TM 5-3820-205-10-2

OPERATOR'S MANUAL

FOR

CRUSHER, JAW: DIESEL AND
ELECTRIC DRIVEN, WHEEL MOUNTED,
PNEUMATIC TIRES, 75 TON PER HOUR
EAGLE CRUSHER MODEL 5157 AND 5157A
(NSN 3820-00-783-7311)
EAGLE CRUSHER MODEL 5157B
(NSN 3820-00-880-0540)

COMPONENT OF

CRUSHING AND SCREENING
PLANT: DIESEL AND ELECTRIC DRIVEN,
WHEEL MOUNTED, 75 TON PER HOUR

This manual supersedes TM 5-3820-205-10-2, dated 24 January 1964, and all changes.

Approved for public release; distribution is unlimited

HEADQUARTERS, DEPARTMENT OF THE ARMY
30 SEPTEMBER 1991

SAFETY PRECAUTIONS

BEFORE OPERATION

Always report or correct any condition that may result in injury to personnel if operation is to be continued.

Before starting the engine or operating any of the jaw crusher mechanism, ensure that no loose bars, tools, or parts are laying in or on any part of the equipment as they could cause serious damage to the equipment or injury to personnel.

Install a suitable ground rod and lead at the power source and ground the jaw crusher frame before connecting the power source to the main power input receptacle at the main control panel. Death by electrocution could result from improperly grounded equipment.

Never fill the fuel tank while the engine is running. Ensure that there are no open flames which may ignite the fuel vapor while filling the tank. Always provide a metal-to-metal contact between the fuel container and the fuel tank to avoid igniting vapor with a static spark.

When servicing batteries, do not smoke or allow any flames or sparks in the vicinity. Batteries generate hydrogen, a highly explosive gas.

Battery acid (electrolyte) is extremely dangerous. Serious injury to personnel may result if battery acid contacts skin or eyes.

Do not operate the jaw crusher without the moveable jaw drive pulley and belt screen guard and the moveable jaw pit guard chains installed.

Ensure that no one is on or near any moving part of the jaw crusher before engaging the engine clutch or starting any of the components. Serious injury or death could result.

If NBC expose is suspected, all engine air cleaner air filter media should be handled by personnel wearing protective equipment. Consult your NBC Officer or NBC NCO for appropriate handling or disposal procedures.

DURING OPERATION

Always report or correct any condition that may result in injury to personnel if operation is to be continued.

Use extreme caution while removing the radiator cap from an overheated engine. Remove radiator cap slowly and only when engine is cool (below 120°F) or painful burns could result.

Do not add cold coolant to a hot engine or engine may be damaged. Allow engine to cool (below 120°F) before adding coolant.

Never fill the fuel tank while the engine is running. Ensure that there are no open flames that may ignite the fuel vapors while the tank is being filled.

At all times attempt to keep one hand on the guard rail or guard chain while the jaw crusher is in operation. The shaking motion of the jaw crusher could cause a misstep, throwing personnel into the machinery or to the ground causing serious injury or death.

Starting fluid is highly explosive and toxic. Handle starting fluid spray cans with extreme caution to prevent fire, explosion, and personal injury.

Do not operate the equipment if the ground connection is loose or faulty. Death by electrocution could result by personnel contacting ungrounded equipment, should some electrical fault develop in the power equipment or lines.

If NBC expose is suspected, all engine air cleaner air filter media should be handled by personnel wearing protective equipment. Consult your NBC Officer or NBC NCO for appropriate handling or disposal procedures.

AFTER OPERATION

When filling the fuel tank, do not smoke or use an open flame in the vicinity. Maintain a metal-to-metal contact between filling nozzle and the fuel tank.

When servicing batteries, do not smoke or allow any flames or sparks in the vicinity. Batteries generate hydrogen, a highly explosive gas.

The moveable jaw mechanism does not stop immediately when the engine clutch is disengaged. Do not attempt any maintenance, adjustments, or servicing until the moveable jaw has come to a complete stop.

Use extreme caution while removing the radiator cap from an overheated engine. Remove radiator cap slowly and only when engine is cool (below 1200F) or painful burns could result.

Do not add cold coolant to a hot engine or engine may be damaged. Allow engine to cool (below 120 F) before adding coolant.

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TECHNICAL MANUAL
TM 5-3820-205-10-2

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington D.C., 30 September 1991

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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, MI 48397-5000. A reply will be furnished to you.

TABLE OF CONTENTS

* This manual supersedes TM 5-3820-205-10-2, dated 24 January 1964, and all changes..

TABLE OF CONTENTS (Con't)

CHAPTER 1
INTRODUCTION

Section I. GENERAL

1. Scope

a. These instructions provide information on the operation, lubrication, and preventive maintenance checks and services of the equipment, accessories, components, and attachments for the Eagle Jaw Crusher Models 5157, 5157A, and 5157B.

b. Appendix I contains a list of publications applicable to this manual. Appendix II contains the basic issue items authorized for use by the operator. The maintenance allocation chart is located in TM 5-3820-205-20-2.

c. Numbers in parentheses on illustrations indicate quantity. Numbers preceding nomenclature callouts indicate the preferred maintenance sequence.

d. 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 or DA Form 2028 (Recommended Changes to Publications and Blank Fonns) direct to: Commander, U.S. Army Tank-Automotive Command, ATIN: AMSTA-MB, Warren, MI 48397-5000. A reply will be furnished to you.

2. Maintenance Forms, Records, and Reports

DA forms and procedures used for equipment maintenance will be only those prescribed by DA Pam 738-750, The Army Maintenance Management System (TAMMS).

Section II. DESCRIPTION AND DATA

3. Description

The Eagle Crusher Models 5157, 5157A, and 5157B (figs. 1 and 2) are diesel engine driven, movable jaw-type, primary crushing and screening units used in quarry rock operation or gravel pit operation in conjunction with other major units. It can also be used by itself to produce fill or base course jaw crusher run material. The jaw crusher is a self-contained unit with the exception that it must be supplied 220/440 volts from a power source to operate the motors that actuate the conveyors and scalper vibrating screen. During operation, the material to be crushed is fed into the pan feeder assembly (fig. 1), and is conveyed by the apron to the scalper vibrating screen assembly (fig. 2), where it is separated by the grizzly bars and a preselected screen. A two-level operator's platform provides access to the operator's control box and engine controls. The basic components are the engine, pan feeder assembly, scalper vibrating screen assembly, discharge conveyor, and the jaw crusher assembly.

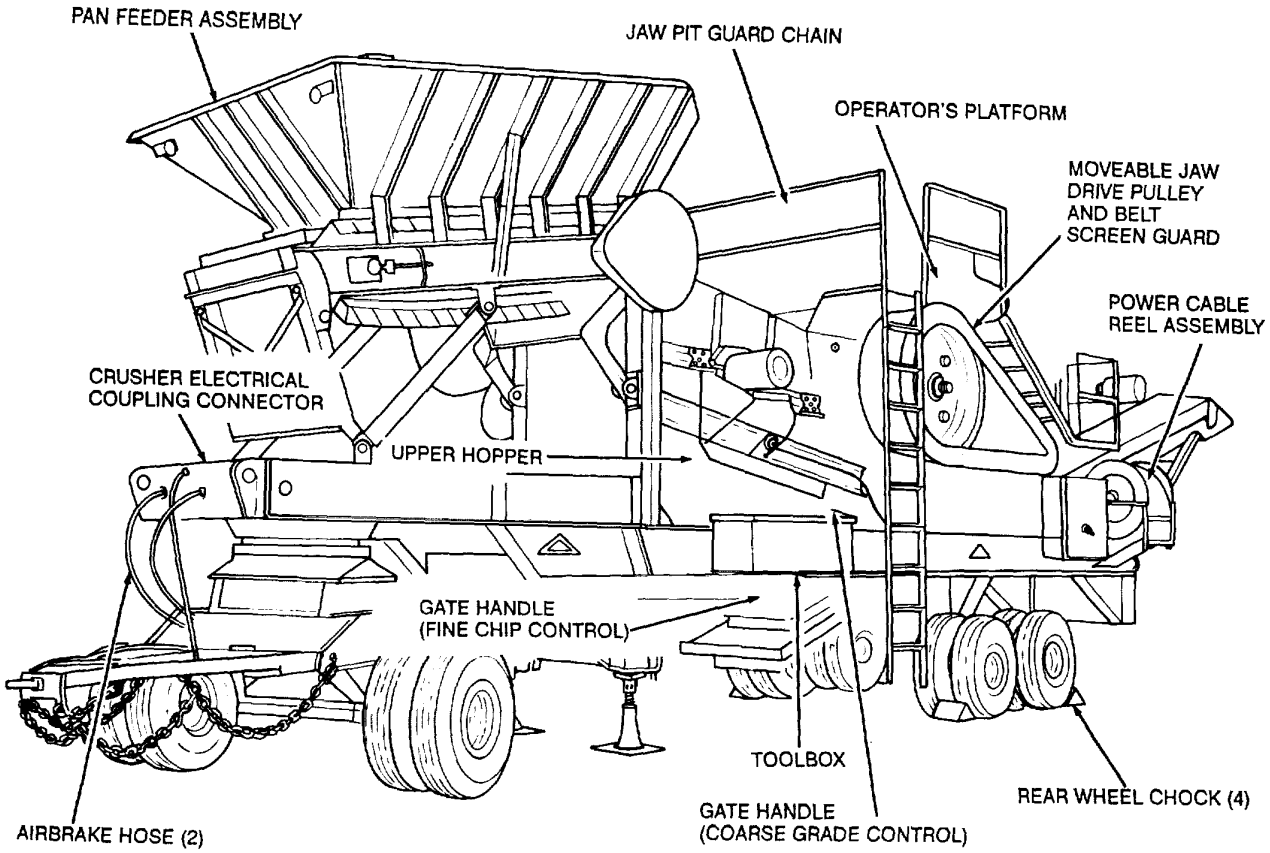

Figure 1. Jaw crsuher, left front, three-quarter view.

4. Aggregate Crushing and Screening Plant

The jaw crushers illustrated on figures 1 and 2 may be a component of a crushing and screening plant. The plant must be set up on firm level ground and as near as possible to the source of material to be processed and positioned so the conveyors may expel the processed aggregate to the desired location for stockpiling or hauling. Figure 3 illustrates a typical crushing and screening plant layout where the jaw crusher may be utilized as a component. The positions of the various components may be changed as required. For example, only the final discharge conveyor is absolutely necessary to operation; the remaining three components indicated are illustrated only where the conveyors could be used at the discretion of the operator and crew. The power source can be either a generator set that will meet the requirements or powerline current. The direction of flow of the aggregate processed is also shown on figure 3.

5. Identification and Tabulated Data

a. Identification. The jaw crusher has 12 identification and instruction plates.

(1) Corps of Engineers data plate. Located on the left front of the jaw crusher frame. Provides the description, serial number, manufacturer, model, and dimensions of the jaw crusher.

(2) Engine identification plate. Located on the left side of the engine. Provides manufacturer, model, and serial number.

(3) Transportation data plate. Located on the left front of the jaw crusher frame. Provides center of gravity, bogie weight, and axle weight.

(4) Power take off clutch identification and instruction data plate. Located on top of the power takeoff housing at the rear of the engine. Provides the manufacturer, model, serial number, operation, adjustment, and lubrication instructions.

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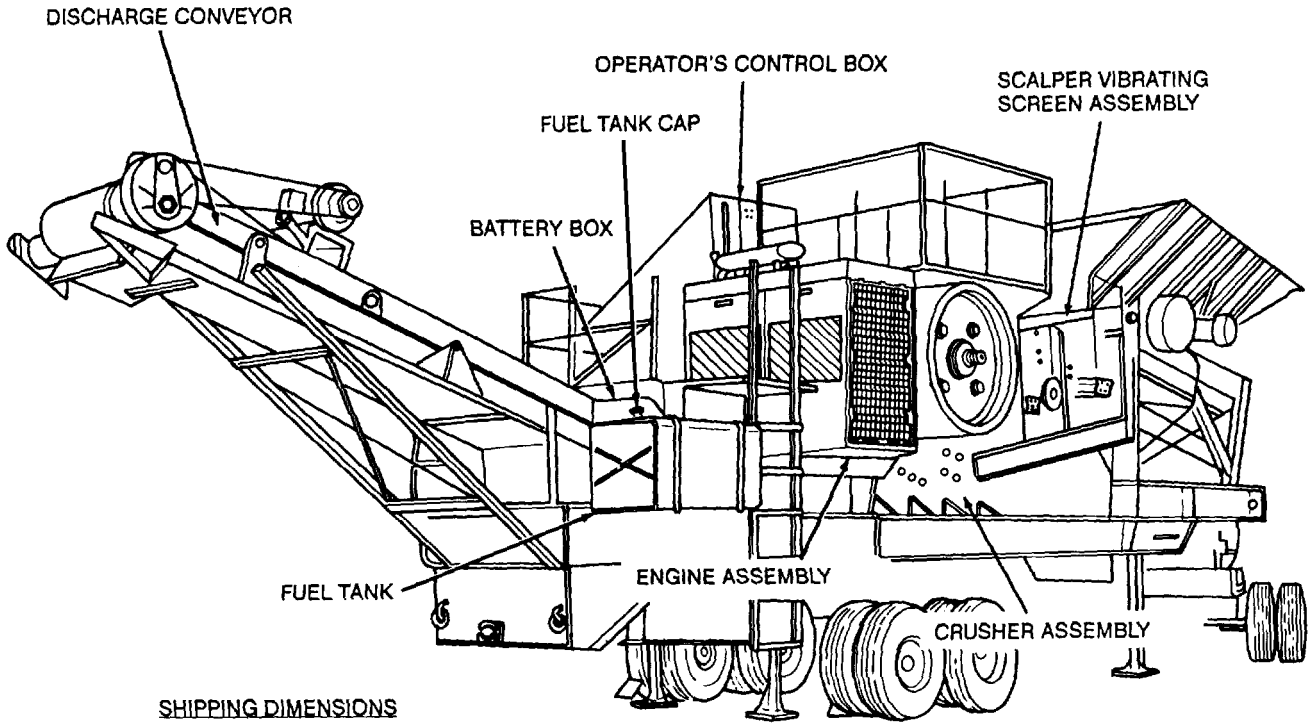

SHIPPING DIMENSIONS

	MODEL 5157/5157A	*MODEL 5157B*
OVERALL LENGTH	489 IN.	483 IN.
OVERALL HEIGHT	144 IN.	143 IN.
OVERALL WIDTH	108 IN.	106 IN.
OVERALL WEIGHT	71,400 LB.	72,200 LB.
CUBAGE	4428 CU FT	4290 CU FT
WHEEL BASE	284 IN.	275 ½ IN.

Figure 2. Jaw crusher, right rear, three-quarter view and shipping dimersions.

(5) Main electrical control panel identification and instruction data plate. Located on the upper left corner of the panel inside the main electrical control box. Provides manufacturer, line volts, phase, cycle, control volts, and connection diagram number.

(6) Trailer identification plate. Located on the left front of the trailer frame. Provides information on manufacturer, model, and serial number.

(7) Dolly identification plate. Located on the front of the dolly frame. Provides the manufacturer, model, and serial number.

(8) Ground rod caution plate. Located on the main electrical control panel box. Provides a caution note regarding suitable grounding.

(9) Scalper vibrating screen assembly identification plate. Located on the right side of the scalper vibrating screen assembly. Provides manufacturer, model, serial number, speed, lubrication, and operating instructions.

(10) Pan feeder reducer gearbox identification and data plate. Located on the reducer gearbox. Provides manufacturer, model, class, ratio and lubrication instructions.

(11) Main discharge conveyor reducer gearbox identification and data plate. Located on the reducer gearbox. Provides information on manufacturer, model, class, ratio, and lubrication.

(12) Electric motors identification and data plates. Located on the tops of the electric motors. Provides the manufacturer, model, serial number, horsepower, voltage, and amperes.

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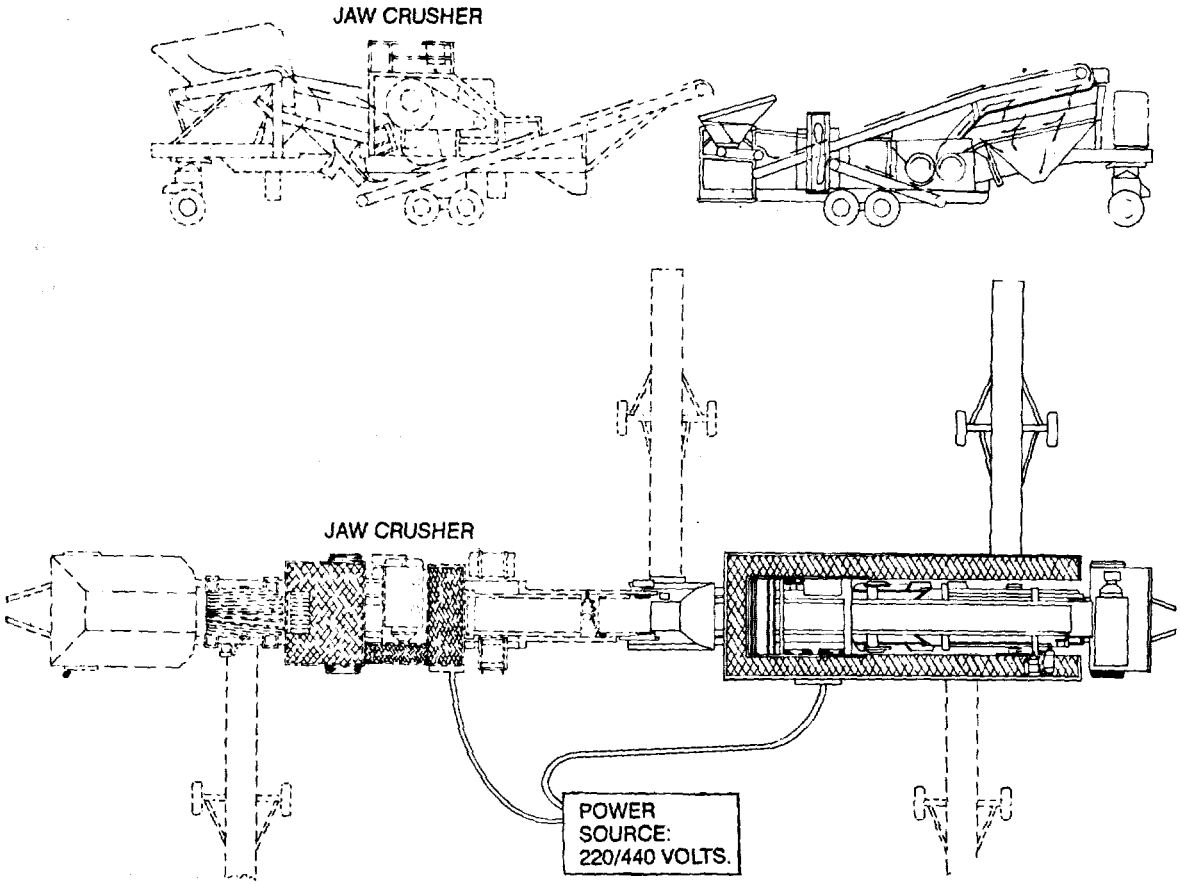

Figure 3. Aggregate flow diagram and typical crushing and screening plant layout.

b.Tabulated Data ..... Model

(1) General

Manufacturer ..... Eagle Crusher Co., Inc.
Model ..... 5157, 5157A, and 5157B
Type ..... Jaw..
Jaws ..... 20 x 36 in.
Plant unit function ..... Primary

(2) Engine

Manufacturer ..... Cummins Engine Co., Inc.
Model N855/P235
Specification No DS-4217
Type ..... Diesel
Cycles 4
Number of cylinders 6
Number of cylinders 6
Rated horsepower ....195 hp (horsepower) at 1800 rpm (revolutions per minute)
Oil pressure ..... 50-70 psi (pounds per square in.) at 1800 rpm
Brake horsepower ..... 235 hp at 2100 rpm
Cooling system:
Type..... Liquid
Tempera..... Liquid
Temperature range ..... 175°F-195°F
Electrical system:..... Manufacturer
Operating voltage ..... 24 volts
Number of batteries ..... 4 (series-parallel connected)
Type of batteries ..... Storage, 12 volt, ' :ell {type designation 6TN)
Type of ground ..... Negative
Air cleaner type ....Dry
Clutch type ..... Friction, dry, positive action
....

(3) Jaw crusher assembly.....

Manufacturer ..... Eagle Crusher Co., Inc.
Model ..... SK ...
Size of discharge opening ..... 1/-5 in.
Revolutions per minute ....
(mainshaft speed) ..... 250..
Primary gear reduction

(4) Vibrating scalper screen assembly

Manufacturer ..... Allis-Chalmers ?4'Iaufacturing Co.
Model ....S
Type ....Repl-flo
Size ....3 x 6 DD
Maximum speed ....900 rpm

(5) Pan feeder assembly

.....
Manufacturer ..... Eagle Crusher Co., Inc.
Model ..... F-4525 (Model 5157, 5157A) and F-4525A (Model 5157B)
Type ..... Apron feeder
....

(6) Main conveyor

Manufacturer ....Eagle Crusher Co., Inc.
Model ....4526 (Model 5157, 5157A) and 4526A (Model 5157B) ....
Type ....Belt
Feet per minute 300

(7) Trailer

Manufacturer ....Fruehauf Trailer Co.
Model ....Primary trailers

(8) Dolly Cubage ..... 4290 cu ft
Manufacturer ..... Fruehauf Trailer Co.
5930 ..... (Model 5157, 5157A) and 5930-A (Model 5157B)

(9) Electric motors

Manufacturer ..... General Electric Corp.
Model..... 5KG4256B2
Horsepower 10
Cycles 60
Revolutions per minute 1745
Voltage 208-220/440
Phase 3
Amperes 27.4/13.7
Type ..... KG
Time rating ..... Continuous

(10) Jaw reducer pan feeder assembly

Manufacturer ..... General Electric Corp.
..... Model 7GT215DONA01
Class 1
Horsepower ..... 16.9 at 1750 rpm
Ratio 15:1
Code ..... W

(11) Gear reducer main conveyor

General Electric Corp.
Model 7GT315FDNA01
Class 1
Horsepower ..... 44.0 at 1750 rpm
Ratio 15:1
Code ..... NV

(12) Capacities

Air cleaner..... Dry
Radiator ..... 64 qt (quarts)
Oil:
Crankcase only ..... 28 qt
Oil filter (bypass) ..... 0.7 qt
Oil filter (full-flow) ..... 2 qt
Pan feeder:

box, ... 8 qt
Secondary gear
reduction box ..... 4 qt
Discharge conveyor:
Gear reduction box ..... 3 qt
Pitman ..... 80 lb (pounds)
Fuel tank ..... 100 gal. (gallons)
Hydraulic tank (tele-
scopic cylinder
retracted)..... 40 qt
Tires ..... 100 psi

(13) Dimensions and weights

5157, 5157A:
Overall length..... 489 in.
Overall height..... 144 in.
Overall width ..... 108 in.
Overall weight ..... 71,400 lb
5157B:
Overall length ..... 483 in.
Overall height..... 143 in.
Overall width..... 106 in.
Overall weight ..... 72,200 lb

Wheel base ..... 275; in.

(14) Adjustment data

Movable jaw..... 1½-5in.between low point in valley on one jaw and high in point of ridge on other.

Drive component belts:

Crusher drive belt ..... 1 in. min (minimum) deflection, ... 3 in. max (maximum) deflection.

Pan feeder drive belt ..... 1 in. deflection

Scalper vibrating screen drive belt ..... 1 in. deflection

Main conveyor drive belt .. 1, in. deflection

(15) Production tonnage capacity (setting in ratio of capacity) .....

1½ in. ..... 30 tph (ton per hour)

2 in ..... 45 tph

2½ in ..... 60 tph

3 in. ..... 75 tph

4 in ..... 120 tph

5 in. ..... 150 tph

(16) Towing speed

Highways 20 mph (miles per hour)

Terrain 10 mph

6. Differences Between Models

This manual covers the Eagle Model 5157 Jaw Crusher, Eagle Model 5157A Jaw Crusher, and Eagle Model 5157B Jaw Crusher. Where differences exist between serial number ranges, the serial number range is specified in the applicable section of this manual.

CHAPTER 2
INSTALLATION AND OPERATION INSTRUCTIONS

Section I. SERVICE UPON RECEIPT

7. Unloading the Jaw Crusher

The operator may assist in unloading the jaw crusher from the common carrier. The operator will help remove the tie-down cables, strapping, blocking, etc. which secure the jaw crusher on the carrier. Organizational maintenance will perform the remaining operations.

8. Inspection and Servicing Equipment

Note: Ensure that equipment is completely deprocessed before servicing. Ensure that preservatives have been removed from items such as crankcase, fuel tank, and gearboxes.

a. Perform. the Operator/Crew Preventive Maintenance Checks and Services (para 32).

b. Make a complete visual inspection to see that the required tools, repair parts, publications, accessories, and attachments are with the jaw crusher and are in serviceable condition.

c. Visually inspect the entire jaw crusher for loss of parts or damage which may have occurred during loading, shipment, or unloading.

d. Inspect brake hoses, electric cables, and wiring for breaks, cuts, damaged or missing connections, and hardware.

e. Check tires for proper inflation of 100 psi. Inspect tires for cuts, breaks, or other damage.

f. Inspect all lights for proper operation.

g. Report all damage and deficiencies to organizational maintenance.

h. Refer to Table 1 for a complete list of maintenance and operating supplies required for initial operation of the jaw crusher.

9. Installation or Setting-Up Instructions

a. Locate the jaw crusher on a flat or leveled surface. If necessary, use any suitable equipment such as a bulldozer to level the site. Plan the site so there will be no obstructions to trucks or other hauling vehicles going to and from the plant. Refer to figure 3 for suggested placement of plant components. After the jaw crusher is located, level the area immediately under the jaw crusher frame for cribbing.

b. Remove the wheel chocks from their brackets on the main frame above the rear wheel and securely block the rear wheels (fig. 1).

c. The jaw crusher is equipped with four mounted, screw-type leveling jacks. Position the leveling jacks in the jack pads (fig. 4). If the ground is soft or provides a poor bearing surface, place timbers or other suitable supports under the jack pads.

Caution: Install the leveling jacks and cribbing so that jaw crusher will be level both lengthwise and crosswise, and the weight of the jaw crusher is removed from the wheels and axles. Inaccurate leveling may cause the drive belts and conveyor belts to run off, material to travel to one side of the screen, and rubber mountings of the vibrating screen to twist, resulting in damage to equipment.

d. Level the trailer frame lengthwise. Check in several places to avoid having a twist or sag in the frame, and adjust the leveling jacks accordingly to prevent this. Level the trailer crosswise at the front and rear of the plant. Accuracy in leveling is very important because a twist in a plant improperly leveled may cause the drive belts and conveyor belts to run off the pulleys, material to travel to one side of the screen, and the rubber mountings of the vibrating screen to twist.

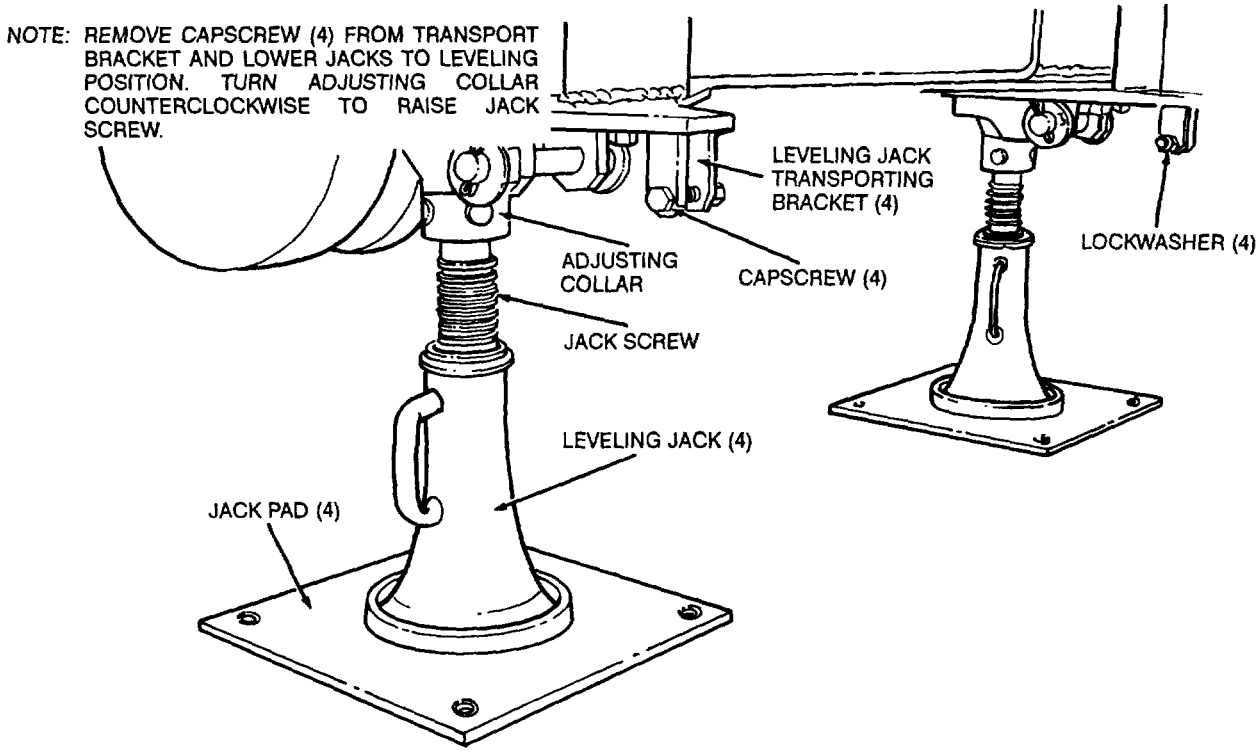

Figure 4. Leveling jacks, installed view.

