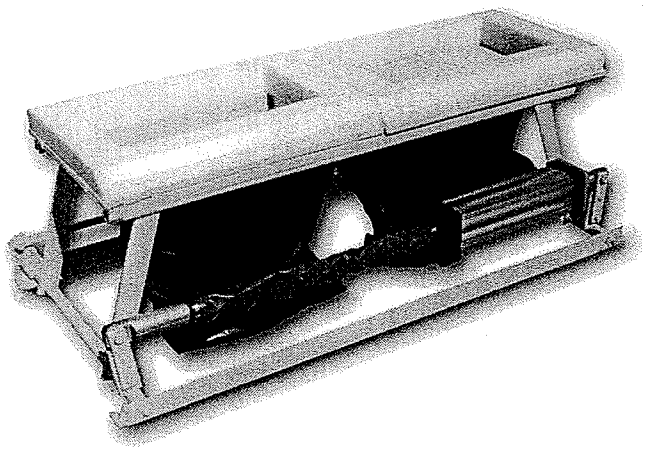
HOPPER CAR UNLOADING LIFTS

Installation and Operation Manual



Houston Vibrator, Inc.

Houston Vibrator, Inc.

HOUSTON VIBRATOR, INC.
PO BOX 801882
HOUSTON, TEXAS 77280

1-800-320-4044

hvi@net1.net

HOUSTON VIBRATOR, INC.
PO BOX 801882 • HOUSTON, TX 77280
9921-K TANNER ROAD • HOUSTON, TX 77041
(713) 939-0404 • FAX (713) 939-7213
(800) 320-4044 • hvi@net1.net
www.houstonvibrator.com

Congratulations on your purchase of an HVI Hopper Car Unloading Lift. We would like to take this opportunity to thank you for choosing Houston Vibrator. We are proud to supply you with the finest material handling equipment available in the world today.

Your new lift features a simple design and rugged construction for years of worry free service. It is designed for easy installation and operation, and requires no routine maintenance!

In this manual, you will find specific information regarding the installation and operation of this equipment, as well as safety precautions. Please read the manual carefully before beginning installation of your new lift. Be sure to follow all instructions and precautions contained herein. Failure to do so could compromise the life of your lift, and your safety.

If you need clarification or further information about any of the topics in this manual, please feel free to contact HVI for assistance.

Thank you.

This manual was written for those with their pit conveyor already in place. If you need assistance designing and installing your pit, please contact your distributor or HVI.

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1. GENERAL INFORMATION

1.1 GENERAL NOTES

The HVI Hopper Car Unloading Lift is designed to contain materials during transfer from railroad hopper cars to pit conveyors. The Lift operates by using a pneumatic cylinder to raise and lower funnels which form a seal with the bottom of the railcar during the unloading process. When collapsed, the Lift measures 5-1/4" above the bottom of the railroad track.

Flow socks for the Lift are custom made for each application. Standard material is a heavy duty vinyl coated cloth with a tensile strength of 400 pounds per square inch. FDA approved food grade material is also available.

1.2 GENERAL DISCLAIMER

For your safety, follow all precautions and guidelines set forth in this manual, and abide by your company safety rules when working with this equipment. Houston Vibrator, Inc. hereby disclaims any and all liability for injuries or damage resulting from misuse of our product.

1.3 WARRANTY INFORMATION

HVI offers a one year warranty on the Hopper Car Unloading Lift. This warranty extends for a period of 12 months from date of delivery, as specified on shipping documents. This warranty covers free repair or replacement of only those parts which HVI deems defective. The warranty becomes void if damage to the Lift is caused by improper installation or misuse of the equipment.

1.4 WARRANTY RECOGNITION

The warranty can only be recognized by HVI. Freight must be prepaid on all items returned for repair, including those items under warranty.

2. SAFETY PRECAUTIONS

IMPORTANT
READ ALL INSTRUCTIONS BEFORE BEGINNING INSTALLATION. INCORRECT INSTALLATION CAN CAUSE SERIOUS INJURY, DAMAGE THE LIFT, AND WILL VOID THE WARRANTY.

CAUTION
KEEP ALL BODY PARTS CLEAR OF MOVING PARTS OF THE LIFT. FAILURE TO DO SO MAY RESULT IN INJURY.

WARNING
FAILURE TO LOCK OUT/TAG OUT ALL ELECTRIC AND PNEUMATIC POWER SOURCES BEFORE INSTALLATION MAY CAUSE SERIOUS BODILY INJURY OR DEATH.

WARNING
DO NOT APPLY MORE THAN 120PSI TO THE PNEUMATIC CYLINDER AT ANY TIME. DAMAGE TO THE LIFT AND SERIOUS INJURY OR DEATH COULD RESULT.

