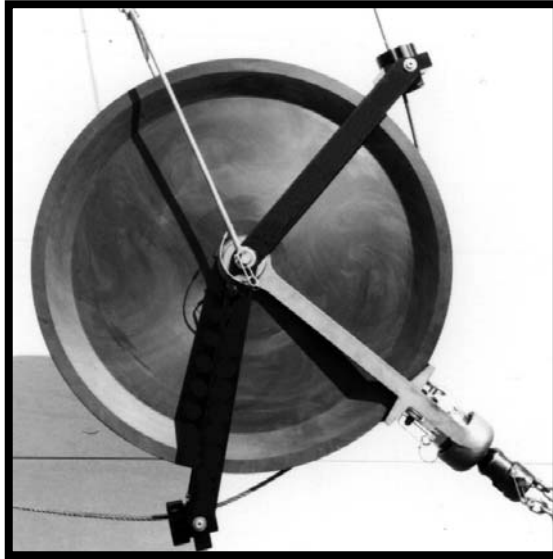


OPERATION MANUAL

32" and 36" Heavy Duty Rigging Sheaves

Manufactured by Wireline Technologies, Inc.



Serial Number _____

Introduction

This manual explains the use and care of 36” rigging sheaves manufactured by Wireline Technologies, Inc. Please read and become familiar with all of the information in this manual before using this equipment.

Features

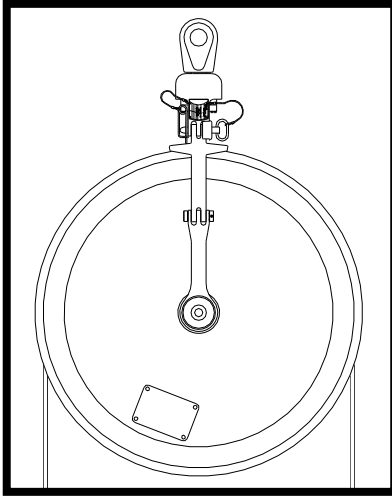
- ⇒ 18” bend radius for less wireline bend damage.
- ⇒ High load capacity of 40,000 lbs.
- ⇒ Sealed bearings for long maintenance-free operation.
- ⇒ Corrosion Resistant Materials
- ⇒ Non-spoked wheel for safer operation.

! 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 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.

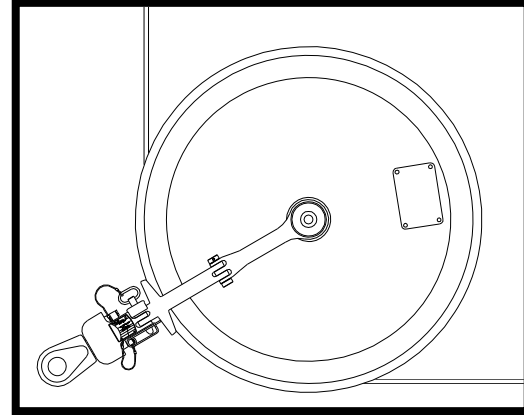
Safe Working Load

The rated safe working load (SWL) for a WTI 32" or 36" sheave is 40,000 lbs. (18,140 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 1. If the sheave is used as a bottom sheave, it deflects the line 90°, see figure 2. 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
20,000 lbs (9,070 kg)

