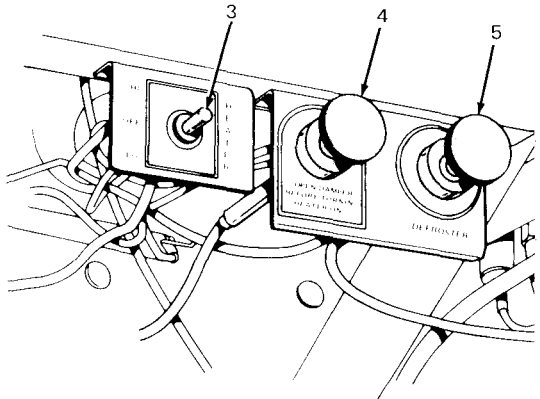
**Key**    **Item and Function**

- 1    *End curtains* protect the front and rear ends of the cargo compartment.
- 2    *Lashing rope* secures the end curtain to the crossbow.
- 3    *Tarpaulin* protects the top and sides of the cargo body.
- 4    *Cross bows* support the top of the tarpaulin.
- 5    *Straps* secure the tarpaulin to the corners of the stake and corner assemblies.
- 6    *Stake and corner assemblies* support the cross bows.
- 7    *Lashing hooks* are used to secure the sides of the tarpaulin to the truck bed.



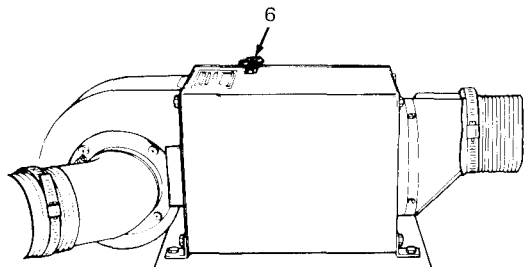
**Key Item and Function**

- 1 *Winterfront cover* is attached to radiator brush guard to restrict cold air flow through the radiator.
- 2 *Center flap* is raised or lowered to regulate cold air flow.

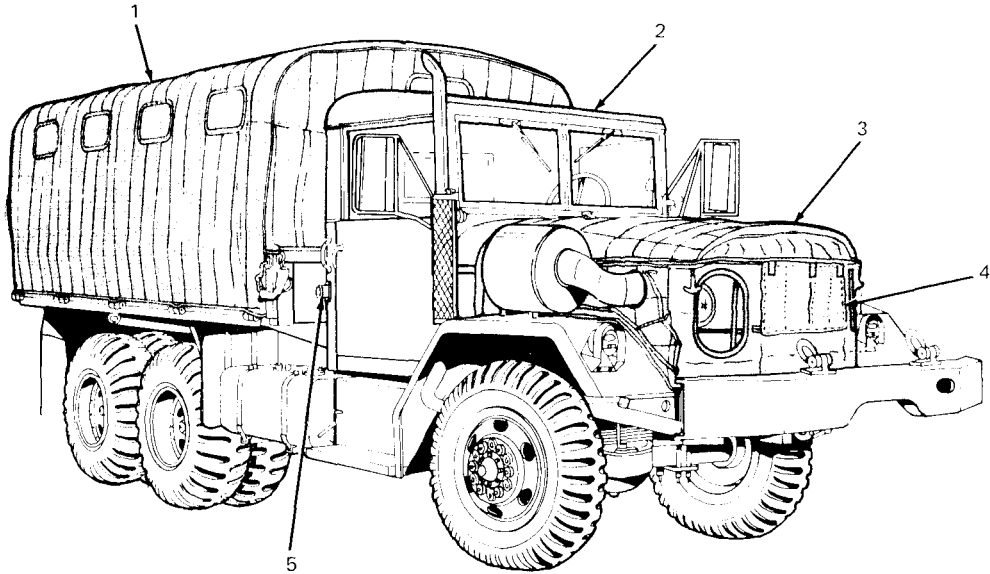


- 3 *Heater blower switch* is positioned in high or low position to control the flow of forced air into the personnel compartment.
- 4 *Damper control knob* is pulled all the way out to provide maximum hot air flow to the personnel compartment.
- 5 *Defroster knob* is pulled out to direct the flow of hot air onto the windshield to prevent frosting.

- 6 *Air bleeder valve* is opened, while coolant is circulating through the cooling system, to prevent an air pocket from forming in the heater hot water tank.

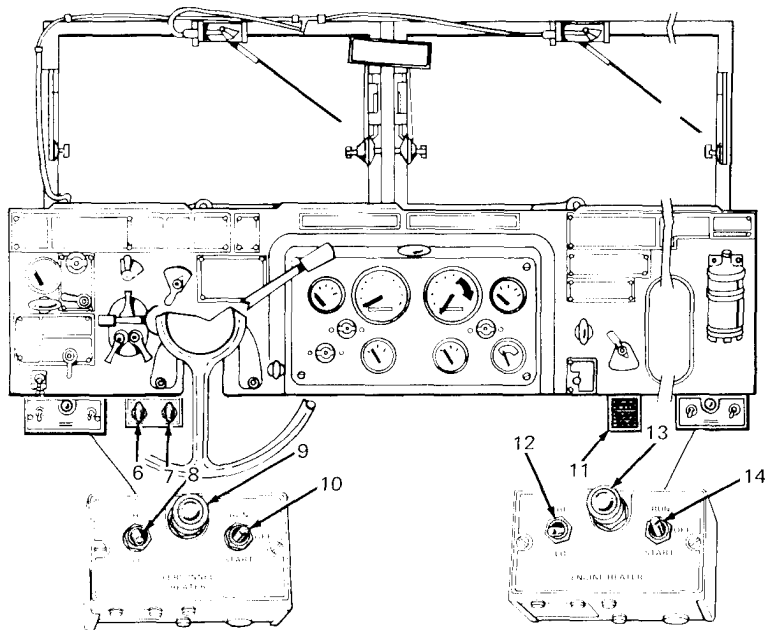


c. Arctic Winterization Kit.

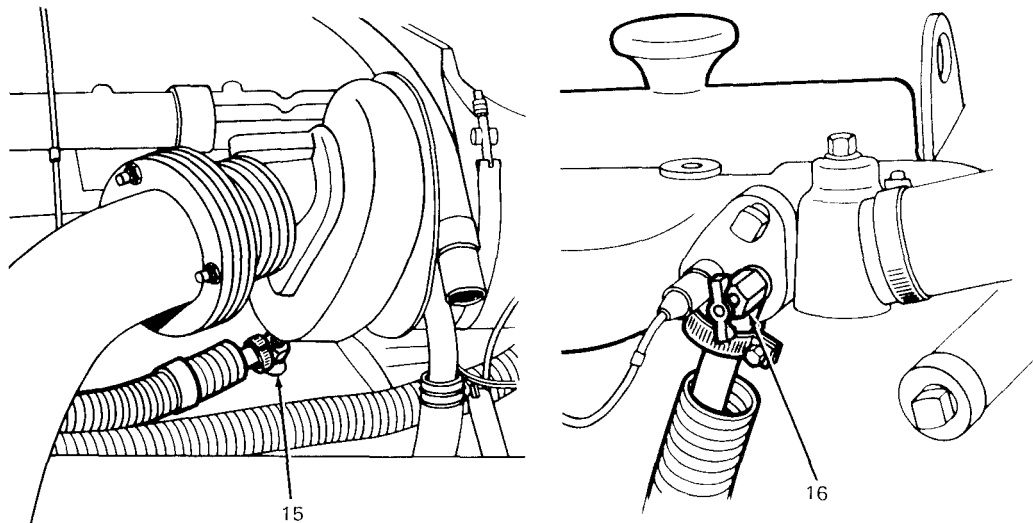


**Key**      **Item and Function**

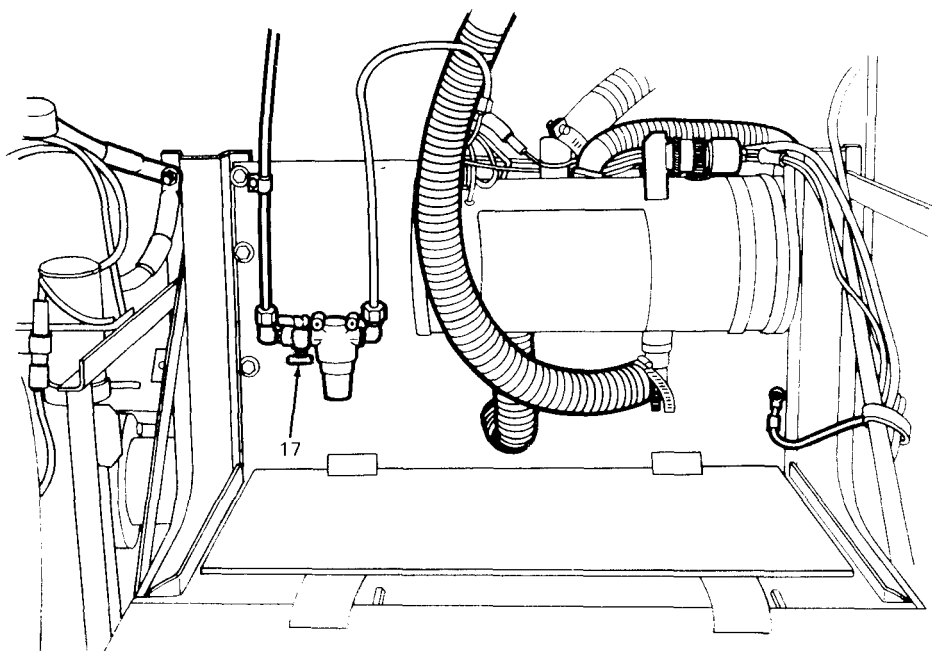
- 1      *Quilted cargo compartment cover* provides troop protection from arctic temperatures.
- 2      *Hard top closure* replaces canvas cover for arctic temperature operations.
- 3      *Quilted engine compartment cover* is attached to the brush guard, hood, and side panels to maintain normal operating temperatures under arctic temperature conditions.
- 4      *Aperture flap* is opened or closed to control the amount of air passing through the radiator.
- 5      *Slave receptacle* provides a ready means of attaching a slave cable between two vehicles to aid starting.



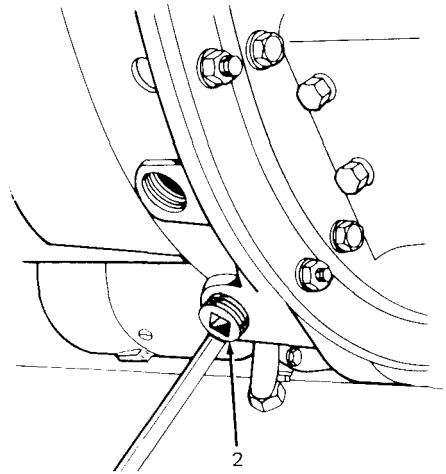
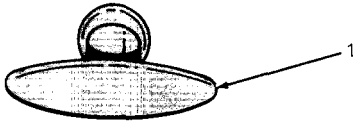
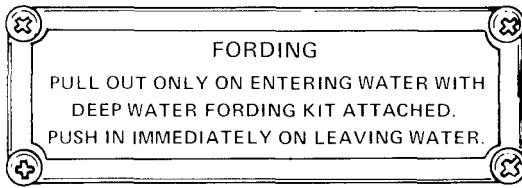
- 6 *Air control knob* is pulled all the way out to obtain maximum air flow, and is pushed in to decrease or shut off the air flow.
- 7 *Defroster control knob* is pulled all the way out for maximum defroster operation, and is pushed in for maximum heater operation. It is positioned halfway out for combined defroster and heater operation.
- 8 *Hi-lo switch* controls the rate of fuel burning in the personnel heater and the speed of the heater blower.
- 9 *Red indicator light* is on when the personnel heater is operating.
- 10 *Start-off-run switch* is positioned in the down position to start the personnel heater, in the up position to run the heater, and in the center position to stop the heater.
- 11 *Emergency switch* is used only in case of atomic or chemical warfare attack. When the switch is positioned in the down position, the fuel flow to the heater stops immediately and the blower motor is shut off.
- 12 *Hi-lo switch* controls the rate of fuel burning in the engine coolant heater and the speed of the heater blower.
- 13 *Red indicator light* is on when the engine coolant heater is operating.
- 14 *Start-off-run switch* is positioned in the down position to start the engine coolant heater, in the up position to run the heater, and in the center position to stop the heater.



- 15 *Coolant outlet cutoff cock* is opened to permit coolant from the coolant heater to enter the engine cooling system.
- 16 *Coolant inlet cutoff cock* is opened to permit coolant from the engine cooling system to enter the coolant heater.



- 17 *Power plant heater fuel shutoff cock* is opened to permit fuel to enter the power plant heater combustion chamber.

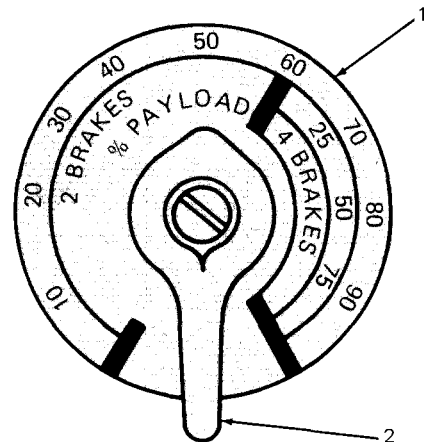
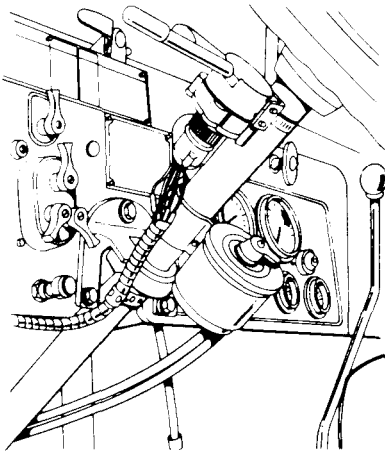


d. Deep Water Fording Kit.

**Key Item and Function**

- 1 Fording value control lever is pulled out to activate the air pressure system that pressurizes the engine and flywheel housing to prevent entrance of water.
- 2 Flywheel housing drain plug is removed from the storage hole in the flywheel housing and installed in flywheel drain port to prevent entrance of water.

e. Electric Brake Kit.

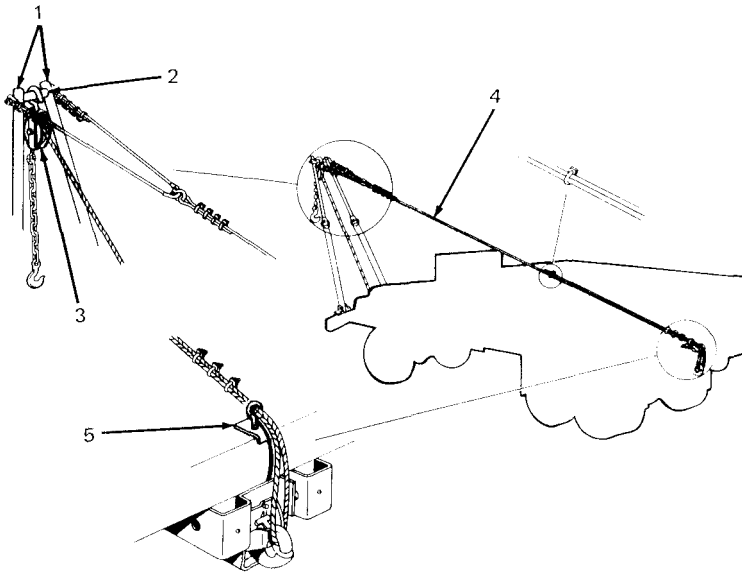


**Key Item and Function**

- 1 *Data plate* indicates numerical setting of the rheostat.
- 2 *Rheostat control handle* is turned clockwise to increase electric brake system braking action.

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f. A-Frame Kit.

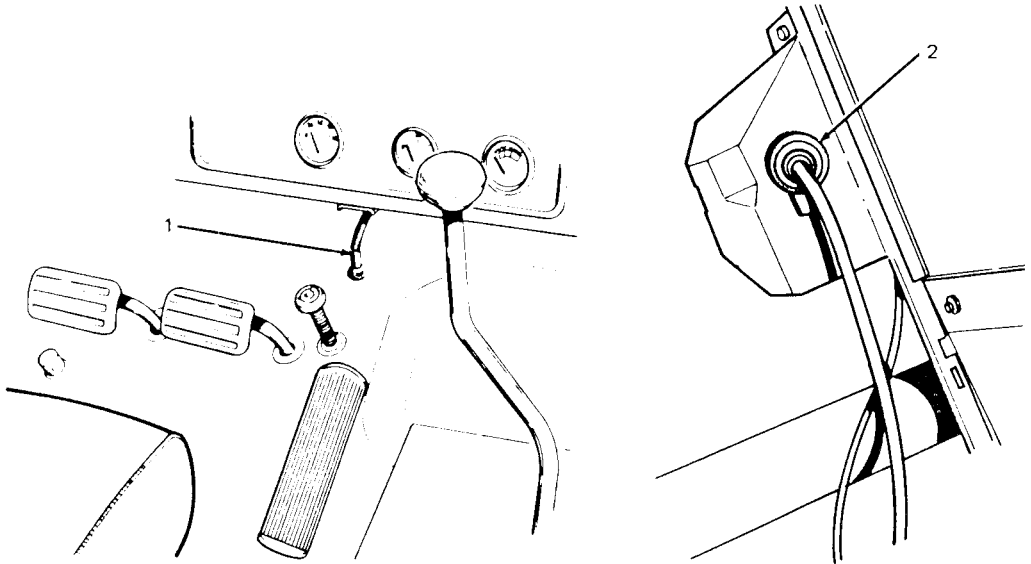


**Key Item and Function**

- 1 *Tube and leg assemblies* are attached to the lifting shackle brackets and apex spreader to form an A-frame for lifting.
- 2 *Apex spreader* positions the A-frame and supports the sheave assembly
- 3 *Sheave assembly* supports tile front winch cable in the lifting position.
- 4 *Cable assembly* is attached to tile A-frame and inverted pintle hook **to maintain the** A-frame position at a 60° angle.
- 5 *Plate assembly* protects the cable assembly and truck bed from *wear* and distortion



g. Windshield Washer Kit.



**Key** Item and Function

- 1 Windsheild *washer pump handle* is used to pump washer fluid from reservoir to windshleld jet sprayer.
- 2 *Reservoir cover cap* is removed to fill reservoir with washer fluid.

## Section II. OPERATION UNDER USUAL CONDITIONS

### 2-5. General.

The instructions contained in this section provide information relative to the operation of vehicles under moderate temperature, humidity, and terrain conditions. For information concerning the operation of vehicles under unusual conditions, refer to Section 111 of this chapter.

#### 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.

### 2-6. Assembly and Preparation for Use.

When a new, used, or reconditioned vehicle is first received by the using organization, it is the responsibility of the officer-in-charge to determine whether the vehicle has been properly prepared for service by the supply organization, and to be sure it is in condition to perform its respective function.

Organizational maintenance will provide any additional service that may be required to bring the vehicle up to operating standards. Whenever practical, the operator will assist organizational personnel with this service.

#### NOTE

Before you attempt to operate your vehicle, be sure to perform the preventive maintenance checks and services shown in table 3-1.

### 2-7. Starting the Engine.

a. *General.* The M39 series trucks covered by this manual may be equipped with either gasoline, diesel or multifuel engines. Starting instructions are described separately to assist you in understanding the starting problems of each engine at various temperatures.

- (1) Starting the gasoline engine: paragraph 2-7b.
- (2) Starting the diesel engine (above +32° F): paragraph 2-7c.
- (3) Starting the diesel engine (below +32° F): paragraph 2-7d.
- (4) Starting the multifuel engine (+20° F to +115°F): paragraph 2-7e.
- (5) Starting the multifuel engine (-25° F to +30° F): paragraph 2-7f.

#### CAUTION

Allowing the engine to run with the transmission engaged and the transfer in NEUTRAL may cause transfer bearing failures. Always shift the transmission into NEUTRAL when the engine is running while the truck is stationary.

**NOTE**

On trucks equipped with a transfer power takeoff, the transfer can be operated in NEUTRAL as long as the power takeoff is engaged. The transfer bearings receive lubrication from the power takeoff pump. Never disengage the power takeoff when the transfer is in NEUTRAL, because this will disengage the power takeoff pump which supplies lubrication for the bearings.

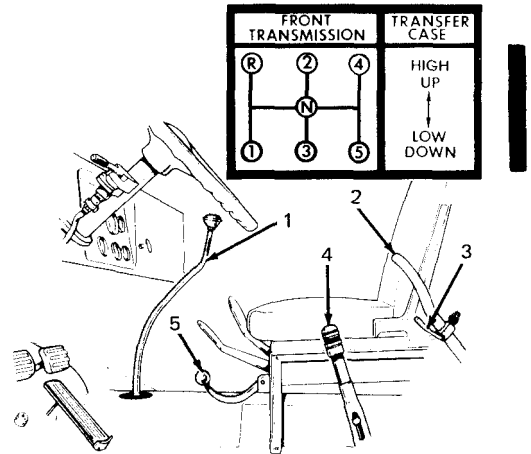
*b. Starting the Gasoline Engine.*

(1) Apply parking brake by pulling handbrake lever (4) up. Turn knob at end of handle as required to adjust tension on brake cable, before applying brake.

(2) Place transmission gearshift lever (1) in N (neutral) position.

(3) On trucks equipped with a transfer power takeoff, place power takeoff control lever (5) in neutral position.

(4) On wreckers equipped with a transfer power divider, place power divider control handle (2) in DISENGAGED position and set the lock (3).



(5) On dump truck, place dump body control lever (2) in NEUTRAL position and set the lock (3).

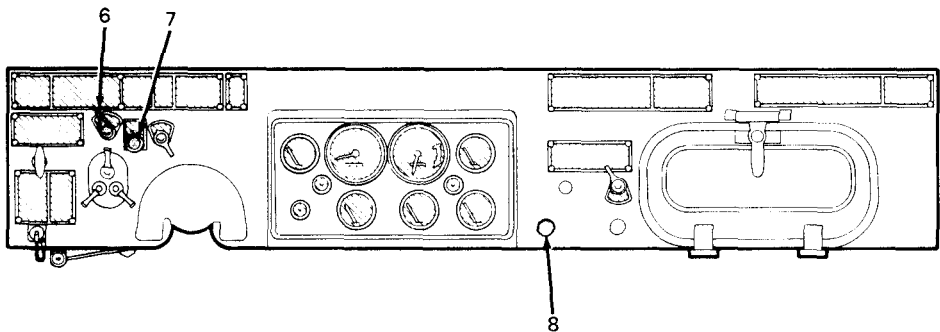
(6) Pull choke control knob (8) out 1/2 to 3/4 inch.

**NOTE**

Use choke sparingly in warm weather or when engine is warm

(7) Push antidiesel control valve knob (7) in.

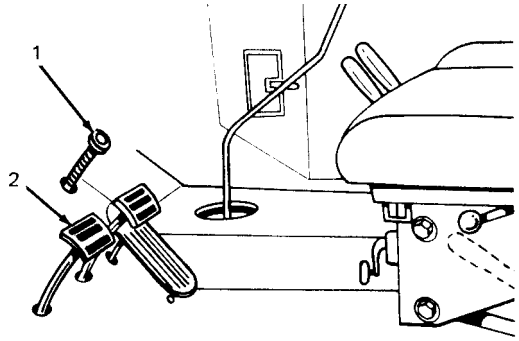
(8) Turn ignition switch (6) to ON position



(9) Depress clutch pedal (2) and hold while starting engine.

**CAUTION**

Do not operate starter longer than 10 seconds at a time. If engine fails to start immediately, allow a 2 minute cool-off period before operating starter again.



(10) Push starter pedal (1) down. Release pedal when engine starts.

**CAUTION**

If oil pressure gage (9) does not register and maintain at least 15 psi within 20 seconds, stop the engine immediately by pulling out antidiesel control knob (4) and turning ignition switch (3) to OFF position. See table 3-2 for troubleshooting instructions.

If battery generator indicator (7) does not indicate charging with engine at fast idle and all accessories off, stop the engine. Refer to table 3-2 for troubleshooting instructions.

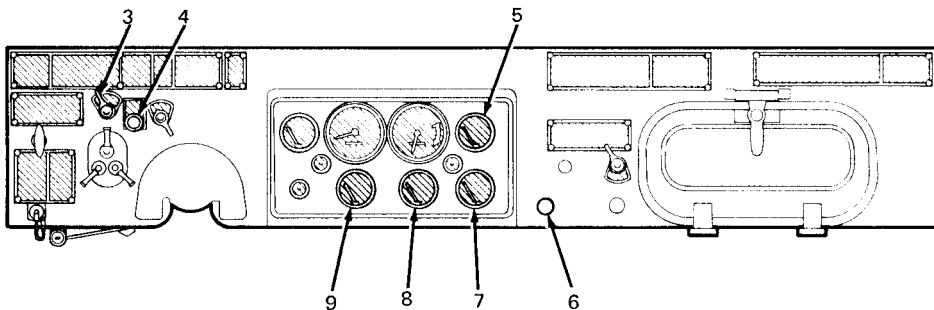
If engine temperature gage (5) shows an unusual rise or fails to register, stop the engine. Refer to table 3-2 for troubleshooting instructions.

(11) Check your instrument cluster:

(a) Check oil pressure gage (9). It should read above 15 psi.

(b) Check battery generator indicator (7). It should read in the green area.

(c) Check engine temperature gage (5). It should show a gradual increase in temperature and read between 160°F. and 185° F. when engine is at normal operating temperature.



(d) Check air pressure gage (8). The air pressure warning buzzer should continue to sound until the air pressure is above 65 psi.

**CAUTION**

Do not race engine. Never operate engine at more than 2,800 rpm.

If any unusual noises or vibrations are detected, stop engine and notify organizational maintenance.

(12) As engine warms up, push choke control knob (6) all the way in and release clutch pedal (2).

*c. Starting the Diesel Engine (Above +32°F.)*

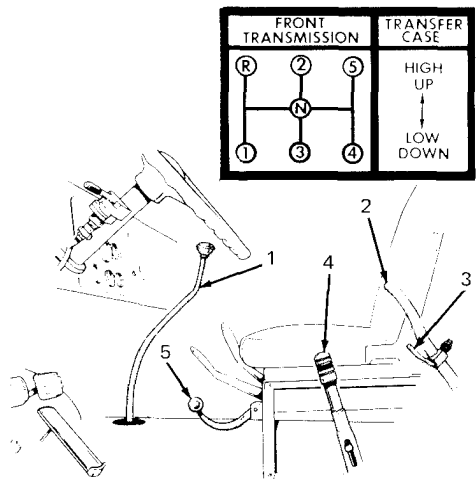
(1) Apply parking brake by pulling handbrake lever (4) up. Turn knob at end of handle as required to adjust tension on brake cable, before applying brake.

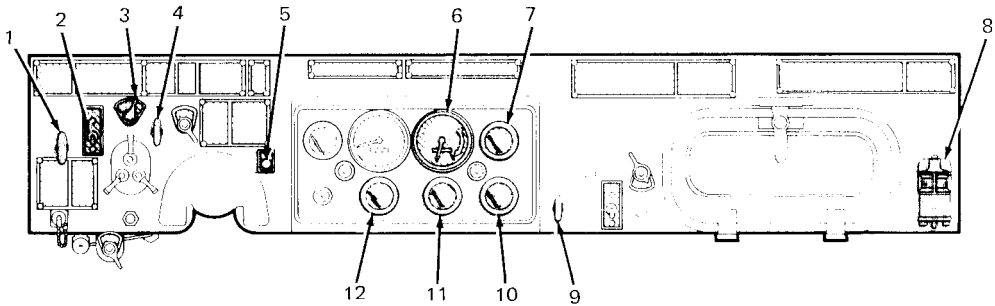
(2) Place transmission gearshift lever (1) in N (neutral) position.

(3) On trucks equipped with a transfer power takeoff, place power takeoff control lever (5) in neutral position.

(4) On wreckers equipped with a transfer power divider, place power divider control handle (2) in DISENGAGED position and set the lock (3).

(5) On dump truck, place dump body control lever (2) in NEUTRAL position and set the lock (3).





- (6) Push engine stop control knob (4) all the way in.
- (7) Check to see that emergency stop control knob (9) is all the way in.
- (8) Turn battery switch (3) to ON position.

**CAUTION**

Use the hand throttle for starting engine and warm up only. Do not use hand throttle in place of accelerator pedal.

- (9) Pull hand throttle control knob ( 1 ) out halfway.
- (10) Depress clutch pedal and hold down while starting engine

**CAUTION**

Do not operate starter longer than 10 seconds at a time. If engine fails to start immediately, allow a 2 minute cool-off period before operating starter again.

- (11) Push starter button (5) in. Release button when engine starts.

**CAUTION**

If oil pressure gage (12) does not register and maintain at least 15 psi within 20 seconds, stop engine immediately by pulling engine stop control knob (4) out and turning battery switch (3) to OFF position. Refer to table 3-2 for troubleshooting instructions.

If battery generator indicator does not indicate charging with engine at fast idle with all accessories off, stop the engine. Refer to table 3-2 for troubleshooting instructions.

If engine temperature gage shows an unusual rise or fails to register, stop the engine. Refer to table 3-2 for troubleshooting instructions.

- (12) Check your instrument cluster:
  - (a) Check oil pressure gage (12). It should read above 15 psi.
  - (b) Check battery generator indicator (10). It should read in the green area.

(c) Check engine temperature gage (7). It should show a gradual increase in temperature and read between 170° F. and 200° F. when engine is at normal operating temperature.

Do not attempt to operate the truck under any conditions, unless air pressure system and warning buzzer are operating properly.

(d) Check air pressure gage (11). The air pressure warning buzzer should continue to sound until the air pressure is above 65 psi.

### **CAUTION**

Do not race engine. Never operate engine above 2,100 rpm in any gear.

If air filter indicator rises and locks in the full red position, stop engine and notify **organizational maintenance**.

If any unusual noises or vibrations are detected, stop engine and notify **organizational maintenance**.

(e) Check air filter indicator (8). It should not show red.

(13) Push hand throttle control (1) in until tachometer (6) reads 800 rpm. Release clutch pedal and allow engine to warmup until temperature reaches 140° F.

d. *Starting the Diesel Engine (Below +3°F).*

(1) Observe all steps listed in paragraph 2-7c.

(2) While cranking engine, hold manifold heater switch (2) in *ON* position.

(3) After engine starts, return manifold heater switch (2) to OFF position.

### **CAUTION**

If the engine continues to misfire after reaching normal temperatures, stop the engine. Refer to table 3-2 for troubleshooting instructions.

### **NOTE**

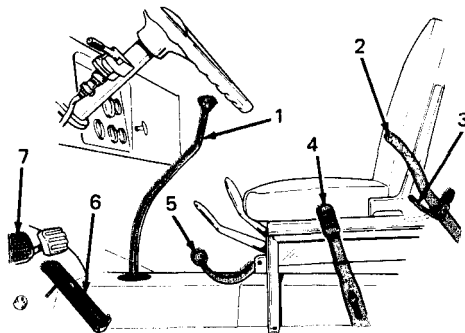
If engine misfires during idling, hold manifold heater switch in ON position until engine is running smoothly.

*e. Starting the Multifuel Engine (+20°F. to +115°F. ).*

(1) Apply parking brake by pulling handbrake lever (4) up. Turn knob at end of handle, as required, to adjust tension on brake cable before applying parking brake.

(2) Place transmission gearshift lever (1) in N (neutral) position.

(3) On trucks equipped with a transfer power takeoff, place power takeoff control lever (5) in disengaged position.



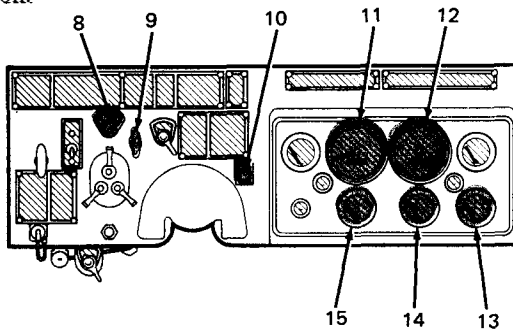
(4) On wreckers equipped with a transfer power divider, place power divider control handle (2) in DISENGAGED position and set the lock (3).

(5) On dump truck, place dump body control lever (2) in NEUTRAL position and set the lock (3).

(6) Turn battery switch (8) to ON position.

(7) Depress clutch pedal (7) and hold down while starting engine.

(8) Check for hydrostatic lock by pulling out engine stop control knob (9) while pushing starter button (10) in for two to three seconds. The following are indicators of hydrostatic lock:



(a) After listening closely, you feel a hard thud in the engine as you turn it over.

(b) Engine starts to turn over and quits with a thunk.

(c) Or engine won't turn over at all.

NOTE

**If you suspect a hydrostatic lock, stop cranking immediately. Turn battery switch (8) to OFF position. Notify organizational maintenance.**

(9) If hydrostatic lock is not detected, release engine stop control knob (9) (push it in).

**CAUTION**

Do not operate starter longer than 10 seconds. If engine fails to start immediately, allow a 2 minute cool off period before operating starter again.

(10) Push starter button (10) in and depress accelerator pedal (6) slightly. Release starter button when engine starts.



**CAUTION**

**Only use** hand throttle for starting a cold engine. Do not exceed 1,000 rpm.

**CAUTION**

If oil pressure gage (15) does not register and maintain at least 15 psi within 20 seconds, stop the engine immediately by pulling out engine stop control knob (9) and turning battery switch (8) to OFF position. Refer to table 3-2 for troubleshooting instructions.

If battery generator indicator (13) does not indicate charging with engine at fast idle with all accessories off, stop the engine and notify organizational maintenance.

If engine temperature gage (12) shows an unusual rise or fails to register, stop the engine. Refer to table 3-2 for troubleshooting instructions.

(11) Check your instrument cluster

(a) Check oil pressure gage (15). It should read above 15 psi.

(b) Check battery generator indicator (13). It should read in the green area.

(c) Check engine temperature gage (12). It should show a gradual increase in temperature and read between 180°F. and 210°F. when engine is at normal operating temperature.

**WARNING**

If air pressure does not increase to a normal reading or the warning buzzer stops too soon, stop engine and notify organizational maintenance.

Do not attempt to operate the truck under any conditions, unless air pressure system and warning buzzer are operating properly.

(d) Check air pressure gage (14). The air pressure warning buzzer should continue to sound until the air pressure is above 65 psi.

**CAUTION**

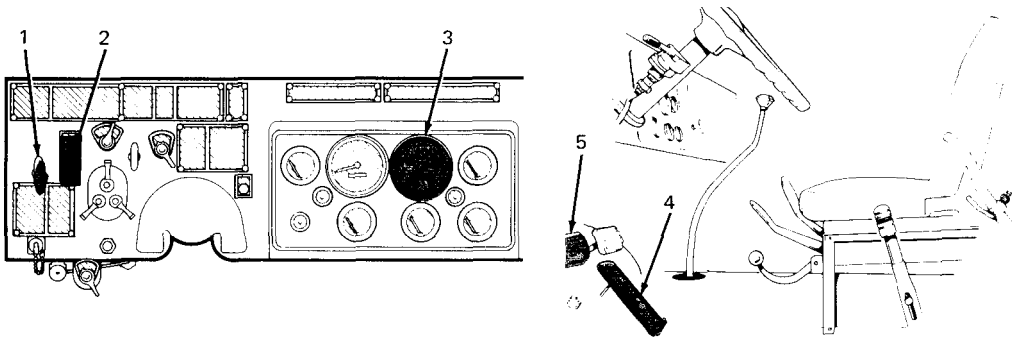
Do not race engine. Never operate engine above 2,600 rpm (2,800 rpm for model LDS 465-2 engine).

If air filter indicator rises and locks in the full led position, stop engine and notify organizational maintenance.

If any unusual noises are detected, stop engine and notify organizational maintenance.

(12) Push hand throttle control in until tachometer (11) indicates 1,000 rpm. Release clutch pedal (7) and allow engine to warm up until temperature reaches 140°F.

f. Starting the Multifuel Engine (-25°F. to +30°F.).



- (1) Observe all steps listed in paragraph 2-7e.
- (2) After checking for hydrostatic lock, perform the following.
  - (a) Pull hand throttle control (1) halfway to 2/3 out.
  - (b) Depress accelerator pedal (4) to 2/3 or 3/4 of full travel position.

**CAUTION**

**Do not operate manifold heater unless engine is being clanked or it is idling.**

**NOTE**

Do not turn on any electrical system that is not required. It is important to save all the battery energy for starting.

- (c) While cranking the engine, hold manifold heater switch (2) in ON position until engine starts.

**NOTE**

The engine should start and continue running within 30 seconds. If the engine fails to start within 30 seconds, return manifold heater switch to OFF position and stop cranking engine. Wait 2 minutes, then repeat the above procedure.

If the engine misses or does not run smoothly after starting, use manifold heater intermittently while the engine is idling until all cylinders are firing.

- (d) Push hand throttle control (1) in until tachometer (3) indicates 1,000 rpm. Release clutch pedal (5) and allow engine to warm up for a few minutes.

**CAUTION**

After engine starts and runs satisfactorily, move the truck as soon as possible without using full accelerator. Prolonged idle with a cold engine should be avoided.

NOTE

Refer to the operator's checklist decal (6) located on the left-hand door of the truck. This may prove helpful in troubleshooting multifuel engine ailments.

# MULTIFUEL AILMENTS

**SEE WHAT'S CAUSING YOUR AILMENT. EACH NUMBER UNDER THE AILMENT IS A POSSIBLE CAUSE. CHECK ALL POSSIBLE CAUSES BEFORE YOU GIVE UP. CHECK THE CAUSES IN THE NUMBER SEQUENCE SHOWN IN THE CARTOON BALLOONS.**

**ENGINE AILMENT**

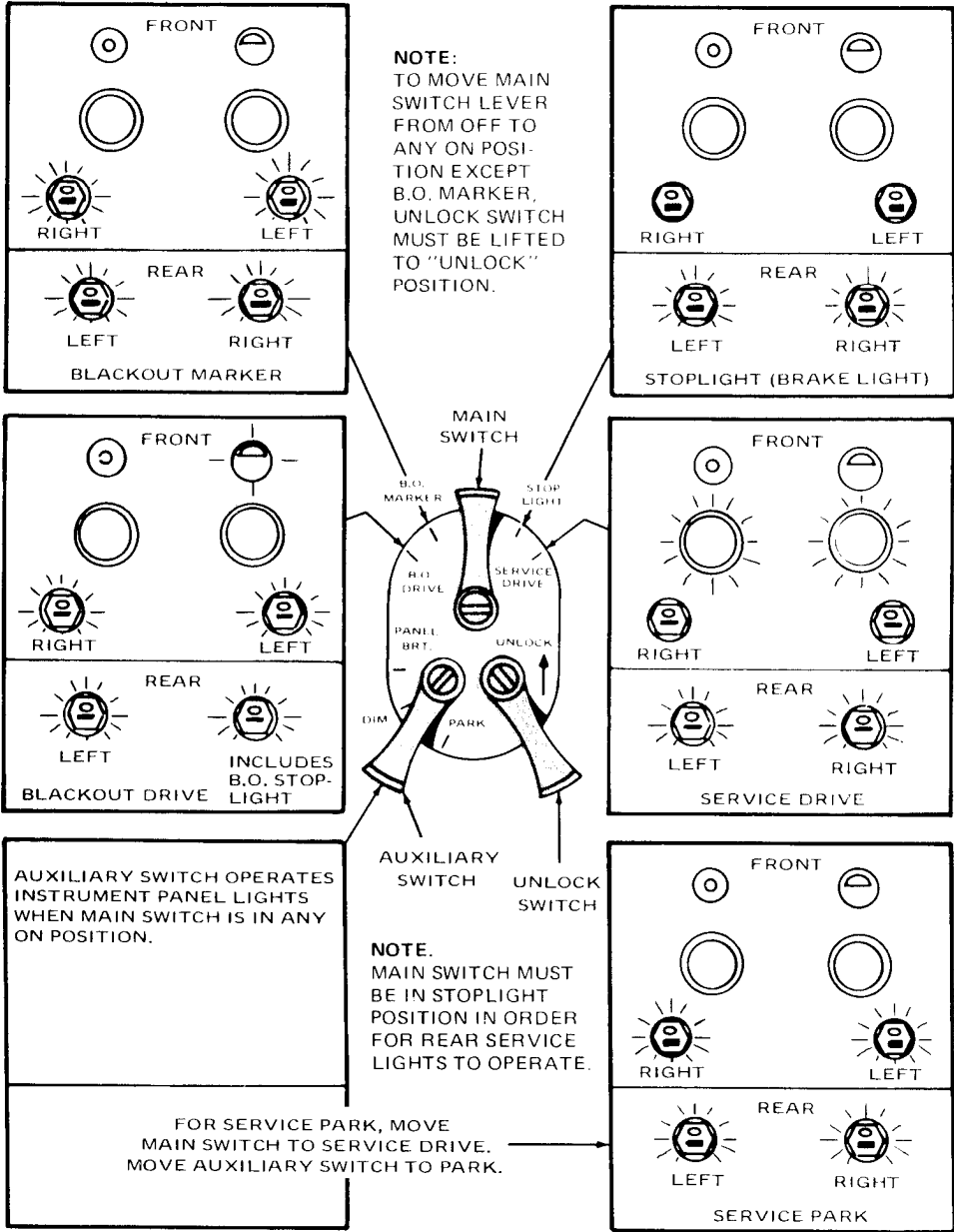
**OPERATORS CHECK LIST FOR TRUCKS, MULTIFUEL**

1. PRESTART CHECKS
  - A. CHECK COOLANT LEVEL.
  - B. DRAIN ALL FUEL FILTERS.
  - C. CHECK ENGINE OIL LEVEL. (COLD ENGINE - APPROX. 1" ABOVE FULL); (OPERATING ENGINE - AT 1 MIN. AFTER SHUT DOWN - BETWEEN ADD AND FULL).
2. STARTING (NORMAL WEATHER, ABOVE 30°F)
  - A. TURN ON ACCESSORY SWITCH.
  - B. CHECK FOR HYDROSTATIC LOCK.
  - C. DEPRESS ACCELERATOR PEDAL SLIGHTLY.
  - D. PUSH STARTER BUTTON FIRMLY, RELEASE AS SOON AS ENGINE STARTS.
  - E. WARM-UP ENGINE AT 1000 RPM MAXIMUM.
  - F. OIL PRESSURE MUST REGISTER OR GAGE WITHIN 20 SECONDS, IF NOT, STOP ENGINE AND INVESTIGATE.
  - G. CHECK AIR CLEANER INDICATOR, IF RED, SERVICE AIR CLEANER ELEMENT.
3. START (COLD WEATHER, 30°F TO -25°F)
  - A. REPEAT PROCEDURES IN PARAGRAPH 2 ABOVE.
  - B. USE MANIFOLD HEATER INTERMITTENTLY WITH ENGINE CRANKING OR TURNING UNTIL ENGINE RUNS SMOOTHLY.
4. START (FRIGID WEATHER, -25°F TO -65°F)
  - A. ARCTIC HEATER KIT IS REQUIRED.
5. DURING VEHICLE OPERATION
  - A. DO NOT LUG ENGINE BELOW 1400 R P M.
  - B. OPERATE ENGINE WITHIN R.P.M. LIMITS: 1400 - 2800 RPM FOR L05483-2 MODEL; 1400 - 2800 RPM FOR ALL OTHER MULTIFUEL MODELS.
  - C. DO NOT EXCEED THE TACHOMETER RED LINE; 2800 RPM LIMIT FOR L05483-2 MODEL; 2800 RPM LIMIT FOR ALL OTHER MULTIFUEL MODELS.
  - D. USE FOOT BRAKE AND PROPER GEAR RANGE TO DESCEND HILLS.
  - E. TO PREVENT DISASTROUS ENGINE OVERSPEED, DO NOT DOWN SHIFT ABOVE 1800 RPM. USE FOOT BRAKE TO SLOW VEHICLE.
6. IDLING AND SHUTDOWN
  - A. KEEP YOUR ENGINE IDLING FOR STOPS OF 10 MINUTES OR LESS.
  - B. IDLE ENGINE FOR 2 MINUTES BEFORE SHUT-DOWN.
  - C. USE ENGINE STOP AND LOCK IN THE FUEL-OFF POSITION.
  - D. TURN OFF ACCESSORY SWITCH.
  - E. SET PARKING BRAKE.
  - F. DO NOT LEAVE TRANSMISSION IN GEAR. MUST BE IN NEUTRAL.

**DO NOT REPEAT. DO NOT TOUCH PUMP ADJUSTMENTS UNLESS AUTHORIZED BY SUPPORT MAINTENANCE**

CAUSE	FIX	LEVEL OF MAINTENANCE
1 THROTTLE LINKAGE MISADJUSTED	ADJUST.	ORGANIZATIONAL
2 AIR CLEANER RESTRICTED	CLEAN IT, KEEP IT CLEAN.	ORGANIZATIONAL
3 FUEL FILTERS PLUGGED	REPLACE FILTER ELEMENT.	ORGANIZATIONAL
4 FUEL SUPPLY PRESSURE LOW	CHECK WITH 0-100 PSI GAUGE.	ORGANIZATIONAL
5 AIR IN FUEL SYSTEM	PURGE FUEL SYSTEM.	ORGANIZATIONAL
6 FAULTY INJ. PUMP OR TIMING	RETUNE AND/OR REPLACE.	DIRECT SUPPORT
7 FAULTY TURBOCHARGER	REPLACE.	DIRECT SUPPORT
8 FAULTY NOZZLE OPERATION	REPLACE NOZZLE HOLDER ASSEMBLY (INJECTOR).	DIRECT SUPPORT
9 PLUGGED OR KINKED LOW-PRESSURE FUEL LINES	REPLACE OR CLEAN.	ORGANIZATIONAL
10 "OVERFUELED"; INJECTION PUMP MISADJUSTED	REPLACE WITH A CALIBRATED PUMP.	DIRECT SUPPORT
11 NO FUEL IN SYSTEM	FILL TANK AND PURGE SYSTEM.	ORGANIZATIONAL
12 LOW CRANKING SPEED	CHECK ELECTRICAL STARTING SYSTEM.	ORGANIZATIONAL

6



**2-8. Placing the Truck in Motion.****CAUTION**

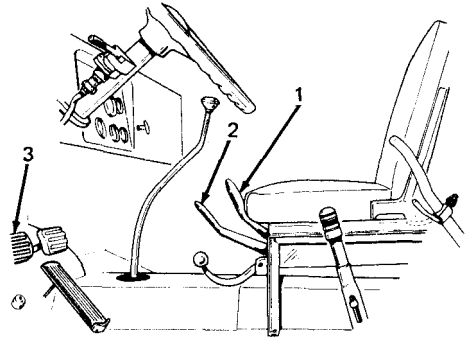
Allowing the engine to run with the transmission engaged and the transfer in NEUTRAL may cause transfer bearing failures. Always shift the transmission to NEUTRAL when the engine is running while the truck is stationary.

On trucks equipped with a transfer power takeoff, the transfer can be operated in NEUTRAL as long as the power takeoff is engaged. The transfer bearings receive lubrication from the power takeoff pump. Never disengage the power takeoff when the transfer is in NEUTRAL, because this will disengage the power takeoff pump which supplies lubrication for the bearings.

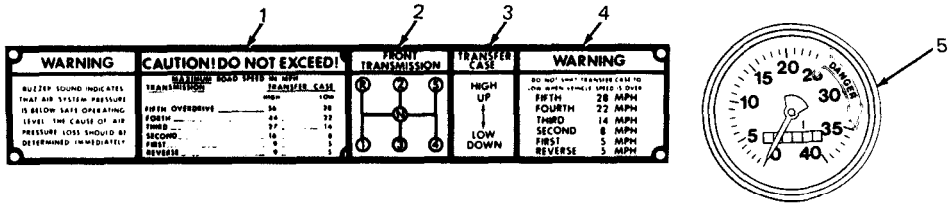
- a. Make sure that the front winch, auxiliary equipment, and tools are locked and stowed for travel.
- b. Set the vehicle light switches for lighting as required (see lighting chart, page 2-48).

c. Check to be sure that the front winch control lever (1) is in neutral and secured with hinge lock.

d. Depress clutch pedal (3) and shift transfer shift lever (2) to LOW or HIGH operating range, depending on the expected terrain, load and vehicle speed.

**NOTE**

The purpose and use of the transmission and transfer must be understood by the driver before any attempt is made to operate the truck. The truck cannot be moved until the transfer shift lever (2) is in the HIGH (up) or LOW (down) position. Transmission gearshift lever positions do not in any way affect the selection of the transfer range (LOW or HIGH) to be used. The transfer LOW range provides greater power and lower speed in the five transmission speeds to suit heavy loads or difficult terrain conditions. The HIGH range provides greater speed at lower power in the five transmission speeds under normal load and road conditions.



**CAUTION**

The truck instruction and caution data plates (1), (2), (3), and (4) on the instrument panel, give the maximum speeds in mph at which the truck may be safely operated in various transmission gear ratios with the transfer (8) in either HIGH or LOW range (3). Do not exceed these specified speeds. Shift the transmission to the next higher gear when the truck speed approaches the maximum road speed of the gear being used.

Do not allow engine speed in any gear to exceed 2,800 rpm for gasoline; 2,600 rpm for multifuel; and 2,100 for diesel, as shown by red arrow on tachometer (5). Multifuel and diesel trucks must be operated within the following rpm limits:

	A	B	C	D
MULTIFUEL	1,400	1,600- 1,800	1,000- 2,400	2,600
DIESEL	1,400	1,100- 1,600	1,600- 1,900	2,100

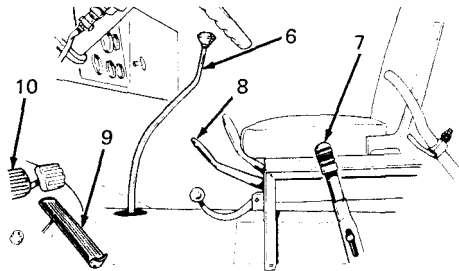
A= Lowest rpm at which engine should be operated under load

B=Low rpm is recommended for downshifting. Do not downshift at higher rpm than the higher rpm shown. Maximum diesel downshifting rpm is 1,600 from 5th to 4th gear. 1,100 for other downshifts. Do not downshift more than one gear ratio at a time.

C= Recommended rpm range for cruising

D= Highest operating rpm when under load in any gear .

e. Place transmission gearshift lever (6) in 1 (first) or R (reverse) position (depending on desired direction of travel).



**CAUTION**

When making hard right or hard left turns (against the turning stops), avoid maintaining these positions for longer than 5 seconds to prevent excessive heat buildup in the hydraulic steering system.

**NOTE**

It is mandatory to use first (low) gear to place the truck in forward motion under all conditions.

f. If the truck is on level terrain, release handbrake lever (7) and slowly release clutch pedal (10) while depressing accelerator pedal (9) far enough to prevent stalling and provide for smooth acceleration.

#### **NOTE**

Clutch must be fully released while the truck is moving. Do not “ride” clutch pedal.

g. If the truck is headed upgrade, and forward motion is desired, or if headed downgrade, and reverse direction is desired, maintain truck position by keeping the parking brake (7) applied until the truck starts to move.

#### **CAUTION**

Shift transmission to the next highest gear at a load speed just below the maximum indicated on the instrument data plate (1) for each position. Shifting too soon or too late causes undue wear on the engine, transmission, and power train.

h. When your truck approaches maximum road speed for first gear, depress the clutch pedal (10), release the accelerator pedal (9), and move gearshift lever (6) to the appropriate successive positions as indicated on the instruction data plate (1).

i. When the terrain becomes hilly, soft or rough, and your truck is heavily loaded, a more efficient gear ratio can be obtained by moving the transfer shift lever (8) from HIGH to LOW. To accomplish this, reduce the truck speed below the maximum speed for each gear, as indicated on the instruction data plate (1). depress the clutch pedal (10), shift the transfer shift lever (8) down to LOW, release the clutch pedal (10), and accelerate to desired speed.

The transfer may be shifted from low to the high range at any speed by depressing the clutch pedal (10) and moving the transfer shift lever (8) up to the HIGH position. Be sure to synchronize engine speed with the truck speed before releasing the clutch pedal.

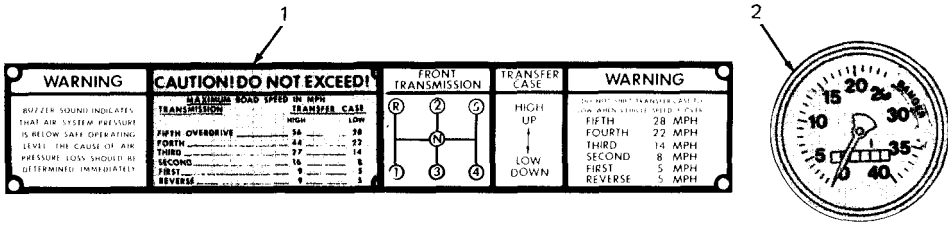
#### **CAUTION**

Do not downshift a multifuel engine which is running above 1,800 rpm.

j. When your truck is unable to sustain cruising speeds at higher gear ratios, downshifting will become necessary. To accomplish this; release the accelerator pedal (9), quickly depress the clutch pedal (10), allow the transmission gears to slow down, increase the engine speed slightly, move the gearshift lever (6) to the next lower gear and slowly release the clutch pedal.

#### **CAUTION**

Multifuel engines cannot be used to completely brake your truck. To do so will cause the engine to overspeed. This can result in engine damage.



k. Use the same downshifting procedure for descending a steep grade. In general, you should go down a steep grade in the same gear, or one gear lower than that required to climb the same hill. Use your service foot brake to keep the truck from overspeeding. Always keep the engine rpm below the red arrow shown on the tachometer (2), and the truck speed below the maximum road speed allowable for the gear ratio in use, as shown on the instruction data plate (1).

**CAUTION**

The service brakes should be applied with an on-and-off motion when descending steep grades. This prevents overheating of the brakeshoe linings. Do not coast downhill with the clutch disengaged. The engine or transmission could be damaged if gears are engaged at high speed.

If the operating condition of the truck is such that double clutching becomes necessary to shift the gears, notify organizational maintenance.

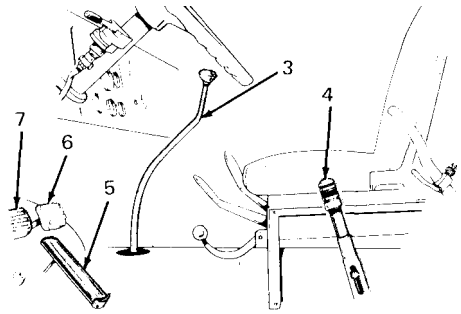


## 2-9. Stopping the Truck and Engine.

a. Release accelerator pedal (5) and apply smooth steady pressure on the brake pedal (6). Allow engine to assist in checking truck speed.

### NOTE

Do not pump brake pedal or shift transmission into neutral while slowing.



b. When truck speed has been reduced to near engine idle speed, depress clutch pedal (7).

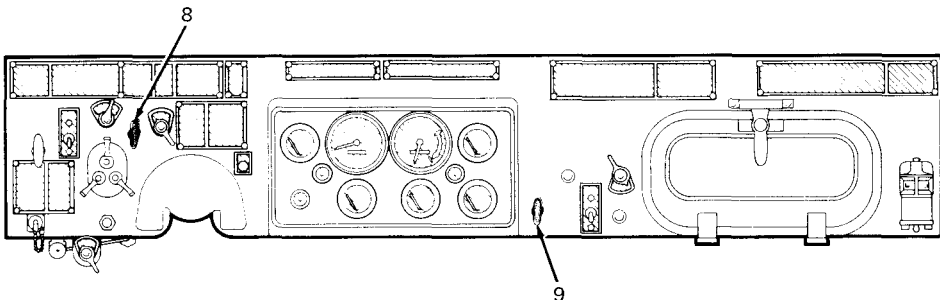
c. After truck has come to a complete stop, move gearshift lever (3) into neutral position.

d. Set handbrake (4) and release clutch pedal (7) and brake pedal (6). Do not let truck coast backwards.

e. Allow a hot engine to cool off (idle 5 minutes prior to shutdown) to avoid serious damage.

### CAUTION

The diesel and multifuel engine shutoff control knob (8) must remain in the STOP position when truck is not being operated to prevent accidental starting of engine.



f. Pull out engine shutoff control knob (8) on diesel and multifuel engines (antidiesel control on gasoline engines).

g. Place all switches in OFF positions.

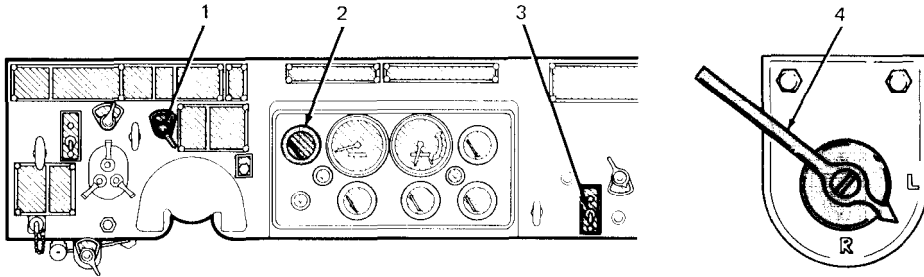
h. Place transmission shift lever (3) in R (reverse) position after engine has stopped in case the handbrake (4) does not hold.

### NOTE

To shut OFF the diesel engine fuel supply in an emergency, pull out emergency fuel shutoff control knob (9) and notify organizational maintenance.

i. Perform after operation maintenance checks and services (see table 3-1).

**2-10. Operating Fuel Selector Valve (Gasoline and Diesel Trucks with Dual Tanks).**



**NOTE**

Changing from one fuel tank to the other must be accomplished before tank in use is completely empty (e.g., between 1/4 full and empty).

Turn fuel tank selector switch (1) and check fuel gage (2) to determine which tank has fuel.

b. Turn fuel selector valve lever (4) (located on cab floor near the handbrake lever) to right or left (R or L) position for tank you have selected

**2-11. Operating Fuel Transfer Pump (Multifuel Trucks with Dual Tanks).**

**NOTE**

Transferring fuel from reserve tank to main tank should be accomplished before main tank is completely empty (e.g., between 1/4 full and empty).

a. Turn fuel tank selector switch (1) and check fuel gage (2) to determine if reserve tank has fuel to transfer.

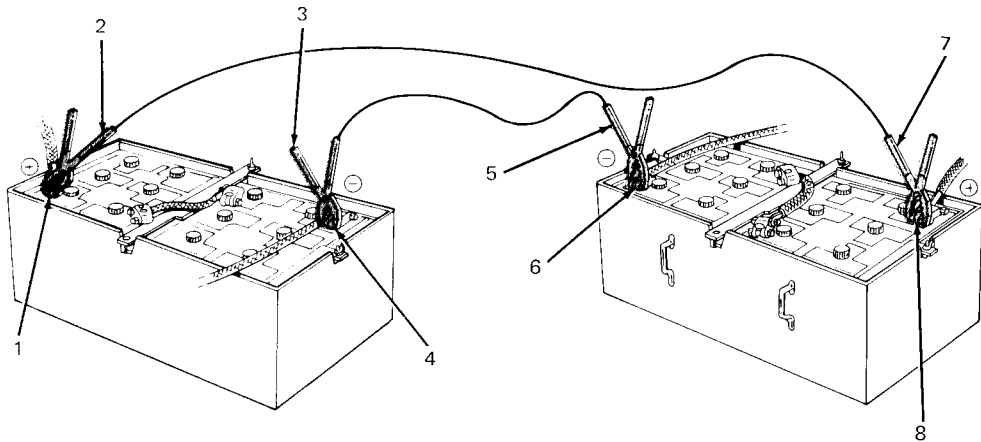
b. Move fuel transfer pump switch (3) to ON position and transfer fuel from reserve tank to main tank.

c. Return fuel transfer pump switch to OFF position when transfer operation has been completed.

**NOTE**

The fuel transfer pump switch must be in the OFF position whenever the fuel gage indicates reserve tank is empty.

## 2-12. Using Jumper Cables to Start the Engine.



a. If your vehicle fails to start because of weak batteries, it may be necessary to use jumper cables and a slave vehicle. The following procedure should be used.

(1) Position the slave vehicle so that its batteries are directly opposite those of the disabled vehicle, then stop the engine.

(2) Open the battery compartment doors to expose the batteries.

CAUTION

Be sure to connect the positive post of the disabled vehicle only to the positive post of the slave vehicle and the negative post of the disabled vehicle only to the negative post of the slave vehicle. Failure to observe this may burn out the alternator.

(3) Attach one end of the positive (red) jumper cable (2) to the positive battery post (1) of the disabled vehicle. Then attach the other end (7) to the positive battery post (8) of the slave vehicle.

(4) Attach one end of the negative (black) jumper cable (3) to the negative battery post (4) of the disabled vehicle and attach the other end (5) to the negative battery post (6) of the slave vehicle.

(5) Start the engine of the slave vehicle. This will provide sufficient electrical power to crank the engine of the disabled vehicle.

(6) When disabled truck is running, remove the jumper cables and secure the battery compartment doors for travel.

CAUTION

Completely remove one jumper cable at a time to prevent contact of the positive (red) end with the negative (black) end of the cables. Shorting the battery in such a manner can cause serious damage to the alternator.

## 2-13. Towing the Truck.

- a. *General.* General instructions for towing and recovery are given in FM 20-22.

### CAUTION

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

Do not attempt to push a disabled truck. Use the towing procedure only.

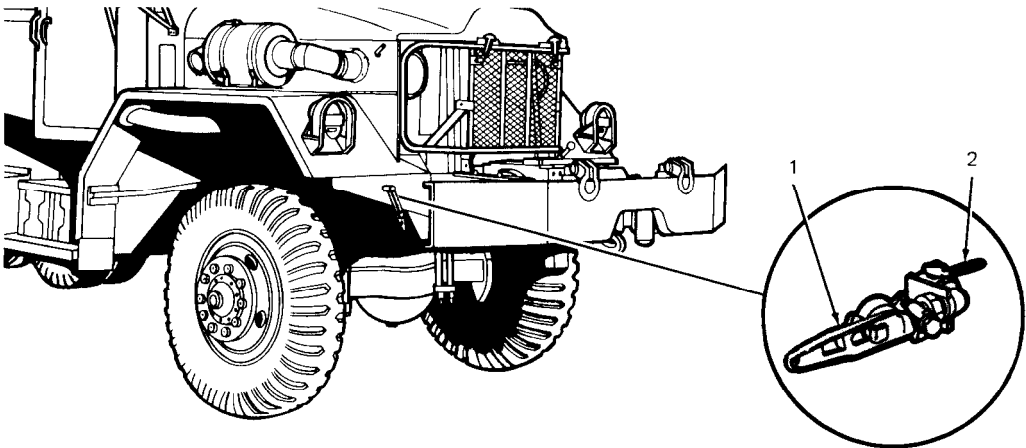
Never exceed 15 mph while towing any type of wheeled vehicle.

- b. *Towing the Truck to Start Engine.*

### CAUTION

Diesel and multifuel engine trucks may be towed to start only in an emergency, and then only with the approval of the maintenance office. Normally, a slave cable should be used to start the engine.

Make certain that service brakes of disabled truck are operating properly



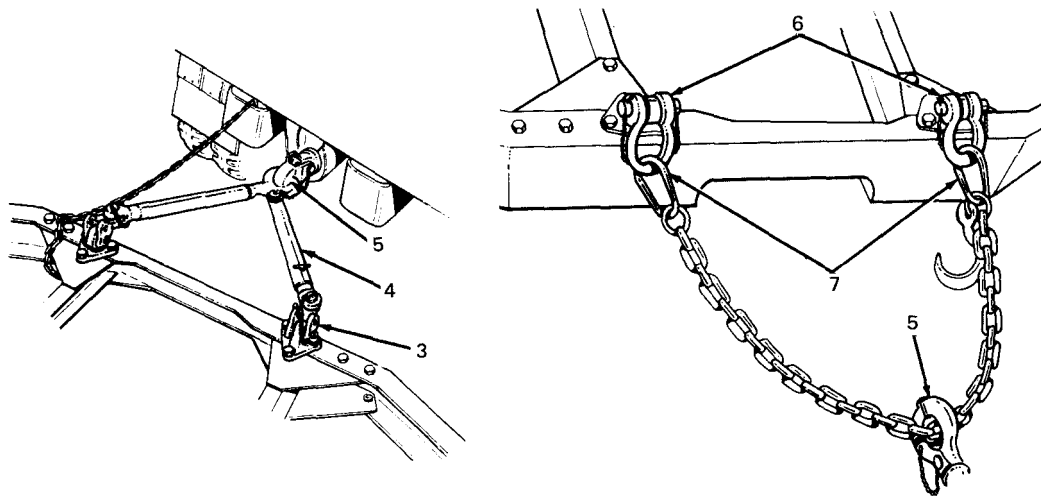
(1) When the disabled truck does not have at least 75 psi of air pressure registered on the air pressure gage, charge air system as follows:

(a) Connect air hose between the air service coupling (1) located under front fender, on right hand side of disabled truck, and the air service coupling located at rear frame, on left hand side of tow truck.

(b) open air service coupling cutoff cock (2) on both trucks.

(c) Start engine of tow truck and operate until air pressure gage of disabled truck registers 100 psi.

(d) Close both cutoff cocks (2) and remove air hose from service couplings (1).

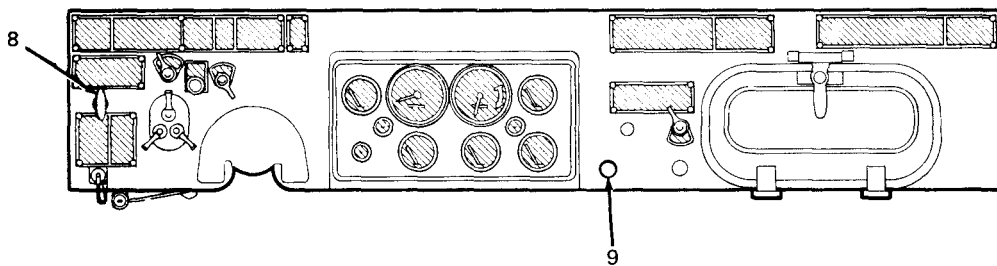


(2) Using towbar. Remove both lifting shackles (6) from shackle brackets (3) of disabled truck and attach towbar (4) to the shackle brackets on the disabled truck and to the pintle hook (5) on the tow truck.

(3) Using tow chain. Attach each end of tow chain (7) to lifting shackles (6) of the disabled truck (length of chain should permit both trucks to maneuver). Attach center of tow chain to the pintle hook (5) of the tow truck.

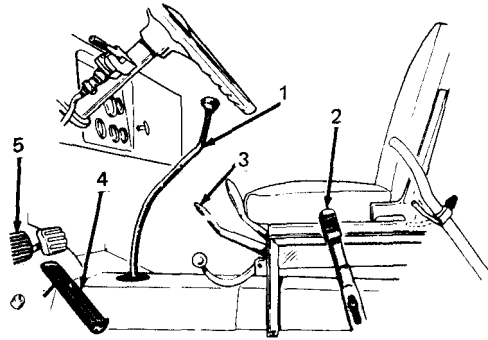
**NOTE**

Do not attempt towing with the tow chain attached to only one shackle or wrapped around the center of the bumper.



(4) Pull hand throttle control (8) out 1/3 of the way. Pull choke control (9) cm gasoline engine part way out if engine is cold.

FRONT TRANSMISSION	TRANSFER CASE	WARNING
	HIGH UP ↓ LOW DOWN	DO NOT SHIFT TRANSFER CASE TO LOW WHEN VEHICLE SPEED IS OVER FIFTH 28 MPH FOURTH 22 MPH THIRD 14 MPH SECOND 8 MPH FIRST 5 MPH REVERSE 5 MPH



(5) Shift gearshift lever (1) to 5 (fifth) position and transfer shift lever (3) to HIGH position. (Gasoline 4th, 5th gear positions are reverse of those shown above.)

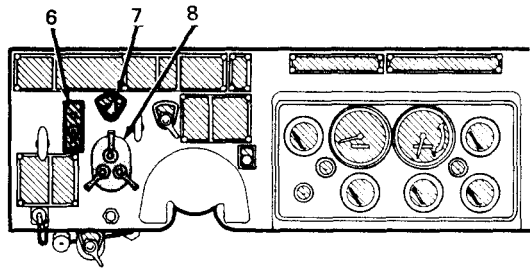
(6) Turn ignition switch (7) on gasoline engine, or battery switch (diesel and multifuel), to ON position.

(7) Place light switch (8) in STOPLIGHT position. (See page 2-48).

(8) Depress and hold down clutch pedal (5).

(9) Release handbrake (2), and signal tow truck to proceed.

(10) When truck reaches approximately 10 mph, release clutch pedal (5) and depress accelerator pedal (4).



**NOTE**

For cold weather starting of diesel or multifuel engines, place manifold heater switch (6) in ON position as soon as clutch is released.

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

(11) Depress clutch pedal (5) immediately after engine starts.

(12) Bring truck to a halt, apply handbrake (2), place gear shift lever (1) in N (neutral) and release clutch pedal (5).

(13) Allow engine to run above idle speed until warm. Remove towbar or tow chain.

*c. Preparing Disabled Truck for Towing.*

(1) Towing truck with all wheels on ground.

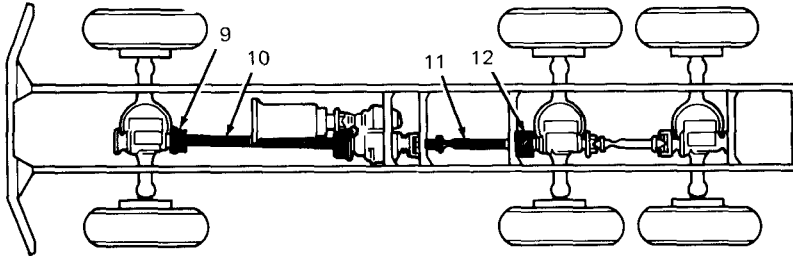
(a) If transfer on disabled truck is not damaged, place gear shift lever (1) and transfer shift lever (3) in N (neutral) position, so that only the transfer gears will revolve when the disabled truck is towed. Release handbrake (2) before towing.

(b) If transfer on disabled truck is damaged, disconnect transfer to front axle and transfer to forward rear axle propeller shafts at axles before towing.

(2) Disconnecting propeller shafts

**WARNING**

Before disconnecting propeller shafts, raise one wheel on front axle and one wheel on each rear axle, clear of ground, to relieve torsional strain. Failure to do this may result in personnel injury.



(a) Raise front wheel clear of ground with jack. Mark one corner of U-joint mating flange (9), located at front axle end of propeller shaft (10), with paint or other suitable marking compound

(b) Bend the two locking plates down, and remove four bolts and nuts securing propeller shaft U-joint flange (9) to front axle drive flange.

(c) Raise one wheel of each rear axle clear of ground with jack. Mark one corner of U-joint mating flange (12), at forward rear axle end of propeller shaft (11), with paint or other suitable marking compound.

(d) Bend the two locking plates down, and remove four bolts and nuts securing U-joint flange to forward rear axle drive flange.

(e) Secure disconnected ends of propeller shafts (10) and (11) to truck frame. Store removed nuts and bolts in map compartment.

(3) Towing truck with front wheels off ground.

**NOTE**

Whenever truck is to be towed with front wheels off ground, support front of truck so that wheels of both rear axles are in contact with ground.

