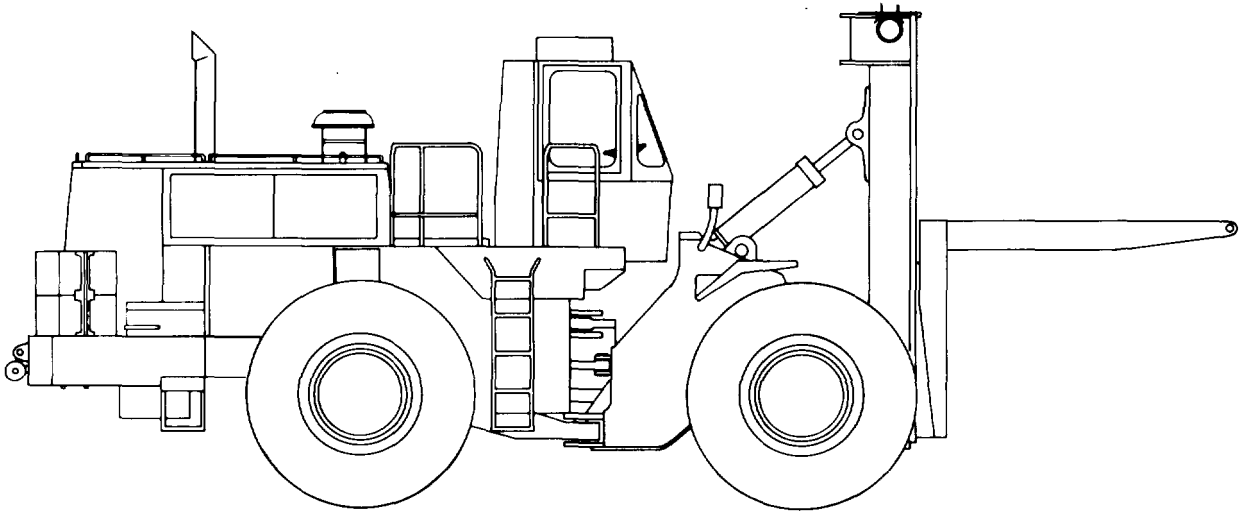
TM 10-3930-641-10

TECHNICAL MANUAL

OPERATOR'S MANUAL



TRUCK, CONTAINER HANDLER
ROUGH TERRAIN, 50,000 LB CAPACITY
DED, PT, NSN 3930-01-082-3758
WITH TOPHANDLER(S)

HEADQUARTERS, DEPARTMENT OF THE ARMY
MAY 1981

WARNING

If you sustain any injuries, no matter how slight, follow the first aid procedures outlined in FM 21-11.

WARNING

CARBON MONOXIDE (EXHAUST GAS) CAN KILL YOU

Carbon monoxide is without color or smell, but can kill you. Breathing air with carbon monoxide produces symptoms of headache, dizziness, loss of muscular control, a sleepy feeling, and coma. Brain damage or death can result from heavy exposure. Carbon monoxide occurs in the exhaust fumes of fuel-burning heaters and internal combustion engines. Carbon monoxide can become dangerously concentrated under conditions of no air movement. Precautions must be followed to insure crew safety when the personnel heater, main or auxiliary engine of any vehicle is operated for any purpose.

1. DO NOT operate engine of vehicle in a closed place unless the place is well-ventilated.
2. DO NOT idle engine for long periods.
3. DO NOT drive any vehicle with inspection plates, cover plates, or engine compartment doors removed unless necessary for maintenance purpose.
4. BE ALERT at all times during vehicle operation for exhaust odors and exposure symptoms. If either is present, IMMEDIATELY VENTILATE personnel compartment. If symptoms persist, remove affected person to fresh air; keep warm; DO NOT PERMIT PHYSICAL EXERCISE; if necessary, give artificial respiration.

   FOR ARTIFICIAL RESPIRATION, REFER TO FM 21-11.
5. BE AWARE: the field protective mask for nuclear-biological-chemical (NBC) protection will not protect you from carbon monoxide poisoning.

THE BEST DEFENSE AGAINST CARBON MONOXIDE POISONING IS GOOD VENTILATION.

Go on to Sheet 2

WARNING

BEFORE OPERATING:

Make sure shipping link, located near lower center of vehicle, is disconnected and pinned to retainer.

Be sure all safety guards and covers are in place.

Be sure the Rollover Protective Structure (ROPS) is not damaged or altered. A structurally damaged ROPS will not protect you in a rollover accident.

WHEN OPERATING:

Do not wear loose clothing or jewelry that could catch in controls.

Wear ear protection when operating with cab windows open, unless operating at idle. Anyone within 50 feet (15 m) of an operating RTCH must also wear ear protection.

Be sure all personnel are away from vehicle and area.

Note all hazards in your operating area.

Place range selector in neutral and engage parking brake before starting engine.

Test mast controls for proper function before beginning machine operations.

Do not move vehicle without normal brake oil pressure.

Wear your seat belt.

Go on to Sheet 3

SUMMARY OF WARNINGS (CONT) **(Sheet 3 of 3)**

WARNING

WHEN OPERATING:

This vehicle is not intended for riders. Do not allow riders on the vehicle.

There is no room for a man in the pivot area when the vehicle is turning.

Look behind vehicle when backing up.

Know the stopping distance for your vehicle at any given speed. Regulate travel speed accordingly.

Never coast.

Carry load close to ground.

Be aware of the height of your vehicle – 14 ft (4.3 m) to top of mast. Stay clear of electric wires and overhangs.

WHEN OPERATING:

Be aware of the weight of your vehicle – 113,000 lbs (51,300 kg) unloaded. Stay a safe distance from cliffs, deep excavations or other dangerous areas.

Do not drive the loaded vehicle on a side slope of more than 15°.

Do not drive the loaded vehicle on a downhill grade of more than 15%

Always stop engine and lower mast before leaving vehicle. Mast will lower with engine off.

WHEN SERVICING:

Do not smoke when fueling machine.

Do not smoke when inspecting batteries.

Remove radiator cap slowly to release pressure. You might be scalded by steam or injured by flying cap.

End

b

CHANGE

No. 1

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, D.C., *18 July 1989*

OPERATOR'S MANUAL

TRUCK, CONTAINER HANDLER: ROUGH TERRAIN 50,000 LB CAPACITY, DED, PT NSN 3930-01-082-3758 WITH TOPHANDLER(S)

TM 10-3930-841-10, 15 May 1981, is changed as follows:

1. Remove old pages and insert new pages as indicated below.
2. New or changed material is indicated by a vertical bar in the margin of the page and by a vertical bar adjacent to the TA number.

Remove pages	Insert pages
i/(ii Blank)	*il(ii Blank)*
1-3 and 1-4	*1-3 and 1-4*
2-17 and 2-18	*2-17 and 2-18*
3-31 and 3-32	*3-31 and 3-32*
A-1 and A-2	*A-1 and A-2*

3. File this change sheet in front of the publication for reference purposes.

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 12-25F, Operator maintenance requirements for Truck, Container Handler, 50,000 LB Capacity, Rough Terrain.

TECHNICAL MANUAL
NO- 10-3930-641-10

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, DC, 15 MAY 1981

OPERATOR'S MANUAL

TRUCK, CONTAINER HANDLER: ROUGH TERRAIN 50,000 LB CAPACITY, DED, PT NSN 3930-01-082-3758 WITH TOPHANDLER(S)

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

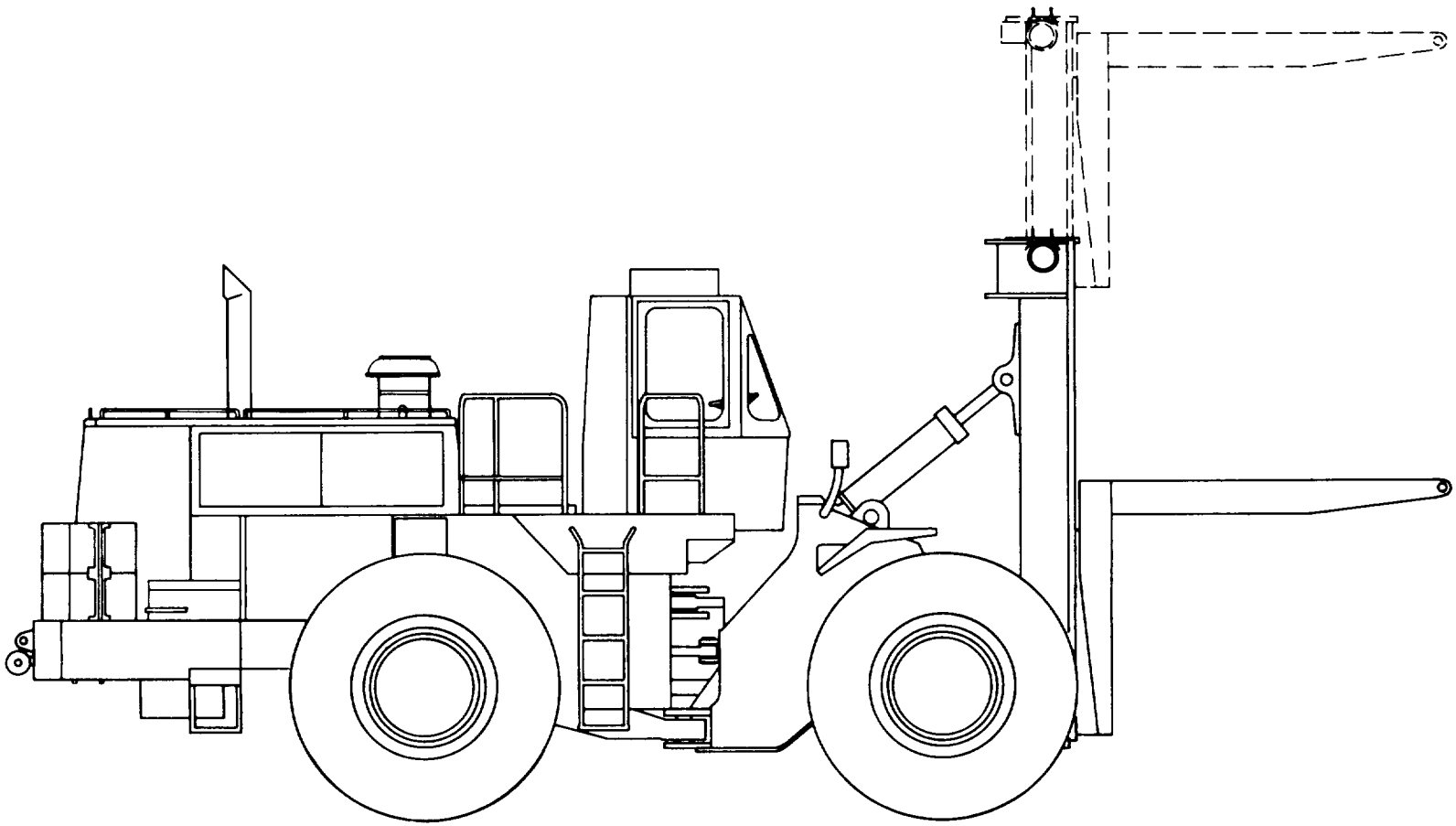
You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2, located in the back of this manual, direct to: Commander, U.S. Army Tank-Automotive Command, ATTN: AMSTA-MB, Warren, Ml 48397-5000. A reply will be furnished to you.T

Page

Page

CHAPTER 1

INTRODUCTION



TA 098491

ROUGH TERRAIN CONTAINER HANDLER

Section I. GENERAL INFORMATION

SCOPE

(Sheet 1 of 1)

This manual is for your use in operating and performing operator maintenance of the Rough Terrain Container Handler (RTCH).

The RTCH is used for loading, unloading, handling and stacking containers weighing 50,000 pounds (22,700 kg) or less.

MAINTENANCE FORMS, RECORDS AND REPORTS

Maintenance forms, records, and reports which are to be used by maintenance personnel at all maintenance levels are listed in and prescribed by DA Pam 738-750, The Army Maintenance Management System (TAMMS).

EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR)

If your Container Handler needs improvement, let us know. Send an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design. Tell us why a procedure is hard to perform. Put it on an SF 368 (Quality Deficiency Report). Mail it to Commander, U.S. Army Tank-Automotive Command, Warren, MI 48397-5000, ATTN: AMSTA-QRD. We'll send you a reply.

WARRANTY INFORMATION

The Rough Terrain Container Handler is warranted by Caterpillar Tractor Co. for 15 months or 1500 hours of operation, whichever comes first. Warranty starts on the date found on DA Form 2408-9 in the log book. Report all defects in material or workmanship to your superior, who will take appropriate action through your organizational maintenance shop.

End

Section II. EQUIPMENT DESCRIPTION

EQUIPMENT PURPOSE, CAPABILITIES AND FEATURES (Sheet 1 of 1)

PURPOSE

1. Handles 1S0 (International Standards Organization) designation 1A or lC cargo containers or Sealand Containers.
2. Handles and stacks containers.
3. Loads and unloads flatbed trailers and rail cars.
4. Makes over-the-shore landings.

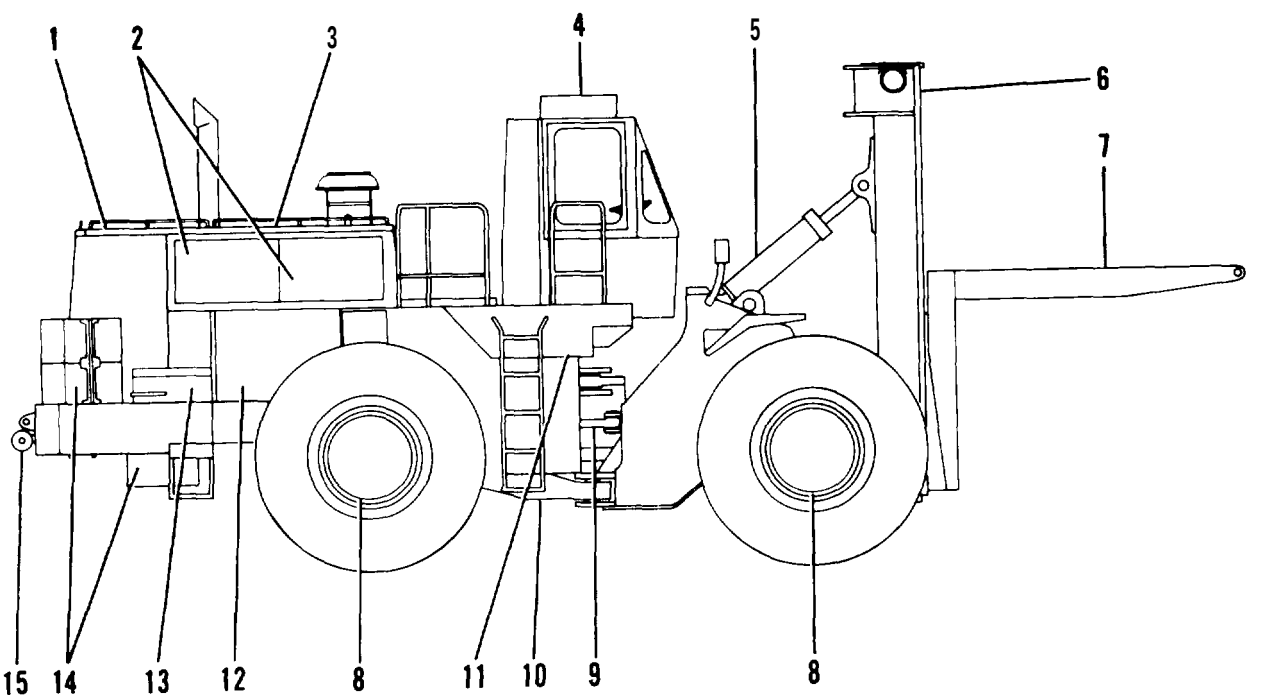
CAPABILITIES AND FEATURES

1. Operates over rough terrain – including beaches, snow, mud and cross country.
2. Fords up to 60 inches (152 cm) of salt water.
3. Comes with a 20 ft tophandler and may also have a 35 ft or 40 ft tophandler.
4. Raises, lowers, tilts forward or backward, sideshifts or sidetilts a container load.
5. Lifts a container from 12 in. (30 cm) below ground level to 118 in. (300 cm) above ground level (measured to bottom of container).
6. Articulated (bends in center) for easy load handling.

End

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS

1. RADIATOR – Provides engine cooling. Grille faces rear.
2. UPPER ENGINE ACCESS PANELS — Allows access to engine for maintenance. Two on each side. Hinged for easy access.
3. HOOD — Two-piece, can be removed for engine maintenance.
4. OPERATOR'S CAB – Equipped with rollover protective structure (ROPS) to protect operator.
5. TILT CYLINDER – One on each side. Tilts the mast forward and backward.
6. MAST — Moves to position the container.
7. FORKS — Mount and secure the tophandlers.
8. WHEELS, AXLES AND FINAL DRIVES – Steer and propel the vehicle.
9. STEERING CYLINDER – One on each side for turning.
10. HITCH – Articulated for easy steering maneuverability.



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Go on to Sheet 2

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS (CONT)

(SEE page 1-5)

11. HYDRAULIC TANK — On right side of vehicle to contain hydraulic fluid for front end components.

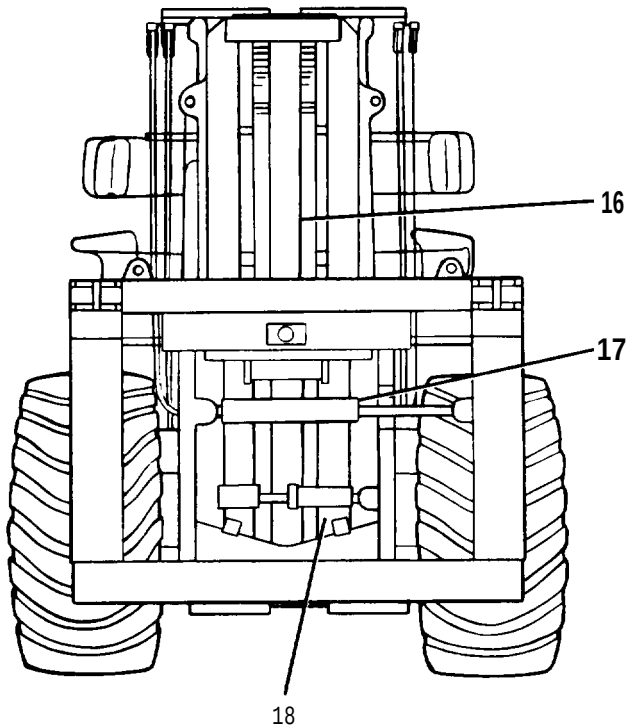
    FUEL TANK – On left side of vehicle to contain diesel fuel for engine operation.

12. LOWER ENGINE ACCESS PANELS – One on each side of engine. Remove for access to engine compartment.

13. BATTERY BOX — Two batteries on each side of vehicle. House and protect batteries.

14. COUNTERWEIGHTS – Provides stability when handling load.

15. TOWING PINTLE – For towing operations. Attaches to tow bar.



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16. LIFT CYLINDER — Raises and lowers the mast.

17. SIDE SHIFT CYLINDER – Shifts forks and tophandler to the side for loading or stacking.

18. SIDE TILT CYLINDER — Rotates forks and tophandler for loading or stacking.

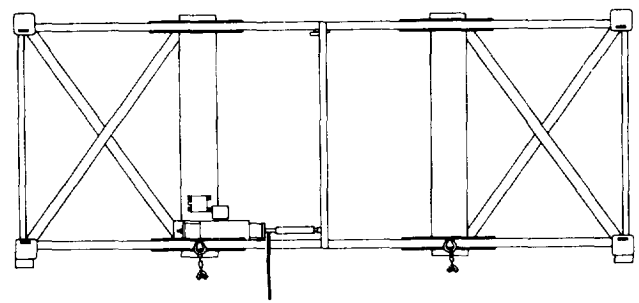
Go on to Sheet 3

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS (CONT)

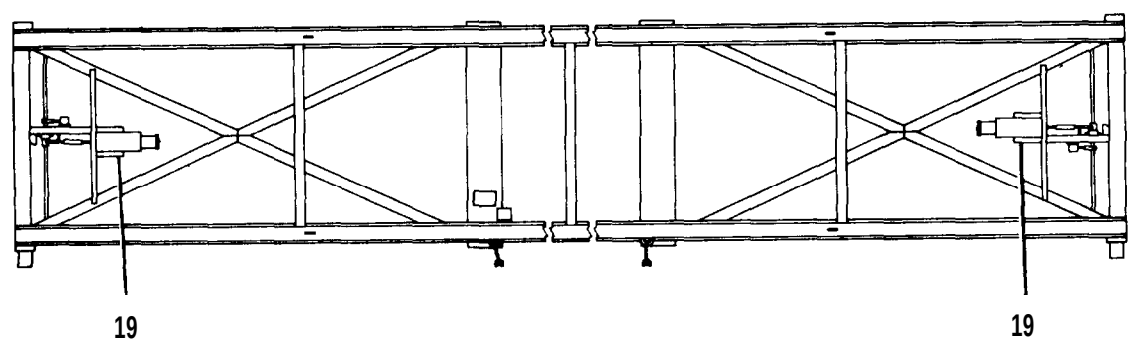
19. CONTAINER LOCK CYLINDER –

1 on 20 ft tophandler,
2 on 35 ft and 40 ft tophandler.

Rotates locks to secure container to tophandler.



20 FT TOPHANDLER



35 FT OR 40 FT TOPHANDLER

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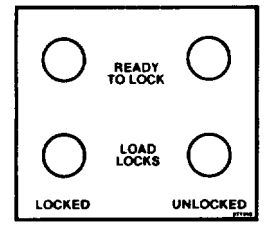
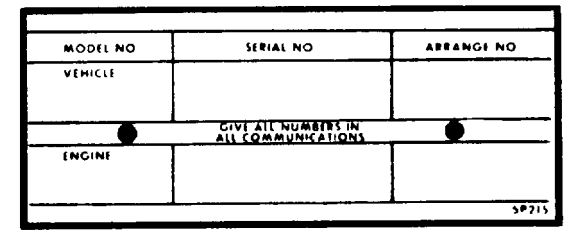
End

LOCATION OF DECALS AND WARNING PLATES (Sheet 1 of 3)

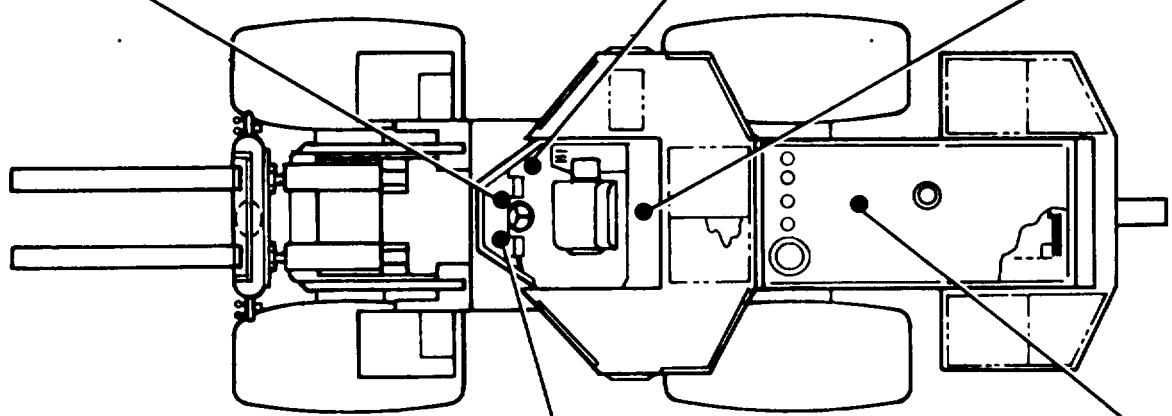
ON FACE OF STEERING COLUMN RELEASE LOCK

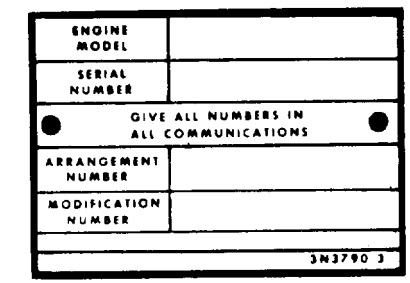


CONTAINER LOCK LIGHT INDICATOR PANEL – RIGHT SIDE

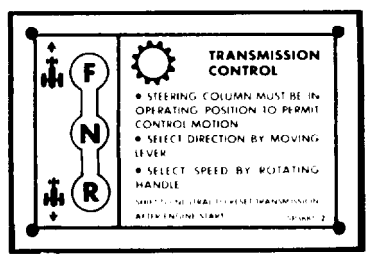


MASTER SERIAL NO. PLATE ON SHELF BEHIND SEAT

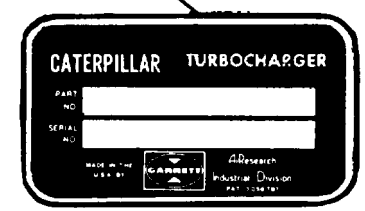




ON RH SIDE OF ENGINE BLOCK BEHIND ALTERNATOR



ON VERTICAL SURFACE TO LEFT OF DASH



ON TURBOCHARGER

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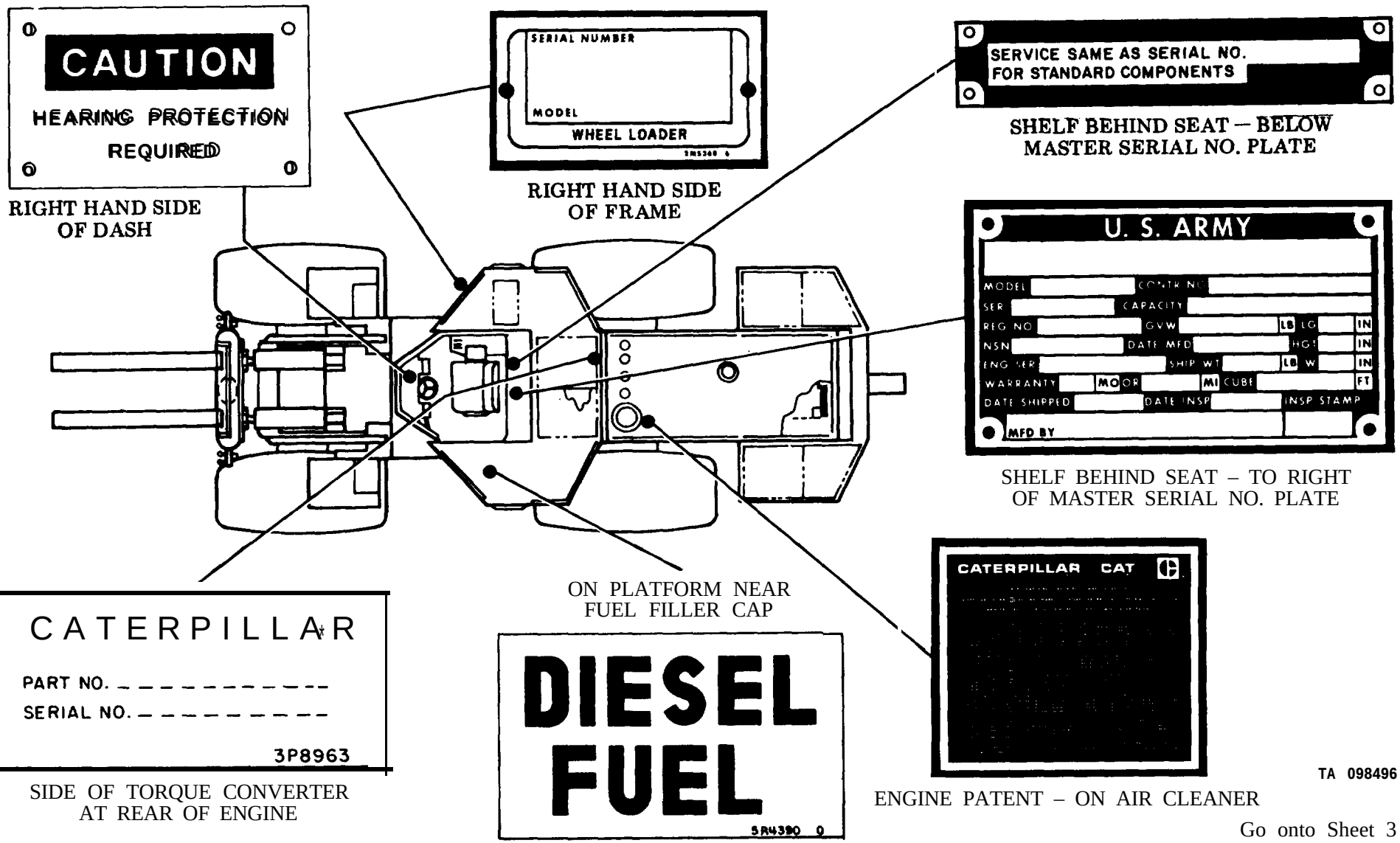
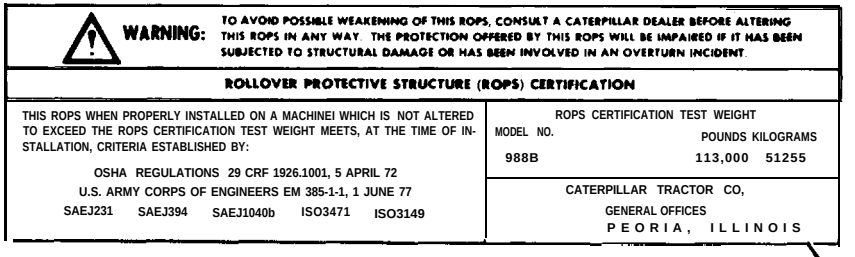
Go on to Sheet 2