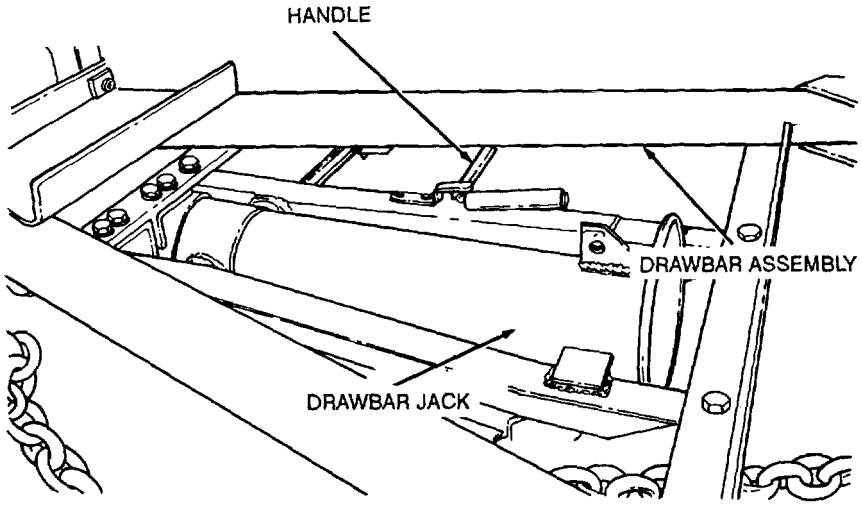

Figure 5. Drawbar leveling jack, stowed position, Serial numbers 2090 through 2129.

Table 1. Maintenance and Operating Supplies

(1) Item	(2) Component Application	(3) National Stock Number	(4) Description	(5) Quantity Required For Initial Operation	(6) Quantity Required for 8 Hrs Operation	(7) Notes
1	0101 CRANKCASE		OIL, LUBRICATING: 55 gal. drum as follows:			(1) Includes quantity of oil to fill engine system as follows:
		9150-00-189-6729 (2)	OE/HDO 30	30 qt (1)	(3)	Crankcase—28 qt
		9150-01-152-4119 (2)	OE/HDO 15/40	30 qt (1)	(3)	Full-flow—2 qt
		9150-00-186-6685 (2)	OE/HDO 10	30 qt (1)	(3)	Bypass—0.7 qt
		9150-00-491-7197 (2)	OEA	30 qt (1)	(3)	(2) See TB 703-1 for additional data and requisitioning
2	0306 TANK, FUEL		FUEL OIL, DIESEL bulk as follows: procedure.			
		9140-00-286-5283 (2)	DF-A	100 gal. (4)	76 gal. (5)	(3) See LO 5-3820-205-12-2 for grade application and replenishment intervals.
		9140-00-286-5286 (2)	DF-1	100 gal. (4)	76 gal. (5)	
		9140-0~286-5294 (2)	DF-2	100 gab (4)	76 gal. (5)	
3	0311 ENGINE STARTING AIDS	6850-00-823-7861	STARTING FLUID: spray can	1 can		(4) Tank capacity.
4	4308 TANK, HYDRAULIC OIL		OIL, LUBRICATING: 55 gal. drum as follows:			(5) Average fuel consumption is 9.5 gal. per hour of continuous operation.
			OE/HDO 10	40 qt	(3)	
		9150-00-186-6685 (2)	OEA	40 qt	(3)	
		9150-00-491-7197 (2)				(6) Refer to organizational maintenance for quantities ambient temperatures specific
5	0501 RADIATOR	9150 00 491 7197 (2)	WATER ANTIFREEZE: 55 gal. drums as follows:	64 qt		
			Ethylene Glycol	(6)	(6)	,
		6850-00-181-7940	Compound Arctic	(6)	(6)	gravities, and replemshment.
6	7506 GEAR ASSEMBLY CONVEYOR DRIVE i e	6850-00-174-1806	OIL, LUBRICATING (3)	3 3/4 qt	(3)	(7) Use same grease prescribed in
7	7512 GEAR ASSEMBLY, FEEDER DRIVE		OIL, LUBRICATING (3)	8 qt	(3)	
8	7512 GEAR HOUSING FEEDER DRIVE		OIL, LUBRICATING GEAR: 5 gal. drum as follows: GO 80/90 4 qt(3)			
		9150-01-035-5393 (2)	GO 75	4 qt	(3)	
9	7521 PITMAN	9150-01-035-5391 (2)	GREASE, AUTOMOTIVE AND ARTILLERY: 35 lb pail: GAA80 lb 4 lb			
10	GREASE POINTS	9150-01-197-7692	GREASE AUTOMOTIVE AND ARTILLERY (7) 4 lb 1 lb			

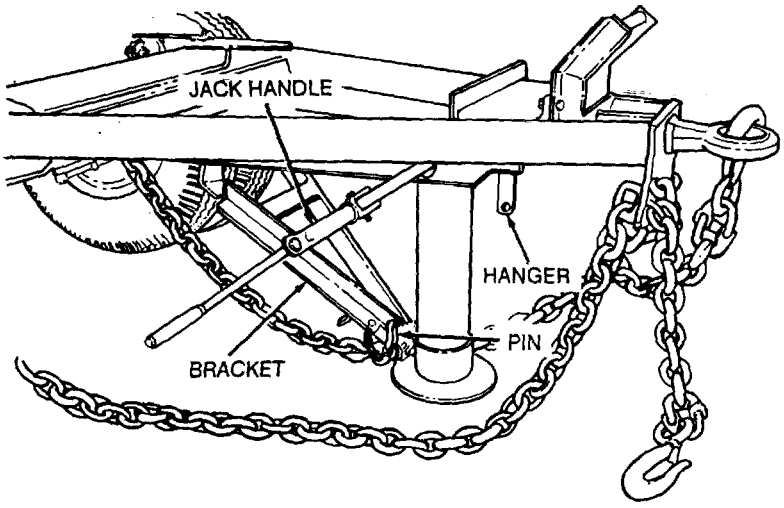

Figure 6. Drawbar leveling jack, installed position, Serial numbers 2090 through 2129.

e. Crib the jaw crusher by raising the front end of the jaw crusher by turning the front screw jacks until the frame is level. Then build the cribbing solidly up to the frame and screw the jacks back a few turns allowing the weight to rest on the cribbing. Crib the rear axles in the same manner.

f. Raise and secure the pan feeder and knee brace in operating position (figs. 7-10).

NOTE: TO ELEVATE HOPPER, TURN VALVE HANDLE TO THE RIGHT AND OPERATE HYDRAULIC PUMP HANDLE FROM SIDE TO SIDE UNTIL PAN FEEDER IS IN OPERATING POSITION AND CAN BE BOLTED TO THE UPRIGHT.

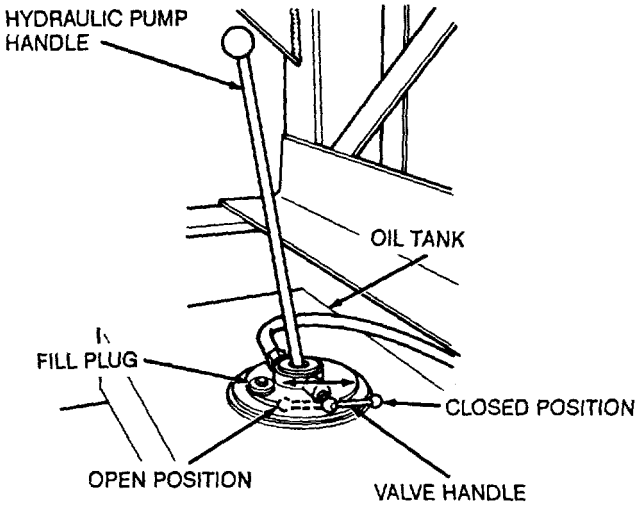

Figure 7. Hydraulic pump.

Figure 7. Hydraulic pump.

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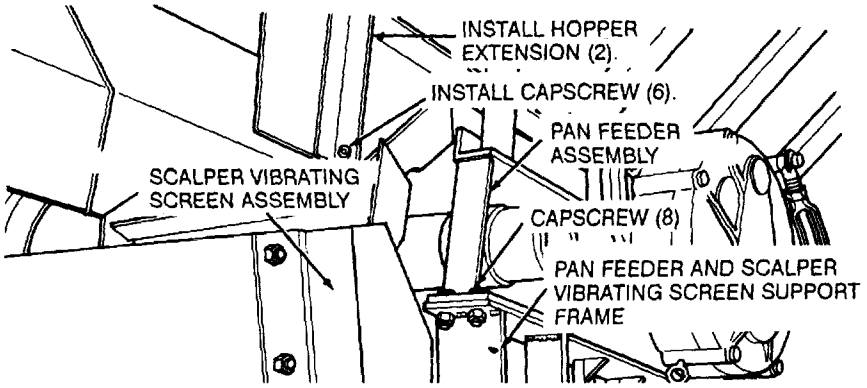
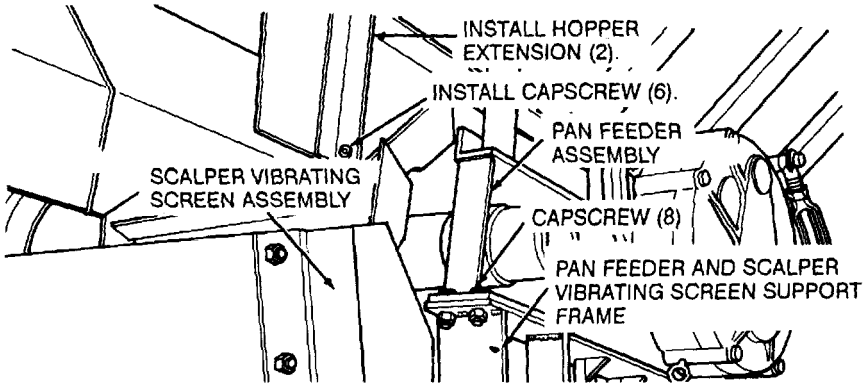


NOTE: INSTALL CAPSCREWS TO SECURE REAR OF PAN FEEDER ASSEMBLY TO PAN FEEDER AND SCALPER VIBRATING SCREEN SUPPORT FRAME.

CAUTION: REMOVE CAPSCREW (6) AND HOPPER EXTENSION (2) BEFORE LOWERING FEEDER PAN ASSEMBLY.

Figure 8. Pan feeder rear support.



NOTE: INSTALL CAPSCREWS TO SECURE REAR OF PAN FEEDER ASSEMBLY TO PAN FEEDER AND SCALPER VIBRATING SCREEN SUPPORT FRAME.

CAUTION: REMOVE CAPSCREW (6) AND HOPPER EXTENSION (2) BEFORE LOWERING FEEDER PAN ASSEMBLY.

Figure 9. Pan feeder front support.

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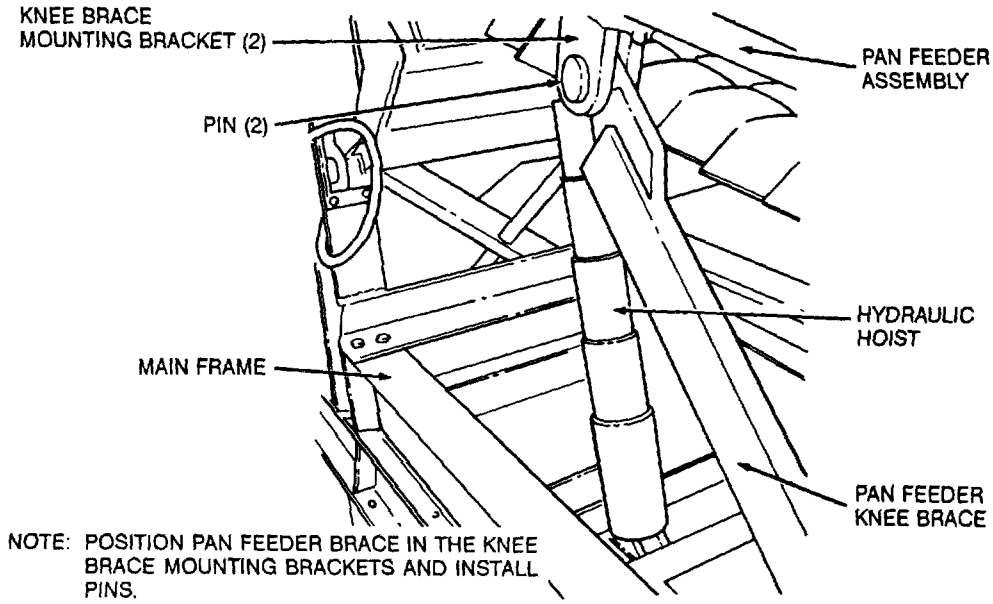

Figure 10. Pan feeder knee braces.

g. Disconnect the hydraulic hoist from the pan feeder (fig. 11). Turn the valve handle on the hydraulic pump counterclockwise to the OPEN position (fig. 7) and allow the hydraulic hoist to return to the lowered position.

h. Use a suitable lifting device and lift the discharge conveyor into operating position (fig. 12). Install the discharge conveyor support frame and head belt scraper (figs. 12 and 13). Adjust main conveyor drive belt (para 79).

i. Raise and secure the operator's platform guard rails (fig. 14).

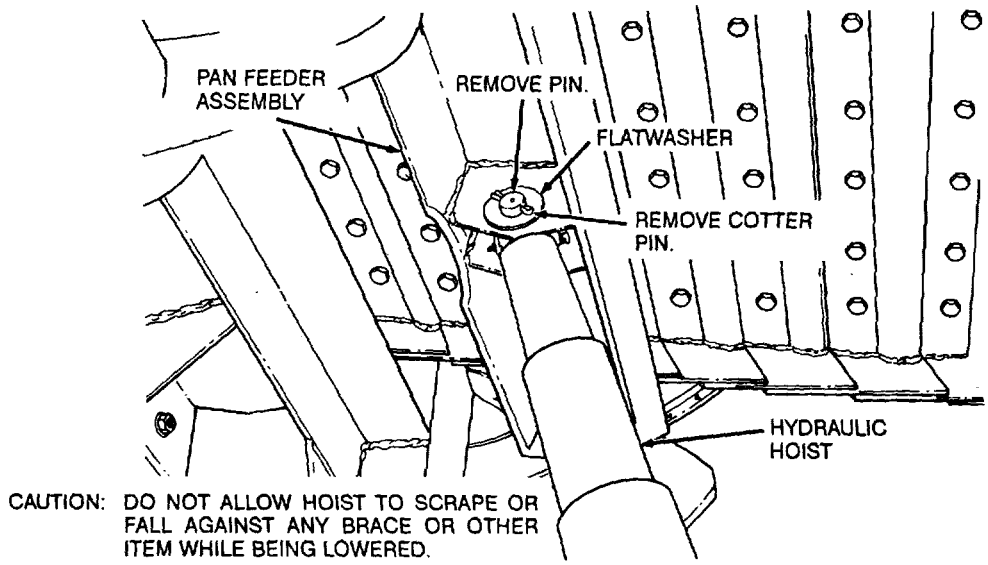

Figure 11. Hydraulic hoist, installed view.

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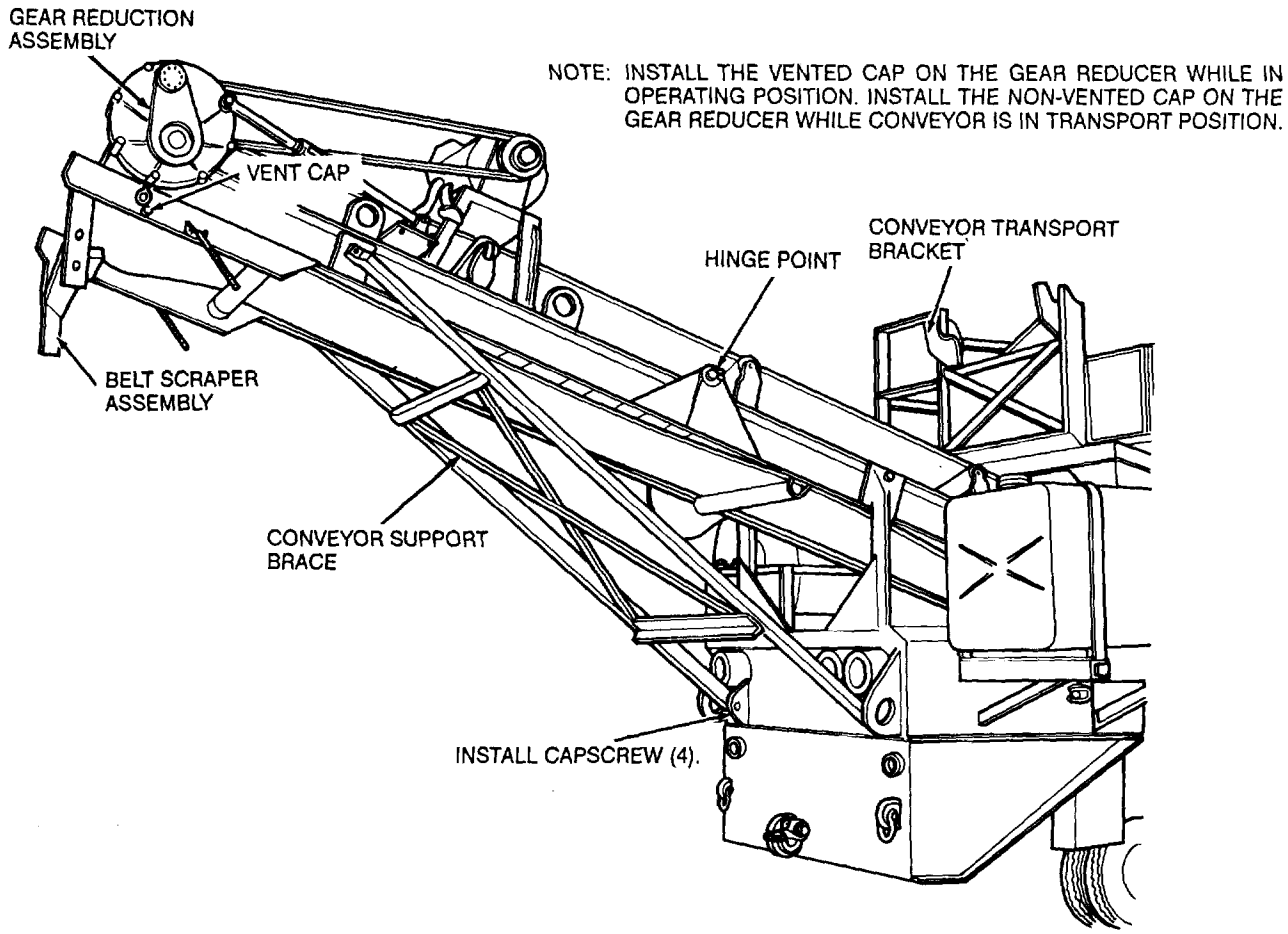

Figure 12. Discharge conveyor, operating position.

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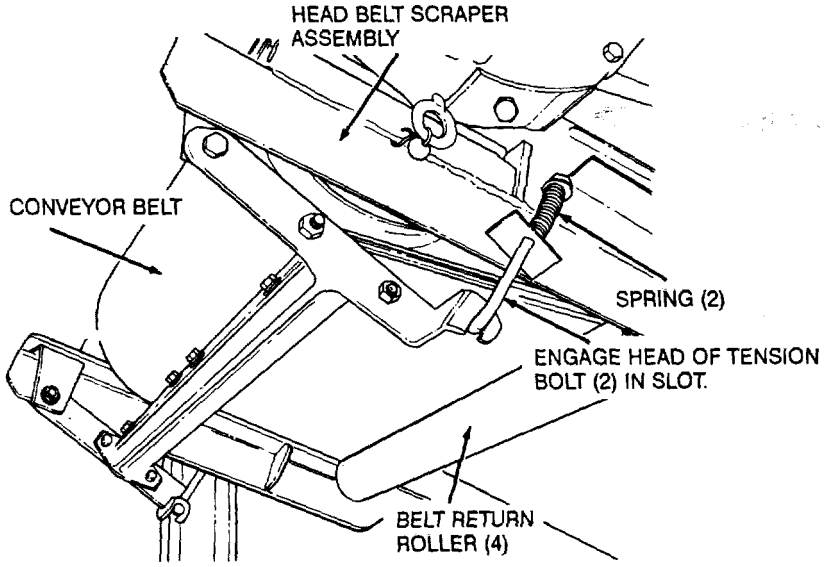


Figure 13. Head belt scraper, installed view.

j. Remove the jaw pit guard and chain from the toolbox (fig. 1) and install on operator's platform (fig. 14).

k. The vibrating screen for the jaw crusher is available with) in. mesh or X in. mesh. Should the screen that is installed in the jaw crusher be of the wrong mesh for initial operation, refer to paragraph 73 for screen removal and installation.

I. The jaw crusher jaws can be adjusted from 1X-3 in. opening. The opening is measured between the jaws from the lowest point in the valley between the ridges on one jaw to the highest point on the ridge of the opposite jaw. The measurement must be taken at the lower opening between jaws. To adjust the jaws, refer to paragraph 72.

m. Remove the ground rod assemblies from the toolbox (fig. 1) and assemble the rod. Attach one end of the ground cable to the clip on the rod, and the other end of the ground cable securely to a point on the jaw crusher frame (fig. 15).

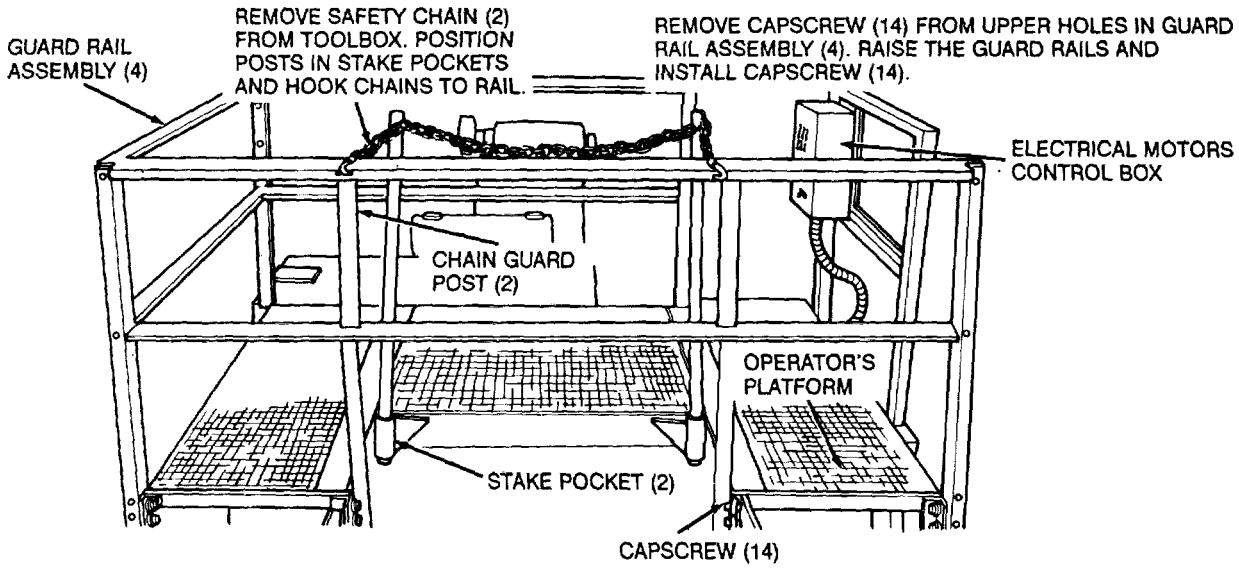


Figure 14. Operator's platform guard rails, installed view.

NOTE: USE INTERNAL-EXTERNAL TOOTH WASHERS FOR SECURING GROUND ROD ASSEMBLY TO CRUSHER FRAME.

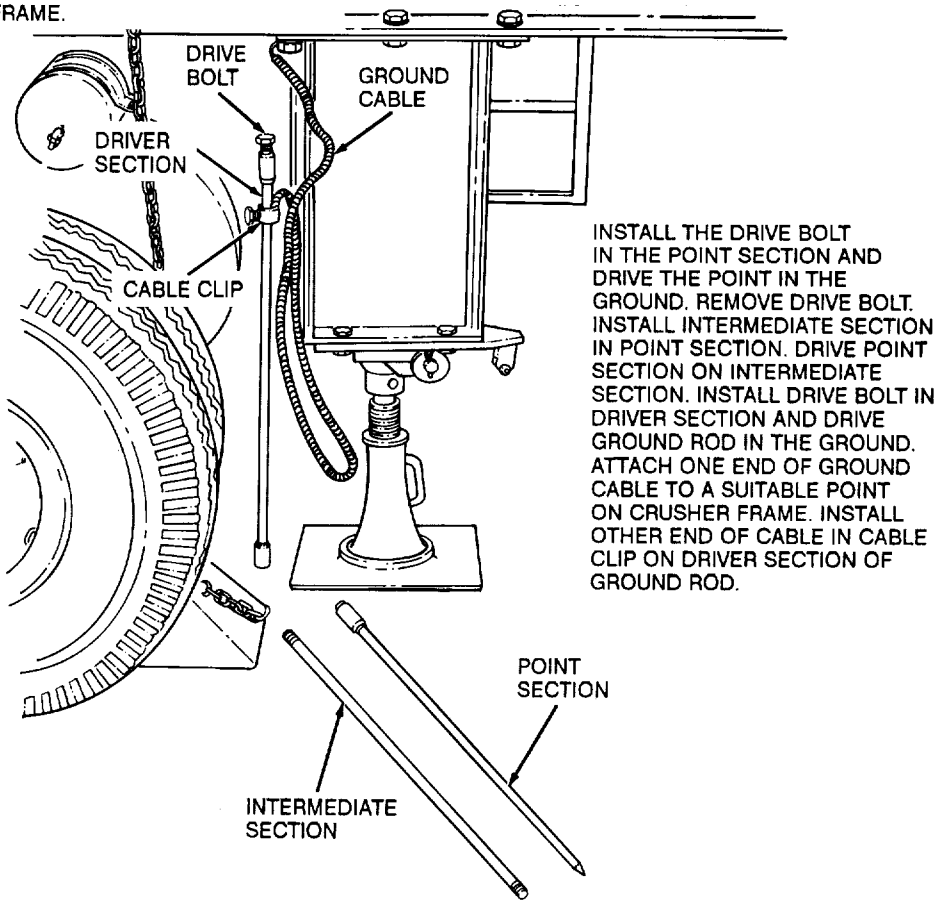


Figure 15. Ground rod assembly, installation.

TA507932

Warning

Make certain the jaw crusher and the power source are properly grounded before installing the main power cable. Death by electrocution could result from improperly grounded equipment.

n. Remove the main power cable from the cable reel assembly (fig. 1) and install on the electrical control box (fig. 16).

