POWERCAT AUTOMATED CATWALKS

PRODUCT BULLETINS

CANDOC PRODUCT BULLETIN MANUAL

Printed in the United States of America.

CANRIG
DRILLING TECHNOLOGY LTD.

TABLE OF CONTENTS

PRODUCT BULLETIN NUMBER: 001

Safety Alert

PRODUCT: PC3000 & PC 4000 CATWALK **DATE:** 21-Jun-07

SUBJECT: PC3000 and PC4000 Series Power Catwalks

SERIAL NUMBERS:

DISCUSSION:

Canrig's Customers and Canrig Service personnel have identified a potential problem with the Skate system that could result in loss of control of the Skate during operation. The Skate could uncontrollably extend causing tubulars to be push onto the drill floor.

RECOMMENDATION:

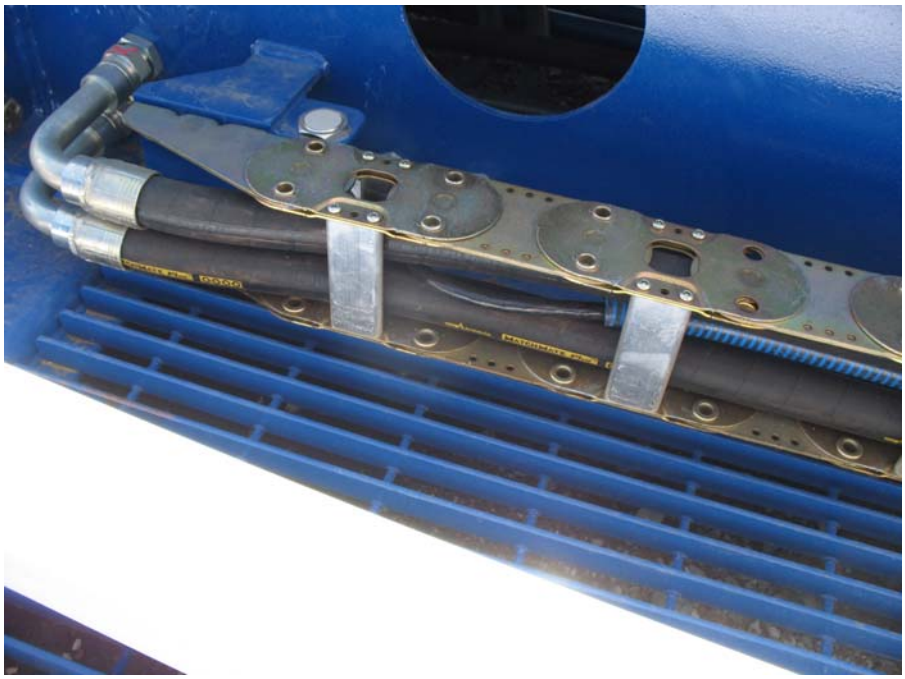
The problem occurs if the service loop cable within the drag chain rubs on the chain links and wears thru to the wiring inside. If the Skate control signal wiring happens to short circuit to ground, the Skate valve can act erratically causing loss of control of the Skate function.

Canrig engineering is working on a solution that will electronically disable the Skate valve in the event of any short circuit of either the control signal wiring or the valve reference voltage wiring.

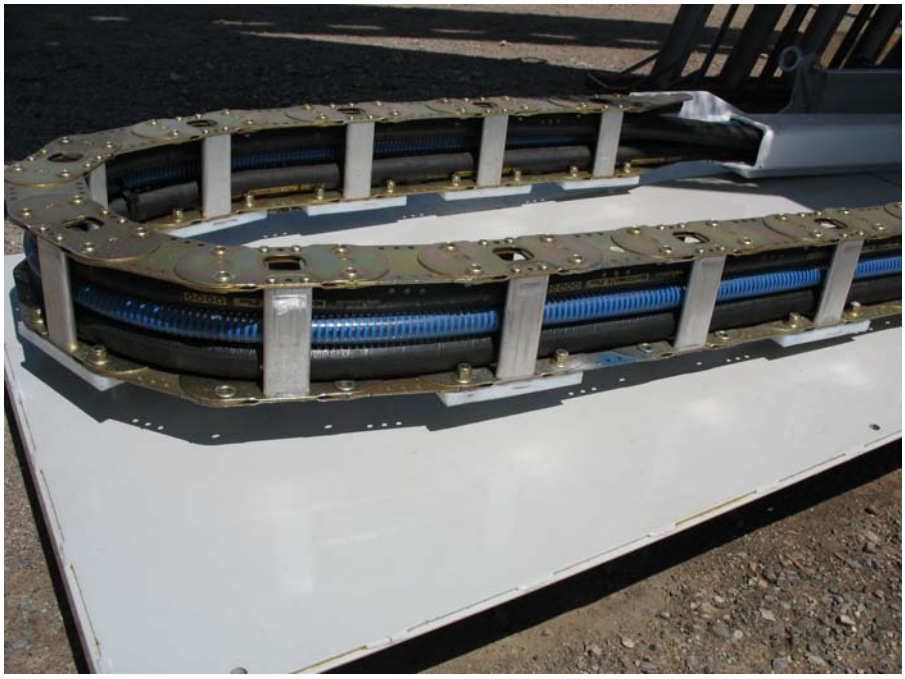
The service loop wiring should be inspected immediately for any signs of wearing or bared wires throughout the length of the service loop cable from the catwalk base bulkhead, thru the drag chain, spear, lift arm and into the carrier junction box. If there is any indication of wearing or tearing of the cable sheath or bared exposed wires anywhere in the service loop cable, call Canrig service immediately to have a service technician repair or replace the cable. **Do not operate the Power Catwalk until this cable is repaired.**

(See the attached pictures)

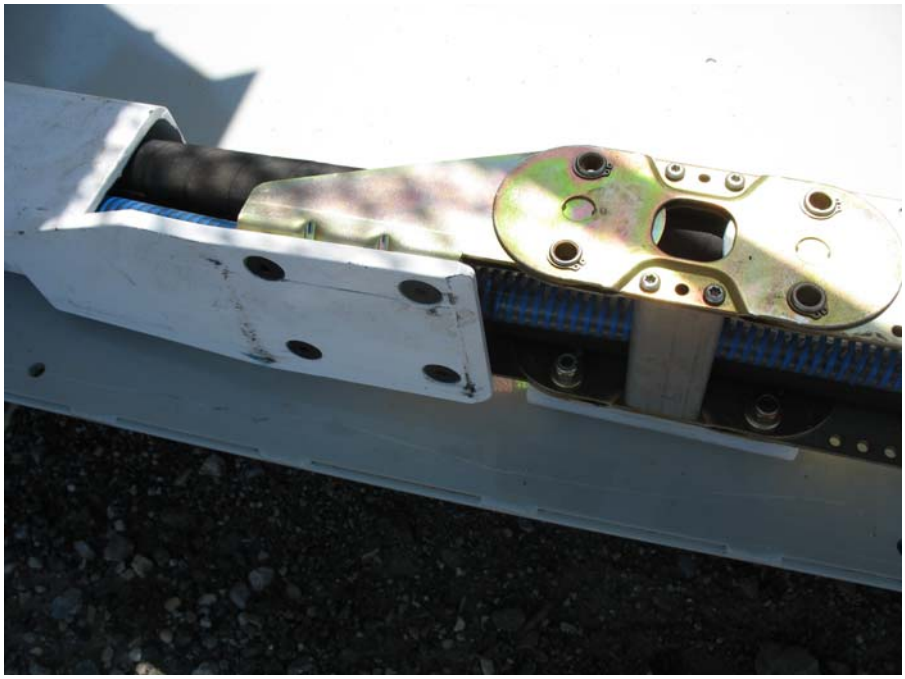
Check cable where it comes thru bulkhead and into drag chain.



Check the cable at each aluminum bar for signs of wear or bared wires. This is most likely where the cable is to wear.



Check cable where it enters and exits the spear and enters the lift arm.



Check cable where it exits the Lift Arm right thru to the junction box in the Carrier.

CAUTION!

If, while in operation, the Skate moves erratically or moves when not expected, use the **Emergency Shutdown Button** or **Motor Stop buttons** on the wireless radio remote controller or Tank Control box to shutdown catwalk operation. Remove any tubulars or tools from the carrier first before restarting to move the carrier down to the lowered home position. **Do not use the power catwalk until Canrig service has inspected the service loop cable and repaired any problems.**

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-

PRODUCT BULLETIN
NUMBER: CATWALK 002

PRODUCT: AUTOMATED CATWALKS **DATE:** January 14, 2008

SUBJECT: **PipeMatic/ PowerCAT MCC to Catwalk Cable Requirements**

MODELS: **PM3000, 3000, PM4000, PM4100, and 4100**

DISCUSSION:

We have experienced inadvertent HPU Feeder Circuit Breaker trips and in rare cases, damage to the Motor Starter. One reason for these trips is a voltage drop across the power cable from the Powerhouse to the PowerCAT. The voltage drop is most noticeable at start-up of the HPU. While the HPU pump is accelerating to normal run speed, the "in-rush" current is approximately 10 times the normal run current. This high current will cause the voltage on the starter (located at the PowerCAT) to dip. Sometimes, the voltage dip will be sufficient to drop the magnetic starter coil, thus removing the power to the pump motor. As soon as the power is removed, the voltage dip will go away and the starter coil will pull in again. This action is known as "chatter" and can prolong the start-up of the motor and can cause the feeder breaker to trip or the starter to burn or weld one or several contacts.

RECOMMENDATION:

It is recommended to review the cable size and all connections between the MCC (in the Powerhouse) and the PowerCAT junction box, including plugs and receptacles. All rigs with cable runs longer than 150 feet should utilize size 1/0 cable from the MCC to the Catwalk in order to reduce voltage drop. Cable length less that 150 ft should be #2AWG wire size. This is especially critical in hotter climates. It is also recommended to confirm the generator output voltage to be 600Vac (or 460Vac if that is the nominal power). Any fluctuation in voltage may contribute to 'chattering' and welding the contacts.

Further, if you have experienced circuit breaker trips or if you perform a new installation, Canrig recommends using a 150 Amp, Feeder Circuit breaker, c/w thermal and magnetic trip, equivalent to Cutler Hammer series G® JG-frame, for 460Vac systems. If the nominal supply voltage is 600Vac, a 100 Amp circuit breaker of same characteristics should be used.
If you currently use a 100 Amp circuit breaker and do not experience any trips, it could be that the characteristic of the installed breaker is slightly different than the one referenced above.

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PRODUCT BULLETIN
NUMBER: CATWALK 003

PRODUCT: AUTOMATED CATWALKS **DATE:** 02/01/2008

SUBJECT: **LOWERING CARRIER FROM OVERSHOOT**

MODEL: **PowerCAT 3000**

DISCUSSION: The manuals for the PowerCAT 3000 did not contain instructions when the carrier goes to overshoot.

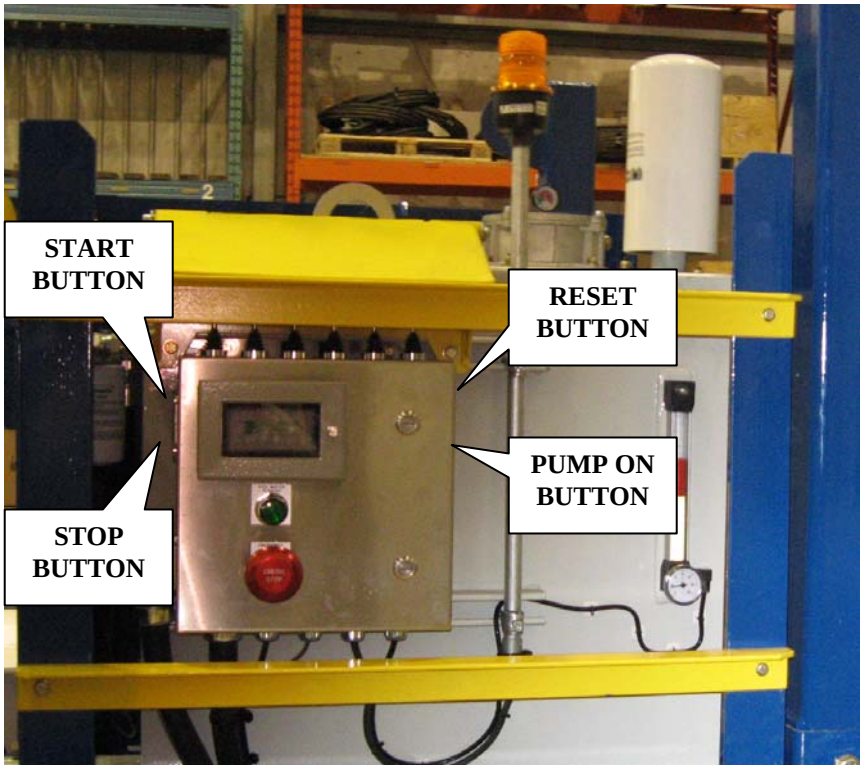
RECOMMENDATION:

The following procedures are for lowering the carrier after it has gone into CARRIER OVERSHOOT. Which procedure to use will depend on the physical circumstances and the program that is currently in the PLC.

- THESE PROCEDURES SHOULD ONLY BE PERFORMED BY PROPERLY TRAINED AND QUALIFIED PERSONNEL
- For a PowerCAT3000 with a PLC program Ver. 14 Rel. 6 or later with a screen program of Ver. 17 or later:

1. Ensure that no one is in a position where they could be injured if the carrier moves in the following step.
2. Open the control console that is mounted on the HPU tank and put the pump switch in the HAND position. The pump will start immediately. IF THE CARRIER MOVES, SHUT DOWN THE PUMP and call Canrig Field Service.
3. The screen on the control console will display “STOPPED – CARRIER OVERSHOOT”. To proceed you must press and hold the RESET on either the wireless control or control console. The screen will display “OK – NO ERRORS”. While holding the reset scroll though the screens using the F1 or F2 keys until you get to the “PRESS F6 TO SET MOUSE POSITION” then press F6 once, the screen will then display “SET POS PRESS F6 CANCEL PRESS F5”,

4. Use the encoder override mode to bring the carrier out of the overshoot condition by lowering the carrier until the end of the carrier is near the roller on the top of the ramp. To use the encoder override mode you must press and hold he RESET and MOTOR START buttons simultaneously either on the wireless control or the control console in conjunction with the CARRIER UP/DOWN joystick.



5. Once you have the carrier in the position described in Step 4, press F5 to CANCEL. The screen will display OK – NO ERRORS, you may continue to operate the catwalk normally.

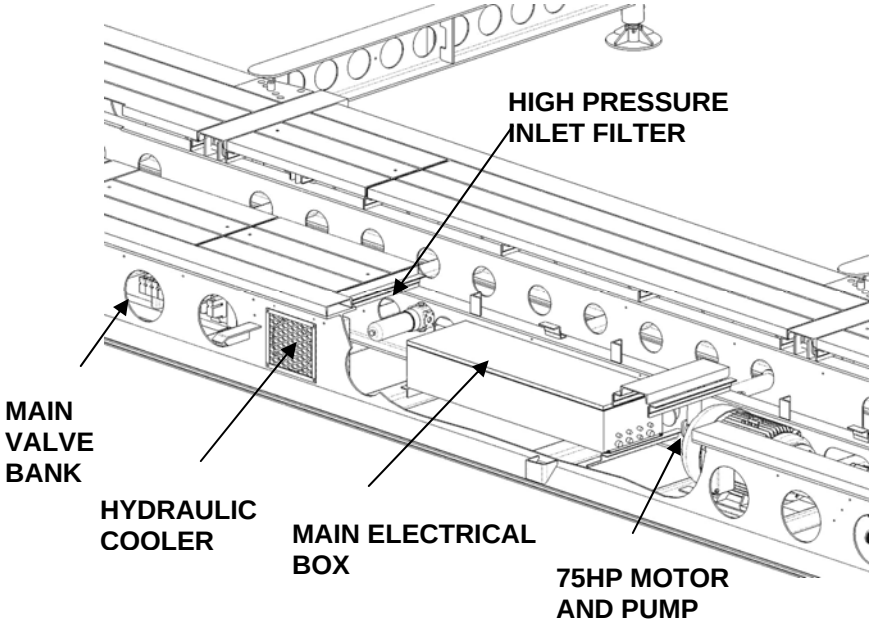
6. BE SURE TO RETURN THE PUMP TO THE AUTO POSITION.

- If the carrier continues to go into OVERSHOOT call Canrig Field Service.

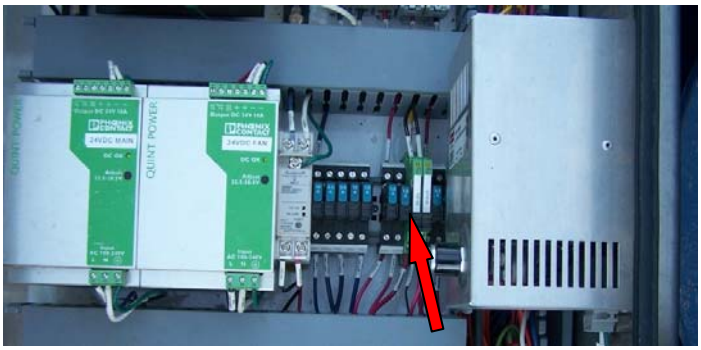
- The following procedure is for catwalks with a PLC program OLDER than Ver. 14 Rel. 6 with a screen program of Ver. 17:

  NOTE: This procedure requires a minimum of two people.

1. Remove the floor plates that are above the MAIN ELECTRICAL BOX and the catwalk MAIN VALVE BANK adjacent to the cabinet. If it is raining, snowing, foggy or very dusty take measures to prevent contamination of the internal components of the box prior to the next step.



2. Open the MAIN ELECTRICAL BOX and find the 1.0 Amp breaker for the winch 12VDC power and open the breaker. To open the breaker depress and release the push button. It will be labeled with a “W”, “WINCH” or “CARRIER WINCH”. An example of the location of this breaker is shown below.

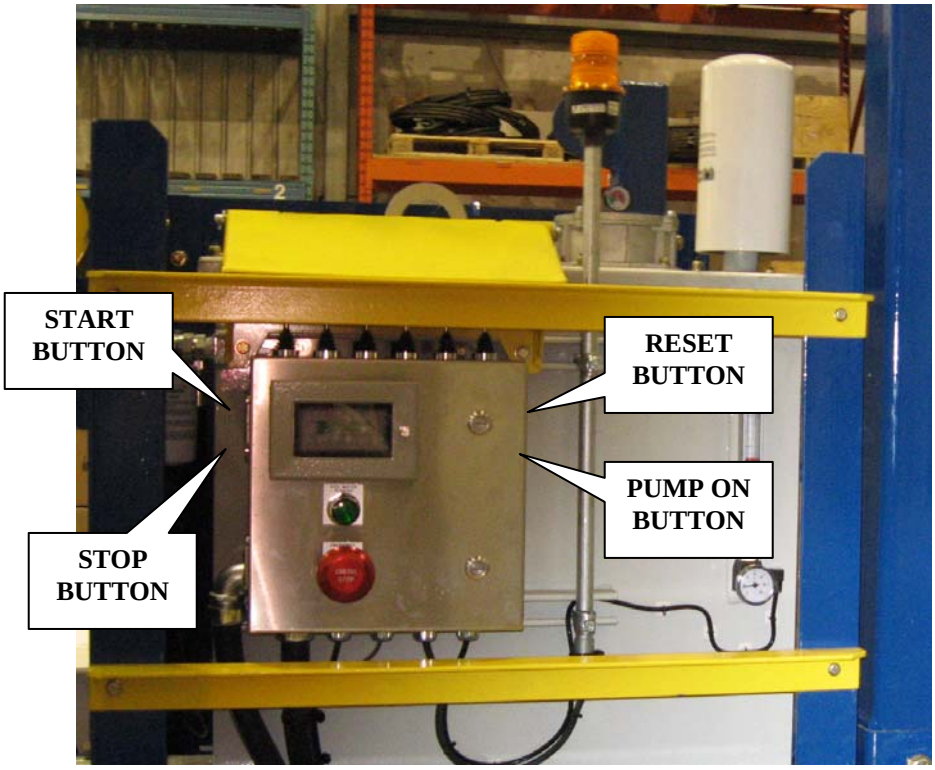


This breaker MUST be opened to prevent damage to the winch valve manual actuator linkage.

3. Ensure that no one is in a position where they could be injured if the carrier moves in the following step.

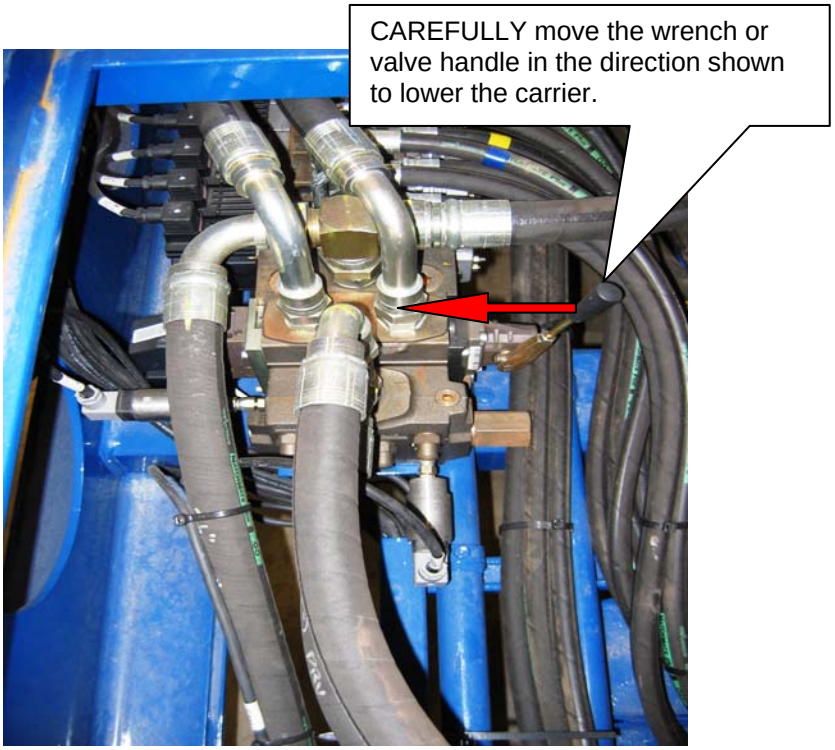
4. Open the control console that is mounted on the HPU tank and put the pump switch in the HAND position. The pump will start immediately. IF THE CARRIER MOVES, SHUT DOWN THE PUMP and call Canrig Field Service.

5. Use the encoder override mode and hold the CARRIER UP/DOWN joystick in the “DOWN” position to release the winch brake. To use the encoder override mode you must press and hold the RESET and MOTOR START buttons simultaneously either on the wireless control or the control console in conjunction with the CARRIER LIFT UP/DOWN joystick.



6. Simultaneously to releasing the brake (Step 6 above), press the PUMP ON button to load the pump. The pump must discharge 1500 PSI or more to overcome the winch counterbalance valve.

7. The SECOND PERSON must now use the valve handle, a nine millimeter wrench or small adjustable wrench to manually actuate the WINCH CONTROL VALVE as shown below.



8. Once the end of the carrier is near the roller on the top of the ramp, return the valve to its neutral position and release the controls. You may now close the breaker that was opened in Step 3 and secure the cabinet lid.

9. The screen will display OK - NO ERRORS. You may now return the floor plates to their proper location and resume normal operations.

10. BE SURE TO RETURN THE PUMP SWITCH TO THE AUTO POSITION.

- If the carrier continues to go into OVERSHOOT call Canrig Field Service.

- If the Hydraulic Power Unit is inoperable the above procedures cannot be performed. In this event contact Canrig Field Service.

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PRODUCT BULLETIN
NUMBER: CATWALK 004

PRODUCT: AUTOMATED CATWALKS **DATE:** March 6, 2008

SUBJECT: **PC4000 Series Power Catwalk Vortex Cooler Filter**

SERIAL NUMBERS: **PM4000-1001 through 1028**

DISCUSSION:

Service personnel have discovered that the interior of some of the PLC boxes are being coated by a spray of airline lubricant through the Vortex cooler.

RECOMMENDATION:

The element in the Air Filter needs to be replaced with part number H10716, which will knock out both water and oil, through the trap, before it reaches the PLC box.

See drawing 121100009M.REL-01.001 Item 42 (121100104). See drawing 121100104.DEV-01.001 Item 01 (AY50357). See drawing AY50357.REL-01.0 Item 2 (H10716)

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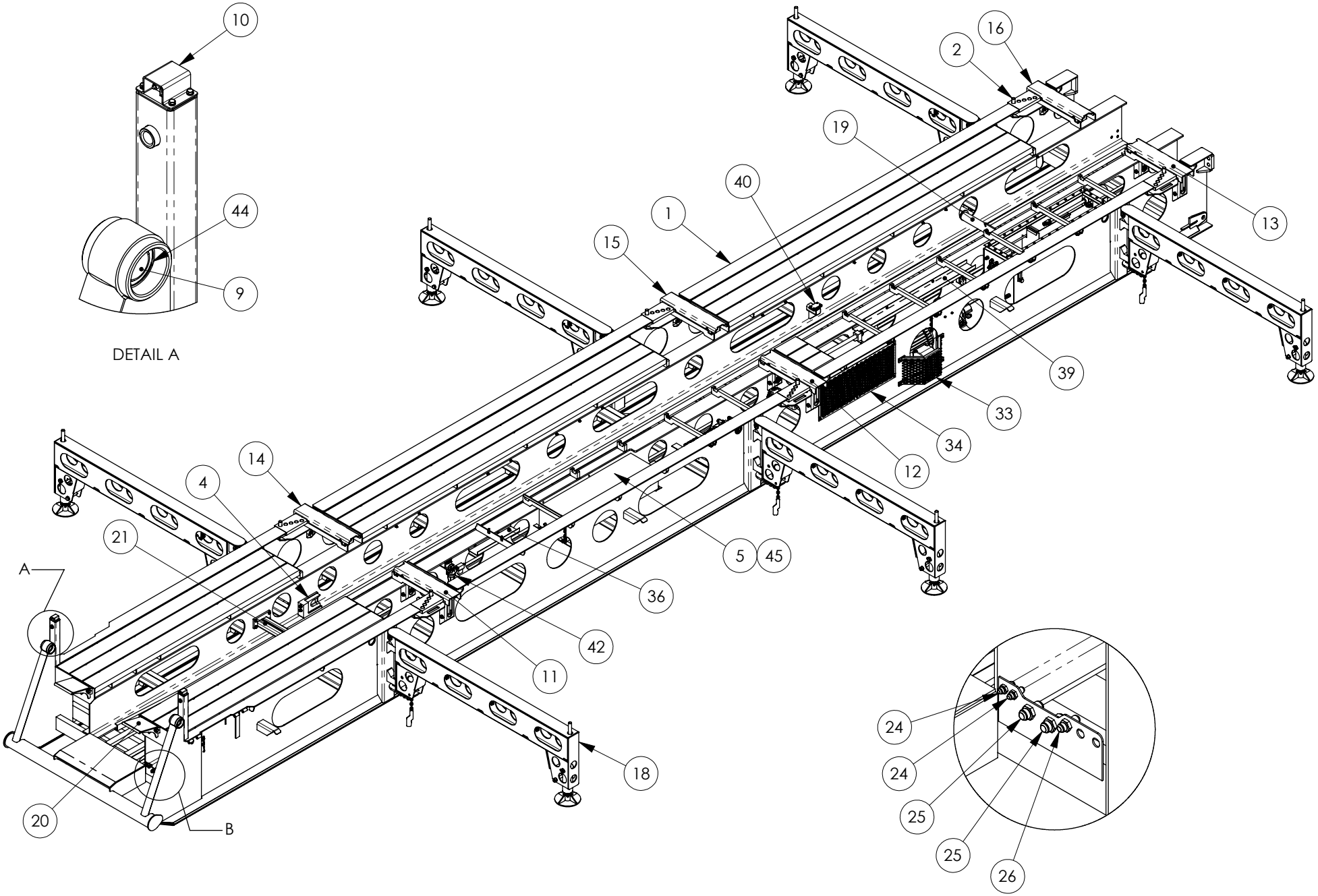

REV.	DESCRIPTION	DATE
REL-01	RFM	2/7/2008

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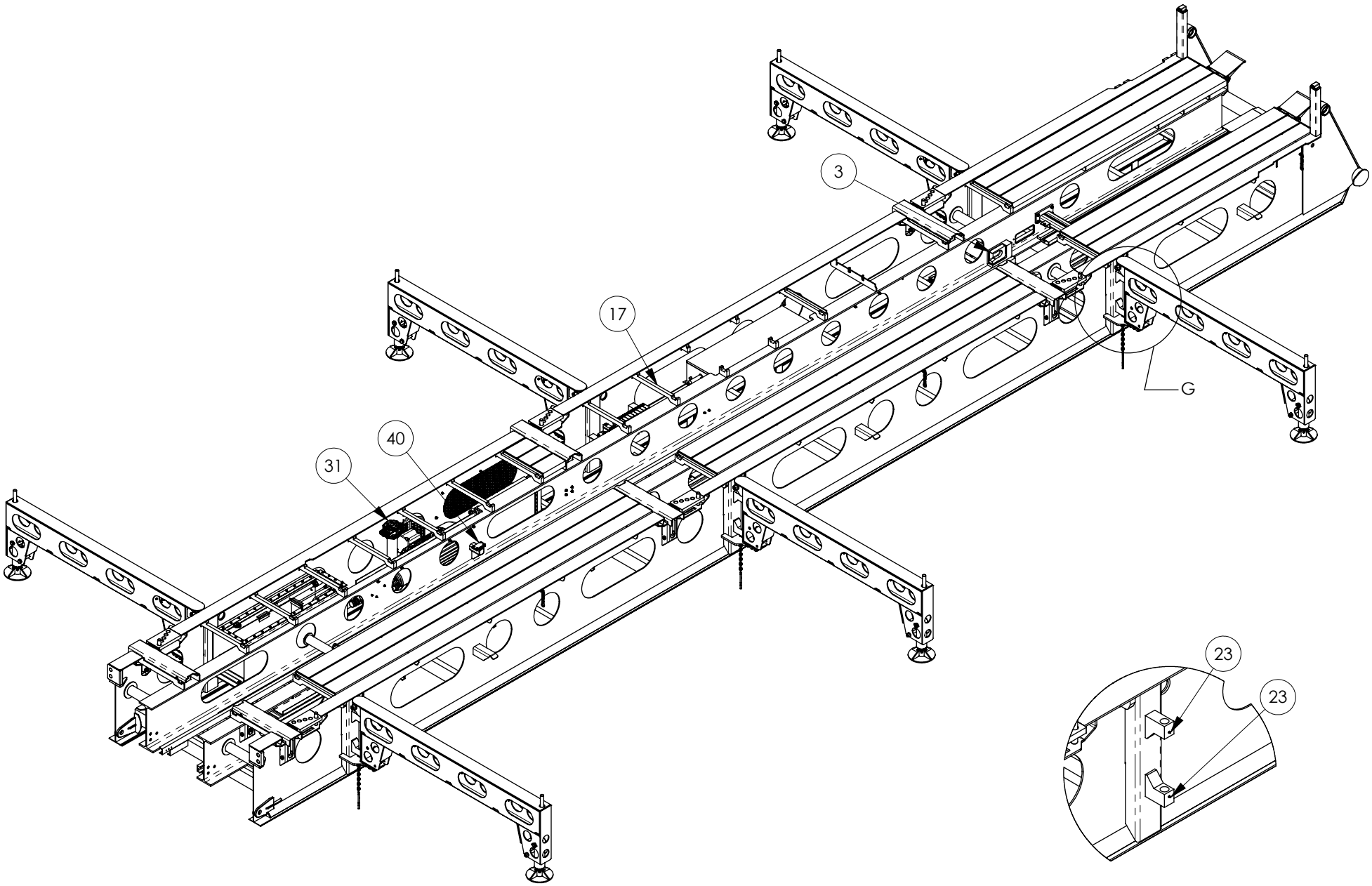
ASSY, MASTER SKID, PC4100

SHEET 1 OF 3

DATE CREATED: October 30, 2007 9:03:36 AM

PART NO: 121100009M

REV: REL-01



DETAIL G

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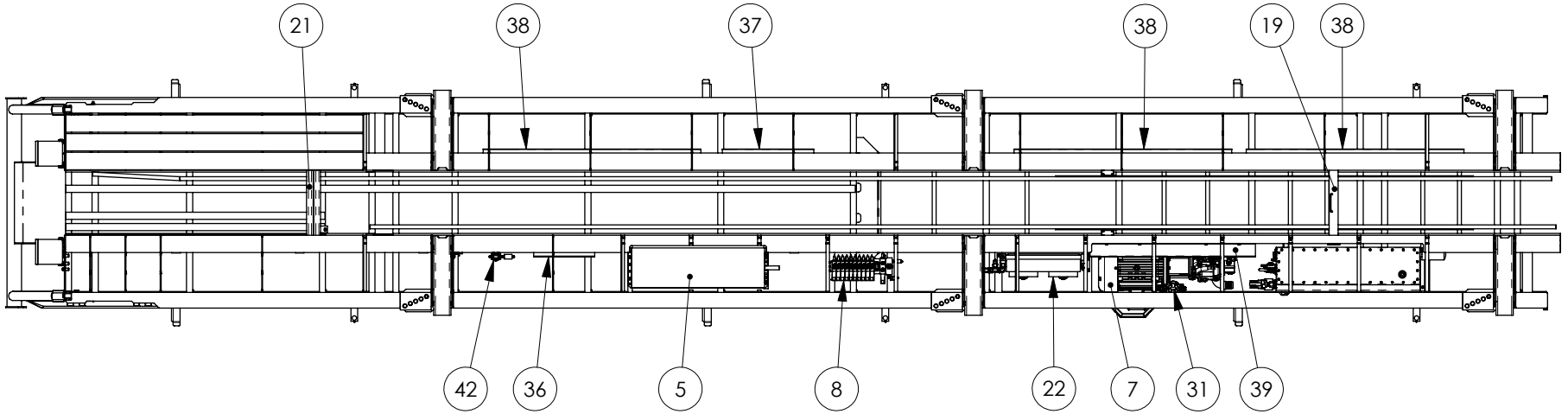
ASSY, MASTER SKID, PC4100

SHEET 2 OF 3

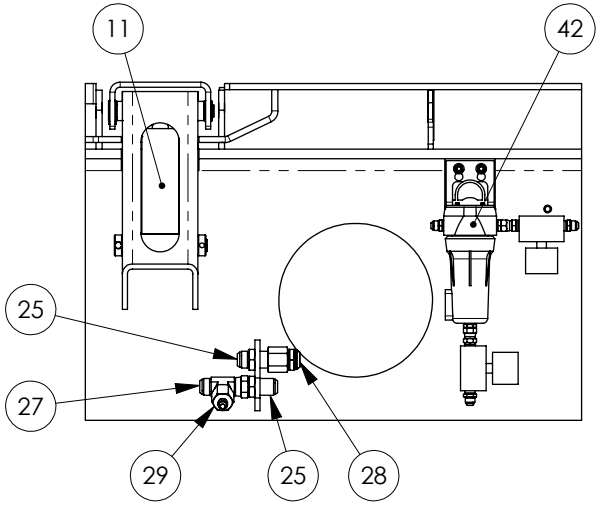
DATE CREATED: October 30, 2007 9:03:36 AM

PART NO: 121100009M

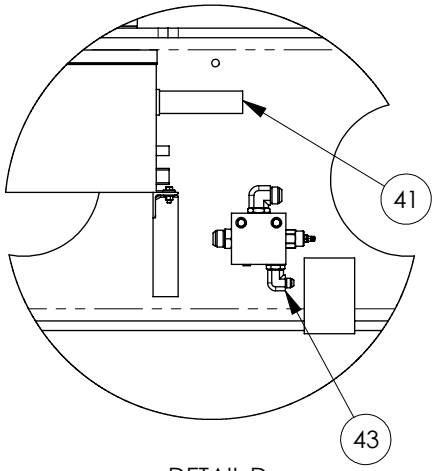
REV: REL-01



REMOVED COMPONENTS FOR CLARITY



DETAIL C



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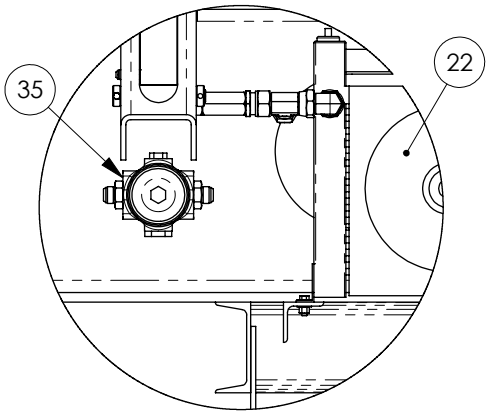

