Marcotte
MINING MACHINERY SERVICES INC.

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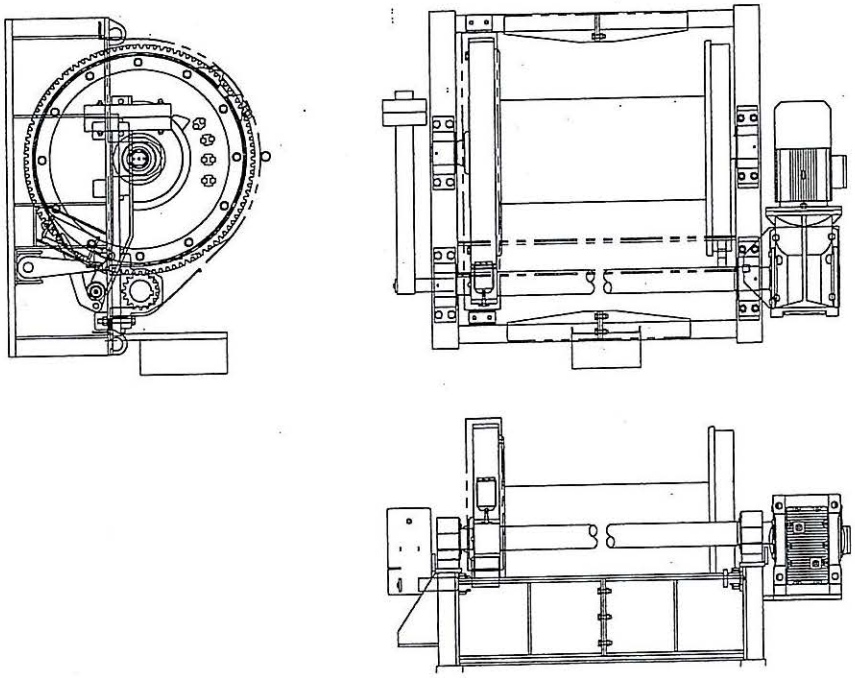
Phone: (705) 566-5030 Fax: (705) 566-1628

SSK440-20E
STAGE HOIST

PARTS AND OPERATOR'S MANUAL



FOR
ROSS FINLAY
UNIT #: –

SERIAL#: 2790

CUSTOMER COPY

ISO 9001 REGISTERED KPMG

Certificate # 033.3

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MANDATORY CHECK OF SAFETY AND BRAKING DEVICES

A regular maintenance and check-out procedure on all safety and braking devices of your Hoisting Equipment is a must. The following procedure should be carried out at intervals not exceeding three (3) months by a knowledgeable serviceman trained to inspect and maintain this type of equipment.

a) All safety devices on the machine such as overspeed, overload, slack cable, including all limit switches should be checked for correct operation.

b) All operating and emergency brakes should be checked for correct operation and for holding power by the application of test weights.

c) All drive train and structural components should be thoroughly examined for potential problems such as cracks, looseness, misalignment, etc.

d) All support ropes and attachments at both ends should be thoroughly examined to ensure their safety and integrity.

e) A check to see that all components have been properly lubricated in accordance with the maintenance and service instructions.

519-539-5853

GENERAL DESCRIPTION AND OPERATING INSTRUCTIONS FOR THE SSK440-20E

1. GENERAL DESCRIPTION:

The Model SSK440-20E Hoist is a single drum hoist driven by an electric motor through a gear reducer and one set op open gears.

Power:
A 20 HP – 14rpm motor, CEMA Design D, is the prime mover.

Motor Controls:
Motor controls are 575/3/60 cycle, across the line, reversing magnetic starter. A separate pushbutton control in CEMA Type 1 enclosure is provided to control the hoist, "up-down-stop".

Gear Reducer:
First step of speed reduction is through a totally enclosed oil bath wormgear reducer.

Gear and Pinion:
Second step of speed reduction is through an open gear set including an alloy steel pinion with flame hardened teeth.

1¼ 5T

Drum:
The drum has a 24" diameter barrel x 48", and a rope lock to suit 39.5mm diameter rope.

1"

Brakes:
An electromagnetic brake is mounted on the input shaft of the reducer.

A second band type brake is mounted on the hoist drum. It is air operated (Spring-on, Air-off), through an electric solenoid valve.

NOTE: Air supply of 100psi supplier by customer.

2. OPERATING DATA:

Warning: These rating are a maximum and must not be exceeded!

LAYER	LINEPULL (lbs.)	LINESPEED (fpm)	CUMULATIVE CAPACITY
1.00	44000	14.00	241
2.00	40000	15.39	506
3.00	36725	16.77	795
4.00	33925	18.16	1108
5.00	31500	19.54	1445
6.00	29425	20.93	1805
7.00	27600	22.32	2189
8.00	26000	23.70	2598
9.00	24500	25.09	3030

Table 1

3. **OPERATING INSTRUCTIONS:**

This hoist is equipped with a remote customer mounted starter, containing "UP, DOWN, and STOP" buttons.

Direction pushbuttons are momentary contact. Select the button for desired direction of travel. Push and hold the appropriate button until desired lever is reached. Release of the button will stop travel.

The STOP button is a push to stop – pull to start type.

4. **BRAKE SYSTEM:**

AUTOMATIC, spring applied band brakes may "set" during shipment or if not used regularly. To free band from brake ring proceed as follows:

1. Measure and record gap in band.
2. Loosen adjusting bolt on top of band and pry band away.
3. Re-tighten bolt to regain original gap.

CAUTION – damage to brake band and drive train may result if this procedure is not followed!

INSTALLATION INSTRUCTIONS

CAUTION: This machine has been aligned at the factory. However, it must be checked and re-aligned in the field, at installation, as described below.

1. **MOUNTING SURFACE**

   A suitable mounting surface, which is level and structurally capable of withstanding the loads imposed be the machinery, must be provided.

2. **COUPLING ALIGNMENT BETWEEN MOTOR AND REDUCER**

   The alignment of the coupling between motor and reducer must be checked and adjusted as described on attached page entitled, "Installation Type B, Type C".

3. **COUPLING ALIGNMENT ON INTERMEDIATE SHAFT**

   - Loosen bolts connecting coupling halves together.
   - Insert feeler gauges at numerous points to ensure coupling faces are parallel.
   - If adjustment is required, loosen pillowblock bolts and shim align.

4. **GEAR ALIGNMENT AND BACKLASH**

   - Gear backlash must be maintained at 0.010 – 0.020 inch.
   - Pinion and gear centres must be parallel both vertically and horizontally.
   - Shim and adjust pillowblocks as required to achieve alignment

TECHNICAL INFORMATION

1. DRUM CABLE CAPACITY

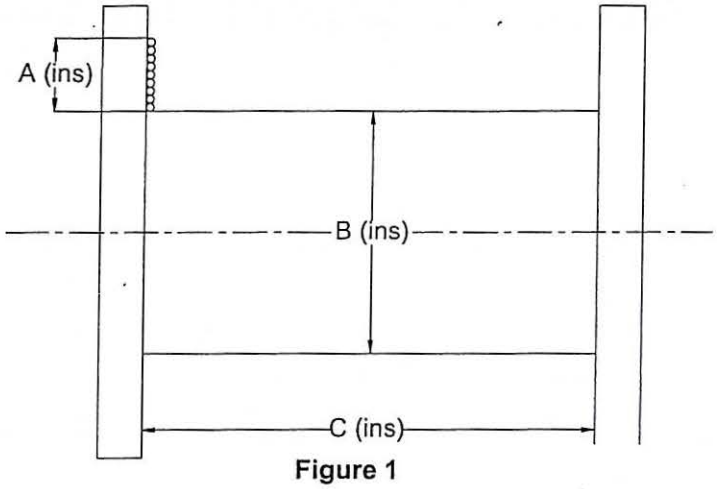


Figure 1

To find the amount of cable on a drum for any number of layers use the following formula:

Capacity = (B + A) x A x C x F

Where B = diameter of drum

C = length of drum

A = depth of flange covered by cable

(e.g. 'A' for five layers of 3/4" cable = 5x3/4 = 3-3/4")

and F = cable diameter factor.

CABLE DIA.	F	CABLE DIA.	F	CABLE DIA.	F
1/4	4.16	3/4	.465	1-5/8	.099
5/16	2.67	7/8	.342	1-3/4	.085
3/8	1.86	1	.262	1-7/8	.074
7/16	1.37	1-1/8	.207	2	.066
1/2	1.05	1-1/4	.167	2-1/8	.058
9/16	.828	1-3/8	.138	2-1/4	.052
5/8	.672	1-1/2	.116	2-3/8	.046

Table 2

2. FLEET ANGLE

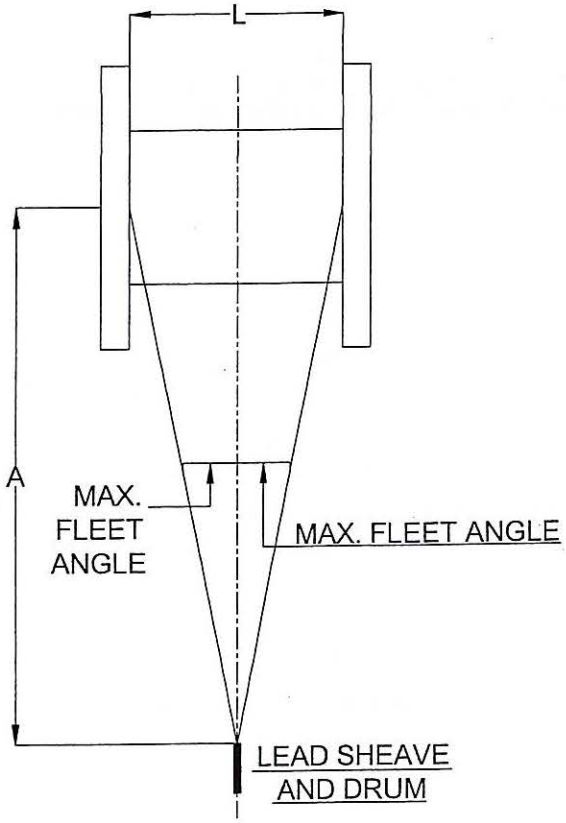


Figure 3

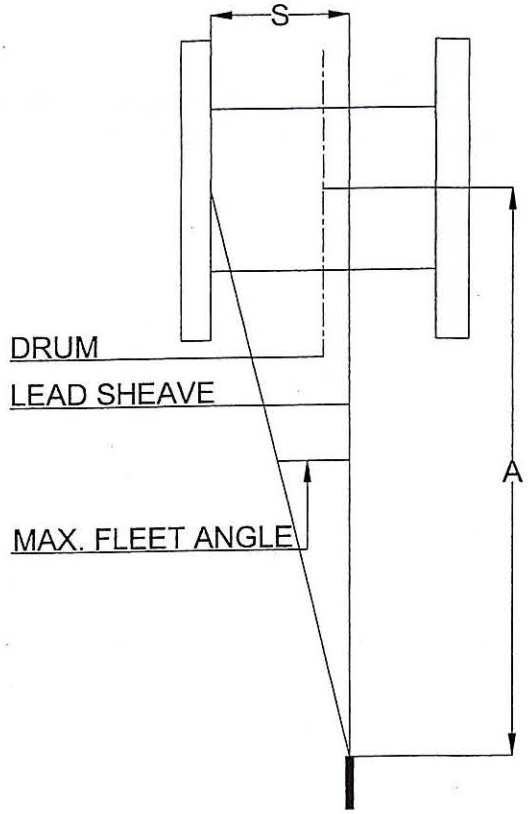


Figure 2

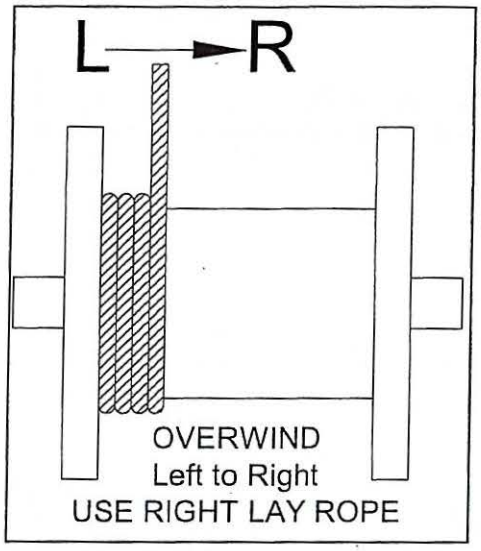
To obtain the best service from wire rope and to have proper spooling on the drum, the winch must be a minimum distance from the lead sheave.

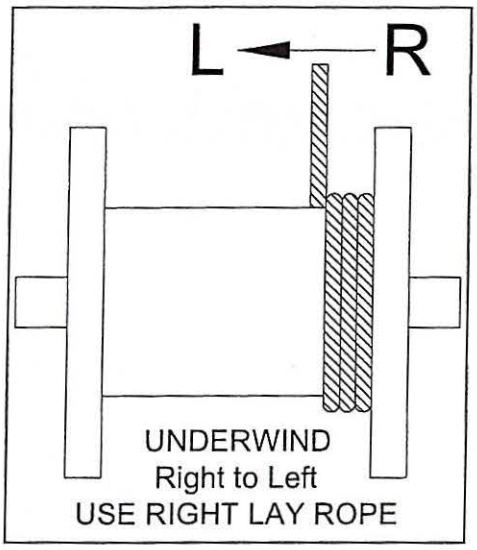
Experience shows the maximum fleeting angle should not exceed 1-1/2°. Therefore (in Figure 1) for every foot of length 'L' the drum should be 20 foot from the lead sheave.

Example: Distance 'A' for a 3 foot long drum
=3 x 20= 160 feet.

If the drum has to be offset from the centre line of the lead sheave as shown in Figure 2, then to find 'A' in feet, multiply 'S' in feet by 40.

3. **CORRECT SPOOLING OF ROPE ON DRUM**





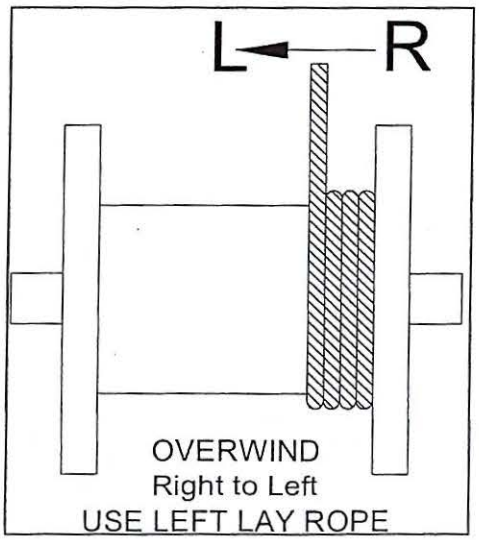
The method described below may be used to determine the proper direction of rope lay for spooling or winding on flat or smooth face drums.

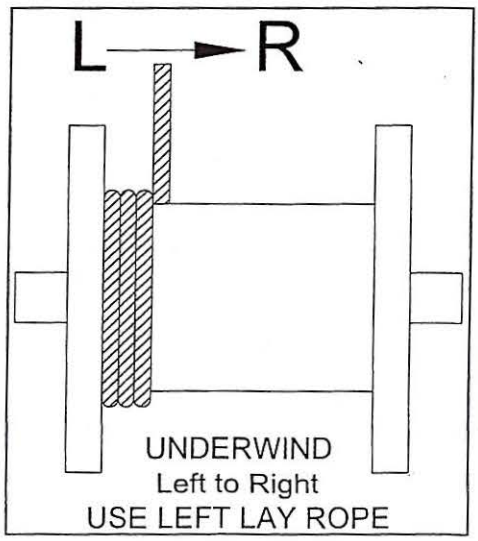
Observer standing behind drum and looking toward the direction of rope travel.

When rope is wound on to a drum, any tendency of the rope to twist when tension is released will be in a direction that would untwist the rope at the free end.

The advantage in applying rope of proper direction of lay is that when the load is slacked off, the several coils on the drum will hug together and maintain an even layer. With rope of improper lay, the coil will spread apart at each removal of load and when winding is resumed the rope may criss-cross and overlap on the drum with flattening and crushing of the rope. The proper direction of rope lay to give the best results is shown in the above sketch.

This applies to regular or long lay rope.

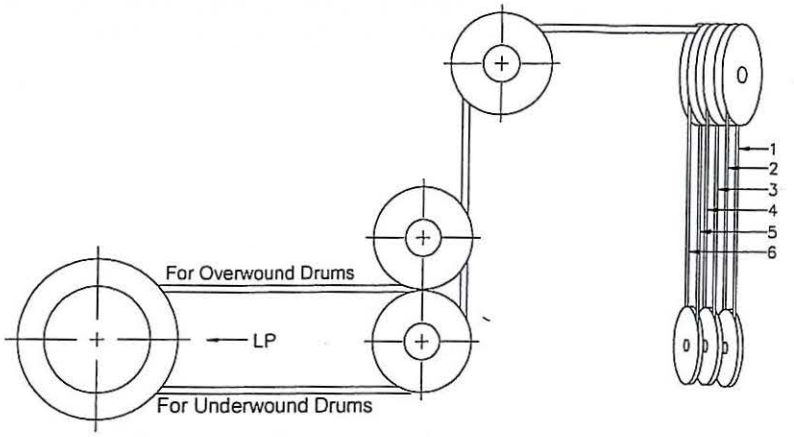




4. FORMULA FOR LINEPULL REQUIRED BY WINCH

The linepull of the winch is calculated as follows:

Where LP = Linepull of Winch
N = Number of Ropes
Y = Number of Pulleys
Q = Load required to be lifted



Example: From diagram
Number of Ropes = 6
Number of Pulleys = 8 (Y= N+2)
Let Q = 40,000 lbs.
From Table 3 when N = 6
and Y = N+2
and F = 0.1951
Therefore LP = F x Q
LP = 0.1951 x 40,000 = 7,800 lbs.