(a) Disconnect transfer to forward rear axle propeller shaft as described in para 2-13c(2).

(b) Secure disconnected end of propeller shaft to truck frame. Store removed nuts and bolts in map compartment.

- (4) Towing truck with rear wheels off ground.

**NOTE**

The truck should be towed backward only after other methods have proven unsuitable.

- (a) Disconnect transfer to front axle propeller shaft as described in para 2-13c(2).

(b) Secure disconnected end of propeller shaft to truck frame. Store removed nuts and bolts in map compartment.

(c) Place front wheels in straight forward position, and lash steering wheel with rope, to outside mirror bracket or similar sturdy fixture.

- (5) Unlocking transfer overrunning clutch.

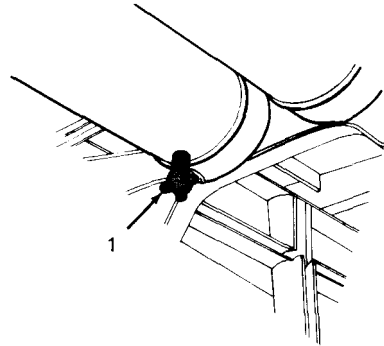
**NOTE**

Sometimes a condition will exist where the truck can be towed in one direction only. This condition is caused by the front axle being locked through the overrunning clutch for one direction. Towing in that direction will cause the front wheels to skid. This condition can be corrected by unlocking the overrunning clutch.

- (a) Jack up one front wheel to relieve front axle of any binding torque load.

(b) Open draincock (1) located on underside of air reservoir to bleed air system of all pressure and allow overrunning clutch in transfer to return to neutral.

(c) Close draincock (1) after air system pressure is relieved and lower front wheel. The front wheels should now run free in either direction.



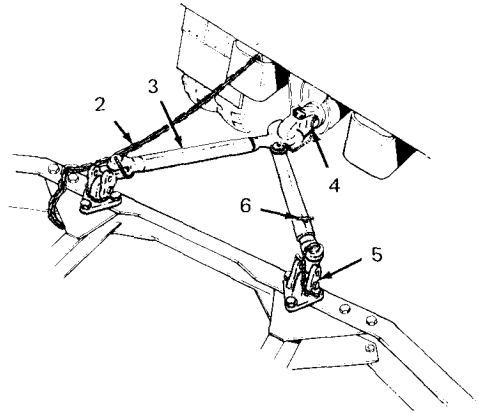


d. *Towing Disabled Truck on Highway with Towbar.*

(1) Adjust towbar (3) to fully collapsed length by removing pins (6) and sliding bar together. Replace pins (6).

(2) Remove both lifting shackles from shackle brackets (5) and attach towbar (3) to shackle brackets (5) on disabled truck and pintle hook (4) on tow truck.

(3) Connect tow chains (2) between disabled truck and tow truck for safety, in case the tow bar breaks or becomes disconnected.

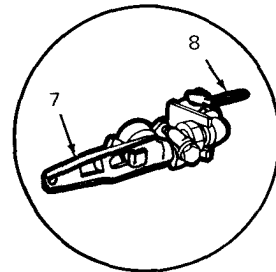


**CAUTION**

Be sure to connect service airbrake hose to service coupling and emergency air brake hose to emergency coupling on both trucks.

(4) Connect air hose between service coupling (7) at left rear of tow truck and service coupling under right front fender of disabled truck.

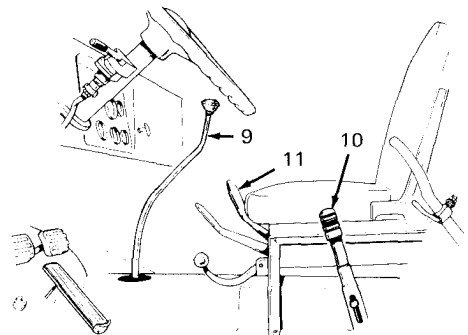
(5) Connect air hose to emergency coupling at right rear of tow truck and emergency coupling under left front fender of disabled truck.



(6) Open airline cutoff cocks (8) on both disabled truck and tow truck.

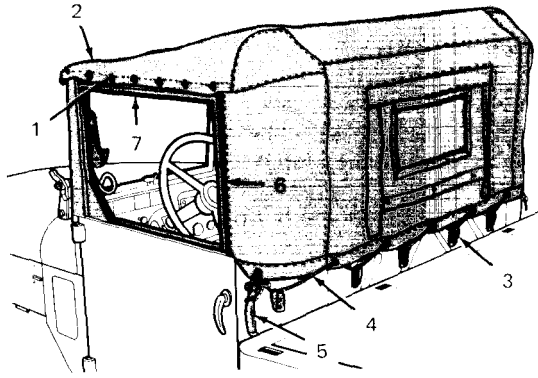
(7) Place gearshift lever (9) and transfer shift lever (11) in N (neutral) position.

(8) Release handbrake (10) when ready to tow.

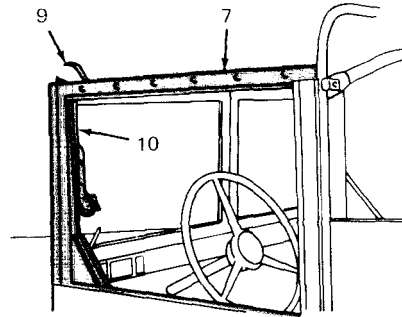
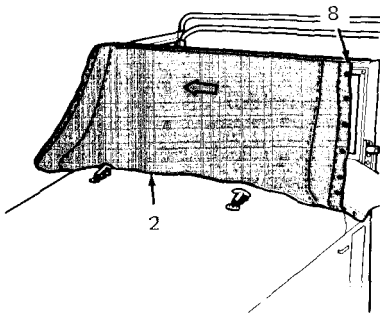


**2-14. Removing Cab Top and Lowering Windshield.**

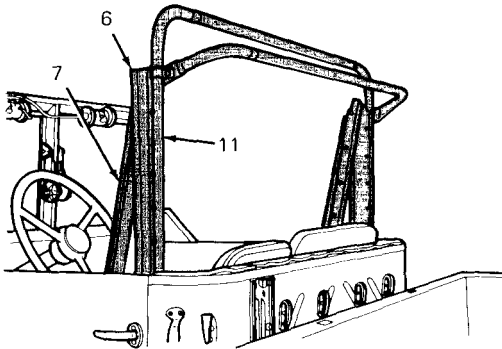
a. Remove lashing rope (4) from side handles (5) and hooks (3) at rear of cab. Release fasteners (1) securing cab paulin (2) to left and right side roof rails (7).



b. Lift paulin (2) from pillar post channels (6). Fold paulin (2) over windshield and pull paulin (2) from windshield channel (8).



c. Raise fasteners (9) to disengage side roof rails (7) from windshield assembly (10). Fold rails (7) in and down toward pillar posts (6).

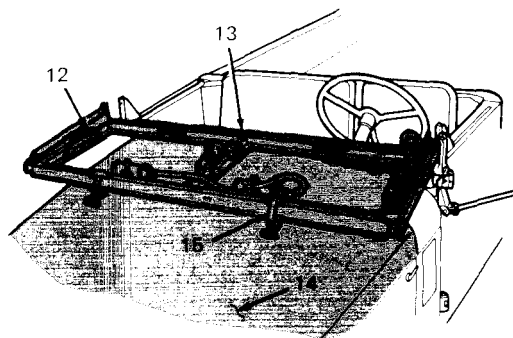


d. Remove pillar posts (6) and crossbars (11) from cab and disassemble crossbars (11) from pillar posts (6).

**CAUTION**

The inner frame of the windshield must be in the closed position before lowering windshield assembly.

e. Loosen knobs (12) on left and right sides of windshield frame (13) and fold windshield assembly forward toward hood (14). Lay windshield frame (13) gently on hood (14) and secure in place with windshield catches (15) mounted on hood (14).



f. To install cab paulin, reverse preceding steps a through e.

## 2-15. Operation of Front Winch.

a. *General.* Many of the trucks covered in this manual may be equipped with a front winch, snatch block, and tow chain which can be used for recovering heavy objects or rigged for lifting. Some winches are provided with a level winding device so that winch cable is wound on the drum in tight, even layers. Winch load capacity is 20,000 pounds.

### WARNING

Never operate winch without the regular aluminum shear pin. Never substitute rivets, pins or bolts for the regular shear pin.

### CAUTION

It is important that the truck be firmly anchored in place before starting any heavy lifting or recovery operation. If possible, anchor the rear of the truck to a fixed object nearby, using an anchor cable.

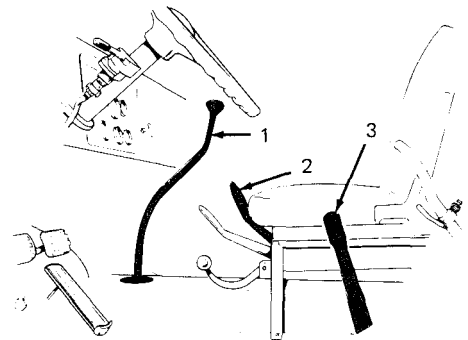
### NOTE

Proper alinement of front winch with the object being recovered is required to insure proper winding of winch cable. Position recovery truck and the object being recovered in as direct a line as possible. Refer to FM 20-22 for general instructions covering vehicle recovery and towing operations.

### b. *Unwinding Winch Cable Manually.*

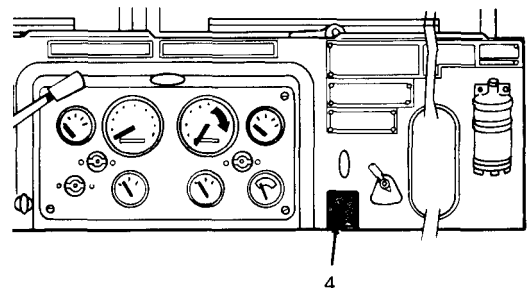
(1) Place the truck so that winch is in a direct line with the object to be recovered.

(2) Set the parking brake (3) and place transmission gearshift lever (1) and winch control lever (2) in N (neutral). Engage hinged winch control lever lock. Stop engine.



### NOTE

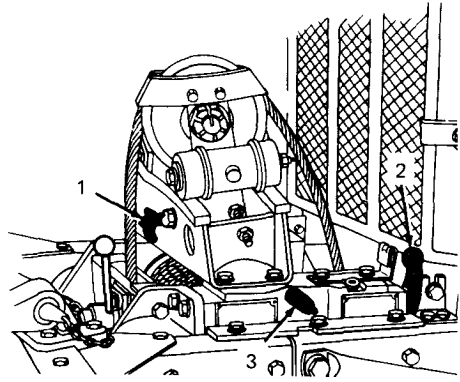
On wrecker models, set service brakes with the electric brake lock (4).



(3) Push drum clutch lever (2) as far as it will go toward winch drum to disengage drum jaw clutch.

(4) Pull drum lock knob (3) all the way out, rotate 90°, and release.

(5) If winch has a level wind, pull out level wind lock knob (1), rotate 90°, and release.



**WARNING**

Always wear leather gloves when handling winch cable. Never allow cable to run through hands. Rusty or broken strands of wire can cause painful injuries.

**WARNING**

Do not operate winch with less than 4 turns of cable on drum. Failure to observe this can result in personnel injuries.

(6) Pull on end of cable until required length is unreeled. Do not kink cable.

**NOTE**

A drag brake on drum flange prevents drum from unwinding too rapidly.

(7) To unwind cable under power without a load, refer to step c.

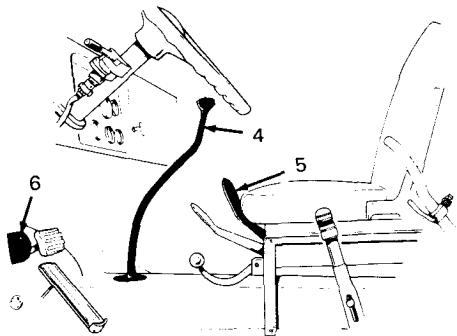
*c. Lowering Load or Unwinding Winch Cable with Power.*

**WARNING**

During winch operation, direct all personnel to stand clear of winch cable and load. A snapped cable or shifting load can be extremely dangerous. If load shifts so as to present a hazard, redistribute the load. If failure of any part occurs, stop operations immediately and notify organizational maintenance personnel.

**CAUTION**

Do not force drum clutch lever (2). To free drum clutch lever, move winch control lever (5) to L (low forward) or R (reverse) position, as required, while slipping engine clutch.



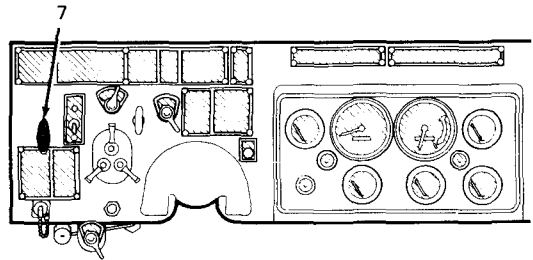
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- (1) Pull drum clutch lever (2) away from winch drum to engage drum jaw clutch.
- (2) Start and run engine with gearshift lever (4) in N (neutral) position.
- (3) Depress clutch pedal (6), and disengage hinged lock on winch control lever (5).
- (4) Place winch control lever (5) in R (reverse) position and release clutch pedal (6).

**CAUTION**

**Do** not unreel cable until less than 4 turns remain on winch drum. The cable clamp screw that secures cable to drum will not hold a load.

- (5) As winch begins to operate, adjust hand throttle (7), as necessary, to allow winch to operate smoothly at a moderate speed.



**NOTE**

When unwinding cable under power without a load, maintain tension on cable to keep coils tight on drum and to prevent crossed coils caused by a slack cable.

- (6) When load or the required length of cable is unreeled, stop the winch by depressing clutch pedal (6) and placing winch control lever (5) in N (neutral) position. Release clutch pedal (6) and engage hinged lock on winch control lever.

*d. Lifting or Pulling a Load.*

**WARNING**

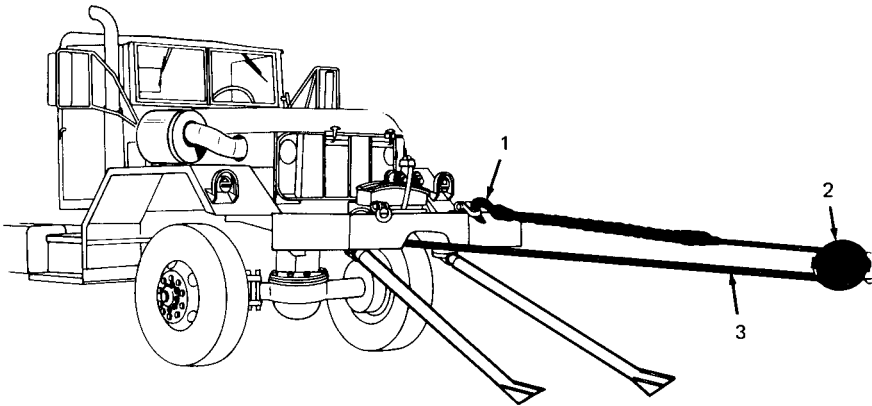
During winch operation, or when stopping winch, direct all personnel to stand clear of winch cable and load, or object being recovered. A snapped cable or shifting load can be extremely dangerous. If load shifts so as to present a hazard, redistribute the load. If failure of any part occurs, stop operations immediately and notify organizational maintenance personnel.

When heavy load is applied, always operate front winch from inside the truck cab. Never use winch clutch to control winch operations.

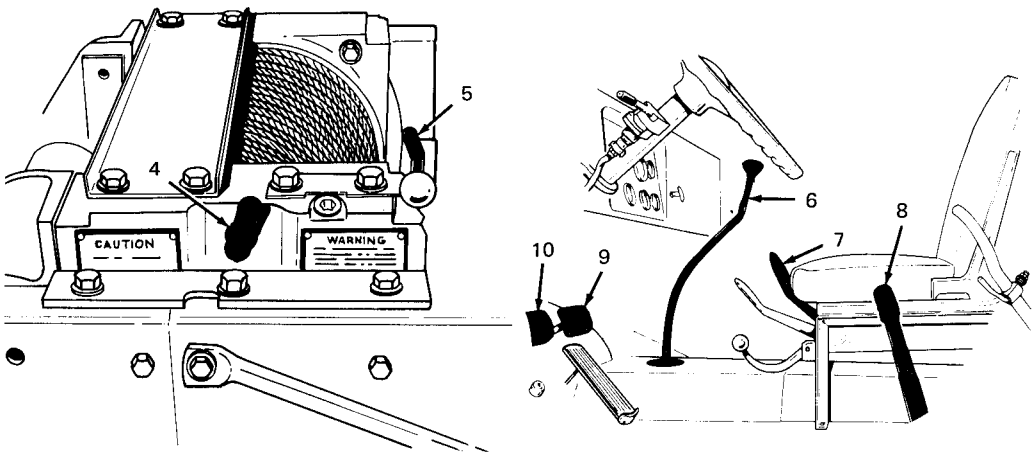
- (1) Securely attach end of winch cable to object being recovered.

**NOTE**

When pulling a heavy load, attach a single sheave snatch block (2) to the load and attach hook (1) from cable (3) to lifting shackle on front bumper.



(2) Pull drum clutch lever (5) away from winch drum to engage drum jaw clutch.



(3) Start and run the engine with gearshift lever (6) in N (neutral) position.

(4) Depress clutch pedal (10) and disengage hinged lock on winch control lever (7).

(5) Place winch control lever (7) in L (low) position for heavy loads or H (high) position for light loads. When in doubt, use low.

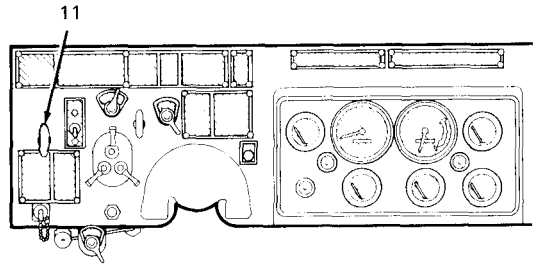
**CAUTION**

Always use hand throttle in the “locked out” position when operating winch, to maintain a smooth, steady speed. Operating engine at an excessive or erratic speed can cause overloading of winch and may result in damage or failure of parts.

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**NOTE**

The notched rod on hand throttle (1 ) will allow placing it in the "locked out" position at any point. Carefully select a moderate operating speed with the throttle lever in vertical position. The throttle lever will hold in place.



(6) Slowly release clutch pedal (10), and pull the load. Adjust the hand throttle (11) as necessary to allow the winch to operate smoothly at a moderate speed. Rough or jerky operation can cause broken shear pins, broken cables, damaged equipment, or personnel injury.

(7) When load is recovered, stop the winch by depressing clutch pedal (10) and placing winch control lever (7) in N (neutral) position. Release clutch pedal (10) and engage hinged lock on winch control lever (7).

*e. Winding Winch Cable on drum.*

(1) Place a load on end of cable. If no load is available, attach cable to a tree or any other stationary object at same ground level as truck.

(2) Start and run the engine with gearshift lever (6) in N (neutral) position.

(3) Depress clutch pedal (10), disengage winch control hinge lock and place winch control lever (7) in L (low) position.

(4) On wrecker models, apply service brakes (9) to unlock electric brake lock and to release service brake pedal (9).

(5) Release handbrake (8) and clutch pedal (10). While the cable is being wound on drum, as the truck moves forward, apply light pressure on brake pedal (9) to ensure a tight, even wind.

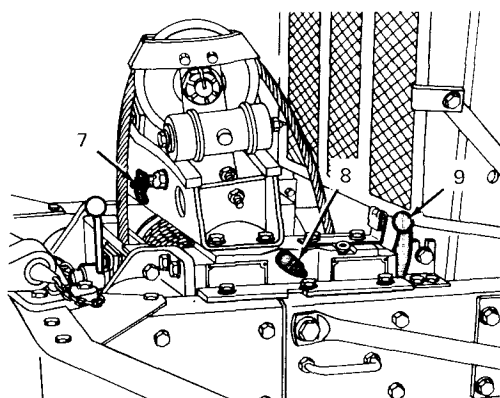
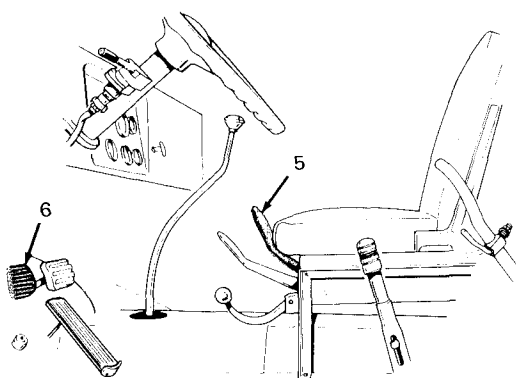
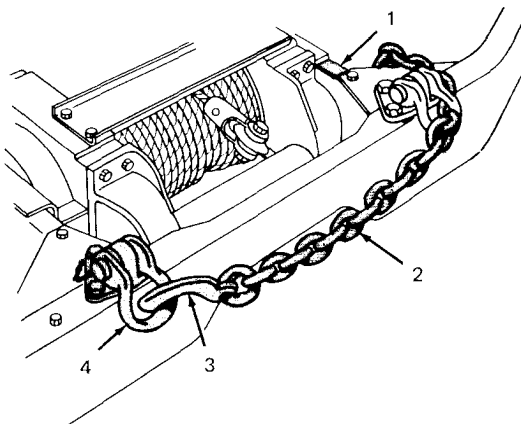
**NOTE**

Be sure the first layer of coils is wound evenly and that each successive layer starts back across drum properly. If necessary, hammer or push the coils in place with a block of wood to ensure a closely wrapped cable.

(6) When cable is wound on drum. stop the winch by depressing clutch pedal (10) and placing winch control lever (7) in N (neutral) position. Release clutch pedal (10) and engage hinged lock on winch control lever (7).

f. *Locking Winch for Travel.*

(1) If winch is equipped with a level winding device, pull cable chain up through space between bumper and winch. Wind chain around back of level winding frame, and then across the front, so that the hook can be attached to the right hand side of the winding frame. If winch is not equipped with a level winding device, position the cable chain (2) under and over the truck left hand frame extension (1), and then across the front so that cable book (3) can be attached to right lifting shackle (4). Remove left lifting shackle and install over chain.



(2) If hinged lock is not holding winch control lever (5) in N (neutral), depress clutch pedal (6), place winch control lever (5) in N (neutral) position and engage hinge lock. Release clutch pedal.

(3) Disengage winch drum jaw clutch by pushing drum clutch lever (9) toward winch as far as it will go.

(4) Lock winch drum in place by pulling drum lock knob (8) out, rotating the knob 90°, then releasing. If necessary, rotate the winch drum by hand to allow the locking plunger to engage in the nearest hole on the drum flange.

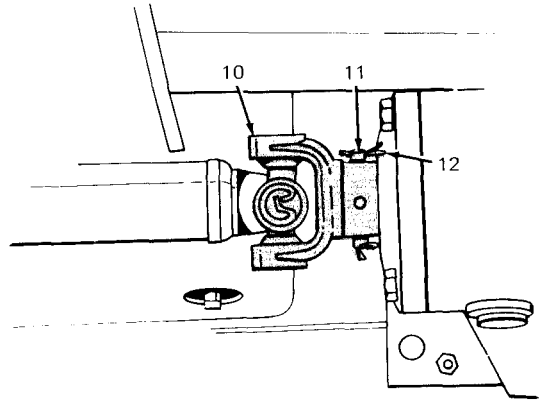
(5) Lock level wind device by pulling level wind lock knob (7) out, rotating the knob 90°, then releasing. If necessary, move level wind by hand to allow lock plunger to engage in hole.



## g. Shear Pin Replacement

**WARNING**

Never substitute rivets, pins or bolts for the regular shear pin.



- (1) Rotate universal joint (10) on winch drive shaft and align shear pin holes in yoke with holes in shaft.
- (2) Drive broken part of shear pin from winch drive shaft.
- (3) Lubricate and insert new aluminum alloy shear pin (11) into holes in the yoke and drive shaft.
- (4) Install cotter pins (12) in each end of shear pin.

**2-16. Operation of Cargo Trucks.**

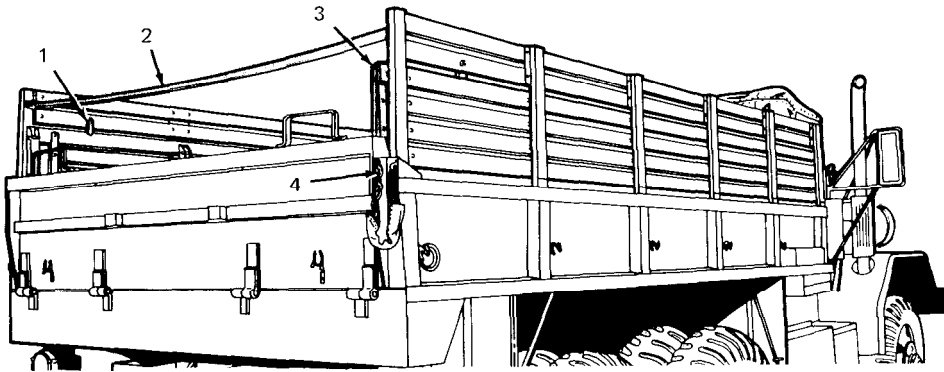
a. *General.* The cargo trucks covered in this manual are: the short cargo, having 14 x 7-foot steel bed; the long cargo, having a 20 x 7-foot steel bed; and the dropside cargo having a 14 x 7-foot steel bed. They are all designed to accept a tarpaulin cover for cargo protection (see special kits, para 2-4).

**CAUTION**

Always shift the transmission into NEUTRAL when the engine is running while the truck is stationary. Allowing the engine to run with the transmission engaged and the transfer in NEUTRAL may cause transfer bearing failure.

b. *Removing the Front and Side Racks.*

(1) Remove tailgate chain hooks (4) from retainer slots. Grab the top of tailgate, *pull* back, and allow it to slowly swing down. Do not allow tailgate to fall down.



(2) Remove safety strap (2) from side racks hooks.

(3) Fold troopseats (3) up and secure in place with retainers (1).

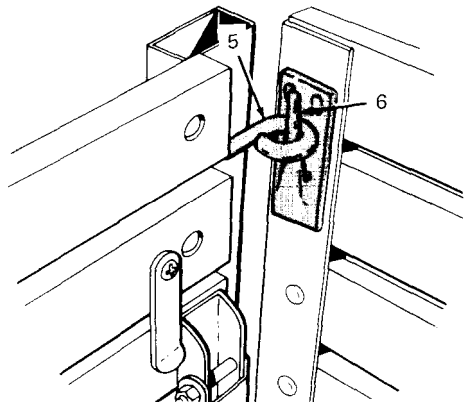
(4) Pull side and front racks up from rack sockets to remove

c. *Installing the Front and Side Racks.*

(1) Position the front and side racks in rack sockets and push down to secure in place. Be sure the side rack retainer rings (5) mate with the retainer pins (6) on front rack.

(2) Release troopseats (3) from retainers (1), pull forward and lower into position.

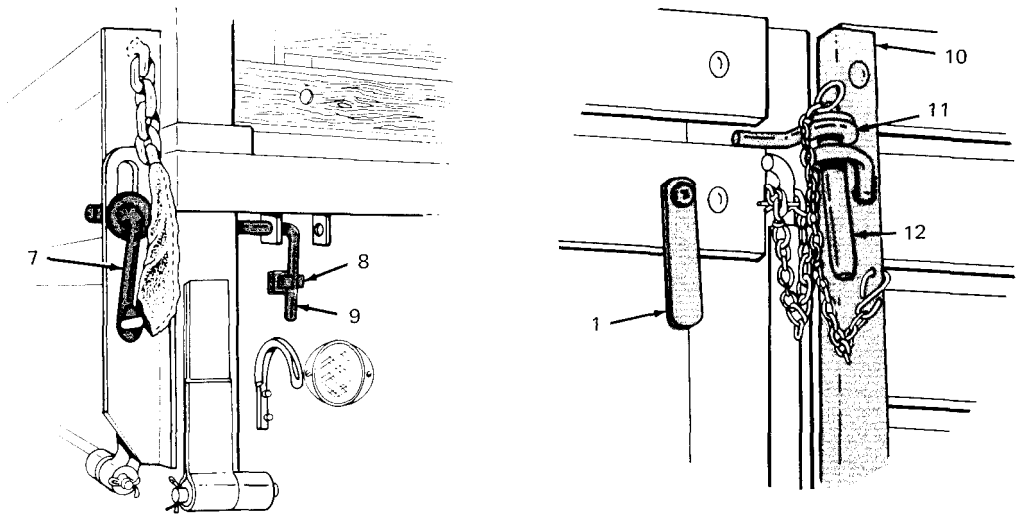
(3) Hook safety strap (2) to side rack hooks.



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*d. Removing Side Racks From Dropside Cargo Trucks.*

(1) Rotate the locking pins (7) on each side of the tailgate and remove from slots.



(2) Grab the top of tailgate, pull back and allow it to slowly swing down. Do not allow tailgate to fall down.

(3) On each side of body, release side rack locking pin handles (9) from retainers (8) and pull from rack sockets.

(4) Remove safety strap (2) from side rack hooks.

(5) Fold the troopseats (3) up and secure in place with retainers (1).

(6) Remove rack retaining pins (12) from rack retaining rings (11) on both side gates (10).

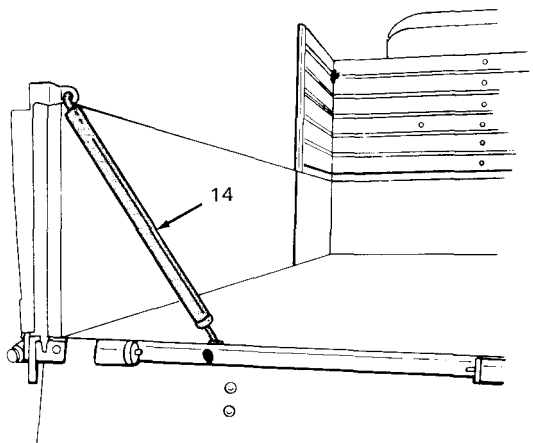
(7) Pull side racks up from rack sockets to remove.

*e. Lowering the Dropside.*

(1) Remove stabilizer rods (14).

**CAUTION**

Use extreme care when lowering the dropsides if the side racks are attached. Letting the side fall down can cause damage to the side rack and mud guard.



(2) Rotate locking pin (1) at the front section of dropside and remove from slot. Grab the top of dropside, pull back and allow it to slowly swing down. Do not allow dropside to fall down.

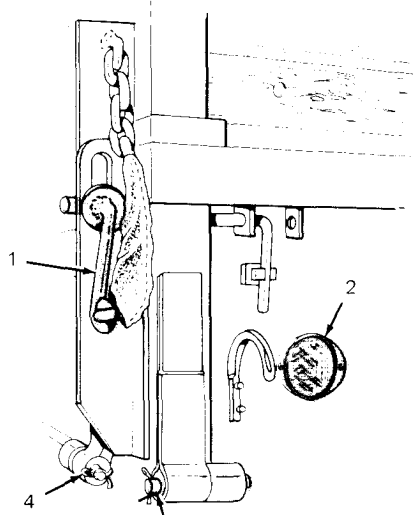
**CAUTION**

If truck is moved with sides lowered, be sure that the cargo is secured properly. Because normal ground clearance has been reduced, move the truck slowly and steer clear of objects on the ground.

*f. Removing the Dropsides and Tailgate.*

**WARNING**

To prevent the dropside or tailgate from falling down and causing serious injury, have a crew member support one end, while removing attaching hardware, and assist in lowering it during removal.



(1) Remove cotter pins (4) and washers from hinge pins (3).

(2) Remove hinge pins (3) and lower dropsides or tailgate

*g. Installing the Dropside, Tailgate and Side Racks.*

**CAUTION**

Because the dropsides are interchangeable, check to be sure that the amber reflector is located at the front of the body and the red reflector (2) is located at the rear of body, when installing the dropsides.

Install the dropside, tailgate and side racks in reverse order of remover as described above.

## 2-17. Operation of Dump Trucks.

a. *General.* Dump trucks covered in this manual may be used as regular cargo carriers, or as a regular, rocker type, or spreader type dump truck. The payload capacity for cross-country operation is 10,000 pounds. The payload capacity for highway operations is 20,000 pounds.

### WARNING

When using a dump truck as a personnel carrier, the dump body control lever in the cab must be secured in locked position. Failure to observe this can result in personnel injury.

### WARNING

Stay clear of dump body and cab protector at all times during loading and unloading operations. The dump body can raise accidentally when overloaded or when a heavy load is dumped into the dump body. This can result in serious injury.

### CAUTION

When using a dump truck equipped as a personnel carrier for dumping operations, side racks, seats, bows and covers must be removed from the truck and stored.

Always shift the transmission into NEUTRAL when the engine is running and the truck is stationary. Allowing the engine to run with the transmission engaged and the transfer in NEUTRAL may cause transfer bearing failure.

Always place the control lever in NEUTRAL position with the safety lock engaged when the hoist is not being operated. Never leave dump body control lever engaged in any position while the truck is being driven to and from a job location.

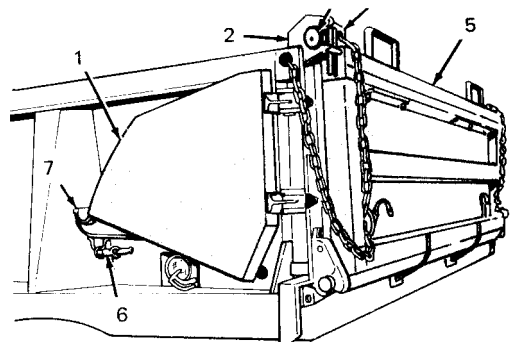
The truck must be at a complete halt, with the clutch disengaged, to shift the dump body control lever out of NEUTRAL and engage the transmission power takeoff and hoist pump. Once these units have been engaged, the dump body control lever may be moved through its entire operating range until the lever is again placed in the NEUTRAL position.

### b. *Rigging the Tailgate for Rocker Type Operation.*

(1) Unfasten harness hooks (6) securing tailgate wings (1) to sides of dump body. Swing tailgate wings to rear.

(2) Remove retaining pins (4) securing tailgate upper hinge pins (3) in upper hinge pin brackets (2).

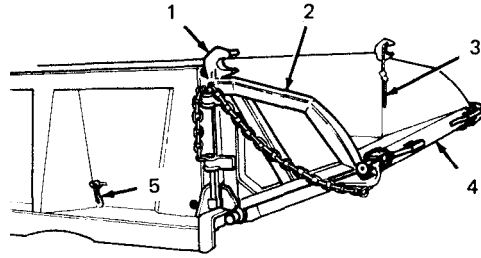
(3) Lower tailgate (5) so that the upper hinge pins (3) engage grooves (7) in tailgate wings (1).



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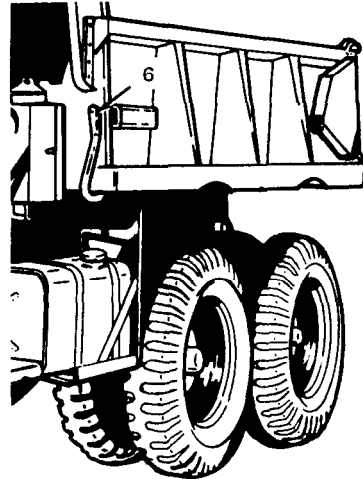
(4) Replace retaining pins (3) in tailgate upper hinge brackets (1).

(5) At completion of operations, remove retaining pins (3) from upper hinge brackets (1). Close tailgate (4) and replace retaining pins (3) in upper hinge brackets (1). Swing tailgate wings (2) forward against dump body and secure with harness hooks



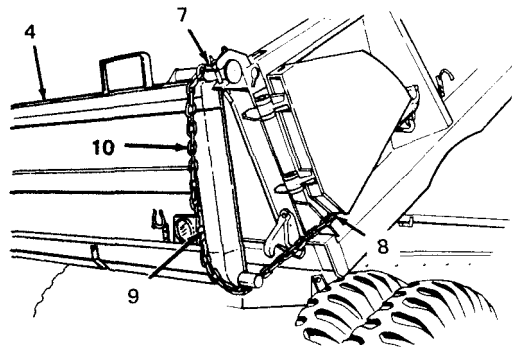
*c. Rigging the Tailgate for Spreader Operation.*

(1) Pull tailgate control lever (6) forward and down as far as it will go and unlock the tailgate.



(2) Remove tailgate chain (10) ends from upper locking slots (7) and thread chain through hooks (9) and under tailgate

(3) Insert chain ends into lower locking slots (8) and adjust chain length to limit tailgate opening, as required.



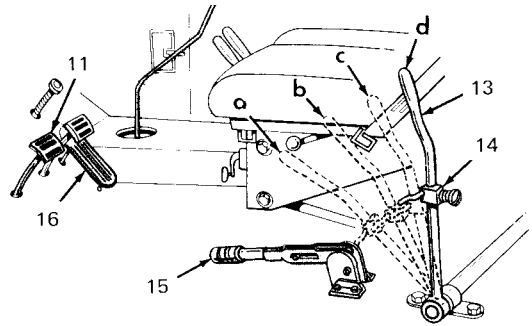
(4) At completion of operations, remove tailgate chain (10) ends from lower locking slots (8) and pull chain through hooks (9). Insert chain ends in upper locking slots (7) and close tailgate (4). Push tailgate control lever (6) up and back as far as it will go and lock tailgate in closed position.

*d. Operation as a Regular Dump Truck.*

(1) Position truck for dumping find apply handbrake (15).

(2) Depress clutch pedal (11) and place gearshift lever (12) in N (neutral) position. Release clutch pedal.

(3) Pull tailgate control lever (6) forward and down as far as it will go and unlock tailgate.



**CAUTION**

The truck must be at a complete halt, and the clutch disengaged, before shifting the dump body control lever out of NEUTRAL position (d).

(4) Depress clutch pedal (11). Release safety lock (14) on dump body control lever (13) and move level to POWER UP position (a).

(5) Depress accelerator pedal (16) slightly, to prevent stalling while releasing clutch pedal (11). The dump body will start to rise.

**NOTE**

**The** dump body will stop automatically when it reaches its limit of travel.

(6) When the dump body has risen to the desired height, move dump body control lever (13) to HOLD position (b) while dumping the load. The dump body will hold that position.

(7) After unloading, clear the tailgate of all material and move dump body control lever (13) to POWER DOWN position (c).

**CAUTION**

Never leave the dump body control lever engaged in any operating position when the hoist is not being used.

(8) After dump body is completely down, move dump body control lever (13) to NEUTRAL position (d) and set the safety lock (14). Release clutch pedal (11) and apply handbrake (15).

(9) Push tailgate control lever (6) up and back as far as it will go and lock tailgate in closed position.

*e. Operation as a Rocker Type Dump Truck*

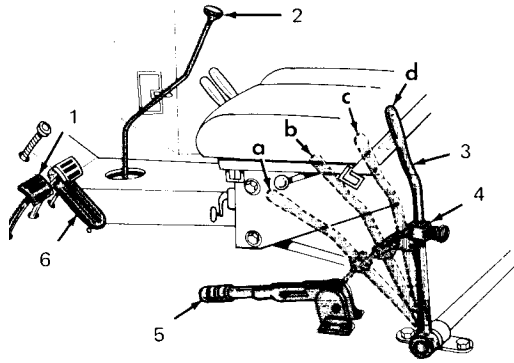
(1) Position truck for dumping and apply handbrake (5).

(2) Depress clutch pedal (1) and place gearshift lever (2) in N (neutral) position. Release clutch pedal.

(3) Rig the tailgate for rocker operation, as described in para 2-17b.

**CAUTION**

The truck must be at a complete halt, and the clutch disengaged, before shift ing the dump body control lever out of NEUTRAL position (d).



(4) Depress clutch pedal (1). Release safety lock (4) on dump body control lever (3) and move lever to POWER UP position (a).

(5) Depress accelerator pedal (6) slightly, to prevent stalling while releasing clutch pedal (1).

(6) As soon as the dump body has reached the desired height move dump body control lever (3) to HOLD position (b).

**CAUTION**

When dumping with the truck in motion, reduce truck speed enough to prevent excessive bouncing or rocking of the body.

(7) Depress clutch pedal (1), place gearshift lever (2) in 1 (first) position and release handbrake (5).

(8) Depress accelerator pedal (6) while releasing clutch pedal (1) and maintain a smooth forward speed.

(9) Raise dump body, as required, to maintain material flow by moving dump body control lever (3) into the POWER UP position (a) and then back to HOLD (b).

(10) After unloading, stop the truck, depress clutch pedal (1), and place gearshift lever (2) in N (neutral) position. Release clutch pedal and apply handbrake (5).

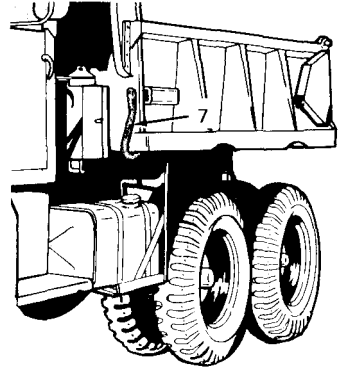
(11) Clear the tailgate of all material and move dump body control lever (3) to POWER DOWN position (c).



**CAUTION**

Never leave the dump body control lever (3) engaged in any operating position when the hoist is not being used.

(12) After dump body is completely down, move dump body control lever (3) to NEUTRAL position (d) and set the safety lock (4).



*f. Operation as a Spreader Type Dump Truck*

(1) Position truck for spreading operations and apply handbrake (5).

(2) Depress clutch pedal (1) and place gearshift lever (2) in N (neutral) position. Release clutch pedal.

(3) Rig the tailgate for spreader operations, as described in para 2-17c.

**CAUTION**

The truck must be at a complete halt, and the clutch disengaged, before shifting the dump body control lever out of NEUTRAL position (d).

(4) Depress clutch pedal (1). Release safety lock (4) on the dump body control lever (3) and move lever to POWER UP position (a).

(5) Depress accelerator pedal (6) slightly to prevent stalling while releasing clutch pedal (1). The dump body will start to rise.

(6) When the dump body has risen 2 or 3 feet, move dump body control lever (3) to HOLD position (b).

**NOTE**

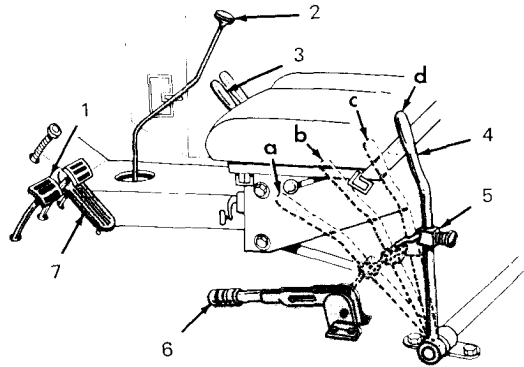
The height required for best spreading results will depend on the weight and substance of the material being spread, and on the tailgate opening. Raise the dump body and adjust the tailgate opening as required.

(7) Pull tailgate control lever (7) forward and down as far as it will go and unlock tailgate. The material should just start to spill out the tailgate.

(8) Depress clutch pedal (1). Place gearshift lever (2) in 1 (low) position and transfer shift lever (3) down to LOW position.

(9) Release handbrake (6) and depress accelerator pedal (7) while releasing clutch pedal (1) to set truck in motion.

(10) Raise dump body, as required, to maintain material flow by moving dump body control (4) to POWER UP position (a), and then back to HOLD (b).



(11) After unloading, stop the truck, depress clutch pedal (1), place gearshift lever (2) in N (neutral) position and transfer shift lever (3) in HIGH position. Release clutch pedal and apply handbrake (6).

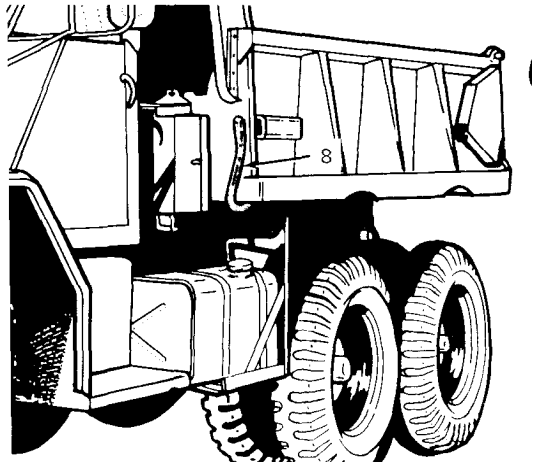
(12) Clear the tailgate of all material and move dump body control lever (4) to POWER DOWN position (c).

**CAUTION**

Never leave the dump body control lever engaged in any operating position when the hoist is not being used.

(13) After dump body is completely down, move dump body control lever (4) to NEUTRAL position (d), and set the safety lock (5).

(14) Push tailgate control lever (8) up and back as far as it will go and lock tailgate in closed position.

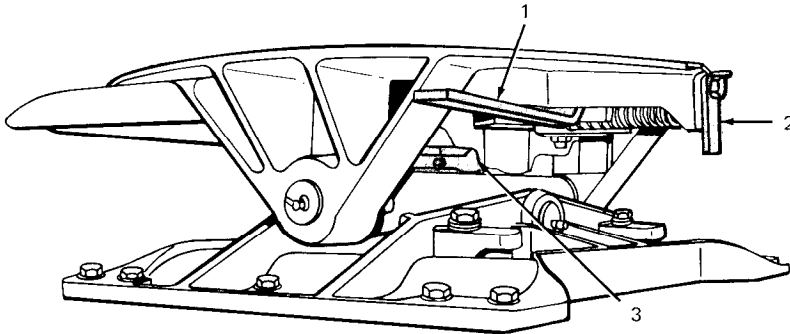


## 2-18. Operation of Tractor Trucks.

a. *General.* Tractor trucks covered in this manual are designed to haul a semitrailer having a maximum load of 30,000 pounds during cross-country operations and 55,000 pounds during highway operations.

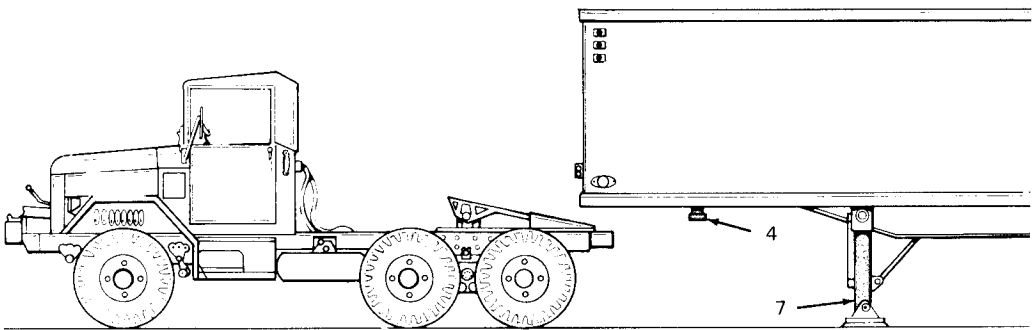
### CAUTION

Always shift the transmission into **NEUTRAL** when the engine is running while the truck is stationary. Allowing the engine to run with the transmission engaged and the transfer in **NEUTRAL** may cause transfer bearing failures.



### b. *Coupling.*

(1) Set the coupling jaws by swinging locking plunger safety latch (2) right or left to release locking plunger lever (1). Move locking plunger lever (1) toward front of truck until locking plunger safety latch (2) drops into position.

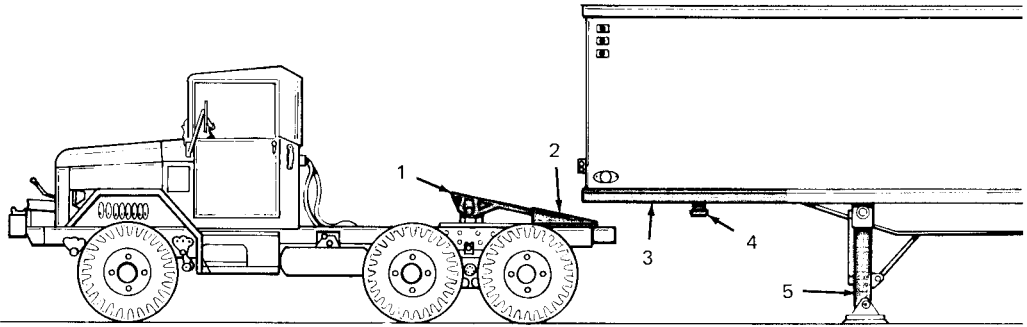


(2) Position the tractor so that the fifth wheel coupler jaws (3) are in line with the semitrailer king pin (4).

### CAUTION

Be sure chock blocks are in place behind semitrailer wheels before coupling.

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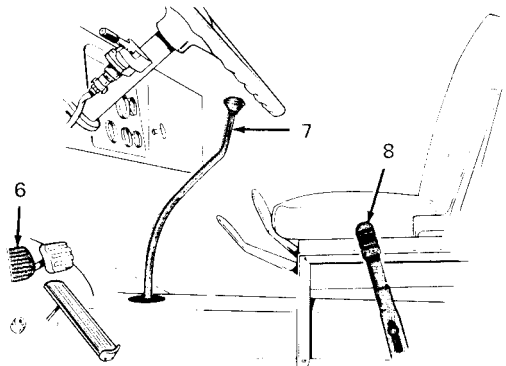
(3) Adjust the semitrailer landing gear (5) to raise **or** lower the skid plate (3) until it is slightly lower than the tractor fifth wheel (1). Install chock blocks behind semitrailer wheels,

(4) Back the tractor under the semitrailer until the tractor approach plates (2) contact the semitrailer skid plate (3).

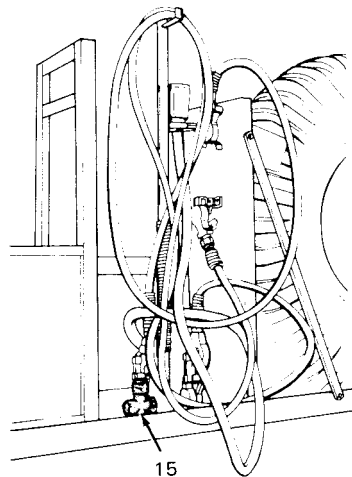
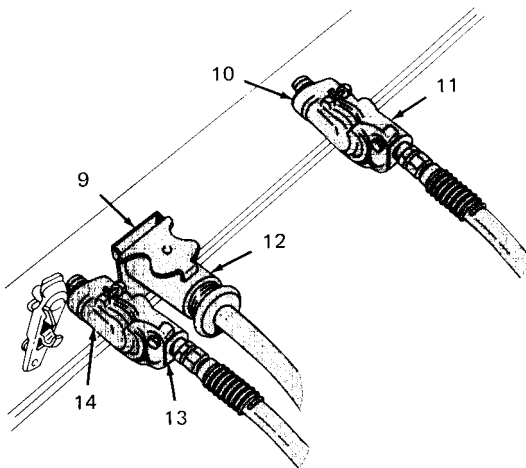
(5) Stop the tractor, place gearshift lever (7) in N (neutral) position, release clutch pedal (6) and apply parking brake (8).

**CAUTION**

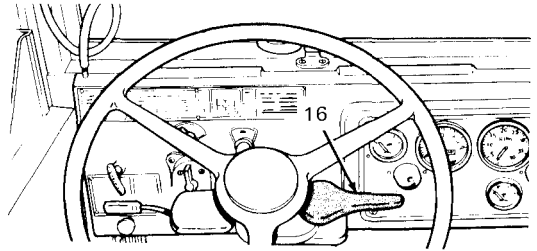
**Be** sure to connect tractor air service hose to service coupling on semitrailer and to connect tractor emergency air hose to emergency coupling on semitrailer.



(6) Connect the tractor air service hose (13) to semitrailer service coupling (14). Connect the tractor emergency air hose (11) to semitrailer emergency coupling (10) and open both tractor air line cutoff cocks (15).



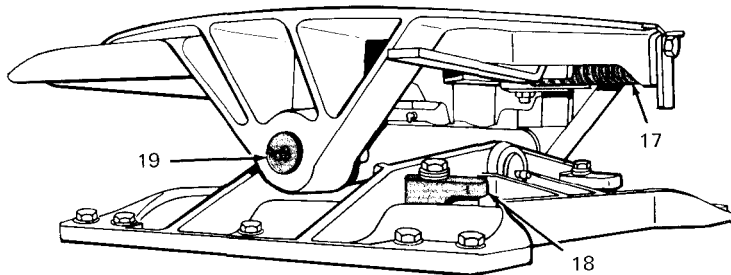
(7) Move airbrake hand control lever (16) down to set semitrailer brakes. Depress clutch pedal (6), place gearshift lever (7) in R (reverse), and release handbrake (8).



(8) Release clutch pedal (6) and slowly back tractor under semitrailer. Check that the semitrailer king pin (4) slides within the V-shaped opening at the rear of the fifth wheel and releases the locking plunger (17) when engaging the coupling jaws.

#### NOTE

Keep the tractor in line with the semitrailer while backing up.



(9) When the semitrailer king pin (4) engages the coupling jaws of the fifth wheel, and the locking plunger (17) is released, stop the tractor, depress clutch pedal (6), place gearshift lever (7) in 1 (first) position, and partially release clutch pedal (6), until tractor pulls on semitrailer king pin (4), to check that the coupling jaws are engaged.

(10) Depress clutch pedal (6), place gearshift lever (7) in N (neutral) position, release clutch pedal, apply handbrake (8), and move airbrake hand control lever (16) up to release semitrailer brakes.

(11) Connect tractor electrical cable (12) to semitrailer receptacle (9) and check the operation of semitrailer lights by operating the trucks light switch, turn signal switch and brake pedal.

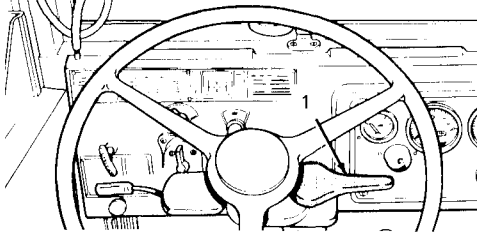
(12) Raise landing gear (5) on semitrailer. Remove and stow landing gear foot pads and chock blocks in racks provided.

#### CAUTION

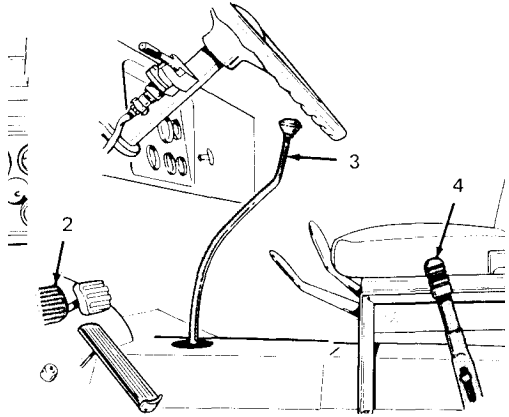
The fifth wheel wedges (18) must be adjusted for the terrain the truck will operate on. Failure to do this may cause damage to the fifth wheel.

(13) Loosen two capscrews located in wedge slots of each wedge (18) and adjust wedges by either positioning wedges full in (against the walking beam (19)) to locked position (no lateral movement) for highway operation, or positioning wedges full out (away from walking beam) to unlocked position (walking beam can move laterally) for cross-country operation. After wedges are adjusted, tighten the capscrews.

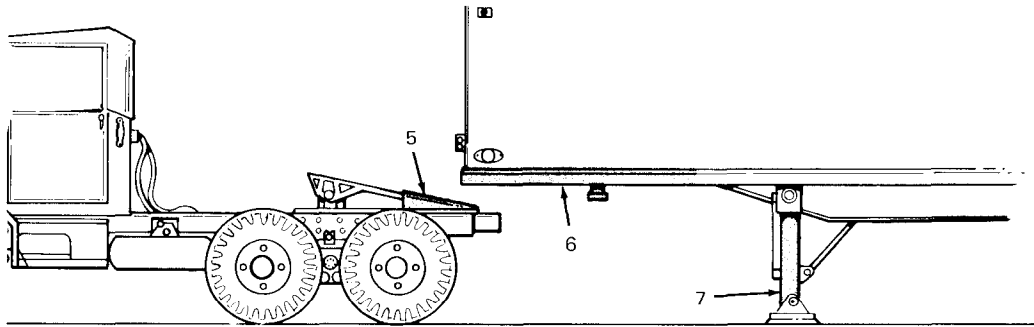
c. *Uncoupling.*



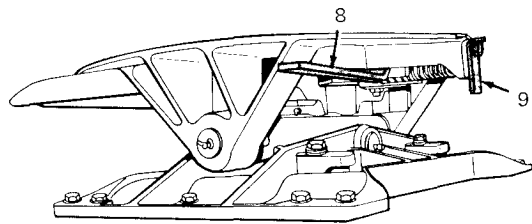
(1) Position the semitrailer in the desired location, move airbrake hand control lever (1) down, place gearshift lever (3) in N (neutral) position, and apply handbrake (4).



(2) Place chock blocks in front of and behind semitrailer wheels, place landing gear float pads under landing gear (7), and lower landing gear.



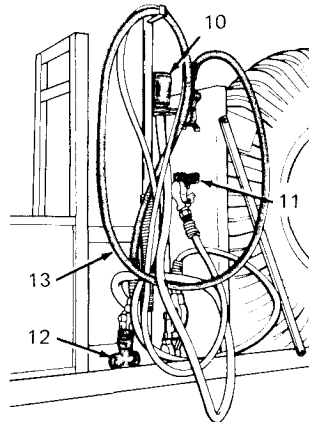
(3) Swing locking plunger safety latch (9) right or left and pull locking plunger lever (8) forward until locking plunger safety latch engages. Disconnect tractor electrical cable (10) from semitrailer receptacle.



(4) With airbrake band control lever (1) down, depress clutch pedal (2), place gearshift lever (3) in 1 (first) position and release clutch pedal (2), while moving the truck slowly forward until semitrailer skid plate (6) clears tractor approach plates (5).

(5) Stop the truck, depress clutch pedal (2), place gearshift lever (3) in N (neutral), apply handbrake (4) and move airbrake hand control lever (1) up to release semitrailer brakes.

(6) Close both tractor air line cutoff cocks (12), disconnect the tractor air service hose (13) and emergency hose from semitrailer receptacles, and secure to the tractor air hose storage brackets (11).



## 2-19. Operation of Tractor Wrecker Trucks.

a. *General.* Tractor wrecker trucks covered in this manual are equipped with a hydraulically powered, engine-driven crane. The crane is capable of 360° rotation and approximately 45° elevation. The crane boom is extendable in three positions from 11 1/2 to 26 feet. Maximum lifting capacity with outriggers installed is 10,000 pounds. The fifth wheel assembly mounted on the rear of the chassis is designed to haul flatbed trailers with a maximum load of 20,000 pounds during cross-country operations, and 46,000 pounds during highway operations.

### CAUTION

The tractor wrecker truck is equipped with a transfer power takeoff. The transfer can be operated in NEUTRAL as long as the power takeoff is engaged. Never disengage the power takeoff when the transfer is in NEUTRAL, since this will disengage the power takeoff pump which supplies bearing lubrication.

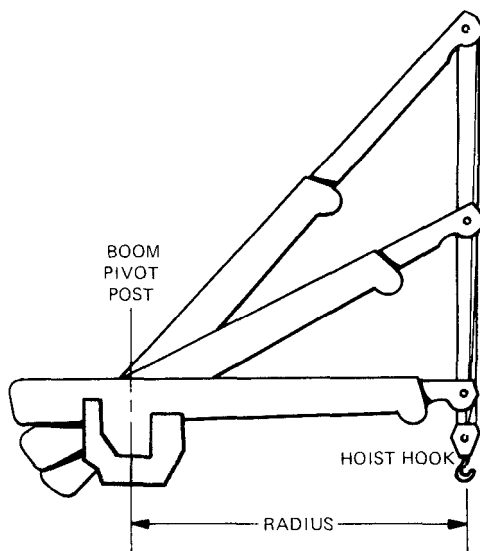
### NOTE

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

b. *Positioning Wrecker.* Position the wrecker on firm level ground whenever possible. Determine which type of lifting is necessary (i.e., rear lift, lift and swing, heavy rear lift or a heavy side lift) and position the wrecker accordingly. For heavy loads, the wrecker should be positioned for a direct rear lift with the least amount of boom extension.

### NOTE

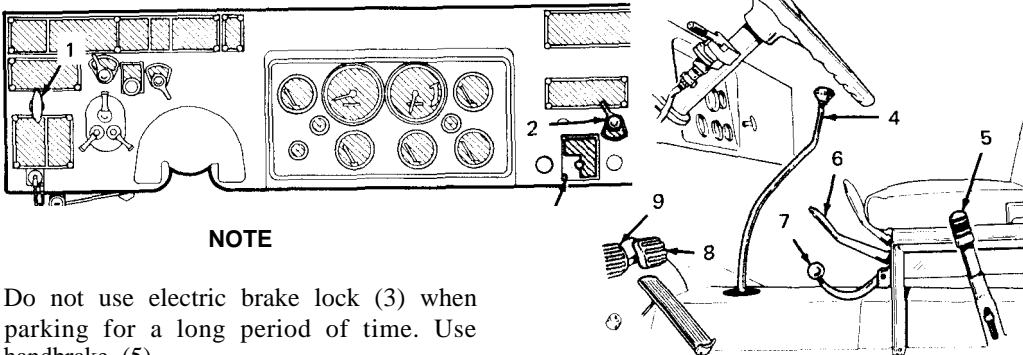
Refer to the safe load data plate located near the crane controls. Select the lifting method (with or without outriggers) and crane radius that will permit crane operation within safe limits while lifting the load. Position the wrecker close enough to the load to operate the crane at the radius you have selected. Measure radius horizontally, regardless of boom angle or extension.



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*c. Crane Operation.*

(1) To set electric brake lock, depress brake pedal (8), push lock switch button (3), and release brake pedal.



**NOTE**

Do not use electric brake lock (3) when parking for a long period of time. Use handbrake (5).

(2) Start the engine, depress clutch pedal (9) and place gearshift lever (4) in 4 (fourth) or 5 (fifth) position. Place transfer shift lever (6) in N (neutral) portion and pull power takeoff control lever (7) all the way up. Release clutch pedal (9).

(3) For operation of floodlights, place floodlight master control switch (2) in ON position. Each light has an individual switch for operation as needed.

(4) Pull hand throttle control (1) all the way out and set in locked-out position. Adjusted engine speed should be 1,250 plus/minus 50 rpm (no load).

**NOTE**

When smoother crane operation is required for handling missiles and rockets weighing 8,000 pounds or less, use a three-part line (see para 2-19e) at 1,250 engine rpm.

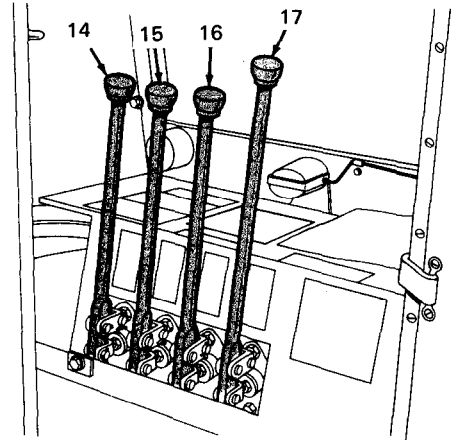
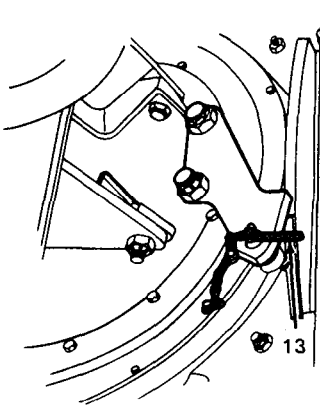
**CAUTION**

Do not attempt to operate crane at low engine or idle speeds. The hydraulic pump will not provide enough pressure at slow shaft speeds for proper operation.

(5) Release tension on lifting sling (11) by pushing hoist control lever (15) forward.

(6) Remove cable hook (10) from lifting sling (11), remove sling from outrigger frame tube (12) and remove pivot post lockpin (13) from stop plate.





### CAUTION

Do not pay out cable after hook has reached the load or ground. Continued drum rotation will loosen cable on drum.

(7) Push hoist control lever (15) forward to unwind cable and lower hook (10) to ground or load.

### WARNING

During crane operation, direct all personnel to stand clear of crane load. A snapped cable, or a shifting or swinging load, can be extremely dangerous.

Never exceed the crane safe load limits.

### CAUTION

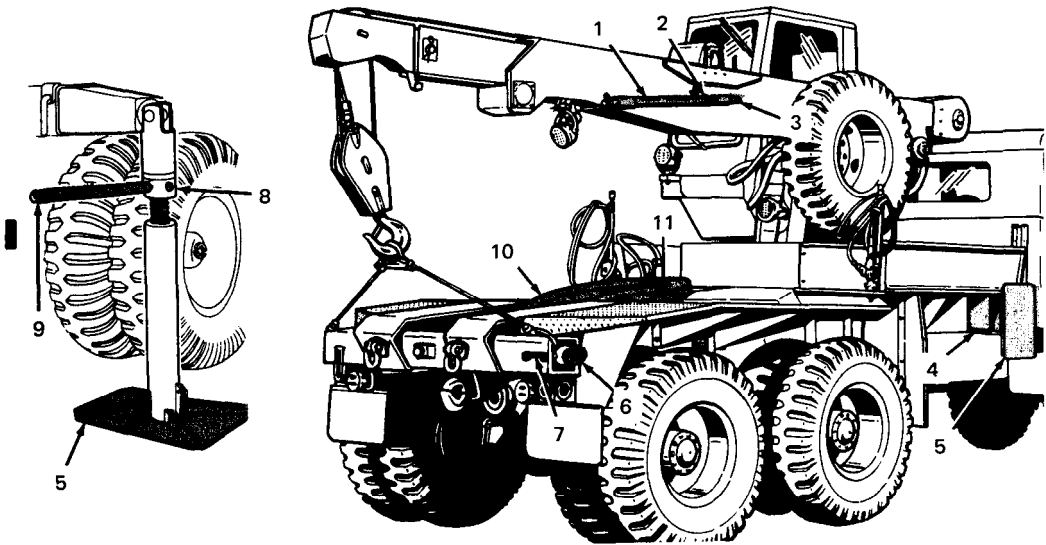
Do not jam the crane block into the boom head sheave when extending the boom with the crowd control lever (16). Pushing the crowd and hoist control levers at the same time will prevent this. The crane block will maintain a constant distance from the boom head.

Do not/attempt to move the boom up or down once the load is lifted. This may damage the boom hydraulic cylinder. If the boom height must be adjusted, lower load to ground or to a support, with the hoist cable, before using boom height lever (14).

(8) Secure cable hook (10) to load, pull back on hoist control lever (15) to raise load, and push or pull crowd (16) and swing (17) control levers, as necessary, to move load to desired position.

### NOTE

The maximum boom settlement (rate of uncontrolled descent) with a 10,000 pound load, an 11-foot 6-inch radius, and oil temperature at 100°F., should not exceed 3 inches in 6 minutes. Settling in excess of this amount indicates defective lift cylinders and/or control valve. Notify organizational maintenance.



*d. Positioning Crane Supports.*

(1) Rigging outriggers.

(a) Remove L-shaped retaining pins (4). Remove outrigger bases (5), and attach bases to ends of outriggers (6), using L-shaped pins.

(b) Remove the two L-shaped retaining pins (7) at end of outrigger frame tube. Pull each base (5) out until outrigger hits stop.

(c) Lower outriggers to vertical position and replace L-shaped retaining pins (7).

(d) Remove jack adjusting bar (9) from stowage and insert in jack adjusting screw hole (8).

(e) Use jack adjusting bar (9) to turn out adjusting screw until base (5) is in firm contact with ground.

**NOTE**

Outriggers are not required when using boom jacks.

(2) Rigging shipper braces.

(a) Remove L-shaped retaining pins (3) securing bottom end of braces (1) to sides of shipper.

(b) Allow braces (1) to swing down. Remove T-shaped retaining pins (2) to extend braces.

(c) Secure bottom end of braces to brace brackets (11) located on either side of fifth wheel (10) with L-shaped retaining pins (3).

(d) Aline retaining pin holes in braces and insert T-shaped retaining pins (2) through holes.

(e) Lower boom slightly to remove load from boom elevating mechanism.

(3) Rigging boom jacks.

(a) Fully lower and extend boom (14) to expose jack pin holes.

(b) Remove boom jacks (17), spreader bar (16) and boom jack pins (13) from stowage.

(c) Secure top end of boom jacks(17) to boom (14) with boom jack pins (13).

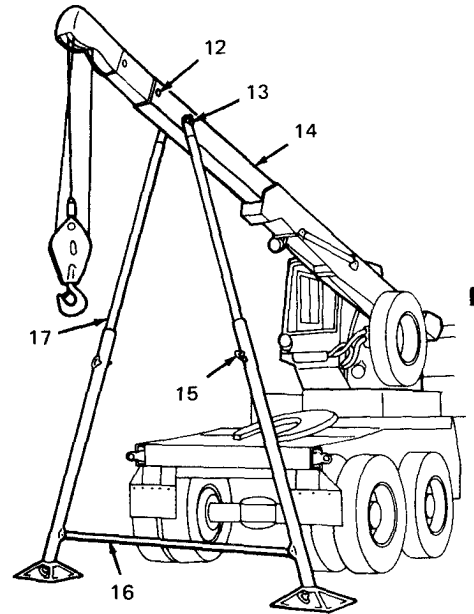
**NOTE**

The boom jack pins must go through the boom and boom extensions.

(d) Attach spreader bar (16) to brackets at lower end of boom jacks with T-shaped retaining pins.

(e) Raise boom (14) to aline holes in upper and lower boom jack sections and insert T-shaped retaining pins (15) in holes.

(f) Lower boom slightly to remove load from boom elevating mechanism.



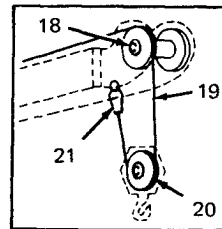
*e. Rigging Crane Lines.*

(1) Rigging two-part line.

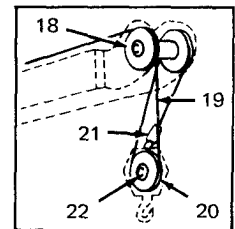
(a) Pass crane hoist cable (19) over one boom sheave (18) and down through boom end.

(b) pass crane hoist cable (19) around block sheave (20) and secure cable end to boom with cable anchor pin (21).

(c) Secure cable end to block (22) with cable anchor pin (21).



TWO-PART LINE



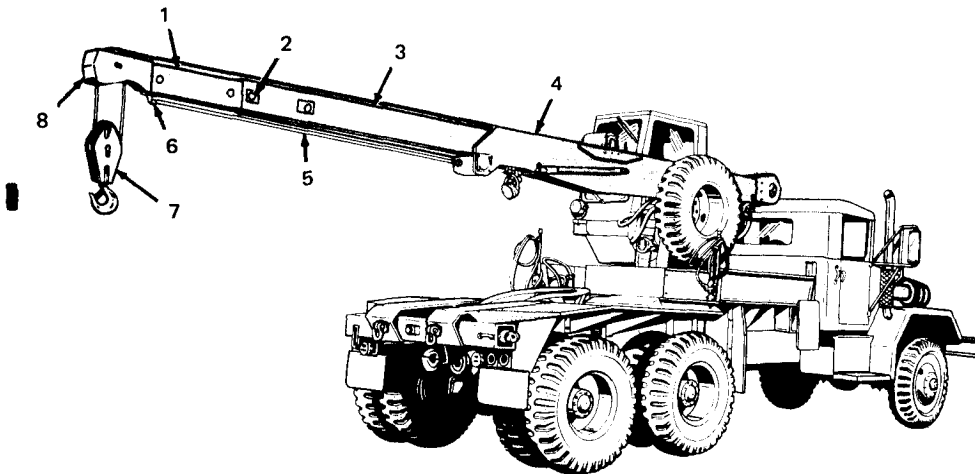
THREE-PART LINE

(2) Rigging three-part line.

