

**OPERATOR`S & INSTALLATION**  
**MANUAL**



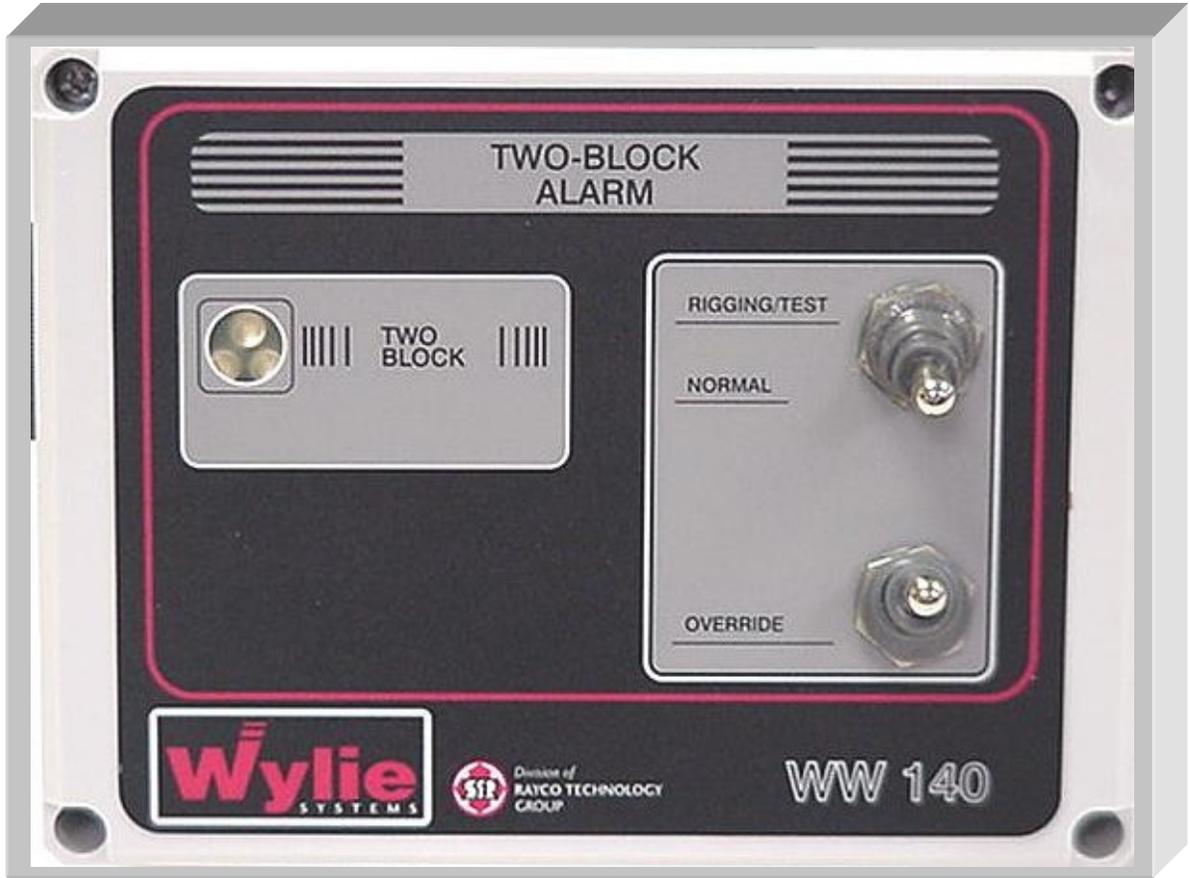
**R140T**  
**A2B SYSTEM**  
**TELESCOPIC CRANE**

**DIVISION OF RAYCO TECHNOLOGY GROUP**



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55MW140EOB



## **INDEX**

1. GENERAL DESCRIPTION
2. INTRINSIC SAFETY
3. ENVIRONMENTAL SAFETY
4. COMPONENTS INSTALLATION
5. OPERATING PROCEDURE
6. R140T PARTS
7. TROUBLESHOOTING
8. WYLIE/RAYCO MAINTENANCE INSTRUCTIONS

## **1. GENERAL DESCRIPTION:**

The Anti-two-block model R140T is a device designed to alert the operator and cut off motion controls of the crane upon an impending two-block situation. It is designed to fit on telescopic cranes, boom trucks, derrick trucks and conventional lattice cranes.

