

## Safety Bulletin

No: SB044

Rev: 0

11 Dec 2008

Description: EXI Top Drive – Grabber Lift  
Accumulator Interference



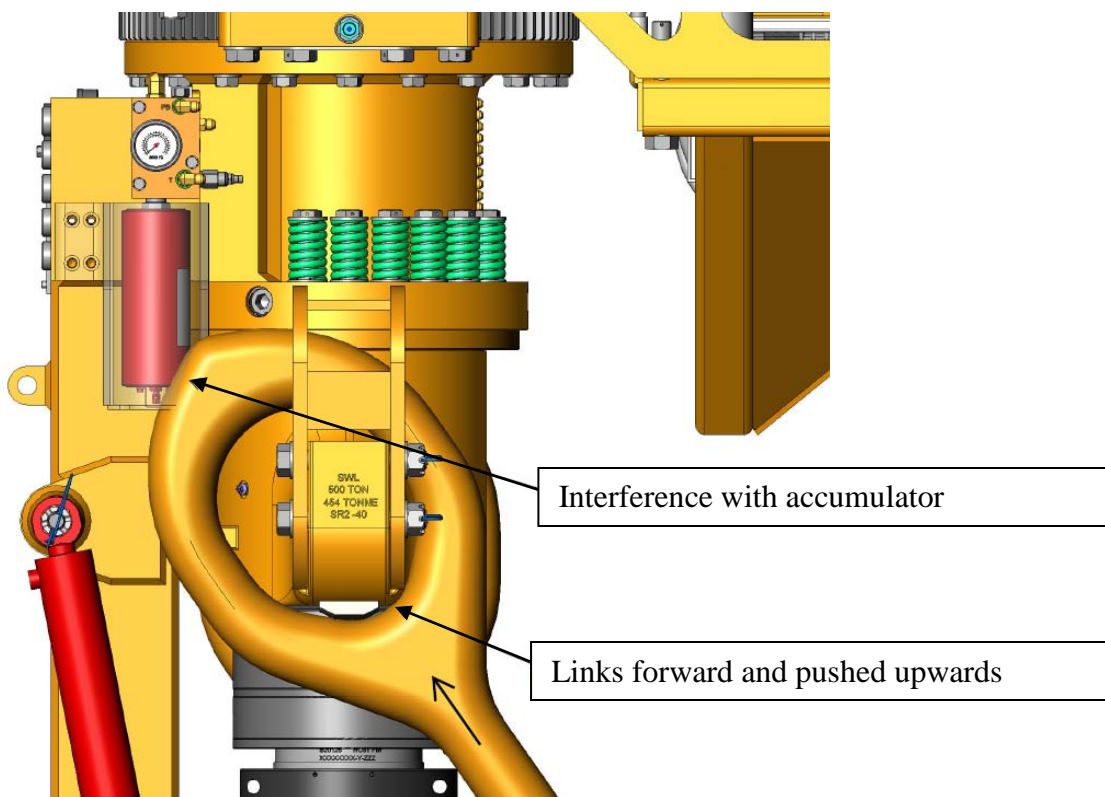
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**TESCO**

