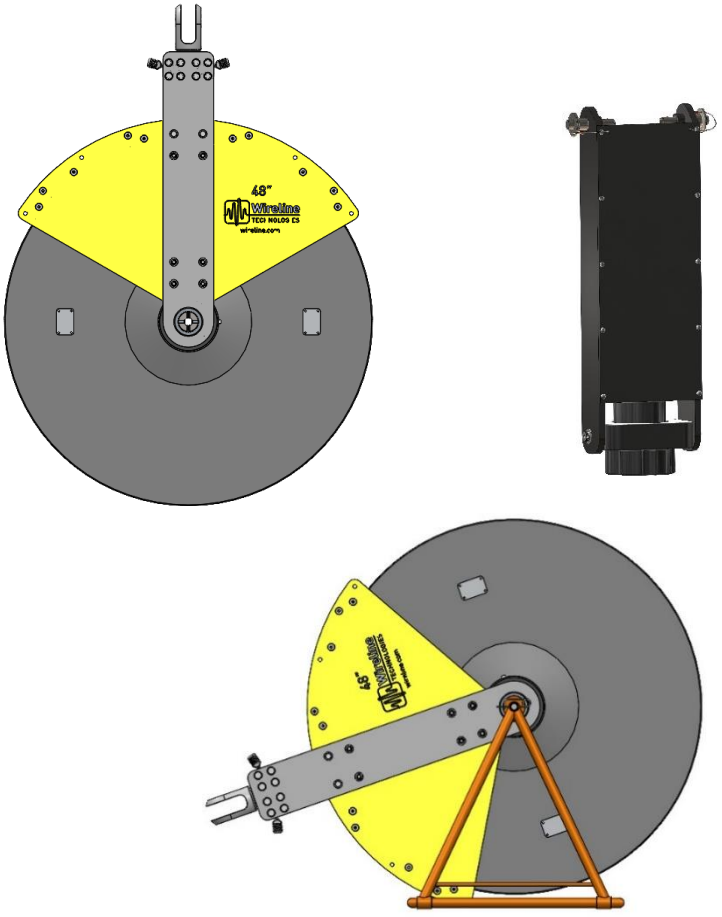
Wireline TECHNOLOGIES

OPERATION MANUAL

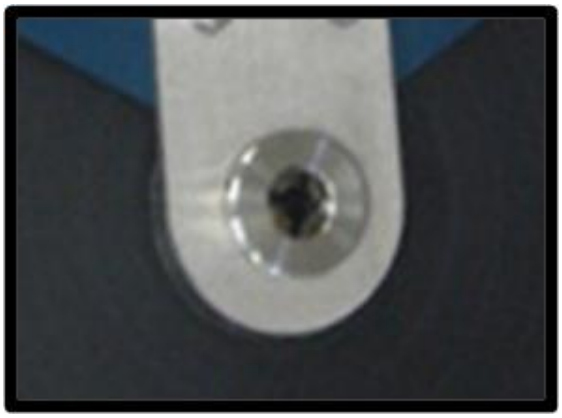


48” 60k Ultra Heavy Duty Rigging Sheaves

Doc. #WTI-130 Rev. 2 (23 APR 2024)

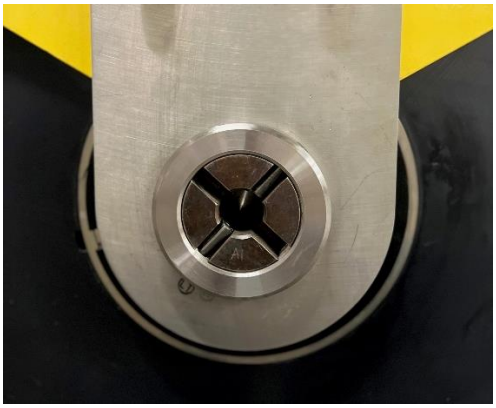
Introduction

This manual explains the use and care of 48" 60K H. D. Rigging Sheaves manufactured by Wireline Technologies, Inc. Please read and become familiar with all of the information in this manual before using this equipment. The sheaves rated for 60K differ from the older 50K version in the following ways. The tag is golden in color and marked with 60,000 lbs. The axle shaft is larger, measuring 2.75" in diameter. The hub and retaining rings are visible. See Figure 1 and Figure 2.