The device is manufactured in Canada and designed to withstand the worst Canadian environment including low temperature and corrosive environment. The R140T has been installed and, in operation, across the country for years.

It is a well thought system that will adapt easily to all crane types and requires the least amount of installation time.

The unique all position switch is well appreciated by the customers.

The R140T comes standard for 12V or 24V negative body machines. If the machine has a different type of electrical system, use either another type or an adapting relay or follow different installation procedures as shown further.

## **2. INTRINSIC SAFETY:**

The Wylie anti-two-block is considered fail safe because it works with a normally open circuit. Closed when the switch weight is not lifted. The lock-out output is also normally open when power is off or when no weight is pulling on the switch.

The red light and buzzer will go on if:

- Power is too weak
- The cable is broken
- Any wire is cut or making contact except power wire
- The switch is broken
- The switch is disconnected
- The weight chain is broken
- The weight is lifted
- The control relays are burned

### **3. ENVIRONMENTAL SAFETY:**

The Wylie anti-two-block is designed to operate in any weather from scorching heat up to 60° C to bitter cold as low as -50° C. It will withstand rain, snow and hail.

The system will not be affected by any radio wave or will it produce any.

The system will not be affected by any magnetic field however strong it is.

The system will not be affected by any electrostatic or capacitive current field if all parts, of both the system and the crane, and any part touching the crane, is kept within reasonable distance from any power line except for the insulated boom structure.

Insulated or partly insulated structures may represent a threat near power lines as they can charge themselves. Partly insulated structures will require the use of a double wire to the tip of the boom, the second wire being grounded. This ground wire, although connected to the boom, must never be considered as a proper grounding of the boom. It will on the other side void any insulation certification by the crane manufacturer if such insulation was intended.

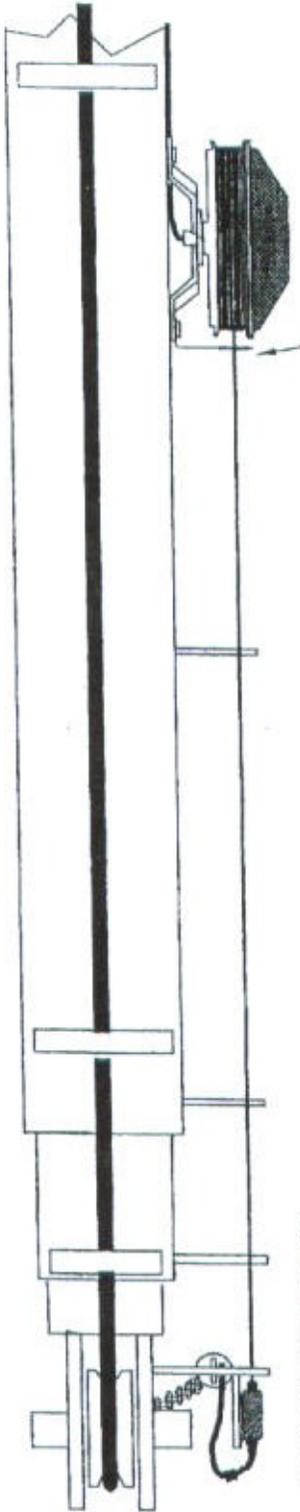
For specified insulated boom structures where the manufacturer certifies the dielectric property of the boom, an air actived anti-two-block can be supplied and certified to the same requirements R140T. (PATENT PENDING)

## **4. COMPONENTS INSTALLATION:**

ON CONVENIENT SIDE OF THE BOOM, BOLT THE REELING DRUM TO THE BOOM OR STUDS. IT IS PREFERABLE THAT THE BOOM UNWINDS FROM THE BOTTOM.

