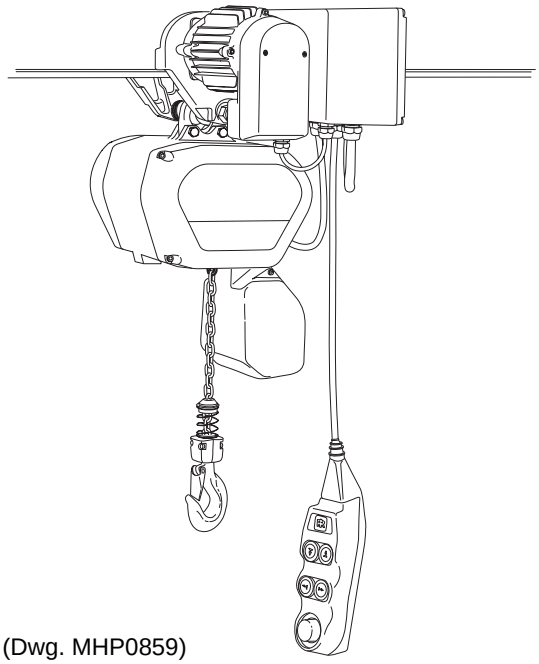
INTERNATIONAL
PARTS, INSTALLATION AND MAINTENANCE MANUAL
for
QUANTUM 'QIMT' Series
Electric Trolleys



(Dwg. MHP0859)

Unless otherwise noted, tons in this manual are metric tons (2,200 lb)

READ THIS MANUAL BEFORE USING THESE PRODUCTS. This manual contains important safety, installation, and maintenance information. Make this manual available to all persons responsible for the operation, installation and maintenance of these products.

⚠WARNING

Do not use this trolley for lifting, supporting, or transporting people or lifting or supporting loads over people.

Always operate, inspect and maintain this trolley in accordance with American National Standards Institute Safety Code (ASME B30.16) and any other applicable safety codes and regulations.

Refer all communications to the nearest Ingersoll-Rand Material Handling Office or Distributor.

Form MHD56125
Edition1
September 1998
71335962

INGERSOLL-RAND
MATERIAL HANDLING

TABLE OF CONTENTS

Safety Information
Danger, Warning, Caution and Notice 3
Safety Summary 3

Safe Operating Instructions 4

Warning Labels 4

Specifications 5
Description of Trolley Operation 5
Model Code Explanation 5
Performance 6

Installation
Trolley and Hoist Installation 8
Power Connection 9
Trolley Brake Kit Installation 10

Wiring Diagrams ..... 12 - 18

Operation 19

Inspection
Records and Reports 20
Frequent Inspection 20
Periodic Inspection 20
Inspection and Maintenance Report 21

Lubrication 22

Troubleshooting 23

Maintenance
Maintenance Intervals 24
General Maintenance Instructions 24
Brake Adjustment Procedure 25
Disassembly and Assembly ..... 25 - 28
Cleaning, Inspection and Repair 26

Parts Ordering Information 29
Trolley Assembly Parts Drawing 30
Trolley Assembly Parts List ..... 31 - 33
Trolley Brake Assembly Parts Drawing (Optional Feature) 34
Trolley Brake Assembly Parts List (Optional Feature) 35
Control Pendant Assembly Parts Drawing 36
Control Pendant Assembly Parts List 37
Label Assembly Drawing And Parts List 38
Special Tools And Accessories 38

Warranty 39

SAFETY INFORMATION

This manual provides important information for all personnel involved with the safe installation, operation and proper maintenance of this product. Even if you feel you are familiar with this or similar equipment, you should read this manual before operating the trolley.

Danger, Warning, Caution and Notice

Throughout this manual there are steps and procedures which, if not followed, may result in an injury. The following signal words are used to identify the level of potential hazard.

⚠ DANGER — Danger is used to indicate the presence of a hazard which ***will*** cause ***severe*** injury, death, or substantial property damage if the warning is ignored.

⚠ WARNING — Warning is used to indicate the presence of a hazard which ***can*** cause ***severe*** injury, death, or substantial property damage if the warning is ignored.

⚠ CAUTION — Caution is used to indicate the presence of a hazard which ***will*** or ***can*** cause injury or property damage if the warning is ignored.

NOTICE — Notice is used to notify people of installation, operation, or maintenance information which is important but not hazard-related.

Safety Summary

⚠ WARNING

• Do not use this trolley or attached equipment for lifting, supporting, or transporting people or lifting or supporting loads over people.
• The supporting structures and load-attaching devices used in conjunction with these trolleys must provide a liberal safety factor. This is the customer's responsibility. If in doubt, consult a registered structural engineer.
• Electrical installation should be performed by licensed electricians in accordance with the latest edition of the National Electrical Code (ANSI/NFPA 70) and any applicable local, state and national electrical codes and ordinances.

NOTICE

• Lifting equipment is subject to different regulations in each country. These regulations may not be specified in this manual.

The National Safety Council, Accident Prevention Manual for Industrial Operations, Eighth Edition and other recognized safety sources make a common point: Employees who work near suspended loads or assist in hooking on or arranging a load should be instructed to keep out from under the load. From a safety standpoint, one factor is paramount: conduct all lifting operations in such a manner that if there were an equipment failure, no personnel would be injured. This means keep out from under a raised load and keep out of the line of force of any load.

Ingersoll-Rand Material Handling hoists and trolleys are manufactured in accordance with the latest ASME B30.16 standards.

The Occupational Safety and Health Act of 1970 generally places the burden of compliance with the user, not the manufacturer. Many OSHA requirements are not concerned or connected with the manufactured product but are, rather, associated with the final installation. It is the owner's and user's responsibility to determine the suitability of a product for any particular use. It is recommended that all applicable industry, trade association, federal, state and local regulations be checked. Read all operating instructions and warnings before operation.

Rigging: It is the responsibility of the operator to exercise caution, use common sense and be familiar with proper rigging techniques. Refer to ASME B30.9 for rigging information, American National Standards Institute, 1430 Broadway, New York, NY 10018.

This manual has been produced by **Ingersoll-Rand** to provide dealers, mechanics, operators and company personnel with the information required to install, operate, maintain and repair the products described herein.
It is extremely important that mechanics and operators be familiar with the servicing procedures of these products, or like or similar products, and are physically capable of conducting the procedures. These personnel shall have a general working knowledge that includes:

1. Proper and safe use and application of mechanic's common hand tools as well as special **Ingersoll-Rand** or recommended tools.
2. Safety procedures, precautions and work habits established by accepted industry standards.

Ingersoll-Rand cannot know of, or provide all the procedures by which product operations or repairs may be conducted and the hazards and/or results of each method. If operation or maintenance procedures not specifically recommended by the manufacturer are conducted, it must be ensured that product safety is not endangered by the actions taken. If unsure of an operation or maintenance procedure or step, personnel should place the product in a safe condition and contact supervisors and/or the factory for technical assistance.

SAFE OPERATING INSTRUCTIONS

The following warnings and operating instructions are intended to avoid unsafe operating practices which might lead to injury or property damage.

Ingersoll-Rand recognizes that most companies who use trolleys have a safety program in force at their facility. In the event that some conflict exists between a rule set forth in this publication and a similar rule already set by an individual company, the more stringent of the two should take precedence.

Safe Operating Instructions are provided to make an operator aware of unsafe practices to avoid and are not necessarily limited to the following list. Refer to specific sections in the manual for additional safety information.

