

## Safety Bulletin

No: SB043

Rev 0

November 19, 2008

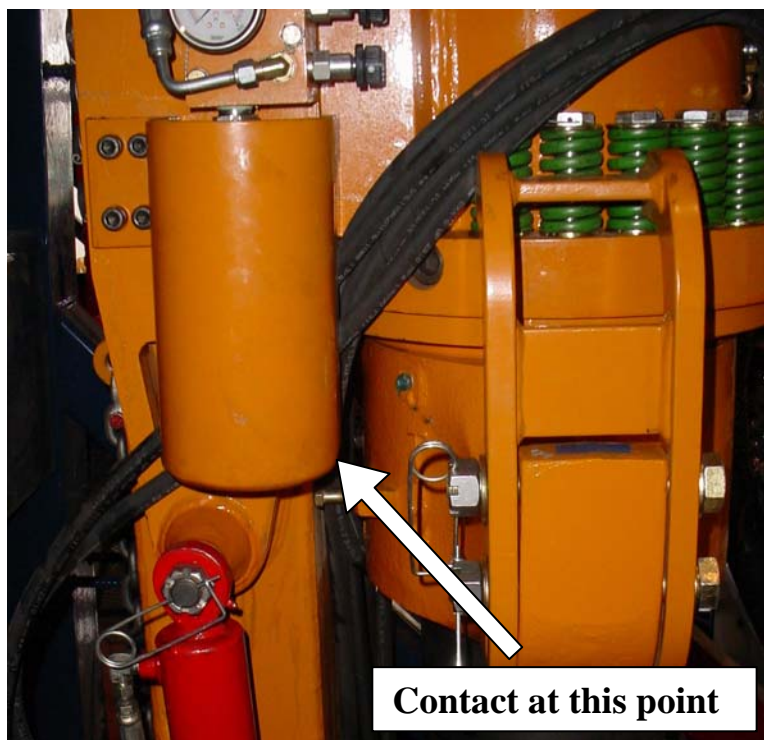
### HXI Top Drive – Grabber Lift Accumulator Interference



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#### BACKGROUND INFORMATION:

A potential mechanical interference risk has been identified wherein the driller side upper elevator link eye is able to come into contact with the grabber lift accumulator guard. The area of contact is shown in Figure 1.



**Figure 1** – Location of elevator link eye contact.

Due to the close proximity of the grabber lift accumulator with the elevator link eye there are several conditions that may lead to this interference including,

- Incorrectly positioned elevator link clamps allowing excessive tilting of the elevator links.
- The use of links with large eyes.
- Load collar geometry allowing elevator link to move in a radius greater than intended design.

It has been brought to TESCO's attention that a number of units have been modified in the field by removing a portion of the accumulator guard to accommodate the range of motion of the elevator link eyes. This practice can result in a serious safety risk as, in addition to providing protection to the accumulator, the guard also serves as a secondary retention mechanism to protect against dropped object incidents. In one instance the portion of guard removed was sufficient to allow the accumulator to fall through the guard and resulted in a dropped object incident.

To eliminate the potential for mechanical interference TESCO has relocated the grabber lift manifold and accumulator to a position above the elevator link retainers as shown in Figure 2. Further, a safety cable has been implemented as a positive secondary retention for the accumulator in its new location. TESCO

recommends that all HXI model top drives have the grabber lift manifold and accumulator retrofitted to this new location.



**Figure 2** – Relocated Accumulator, Clamp Bracket and Safety Cable

**AFFECTED PRODUCT:**

TESCO model 250HX1700 top drives with the following unit numbers require relocation of the grabber lift manifold and accumulator and the addition of a accumulator clamp bracket and safety cable: 530, 572, 573, 574, 575, 576, 577, 578, 593, 602, 604, 646, and 653.

TESCO model 250HX1700 top drives with the following unit numbers require the addition of a clamp bracket and safety cable only: 645, 652, 655, 677, 678, 689, and 690.

**ACTION REQUIRED:**

TESCO recommends that all affected units be inspected for signs of impact damage on the grabber lift accumulator guard immediately. Units that are showing signs of contact with the elevator link eye should be immediately retrofit to prevent future failure. If for some reason an immediate full repair is not possible, TESCO recommends, as a minimum, the addition of the safety cable to the accumulator until such time that the full repair can be made. Please contact your local TESCO representative who will perform the following repair.