LOCATION OF DECALS AND WARNING PLATES (CONT) (Sheet 2 of 3)



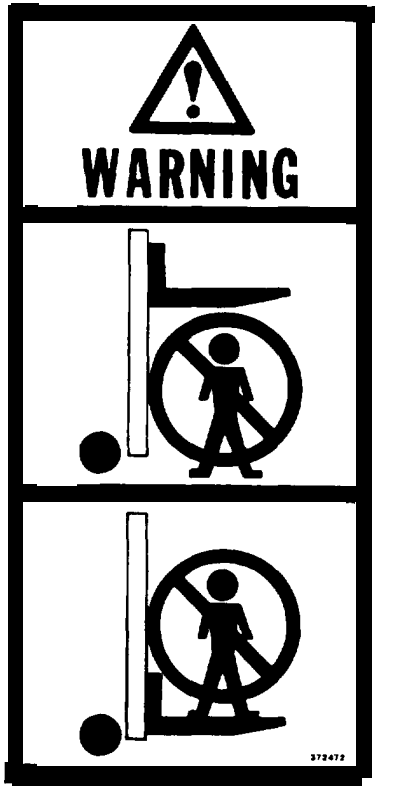
Go onto Sheet 3

LOCATION OF DECALS AND WARNING PLATES (CONT)

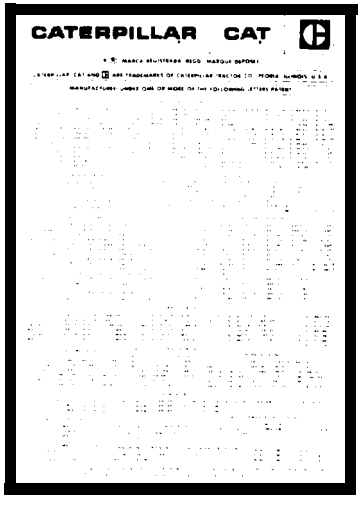


CENTERED ABOVE DOOR ON LEFT HAND SIDE OF ROPS CANOPY

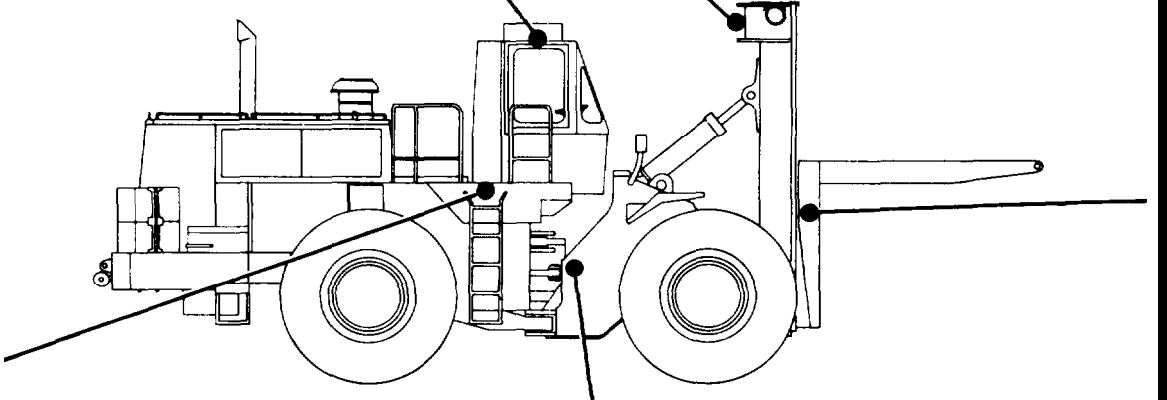
REAR CENTER OF MAST CROSS BAR

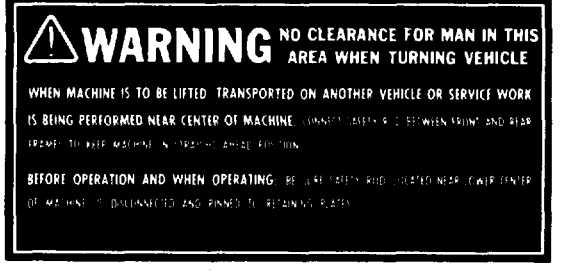


ON EACH SIDE TOP OF FORK ASSEMBLY



BELOW PLATFORM





AT FRAME ARTICULATION – EACH SIDE OF VEHICLE

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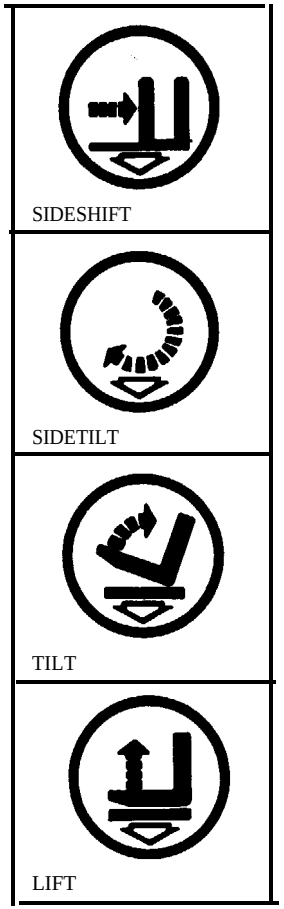
End

(Sheet 1 of 1)

INTERNATIONAL SYMBOLS

AIR FILTER	COOLANT TEMPERATURE	HEAD BRIGHT	OFF	BRAKE-PARK
ENGINE OIL	AMMETER OR ALTERNATOR	LIGHT FLOOD O R W O R K	ON	EMPTY
ENGINE OIL-FILTER	FUEL LEVEL	HYDRAULIC-OIL-FILTER	COOLANT. FLOW. NO	FULL
ENGINE OIL-LEVEL	FUEL PRESSURE	HYDRAULIC-LEVEL	VASHER-WIPER CIONTROL	
ENGINE OIL-TEMPERATURE	ENGINE OIL PRESSURE	HYDRAULIC-TEMPERATURE	FORWARD	
TRANSMISSION DRIVE OIL-TEMPERATURE	REVERSE	LIGHT-TAIL	TRANSMISSION OR CONVERTER OIL-FILTER	



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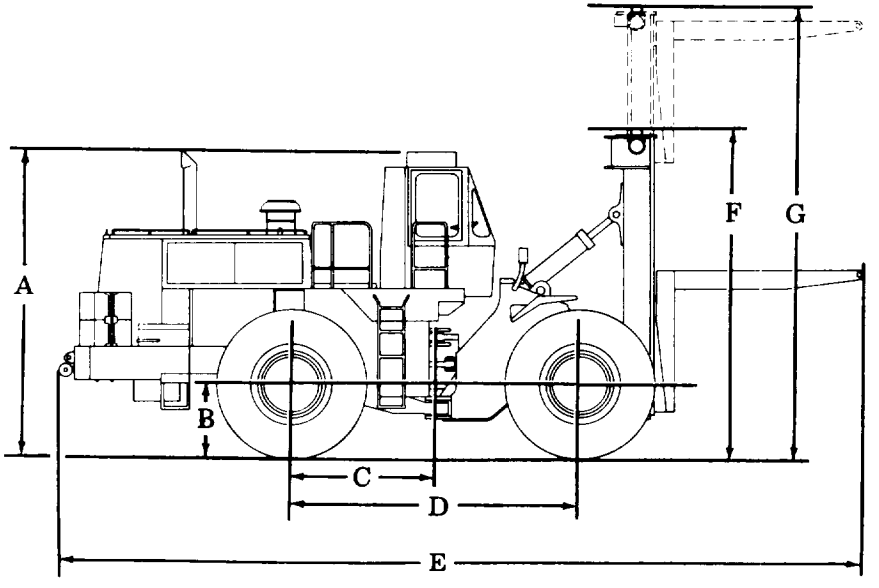
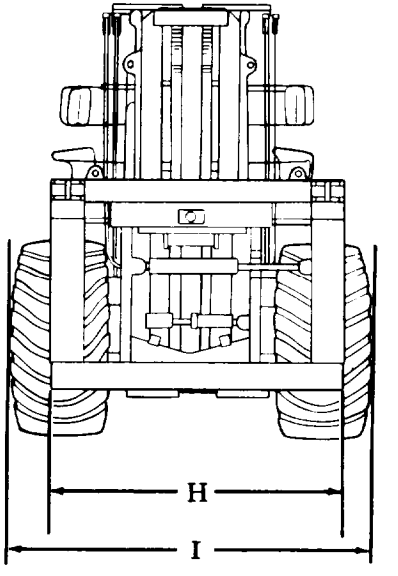
End

VEHICLE DIMENSIONS

(Sheet 1 of 1)





	A	B	C	D	E	F	G	H	I
INCHES	159	35.7	75	150	423	167	229	**108**	**140**
METERS	4.04	0.91	1.91	3.81	10.74	4.24	5.82	2.74	3.51

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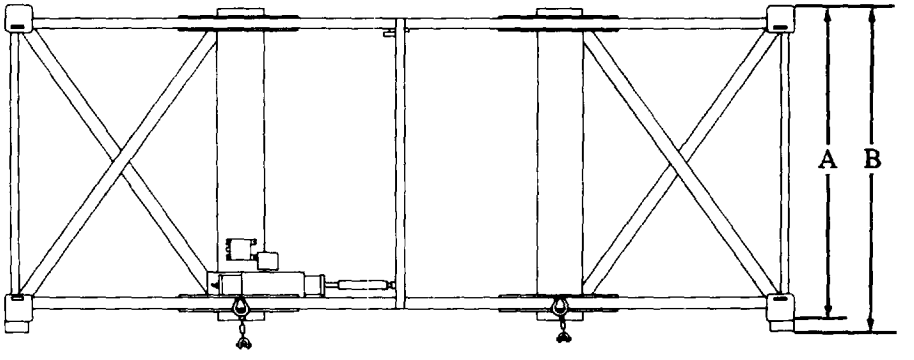
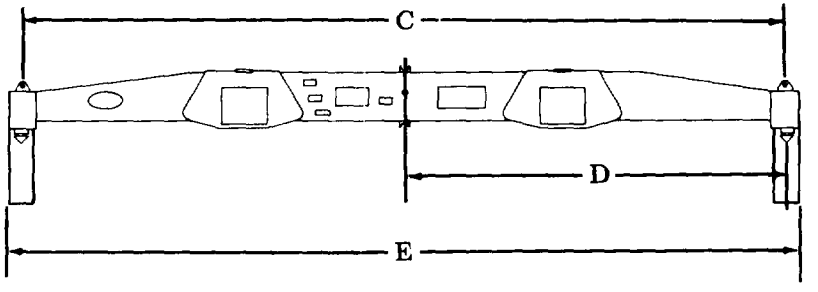
End

TOPHANDLER DIMENSIONS – 20 FT (Sheet 1 of 1)



TOP VIEW



SIDE VIEW

Weight	A	B	C	D	E
3800 lbs.	95-l~2°	100”	230”	115”	238>’
1725 kg	2.43m	2.54m	5.85m	2.93m	6. 05m

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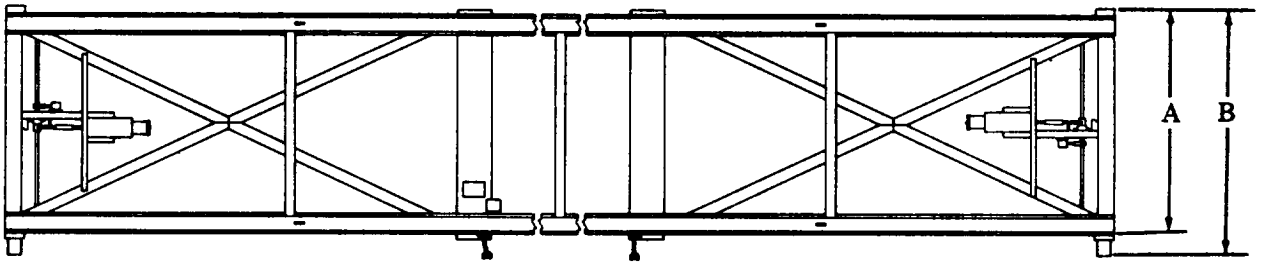
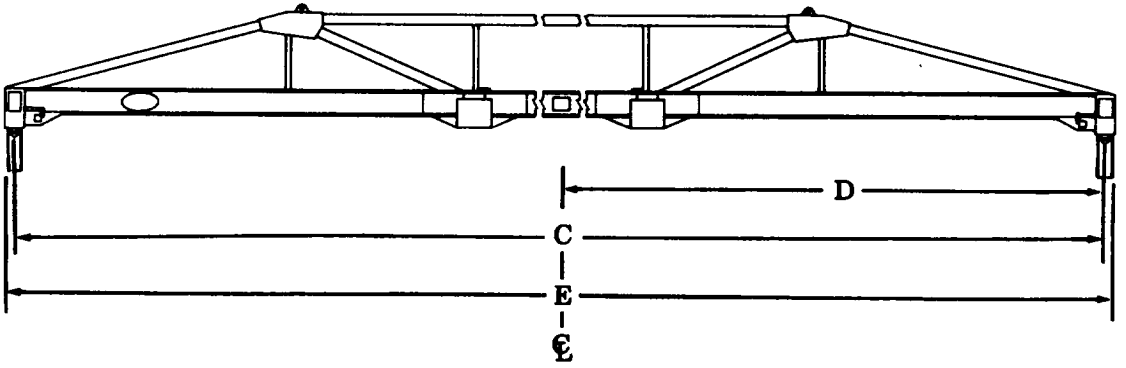
End

TOPHANDLER DIMENSIONS – 35 FT AND 40 FT (Sheet 1 of 1)

TOP VIEW



SIDE VIEW



Model	Weight	A	B	C	D	E
35’ Tophandler	9120 lbs. 4140 kg	92314” 2,36m	100” 2. 54m	34’.4” 10.46m	17’.2” 5. 23m	34’-11-112” 10.65m
40’ Tophandler	9930 lbs. 4508 kg	92-314” 2.36m	100” 2.54m	39’-3-718” 11.99m	19’.8” 5.99m	39’- 11-112” 12.18m

TA 098501

End

PERFORMANCE DATA

ENGINE

Model . . . . . Caterpillar 3408T
Type . . . . . Direct injection 65° V-8 turbo diesel
Flywheel horsepower @2100 rpm 393
Kilowatts @2100 rpm 293
Torque @1300 rpm . . . . . 1210 lb-ft (1640N-m)
Engine low idle speed 700rpm
Engine high idle speed . . . . . 2320 rpm
Engine operating rage . . . . . .Full
Ignition Type . . . . . compression
Injector timing . . . . . 28° (BTC)
Bore . . . . . 5.4"(137mm)
Stroke . . . . . 6“(152mm)
Displacement . . . . . 1099cod (18 liters)
Compression ratio 14.5:1
Firing order 1-8-4-3-6-5-7-2
Fuel . . . . . Diesel No.2
Weight . . . . . 3200 lbs. (145kg)

HYDRAULIC SYSTEM

Type . . . . . Closed with vacuum relief
Pump . . . . . Single stage
Type/Output . . . . . .Gear/71 gpm (4.51/s)
Relief valve setting . . . . . .2500 psi (17200 kpa)
Operating pressure (max) . . . . . 2500 psi (17200 kpa)
Weight . . . .110 lbs (50 kg)
Cylinders
Lift (bore x stroke) . . . . . 10"x69"(25.4x175cm)
Tilt (bore x stroke) . . . . . 7x19.25"(17.8x49cm)
Sideshift (bore x stroke) . . . . . 6"x24"(15.2x61cm)
Side tilt (bore x stroke) . . . . . 6"x6.5"(15.2x16.5cm
BRAKES . . . . . All wheel disc
Type . . . . . Full hydraulic oil bath disc
Braking surface . . . . . 2300 sq.in.x4(14800cm^2)
Pump type . . . . . Gear
output . . . . . 28gpm@1000 psi (1.81/sec@7000kpa)
Relief valve setting . . . . . 2200 psi (15200 kpa)
Weight . . . . . .70 lbs(32kg)

REFILL CAPACITIES (Approximate)

COMPARTMENT OR SYSTEM	Us. MEASURE	METRIC MEASURE
Engine Crankcase	11 gal.	42 liters
Hydraulic Tank	78 gal.	295 liters
Transmission	17.5 gal.	66 liters
Differential and Find Drives Front	27 gal.	102 liters
Rear	27 gal.	102 liters
Cooling System	28 gal.	106 liters
Fuel Tank	165 gal.	625 liters

Go on to Sheet 2

PERFORMANCE DATA (CONT)

STEERING . . . . . Center point frame articulation
- Type . . . . Full hydraulic
- Steering angle (each direction). . . . . 27°
- Pump type . . . . . Gear
  - output . . . . . 101 gpm@1000psi (6.41/s@7000 kpa)
  - Relief valve setting . . . . . 2500 psi(17200 kpa)
  - Operating pressure (max) . . . . . 2500 psi (17200kpa)
  - Weight . . . . . 70 1bs(32kg)

ELECTRICAL
- Batteries . . . . . Lead-acid
  - Quantity 4
  - Type 8D
  - Voltage (each battery) 12V
  - Voltage (total system 24V
- Alternate r . . . . . Integral regulator
  - Type . . . . Solid state
  - Amperage 50A

TRANSMISSION AND POWERTRAIN
- Type . . . . . Power shift planetary
- Transmission reduction ratio — Reverse
  - First . . . . . 5.6049 — 4.9043
  - Second . . . . . 3.1429 — 2.7500
  - Third . . . . . 1.7751 — 1.5532
  - Fourth . . . . . 1.0000 — 0.8750
  - Weight . . . . . 1756 1bs(796kg)
- Transfer case reduction ratio
  - Input 1.0256
  - output 1.1795
  - Weight . . . . . 1080 1bs(490kg)
- Final drive reduction ratio. 5.0526
- Bevel gear reduction ratio 3.7500
- Axle oscillation
  - Front . . . . . Fixed
  - Rear . . . . . ±13°

Go on to Sheet 3

PERFORMANCE DATA (CONT) (Sheet 3 of 3)

TIRES

Type	Radial
Size	35/65-R33
Inflation pressure	
Front	70 psi (480 kpa)
Rear	40 psi (275kpa)
Weight (tire and rim)	3000 lbs. (1360kg)

GENERAL

Shipping weight	
70% fuel, without tophandler	105,120lb. (47,720kg)
Operational weight	
Without tophandler	103,230 lb. (46,860 kg)
With 20' tophandler	107,030 lb. (48,590 kg)
With 35' tophandler	112,350 lb. (51,000 kg)
With 40' tophandler	113,160 lb. (51,370 kg)

PERFORMANCE

Maximum speed	Forward	Reverse
With rated load	14.5mph (23.3 km/hr)	14.9 mph (24 km/hr)
Without rated load	18.5 mph (29.8 km/hr)	(31.2 km/hr)
Towing	5 mph (8 km/hr)	for 10 miles (16 km) max

Maximum grade*	15% @ 2mph (3.2 km/hr)
Maximum fording depth*	60'' (l5O cm)
Maximum side slope*	15°
Maximum breakover angle*	148°
Maximum approach angle*	25°
Maximum departure angle*	20°
Maximum ground clearance*	16'' (40 cm)
Curb circle clearance	70'(21m)
Tilt cycling time (each direction)*	9 seconds
Lifting capacity	50,000 lbs. (22,700 kg)

*Tophandler with container raised 1 foot (0.3m) . . . . . Full back tilt

End

Section III. TECHNICAL PRINCIPLES OF OPERATION

This section contains a functional description of operation of these vehicle systems:

Fuel system

Air inlet and exhaust system

Steering system

Brake system

Electrical system

Mast hydraulic system

The purpose of this section is to provide enough information to allow the operator to do his job properly.

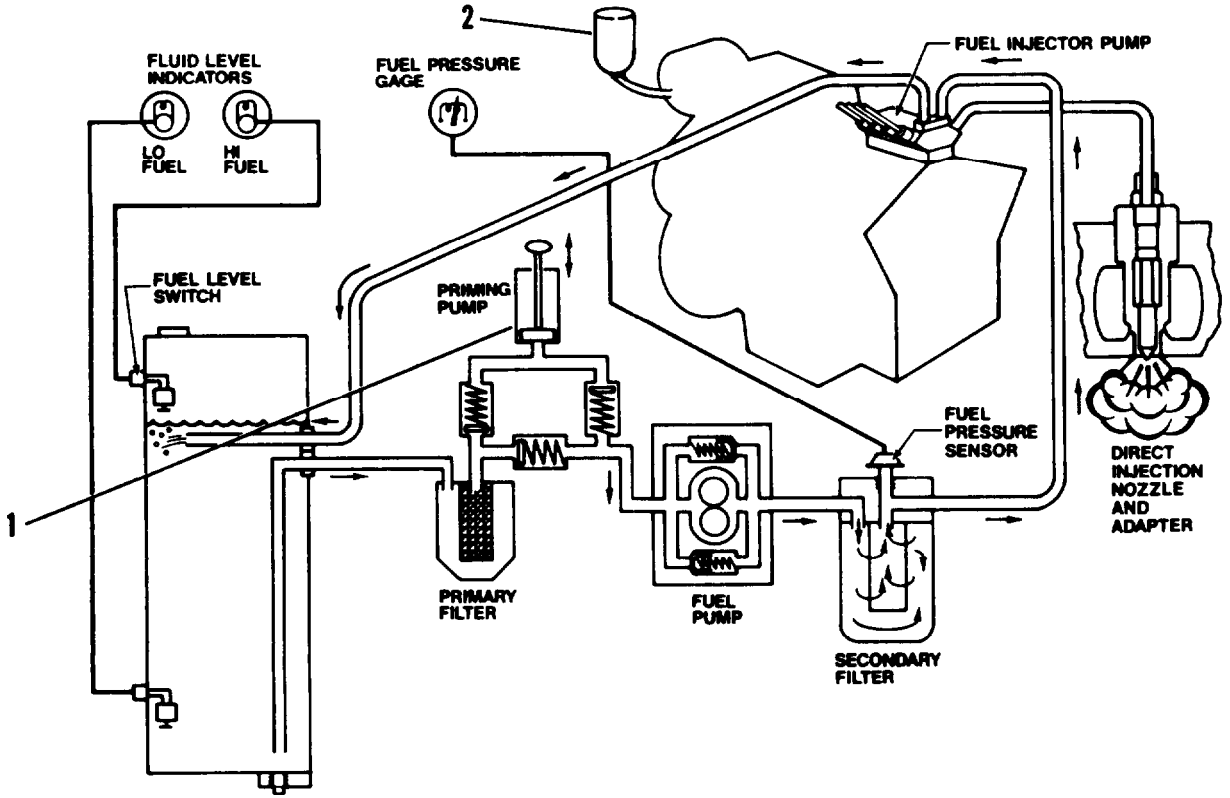
FUEL SYSTEM DESCRIPTION (Sheet 1 of 1)

The direct injection fuel system consists of:

1. Priming pump
2. Ether stinting aid

1. PRIMING PUMP. Used to prime fuel system on initial startup or after changing fuel filters. The priming pump also removes air from the fuel system.

2. ETHER STARTING AID. Delivers a measured amount of ether into the turbocharger outlet for ease in cold weather starting. The ether is stored under pressure in a cylinder and the amount to be sprayed into the outlet pipe is controlled by an electrically activated valve.



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End

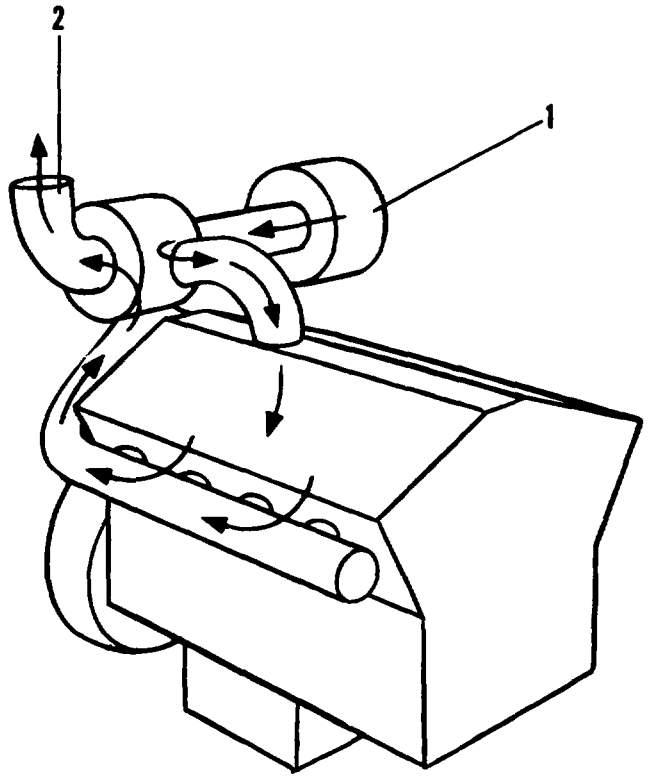
AIR INLET AND EXHAUST SYSTEM DESCRIPTION

Air inlet and exhaust system components are:

1. Air cleaner
2. Exhaust pipe and muffler

1. AIR CLEANER. A dual element, dry type. Outside air is drawn through the filter elements by a vacuum created in the turbo-charger. When one, or both, of the elements get clogged, a "high vacuum" switch in the air cleaner housing turns on the PLUGGED AIR FILTER indicator on the instrument panel.

