TECHNICAL MANUAL

OPERATOR, UNIT, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE MANUAL (INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST)

MELTER, ASPHALT, SKID MOUNTED
HOT OIL CIRCULATING, 750 GPH
CHAUSSE MODEL STMD-3000A
(NSN 3895-01-332-3024)
END ITEM CODE (EIC): E4Y

Contract No. DAAE07-90-C-1294

Approved for public release; distribution is unlimited

*** This manual supersedes TM 5-3895-368-14&P, dtd November 1992**

HEADQUARTERS, DEPARTMENT OF THE ARMY

15 FEBRUARY 1996

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HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC, 15 February 1996

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Current as of 19 December 1995

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, US Army Tank-automotive and Armament Command, ATTN: AMSTA-IM-MMAA, Warren MI 48937-5000. A reply will be sent to you.

Portions of this technical manual are an authentication of the manufacturers commercial literature and does not conform with the format and content specified in AR 25-30, Military Publications. This technical manual does, however contain available information that is essential to the operation and maintenance of the equipment.

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Section I. - INTRODUCTION

1-1. Description.

a. This manual provides instructions for operation and service and lists repair parts for the Chausse Model STMD-3000A, asphalt de-drumming melter, manufactured by Chausse Manufacturing Co., Inc. The unit consists of a de-drumming tunnel and a 3000 gallon capacity, heated storage tank. The tunnel is constructed to handle a maximum of six, 55 gallon drums at one time, with a melting rate of 750 gallons per hour of 85-100 penetration asphalt cement. The melted cement can be maintained in the storage tank at pouring temperature (235°F.), and transferred to bulk storage tanks or distributors by means of a separately supplied asphalt pump. Figure 1-1, identifies major components and features of the melter in its basic operating configuration.

b. The tunnel and storage tank are equipped with heat dissipating coiled piping, interconnected with removable external piping and valves to permit control of heat transfer medium. A separately supplied heat supply must provide 1, 000, 000 BTU per hour to the melter. Circulating hot oil is recommended as the most efficient heat transfer medium. When oil is not available, hot water or steam can be substituted, but only when proper safety devices are installed in the heat transfer piping system.

c. Attached to the front of the asphalt melter is a loading platform with an electric hoist to assist the operator in loading asphalt drums in the tunnel. A ladder provides access to the load platform. A discharge chute is attached to the rear to receive empty drums. A gate on the bottom of the discharge chute holds the empty drums from one charge of the tunnel, allowing controlled removal of empty drums.

d. Right and left sides of the melter are determined by standing at the rear of the melter, looking forward.

1-2. Tabulated Data.

Model STMD-3000A
De-drumming Rate ..... 750 GPH
Tunnel Capacity..... 6 - 55 Gal. Drums
Storage Tank Capacity ..... 3000 Gal.
Hoist Capacity..... 1000 pounds
Heat Requirement ..... 1,000,000 BTU/Hr.
Heat Transfer Piping..... 2 inch
Asphalt Piping..... 3 inch
Shipping Dimensions:
Height .....102 inches
Width .....79 inches
Length.....209 inches
Weight (Clean) .....12, 100 pounds
Operating Dimensions:
Height (Top of tunnel).....145.75 inches
(Top of hoist) .....155 inches
(Drum loading platform)....75 inches
Width .....91 inches
Length.....370 inches
Weight (Clean) .....12, 100 pounds

1-3. Safety Precautions.

a. When lifting unit in shipping configuration, do not use lifting eyes of tunnel. Attach lifting sling to eyes in ends of skid rails and guide sling cables over the stand-off guard at front and rear of unit.

b. Operator must wear Personal Protective Equipment while working with hot asphalt. Full face shield, leather or rubber safety shoes, heavy insulated gloves, and protective clothing such as coveralls covering all exposed skin on arms and legs.

c. Do not operate unit in the rain. Operation of melter during rain may cause the asphalt to boil and catch fire. After a rain or during humid conditions, open the tunnel doors and dry the unit before operating. Keep the heat transfer piping system full to minimize condensation.

d. Keep an accurate record of the amount of asphalt that is de-drummed. Do not overfill the storage tank, maximum capacity is 3000 gallons.

e. Allow unit to cool to ambient temperature before starting cleaning operations or dismantling of unit.

f. Use only approved type solvents. Do not use gasoline or diesel fuel to clean equipment parts, clothing, floors, etc., or for any cleaning purposes.

g. During operation, associated equipment to the melter, (generator, hot oil heater) produce noise levels that exceed 85 dB. Wear approved hearing protection devices.

h. When using hoist: do not lift more than rated load; do not pull load at an angle, be sure hoist and load are in a straight line; do not operate a damaged or malfunctioning hoist; do not operate hoist with twisted, kinked or damaged chain.

i. Do not lift personnel with hoist, or lift load over personnel.

