

# OPERATION MANUAL

## 16" & 20" Slickline Sheaves

Manufactured by Wireline Technologies, Inc.



Serial Number \_\_\_\_\_

## **Introduction**

This manual explains the use and care of 16” and 20” slickline sheaves manufactured by Wireline Technologies, Inc. These sheaves feature removable shrouds, shown in figure 1. 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.



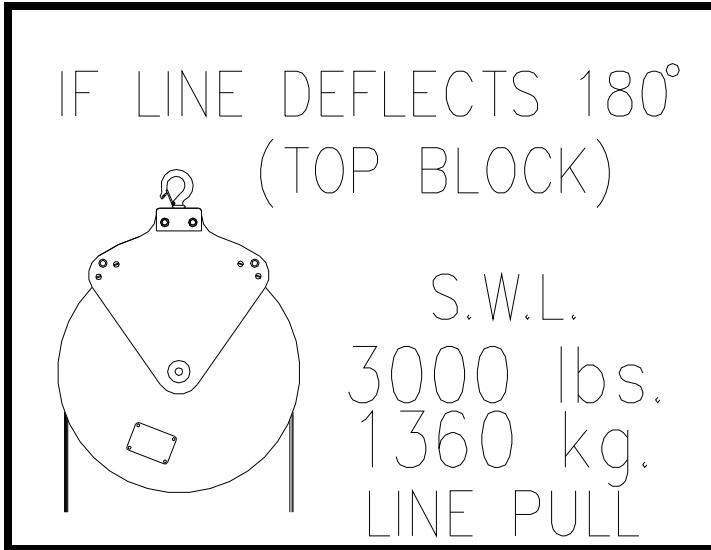
Shrouds  
Figure 1

## **Warnings**

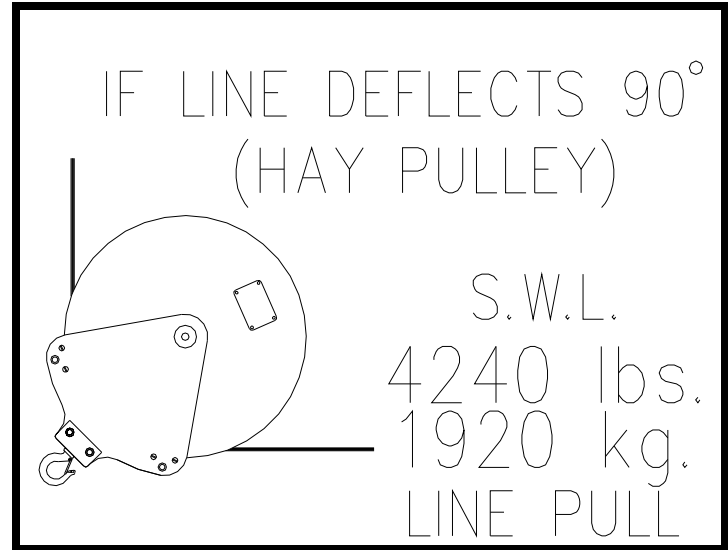
- Read entire manual before operating this equipment.
- If proper procedures are not followed, loads may disengage.
- A falling load can cause serious injury or death.
- Never use this product for hoisting personnel.
- Always anchor or hang the sheave via the clevis, never by way of the side plates or 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 load (SWL) for a WTI 16" or 20" slickline sheave is 6,000 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 2. If the sheave is used as a bottom sheave, it deflects the line 90°, see figure 3. 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.



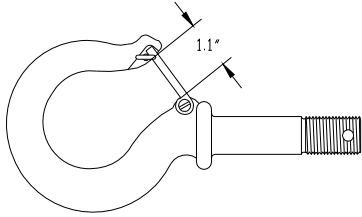
Safe Line Tension for  
180-Degree Deflection  
Figure 2



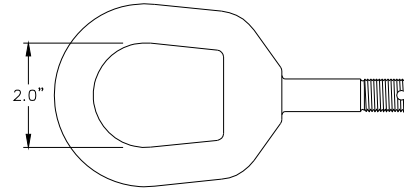
Safe Line Tension for  
90-Degree Deflection  
Figure 3

## Clevis Options

Two clevis options for suspending/anchoring the sheave are available: These options are shown in figures 4 and 5 below. The hook has a 1.3" wide opening. The Clevis-Eye has an opening about 2.0" X 2.6" for a chain or sling.



Shank Hook  
Part # SL-111  
Figure 4



Eye Clevis  
Part # SL-411  
Figure 5

## Loading

The numbers listed refer to figure 13 and table 1 on pages 9 and 10.

1. Pull pins out from rear plate (10).
2. Rotate the handles (12) out from center to hold them in the open position. See figure 6.
3. Rotate front plate (18) out of block at the top the rear plate. See figure 7.
4. Load line into groove of wheel (32). See figures 8 and 9. 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 10.
7. Make sure the pins return till they are flush with the front surface. See figure 11.