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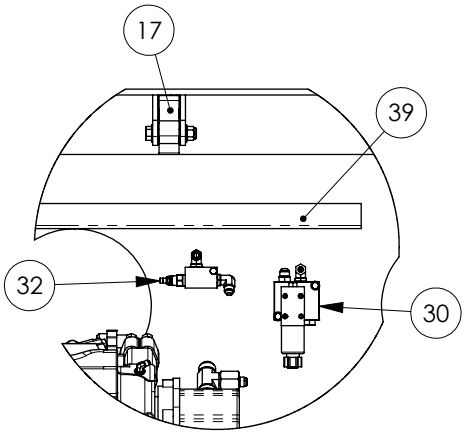
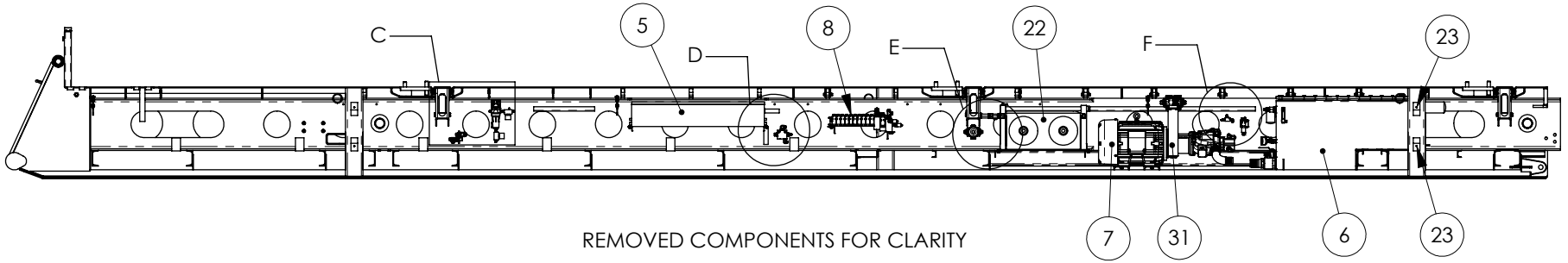


DETAIL F



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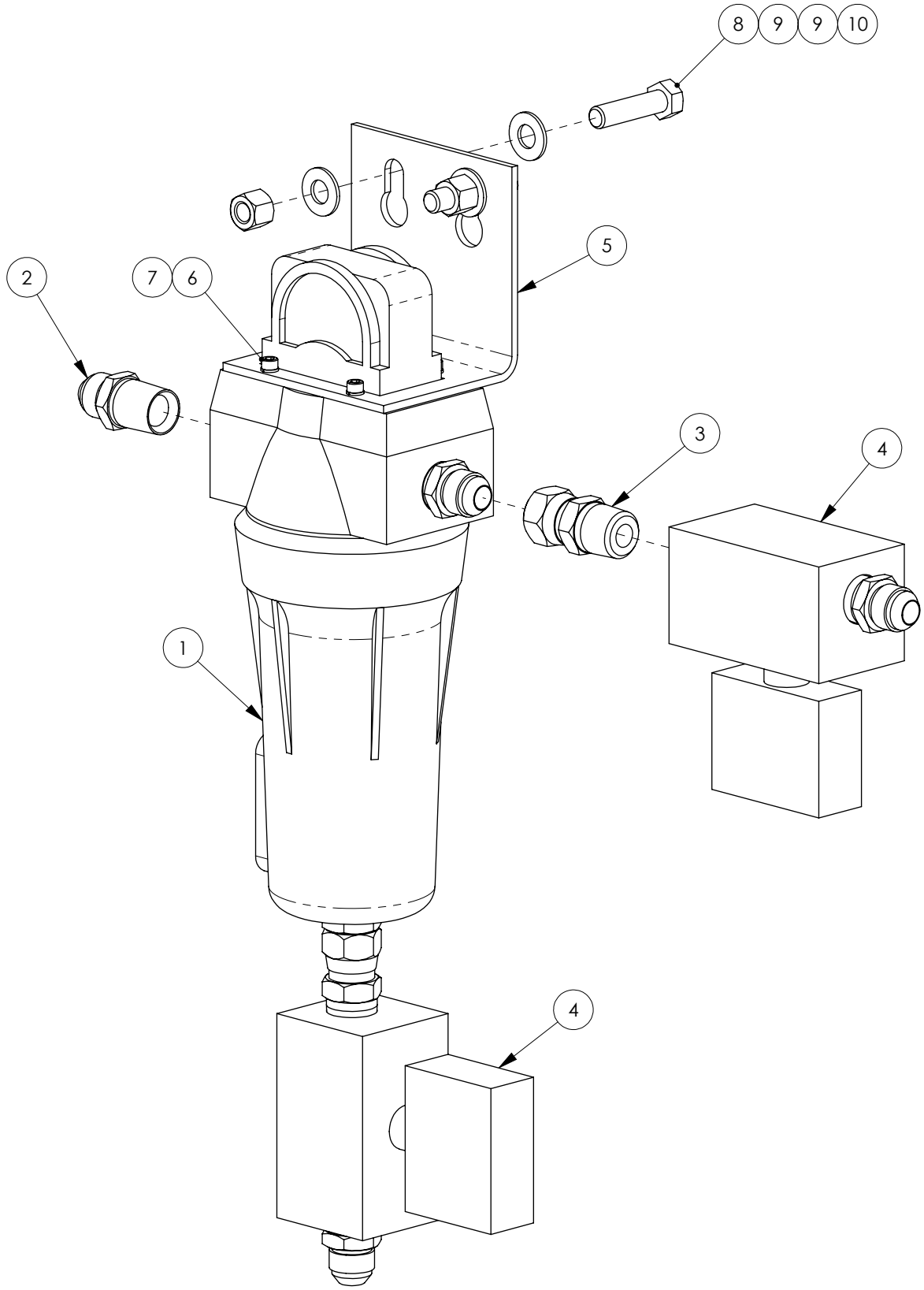
ASSY, MASTER SKID, PC4100

SHEET 3 OF 3

DATE CREATED: October 30, 2007 9:03:36 AM

PART NO: 121100009M

REV: REL-01



REV.	DESCRIPTION	DATE
DEV-01	RFM	2/1/2008

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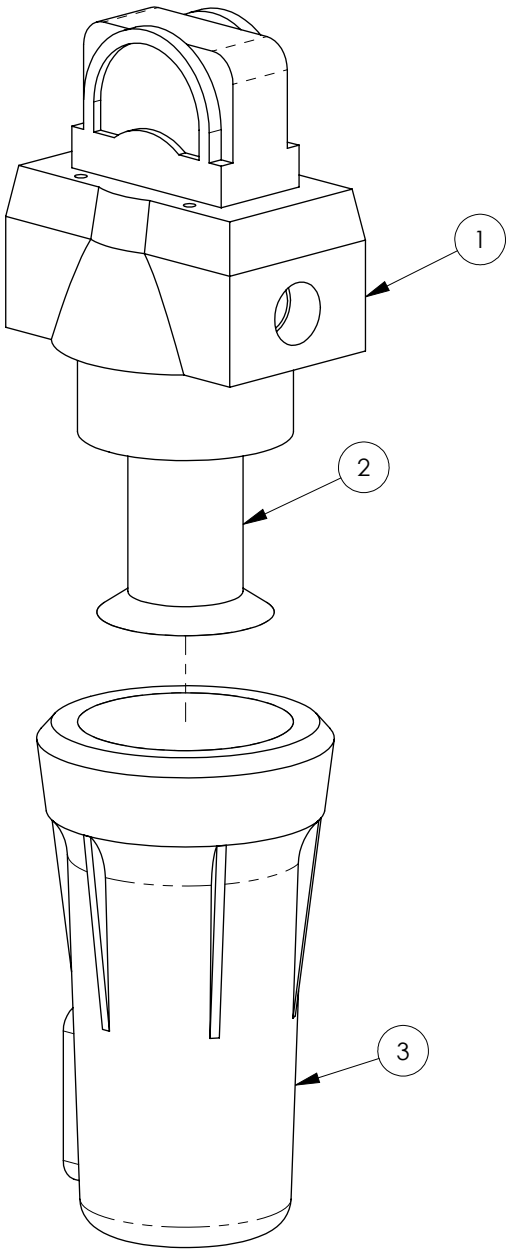
DATE CREATED: October 31, 2007 12:13:33 PM

ASSY, AIR FILTER

SHEET 1 OF 1

PART NO: **121100104**

REV: **DEV-01**



REV.	DESCRIPTION	DATE
REL-01	RFM	3/5/2008

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DATE CREATED: October 31, 2007 1:13:33 PM

ASSY, FILTER, AIR, .01 UM, W/ OIL TRAP

SHEET 1 OF 1

PART NO: **AY50357**

REV: **REL-01**

PRODUCT BULLETIN
NUMBER: CATWALK 005

PRODUCT: AUTOMATED CATWALKS
PC1000

DATE: 03/17/2008

SUBJECT: **Update Terminal Blocks to Fuses**

SERIAL NUMBERS: **2001 to 2005**

DISCUSSION: Fuses are required on the Terminal blocks to protect the radio receiver from accidental current damage.

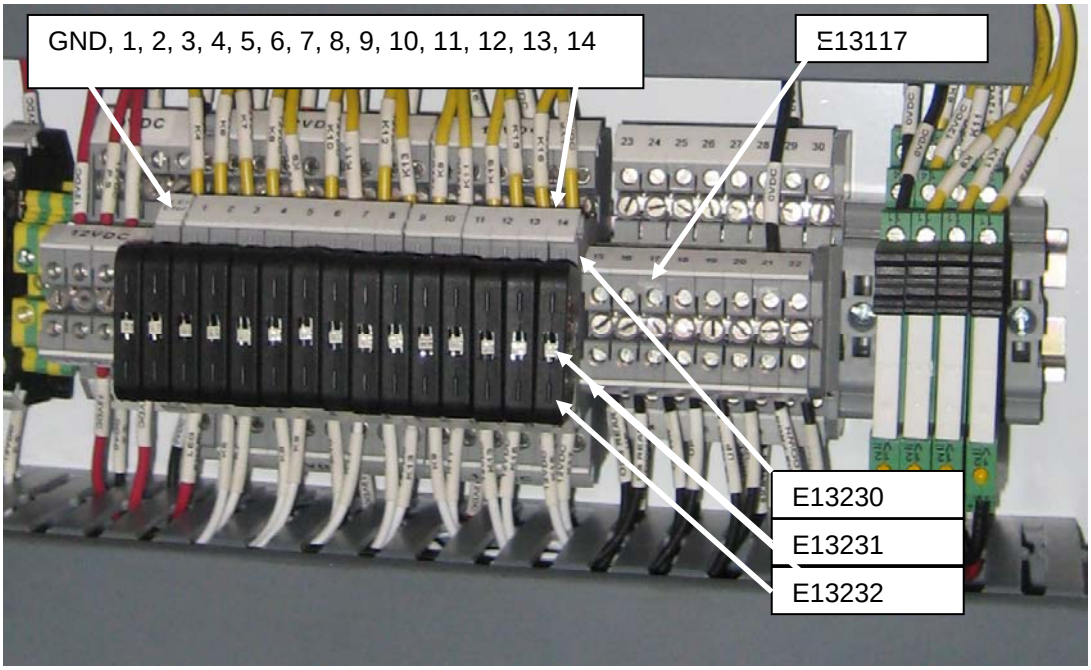
RECOMMENDATION:

The following Terminal blocks located in the stainless steel electrical box containing the receiver for the wireless radio should be removed and replaced with Fuse Terminal Blocks.

Terminal Blocks: GND, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14

Existing Components:
E13117 Terminal Block

Replacement Components
E13230 Fuse Terminal Block
E13231 Phoenix Contact Fuse Holder
E13232 1A Fuse



Please contact your Field Service Coordinator to arrange shipment and installation of the parts.

INFORMATION:

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PRODUCT BULLETIN
NUMBER: CATWALK 006
SAFETY ALERT

PRODUCT: AUTOMATED CATWALKS **DATE:** Mar 20, 2008

SUBJECT: **TRANSFORMER POLE GUARD**

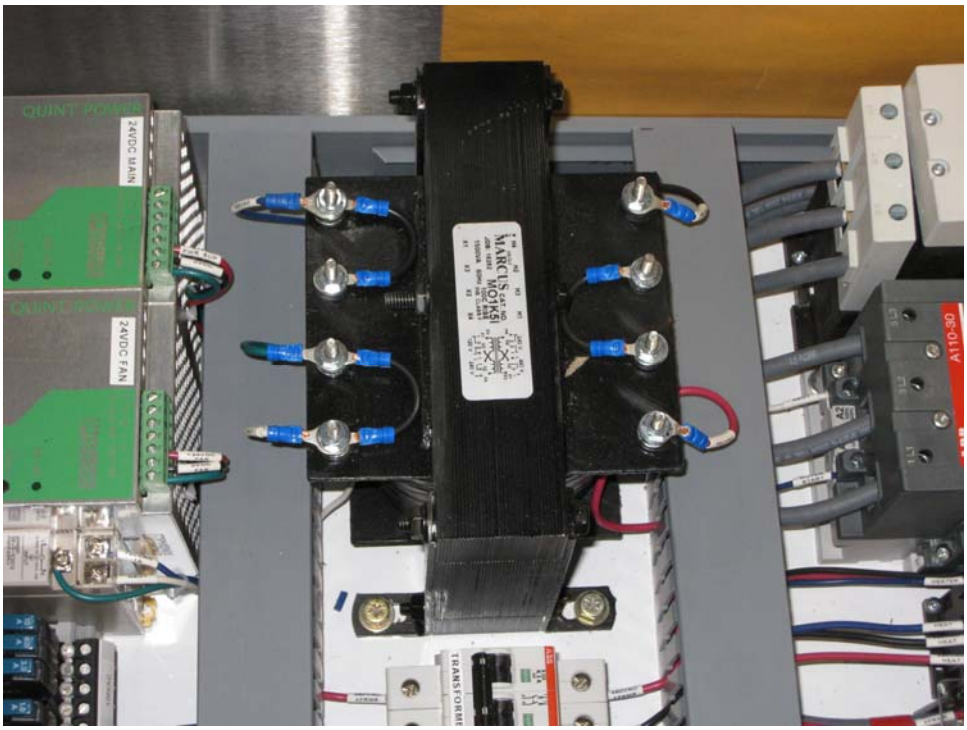
SERIAL NUMBERS: **ALL PC2000's, PC3000's, PC4000's, TM80 AND TM120 HPU's**

DISCUSSION: Service personnel are exposed to high voltage due to the exposed poles on the control transformer when opening the main PLC panels.

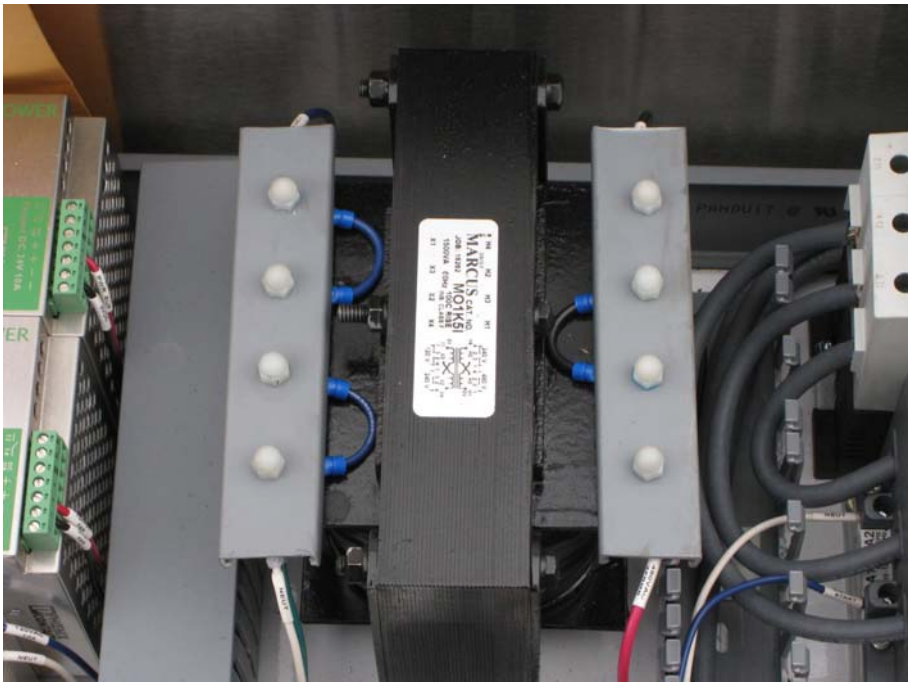
RECOMMENDATION:

Install kit number AY50485 which consists of a (2) guards and nylon acorn nuts to insulate anyone accessing the main PLC panel.

******CAUTION**** When installing the kit ensure power to the PLC panel is disconnected at the MCC.**



WITHOUT GUARD INSTALLED



WITH GUARD INSTALLED

To arrange for parts or installation, please contact your field service coordinator.

INFORMATION:

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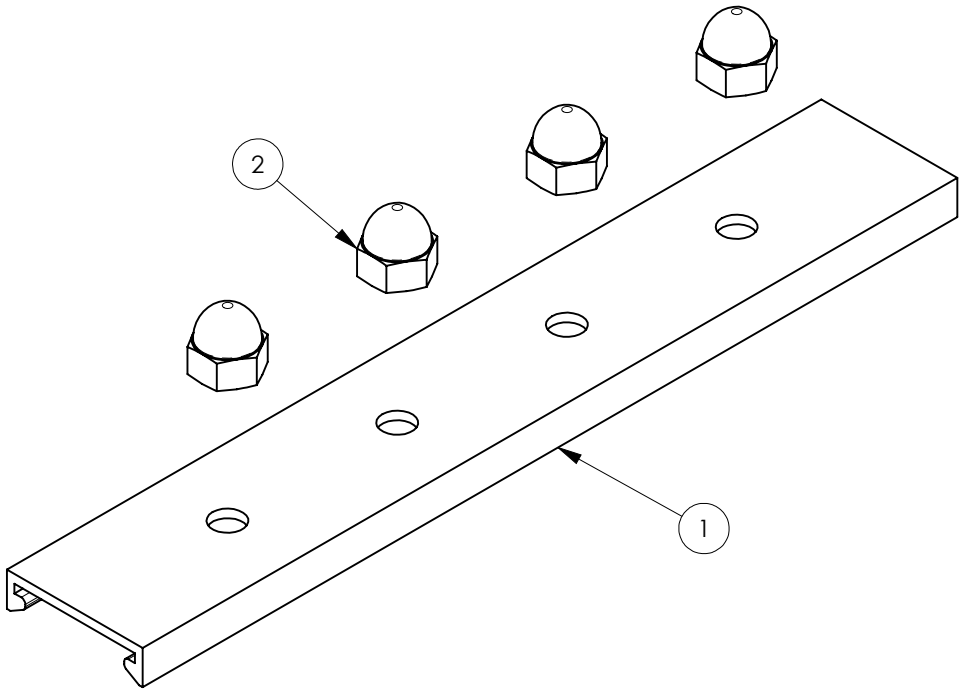

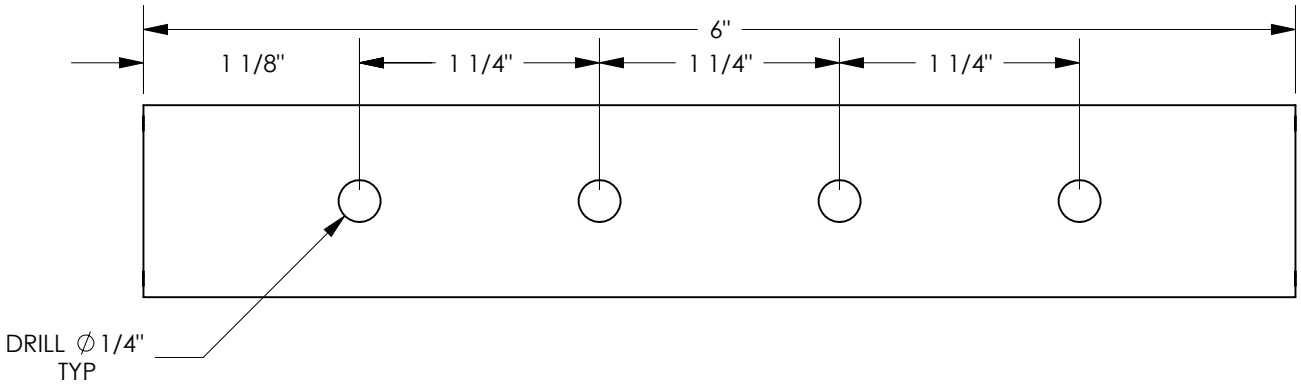

REV.	DESCRIPTION	DATE
REL-01	RFM	2/27/2008

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DATE CREATED: 26 February, 2008 11:31:06 AM

KIT, XFMR BOLT PROTECTION

SHEET 1 OF 1

PART NO: **AY50485** REV: **REL-01**

PRODUCT BULLETIN
NUMBER: CATWALK 007

PRODUCT: AUTOMATED CATWALKS **DATE:** March 5, 2008

SUBJECT: **PC4000 Series Power Catwalk Return Line Filter**

SERIAL NUMBERS: **PM4000-1021 through 1028**

DISCUSSION: Canrig's personnel had identified a return line filter housing that has been installed backwards on completed units in the commissioning yard. The filter will work properly up until it becomes clogged and the integral inline check will not allow the oil flow to bypass. The filter head will then crack and/or leak.

RECOMMENDATION:

Identify the return filter; positioning shown as Item 31 in the parts manual under 121100009M. *see picture LP Filter 1.*

Check the filter head orientation to make sure the "OUT" port is facing the hydraulic tank. If it is not installed correctly follow these steps:

1. Remove and cap the ends of the two hoses leading up to the filter.
2. Remove the filter assembly from the mounting bracket (PN H10547)
3. Remove the visual indicator (PN H10800) and electrical indicator (PN E13444)
4. Remove the filter bowl (PN H10797) and replace the element kit (PN AY50525). Reattach the bowl.
5. Install the visual indicator, orientated so it can be seen on the right side of the "OUT" port on the filter head (PN H10798). Install
6. mount the filter assembly back onto the bracket so the labeled "OUT" port is facing the hydraulic tank.
7. Reattach the hoses.

The Filter head shown in picture "LP Filter 2" shows the filter in backwards with the "OUT" port facing the front of the Catwalk **WHICH IS INCORRECT.**

LP FILTER #1

LP FILTER #2

INFORMATION:

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PRODUCT BULLETIN
NUMBER: CATWALK 008

PRODUCT: AUTOMATED CATWALKS **DATE:** Mar 24, 2008

SUBJECT: **Lift Arm**

SERIAL NUMBERS: **1001-1144**

DISCUSSION: The potential exists for the carrier to pivot around the ramp roller if a top drive is lowered to the point where the weight is transferred onto the front of the carrier. If not stopped in time the lift arm may come out of the pocket and possibly cause damage if the situation is not rectified properly.

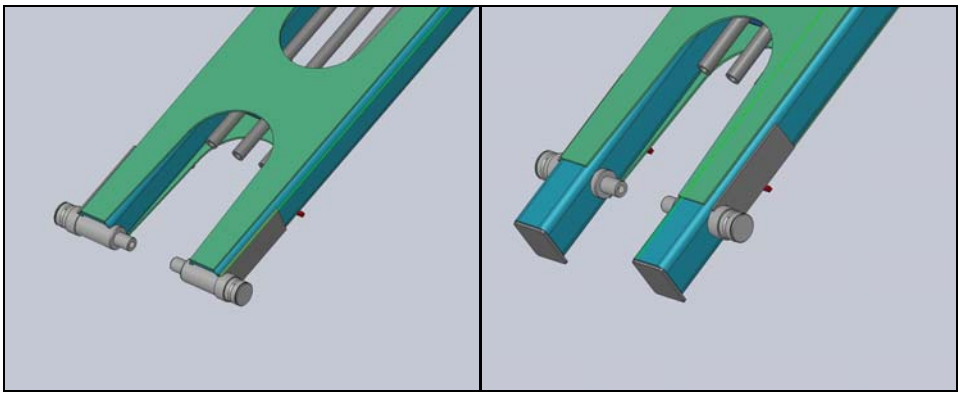
RECOMMENDATION:

A lift arm stopper kit has been developed to prevent the lift arm from coming out of the pocket due to improper loading of the carrier. In the event that the carrier is overloaded on the front the stopper prevents the lift arm from leaving the pocket as the carrier pivots about the ramp roller.

Parts required.
121100048 – Stopper, Lift Arm Assembly
131100985 – Stop Plate, Lift Arm DS Weldment
131100986 - Stop Plate, Lift Arm ODS Weldment

Dwg # 131100985/131100986 Field - Illustrates the field installation for the Stop Plates

This Stopper Kit is only necessary for lift arms illustrated below.



Kit Required Kit Not Required

INFORMATION:

*For a complete list of all bulletins go to **www.canrig.com***

For further information contact:

Field Service
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14703 FM 1488
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Fax: 281.259.8158

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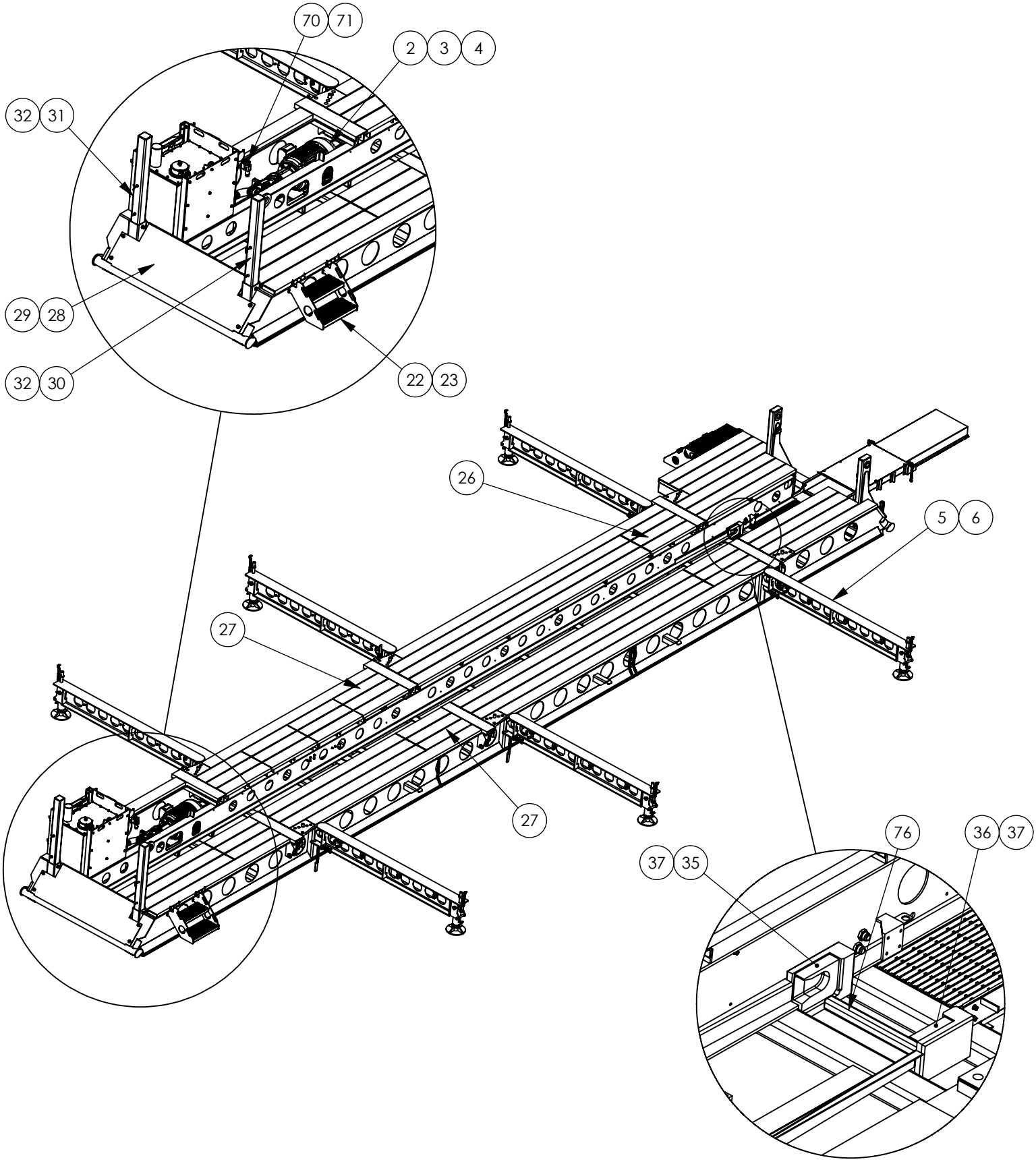
Calgary, AB T2C 4L6
Phone: 403.237.6400
Fax: 403.233.2667



NOTE:
ODS BEAMS HIDDEN FOR CLARITY

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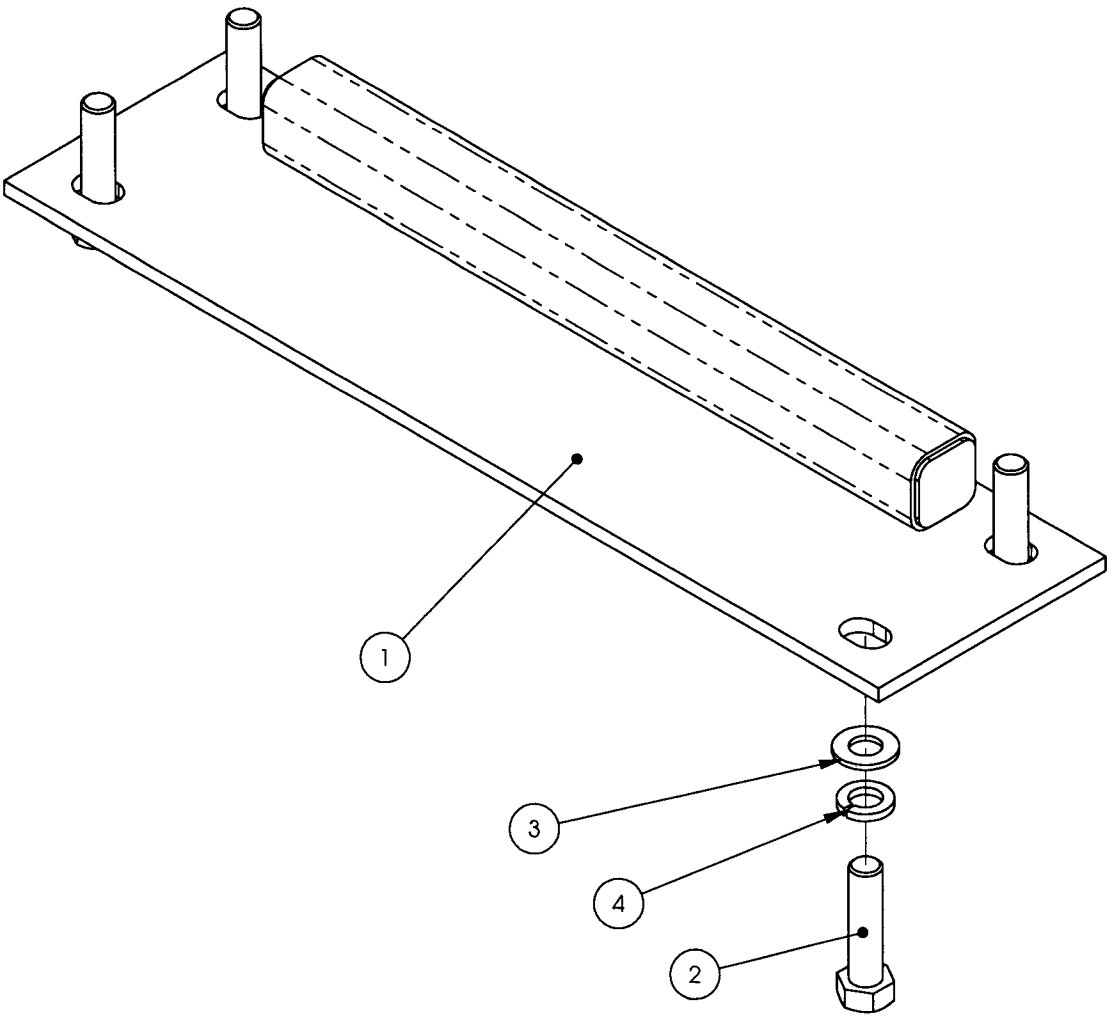
POCKETS FORWARD 26 INCH CATWALK

SHEET 2 OF 7

DATE CREATED: 20 August, 2007 4:42:17 PM

PART NO: 111100004

REV: A



REV.	DESCRIPTION	DATE
DEV-01	RFM	10/19/2007

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DATE CREATED: October 19, 2007 1:37:35 PM

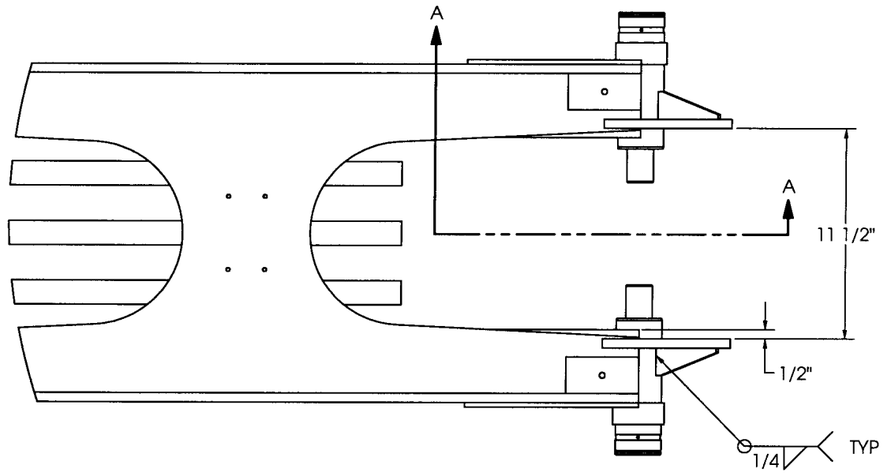
STOPPER, LIFT ARM ASSY

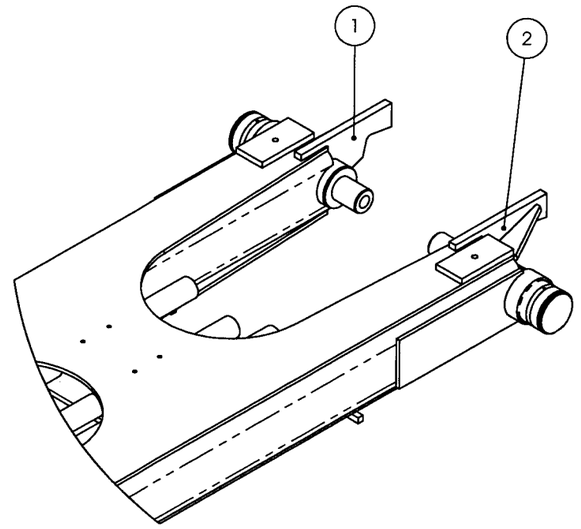
SHEET 1 OF 1

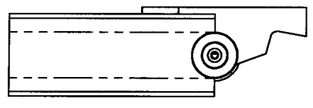
PART NO: 121100048 REV. DEV-01

CONFIDENTIAL

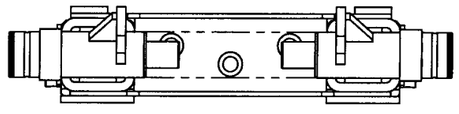
ITEM	PART NUMBER	REV	QTY/UNIT	TYPE	DESCRIPTION	MATERIAL	STOCK SIZE	LENGTH
1	131100985	DEV-01	1	WELDMENT	STOP PLATE, LIFT ARM DS WELDMENT	-	-	-
2	131100986	DEV-01	1	WELDMENT	STOP PLATE, LIFT ARM ODS WELDMENT	-	-	-







SECTION A-A



REV.	DESCRIPTION	DATE
DEV-01	RFM	10/19/2007

MANUFACTURING STANDARD NOTES:

1. BREAK ALL EDGES DE-BURR ALL PARTS
2. ALL THREADS TO BE CLASS 2A/2B UNLESS STATED OTHERWISE
3. CLEAN, DE-GREASE AND INDIVIDUALLY PACK EACH
4. FLAT PATTERNS ARE BASED ON A 0.50 K-FACTOR AND ARE REFERENCE ONLY
5. ALL WELDING CARRIED OUT TO THE REQUIREMENTS OF CWB-W59 (LATEST EDITION) OR DYNAMICALLY LOADED STRUCTURES.
6. ALL WELDING CARRIED OUT TO THE REQUIREMENTS OF CANRIG DOCUMENT, ENG704 AS SUPPLIED.

