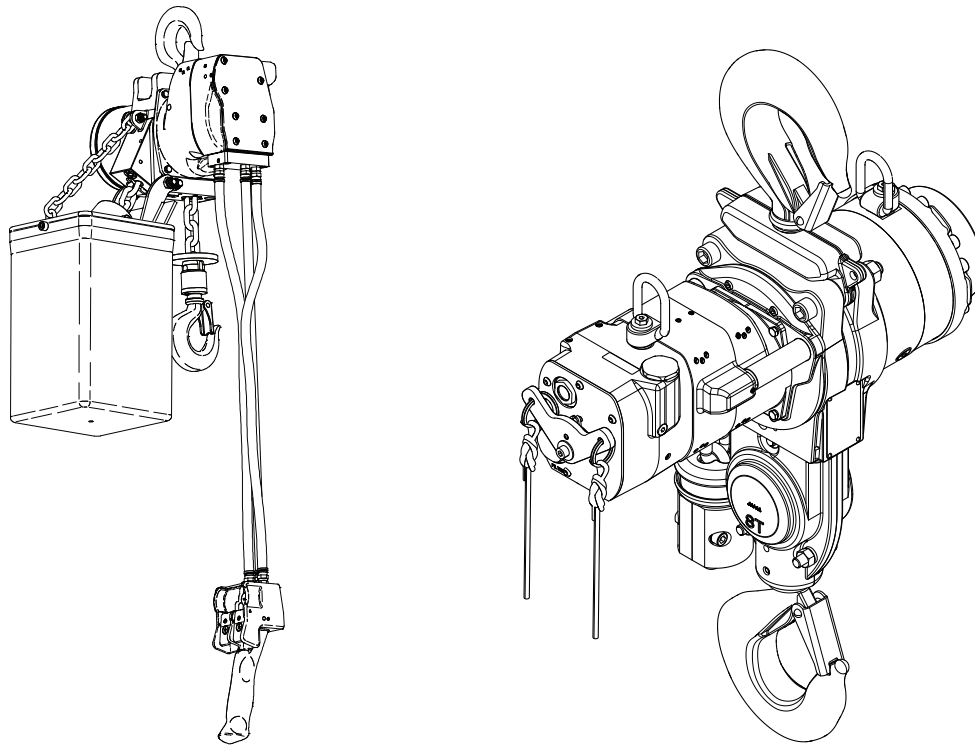


Liftchain Industrial Air Hoist

LC2A010S to LC2A250Q



Product Information



Save These Instructions



Form MHD56296
Edition J
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Only allow **Ingersoll Rand** trained technicians to perform maintenance on this product. For additional information contact **Ingersoll Rand** factory or nearest distributor.

For additional supporting documentation refer to [Table 2, p. 2](#).

The use of other than genuine **Ingersoll Rand** replacement parts may result in safety hazards, decreased performance and increased maintenance and will invalidate all warranties.

Refer all communications to the nearest **Ingersoll Rand** office or distributor.

Table 1. Control Option Selection Guide

Control Option	Product
C1	LC2A Hoist
P2	
P3	
X1	Xtrem Series

If you have a product with control option C1, P2, P3, refer to standard LC2A hoist pages / sections. If you have a product with control option X1, refer to Xtrem series pages / sections.

Table 2. Product Information Manuals

Publication	Part/Document Number (CCN)
Product Safety Information Manual	MHD56295 (71441281)
Product Parts Information Manual	MHD56297 (71441307)
Product Maintenance Information Manual	MHD56279 (71439319)

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Product Description

LC2A Liftchain hoists are air powered and designed to suit industrial applications. These hoists can be hookmounted to the suspension shaft of a trolley, permanent mounting structure or any mounting point capable of supporting both load and hoist. The air supply line can be strung to the hoist using cable hangers, cable trolleys or any festooning system that will ensure the air line remains free of kinks or sharp bends and is protected from being pinched or crushed by other equipment. LC2A Liftchain hoists are driven by a gear motor which is connected to a pinion shaft which in turn drives the planetary reduction gear. The output from the planetary reduction gear drives the load chain sprocket. The pinion shaft from the planetary reduction is also coupled to the brake discs.

The disc brake is spring applied and released by air pressure when the hoist is operated. In the event of a loss of air pressure the brake automatically applies.

For Standard LC2A hoists with C1 (Pull Chain), P2 (1- Motor Pendant), and P3 (2- Motor Pendant) control options, the top and bottom limit switches are fully integrated into the hoist body. The optional overload protection kit is also integrated into the motor body. Emergency Stop on Pendant and the Main Air Shut-off Valve are available as part of the (-E) European Package. Use of a Filter-Regulator-Lubricator (FRL) unit is recommended for optimum performance.

For Xtrem Series hoists with the X1 (Pull Cord) control option, an integrated Filter-Lubricator (FL) unit and an overload protector are built directly into the motor housing.

CE hoists are in conformity with the most recent European Standards:

2006/42/EC: Machinery Directive

EN 14492-2+A1: Power driven hoists.

EN ISO 12100:2010: Safety of Machinery - General principles for design.

EN ISO 13850:2015: Safety of Machinery - Emergency stop equipment, functional aspects and principles for design.

ISO 4414:2011: Pneumatic fluid power - General rules and safety requirements for systems and their components.

EN ISO 80079: Explosive atmospheres - Part 36 & 37: Non-electrical equipment for explosive atmospheres.

NF EN 13001-1: Cranes - General design.

If you have a product with control option C1, P2, P3, refer to standard LC2A hoist pages / sections. If you have a product with control option X1, refer to Xtrem series pages / sections.

Nomenclature

Model Code Explanation

Example: LC2A015SIP3RU3M2A-E

Liftchain Air Hoist Capacity and Chain Falls

		LC2A015S	I	P3	RU	3M	2	A	-E
LC2A010S	=	1000 kg (2,200 lbs), single fall							
LC2A015S	=	1500 kg (3,300 lbs), single fall							
LC2A020D	=	2000 kg (4,400 lbs), two fall							
LC2A030S	=	3000 kg (6,600 lbs), single fall							
LC2A030D	=	3000 kg (6,600 lbs), two fall							
LC2A040S	=	4000 kg (8,800 lbs), single fall							
LC2A060S	=	6000 kg (13,200 lbs), single fall							
LC2A060D	=	6000 kg (13,200 lbs), two fall							
LC2A060Q	=	6000 kg (13,200 lbs), four fall							
LC2A080D	=	8000 kg (17,600 lbs), two fall							
LC2A120D	=	12,000 kg (26,500 lbs), two fall							
LC2A180T	=	12,000 kg (39,700 lbs), three fall							
LC2A250Q	=	12,000 kg (55,000 lbs), four fall							

Application

I = **Industrial**

Control Type

C1 = Pull Chain Control
X1 = Pull Cord Xtrem Control
P2 = 1 motor pendant
P3 = 2 motor pendant
P4 = 3 motor pendant
W = Wireless control

Suspension

A = Fixed lug
C = Swivel top hook
PU = Plain rigid universal trolley (at or tapered beam) 1,500 to 8,000 kg
PE = Plain rigid trolley (at beam) 12,000 to 25,000 kg
PN = Plain rigid trolley (tapered beam) 12,000 to 25,000 kg
GU = Geared rigid universal trolley (at or tapered beam) 1,500 to 8,000 kg
GE = Geared rigid trolley (at beam) 12,000 to 25,000 kg
GN = Geared rigid trolley (tapered beam) 12,000 to 25,000 kg
HU = Motorized industrial trolley
RU = Gear motorized rigid universal trolley (at or tapered beam) 1,500 to 8,000 kg
RE = Gear motorized rigid trolley (at beam) 12,000 to 25,000 kg
RN = Gear motorized rigid trolley (tapered beam) 12,000 to 25,000 kg
VU = Vane motorized universal trolley (at or tapered beam) 1,500 to 8,000 kg
VE = Vane motorized trolley (at beam) 12,000 to 25,000 kg
VN = Vane motorized trolley (tapered beam) 12,000 to 25,000 kg
W = Wide industrial trolley