2. MUFFLER AND EXHAUST PIPE. Reduces the engine noise and carries exhaust gases away from engine compartment.



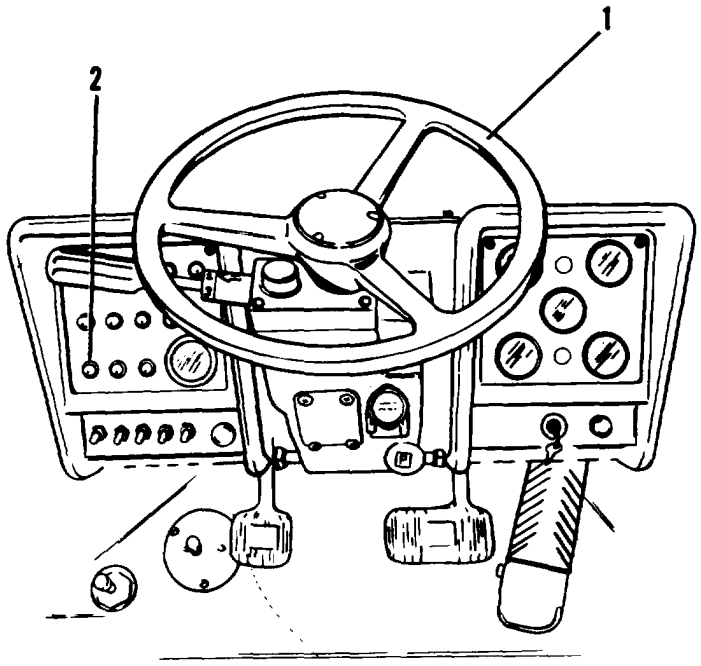
TA 098502

End

STEERING SYSTEM DESCRIPTION

Steering System can be divided into two groups: steering group and supplemental steering group.

A. STEERING GROUP COMPONENTS



1. STEERING WHEEL AND COLUMN. Adjustable to eight different positions. Seven of the positions are for operator comfort, while the eighth and most forward is for storing and locking the wheel when not in use. Pushing the wheel into the store position also moves the transmission control lever to NEUTRAL.

B. SUPPLEMENTAL STEERING COMPONENTS

The supplemental steering system has two purposes:

To give an oil supply for the steering system if there is a failure of the primary system or if the engine stops when the machine is moving.

To add oil to the primary oil flow when the engine rpm is less than 1170 to 1300 rpm and the machine is moving.

2. FLOW SWITCH. Warns the operator of a failure of the primary pump **or lines.**

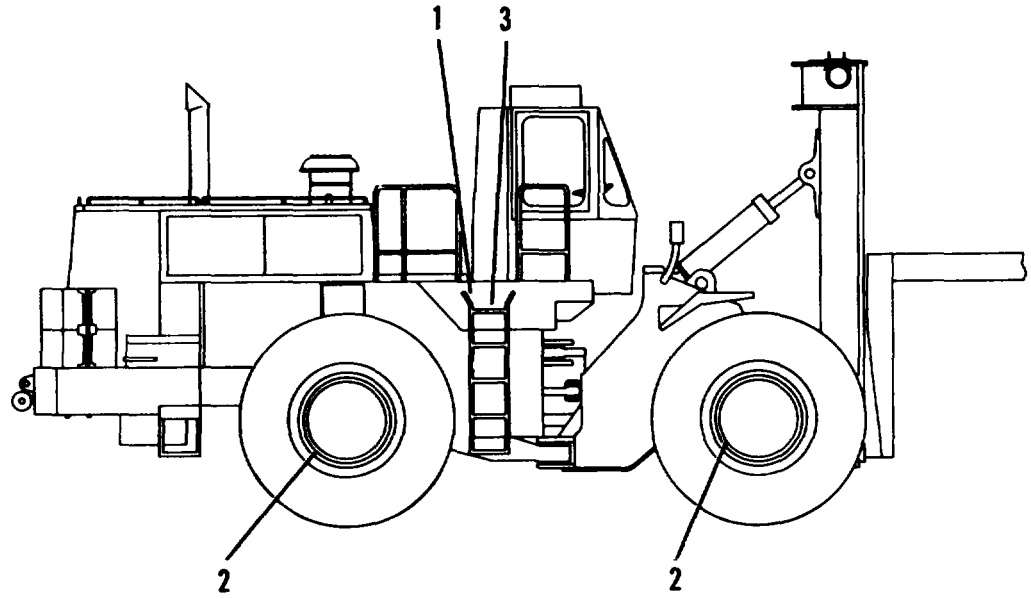
TA 098503

End

BRAKE SYSTEM DESCRIPTION (Sheet 1 of 1)

Brake system consists of:

1. Transmission neutralizer control valve
2. Service brakes
3. Emergency and parking brake control valve



1. TRANSMISSION NEUTRALIZER CONTROL VALVE. Causes transmission to shift into neutral when left brake pedal is pushed. This provides for full engine power to hydraulic system.

2. SERVICE BRAKES (4). Oil activated, disc-type. Pushing either brake pedal sends pressurized oil from brake control valve to push against discs and plates in the brake housing causing friction. This friction causes wheel a to turn slower or stop.

NOTE

If, due to a malfunction in accumulator charging circuit, pressure drops below 700 psi (49.2 kg/cm2), the brake will automatically be activated.

3. EMERGENCY AND PARKING BRAKE CONTROL VALVE. Controls oil flow from accumulator to emergency and parking brake. Valve is manually activated by the operator. Pulling out on parking brake control knob, on right side of steering column, causes brake to be applied. Pushing in on knob causes brake to release.

TA 098508

End

ELECTRICAL SYSTEM DESCRIPTION

(Sheet 1 of 1)

The major components of the electrical system are the lights.

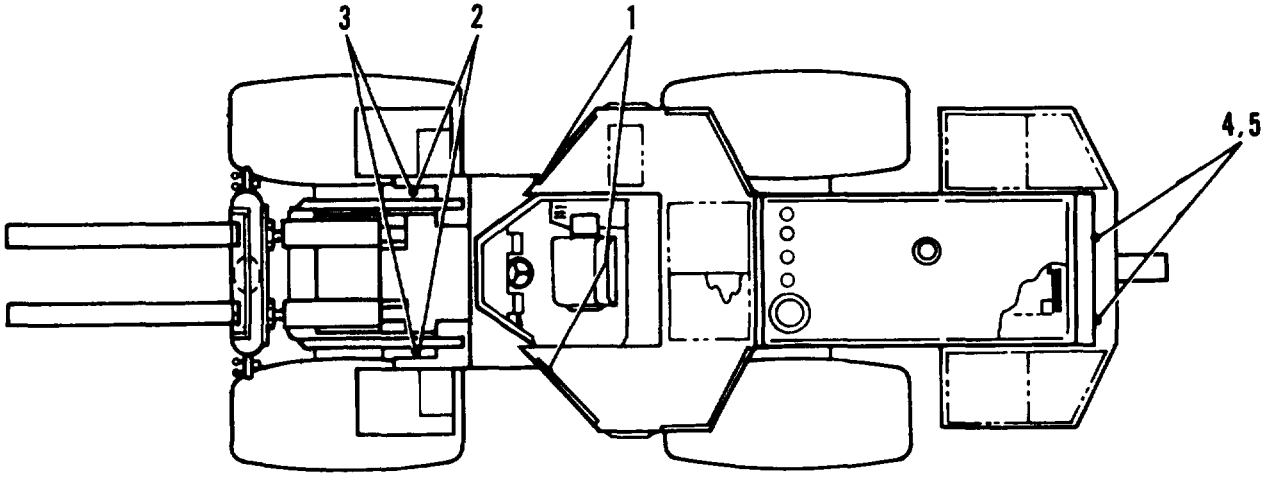
1. AUXILIARY LIGHTING, ROPS AND CAB. Two auxiliary flood lights, one mounted on each side on top the ROPS structure.

2. HEAD LAMP. One on each side of lamp group, mounted on outside.

3. FLOOD LIGHT, FRONT. One on each side of lamp group, mounted on inside.

4. STOP AND TAIL LAMPS. Combination lamp, mounted on each side of radiator guard, below flood lights.

5. FLOOD LIGHT REAR. One on each side of radiator guard, above stop and tail lights.



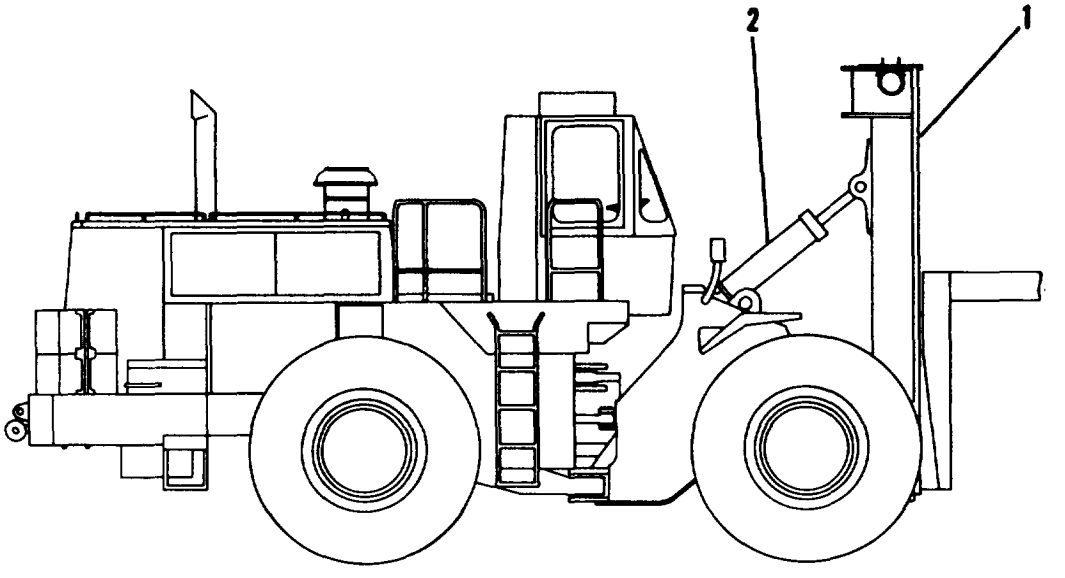
TA 098507

End

MAST HYDRAULIC SYSTEM DESCRIPTION

High pressure mast hydraulic system consists of:

1. Lift cylinder
2. Tilt cylinders
3. Side shift cylinder
4. Side tilt cylinder
5. Container lock cylinders



1. LIFT CYLINDER. A ram type cylinder which moves up by oil pressure and moves down by gravity. The extended part of the cylinder is completely filled with oil.

2. TILT CYLINDERS (2). Double acting cylinders which extend by oil pressure and retract by hydraulic pressure. Control the forward-backward tilt angle of the mast.

TA 098509

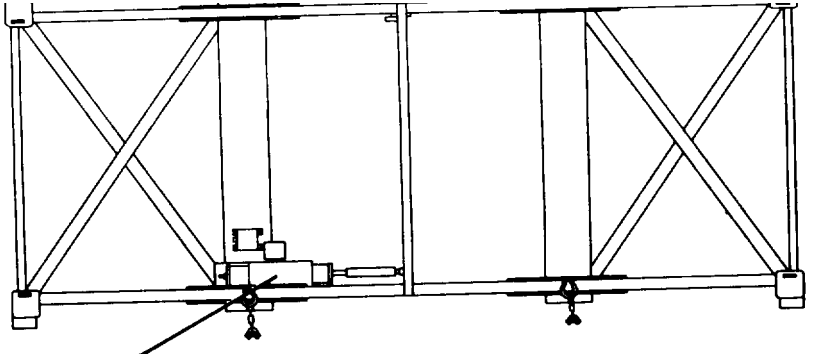
Go on to Sheet 2

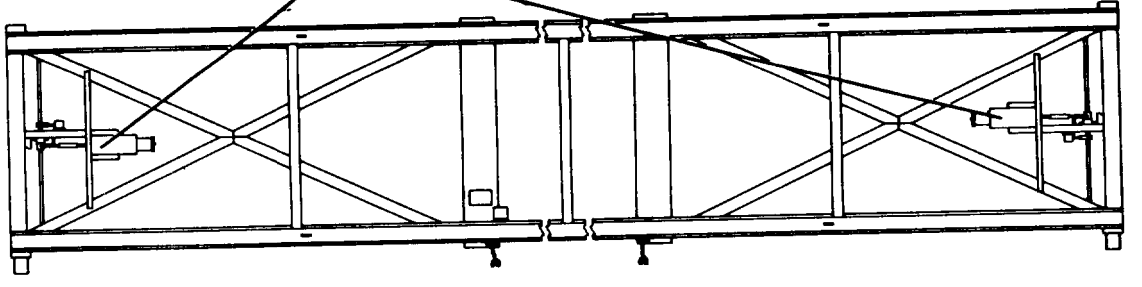
MAST HYDRAULIC SYSTEM DESCRIPTION (CONT)

3. SIDE SHIFT CYLINDER. A double acting cylinder which controls the side shift of the forks and tophandler with respect to the center line of the vehicle.

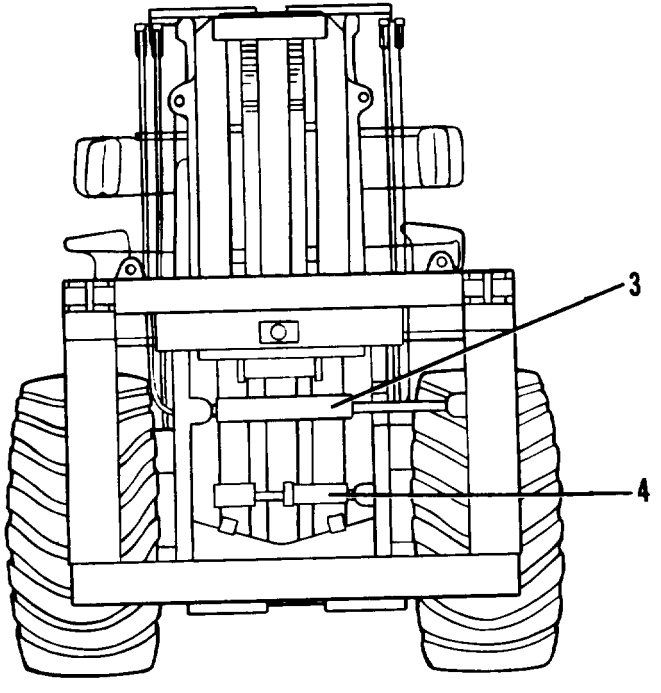
4. SIDE TILT CYLINDER. A double acting cylinder which rotates the forks and tophandler.

6. CONTAINER LOCK CYLINDERS. One on 20 ft tophandler and two on 35 ft and 40 ft tophandlers. Extend to lock the tophandler to the container.





35 & 40 FT TOPHANDLER



TA O9851O

End

CHAPTER 2

OPERATING INSTRUCTIONS

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

This section contains a description of each control and indicator in the operator's cab.

HAND-OPERATED CONTROLS

Transmission Range Selector

For direction:

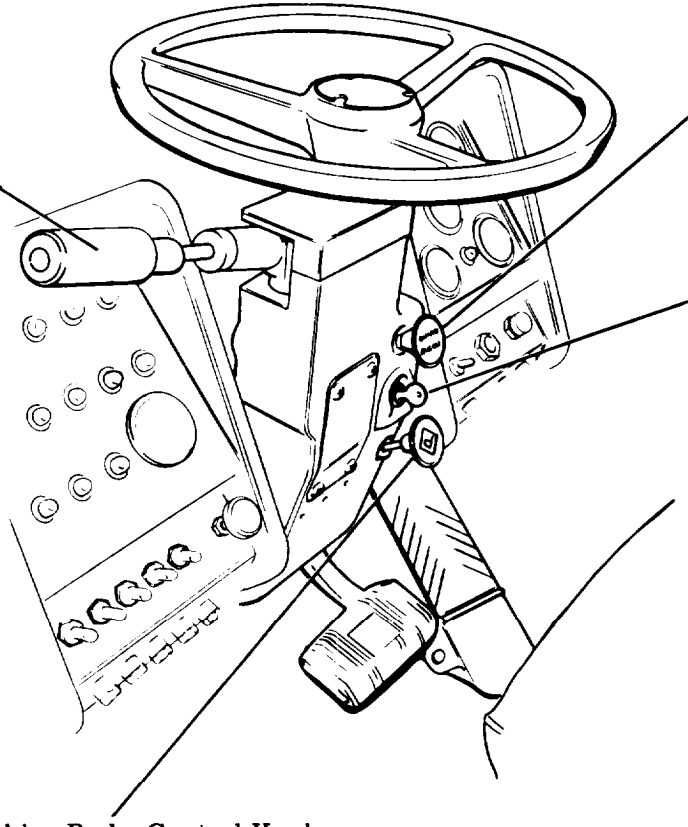
FORWARD DIRECTION — PUSH
NEUTRAL — CENTER
REVERSE DIRECTION — PULL

For speed:

Rotate Range Selector lever to desired speed for either forward or reverse.

NOTE

Lower ranges will give you more power, but less speed. Higher ranges will give you more speed, but less power. You may start out and operate in any range.



Column Release Knob

While holding steering wheel, pull lever out to release steering column, and move column to desired position. Release lever to lock column in position.

Column Lock

In locked position, key is straight up.

To unlock turn key clockwise.

Parking Brake Control Knob

Pull out knob to engage parking brake. Push in to release parking brake.

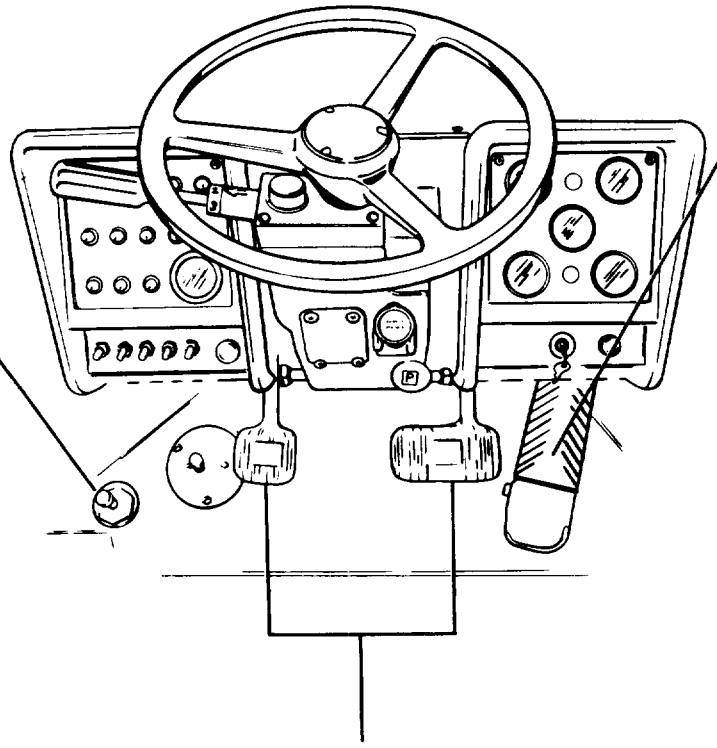
TA 098511

End

FOOT-OPERATED CONTROLS

Horn Switch

Push down to sound.



Accelerator

Push down to increase engine speed.

Release to decrease engine speed.

BRAKE PEDALS

LEFT — Press to neutralize the transmission and apply brakes.

RIGHT — Press to apply brakes.

TA 098512

End

MAST CONTROLS

(Sheet 1 of 1)

SIDE TILT

Tilts container to the side.
Pull back to tilt clockwise.
Push forward to tilt counterclockwise.

SIDE SHIFT

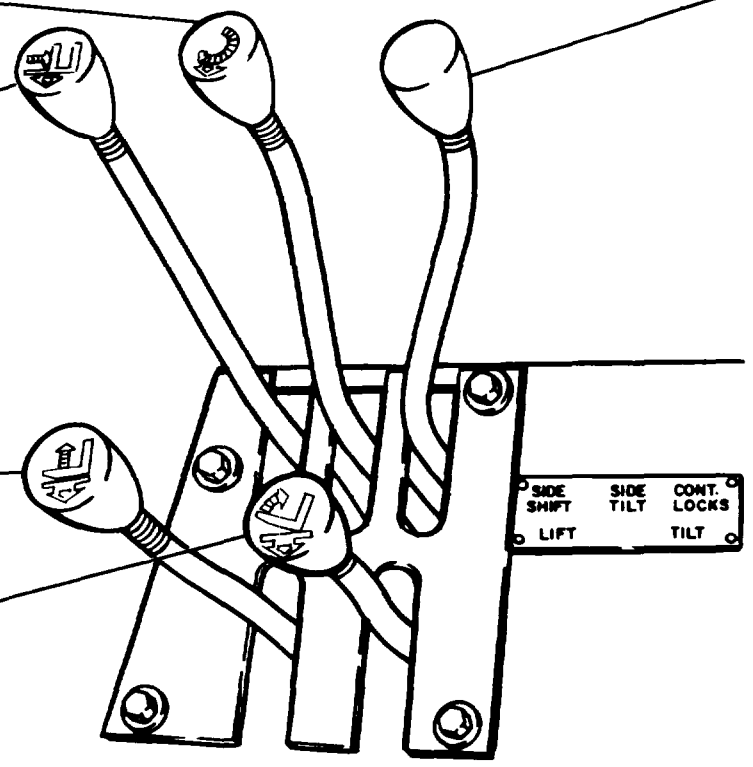
Shifts container.
Pull back to shift right.
Push forward to shift left.

LIFT

Raises and 10 lowers container.
Pull back to raise.
Push forward to lower.

TILT

Tilts mast assembly forward or back.
Pull back to tilt up.
push forward to tilt down.



CONT LOCKS

Locks container to tophandler.
Pull back to lock.
Push forward to unlock.

TA 098513

End

HEATER CONTROLS (Sheet 1 of 1)

Heater Temperature Control

OFF, WARM

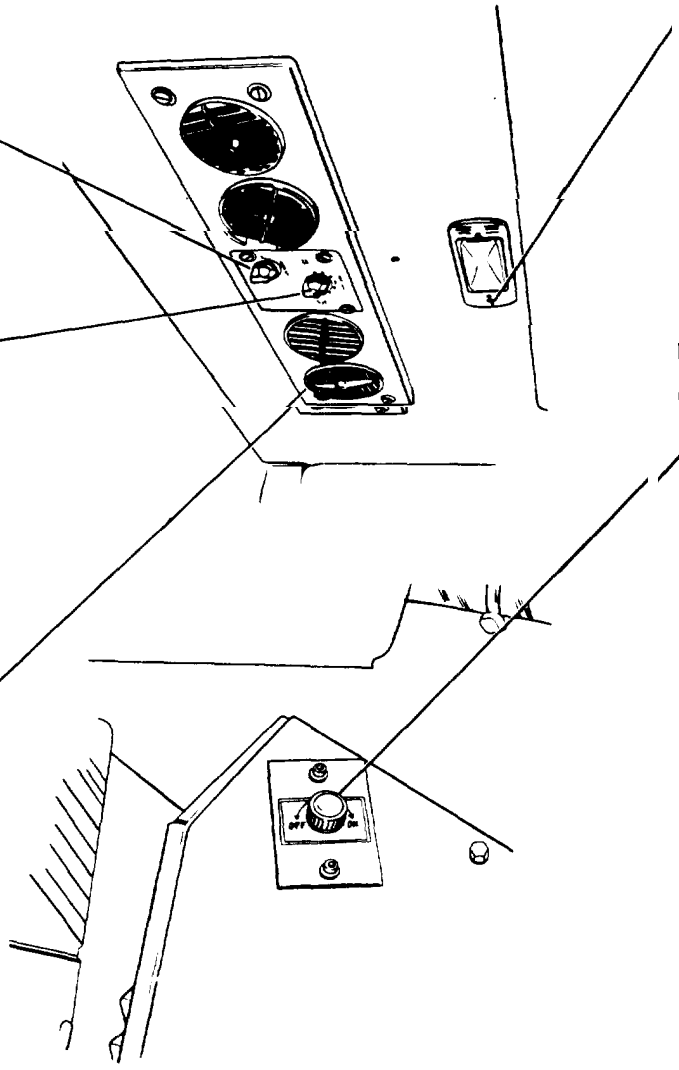
Adjust switch between OFF and WARM to control amount of heat.

Fan Speed Control

Clockwise – Heater Fan Speed

(L)
OFF, LOW
MEDIUM, HIGH
(M) (H)

Heat and Defrost Rotating Vents



Dome Light Switch

OFF →

ON ←

Floor Heater

OFF

ON

Adjust switch between OFF and ON to control amount of heat.

Located below container lock light panel.

TA 098514

End

OPERATOR'S SEAT CONTROLS

(Sheet 1 of 1)

WARNING

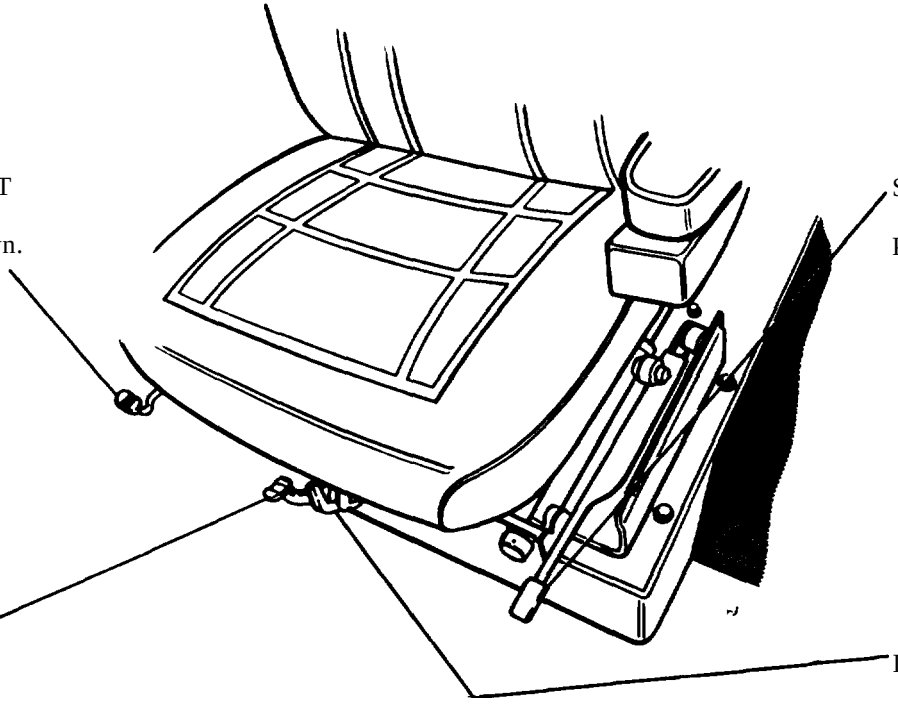
Inspect condition of seat belt and mounting hardware. Replace any defective components,

Always wear the seat belt when operating the vehicle.

Adjust the seat for comfortable operation.

CAUTION

Adjust the seat to allow full brake pedal travel, with operator's back against seat back. This will permit application of maximum force on the brake pedal.



VERTICAL (Height) ADJUSTMENT

Push down to adjust seat up or down.

SEAT CUSHION TILT ADJUSTMENT

Pull up to tilt seat cushion.

FORE-AFT ADJUSTMENT

Lift up and slide seat frontwards or backwards.

DAMPER CONTROL

Pull out crank handle and rotate knob for amount of dampening (firm or soft).

TA 088515

End

RIGHT HAND INSTRUMENT PANEL (Sheet 1 of 3)

WATER TEMP

Water Temperature Gage

Indicates engine coolant temperature:

WHITE – COLD
GREEN – NORMAL
RED – HOT

VOLTS

Voltmeter Gage.

Indicates electrical charging system output voltage:

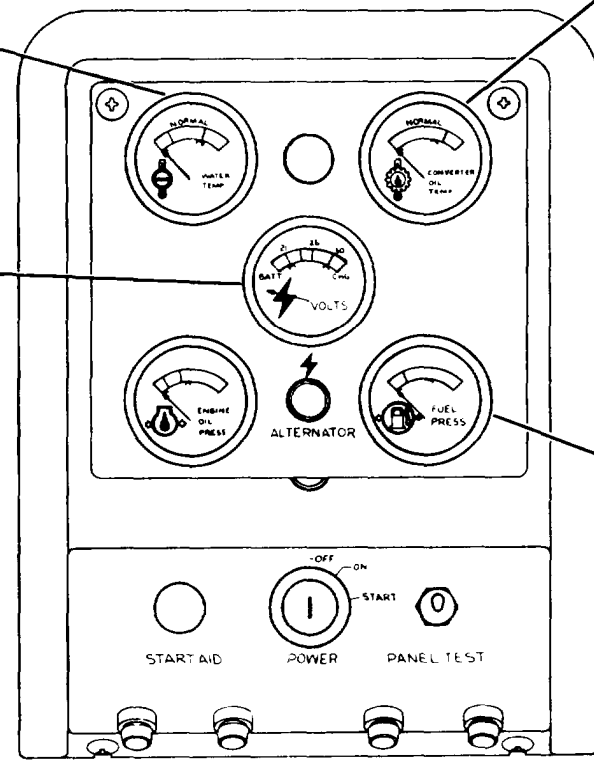
Red (21 volts or lower). Bad battery charge when engine rpm is at low idle.

