The LOAD & A-2-B Company Inc.

Model # 939
Radio Anti-Two-Block System

The contents of this manual must be read and thoroughly understood before operating the crane

Installation and operating manual

“Thank you very much for your business”

For Sales, Service or assistance:
1-888-562-3222/ (780) 437-2986

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Foreword
The Model 939 Radio Anti-2-Block System is a state of the art safety device for all cranes. The basic system warns the crane operator of an imminent two-block condition with a visible alarm indication and an audible warning buzzer. When installed in conjunction with crane function shut offs, this system prevents the hook block of a crane from coming into physical contact with the sheaves in the boom head.

System components
Check to be sure that you have received the following components:

- Display panel, panel cover and mounting bracket
- 1 or 2 anti-2-block switches with red flagged transportation clips
- Weld plate(s) and allen bolts
- Counterweight(s) and Chain(s) with two bolts per switch
- Power cord
- Antenna assembly (either rubber or metal – see page 8 of this manual for details)

* ATTENTION *

DO NOT CONSIDER THIS SYSTEM A SUBSTITUTE FOR GOOD JUDGMENT, EXPERIENCE AND ACCEPTED, SAFE CRANE OPERATIONAL PRACTICES.

THE CONTENTS OF THIS MANUAL MUST BE READ AND THOROUGHLY UNDERSTOOD BEFORE OPERATING THE CRANE.

THIS SYSTEM UTILIZES A SERIES OF ELECTRICAL AND MECHANICAL COMPONENTS AND CANNOT BE 100% FAIL SAFE.

Installation guidelines
Read all of these instructions completely prior to beginning
- Plan the installation
- Have the necessary tools available
- Test the system

Tools required
- Step ladder – to reach the boom, rooster sheave and/or jib tip
- Welder
- Electric drill with 3/16th inch drill bit
- Set of allen keys
- Open ended wrenches or a crescent wrench
- Wire crimping tools – for the display power and ground connections
- Screw drivers and or socket set
- Clear silicone
The transportation clip with the red tag is a device which keeps the switch in a non-2-block state for transportation purposes. If you fold away your jib or remove a counterweight from a switch, ensure that the red flagged transportation clip is installed as illustrated. When transporting the crane long distances, ensure that you place the transportation clip in the bottom of the switch. This is done by allowing the weight to pull the switch into the non-2-block position, and inserting the red flagged transportation clip on the cable between the bottom of the aluminum collar on the switch and the metal grommet about 5/8th’s inch below on the cable.

Please note: The red flagged transportation clips are to be removed from the bottom of the switch for normal system operation. If left in the switch the crane: **WILL NOT HAVE ANTI-2-BLOCK PROTECTION.**

*IMPORTANT*

REMOVE RED FLAGGED TRANSPORTATION CLIP FOR SYSTEM OPERATION
REPLACE WHEN MOVING OR TRANSPORTING CRANE

**DO NOT OPEN & CLOSE TWO BLOCK CIRCUIT ON SWITCH QUICKLY AND REPEATEDLY AS IT COULD LOCK OUT THE SYSTEM TRANSMISSION**

FOR NORMAL SYSTEM OPERATION ENSURE A MINIMUM DISTANCE OF 10 FEET BETWEEN SWITCH AND RECEIVER PANEL BEFORE REMOVING CLIP

Red flagged transportation clip.
Installation procedure - A-2-B Switch

> Main Boom – Refer to Figures below to locate and install weld plate and A-2-B switch. Please note that the weld plate & switch are shown larger than actual size for reference purposes.

1. Ensure A-2-B switch and weld plate are attached. Place switch and weld plate at the desired location on boom tip, at a 20 degree angle as illustrated in Figure ‘A’ above and mark with a scribe. A 20 degree angle is ideal for a mobile hydraulic machine, a 40-45 degree angle is ideal for a conventional crane. Ensure that nothing will interfere with switch (such as a swing away jib extension, etc.) and that antenna is not touching any metal on the boom.

2. Remove weld plate on A-2-B switch by unbolting the two 3/8th inch allen cap bolts. Weld the back of the weld plate as per Figure ‘B’ to the crane. Anchor loop should move freely once weld plate is welded. Note that weld plate should be offset at a 20 degree angle from the boom as illustrated in Figure ‘A’.