CAUTION
DO NOT MOVE THE RAILCAR WITH THE LIFT IN THE RAISED POSITION! SEVERE DAMAGE TO UNIT AND SERIOUS INJURY OR DEATH CAN OCCUR.

3. PREPARATION

3.1 RECEIVING

Remove the Hopper Car Unloading Lift from the pallet and inspect for damage. Report any damage to the delivery service.

Review your shipment to make sure that you have received all parts for your lift. The total package should include the following parts and quantities:

Part Name	Quantity Received		
	Model 485	Model 500	Model 501
Lift Frame with	1	1	1
Pneumatic Cylinder	1	1	1
Cylinder Mounting Shackles	1	1	1
Control Valve with	1	1	1
straight fittings	3	3	3
Flo Filter Muffler	1	1	1
mounting bracket & fasteners	1	1	1
Air Hose (30 ft.)	1	1	1
Air Hose Clamps #620006	4	4	4
Funnel(s)	2	1	1
Flow Sock(s)	2	1	1
Sponge Seals	6	3	3
Back-up Frame(s)	2	1	1
Cylinder Rod Cover	1	1	1
Rod Cover Clamps #620028	2	2	2
Can of Spray Glue	1	1	1

If anything is missing, please contact your dealer or HVI.

Fill out your warranty card, and return it to HVI. The ID Number of your lift can be found on one of the bottom rails of the lift assembly.

3.2 WORK AREA PREPARATION

Turn off and lock out/tag out the power source to your pit conveyor and/or material loader before beginning work! Failure to do so may cause serious bodily harm!

4. INSTALLATION

NOTE
INSTALLATION INSTRUCTIONS REFER TO FUNNELS, FLOW SOCKS, AND SPONGE SEALS--PLURAL. IF YOU HAVE A MODEL #500 OR MODEL #501, YOU SHOULD ONLY HAVE ONE OF EACH.

IMPORTANT
READ ALL INSTRUCTIONS BEFORE BEGINNING WORK

4.1 CONNECTING FLOW SOCKS TO FUNNELS

Place funnel upside down on a workbench.

Remove screws, washers, nuts, and binding strips from funnels.

Slide top end of flow sock over the funnel, with the seam in the center of the outside of the funnel.

Secure the flow socks in place with binding strips, screws, washers, and nuts (fig.1).

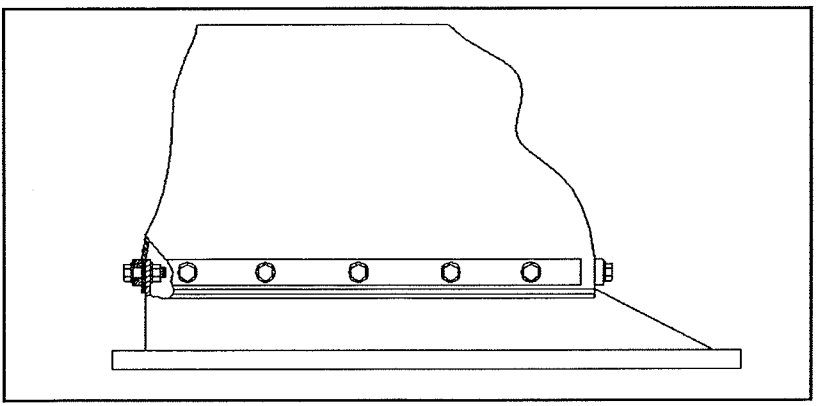

fig.1

(CONT'D)

4. INSTALLATION

CAUTION
BE CAREFUL NOT TO GET FINGERS CAUGHT IN OR UNDER THE LIFT ASSEMBLY DURING INSTALLATION

4.2 POSITIONING THE LIFT ASSEMBLY

Tilt the lift assembly and position one end of the unit on top of the railroad track flange (fig.2).

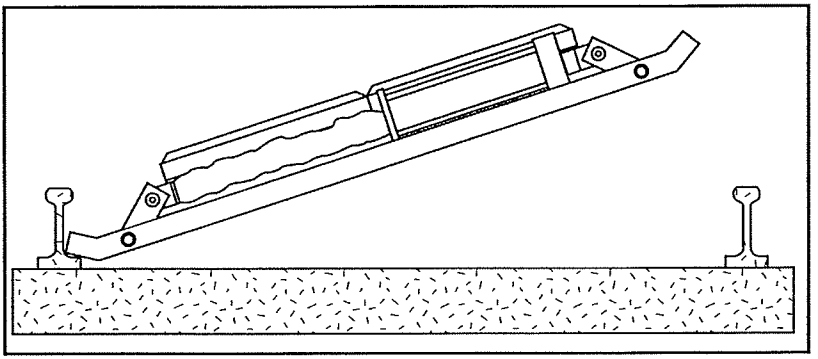

fig.2

Lower the unit so that the ends of the lift assembly rest on top of the railroad track flanges between the railroad tracks (fig.3).

