

# **KRAMBLE INDUSTRIES INC.**

## **ENDGATE & HOIST CONTROL Installation and Operating Manual**



### **KRAMBLE INDUSTRIES INC.**

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# Table of Contents

|   |    |
|---|----|
| FCC .....                                 | 1  |
| Industry Canada .....                     | 1  |
| General Operation .....                   | 2  |
| Receiver.....                             | 2  |
| Transmitter .....                         | 3  |
| Endgate Driver .....                      | 4  |
| Installation Instructions .....           | 5  |
| Connecting Power to Receiver.....         | 5  |
| Electric Cylinder Installation .....      | 5  |
| Air Line Connections .....                | 8  |
| Electrical Connections.....               | 8  |
| Hydraulic Hoist Driver Installation ..... | 11 |
| Specifications .....                      | 12 |
| Limited Warranty .....                    | 14 |

# Table of Figures

|   |    |
|---|----|
| Figure 1 Endgate Driver Installation Drawing .....                | 6  |
| Figure 2 Air Hoist Systems – Solenoid / Air Valve Kit.....        | 7  |
| Figure 3 Electric Hoist Systems – System Type Active 12V .....    | 9  |
| Figure 4 Electric Hoist Systems – System Type Active Ground ..... | 10 |
| Figure 5 Hoist Driver Installation Drawing .....                  | 12 |

## FCC

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment OFF and ON, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

## Industry Canada

This device complies with Industry Canada license exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes: (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

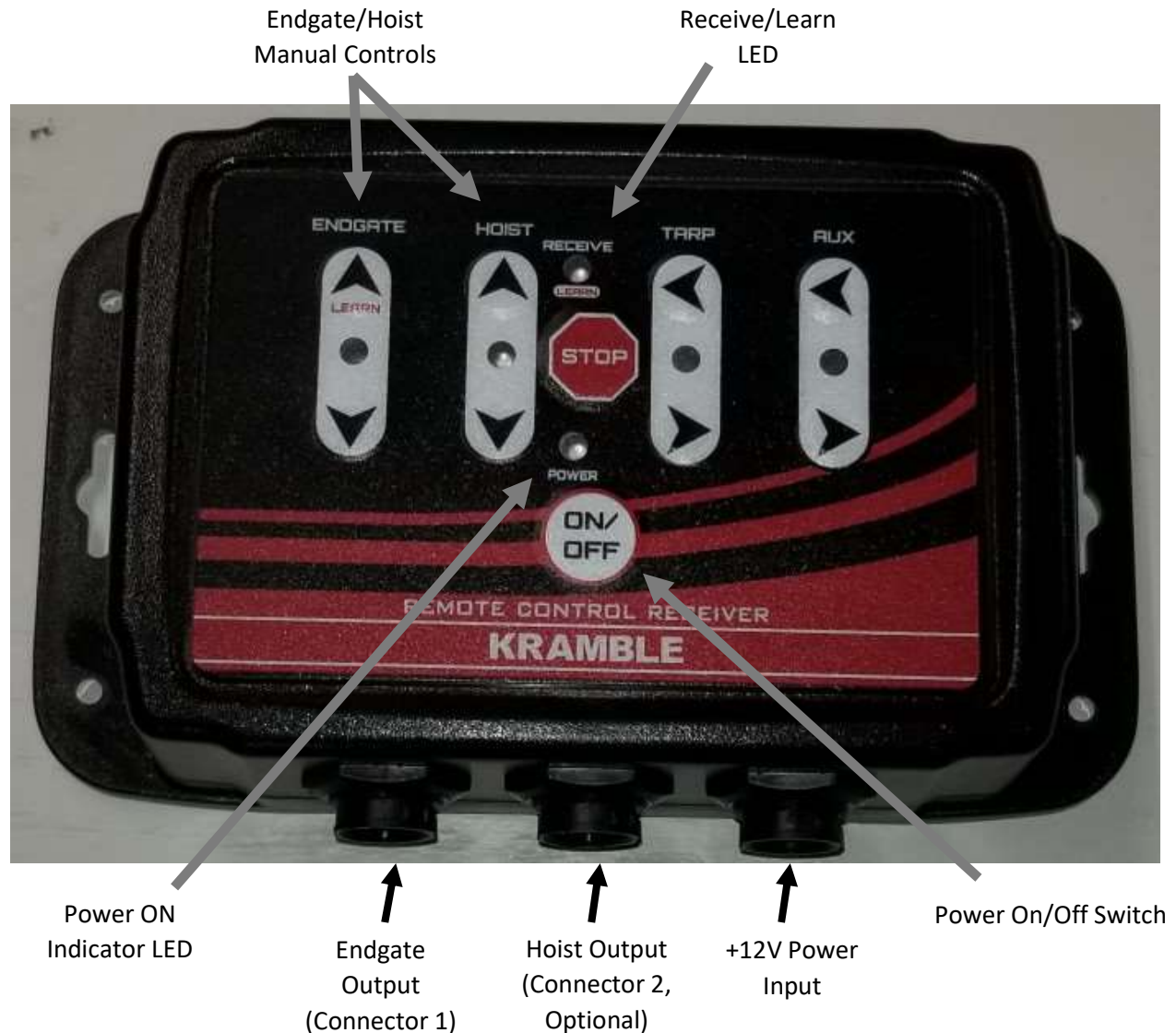
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# General Operation

