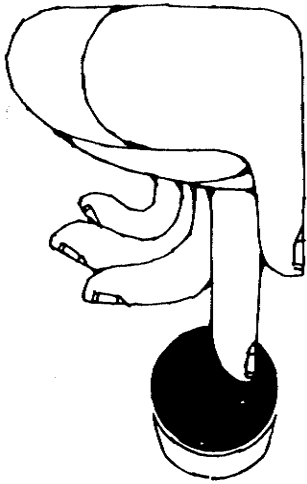


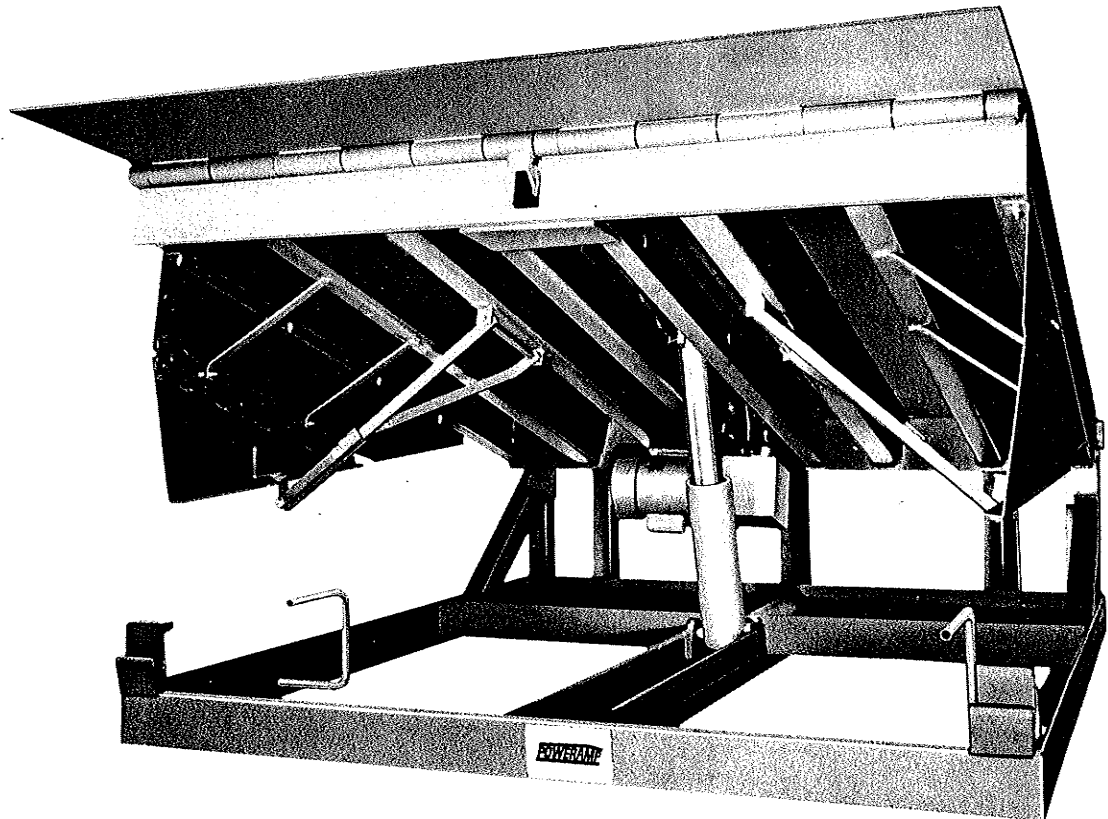
OLD MODEL



POWERAMP

fully automatic, hydraulic
dockboards designed for
push-button simplicity

OWNER'S MANUAL



POWERAMP meets or exceeds Federal
"Occupational Safety and Health Act Standard"
requirements for dockboards dated May 29, 1971.



systems inc

P.O. BOX 519, W159 N9305 NOR-X-WAY, MEMONEE FALLS, WISCONSIN 53051 U.S.A., PHONE 414-255-1510
MANUFACTURING FACILITIES IN HOOFFDORP, NETHERLANDS AND TOKYO, JAPAN

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- 1-2 Operating instructions
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- 10 Trouble shooting the hydraulic system
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POWERAMP

GUARANTEE

Systems, Inc. guarantees the materials, components and workmanship in your POWERAMP to be of the highest quality and to be free from defects for a period of one (1) year from date of installation — any defective material, components or parts will be exchanged at our factory with new replacement parts, shipped to you prepaid, if found to be defective from other than abuse, careless or negligent use . . . or failure to maintain the unit as recommended by company maintenance schedules and guides.

In addition to the above one-year guarantee, the following hydraulic components on your POWERAMP are guaranteed for a period of five (5) years from date of installation:

- A. The Fluid Logic control assembly.
- B. All hydraulic cylinders and pressure lines.

And that: your POWERAMP is designed to operate normally in an ambient temperature range of -30°F to $+125^{\circ}\text{F}$ (-35°C to $+52^{\circ}\text{C}$).

There are no warranties, either express or implied, including any implied warranties of merchantability or fitness for a particular purpose which shall extend beyond the warranty periods above indicated. No responsibility is assumed for any incidental or consequential damages except for those allowed under existing state law.

The company reserves the right under its product improvement policy to change construction or design details and furnish equipment when so altered without reference to illustrations or specifications used herein.

Poweramp may be operated by two methods:

1. The wall mounted push button control.
2. The pull ring in the platform deck.




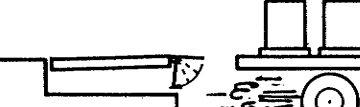





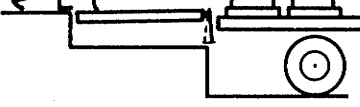


When operating by the push button, simply depress the button — Poweramp will rise so that lower edge of lip clears truck — lip will automatically extend. Releasing the push button lets Poweramp drift down to truck bed with extended lip resting on truck platform. Further operation is completely automatic.

When operating by the pull ring in platform deck, simply pull lanyard outward (a gentle tug is all that is necessary). Poweramp will rise — lip will automatically extend. Releasing the pull ring will let Poweramp, with lip extended, drift down to truck platform.

This pull ring has two functions:

- (a) A slight pull to start motor and raise the ramp so that lip automatically extends.
- (b) A further pull will stop the board in its upward direction and will extend the lip at any point in the ramp's upward movement. This will be useful in some operations listed below.

The simple operating procedures are pictured below:

 <p>Truck backs into position with board at rest flush with top of dock in normal cross-traffic position. Operator pulls control cable or pushes remote control button and board raises.</p> <p>1</p>	 <p>Lip extends automatically . . . operator is done . . . as Fluid Logic system takes over . . . board drifts to truck bed.</p> <p>2</p>	 <p>Load or unload with Poweramp's full-float lip maintaining positive contact with the truck bed at all times.</p> <p>3</p>
 <p>With loading or unloading completed, the truck pulls away and lip drops smoothly.</p> <p>4</p>	 <p>Board automatically returns to self-storing, cross-traffic position flush with dock level.</p> <p>5</p>	 <p>If board is below dock when truck pulls away, (a) lip drops to vertical position. (b) Board drifts to full below dock. (c) Board automatically returns to dock level and self-stores in cross-traffic position.</p> <p>6</p>
 <p>It is not necessary to raise board to full height to extend lip. Lower edge of lip must only clear truck platform before extending. (Use pull ring in ramp).</p> <p>7</p>	 <p>If lip is extended before clearing truck platform . . . lip will stop raising . . . board will continue to raise until the lip clears the truck. Then the lip will raise with no damage — Fluid Logic!</p> <p>8</p>	 <p>To remove end loads when truck is above dock, simply remove load before operating board. Then operate board and proceed.</p> <p>9</p>
 <p>To remove end load with truck below dock, simply raise board approximately 1" to release lip from stored cross-traffic position and extend lip slightly. (Use pull ring in ramp).</p> <p>10</p>	 <p>Note: Place toggle switch to "off" position as board drifts to full below dock.</p> <p>11</p>	 <p>If board is being operated while truck is backing and truck or load hits extended lip . . . lip will automatically fold with no damage — Fluid Logic!</p> <p>11</p>

If board is operated with no truck in position . . . the Fluid Logic system takes over and "senses" the absence of a truck. Board will drift to full below dock and lip will fold smoothly. Board will then return to dock level and self-store.

