



**PIERCE**

PULLING FOR YOU

**Owner's Manual:**  
PSHV SERIES WINCHES



# PSHV Series Winch Owner's Manual

The PHVS series winch is a powerful tool and must be used with extreme care. Deviating from the manual's instructions may cause personal injury. You may lose your warranty if you do not follow the precautions and guidelines outlined in this manual. Keep this manual in a safe place to reference safety and installation instructions, maintenance guidelines and operating recommendations. The owner, operator and installer must read the entire owner manual before operating the winch.

## Manual Contents

Shipment Contents.....	3
Safety Precautions.....	3
General Safety Information.....	3-4
Installation Instructions.....	4
Mounting.....	4
Operation.....	4
Maintenance.....	4
Specifications.....	5
Operation Recommendations.....	5
Parts Diagram .....	6-9
Warranty .....	12

## Shipment Contents

- 1 – Winch
- 8 – Bolts
- 8 – Lock Washers
- 1 – Owner's Manual

## Recommended Tools

- 3/4" Wrench or Socket
- 13/16" Wrench or Socket
- 15/16" Wrench or Socket
- Crowbar
- Gloves
- Safety Glasses
- Tree Saver Strap
- Safety Cut Off Switch
- First Aid Kit
- Bow Shackles
- Chains or Straps
- Wheel Blocks or Choks
- Heavy Blanket

## Safety Precautions

### DRESS PROPERLY

- DO NOT wear loose fitting clothing or jewelry.
- Tie back long hair.
- Wear leather gloves when handling the wire rope.
- Wear non-skid footwear during winch operation.
- Wear eye and ear protection during operation.

### KEEP A SAFE DISTANCE

- DO NOT step over or under the wire rope.
- All onlookers must keep away from the work area.
- Never work on or around the winch drum when the winch is operating.
- DO NOT alter your winch in any way. Alterations may weaken the structural integrity of the winch and void your warranty.
- Operate your winch with an unobstructed view.
- Read the following safety information carefully before attempting to operate your winch. Keep this manual for future reference.

## General Safety Information

### DO NOT MISUSE YOUR WINCH

- DO NOT lift items vertically. The winch was designed for horizontal use only.
- **DO NOT operate the winch with less than eight wraps on the drum. The set screw on the drum is not designed to hold pull force of cable.**
- **DO NOT use as to hold or secure a load. The winch is not to be used as a tie down.**
- Avoid continuous pulls from extreme angles. This will cause the wire rope to jam as it piles up on one side.
- Use a nylon sling when winching. Hooking the wire rope to itself will cause considerable damage to the wire rope.
- DO NOT move your vehicle to assist the winch in pulling the load. The combination of the winch and vehicle pulling could overload the wire rope and winch.
- Never release the free spool clutch when a load is connected to the winch.
- DO NOT exceed the pulling limitations of this winch.
- DO NOT shock loads when winching. A shock load occurs when increased force is suddenly applied to the wire rope.
- DO NOT use your winch as a hoist.
- DO NOT use your winch to lift, support or transport people.
- DO NOT alter the warning instruction labels.
- DO NOT overheat your winch. Use your winch intermittently.
- Only use your winch for direct winching. Do not use your winch for jerking loads, towing or securing a load. Any damage incurred as a result of such action will void the warranty.
- DO NOT winch near electrical power lines.

### DO NOT ABUSE THE WIRE ROPE

- Never carry your winch by the wire rope.
- Never yank the wire rope from the winch.
- Keep the wire rope from heat or sharp edges.
- **The cable must be spooled from the bottom of the drum.**

### DO NOT OVERWORK YOUR WINCH

- DO NOT maintain power if the motor stalls.
- DO NOT exceed maximum line pull ratings.
- DO NOT overload your winch's pulling capacity. We recommend the use of a pulley block to double line the wire rope on heavy loads.

## AVOID UNINTENTIONAL STARTING

- The winch clutch must be disengaged when not in use and fully engaged when in use.

## MAINTAIN YOUR WINCH

- Before use, you must check your winch carefully.
- Damaged equipment must be properly repaired or replaced by the manufacturer or an authorized service center.
- Inspect and maintain the wire rope and winch frequently.
- Replace frayed rope strands immediately.
- Use only factory approved switches, remote controls and accessories.
- Check the tightness of the mounting bolts and electrical connections periodically.

## RE-SPOOL THE WIRE ROPE

- Wear leather gloves while re-spooling.
- ATTENTION: DO NOT allow the wire rope thread through your hand.
- Keep a slight load on the wire rope while re-spooling. Hold the wire rope with one gloved hand and the remote control in the other.