1. Only allow personnel trained in safety and operation of this trolley to operate this product.
2. Only operate a trolley if you are physically fit to do so.
3. When a **"DO NOT OPERATE"** sign is placed on the trolley, or controls, do not operate the trolley until the sign has been removed by designated personnel.
4. Check that the hoist is securely attached to the trolley before using.
5. Before each shift, check the trolley for wear and damage. Never use a trolley that inspection indicates is worn or damaged.
6. Never lift a load greater than the rated capacity of the trolley. Refer to capacity labels attached to trolley.
7. Only operate a trolley when the hoist load chain is centered over the hook. Do not "side pull" or "yard".
8. Pay attention to the load at all times when operating the trolley.
9. Make sure everyone is clear of the load path. Do not lift a load over people.
10. Never use the trolley for lifting or lowering people, and never allow anyone to stand on a suspended load.
11. Do not swing a suspended load.
12. Do not leave load suspended when trolley is not in use.
13. Never weld or cut a load suspended by the trolley.
14. Do not operate trolley if excessive noise, jamming, overloading, or binding occurs.
15. Shut off electrical supply before performing any maintenance.
16. Avoid collision or bumping of trolley.
17. After use, or when in a non-operational mode, the trolley should be secured against unauthorized and unwarranted use.

WARNING LABELS

Each trolley is shipped from the factory with the warning labels shown. If the labels are not attached to your trolley, order new labels and install them. Refer to the parts list for the part number. Labels may be shown smaller than actual size.

SPECIFICATIONS

Description of Trolley Operation

Quantum 'QIMT' series electric trolleys are available in capacities ranging from 1 to 5 metric tons (2200 to 11,000 lb) and are designed to support hoists. **Quantum 'QIMT'** series electric trolleys are manufactured in accordance with the latest technical developments along with known technical safety regulations and specifications, and are tested for safety by the manufacturer. All 3 phase **Quantum** trolleys carry an H4 class trolley duty service rating.

Trolleys are fitted with a 42 volt low voltage control system which is electrically interlocked. An optional 110 volt control system is available.

Quantum 'QIMT' electric trolleys are driven by cylindrical, squirrel cage motors. The two-stage enclosed spur gearing is designed to provide smooth, controlled travel. The gears are hardened, self-adjusting and continuously lubricated. The helical design of the gearing ensures running noise is kept to a minimum. The output from the gearing section powers the trolley wheels.

An optional multi disc brake can be added to the trolley. The brake magnet is opened and closed by means of the disc system's torque arm. In a deenergized mode, the compression spring produces the braking torque, restricting trolley movement.

Quantum 'QIMT' series electric trolleys are equipped with a control pendant for the following functions:

Up-Down / Single or dual speed (hoist operation)
Emergency stop (red button)
Left / right travel

Trolley Motor Rating:

Normal speed:
60% / 240 switchings per hour

Slow speed:
20% / 240 switchings per hour

Model Code Explanation

Example: QIMT50NS15A3B — **QIMT** **50** **NS** **15** **A** **3** **B**

Series
Frame Size
Speed
Pendant Control Length
Flange Width
Voltage
Options

Series	Frame Size
QUANTUM Motorized Trolley (QIMT)	**50 = 1 ton (1,000 kg max) for QI25 and QI50 Hoists** 150 = 2 ton (2,000 kg max) for QI100 Hoists 300 = 5 ton (5,000 kg max) for QI200, QI300 and QI500 Hoists
Speed	**Pendant Control Length** (Length in feet (ft.))
NS = Normal Speed 48 fpm (14.6 mpm) ND = Normal/Dual Speed 48/16 fpm (14.6/4.9 mpm) HS = High Speed 96 fpm (29.3 mpm) HD = High/Dual Speed 96/24 fpm (29.3/7.3 mpm)	**xx = Specify**
Flange Width	**Voltage**
A = Refer to Trolley Beam Installation Table B = Refer to Trolley Beam Installation Table C = Refer to Trolley Beam Installation Table D = Refer to Trolley Beam Installation Table	**3 = 230/3/60*** 4 = 460/3/60* 5 = 575/3/60 6 = 380/3/50
Options	
B = Trolley Brake K = 110 volt Control F = F "xx", Specify power cord length in feet (Std. is 3 ft.)	
Notes: * = Single speed 230/460 volt motors are connectable for either voltage. Speed at 380v is 20% less than listed. Amps rated at 60 Hz except 380v is at 50 Hz. For special applications please consult the factory.	

Table 1 Trolley Performance

Trolley Model	Maximum Hoist Capacity (Model)	Travel Speed		Trolley Motor		Trolley Amperage (3 Phase / 60 Hz)				
		fpm	mpm	HP	kW	230/ 460V	230V	380V	460V	575V
QIMT50 (NS)	1000 kg (QI25/ QI50)	48	14.6	0.19	0.145	0.86/ 0.43	---			0.35
QIMT50 (ND)		48/ 16	15.6/ 4.9	0.15/ 0.05	0.11/ 0.04	---	0.64/ 0.50	0.32/ 0.25		0.26/ 0.20
QIMT50 (HS)		96	29.3	0.29	0.22	1.00/ 0.5	---			0.40
QIMT50 (HD)		96/ 24	29.3/ 7.3	0.29/ 0.07	0.22/ 0.055	---	0.64/ 0.50	0.35/ 0.25		0.28/ 0.20
QIMT150 (NS)	2,000 kg (QI100)	48	14.6	0.19	0.145	0.86/ 0.43	---			0.35
QIMT150 (ND)		48/ 16	15.6/ 4.9	0.15/ 0.05	0.11/ 0.04	---	0.64/ 0.50	0.32/ 0.25		0.26/ 0.20
QIMT150 (HS)		96	29.3	0.29	0.22	1.00/ 0.50	---			0.40
QIMT150 (HD)		96/ 48	29.3/ 7.3	0.29/ 0.07	0.22/ 0.055	---	0.64/ 0.50	0.35/ 0.25		0.28/ 0.20
QIMT300 (NS)	5000 kg (QI200/ QI300/ QI500)	48	14.6	0.4	0.30	1.20/ 0.60	---			0.48
QIMT300 (ND)		48/ 16	15.6/ 4.9	0.4/ 0.09	0.30/ 0.072	--	1.20/ 1.10	0.60/ 0.55		0.48/ 0.44
QIMT300 (HS)		96	29.3	0.48	0.36	1.40/ 0.70	---			0.56
QIMT300 (HD)		96/ 24	29.3/ 7.3	0.48/ 0.12	0.36/ 0.09	---	1.40/ 1.20	0.70/ 0.60		0.56/ 0.48

Table 2 Trolley Weight

Trolley Model	Weight			
	without Brake		with Brake	
	lbs	kg	lbs	kg
QIMT50 (NS)	55	25.0	61	27.5
QIMT50 (ND)	57	26.0	71	32
QIMT50 (HS)	55	25.0	61	27.5
QIMT50 (HD)	57	26.0	71	32
QIMT150 (NS)	67	30.5	71	32
QIMT150 (ND)	69	31.5	73	33
QIMT150 (HS)	67	30.5	71	32
QIMT150 (HD)	69	31.5	73	33
QIMT300 (NS)	108	49	112	51
QIMT300 (ND)	101	46	105	48
QIMT300 (HS)	108	49	112	51
QIMT300 (HD)	110	50	114	52