Black and White (21 to 24 volts). Below normal battery charge when engine rpm is at low idle.

Black and Green (24 to 26 volts). Normal battery charge when engine rpm is at low idle.

Green (26 to 30 volts). Normal battery charge when engine rpm is at high idle.

Red (30 volts or higher). Above normal battery charge when engine rpm is at high idle.



RIGHT HAND INSTRUMENT PANEL

CONVERTER OIL TEMP

Torque Converter Oil Temperature Gage.

Indicates torque converter and transmission oil temperature:

GREEN – NORMAL
RED – HOT

FUEL PRESS

Fuel pressure Gage.

Indicates primary fuel pump delivery pressure:

RED – LOW
GREEN – NORMAL

TA 098516

Go on to Sheet 2

ENGINE OIL PRESS

Engine oil pressure gage.

Indicates engine lubricating oil pressure:

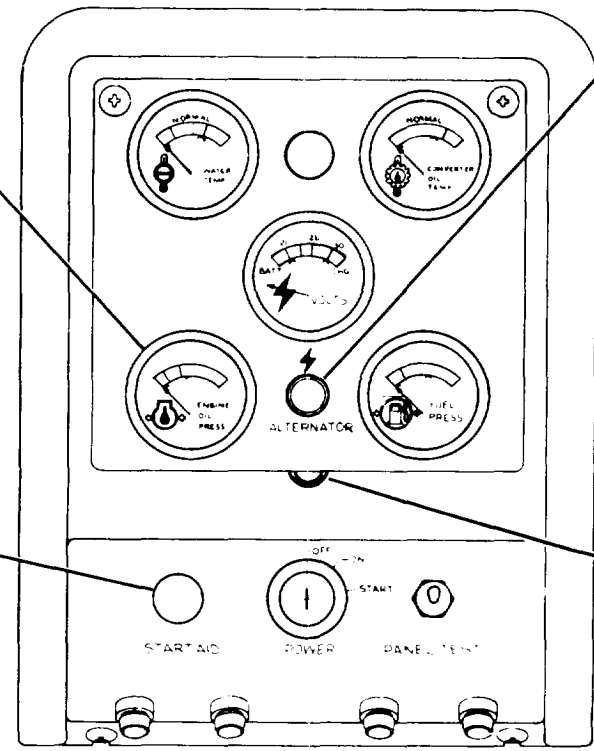
RED – LOW
WHITE – NORMAL (Low Idle)
GREEN – NORMAL (High Idle)

START AID

Starting Aid Switch

Below 32°F (O°C).

A metered amount of starting fluid (ether) is released each time the starting aid switch is operated.



ALTERNATOR

Alternator Indicator

With POWER switch in ON position, amber indicator should be:

ON – PANEL TEST
ON – ENGINE NOT RUNNING
OFF – ENGINE RUNNING

NOTE

Lamp lights when trouble occurs in charging system.

PANEL LIGHT

Gives light for switches and fuses in right hand instrument panel.

TA 088517

RIGHT HAND INSTRUMENT PANEL

Go onto Sheet **3**

RIGHT HAND INSTRUMENT PANEL (CONT) (Sheet 3 of 3)

POWER

Power Key Switch

ON

Turns on electrical system power when key is turned clockwise to ON position.

OFF

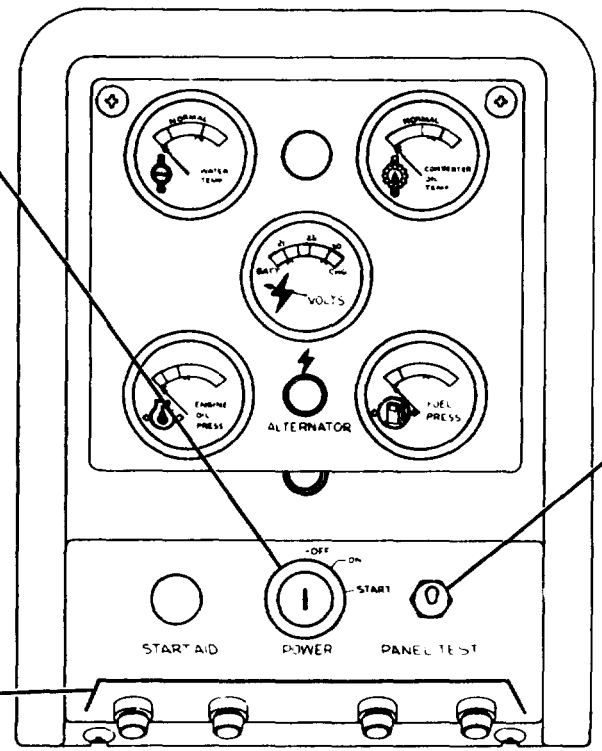
Turns off electrical system power when key is turned counterclockwise to OFF position.

START

Starts engine when key is turned clockwise to START position and held.

Returns to ON position when released.

FUSES



NOTE

Main disconnect switch must be in ON Position (turn clockwise) for power key switch to work. (See page 2-16.)

PANEL TEST

Panel Test Switch

Turns on all indicator lamps in both instrument panels to check for burned out bulbs.

Push UpWard and hold. POWER and MAIN DISCONNECT switches ON.

TA **098518**

RIGHT HAND INSTRUMENT PANEL

End

LEFT HAND INSTRUMENT PANEL (Sheet 1 of 5)

FUEL – LOW

Low Fuel Level Indicator

AMBER indicator lamp should be:

ON – When testing panel lamps.
ON – If fuel level is less than 10% of tank capacity, and engine is not running.

NOTE

AMBER indicator lamp will come ON when fuel in tank reaches 10% of tank capacity while engine is running.

FUEL – HI

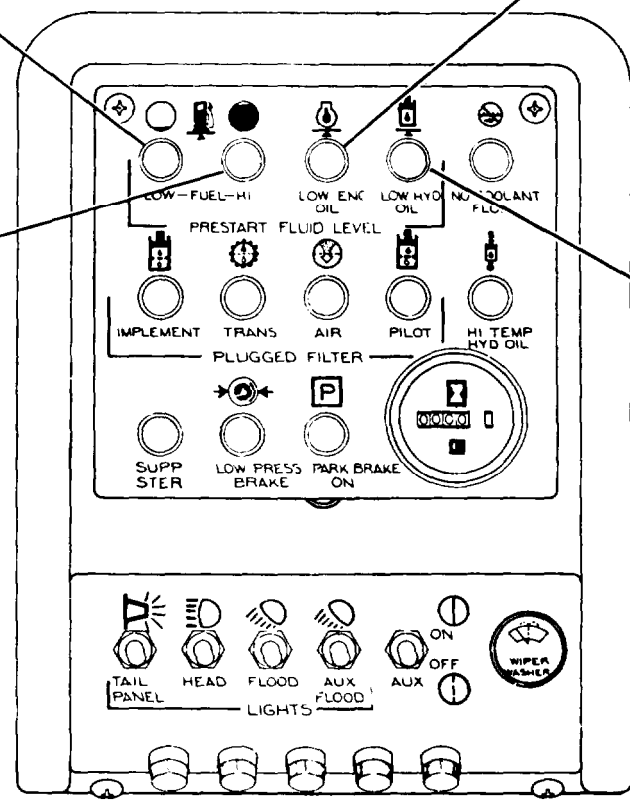
High Fuel Level Indicator

GREEN indicator lamp should be:

ON – When testing panel lamps.
ON – ONLY if enough fuel in tank for ten hour day. Engine is not running.
OFF – During normal operation with engine running.

NOTE

POWER key switch in ON position.
(See page 2-9.)



LEFT HAND INSTRUMENT PANEL

LOW ENG OIL

Low Engine Oil Level Indicator

AMBER indicator lamp should be:

ON — When testing panel lamps.
ON — When oil level in engine oil pan is low, and engine is not running.
OFF – During normal operation with engine running.

LOW HYD OIL

Low Hydraulic Oil Level Indicator

AMBER indicator lamp should be:

ON – When testing panel lamps.
ON — When hydraulic oil level in hydraulic tank is low, and engine is not running.
OFF – During normal operation with engine running.

TA 098519

Go on to Sheet 2

LEFT HAND INSTRUMENT PANEL (CONT) (Sheet 2 of 5)

IMPLEMENT

Hydraulic Reservoir Internal Oil Filter Indicator

AMBER indicator lamp should be:

ON – When testing panel lamps.
OFF — During normal operation or when engine is not running.
ON — When filter in hydraulic reservoir becomes plugged while engine is running.

TRANS

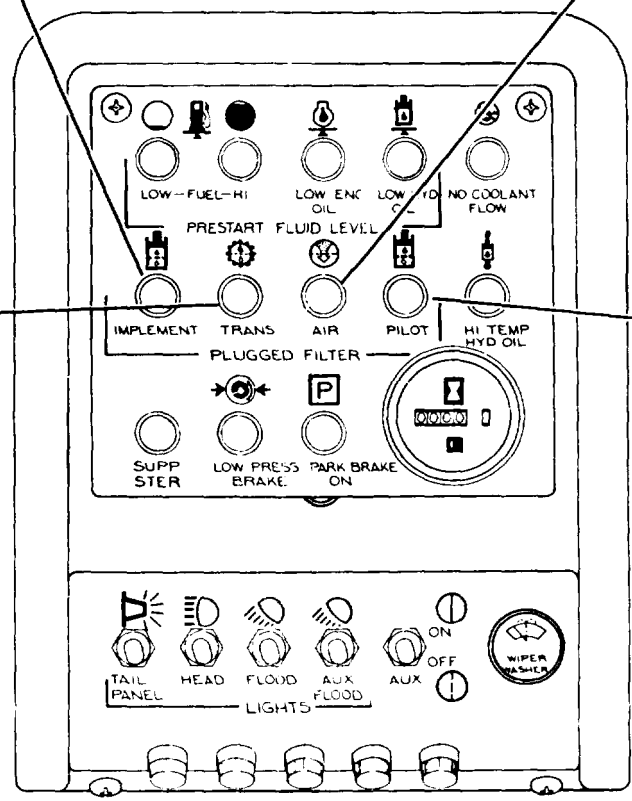
Transmission Oil Filter Indicator

AMBER indicator lamp should be:

ON – When testing panel lamps.
OFF — During normal operation or when engine is not running.
ON — When transmission filter becomes plugged while engine is running.

NOTE

POWER key switch in ON position.
(See page 2-9.)



LEFT HAND INSTRUMENT PANEL

AIR

Air Cleaner Indicator

AMBER indicator lamp should be:

ON – When testing panel lamps.
OFF – During normal operation or when engine is not running.
ON – When filter becomes plugged while engine is running.

PILOT (BRAKE)

Brake Oil Filter Indicator

AMBER indicator lamp should be:

ON – When testing panel lamps.
OFF – During normal operation or when engine is not running.
ON — When brake oil filter becomes plugged while engine is running.

TA 098520

Go on to Sheet 3

SUPP STER

Supplemental Steering Indicator

RED indicator lamp should be:

ON – When testing panel lamps.
ON – When vehicle is operated with supplemental steering only and engine is running.
ON – When engine is not running.

LOW PRESS BRAKE

Low Brake Pressure Indicator

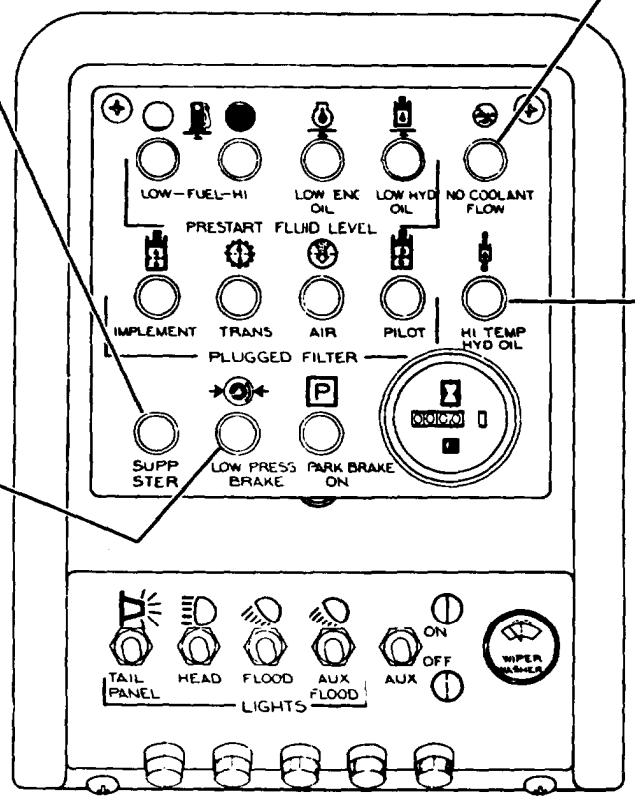
RED indicator lamp:

Should be ON when testing panel lamps.

Will flash ON and OFF when accumulator oil pressure is low.

NOTE

POWER key switch in ON position.
(See page 2-9.)



LEFT HAND INSTRUMENT PANEL

NO COOLANT FLOW

No Coolant Flow Indicator

AMBER indicator lamp should be: .

ON – When testing panel lamps.
ON – When engine is not running.
OFF — During normal engine operation.
ON and HORN WILL SOUND – When coolant flow stops while engine is running.

HI TEMP HYD OIL

Hydraulic Oil High Temperature Indicator

AMBER indicator lamp should be:

ON – When testing panel lamps.
OFF – During normal operation or when engine is not running.
ON — When temperature of oil in hydraulic tank is high while engine is running.

TA 098521

Go on to Sheet 4

LEFT HAND INSTRUMENT PANEL (CONT)

PARK BRAKE ON

Parking Brake On Indicator

RED indicator lamp should be:

ON – When testing panel lamps.
ON – When parking brake is engaged and engine is not running.
OFF – During normal operation with engine running.

NOTE

A warning horn behind cab will sound when parking brake is engaged and transmission is in FORWARD or REVERSE.

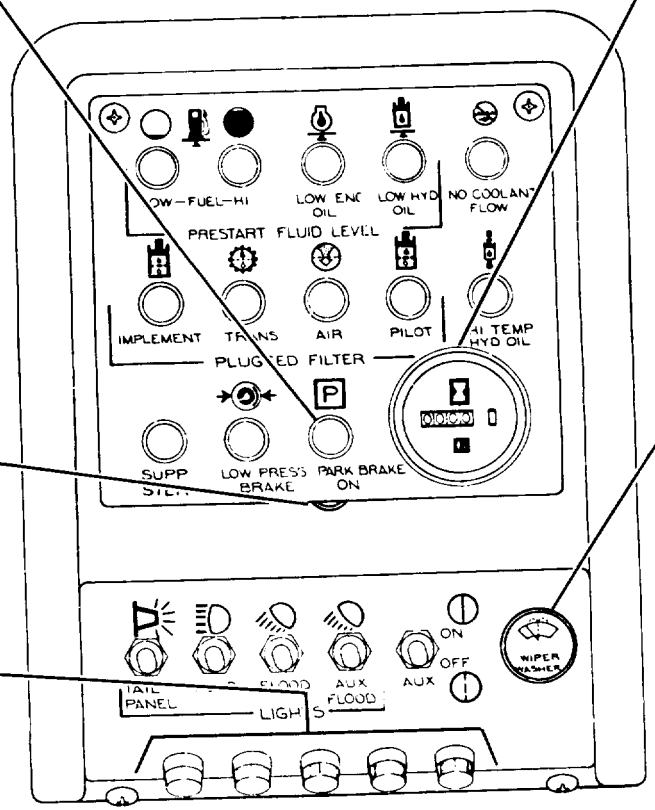
PANEL LIGHT

Gives light for switches and fuses in left hand instrument panel.

FUSES

NOTE

POWER key switch in ON position.
(See page 2-9.)



LEFT HAND INSTRUMENT PANEL

SERVICE METER

Indicates number of hours vehicle has been in service with engine running so you know when to schedule maintenance.

The meter indicates up to 9,999 hours.

WIPER – WASHER

Windshield Wiper and Washer Switch

Turn knob clockwise one or two clicks to turn on front and rear windshield wipers.

ONE CLICK – LOW SPEED

TWO CLICKS – HIGH SPEED

Push knob in to turn on front windshield washer pump.

TA 098522

Go on to Sheet 5

FLOODLIGHTS

Floodlight Switch

Push up to turn on front and rear floodlights.

Front floodlights are mounted on front fenders; rear floodlights are mounted in radiator guard.

HEADLIGHTS

Headlight Switch

Push up to turn on driving lights.

Driving lights are next to front floodlights on fenders.

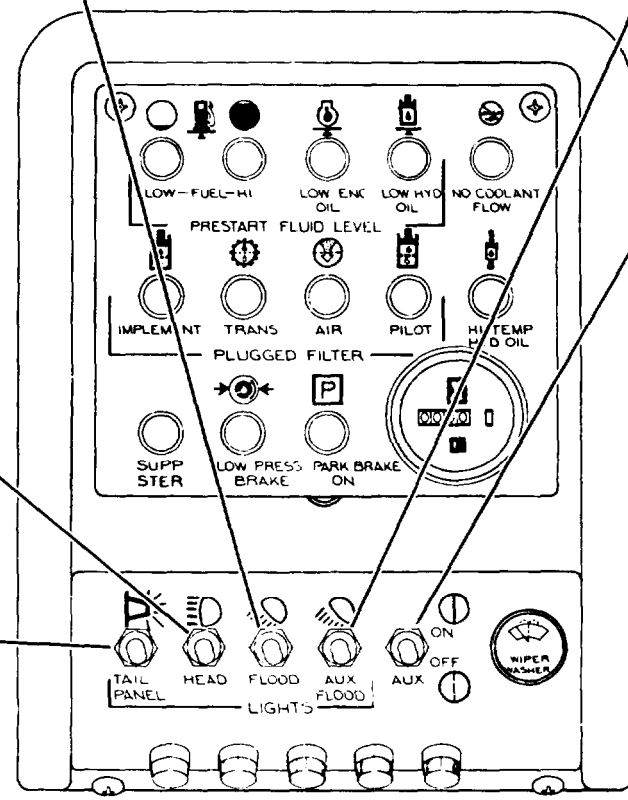
TAIL PANEL LIGHTS

Tail and Panel Light Switch

Push up to turn on instrument panel lights, gage lights, and taillights.

NOTE

POWER key switch in ON position.
(See page 2-9.)



LEFT HAND INSTRUMENT PANEL

AUX FLOODLIGHTS

Auxiliary Floodlight Switch

Push up to turn on auxiliary floodlights on top of cab.

AUX

Auxiliary Switch

Push up to connect 24 VDC vehicle power to auxiliary connector at back of cab.

ON

Decal shows up position of panel switches for ON position.

OFF

Decal shows down position of panel switches for OFF position.

TA 098523

End

CONTAINER LOCK INDICATOR PANEL (Sheet 1 of 1)

READY TO LOCK

Both yellow indicator lights should be:

ON – When testing light.

ON – When tophandler locks are engaged on top of container and ready to lock.

Left light ON – Left side engaged

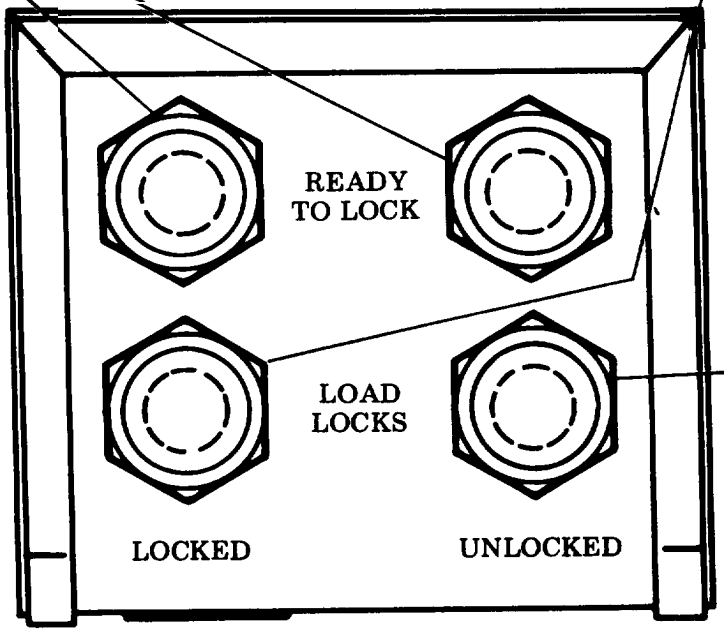
Right light ON – Right side engaged

ON — During lifting and while moving container.

OFF – When locks are disengaged.

Make sure both yellow lights are ON before attempting to lock container locks.

To test for burned out bulbs, press lenses inward when POWER switch is ON position.



LOAD LOCKS

LOCKED

Green indicator light must be ON before lifting container to ensure that all four comers of tophandler are locked to container. Remains ON after locking and while lifting and moving container.

(Green light will not come on unless both yellow lights are on.)

UNLOCKED

Red indicator light will be ON any time twist locks are in unlocked position.

CONTAINER LOCK INDICATOR PANEL

TA 098524

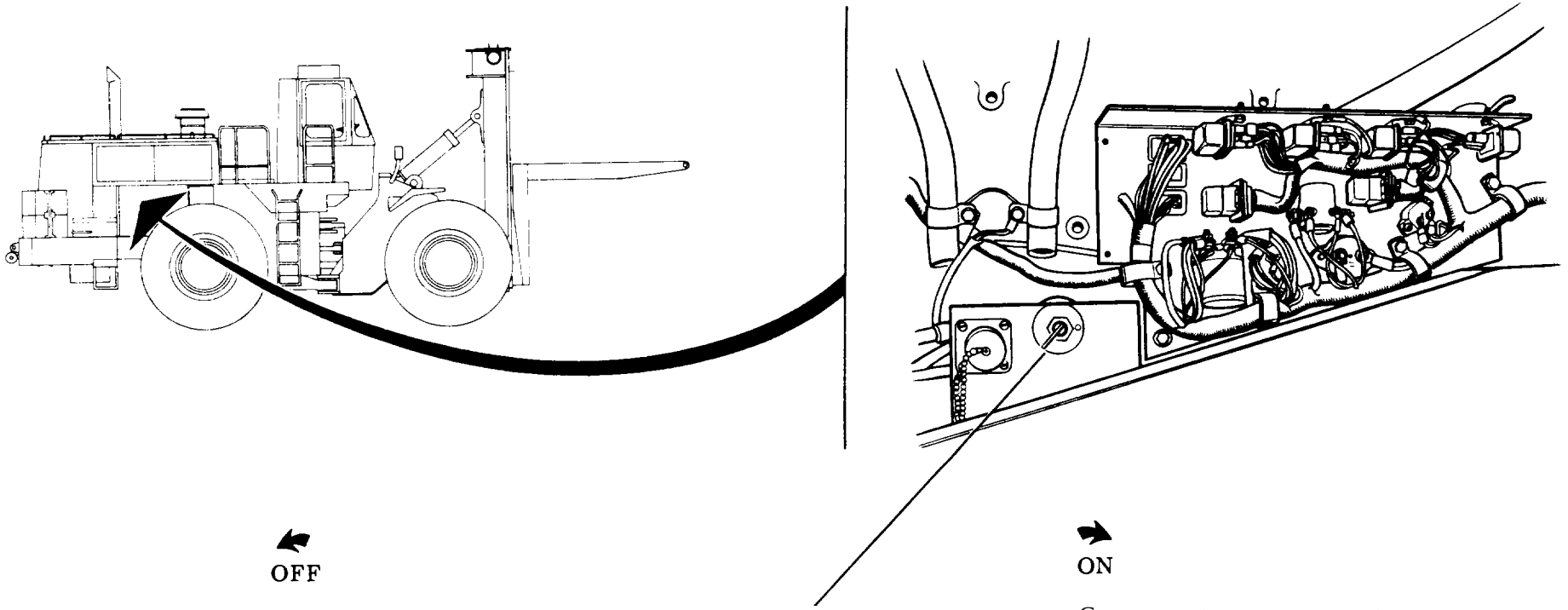
End

MAIN DISCONNECT SWITCH (Sheet 1 of 1)

This switch is used to remove all power to vehicle electrical circuits. Turn switch off whenever performing maintenance in engine compartment or on any electrical circuits or anytime the vehicle is left unattended.

CAUTION

Do not turn switch to OFF when engine is running.



OFF

Removes all power to vehicle electrical systems

MAIN DISCONNECT SWITCH

ON

Connects power to vehicle electrical systems

TA 098525

End

Section II. OPERATOR PREVENTIVE MAINTENANCE CHECKS AND SERVICES

MAINTENANCE FORMS AND RECORDS

Every mission begins and ends with the paperwork. There isn‘t much of it, but you have to keep it up. The forms and record uses. They are a permanent record of the services, repairs, and modifications made on your vehicle. They are reports to your commander. And they are a checklist for you when you want to know what is wrong with the vehicle after faults have been freed. For the information you need on forms and records, see DA Pam 738-750.

PREVENTIVE MAINTENANCE CHECKS AND SERVICES

1. Do your before (B) PREVENTIVE MAINTENANCE just before you operate the vehicle. Pay attention to the CAUTION.
2. DURING (D) checks and services of PREVENTIVE MAINTENANCE will be performed while the equipment and/or in operation.
3. Do your after (A) PREVENTIVE MAINTENANCE right after operating the vehicle. Pay attention to the CAUTION.
4. Do your weekly (W) PREVENTIVE MAINTENANCE weekly.
5. Do your monthly (M) PREVENTIVE MAINTENANCE once a month.
6. If something doesn’t work, troubleshoot it with the instructions in this manual or notify your supervisor.
7. Always do your PREVENTIVE MAINTENANCE in the same order so it gets to be a habit. Once you’ve had some wrong in a hurry.

PREVENTIVE MAINTENANCE CHECKS AND SERVICES (CONT) (Sheet 2 of 3)

8. If anything looks wrong and you can ‘t fix it, write it on your DA Form 2404. If you find something seriously wrong, report it to organizational maintenance RIGHT NOW.

9. When you do your PREVENTIVE MAINTENANCE, take along a rag or two.

   a. Keep it clean: Dirt, grease, oil, and debris only get in the way and may cover up a serious problem. Clean as you work and as needed. Use dry cleaning solvent (SD-2) on all metal surfaces. Use soap and water when you clean rubber or plastic material.

      Dry cleaning solvent, used to clean parts, is potentially dangerous to personnel and property. Do not use near open flame or excessive heat. Flash point of solvent is 138°F (59°C).

   b. Bolts, nuts, and screws: Check them all for obvious looseness, missing, bent or broken condition. You can’t try them all with a tool, of course, but look for chipped paint, bare metal, or rust around bolt heads. If you find one you think is loose, report it to organizational maintenance.

   c. Welds: Look for loose or chipped paint, rust, or gaps where part are welded together. If you find a bad weld, report it to organizational maintenance.

   d. Electric wires and connectors: Look for cracked or broken insulation, bare wires, and loose or broken connectors. Report to organizational maintenance.

   e. Hoses and fluid lines: Look for wear, damage, and leaks, and make sure clamps and fittings are tight. Wet spots show leaks, of course, but a stain around a fitting or connector can mean a leak. If a leak comes from a loose fitting or connector, have it tightened. If something is broken or worn out, report it to organizational maintenance.

