

OPERATION MANUAL

25" & 30" Slickline/Flatpack Sheaves

Manufactured by Wireline Technologies, Inc.



Serial Number _____

Introduction

This manual explains the use and care of 25" and 30" slickline sheaves and 30" flatpack/multiline sheaves manufactured by Wireline Technologies, Inc. These sheaves feature removable shrouds. The shrouds and wheel included with the slickline model are shown in figure 1. The shrouds and wheel included with the flatpack/multiline model are shown in figure 2. The shrouds cover part of the wheel to aid in containing the line in the wheel groove. Please read and become familiar with all of the information in this manual before using this equipment.



Slickline Model
Figure 1



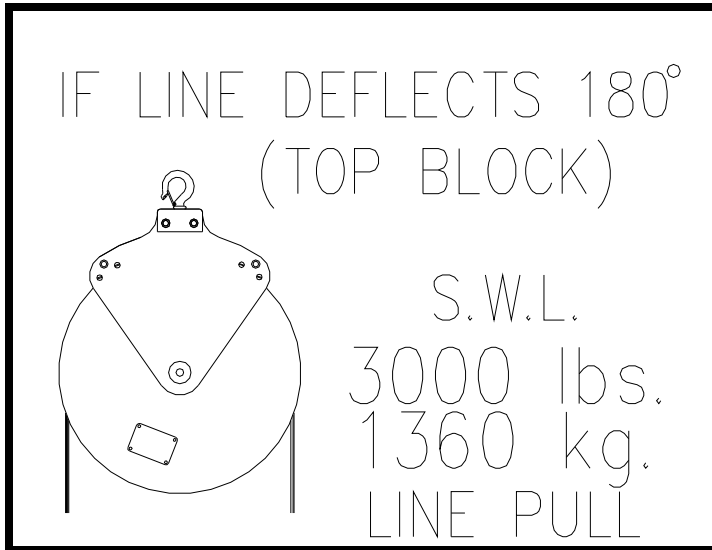
Flatpack/Multiline Model
Figure 2

Warnings

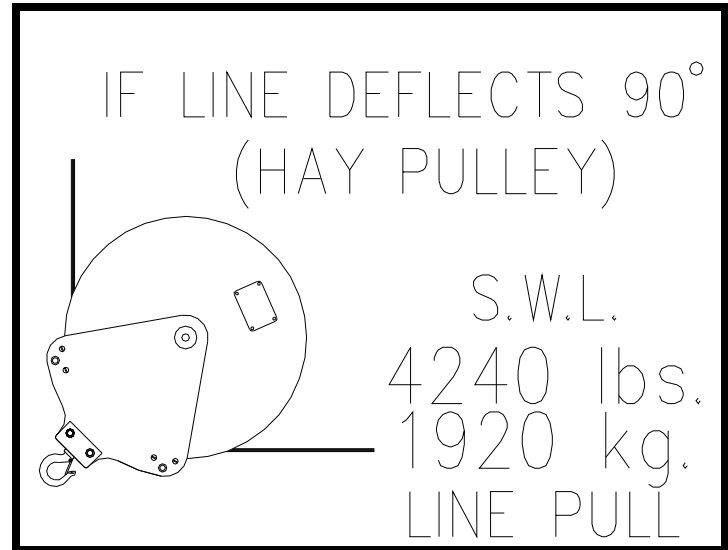
- Read entire manual before operating this equipment.
- If proper procedures are not followed, loads may disengage.
- A falling load can cause serious injury or death.
- Never use this product for hoisting personnel.
- Always anchor or hang the sheave via the clevis, never by way of the side plates or any ancillary equipment.
- Never apply more force than the Safe Working Load (SWL) listed on the affixed tag.
- The listed Safe Working Load is for the sheave assembly; the safe line tension will be less.
- Attachment to other equipment with lower SWL will reduce the allowable load.
- Always use a hand guard when the sheave is used around personnel.
- Always make sure the sheaves are properly maintained and properly rigged.

Safe Working Load

The rated safe working loads (SWL) for WTI 25" or 30" slickline or flatpack sheaves is 10,000 lbs. (2,720 kg.). The allowable line pull will depend upon the angle the line is deflected. If the sheave is used as a top sheave, it deflects the line 180°, see figure 3. If the sheave is used as a bottom sheave, it deflects the line 90°, see figure 4. These safe working loads are based on at least a 4:1 safety factor. Never exceed the SWL, unless special precautions are taken in accordance with your company's policy. These precautions should include, but are not limited to, clearing the rig floor of all personnel. If the SWL is exceeded, the sheave should be re-certified before it can safely be placed back in service.



