

LANTEC	QUALITY MANAGEMENT PROCEDURE	ISS: 1	REV: 0	Page: 1 of 2
	SUBJECT: JOB CONTROL SPECIFICATION <u>LW</u> COVER SHEET			
DOC:FRM-LW-JCSCOVER	REVIEWED BY: Plant Mgr.	APPROVED BY: Chief Engineer	Jan.2006	

Customer: SENSE - EDM	Project Number: EDM 9269
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Invoice No.	Date Issued JUNE 28, 2006	Revision Date	Revision Letter
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General Information			
Model Number LWS100	Quantity 3		
Serial Number(s) 53605 to 53607			
Quoted Delivery 14-16 WKS	Scheduled Ship Date 20 OCT 06	Actual Ship Date Oct. 13/06	

Index of Attached Sheets		
Drawing Numbers	Related Drawings	Drawings Attached
205120	Assembly Drawing	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
205119	Installation Drawing	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
	Seal Kit Drawing	Yes <input type="checkbox"/> No <input type="checkbox"/>
Form Numbers	Form Name	Completed Forms Attached
FRM-LWS-001	Specification Sheets (Sales)	Yes <input type="checkbox"/> No <input type="checkbox"/>
	Power & Performance Sheet	Yes <input type="checkbox"/> No <input type="checkbox"/>
	Performance Sheet (LeBus)	Yes <input type="checkbox"/> No <input type="checkbox"/>
FRM-LWS-002	Assembly Check List	Yes <input type="checkbox"/> No <input type="checkbox"/>
FRM-LWSATP	Acceptance Test Procedure (ATP)	Yes <input type="checkbox"/> No <input type="checkbox"/>
	Serial Number Order Sheet	Yes <input type="checkbox"/> No <input type="checkbox"/>

Special Requirements			
Certified Installation drawing requires sign-off prior to manufacture		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Other	
Certified Installation Drawing Sign-off Date	Eng to Sales June 29/2006	Sales to Customer	Rec'd from Customer June 29/2006
Special Paint Process	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Material Traceability	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Special Test Process	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Customer supplied material	Yes <input type="checkbox"/> No <input type="checkbox"/>
Compliance Certificate	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Total number of hard copy manuals	3
		Electronic manuals completed	Yes <input type="checkbox"/> Date:
Acknowledgment Dates	Eng to Sales	Sales to Customer	

Completed by Sales: *[Signature]* Date: **JUNE 28/06**

Completed by Engineering: *[Signature]* Date: **Oct 24/2006**

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	SUBJECT: JOB CONTROL SPECIFICATION <u>LW</u> COVER SHEET			
DOC:FRM-LW-JCSCOVER	REVIEWED BY: Plant Mgr.	APPROVED BY: Chief Engineer	Jan.2006	

Job Control Specification		Project Number: EDM 9269
Product Type	WINCH	

CONTRACT REVIEW / DESIGN CONTROL RECORD SHEET				
CONTRACT REVIEW MEETING			Date June 30/2006	
Representatives	Sales	Engineering	Production	Management
<i>Notes</i> - REPEAT -				
PRELIMINARY DESIGN REVIEW MEETING			Date June 30/2006	
Representatives:	Sales	Engineering	Production	Management
VERIFICATION				
Proven Design <input checked="" type="checkbox"/>	Calculations <input type="checkbox"/>	Prototype <input type="checkbox"/>	Certified Installation Dwg <input type="checkbox"/>	
VALIDATION				
2nd Calculations <input type="checkbox"/>	Interface Dimensions <input type="checkbox"/>			
Pressure Test <input checked="" type="checkbox"/>	Operational Test <input type="checkbox"/>	Other Testing <input type="checkbox"/> _____		
Final Design Review Required Yes <input type="checkbox"/> No <input type="checkbox"/>				
<i>Notes</i>				
FINAL DESIGN REVIEW MEETING			Date	
Representatives:	Sales	Engineering	Production	Management
<i>Notes</i>				

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LANTEC	QUALITY MANAGEMENT PROCEDURE		ISS: 1	REV: 0	Page: 1 of 2
	SUBJECT: J.C.S. - LWS Specification Sheet				
DOC: FRM-LWS-001	REVIEWED BY:	Plant Manager	APPROVED BY:	Chief Engineer	Jan. 2006

Project #: EDM 9269	Serial #:
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PROD	ENG	Model	
		Standard Model Number LWS100	Hoist Rotation

PROD	ENG	Drum Size / Cable Information		
		Barrel 14"φ	Flange 32"φ	Length 30"
		Other		
		Cable Size 15 mm	Cable Length 3,300 ft.	Cable Type

PROD	ENG	Performance Required		
		Line Pull 7,282 lb	Bare... <input type="checkbox"/> Mean... <input type="checkbox"/> Full... <input checked="" type="checkbox"/>	Other
		Line Speed 110 fpm	Bare... <input checked="" type="checkbox"/> Mean... <input type="checkbox"/> Full... <input type="checkbox"/>	Other
		Other		

PROD	ENG	Motor / Brake Valve		
		Standard WM76 Gear Motor... <input checked="" type="checkbox"/>	Other... <input type="checkbox"/>	Displacement
		Motor Model	Flange Mount	Shaft
		Brake Valve	Standard <input type="checkbox"/> Other <input type="checkbox"/> None <input type="checkbox"/>	Size
		Other		

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LANTEC	QUALITY MANAGEMENT PROCEDURE		ISS: 1	REV: 0	Page: 2 of 2
	SUBJECT: J.C.S. - LWS Specification Sheet				
DOC: FRM-LWS-001	REVIEWED BY:	Plant Manager	APPROVED BY:	Chief Engineer	Jan. 2006

Project #:: EDM 9269	Serial #:
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MKT	ENG	Brake	
		Brake Effective Rotation	Opposite Rotation... <input checked="" type="checkbox"/> Both Directions... <input type="checkbox"/> Other... <input type="checkbox"/>
		Brake Release Pressure	Standard (700psi full release)... <input checked="" type="checkbox"/> Other... <input type="checkbox"/>
		Brake Capacity	Standard... <input checked="" type="checkbox"/> Other... <input type="checkbox"/>
		Oil Circulation	None (Standard)... <input type="checkbox"/> Required... <input type="checkbox"/>
		Other	

MKT	ENG	Accessories	

MKT	ENG	Paint	
		Standard Primer... <input checked="" type="checkbox"/>	Customer Specifications (attached)... <input type="checkbox"/>

MKT	ENG	General	
		SAME AS S/N 52824-52827 & 52948	

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LANTEC	QUALITY MANAGEMENT PROCEDURE		ISS: 1	REV: 0	Page: 1 of 2
	SUBJECT: J.C.S. - LWS Assembly Check List				
DOC: FRM-LWS-002	REVIEWED BY:	Plant Manager	APPROVED BY:	Chief Engineer	Jan. 2006

Project #: EDM 9269	Serial #: 53605
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PROD	ENG	Drum Assembly
		Cable ANCHOR is located as shown on Installation drawing
		Cable LEADS OFF in direction shown on Installation drawing
		THREAD LOCKER on all fasteners as per drawing
		Drive end drum hub capscrews are Grade 8...<input type="checkbox"/> Other...<input type="checkbox"/>
		Drive end capscrews TORQUED to: LB FT
		Outboard end capscrews TORQUED to: LB FT
		Outboard bearing adjustment nut: ADJUSTED / THREADLOCKER
		Shim Stack installed: Qty in.
		Drum END FLOAT: 0.015 in.