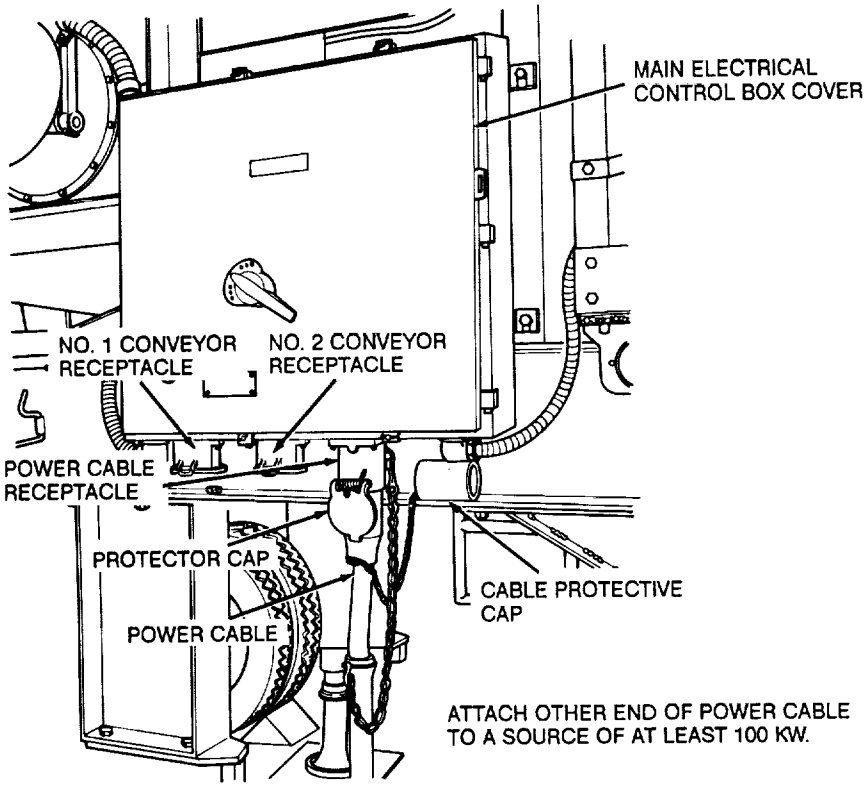


Figure 16. Power cable, installed view.

TA507933

o. Remove the jaw crusher electrical coupling connector and airbrake hoses (fig. 1) from the jaw crusher and stow in the toolbox.

p. Install the air cleaner channel holding bracket. Position the air cleaner extension tubing with clamps. Install the precleaner (fig. 17).

10. Movement to a New Worksite

a. Remove the power cable from the electrical control panel (fig. 16) and wind power cable on the power cable reel assembly (fig. 1).

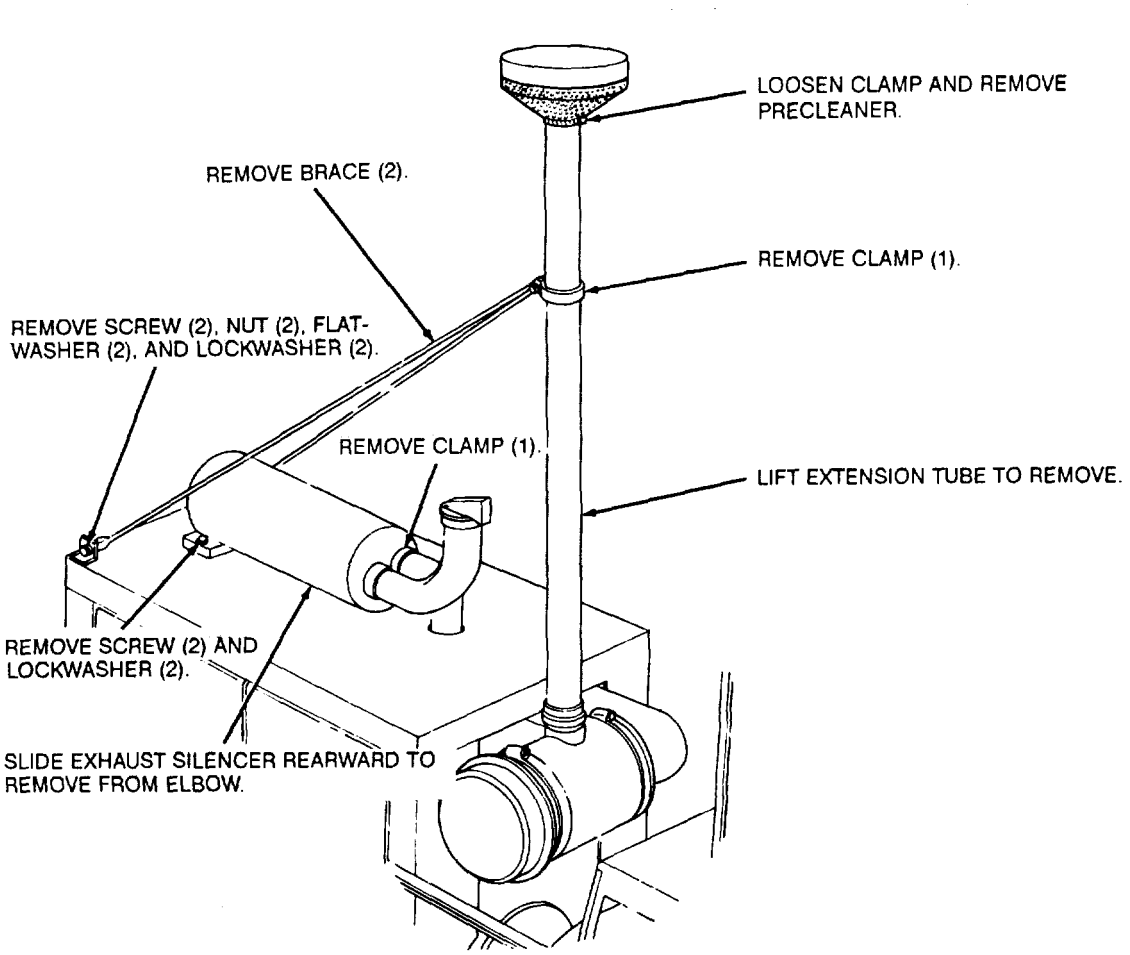
b. Remove the ground rod assembly (fig. 15) and stow in the toolbox (fig. 1).

c. Remove the precleaner, air cleaner extension tubing with clamps, and air cleaner channel holding bracket (fig. 17).

d. Remove necessary mounting hardware from the operator's platform guard rails (fig. 14) to permit the guard rails to be lowered to the transport position (fig. 18).

e. Remove the tension from the head belt scraper (fig. 13) and position the discharge conveyor in the transport cradle (fig. 18).

f. Install the hydraulic hoist on the pan feeder in reverse of the instructions on figure 11 and lower the feeder to the transport position (fig. 18) in reverse of the instructions on figures 7-10.



TA507934

Figure 17. Air intake extension tube and precleaner, and exhaust silencer removal and installation.

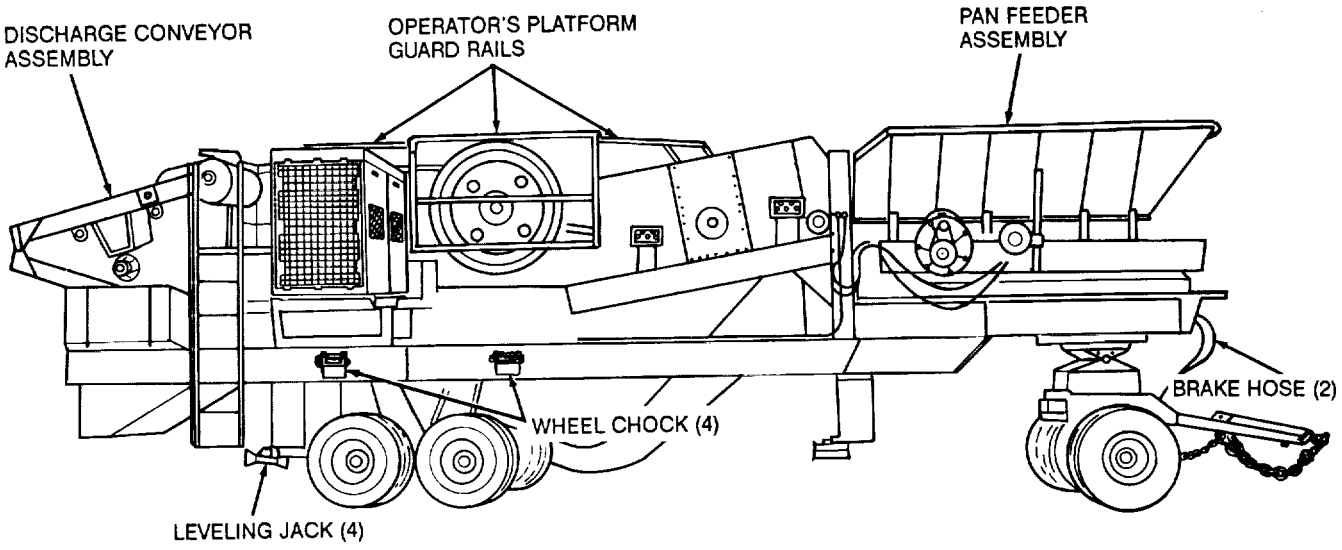


Figure 18. Jaw crusher prepared for transport.

g. Raise and secure the leveling jacks in transport position in reverse of the instructions on figure 4, and stow jack pads in the toolbox.

h. Remove jaw crusher electric cable connector and airbrake hoses from the toolbox and install on jaw crusher (fig. 1).

Caution: Do not exceed 20 mph on good hard surface road or 10 mph on secondary roads or cross-country when towing the jaw crusher.

i. Attach suitable towing vehicle to the jaw crusher. Remove the wheel chock (fig. 1) and stow them in the bracket on the frame (fig. 18).

j. If the movement of the new worksite is a short distance and the equipment could be safely towed over existing roads and bridges with sufficient safe clearances, it is not necessary to perform all of the above operations for transporting the jaw crusher to its new worksite. Follow the instructions in subparagraphs a, b, c, g, h, and i for this type of movement.

k. Install and set-up the jaw crusher (para 9).

Section II. CONTROLS AND INSTRUMENTS

11. General

This section describes, locates, illustrates, and furnishes the operator or crew sufficient information about the various controls and instruments for proper operation of the jaw crusher.

12. Controls and Instruments

Caution: Operator's switch boxes must be properly closed and sealed to prevent water from entering the box and causing switches and controls to corrode and become unserviceable. All control boxes should be examined to assure that doors are properly sealed and closed tight.

The purpose, location, and use of the controls and normal readings of the instruments and gages are illustrated on figures 19-29.

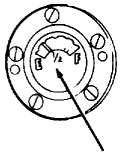


Figure 19. Fuel gage.

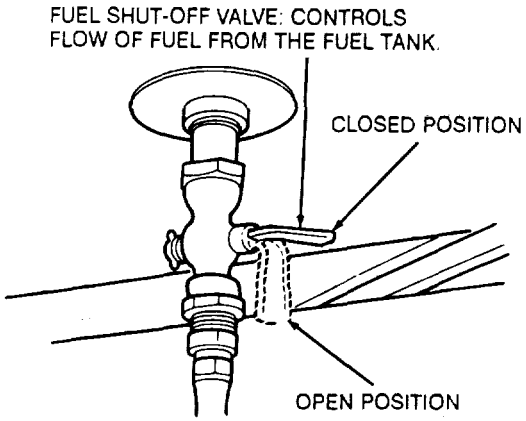


Figure 20. Fuel shut-off valve

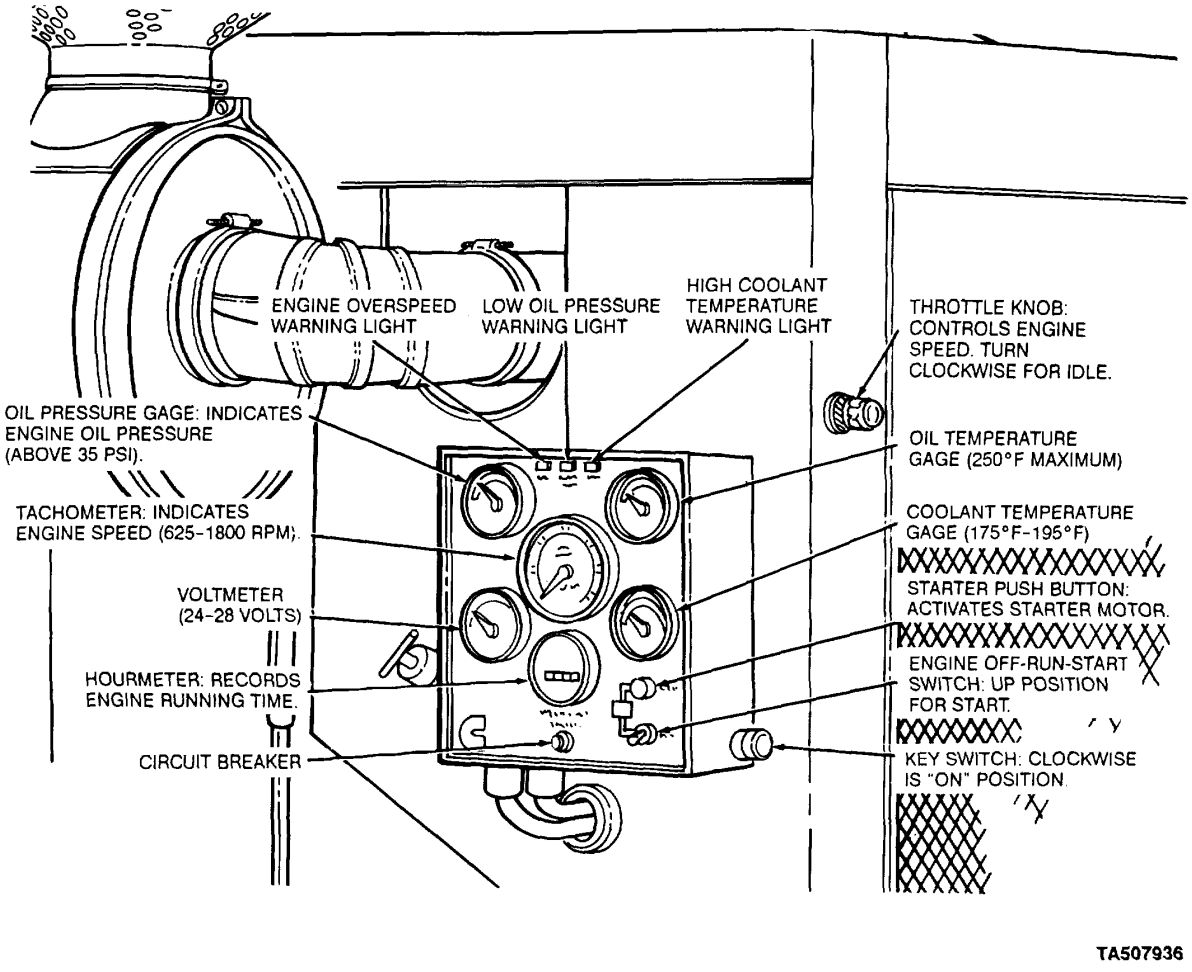


Figure 21. Engine indicator panel and throttle knob.

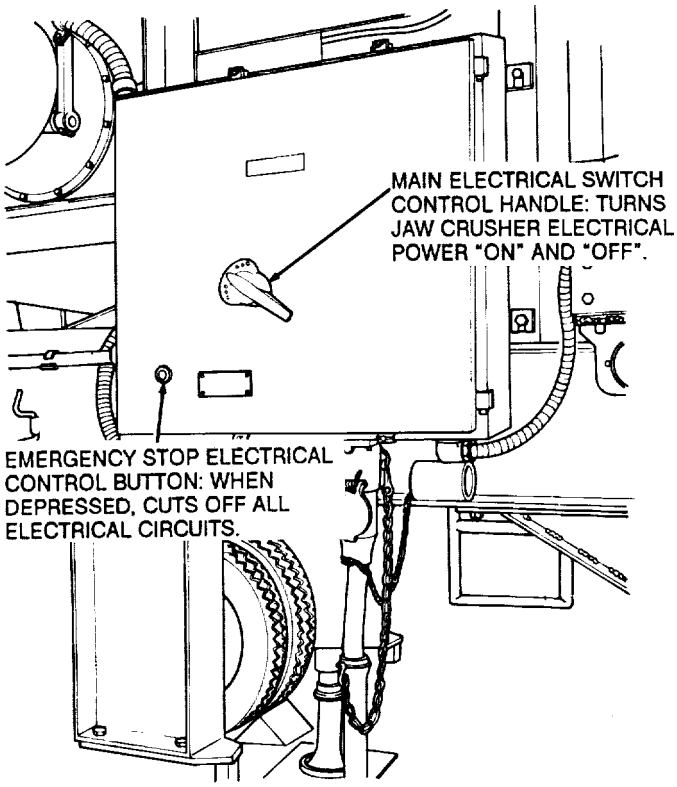


Figure 22. Emergency stop button and main electrical switch handle.

TA507937

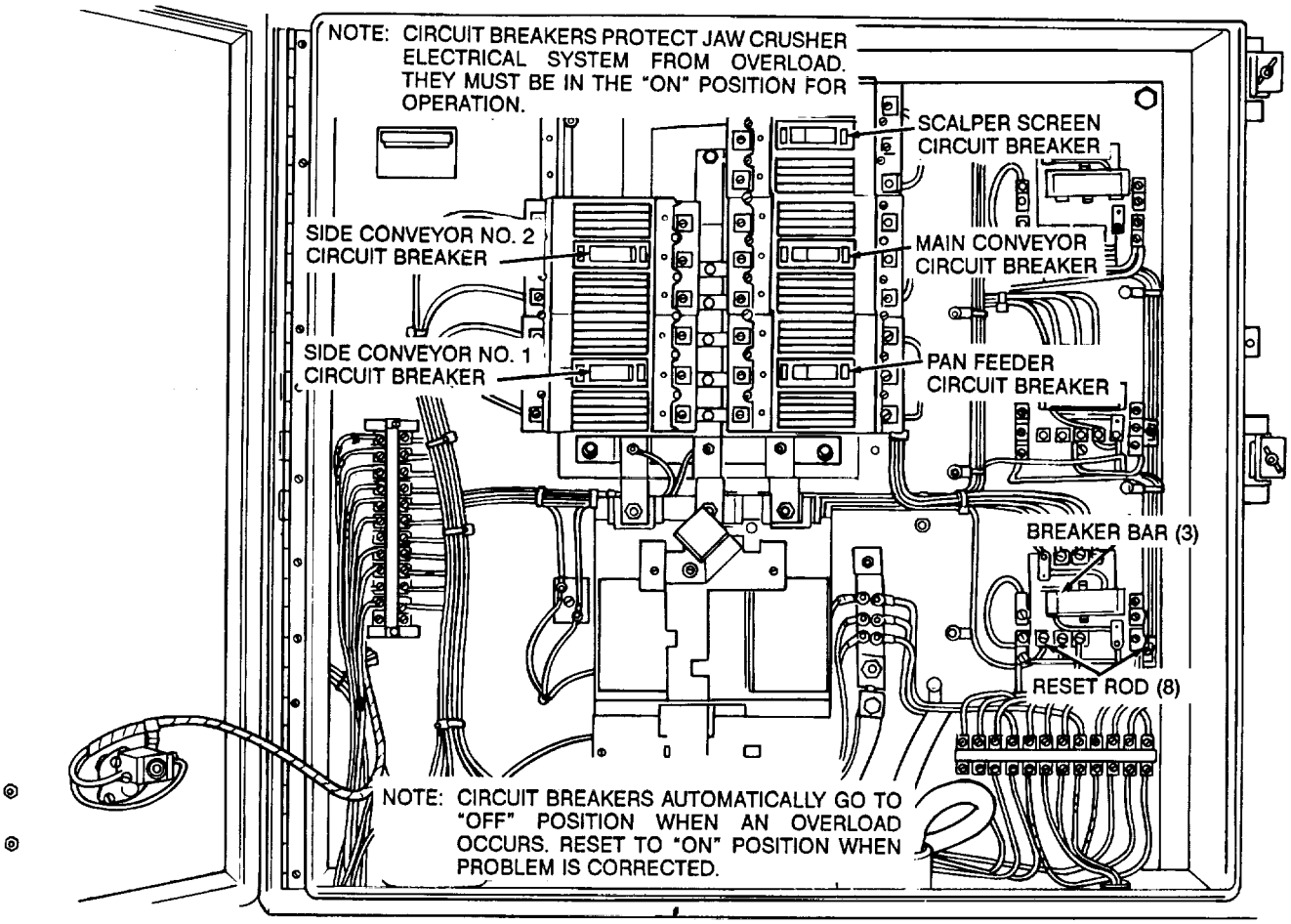


Figure 23. Main electrical control panel.

TA507938

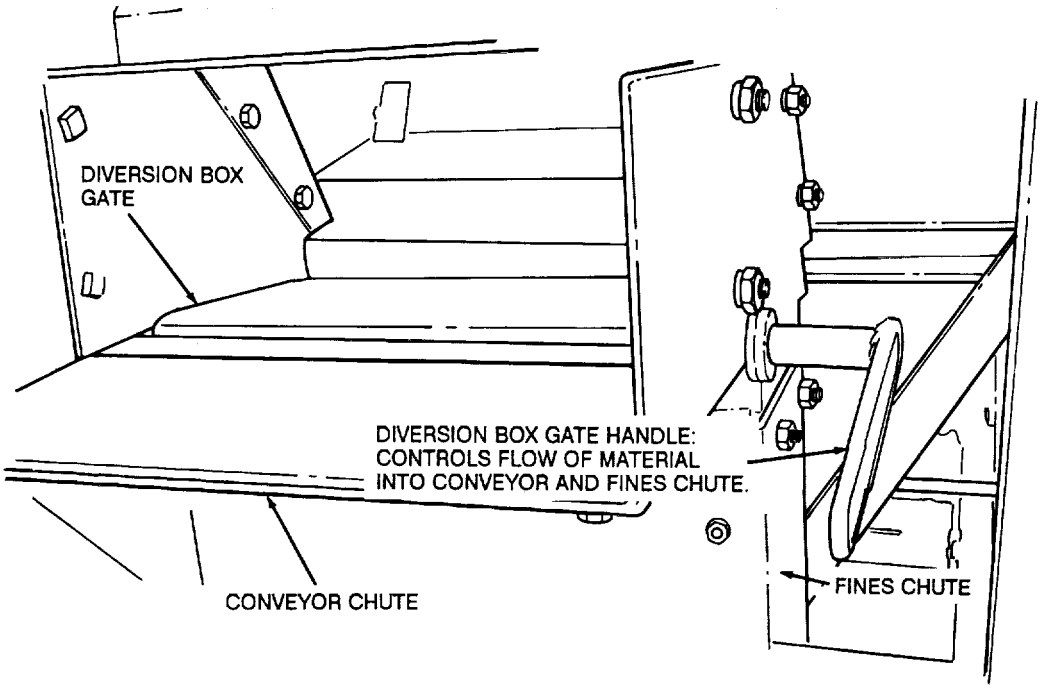


Figure 24. Diversion box gate handle.

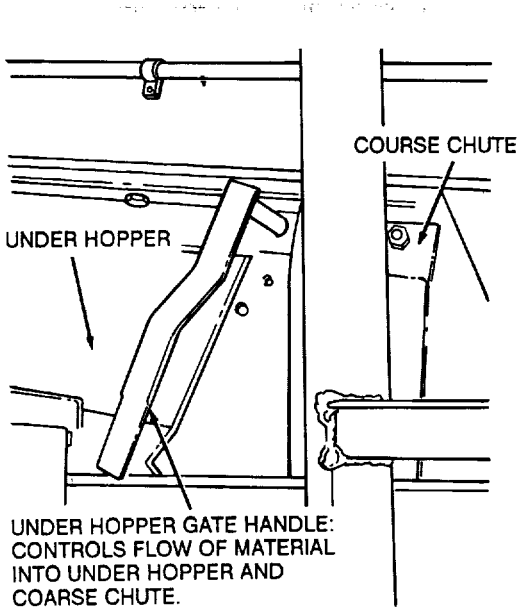


Figure 25. Under hopper gate handle.

TA507939

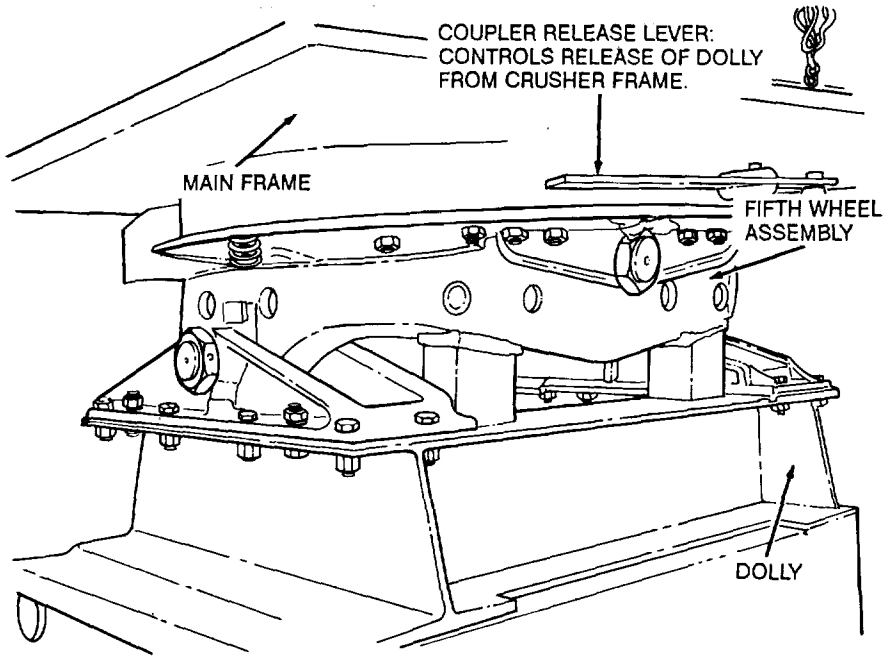


Figure 26. Fifth wheel coupler control

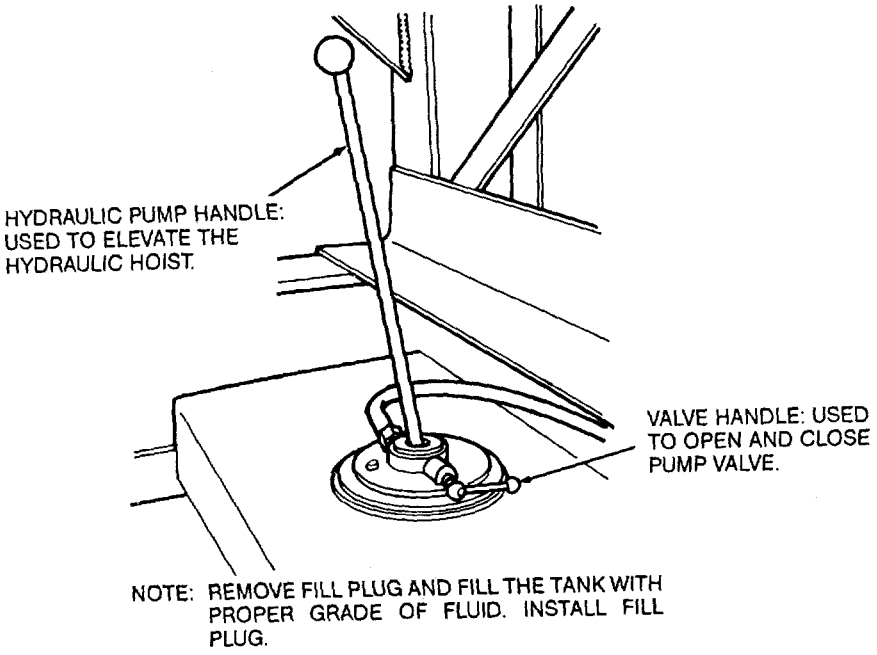


Figure 27. Hydraulic pump control

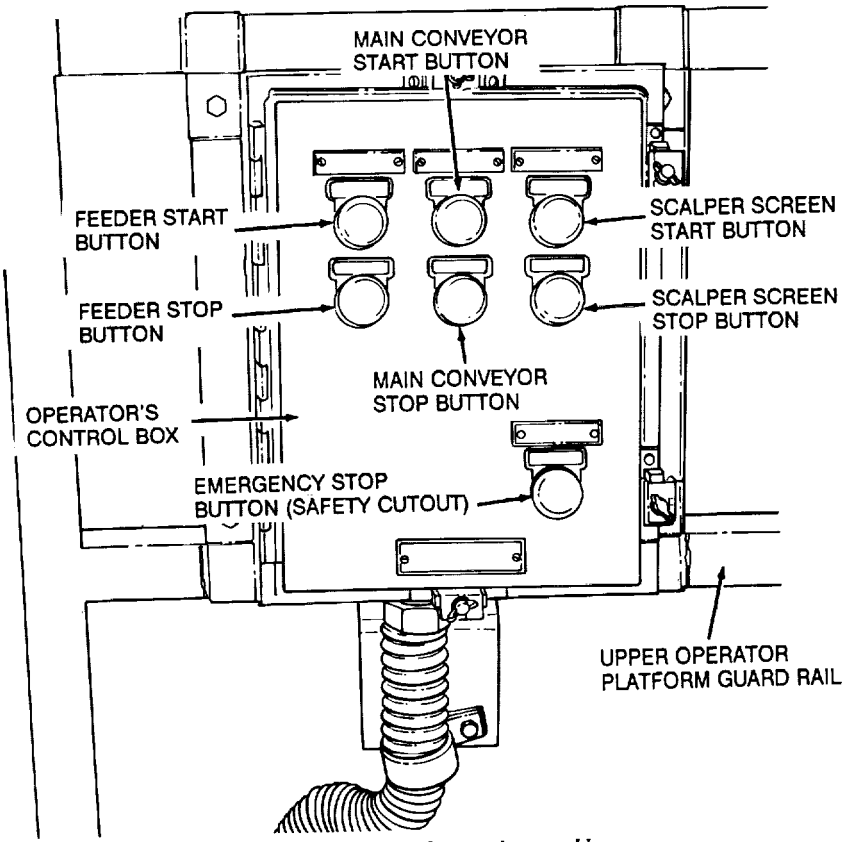


Figure 28. Operator's control box.