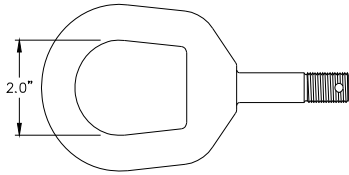
Safe Line Tension for
180-Degree Deflection
Figure 3



Safe Line Tension for
90-Degree Deflection
Figure 4

Clevis Options

Four clevis options for suspending/anchoring the sheave are available: These options are shown in figures 5 – 8 below. The Eye Clevis has an opening about 2.0" X 2.6" for a chain or sling. The Clevis-Jaw is 1.06" wide with a hole for a 7/8" pin. The Clevis-SJ is 7/8" wide with a hole for a 1 1/2" pin. The Clevis-AWS is 1 3/4" wide with a hole for a 1" pin.



Eye Clevis
Part # SL-411
Figure 5

Clevis-SJ
Part # SL-111
Figure 6

Clevis-SJ
Part # SL-111
Figure 7

Clevis-SJ
Part # SL-111
Figure 8

Loading

The numbers listed refer to figure 16 and table 1 on pages 9 and 10.

1. Pull pins (999) out from rear plate (999).
2. Rotate the handles (999) out from center to hold them in the open position. See figure 9.
3. Rotate front plate (999) out of block at the top the rear plate. See figure 10.
4. Load line into groove of wheel (999). See figures 11 and 12. Do NOT load the line on top of the shrouds that cover the wheel.
5. Close the front plate, aligning its holes with the holes in the block of the rear plate.
6. Rotate the handles back towards the center and allow springs to push pins back through the front plate. See figure 13.
7. Make sure the pins return till they are flush with the front surface. See figure 14.



Retracted Handles
Figure 9



Opening Front Plate
Figure 10



Properly Loaded Line
Figure 11



Line Under Shrouds
Figure 12



Closed
Handles
Figure 13

Properly
Closed
Gate
Figure 14



Daily Inspection Checklist

Verify the following. If any discrepancies are noted, remove the sheave from service until repairs are completed. Numbers listed refer to figure 16 and table 1 (pgs. 9-10).

- ❑ All structural components (2 or 3,8,10,11,18,23,24,32) are not bent, cracked, or otherwise damaged.
- ❑ Front plate (999) pivots freely through the block of the rear plate (9999).
- ❑ Locking pins (999) retract, pivot, and return easily.
- ❑ Manufacturing label (999) is in place and readable.
- ❑ Inspection label (999) is in place on the rear plate and stamped with an inspection date no greater than one year old.
- ❑ Spiral pins (999) are in place and securely retain the slotted nuts (8) on the axle shaft (24).
- ❑ Wheel (999) rotates freely and smoothly, check for any grinding or sticking, indicating damaged bearings.
- ❑ Clevis (1,2,3, or 4) pivots freely and does not have excessive slop (more than 1/8”).
- ❑ Cotter pin (999) is securely retaining the slotted nut (999) on the clevis.

Preventative Maintenance

WTI suggests the following service. Numbers listed refer to figure 16 and table 1 (pgs. 9-10).

- ❑ The wheel bearings (999) are sealed and only need annual re-packing. Use lithium based No.2 EPHT grease, such as Conoco's Tacna® RX. This service can be performed at the same time as the annual recertification. See page 8.
- ❑ Monthly, squirt some light machine oil on both ends of the locking pins (999).

Recertification and Repairs

WTI highly recommends yearly recertification of all slickline sheaves. Most companies mandate annual recertifications so this should not be overlooked. A tag on the rear of the sheave, shown in figure 15, provides a visible place to stamp certification dates. When a new sheave is placed into service, stamp the current date into this tag. When the date becomes a year old, the sheave should be re-certified. Each time the sheave is re-certified a new date will be stamped in this tag. Upon completion of a repair or recertification, note the information in the log in the back of this manual. Re-certification involves the following:

1. Proof testing.
2. Disassembly.
3. Cleaning
4. NDT inspection of all of the load-bearing components.
5. Replacement or repair of any damaged or worn components.
6. Updating components for safety and easier use.
7. Packing the bearings with grease.
8. Re-assembly.
9. Pre-loading the bearings.
10. Documentation of all changes.
11. Final Inspection.
12. Issuance of a new certification.