50K 48” H.D Sheave

Figure 1



60K H.D. Sheave

Figure 2

Features

⇒ 24" bend radius for less wireline bend damage.

⇒ High load capacity of 60,000 lbs.

⇒ Sealed bearings for long maintenance-free operation.

⇒ Corrosion Resistant Materials

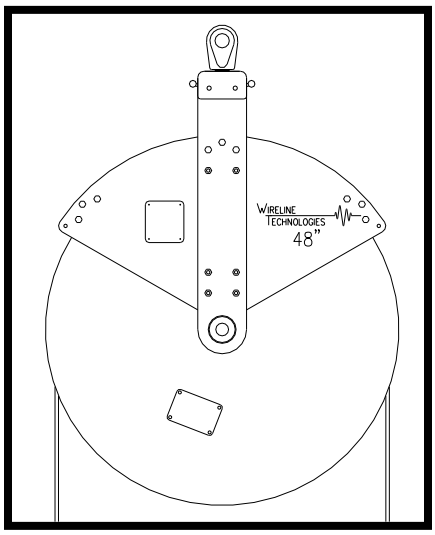
⇒ Non-spoked wheel for safer operation.

Warnings

- Read the 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 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

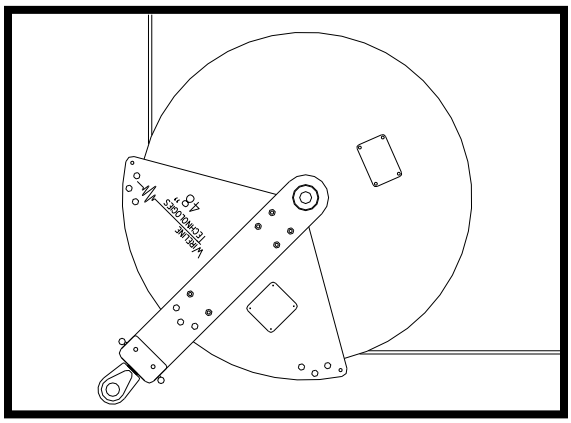
The rated safe working load (SWL) for a WTI 48" sheave is 60,000 lbs. (27,200 kg.). The allowable line pull will depend upon the angle the line is deflected. If the sheave is used as a top sheave, it deflects the line approximately 180°, see Figure 3. If the sheave is used as a bottom sheave, it deflects the line approximately 90°, see Figure 4. 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.



Top Sheave

Max. Line Tension

30,000 lbs (13,600 kg)