12

Board will service truck 12" above dock . . . (This height defined as — when lower edge of the folded lip starts to extend) . . . or 12" below dock. Board will automatically float through full above and below dock range, compensating for truck spring deflection.

13

Lip will maintain full contact and follow canted truck bed up to 4" on either side. Hinged edge of Poweramp remains flush with dock level thus eliminating toe and traffic hazards.

14

If operator has left fork truck on the board and the truck pulls away . . . the board will lock and remain locked until the load is removed. An outstanding Fluid Logic safety feature! After load is removed, it is only necessary to momentarily actuate board for resumption of normal operation.

15

Poweramp features full-side toe guard protection throughout the entire operating range. (Not just "working" range.)

16

Poweramp's Fluid Logic control system offers maximum security when the dock is unattended. The lip and below dock operating mechanism cannot be manually activated from outside the building.

17

ELECTRICAL

Unit has been factory pre-wired, ready for simple electrical connections into pit outlet box and remote-mounted control. Remote control button and board operating switch are connected in parallel, allowing unit to be operated either from remote-mounted control or by the lanyard located at rear center of platform.

Check name plate for correct voltage and phase.

- 9027 Single Phase, 115V Diagram, Pg. 4
- 9039 Single Phase, 208-240V Diagram, Pg. 4
- 9028 Three Phase, 208-480V Diagram, Pg. 5
- Control Transformer and Motor Diagrams, Pg. 5
- Limit Switch Function and Diagrams, Pg. 6

CONGRATULATIONS ON YOUR CHOICE OF

POWERAMP

Designed by Systems, Inc. to be a marvel of simplicity and efficiency, your POWERAMP, when properly installed (see Bulletin 306) should provide many years of trouble-free performance with an absolute minimum of maintenance. Its revolutionary electro-hydraulic system efficiently controls and operates every POWERAMP function. No solenoid-activated valves are used. POWERAMP exceeds American National Standard Institute (ANSI) MH 14, 1-78 Industrial Loading Dockboards (Ramps) dated Feb. 15, 1978; CS 202-56 and OSHA standards dated May 29, 1971. To obtain maximum performance and longest possible use, as with any piece of equipment, a simple program of preventive maintenance is recommended.

PREVENTIVE MAINTENANCE

WEEKLY

POWERAMP should be operated through its full cycle several times each week to maintain lubrication.

EACH MONTH

1. Using a good grade of lubricating oil, place a few drops on rear hinge pins and lip hinge. See Pg. 11, Frame, Item 2 and Platform, Item 3.
2. Using WD-40 penetrating oil, or the equivalent, lubricate the following:
 - A. Toe Guard hinges, strut pins, links and braces. See Pg. 11, Platform, Items 4 through 11.
 - B. Lip Lifter and pin assembly. See Pg. 9, Items 2, 3, 4.
 - C. Logic Block assembly. See Pg. 9, Items 19 and 27.

EVERY TWO MONTHS

3. Check hydraulic fluid level. See Pg. 9, Item 30.
Place board in full below-dock position. PUT TOGGLE SWITCH IN "OFF" POSITION. Remove inspection plate, remove breather from tank. Oil should be approximately one (1) inch from top of tank.

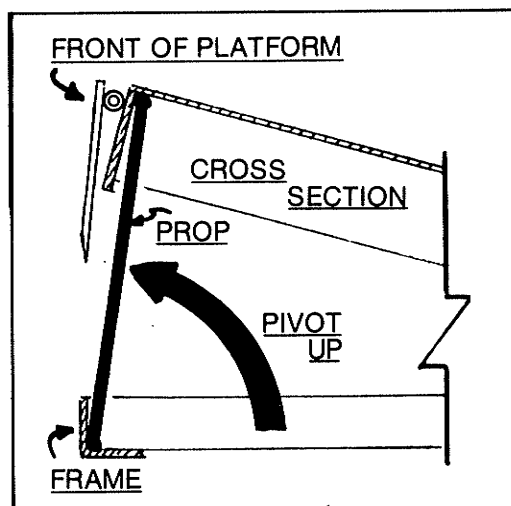
PREPARING FOR SERVICE UNDER DOCKBOARD

CAUTION - when propping up dockboard, STAND CLEAR OF LIP because it moves to vertical position when dockboard makes contact with prop.

CAUTION - before working under board, DISCONNECT ELECTRIC POWER TO UNIT in addition to turning toggle switch off.

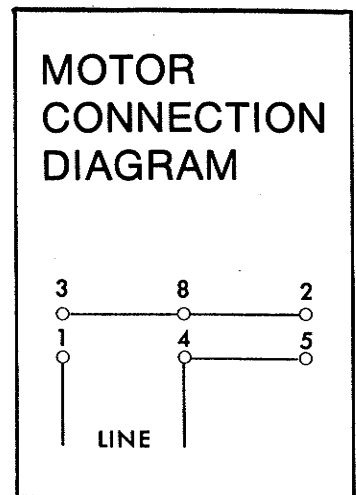
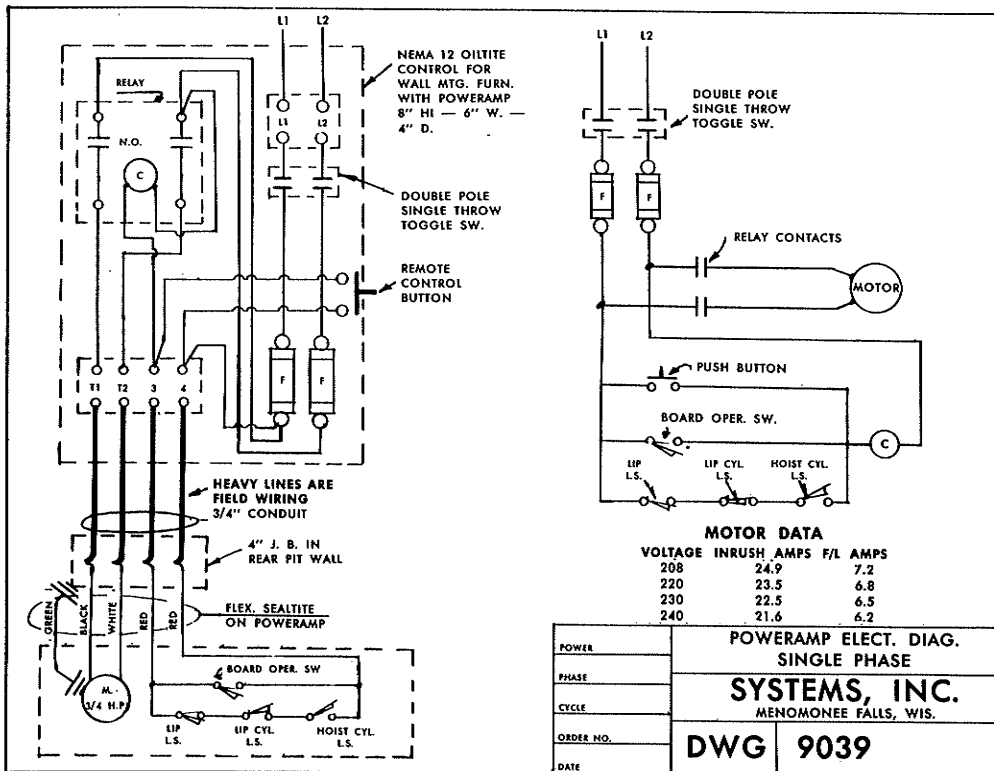
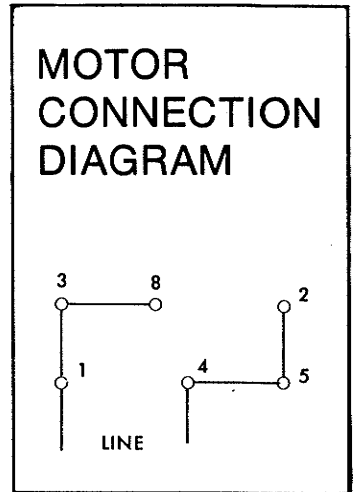
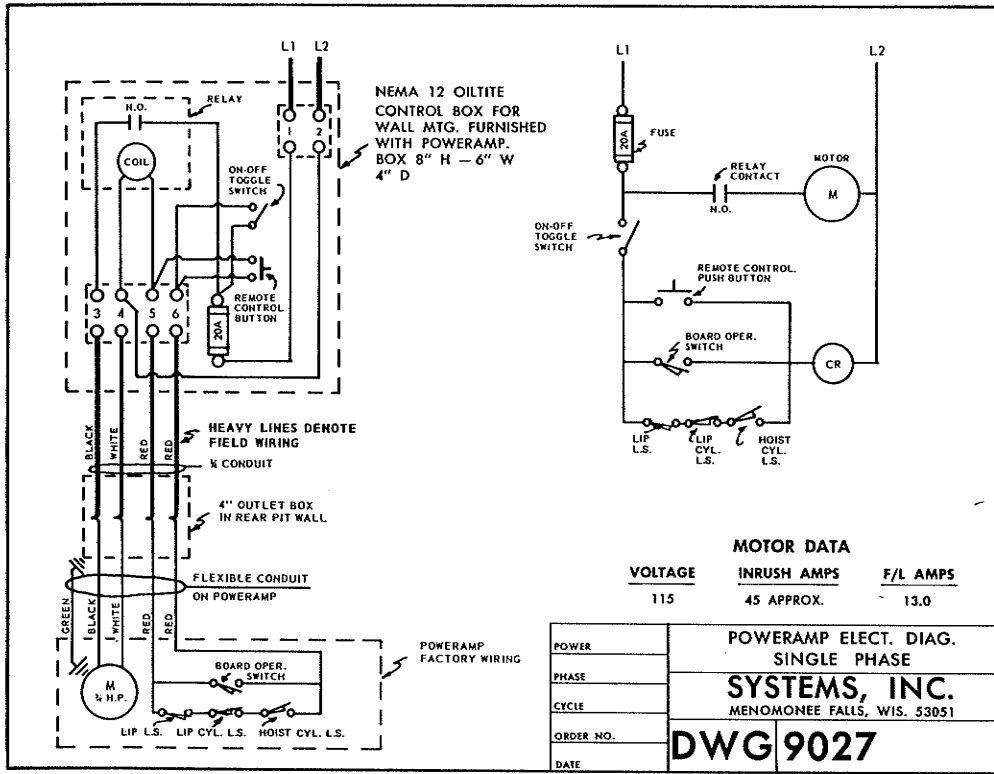
INSTRUCTIONS - raise platform until it comes to full "UP" position with lip fully extended. Raise maintenance prop until it comes to position behind the front hinge plate. See diagram below. KEEPING CLEAR OF LIP, let platform drift down onto prop. Disconnect power. Begin work.