Go on to Sheet 3

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

Leakage Definitions for Crew/Operator PMCS

Class I Seepage of fluid (as indicated by wetness or discoloration) not great enough to form drops.

Class II Leakage of fluid great enough to form drops but not enough to cause drops to drip from item being checked/inspected.

Class III Leakage of fluid great enough to form drops that fall from the item being checked/inspected.

CAUTION

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

End

OPERATOR/CREW PREVENTIVE MAINTENANCE CHECKS AND SERVICES (Sheet 1 of 10)

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

ITEM NO,	Interval B	D	A	W	M	ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled or adjusted as needed.	Equipment is not ready/, AVAILABLE IF:
						NOTE PERFORM WEEKLY AS WELL AS BEFORE PMCS's IF: a. You are the assigned operator but have not operated the equipment since the last weekly. b. You are operating the equipment for the first time.	
1						MAKE THE FOLLOWING WALK AROUND CHECKS	
	●					a. Check for leakage on or under the vehicle (oil, fuel and coolant).	Class III leakage is evident (no fuel leakage allowed).
	●					b. Check for loose wiring, damaged lines or hoses.	
	●					c. Check for loose or damaged parts.	
2						TIRES	
	●					a. Check for cuts, abrasions, missing valve caps, and general condition,	Tires have cuts, cracks, or gouges which could result in failure.
	●					b. Visually check for obviously low tire.	Low or flat tire.

Go on to Sheet 2

OPERATOR/CREW PREVENTIVE MAINTENANCE CHECKS AND SERVICES (CONT)

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

ITEM NO.	Interval B	D	A	W	M	ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled or adjusted as needed.	Equipment is not ready/ AVAILABLE IF:
3						EXTERIOR OF MACHINE	
	•					a. Check for obvious damage to fenders, mirrors, ladders, engine covers, and guards.	
	•					b. Check for missing parts or damage on the tophandler, hydraulic cylinder, twist lock, container lock cylinders, forks, carriage, lift chains, and mast cylinders.	Parts are missing or damaged.
						c. Check condition of:	
		•				(1) Windshield and cab windows.	
		•				(2) Windshield wiper and blades.	
4						HYDRAULIC STEERING	
	•					a. Check cylinders and hoses for obvious damage.	There is damage to steering cylinders; class 111 leaks exist.
	•					b. Check linkage for missing or damaged parts.	Linkage has missing or damaged parts.
5						FUEL TANK	
	•	•				a. If low fuel indicator comes on, notify organizational maintenance.	No fuel.
			l			b. Have fuel tanks filled.	

Go on to Sheet 3

OPERATOR/CREW PREVENTIVE MAINTENANCE CHECKS AND SERVICES (CONT) (Sheet 3 of 10)

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

ITEM NO.	Interval B	D	A	W	M	ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled or adjusted as needed.	Equipment is not ready/, AVAILABLE IF:
6						UPPER AND LOWER FRAME PIVOT AND BEARINGS	
					•	Check pivots for obvious cracks.	Pivots contain cracks.
7						ENGINE (not running)	
						NOTE Vehicle level, equipment lowered, parking brake set, engine off, POWER switch off, and key removed. Check proper side of dipstick.	
	•					a. Check oil level. Oil should appear between LOW and FULL marks on the ENGINE STOPPED side of dipstick. If oil is low refer to Organizational Maintenance.	Engine oil is at or below LOW mark.
	•					b. Check all visible oil lines for leaks and damage.	
					•	c. Check alternator and fan drive belts for frays and cracks.	
8				•		RADIATOR	
						WARNING Remove cap slowly to release pressure.	
						Check coolant level. Coolant should be within 1/2" of bottom of fill opening. Fill in accordance with TB 750451. Refer to Organizational Maintenance if level is not in sight.	Coolant is more than 1/2" (1.3 cm) below bottom of fill opening.

Go on to Sheet 4

OPERATOR/CREW PREVENTIVE MAINTENANCE CHECKS AND SERVICES (CONT) (Sheet 4 of 10)

B - Before D - During A - After 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:
9		ENGINE PRE-CLEANER/AIR CLEANER	
		Check for clogging or debris.	Precleaned screen damaged or clogged.
10		FUEL SYSTEM	
	D	a. Check fuel tank and lines for leaks.	Any fuel leaks exist.
	D	b. Check fuel filters, lines, and priming pump for damage and leaks.	
	D	c. Check fuel tank filler cap and screen for damage and debris.	
11	D	BATTERIES	
		Check electrolyte level. Fill to the bottom of filler openings when necessary. Keep filler caps tight, and wipe battery clean. If level is not to bottom of filler openings, refer to Organizational Maintenance.	Battery damaged or leaking.
12	W	HYDRAULIC TANK	
		Check level of hydraulic fluid at sight gage with container handler forks in lowered position. Level must be above the ADD COLD mark in the sight gage. If not, refer to Organizational Maintenance.	Hydraulic tank is below ADD COLD mark.

Go on to Sheet 5

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

ITEM NO.	Interval B	D	A	W	M	ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled or adjusted as needed.	Equipment is not ready/ AVAILABLE IF:
13	●					ROLLOVER PROTECTION (ROPS)	
						Check for damage, looseness.	ROPS is damaged or loose.
14						OPERATOR'S CAB	
					●	a. Check general condition of the cab interior.	
	●					b. Check seat belts for wear, damage, or loose mounting.	Seat belt cannot be fastened. Belt is missing.
					●	c. Check for damaged or illegible data/instruction plates and decals.	
		●				d. Inspect warning lights and gages for broken lens or malfunction. Turn POWER switch to ON and PANEL TEST switch to ON. All lights should come on.	Indicator lights and gages damaged or inoperable.
		●				e. Test container lock indicator lights.	
		●				f. Check LOW FUEL indicator during operation. If fuel indicator comes on, fuel level is below 10%. Stop and add fuel.	
		●				g. Check operation of cab heater and defroster if weather warrants use.	
15		●				LIGHTING SYSTEM	
						Check operation of all lights, check lenses for damage.	

Go on to Sheet 6

OPERATOR/CREW PREVENTIVE MAINTENANCE CHECKS AND SERVICES (CONT) (Sheet 6 of 10)

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

ITEM NO.	Interval B	D	A	W	M	ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled or adjusted as needed.	Equipment is not ready/ AVAILABLE IF:
16		●				PARKING BRAKE Pull out lever P on console to engage parking brake. PARK BRAKE ON indicator should come on. Push lever in to release brake. Indicator should go out. NOTE Indicator light will come on and horn will sound if brake is on and transmission engaged.	Parking brake does not function.
17						STEERING COLUMN LOCK	
	●					a. Hold steering wheel; pull column lock out. Adjust wheel and column to suit yourself.	
	●					b. Release the lock button. The steering column should lock in position. NOTE Check PMCS items 18, 19, and 20 during engine warm up. Before starting engine, move gear selector to neutral, engage parking brake and lock steering column.	

Go onto Sheet 7

OPERATOR/CREW PREVENTIVE MAINTENANCE CHECKS AND SERVICES (CONT) (Sheet 7 of 10)

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

ITEM NO.	Interval B	D	A	W	M	ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled or adjusted as needed.	Equipment is not ready/ AVAILABLE IF:
18						INDICATOR LIGHTS	
						a. Start engine.	
						b. Check the following lights - should be off:	One or more indicator lights remain ON while engine is running.
		●				(1) LOW ENG OIL indicator.	
		●				(2) LOW HYD OIL indicator.	
		●				(3) NO COOLANT FLOW indicator.	
		●				(4) IMPLEMENT filter indicator.	
		●				(5) TRANS filter indicator.	
		●				(6) AIR filter indicator.	
		●				(7) PILOT filter indicator.	
		●				(8) HI TEMP HYD OIL indicator.	
		●				(9) LOW PRESS BRAKE indicator.	
		●				(10) SUPP STER indicator.	

Go onto Sheet 8

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

ITEM NO.	Interval B	D	A	W	M	ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled or adjusted as needed.	Equipment is not ready/, AVAILABLE IF:
19						GAGES (Indicators)	One or more gages do not register NORMAL.
		●				a ENGINE OIL PRESS. Keep engine at low idle. Needle should register in NORMAL or GREEN range within 10 seconds of engine starting If not, stop engine and investigate the problem.	
		●				b. FUEL PRESS. Needle should register in the GREEN range with engine warm and under slight load. If needle registers in the RED range, stop engine. Refer to Organizational Maintenance.	
		●				c. WATER TEMP. Should register in GREEN range. If needle is in RED range, stop the engine and investigate the cooling system.	
		●				d. CONVERTER OIL TEMP. Needle should be in GREEN range. If needle is in RED range, stop engine and measure transmission oil level.	
		●				e. VOLTS. Should register in GREEN range. If needle is constantly in CHG or BATT ranges, stop engine and inspect charging system.	
						CAUTION Before starting engine, move gear selector to neutral, engage parking brake and lock steering column.	

Go onto Sheet 9

OPERATOR/CREW PREVENTIVE MAINTENANCE CHECKS AND SERVICES (CONT) (Sheet 9 of 10)

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

ITEM NO.	Interval B	D	A	W	M	ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled or adjusted as needed.	Equipment is not ready/, AVAILABLE IF:
20						TRANSMISSION	
		•				a. Check transmission oil level with engine warm and running at low idle. Level should be between LOW and FULL marks on dipstick. Dipstick location is under floor panel behind the cab. (See page 2-36.)	
				•		b. Check transmission oil lines for leaks or damage.	Class 111 leaks exist.
21						CONTROL LEVERS	
		•				a. LIFT control lever. Move lever to each position. Observe mast movement.	Mast does not respond to control lever movements.
		•				b. TILT control lever. Move lever to each position. Observe mast movements.	Mast does not respond to control lever movements.
		•				c. SIDE TILT control lever. Move lever to each position, Observe mast movements.	Mast does not respond to control lever movements.
		•				d. CONT LOCKS lever. Pull lever back. LOCKED indicator light should come on if container locks to tophandler. No lights should come on if tophandler does not contact container. UNLOCKED indicator light should come on when lever is moved forward.	Indicators do not light when LOCKED lever is in each position.

Before starting engine, move gear selector to neutral, engage parking brake and lock steering column.

Go on to Sheet 10

OPERATOR/CREW PREVENTIVE MAINTENANCE CHECKS AND SERVICES (CONT) (Sheet 10 of 10)

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

ITEM NO	INTERVAL B	D	A	W	M	ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled or adjusted as needed.	Equipment is not ready/, AVAILABLE IF:
22						BRAKES. SERVICE	
		•				a. With engine running, apply and release the brake pedal. If LOW PRESS BRAKE indicator light comes on with less than 5 pedal applications, the pressure accumulator requires service.	
		•				b. In clear area, apply service brake, release parking brake and shift transmission to 2nd gear forward. Slowly increase engine speed to full throttle. Machine must not move. If machine moves, reduce engine speed, shift transmission to NEUTRAL and apply parking brake.	Machine in gear moves with service brake applied at full throttle.
23						TRANSMISSION RANGE SELECTOR LEVER	
		•				In clear area, operate the vehicle, moving the selector lever through all ranges to determine correct function. NOTE Do not shift from forward to reverse or reverse to forward without stopping.	Transmission does not respond to range selections.

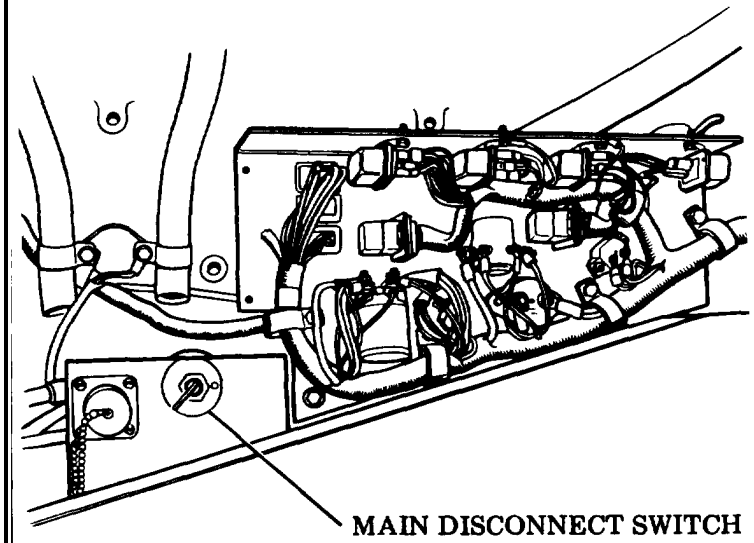
End

Section III. OPERATION UNDER USUAL CONDITIONS

This section contains step-by-step instructions you must follow in ordinary operation of the vehicle.

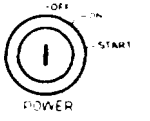
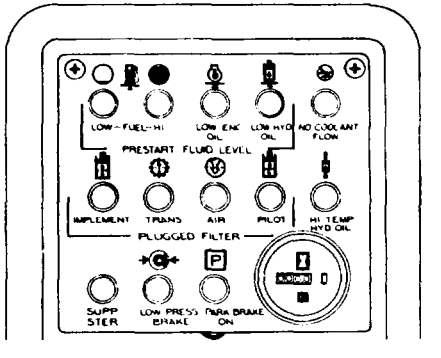
BEFORE STARTING

(Sheet 1 of 4)

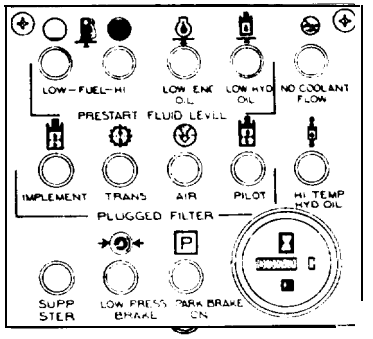
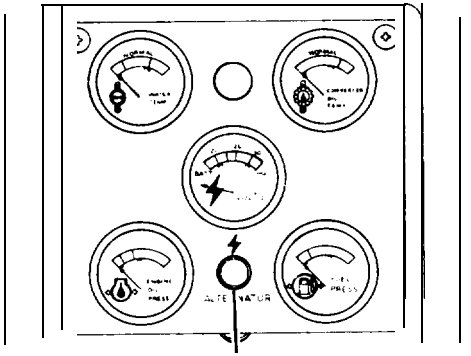
LOCATION/ITEM	ACTION	REMARKS
1. PMCS	Do all BEFORE operation preventive maintenance checks and services.	See page 2-17.
2. Main disconnect switch	Turn ON. (See page 2-16. **CAUTION** Never turn main disconnect switch OFF while engine is running.	 **MAIN DISCONNECT SWITCH** TA 098526

Go onto Sheet 2

BEFORE STARTING (CONT) (Sheet 2 of 4)

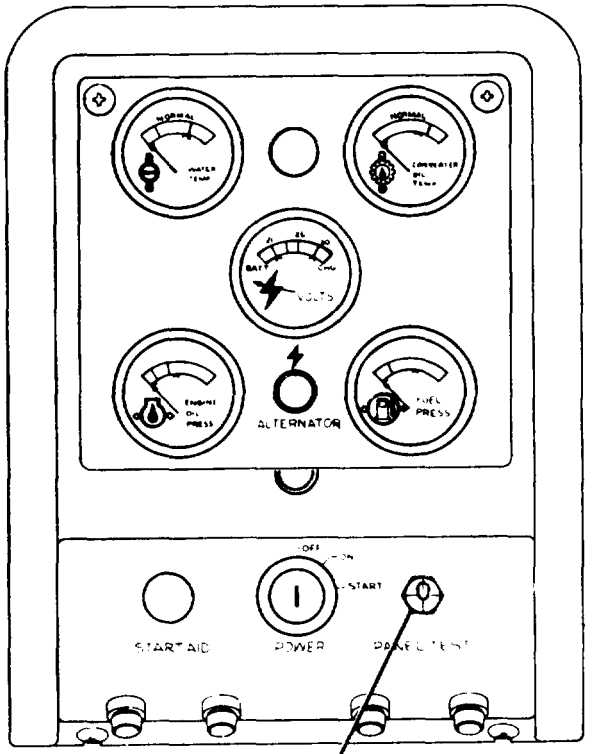
LOCATION/ITEM	ACTION	REMARKS
3. POWER switch on right hand panel	a. ON. NOTE Do not start engine.	
	b. Observe:	
	(1) HIGH FUEL indicator ON.	(1) If indicator does not come on, refer to Organizational Maintenance to add fuel.
	(2) NO COOLANT FLOW indicator ON.	
	(3) LOW ENG OIL indicator OFF.	(3) If light is on, refer to Organizational Maintenance to add engine oil.
	(4) LOW HYD oil indicator OFF.	(4) If light is on, refer to Organizational Maintenance to add oil.
	(5) PLUGGED FILTER indicators all OFF;	 TA 098527
	(6) HI TEMP HYD OIL indicator OFF.	

Go on to Sheet 3

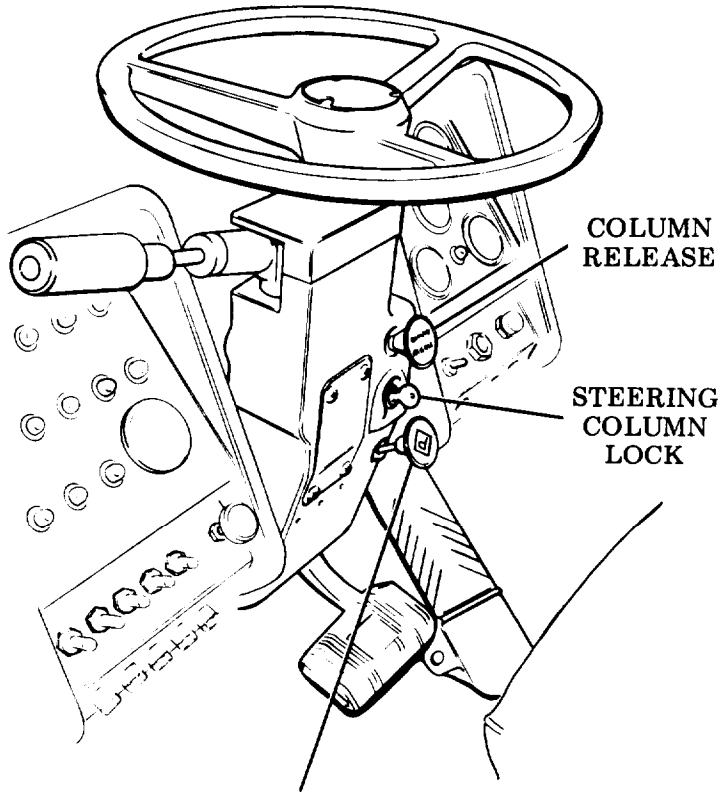
LOCATION/ITEM	ACTION	REMARKS
3. POWER switch (cent)	Observe: (7) SUPP STER indicator ON. (8) LOW PRESS BRAKE indicator flashes ON and OFF. (9) PARK BRAKE ON indicator ON if parking brake is engaged. (10) ALTERNATOR INDICATOR ON.	  ALTERNATOR INDICATOR TA 098529

Go on to Sheet 4

BEFORE STARTING (CONT) (Sheet 4 of 4)

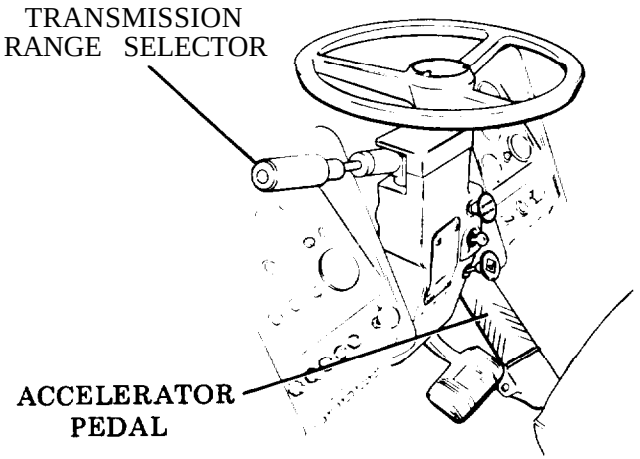
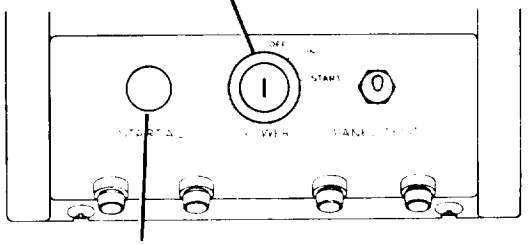
LOCATION/ITEM	ACTION	REMARKS
4. PANEL TEST switch on right hand	Press. All indicator lights must come on. NOTE Lights do not come on may be burned out or fuse may be blown.	 PANEL TEST SWITCH END OF "BEFORE STARTING" YOU ARE READY FOR "STARTING" TA 098528

End

LOCATION/ITEM	ACTION	REMARKS
	WARNING When operating with cab windows open, wear hearing protection. During periods of idle or slow operation, the noise level is within safe limits. Anyone within 50 feet (15m) of an operating vehicle must also wear hearing protection.	
1. Parking brake	ENGAGED. Pull parking brake control lever out.	
2. Steering column	a. Unlock. Turn key clockwise (right). b. Hold steering wheel and pull COLUMN RELEASE lever out. c. Release lever when column is in desired position.	 PARKING BRAKE CONTROL LEVER TA 088530

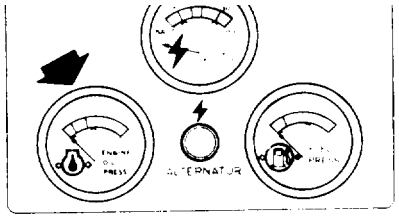
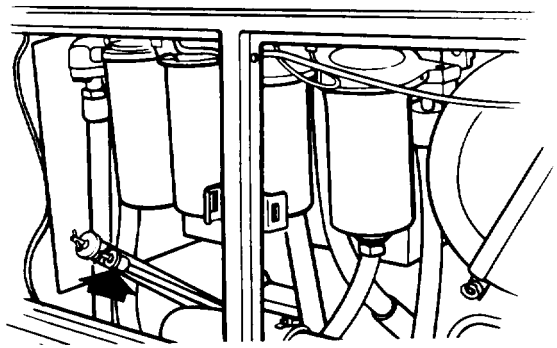
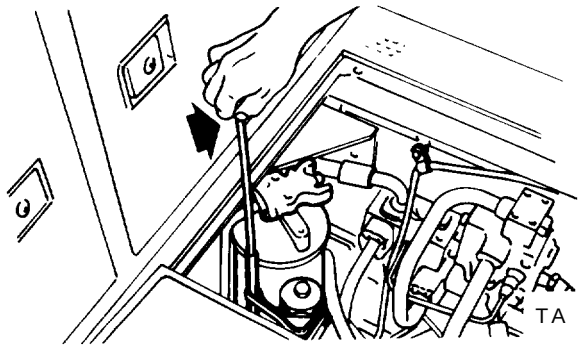
Go on to Sheet 2

STARTING (CONT) (Sheet 2 of 4)

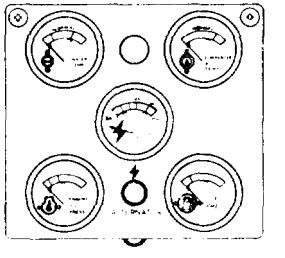
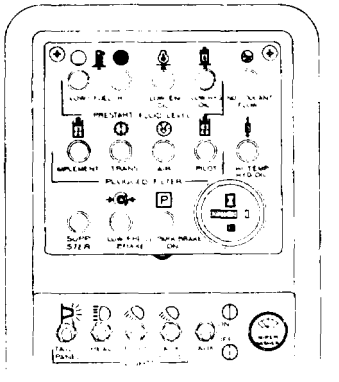
LOCATION/ITEM	ACTION	REMARKS
3. Transmission range selector	NEUTRAL. NOTE If the engine is started with the range selector in a position other than neutral, move the selector lever to neutral for a few seconds then to desired gear speed and direction.	TRANSMISSION RANGE SELECTOR  ACCELERATOR PEDAL
4. Accelerator pedal	PRESS 1/4 way down. Hold.	
5. POWER switch	START position. Release when engine starts CAUTION If engine does not start after 30 seconds, let starter cool for 2 minutes then try to start again. NOTE For cold weather [below 32°F (O°C)] starting, press and then release the START AID switch while cranking.	POWER SWITCH (ON RIGHT HAND PANEL)  START AID SWITCH TA 098531

Go onto Sheet 3

STARTING (CONT)

LOCATION/ITEM	ACTION	REMARKS
6. Engine	Run at low idle for 5 minutes. Do not engage hydraulic controls.	
	If oil pressure does not register in Green range within 10 seconds of idling, shut down engine and investigate problem.	
7. Engine oil level	Measure with engine running at LOW IDLE. Oil should be between LOW and FULL marks on LOW IDLE side of dipstick. Dipstick location: behind the access door behind the cab.	
8. Transmission oil level	Measure with engine running at LOW IDLE. Oil should be between LOW and FULL marks on dipstick. Dipstick location: under platform plate behind the cab.	 TA 098532

Go onto Sheet 4

LOCATION/ITEM	ACTION	REMARKS
9. Right hand instrument panel gages and indicators	Check for proper indication: a. WATER TEMP gage — Green range. b. VOLTS gage — Green range. c. ENGINE OIL PRESS gage: White range (low idle) Green range (high idle) d. CONVERTER OIL TEMP gage — Green range. e. FUEL PRESS gage — Green range. f. ALTERNATOR indicator light – Off.	 If any indicator is not right for low idle, shut down engine and have your mechanic locate and correct problem.
10. Left hand instrument panel	All lights OFF except: a. Fuel HI light on. b. LOW PRESS BRAKE light will flash on and off until brake pressure reaches operting level.	 If any light is on, shut down engine and locate and correct problem.

END OF "STARTING" PROCEDURE
GO ON TO "DRIVING"

TA 098533

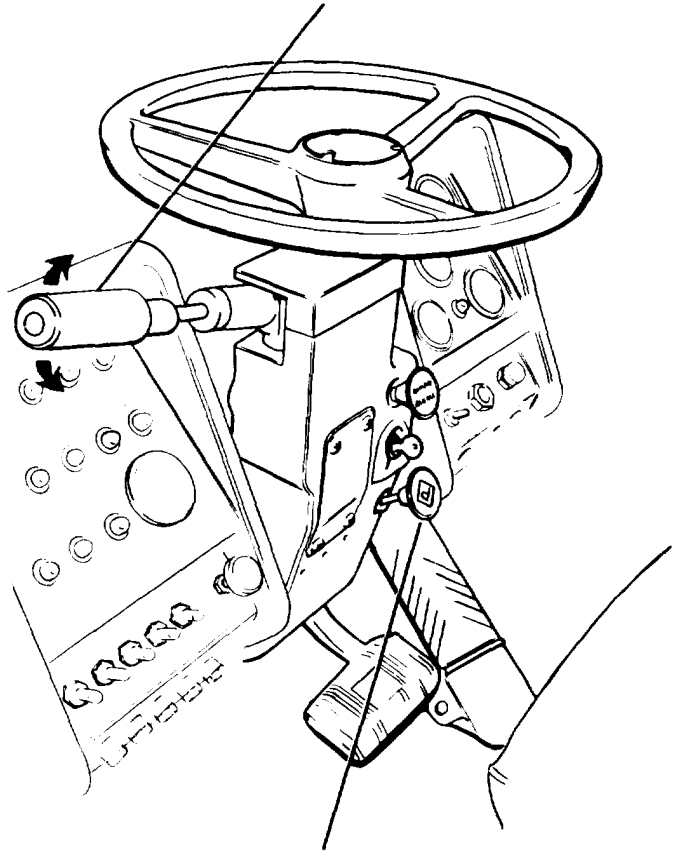
End

LOCATION/ITEM	ACTION	REMARKS
	WARNING Do not allow riders on the vehicle. Keep a safe distance from and stay clear of overhangs, electric wires, slides, and other dangerous areas. To avoid tipping over, be careful when crossing or working on hills, banks, or slopes. Look behind the vehicle before backing up. Wear your seat belt. Know stopping distance of your vehicle at any speed. Then adjust speed. Match speed with job conditions. Do not coast. Listen for unusual noises in vehicle. Observe all gages often. Investigate improper readings. Report needed repairs. NOTE Drive forward, not reverse, when traveling long distance. With a load travel in reverse. Know traffic pattern of job. Obey flagmen, road signs, and signals. Carry load close to ground.	