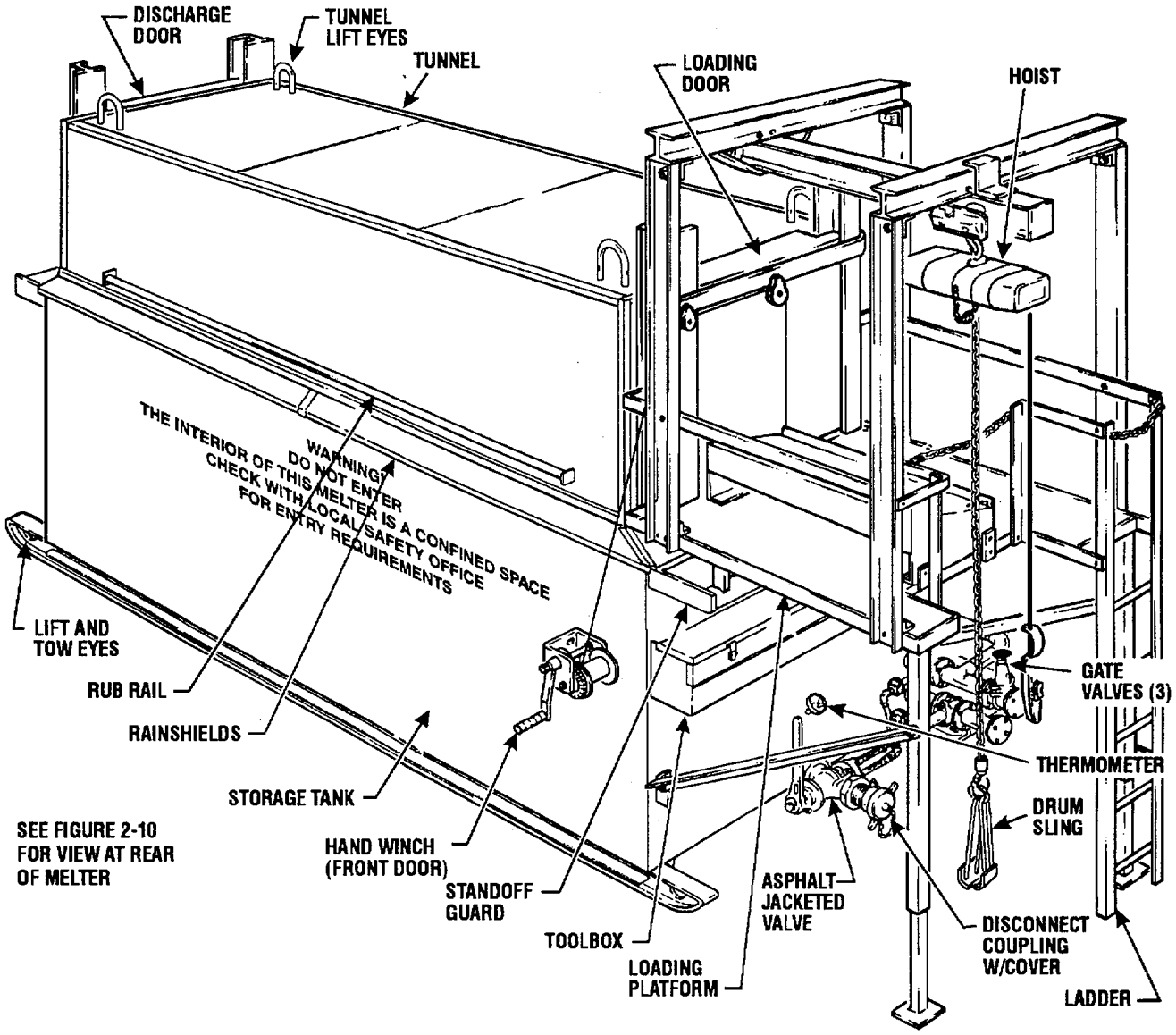

Figure 1-1. Asphalt Melter, Model STMD-3000A, right front, three-quarter view.