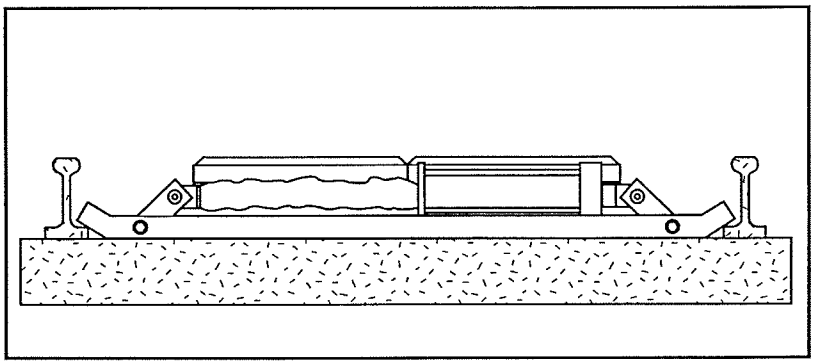

fig.3

(CONT'D)

4. INSTALLATION

4.3 CONNECTING HOSE ASSEMBLIES

WARNING
FAILURE TO LOCK OUT/TAG OUT POWER SOURCE BEFORE BEGINNING WORK MAY CAUSE SERIOUS BODILY INJURY

Turn off and Lockout/Tag out all air and electric sources to pit conveyor.

Mount the control valve using the mounting bracket provided. The mounting bracket can be used as a wall mount, or may be attached to the deck, closer to the lift.

Run air hose (not provided) from the air source to the air inlet on the control valve (fig 4). Secure hose with hose clamps provided.

Measure and cut air hose provided to length, and connect to the pneumatic cylinder and control valve. Secure with hose clamps provided (fig.4).

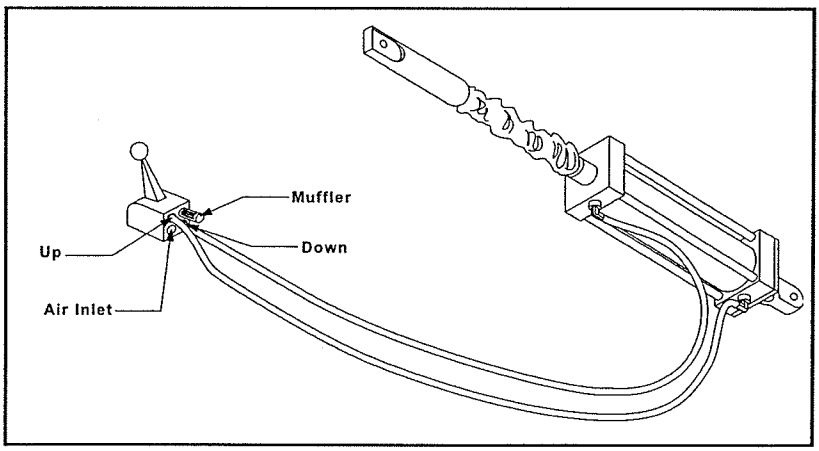

fig.4

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4. INSTALLATION

4.4 ATTACHING FLOW SOCKS TO PIT CONVEYOR

Make sure that all fittings and hoses are in place and secure.

Place funnels on lift assembly frame.

If you have a Model #485 or Model #485-S, slide both funnels to the center of the H-frame so that their inside edges touch each other.

Place flow socks inside pit conveyor openings, and fasten to the opening with bolts and binding strips or with retainer straps (provided by customer).

4.5 ATTACHING SPONGE SEALS TO FUNNELS

With spray glue provided, glue sponge seals to backup frames.

Place sponge seals and backup frames on funnels.

NOTE
ATTACHING SPONGE SEALS DIRECTLY TO FUNNELS WITHOUT BACKUP FRAMES WILL MAKE REPLACING THE SPONGE SEALS MORE DIFFICULT.

5. TESTING INSTALLATION

IMPORTANT
AT LEAST ONE CFM AND 90 PSI OF CLEAN, DRY AIR ARE REQUIRED TO OPERATE THE LIFT. HVI RECOMMENDS USING AN IN LINE AIR FILTER, AVAILABLE FROM HVI.