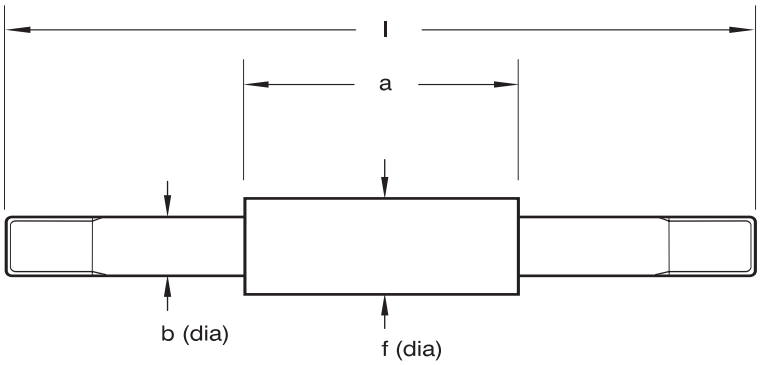
Table 3 Trolley Beam Installation

Trolley Model	Hoist Suspension Type	Beam Flange Type	Beam Flange Width		Minimum Beam Curve Radius		Hanger Shaft Dimensions**							
							a		b (dia)		f (dia)		l	
			in	mm	ft	m	in	mm	in	mm	in	mm	in	mm
QIMT50	Hook or Eyebolt	A*	2.0 - 3.9	50 - 99	3.94	1.20	1.22	31	0.63	16	1.10	28	7.20	183
		B	4.0 - 5.9	100 - 149			3.19	81					9.17	233
		C	6.0 - 7.8	150 - 199			5.16	131			1.18	30	11.14	283
		D	7.9 - 9.4	200 - 240			7.13	181					12.52	318
QIMT150	Eyebolt	A*	3.0 - 5.5	76 - 139	4.92	1.50	1.57	40	0.94	24	1.38	35	9.06	230
		B	5.6 - 7.8	140 - 199			4.17	106			1.57	40	11.42	290
		C	7.9 - 10.2	200 - 259			6.54	166			1.65	42	13.78	350
		D	10.3 - 12.6	260 - 320			8.90	226			1.77	45	16.14	410
QIMT300	Eyebolt Hangar Bracket	A	2.2 - 4.7	56 - 119	5.91	1.80	1.57	40			1.38	35	9.06	230
		B*	4.8 - 7.0	120 - 179			4.17	106			1.57	40	11.42	290
		C	7.1 - 9.4	180 - 239			6.54	166			1.65	42	13.78	350
		D	9.5 - 11.8	240 - 300			8.90	226			1.77	45	16.14	410

* Standard

** Refer to drawing MHP0812

Hanger Shaft Dimensions



(Dwg. MHP0812)

Prior to installing the trolley, carefully inspect components for possible shipping damage.
Trolleys are supplied fully lubricated from the factory.

⚠ 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 trolley to use.
• A falling load can cause injury or death. Before installing hoist and/or trolley, read "SAFETY INFORMATION".

Trolley and Hoist Installation

⚠ WARNING

• The hoist or hoist/trolley combination selected can weigh as much as 311 lbs. (141 kg). If parts of the trolley or hoist are dropped, they could cause injury or damage property. Adequately support the hoist and trolley when lifting into place on the beam.
• To avoid an unbalanced load which may damage the trolley, the hoist must be centered under the trolley.
• Verify trolley carrying capacity. Refer to trolley information in "SPECIFICATIONS" section. Trolley must provide an adequate safety factor to handle the rated load plus the weight of the hoist and attachments.

Installing Over the End of the Beam

Pre-adjust trolley width for the beam flange measurement. Refer to "Installing the Trolley from Underneath the Beam"**.** Remove the rail stop and slide trolley on end of the beam. Reinstall rail stop. If this procedure cannot be used due to insufficient space or fixed limit stops, the trolley must be installed from underneath the beam.

Installing the Trolley from Underneath the Beam

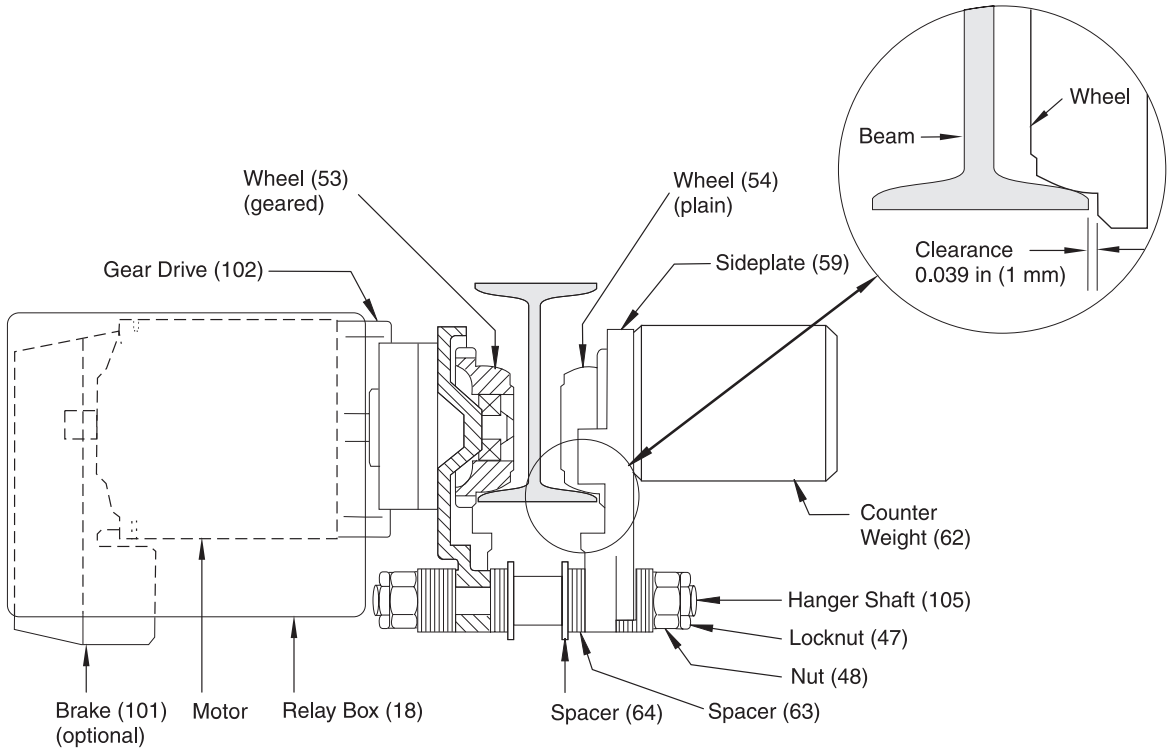
For manual trolleys refer to PT Series Parts, Operation and Maintenance manual form number MHD56102 for complete trolley installation information.

For powered trolleys, the hanger shaft is to be mounted from the inside to the outside. Refer to Dwg. MHP0794 on page 9. When doing so, observe that the number of spacers (63) is equally distributed on both sides. For hanger shafts with narrow flange widths, two spacers (65) are to be used.

NOTICE

• A clearance of approximately 0.039 in (1 mm) should be left between the wheel flanges and the beam flange. At least one spacer (63) must always be placed between the nut (48) and the side plate. The two locknuts (47) must be firmly tightened.

Model					
QIMT50		QIMT150		QIMT300	
500 kg		1500 kg		5000 kg	
ft lb	Nm	ft lb	Nm	ft lb	Nm
66-77	90-105	200-295	270-400	247-284	335-385



(Dwg. MHP0824)

⚠ CAUTION

• Total clearance between wheel flanges (53 and 54) and beam flange must not exceed 0.078 in. (2 mm). At least one spacer (63) must always be placed between the side plate and the nut (48). Torque nut (48) in accordance with Table 4. Install locknut (47) hand tight, then tighten with a wrench an additional 1/4 or 1/2 of a rotation.
• Replace locknut (47) with a new one after each use. Do not reuse locknuts.