j. Insure that equipment is operated in a well ventilated area. Associated equipment to the melter, (generator, hot oil heater) produce exhaust emissions that can cause brain damage or death from heavy exposure.

k. Entry into a confined space is prohibited until a determination is made that the space is not a hazardous atmosphere. Entry of personnel below Direct Support for maintenance purposes is prohibited. Failure to comply can cause injury to personnel due to oxygen deficiency, chemical contaminants and extreme temperature in both the tank and tunnel of the melter.

l. All maintenance on the tank and tunnel should be performed outside whenever possible.

Section II. - INSTALLATION

2-1. General.

The asphalt melter unit may be installed as a single unit where job requirements call for 750 gallons or less, of asphalt cement per hour. Where job requirements in excess of 750 gallons per hour exist, two units may be interconnected in parallel, with piping provided with each unit.

2-2. Site Preparation.

a. The asphalt melter must be installed on a solid, level and well drained base or concrete pad. The minimum area required for installation of the asphalt melter is 10 x 32 feet.

b. Site planning must also provide for positioning of the asphalt melter(s), the heat plant and the asphalt pumping unit so that sufficient additional space is available at the front and rear of the melter(s) for loading and unloading of drums.

c. When installing two or more units in parallel, the site must provide for spacing of the asphalt melters, four feet apart (measured between outside walls of storage tanks) to align and install interconnect piping.

2-3. Unpacking.

a. The asphalt melter is shipped as a self-contained unit, requiring unpacking and set-up before operation can begin.

b. A suitable lifting device, of sufficient capacity, (approximately 12, 100 lbs.) must be available for unloading, unpacking and set-up of the asphalt melter. Remove all tiedown cables or strapping and all blocking used to secure the unit to the carrier.

CAUTION

DO NOT attach lifting sling to lift eyes on top of tunnel or to the stand-off guards at front and rear of unit. Attach lifting sling to eyes in the front and rear of the skid rails, guiding the sling cables over the stand-off guards at each end of unit.

c. Attach a suitable lifting sling to the eyes of skid rails, with cables guided over the top of the stand-off guards at front and rear of the unit. Lift the unit from the carrier bed and position unit on worksite.

NOTE

The asphalt melter may be moved short distances on its skid rails by attaching towing chains to the eyes in the front or rear skid rails.

d. Remove strapping securing the discharge chute and load platform to the top of the asphalt melter tunnel. Attach a four-point sling to the discharge chute and lift the chute clear of the tunnel with a suitable lifting device and set the chute on the ground clear of the melter installation area.

e. Attach a four-point sling to the load platform and lift the platform from the top of the tunnel and set the platform on the ground clear of the melter installation area.

f. Remove the four holddown bars, securing the tunnel support beams to the storage tank (Figure 2-1). Lift out the two tunnel support beams.

g. Attach a four-point sling to the lifting eyes on top of the tunnel and lift (approximately 5000 lbs.) the tunnel out of the storage tank with a suitable lifting device. Place the tunnel on wood blocks, positioned to support the tunnel support rails.

h. Check inside of storage tank and remove any parts or foreign material that may have fallen in.

i. Re-install the tunnel support beams in the storage tank, securing with the holddown bars.

j. Open the tunnel doors and secure with blocking. Remove storage crate, ladder, load ramp, trolley, and electric hoist. Remove items listed in Table 2-1 from crate; retain crate for future storage and transportation.

NOTE

If any items, listed in Table 2-1 or paragraph j, are not found inside the tunnel, check the toolbox. Report missing items to Unit Maintenance.

k. Open the toolbox and remove the items listed in Table 2-2 Report missing or damaged parts to Unit Maintenance.

Table 2-1. Loose Items Shipped Crated Inside Tunnel.