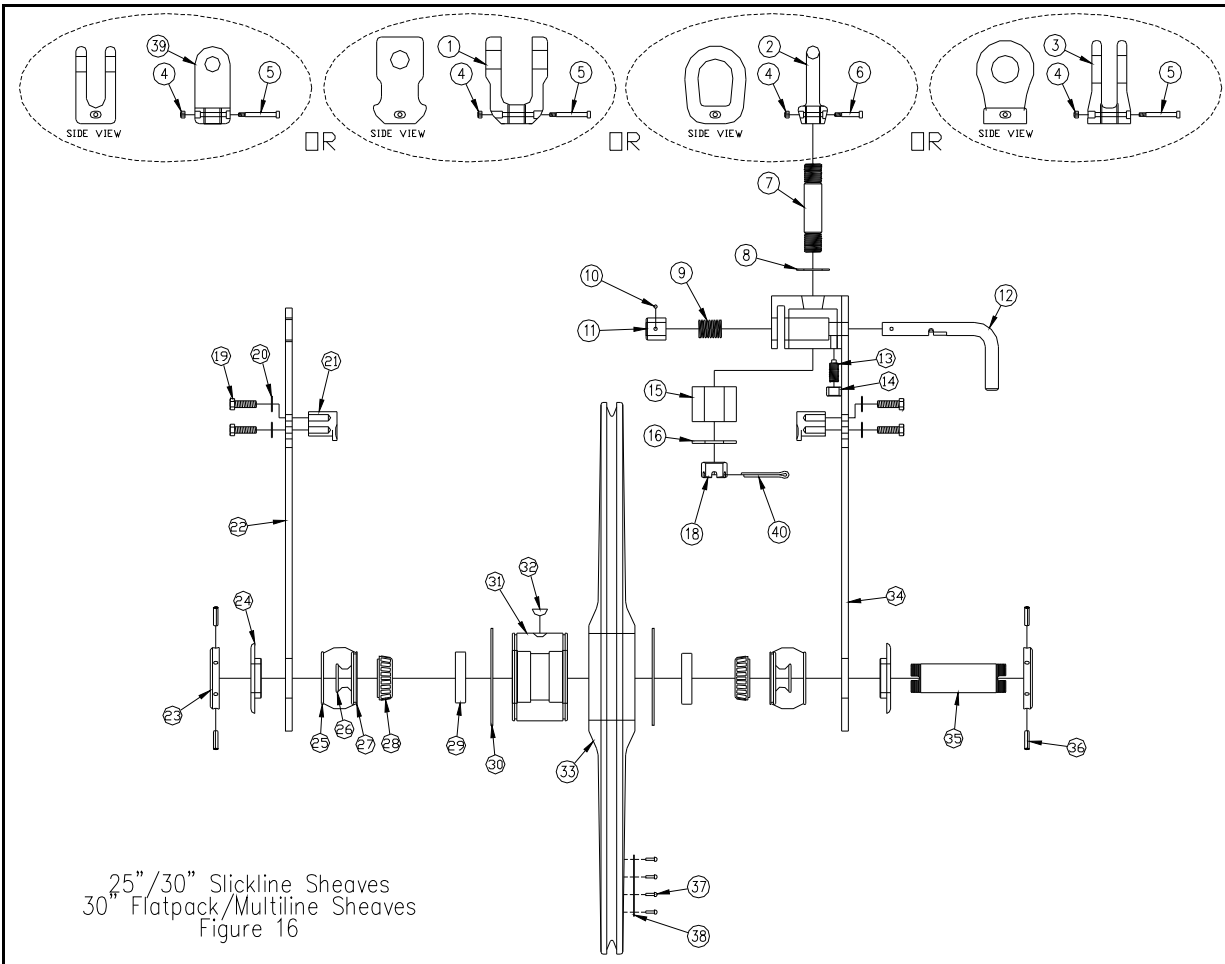
WIRELINE TECHNOLOGIES	
SERIAL NUMBER	
SAFE WORKING LOAD	CE
,000 LBS.	
INSPECTION DATES	

Inspection Tag
Figure 15

Recertification and/or repairs can be done one of three ways.

- Send the sheave to Wireline Technologies, Inc. Please call to make arrangements.
- Send the sheave to an authorized service center. Call to determine the nearest location.
- Determine if your company will allow recertification on site. If so, WTI can supply you with the training and documents needed.