WARNING
DO NOT APPLY MORE THAN 120 PSI TO THE PNEUMATIC CYLINDER ON THE LIFT.
DAMAGE TO THE LIFT, AND SERIOUS INJURY OR DEATH COULD RESULT.

Place control valve lever in the neutral (middle) position.

Turn on the air supply.

Move the control valve lever to the RAISE position. Unit should rise.

Move control valve lever to the LOWER position. Unit should lower.

Adjust muffler/filter to control air cylinder speed. Ample latitude provided by adjusting screw insures even adjustment of air flow making it easy for operator to "zero in" on the exact setting required.

After unit is FULLY collapsed, check measurements for proper clearance from a moving train.

IMPORTANT
FOR STANDARD UNITS TO COLLAPSE FULLY, A MINIMUM DISTANCE OF 3 INCHES (76mm) IS REQUIRED BETWEEN THE BOTTOM OF THE TRACK AND THE TOP OF YOUR CONVEYOR OPENING. OTHERWISE, SHALLOW FUNNELS MUST BE ORDERED.

Move the control valve lever to the center (neutral) position to turn the lift off.

6. OPERATION

CAUTION
KEEP ALL BODY PARTS CLEAR OF MOVING PARTS WHILE OPERATING THE LIFT.

6.1 RAISING THE LIFT

Make sure that the hopper car is in place over the lift.

Place the control valve lever in the RAISE position. If you have a Model #485 or Model #485-S, raise the lift only halfway, then carefully slide the funnels out and into position, aligning them with the openings in the bottom of the hopper car.

Continue to raise the lift as it connects to the bottom of the railcar.

Leave the control valve lever in the RAISE position while unloading the hopper car, allowing the lift to rise with the hopper car as the weight of its contents decreases. This will maintain a tight seal throughout the unloading process.

CAUTION
FAILURE TO KEEP THE CONTROL VALVE LEVER IN THE RAISE POSITION WILL ALLOW THE UNIT TO LOWER.

CAUTION
DO NOT MOVE THE RAILCAR WITH THE LIFT IN THE RAISED POSITION! SEVER DAMAGE TO UNIT, AS WELL AS SERIOUS INJURY OR DEATH CAN OCCUR.

(CONT'D)

6. OPERATION

CAUTION
DO NOT MOVE THE RAILCAR WITH THE LIFT IN THE RAISED POSITION! SEVERE DAMAGE TO UNIT, AS WELL AS SERIOUS INJURY OR DEATH CAN OCCUR.

6.2 LOWERING THE LIFT

BEFORE MOVING THE RAILCAR:

Place the control valve lever in the LOWER position.

If you have a Model #485 or Model #485-S, stop the lift halfway down, and slide funnels back into place before completely lowering the unit.

Allow the unit to lower completely.

Check for proper clearance from a moving train.

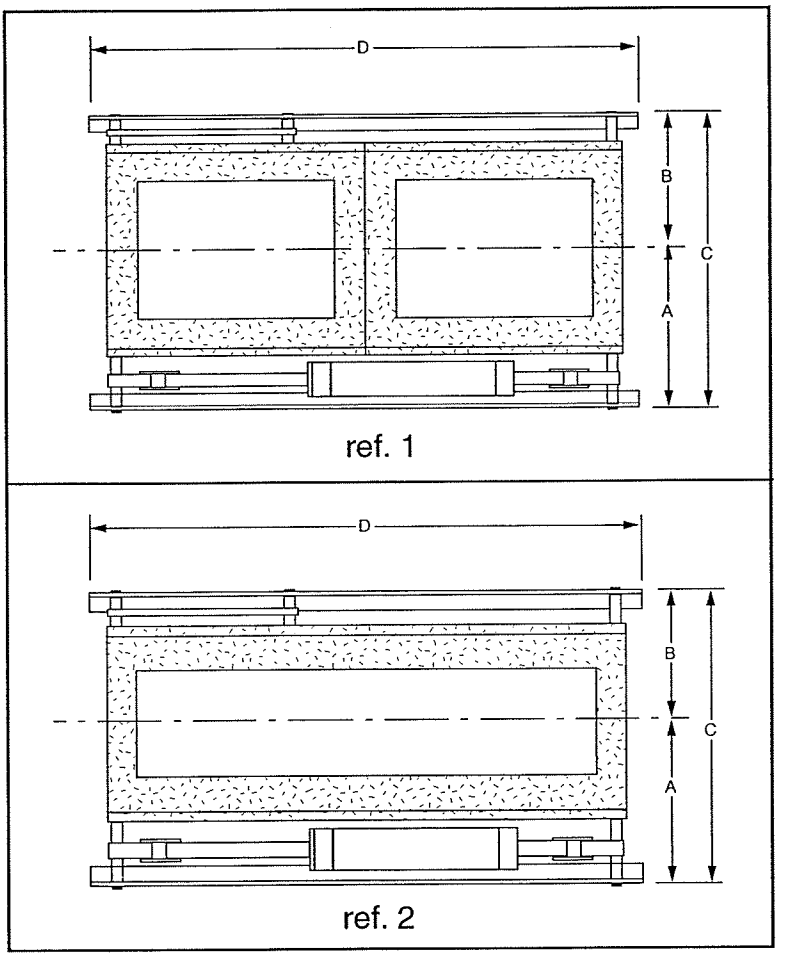
Turn the lift OFF by moving the control valve lever to the center (neutral) position. The hopper car can now be moved.