PROD	ENG	Brake
		Brake Shaft FREE ROTATION as shown in Assembly Drawing
		Brake Disc Quantity as installed.....(4)
		Brake Spring Quantity as installed...(12)
		Brake Disc Stacking as per drawing

PROD	ENG	Physical Appearance
		Cable ANCHOR PARTS in place (Ferrule, Clamps or Wedge)
		VENT in place
		Serial Number / Model plate. Stamped with the correct numbers and attached.

PROD	ENG	Accessories and Shipping
		Oil fill / level Placards in place
		Parts and Service Manual(s) in place Qty: <u>1</u> (see spec sheet)
		Add LANTEC vaporizing oil to drive(s)
		Shipping Covers in place
		Other
		Other
		Other
		Oil fill capacity Actual <input type="checkbox"/> Est <input type="checkbox"/> Estimate only if actual is not available
		Shipping weight ~ 2500 lbs. Actual <input type="checkbox"/> Est <input checked="" type="checkbox"/> Estimate only if actual is not available

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LANTEC	QUALITY MANAGEMENT PROCEDURE	ISS: 1	REV: 0	Page: 2 of 2
	SUBJECT: J.C.S. - LWS Assembly Check List			
DOC: FRM-LWS-002	REVIEWED BY: Plant Manager	APPROVED BY: Chief Engineer	Jan. 2006	

Project #: EDM 9269	Serial #: 53605
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PROD	ENG	Dimension Letter	Dimension Measured	Within Tolerance	Notes (if any)
		A	32.50	YES... <input type="checkbox"/> NO... <input type="checkbox"/>	
		B	39.75	YES... <input type="checkbox"/> NO... <input type="checkbox"/>	
		C	1 5/16	YES... <input type="checkbox"/> NO... <input type="checkbox"/>	
		D	✓	YES... <input type="checkbox"/> NO... <input type="checkbox"/>	
		E	0.015	YES... <input type="checkbox"/> NO... <input type="checkbox"/>	
		F	_____		
		G		YES... <input type="checkbox"/> NO... <input type="checkbox"/>	
		H		YES... <input type="checkbox"/> NO... <input type="checkbox"/>	
		J		YES... <input type="checkbox"/> NO... <input type="checkbox"/>	
		K		YES... <input type="checkbox"/> NO... <input type="checkbox"/>	
		L		YES... <input type="checkbox"/> NO... <input type="checkbox"/>	
		M		YES... <input type="checkbox"/> NO... <input type="checkbox"/>	
		N		YES... <input type="checkbox"/> NO... <input type="checkbox"/>	
		P		YES... <input type="checkbox"/> NO... <input type="checkbox"/>	
		Other			
		Other			

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Date: Oct 04/2006 Completed by Engineering: Joel Apple
 Date: Oct 12/06 Completed by Production: Stuart Gentry

LANTEC	QUALITY MANAGEMENT PROCEDURE	ISS: 1	REV: 0	Page: 1 of 3
	SUBJECT: LW WINCH ACCEPTANCE TEST PROCEDURE (LW-ATP)			
DOC: FRM-LWATP	REVIEWED BY: Plant Manager	APPROVED BY: Chief Engineer	Jan. 2006	

Project #: EDM 9269	Serial #: 53605
Test Witness: <i>St Mc Henry</i>	Test Date: Oct 12/06

Winch Preparation:

1) Test Configuration

If special drive, loads or mounting configurations are required, see NOTES area for details. Depending on requirements for any particular test not all of the Test Slate below will be used. Those not required will be crossed off and initialed by LANTEC engineering.

NOTES:
 Model LWS100 - Standard Configuration
 Run Test Slate #1 Only - Non personnel Rated Application

ORIGINAL

Test Slate I (No-Load Test)

1. Housing Leak-Down test

Pressurize the housing through vent/relief valve port to 5 psig and ensure that it will hold this pressure, without makeup, for 5 minutes. (Use a regulated air pressure source for safety.)

OK *[Signature]*

2. Drum Brake Option Piston Leak-Down Pressure Test

If installed, pressurize the Drum Brake piston to 500 psig and ensure that it will hold this pressure, without makeup, for 5 minutes. (Run pressure up several times until reading stabilizes.)

~~OK *[Signature]*~~

LANTEC	QUALITY MANAGEMENT PROCEDURE		ISS: 1	REV: 0	Page: 2 of 3
	SUBJECT: LW WINCH ACCEPTANCE TEST PROCEDURE (LW-ATP)				
DOC: FRM-LWATP	REVIEWED BY:	Plant Manager	APPROVED BY:	Chief Engineer	Jan. 2006

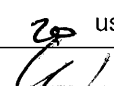
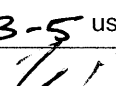
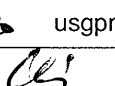
3. Motor Park Brake Perform Leak-Down Pressure Test

Pressure the LW motor brake piston to 3000 psig and ensure that it will hold this pressure, without makeup, for 5 minutes. (Run pressure up several times until reading stabilizes.)

OK 

4. Unloaded Winch Rotation Test (wire rope not fitted)

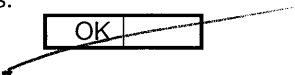
Place 1 Litre of LANTEC vapourizing storage oil in the winch drive(s). Connect motor ports to test stand. If a Drum Brake is installed, connect a suitable pressure source to release the brake. If Ratchet and Pawl (R&P) are installed, disengage. Operate the winch in both directions and ensure that all brakes and the R&P (if installed) are releasing smoothly and in proper sequence.

Motor Size	12.3	Valve Size	2"	Valve Type	LANTEC
Min Haul-in Pressure	150 psig	Min Payout Pressure Start	550 psig	Min Payout Pressure	700 psig
Max Haul-in Pressure	300 psig	Max Payout Pressure Start	750 psig	Max Payout Pressure	1350 psig
Observed Haul-in Pressure	320 psig	Observed Payout Pressure Start	550 psig	Observed Payout Pressure	875 psig
Flow	20 usgpm	Flow	3-5 usgpm	Flow	2 usgpm
OK		OK		OK	

ORIGINAL

5. Motor Park Brake Static Torque Test

Connect motor ports to the test stand and run the winch in both directions briefly to ensure that any air in the hydraulic system is purged. Isolate the Motor Brake from the Motor-Valve assembly, and connect it to an independent controlled pressure source. Pressurize the Motor Brake to 300 - 325 psig. Pressurize the Motor to 2500-2800 psig in Payout mode. The winch drum should not rotate under these conditions.