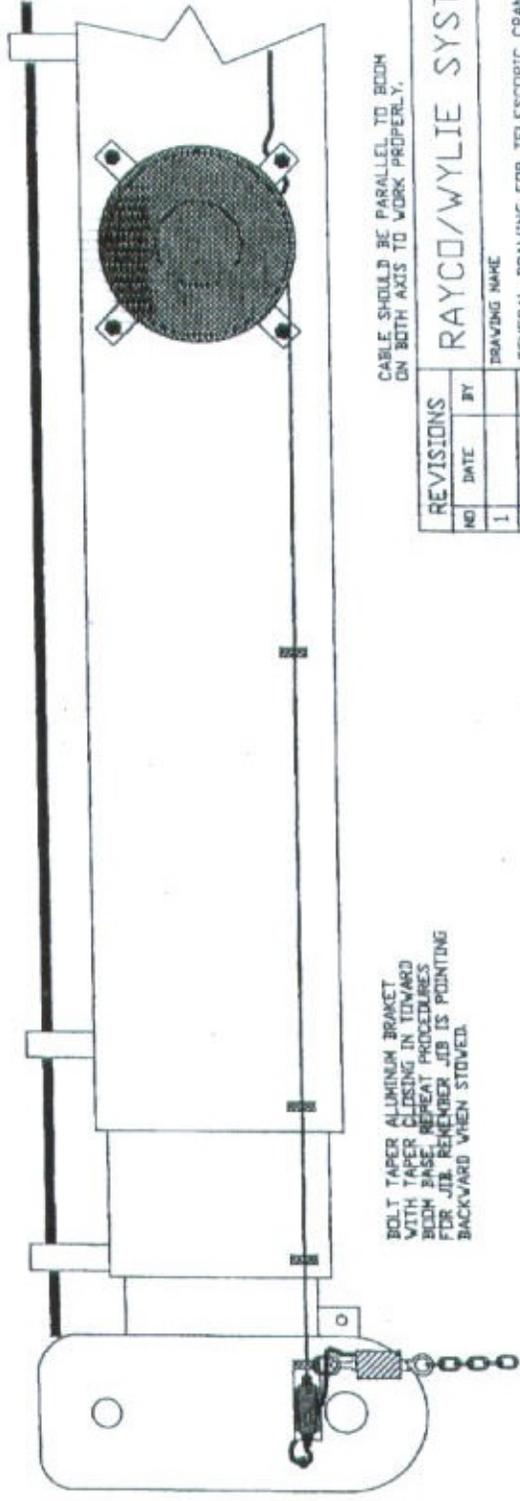
INSTALL THE FIRST GUIDE 3 TO 5 FEET AWAY FROM THE DRUM.

INSTALL A GUIDE AT THE END OF EACH SECTION, CUT IT TO LENGTH IN ORDER TO KEEP CABLE PARALLEL TO BOOM.



SWITCH AND JUNCTION BOX ARE FITTED ON A SPECIAL END GUIDE. PASS THE WIRE AS SEEN ON THE DRAWING.

**\*\*IMPORTANT\*\*** CABLE GUIDE ON LEG TO BE INSTALL

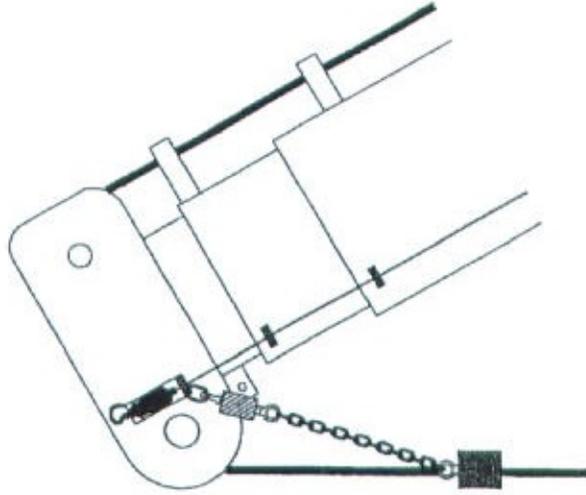
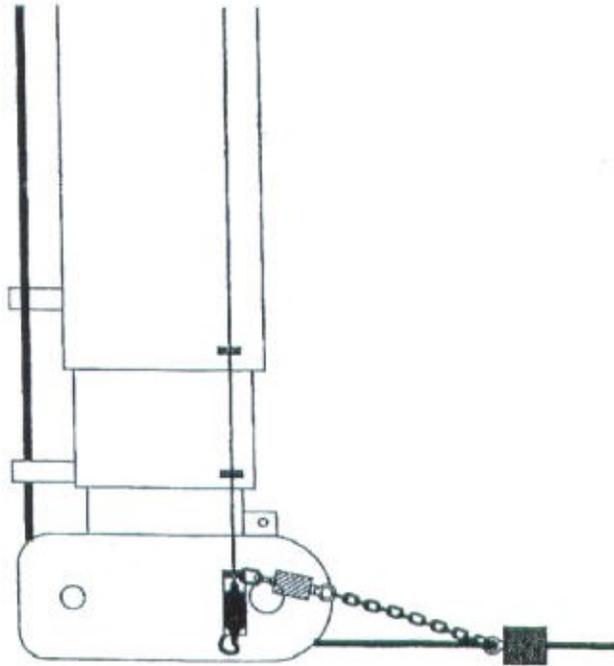


BOLT TAPER ALUMINUM BRACKET WITH TAPER CLOSING IN TOWARD BOOM BASE. REPEAT PROCEDURES FOR JOB. REMEMBER JOB IS POINTING BACKWARD WHEN STOWED.