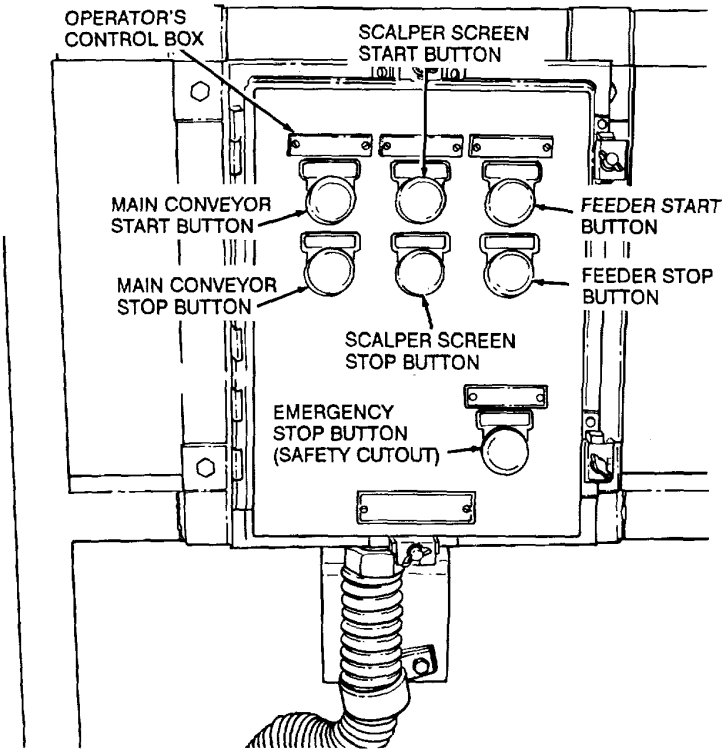


Figure 29. Operator's control box (Model 5157B)

Section III. OPERATION OF EQUIPMENT

13. General

a. The instructions in this section are published for the information and guidance of the personnel responsible for operation of the jaw crusher.

b. The operator must know how to perform every operation of which the jaw crusher is capable. This section provides instructions on starting and stopping the jaw crusher, operating of the jaw crusher, and on coordinating the operations of the jaw crusher to perform the specific tasks for which the equipment is designed. Since nearly every job presents a different problem, the operator may have to vary the given procedure to fit the individual job.

14. Starting the Engine

a. Preparation for Starting.

(1) Perform the Operator/Crew Preventive Maintenance Checks and Services (para 32).

(2) Open the fuel shut-off valve (fig. 20).

Caution: **The manual control fording valve located inside the fuel tank cap is closed before shipment is made from contractor's plant or depot storage. For proper ventilation of fuel tank, valve must be opened when jaw crusher is in operation.**

b. Starting. Start the engine in the numerical sequence as instructed on figure 30.

c. Cold Temperature Starting.

(1) Follow the procedure as outlined in subparagraph a above.

Warning: **Starting fluid is highly explosive and toxic. Handle starting fluid spray cans with extreme caution to prevent fire, explosion, and personal injury.**

Caution: **Do not use excessive amounts of starting fluid when starting the engine. Using too much starting fluid will cause engine damage.**

(2) Start the engine as outlined in subparagraph b above. When pressing the starter button (step 7, fig. 30), spray starting fluid into the air cleaner intake (para 25).

15. Stopping the Engine

a. Stop the engine in the numerical sequence as instructed on figure 31.

b. Close fuel shut-off valve (fig 20).

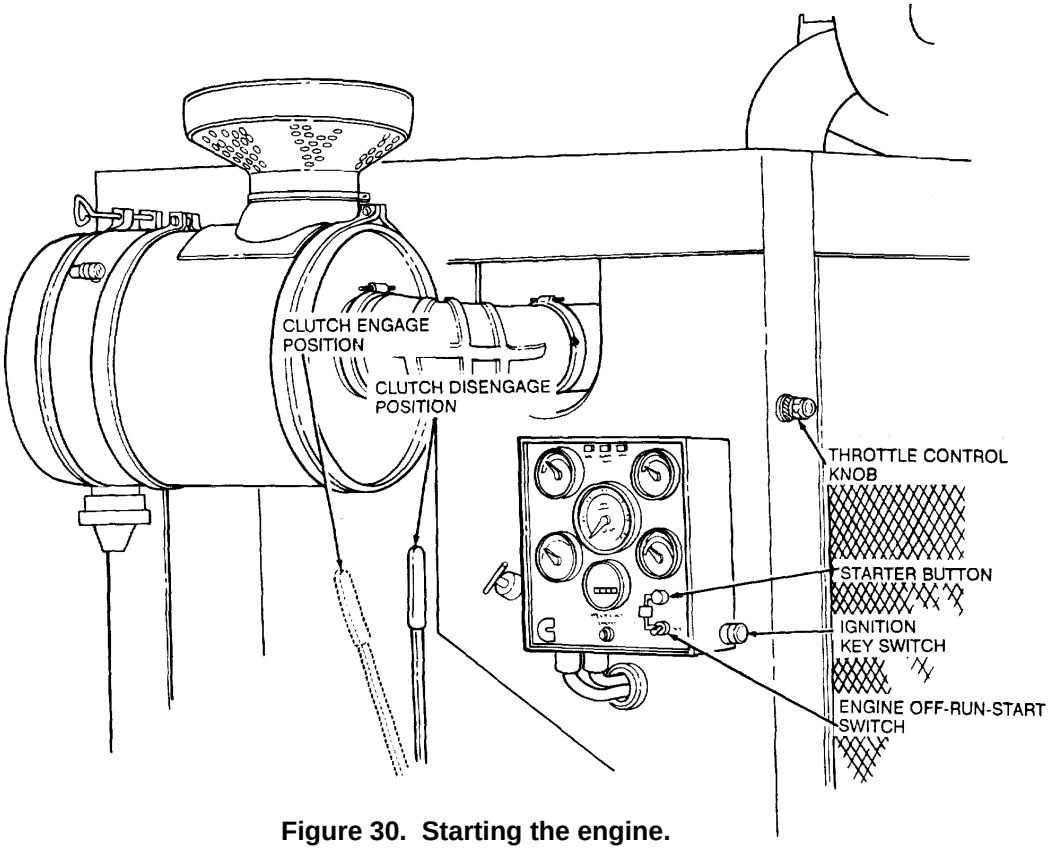


Figure 30. Starting the engine.

CAUTION

DO NOT CRANK THE ENGINE FOR MORE THAN 30 SECONDS AT A TIME. ALLOW TWO MINUTES BETWEEN ATTEMPTS IF ENGINE FAILS TO START

(1) Disengage the clutch and move the throttle knob to idle position (clockwise).

(2) Turn ignition switch (key switch) to the ON position (clockwise).

(3) Hold start-run switch in the START (up) position while pressing starter button with the other hand. Immediately release the starter button when the engine starts.

(4) Continue to hold start-run switch in the START position until oil pressure gage reads above 15 psi, then release switch. Engine should remain running. If not, repeat steps 1-4.

CAUTION

DO NOT RUN THE ENGINE AT CURS IDLE (625 RPM) FOR MORE THAN TEN MINUTES OR ENGINE MAY BE DAMAGED.

(5) Adjust throttle knob by turning counterclockwise until rpm reads 1000. Allow engine to run (3-5 minutes) until temperature gage reads above 140°F before applying load.

(6) Observe all instruments and gages for proper operating ranges.

NORMAL READINGS ON GAGES

Engine Coolant Temperature	175°F-195°F
Oil Pressure	Above 35 psi
Oil Temperature	220°F-250°F
Voltmeter	24-28 Volts

(7) After warm-up, engage clutch and adjust throttle up to the operational speed as marked on the tachometer by paint or tape. The engine rpm should be above 1350 rpm, and not more than 1750 rpm.

TA507942

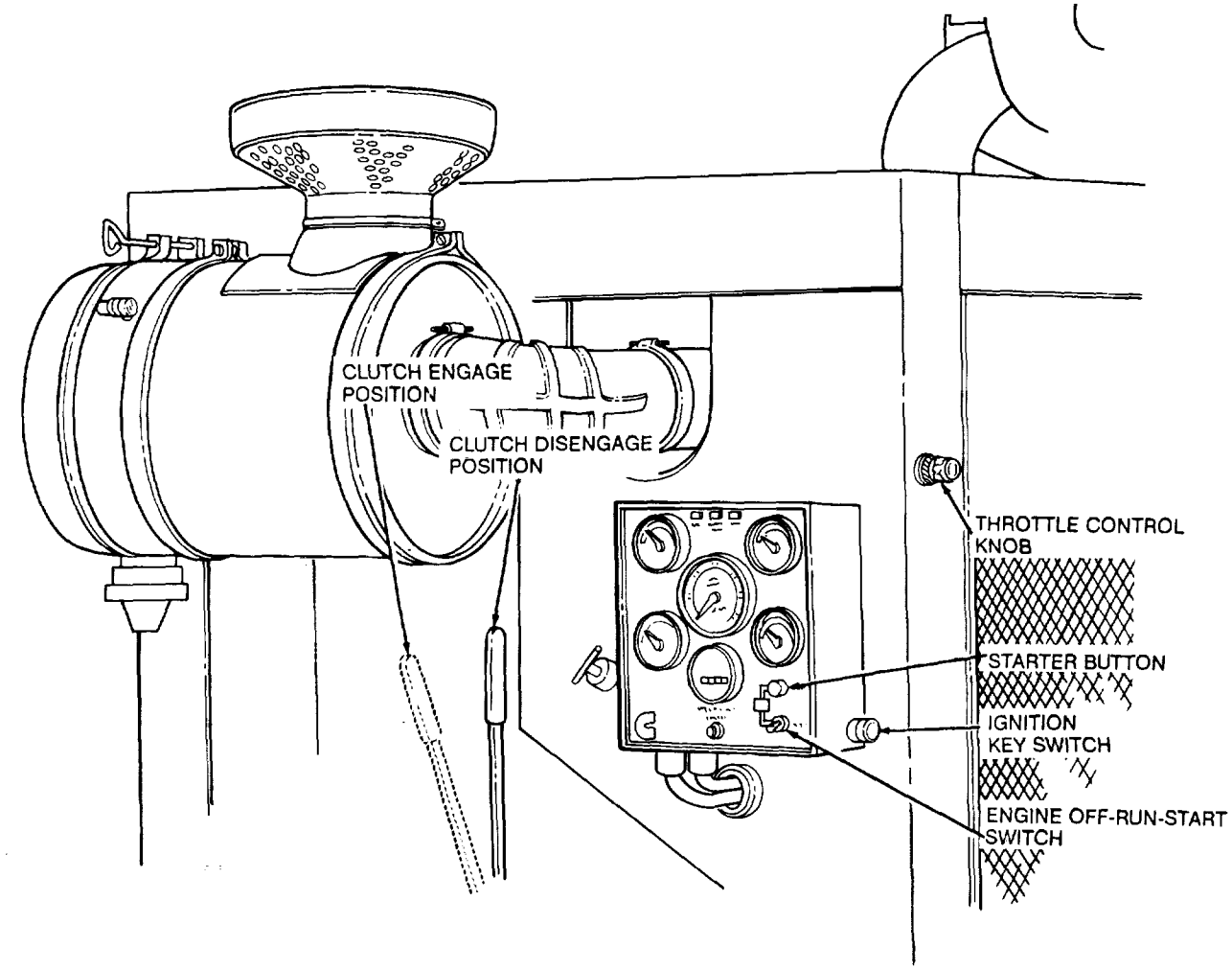


Figure 31. Stopping the engine.

(1) Return throttle to idle (625 rpm) by turning throttle knob clockwise (all the way in).
(2) Disengage the clutch.

CAUTION
DO NOT RUN THE ENGINE AT CURB IDLE (625 RPM) FOR MORE THAN 10 MINUTES OR ENGINE MAY BE DAMAGE.

(3) Allow engine to idle for 5 minutes.
(4) Move start-run switch to OFF position.
(5) Turn Ignition key counterclockwise to OFF position.
(6) Engage clutch lever to prevent clutch warpage after engine has stopped.

TA507943

16. Operating Details

a. General. Information given in this paragraph will assist the operator with the operation of the jaw crusher in all normal conditions.

b. Operating the Jaw Crusher.

(1) Perform the Operator/Crew Preventive Maintenance Checks and Services (para 32).

(2) Start the engine (para 14).

Caution

It is the responsibility of the jaw crusher operator to maintain an even distribution of aggregate through the jaw crusher and to avoid overloading, jamming, spillage, or other operating practice that could result in damage to the jaw crusher components or unsatisfactory production.

(3) Operate the jaw crusher (figs. 32-37).

c. Stopping the Jaw Crusher.

Note

Except for an emergency shut-down, operate the jaw crusher until it is empty before shutting down.

(1) Stop the pan feeder (figs. 36 and 37).

(2) Stop the scalper vibrating screen (figs. 36 and 37).

(3) Stop the moveable jaw (figs. 36 and 37).

(4) Stop the discharge conveyor (figs. 36 and 37).

(5) Turn off the power at the main electrical switch (fig. 33).

(6) Stop the engine (para 15).

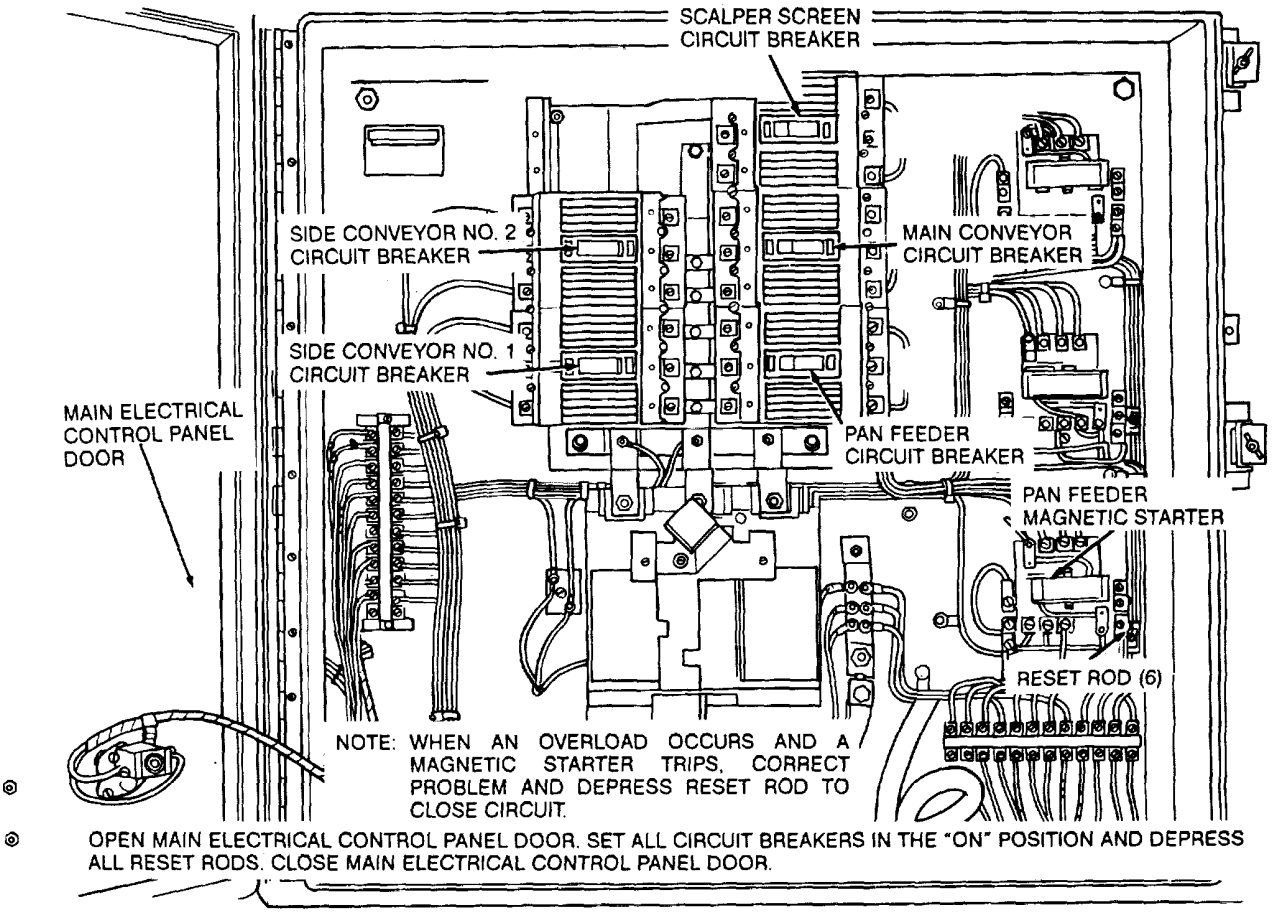
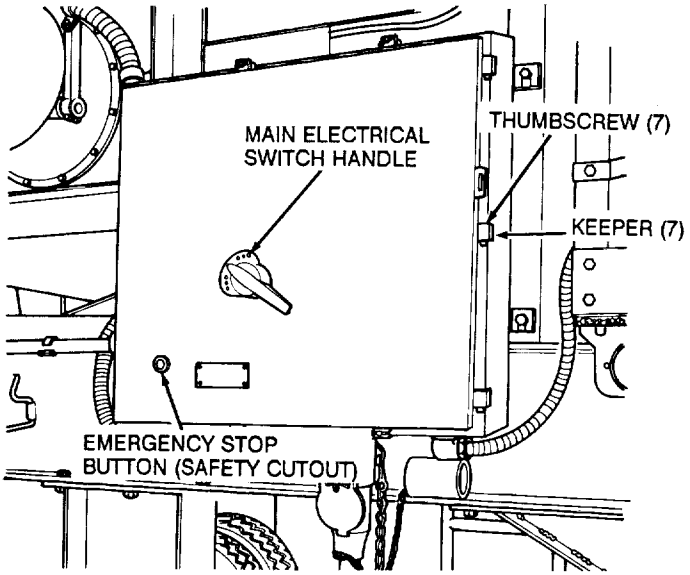


Figure 32. Main electrical control panel circuit breakers.

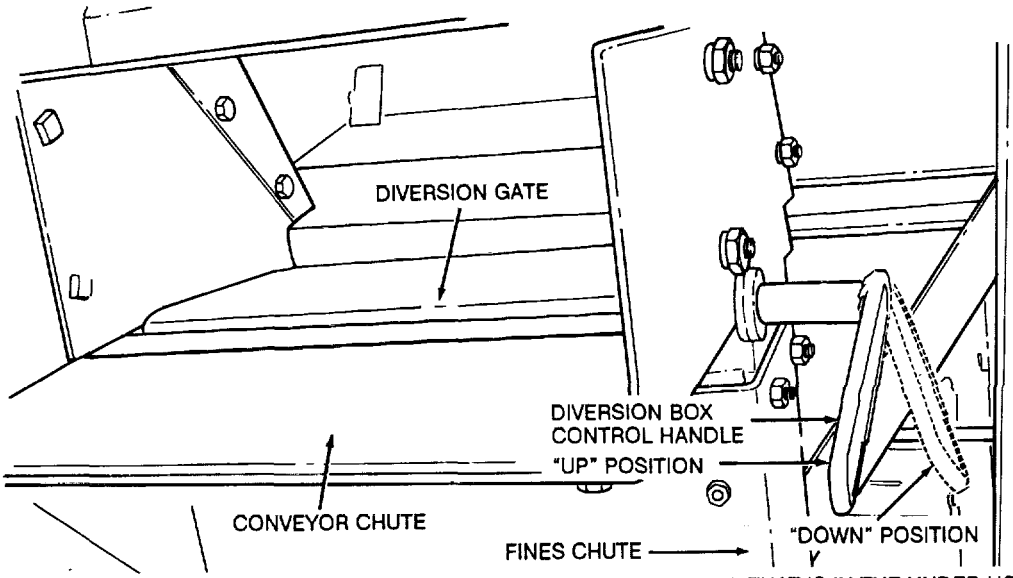
TA507944



ENGAGE THE KEEPERS OVER THE EDGE OF THE MAIN ELECTRICAL CONTROL PANEL DOOR AND TIGHTEN THUMBSCREWS. TURN THE MAIN ELECTRICAL CIRCUIT BREAKER SWITCH HANDLE IN A CLOCKWISE DIRECTION TO BRING POWER INTO THE CONTROL BOX. TURN COUNTERCLOCKWISE TO CUT OFF ELECTRICAL POWER. IN CASE OF EMERGENCY, DEPRESS THE EMERGENCY STOP BUTTON TO CUT OFF ALL ELECTRICAL POWER.

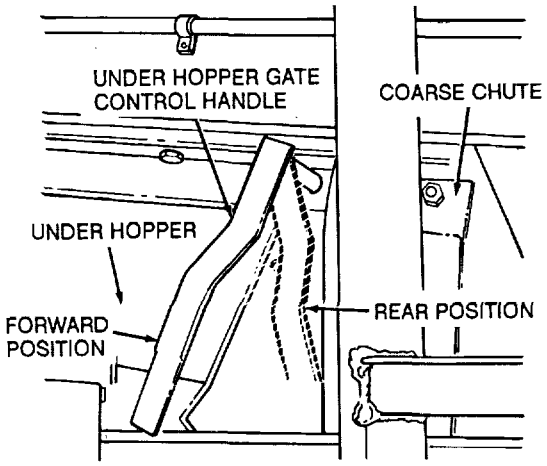
Figure 33. Main control panel switch handle operation.

TA507945



WITH THE DIVERSION BOX CONTROL HANDLE IN THE "UP " POSITION, MATERIAL THAT IS IN THE UNDER HOPPER WILL BE DIVERTED OUT THE CONVEYOR CHUTE. WITH THE CONTROL HANDLE IN THE "DOWN" POSITION, MATERIAL WILL BE DIVERTED INTO THE FINES CHUTE. SET THE CONTROL HANDLE IN THE DESIRED POSITION.

Figure 34. Diversion box control handle settings.



WITH THE UNDER HOPPER GATE CONTROL HANDLE IN THE "FORWARD" POSITION, MATERIAL THAT PASSES OVER THE SCREEN WILL BE DIVERTED INTO THE UNDER HOPPER. WITH THE CONTROL HANDLE IN THE "REAR" POSITION, MATERIAL WILL BE DIVERTED INTO THE COARSE CHUTE AND FALL ONTO THE MAIN DISCHARGE CONVEYOR. SET THE CONTROL HANDLE IN THE DESIRED POSITION.

Figure 35. Hopper gate control handle settings.

TA507946

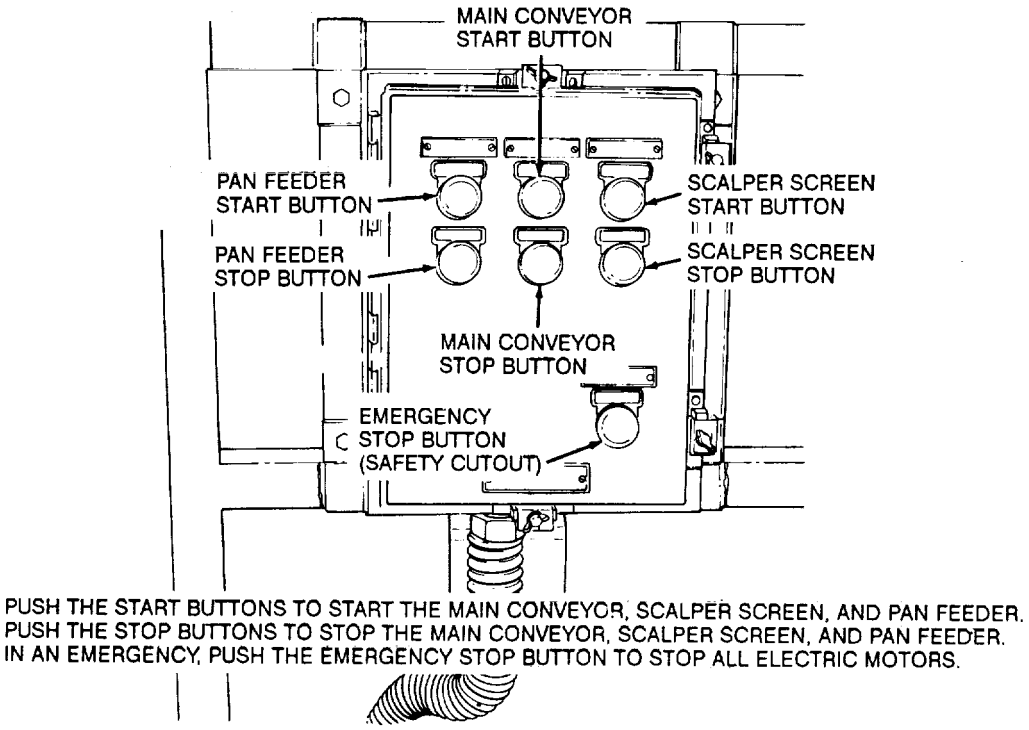


Figure 36. Operator's control panel operation.

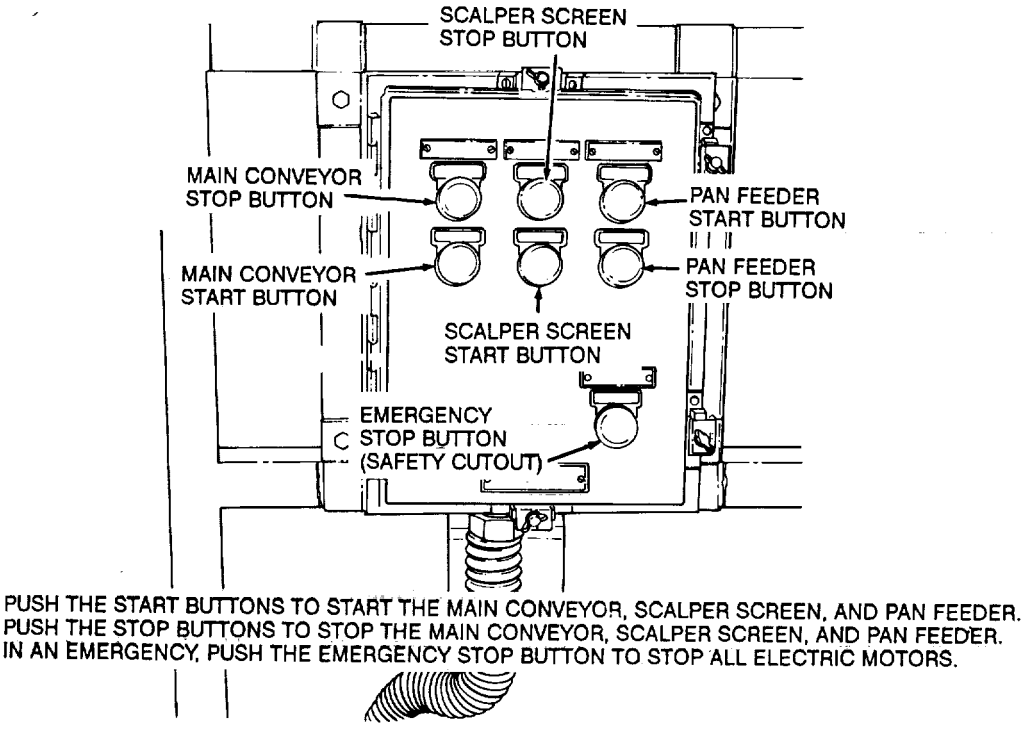


Figure 37. Operator's control panel operation (Model 5157B).

TA507947

17. Operation in Extreme Cold (Below 0° F)

a. General. Special care must be taken when operating the jaw crusher in cold weather. Refer to FM 9-207.

b. Lubrication. Use the proper grade of lubricant for all points of lubrication. Refer to LO 5-3820-205-12-2.

c. Cooling System. For checking the antifreeze solution refer to organizational maintenance.

Warning

Do not smoke or allow any flames or sparks in the vicinity while checking or filling the battery. The battery generates hydrogen, a highly explosive gas.

