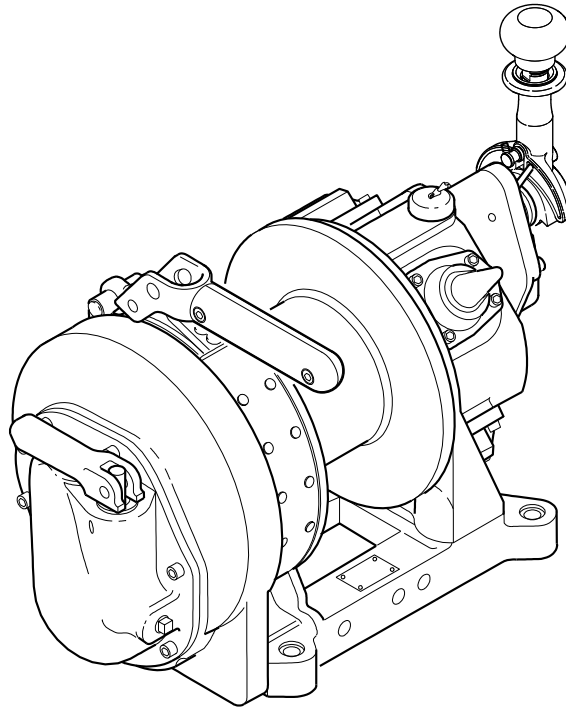




BU7A AIR WINCH



(Dwg. MHP1233)



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Table 2: Specifications

General Specifications		Model				
		BU7A		BU7APTAB		
Air System	Rated Operating Pressure	90 psig (6.3 bar)				
	Consumption Volume (at rated pressure)	50 scfm	1.4 cu. m/min	50 scfm	1.4 cu. m/min	
Rated Performance (at rated pressure/volume)	Mid Drum Line Pull	1,000 lbs	454 kgs	1,000 lbs	454 kgs	
	Mid Drum Line Speed	43 fpm	13 m/min	37 fpm	11 m/min	
	Max Stall Pull - 1st Layer	1,950 lbs	886 kgs	1,950 lbs	886 kgs	
Net Weight		75 lbs	34 kgs	108 lbs	49 kgs	
Air Motor Pipe Inlet Size		1/2 inch	13 mm	1/2 inch	13 mm	
Air System Hose Size (inside diameter)		3/4 inch	19 mm	3/4 inch	19 mm	
Wire Rope Anchor Hole Diameter		11/32 inch	8.7 mm	11/32 inch	8.7 mm	
Drum Flange Diameter		8-1/2 inch (216 mm)				
Drum Length (between flanges)		4-1/2 inch (114 mm)				
Motor HP		1.6				
Drum Wire Rope Storage Capacity * (feet/metres)		Wire Rope Diameter				
		1/4 inch **	6 mm	5/16 inch	8 mm	
		158 ft *	48 m *	105 ft *	32 m *	
Factors for determining STALL and LINE PULL at various air pressure. To obtain performances at operating pressures other than 90 psi, select the load or speed rating required from the applicable performance graph and multiply that value by the factor corresponding to the operating pressure from the table. Example: Model BU7A at 750 lbs with 70 psi and drum half full. To determine speed from curve: 50 fpm x 0.72 = 36 fpm.		Air Pressure (psi)	Stall Factor		Wire Rope Speed Factor	
		60	0.67		0.58	
		70	0.78		0.72	
		80	0.89		0.86	
		90	1.00		1.00	
		100	1.11		1.14	

- * Based on ASME B30.7 standards which require top layer to be at least 1/2 in. (13 mm) below drum flange diameter. Recommended drum working storage capacity is 80% of values shown.
- ** Recommended wire rope size.

INSTALLATION

Prior to installing the product, carefully inspect it for possible shipping damage. Products are supplied fully lubricated from the factory. Check oil levels and adjust as necessary before operating product. Refer to "LUBRICATION" section on page 8 for recommended oils and lubrication intervals.

⚠ CAUTION

- Owners and users are advised to examine specific, local or other regulations, including American Society of Mechanical Engineers (ASME) and/or OSHA Regulations which may apply to a particular type of use of this product before installing or putting product to use.

NOTICE

- Prior to installation refer to Product Safety Information Manual for all sections of installation.

■ Mounting

Mount winch with longitudinal center line horizontal and vent cap at top vertical center. The winch will not function properly if the longitudinal center line is tilted more than 10° or if winch is rotated so that vent cap is more than 20° off top vertical center.

For mounting on a vertical surface or for inverted mounting, the motor case can be rotated on the motor mounting bracket to any one of four different positions. This feature allows the motor assembly to be positioned with the vent cap on top. To change the position of the motor assembly, drain the oil from the motor case, unscrew the eight motor case capscrews and rotate the motor assembly to suit the mounting. Ensure clear unrestricted access is always available to control and brake levers.