### 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.

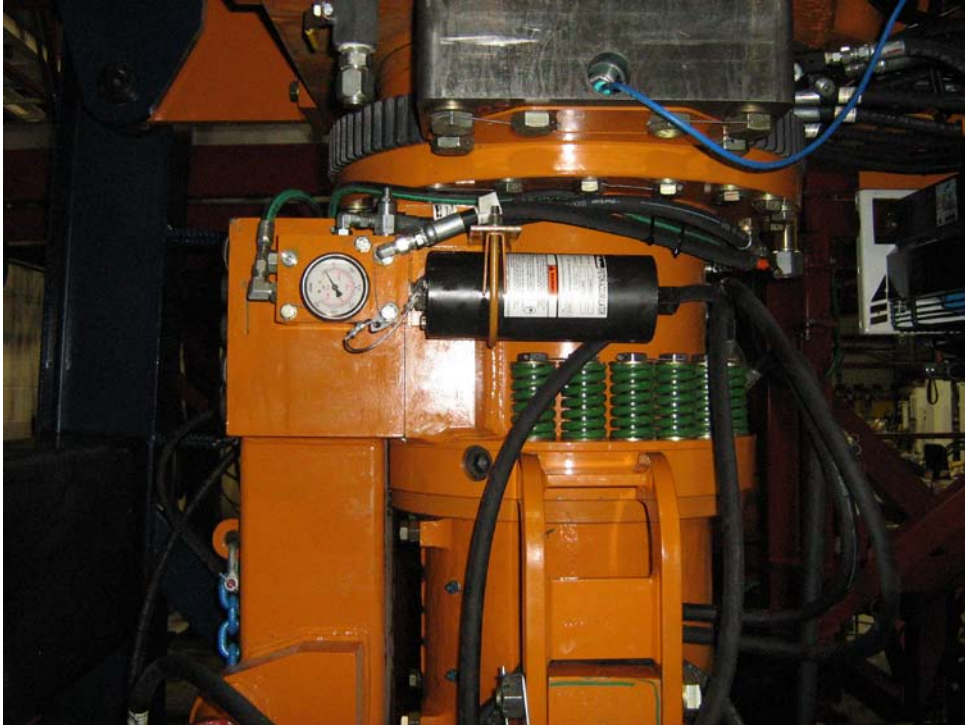
This interference may occur if the elevators are allowed to contact the rig floor or other obstructions and the elevator links are pushed into the bottom of the load collar horns while the elevator links are tilted forward. Other factors that may contribute to this interference include,

- Incorrectly positioned elevator link clamps allowing excessive tilting of the elevator links.
- The use of links with large eyes.

It has been brought to TESCO's attention that a number of units may 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 EX1 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 350HXI600 top drives with the following unit numbers require relocation of the grabber lift manifold and accumulator and the addition of accumulator clamp bracket and safety cable:

521, 537, 541, 594, 617, 620, 621, 625, 659, 675, 676, 687, 688, 707, 709, 710, 711, 712

**ACTION REQUIRED:**

Please contact your local TESCO representative who will perform the following repairs, including relocation of the grabber lift accumulator, addition of a clamp bracket and safety cable, and re-routing of the oil cooler hoses to provide clearance for the new accumulator position.

Note: 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.

Relocation of grabber lift manifold and accumulator:

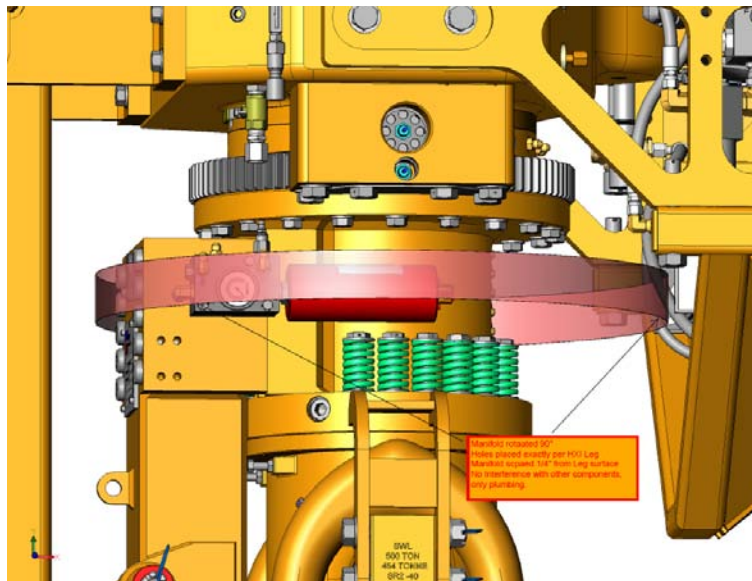
1. Remove accumulator guard and manifold/accumulator assembly.
2. Layout locations for grabber lift manifold mount as shown in Drawing 820148 Rev 2 (attached).
3. Drill and tap new manifold mounting holes in accordance with Drawing 820148 Rev 2 (attached).
4. Install clamp bracket and safety cable following instructions below and re-install grabber lift manifold/accumulator assembly in accordance with illustration I-840048 Rev 5 or higher (attached).