# Installation

## MOUNTING

- Before installation ensure the mounting frame in use is capable of withstanding the winch's rated capacity.
- Ensure the motor, wire rope, drum and gear housing is properly aligned.
- Winch shall be mounted on a flat and hard surface.
- Winch should be mounted as closed to center and as perpendicular as possible to the direction of the line pull.
- Wire rope shall be wound in an under-wound orientation only.
- Use the following high tensile G8 steel bolts:
  - PSHV10000 - Eight (8) 1/2 - 13
  - PSHV15000 - Eight (8) 9/16 - 12
  - PSHV18000 - Eight (8) 9/16 - 12
  - PSHV20000 - Eight (8) 5/8 - 11
  - It is always preferred to use both tie bars in the final installed configuration.
- Mount the roller guide in front of the winch. Do not attach the roller guide to the winch.
- **The cable must be spooled from the bottom of the drum.**

## HYDRAULIC CONNECTIONS

- 2x male JIC fittings on the motor (8MJIC)

## WIRE ROPE PREPARATION

NOTE: The first use of your winch must be a test run during a non-recovery situation. During this trial run begin to recognize the sound of a steady pull, a heavy pull, load jerking or shifting.

- Spool the wire rope
- Wear leather gloves while spooling. ATTENTION: DO NOT allow the wire rope thread through your hand.
- Unwind the wire rope carefully along the floor to avoid kinking.
- Place the end of the wire rope in to the hole on the side of the drum. The wire rope will protrude 1/2" - 1". Tighten the set screw.
- Keep a slight load on the wire rope while spooling.
- Using the remote control, wrap the wire rope on to the drum until the load is recovered. During operation, make sure the wire rope lays smoothly on to the drum without spacing or overlapping.
- Spool the wire rope until the red mark appears at five wraps.
- Under a load of 500 lbs (230 kg) re-spool the wire rope.
- This will stretch the new wore rope and create a tight wrap around the drum.
- If there is a rope pileup on one end of the drum, reverse the winch to relieve the load and move your anchor point further to the center of the vehicle. Then you can rewind for a neat layer of the rope.

## OPERATION

- Apply the parking brake or lock the wheels.
- While the clutch is in the OUT position spool the winch cable and connect to an anchor point.
- Check cable rigging before proceeding.
- Plug in the winch remote control.
- Engage the clutch by shifting it into the IN position. NOTE: When the clutch is engaged your load may begin to drift until the remote is used to recover your load. To ensure safe operation, it is recommended that winch operation take place from the driver's position.
- Start vehicle engine, select neutral or park and maintain idle engine speed.
- Using the remote control, press IN or OUT until the vehicle has been retrieved. Regularly check the winch to ensure the cable is winding onto the drum evenly. It is recommended you secure the load using chains or straps at this point.
- Detach the load.
- Re-spool the wire rope after the winch operation is completed.

# Maintenance

It is highly recommended that you regularly use your winch. Simply power the cable out 15 feet, free spool five feet and power in. This will keep all components in good condition so that the winch can be ready when needed. Contact the manufacturer or authorized outlet for technical assistance and repairs.

## LUBRICATION

1. The gearbox has been lubricated using high temperature lithium grease at the factory. No internal lubrication is required.
2. Lubricate cable periodically using light penetrating oil. Inspect for broken or worn strands and replace if necessary.

## ROPE

1. Use aircraft grade cable or approved and rated synthetic rope.
1. The life of the rope is directly related to the use and care it receives.
2. Replace damaged or frayed rope with manufacturer's identical replacement part.
3. Be sure the rope is in good condition and is properly attached.
4. DO NOT use the winch if the rope is frayed.
5. DO NOT replace the cable with a cable of lesser strength.
6. When the rope is replaced, apply Loctite 7471 primer or 222 Threadlocker to the wire rope clamp to prevent the loosening of the screw.

## SPARE PARTS

1. A comprehensive range of spare parts is available.
2. DO NOT attempt to disassemble the gearbox. Disassembly may void the warranty.

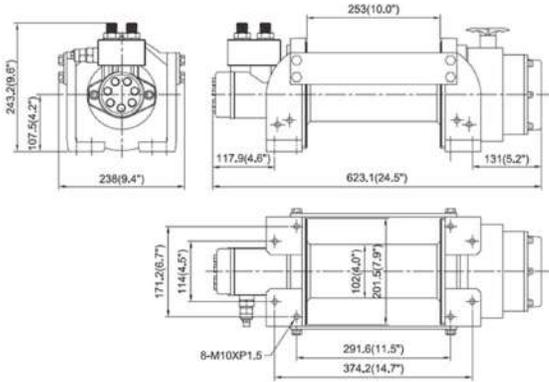
## PIERCE PSHV WINCH SERIES SPECIFICATIONS