Go on to Sheet 2

DRIVING (CONT)

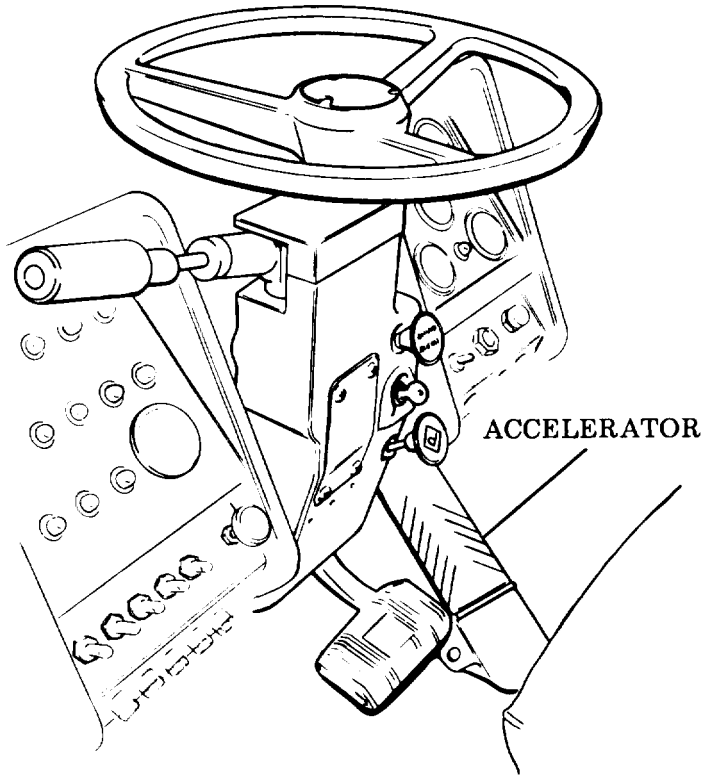
LOCATION/ITEM	ACTION	REMARKS
1. Controls	Try all controls. Make sure they me operating.	Transmission Range Selector
2. Right brake pedal	Press and hold.	
3. PARKING BRAKE control	PUSH to release brake. NOTE If you place the transmission in gear with parking brake on, PARK BRAKE ON lamp will come on and a horn will sound.	
4. TRANSMISSION RANGE SELECTOR	a. MOVE to desired direction of travel. b. ROTATE to desired speed: Low ranges for extra power. High ranges for faster speed.	
5. Right brake pedal	Release.	



PARKING BRAKE CONTROL

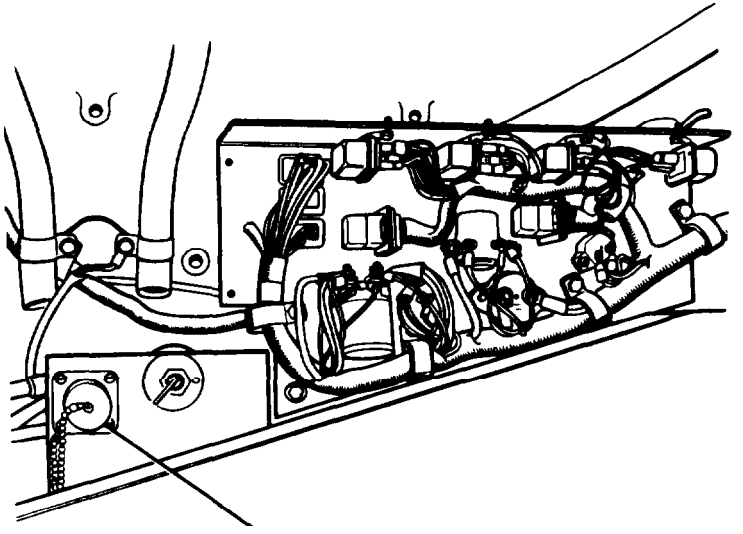
TA 098534

Go onto Sheet 3

LOCATION/ITEM	ACTION	REMARKS
6. Accelerator	**WARNING** Do not move vehicle if LOW PRESS BRAKE light is flashing on and off. Shut down engine and report problem. PRESS to move vehicle. NOTE Drive carefully and alertly. Remember the vehicle is articulated and will require special handling. NOTE During operation watch gages and indicators often. All gages must indicate NORMAL (green) and all indicators must operate properly.	 TA 098535

End

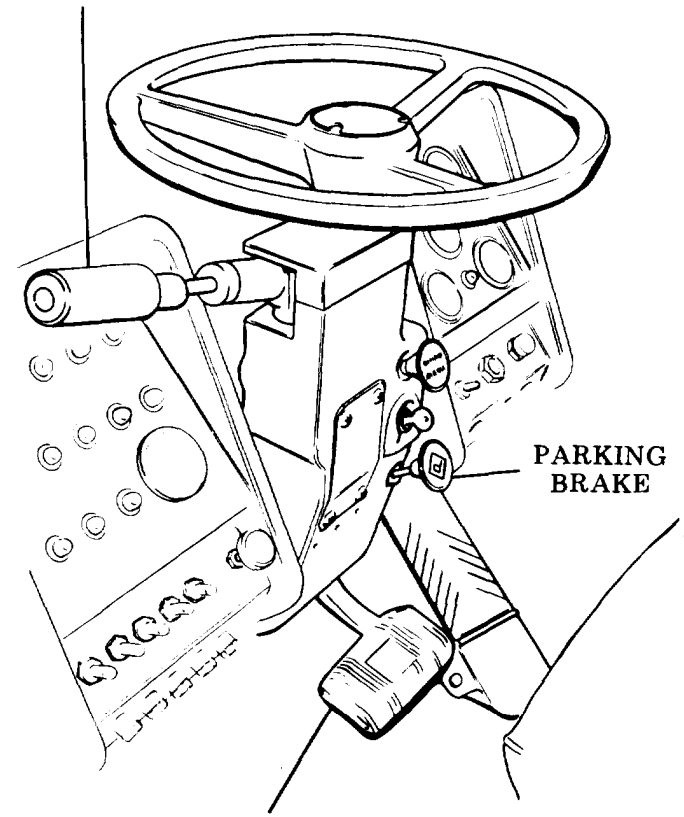
STARTING WITH OUTSIDE ELECTRICAL SOURCE (Sheet 1 of 1)

LOCATION/ITEM	ACTION	REMARKS
1. Starting cables	Connect to emergency starting (slave) receptacle.	
2. Engine	stark	See page 2-34.
	NOTE To use the emergency starting receptacle, use jumper cable with a plug to mate with receptacle. Connect external starting source first, then insert plug into receptacle of vehicle to be started. After engine starts, remove plug from receptacle.	 EMERGENCY STARTING (SLAVE) RECEPTACLE TA 098536

End

PARKING (Sheet 1 of 1)

LOCATION/ITEM	ACTION	REMARKS
1. Accelerator	Release.	TRANSMISSION RANGE SELECTOR
2. Right brake pedal	Press to stop vehicle.	
3. TRANSMISSION RANGE SELECTOR	Move to NEUTRAL.	
4. Parking Brake	ENGAGE. Pull out knob.	
5. Forks/Tophandler	Slowly lower to lowest position.	



RIGHT BRAKE PEDAL

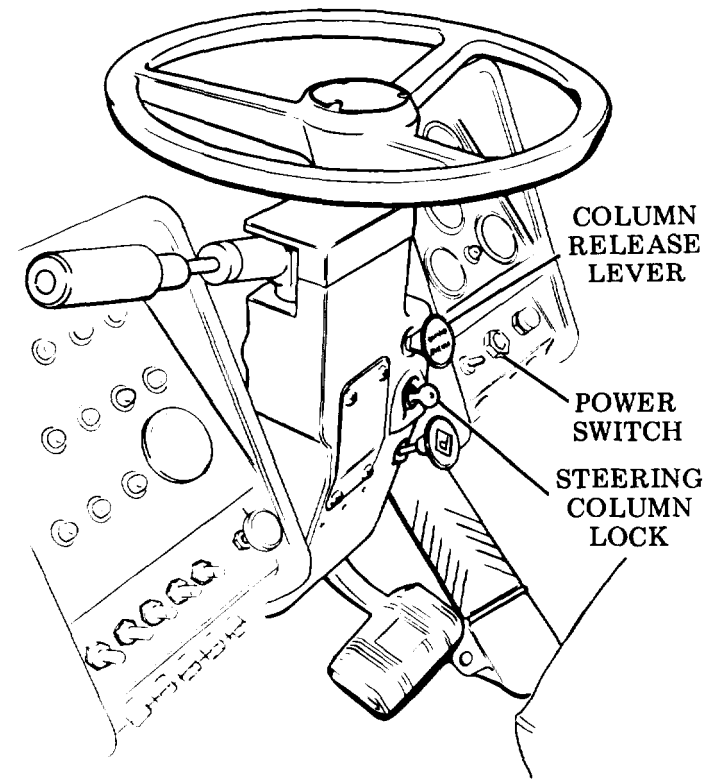
TA 098537

GO ON TO “STOPPING ENGINE"

End

STOPPING ENGINE

LOCATION/ITEM	ACTION	REMARKS
1. Engine	a. Operate at half speed for 5 minutes. b. Operate at low idle for 30 seconds.	
2. POWER switch	OFF. Remove POWER switch key.	
3. Steering column	a. Hold steering wheel. b. Pull out and hold COLUMN RELEASE lever. c. Slowly move steering column as far forward as it will go.	
4. Steering column	LOCK. Remove steering column key.	

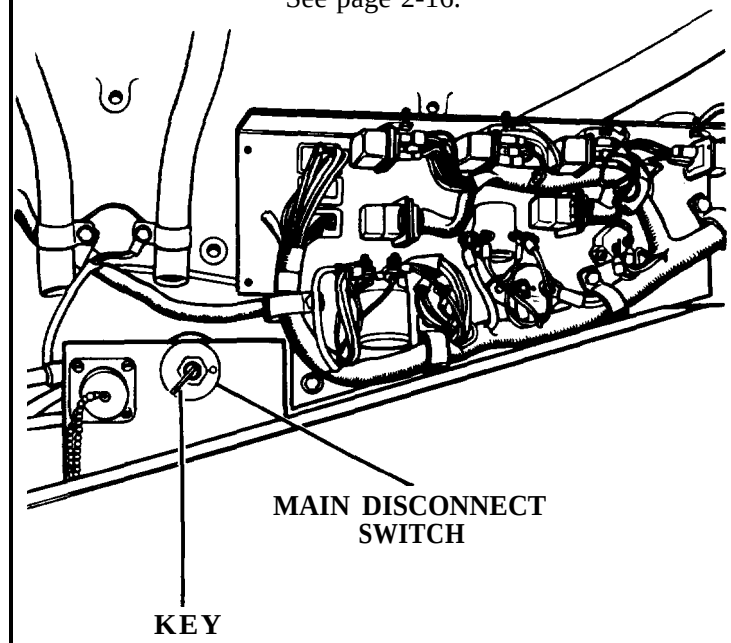


TA 098538

Go onto Sheet 2

STOPPING ENGINE (CONT) (Sheet 2 of 2)

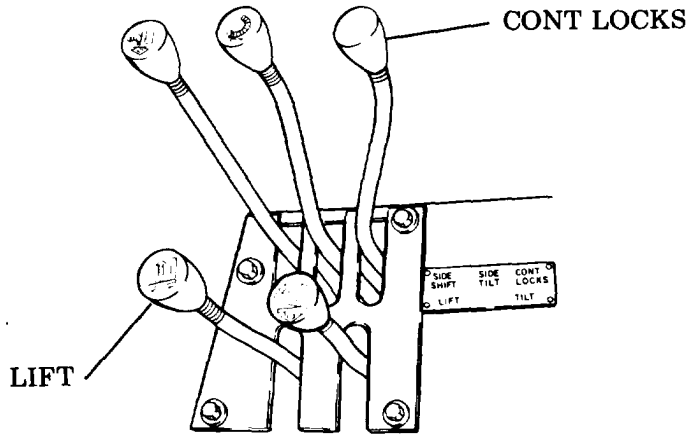
LOCATION/ITEM	ACTION	REMARKS
5. MAIN DISCONNECT	OFF. When parking overnight or for a long time. Remove key.	See page 2-16.
6. Wheels	Block if parked on a slope.	



TA 098539

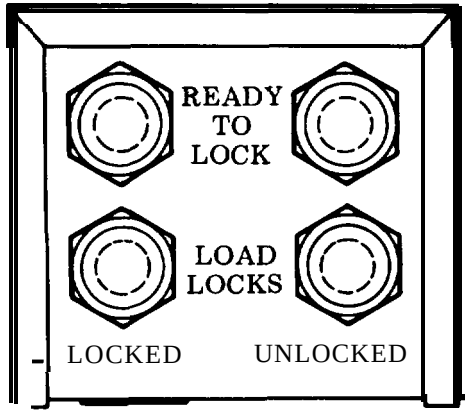
End

LOADING AND UNLOADING CARGO

LOCATION/ITEM	ACTION	REMARKS
LOADING		
1. Tophandler SIDE SHIFT lever TILT lever SIDE TILT lever	a. Center and level the tophandler when approaching load. b. Position front of vehicle to broadside of cargo container. c. Position locks over corners, using tophandler corner guides.	
	Approach load cautiously. Tophandler comer guide mounting bolts will break under pressure to prevent damage to the container or tophandler. If comer guide bolts break, refer to organizational maintenance.	
2. LIFT lever (Right Side of Cab)	Push to lower locks into fittings. Observe that both READY TO LOCK lights come on. One light means only one comer is in position. Red UNLOCKED light will also be on.	

TA 098800

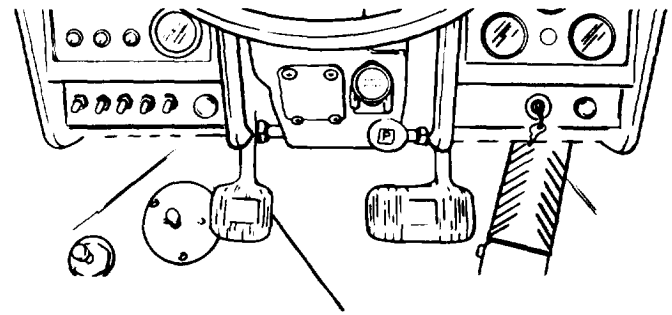
Go onto Sheet 2

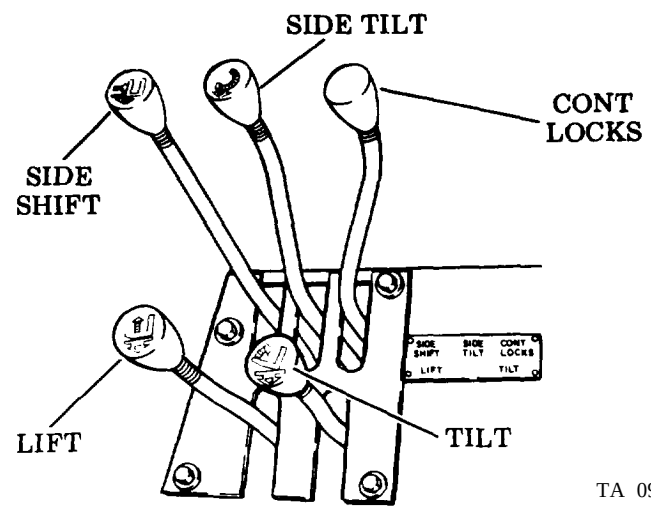
LOCATION/ITEM	ACTION	REMARKS
3. CONT LOCKS lever (Right Side of Cab)	Pull to lock tophandler to container. Observe green LOAD LOCKS LOCKED light comes on. The two yellow READY TO LOCK lights also stay on, but the red UNLOCKED LIGHT goes out. **WARNING** Do not lift container unless green light is in.	 CONTAINER LOCK INDICATOR PANEL TA 098540

Go onto Sheet 3

LOADING AND UNLOADING CARGO (CONT) (Sheet 3 of 4)

LOCATION/ITEM	ACTION	REMARKS
4. Left brake pedal	Press while accelerating and do step 5.	Left brake pedal disengages the transmission to give higher engine speed during lifting.
5. LIFT lever	Pull to lift container to minimum traveling height —12 in. (30 cm) ground clearance.	
6. SIDE SHIFT lever	Center load for carrying.	
7. TILT lever	Tilt load full back for carrying.	
UNLOADING		
7, SIDE SHIFT lever TILT lever SIDE TILT lever	Use levers to position container at drop-off point.	
8. LIFT lever	Use LIFT lever to position load over container on ground, if stacking.	





TA 098541

Go on to Sheet 4

LOADING AND UNLOADING CARGO (CONT) (Sheet 4 of 4)

LOCATION/ITEM	ACTION	REMARKS
9. CONT LOCKS lever	Push to unlock tophandler after container has been lowered into position. Observe LOAD LOCKS UNLOCKED light comes on. Two yellow READY TO LOCK lights will stay on.	
10. LIFT lever	Pull to clear tophandler from container. Two yellow READY TO LOCK lights will go off.	
11. Drive	From drop-off point. Look behind you as you will be backing away from load.	
12. Tophandler	Center and level.	

End

Section IV. OPERATION UNDER UNUSUAL CONDITIONS

This section contains instructions to help you get best operating performance from your vehicle. It includes instructions for:

- Operation in unusual weather
- Emergency procedures

OPERATING IN WATER

CAUTION

The vehicle can operate in salt or fresh water – up to 60 inches (150 cm) including waves. Do not go any deeper.

Follow these procedures before, during, and after operating vehicle in water:

1. Before — Check depth of water.

   Check tire pressure (refer to Organizational Maintenance).

2. During – Operate vehicle in low range.

3. After – Within ten *minutes* after operation in water check fluid levels of the following:

   - Engine oil sump
   - Transmission
   - Fuel tank
   - Hydraulic tank

   Have organizational maintenance check:

   - Each differential
   - Each wheel

   Thoroughly wash the vehicle after salt water operation

NOTE

Refer to Organizational Maintenance any task requiring replenishment or adjustment.

End

OPERATING IN DUST AND SAND STORMS

Operation in dust and sand storms requires cleaning and lubrication more often than usual:

1. Check and clean filler caps every day.

   - Engine oil filler cap
   - Hydraulic tank filler cap
   - Radiator cap
   - Transmission; cap
   - Fuel tank cap

   All filler caps must be tight to keep out dirt.

2. Inspect the mast daily:

   - Slider blocks
   - Chains

3. Air cleaner:

   - Keep filters clean and unclogged

4. Check hydraulic cylinder rods for leakage. Dirt may enter system where leak starts.

5. When you park your vehicle, cover openings in engine compartment and cover windshield.

OPERATING IN SNOW OR MUD

When you operate the vehicle in snow or mud, observe the following:

1. Always operate the vehicle in low range for both forward and reverse directions.

2. If the vehicle is stuck, rock it back and forth — always in low range.

3. If the vehicle remains stuck, see towing procedure, page 2-54.

OPERATING IN SALT AIR AND SEA SPRAY

Operation in salt air and sea spray can be damaging to the body and systems. Inspect often for the following conditions:

1. General rust:

   - Especially check those areas that could seriously affect the working of the vehicle.

   - Check all hydraulic cylinders for rusting and pitting. If you see rusting or pitting, notify your mechanic.

2. Water in oil. Have your mechanic check for water in oil of the following:

   - Engine
   - Hydraulic reservoir
   - Steering reservoir
   - Transmission

End

OPERATING IN EXTREME MOIST HEAT

Be sure to inspect often and keep proper oil levels in the following:

1. Engine
2. Hydraulic systems
3. Transmission

Inspect often and notify your mechanic if you see any signs of wear in the following:

1. Alternator belt
2. Hydraulic system hoses and cylinder rods.
3. Transmission and drive axle housings. Report any leaks to your mechanic.

OPERATING IN EXTREME DRY HEAT

Be sure to keep proper oil level in transmission Inspect often. Do not overfill.

Inspect often and notify your mechanic if you see any signs of wear in the following:

1. Transmission and drive axle housings. Report any leaks to your mechanic.
2. Cooling system, coolant level, and rubber hoses. Keep proper level of coolants.
3. Fan belts.
4. Rubber tires. Have tire pressure checked.
5. Protective tubing in electrical system.

OPERATING IN EXTREME COLD

For operating the vehicle in extreme cold, inspect the following often:

1. Cooling system. Check and maintain specific gravity of coolant.
2. Hydraulic fittings. Look for leaks at fittings. Refer to Organizational Maintenance.
3. Tire pressure. Have tire pressure checked, especially important in water.

When starting the engine, observe one of the following:

1. When engine does not start, use cold weather starting procedure. (See page 2-35.)

CAUTION

If engine does not start after 30 seconds, let starter cool for 2 minutes then try to start again.

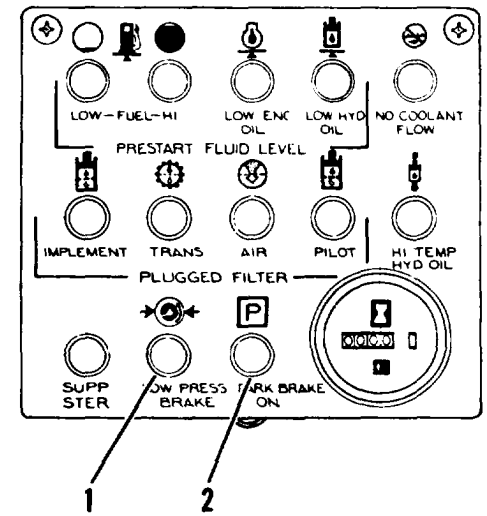
2. Use a combination of cold weather starting procedure and electrical boost procedure. (See page 2-41.) These procedures maybe needed at 0°F or below.

NOTE

Refer to Organizational maintenance any task requiring replenishment or adjustment.

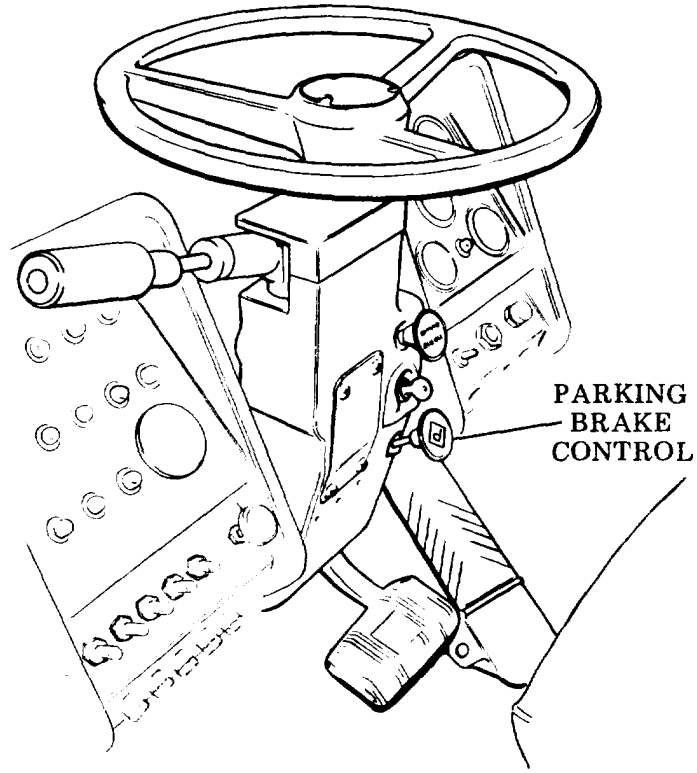
End

EMERGENCY BRAKE OPERATIONS (Sheet 1 of 2)

LOCATION/ITEM	ACTION	REMARKS
	When service brake oil pressure is below safe operating pressure, the following will happen. 1. LOW PRESS BRAKE indicator (1) will flash ON and OFF. 2. PARK BRAKE ON indicator (2) will flash. 3. Emergency brake will automatically engage. **CAUTION** Vehicle will stop suddenly. 4. If vehicle has a load, a horn will keep sounding.	 TA 098542

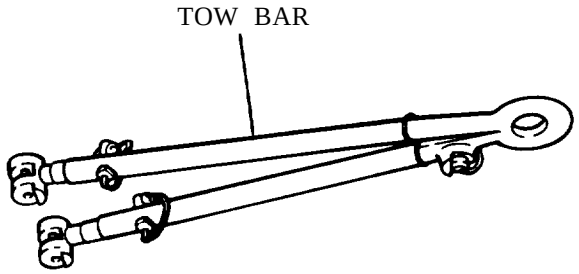
Go on to Sheet 2

EMERGENCY BRAKE OPERATIONS (CONT)

LOCATION/ITEM	ACTION	REMARKS
	After vehicle makes an emergency stop, do the following: 1. Shift transmission into neutral. 2. High idle engine for three minutes to increase brake oil pressure. 3. Try to release parking/emergency brake by pushing in parking brake control. 4. LOW PRESS BRAKE indicator should stop flashing. If it does not, park the vehicle, stop engine, and lower load or mast. Call your mechanic. In an emergency, the vehicle can be moved in first speed range when emergency brake is engaged. This can damage the emergency brake. So be sure to have it serviced before the vehicle is returned to operation. After an emergency stop or trouble with brakes, do not operate vehicle until brake systems have been inspected and repaired.	 TA 098543 End

TOWING

(Sheet 1 of 2)

LOCATION/ITEM	ACTION	REMARKS
	Do not allow personnel on vehicle while it is being towed. Do not push the vehicle when engine is stopped. Do not use a tow line. Use a medium duty tow bar with bumper blocks. (See MS500048.)	
1. Wheels	Block.	
2. Shipping link	Connect to front and rear frames.	Refer to Organizational Maintenance.
3. Power train	Inspect for damage. If damaged have your mechanic remove axle shafts.	Refer to Organizational Maintenance.
4. Parking brake	Release manually.	Refer to Organizational Maintenance.
5. Steering cylinder hoses	Reverse on one cylinder so cylinders move freely.	Refer to Organizational Maintenance.
6. Shipping link	Remove.	Refer to Organizational Maintenance.

TA 098544

Go on to Sheet 2

TOWING (CONT)

LOCATION/ITEM	ACTION	REMARKS
7. Tow bar	Attach.	WARNING
8. Wheel blocks	Remove.	Remember there is no emergency brake if all four axle shafts are removed.
	CAUTION Be sure shipping link is disconnected before towing. Tow slowly, no more than 5 mph (8Km/hr).	
9. After to wing	Have your mechanic: Reconnect steering cylinder hoses. Restore the parking brake.	

End

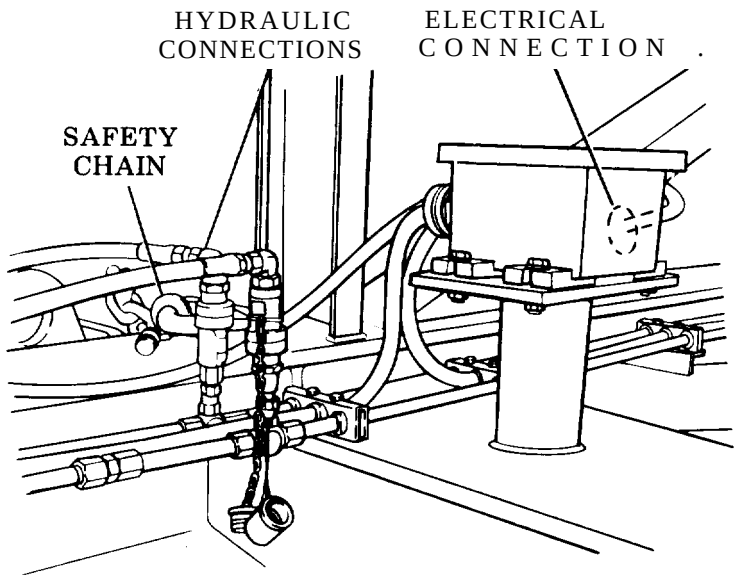
Section V. OPERATION OF AUXILIARY EQUIPMENT

This section contains instructions for removing and installing the tophandlers.