CABLE SHOULD BE PARALLEL TO BOOM ON BOTH AXES TO WORK PROPERLY.

REVISIONS		DRAWING NAME	
NO	DATE	BY	
1			GENERAL DRAWING FOR TELESCOPIC CRANE
2			DRAWN BY SCALE MATERIAL
3			D. RENAUD
4			CHECKED BY DATE 12/12/56
5			DRAWING NO REEL 20.DWG

RAYCO/WYLIE SYSTEMS

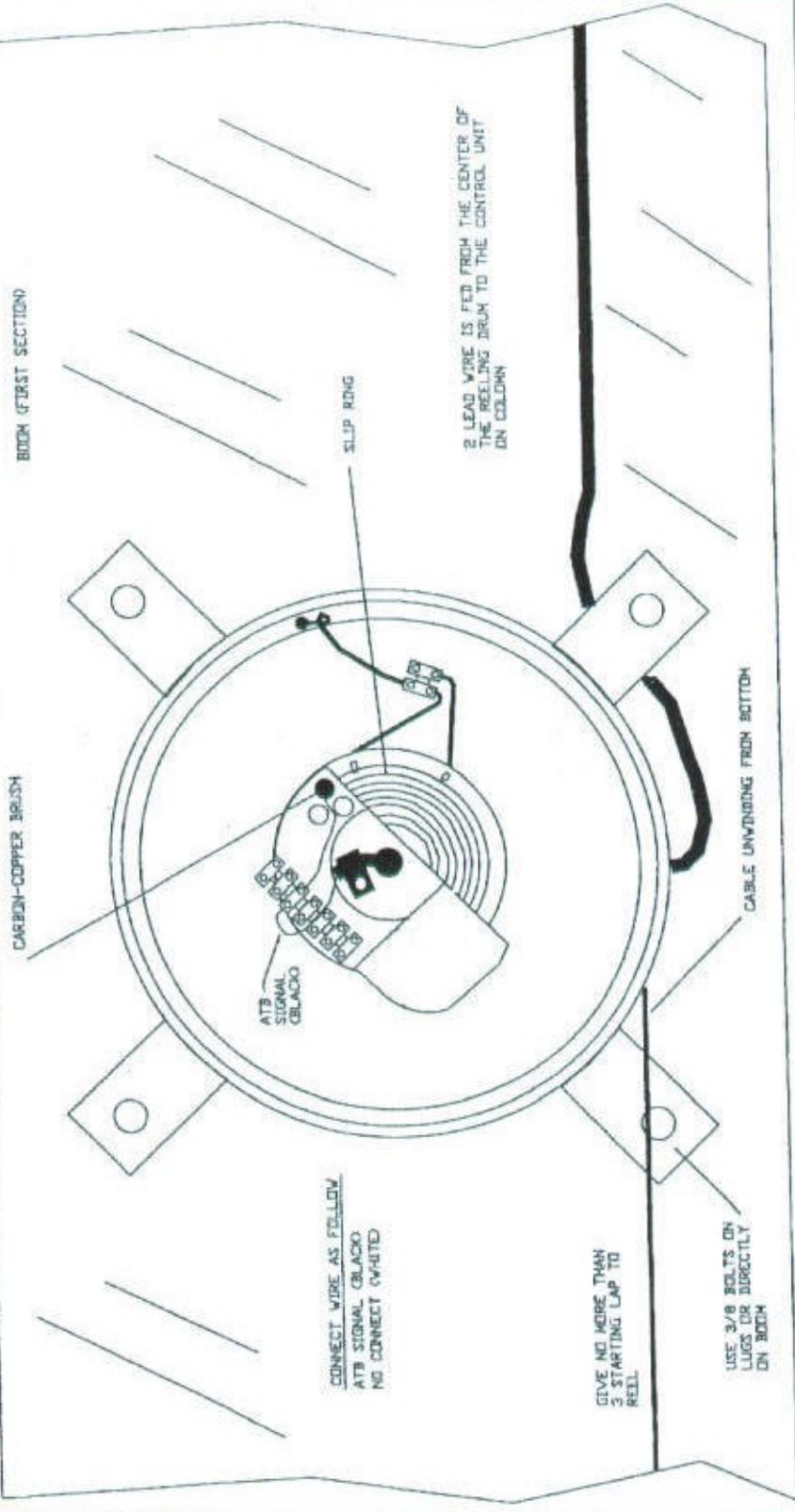


REVISIONS		RAYCO/WYLIE SYSTEMS			
NO	DATE	BY	DRAWING NAME	SCALE	MATERIAL
1			END CABLE GUIDES INSTALLATION		
2					
3					