OK 

Test Slate II (Load Test) – (Optional - See Notes)

1. Winch Preparation

Fill the winch to the level mark with filtered ISO 150-weight gear lube. (See product manual for approved oils.) Mount winch to the test frame and torque bolts to GR8 values corresponding to their size. In some cases special hold down arrangements are made – See the Notes areas for details.

2. Motor Brake Proof Test

Test the winch at 133% of rated drum torque against the motor park brake. Install a suitable test rope on drum with 5 dead wraps and fasten to the main pull cable on the test stand. Ensure that the Drum Brake and R&P (if installed) are released using auxiliary pressure sources. Hold the load indicated below for 2 minutes.

Proof Load		lbs.	OK
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DOC: FRM-LWATP	REVIEWED BY:	Plant Manager	APPROVED BY:	Chief Engineer	Jan. 2006


3. Drum Brake Proof Test

Test the winch at 133% of rated drum torque against the drum brake if installed.. Install a suitable test rope on drum with 5 dead wraps and fasten to the main pull cable on the test stand. Ensure that the Motor Brake and R&P (if installed) are released using auxiliary pressure sources. Hold the load indicated below for 2 minutes.

Proof Load		lbs.	OK	
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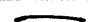
4. Ratchet & Pawl Proof Test

Test the winch at 133% of rated drum torque against the Ratchet & Pawl if installed.. Install a suitable test rope on drum with 5 dead wraps and fasten to the main pull cable on the test stand. Ensure that the Motor Brake and Drum Brake (if installed) are released using auxiliary pressure sources. Hold the load indicated below for 2 minutes.

Proof Load		lbs.	OK	
------------	---	------	----	--

5. Dynamic Winch Load Test

Test the Winch at approximately 100% of rated drum torque. Install a suitable test rope on drum with 5 dead wraps and fasten to the main pull cable on the test stand. Hook up all brakes and R&P in operational configuration and wind the cable in and out approximately 20 feet while maintaining the load indicated below by adjusting the load cylinder pressure.

Proof Load		lbs.	Flow		usgpm	OK	
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LANTEC	QUALITY MANAGEMENT PROCEDURE		ISS: 1	REV: 0	Page: 1 of 2
	SUBJECT: J.C.S. - LWS Assembly Check List				
DOC: FRM-LWS-002	REVIEWED BY:	Plant Manager	APPROVED BY:	Chief Engineer	Jan. 2006

Project #: EDM 9269	Serial #: 53606
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PROD	ENG	Drum Assembly	
		Cable ANCHOR is located as shown on Installation drawing	
		Cable LEADS OFF in direction shown on Installation drawing	
		THREAD LOCKER on all fasteners as per drawing	
		Drive end drum hub capscrews are	Grade 8.... <input type="checkbox"/> Other.... <input type="checkbox"/>
		Drive end capscrews TORQUED to:	LB FT
		Outboard end capscrews TORQUED to:	LB FT
		Outboard bearing adjustment nut:	ADJUSTED / THREADLOCKER
		Shim Stack installed:	Qty in.
		Drum END FLOAT:	0.010 in.

PROD	ENG	Brake	
		Brake Shaft FREE ROTATION as shown in Assembly Drawing	
		Brake Disc Quantity as installed.....(4)	
		Brake Spring Quantity as installed...(12)	
		Brake Disc Stacking as per drawing	

PROD	ENG	Physical Appearance	
		Cable ANCHOR PARTS in place (Ferrule, Clamps or Wedge)	
		VENT in place	
		Serial Number / Model plate. Stamped with the correct numbers and attached.	

PROD	ENG	Accessories and Shipping		
		Oil fill / level Placards in place		
		Parts and Service Manual(s) in place	Qty: 1	(see spec sheet)
		Add LANTEC vaporizing oil to drive(s)		
		Shipping Covers in place		
		Other		
		Other		
		Other		
		Oil fill capacity		Actual <input type="checkbox"/> Est <input type="checkbox"/> Estimate only if actual is not available
		Shipping weight	~ 2500 lbs.	Actual <input type="checkbox"/> Est <input checked="" type="checkbox"/> Estimate only if actual is not available

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LANTEC	QUALITY MANAGEMENT PROCEDURE		ISS: 1	REV: 0	Page: 2 of 2
	SUBJECT: J.C.S. - LWS Assembly Check List				
DOC: FRM-LWS-002	REVIEWED BY:	Plant Manager	APPROVED BY:	Chief Engineer	Jan. 2006

Project #: EDM 9269	Serial #: 53606
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PROD	ENG	Interface Dimension Checklist			
		Letter designation as on attached Installation and Assembly drawing (cross out unused letters)			
		Dimension Letter	Dimension Measured	Within Tolerance	Notes (if any)
		A	32.50	YES... <input type="checkbox"/> NO... <input type="checkbox"/>	
		B	39.75	YES... <input type="checkbox"/> NO... <input type="checkbox"/>	
		C	1 5/16	YES... <input type="checkbox"/> NO... <input type="checkbox"/>	
		D	✓	YES... <input type="checkbox"/> NO... <input type="checkbox"/>	
		E	0.010	YES... <input type="checkbox"/> NO... <input type="checkbox"/>	
		F	_____	YES... <input type="checkbox"/> NO... <input type="checkbox"/>	
		G		YES... <input type="checkbox"/> NO... <input type="checkbox"/>	
		H		YES... <input type="checkbox"/> NO... <input type="checkbox"/>	
		J		YES... <input type="checkbox"/> NO... <input type="checkbox"/>	
		K		YES... <input type="checkbox"/> NO... <input type="checkbox"/>	
		L		YES... <input type="checkbox"/> NO... <input type="checkbox"/>	
		M		YES... <input type="checkbox"/> NO... <input type="checkbox"/>	
		N		YES... <input type="checkbox"/> NO... <input type="checkbox"/>	
		P		YES... <input type="checkbox"/> NO... <input type="checkbox"/>	
		Other			
		Other			

Date: oct 04/2006 Completed by Engineering: *[Signature]*
Date: _____ Completed by Production: _____

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LANTEC	QUALITY MANAGEMENT PROCEDURE	ISS: 1	REV: 0	Page: 1 of 3
	SUBJECT: LW WINCH ACCEPTANCE TEST PROCEDURE (LW-ATP)			
DOC: FRM-LWATP	REVIEWED BY: Plant Manager	APPROVED BY: Chief Engineer	Jan. 2006	

Project #: EDM 9269	Serial #: 53606
Test Witness: <i>[Signature]</i>	Test Date: Oct 12/06

Winch Preparation:

1) Test Configuration

If special drive, loads or mounting configurations are required, see NOTES area for details. Depending on requirements for any particular test not all of the Test Slate below will be used. Those not required will be crossed off and initialed by LANTEC engineering.

NOTES:

Model LWS100 - Standard Configuration
 Run Test Slate #1 Only - Non personnel Rated Application

ORIGINAL

Test Slate I (No-Load Test)

1. Housing Leak-Down test

Pressurize the housing through vent/relief valve port to 5 psig and ensure that it will hold this pressure, without makeup, for 5 minutes. (Use a regulated air pressure source for safety.)