MANUFACTURING TOLERANCES

FABRICATING		MACHINING	
FRACTIONAL		DECIMAL	
0 TO 1"	± 1/32	X.X	± .030
1" TO 24"	± 1/16	X.XX	± .015
> 24"	± 1/8	X.XXX	± .005
DECIMAL		SURFACE FINISH	250
0 - 24"	± .03	BREAK EDGES	0.015
> 24"	± .06	ANGULAR	± 0.5°
ANGULAR	± 1°		

DO NOT SCALE
DIMENSIONS:
INCH/POUND/SECONDS
U.N.O.

THIRD ANGLE PROJECTION

DRAWN BY: Geoff Fletcher
CHECKED BY:
APPROVED BY:
SHEET SIZE: D
ISSUE DATE:
CREATED DATE: October 19, 2007 11:46:21 AM

APPROVED OCT 19 2007

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7475 51 Street SE
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Website: www.canrig.com
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LIFT ARM STOP PLATE FIELD WELD
SHEET 1 OF 1

DRAWING NO: 131100958 / 131100986 FIELD
REV: DEV-01

PRODUCT BULLETIN
NUMBER: CATWALK 009

PRODUCT: AUTOMATED CATWALKS **DATE:** June 26, 2008

SUBJECT: **PowerCat 4000 Kicker Rest**

SERIAL NUMBERS: **PM4000-1001 through PC4100-1030**

DISCUSSION: NDIL Algeria has discovered three units where the kicker rest has not been welded to required specifications. When lowering a drill pipe onto the Carrier, the Kicker Rest could break free allowing the Kicker to retract into the Carrier by up to an inch. This causes the drill pipe to get "caught-up" on the Carrier Kicker opening, causing erratic movement of the drill pipe while sliding down the carrier V-trough.

RECOMMENDATION:

Step 1 – All Kicker Rests need to be visually inspected to determine if all four seams of the Kicker Rest plate (Image 02) has 6mm of weld. The Kicker Rest can be found in the kicker opening (Image 03) of the Carrier, behind the Kicker head.

Extend or remove the Kicker (Image 01) so the visual inspection can be done.

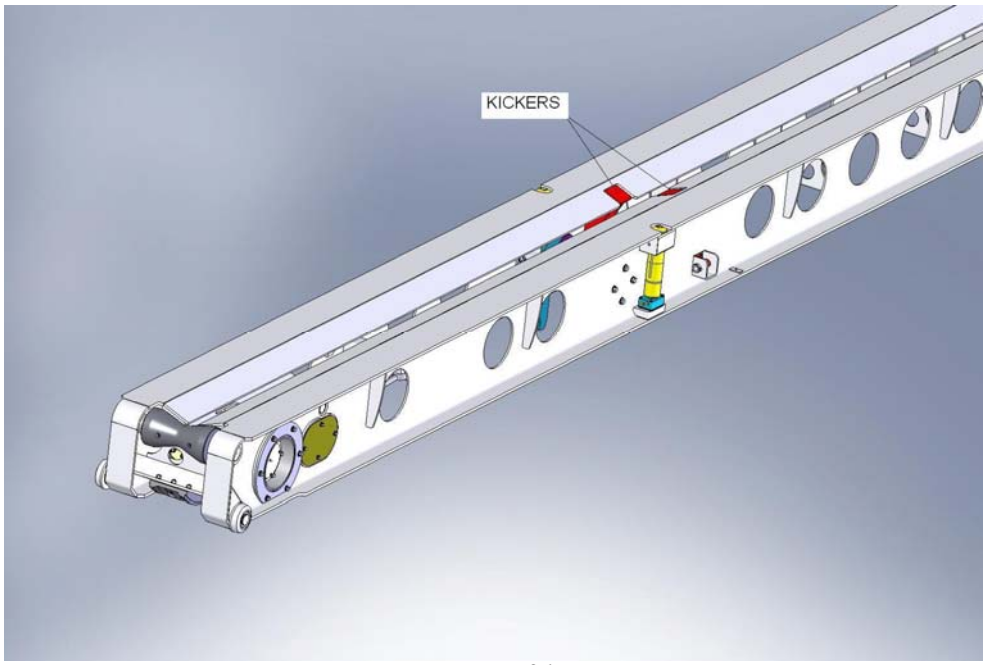

Image 01

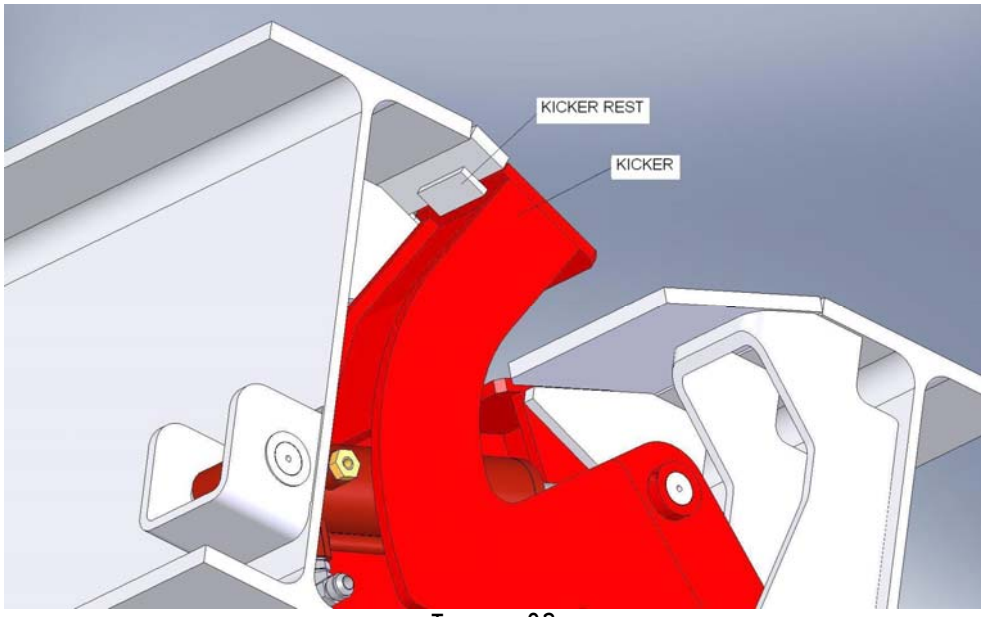

Image 02

Step 2 – If by looking or feeling under the lip, where the Kicker Rest(s) should be welded, you can determine that there is enough weld (6mm – ¼" all around), holding the Kicker Rest(s) on.

Step 3 – If there is enough weld, jump forward to 'Step 10 - New Operating Procedure'. If there is NOT enough weld remove the Kicker(s), and remove or fully cover all hydraulic hoses and components in the surrounding area(s) of the Kicker Rest(s), in preparation to be welded.

Step 4 – Using an angle grinder, gouge the front edge of the Carrier Kicker opening back 6mm to accommodate a 6mm bevel weld along the Kicker Rest front seam. This is required so the kicker head does not interfere with the weld when sitting on the Kicker Rest during regular operation of the Catwalk. (See Image 03)

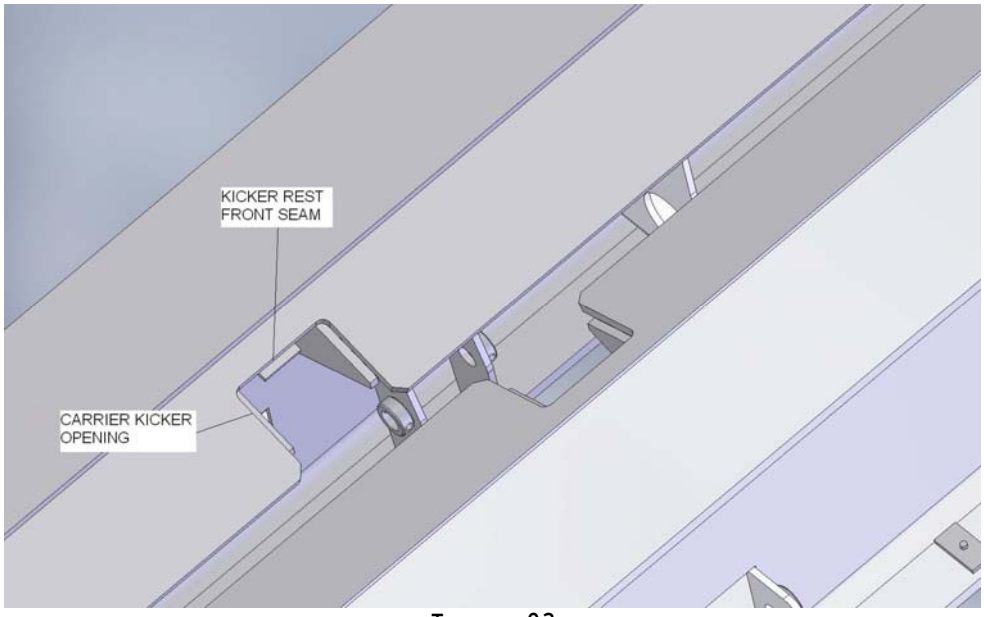

Image 03

Step 5 – Ensure power to the Catwalk is completely disconnected.

Step 6 – Ensure to follow proper grounding procedures for the welder, to eliminate the chance of arc welding machined components on Catwalk unit.

Step 7 – Apply a full penetration 6mm weld around the bottom three seams of the Kicker Rest and a 6mm bevel weld on the Kicker Rest front seam.

Step 8 – Reassemble the Carrier to its original state, as it was before Step 3.

Step 9 – Ensure the Kicker(s) sit on the Kicker Rest(s) properly. They should be flush with, or 1/16" lower (max.) than the Carrier V-trough.

Step 10 – As an additional step to reduce the chances of future issues with the front kickers during the tripping out process, we strongly suggest the use of the following procedure:

A. Run the Skate forward so it overlaps the front Kicker by 2 to 6".
B. Lower the drill pipe onto the Carrier and slide it back until the end of the drill pipe contacts the back of the skate.
C. Run the Skate back to the next pair of Kickers, overlapping the front Kicker of the middle pair.
D. Continue to lower the pipe onto the Carrier and repeat the above steps until the drill pipe is laying flat onto the Carrier.
E. Return to using the remaining standard procedures for tripping out.

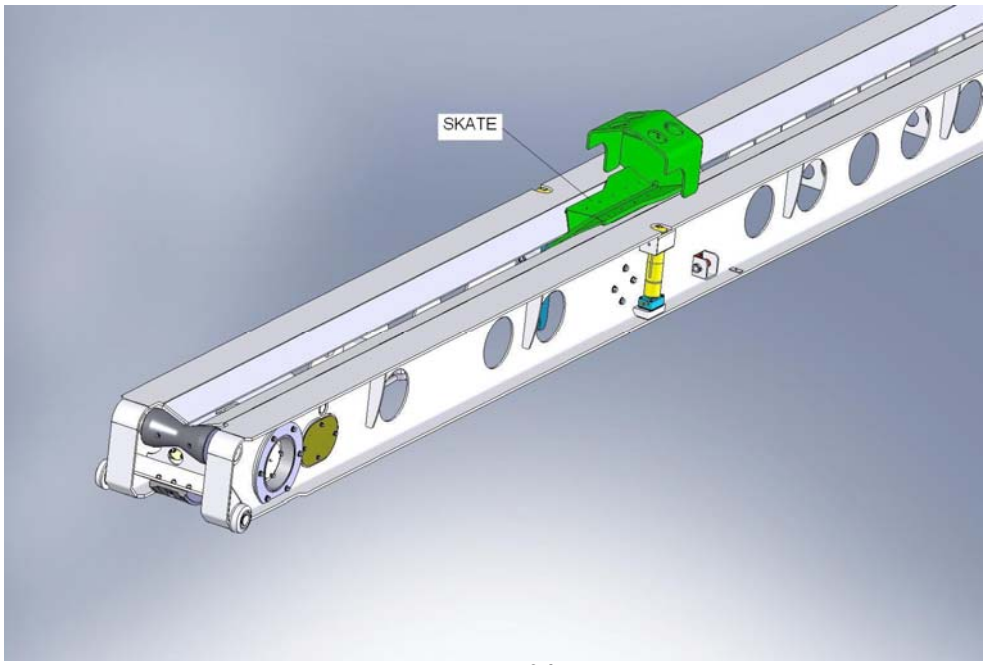

Image 04

INFORMATION:

*For a complete list of all bulletins go to **www.canrig.com***

For further information contact:

Field Service
Canrig Drilling Technology Ltd.

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CANRIG
DRILLING TECHNOLOGY LTD.

PRODUCT BULLETIN
NUMBER: CATWALK 010

PRODUCT: All PC3000 and PC4000 Series Automated Catwalks

DATE: 2/16/09

SUBJECT: **Cracks in Carrier Sides**

SERIAL NUMBERS: **All PC3000 and PC4000 Series**

DISCUSSION:

Canrig's customers and Canrig Field Service personnel have identified a problem with the carrier structure directly associated with improper operation of the catwalk when loading tubulars.

It was determined that the operators were using the kickers to cushion the pipes as they rolled into the carrier. Depending on the size, weight and the velocity of the pipe, this can quickly overstress the cylinder mount for the kicker.

RECOMMENDATION:

The ideal loading method is to activate the opposite side safety pins to act as a back stop. Then feather the indexers just enough so the pipe is rolling slowly towards the carrier. If done properly the pipe will roll into the trough without even touching the safety pins.

Also the practice of aligning the pipe by using the kickers to press the pipe against the safety pins must not be done forcefully.

Once the carrier is down and the operator wishes to kick the pipe off of the carrier, the skate must be moved to the rear so that the pipe will clear.

Care must be taken so that the skate is not in front of any of the kickers when they are operated.

Routine inspection of the carrier should be performed as you would with any equipment. These stress cracks are easily spotted when lubrication of the catwalk is done. Remedial training of the catwalk operators is recommended as well as a review of the proper operating procedure and cautions found in the operating manual.

If cracks are found notify Canrig immediately and a repair procedure will be provided. Repairs should be performed immediately when cracks first appear and personnel counseled in the proper operating techniques.

(See the attached photos)

INFORMATION:

*For a complete list of all bulletins go to **www.canrig.com***

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Fax: 403.233.2667

PRODUCT BULLETIN NUMBER: CATWALK 011

PRODUCT: AUTOMATED CATWALKS **DATE:** April 30, 2009

SUBJECT: **Cracks in Carrier Sides (reference bulletin # CATWALK 10)**

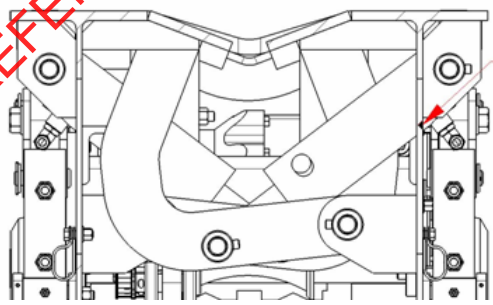
SERIAL NUMBERS: **PM3000-1001 to PM3000-1160 / 300158 to 300177**

DISCUSSION: There has been incidents of cracking in the Carrier W-Beam web which has been occurring at the kicker cylinder mount locations nearest to the lightening holes. This seems to be happening mostly when handling tubulars in excess of 6000 lbs.

RECOMMENDATION:

If cracks are present:

1. Remove paint a minimum of 1" in all directions around the crack on both sides of the Carrier beam web.
2. Perform a ¼" V-prep along the crack on the outside of the Carrier beam web. Ensure the weld prep extends ¼" beyond the end of the crack.
3. Perform MPI to ensure extent of V-prep is beyond crack.
4. Cautiously apply preheat until average temperature reaches 200 degrees F – **do not heat until red**.
5. Using an E7018 Low Hydrogen rod, perform a ¼" backing weld on the side opposite the V-prep.
6. Using an E7018 Low Hydrogen rod, weld the V-groove fully.
7. Allow to air cool; do not quench.
8. Perform additional MPI to ensure no cracks exist.



Once crack repair is complete / Or if cracks are not present:

-
- Install stiffener package AY50649 according to the instructions on the drawings.
- Ensure all bare metal is painted.

INFORMATION:

*For a complete list of all bulletins go to **www.canrig.com***

For further information contact:

Field Service
Canrig Drilling Technology Ltd.

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Magnolia, Texas 77354
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Calgary, AB T2C 4L6
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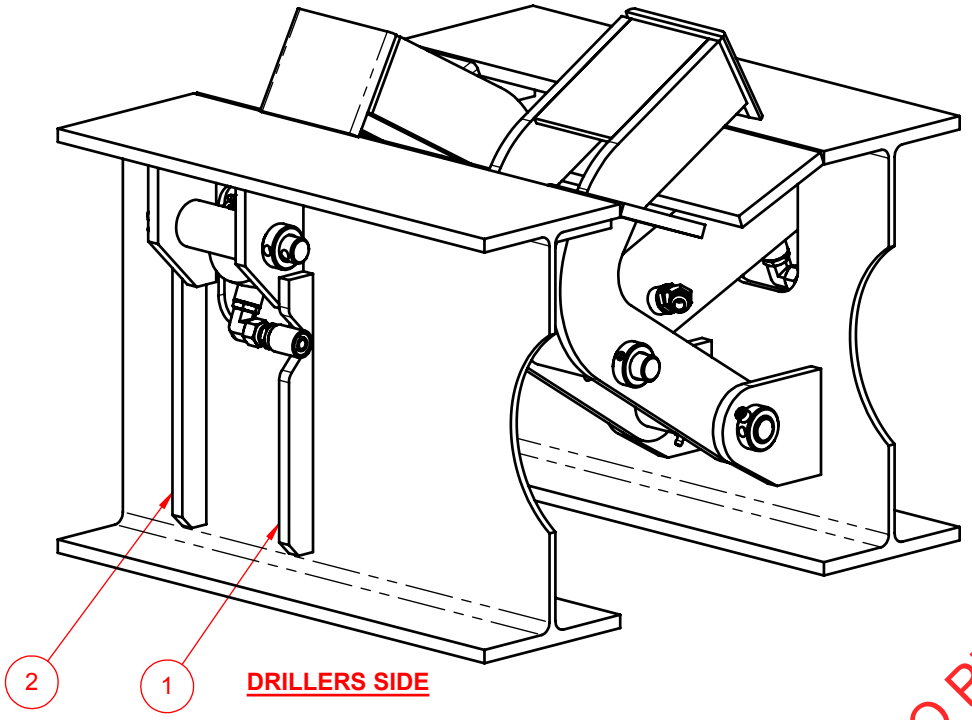
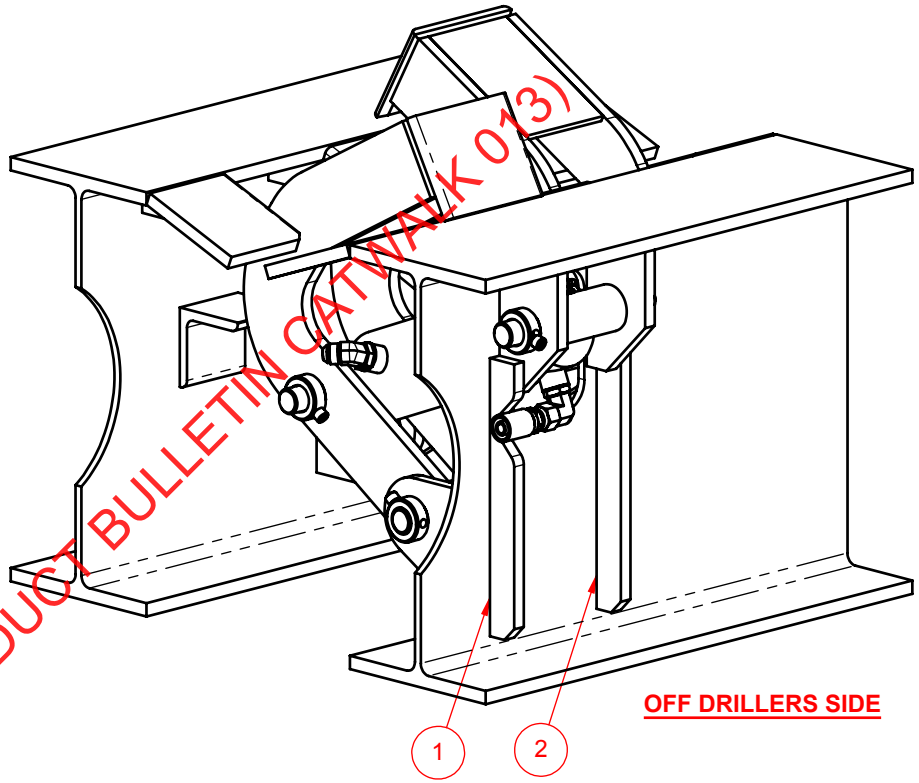


DRILLERS SIDE



OFF DRILLERS SIDE

NOTE:

1) THIS ILLUSTRATION IS A SIMPLIFIED REPRESENTATION OF THE PC3000 CARRIER AT THE MIDDLE KICKER CYLINDER LOCATIONS.

2) THE STIFFENING BARS SHOWN (ITEMS 1 & 2) ARE TO BE WELDED IN PLACE AS SHOWN AT ALL 6 KICKER CYLINDER LOCATIONS.

REV.	DESCRIPTION	DATE
A	RFM	15-Apr-2009

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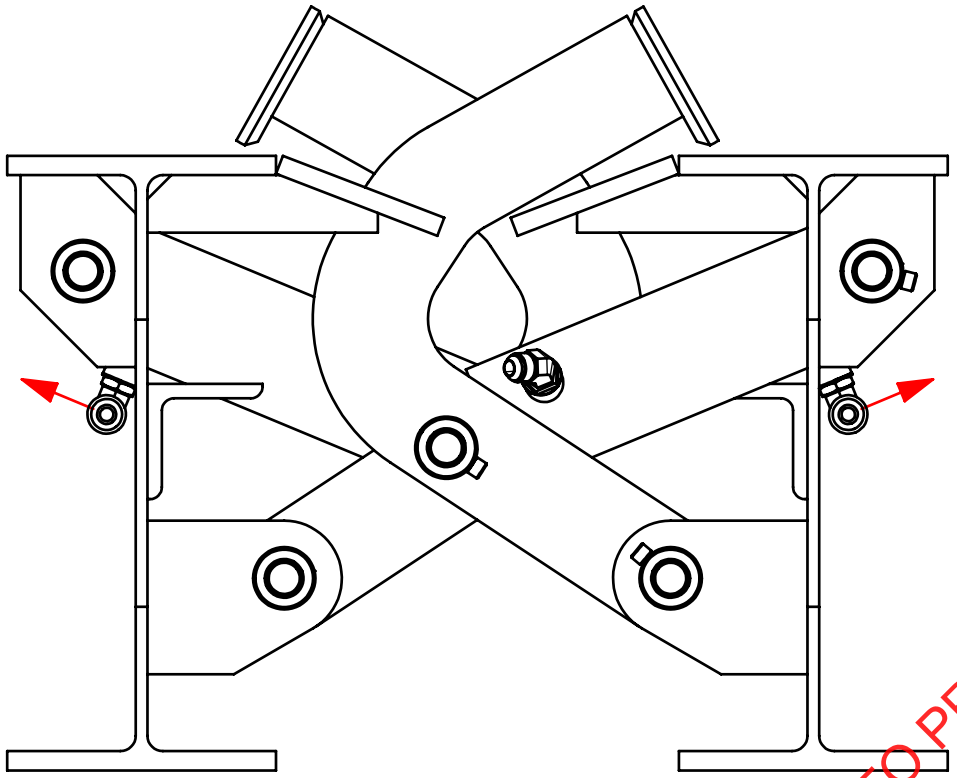
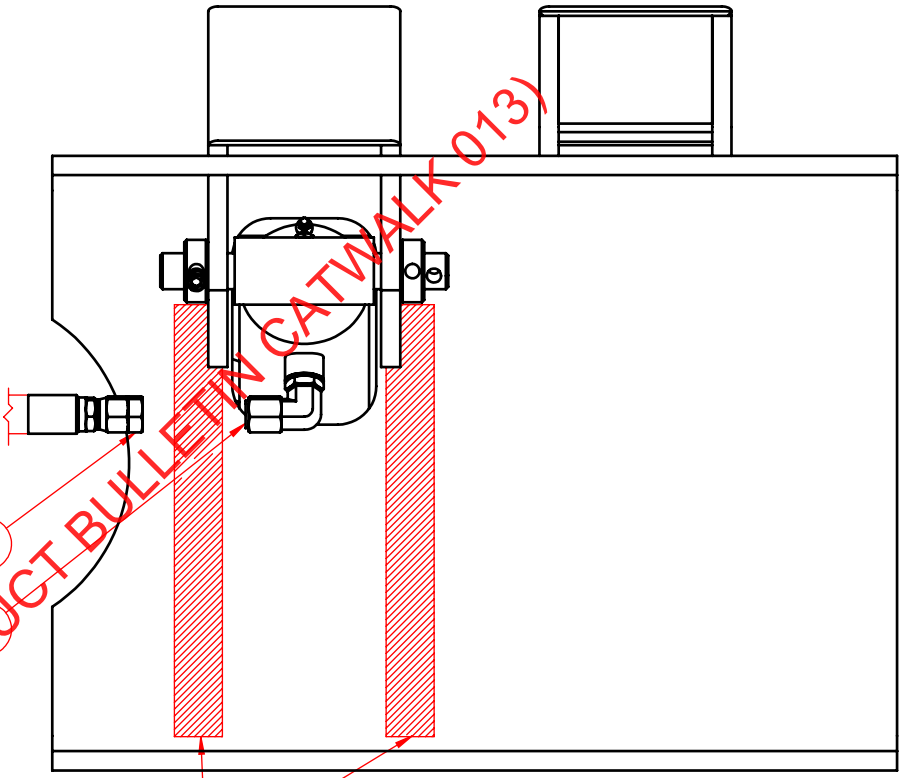
TITLE:

PC3000 CARRIER WEB STIFFENING RETRO-FIT

DRAWN BY:	DATE:	DRAWING NO:	SHEET:	REV:
TLK	15-Apr-2009	AY50649	1 OF 3	A





(OBSOLETE PLEASE REFER TO PRODUCT BULLETIN CATWALK 013)

PRE-WELD PREPARATION

1) REMOVE HOSE FITTING FROM CYLINDER

2) ROTATE CYLINDER FITTING SLIGHTLY (5°) IN THE DIRECTION DISPLAYED BY THE ARROWS.

3) PLUG THE HOSE FITTING WITH ITEM 4 AND CAP THE CYLINDER FITTING WITH ITEM 3 PRIOR TO ANY GRINDING.

4) GRIND OFF EXISTING PAINT AND EXISTING WELD (WHERE NECESSARY) AS ILLUSTRATED.

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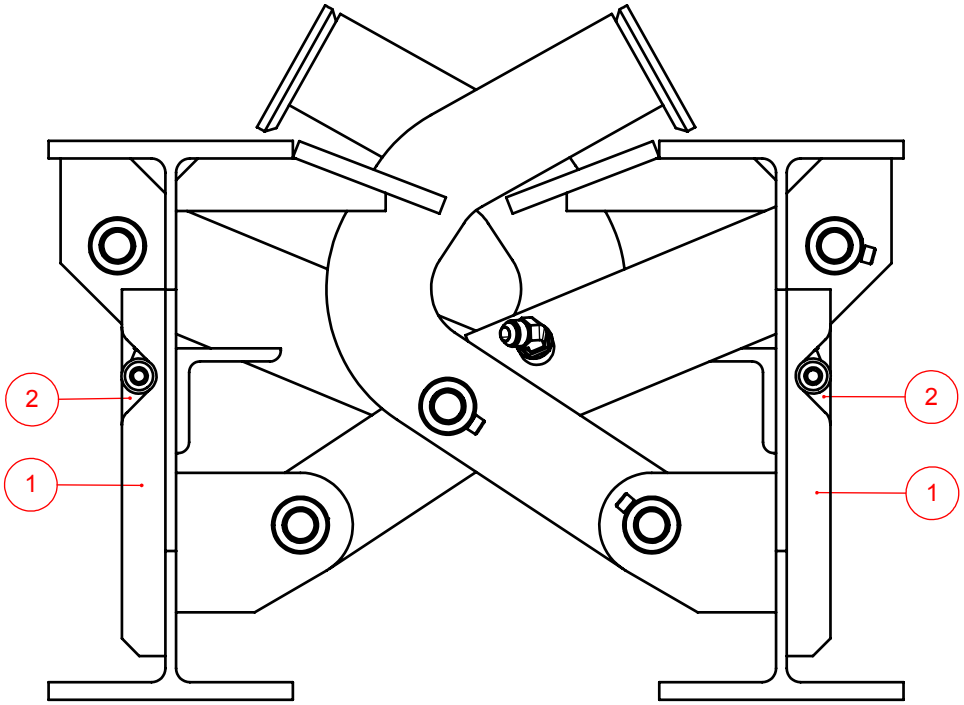
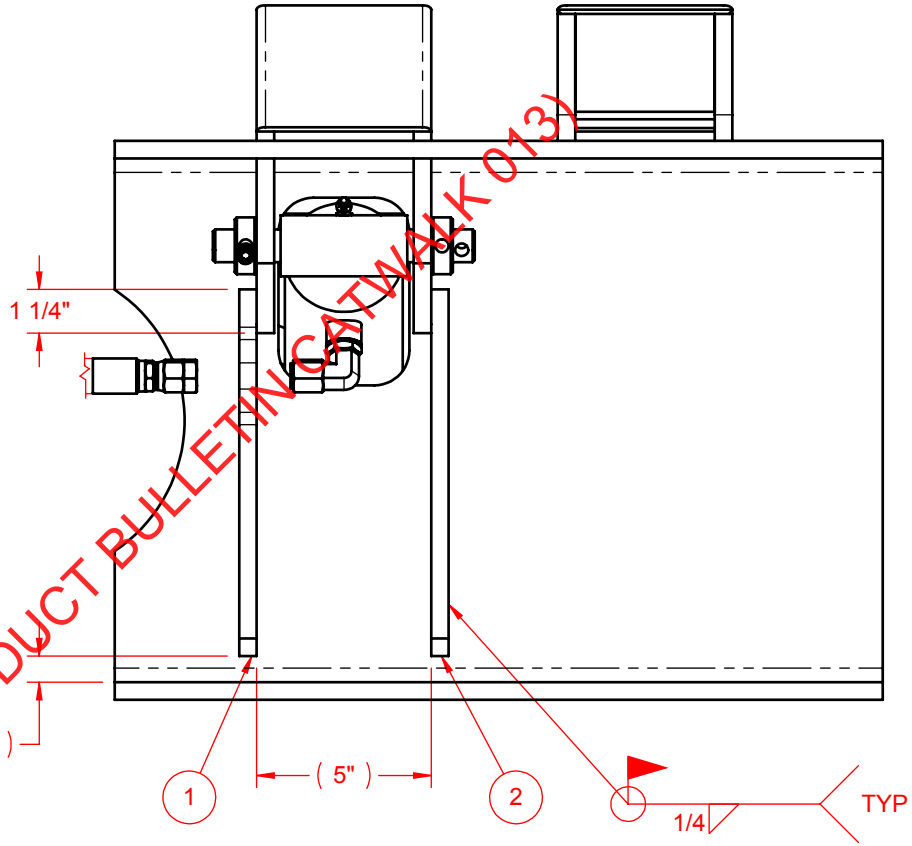
TITLE: **PC3000 CARRIER WEB STIFFENING RETRO-FIT**

DRAWN BY:	DATE:	DRAWING NO:	SHEET:	REV:
TLK	15-Apr-2009	AY50649	2 OF 3	A





NOTE:

1) ALL BARE METAL MUST BE PAINTED UPON COMPLETION OF WELDING.

2) KEEP HOSE PLUG AND CYLINDER FITTING CAP IN PLACE UNTIL WELDING AND PAINTING HAS BEEN COMPLETED.

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TITLE: **PC3000 CARRIER WEB STIFFENING RETRO-FIT**

DRAWN BY:	DATE:	DRAWING NO:	SHEET:	REV:
TLK	15-Apr-2009	AY50649	3 OF 3	A

PRODUCT BULLETIN NUMBER: CATWALK 012

PRODUCT: AUTOMATED CATWALKS **DATE:** May 11, 2009

SUBJECT: **PC3000 & PC4000 New Skate Options**

SERIAL NUMBERS: **All**

DISCUSSION:

In certain circumstances when laying down pipe, it may be necessary to use the skate to control the travel of the pipe. If not done properly, this could cause the pipe to come off sideways and be free from the carrier and fall uncontrolled.

Proper operation of the catwalk at all times will prevent equipment damage and reduce risk of injury. Please refer to Section 5 of the Operating manual for detailed instructions.

RECOMMENDATION:

Canrig has developed a new skate and cage for the PowerCAT 3000 and 4000 series. The new skate is designed to reduce the risk of a tubular being ejected from the carrier in the event the skate is being used to tail back pipe. It has side arms that protrude past the front of the skate to prevent pipe from coming off sideways in the event of the skate pushing the pipe sideways.
For tubulars up to 13-3/8" diameter, use the Assembly, Compact Skate, Reverse Vee Part Number 121300060.
A new skate cage has also been developed for running casing between 11-1/2" and 16-3/4". Assembly, 16-3/4" Skate Cage Part Number 121300074.

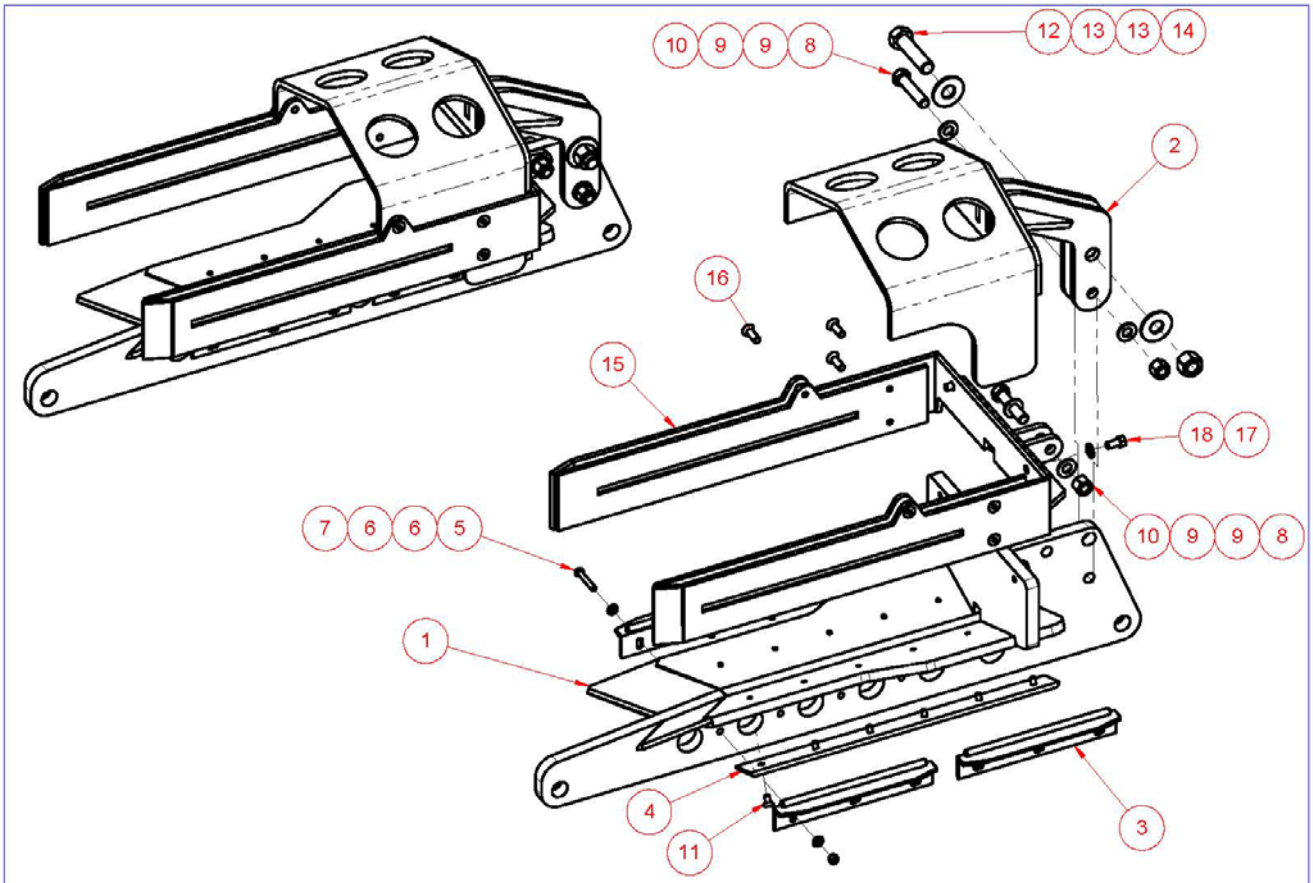
To purchase these components, please contact your Canrig Part Sales representative or your Field Service Coordinator.

