

Automated Remote Mechanism

ARM-101

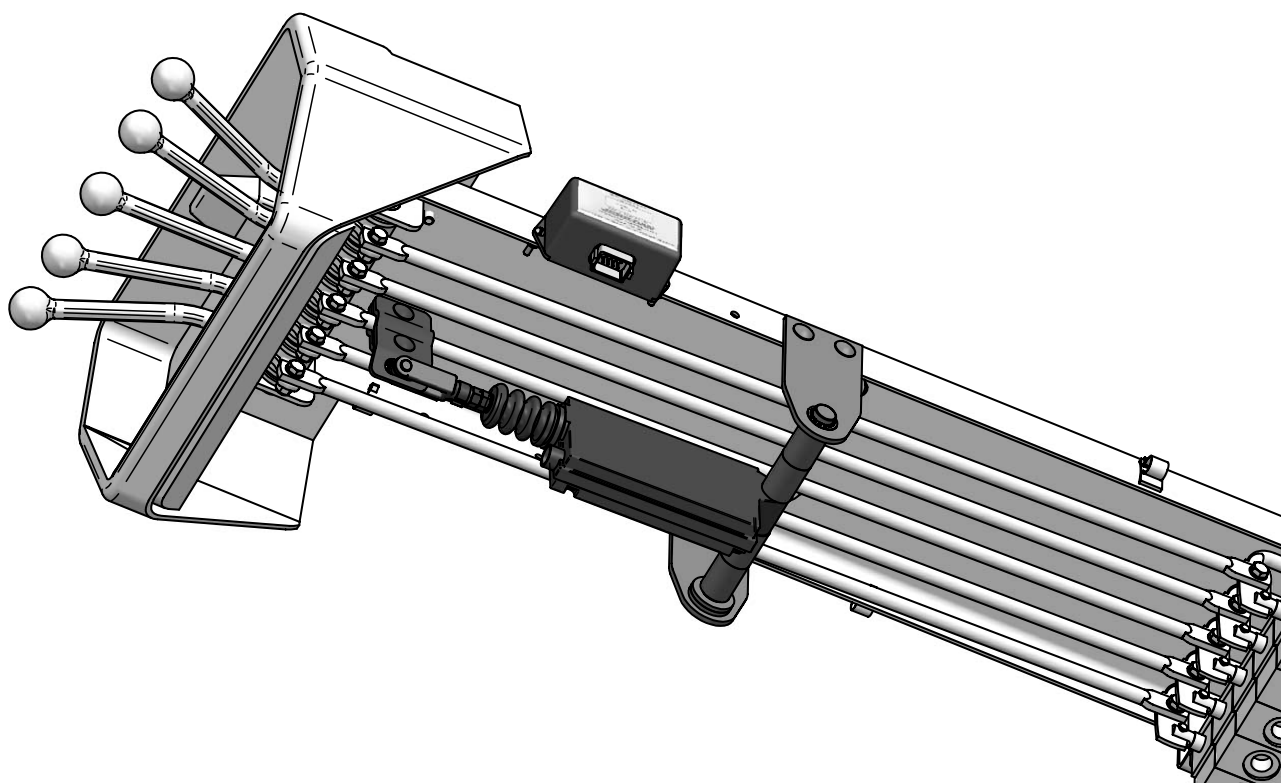
ARM-102

ARM-103

ARM-104

ARM-105

FIELD INSTALLATION MANUAL



JERR-DAN

An Oshkosh Corporation Company

1080 Hykes Road
Greencastle, PA 17225
Phone (717) 597-7111
www.jerr-dan.com

The “**ARM**” Control-100 System is an “**add-on**” system to provide Remote Control capability for the hydraulic valve control function(s). It is used in conjunction with a conventional manual control valve assembly with 0.25" – 0.312" Spool Travel.

The desired control function(s) is powered by an Electric Actuator which is attached to the control assembly and handle linkage.

The “**ARM**” Control-100 System consists of three (3) Kits, See Kit Contents Sheet.

Kit “1” includes the Electric Actuator Assembly(s), Control Linkage Brackets and Mounting Hardware. The brackets will fit Jerr-Dan’s control linkage only (0.50" Diameter Rod or 0.25" x 1.00" Flat Bar).

Kit “2” includes Electric Actuator Mounting Brackets, Shaft, Retaining Ring, Plastic Spacers and Mounting Hardware

Kit “3” includes Appropriate Function(s) Wireless Remote Controller, Mounting Plate and Mounting Hardware.

The “**ARM**” Control-100 System is designed to be installed on the Driver Side of the Carrier. The Shaft End of the Actuator is attached to the valve control channel with supplied brackets and hardware and the Yoke end of the Actuator is attached to the appropriate control linkage(s).

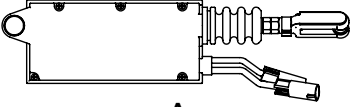
Depending on the built date of the Carrier, the control channel may or may not be predrilled for mounting brackets.