4			DRAWN BY DANIEL R.		
5			CHECKED BY	DATE 08/17/95	DRAWING NO. REEL 6/J/W/G

TO BOOM BASE

POSITION REELING DRUM MIDWAY ON THE FIRST SECTION, LEFT SIDE FROM OPERATOR'S POSITION

TO BOOM TIP



REVISIONS		DRAWING NAME	
NO	DATE	BY	MATERIAL
1			
2			
3			
4			
5			

RAYCO/WYLIE SYSTEMS

CONNECTION FOR A2B ON REELING DRUM

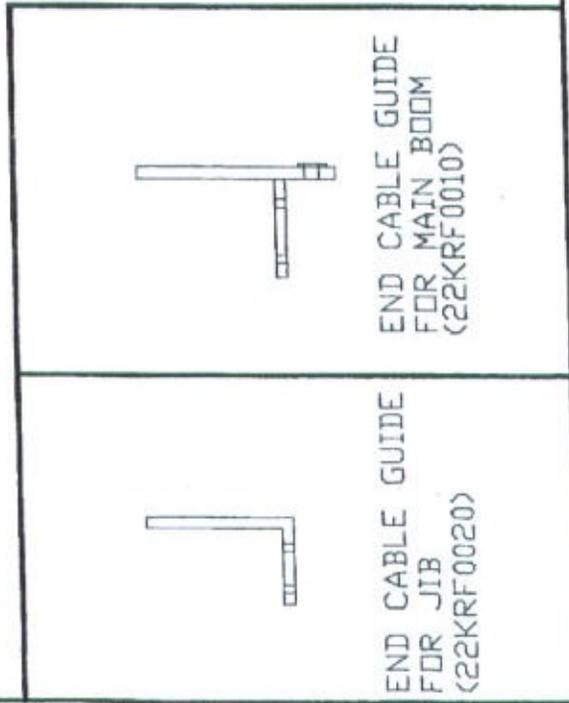
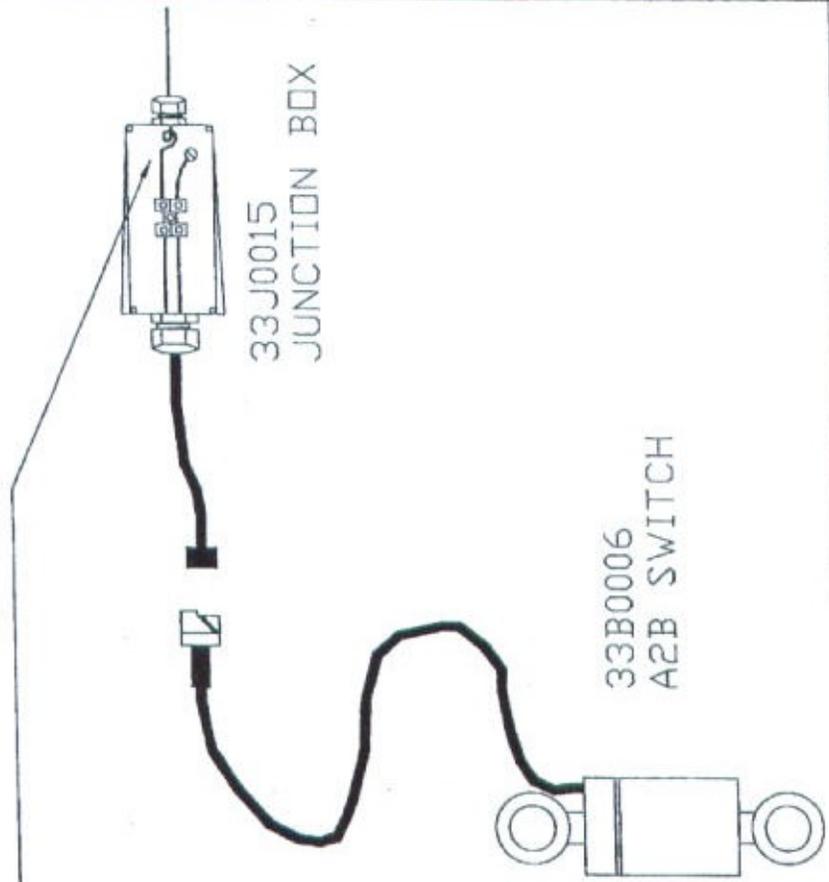
DRAWN BY: D. RENAUD