## Receiver

The Receiver is equipped with a Power On/Off switch on the front of the case. When the switch is ON, the Red LED should be lit indicating normal operation.



The Receiver is matched to a Transmitter by “learning” the transmitter’s unique identifier so that the receiver will accept commands from that transmitter. A newly-purchased system already has its transmitter learned by the receiver. It is also possible to erase all stored identifiers if desired.

To match an additional transmitter to a receiver, first turn the receiver power OFF. Hold the button marked LEARN (Endgate Up) on the receiver and turn the receiver power ON, then

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release the LEARN (Endgate Up) button. The Receive/LEARN light is then lit to indicate that the receiver is waiting for a signal from the transmitter to be learned. Press any button on the transmitter to send a signal and the receiver will read the transmitter's unique identifier and store it in memory. The Receive/LEARN light will flash for three seconds to indicate that the transmitter has been successfully learned, and the receiver will then enter normal operating mode. Up to eight transmitters can be learned by a receiver. If eight transmitters have already been learned by a receiver and it is instructed to learn another transmitter, the oldest-learned transmitter's identifier will be overwritten and forgotten.

The Endgate and Hoist can be operated using the Transmitter, or alternatively, by pressing the desired UP/DOWN arrows on the Receiver to activate the Manual Switches. Whenever the endgate or hoist is operating, the Green LED indicating power to that device, will be lit.

The Receiver has protection to prevent overcurrent damage to the internal circuitry. The motor drivers feature current monitoring to measure motor current and speed control to limit average current output. In addition, the receiver includes a suppressor to absorb voltage spikes on the power input and protection against damage when the power polarity is reversed.

## Transmitter

The Transmitter is powered by a 9v battery which, when installed, should light the red "power" light when a switch is pressed. If the battery does not exceed 7 volts the Power light will not come On, indicating battery replacement is required.

The Transmitter is also equipped with an Off/Standby switch to prevent accidental operation. In the Off position the transmitter Red LED will not light and the transmitter will not activate even when a function button is pressed. To operate, slide the switch to Standby. The transmitter remains off until a function button is pressed, at which time the Red LED will light and the transmitter will emit signal. No battery power is used when simply in Standby mode with no function buttons pressed.

Each transmitter contains a unique identifying number that is transmitted to the receiver during RF operation. Up to eight Transmitters can "talk" to the same Receiver as long as the receiver has learned the transmitters' security codes.

To access the Transmitter battery, remove the 4 screws in the back of the Transmitter case and open the case.

NOTE: The STOP button shown/included on the Transmitters is NOT USED as both the Hoist and Endgate only operate while a button is held.

## Endgate Driver

The Endgate Driver will only operate while its transmitter button/manual switch control button is depressed. Release the button immediately when the endgate is fully opened or closed. Do not operate in a stalled condition. This could result in reduced service life or destruction of the Endgate Driver.

The Receiver power should be turned off when not in use to prevent undesired operation.