Value of F (based on 3% Friction in Sheaves)			
N	Y = N	Y = N+1	Y = N+2
1	1.0300	1.0610	1.0930
2	0.5218	0.5375	0.5537
3	0.3525	0.3632	0.3742
4	0.2680	0.2762	0.2845
5	0.2175	0.2241	0.2308
6	0.1838	0.1893	0.1951
7	0.1599	0.1647	0.1696
8	0.1419	0.1462	0.1506
9	0.1280	0.1318	0.1358
10	0.1169	0.1204	0.1241
11	0.1079	0.1112	0.1145
12	0.1002	0.1033	0.1064
13	0.0938	0.0966	0.0995
14	0.0884	0.0910	0.0937
15	0.0837	0.0862	0.0888
16	0.0795	0.0818	0.0843
17	0.0759	0.0781	0.0805
18	0.0737	0.0749	0.0771
19	0.0697	0.0719	0.0741
20	0.0672	0.0692	0.0712
21	0.0648	0.0666	0.0686
22	0.0627	0.0645	0.0665
23	0.0608	0.0626	0.0645
24	0.0591	0.0608	0.0626
25	0.0574	0.0591	0.608
26	0.0560	0.0576	0.0594

Table 3

5. BEARING MAINTENANCE AND LUBRICATION

Purpose of Lubrication:

Adequate lubrication of ball and rollers bearings is essential for their successful performance and the principles of their lubrication should be known and applied to ensure proper application. The main purposes of lubrication are:

1. To protect bearing parts from excessive wear.
2. To protect highly polished bearing surfaces from corrosion.
3. To seal the bearing against the entrance of foreign material.
4. To aid in the spreading of the heat which is developed by the bearing.

When applying grease, there are usually hydraulic fittings for the use of pressure grease guns. The grease should be injected through the fittings while the shaft is rotating slowly, whenever possible. This procedure allows the grease to work into the bearing for safer operation.

For low speed applications, where dirt and the possibility of contamination are present, the bearing housing should be filled with grease to aid in sealing against any entrance of foreign material. For high-speed applications, where the bearing temperatures are increased, under no circumstances should the housing be completely filled. Grease should only be added in sufficient quantity to ensure proper lubrication to the bearing.

Depending upon operation conditions, grease lubrication bearings require lubrication at proper intervals. A large amount of grease injected into a housing will not prolong the greasing intervals, as only the grease in contact with the bearing takes part in the lubrication. It does aid, in most cases, in sealing out dirt.

The following are suggested greasing intervals:

Condition around Bearing	Operating Temperature of Bearing	Grease Intervals
Fairly Clean	Up to 120° F	6 to 12 months
Fairly Clean	Over 120° F to 160° F	1 to 2 months
Fairly Clean	Over 160° F to 200° F	1 to 4 months
Moderately to Extremely Dirty	Over 160° F to 200° F	1 week
Heavy Moisture and water splash		

Table 4

Occasionally bearing housings will be overloaded with grease. When at high speeds, a slightly higher operation temperature will be noticed or excessive grease will escape through the housing, which should not be replaced.

There are many different kinds of grease for various bearing applications and this information can be obtained from the grease manufacturers.

6. INSTRUCTIONS FOR RELINING BRAKES

The brake lining you will receive is not drilled or cut. The following procedure should be as follows:

1. Remove old lining from bands.
2. Using the existing band as a template, cut the lining to the correct length.
3. Using the existing band as a template, mark the holes on the brake lining.
4. Drill 1/4" diameter though the lining for each rivet required.
5. Countersink the lining face 1/2" diameter to have the head of the rivet:
   a) 3/32" below face for 1/"4 thick lining.
   b) 3/16" below face for 3/8" thick lining.
   c) 5/16" below face for 1/2" thick lining.
6. Rivet lining to band, using 1/4" x 1/2" brass tubular rivets. For 1/2" thick band use 1/4" x 3/4" brass tubular rivets.

895835 G.A. STAGE HOIST SSK440-20E

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SER#2790-3 SER- 8011 45482 1/3

Marcotte MINING MACHINERY SERVICES INC.

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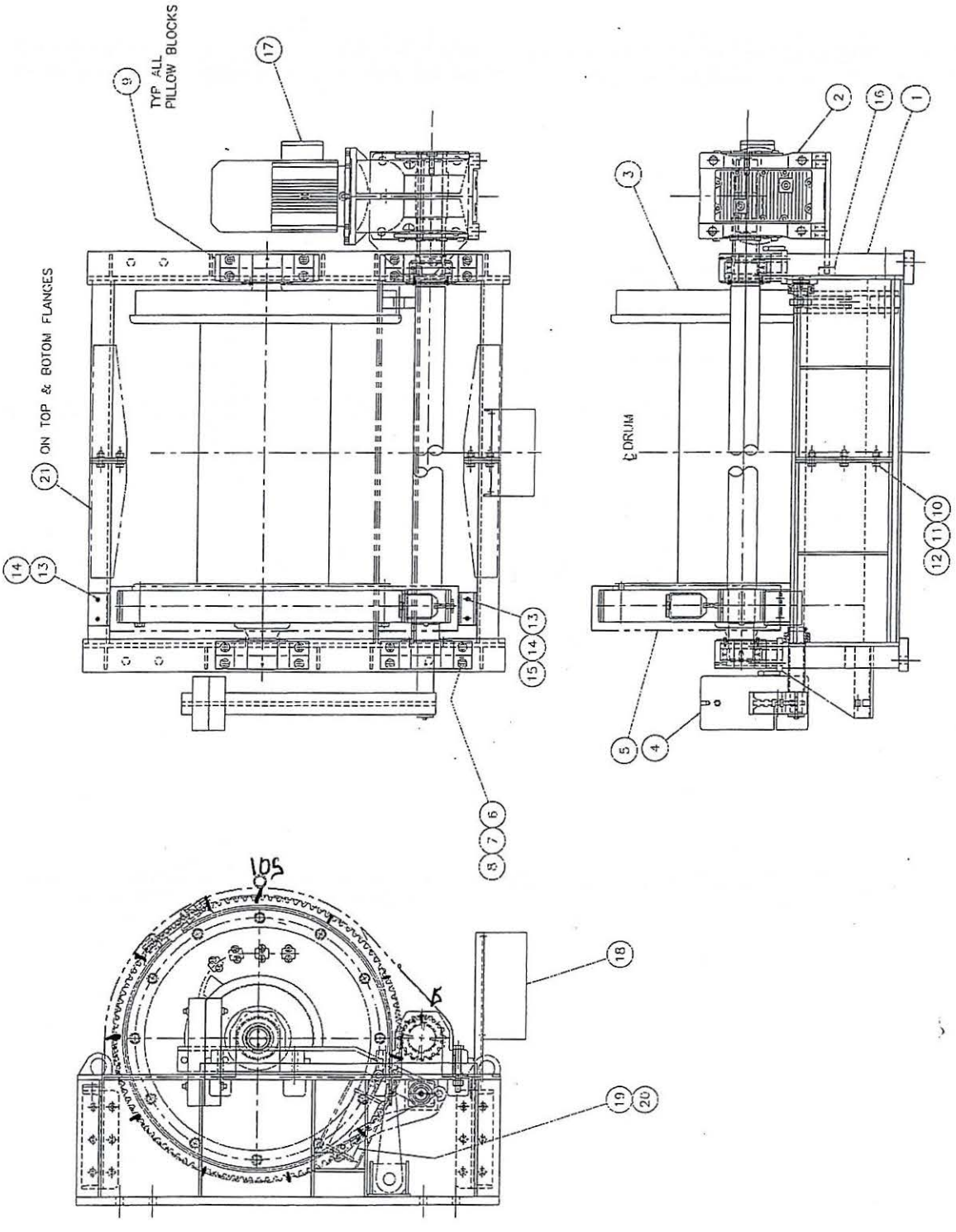
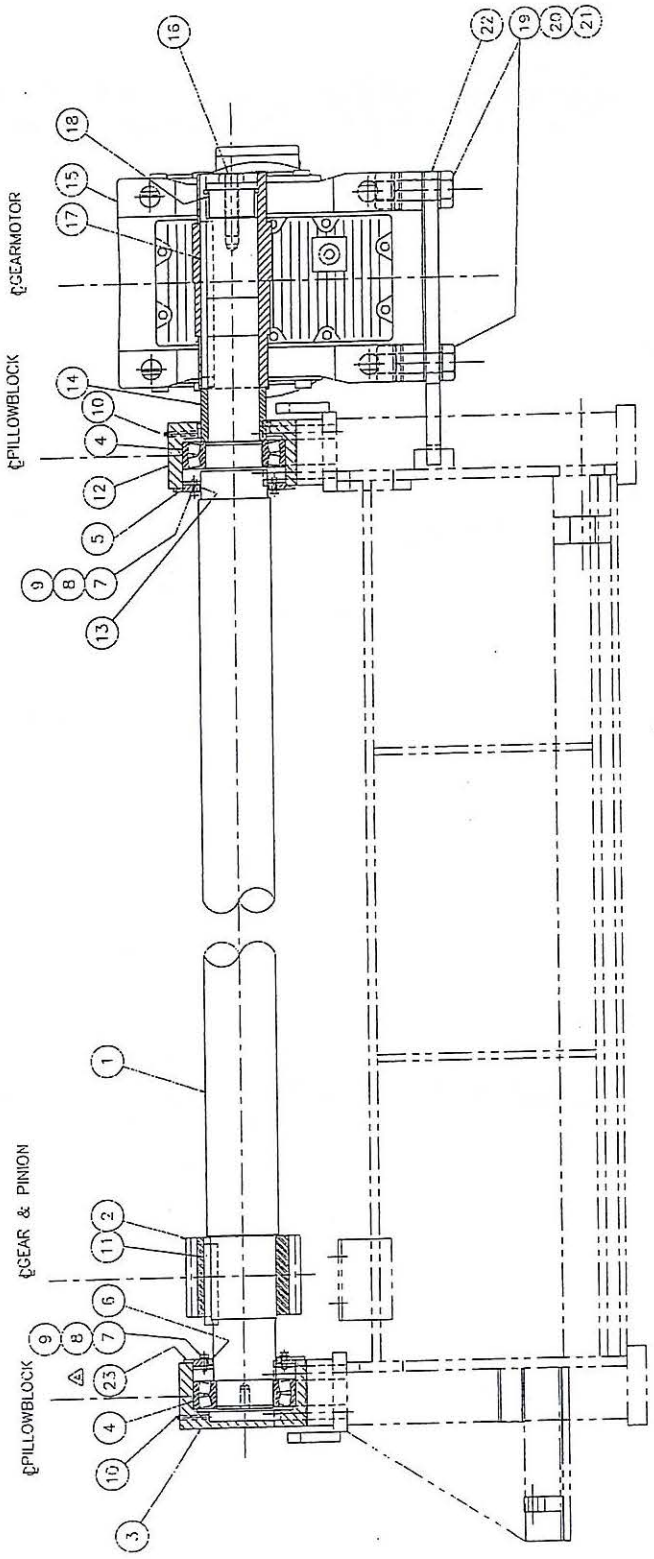
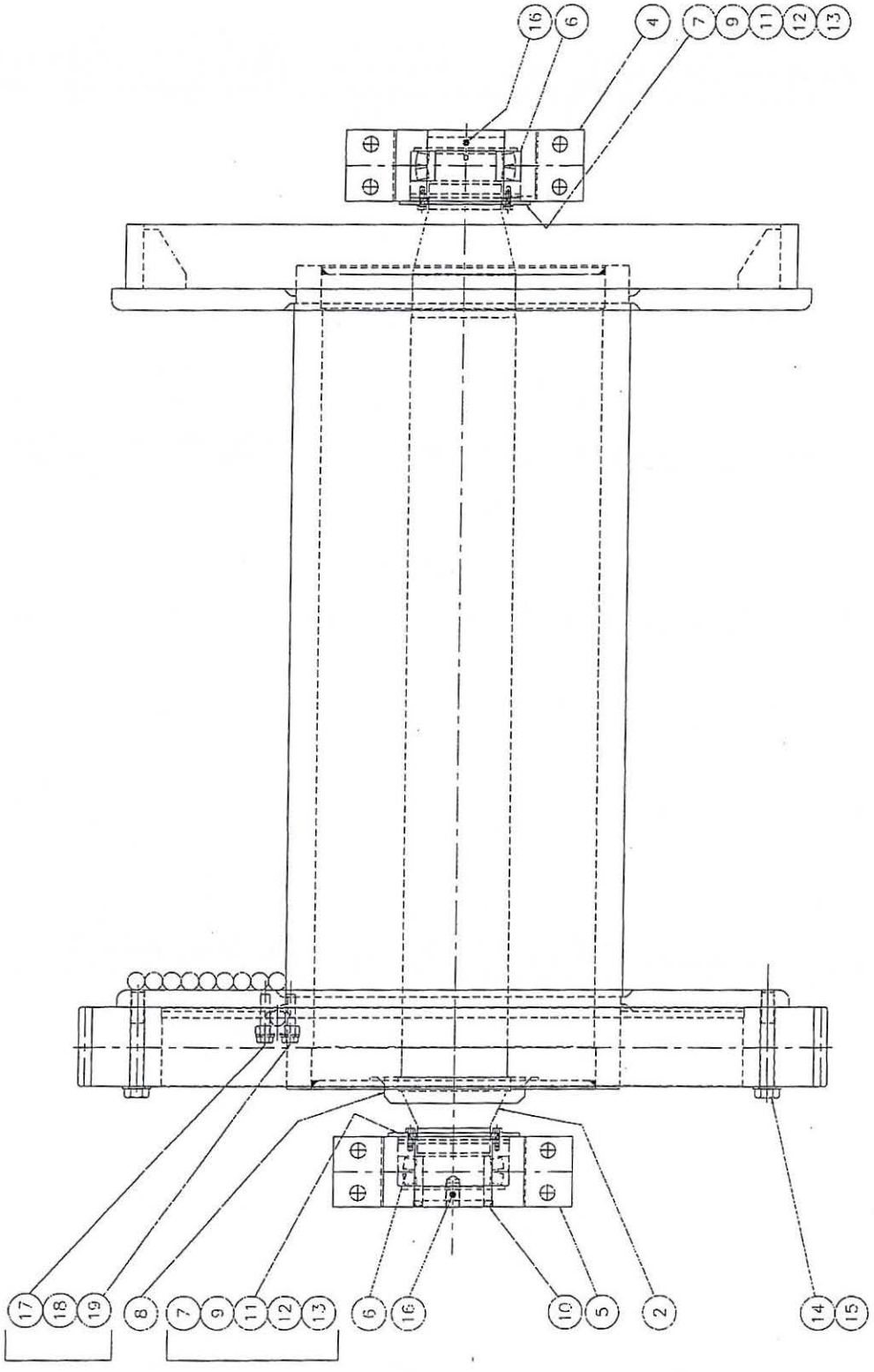

TYP ALL PILLOW BLOCKS
ON TOP & BOTOM FLANGES
DRUM
105

Item	Part Number	Qty	Description
1	895837	1	FRAME, STAGE HOIST SSK440-20E
2	895846	1	INTERMEDIATE SHAFT ASSY DI 48" W (Page 4)
3	895833	1	DRUM & SHAFT ASSY SSK440-20E (Page 6)
4	895827	1	BRAKE BAND ASSY DI SER. 48"W (Page 8)
5	895838	1	GEAR GUARD SSK350-1-20E (Page 14)
6	271630	16	HEXHEAD CAPSCREW 1-8NC X 8" LG
7	201013	16	TORQUE LOCKNUT 1"-8UNC
8	181011	32	FLATWASHER 1"
9	110011	8	SQUARE 1" X 4-3/4" LG
10	270710	12	HEXHEAD CAPSCREW 3/4"-10UNC X 2-1/2"LG
11	201011	12	TORQUE LOCKNUT 3/4"-10UNC
12	181009	24	FLATWASHER 3/4"
13	270405	4	HEXHEAD CAPSCREW 1/2"-13UNC X 1 1/4"LG
14	181006	6	FLATWASHER 1/2"
15	201008	2	HEX NUT 1/2"-13UNC
16	110018	1	SQUARE 1-1/2" X 3" LG
17	5901024	1	GEAR MOTOR, LARGE KA127
18	796168	1	ELECTRIC SCHEMATICS 460/3/60, SSK440-20E
19	546943	1	CYLINDER, AIR
20	546959	1	PNEUMATICS (Page 12)
21		4	PLATE