Read installation instructions THOROUGHLY prior to starting assembly and installation.


These installation instructions are for Jerr-Dan units. Installation on units other than Jerr-Dan may require additional parts (not supplied) and some modifications to these instructions.

KIT CONTENTS


KIT 1: ELECTRIC LINEAR ACTUATOR (QTY- 1 THRU 5 KITS)
QTY'S BELOW ARE PER KIT




A QTY-1
12V ELECTRIC LINEAR ACTUATOR
P/N: 700500003
INCLUDES CLEVIS, SPRING PIN,
NYLON BUSHING, AND NYLON WASHER




B QTY-1
BRACKET W/ SLOT
P/N: 4178000664



C QTY-1
BRACKET
P/N: 4178000665

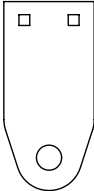


D QTY-2
CARRIAGE BOLT
ø5/16" X 1"
P/N: 7115150864




E QTY-2
LOCKNUT ø5/16"
P/N: 7660152601


KIT 2: MOUNT KIT (QTY-1)




G QTY-2
MOUNTING LUG
P/N: 4706005361




D QTY-4
CARRIAGE BOLT
ø5/16" X 1"
P/N: 7115150864



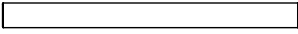
E QTY-4
LOCKNUT ø5/16"
P/N: 7660152601




F QTY-4
FLATWASHER ø5/16
P/N: 7950150161




J QTY-2
RETAINING RING ø3/4
P/N: 7754000009



H QTY-1
PLATED SHAFT ø3/4"
P/N: 4691000141 9.00"
P/N: 4691000373 10.50" OR
P/N: 4691000374 13.50"

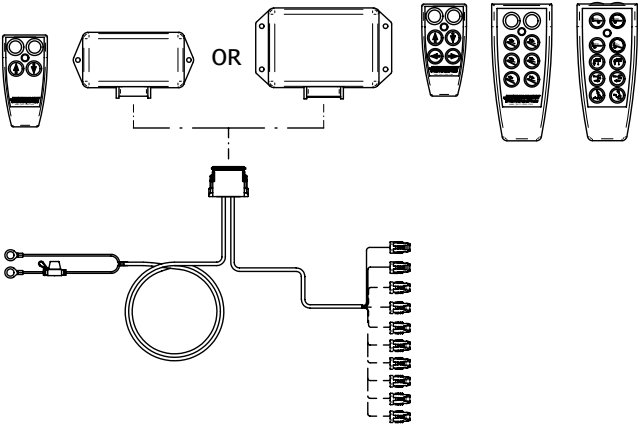


I QTY-4 THRU 7
PLASTIC PVC BUSHING P/N:
4211000001

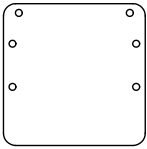


K QTY-4
FLATWASHER ø3/4
P/N: 7950220141


KIT 3: WIRELESS REMOTE CONTROLLER (QTY-1) (1-5 ELECTRIC ACTUATORS)




L QTY-1
WIRELESS REMOTE CONTROLLER
2-FUNCTION (1 ACTUATOR) P/N: 7295000106
4-FUNCTION (2 ACTUATORS) P/N: 7295000108
6-FUNCTION (3 ACTUATORS) P/N: 7295000109
8-FUNCTION (4 ACTUATORS) P/N: 7295000111
10-FUNCTION (5 ACTUATORS) P/N: 7295000111