	<b>PSHV10000</b>	<b>PSHV15000</b>	<b>PSHV18000</b>	<b>PSHV20000</b>
Rated line pull	10,000 lb.	15,000 lb.	18,000 lb.	20,000 lb.
Line speed	46 fpm at 15.9 gpm	30 fpm at 15.9 gpm	23 fpm at 15.9 gpm	7.1 fpm at 15.9 gpm
Operation pressure	2,175 psi	2,175 psi	2,175 psi	2,175 psi
Max oil flow	15.9 gpm	15.9 gpm	15.9 gpm	15.9 gpm
Hydraulic motor	5.9 in3 / rev	7.6 in3 / rev	9.5 in3 / rev	9.5 in3 / rev Danfoss OMP-160
Gear ratio	2-stage planetary gear 16:1	2-stage planetary gear 16:1	2-stage planetary gear 16:1	2-stage planetary gear 30:1
Winch construction	Aluminum die cast housings with steel drum	Aluminum die cast housings with steel drum	Aluminum die cast housings with steel drum	Aluminum die cast housings with steel drum
Clutch	Rotating ring gear	Rotating ring gear	Rotating ring gear	Rotating ring gear
Brake	Spring applied drag brake together with over-center valve supplied	Spring applied drag brake together with over-center valve supplied	Spring applied drag brake together with over-center valve supplied	Multidisc brake
Rotation of winch	Underwound	Underwound	Underwound	Underwound, air spool
Drum barrel diameter	4"	4"	4"	5.8"
Drum flange diameter	9.9"	9.9"	9.9"	12.4"
Distance between flanges	10"	10"	10"	14"
Mounting bolts pattern	11.5" x 6.7" 14.7" x 4.5"	12" x 4.5" 14.5" x 6.7"	12" x 4.5" 14.5" x 6.7"	18" x 7.5" 18" x 10.5"
Wire rope recommended	3/8" x 100'	1/2" x 165'	1/2" x 165'	9/16" x 250'
Winch weight	81.4 lb	158.7 lb	158.7 lb	331 lb
Gross weight	102.5 lb	194 lb	194 lb	380 lb
Winch dimensions (LxWxH)	24.6" x 9.4" x 9.7"	26.9" x 11.4" x 11.3"	27.1" x 11.4" x 11.3"	34.6" x 14.6" x 13"
Box dimensions (LxWxH)	26.2" x 14.6" x 11.2"	28.1" x 16.3" x 12.2"	28.1" x 16.3" x 12.2"	Shipped in crate or pallet individually