PART NO.	DESCRIPTION	QTY	FIG/INDEX NO.
3000-9	Flex-hose, asphalt	1	2-5-3
3000-10	Reducer, tee	2	2-5-7
3000-11	Connector pipe	1	2-6-12
3000-12	Shield front rain	1	2-3-3
3000-13	Shield, LH forward side rain	1	2-3-4
3000-14	Shield, RH forward side rain	1	2-3-5
3000-15	Shield, LH rear side rain	1	2-3-11
3000-16	Shield, RH rear side rain	1	2-3-12
3000-17	Shield, rear rain	1	2-3-13
3000-113	Support, Up-right	4	2-8-6
3000-114	Cross beam, front	1	2-8-4
3000-115	Cross beam, rear	1	2-8-1
3000-116	Rail, trolley	1	2-8-5
3000-118	Railing corner, rear	2	2-9-3
3000-119	Railing, right side	1	2-9-11
3000-120	Railing, left side	1	2-9-7
3000-121	Railing, ladder	1	2-9-13
3000-122	Railing, front corner	1	2-9-8
3000-123	Support, railing front	1	2-9-9
3000-124	Support, railing right	1	2-9-10
3000-125	Support, railing left	1	2-9-12
3000-127	Brace, ladder	1	2-7-10
3000-129	Bracket, load ramp	2	2-7-2
3000-131	Brace, platform	2	2-7-12
3000-132	Leg, platform	2	2-7-6
3000-133	Leg extension, platform	2	2-7-11
3000-142	Barrel Ram	1	F-2, G
3000-143	Barrel extractor	1	F-1, G
MODEL 41	Sling, drum	1	2-12-3

Table 2-2. Loose Items Shipped In Toolbox.

PART NO.	DESCRIPTION	QTY	FIG/INDEX NO.
3000-4	Offset, inlet tee	1	2-4-6
3000-5	Inlet elbow, tunnel	1	2-4-2
3000-6	Gasket, 2 inch pipe ring	12	2-4-4 2-5-8
488-1/2-2	Valve assembly, gate, 2 inch	3	2-4-7
3000-7	Offset, outlet, tee	1	2-4-22
3000-8	Outlet elbow, tunnel	1	2-4-19
T304SS-2	Union, pipe, stainless steel	2	2-4-1
245SS	Hose end, disconnect, 3 inch	2	2-5-1
MS90725-164	Screw, hex head cap, 5/8 NC x 2 inch long	24	2-4-3
MS90728-166	Screw, hex head cap, 5/8 NC x 2-1/2 inch long, grade 8	20	2-4-20 2-5-10
MS90728-60	Screw, hex head cap, 3/8 NC x 1 inch long, grade 8	10	2-7-3 2-9-14

Table 2-2. Loose Items Shipped in Toolbox - Continued.

PART NO.	DESCRIPTION	QTY	FIG/INDEX NO.
MS90728-64	Screw, hex head cap, 3/8 NC x 1-1/2 inch long, grade 8	35	2-7-9 2-8-7 2-9-6 2-11
MS90728-70	Screw, hex head cap, 3/8 NC x 3 inch long, grade 8	7	2-7-8
MS9072-162	Screw, hex head cap, 5/8 NC x 1-1/2 inch long, grade 8	4	2-8-10
MS51967-8	Nut, plain hex, 3/8 NC	52	2-7-4 2-8-2 2-9-5 2-11
MS51967-14	Nut, plain hex, 1/2 NC	2	2-9-2
MS51967-20	Nut, plain hex, 5/8 NC	52	2-4-5 2-4-21 2-5-11 2-8-8
MS35338-46	Washer, lock, 3/8 split	52	2-7-5 2-8-3 2-9-4 2-11
MS35338-48	Washer, lock, 1/2 split	2	2-9-1
MS35338-50	Washer, lock, 5/8 split	4	2-8-9
MS27183-14	Washer, flat, 3/8 inch	6	2-11
3465T27	Clip, wire rope	2	2-11
3000-144	Rope, wire	2	2-11
DLB 800	Winch, hand	2	2-11
Commercial	Plug, pipe, 2-1/2 NPT, square head	2	2-5-6
Commercial	Coupling, pipe, 3 NPT	1	2-5-2
Commercial	Tee, pipe, 3 NPT	1	2-5-4
Commercial	Plug, pipe, 3 NPT, square head	1	2-5-5
Commercial	Nipple, pipe, 3 NPT short	1	2-6-5