M QTY-1
MOUNTING PLATE P/N:
4706005595
4 - 10-FUNCTION ONLY




N
2-FUNCTION: QTY-2
4 - 10 FUNCTION: QTY-6
SCREW #10 X 1" SS
P/N: 7114100810



O
2-FUNCTION: QTY-2
4 - 10 FUNCTION: QTY-8
FLATWASHER ø3/16" P/N:
7950100151



P
2-FUNCTION: QTY-2
4 - 10 FUNCTION: QTY-6
LOCKNUT #10 SS
P/N: 7660102604



X QTY-1
DECAL LEGEND
P/N: 7330000696
6 - 10 FUNCTION ONLY

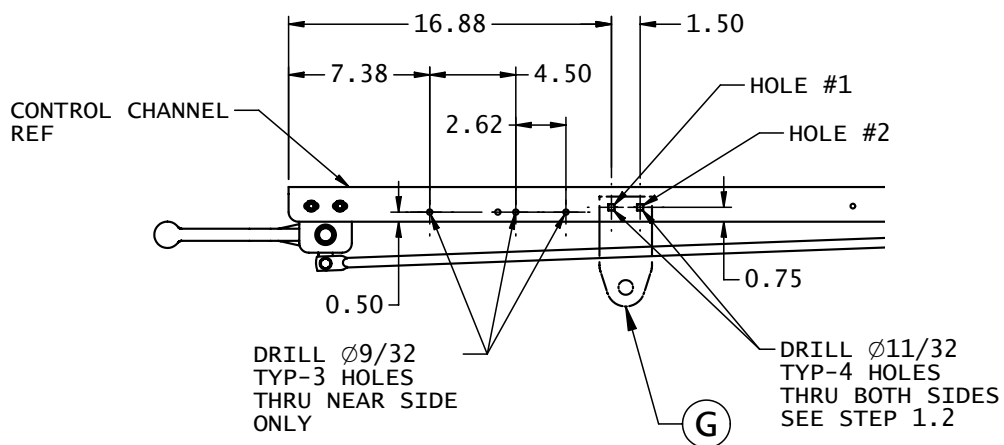
INSTALLATION INSTRUCTIONS

STEP 1: VERIFY/DRILL MOUNTING HOLES

(1.1) VERIFY MOUNTING HOLES AND APPROXIMATE LOCATIONS BY VISUAL INSPECTION. OLDER UNITS WILL NOT HAVE SOME OR ANY HOLES PRE-DRILLED, DRILL HOLES AS SHOWN BELOW.

(1.2) DRILL HOLE #1 AS SHOWN, IF HOLE #2 IS DIFFICULT TO DRILL: MOUNT LUG "G" USING ONE BOLT "D", NUT "E", AND WASHER "F", THEN USE LUG "G" AS TEMPLATE TO DRILL HOLE #2. REPEAT OTHER SIDE.

(VIEW FROM REAR DRIVER-SIDE OF UNIT)



STEP 2: INSTALL MOUNTING LUGS

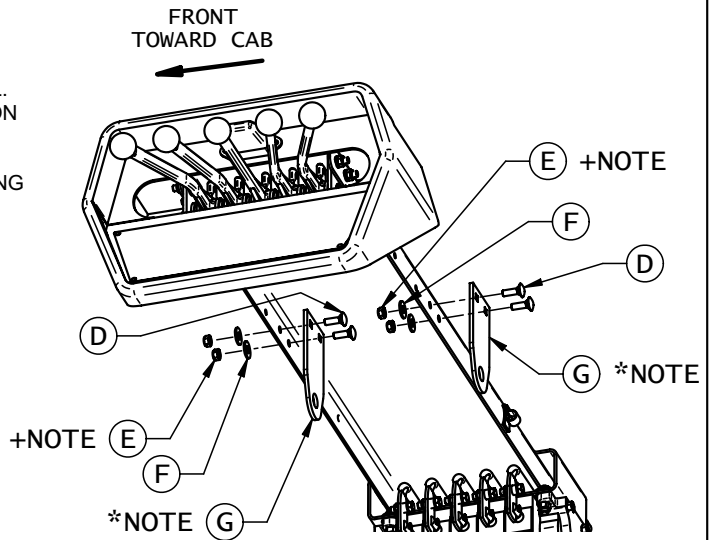
INSTALL ITEMS D, E, F, & G AS SHOWN (SEE STEP 1 FOR HOLE LOCATIONS).

*NOTE: LUG "G" TOWARD FRONT OF UNIT INSTALLED ON INSIDE OF CONTROL CHANNEL. LUG "G" TOWARD REAR OF UNIT INSTALLED ON OUTSIDE OF CONTROL CHANNEL.

+NOTE: HAND TIGHTEN LOCKNUT "E" ALLOWING LUG "G" TO SLIGHTLY MOVE.

CONTROL RODS NOT SHOWN FOR CLARITY.

D	x4
E	x4
F	x4
G	x2



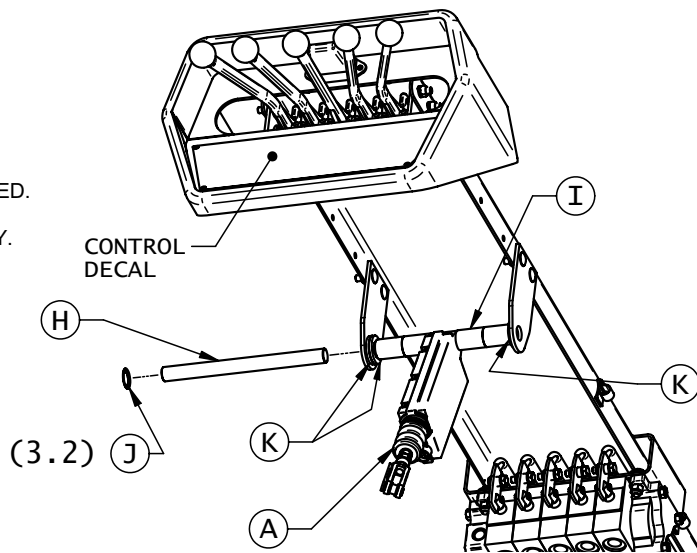
STEP 3: INSTALL ELECTRIC ACTUATOR(S)

(3.1) POSITION ACTUATOR(S) "A" BELOW DESIRED FUNCTION(S), SEE CONTROL DECAL FOR PROPER CONTROL ROD LOCATION(S). USE SPACERS "I" & WASHERS "K" AS NEEDED TO FILL IN BETWEEN ACTUATOR(S) AND LUGS.