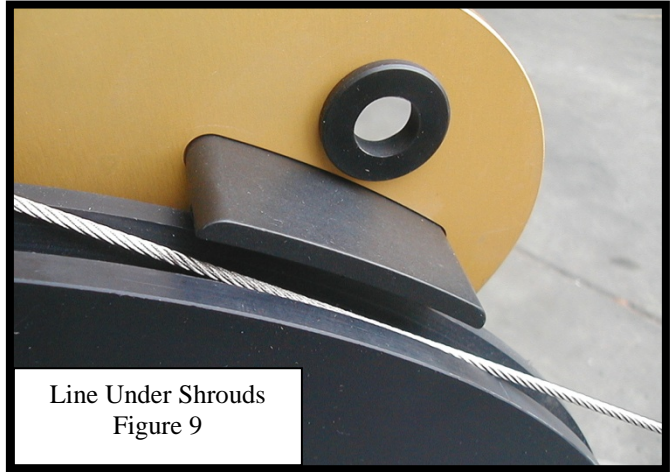
Retracted Handles  
Figure 6



Opening Front Plate  
Figure 7



Properly Loaded Line  
Figure 8

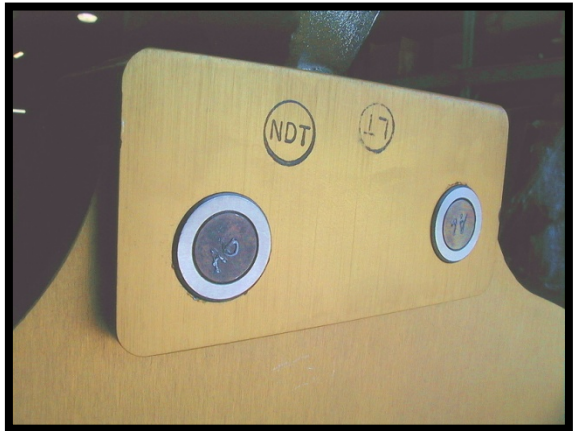


Line Under Shrouds  
Figure 9



Closed  
Handles  
Figure 10

Properly  
Closed  
Gate  
Figure 11



## **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 13 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 (18) pivots freely through the block of the rear plate (10).
- ❑ Locking pins (11) retract, pivot, and return easily.
- ❑ Manufacturing label (33) is in place and readable.
- ❑ Inspection label (36) is in place on the rear plate and stamped with an inspection date no greater than one year old.
- ❑ Spiral pins (9) are in place and securely retain the slotted nuts (8) on the axle shaft (24).
- ❑ Wheel (32) rotates freely and smoothly, check for any grinding or sticking, indicating damaged bearings.
- ❑ Clevis (2 or 3) pivots freely and does not have excessive slop (more than 1/8").
- ❑ Cotter pin (35) is securely retaining the slotted nut (8) on the clevis.

## **Preventative Maintenance**

WTI suggests the following service. Numbers listed refer to figure 13 and table 1 (pgs. 9-10).

- ❑ The wheel bearings (28) 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 (11).



## **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 12, 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.



Inspection Tag  
Figure 12

## **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 13 on page 9 to identify parts. The numbers in the circles correspond to the item numbers in table 1 on page 10.





## **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 14. 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 15.

## **Instructions for Use**

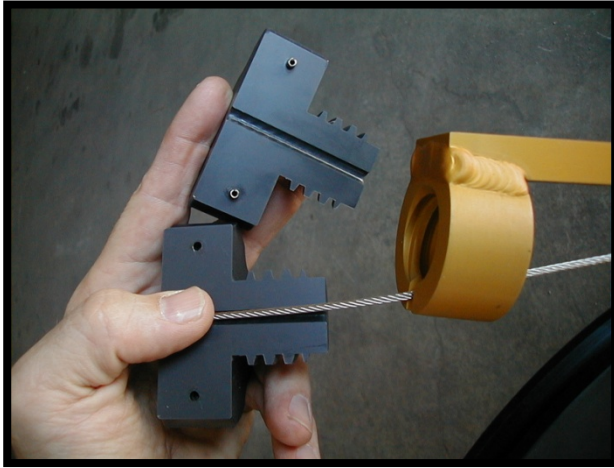
1. Remove the split bushing by unthreading it from the block.
2. Install the arm between the plates of the sheave so the hole lines up with the holes in the plates.
3. Insert the ball-lock pin through the holes.
4. Make sure the ball is extended out of the pin and the pin is locked in place. See figure 16.
5. Pull the bushing apart then re-assemble them around the wireline. See figure 15.
6. Thread the bushing back into the block. See figure 17.