OK *[Signature]*

2. Drum Brake Option Piston Leak-Down Pressure Test

If installed, pressurize the Drum Brake piston to 500 psig and ensure that it will hold this pressure, without makeup, for 5 minutes. (Run pressure up several times until reading stabilizes.)

OK *[Signature]*

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	SUBJECT: LW WINCH ACCEPTANCE TEST PROCEDURE (LW-ATP)				
DOC: FRM-LWATP	REVIEWED BY:	Plant Manager	APPROVED BY:	Chief Engineer	Jan. 2006

3. Motor Park Brake Perform Leak-Down Pressure Test

Pressure the LW motor brake piston to 3000 psig and ensure that it will hold this pressure, without makeup, for 5 minutes. (Run pressure up several times until reading stabilizes.)

OK *[Signature]*

4. Unloaded Winch Rotation Test (wire rope not fitted)

Place 1 Litre of LANTEC vapourizing storage oil in the winch drive(s). Connect motor ports to test stand. If a Drum Brake is installed, connect a suitable pressure source to release the brake. If Ratchet and Pawl (R&P) are installed, disengage. Operate the winch in both directions and ensure that all brakes and the R&P (if installed) are releasing smoothly and in proper sequence.

Motor Size	12.3	Valve Size	2"	Valve Type	LANTEC
Min Haul-in Pressure	150 psig	Min Payout Pressure Start	550 psig	Min Payout Pressure	700 psig
Max Haul-in Pressure	300 psig	Max Payout Pressure Start	750 psig	Max Payout Pressure	1350 psig
Observed Haul-in Pressure	330 psig	Observed Payout Pressure Start	570 psig	Observed Payout Pressure	900 psig
Flow	20 usgpm	Flow	3-5 usgpm	Flow	20 usgpm
OK	<i>[Signature]</i>	OK	<i>[Signature]</i>	OK	<i>[Signature]</i>

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5. Motor Park Brake Static Torque Test

Connect motor ports to the test stand and run the winch in both directions briefly to ensure that any air in the hydraulic system is purged. Isolate the Motor Brake from the Motor-Valve assembly, and connect it to an independent controlled pressure source. Pressurize the Motor Brake to 300 - 325 psig. Pressurize the Motor to 2500-2800 psig in Payout mode. The winch drum should not rotate under these conditions.

OK *[Signature]*

Test Slate II (Load Test) – (Optional - See Notes)

1. Winch Preparation

Fill the winch to the level mark with filtered ISO 150-weight gear lube. (See product manual for approved oils.) Mount winch to the test frame and torque bolts to GR8 values corresponding to their size. In some cases special hold down arrangements are made – See the Notes areas for details.

2. Motor Brake Proof Test

Test the winch at 133% of rated drum torque against the motor park brake. Install a suitable test rope on drum with 5 dead wraps and fasten to the main pull cable on the test stand. Ensure that the Drum Brake and R&P (if installed) are released using auxiliary pressure sources. Hold the load indicated below for 2 minutes.

Proof Load	←	lbs.	OK
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	SUBJECT: LW WINCH ACCEPTANCE TEST PROCEDURE (LW-ATP)			
DOC: FRM-LWATP	REVIEWED BY: Plant Manager	APPROVED BY: Chief Engineer	Jan. 2006	

3. Drum Brake Proof Test

Test the winch at 133% of rated drum torque against the drum brake if installed.. Install a suitable test rope on drum with 5 dead wraps and fasten to the main pull cable on the test stand. Ensure that the Motor Brake and R&P (if installed) are released using auxiliary pressure sources. Hold the load indicated below for 2 minutes.

Proof Load	_____	lbs.	OK	
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4. Ratchet & Pawl Proof Test

Test the winch at 133% of rated drum torque against the Ratchet & Pawl if installed.. Install a suitable test rope on drum with 5 dead wraps and fasten to the main pull cable on the test stand. Ensure that the Motor Brake and Drum Brake (if installed) are released using auxiliary pressure sources. Hold the load indicated below for 2 minutes.

Proof Load	_____	lbs.	OK	
------------	-------	------	----	--

5. Dynamic Winch Load Test

Test the Winch at approximately 100% of rated drum torque. Install a suitable test rope on drum with 5 dead wraps and fasten to the main pull cable on the test stand. Hook up all brakes and R&P in operational configuration and wind the cable in and out approximately 20 feet while maintaining the load indicated below by adjusting the load cylinder pressure.

Proof Load	_____	lbs.	Flow	_____	usgpm	OK	
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LANTEC	QUALITY MANAGEMENT PROCEDURE		ISS: 1	REV: 0	Page: 1 of 2
	SUBJECT: J.C.S. - LWS Assembly Check List				
DOC: FRM-LWS-002	REVIEWED BY:	Plant Manager	APPROVED BY:	Chief Engineer	Jan. 2006

Project #: EDM 9269	Serial #: 53607
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PROD	ENG	Drum Assembly
		Cable ANCHOR is located as shown on Installation drawing
		Cable LEADS OFF in direction shown on Installation drawing
		THREAD LOCKER on all fasteners as per drawing
		Drive end drum hub capscrews are Grade 8...<input type="checkbox"/> Other...<input type="checkbox"/>
		Drive end capscrews TORQUED to: LB FT
		Outboard end capscrews TORQUED to: LB FT
		Outboard bearing adjustment nut: ADJUSTED / THREADLOCKER
		Shim Stack installed: Qty in.
		Drum END FLOAT: 0.007 in.

PROD	ENG	Brake
		Brake Shaft FREE ROTATION as shown in Assembly Drawing
		Brake Disc Quantity as installed.....(4)
		Brake Spring Quantity as installed...(12)
		Brake Disc Stacking as per drawing

PROD	ENG	Physical Appearance
		Cable ANCHOR PARTS in place (Ferrule, Clamps or Wedge)
		VENT in place
		Serial Number / Model plate. Stamped with the correct numbers and attached.