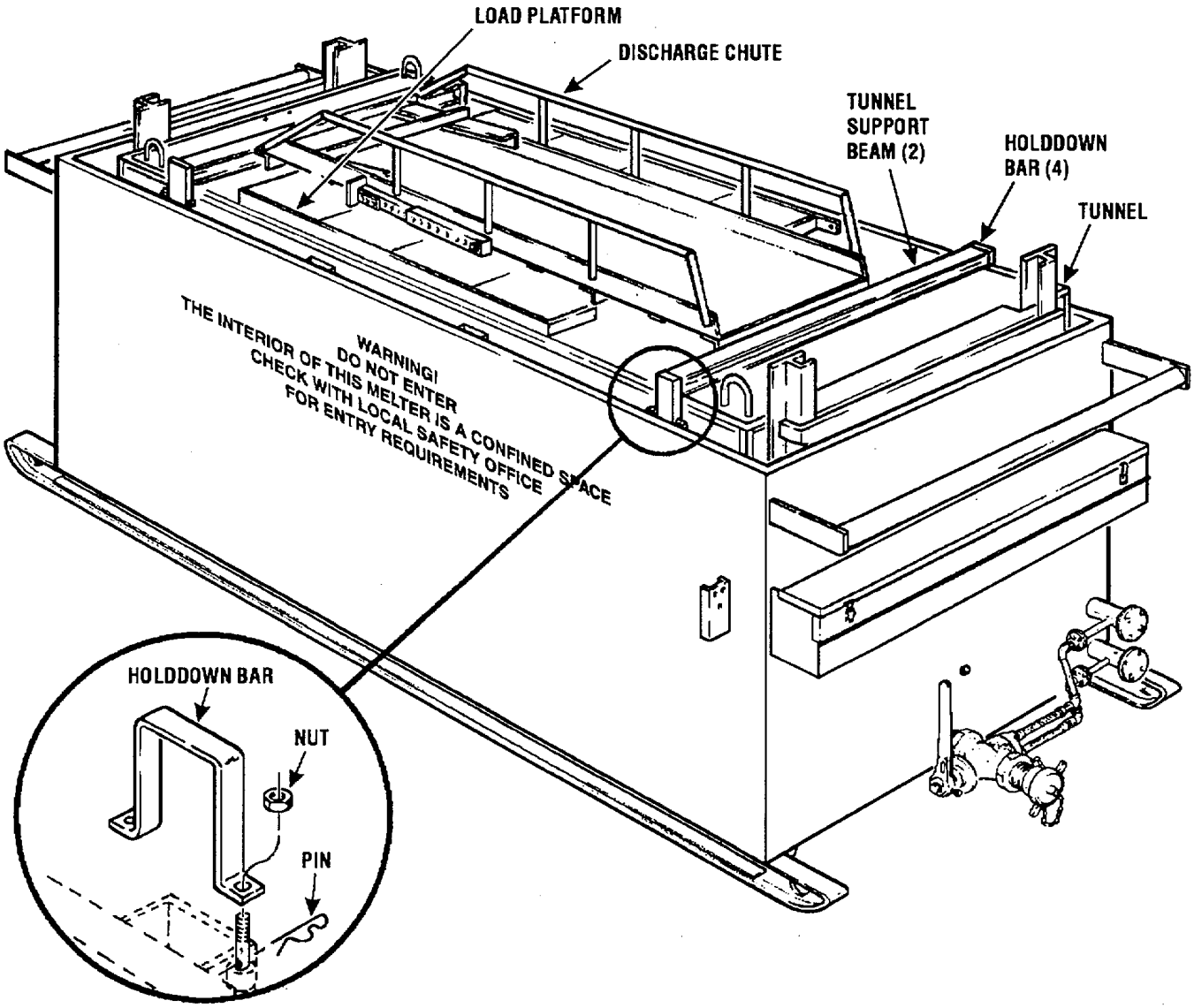

Figure 2-1. Asphalt Melter in Shipping Configuration.

2-4. Installation.

a. With a suitable hoist and a four-point sling attached to lifting eyes of tunnel, lift the tunnel into position over the storage tank. Align the tunnel so that the support rails (channels) on bottom of tunnel are directly over the tunnel support beams and lower the tunnel onto the beams. Center the tunnel between the sides of the storage tank.