The counterweight (62) is bolted to the side plate which has the plain wheels (54). The gear assembly (102) with the relay box (18) is attached to the side plate which has the geared wheels (53). A brake assembly (101) can be retrofitted to all motorized trolleys.

1. The safe working load (SWL) of the trolley should be checked first. Refer to trolley capacity information in "SPECIFICATIONS" section.
2. Spacers (63) are to be placed on the inside of the two side plates, to suit the beam flange width. There should be an equal number of spacers (63) on each side of the hanger shaft. Remaining spacers should be equally placed on the hanger shaft on the outside of side plates.
3. Bolt the counterweight (62) to the outside of the side plate.
4. The voltage should be checked.
5. For the electrical connections: refer to wiring diagrams.
6. Verify beam/rail stops are securely installed.

Electrical Equipment

⚠ WARNING

• Electrical installation should be performed by licensed electricians in accordance with the latest edition of the National Electrical Code (ANAI/NFPA 70) and any applicable local, state and national electrical codes and ordinances.
• Never install two wires into the same terminal port.

For **QIMT50** and **QIMT150** trolleys, the supply cable should be AWG-14 and for **QIMT300** trolleys AWG-12. The electrical supply must have branch circuit protection in accordance with National Electrical Codes. The supply cable wires must be connected to terminals L1, L2, L3 and PE yellow/green (ground-earth) in the trolley control assembly**.**

The control voltage is 42 volts (optional 110 volts) which is produced by a built-in transformer. The brake assembly, if equipped, is connected in parallel with the motor (refer to wiring drawings).

Power Connection

Power Supply conductors must be sized in accordance with NEC 310-15(b) specifications.

Pendant Connection

For four button control pendants, feed pendant cable through wire connector and into the relay box. Separate and connect wires 1, 2, 3, 4, 41, 42, 43 and 50 (8 wires) to similarly marked ports on the lower side of the terminal strip.

⚠ CAUTION

• Before connection of the electric chain hoist and/or trolley, check to ensure that the voltage specified on the nameplate matches the supply voltage.

After installation, the trolley should be connected by a licensed electrician who is knowledgeable with NEC article 430 and local regulations. Ensure that the voltage and frequency of the electrical supply correspond with the data stamped on the trolley nameplate before connecting the trolley.

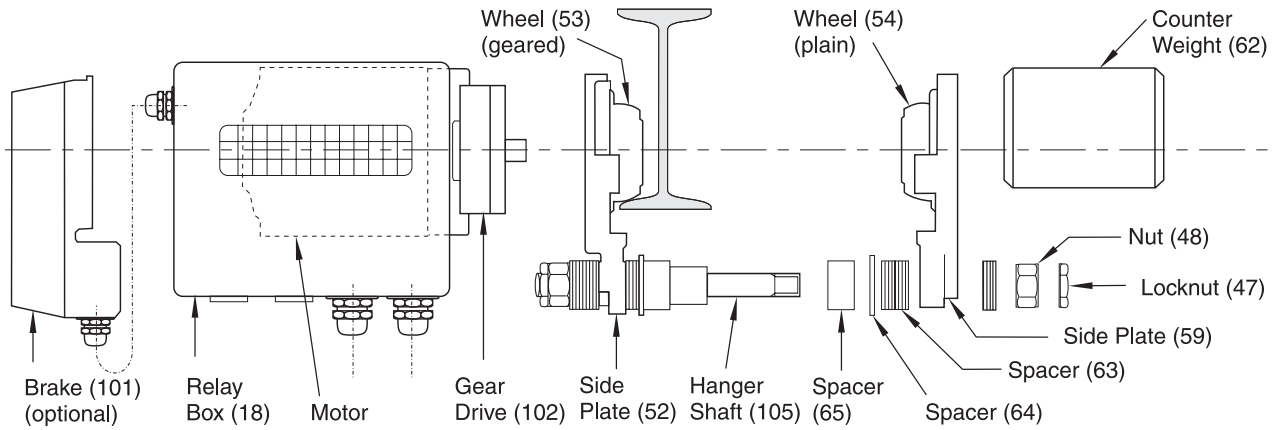
In addition, the following points are of primary importance when installing and connecting the trolley:

Restricted Ventilation will cause a trolley motor to operate at a higher than desired temperature. Dirt, dust, chemicals, snow, oil, etc. all can cause a problem. Avoid installing trolleys where air flow will be restricted or excessive ambient temperatures may be encountered.

Voltage Unbalance can cause excess temperature rise resulting in premature trolley motor failure. Periodically check voltage.

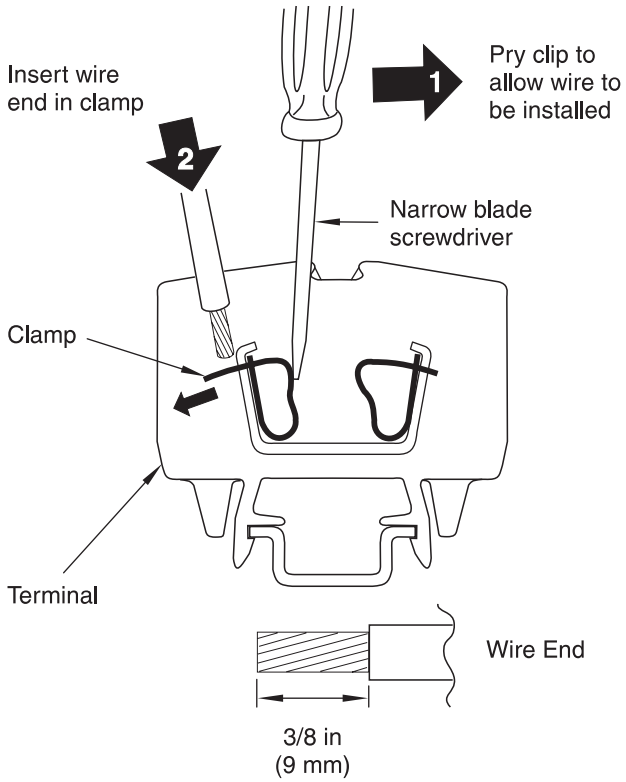
Electrical Connections, if not tight and secure, will be a continuous cause of trouble. During installation the electrician must make sure that all electrical connections including the ground connection are secure. Make sure all junction boxes and switch enclosures are adequately sealed and protected for the environmental conditions to be encountered.

To connect the trolley to the power supply, remove the electrical cover plate which is located nearest the power supply and pendant cable ports. Do not remove gear end cover. Connect the power supply cable.



(Dwg. MHP0794)

The electric trolley or chain hoist trolley combination must be connected in accordance with supplied wiring diagrams. Remove approximately 3/8 in. (9 mm) of the electrical power cable protective casing to expose wires.
Open the spring clamp with a narrow blade (1/8 in. (3.5 mm) wide) screwdriver, as shown in Dwg. MHP0795 below and install power cable end. Cable (leads) can be identified by color, or in the case of pendant cables, by numbers taped to each cable. Terminals are identified by letters or labels on the terminal blocks. Manufacturer-supplied cables have bare wire ends.



(Dwg. MHP0795)

Ground (Earth) Connections

⚠ DANGER

• The ground (earth), green or green/yellow wire, must not carry any power. With trolley only or trolley/hoist combinations, the power supply is connected to the control assembly of the trolley drive motor.