TOPHANDLER REMOVAL AND INSTALLATION

(Sheet 1 of 3)

LOCATION/ITEM	ACTION	REMARKS
REMOVAL		
1. Tophandler	Lower to rest on support, such as a container.	Tophandler can be lowered to 7 feet (2 meters) above ground level.
2. Engine	Shut down.	
	NOTE For access to hydraulic and electrical connections climb up fender and stand on tire (left side).	
3. Hydraulic connections (two) at tophandler	a. Disconnect. b. Cap or plug openings.	
4. Electrical connector (one)	Disconnect.	
5. Safety chains (two)	Remove.	

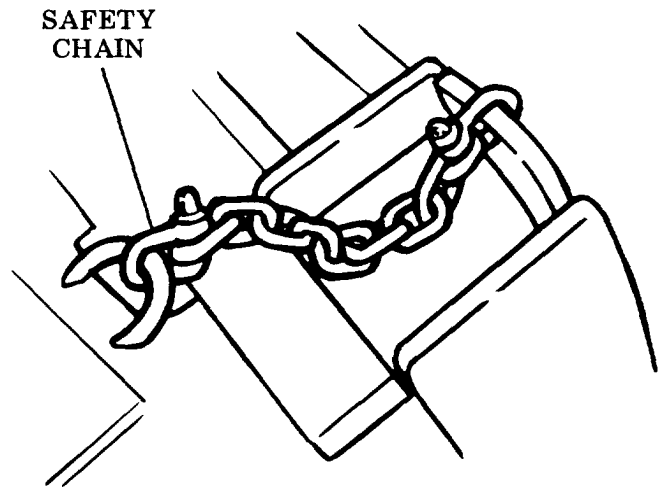


TA 098545

Go on to Sheet 2

TOPHANDLER REMOVAL AND INSTALLATION (CONT) (Sheet 2 of 3)

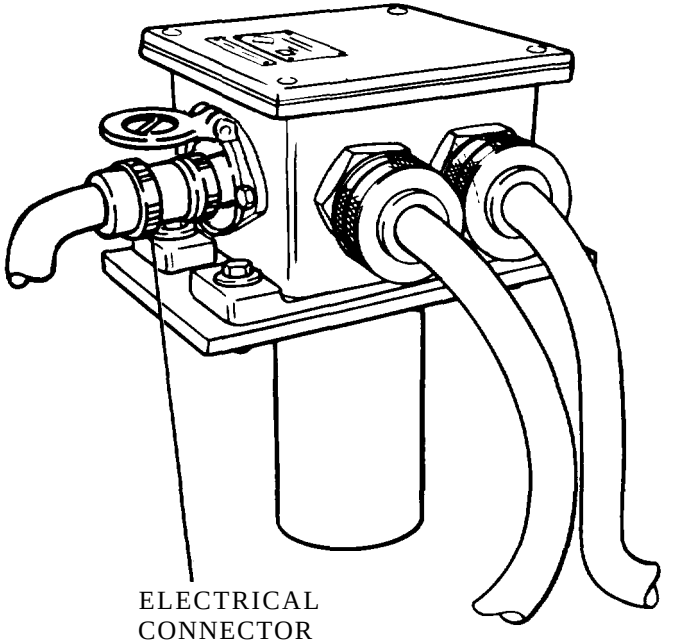
LOCATION/ITEM	ACTION	REMARKS
6. Vehicle	a. Start engine. b. Back slowly and directly away from tophandler until forks are clear.	
INSTALLATION		
1. Vehicle	a Approach tophandler slowly. b. Insert forks into openings on tophandler. c. Inch forward until forks are fully inserted into tophandler. d. Shut down engine.	Approach must be direct.
2. Safety chains	Install and secure.	



TA 098546

Go on to Sheet 3

TOPHANDLER REMOVAL AND INSTALLATION (CONT) (Sheet 3 of 3)

LOCATION/ITEM	ACTION	REMARKS
3. Electrical connector	Connect.	 ELECTRICAL CONNECTOR
4. Hydraulic connection	Connect.	
	NOTE Tophandler is ready for operation.	

TA 098547

End

CHAPTER 3

OPERATOR MAINTENANCE INSTRUCTIONS

Page

Section I. LUBRICATION INSTRUCTIONS

The Lubrication Order LO 10-3930-641-12 explains the lubrication procedures, locations and intervals for the maintenance of this vehicle.

The Lubrication Order shows the location of each lubrication point and gives the type of lubricant to be used and the interval at which to lubricate under normal operating conditions. In addition, the diagram shows the lubrication filters locations and service requirements.

Lubrication is performed by Organizational Maintenance.

Section IL TROUBLESHOOTING

The Symptom Index starts on page 3-3. It lists the malfunctions (symptoms), tests or inspections and corrective actions that the operator can ordinarily perform. It also lists the malfunctions which have to be referred to Organizational Maintenance. The operator troubleshooting table starts on page 3-6.

Bear in mind that it is not possible to list all the malfunctions which might develop. If you have a problem that is not included in the table, notify your supervisor.

NOTE

Before you begin troubleshooting, be sure you have performed all applicable operating checks.

SYMPTOM INDEX (Sheet 1 of 3)

Go on to Sheet 2

SYMPTOM INDEX (CONT)

Go on to Sheet 3

SYMPTOM INDEX (CONT) (Sheet 3 of 3)

End

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

BRAKE SYSTEM

1. BRAKES DO NOT STOP VEHICLE

Step 1. Inspect hydraulic reservoir oil level. (See page 3-22.)
Notify organizational maintenance.

NOTE

STARTING LEVEL: With oil cold and engine not running, oil level must be above the ADD COLD mark or completely fill the sight gage.

OPERATING LEVEL: With cold or warm oil and engine running, oil level must be above the ADD COLD mark.

Step 2. Inspect brake linkage for damage or defective parts.
Notify organizational maintenance if detected.

2. LOW PRESS BRAKE LIGHT COMES ON

Step 1. Inspect hydraulic reservoir oil level. (See page 3-22 and malfunction 1, above.)
Notify organizational maintenance.

Step 2. Inspect for leaking brake lines and fittings.
Notify organizational maintenance.

3. BRAKES ARE SLOW TO STOP VEHICLE

Inspect for leaking brake lines or fittings.
Notify organizational maintenance.

4. BRAKES DO NOT RELEASE OR RELEASE SLOWLY

Inspect brake control linkage for binding.
Notify organizational maintenance.

5. TRANSMISSION DOES NOT DISENGAGE WHEN LEFT BRAKE PEDAL (INCHING PEDAL) IS PUSHED

Notify organizational maintenance.

6. EMERGENCY BRAKE DOESN'T ENGAGE OR DISENGAGE

Notify organizational maintenance.

ENGINE

1. ENGINE WILL NOT CRANK WHEN IGNITION SWITCH IS ON START

Step 1. Inspect main disconnect switch (page 2-16).
Turn to ON position.

Step 2. Inspect for loose or corroded battery cables.
Notify organizational maintenance to clean/tighten.

2. ENGINE CRANKS BUT WILL NOT START, OR IS HARD TO START

Step 1. Inspect fuel level.
Add fuel (see page 3-20).

Step 2. Check for bad quality fuel. (Water, sediment and cloudiness.)
Replace fuel and replace fuel filter elements. Notify organizational maintenance.

Step 3. Inspect fuel filters.
Notify organizational maintenance to clean/replace.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

ENGINE – Continued

3. ENGINE MISFIRES, RUNS ROUGH OR STALLS AT LOW RPM

Step 1. Check fuel level (see page 3-20).
Add fuel.

Step 2. Inspect fuel lines between fuel tanks and fuel transfer pump for leaks, crimps, and bends.
Notify organizational maintenance.

4. UNUSUAL ENGINE VIBRATION
Notify organizational maintenance.

5. ENGINE KNOCKS

Check for bad quality fuel.
Notify organizational maintenance.

6. BLACK OR GRAY SMOKE FROM EXHAUST

Inspect air inlet filter.
Notify organizational maintenance if filter is clogged.

7. WHITE OR BLUE SMOKE FROM EXHAUST

Step 1. Inspect for overfilled engine oil crankcase (see page 3-16).
Notify organizational maintenance.

Step 2. Excessive oil consumption can be caused by engine running rough and misfiring.
Malfunction 3, above.
Notify organizational maintenance.

8. LOW ENGINE OIL PRESSURE – LOW ENG. OIL LAMP COMES ON

Check engine oil level (see page 3-16).
Notify organizational maintenance.

9. ENGINE OVERHEATS – WATER TEMP GAGE INDICATES IN RED AREA

WARNING

Always check cooling system with engine not running. Remove filler cap slowly to relieve pressure. Steam can cause severe bums.

Step 1. Check radiator level. Coolant should be about 1/2" below bottom of fill pipe (see page 3-18).
Notify organizational maintenance.

Step 2. Inspect radiator for debris, blocking the air flow through the core.
Remove debris.

Step 3. Check engine oil level (page 3-16).
Notify organizational maintenance.

Step 4. Inspect for poor sealing or missing radiator cap.
Notify organizational maintenance.

Step 5. Check transmission oil level (page 3-24).
Notify organizational maintenance.

10. ALTERNATOR INDICATOR LIGHT COMES ON – ALTERNATOR IS NOT CHARGING

Step 1. Inspect for missing or loose drive belt.
Notify organizational maintenance.

Step 2. Check for loose or disconnected battery connections.
Notify organizational maintenance.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

ENGINE -- Continued

11. ALTERNATOR IS NOISY
Inspect drive belt for damage or wear.
Notify organizational maintenance.

12. EXHAUST SMOKE IS THICK

Step 1. Check for restrictions in exhaust system.
Remove restrictions.

Step 2. Inspect air filter elements.
Notify organizational maintenance.

HYDRAULIC SYSTEM

1. HYDRAULIC SYSTEM WILL NOT LIFT LOAD OR WILL NOT LOWER LOAD CORRECTLY

Step 1. Inspect lines and fittings for leaks.
Notify organizational maintenance.

Step 2. Inspect mast sliding blocks, rollers, and chains for correct lubrication.
Notify organizational maintenance.

2. MAST TILTS TOO SLOWLY

Notify organizational maintenance.

3. LIFT OR TILT CYLINDERS DO NOT HOLD POSITION WITH HYDRAULIC CONTROL LEVERS IN NEUTRAL POSITION

Inspect lines and fittings for leaks.
Notify organizational maintenance.

4. IMPLEMENT PLUGGED FILTER LIGHT COMES ON

Step 1. Inspect oil level (see page 3-22).
Notify organizational maintenance.

Step 2. Inspect implement filter for dirt.
Notify organizational maintenance.

5. OIL TEMPERATURE IS TOO HIGH – HYDRAULIC OIL TEMPERATURE NEEDLE IS IN RED AREA

Inspect oil level (see page 3-22).
In the work cycle of your vehicle, lengthen the unloaded return trip to give the hydraulic cooling system time to cool the oil. Park the vehicle, lower the mast all the way, and run engine at high idle.
Notify organizational maintenance.

6. NOISY HYDRAULIC PUMP

Inspect oil level (see page 3-22).
Notify organizational maintenance.

TORQUE CONVERTER

TORQUE CONVERTER OVERHEATS – NEEDLE OF TORQUE CONVERTER GAGE IS IN RED AREA

Inspect transmission oil level.
Notify organizational maintenance.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

TRANSFER CASES

1. SYSTEM LOSES OIL

Step 1. Check drain plug.
Notify organizational maintenance.

Step 2. Check all lines and fittings.
Notify organizational maintenance.

2. NOISY TRANSFER GEARS

Step 1. Check transmission oil level (see page 3-24).
Notify organizational maintenance.

Step 2. Inspect main drive shaft universal joints.
Notify organizational maintenance.

TRANSMISSION

1. TRANS PLUGGED FILTER LIGHT COMES ON DURING OPERATION

Inspect oil filter.
Check transmission oil level.
Notify organizational maintenance.

2. BACK-UP WARNING HORN DOES NOT SOUND WHEN DIRECTION SELECTION LEVER IS PUT IN REVERSE

Inspect direction control linkage (at access opening behind operator's cab) for defective parts.
Notify organizational maintenance

3. TRANSMISSION WILL NOT SHIFT FROM ONE SPEED OR DIRECTION TO ANOTHER OR SHIFTS ROUGH

Inspect speed control linkage (at access opening behind operator's cab) for defective parts.
Notify organizational maintenance.

4. TRANSMISSION SHIFTS SLOWLY

Inspect transmission oil level (see page 3-24).
Notify organizational maintenance.

5. TRANSMISSION DOESN'T WORK WHEN SPEED SELECTION LEVER IS PLACED IN ANY SPEED

Check transmission oil level (see page 3-24).
Notify organizational maintenance.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

STEERING SYSTEM

1. VEHICLE DOESN'T TURN WHEN STEERING WHEEL IS TURNED,

Step 1. Check that shipping link is not installed.
Notify organizational maintenance.

Step 2. Check hydraulic tank oil level (see page 3-22).
Notify organizational maintenance.

2. STEERING WHEEL IS HARD TO TURN

Allow hydraulic oil to warm up to normal operating temperatures.
Notify organizational maintenance if steering wheel is still hard to turn.

3. STEERING WHEEL CAN STILL BE TURNED WHEN VEHICLE IS AT FULL TURN

Notify organizational maintenance.

Section III. OPERATOR MAINTENANCE PROCEDURES

This section contains procedures that will help you inspect and maintain the components and assemblies of your vehicle. When inspecting, keep in mind the component function and inspect for obvious functional defects. For instance, if you are inspecting a hydraulic line, look for oil leaks.

LIST OF TASKS (Sheet 1 of 1)

TASK NO.	TASK	REF (PAGE)	TROUBLESHOOTING REF (PAGE)
1	Check engine oil level.	3-16	3-8,3-9
2	Check radiator coolant level.	3-18	3-9
3	Service fuel tank.	3-20	3-7
4	Check hydraulic tank oil level.	3-22	3-11
5	Check transmission oil level.	3-24	3-12,3-13
6	Inspect battery	3-26	3-7
7	Service air cleaner precleaned.	3-28	3-8
8	Teat service brakes.	3-30	3-6
9	Test brake accumulator and emergency brake.	3-32	3-6
10	Test parking brake and backup alarm.	3-34	3-6

End

CHECK ENGINE OIL LEVEL

This task covers: Measuring oil level in the engine crankcase.

INITIAL SETUP

Test Equipment

None

Materials/Parts

Clean, lint-free cloth.

Troubleshooting Reference

3-8, 3-9

Equipment Condition

Vehicle parked on level ground. Mast lowered. Parking brake applied. Engine not running and cool. POWER key switch in OFF and key removed.

Special Tools

None

Personnel Required

1 operator

References

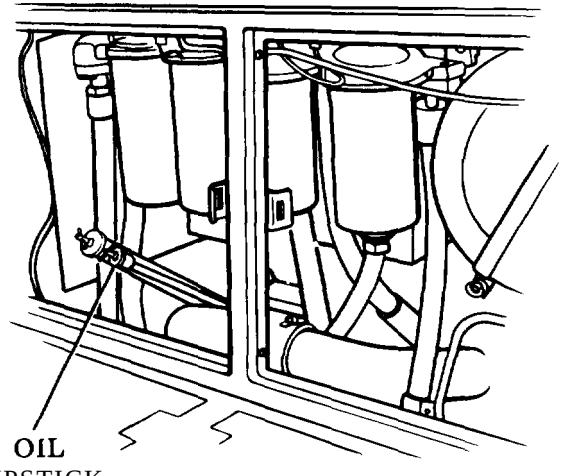
LO 10-3930-641-12

General Safety Instructions

Be careful not to contact hot engine parts.

Go on to Sheet 2

CHECK ENGINE OIL LEVEL (CONT)

LOCATION/ITEM	ACTION	REMARKS
1. Access door on platform behind cab.	Open.	
2. Engine oil level dipstick.	Remove and read oil level. Level must be between LOW and FULL marks on ENGINE STOPPED side of dipstick.	 DIPSTICK **TA 098548** Notify organizational maintenance any time oil level is low.

End

CHECK RADIATOR COOLANT LEVEL

This task covers: Checking level of coolant in the radiator.

INITIAL SETUP

Test Equipment

None

Materials/Parts

None

Troubleshooting Reference

3-9

Equipment Condition

Vehicle parked on level ground. Engine shut down and cool. Mast lowered. Parking brake applied. POWER key switch OFF and key removed.

Special Tools

None

Personnel Required

1 operator

References

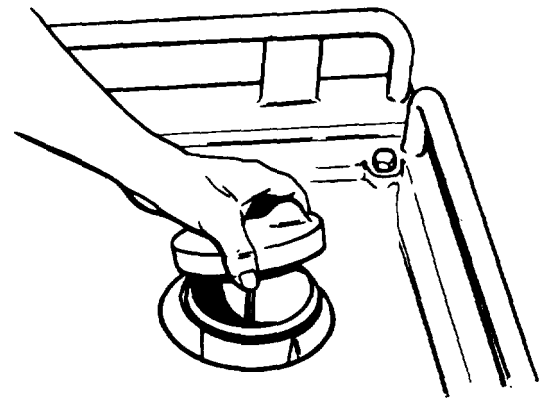
None

General Safety Instructions

Remove filler cap slowly to relieve pressure. Avoid contact with coolant.

Go onto Sheet 2

CHECK RADIATOR COOLANT LEVEL (CONT) (Sheet 2 of 2)

LOCATION/ITEM	ACTION	
	WARNING Always check cooling system with engine not running. Remove filler cap slowly to relieve pressure. Steam can cause severe burns.	
1. Filler cap	Remove SLOWLY.	
2. Coolant level	Check. Level should be within 1/2 inch (1 cm) of bottom of fill pipe.	
3. Filler cap	a. Make sure gasket is good. b. Reinstall.	If level is low, refer problem to organizational maintenance.

TA 098549

End

SERVICE FUEL TANK

This task covers: Filling fuel tank.

INITIAL SETUP

Test Equipment

None

Materials/Parts

Fuel oil DF-2

Clean lint-free cloth.

Troubleshooting Reference

3-7

Equipment Condition

Vehicle parked on level ground. Engine shut down.

Special Tools

None

Personnel Required

1 operator

References

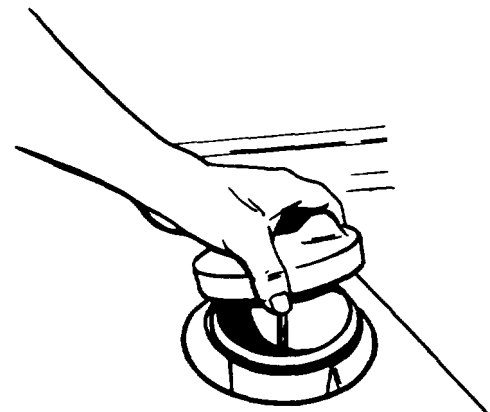
None

General Safety Instructions

No SMOKING within 50 feet – fuel is flammable.

Go on to Sheet 2

SERVICE FUEL TANK (CONT) (Sheet 2 of 2)

LOCATION/ITEM	ACTION	REMARKS
Fuel filler cap	**WARNING** Do not smoke while adding fuel. Fumes from fuel are flammable. a. Remove. b. Fill tank with DF-2 fuel oil. c. Reinstall cap. NOTE Have fuel tank filled at the end of each work day or shift.	 FUEL FILLER CAP TA 098550

End

CHECK HYDRAULIC TANK OIL LEVEL

This task covers: Checking hydraulic tank oil level:

a. Before starting.
b. Engine running.

INITIAL SETUP

Test Equipment

None

Materials/Parts

None

Troubleshooting Reference

3-11

Equipment Condition

Vehicle parked on level ground and mast lowered.

Special Tools

None

Personnel Required

1 operator

References

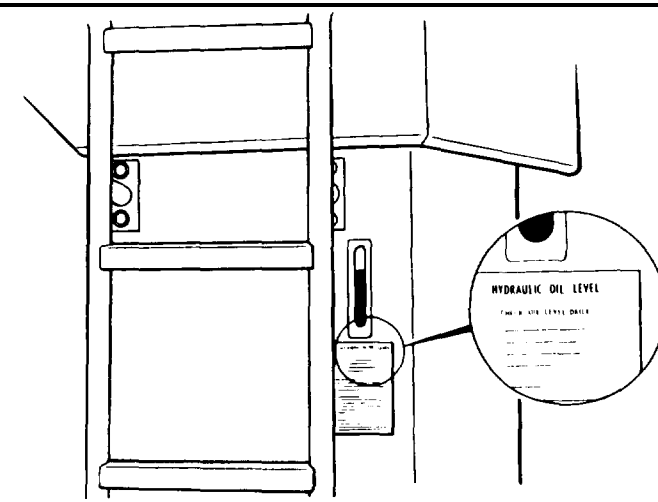
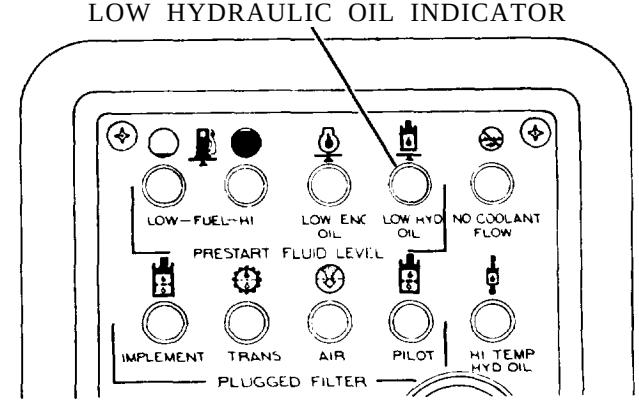
None

General Safety Instructions

Observe precautions for starting engine.

Go on to Sheet 2

CHECK HYDRAULIC TANK OIL LEVEL (CONT) (Sheet 2 of 2)

LOCATION/ITEM	ACTION	REMARKS
1. Oil level gage	Observe: Oil above ADD COLD mark (sight gage filled with oil cold and engine off.	
2. Operator's cab/POWER switch	a. Turn on. Do not start engine. b. Observe: LOW HYD OIL light comes on when oil level is at or below ADD COLD mark on the sight gage. NOTE LOW HYD OIL light will not come on when engine is running. Test before starting engine. c. Start engine.	LOW HYDRAULIC OIL INDICATOR 
3. Oil level gage	Observe: With cold or warm oil and engine running, oil must be above ADD COLD mark.	Notify organizational maintenance any time oil level is low. TA 098551 End

CHECK TRANSMISSION OIL LEVEL

This task covers: Measuring level of transmission oil.

INITIAL SETUP

Test Equipment

None

Materials/Parts

None

Troubleshooting Reference

3-12, 3-13

Equipment Condition

Vehicle parked on level ground.

Special Tools

None

Personnel Required

1 operator

References

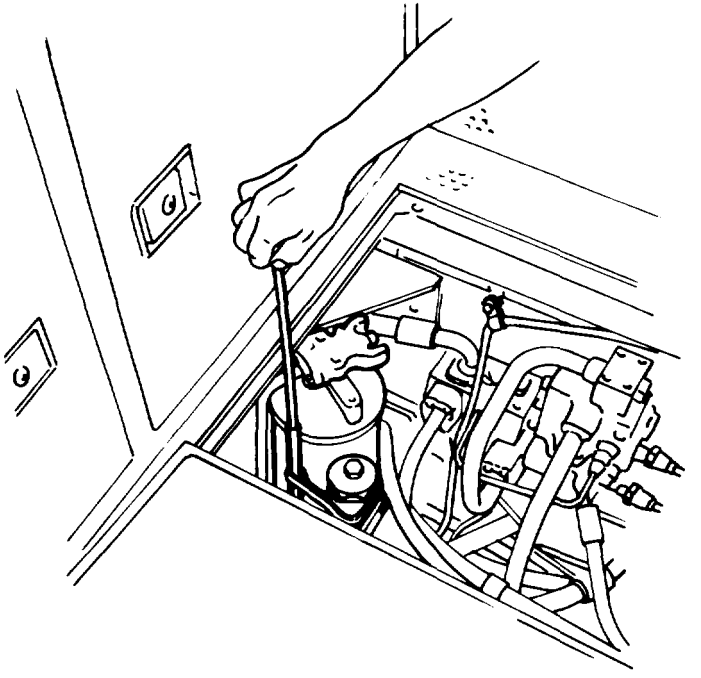
None

General Safety Instructions

Observe precautions for starting engine.

Go on to Sheet 2

CHECK TRANSMISSION OIL LEVEL (CONT) (Sheet 2 of 2)

LOCATION/ITEM	ACTION	REMARKS
1. Engine	Start . Run at low idle.	
2. Transmission Range Selector	Move through all positions.	
3. Access door	Open.	
4. Oil level dipstick	Measure level. Should be between FULL and LOW marks.	
5. Access door	close.	
6. Engine	Shut down. Shut down – COLD. Transmission oil level should be above the FULL mark on the dipstick.	Notify organizational maintenance if level is low.

TA 098552

End

INSPECT BATTERY

This task covers: Inspecting vehicle batteries.

INITIAL SETUP

Test Equipment

None

Materials/Parts

Clean lint-free cloth.

Troubleshooting Reference

3-7

Equipment Condition

Engine shut down. Vehicle POWER key switch in OFF and key removed.

Special Tools

None

Personnel Required

1 operator

References

TM 9-6140-200-14, Maintenance of Lead-Acid Storage Batteries.

General Safety Instructions

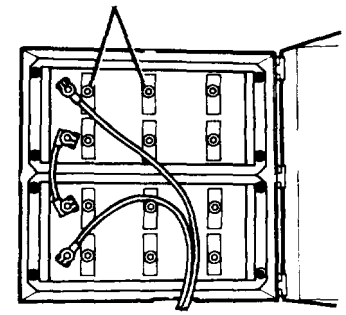
Electrolyte can cause severe burns. Avoid contact with skin, eyes or clothing.

Battery gases can explode. Don’t smoke or have open flames near a battery, especially if battery caps are off.

Wear safety glasses when removing battery caps.

Go on to Sheet 2

INSPECT BATTERY (CONT) (Sheet 2 of 2)

LOCATION/ITEM	ACTION	REMARKS
1. Battery compartments	Open.	FILLER CAPS 
2. Batteries	Clean tops. Use a damp cloth, then dry completely.	
3. Filler caps.	a. Remove. b. Check electrolyte level. Electrolyte must be to bottom of filler openings. c. Reinstall. Make sure caps are on tight.	If battery electrolyte is low, notify organizational maintenance.
4. Battery cables and connections.	a. Inspect cables for damage. b. Inspect connections for corrosion or loose fit.	Notify organizational maintenance if cables are damaged or connections are corroded.
5. Battery compartments	Close and latch.	

TA 098553

End

SERVICE AIR CLEANER/PRECLEANER

This task covers: Cleaning the engine precleaned screen.

INITIAL SETUP

Test Equipment

None

Materials/Parts

None

Troubleshooting Reference

3-8

Equipment Condition

Engine shut down.

Special Tools

None

Personnel Required

1 operator

References

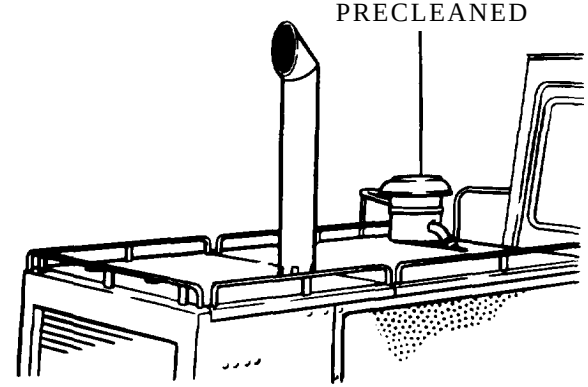
None

General Safety Instructions

Wear gloves to protect hands when removing debris from the screen.