### **Think Safety!**

**Do not install or operate where damage to persons or property may occur**

# Installation Instructions

## Connecting Power to Receiver

Using sufficiently heavy gage wire, (not included), connect +12vdc and Ground wires to the supplied cable marked POWER using the crimp connectors supplied. The polarity must be correct as follows: +12v on the WHITE wire, and GROUND on the BLACK wire. Power may be supplied from the fused side of the accessories on the ignition switch so that the Receiver is only powered while the vehicle ignition key is on or alternatively, connected using an inline fuse directly to battery power. When the Power ON/Off switch on the front of the Receiver is pressed, the Red LED indicator light should turn ON indicating normal operation. Pressing the Power ON/Off switch again will turn the unit off.

## Electric Cylinder Installation

Before mounting the Electric Cylinder on the end gate, determine the correct location for installing the mounting tabs by extending and retracting the cylinder to ensure required stroke. This can be accomplished once power is supplied to the Receiver by pressing the ENDGATE manual switches on the Receiver.

Ensure the grain chute operates freely. Position the mounting tabs such that when the grain chute is fully open the cylinder is not quite fully retracted. Then check to ensure that the distance to fully close does not exceed the electric cylinder stroke length and that the electric cylinder can be mounted free of any obstacles.

Weld or drill/bolt the mount tabs in position on the vertical center-line of the grain chute and box end panel at the desired positions.

Attach the cylinder main body to the top mount tab using the bolt and locknut supplied. Attach the cylinder piston to the moveable grain chute with the snap pin supplied. Route the electrical wire and connect using the insulated crimp terminals supplied. Secure all wires using the cable ties provided.

NOTE: The existing lift handle on the endgate need not be removed, however, it must not be able to lock in any position. This could cause the electric cylinder to stall resulting in reduced service life or destruction.