## **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 14

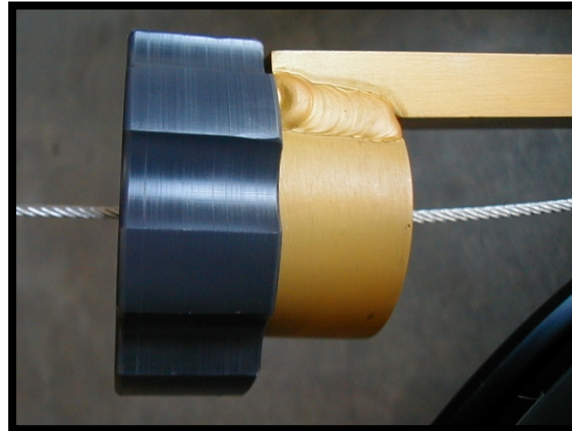




Split Bushing  
Figure 15



Secured  
Ball-lock  
Figure 16



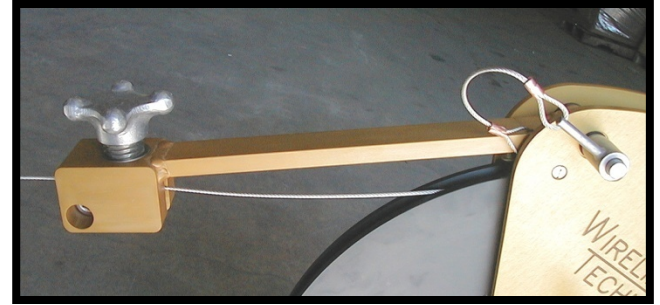
Installed  
Bushings  
Figure 17

## Line Wiper

The line wiper is used to wipe the slickline clean from oil and fluids. Figure 18 shows a line wiper attached to a sheave.

## Instructions for Use

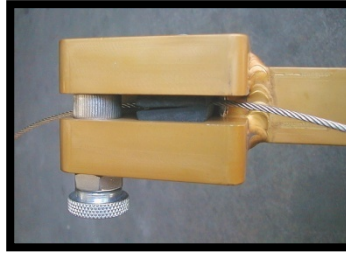
1. Install the line wiper between the plates of the sheave and insert the ball-lock pin to secure it in place. See figure 18.
2. Make sure the ball-lock is locked. See figure 16 on page 12.
3. Retract the keeper and insert the slickline. See figure 19.
4. Pull the slickline into the split in the rubber wiper. See figure 20.
5. Center the line in the wiper and tighten the clamping knob to create pressure around the line. See figure 21.



Line Wiper, Part # LW-100, Figure 18



Loading the Slickline, Figure 19



Installing into Wiper, Figure 20



Centering and Clamping, Figure 21

## 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

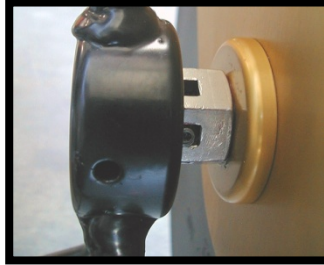
The floor stand is used to keep the sheave upright and in position when the line is slack. Figure 22 shows a sheave mounted in a floor stand. Because the floor stand is open on one side, the line can be loaded into the sheave after the floor stand has been attached.

## Instructions for Use

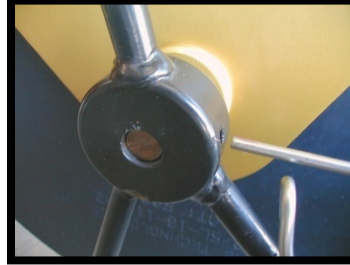
1. Slide the sheave into the hole of the floor stand.
2. Align the hole in the axle of the sheave with the hole in the floor stand. See figure 23.
3. Install the clip through the holes. See figure 24.
4. Lock the clip. See figure 25.



Floor Stand, Part # SFS-100  
Figure 22



Align Holes  
Figure 23



Install Clip  
Figure 24



Lock Clip  
Figure 25

## Rig-up Yoke

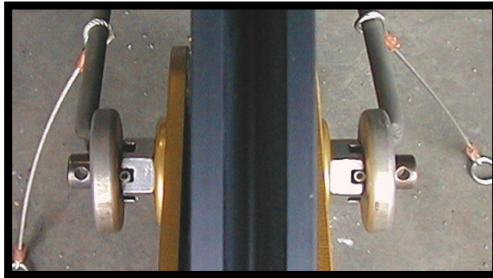
The rig-up yoke is used to lift the slickline sheave into position or to stabilize the sheave when in use. Figure 26 shows a yoke being used to stabilize a slickline sheave. A rig-up yoke can be used with or without a hand guard or a line retainer.

## 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 27.
2. Install the two clips through the holes in either end of the axle of the sheave. See figure 28.
3. Secure the yoke to hold the sheave in the desired position.

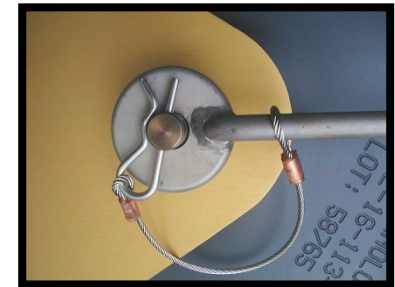


Rig-Up Yoke, Part # SY-100, Figure 26



Attaching Yoke  
Figure 27

Installed Clips  
Figure 28



## 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.



## 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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