(a). Pass crane hoist cable (19) over one boom sheave (18) and down through boom end.

(b) Pass crane hoist cable around block sheave (20), up over second boom sheave (18) and down through boom.

(c) Secure cable end to block (22) with cable anchor pin (21).



*f. Extending and Retracting Boom Extension.*

**CAUTION**

Extend and retract the boom extension carefully to avoid damage to the crane.

(1) Extending boom extension.

(a) Remove boom extension retaining pins (2) secure boom extension (1) inside boom (3).

(b) Extend boom (3) to its maximum length with crowd control lever.

(c) Remove three-piece boom extension pushout rod (5) from stowage and assemble.

(d) Place rod (5) between V-shaped brackets (6) at ends of shipper (4) and extension (1).

(e) Slowly retract boom (3) with crowd control lever to push out boom extension (1) until pin hole in boom (3) and extension (1) aline.

(f) Insert boom extension retaining pins (2) in holes and remove pushout rod (5). Take rod apart and stow.

(2) Retracting boom extension.

(a) Remove boom extension retaining pins (2).

(b) Use hoist control lever to slowly raise crane block (7) until it contacts lower part of boom sheave (8).

(c) Keep hoist control lever in UP position until crane cable pulls boom extension (1) back to its fully retracted position.

(d) Aline boom extension retaining holes with boom holes and insert boom extension retaining pins (2) in holes.

*g. Securing Crane for Travel.*

(1) Without fifth wheel trailer.

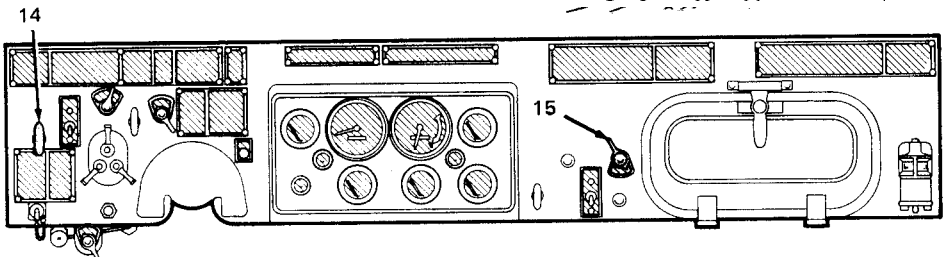
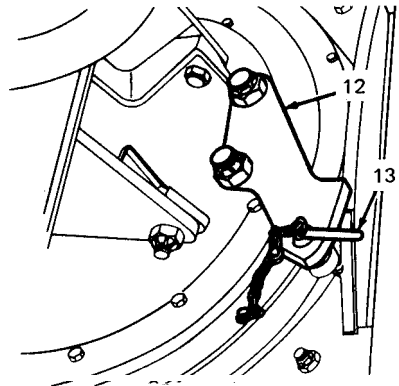
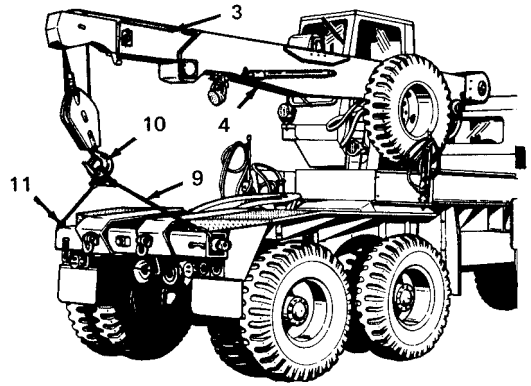
(a) Center shipper (4) and boom assembly (3) fully retracted and horizontal over rear of truck.

(b) Insert pivot post lockpin (13) in pivot post stop plate (12).

(c) Attach lifting sling (9) to cable hook (10) and to outrigger frame tube (11).

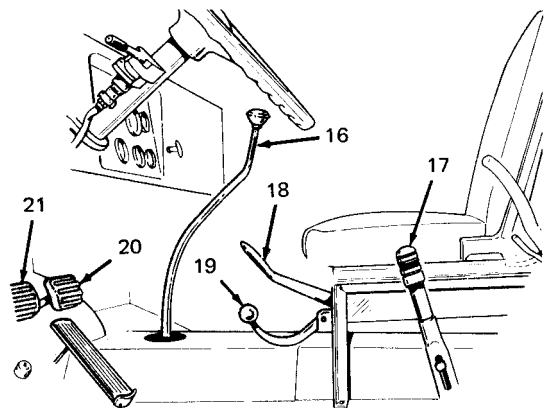
(d) Raise cable hook (10) to remove all slack in lifting sling (9).

(e) Unlock and push hand throttle control (14) in. Place floodlight control switch (15) in OFF position, if floodlights have been used.

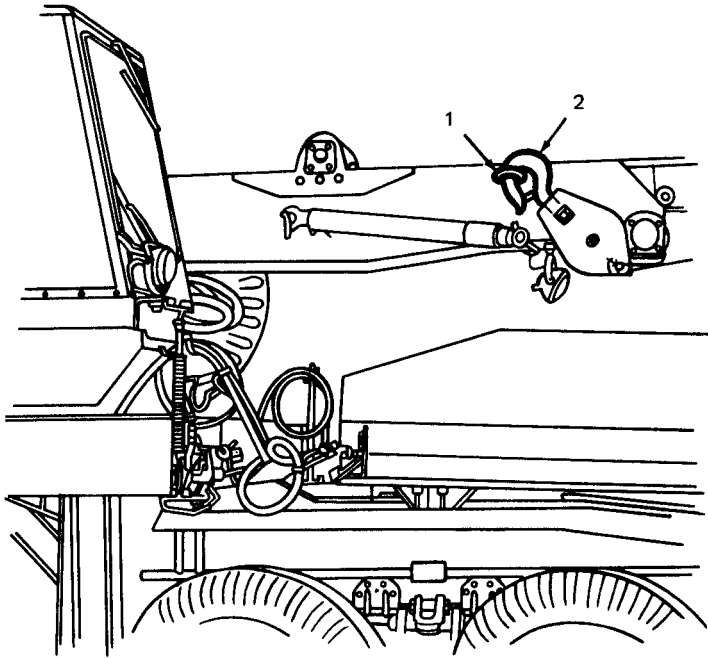


(f) Depress clutch pedal (21), move power takeoff lever (19) down to DISENGAGE position, move transfer shift lever (18) to HIGH or LOW position, place gearshift lever (16) in N (neutral) position, and release clutch pedal.

(g) Apply handbrake (17) and depress brake pedal (20) to release electric brake lock.



(h) Stow and secure outriggers, boom jacks, tie bar, boom base plates, and boom pushout rod, as necessary.



**(2) With fifth wheel trailer.**

(a) Proceed as in g(1) on previous page, except do not use lifting sling to secure cable hook.

(b) Insert hook (2) in eye(1) on crane shipper.

(c) Refer to para 2-18 for operation of fifth wheel assembly.

## 2-20. Operation of Expansible Van Trucks.

a. *General.* Expansible win trucks covered in this manual are equipped with a body designed for side expansion from 98 to 167 inches. The body is equipped with a heating and cooling system and provisions to connect to an external source of power. Some are equipped with a 3,000 pound capacity power lift gate.

### CAUTION

Do not walk on van roof. The roof is not designed to support any additional weight and will be damaged.

### NOTE

Whenever possible, select level ground for the operating site. If necessary, fill in low areas with used building material, sand, dirt, or other suitable materials.

Always block wheels of truck if selected site is on a glade, no matter how slight.

### b. *Leveling Van Body.*

(1) Remove four leveling jacks (3), eight jack spikes (5), four foot plates (4), and four jack handles (2) from stowage compartment at rear of truck.

(2) Attach foot plate (4) to lower end of each leveling jack (3).

(3) Adjust leveling jacks to desired length by removing pin (6) and sliding jack ends apart. Aline jack pin bores and insert pin.

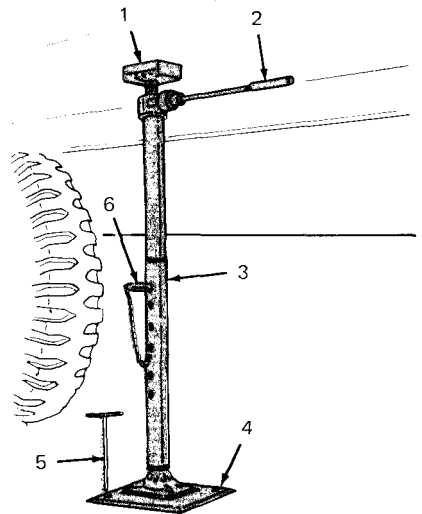
(4) Insert upper end of leveling jacks (3) in jack pockets (1) at four corners of van body.

(5) Insert jack handles (2) in jack adjusting screw hole in each leveling jack.

(6) Use jack handle (2) to turn out adjusting screw until each foot plate (4) is in firm contact with ground.

(7) Be sure that each jack is in a vertical position and adjust if necessary; then anchor each foot plate with two jack spikes (5).

(8) Operate each leveling jack, as required, until van floor is level.



### NOTE

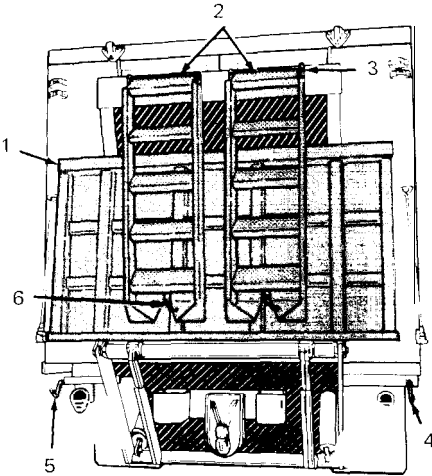
Do not attempt to raise van clear of ground with leveling jacks.

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c. Expanding Van Body.

**NOTE**

On models equipped with lift gate, the lift gate must be released and lowered before the van body can be expanded. For operation of vans not equipped with lift gate, proceed to step (7) on next page.



(1) Remove ladders (2) from rear of van as follows:

(a) Remove eyebolts (6) securing ladders to lift gate (1).

(b) Lift ladders (2) up and out, to disengage ladders from books (3).

**NOTE**

Always remove ladders before lowering lift gate, to prevent damage to ladders.

**CAUTION**

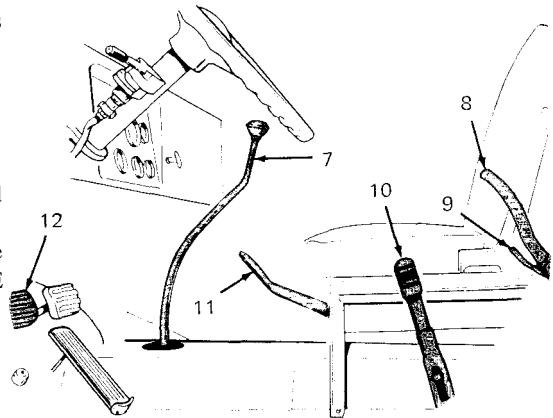
When using PTO, place transmission selector lever (7) only in N (neutral). Any other gear position could damage transfer bearings.

(2) Prepare for lift gate operation as follows:

(a) Apply handbrake (10), depress clutch pedal (12) and start engine.

(b) Place transfer shift lever (11) and transmission shift lever (7) in N (neutral) positions. Release safety lock (c) and move power takeoff control lever (8) to ENGAGE position. Release clutch pedal.

(c) Adjust engine speed to 1,200 rpm with band throttle.



(3) Remove lift gate control lever handles from stowage compartment at rear of truck and install on control levers at van rear.

(4) Move opening and closing control lever (4) toward rear of truck. The lift gate should start to open and stop automatically when fully open.

(5) Move lowering and elevating control lever (5) toward the front of truck momentarily, to release safety lock, then toward rear. The lift gate should start to lower and stop automatically at ground level.



(6) Stop engine, move power takeoff control lever (8) to DISENGAGE position and set the safety lock (9). Move transfer shift lever (11) to HIGH position.

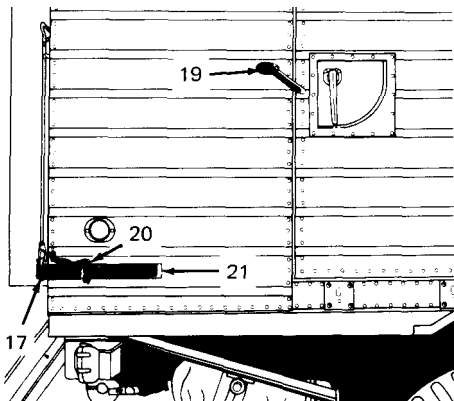
(7) On models without lift gate, release ladder toggle clamps (15) and remove ladders (2) from the ladder racks (13).

(8) On all models, install ladder (2) in slots provided at rear of truck.

**NOTE**

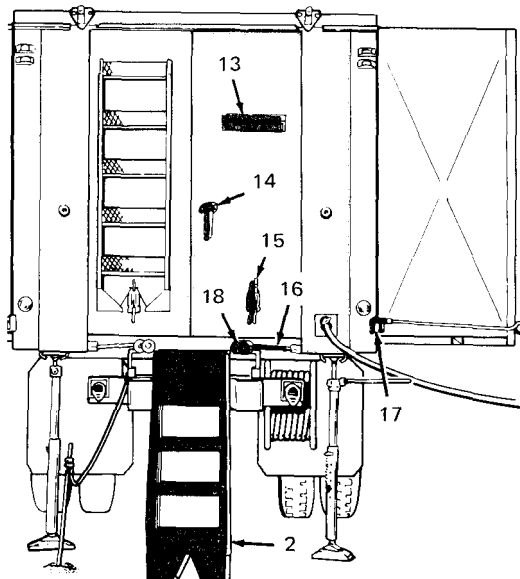
Since the procedure for expanding the van body is identical for both sides, the following instructions will be limited to one side. Repeat the procedure to expand opposite side.

(9) Remove lock pins (20) from lock handles and pull handles out from retaining brackets (17).



(11) Turn side locks (19)(marked A), at front and rear, one-quarter turn counterclockwise with side panel lock wrench (22).

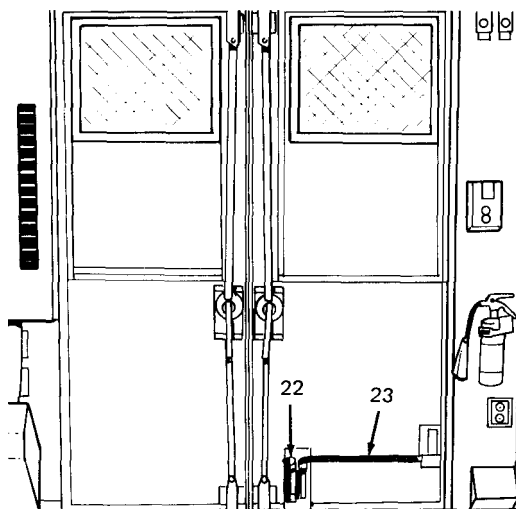
(12) Release ratchets (16) (marked B) located below rear doors by pushing locking plunger down and positioning wrench (23) on drive shaft (18). Turn left drive shaft counterclockwise to expand left side panel. Turn right drive shaft clockwise to expand right side panel. Crank both sides full out.



(10) Rotate rear door lock handle (14) 90° counterclockwise to open door. Remove side panel lock wrench (22) and drive shaft wrench (23) from brackets on inside of left rear door.

**NOTE**

On models equipped with travel lock instead of lock handles, use the side panel lock wrench to unlock the safety bolt at each corner and swing the bolt out of the slotted plate.



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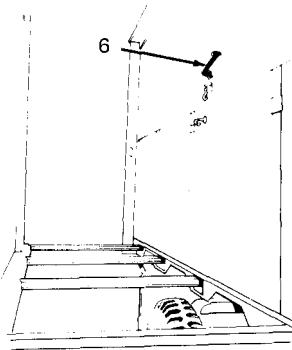
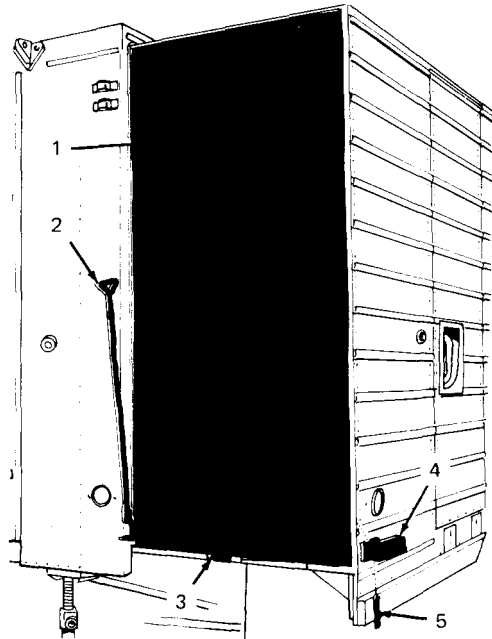
(13) Swing end panel doors (1) open and use holders (3) to hold doors in open position.

**WARNING**

Check the counterbalance mechanism (9) to make sure the cable is not damaged. Serious injury can result if the cable is broken.

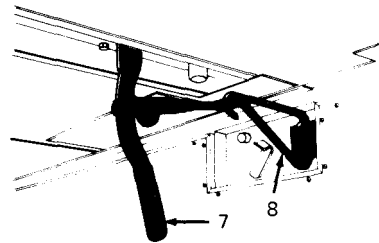
Do not open hinged roof and side panels from outside of van.

(14) Turn roof lock handle (6) counterclockwise to release hinged roof.

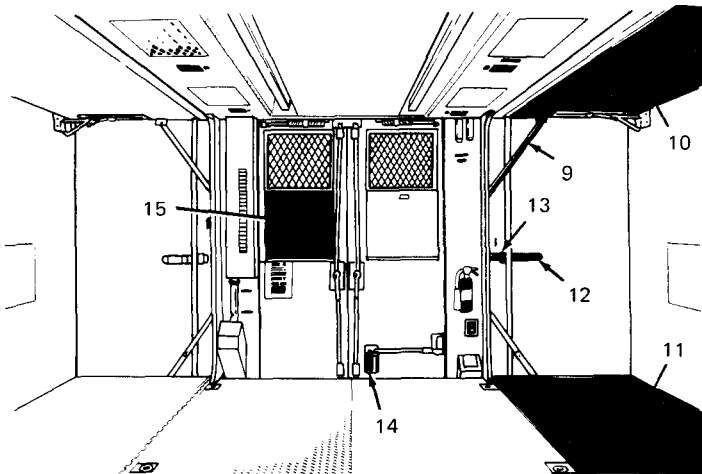


(15) From inside van, push hinged roof (10) and floor (11) panels outward. As the roof and floor panels open, stand on floor panel (11) and push roof panel (10) up until fully open.

(16) Push upward on roof panel (10); swing three swivel hooks (8) out from recess 90°, and let hooks support weight of, roof panel.



(17) Remove hook holders (3) from both end panel doors (1) and replace in clips.



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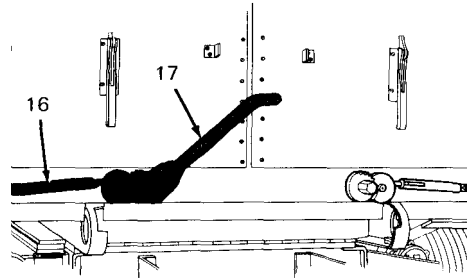
(18) Push upward on roof panel (10) and swing both end panel doors (1) closed so that all seals fit snugly.

(19) Use large end of side panel lock wrench (14) to fully extend front and rear sliding bolts (12) so they engage in door guide latch (13).

**CAUTION**

Maintain alinement of end panel doors with corner posts so that doors and corner posts are parallel when closing side panels.

(20) Set locking plunger (16), turn drive shaft wrench (17) counterclockwise to crank right side panel in (clockwise to crank left side in) enough to permit attaching toggle clamps (7) to swivel hooks (8). Do not attempt to close clamps yet.



**NOTE**

Lift edge of roof panel up near end panel doors to ensure seal alinement. Partially close clamps to draw side panel tight against roof panel.

(21) Continue to crank side panel in, until lower edge of panel is tight against edge of floor.

(22) Close toggle clamps (7) to pull upper edge of side panel tight against edge of roof panel (10).

(23) Tramp heavily on floor to relieve binding and aid engagement of roof panel and side panel guide pins.

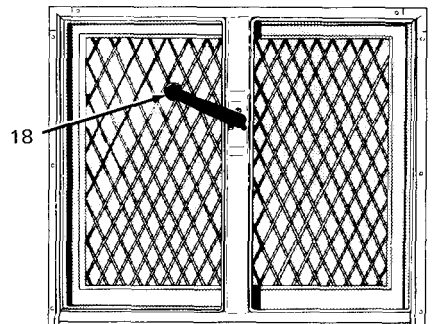
**CAUTION**

Make sure that sliding bolts (12) are fully extended and engaged in door guide latch (13).

(24) Stand on drive shaft wrench handle to force side panel into closer contact with edges of roof and floor panels.

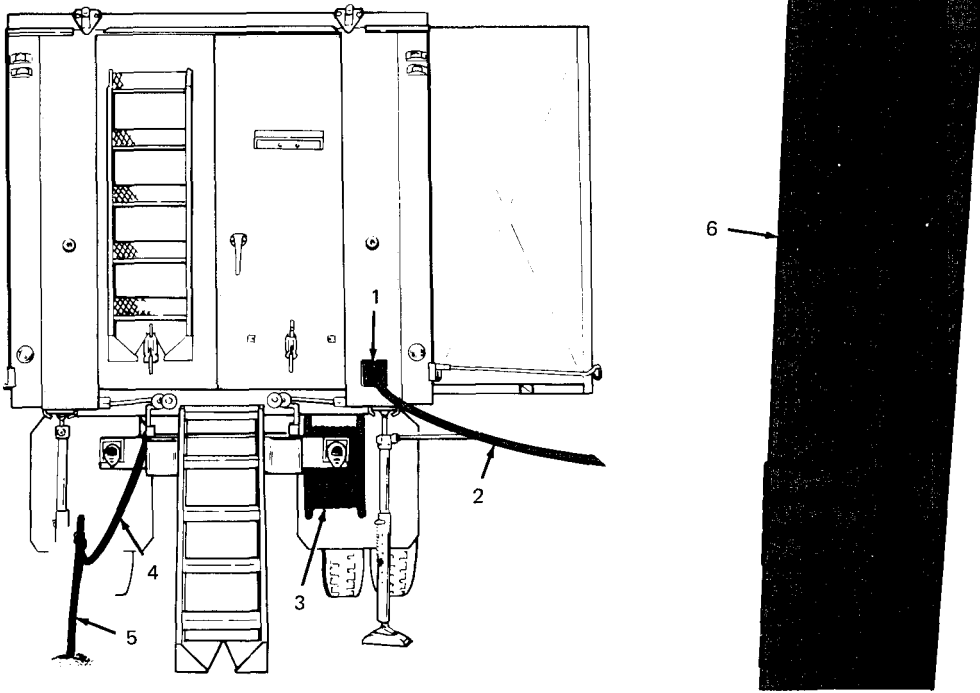
(25) On models with lockrods, remove front and rear side lockrods (2) from retaining clips and swing down to engage end of lock handle (4). Push lock handles closed and secure with chained pins (5).

(26) Lower window blackout panels (15) and open side windows with window regulator (18).



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d. *Outside Power Source Connection.*



**WARNING**

Failure to install ground spike when setting up van may cause severe electrical shock and personnel injury.

(1) Remove ground spike (5) and cable (4) from rear stowage compartment and drive ground spike (5) into ground near left tail light.

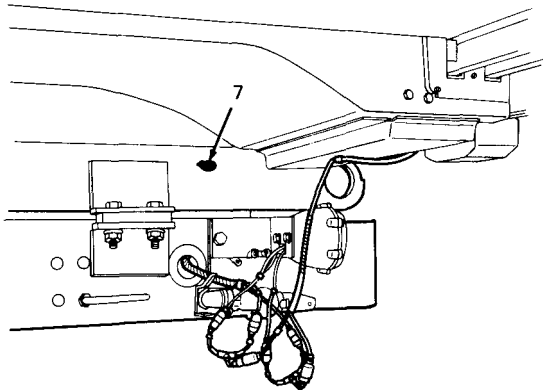
(2) Connect free end of ground cable (4) to ground spike connector (7), above tail light.

(3) Place 208-volt main switch and all 110-volt circuit breaker switches on circuit breaker switch panel (6) in OFF position.

(4) Remove canvas boot from power cable reel (3), unlock reel and unreel power cable (2).

(5) Connect male end of power cable (2) to outside power source.

(6) Connect female end of power cable to entrance receptacle (1).

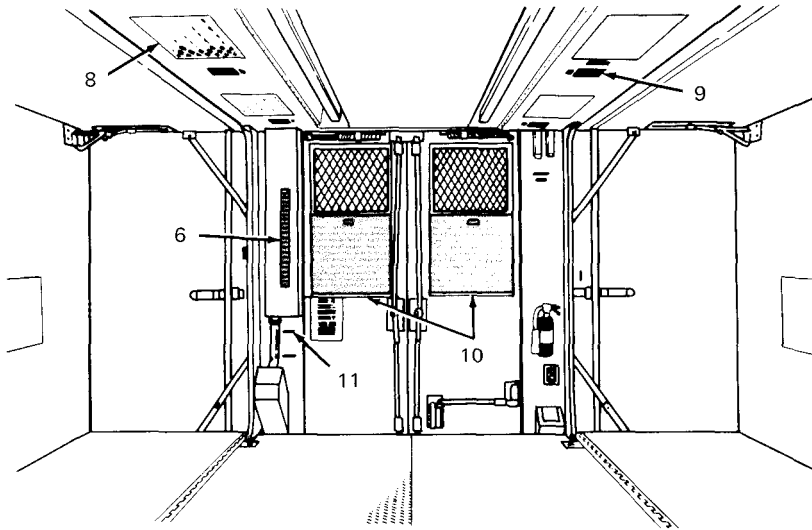


(7) Energize auxiliary power supply, if used as outside power source.

*e. Ceiling Lights and Service Receptacle.*

**NOTE**

Refer to instruction plate on circuit breaker switch panel for identification of each circuit breaker.



(1) Normal light operation:

(a) Place the 208-volt main circuit breaker, on switch panel (6), in ON position

(b) Place the main blackout circuit switch (11) in OFF position.

(c) Place all service receptacle and blackout switches (9) in OFF position.

(d) At main switch panel (6), place the ceiling lights and service receptacle 120-volt circuit breaker switches in ON position.

(e) Operate individual ceiling light switch (8) as needed.

(f) When operation is completed, place ceiling light, service receptacle, and 208-volt main circuit breakers in OFF position.

(2) Blackout light operation.

(a) Raise all side and rear window blackout panels (10)

(b) At main switch panel, place 208-volt main circuit breaker in ON position.

(c) Place main blackout circuit switch (11) in ON position.

(d) At main switch panel, place ceiling light, blackout circuit and service receptacle circuit breakers in ON position,

(f) Operate individual ceiling light switch (1), as needed.

**NOTE**

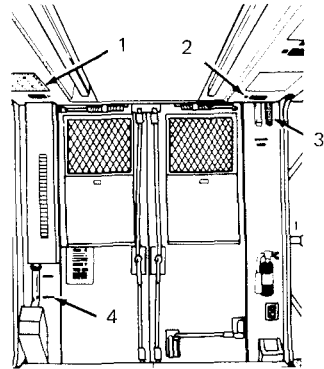
If power is needed at any service receptacle when doors are opened, place the individual service receptacle switch (2) in OFF position.

(g) When operation is completed, place ceiling light, service receptacle, blackout circuit and main 208-volt circuit breakers in OFF position.

(3) Emergency light operation.

(a) At main switch panel, place 208-volt main and emergency light circuit breakers in ON position.

(b) Place emergency light switch (4) in ON or OFF position as desired.



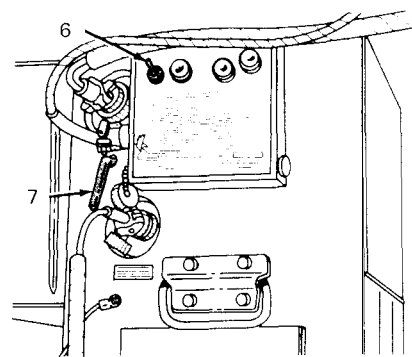
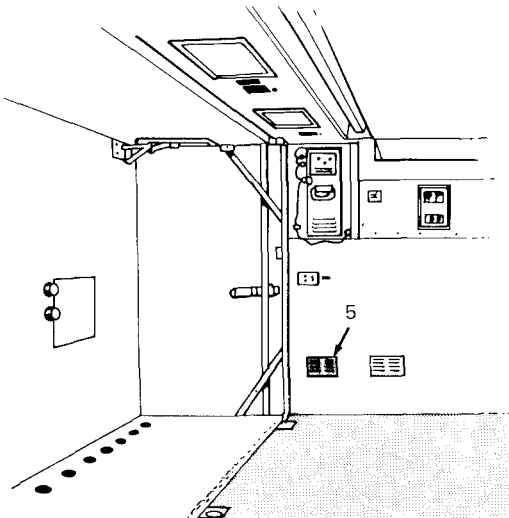
(c) When operation is completed, place 208-volt main and emergency light circuit breakers in OFF position.

f. *Heater Operation.*

(1) Starting heaters:

(a) At main switch panel, place 208-volt main and heater circuit breakers in ON position.

(b) Set heater thermostats (3) to desired temperature.



**NOTE**

Heaters will not produce heat unless thermostat settings are higher than temperature in the van.

(c) Set heater control switches (6) to HEATER or FAN position as desired.

(d) Set louver operating levers (7) to vary proportion of fresh air and recirculated air as desired.

(e) Open heater registers (5) to warm air in van quickly. Close registers when desired temperature is reached

(2) Stopping heaters:

(1) Place heater control switches (6) in OFF position.

(b) At main switch panel, after heater purging cycle is complete, place heater and 208-volt main circuit breakers in OFF position.

**CAUTION**

Do not turn circuit breakers OFF until heater purging cycle is complete.

g. Air Conditioner Operation.

(1) Starting air conditional:

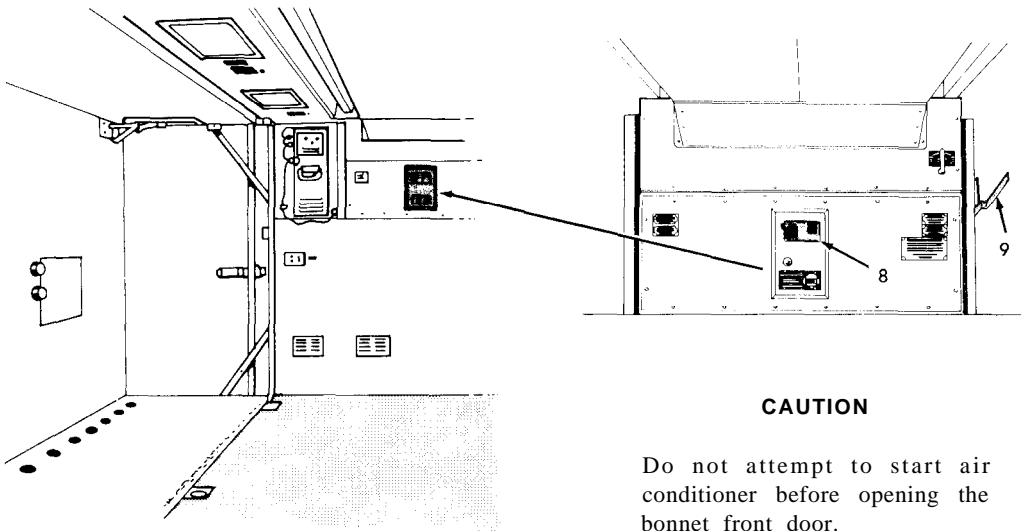
(a) At main switch panel, place 208-volt main and air conditioner circuit breakers in ON position.

(b) Set air conditioner thermostat (8) to desired temperature.

**NOTE**

The air conditioner will not cool unless thermostat setting is below temperature in the van.

(c) Open air conditioner bonnet front door with control handles (9).



**CAUTION**

Do not attempt to start air conditioner before opening the bonnet front door.

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(d) Place air conditioner selector switch (3) in COOL or FAN position as desired.

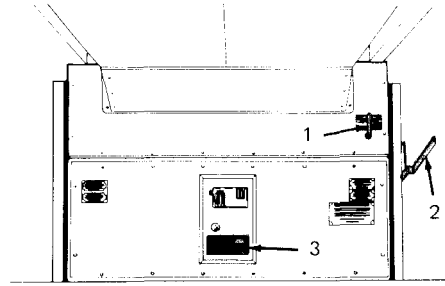
(e) Adjust damper control (1) to vary proportion of fresh air and recirculated air as desired.

(2) Stopping air conditioner:

(a) Place air conditioner selector switch (3) in OFF position.

(b) At main switch panel, place air conditioner and 208-volt main circuit breakers in OFF position.

(c) Close air conditioner bonnet front door with control handles (2).

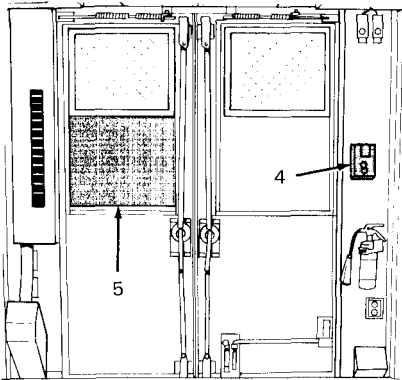


h. *Lift Gate Operation with Van Expanded.*

**CAUTION**

Do not operate lift gate by engine power and electric auxiliary pump at the same time.

(1) Place lift gate auxiliary pump switch (4) in ON position.



**NOTE**

Lift gate must be lowered by engine power, and van doors opened, to gain access to electric pump switch. When van is retracted for travel and doors are closed, the lift gate must be raised by engine power. Refer to para 2-20c as required.





(2) To raise lift gate (6) move lowering and elevating lever (9) towards front of truck. The lift gate may be stopped at any desired position by moving lever to neutral. When lift gate reaches its full up position, the lever will return to neutral and gate is automatically locked in position.

(3) To lower lift gate from full up position, move lowering and elevating lever (9) toward front of truck momentarily to release safety lock. then toward rear. The lift gate can be stopped at any desired position by moving lever to neutral. The lift gate will stop automatically at ground level.

(4) Observe the following precautions:

(a) Do not operate lift gate by engine power and electric auxiliary pump at the same time.

(b) Do not elevate gate to closed position when van rear doors are open

(c) Do not overload lift gate (max. 3,000 lb.).

(d) Distribute load evenly on gate.

(e) Do not carry load on gate while in transit.

(f) Always retract g22te when traveling.

i. *Retracting Van Body.*

(1) Remove power cable (11), rewind on cable reel (12) and cover with canvas boot.

(2) Remove and stow ground cable (13) and ground spike (14).

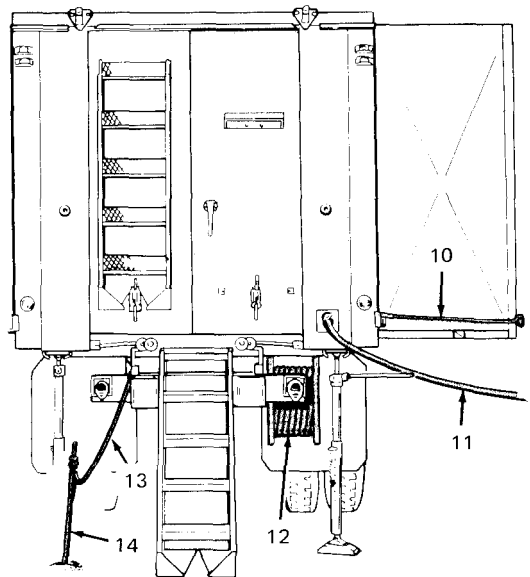
(3) Close side windows and raise blackout panels (5).

**NOTE**

Windows cannot be closed after van body is retracted.

(4) Relocate all gear and equipment positioned on hinged section of van floor to center of floor. Remove any ladders located on sides.

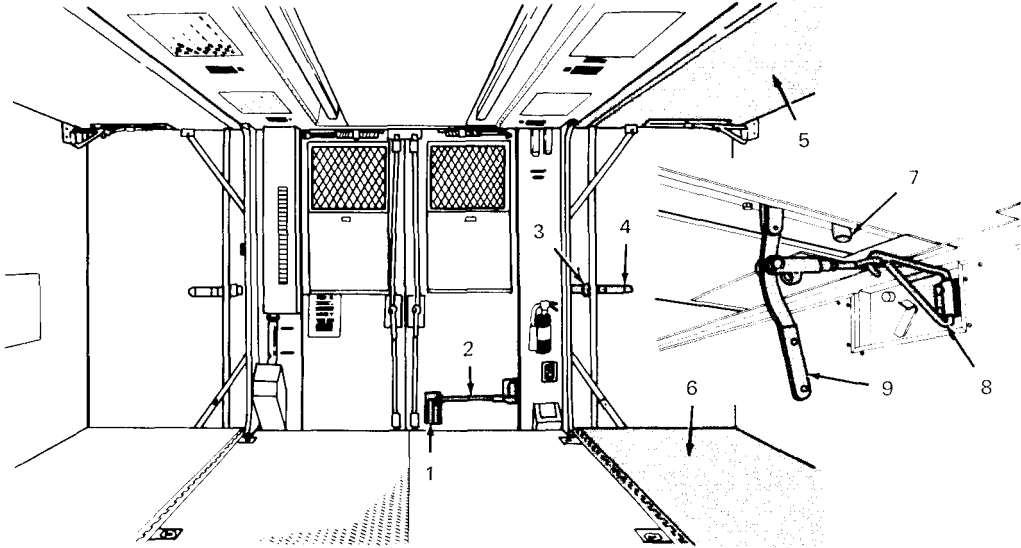
(5) Remove side lockpins, open side locks (8) and disengage lockrods (10) from side locks. Swing lockrods up and place in retaining clip (7).



NOTE

Since the procedure for retracting the van body is identical for both sides, the following instructions will be limited to one side. Repeat the procedure to retract opposite side.

(6) Retract front and rear sliding bolts (4) from door guide latches (3).



(7) **Release and unhook toggle clamps (9) from swivel hooks (8). Engage eye of each toggle clamp with anchor post (7) and close clamp.**

NOTE

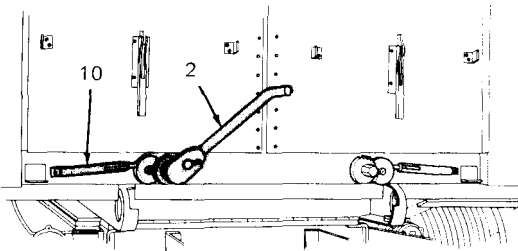
Do not plain swivel hooks in stowed position. They will be used to support the roof panel in the next steps.

(8) Release locking plunger (10) and crank side panel out until edge of hinged roof (5) is supported on ends of swivel hooks (8).

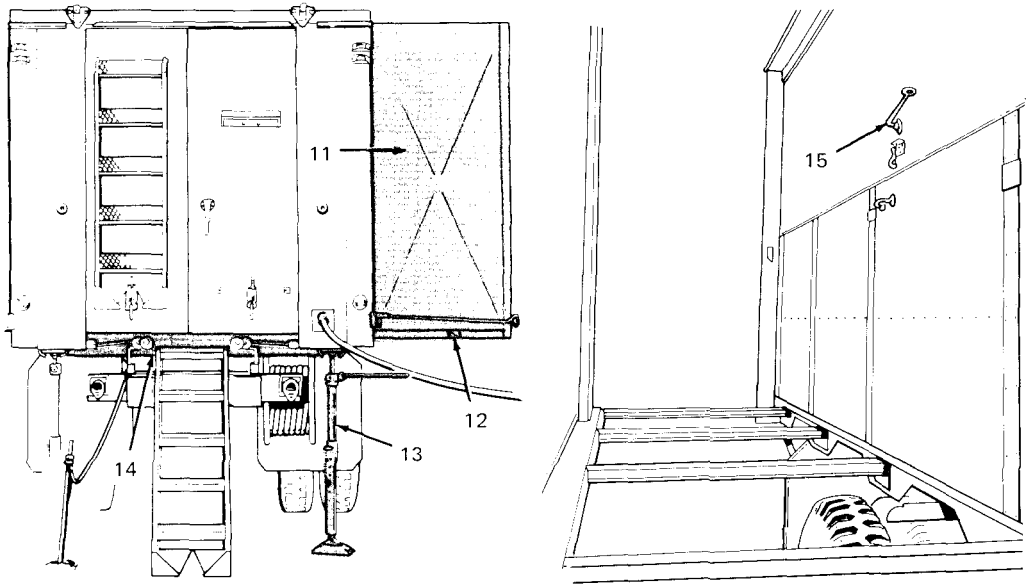
CAUTION

Exercise care to prevent damage to seals on roof edge.

(9) Push upward on hinged roof corners, swing front and rear end panel doors (11) open and hold in position with hook holders (12).



(10) Push upward on hinged roof panel (5) and swing swivel hooks (8) into niches. Lower roof panel and check that swivel hooks are securely retained in spring clips

**NOTE**

When the hinged roof panel is being lowered, the counterbalance mechanism will swing the hinged floor panel up.

(11) Align and fully close hinged floor (6) and roof (5) panels. Turn roof lock handle (15) to secure roof and floor panels in place.

(12) Remove hook holders (12) from end panel doors (11) and swing doors closed. Stow hook holders in retaining clips.

(13) Crank side panels to fully closed position. Remove drive shaft wrench (2).

(14) Use lock wrench (1) and turn side locks (16) clockwise to lock panels.

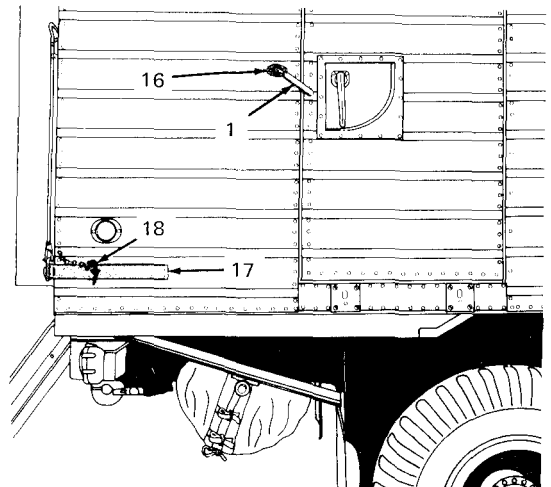
(15) Engage end of lock handle (17) into retaining bracket, close lock, and secure handle with chained pin (18).

**NOTE**

For early production models, swing the safety bolt into the slotted plate and use lock wrench (1) to lock safety bolt.

(16) Lower leveling jacks (13), remove jacks, foot plates, and ground spikes.

(17) Stow side panel lock wrench, and drive shaft wrench, on inside of left door. Stow jacks, foot plates and ground spikes in rear stowage compartment (14).



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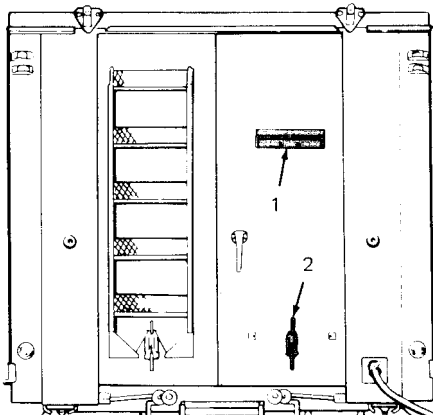
(18) Close and secure rear doors.

**CAUTION**

On models equipped with lift gate, the gate must be fully up and in the closed position before stowing ladders. Refer to para 2-20c for lift gate operation with engine power.

(19) Stow ladders on ladder racks (1) and secure with toggle clamp (2).

(20) Stow all tools and equipment used during operation.



**2-21. Operation of Medium Wrecker Trucks.**

a. *General.* Medium wrecker trucks covered in this manual are equipped with a hydraulically operated, engine driven crane and a rear winch. The crane is capable of 360° rotation and approximately 45° elevation. The crane boom is extendable from 10 to 18 feet. Maximum lifting capacity with outriggers installed is 10,000 pounds. Refer to para 2-22 for description and operation of rear winch.

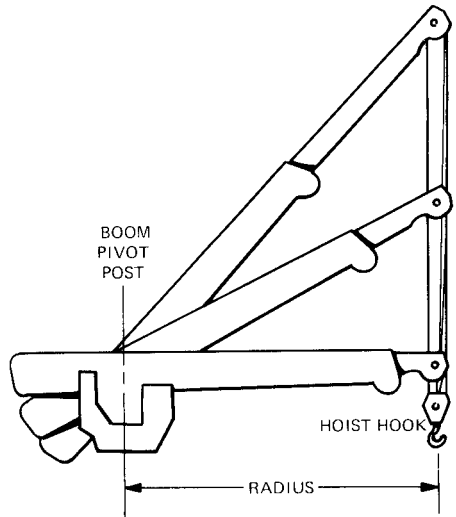
**NOTE**

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

b. *Positioning Wrecker.* Position the wrecker on firm, level ground whenever possible. Determine which type of lifting is necessary (i.e., rear lift, lift and swing, heavy rear lift or a heavy side lift) and position the wrecker accordingly. For heavy loads, the wrecker should be positioned for a direct rear lift with the least amount of boom extension.

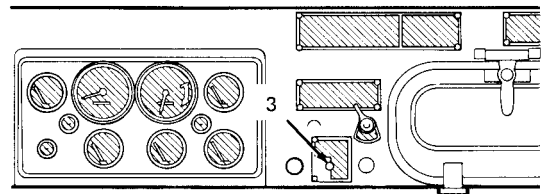
**NOTE**

Refer to the safe load data plate located near the crane controls. Select the lifting method (with or without outriggers) and crane radius that will permit crane operation within safe limits while lifting the load. Position the wrecker close enough to the load to operate the crane at the radius you have selected.



c. *Crane Operation.*

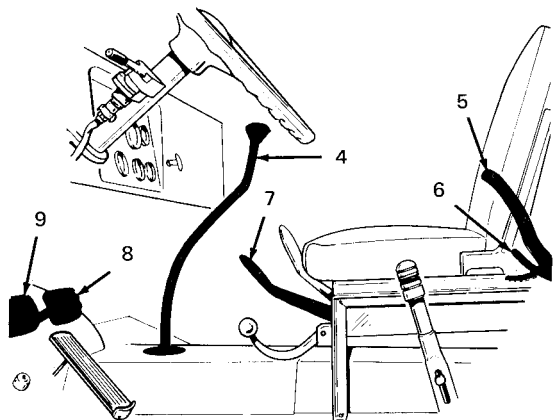
(1) To set electric brake lock, depress brake pedal (8), push inlock switch button (3), and release brake pedal.



**NOTE**

Do not use electric brake lock when parking for a long period of time.

(2) Start the engine, depress clutch pedal (9) and place gearshift lever (4) in 5 (fifth) for M62 or 4 (fourth) for M543. Place transfer shift lever (7) in N (neutral) position, release safety lock (6) and move divider control lever (5) to ENGAGE position. Release clutch pedal.

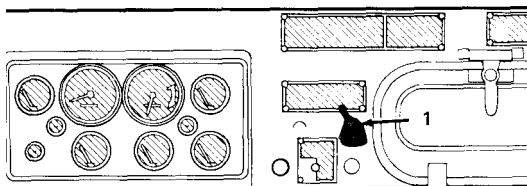


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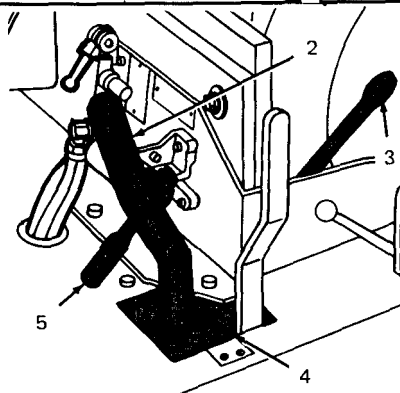
**NOTE**

When smoother or slower operation is desired, place the transmission selector lever in 3rd or 4th gear position.

(3) For operation of floodlights, place floodlight master control switch (1) in ON position. Each floodlight carries a separate switch for independent use.



(4) At rear of truck, move engine clutch control lever (5) to DISENGAGE position, flip lock plate (4) on M62, or remove lock pin (6) on M543, to release crane drive control lever (2).

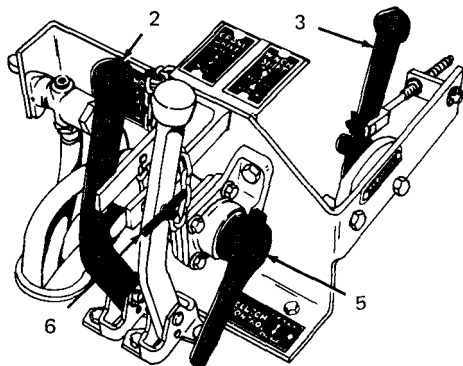


(5) Move crane drive control lever (2) to ENGAGE position. Move clutch control lever (5) to ENGAGE position.

(6) Slowly move throttle control lever (3) to full OPEN position. Adjusted engine speed should be 1,600 plus/minus 50 rpm (no load).

**NOTE**

When smoother crane operation is required for handling missiles and rockets weighing 8,000 pounds or less, use a three-part line (see para 2-21e) at 1250 engine rpm. For smoother or slower operation, use 3rd or 4th transmission gear.

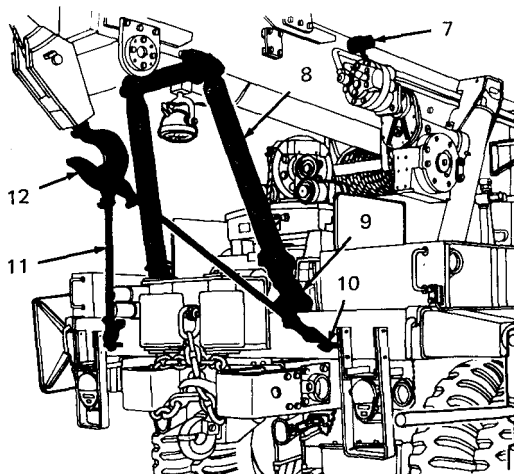


**CAUTION**

Do not attempt to operate crane at low engine speeds. The hydraulic pump will not provide enough pressure at slow shaft speeds for proper operation.

(7) Release tension on lifting sling (11) by pushing hoist control lever (14) forward.

(8) Remove cable hook (12) from lifting sling (11) and remove sling from outrigger frame tube eyes (10).



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(9) When a lift and swing operation is required, remove two L-shaped retaining pins (9) securing shipper braces (8) to brackets. Swing braces up and secure to shipper bracket (7) with L-shaped retaining pins.

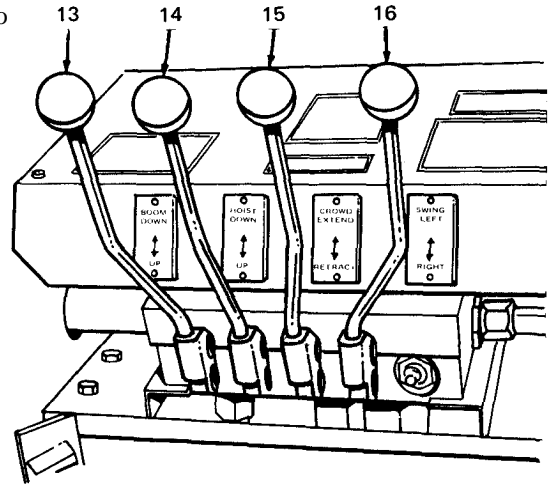
### **CAUTION**

Do not pay out cable after hook has reached the load or ground. Continued drum rotation will loosen cable on drum.

(10) Push hoist control lever (14) forward to unwind cable and lower hook to ground or load.

### **Warning**

During crane operation, direct all personnel to stand clear of crane load. A snapped cable, or a shifting or swinging load, can be extremely dangerous. Never exceed the safe load limits.



### **CAUTION**

When extending the boom with the crowd control lever (15), do not jam the crane block into the boom head sheave. Pushing the crowd and hoist (14) control levers at the same time will prevent this. This will keep the crane block a constant distance from the boom head.

Once the load has been lifted, do not attempt to move the boom up or down, as this may damage the boom hydraulic cylinder. If the boom height must be adjusted, lower load to ground or to a support with the hoist cable before adjusting boom height.

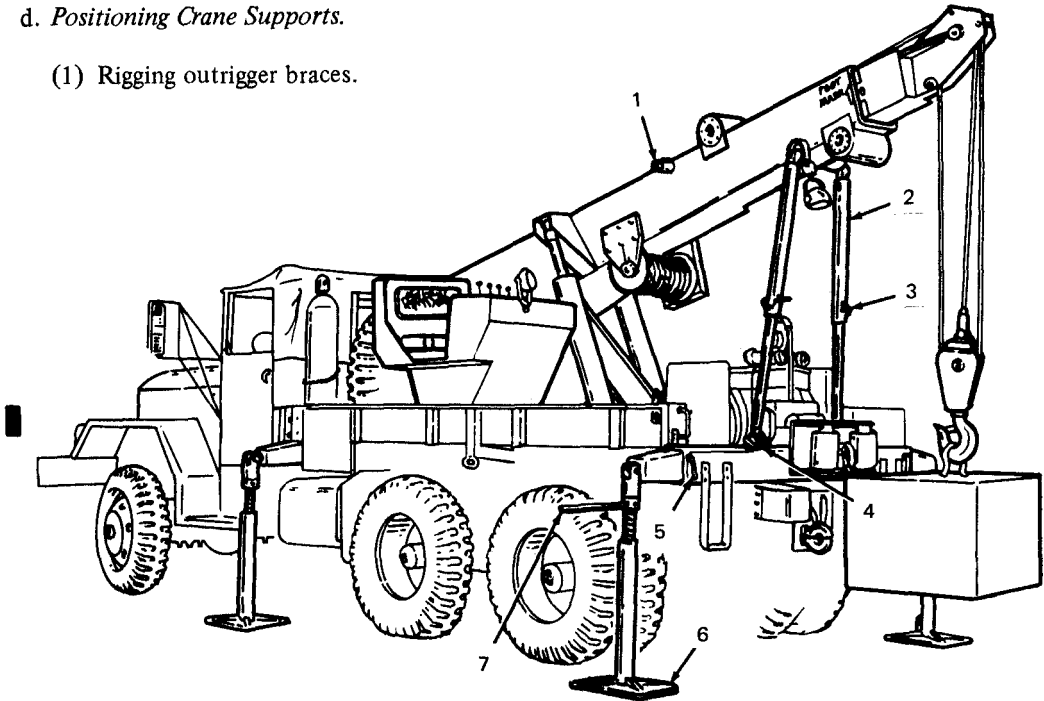
(11) Secure cable hook (12) to load, pull back on hoist control lever (14) to raise load, and push or pull crowd (15) and swing (16) control levers as necessary to move load to desired position.

### **NOTE**

The maximum boom settlement (rate of uncontrolled descent) with a 10,000 pound load, a 11-foot 6-inch radius, and oil temperature at 100° F., should not exceed 3 inches in 6 minutes. Settling in excess of this amount indicates defective lift cylinders and/or control valve. Notify organizational maintenance.

d. Positioning Crane Supports.

(1) Rigging outrigger braces.



(a) Remove L-shaped retaining pin (5) at end of frame tube. Pull each base (6) out until outrigger leg hits stop.

(b) Lower outriggers to vertical position and replace L-shaped retaining pin (5).

(c) Remove jack adjusting bar (7) from stowage and insert in jack adjusting screw hole.

(d) Use jack adjusting bar (7) to turn out adjusting screw until base (6) is in firm contact with ground.

**NOTE**

Outriggers are not required when using boom jacks.

(2) Rigging shipper braces.

(a) Center shipper over rear of truck.

(b) Remove retaining pins securing bottom end of shipper braces (2) to shipper bracket (1).

(c) Allow shipper braces (2) to swing down. Remove T-shaped retaining pins (3) to extend braces.

(d) Secure bottom end of braces to brace brackets (4) with L-shaped retainer pins.



(e) Aline retaining pin holes in braces and insert T-shaped retaining pins (3) in holes.

(f) Lower boom slightly to remove load from boom elevating mechanism.

(3) Rigging boom jacks.

(a) Fully lower and extend boom (8) to expose jack pin holes.

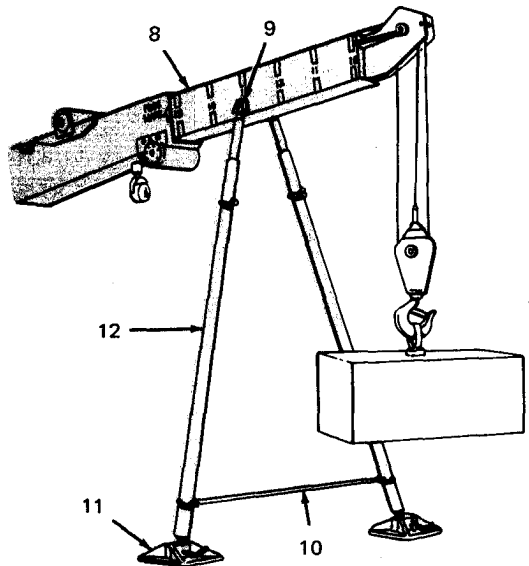
(b) Remove boom jacks (12) spreader bar (10), base plates (11) and boom jack pins (9) from stowage.

(c) Secure top end of boom jacks (12) to boom (8) with boom jack pins (9).

(d) Attach spreader bar (10) to brackets at lower ends of boom jacks with T-shaped retaining pins.

(e) Raise boom (8) to aline holes in upper and lower boom jack (12) sections and insert T-shaped retaining pins in holes.

(f) Install base plates (11) on jacks, and lower boom slightly to relieve load from elevating mechanism.

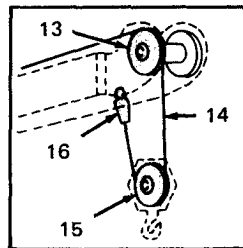


*e. Rigging Crane Lines.*

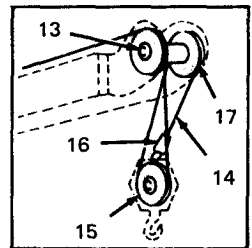
(1) Rigging two-part line.

(a) Pass crane hoist cable (14) over one boom sheave (13) and down through boom end.

(b) Pass crane hoist cable (14) around block sheave (15) and secure cable end to boom with cable anchor pin (16).



TWO.PART LINE



THREE.PART LINE

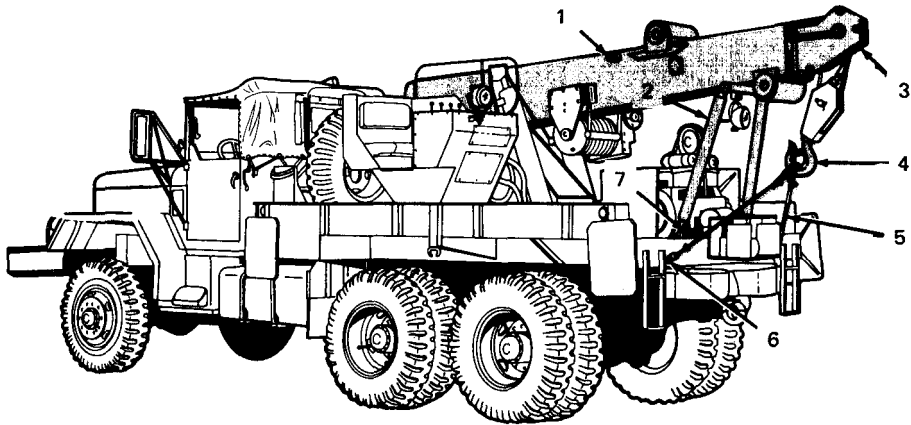
(2) Rigging three-part line.

(a) Pass crane hoist cable (14) over one boom sheave (13) and down through boom end.

(b) Pass crane hoist cable (14) around block sheave (15), up over second boom sheave (17) and down through boom end.

(c) Secure cable end to block with cable anchor pin (16).

f. Securing Crane for Travel.



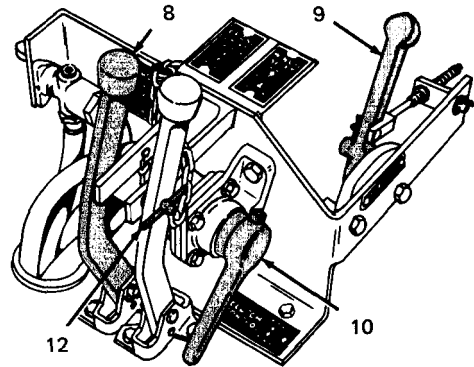
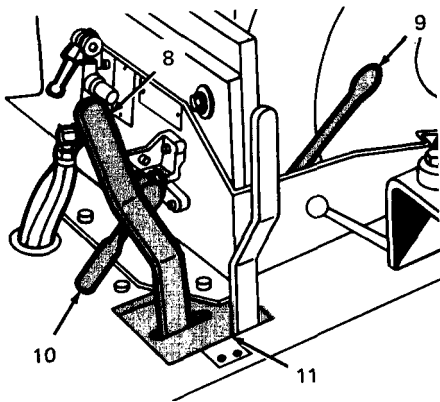
(1) Retract and lower boom (3) fully. Center shipper over rear of truck.

(2) Remove retainer pins securing bottom ends of shipper braces (2) to shipper brackets (1).

(3) Allow shipper braces (2) to swing down and secure bottom end to brace brackets (7) with L-shaped retaining pins.

(4) Attach lifting sling (5) to cable hook (4) and to frame hook eyes (6).

(5) Raise cable hook (4) to remove all slack from sling.



(6) Move throttle control lever (9) to CLOSED position.

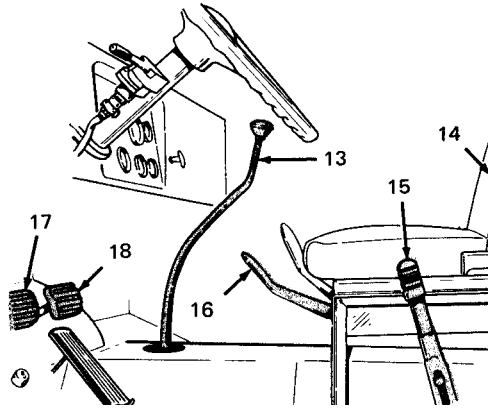
(7) Move clutch control lever (10) to DISENGAGE position. Move crane drive control lever (8) to DISENGAGE position.

(8) Set the lock plate (11) on M62 or install lock pin (12) on M543 to lock crane drive control lever in DISENGAGE position.

(9) Depress clutch pedal (17), move power divider control lever (14) to DISENGAGE position and set the lock.

(10) Move gearshift lever (13) to N (neutral) position, transfer shift lever (16) to HIGH or LOW position and release clutch pedal.

(11) Depress brake pedal (18) to release electric brake lock and apply handbrake (15).



(12) Stow and secure outriggers, boom jacks, spreader bar, and boom jack base plates, as necessary.

2-22. Operation of Rear Winch.

a. *General.* Medium wrecker trucks covered in this manual are equipped with a worm-gear, horizontal-drum winch mounted on the rear of truck. The winch is equipped with an automatic safety brake to hold a load when the winch shift lever is being used, a level wind, and a pneumatically controlled cable tensioner. Maximum rated pull for the winch is 45,000 pounds.

**WARNING**

Always wear leather gloves when handling winch cable. Never allow cable to run through hands. During winch operation or when stopping winch, direct all personnel to stand clear of winch and load. A snapped cable or shifting load can be dangerous. Insure that wrecker hook has serviceable safety closure latch installed.

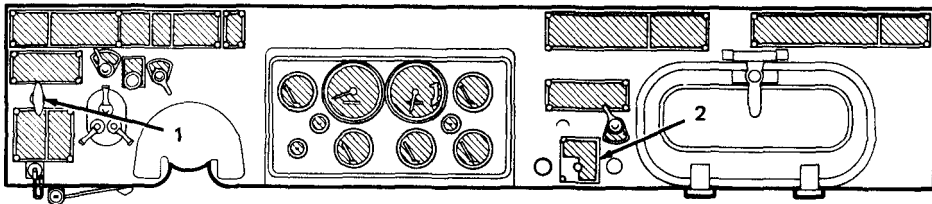
**NOTE**

The maximum rated pull of 45,000 pounds is available only when the cable is unwound from the drum far enough to completely expose the first layer of cable. General instructions for winching are given in FM 20-22.

b. *Positioning Wrecker.* The most effective truck position is with the load directly behind the winch. When this position is not possible, guide rollers permit pulling a load at any angle up to 90°, right or left, and at any angle up to 60° above or below the winch.

**CAUTION**

Angled pulls reduce winch capacity.



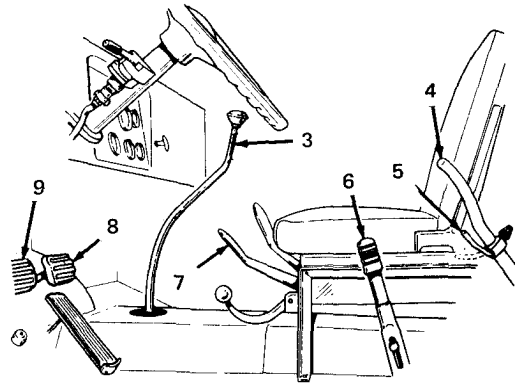
c. *Unwinding Winch Cable.*

(1) To set electric brake lock, depress brake pedal (8), push in lock switch button (2) and release brake pedal.

**NOTE**

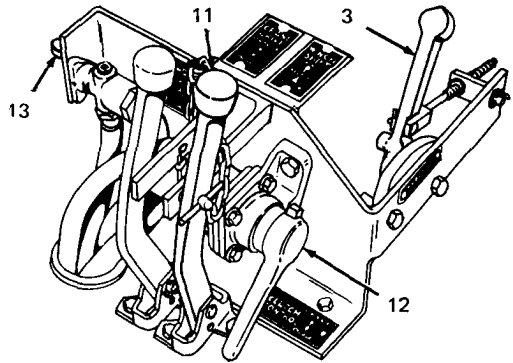
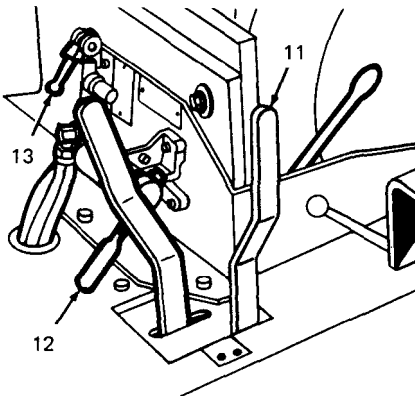
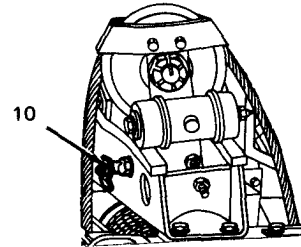
Do not use electric brake lock when parking for a long period of time. Use handbrake (6).

(2) Start the engine, depress clutch pedal (9), and place gearshift lever (3) in 5 (fifth) position for light loads or 3 (third) position for heavy loads. Place transfer shift lever (7) in N (neutral) position, release safety lock (5), and move power divider control lever (4) to ENGAGE position. Release clutch pedal.



(3) Pull out hand throttle control (1) to set engine speed to 1,000 rpm (no load).

(4) Unlock level wind by pulling out level wind lock knob (10) and rotating 90°.



(5) At rear of truck, move clutch control lever (12) to DISENGAGE position, unlock and move winch shift control lever (11) to UNWIND position and cable tension valve control (13) to OFF position.

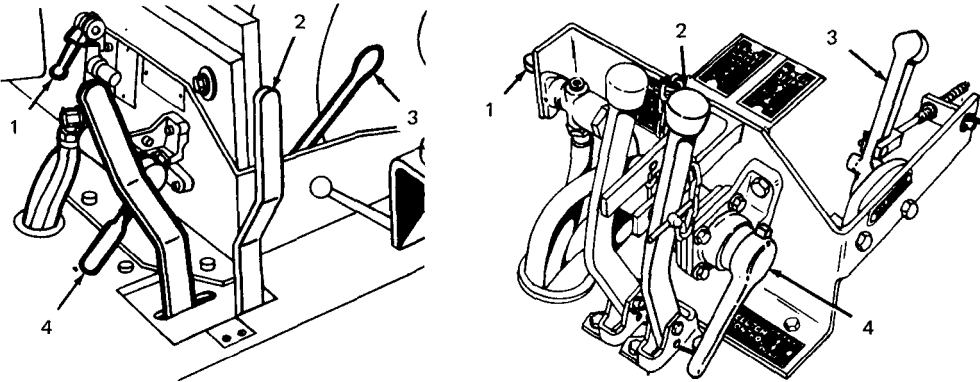
(6) Move clutch control lever (12) to ENGAGE position and the cable will unwind.

**NOTE**

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

(7) After the required length of cable is unwound, return clutch control lever (12) to DISENGAGE position and place winch shift control lever (11) in NEUTRAL.

d. *Pulling Load.*



(1) Securely attach cable hook to load. Insure that safety closure latch is engaged.

(2) Remove all slack in cable by moving cable tension valve control (1) to ON, winch shift control lever (2) to WIND, and clutch control lever (4) to ENGAGE positions.

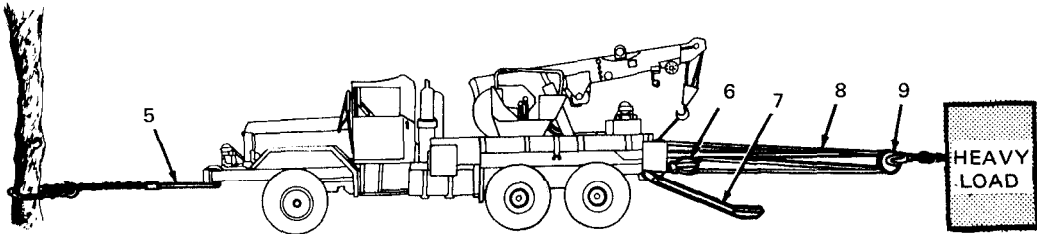
(3) After all cable slack is removed, move clutch control lever (4) to DISENGAGE, move cable tension valve control lever (1) to OFF, return clutch control lever (4) to ENGAGE position, and pull in the load.

**NOTE**

Be sure cable is winding tightly and evenly on drum. Push or hammer coils into place with block of wood, if necessary.

(4) After the load is pulled in, stop the winch by moving clutch control lever (4) to DISENGAGE and winch shift control lever (2) to NEUTRAL.

e. *Pulling Heavy Load.*



(1) Stabilize truck by attaching field chocks (7) to frame.

(2) Anchor front winch cable (5) to either a tree, utility pole, or ground anchors to keep truck immobile.

(3) Rig single sheave (6) and double sheave (9) snatch blocks on rear winch cable (8).