7. OPTIONAL MAINTENANCE

You may lubricate the Hopper Car Unloading Lift with a dry lubricant, such as graphite, if you choose. Do not use grease or oil.

NOTE
DO NOT LUBRICATE THE LIFT WITH GREASE OR OIL. THESE WILL COLLECT DIRT AND CAUSE ACCELERATED WEAR ON THE UNIT.

8. LIFT MEASUREMENTS



MODEL NUMBER	CAR TYPE	REF.	LIFT DIMENSIONS [in] A	B	C	D
485	STANDARD TWIN	1	15.75	13.25	29	57
485-S	SHALLOW TWIN	1	15.75	13.25	29	57
500-1324	CENTER DISCHARGE 13X24	2	15.75	13.25	29	57
500-1342	CENTER DISCHARGE 13X42	2	15.75	13.25	29	57
500-1348	CENTER DISCHARGE 13X48	2	15.75	13.25	29	57
501-2430	CENTER DISCHARGE 24X30	2	21.25	17.5	38.75	57
501-2442	CENTER DISCHARGE 24X42	2	21.25	17.5	38.75	57
501-2448	CENTER DISCHARGE 24X48	2	21.25	17.5	38.75	57

9. SPARE PARTS

9.1 HOW TO ORDER SPARE PARTS

When ordering spare parts, please provide HVI with the following information when possible:

Model Number
ID Number
Part Name
Part Number

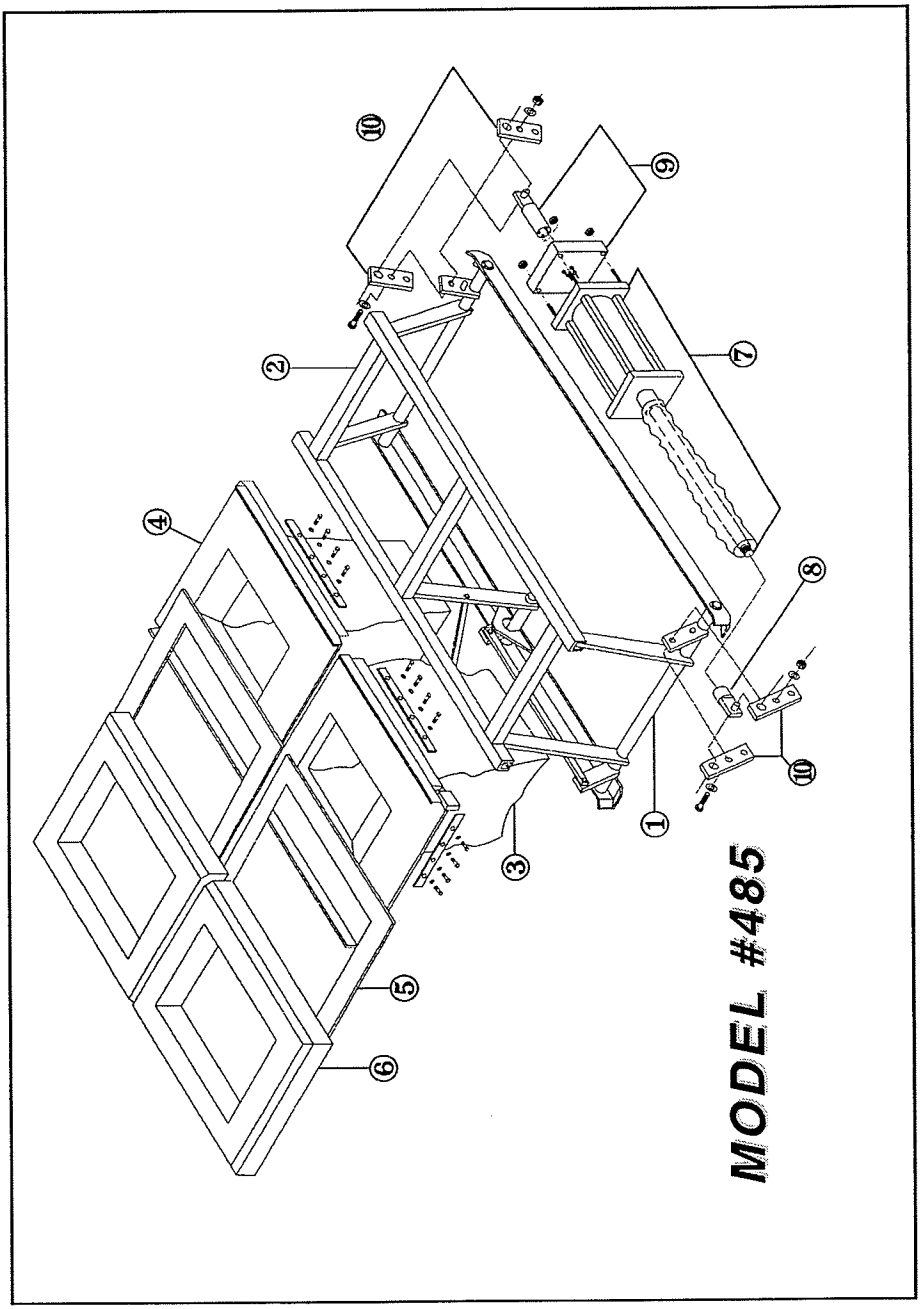
Part names and numbers are given in the exploded parts drawings on the following pages.