Call Wireline Technologies Inc. (800) 743-2831. Use the drawings in figure 16 on page 9 to identify parts. The numbers in the circles correspond to the item numbers in table 1 on page 10.



ITEM	PART NUMBER	DESCRIPTION	QTY	MATERIAL	ITEM	PART NUMBER	DESCRIPTION	QTY	MATERIAL
1	SL-30-1252	30" CLEVIS - AWS	1	17-4PH S/S	25	RS-14/17-1048	OUTER O-RING - 14"/17"	2	BUNA N
2	SL-211	CLEVIS EYE #2 X 1"-8	1	316 S/S	26	RS-14/17-1049	INNER O-RING - 14"/17"	2	BUNA N
3	SL-30-1052	30" CLEVIS - SJ	1	17-4PH S/S	27	RS-14/17-1067S	O-RING SEAT - 14"/17"	2	6061-T6 H ANOD
4	RS-1087	NYLON INSERT LOCKNUT 10-24	1	18-8 S/S	28	RS-1084	BEARING CONE - 14"/17"	2	ALLOY STEEL
5	RS-1086	SHOULDER SCREW 1/4" X 1 3/4"	1	18-8 S/S	29	RS-1083	BEARING CUP - 14"/17"	2	ALLOY STEEL
6	RS-1088	SHOULDER SCREW 1/4" X 1"	1	18-8 S/S	30	RS-26-1012	RETAINING RING	2	STEEL
7	SL-30-311	CLEVIS STUD	1	303 S/S	31	SL-30-114	HUB-SEALED 30"	1	6061-T6 H ANOD
8	RS-1020	CLEVIS WASHER	1	NYLON	32	RS-1010	WOODRUF KEY #807	1	316 S/S
9	SL-30-125	SPRING	2	302 S/S	33	SL-25-113	25" WHEEL (-XX FOR LINE SIZE)	1	NYLON W/ MoS2
10	SL-30-137	SPIRAL PIN 3/16" X 1 1/8"	2	420 S/S	OR	SL-30-113	30" WHEEL (-XX FOR LINE SIZE)	1	NYLON W/ MoS2
11	SL-30-123	COLLAR	2	303 S/S	OR	SL-30-113-04	30" FP WHEEL	1	NYLON W/ MoS2
12	SL-30-122	LOCKING PIN	2	17-4PH S/S	34	SL-25-101	25" REAR PLATE / CLEVIS BLOCK W.	1	6061-T6 G ANOD
13	SL-30-130	SET SC. 3/8-16 X 1.25 DOG PT.	2	303 S/S	OR	SL-30-101	30" REAR PLATE / CLEVIS BLOCK W.	1	6061-T6 G ANOD
14	SL-30-131	HEX NUT 3/8-16	2	18-8 S/S	35	RS-1109	AXLE SHAFT	1	17-4PH S/S
15	SL-30-127	SHOCK CUSHION	1	BUNA-N	36	RS-1172	SPIRAL PIN 1/4" X 1"	4	420 S/S
16	SL-30-129	CLEVIS LOAD WASHER	1	17-4PH S/S	37	RS-1071	DRIVE SCREW 1/8" X 3/8"	8	18-8 S/S
17	SL-30-142	COTTER PIN 1/4" X 2"	1	420 S/S	38	SL-25-109	MANUFACTURING LABEL - 25"	1	LAM. PAPER
18	SL-30-108	SLOTTED HEAVY HEX NUT 1"-8	1	18-8 S/S	OR	SL-30-109	MANUFACTURING LABEL - 30"	1	LAM. PAPER
19	SL-30-134	HEX HD CAP SCREW 3/8"-16 X 1.25"	4or8	18-8 S/S	OR	FP-30-109	MANUFACTURING LABEL - FP	1	LAM. PAPER
20	SL-30-135	WASHER 3/8"	4or8	18-8 S/S	39	FP-141	JAW CLEVIS	1	303 S/S
21	SL-30-105	SHROUD FOR 25" AND 30" SLICKLINE	4	6061-T6 H ANOD	40	SL-30-142	COTTER PIN 1/4" X 2"	1	18-8 S/S
OR	FP-30-105	SHROUD FOR FLATPACK/MULTILINE	2	6061-T6 H ANOD	41	RS-1279	WTI INSPECTION LABEL - SQUARE	1	AL
22	SL-25-104	25" FRONT PLATE	1	6061-T6 G ANOD					
OR	SL-30-104	30" FRONT PLATE	1	6061-T6 G ANOD					
23	RS-1011A	AXLE NUT - ADJUSTABLE	2	303 S/S					
24	SL-30-128	REINFORCEMENT RING	2	6061-T6 G ANOD					