Safe Line Tension for 180-Degree Deflection
Figure 1

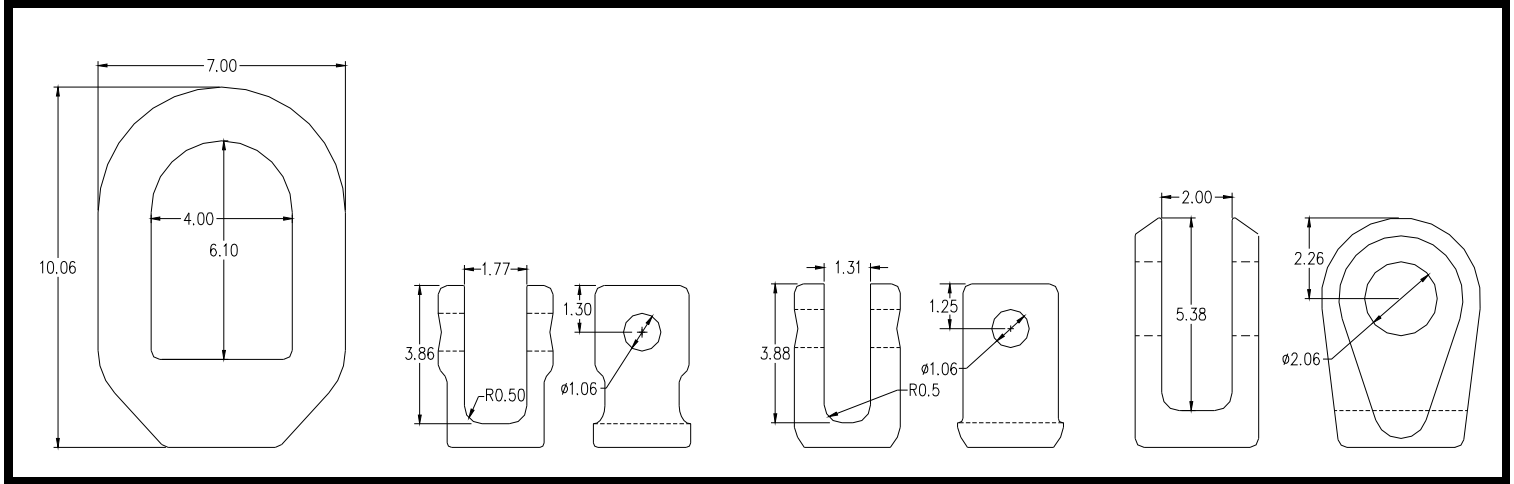


Bottom Sheave
Max. Line Tension 28,280 lbs (12,820 kg)

Safe Line Tension for 90-Degree Deflection
Figure 2

Clevis Options

Five clevis swivel assembly options for suspending/anchoring the sheave are available: These options are shown in figures 3 – 6 below. The Clevis-Eye has an opening about 4" X 6" for a chain or shackle. The opening width of the Clevis-Atlas is 1 3/4" with a hole for a 1" pin. The opening width of the Clevis-Halliburton is 1.3" with a hole for a 1" pin. The opening width of the Clevis-Schlumberger is 2" with a hole for a 2" pin.



Clevis-Eye
Part # RS-36-1352
Figure 3

Clevis-Atlas
Part # RS-36-1252
Figure 4

Clevis-Halliburton
Part # RS-36-1552
Figure 5

Clevis-Schlumberger
Part # RS-36-1652
Figure 6

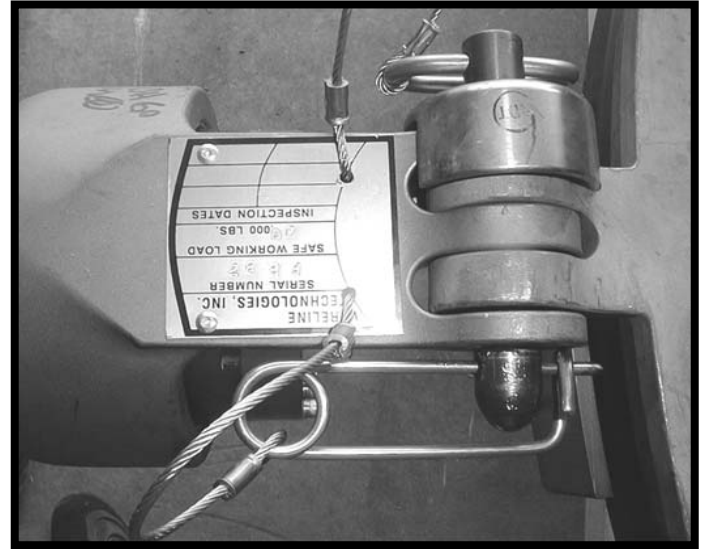
Loading

The numbers listed refer to figure 10 and table 1 on pages 7 and 8.

1. Remove safety clip (8).
2. Remove the gate pin (7).
3. Open the loading gate (4).
4. Load line into groove of wheel (32). See figure 7.
5. Close the loading gate, aligning its holes with the holes in the frame (3).
6. Install the gate pin through the holes.
7. Replace the safety clip making sure the hooked end is clipped over the straight end. See figure 8.