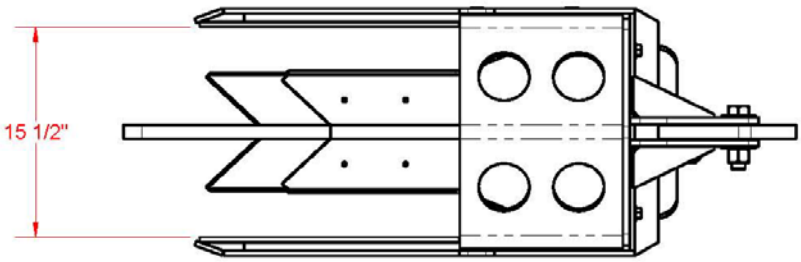
Engineering Bill of Material

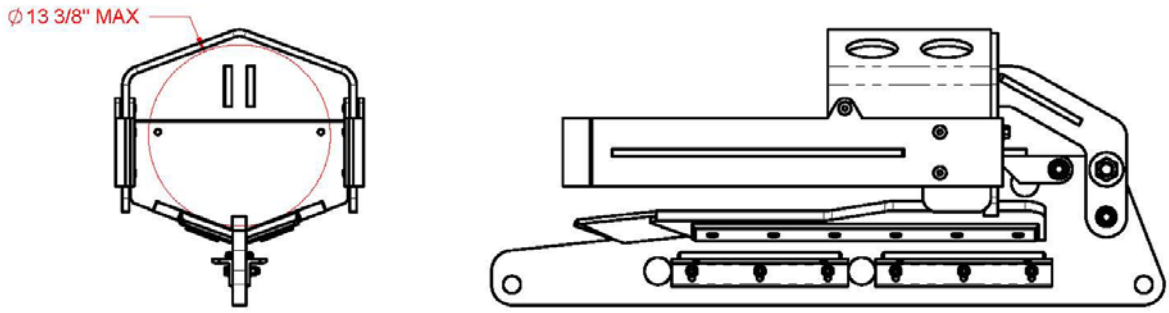
Part: 121300060
Description: ASSY,COMPACT SKATE,REVERSE VEE

Eng ID: 0
Drawing ID: 121300060 **Rev No:** 01

Item	Qty	Units	Part ID	Eng ID	Description
01	1.00	EA	131300006		WELDMENT,SKATE BODY,REVERSE VEE
02	1.00	EA	131100155		SKATE CAGE
03	4.00	EA	131100257		SKATE RETAINER
04	2.00	EA	141500004		SKATE SLIDER PLASTIC
05	6.00	EA	HH-0375NF-0225-GR8		CAPSCR, HEX HD HVY 3/8-24UNF x 2.25
06	12.00	EA	FW-0375-A		WASHER, F, 3/8, PLAIN, TYPE A
07	6.00	EA	LN-0375NF-NL-GR8		LOCKNUT, 3/8-18UNF, NYLOCK, GR8
08	2.00	EA	HH-0750NC-0350-GR8		CAPSCR, HEX HD, 3/4-10UNC x 3.50, GR8
09	4.00	EA	FW-0750-A		WASHER, F, 3/4, PLAIN, TYPE A
10	2.00	EA	LN-0750NC-NL-GR8		LOCKNUT, 3/4-10UNC, NYLOCK, GR8
11	12.00	EA	FH-0375NC-0075		CAPSCREW, FLAT HD, 3/8UNC x 0.75
12	1.00	EA	HH-1000NC-0400-GR8		CAPSCR, HEX HD, 1-8UNC x 4.00, GR8
13	2.00	EA	FW-1000-A		WASHER, F, 1, PLAIN, TYPE A
14	1.00	EA	LN-1000NC-NL-GR8		LOCKNUT, 1-8UNC, NYLOCK, GR8
15	1.00	EA	131300007		GUIDE,SKATE TUBE LEAD IN
16	6.00	EA	FH-0500NC-0150		CAPSCREW, FLAT HD, 1/2UNC x 1.50
17	2.00	EA	FW-0500-A		WASHER, F, 1/2, PLAIN, TYPE A
18	2.00	EA	HH-0500NC-0100-GR8		CAPSCR, HEX HD, 1/2-13UNC x 1.00, GR8







REV.	DESCRIPTION	DATE
01	ITEM 15 CHANGED.	11-May-2009
00	RFM	3/17/2009

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TITLE: **ASSEM, COMPACT SKATE, REVERSE VEE**

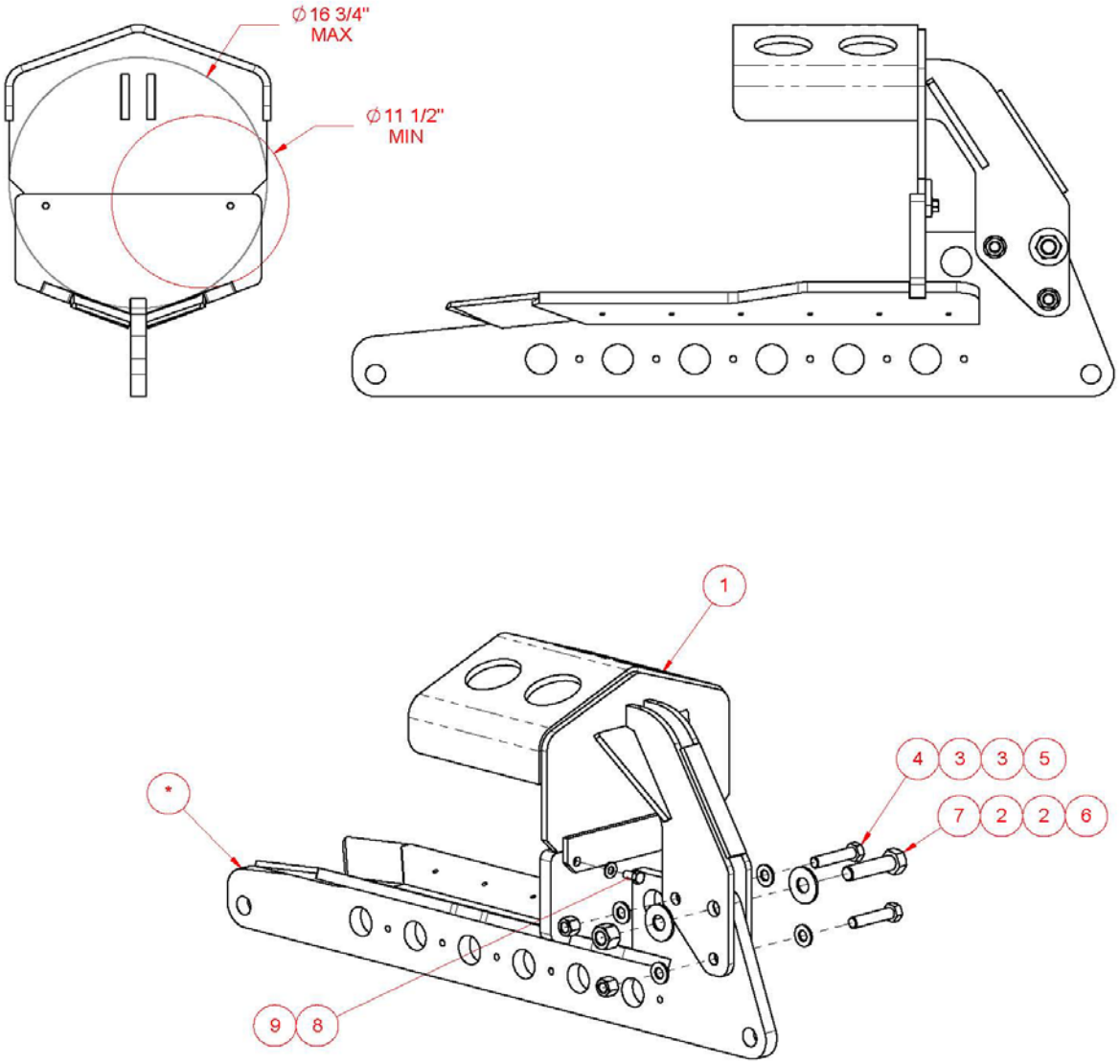
DRAWN BY:	DATE:	DRAWING NO:	SHEET:	REV:
BK	16-Mar-2009	121300060	1 OF 1	01

Engineering Bill of Material

Part: 121300074
Description: ASSY,16-3/4IN SKATE CAGE

Eng ID: 0
Drawing ID: 121300074 **Rev No:** 0

Item	Qty	Units	Part ID	Eng ID	Description
01	1.00	EA	131300008		WELDMENT,16-3/4IN SKATE CAGE
02	2.00	EA	FW-1000-A		WASHER, F, 1, PLAIN, TYPE A
03	4.00	EA	FW-0750-A		WASHER, F, 3/4, PLAIN, TYPE A
04	2.00	EA	HH-0750NC-0350-GR8		CAPSCR, HEX HD, 3/4-10UNC x 3.50, GR8
05	2.00	EA	LN-0750NC-NL-GR8		LOCKNUT, 3/4-10UNC, NYLOCK, GR8
06	1.00	EA	LN-1000NC-NL-GR8		LOCKNUT, 1-8UNC, NYLOCK, GR8
07	1.00	EA	HH-1000NC-0400-GR8		CAPSCR, HEX HD, 1-8UNC x 4.00, GR8
08	2.00	EA	HH-0500NC-0100-GR8		CAPSCR, HEX HD, 1/2-13UNC x 1.00, GR8
09	2.00	EA	FW-0500-A		WASHER, F, 1/2, PLAIN, TYPE A



* NOTE: SKATE ILLUSTRATED FOR ASSEMBLY PURPOSES ONLY

REV.	DESCRIPTION	DATE
00	RFM	4/21/2009

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TITLE: ASSEM, 16-3/4IN SKATE CAGE

DRAWN BY:	DATE:	DRAWING NO:	SHEET:	REV:
BK	4/21/2009	121300074	1 OF 1	00

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Fax: 403.536.4605

PRODUCT BULLETIN
NUMBER: CATWALK 013

PRODUCT: AUTOMATED CATWALKS **DATE:** May 26, 2009

SUBJECT: **Repair of Cracks in Carrier Sides (Reference PB Bulletin Catwalk 010 This Product Bulletin Supersedes Catwalk PB 011)**

SERIAL NUMBERS: **PM3000-1001 to PM3000-1160 / 300158 to 300177**

DISCUSSION:

There's been occurrences of cracking in the Carrier Beam web at the kicker cylinder mount locations nearest to the lightening holes. This seems to be happening mostly when handling tubulars in excess of 6000 lbs. Pictures below show examples of cracks on the "Off Driller Side" and Driller Side" of the Carrier Beam.

Figure 1- Example of cracks on the "Off Driller Side"

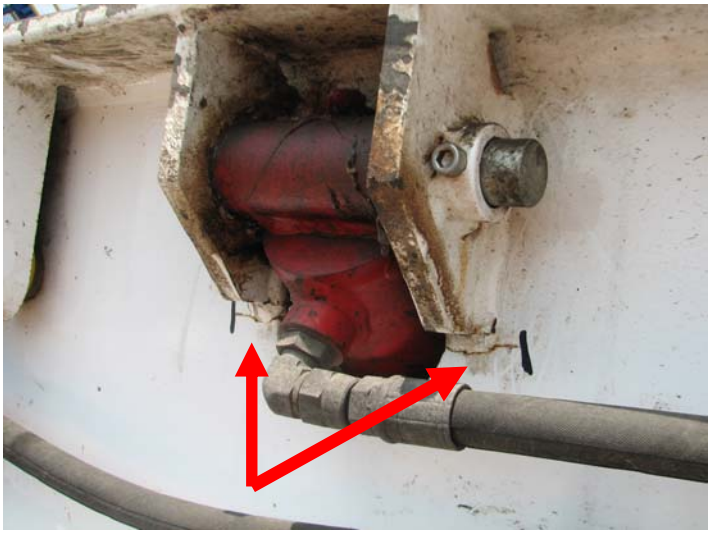


Figure 2 - Example of cracks on the "Driller Side"

RECOMMENDATION:

A. <u>Inspection Procedure if the cracks are not obvious:</u>

1. Remove paint from the areas where the cracks are expected to be as shown in the pictures of Figures 1 and 2.
2. Perform an NDE (MPI or Dye Penetrant Analysis) in the areas where the paint was removed to ensure there are no cracks present.
3. If cracks were found, proceed to Section B below to repair the cracks and install the Stiffener package AY50649.
4. If cracks were not found, proceed to section C to install the stiffener package AY50649-1.

B. <u>If cracks are present:</u>

1. Remove paint a minimum of 1” in all directions around the crack on both sides of the Carrier beam web.
2. Perform a ¼” V-prep along the crack on the outside of the Carrier beam web. Ensure the weld prep extends ¼” beyond the end of the crack.
3. Perform an NDE (MPI or Dye Penetrant Analysis) to ensure extent of V-prep is beyond crack.
4. Cautiously apply preheat, weld at temperature of 70 degrees Fahrenheit.
5. Using an E7018 Low Hydrogen rod, perform a ¼” backing weld on the side opposite the V-prep.
6. Using an E7018 Low Hydrogen rod, weld the V-groove fully.
7. Allow to air cool; do not quench.
8. Grind the weld flush with the Carrier beam web.
9. Install stiffener package AY50649 according to the instructions on the drawings. Drawings and bill of material are attached.
10. Ensure all bare metal is painted.

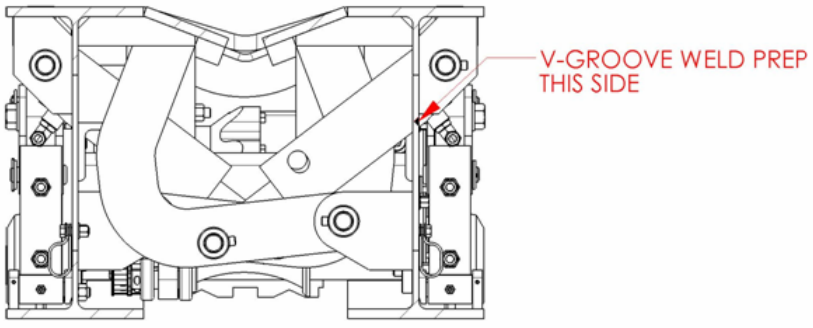


Figure 3 – V-Groove Weld prep

C. <u>If cracks are not present:</u>

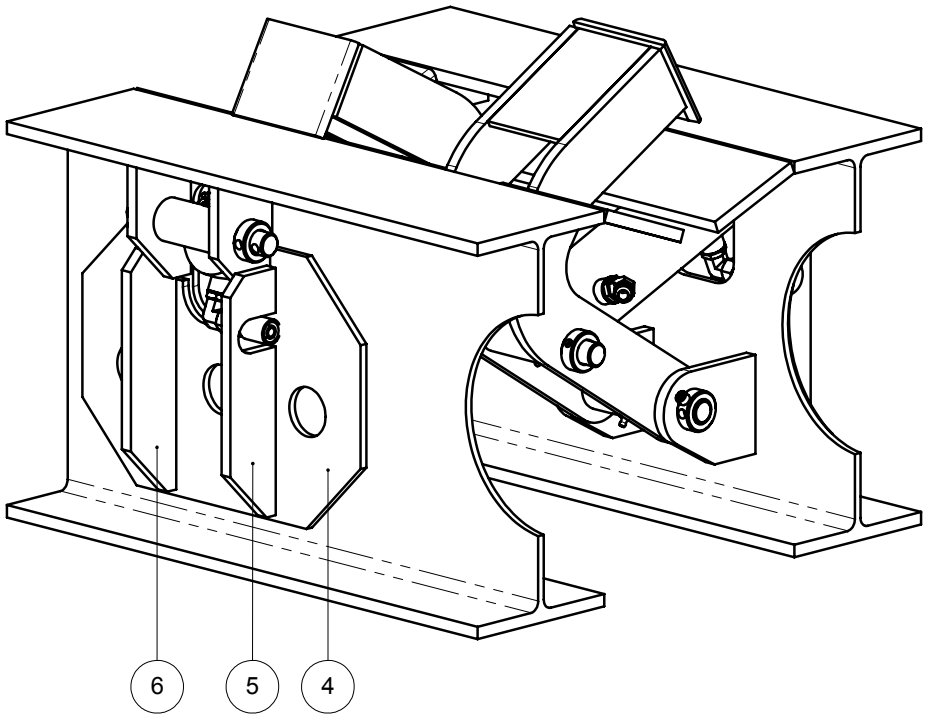
1. Install stiffener package AY50649-1 according to the instructions on the drawings. Drawings and bill of material are attached.
2. Ensure all bare metal is painted.

Engineering Bill of Material

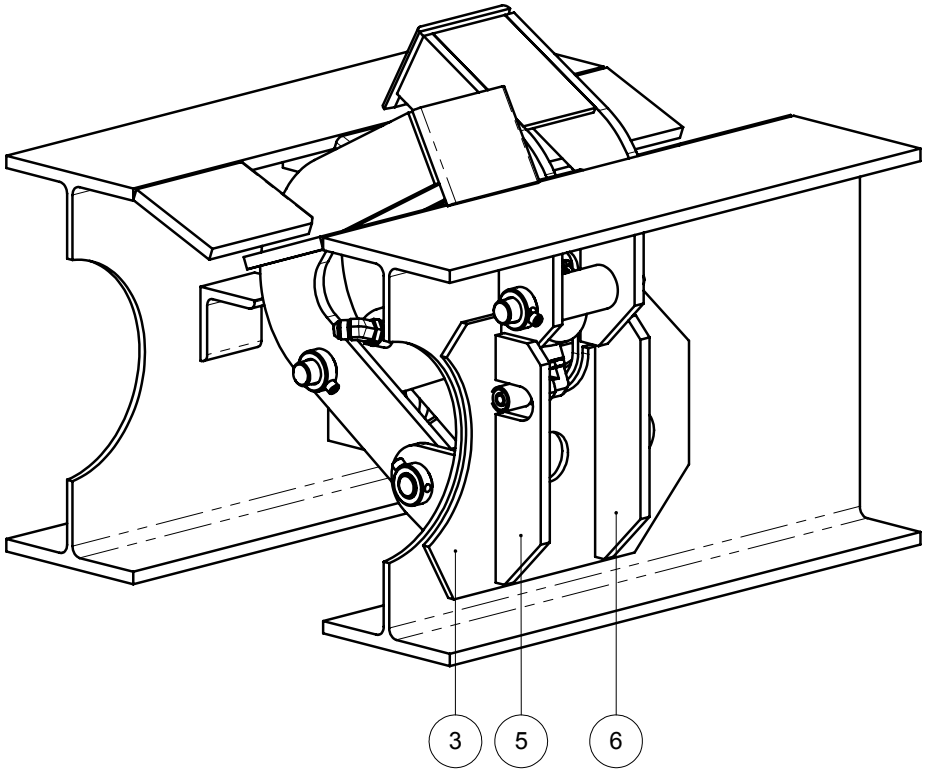
Part: AY50649
Description: PC3000 CARRIER WEB STIFFENING RETRO-FIT

Eng ID: 1
Drawing ID: AY50649 **Rev No:** D

Item	Qty	Units	Part ID	Eng ID	Description
01	6.00	EA	H15-070112-08		CAP, 1/2 JIC
02	6.00	EA	H15-090109A-08		PLUG, HEX HD, 1/2 ORB
03	3.00	EA	141102594		PLATE,ODS CARRIER KICKER FISH
04	3.00	EA	141102595		PLATE,DS, CARRIER KICKER FISH
05	6.00	EA	156100269		NOTCHED WEB STIFFENER,PC3000 CARRIER
06	6.00	EA	156100268		WEB STIFFERNER,PC3000 CARRIER



DRILLERS SIDE



OFF DRILLERS SIDE

NOTE:

1) THIS ILLUSTRATION IS A SIMPLIFIED REPRESENTATION OF THE PC3000 CARRIER AT THE MIDDLE KICKER CYLINDER LOCATIONS.

2) THE BALLOONED ITEMS ARE TO BE WELDED IN PLACE AS SHOWN AT ALL 6 KICKER CYLINDER LOCATIONS.

3) ITEMS 3 AND 4 ALIGN CONCENTRICALLY WITH THE EXISTING CUT-OUTS.

REV.	DESCRIPTION	DATE
D	ITEMS 3, 4, 5 AND 6 ARE NEW ADDITIONS, SEE ECN# CN1288.	22-May-2009
C	WELD SPECIFICATION NOTE ADDED, SEE ECN# CN1286.	20-May-2009
B	ITEM 1 AND 2 LENGTH CHANGE, SEE ECN# CN1284	06-May-2009

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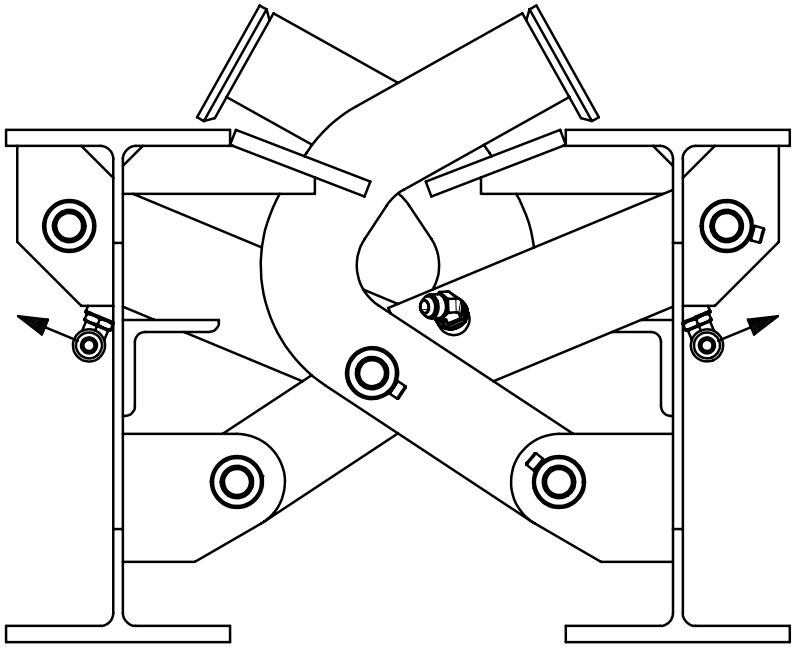
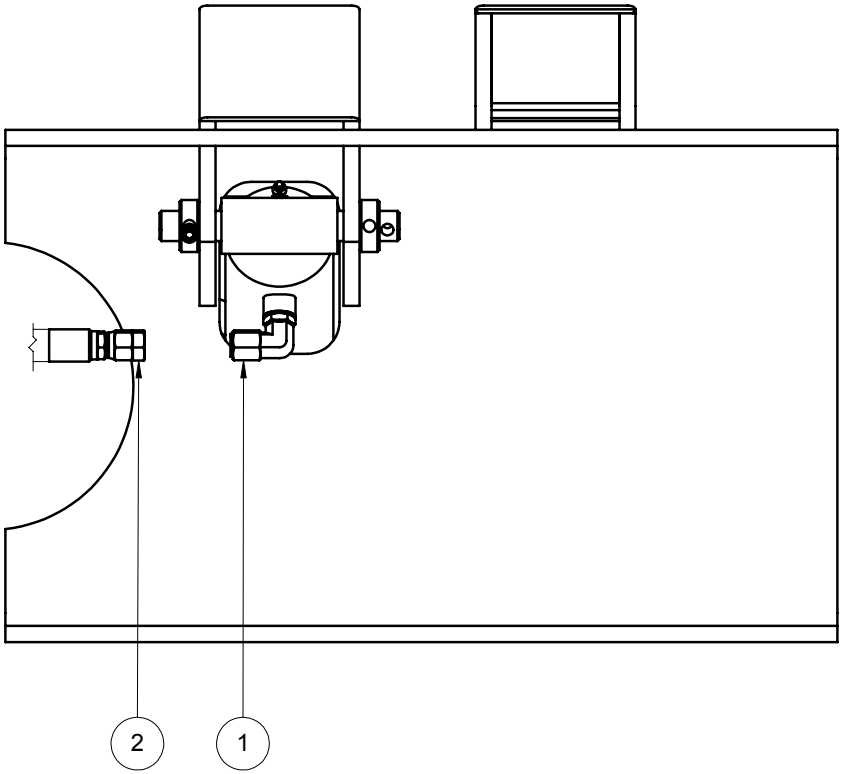
TITLE:

PC3000 CARRIER WEB STIFFENING RETRO-FIT

DRAWN BY:	DATE:	DRAWING NO:	SHEET:	REV:
TLK	15-Apr-2009	**AY50649**	1 OF 3	**D**





PRE-WELD PREPARATION

1) REMOVE HOSE FITTING FROM CYLINDER

2) ROTATE CYLINDER FITTING SLIGHTLY (5°) IN THE DIRECTION DISPLAYED BY THE ARROWS.

3) PLUG THE HOSE FITTING WITH ITEM 2 AND CAP THE CYLINDER FITTING WITH ITEM 1 PRIOR TO ANY GRINDING.

4) EXISTING PAINT AND WELDS MUST BE GROUND OFF AT ANY LOCATION WHERE NEW ITEMS ARE TO BE WELDED IN PLACE.

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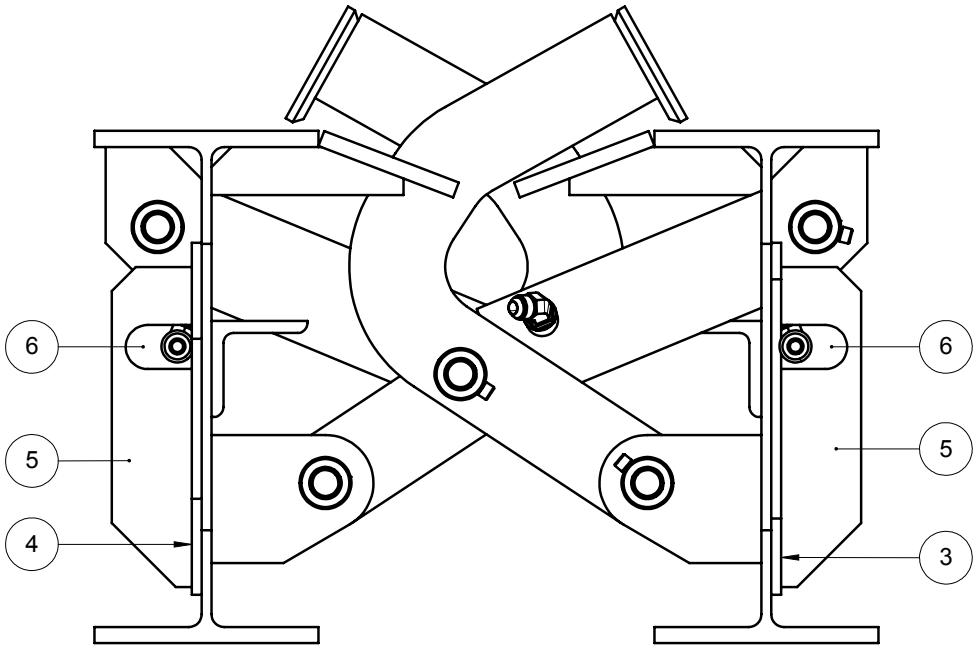
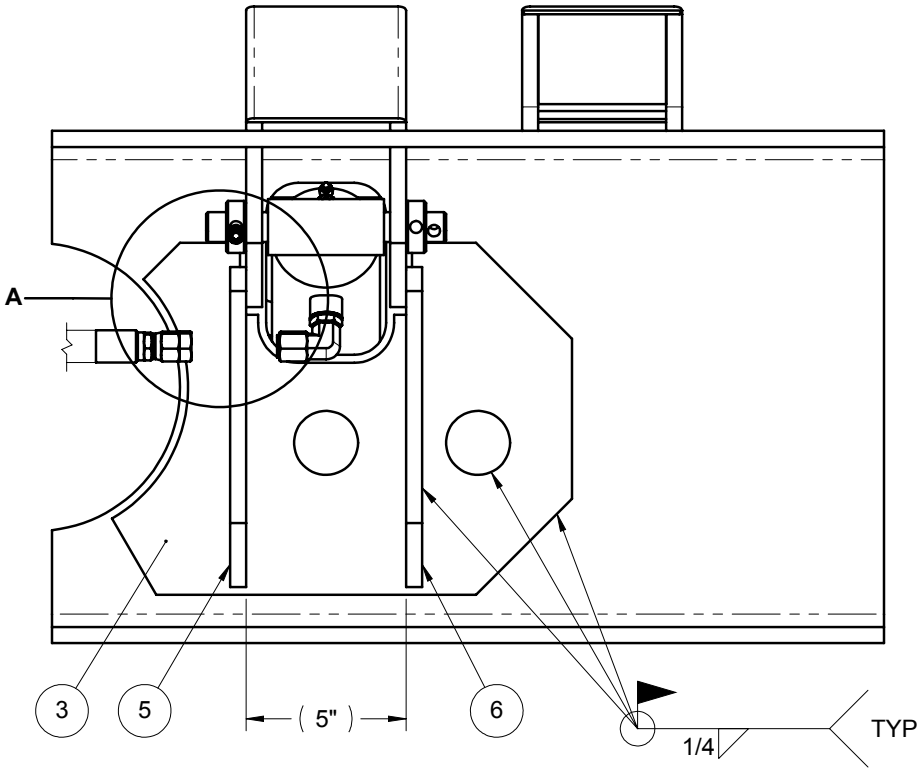
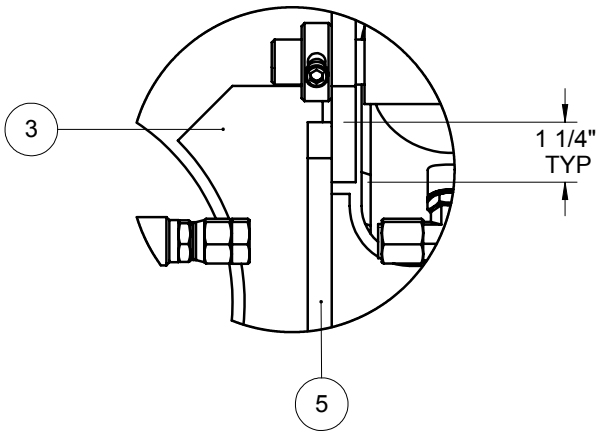
TITLE: **PC3000 CARRIER WEB STIFFENING RETRO-FIT**

DRAWN BY:	DATE:	DRAWING NO:	SHEET:	REV:
TLK	15-Apr-2009	**AY50649**	2 OF 3	**D**







DETAIL A

NOTE:

1) ALL WELDING CARRIED OUT TO THE REQUIREMENTS OF CWB-W59 (LATEST EDITION) OR DYNAMICALLY LOADED STRUCTURES. ALL WELDING CARRIED OUT TO THE REQUIREMENTS OF CANRIG DOCUMENT ENG704 AS SUPPLIED.

2) ITEMS 3 AND 4 ARE TO BE WELDED IN PLACE PRIOR TO WELDING ITEMS 5 AND 6 IN PLACE.

3) ALL BARE METAL MUST BE PAINTED UPON COMPLETION OF WELDING.

4) KEEP HOSE PLUG AND CYLINDER FITTING CAP IN PLACE UNTIL WELDING AND PAINTING HAS BEEN COMPLETED.

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TITLE: **PC3000 CARRIER WEB STIFFENING RETRO-FIT**

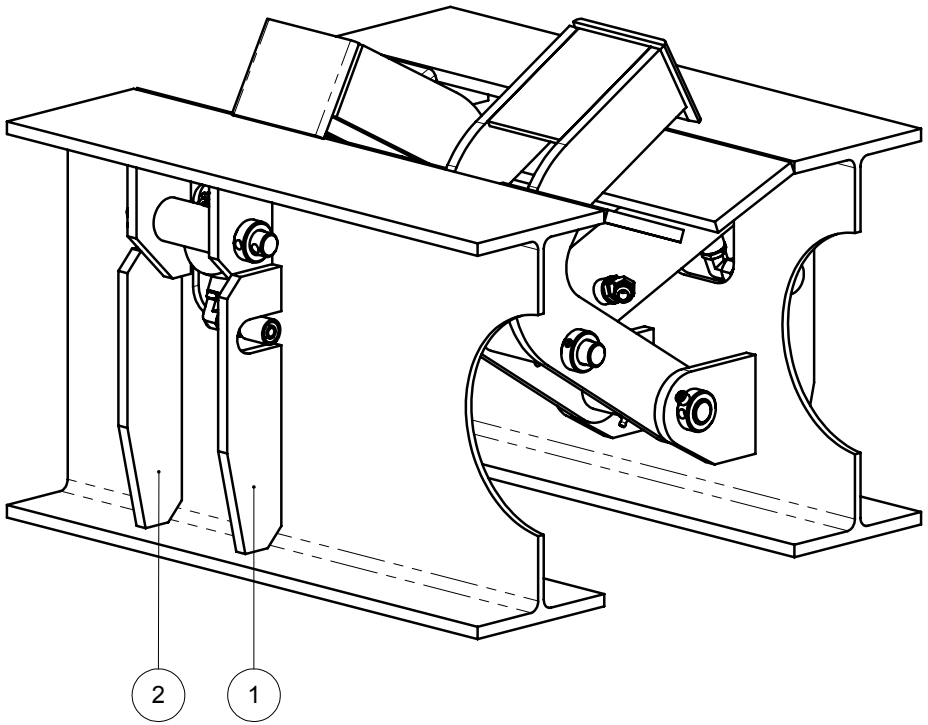
DRAWN BY:	DATE:	DRAWING NO:	SHEET:	REV:
TLK	15-Apr-2009	**AY50649**	3 OF 3	**D**

Engineering
Bill of Material

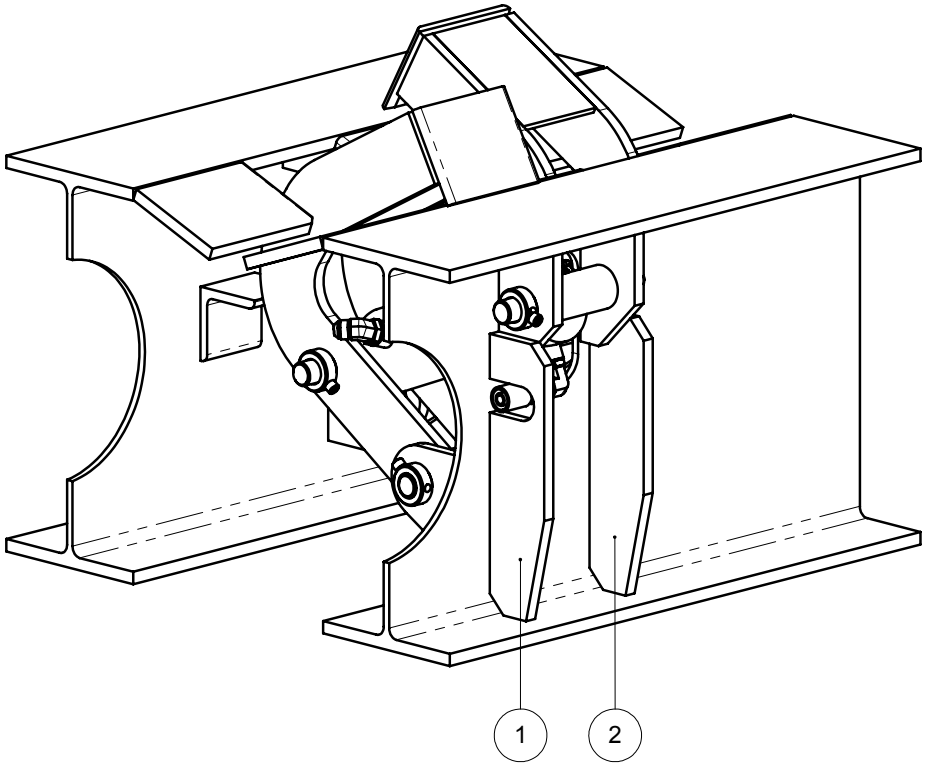
Part: AY50649-1
Description: PC3000 CARRIER WEB STIFFENING RETRO FIT2

Eng ID: 0
Drawing ID: AY50649-1 **Rev No:** A

Item	Qty	Units	Part ID	Eng ID	Description
01	6.00	EA	156100273		NOTCHED WEB STIFFENER #2,PC3000 CARRIER
02	6.00	EA	156100272		WEB STIFFENER #2, PC3000 CARRIER



DRILLERS SIDE



OFF DRILLERS SIDE

NOTE:

1) THIS ILLUSTRATION IS A SIMPLIFIED REPRESENTATION OF THE PC3000 CARRIER AT THE MIDDLE KICKER CYLINDER LOCATIONS.