CHECKED BY: DATE: 11/27/95

DRAWING NO: REEL3.DWG

INSERT CABLE THROUGH THE BLACK COLLAR AND THROUGH THE PLATE. MAKE A KNOT AND TIGHTEN WITH HEAT APPLIED. DO NOT BURN THE HOUSING SINCE IT MIGHT DAMAGE THE INSULATION. HOLD THE KNOT TIGHT UNTIL COOL AND PULL AGAINST PLATE. TIGHTEN BLACK COLLAR.

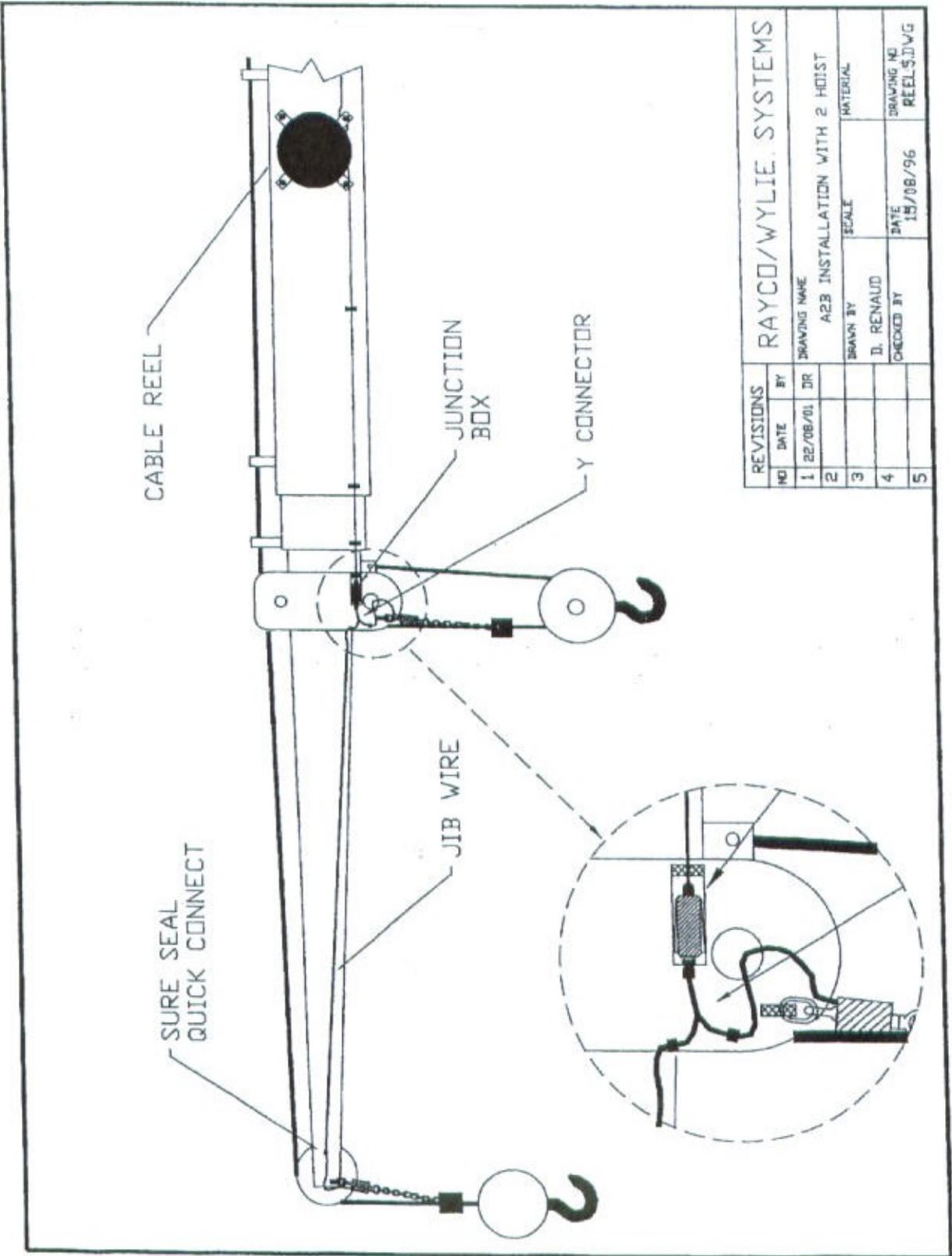
EXPOSE THE END OF THE CABLE TO THE METAL AND INSERT IN ONE OF THE CONNECTORS. TIGHTEN SCREW AND VERIFY GOOD FITURE AND CONTACT. THE OTHER CONNECTOR SHOULD BE ATTACHED TO A WIRE LEADING TO THE BODY OF THE JUNCTION BOX.