When finished, check under board to be sure personnel and materials are clear of board. To disengage maintenance prop, reconnect electric power to unit and turn toggle switch on. Raise platform until prop can be lowered. Return board to cross-traffic position.



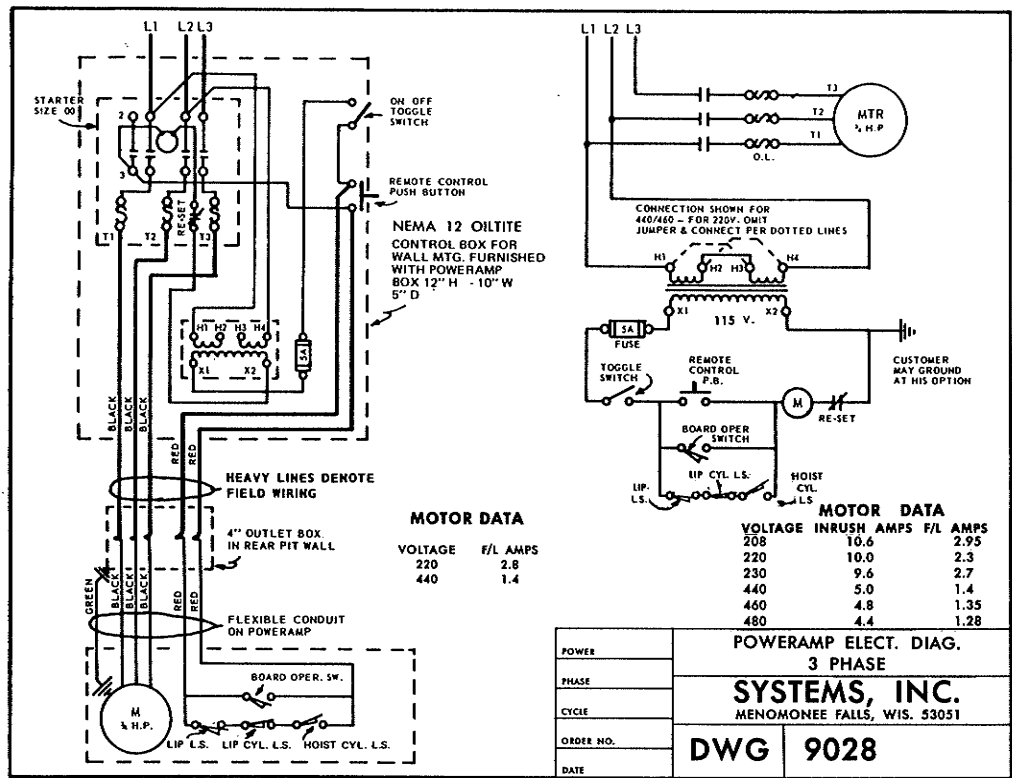
SINGLE PHASE ELECTRICAL DIAGRAMS

Switch positioning shown with dockboard in cross traffic position.