INTERMEDIATE SHAFT ASSY DI 48" W 895846

Item	Part Number	Qty	Description
1	895824	1	SHAFT - INTERMEDIATE D1 SER.
2	7000027	1	PINION 2 DP x 16 T
3	6000106	1	PILLOWBLOCK MACHINING
4	520118	2	BEARING ROLLER
5	548638	1	COVERPLATE - PILLOWBLOCK 6.375 ID
6	548899	1	SEAL - GREASE (47394)
7	182404	8	HEXHEAD CAPSCREW 3/8-16NC X 1" LG
8	181034	8	FLATWASHER 3/8"
9	181054	8	LOCKWASHER 3/8"
10	549939	2	GREASE FITTING 1/8"-27NPT STR
11	115011	1	KEYSTOCK 1"
12	6000020	1	PILLOWBLOCK MACHINING 4.571 BORE
13	548635	1	SEAL - GREASE 5.125 SHAFT
14	5900998	1	SPACER, GEAR MOTOR KA127
15	5901024	1	GEAR MOTOR, LARGE KA127
16	271616	1	HEXHEAD CAPSCREW 1"-8UNC X 4" LG
17	115011	1	KEYSTOCK 1"
18	5900999	1	SPACER, END - INTER. SHAFT
19	197122	4	HEXHEAD CAPSCREW 1-1/2"-6NC x 5-1/2" LG
20	181016	4	FLAT WASHER , 1 1/2"
21	195012	4	LOCKWASHER , 1 1/2"
22	796162	1	MOUNTING BRKT, GEAR MOTOR KA127
23	5000141	1	COVERPLATE - PILLOWBLOCK 5.751 ID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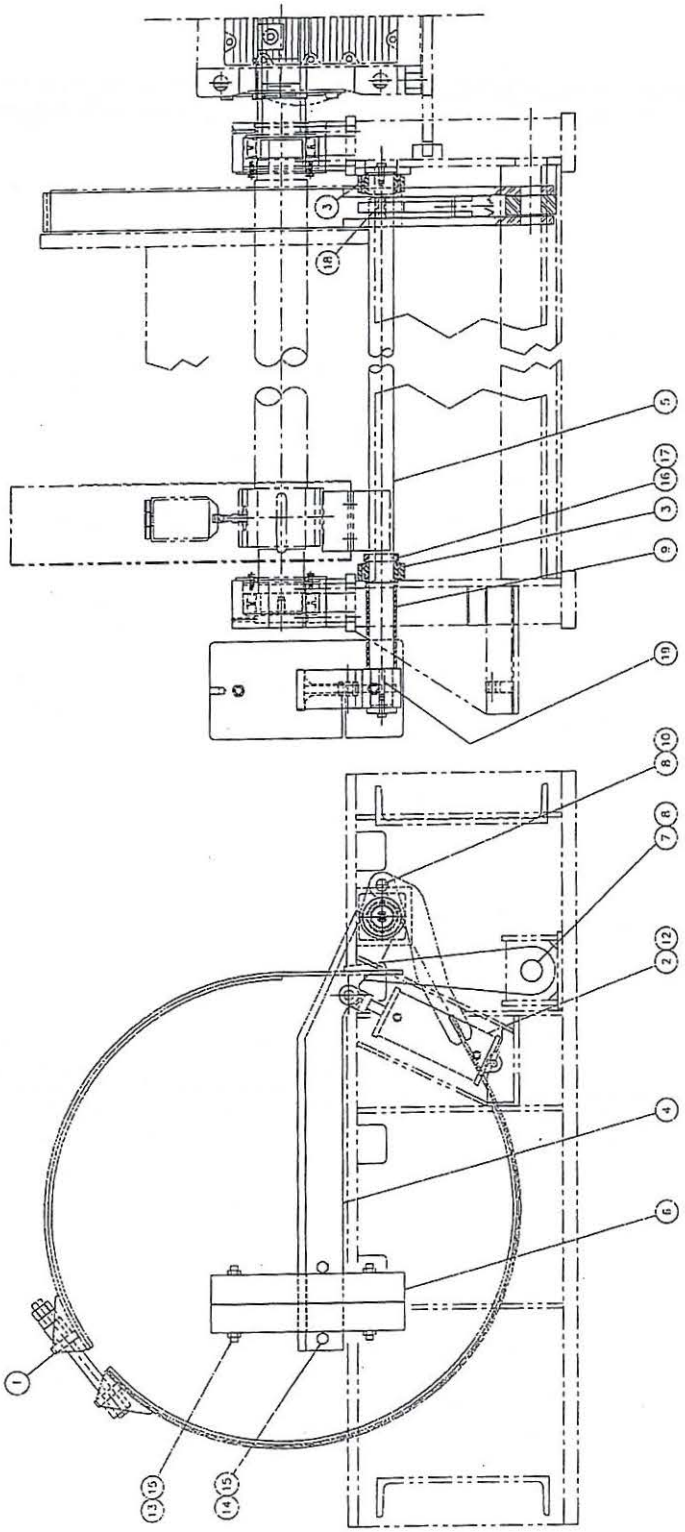
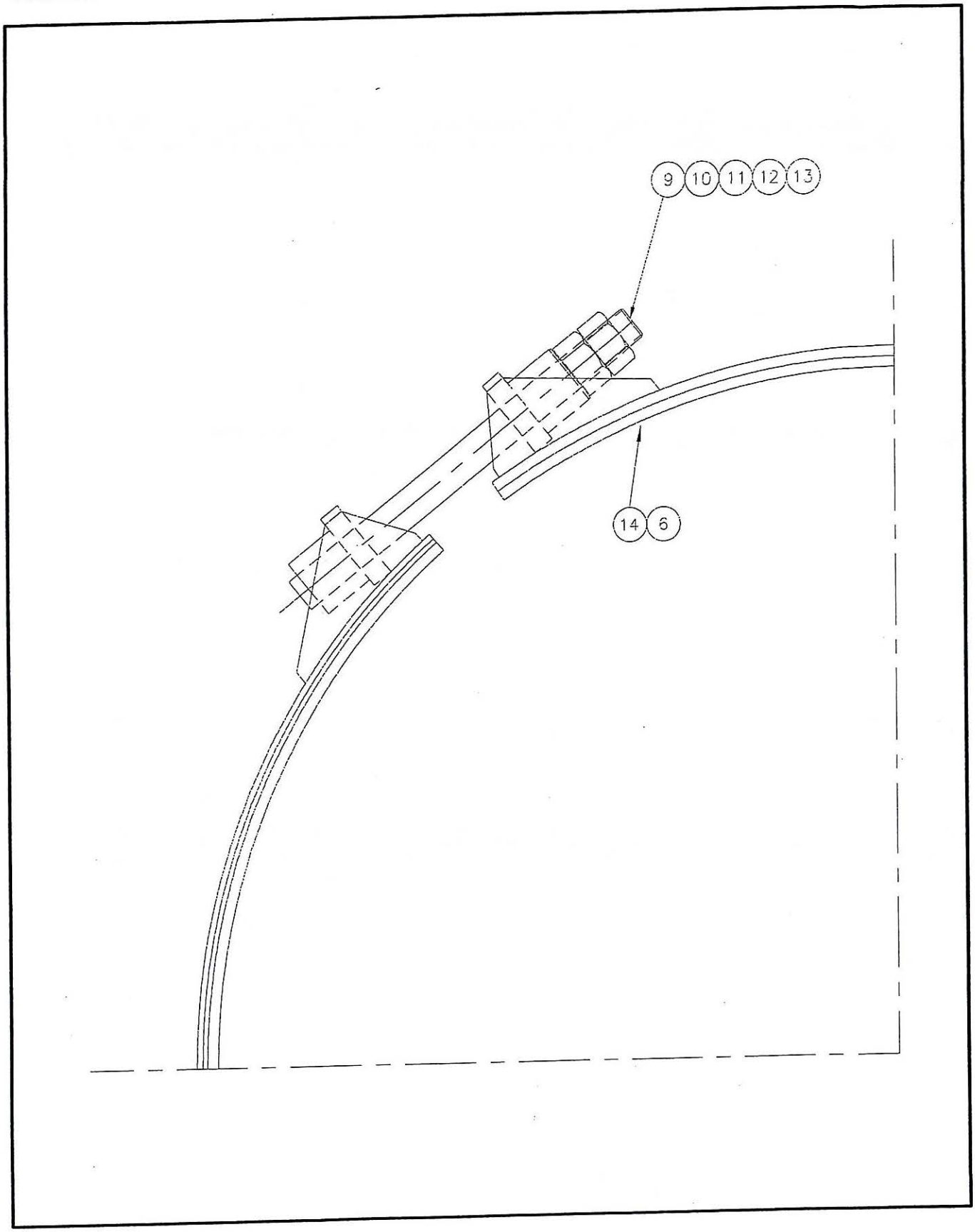
Item	Part Number	Qty	Description
1	895834	1	DRUM WELDMENT SSK440-20E
2	895821	1	SHAFT - DRUM D1 48 W
3	8000064	1	GEAR - SPUR 2 DP x 105 T
4	6000106	1	PILLOWBLOCK MACHINING
5	6000020	1	PILLOWBLOCK MACHINING 4.571 BORE
6	520118	2	BEARING ROLLER
7	548638	2	COVERPLATE - PILLOWBLOCK 6.375 ID
8	6000019	1	RETAINER - SHAFT 6.660 ID
9	548635	2	SEAL - GREASE 5.125 SHAFT
10	545604	1	SEAL - GREASE 4.330 SHAFT
11	182404	8	HEXHEAD CAPSCREW 3/8-16NC X 1" LG
12	181034	8	FLATWASHER 3/8"
13	181054	8	LOCKWASHER 3/8"
14	271630	12	HEXHEAD CAPSCREW 1-8NC X 8" LG
15	181011	12	FLATWASHER 1"
16	549939	2	GREASE FITTING 1/8"-27NPT STR
17	551870	4	WIRE ROPE CLIP REWORK 1-1/8"
18	270714	8	HEXHEAD CAPSCREW , 3/4"-10NC X 3 1/2" LG
19	181009	8	FLATWASHER 3/4"



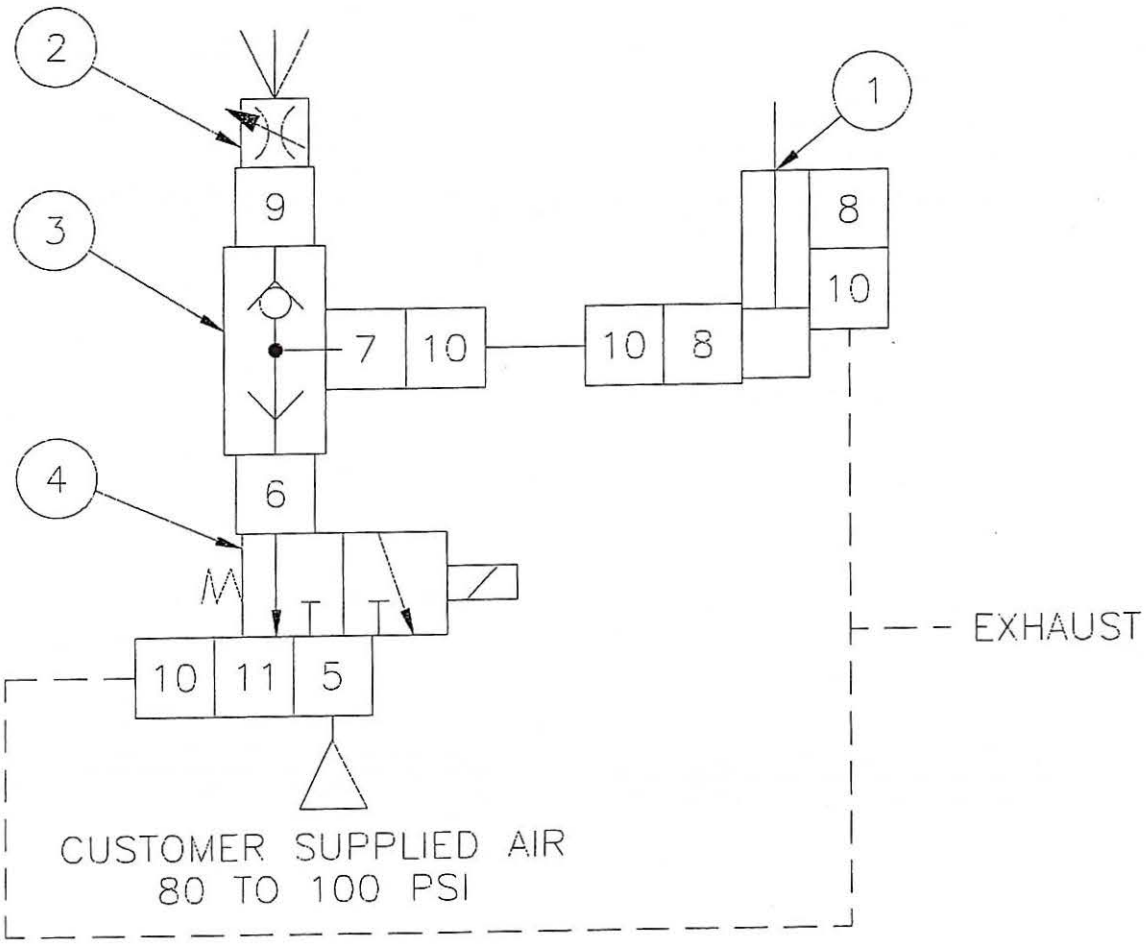
BRAKE BAND ASSY DI SER. 48"W 895827

Item	Part Number	Qty	Description
1	895826	1	BRAKE BAND ASSY 4 W x 48 DIA (Page 10)
2	546943	1	CYLINDER, AIR
3	532621	2	BUSHING ASSEMBLY
4	612332	1	LEVER ARM
5	698985	1	SHAFT ASSY - BRAKE SSK350-1-20E
6	546950	2	OPERATING WEIGHT
7	5901026	1	PIN, BRAKE BAND - DEAD END
8		4	COTTER PIN 5/16" X 3" LG
9	5901027	1	SPACER, BRAKE ARM SSK350-1-20E
10	5901025	1	PIN, BRAKE BAND - LIVE END
11		1	LUG, DEAD END
12	546959	1	PNEUMATICS (Page 12)
13	128010	2	THREADED ROD, HARDNEND 3/4"-10UNC
14		2	HEXHEAD CAPSCREW C/W LW/FW 3/4"-10NC x 2" LG
15		6	HEXNUT 3/4"-10NC
16	535148	1	COLLAR, LOCKING
17	198103	1	3/8-16UNC X 5/8" LG HLF DOG
18	120006	1	KEYSTOCK 1/2"
19	120006	1	KEYSTOCK 1/2"



BRAKE BAND ASSY 4 W x 48 DIA 895826

Item	Part Number	Qty	Description
6	5901012	1	LINING, BRAKE GRN GRIP 3/8 X 4
9	541682	1	ADJUSTMENT BOLT
10	532622	1	COMPRESSION SPRING
11	180012	2	NUT, 1/2"-20
12	155526	2	ROUND TUBE
13	181014	4	FLATWASHER 1 1/4"
14	5900983	1	BRAKE BOLT ASSY 1/4" X 1-1/4"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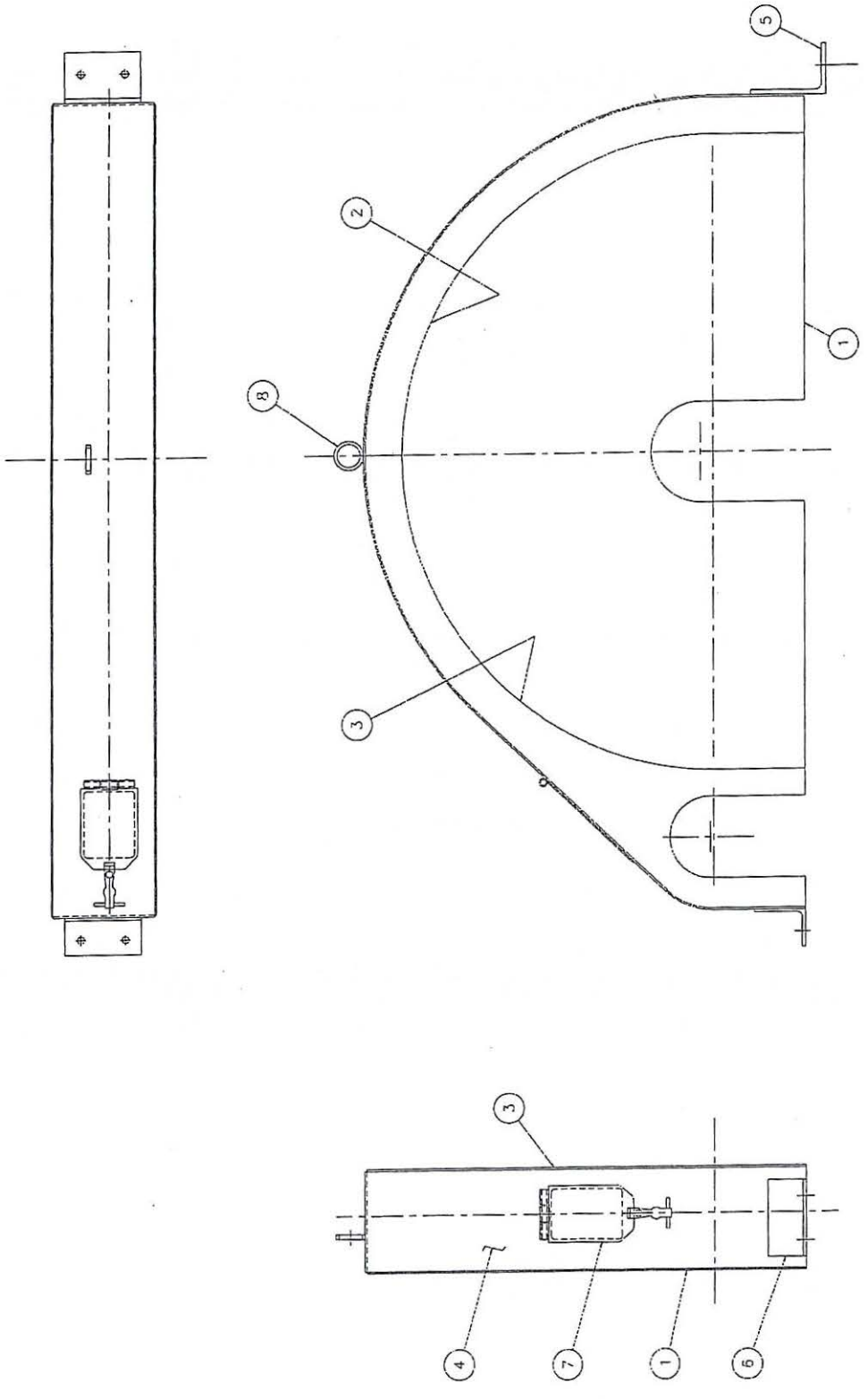
EXHAUST
CUSTOMER SUPPLIED AIR
80 TO 100 PSI

Item	Part Number	Qty	Description
1	546943	1	CYLINDER, AIR
2	541808	1	SPEED CONTROL MUFFLER
3	541680	1	QUICK EXHAUST
4	537735	1	VALVE, AIR 120V AC
5	430008	1	CONNECTOR 6 JICM - 6 NPTM
6	439208	1	NIPPLE 8NPTM - 6NPTM
7	430009	1	ADAPTER 1/2"NPT X 3/8"JIC
8	430509	2	ELBOW 6JICM-8NPTM - 90DEG
9	439309	1	BUSHING 12NPTM-8NPTF
10	407005	4	STEM TTC 60JICFS X 06 HOSE
11	430525	1	ELBOW, 90 DEG 4NPTM-6JICM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Item	Part Number	Qty	Description
1		1	PLATE
2		1	PLATE
3		1	PLATE
4		1	PLATE
5		1	Angle 6" LG
6		1	Angle 6" LG
7	546881	1	COVER - GEARGUARD
8	561558	1	WELD RING