Load Chain Lift

3M = **3 metres (standard) 10 ft**
X = Specify length

Pendant Control Length

2 = **2 metres (standard) 6 ft**
XX = Specify length [maximum 66 ft (20 m)]

Options

A = **Small chain bucket**
B = Medium chain bucket
C = Large chain bucket
D = XL chain bucket
E = XXL chain bucket
J = Air Line Accessory; J1 = filter, J2 = Lubricator, J3 = Regulator, Order as J12.
K = Cast Iron Pendant
LM = Low Temperature (-20°C) Certified (includes 3.1 material traceability certificates)
M = Material traceability certificate as per EN 10204 3.1 on main load bearing parts
P = Marine Paint (220µ DFT)
S = Stainless steel chain for 1T & 2T models only
QZ = Offshore Paint (290µ DFT)
T1 = Spark Resistance Package (ATEX Zone 1)
W = Witness test; W1 = ABS, W2 = DNV, W3 = LRS, W4 = Client

European Package

-E = **Compliance with the European Machinery Directive and includes: Emergency Stop on Pendant, Main Air Shut-off Valve and Overload Protection Device**

Table 3. Standard Specifications

Hoist Model	Rated Capacity metric tons	Load Chain Falls	Air Inlet Size	Chain Size	Weight of Chain per meter of lift		Unit Net Weight with Standard 10 ft (3 m) Lift		Sound Pressure Level (a)	Minimum Headroom	
			BSP	mm	lb	kg	lbs	kg		dB(A)	in
LC2A010S	1	1	3/4"	8 x 24	3.1	1.4	84	38	78	17.0	431
LC2A015S	1.5									16.1	409
LC2A020D	2	2			6.2	2.8	106	48		22.1	561
LC2A030D	3									21.6	549
LC2A030S	3	1	3/4"	13 x 36	8.4	3.8	198	90	76	22.8	580
LC2A040S	4		1"								
LC2A060S	6			2	3/4"	13 x 36	16.8	7.6		258	117
LC2A060D	6	3/4"	8 x 24		12.3	5.6	163	74	31.8	807	
LC2A060Q	6	4	3/4"		8 x 24	12.3	5.6	163	74	25.7	653
LC2A080D	8	2	1"	13 x 36	16.8	7.6	260	118	76	31.8	807
LC2A120D	12	2		16 x 45	25.1	11.4	374	170	78	37.2	945
LC2A180T	18	3			37.5	17.0	609	277		41.9	1,063
LC2A250Q	25	4			50.3	22.8	713	324		45.5	1,156

(a) Sound measurements are in accordance with EN 14492-2. Readings shown are based on the average noise level of each product configuration, proportionate to the utilized time in a regular cycle.

Table 4. Standard Load Specifications

Hoist Model	Air Consumption @ Rated Load		Minimum Air Hose inside	Lifting Speed @ Rated Load		Lifting Speed @ No Load		Lowering Speed @ Rated Load		FEM Classification
	6.3 bar			6.3 bar		6.3 bar		6.3 bar		
	scfm	m ³ /min		Dia	ft/min	m/min	ft/min	m/min	ft/min	
LC2A010S	141	4	3/4"	25.3	7.7	39.4	12.0	31.8	9.7	1 AM
LC2A015S				22.6	6.9			30.8	9.4	1 BM
LC2A020D				12.1	3.7	19.7	6.0	14.4	4.4	1 AM
LC2A030D				10.8	3.3					1 BM
LC2A030S	159	4.5		14.4	4.4	23.0	7.0	18.0	5.5	1 AM
LC2A040S	159	4.5	1"	14.1	4.3	25.3	7.7	16.4	5.0	1 BM
LC2A060S	184	5.2		8.2	2.5	13.1	4.0	9.8	3.0	
LC2A060D	159	4.5	3/4"	6.9	2.1	11.5	3.5	9.2	2.8	1 AM
LC2A060Q	141	4		5.6	1.7	9.2	2.8	7.2	2.2	1 BM
LC2A080D	155	4.4	1"	6.6	2.0	12.8	3.9	7.9	2.4	
LC2A120D	177	5		4.3	1.3	6.6	2.0	4.6	1.4	
LC2A180T				2.6	0.8	4.3	1.3	3.3	1.0	
LC2A250Q				2.0	0.6	3.3	1.0	2.3	0.7	

Nomenclature

Table 5. Xtrem Specifications

Hoist Model	Rated Capacity metric tons	Load Chain Falls	Air Inlet Size	Chain Size	Weight of Chain per meter of lift		Unit Net Weight with Standard 10 ft (3 m) Lift		Sound Pressure Level (a)	Minimum Headroom	
			BSP	mm	lb	kg	lbs	kg		dB(A)	in
LC2A010S	1	1	1"	8 x 24	3.1	1.4	106	48	78	18.7	476
LC2A015S	1.5										
LC2A020D	2	2			6.2	2.8	150	68		21.8	553
LC2A030D	3								21.7	551	
LC2A030S	3	1		13 x 36	8.4	3.8	245	111	76	24.7	628
LC2A040S	4						258	117			
LC2A060S	6			16 x 45	12.6	5.7	364	165	78	30.6	776
LC2A060D	6	2		13 x 36	16.8	7.6	355	161		31.8	807
LC2A060Q	6	4		8 x 24	12.3	5.6	249	113		25.4	645
LC2A080D	8	2		13 x 36	16.8	7.6	377	171	76	31.8	807
LC2A120D	12	2		16 x 45	25.1	11.4	551	250	78	37.2	946
LC2A180T	18	3			37.5	17.0	873	396		41.9	1,064
LC2A250Q	25	4			50.3	22.8	1067	484		46.0	1,169

(a) Sound measurements are in accordance with EN 14492-2. Readings shown are based on the average noise level of each product configuration, proportionate to the utilized time in a regular cycle.

Table 6. Xtrem Load Specifications

Hoist Model	Air Consumption @ Rated Load		Minimum Air Hose inside	Lifting Speed @ Rated Load		Lifting Speed @ No Load		Lowering Speed @ Rated Load		FEM Classification
	6.3 bar			6.3 bar		6.3 bar		6.3 bar		
	scfm	m ³ /min		Dia	ft/min	m/min	ft/min	m/min	ft/min	
LC2A010S	141	4	1"	25.3	7.7	39.4	12.0	31.8	9.7	1 AM
LC2A015S				22.6	6.9			30.8	9.4	1 BM
LC2A020D				12.1	3.7	19.7	6.0	14.4	4.4	1 AM
LC2A030D				10.8	3.3					1 BM
LC2A030S	159	4.5		14.4	4.4	23.0	7.0	18.0	5.5	1 AM
LC2A040S	159	4.5		14.1	4.3	25.3	7.7	16.4	5.0	1 BM
LC2A060S	184	5.2		8.2	2.5	13.1	4.0	9.8	3.0	
LC2A060D	159	4.5		6.9	2.1	11.5	3.5	9.2	2.8	1 AM
LC2A060Q	141	4		5.6	1.7	9.2	2.8	7.2	2.2	1 BM
LC2A080D	155	4.4		6.6	2.0	12.8	3.9	7.9	2.4	
LC2A120D	177	5		4.3	1.3	6.6	2.0	4.6	1.4	
LC2A180T				2.6	0.8	4.3	1.3	3.3	1.0	
LC2A250Q				2.0	0.6	3.3	1.0	2.3	0.7	

Table 7. Air supply and Environment

Hoist Model	Air Pressure Range	Minimum/Maximum Ambient Temperature	Maximum Air Supply Temperature at Motor Inlet
LC2A010S	4 to 7 Bar ^(a)	-10° C to +60° C	+60° C
LC2A015S			
LC2A020D			
LC2A030D			
LC2A060Q			
LC2A030S		-20° C to +60° C	
LC2A040S			
LC2A060S			
LC2A060D			
LC2A080D			
LC2A120D			
LC2A180T			
LC2A250Q			

^(a) Recommended pressure for achieving specifications is 6.3 bar. Any other pressure will result in a change in the specifications.

Capacity Information

LC2A hoists are designed for lifting with a 5 to 1 minimum safety factor at rated load.