Properly Loaded Line
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 7 and 8.

- ❑ All structural components (1,3,4,6,7,25,32, 44) are not bent, cracked, or otherwise damaged.
- ❑ Loading gate (4) hinges freely through the fingers in the frame (3).
- ❑ Gate pin (7) can be easily inserted through the holes in the frame (3) and is securely attached with a lanyard (9).
- ❑ Manufacturing tag (35) is in place and readable.
- ❑ Inspection tag (37) is in place and stamped with an inspection date no greater than one year old.
- ❑ Spiral pins (24) are in place and securely retain the axle nuts (23,34) on the axle (25).
- ❑ Wheel (32) rotates freely and smoothly, check for any grinding or sticking, indicating damaged bearings.
- ❑ Gate pin (7) and safety clip (8) are undamaged, lock positively, and are securely attached with lanyards (9).
- ❑ Clevis (1) pivots freely and does not have excessive slop (more than 1/4" axially or 1/8" radially).
- ❑ All 10 cap screws (22) and lock-washers (21) are tightly in place.
- ❑ Bushing (2) is in place and undamaged.
- ❑ All four nuts (46) are secure.

Preventative Maintenance

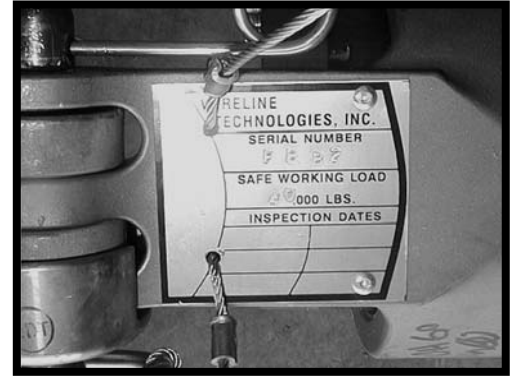
WTI suggests the following service. Numbers listed refer to figure 10 and table 1 on pages 7 and 8.

- ❑ The wheel bearings (11) 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 6.
- ❑ Monthly, squirt some light machine oil on the hinge pin (5) (between the fingers of the gate frame (6) and the loading gate (4), and onto the gate pin (7).

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. A tag on the front of the frame, 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 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.