895835 G.A. STAGE HOIST SSK440-20E

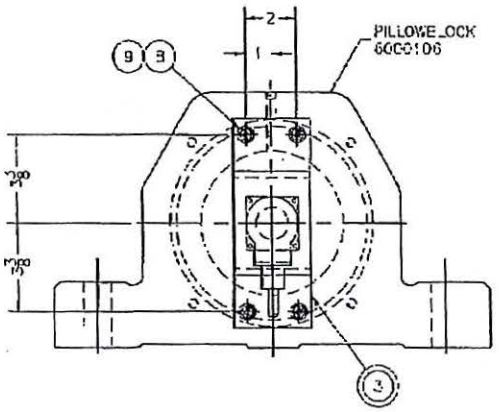
PART INDEX

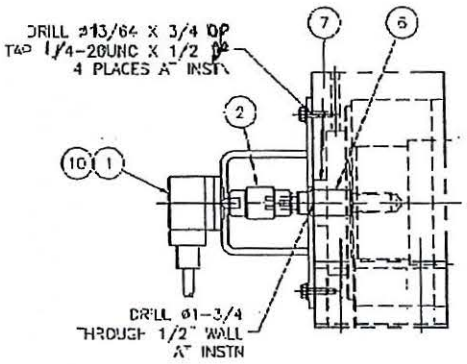
895835 G.A. STAGE HOIST SSK440-20E

ASSEMBLY INDEX

FROM Timberland Equipment Ltd 519 539 5853 15 08 2006 09:32/ST. 9:31 P001

REV	DATE	CHANGE NUMBER	AMENDMENTS	BY	APPD





ATTENTION ANDRE BEAULIEU

FAX # 705-682-0708

SHEET 1 of 2

ITEM	PART NUMBER	OPER DESC	DESCRIPTION	MATERIAL	UNIT QTY
10		FI	#6-32UNC RHMS x 1" LG C/W LW, FW AND NUT	STL	4
9		FI	FLAT WASHER- 1/4	STL	4
8		FI	HHCS 1/4-20NC X 3/4 LG	GR 5	4
7	5003185		SEAL- GREASE 1" – 1.3/4"		1
6	145031	1	4 1/2 LG - 1 DIA ROUND	C1018	0.4F
5	159472	1	D 3 LG - 6X4X1/4 W RECT TUBE	A500B	0.3F
4	100021	1	P 1/2 PL 3 X 8	A-36	0.2SF
3			CONSISTS OF ITEMS 4 AND 5.		1
2	5005644		COUPLING -SHAFT 1/2 – 3/8 DIA		1
1	5003155		ROTARY PULSE GENERATOR		1

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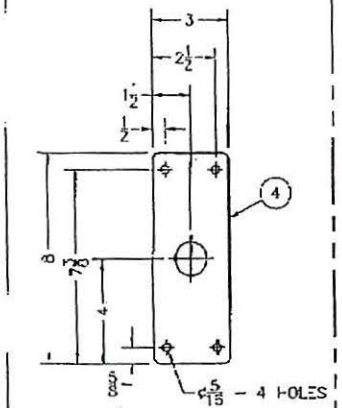
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE INCHES
DIMENSIONS IN [ ] ARE MM
-TOLERANCES-

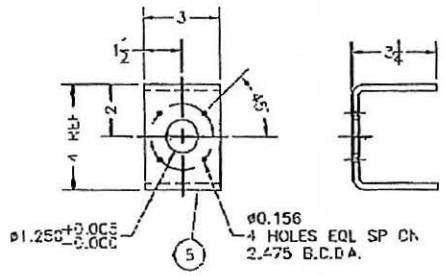
A) ANGULAR		± 1/2°
B) DECIMAL (DIED)	X	± .05
(CVD)	XX	± .02
(DRILLED)	XXX	± .01
C) FRACTIONAL		
1. GENERAL		± 1/32
2. SAWING, FLAME CUTTING, SHEARING & BREAKING		± 1/16
3. MACHINING		± 1/8

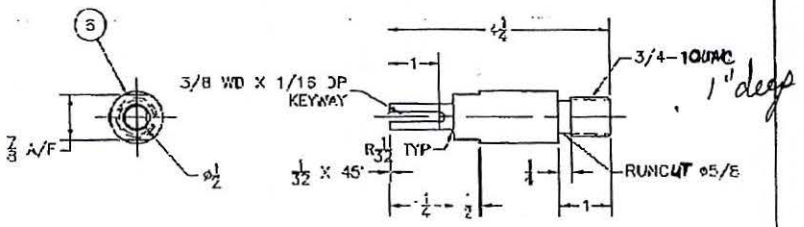
TIMBERLAND EQUIPMENT LIMITED
Woodstock, Ontario, Canada

MATL CERT N/R	TITLE RPG INSTALLATION		
MATL TEST N/R	NEXT ASSEMBLY	DERIVED FROM 6000763B	
WELD TEST N/R	FIRST USED ON WB 8126	SHEET 1	OF 2
EST LBS N/A	DRAWN ARD	CHECKED	APPROVED
ACT LBS N/A	DATE 19..JL06	SCALE 1/4	6001370 REV

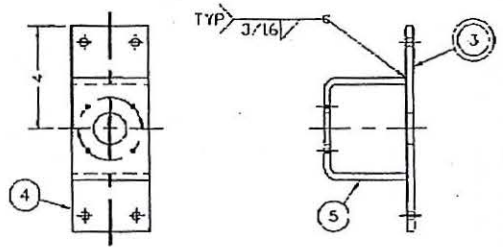
FROM Timberland Equipment Ltd 519 539 5853 15 08 2006 09:32/ST. 9:31 PU02







SCALE 1:2



REV	DATE	CHANGE NUMBER	AMENDMENTS	BY	APPD

ITEM	PART NUMBER	OPER DESC	DESCRIPTION	MATERIAL	UNIT QTY

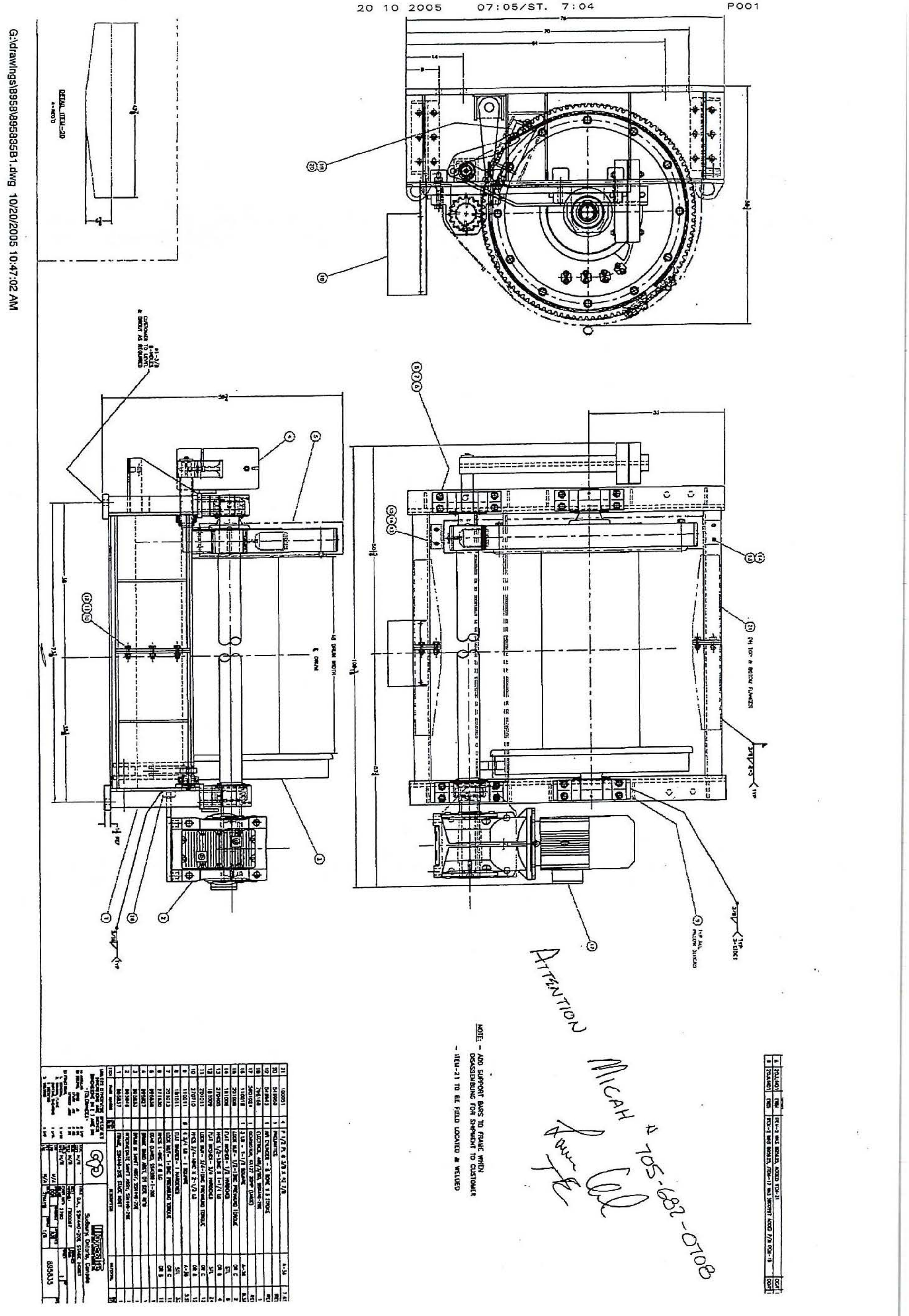
This unit is the property of Timberland Equipment Limited. It is loaned with the express agreement that the design and the information contained herein are the property of Timberland Equipment Limited and will not be reproduced, copied or allowed disposal of directly or indirectly and will not be used by or in part to others for making or in the form of any drawings, prints or other reproductions thereof, or for the making of exercise or parts thereof except with written permission of Timberland Equipment Limited. The acceptance of the unit will be construed as an acceptance of the foregoing agreement.

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE INCHES
DIMENSIONS IN [ ] ARE MM
-TOLERANCES-

A) ANGULAR		± 1/2°
B) DECIMAL (ONE)	X	± .05
(TWO)	XX	± .02
(THREE)	XXX	± .01
C) FRACTIONAL		
1. GENERAL		± 1/32
2. SAWING, FLAME CUTTING, SHEARING & BREAKING		± 1/16
3. WELDING		± 1/8

TIMBERLAND EQUIPMENT LIMITED
Woodstock, Ontario, Canada

MATL CERT	N/R	TITLE	RPG INSTALLATION
MATL TEST	N/R	NEXT ASSEMBLY	DERIVED FROM 6000758
WELD TEST	N/R	FIRST USED ON VO	8126
EST LBS	N/A	DRAWN ARD	CHECKED / APPROVED
ACT LBS	N/A	DATE 19JUL06	SCALE 1/4
		SHEET	2 OF 2
			6001370
			REV


G:\drawings\B958\B95835B1.dwg 10/20/2005 10:47:02 AM
NOTE: - ADD SUPPORT BARS TO FRAME WHEN DISASSEMBLING FOR SHIPMENT TO CUSTOMER
- ITEM-21 TO BE FIELD LOCATED & WELDED
ATTENTION
MICAH # 705-682-0708
B95835

817 46th Street Saskatoon SK Canada Ph. (306) 931-8456

ISO 9001:2008 Certified

Repair Report

Customer: Certified Mining
TECH: Brett Harbidge
DATE: September 16, 2016
Customer Contact: Paul Cranford

Equipment:

A 40,000LB Winch fitted with a 2 speed SEW Euro drive electric motor.

Complaint:

The complaint was the winch control box was tripping off the winch at unexpected times throughout the pull.

Procedures:

The winch was connected to GMR's 600V power source and test run. The winch was run both up and down in slow speed and high speed. All amperage values were balanced and correct for a minimal load. The amperage read-out on the front of the control box was reading correctly.

The electrical schematics were studied and it was found that the amperage read-out on the front of the winch has "tripping" characteristics tied with it and was potentially the cause of the nuisance tripping. It was decided to evaluate this further.

The meter was found to be set for SP1 and SP2 at both 21.0 Amps. The motor is rated for 19.5 Amps on slow speed and 21.4 Amps on high speed. There is also a timer mounted internally to the box that was set at 2 seconds. It was found that if the current went above 21 Amps for any period of time, the timer would count 2 seconds and trip off the unit. This is not ideal for doing long winch pulls considering the amperage can jump around and sometimes land above 21.0 Amps and trip off the unit. A thermal overload is also installed inside the cabinet which protects the motors during overload conditions.

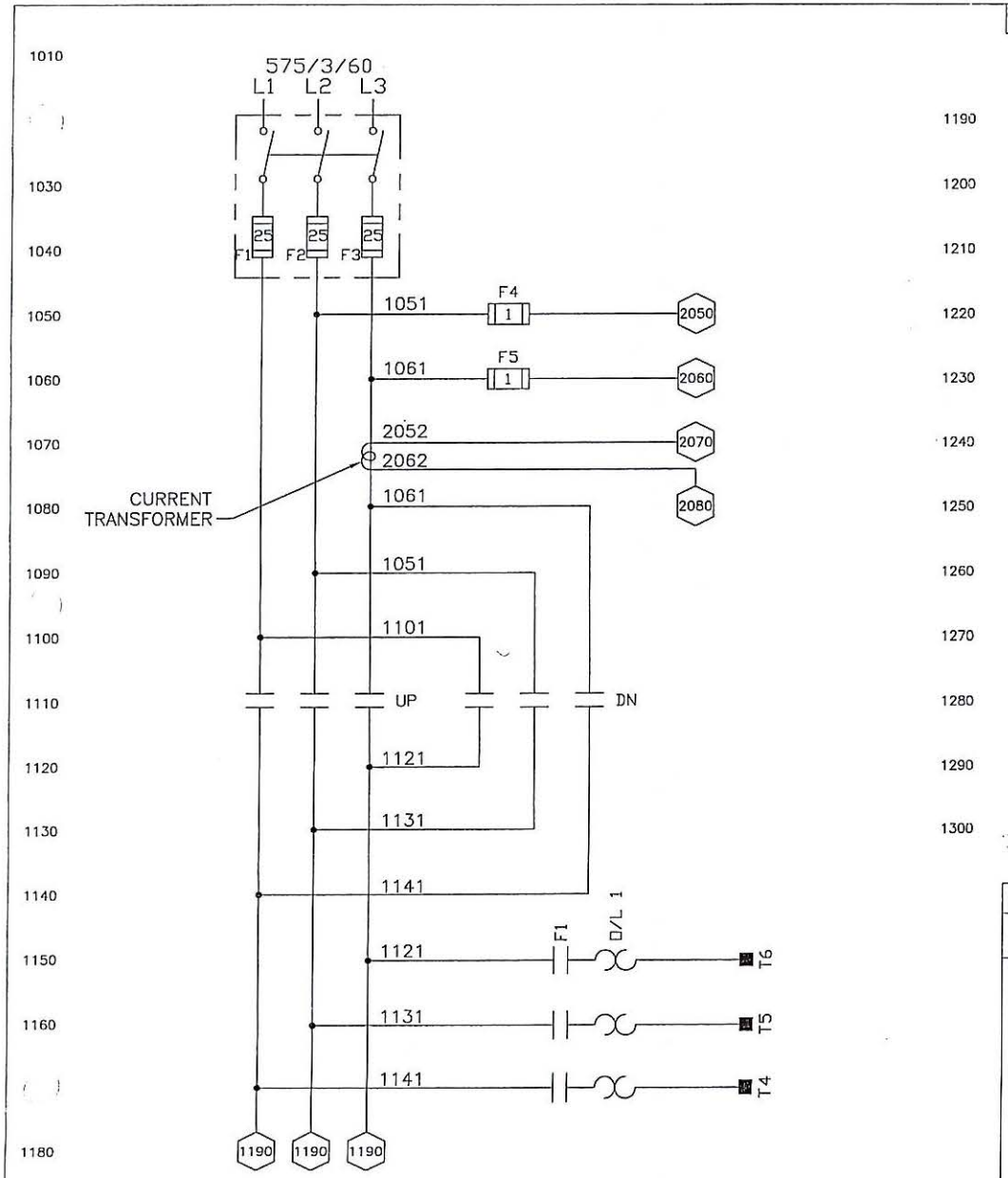
Conclusion:

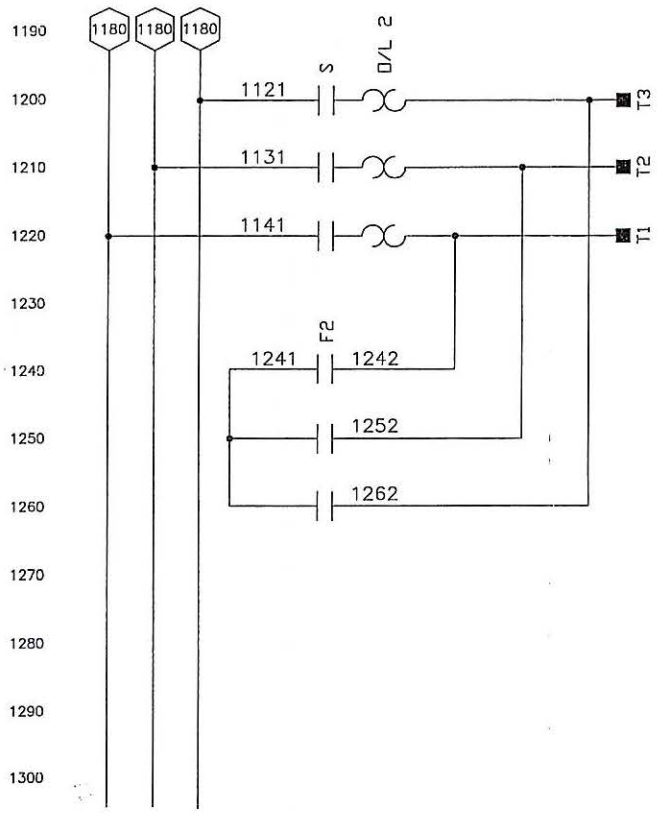
It was decided to jumper out the "tripping" conditions for the amperage read-out meter. This will no longer be able to trip the winch on an over amperage situation. What is left for protection against this are the 30 Amp time delay fuses installed in the disconnect on the side of the control box, along with a thermal overload connected directly to the motor leads. The thermal overload will be able to sustain the periodic over current situations and protect the motor. If the over current situation is larger than what the over loads can handle, then the 30 Amp time delay fuses will pick that up.

The motor was removed from the winch, coupled to a DC generator and run under loaded conditions using the winch control box. It was proven that the internal overloads will trip off the motor during an overloaded condition. The only difference is with it being thermal it will take longer depending on how much over the set point the amount of current draw is. This will allow the motor to go above the 21.0 amps and back under without tripping the unit.

Certified Mining has informed us to jump out the ammeter tripping function and to only use the thermal overloads internal to the control box and the 30 Amp time delay fuses in the fusible disconnect mounted on the side of the control box.