NOTICE

• The ground (earth) connection must be wired to the green/yellow ground (earth) connection terminal. Ground (earth) wire of the terminal power supply is connected to the yellow/green wire (PE).

Brake Assembly (optional feature)

When adding the optional brake assembly to the trolley, the brake drive must be installed to the motor output shaft. This procedure requires the removal of the brake arm and discs, then reinstalling.

Connect brake wiring to terminal block in control assembly. Refer to wiring diagrams.

The trolley brake assembly locks the main shaft of the trolley drive motor through a disc brake assembly. This assembly is a spring set design which locks the rotor shaft when power is not applied to the motor. When power is applied, the springs are compressed which allows the motor to rotate and move the load.

⚠WARNING

• If power is disrupted to the trolley with a brake, the load will not be able to be moved freely.

Trolley Brake Kit Installation

If the trolley brake kit is supplied separately or ordered after the trolley has been installed follow the steps provided for installation.

⚠WARNING

• Never perform maintenance on a hoist or trolley while it is supporting a load.
• Ensure that power is turned off and unit is disconnected.

Refer to Dwg. MHP1075 on page 34.

1. Remove capscrews (70 and 71) and lockwashers (16). Carefully remove brake cover (72). There is a bag of installation parts inside, remove bag.
2. Remove retainer (84). Push down on brake lever (82), while pulling brake pin (83) out of lever block (80). Carefully release pressure on brake lever (82).
3. Remove locknut (97, not available separately, part of 85) on solenoid (85) end of brake lever (82). Remove brake lever (82), spring (87), spring guide (88) and spring (98, not available separately, part of 85).
4. Remove cup disc (74), brake washer (75) and brake discs (76 and 77).
5. Remove retainer ring (29) from rotor assembly (31). Remove four capscrews (26) and lockwashers (34) from motor cover (27). Using a screwdriver to hold rotor assembly (31) in position, pull motor cover off. Rotor assembly (31) should stay in stator (28).
6. Mount brake housing (90) to stator (28) using three capscrews (26) and lockwashers (16). The bottom capscrew (26) and lockwasher (16) is not used due to no access.
7. Place key (93) in rotor assembly (31) and slide brake hub (92) on to rotor shaft (31). Install retainer ring (29).
8. Insert brake discs (starting with 77 then 76, repeat until all discs are inserted), brake washer (75) and cup disc (74).
9. Place spring (98, not available separately, part of 85) on screw section of solenoid (85). Place spring (87) and spring guide (88) into slot in brake housing (90).
10. Place brake lever (82) into lever block (80) and press down. While pressing brake lever (82), slide pin (83) through lever block (80) and brake lever (82) until pin protrudes on opposite side. Press on retainer (84). Thread locknut (97, not available separately, part of 85) onto threaded shaft of solenoid (85) until 2 to 3 threads are exposed beyond locknut (97).

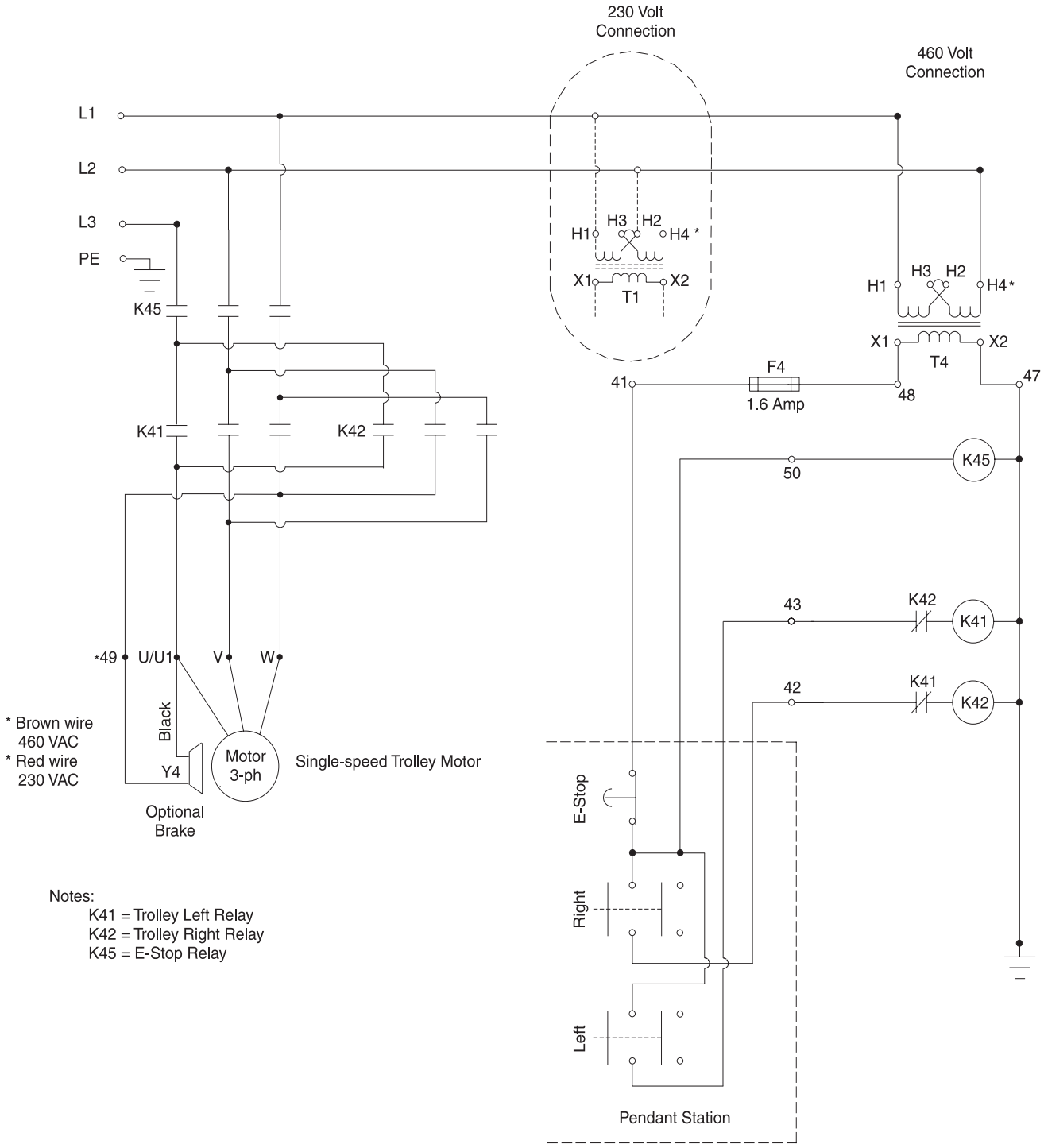
11. Ensure wires are connected correctly (in brake housing) for your operation:
    a. Brown wire in control cable to black wire in solenoid (85).
    b. Blue wire in control cable to brown wire in solenoid (85) for 460v operation, red wire for 230v operation.
    c. Yellow with green stripe in control cable to housing (90). This is the ground (earth). Maintain a little slack in wires and route around springs.
12. Check to ensure that wires are not interfering with spring (87).
13. Insert capscrews (71) with lockwashers (16) through bottom holes in brake cover (72). Position gasket (73) over capscrews and place this assembly onto brake housing (90). Make sure that control cable wires are not pinched by capscrews. Tighten a couple of turns.
14. Insert capscrews (70) with lockwashers (16) through top holes in cover (72), screw into housing (90) and tighten.
15. Tighten capscrews (71).
16. Loosen one screw (2) in lower right corner of relay box cover (1), remove the other three screws (2). This should allow cover (1) to rotate out of the way.
17. Remove smaller access plug (23) from bottom of relay box. Separate cable connector (22) on control cable and push control wire up through access hole.
18. Remove four screws (4) from control assembly (5) and pull out slightly. Route control cable wires over and between contactors and out through a hole in the control assembly (5).
19. Connect wires to terminal strip in the following locations:
    a. Brown wire in control cable to terminal 49.
    b. Blue wire in control cable to terminal U1.
    c. Yellow with green stripe in control cable to terminal PE.
20. Maintain a little slack and route wires around terminal strip. Attach cable connector (22) into relay box and tighten. Insert four screws (4) into control assembly (5) and tighten.
21. Replace relay box cover (1) and tighten screws (2).