1. Do not weld to any part of winch.
2. The winch mounting surface must be flat and of sufficient strength to handle the rated load plus the weight of the winch and attached equipment. An inadequate foundation may cause distortion or twisting of the winch resulting in winch damage.
3. Make sure mounting surface is flat to within 1/16 inch (2.0 mm). Shim if necessary.
4. Mounting bolts must be Grade 8 or better. Use self-locking nuts or nuts with lockwashers. Refer to Table 3 'Mounting Bolts' on page 4.
5. Tighten mounting bolts evenly and torque to specification in torque chart. Refer to 'Torque Chart' in Product Maintenance Manual.
6. Maintain a fleet angle between sheave and winch of no more than 1-1/2°. The lead sheave must be on a center line with drum and, for every inch (25 mm) of drum length, be at least 1.6 feet (0.5 metre) from the drum. Refer to Product Safety Information Manual.

Table 3: Mounting Bolts

Model	Mounting Bolts	
	inch	mm
BU7A	1/2	13

Refer to Dwg. MHP0548 on page 9, A. Center Line; B. Brake Cylinder BU7APTAB Only.

■ Wire Rope

⚠ CAUTION

- Maintain at least 3 tight wraps of wire rope on the drum at all times.
- Do not use wire rope as a ground (earth) for welding.
- Do not attach a welding electrode to winch or wire rope.
- Install wire rope to come off drum for overwind operation (normal application).

■ Wire Rope Selection

Consult a reputable wire rope manufacturer or distributor for assistance in selecting the appropriate type and size of wire rope and, where necessary, a protective coating. Use a wire rope which provides an adequate safety factor to handle the actual working load and meets all applicable industry, trade association, federal, state and local regulations.

When considering wire rope requirements the actual working load must include not only the static or dead load but also loads resulting from acceleration, retardation and shock load. Consideration must also be given to the size of the winch wire rope drum, sheaves and method of reeving. Maximum wire rope diameter is limited by the wire rope anchor. It is recommended that wire rope construction be 6 X 19 or 6 X 37 IWRC right lay. Refer to Table 4 'Minimum and Maximum Wire Rope Size' on page 4 for recommended size.

Table 4: Minimum and Maximum Wire Rope Size

Model	Minimum		Maximum	
	inch	mm	inch	mm
BU7A	1/4	6	5/16	8

Note: Maximum wire rope diameter is limited by size of wire rope anchor hole.

Table 5: Breaking Strength*

Rope Size (in.)	lbs	kgs	Weight per ft (lbs)	Weight per metre (kgs)
1/4 (0.25)	6,800	3084	0.11	0.15
5/16 (0.31)	10,540	4781	0.18	0.25

* Based on extra improved plow steel wire rope with independent wire rope core. ASME B30.7 requires a minimum of 3.5:1 design factor with 15:1 wire rope diameter to drum diameter for most applications (e.g. pulling/hauling and anchor handling). For lifting and lowering, a 5:1 design factor with an 18:1 wire rope diameter to drum diameter is required.

For winches used in **lifting** applications, ensure that the top layer of the wire rope is a distance from the top of the drum flange that is equal to at least twice the diameter of the wire rope. For example: the top layer of a 8 mm wire rope must be at least 16 mm below the drum flange edge.

As a general rule for **lifting** applications, a minimum of 5:1 wire rope design factor is required with an 18:1 wire rope to drum diameter ratio. For **pulling** applications, a 3:1 wire rope design factor is required with a 15:1 wire rope to drum diameter ratio.

■ Installing Wire Rope

Refer to Dwg. MHP1288 on page 9, **A.** Anchor Setscrew; **B.** Wire Rope End; **C.** Winch Base.

1. Cut wire rope to length and fuse end to prevent fraying of strands in accordance with the wire rope manufacturer's instructions.
2. Feed the fused end of the wire rope into the wire rope anchor hole, past the two anchor screws, and position the end just beneath the drum surface.
3. Apply the wire rope so that it winds over the top when the drum is rotated in a direction that is clockwise when facing the gear end of the winch. This is indicated by an arrow on the gear case.
4. Secure by tightening both anchor screws. Make sure the anchor screws are below the surface of the drum when tightened.



- **Make sure first wrap of wire rope is tight and lies flush against the drum flange.**
- **The wire rope should be applied to the drum so that it overwinds when the drum rotates in a clockwise direction when facing the gear end of the winch. This is indicated by an arrow on the gear case.**

■ Safe Wire Rope Handling Procedure

- Always use gloves when handling wire rope.
- Never use wire rope that is frayed or kinked.
- Never use wire rope as a sling.
- Always ensure wire rope is correctly spooled and the first layer is tight against drum.
- Always follow wire rope manufacturer's recommendation on use and maintenance of wire rope.