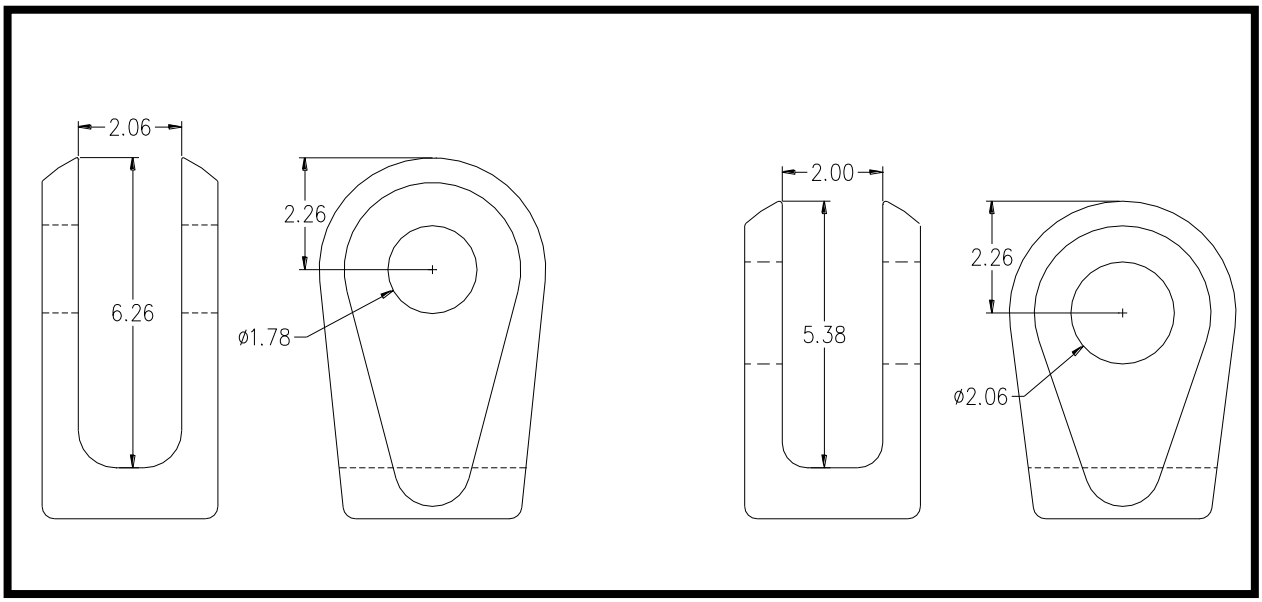
Bottom Sheave
Max. Line Tension 42,425 lbs (19,240 kg)

Safe Line Tension for 180-Degree Deflection
Figure 3

Safe Line Tension for 90-Degree Deflection
Figure 4

Clevis Options

Two clevis swivel assembly options for suspending/anchoring the sheave are available: These options are shown in Figure 5 and Figure 6 below. The opening width of the Clevis-HLS is 2.06" with a hole for a 1.75" pin. The opening width of the Clevis-SJ is 2" with a hole for a 2" pin.



Clevis HLS (RS-48-1552)
Figure 5

Clevis SJ (RS-48-1652)
Figure 6

Loading

The numbers listed refer to Figure 10 and Table 1 on pages 9 and 10.

1. Retract the locking pins (7) by pushing the handle (3) along the tracks in the block (5) and lock them into the 90 degree recess. See Figure 7.
2. Rotate the gate strap (29) out of the slot in the block.
3. Load line into the groove of wheel (40).
4. Close the gate strap, aligning its holes with the holes in the block.
5. Release the handles from the recess.
6. The locking pins should spring back into the forward position of the slot and be flush with the front surface of the block. See Figure 8.

Retracted Handles
Figure 7

Properly Closed Gate
Figure 8

Daily Inspection Checklist

Verify the following. If any discrepancies are noted, remove the sheave from service until repairs are completed. The numbers listed refer to Figure 10 and Table 1 on pages 9 and 10.

- All structural components (1 or 2,5,7,14,29,30,46) are not bent, cracked, or otherwise damaged.
- Gate strap (29) hinges freely through the slot in the block (5).
- Locking pins (7) retract and return freely through block.
- Manufacturing tag (38) is in place and readable.
- Info label (23) is in place and stamped with an inspection date no greater than one year old.
- Spiral pins (27) are in place and securely retain the axle nuts (28) on the axle (30).
- Wheel (40) rotates freely and smoothly. Check for any grinding or sticking, indicating damaged bearings.
- Clevis (1 or 2) pivots freely and does not have excessive slop (more than 1/4" axially or 1/8" radially).
- All 10 cap screws (21) and lock-washers (20) are tightly in place.
- All 8 bolts (48) are secure.
- Both plates (29, 46) are unbent and secure.
- All bolts and fasteners are in place and secure.

Preventative Maintenance

WTI suggests the following service. The numbers listed refer to Figure 10 and Table 1 on pages 9 and 10.

- The wheel bearings (34) 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 7
- Monthly, apply some light machine oil on the locking pins (7) and into the slots of the block (5).