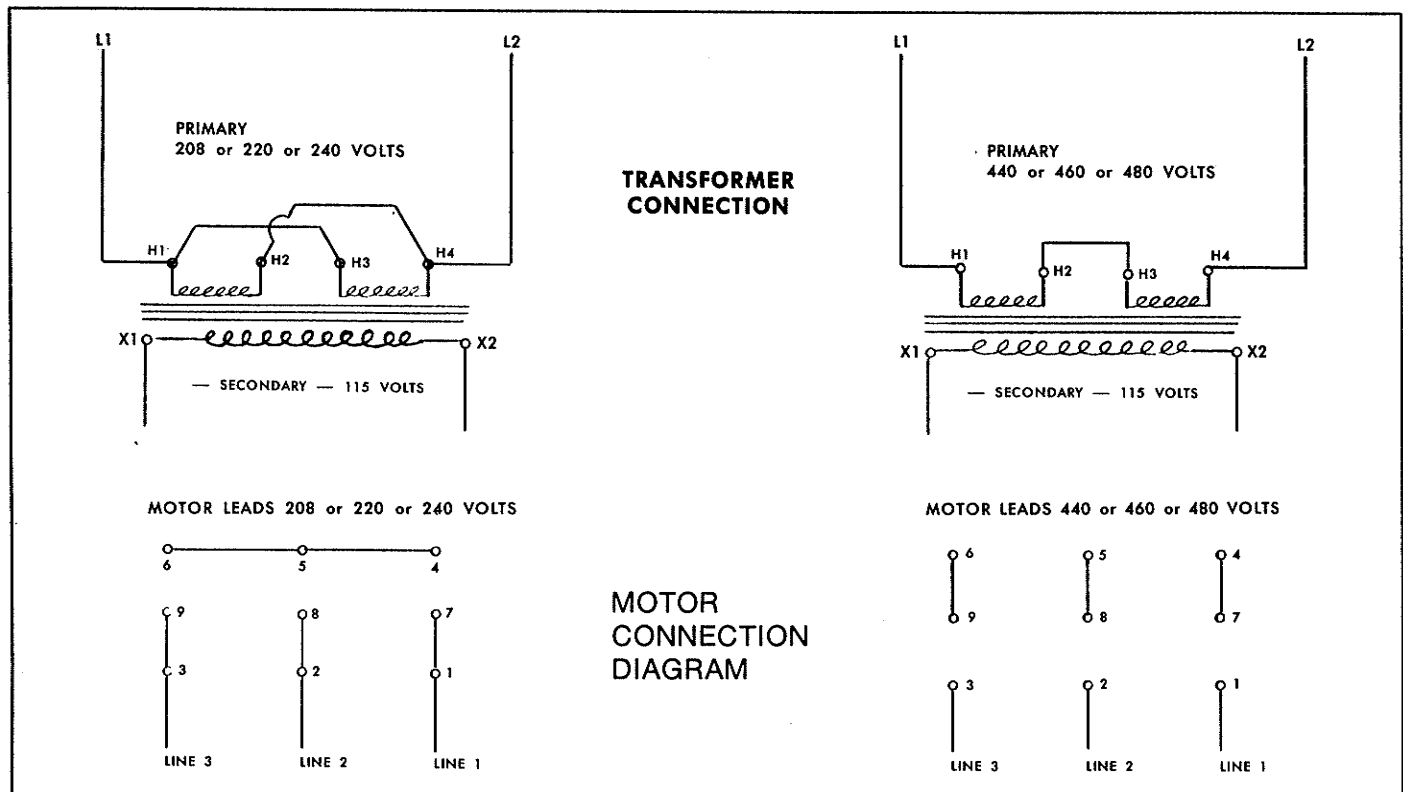


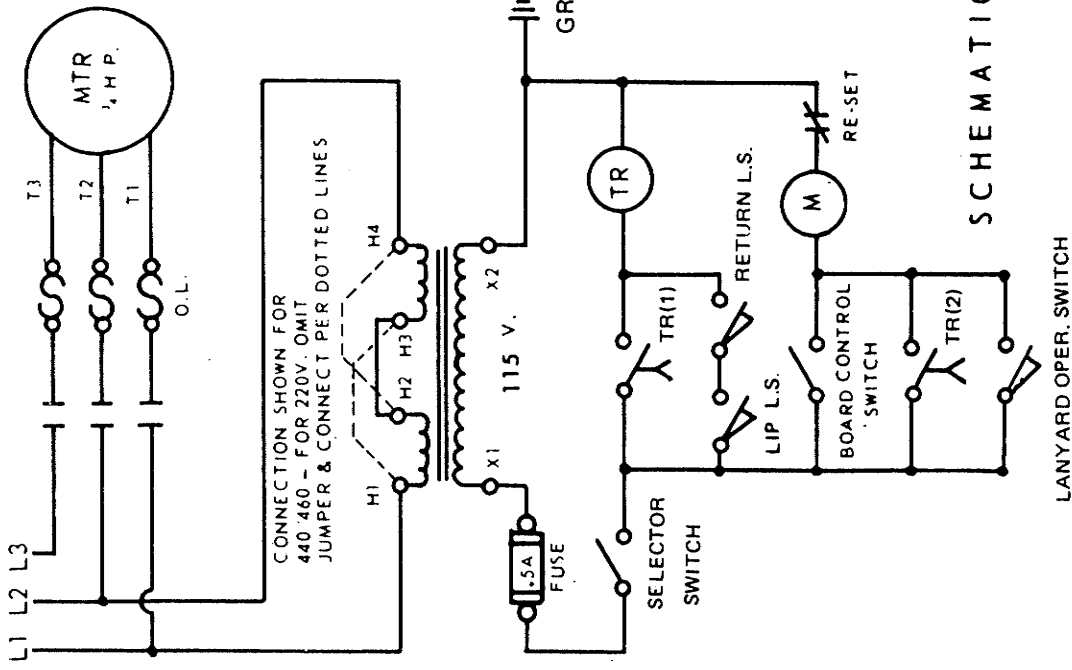
THREE PHASE ELECTRICAL DIAGRAM

Switch positioning shown with dockboard in cross traffic position.



CONTROL TRANSFORMER AND MOTOR DIAGRAM





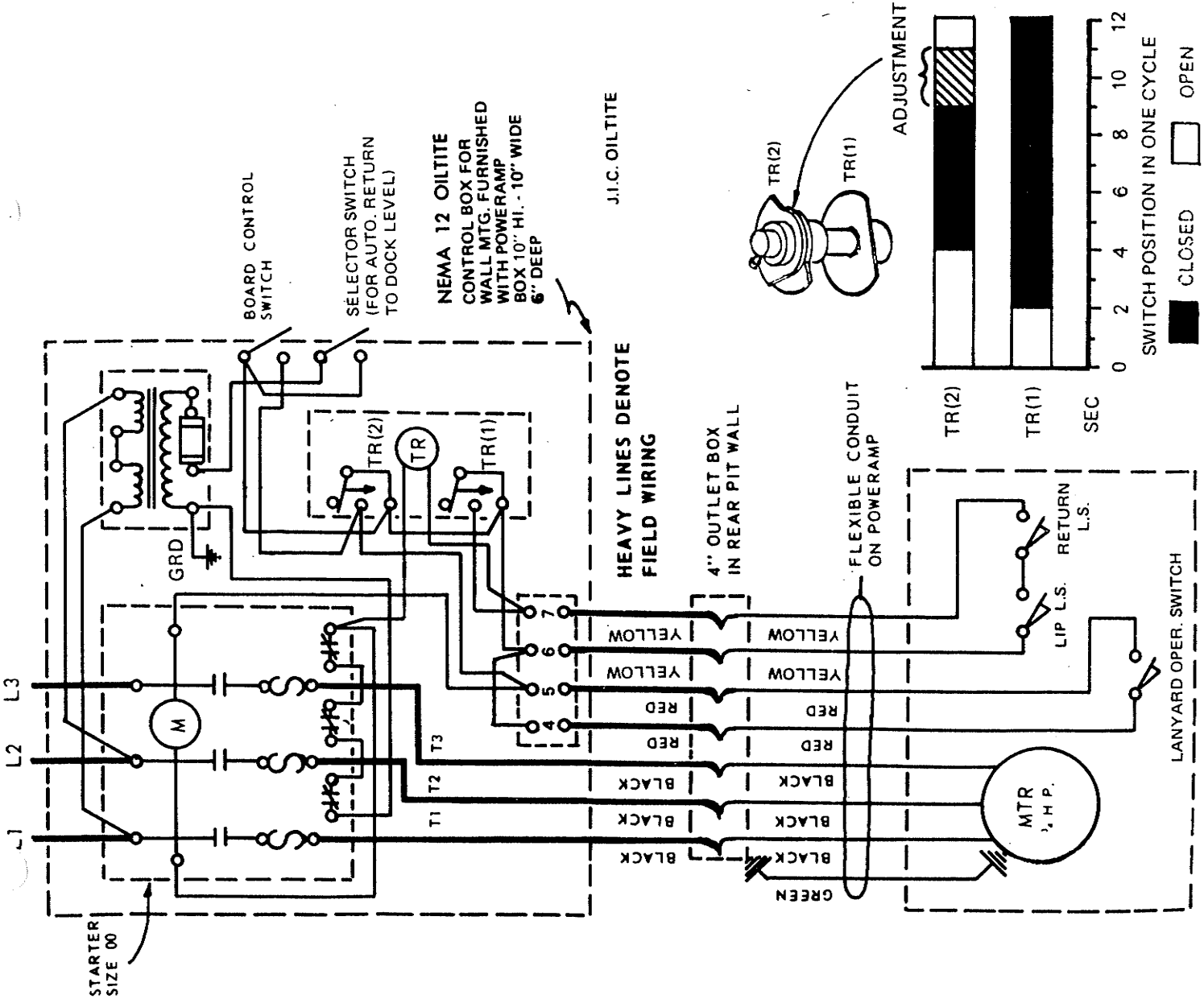
POWER _____ V. 3 PH. _____ C.Y.

OUR ORDER NO. _____ DATE _____

POWERAMP ELECT. DIAG.
3 PHASE

SYSTEMS, INC.
MEMONEE FALLS WIS 53051

DWG. 9028T



LIMIT SWITCH FUNCTION AND DIAGRAMS

Another plus for POWERAMP control! All limit switches incorporated into the operating circuit are subjected only to a very nominal COIL amperage . . . NOT motor amperage. We believe our method of electrical circuitry to be the best possible protection for all limit switch contacts.