Traceability (optional)

Load bearing parts are documented to provide traceability. Documentation includes chemical and physical properties of raw material, heat treating, and hardening, tensile and charpy tests as required for the part. Requirements must be stated when re-ordering parts for continued certification.

ATEX (optional)

Refer to labeling on product, located near or on data (name) plate, for specific ATEX designation. Product not marked as such, are not suitable for use in any potentially explosive atmosphere (ATEX). Refer to Product Safety and Maintenance Information Manuals for further explanation.

Please see ATEX Safety Manual for Pneumatic Hoists and Winches: 47752004

Installation - Standard LC2A Hoists

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," p. 19 for recommended oils and lubrication intervals.

⚠ WARNING



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

⚠ CAUTION



Owners and users are advised to examine specific, local or other regulations, including American National Standards Institute and/or OSHA Regulations which may apply to a particular type of use of this product before installing or putting product to use.

Mounting

Make certain your hoist is properly installed. A little extra time and effort in doing so can contribute a lot toward preventing accidents and helping you get the best service possible. Always make certain the supporting member from which the hoist is suspended is strong enough to support the weight of the hoist plus the weight of the maximum rated load plus a generous factor of at least 500% of the combined weights. If the hoist is suspended by a top hook, the supporting member should rest completely within the saddle of the hook and be centered directly above the hook shank. Do not use a supporting member that tilts the hoist.

Hook Mounted Hoist

Place hook over mounting structure. Make sure hook latch is engaged.

Trolley Mounted Hoist

When installing a trolley on a beam, measure the beam flange and temporarily install the trolley on the hoist to determine the exact distribution and arrangement of the spacers. Adjust the spacers in accordance with the trolley manufacturer's literature to provide the correct distance between the wheel flange and the beam. The number of spacers between the trolley side plate and the mounting lug on the hoist must be the same in all four locations in order to keep the hoist centered under the I-beam. The remaining spacers must be equally distributed on the outside of the side plates.

⚠ WARNING



At least one mounting spacer must be used between the head of each trolley bracket bolt and the trolley bracket and between each trolley bolt nut and the trolley bracket. Failure to do this could cause the hoist to fall when used improperly.

Ensure torque trolley bolts or nuts are torqued in accordance with manufacturer's specifications. For installation of hoist and trolley on beam, make certain the side plates are parallel and vertical. After installation ensure beam stops are in place, operate trolley over entire length of beam with a capacity load suspended 4 to 6 inches (10 to 15 cms) off the floor.

⚠ CAUTION



To avoid an unbalanced load which may damage the trolley, the hoist must be centered under the trolley.

NOTICE



Trolley wheels ride on the top of the lower flange of the beam.

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 hoist performance and reduce unscheduled downtime. Refer to [Table 3, p. 7](#). If air supply varies from what is recommended, hoist performance will change. The compressed air temperature must not exceed 60 °C at the motor air inlet. Contact the factory for higher temperature use. Refer to [Figure 6, p. 23](#).

Air Lines

Inside diameter of the hoist air supply lines must not be less than size specified in [Table 4, p. 7](#). Before making final connections, all air supply lines should be purged with clean, moisture free air or nitrogen before connecting to hoist 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 the lines.

Air Line Lubricator

The air motor may be operated without lubrication. If an air line lubricator is used, it should be replenished daily, refer to ["Lubrication," p. 19](#). The lubricator must have an inlet and outlet at least as large as the inlet on the motor. Install the lubricator as close to the air inlet on the motor as possible.

⚠ CAUTION

!

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

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 the motor, or an aftercooler at the compressor that cools the air to condense and collect moisture prior to distribution through the supply lines are also helpful.

Motor

For optimum performance and maximum durability of parts, operate the air motor within the operating specifications provided. Refer to the ["Nomenclature," p. 6](#). The air motor should be installed as near as possible to the compressor or air receiver. Refer to [Figure 1, p. 21](#) for motor port connections.

Emergency Stop and Overload Device (optional feature)

Overload protection is integrated into the motor body and is standard on -E versions. The overload system is based on detection of the difference in air pressure between the inlet and outlet ports. It consists of a valve which is normally closed. The valve senses pressure at the motor inlet and outlet and compares the difference between the two pressures to the index value established by spring adjustment. A difference in pressure greater than the index value causes the emergency stop to be activated. This then exhausts the air and hoist operation stops. Air supply line is connected to air control valve. When emergency stop or overload valve is activated, all hoist movement will stop.

Overload protection is adjusted at the factory to 120% of the safe working load (SWL). It is also able to operate on both sides for mining versions with two bottom hooks. Refer to the ["MAINTENANCE"](#) section in Product Maintenance Information Manual for adjustment procedures.

Refer to [Figure 9, p. 23](#) and [Figure 4, p. 22](#).

Start-Up Procedures

For hoists that have been in storage the following startup procedures are required.

1. Give the hoist an inspection conforming to the requirements of ["Hoists Not in Regular Use," p. 18](#).
2. Inject a small amount of ISO VG 32 (SAE 10W) oil in the motor inlet port.
3. Operate the motor for 10 seconds in both directions to flush out any impurities.
4. The hoist is now ready for normal use.

Main Air Shut-off Valve

The main air shut-off valve is completely integrated into the motor body and is standard on -E versions.

Installation - Xtrem Series (with control option X1)

Prior to installing the product, carefully inspect it for possible shipping damage. Products are supplied with gearbox and bearings fully lubricated from the factory. Check the integrated Filter-Lubricator (FL) unit located inside the motor housing. Before connecting the air supply, fill in the air lubricator with oil and verify that the oil level is sufficient by looking at the sight glass when the hoist is vertical. Refer to “[Lubrication](#),” p. 19 for recommended oils and lubricator adjustment.

⚠ WARNING



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

⚠ CAUTION



Owners and users are advised to examine specific, local or other regulations, including American National Standards Institute and/or OSHA Regulations which may apply to a particular type of use of this product before installing or putting product to use.

Mounting

Make certain your hoist is properly installed. A little extra time and effort in doing so can contribute a lot toward preventing accidents and helping you get the best service possible. Use the hoist lifting lugs to move, position and install the hoist. Always make certain the supporting member from which the hoist is suspended is strong enough to support the weight of the hoist plus the weight of the maximum rated load plus a generous factor of at least 500% of the combined weights. If the hoist is suspended by a top hook, the supporting member should rest completely within the saddle of the hook and be centered directly above the hook shank. Do not use a supporting member that tilts the hoist.

⚠ WARNING



Only use the hoist lifting lugs for lifting and moving the hoist.

Hook Mounted Hoist

Place hook over mounting structure. Make sure hook latch is engaged.

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. Xtrem Series hoists are equipped with a patented integrated Filter-Lubricator assembly located inside the motor housing. This system ensures that all incoming air is automatically filtered and properly lubricated before reaching the air motor, eliminating the need for any external air treatment units. This will improve overall hoist performance and reduce unscheduled downtime. Refer to [Table 5](#), p. 8. If air supply varies from what is recommended, hoist performance will change. The compressed air temperature must not exceed 60 °C at the motor air inlet. Contact the factory for higher temperature use. Refer to [Figure 7](#), p. 23.

Air Lines

Inside diameter of the hoist air supply lines must not be less than size specified in [Table 6](#), p. 8. Before making final connections, all air supply lines should be purged with clean, moisture free air or nitrogen before connecting to hoist 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 the lines.

Air Line Lubricator

The built-in lubricator should be replenished on a regular basis, refer to “[Lubrication](#),” p. 19.

⚠ CAUTION



- **Shut off air supply before filling air line lubricator.**
- **Do not open the built-in air lubricator and filter plugs when the hoist is pressurized.**

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 the motor, or an after cooler at the compressor that cools the air to condense and collect moisture prior to distribution through the supply lines are also helpful.

Motor

For optimum performance and maximum durability of parts, operate the air motor within the operating specifications provided. Refer to the ["Nomenclature," p. 6](#). The air motor should be installed as near as possible to the compressor or air receiver. Refer to [Figure 3, p. 22](#) for motor port connections.