Warning

Battery acid (electrolyte) is extremely dangerous. Serious injury to personnel may result if battery acid contacts skin or eyes.

d. Batteries. A fully charged battery can withstand low temperatures. A partially charged battery may freeze and crack the cells. Keep battery fully charged and the electrolyte at X in. above the plates (para 62). Refer to TM 9-6140-200-14. If water is added to batteries, run the engine at 1000 rpm for ten minutes.

e. Fuel System. Keep the fuel tank filled to prevent condensation. Any water in the tank will be carried to the fuel filter. Keep the fuel tank cap and vent free from moisture and ice. Drain the water from the fuel filter daily during extreme cold weather operation (para 56).

18. Operation in Extreme Heat

a. Lubrication. Use the proper grade of lubrication for all lubrication points. Refer to paragraph 29 and LO 53820-205-12-2 or special lubrication instructions.

Warning

Cooling system is pressurized. Remove radiator cap slowly and only when engine is cool (below 1200F) or painful burns could result.

Caution

Do not add cold coolant to a hot engine or engine may be damaged. Allow engine to cool (below 120°F) before adding coolant.

b. Cooling System. Check the coolant level more frequently and keep the cooling system clean. Avoid the use of water containing alkali, salt, or other substances that would cause rapid formation of scale or rust. Ensure that the radiator air passages are clean. If air passages are blocked, or obstructions such as dirt, leaves, or debris cannot be removed by hand, notify organizational maintenance. If engine becomes overheated, allow to cool (below 120°F) before adding coolant, and then add coolant in small amounts as the engine is running at idle speed.

Warning

Do not smoke or allow any flames or sparks in the vicinity while checking or filling the battery. The battery generates hydrogen, a highly explosive gas.

Warning

Battery acid (electrolyte) is extremely dangerous. Serious injury to personnel may result if battery acid contacts skin or eyes.

c. Batteries. Water in the batteries will evaporate rapidly at high temperatures. Check the batteries frequently. The electrolyte level should be X in. above plates (para 62). Refer to TM 9-6140-200-14.

19. Operation in Dusty or Sandy Areas

a. Lubrication.

(1) Clean all filters frequently and clean all lubrication points before applying lubricant.

(2) Keep the outside of the engine and the electrical motors clean. Dirt left on the outside will eventually filtrate into the motor. Dirt remaining on the outside can also interfere with proper cooling.

(3) Clean area around the lubrication oil filter cap and dipstick level gage before adding or checking the oil.

(4) Lubricate in accordance with LO 5-3820-20512-2.

b. Cooling System.

Warning

Cooling system is pressurized. Remove radiator cap slowly and only when engine is cool (below 120°F) or painful burns could result.

Caution

Do not add cold coolant to a hot engine or engine may be damaged. Allow engine to cool (below 120 °F) before adding coolant.

(1) Keep the radiator and fins clean and free of foreign material.

(2) Check the level of coolant in the radiator frequently. Fill to proper level with coolant. Check all hoses and gaskets for leaks (para 59).

(3) Check the air cleaner frequently (para 58).

20. Operation Under Rainy or Humid Conditions

a. Lubrication. Lubricate the jaw crusher in accordance with LO 5-3820-205-12-2.

Warning

Cooling system is pressurized. Remove radiator cap slowly and only when engine is cool (below 120 F) or painful burns could result.

Caution

Do not add cold coolant to a hot engine or engine may be damaged. Allow engine to cool (below 120°F) before adding coolant.

b. Cooling System. The transfer of heat from the engine and radiator to the atmosphere is much slower under

rainy or humid conditions. To prevent overheating, keep the cooling system full, the radiator cap secure, the radiator core free of obstructions, and the fan belt properly adjusted (pare 59).

Warning: Do not smoke or allow any names or sparks in the vicinity while checking or filling the battery. The battery generates hydrogen, a highly explosive gas.

c. Batteries. Keep the outside of the batteries dry and free from corrosion. Clean and coat the terminals and connectors with a suitable grease to prevent corrosion. Check the insulation of the cables and jumpers for signs of deterioration, mold, or mildew (figs. 47 and 48).

d. Fuel System. Keep the fuel tank full to prevent condensation. Moisture will accumulate in the air space above the fuel in the tank. Service the fuel filter frequently (pare 56).

e. *Conveyors and Belts*. A rainy, humid condition causes material to stick to conveyors and belts. Keep the scrapers adjusted and the belts as clean as possible. Clean the conveyors and belts after each operation to prevent material from drying, caking, and building up on them.

f. Exposed Metal Surfaces. Exposure to high humidity and rain causes rusting and corrosive action on exposed metal surfaces. Coat all unpainted surfaces with a suitable lubricating oil or grease.

g. Protection. Cover the engine, electric motors, and controls with a tarpaulin or similar protection during periods of non-operation. Remove covers and open engine panels to allow unit to dry during dry periods before operation. Paint or coat with grease all exposed metal surfaces to prevent rusting. Refer to TM 43-0139.

21. Operation in Saltwater Areas

a. General. The deterioration and corrosion of metal is greatly accelerated in saltwater areas. Keep all exposed nonpolished metal surfaces painted (TM 43-0139). Coat all other exposed metal areas with a suitable lubricating oil, grease, or preservative. Lubricate the Jaw crusher in accordance with LO 5-3820-205-12-2.

Warning
Cooling system is pressurized. Remove radial for cap slowly and only when engine is cool (below 120°F) or painful burns could result.

Caution
The cooling system is not intended for use with saltwater. However, saltwater may be used in an emergency. Drain, flush, and fill the cooling system with fresh water as soon as possible after having used this expedient.

b. Cooling System. Ensure that the water used in the cooling system is free of salt or alkali. Use an approved corrosion inhibitor to prevent the formation of rust or scale in the cooling system. Refer to LO 5-3820-205-12-2.

c. Fuel System. Keep the fuel tank full to prevent accumulation of salt-laden moisture in the tank as a result of condensation of the air in the space above the fuel. Service the fuel filter frequently (pare 56) Before each operation, open the fuel tank drain valve (pare 58) and drain about one pint of fuel from fuel tank. This will normally eliminate any water and dirt that has accumulated in the tank and settled to the bottom while the equipment was idle. Inspect the air cleaner frequently (pare 57).

d. Electrical System. Keep the electrical system clean and dry. Wipe the equipment frequently to eliminate moisture and salt deposits. Pay particular attention to electrical terminals, connectors, and switches (pare 61).

22. Operation in High Altitudes

The jaw crusher is designed to operate efficiently at altitudes up to 5000 feet. Above 5000 feet the engine will operate with an increased loss of efficiency as the altitude increases. It is necessary to decrease the amount of fuel injected into the engine to compensate for the lower atmospheric pressure. If the engine is operating erratically, with an apparent loss of power, report this condition to organizational maintenance. Keep the air cleaner and air passages clean and free of obstructions that would restrict the amount of air flowing to the engine.

Section IV. OPERATION OF AUXILIARY MATERIEL USED IN CONJUNCTION WITH THE JAW CRUSHER

23. Fire Extinguisher (Carbon Dioxide Type)

a Description. The ABC fire extinguisher is suitable for use on electrical and flammable liquid fires. The ABC type is of the 5 lb size. The 5 lb extinguisher is portable.

b. Operation. Remove the fire extinguisher from its location, break the seal, operate the control valve, and direct the stream at the base of the flame.

c. Refilling and Maintenance. For detailed information on refilling and maintenance, refer to TB 5-4200-200-10.

24. Fire Extinguisher (Dry Chemical Type)

a. Description. The dry chemical type fire extinguisher is suitable for use on all types of fires and is effective in areas where ambient temperature is -25°F and above. If winterized (pressured by nitrogen), the fire extinguisher-

may be used in temperatures below -25 °F. The fire extinguisher is a 21/2 lb, stored pressure, lever-operated extinguisher.

b. Operation. Remove the fire extinguisher from its location, lift the handle, and press the lever. Direct the discharge of powder at the base of the flames by using a side-to-side sweeping motion.

c. Refilling and Maintenance. Weigh the fire extinguisher every six months and replace the extinguisher if the weight is less than 4 1/2 lbs, or if the pressure is below 125 lbs. Refer to TB 5-4200-200-10. The dry chemical fire extinguisher will be serviced at installation level through Repair and Utilities facilities, with the filling agent supplied by local procurement through Troop Supply Channels.

25. Cold Weather Starting Aids

Warning

Starting fluid is highly explosive and toxic. Handle starting fluid spray cans with extreme caution to prevent fire, explosion, and personal injury.

Caution

Do not use excessive amounts of starting fluid when starting an engine. Using too much starting fluid will cause engine damage.

Diesel engine starting fluid is used to spray a highly volatile fluid into the air cleaner intake of the engine. The starting fluid helps to ignite the fuel at low ambient temperatures. When the temperature range is +32°F to -25°F use starting fluid (fig. 38).

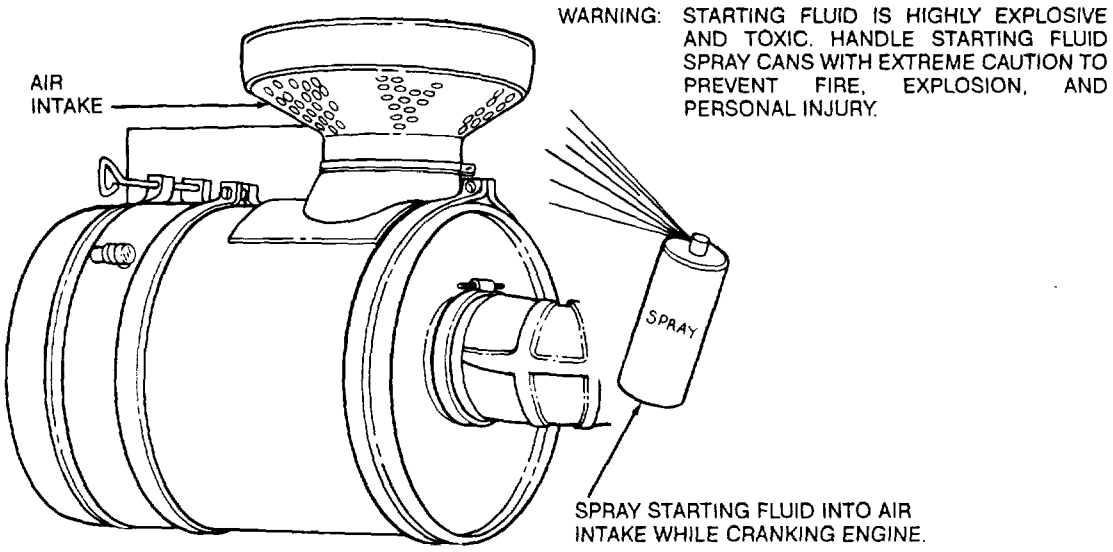


Figure 38. Starting fluid instructions.

Figure 38. Starting fluid instructions.

TA507948

CHAPTER 3
MAINTENANCE -INSTRUCTIONS

Section I. OPERATOR'S TOOLS AND EQUIPMENT

26. Special Tools and Equipment

There are no special tools or equipment required to perform operator maintenance on the jaw crusher.

27. Basic Issue Item Tools and Equipment

The basic issue item tools and equipment authorized for or initially supplied with the jaw crusher are listed in Appendix II.

Section II. LUBRICATION

28. General Lubrication Information

a. This section contains general lubrication instructions, and supplemental lubrication instructions which are not specifically covered in the lubrication order.

b. Refer to LO 5-3820-205-12-2 for specific lubrication instructions.

29. Detailed Lubrication Information

a. Care of Lubricants. When storing or handling lubricants, ensure that the containers are clean and securely covered to prevent dirt, dust, or other foreign matter from entering. Ensure that the lubricant is clean before using it.

b. Cleaning. Clean all surfaces surrounding the point to be lubricated before applying the lubricant. Use a clean cloth dampened in an approved cleaning solvent to clean the surface before lubricating. Remove all excess lubricant after lubrication.

c. Points of Application. The points of application can be located by referring to LO 5-3820-205-12-2.

Caution

Over-lubrication may cause equipment failure or damage to working parts.

d. Special Lubrication Instructions for Unusual Conditions. Lubrication intervals will be more frequent when operating the jaw crusher during extremely high or low temperature, in dust or sand, or under any condition which tends to destroy the protective quality and quantity of the lubricant.

e. Crankcase Breather. Service the crankcase breather (fig. 39).

f. Engine Oil. When using OEA oil in the crankcase, observe the following precautions:

(1) The crankcase oil level must be checked frequently as oil consumption may increase.

(2) The oil may require changing more frequently than usual because contamination by dilution and sludge formation will increase under cold weather operating conditions.

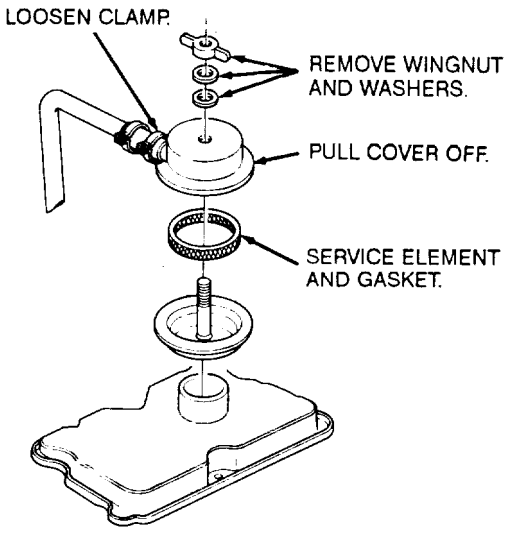


Figure 39. Crankcase breather service.

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

30. Maintenance Forms and Records

Every mission begins and ends with the paperwork. There isn't much of it, but you have to keep it up. The forms and records you fill out have several uses. They are a permanent record of the services, repairs, and modifications made on your equipment. They are reports to organizational maintenance and to your commander. And they are a checklist for you when you want to know what is wrong with the equipment after its last use, and whether those faults have been fixed. For the information you need on forms and records, refer to DA Pam 738-750.

31. Preventive Maintenance Checks and Services

a. Perform Before (B) PMCS just before you operate the equipment. Pay attention to the Cautions and Warnings.

b. Perform During (D) PMCS while you operate the equipment, and at halts or rest stops.

c. Perform After (A) PMCS right after operating the equipment. Pay attention to the Cautions and Warnings.

d. Perform Weekly (W) PMCS once each week.

e. Perform Monthly (M) PMCS once a month.

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

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

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

i. When you perform PMCS, take along the tools you need to make all the checks. You always need a rag or two.

Warning

Dry cleaning solvent P-D-680 is toxic and flammable. Always wear protective goggles and gloves, and use only in a well-ventilated area. Avoid contact with skin, eyes, and clothes, and DO NOT breathe vapors. DO NOT use near open flame or excessive heat. The solvent's flash point is 100°F-130°F (38°C-59°C). If you become dizzy while using cleaning solvent, immediately get fresh air and medical help. if solvent contacts eyes, immediately wash your eyes and get medical aid.

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

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

(3) *Welds*. Look for loose or chipped paint, rust, or gaps where parts are welded together. If you find a bad weld, report it to organizational maintenance.

(4) *Electric wires and connectors*. Look for cracked or broken insulation, bare wires, and loose or broken connectors. Tighten loose connectors and ensure that the wires are in good shape.

(5) *Hoses and fluid lines*. Look for wear, damage, and leaks (wet spots) and ensure that clamps and fittings are tight. A stain around a fitting or connector can mean a leak. If a leak comes from a loose fitting or connector, tighten it. If something is broken or worn out, report it to organizational maintenance.

j. It is necessary for you to know how fluid leakage affects the status of your equipment. The following are definitions of the types/classes of leakage an operator or crew member needs to know to be able to determine the status of his/her equipment. Learn, then be familiar with them and REMEMBER-WHEN IN DOUBT, NOTIFY YOUR SUPERVISOR.

LEAKAGE DEFINITIONS FOR OPERATOR/CREW PMCS

Class I Seepage of fluid (as indicated by wetness or discoloration) not 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). Consideration must be given to the fluid capacity in the item/system being checked/inspected. When in doubt, notify your supervisor.

When operating with Class I or II leaks, continue to check fluid levels as required in your PMCS.

Class III leaks should be reported to your supervisor or to organizational maintenance for corrective action.

32. Operator/Crew Preventive Maintenance Checks and Services (PMCS)

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 (W) as well as Before (B) operation if: 1. You are the assigned operator and have not operated the jaw crusher since the last weekly. 2. You are operating the jaw crusher for the first time.	
1						EXTERIOR OF EQUIPMENT	
	•					a. Visually check for fluid leakage or appearance of fluid leakage.	Class III leaks.
	•					b. Visually check for damaged piping or hoses.	Broken piping or hoses.
2						OPERATOR'S ELECTRICAL CONTROL PANEL	
						Warning: Do not connect electrical power or operate the equipment if the ground connection is not properly installed (fig. 16). Death by electrocution could result from improperly grounded equipment.	
	•					a. Visually check to see if ground rod is securely mounted and there are no loose connections.	Jaw crusher not grounded.
	•					b. Check for proper operation. Ensure that that switches are in the correct positions and cables are connected (figs. 28 and 29).	

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						MAIN ELECTRICAL CONTROL PANEL Warning: Do not connect electrical power or operate the equipment if the ground connection is not properly installed (fig. 16). Death by electrocution could result from improperly grounded equipment.	
	•					Move main power switch to OFF position, and ensure that all circuit breakers are in the ON position. Check for loose or disconnected cables. Return main power switch to ON position.	Circuit breakers off. Loose or disconnected cables.
4						CONVEYOR BELT AND ROLLER ASSEMBLIES	
	•					Check conveyor belt for excessive wear, frayed, or cut condition. Check for broken roller assemblies. Inspect belt fastener assembly.	Broken conveyor belt or roller assemblies. Loose fastener.
5						DRIVE BELTS	
	•					Visually check for broken or missing drive belts or glazed, shiny surface which indicates drive belt slippage.	Drive belts missing or broken.
6						SCALPER VIBRATING SCREEN ASSEMBLY	
	•					Clean and inspect the scalper vibrating screen for any damage; replace as necessary (TM 5-3820-205-20-2). Check gearbox oil every ten hours.	Screens damaged or broken.
7						JAW CRUSHER ASSEMBLY	
	•					Remove any remaining rock or debris and inspect jaw crusher assembly for any damage. Report damage to organizational maintenance.	Jaw crusher assembly cracked, twisted, or rock lodged in jaw.
8						PAN FEEDER ASSEMBLY	
	•					Check tension and condition of pan feeder drive belts, and adjust belts as necessary. Report damage to organizational maintenance (fig. 60).	Incorrect belt tension.
9						FIRE EXTINGUISHER	
	•					Inspect for full charge by checking gage and checking for broken seal.	Gage not reading in green, or seal broken.
10						ENGINE CRANKCASE	
	•					With jaw crusher in a level position, check engine oil level and maintain oil level between "L' (low) and "H" (high) marks.	Oil level at or below "I' mark.

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:
11						ENGINE SAFETY CONTROLS Caution: If the engine starts with less than 15 psi oil pressure, shut off the engine. Note: Ensure that the fuel valve is open.	
	•					With engine run-start switch in the RUN position, press engine start button to engage starter. Engine should not start while engine oil pressure is below 15 psi.	Engine starts with less than 15 psi oil pressure.
12						ENGINE FAN	
	•					Visually check the fan for cracks, loose rivets, and bent or loose blades.	Broken or missing blades.
13						AIR CLEANER Warning: If NBC expose is suspected, all engine air cleaner air filter media should be handled by personnel wearing protective equipment. Consult your NBC Officer or NBC NCO for appropriate handling or disposal procedures.	
	•					Visually check air filter restriction indicator. (Green indicates good condition.)	Air filter restriction indicator is red or element is missing.
14						INSTRUMENTS AND GAGES	
			•			a. Oil pressure above 15 psi at 650 rpm.	Oil pressure below 15 psi.
			•			b. Oil temperature normally reads 220°F-250°F maximum.	Oil temperature above 250°F
			•			c. Voltmeter 24-28 volts.	Voltage not within limits.
			•			d. Tachometer 650 rpm idle to 2100 rpm rated speed. (Tachometer may stick to rpm at engine shut-down, until engine is restarted.)	Tachometer not within limits.
			•			e. Water temperature 200°F maximum.	Water temperature above 200°F.
15						MASTER CLUTCH	
			•			Check for proper operation and adjustment. Firm pressure is required to engage clutch. If adjustment is needed, report it to organizational maintenance.	Clutch slipping or will not engage.
16						HOPPERS AND CHUTES	
		•				a. Check for proper operation.	
		•				b. Check deflectors for proper adjustment. When hopper is loaded, deflectors should barely touch conveyor belt.	Incorrect deflector adjustment.

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:
17						FUEL/WATER SEPARATOR Note: Do not overtighten valve.	
			•			Turn the engine off. Use your hand to open the drain valve. Turn the valve screw counterclockwise about 1 1/2-2 turns until draining occurs. Drain the filter sump of water until clear fuel is visible, and close fingertight only.	Contaminated fuel visible.
18						FUEL TANK Note: Do not overtighten valve.	
			•			Open the drain valve. Drain sediment and condensation from fuel tank into suitable container and close the valve fingertight.	Tank or drain valve leaking.(Class III leak only.)
19						COOLING SYSTEM Warning: Cooling system is pressurized. Remove cap slowly and only when engine is cool (below 120°F) or painful burns could result. Caution: Do not add cold coolant to a hot engine or engine may be damaged. Allow engine to cool (below 120°F) before adding coolant.	
				•		Check coolant level. Maintain coolant level to about 1 in. from bottom of filler neck. Check shrouds for cracks, breaks, and damage. Check water pump and hoses for leaks. Check radiator to ensure cooling fins are free of mud, dirt, and debris.	Coolant low, any leaks, radiator blocked.
20						BATTERY Warning: Do not smoke or allow any flames or sparks in the vicinity while checking or filling the battery. The battery generates hydrogen, a highly explosive gas. Warning: Battery acid (electrolyte) is extremely dangerous. Serious injury to personnel may result if battery acid contacts skin or eyes.	
				•		Check electrolyte level. If level of electrolyte is less than X in. above plates, report it to organizational maintenance.	Electrolyte is less than X in. above plates.

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:
						CHECKS 21 THROUGH 24 ARE FOR TRANSPORT OF EQUIPMENT.	
21						TIRES	
	•					Check for excessive wear, cuts, cracks, abrasions, low or flat tires and proper tire pressure (100 psi), IAW TM 9-2610-200-14.	
22						AIRBRAKE SYSTEM	
	•					Visually check the air lines for cuts, cracks, or broken lines.	Air system will not maintain air pressure.
23						DOLLY AND DRAWBAR	
	•					Visually check for cracks, or broken parts on drawbar and fifth wheel lock area.	Drawbar/dolly cracked or broken. Fifth wheel will not lock.
24						AIRBRAKE SYSTEM	
			•			Drain air tanks after use only.	

Section IV. TROUBLESHOOTING PROCEDURES

33. General

This section provides information useful in diagnosing and correcting unsatisfactory operation or failure of the jaw crusher, and its components. Each trouble symptom stated is followed by a list of probable causes of the trouble. The possible remedy recommended is described opposite the probable cause. Any operational trouble beyond the scope of the operator or crew will be reported to organizational maintenance.

34. Engine Hard to Start or Will Not Start (Exhaust Smoke Present)

Probable cause	*Possible remedy*
Engine cranking speed low (below 150 rpm)	Check engine cranking rpm.
Clutch engaged	Disengage clutch.
Cold start aid needed	Use starting fluid (fig. 38).
Fuel filter plugged	Replace fuel filter.
Air in the fuel system	Check for air in fuel. Tighten fuel connections and filter.
Fuel suction line restricted	Check fuel line for restriction.
Intake air system restricted	Check intake air system for restrictions.
Fuel contaminated	Verify by operating engine from a temporary supply tank.

35. Engine Cranks But Will Not Start (No Smoke From Exhaust)

Probable cause	*Possible remedy*
No fuel in tank	Add fuel.
Fuel tank shut-off valve closed	Open shut-off valve.
No fuel to injectors	Loosen fuel supply line between fuel pump and cylinder head while cranking engine and check for fuel (fig. 44).
Fuel connections loose on suction side of fuel pump	Tighten all fuel filter fittings and connections from fuel tank to fuel pump.

Fuel filter plugged or suction line restricted	Replace fuel filter. Inspect fuel hose for restriction.
No fuel in pump	Prime fuel pump (fig. 45).
Intake or exhaust restricted	Check intake and exhaust system for restrictions.

36. Engine Starts But Will Not Keep Running

Probable cause	*Possible remedy*
Air in fuel system	Check for air in fuel, and tighten fuel connections and filter.
Clutch engaged	Disengage clutch.
Fuel filter plugged	Replace fuel filter.
Fuel waxing due to cold weather	Check fuel grade.
Fuel suction line restricted	Check fuel line for restriction.
Fuel contaminated	Verify by operating engine from a temporary supply tank.

37. Engine Will Not Shut Off

Probable cause	*Possible remedy*
Fuel pump shut-off valve disc stuck	Check opening and closing of electrics.
Fuel tank vent plugged or closed	Check manual control fording valve inside fuel cap.
Fuel drain line restricted	Check fuel drain line for loops, crimps, or clamped points.

38. Lubricating Oil Pressure Low

Probable cause	*Possible remedy*
Incorrect oil level	Check for oil leaks. Add or drain engine oil. Check dipstick calibration.
Oil pressure gage malfunction	Check oil pressure gage. Replace if necessary.
Oil diluted with fuel	Change oil.
Incorrect oil specifications	Change oil and check oil specifications.
Oil filter plugged	Replace oil filter.
Oil temperature above normal (250'F)	Check coolant temperature for above normal condition (250° F).

39. Coolant Temperature Above Normal

Probable cause	*Possible remedy*
Low coolant level	Add coolant.
Radiator fins damaged or obstructed with debris	Clean or repair radiator fins.
Collapsed radiator hose	Replace radiator hose.
Loose fan drive or water pump belt	Tighten fan drive or water pump belt.
Incorrect oil level	Add or drain engine oil.
Cooling fan shroud damaged or missing	Repair or replace shroud.
Incorrect or malfunctioning radiator cap	Replace radiator cap.
Temperature gage malfunction	Check temperature gage. Replace if necessary.

40. Engine Will Not Reach Rated Speed When Loaded

Probable cause	*Possible remedy*
Excessive load for engine horsepower rating	Check equipment for proper operation or binding.
Tachometer malfunction	Check rpm with external tachometer.
Throttle linkage adjustment wrong	Check for full throttle travel.
Fuel suction line restricted	Check fuel inlet for restriction.

41. White Smoke or Rough Running at Idle (After Warm-up Period)

Probable cause	*Possible remedy*
Low coolant temperature	Report to organizational maintenance.
Fuel quality poor	Verify by operating engine from a temporary supply tank.

42. Conveyor Belts Do Not Run, or Run at Uneven Speed

Probable cause	*Possible remedy*
Too much slack in belts	Adjust the conveyor belts (fig. 61).
Overload device in motor circuit tripped	Correct the cause of overload, and reset the circuit breaker or magnetic starter.
Belt roller bearings frozen	Inspect the bearing for this condition. Report defective rollers to organizational maintenance
Lagging on drive pulley worn out or loose	Report damaged lagging to organizational maintenance.
Grease has collected on drive sheave or belt	Remove grease from drive sheave and belt with approved cleaning solvent.

43. Conveyor Belts Run to One Side

Probable cause	*Possible remedy*
Drive pulleys are loose or out of alignment	Report condition to organizational maintenance.
Troughing and under conveyor rollers out of adjustment	Report condition to organizational maintenance.
Belt lacing torn, loose, or broken at one end	Report condition to organizational maintenance.
Dirt or foreign matter built-up on belt pulleys, rollers, or conveyor belt	Inspect the belt pulley and rollers for dirt or foreign matter. Remove the accumulated deposits and clean with an approved cleaning solvent.

44. Crusher Jaw Not Operating Correctly

Probable cause	*Possible remedy*
Crusher jaw adjustment incorrect	Adjust crusher jaw (figs. 53 and 54).
Crusher jaw drive belts slipping	Report condition to organizational maintenance.
Engine clutch slips	Report condition to organizational maintenance.

45. Screen Will Not Vibrate

Probable cause	*Possible remedy*
Drive belts slipping or broken	Adjust V-belts (figs. 58 and 59). Report broken V-belts to organizational maintenance.
Motor circuit breaker or magnetic starter trips	Correct cause of tripping or report to organizational maintenance.

46. Screen Vibrates Excessively

Probable cause	*Possible remedy*
Rubber mounts broken or deteriorated	Report condition to organizational maintenance.
Motor drive belts slipping	Adjust V-belts (figs. 58 and 59).