NOTE

The front of the tunnel can be determined by looking at the cable pulleys welded to the support bar near top of door. The end of tunnel with pulley on the left as you look at it is the front.

b. Install the six-piece rain shield around base of tunnel as shown in figure 2-2. The rear rain shield must be installed first, then the side rain shields, working from the rear forward, with the front rain shield (3, Figure 2-3) installed last.

c. Install thermometer (Figure 3-1) by threading into opening in front wall of storage tank.

d. Install heat transfer piping and asphalt jacketed valve as shown in figure 2-4. Insure that gaskets at each flanged coupling are not damaged or folded in such a way that would hinder sealing the joints.

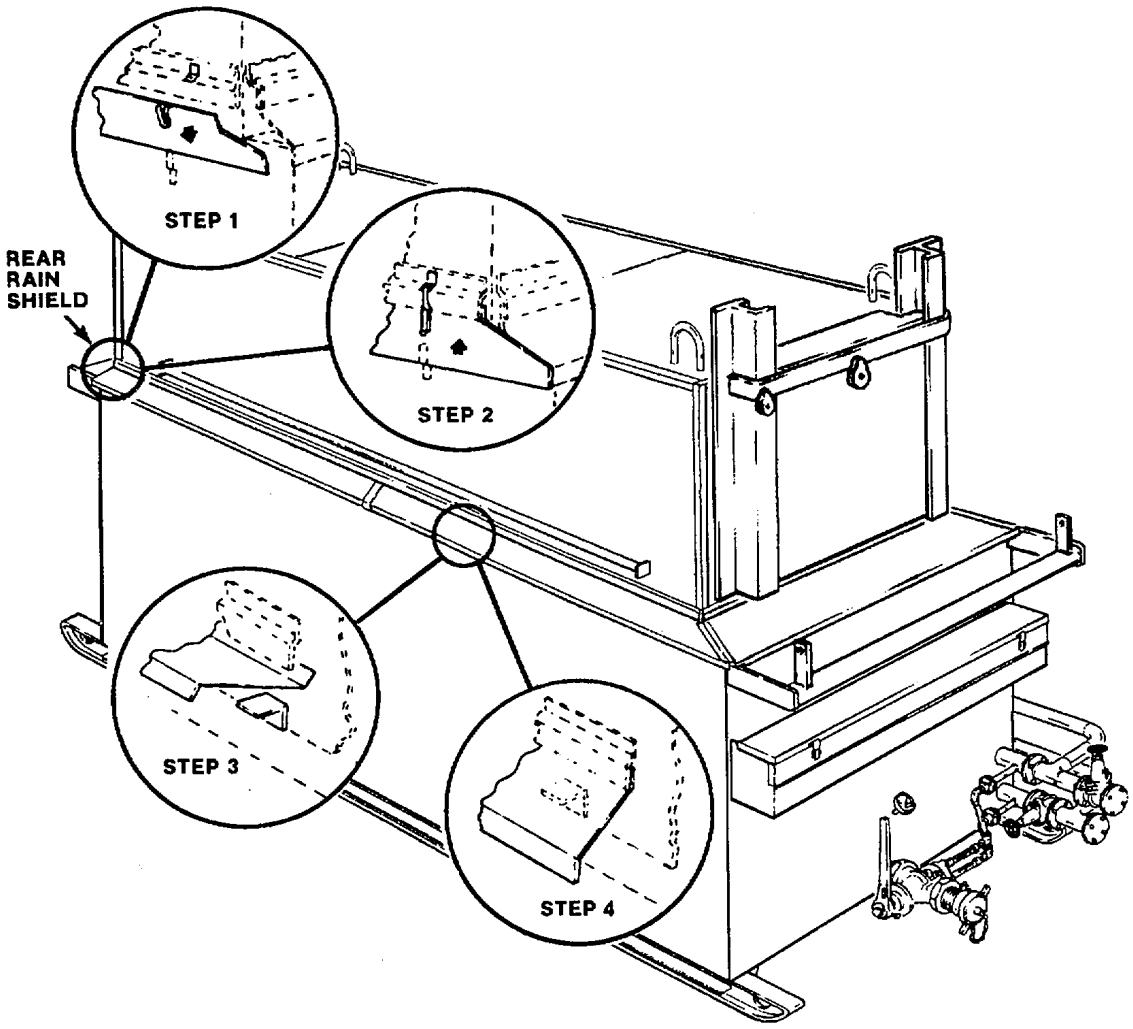

Figure 2-2. Installing Rain Shields.