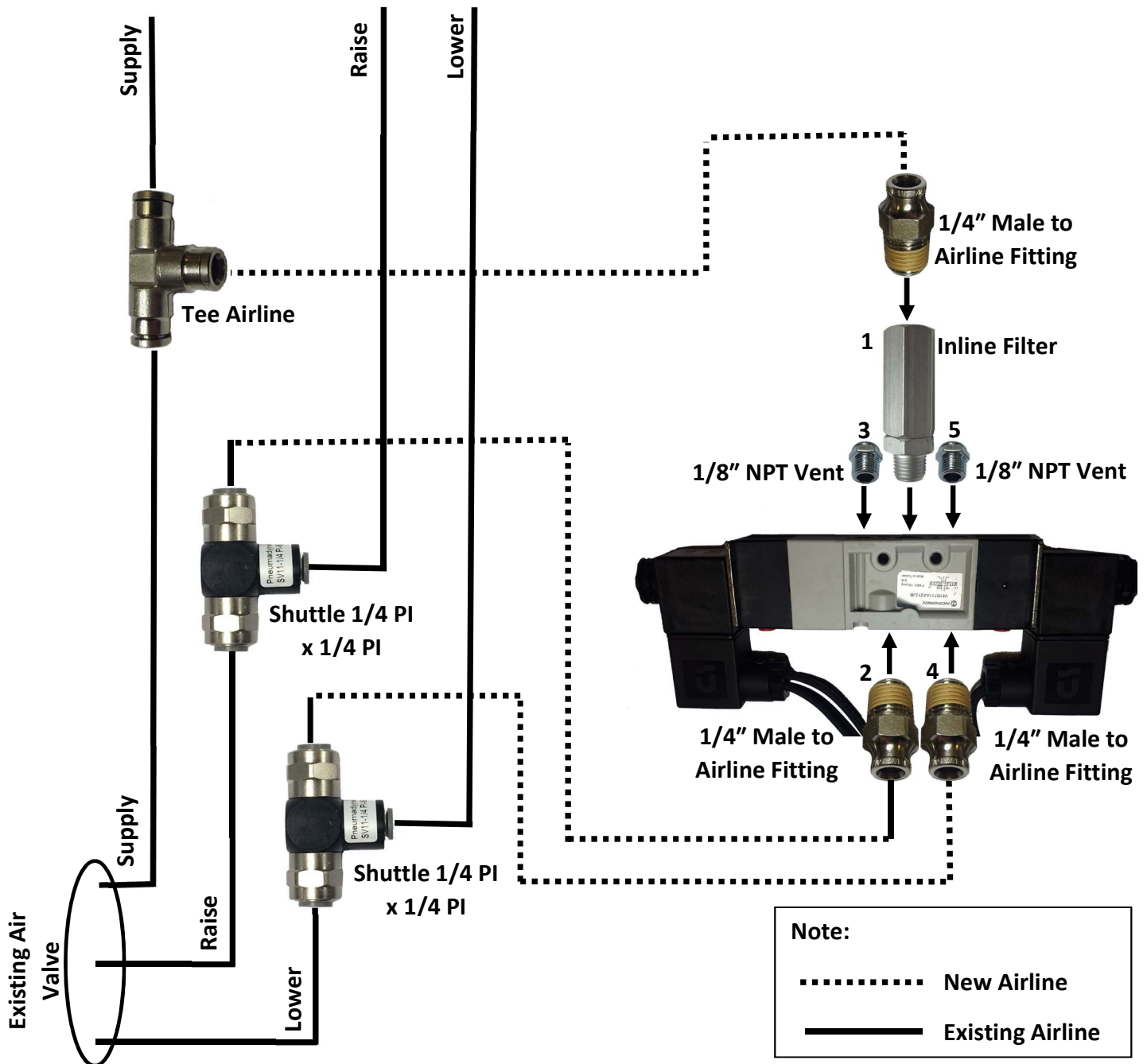


**Figure 1 Endgate Driver Installation**

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Figure 2 Air Hoist Systems – Solenoid / Air Valve Kit



The **Solenoid/Air Valve Kit** is designed to convert existing air operated hoist controls to electric operation, which can then connect directly to the control output from the Remote Control Systems.

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The Solenoid/ Air Valve Kit is usually installed adjacent to the existing in-cab air hoist control inside the cab.

NOTE: This kit is supplied for 1/4" Airline.