47. Feeder Will Not Operate or Works Slowly

Probable cause	*Possible remedy*
Drive belts slipping or broken	Inspect V-belts for slipping and adjust as required (fig. 60). Report broken V-belts to organizational maintenance.
Motor circuit breaker or magnetic switch tripped, continues to trip	Correct cause of tripping or report to organizational maintenance.
Frozen bearing in feeder rollers	Report condition to organizational maintenance.

48. Electric Motors Will Not Run

Probable cause	*Possible remedy*
Circuit breaker or relay overload tripped	Reset circuit breaker or relay overload (para 16).
Voltage source fluctuating	Report condition to organizational maintenance.

49. Electric Motors Run Too Hot

Probable cause	*Possible remedy*
Motors overloaded	Check condition of machinery driven by motor. Correct deficiencies or report to organizational maintenance.
Trash or foreign matter obstructing air flow motors	Remove any obstruction blocking air flow through motors.
Defective motor	Report defective motor to organizational maintenance.
Voltage source fluctuating	Report condition to organizational maintenance.

Section V. FIELD EXPEDIENT REPAIRS

50. General

Upon decision of the unit commander during emergencies, the following expedient repairs may be used to temporarily correct operational troubles in the field where supplies and repair parts for normal corrective maintenance are not available. Equipment so repaired must be removed from operation as soon as possible and properly repaired before being placed in operation again.

51. Engine Overheats or Runs Cold

Trouble	*Expedient remedy*
Coolant thermostat defective	Remove thermostat and run engine until replacement is available.

52. Movable Jaw Belt Breaks

Trouble	*Expedient remedy*
Movable jaw belt broken	Remove broken V-belt and operate with remaining belts until broken belt can be replaced.

53. Loss of Lubricating Oil

Trouble	*Expedient remedy*
Small hole in crankcase oil pan	Plug hole with wooden plug or metal screw.
Damaged oil line	Tape or wrap oil line with a suitable material until a new oil line can be installed.

54. Loss of Fuel

Trouble	*Expedient remedy*
Hole in fuel tank	Plug hole with wooden plug or metal screw.
Fuel line damaged	Tape or wrap fuel line with a suitable material until new fuel line can be installed.

Section VI. FUEL SYSTEM

55. General

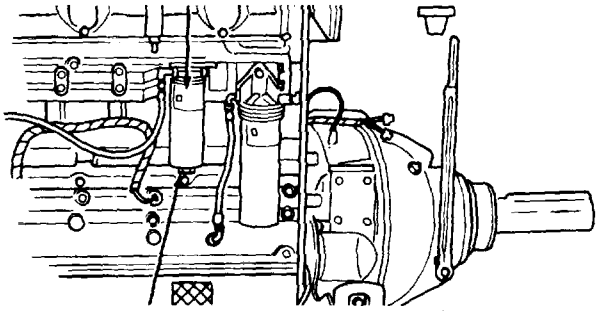
The engine fuel system consists of a 100 gal. fuel tank, fuel lines and fittings, fuel filter, fuel injection pump, and six fuel injectors.

56. Fuel Filter

The fuel filter is a fuel-water separator type of filter. Service the fuel filter daily as follows: Shut off the engine. Use your hand to open the drain valve. Turn the valve counterclockwise about 1/2-2 turns until draining occurs. Drain the filter sump of water until clear fuel is visible (fig. 40). Turn the valve clockwise to close the drain valve.

CAUTION: MECHANICAL OVERTIGHTENING CAN DISTORT THE THREADS OR DAMAGE THE FILTER ELEMENT SEAL.

CHANGE FILTER. CLEAN AREA AROUND FUEL FILTER HEAD. REMOVE FILTER, AND CLEAN GASKET SURFACE OF FILTER HEAD. USE CLEAN OIL TO LUBRICATE THE FILTER SEAL, AND FILL NEW FILTER WITH CLEAN FUEL. INSTALL PER INSTRUCTIONS ON FUEL FILTER.



CAUTION: DO NOT OVERTIGHTEN THE VALVE, OR THREADS WILL BE DAMAGED.

DRAIN WATER FROM FILTER. SHUT OFF ENGINE. TURN VALVE COUNTERCLOCKWISE 1½ TO 2 TURNS UNTIL DRAINING OCCURS. DRAIN UNTIL CLEAR FUEL IS VISIBLE.

Figure 40. Fuel filter service.

57. Air Cleaner

Warning: If NBC expose is suspected, all engine air cleaner air filter media should be handled by personnel wearing protective equipment. Consult your NBC Officer or NBC NCO for appropriate handling or disposal procedures.

Visually check the air filter restriction indicator, normally green for correct filter condition (fig. 41). If indicator flag is red, or element is missing, report it to organizational maintenance.

RED SIGNAL INDICATES FILTER ELEMENT SERVICE IS REQUIRED. REPLACE THE FILTER ELEMENT, AND PRESS THE RUBBER RESET BUTTON ON TOP OF THE INDICATOR.

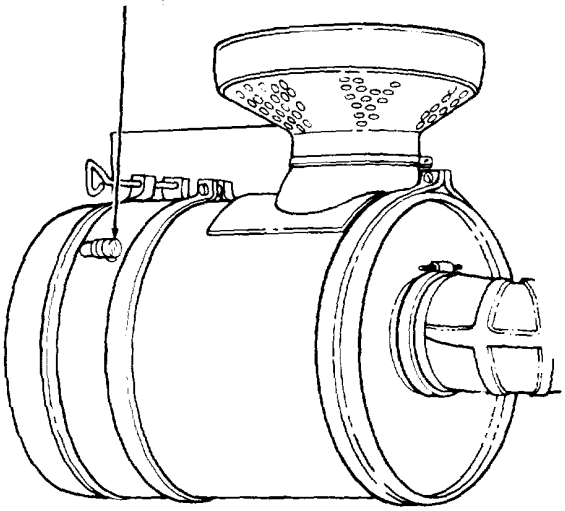


Figure 41. Air filter restriction indicator.

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58. Fuel Tank, Strainer, Lines and Fittings

Inspect the fuel tank, lines and fittings for damage or leaks. Service the fuel tank by cleaning around the fuel cap and fuel gage. Drain sediment and water from the bottom of the fuel tank by opening the drain valve (fig. 42). Clean the fuel strainer; if damaged, report it to organizational maintenance (fig. 43).

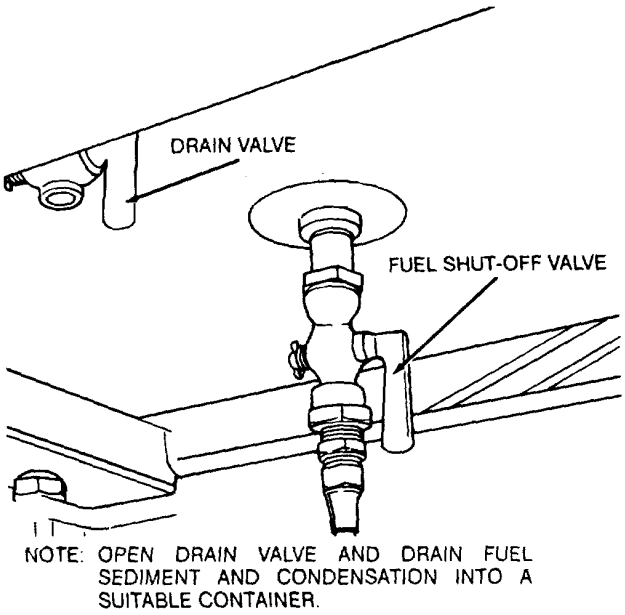

Figure 42. Draining fuel tank.

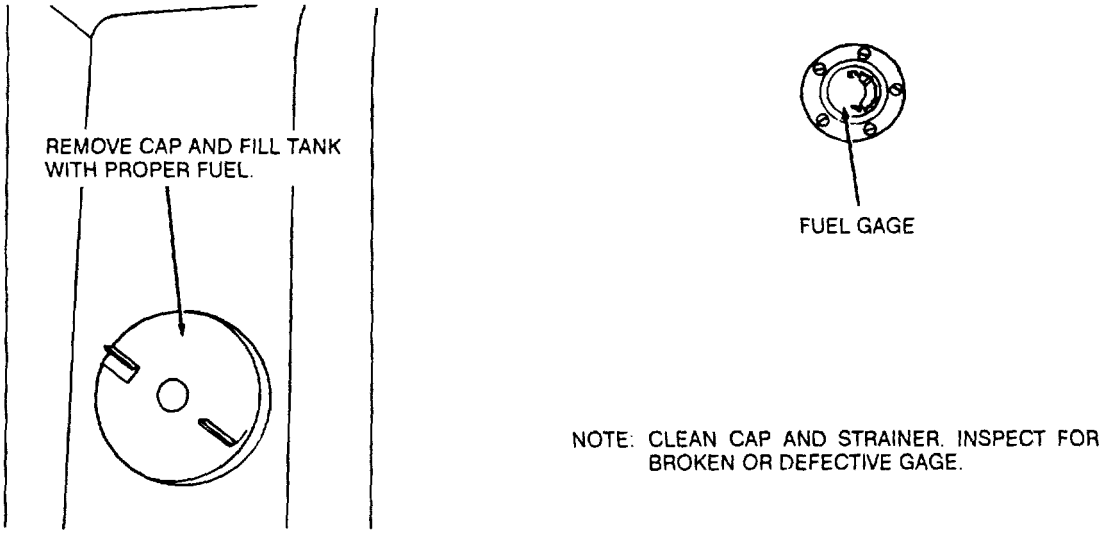

Figure 43. Filling fuel tank and strainer service.

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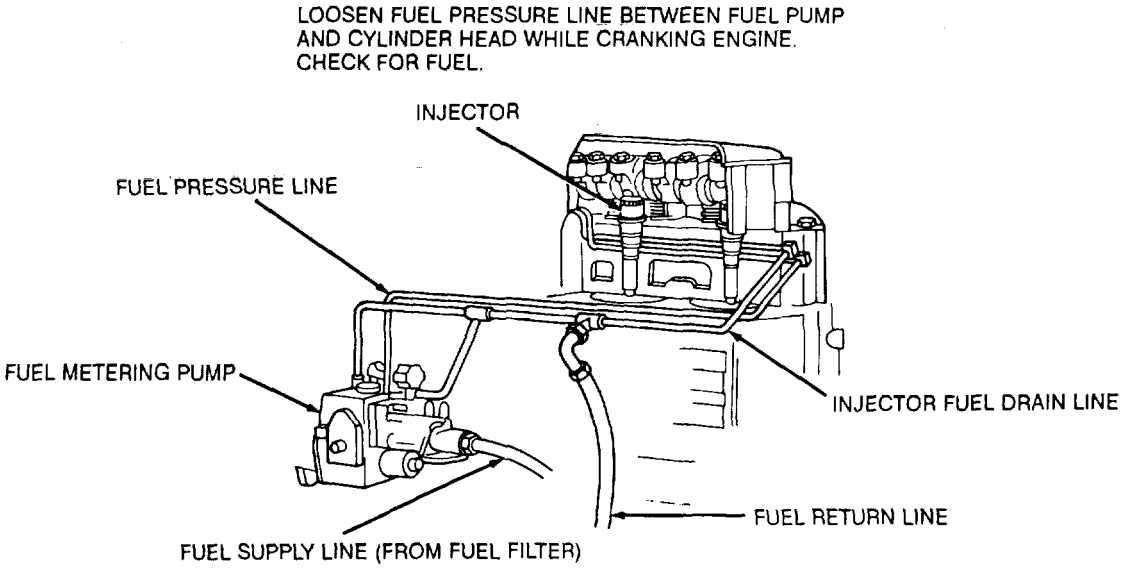

Figure 44. Checking fuel flow to injectors.

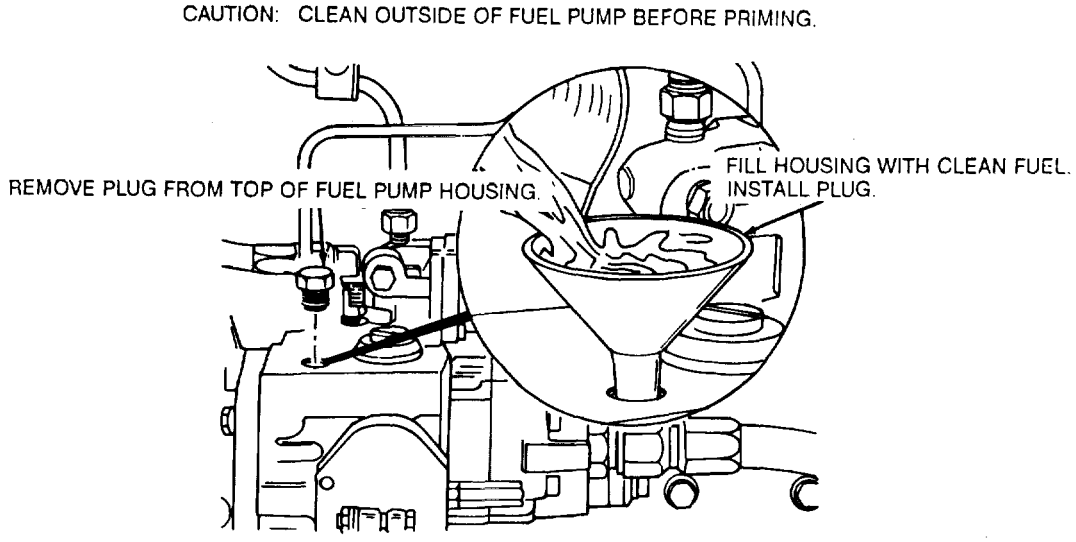

Figure 45. Priming the fuel pump.

Section VII. COOLING SYSTEM

59. General

The liquid cooling system consists of the radiator, hoses, lines, fittings, water pump, fan, and coolant passages in the cylinder head and block. The coolant temperature is regulated from 175°F-195°F by a thermostat located inside the thermostat housing.

60. Radiator, Hoses, Lines, Fittings, Water Pump, Fan and Belts

a. Inspect the radiator for leakage or damaged cooling fins. Ensure that the air passages are clean. If air passages are blocked, or obstructions such as dirt, leaves, or debris cannot be removed by hand, notify organizational maintenance.

Warning

Cooling system is pressurized. Remove radiator cap slowly and only when engine is cool (120°F) or painful burns could result.

Caution

Do not add cold coolant to a hot engine or engine may be damaged. Allow engine to cool to below 120 °F before adding coolant.

b. Check coolant level in radiator. Coolant should be 1 in. from bottom of filler neck (fig. 46).

c. Inspect the cooling system hoses and hose connections for leaks or deterioration. Particles of deteriorated hose can be carried through the cooling system and slow or partially stop circulation.

d. Inspect water pump for drive pulley wobble, and grease or water leakage around the water pump shaft.

Warning

Never pull or pry on the fan. This can damage the fan blade and cause fan failure, resulting in damage to equipment and serious injury to personnel.

e. Inspect the cooling fan for cracks, loose rivets, and bent or loose blades. Check the fan to ensure that it is securely mounted. Check the fan hub for wobble and grease leakage.

f. Inspect fan belts for cracks or frays. Belts that have a glazed or shiny surface indicate belt slippage. Belts correctly installed and tensioned will show even pulley and belt wear.

g. Inspect thermostat housing and water manifold for leaks or loose connections.

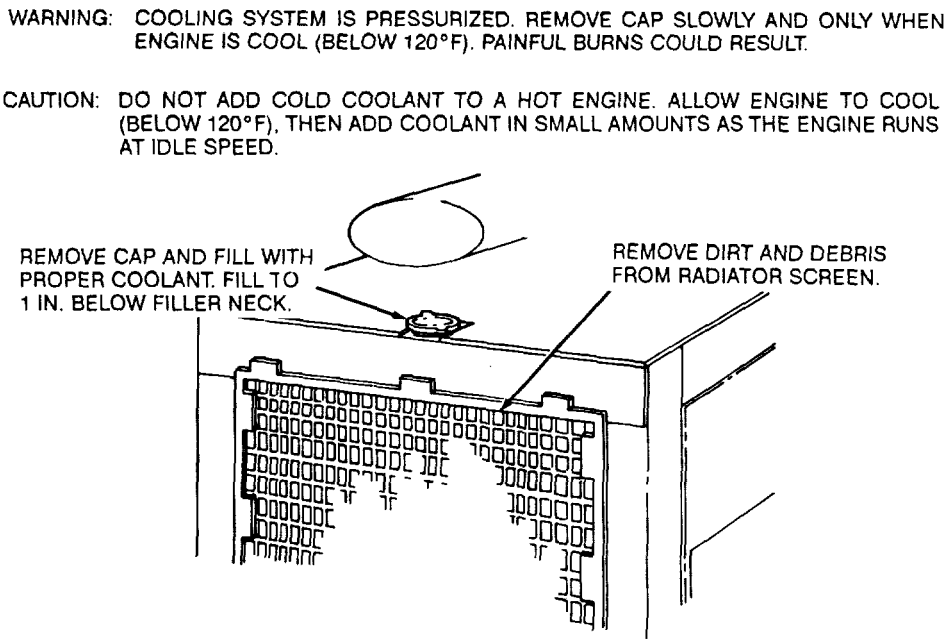

Figure 46. Radiator service.

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Section VIII. ENGINE ELECTRICAL SYSTEM

61. General

The engine electrical system consists of the generator, generator regulator, four 12 volt batteries, engine safety controls, and the control/indicator panel. The batteries are connected in series-parallel to provide 24 volts for the engine electrical system. The electrical system has a negative ground.

62. Batteries

Warning

Do not smoke or allow any flames or sparks in the vicinity while checking or filling the battery. The battery generates hydrogen, a highly explosive gas.

Warning

Battery acid (electrolyte) is extremely dangerous. Serious injury to personnel may result if battery acid contacts skin or eyes.

Inspect the batteries for corrosion, cracks, leaks, or damaged vent caps. Check for loose battery cables by hand. Remove vent caps and ensure that the electrolyte level is about X in. above the plates (figs. 47 and 48). Refer to TM 9-6140-200-14.

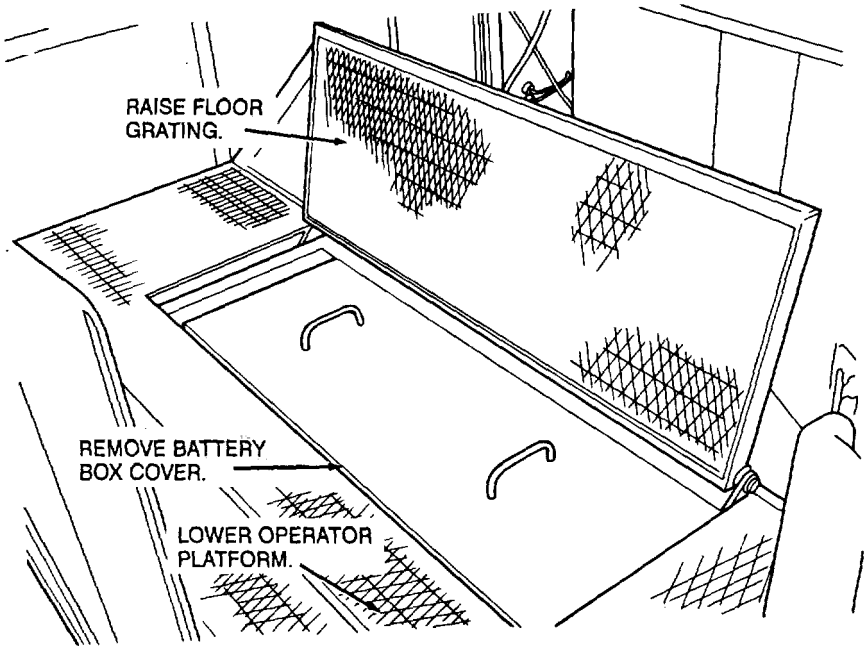

Figure 47. Battery box cover.

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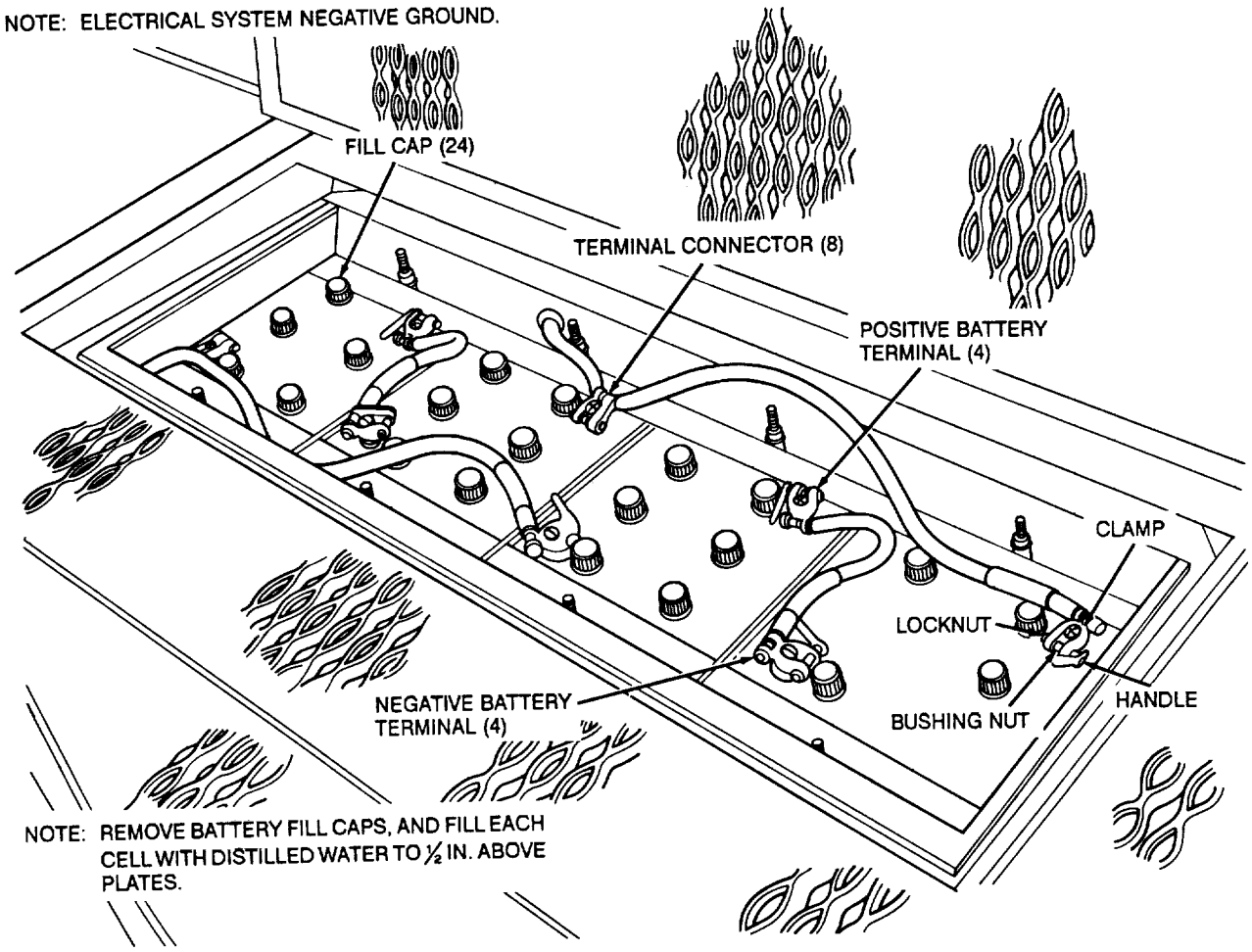

Figure 48. Batteries service.

Section IX. AIRBRAKE SYSTEM

63. General

The airbrake system has two filters to remove moisture and foreign matter from the system, and an air tank for an emergency supply of air.

64. Airbrake System

a. Inspect air lines for cuts, cracks, or broken lines.
b. Service the air filters (fig. 49).
c. Service the air reservoir (fig. 50).

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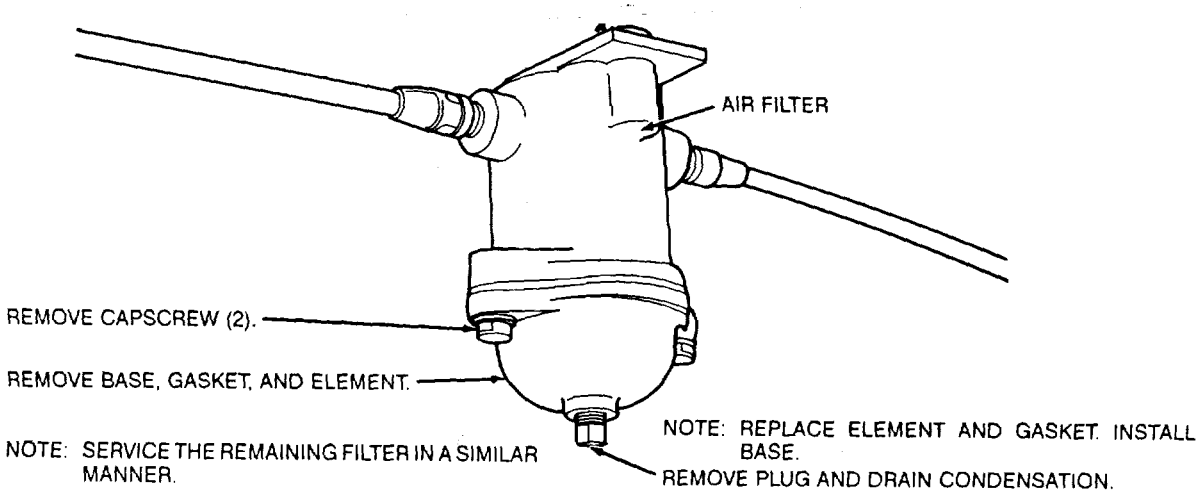


Figure 49. Air system filter service.

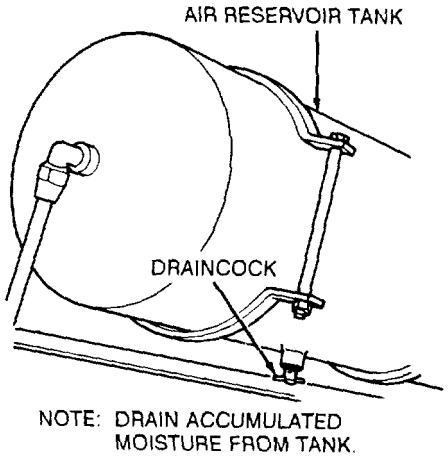


Figure 50. Air system reservoir service.

Section X. EXHAUST SYSTEM

65. General

The exhaust system consists of an exhaust silencer and exhaust pipe.

66. Inspection

Inspect the exhaust silencer and exhaust pipe for cracks or holes. Check for loose exhaust silencer clamps. Ensure that there are no restrictions in the exhaust silencer or exhaust pipe (i.e., rust, debris).

TA507956

Section XI. ENGINE CLUTCH ASSEMBLY

67. General

The engine clutch assembly engages and disengages the power from the diesel engine to the crusher jaw drive belts.

68. Engine Clutch Assembly

a. Inspect the engine clutch assembly for cracks and loose bolts or engagement handles. The clutch should engage within four seconds (with engine running). Adjustment may be required if engagement takes longer. If adjustment is required, notify organizational maintenance.

b. Service the clutch by following the lubrication instructions on the data plate located at the top of the clutch housing.

Section XII. JAW CRUSHER HYDRAULIC SYSTEM

69. General

The hydraulic system consists of a hydraulic tank and a hand pump located at the top of the tank. The hydraulic pump is used to actuate the hydraulic hoist which raises the pan feeder assembly into working position.

70. Hydraulic Tank

Service the hydraulic tank (figs. 51 and 52). Refer to LO 5-3820-205-12-2 for correct grade and type of hydraulic fluid.

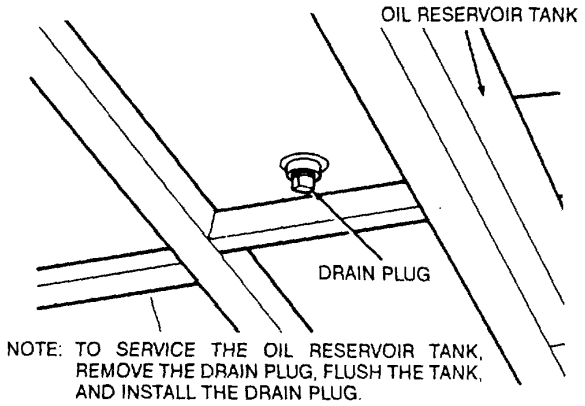
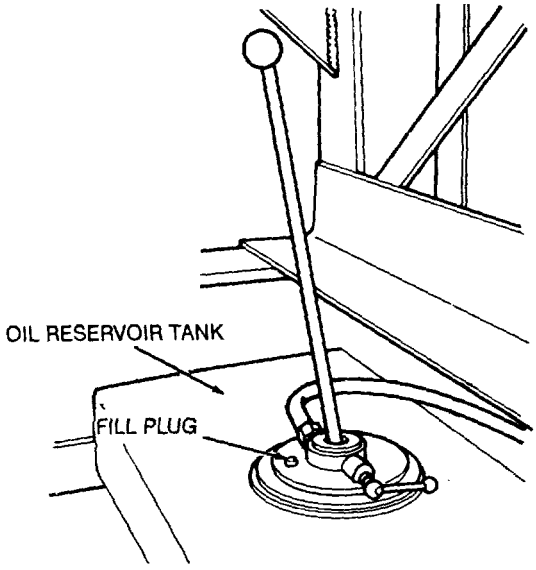


Figure 51. Hydraulic oil reservoir tank drain.