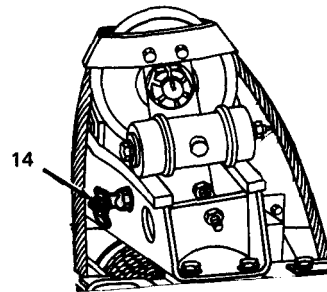
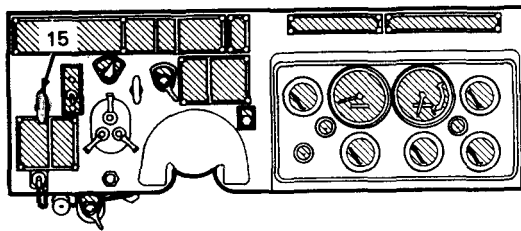
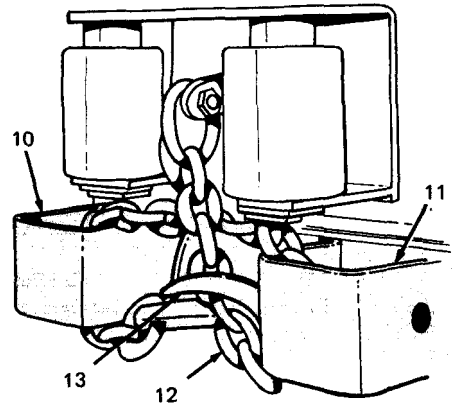
(4) Proceed to pull in the load, as described in c and d on pages 2-113 and 2-114, except place gearshift lever (16) in 3 (third) position and use throttle control lever (3) as necessary to maintain engine speed.

## f. Securing Winch for Travel.

(1) Pass cable hook (13) up through right rear bumperette (11), across and down through left bumperette (10). Place cable hook around chain between bumperettes.

(2) Remove slack in cable chain (12) by moving winch shift control lever (2) to WIND and clutch control lever (4) to ENGAGE positions, until cable chain is snug. Then move clutch control lever (4) to DISENGAGE and winch shift control lever (2) to NEUTRAL positions. Install lockpin.

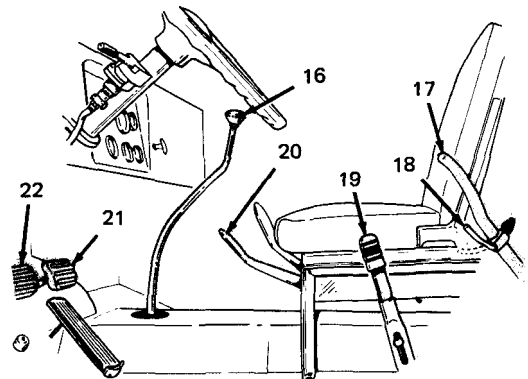
(3) Pull level wind lock knob (14) out, rotate 90°, and release.



(4) Push hand throttle control (15) into reduce engine speed.

(5) Depress clutch pedal (22), move power divider control lever (17) to DISENGAGE and set the safety lock (18). Place transfer shift lever (20) in HIGH or LOW position, gearshift lever (16) in N (neutral) position. Release clutch pedal.

(6) Apply handbrake (19) and depress brake pedal (21) to unlock electric brake lock.



(7) Stow equipment such as sling, chains, snatch blocks, and field chocks used during operation.

**2-23. Operation of Bridge Transporting Trucks.**

a. *General.* Bridge transporting trucks covered in this manual are designed to transport bridge building equipment weighing 20,000 pounds, on highway, or 10,000 pounds cross-country. They are equipped with removable stake racks, a tailboard roller, four side mounted and two rear mounted manually operated winches.

**CAUTION**

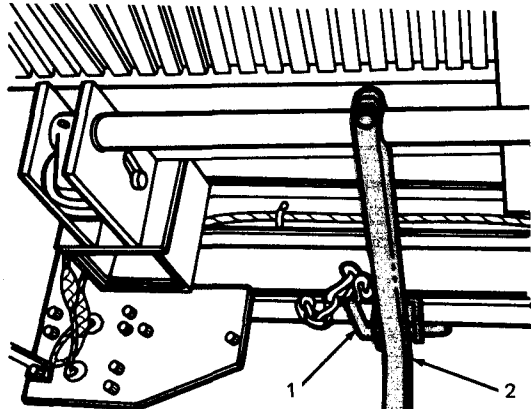
Allowing the engine to run with the transmission engaged and the transfer in NEUTRAL may cause transfer bearing failure. Always shift the transmission to NEUTRAL when the engine is running while the truck is stationary.

b. *Stake Rack Removal.* For loading extra wide material, remove some or all stake racks as follows:

(1) Remove lever retaining pin (1) and push stake rack locking lever (2) down to release stake rack.

(2) Lift stake rack (4) straight up from truck body.

(3) Repeat above steps until required number of stake racks have been removed.



c. *Loading.* The most acceptable method of loading the truck is with a crane. When a crane is not available, use the truck snatch block and winch on another truck to facilitate hand loading as follows:

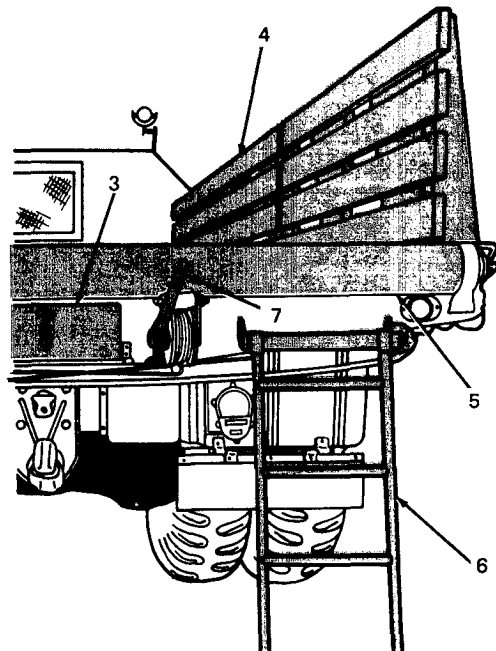
**WARNING**

Prearrange signals with winch operator to prevent injury to personnel and/or damage

(1) Position one end of material to be loaded on tailboard roller (5). Use ladders (6) stowed in rear compartment (3) to assist in loading operations,

(2) Remove turnbuckle (9) securing snatch block in grilled window of bulkhead.

(3) Open snatch block (8) and pass the winch cable from the other truck through snatch block.



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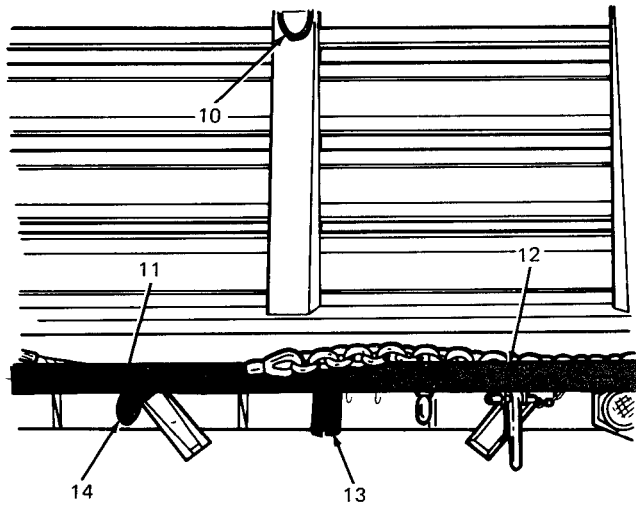
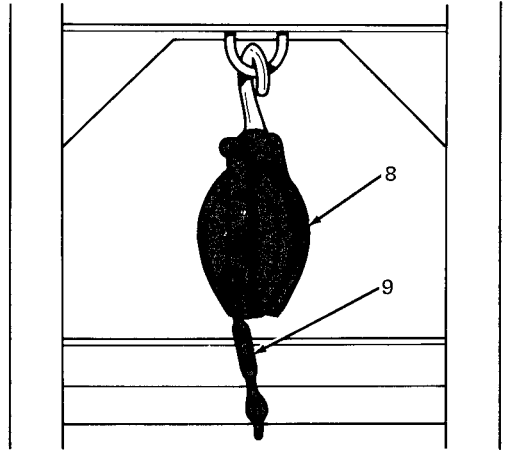
(4) Pull winch cable through snatch block (8) and secure cable end to material being loaded.

(5) Signal winch operator to pull material onto truck body.

**NOTE**

Use the above procedure to load any stake racks that have been removed.

*d. Securing Load.*



(1) Unhook winch cable ends from lashing hooks (14) and remove from side rail gutters (12).

(2) Remove winch lever handle (7) from toolbox and insert into ratchet lever (13).

(3) Push lever handle (7) down and forward to free cables of side and rear winches. Unreel cable as required.

(4) Position protective covering (11) on each winch cable so that the material to be secured will not cut cables.

(5) Pass each cable over load on truck body and secure cable hooks in lashing rings (10).

(6) Operate each ratchet lever (13) with winch lever handle (7) until desired cable tension is obtained.

(7) Remove winch lever handle and any ladders used. Stow winch lever handle in tool box and ladders in rear stowage compartment (3).

e. Unloading

**WARNING**

Direct all personnel to stand clear. Do not allow personnel to stand or walk under lifted



(1) Remove ladders from rear stowage compartment and position, as required, to assist in unloading operations.

(2) Remove winch lever handle (4) from tool box.

(3) Insert winch lever handle (4) into ratchet lever (5) and release cable tension by pushing handle down and forward.

(4) Remove cable hooks from lashing hooks (3) and remove cable from load.

(5) Remove load by crane or other suitable lifting device.

**NOTE**

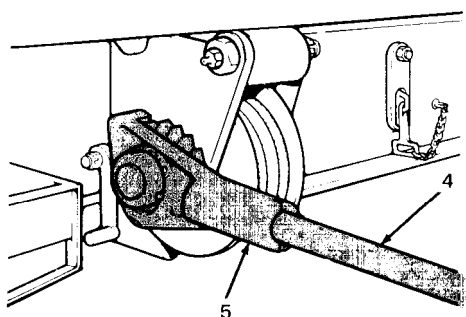
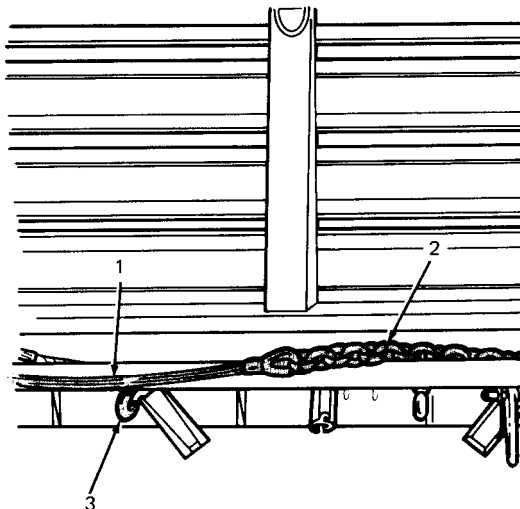
When a crane is not available for unloading, use the winch on another truck to pull material off rear of truck.

(6) Install any stake racks removed during loading operations.

(7) Lay chained end (2) of winch cable in side rail gutters (1) and around rear lashing hooks (3).

(8) Use winch lever handle (4) to tighten winch cable. Stow lever handle in tool box when finished.

(9) Stow ladders in rear stowage compartment, close and latch doors, and secure with snap.

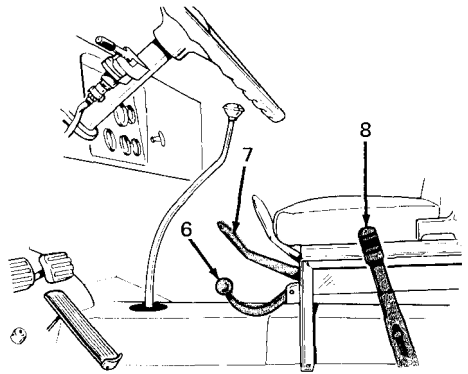


**2-24. Operation of Bolster Trucks.**

a. *General.* Bolster trucks covered in this manual are designed to transport utility poles and bridging sections weighing up to 20,000 pounds over highway, or 10,000 pounds cross-country. They are equipped with a cab protector, front and midships winches, and a bolster trailer. The bolster trailer is transported on the bolster truck carrier top when not in use.

**CAUTION**

Never disengage the power takeoff (6) when the transfer (7) is in NEUTRAL. This will disengage the power takeoff pump, and the resulting lack of lubrication can cause transfer bearing failure.

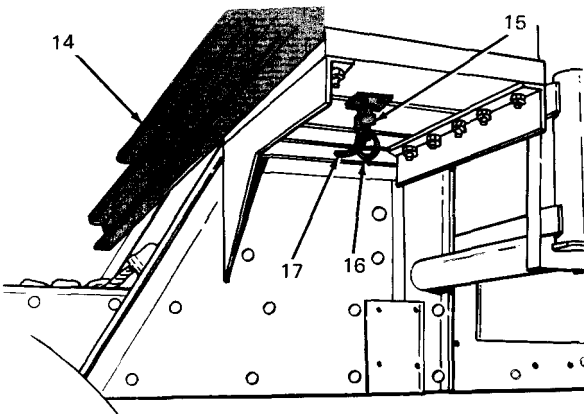
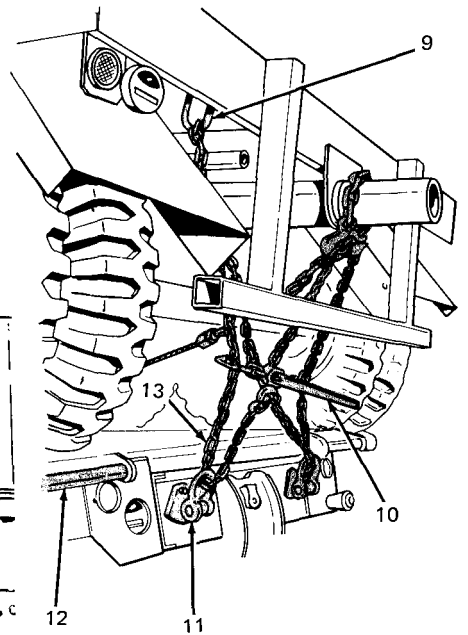


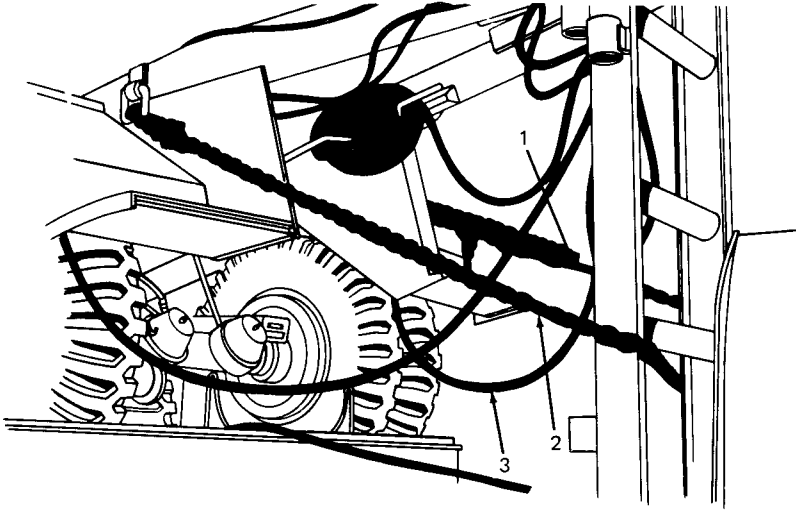
b. *Unloading P-14 Trailer From Truck.*

(1) Position bolster truck on a level surface, apply handbrake (8), and stop the engine.

(2) Release and remove chain binder (10) at rear of trailer. Remove tiedown chain(13) from lifting shackles (9) on trailer and towing shackles (11) on truck.

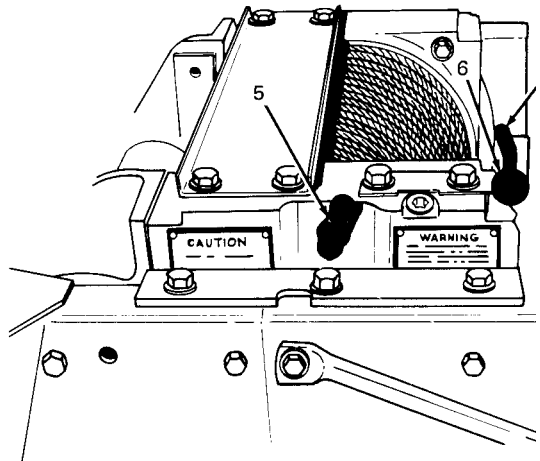
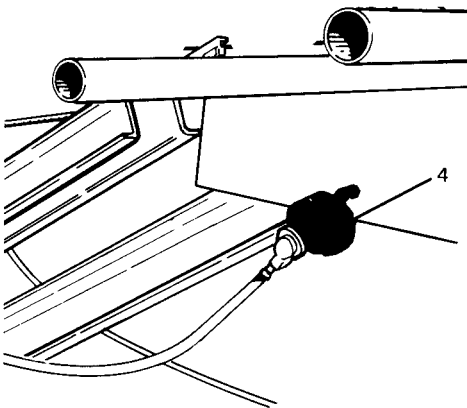
(3) Hold ring (16) on L-bolt (15) while turning handle (17) to loosen L-bolt. After L-bolt is loose, turn bolt until it drops through slots in ramps. Repeat procedure on opposite side. Remove ramps (14) from catwalk and install in mounting brackets (12) attached to rear support of bolster carrier. Set L-bolts aside.





(4) Remove chain binder (1) and tiedown chain (2) at front of trailer.

(5) Remove air hoses (3) from stowed position between trailer wheels; position air hoses along sides of truck.



(6) Open right rear coupling cutoff cock (4) on truck to release trailer brakes.

(7) Release midship winch drum lock by pulling drum lock knob (5) out, rotating 90° and releasing. (Front winch shown – controls are similar.)

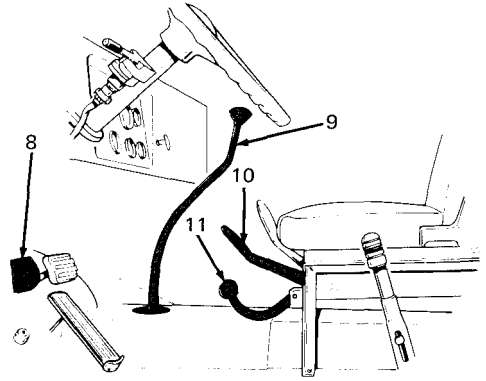
(8) Engage winch drum clutch by lifting hinged lock (7) and moving drum clutch knob (6) away from winch as far as it will go.

(9) Start the engine, depress clutch pedal (8), place gearshift lever (9) in 3 (third) position, and transfer shift lever (10) in N (neutral) position.

**WARNING**

Direct till personnel to stand clear of truck. A snapped cable could cause serious injury.

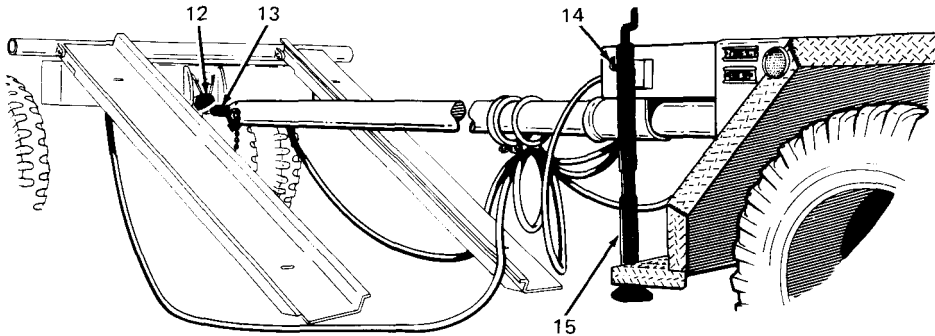
(10) Pull the power takeoff control lever (11) up to the ENGAGED position and momentarily release clutch pedal (8). Place gearshift lever (9) in R (reverse) position and release clutch pedal. The trailer should start to back off the carrier and down ramps.



**CAUTION**

Do not permit lunette (13) to drag across rear, of truck frame. It may damage the electrical connector above pintle (12).

(11) Continue to unwind winch cable as trailer backs off carrier. Slow unwinding as end of trailer reach approaches the bolster trailer carrier support.



(12) Lower landing leg (15) by pulling out locking pin (14), swinging leg downward 90° clockwise, and cranking leg down until it is in contact with ground.

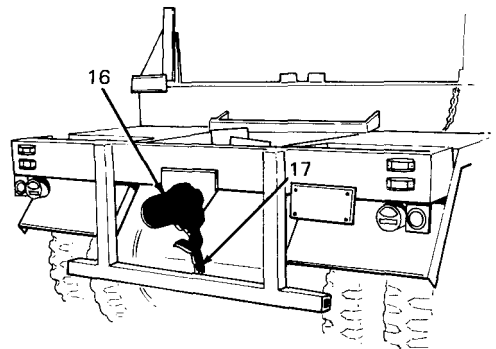
(13) Close right rear coupling cutoff cock (4) on truck, to lock trailer brakes

**WARNING**

Always wear leather gloves when handling winch cable. Never allow cable to run through hands. Broken wires can cause painful injuries.

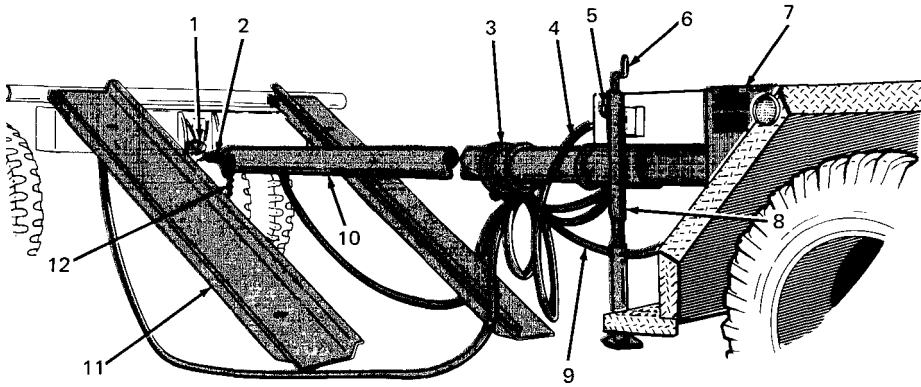
(14) Remove winch cable chain (17) from reach support tube (16) and rewind cable on winch drum.

(15) Depress clutch pedal (8), move power takeoff lever (11) down to DISENGAGED position, place transfer shift lever (10) in HIGH position, gearshift lever (9) in 1 (first) position, release handbrake and clutch pedal. Drive truck forward slowly until bolster trailer is completely unloaded.



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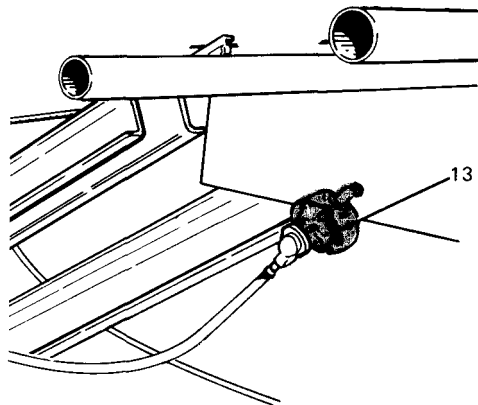
- (16) Stop the truck, shut engine off and set handbrake.
- (17) Use landing leg crank (6) to aline trailer lunette (2) with truck pintle (1).
- (18) Open pintle (1), attach trailer lunette (2), close and secure pintle with lock pin.
- (19) Attach trailer safety chains (12) to rear towing shackles on truck next to truck pintle (1).
- (20) Retract landing leg (8) and secure in horizontal position with locking pin (5).
- (21) Remove loading ramps (11), place on catwalk and secure with L-bolts.
- (22) Turn on air at truck service connections (13).
- (23) Secure the trailer air hoses (4) and electrical cable (9) to retaining rings (3) on reach.



- (24) Connect and secure electrical cable (9) end to the outlet receptacle above the truck pintle.
- (25) Check operation of trailer brakes and lights.
- (26) Stow chain binders and tiedown chains in trailer stowage compartment (7).

*c. Preparing Bolster Truck and Trailer for Loading Cargo.*

- (1) Position bolster truck and trailer on a level surface.
- (2) Close trailer coupling cutout cock (13) on right rear corner of bolster truck to shut off air to the bolster trailer and apply fail safe trailer brakes.



(3) Remove retaining pin (14) from adjustable leach (10). Drive bolster truck forward or in reverse until the fifth hole from the lunette end (2) of the leach (10) is properly aligned, so retaining pin (14) can be replaced. This secures the reach in position for loading.

(4) Use same procedure to adjust reach (10) as required for the load. After adjustment, replace retaining pin (14) and open trailer coupling cutout cock (13) to release trailer brakes.

**CAUTION**

Remove air hose (4) and intervehicular electrical cable (9) from clamps on front three retaining rings (3) to prevent damage during loading or unloading. Loosen clamps with a screwdriver.

(5) Lower landing leg (8) by pulling out spring loaded locking pin handle (5). Swing leg downward 90°, so locking pin (5) will engage landing leg (8) in lowered position.

**NOTE**

If landing leg is not in contact with ground, place wooden blocks under landing leg.

(6) Bolster truck and trailer are now ready for loading cargo.

*d. Loading or Unloading Cargo.*

(1) Methods used to load or unload cargo depend upon the type of load and available equipment.

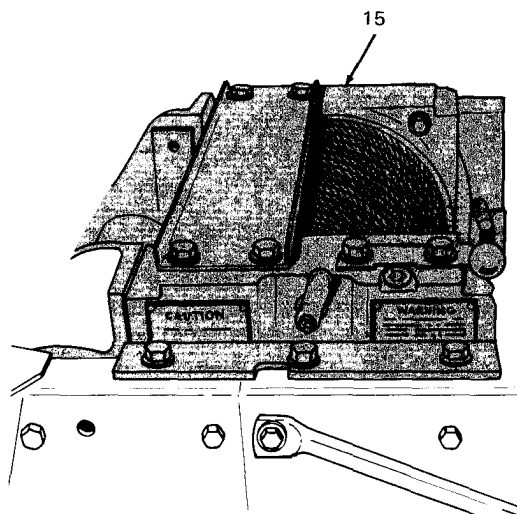
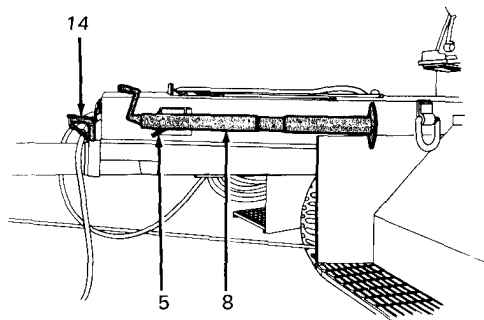
**WARNING**

Direct all personnel to stand clear of winch cable. A snapped cable or swinging load can cause serious injuries.

Always wear leather gloves when handling winch cable. Never allow cable to run through hands. Broken wires can cause painful injuries.

(2) The midships winch or front winch (15) can be used for loading and unloading. Controls for both winches are identical. Refer to para 2-15 for front winch operation, and to b(7) through b(10) on pages 2-120 and 2-121 for midships winch operation.

(3) If available, a wrecker crane also can be used to load or unload the bolster truck and trailer. Refer to para 2-22, as required, for procedures.



(4) Secure cargo with cables, chains, or by other methods, to prevent cargo from coming loose or shifting. This is particularly important for cross-country cargo movement.

(5) Raise landing leg before moving bolster truck and trailer. Reverse the procedure in c(12) on page 2-121.

(6) Lower landing leg before unloading cargo. See c(12) on page 2-121.

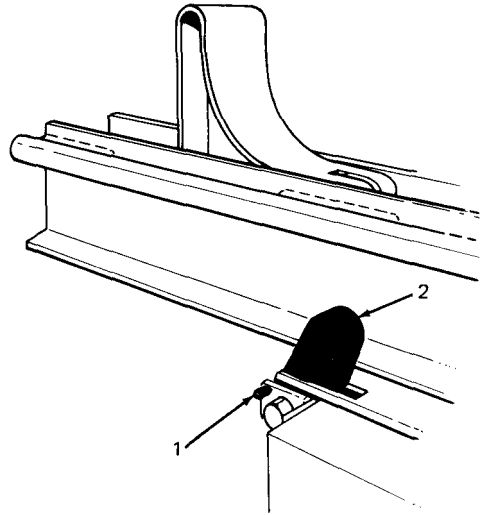
*e. Operation of Bolster Fifth Wheel.*

(1) To unlock bolster travel locks, remove cotter pin (1), turn pivot lock (2) down and replace cotter pin. Repeat on other side.

**NOTE**

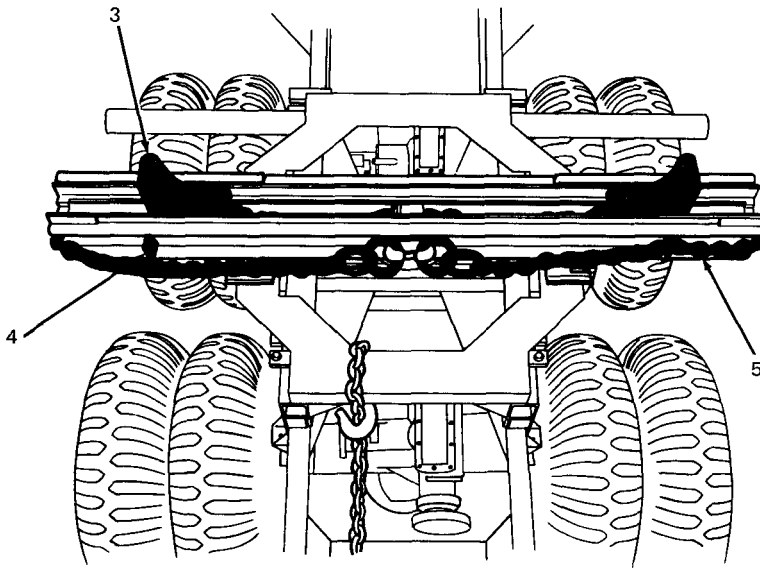
The bolster travel locks must be engaged prior to loading trailer to prevent movement of bolster fifth wheel.

(2) To adjust sliding chock, lift adjusting chains (5) free of chain hooks (4), pull on chains to slide chocks (3) into desired position, divide slack in chain evenly and attach chains to hooks.



**NOTE**

The sliding chocks must be centered and close together to allow front wheels of trailer to contact bolster while loading trailer.

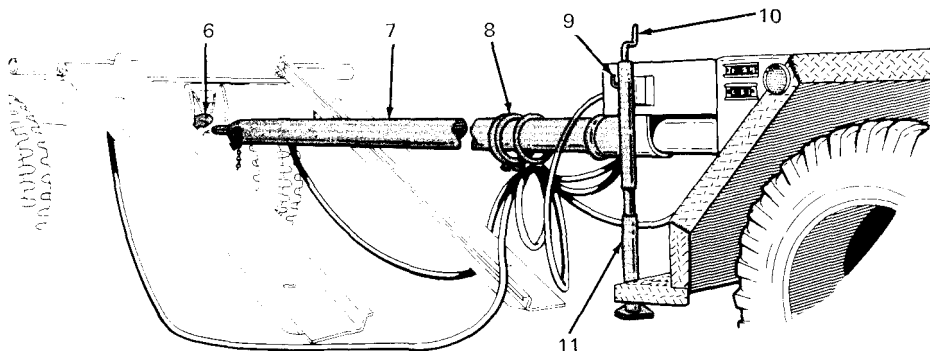




f. Loading P-14 Trailer Onto Truck.

(1) Position bolster truck and trailer on level surface. Check and secure bolster travel locks and sliding chocks for loading.

(2) Secure adjustable reach (7) with retaining pin (12) in fifth hole from lunette (13) end.



**NOTE**

When reach length adjustment is required, close air cutoff cock at service connection to lock trailer brakes, remove reach retaining pin (12) and move truck forward or backward as required. After reach has been adjusted, replace retaining pin and open cutoff cock.

(3) Stop truck engine and apply handbrake.

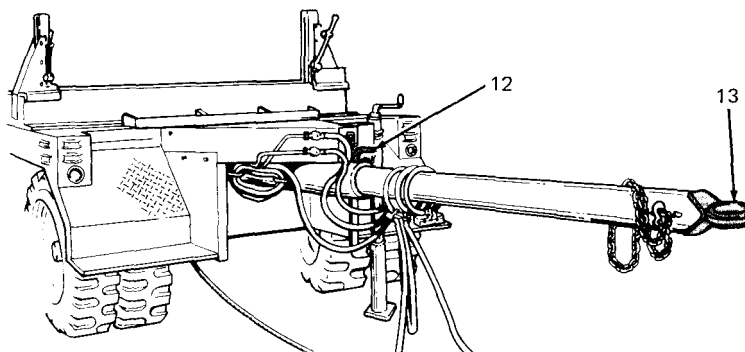
(4) Remove air hoses and electrical cable from clamps on three retaining rings (8).

**NOTE**

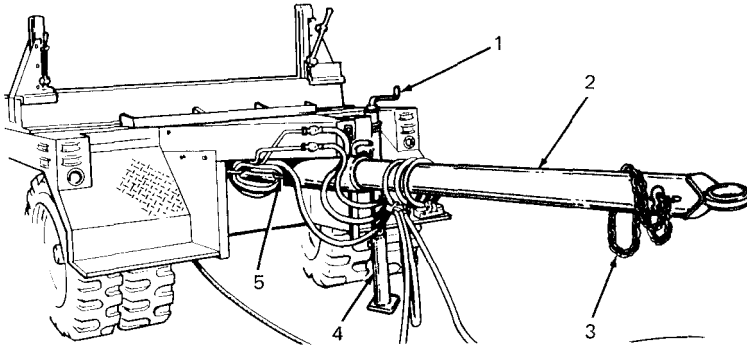
The trailer air hoses and electrical cable must be unclamped to prevent stretching hoses and cable during loading procedure. Loosen clamps with a screwdriver.

(5) Release landing leg (11) by pulling out locking pin (9). Swing leg down.

(6) Open truck pintle (6). Turn landing leg hand clank (10) to raise lunette (13) until free of pintle.

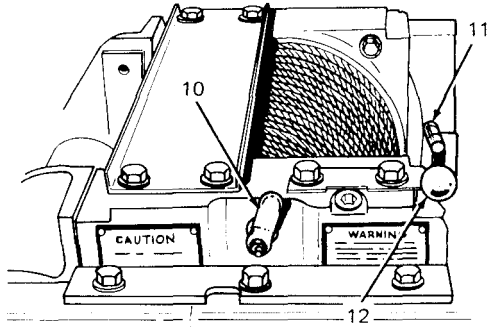
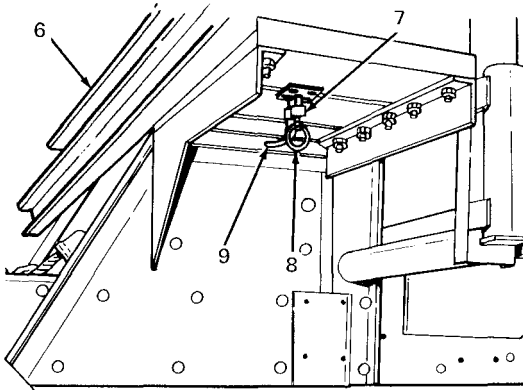


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(7) Remove trailer electrical cable from outlet receptacle above truck pintle. Stow cable on bracket (5).

(8) Hold ring (8) on L-bolt (9) while turning handle (7) to loosen L-bolt. After L-bolt is loose, turn bolt until it drops through slots in lamps. Repeat procedure on opposite side. Remove ramps (6) from catwalk and install in mounting brackets at rear support of bolster carrier.



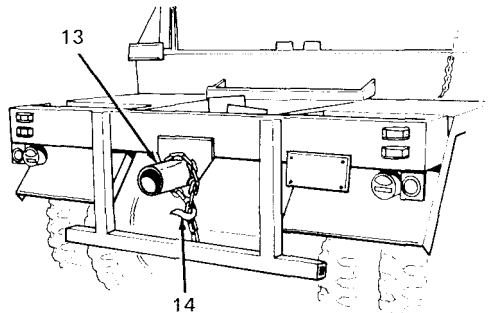
(9) Release midship winch drum lock by pulling drum lock knob (10) out, rotating knob 90° and releasing.

(10) Disengage winch drum clutch by lifting hinged lock (11) and moving drum clutch knob (12) toward winch as far as it will go.

(11) Pull winch cable hook (14) and cable from midship winch over truck bolster toward trailer. Pass cable under trailer; loop cable chain around reach support tube (13). Secure chain with chain hook.

(12) Remove trailer safety chains (3) from truck rear towing shackles. Wrap around and hook to reach (2) for stowage.

(13) Engage winch drum clutch by moving drum clutch knob (12) away from winch as far as it will go.

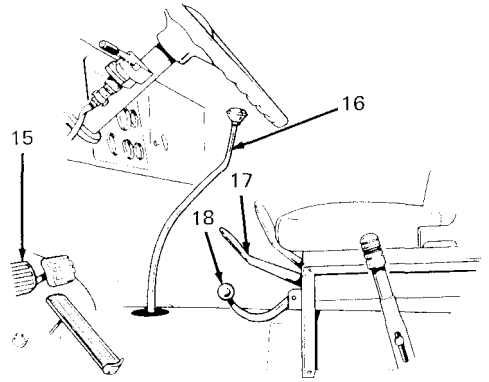


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(14) Start the engine, depress clutch pedal (15), move gearshift lever (16) in 3 (third) position, and transfer shift lever (17) in N (neutral) position. Release clutch pedal.

(15) Position air hoses on either side of loading ramps. Operate hand crank (1) to raise lunette end of reach (2) above truck chassis.

(16) Depress clutch pedal (15) and pull power takeoff control lever (18) up to ENGAGE position. Release clutch pedal.



(17) After the trailer begins to move toward truck, and lunette has passed over bolster carrier, depress clutch to stop winch. Use hand crank (1) to retract foot of landing leg (4). Release locking pin. and swing leg up into stowed position. Release clutch pedal and resume winch operation.

(18) Continue to load the trailer, but slow down winch operation as rear wheels of trailer approach top of loading ramps.

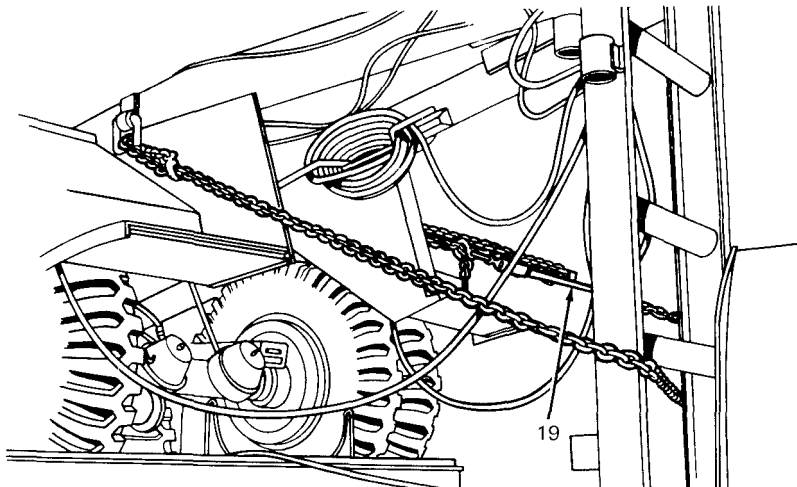
**NOTE**

If trailer is winched on too fast, reach (2) will slam down onto cab protector when rear wheels pass tops of ramps.

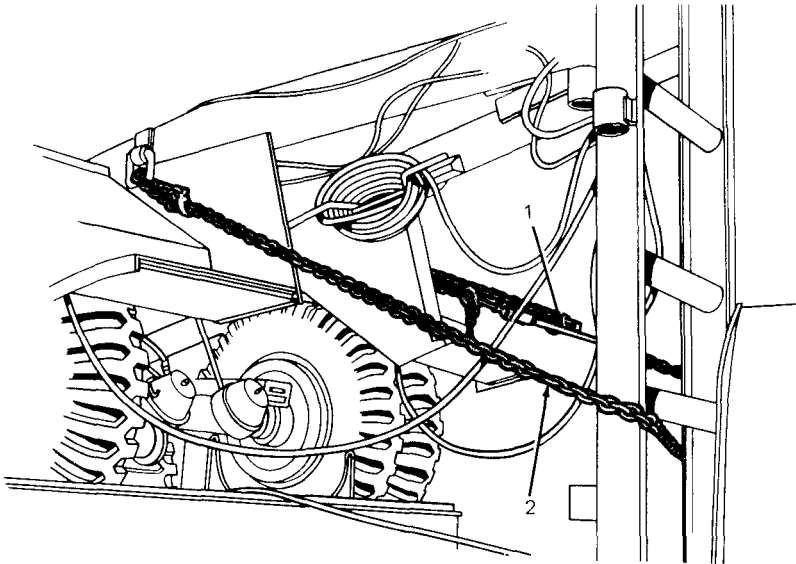
(19) **When** trailer front wheels contact truck bolster, depress clutch pedal (15), move power takeoff lever (18) down to DISENGAGED position, transfer shift lever (17) to HIGH position and gearshift lever (16) to N (neutral) position. Release clutch pedal and stop engine.

(20) Pull drum lock knob (10) out, align lock plunger with hole in drum flange, rotate knob 90°, and release.

(21) Remove two 25-foot tie-down chains and chain bindels (19) from trailer stowage box.



(22) Attach one 25-foot tiedown chain (2) to trailer front lifting shackle. Pass other end of chain around cab protector and through other lifting shackle. Tighten tiedown chain with chain binder (1).



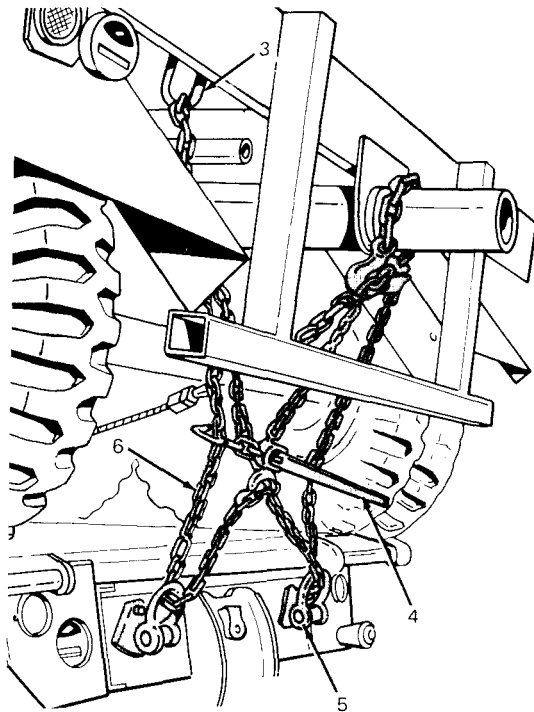
NOTE

This will secure trailer for highway travel. To secure trailer for cross-country travel, pass tiedown chain from right side of trailer to left side of truck, around cab protector and through left lifting shackle on trailer so that the tiedown chains cross at the center of the vehicle.

(23) Attach the other 25-foot tiedown chain (6) through rear trailer lifting shackles (3) and truck towing shackles (5). Tighten chain with binder (4).

(24) Position air hoses between dual wheels on either side of trailer. Close air cutoff cocks, to lock trailer brakes.

(25) Remove loading ramps, place on catwalk, and secure with L-bolts.



**2-25. Operation of Auxiliary Equipment (Special Purpose Kits).**

a. General. Operating instructions for the following authorized special purpose kits are covered in this manual:

- (1) Bow and tarp kit.
- (2) Hot water personnel heater kit.
- (3) Arctic winterization kit.
- (4) Deep water fording kit.
- (5) Electric brake kit.
- (6) A frame kit.
- (7) Windshield washer kit.

**AUTHORIZED M39 SERIES SPECIAL PURPOSE KITS**

<b>ORD. NO.</b>	<b>KIT NOMENCLATURE</b>
17648455	Decontaminating Apparatus Mounting Kit
*7358646	Slave Receptacle Kit
*1 <b>0932106</b>	Personnel Heater Kit
*10938450	Hot Water Personnel Heater Kit
*10938249	Thermal Barrier Kit
*10938375	Coolant Heater Kit
*1 1593175-1	Deep Water Fording Kit
11609725	Machine Gun Mount Kit
11609946-1	Stone Guard Kit wo/Winch
10937509	Vehicle Lifting Front Kit
10937439	Vehicle Lifting Rear Kit
8390117	A-Frame Kit(w/Winch Only)
11677770	Windshield Washer Kit
11672521	Bow and Tarp Kit, Cargo Body (Short)
11672522	Bow and Tarp Kit, Cargo Body (Long)
11672523	Bow and Tarp Kit
10899370	Troop Seat and Covering Kit
5701909	Electric Brake Kit

\* Diesel and multifuel only

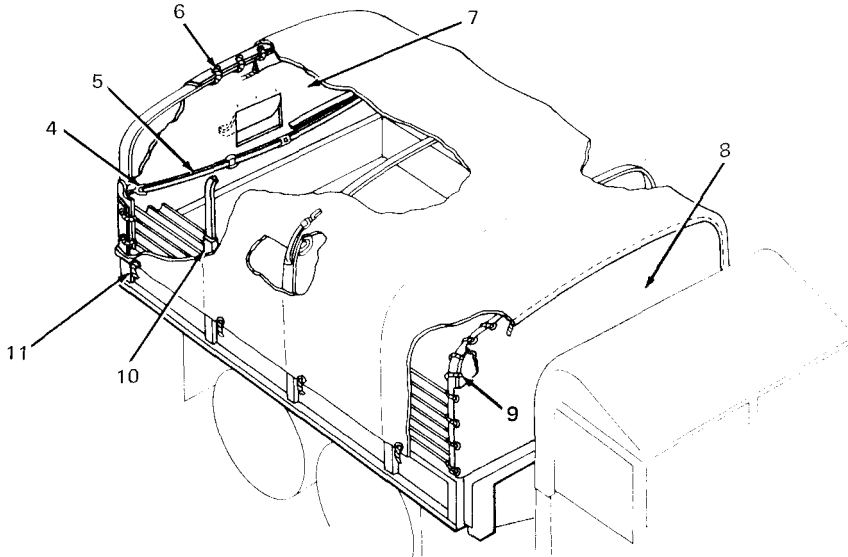
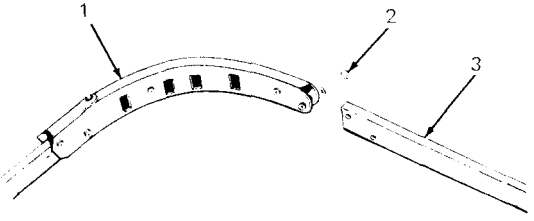
\*\* Multifuel only

b. *Installation and Removal of Bow and Tarp Kits.*

(1) Installation.

(a) Insert staves and corner assemblies (1) into side rack sockets (10).

(b) Insert cross bows (3) into corner assemblies (1) and secure in place with screws and washers (2).



(c) Place end curtains (7) and (8) in position. Make certain that lashing ropes (6) and (9) are in center eyelets of curtains.

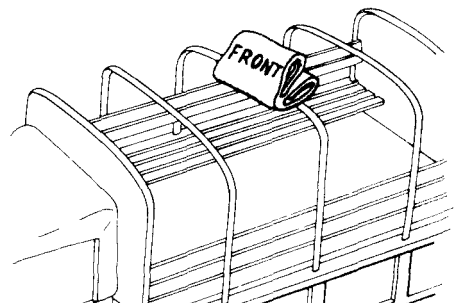
(d) Wind lashing ropes (6) and (9) alternately around bows and through eyelets. Then secure ends of lashing ropes to nearest lashing (11).

**NOTE**

Rear end curtain (7) should not be tied or lashed at bottom when carrying passengers.

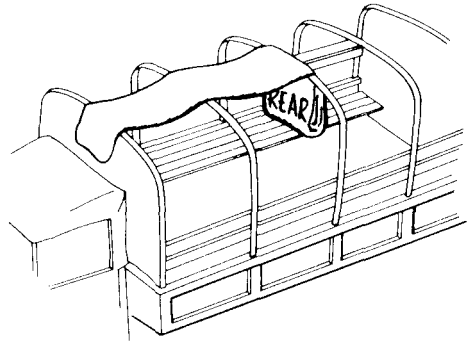
(e) Secure safety strap (5) to eyelet (4) on top of side rail ends.

(f) Lift tarp up and rest it on middle of center bow. The half marked "front" should face front of truck.

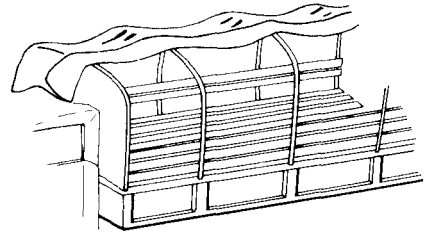


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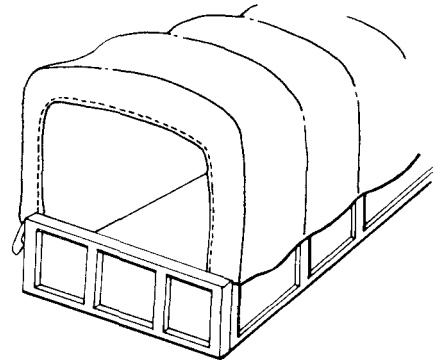
(g) Unfold the front of the tarp over the bows all the way. Now unfold the other half marked "rear" toward the rear of the truck.



(h) Unfold one side (toward the side of the truck), and then unfold the other side.



(i) Tighten the lashing ropes and secure rope ends to lashing hooks.



### TARP TIPS

There are some things you can do to make that tarp last longer.

When you tie it, the ropes should be snug, but not too tight. When they are too loose the tarp will flap in the breeze, and when they are too tight they will cause your tarp to tear.

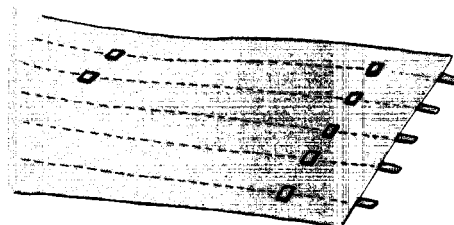
### NOTE

Do not fold or store a tarp when it is wet.

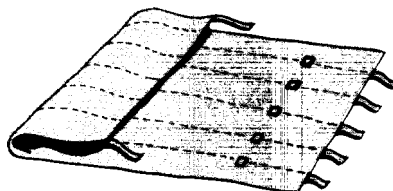
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(2) Remove and store your bow and tarp kit as follows.

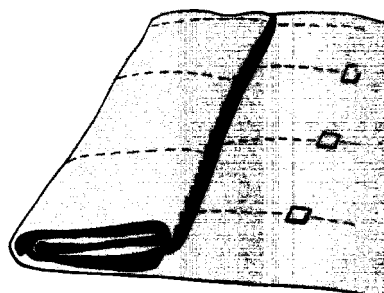
(a) Remove the tarp from the truck and lay it out flat on the ground, with the buckles on top.



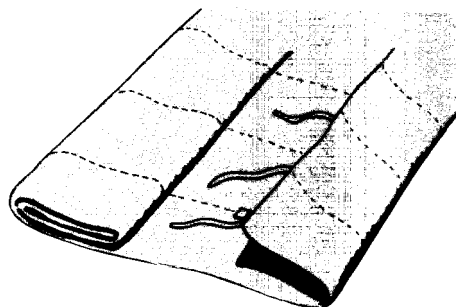
(b) Fold the eyelet side to the first row of buckles.



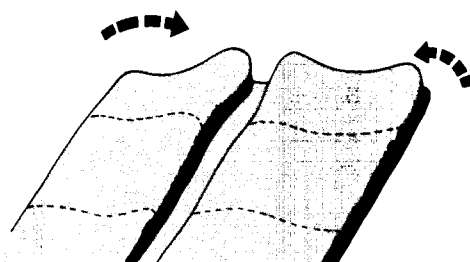
(c) Fold over twice more



(d) Fold the other side once, to the row of buckles.



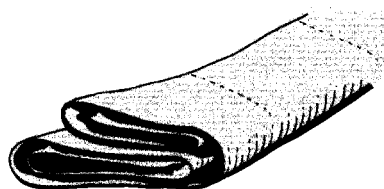
(e) Then fold second side again, until two sides meet.



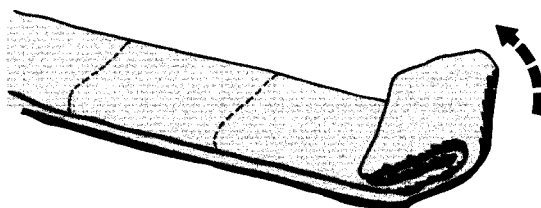
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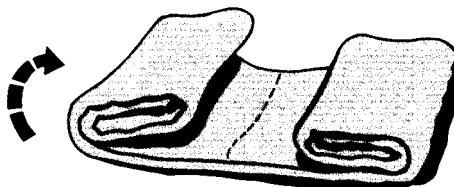
(f) Now fold the side with the 3 folds over the side with 4 folds.



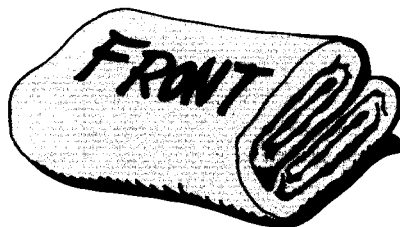
(g) Next fold the end halfway to the first seam, and then over again, until you get to the middle.



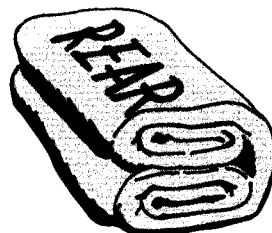
(h) Do the same thing to the other end.



(i) Place the front end up and, with chalk, mark FRONT. Make sure the letters are big enough to see.

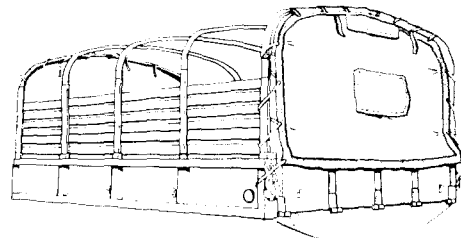


(j) Turn it over and mark REAR.

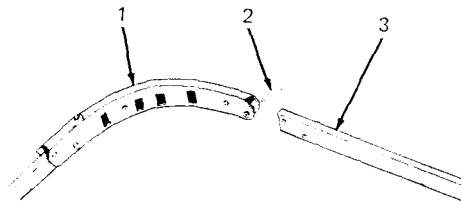


(k) Remove end curtains and fold them to approximately the same dimensions as the tarp.

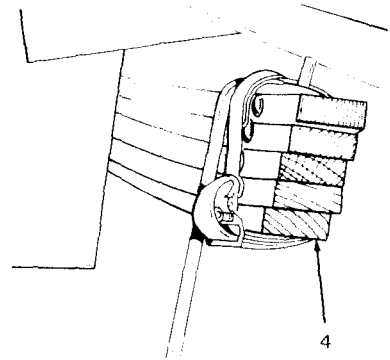
(l) Place tarp and end curtains on a pallet for storage.



(m) Remove two screws (2) and washers from corner assemblies. Separate the cross bows (3) from stave and corner assemblies (1).



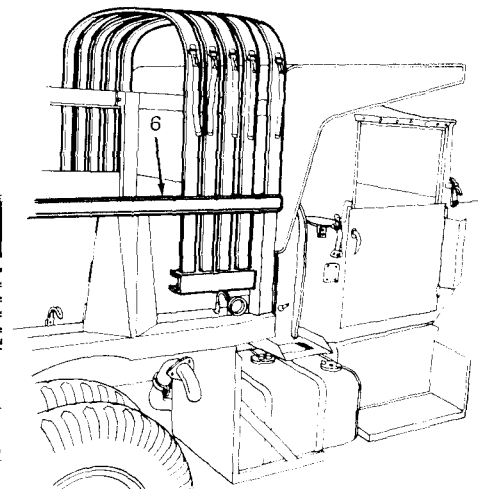
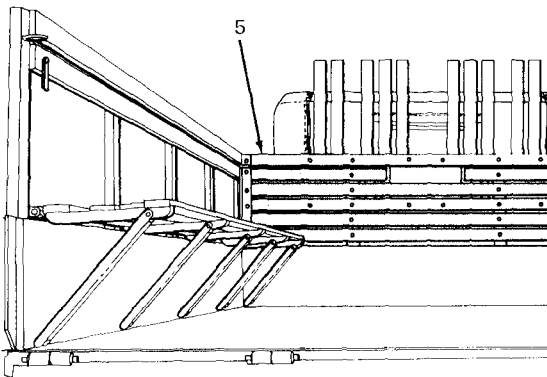
(n) Strap cross bows (3) together and mount them underneath cargo body, and over frame, as shown (4).



(o) Remove stave corner assemblies and place them in pockets on front side of front rack (5).

**NOTE**

To store bows temporarily on some models, lift bows out of side racks and place them in bow storage brackets (6).



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## CANVAS CARE

To prevent formation of damaging mildew, shake out and air canvas covers for several hours at frequent intervals. Have any loose grommets or rips in the canvas repaired without delay. Failure to make immediate repairs may allow a minor defect to develop into major damage. Mildewed canvas is best cleaned by scrubbing with a dry brush. If water is necessary to remove dirt, it must not be used until mildew has been removed. If mildew is present, examine fabric carefully for evidence of damage or weakness by stretching or pulling. If fabric shows indication of damage or weakness it is probably not worth retreatment. If not damaged, notify organizational maintenance to have the canvas retreated. Oil and grease can be removed by scrubbing with issue soap and warm water. Rinse well with clear water and dry.

c. *Operation of Hot Water Personnel Heater Kit.*

(1) Operating heater and defroster.

(a) Start engine and allow it to warm up.

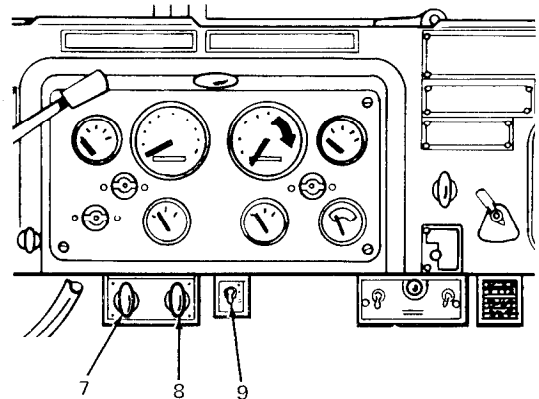
**CAUTION**

When windshield is heavily coated with frost, ice or snow, and temperature is near 0°F. or lower, direct heater air into the personnel compartment in greater proportions than onto windshield. This is necessary to avoid damage to cold glass from the sudden temperature change.

(b) Pull out air flow knob (7) and defroster control knob (8) to desired positions.

**NOTE**

Heat may be distributed in varying proportions to windshield and personnel compartment by adjusting relative positions of air flow knob (7) and defroster control knob (8).

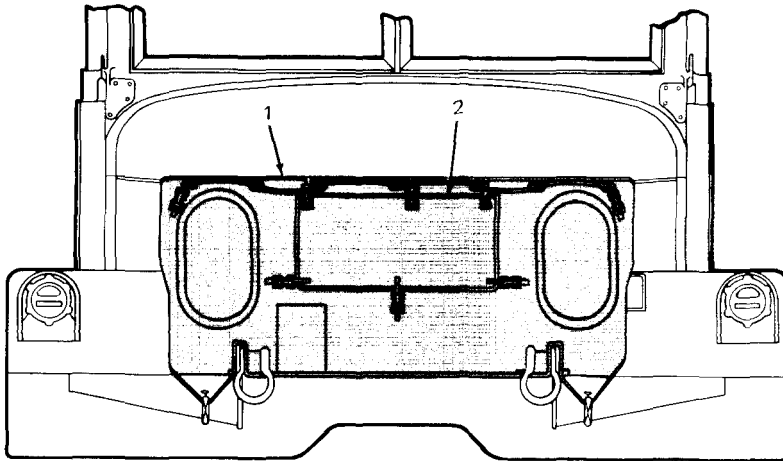


(c) Place blower motor switch (9) in HI or LO position, as desired.

(d) To stop heating and/or defrosting action, place blower motor switch in OFF position.

(2) Operating winterfront cover.

(a) During cold weather conditions, when the engine cannot maintain normal operating temperatures, attach winterfront cover (1) to radiator brush guard.



**CAUTION**

If engine temperature continues to rise after opening aperture flap, remove winterfront cover completely to avoid overheating.

(b) Open aperture flap (2) when engine temperature rises above 180° F.

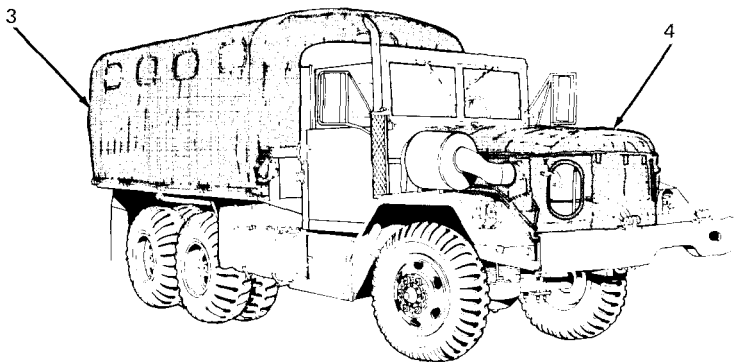
(c) Close aperture flap (2) when engine temperature stays below 180° F.

(d) Close aperture flap (2) during standby periods, and overnight.

*d. Operation of Artic Winterization Kit.*

(1) General. The arctic winterization kit is designed for use in areas where average temperature is -25° F. to -65°F.

(2) Installation of quilted cargo compartment cover (3) and quilted engine compartment cover (4) is performed at direct support level.



**CAUTION**

Open aperture flap (2) when engine temperature rises above 180° F. If engine temperature continues to rise after opening aperture flap, remove quilted engine compartment cover completely to avoid overheating.

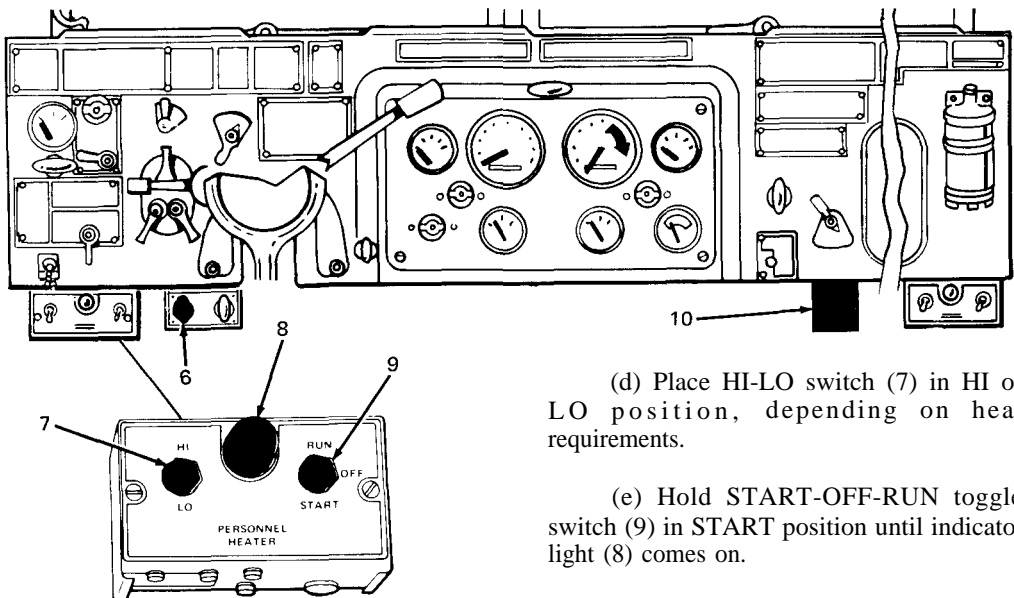
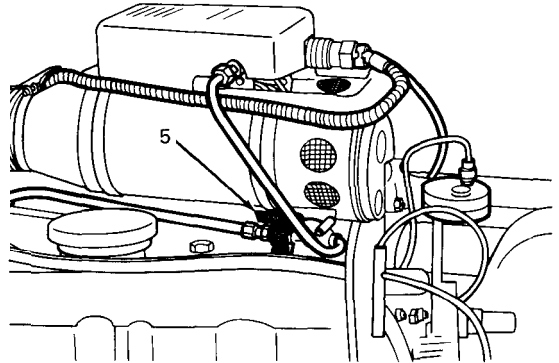
**WARNING**

Do not exhaust heater into confined areas occupied by personnel.

(a) Open fuel shutoff cock (5) by turning it counterclockwise.

(b) Be sure that personnel heater emergency switch (10) is in the up position.

(c) Pull air control knob (6) to full out position.



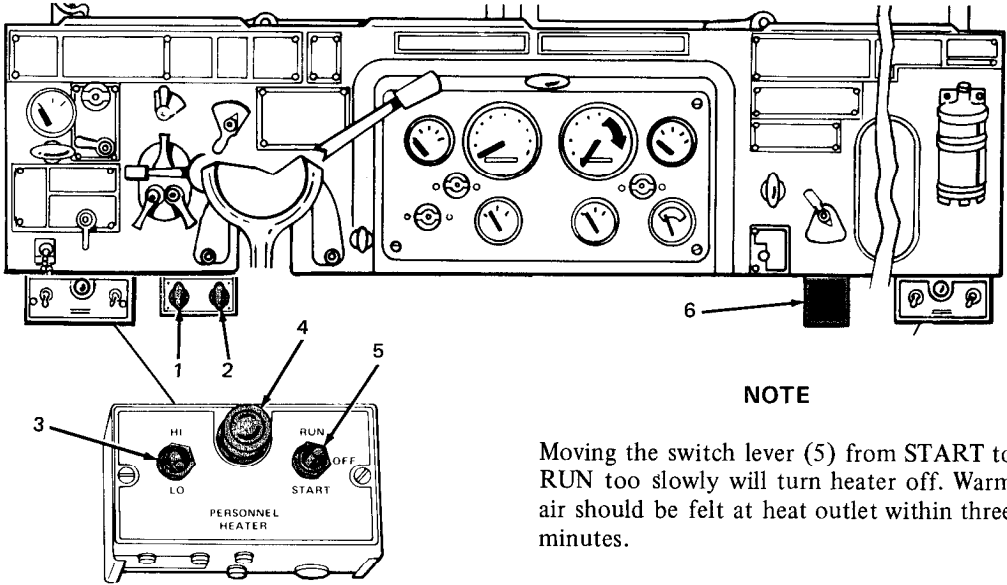
(d) Place HI-LO switch (7) in HI or LO position, depending on heat requirements.

(e) Hold START-OFF-RUN toggle switch (9) in START position until indicator light (8) comes on.

**NOTE**

Toggle switch (9) is spring loaded and must be held in position.

(f) As soon as indicator light (8) comes on, move START-OFF-RUN toggle switch (9) quickly to RUN position.



**NOTE**

Moving the switch lever (5) from START to RUN too slowly will turn heater off. Warm air should be felt at heat outlet within three minutes.

**NOTE**

If heater fails to start within two minutes (indicator light (4) will remain off), move START-RUN-OFF switch to OFF position. Wait three minutes before trying to start again.

(g) Adjust amount of heated air from heat outlet by pushing in or pulling out air control knob (1).

**NOTE**

Do not operate heater with air control knob pushed all the way in. Heater is not effective with the knob in this position.

(h) Place defroster control knob (2) in the full out position for maximum defrosting. For even distribution of heating and defrosting, set defroster control knob (2) at half-way position.

(i) To stop the heater, place HI-LO switch (3) in LO position and move the START-RUN-OFF switch (5) to the OFF position. The burner will go out in a few seconds, but indicator light (4) will remain on, and blower will continue to deliver air, until burner is cool and purged of unburned gases.

**NOTE**

Wait until indicator light (4) goes out before attempting to restart heater.

**CAUTION**

Personnel heater emergency switch (6) should be placed in OFF (down) position only in case of atomic or chemical warfare attack. Unneeded emergency shutdown can seriously damage heater.

(j) If heater fails to start or shuts down after a short run, wait until indicator light goes out before attempting to restart heater. If heater fails to operate after the third attempt, notify direct support maintenance unit.

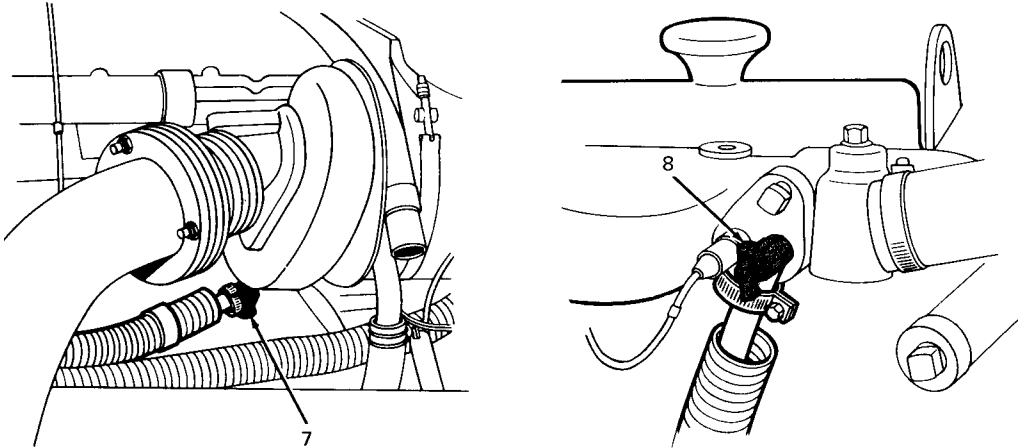
(4) Operating power plant heater kit (diesel and multifuel).

### WARNING

Do not operate heaters in closed areas occupied by personnel.

### NOTE

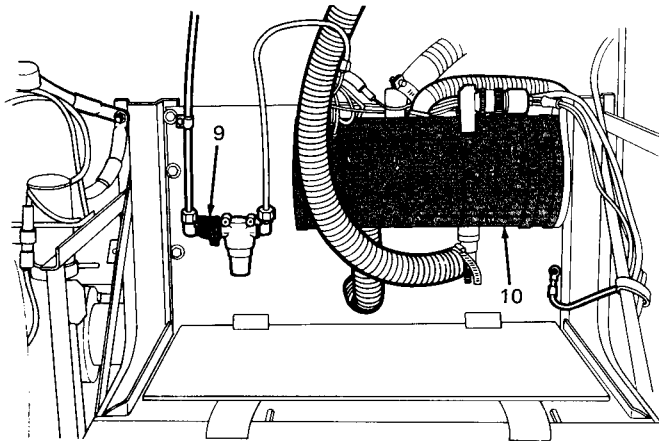
The power plant heater (10) is designed for use overnight, and when the vehicle is not in use. The heater should not be used while truck is in operation.