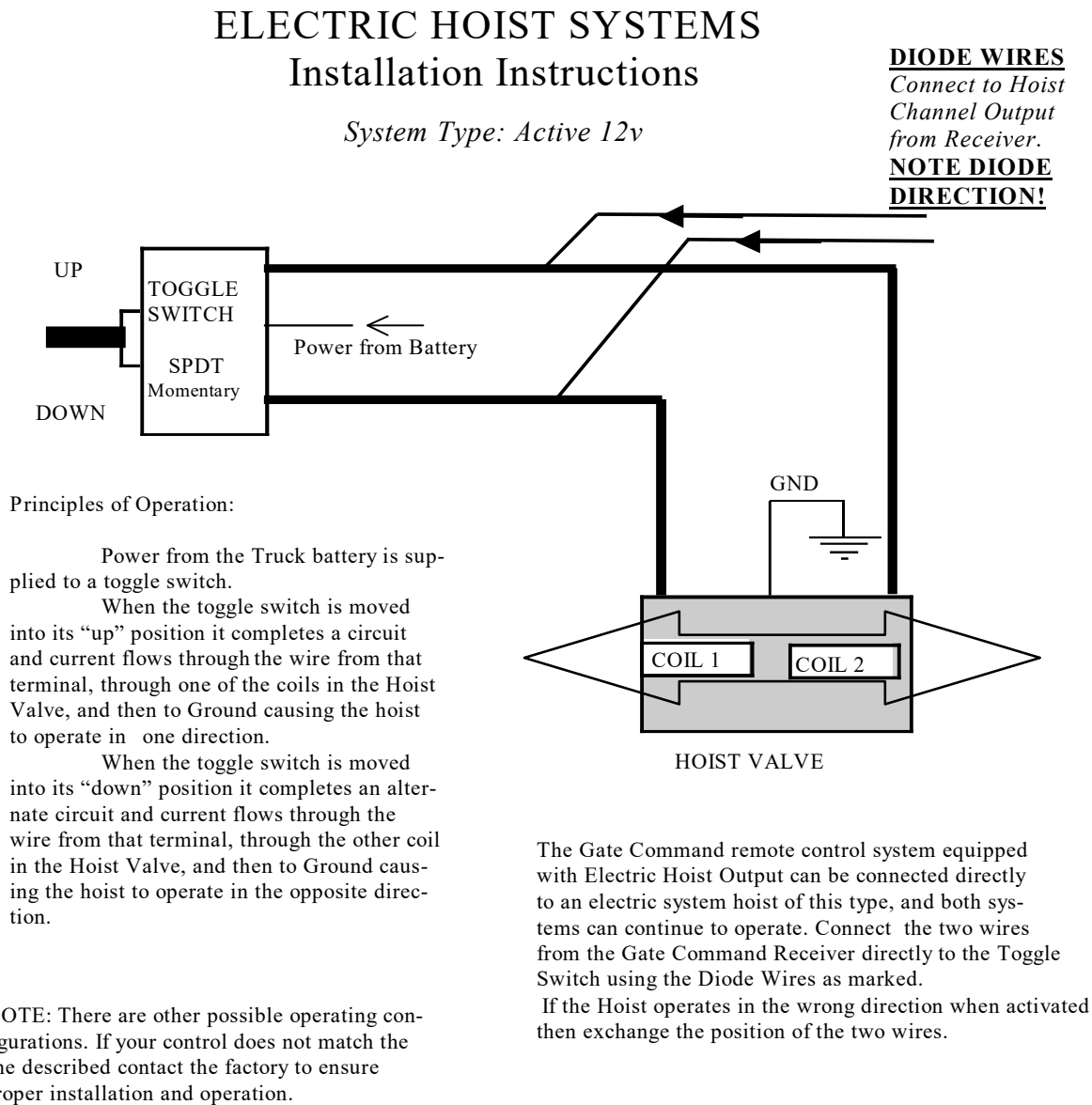
## Air Line Connections

- 1) Install 1/4" Airline Tee into the Supply Line and connect to Port 1 of the Solenoid / Air Valve using the INLINE FILTER which is required to maintain warranty and keep contaminants from valve spool.
- 2) Install SHUTTLE 1/4" PI x 1/4" PI and install one into each of the air cylinder lines which raise and lower the hoist. Connect to Ports 2 & 4. ( Ports 2 & 4 are interchangeable as "Raise" and "Lower" will be selected by the electrical connection.) BE SURE to install the SHUTTLE 1/4" PI x 1/4" PI as shown such the shuttle operates between the Existing Air Valve and the Solenoid Operated Air Valve.
- 3) Install Vent Fittings into Ports 3 & 5 of the Solenoid / Air Valve.

NOTE: The fittings supplied are "push-to-connect". They require no ferrules and can be disconnected by de-pressing the release collar and pulling the airline away.

## Electrical Connections

Connect the input wires from the Solenoid / Air Valve to the black and white Hoist Output wires from the Receiver. Before making the connections permanent, check to ensure the hoist operates in the correct direction when the "Up" and "Down" buttons on the Receiver are selected. If the operation is backwards, reverse these two wires.

**Figure 3 Electric Hoist Systems – System Type Active 12V**

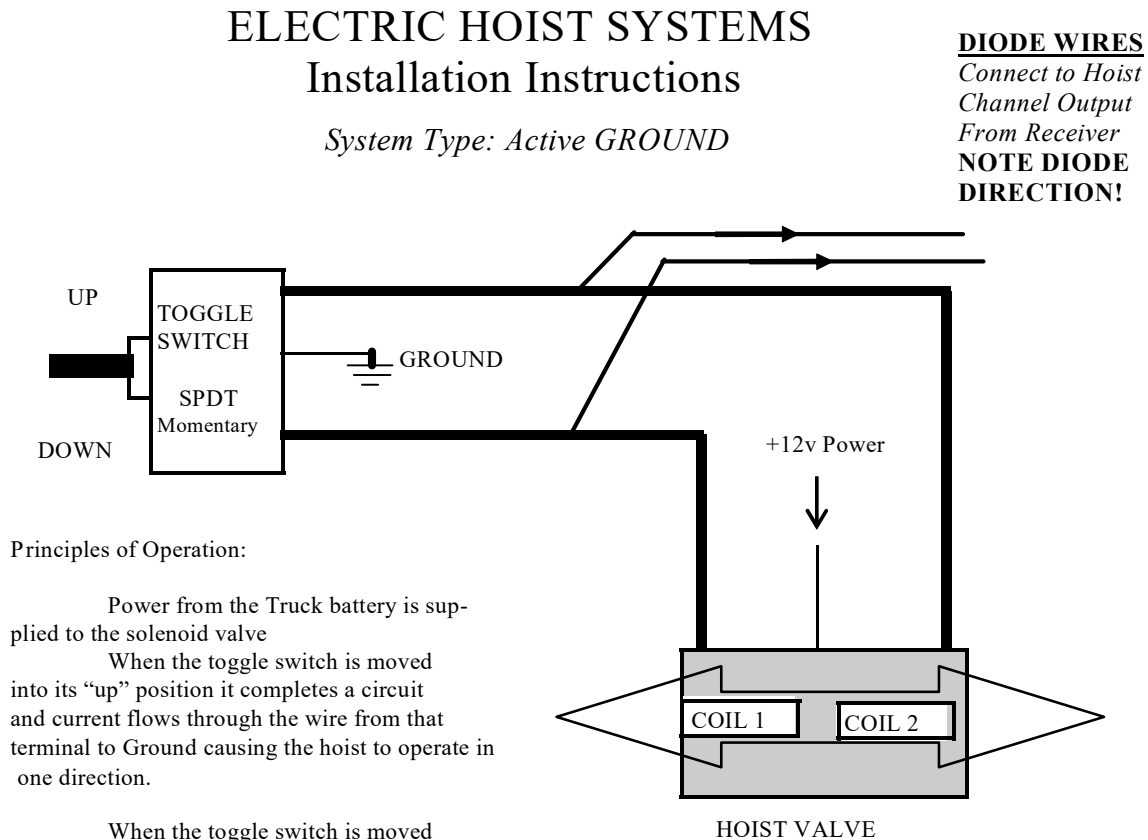
## WARNING:

Be sure truck hoist is securely blocked and valve lever activated safely in both directions before beginning installation!

**Think Safety!**

Do no install or operate where damage to persons or property may occur

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**Figure 4 Electric Hoist Systems – System Type Active Ground**

NOTE: There are other possible operating configurations. If your control does not match the one described contact the factory to ensure proper installation and operation.

The Gate Command remote control system equipped with **Electric Hoist Output** can be connected directly to an electric system hoist of this type, and both systems can continue to operate. Connect the two wires from the Gate Command Receiver directly to the Toggle Switch using the Diode Wires as marked.

If the Hoist operates in the wrong direction when activated then exchange the position of the two wires.

## WARNING:

Be sure truck hoist is securely blocked and valve lever activated safely in both directions before beginning installation!

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## Hydraulic Hoist Driver Installation

### **WARNING:**

Be sure truck hoist is securely blocked and valve lever activated safely in both directions before beginning installation!

### **Think Safety!**

Do no install or operate where damage to persons or property may occur

Before beginning the installation carefully note which direction the lever arm on the valve moves for “up” and “down” and note the Hoist Driver movement as indicated on the label.

With the truck box blocked and resting securely and the engine shut off, operate the hoist control in both directions to ensure there is no pressure on the hydraulic valve and the safety blocks are securely positioned.

Measure the distance the valve lever arm moves in either direction from its center rest position at the mounting pin.

The hoist driver replaces the existing flexible cable control by bolting directly in its place on the top of the hydraulic valve/pump reservoir.

Disconnect the existing flexible cable control from the valve arm and unbolt the cable from the reservoir bracket.