3. After welding weld plate(s) to boom tip, allow weld plate to cool to the touch prior to mounting the A-2-B switch onto weld plate with the two allen bolts. Installed switch should now look like Figure ‘C’ below. It should be positioned directly above the dead end or slowest speed line. Ensure that the location of the switch is such that the line of sight is not blocked from the cab by any brackets or flanges.

4. Install the chain onto the cable loop on the bottom of the A-2-B switch. Attach the counter weight to the dead end line or the slowest speed line.

5. Repeat this procedure for rooster sheave (Auxiliary winch 1) and or jib extension (Auxiliary winch 2) A-2-B switch installations.

Figure ‘A’

Figure ‘B’

Figure ‘C’

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Model #939 Radio Anti-2-Block installation and placement guide for single and multi-switch systems

Figure ‘A’ - Location of radio anti-2-block switch on main boom of crane.
Figure ‘B’ - Location of radio anti-2-block switch on ‘rooster sheave’ or Auxiliary winch 1.
Figure ‘C’ - Location of radio anti-2-block switch on ‘jib extension’ or Auxiliary winch 2.
Figure ‘D’ - Location of external magnetic mount antenna on operator cab of crane.
Transportation Position
Ensure the chain is clipped by the snap link to the anchor loop on the weld plate when transporting the crane. See Figure ‘A’. This will prevent damage and/or premature wearing of the cable at the bottom of the anti-2-block switch. Use the snap link to attach the chain to the anchor loop on the weld plate. Chain assembly should look like Figure ‘A’.

Please note: The A-2-B system will report a TWO-BLOCK ALARM when the blue receiver panel is powered up to remind the crane operator to unclip the chain for operation.

Operating Position
Ensure the chain is not clipped to the anchor loop by the snap link when operating the crane. The snap link should be hanging freely. (as illustrated in above Figure ‘B’).
Chain assembly should look like Figure ‘B’.

Please note: Test the system daily by lifting the counterweight and confirm an audio and visual alarm on the blue receiver panel.
1. Push to Test Button – When depressed allows the operator to verify the A-2-B alarm functions.
2. Red Alarm Warning Light – Visual warning that an impending two block condition has been detected.
3. Hold to Bypass Button – When depressed it turns off the alarm light and buzzer and allows the operator to bypass the hydraulic shut-offs to operate the crane.
4. Bypass Warning Light – Shows the operator that the bypass button has been pressed.
5. Battery Warning Light – Indicates battery status and comes on when a low battery is detected in the switch. If it is lit please refer to troubleshooting guide.
6. System Warning Light – Indicates status of system and is designed to alert the operator of a problem so that he does not rely on a faulty system. When flashing please refer to troubleshooting guide.
7. Alarm Buzzer – Continuous buzzing indicates that a pending 2-block condition has been detected. When it is beeping then it indicates a system failure. Please refer to the troubleshooting guide for more information.
8. Antenna Connector
9. Green Power Indicator Light – Green light indicates that power is applied to unit.
10. Fluted Knobs
11. Mounting Bracket
12. Power Connector
Display panel installation

Display panel mounting: The installation of the display panel consists of drilling two holes for mounting in the operator cab (or outside by the controls if no cab exists) and connecting two wires (red to +12/24VDC and black to ground). First find a suitable location on the dash where the crane operator has an unobstructed view of the display. Using the removable bottom portion of the mounting bracket align, mark and drill two holes. Securely attach the bottom portion of the mounting bracket assembly to the dash. Insert the blue display panel into the carriage holes of the lower mounting bracket and with the two fluted knobs and star washers, securely attach panel with the front of the display facing the operator.

Display panel power: is provided to the panel using the three conductor cable included. Connect the red wire to a positive (+12/24 VDC) terminal and the black wire to a solid ground on the crane. The white third conductor is for optional shut off valves discussed on page 10 of this manual. If you do not have the white wire attached to shut off solenoids, ensure that you have isolated the exposed end of the wire with a plug or electricians tape to prevent system from grounding out. **ATTENTION:** Ensure that a continuous +12VDC (11 volts minimum and typically 13.25 VDC with the engine running) is available to the panel at all times while the crane is in operation. Otherwise the system will not operate correctly. When attaching power cable to panel gently push male end of plug into female panel receptacle. Slide plug neck back towards panel and tighten clockwise ½ turn.