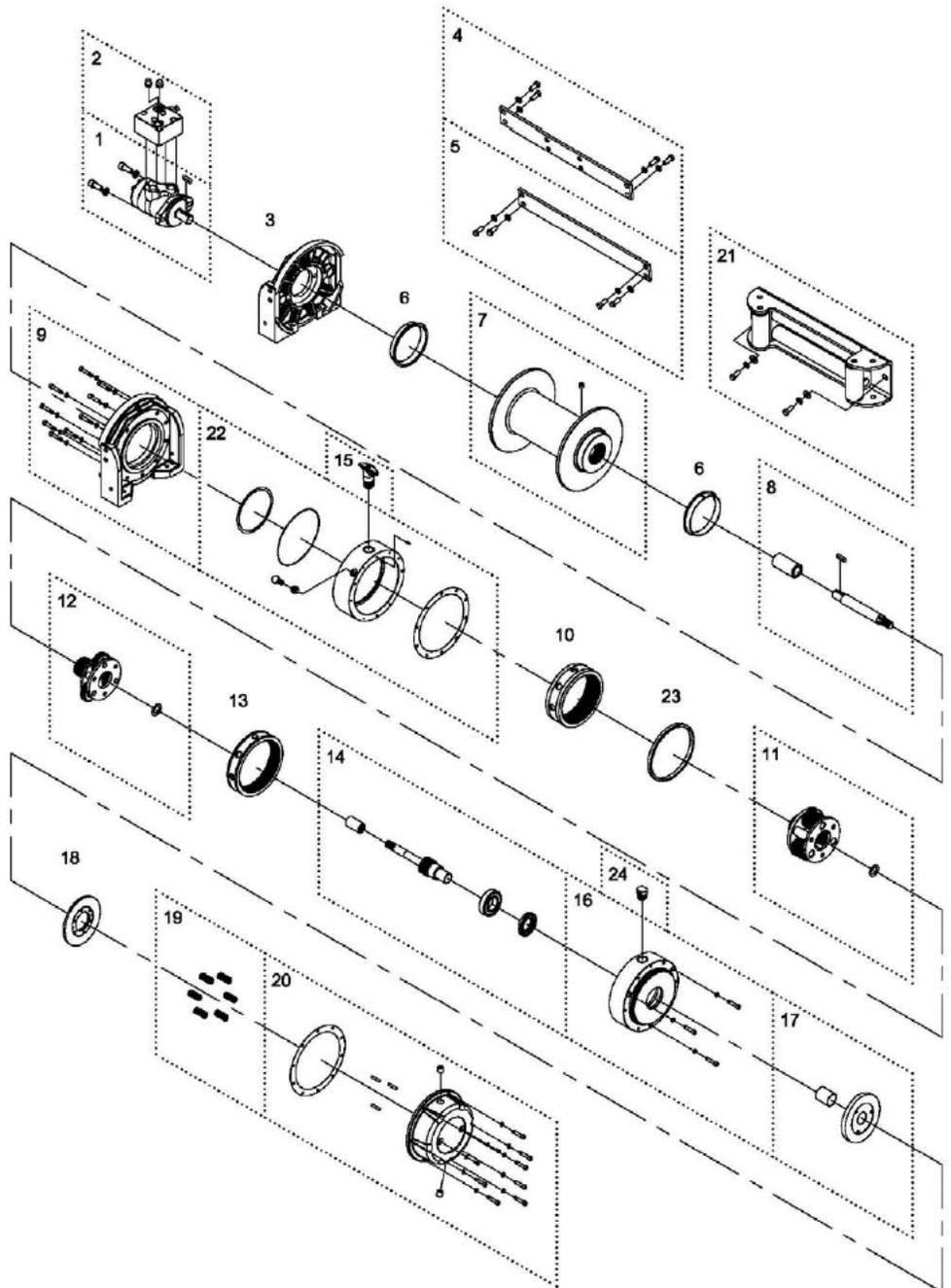
# DIMENSIONS, LINE SPEEDS, REPLACEMENT PARTS

PSHV10000



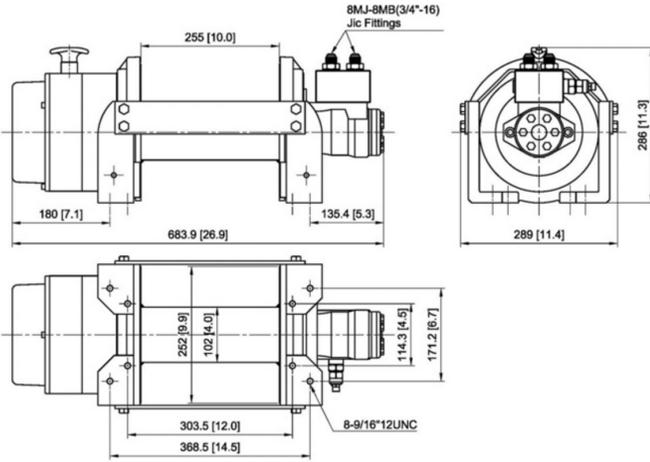
Layers of Wire Rope	Pull (lb.)	Wire Rope (ft.)	Speed (@ 15.9 gpm)
1	10,000	26.2 ft.	46 fpm
2	8,369	57.4 ft.	53.5 fpm
3	7,196	89 ft.	62.3

NO.	DESCRIPTION	PART NO.	QTY
1	HYDRAULIC MOTOR KIT	880162	1
2	OVER CENTER VALVE	880145	1
3	MOTOR SUPPORT RACK	882093	1
4	TIE BAR KIT	880163	1
5	TIE BAR KIT	881172	1
6	DRUM BUSHING	880048	2
7	DRUM KIT	881173	1
8	CONNECTING SHAFT KIT	880165	1
9	GEARBOX SUPPORT RACK	881135	1
10	2ND STAGE CARRIER	881253	1
11	1ST STAGE CARRIER	880153	1
12	RING GEAR	880154	1
13	1ST SHAFT KIT	880155	1
14	CLUTCH KIT	880156	1
15	GEAR BOX KIT	881137	1
16	DRAG BRAKE KIT	880158	1
17	BRAKE DISC	881127	1
18	BRAKE SPRING	881128	1
19	BRAKE COVER KIT	881138	1
20	ROLLER FAIRLEAD	880180	1
21			
22			
23			
24			