Recertification and Repairs

WTI highly recommends yearly recertification of all rigging sheaves, hanger bars, and clevis pins. Most wireline servicing companies mandate annual recertifications, so this should not be overlooked. The info label on the front plate, shown in Figure 9, provides a visible place to stamp certification dates. When a new sheave is placed into service, stamp the current date into this label. 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 label. Upon completion of a repair or recertification, note the information in the log in the back of this manual. Recertification 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.

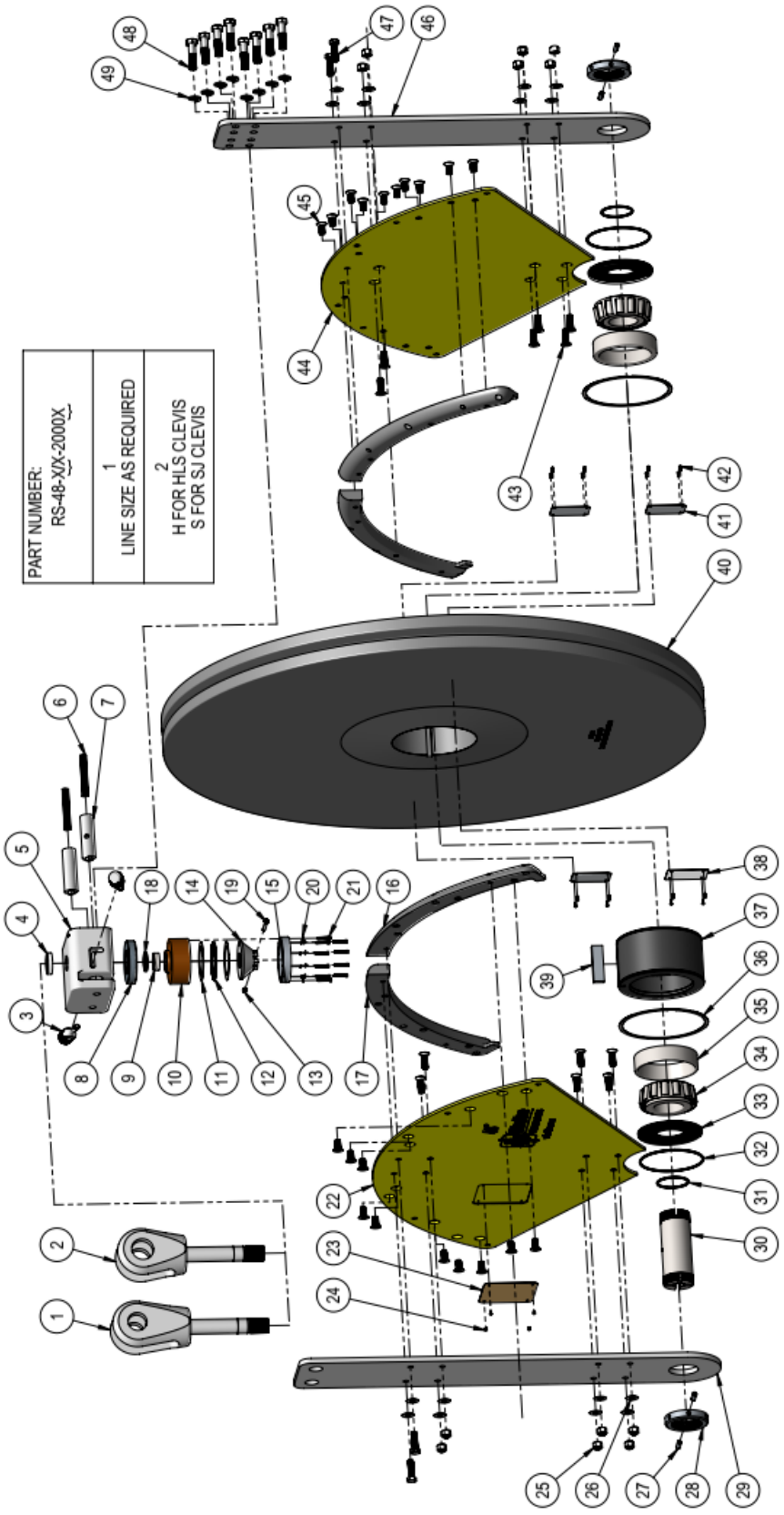
9. Pre-loading the bearings.
10. Documentation of all changes.
11. Final Inspection.
12. Issuance of a new certification.