2) THE BALLOONED ITEMS ARE TO BE WELDED IN PLACE AS SHOWN AT ALL 6 KICKER CYLINDER LOCATIONS.

REV.	DESCRIPTION	DATE
A	RFM	01-Jun-2009

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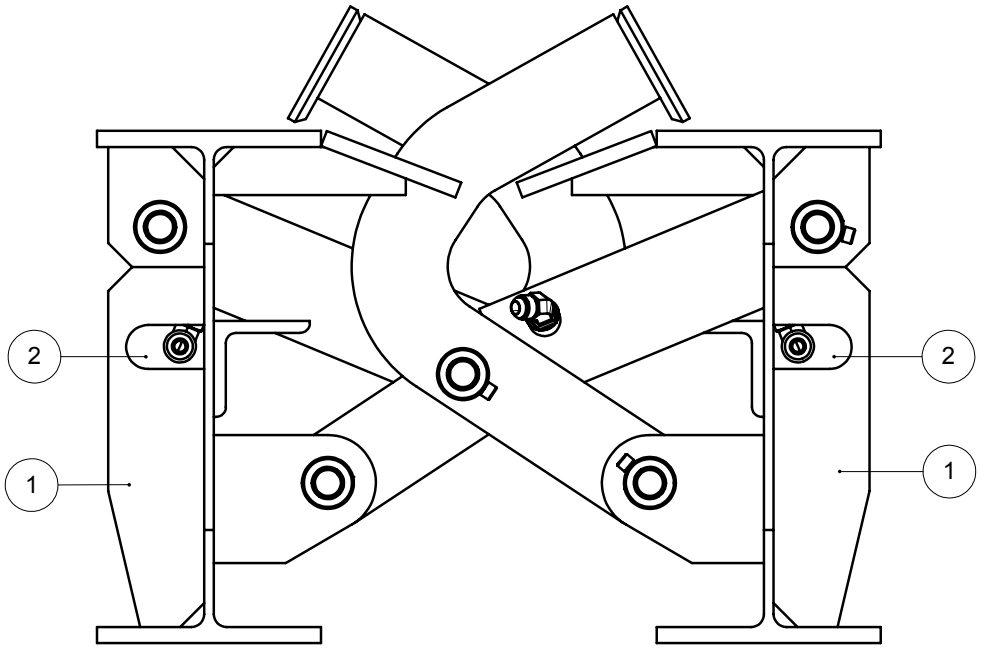
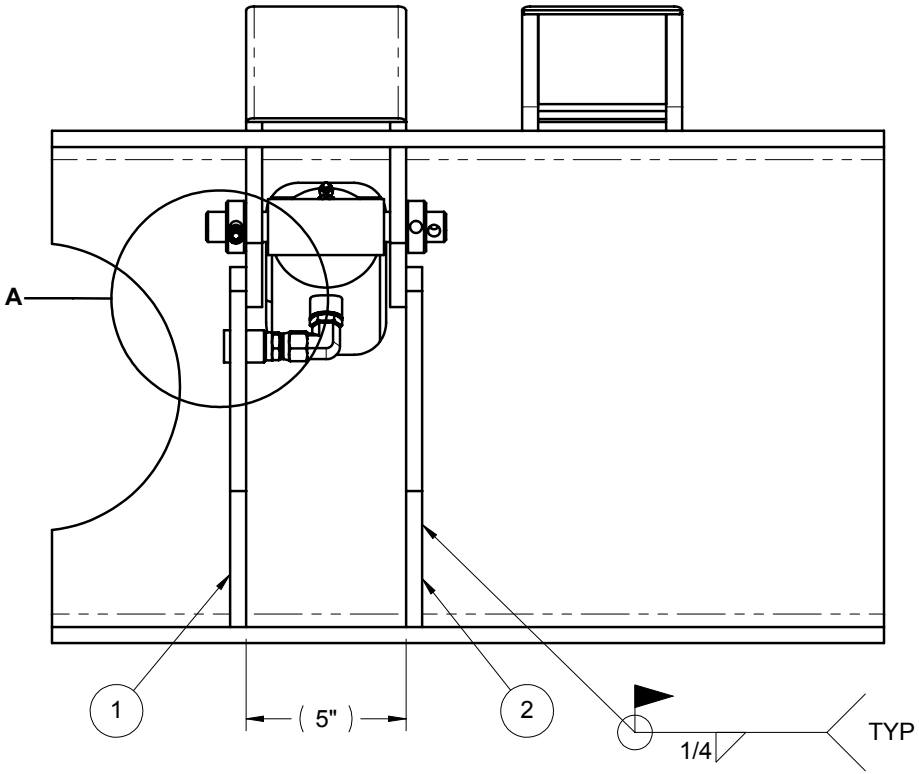
PC3000 CARRIER WEB STIFFENING RETRO-FIT 2

DRAWN BY:		DRAWING NO:		REV:
TLK	15-Apr-2009	**AY50649-1**		**A**





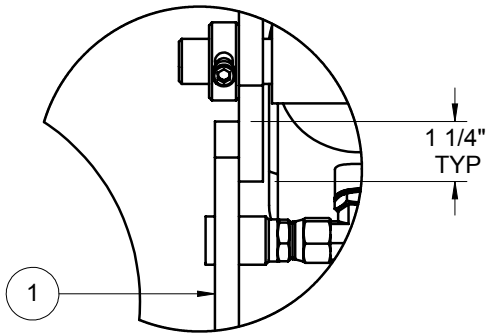
1) REMOVE THE HOSE FITTING FROM THE CYLINDER.

2) PLUG THE HOSE FITTING AND CAP THE CYLINDER FITTING. LEAVE THE PLUG AND CAP IN PLACE UNTIL FINAL PAINTING IS COMPLETE.

3) EXISTING PAINT AND WELDS MUST BE GROUND OFF AT THE LOCATIONS WHERE ITEMS 1 AND 2 ARE TO BE WELDED IN PLACE.

4) ALL WELDING CARRIED OUT TO THE REQUIREMENTS OF CWB-W59 (LATEST EDITION) OR DYNAMICALLY LOADED STRUCTURES. ALL WELDING CARRIED OUT TO THE REQUIREMENTS OF CANRIG DOCUMENT ENG704 AS SUPPLIED.

5) ALL BARE METAL MUST BE PAINTED UPON COMPLETION OF WELDING.



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PC3000 CARRIER WEB STIFFENING RETRO-FIT 2

DRAWN BY:		DRAWING NO:		REV:
TLK	15-Apr-2009	AY50649-1		A

INFORMATION: *For a complete list of all bulletins go to **www.canrig.com***

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PRODUCT BULLETIN
NUMBER: CATWALK 014

PRODUCT: AUTOMATED CATWALKS **DATE:** May 11, 2009

SUBJECT: **Longer Safety Pins for PC3000 Carrier**

SERIAL NUMBERS: **All**

DISCUSSION: Canrig has developed a longer safety pin for the PowerCAT 3000 series. The new configuration lengthens the safety pin to 9-3/4" from 5-1/4". This is designed to reduce the risk of a tubular being ejected from the carrier in the event the skate is being used to tail back pipe. Please note that this is not the recommended procedure for laying down pipe. Refer to the operating manual for the correct procedure.

Operation Note: With the new Safety Pin Kit (AY50643) installed, the maximum casing diameter is reduced from 20" to 18-3/4".

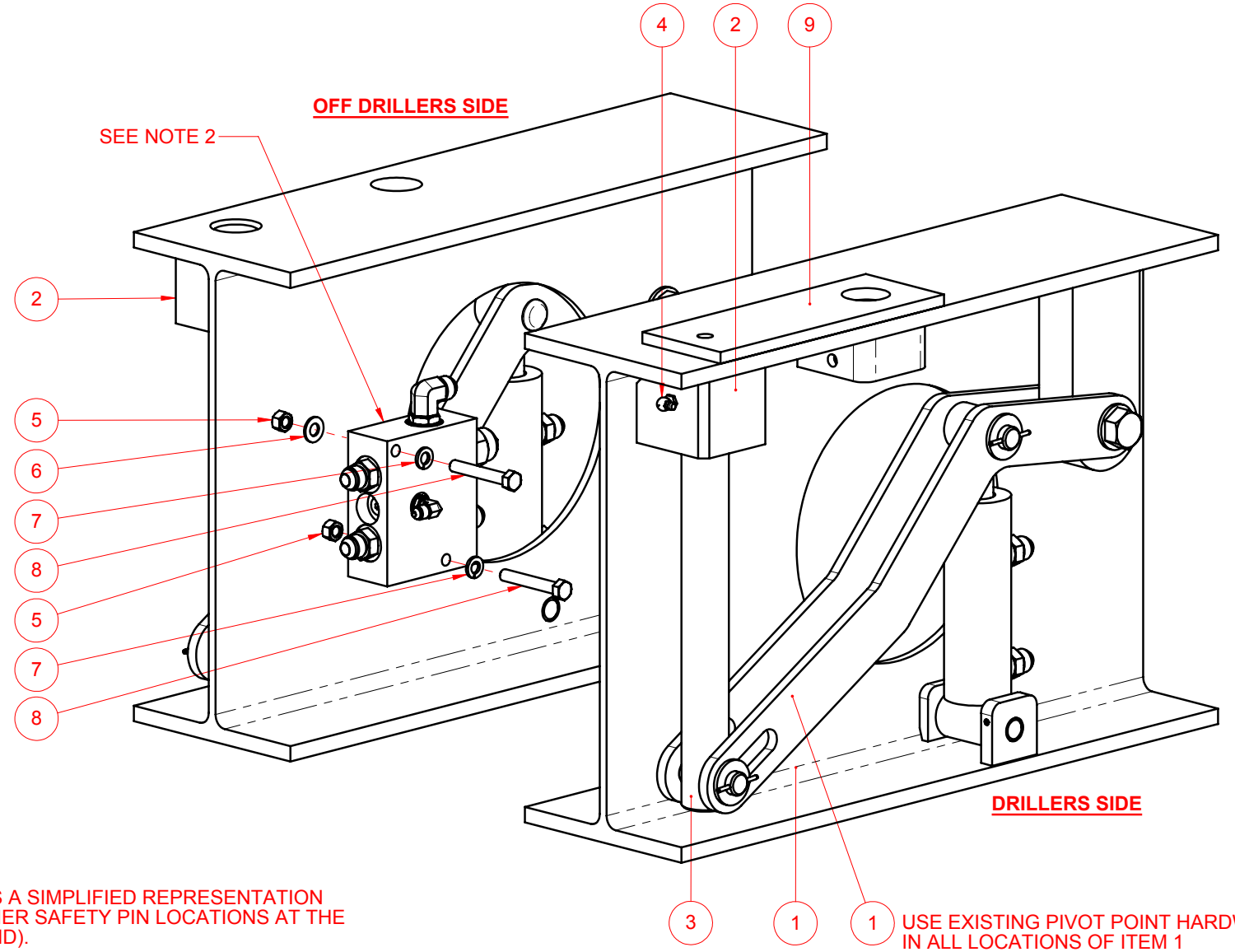
RECOMMENDATION: If deemed a necessary upgrade, contact Canrig to purchase the PC3000 Safety Pin Retro Fit kit (P/N AY50643). The kit includes the parts and instructions to upgrade the carrier to utilize the longer safety pins.

Engineering Bill of Material

Part: AY50643
Description: PC3000 SAFETY PIN RETRO FIT

Eng ID: 0
Drawing ID: AY50643 **Rev No:** 03

Item	Qty	Units	Part ID	Eng ID	Description
01	12.00	EA	141102537		ARM,LONG,SAFETY PIN
02	6.00	EA	156100257		BLOCK,GUIDE, LONG SAFETY PIN
03	6.00	EA	156100259		PIN,SAFETY, LONG
04	6.00	EA	M10668		GREASE NIPPLE, 1/8 NPT, 90°
06	2.00	EA	HN-0375NC-GR8		HEX NUT, 3/8-16UNC GR8
07	2.00	EA	FW-0375-A		WASHER, F, 3/8, PLAIN, TYPE A
08	2.00	EA	LW-0375-HS		LOCKWASHER, 3/8 HELICAL SPRING
09	2.00	EA	HH-0375NC-0250-GR8		CAPSCR, HEX HD, 3/8-16UNC x 2.50, GR8
10	1.00	EA	156100260		JIG,DRILL,SAFETY PIN



NOTE:

1) THIS ILLUSTRATION IS A SIMPLIFIED REPRESENTATION OF THE PC3000 CARRIER SAFETY PIN LOCATIONS AT THE FRONT END (RAMP END).

2) THE REVISED MANIFOLD MOUNTING OCCURS IN ONLY ONE INSTANCE (CLOSEST TO THE FRONT END).

REV.	DESCRIPTION	DATE
03		20-May-2009
02	ITEM 1 AND ITEM 2 GEOMETRY CHANGED, ADDED PAINT NOTE.	06-May-2009
01	RFM	16-Mar-2009

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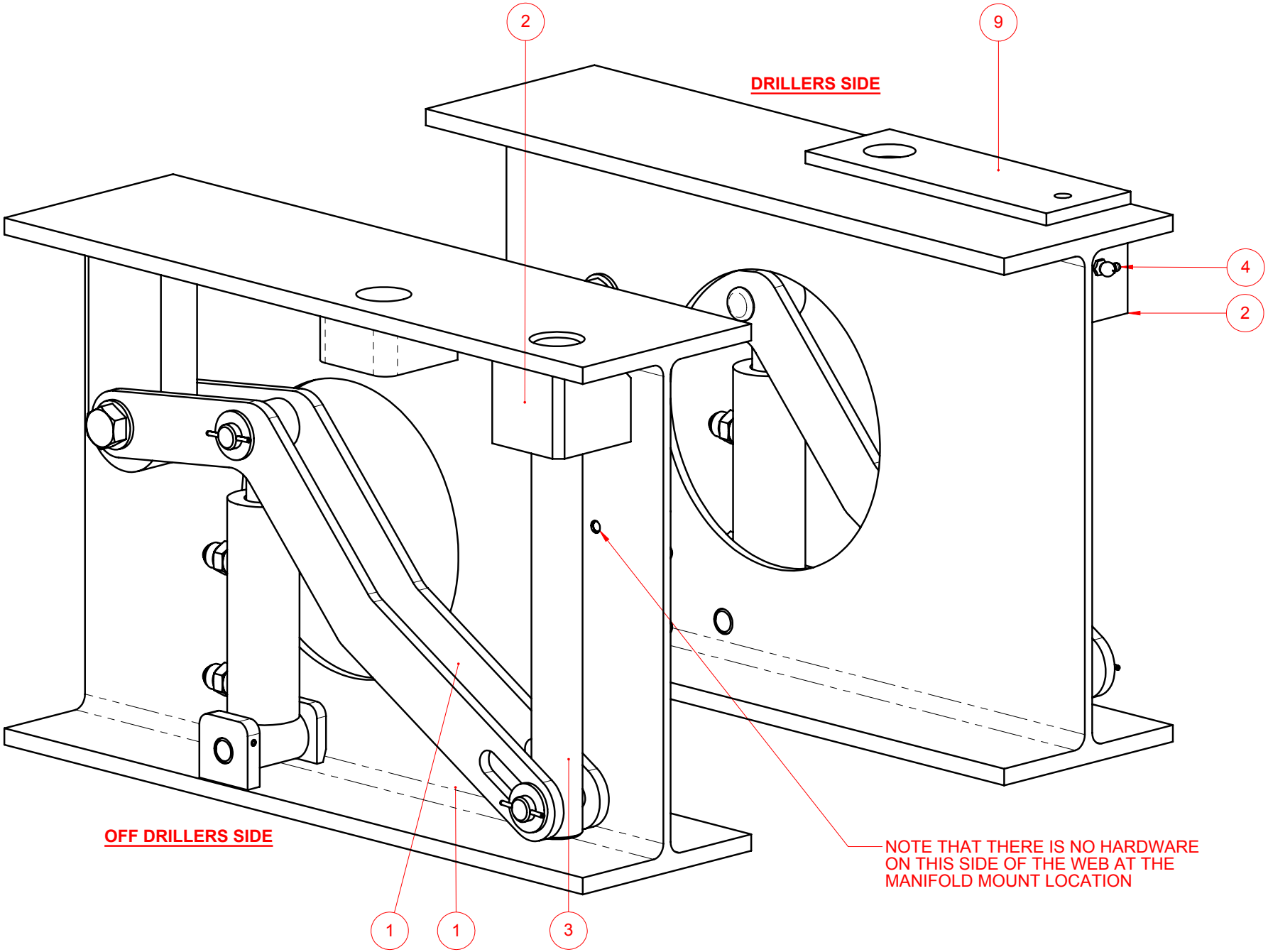
TITLE:

PC3000 SAFETY PIN RETRO-FIT

DRAWN BY:	DATE:	DRAWING NO:	SHEET:	REV:
TLK	11-Mar-2009	AY50643	1 OF 3	03



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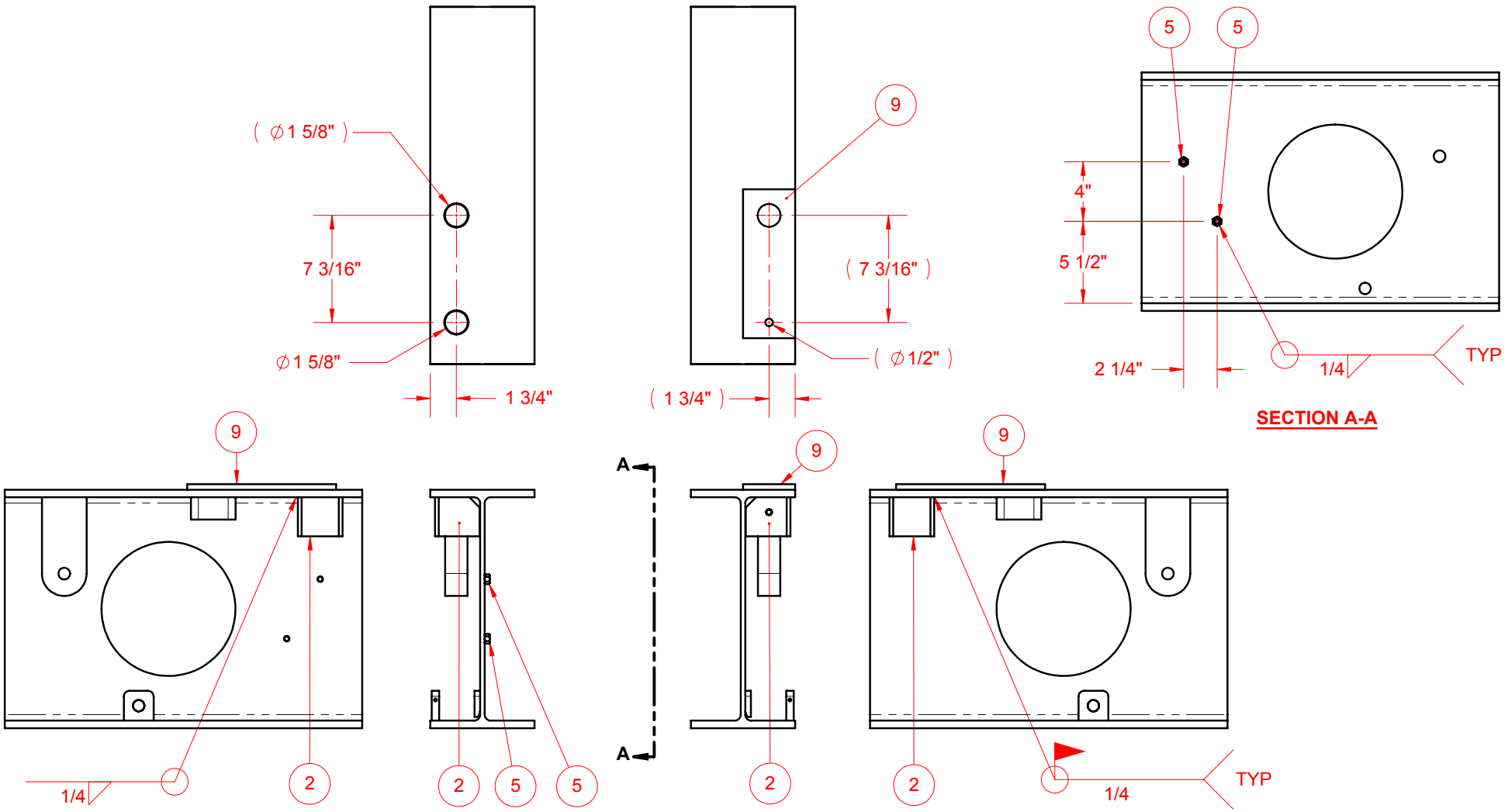
TITLE: **PC3000 SAFETY PIN RETRO-FIT**

DRAWN BY:	DATE:	DRAWING NO:	SHEET:	REV:
TLK	11-Mar-2009	**AY50643**	2 OF 3	**03**



NOTE:

1) USING ITEM 9 AS A JIG FOR DRILLING NEW ∅
   A PIN THROUGH THE EXISTING FLANGE PIN HOLE, INSERT ITEM 9 ON THE PIN AND FLUSH WITH THE EDGE OF THE FLANGE, MARK THE NEW HOLE LOCATION THROUGH THE ∅1/2" DIAMETER HOLE ON ITEM 9.
2) ENSURE THAT ITEM 2 IS ORIENTED AS SHOWN AND CONCENTRIC WITH THE NEW FLANGE HOLE PRIOR TO WELDING IN PLACE.
3) THIS RETRO-FIT IS DONE AT EACH EXISTING SAFETY PIN LOCATION, 6 PLACES TOTAL.
4) SECTION A-A ILLUSTRATES WHAT IS TO BE DONE ON THE OFF DRILLERS SIDE CLOSEST TO THE FRONT OF THE CARRIER. THE METHOD FOR MOUNTING THE MANIFOLD IS REVISED.
5) EXISTING PAINT MUST BE GROUND OFF AT ANY LOCATION WHERE NEW ITEMS ARE WELDED IN PLACE. ALL BARE METAL MUST BE PAINTED WHEN WELDING IS COMPLETE.
6) ALL WELDING CARRIED OUT TO THE REQUIREMENTS OF CWB-W59 (LATEST EDITION) OR DYNAMICALLY LOADED STRUCTURES. ALL WELDING CARRIED OUT TO THE REQUIREMENTS OF CANRIG DOCUMENT ENG704 AS SUPPLIED.

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TITLE: **PC3000 SAFETY PIN RETRO-FIT**

DRAWN BY:	DATE:	DRAWING NO:	SHEET:	REV:
TLK	11-Mar-2009	AY50643	3 OF 3	03

INFORMATION: *For a complete list of all bulletins go to **www.canrig.com***

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PRODUCT BULLETIN
NUMBER: CATWALK 015

PRODUCT: AUTOMATED CATWALKS PC900, PC1000 **DATE:** 11-Jan-10

SUBJECT: PC900/PC1000 REMOTE MALFUNCTION

SERIAL NUMBERS: PM1000-1001 thru 1027, PC1000-2001 thru 2017, 103019 thru 103032
PC900-1001, 090002 thru 090005

DISCUSSION: There has been an incident where the wireless receiver acted irregularly. The operator indicated that there were unwarranted functions occurring when the remote control's functions were not being used.

RECOMMENDATION:

To protect against dropped tubulars Canrig recommends that the existing pipe arm extensions be installed as shown in the attached drawing 188100015 if no pipe racks are being used on that side of the Catwalk.

It is also recommended that the current wiring harness in the receiver, as well as the address chips in the remote and receiver, be replaced with Kit AY50698 to increase the "deadband" and desensitize the paddles. Instructions for the replacement of these parts will be provided with the kit.

Please contact your Field Service Coordinator with the following information to arrange shipment of the warranty Kit AY50698.

Catwalk Serial Number: _____

Radio System Number: _____

Receiver System Number: _____

Radio

Receiver

INFORMATION:

For a complete list of all bulletins go to ***www.canrig.com***

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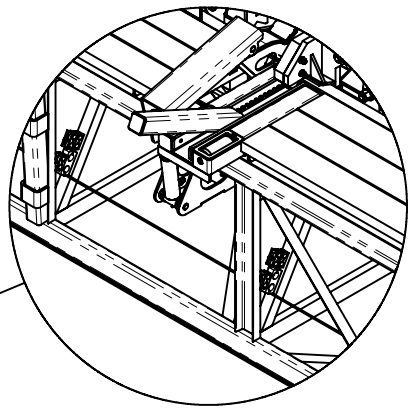
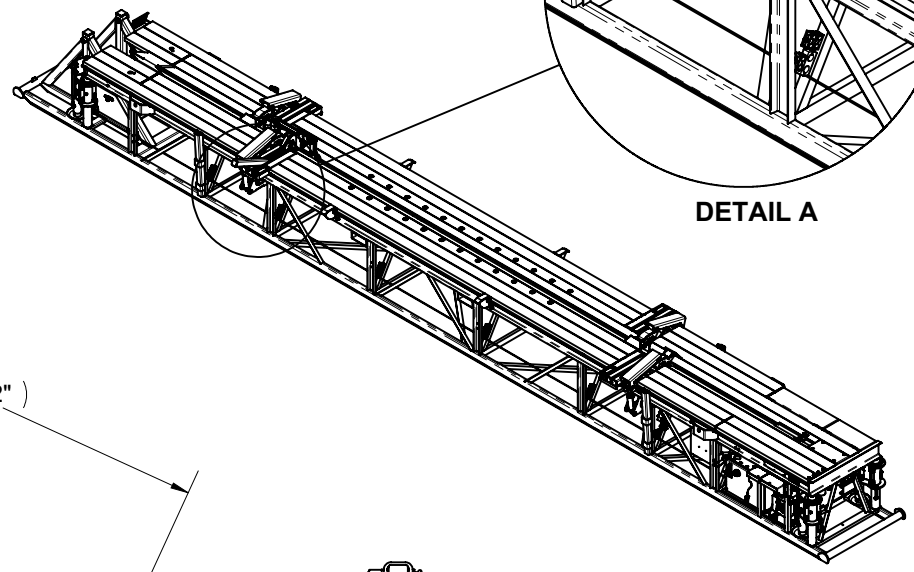
Fax: 403.536.4605

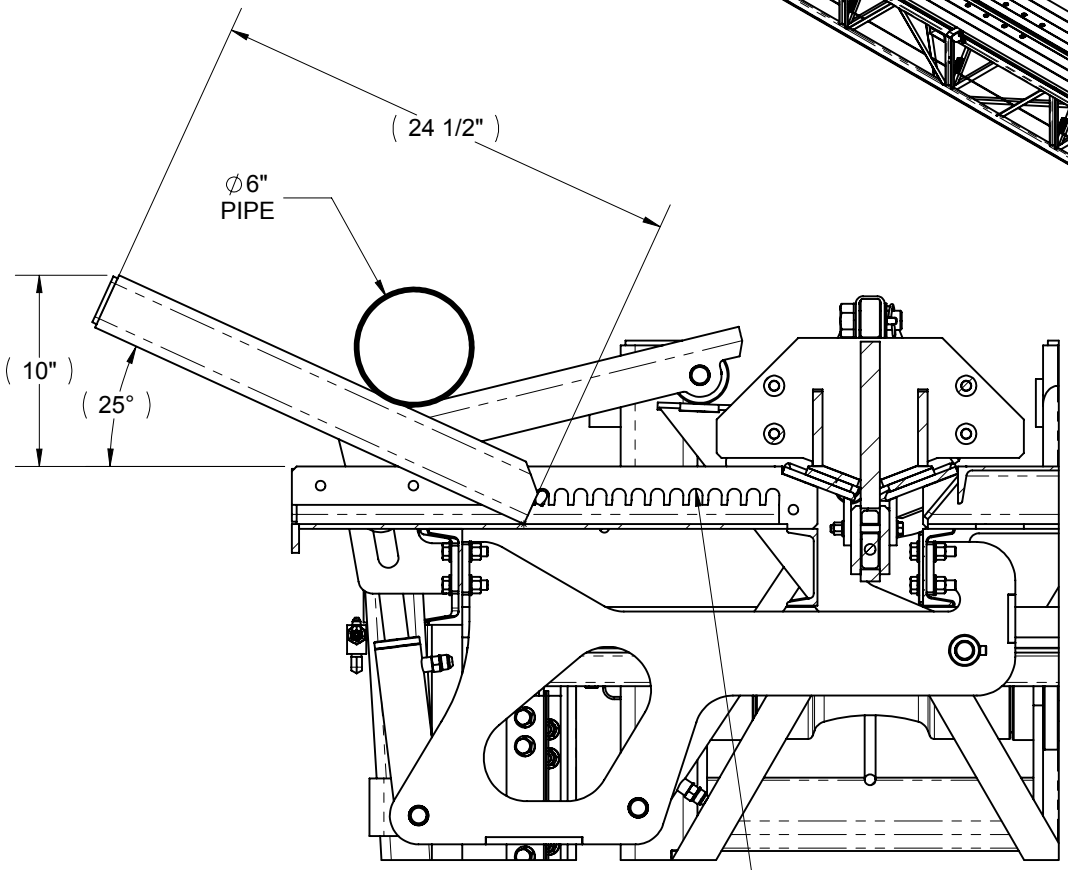
NOTE:

1. IF A SECONDARY BARRIER IS REQUIRED
2. FLIP THE SHORT PIPE ARM UPSIDE DOWN
3. INSERT AS SHOWN
4. REPEAT FOR THE SECOND ARM ON THE SAME SIDE



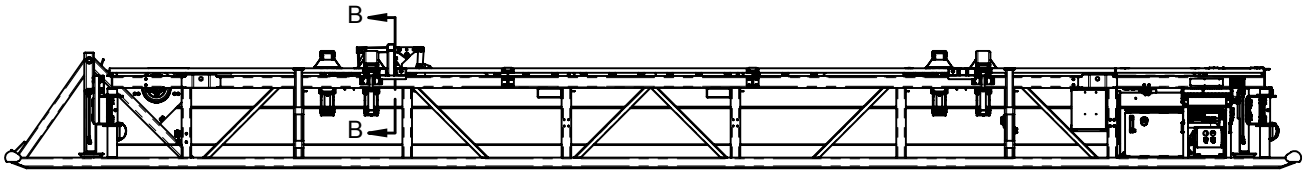
DETAIL A





SECTION B-B

DO NOT INSERT PAST THIS POINT
DOING SO WILL DAMAGE THE SKATE



REV.	DESCRIPTION	DATE
01	RFM	03/11/2009

CANRIG
DRILLING TECHNOLOGY LTD.

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Calgary, Alberta, Canada, T2C 4L6
Website: www.canrig.com
Bus. (403) 237-6400 Fax. (403) 233-2667

TITLE: **PC1000 SECONDARY BARRIER**

DRAWN BY:	DATE:	DRAWING NO:	SHEET:	REV:
-	03/11/2009	**188100015**	1 OF 1	**01**

PRODUCT BULLETIN NUMBER: Catwalk 016

SAFETY ALERT

PRODUCT: AUTOMATED CATWALKS **DATE:** October 6, 2010

SUBJECT: **Carrier Cable Block Retaining Pin Upgrade – Part # 161100095 / AY50361**

SERIAL NUMBERS: **All PC3000 Catwalks**

DISCUSSION:

Canrig has learned that some end-users are not conducting PC3000 – 1000 Day Inspections as required. These inspections are absolutely necessary to ensure the structural integrity of critical load bearing welds and component assemblies and overall safety of the equipment.

An isolated incident occurred on one of the early PC3000 production units where the carrier cable block retaining pins sheared resulting in an uncontrolled drop of the carrier from the rig floor level to the catwalk deck. While this particular incident did not result in any injuries to personnel, some impact damage to the catwalk did occur. To minimize the possibility of any similar incidents occurring, Canrig has implemented the following controls:

1. ECN# CN1427 upgrades the material specifications for the carrier cable block retaining pins (Part # 161100095) from 4140 steel to 17-4PH stainless steel.
2. Canrig 1000 Day Inspection practices for the PC3000 have been updated and now call for the MANDATORY replacement of the carrier cable block retaining pins (Kit AY50361) at time of inspection.

Delay in implementing the *Required Action Procedures* contained herein could result in a critical impact and/or dropped object hazard and potentially put personnel and equipment at risk.

REQUIRED ACTION:

1. Immediately inspect the carrier block assembly, retaining pins and anchor plate for signs of excessive wear, corrosion, and/or metal fatigue on all PC3000 production units delivered prior to January 1, 2009. To ensure safe operation, replace the carrier cable block retaining pins (Kit AY50361). Please refer to the attached Safe Work Procedures for both the inspection and pin replacement.
2. If the catwalk has been in service for 1000 days or more, and it has not already been completed, Canrig cannot stress enough the importance of conducting a “PC3000 - 1000 Day Inspection” as laid out in the attached form AS SOON AS POSSIBLE.

RECOMMENDATIONS: A visual inspection of the carrier cable block assembly, anchor plate, and retaining pins should be conducted every time the carrier cables are replaced as per Canrig specified ton/mile usage guidelines.

ATTACHMENTS:

1. INSPECTION: PC3000 - 1000 Day Inspection Procedure
2. SAFE WORK PROCEDURE: Visual Inspection - Carrier Cable Block Assembly & Anchor Plate
3. SAFE WORK PROCEDURE: Part Replacement – Carrier Cable Block Retaining Pins

INFORMATION: For a complete list of all bulletins go to **www.canrig.com**

CONTACT:

Product Support: 866.433.4345 USA
Canrig Drilling Technology Ltd. 281.774.5649 INTL

PC3000 1000 Day Inspection

Rig:	Date:	Location:	Carrier Cycles:	Running Hours:

Perform the following actions. Enter Pass or Fail and enter comments on all items entered as "Fail".