REFERENCE TO ELECTRICAL DRAWING

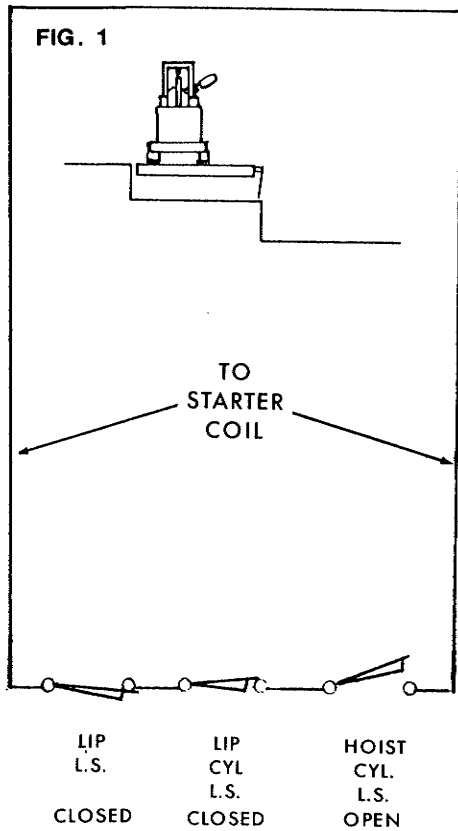


FIG. 1
When POWERAMP is at rest in the cross-traffic position, lip cylinder limit switch and lip limit switch are closed. Hoist cylinder limit switch is open. These three limit switches are connected in series. Their primary function is to automatically restore the dock-board to its cross-traffic position.

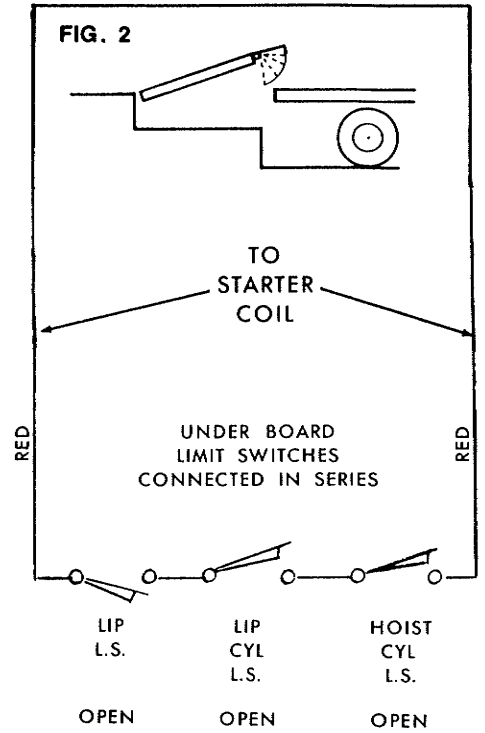


FIG. 2
When POWERAMP is in the fully "UP" position, with the lip extended, all limit switches will be open.

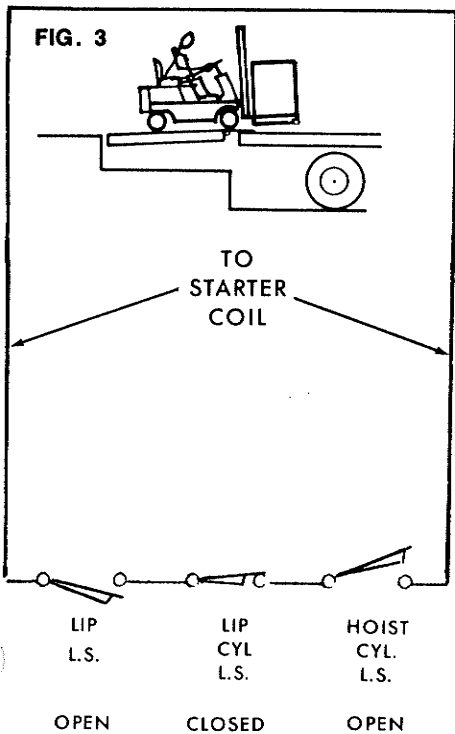
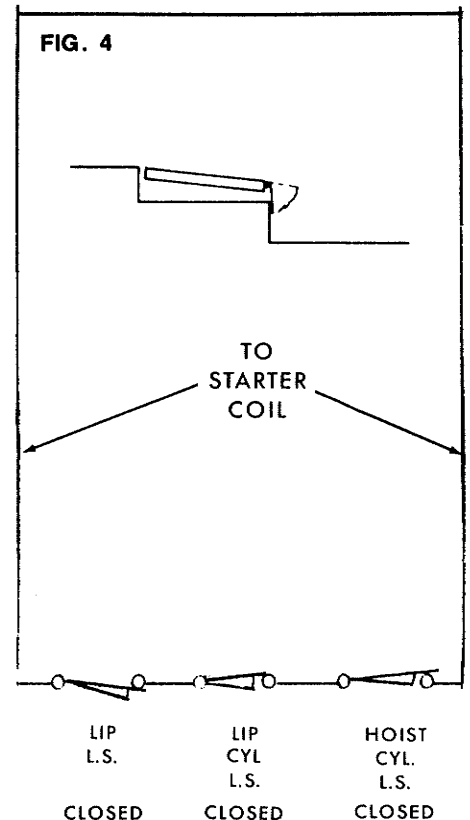


FIG. 3
When lip makes contact with truck bed, lip cylinder starts to retract. When cylinder is fully retracted, lip cylinder limit switch closes.

With lip fully extended, lip limit switch remains open. This switch restricts the board from automatically restoring itself to the cross-traffic position as long as the lip is extended.

FIG. 4
When POWERAMP reaches maximum below-dock position, hoist cylinder limit switch roller arm contacts lower cam mounted on hoist cylinder. This contact turns "ON" the hoist cylinder limit switch. As soon as the lip drops into vertical position, lip limit switch closes. This completes the series circuit, allowing board to automatically raise to a point approximately 4" above dock level. When roller arm of hoist limit switch contacts upper cam mounted on hoist cylinder it turns "OFF" the hoist cylinder limit switch. Now board will drift down into cross-traffic position with lip secured in cross-traffic supports. See Fig. 1



TROUBLE SHOOTING THE ELECTRICAL SYSTEM

Designed by Systems, Inc. to be as efficient and dependable as a machine can be, your POWERAMP should seldom if ever need repairs. This is especially true if you practice the preventive maintenance program outlined on Page 3. However, no machine is perfect, so we have listed here a few possible operational malfunctions which might conceivably occur, possible causes and probable remedies.

TROUBLE

1. With button depressed, pump motor does not run; board does not raise.

2. Board will not raise, single phase motor.

3. Board will not raise, three phase motor running or humming.

4. Board will not automatically return to cross-traffic position, but will raise when button is depressed.

POSSIBLE CAUSE

1. No power.
OR, blown fuses or overload open.

2. Line voltage too low.
OR, defective capacitor.
OR, open centrifugal switch at zero RPM.

3. Phase reversed, motor running.
OR, Motor single-phasing (motor humming).

4. No power to starter coil.
OR, one of three limit switches may be open.

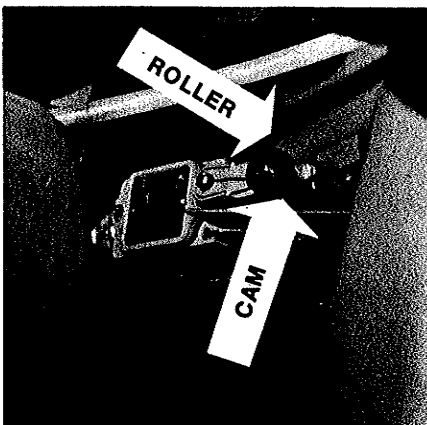
PROBABLE REMEDY

1. Check voltage input at POWERAMP control.
Check fuses, replace if necessary with correct type. Reset overload.

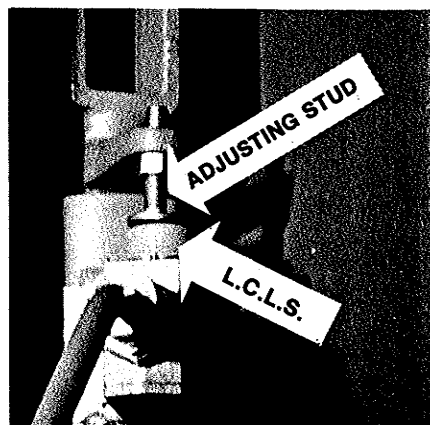
2. Check for low voltage . . . Increase wire size to correct voltage drop.
Disconnect capacitor from motor. Test. Replace if necessary.
Repair or replace centrifugal switch.