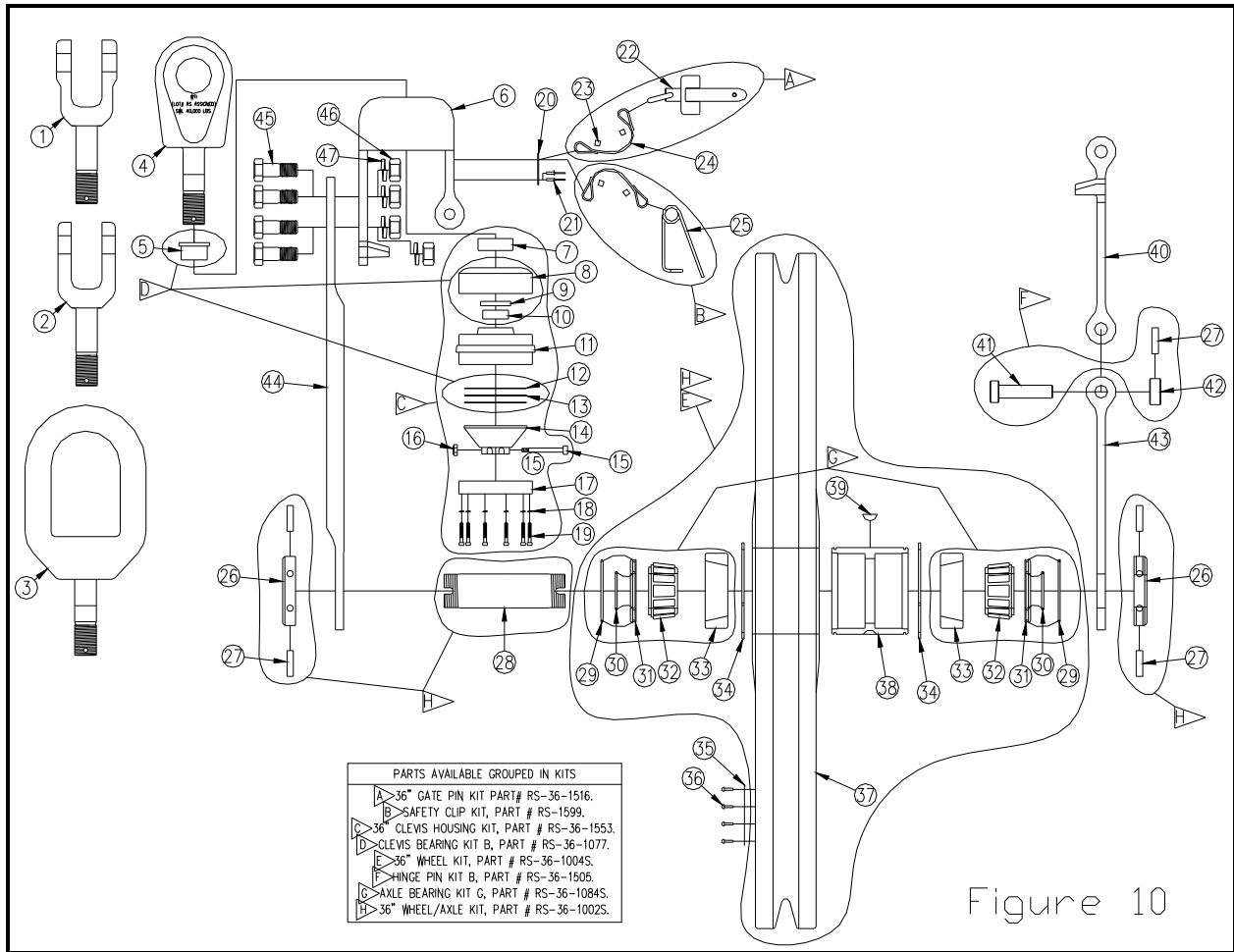


Inspection Tag
Figure 9

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 10 on page 7 to identify parts. The numbers in the circles correspond to the item numbers in table 1 on page 8.