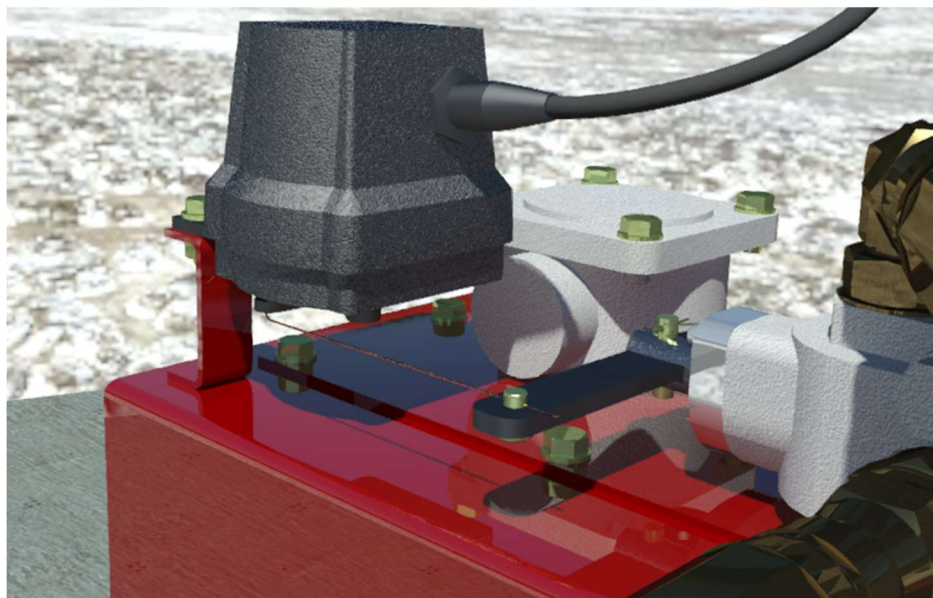
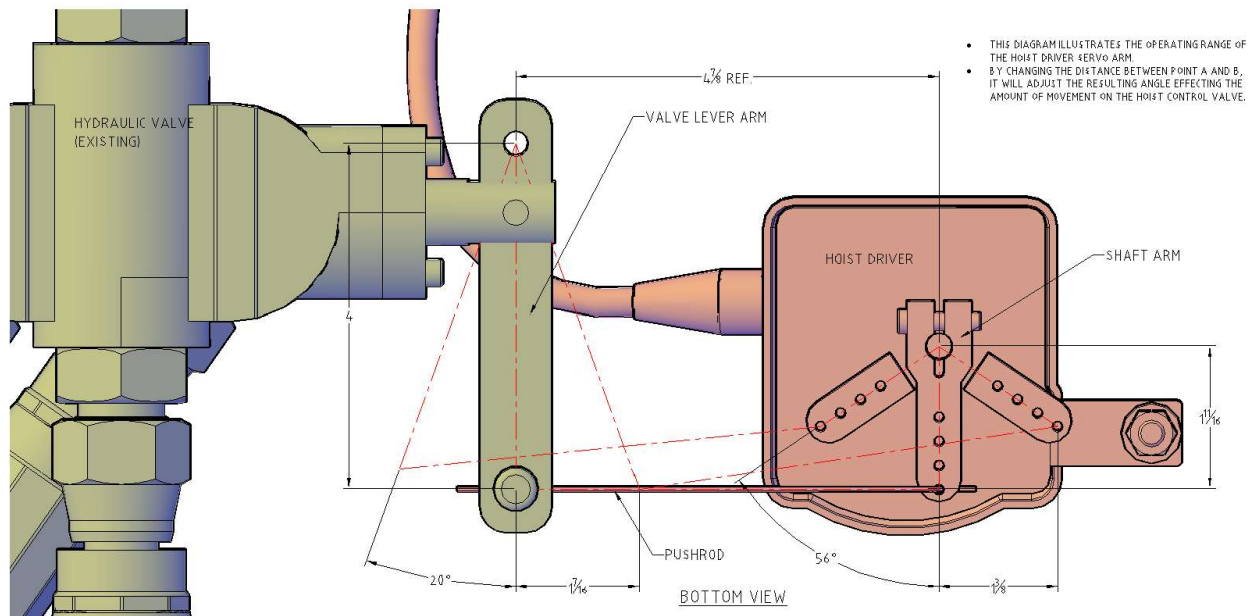
Select the appropriate hole to install the Hoist Driver Push Rod. The distance from the center of the Hoist Driver Shaft Arm to the selected hole should be roughly the same as but not greater than the distance the valve lever arm moves in either direction from its center rest position at the mounting pin. The Hoist Driver Shaft Arm is designed to turn 80 degrees in either direction. If it is stalled in either direction because the valve lever arm is not free to move, the Hoist Driver may be damaged or destroyed.

Slide the Hoist Driver Push Rod through the valve lever arm cable clamp and bolt the Hoist Driver to the reservoir mounting tab using the 5/16 x ¾ bolt, nut, flat washer, and lockwasher, provided. Properly installed, the Hoist Driver Push Rod should be at right angles to the Hoist Driver Shaft Arm. Ensure there is clearance for the movement of the valve lever arm, push rod, and shaft arm.

Tighten the existing valve lever arm cable clamp on to the Hoist Driver Push Rod.