3. Reverse any two legs at disconnect box.
Check fuses, wiring and overload reset.

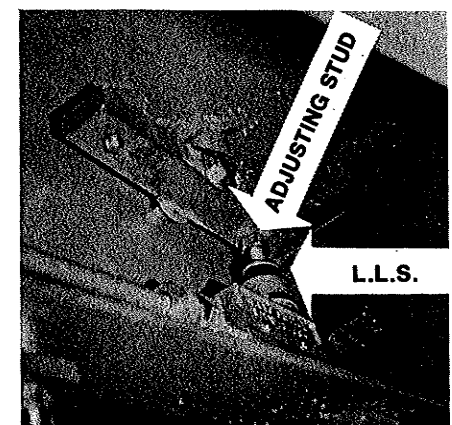
4. Check on-off toggle switch.
See A, B or C below. Also, see limit switch diagrams on Page 6.



A. Remove inspection plate. Move board to below-dock position. Roller must be in horizontal position. If not, gently bend cam so it will contact roller.

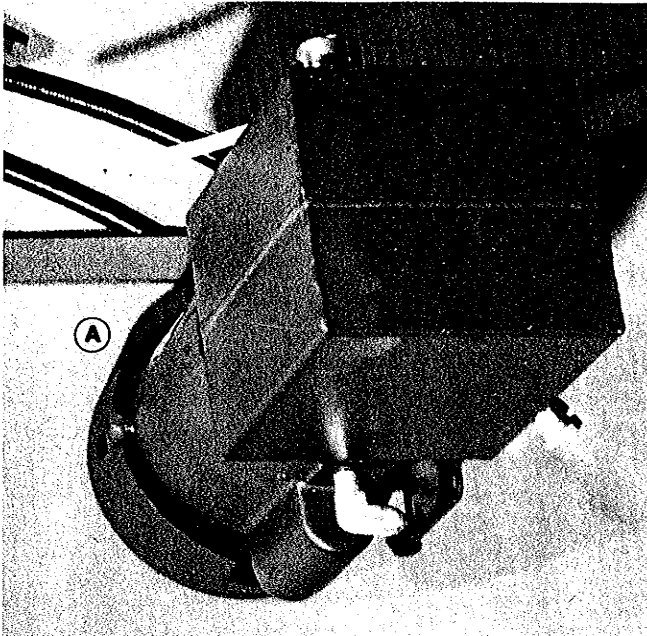


B. Prop board per instruction on Page 3. Also, prop lip using 4 x 4" wooden prop. With lip extended, loosen jam nut on lip cylinder adjusting stud (top arrow), turn actuating stud **OUT** toward limit switch until switch clicks. Continue turning not more than two (2) turns.



C. Prop board per instructions on Page 3. Also, prop lip using 4 x 4" wooden prop. With lip extended, loosen jam nut on lip limit adjusting stud (top arrow), turn actuating stud **OUT** toward limit switch until limit switch clicks. Continue turning not more than two (2) turns.

HYDRAULIC SYSTEM



POWER-PAC

A. Sealed unit - positive displacement gear pump with 400 psi pressure relief by-pass. Normal operating pressure is 250 to 325 psi. Pump motor - TEC, 3/4 HP, 3,450 RPM.

B. Oil capacity - 1 1/2 Gal. reservoir. On 60,000 lb. capacity POWERAMPS there are two lip and hoist cylinders, thus reservoir is 3 Gal. capacity.

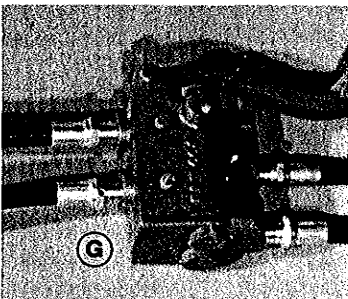
CHECKING AND ADDING HYDRAULIC FLUID - place board in full below-dock position. Put toggle switch in "OFF" position. Remove inspection plate. Remove breather from tank. Proper oil level is approximately one (1) inch from top of tank.

HYDRAULIC FLUID - to assure normal operating in an ambient temperature range of -30° to +125° F these fluids are recommended:

Aero Shell Fluid #4 Code #60421 by Shell Oil Co.
Drexoil #617B by Lubricants, Inc.

Mobile Aero HFA Mil-Hs606A by Mobil Oil Co.

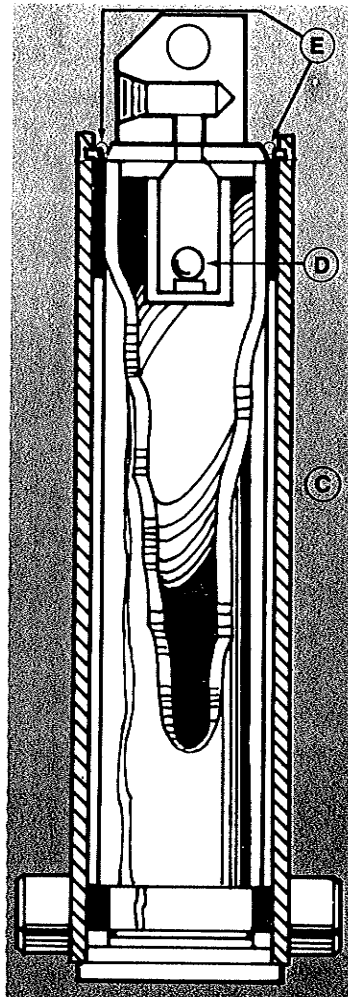
Note: Hydraulic fluids with equivalent specifications may be used.



LOGIC BLOCK

G. Controls and operates every hydraulic function without the use of solenoid-activated valves. Platform speed adjustment is the only adjustment required. This regulates the downward speed of the board.

Hoses - one to hoist cylinder and one to lip cylinder. Single hose is both pressure and return line.



HOIST CYLINDER

C. Type - top fed, self-bleeding, hollow ram, 3 1/2 in. diameter and 3/8 in. wall thickness.

D. Safety Stop - built into hoist cylinder. Supports personnel, vehicles and loads if truck pulls away from dock while load is on board. A single steel ball is only moving part.

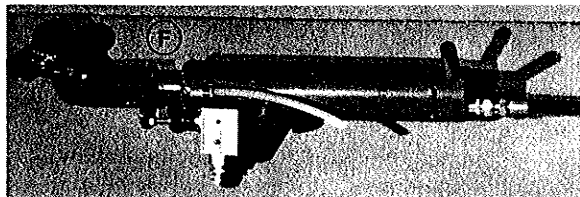
E. Retainer Ring - at top of cylinder. Check every two months for proper seating.

Oil on piston - a small amount is required to maintain normal lubrication.