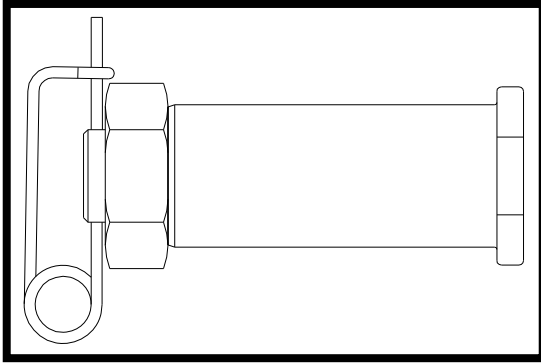


ITE M	PART NUMBER	DESCRIPTION	QTY	MATERIAL	ITE M	PART NUMBER	DESCRIPTION	QTY	MATERIAL
1	RS-36-1252	CLEVIS - ATLAS	1	17-4PH S/S	26	RS-36-1011-A	AXLE NUT - ADJUSTABLE	2	303 S/S
2	RS-36-1552	CLEVIS - HALLIBURTON	1	17-4PH S/S	27	RS-36-1072	SPIRAL PIN 3/8" X 1.5"	5	420 S/S
3	RS-36-1352	CLEVIS - EYE	1	ASSEMBLY	28	RS-36-1009	AXLE SHAFT	1	17-4PH S/S
4	RS-36-1652	CLEVIS - SCHLUMBERGER	1	17-4PH S/S	29	RS-36-1048	O-RING #243	2	BUNA-N
5	RS-36-1020	FLANGED BUSHING	1	NYLUBE	30	RS-36-1049	O-RING #226	2	BUNA-N
6	RS-32/36-1028M	FRAME CUP- 32" and 36"	1	17-4PH S/S	31	RS-36-1007	O-RING SEAT	2	6061-T6
7	RS-1019	CLEVIS RING	1	303 S/S	32	RS-36-1084	BEARING CONE	2	ALLOY STEEL
8	RS-36-1018	SHOCK CUSHION	1	BUNA-N	33	RS-36-1083	BEARING CUP	2	ALLOY STEEL
9	RS-36-1057	BEARING SEAL	1	BUNA-N	34	RS-26-1012	RETAINING RING 5" EXT	2	SPRING STEEL
10	RS-36-1056	NEEDLE ROLLER BEARING	1	ALLOY STEEL	35	RS-36-1077	MANUFACTURING LABEL	1	LAM. PAPER
11	RS-36-1053	CLEVIS HOUSING	1	17-4PH S/S	36	RS-1071	DRIVE SCREW 1/8" X 3/8"	4	18-8 S/S
12	RS-36-1058	THRUST WASHER	2	ALLOY STEEL	37	RS-32-1008-XX	WHEEL - 32" (XX-DENOTES GROOVE)	1	NYLON W/ MoS2
13	RS-36-1059	THRUST BEARING	1	ALLOY STEEL	or	RS-36-1008-XX	WHEEL - 36" (XX-DENOTES GROOVE)	1	NYLON W/ MoS2
14	RS-36-1055	CLEVIS NUT	1	17-4PH S/S	38	RS-36-1045	HUB	1	6061-T6
15	RS-36-1078	HEX SOC. SHOULDER SC. 1/4" X 2"	1	ALLOY STEEL	39	RS-1010	WOODRUF KEY #807	1	316 S/S
16	RS-36-1074	NYLON INSERT LOCKNUT #10-24	1	GR. 2 ZINC	40	RS-36-1025-M	LOADING GATE - 36"	1	17-4PH S/S
17	RS-36-1050	HOUSING CAP	1	303 S/S	41	RS-36-1005	HINGE PIN - 36"	1	17-4PH S/S
18	RS-36-1067	SPLIT LOCK WASHER #8	10	316 S/S	42	RS-36-1006	HINGE COLLAR - 36"	1	303 S/S
19	RS-36-1068	SOC. HD. CAP SCREW #8-32 X 1.13"	10	18-8 S/S	43	RS-32-1024-M	GATE FRAME - 32"	1	17-4PH S/S
20	RS-1179	WTI INSPECTION LABEL	1	AL	or	RS-36-1024-M	GATE FRAME - 36"	1	17-4PH S/S
or	RS-1079	ATLAS INSPECTION LABEL	1	AL	44	RS-36-1029	FRAME STRAP - 36"	1	17-4PH S/S
21	RS-1090	RIVET 1/8" X 1/2"	2	AL	or	RS-32-1029	FRAME STRAP - 32"	1	17-4PH S/S
22	RS-36-1216	GATE PIN	1	17-4PH S/S	45	RS-32/36-1034	BOLT	4	17-4PH S/S
23	RS-1032	LOOP FERULES 3/32"	4	COPPER	46	RS-32/36-1035	TOP LOCK NUT 3/4-16 UNF	4	18-8 S/S
24	RS-1031	LANYARD 3/32"	2	18-8 S/S	47	RS-32/36-1036	SPLIT LOCK WASHER - 3/4"	4	18-8 S/S
25	RS-1399	SAFETY CLIP	1	18-8 S/S					

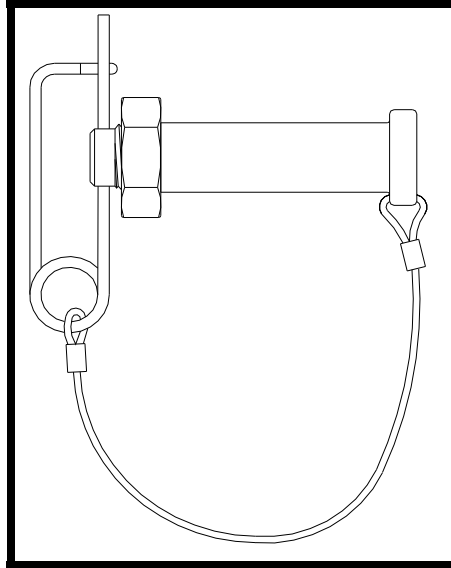
Table 1. Bill of Materials

Clevis Pin

Two pins are approved for attachment to a clevis. Clevis Pin Kit – 36 SJ, shown in figure 11, is 2” in diameter and is to be used with Clevis-Schlumberger. Clevis Pin Kit, shown in figure 12, is 1” in diameter and is to be used with Clevis-Atlas or Clevis-Halliburton. Both of these 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