If you are ordering spare flow socks, please provide the following measurements in addition to the information listed above:

Width of pit opening
Length of pit opening
Distance from bottom of railroad track to pit conveyor top

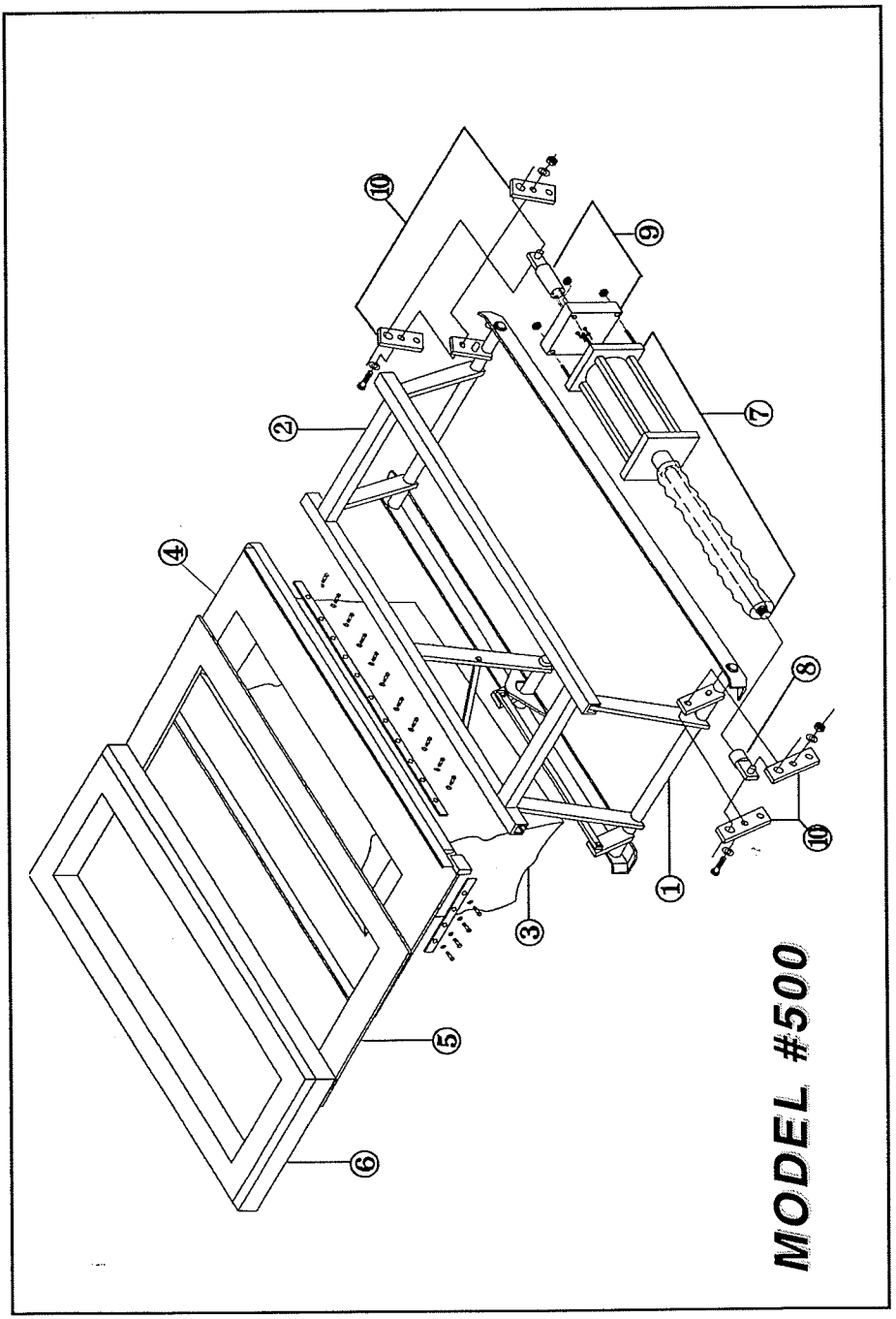
Please give the pit opening measurements as inside dimensions.