Overload Device

Overload protection is integrated into the motor body and is standard on Xtrem Series. The overload system is based on detection of the difference in air pressure between the inlet and outlet ports of the motor. It consists of a valve which is normally closed. The valve senses pressure at the motor inlet and outlet and compares the difference between the two pressures to the index value established by spring adjustment. An overload activates the brake which is more powerful than the motor so the hoist stops.

Overload protection is adjusted at the factory to 120% of the safe working load (SWL). Refer to the "MAINTENANCE" section in Product Maintenance Information Manual for adjustment procedures.

Start-Up Procedures

For hoists that have been in storage the following startup procedures are required.

1. Give the hoist an inspection conforming to the requirements of ["Hoists Not in Regular Use," p. 18](#).
2. Inject a small amount of ISO VG 32 (SAE 10W) oil in the motor inlet port.
3. Operate the motor for 10 seconds in both directions to flush out any impurities.
4. The hoist is now ready for normal use.

Main Air Shut-off Valve

The main air shut-off valve is completely integrated into the motor body and is standard on -E versions.

Chain Container

Check the chain container size to make sure the length of the load chain is within the capacity of the chain container. Replace with a larger chain container if required. When a chain bucket is used, always connect the free end of the chain to the hoist. Install a chain buffer on the ninth link from the end of the chain. Attach the chain container to the hoist. Run bottom block to the lowest point and run hoist in the 'UP' direction to feed the chain back into the container.

⚠ WARNING

!

Allow chain to pile naturally in the chain container. Load chain that does not pile naturally can chafe excessively, leading to sparks.

NOTICE

!

Make certain to adjust the balance chain so that the chain container does not contact the load chain.

Attaching Limit Stop

Refer to the "Maintenance" section in Product Maintenance Information Manual.

1. On hoists without a chain bucket, slide buffer and limit stop washer onto chain.
2. Install limit stop as described under 'Load Chain Replacement'.
3. Run hoist slowly in the both directions to verify limit stops activate and hoist ceases to operate.

Pendant

Check that all hose connections are tight and that hoses are not twisted or crimped. Refer to [Figure 5, p. 22](#) for hose connections. Pendant lengths up to 66 ft (20 m) are available. Contact the factory for pendant lengths greater than 66 ft (20 m).

⚠ CAUTION

!

To avoid damaging the pendant hose, make sure the strain relief cable, not the pendant hose, is supporting the weight of the pendant.

Operation - Standard LC2A Hoists

It is recommended that the user and owner check all appropriate and applicable regulations before placing this product into use. Refer to Product Safety Information Manual. The hoist operator must be carefully instructed in his or her duties and must understand the operation of the hoist, including a study of the manufacturer's literature. The operator must thoroughly understand proper methods of hitching loads and should have a good attitude regarding safety. It is the operator's responsibility to refuse to operate the hoist under unsafe conditions.

⚠ WARNING

!

- **The hoist is not designed or suitable for lifting, lowering or moving people.**
- **Never lift loads over people.**
- **The hook latch is intended to retain loose slings or devices under slack conditions. Use caution to prevent the latch from supporting any of the load.**
- **Refer to Product Safety Information Manual for general operation information.**

Hoist Controls

Pendant Operation

The pendant is a remote control that allows the operator to control the positioning of a load. The pendant can have from two to six functions. The two function pendant will control hoist movement in the UP and DOWN direction. A four-function pendant will control trolley movement along the support beam and hoist operation. A six function pendant would include the above movements plus control a bridge assembly allowing hoist movement in four directions. Always apply smooth even pressure during operation, avoid quick starts and abrupt stops. This will allow smoother control of suspended loads and reduce undue stress on components.

Remote Two Function Pendant (Without Emergency Stop): Refer to [Figure 8, p. 23](#).

Remote Two Function Pendant (With Emergency Stop): Refer to [Figure 9, p. 23](#).

Remote Four Function Pendant (Shown only with Emergency Stop): Refer to [Figure 4, p. 22](#).

Emergency Stop (optional feature)

Refer to [Figure 9, p. 23](#) and [Figure 4, p. 22](#).

The Emergency Stop button, when activated, will immediately stop all operations of the trolley and hoist. The Emergency Stop button will remain depressed after activation. To reset Emergency Stop button, twist (rotate) Emergency Stop button clockwise until button releases and spring returns to its original position. Depress "ON" button.

Pull Chain Control - C1 Option (optional feature)

The rope control provides the operator with a local hoist operating station. The following directions are as viewed from the motor end of the hoist, facing the rope control. Refer to [Figure 14, p. 24](#).

1. To lift a load, pull down on the right chain.
2. To lower a load, pull down on the left chain.
3. Pull chain to full travel for maximum speed. Pull chain partially for slower speeds.
4. To stop lifting or lowering, release chain. Hoist motor will stop.
5. If the lever is stuck, you can pull the other chain to stop the hoist.

Storing the Hoist

1. Always store the hoist in a no load condition.
2. Wipe off all dirt and water.
3. Oil the chain, hook pins and hook latch.
4. Place in a dry location.
5. Plug hoist air inlet port.
6. Before returning hoist to service, follow instructions for "[Hoists Not in Regular Use,](#)" p. 18.

Operation - Xtrem Series

It is recommended that the user and owner check all appropriate and applicable regulations before placing this product into use. Refer to Product Safety Information Manual. The hoist operator must be carefully instructed in his or her duties and must understand the operation of the hoist, including a study of the manufacturer's literature. The operator must thoroughly understand proper methods of hitching loads and should have a good attitude regarding safety. It is the operator's responsibility to refuse to operate the hoist under unsafe conditions.

WARNING

!

- **The hoist is not designed or suitable for lifting, lowering or moving people.**
- **Never lift loads over people.**
- **The hook latch is intended to retain loose slings or devices under slack conditions. Use caution to prevent the latch from supporting any of the load.**
- **Refer to Product Safety Information Manual for general operation information.**

Hoist Controls

Pull Cord Control - X1 Option

The pull cord control provides the operator with a local hoist operating station. Attach the cords to the rings of control lever, use figure 8 on a bight knot to securely fasten the cords on the rings. The following directions are as viewed from the motor end of the hoist, facing the rope control. Refer to [Figure 15, p. 24](#).

1. To lift a load, pull down on the left cord.
2. To lower a load, pull down on the right cord.
3. Pull cord to full travel for maximum speed. Pull cord partially for slower speeds.
4. To stop lifting or lowering, release cord. Hoist motor will stop.
5. If the lever is stuck, you can pull the other cord to stop the hoist.

Storing the Hoist

1. Always store the hoist in a no load condition.
2. Wipe off all dirt and water.
3. Oil the chain, hook pins and hook latch.
4. Place in a dry location.
5. Plug hoist air inlet port.
6. Before returning hoist to service, follow instructions for ["Hoists Not in Regular Use," p. 18](#).
7. Store the hoist vertically to prevent the air lubricator oil from leaking.

Inspection

1. Check hoist for oil leaks daily. Immediately repair any leaks.
2. At the beginning of each shift operate the hoist in both directions without a load. Ensure the motor runs free, and that the brake(s) do not drag.
3. Keep hoist housings clean of dust and dirt build up which may cause heat build up and sparks.

Inspection information is based in part on American Standards of Mechanical Engineers Safety Codes B30.16.

⚠ WARNING

!

- **All new or repaired equipment should be inspected and tested by Ingersoll Rand trained technicians to ensure safe operation at rated specifications before placing equipment in service.**
- **Never use a hoist that inspection indicates is damaged.**

Frequent and periodic inspections should be performed on equipment in regular service. Frequent inspections are visual examinations performed by operators or **Ingersoll Rand** trained inspectors and include observations made during routine equipment operation. Periodic inspections are thorough inspections conducted by **Ingersoll Rand** trained technicians. ASME B30.16 states inspection intervals depend upon the nature of the critical components of the equipment and the severity of usage. Refer to 'Inspection Classifications' chart and 'Maintenance Intervals' chart in Product Maintenance Information Manual for recommended maintenance intervals. Careful inspection on a regular basis will reveal potentially dangerous conditions while still in the early stages, allowing corrective action to be taken before the condition becomes dangerous.