REVISIONS		RAYCO/WYLIE SYSTEMS			
NO	DATE	BY	DRAWING NAME	SCALE	DRAWING NO
1	4/8/98	D.R.	JUNCTION BOX CONNECTION		
2					
3					
4					
5					

DRAWN BY  
D. RENAUD

CHECKED BY  
DATE 07/07/95

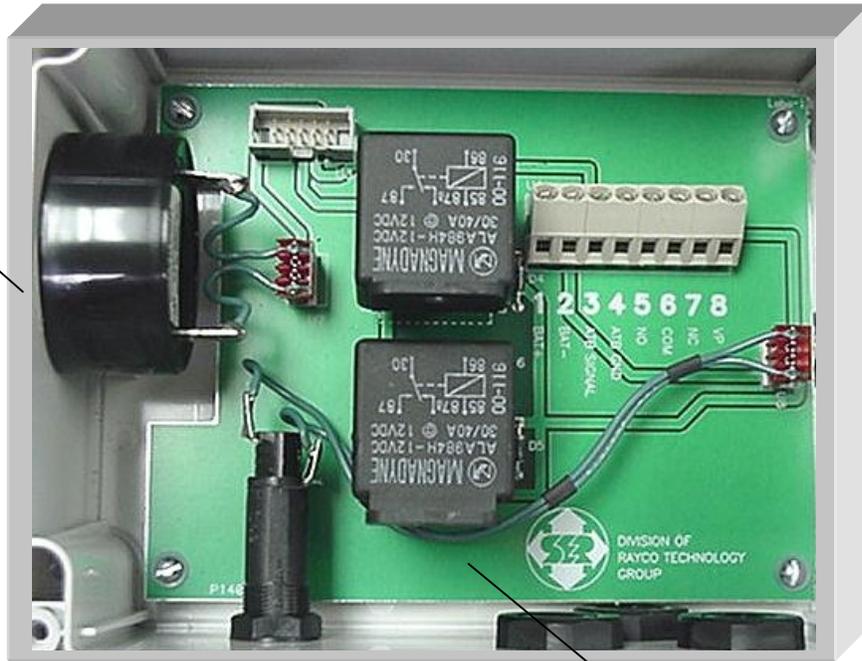


REVISIONS		RAYCO/WYLIE SYSTEMS		
NO	DATE	BY	SCALE	DRAWING NO
1	22/08/01	DR		A2B INSTALLATION WITH 2 HOIST
2				MATERIAL
3				
4				
5				

DRAWN BY	DATE	DRAWING NO
D. RENAUD	18/08/96	REEL 5.DWG
CHECKED BY		

BUZZER



LOCK OUT RELAY

FUSE 1 AMP

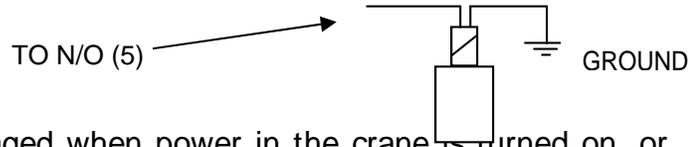


1. POSITIVE BATTERY (accessories)
2. NEGATIVE BATTERY (accessories)
3. A2B SIGNAL FROM REEL (Black)
4. A2B GROUND (Used when ground on boom tip is failed. Call a Wylie/Rayco office for details)
5. N/O SIGNAL FOR LOCK OUT SYSTEM (Safety security)
6. COMMUN FOR LOCK OUT
7. N/C (normally not used)
8. VP POSITIVE VOLTAGE

**Note:**

When lock out system is installed, add a jumper between 8 and 6, use the N/O position for a strand on coil of valve and the other side of coil must be grounded to the body of the machine.