The drawing package has been updated to show the wiring changes to the unit.





REV	DATE	CHANGE NUMBER	AMENDMENTS	BY	APPD

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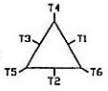
575/3/60
20 HP MOTOR
2 SPEED
CONSTANT HORSEPOWER
CONSEQUENT POLE
LOW SPEED: DELTA
HIGH SPEED: YY



ITEM	PART NUMBER	OPER DESC	DESCRIPTION	MATERIAL	UNIT QTY

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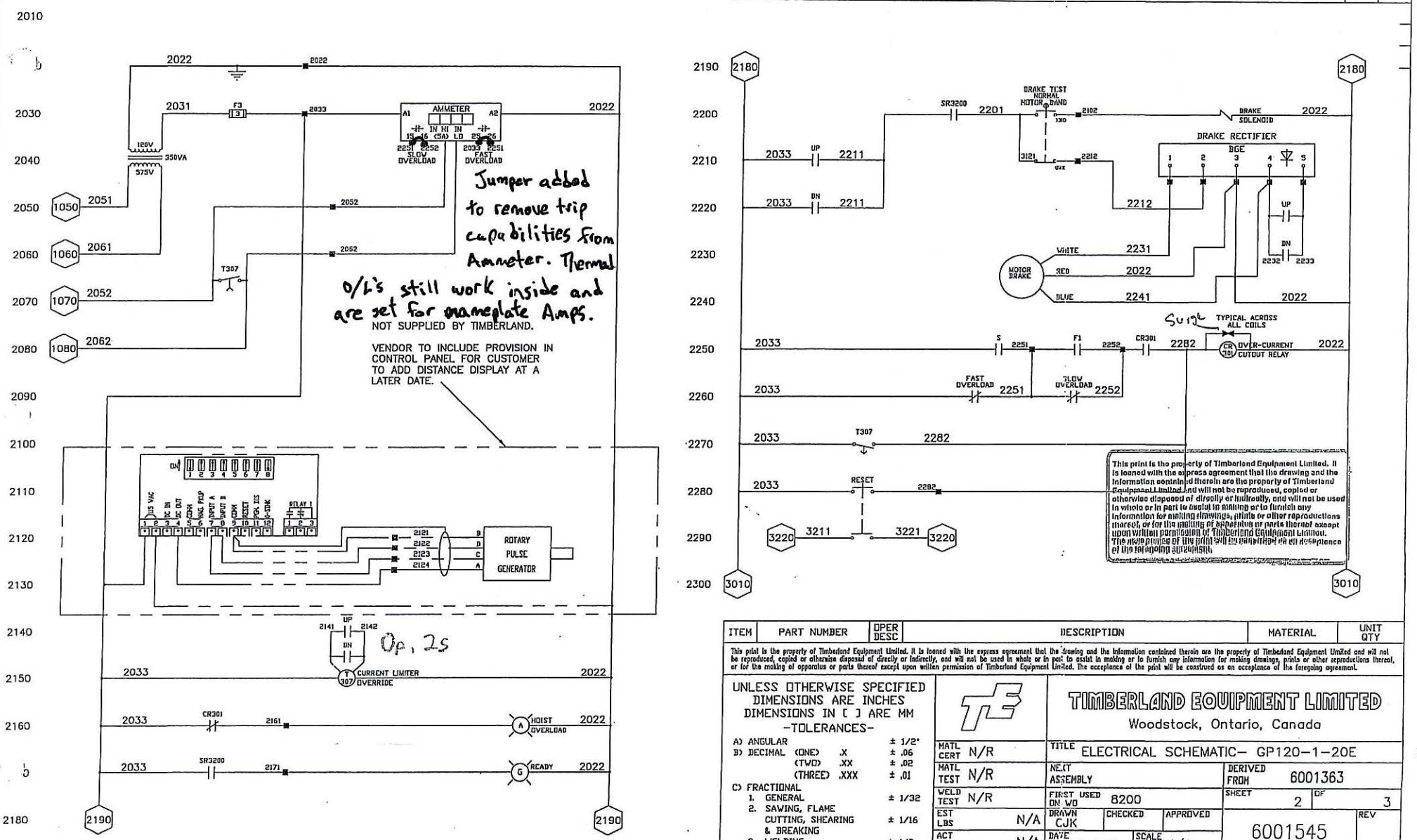
A) ANGULAR		± 1/2°
B) DECIMAL	(ONE) .X	± .06
	(TWO) .XX	± .02
	(THREE) .XXX	± .01
C) FRACTIONAL		
1. GENERAL		± 1/32
2. SAWING, FLAME CUTTING, SHEARING & BREAKING		± 1/16
3. WELDING		± 1/8

TIMBERLAND EQUIPMENT LIMITED
Woodstock, Ontario, Canada

MATL CERT N/R	TITLE ELECTRICAL SCHEMATIC– GP120–1–20E		
MATL TEST N/R	NEXT ASSEMBLY	DERIVED FROM 6001363	
WELD TEST N/R	FIRST USED ON WO 8200	SHEET 1	OF 3
EST LBS N/A	DRAWN CJK / CHECKED / APPROVED ARD	6001545	REV
ACT LBS N/A	DATE 23MAR07 / SCALE 1/1		

Revised Sept 15/16

REV	DATE	CHANGE NUMBER	AMENDMENTS	BY	APPD



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TIMBERLAND EQUIPMENT LIMITED
Woodstock, Ontario, Canada

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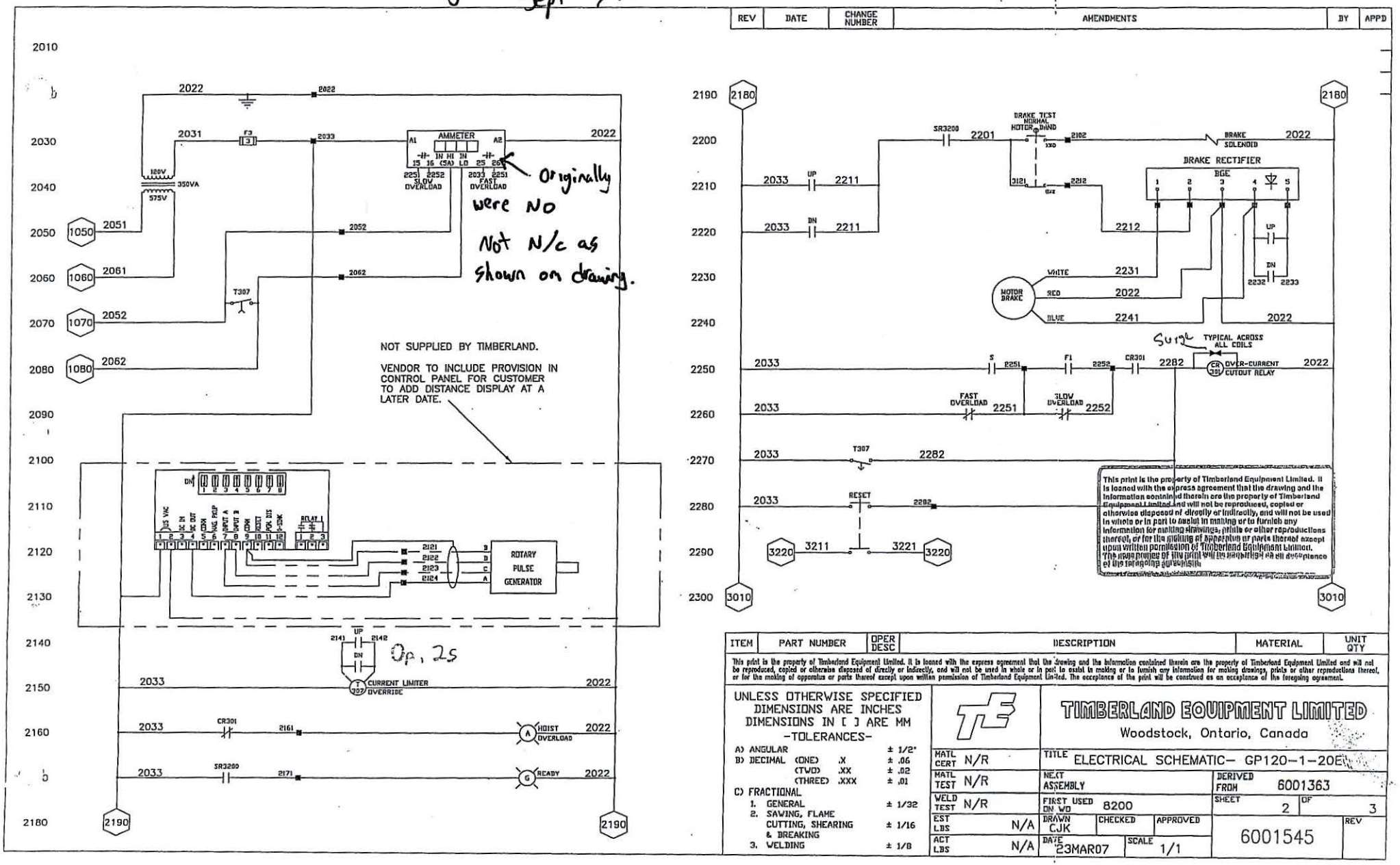
WELD TEST	N/R	FIRST USED ON WO	8200
EST LBS	N/A	DRAWN CJK / CHECKED / APPROVED	SHEET 2 OF 3
ACT LBS	N/A	DATE 23MAR07	SCALE 1/1
			6001545 REV

Original Sept 15/16

REV	DATE	CHANGE NUMBER	AMENDMENTS	BY	APPD



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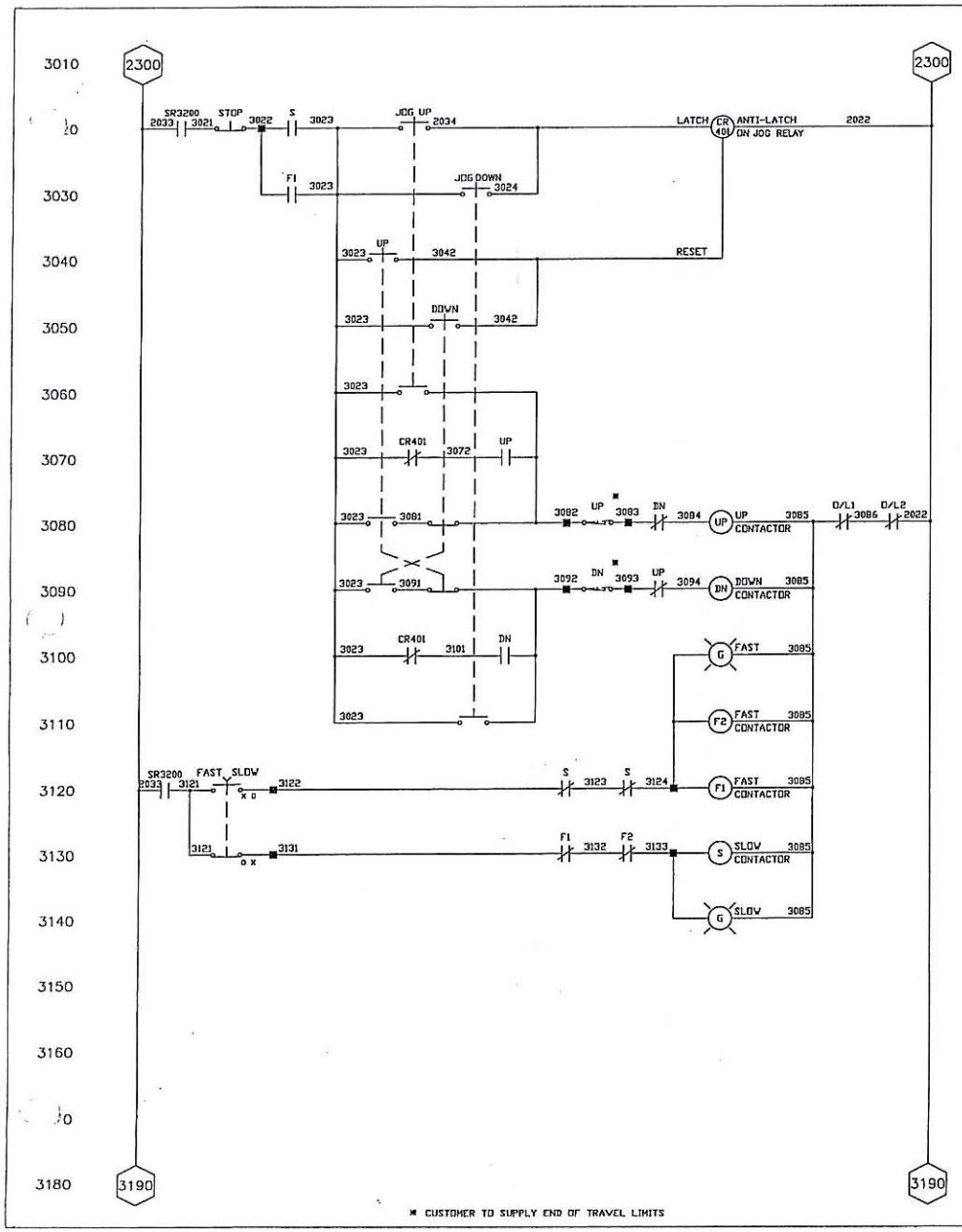
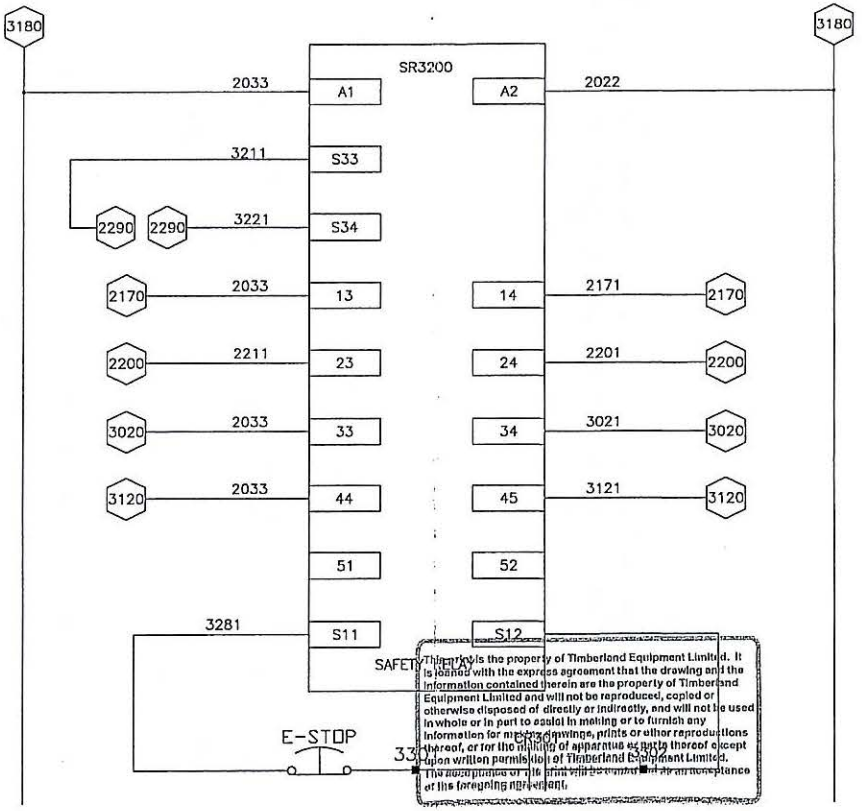
TIMBERLAND EQUIPMENT LIMITED
Woodstock, Ontario, Canada

MATL CERT	N/R	TITLE	ELECTRICAL SCHEMATIC– GP120–1–20E
MATL TEST	N/R	NEXT ASSEMBLY	DERIVED FROM 6001363
WELD TEST	N/R	FIRST USED ON WO 8200	SHEET 2 OF 3
EST LBS	N/A	DRAWN CJK / CHECKED / APPROVED	6001545 REV
ACT LBS	N/A	DATE 23MAR07 SCALE 1/1	





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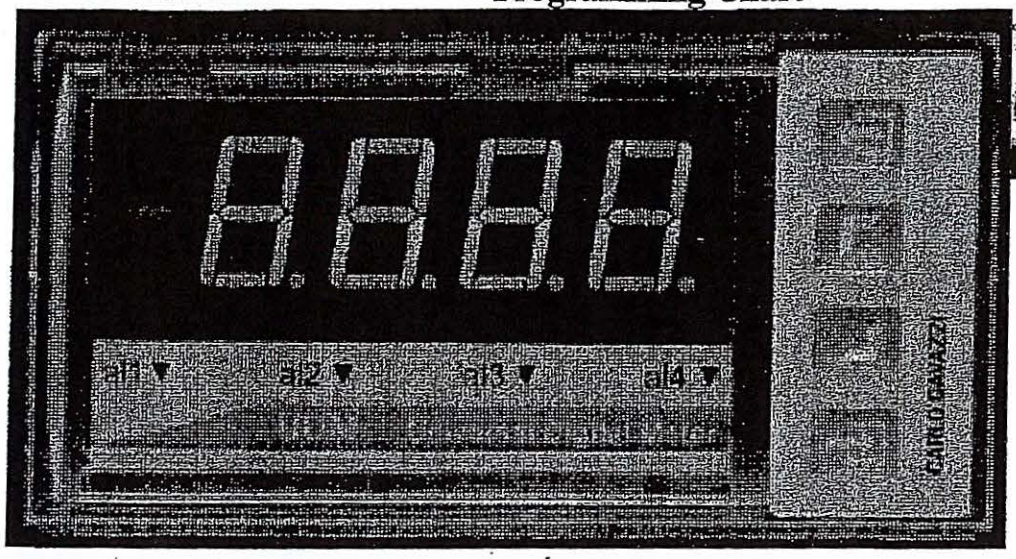
TIMBERLAND EQUIPMENT LIMITED
Woodstock, Ontario, Canada

MATL CERT N/R	TITLE ELECTRICAL SCHEMATIC– GP120–1–20E		
MATL TEST N/R	NEXT ASSEMBLY	DERIVED FROM 6001363	
WELD TEST N/R	FIRST USED ON WO 8200	SHEET 3	OF 3
EST LBS N/A	DRAWN CJK / CHECKED / APPROVED	6001545	REV
ACT LBS N/A	DATE 23MAR07 / SCALE 1/1		