Antenna installation

Depending on the length or type of boom, four antenna installations and placements are possible. With your system you may have received:

- (A) One ten inch rubber antenna.
- (B) One ten inch rubber antenna with an external magnetic mount base, attachment cable and plug.
- (C) One metal whip antenna with an external magnetic mount base, attachment cable and plug.
- (D) One metal whip antenna with a bracket mount base. This is a marine specific antenna kit.

(A) Outside operator cab – up to 150 feet of boom: Where the receiver panel is installed outside a cab simply install the 10 inch rubber antenna directly onto the blue receiver panel. Attach the base of the rubber antenna to the side of the receiver panel by inserting it GENTLY with a simple half turn. Ensure that the lines of sight between the load cells and the antenna are unobstructed. It is important that the receiver antenna not be touching glass or metal.

(B) Inside operator cab – up to 150 feet of boom: For installations inside the operator cab and where your boom is less than 150 feet of length, place the magnetic mount base with the 10 inch rubber antenna on the top of the operator cab on the crane. (see Figure D, page 3) Ensure that the lines of sight between the load cells and the antenna are unobstructed. Drill a small hole in the side of the cab to allow the black antenna lead to enter the cab. Use a small amount of clear silicone to seal around the hole when complete. Install the chrome metal plug at the end of the antenna cable directly on to the blue receiver panel.

(C) Inside operator cab – more than 150 feet of boom: For installations inside the operator cab and where your boom is more than 150 feet of length, place the magnetic mount base with the metal whip antenna on the top of the operator cab on the crane. (Figure D, page 3) Please ensure the small allen screw for holding the whip antenna to the magnetic base is firmly tightened. Ensure that the lines of sight between the load cells and the antenna are unobstructed. Drill a small hole in the side of the cab to allow the black antenna lead to enter the cab. Use a small amount of clear silicone to seal around the hole when complete. Install the chrome metal plug directly on the side of the blue receiver panel by inserting with a simple half turn while pressing down GENTLY.

(D) Inside operator cab – any marine application for booms of less than 300 feet in operating length, attach base with the metal whip antenna on the top of the operator cab on the crane. (Figure D, page 3) Please ensure the small allen screw for holding the whip antenna to the magnetic base is firmly tightened. Ensure that the lines of sight between the load cells and the antenna are unobstructed. Drill a small hole in the side of the cab to allow the black antenna lead to enter the cab. Use a small amount of clear silicone to seal around the hole when complete. Install the chrome metal plug directly on the side of the blue receiver panel by inserting with a simple half turn while pressing down GENTLY.
Auxiliary or jib A-2-B switch

Install in the same manner as the main boom A-2-B switch. See pages 4 and 5 for instructions.

IF TWO SWITCH SYSTEM – BOTH A-2-B SWITCHES MUST BE INSTALLED FOR SYSTEM TO OPERATE

If you have purchased multiple systems, ensure that you DO NOT MIX UP THE MATCHED SYSTEMS.

Should you be in doubt, check serial numbers to ensure system components are in matched sets.

- PLEASE FOLLOW THE INSTRUCTIONS FOR INSTALLATION FOUND ON PAGE 3 THROUGH 6 OF THIS OWNER/OPERATORS MANUAL

- Both of the transmitter switches must be installed on the crane in order for the system to operate. Once counterweights are installed, remove the red flagged transportation clips. If only one switch is installed, it will result in the receiver panel giving a flashing system light and an intermittent audible beeping.

- Should you remove your jib from the crane completely, please ensure that the jib switch has the red flagged transportation clip in place (see page 3) and is kept on or with the crane at a minimum distance of 10 feet from the blue receiver panels antenna. This will ensure the correct operation of the self checking function and allow the system to be used with only one switch in operation.

Emergency by-pass plug

If this system is damaged or malfunctions and where shut-off valves are wired into this system, the crane can be made operational by using the emergency by-pass plug. Remove this plug from the blue panel mounting bracket. Next remove power cable from panel by twisting the black coupling ½ turn counter-clockwise and pull away from panel. Insert this by-pass plug into the end of the power cable and turn plug neck ½ turn clockwise to secure.

This will over-ride the shut off valve power signal and enable the continued uninterrupted use of your crane. Please note that you will not have anti-2-block protection once the power cable is removed from the blue receiver panel. Call The Load & A-2-B Company at 1-888-562-3222 for further assistance. Once the A-2-B system is operational, the by-pass plug should be re-attached to the panel mounting bracket for safe keeping.