Connect one end of the pre-wired 4 conductor hoist cable back to the Hoist Driver. Route the other end to the Receiver and connect to the Receiver HOIST CONTROL connector. Secure the cable to the truck chassis as required. Note: It does not matter which end is which.

### Figure 5 Hoist Driver Installation Drawing



## Specifications

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**Transmitter:**

|                |                                    |
|----------------|------------------------------------|
| Power:         | 9 Volt DC Battery                  |
| Frequency:     | 900 MHz                            |
| Modulation:    | FSK/GFSK/MSK/GMSK                  |
| Indicators:    | Power/Transmit Red LED             |
| Case Size:     | 2.6" x 4.1" x .9"                  |
| Weight:        | .25lb                              |
| Range:         | 300' + (depending on environment)  |
| Antenna:       | 1.3" Fixed Mini Tuned              |
| Security Code: | Unique in each Transmitter         |
| Safety:        | Off / Standby Slide Switch         |
| Functions:     | 2 to 9 Button (depending on model) |

**Receiver:**

|               |   |
|---------------|---|
| Power in:     | 12 VDC  |
| Power out:    | 12 VDC @ 10 amps max  |
| Standby:      | 40mA  |
| Power Input:  | 2-pin Plug-and-Lock Connector   |
| Endgate/Hoist | 4-pin Plug-and-Lock Connectors  |
| Outputs:      |   |
| Indicators:   | Power on red LED<br>Receive RF/Learn mode data yellow LED<br>Channel active green LED |
| Antenna:      | 3" Flexible Tuned   |
| Case Size:    | 5" x 8" x 2.5"  |
| Weight:       | 2 lb  |

**Electric Cylinder Model ECL2S/12:**

|                |                      |
|----------------|----------------------|
| Force:         | 450 lb – 2000N       |
| Speed:         | .75 in/sec.          |
| Stroke:        | 11.8" full stroke    |
| Closed Length: | 18" pin-to-pin       |
| Electrical:    | 9.5A @ 12v Full Load |
| Duty Cycle:    | 5%                   |

**Hoist Output:**

|            |  |
|------------|--|
| Connector: | 4-pin Plug-and-Lock                          |
| Cabling:   | 30' of 2 conductor, 18ga wire non-terminated |



# Limited Warranty

Customer satisfaction is a fundamental policy at Kramble Industries Inc. All customers can rely upon and expect to receive prompt, efficient and courteous service on all Kramble Industries Inc. manufactured equipment from each and every employee of the organization.

Kramble Industries Inc. with its office at 20-3924 Brodsky Avenue, Saskatoon, SK warrants:

To the Original Purchaser/User, each product manufactured by Kramble Industries Inc. to be free from defective material and workmanship, under normal use and service, for a period of 12 months subject to conditions outlined below. The obligation under this warranty is limited to repair, or replacement with a similar genuine company part, for any part of the product of the company's manufacture that is found to be defective.

Warranty period begins the day of purchase. During the first (1st) through the twelfth (12th) month, Kramble will furnish without charge, F.O.B. its plant, a similar genuine part to replace any part of a product of the company's manufacture which proves to be defective, in normal use and service, during this time. Labor to install or repair such parts will be absorbed by Kramble Industries Inc. If this work is to be done other than Kramble personnel, prior approval must be given by Kramble Industries Inc. as to rate and time.

## **This warranty shall bind the company only as follows:**

1. The warranty shall be limited to the repair or replacement of defective parts, all other damage, loss, cost or obligation and claim whatsoever, statutory or otherwise, are hereby waived by the original purchaser/user, and again, the warranty hereby given covers only those labor charges specifically authorized by the company in advance.
2. The warranty shall not apply to any failure, or damage incurred through neglect, lack of maintenance, misuse, abuse, accident, improper installation, re-designing of assemblies, ignorance, or through any other cause beyond the control of the company.
3. The warranty does not cover products of other manufacturers beyond such warranty as may be made by such manufacturer.
4. The warranty shall not apply to normal maintenance services, or to deterioration of appearance of items due to normal use and exposure.
5. The warranty shall not apply when the original purchaser/user has allowed repair and/or service work to be conducted on the product without authorization from the company.

## **IMPORTANT NOTE:**

Before any warranty work is done, contact Kramble Industries Inc. for authorization. Failure to do so may result in denial of warranty.

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