NOTE

Install flange joint hexagon head capscrews and nuts finger tight, until all connections have been made then tighten all hardware securely.

e. For operation as a single unit installation, install connecting heat transfer piping and asphalt discharge hose as shown in figure 2-5.

f. For installations of multiple units make interconnections of heat transfer piping and asphalt hoses as shown in figure 2-6.

g. Inspect all connections to insure that they are tight and that the storage tank drain cap, in rear of storage tank, is installed.

h. Install load ramp (1, Figure 2-7), platform (13) and ladder (7) as shown in figure 2-7. Adjust leg extensions (11) so pads rest on ground or blocking while keeping platform (13) as level as possible. Initially tighten all fasteners finger tight, when all adjustments and components are in place tighten fasteners securely.

i. Install the load platform upper-structure (Figure 2-8) as follows:

(1) Secure the up-right supports (6) to the load platform (13, Figure 2-7) noting that original supports were shipped with only one of the four drilled through the side flange. That support must be installed at the right-front position on the load platform.

(2) Carefully position the rear cross-beam (1, Figure 2-8) and front cross-beam (4) over up-rights (6) as shown with the mounting holes for the trolley rail (5) offset to the right side of the melter. Secure cross-beams with 5/8 inch capscrews (10), lockwashers (9), and nuts (8).

(3) Install trolley rail (5), securing with eight capscrews (7), lockwashers (3) and nuts (2). Be certain to install all eight capscrews with heads on the bottom side to clear the travel of the trolley on the trolley rail.

j. Install guard rails as shown on figure 2-9. The 1/2 inch nuts (2) and lockwashers (1) secure the rear rail corners (3) to studs welded to tunnel at each side of the front door frame. Tighten all hardware securely.

k. Install the rear discharge chute (Figure 2-10) by hooking angle on end of chute over the support angle welded to tunnel, just below the rear door frame. Lower the support legs and adjust the leg extensions as necessary to rest on ground.

l. Install the front and rear hand winches as follows:

(1) Install the front winch (Figure 2-11) to channel on right side of storage tank. Secure with three capscrews, lockwashers and nuts.

(2) Feed end of wire rope onto winch and secure with clamp as shown in figure 2-11.

(3) Feed free end of wire rope through pulley #1, pulley #2, and pulley #3.

(4) Loosen wire rope clip sufficiently to allow two strands of wire rope to be inserted. Feed free end of wire rope through clip around the door lift ring and loop back to pass through the clip a second time. Tighten the clip securely onto the wire rope.

(5) Take up slack in wire rope by turning winch handle in a clockwise direction. Note that wire rope seats in groove of pulleys #1, #2, and #3.

(6) Install the rear hand winch in a similar manner, noting that the winch mounts upside down compared to the front winch, and that pulley #1 is not used.

m. Assemble the trolley (1, Figure 2-12) onto the trolley rail as follows:

(1) Remove one of the adjusting collars (Figure 2-13) by removing the cotter pin and clevis pin and sliding the adjusting collar off end of load bar.

(2) Slide side #1 off the load bar, and position the load bar and assembled side #2 onto the flange of trolley beam. While holding that position install side #1 frame assembly onto the load bar (with "this side up" label on top).

(3) Secure by installing the adjusting collar onto load bar and inserting clevis pin in the lower load bar pin hole. Adjust the collar as necessary to provide the clearance between load wheels and flange of trolley beam as shown in figure 2-13. Secure clevis pin after final adjustment with cotter pin.

NOTE

New trolley and trolley beam parts should normally be adjusted correctly when one collar is set to align with hole 'A " and the other collar aligned with hole "B". These hole identification letters are on the top flange of the collar directly above their hole.

n. Ensure that hoist chain is not twisted and attach hoist (2, Figure 2-12) to trolley by hooking with top hook on hoist. Attach drum sling (3) to bottom hook.

o. Plug power cord from hoist into an approved 110/120 volt power source.

p. Connect the heat transfer piping to the heat source at the 2-1/2 inch reducer coupling on the ends of connector pipes (7, Figure 2-5). Insure that the flow of heat transfer oil is as indicated on figure 3-1.

q. Connect the asphalt discharge hose to supplied pumping unit for transfer of melted asphalt to working distributor or bulk storage tank.