Deficiencies revealed through inspection, or noted during operation, must be reported to designated personnel to ensure corrective action is taken. A determination as to whether a condition constitutes a safety hazard(s) must be decided, and the correction of noted safety hazard(s) accomplished and documented by written report before placing the equipment in service.

Frequent Inspection

On equipment in continuous service, a 'Daily Inspection' should be made by the operator at the beginning of each shift and a 'Quarterly Inspection' (90 days) should be conducted during regular service for any damage or evidence of malfunction.

Daily Inspection

Complete inspections prior to start of daily tasks. Conduct visual inspections during regular operation for indications of damage or evidence of malfunction (such as abnormal noises).

1. **Lubricator:**

For standard LC2A hoists: Adjust air line lubricator drops (ISO VG 32 [SAE 10W]) per minute to 2 to 3 during hoist operation.

For Xtrem Series hoists: The lubricator is in-built and factory-set, verify that the oil level is sufficient by looking at the sight glass when the hoist is vertical. For the lubricator operation and it's available settings, refer to ["Air Line Lubricator," p. 20.](#)

2. **Surrounding Area:** Visually check hoist for oil leaks. Do not operate hoist if leaking oil is found. Make sure surrounding area has no slippery surfaces and is obstruction free.
3. **Hoses and Fittings:** Visually inspect for damage, air leaks, and loose connections. Repair all leaks or damage and tighten loose connections prior to starting daily tasks.
4. **Hoist:** Check for visual signs or abnormal noises (grinding, etc.) which could indicate a potential problem. Make sure all controls function properly. Check chain feed through hoist and bottom block. If chain binds, jumps, is excessively noisy or "clicks," clean and lubricate chain. If problem persists, replace chain. Do not operate hoist until all problems have been corrected.
5. **Upper and Lower Limit Device:**
For standard LC2A hoists: Test operation with no load slowly in both extremes of travel. Upward travel must stop when stop buffer on the bottom block hits hoist limit switch. Downward travel must stop when the stop buffer attached to the end of the unloaded load chain decreases and activates limit switch.

For Xtrem series: upward travel must stop when stop buffer on the bottom block hits the hoist central part. Similarly downward travel must stop when the stop buffer attached to the end of the unloaded load chain decreases and hits the hoist central part.

Inspection

6. **Controls:** During operation of the hoist, verify that response to pendant is quick and smooth. Make sure controls return to neutral when released. If hoist responds slowly or movement is unsatisfactory, do not operate the hoist under load conditions until all problems have been corrected.
7. **Brake:** During operation test brake. Brake must be capable of supporting load without slipping. Brake must release when control returns to neutral. If brake does not hold load or does not release properly when pendant is not being used, brake must be further inspected. Refer to Product Maintenance Information Manual.

WARNING



Worn or improperly functioning brakes may cause excessive heat build up and sparks.

8. **Hooks:** Check for wear or damage, increased throat width, bent shank or twisting of the hook. Replace if hook latch snaps past tip of hook. Check hooks swivel freely. Replace hooks which exceed the throat opening. Refer to [Figure 10, p. 23](#). Replace hooks which exceed a 10° twist. Refer to [Figure 17, p. 24](#). If hook latch snaps past tip of hook, the hook is sprung and must be replaced. Refer to the latest edition of ASME B30.10 'HOOKS' for additional information. Check hook support bearings for lubrication or damage. Make sure that they swivel easily and smoothly. Refer to Product Maintenance Information Manual.
9. **Hook Latch:** Make sure hook latch is present and not damaged. Replace if necessary.

CAUTION



Do not use hoist if hook latch is missing or damaged.

10. **Load Chain:** Examine each of the links for bending, cracks in weld areas or shoulders, traverse nicks and gouges, weld splatter, corrosion pits, striation (minute parallel lines) and chain wear, including bearing surfaces between chain links. Refer to [Figure 16, p. 24](#). Visually inspect as much of the chain as is possible. Inspect for wear, damage and corrosion. If damage is evident, do not operate hoist until the damage has been reviewed and inspected further by an **Ingersoll Rand** trained inspector. Refer to Product Maintenance Information Manual.

NOTICE



The full extent of chain wear cannot be determined by visual inspection. At any indication of wear inspect chain in accordance with instructions in 'Periodic Inspection'. Refer to Product Maintenance Information Manual.

11. **Load Chain Reeving:** Ensure welds on standing links are away from load sheave. Reinstall chain if necessary. Refer to Product Maintenance Information Manual. Make sure chain is not capsized, twisted or kinked. Adjust as required. Refer to Dwg. MHP0043 in Product Safety Information Manual.
12. **Labels and Tags:** Check for present and legibility of labels. Refer to Product Parts information manual for correct labels and placement. Replace if damaged or missing.

Load Chain Reports

Records should be maintained documenting condition of load chain removed from service as part of a long range chain inspection program. Accurate records will establish a relationship between visual observations noted during 'Frequent Inspections' and actual condition of load chain as determined by 'Periodic Inspections'. Refer to Product Maintenance Information Manual for chain specifications.

Hoists Not in Regular Use

1. Equipment which has been idle for a period of one month or more, but less than six months, shall be given an inspection conforming to the requirements of "[Frequent Inspection](#)," [p. 17](#) before being placed in service.
2. Equipment which has been idle for a period of over six months shall be given a complete inspection conforming with requirements of 'Periodic Inspection' before being placed in service. Refer to Product Maintenance Information Manual.
3. Standby equipment shall be inspected at least semiannually in accordance with requirements of "[Frequent Inspection](#)," [p. 17](#).

Lubrication

To ensure continued satisfactory operation of hoist, all points requiring lubrication must be serviced with correct lubricant at proper time interval as indicated for each assembly. Refer to 'Maintenance Interval' chart in Product Maintenance Information Manual for recommended lubrication intervals. Use only those lubricants recommended. Other lubricants may affect product performance. Approval for use of other lubricants must be obtained from your **Ingersoll Rand** distributor. Failure to observe this precaution may result in damage to winch and/or its associated components.

Internal	Lubrication Checks
Start of each shift	If used, check flow and level of air line lubricator (approximately 2 to 3 drops per minute required at maximum motor speed). For Xtrem series, fill in the air lubricator with 300 ml (10 oz) of SAE 10, ISO VG32 oil, check the oil level looking at the sight glass.
Monthly	Lubricate components supplied by grease fittings.
	Inspect and clean or replace air line filter. For Xtrem series, inspect and clean or replace in-built filter.
Yearly	Drain and refill hoist reduction gear oil.

General Lubrication

⚠ WARNING



Pneumatic Hoists use oil to prevent excessive heat build up and to prevent wear that could cause sparks. Oil levels must be properly maintained.

Always collect lubricants in suitable containers and dispose of in an environmentally safe manner.

Reduction Gear Assembly

Refer to [Figure 13, p. 24](#) and [Figure 12, p. 24](#).

Replace the oil in the reduction housing once every year. If the hoist is used at a normal frequency, the oil in the reduction housing is suitable for one year's operation without being changed. However, when the hoist is used at a high frequency, the oil may need to be changed more often. To ensure correct performance, highest efficiency and long life, it is essential that the lubricating oil be maintained at the correct level. The recommended grade of oil must be used at all times since the use of unsuitable oil may result in excessive temperature rise, loss of efficiency and possible damage to the gears.

NOTICE



Only use synthetic oil.

Table 8. Reduction Gear Assembly Oil Type

Models	Quantity		Oil
	oz	mL	
LC2A010S	2.1	60	MOTUL TECH GEAR SY150
LC2A015S			
LC2A020D			
LC2A030D			
LC2A060Q			
LC2A030S	11.3	320	MOTUL TECH GEAR SY220
LC2A040S			
LC2A060S			
LC2A060D			
LC2A080D			
LC2A120D			
LC2A180T			
LC2A250Q			

Lubrication

To replace oil remove fill plug and add oil to the reduction gear assembly, replace plug. Refer to Product Parts Information Manual.

Seals and Bearings

If hoist is disassembled, clean all parts thoroughly and coat bearings and seals with clean grease. Use sufficient grease to provide a good protective coat.