### Addition of Clamp Bracket and Safety Cable:

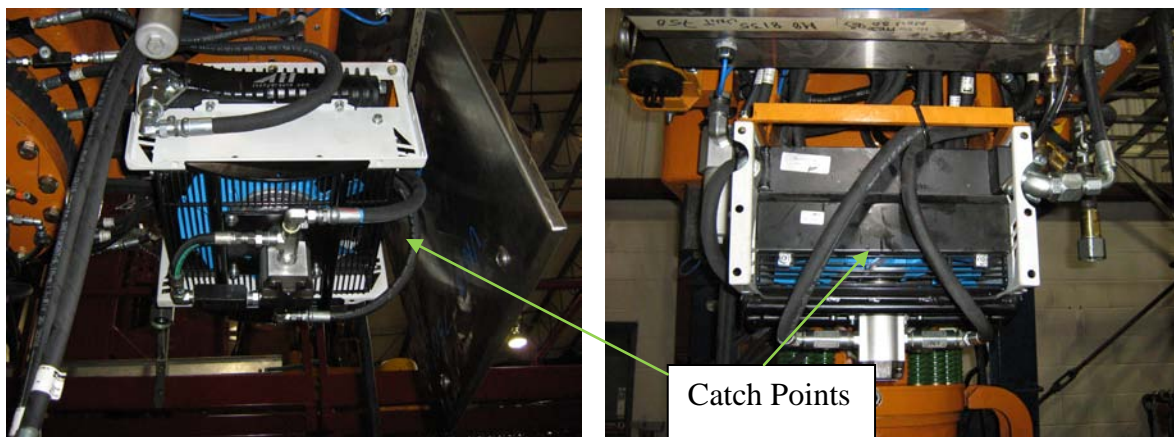
1. Using 3/8"-24UNF x 1/2" fastener (TESCO PN 1390065), install safety cable (TESCO PN 1390064) onto accumulator as shown in Illustration I-840048 Rev 5 or higher (attached).
2. Install accumulator clamp bracket (TESCO PN 1030251) between manifold and upper grabber leg as shown in Illustration I-840048 Rev 5 or higher (attached).
3. Install accumulator clamp (TESCO PN 1030253) as shown in Illustration I-840048 Rev 5 or higher (attached).
4. Using manifold mounting bolt, secure safety cable as shown in Illustration I-840048 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-840048 Rev 5 or higher (attached).

### Re-Routing of Cooler Fan Motor Hoses:

As shown in Figure 3 the cooler fan motor hoses need to be re-routed to avoid the potential for catching on the relocated manifold block when the pipe handler is rotated. Figure 4 shows the new hose routing for the motor supply and return lines that should be implemented to avoid catching.