Trolley Brake Test

1. Turn on power to trolley and observe.
2. By hand, grab load hook and apply a side load to trolley. Trolley should not move.
3. Using control pendant, move trolley in both directions (no load on hook) for a short distance. Observe for erratic movement and/or unusual noise.
4. Lift a load 5 - 10 inches (127 - 254 mm). Using trolley, move the load a short distance in both directions. Trolley should stop when pendant button is released.

WIRING DIAGRAM

Single Speed, Three Phase Trolley with Emergency Stop



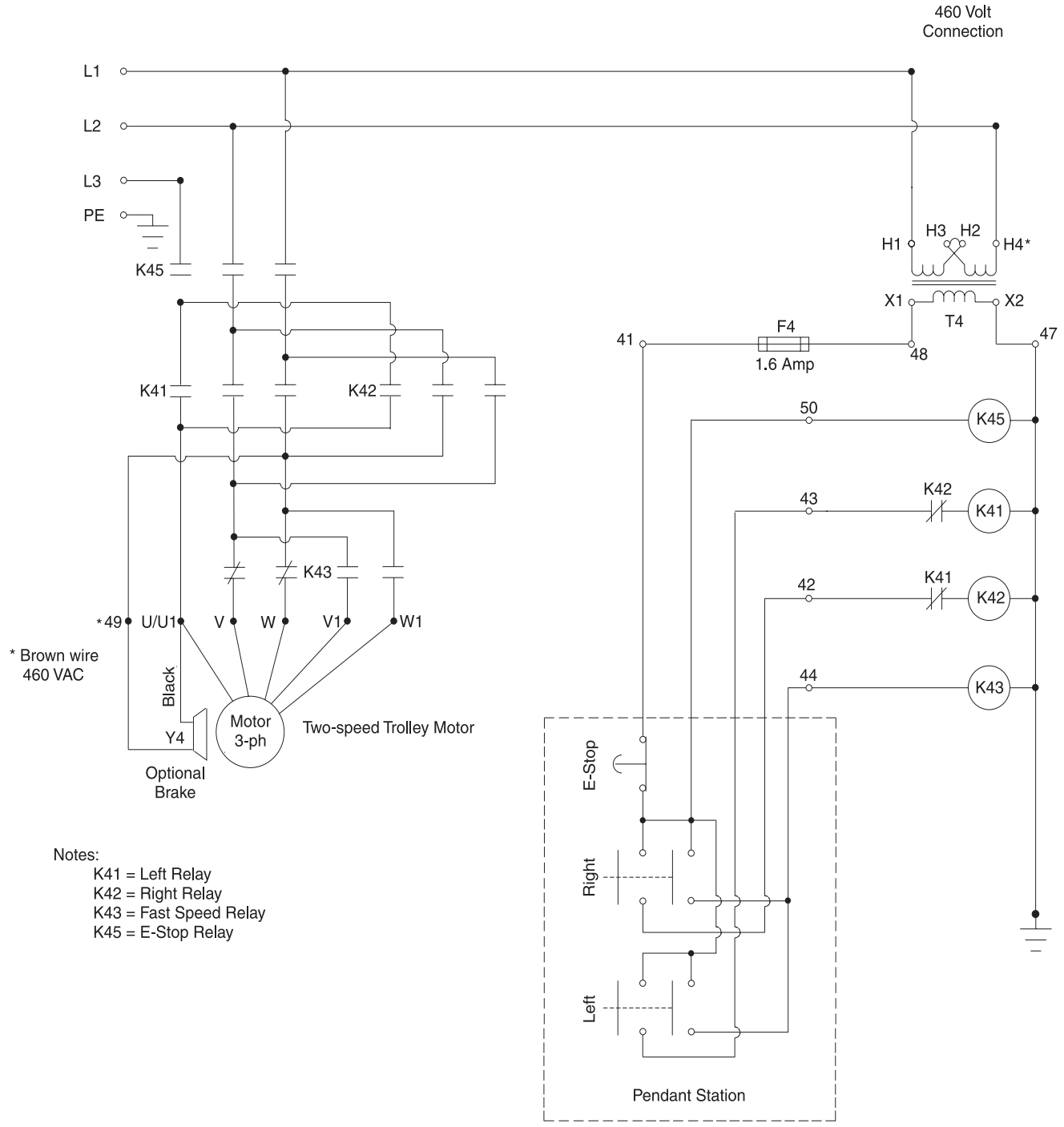
Notes:
K41 = Trolley Left Relay
K42 = Trolley Right Relay
K45 = E-Stop Relay

VOLTAGE	U/U1	V	W	CONNECT
230 VAC	U1 & U5	V1 & V5	W1 & W5	U2 & V2 & W2
460 VAC	U1	V1	W1	U2 & U5, V2 & V5, W2 & W5

(Dwg. MHP0821)