Inspection Tag
Figure 9

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

- Send the device to Wireline Technologies, Inc. Please call to make arrangements.
- Send the device 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 10 on page 9, to identify parts. The numbers in the circles correspond to the item numbers in Table 1 on page 10.



48" Rigging sheaves
Figure 10.

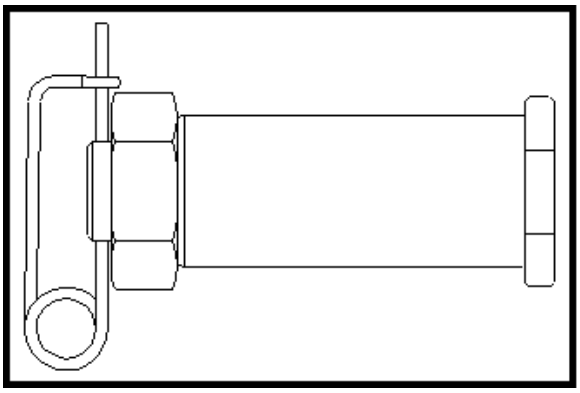
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	RS-48-1552	CLEVIS - HALLIBURTON	1
2	RS-48-1652	CLEVIS - SCHLUMBERGER	1
3	RS-48-1006	HANDLE	2
4	RS-48-1020	WASHER 1-1/4" X 0.400" THK.	1
5	RS-48-1028	BLOCK	1
6	RS-48-1007	SPRING	2
7	RS-48-1005	LOCKING PIN	2
8	RS-48-1118	SPACER FOR 48" SHEAVE	1
9	RS-48-1056	NEEDLE ROLLER BEARING	1
10	RS-48-1053	CLEVIS HOUSING	1
11	RS-36-1058	THRUST WASHER	2
12	RS-36-1059	THRUST BEARING	1
13	RS-1087	NYLON INSERT LOCKNUT 10-24	1
14	RS-48-1055	CLEVIS NUT	1
15	RS-36-1050	HOUSING CAP	1
16	RS-48-1046R	RIGHT SHROUD	2
17	RS-48-1046L	LEFT SHROUD	2
18	RS-48-1057	BEARING SEAL CR-13529	1
19	RS-36-1078	HEX SOC. SHOULDER SC. 1/4" X 2"	1
20	RS-36-1067	SPLIT LOCK WASHER #8	10
21	RS-36-1068	SOC. HD. CAP SC. #8-32 X 1 1/8"	10
22	RS-48-1033	48" FRONT PLATE	1
23	RS-48-1780	GENERAL WARNING & INSPECTION LABEL, 48" GOLD (60K)	1
24	RS-1271	DRIVE SCREW #6 X 3/16"	4
25	SB-138	NYLOC NUT 1/2"-13	12