PROD	ENG	Accessories and Shipping
		Oil fill / level Placards in place
		Parts and Service Manual(s) in place Qty: 1 (see spec sheet)
		Add LANTEC vaporizing oil to drive(s)
		Shipping Covers in place
		Other
		Other
		Other
		Oil fill capacity Actual <input type="checkbox"/> Est <input type="checkbox"/> Estimate only if actual is not available
		Shipping weight ~ 2500 lbs. Actual <input type="checkbox"/> Est <input checked="" type="checkbox"/> Estimate only if actual is not available

ORIGINAL

LANTEC	QUALITY MANAGEMENT PROCEDURE	ISS: 1	REV: 0	Page: 2 of 2
	SUBJECT: J.C.S. - LWS Assembly Check List			
DOC: FRM-LWS-002	REVIEWED BY: Plant Manager	APPROVED BY: Chief Engineer	Jan. 2006	

Project #: EDM 9269	Serial #: 53607
---------------------	-----------------

PROD	ENG	Interface Dimension Checklist			Notes (if any)
		Letter designation as on attached Installation and Assembly drawing (cross out unused letters)			
		Dimension Letter	Dimension Measured	Within Tolerance	
		A	32.50	YES... <input type="checkbox"/> NO... <input type="checkbox"/>	
		B	39.75	YES... <input type="checkbox"/> NO... <input type="checkbox"/>	
		C	1 5/16	YES... <input type="checkbox"/> NO... <input type="checkbox"/>	
		D	✓	YES... <input type="checkbox"/> NO... <input type="checkbox"/>	
		E	0.007	YES... <input type="checkbox"/> NO... <input type="checkbox"/>	
		F	_____	YES... <input type="checkbox"/> NO... <input type="checkbox"/>	
		G		YES... <input type="checkbox"/> NO... <input type="checkbox"/>	
		H		YES... <input type="checkbox"/> NO... <input type="checkbox"/>	
		J		YES... <input type="checkbox"/> NO... <input type="checkbox"/>	
		K		YES... <input type="checkbox"/> NO... <input type="checkbox"/>	
		L		YES... <input type="checkbox"/> NO... <input type="checkbox"/>	
		M		YES... <input type="checkbox"/> NO... <input type="checkbox"/>	
		N		YES... <input type="checkbox"/> NO... <input type="checkbox"/>	
		P		YES... <input type="checkbox"/> NO... <input type="checkbox"/>	
		Other			
		Other			

Handwritten signature/initials

ORIGINAL

Date: Oct 04/2006 Completed by Engineering: *Joel C. Williams*
 Date: Oct 12/06 Completed by Production: *Shirley L. Young*

LANTEC	QUALITY MANAGEMENT PROCEDURE	ISS: 1	REV: 0	Page: 1 of 3
	SUBJECT: LW WINCH ACCEPTANCE TEST PROCEDURE (LW-ATP)			
DOC: FRM-LWATP	REVIEWED BY: Plant Manager	APPROVED BY: Chief Engineer	Jan. 2006	

Project #: EDM 9269	Serial #: 53607
Test Witness: <i>[Signature]</i>	Test Date: Oct 12/06

Winch Preparation:

1) Test Configuration

If special drive, loads or mounting configurations are required, see NOTES area for details. Depending on requirements for any particular test not all of the Test Slate below will be used. Those not required will be crossed off and initialed by LANTEC engineering.

NOTES:

Model LWS100 - Standard Configuration
 Run Test Slate #1 Only - Non personnel Rated Application

ORIGINAL

Test Slate I (No-Load Test)

1. Housing Leak-Down test

Pressurize the housing through vent/relief valve port to 5 psig and ensure that it will hold this pressure, without makeup, for 5 minutes. (Use a regulated air pressure source for safety.)

OK *[Signature]*

2. Drum Brake Option Piston Leak-Down Pressure Test

If installed, pressurize the Drum Brake piston to 500 psig and ensure that it will hold this pressure, without makeup, for 5 minutes. (Run pressure up several times until reading stabilizes.)

OK *[Signature]*

LANTEC	QUALITY MANAGEMENT PROCEDURE		ISS: 1	REV: 0	Page: 2 of 3
	SUBJECT: LW WINCH ACCEPTANCE TEST PROCEDURE (LW-ATP)				
DOC: FRM-LWATP	REVIEWED BY:	Plant Manager	APPROVED BY:	Chief Engineer	Jan. 2006

3. Motor Park Brake Perform Leak-Down Pressure Test

Pressure the LW motor brake piston to 3000 psig and ensure that it will hold this pressure, without makeup, for 5 minutes. (Run pressure up several times until reading stabilizes.)

OK

4. Unloaded Winch Rotation Test (wire rope not fitted)

Place 1 Litre of LANTEC vapourizing storage oil in the winch drive(s). Connect motor ports to test stand. If a Drum Brake is installed, connect a suitable pressure source to release the brake. If Ratchet and Pawl (R&P) are installed, disengage. Operate the winch in both directions and ensure that all brakes and the R&P (if installed) are releasing smoothly and in proper sequence.

Motor Size	12.3	Valve Size	2"	Valve Type	LANTEC
Min Haul-in Pressure	150 psig	Min Payout Pressure Start	550 psig	Min Payout Pressure	700 psig
Max Haul-in Pressure	300 psig	Max Payout Pressure Start	750 psig	Max Payout Pressure	1350 psig
Observed Haul-in Pressure	330 psig	Observed Payout Pressure Start	650 psig	Observed Payout Pressure	880 psig
Flow	29 usgpm	Flow	3-5 usgpm	Flow	2 usgpm
OK	<input checked="" type="checkbox"/>	OK	<input checked="" type="checkbox"/>	OK	<input checked="" type="checkbox"/>

ORIGINAL

5. Motor Park Brake Static Torque Test

Connect motor ports to the test stand and run the winch in both directions briefly to ensure that any air in the hydraulic system is purged. Isolate the Motor Brake from the Motor-Valve assembly, and connect it to an independent controlled pressure source. Pressurize the Motor Brake to 300 - 325 psig. Pressurize the Motor to 2500-2800 psig in Payout mode. The winch drum should not rotate under these conditions.

OK

Test Slate II (Load Test) – (Optional - See Notes)

1. Winch Preparation

Fill the winch to the level mark with filtered ISO 150-weight gear lube. (See product manual for approved oils.)

Mount winch to the test frame and torque bolts to GR8 values corresponding to their size.

In some cases special hold down arrangements are made – See the Notes areas for details.

2. Motor Brake Proof Test


Test the winch at 133% of rated drum torque against the motor park brake. Install a suitable test rope on drum with 5 dead wraps and fasten to the main pull cable on the test stand. Ensure that the Drum Brake and R&P (if installed) are released using auxiliary pressure sources. Hold the load indicated below for 2 minutes.

Proof Load	→	lbs.	OK	<input checked="" type="checkbox"/>
------------	---	------	----	-------------------------------------

LANTEC	QUALITY MANAGEMENT PROCEDURE		ISS: 1	REV: 0	Page: 3 of 3
	SUBJECT: LW WINCH ACCEPTANCE TEST PROCEDURE (LW-ATP)				
DOC: FRM-LWATP	REVIEWED BY:	Plant Manager	APPROVED BY:	Chief Engineer	Jan. 2006


3. Drum Brake Proof Test

Test the winch at 133% of rated drum torque against the drum brake if installed.. Install a suitable test rope on drum with 5 dead wraps and fasten to the main pull cable on the test stand. Ensure that the Motor Brake and R&P (if installed) are released using auxiliary pressure sources. Hold the load indicated below for 2 minutes.

Proof Load		lbs.	OK	
------------	---	------	----	--



4. Ratchet & Pawl Proof Test

Test the winch at 133% of rated drum torque against the Ratchet & Pawl if installed.. Install a suitable test rope on drum with 5 dead wraps and fasten to the main pull cable on the test stand. Ensure that the Motor Brake and Drum Brake (if installed) are released using auxiliary pressure sources. Hold the load indicated below for 2 minutes.