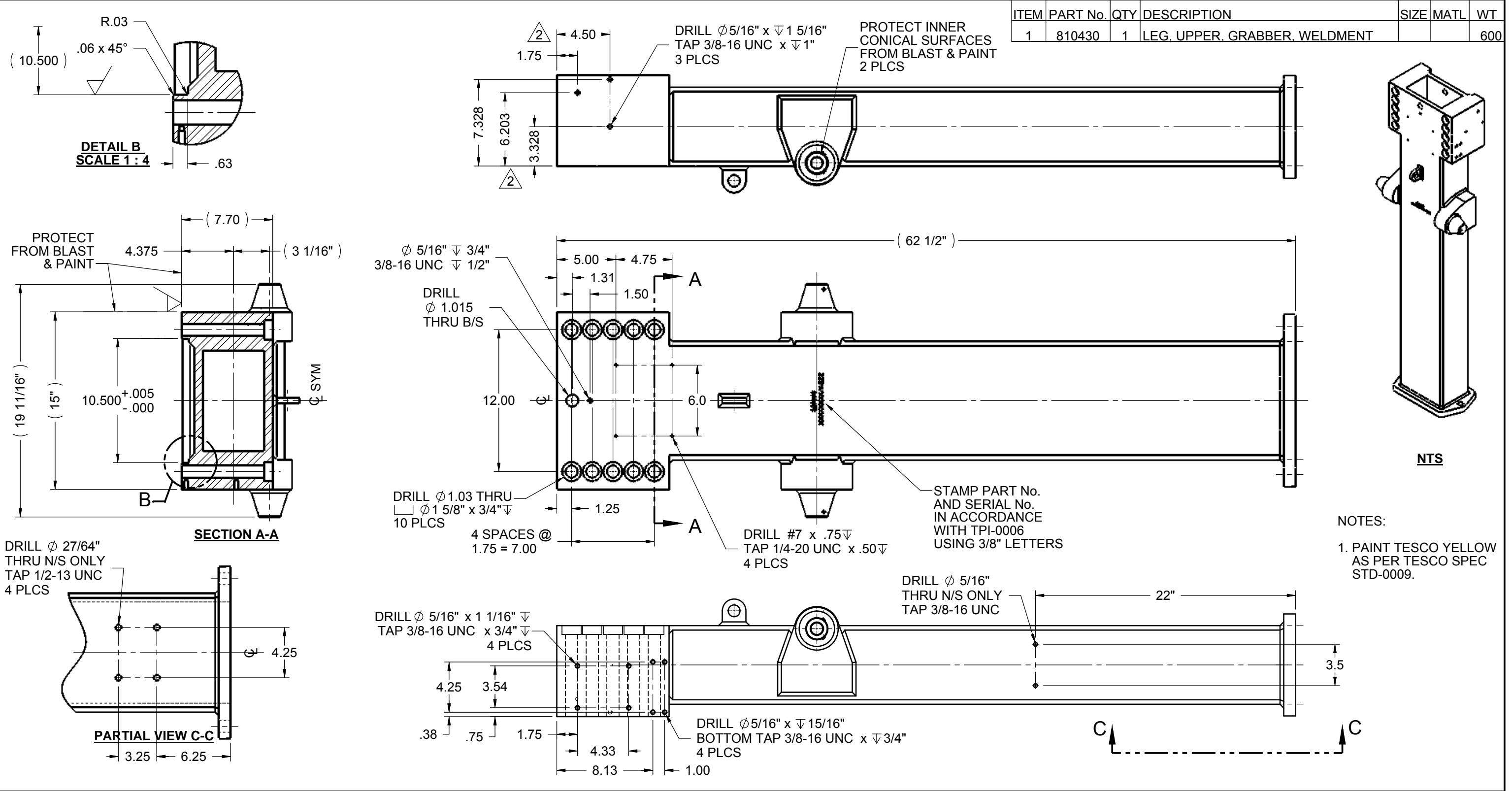
**Figure 3 – Original fan motor hose routing**



**Figure 4 – Modified hose routing towards front of cooler**

**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	810430	1	LEG, UPPER, GRABBER, WELDMENT			600

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	ECN	DESCRIPTION	DATE
2	091-0013	UPDATED HOLE PATTERN	12DEC2008
1	139-0045	Changed hole depth for $\phi$ 5/16" Holes	28NOV2008
0	081-0037	ISSUED FOR PRODUCTION	26MAR2007

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MATERIAL SPECIFICATIONS:  
 SEE BOM