WIRING DIAGRAM

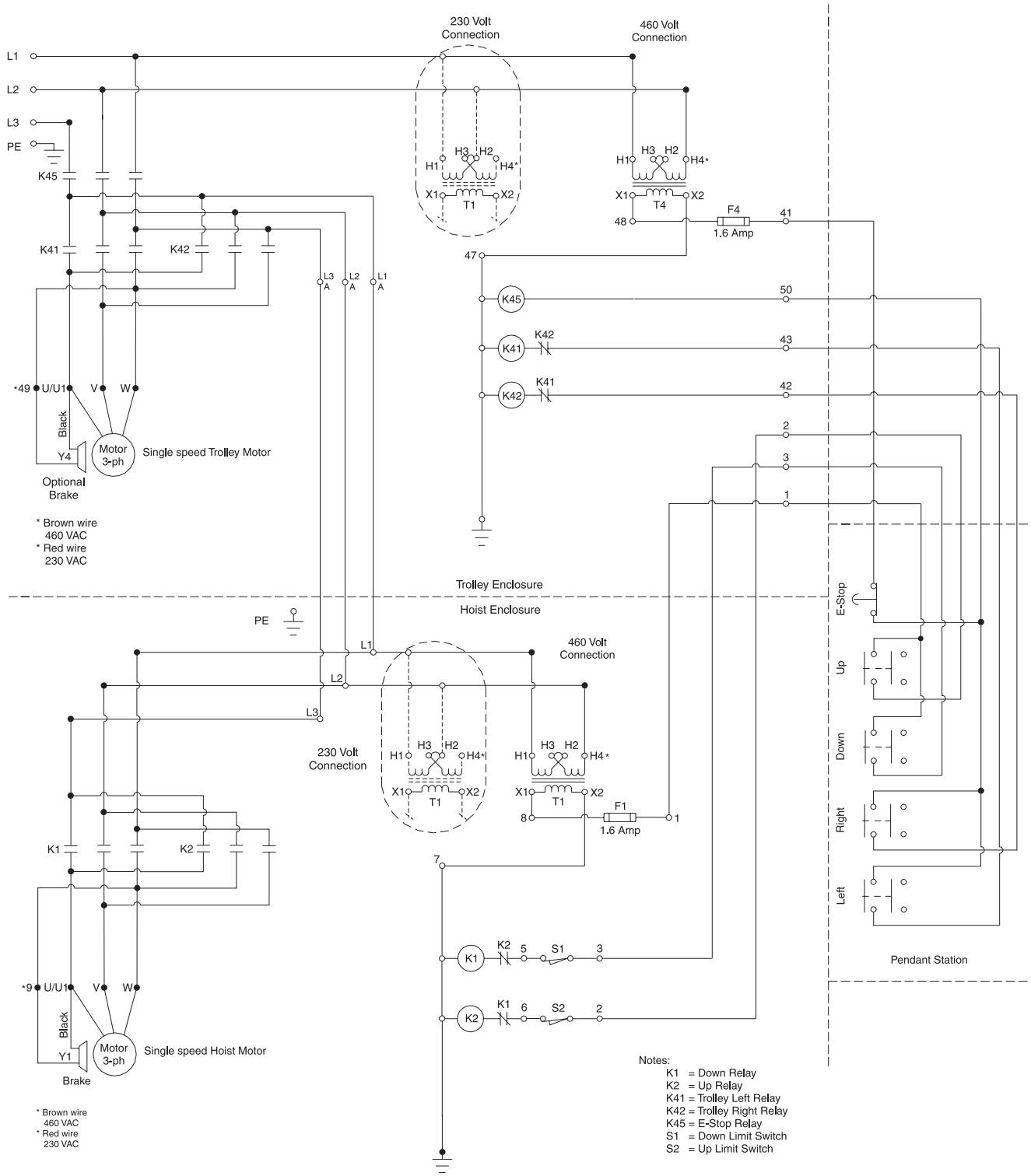
Dual Speed, Three Phase Trolley with Emergency Stop



Notes:
K41 = Left Relay
K42 = Right Relay
K43 = Fast Speed Relay
K45 = E-Stop Relay

(Dwg. MHP0822)

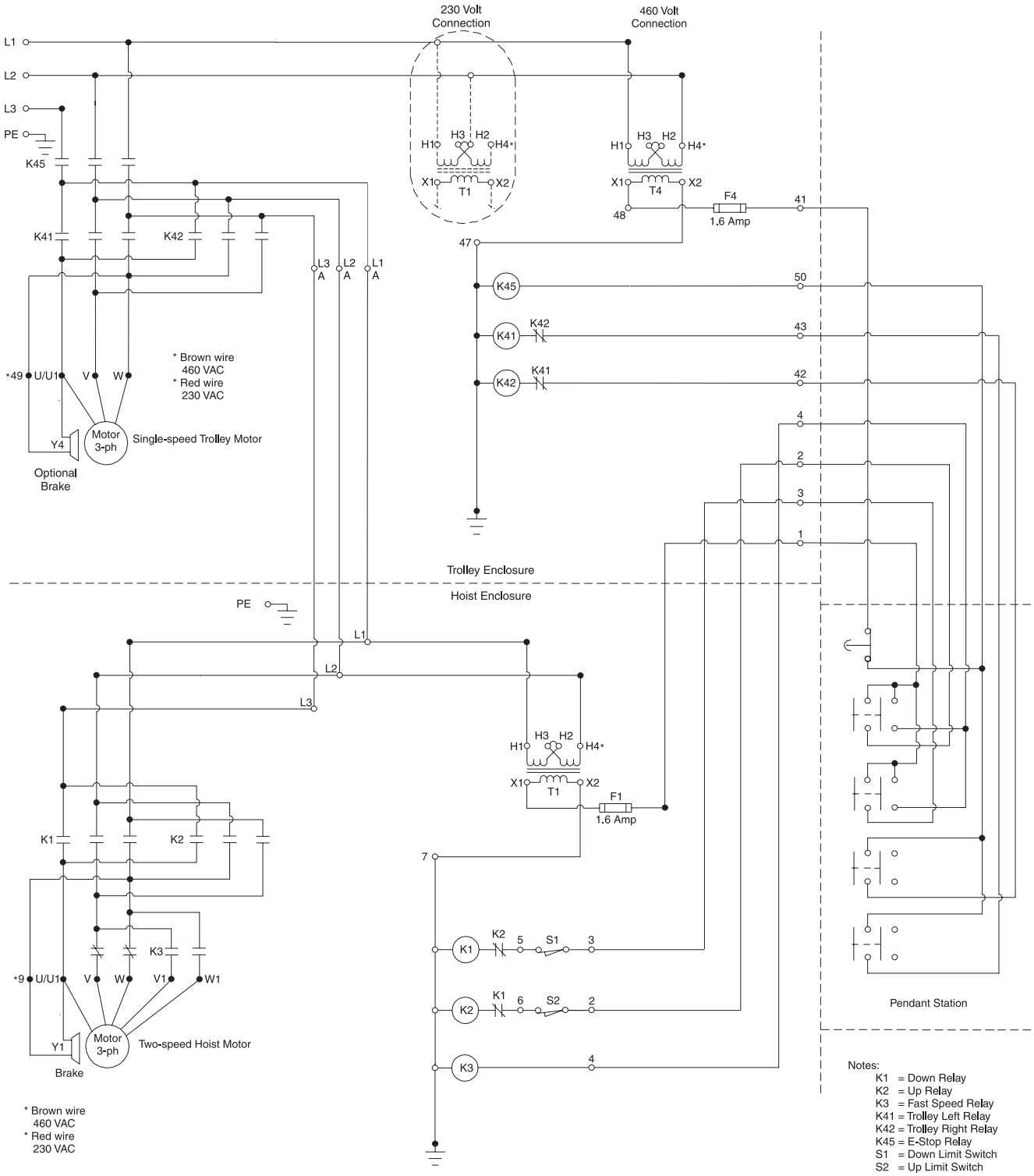
Single Speed, Three Phase Trolley with Emergency Stop and Single Speed, Three Phase Hoist



VOLTAGE	U/U1	V	W	CONNECT
230 VAC	U1 & U5	V1 & V5	W1 & W5	U2 & V2 & W2
460 VAC	U1	V1	W1	U2 & U5, V2 & V5, W2 & W5

(Dwg. MHP1111)

Single Speed, Three Phase Trolley with Emergency Stopand Dual Speed, Three Phase Hoist