Relocation of grabber lift manifold and accumulator:

1. Remove accumulator guard and manifold/accumulator assembly.
2. Layout locations for grabber lift manifold mount as shown in Drawing 1100080 Rev 1 (attached).
3. Drill and tap new manifold mounting holes in accordance with Drawing 1100080 Rev 1 (attached).
4. Install clamp bracket and safety cable following instructions below and re-install grabber lift manifold/accumulator assembly in accordance with illustration I-1100047 Rev 5 or higher (attached).

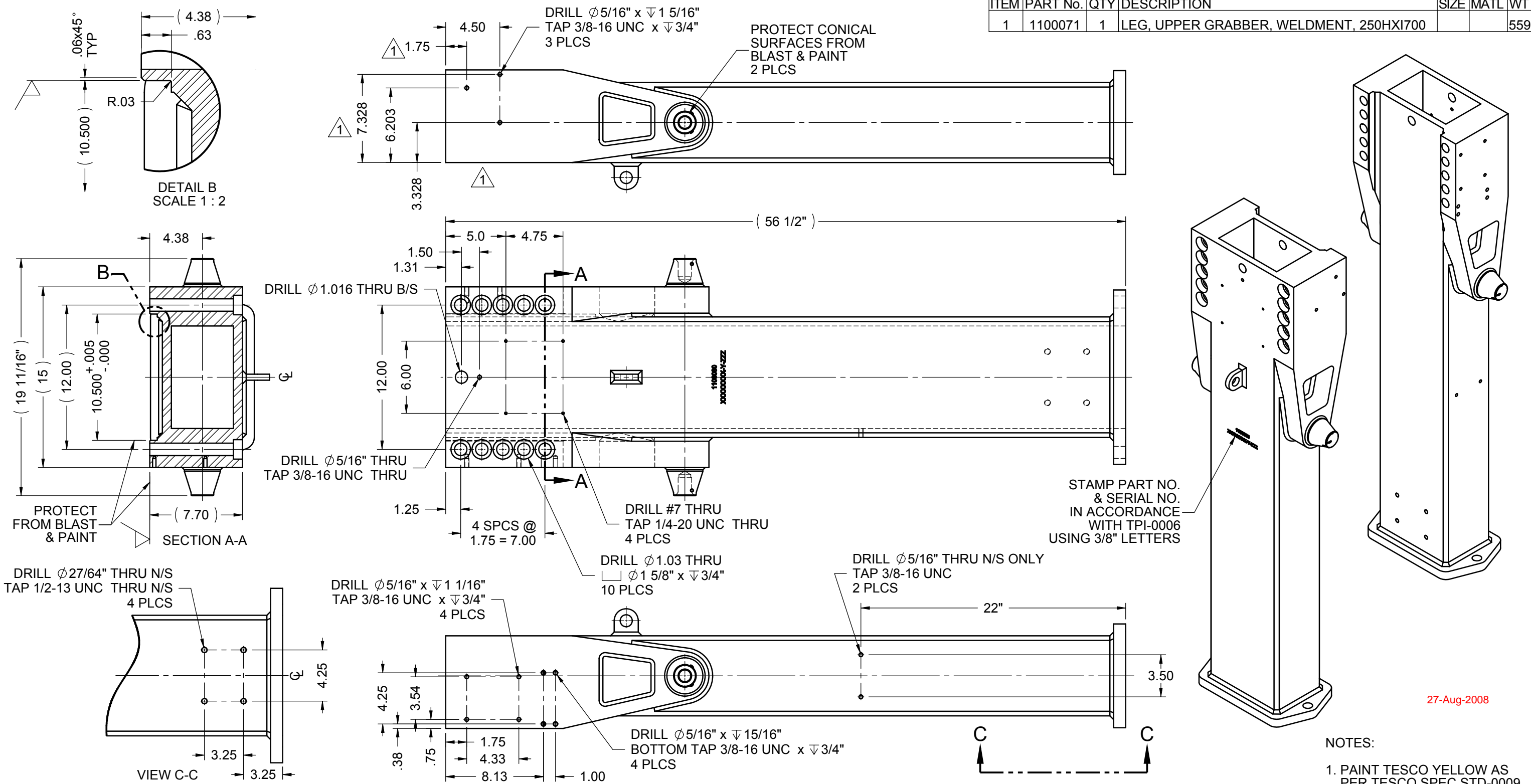
Addition of Clamp Bracket and Safety Cable:

1. Using 3/8"-24UNF x 1/2" fastener (TESCO PN 1390065), install safety cable (TESCO PN 1390064) onto accumulator as shown in Illustration I-1100047 Rev 5 or higher (attached).
2. Install accumulator clamp bracket (TESCO PN 1030251) between manifold and upper grabber leg as shown in Illustration I-1100047 Rev 5 or higher (attached).
3. Install accumulator clamp (TESCO PN 1030253) as shown in Illustration I-1100047 Rev 5 or higher (attached).
4. Using manifold mounting bolt, secure safety cable as shown in Illustration I-1100047 Rev 5 or higher (attached).
5. Ensure all hardware is installed using thread locking compound and is safety wired or retained with cotter pins as shown in I-1100047 Rev 5 or higher (attached).