CATWALK BASE	Action	Pass / Fail	Comments
Skid Roll Ends	MPI		
Ramp Pivot Posts	MPI		
Pipe Rack Arm Mounts/Hitch Blocks	MPI		
Pipe Indexers Mount Plates	Visual		
Pipe Rack Arms	Visual		
RAMP			
Ramp Pivot Posts	MPI		
Carrier Roller Guide Channels	Visual		
Ramp Sheave Support Plates	Visual		
Ramp Sheaves	Visual		
Winch Mounts	MPI		
Winch Protective Guard	Visual		
CARRIER			
Carrier Cable Connections	MPI		
Cable Block & Anchor Plate Welds	MPI		
Cable Block Retaining Pins (AY50361)	Replace		
Carrier Pipe Kickers	MPI		
Carrier Overshoot Dogs	Visual		
Front Carrier Roller Shaft Welds	Visual		
Lift Arm Pivot Bushing Block	Visual		
LIFT ARM			
Lift Arm Pin Mounts	MPI		
Lift Arm Welds	Visual		
HYDRAULIC POWER UNIT			
Hydraulic Fluid Level (3/4 Full)	Visual		
Hydraulic Winch Oil Level	Visual		
Periodic Hydraulic Oil Analysis	Visual		
Periodic Hydraulic Winch Oil Analysis	Visual		
Hydraulic Pump	Visual		
Valve Bank	Visual		
Hydraulic Cylinders	Visual		
No Oil Leakage in the system	Visual		
ELECTRICAL SYSTEM – Lock-Out and Tag-Out when inspecting the junction boxes			
Grounding	Visual		
Wires, Boxes and Connectors	Visual		
Electrical Motor	Visual		
Lights and Proximity Switches	Visual		
Radio Control Unit	Visual		
PLC Box	Visual		
Electrical Control Box	Visual		

Notes:

Canrig Technician:	**Signature:**	**Date:**
Rig Manager or designee:	**Signature:**	**Date:**
MPI Service Company:	**MPI Technician:**	**Print:**

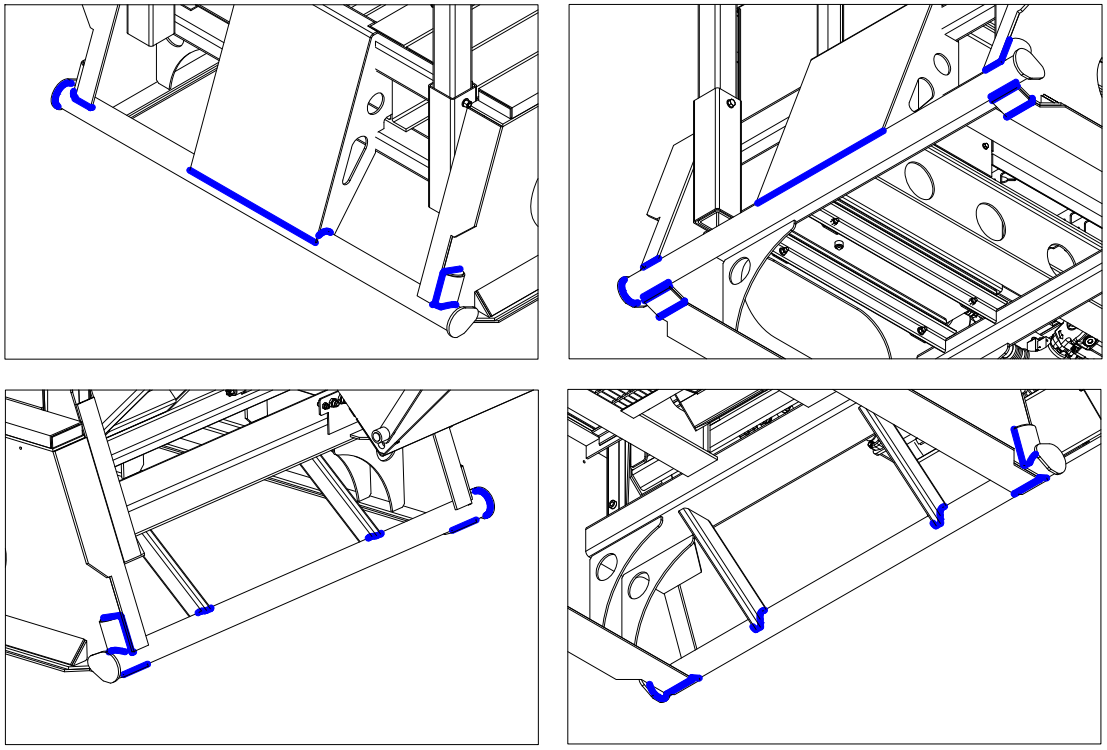
Inspection Indication Map

Part Name: Skid Rollend

The following information should be supplied on the inspection Report as minimum:

Purchase Order #
Inspection Report #
Inspector's Signature/Stamp:
Type of Inspection:

Date:
Canrig Part #
Power Catwalk S/N:
Canrig Representative:



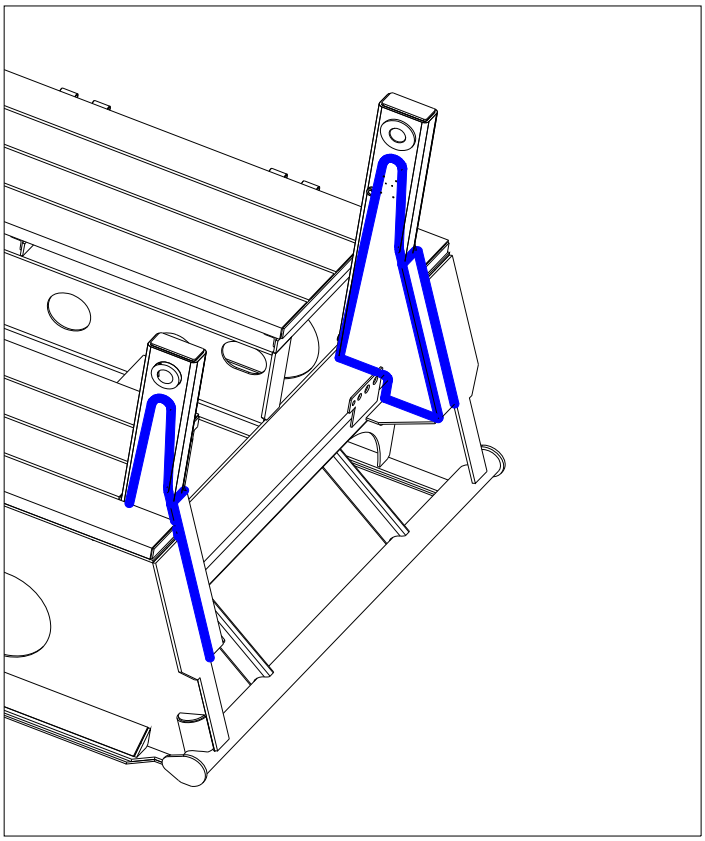
Procedure:
Perform Dry Magnetic Particle Inspection on all welds shown in accordance with ASTM E709. Acceptance criteria are as defined in ASTM E709. All other areas not indicated shall be visually examined for damage and signs of fatigue.

Part Name: Skid Ramp Pivot Post

The following information should be supplied on the inspection Report as minimum:

Purchase Order #
Inspection Report #
Inspector's Signature/Stamp:
Type of Inspection:

Date:
Canrig Part #
Power Catwalk S/N:
Canrig Representative:



Procedure:

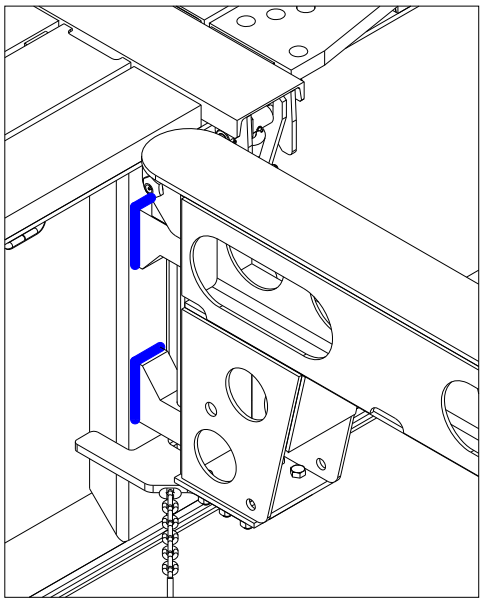
Perform Dry Magnetic Particle Inspection on all welds shown in accordance with ASTM E709. Acceptance criteria are as defined in ASTM E709. All other areas not indicated shall be visually examined for damage and signs of fatigue.

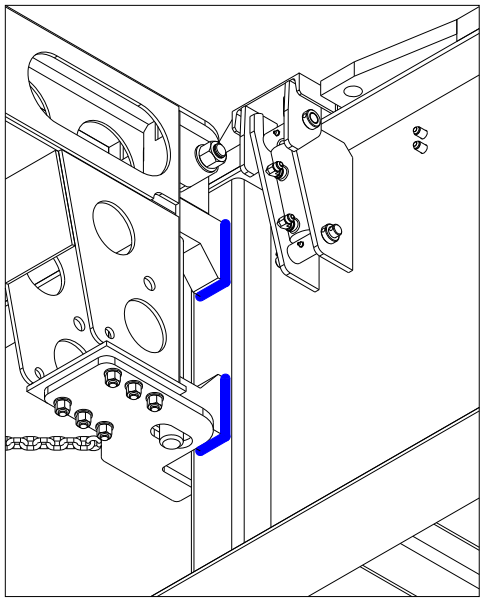
Part Name: Pipe Rack Arm Mount/Hitch Block

The following information should be supplied on the inspection Report as minimum:

Purchase Order #
Inspection Report #
Inspector's Signature/Stamp:
Type of Inspection:

Date:
Canrig Part #
Power Catwalk S/N:
Canrig Representative:





42" Catwalk Shown
26" Only has one Hitch Block

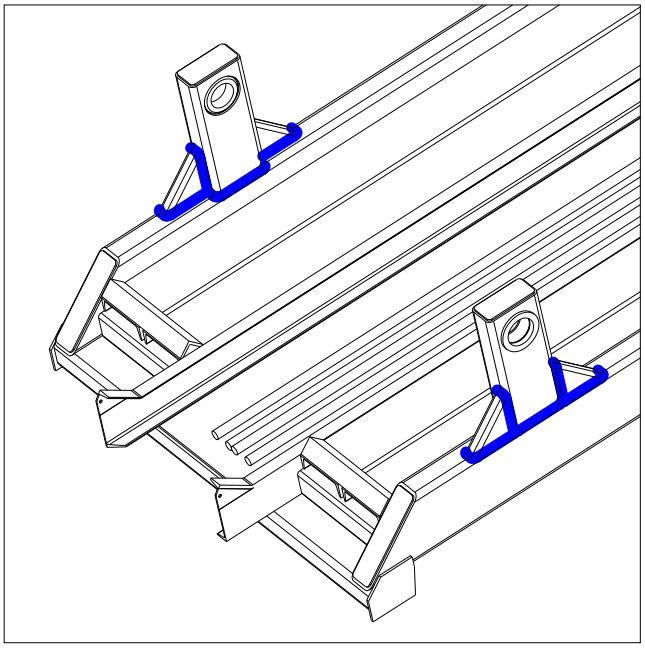
Procedure:
Perform Dry Magnetic Particle Inspection on all welds shown in accordance with ASTM E709. Acceptance criteria are as defined in ASTM E709. All other areas not indicated shall be visually examined for damage and signs of fatigue.

Part Name: Ramp Pivot Post

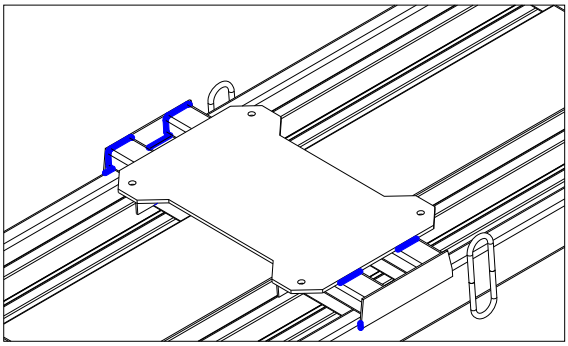
The following information should be supplied on the inspection Report as minimum:

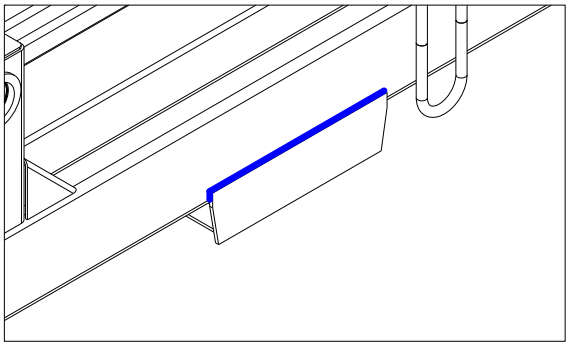
Purchase Order #
Inspection Report #
Inspector's Signature/Stamp:
Type of Inspection:

Date:
Canrig Part #
Power Catwalk S/N:
Canrig Representative:



Procedure:
Perform Dry Magnetic Particle Inspection on all welds shown in accordance with ASTM E709. Acceptance criteria are as defined in ASTM E709. All other areas not indicated shall be visually examined for damage and signs of fatigue.



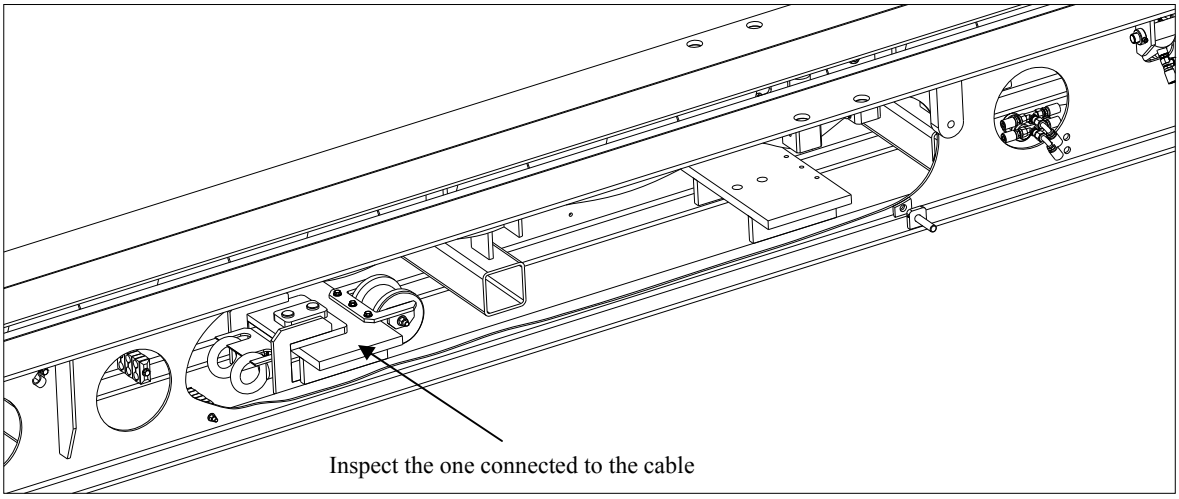


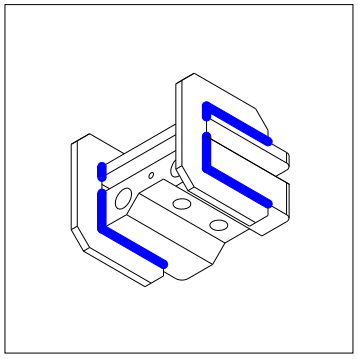
Part Name: Carrier Cable Block and Connections

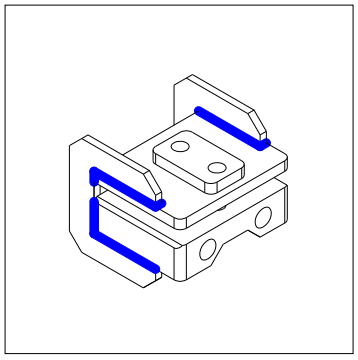
The following information should be supplied on the inspection Report as minimum:

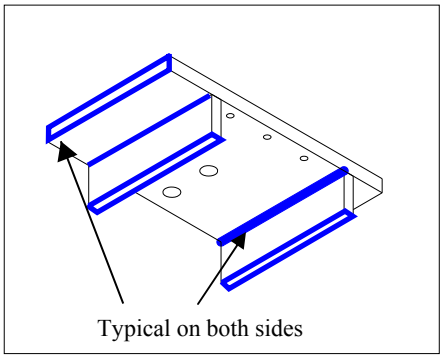
Purchase Order #
Inspection Report #
Inspector's Signature/Stamp:
Type of Inspection:

Date:
Canrig Part #
Power Catwalk S/N:
Canrig Representative:









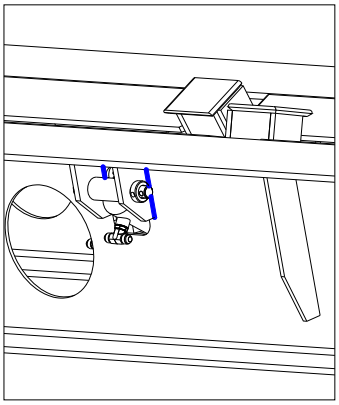
Procedure:
Perform Dry Magnetic Particle Inspection on all welds shown in accordance with ASTM E709. Acceptance criteria are as defined in ASTM E709. All other areas not indicated shall be visually examined for damage and signs of fatigue.

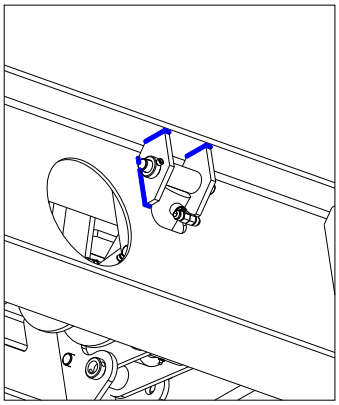
Part Name: Carrier Pipe Kicker Mount

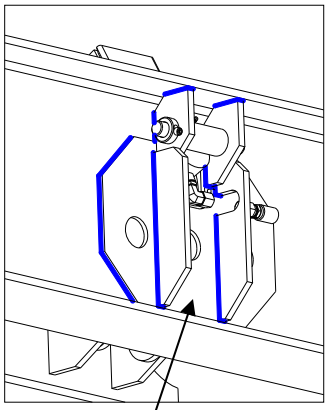
The following information should be supplied on the inspection Report as minimum:

Purchase Order #
Inspection Report #
Inspector's Signature/Stamp:
Type of Inspection:

Date:
Canrig Part #
Power Catwalk S/N:
Canrig Representative:







See Product Bulletin 10

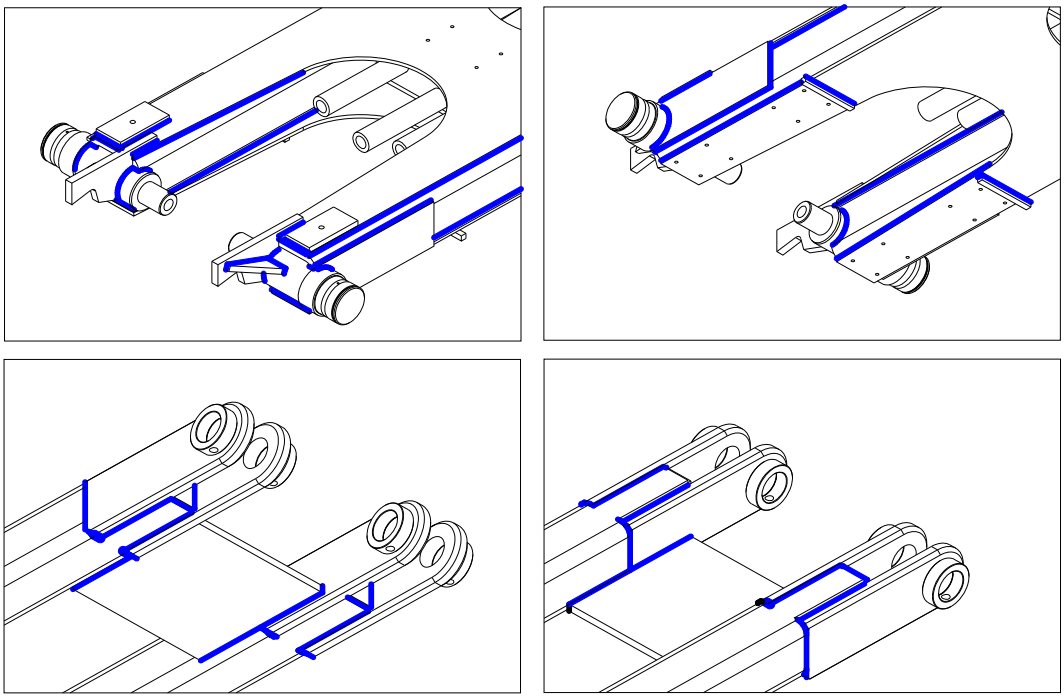
Procedure:
Perform Dry Magnetic Particle Inspection on all welds shown in accordance with ASTM E709. Acceptance criteria are as defined in ASTM E709. All other areas not indicated shall be visually examined for damage and signs of fatigue.

Part Name: Lift Arm Pin Mounts

The following information should be supplied on the inspection Report as minimum:

Purchase Order #
Inspection Report #
Inspector's Signature/Stamp:
Type of Inspection:

Date:
Canrig Part #
Power Catwalk S/N:
Canrig Representative:



Procedure:

Perform Dry Magnetic Particle Inspection on all welds shown in accordance with ASTM E709. Acceptance criteria are as defined in ASTM E709. All other areas not indicated shall be visually examined for damage and signs of fatigue.

Carrier Cable Block Inspection

1. Perform Job Safety Analysis (JSA) to include everyone that could be affected by the task to be performed. All attendees of the JSA must sign the JSA form.

2. Ensure carrier is empty. Raise carrier to a level that will provide adequate safe access to the carrier cable block.

3. Install carrier safety bar as shown below and slowly lower carrier until it rests against safety bar. This should be done in "Snail Mode". To activate Snail Mode, push the furthest right toggle switch on the wireless controller to the up position.

CAUTION: Do not stand inside the catwalk behind the carrier to insert or remove the safety bar.

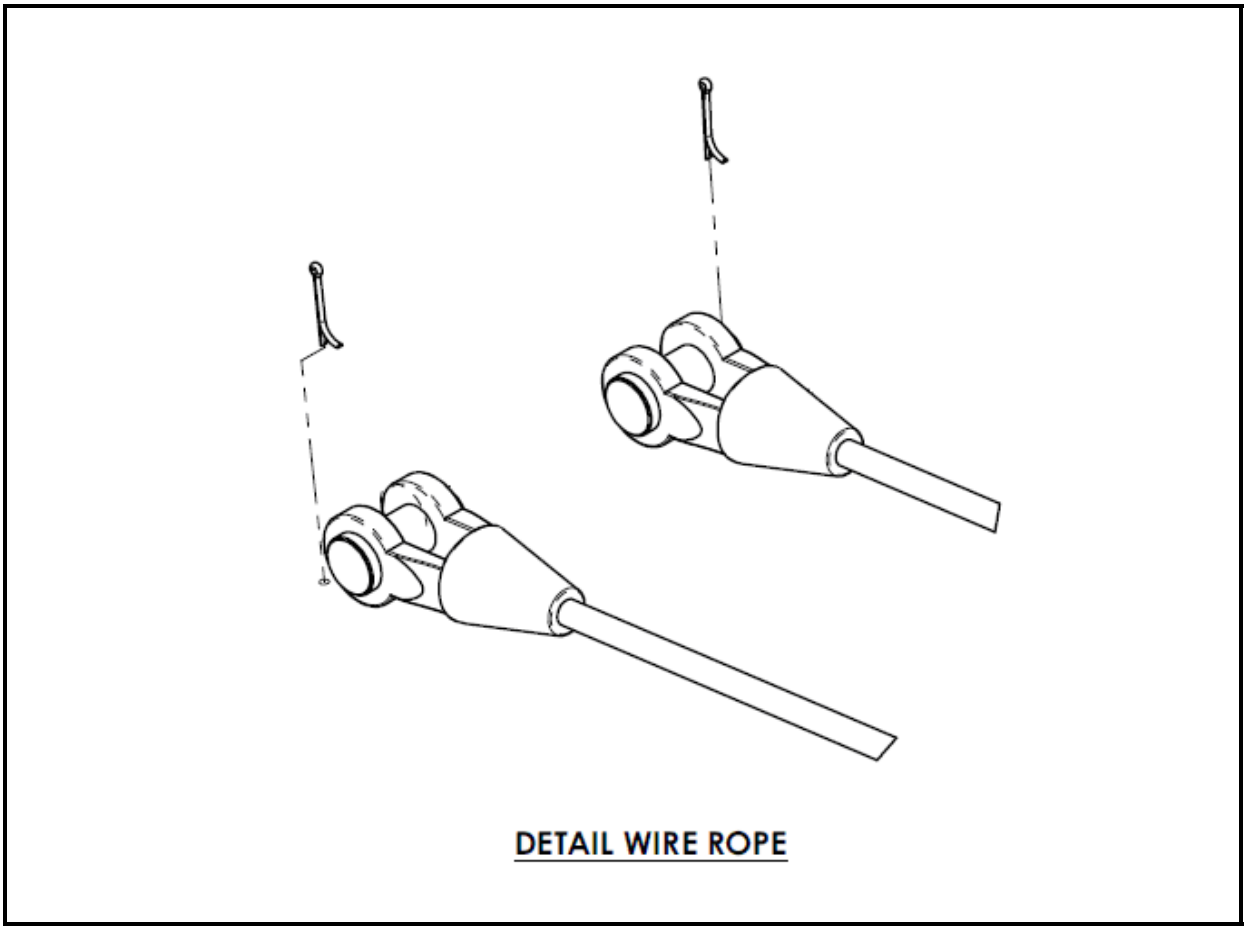
4. Once the carrier is firmly against the safety bar, continue to hold the carrier joystick in the down position and slacken the carrier cables until they can be unpinned from the carrier cable block without excess difficulty.

Caution: **Do not excessively unspool cables. Avoid allowing the cables to fall to the ground under the catwalk ramp.**

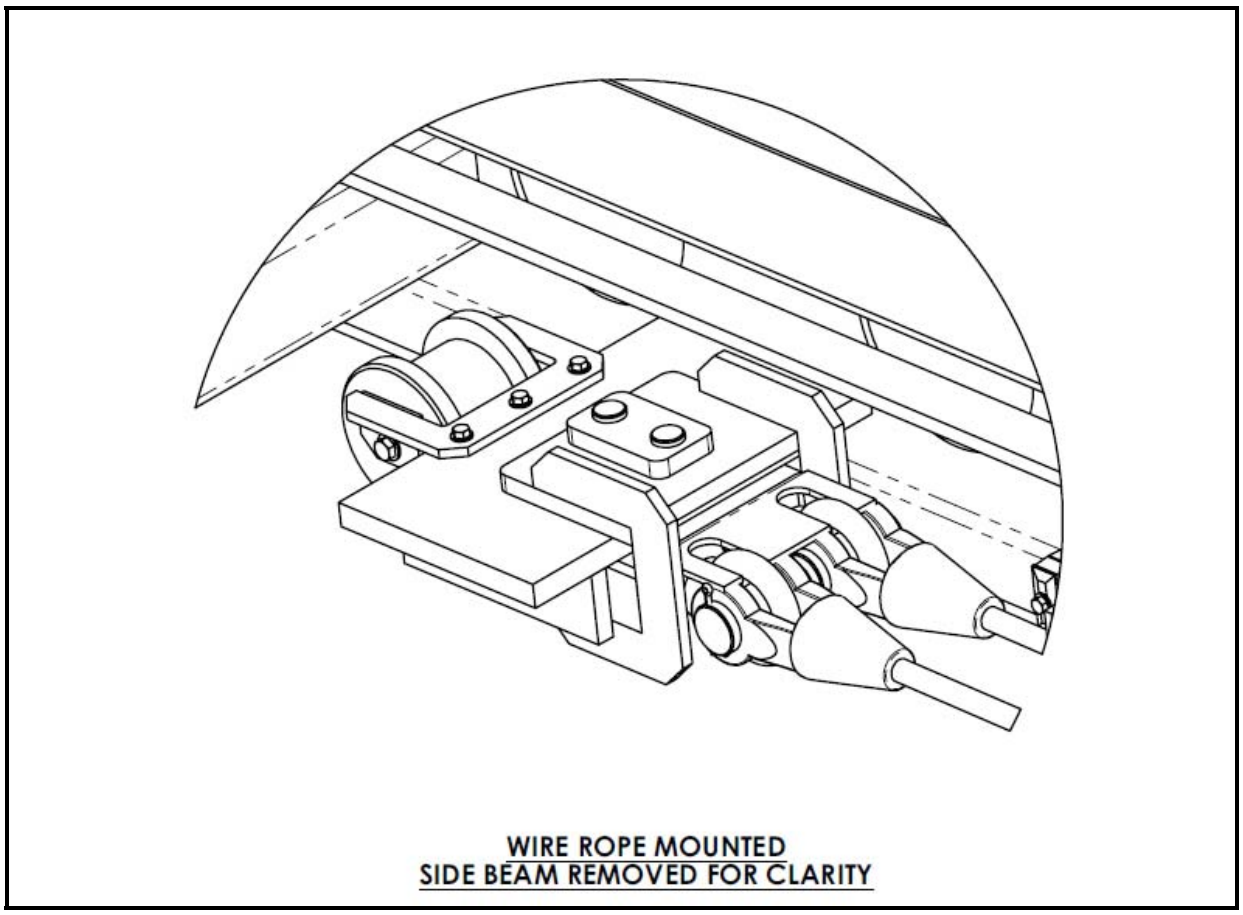
5. Shut off HPU motor and press the E-Stop switch on the tank control console. Use Lock Out / Tag Out procedure as required.

6. Unpin both carrier cables by removing the cotter pin from the cables pins as shown below.

Caution: **Use safe lifting practices and proper body positioning due to the weight of the cables.**

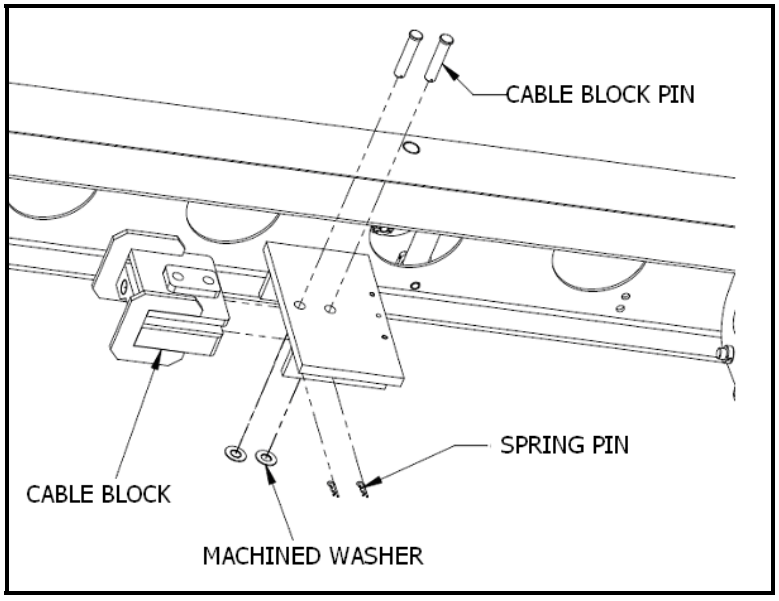


DETAIL WIRE ROPE



WIRE ROPE MOUNTED
SIDE BEAM REMOVED FOR CLARITY

7. Remove the roll pins (spring pin) and washers from the cable block pins and remove the pins from the block.



8. Remove carrier cable block.

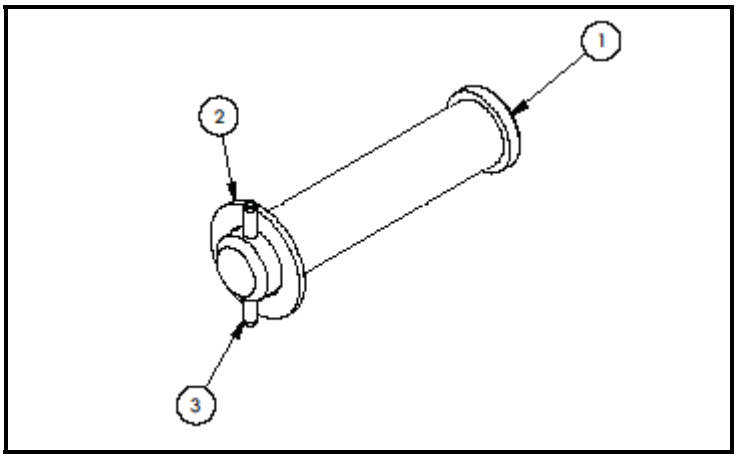
9. Sandblast cable block and the cable block anchor plate and perform MPI according to MPI map in the PC3000 1,000-Day Inspection.

10. Once all raw surfaces are painted and dry, re-install the cable block using new cable block pins. Part number AY50361.

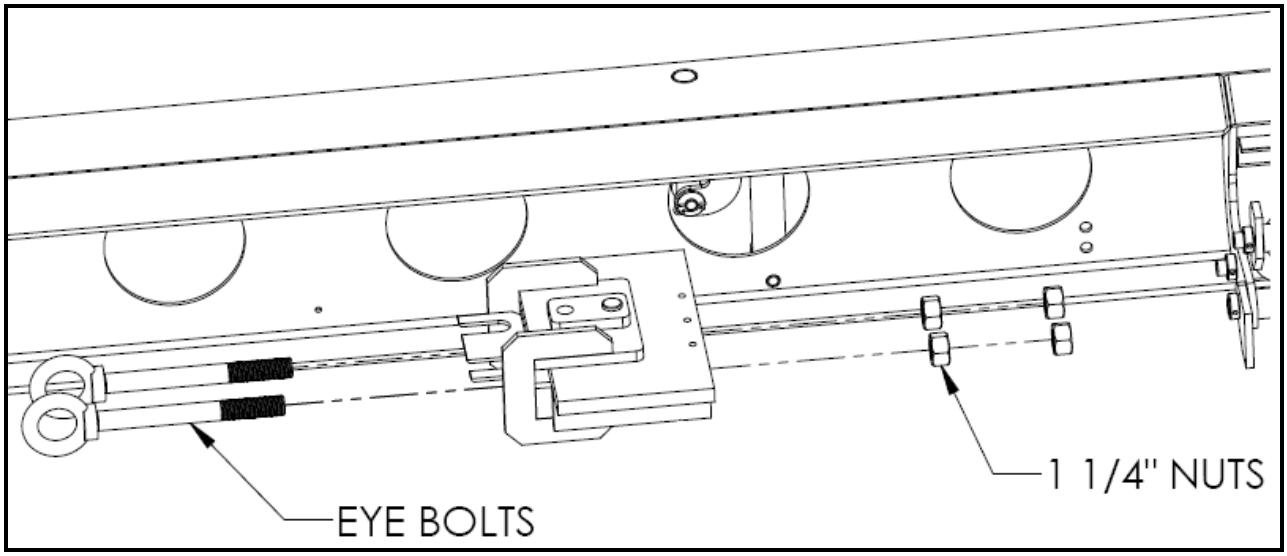
CAUTION: Always change both cable block pins to ensure safe cable block retention.

KIT, CABLE BLOCK CONNECTION

01	**2.00 EA**	**161100095**	**CABLE BLOCK PIN**
02	**2.00 EA**	**FW-1000-A-N**	**WASHER, F, 1, NARROW, TYPE A**
03	**2.00 EA**	**M10585**	**SPR PIN, SLOTTED, 0.1875 x 2.00 LG**



11. After inspecting the cable attachment pins, reconnect cables to the carrier cable block. Replace cable attachment pins if worn; use new cotter pins.



12. Spool cables on until they become nearly snug. Compare the cable tension between the two cables and using the eyebolts adjust cable tension accordingly to make the tension equal.

13. Remove Lock Out / Tag Out as required. Release E-Stop and Snail Mode. Start HPU and raise carrier sufficiently to remove safety bar.

CAUTION: Do not stand inside the catwalk behind the carrier to insert or remove the safety bar.

14. Fully raise and lower carrier to check for proper operation. If catwalk operates properly, resume normal use of catwalk as needed.

Carrier Cable Block Pin Replacement

1. Perform Job Safety Analysis (JSA) to include everyone that could be affected by the task to be performed. All attendees of the JSA must sign the JSA form.

2. Ensure carrier is empty. Raise carrier to a level that will provide adequate safe access to the carrier cable block.

3. Install carrier safety bar as shown below and slowly lower carrier until it rests against safety bar. This should be done in “Snail Mode”. To activate Snail Mode, push the furthest right toggle switch on the wireless controller to the up position.

CAUTION: Do not stand inside the catwalk behind the carrier to insert or remove the safety bar.

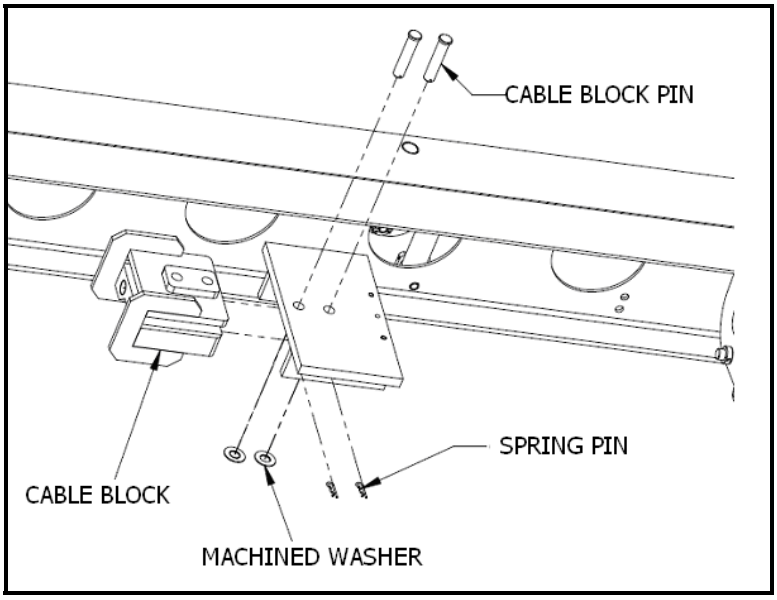
4. Once the carrier is firmly against the safety bar, continue to hold the carrier joystick in the down position and slacken the carrier cables until they can be unpinned from the carrier cable block without excess difficulty (in the event the pins cannot be removed without disconnecting the cables from the block).

Caution: **Do not excessively unspool cables. Avoid allowing the cables to fall to the ground under the catwalk ramp.**

5. Shut off HPU motor and press the E-Stop switch on the tank control console. Use Lock Out / Tag Out procedure as required.

6. Remove the spring pin (roll pin) from one of the cable block pins and remove the pin. Insert the new pin and washer and secure them with a new roll pin. Perform the same task with the second pin.