Hook Assemblies

Hoist top and bottom hooks are supported by thrust bearings. These bearings must be packed with **Ingersoll Rand** No. 68 Grease or a standard No. 2 multipurpose grease at regular intervals. Neglect of proper lubrication can lead to bearing failure.

1. Lubricate hook and latch pivot points. Refer to [Figure 11, p. 23](#), A. Hook latch pivot point. Hook and latch should swivel/pivot freely.
2. Use **Ingersoll Rand** LUBRI-LINK-GREEN® or ISO VG220 (SAE 50W) lubricant.
3. Lubricate hook bearings by applying several shots of grease from a grease gun to the grease fittings provided on the hook blocks.

Air Line Lubricator

If an air line lubricator is used, set to provide 2 to 3 drops per minute and replenish daily using ISO VG100 (SAE 30W) lubricant [minimum viscosity 135 cSt at 104 °F (40 °C)].

For Xtrem series, the factory setting for the lubricator at 20 °C is index "6" with SAE 10 oil viscosity. If the air quality is very bad, the setting can be increased accordingly upto a maximum index of "10" to provide more lubrication. Similarly the setting can be reduced if the air quality is very good. Fill in the air Lubricator with 300 ml (10 oz) SAE 10, ISO VG32 or any air lubrication oil. The oil grade can also be adapted to local temperature condition.

Trolley (optional feature)

Grease wheel bearings and wheel drive gear with **Ingersoll Rand** No. 68 Grease or a standard No. 2 multipurpose grease periodically. Refer to manufacturer's literature for additional lubrication information.

Load Chain

⚠ WARNING

!

Failure to maintain a clean and well lubricated load chain will result in rapid load chain wear that can lead to chain failure which can cause severe injury, death or substantial property damage.

1. Lubricate each link of load chain weekly, or more frequently, depending on severity of service.
2. In corrosive environments, lubricate more frequently than normal.
3. Lubricate each link of the load chain and apply new lubricant over existing layer.
4. Lubricate hook and hook latch pivot points.
5. If required, clean chain with acid free solvent to remove rust or abrasive dust buildup and lubricate chain.
6. Use **Ingersoll Rand** LUBRI-LINK-GREEN® or an ISO VG220 to 320 (SAE 50W to 90 EP) oil.

Table 9. Ingersoll Rand Lubricants

Where Used	Size	Part Number
Hook Assemblies	16 oz	LUBRI-LINK-GREEN®
	5 Gal	LLG-5
Upper and Lower Hook Thrust bearings, Trolley Wheel Bearings and Gear	8 Lb	688 LB
Air Line Lubricator	1 Qt	29665
Load Chain	1 pt	50P
	1 Gal	50G

Product Information Graphics

Figure 1. Pendant Control - Option P2 (MHP2661)

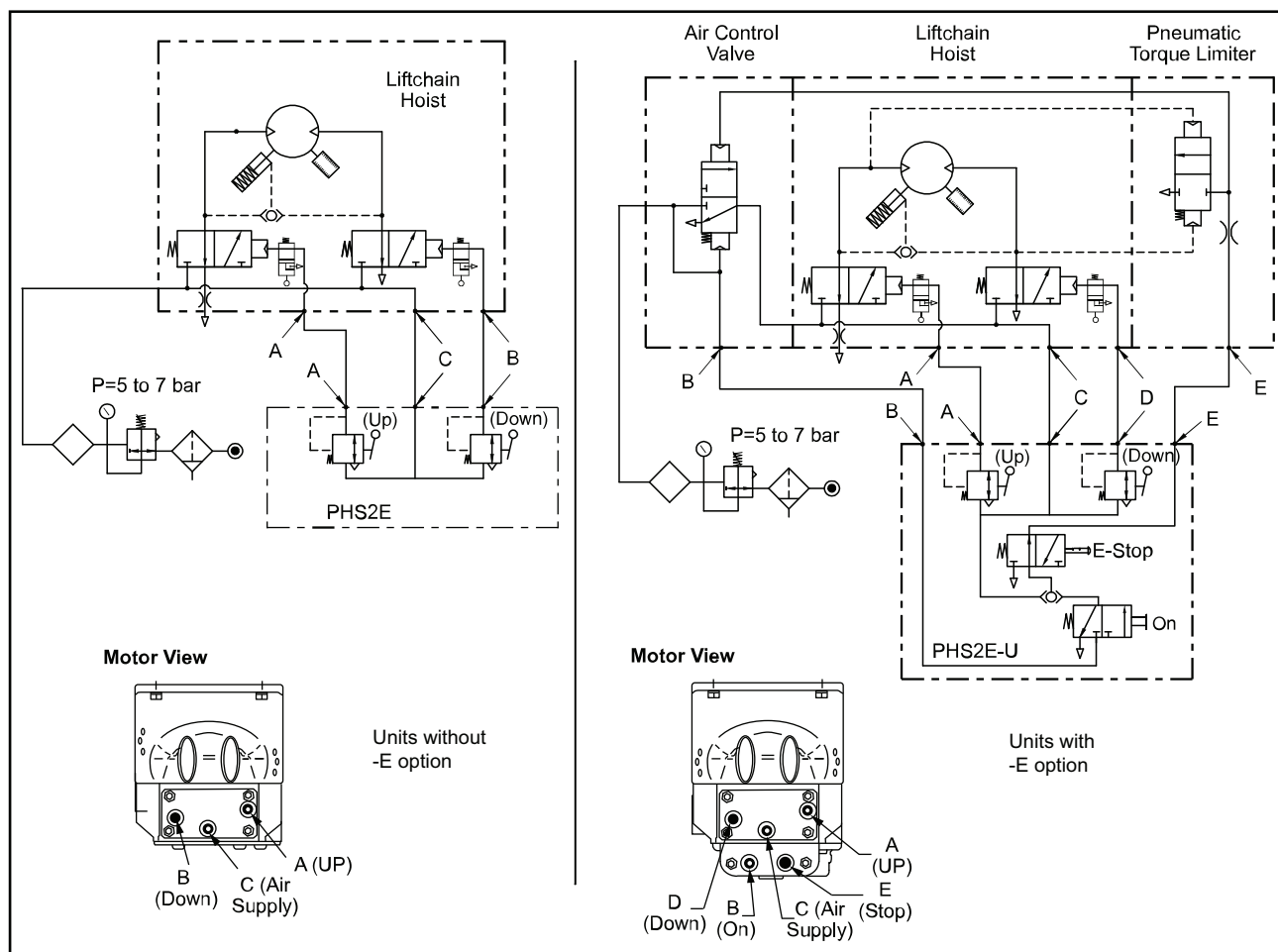


Figure 2. Pull Chain Control - Option C1 (MHP2660)

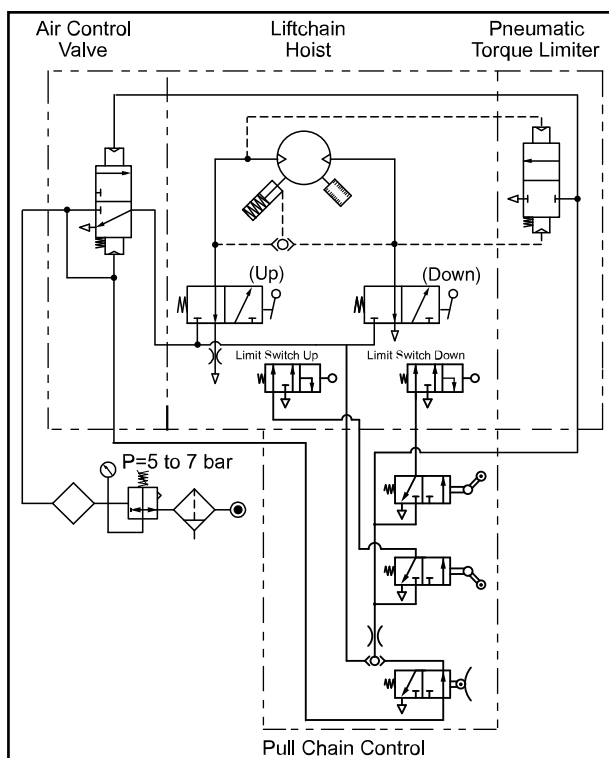


Figure 3. Pull Cord Control - Option X1 (MHP5389)