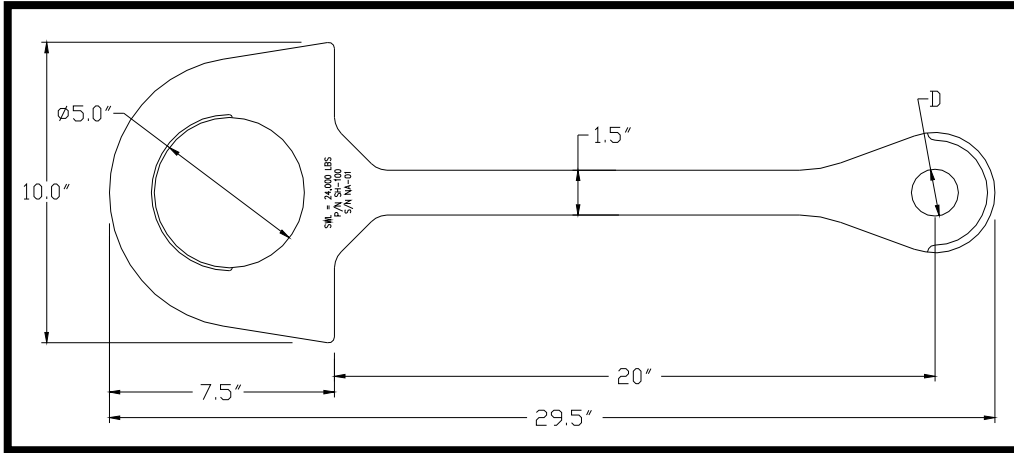
Clevis Pin Kit
Part # RS-1899
Figure 12

Instructions for Use

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.

Hanger Bar

The hanger bar hangs from a crown block or elevator and provides a place to attach the rigging sheave. See figure 13. For use with Clevis-Schlumberger, order Part # SH-36-100, the hole (D) is 2.06". For use with Clevis-Atlas or Clevis-Halliburton, order Part # SH-200, the hole (D) is 1.06". The hanger bar is load bearing and should be re-certified annually with the rigging sheave.



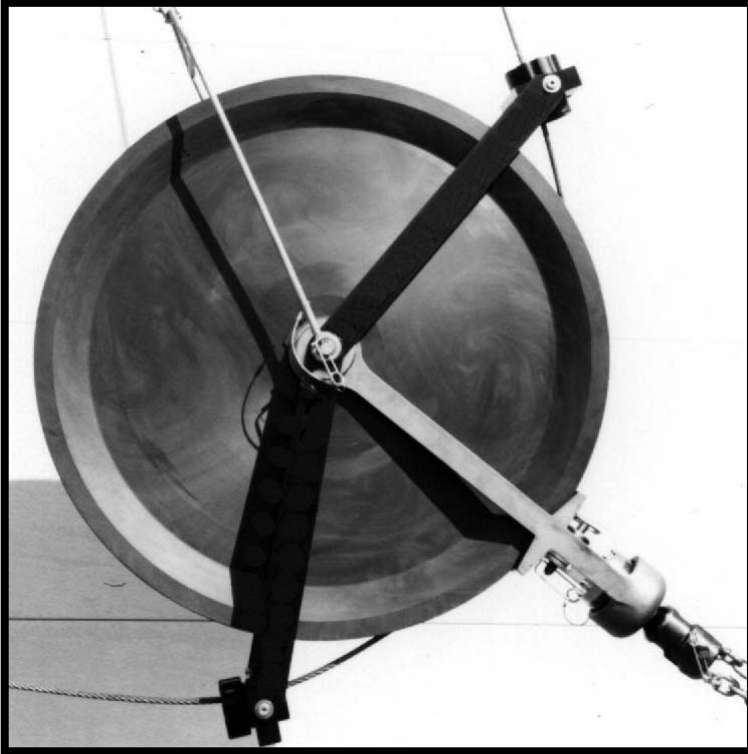
Hanger Bar, Figure 13

Instructions for Use

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 9, 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 split bushings and slotted blocks so it installs quickly and can be left in place when the sheave is not in use. See figure 15 on page 12.