Proof Load		lbs.	OK	
------------	---	------	----	--

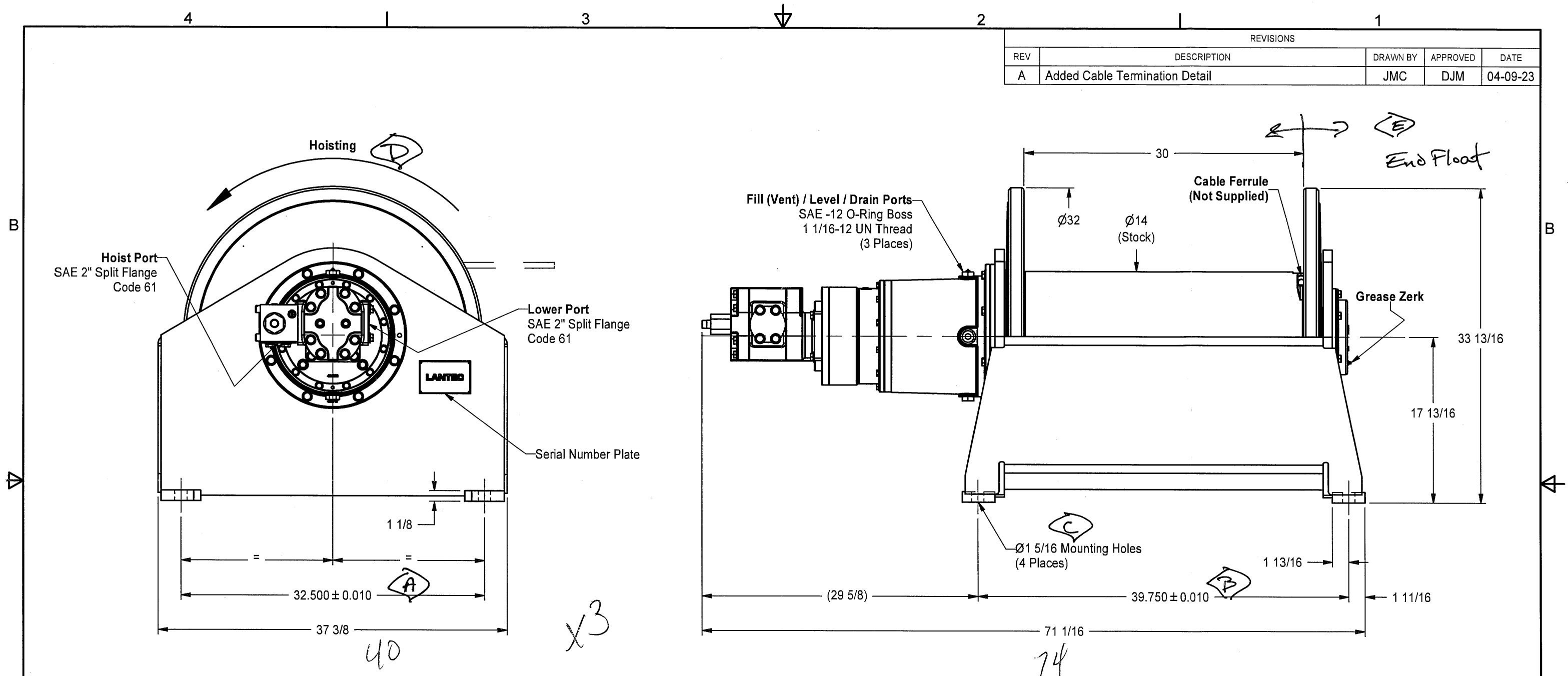
5. Dynamic Winch Load Test

Test the Winch at approximately 100% of rated drum torque. Install a suitable test rope on drum with 5 dead wraps and fasten to the main pull cable on the test stand. Hook up all brakes and R&P in operational configuration and wind the cable in and out approximately 20 feet while maintaining the load indicated below by adjusting the load cylinder pressure.

Proof Load		lbs.	Flow		usgpm	OK	
------------	---	------	------	---	-------	----	--

ORIGINAL

REVISIONS				
REV	DESCRIPTION	DRAWN BY	APPROVED	DATE
A	Added Cable Termination Detail	JMC	DJM	04-09-23



CERTIFIED DRAWING

This drawing is certified to be dimensionally correct for installation purposes for the application identified below