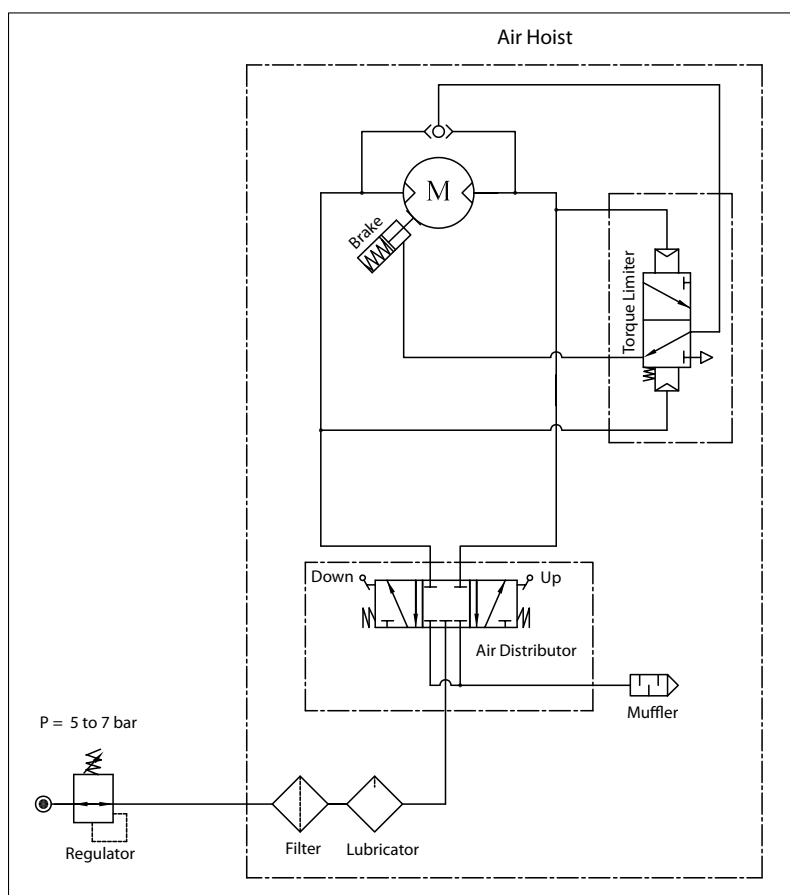


Figure 4. MHP1547

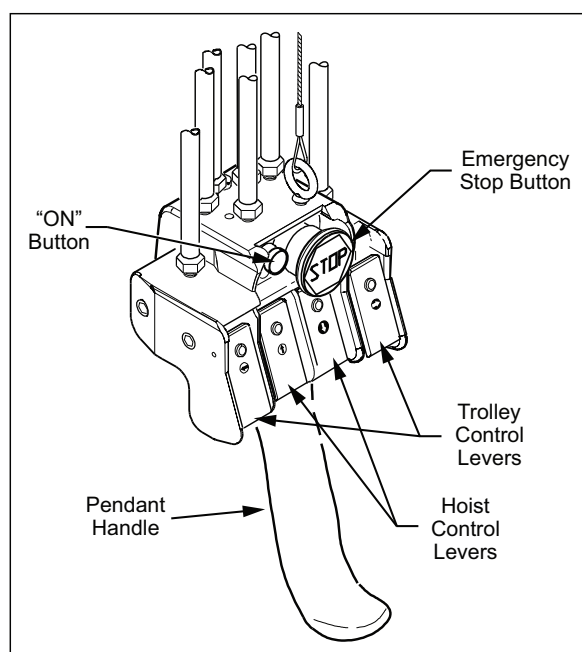
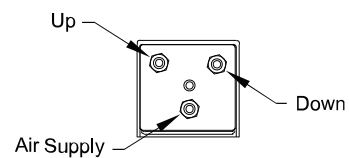
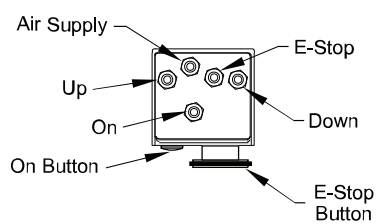