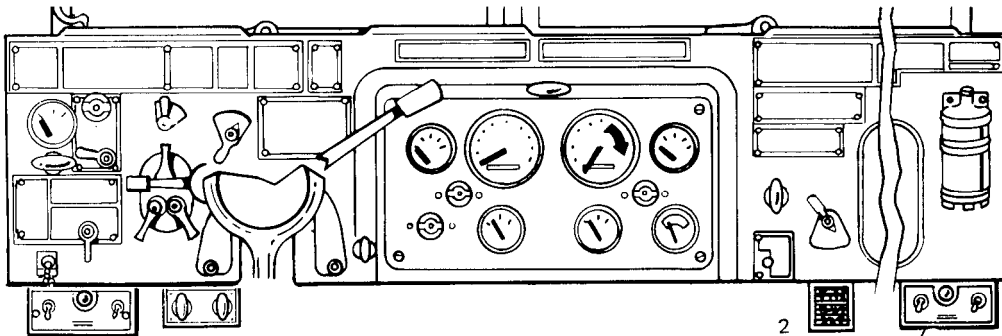
(a) Make sure heater coolant outlet shutoff cock (7) is fully open (turn counterclockwise).

(b) Make sure heater coolant inlet shutoff cock (8) is fully open (turn counterclockwise).

(c) Turn heater fuel shutoff cock (9) counterclockwise to open position.

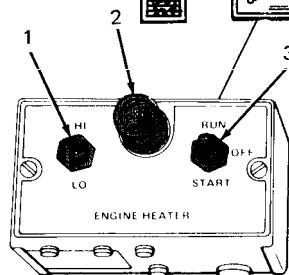


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(d) Place HI-LO switch (1) in LO (down) position.

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



**NOTE**

Toggle switch is spring loaded, and must be held in position.

(f) As soon as the indicator light (2) comes on, quickly move the START-OFF-RUN toggle switch (3) to the RUN position. Warm air should be felt at the heat outlet within three minutes.

**NOTE**

Moving toggle switch lever from START to RUN too slowly will turn heater off.

**NOTE**

If heater fails to start within two minutes, (indicator light will remain off), move START-OFF-RUN switch to OFF position. Wait three minutes before trying to start again.

(g) position HI-LO switch (1) according to heat requirements.

**NOTE**

LO position is suitable for standby periods when heater will operate over an extended period of time.

(h) To stop heater, place HI-LO switch (1) in LO position and place START-OFF-RUN switch (3) in the OFF position. Burner will go out within a few seconds, but indicator light (2) will remain on, and the blower will continue to deliver air, until burner cools and is purged of unburned gases.



**NOTE**

Wait until indicator light goes out before attempting to restart power plant heater.

(i) If heater fails to start, or burner goes out after a short run, wait until indicator light goes out before attempting to restart heater. If heater fails to operate after third attempt, notify direct support maintenance unit.

(5) Operating power plant heater kit (gasoline).

**WARNING**

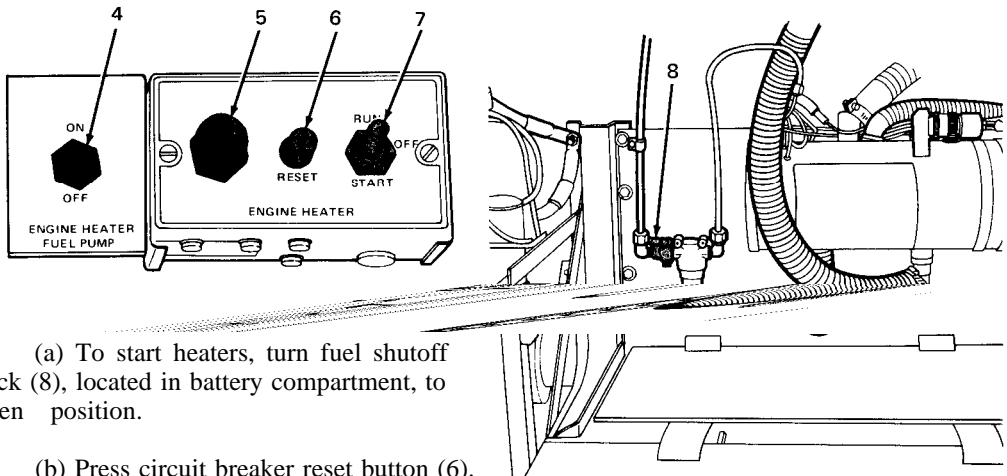
Do not operate heaters in confined areas occupied by personnel.

**CAUTION**

Truck fuel tank should be filled with arctic grade fuel. Shutoff at filter should be open. Each control box operates one heater only; do not start both heaters at same time. Always start heaters before starting engine to keep igniter voltage low. Heater compartment door must be open when heaters are operating, and closed when not in use.

**NOTE**

When operating heaters unused for a month, fuel lines must be bled at heater cock. This kit is designed for use overnight and when truck is not in use. The heater should not be used while truck is in operation.



(a) To start heaters, turn fuel shutoff cock (8), located in battery compartment, to open position.

(b) Press circuit breaker reset button (6).

(c) Check electrical circuit by pressing PRESS-TO-TEST indicator light (5)

(d) Move fuel pump switch (4) to ON position.

(e) Hold START-OFF-RUN switch (7) in START position until indicator light comes on (light should come on within two minutes).

(f) When indicator light (5) comes on, move toggle switch to RUN position.

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**NOTE**

If either heater fails to start within five minutes, move both switches to OFF position and notify organizational maintenance personnel.

(6) Slave receptacle.

(a) General. A vehicle with batteries which have become discharged may receive power from another vehicle through the slave receptacle.

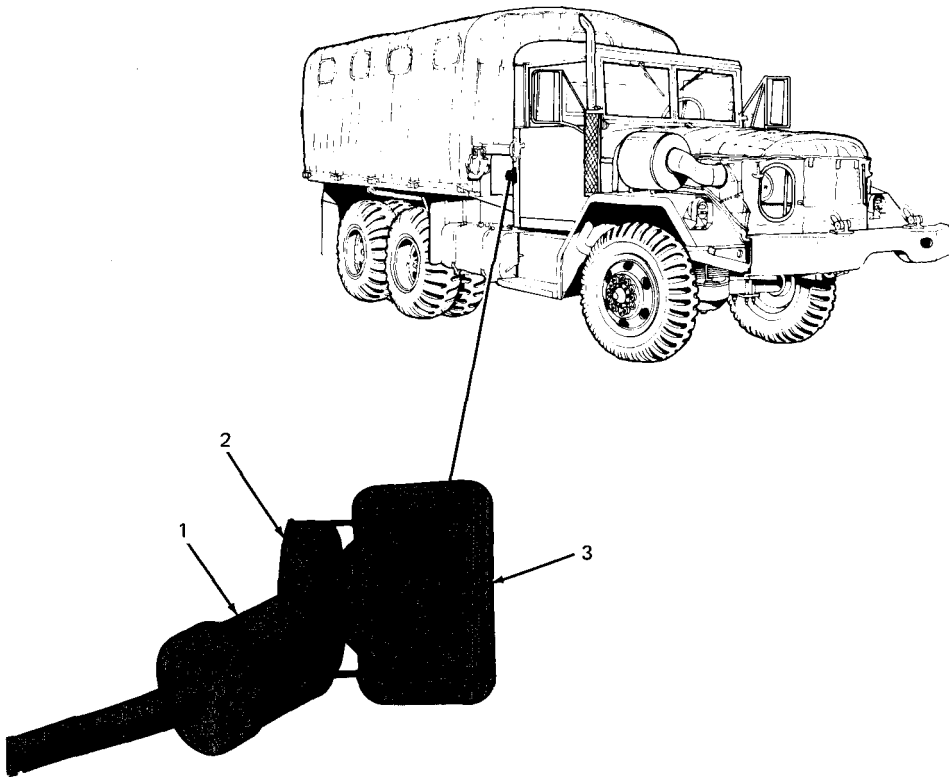
(b) Position the slave vehicle so that slave receptacles (3) of disabled vehicle and slaving vehicle are opposite each other. Stop engine.

(c) Remove protective covers (2) from receptacles of each vehicle and insert service cable connectors (1).

(d) Start engine of the slaving vehicle and set idle speed at 1,000-1,100 rpm.

(e) Start engine of disabled vehicle. As soon as engine is running smoothly, remove the slave cable from receptacle.

(f) Observe battery generator indicator on the slaved vehicle. If dial reading stays in the red or yellow areas, notify organizational maintenance.



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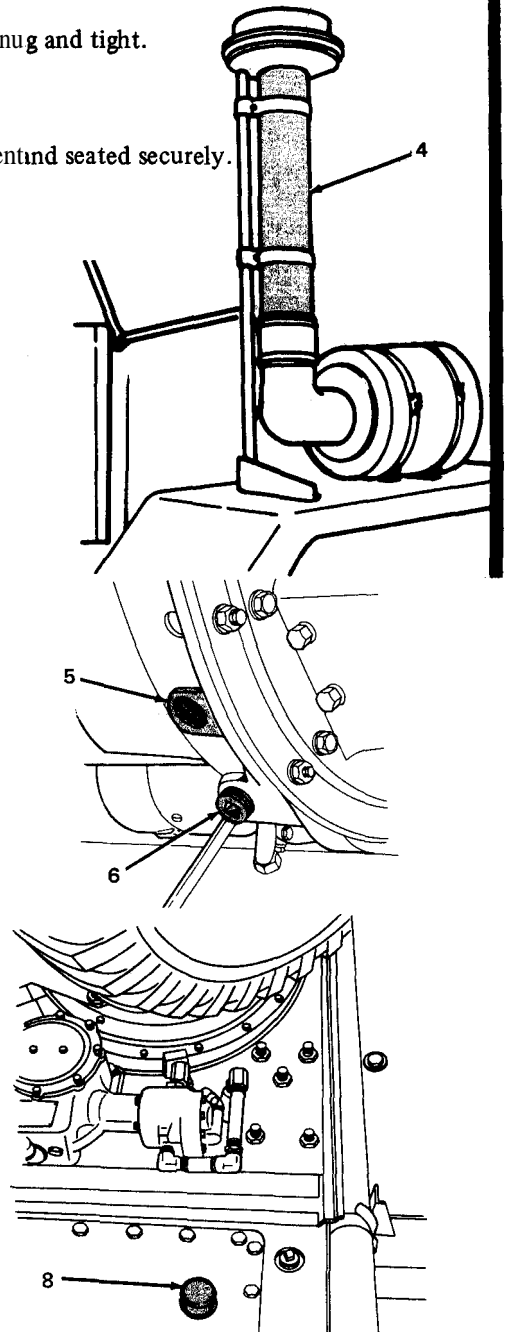
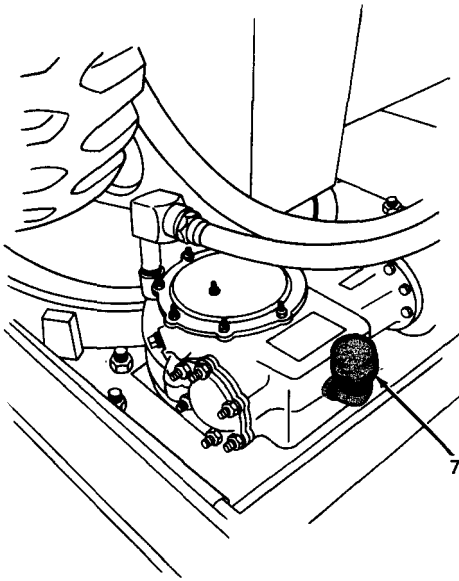
### e. Operation of Deep Water Fording Kit.

(1) General. The deep water fording kit increases vehicle hard bottom fording ability from 30 to 78 inches. The engine, engine flywheel, and other components are pressurized to keep out water, and the air intake on the air cleaner is extended upward (4). The alternator is neither waterproofed nor vented. It will stop charging while under water, and begin to charge upon leaving the water.

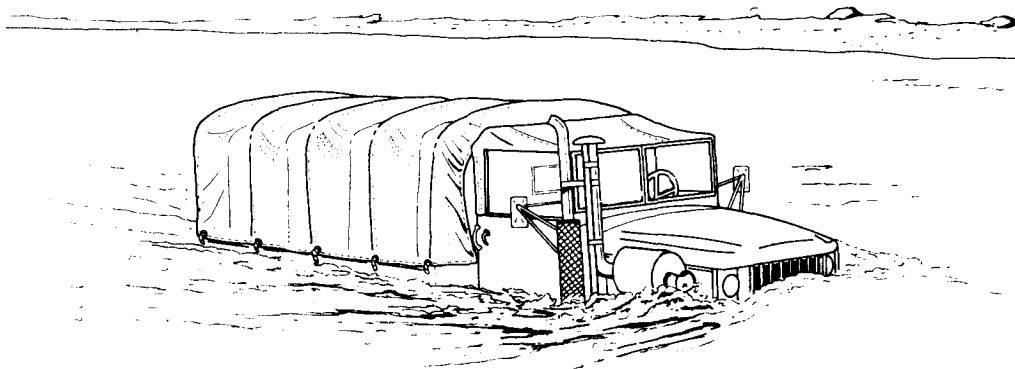
- (2) Make sure the air intake extension (4) is snug and tight.
- (3) Tighten fuel tank filler cap(s) securely.
- (4) Make sure battery filler caps are all present and seated securely.
- (5) Secure all loose objects on vehicle.

#### **CAUTION**

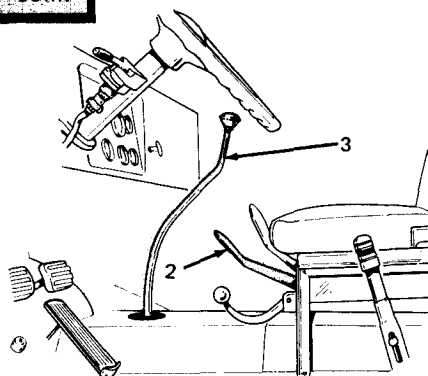
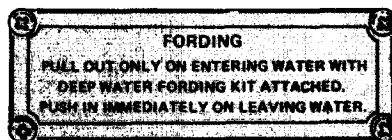
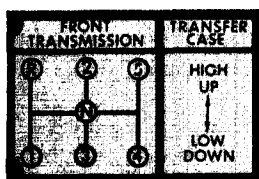
On gas models, remove flywheel housing drain plug (6) from storage boss and install it in the drain port (5). Plug is stored in map compartment on diesel and gasoline models. On tractor wrecker models, also remove pipe plugs from storage near the crane oil reservoir and replace breather caps on oil reservoir (8) and crane swing motor (7) with the plugs. Tighten them securely to prevent water from entering. In the same way, install pipe plug on the bottom of base plate pivot post and ring gear (not shown).



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(6) Place transmission gearshift lever (3) in FIRST gear (1) and move transfer selector lever (2) down into LOW position (1). Make certain your engine is running normally.



(7) Upon entering water, pull out fording control handle (4). Follow instructions on data plate (5), above the fording control handle.

**WARNING**

Do not attempt to ford your vehicle at depth greater than 78 inches. Limits speed to 3 or 4 miles per hour while fording.

(8) Upon leaving water, immediately push in fording control handle (4).

**CAUTION**

After fording, remove pipe plugs from breather caps on oil reservoir, swing motor and bottom of base plate pivot and ring gear (see preceding page) and stow near crane oil reservoir. Housing must be drained thoroughly before replacing plug in base plate pivot.

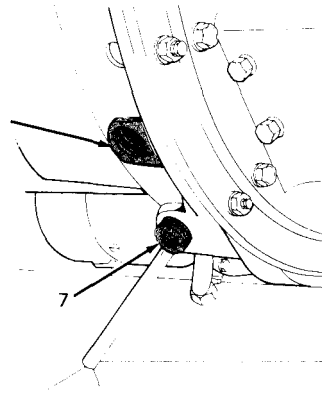
**CAUTION**

Remove flywheel housing drain plug (7) from drain port (6) and secure it in storage boss (as shown).

**WARNING**

Do not rely on service brakes until they dry out. Keep applying brakes until uneven braking ceases.

(9) As soon as possible after fording, have vehicle serviced by organizational maintenance.

**NOTE**

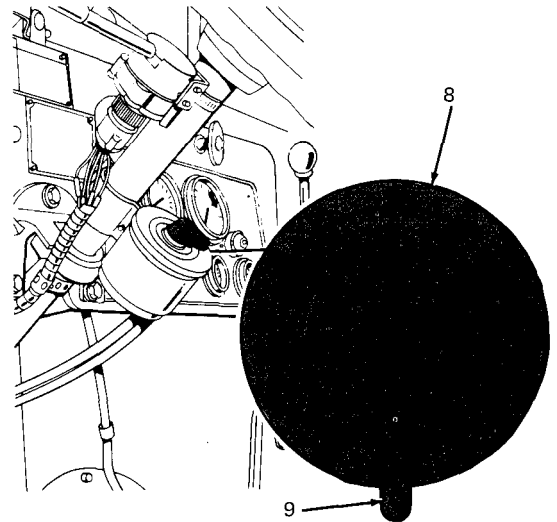
Salt water fording causes rust, especially on unpainted surfaces. Remove all salt water and salt deposits from every part of vehicle. Components should be disassembled, dried, and relubricated as soon as possible.

(10) After fording, wheel bearings must be disassembled and repacked. Deliver vehicle to direct support maintenance as soon as possible, regardless of other maintenance done.

*f. Operation of Electric Brake Kit.*

(1) General. The electric brake kit is designed for trailer or semitrailer prime movers.

(2) The rheostat control handle (9) on the steering column is turned to the proper numerical setting on the data plate (8).



(3) The setting is determined by the towed load. The lighter the load, the lower the setting. The heavier the load, the higher the setting.

(4) Electric brakes on the towed load operate **ONLY** when service brakes on towing vehicle are applied. Moving the rheostat control handle (9) only changes the setting.

**NOTE**

Test your brakes for proper setting before going on the road with a trailer or semitrailer. The exact rheostat setting required for any given load must be determined by experience.

*g. Operation of A-Frame Kit.*

(1) General. The tubular A-frame mounted to front bumper lifting brackets has a cable on top of the A-frame, which is attached to the inverted pintle hook at vehicle rear to maintain the A-frame at a 60° angle. The A-frame and front winch permit lifting heavy, bulky items.

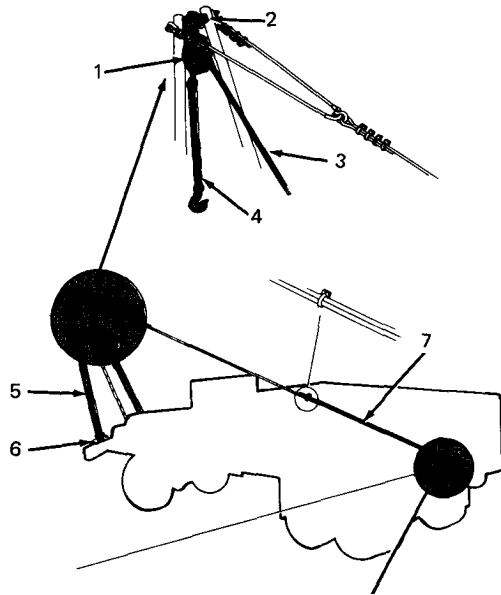
(2) Attach A-frame (5) to front lifting brackets (6) and secure in place with cable assembly (7) so A-frame will maintain a 60° angle, as shown.

(3) Hook a sheave assembly (1) to apex spreader tube (2).

(4) Pay out front winch cable (3) as described in para 2-15b.

(5) Open sheave assembly (1) and place winch cable (3) over roller. Then close snatch block.

(6) Hook winch cable chain (4) around midsection of front bumper and take up slack in winch cable (3).



**CAUTION**

Do not rewind winch cable (3) too tightly, or bumper will bend and frame side rails will buckle. Front winch may also be damaged.

(7) Maneuver vehicle into position for operation. Be careful that A-frame does not come into contact with wires, cables, tree limbs or other overhead obstructions.

**WARNING**

Vehicle will become charged with electricity if A-frame contacts or breaks high voltage overhead electrical wire. Do not leave vehicle while high voltage wire is in contact with A-frame or vehicle, or serious personnel injury may result. Signal nearby personnel to turn OFF electrical power before leaving vehicle.

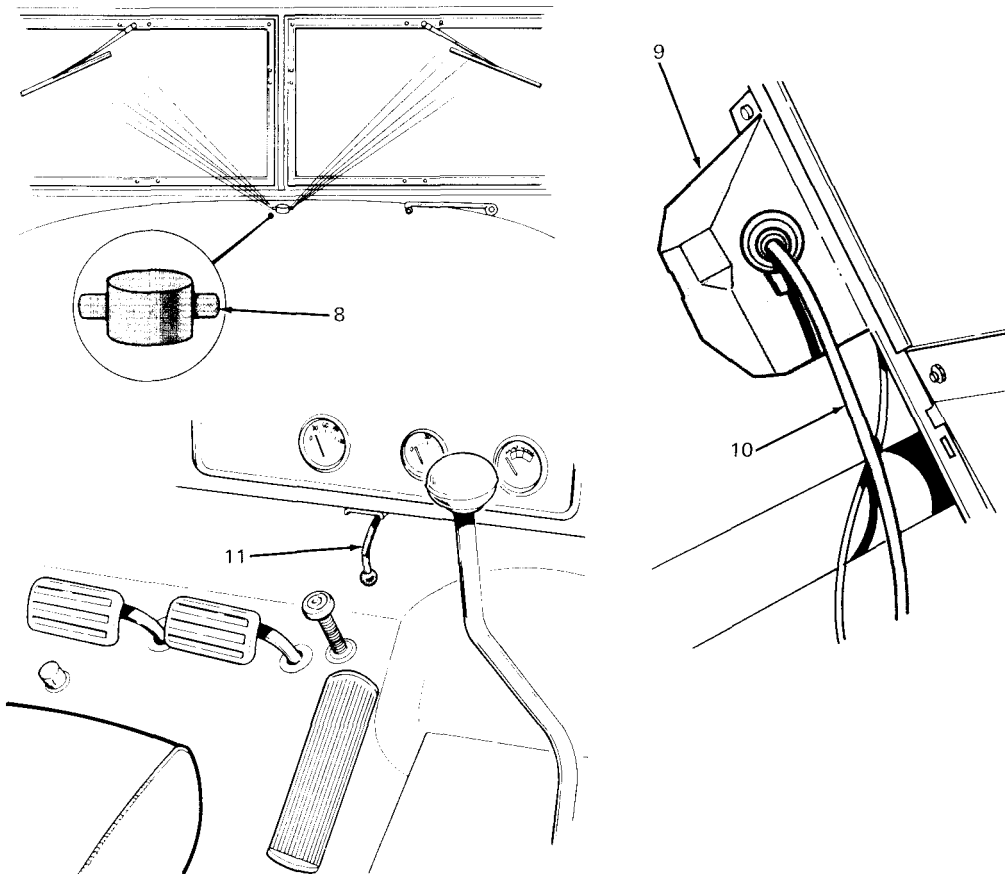
(8) Park vehicle and set handbrake.

(9) Attach winch cable to load. Operate front winch to raise, lower or hold load. See para 2-15 for winch operations.

**CAUTION**

Do not attempt to lift more than 3,000 pounds with A-frame kit.

(10) Reverse procedure in g(2) through g(6) on facing page, upon finishing operation.

*h. Operation of Windshield Washer Kit.*

(1) General. The windshield washer kit includes a hand pump (11) mounted just under the instrument panel, a fluid reservoir (9) on the right side of the engine compartment, necessary tubing (10) and supports. A single nozzle (8) in front of the windshield has two openings one on each side of the windshield.

(2) Moving the hand pump handle (11) up and down pumps fluid from the reservoir (9) through tubing (10) to the nozzle (8). The fluid washes both halves of the windshield.

**NOTE**

Reservoirs (9) on vehicles so equipped should be checked often, and washer fluid added as required.

### Section III. OPERATION UNDER UNUSUAL CONDITIONS

#### 2-26. General.

a. In addition to the operating procedures described for usual conditions, special instructions of a technical nature for operating and servicing this truck under unusual conditions are contained or referred to herein. In addition to the normal preventive maintenance service, special care in cleaning and lubrication must be observed where extremes of temperature, humidity, and terrain conditions are present or anticipated. Proper cleanings, lubrication, storage, and handling of fuels and lubricants insure proper operation and functioning of the truck and components, and also guard against excessive wear and deterioration.

#### CAUTION

It is imperative that approved practices and precautions be followed. A detailed study of TM 21-300 and TM 21-305 is essential for use of this truck under unusual conditions.

- b. Refer to TM 21-300 for instructions on driver selection, training, and supervision.
- c. Refer to TM 21-305 for special driving instructions for the operation of wheeled vehicles under unusual conditions.
- d. Refer to LO 9-2320-211-12 for proper lubricants and lubricating instructions.
- e. Be sure to perform the before, during, and after preventive maintenance checks and services listed in table 3-1.

#### CAUTION

Pay particular attention to your gages and indicators for signs of malfunction, when operating your equipment under unusual conditions.

#### 2-27. Extreme Cold Weather Operations.

##### a. General.

(1) Extensive preparation is necessary for equipment scheduled for operation in extreme cold weather. Generally, extreme cold will cause lubricants to thicken or congeal; freeze batteries, or prevent them from furnishing sufficient current for cold weather starting; crack insulation and cause electrical short circuits; and prevent fuel from vaporizing and properly combining with air to form a combustible mixture for starting. Extreme cold will also cause the various materials or components to become hard, brittle, and easily damaged or broken.

(2) The following documents contain information pertinent to the operation of your truck under cold weather conditions:

- FM 31-70 – Basic Cold Weather Manual
- FM 31-71 – Northern Operations
- FM 31-72 – Mountain Operations
- TM 9-207 – Operation and Maintenance of Army Materiel  
in Extreme Cold Weather (0° F. to -65° F.)

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**WARNING**

If is imperative that approved practices and precautions be followed. TM 9-207 contains information specifically applicable to this truck, as well as to all other Army materiel. This information must be considered an essential part of this technical manual, not merely an explanatory supplement to it.

b. *Winterization Kits.* Special winterization equipment is provided when protection against extreme cold (0° to -65° F.) is required.

(1) Refer to para 2-25c for operating instructions covering hot water personnel heater kits.

(2) Refer to para 2-25d for operating instructions covering arctic winterization kits.

c. *Moving the Truck.*

**CAUTION**

You must be very cautious when starting or driving the truck after an extended shutdown. Congealed lubricants may cause failure of parts. Tires may be frozen to the ground or frozen with a flat spot while underinflated. One or more brakeshoes may be frozen fast. Each condition must be taken into account to prevent damage to the truck.

(1) Start the engine (see para 2-7) and allow it to warm up thoroughly before placing your truck in motion.

(2) Place transmission gearshift lever in first gear and transfer shift lever in low.

(3) Drive the truck at the lowest speed possible for about 100 yards. Be careful not to stall the engine. This should lube gears and flex tires to a point where normal operation can be expected.

d. *Parking the Truck.*

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

(2) Park your truck on high dry ground if possible. If high dry ground is not available, prepare a footing of brush or planks, under all tires. Chock in place, if necessary.

(3) Park your truck on level ground to relieve distortion or body twist.

(4) Place all control levers in the N (neutral) position to avoid freezing in gear caused by water condensation.

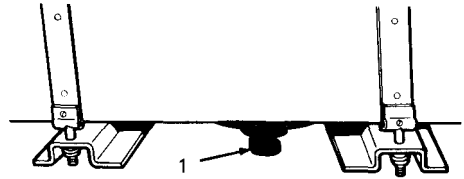
(5) In areas where temperatures reach -50° or colder, inflate tire pressure 20 pounds above normal for long standby periods or overnight. Return tire pressure to normal when operation is resumed (see table 1-7 for normal tire pressure).

**NOTE**

When checking tire pressure, do not reduce pressure if tires are hot.

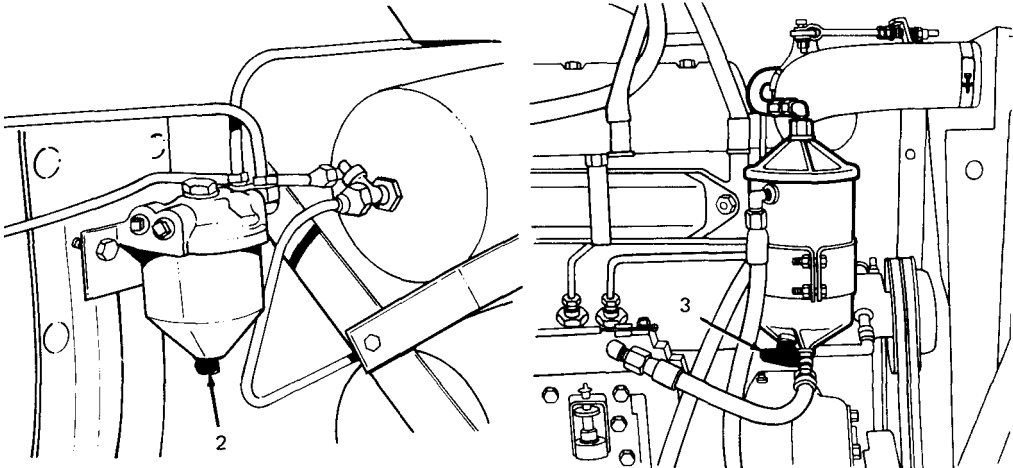
(6) Turn power plant heater on (see para 2-25d). If truck is not equipped with an arctic kit, remove batteries and store them in a warm place.

(7) Refuel immediately after operating truck to reduce condensation in the fuel tank. Before refueling, open fuel tank drain (1) and drain off any accumulated water.



**CAUTION**

Authorized procedures must be used to dispose of fuel.

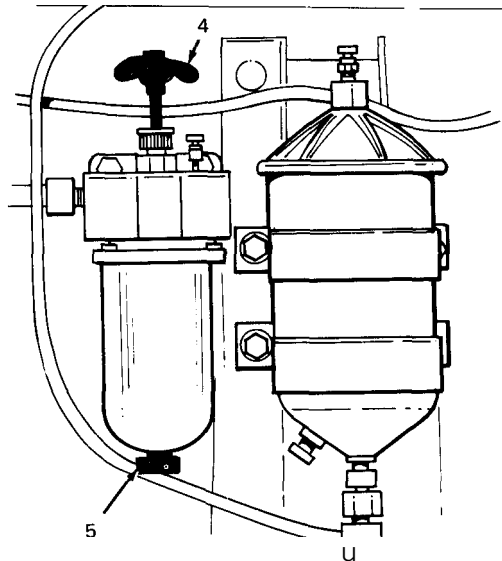


(8) Before fuel system cools below the freezing point, drain fuel filters as follows:

(a) Gasoline. At left side of frame, remove drain plug (2).

(b) Diesel. At left side of frame, remove primary fuel filter drain plug (2). At front of engine, on right side, open drain cock (3).

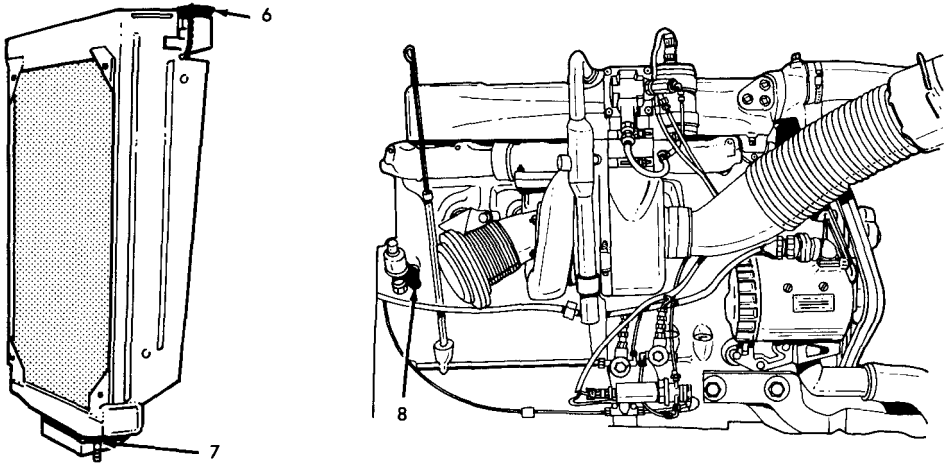
(c) Multifuel. At left side of engine, remove primary and secondary drain plugs (5).



**NOTE**

The LDS 465-1 multifuel engine has a scraper-type primary filter. Turn scraper handle (4) two complete revolutions before draining.

(9) The cooling system should be prepared and protected for temperatures below +32° F. Refer to TB 750-651 and TM 9-207 for proper instructions. If no amoved antifreeze solution is available, drain cooling system by removing filler cap (6), turning radiator drain cock (7), and cylinder block drain cock (8) counterclockwise.



**CAUTION**

Be sure all coolant has been drained from the cooling system before leaving your truck. If drain holes have become blocked by foreign matter, use a soft wire to clear the obstruction.

**2-28. Extreme Hot Weather Operations.**

a. **General.** Continuous operation of truck at high speeds, or under long hard pulls in lower gear ratios on steep grades, or in soft terrain, may cause engine to overheat. Avoid the continuous use of low gear ratios whenever possible. Continuously be alert for overheating. Halt the equipment for a cooling-off period whenever necessary, if the tactical situation permits.

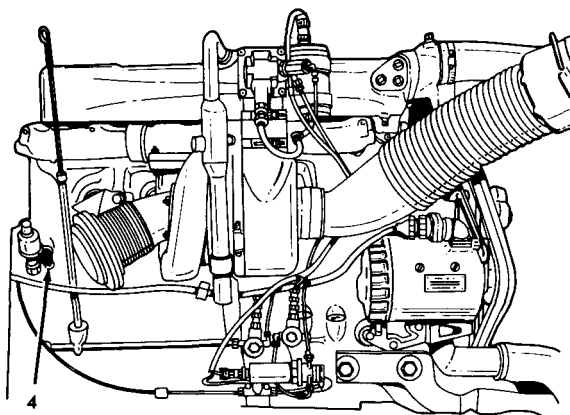
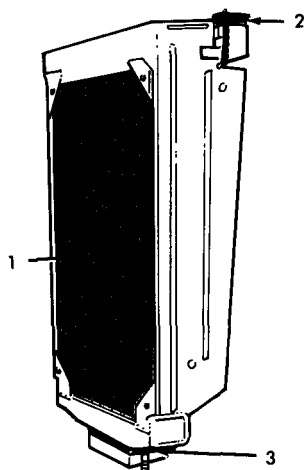
b. **Cooling System.** Scale and rust in the cooling system form faster during operation in extremely high temperatures. For this reason, corrosion inhibitor compound should always be added to the cooling liquid. Avoid the use of water that contains alkali, which causes scale and rust. Fill the radiator with rain water whenever possible. Refer to TB 750-651 for use of engine cleaning compound.

**WARNING**

Extreme care must be exercised in removing filler cap when temperature gage reads above 180°F.

(1) Make frequent inspections of cooling system for proper coolant level in the radiator and proper hose connections. Check tension adjustment on the fan belt, and be sure that the hose lines are not cracked and/or leaking.

(2) If your truck engine is constantly overheating, inspect the radiator fins (1). Clean out sand, dust, or insect accumulation with compressed air.



(3) Remove the filler cap (2), open the engine block drain cock (4), and the radiator drain cock (3), flush the system if necessary, then close the drain cocks(3) and (4). Be sure to refill the system with proper coolant.

c. **Batteries.**

(1) In torrid zones, check level of electrolyte in cells daily. Refill with pure distilled water. If distilled water is not available, rain or drinking water may be used. Water with a high mineral content will eventually damage the batteries, and should be avoided.

**NOTE**

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

(2) A battery will discharge at a greater rate if left standing for long periods at high temperatures. If necessary to park for several days, remove batteries and store in a cool place.

**NOTE**

Do not store acid type storage batteries near stacks of tires, as acid fumes have a harmful effect on rubber.

d. *Body and Chassis.* In hot, damp climates, corrosion will occur on truck, especially during rainy seasons. Pitting and paint blistering occur on metal surfaces; mildew, mold, and fungus grow on fabrics, rubber, and glass. Protect all painted surfaces from corrosion by touchup painting. Electrical cables and terminals should be protected by ignition insulation compound. Make frequent inspections. Clean and lubricate often to prevent deterioration.

e. *Parking the Truck.*

(1) Do not park truck in the sun for long periods, as heat and sunlight will shorten tire life. When practical, park under cover to protect truck from sun, sand, and dust.

(2) Cover inactive truck with paulins if no other suitable shelter is available. Where entire truck cannot be covered, protect window glass against etching by sand, and protect engine compartment against entry of sand.

(3) Correct tire inflation pressure as prescribed in table 1-7.

**NOTE**

When checking tire pressure, do not reduce pressure if tires are hot from driving.

## 2-29. Operation on Unusual Terrain.

a. *Deep Snow, Mud, or Sand.*

(1) Select a gear ratio low enough to maintain engine speed above the recommended minimum speed (rpm) without causing the wheels to spin.

**CAUTION**

Do not spin wheels. Tires can easily become buried by spinning.

**CAUTION**

Do not lower tire pressure to the extent that damage will result. Restore to recommended tire pressure immediately after emergency (refer to table 1-7).

(3) If necessary, lower tire pressure as prescribed in table 1-7 to increase traction.

**CAUTION**

Attempted operation with only one wheel of a driving axle equipped with a tire chain may result in serious damage to the tire and/or power train.

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

**WARNING**

Do not jam sticks or stones under a spinning wheel. This can cause personnel injury or wear the tire tread unnecessarily.

(5) If one or more tires become mired, use a companion vehicle to tow or winch the disabled truck, or jack up the mired wheel and insert planking or matting beneath it.

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

b. *Hard Baked Sand.* When negotiating hard baked sand, avoid breaking through the crust. A road bed of canvas or planking should be prepared for short distances.

c. *Icy Roads.*

(1) General. Skidding and loss of steering control are the chief difficulties encountered on icy roads or terrain. The driver must know at all times the exact direction in which front wheels are steering. Because of lack of traction, truck may continue in a straight direction regardless of which way the wheels are turned, causing the engine to stall, or the rear end may veer sharply to the left or right.

(2) Skidding. When rear end of truck skids to either right or left, instantly turn front wheels in the same direction in which rear end is skidding. Decelerate engine, but do not depress clutch. Apply brakes very gradually.

d. *Dusty or Sandy Roads.* When operating truck over dusty or sandy terrain, clean air cleaner and radiator fins daily.

e. *Rocks and Boulders.* See table 1-7 for proper tire inflation. When operating truck over rocks and/or boulders, be certain that tires are properly inflated. Overinflation increases the shock transmitted to the truck, and underinflation can cause internal rupture of tires or damage to the tube.

**NOTE**

When checking tire pressure, do not reduce pressure when tire is hot from driving.

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f. *High Altitude.*

(1) *General.* High altitude operation requires careful maintenance of the cooling system. As altitude increases, the boiling point of coolant decreases. The pressurized cooling system will operate at temperatures of 220° F. when properly maintained.

(2) Check all hose connections daily for signs of leaks, and be sure that radiator filler cap is properly sealed.

2-30. Fording Operation.

a. *General.* Fording water up to a depth of 30 inches is possible without the use of special equipment. Special kits are available for deep water fording (see para 2-25e). Refer to TM 9-238 for general information covering deep water fording operations.

b. *Fording.*

(1) Determine water depth. Do not exceed 30 inches.

(2) Remove flywheel housing drain plug (2), and install it in drain port (1).

**NOTE**

For gasoline and diesel models, the plug is stored in the map compartment.

(3) Start engine, and be sure engine is operating normally.

**WARNING**

Limit speed to 3 to 4 miles per hour while fording. Do not attempt to ford truck at depths greater than 30 inches.

(4) Place transmission gearshift lever in first position and transfer shifting lever in low position, and slowly enter water.

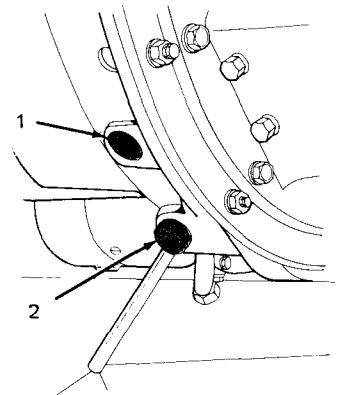
**CAUTION**

Do not stop in water or on bank. Avoid unnecessary use of the clutch.

**WARNING**

Do not rely on brakes until they dry out. After fording, remove water from brake linings by gradual application of brakes, until braking can be accomplished without grabbing.

(5) Immediately after fording, remove flywheel housing drain plug (2) from drain port. Secure plug in storage boss (multifuel) or stow in map compartment (gasoline and diesel).



c. *After Fording Operations.*

(1) Body. Clean all surfaces that have been exposed to water, and touch up paint where necessary. Coat unpainted metal parts with engine lubricating oil (OE).

**NOTE**

Salt water fording causes rust, especially on unpainted surfaces. Remove all salt water and salt deposits from every part of truck by rinsing with clear fresh water. Components should be disassembled, dried, and relubricated as soon as possible. After fording, wheel bearings must be disassembled and repacked. Deliver truck as soon as possible to organizational maintenance unit, regardless of maintenance done.

(2) Power train. Check lubricants in engine, transmission, differentials, and transfer case. If inspection indicates that water has contaminated the lubricant, drain, flush, and refill as specified in LO 9-2320-211-12.

**NOTE**

Water found in power train components after fording will generally be the result of condensation, rather than seepage.

(3) Suspension. Clean and lubricate all parts as specified in LO 9-2320-211-12.

(4) Brakes. Remove water from brake lining by gradual application of brakes after leaving water, until braking can be accomplished without “grabbing.” If there is any evidence of improper brake action, notify organizational maintenance.

(5) Instruments. Although most units are sealed, sudden cooling of the warm interior air may cause condensation of moisture within the cases or instruments. A period of exposure to warm air after fording should eliminate this condition. Cases which can be opened may be uncovered and dried.

(6) Batteries. Check electrolyte level in each cell. This is of special importance if truck was submerged in salt water.

(7) Fuel system. Drain fuel tank(s) of any accumulated water; clean fuel filter and lines. If water is found in air cleaner, clean and refill with oil (gasoline engine) or install new dry-type element (diesel or multifuel engine).

(8) Distributor – gasoline engine. Remove distributor cap and check for water. If water is present, drain, clean, and lubricate, as required.

(9) Electrical connectors. Check all electrical connections for corrosion, particularly the bayonet-type connectors.

d. *Accidental Submersion.* If accidental submersion of the truck occurs beyond fording capabilities, it must be salvaged and sent to organizational maintenance as soon as possible for complete maintenance.



## CHAPTER 3 MAINTENANCE INSTRUCTIONS

### Section I. TOOLS AND EQUIPMENT

**3-1. Special Tools and Equipment.** The operator needs no special tools or equipment to maintain these vehicles.

**3-2. Basic Issue Items.** Repair parts, equipment, and accessories to be used by the operator of these vehicles are listed in the Basic Issue Items List. Refer to Appendix B.

**3-3. Expendable Supplies and Materials.** Supplies and materials for maintenance support of these vehicles are listed in Appendix D.

### Section II. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

**3-3.1 General.** A permanent record of the services, repairs, and modifications made to these vehicles must be recorded. See TM 38-750 for a list of these forms and records required.

#### **3-4. Preventive Maintenance Checks and Services (Table 3-1).**

*a. Designated Intervals.*

#### NOTE

Observe cautions and warnings.

(1) BEFORE checks and services (B) of PREVENTIVE MAINTENANCE must be performed prior to placing vehicle, or its components, in operation.

(2) DURING checks and services (D) of PREVENTIVE MAINTENANCE will be performed while the vehicle and/or its components/systems are in operation.

(3) AFTER checks and services (A) of PREVENTIVE MAINTENANCE are performed upon completion of mission.

(4) WEEKLY checks and services (W) of PREVENTIVE MAINTENANCE are performed once every seven days.

(5) MONTHLY checks and services (M) of PREVENTIVE MAINTENANCE are performed once every 30 days.

*b. Procedures.*

(1) Troubleshoot malfunctions. Refer to Table 3-2. Or, notify supervisor.

(2) Use DA Form 2404 and report non-repairable item(s) to organizational maintenance at once.

(3) Tools included with vehicle are to be used when making PREVENTIVE MAINTENANCE checks and services. Also, wiping cloths are sometimes needed to remove dirt, grease, etc.

c. *Troublespots.*

**NOTE**

Dirt, grease, oil, and debris may cover up a serious problem. Clean as you check. Following precautions printed on container, use dry cleaning solvent (SD-2) (Item 108, Appendix D) on all metal surfaces. On rubber or plastic material, use soap and water.

**WARNING**

Dry cleaning solvent is flammable. It should not be used near open flames. Fire extinguishers should be provided when this material is used. Use only well-ventilated places. The use of mineral spirits, paint thinner, acetone, gasoline or benzine (benzol) for cleaning is strictly prohibited.

(1) Check all bolts, nuts, and screws. If loose, bent, broken or missing, either tighten or report conditions to organizational maintenance.

(2) Look for loose or chipped paint, rust or gaps at welds. If a bad weld is found, report situation to organizational maintenance.

(3) Inspect electrical wires and connectors for cracked or broken insulation. Also look for bare wires, loose or broken connections. Tighten loose connections. Report other problems to organizational maintenance.

(4) Check hoses and fluid lines for wear, damage, and leaks. Make sure clamps and fittings are tight. (See para 3-5 for information on leaks.)

d. *Not Ready Condition.* If a vehicle is not able to perform the described mission, equipment will be reported as not ready or unavailable. Refer to TM 38-750, Chapter 4, para. 4-2.

e. *Correct Assembly or Stowage.* Check each component for installation as an assembly, in the right place, and with no missing parts.

**3-5. Oil Seal and Gasket Leakage.** Wetness around seals, gaskets, fittings or connections indicate leakage. A stain also denotes leakage. If a fitting or connector is loose, tighten it. If broken or defective, report it. Use the following as a guide:

a. *Class I.* Seepage indicated by wetness or discoloration not great enough to form drops.

b. *Class II.* Leakage great enough to form drops but not enough to cause drops to drip from item being checked/ inspected.

c. *Class III.* Leakage great enough to form drops that fall from the item being checked /inspected.

**CAUTION**

Operation is allowable with Class I or II leakage. You must, of course, consider fluid capacity of the item/system. When in doubt, notify your supervisor. When operating with Class I or II leaks, check fluid levels as required in the PMCS. Class III leaks must be reported immediately to your supervisor or to organizational maintenance.

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Table 3-1. Operator/Crew Preventive Maintenance Checks and Services

NOTE: These checks are to be made in the order listed, within designated interval.

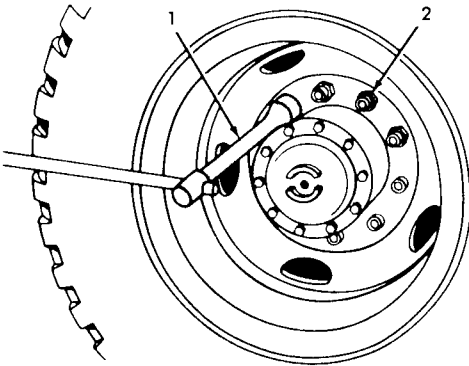
B-Before operation    D-During operation    A-After operation    W-Weekly    M-Monthly

ITEM NO.	INTERVAL					ITEM TO BE INSPECTED  PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY AVAILABLE IF:
	B	D	A	W	M		
1						<p style="text-align: center;"><b>NOTE</b></p> <p>Perform WEEKLY (W) as well as BEFORE (B) PMCS if: (1) you are the assigned operator but have not operated the vehicle since the last weekly PMCS: or (2) you are operating the vehicle for the first time.</p> <p>MAKE THE FOLLOWING WALK-AROUND CHECKS:</p> <p>EXTERIOR</p> <p>a. Visually check for obvious damage to body and cab that would impair operations.</p> <p>b. Check tires for gouges, or cracks. Remove all penetrating objects.</p> <p>c. Look under vehicle for evidence of fluid leakage (fuel, oil, and coolant).</p> <p>d. Check condition of:</p> <p>(1) Mirrors</p> <p>(2) Windshield and windows</p> <p>(3) Windshield wiper arms and blades</p> <p>(4) Check operation of doors and windows</p> <p>(5) Check operation of headlights, taillights, and turn signals</p> <p>(6) All locking and fastening devices</p> <p>(7) Spare tire mounting</p>	<p>Cracked or broken leaf springs, for example.</p> <p>Tires have cuts, gouges, or cracks which would cause tire failure, during operation. Three or more tires missing or flat.</p> <p>Any fuel leakage. Class III leakage of oil or coolant is evident.</p>
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Table 3-1. Operator/Crew Preventive Maintenance Checks and Services (Cont'd)

NOTE: These checks are to be made in the order listed, within designated interval.

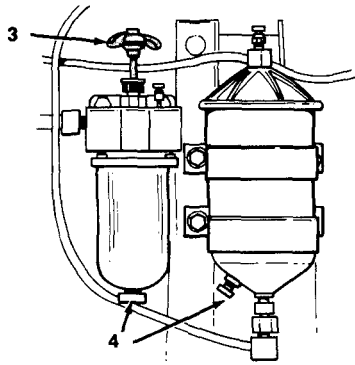
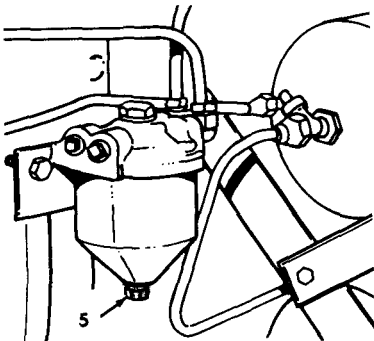
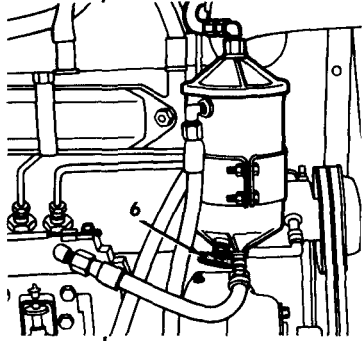
B-Before operation    D-During operation    A-After operation    W-Weekly    M-Monthly

ITEM NO.	INTERVAL					ITEM TO BE INSPECTED  PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY AVAILABLE IF:																																							
	B	D	A	W	M																																									
2			•			<p><b>TIRES</b></p> <p>a. Gage tires for correct air pressure, using fire inflation gage and hose assembly. Adjust as necessary.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="3" style="text-align: center;">TIRE PRESSURE</th> </tr> <tr> <th></th> <th style="text-align: center;">Standard (psi)</th> <th style="text-align: center;">Metric (kPa)</th> </tr> </thead> <tbody> <tr> <td colspan="3">Highway:</td> </tr> <tr> <td>M139 .....</td> <td style="text-align: center;">45</td> <td style="text-align: center;">309</td> </tr> <tr> <td>M328A1 .....</td> <td style="text-align: center;">55</td> <td style="text-align: center;">378</td> </tr> <tr> <td>M51, M52, M54, M55, M543 series .....</td> <td style="text-align: center;">70</td> <td style="text-align: center;">482</td> </tr> <tr> <td>M246 .....</td> <td style="text-align: center;">75</td> <td style="text-align: center;">516</td> </tr> <tr> <td>M291A2, M291A2D .....</td> <td style="text-align: center;">85</td> <td style="text-align: center;">585</td> </tr> <tr> <td colspan="3">Cross Country:</td> </tr> <tr> <td>M139 .....</td> <td style="text-align: center;">45</td> <td style="text-align: center;">309</td> </tr> <tr> <td>All other models .....</td> <td style="text-align: center;">35</td> <td style="text-align: center;">241</td> </tr> <tr> <td colspan="3">Mud, sand, and snow:</td> </tr> <tr> <td>All models (without chains) ...</td> <td style="text-align: center;">25</td> <td style="text-align: center;">172</td> </tr> </tbody> </table>  <p>b. Use wheel stud nut wrench and handle (1) to make sure all wheel stud nuts (2) are tight.</p>	TIRE PRESSURE				Standard (psi)	Metric (kPa)	Highway:			M139 .....	45	309	M328A1 .....	55	378	M51, M52, M54, M55, M543 series .....	70	482	M246 .....	75	516	M291A2, M291A2D .....	85	585	Cross Country:			M139 .....	45	309	All other models .....	35	241	Mud, sand, and snow:			All models (without chains) ...	25	172	
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TA 096304

Table 3-1. Operator/Crew Preventive Maintenance Checks and Services (Cont'd)

NOTE: These checks are to be made in the order listed, within designated interval.

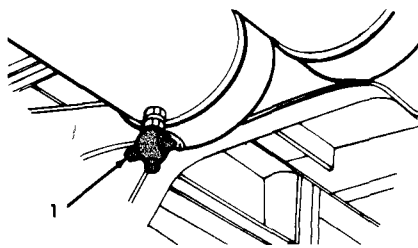
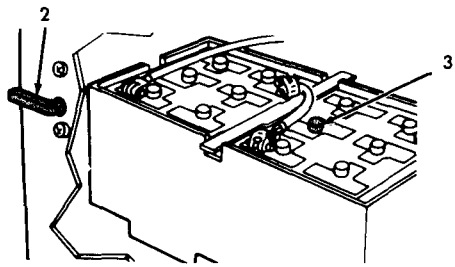
ITEM NO.	INTERVAL					ITEM TO BE INSPECTED  PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY AVAILABLE IF:
	B	D	A	W	M		
3						<p><b>FUEL FILTER</b></p>  <p>a. Rotate primary fuel filter scraper handle (3) on left side of LDS-465-1 multifuel engine two full turns. Then, place a suitable container under filter and remove primary and secondary drain plugs (4) to drain accumulated water from filters. Make certain drain plugs are tightened before next operation of the vehicle (all engines and models).</p>   <p>b. Place a suitable container under filter and remove primary fuel filter drain plug (5) under left front fender with gasoline and diesel engines, to drain accumulated water from filter.</p> <p>c. Turn secondary fuel filter drain cock (6) counterclockwise to drain accumulated water from diesel engine. (Filter is located at front of engine.)</p>	

TA 096305

Table 3-1. Operator/Crew Preventive Maintenance Checks and Services (Cont'd)

NOTE: These checks are to be made in the order listed, within designated interval.

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

ITEM NO.	INTERVAL					ITEM TO BE INSPECTED  PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY AVAILABLE IF:
	B	D	A	W	M		
4						<p><b>FUEL SYSTEM</b></p> <ul style="list-style-type: none"> <li>• a. Inspect fuel tank(s) for leaks or broken supports.</li> <li>• b. Check fuel lines and hoses for leakage and damage. Make sure all connections are secure.</li> </ul>	<p>Any fuel leakage evident.</p> <p>Fuel tank(s) or lines are damaged.</p>
5						<p><b>AIR RESERVOIR DRAIN COCK</b></p>  <ul style="list-style-type: none"> <li>• Open air reservoir drain valve (1) under left-hand running board to release pressure from the air system and drain accumulated water. Make certain drain valve is closed tight before next operation of the vehicle.</li> </ul>	
6						<p><b>BATTERIES</b></p> <p><b>WARNING</b></p> <p>Don't smoke, have open flames, or make sparks around the batteries, especially if the caps are off. Battery gases can explode and cause injury.</p> 	

TA 096306

Table 3-1. Operator/Crew Preventive Maintenance Checks and Services (Cont'd)

NOTE: These checks are to be made in the order listed, within designated interval.

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

ITEM NO.	INTERVAL					ITEM TO BE INSPECTED  PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY AVAILABLE IF:
	B	D	A	W	M		
						<ul style="list-style-type: none"> <li>• a. Open battery compartment (2) for access to batteries.</li> <li>• b. Remove filler caps (3) to check fluid level. Add distilled water as required, but do not overfill.</li> </ul> <p style="text-align: center;"><b>NOTE</b></p> <p>Notify organizational maintenance if fluid level is repeatedly low, or is boiling. When temperature drops below freezing, run engine 15 minutes to allow water added to battery to mix with electrolyte.</p> <ul style="list-style-type: none"> <li>• c. Clean tops of batteries. Use a damp cloth, then dry thoroughly. Make sure vent holes in filler caps are open to permit gasses to escape. Keep filler caps tight.</li> <li>• d. Check terminals and posts for tightness, damage, and corrosion. Make sure a light coat of GAA grease covers posts and terminals. Keep grease from between post and terminals.</li> <li>• e. Inspect batteries for cracked or leaking casing, broken, burnt, or loose battery terminal posts.</li> <li>• f. Inspect battery compartment for corrosion.</li> </ul>	One or more missing or unserviceable batteries, or will not crank engine.

TA 096307

Table 3-1. Operator/Crew Preventive Maintenance Checks and Services (Cont'd)

NOTE: These checks are to be made in the order listed, within designated interval.

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

ITEM NO.	INTERVAL					ITEM TO BE INSPECTED  PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY AVAILABLE IF:
	B	D	A	W	M		
7						<p><b>UNDERBODY</b></p> <p><b>POWER STEERING ASSIST CYLINDER</b></p> <ul style="list-style-type: none"> <li>a. Inspect power steering assist cylinder for damage, and leaks.</li> <li>b. Check fluid lines for defects and leaks.</li> </ul>	Evidence of class III leaks.
8						<p><b>FRAME</b></p> <ul style="list-style-type: none"> <li>Visually inspect frame side rails, crossmembers, and under body supports for loose or broken bolts, cracks, breaks, broken welds, and rusted-through conditions.</li> </ul>	Any obvious cracked, loose, or broken side rails or crossmembers.
9						<p><b>DIFFERENTIALS</b></p> <ul style="list-style-type: none"> <li>Visually inspect front and rear differentials for oil leaks.</li> </ul>	Evidence of class III leaks.
10						<p><b>TRANSMISSION AND TRANSFER</b></p> <ul style="list-style-type: none"> <li>a. Visually inspect transmission and transfer for leakage.</li> <li>b. Visually check for loose or damaged hoses and connections leading to and from transmission and transfer.</li> </ul>	Evidence of damage or class III leaks.

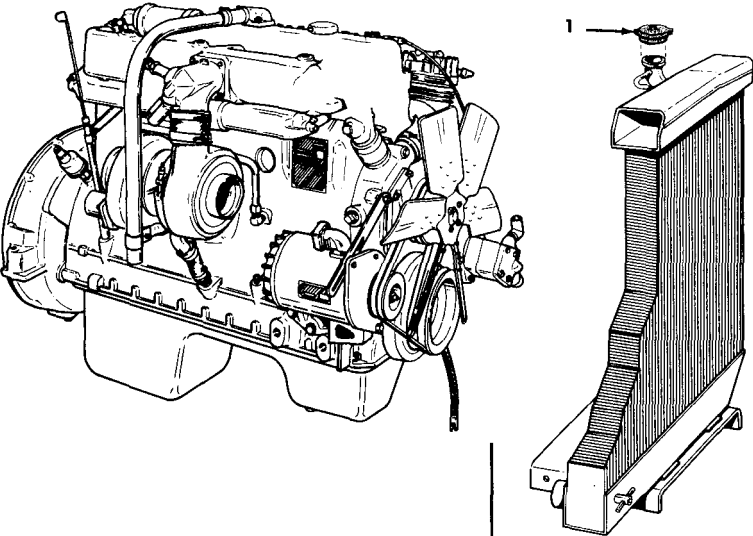
TA 096308



Table 3-1. Operator/Crew Preventive Maintenance Checks and Services (Cont'd)

NOTE: These checks are to be made in the order listed, within designated interval.

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

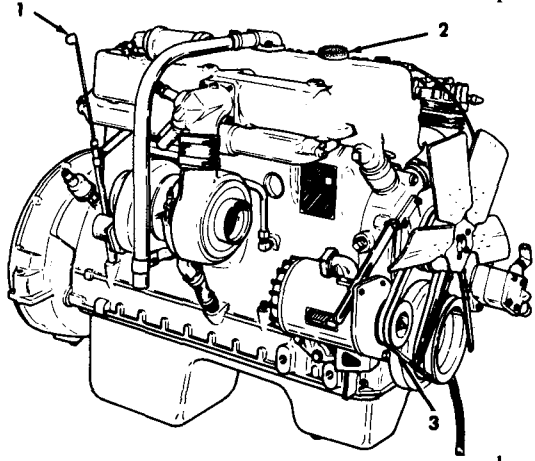
ITEM NO.	INTERVAL					ITEM TO BE INSPECTED  PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY AVAILABLE IF:
	B	D	A	W	M		
11						<p align="center"><b>ENGINE COMPARTMENT</b></p> <p><b>RADIATOR</b></p> <p align="center">WARNING</p> <p>Use care when removing radiator filler cap. Coolant is under pressure, and can cause severe burns when cap is removed while engine is hot.</p>  <p>a. Remove radiator cap (1) and check coolant level. Add coolant as required. Coolant should be seen in filler tube.</p> <p>b. Check all hoses for deterioration, leakage, and secure connections.</p> <p>Any hose leaking.</p>	

TA 096309)

Table 3-1. Operator/Crew Preventive Maintenance Checks and Services (Cont'd)

NOTE: These checks are to be made in the order listed, within designated interval.

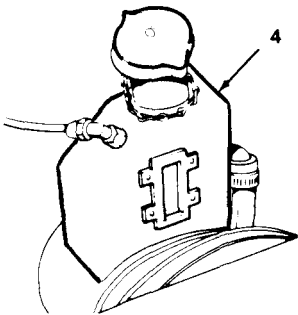
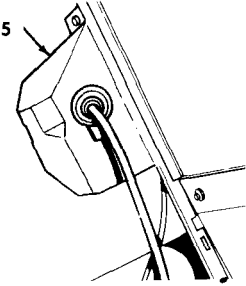
B-Before operation    D-During operation    A-After operation    W-Weekly    M-Monthly

ITEM NO.	INTERVAL					ITEM TO BE INSPECTED  PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY AVAILABLE IF:
	B	D	A	W	M		
12						<p>ENGINE OIL LEVEL</p> <p><b>NOTE</b></p> <p>Engine oil dipstick is on left-hand side of gasoline and diesel engines, on right-hand side of multifuel engines.</p> <p>Remove oil dipstick (1), wipe clean and reinsert. Remove again to check engine oil level, which should be between L(low) and H(high) marks. Add oil through oil filler cap (2) as required.</p> <p><b>CAUTION</b></p> <p>Do not overfill.</p> 	
13						<p>PULLEY BELTS</p> <p>• (r) Check belts (3) for cracking, fraying, and breaks.</p> <p><b>NOTE</b></p> <p>Gasoline and diesel belts and pulleys are similar to multifuel.</p>	Belts are broken or missing.

TA 096310

Table 3-1. Operator/Crew Preventive Maintenance Checks and Services (Cont'd)

NOTE: These checks are to be made in the order listed, within designated interval.

ITEM NO.	INTERVAL					ITEM TO BE INSPECTED  PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY AVAILABLE IF:
	B	D	A	W	M		
14						<p>POWER STEERING PUMP</p>  <p><b>NOTE</b></p> <p>Diesel pump shown, gasoline and multifuel similar.</p> <ul style="list-style-type: none"> <li>• Check pump (4) for leakage. Visually inspect pump hoses for deterioration and leaks.</li> </ul>	Evidence of class III leaks.
15						<p>WINDSHIELD WASHER RESERVOIR</p>  <p><b>NOTE</b></p> <p>Reservoir is on right side of engine compartment.</p> <ul style="list-style-type: none"> <li>• Check fluid level in reservoir (5). If less than half full, fill with washer fluid.</li> </ul>	

TA 096311

Table 3-1. Operator/Crew Preventive Maintenance Checks and Services (Cont'd)

NOTE: These checks are to be made in the order listed, within designated interval.

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

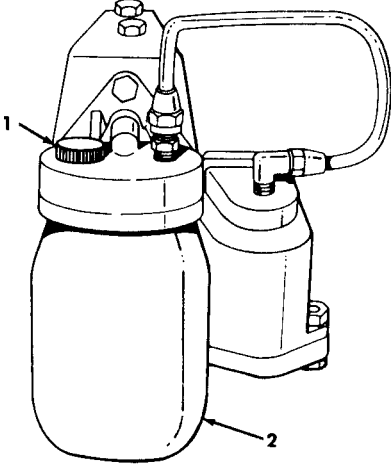
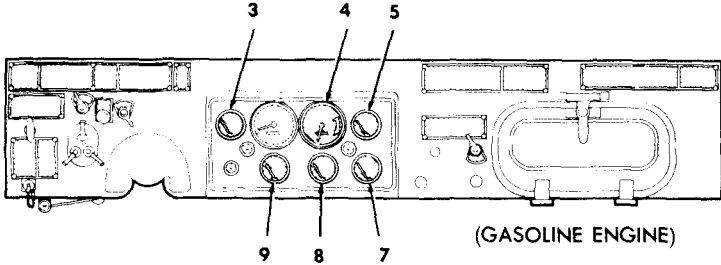
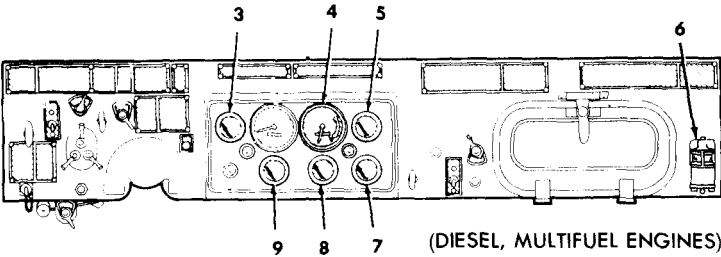
ITEM NO.	INTERVAL					ITEM TO BE INSPECTED  PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY AVAILABLE IF:
	B	D	A	W	M		
16						<p>ALCOHOL EVAPORATOR IN FREEZING TEMPERATURES</p>  <p>• Check fluid level. Fill through filler cap (1) with alcohol if bottle (2) is less than two-thirds full.</p>	
						<p style="text-align: center;"><b>INTERIOR OF VEHICLE</b></p> <p>ENGINE OPERATION</p> <p>• a. Start engine. Check idle speed and instruments. (See next item.)</p> <p>• b. Listen for unusual noises or vibrations, especially during acceleration.</p>	<p>Engine inoperative.</p> <p>Unusual noises or vibrations.</p>
18						<p>INSTRUMENTS</p> <p style="text-align: center;"><u><b>CAUTION</b></u></p> <p>A sudden rise in temperature during engine warm-up indicates defective cooling.</p>	

Table 3-1. Operator/Crew Preventive Maintenance Checks and Services (Cont'd)

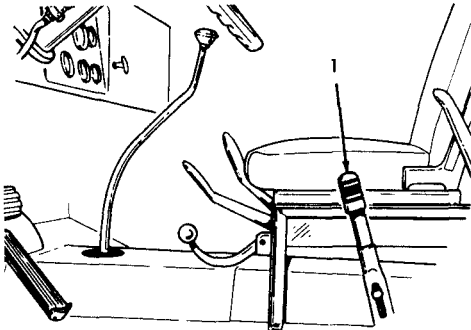
NOTE: These checks are to be made in the order listed, within designated interval.

ITEM NO.	INTERVAL					ITEM TO BE INSPECTED  PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY AVAILABLE IF:
	B	D	A	W	M		
						 <p>(GASOLINE ENGINE)</p>  <p>(DIESEL, MULTIFUEL ENGINES)</p>	
						<p>With warmed-up engine idling, instrument readings should be:</p> <ul style="list-style-type: none"> <li>(1) Fuel gage (3), operating</li> <li>(2) Tachometer (4), 400 to 450 rpm gasoline; 700 to 750 rpm diesel; 600 to 700 rpm multifuel.</li> <li>(3) Temperature gage (5), 160 to 185°F.</li> <li>(4) Air restriction indicator (6), reflecting on green line.</li> <li>(5) Battery-generator indicator (7), in green area.</li> <li>(6) Air pressure gage (8), 90 psi minimum, to 120 psi maximum.</li> <li>(7) Oil pressure gage (9), 15 psi at idle, 50 to 65 psi at highway speeds.</li> </ul>	<p>Temperature, oil pressure, or air pressure gage not operating properly.</p> <p>Stays in red.</p> <p>Shows constant discharge.</p> <p>Air buzzer will not shut off.</p>

TA 096313

Table 3-7. Operator/Crew Preventive Maintenance Checks and Services (Cont'd)

NOTE: These checks are to be made in the order listed, within designated interval.

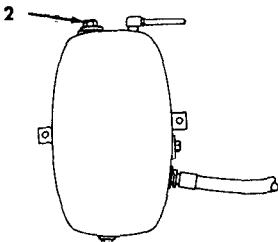
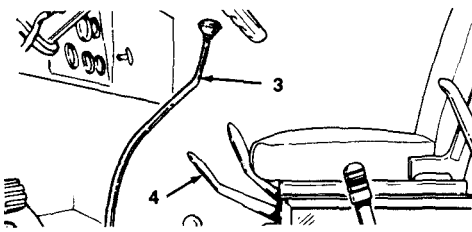
ITEM NO.	INTERVAL					ITEM TO BE INSPECTED  PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY AVAILABLE IF:
	B	D	A	W	M		
19		•				<p><b>BRAKE SYSTEM</b></p> <p>a. With engine running and parking brake engaged, walk around vehicle and visually check:</p> <p>(1) Air reservoirs (under left running board) for leaks.</p> <p>(2) All brake air lines and hoses for deterioration and leaks.</p> <p>b. Operate service brakes to determine stopping ability. Check for any pulling to one side, grabbing or other abnormal operation.</p> <p>c. Determine parking brake ability to hold vehicle by first engaging hand brake; then engage transmission. Vehicle should not move.</p>  <p>d. Adjust hand brake as required by moving knob on top of brake handle (1) clockwise to increase braking action; counterclockwise to decrease braking action.</p> <p>e. Check master cylinder fluid level.</p>	<p>Any reservoir, line, or hose missing, leaking, or damaged.</p> <p>Service brakes do not operate properly.</p>

TA 096314

Table 3-7. Operator/Crew Preventive Maintenance Checks and Services (Cont'd)

NOTE: These checks are to be made in the order listed, within designated interval.

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

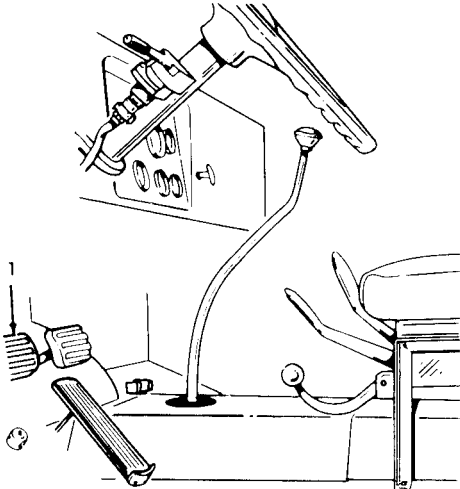
ITEM NO.	INTERVAL					ITEM TO BE INSPECTED  PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY AVAILABLE IF:
	B	D	A	W	M		
20						<p>STEERING SYSTEM</p>  <p>a. Stop engine and open hood. Remove filler plug (2) and check oil level. Reservoir should be 3/4 full. Add oil as required.</p> <p><b>CAUTION</b></p> <p>Do not overfill power steering reservoir.</p> <p>b. Check for unusual free play, binding, wander, or shimmy.</p>	Loose or binding steering action. Steering wheel difficult to turn. Steering is inoperative.
21						<p>TRANSMISSION</p>  <p>Check transmission selector lever (3) for operation through gear ranges. Look for stiffness, unusual noises, or tendency to slip out of gear with transfer selector lever (4) in neutral.</p>	Transmission is inoperative.
22						<p>TRANSFER</p> <p>Check transfer selector lever (4) action for unusual noises, stiffness, or jumping out of gear.</p>	Transfer is inoperative.