HEAT TREATMENT/SPECIAL PROCESS:  
 N/A

ALL DIMENSIONS IN INCHES UNLESS OTHERWISE NOTED

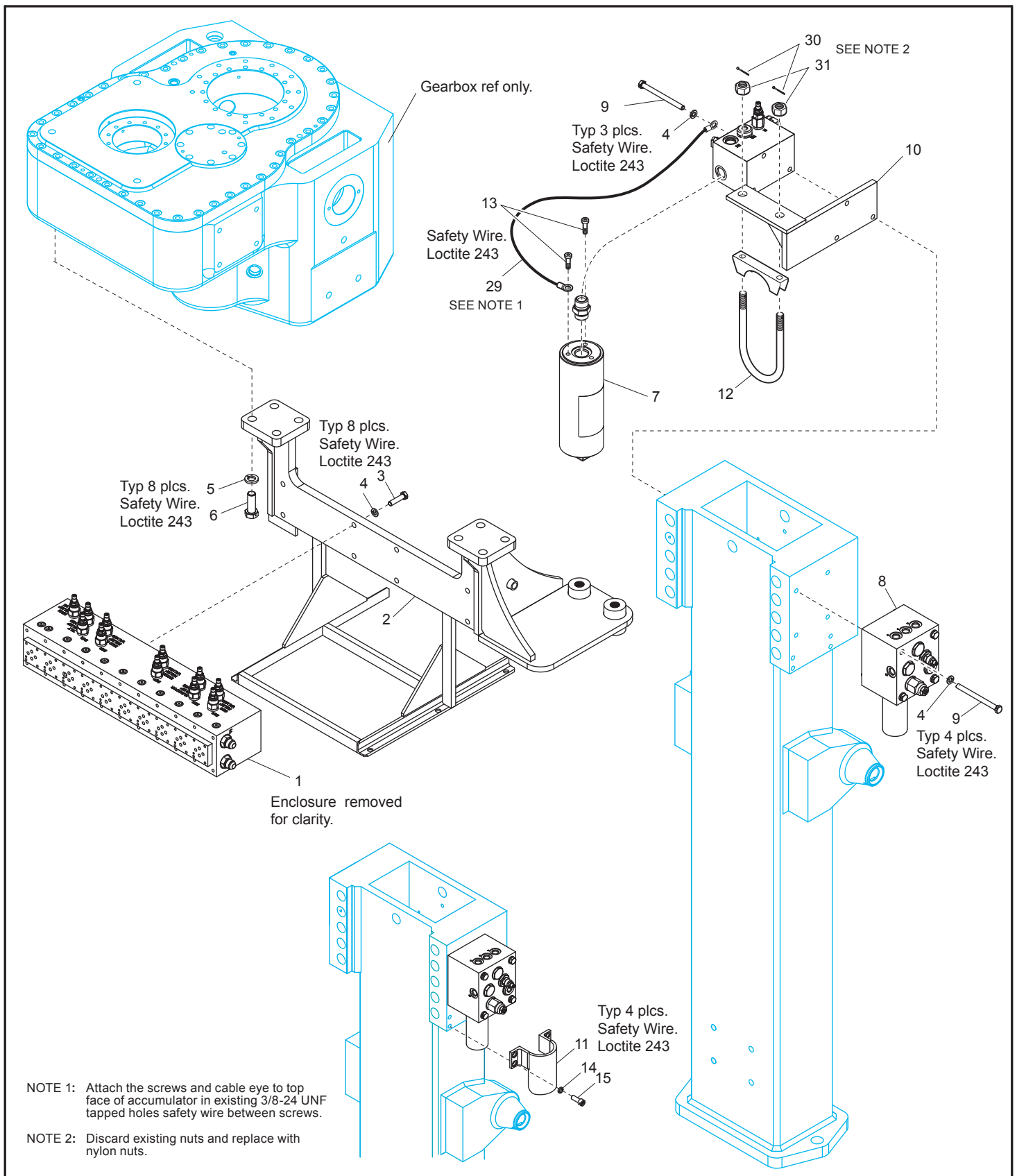
TOLERANCES UNLESS OTHERWISE NOTED:  
 MACHINING:  
 .X =  $\pm$ .030  
 .XX =  $\pm$ .010  
 .XXX =  $\pm$ .005