(3.2) INSERT SHAFT "H" AND PRESS ON ONLY ONE RETAINING RING "J" AS FUTURE ADJUSTMENT MAY BE REQUIRED.

CONTROL RODS NOT SHOWN FOR CLARITY.

A	x1-5
H	x1
I	AS NEEDED
J	x1
K	AS NEEDED

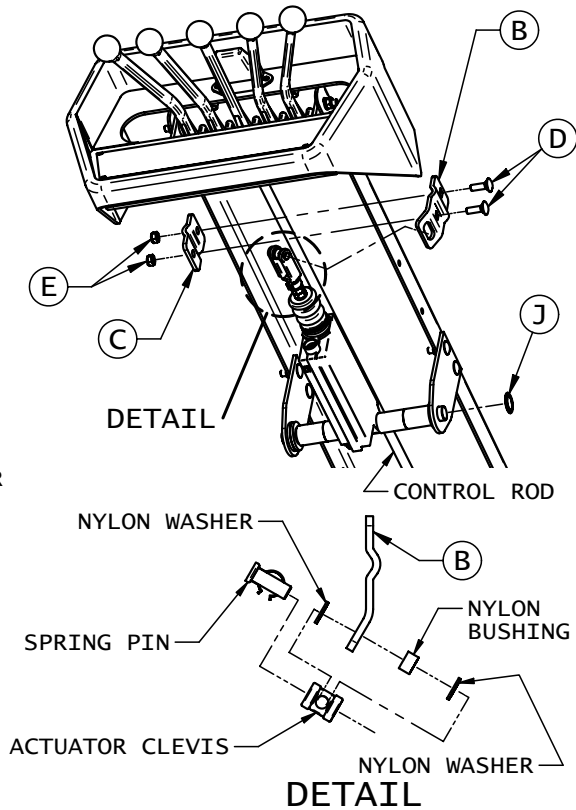


STEP 4: ATTACH ELECTRIC ACTUATOR(S) TO CONTROL ROD(S)

- (4.1) INSTALL SPRING PIN, CLEVIS, NYLON BUSHING, AND NYLON WASHER FROM ACTUATOR "A" IN BRACKET "B" SLOT, SEE "DETAIL".
- (4.2) POSITION BRACKETS "B" & "C" AROUND CONTROL ROD IN VERTICAL POSITION.
- (4.3) INSERT CARRIAGE BOLTS "D" AND HAND TIGHTEN LOCKNUTS "E". BRACKETS "B" & "C" MUST BE ABLE TO SLIDE FREELY ON CONTROL ROD.
- (4.4) REPEAT STEPS 4.1, 4.2 & 4.3 FOR EACH ACTUATOR.
- (4.5) VERIFY POSITION OF ACTUATOR(S) ARE IN LINE WITH CONTROL ROD(S). ADJUST QUANTITY AND LOCATION OF ITEMS "I" & "K" AS NEEDED TO MINIMIZE SIDE-TO-SIDE MOVEMENT OF ACTUATORS.
- (4.6) PRESS ON RETAINING RING "J".

ONE CONTROL ROD SHOWN, OTHERS NOT SHOWN FOR CLARITY.

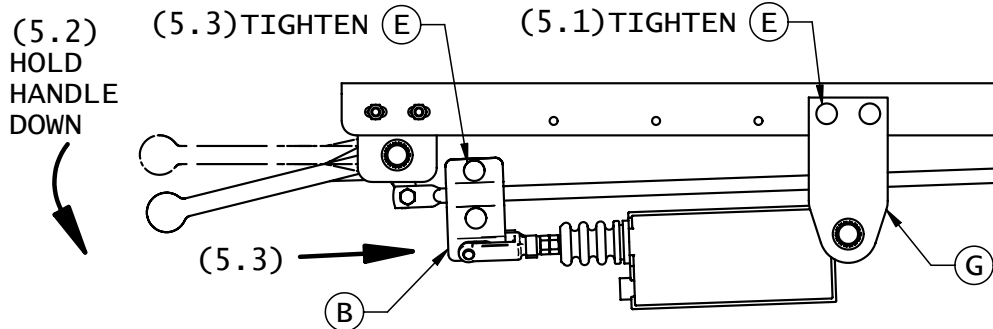
QTY PER ACTUATOR	
(B) x1	
(C) x1	
(D) x2	
(E) x2	
	(J) x1



STEP 5: TIGHTEN AND ADJUST MOUNTS AND ACTUATOR(S)

- (5.1) WHEN ACTUATOR(S) "A" ARE ALIGNED WITH CONTROL ROD(S): TIGHTEN LOCKNUTS "E" ON LUGS "G" FROM STEP 2 FIRST.
- (5.2) OPERATE CONTROL HANDLE AND HOLD ALL THE WAY DOWN.
- (5.3) WHILE HOLDING HANDLE DOWN: SLIDE BRACKETS "B" AND "C" ON ROD ALL THE WAY TOWARD ACTUATOR "A". THEN TIGHTEN LOCKNUTS "E" FROM STEP 4 WHILE KEEPING BRACKETS VERTICAL.
- (5.4) REPEAT STEPS 5.2 & 5.3 FOR EACH ACTUATOR.