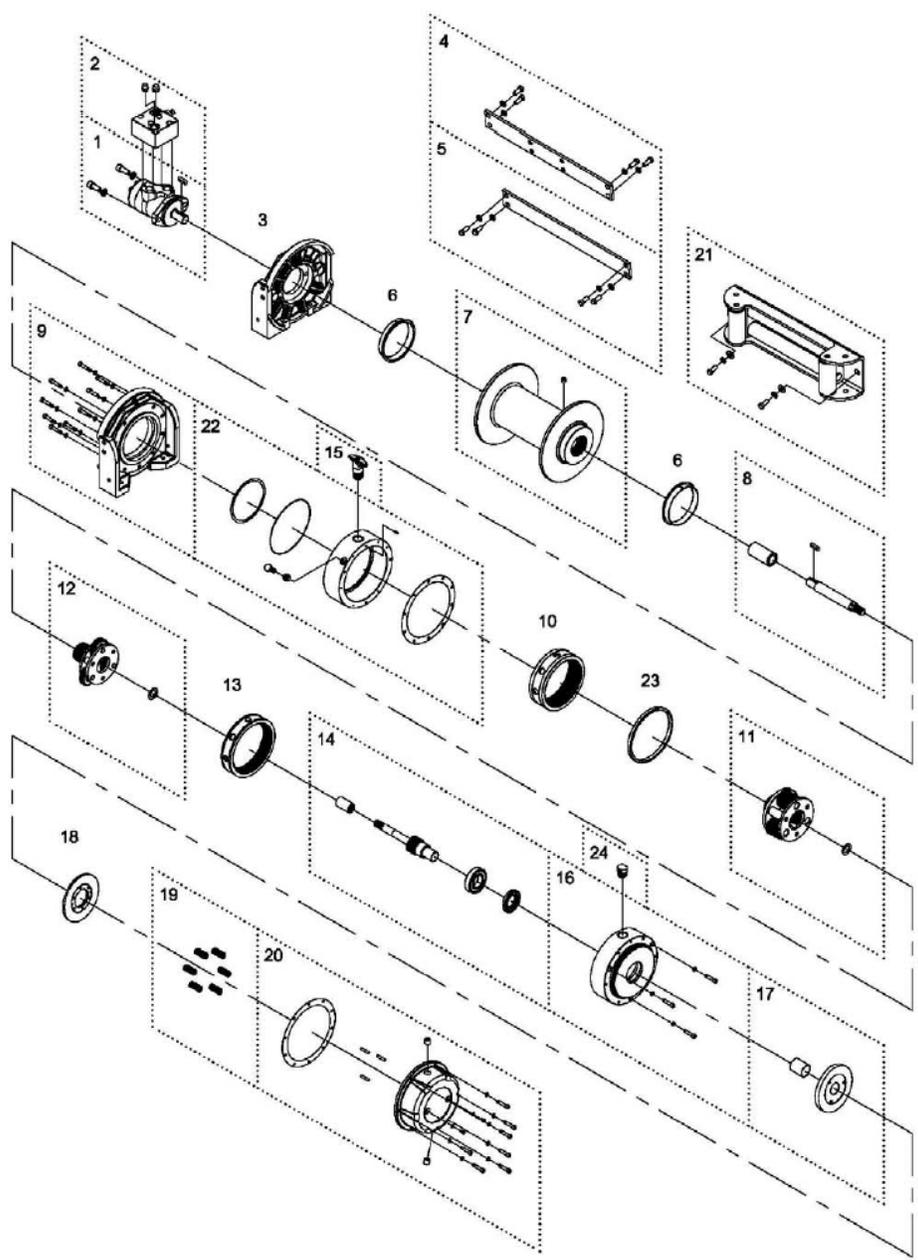
# DIMENSIONS, LINE SPEEDS, REPLACEMENT PARTS

PSHV15000



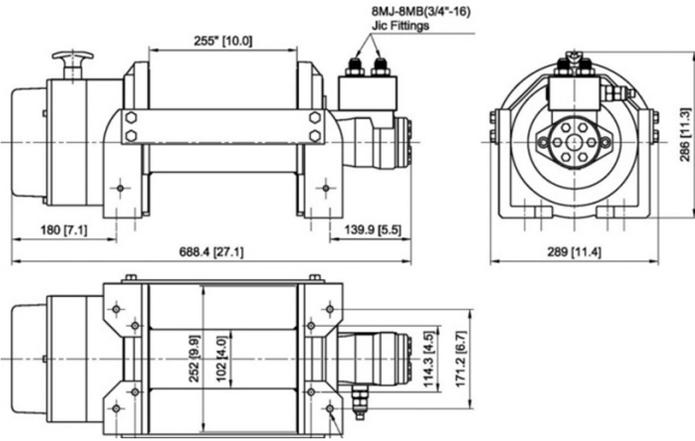
Layers of Wire Rope	Pull (lb.)	Wire Rope (ft.)	Speed (@ 15.9 gpm)
1	15,000	23.3 ft.	30 fpm
2	12,273	51.5 ft.	35.8 fpm
3	10,390	85 ft.	42 fpm