Customer: _____

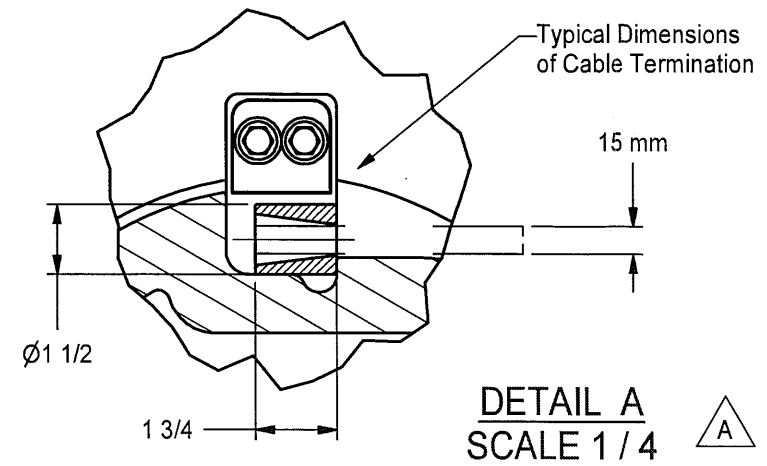
Model: _____

Serial Number: _____

Certified By: _____

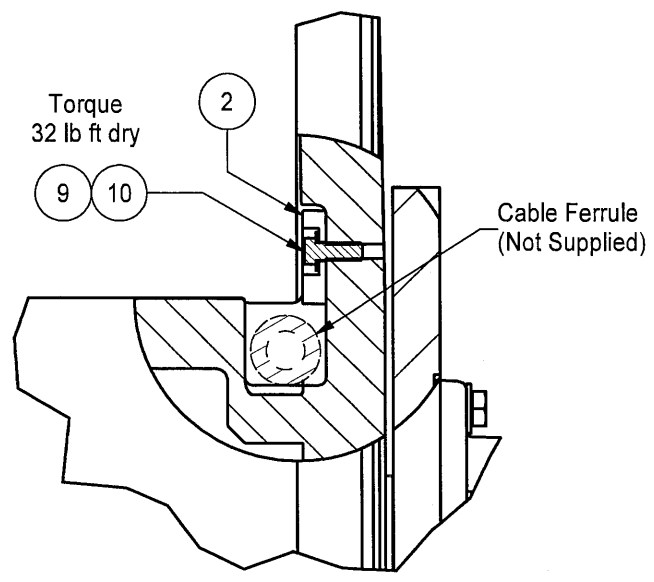
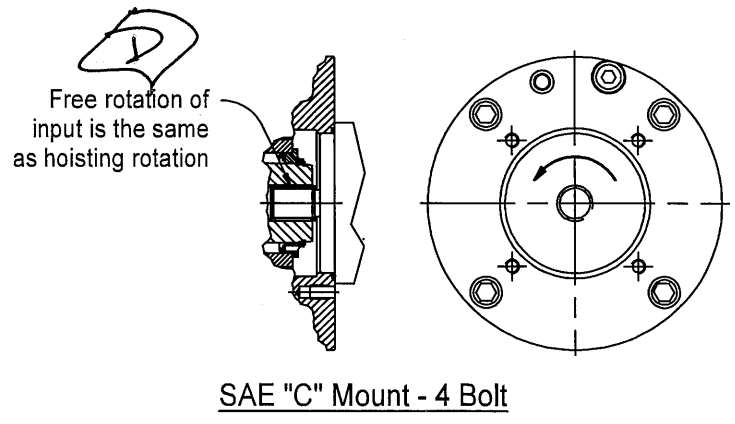
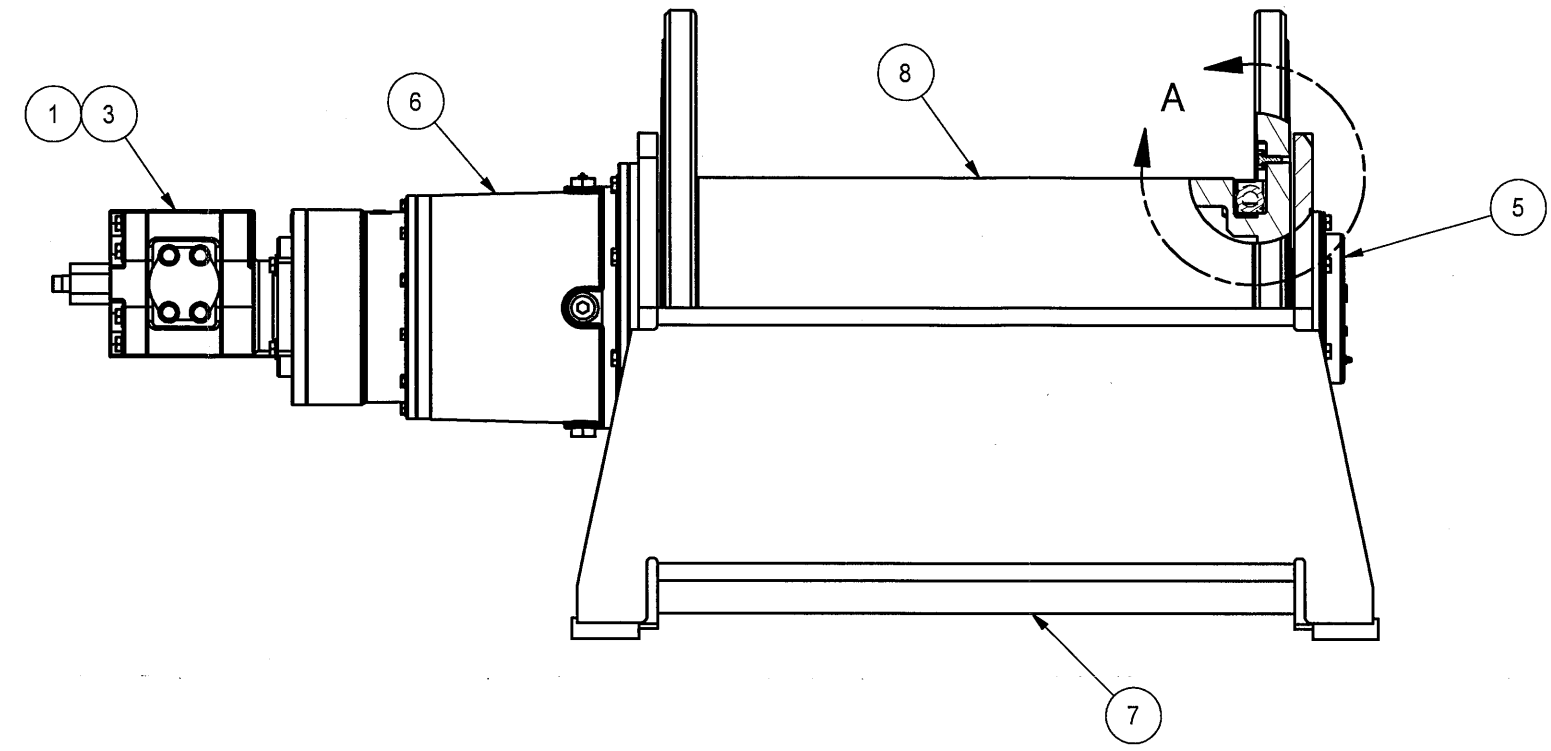
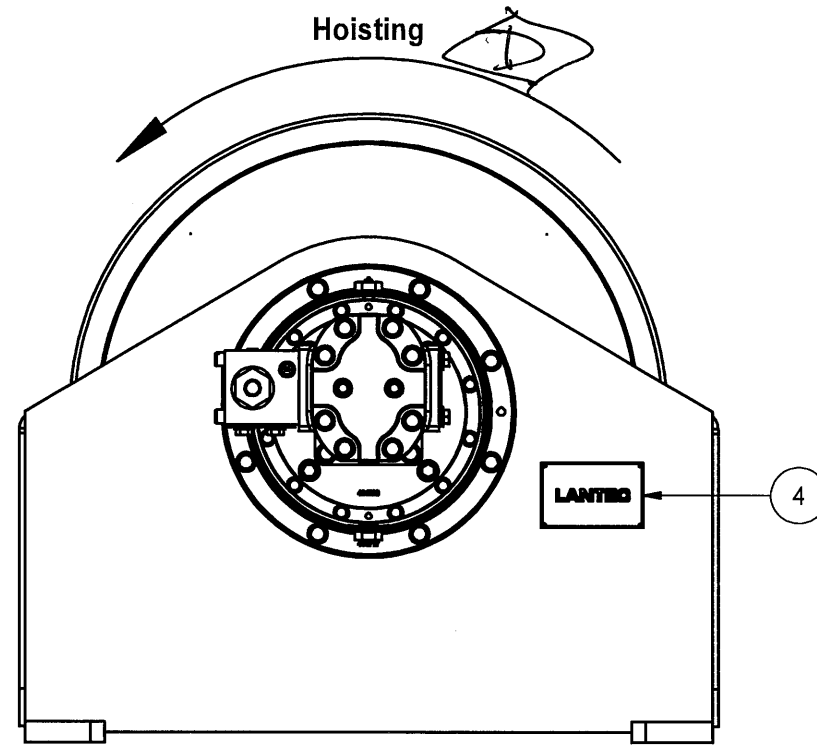
On acceptance, sign and date this sheet and return to **LANTEC**.