Start up

Upon power up the panel runs through an initialization sequence in which all the lights on the panel illuminate and the horn sounds for two seconds. After this the A-2-B alarm, bypass, battery and system lights sequence on and off so that they will be noted by the operator.

During this initialization, and if you have shut off’s installed on the crane, the shut off output will be de-energized causing the crane to be disabled. After this power up sequence, the A-2-B system will be functional, and the shut off output (WHITE WIRE) will energize allowing the crane to be operational.

Function test

1. Start the crane. The A-2-B System will power up and the power indicator light will illuminate.
2. Push and hold the test button. The red alarm light is on and the audible horn sounds.
3. Release the test button. The red light should be off and the horn silent.
4. The system is equipped with a bypass button on the front of the panel, which when depressed and held, will bypass the optional shut off solenoids if installed. Pressing & holding the bypass button will also cause the bypass light to illuminate.

Physical check

1. With the boom at a low angle and with the red flagged transportation clip removed, lift the A-2-B counterweight to simulate a two-block condition. The red alarm light should come on and audible alarm should sound.
2. Lowering the counterweight should cause the red alarm light and audible alarm to go out.

ATTENTION: It is recommended that the A-2-B System be ‘physically checked’ or tested as above at the beginning of each work period by lifting the block to momentarily cause an alarm condition. This ensures that the complete system is fully functional.
Installation instructions for STAND ALONE function shut downs
Solenoid valves

The solenoid valves are normally closed, preventing hydraulic fluid flow when 0 volts or no power is connected to them. When a constant +12VDC is applied, the valves open allowing constant hydraulic fluid flow.

The valves come with standard one inch SAE threads for both the Input and Output, which are marked on the valve block. Once you determine your hydraulic hose fitting size, you must get fittings that will join your hydraulic line to the valve. The valve is threaded internally on each end to accept your fittings.

To connect +12VDC to your valve, find the two black wires on the valve block assembly. Run the +12VDC white wire (on the power cable from the blue receiver panel of the 939 radio A2B system) to either black wire on the valve. Simply ground the other black wire to the crane. It does not matter which black wire you use for power or ground on your valve.

In normal operation the 939 Radio Anti-2-Block system will provide a constant +12VDC output to the solenoid valve allowing normal hydraulic flow. When the counterweight is lifted the +12VDC will drop to 0 volts closing your valve which will stop the hydraulic fluid flow and shut down that crane function.

Refer to below diagram illustrating an installation to stop the winch up function.

1. When the function control (Figure ‘A’) is pulled it activates the flow of hydraulic fluid. Our anti-2-block system provides a constant +12VDC of power to the valve (Figure ‘B’) keeping the valve open and allowing the flow of hydraulic fluid.
2. When the counterweight is lifted the +12VDC of signal from the blue receiver panel via the white wire to the hydraulic valve drops to 0 zero volts. This immediately closes the valve and the flow of hydraulic fluid to the crane function stops. The following crane operations may be disabled:

Boom Down / Main Winch Up / Telescope Out / Auxiliary Winch Up (if applicable)
Wiring instructions for 939 use with EXISTING function shut downs

Please review the following wiring diagram. This illustrates the correct set up to ensure that either system does not override the other, in the event of either a pending two-block condition or overload situation.

In normal operation the 939 Radio Anti-2-Block system provides a constant +12/24VDC output to the shut off valves. When the counterweight is lifted the +12/24VDC will drop to 0 volts closing your shut offs.

The following functions may be disabled:

**Boom Down / Main Winch Up / Telescope Out / Auxiliary Winch Up (if applicable)**
## Troubleshooting guide

Please do not attempt to open the A-2-B switch or the receiver panel. Read this section completely or contact The Load & A-2-B Company service department at 1-888-562-3222.