ITEM NO.	DESCRIPTION	PART NO.	QTY
1	HYDRAULIC MOTOR KIT	880182	1
2	OVER CENTER VALVE	880145	1
3	MOTOR SUPPORT RACK	880279	1
4	TIE BAR KIT	880130	1
5	TIE BAR KIT	880131	1
6	DRUM BUSHING	880282	2
7	DRUM KIT	880167	1
8	CONNECTING SHAFT KIT	880168	1
9	GEARBOX SUPPORT RACK	882289	1
10	2ND RING GEAR KIT	882291	1
11	2ND STAGE CARRIER	880171	1
12	1ST STAGE CARRIER	880172	1
13	1ST RING GEAR	880173	1
14	1ST SHAFT KIT	880174	1
15	CLUTCH KIT	882214	1
16	GEAR BOX KIT	880176	1
17	DRAG BRAKE KIT	880177	1
18	BRAKE DISC	881175	1
19	BRAKE SPRING	881128	1
20	BRAKE COVER KIT	880178	1
21	ROLLER FAIRLEAD	880180	1
22	GEAR BOX KIT B	882293	1
23	STEEL RING	882294	1
24	TAP SCREW	881423	1



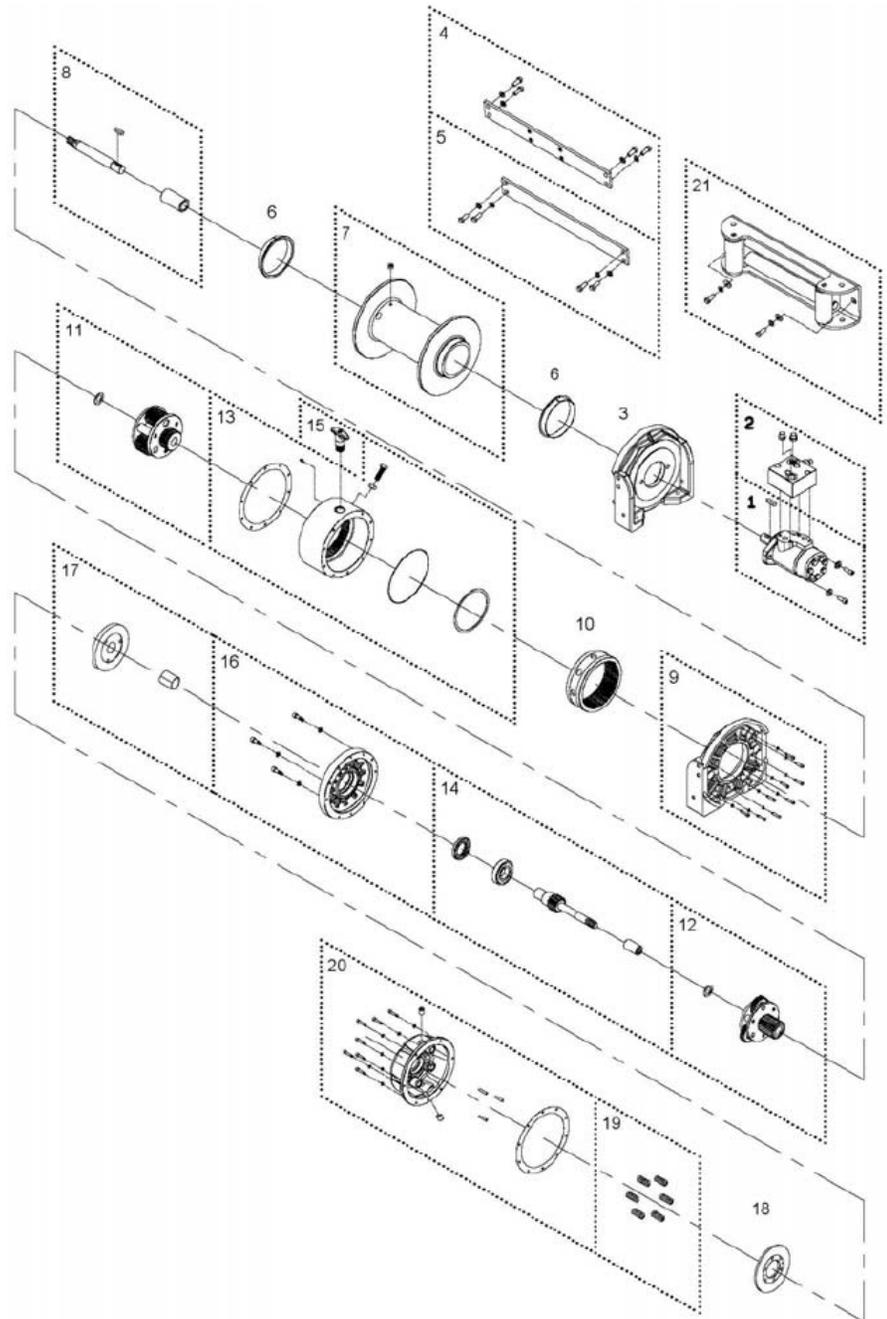
# DIMENSIONS, LINE SPEEDS, REPLACEMENT PARTS