ANGULAR DIMENSIONS  $\pm$ 1/2°  
 CONCENTRICITY .005 T.I.R.  
 SURFACE FINISH 125 RMS


BREAK EDGES .015 X 45°    MINIMUM RADIUS R.010

FABRICATION:  
 0" TO 24" :  $\pm$ 1/16    >24" :  $\pm$ 1/8

TITLE: <b>LEG, UPPER, GRABBER, MACHINING, 350 EXI 600</b>		
PROJECT: OLGA C.	DATE: 18OCT2006	SCALE: 1:8
DRAFTG CHECK:	DATE: 06NOV2006	SHEET SIZE: (SLDDRW) B
ENG CHECK:	DATE: 06NOV2006	WEIGHT: 550 lbs
PART/DWG NO.: <b>820148</b>	REV.: <b>2</b>	PAGE: 4 OF 6





5	091-0013	Replace item 7 with clip from I-1100047	12DEC2008
4	082-0068	Refer to sheets 4 & 11	07NOV2008
3	112-0163	Updated DWG #	02SEP2008
2	082-0058	Updated items 1,7 & 8	24MAR2008
1	113-0054	Refer to sheets 4, 6, 7, 8, 11, 12	24SEP2007
0	132-003	ISSUED FOR PRODUCTION	15JUN2007
REV	ECN	DESCRIPTION	DATE

	TITLE: <b>Kit, Aux Hydraulics, 350 EXI 600</b>	
	DRAFTED: DenisG	DATE: 02APR2007
	CHECKED:	APPROVED:
	DWG NO: I-840048	PAGE 5 OF 6 REV <b>5</b>