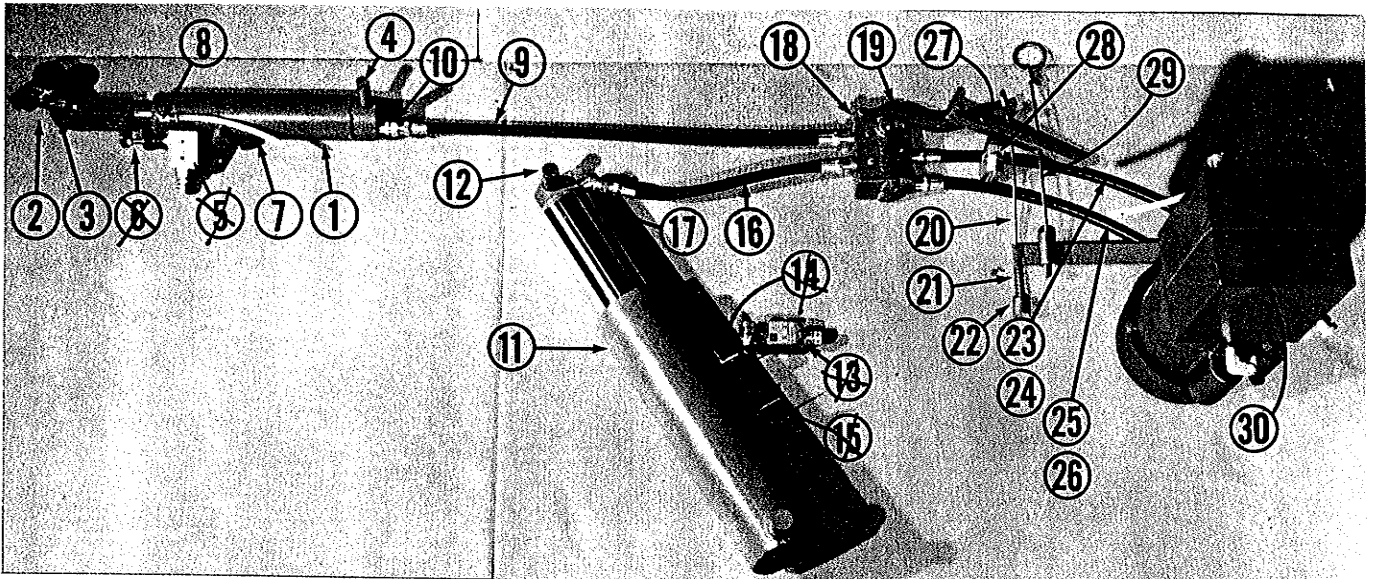
LIP CYLINDER

F. Controls and operates the lip.

Type - bottom fed, self-bleeding, 2 1/2 in. diameter with 3/16 in. walls.



HYDRAULIC SYSTEM PARTS LIST



LIP CYLINDER ASSEMBLY

Item	Qty.	Part	Description
1	1	0525-0001	Lip Cylinder Assy.
2	1	0522-0006	Lip Lifter
3	1	0522-0005	Pin — Front — Lip Cylinder
4	1	9202-0004	Pin — Rear — Lip Cylinder
5	1	0611-0001	Limit Switch — Lip Cylinder
6	1	0521-0006	Adjusting Stud — Limit Switch
7	1	5202-0001	Drain Line (Cyl. to Tank)
8	1	0521-0007	Ell — Drain Line
9	1	9900-0001	Hose Assembly Lip Cylinder.
10	1	0521-0015	Straight Hose Adapter

0525 0001

HOIST CYLINDER ASSEMBLY

Item	Qty.	Part	Description
11	1	0525-0002	Hoist Cylinder Assembly
12	1	9202-0005	Pin — Hoist Cylinder
13	1	0611-0003	Limit Switch — Hoist Cylinder
14	1	9472-0001	Limit Switch Bracket (Top)
15	4	9472-0002	Limit Switch Bracket (Lower)
16	4	9900-0001	Hose Assembly — Hoist Cylinder
17	1	0521-0016	45° Hose Adapter — Hoist Cylinder

0525-0002 Seal Kit

LOGIC BLOCK ASSEMBLY

Item	Qty.	Part	Description
18	1	9575-0001	Logic Block Assembly
19	5	5402-0001	Operating Arm — Logic Block
20	5	7957-0001	Cable — Logic Block Operating Arm
21	1	9572-0004	Spring — Operating & Arm Cable
22	1	8102-0001	Weight — Operating Arm Cable
23	1	9900-0003	Hose Assembly — Return Line
24	4	0521-0017	90° Hose Adapter (Bottom of Tank)
25	4	9900-0002	Hose Assembly — Pressure Line
26	1	0521-0015	Straight Hose Adapter (On Hyd. Tank)

9675 0001

BACK OF pump

AUXILIARY OPERATING ASSEMBLY

Item	Qty.	Part	Description
27	1	5405-0001	Lever
28	1	0611-0001	Limit Switch
29	1	5265-0001	Pull Ring & Cable Assembly

POWER-PAC

Item	Qty.	Part	Description
30	1	9395-0000	Power Pack—Includes: Motor, Pump, Tank & Filter, Breather

HYDRAULIC FLUIDS - See Page 8

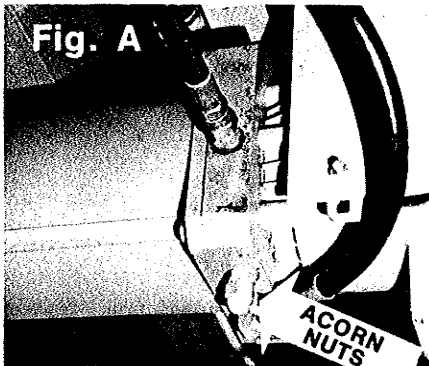
When ordering, USE PART NUMBERS ONLY. Do not use "item" numbers which serve only to help you locate the position of the parts. Always give dockboard MODEL NUMBER and/or SERIAL NUMBER.

TROUBLE SHOOTING THE HYDRAULIC SYSTEM

Your POWERAMP should seldom, if ever, need repairs. However, since no machine is perfect, here are a few malfunctions which might conceivably occur, possible causes and probable remedies.

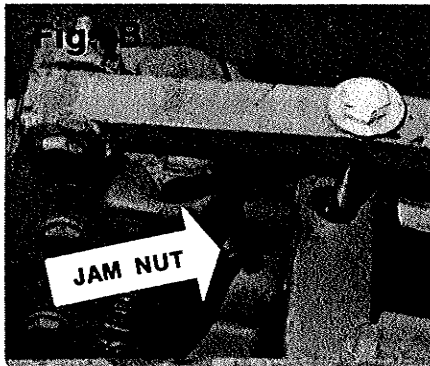
TROUBLE

1. Dockboard will not raise.
2. Dockboard raises very slowly.
3. While board is descending it locks into "safety". Lip drops to vertical position.



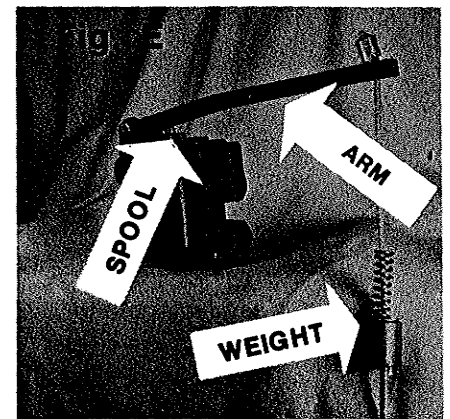
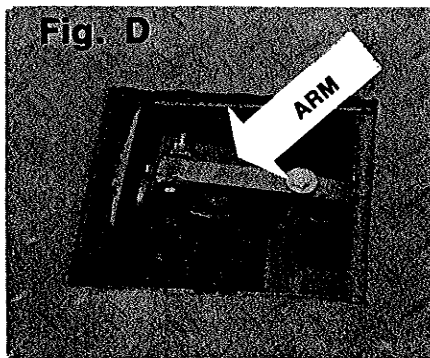
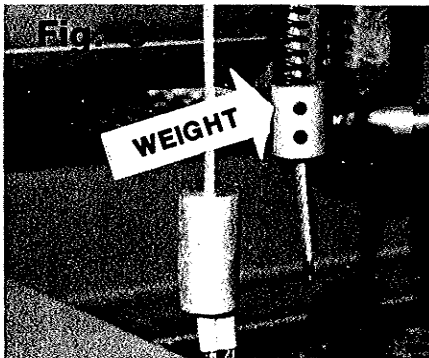
POSSIBLE CAUSE

1. Load on platform.
2. Low hydraulic fluid.
OR, pump by-pass set too low.
3. Platform down-speed is too fast.



PROBABLE REMEDY

1. Remove load. Unit is designed to raise no more than its own weight as a safety feature.
2. Add hydraulic fluid as needed See Page 8, Item B.
OR, increase by-pass pressure. Fig. A. Remove acorn nuts and washer back of nut. Back up jam nut and, with screwdriver, turn adjustment
3. Slow speed as follows. Remove inspection plate. See Fig. B. Loosen jam nut in radius of fluid logic block. Using $\frac{1}{8}$ " Allen wrench, turn Allen screw clock-wise approximately one full turn; tighten jam nut. Check down-speed. If board still descends too rapidly, repeat above. If board descends TOO SLOWLY repeat above, BUT turn Allen Screw counter-clockwise.