NOTE: REMOVE FILL PLUG AND FILL THE TANK WITH PROPER GRADE OF FLUID. INSTALL FILL PLUG.

Figure 52. Hydraulic oil reservoir tank fill plug.

TA507957

Section XIII. JAW CRUSHER ASSEMBLY

71. General

The jaw crusher assembly consists of a movable and a stationary jaw for crushing stone. A ratchet assembly and tension spring are located at the rear of the movable jaw for adjustment to produce the size stone required.

72. Crusher Jaw Adjustment

Adjust the crusher jaw (figs. 53 and 54).

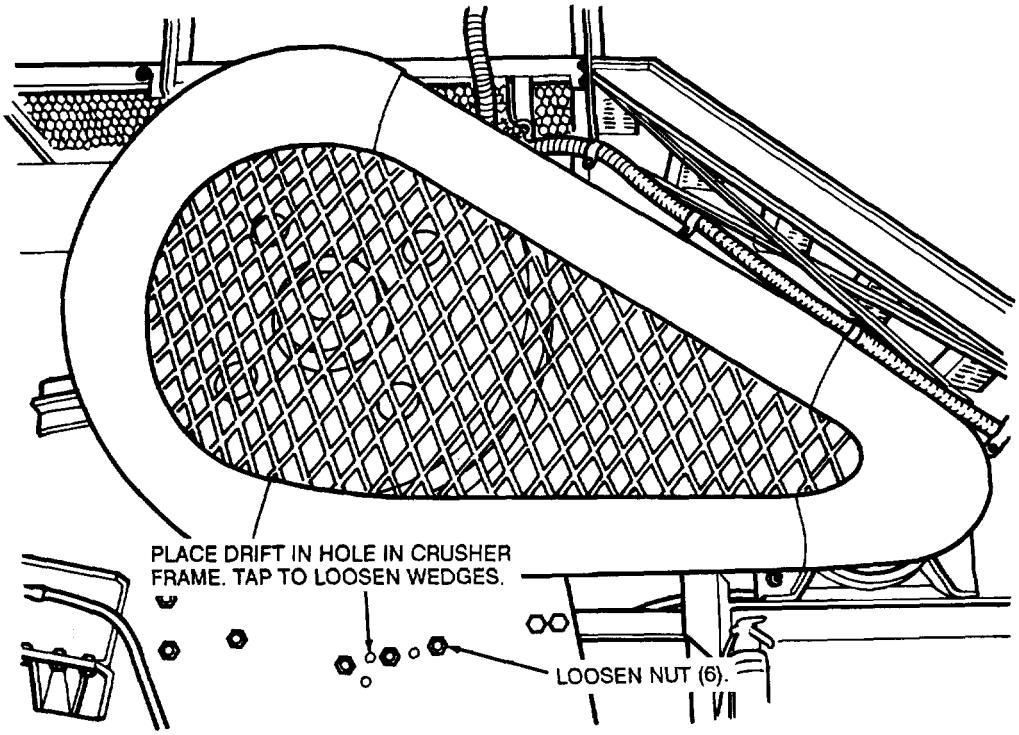


Figure 53. Movable jaw, adjustment (loosen wedges).

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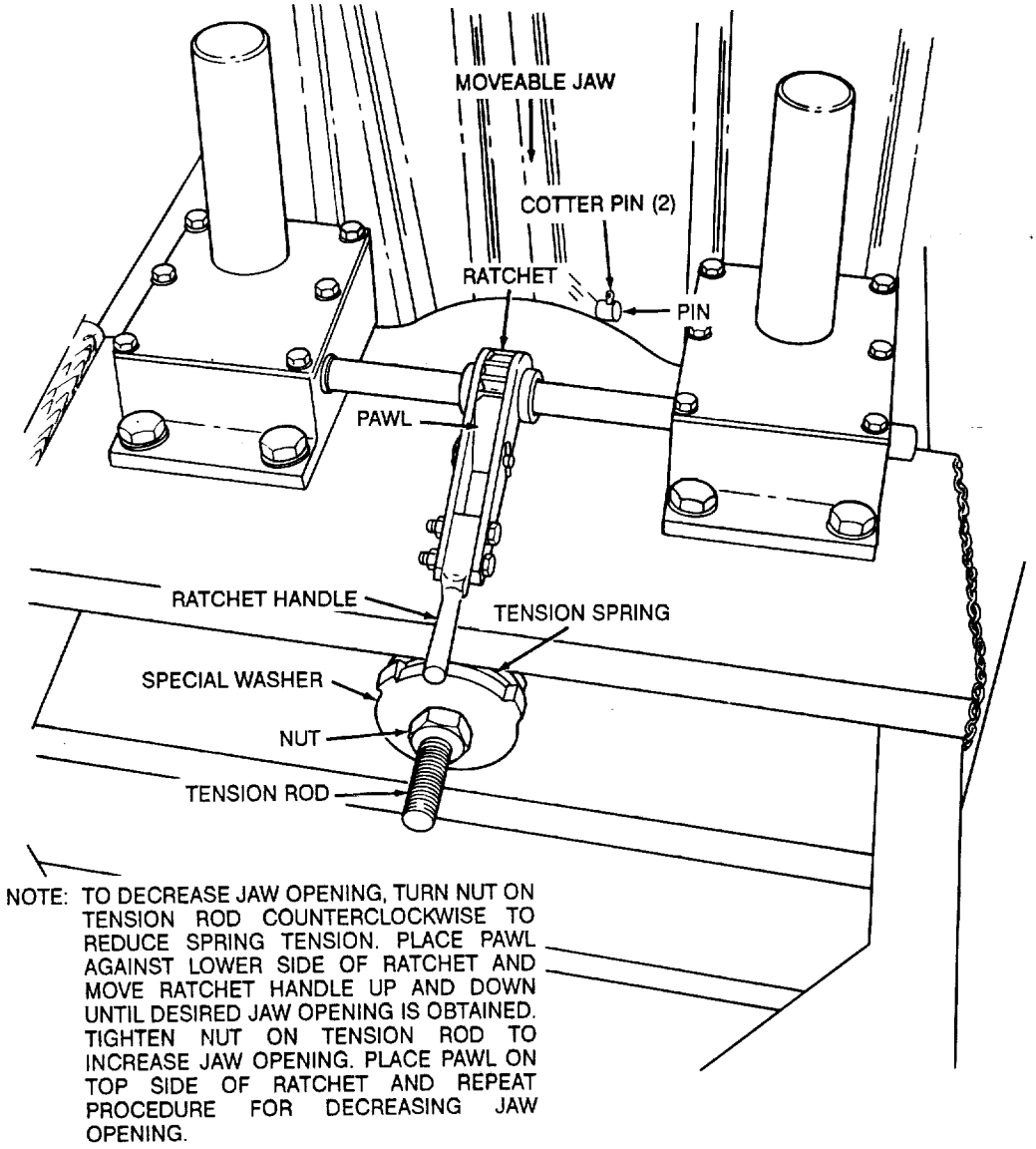

Figure 54. Movable jaw, adjustment (jaw opening).

TA507959

Section XIV. SCALPER VIBRATING SCREEN ASSEMBLY

73. General

The scraper vibrating screen assembly is driven by an electric motor. Power is transmitted to the vibrating screen from the electric motor by two V-belts.

74. Scalper Vibrating Screen Replacement

a. Removal. Remove the scalper vibrating screen (figs. 55-57).

b. Cleaning, Inspection, and Repair. Clean and inspect the scalper vibrating screen for any damage and replace as necessary.

75. Scalper Vibrating Screen Drive Belts Adjustment

Adjust the scalper vibrating screen drive belts (figs. 58 and 59).

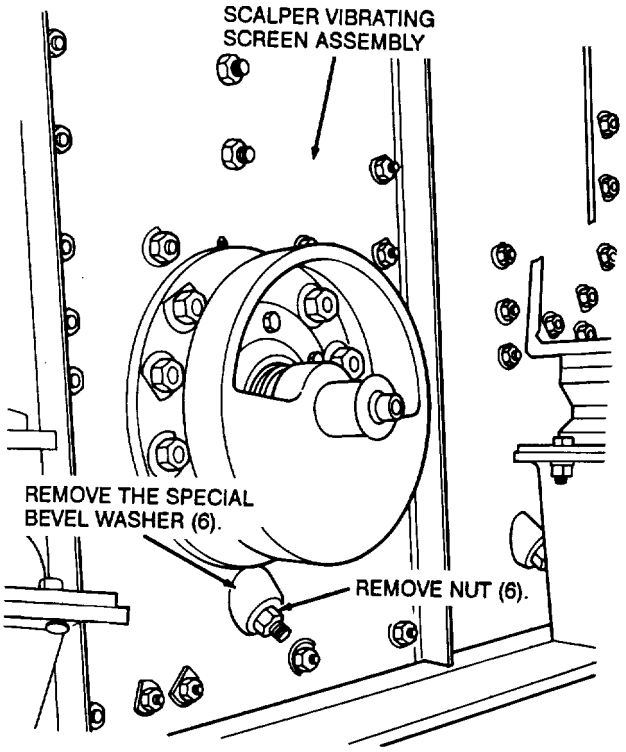

Figure 55. Scalper vibrating screen retaining bolts, installed view.

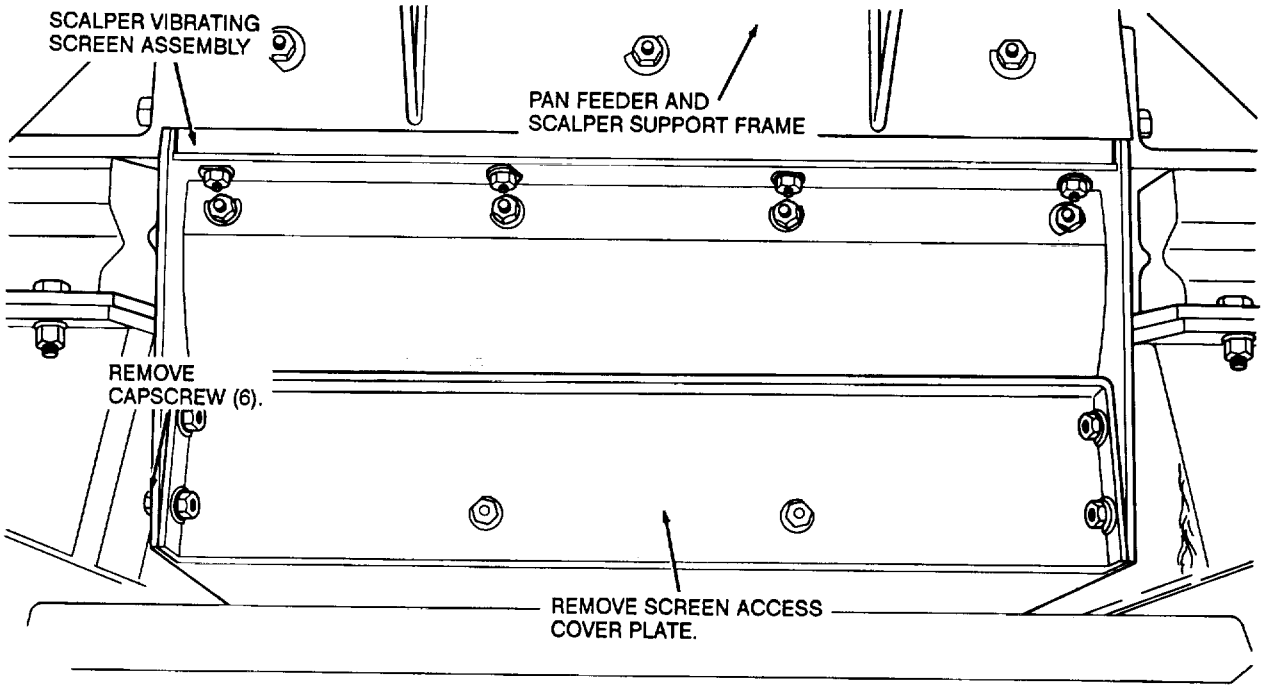

Figure 56. Scalper vibrating screen access cover plate, installed view.

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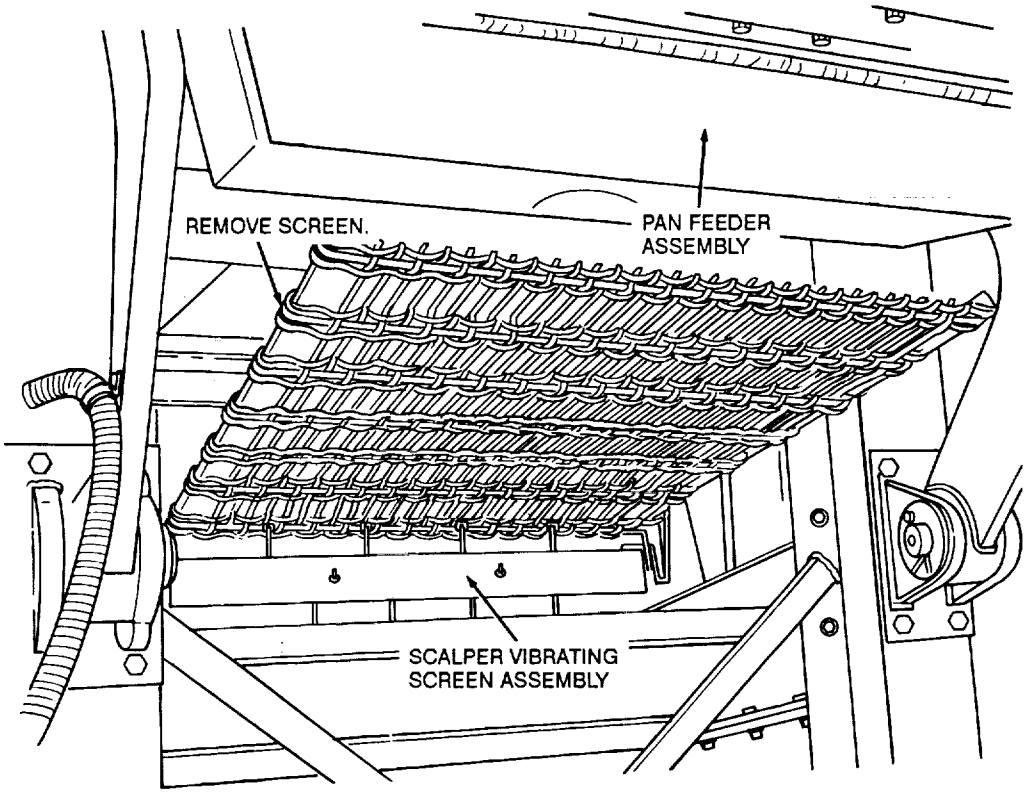

Figure 57. Scalper vibrating screen partially removed.

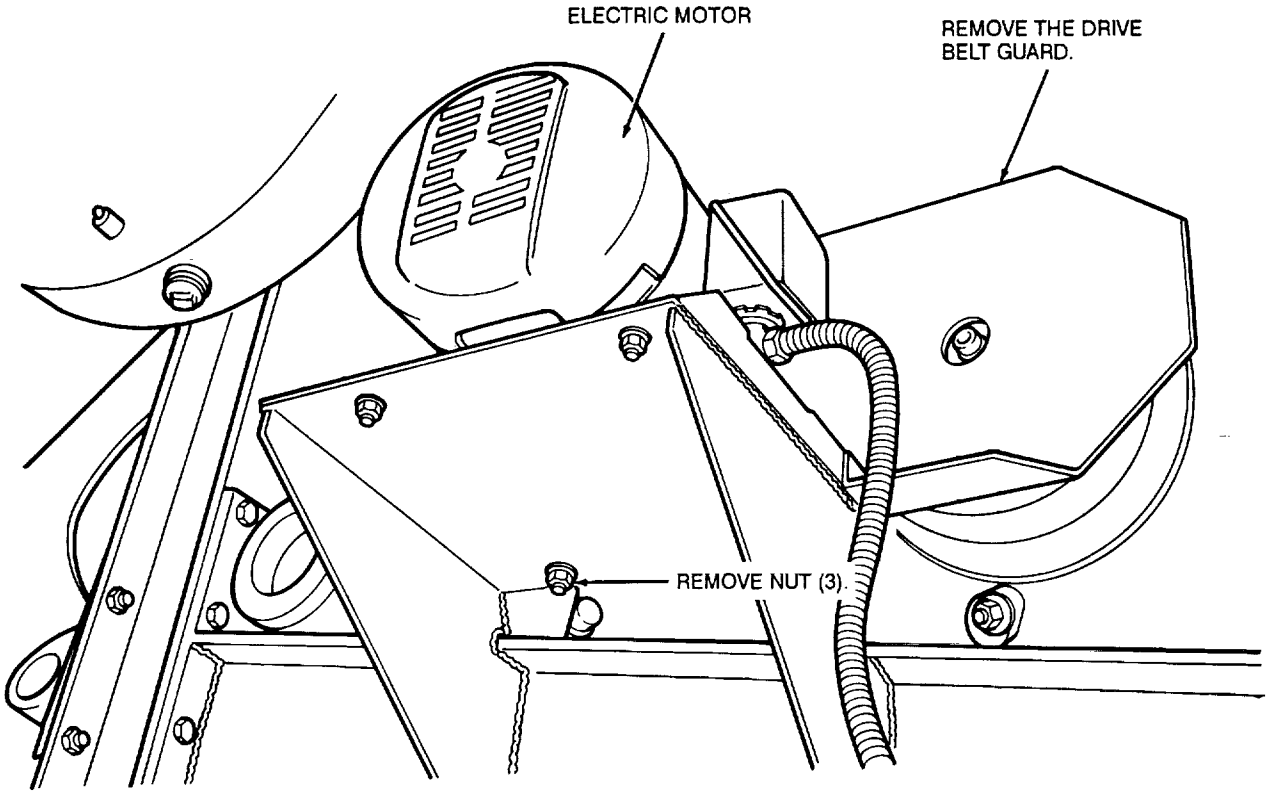

Figure 58. Scalper vibrating screen belt guard installed.

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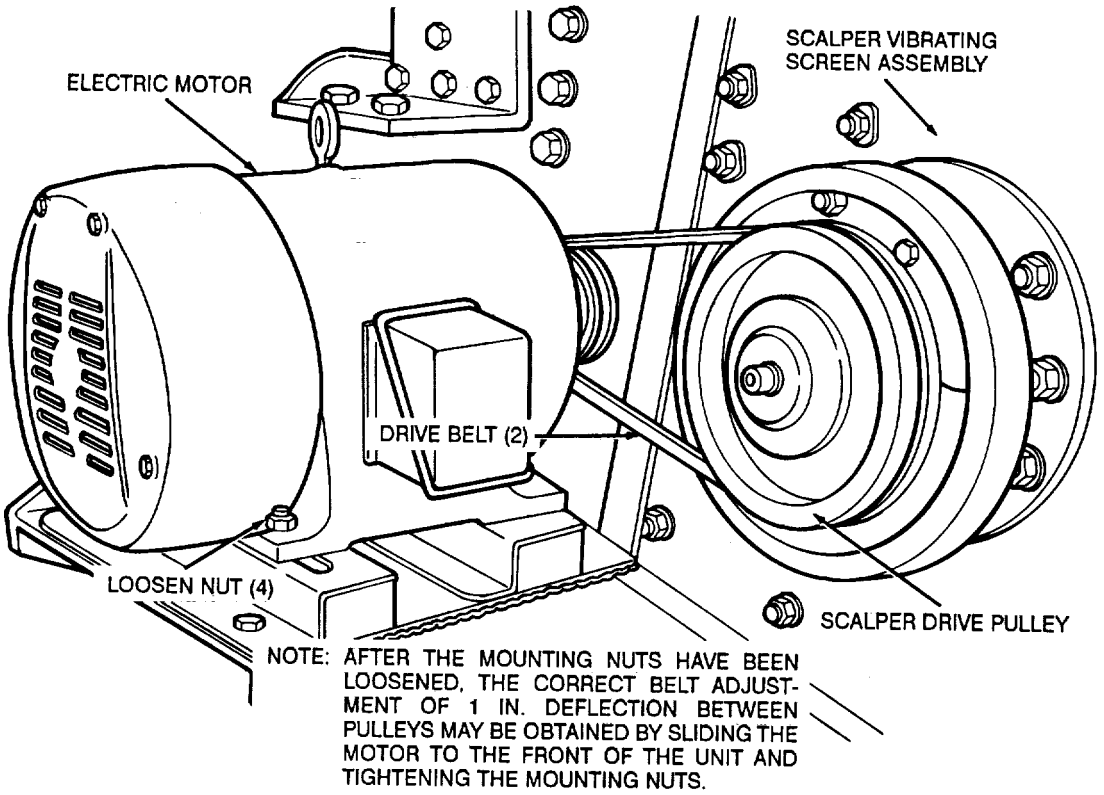

Figure 59. Scalper vibrating screen belt guard removed and belt adjustment.

Section XV. PAN FEEDER ASSEMBLY

76. General

The pan feeder assembly is driven by a 10-horsepower electric motor. Power is transmitted to the pan feeder conveyor from two V-belts through the gear reduction to the drive shaft and sprockets.

77. Pan Feeder Assembly Drive Belts Adjustment

Adjust the pan feeder drive belts (fig. 60).

Section XVI. MAIN CONVEYOR ASSEMBLY

78. General

The main conveyor assembly is driven by a 10-horsepower electric motor. Power is transmitted to the main conveyor from the two V-belts through the gear reduction to the conveyor drive head roller.

79. Main Conveyor Assembly Drive Belts Adjustment

Adjust the main conveyor drive belts (fig. 61).

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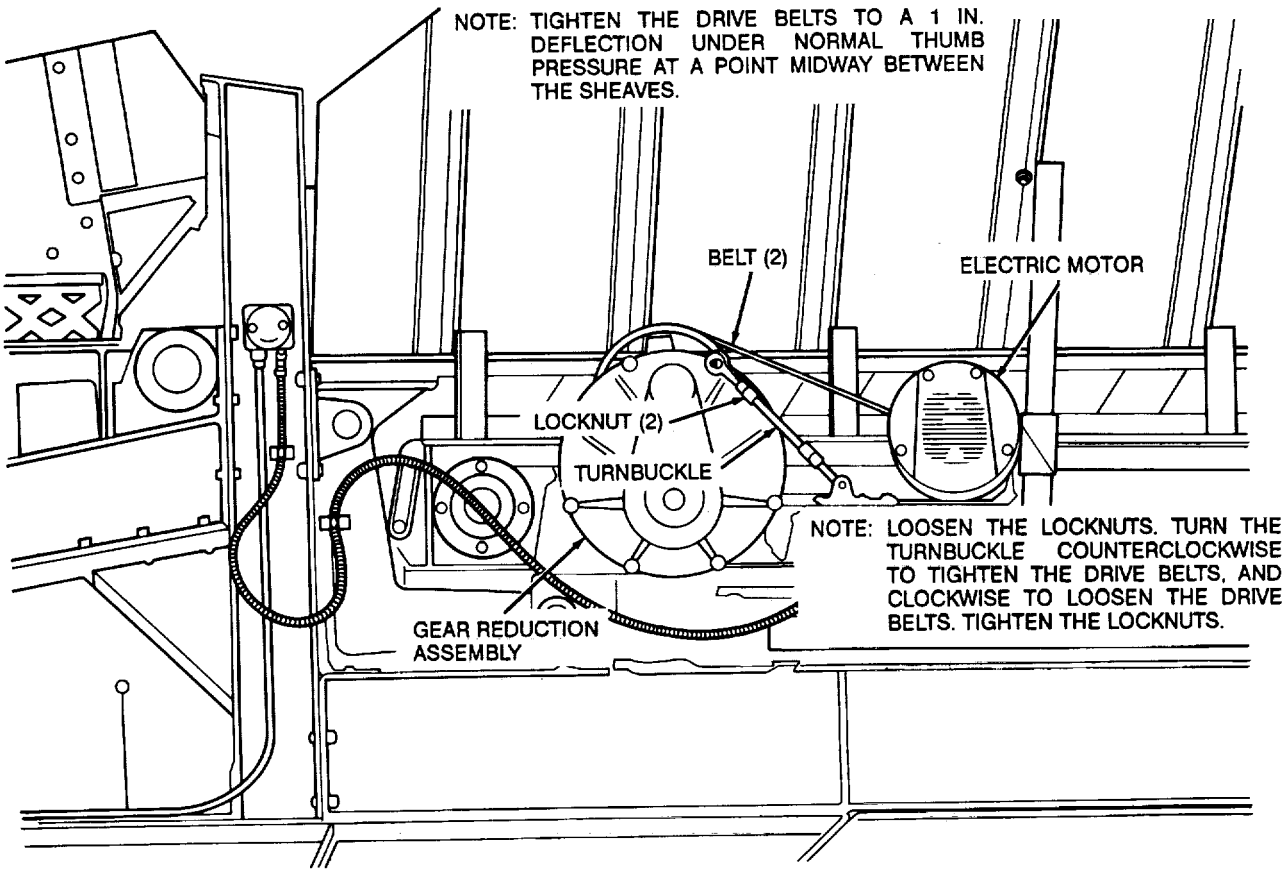

Figure 60. Pan feeder drive belt, adjustment.

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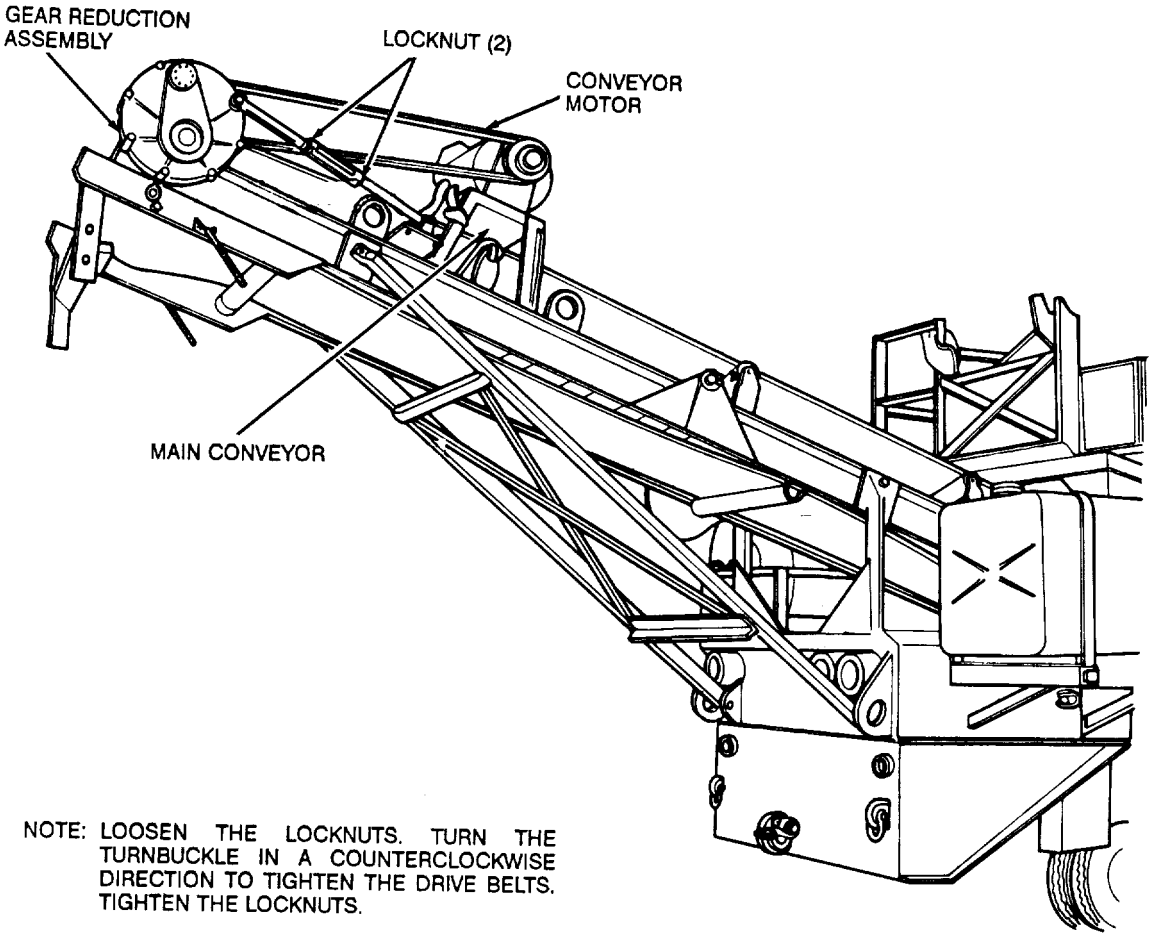

Figure 61. Main conveyor drive belt, adjustment.