THIS WILL CENTER THE ACTUATOR PIN IN THE SLOT OF BRACKET "B". OPERATE CONTROL HANDLE TO ENSURE IT MOVES FREELY IN BOTH DIRECTIONS. IF THE HANDLE ENCOUNTERS RESISTANCE FROM THE ACTUATOR REPEAT STEPS 5.2 AND 5.3 TO CENTER BRACKET "B" TO ACTUATOR PIN.



STEP 6: INSTALL WIRELESS REMOTE CONTROLLER MODULE

KIT 3 (2-FUNCTION)

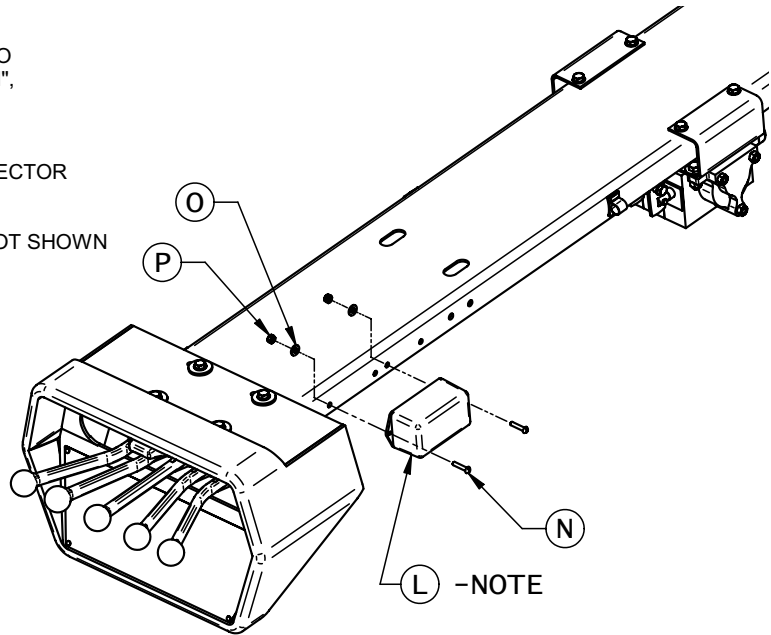
INSTALL WIRELESS CONTROLLER "L" TO CONTROL CHANNEL USING SCREWS "N", WASHERS "O" AND LOCKNUTS "P". SEE STEP 1 FOR HOLE LOCATIONS.

-NOTE: POSITION MODULE WITH CONNECTOR SOCKET FACING DOWN.

ELECTRIC ACTUATOR AND MOUNTS NOT SHOWN FOR CLARITY.

KIT 3 (2-FUNCTION)

L	x1
N	x2
O	x2
P	x2



STEP 6 ALTERNATIVE: INSTALL WIRELESS REMOTE CONTROLLER MODULE

KIT 3 (4 THRU 10-FUNCTION)

(6.1A) INSTALL WIRELESS CONTROLLER "L" TO PLATE "M" USING SCREWS "N" QTY-4, WASHERS "O" QTY-4 & LOCKNUTS "P" QTY-4.

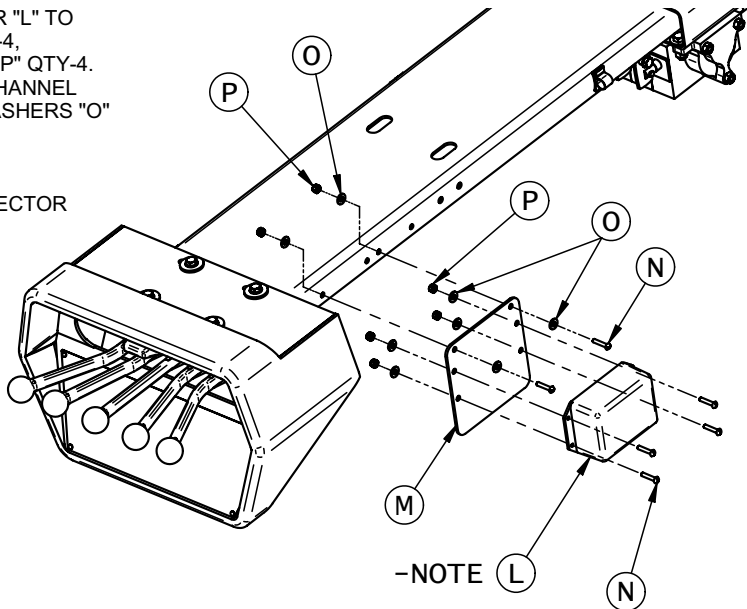
(6.2A) BOLT PLATE "M" TO CONTROL CHANNEL USING SCREWS "N" QTY-2, FLATWASHERS "O" QTY-4 & LOCKNUTS "P" QTY-2. SEE STEP 1 FOR HOLE LOCATIONS.