<table>
<thead>
<tr>
<th>Problem description</th>
<th>Possible solution</th>
</tr>
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</table>
| 1. Panel does not power up. | A. Review the wiring instructions in the installation section of the manual.  
B. Power cable may be disconnected.  
C. Verify that there is +12VDC to +24VDC going to the panel.  
D. Check 1A Fuse.  
E. Check power cable for damage. (cuts, nicks, etc.) |
| 2. Panel powers up but does not run through the full start up sequence e.g. Lights burnt out, etc. | A. Verify that there is +12VDC to +24VDC going to the panel.  
B. Power the panel directly with +12VDC from the cranes battery bypassing any fuse panels and connections or on a separate 12 volt battery to assure that it is not a crane power problem.  
C. Call the service department at 1-888-562-3222. |
| 3. Panel gets extremely hot to the touch when using a +24VDC supply. | A. If the panel is installed in a cab remove the black dust cover and try improving the air circulation around the panel.  
B. Change the power to the panel so that it runs on +12VDC. If you need assistance in doing this contact the service department at 1-888-562-3222. |
| 4. Battery warning light is flashing. | A. Battery needs replacement. Please refer to the Battery Replacement section of this manual. |
| 5. System warning light is flashing. | A. Loss of communication with A-2-B. Refer to the No Communication section at the end of this troubleshooting guide. |
| 6. Red A-2-B alarm light is on and buzzer is on constantly. | A. The system has detected an A-2-B condition, check position of the counterweight.  
B. The counter-weight is not hanging free, check to see if the weight is still hung or is it is caught up on something. |
| 7. Buzzer is beeping. | A. Loss of communication with A-2-B. Refer to the No Communication section at the end of this troubleshooting guide. |
| 8. Shut-offs have been installed and now boom/winches speed has been slowed down or shut down altogether. | A. Check voltage on shut off control wire (white wire) to ground – it should be +12 VDC. If not see step #9 below.  
B. Check the installation of the valves most models are directional. If they are installed in reverse the valves will be closed during normal operation. |
| 9. There is no +12 VDC on the shut-off control wire (white wire). | A. Check the 10 Amp Shut-off fuse.  
B. Verify that the white control wire hasn't been cut or disconnected.  
C. Check the power cable. Using a multi-meter set to ohms verify that each of the 3 wires connects to a pin on the connector.  
D. Verify that the system was not sold with the shut-off reversed for use with normally open valves. |
No communication between A-2-B switch and blue receiver panel

If you have a suspected communication problem between the anti-2-block switch(s) and the receiver panel please use the following steps in troubleshooting. Please try the following steps in the order they appear.

### Possible installation problem with receiver panel

A. Thoroughly review the Installation Procedures at the front of this manual.
B. Verify that there is +12VDC to +24VDC going to the panel.
C. Power the panel directly with +12VDC from the cranes battery bypassing any fuse panels and connections or on a separate 12 volt battery to assure that it is not a crane power problem.
D. If your boom length is over 200 feet the display panel may need to have an external metal whip antenna.

### Possible installation problem with A-2-B switch

A. Thoroughly review the Installation Procedures at the front of this manual.
B. To test and verify the operation of the system:
   1. Remove the switch from the boom and bring it about 10 feet from the antenna attached to the panel.
   2. Pull the switch cable out and cycle the power on the panel verifying that the system powers up without a system failure. If this is successful then let the cable go into the switch verifying the alarm. Repeat.
   3. If the system is working move toward the boom tip keeping line of sight with panel. Repeat.
   4. Mount the switch on the boom and verify operation again. The switch may need to be spaced out from the boom. (see note “C” below)
   5. If the system fails at any point call the service department for more help.
C. If any part of the antenna on the A-2-B switch is touching the boom or very close to any metal bracing or fittings on the boom tip there may be interference with the signal to the panel. Spacing out the A-2-B switch 1” further from the boom may improve the signal strength.

**ATTENTION:** If this is a Jib system with 2 switches, both switches must be mounted properly on the boom for the system to function properly. The panel will look for both switches and indicate a failure if both are not seen. (see page 9, Auxiliary Jib A-2-B Switch installation)

### Possible antenna problem

A. Verify correct antenna for particular installation set up. See page 8 of this manual, Antenna Installation.
B. Check the antenna connectors for signs of corrosion, dirt and moisture. Clean if necessary.
C. For the 10” panel mount antenna:
   1. Blue receiver panel should be mounted so that the antenna is not touching any metal.
   2. The antenna should not be touching any glass.
   3. Make sure the antenna is not damaged.
D. For both types of external antenna (metal whip and rubber whip):
   1. Make sure the antenna or the cable lead is not kinked or damaged.
   2. The antenna should be free of any metal and there should be a good line of sight to the switch. Never cut or modify the antenna without contacting the service department at 1-888-562-3222.