Figure 5. MHP1299

Single Motor Pendant PHS2E Top View



Single Motor Pendant PHS2E(-U) Top View



Two Motor Pendant PHS4E(-U) Top View

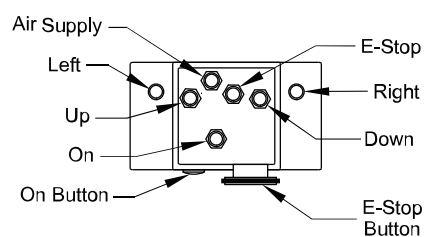


Figure 6. MHP0191

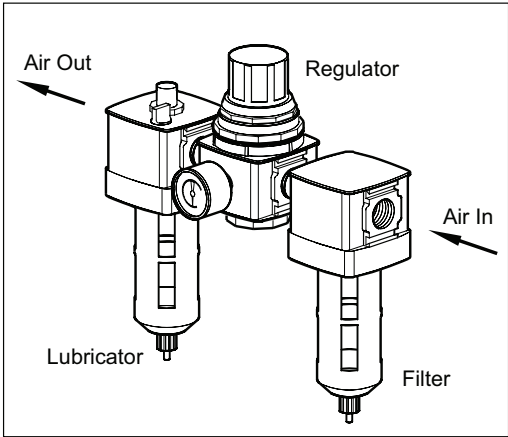


Figure 7. MHP5395

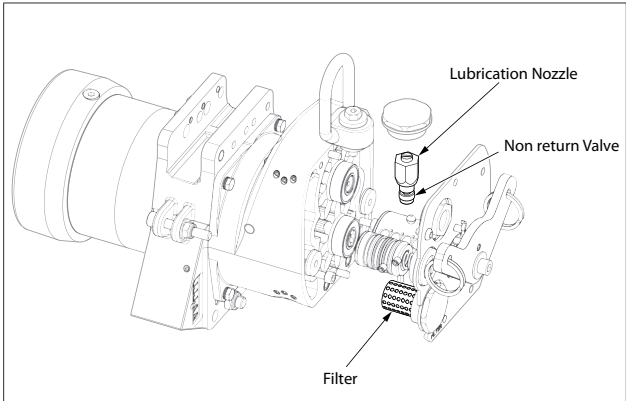


Figure 8. MHP2398

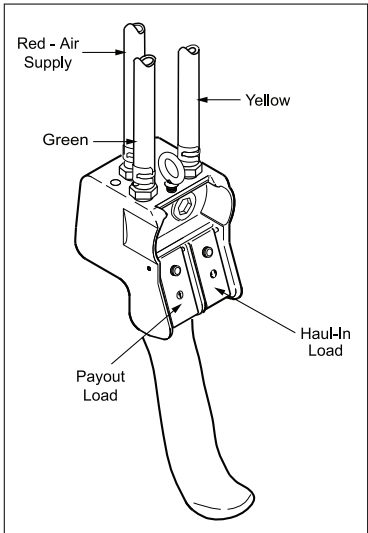


Figure 9. MHP1649

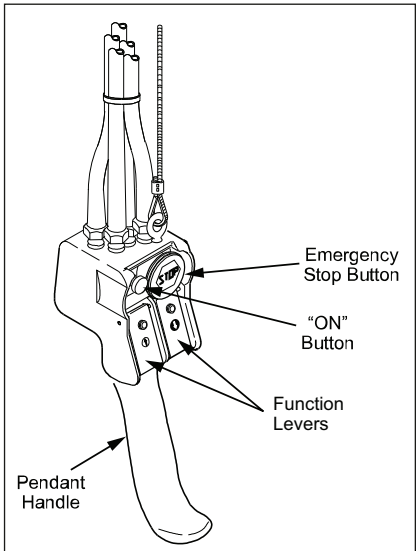


Figure 10. MHP0040

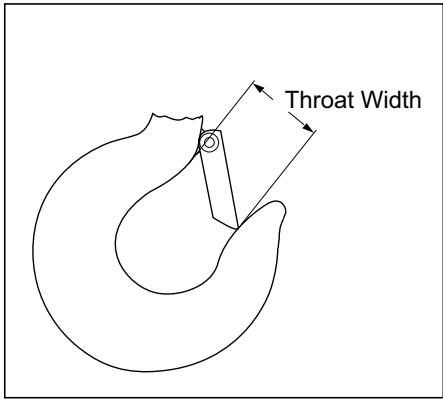


Figure 11. MHP1300

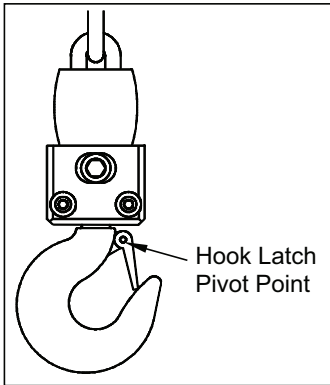


Figure 12. MHP5392

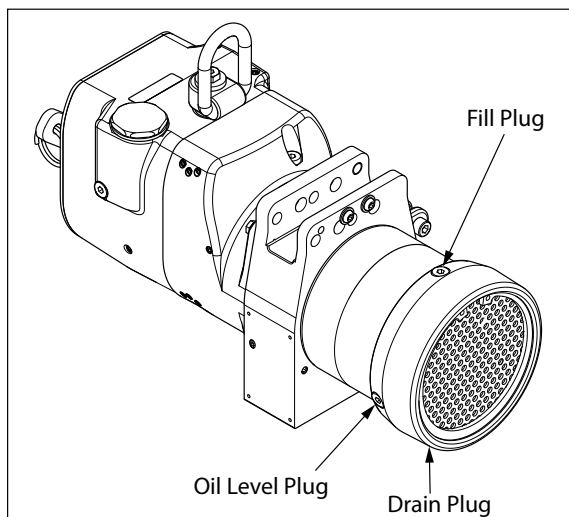


Figure 13. MHP5391

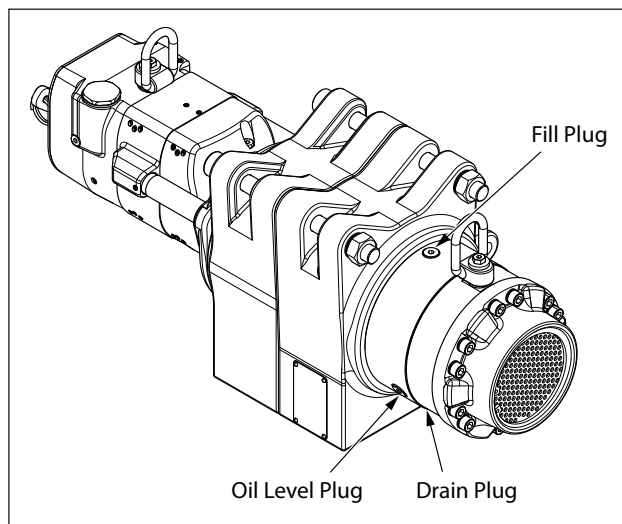


Figure 14. MHP3043

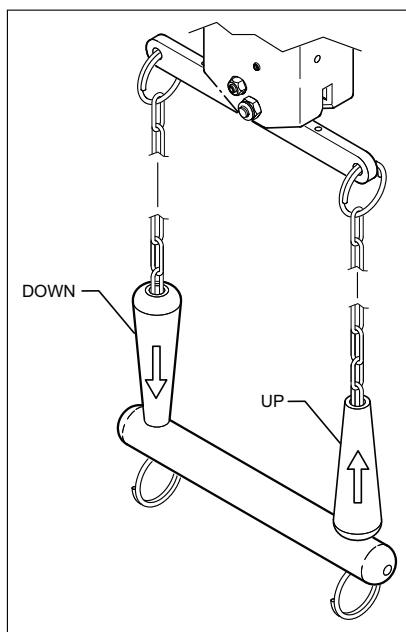


Figure 15. MHP5394

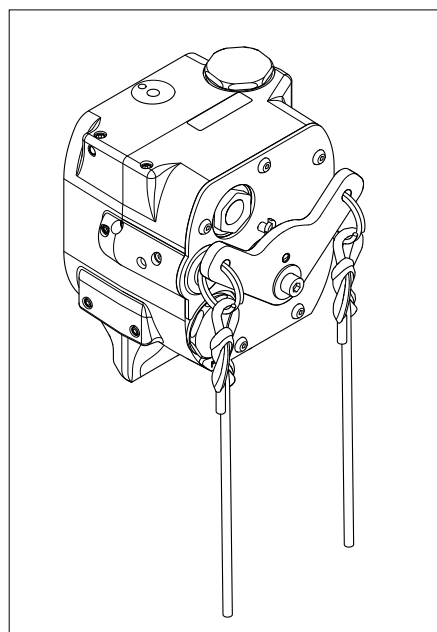


Figure 16. MHP0102

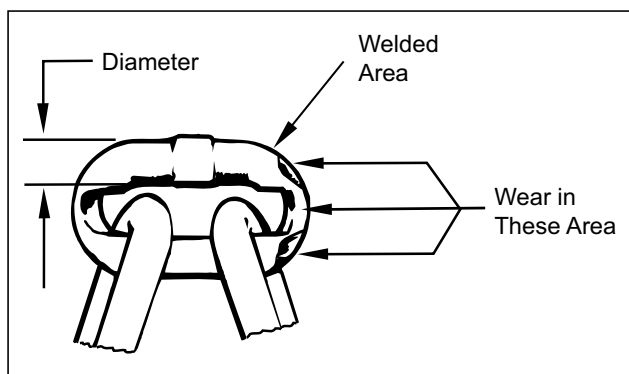
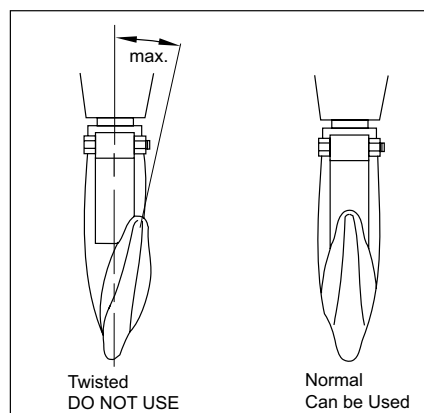


Figure 17. MHP0111



Warranty

Ingersoll Rand Limited Warranty

Ingersoll Rand ("IR") warrants to the original user its material handling products ("Products") to be free of defects in material and workmanship for a period of one year from the date of purchase. IR will, at its option either (1) repair, without cost, any Product found to be defective, including parts and labor charges, or (2) replace such Products or refund the purchase price, less a reasonable allowance for depreciation, in exchange for the Product. Repairs or replacements are warranted for the remainder of the original warranty.

If any Product proves defective within its original oneyear warranty period, it should be returned to any Authorized Product Service Distributor, transportation prepaid with proof of purchase or warranty card. This warranty does not apply to Products which IR has determined to have been misused or abused, improperly maintained by the user, or where the malfunction or defect can be attributed to the use of non-genuine IR repair parts.

IR MAKES NO OTHER WARRANTY, CONDITION OR REPRESENTATION OF ANY KIND WHATSOEVER, EXPRESSED OR IMPLIED, STATUTORY OR OTHERWISE, AND ALL IMPLIED WARRANTIES AND CONDITIONS RELATING TO MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE HEREBY DISCLAIMED.

IR's maximum liability is limited to the purchase price of the Product and in no event shall IR be liable for any consequential, indirect incidental or special damages of any nature arising from the sale or use of the Product, whether in contract, tort or otherwise.

Note: *Some states do not allow limitations on incidental or consequential damages, so that the above limitations may not apply to you. This warranty gives you specific legal rights and you may also have other rights which may vary from state to state.*

Winch and Hoist Solutions Extended Warranty This option provides a price for extending the **Ingersoll Rand** Winch and Hoist Solutions Warranty from the standard one (1) year to two (2) years from the date of purchase. All other provisions of the standard warranty to remain in effect.

For additional information or quotations for warranties falling outside of these parameters, please contact your Client Services Representative with your requirements.