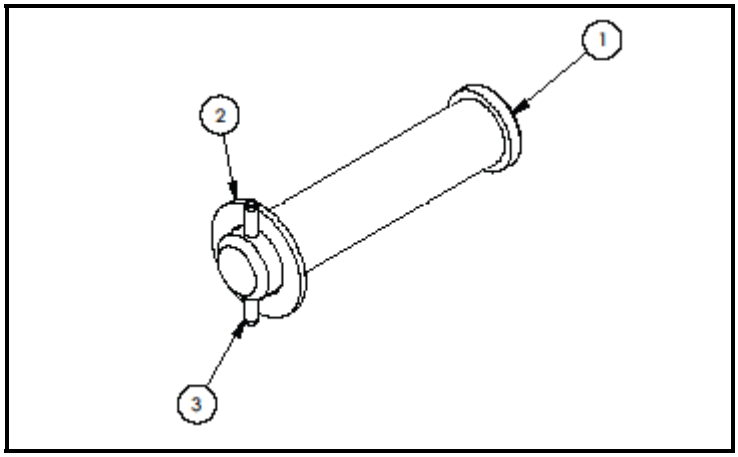
Caution: **Do not remove both carrier block pins while the carrier cables are attached to the block. This may result in serious personal injury.**



Warning: **Never replace only one pin. Always change both pins and their washers and roll pins with new parts. This will help ensure safe cable block retention.**

KIT, CABLE BLOCK CONNECTION

01	2.00 EA	161100095	CABLE BLOCK PIN
02	2.00 EA	FW-1000-A-N	WASHER, F, 1, NARROW, TYPE A
03	2.00 EA	M10585	SPR PIN, SLOTTED, 0.1875 x 2.00 LG



7. Spool cables on until they become nearly snug. Compare the cable tension between the two cables and using the eyebolts adjust cable tension accordingly to make the tension equal.

8. Remove Lock Out / Tag Out as required. Release E-Stop and Snail Mode. Start HPU and raise carrier sufficiently to remove safety bar.

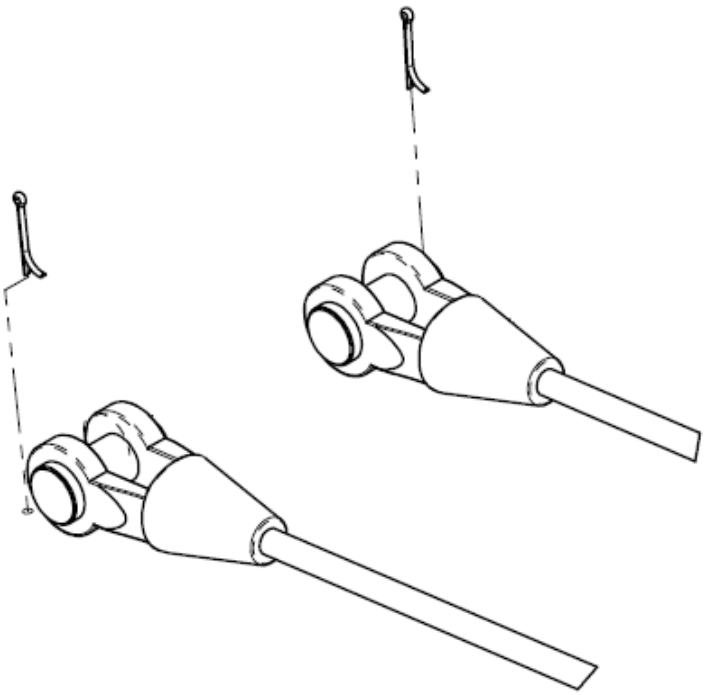
CAUTION: Do not stand inside the catwalk behind the carrier to insert or remove the safety bar.

9. Fully raise and lower carrier to check for proper operation. If catwalk operates properly, resume normal use of catwalk as needed.

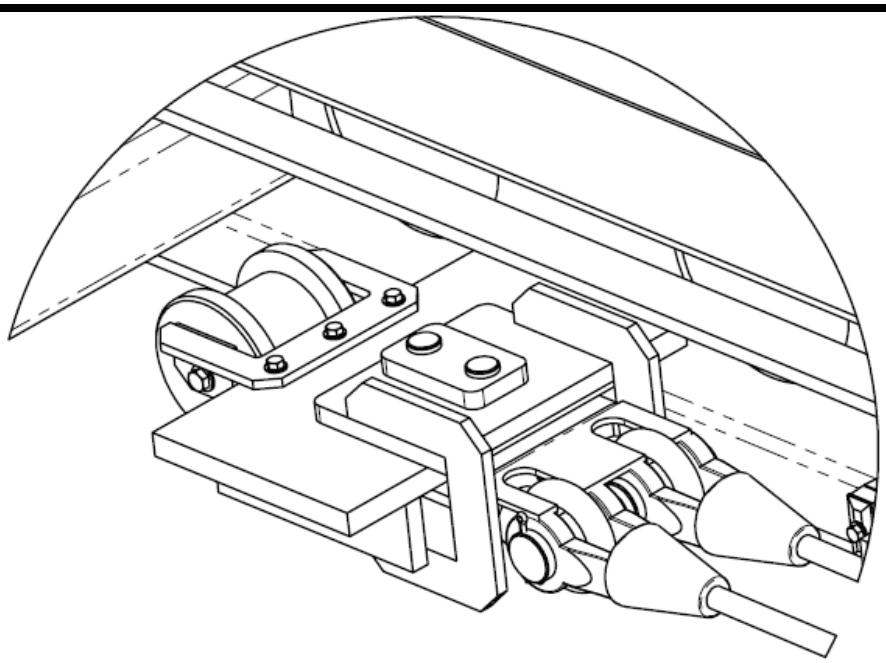
Note: In the event the carrier cable block pins cannot be removed while the carrier cables are connected to the cable block, follow these steps to remove the carrier cables.

CAUTION: Use safe lifting practices and proper body positioning due to the weight of the cables.

- Unpin both carrier cables by removing the cotter pin from the cables pins as shown below.



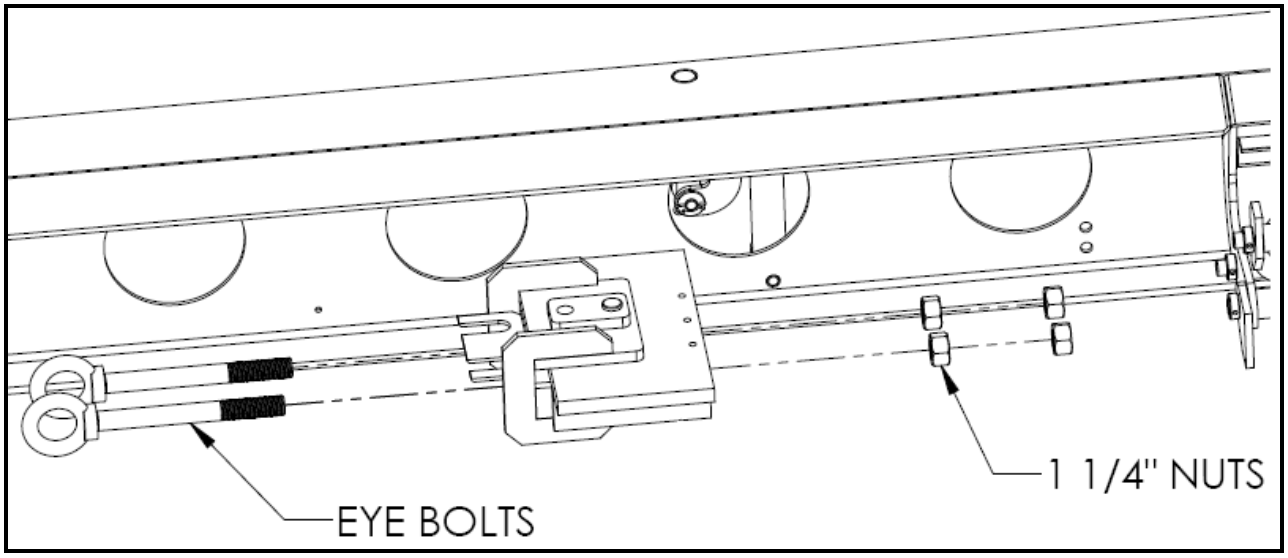
DETAIL WIRE ROPE



WIRE ROPE MOUNTED
SIDE BEAM REMOVED FOR CLARITY

- After disconnecting the cables, **perform step 6** as described above.

- After inspecting the cable attachment pins, reconnect cables to the carrier cable block. Replace cable attachment pins if worn; use new cotter pins.



- **Proceed with steps 7 through 9 as described above.**

PRODUCT BULLETIN NUMBER: 017 CATWALK

PRODUCT: AUTOMATED CATWALKS **DATE:** 07/27/2011

SUBJECT: **PC3000 Oil Cooling System Upgrade for Tropical & Desert Climates**

SERIAL NUMBERS: **ALL**

DISCUSSION: In extremely hot climates, both electrical components in the main electrical panel located beneath the deck and the hydraulic cooling oil can see temperatures that are close to or beyond their rated temperatures. The recommended baseline modification is to increase the size of the air intake/exhaust cutout to allow for greater optimization of the cooler. Also, an optional reverse flow fan kit is available to change the direction of airflow; this can help alleviate environmental elements from congesting the heat exchanger of the cooler.

RECOMMENDATION:

Overview: Perform the outlined procedure to increase cooler intake area to 110% larger than original design (Figures 1 & 2). If deemed necessary, replace existing cooler with new fan kit to reverse airflow direction.

Materials Required:

EXPANDED MESH, REGULAR 1 ½" – 10 X 16 ½" X 15 ½"

AY50821 ASSY, COOLER, OIL, C/W 24VDC ELEC MOTOR
(if reversed airflow is desired)
The kit contains:

- Fanblade
- Motor
- Fan shroud incl. protection guard
- Fasteners
- Counter connector

Safety Considerations: Be aware that if the catwalk was recently used, hydraulic components will be hot. Ensure that there is no pressure in hydraulics. Also, beware of spattering from pressure pockets in hydraulic fluid. A fire watch is required for metal working.

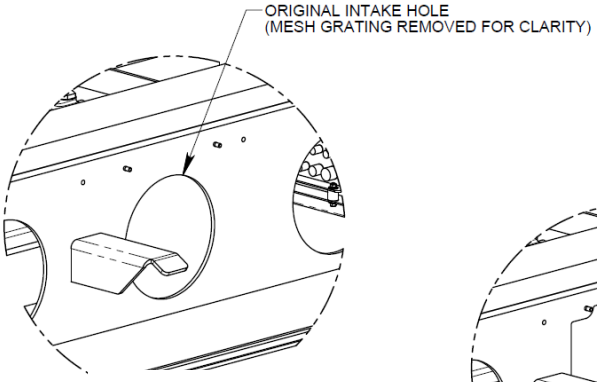


Figure 1

BEFORE MODIFICATION

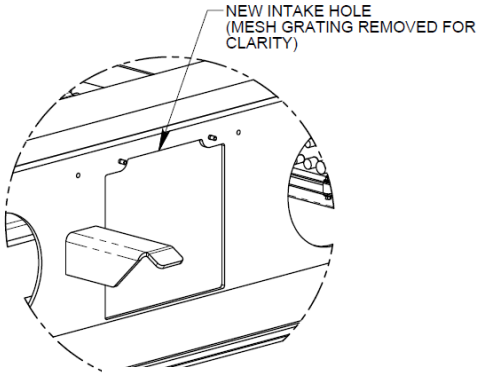


Figure 2

AFTER MODIFICATION

Step 1: Perform Job safety analysis before commencing work. Ensure that proper PPE is worn and catwalk is shutdown. Adhere to local lockout/tagout procedures.

Step 2: Place absorbent blankets underneath catwalk to catch excess fluids.

Step 3: Ensure that there is no pressure in hydraulics. Disconnect hydraulic hoses and cap all openings. This includes hoses and cooler fittings.

** Note: Beware of spattering from pressure pockets in fluid. **

Step 4: Remove the cooler assembly as shown in Figure 3. Once removed, the fan kit can be replaced on the cooler if necessary.

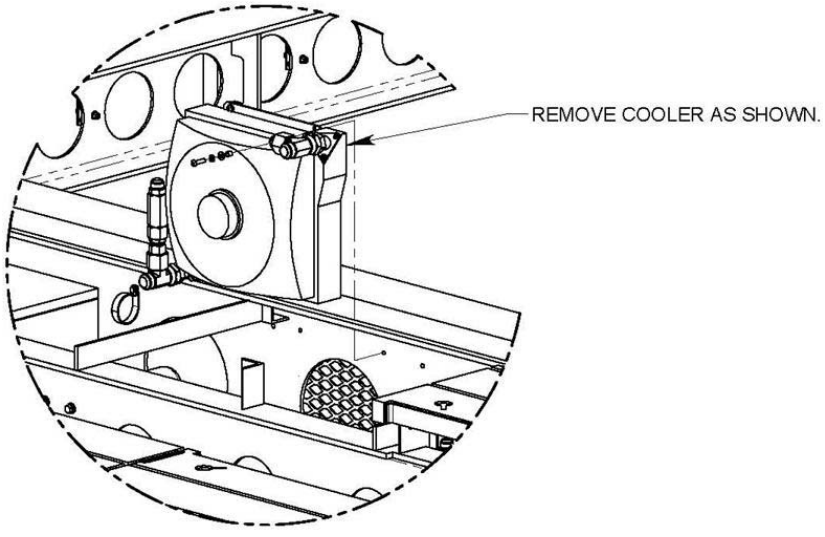


Figure 3

Step 5: Place fire blankets where needed before any metal working. Ensure fire extinguisher is on hand and personnel are assigned for fire watch.

Step 6: All welding shall be carried out to the requirements of CWB-W59 (Latest Edition) for dynamically loaded structuresand/or Canrig Document ENG704 as supplied.

Step 7: Remove existing mesh grating.

Step 8: Cut-out cooler intake hole as defined in Figure 4. Measurements below are in (inches [mm]).

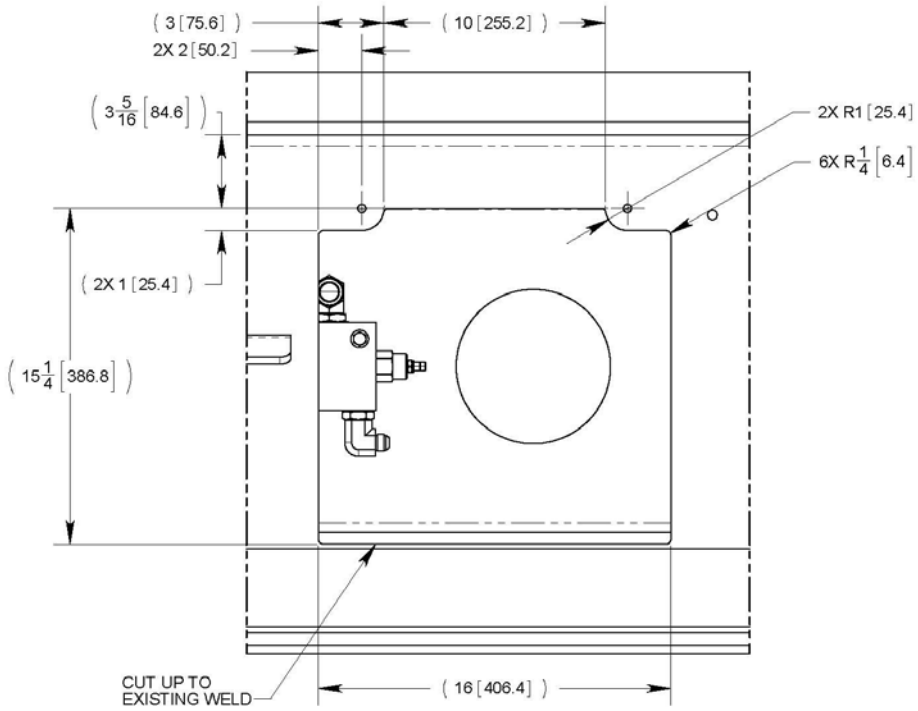


Figure 4

COOLER INTAKE CUT-OUT

Step 9: Weld new mesh grating as defined by Figure 5. Measurements below are in (inches [mm]).

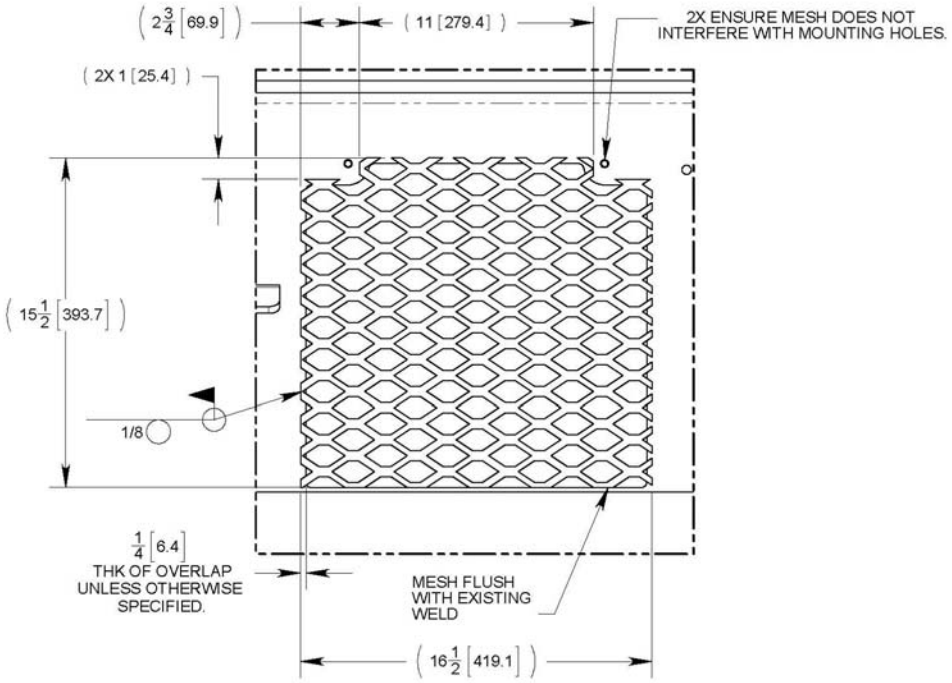


Figure 5

Step 10: Paint exposed metal surfaces.

Step 11: Remount cooler assembly and reattach all hoses.

Step 12: Prior to operating, start the hydraulic pump and inspect cooler system. Eliminate any leaks as required.

Step 13: With hydraulic pump running, start the oil recirculation by pressing F5 on the HMI Screen, located on the control console inside the hydraulic reservoir. Continue the oil recirculation for 10 minutes to charge the cooler with oil and remove any entrapped air.

Step 14: Press F5 again to stop the oil recirculation and resume normal operation.

INFORMATION:

For a complete list of all bulletins go to ***www.canrig.com***

For further information contact:

Canrig Support
Canrig Drilling Technology Ltd.

8223 Willow Place South
Houston, TX 77070
Phone: 281.774.5600
Fax: 281.774.5610

7475 51 Street SE
Calgary, AB T2C 4L6
Phone: 403.237.6400
Fax: 403.536.4605

PRODUCT BULLETIN
NUMBER: 018 CATWALK

CANRIG
DRILLING TECHNOLOGY LTD.

PRODUCT: AUTOMATED CATWALKS **DATE:** August 15, 2011

SUBJECT: **PC3000 LIFT ARM PIN RETAINER**

SERIAL NUMBERS: **PM3000-1001 to PM3000-1160 / 300158 to 300221**

DISCUSSION: The pin attaching the lift arm with carrier is currently held in place by 4 set screws. In some instances, the pin may work itself loose from the grip of the set screws and slide out of place.

RECOMMENDATION: **Overview:** Attach a plate on both sides of the pin to physically prevent the pin from sliding too far out of position. This will prevent the pin from reaching a point where the lift arm and carrier connection fails. The plate will be easy to install by simply tapping holes in the lift arm as specified by drawing AY50765, and bolting plate in place. Plate will not interfere with grease point for pin to retain full function ability.

Materials Required:

RUST PREVENTION PAINT (I.E. RUSTOLEUM)

AY50765 – KIT, PIN RETAINER, LIFT ARM, PC3000
AY 50765 BOM:

Part: AY50765
Description: KIT, PIN RETAINER, LIFT ARM, PC3000

Eng ID: 0
Drawing ID: AY50765 **Rev No:** 01

Item	Qty	Units	Part ID	Eng ID	Description
01	2.00	EA	141102774		RETAINER PLATE, LIFT ARM PIN
02	4.00	EA	LW-0250-HS		LOCKWASHER, 1/4 HELICAL SPRING
03	4.00	EA	HH-0250NC-0063-GR8		CAPSCR, HEX HD, 1/4-20UNC x 0.63, GR8
	1.00	EA	M13126		DRILL BIT, 3/16, JOBBER
	1.00	EA	M13127		TAP, 1/4-20UNC, RH, SPIRAL POINT

Safety Considerations:
Perform a Job Safety Analysis (JSA), ensure that proper PPE is worn, catwalk is shutdown, and follow local lockout/tagout procedures.

Procedure:

Step 1: Drill and tap the bolt holes on the lift arm as shown in Figure 1. Deburr as needed and paint with appropriate color rust prevention paint (i.e. Rustoleum).

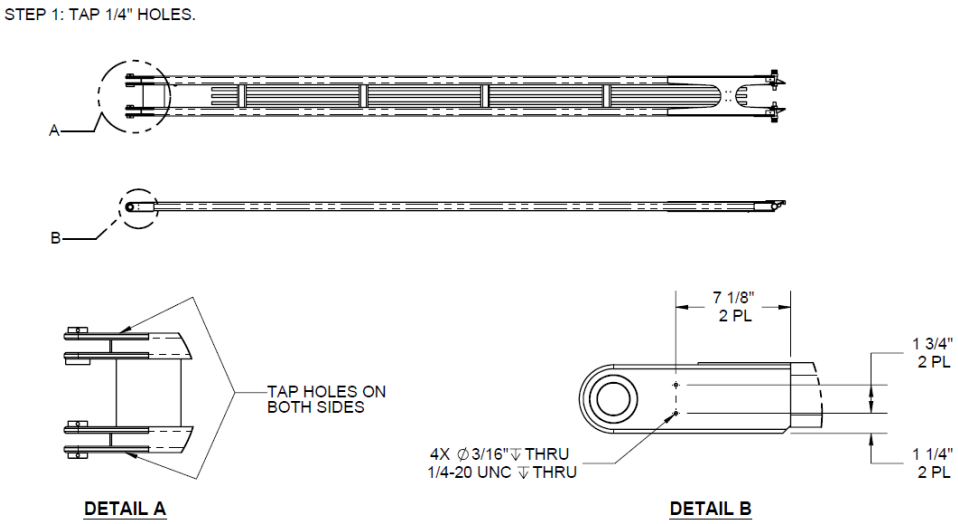


Figure 1

Step 2: Add plate hardware as shown in Figure 2. Note that the plate will not interfere with the grease point for the pin to retain full function capabilities.

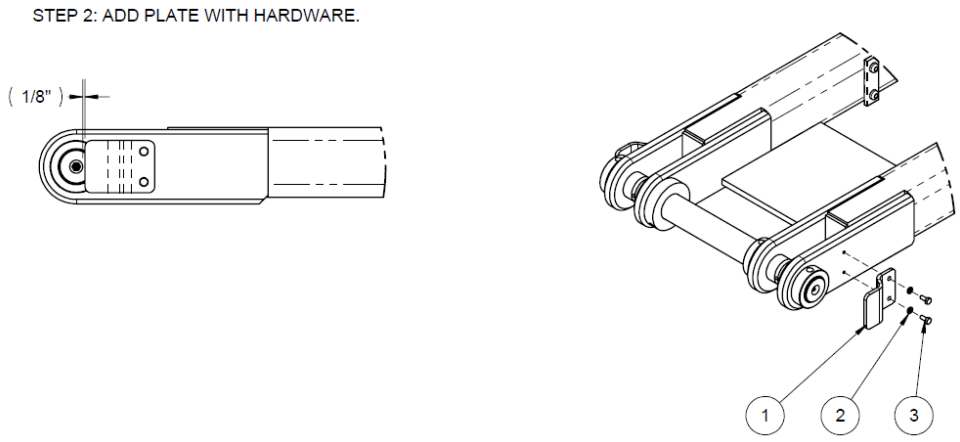


Figure 2

INFORMATION:

*For a complete list of all bulletins go to **www.canrig.com***

For further information contact:

Canrig Support
Canrig Drilling Technology Ltd.

8223 Willow Place South
Houston, TX 77070
Phone: 281.774.5600
Fax: 281.774.5610

7475 51 Street SE
Calgary, AB T2C 4L6
Phone: 403.237.6400
Fax: 403.536.4605

Model: PC4000 Serial No. All up to and including SN400056	September 17, 2012
Product Bulletin # CATWALK 020	

PC4000 Lift Arm Pocket Upgrade

Issue

If debris enters and partially or wholly obstructs the lift arm roller track, there is the potential for the rollers to become misaligned. This roller misalignment can cause either one or both of the rollers to lift up and off to one side, thereby creating a situation where only one or possibly neither of the rollers will properly engage in the pocket. When this type of roller misalignment occurs, the lift arm may twist and possibly derail from the roller track.

Recommendation

Regularly inspect the roller alignment and pocket condition for signs of uneven wear. Keep the roller track and pocket free of debris. To protect against roller misalignment when there is debris or uneven wear, use the kit and follow the procedure described on the next page of this product bulletin.

Any time the carrier is elevated and personnel are positioned under the carrier, a safety bar must be placed behind the flare end of the carrier and protrude through the holes on both sides of the inner catwalk wall to prevent lowering of the carrier (see Figure 1).

Figure 1: Safety Bar

Required Equipment

A kit (Canrig P/N 188100075) is required to perform this procedure. *Refer to the drawing at the end of this document for the kit bill of materials*. *Contact RigLine 24/7™ Support to order the kit.*

Procedure

Complete the following procedure with kit 188100075:

1. Weld the new Roller Lead-in Guide (141103258 and 141103259) as shown in Figure 2. *Refer to the drawing at the end of this document for exact placement*.

Figure 2: Lead-in Guide (RH)

2. Weld the new Roller Cover Plate (141103264) as shown in Figure 3. *Refer to the drawing at the end of this document for exact placement.*

Figure 3: Roller Cover Plate (RH)

3. Weld the Lift Arm Stop Plate (141103265) to the lift arm as shown in Figure 4. *Refer to the drawing at the end of this document for exact placement.*

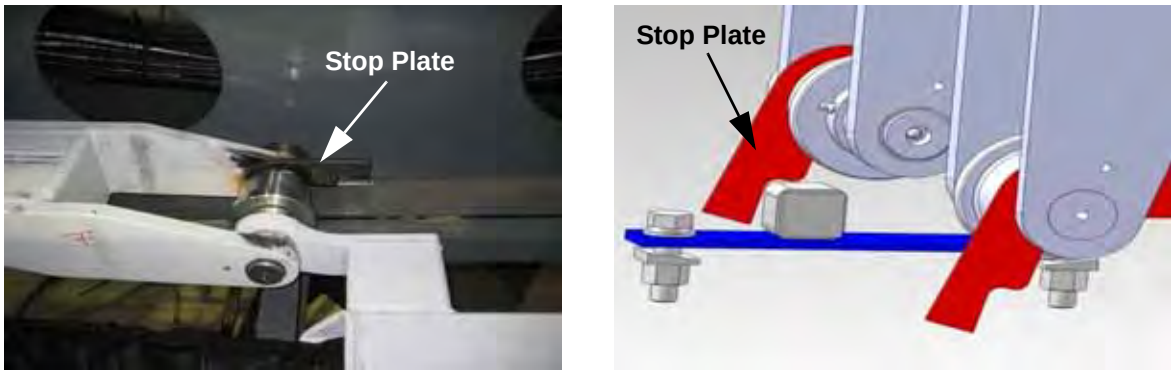
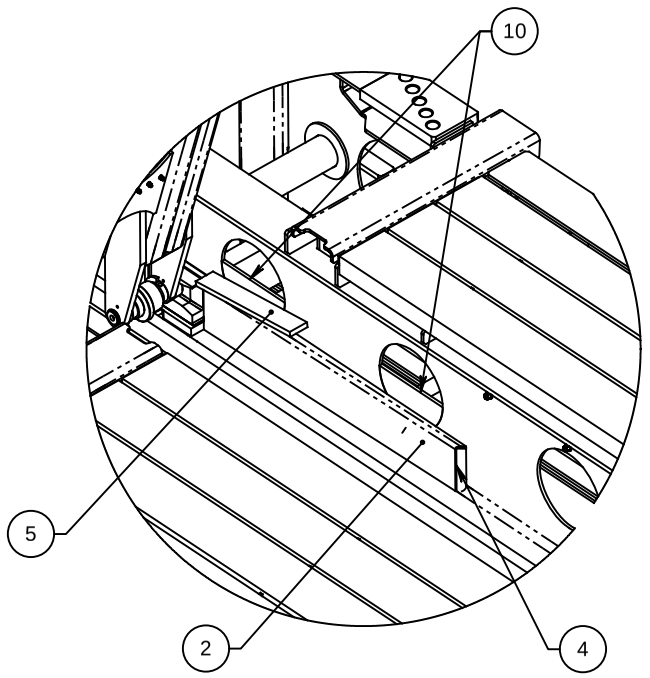
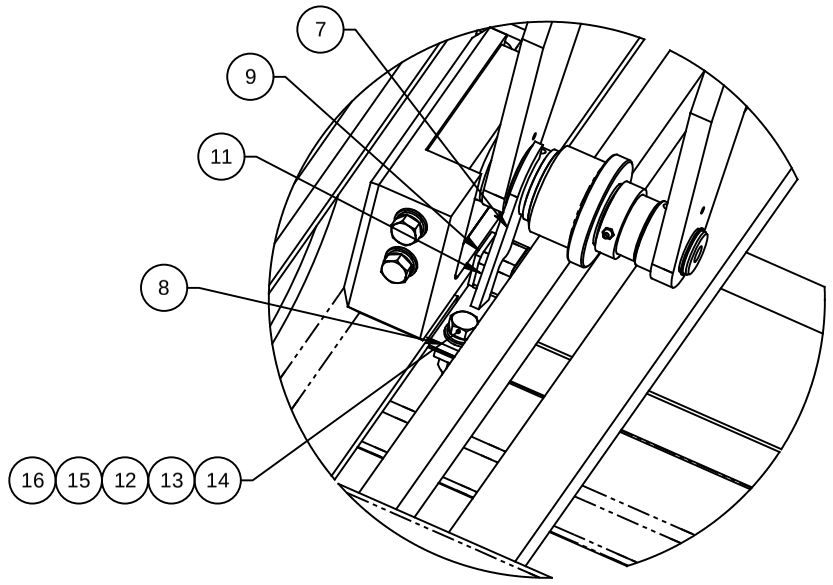


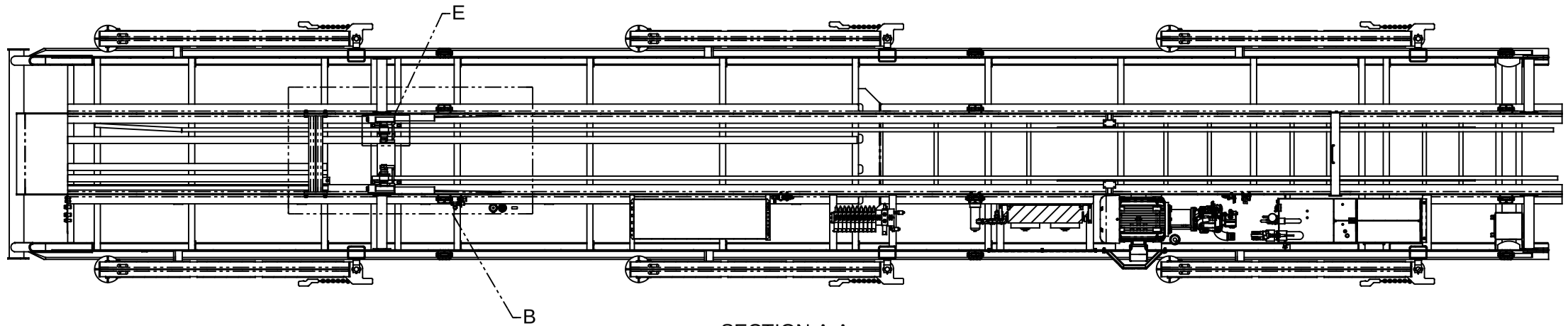
Figure 4: Lift Arm Stop Plate

IF IN DOUBT...ASK!

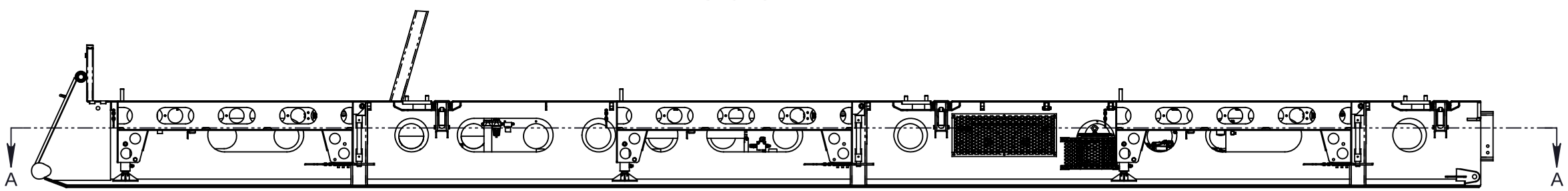




ITEM	QTY	DESCRIPTION	MATERIAL	CANRIG PART No.
1	0	ASSY, MASTER SKID, PC4000	-	EXISTING
2	1	GUIDE, BUMPER - OFF DRILLERS SIDE, PC4000	G40.21-44W / A572 G50	141103258
3	1	GUIDE, BUMPER - DRILLERS SIDE,PC4000	G40.21-44W / A572 G50	141103259
4	2	END CUP, BUMPER GUIDE	G40.21-44W / A572 G50	141103267
5	2	ROLLER COVER, PC4000	G40.21-44W / A572 G50	141103264
6	0	ASSY, 21FT LIFT ARM, PC4000	-	EXISTING
7	2	LIFT ARM STOP PLATE, PC4000	G40.21-44W / A572 G50	141103265
8	2	STOPPER PLATE, LIFT ARM, PC4000	G40.21-44W / A572 G50	141103266
9	4	END CUP, LIFT ARM, PC4000	G40.21-44W / A572 G50	141103307
10	4	END CUP, PC4000	G40.21-44W / A572 G50	141103268
11	2	TS,2" X 2" X 3/16" X 1 3/4" LONG	G40.21-50W	TS2X2X0.1875X2
12	4	WASHER, F, 3/4, PLAIN, TYPE A	-	FW-0750-A
13	4	LOCKWASHER, 3/4 HELICAL SPRING	GR8	LW-0750-HS
14	4	CAPSCR, HEX HD, 3/4-10UNC X 3.00, GR8	-	HH-0750NC-0300-GR8
15	4	WASHER,B,3/8,BEVEL	-	BW-0750
16	4	LOCKNUT, 3/4-10UNC, NYLOCK, GR8	-	LN-750NC-NL



SECTION A-A



REV	DATE	BY	REVISION DESCRIPTION	ECN	CHKD	APVD

WELDING PROCEDURE AS PER CANRIG SPECIFICATION - ENG 704, UNLESS NOTED OTHERWISE

REMOVE SHARP CORNERS AND BURRS
CASTING ± 1/16
CONCENTRICITY .005 TIR
STRAIGHTNESS ± .005 IN 5 INCHES
SQUARENESS ± .010 IN 5 INCHES
PARALLELISM ± .010 IN 5 INCHES
FLATNESS ± .010 or as Shown
TRUE POSITION .005
MACHINED SURFACES 125
MIN. RADIUS UNLESS SHOWN = 0.03 MAX.

TOLERANCE - UNLESS OTHERWISE SPECIFIED

FABRICATING IMPERIAL		FABRICATING [METRIC]	
0 TO 24"	± 1/16"	0 TO 610 mm	± 1 mm
24" to 60"	± 1/8"	610 TO 1525	± 3 mm
60" to 120"	± 3/16"	1525 TO 3048	± 5 mm
120" to 280"	± 1/4"	3048 TO 7112	± 7 mm
280" & OVER	± 1/2"	7112 & OVER	± 13 mm

MACHINING IMPERIAL		MACHINING METRIC	
DECIMAL .x	± .030"	DECIMAL x.	± .8 mm
.xx	± .015"	x.x	± .40 mm
.xxx	± .005"	x.xx	± .13 mm

ANGULAR MACHINING ± 1° FABRICATION ± 2°

	INIT.	YY/MM/DD
MODELED	OOT	12/03/09
DRAWN	OOT	12/03/13
CHECKED	JCR	12/03/13
APPRV'D	JCR	12/03/13

MATERIAL
SEE BOM
-

EST. WEIGHT 5423.1 lbs

SCALE 1:30

SHEET SIZE D

THIRD ANGLE PROJECTION

DO NOT SCALE DRAWING

CANRIG DRILLING TECHNOLOGY LTD.