■ Wire Rope Spooling

To compensate for uneven spooling and the decrease in line pull capacity as the drum fills up, use as short a wire rope as practical. When rewinding apply tension to the end of the wire rope to eliminate line slack. This helps achieve level winding and tight spooling.

■ Rigging

Make sure all wire rope blocks, tackle and fasteners have a sufficient safety margin to handle required load under all conditions. Do not allow wire rope to contact sharp edges or make sharp bends which will cause damage to wire rope, use a sheave. Refer to wire rope manufacturer's instructions for proper sizing, use and care of wire rope.

■ Safe Installation Procedures

1. Do not use wire rope as a ground (earth) for welding.
2. Do not attach a welding electrode to winch or wire rope.
3. Never run wire rope over a sharp edge. Use a correctly sized sheave.
4. When a lead sheave is used, it must be aligned with center of drum. The diameter of lead sheave must be at least 18 times the diameter of wire rope. Refer to Dwg. MHP2449 in Product Safety Information Manual.
5. Always maintain at least three full, tight wraps of wire rope on drum.

■ Drum Guard

Use of a drum guard is recommended on all winches. Refer to the Product Parts Information Manual.

Install drum guard and remove the minimum amount of mesh from the guard to provide clearance for wire rope travel.



- **Do not allow wire rope to come into contact with drum guard during winch operation. Wire rope could become worn and damaged. Adjust opening in guard to clear wire rope travel angle.**

■ Air Supply

The air supply must be clean, free from moisture and lubricated to ensure optimum motor performance. Foreign particles, moisture and lack of lubrication are the primary causes of premature motor wear and breakdown. Using an air filter, lubricator and moisture separator will improve overall product performance and reduce unscheduled downtime. Refer to Dwg. MHP0191 on page 9, **A.** Air Out; **B.** Lubricator; **C.** Regulator; **D.** Air In; **E.** Filter.

Refer to Table 2 'Specifications' on page 4 for motor air consumption and rated operating pressure. If air supply varies from what is recommended, product performance will change.

Install air line lubricator, filter and regulator as close as possible to air inlet on motor. Lubricator must be located no more than 10 ft (3 m) from motor.

■ Air Lines

Inside diameter of air supply lines must not be less than size specified in Table 2 'Specifications' on page 4. Before making final connections, all air supply lines should be purged with clean, moisture free air or nitrogen before connecting to main air inlet. Supply lines should be as short and straight as installation conditions will permit. Long transmission lines and excessive use of fittings, elbows, tees, globe valves, etc. cause a reduction in pressure due to restrictions and surface friction in lines.

■ Air Line Lubricator

Always use an air line lubricator with these motors. The lubricator must have an inlet and outlet at least as large as inlet on motor.



- **Lubricator must be located no more than 10 ft (3 m) from motor.**
- **Shut off air supply before filling air line lubricator.**

The air line lubricator should be replenished daily and set to provide 6 to 9 drops per minute of ISO VG 32 (SAE 10W) oil. A fine mist will be exhausted from control valve when air line lubricator is functioning properly.

■ Air Line Filter

It is recommended that an air line strainer/filter be installed before the lubricator to prevent dirt from entering the motor. The strainer/filter should provide 20 micron filtration and include a moisture trap. Clean the strainer/filter periodically to maintain its operating efficiency.



- **When air filter is used ensure it allows air to pass through at products rated scfm. Refer to "SPECIFICATIONS" on page 3.**

■ Air Pressure Regulator

If an air pressure regulator is used, install between lubricator and filter.

■ Moisture in Air Lines

Moisture that reaches the air motor through air supply lines is a primary factor in determining the length of time between service overhauls. Moisture traps can help to eliminate moisture. Other methods, such as an air receiver which collects moisture before it reaches motor, or an aftercooler at compressor that cools air to condense and collect moisture prior to distribution through supply lines, are also helpful.

■ Mufflers

Ensure mufflers are installed in winch exhaust manifold and control valve exhaust port. Check mufflers periodically to ensure they are functioning correctly.

■ Shut Off Valve

Refer to the Product Safety Information Manual for information.

■ Air Systems Connections

■ Remote Full Flow Pendant Throttle (optional feature)

Refer to Dwg. MHP1241 on page 9 for hose connection positions. **A.** Payout Yellow; **B.** Haul-in Green; **C.** Supply Red; **D.** Winch Air Supply.

■ Motor

For optimum performance and maximum durability of parts, provide recommended air supply as measured at motor inlet. Refer to Table 2 'Specifications' on page 4. The air motor should be installed as near as possible to compressor or air receiver.