4. Operating with remote push-button control, platform reaches full height, but lip does not automatically extend.

4. Low Hydraulic fluid.
OR, weight on operating arm cable has slipped down on cable.

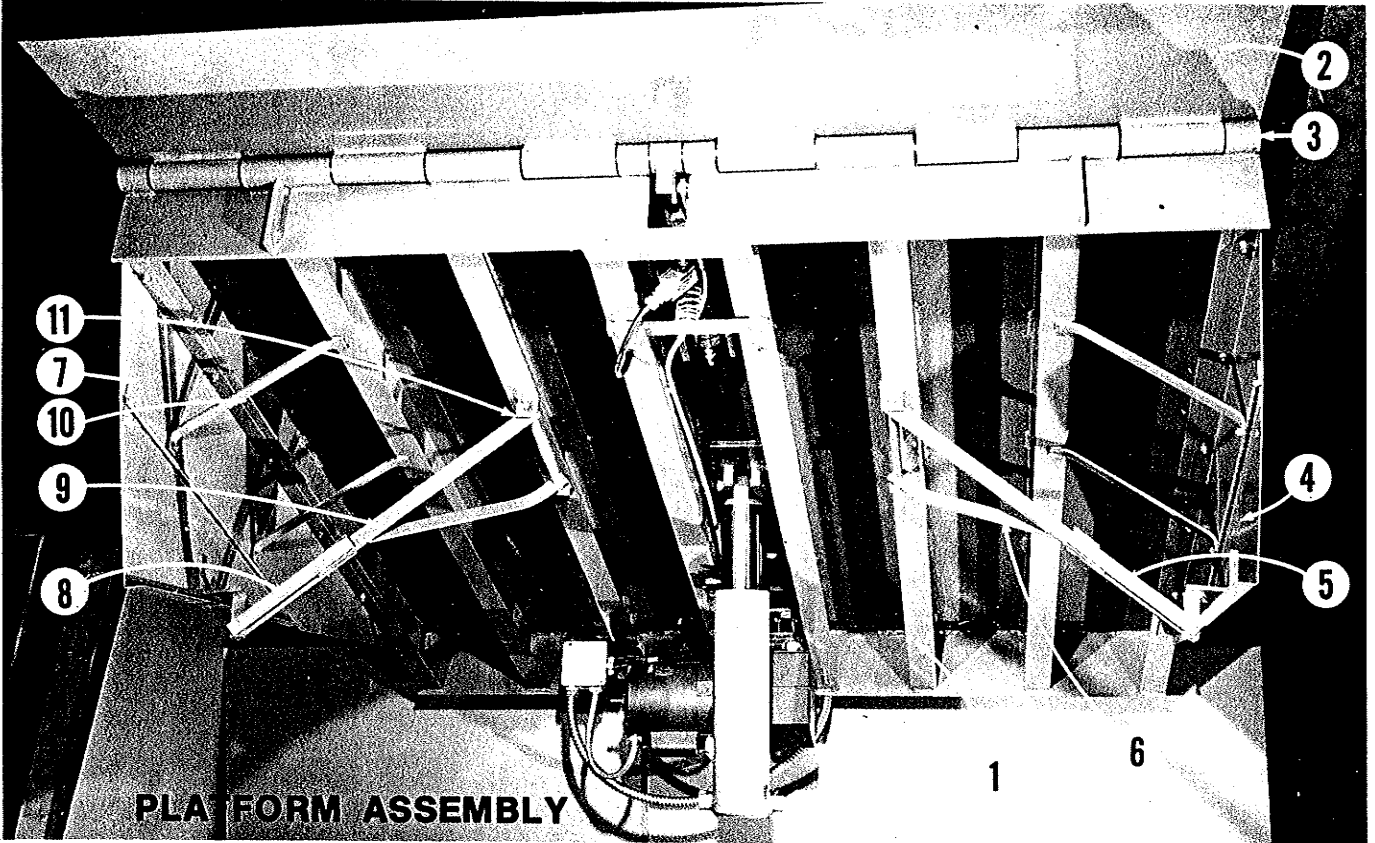
4. See Item 2 above.
OR, prepare for service under board as shown on Pg. 3. Now, see Fig. C. Loosen set screws. CAUTION! DO NOT LOSE steel ball under each screw. Raise weight $\frac{1}{2}$ " to $\frac{3}{4}$ " and secure screws. If spring is worn, replace.

5. From full below-dock position with lip folded, board raises, lip extends slightly, but board repeatedly returns to below dock position.

5. Spool extending through top of logic block might be stuck. Operating arm may be binding. Oil port to lip cylinder may be held open.

5. Turn "OFF" toggle switch. Remove inspection plate. See Fig. D. Manually free-up operating arm and spool. See Fig. E. If necessary, detach arm from logic block. Spray WD-40 penetrating oil or equivalent over top of logic block, Fig. D.

PLATFORM AND FRAME PARTS LIST



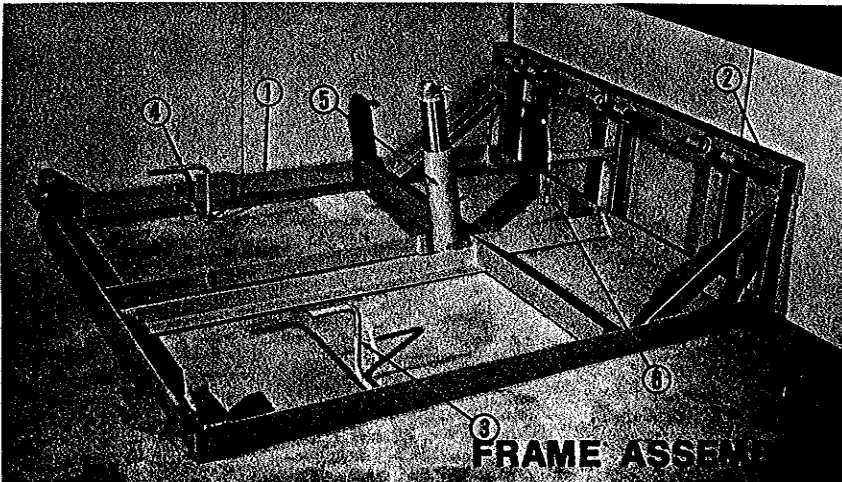
PLATFORM ASSEMBLY

Item	Qty.	Part	Description
1	1	9515-0001	Platform Weld Assembly
2	1	0595-0001	Lip Weld Assembly
3	1	9202-0003	Pin — Lip Hinge
4	1	0015-0001	Toe Guard — L.H.
5	1	5275-0001	Link — L.H. Toe Guard
6	1	0145-0001	Strut — L.H. Toe Guard
7	1	0015-0002	Toe Guard — R.H.
8	1	5275-0001	Link — R.H. Toe Guard
9	1	0145-0001	Strut — R.H. Toe Guard
10	4	9402-0001	Brace — Toe Guards
11	2	9202-0001	Pin — Toe Guard Strut



414-255-1510
 P.O. Box 519
 W159 N9305 Nor-X-Way
 Menomonee Falls, WI 53051

When ordering, USE PART NUMBERS ONLY. Do not use "item" numbers which serve only to help you locate the position of the parts. Always give dockboard MODEL NUMBER and/or SERIAL NUMBER.



FRAME ASSEMBLY

Item	Qty.	Part	Description
1	1	8435-0001	Frame Assembly
2	1	9202-0002	Hinge Pin — Rear
3	1	8432-0008	Cam — L.H.
4	1	8432-0009	Cam — R.H.
5	1		Hoist Cylinder (See Hyd. Section)
6	1		Cable Assembly (See Hyd. Section)