Go on to Sheet 2

SERVICE AIR CLEANER/PRECLEANER (CONT) (Sheet 2 of 2)

LOCATION/ITEM	ACTION	REMARKS
Precleaned screen	Remove accumulated dirt or debris.	AIR CLEANER/ PRECLEANED 

TA 098554

End

TEST SERVICE BRAKES

This task covers: Operational test of service brakes.

INITIAL SETUP

Test Equipment

None

Materials/Parts

None

Troubleshooting Reference

3-6

Equipment Condition

Vehicle parked on level surface.

Special Tools

None

Personnel Required

1 operator

References

None

General Safety Instructions

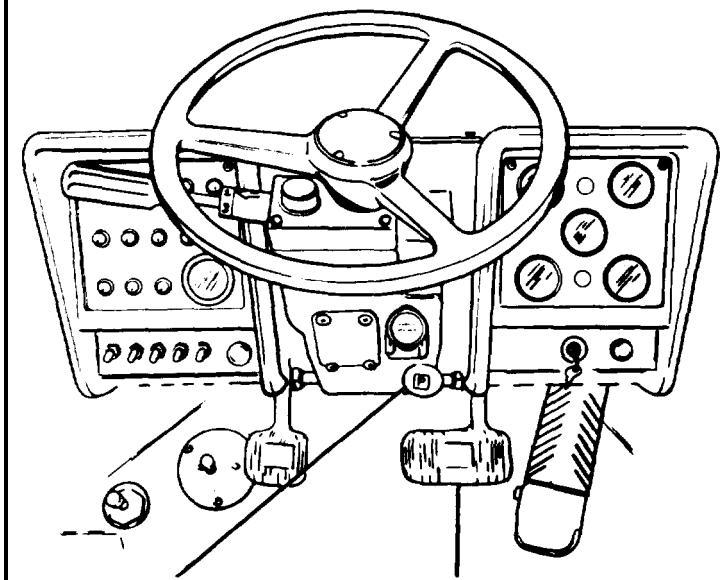
Be sure area around vehicle is clear of personnel and obstructions.

Be sure shipping link is in stored position.

Fasten seat belt.

Go on to Sheet 2

TEST SERVICE BRAKES (CONT) (Sheet 2 of 2)

LOCATION/ITEM	ACTION	REMARKS
1. Engine	Start (see page 2-34).	
2. Service brake pedal (right)	Apply.	
3. Parking brake control	Release (push).	
4. Transmission range selector	Move to 2nd gear forward. SERVICE BRAKE PEDAL STILL APPLIED.	
5. Engine speed	a. Gradually increase engine RPM to full throttle. Hold at full throttle for not more than 5 seconds. VEHICLE MUST NOT MOVE. NOTE If vehicle starts to move, reduce engine speed and apply parking brake control. b. Decrease to low idle.	 PARKING BRAKE CONTROL SERVICE BRAKE PEDAL **TA 098555**
6. Transmission shift lever	To neutral.	
7. Perking brake control	Apply (pull).	
8. Engine	Shut down.	If vehicle moved during test, report faulty brakes to organizational maintenance.

E N D

TEST BRAKE ACCUMULATOR AND EMERGENCY BRAKE

This task covers Operational test of the brake accumulator and emergency brake.

INITIAL SETUP

Test Equipment

None

Materials/Parts

None

Troubleshooting Reference

3-6

Equipment Condition

Vehicle parked on dry level surface.
Parking brake applied.

Special Tools

None

Personnel Required

1 operator

References

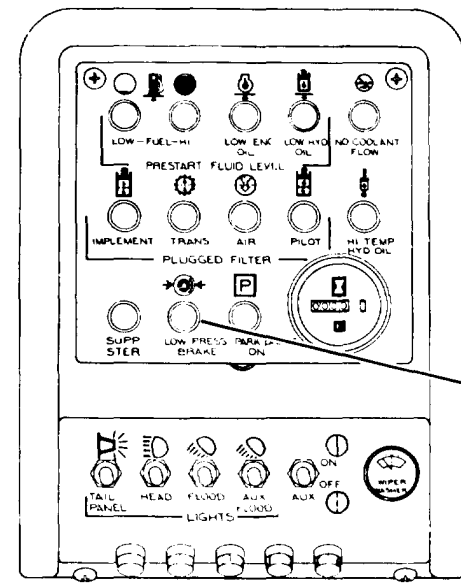
None

General Safety Instructions

Observe engine darting precautions.

Go on to Sheet2

TEST BRAKE ACCUMULATOR AND EMERGENCY BRAKE (CONT) (Sheet 2 of 2)

LOCATION/ITEM	ACTION	REMARKS
1. POWER switch	To ON.	
2. PANEL TEST switch	Press. Observe: LOW PRESS BRAKE light comes on. NOTE If light does not come on, refer problem to organizational maintenance.	 LOW PRESSURE LIGHT
3. Engine	a. Start. b. Run at half speed for 2 minutes. c. Shut down.	
4. Brake pedal (either)	Apply and release until LOW PRESS BRAKE light comes on.	It should take at least 5 brake applications before the light comes on. The emergency brake comes on when the light comes on. If brakes do not pass this test, refer problem to organizational maintenance.

TA 098556

End

TEST PARKING BRAKE AND BACKUP ALARM

This task covers: Operational test of parking brake and backup alarm.

INITIAL SETUP

Test Equipment

None

Materials/Parts

None

Troubleshooting Reference

3-6

Equipment Condition

Vehicle parked on level surface.

Special Tools

None

Personnel Required

1 operator

References

None

General Safety Instructions

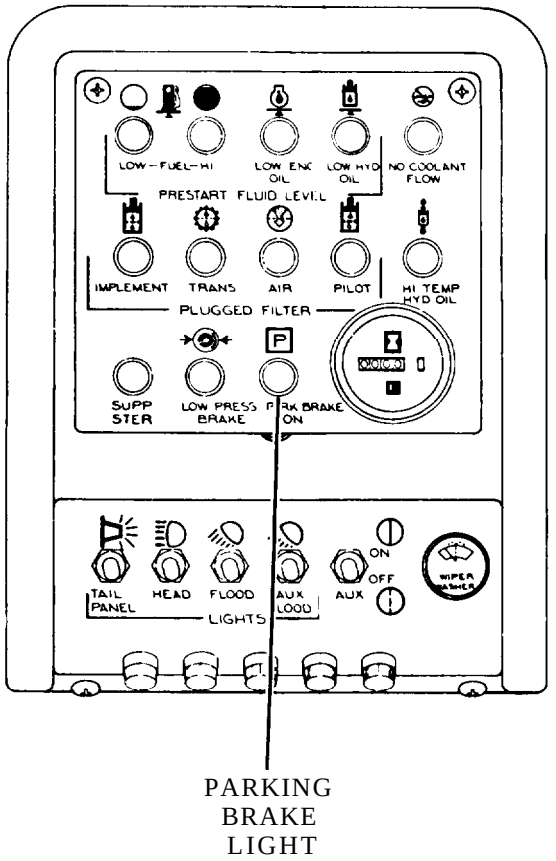
Be sure area around vehicle is clear of personnel and obstructions.

Use seat belt.

Go on to Sheet 2

TEST PARKING BRAKE AND BACKUP ALARM (CONT) (Sheet 2 of 3)

LOCATION/ITEM	ACTION	REMARKS
1. Engine	Start and idle.	
2. Parking brake control	Pull.	
3. Transmission range selector	Move to 2nd gear reverse. Observe: a. PARK BRAKE ON light comes on. b. Warning buzzer sounds. c. Backup alarm sounds.	



TA 098557

Go on to Sheet 3

TEST PARKING BRAKE AND BACKUP ALARM (CONT) (Sheet 3 of 3)

LOCATION/ITEM	ACTION	REMARKS
4. Engine speed	a. Gradually increase to full throttle. b. Decrease to low idle.	VEHICLE MUST NOT MOVE MORE THAN 5 FEET (1.5 m). **WARNING** If vehicle moves more than 5 feet (1.5 m), reduce engine speed and apply service brake.
5. Transmission shift lever	Move to neutral.	
6. Engine	Shut down.	NOTE If vehicle moved more than 5 feet (1.5 m) during test, or if warning buzzer or backup alarm did not sound, report problem to organizational maintenance.

End

APPENDIX A

REFERENCES

A-1. PUBLICATION INDEXES AND GENERAL REFERENCES

Indexes should be consulted frequently for latest changes or revisions of references given in this appendix and for new publications relating to material covered in this publication.

a. Military Publication Indexes
Consolidated Index of Army Publication and Forms . . . . . DA PAM 25-30
Index of Graphic Training Aids and Devices . . . . . .DA PAM 25-30

b. General References
First Aid for Soldiers . . . . . FM 21-11

A-2. FORMS

Refer to DA PAM 738-750, The Army Maintenance Management System (TAMMS), for instructions on the use of maintenance forms pertaining to the material. 1

A-3. OTHER PUBLICATIONS

The following publications contain information pertinent to the major item material and associated equipment.

a. Vehicle
Lubrication Order, Truck, Container Handler: Rough Terrain, 50,000 lb. Capacity . . . . . LO 10-3930-641-12

b. Camouflage
camouflage FM5-20
Color, Marking and Camouflage Painting of Military Vehicles, Construction Equipment and Materials Handling Equipment . . . . . TB 43-0209

c. Decontamination
Chemical, Biological, and Radiological (CBR) Decontamination . . . . . TM 3-220

APPENDIX A

REFERENCES (CONT.)

A-3. OTHER PUBLICATIONS (CONT)

d. General

Basic Cold Weather Manual. . . . . FM 31-70
Manual for Wheeled Vehicle Driver . . . . . FM 21-305
Northern Operations. . . . . FM 31-71
Operation and Maintenance of Ordnance Material in Cold Weather (O°F to -65°F) . . . . . FM 9-207
Procedures for Destruction of Equipment to Prevent Enemy Use . . . . . TM 750-244-3
Military Traffic Management Commandos Transportability Review . . . . . TR 80-1-19A

e. Maintenance and Repair

Organizational Care, Maintenance and Repair of Pneumatice Tires and Inner Tubes . . . . . TM 9-261O-2OO-2O
Operator's, Organizational, Direct Support and General Support Maintenance Manual for Lead-Acid Storage Batteries . . . . . TM 9-6140-200-14
Description, Use, Bonding Techniques, and Properties of Adhesives.. . . . . TB ORD 1O32
Inspection, Care, Maintenance of Antifriction Bearings . . . . . .TM 9-214
Use of Antifreeze Solutions and Cleaning Compounds in Engine Cooling Systems . . . . . TB 750-651
Materials Used for Cleaning, Preserving, Abrading, and Cementing Ordnance Material and Related Materials Including Chemicals . . . . . TM 9-247
Welding Theory and Application . . . . . .TM 9-237

f. Administrative Storage

Administrative Storage of Equipment TM740-90-1

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APPENDIX B

COMPONENTS OF END ITEM AND BASIC ISSUE ITEMS LIST

Section I. INTRODUCTION

SCOPE

This appendix lists integral components of and basic issue items for the rough terrain container handler to help you inventory items required for safe and efficient operation.

GENERAL

This Components of End Item List is divided into the following sections:

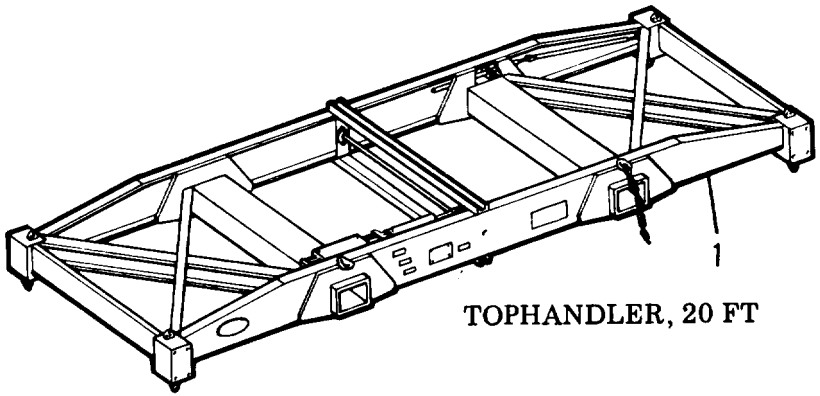
Section II. Integral Components of the End Item. These items, when assembled, comprise the container handler and must accompany it whenever it is transferred or turned in. The illustrations will help you identify these items.

Section III. Basic Issue Items. These are the minimum essential items required to place the container handler in operation, to operate it, and to perform emergency repairs. Although shipped separately packed they must accompany the container handler 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.

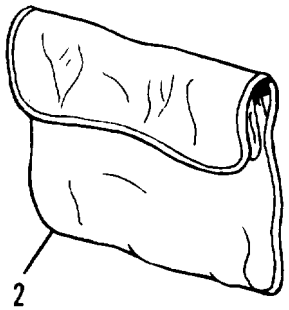
EXPLANATION OF COLUMNS

(1) ILLUSTRATION	This column is divided as follows:
(a) FIGURE NO.	Indicates the figure number of the illustration on which the item is shown.
(b) ITEM NO.	The number used to identify the item called out in the illustration.
(2) NATIONAL STOCK NUMBER	Indicates the National stock number assigned to the item and which will be used for requisitioning.
(3) PART NO.	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. The manufacturer's supply code is provided in parentheses after the part number.
(4) DESCRIPTION	Indicates the Federal item name and, if required, a minimum description to identify the item.
(5) LOCATION	The physical location of each item listed is given in this column. The units are designed to inventory all items in one area of the major area before moving on to an adjacent area.
(6) USABLE ON CODE	"USABLE ON" codes are used to help identify which component items are used on different models. This column is not used in this manual.
(7) QTY REQD	This column lists the quantity of each item required for a complete major item.
(8) QUANTITY	This column is left blank for use during an inventory. Under the RCV'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.

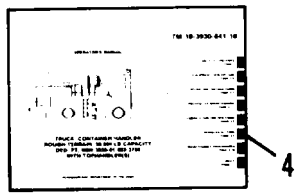
(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8) QUANTITY			
(a) FIGURE NO.	(b) ITEM NO.	NATIONAL STOCK NUMBER	PART NO.	DESCRIPTION	LOCATION	USABLE ON CODE	QTY REQD	RCV'D	DATE	DATE	DATE
			Section H. INTEGRAL COMPONENTS OF END ITEM								
1	1		E9137	Tophandler, 20 ft	Shipped and stored separately	1					
			Section HI. BASIC ISSUE ITEMS								
1	2	7520-00-559-9618	MIL-C-11743	Bag assembly, pamphlet	Behind operator's seat	1					
1	3		LO 10-3930-641-12	Lubrication Order for Rough Terrain Container Handler	Behind operator's seat	1					
1	4		TM 10-3930-641-10	Operator Manual for Rough Terrain Container Handler	Behind operator's seat	1					
1	5		1V7943	Shipping link	Stored on left, lower center of vehicle	2					
1	6	5315-01-098-3925	9K5639	Pin, HD	Shipping link	2					
1	7	5315-00-011-9198	3B4647	Pin, cotter	Shipping link	2					
1	8		TM 10-3930-641-10-HR	Hand Receipt Manual							



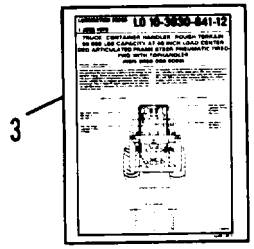
TOPHANDLER, 20 FT



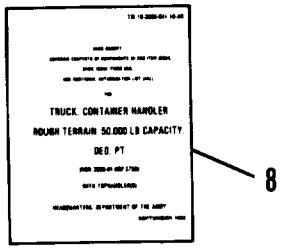
BAG ASSEMBLY, PAMPHLET



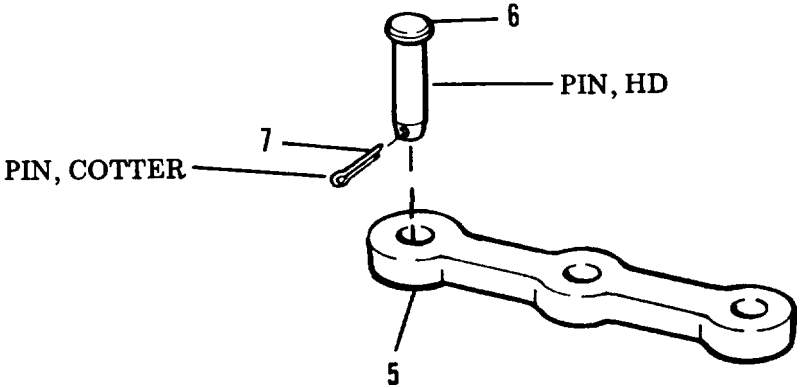
OPERATOR MANUAL



LUBRICATION ORDER



HAND RECEIPT MANUAL



SHIPPING LINK

Figure 1

TA 098505

APPENDIX C

ADDITIONAL AUTHORIZATION LIST

Section I. INTRODUCTION

1. Scope.

This appendix lists additional items you are authorized for the support of the rough terrain container handler.

2. General.

This list identifies items that do not have to accompany the rough terrain container handler and that do not have to be turned in with it. These items are all authorized to you by CTA, MTOE, TDA, or JTA.

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.

Section II.

ADDITIONAL AUTHORIZATION LIST

(1) NATIONAL STOCK NUMBER	(2) DESCRIPTION PART NUMBER & FSCM USABLE ON CODE	(3) U/M	(4) QTY AUTH
	Top Handler. 35 ft P/N E9138 52555		1
	Top Handler, 40 ft P/N E9140 52555		1

APPENDIX D

EXPENDABLE SUPPLIES AND MATERIALS LIST

Section I. INTRODUCTION

SCOPE

This appendix lists expendable supplies and materials you will need to operate and maintain the Rough Terrain Container Handler. These items are authorized to you by CTA 50-970, Expendable Items (Except Medical, Class V, Repair Parts, and Heraldic Items).

EXPLANATION OF COLUMNS

(1) ITEM NUMBER — This number is assigned to the entry in the listing and is referenced in the narrative instructions to identify the material (e.g., "Use cleaning compound, item 2, App. D").

(2) LEVEL — This column identifies the lowest level of maintenance that requires the listed item.

C — Operator/Crew
O — Organizational Maintenance

(3) NATIONAL STOCK NUMBER — This is the National stock number assigned to the item; use it to request or requisition the item.

(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.

(5) U/M (Unit of Measure) — 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.

Section II. EXPENDABLE SUPPLIES AND MATERIALS LIST

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION	(5) U/M
1	0	6850-00-181-7929	Antifreeze, Type I MIL-A-46153 (81349)	gal
2	0	6850-00-941-5054	Cleaning Compound, Solvent FED SPEC O-C-1889, 5 gal Can	gal
3	0	9150-00-935-1017	GAA Grease, Auto/Artillery (4 oz cartridge) MIL-G-10924 (81349)	ea
4	0	9150-00-190-0904	GAA Grease, Auto/Artillery MIL-G-10924 (81349)	lb
5	0	9150-00-905-9100	GO Lubricating Oil, Grade 80 MIL-L-2105 (81349)	gal
6	0	9150-00-257-5440	GOS Lubricating Oil, Subzero MIL-L-10324 (81349)	gal
7	0	9150-00-181-9858	Lubricating Oil, Engine OE 30 MIL-L-2104 (81349)	gal
8	0	9150-00-404-2372	Lubricating Oil, Engine OE 5 MIL-L-2104 (81349)	gal
8	0	9150-00-186-6668	Lubricating Oil, Engine OE 10 MIL-L-2104 (81349)	gal
9	0	9150-00-935-9807	OH T, Hydraulic Fluid, Petroleum Base MIL-H-6083 (81349)	qt

Section II. EXPENDABLE SUPPLIES AND MATERIALS LIST (CONT)

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION	(5) U/M
10	o	8030-00-965-2438	Sealing Compound, Paste, 60 ft roll MIL-S-1103O (81349)	ft
11	0	8135-00-551-1245	Tape, Adhesive PPPT60 (81348)	yd
12	0	8010-00-297-0560	Enamel, Alkyd, Lusterless OD MIL-E-5556 (81349)	gal
13	0	8010-00-598-5936	Enamel, Semigloss OD, 12 oz can (pressurized) TTE8485 (81348)	ea
14	0	9140-00-180-6084	Fuel Oil, Diesel: DF2 VV-F-80D (81348)	gal
15	0	6810-00-356-4936	Distilled Water, Technical: 5 gal bottle	gal
16	c	7920-00-205-1711	Rag, Wiping: Cotton, Class 2, Grade B 50 lb bundle DDD-R-30 (81348)	lb
17	o	6850-00-281-1985	Dry Cleaning Solvent (SD-2), 1 gal can P-D-680 (81348)	gal
18	0	7930-00-249-8036	Detergent, General Purpose: 5 lb box P-D-220 (81348)	lb
19	0	6810-00-264-6618	Sodium Bicarbonate, Technical: 1 lb box	lb

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By Order of the Secretary of the Army:

Official:

E. C, MEYER
General United States Army
Chief of Staff

J. C. PENNINGTON
Major General, United States Army
The Adjutant General

DISTRIBUTION:

To be distributed in accordance with DA Form 12-38, Operator maintenance requirements for Truck Container Handler Rough Terrain 50,000 lb Capacity.

☆ U.S. GOVERMENT PRINTING OFFICE: 1986 491-421/41200

RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL PUBLICATIONS

SOMETHING WRONG WITH THIS PUBLICATION?

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XX CO. 90TH SURT BN
WIESBADEN, GERMANY
APO NEW YORK 09352

DATE SENT 15 July 1981

PUBLICATION NUMBER	PUBLICATION DATE	PUBLICATION TITLE
TM 10-3930-641-10	JAN 1981	50,000 lb. Container Handler

BE EXACT PIN-POINT WHERE IT IS

PAGE NO	PARAGRAPH	FIGURE NO	TABLE NO
2-13			
2-46			

SAMPLE

IN THIS SPACE TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:

Lower right part of page Says to turn wiper switch Counterclockwise — Should be Clockwise.

Step 3. Callout 5 is listed as a screw. Should be a knob.

NOTE TO READER:

Your comments will go directly to the cataloger responsible for this manual, and he will prepare the reply that is returned to you. To help him in his evaluation of your recommendations, please explain the reason for each of your recommendations, unless the reason is obvious.

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For your convenience, blank "tear out" forms, preprinted, addressed, and ready to mail, are included in this manual.

PRINTED NAME GRADE OR TITLE AND TELEPHONE NUMBER
SGT. JERRY A. NELSON
PHONE 2636/823/746

SIGN HERE Sgt. Jerry A. Nelson

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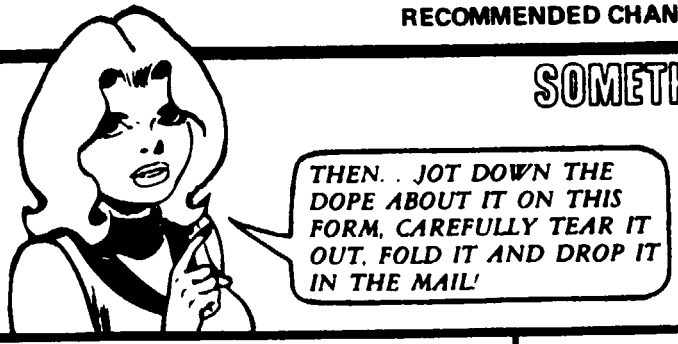

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THE METRIC SYSTEM AND EQUIVALENTS

LINEAR MEASURE

1 Centimeter = 10 Millimeters = 0.01 Meters = 0.3937 Inches
1 Meter = 100 Centimeters = 1000 Millimeters = 39.37 Inches
1 Kilometer = 1000 Meters = 0.621 Miles

WEIGHTS

1 Gram = 0.001 Kilograms = 1000 Milligrams = 0.035 Ounces
1 Kilogram = 1000 Grams = 2.2 Lb
1 Metric Ton = 1000 Kilograms = 1 Megagram = 1.1 Short Tons

LIQUID MEASURE

1 Milliliter = 0.001 Liters = 0.0338 Fluid Ounces
1 Liter = 1000 Milliliters = 33.82 Fluid Ounces

SQUARE MEASURE

1 Sq Centimeter = 100 Sq Millimeters = 0.155 Sq Inches
1 Sq Meter = 10,000 Sq Centimeters = 10.76 Sq Feet
1 Sq Kilometer = 1,000,000 Sq Meters = 0.386 Sq Miles

CUBIC MEASURE

1 Cu Centimeter = 1000 Cu Millimeters = 0.06 Cu Inches
1 Cu Meter = 1,000,000 Cu Centimeters = 35.31 Cu Feet

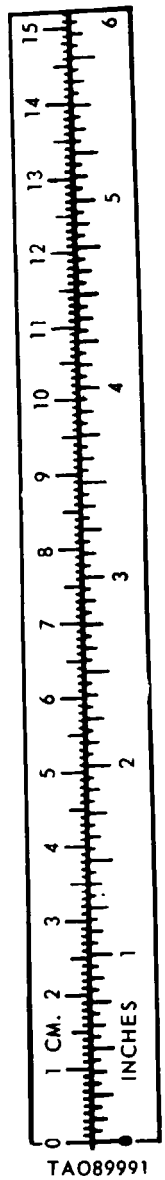
TEMPERATURE

$\frac{5}{9}(^{0}F - 32) = {}^{0}C$
212° Fahrenheit is equivalent to 100° Celsius
90° Fahrenheit is equivalent to 32.2° Celsius
32° Fahrenheit is equivalent to 0° Celsius
$\frac{9}{5}C^{0} + 32 = F^{0}$

APPROXIMATE CONVERSION FACTORS

TO CHANGE	TO	MULTIPLY BY
Inches	Centimeters	2.540
Feet	Meters	0.305
Yards	Meters	0.914
Miles	Kilometers	1.609
Square Inches	Square Centimeters	6.451
Square Feet	Square Meters	0.093
Square Yards	Square Meters	0.836
Square Miles	Square Kilometers	2.590
Acres	Square Hectometers	0.405
Cubic Feet	Cubic Meters	0.028
Cubic Yards	Cubic Meters	0.765
Fluid Ounces	Milliliters	29.573
Pints	Liters	0.473
Quarts	Liters	0.946
Gallons	Liters	3.785
Ounces	Grams	28.349
Pounds	Kilograms	0.454
Short Tons	Metric Tons	0.907
Pound-Feet	Newton-Meters	1.356
Pounds per Square Inch	Kilopascals	6.895
Miles per Gallon	Kilometers per Liter	0.425
Miles per Hour	Kilometers per Hour	1.609

TO CHANGE	TO	MULTIPLY BY
Centimeters	Inches	0.394
Meters	Feet	3.280
Meters	Yards	1.094
Kilometers	Miles	0.621
Square Centimeters	Square Inches	0.155
Square Meters	Square Feet	10.764
Square Meters	Square Yards	1.196
Square Kilometers	Square Miles	0.386
Square Hectometers	Acres	2.471
Cubic Meters	Cubic Feet	35.315
Cubic Meters	Cubic Yards	1.308
Milliliters	Fluid Ounces	0.034
Liters	Pints	2.113
Liters	Quarts	1.057
Liters	Gallons	0.264
Grams	Ounces	0.035
Kilograms	Pounds	2.205
Metric Tons	Short Tons	1.102
Newton-Meters	Pound-Feet	0.738
Kilopascals	Pounds per Square Inch	0.145
Kilometers per Liter	Miles per Gallon	2.354
Kilometers per Hour	Miles per Hour	0.621



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