TIMBERLAND EQUIPMENT LIMITED

[redacted]

UDM35 Digital Panel Meter
Programming Chart



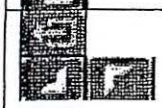
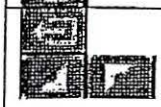
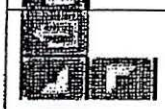
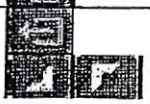
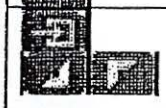
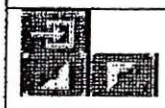
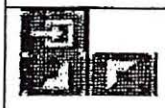
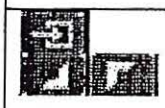
[redacted]

Button:	Details:	
P	Hold for 2 seconds until **PASS** is indicated. Within 2 seconds **0000** is displayed Note: Use **6542** as password for initial setup!	
▲	Hold until the 1st digit changes to **6**	
▶	Push to select 2nd digit	
▲	Hold until the 2nd digit changes to **5**	
▶	Push to select 3rd digit	
▲	Hold until the 3rd digit changes to **4**	
▶	Push to select 4th digit	
▲	Hold until the 4th digit changes to **2**	
P	Push until **PASS** is displayed	
P	Push until **"inP"** is displayed	
P	Push until **"rAnG"** is displayed	
P	Push until **"r3"** is displayed	CC
P	Push until **"tYPE"** is displayed	
P	Push until **"trnS"** is displayed	CC
P	Push until **"int.t"** is displayed	
P	Push until **"Auto"** is displayed	CC
P	Push until **"inP"** is displayed	
P	Push until **"diSP"** is displayed	
P	Push & 4 digits are displayed	
▲ ▶	Push until **"1999"** is displayed	CC
P	Push until **"diSP"** is displayed	

TIMBERLAND EQUIPMENT LIMITED

[redacted]

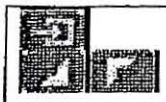
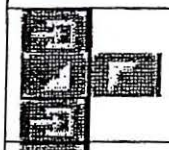
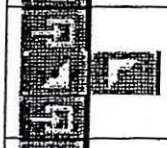
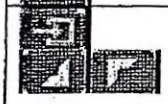
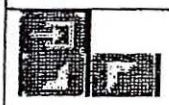
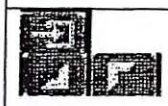
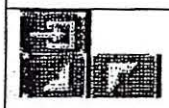
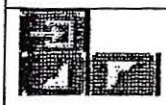
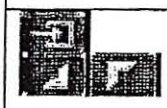
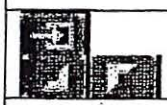
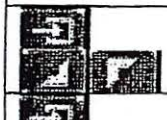
UDM35 Digital Panel Meter
Programming Chart

	Push until **"SCAL"** is displayed	
	Push & **"Lo.E"** is displayed	
	Push to select digits Push to change digits Set @ **"00.00"**	EC
	Push & **"Hi.E"** is displayed	
	Push to select digits Push to change digits Set @ **"05.00"**	EC
	Push & **"dP"** is displayed	
	Push to select the decimal point position Set @ **"111.1"**	EC
	Push & **"Lo.d"** is displayed	
	Push to select digits Push to change digits Set @ **"000.0"**	EC
	Push & **"Hi.d"** is displayed	
	Push to select digits Push to change digits Set @ **"050.0"**	EC
	Push until **"SCAL"** is displayed	
	Push until **"SP.1"** is displayed	
	Push until **"Lo.S"** is displayed Push to change digits Set @ **"000.0"**	EC
	Push until **"Hi.S"** is displayed Push to change digits Set @ **"025.0"**	EC
	Push until **"SEt"** is displayed Push to change digits Set @ **"021.4"**	EC
	Push until **"HYS"** is displayed Push to change digits Set @ **"000.5"**	EC
	Push until **"oFF.d"** is displayed Push to change digits Set @ **"0000"**	EC

TIMBERLAND EQUIPMENT LIMITED

[redacted]

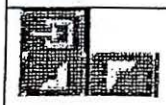
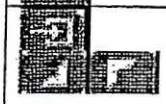
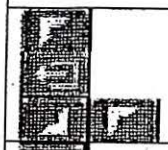
UDM35 Digital Panel Meter
Programming Chart

	Push until **"on.d"** is displayed Push to change digits Set @ **"0002"**	CC
	Push until **"rLY"** is displayed Push to scroll thru Push to select **"nE"**	EC
	Push until **"ALr"** is displayed Push to scroll thru Push to select **"uP"**	EC
	Push until **"SP.1"** is displayed	
	Push until **"SP.2"** is displayed	
	Push until **"Lo.S"** is displayed Push to change digits Set @ **"000.0"**	EC
	Push until **"Hi.S"** is displayed Push to change digits Set @ **"025.0"**	EC
	Push until **"SEt"** is displayed Push to change digits Set @ **"023.3"**	EC
	Push until **"HYS"** is displayed Push to change digits Set @ **"000.5"**	EC
	Push until **"oFF.d"** is displayed Push to change digits Set @ **"0000"**	EC
	Push until **"on.d"** is displayed Push to change digits Set @ **"0002"**	EC
	Push until **"rLY"** is displayed Push to select **"nE"**	EC
	Push until **"ALr"** is displayed Push to select **"uP"**	EC
	Push until **"SP.2"** is displayed	

TIMBERLAND EQUIPMENT LIMITED

[redacted]

UDM35 Digital Panel Meter
Programming Chart

	Push until **"FiLt"** is displayed	
	Push until **"FiL.S"** is displayed Push to change digits Set @ **"000.0"**	EC
	Push until **"FiL.C"** is displayed Push to change digits Set @ **"0001"**	EC
	Push until **"FiLt"** is displayed	
	Push until **"Cnd"** is displayed	
	Push Push to scroll thru until **"C1"** is displayed	EC
	Push until **"Cnd"** is displayed	
	Push until **"PASS"** is displayed Push to change digits Enter new password **"8338"**	EC
	Push until **"PASS"** is displayed	
	Push to end	

NORTHERN INDUSTRIAL

N.I.S.

SERVICES

Nondestructive Examination Report

Client:	Attention:	Job #:
Walden Equipment 106 Fielding Rd. Lively, Ontario P3Y 1L5	Andre Beaulieu	10-461 & 10-468
	Type of Examination: MT & UT	**Date of Inspection:** November 1, & 3, 2010
	Specification: Stress / Fatigue cracks & physical damage	**PO #:** 6686
	Procedure #: ASTM E114 & E709	**Page No.:** 1 of 5

Examination Data

Scope:

UT - At the request of our client, the below listed subjects were inspected for internal defects using the contact Pulse Echo method of inspection in the axial direction only.

MT - At the request of our client, the below listed subjects welds in all highlighted areas (random sampling by client), and critical area (highlighted areas by client), were inspected for stress and or fatigue type cracks only using the AC contact continuous magnetic particle method of inspection.

Equipment:

MPI: Parker Probe AC yoke (NIS # 02), using a magnetizing medium of black dry powder.

UT: A Panametrics Epoch III (ser. # 1447503), a ½" diameter, 2.25 Mhz. transducer (ser. # 74868), and Ecogel gr. 30 couplant. The flaw detector sensitivity is attained with the backwall echo + 8 db.

SUBJECTS: Hoist # WE-171 SSK440 Hoist

Item	Qt	Description	UT Insp.	MT Insp.	ACC	REJ
1	2	Brake bands – MT ends only		X		X
2	1	Frame – Random sampling of welds by Walden Equipment		X		X
3	1	Drum gear – 4 – 1' Sections of gear		X	X	
4	1	Drum welds – Inside and outside circumferential welds		X	X	

Inspector	Certification	Date
Stephane Godin S. Godin	C.G.S.B. - 48.9712 UT, MT, PT Level II	November 5, 2010
Adam Akerman	C.G.S.B. - 48.9712 MT Level II	November 5, 2010

This report is only valid for work, which was specifically requested by the client. It's only purpose is to summarize the present state of its subject on the particular date of the inspection. It does not reflect or act as a guarantee for the mechanical and/or physical aspects of its subject, for any period of time following the inspection. Nevertheless, its main function is to serve as a mere tool used in preventative and predictive type maintenance practices.

4385 St Marys Blvd.,
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P3P 1Y6

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N.I.S.

SERVICES

Nondestructive Examination Report

Client:	Attention:	Job #:
Walden Equipment 106 Fielding Rd. Lively, Ontario P3Y 1L5	Andre Beaulieu	10-461 & 10-468
	Type of Examination: MT & UT	**Date of Inspection:** November 1, & 3, 2010
	Specification: Stress / Fatigue cracks & physical damage	**PO #:** 6686
	Procedure #: ASTM E114 & E709	**Page No:** 2 of 5

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SUBJECTS: Hoist # WE-171 SSK440 Hoist

Item	Qt.	Description	UT Insp.	MT Insp.	ACC.	REJ.
5	1	Drum shaft – MT + UT ends	X	X	X	
6	1	Brake Arm		X	X	
7	1	4 Pins + 1 Threaded rods	X	X	X	
8	1	Pinion gear		X	X	
9	1	New brake shaft	X	X	X	
10	1	Drive shaft – MT + UT ends only	X	X	X	

Inspector	Certification	Date
Stephane Godin S. Godin	C.G.S.B. - 48.9712 UT, MT, PT Level II	November 5, 2010
Adam Akerman	C.G.S.B. - 48.9712 MT Level II	November 5, 2010

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SERVICES

Defect Details

Item #	Defect #	Defect details	Repair Inspected and found to be Acceptable
1	1	1" Crack in weld	Nov 3rd, 2010
1	2	1" Crack in weld	Nov 3rd, 2010
1	3	1" Crack in weld	Nov 3rd, 2010
1	4	1" Crack in weld	Nov 3rd, 2010
1	5	1" Crack in weld	Nov 3rd, 2010
2	6	1" Crack in weld	Nov 3rd, 2010
2	7	1" Crack in weld	Nov 3rd, 2010
2	8	4" Crack in weld	Nov 3rd, 2010
2	9	2" Crack in weld	Nov 3rd, 2010
4	10	4" Crack in weld	Nov 3rd, 2010

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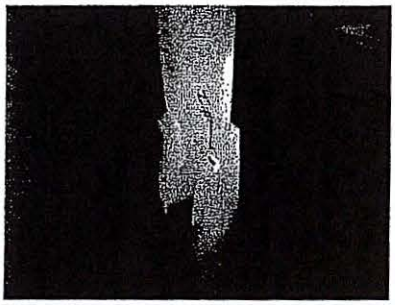
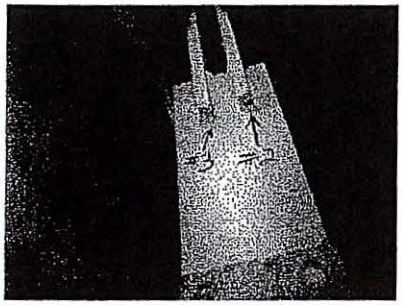
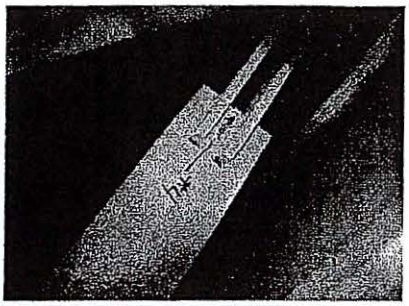
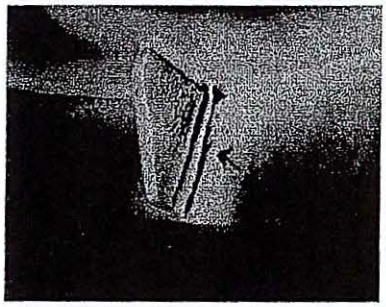
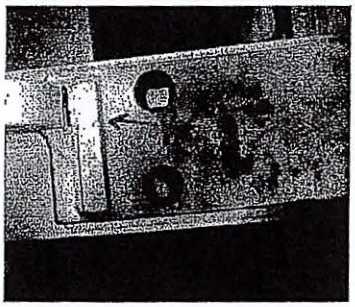
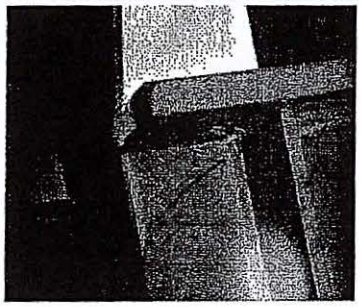
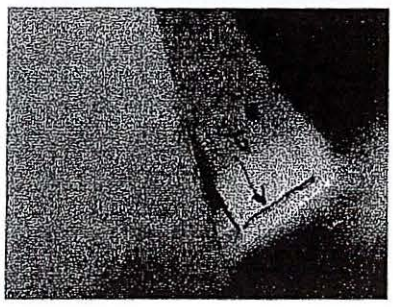
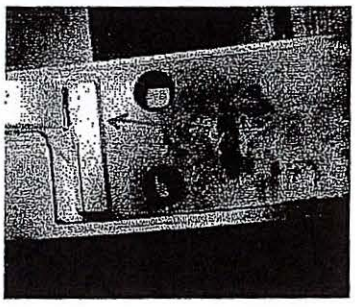
SERVICES

Photos of defects

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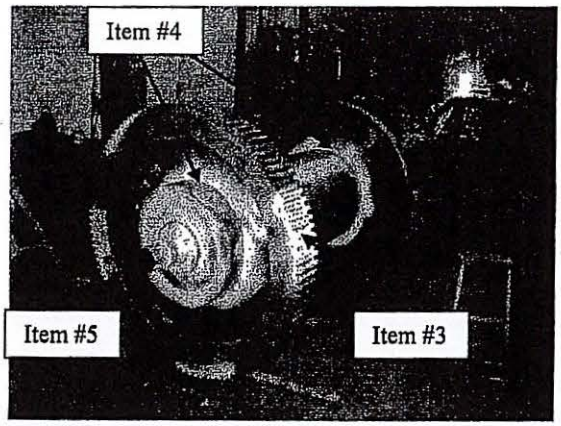
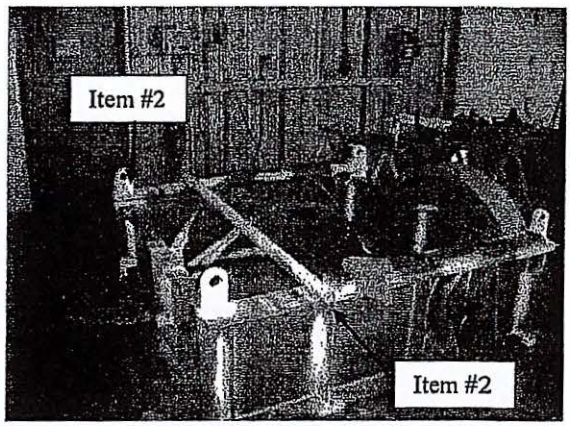
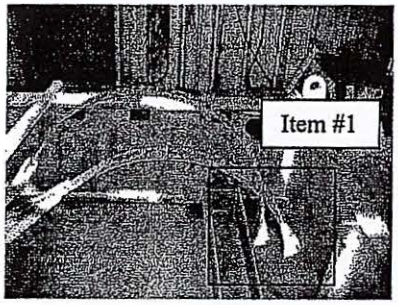
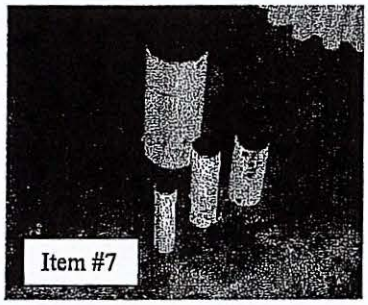
SERVICES

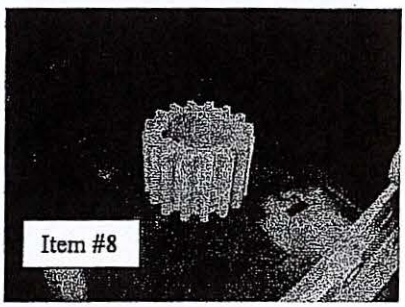
Defect Details

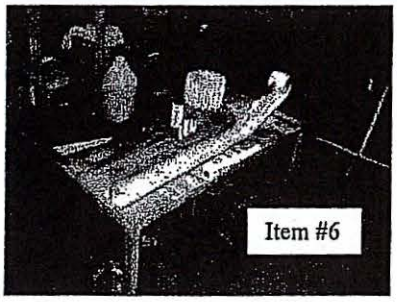


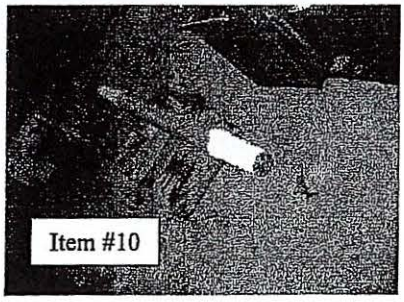












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W/O 293H

JWE Test Report

Date 11-04-10 Customer WALDEN EQUIPMENT

PO # 6634 Job # 10-1016 Tag # _____

HP/KW 18-20 MFG SEW S # _____ Spec/Model # _____

FR 160L R.P.M. 3450-1750 Phase 3 Volts 575 HZ 60 Amps 19/21

INS _____ SF _____ Encl. TEFC DE Brg. 6312ZZ ODE Brg. 6213ZZ F1☒F2☐

J.B. POS _____ Parts Missing/Broken _____

Coupling☐ Sheave☐ Position _____ Condition _____

Accessories: RTD☐ Thermistor☐ Heater☐ Thermostat☐

Suspected Problems OVERHAUL Picture Emailed: Yes☐ No☐

Special Instructions _____

Probable Cause of Failure:

Single Phased☐ Overload☐ Stalled☐ Grounded☐ Flooded☒ Inverter Spike☐ Bearing Failure☐

Explain _____

Incoming Tests:

Stator Winding Meggar G☒ F☐ Surge G☒ F☐ DC Hipot G☒ F☐

Rotor Winding Meggar G☐ F☐ Surge G☐ F☐ DC Hipot G☐ F☐

1 Ø Rotor Test G☐ F☐ PI Test G☐ F☐ Growler Test G☐ F☐ End Ring Hot Spot G☐ F☐

Commutator G☐ F☐ Slip Rings G☐ F☐ Brush Rigging G☐ F☐

DE Shaft Run Out G DE Housing Fit G NDE Housing Fit G

DE Journal Fit G ODE Journal Fit G DE Key Seat G

Explain _____

Steam Clean Y☒ N☐ Dip and Bake Y☐ N☒ Rewind Y☐ N☒ Relead Y☐ N☒

Replace Bearings Y☒ N☐ DE Housing Repair Y☐ N☒ ODE Housing Repair Y☐ N☒

DE Journal Repair Y☐ N☒ ODE Journal Repair Y☐ N☒ Balance Rotor Y☐ N☒

New Shaft Y☐ N☒ Installed Bearings DE 6312ZZ ODE 6213ZZ

Final Test:

Stator Winding Resistance L1 – L2 1.4 L1 – L3 1.4 L2 – L3 1.4HS OHMS

Rotor Winding Resistance L1 – L2 _____ L1 – L3 _____ L2 – L3 _____ OHMS

Ω Phase to Phase Y☒ N☐ M Ω to Ground INF_____ DC Hipot Y☒ N☐ Surge Y☒ N☐

Type of Grease POLYREX EM

NLA L1 G8.3 @ 600 Volts Vibration Readings DE Vertical G ODE Vertical G

L2 9.6 @ 600 Volts ½ Key Installed DE Horizontal G ODE Horizontal G

L3 8 @ 600 Volts mm / s DE Axial G ODE Axial G

Motor Final Inspection Date 11-04-10 By PB/GG Fordwich ☐ Sudbury ☒

Notes BRAKE PAD .567THICK

RED BLUE 19.4 OHMS RED WHITE 2.6 OHMS WHITE BLUE 17.1OHMS

G = Good F = Fail Y = Yes N = No JWF-071 05/07

Winch # WE 171 Check #

Project SSK Date: Nov 15 / 2010

A

Point #1

	CW		Motor
Pressure	0.013"		0.015"
Non-Press	0.019"		0.020"
Total	0.032		0.035
Root			
Pressure	0.013"		0.014"
Non-Press	0.016"		0.019"
Total	0.029		0.033
Root			
Pressure	0.013"		0.013"
Non-Press	0.015		0.019"
Total	0.028		0.032
Root	0.106"		0.114"

~~2~~ A

Point # 2

	CW		Motor
Pressure	0.016"		0.017"
Non-Press	0.018"		0.023"
Total	0.034		0.040
Root			
Pressure	0.015"		0.014"
Non-Press	0.017"		0.022"
Total	0.032		0.036
Root			
Pressure	0.014"		0.013"
Non-Press	0.018		0.021"
Total	0.032		0.034
Root	0.112"		0.118"

~~3~~ 4 A

Point #

	CW		Motor
Pressure	0.018"		0.022"
Non-Press	0.025"		0.027"
Total	0.043		0.049
Root			
Pressure	0.019"		0.023"
Non-Press	0.023"		0.026"
Total	0.042		0.049
Root			
Pressure	0.017"		0.020"
Non-Press	0.022		0.028"
Total	0.039		0.048
Root	0.130"		0.138"

~~4~~ 3 A

Point #

	CW		Motor
Pressure	0.020"		0.023"
Non-Press	0.027"		0.026"
Total	0.047		0.049
Root			
Pressure	0.020"		0.019"
Non-Press	0.023"		0.025"
Total	0.043		0.044
Root			
Pressure	0.018"		0.018"
Non-Press	0.022"		0.024"
Total	0.040		0.042
Root	0.137"		0.143"

Done By: Nathan Mahon	Checked by:
Comments:	

NORTHERN INDUSTRIAL

N.I.S.

SERVICES

Nondestructive Examination Report

Client:	Attention:	Job #:
Walden Equipment 106 Fielding Rd. Lively, Ontario P3Y 1L5	Andre Beaulieu	08-321
	Type of Examination:	Date of inspection:
	MT & UT	Nov 10, 25, & Dec. 8, 2008
	Specification:	PO #:
	Stress / Fatigue cracks	81313
	Procedure #:	Page No.:
	ASTM E114 & E709	1 of 4

Examination Data

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SUBJECTS: Hoist WE-171 (Marcotte Hoist s/n: 2790-2, model # SSK440-20E)

Item	Qt	Descritpion	UT Insp.	MT Insp.	ACC.	REJ.
1	4	1' long areas of the winch drum gear		X	X	
2	4	Brake shoe ends		X		X
3	1	Winch frame welds (all highlighted areas by WE – random sampling)		X		X
4	1	Winch drum -Inside circ. welds, and outside shaft stationary plate welds. See photo		X	X	
5	1	Winch gear box shaft – exposed keyway end only.		X	X	
6	4	Winch brake pins – shafts 3 – brake pins, and 1 – brake shoe connecting bolt with spring. See photo.	X	X	X	

Inspector	Certification	Date
Stephane Godin S. Godin	C.G.S.B. - 48.9712 UT, MT, PT Level II	December 9, 2008

This report is only valid for work, which was specifically requested by the client. It's only purpose is to summarize the present state of its subject on the particular date of the inspection. It does not reflect or act as a guarantee for the mechanical and/or physical aspects of its subject, for any period of time following the inspection. Nevertheless, its main function is to serve as a mere tool used in preventative and predictive type maintenance practices.

4385 St Marys Blvd.,
HANMER, ONTARIO
P3P 1Y6

PHONE: (705) 969-0165
FAX: (705) 969-8091

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Nondestructive Examination Report

Client:	Attention:	Job #:
Walden Equipment 106 Fielding Rd. Lively, Ontario P3Y 1L5	Andre Beaulieu	08-321
	Type of Examination: MT & UT	Date of inspection: Nov 10, 25, & Dec. 8, 2008
	Specification: Stress / Fatigue cracks	PO #: 81313
	Procedure #: ASTM E114 & E709	Page No.: 2 of 4.

Examination Data

Scope:
UT - At the request of our client, the below listed subjects were inspected for internal defects using the contact Pulse Echo method of inspection in the axial direction only.
MT - At the request of our client, the below listed subjects welds in all highlighted areas (random sampling by client), and critical area (highlighted areas by client), were inspected for stress and or fatigue type cracks only using the AC contact continuous magnetic particle method of inspection.

Equipment:
MPI: Parker Probe AC yoke (NIS # 02), using a magnetizing medium of black dry powder.

UT: A panametrics Epoch III (ser. # 1447503), a ½" diameter, 2.25 Mhz. Transducer (ser. # 74868), and ecogel gr. 30 couplant. The flaw detector sensitivity is attained with the backwall echo + 8 db.

SUBJECTS:

Item	Qt.	Descritpion	UT Insp.	MT Insp.	ACC.	REJ.
7	1	Brake / Counterweight arm		X		X
8	1	Brake shaft keyway end only (shaft in situ)		X	X	
9	1	Winch Drive shaft pinion gear.		X	X	
10	1	Winch Drum shaft (UT both ends, and MT exposed ends only)	X	X	X	

Inspector	Certification	Date
Stephane Godin S. Godin	C.G.S.B. - 48.9712 UT, MT, PT Level II	December 9, 2008

This report is only valid for work, which was specifically requested by the client. It's only purpose is to summarize the present state of its subject on the particular date of the inspection. It does not reflect or act as a guarantee for the mechanical and/or physical aspects of its subject, for any period of time following the inspection. Nevertheless, its main function is to serve as a mere tool used in preventative and predictive type maintenance practices.

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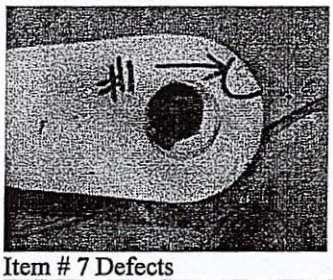
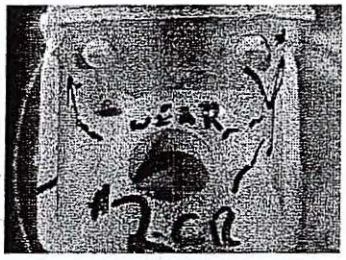
Defect Details

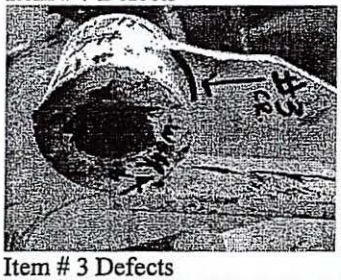
Item #	Defect #	Defect details	Repair Inspected and found to be Acceptable
2	1	Torch gouge on brake shoe end.	November 17, 08
2	2	¾" crack in the brake shoe end weld, and wear found.	November 17, 08
7	3	2" crack in weld.	December 8, 08
7	4	Wear in arm boss face	December 8, 08
7	5	Wear in arm section	December 8, 08
3	6	¾" crack in weld	November 17, 08
3	7	½" crack in weld	November 17, 08
3	8	1" crack in weld.	November 17, 08
3	9	1" crack in weld	November 17, 08
3	10	½" crack in weld	November 17, 08
3	11	Blend all inside hole edges of lifting lugs	November 17, 08
6		Missing pin - New brake pin inspected.	November 25, 08

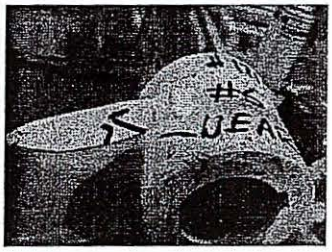
Item # 2 Defects



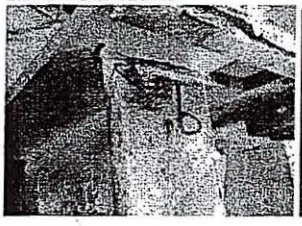


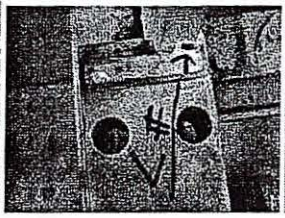
Item # 7 Defects

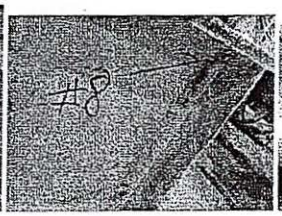


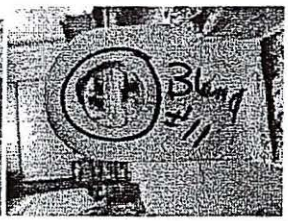


Item # 3 Defects









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P3P 1Y6

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FAX: (705) 969-8091

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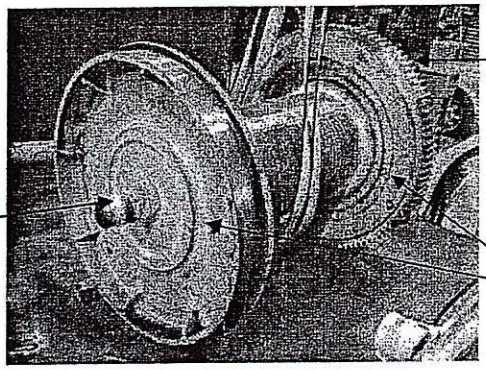
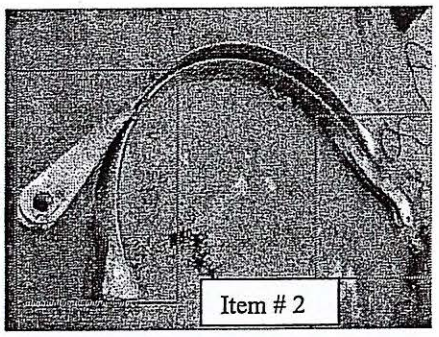
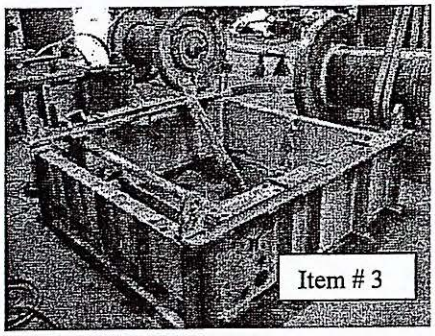
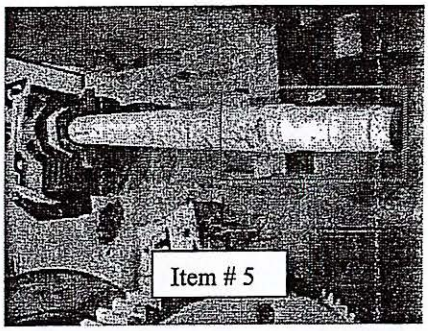
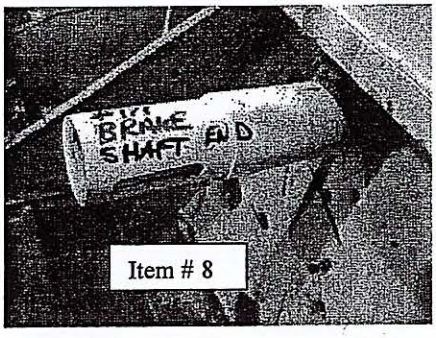
Photos of inspected areas

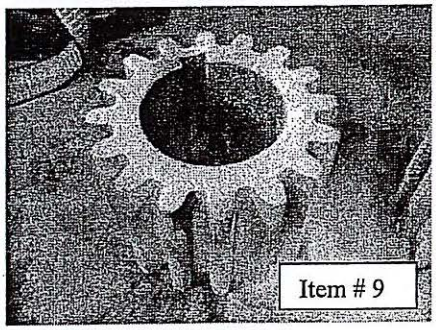


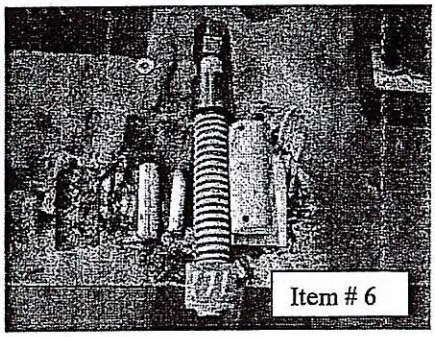


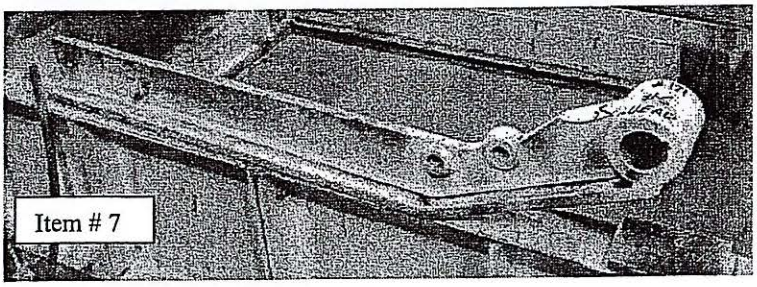












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HANMER, ONTARIO
P3P 1Y6

PHONE: (705) 969-0165
FAX: (705) 969-8091

WALDEN EQUIPMENT LTD
106 FIELDING ROAD
LIVELY, ON P3Y 1L5
Phone: (705)682-2084
Fax: (705)682-2564

Quotation

Quote To: Northern Strands Co. LTD

Quote Number:	10192			**Contact:**	Tyson Vogel
Quote Date:	07/14/10	**Expires:**	08/13/10	**Inquiry:**	SSK -440
Customer:	NOR200			**Terms:**	Net 30 Days
Salesman:	Andre Beaulieu			**Phone:**	(800) 242-7073
Ship Via:	Freight			**FAX:**	(306) 934-2920
FOB:	LIVELY,ONTARIO				

Thank you for the opportunity to submit this quote. All prices and term are valid for 30 days from the date of this quote.

As you requested a quote for One SSK440 drum 24"Ø x 48" 39.5
-based on a 1 3/8 " rope
-First layer 44,000 line pull, 14.00(fpm) line speed , cumulative cap. 241 ft
-Nineth layer 24,500 line pull, 25.09 (fpm) line speed , cumulative cap. 3030 ft
-two reversing full voltage across the line starters (one for each one) and a common " master " control panel for remote mounting for control of the two hoists individually or as a pair. Panels on each hoist, NEMA 4, non metallic, main disconnect switch, control circuit transformer, power on indicator light , up/ down pushbuttons, emergency stop pushbutton, terminal strip for connection to the master control panel, and Eurodrive HPL430 power control unit. "Master" panel, NEMA 4 non metallic incorporating; hoist #1 on/off selector switch, hoist #2 on/off selector switch, up/down pushbuttons, brake test switch, emergency stop pushbutton, approach limit warning, mini PLC and programmable keypad HMI panel, incorporating readouts for distance (depth indication), speed, shutdown protection for over travel or overspeed.encoders, pressure switches.Both can run simultaneously with one control.
-Deceleration tests must be performed on site by customer
-Track limit switches are to be supplied and installed by customer
-communications systems are to be provided by the customer
Price per month.....$6, 200.00/each a month
Minimum rental 3 months

Recertification charges .....$2,500.0 each

3400 feet of 26mm wire rope of 34LR Minimum breaking force 79.3 tons , at a price of $10. a foot $34000.00
Installation of rope with tension $4200.00
Options for at the end of the rope
Open or Closed spelter socket poured here at our we are certified.....$920.00 } $3912

Delivery of winch two to three weeks pending on rope delivery also weeks once P.O.# is given

If technician is required to install that would be extra
Please note
First and last rent will asked in advance and purchase of rope
Subject to prior sale or booking

Taxes applicable where extra
FOB our shop

We trust you have everything required and should you have any questions or require any further information please to do not hesitate to contact us.
Regards,

Andre Beaulieu

Item	Part Number / Description	Revision	Quantity	Price
1	SSK-440 RENTAL		1	$0.00 /

Total:

By Andre Beaulieu
WALDEN EQUIPMENT LTD

WALDEN EQUIPMENT LTD
106 FIELDING ROAD
LIVELY, ON P3Y 1L5
Phone: (705)682-2084
Fax: (705)682-2564

Quotation

Quote To: Northern Strands Co. LTD

Quote Number:	10227			**Contact:**	Tyson Vogel
Quote Date:	09/10/10	**Expires:**	10/10/10	**Inquiry:**	SSK-440
Customer:	NOR200			**Terms:**	Net 30 Days
Salesman:	Andre Beaulieu			**Phone:**	(800) 242-7073
Ship Via:	Freight			**FAX:**	(306) 934-2920
FOB:	LIVELY,ONTARIO				

Thank you for the opportunity to submit this quote. All prices and term are valid for 30 days from the date of this quote.