TA 096315

Table 3-1. Operator/Crew Preventive Maintenance Checks and Services (Cont'd)

**NOTE:** These checks are to be made in the order listed, within designated interval

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

ITEM NO.	INTERVAL					ITEM TO BE INSPECTED  PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY AVAILABLE IF:
	B	D	A	W	M		
23						CLUTCH  	
24		•				Check clutch (1) for drag, noise, chatter, grab, slippage, and clashing of gear.  FRONT AND REAR DRIVE AXLES AND PROPELLER SHAFTS  a. Listen for unusual noises or vibrations. Vibrations, clinking or clunking noises, indicate worn U-joints or damaged propeller shafts.  b. Check mounting of prop shafts for security and presence of all mounting bolts. Tighten as necessary.	Clutch is inoperative, slipping or definite grab or chatter.  Rear propeller shaft missing or damaged, unusual noises or vibrations.
25		•				HORNS  Check for operation if tactical situation permits.	



**Table 3-1. Operator/Crew Preventive Maintenance Checks and Services (Cont'd)**

NOTE: These checks are to be made in the order listed, within designated interval.

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

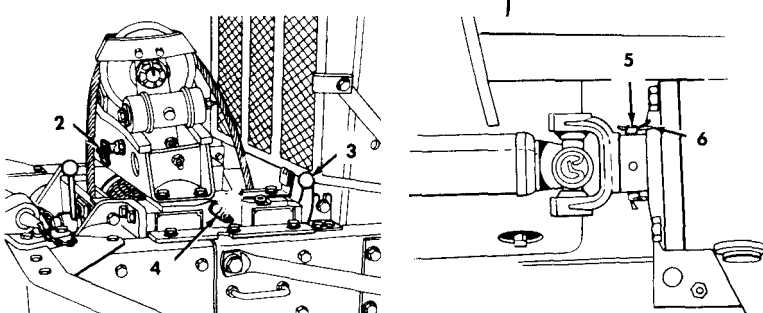
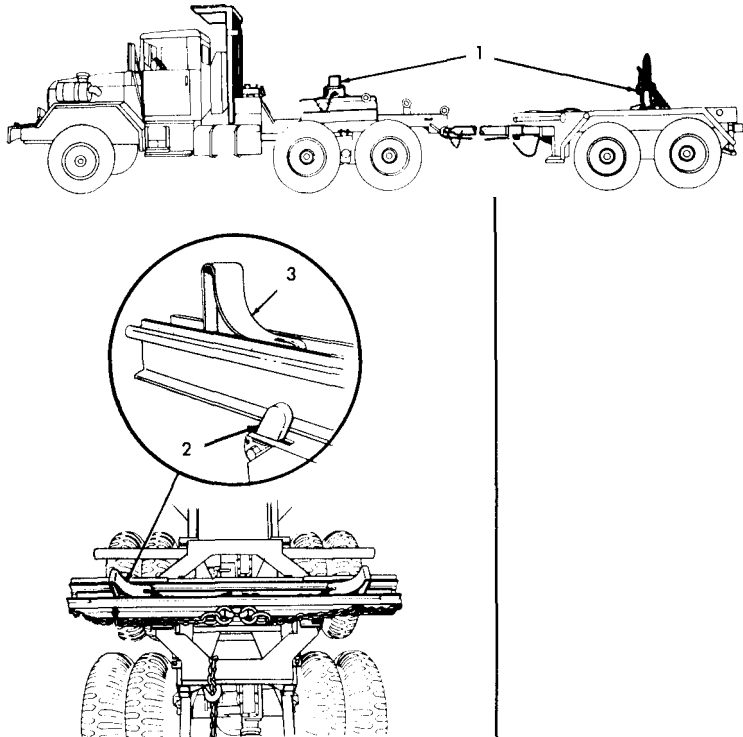
ITEM NO.	INTERVAL					ITEM TO BE INSPECTED  PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY AVAILABLE IF:
	B	D	A	W	M		
26						<p>SPECIAL BODY EQUIPMENT</p> <p><b>FRONT WINCH</b></p>  <ul style="list-style-type: none"> <li>● a. While operating front winch, check condition of wire rope, hooks, and cable chain installation.</li> <li>● b. While operating front winch, check that drum lock knob (4) and drum clutch lever (3) operate properly. Also, that level wind lack knob (2) on winches so equipped, operates properly.</li> <li>● c. Clean wire rope and check shearpin (5) for presence and condition. (Shearpin connects U-joint yoke and winch drive shaft. It is retained with cotter pins (6)).</li> <li>● d. Check PTO and drive shaft for mounting completeness.</li> </ul>	<p>Cable frayed, kinked, or broken (if winch operation is required for mission).</p> <p>Winch does not operate properly (if winch operation is required for mission).</p>
27						<p><b>M748A1 MIDSHIPS WINCH</b></p> <p>NOTE</p> <p>Front and midships winch controls are identical. Follow front winch operation checks a and b for M748A1 midships winch.</p>	

Table 3-7. Operator/Crew Preventive Maintenance Checks and Services (Cont'd)

**NOTE:** These checks are to be made in the order listed, within designated interval.

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

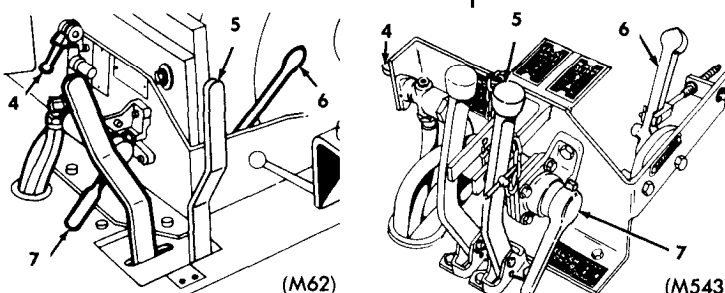
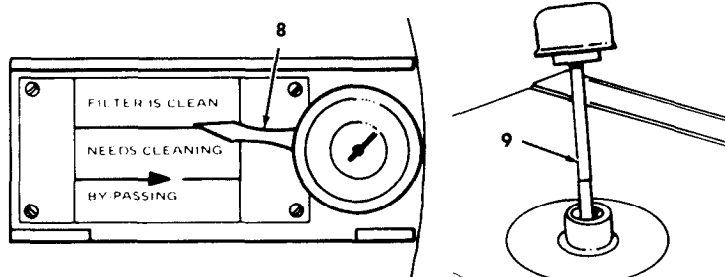
ITEM NO.	INTERVAL					ITEM TO BE INSPECTED  PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY AVAILABLE IF:
	B	D	A	W	M		
28						<p>M748A1 BOLSTER TRUCK</p>  <ul style="list-style-type: none"> <li>Inspect bolster (1), sliding chocks (3), fifth wheel locks (2), stanchions, chains, and kingpin for bends, breaks, loose or missing parts.</li> </ul>	

TA 096318

Table 3-1. Operator/Crew Preventive Maintenance Checks and Services (Cont'd)

NOTE: These checks are to be made in the order listed, within designated interval.

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

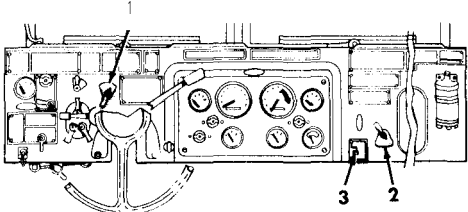
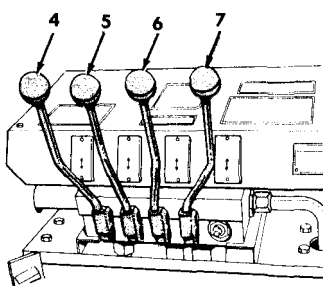
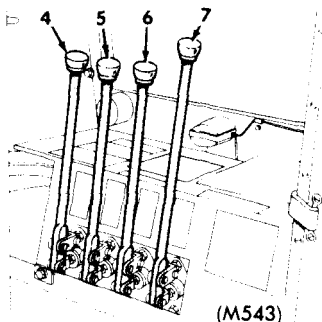
ITEM NO.	INTERVAL					ITEM TO BE INSPECTED  PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY AVAILABLE IF:
	B	D	A	W	M		
29						<p>WRECKER REAR WINCH</p>  <p>(M62) (M543)</p> <p>a. While operating wrecker rear winch, inspect cable for kinks, breaks, or frayed wire.</p> <p>b. While operating rear winch, check all controls for proper operation. They are: (4) cable tensioner valve, (6) throttle control lever, (5) winch shift control, and (7) clutch control lever.</p> <p>c. Inspect hose assemblies for leaks.</p>	<p>Cable frayed, kinked, or broken.</p> <p>Controls are inoperative.</p> <p>Evidence of class III leaks.</p>
30						<p>WRECKER CRANE</p>  <p>a. Before using crane, measure reservoir oil level with dipstick (9) on reservoir top. Add oil as required (see LO 9-2320-211-12).</p> <p>b. While operating crane, check filter indicator (8) on front of crane oil reservoir. Filter should point to CLEAN.</p>	

TA 096319

Table 3-1. Operator/Crew Preventive Maintenance Checks and Services (Cont'd)

NOTE: These checks are to be made in the order listed, within designated interval.

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

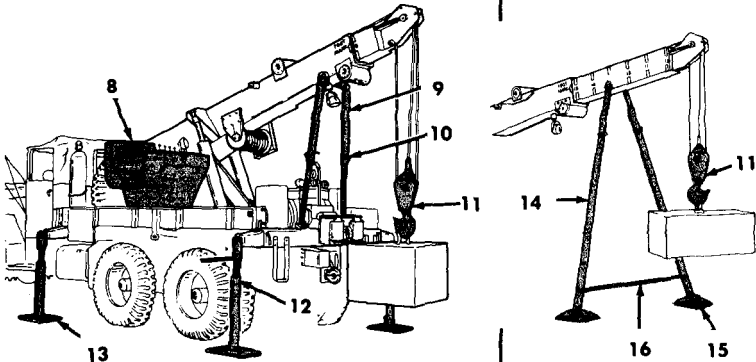
ITEM NO.	INTERVAL					ITEM TO BE INSPECTED  PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY AVAILABLE IF:
	B	D	A	W	M		
						 <p>c. Check brake lock switch (3), floodlights and witch (2), and amber warning light (on left front ender) and switch (1) for proper operation.</p>	
						 <p>(M62)</p>  <p>(M543)</p> <p>d. Operate crane through full range of levation, rotation and boom extension to check performance of crane and hoist, pump control linkage, and controls:</p> <ul style="list-style-type: none"> <li>(1) Boom control lever (4)</li> <li>(2) Hoist central lever (5)</li> <li>(3) Crowd central lever (6)</li> <li>(4) Swing control lever (7)</li> </ul> <p>e. Inspect all hydraulic lines, hoses, and fittings for leaks, abrasions, and damaged fittings</p>	<p>Crane is inoperative.</p> <p>Evidence of class III leaks.</p>

TA 096320

Table 3-1. Operator/Crew Preventive Maintenance Checks and Services (Cont'd)

NOTE: These checks are to be made in the order listed, within designated interval.

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

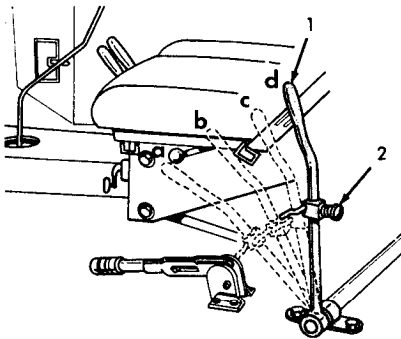
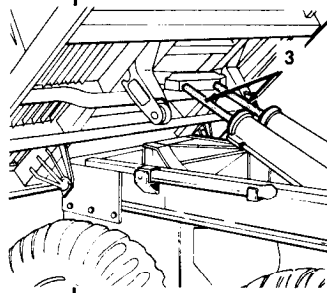
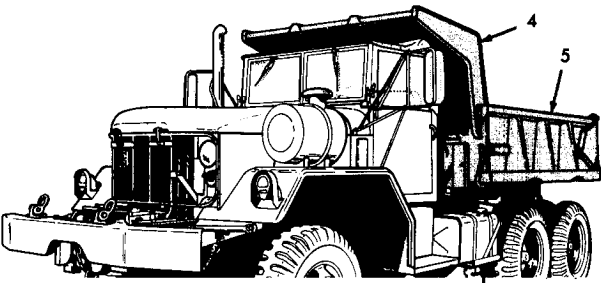
ITEM NO.	INTERVAL					ITEM TO BE INSPECTED  PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY AVAILABLE IF:
	B	D	A	W	M		
31						 <p style="text-align: center;"><b>WARNING</b></p> <p>Always position the outriggers (12) before operating the crane, and use boom jacks (14) with heavy lifts.</p> <ul style="list-style-type: none"> <li>● f. Inspect crane cab (8) for damage.</li> <li>● g. Check condition of shipping brace assemblies (9), retaining pins (10), hook and block (11), outriggers (12) and base plates (13), boom jacks (14) and base plates (15), and boom jack tie bars (16).</li> <li>● h. Visually inspect vehicle for condition of ground spades, support jacks, and other items used in crane operation.</li> </ul> <p style="text-align: center;"><b>M51 DUMP TRUCK</b></p> <p style="text-align: center;"><b>WARNING</b></p> <p>Stay clear of dump body and cab protector at all times during loading and unloading operations. The dump body can raise accidentally when overloaded or when a heavy load is dumped into the dump body. This can result in serious injury.</p>	

TA 096321

Table 3-1. Operator/Crew Preventive Maintenance Checks and Services (Cont'd)

NOTE: These checks are to be made in the order listed, within designated interval.

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

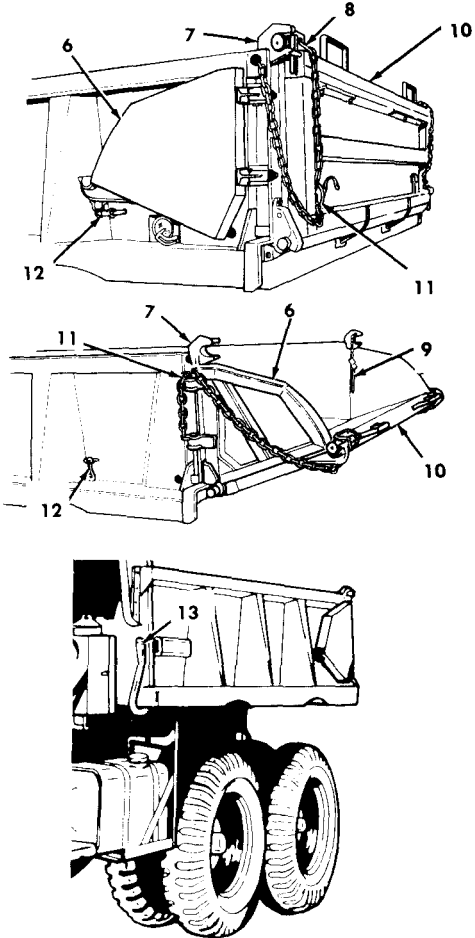
ITEM NO.	INTERVAL					ITEM TO BE INSPECTED  PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY AVAILABLE IF:
	B	D	A	W	M		
						  <p>a. Before operating dump truck hoist, inspect hydraulic lines and hoses for signs of leakage or deterioration.</p> <p>b. Operate dump hoist control (1) through raising (a), holding (b), and lowering (c) positions to check performance. Make sure lock (2) on control lever (1) holds control in neutral position (d).</p>  <p>c. Inspect dump body (5) and cab protector (4) for dents, cracks, broken welds, loose or broken bolts, and rusted-through conditions. Make sure all bolts securing cab protector to dump truck are tight.</p> <p>d. Inspect cylinders (3) for damage, leaks, and security of mounting to subframe.</p> <p>e. Check PTO, drive shaft, hydraulic pump and control valve for damage, leaks, and security of mounting.</p>	<p>Evidence of class III leaks.</p> <p>Dump hoist inoperative.</p> <p>Evidence of class III leaks.</p> <p>Class III leaks evident.</p>

TA 096322

Table 3-7. Operator/Crew Preventive Maintenance Checks and Services (Cont'd)

NOTE: These checks are to be made in the order listed, within designated interval.

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

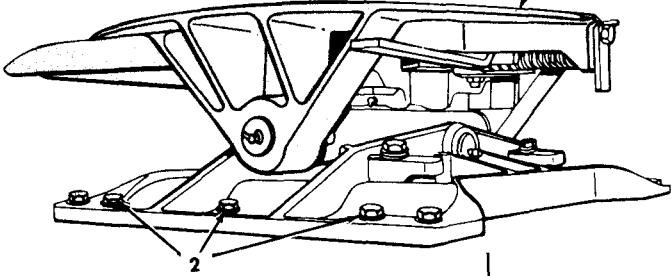
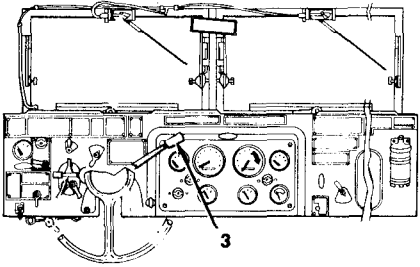
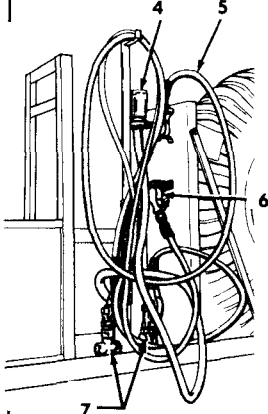
ITEM NO.	INTERVAL					ITEM TO BE INSPECTED  PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY AVAILABLE IF:
	B	D	A	W	M		
						 <ul style="list-style-type: none"> <li>● f. Inspect tailgate (10) for damage, security, and ease of movement. Also check condition and security of tailgate chains (11), wings (6), harness hooks (12), latches and braces, retaining pins (9) and hinge pins (8), and brackets (7).</li> <li>● g. Check for proper operation of tailgate control linkage by: 1st pulling tailgate control rod hand lever (13) forward and down to unlock tailgate; and 2nd pushing it up and back to lock tailgate.</li> </ul>	

TA 096323

Table 3-1. Operator/Crew Preventive Maintenance Checks and Services (Cont'd)

NOTE: These checks are to be made in the order listed, within designated interval.

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

ITEM NO.	INTERVAL					ITEM TO BE INSPECTED  PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY AVAILABLE IF:
	B	D	A	W	M		
32						<p>FIFTH WHEEL</p>  <ul style="list-style-type: none"> <li>• a. Before using tractor, couple and uncouple trailer to determine if fifth wheel (1) works properly.</li> <li>• b. Check fifth wheel for loose or missing capscrews (2) securing fifth wheel to vehicle side rails (crane body on tractor wrecker).</li> <li>• c. Inspect fifth wheel (1) for bends and damage.</li> </ul>	<p>Faulty coupling or uncoupling action.</p>
33						<p>TRAILER CONNECTING ACCESSORIES</p>   <ul style="list-style-type: none"> <li>• a. Before using trailer, check airbrake hand control (3) for proper operation.</li> <li>• b. Inspect electric cable and connector (4) for cracks, breaks, and other damage.</li> </ul>	<p>Control does not function.</p> <p>Cable is broken.</p>

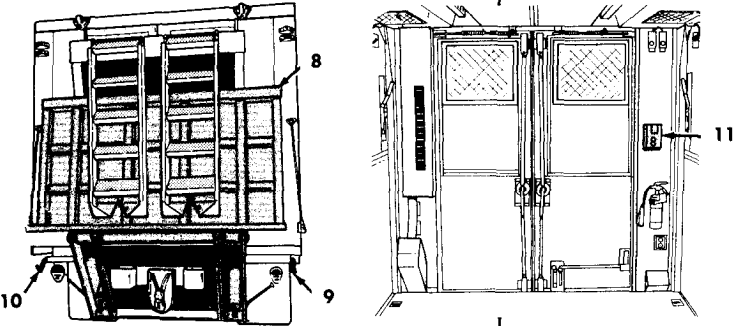
TA 096324



Table 3-1. Operator/Crew Preventive Maintenance Checks and Services (Cont'd)

NOTE: These checks are to be made in the order listed, within designated interval.

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

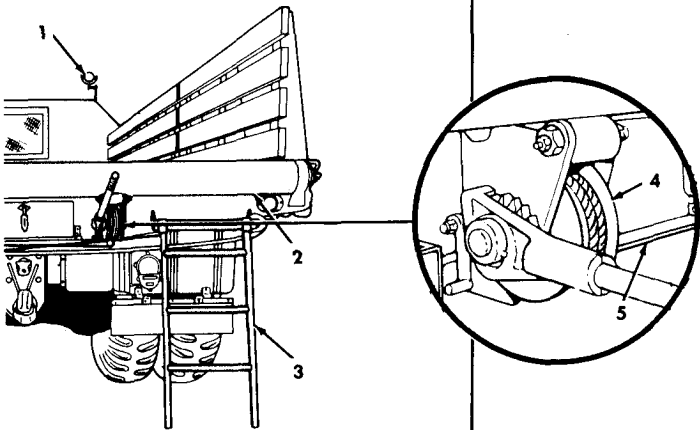
ITEM NO.	INTERVAL					ITEM TO BE INSPECTED  PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY AVAILABLE IF:
	B	D	A	W	M		
34						<ul style="list-style-type: none"> <li>• c. Inspect emergency airbrake hose line and coupling (5) and service hose line and coupling (6) for damage, deterioration, and leakage.</li> <li>• d. Inspect airbrake hose coupling shutoff cocks (7) for damage, leakage, and proper operation.</li> </ul>	Hose or couplings damaged or leaking.
						<p>EXPANSIBLE VAN EXTERIOR</p> <ul style="list-style-type: none"> <li>• Check for condition, and proper operation of panels, doors and blackout switches, ladders, stabilizers, receptacles, and power cable.</li> </ul>	
35						<p>VAN HYDRAULIC LIFT GATE (M291A2D)</p> 	<p>Evidence of class III leaks.</p> <p>No control response.</p>
					<ul style="list-style-type: none"> <li>• a. Before operating lift gate (8), inspect hydraulic hoses for leaks, abrasions, and damaged fittings.</li> <li>• b. Operate hydraulic lift gate (8) through full range of movement. Use lift gate auxiliary pump switch (11) (M291A2D only) inside van, and PTO controls on rear of van (9, 10).</li> <li>• c. Inspect lift gate, lift arms, and support assemblies for bends, breaks, and missing parts.</li> </ul>		
					<ul style="list-style-type: none"> <li>•</li> </ul>		

TA 096325

Table 3-1. Operator/Crew Preventive Maintenance Checks and Services (Cont'd)

NOTE: These checks are to be made in the order listed, within designated interval.

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

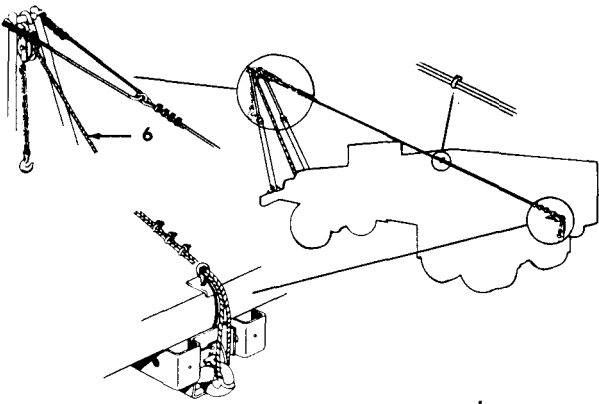
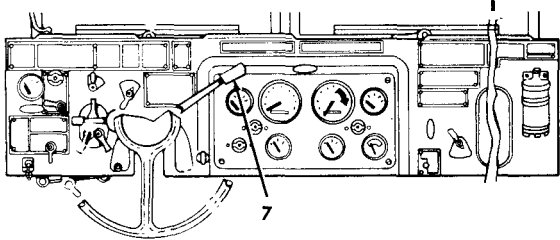
ITEM NO.	INTERVAL					ITEM TO BE INSPECTED  PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY AVAILABLE IF:
	B	D	A	W	M		
36			●			<p>EXPANSIBLE VAN ELECTRICAL SYSTEM</p> <p>a. Operate all switches in both AC and DC electrical systems to determine that all function properly and that power ceiling lights are on. (Switch box on rear van wall.)</p> <p>b. Operate lift gate interior switch to determine if lift gate electrical controls are working properly (M291A2D only).</p> <p>c. Visually inspect cables and harnesses for abrasions, breaks, or loose connections.</p>	Neither AC nor DC system will operate.
37					●	<p>M328A1 BRIDGE TRANSPORT STAKE BODY</p>  <p>a. While loading or unloading, operate and inspect loading roller (2) ratchet wheel (4), and winches (5) to determine performance.</p>	Broken cable, damaged winch or roller.

TA 096326

Table 3-1. Operator/Crew Preventive Maintenance Checks and Services (Cont'd)

NOTE: These checks are to be made in the order listed, within designated interval.

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

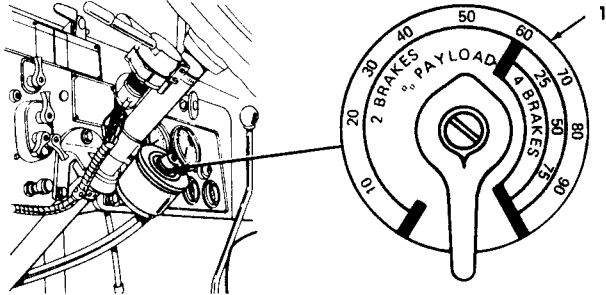
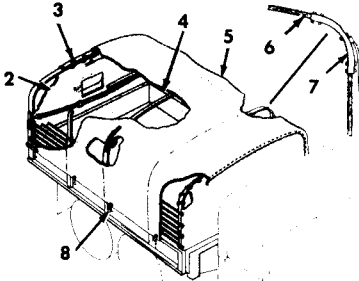
ITEM NO.	INTERVAL					ITEM TO BE INSPECTED  PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY AVAILABLE IF:
	B	D	A	W	M		
38		•				<p>b. Inspect floodlights (1), connections and mountings to determine if all are in operable condition.</p> <p>c. Inspect cables, ladders (3), tackle block, and wire rope for missing, damaged or broken parts.</p> <p><b>SPECIAL PURPOSE KITS</b></p> <p>A-FRAME KIT</p> 	
						<p>• Visually inspect A-frame for bends and winch cable (6) for kinks, frays, or breaks.</p> <p>Winch cable is frayed or broken.</p>	
39						<p><b>AIR BRAKE KIT</b></p>  <p>• Before moving with any towed vehicle, make sure air brake control lever (7) is working properly by moving lever down to apply brakes to towed vehicle, up to release brakes.</p> <p>Trailer brakes do not apply.</p>	

TA 096327

Table 3-1. Operator/Crew Preventive Maintenance Checks and Services (Cont'd)

NOTE: These checks are to be made in the order listed, within designated interval.

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

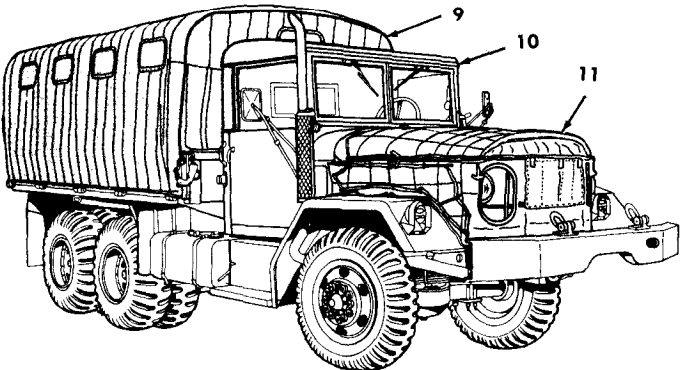
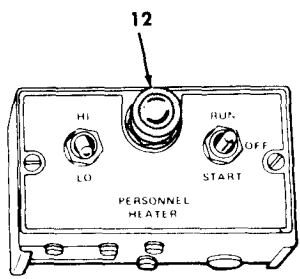
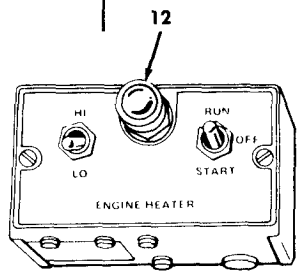
ITEM NO.	INTERVAL					ITEM TO BE INSPECTED  PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY AVAILABLE IF:
	B	D	A	W	M		
40						<p><b>ELECTRIC BRAKE KIT</b></p>  <p>Make sure rheostat (1) is set properly by depressing service brake pedal to determine if electric brakes on towed vehicle are applied. Adjust rheostat setting as required.</p>	Trailer brakes do not apply.
41						<p><b>TROOPSEAT AND COVERING, BOW AND TARP KITS</b></p>  <ul style="list-style-type: none"> <li>• a. Inspect tarp (5) and end curtain (2) for tears and holes.</li> <li>• b. Inspect lashing hooks (8) and rope (3) for ability to secure tarp and end curtain.</li> <li>• c. Check stave (7) and cross bow (6) assemblies for warpage and breaks.</li> <li>• d. Check troopseats (4) for cracked or broken wood. Make sure troopseat retainers are present and secure.</li> </ul>	

TA 096328

Table 3-1. Operator/Crew Preventive Maintenance Checks and Services (Cont'd)

NOTE: These checks are to be made in the order listed, within designated interval.

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

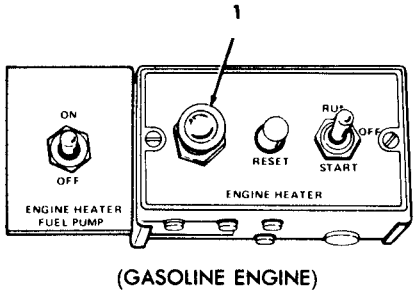
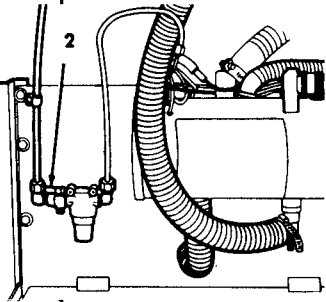
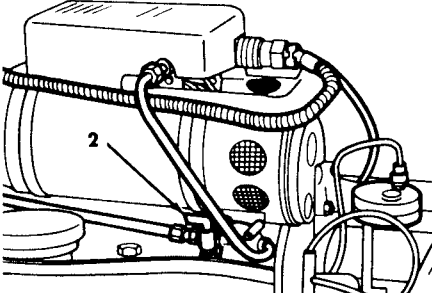
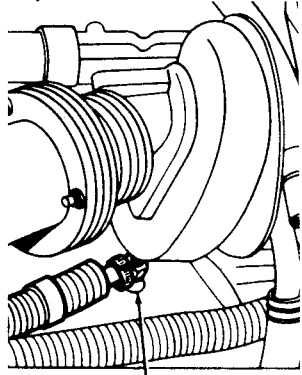
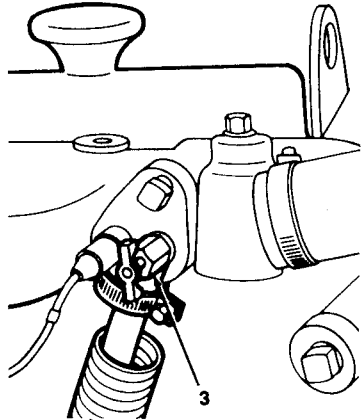
ITEM NO.	INTERVAL					ITEM TO BE INSPECTED  PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY AVAILABLE IF:
	B	D	A	W	M		
42						<p>ARCTIC WINTERIZATION KIT</p>  <p>a. Inspect hardtop closure (10), quilted engine compartment (11) and cargo compartment (9) covers for secure mounting and good condition.</p> <p>b. Inspect fuel burning personnel and engine coolant heaters for the following:</p>   <p>(1) Before operating heaters, depress indicator lamps (12) to make sure they illuminate.</p>	

TA 096329

Table 3-1. Operator/Crew Preventive Maintenance Checks and Services (Cont'd)

NOTE: These checks are to be made in the order listed, within designated interval.

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

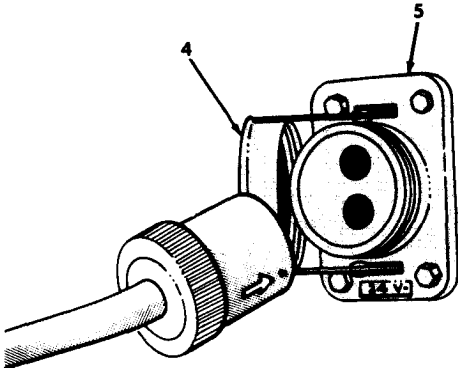
ITEM NO.	INTERVAL					ITEM TO BE INSPECTED  PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY AVAILABLE IF:
	B	D	A	W	M		
						 <p>(GASOLINE ENGINE)</p>	
							
							
						<p>(2) Make sure all coolant shutoff cocks (3) are open, also fuel inlet cocks (2).</p>	

TA 096330

Table 3-1. Operator/Crew Preventive Maintenance Checks and Services (Cont'd)

NOTE: These checks are to be made in the order listed, within designated interval.

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

ITEM NO.	INTERVAL					ITEM TO BE INSPECTED  PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY AVAILABLE IF:
	B	D	A	W	M		
		•				(3) Listen for unusual heater noises during operation.	Heaters making unusual noises.
				•		(4) Check heater fuel lines and connections for leaks.	Any fuel leakage.
				•		(5) Check engine coolant heater hoses for abrasions and leakage.	Evidence of class III leakage.
				•		(6) Make sure intake and exhaust tubes are not damaged and are free from obstructions.	
		•				(7) Be alert for any interior exhaust leakage while operating heaters.	Any exhaust leakage.
				•			
				•		c. Inspect slave receptacle (5) to be sure cover (4) turns freely, and receptacle is not damaged.	
				•		d. Inspect slave receptacle battery cables to be sure connections are tight and not corroded.	

TA 096331

Table 3-1. Operator/Crew Preventive Maintenance Checks and Services (Cont'd)

NOTE: These checks are to be made in the order listed, within designated interval.

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

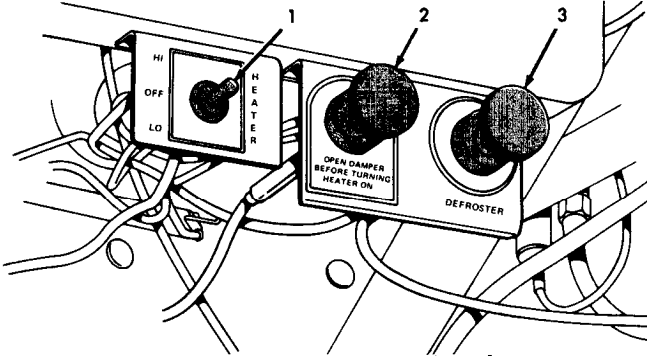
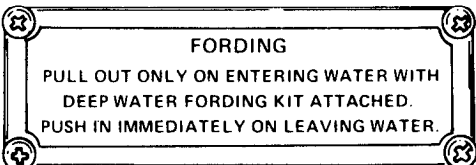
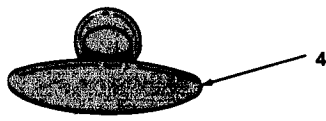
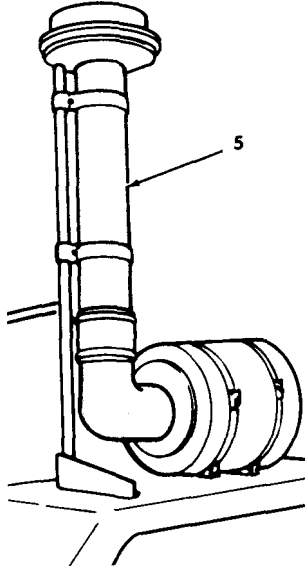
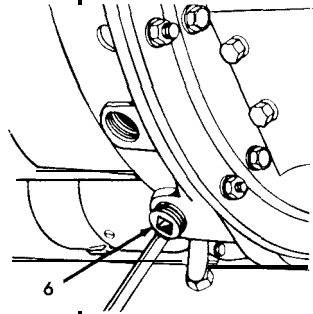
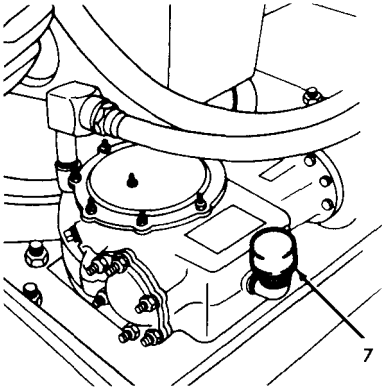
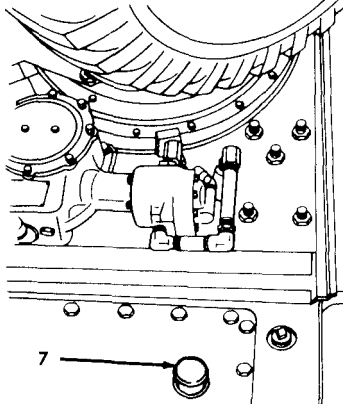
ITEM NO.	INTERVAL					ITEM TO BE INSPECTED  PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY AVAILABLE IF:
	B	D	A	W	M		
43						<p><b>HOT WATER PERSONNEL HEATER KIT</b></p>  <p>a. Check motor switch (1), air (2) and defroster (3) control handles for proper operation.</p> <p>b. Listen for unusual noises during operation.</p> <p>c. Check heater hoses and connections for leaks.</p>	
		•					
		•					
			•				Evidence of class III leaks.
44						<p><b>DEEP WATER FORDING KIT</b></p>   <p>Before beginning fording operation:</p>	



Table 3-1. Operator/Crew Preventive Maintenance Checks and Services (Cont'd)

NOTE: These checks are to be made in the order listed, within designated interval.

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

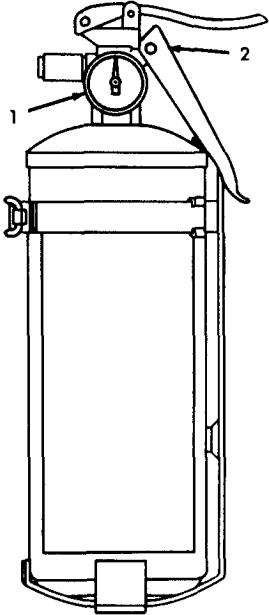
ITEM NO.	INTERVAL					ITEM TO BE INSPECTED  PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY AVAILABLE IF:
	B	D	A	W	M		
						   	
•						a. Check that flywheel drain plug (6) and pipe slugs (7) on tractor wreckers are properly installed.	
•						b. Check air intake (5) and exhaust systems for complete, secure assembly.	
•						c. Check operation of control handle (4), to be sure fording valves open and close.	

TA 096333

Table 3-1. Operator/Crew Preventive Maintenance Checks and Services (Cont'd)

NOTE: These checks are to be made in the order listed, within designated interval.

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

ITEM NO.	INTERVAL					ITEM TO BE INSPECTED  PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY AVAILABLE IF:
	B	D	A	W	M		
45						<p><b>MISCELLANEOUS EQUIPMENT</b></p> <p>FIRE EXTINGUISHERS</p> 	
46						<ul style="list-style-type: none"> <li>• Check level of contents (1), and that valve (2) is undamaged.</li> </ul> <p>FIRST AID KITS</p> <ul style="list-style-type: none"> <li>• Check per AR 385-55.</li> </ul>	

**TABLE 3-2. TROUBLESHOOTING**

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

**NOTE**

Be sure you have completed all applicable operating checks before using this table.

**NOTE**

See organizational maintenance personnel for corrective actions for malfunctions not listed in this table.

**ENGINE****1. When starter impressed, engine fails to crank, or cranks slowly.**

Step 1. See if ignition switch (gasoline) is on or battery switch (diesel and multifuel) is on.

Turn on.

Step 2. See if transmission lever is in N (neutral) position.

Place in N position.

Step 3. See if battery cables are loose, broken, or corroded and that battery is filled to proper water level. Check battery terminals and cable connections.

Step 4. Check log book for date of last oil change to determine probable oil weight in engine.  
If necessary, drain and refill with right weight of oil (see LO 9-2320-211-12).

Step 5. Other causes.

Notify organizational maintenance.

**2. Engine cranks but does not start.**

Step 1. See if fuel gage indicator is on E (empty).

If empty, fill fuel tank.

**NOTE**

Do not fill fuel tank completely before checking visually for leaks in fuel system. If leaks are found, notify organizational maintenance.

**TABLE 3-2. TROUBLESHOOTING**

(Cont.)

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
Step 2. Check fuel lines and hoses.	If restriction is found, notify organizational maintenance	
Step 3. Check manifold heater, fuel supply and ambient temperature below 0°F (diesel and multifuel) or below 20°F (gasoline).	Energize heater switch.	
Step 4. Gasoline engine only: check combustion chambers.	If combustion chambers are flooded with fuel, push choke in, open throttle plate, and crank engine to clean out excess fuel. If flooding continues, notify organizational maintenance.	
Step 5. Other causes.	Notify organizational maintenance.	
<b>3. Engine starts but stalls after starting.</b>		
Step 1. Check fuel gage	If gage indicates empty tank, fill tank	
Step 2. Other causes.	Notify organizational maintenance.	
<b>4. Engine starts but misfires or does not run smoothly.</b>		
Step 1. Operate manifold heater (diesel and] multifuel only).	Turn on manifold heater switch. If engine does not smooth out, notify organizational maintenance.	
Step 2. Other causes.	Notify organizational maintenance.	
<b>5. Engine stalls when truck is standing, slowing, or stopping.</b>		
Step 1. Check temperature gage.	Normal reading should be from 180° to 200°F. If temperature is not normal; check cooling system. Add coolant, as required.	

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**TABLE 3-2. TROUBLESHOOTING**

(Cont.)

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
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**WARNING**

Extreme care should be taken when removing coolant filler cap if temperature gage reads above 180°F. Do not add coolant when engine is hot unless engine is running. Add coolant slowly.

**Step 2. Other causes.**

Notify organizational maintenance.

**6. Engine overheats, according to temperature gage.****Step 1. Check temperature gage. Observe preceding warning.**

If reading is above 200°F, check cooling system. Add coolant, as required.

**Step 2. Check oil level in crankcase.**

If low, add proper grade of oil to full mark on dipstick (see LO 9-2320-211-12).

**Step 3. Other causes.**

Notify organizational maintenance.

**7. Low engine oil pressure.****Step 1. Check engine oil level.**

If low, add proper oil to full mark on dipstick (see LO 2320-211-12).

**Step 2. Check for correct oil for climate conditions.**

If not correct, drain oil from crankcase. Replace with proper oil (see LO 2320-211-12).

**8. Excessive oil consumption.****Step 1. Check for oil leaks.**

Perform visual engine check. If leak is detected, notify organizational maintenance.

**Step 2. Check log book for date of last oil change to determine probable oil weight in engine.**

If necessary, change oil (see LO 9-2320-211-12).

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**TABLE 3-2. TROUBLESHOOTING**

(Cont.)

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
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Step 3. Other causes.

Notify organizational maintenance.

**9. Engine consumes excessive fuel.**

Check for restricted air cleaner or other causes.

Notify organizational maintenance.

**10. Excessive exhaust smoke.**

Check for restricted air cleaner or other causes.

Notify organizational maintenance.

**EXHAUST SYSTEM**

**11. Exhaust fumes in driver's compartment.**

**WARNING**

Have defective parts replaced immediately. Exhaust fumes are extremely dangerous and can cause loss of life.

All causes.

Get out of truck, or open window, if you must drive. Notify organizational maintenance for repair.

**COOLING SYSTEM**

**12. Overheating.**

Step 1. Check coolant level at radiator.

If necessary, fill radiator with proper coolant. Observe warning in item 5.

Step 2. Check radiator core for obstructions such as insects or mud.

Clean core with water and/or compressed air.

TABLE 3-2. TROUBLESHOOTING

(Cont.)

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
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### TRANSMISSION

#### 13. Hard to shift or not able to engage or disengage transmission gears.

**Step 1** Check for congealed oil in transmission.

Start engine in neutral to warm up transmission oil. Change oil (see LO 9-2320-211-12).

**Step 2.** Check grade of lubricant.

Fill with proper grade of lubricant (see LO 9-2320-211-1 2).

**Step 3.** Other causes, including leaks.

Notify organizational maintenance.

#### 14. Transmission noises or vibration while driving or stopped.

**Step 1.** Check lubricant.

If low, add proper lubricant (see LO 9-2320-211-12). If lubrication is not correct type, drain and refill with recommended lubricant.

**Step 2.** Other causes.

Notify organizational maintenance.

#### 15. Lubricant leakage.

**Step 1.** Check for loose drain plugs.

Tighten loose drain plugs.

**Step 2.** Check for loose housing bolts.

Tighten housing bolts. If still leaking, notify organizational maintenance.

**Step 3.** Other causes.

Notify organizational maintenance.

TABLE 3-2. TROUBLESHOOTING

(Cont.)

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
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TRANSMISSION POWER TAKEOFF

**16. Excessive noise and/or lubrication leaking.**

Step 1. Check mounting screws.

If loose tighten screws.

Step 2. Other causes.

Notify organazational maintenance.

TRANSFER CASE

**17. Lubricant leakage.**

Step 1. Check for loose assembly screws or defective gasket.

Tighten mounting screws. If still leaking, notify organizational maintenance.

Step 2. Check for loose drain plugs.

Tighten loose drain plugs.

TRANSFER CASE POWER TAKEOFF

**18. Excessive noise and/or lubricant leakage.**

Step 1. Check lubrication.

If low, add lubricant (see LO 9-2320-211-12).

Step 2. Check mounting screws.

If loose, tighten screws.

Step 3. Other causes.

Notify organizational maintenmce.



**TABLE 3-2. TROUBLESHOOTING**

(Cont.)

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MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

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**CONTROLS AND INSTRUMENTS****19. Shimmy, or truck hard to steer.**

Step 1. Check tire air pressure with tire gage.

Inflate or deflate tires to correct air pressure (see data plate).

Step 2. Other causes.

Notify organizational maintenance.

**SERVICE BRAKES****20. Not enough air pressure for air-hydraulic brake cylinder.**

Step 1. Check reservoir drain cocks.

If open, close drain cocks.

Step 2. Other causes.

Notify organizational maintenance.

**21. Brakes fail on first application but function after pumping action.**

Step 1. Check level of brake fluid.

If low, notify organizational maintenance.

Step 2. Other causes.

Notify organizational maintenance.

**PARKING BRAKE****22. Brake does not hold.**

Step 1. Check brake handle position.

If partially applied, pull up hard on parking brake handle.

Step 2. Check handle adjustment.

If out of adjustment, adjust.

**TABLE 3-2. TROUBLESHOOTING**

(Cont.)

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MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

---

Step 3. Other causes.

Notify organizational maintenance.

**23. Brake drags or overheats.**

Step 1. Check brake handle position.

Release parking brake, if partially applied.

Step 2. Other causes.

Notify organizational maintenance.

**24. Parking brake will not hold truck on inclines up to 60 percent.**

Step 1. Check brake handle position.

Pull up hard on parking brake handle.

Step 2. Other causes.

Notify organizational maintenance.

**WHEELS, TIRES, AND HUBS**

**25. Wheel wobbles or shimmys.**

Step 1. Check wheel.

If loose, tighten wheel nuts.

Step 2. Other causes.

Notify organizational maintenance

**26. Excessive or uneven tire wear.**

**Step 1.** Check air pressure in tires.

Inflate or deflate tires to correct air pressure (see data plate).

Step 2. Other causes.

Notify organizational maintenance.

**TABLE 3-2. TROUBLESHOOTING****(Cont.)**

<b>MALFUNCTION</b>	<b>TEST OR INSPECTION</b>	<b>CORRECTIVE ACTION</b>
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**27. Truck wanders or pulls to one side on level pavement.****NOTE**

Sloping roads will cause truck to pull to one side.

**Step 1.** Check air pressure in tires.

Inflate or deflate to correct air pressure (see data plate).

**Step 2.** Other causes.

Notify organizational maintenance.

**STEERING GEAR****28. Hard steering.**

**Step 1** Check air pressure in tires.

Inflate or deflate tires to correct air pressure (see data plate).

**Step 2** Other causes.

Notify organizational maintenance.

**FRONT OR MIDSHIP WINCH****29. Winch drum does not turn.**

**Step 1.** Winch control lever not engaged.

Engage control lever.

**Step 2.** Check for broken or missing shearpin.

Replace shearpin (see para 2-15g).

**Step 3.** Other causes.

Notify organizational maintenance.

**TABLE 3-2. TROUBLESHOOTING**

**(Cont.)**

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MALFUNCTION  
 TEST OR INSPECTION  
 CORRECTIVE ACTION

---

**REAR WINCH**

**30. Winch drum does not turn.**

Step 1. Check for broken or missing shearpin.

Replace shearpin (see para 3-15b).

Step 2. Other causes.

Notify organizational maintenance.

**CHARGING SYSTEM**

**31. Noisy alternator or generator.**

Step 1. Check mounting nuts.

If loose, tighten nuts.

Step 2. Check belt tension.

Adjust belt, if necessary.

Step 3. Other causes.

Notify organizational maintenance.

**BATTERIES AND BATTERY CABLES**

**32. Weak batteries.**

Check water level in battery.

Remove battery filler caps, add water if necessary, and replace filler caps.

**LIGHTING SYSTEM**

**33. Lights dim.**

Step 1. Check lights.

See item 31.

Step 2. Other causes.

Notify organizational maintenance.

## TABLE 3-2. TROUBLESHOOTING

(Cont.)

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
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## HYDRAULIC CRANE

## 34. Lack of power.

## NOTE

**Be sure** transmission is engaged.

Step 1. Check oil level in hydraulic reservoir.

If low, add oil (see LO 9-2320-211-12).

Step 2. Check oil supply valve.

If not open fully, open valve completely.

Step 3. Check for leaks in hydraulic connections or other causes.

Notify organizational maintenance.

## 35. Crane does not lift smoothly.

Step 1. Check oil level in reservoir.

If low, add oil (see LO 9-2320-211-12).

Step 2. Check for air in hydraulic system.

Operate crane through all movements several times.

Step 3. Other causes.

Notify organizational maintenance.

## 36. Noisy hydraulic pump.

Step 1. Check oil level in hydraulic oil reservoir.

If low, add oil (see LO 9-2320-211-12).

Step 2. Other causes.

Notify organizational maintenance.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
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**DUMP BODY HOIST ASSEMBLY**

**37. Hoist assembly does not raise dump body.**

Step 1. Check oil level in hydraulic oil reservoir.

If low, add oil (see LO 9-2320-211-12).

Step 2. Check for leak in hydraulic system

Inspect all connections for leaks, or othet causes.

Notify organizational maintenance.

**38. Body raises to full dump, but does not power down.**

Step 1. Check for leak in hydraulic system.

Inspect all connections for leaks, or othet causes.

Notify organizational maintenance.

**39. Noisy hydraulic pump.**

Step 1. Check oil level in hydraulic oil reservoir.

If low, add oil (see LO 9-2320-211 -12).

Step 2. Other causes.

Notify organizational maintenance

**FIFTH WHEEL ASSEMBLY**

**40. Fifth wheel not secure.**

Step 1. Check mounting.

Tighten mounting screws.

Step 2. Other causes.

Notify organizational maintenance.

**TABLE 3-2. TROUBLESHOOTING****(Cont.)****MALFUNCTION****TEST OR INSPECTION****CORRECTIVE ACTION****EXPANSIBLE VAN AUXILIARY EQUIPMENT****41. Difficult to expand and retract side panels.**

Step 1. Check rollers and sprockets.

If foreign matter is found, remove roller and sprocket covers. Remove foreign matter.

Step 2. Other causes.

Notify organizational maintenance.

**42. Van body not waterproof or light tight.**

Step 1. Check toggle clamp at side panel.

If toggle clamp is not drawing top of side panel tight enough, loosen jamnut on toggle clamp eyebolt. Screw eyebolt inward and shorten. Tighten jamnut.

Step 2. Check lip of block seal at inner rear corner of hinged roof.

If forced out of position, move side panel out to disengage corner block seal. Push seal lip up into correct position until end panel door properly engages seal when side panel is retracted.

Step 3. Other causes.

Notify organizational maintenance.

**43. Ceiling lights and service receptacles fail to energize when doors are closed under blackout conditions.**

Step 1. Check circuit breakers.

If circuit breaker or switch is not set properly, set circuit breaker or switch.

Step 2. Other causes.

Notify organizational maintenance.

**44. Ceiling fluorescent tube fails to light.**

Step 1. Check circuit breakers.

If circuit breaker or switch is not set properly, set circuit breaker or switch.

## TABLE 3-2. TROUBLESHOOTING

(Cont.)

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
	Step 2. Other causes.	Notify organizational maintenance.
<b>45. Emergency light, blackout light, and ceiling light fail to light.</b>	Step 1. Check circuit breakers.	If circuit breakers or switches are not set properly, set breakers and switches.
	Step 2. Other causes.	Notify organizational maintenance.
<b>46. Clearance and blackout lights fail to light.</b>	Step 1. Check circuit breakers.	If breakers or switches are not set properly, set breakers or switches
	Step 2. Other causes.	Notify organizational maintenance.
<b>47. Heater will not ignite.</b>	Step 1. Check fuel gage.	If out of fuel, add fuel to truck fuel tank.
	Step 2. Check shutoff valve on fuel tank.	If closed, open shutoff valve.
	Step 3. Check circuit breaker.	If not properly set, set circuit breaker.
	Step 4. Other causes.	Notify organizational maintenance
<b>48. Heater stops operating.</b>	Step I. Check fuel gage.	If out of fuel, add fuel to fuel tank.

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TABLE 3-2. TROUBLESHOOTING

(Cont.)

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
	Step 2. Other causes.	Notify organizational maintenance.
<b>49. Air conditioner compressor fails to start.</b>	Step 1. Check bonnet front door.	If closed, open bonnet front door.
	Step 2. Check circuit breaker.	If not set properly, set circuit breaker.
	Step 3. Other causes.	Notify organizational maintenance.

### HOT WATER PERSONNEL HEATER

#### 50. Heater fails to produce heated air after engine reaches operating temperature.

Step 1. Check if coolant shutoff cocks are closed.

Open cocks.

Step 2. Put blower motor switch in HI and LO positions.

See organizational maintenance unit if switch appears defective.

Step 3. Check heater is air bound.

With engine operating, open air bleed on top of heater, allow air to escape, and close air bleed.

Step 4. All other causes.

See organizational maintenance unit.

## TABLE 3-2. TROUBLESHOOTING

(Cont.)

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
<b>51. Heater blower motor operates, but heated air fails to reach cab.</b>		
	Step 1. Check for <b>restricted</b> adapter elbow.	Push AIR control handle in toward instrument panel to open damper in adapter elbow.
	Step 2. All other causes.	See organizational maintenance unit.
<b>52. Defrosters fail to operate.</b>		
	Step 1. Check for restricted diverter assembly.	Adjust DEFROSTER control handle to increase heated air supply to windshield.
	Step 2. All other causes.	See organizational maintenance unit.
<b>53. Engine fails to reach operating temperature.</b>		
	Check if center flap of radiator brush guard cover is opened.	Roll center flap down.
<b>54. Engine temperature approaches 195°F.</b>		
	Step 1. Check if center flap of radiator brush guard cover is closed.	Roll up center flap and secure.
	Step 2. Check coolant level.	Adjust coolant level.
	Step 3. All other causes.	See organizational maintenance unit.

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TABLE 3-2. TROUBLESHOOTING

(Cont.)

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
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### FUEL BURNING PERSONNEL AND ENGINE COOLANT HEATERS

**55. Personnel heater fails to start when control switch is set on START position.**

Step 1. See if emergency switch is in OFF position.

Turn switch to ON position.

Step 2. All other causes, including defective switch.

See organizational maintenance unit.

**56. Excessive elapsed time before heater ignition.**

Step 1. Check battery-generator indicator.

If batteries are low, see organizational maintenance unit.

Step 2. All other causes.

See organizational maintenance unit.

**57. Heater fails to continue burning.**

Step 1. Check fuel tanks.

Refill tanks as required.

Step 2. All other causes.

See organizational maintenance unit.

**58. Heater output is low.**

Step 1. Check if HI-LO switch is in LO position.

Set switch to HI position.

Step 2. All other causes, including defective fuel system or defective heater.

See organizational maintenance unit.

**TABLE 3-2. TROUBLESHOOTING**

(Cont.)

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
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**59. Windshield defrosters nonoperating.**

Step 1. Check adjustment of diverter duct damper control.

Adjust defroster control handle.

Step 2. Check for restrictions in defroster deflectors.

Clear restriction.

Step 3, All other causes.

See organizational maintenance unit.

**60. Engine oil shroud not receiving heat (engine coolant heater only).**

Step 1. See if coolant heater is operating.

Start heater. If inoperative, see organizational maintenance unit.

Step 2. See if coolant heater exhaust tube is disconnected from oil pan shroud.

Connect exhaust tube to oil pan shroud.

Step 3. All other causes.

See organizational maintenance unit

**61. Engine coolant system not receiving heat (engine coolant heater only).**

Step 1. See if coolant heater is operating.

Start heater. If inoperative, see organizational maintenance unit.

Step 2. See if one or more shutoff cocks are closed at engine or coolant heater.

Open coolant shutoff cock(s).

Step 3. Check for restriction in coolant hose(s).

See organizational maintenance unit

Step 4. All other causes.

See organizational maintenance unit.

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**TABLE 3-2. TROUBLESHOOTING****(Cont.)****MALFUNCTION****TEST OR INSPECTION****CORRECTIVE ACTION****SLAVE RECEPTACLE****62. Slave cable connected but engine will not turn over.**

Step 1. Check for poor receptacle connection.

Make proper connection.

Step 2. Check if slave receptacle battery cables are loose or disconnected.

Reconnect battery cables and tighten connections.

Step 3. All other causes.

See organizational maintenance unit.

**A-FRAME KIT****63. Winch inoperative.**

Step 1. See if power takeoff is disengaged.

Engage power takeoff.

Step 2. See if shear pin is broken.

Replace shear pin.

**64. A-frame inoperative or misaligned.**

Step 1. Check for loose cable clamps.

See organizational maintenance unit.

Step 2. See if A-frame is bent.

See organizational maintenance unit

**DEEP WATER FORDING KIT****65. Fording control handle inoperative.**

Step 1. See if wire is corroded.

Clean and lubricate wire (see LO 9-2320-211-12)

**TABLE 3-2. TROUBLESHOOTING**

(Cont.)

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MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

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Step 2. Check to see if wire is not attached to fording control valve.

See organizational maintenance unit.

Step 3. Check to see if wire is kinked.

See organizational maintenance unit.

Step 4. All other causes, including inoperative fording control valve(s)

See organizational maintenance unit.

**WINDSHIELD WASHER KIT**

**66. Washer inoperative.**

Step 1. Check reservoir.

Fill, as required

Step 2. L60k for broken, loose or restricted tubing.

See organizational maintenance unit.

Step 3. All other causes, including defective pump.

See organizational maintenance unit.

## Section V. SERVICING AND REPLACEMENT

### 3-11. Fuel Tank Service.

#### WARNING

When filling tank, be sure that the hose nozzle or container is clean and that the nozzle or container contacts filler pipe to carry off static electricity.

When filling, wipe off dirt around filler cap. Remove fuel tank filler cap and extend filler neck. Close crossover valve at front of fuel tanks when fueling diesel vehicle. Fill tank until level is approximately 2 inches below top of tank. Do not overfill, as room for expansion must be provided. Lower filler neck and install filler top gasket, making sure it seals tightly. Install fuel tank filler cap. Open crossover valves on diesel fuel tanks.

### 3-12. Air Cleaner Service (Gasoline).

a. *General.* The oil-bath-type filter is serviced by draining, cleaning, and filling the oil cup, and by cleaning the filter mesh inside the body of cleaner.

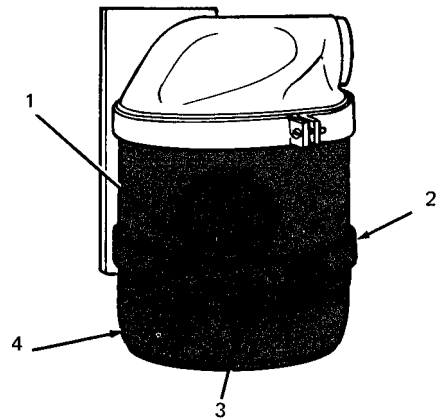
#### b. *Air Cleaner Service.*

(1) Support oil cup (4) and loosen thumb screw (3). Remove oil cup from clamp.

(2) Discard oil from cup and clean cup with dry cleaning solvent or mineral spirits paint thinner.

(3) Fill oil cup with clean oil to correct level.

(4) Remove air cleaner body (1) from cab cowl by loosening bands (2) and removing attaching hoses.



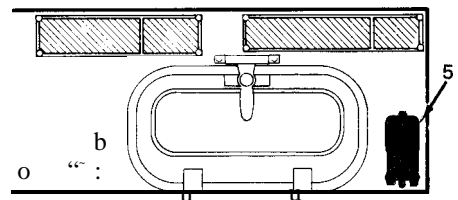
(5) Clean air cleaner body in cleaning solvent, while shaking up and down to clean filter mesh.

(6) After air cleaner body drips dry, reinstall in truck.

(7) Position oil cup (4) and gasket. Clamp to air cleaner body, then tighten clamp thumb screw (3).

### 3-13. Air Cleaner Service (Diesel and Multifuel).

a. *General.* Air cleaner service is required whenever the red band moves above green line on air filter restriction indicator (5). Not if y organizational maintenance for service.



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**CAUTION**

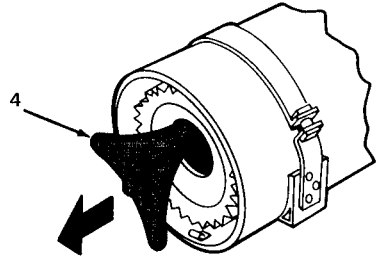
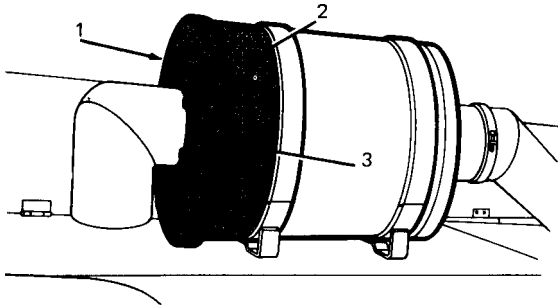
Do not operate engine without air cleaner element, except in extreme emergency.

b. **Air Cleaner Service.** In an emergency, element may be removed and cleaned with compressed air.

(1) Unlatch three clamps (3) and remove dust cap cover (1) from air cleaner housing (2).

(2) Turn locking mechanism (4) counterclockwise until mechanism disengages from clamps. Pull locking mechanism out.

(3) Remove element (5) from housing (2).



**WARNING**

Eye protection (goggles or shield) must be worn when cleaning with compressed air.

(4) Clean inside of element with 60 to 100 psi air, using 1/8-inch nozzle, until all dust is removed. Clean outside of element.

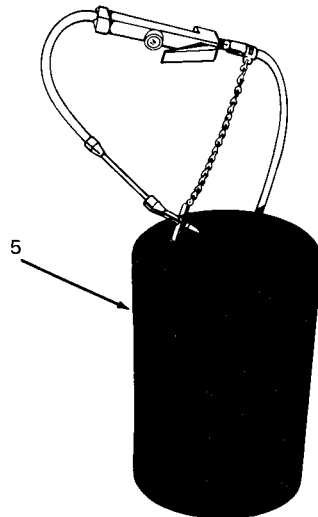
(5) Inspect element pleats and gasket for fractures or damage. Replace with new element, if required.

(6) Clean dust cap cover (1) with air.

(7) Install element (5) in air cleaner housing (2). Engage locking mechanism (4) with inner clamps and turn handle clockwise.

(8) Install dust cap cover (1) on air cleaner housing (2) and secure with three clamps (3).

(9) Press reset button on restriction indicator to clear red band.



c. **Emergency Air Cleaner Service.** Gently beat element sides with hand, while tapping element ends on flat metal surface, to remove dirt when compressed air is not available.



**3-14. Wheel and Tire Replacement.**

**WARNING**

Use care in replacing tires to avoid personnel injury

**a. Removing Wheel and Tire Assembly:**

- (1) Position truck on level ground and stop engine.

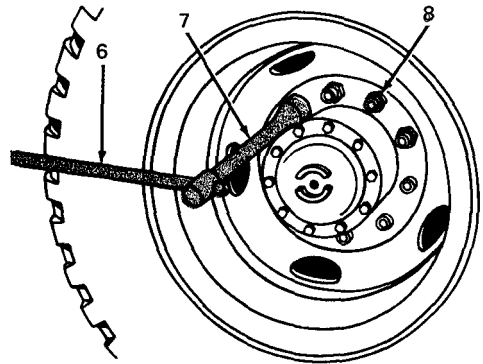
**CAUTION**

Always apply handbrake and block at least one truck wheel before removing wheels. Whenever possible avoid removing wheels when truck is on sloping terrain.

- (2) Place gearshift in N (neutral) position and set handbrake.

- (3) Obtain jack and combination jack handle (6) and wheel stud nut wrench (7) from tool compartment.

- (4) Loosen wheel nuts (8) with jack handle (6) and wheel stud nut wrench (7) but do not remove.

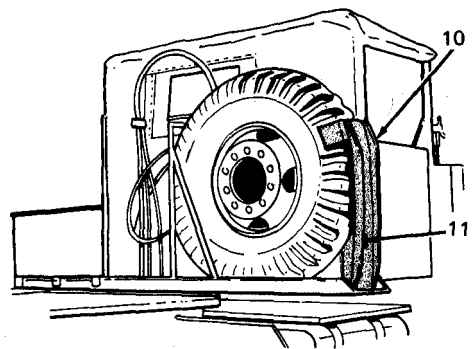
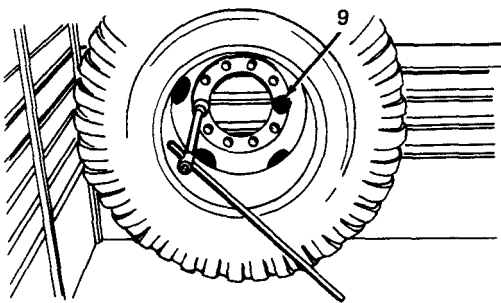


**NOTE**

Left side wheel nuts have left-hand threads; right side wheel nuts have right-hand threads.

- (5) Remove spare wheel and tire as follows:

- (a) Remove nuts (9) securing spare wheel to spare wheel mounting, or:



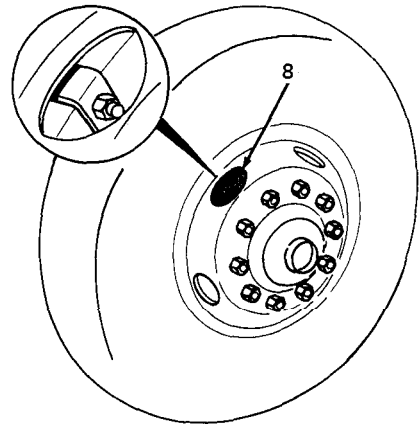
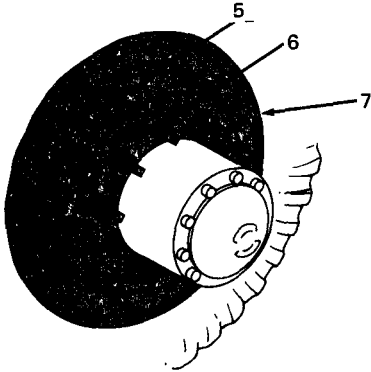
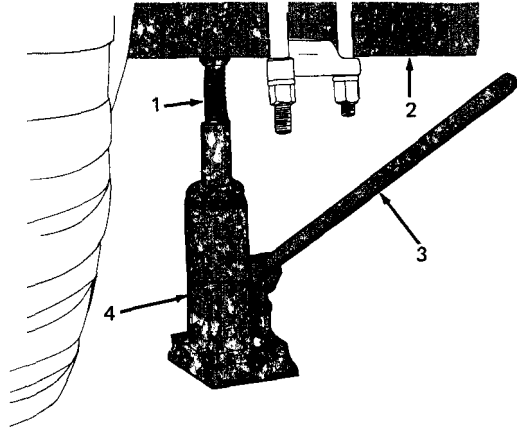
- (b) Remove retaining clamp nut (11) and swing retaining clamp (10) down.

- (c) Remove spare wheel and tire assembly.

(6) Turn jack screw (1) out to approximate length required. Place jack (4) under axle housing (2). Insert jack handle (3) in jack and raise wheel off ground.

(7) Remove wheel nuts previously loosened and remove wheel and tire assembly.

(8) Remove cap nuts (6) to remove inner wheel.

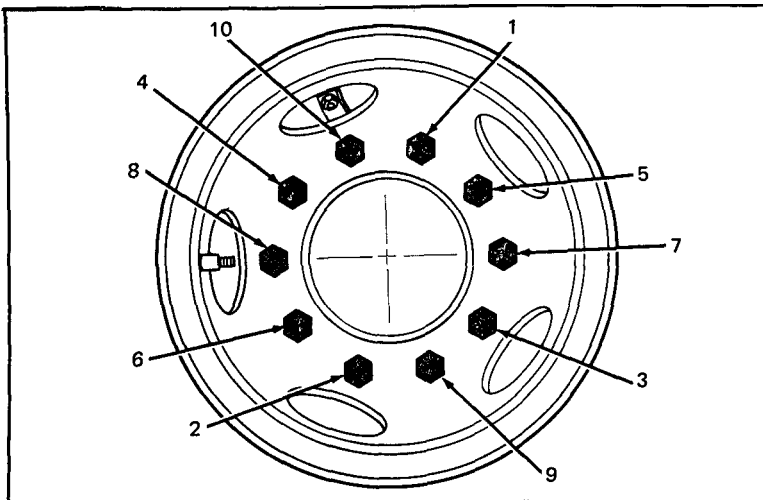


**b. Installing Single Wheel.**

(1) Install wheel on axle so that one of the vent holes (8) is in line with the brake drum inspection hole.

(2) Install wheel nuts on studs and seat nuts properly before tightening.

(3) Tighten all wheel nuts in the numerical sequence shown below. Stud nuts should be checked and tightened to torque value of 450 to 500 lb-ft by organizational maintenance as soon as practicable.



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**c. Installing dual wheels:**

- (1) Install inner wheel (7) and capnuts (6).
- (2) Aline vent holes (8) in outer wheel with vent holes of inner wheel, so that the valve (5) is spaced a minimum of one vent hole apart from inner wheel valve.
- (3) Install outer wheel nuts on studs and seat nuts properly before tightening.
- (4) Tighten all wheel nuts in same numerical sequence as you did for inner wheel. Stud nuts should be checked and tightened to torque value of 450 to 500 lb-ft by organizational maintenance as soon as practicable.

d. *Removing Jack.* Turn jack bleeder valve to lower. Remove jack from under axle. Place unserviceable wheel and tire on spare wheel mounting bracket. Clean tools, and stow in tool compartment.

**NOTE**

Return unservivable wheel and tire to organizational maintenance as soon as possible for repair or replacement.