-NOTE: POSITION MODULE WITH CONNECTOR SOCKET FACING DOWN.

ELECTRIC ACTUATOR AND MOUNTS NOT SHOWN FOR CLARITY.

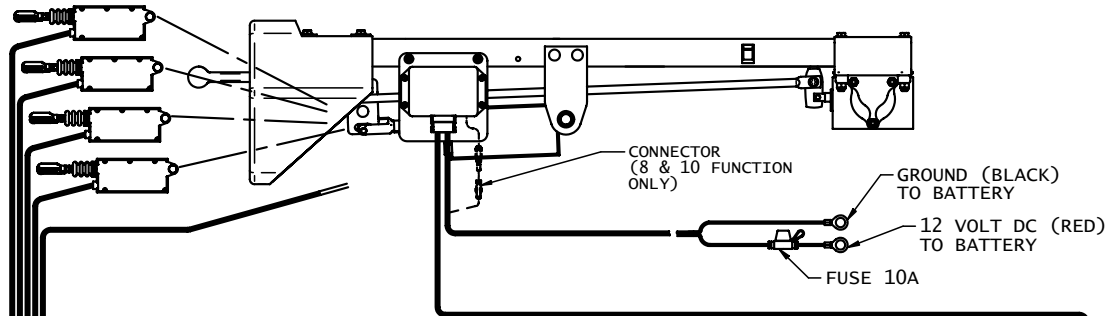
KIT 3 (4 THRU 10-FUNCTION)

L	x1
M	x1
N	x6
O	x8
P	x6



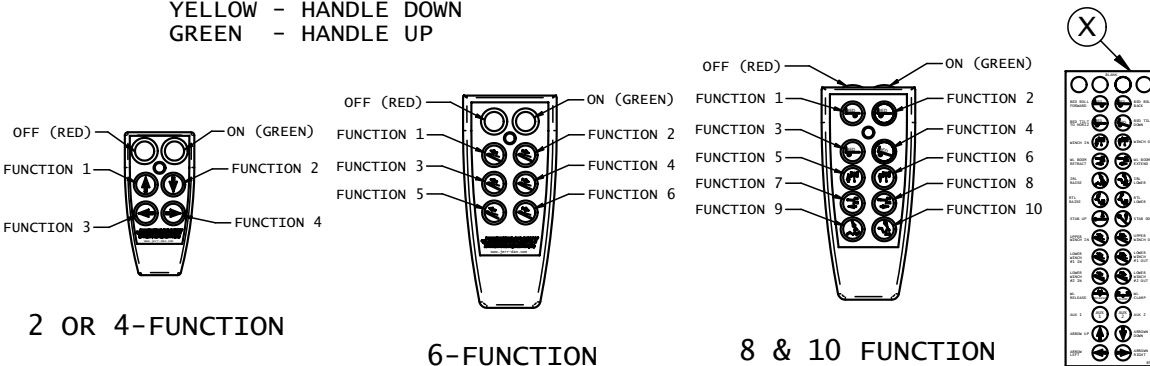
STEP 7: CONNECT WIRING HARNESSSES

- (7.1) CONNECT HARNESS TO REMOTE CONTROLLER MODULE.
- (7.2) CONNECT ELECTRIC ACTUATOR CONNECTORS TO REMOTE CONTROLLER HARNESS AS SHOWN BELOW. USE SUPPLIED TIE STRAPS TO SECURE EXCESS WIRE. YOU CAN CUSTOMIZE YOUR REMOTE CONTROLLER BY CHOOSING THE ACTUATOR/CONTROLLER CONNECTIONS.
- (7.3) ROUTE SUPPLY WIRES ALONG FRAME TO CAB OF TRUCK. CONNECT SOURCE AND GROUND TERMINALS DIRECTLY TO BATTERY. USE SUPPLIED TIE STRAPS TO SECURE WIRE TO CHASSIS. COIL EXCESS WIRE AT BATTERY AND USE TIE STRAPS TO SECURE.
- (7.4) TEST FUNCTIONS BY OPERATING REMOTE. REMOTE TRANSMITTER IS PRE-PROGRAMMED AND WILL RETAIN MEMORY WHEN POWER IS LOST TO THE MODULE. IF TRANSMITTER DOES NOT WORK WHEN MODULE IS POWERED FOLLOW THE PROGRAMMING INSTRUCTIONS AT BOTTOM OF PAGE.
- (7.5) FOR 6 THRU 10 FUNCTION CONTROLLERS: PEEL OFF AND APPLY DECALS FROM LEGEND "X" IN APPROPRIATE LOCATIONS (IF NECESSARY). IF UNSURE OF LOCATIONS, OPERATE FUNCTIONS USING REMOTE AND OBSERVE CONTROL HANDLES.