PSHV18000



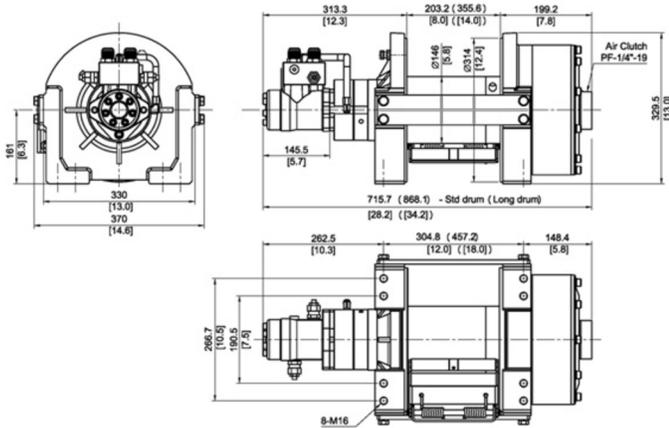
Layers of Wire Rope	Pull (lb.)	Wire Rope (ft.)	Speed (@ 15.9 gpm)
1	20,000	23 ft.	23 fpm
2	17,017	49 ft.	27 fpm
3	14,813	79 ft.	31 fpm

ITEM NO.	DESCRIPTION	PART NO.	QTY
1	HYDRAULIC MOTOR KIT	880182	1
2	OVER CENTER VALVE	881318	1
3	MOTOR SUPPORT RACK	882017	1
4	TIE BAR KIT	880130	1
5	TIE BAR KIT	880131	1
6	DRUM BUSHING	880282	2
7	DRUM KIT	882018	1
8	CONNECTING SHAFT KIT	880168	1
9	GEARBOX SUPPORT RACK	882304	1
10	2ND RING GEAR KIT	882292	1
11	2ND STAGE CARRIER	880171	1
12	1ST STAGE CARRIER	880172	1
13	GEAR BOX KIT B	882306	1
14	1ST SHAFT KIT	880174	1
15	CLUTCH KIT	882214	1
16	GEAR BOX KIT	882307	1
17	DRAG BRAKE KIT	881339	1
18	BRAKE DISC	881175	1
19	BRAKE SPRING	881128	1
20	BRAKE COVER KIT	882308	1
21	ROLLER FAIRLEAD	880180	1



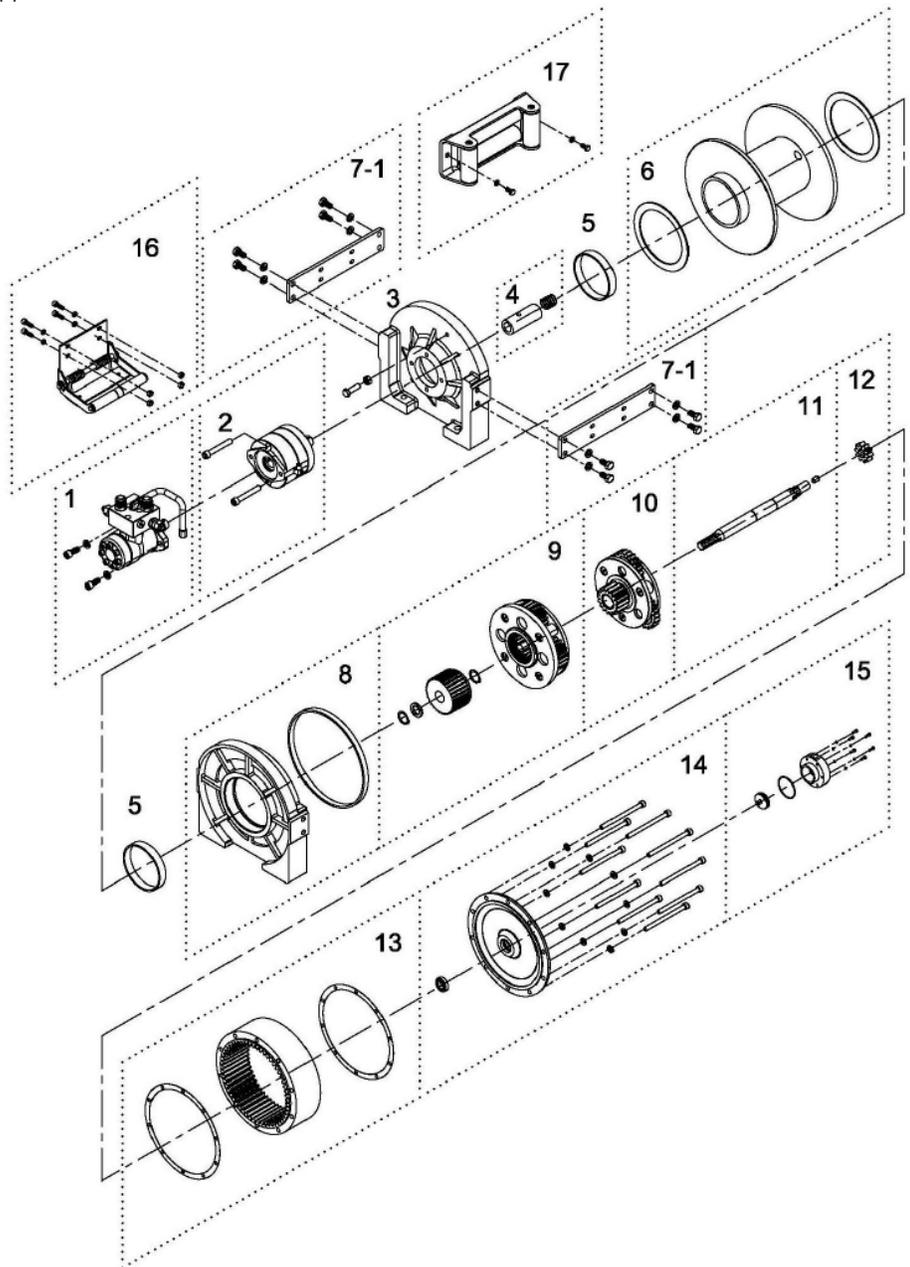
# DIMENSIONS, LINE SPEEDS, REPLACEMENT PARTS