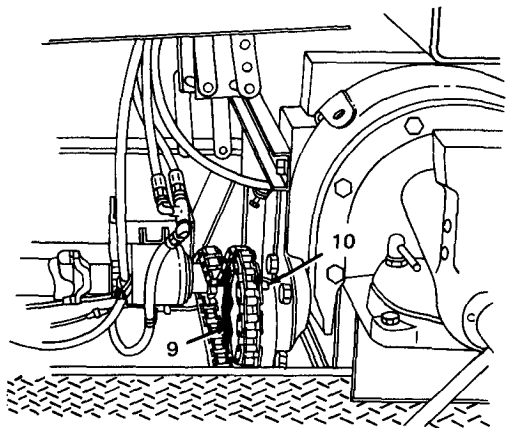
**3-15. Shear Pin Replacement.****WARNING**

Never substitute rivets, pins, or bolts for regular shear pin.

a. *Front Winch.* See para 2-15 for replacement of front winch shear pin.

b. *Rear Winch.*

- (1) Rotate driven sprocket (9) on winch drive shaft and aline shear pin holes in sprocket hub and shaft.
- (2) Drive broken part of shear pin (10) from drive shaft.
- (3) Lubricate and insert new aluminum alloy shear pin (10) in sprocket hub (9) and shaft.
- (4) Install cotter pin in end of shear pin.



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## APPENDIX A REFERENCES

### A-1. Scope.

This appendix lists all forms, field manuals, technical manuals, and other publications referenced in this manual. The following indexes should be consulted for latest changes or revisions relating to material covered in this manual.

Dictionary of United States Army Terms . . . . . AR 310-25  
 Consolidated Index of Army Publications  
 and Blank Forms (Microfiche only). . . . DA Pam 310-1

### A-2. Forms.

Recommended Changes to DA Publications . . . . . DA Form 2028  
 Equipment Inspection and Maintenance Worksheet . . . . DA Form 2404  
 Maintenance Request . . . . . DA Form 2407  
 \*Equipment Log Assembly (Records) . . . . . DA Form 2408  
 \*Equipment Daily or Monthly Log . . . . . DA Form 2408-1  
 \* Equipment Component Register . . . . . DA Form 2408-10  
 \*Uncorrected Fault Recorded . . . . . DA Form 2408-14

### A-3. Field Manuals.

Vehicle Recovery Operations . . . . . FM 20-22  
 Basic Cold Weather Manual . . . . . FM31-70  
 Northern Operations . . . . . FM 31-71  
 Mountain Operations . . . . . FM 90-6 (HTF)

### A-4 Technical Manuals.

Driver Selection and Training, Wheeled Vehicles . . . . . TM 21-300  
 Manual for the Wheeled Vehicle Driver . . . . . FM 21-305  
 Cooling Systems: Tactical Vehicles . . . . . TM 750-254  
 Operation and Maintenance of Ordnance Materiel in  
 Cold Weather (0° to -65° F.) . . . . . TM 9-207  
 Deep Water Fording of Ordnance Materiel . . . . . TM 9-238

Operation and Organizational, Field and  
 Depot Maintenance: Storage Batteries,  
 Lead-Acid Type . . . . . TM9-6140-200-12  
 Organizational and Direct Support Maintenance Manual  
 Including Repair Parts and Special Tool List . . . . . TM 10-7200-200-13

\*Packed in truck equipment log book binder.

A-5. Technical Bulletins.

Use of Antifreeze Solutions and Cleaning Compounds in

Engine Cooling Systems . . . . . TB 750-651

Load-Testing Vehicles used to Handle Missiles and Rockets . TB 9-352

Safety Inspection and Testing of Lifting Devices . . . TB 43-0142

A-6. Miscellaneous Publications.

Lubrication Order . . . . . I.O 9-2320-211-12

Security of Tactical Wheeled Vehicles . . . . . TB 9-2300-422-20

## 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, 6x6, M.39 series trucks to help you inventory items required for safe and efficient operation.

##### **B-2. General.**

The Components of End Item List is divided into the following sections:

a. *Section II.* Integral Components of the End Item. These items, when assembled, comprise the truck and must accompany it whenever it is transferred or turned in.

b. *Section III.* Basic Issue Items. These are the minimum essential items required to place the truck in operation, to operate it, and to perform emergency repairs. Although shipped separately packed, they must accompany the truck during operation and whenever it is transferred between accountable officers. The illustrations will assist you with hard-to-identify items. This manual is your authority to requisition replacement BII, based on TOE/MTOE authorization of the end item.

##### **B-3. Explanation of Columns.**

a. *Illustration.* This column is divided as follows:

(1) *Figure Number.* Indicates the figure number of the illustration on which the item is shown.

(2) *Item Number.* The number used to identify item called out in the illustration.

b. *National Stock Number.* Indicates the National Stock Number assigned to the item and which will be used for requisitioning.

c. *Part Number.* Indicates 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 identify an item or range of items.

d. *Description.* Indicates the Federal Item Name and, if required, a minimum description to identify the item.

e. *Location.* The physical location of each item listed is given in this column. The lists are designed to inventory all items in one area of the major item before moving on to an adjacent area.

f. *PCC Code.* "PCC" codes are included to help you identify which component items are used on the different models. Identification of the codes used in these lists are:

MODEL	PCC CODE	MODEL	PCC CODE
M40 wo/winch	555	M61 wo/ winch	573
M40 W/winch	556	M61 w/winch	574
M40A1 wo/winch	589	M61A1 wo/winch	596
M40A1 w/winch	588	M61A1 w/winch	595
M40A1C w/winch	593	M61A2 wo/winch	280
M40A2C wo/winch	295	M61A2 w/winch	285
M51 wo/winch	563	M62 w/winch	211
M51 w/winch	564	M63 wo/winch	577
M51A1 wo/winch	610	M63 w/winch	578
M51A1 w/winch	611	M63A1 wo/winch	598
M51A2 wo/winch	251	M63A1 w/winch	597
M51A2 w/winch	269	M63A2 wo/winch	284
M52 wo/ winch	565	M63A2 w/winch	283
M52 w/winch	566	M63C w/winch	586
M52A1 wo/winch	<b>200</b>	M63A1C wo/winch	602
M52A1 w/winch	<b>199</b>	M63A1C w/winch	601
M52A2 wo/winch	<b>273</b>	M63A2C wo/winch	282
M52A2 w/winch	<b>274</b>	M139 w/winch	267
M54 wo/winch	<b>569</b>	M139A1 wo/winch	607
M54 w/winch	<b>570</b>	M139A1 w/winch	606
M54A1 wo/winch	<b>202</b>	M139F w/winch	557
M54A1 w/winch	<b>201</b>	M139A1F w/winch	609
M54A1C wo/winch	<b>591</b>	M139A2F w/winch	207
M54A1C w/winch	<b>590</b>	M246 w/winch	576
M54A2 wo/winch	<b>277</b>	M246A1 w/winch	B11
M54A2 w/winch	<b>278</b>	M246A2 w/winch	275
M54A2C wo/winch	<b>287</b>	M291A1 wo/winch	603
M54A2C w/winch	<b>587</b>	M291A1D wo/winch	605
M55 wo/winch	<b>286</b>	M328A1 w/winch	608
M55 w/winch	<b>584</b>	M543 w/winch	558
M55A2 wo/winch	<b>276</b>	M543A1 w/winch	594
M55A2 w/winch	<b>279</b>	M543A2 w/winch	281
		M748A1 w/winch	592

g. *Quantity Required (Qty. Reqd).* This column lists the quantity of each item required for a complete major item.



h. *Quantity*. This column is left blank for use during an inventory. Under the Rec'd column, list the quantity you actually receive on your major item. The Date columns are for your use when you inventory the major item at a later date, such as for shipment to another site.

**B-4. Abbreviations.**

The following abbreviations appear in the description column:

<b>Abbr</b>	<b>Explanation</b>
assy	assembly
cap	capacity
circum	circumference
dia	diameter
dbl	double
hex	hexagon (al)
in	inch(es)
lb	pound(s)
max	maximum
min	minimum
rd	round
s	single
sq	square
W/	with
Wo/	without

**B-5. Federal Supply Codes for Manufacturer.**

<b>Code</b>	<b>Manufacturer</b>
18075	Dockson Corp
19204	Rock Island Arsenal
19207	U.S. Army Tank- Automotive Command
21045	Ordnance Corps Engineering Stds
42527	National Cylinder Gas Division, Chemetron Corp
63026	Victor Equipment Company
81348	Federal Specifications Promulgated by General Service Administration
81349	Military Specifications Promulgated by Standardization Div Directorate of Logistic Services DSA
96906	Military Standards

**INTEGRAL COMPONENTS OF END ITEM**

ILLUSTRATION		NATIONAL STOCK NUMBER	PART NO.	DESCRIPTION
FIGURE	ITEM			
		2590-00-473-6331	MS53052-1 (96906)	BRACKET, DRUM, INFLAMMABLE LIQUID: S, welded, w/strap
		2590-00-473-6331	MS53052-1 (96906)	BRACKET, DRUM, INFLAMMABLE LIQUID: S, welded, w/strap
		4910-00-357-5494	7346922	BRACKET: Pioneer tools

INTEGRAL COMPONENTS OF END ITEM

LOCATION	USABLE ON CODE	QUANTITY				
		REQ'D	REC'D	DATE	DATE	DATE
On 1 running board	All (Except B11,211,275, 281,558,576, 594)	1				
On crane platform	B11,211,275, 281,558,576. 594	1				
M51 — side dump body, M52 — on tire carrier M54, M55 — on tool box compt behind cab M62, M543 — compt 3; M246 — lh frt side of body	611,199,200, 201,202,211, 251,269,273, 274,275,276, 277,278,279, 281,286,287, 558,563,564, 565,566,569, 570,576,584, 587,590,591, 594,610,611					

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**BASIC ISSUE ITEMS LIST**

ILLUSTRATION		NATIONAL STOCK NUMBER	PART NO.	DESCRIPTION
FIGURE	ITEM			
<b>COMMON ITEMS</b>				
B-1	1	2540-00-670-2459	7691712 (19207)	BAG: Pamphlet, cotton duck, 3 in. x 9-1/4 in. x 11-1/4 in.
B-1	2	5140-00-772-4142	2-3-170 (81337)	BAG: Tool, cotton duck, 10 in x 20 in, w/flap
B-1	3	5120-00-243-2419	MIL-W-43105 (81349)	HANDLE: Bar, wheel stud nut wrench, 3/4 in dia x 30 in lg, phos. finish
B-1	4	5120-00-595-8396	16W233 (04741)	JACK: Hydraulic, hand, 8-ton cap, 11 in. closed (max), 23-1/2 in. open (min), w/oper lever
B-1	5	4010-00-291-4962	7717023 (19207)	LINK: chain repair, 1/2 in size
B-1	6	5120-00-223-7398	MS15382-2 (96906)	PLIERS: Combination slip joint, str nose, w/cutter, 10 in lg, phos finish
B-1	7	5315-00-842-3044	MS24665-283 (96906)	PIN: Cotter, split, 3/4 in lg, (used with shear pin) 5815-00-209-7979)
B-1	8	5315-00-209-7979	7409348 (19207)	PIN: Shear, al., 3/8 in dia, 2-5/8 in lg
B-2	1	5120-00-222-8852	MS15219-1 (96906)	SCREWDRIVER: Flat tip, flared sides, plastic hdl, rd. blade, 1/4 in wide tip, 4 in blade, 7-3/4 in lg
B-2	2	5120-00-227-7338	MS15220-5 (96906)	SCREWDRIVER: Flat tip, hvy duty, flared sides, steel handle with wood inserts, sq. blade, 1/2 in wide tip, 5 in blade, 9-1/2 in lg
B-2	3	5120-00-234-8913	11655777-12 (19207)	SCREWDRIVER: Cross tip, Phillips, plastic handle, no. 2, 4 in blade, 7-1/2 in lg

### BASIC ISSUE ITEMS LIST

LOCATION	USABLE ON CODE	QUANTITY				
		REQ'D	REC'D	OATE	DATE	DATE
Inside tool compartment under left door	All	1				
inside tool compartment under left door	All	1				
Inside tool compartment under left door	All	1				
Inside tool compartment under left door	All	1				
In tool bag	All w/front winch	2				
In tool bag	All	1				
In tool bag	All w/front winch	6				
In tool bag	All w/front winch	3				
In tool bag	All	1				
In tool bag	All	1				
In tool bag	All	1				

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**BASIC ISSUE ITEMS LIST - Continued**

ILLUSTRATION		NATIONAL STOCK NUMBER	PART NO.	DESCRIPTION
FIGURE	ITEM			
B-2	4	5120-00-234-8912	MS15224-6 (96906)	SCREWDRIVER: Cross tip, Phillips, plastic handle, no. 3, 6 in blade, 10-1/8 in lg
B-2	5	5120-00-264-3796	11655778-5 (19207)	WRENCH: Adjustable, open end, hvy duty, 1-5/16 in jaw opening, 12 in lg
B-2	6	5315-00-732-1019	MS20066-542 (96906)	WRENCH: (Key), drain plug, str bar, 1/2 in sq, 2-1/8 in lg
B-2	7	5120-00-650-7829	8380406 (19207)	WRENCH: Socket, 90° offset, 1/2 in sq opng
B-2	8	5120-00-316-9217	34379 (09386)	WRENCH: Whl stud nut, str dbl socket, 1-1/2 in hex, opening, 13/16 in sq opening, 17 in to 19 in lg, type II, size 1, no 2 length
				<b>ADDITIONAL BII FOR TRUCK, TRACTOR</b>
B-3	9	4930-00-288-1511	6300333 (81349)	EXTENSION: Grease gun, hyd, flexible hose, 12 in to 14 in lg, type IV, class I, style B
B-3	10	4930-00-253-2478	5644803 (19207)	GREASE GUN: Hand, lever oper, 14 oz cap, 7000 psi, w/6 in extn, type I
B-3	11	5120-00-224-4047	GGG-H-86 (81348)	HAMMER: Hand, machinists, ball-peen, 2 lb, 15 in to 17 in lg, type II, class I, style A
				<b>ADDITIONAL BII FOR TRUCK, VAN, EXPANSIBLE</b>
B-4	1	6150-00-134-0848	11601641 (19207)	CABLE: Electrical, auxiliary 600-V, 39-1/4 in lg

**BASIC ISSUE ITEMS LIST - Continued**

LOCATION	USABLE ON CODE	QUANTITY				
		REQ'D	REC'D	DATE	DATE	DATE
In tool bag	All	1				
In tool bag	All	1				
In tool bag	All	1				
In tool bag	All	1				
In tool bag	All	1				
In tool bag	199,200,273, 274,565,566	1				
In tool bag	199,200,273, 274,565,566	1				
In tool bag	199,200,273, 274,565,566	1				
On ceiling, front of van	603,605	1				

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**BASIC ISSUE ITEMS LIST - Continued**

ILLUSTRATION		NATIONAL STOCK NUMBER	PART NO.	DESCRIPTION
FIGURE	ITEM			
B-4	2	2590-00-679-1423	7045796 (19207)	CABLE: Electrical, jumper, 600-V, 103 ft lg, w/couplings
B-4	3	6140-00-851-4573	7017575 (19207)	CABLE: Ground, 48 in lg, (used w/rod 2510-00-790-2296)
B-4	4	2540-00-870-9939	8735021 (19207)	COVER: Cable reel, cotton duck
B-4	5	4210-00-775-0127	7015266 (19207)	EXTINGUISHER ASSEMBLY: 5 lb, purple "K", dry chemical, w/bracket
B-4	6	2590-00-790-2293	7534675 (19207)	HANDLE: Leveling jack, 5/8 in dia, 19 in lg
B-4	7	5120-00-566-0617	7534672 (19207)	JACK: Leveling vehicle, portable
B-4	8	2540-00-957-5068	8759434 (19207)	LADDER: Vehicle boarding, 4 ft lg
B-4	9	5340-01-050-7059	MS21313-50 (96906)	PADLOCK SET: Keyed alike, 1-1/2 in size, long shackle, composed of 9 padlocks and 5 keys
B-4	10	2590-00-870-9937	7534676 (19207)	PLATE: leveling jack support
B-4	11	2510-00-790-2296	8380403 (19207)	ROD: Ground, 3/4 in dia, 30 in lg, w/crossbar (used w/cable 6140-00-851-4573)
B-4	12	2590-00-870-9936	7534689 (19207)	SPIKE: Welded
B-4	13	5120-00-650-7830	7759181 (19207)	WRENCH: Ratchet, reversible, w/removable socket, 3/4 in sq dr

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**BASIC ISSUE ITEMS LIST - Continued**

LOCATION	USABLE ON COOE	QUANTITY				
		REQ'D	REC'D	OATE	DATE	DATE
On cable reel, right rear of van	<b>603,605</b>	1				
Rear exterior compartment	603,605	1				
Over power cable on reel	603,605	1				
Mounted front and rear of of van body interior	603,605	2				
Rear exterior compartment	603,605	4				
Rear exterior compartment	603,605	4				
On rear doors or hydraulic lift gate	603,605	2				
Used to lock van and equipment	603,605	1				
Rear exterior compartment	603,605	4				
Rear exterior compartment	603,605	1				
Rear exterior compartment	603,605	8				
Interior of rear door	603,605	1				

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**BASIC ISSUE ITEMS LIST - Continued**

ILLUSTRATION		NATIONAL STOCK NUMBER	PART NO.	DESCRIPTION
FIGURE	ITEM			
<b>ADDITIONAL BII FOR TRUCK, BOLSTER</b>				
B-5	1	3990-00-171-9774	MIL-B-18161 (81349)	BINDER: Load, lever operated, 4 in take-up, w/2 grab hooks, designed for 1/4 in to 1/2 in chain, 18-1/2 in lever, 4 ton cap, OD finish
B-5	2	4010-00-443-4845	10944642-2 (19207)	CHAIN: Gen serv, s leg, alloy steel, 3/8 chain size, 25 ft lg, w/2 grab hooks, 6,600 lb work load, zinc plate finish
B-5	3	5120-00-224-1390	GGG-B-101 (81348)	CROWBAR: Pinch point, 1-1/2 in dia stock (NOM), 59 in to 62 in lg, type II, class I, size 4
B-5	4		GGG-H-86 (81348)	HAMMER: Hand, machinist's, ball-peen, 3 lb, 15 in to 17 in hdl, fiberglass hdl, type II, class I, style A
B-5	5	5120-00-050-5740	GGG-H-86 (81348)	HAMMER: Hand, sledge, blacksmith's, dbl face, 8 lb, 30 in to 33 in hdl, OD finish, fiberglass hdl, type X, class I
B-5	6	4010-00-165-5607	7717020 (19207)	LINK: Chain repair, 1/2 in lg 1/2 in size
B-5	6	4010-00-165-5606	MS87008-7 (96906)	LINK: chain repair, 5/8 in size
B-5	7	5120-00-223-8996	GGG-P-151 (81348)	PEAVY: Timber, hand, hard, 1 in x 1/2 in x 13 in hook size, w/str hdl, 53 in to 55 in lg, OD finish
B-5	8	5315-00-842-3044	MS24665-283 (96906)	PIN: Cotter, split, 3/4 in lg (used with shear pin for midship winch)
B-5	9	5315-00-209-7979	7409348 (19207)	PIN: Shear, winch, al, 3/8 in dia, 2-5/8 in lg

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**BASIC ISSUE ITEMS LIST - Continued**

LOCATION	USABLE ON CODE	QUANTITY				
		REQ'D	REC'D	DATE	DATE	DATE
	592	3				
In tool compartment	592	3				
	592	2				
In tool bag	592	1				
	592	1				
In tool bag	592	2				
	592	2				
In tool bag	592	6				
In tool bag	592	3				

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**BASIC ISSUE ITEMS LIST - Continued**

ILLUSTRATION		NATIONAL STOCK NUMBER	PART NO.	DESCRIPTION
FIGURE	ITEM			
B-5	10	5120-00-293-2933	GGG-W-220 (81348)	WEDGE: Timber splitting, steel, flared bit, 4 in wide, 6 lb (approx), 8-3/4 in lg overall, type III, style B  <b>ADDITIONAL BII FOR TRUCK, STAKE, BRIDGE TRANSPORTING</b>
B-6	1	5110-00-293-2336	6150925 (19207)	AXE: Single bit, 4 lb, w/handle, 4-3/4 in cutting edge, 35-1/2 in to 36-1/2 in lg, type I, class I, design A, OD finish
B-6	2	5120-00-224-1390	GGG-B-101 (81348)	CROWBAR: Pinch point, 1-1/4 in dia shank, 59 in to 62 in lg, OD finish, type II, class I, size 4
B-6	3	4930-00-288-1511	6300333 (81349)	EXTENSION: Grease gun, hyd, flex hose, 12 in to 14 in lg, type III, class I, style B
B-6	4	9905-01-080-5684	10899404 (19207)	FLARE KIT: Reflector type, w/box
B-6	5	4930-00-253-2478	MIL-G-3859 (81349)	GREASE GUN: Hand, lever operated, 14 oz cap, 7000 psi, w/6 in extrn, type I
B-6	6	5120-00-050-5740	GGG-H-86 (81348)	HAMMER: Hand, sledge, dbl face, 10 lb, 30 in to 33 in hdl, OD finish
B-6	7	5120-00-288-6574	11677021 (19207)	HANDLE: Pick mattock, railroad or clay pick, 36 in lg, OD finish, grade AA
B-6	8	5120-00-188-1790	MS16283-7 (96906)	JACK: Hydraulic, hand, self cont, 30-ton cap, w/oper lever, OD finish
B-6	9	5120-00-243-2395	11677022 (19207)	MATTOCK: Pick type, 5 lb, w/o hdl, OD finish, type II, class F
B-6	10	5120-00-293-3336	11655784 (19207)	SHOVEL: Hand, rd pt, , d-hdl, short size

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**BASIC ISSUE ITEMS LIST - Continued**

LOCATION	USABLE ON CODE	QUANTITY				
		REQ'D	REC'D	DATE	DATE	DATE
In tool compartment	592	2				
In pioneer rack	608	1				
	608	1				
In tool bag	608	1				
In tool compartment	608	1				
In tool bag	608	1				
	608	1				
In pioneer rack	608	1				
In tool compartment	608	1				
In pioneer rack	608	1				
In pioneer rack	608	1				

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## BASIC ISSUE ITEMS LIST - Continued

ILLUSTRATION		NATIONAL STOCK NUMBER	PART NO.	DESCRIPTION
FIGURE	ITEM			
				<b>ADDITIONAL BII FOR TRUCK, TRACTOR, WRECKER</b>
B-7	1	5340-00-040-2102	8328453 (19207)	BAR: Cranking, outrigger, 1 in dia, 24 in lg
B-7	2	5340-00-625-6290	8333074 (19207)	BAR: Tie, boom jacks, w/yoke ends
B-7	3	3830-00-625-6284	8333068 (19207)	BASE: Outrigger and boom ground support, rear
B-7	4	2590-00-625-6282	8331882 (19207)	BOOM STABILIZER: Lower, male
B-7	5	3830-00-625-6283	8331883 (19207)	BOOM STABILIZER: Upper, female
B-7	6	2590-00-473-6331	MS53052-1 (96906)	BRACKET: Can, 5 gal, w/strap
B-7	7	5340-00-929-1794	MS21334-31 (96906)	CLAMP
B-7	8	5315-00-281-7745	8330153 (19207)	CLIP: Boom jack tie bar
B-7	8	5315-00-398-0995	8330154 (19207)	CLIP: Pin, boom jacks
B-7	8	5315-00-281-7744	7409515 (19207)	CLIP: Pin adj, tube boom and boom stabilizer
B-7	8	2520-00-692-6136	8332593 (19207)	CLIP: Pin, boom jacks and and shipper stabilizer
B-7	9	3040-00-740-9782	7409782 (19207)	COLLAR: Boom stabilizer tube cross pin
B-7	10	1440-01-029-6766	7729732 (19207)	EXTENSION: Cable, elect, 24-V, 20 ft lg, w/coupling, (slave)
B-7	11	4930-00-288-1511	6300333 (81349)	EXTENSION: Grease gun, flexible hose, 12 in to 14 in lg, type IV, class I, style B

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**BASIC ISSUE ITEMS LIST - Continued**

LOCATION	USABLE ON CODE	QUANTITY				
		REQ'D	REC'D	DATE	DATE	DATE
In tool box behind cab	B11,275,576	2				
With boom iacks	B11,275,576	1				
On crane platform (left side)	B11,275,576	2				
Mounted on boom	B11,275,576	2				
Mounted on boom	B11,275,576	2				
Crane platform (right side)	B11,275,576	1				
Attaches air hoses and inter-vehicular cable to support	B11,275,576	5				
In tool box behind cob	B11,275,576	2				
In tool box behind cab	B11,275,576	1				
In tool box behind cab	B11,275,576	4				
In tool box behind cab	B11,275,576	6				
In tool box behind cab	B11,275,576	1				
In tool box behind cab	B11,275,576	1				
In tool bag	B11,275,576	1				

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## BASIC ISSUE ITEMS LIST - Continued

ILLUSTRATION		NATIONAL STOCK NUMBER	PART NO.	DESCRIPTION
FIGURE	ITEM			
B-7	12	4210-00-775-0127	7015266 (19207)	EXTINGUISHER ASSEMBLY: 5 lb, purple "K" dry chemical, w/bracket
B-7	13	4030-00-321-6405	8330246 (19207)	FASTENER: Used w/clips 5315-00-281-7744 and 2520-00-692-6136
B-7	13	5340-00-321-6406	8330327 (19207)	FASTENER: Used w/clip 5315-00-298-0995
B-7	13	5340-00-321-6407	8330328 (19207)	FASTENER: Used w/clip 5315-00-281-7745
B-7	14	9905-01-080-5684	10899404 (19207)	FLARE KIT: Reflector type, w/box
B-7	15	4930-00-253-2478	5644803 (19207)	GREASE GUN: Hand, lever operated, 14 oz cap, 7000 psi, w/6 in extn, type I
B-8	1	2590-00-772-8814	7728814 (19207)	HARNESS: Inter-vehicular, elect, 144 in lg, w/plugs, used between tractor and semitrailer
B-8	2	4720-00-740-9662	7954874 (19207)	HOSE: Air connection, 126 in lg, used between tractor and semitrailer
B-8	3	5310-00-208-1918	503262 (21450)	NUT
B-8	4	3830-00-625-6281	8331881 (19207)	PIN: Adj, tube boom stabilizer
B-8	4	5315-00-316-1008	8327939 (19207)	PIN: Tie bar yoke
B-8	5	5315-00-316-1012	8332455 (19207)	PIN: Boom stabilizer, boom jack and rear outriggers
B-8	6	4010-00-740-9834	7409834 (19207)	PIN: Lock, boom stabilizing tube

TA 155179



**BASIC ISSUE ITEMS LIST - Continued**

LOCATION	USABLE ON CODE	QUANTITY				
		REQ'D	REC'D	DATE	DATE	DATE
Two mounted on right side of tool box. One mounted on rear of crane cab	B11,275,576	3				
In tool box behind cab	B11,275,576	8				
In tool box behind cab	B11,275,576	1				
In tool box behind cab	B11,275,576	2				
In tool compartment under left door	B11,275,576	1				
In tool bag	B11,275,576	1				
Carried on support hitch-hiker	B11,275,576	1				
Carried on support hitch-hiker	B11,275,576	2				
Attaches air hoses and inter-vehicular cable to support	B11,275,576	5				
In tool box behind cab	B11,275,576	2				
In tool box behind cab	B11,275,576	2				
In tool box behind cab	B11,275,576	4				
In tool box behind cab	B11,275,576	2				

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**BASIC ISSUE ITEMS LIST - Continued**

ILLUSTRATION		NATIONAL STOCK NUMBER	PART NO.	DESCRIPTION
FIGURE	ITEM			
B-8	7	5315-00-316-1014	8333071 (19207)	PIN: Boom jack, upper
B-8	8	3830-00-625-6285	8333069 (19207)	PIPE: End, shift tube
B-8	9	4730-00-044-4715	MS49005-12 (96906)	PLUG: Pipe, 1 in sq hd, used on hyd reservoir tank breather during fording operations
B-8	10	5305-00-984-6212	MS35206-265 (96906)	SCREW
B-9	1	2520-00-020-2297	8330151 (19207)	SLING: Wire rope, dbl leg, w/ring and 2 hooks
B-9	2	5340-00-664-0364	8690469 (19207)	STRAP: Webbing, 1 in w, 26 in lg, w/buckle
B-9	3	3830-00-625-6286	8333070 (19207)	TUBE: Boom extension shift
B-9	4	3830-00-625-6287	8333072 (19207)	TUBE: Boom jack, top
B-9	5	3830-00-625-6288	8333073 (19207)	TUBE: Boom jack, bottom
B-9	6	5120-00-277-1244	6007026A (19207)	WRENCH: Open end, fixed S-head, 15° hd angle, 1-5/8 in opng, 14-7/8 in lg
B-9	7	5120-00-277-1245	MS16382-3 (96906)	WRENCH: Open end, fixed S-head, 15° hd angle, 1-11/16 in opng, 14-7/8 in lg
B-9	8	5120-00-277-1242	MS16382-4 (96906)	WRENCH: Open end, fixed S-head, 15° hd angle, 1-13/16 in opng, 16-3/8 in lg

TA 155181

**BASIC ISSUE ITEMS LIST - Continued**

LOCATION	USABLE ON CODE	QUANTITY				
		REQ'D	REC'D	DATE	DATE	DATE
In tool box behind cab	B11,275,576	1				
In tool box behind cab	B11,275,576	2				
In tool bag	B11,275,576	2				
Attachs air hoses and inter-vehicular cable to support	B11,275,576	5				
Attached to hoisting block and rear of vehicle	B11,275,576	1				
Used to secure boom iacks	B11,275,576	2				
In tool box behind cab	B11,275,576	1				
On crane platform (left side)	B11,275,576	2				
On crane platform (left side)	B11,275,576	2				
In tool bag	B11,275,576	1				
In tool bag	B11,275,576	1				
in tool bag	B11,275,576	1				

TA 155182

## BASIC ISSUE ITEMS LIST - Continued

ILLUSTRATION		NATIONAL STOCK NUMBER	PART NO.	DESCRIPTION
FIGURE	ITEM			
				<b>ADDITIONAL BII FOR TRUCK, WRECKER</b>
B-10	1	5110-00-293-2336	6150926 (19207)	AXE: Single bit, 4 lb, 4-3/4 in cutting head, 35-1/2 in to 36-1/2 in lg, type I, class I, design A, OD finish
B-10	2	2540-00-860-2359	10900233 (19207)	BAR: Cranking, outrigger, 1 in dia, 12 in lg, OD finish
B-10	3	2540-00-040-2299	8330155 (19207)	BASE: Boom jack
B-10	4	4910-00-347-9703	8690061	BAR: Hoisting, whiff letree
B-10	5	5120-00-224-1372	GGG-B-101 (81348)	BAR: Pinch, offset and tapered ends, 1 in hex stk, 36 in lg, OD finish, type III
B-10	6	2540-00-040-2298	8330152 (19207)	BAR: Tie, boom jacks
B-10	7	4910-00-433-7094	7551058 (19204)	BAR: Tow
B-10	8	5120-00-293-0665	GGG-B-101 (81348)	BAR: Wrecking, gooseneck and pinch point, 36 in lg, OD finish, type V, class I, style A
B-10	9	5110-00-237-8106	GGG-B-451 (81348)	BLADE: Hacksaw, hand, 12 in lg
B-10	10	3940-00-926-3710	GGG-B-490 (81348)	BLOCK: Tackle, manila rope, steel shell, 8 in lg, single 4-1/2 in sheave, 1 in dia rope, w/loose side hook, rig no. 10 w/ becket, 3,300 lb cap, type II, grade A
B-10	11	3940-00-926-3719	GGG-B-490 (81348)	BLOCK: Tackle, manila rope, ordinary, reg duty, steel shell 8 in lg, double 4-3/4 in sheave, 1 in dia rope, w/loose side hook, rig no. 10, w/loose becket, 2,450 lb cap, type II, grade B

TA 155183

**BASIC ISSUE ITEMS LIST - Continued**

LOCATION	USABLE ON CODE	QUANTITY				
		REQ'D	REC'D	DATE	DATE	DATE
Compartment 2A	211,281,558, 594	1				
In tool bag	211,281,558, 594	2				
On bracket (one on each side of rear winch)	211,281,558, 594	2				
Compartment 3	211,281,558, 594	1				
Compartment 2A	211,281,558, 594	1				
On top of boom jacks	211,281,558, 594	1				
Compartment 3	211,281,558, 594	1				
Compartment 2B	211,281,558, 594	1				
In welder's tool box	211,281,558, 594	12				
Compartment 2B	211,281,558, 594	1				
Compartment 2B	211,281,558, 594	1				

TA 155184

**BASIC ISSUE ITEMS LIST - Continued**

ILLUSTRATION		NATIONAL STOCK NUMBER	PART NO.	DESCRIPTION
FIGURE	ITEM			
B-10	12	3940-00-105-9933	11631726 (19207)	BLOCK: Rigging, steel, wire rope, single 8 in sheave, w/swivel hook, 5/8 in dia rope, 10-ton work load, OD finish
B-10	13	3940-00-630-9932	8337021 (19207)	BLOCK: Rigging, wire rope, single 10 in sheave, w/swivel eye and shackle, 3/4 in dia rope, 15-ton cap, OD finish
B-10	14	3940-00-792-9881	7080704 (19207)	BLOCK: Rigging, wire rope, double 8 in sheave, w/swivel shackle, 7/8 in dia rope, 25-ton cap, OD finish
B-10	14	3940-00-708-0704	B-342 (64921)	BLOCK: Rigging, wire rope, double 8 in sheave, w/swivel shackle, 7/8 in dia rope, 25-ton cap, OD finish
B-10	15	2920-01-027-0125	7550899 (19204)	CABLE ASSEMBLY: Special purpose (jumper cables)
B-11	1	2540-00-860-2354	10876420 (19207)	CASE: Crosscut saw, cotton duck, 63-3/4 in lg, closed
B-11	2	5110-00-221-1075	MS16882-2 (96906)	CHISEL: Blacksmith's, cold, 1-1/2 in cutting edge, 16 in hdl, OD finish
B-11	2	5120-00-238-8296	GGG-C-313 (81348)	CHISEL: Machinist, cold, hand, lg length, 1 in cutting edge, 24 in lg, OD finish, type IV, class 2
B-11	3	2540-00-443-4845	10944642-2 (19207)	CHAIN: Utility, single leg, 3/8 in link, 14-1/2 ft lg, w/2 grab hooks, 6,600 lb work load, zinc plate finish
B-11	4	4010-00-473-6166	7077063 (19207)	CHAIN: Utility, single leg, 5/8 in link, 16 ft lg, w/grab hook and 2 pear-shaped coupling links, OD finish

**BASIC ISSUE ITEMS LIST - Continued**

LOCATION	USABLE ON CODE	QUANTITY				
		REQ'D	REC'D	DATE	DATE	DATE
Compartment 4	211,281,558, 594	1				
Compartment 4	211,281,558, 594	2				
Compartment 4	211,281,558, 594	2				
Compartment 4	211,281,558, 594	2				
Compartment 2A	211,281,558, 594	1				
Over saw	211,281,558, 594	1				
Compartment 2B	211,281,558, 594	1				
Compartment 2B	211,281,558, 594	2				
Compartment 5	211,281,558, 594	2				
Compartment 7	211,281,558, 594	1				

TA 155186

## BASIC ISSUE ITEMS LIST - Continued

ILLUSTRATION		NATIONAL STOCK NUMBER	PART NO.	DESCRIPTION
FIGURE	ITEM			
B-11	5	4010-00-449-6573	8744250 (19207)	CHAIN: Utility, single leg, 3/4 in link, 12 ft lg, w/grab hook and w/pear-shaped coupling link
B-11	6	2540-00-315-2306	8330150 (19207)	CHOCK: Field
B-11	7	3439-00-383-3634	MIL-C 17223 (81348)	CLEANING SET: Welding and cutting tips, 21 cleaners, tip designations A to V, w/carrying case, indexed
B-11	8	6230-00-548-0387	17-C-35079-40 (81348)	CORD: Extension, light, w/s contact plug and socket, 25 ft lg
B-11	9	6230-00-274-4018	17-C-35079-40 (81348)	CORD: Light, inspection, bay cand plug and socket, 25 ft lg, w/o lamp
B-11	10	5120-00-224-1390	GGG-B-101 (81348)	CROWBAR: Pinch point, 1-1/4 in dia stock, 59 in to 62 in lg, OD finish, type II, class 1, size 4
B-11	11	5110-00-188-2524	MS16888-4 (96906)	CUTTER: Bolt, rigid hd type, clipper cut type, 9/16 in dia mild steel rod cutting cap, 35 in to 39 in lg, OD finish
B-12	1	1440-01-029-6766	7728732 (19207)	EXTENSION: Cable, elec, 24-V, 20 ft lg, w/cplg (slave)
B-12	2	4930-00-288-1511	6300333 (81349)	EXTENSION: Grease gun, hyd, flex hose, 12 in to 14 in lg, type IV, class 1, style B
B-12	3	4210-00-775-0127	7015266 (19207)	EXTINGUISHER ASSEMBLY: Fire, 5 lb, purple "K", dry chemical, w/bracket
B-12	4	9905-01-080-5684	10899404 (19207)	FLARE KIT: Reflector type, w/box

TA 155187



**BASIC ISSUE ITEMS LIST - Continued**

LOCATION	USABLE ON CODE	QUANTITY				
		REQ'D	REC'D	DATE	DATE	DATE
Compartment 4	211,281,558, 594	2				
Compartment 3	211,281,558, 594	2				
In welder's tool box	211,281,558, 594	1				
Compartment 2A	211,281,558, 594	1				
Compartment 2A	211,281,558, 594	1				
Compartment 3	211,281,558, 594	2				
Compartment 2A	211,281,558, 594	1				
Compartment 2A	211,281,558, 594	1				
In tool bog	211,281,558, 594	1				
Mounted on rear of crone cob	211,281,558, 594	3				
Compartment 1	211,281,558, 594	1				

TA 155188

**BASIC ISSUE ITEMS LIST - Continued**

ILLUSTRATION		NATIONAL STOCK NUMBER	PART NO.	DESCRIPTION
FIGURE	ITEM			
B-12	5	5110-00-289-9657	MS16516-1 (96906)	FRAME: Hacksaw, hand, adj, 8 in to 12 in blade cap
B-12	6	4710-00-204-2644	8742119 (19207)	GAGE AND HOSE ASSEMBLY: Tire inflation, self contained, w/30 ft hose
B-12	7	4930-00-253-2478	5644803 (19207)	GREASE GUN: Hand, lever-operated, 14 oz cap, 7,000 psi, w/6 in extension, type I
B-12	8	5120-00-050-5740	GGG-H-86 (81348)	HAMMER: Hand, sledge, blacksmith, dbl face, 10 lb, 30 in to 33 in hdl lg, OD finish, type X, class 1
B-12	8	5120-00-230-7843	GGG-H-86	HAMMER: Sledge, 20 lb
B-12	9	5120-00-288-6574	NN-H-93 (81348)	HANDLE: Pick mattock, RR or clay pick, 36 in lg, OD finish, grade AA
B-12	10	4720-00-740-9662	MS39325-9-126-B (96906)	HOSE: Air connection, intra-vehicular, 126 in lg
B-13	1	4720-00-356-8571	ZZ-H-461 (81348)	HOSE: Rubber, braided, "acetylene", red, 5/16 in I. D., 25 ft lg, w/cplg, type II, style A
B-13	1	4720-00-356-8572	ZZ-H-461 (81348)	HOSE: Rubber, braided, "oxygen", green, 5/16 in. I. D., 25 ft lg, w/cplg, type II, style A
B-13	2	4720-00-899-6721	10900093 (19207)	HOSE: Tank drain, hyd oil, 1-3/16 in OD x 60 in lg
B-13	3	5120-00-188-1790	MS16283-7 (96906)	JACK: Hydraulic, hand, self contained, 30-ton cap, w/oper lever, OD finish
B-13	4	6240-00-044-6914	MS35478-1683 (96906)	LAMP: Incandescent, S8 bulb, S contact, bayonet base, 28-V

**BASIC ISSUE ITEMS LIST - Continued**

LOCATION	USABLE ON CODE	QUANTITY				
		REQ'D	REC'D	DATE	DATE	DATE
In welder's tool box	211,281,558, 594	1				
Compartment 1	211,281,558, 594	1				
In tool bag	211,281,558, 594	1				
Compartment 2B	211,281,558, 594	1				
Compartment 2B	211,281,558, 594	1				
Compartment 2A	211,281,558, 594	1				
Compartment 2A	211,281,558, 594	2				
Compartment 2B	211,281,558, 594	1				
Compartment 2A	211,281,558, 594	1				
Compartment 3	211,281,558, 594	1				
Compartment 2B	211,281,558, 594	1				
In inspection light	211,281,558, 594	1				

TA 155190

## BASIC ISSUE ITEMS LIST - Continued

ILLUSTRATION		NATIONAL STOCK NUMBER	PART NO.	DESCRIPTION
FIGURE	ITEM			
B-13	5	6230-00-498-9408	17-L-7552 (81348)	LANTERN: Electric, hand, 6-volt, w/lamp (2), w/o battery, OD finish
B-13	6	4010-00-165-5606	MS87008-7 (96906)	LINK: Chain repair, 5/8 in size
B-13	7	5120-00-243-2395	GGG-H-506 (81348)	MATTOCK: Pick type, 5 lb, w/o handle, OD finish, type II, class F
B-13	8	5310-00-067-9507	MS51922-37 (96906)	NUT: Self locking, hex, .1/2-20 UNF-2B, cad steel
B-13	9	5340-00-682-1505	MS21313-52 (96906)	PADLOCK SET: Keyed alike, 1-1/2 in, w/clevis and chain, composed of 5 padlocks and 7 keys
B-13	10	2590-00-740-9834	7409834 (19207)	PIN: Boom jack, w/lock pin, OD finish
B-13	11	5315-00-854-4431	10876413 (19207)	PIN: Inner boom jack, w/lock pins, OD finish
B-13	12	5315-00-316-1008	8327939 (19207)	PIN: Tie bar yoke, boom jack, w/lock pin, OD finish
B-13	13	5315-00-839-5822	MS24665-353 (96906)	PIN: Cotter, split, 1 in lg, used w/pin 5315-00-282-2583
B-13	14	5315-00-282-2583	8330478 (19207)	PIN: Shear, grooved, headed, 5/8 in dia, 3-1/2 in lg (rear winch)
B-13	15	5120-00-197-9473	GGG-T-563 (81348)	PUNCH: Blacksmith's, rd hdl, 1/2 in dia ctg edge, 15 in to 17 in lg, OD finish, type 7, class I
B-14	1	6680-00-285-6067	MIL-R-13877 (81349)	REGULATOR: Pressure, compressed gas, "acetylene", 2 stage, w/cplg, adapter, and outlet, type V

TA 155191

**BASIC ISSUE ITEMS LIST - Continued**

LOCATION	USABLE ON CODE	QUANTITY				
		REQ'D	REC'D	DATE	DATE	DATE
Compartment 1	211,281,558, 594	1				
In tool bag	211,281,558, 594	2				
Compartment 2A	211,281,558, 594	1				
Used to attach vise to bracket	211,281,558, 594	4				
Used to secure vehicle and tools	211,281,558, 594	1				
Compartment 2A	211,281,558, 594	2				
Compartment 2A	211,281,558, 594	1				
Compartment 2A	211,281,558, 594	2				
In tool bag	211,281,558, 594	6				
In tool bag	211,281,558, 594	3				
In tool bag	211,281,558, 594	1				
Compartment 2B	211,281,558, 594	1				

TA 155192

**BASIC ISSUE ITEMS LIST - Continued**

ILLUSTRATION		NATIONAL STOCK NUMBER	PART NO.	DESCRIPTION
FIGURE	ITEM			
B-14	2	6680-00-641-3519	MIL-R-13877 (81349)	REGULATOR: Pressure, compressed gas, "oxygen", 2 stage, w/cplg, adapter, and outlet, type VI
B-14	3	4020-00-231-2581	21-R-373 (81348)	ROPE: Manila, 3 strand, 3/8 in dia, 1-1/8 in circumference, 50 ft lg, 326 lb safe work cap
B-14	3	4020-00-238-7734	21-R-403 (81348)	ROPE: Manila, 3 strand, 3/4 in dia, 2-1/4 in circumference, 100 ft lg, 1350 lb safe work cap
B-14	3	4020-00-231-9014	21-R-418 (81348)	ROPE: Manila, 3 strand, 1 in dia, 3 in circumference, 300 ft lg, 2,250 lb safe work cap
B-14	4	5110-00-242-7147	666 and 0064 (81348)	SAW: Crosscut, 1 man, 4-1/2 ft blade, 5 ft lg, w/supplementary hdl, type I, style A
B-14	5	5305-00-226-7768	MS90726-115 (96906)	SCREW: Cap, hex-hd, 1/2-20 UNF-2A x 2 in lg, steel, grade 5, cad plated
B-14	6	2540-00-318-0326	7357967 (19207)	SHACKLE: Anchor, rd pin, 7/8 in dia, OD finish
B-14	7	5120-00-293-3336	GGG-S-326 (81348)	SHOVEL: Hand, rd pt, d-hdl, short, size 2, OD finish, type IV
B-14	8	5340-00-543-3034	8690516 (19207)	STRAP: Webbing, 1-1/2 in wide x 24 in lg, w/buckle
B-15		5180-00-754-0661	7540661 (19204)	TOOL SET: Welder's, complete  Composed of:
B-15	1	7920-00-269-1259	H-B-178 (81348)	BRUSH: Wire, scratch, spg. wire, curved hdl, wire; lg outside block, 1-1/8 in to 1-1/4 in, 4 rows wd, 18 rows lg, 14 in lg, type II

TA 155193

**BASIC ISSUE ITEMS LIST - Continued**

LOCATION	USABLE ON CODE	QUANTITY				
		REQ'D	REC'D	DATE	DATE	DATE
Compartment 2A	211,281,558, 594	1				
Compartment 2A	211,281,558, 594	1				
Compartment 2B	211,281,558, 594	1				
Compartment 3	211,281,558, 594	1				
Compartment 3	211,281,558, 594	1				
Used to attach vise to bracket	211,281,558, 594	4				
Compartment 2A	211,281,558, 594	1				
Compartment 2A	211,281,558, 594	1				
Compartment 2B	211,281,558, 594	2				
Compartment 2A	211,281,558, 594	1				
In welder's tool box	211,281,558, 594	1				

TA 155194

BASIC ISSUE ITEMS LIST - Continued

ILLUSTRATION		NATIONAL STOCK NUMBER	PART NO.	DESCRIPTION
FIGURE	ITEM			
B-15	2	5110-00-186-7107	MS17070-3 (96906)	CHISEL: Hand, cold, 1/2 in cut, 5-3/4 in lg (min)
B-15	3	5110-00-236-3272	MS17070-5 (96906)	CHISEL: Hand, cold, 3/4 in cut, 6-1/2 in lg (min)
B-15	4	5110-00-234-6539	41F863 (95683)	FILE: Hand, Amer. patt. flat type, dbl cut, bastard faces, S cut bastard edges, 12 in heel to point, type VIII, style A
B-15	5	5110-00-242-5386	GGG-F 325 (81348)	FILE: Hand, Amer. patt. mill type, S cut bastard faces, S cut bastard edges, 12 in heel to point, type VIII, style A
B-15	6	5110-00-234-6557	GGG-F-325 (81348)	FILE: Hand, Amer. patt. rd. type, 1/2 dia large section, dbl cut bastard face, 12 in heel to point, type XVI, class I, style A
B-15	7	5120-00-965-0603	12-010 (22527)	FLINT TIP: (Box), friction w /holder, sleeve type, threaded, 5-40 NC, 6 per box
B-15	8	8415-00-268-7859	MS35902-70 (96906)	GLOVES: (Pair), welder's, leather, gauntlet, large size
B-15	9	4240-00-203-3804	GGG-G-513 (81348)	GOGGLES: Ind. welder's, w/eye cups, plastic, ventilated, w/hardened glass filter lens, type II, CO-BS shade no. 6, w/hardened glass cover lens, type III, 50 mm dia lens, w/2 hardened spare cover lens, head band supported, over spectacle type, w/o case, type II

TA 155195



**BASIC ISSUE ITEMS LIST - Continued**

LOCATION	USABLE ON CODE	QUANTITY				
		REQ'D	REC'D	DATE	DATE	DATE
In welder's tool box	211,281,558, 594	1				
In welder's tool box	211,281,558, 594	1				
In welder's tool box	211,281,558, 594	1				
In welder's tool box	211,281,558, 594	1				
In welder's tool box	211,281,558, 594	1				
In welder's tool box	211,281,558, 594	1				
In welder's tool box	211,281,558, 594	1				
In welder's tool box	211,281,558, 594	1				

TA 155196

**BASIC ISSUE ITEMS LIST - Continued**

ILLUSTRATION		NATIONAL STOCK NUMBER	PART NO.	DESCRIPTION
FIGURE	ITEM			
B-15	10	4240-00-269-7912	GGG-G-513 (81348)	GOGGLES: Ind. chipper's, w/eye cups, plastic, ventilated, w/clear hardened glass lens, type I, 50 mm dia, non-polarized, headband supported, over spectacle type, w/o case, type II, class A
B-15	11	5120-00-061-8546	GGG-H-86 (81348)	HAMMER: Hand, machinist's, ball-peen, 2 lb, 15 in to 17 in lg, type II, class I, style A
B-15	12	5140-00-498-8772	GGG-H-35 (81348)	HAMMER: Hand, welder's, 14 oz hd wt, str peen and punch point, S bevel w/coiled sprg hdl, 10 in lg, type I, class I, style D
B-15	13	5110-00-263-0341	NN-H-106 (81348)	HANDLE: File, wood, 1-1/2 in dia, 5-1/2 in lg, large size, type B-10
B-15	14	5120-00-965-0326	TJ212 (90598)	IGNITER: Friction, wire frame style, S flint, round file, hooded type, type I, style A
B-15	15	5120-00-223-7398	GGG-P-471 (81348)	PLIERS: Slip joint, str nose, comb, w/cutter, 10 in lg, phos. finish, type II, class 2, style A
B-15	16	5120-00-293-3509	41P3185 (19204)	PUNCH: Center, solid 1/8 in dia tapd pt, 3/8 in dia stock, 4 in lg, type II, class A
B-15	17	5120-00-293-0448	PT1208 (40684)	PUNCH: Drift, 3/16 in dia 3/8 in dia stk, 10 in lg, type IX, class A

TA 155197

**BASIC ISSUE ITEMS LIST - Continued**

LOCATION	USABLE ON CODE	QUANTITY				
		REQ'D	REC'D	DATE	DATE	DATE
In welder's tool box	211,281,558, 594	1				
In welder's tool box	211,281,558, 594	1				
In welder's tool box	211,281,558, 594	1				
In welder's tool box	211,281,558, 594	1				
In welder's tool box	211,281,558, 594	1				
In welder's tool box	211,281,558, 594	1				
In welder's tool box	211,281,558, 594	1				
In welder's tool box	211,281,558, 594	1				

TA 155198

**BASIC ISSUE ITEMS LIST - Continued**

ILLUSTRATION		NATIONAL STOCK NUMBER	PART NO.	DESCRIPTION
FIGURE	ITEM			
B-15	18	5120-00-239-0489	GGG-R-791 (81348)	RULE: Multiple folding, wood (class 1) or steel (class 2, grade A), 3 ft extended lg (opt 4 ft), 6 sect., smallest unit of grad. 1/16 in, type III
B-15	19	5120-00-293-3309	9643 (93389)	SCREWDRIVER: flat tip, metal, w/wood insert hdl, 7/16 in tip width, 8 in blade, 14-1/2 in lg
B-15	20	5120-00-221-7063	9176642 (18876)	SCRIBER: machinist's dbl pt, screwed, 1 str and 1 reg bent, removable, 8 in to 9 in lg
B-15	21	5120-00-078-8948	GGG S-656 (81348)	SQUARE: Comb, 12 in lg, 1/64, 1/32, 1/16, and 1/8 in grad, sq and miter head, with scriber and level, type VI, class A
B-15	22		SCB27404 (80063)	TOOL BOX: Mechanic's, general, w/tote tray, 21 in lg, 8-1/2 in wd, 7-3/8 in deep, OD finish, class 3
B-15	23	5120-00-224-3153	MS16370-2 (96906)	WRENCH: Box, dbl offset, dbl hd, 12 pt, short lg, 3/8 in and 7/16 in opng, 4 in lg
B-15	24	5120-00-224-3154	MS16370-4 (96906)	WRENCH: Box, dbl offset, dbl hd, 12 pt, short lg, 1/2 in and 9/16 in opng, 4-3/4 in lg
B-15	25	5120-00-224-3138	MS16370-7 (96906)	WRENCH: Box, dbl offset, dbl hd, 12 pt, short lg, 5/8 in and 3/4 in opng, 6 in lg
B-15	26	5120-00-240-5328	GGG-W-631 (81348)	WRENCH: Open end, adjustable S hd type, 0.947 in jaw opng, 8 in lg, phos finish, type I, class I
B-15	26	5120-00-449-8083	GGG-W-631 (81348)	WRENCH: Open end, adj, 0 in to 1.322 in jaw opng, 12 in lg, phos finish, type I, class A

TA 155199

**BASIC ISSUE ITEMS LIST - Continued**

LOCATION	USABLE ON CODE	QUANTITY				
		REQ'D	REC'D	DATE	DATE	DATE
In welder's tool box	211,281,558, 594	1				
In welder's tool box	211,281,558, 594	1				
In welder's tool box	211,281,558, 594	1				
In welder's tool box	211,281,558, 594	1				
Compartment 2A	211,281,558, 594	1				
In welder's tool box	211,281,558, 594	1				
In welder's tool box	211,281,558, 594	1				
In welder's tool box	211,281,558, 594	1				
In welder's tool box	211,281,558, 594	1				
in welder's tool box	211,281,558, 594	1				

TA 155200

**BASIC ISSUE ITEMS LIST - Continued**

ILLUSTRATION		NATIONAL STOCK NUMBER	PART NO.	DESCRIPTION
FIGURE	ITEM			
B-15	27	5120-00-277-2342	MS16380-4 (96906)	WRENCH: open end, fixed dbl hd, 15° hd angle, 3/8 in and 7/16 in opng, 4-1/8 in lg, phos finish
B-15	28	5120-00-187-7124	MS16380-6 (96906)	WRENCH: Open end, fixed dbl hd, 15° hd angle, engr, 1/2 in and 9/16 in opng, 5-1/2 in lg, phos finish
B-15	29	5120-00-277-8301	MS16380-10 (96906)	WRENCH: Open end, fixed dbl hd, 15° hd angle, engr, 5/8 in and 11/16 in opng, 7 in lg, phos finish
B-15	30	5120-00-494-1911	11655775-3 (19207)	WRENCH: Plier, curved jaw style, w/wire cutter, 8-1/2 in lg  END OF WELDER'S TOOL SET
<b>NOTE</b>				
Torch sets may be made by different manufacturers.				
3-16		3433-00-294-6743	MIL-T-13880 (81349)	TORCH SET: Cutting and welding, oxy-acetylene, med duty, w/tools, cutting attachments, and tips  Composed of:
3-16	1		58CA (42527)	CUTTING ATTACHMENT WELDING TORCH: Angle of hd 75°, use w/torch hdl

TA 155201

**BASIC ISSUE ITEMS LIST - Continued**

LOCATION	USABLE ON COOE	QUANTITY				
		REQ'D	REC'D	DATE	DATE	DATE
In welder's tool box	211,281,558, 594	1				
In welder's tool box	211,281,558, 594	1				
In welder's tool box	211,281,558, 594	1				
In welder's tool box	211,281,558, 594	1				
In welder's tool box	211,281,558, 594	1				
In welder's tool box	211,281,558, 594	1				

TA 155200

**BASIC ISSUE ITEMS LIST - Continued**

ILLUSTRATION		NATIONAL STOCK NUMBER	PART NO.	DESCRIPTION
FIGURE	ITEM			
B-16	2		54-1 (42527)	MIXING HEAD: Oxygen-acetylene welding torch, for tip size 72 to 31
B-16	3		250-46 (42527)	TIP: Oxygen-acetylene cutting, drill size 46
B-16	4		250-51 (42527)	TIP: Oxygen-acetylene cutting, drill size 51
B-16	5		250-56 (42527)	TIP: Oxygen-acetylene cutting: drill size 56
B-16	6	3433-00-373-1731	870-42 (42527)	TIP: Oxygen-acetylene welding, drill size 42
B-16	7	3433-00-373-1733	870-50 (42527)	TIP: Oxygen-acetylene welding, drill size 50
B-16	8	3433-00-373-1734	870-53 (42527)	TIP: Oxygen-acetylene welding, drill size 53
B-16	9	3433-00-373-1737	870-58 (42527)	TIP: Oxygen-acetylene welding, drill size 58
B-16	10	3433-00-373-1739	870-62 (42527)	TIP: Oxygen-acetylene welding, drill size 62
B-16	11		54 (42527)	TORCH HANDLE: Welding
B-16	12	3433-00-391-1218	7810 (42527)	TORCH WRENCH: Oxygen-acetylene
B-16	13	5120-00-277-2694	GGG-W-636 (81348)	WRENCH: Open end, fixed, 15° angle, dbl hd type, spear hd, alloy steel, 1-1/8 in and 1-1/4 in opng, 1/2 in thick, 12 in nom lg overall
				END OF TORCH SET

TA155203



**BASIC ISSUE ITEMS LIST - Continued**

LOCATION	USABLE ON CODE	QUANTITY				
		REQ'D	REC'D	DATE	DATE	DATE
In welder's tool box	211,281,558, 594	1				
In welder's tool box	211,281,558, 594	1				
In welder's tool box	211,281,558, 594	1				
In welder's tool box	211,281,558, 594	1				
In welder's tool box	211,281,558, 594	1				
In welder's tool box	211,281,558, 594	1				
In welder's tool box	211,281,558, 594	1				
In welder's tool box	211,281,558, 594	1				
In welder's tool box	211,281,558, 594	1				
In welder's tool box	211,281,558, 594	1				
In welder's tool box	211,281,558, 594	1				
In welder's tool box	211,281,558, 594	1				

TA 155204

**BASIC ISSUE ITEMS LIST - Continued**

ILLUSTRATION		NATIONAL STOCK NUMBER	PART NO.	DESCRIPTION
FIGURE	ITEM			
B-17	1	2540-00-040-2301	8330158 (19207)	TUBE: Boom jack, bottom
B-17	2	2540-00-040-2300	8330157 (19207)	TUBE: Boom jack, top
B-17	3	5120-00-243-9072	GGG-V-410 (81348)	WISE: Bench and pipe, swivel base, 5 in stationary jaw, with 1/8 in to 4 in pipe jaw
B-17	4	5120-00-264-3793	MS15743-3 (96906)	WRENCH: Auto, adj, 0 to 3-5/8 in jaw opng, 15 in lg
B-17	5	5120-00-277-1244	MS16382-2 (96906)	WRENCH: Open end, fixed, S-head, 15° head angle, 1-5/8 in opng, 14-7/8 in lg
B-17	6	5120-00-277-1245	MS16382-3 (96906)	WRENCH: Open end, fixed, s-head, 15° head angle, 1-11/16 in opng, 14-7/8 in lg
B-17	7	5120-00-277-1242	MS16382-4 (96906)	WRENCH: Open end, fixed, S-head, 15° head angle, 1-13/16 in opng, 16-3/8 in lg
B-17	8	5120-00-277-1461	MS16180-5 (96906)	WRENCH: Pipe, hvy duty, adj, 1 in to 2 in pipe cap, 18 in lg, OD finish

TA 155205

**BASIC ISSUE ITEMS LIST - Continued**

LOCATION	USABLE ON CODE	QUANTITY				
		REQ'D	REC'D	DATE	DATE	DATE
Compartment 6	211,281,558, 594	2				
Compartment 6	211,281,558, 594	2				
Mounted on bracket on front bumper	211,281,558, 594	1				
In tool bag	211,281,558, 594	1				
In tool bag	211,281,558, 594	1				
In tool bag	211,281,558, 594	1				
In tool bag	211,281,558, 594	1				
Compartment 1	211,281,558, 594	1				

TA 155206

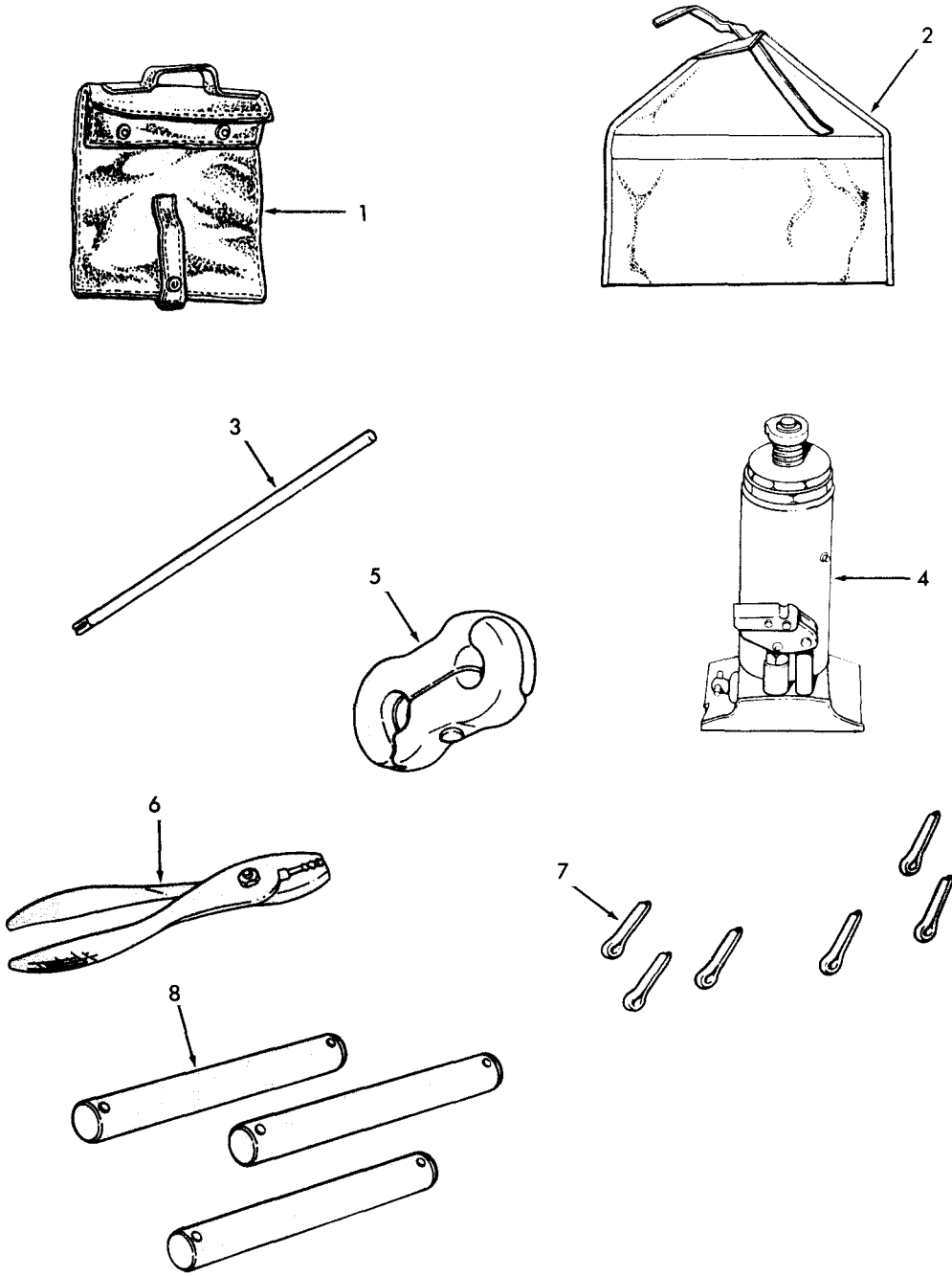


Figure B-1. Common Items.

TA 155108

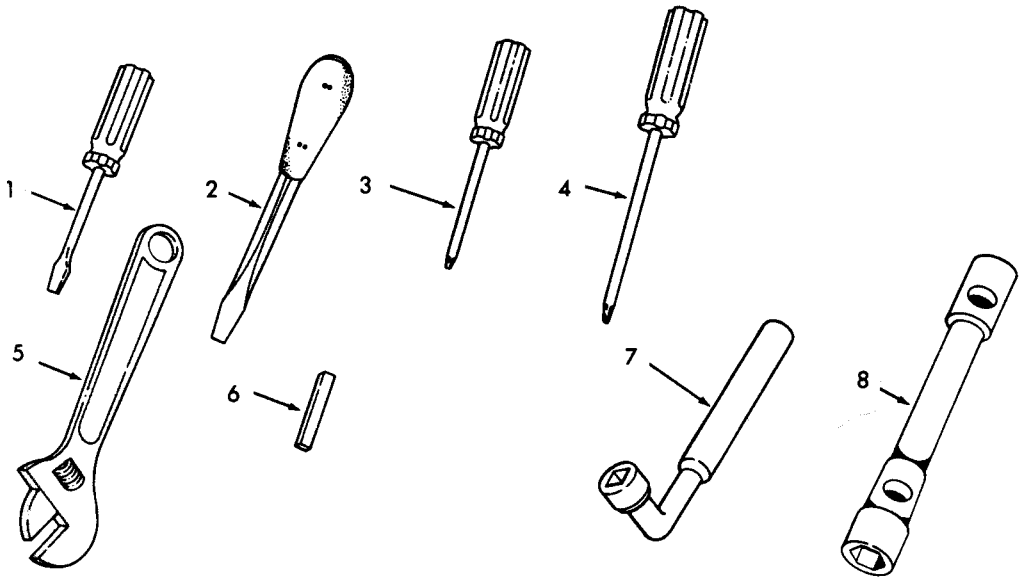


Figure B-2. Common Items.

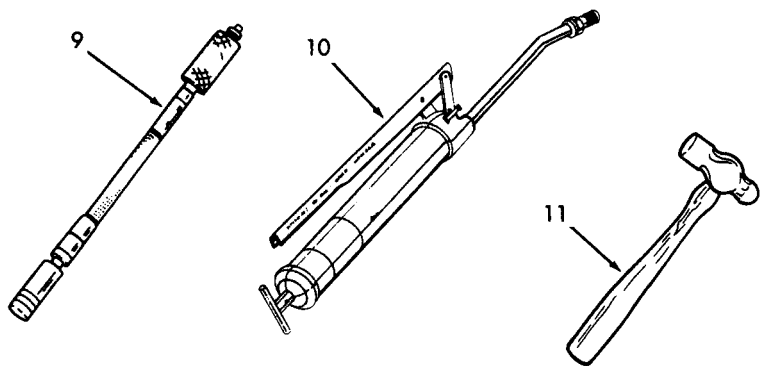


Figure B-3. Additional BII for Truck, Tractor.

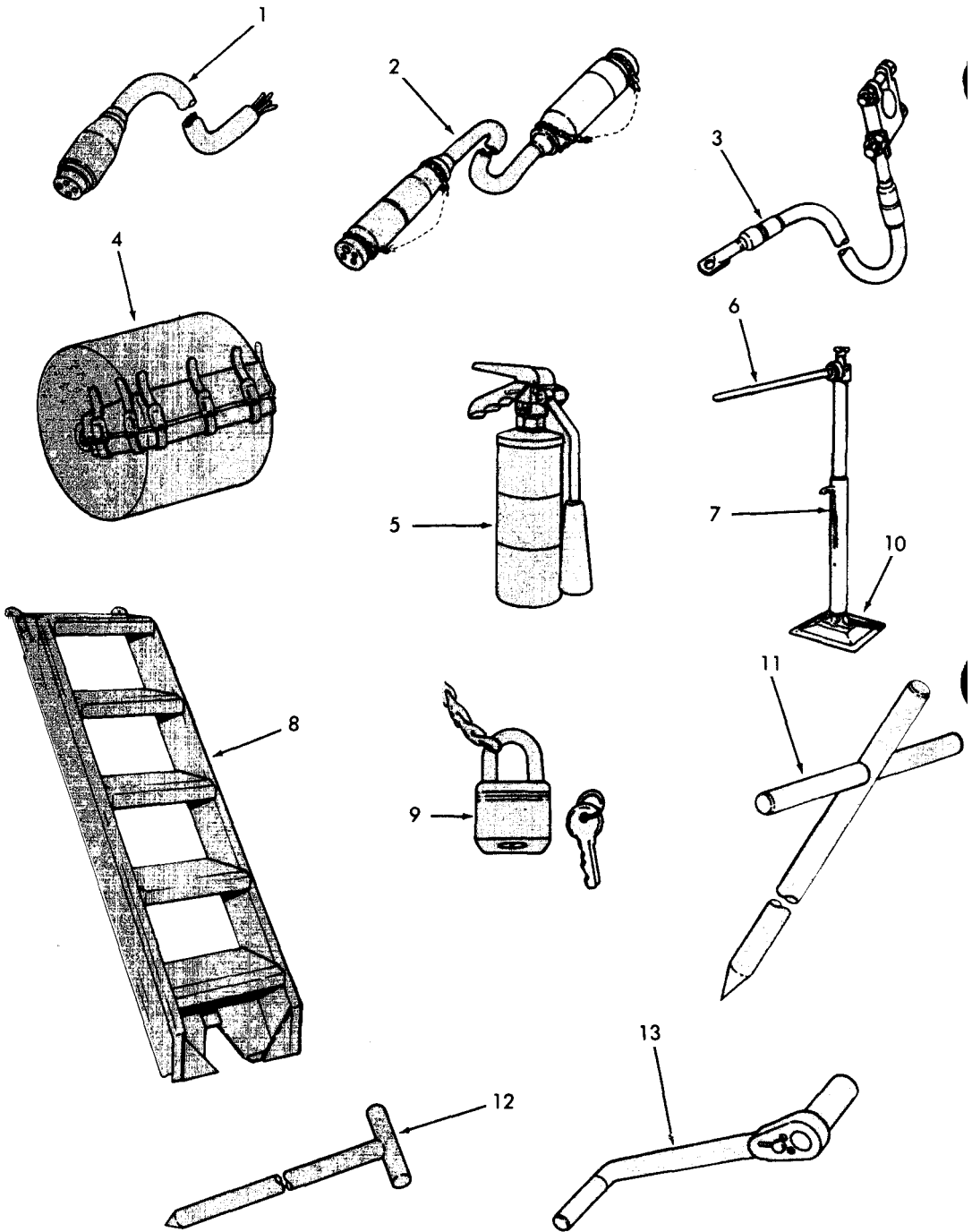


Figure B-4. Additional BII for Truck, Van, Expansive.