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
26	SB-137	7/16" FLAT WASHER	16
27	RS-36-1072	SPIRAL PIN 3/8" X 1 1/2"	4
28	RS-48-1111-A	AXLE NUT 48" (60K)	2
29	RS-48-1124	GATE STRAP 48" (60K)	1
30	RS-48-1109	AXLE SHAFT 48" (60K)	1
31	RS-14/17-1048	O-RING OUTER - 14"/17"	2
32	RS-48-1148	O-RING #256	2
33	RS-48-1107	O-RING SEAT	2
34	RS-48-1184	BEARING CONE	2
35	RS-48-1183	BEARING CUP	2
36	RS-48-1112	RETAINING RING, 48" (60K)	2
37	RS-48-1145	8" HUB 48" (60K)	1
38	RS-1077	MANUFACTURING LABEL	1
39	RS-36-1110	KEY	1
40	RS-48-1108-XX	48" WHEEL (XX = GROOVE)	1
41	G2-180	REFLECTOR	3
42	RS-1071	DRIVE SCREW #6 X 3/8"	16
43	RS-48-1040	FLAT HD. CAP SC. 1/2"-13 X 1.5"	12
44	RS-48-1030	48" REAR PLATE	1
45	G2-36-109	FLAT HD. CAP SC. 1/2"-13 X 1"	20
46	RS-48-1129	FRAME STRAP 48" (60K)	1
47	RS-48-1044	HEX HD. CAP SC. 1/2"-13 X 1.75"	4
48	RS-48-1034	HEX HD. CAP SC. 5/8"-18 X 2.5"	8
49	RS-48-1036	SPLIT LOCK WASHER 5/8"	8

Bill of Material
Table 1

Clevis Pin

Two pins are approved for attachment to the clevis. Clevis Pin Kit – 36 SJ, shown in Figure 11, is 2" in diameter and is rated for 75000 lbs SWL. Another pin, LLP-400 with an integrated locking mechanism, is 1.75" in diameter and is rated for 60,000 lbs is available for use with Clevis-HLS, shown in Figure 12. The pins are manufactured from precipitation-hardened, high-strength, stainless steel alloy. These clevis pins are load-bearing and should be re-certified annually with the rigging sheave.



Clevis Pin Kit – 36 SJ Part # RS-36-1199
Figure 11

Clevis Pin Kit HAL Part# LLP-400
Figure 12

Instructions for Use for RS-36-1199

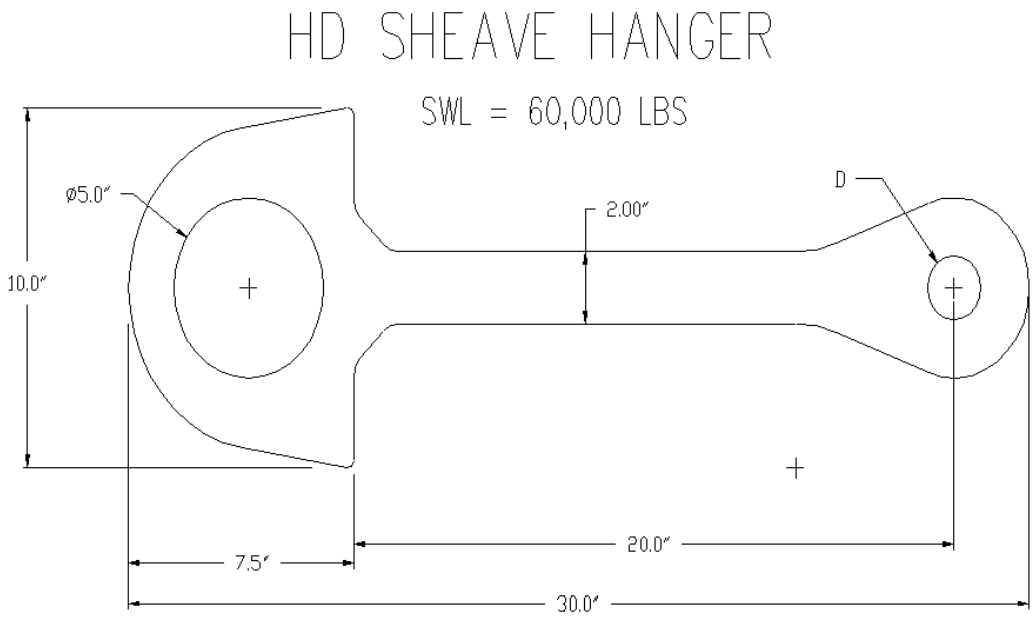
1. Insert the pin through the clevis and the hanger bar or chain to be attached.
2. Thread the nut onto the end of the pin.
3. Install the safety clip through the hole in the end of the pin and lock it in place.