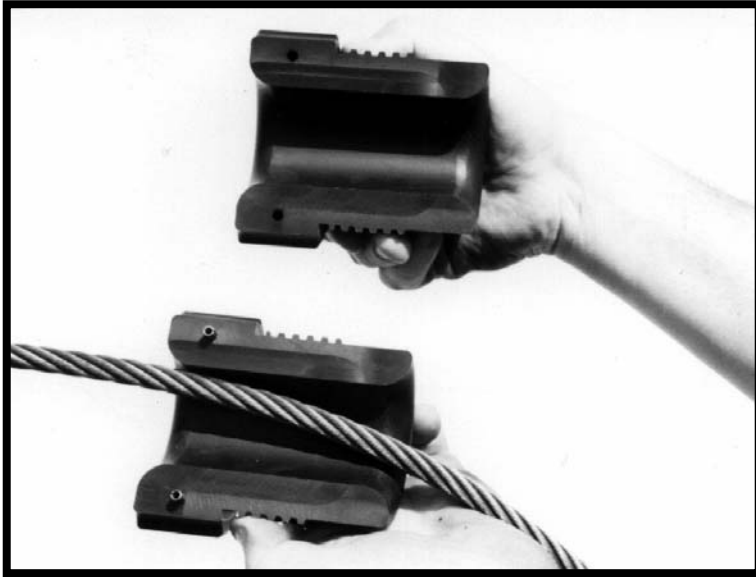
Instructions for Use

1. Remove the split bushings by unthreading them from the blocks.
2. Install the arms on either side of the sheave so the holes in the hinges line up with the holes in the axle shaft.
3. Insert the pivot pin through one of the hinges, then the axle, and then the other hinge.
4. Thread the slotted nut onto the end of the pivot pin.
5. Install the safety clip through the hole in the pivot pin and lock it in place. See figure 16 on page 12.
6. Pull the bushing apart then re-assemble them around the wireline. See figure 15 on page 12.
7. Thread the bushings back into the blocks.

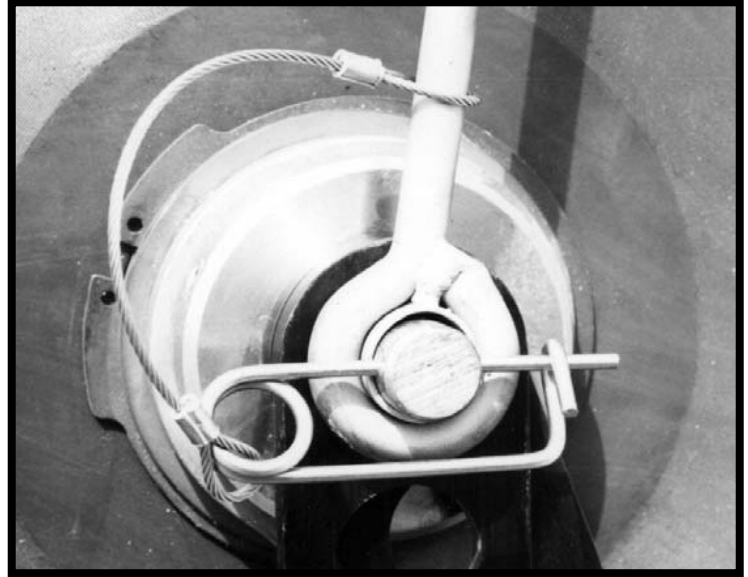
Maintenance

- ◇ Replace the split bushings if the holes wear close to the threads.
- ◇ Lubricate the hinges with light machine oil to keep them moving freely.

Hand Guard, Part # HG-36-100
Figure 14



Split Bushing
Figure 15



Properly Locked Pivot Pin
Figure 16

Floor Stand

The floor stand is used to keep the sheave upright and in position when the line is slack. Figure 17 shows a sheave mounted in a floor stand. A floor stand can be used with a hand guard. This floor stand, made for 32" and 36" sheaves, is heavy duty and is hinged so line can be loaded into the sheave after the floor stand has been attached. See figure 18.