Section XVII. LEVELING JACKS

80. General

The leveling jacks are used to level the jaw crusher for operation (fig. 4).

81. Cleaning and Inspection

Clean the leveling jacks and inspect for cracks, or any broken or bent parts. Check for broken or cracked welds. Put a light coat of oil on the leveling jack threads.

TA507964

CHAPTER 4
DEMOLITION OF THE JAW CRUSHER TO PREVENT ENEMY USE

82. General

When capture or abandonment of the jaw crusher to an enemy is imminent, the unit commander responsible must make the decision either to destroy the equipment or to render it inoperative. Based on this decision, orders are issued which cover the desired extent of destruction. Whatever method of demolition is employed, it is essential to destroy the same vital parts of all jaw crushers and all corresponding repair parts.

83. Demolition to Render the Jaw Crusher Inoperative

a. Demolition by Mechanical Means. Use sledge hammers, crowbars, picks, axes, or other heavy tools that may be available, together with the tools normally included with the jaw crusher, to destroy the following:

Note

The following steps are minimum requirements for this method.

(1) Fuel pump, manifold, radiators, fuel filter, and instruments.
(2) Discharge and feeder conveyors.
(3) Motors, drive belts, and pulleys.
(4) Conveyor rollers, tires, and control box.
(5) Lights, electrical panels, and electrical cables.

b. Demolition by Misuse. Perform the following steps to render the jaw crusher inoperative.

Note

The following steps are minimum requirements for this method.

(1) Drain the engine.
(2) Drain all gear housings.
(3) Drain hydraulic tank.
(4) Throw sand, mud, and other foreign substances into the oil filter openings and engine crankcase.
(5) Drain the cooling system.
(6) Throw dirt or sand into the radiator and fuel tank.
(7) Operate the engine at full speed until failure occurs.

84. Demolition by Explosives or Weapons Fire

a. Explosives. Place as many of the charges shown on figure 62 as the situation permits and detonate them simultaneously with a detonating cord and a suitable detonator.

Note

The charges in steps 1 and 2 are minimum requirements for this method.

(1) One ½ lb charge between injection pump and engine block.
(2) Two ½ lb charges on engine clutch.
(3) One ½ lb charge on conveyor motor.
(4) Two ½ lb charges on main electrical panel.
(5) One ½ lb charge on vibrating screen motor.
(6) Two ½ lb charges on axle housings.
(7) One ½ lb charge on feeder conveyor motor.
(8) Six ½ lb charges between crusher jaws.

b. Weapons Fire. Fire on the jaw crusher with the heaviest practical weapons available.

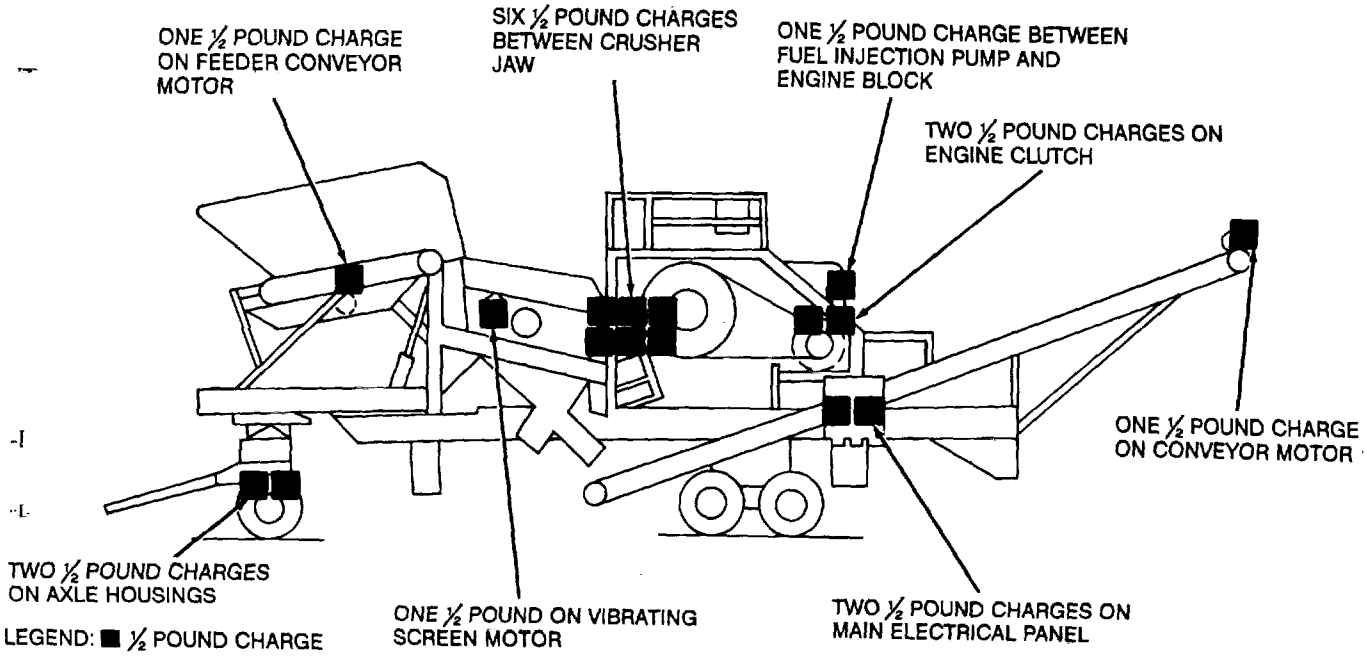

Figure 62. Placement of demolition charges.

85. Other Demolition Methods

a. Scattering and Concealment. Remove all easily accessible parts, such as fuel pump, fuel filters, oil filter, air cleaner, and batteries. Scatter them through dense foliage, bury them in the ground, or throw them in a lake, stream, or other body of water.

b. Burning. Pack rags, clothing, or canvas around the engine, conveyors, and electrical panels. Saturate this packing with gasoline, oil, or diesel fuel and ignite.

c. Submersion. Totally submerge the jaw crusher in a body of water, if possible, to create water damage and provide concealment. Saltwater will damage metal parts more than fresh water.

86. Training

All operators should receive thorough training in the destruction of the jaw crusher. Refer to TM 750-244-3. Simulated destruction, using all of the methods listed above, should be included in the operator training program. It must be emphasized in training that demolition operations are usually necessitated by critical situations when time available for carrying out destruction is limited. For this reason, it is necessary that operators be thoroughly familiar with all methods of destruction of equipment and be able to carry out demolition instructions without reference to this or any other manual.

APPENDIX I
REFERENCES

1. Dictionaries of Terms and Abbreviations

AR 310-25	Dictionary of United States Army Terms
AR 310-50	Authorized Abbreviations and Brevity Codes

2. Fire Protection

TB 5-4200-200-10	Hand Portable Fire Extinguishers Approved for Army Users

3. Lubrication

TB 703-1	Specification List of Standard Liquid Fuels, Lubricants, Preservatives, and Related Products Authorized for Use by the U.S. Army
LO 5-3820-205-12-2	Lubrication Order for Crusher, Jaw: Diesel and Electric Driven, Wheel Mounted, Pneumatic Tires, 75 Ton Per Hour

4. Painting

TM 43-0139	Painting Instructions for Army Materiel

5. Preventive Maintenance

AR 750-5	Maintenance Responsibilities and Shop Operation.
DA Pam 738-750	The Army Maintenance Management System (TAMMS)
FM 9-207	Operation and Maintenance of Ordnance Materiel in Cold Weather (00 to -65 F)
TM 5-3820-205-20-2	Organizational Manual for Crusher, Jaw: Diesel and Electric Driven, Wheel Mounted, Pneumatic Tires, 75 Ton Per Hour
TM 9-2610-200-14	Operator's, Unit, Direct Support, and General Support Maintenance Manual for Care, Maintenance, Repair, and Inspection of Pneumatic Tires and Inner Tubes
TM 9-6140-200-14	Operator's, Unit, Intermediate Direct Support, and Intermediate General Support Maintenance Manual for Lead-Acid Storage Batteries

6. Publication Indexes

DA Pam-25-30	Consolidated Index of Army Publications and Blank Forms

7. Training Aids

FM 105-5-1	Operational Terms and Symbols
TM 750-244-3	Procedures for Destruction of Equipment to Prevent Enemy Use (Mobility Equipment Command)

APPENDIX II
BASIC ISSUE ITEMS LIST

Section I. Introduction

1. Scope

This appendix lists Basic Issue Items which accompany the jaw crusher and are required by the operator/crew for operation, installation, or operator's maintenance.

2. General

The Basic Issue Items listed in Section II are the minimum essential items required to place the jaw crusher in operation, to operate it, and to perform emergency repairs. Although shipped separately packaged, BII must be with the jaw crusher during operation and whenever it is transferred between property accounts. The illustrations will assist you with hard-to-identify items. This manual is your authority to request/requisition replacement BII, based upon TOE/MTOE authorizations of the end item.

3. Explanation of Columns

The following provides an explanation of columns in the tabular listing:

a. Column (1)-Illustration Number (Illus Number). This column indicates the number of the illustration in which the item is shown.

b. Column (2)-National Stock Number. Indicates the National Stock Number (NSN) assigned to the item and will be used for requisitioning purposes.

c. Column (3)-Description. Indicates the Federal Item Name and, if required, a description to identify and locate the item. The last line for each item indicates the Commercial and Government Entity (CAGE) Code in parentheses, followed by the part number.

d. Column (4)-Unit of Measure (U/M). Indicates the measure used in performing the actual operational/maintenance function. This measure is expressed by a two-character alphabetical abbreviation (e.g., ea, in., pr).

e. Column (5)-Quantity Required (Qty Rqr'd). Indicates the quantity of the item authorized to be used with/on the equipment.

Section II. BASIC ISSUE ITEMS LIST

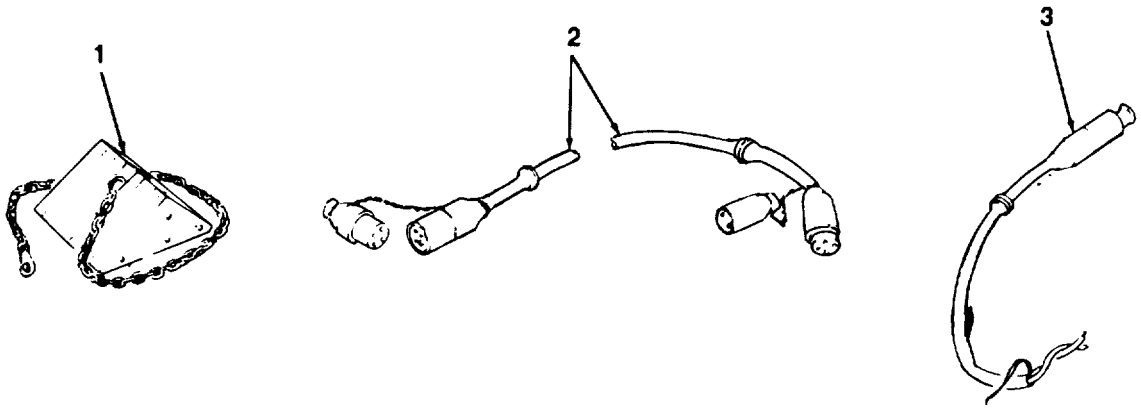

Figure 63. Basic issue items.

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION CAGEC AND PART NUMBER	(4) U/M	(5) QTY RQD
	6140-01-210-1964	Battery, Storage 12 V, 6 Cell (96906) MS52149-1	ea	4
1	2540-00-670-2003	Block Chock Assembly (19207) 8343584	ea	4
2	6150-00-930-0559	Cable, Power (100 ft g19) (90129) X8617-25	ea	2
3	3820-00-999-7536	Cable, Power (Pigtail) (90129) X8617-24	ea	1
	7520-00-559-9618	Case, Maintenance and Operational Manuals (81349) MIL-C-11743	ea	1

TA507966

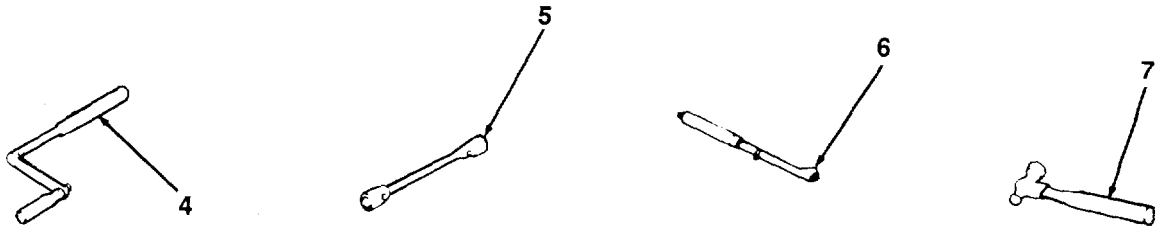

Figure 63. Basic issue items (Con 't).

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION CAGEC AND PART NUMBER	(4) U/M	(5) QTY RQD
4	5340-00-937-3086	Crank, Hand, Cable Reel (92858) H-1061A-32	ea	1
		Department of the Army Lubrication Order LO 5-3820-205-12-2	ea	1
		Department of the Army Operator's Manual TM 5-3820-205-10-2	ea	1
		Department of the Army Organizational, Direct and General Support Maintenance Repair Parts and Special Tool Lists TM 5-3820-205-24P-2	ea	1
		Department of the Army Organizational Maintenance Manual TM 5-3820-205-20-2	ea	1
5	5120-00-227-8079	Extension, Socket Wrench 16 in. Ig, X in. dr (81348) GGG-W-461	ea	1
	4210-00-270-4512	Extinguisher, Fire, Carbon Dioxide (19207) 7714780	ea	1
6	4910-01-121-9847	Gage, Tire Pressure (55719) YA804	ea	1
7	5120-00-243-2963	Hammer, Hand (81348) GGG-W-641	ea	1

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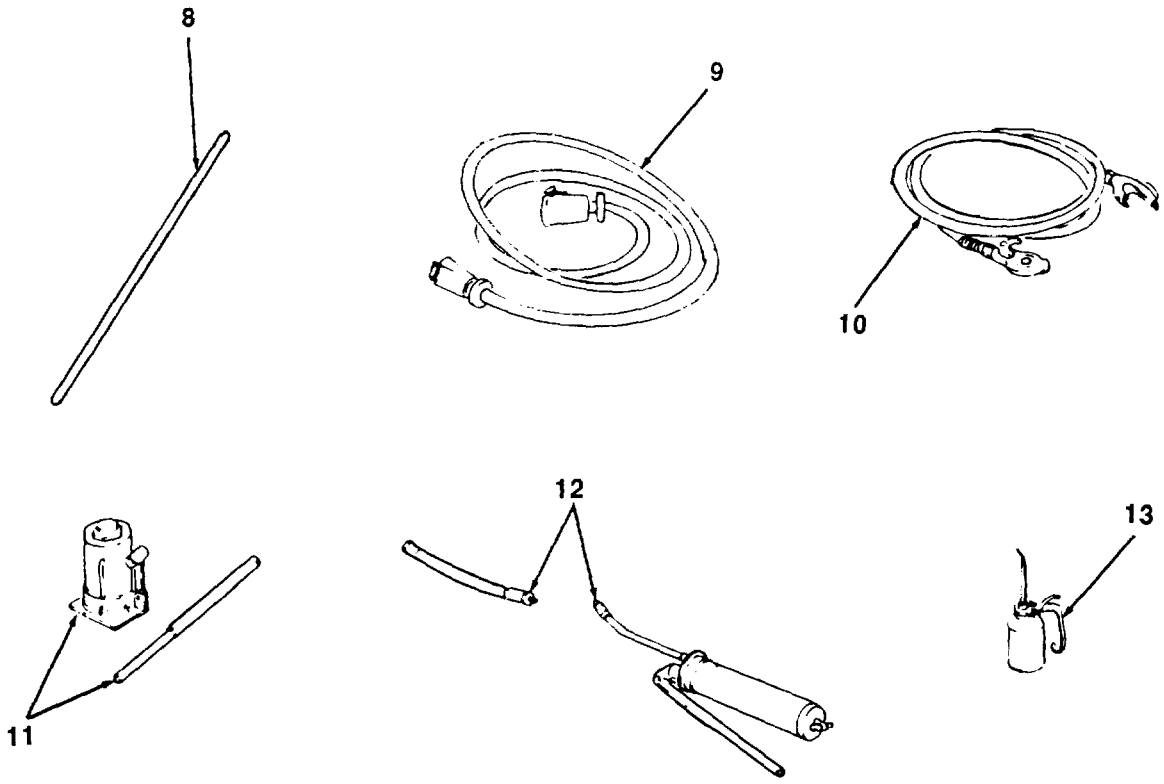

Figure 63. Basic issue items (Con't).

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION CAGEC AND PART NUMBER	(4) U/M	(5) QTY RQD
8	5120-00-709-4072	Handle, Socket Wrench 18A in. Ig, X in. dr (55719) L52BH	ea	1
9	2590-00-772-8815	Harness, Wiring (19207) 7728815	ea	1
	4720-00-703-4163	Hose, Emergency (16662) AD28139	ea	1
10	4720-00-703-4161	Hose, Service (16662) AD2611	ea	1
11	5120-01-244-7329	Jack, Hydraulic, Hand (81348) GGG-J-51	ea	1
12	4930-00-253-2478	Lubricating Gun, Hand (81349) MIL-G-3859	ea	1
13	4930-00-274-5713	Oiler, Hand (96906) MS15761-1	ea	1

TA507968

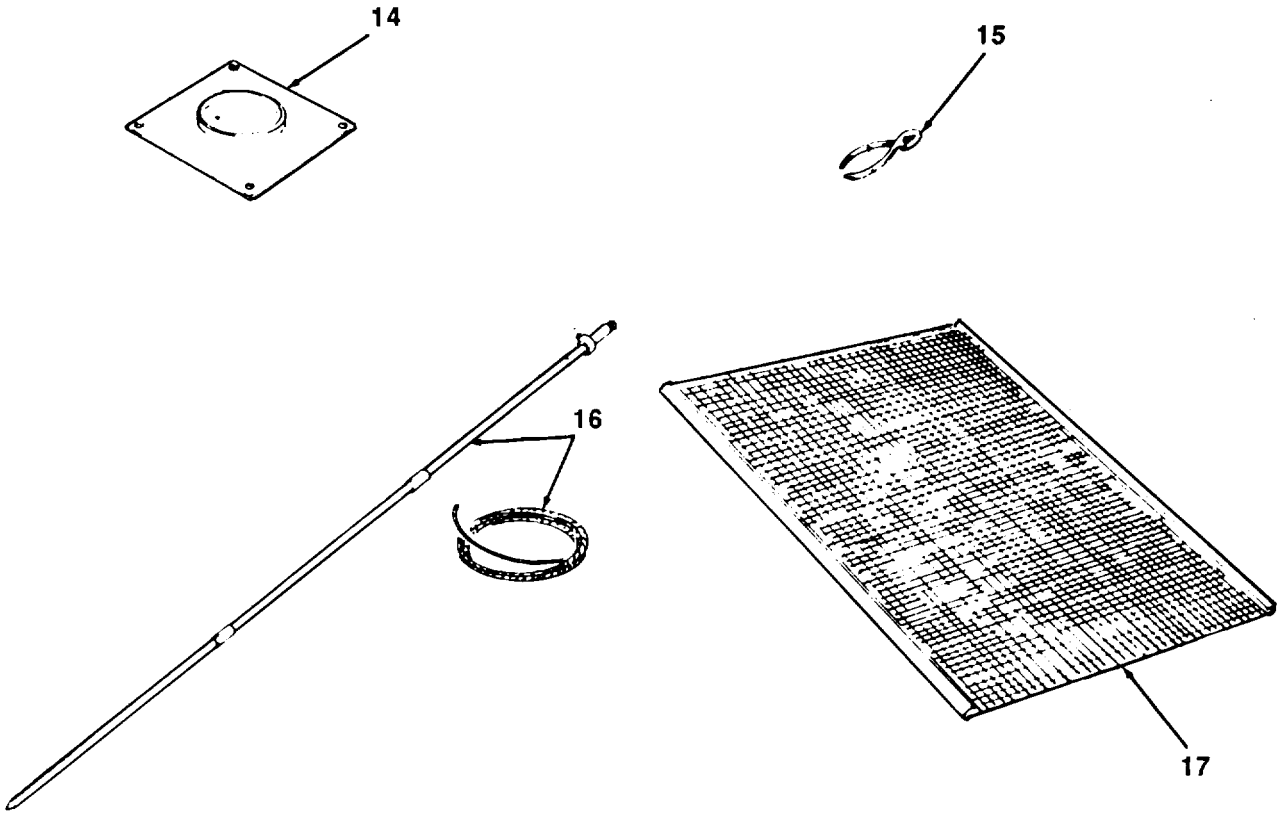

Figure 63. Basic issue items (Con 't).

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION CAGEC AND PART NUMBER	(4) U/M	(5) QTY RQD
14	3820-00-930-6085	Pad, Jack (18990) 20310	ea	4
15	5120-00-223-7396	Pliers, Slip Joint (81348) GGG-P-471	ea	1
16	3820-00-930-6086	Rod Assembly, Ground (77241) 30162	ea	1
17	3820-00-732-7363	Screen, Wire (18990) 20663A	ea	2
17	3820-00-703-2271	Screen, Wire (18990) 20663B	ea	2

TA507969

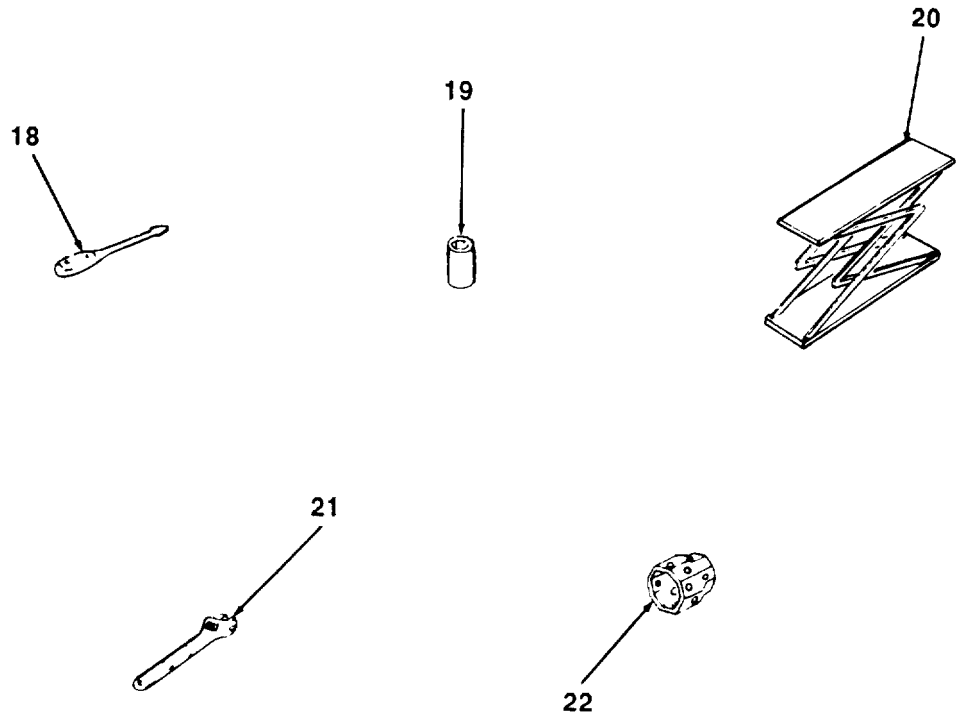

Figure 63. Basic issue items (Con't).

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION CAGEC AND PART NUMBER	(4) U/M	(5) QTY RQD
18	5120-00-236-2092	Screwdriver, Flat Tip (81348) GGGS121TYPE1	ea	1
19	5120-00-199-7767	Socket, Socket Wrench 14 in. x y4 in. dr (58536) A-A-1394	ea	1
	6810-00-249-9345	Sulfuric Acid, Electrolyte (19207) 10875529	gl	8
20	4910-00-262-0392	Trestle, Motor Vehicle (81349) MIL-T-14521	ea	1
21	5120-00-240-5328	Wrench, Adjustable (19207) 11655778-3	ea	1
21	5120-00-240-1414	Wrench, Adjustable (81348) GGG-W-631	ea	1
22	5120-00-393-0560	Wrench, Wheel Bearing (19207) 8390299	ea	1

TA507970

INDEX

INDEX

INDEX

INDEX

By Order of the Secretary of the Army:

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To be distributed in accordance with DA Form 12-25-E (Block 2900) Operator maintenance requirements for TM5-3820-205-10-2.

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RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL PUBLICATIONS

THEN...JOT DOWN THE DOPE ABOUT IT ON THIS FORM. CAREFULLY TEAR IT OUT, FOLD IT AND DROP IT IN THE MAIL.

SOMETHING WRONG WITH PUBLICATION

FROM: (PRINT YOUR UNIT'S COMPLETE ADDRESS)

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PUBLICATION NUMBER	PUBLICATION DATE	PUBLICATION TITLE

BE EXACT PIN-POINT WHERE IT IS

PAGE NO.	PARA-GRAPH	FIGURE NO.	TABLE NO.

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

PRINTED NAME, GRADE OR TITLE AND TELEPHONE NUMBER	SIGN HERE

DA FORM 1 JUL 79 2028-2

PREVIOUS EDITIONS ARE OBSOLETE.

P.S.--IF YOUR OUTFIT WANTS TO KNOW ABOUT YOUR RECOMMENDATION MAKE A CARBON COPY OF THIS AND GIVE IT TO YOUR HEADQUARTERS.

THE METRIC SYSTEM AND EQUIVALENTS

LINEAR MEASURE

1 Centimeter = 10 Millimeters = 0.01 Meters = 0.3937 Inches

1 Meter = 100 Centimeters = 1,000 Millimeters = 39.37 Inches

1 Kilometer = 1,000 Meters = 0.621 Miles

SQUARE MEASURE

1 Sq Centimeter = 100 Sq Millimeters = 0.155 Sq Inches

1 Sq Meter = 10,000 Sq Centimeters = 10.76 Sq Feet

1 Sq Kilometer = 1,000,000 Sq Meters = 0.386 Sq Miles

CUBIC MEASURE

1 Cu Centimeter = 1,000 Cu Millimeters = 0.06 Cu Inches

1 Cu Meter = 1,000,000 Cu Centimeters = 35.31 Cu Feet

LIQUID MEASURE

1 Milliliter = 0.001 Liters = 0.0338 Fluid Ounces

1 Liter = 1,000 Milliliters = 33.82 Fluid Ounces

TEMPERATURE

5/9 (°F -32) = °C

212° Fahrenheit is equivalent to 100° Celsius

90° Fahrenheit is equivalent to 32.2° Celsius

32° Fahrenheit is equivalent to 0° Celsius

9/5 C° +32 = F°

WEIGHTS

1 Gram = 0.001 Kilograms = 1,000 Milligrams = 0.035 Ounces

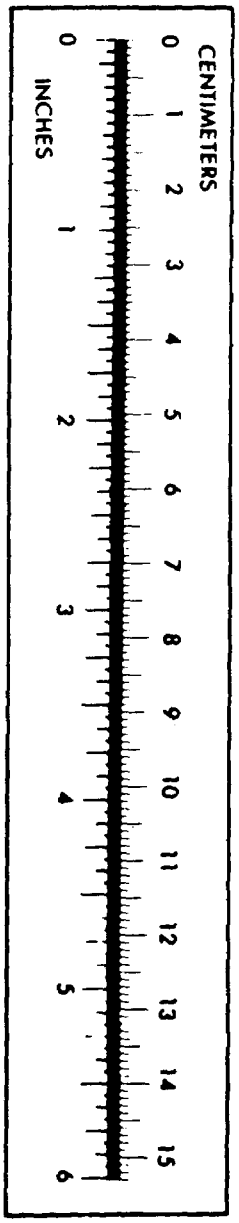
1 Kilogram = 1,000 Grams = 2.2 Lb.

1 Metric Ton = 1,000 Kilograms = 1 Megagram = 1.1 Short Tons

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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