Bill of Materials
Table 1

Hand Guard / Stabilizer

Perhaps the most important accessory to a rigging sheave is the hand guard / stabilizer. This accessory helps prevent accidental entanglement of personnel into the sheave wheel. It is also very helpful at directing the line into the wheel groove to prevent jumping and helps upright the sheave after slack line is tightened. See figure 17. A hole in the bushing allows the line to pass, but larger objects such as hands and clothing are stopped. The hand guard features split bushings and slotted blocks so it installs quickly. See figure 18.



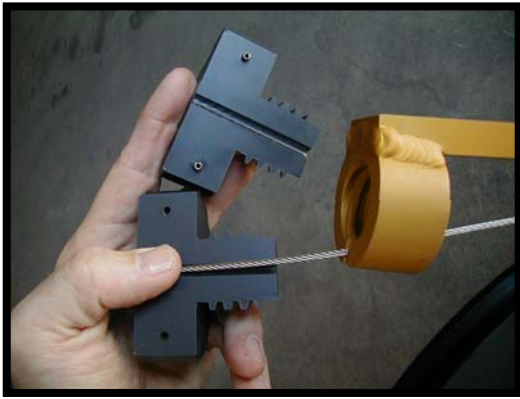
Instructions for Use

1. Remove the split bushing by unthreading it from the block.
2. Install the arm between the plates of the sheave so the hole lines up with the holes in the plates.
3. Insert the ball-lock pin through the holes.
4. Make sure the ball is extended out of the pin and the pin is locked in place. See figure 20.
5. Pull the bushing apart then re-assemble them around the wireline. See figures 18.
6. Thread the bushing back into the block. See figure 19.

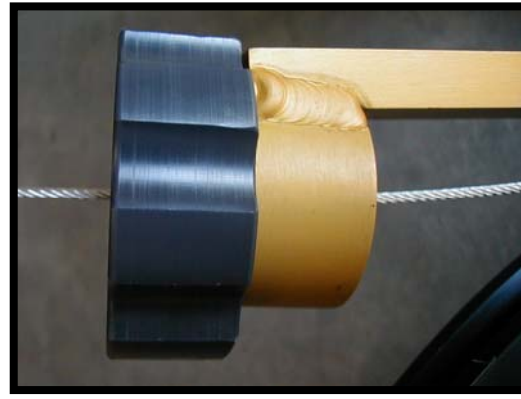
Maintenance

- ◇ Replace the split bushings if the holes wear close to the threads.
- ◇ Lubricate the balls and button of the ball-lock pin with light machine oil to keep them moving freely.

Hand Guard, Part # SHG-100
Figure 17



Split Bushing
Figure 18



Installed
Bushing
Figure 19



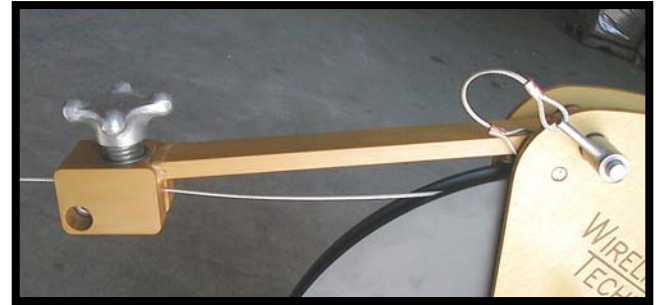
Secured
Ball-lock
Figure 20

Line Wiper

The line wiper is used to wipe the slickline clean from oil and fluids. Figure 21 shows a line wiper attached to a sheave.

Instructions for Use

1. Install the line wiper between the plates of the sheave and insert the ball-lock pin to secure it in place. See figure 21.
2. Make sure the ball-lock is locked. See figure 20 on page 12.
3. Retract the keeper and insert the slickline. See figure 22.
4. Pull the slickline into the split in the rubber wiper. See figure 23.
5. Center the line in the wiper and tighten the clamping knob to create pressure around the line. See figure 24.