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	770634	MANIFOLD ASSEMBLY,10-Station,350-EXI-600
2	1	810501	BRACKET, AUXILARY MANIFOLD, 350 EXI 600
3	8	8626	SCREW,CAP,HEX HD,3/8"-16UNCX1-1/2",GR8,PLD DR HD
4	15	7135	WASHER,LOCK,HELICAL SPRING,3/8",ALLOY,PLD
5	8	3687	WASHER,LOCK,HELICAL SPRING,5/8",ALLOY,PLD
6	8	730959	SCREW,CAP,HEX HD,5/8"-11UNCX1-3/4",GR8,PLD,DR HD
7	1	820189	ASSEMBLY,GRABBER LIFT MANIFOLD, EXI / HXI
8	1	1090073	MANIFOLD, MINI BOOSTER, HC3
9	7	1030252	SCREW,CAP,HEX HD,3/8"-16UNCX5",GR8,PLD,DR HD
10	1	1030251	MOUNT,CLAMP,ACCUMULATOR,GRABBER LIFT,250-HXI-700
11	1	1100120	GUARD, INTENSIFIER, GRABBER, EXI/HXI
12	3	1030253	CLAMP,EXHAUST,3-1/2"IDX3/8"-16UNC,DR THD,YELLOW
13	4	1390065	SCREW,CAP,HEX HD,3/8"-24UNFX1/2",GR8,PLD,DR HD
14	4	3690	WASHER,LOCK,HELICAL SPRING,HI-COLLAR,3/8",BLACK
15	4	8763	SCREW,CAP,SKT HD,3/8"-16UNCX1",DR HD
16	1	720222	GAUGE,LIQ FILLED,0-7500PSI/KPA,2.5"ODX1/4"MNPT,LM
17	1	7353	GAUGE, LIQ FILLED, 0-3000PSI/KPA, 2.5"ODX1/4"MNPT, CBM
18	7	0022	VALVE,CONTROL,1/4"NPT,C/W REV FLOW FREE CHECK
19	10 ft	15473	SLEEVE,HOSE,NYLON,1.53"ID,BULK
20	1	0389	CAP, QUICK DISCONNECT, NIPPLE, 78-SER, 1"
21	1	0387	PLUG, QUICK DISCONNECT, COUPLER, 78-SER, 1"
22	2	0411	DISCONNECT,QUICK,COUPLER,74SERIES,3/8"X3/8"FNPT
23	2	3461	CAP, QUICK DISCONNECT, COUPLER, 74-SER, 3/8"
24	2	0418	QUICK DISCONNECT, NIPPLE, 3/8"X3/8"FNPT, 74 SERIES
25	2	3460	CAP, QUICK DISCONNECT, NIPPLE, 74-SER, 3/8"
26	1	2008	DISCONNECT, QUICK, NIPPLE, 78 SERIES, 1"X1"FNPT
27	1	2895	DISCONNECT,QUICK,COUPLER,78SERIES,1"X1"FNPT
28	1	1100093	ACCUMULATOR,1PT,3000-PSI,#12FORB
29	2	1390064	CABLE,SAFETY,7X7WIRE ROPE,1/8"DIA,3/8"ID TAB X 6"LONG X 3/8"ID TAB
30	2	1091	PIN,COTTER,1/8"ODX1"LG,PLD
31	2	4333	NUT,HEX,LOCK,NYLON,3/8"-16UNC,GR8,PLD
32	1	910012	MOUNT,CLAMP,2ND ACCUMULATER,GRABBER LIFT,350-EXI-600
101	1	820282	Fitting,Hyd,Str,#6MJICx#16MNPT
102	2	0353	FITTING,HYD,90°ELB,#4MJICX#4FJIC
103	9	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	3	0337	FITTING,HYD,STR,#6FJICX#4MJIC
107	2	0239	FITTING,HYD,STR,#6MNPTx#4MNPT
108	1	0352	FITTING,HYD,90°ELB,#6MJICX#6FJIC-SWVL
109	14	1497	FITTING,HYD,STR,#6MJICX#6MORB
110	1	0327	FITTING,HYD,STR,#4FNPTX#6FJIC
111	1	12303	FITTING,HYD,90°ELB,#8MJICx#6MORB
112	2	12304	FITTING,HYD,90°ELB,#4MJICX#8MORB
113	2	0292	FITTING,HYD,STR,#6MJICX#6MNPT
114	5	12291	FITTING,HYD,45°ELB,#6MJICX#6MORB
115	2	0310	FITTING,HYD,45°ELB,#6MJICX#6MNPT
116	3	0376	FITTING,HYD,TEE,#6MJICX#6FJIC-RUNX#6MJIC
117	8	0289	FITTING,HYD,STR,#6MJICX#4MNPT
118	6	0214	FITTING,HYD,STR,#4MNPTX#6FJIC
119	4	0316	FITTING,HYD,90°ELB,#6MJICX#6MNPT
120	2	0373	FITTING,HYD,TEE,#6MJICX#6MJICX#6FJIC-BR

5	091-0013	Added items 29-32,changed part #s,Qty. re ECN	16DEC2008
4	082-0068	Quantity was 6 for 8,6 for 117,4 for 118	07NOV2008
3	112-0163	Updated DWG # & Item 1 Part #	02SEP2008
2	082-0058	Item #7 revised	25MAR2008
1	113-0054	Changed as per redlines	24SEP2007
0	132-003	ISSUED FOR PRODUCTION	15JUN2007
REV	ECN	DESCRIPTION	DATE

  <b>TESCO®</b>	TITLE: <b>Kit, Aux Hydraulics, 350 EXI 600</b>		
	DRAFTED: DenisG	DATE: 02APR2007	
	CHECKED:	APPROVED:	
	DWG NO: I-840048	PAGE 6 OF 6	REV <b>5</b>