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**Contact your local TESCO Parts and Service Center for further information regarding this bulletin and/or supply of affected components noted above.**

ITEM	PART No.	QTY	DESCRIPTION	SIZE	MATL	WT
1	1100071	1	LEG, UPPER GRABBER, WELDMENT, 250HXI700			559



NOTES:  
 1. PAINT TESCO YELLOW AS PER TESCO SPEC STD-0009.

NOTES:  
 1. UNLESS NOTED, ALL PARTS SHALL BE PERMANENTLY IDENTIFIED:  
 -MACHINED PARTS: STAMP, ETCH OR ENGRAVE DRAWING NUMBER, REVISION, AND PURCHASE ORDER NUMBER.  
 -WELDMENTS: APPLY DRAWING NUMBER AND REVISION USING LOW STRESS STAMPS.  
 -FABRICATED PARTS AND SHAPES: APPLY DRAWING NUMBER AND REVISION USING PAINT MARKER.  
 2. ALL PRINTS AND COPIES SHALL BE RETURNED UPON JOB COMPLETION UNLESS OTHERWISE SPECIFIED IN WRITING BY TESCO CORPORATION.

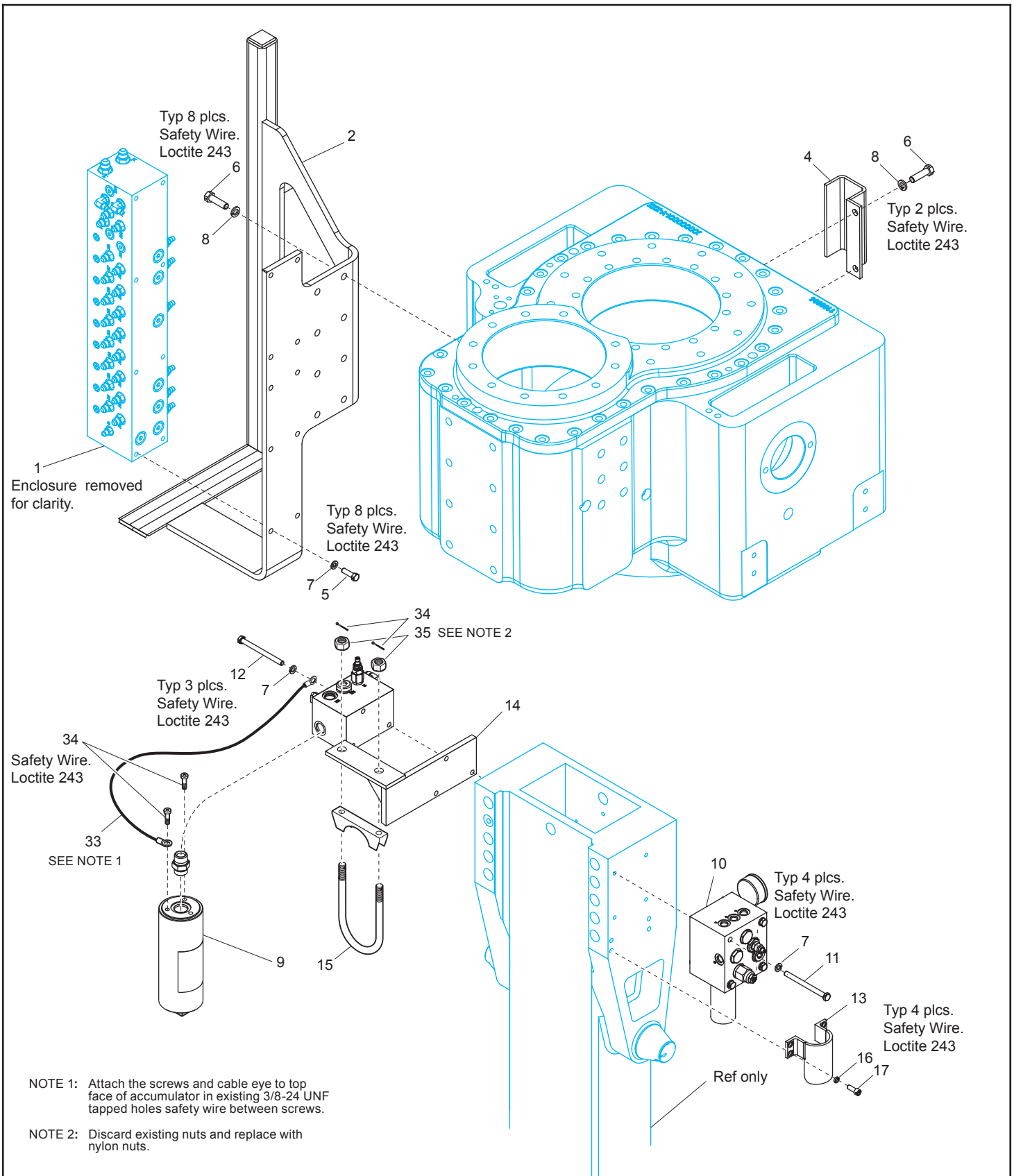
REV	ICD	DESCRIPTION	DATE
1	111-0109	ROTATE G. LIFT, REMOVE GUARD ACCUM.	07JUL2008
0	084-0021	ISSUED FOR PRODUCTION	24MAY2007