Instructions for Use for LLP-400

1. Insert the pin through the clevis and the hanger bar or chain to be attached.
2. Rotate the hinge plate perpendicular to the pin.
3. Install the safety clip through the hole in the end of the pin and lock it in place.
4. To uninstall, remove the safety clip, push the hinge plate on the rounded end, and rotate it parallel to the length of the pin.
5. Remove the pin out of the clevis.

Sheave Hanger

The sheave hanger or hanger bar hangs from a crown block or elevator and provides a place to attach a rigging sheave. See Figure 13. Part # SH-36-100 has a hole (D) that is 2.06" and fits the 48" SJ clevis. Part # SH-36-400 has a hole (D) that is 1.83" and fits the 48" HLS clevis. Part # SH-36-300 has a hole (D) that is 2.06" and fits the SJ clevis but is 14" wide for use in large elevators. All three of these sheave hangers are load bearing components and should be re-certified annually.



Hanger Bar
Figure 13

Instructions for Use for Sheave Hanger

1. Install the hanger bar in a safe position.
2. Line the holes in the clevis up with the hole in the end of the hanger bar.
3. Insert an approved pin, shown on page 11, through the holes.
4. Properly lock the pin in place.

Hand Guard

Perhaps the most important accessory to a rigging sheave is the hand guard. The hand guard 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. 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 a split bushing and slotted block so it installs quickly. See Figure 15 on page 16. The part number is HGG2-HD-100 and it fits 32", 36", and 48" HD sheaves.

Instructions for Use

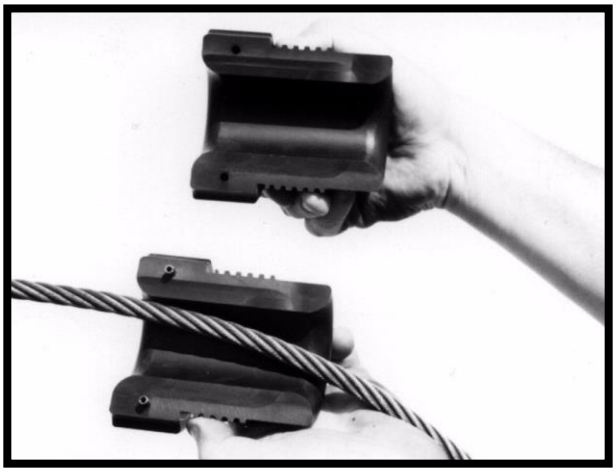
1. Remove the split bushings by unthreading them from the block.
2. Install the hand guard around the side plates of the sheave so the holes in the plates line up with the holes in the hand guard.
3. Insert the ball-lock pins through the holes. See Figure 16 on page 16.
4. Make sure the balls of the ball-lock pin are locked into place. See Figure 17 on page 16.
5. Pull the bushing apart, then re-assemble them around the wireline.
6. Thread the bushings back into the block of the hand guard.

Maintenance

◊ Replace the split bushings if the holes wear close to the threads.

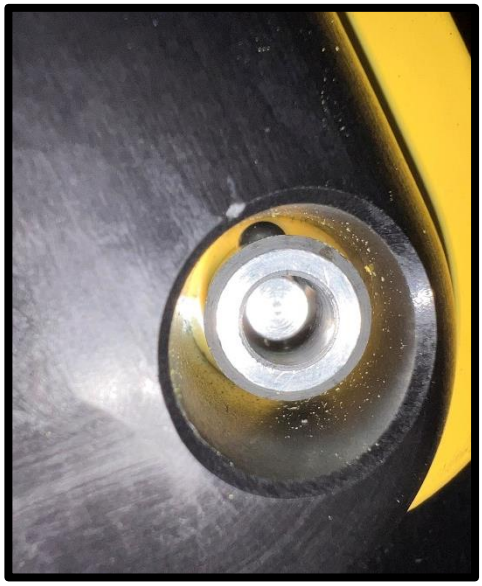
◊ Lubricate the ball-lock pins with light machine oil to keep the balls moving freely.