9.2 MODEL #485 EXPLODED DRAWING



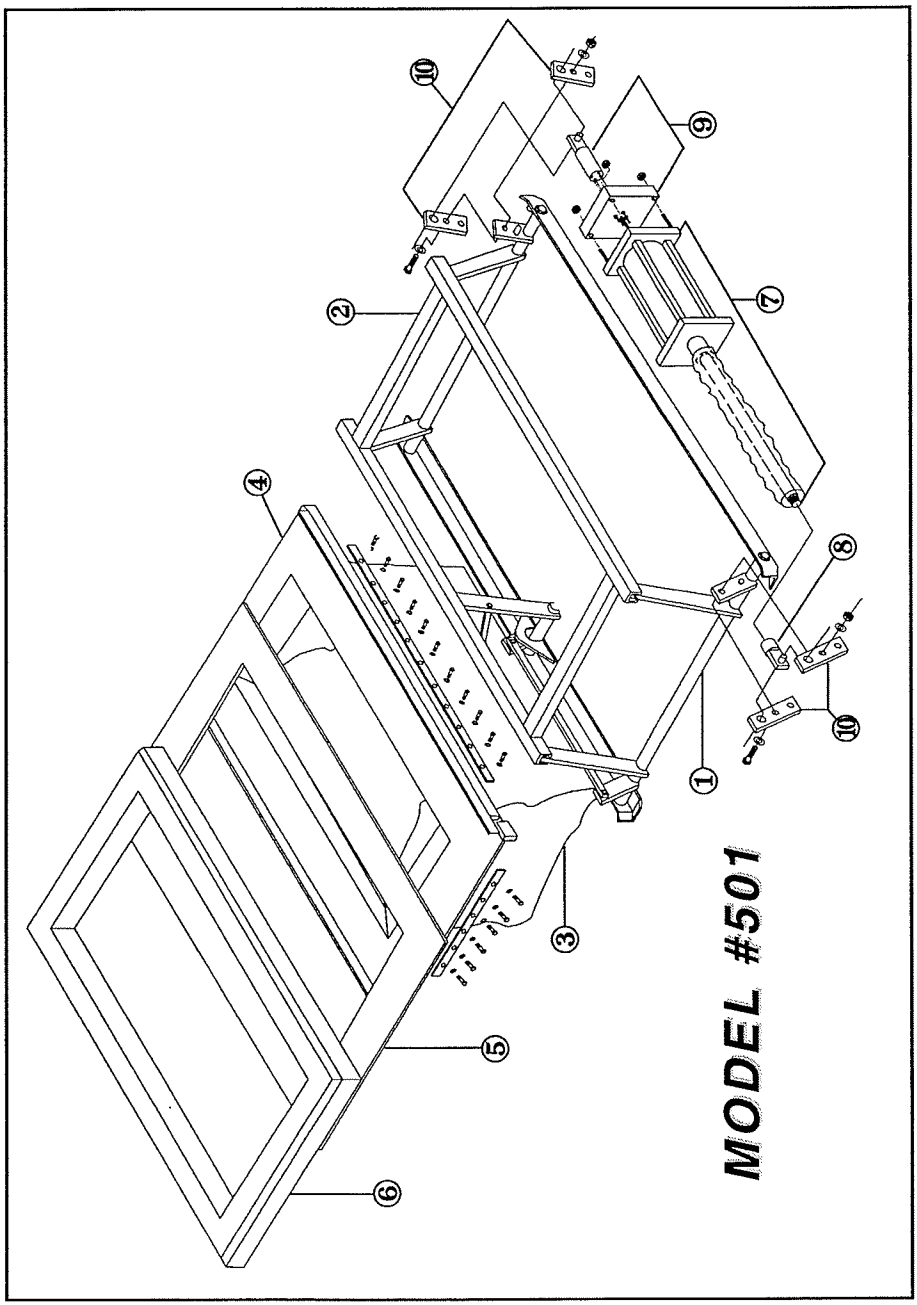
NO	ORDER NUMBER	DESCRIPTION
1	#485 LIFT ASSEMBLY	LIFT ASSEMBLY FOR TWIN DISCHARGE (INCLUDES H-FRAME)
2	#485 H FRAME	FUNNEL SUPPORT FRAME
3	#485 FLOW SOCK	MATERIAL CONTAINMENT SOCKS
4	#485 FUNNEL ASSY	FUNNELS W/ BINDING STRIPS, FASTENERS
5	#485 BACKUP FRAMES	SPONGE SEAL BACKUP FRAMES
6	#485 SPONGE SEALS	SPONGE SEALS W/ SPRAY GLUE
7	#485 PNEUCYLINDER	PNEUMATIC CYLINDER W/ROD COVER
8	#485 ROD EYE	PNEUMATIC CYLINDER ROD EYE
9	#485 EYE BRACKET	PNEUMATIC CYLINDER EYE BRACKET
10	#485 SHACKLE SET	PNEUMATIC CYLINDER MOUNTING SHACKLES
NOT SHOWN	CONTROL VALVE ASSY	PNEUMATIC CONTROL VALVE W/MOUNTING BRACKET AND EXHAUST MUFFLER
NOT SHOWN	#485 AIRHOSE	AIRHOSE FOR PNEUMATIC CYLINDER & CONTROLS