As you requested a quote for One SSK440
-based on a 1 3/8 " rope
-First layer 44,000 line pull, 14.00(fpm) line speed , cumulative cap. 241 ft
-Nineth layer 24,500 line pull, 25.09 (fpm) line speed , cumulative cap. 3030 ft
-two reversing full voltage across the line starters (one for each one) and a common " master " control panel for remote mounting for control of the two hoists individually or as a pair. Panels on each hoist, NEMA 4, non metallic, main disconnect switch, control circuit transformer, power on indicator light , up/ down pushbuttons, emergency stop pushbutton, terminal strip for connection to the master control panel, and Eurodrive HPL430 power control unit. "Master" panel, NEMA 4 non metallic incorporating; hoist #1 on/off selector switch, hoist #2 on/off selector switch, up/down pushbuttons, brake test switch, emergency stop pushbutton, approach limit warning, mini PLC and programmable keypad HMI panel, incorporating readouts for distance (depth indication), speed, shutdown protection for over travel or overspeed.encoders, pressure switches.Both can run simultaneously with one control.
-Deceleration tests must be performed on site by customer
-Track limit switches are to be supplied and installed by customer
-communications systems are to be provided by the customer
Price per month.....$6, 200.00/each a month
Minimum rental 3 months

Recertification charges .....$2,500.00 each

Buy out price is $110,000.00
Installation of rope is extra
Purchase of rope is extra

Delivery of winch two to three weeks P.O.# is given

If technician is required to install that would be extra
Please note

First and last rent will asked in advance if only
If purchased we would want 25% down and the remaining at pick up
Subject to prior sale or booking

es applicable where extra
OB our shop

We trust you have everything required and should you have any questions or require any further information please to do not hesitate to contact us.
Regards,

Andre Beaulieu

Item	Part Number / Description	Revision	Quantity	Price
1	SSK-440		1	$110,000.00 /EA
			Total:	***$110,000.00***

By Andre Beaulieu
WALDEN EQUIPMENT LTD

SUPERLIFT WIRE ROPES USA, LLC

USA MARKET

-CERTIFICATE OF TEST-

Date Tested: 07/22/10

Certificate #: 22608

2.22 LBS/FT

Reference #: 2287

Manufacturer: BRIDON

Country of Manufacture: USA

Initial Reel Length:		**Meters**	4500	**Feet**
Nominal Diameter:	25.4MM	**Metric**	1	**Inches**

USA Product Name: SUPERLIFT 35 V2 (Double Compacted)

Type –Steel Wire Rope-: **Rotation Resistant (35x7 / 40x7 class)**

Tensile Strength: 2160

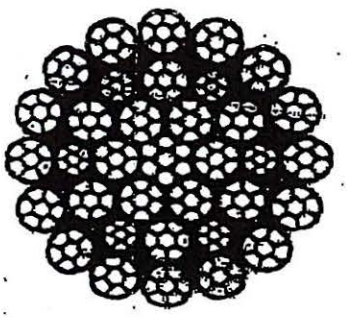
Type of Lay: RLL

Wire Finish: BRIGHT

Minimum Breaking Load:	**KN**	153,800	**LBS**
Actual Breaking Load:	**KN**	158,000	**LBS**

Reel #: 085938A50

(Extract from manufacturers Certificate)



35 V2 (Double Compacted)

Signature Terry Miller

Name Terry Miller

SUPERLIFT WIRE ROPES USA, LLC
836 Registry Terrace
Kennesaw, Georgia 30152
Phone 678-575-5182
Fax 770-514-3247

NORTHERN STRANDS Co. Ltd.
BOX 7799 SASKATOON, SK CANADA S7K 4R5 (306) 242-7073 FAX (306) 934-2920 3235 MILLAR AVENUE

TEST CERTIFICATE
NO. HS – 16- 4953

CERTIFICATE OF TESTING & EXAMINATION OF HARDWARE

CUSTOMER:
Fortis Engineering & Manufacturing
802 57Th Street East
Saskatoon Sask
S7K 5Z1

CUSTOMER P.O. NO:
N/A

NORTHERN STRANDS REF NO:
N/A

TEST CODE SYMBOLS & ABBREVIATIONS:
D = DIMENSIONAL CHECK
P = PROOF LOADED
V = VISUAL INSPECTION
ST= STATIC TEST
DT= DYNAMIC TEST

PL = PROOF LOAD TESTED
FOS = DESIGN FACTOR OF SAFETY
WLL = WORKING LOAD LIMIT

Q	DESCRIPTION	IDENTIFICATION NO.	TESTS	WLL LBS	PL LBS	FOS
1	One (1) WE-171 SSK 440-20E Hoist 44,000 lb Capacity Reeving Hoist	Serial # 2790-2	PL ST DT V D	44,000 lbs	55,000 lbs	

REMARKS: Winch Has 4,500' Of 28mm Reeving Rope Reel No. RL1-18967-111287A00 Comes With Socket And Pin, Installed Under Tension For Reeving In Shaft. Socket # NS SJ-TPH4 WO1632 1/1, Pin # NS SJ 1-125 WO1632 1/1.
Brakes Were Isolated And Independently Tested To Stall On Amps: Electric Motor Brake, Brand Brake

WE CERTIFY THAT THE ABOVE HARDWARE HAS BEEN TESTED & EXAMINED BY A COMPETENT PERSON AND FOUND TO BE FREE FROM HARMFUL FLAWS AND DEFECTS.

DATE: November 21, 2016

SIGNED BY: Garry Clarke / Garry Clarke
FOR: NORTHERN STRANDS CO. LTD.

Form # 10.14

NORTHERN STRANDS Co. Ltd.

CERTIFICATE NO. G-16-2821 REEL NO. RL1-18967-111287A00

Date of Test	November 15, 2015
Order Number	18967
Customer	Certified Mining & Construction
Customer Order Number	005233
Date shipped	February 5, 2016
Shipped to	Fortis Engineering & Manufacturing
	802 - 57th St E, Saskatoon, SK
Rope description	Non-Rotating, Compacted,
	Bright, Right Langs Lay
Rope Length	1 x 4,500ft
Nominal diameter	28mm
Actual dia @ 0 lbs	1.147"

Number of strands 35 Number of wires per strand 7

Wire Grade (tensile) MAX

Weight per foot (lbs/ft)	2.76
Core Type	WSC
Actual breaking load (lbs)	200,000
Minimum breaking load (lbs)	183,800

Signed By Les Nimmo / Date February 9, 2016

For Northern Strands Co. Ltd.

P.O. Box 7799 · 3235 Millar Ave. · Saskatoon, SK · Canada · S7K 4R5
Phone: (306) 242-7073 · Fax: (306) 934-2920 · Email: info@northernstrands.com · Website: www.northernstrands.com

Fortis
802 - 57th Street East
Saskatoon, SK, Canada S7K 5Z1
(306) 242-4427

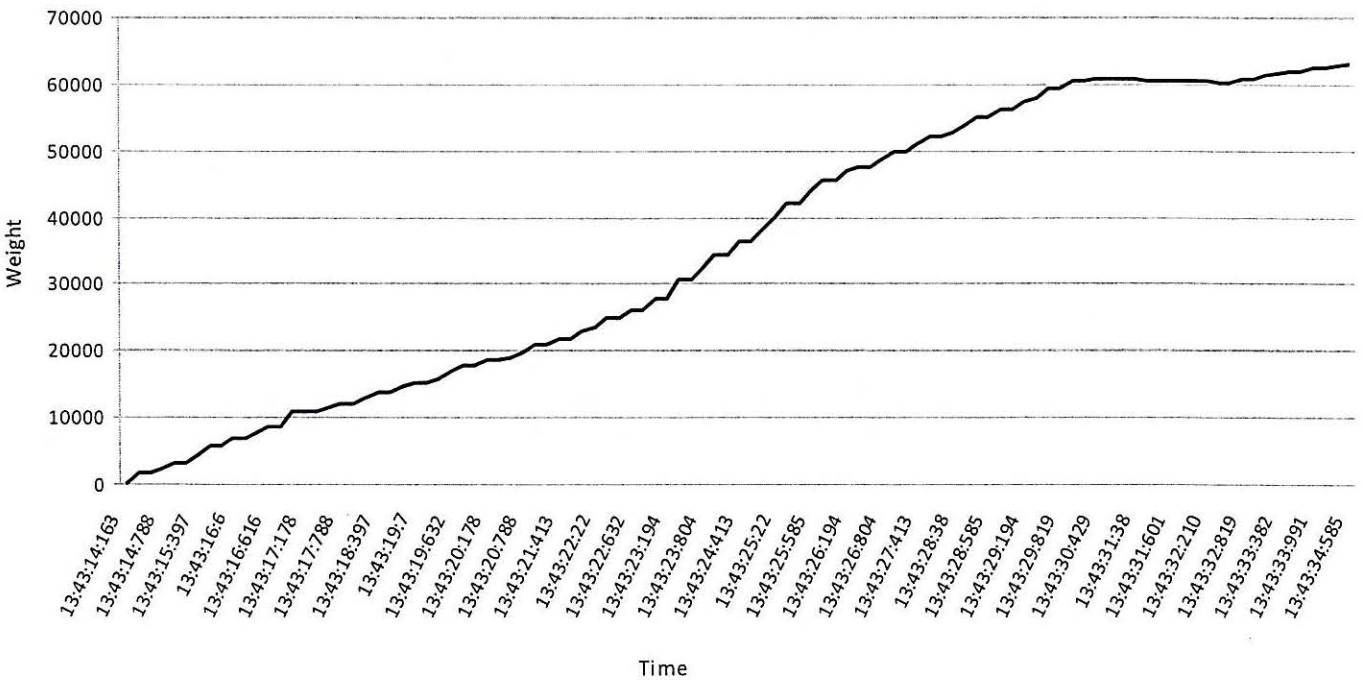
CERTIFICATE OF TESTING

Test Certificate Number: 04-01-05842

Customer Name:	Certified Mining & Construction Inc.	**Type Of Test:**	P2.50 = Proof Loaded 250%
Address:	810 57 St E, Saskatoon, SK S7K 5Z1	**Working LL:**	25000 lbs
		Proof Load:	62500 lbs
Customer PO #:	n/a	**Factor Of Safety:**	10:1
Company Job #:	1632-001	**Time:**	19
Test Operator:	Larry Mascarinas	**Date Of Test:**	22/03/2016
Test Supervisor:	Ryan Soucy		
File Name:	04-01-05842 Certified Mining & Construction Inc. .pdf		

Description of item(s) tested:

1 - Serial #: NS SJ-TPH4 WO1632 1/1, Item: Open Spelter Socket, Manufacturer: Northern Strands, Length/Size:
2 - Serial #: NS SJ 1.125 WO1632 1/1, Item: Threaded Pin, Manufacturer: Northern Strands, Length/Size:
3 - No Item Entered
4 - No Item Entered
5 - No Item Entered
6 - No Item Entered



Remarks:
Open Spelter Socket SJ 1.125 & Threaded Pin

WE CERTIFY THAT THE ABOVE HARDWARE HAS BEEN TESTED AND EXAMINED BY A COMPETENT PERSON AND FOUND TO BE FREE FROM HARMFUL FLAWS AND DEFECTS.

Date: 22/03/2016 Test Operator: Larry Mascarinas Signature:

For: Fortis Mining Engineering Manufacturing

BUFFALO INSPECTION SERVICES
8403 Davies Road NW Edmonton Alberta T6E 4N3
Phone: (780) 486-7344 Fax: (780) 486-4685
www.buffaloinspection.com

Report No. 15-22423R003 MT

Magnetic Particle Inspection | Oct 26, 2015

Client Name:	Fortis Engineering & Manufacturing Inc.	**Project Name:**		**Procedure:**	GP-MT-01/R4
Client Address:	PO Box 8401, Saskatoon, Saskatchewan, S7K 6C7	**Client Job No.:**		**Acceptance Standard:**	CSA W59 2013
Contact Name:	Mike Lee	**Purchase Order No.:**	0006119-01	**Technique:**	MT-2V/R1
Contact Phone:	306-242-4427	**AFE No.:**		**Work Location:**	Saskatoon
Comments:	MT was performed on the below mentioned parts: (1248-001)				

Examination Surface Details

Temperature:	0-50°C	**Contaminents:**	None (Clean & Dry)	**Cleaning Details:**	Buffed
Preparation:	As Welded	**Preparation Comments:**		**Cleaning Products:**	

Equipment Details

Method:	Visible (Contrast)	**Suspension:**	Oil	**Magnetization:**	AC - Continuous				
Particle Brand:	Magnaflux	**Part/Product No.:**	7HF	**Particle Colour:**	Black	**Contrast Paint Brand:**	Magnaflux	**Part/Product No.:**	WCP-2
Instrument Make/Model:	Sentinel/MP-A-2L	**Serial Number:**	MP2228	**Calibration Date/Due Date:**	Sep 1, 2015/Dec 1, 2015	**Mag Time:**	5 sec	**Demagnetization Req.?**	No
White Light Equipment:	Headlight			**Is >100fc (1000 Lux) @ Surface?**	Yes				

Examination Results

	Description	Serial No.	Material	Comments †	Accept	Reject
1	Timberland Winch	N/A	CS	MT was performed on all buffed welds for the mentioned winch assembly	✔	

Technicians		Certifications (NRCAN)				Certifications (SNT)				Technician Signature	Client Signature
Technician:	Trevor Degagne	**CGSB Level:**	2	**Reg No.:**	10383	**SNT Level:**	2	**SNT No.:**	8108		
Assistant 1:		**CGSB Level:**		**Reg No.:**		**SNT Level:**		**SNT No.:**			
Assistant 2:		**CGSB Level:**		**Reg No.:**		**SNT Level:**		**SNT No.:**		**Inspection Date:** Oct 26, 2015	**Evaluation Date:** Oct 26, 2015

Buffalo Inspection Services Inc. does not warranty or imply warranty of services stated herein and shall not be held liable for services rendered as per established service agreements. At no time shall liability be placed upon Buffalo Inspection Services Inc. of which exceeds the amount paid for said services. Buffalo Inspection Services shall utilize appropriate quality assurance measures, technical training, and safety parameters to assure services are provided to meet or exceed established NDT/NDE procedures, practices, and standard industry expectations and at no time shall warranty excess NDT/NDE services except those established in writing beyond those established prior to the services provided herein. Note: SNT shall refer to the ASNT SNT-TC-1A Recommended Practice. Buffalo Inspection follows the SNT-TC-1A Recommended Practice that defines the criteria for SNT certification. Clocktape marker and start arrow marked on weldment; it is the customer's responsibility to map welds on drawing.

BUFFALO INSPECTION
8403 Davies Road NW Edmonton Alberta T6E 4N3
Phone: (780) 486-7344 Fax: (780) 486-4685
www.buffaloinspection.com

Report No. 15-21981R011 UT

Ultrasonic Report | Oct 14, 2015

Client Name:	Fortis Engineering & Manufacturing Inc.	**Project Name:**		**Procedure:**	GP-UT-03/R4
Client Address:	PO Box 8401, Saskatoon, Saskatchewan, S7K 6C7	**Client Job No.:**		**Acceptance Standard:**	ASTM SA578/SA578M
Contact Name:	Keith Rudolph	**Purchase Order No.:**	0006014-00	**Technique:**	UT-03
Contact Phone:	306-242-4427	**AFE No.:**		**Work Location:**	Saskatoon
Comments:	UT was performed on the below mentioned shafts Sales Order Number 1248-001				

Equipment Details

Make/Model:	Olympus/EPOCH 600	**Serial Number:**	130514604	**Calibration Due Date:**	Apr 23, 2016	**Calibration Blocks** **IIW:**	35049	**Stepwedge:**		**Other Calibration:**	

Transducers/Probes/Cables

Probe Serial No.	Cable Type	Test Angle	Probe S/D	Freq. (MHz)	Length	Diameter	Transfer Value	Test Surface	dB	%FSH	Scan Sensitivity	Range
877033	BNC-BNC	0°		1	60 in	1 in		OD	49.4	80%	14db+	2000 mm

Examination Results

	Description	Serial No.	Type	Comments †	Accept	Reject
1	Drum Shaft and Drive Shaft on Timberland Winch	WE 171		UT was performed on both shafts	✔	

Technicians		Certifications (NRCAN)				Certifications (SNT)				Technician Signature	Client Signature
Technician:	Trevor Degagne	**CGSB Level:**	2	**Reg No.:**	10383	**SNT Level:**	2	**SNT No.:**	8108		
Assistant 1:		**CGSB Level:**		**Reg No.:**		**SNT Level:**		**SNT No.:**			
Assistant 2:		**CGSB Level:**		**Reg No.:**		**SNT Level:**		**SNT No.:**		**Inspection Date:** Oct 14, 2015	**Evaluation Date:**

Buffalo Inspection Services Inc. does not warranty or imply warranty of services stated herein and shall not be held liable for services rendered as per established service agreements. At no time shall liability be placed upon Buffalo Inspection Services Inc. of which exceeds the amount paid for said services. Buffalo Inspection Services shall utilize appropriate quality assurance measures, technical training, and safety parameters to assure services are provided to meet or exceed established NDT/NDE procedures, practices, and standard industry expectations and at no time shall warranty excess NDT/NDE services except those established in writing beyond those established prior to the services provided herein. Note: SNT shall refer to the ASNT SNT-TC-1A Recommended Practice. Buffalo Inspection follows the SNT-TC-1A Recommended Practice that defines the criteria for SNT certification. Clocktape marker and start arrow marked on weldment; it is the customer's responsibility to map welds on drawing.

Wirelock Socketing

Authorized Certificate of Training

Northern Strands Co. Ltd. certifies that

RYAN GREEN

is a competent instructor and is authorized to deliver

WIRELOCK SOCKETING SEMINARS

PRESENTED BY *NORTHERN STRANDS CO. LTD.*

at Saskatoon, Saskatchewan

Dated this 12th *of* July *2012*

Harry Clarke

VICE PRESIDENT

Certificate of Training

RYAN GREEN

FORTIS ENGINEERING & MANUFACTURING INC.

attended the

WIRE LOCK RESIN SOCKETING SEMINAR

PRESENTED BY ***Shannon Dayson OF***
Fortis Engineering & Manufacturing Inc.

in Saskatoon, Saskatchewan

Dated 12/07/2011

Fortis

Shannon Dayson
Certified Trainer

Re-certification required by: 12/08/2016
(Required every 4 years from training date)