LINEAR ACTUATORS		CONNECT TO	REMOTE CONTROLLER					
ACTUATOR	CAVITY B WIRE COLOR		FUNCTION TERMINAL	WIRE COLORS				
				2-FUNC 7295000106	4-FUNC 7295000108	6-FUNC 7295000109	8-FUNC 7295000111	10-FUNC 7295000111
1	GREEN	1	1	1	1	1	1	
	YELLOW	2	2	2	2	2	2	
2	GREEN	3	-	3	3	3	3	
	YELLOW	4	-	4	4	4	4	
3	GREEN	5	-	-	5	5	5	
	YELLOW	6	-	-	6	6	6	
4	GREEN	7	-	-	-	7	7	
	YELLOW	8	-	-	-	9	8	
5	GREEN	9	-	-	-	-	9	
	YELLOW	10	-	-	-	-	10	

YELLOW - HANDLE DOWN
GREEN - HANDLE UP



REMOTE TRANSMITTER PROGRAMMING INSTRUCTIONS:
(NOTE: REMOTE TRANSMITTER IS PRE-PROGRAMMED AND SHOULD NOT REQUIRE INITIAL PROGRAMMING.)
IF A REMOTE CONTROLLER IS NOT WORKING OR IF REPLACING THE REMOTE:
DISCONNECT AND RECONNECT POWER TO CONTROLLER MODULE. IMMEDIATELY PUSH THE GREEN "ON" BUTTON. THEN PUSH AND HOLD THE TOP TWO YELLOW FUNCTION BUTTONS FOR APPROXIMATELY 10 SECONDS WHILE STANDING A FEW FEET AWAY FROM THE CONTROLLER MODULE. TEST FUNCTIONALITY.

TROUBLESHOOTING

The linear actuator is attached to the control linkage operating rods to provide radio control to operate functions. The actuator uses 12 volt DC to operate.

The first thing to check is the manual operation of the control valve function you are operating. The operating handle should operate control valve smoothly without excessive force required. Compare this function to other sections. The actuator operates inside a slotted hole which allows manual operation of control valve with no notice of operating force when using manually.

DO NOT TRY TO DISASSEMBLE LINEAR ACTUATOR!

The linear actuator has no serviceable parts inside. If you suspect that you have a defective linear actuator. Follow these guidelines:

1. Disconnect linear actuator from control linkage to verify actuator will extend and retract when radio control transmitter is operated.
2. If linear actuator does not operate, verify that you have 12 volts to the linear actuator supplied from the radio control receiver.
3. You can also provide a 12 volt DC source directly to the linear actuator. To check for proper operation make sure the Positive (+) 12 volts goes to the B side of linear actuator connector and the Negative (-) goes to the A side. You can check both extend and retract operations using this method. If linear actuator does not operate in either direction, contact Jerr-Dan.

Refer to Figure on Page 8.

LIMITED WARRANTY

Automated Remote Mechanism

Manufacturer's Warranty. Manufacturer's sole warranty shall be the following, which Distributor shall make on behalf of Manufacturer by conspicuous notice in writing accompanying each contract or memorandum of sale:

1. Warranty. Jerr-Dan Corporation, ("Manufacturer") warrants each new product made by it to be free from defects in material or workmanship for two year from the date of initial sale, lease, rental, or other disposition of such product, and agrees only to repair or replace at its own expense, f.o.b. the place or places of manufacture, at manufacturer's option, any part or parts of the product found to be defective in material or workmanship, provided Manufacturer is notified of such defect or defects within the two year warranty period and given a reasonable time to correct the defect. In no case, shall the warranty extend to defects in materials, components, or services furnished by third parties. Defects caused by chemical action, or the presence of abrasive materials and defects arising following the operation beyond rated capacity or the improper use or application of any Products shall not be considered defects within the scope of the foregoing warranty. If any repairs or alterations are made or any parts are replaced during the period covered by any warranty above mentioned by other than an authorized Manufacturer's Distributor in accordance with authorized Manufacturer's service manuals or with other than parts, accessories, or attachments authorized by Manufacturer for use in its products, customer shall pay for all such repairs or parts without recourse against Manufacturer, and Manufacturer shall be relieved of responsibility for fulfillment of this warranty with respect to parts or components of all repairs, alterations or replacements so made. No claims for labor shall be considered unless authorized by Manufacturer.

2. Disclaimer as to Consequential or Special Damages. Under no circumstances shall Manufacturer be liable for any consequential or special damage which any person, firm, corporation, or other entity may suffer or claim to suffer or incur or claim to incur as a result of any defect in the product or in any correction or alteration thereof made or furnished by Manufacturer or others. "Consequential" or "special damages" as used herein includes but is not limited to costs of transportation, lost sales, lost orders, lost profits, lost income, increased overhead, labor and material costs and cost of manufacturing variances and operational inefficiencies.

3. Maximum Liability. The maximum liability of Manufacturer under the exclusive warranty set forth herein shall be the amount paid to Manufacturer by the vendor of the component with respect to the product to which such vendor warranty applies.