9.3 MODEL #500 EXPLODED DRAWING



NO	ORDER NUMBER	DESCRIPTION
1	#500 LIFT ASSEMBLY	LIFT ASSEMBLY FOR SINGLE DISCHARGE (INCLUDES FRAME)
2	#500 FRAME	FUNNEL SUPPORT FRAME
3	#500 FLOW SOCK	MATERIAL CONTAINMENT SOCK
4	#500 FUNNEL ASSY	FUNNEL W/ BINDING STRIPS, FASTENERS
5	#500 BACKUP FRAME	SPONGE SEAL BACKUP FRAME
6	#500 SPONGE SEALS	SPONGE SEALS W/ SPRAY GLUE
7	#500 PNEUCYLINDER	PNEUMATIC CYLINDER ASSEMBLY W/ ROD COVER
8	#500 ROD EYE	PNEUMATIC CYLINDER ROD EYE
9	#500 EYE BRACKET	PNEUMATIC CYLINDER EYE BRACKET
10	#500 SHACKLE SET	PNEUMATIC CYLINDER MOUNTING SHACKLE SET
NOT SHOWN	CONTROL VALVE ASSY	PNEUMATIC CONTROL VALVE W/MOUNTING BRACKET AND EXHAUST MUFFLER
NOT SHOWN	#500 AIRHOSE	AIRHOSE FOR PNEUMATIC CYLINDER & CONTROLS

9.4 MODEL #501 EXPLODED DRAWING



NO	ORDER NUMBER	DESCRIPTION
1	#501 LIFT ASSEMBLY	LIFT ASSEMBLY FOR SINGLE DISCHARGE (INCLUDES FRAME)
2	#501 FRAME	FUNNEL SUPPORT FRAME
3	#501 FLOW SOCK	MATERIAL CONTAINMENT SOCK
4	#501 FUNNEL ASSY	FUNNEL W/ BINDING STRIPS, FASTENERS
5	#501 BACKUP FRAME	SPONGE SEAL BACKUP FRAME
6	#501 SPONGE SEALS	SPONGE SEALS W/ SPRAY GLUE
7	#501 PNEUCYLINDER	PNEUMATIC CYLINDER ASSEMBLY W/ROD COVER
8	#501 ROD EYE	PNEUMATIC CYLINDER ROD EYE
9	#501 EYE BRACKET	PNEUMATIC CYLINDER EYE BRACKET
10	#501 SHACKLE SET	PNEUMATIC CYLINDER MOUNTING SHACKLE SET
NOT SHOWN	CONTROL VALVE ASSY	PNEUMATIC CONTROL VALVE W/MOUNTING BRACKET AND EXHAUST MUFFLER
NOT SHOWN	#501 AIRHOSE	AIRHOSE FOR PNEUMATIC CYLINDER & CONTROLS

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