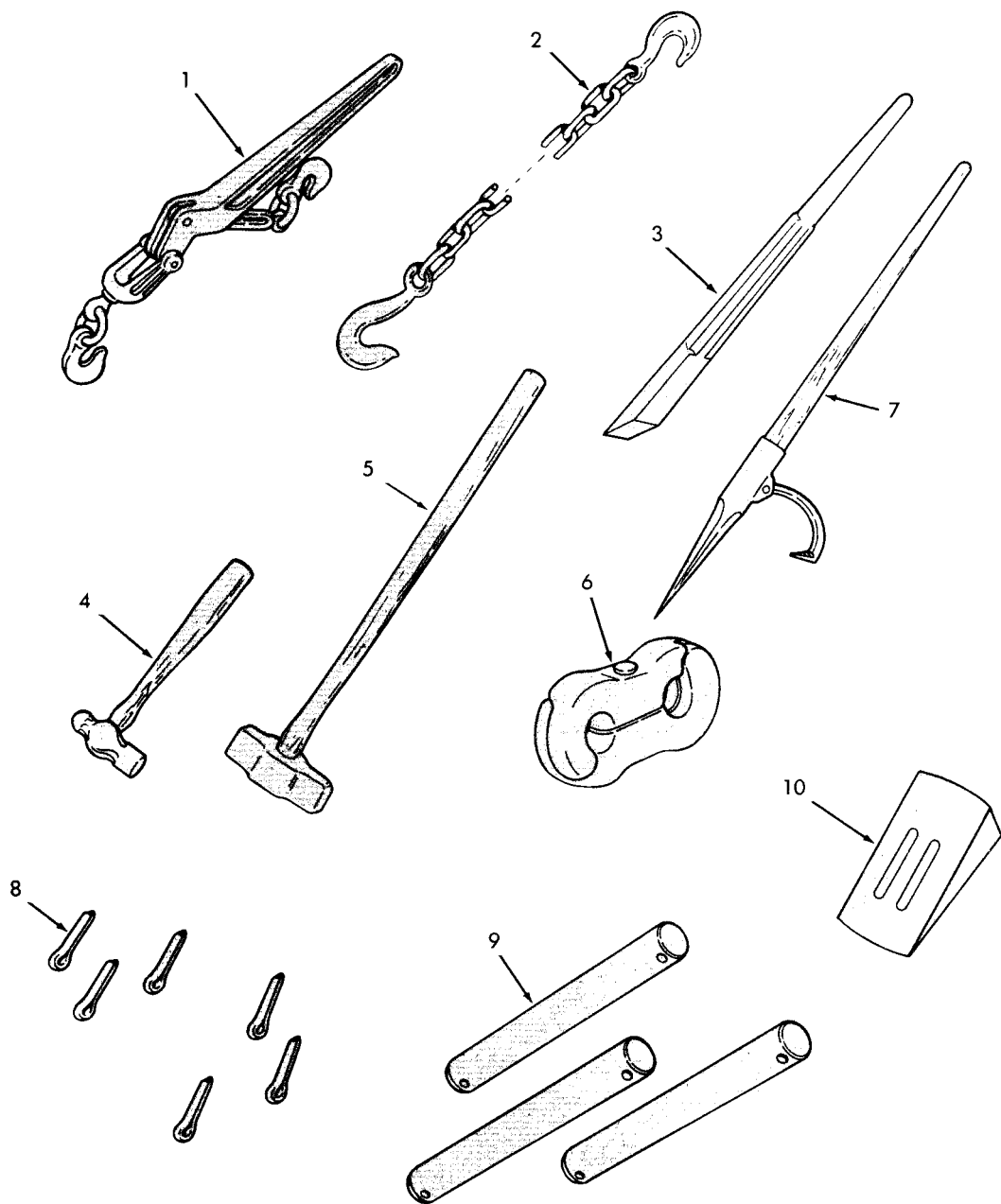


Figure B-5. Additional BII for Truck, Bolster.

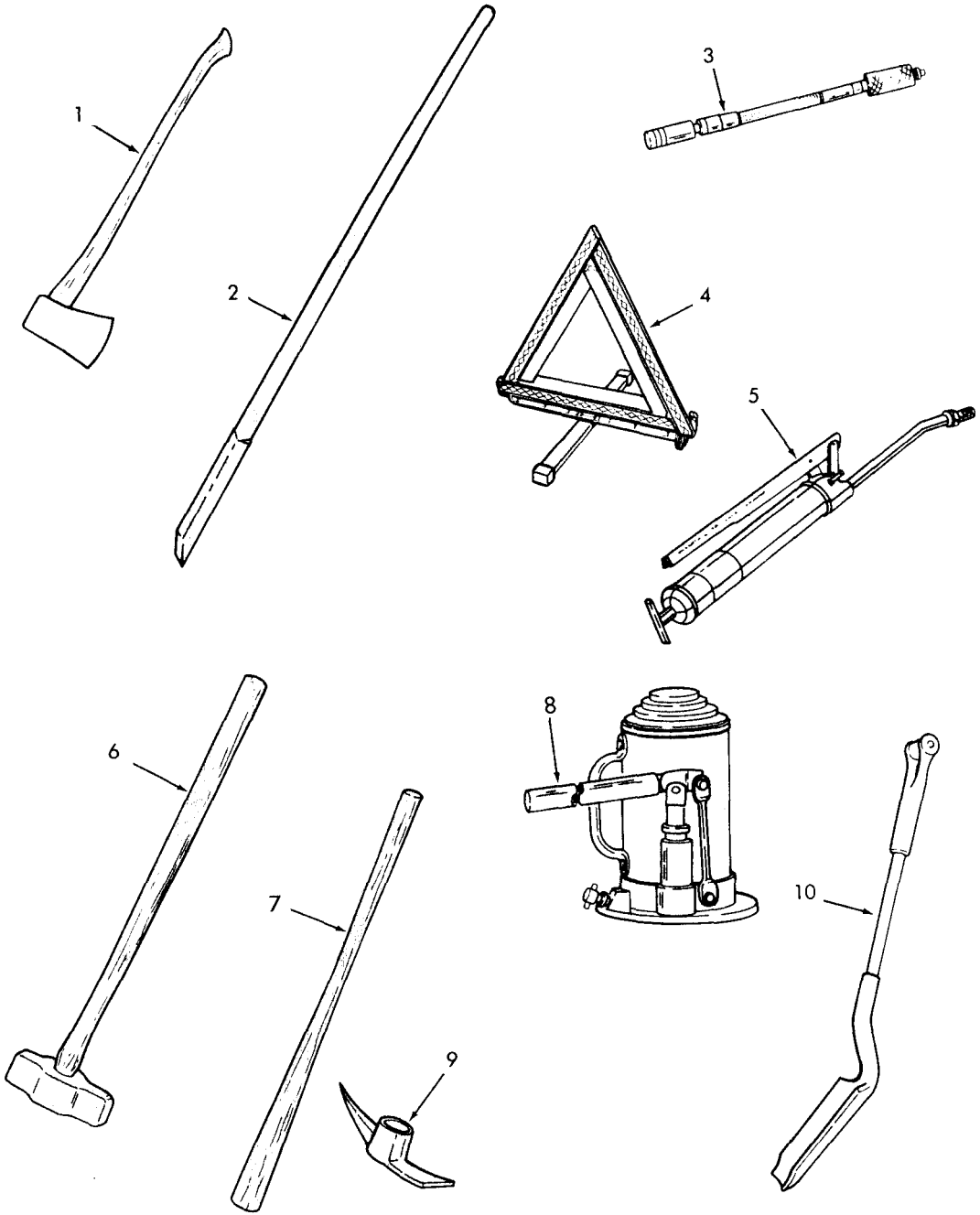


Figure B-6. Additional BII for Truck, Stake, Bridge Transporting.

TA 155112



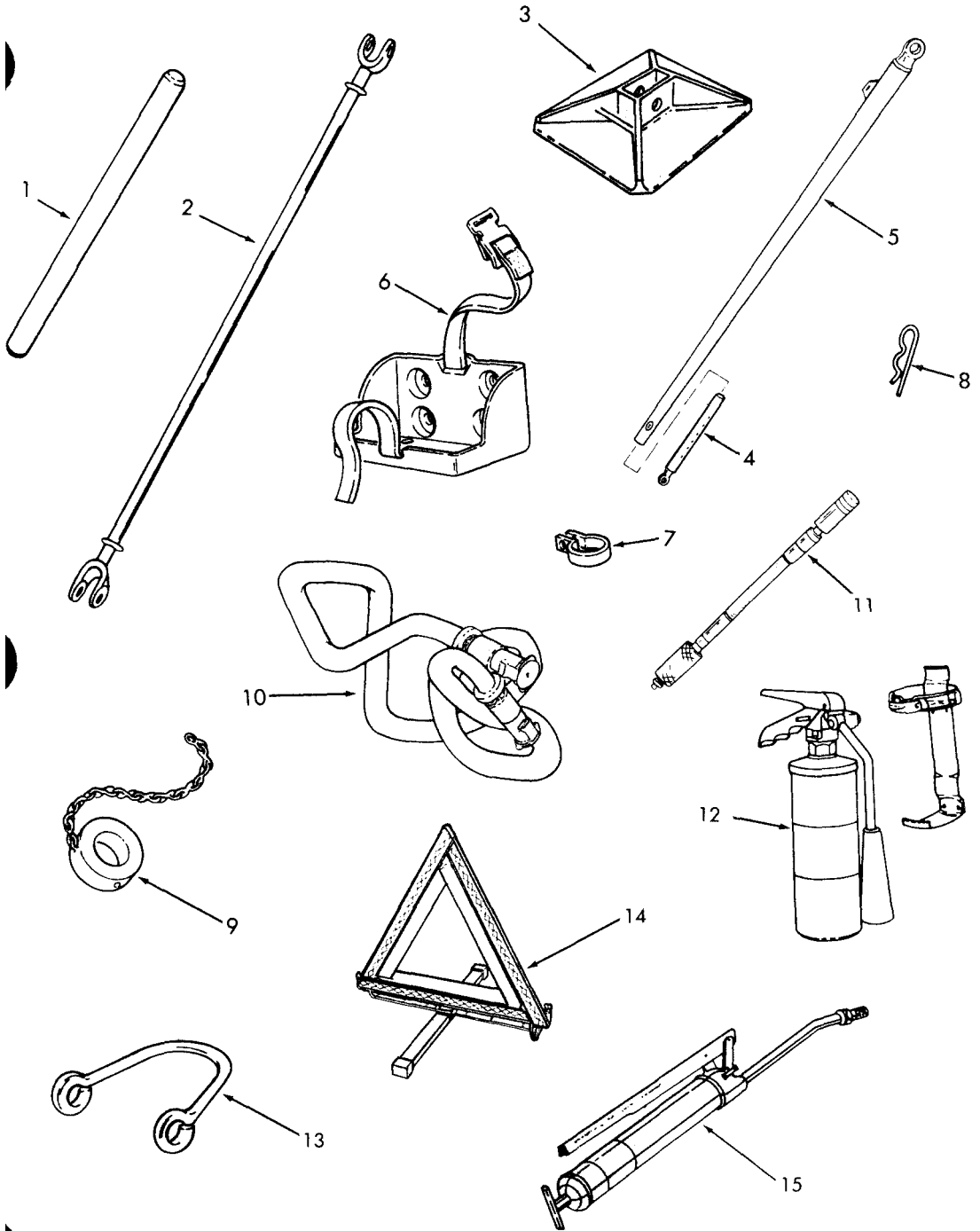


Figure B-7. Additional BII for Truck, Tractor Wrecker.

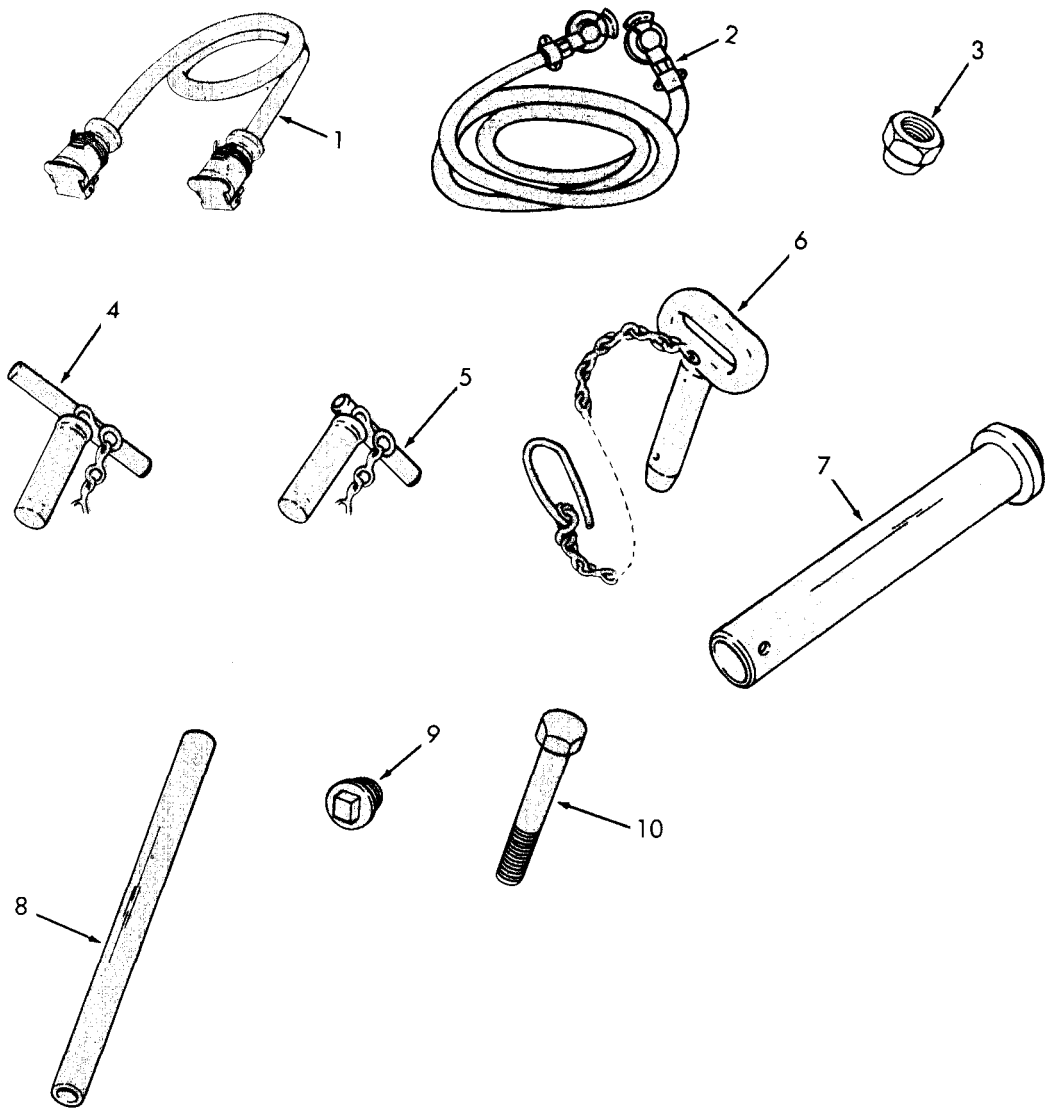


Figure B-8. Additional BII for Truck, Tractor, Wrecker (Continued).

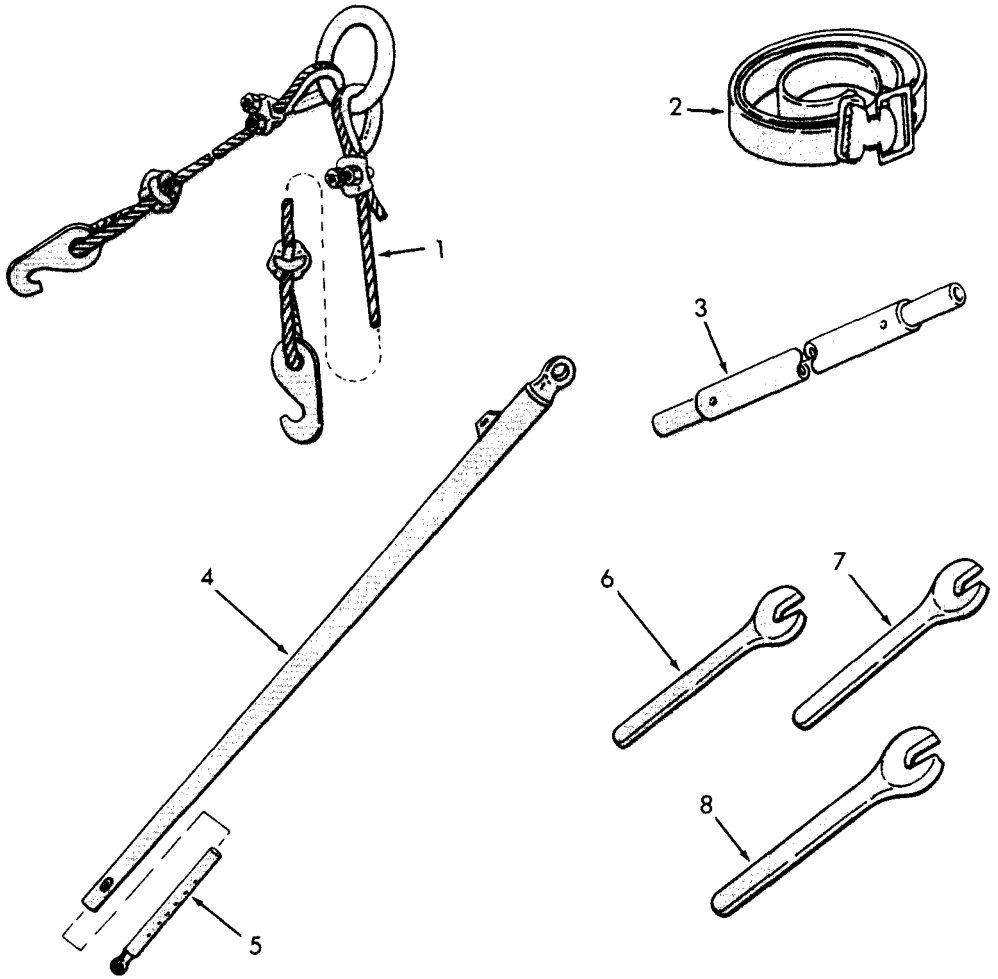


Figure B-9. Additional BII for Truck, Tractor, Wrecker (Continued).

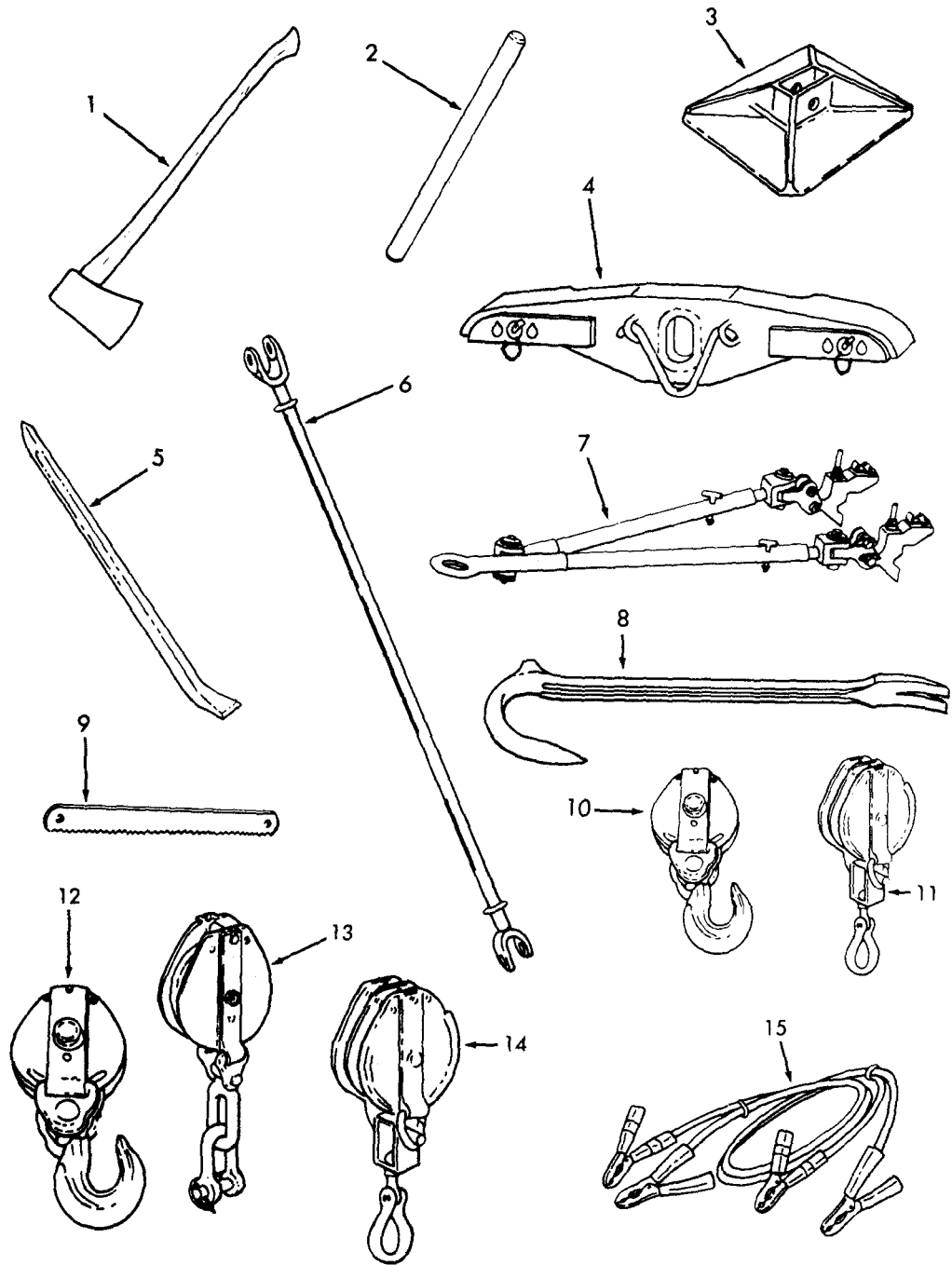


Figure B-10. Additional BII for Truck, Wrecker.

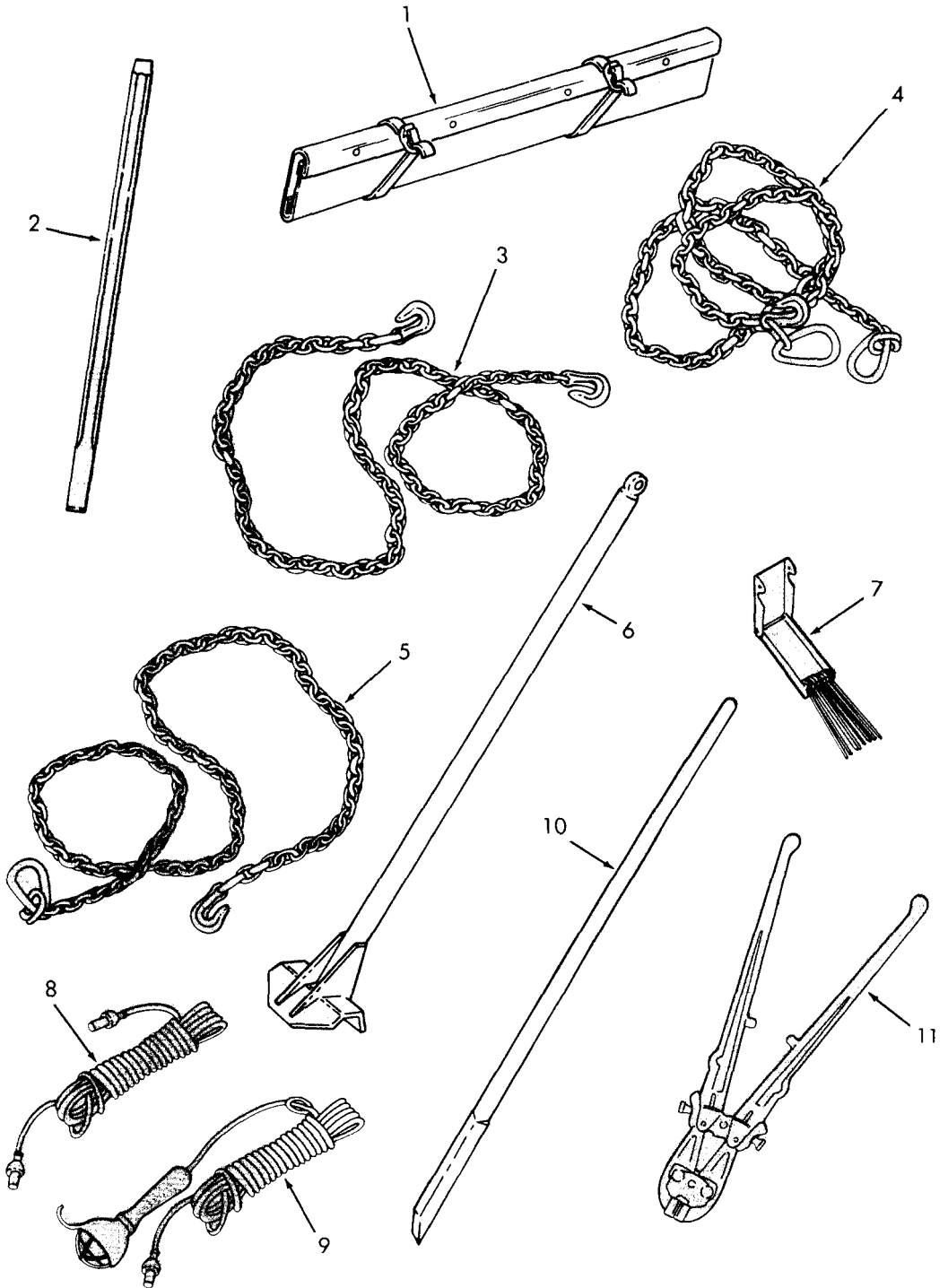


Figure B-11. Additional BII for Truck, Wrecker (Continued).

TA 155117

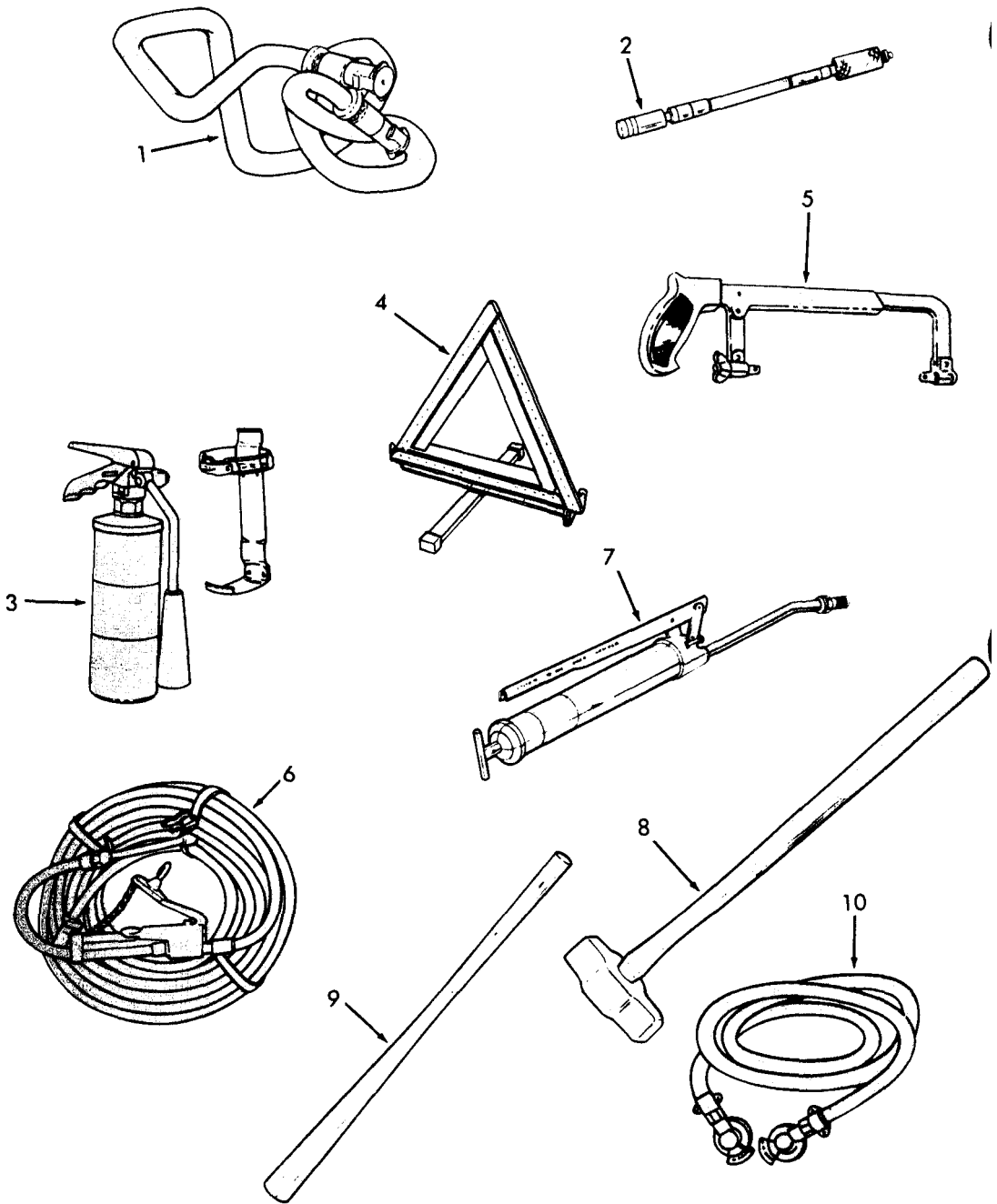


Figure B-12. Additional BII for Truck, Wrecker (Continued).

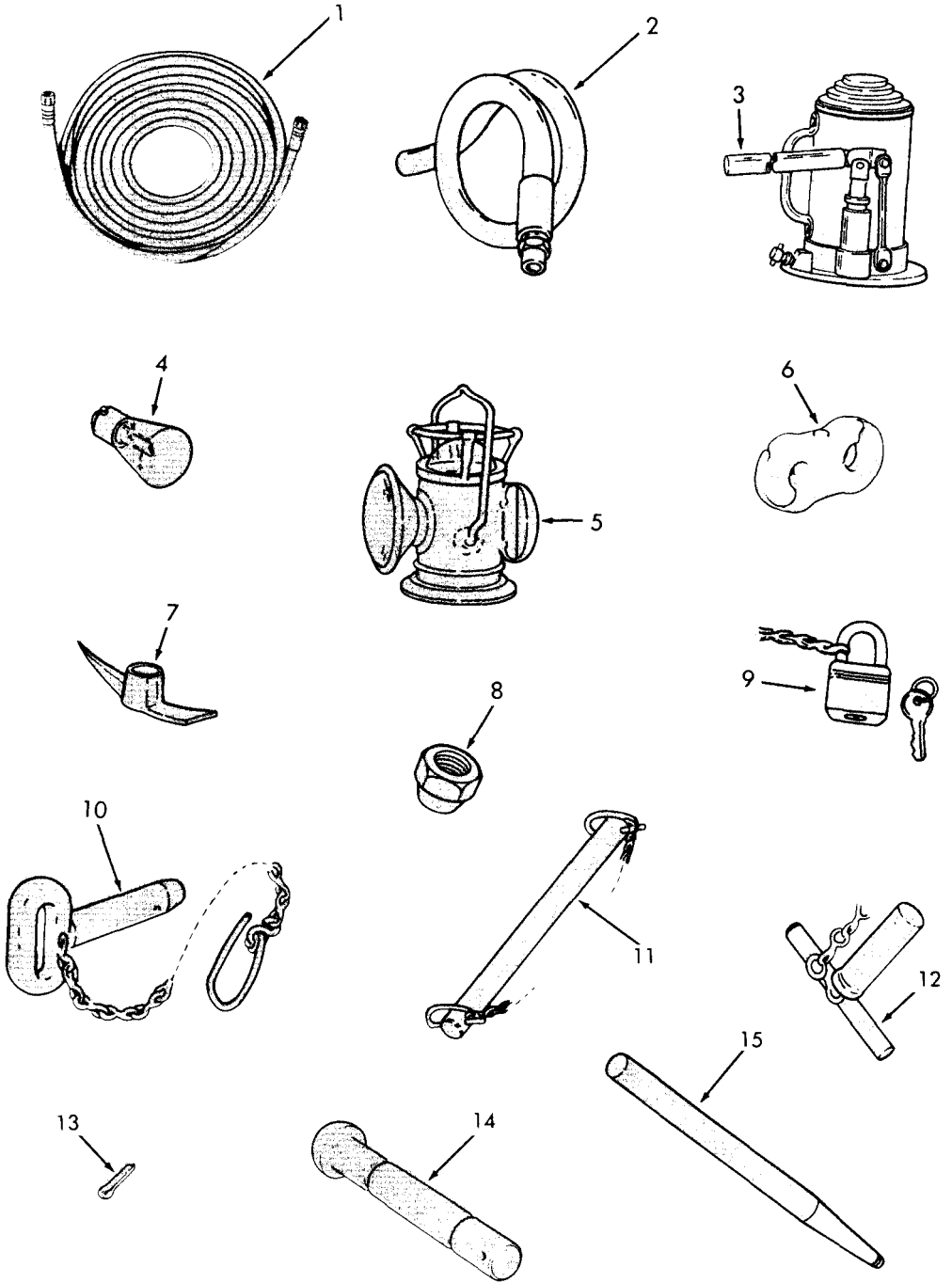


Figure B-13. Additional BII for Truck, Wrecker (Continued).

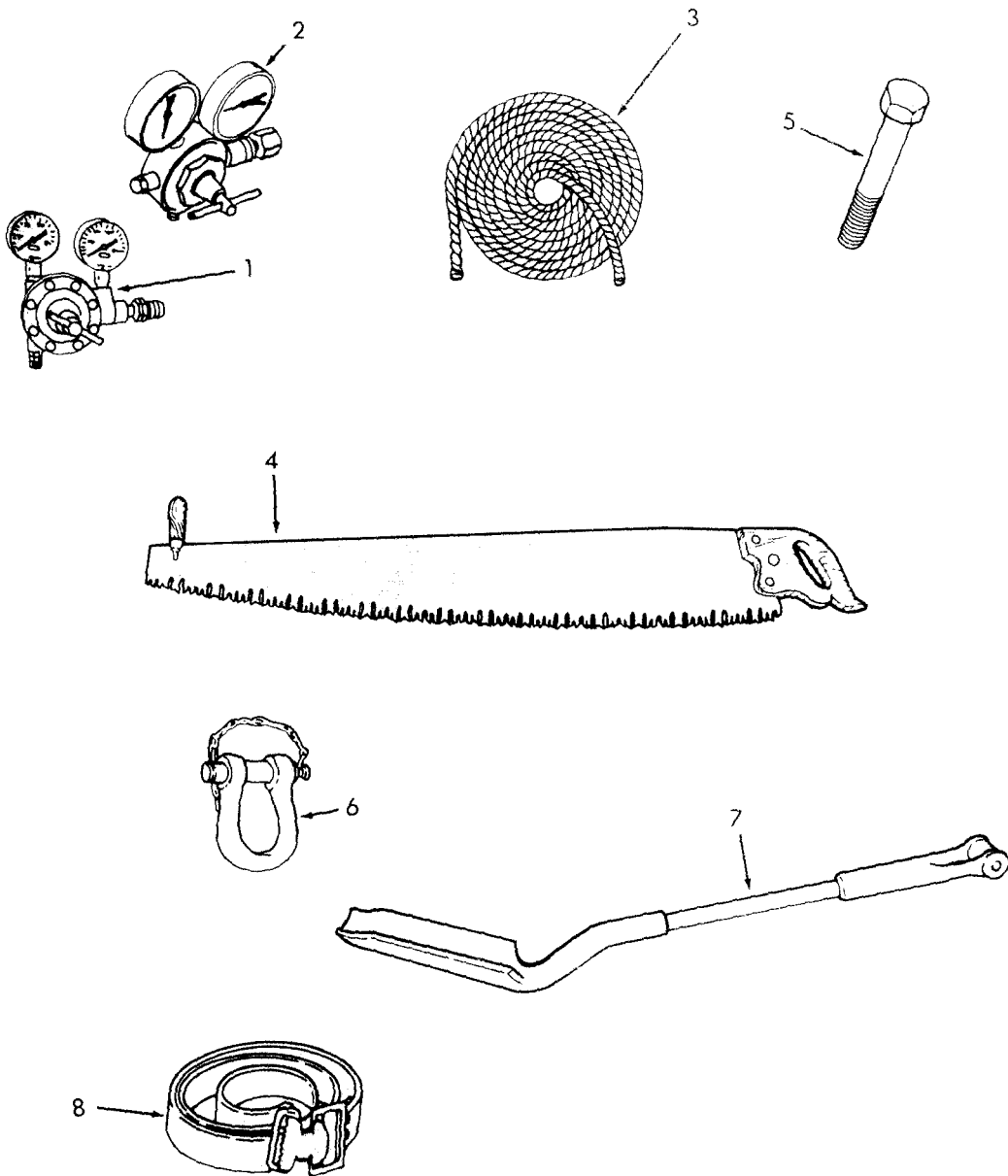


Figure B-14. Additional BII for Truck, Wrecker (Continued).



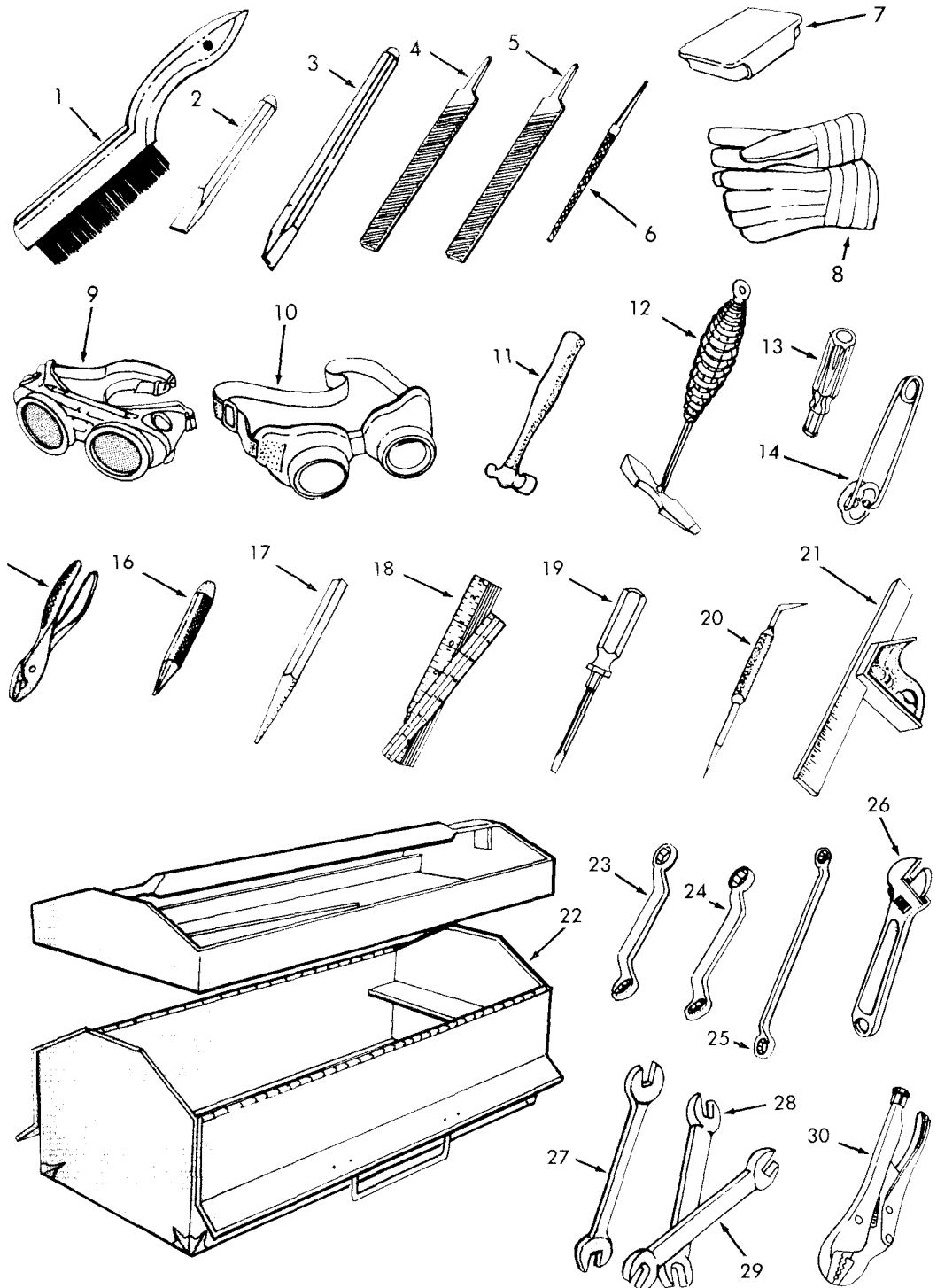


Figure B-15. Additional BH for Truck, Wrecker (Continued).

TA 155121

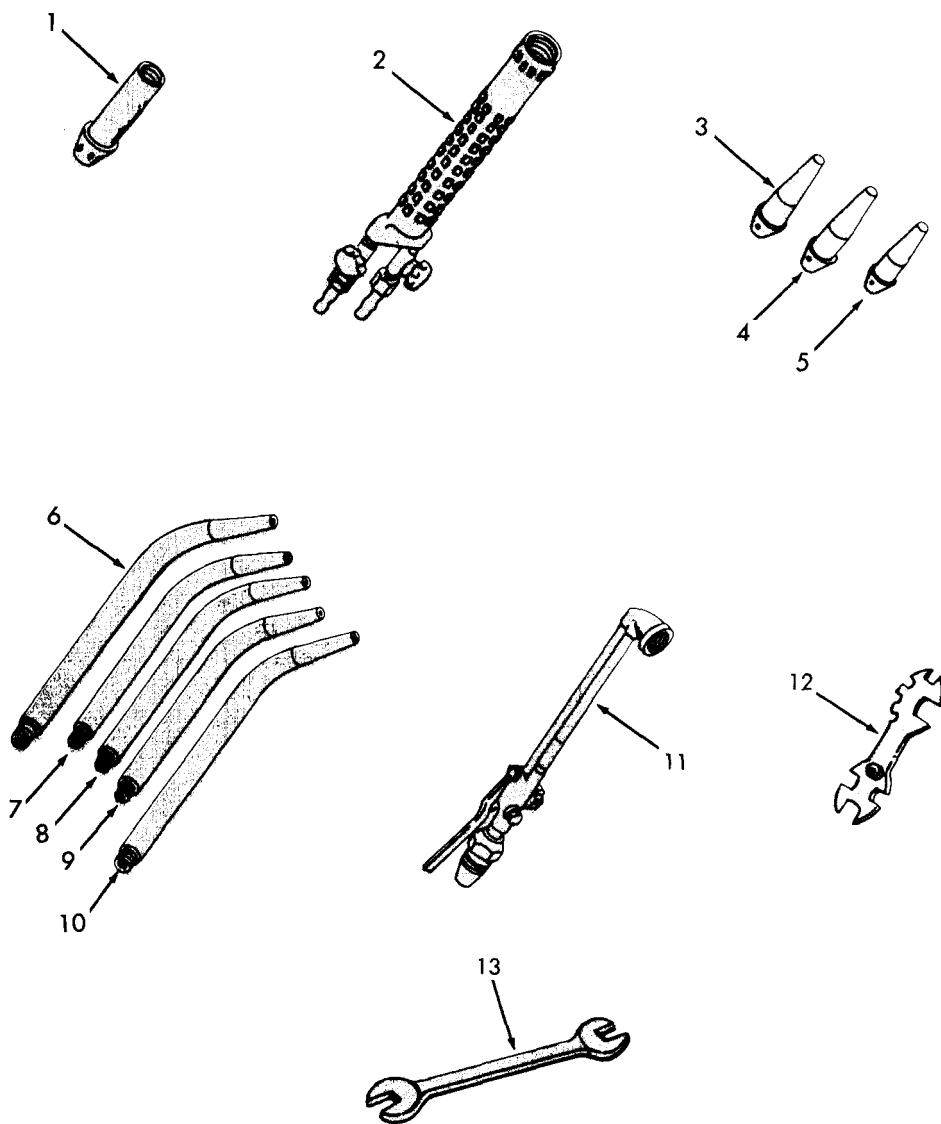


Figure B-16. Additional BII for Truck, Wrecker (Continued).

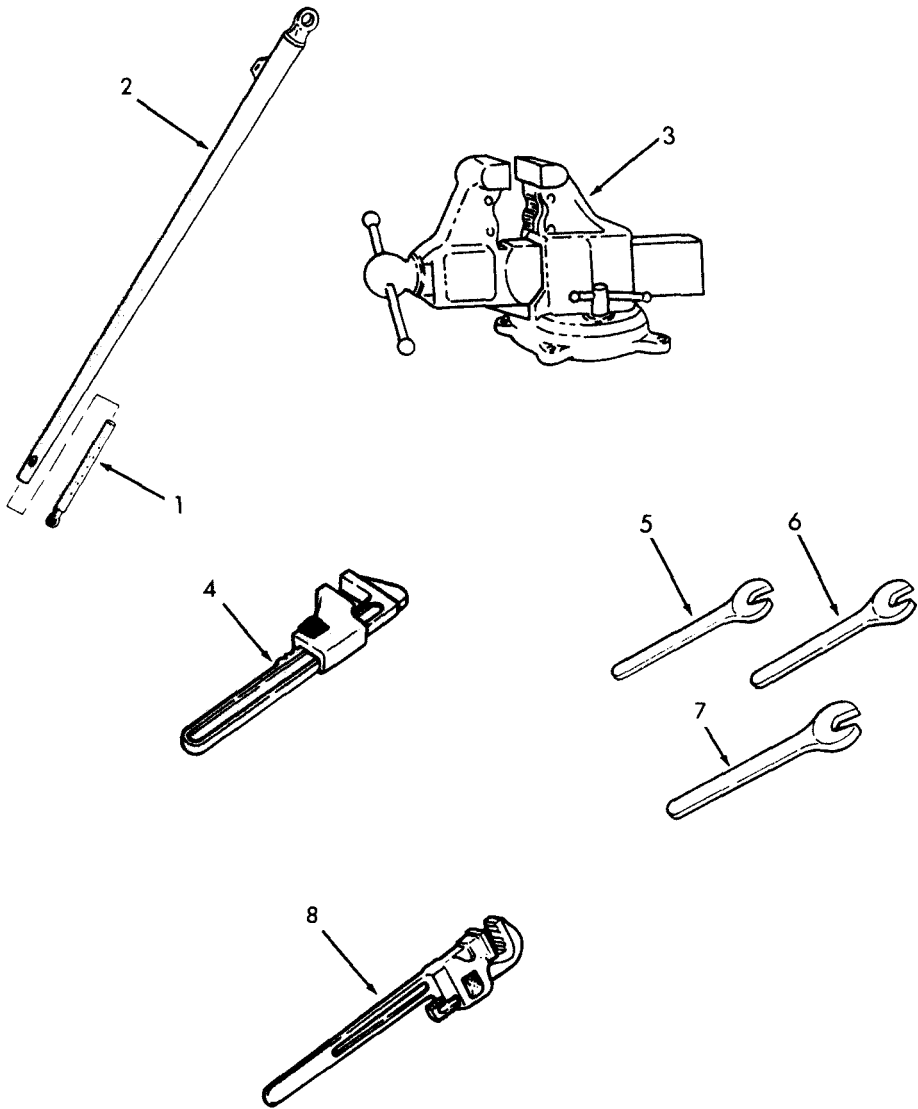


Figure B-17. Additional BII for Truck, Wrecker (Continued).

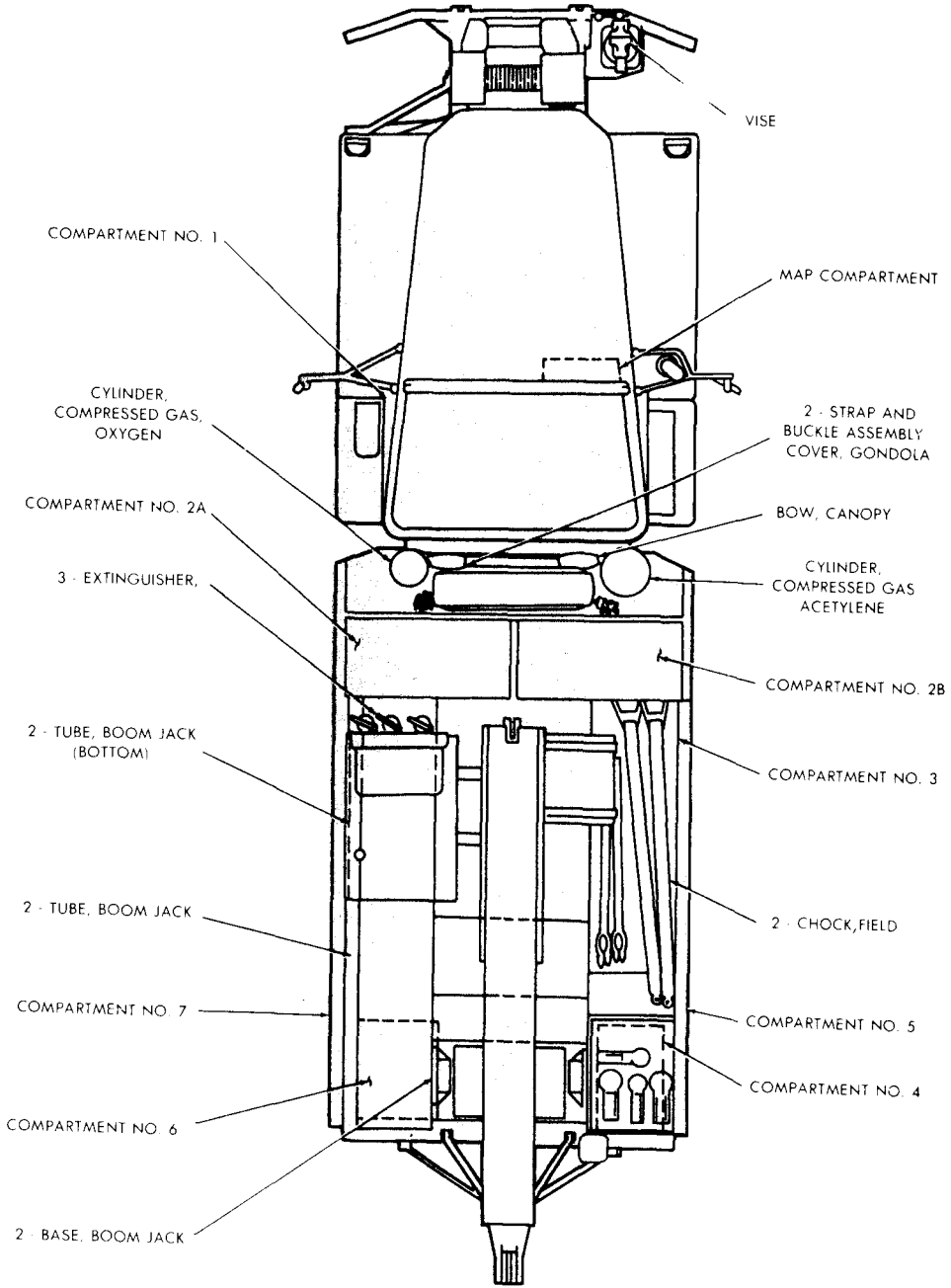


Figure B-18. Stowage Locations for Truck, Wrecker.

## APPENDIX C

### ADDITIONAL AUTHORIZATION LIST

### 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 and the assigned PCC code is shown. These codes are identified as:

MODEL	PCC CODE	MODEL	PCC CODE
M40 wo/winch	555	M54A2C wo/winch	287
M40 w/ winch	556	M54A2C w/winch	587
M40A1 wo/winch	589	M55 wo/winch	286
M40A1 w/winch	588	M55 w/winch	584
M40A1Cw/winch	593	M55A2 wo/winch	276
M40A2C wo/winch	295	M55A2 w/winch	279
M51 wo/winch	563	M61 wo/winch	573
M51 w/winch	564	M61 w/winch	574
M51A1 wo/winch	610	M61A1 wo/winch	596
M51A1 w/winch	611	M61A1 w/winch	595
M51A2 wo/winch	251	M61A2 wo/winch	280
M51A2 w/winch	269	M61A2 w/winch	285
M52 wo/winch	565	M62 w/winch	211
M52 w/winch	566	M63 wo/winch	577
M52A1 wo/winch	200	M63 w/winch	578
M52A1 w/winch	199	M63A1 wo/winch	598
M52A2 wo/winch	273	M63A1 w/winch	597
M52A2 w/winch	274	M63A2 wo/winch	284
M54 wo/winch	569	M63A2 w/winch	283
M54 w/winch	570	M63C w/winch	586
M54A1 wo/winch	202	M63A1C wo/winch	602
M54A1 w/winch	201	M63A1C w/winch	601
M54A1C wo/winch	591	M63A2C wo/winch	282
M54AC w/winch	590	M139 w/winch	267
M54A2 wo/winch	277	M139A1 wo/winch	607
M54A2 w/winch	278	M139A1 w/winch	606

TA 155207

**MODEL**

**PCC  
CODE**

M139F w/winch	557
M139A1F w/winch	609
M139A2F w/winch	207
M246 w/winch	576
M246A1 w/winch	B11
M246A2 w/winch	275
M291A1 wo/winch	603
M291A1D wo/winch	605
M328A1 w/winch	608
M543 w/winch	558
M543A1 w/winch	594
M543A2 w/winch	281
M748A1 w/winch	592

**ADDITIONAL AUTHORIZATION LIST**

NATIONAL STOCK NUMBER	DESCRIPTION PART NO. AND FSCM	USABLE ON CODE	U/M	QTY AUTH
5110-00-293-2336	AXE: single bit 6150925 (81348)	All	EA	1
3940-00-105-9933	BLOCK: rigging, steel wire rope, 8 in. sheave, w/swivel hook, 5/8 in. dia. rope, 10-ton working load, O.D.	All w/front winch	EA	1
2590-00-473-6331	BRACKET: liquid container	211,281,558, 594	EA	2
5230-00-548-0387	CABLE: electrical extension, w/single contact plug and socket, 25 ft. lg 7326618 (19207)	All	EA	1
7240-00-222-3088	CAN: gasoline, military type, 5 gal. 41-C-2124 (80244)	211,281,558, 594	EA	1
7240-00-242-6153	CAN: water, military type, 5 gal.	211,281,558, 594	EA	1
2540-00-933-9022	CHAIN: pneumatic tire, truck, single tire, type TS, 11:00 x 20	199,200,201, 202,211,251, 269,273,274, 276,277,278, 279,281,286, 287,558,563, 564,565,566, 569,570,584, 587,590,591, 592,594,603, 605,610,611	EA	2
2540-00-933-9599	CHAIN: pneumatic tire, truck, dual tire type, 11:00 x 20 MS500054-10 (96906)	199,200,201, 202,211,251, 269,273,274, 276,277,278, 279,281,286, 287,558,563, 564,565,566, 569,570,584, 587,590,591, 592,594,603, 605,610,611	EA	4
2540-00-933-6922	CHAIN: pneumatic tire, truck, single tire type, 12:00 x 20, MS500055-24 (96906)	B11,275,576	EA	2

TA 155209

**ADDITIONAL AUTHORIZATION LIST**

NATIONAL STOCK NUMBER	DESCRIPTION/ PART NO. AND FSCM	USABLE ON CODE	U/M	QTY AUTH
2540-00-933-6917	CHAIN: pneumatic tire, truck, dual tire type, 12:00 x 20	B11,275,576	PR.	4
2540-00-933-9033	CHAIN: pneumatic tire, truck, single tire type, 14:00 x 20 MS500055-27 (96906)	608	EA	2
2540-00-933-6928	CHAIN: pneumatic tire, truck, dual tire type, 14:00 x 20	608	PR.	4
4010-00-449-6573	CHAIN: utility leg, 3/4 in. link, 12 ft. long, w/ grab hook and pear-shape coupling link 8744250 (19207)	All w/front winch	EA	1
2540-00-860-2355	COVER, FITTED, GONDOLA 10876433 (19207)	211,281,558, 594	EA	1
4210-00-775-0127	EXTINGUISHER: 5 lb, purple "K" dry chemical, w/ bracket 7015266 (19207)	All	EA	1
6230-00-264-8261	FLASHLIGHT: hand, 2-cell, w/lamp, wo/ batteries. In map compartment MX991U (81349)	All	EA	1
4910-00-204-2547	GAGE, INFLATOR: tire inflation, used w/ hose assy 4720-00-092-9264	All	EA	1
5120-00-288-6574	HANDLE: mattock-pick, railroad or clay pick NNH0093 (81348)	All	EA	1
4720-00-092-9264	HOSE ASSY: tire inflation (used w/ gage, inflator 4910-00-204-2547 KIT, FIRST AID 11677011 (19207)	All	EA	1
6240-00-044-6914	LAMP: incandescent, S8 bulb, S contact, bayonet base, 28V MS35478-1683 (96906)	All	EA	1
6230-00-274-4018	LIGHT: inspection, w/sgl plug and plug socket, 25 ft. lg., wo/ lamp 17-C-35079-47 (80244)	All	EA	1

TA 155210



### ADDITIONAL AUTHORIZATION LIST

NATIONAL STOCK NUMBER	DESCRIPTION/ PART NO. AND FSCM	USABLE ON CODE	U/M	QTY AUTH
120-00-243-2395	MATTOCK: pick type, 5 lb, wo/ handle GGG-H-506 (81348)	All	EA	1
340-00-682-1505	PADLOCK SET: keyed alike, 1-3/4 in., w/ clevis and chain, composed of 5 padlocks and 7 keys MS21313-54 (96906)	All	EA	1
905-00-148-9546	REFLECTOR, TRIANGLE WARNING KIT: reflector type, w/ flags, w/ metal box 10899404 (19207)	All	EA	1
120-00-293-3336	SHOVEL: hand, rd. pt., D handle, short size GGG-S-326 (81348)	All	EA	1
240-00-177-6154	SPOUT, GAS CAN	211,281,558, 594	EA	1

TA 155211



## ADDITIONAL AUTHORIZATION LIST

(cont.)

NATIONAL STOCK NUMBER	PART NO. & FSCM / DESCRIPTION	USABLE ON CODE	U/M	QTY. AUTH.
	<b>TOOLS AND EQUIPMENT FOR WELDING AND CUTTING (continued)</b>			
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)		EA	
5110-00-263-0341	1 HANDLE, FILE, WOOD: 1-1/2 in dia, 5-1/2 in lg, large size KKH-00106		EA	
5120-00-965-0326	1 IGNITER, FRICTION: wire frame style, sgl-flint, round file, hooded type		EA	
5120-00-223-7298	1 PLIERS, SLIP-JOINT: stght-nose, comb, w/cutter, 10 in lg MS5382-2 ((6906)		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)		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)		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		EA	
5120-00-596-1543	1 SCRIBER: machinist's dbl-pt, screwed, 1-stght and l-reg bent, removable, 8 to 9 in lg GGG-S-131		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)		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		EA	
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)		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)		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)		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)		EA	
5120-00-264-3796	1 WRENCH, OPEN END: adj, sgld-hd type, 0 to 1.322 in jaw opng, 12 in lg GGG-W-631 (81348)		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)		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)		EA	

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ADDITIONAL AUTHORIZATION LIST

(cont.)

NATIONAL STOCK NUMBER	PART NO. & FSCM / DESCRIPTION	USABLE ON CODE	U/M	QTY. AUTH.
	<b>TOOLS AND EQUIPMENT FOR WELDING AND CUTTING (continued)</b>			
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)		EA	
5120-00-494-1911	1 WRENCH, PLIER: curved jaw style, w/wire cutter, 8 1/2 in lg. GGG-P-00471.		EA	
3433-00-294-6743	TORCH SET: cutting and welding, oxygen-acetylene, med duty, w/cutting attachments, tips and wrench. W68117 Composed of: 1 CUTTING ATTACHMENT: welding torch, angle of hd-90 deg, w/universal mixer (18075-6652391). 1 TIP, OXYGEN ACETYLENE, CUTTING: drillsize-68/73(18075-1C). 1 TIP, OXYGEN ACETYLENE, CUTTING: drillsize-64/68(18075-2C). 1 TIP, OXYGEN ACETYLENE, CUTTING: drillsize-60/64(18075-3C). 1 TIP, OXYGEN ACETYLENE, WELDING: drill size 65-70 (18075-2E) 1 TIP, OXYGEN ACETYLENE, WELDING: drillsize-60/65 (18075-3E). 1 TIP, OXYGEN ACETYLENE, WELDING: drill size-52-58 (DOC-5E) 1 TIP, OXYGEN ACETYLENE, WELDING: drillsize-45/50(18075-7E). 1 TIP, OXYGEN ACETYLENE, WELDING: drillsize 40/45(18075-8E). 1 TIP, OXYGEN ACETYLENE, WELDING: drillsize-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	
3433-00-294-6743	TORCH SET: Cutting and welding oxyacetylene, med duty, w/tools cutting attachments and tips (components may be requisitioned separately) (National Cylinder Gas Co.) Composed of:	BG,BH	EA	1
3433-00-391-1215	1 CUTTING ATTACHMENT, WELDING TORCH: angle of hd-75 deg, use w/TORCH HANDLE 3433-391-1217, no. 42527-58-1-75.		EA	
3433-00-391-1216	1 MIXING HEAD, OXYGEN ACETYLENE WELDING TORCH: for tip size 72 to 31. no. 42527-54-5.		EA	
3433-00-373-1726	1 TIP, OXYGEN ACETYLENE, CUTTING: drill size 46, no. 42527-250-46		EA	
3433-00-373-1727	1 TIP, OXYGEN ACETYLENE, CUTTING: drill size 51, no. 42527-250-51		EA	

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ADDITIONAL AUTHORIZATION LIST

TM 9-2320-211-10  
(cont.)

NATIONAL STOCK NUMBER	PART NO. & FSCM / DESCRIPTION	USABLE ON CODE	U/M	QTY. AUTH.
	<b>TOOLS AND EQUIPMENT FOR WELDING AND CUTTING (continued)</b>			
3433-00-373-1730	1 TIP, OXYGEN ACETYLENE, CUTTING: drill size 56, no. 42527-250-56		EA	
3433-00-373-1731	1 TIP, OXYGEN ACETYLENE, WELDING: drill size 42, no. 42527-GXU-42		EA	
3433-00-373-1733	1 TIP, OXYGEN ACETYLENE, WELDING: drill size 50, no. 42527-870-50		EA	
3433-00-373-1734	1 TIP, OXYGEN ACETYLENE, WELDING: drill size 53, no. 42527-GXU-50		EA	
3433-00-373-1737	1 TIP, OXYGEN ACETYLENE, WELDING: drill size 58, no. 42527-GXU-58		EA	
3433-00-373-1739	1 TIP, OXYGEN ACETYLENE, WELDING: drill size 62, no. 42527-GXU-62		EA	
3433-00-391-1217	1 TORCH HANDLE, WELDING: no. 42527-54		EA	
3433-00-391-1218	1 TORCH WRENCH, OXYGEN ACETYLENE no. 42527-7810		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)		EA	
3433-00-294-6543	TORCH SET: CUTTING AND WELDING, oxyacetylene, med duty, w/tools, cutting attachments and tips (components may be requisitioned separately) (Victor Equipment Co. ) Composed of:		EA	
3433-00-391-1219	1 CUTTING ATTACHMENT, WELDING angle of hd-75 deg. no. 63026-C-1450-100, use w/TORCH HANDLE 3433-391-1220		EA	
3433-00-373-1729	1 TIP, OXYGEN ACETYLENE, CUTTING: drill size 54. no. 63026-3-100-1.		EA	
3433-00-373-1728	2 TIP, OXYGEN ACETYLENE, CUTTING: drill size 52. no. 63036-3-101-2.		EA	
3433-00-373-1725	1 TIP, OXYGEN ACETYLENE, CUTTING: drill size 45. no. 63036-3-101-4.		EA	
3433-00-373-1740	1 TIP, OXYGEN ACETYLENE, WELDING: drill size 65. no. 63026-13-0.		EA	
3433-00-373-1738	1 TIP, OXYGEN ACETYLENE, WELDING: drill size 60. no. 63026-13-1.		EA	
3433-00-373-1736	1 TIP, OXYGEN ACETYLENE, WELDING: drill size 56. no. 63026-13-2.		EA	
3433-00-373-1735	1 TIP, OXYGEN ACETYLENE, WELDING: drill size 53. no. 63026-13-3.		EA	
3433-00-373-1732	1 TIP, OXYGEN ACETYLENE, WELDING: drill size 43. no. 63026-13-5.		EA	
3433-00-391-1220	1 TORCH HANDLE WELDING: no. 63026-100.		EA	
5120-00-540-5734	1 TORCH WRENCH, WELDING: 4-way. no. 63026-RT-20		EA	
5120-00-316-9204	WRENCH: acetylene tank valve key, 9/32 in sq-opng (110473)	BG,BH	EA	1

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## 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, 6x6, M39 series truck. These items are authorized to you by CTA 50-970, Expendable Items.

**D-2. Explanation of columns.**

a. *Column 1* - Item number. This number is assigned to the entry in the listing.

b. *Column 2* - Level. This column identifies the lowest level of maintenance that requires the listed item.

C-- Operator/Crew

c. *Column 3* - National Stock Number. This is the National stock number assigned to the item; use it to request or requisition the item.

d. *Column 4* - Description. Indicates the Federal item name and, if required, a description to identify the item. The last line for each item indicates the part number, followed by the Federal Supply Code for Manufacturer (FSCM) in parentheses, if applicable.

e. *Column 5* - Unit of Measure (U/M). Indicates the measure used in performing the actual maintenance function. This measure is expressed by a two-character alphabetical abbreviation (e.g., ea, in, pr). If the unit of measure differs from the unit of issue, requisition the lowest unit of issue that will satisfy your requirements.

**EXPENDABLE SUPPLIES AND MATERIALS LIST**

ITEM NUMBER	LEVEL	NATIONAL STOCK NUMBER	DESCRIPTION	U/M
1	C	6850-00-174-1806	ANTIFREEZE, PERMANENT TYPE: arctic grade (-90°F) (0-1-490) (MIL-C-11755)  55 GAL DRUM	GAL
2	C	6850-00-181-7929	ANTIFREEZE, PERMANENT: ethylene glycol (-65°F) inhibited (0-A-548, type I) heavy duty, single package  1 GAL CONTAINER	GAL
3	C	6850-00-181-7933	5 GAL CONTAINER	GAL
4	C	6850-00-181-7940	55 GAL DRUM	GAL
5	C	6135-00-120-1020	BATTERY: dry, 1.5 volt (used in flashlight)	EA
6	C	6135-00-050-3280	BATTERY: lantern, 6 volt (used in lantern)	EA
7	C	2540-00-870-9939	COVER: cable reel, cotton duck, 8735021	EA
8	C	2540-00-933-6915	CROSS CHAIN: 11:00 x 20, single tire MS500057-7 (96906)	EA
9	C	2540-00-933-6915	CROSS CHAIN: 12:00 x 20, dual tire MS500057-7 (96906)	EA
10	C	2540-00-933-6992	CROSS CHAIN: 14:00 x 20, dual tire MS500057-8 (96906)	EA
11	C	9150-00-190-0932	FLUID, HYDRAULIC, NON-PETROLEUM BASE AUTOMOTIVE: (HB) (VV-B-680)  1 PT CAN	PT
12	C	9140-00-231-9071	1 GAL CAN	GAL
13	C	9140-00-252-6375	FLUID, HYDRAULIC, NON-PETROLEUM BASE, AUTOMOTIVE: arctic type (MIL-H-13910)  1 GAL CAN	GAL

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**EXPENDABLE SUPPLIES AND MATERIALS LIST**

<b>ITEM NUMBER</b>	<b>LEVEL</b>	<b>NATIONAL STOCK NUMBER</b>	<b>DESCRIPTION</b>	<b>U/M</b>
			GAA, GREASE, AUTOMOTIVE AND ARTILLERY (MIL-G-10924)	
14	C	9150-00-065-0029	2¼ OZ TUBE	OZ
15	C	9140-00-935-1017	14 OZ CARTRIDGE	OZ
16	C	9150-00-190-0904	1 LB CAN	LB
17	C	9150-00-190-0905	5 LB CAN	LB
18	C	9150-00-190-0907	35 LB PAIL	LB
19	C	9150-00-190-7369	120 LB DRUM	LB
20	C	2540-00-937-0404	HOOK: swivel, 11:00 x 20, single tire, MS500059 (96906)	EA
21	C	2540-00-937-0404	HOOK: swivel, 12:00 x 20, dual tire, MS500059 (96906)	EA
22	C	2540-00-937-0404	HOOK: swivel, 14:00 x 20, dual tire, MS500059 (96906)	EA
			OIL, FUEL, DIESEL, DF-A (ARCTIC)	
23	C	9140-00-286-5282	5 GAL DRUM	GAL
24	C	9140-00-286-5284	55 GAL DRUM (16 gage)	GAL
25	C	9140-00-286-5285	55 GAL DRUM (18 gage)	GAL
26	C	9140-00-286-5283	BULK	GAL
			OIL, FUEL, DIESEL, DF-1: winter (VV-F-800)	
27	C	9140-00-286-5287	5 GAL DRUM	GAL
28	C	9140-00-286-5288	55 GAL DRUM (16 gage)	GAL
29	C	9140-00-286-5289	55 GAL DRUM (18 gage)	GAL
30	C	9140-00-286-5286	BULK	GAL
			OIL, FUEL, DIESEL, DF-2: regular (VV-F-800)	
31	C	9140-00-286--5295	5 GAL CAN	GAL

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**EXPENDABLE SUPPLIES AND MATERIALS LIST**

ITEM NUMBER	LEVEL	NATIONAL STOCK NUMBER	DESCRIPTION	U/M
32	C	9140-00-286-5297	55 GAL DRUM (18 gage)	GAL
33	C	9140-00-286-5283	BULK OIL, LUBRICATING, GEAR: GO-80 (MIL-L-2105)	GAL
34	C	9150-00-035-5392	1 QT CAN	QT
35	C	9150-00-577-5844	5 GAL DRUM	GAL
36	C	9150-00-577-5846	55 GAL DRUM (18 gage) OIL, LUBRICATING, GEAR: GOS (MIL-L-10324)	GAL
37	C	9150-00-035-5390	1 QT	QT
38	C	9150-00-257-5440	5 GAL DRUM	GAL
39	C	9150-00-251-5443	55 GAL DRUM (18 gage) OIL, LUBRICATING, OE/HDO 10 (MIL-L-2104)	GAL
40	C	9150-00-265-9425	1 QT CAN	QT
41	C	9150-00-265-9428	5 GAL DRUM	GAL
42	C	9150-00-191-2772	55 GAL DRUM (18 gage)	GAL
43	C	9140-00-753-4763	BULK OIL, LUBRICATING, OE/HDO 30 (MIL-L-2104)	GAL
44	C	9150-00-186-6681	1 QT CAN	QT
45	C	9140-00-265-9434	5 GAL DRUM	GAL
46	C	9150-00-265-9437	55 GAL DRUM (18 gage)	GAL
47	C	9140-00-753-4764	BULK OIL, LUBRICATING, OES (MIL-L-10295)	GAL
48	C	9150-00-402-4478	1 QT	QT
49	C	9150-00-491-7197	55 GAL DRUM (16 gage)	GAL

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TA 155951





# SOMETHING WRONG WITH THIS PUBLICATION?

THEN... JOT DOWN THE DOPE ABOUT IT ON THIS FORM. CAREFULLY TEAR IT OUT. FOLD IT AND DROP IT IN THE MAIL!

FROM: (PRINT YOUR UNIT'S COMPLETE ADDRESS)  
**CDR, 1ST BN 65TH ADA**  
**ATTN SP4 JANE I. DONE**  
**KEY WEST, FL 33040**

DATE SENT **Date sent in**

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**Operator's Manual**

BE EXACT... PIN-POINT WHERE IT IS

IN THIS SPACE TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:

PAGE NO	PARA-GRAPH	FIGURE NO	TABLE NO
1-1	1-2		
2-30	2-4a	Top	
D-2		"D"	

Para 1-2 should read:  
 ... prescribed by TM 38-750

Callout NO. 1 (to end. curtains) is missing.

Item 12 (case, Saw) P.N. should be 10876420

# SAMPLE

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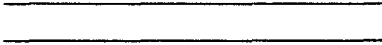
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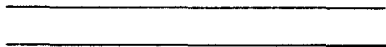
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