PSHV20000



Layers of Wire Rope	Pull (lb.)	Wire Rope (ft.)	Speed (@ 15.9 gpm)
1	20,000	23 ft.	23 fpm
2	17,017	49 ft.	27 fpm
3	14,813	79 ft.	31 fpm

ITEM NO.	DESCRIPTION	PART NO.	QTY
1	HYDRAULIC MOTOR KIT, OMP-160	882186	1
2	MULTI-DISC BRAKE KIT	881971	1
3	MOTOR SUPPORT RACK	882142	1
4	MOTOR COUPLING KIT	881973	1
5	DRUM BUSHING	880187	2
6	DRUM KIT, STD. DRUM	882143	1
7	1 TIE BAR KIT, STD. DRUM	881975	1
8	GEARBOX SUPPORT RACK KIT	882144	1
9	2ND STAGE CARRIER	882145	1
10	1ST STAGE CARRIER	882146	1
11	1ST SHAFT KIT, STD. DRUM	882147	1
12	1ST GEAR	882052	1
13	1ST & 2ND RING GEAR KIT	882148	1
14	GEARBOX REAR COVER KIT	882149	1
15	AIR INLET COVER KIT	881982	1
16	CABLE TENSIONER, STD. DRUM	881983	1



# Pierce Arrow Product Limited Warranty

Pierce Arrow, Inc. warrants to the original purchaser only (whether a wholesale, OEM or retail customer) that the goods, equipment, and merchandise manufactured by Pierce Arrow are free from defects in material and workmanship. The Pierce Arrow limited warranty on parts covers such items for a period of one year on mechanical and electrical from the date of shipment by Pierce Arrow. All warranties cover only the product or product parts, and are nontransferable.

## OBTAINING WARRANTY SERVICE

Pierce Arrow must be notified promptly in writing, about the defect before any means of repair have been made. The merchandise must be delivered by the purchaser to Pierce Arrow in Henrietta, Texas at the purchaser's expense. Pierce Arrow reserves the right to repair or replace the merchandise proved to be defective. The purchaser is responsible for the cost of repairs made by Pierce Arrow if the repairs are not covered by the Pierce Arrow warranty.

## EXCLUSIONS

The Pierce Arrow warranty is not intended to cover normal maintenance parts, including but not limited to: wire rope, oil leakage and remote holdings. Nor is the warranty intended to cover any change or defect due to accident; misuse; improper, inadequate or unauthorized repair; failure to provide maintenance or uses for which the equipment was not intended; and normal deterioration due to weather or road conditions. Reference the owner's manual for safety, installation, operation and maintenance guidelines.

The warranty does not bear the cost of labor, transportation, shipping damages, claimed down time, loss of profit or goodwill, or any other special, incidental, indirect, or consequential damages, concerning or related to any product or part, whether based upon negligence, strict liability, breach of contract, breach of warranty, misrepresentation, or any other legal theory.

Merchandise sold by Pierce Arrow, but not manufactured by it, is not warranted by Pierce Arrow and is subject to the manufacturer's warranty only. The manufacturer's warranty is available upon request.

Pierce Arrow makes no warranty, expressed or implied, to finished products manufactured or supplied by other manufacturers, and supplied from Pierce Arrow to the purchaser, including but not limited to, any vehicle to which our products is affixed to, and any accessories.

Merchandise manufactured by Pierce Arrow is not designed or intended for the movement of people and are not to be used in the operation of elevators or other improper uses. Any improper use of the product may void the warranty.