Hand Guard, Part # HGG2-HD-100
Figure 14



Split Busings
Figure 15

Properly Installed Pin
Figure 16



Locked Balls
Figure 17

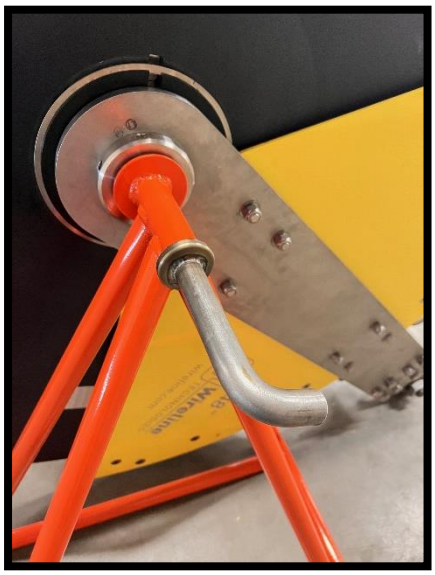
Floor Stand

The floor stand is used to keep the sheave upright and in position when the line is slack. Figure 18 shows a sheave mounted in a floor stand. A floor stand can be used with a hand guard. This floor stand, made for 32", 36" and 48" HD sheaves.

Instructions for Use

1. Hosit the sheave using the clevis.
2. Retract the pivot pin far enough to lower the sheave into the floor stand.
3. Lower the sheave into the floor stand, aligning the holes in the floor stand with the hole through the sheave's axle.
4. Install the pivot pin through the holes in both the floor stand and the sheave until fully engaged against the collar of the pin. See Figure 19.
5. Install the safety clip through the hole at the pin's end and lock it in place. See Figure 21.
6. Load the line onto the sheave wheel as described on page 5.
7. Ensure that the sheave is securely attached to the floor stand by lifting the sheave using the clevis as the primary lifting point. See Figure 20.

48” Floor Stand (Part Number FS-36-100)
Figure 18



Pivot Pin
Figure 19

Attaching the Floor Stand
Figure 20

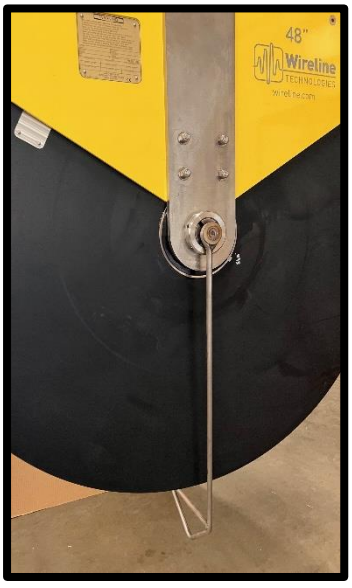
Properly Locked
Figure 21

Rig-up Yoke

The rig-up yoke is used to carry the sheave and to stabilize it when in use. Figure 22 shows the yoke installed on a sheave. The yoke can also be used to stabilize a sheave when it is running. Never use it to anchor the sheave or apply load through it. It is designed to carry the weight of the sheave or stabilize it only.

Instructions for Use

1. Install the yoke on either side of the sheave so the holes line up with the hole in the axle shaft.
2. Insert the pivot pin through the holes and out the other side of the yoke.
3. Install the retaining nut, install the cotter pin through the hole in the pivot pin, and lock it in place by bending the ears. See Figure 23 on page 19.
4. Secure the yoke to hold the sheave in the desired position.



Rig-Up Yoke, Part # RY-48-100
Figure 22

Properly locked Pivot Pin
Figure 23

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. Keep it aligned with the wireline.
- Never pull on the rig-up yoke harder than is required to hold the sheave in position.

Recertification and Repair Log   Serial Number_____

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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 48" rigging 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

This equipment complies with the essential requirements of The European Union Machinery Directive 2006/42/EC.

Brian Mace (Q.A. Manager)

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