### Possible dead battery

A. Please call our service department at 1-888-562-3222 before attempting to test or replace a battery.
B. The battery pack can be tested with a multi-meter and should read between 6.6V and 7.3V. The batteries have internal fuses so care must be taken not to short them out while testing.

### Damage to A-2-B switch

A. If the A-2-B switch has been damaged please call our service department immediately.
B. If the cable is broken call our service department immediately.
C. If the seal has been damaged it will allow moisture to effect the electronics. Please call the service department at 1-888-562-3222 immediately.
The Battery Light

The battery light indicates low power battery cells in the boom mounted A-2-B switch. The system will continue to operate normally for approximately 3 weeks after this light illuminates. The power cells should be ordered and replaced within this 3 week period. These lithium ion power cells are available by contacting The Load & A-2-B Company at 1-888-562-3222 toll free or (780) 437-2986. The batteries are covered under warranty for 18 months so check your purchase date before ordering.

Replacing the batteries (see figure below) NOTE: Although these batteries may appear to be ordinary ‘batteries’, they are not. They must be replaced with specific 7.2 volt (2 X 3.6 = total 7.2 volts) lithium ion power cells.

A/ Remove the face plate of the A-2-B switch by unscrewing the 4 Allen cap screws. Remove and discard the O-RING seal.

B/ Carefully unplug the power cells by gently separating the white plastic connector. BE VERY CAREFUL NOT TO MOVE OR CHANGE THE DIP SWITCH SETTINGS or harm other internal components of the switch. Gently remove used power cells.

C/ Gently insert new power cells in the same manner that you found the originals. Firmly push together the two white plastic power connectors at the top of the switch. BE VERY CAREFUL NOT TO MOVE OR CHANGE THE DIP SWITCH SETTINGS or harm other internal components of the switch. DO NOT ALLOW ANY WIRES TO REST OVER THE EDGE OF THE GREEN CIRCUIT BOARD. Follow instructions with arrows below. Ensure that the new O-RING SEAL is seated in the groove, replace cover and tighten the 4 allen bolts securely.

Important: Both components of the system, the A-2-B switch and the blue receiver panel must be shipped back together for any service work. Check serial numbers to ensure matched system components are shipped together.
### Technical component specifications

#### Receiver Panel
- **reception range**: minimum of 150 feet
- **power supply**: 12 or 24 VDC standard
- **shut-off output**: 12 or 24 VDC standard
- **weight**: 3 ½ pounds
- **length**: 9 inches
- **height**: 6 inches
- **width**: 2 ½ inches
- **antenna**: rubber or metal
- **oper. temp in °F**: -40 to +122 (-40 to 50 °C)

#### Switch
- **transmit range**: minimum of 150 feet
- **response time**: 0.1 second
- **weight**: 3 pounds
- **length**: 5 ½ inches
- **width**: 4 inches by 2 inches
- **antenna**: 7 inch (rubber flexible)
- **weld plate**: 2 x 4 x 1 inches
- **oper. temp in °F**: -40 to +122 (-40 to 50 °C)
- **battery**: lithium ion

Display information consists of an A-2-B Alarm, both audible horn & red light, system status, battery status, by-pass status

### FCC Compliance
**FCC ID: NFB LAB 939**

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

Unauthorized changes or modifications to the Model 939 Radio Anti-2-Block System are expressly prohibited by the Load & A-2-B Company. Unauthorized changes or modifications could void the operator’s authority to operate the equipment.

If you require any modifications, please contact The Load & A-2-B Company toll free at 1-888-562-3222.

### Warranty
The Load & A-2-B Company Inc. warrants to the purchaser of each new Anti-Two-Block System that any part thereof which proves to be defective in material or workmanship within one (1) year from date of delivery will be repaired or replaced at no charge, if the system is returned to us in Edmonton, Alberta with all freight charges prepaid.

If a performance problem should occur, contact our office in Edmonton, Alberta toll free at 1-888-562-3222. This warranty does not cover defects resulting from accident, alteration, improper use, or failure of the purchaser to follow normal operating procedures as outlined in the instruction manual.

**THIS WARRANTY IS IN LIEU OF ANY WARRANTY OF MERCHANTABILITY AND OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, ALL OF WHICH ARE HEREBY EXCLUDED.**

The Load & A-2-B Company Inc. shall in no event be liable for any special, indirect, or consequential damages whatsoever and neither assumes nor authorizes any person to assume for it any other obligation or liability.