4. Limitation of Liability. The limitation of liability provisions herein shall apply to any and all claims or suits brought against Manufacturer, including any claim based upon negligence, breach of contract, breach of warranty, strict liability or any other theories upon which liability may be asserted against Manufacturer.

5. Exclusive and Entire Warranty. The warranty constitutes Manufacturer's entire warranty as to the product and it is expressly agreed that the remedies of dealer and those claiming under dealer as stated in this warranty are exclusive. Manufacturer does not assume (and has not authorized any other person to assume on its behalf) any other warranty or liability in connection with any product covered by this warranty.

MANUFACTURER EXPRESSLY DISCLAIMS ANY AND ALL OTHER WARRANTIES OF ANY KIND WHATSOEVER AS TO THE PRODUCT FURNISHED HEREUNDER, INCLUDING BUT NOT LIMITED TO EXPRESS OR IMPLIED WARRANTIES AS TO MERCHANTABILITY, FITNESS FOR PARTICULAR PURPOSES SOLD, DESCRIPTION OR QUALITY OF THE PRODUCT FURNISHED HEREUNDER.

6. Notice of Occurrence. This warranty shall be void if, upon the occurrence of any incident involving any product made by Manufacturer, and resulting in any personal injury or property damage, customer shall fail to notify Manufacturer within 24 hours of such occurrence or permit Manufacturer audit representatives to have immediate access to such product and to all records of and within the control of the customer and/or distributor relating to the product and the occurrence.

7. Filing of Warranty Claim. Upon notifying the Manufacturer of a failure, the Manufacturer or its representative will verbally authorize and confirm by letter the repairs to be made. Verbal authorization will require the following information:

- A) Owner's name and telephone number.
- B) The dealer's name from whom it was purchased.
- C) The Manufacturer's unit serial number.
- D) Telephone number of the party making the repairs.
- E) The part numbers needed to make repairs.
- F) Owner to be informed of C.O.D. on parts, 50% to assure return of defective parts.

At this time, the Manufacturer will ship as soon as practical the parts needed to make the repair. Included with the parts will be the invoice for the parts and a Request for Warranty form, with the Warranty Return Tags.

The vehicle owner/dealer will complete the Request for Warranty form and the Warranty Return Tag marked "Return with Shipping Notice". Both documents should be attached to the shipping notice and returned to the Manufacturer by mail. The parts to be returned shall be tagged with the Warranty Return Tag (more than one part pertaining to the same warranty claim shall be identified with the same warranty claim number - see number on Warranty Return Tag). All parts under this claim shall be returned to the Manufacturer pre-paid for warranty evaluation.

Upon receiving the part or parts for warranty evaluation, the part will be inspected and tested. After being inspected and tested, the decision to honor or deny warranty claim shall be based on analysis of all available information.

When warranty is honored, the Manufacturer will reimburse the owner/dealer in the amount agreed to by both parties.

If warranty is denied, the owner and distributor will be notified in writing of the decision and a full explanation for the decision will be given.

8. Manufacturer may at any time amend the foregoing form of warranty without prior notice.

LIMITED WARRANTY
Coverage and Procedures
Automated Remote Mechanism

Jerr-Dan has a 2 year unlimited warranty. During that period, we will repair or replace free of charge, at our discretion, any product that is proved to be faulty due to poor manufacturing. The Warranty period is taken from the date of invoice that the goods leave our factory; we will accept a later date if the distributor can show that the goods were purchased from them within the two year period.

Procedures for warranty coverage:

1. Contact your selling distributor.
2. If necessary, contact Jerr-Dan for the distributor nearest you - Call 1-800-926-9666.
3. If necessary, Jerr-Dan may authorize repair by a qualified equipment service center. Under these arrangements, it will be necessary to obtain an estimate of repairs before any work is performed. Send estimate of repair cost to:

Jerr-Dan Corporation
Warranty Department
1080 Hykes Road
Greencastle, PA 17225

Be sure to include your daytime phone number.

4. Authorization for repairs under this limited warranty will be provided by telephone within 24 hours of receipt of valid warranty claims and confirmed by letter or fax.
5. This outlines the Jerr-Dan Two-Year Warranty Plan. Coverage does not include damages caused by excessive abuse or consequential damages resulting from the lack of proper service, maintenance or need for repairs. All plans begin at original retail purchase date.

For your records:

Mechanical Actuator(s)

In - Service Date _____

- | | |
|--------------------|------------------|
| 1. Model No. _____ | Serial No. _____ |
| 2. Model No. _____ | Serial No. _____ |
| 3. Model No. _____ | Serial No. _____ |
| 4. Model No. _____ | Serial No. _____ |
| 5. Model No. _____ | Serial No. _____ |
| 6. Model No. _____ | Serial No. _____ |
| 7. Model No. _____ | Serial No. _____ |
| 8. Model No. _____ | Serial No. _____ |

Remote Controller

1. Model No. _____ Serial No. _____