**5. OPERATING PROCEDURE:**



The system is automatically engaged when power in the crane is turned on, or when the PTO is engaged. The operator can then use the crane as usual.

If a pending two-block situation arrives, The red light and the buzzer will go on continuously until the situation is corrected. If a lock-out as been installed, motions are cut for telescoping out and hoisting up. If the hoist is separated from the boom, then booming down will also be cut. To obtain control again, the operator must either hoist down or telescope in.

**R140T ALARMS BOX CONDITIONS:**

BOOM TIP SWITCH/WEIGHT POSITION	ALARM BOX SWITCH POSITION	ALARM BOX FUNCTIONS					
		LIGHT		BUZZER		FUNCTION-CUT CONTACTS	
		ON	OFF	ON	OFF	OPEN	CLOSED
SAFE CONDITION	NORMAL		X		X		X
WEIGHT FREELY SUSPENDED	RIGGING TEST	X		X		X	
SWITCH CLOSED	MOMENTARY OVERRIDE	X			X		X
TWO-BLOCKED	NORMAL	X		X		X	
WEIGHT LIFTED	RIGGING/TEST	X			X	X	
SWITCH OPEN	MOMENTARY OVERRIDE	X			X		X

**6. R140T PARTS:**

• **ONE HOIST:**

Control box (according to machine).....	(12 VDC)
	33D0140
33D0141	(24 VDC)
Cable reel capacity	
110'.....	33R0001
Lugs for cable reel	
(4).....	22KSF0250
Cable 2 cond. w/ split loom	
(55').....	22EAA0202
Cable guide w/ loop	
(3).....	22KRF0055
Cable guide for main	
boom.....	22KRF0010
Cable guide for	
jib.....	22KRF0020
A2B switch sure seal	
connector.....	33B0006
Junction box on boom	
tip.....	33J0015
Bracket for junction box	
(2).....	22KSF0030
A2B weight and	
chain.....	22SWC0040
Manual.....	55MW140
EOB	

- **TWO HOISTS: (Add these parts to the first listing)**

A2B	switch.....	33B00
06		
A2B	weight	and
chain.....	22SWC0040	
Y	connector	for
switch.....	33V0014	second
		A2B
Jib	wire	from
49'.....	33V0250	25'
		to

## **7- TROUBLESHOOTING:**

First of all, verify if all junction boxes are connected either to a switch or a dummy. Then verify if proper control for machine E.G.: 12V neg. on body. Remember, all switches must be pulled down to deactivate the red light and buzzer. Also, power must be on.

- **If red light is off when two-block**

- No voltage entering control
- Burnt bulb
- Burnt fuse

- **If weak red light**

Check supply voltage and use adequate control either 12 or 24 volts.

- **If continuously red**

Check if all switches are connected properly and pulled down by weight. If so, check continuity between black wire and body. If no continuity, check continuity along wiring and body until the switch. If body of boom causes the problem, use double wire on or cable to bring ground to the switch.

- **If slow reappearance of red light**

Supply wires cannot bring sufficient current to the control.

- **Lock-out stays on**

Check if solenoid works by feeling it while activating the switch. If not, check if voltage is present when red light is off. If so, coil may be burnt.

## **8- WYLIE/RAYCO MAINTENANCE INSTRUCTIONS:**

### **1. DAILY OPERATOR:**

- Verify if cable of reeling drum is not jammed and if it is damaged.
- Verify if all connectors from switches and jib are well screwed in.
- Test two-block switch and watch for buzzer and red light.
- Test lock-out if present.
- If any malfunction, report immediately to maintenance personnel.

### **2. MONTHLY MAINTENANCE:**

- Verify all connectors and insure that they are free of corrosion and filled with non-conductive grease.
- Inspect all wires and cables for tear or cuts. Replace any defective wire.
- Test system completely to detect any possible malfunction or call a Wylie/Rayco technician.

### **3. BIYEARLY:**

- Through inspection of all circuits, wires, lock-out, connections and mechanical parts.