Approved By: _____



TOLERANCES UNLESS OTHERWISE SPECIFIED .XX : ± 0.020 .XXX : ± 0.005 FRACTIONS : ± 1/16 ANGLES : ± 2° MACHINED FINISH 125 DO NOT SCALE DRAWING THIRD ANGLE PROJECTION	Langley BC		Canada	
	LANTEC			
	Winch Installation			
	LWS100 - Ø14 x Ø32 x 30L - C15mm			
DRAWN BY	JMC	04/09/16	SIZE	B
CHECKED BY	NH	04/09/16	REVISION	
APPROVED BY	DJM	04/09/16	WEIGHT	SCALE 1=10
			SHEET	1 of 1

THIS DRAWING AND ALL INFORMATION HEREIN, BOTH IN PROPRIETARY AND NOVEL FEATURE, IS THE PROPERTY OF LANTEC AND MAY NOT BE COPIED OR USED IN ANY WAY DETRIMENTAL TO THE INTERESTS OF LANTEC.

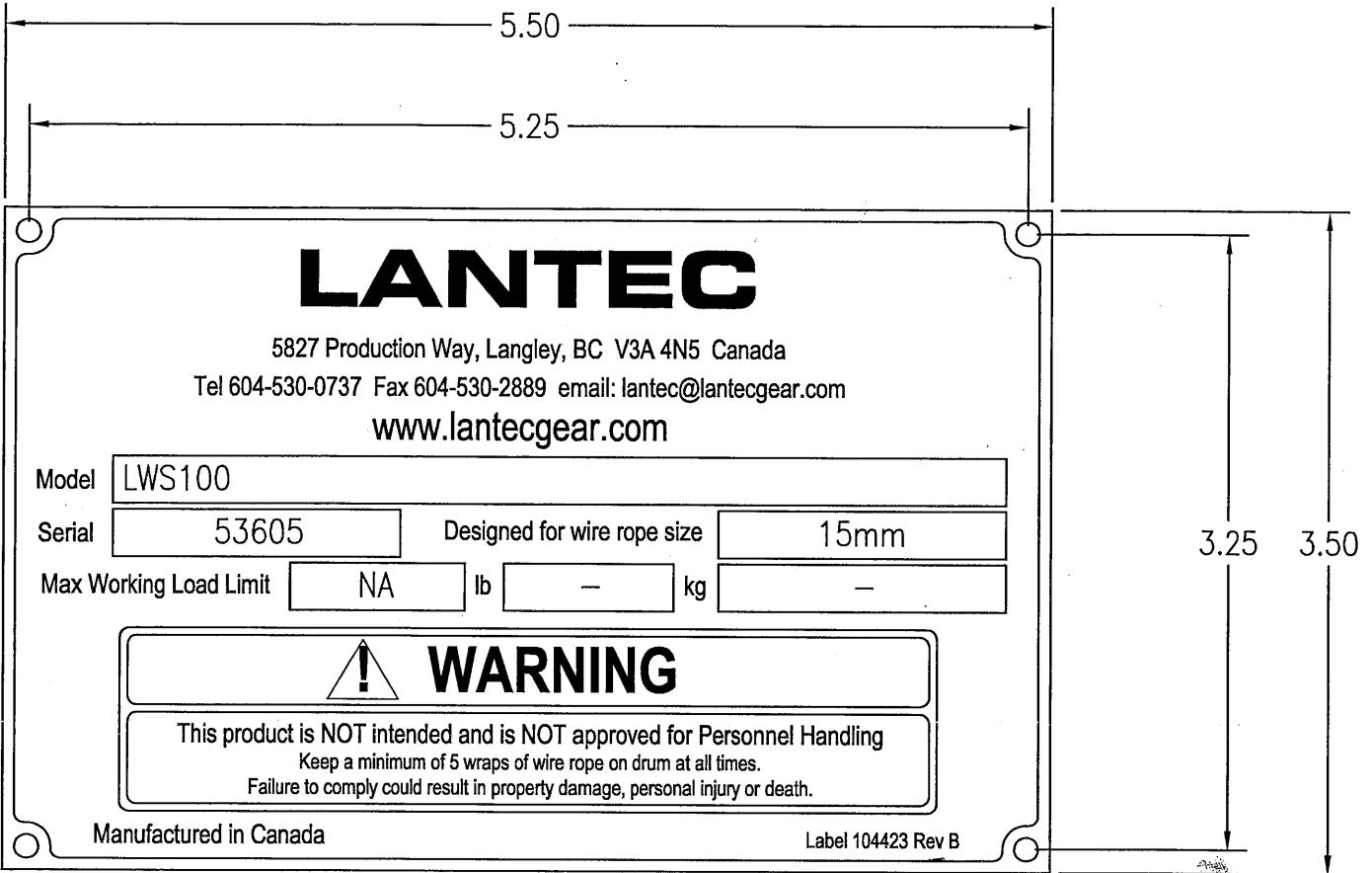


DETAIL A
SCALE 1 / 4

ITEM	QTY	NUMBER	DESCRIPTION
10	2	600744	Capscrew - Hex
9	2	600595	Washer - Flat
8	1	405106	Drum - Winch
7	1	405105	Housing - Winch
6	1	404722	Drive Group
5	1	404683	Bearing - Group Outboard
4	1	204736	Placard - Group
3	1	204544	Motor Group - CW
2	1	104828	Plate - Keeper
1	1	104523	Hose Kit

MATERIAL / PART LIST			
TOLERANCES UNLESS OTHERWISE SPECIFIED .XX: ± 0.020 .XXX: ± 0.005 FRACTIONS: ± 1/16 ANGLES: ± 2° MACHINED FINISH 125 DO NOT SCALE DRAWING THIRD ANGLE PROJECTION		Langley BC LANTEC Canada Winch Assembly LWS100 - Ø14 x Ø32 x 30L - C15mm	
DRAWN BY JMC 04/09/23 CHECKED BY NH 04/09/23 APPROVED BY DJM 04/10/04	SIZE B	205120	REVISION
WEIGHT SCALE 1=10 SHEET 1 of 1			
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REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
A	"a division of IMAC ..." and Backing Adhesive Removed	05-04-27	N.H. / BDD
B	Stretched "LANTEC" to 0.30" x 2.40"	06-03-03	bdd / DJM



S/N's 53605 to 53607 Inclusive

Material: Etched stainless steel plate

Background: Dark Navy Blue

Background "Warning" area: Safety Orange

Holes: (4) .125" diameter

Font: "LANTEC" is Square 721 BdEx BT stretched to 0.30" x 2.40" All other is Arial

DATE
 JUN 30 2003
 ISSUED

EDM9269



ITEM	QTY	NUMBER	DESCRIPTION
------	-----	--------	-------------

TOLERANCES UNLESS OTHERWISE SPECIFIED
 .XX : ±.020
 .XXX : ±.005

MACHINED FINISH 125
 FRACTIONS : ±1/16
 ANGLES : ± 2°

PLACARD-SERIAL NUMBER

Winch S/N - 5.50 x 3.50 Stainless

LANTEC	DRAWN BY	N.H.	03-01-16	104423	REV
	CHECKED BY	---	-----		B
	APPROVED BY	---	-----		SCALE 1 = 1 SHEET 1 OF 1

LANGLEY B.C.

CANADA