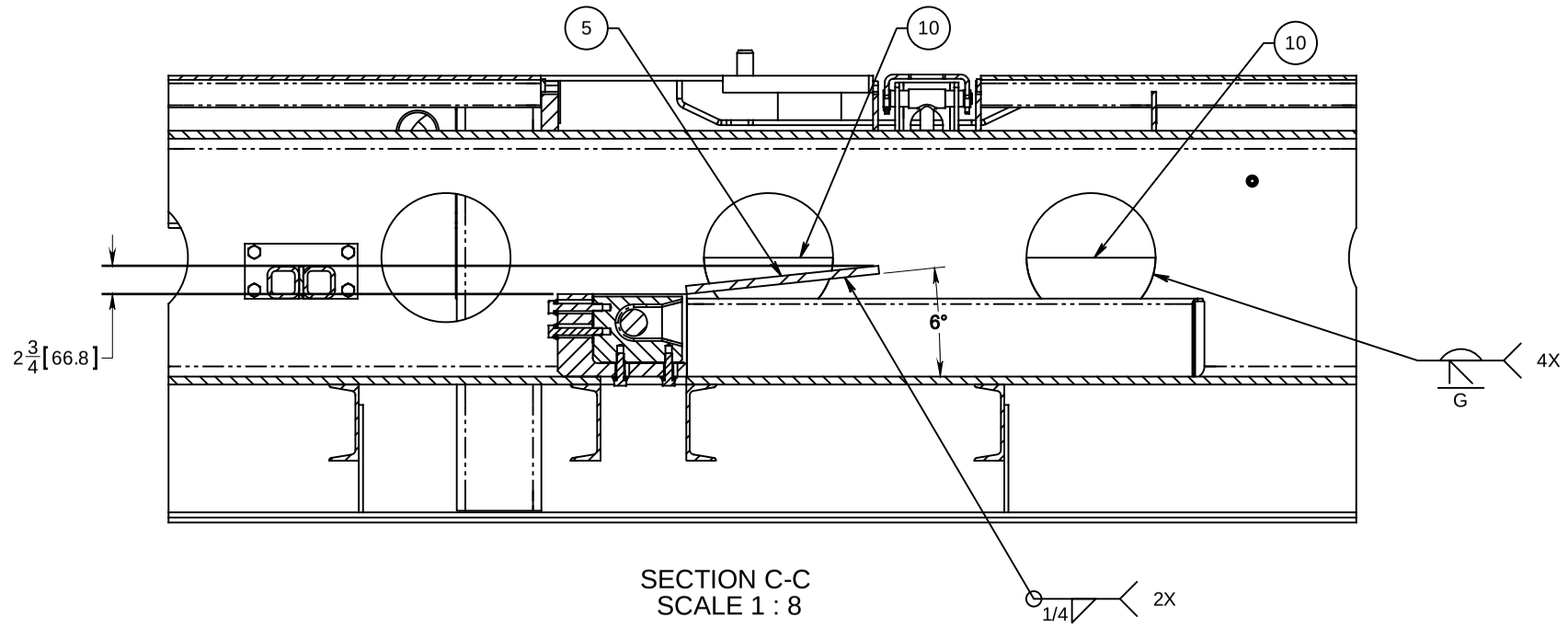
PC4000 POCKET UPGRADES

SHEET 1 OF 3

188100075 REV 02

IF IN DOUBT...ASK!

IF IN DOUBT...ASK!



SECTION C-C
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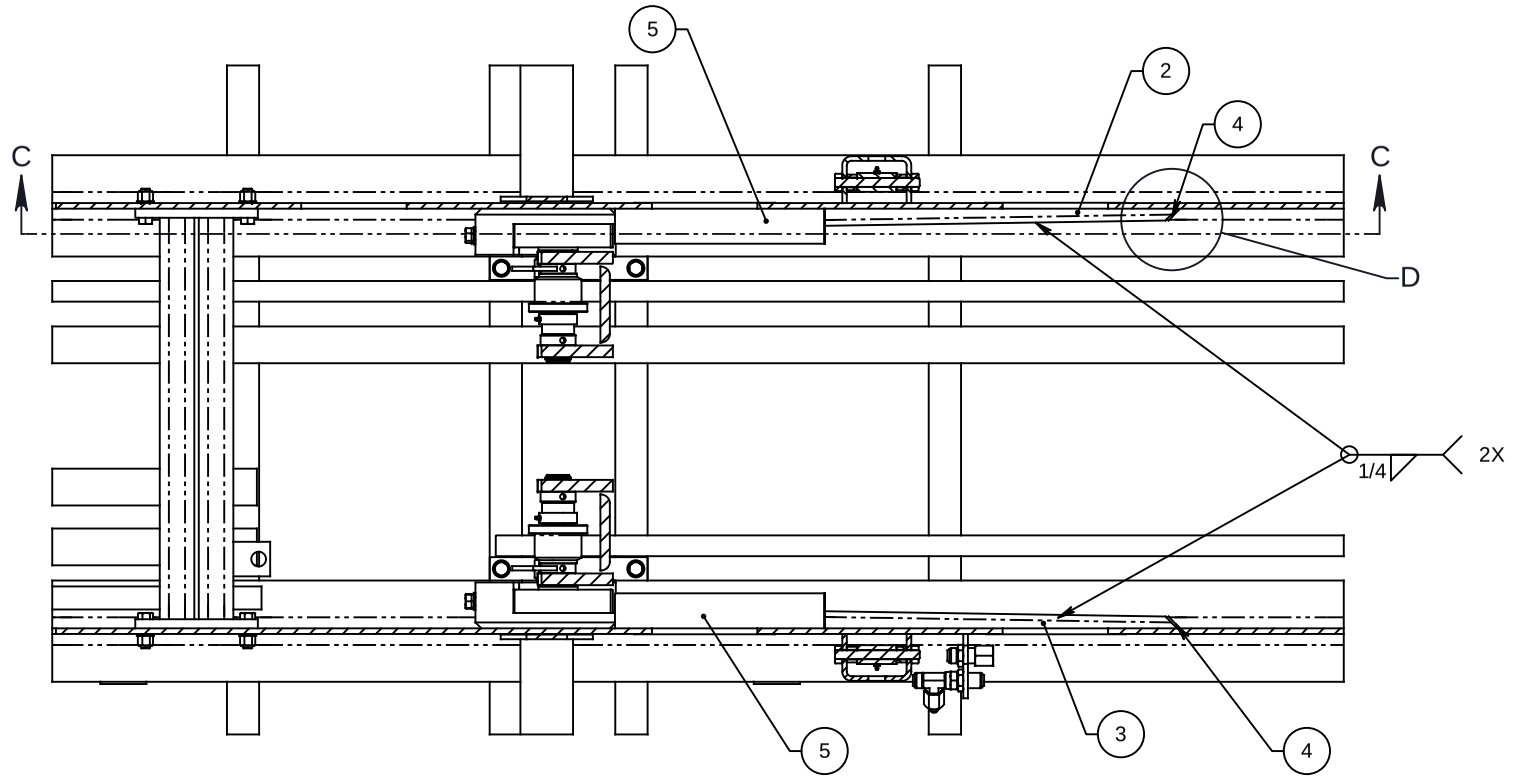
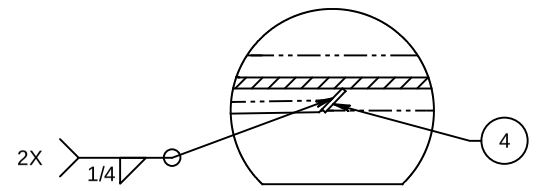


DETAIL B
SCALE 1 : 8



DETAIL D
SCALE 1 : 4

WELDING PROCEDURE AS PER CANRIG SPECIFICATION - ENG 704, UNLESS NOTED OTHERWISE

REMOVE SHARP CORNERS AND BURRS
CASTING ± 1/16
CONCENTRICITY .005 TIR
STRAIGHTNESS ± .005 IN 5 INCHES
SQUARENESS ± .010 IN 5 INCHES
PARALLELISM ± .010 IN 5 INCHES
FLATNESS ± .010 or as Shown
TRUE POSITION .005
MACHINED SURFACES 125
MIN. RADIUS UNLESS SHOWN = 0.03 MAX.

TOLERANCE - UNLESS OTHERWISE SPECIFIED

FABRICATING IMPERIAL		FABRICATING [METRIC]	
0 TO 24"	± 1/16"	0 TO 610 mm	± 1 mm
24" to 60"	± 1/8"	610 TO 1525	± 3 mm
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DECIMAL .x	± .030"	DECIMAL x.	± .8 mm
.xx	± .015"	x.x	± .40 mm
.xxx	± .005"	x.xx	± .13 mm
ANGULAR MACHINING	± 1°	FABRICATION	± 2°

	INIT.	YY/MM/DD
MODELED	OOT	12/03/09
DRAWN	OOT	12/03/13
CHECKED	JCR	12/03/13
APPRV'D	JCR	12/03/13

MATERIAL
SEE BOM
-

EST. WEIGHT 5423.1 lbs
SCALE 1:30
SHEET SIZE D

THIRD ANGLE PROJECTION

DO NOT SCALE DRAWING

CANRIG DRILLING TECHNOLOGY LTD.

PC4000 POCKET UPGRADES

SHEET 2 OF 3

188100075 REV 02

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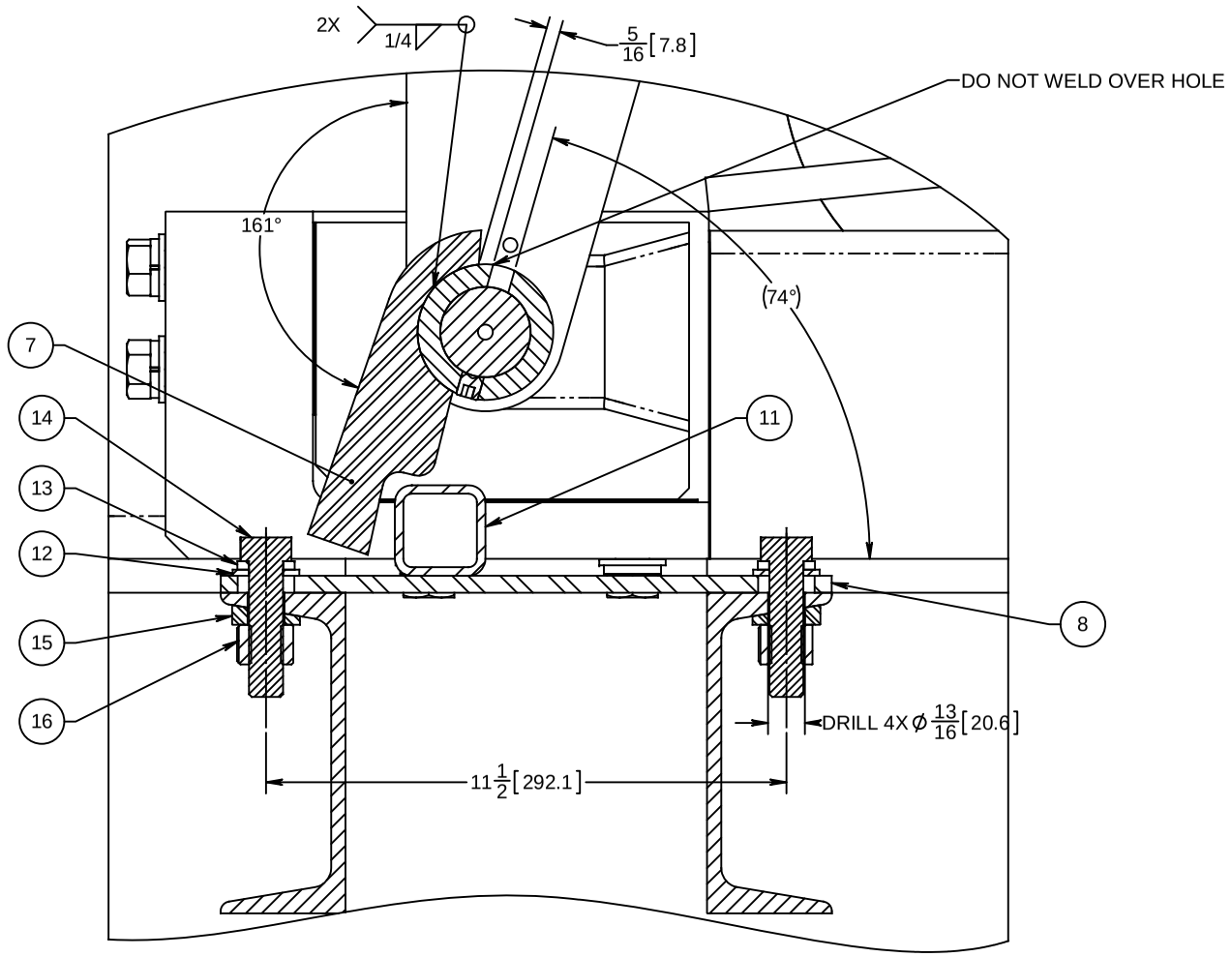

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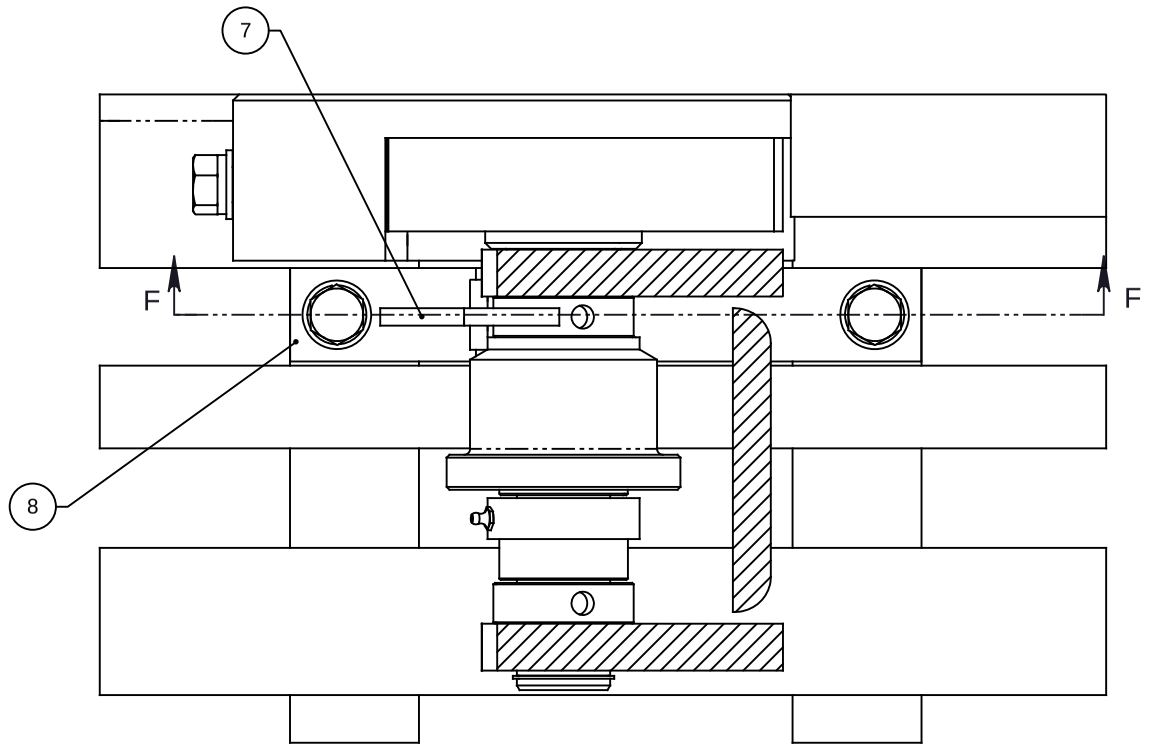
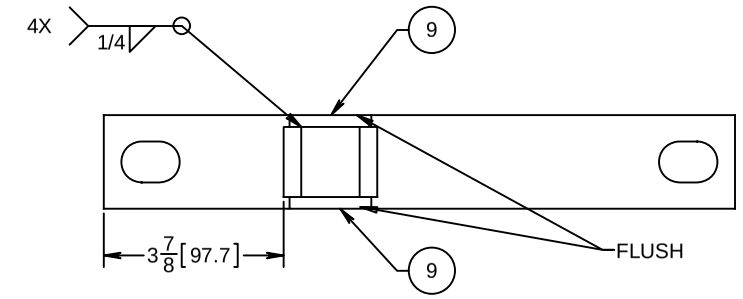
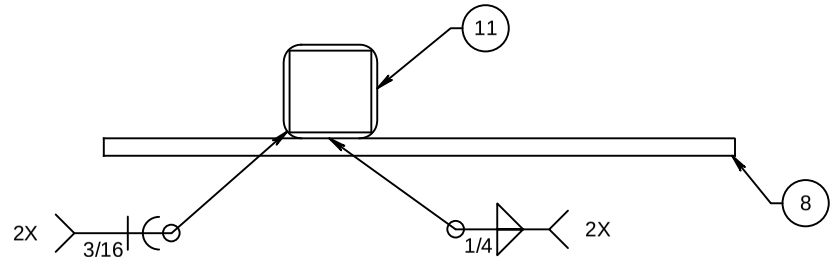


DETAIL E
SCALE 1 : 2





ITEMS 8,9,11 TO BE
WELDED AND BOLTED IN

WELDING PROCEDURE AS PER CANRIG SPECIFICATION - ENG 704, UNLESS NOTED OTHERWISE

REMOVE SHARP CORNERS AND BURRS
CASTING ± 1/16

CONCENTRICITY	.005 TIR	
STRAIGHTNESS	± .005 IN 5 INCHES	
SQUARENESS	± .010 IN 5 INCHES	
PARALLELISM	± .010 IN 5 INCHES	
FLATNESS	± .010 or as Shown	
TRUE POSITION	.005	

MACHINED SURFACES 125
MIN. RADIUS UNLESS SHOWN = 0.03 MAX.

TOLERANCE - UNLESS OTHERWISE SPECIFIED

FABRICATING IMPERIAL		FABRICATING [METRIC]	
0 TO 24"	± 1/16"	0 TO 610 mm	± 1 mm
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DECIMAL .x	± .030"	DECIMAL x.	± .8 mm
.xx	± .015"	x.x	± .40 mm
.xxx	± .005"	x.xx	± .13 mm

ANGULAR MACHINING ± 1° FABRICATION ± 2°

	INIT.	YY/MM/DD
MODELED	OOT	12/03/09
DRAWN	OOT	12/03/13
CHECKED	JCR	12/03/13
APPRV'D	JCR	12/03/13

THIRD ANGLE PROJECTION

DO NOT SCALE DRAWING

MATERIAL
SEE BOM
-

EST. WEIGHT 5423.1 lbs
SCALE 1:30
SHEET SIZE D

CANRIG DRILLING TECHNOLOGY LTD.

PC4000 POCKET UPGRADES

SHEET 3 OF 3

188100075 REV 02

PRODUCT BULLETIN
NUMBER: CATWALK 019

CANRIG
DRILLING TECHNOLOGY LTD.

PRODUCT: AUTOMATED CATWALKS
Model Series PC2000 – PC5000

DATE: October 03, 2011

SUBJECT: **Cavotec Radio Control Unit**

SERIAL NUMBERS: **Installed on new PC2000- PC5000 units beginning August 2011**
Retrofittable for PC2000-PC5000 units built through July 2011 with Hetronic Radio Control Unit

DISCUSSION:

The manufacturer for the radio control unit has been changed from Hetronic to Cavotec. Some of the major features and advantages of the Cavotec unit are listed below:

- Heavy duty construction suitable for rig environment.
- Intrinsically safe, IECEx rated terminal and base unit in both wired and wireless configuration.
- Improved range and signal reliability.
- Signal encoding unique to each terminal / base unit set prevents unintended operation of nearby units.
- LED with variable blinking sequences provides status and error code information for ease of troubleshooting.
- 50m cable provided for backup in case of radio failure.
- Available with powder coated steel pedestal with 1-1/2" pipe thread base for direct mounting to rig floor.
- Adapter plate allows hassle-free replacement of existing base units.

The Cavotec radio control unit has been installed on new production units beginning August 2011 and is currently available as a retrofit replacement for the Hetronic radio control unit on Catwalks built prior to August 2011.

The part number for the complete assembly minus the pedestal is AY50808. The pedestal part number is DT50457.

The AY50808 assembly consists of the following components:

1) Terminal, Canrig P/N E14991, 1 ea (Figure 1)
2) Base Unit, Canrig P/N E14992, 1 ea (Figure 2)
3) Vibration Attenuators, No Canrig P/N, 4 ea (Figure 3)
4) Antenna, Canrig P/N E15040, 1 ea (Figure 4)
5) Battery, Canrig P/N E14994, 2 ea (Figure 5)
6) Battery Charger, Canrig P/N E14993, 1 ea (Figure 6)
7) 50m Umbilical Cable, Canrig P/N E15039, 1 ea (Figure 7)
8) 1.5m Antenna Cable, No Canrig P/N, 1 ea (Figure 8)
9) 2m Conductor Cable & Plug, No Canrig P/N, 1 ea (Figure 9)
10) 24 pole Insert & Hood with Cable Gland, No Canrig P/N, 1 ea (Figure 10)
11) Support Strap, No Canrig P/N, 1 ea (Figure 11)
12) Documentation CD, No Canrig P/N, 1 ea (Figure 12)

Figure 1

Figure 2

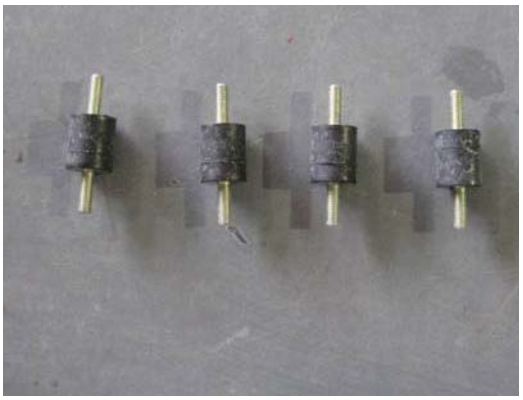


Figure 3

Figure 4

Figure 5

Figure 6

Figure 7

Figure 8

Figure 9

Figure 10

Figure 11

Figure 12

RECOMMENDATION:

For field retrofits, supplemental kit AY50865 is required to complete the installation. The AY50865 kit includes the following components:

1) Strain Relief, 1/2 NPT, 0.375-0.500, Canrig P/N E04-2002-010, 1 ea
2) Sealing Ring, 1/2 NPT, Canrig P/N E04-2027-010, 1 ea
3) Locknut, Conduit Fitting, 1/2 NPT, Canrig P/N E04-5046-010, 1 ea
4) Hole Cutter, 7/8, Canrig P/N E10742, 1 ea
5) Capscrew, Hex Hd, 1/4-20 UNC x 5,Gr 8, Canrig P/N HH-0250NC-0500-GR8, 4 ea
6) Washer, F, 1/4, Plain, Type A, Canrig P/N FW-0250-A, 4 ea
7) Lockwasher, 1/4, External Tooth, Canrig P/N LW-0250-ET, 4 ea
8) Locknut, 1/4-20 UNC, Gr 8, Stover, Canrig P/N LN-0250NC-GR8, 4 ea

Follow the below procedure to complete a retrofit installation.

1. Return skate and lift arm to stowed position.

2. Disconnect all power. Follow local lock out and tag out procedures.

3. Lift floor panel covering Catwalk electrical panel and open electrical panel.

4. Remove Hetronic base unit from panel.

5. An adapter plate is provided with the Cavotec base unit to allow it to be installed in the existing Hetronic base unit mounting holes. Align the vibration attenuators (Figure 3) with the existing holes and place the Cavotec base unit (Figure 2) on top. Fasten in place with the 1/4" fasteners supplied with the AY50865 kit. See Figure 13.

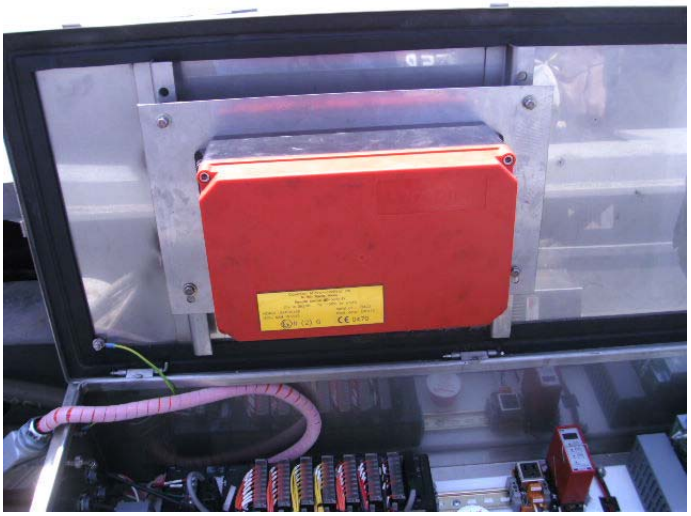


Figure 13

6. Drill a 7/8 inch hole using the hole cutter provided in the installation kit in the end of the electrical panels next to the antenna approximately 1.5 inches down and 1 inch to the right. Place rags in box to catch metal shavings. See Figure 14.

Figure 14

7. Slide strain relief with weather seal onto 2m conductor cable (Figure 9) until receptacle end of cable is approximately 8-10 inches from edge of strain relief. Insert pigtail end of conductor cable through hole, add lock ring, and tighten strain relief. See Figure 15.

Figure 15

8. Insert pigtail end of conductor cable through strain relief on the bottom of the base unit and tighten. Attach wires A, B, +9 VDC, 0 VDC & ground to the appropriate barrier terminal or lug. See Figures 16 and 17.

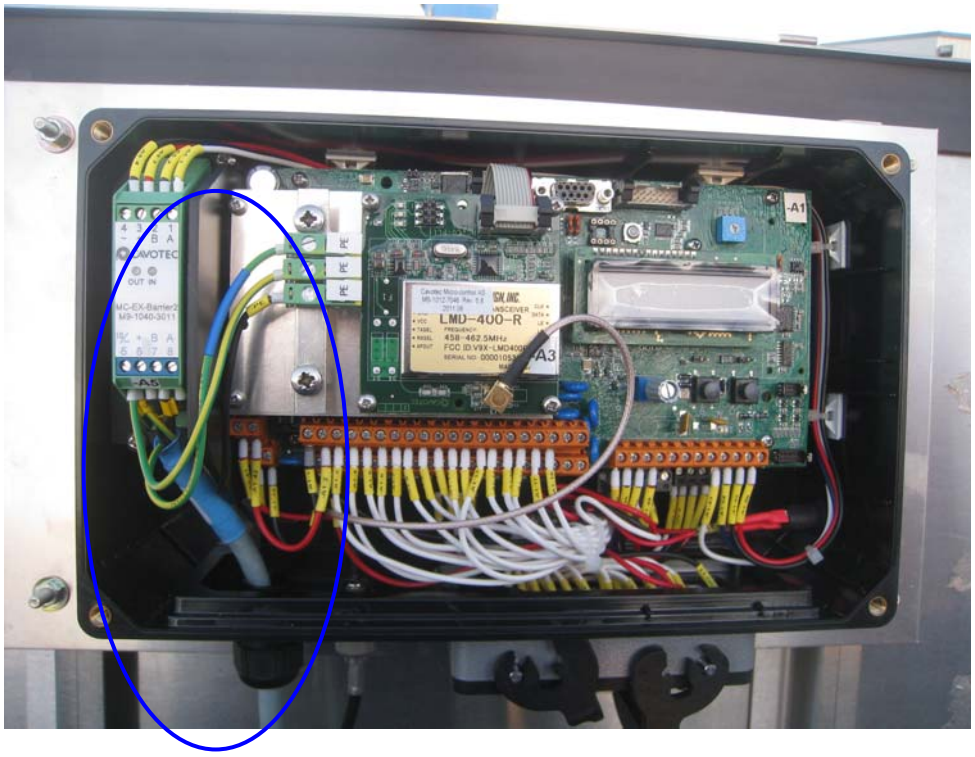


Figure 16

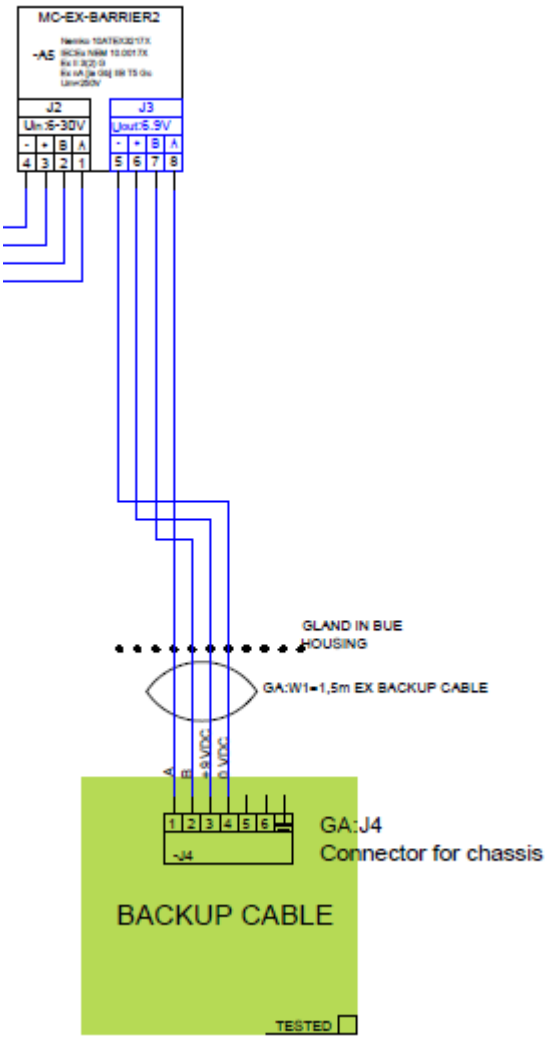


Figure 17

9. Close electrical panel cover and replace floor panel. Reconnect electrical power.

10. Ensure proper operation of the radio by checking all of the functions in wireless and wired mode.

See attached doghouse poster for a summarized set of operating instructions, maintenance procedures, spare parts, and terminal status indicators.

INFORMATION: *For a complete list of all bulletins go to* ***www.canrig.com***

For further information contact:

Canrig Drilling Technology Ltd.

8223 Willow Place South
Houston, Texas 77070
Phone: 281.774.5600
Fax: 281.774.5610

9307 52 Street SE
Calgary, AB T2C 2R4
Phone: 403.279.3466
Fax: 403.279.6888

CANRIG
DRILLING TECHNOLOGY LTD.

Radio Control Unit

CANRIG Power Catwalk Model Series 2000–5000

Cavotec® Model MC 3200 EX

Read Prior to Use

- **Do not open the terminal (see Figure 1). Doing so will void the warranty and invalidate the hazardous area classification. There are no user-serviceable internal parts.**
- Inspect the Radio Control Unit and accessories prior to operation. Check for any damage that may have occurred during shipping.
- Do not use the device if it appears to be damaged.
- Installation should only be carried out by qualified personnel.
- Do not store the terminal unit in temperatures below -22 °F (-30 °C) or above +122 °F (+50 °C).
- Avoid shock and vibrations if possible.
- Do not immerse in water. Do not pressure wash.
- Use only original batteries from Cavotec Micro-control AS.
- Ensure that the battery charger supply voltage is correct.

Spare Parts

Part Number	Description	Quantity
E14991	Terminal (hand-held). Provide existing base unit serial number. See Figure 3.	**1**
E14992	Base Unit. Provide existing base unit serial number. See Figure 3.	**1**
E14993	Battery Charger	**1**
E14994	Battery	**1**
E15039	50m Control Cable	**1**
E15040	Antenna	**1**

Maintenance

Task	Frequency
Inspect terminal and base unit for damage.	As required.
Clean terminal and base unit with damp cloth.	As required.
Do not open the terminal housing; degradation of the sealing gasket will occur.	
Report damaged rubber boots on terminal joysticks or pushbuttons to RIGLINE 24/7 immediately!	

Operating Instructions

Task	Description
Operating the Terminal	- Check that a fully-charged battery is in the terminal. - Pull/twist the Emergency Stop pushbutton out. - Turn the terminal ON. - Press the Start pushbutton. - After a 1 second self-test, the terminal will establish connection with the base unit (Figure 2).
Replacing the Battery	- Operating time for a fully-charged battery is 8 hours. - Place the catwalk in a safe, stowed position. - Turn the terminal OFF. - Remove the battery and insert a fully-charged one. - Turn the terminal ON.
Charging the Battery	- Battery life is 1000 charging cycles, or 2 – 3 years. - Install the battery charger in a clean and dry environment. - Connect the charger to the correct supply voltage. - Insert the battery to be charged. - Wait to see the indication that charging is normal (Red LED). - Battery will charge fully in about three hours. Battery is fully-charged when Green LED is lit. - Leave the battery in the charger until it is required for use. - Use only the battery charger supplied with the system or a replacement from Canrig. - Batteries not in constant use should be charged at least once every 2 months.

Terminal Status Indicators

Flashing Pattern	Description	Action
Steady light.	Normal condition. The terminal is turned ON, the battery voltage is okay, and no fault is detected.	None.
Slow flashing light without stop (1 flash per second).	Low battery voltage.	Replace the battery with a fully charged one.
Short flashes (2 flashes per second).	Programming mode.	Turn the terminal OFF and ON again to start normal operation.
1 flash with a long stop (1 flash every 2 seconds).	Processor fault or test mode. Indicates a processor module fault and/or a processor fault.	Contact RIGLINE 24/7.
2 flashes with a stop.	Activity at start-up. A joystick is out of center position, or a switch is in ON position.	Set all switches/joysticks to OFF position and or/neutral position.
3 flashes with a stop.	Radio fault.	Contact RIGLINE 24/7.
4 flashes with a stop.	Shutdown because of low battery voltage.	Replace the battery with a fully charged one.
5 flashes with a stop.	Keyboard fault. The terminal is not able to "read" switches, joysticks, etc.	Contact RIGLINE 24/7.
6 flashes with a stop.	Shutdown because of inactivity. The terminal will soon "turn itself OFF" since no switches, joysticks, etc. have been activated.	Turn the terminal OFF and ON again to start normal operation.
7 flashes with a stop.	Emergency stop. The E-Stop button has been pressed or the shock detector has been activated.	Ensure the stop button is out and turn the terminal OFF and ON again to start normal operation.
No light.	Terminal is OFF or battery is not installed or charged.	Ensure there is a charged battery in the terminal and that the terminal is turned ON. If the terminal has turned itself OFF because of inactivity, turn it OFF and ON again to start normal operation.

Figure 1: Terminal

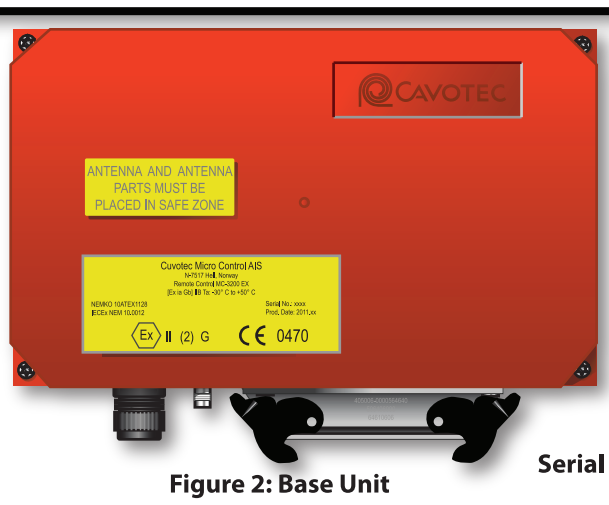
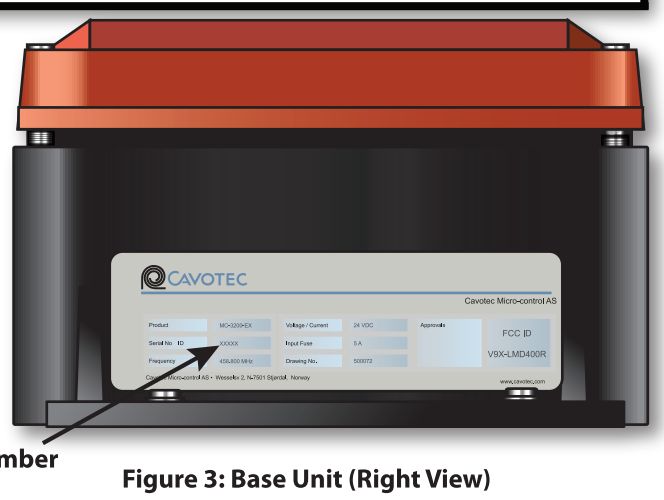


Figure 2: Base Unit



Serial Number

Figure 3: Base Unit (Right View)