Line Wiper, Part # LW-100, Figure 21



Loading the Slickline, Figure 22



Installing into Wiper, Figure 23



Centering and Clamping, Figure 24

Maintenance

- ◇ Replace the wiper if it has worn and no longer wipes the line properly.
- ◇ Lubricate the clamping knob threads and the balls and button of the ball-lock pin with light machine oil to keep them moving freely.

Floor Stand

The floor stand is used to keep the sheave upright and in position when the line is slack. Figure 25 shows a sheave mounted in a floor stand. Because the floor stand is open on one side, the line can be loaded into the sheave after the floor stand has been attached.



Floor Stand, Part # **SFS-100**
Figure 25

Instructions for Use

1. Slide the sheave into the hole of the floor stand.
2. Align the hole in the axle of the sheave with the hole in the floor stand. See figure 26.
3. Install the clip through the holes. See figure 27.
4. Lock the clip. See figure 28.



Align Holes
Figure 26



Install Clip
Figure 27



Lock Clip
Figure 28

Rig-up Yoke

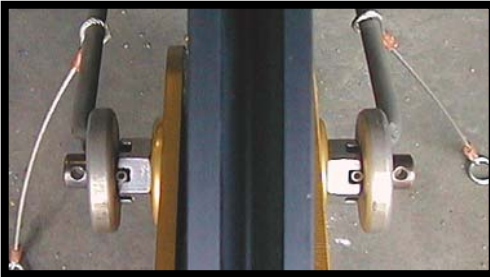
The rig-up yoke is used to lift the slickline sheave into position or to stabilize the sheave when in use. Figure 29 shows a yoke being used to stabilize a slickline sheave. A rig-up yoke can be used with or without a hand guard or a line retainer.

Instructions for Use

1. Install the yoke on either side of the sheave hook each end over the ends of the axle shaft. See figure 30.
2. Install the two clips through the holes in either end of the axle of the sheave. See figure 31.
3. Secure the yoke to hold the sheave in the desired position.



Rig-Up Yoke, Part # SY-100, Figure 29



Attaching Yoke
Figure 30



Installed Clips
Figure 31

Warnings

- Never use the rig-up yoke as a substitute for the clevis. It is not designed to hold loads.
- Never pull the sheave to the side with the rig-up yoke. Always keep it aligned with the wireline.
- Never pull on the rig-up yoke harder than is required to hold the sheave in position.

Lifting Plate

One to five sheaves can be used together in a group with a lifting plate. The standard aluminum lifting plate has a safe working load of 15,000 lbs and is shown in figure 32. A stainless steel lifting plate is available that has a safe working load of 30,000 lbs. Sheaves with jaw clevises fit the lifting plate

Attaching Yoke
Figure 30

Instructions for Use

1. Support the lifting plate through the large hole in its center.
2. Attach the desired number of sheaves to the plate in the configuration shown in figure 999.
3. Rig-Up Yoke, Part # SY-100, Figure 29 the axles and appropriate spacers.
4. Thread the eyes on both ends of the rod.
5. Install the two clips to retain the eyes. See figure 999
6. Lift the assembly into position and chain the shackles to a secure location.
7. The eyes can be used to brace the assembly, especially during windy conditions.

Installed Clips
Figure 31



Warnings

- Do not exceed the safe working load for the plate. If 5 sheaves are used, then no more than 1/5 of the total can be loaded per sheave.
- Secure the shackles with chains or slings that are rated high enough for the loads to be applied.

Recertification and Repair Log

Serial Number _____

Date	Recert <input type="checkbox"/>	Repair <input type="checkbox"/>	Performed by:	Notes
	<input type="checkbox"/>	<input type="checkbox"/>		
	<input type="checkbox"/>	<input type="checkbox"/>		
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Date	Recert	Repair	Performed by:	Notes
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Warranty

For a period of one year from the date of purchase, Wireline Technologies, Inc., will repair or replace, at its option, any 16” or 20” slickline sheave of its manufacture that fails because of a defect in materials or manufacture, or which fails to conform to any implied warranty not excluded herein. This warranty does not cover damages caused by abuse, misuse, neglect, or overloading; and does not cover any incidental damages caused by a failure of this product.

EC Declaration of Conformity

The following equipment:

P/N- _____

S/N- _____

Date- _____

Complies with the essential requirements of The European Union Machinery Directive 98/37/EC.



George Vent (V.P. Quality)



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