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MATERIAL SPECIFICATIONS:  
 SEE BOM  
 HEAT TREATMENT/SPECIAL PROCESS:  
 N/A  
 ALL DIMENSIONS IN INCHES UNLESS OTHERWISE NOTED  
 TOLERANCES UNLESS OTHERWISE NOTED:  
 MACHINING:  
 .X = ±.030 | ANGULAR DIMENSIONS ±1/2°  
 .XX = ±.010 | CONCENTRICITY .005 T.I.R.  
 .XXX = ±.005 | SURFACE FINISH 125 RMS  
 BREAK EDGES .015 X 45° | MINIMUM RADIUS R.010  
 FABRICATION:  
 0" TO 24" : ±1/16 | > 24" : ±1/8

TITLE: <b>LEG, UPPER GRABBER, MACHINING, 250HXI700</b>		
PROJECT:	DATE: 12OCT2006	SCALE: 1:8
DRAFTED: MH	DATE:	SHEET SIZE: (SLDDRW) B
DFTG CHECK:	DATE:	WEIGHT: 534 lbs
ENG CHECK:	DATE:	PAGE: 4 OF 6
PART/DWG NO.: <b>1100080</b>	REV.: <b>1</b>	

27-Aug-2008




5	139-0045	Add items 12,14,15	21NOV2008
4	111-0109	Rotated item 9	22Aug2008
3	071-0020	BOM changes	06MAR2008
2	112-0119	REFER TO SHEET 11	13FEB2008
1	081-0039	REPLACE ITEM 2	16JUL2007
REV	ECN	DESCRIPTION	DATE

	TITLE: <b>Kit, Aux Hydraulics, 250 HXI 700</b>	
	DRAFTED: DenisG	DATE: 08MAY2007
	CHECKED:	APPROVED:
	DWG NO: 1100047	PAGE: 1 OF 14
		REV <b>5</b>



ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	1100024	MANIFOLD ASSEMBLY 250HXI700
2	1	810521	MOUNT, 12 STATION MANIFOLD, 250HXI700
3	1	2603	BREATHER,AIR,1/2"MNPT
4	1	1100105	GUARD, HOSE, GEARBOX, 250HXI700
5	8	5965	SCREW, CAP, HEX HD, 3/8" -16UNC x 3/4" DR HD
6	10	5967	SCREW,CAP,HEX HD,1/2"-13UNCx1-1/4",GR8,PLD,DR HD
7	15	7135	WASHER,LOCK,HELICAL SPRING,3/8",ALLOY,PLD
8	10	5881	WASHER, LOCK, HELICAL SPRING, 1/2", ALLOY PLD
9	1	820189	MANIFOLD ASSEMBLY,GRABBER LIFT,PC SYSTEM,EXI/HXI
10	1	1090073	MANIFOLD, MINI BOOSTER, HC3
11	4	960054	SCREW,CAP,HEX HD,3/8"-16UNCx4-1/2",GR8,PLD DR HD
12	3	1030252	SCREW CAP,HEX HD,3/8"-16UNCx5",GR8,PLD,DR HD
13	1	1100120	GUARD, INTENSIFIER, GRABBER, EXI/HXI
14	1	1030251	MOUNT,CLAMP,ACCUMULATOR
15	1	1030253	CLAMP,EXHAUST,3-1/2"IDX3/8"-16UNC,DR HD,YELLOW
16	4	3690	WASHER,LOCK,HELICAL SPRING,HI-COLLAR,3/8",BLACK
17	4	8763	SCREW,CAP,SKT HD,3/8"-16UNCx1",DR HD
18	1	720222	GAUGE,LIQ FILLED,0-7500PSI/KPA,2.5"ODX1/4"MNPT,LM
19	1	7353	GAUGE, LIQ FILLED, 0-3000PSI/KPA, 2.5"ODX1/4"MNPT, CBM
20	1	0387	PLUG, QUICK DISCONNECT, COUPLER, 78-SER, 1"
21	1	0389	CAP, QUICK DISCONNECT, NIPPLE, 78-SER, 1"
22	7	0022	VALVE,CONTROL,1/4"NPT,C/W REV FLOW FREE CHECK
23	2	0411	DISCONNECT,QUICK,COUPLER,74SERIES,3/8"X3/8"FNPT
24	2	3461	CAP, QUICK DISCONNECT, COUPLER, 74-SER, 3/8"
25	2	0418	QUICK DISCONNECT, NIPPLE, 3/8"X3/8"FNPT, 74 SERIES
26	2	3460	CAP, QUICK DISCONNECT, NIPPLE, 74-SER, 3/8"
27	1	2895	DISCONNECT,QUICK,COUPLER,78SERIES,1"X1"FNPT
28	1	2008	DISCONNECT, QUICK, NIPPLE, 78 SERIES, 1"X1"FNPT
29	1	0029	VALVE,CHECK,INLINE,1/2"FNPT,3000-PSI WP,5-PSIi CP
30	1	2021	BODY,CARTRIDGE,RELIEF,2 WAY,#8 SAE
31	1	16245	VALVE,RELIEF,100-250 PSI,VENT/ ATMOSPHERE
32	10 FT	15473	SLEEVE,HOSE,NYLON,1.53"ID,BULK
33	1	1390064	CABLE,SAFETY,7X7WIRE CABLE,1/8"DIA,3/8"HOLE X 6"LONG X 3/8"HOLE
34	2	1091	PIN,COTTER,1/8"ODX1"LG,PLD
35	2	4333	NUT,HEX,LOCK,NYLON,3/8"-16UNC,GR8,PLD
101	2	0236	FITTING,HYD,STR,#16MNPTX#16MNPT
102	2	0239	FITTING,HYD,STR,#6MNPTX#4MNPT
103	11	0199	FITTING, HYD, 90°ELB, #6MJICX#6MORB
104	1	2788	FITTING,HYD,90°ELB,#6MJICX#8MORB
105	1	12128	FITTING,HYD,TEE,#6MJICX#6MJICX#6MORB-BR
106	2	0337	FITTING,HYD,STR,#6FJICX#4MJIC
107	7	0352	FITTING,HYD,90°ELB,#6MJICX#6FJIC
108	2	0373	FITTING,HYD,TEE,#6MJICx#6MJICx#6FJIC-BR
109	12	1497	FITTING,HYD,STR,#6MJICX#6MORB
110	1	0327	FITTING,HYD,STR,#4FNPTX#6FJIC
111	1	12303	FITTING,HYD,90°ELB,#8MJICx#6MORB
112	1	10513	FITTING,HYD,STR,#8MJICX#8FNPT
113	2	0292	FITTING,HYD,STR,#6MJICX#6MNPT
114	8	12291	FITTING,HYD,45°ELB,#6MJICX#6MORB
115	1	5128	FITTING,HYD,PLUG,SKT HD,#6MORB
116	6	0289	FITTING,HYD,STR,#6MJICX#4MNPT
117	5	0214	FITTING,HYD,STR,#4MNPTX#6FJIC
118	4	0316	FITTING,HYD,90°ELB,#6MJICX#6MNPT
119	3	0318	FITTING,HYD,90°ELB,#8MJICx#8MNPT
120	1	0235	FITTING,HYD,STR,#8MNPTx#8MNPT
121	1	0213	FITTING,HYD,STR,#8MNPTx#8FJIC
122	1	0361	FITTING,HYD,TEE,#8FNPTx#8FNPTx#8FNPT

5	139-0045	ADDED ITEMS 12,14,15	21NOV2008		TITLE: <b>Kit, Aux Hydraulics, 250 HXI 700</b>		
4	111-0109	BOM changes	22Aug2008		DRAFTED: DenisG	DATE: 08MAY2007	
3	071-0020	BOM changes	06MAR2008		CHECKED:	APPROVED:	
2	112-0119	ADDED ITEM 132, DELETED ITEM 239	14FEB2008		DWG NO: 1100047	PAGE:13 OF 14	REV 5
1	081-0039	REPLACE ITEM 2	16JUL2007				
REV	ECN	DESCRIPTION	DATE				