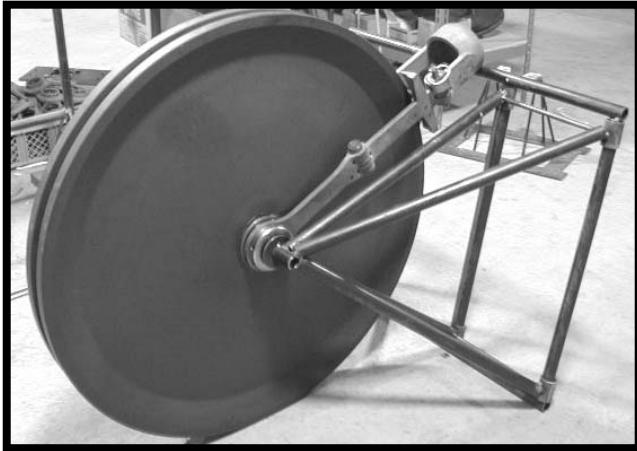
32"/36" Floor Stand
Part Number FS-36-100
Figure 17



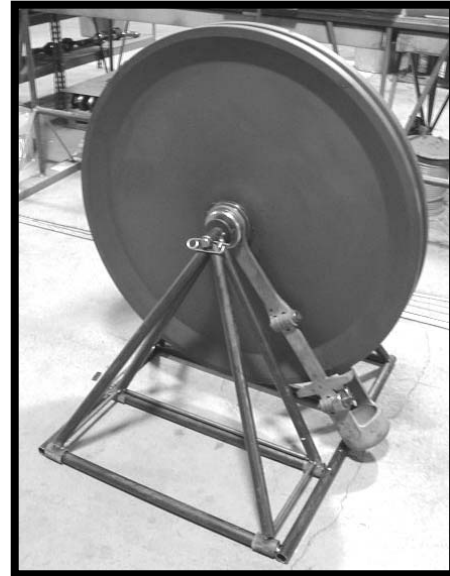
Hinged Gate
Figure 18

Instructions for Use

1. Stand the sheave on edge.
2. Place the floor stand around the wheel with the hinged gate and sheave's gate on the same side. See figure 19.
3. Align the holes in the floor stand with the hole through the sheave's axle.
4. Install the pivot pin through the holes.
5. Tip the floor stand upright.
6. Retract the pivot pin far enough to release the hinged side of the floor stand.
7. Open the hinged side of the floor stand. See figure 18.
8. Load the line onto the sheave wheel and secure the loading gate as described on page 4.
9. Close the hinged side of the floor stand and push the pivot pin through from the other side.
10. Install the safety clip through the hole in the end of the pin and lock it in place. See figure 20.



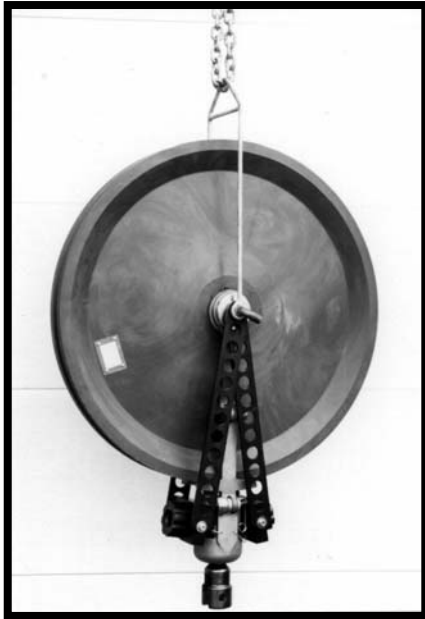
Attaching the Floor Stand
Figure 19



Properly
Locked
Figure 20

Rig-up Yoke

The rig-up yoke is used to carry the sheave and to stabilize it when in use. Figure 21 shows the yoke being used to carry the sheave. Figure 14 on page 11 shows the yoke being used to stabilize it 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 only and can be used with or without a hand guard



Rig-Up Yoke, Part # RY-36-100
Figure 21

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. When used with a hand guard, position the hand guard arms inside of the rig-up yoke.
2. Insert the pivot pin through the holes and out the other side of the yoke.
3. Install the safety clip through the hole in the pivot pin and lock it in place. See figure 16 on page 12.
4. Secure the yoke to hold the sheave in the desired position.

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.

Warranty

For a period of one year from the date of purchase, Wireline Technologies, Inc., will repair or replace, at its option, any 32” or 36” 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.

Recertification and Repair Log

Serial Number _____

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