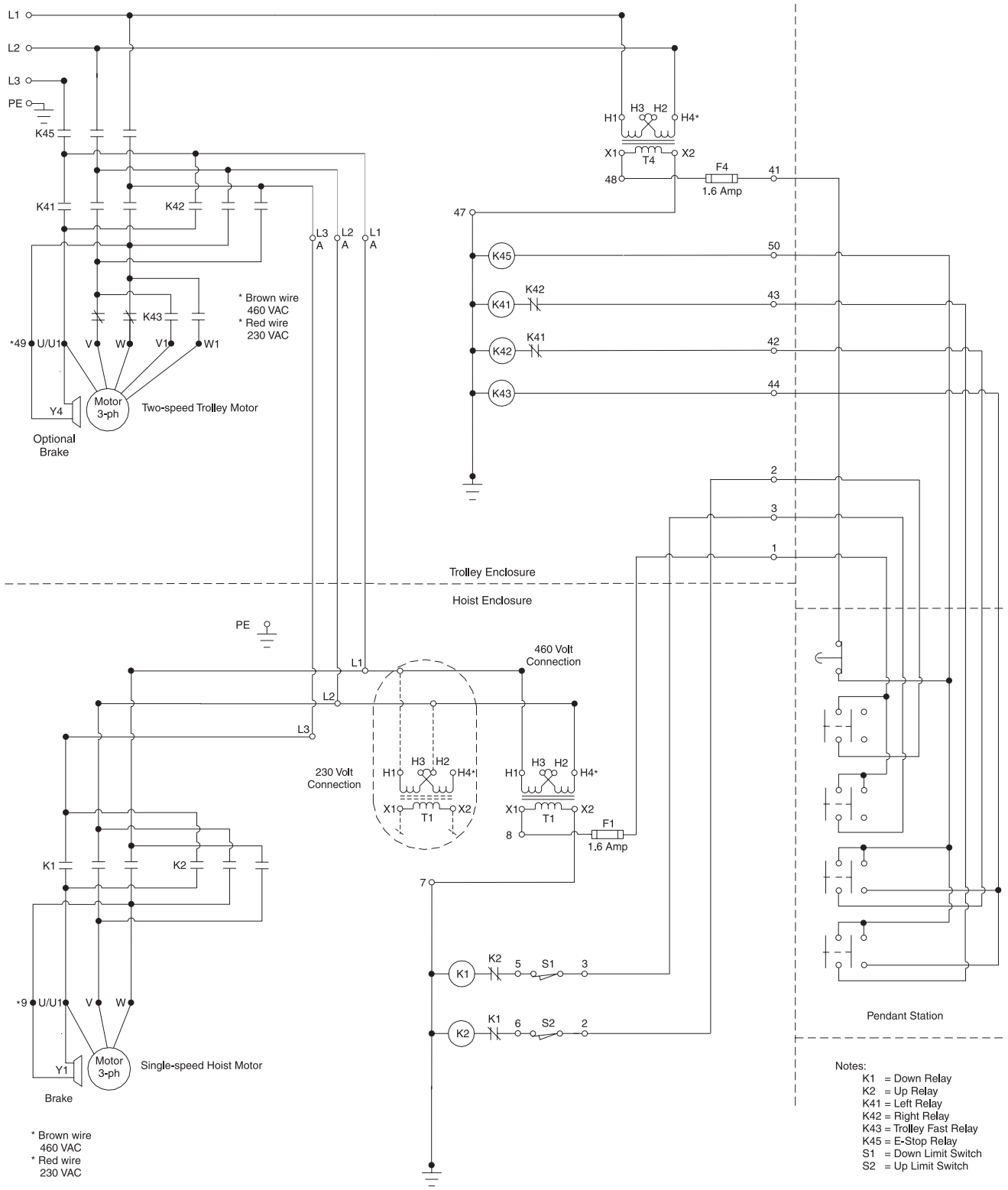


VOLTAGE	U/U1	V	W	CONNECT
230 VAC	U1 & U5	V1 & V5	W1 & W5	U2 & V2 & W2
460 VAC	U1	V1	W1	U2 & U5, V2 & V5, W2 & W5

(Dwg. MHP1112)

WIRING DIAGRAM

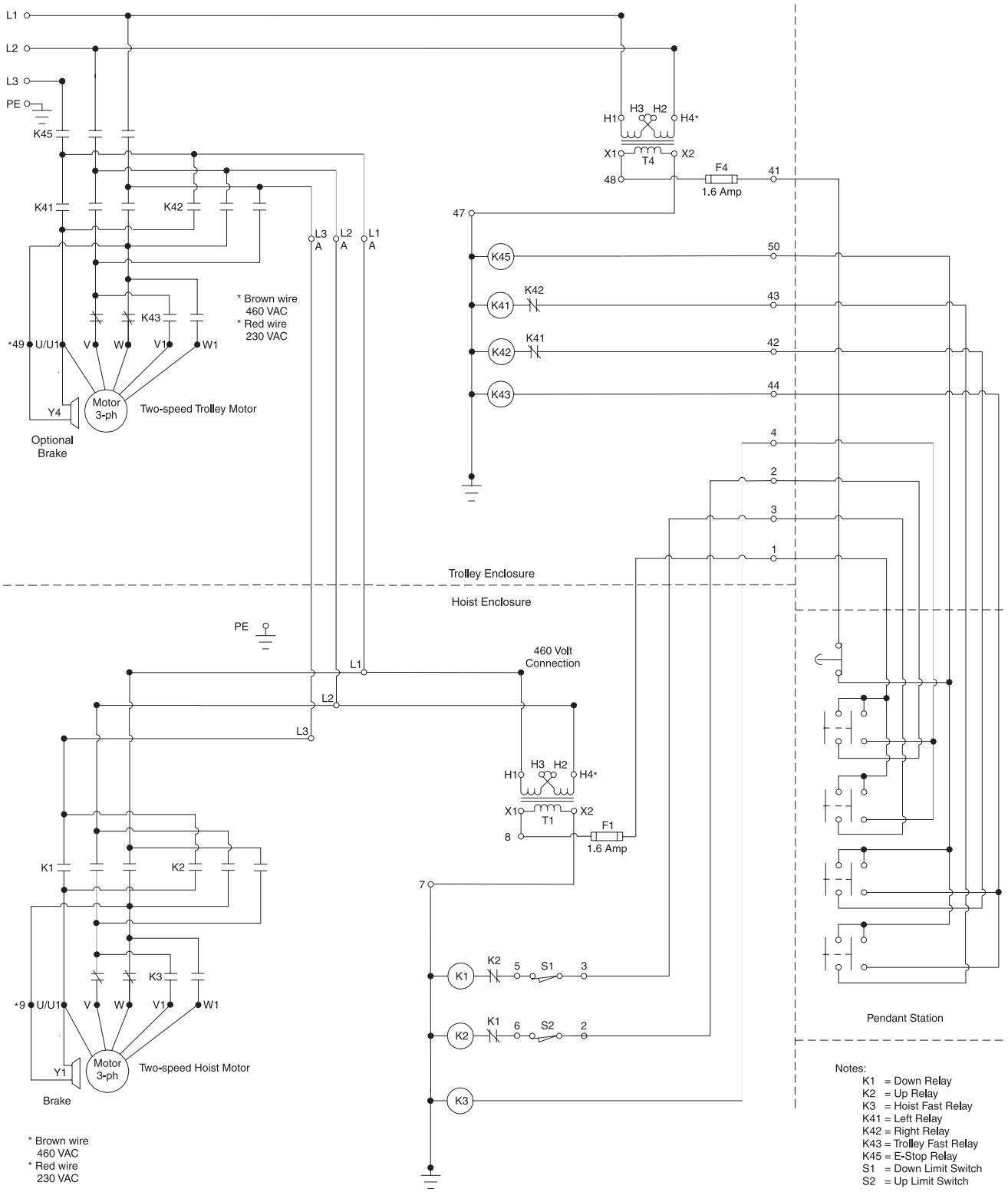
Dual Speed, Three Phase Trolley with Emergency Stop and Single Speed, Three Phase Hoist



VOLTAGE	U/U1	V	W	CONNECT
230 VAC	U1 & U5	V1 & V5	W1 & W5	U2 & V2 & W2
460 VAC	U1	V1	W1	U2 & U5, V2 & V5, W2 & W5

(Dwg. MHP1113)

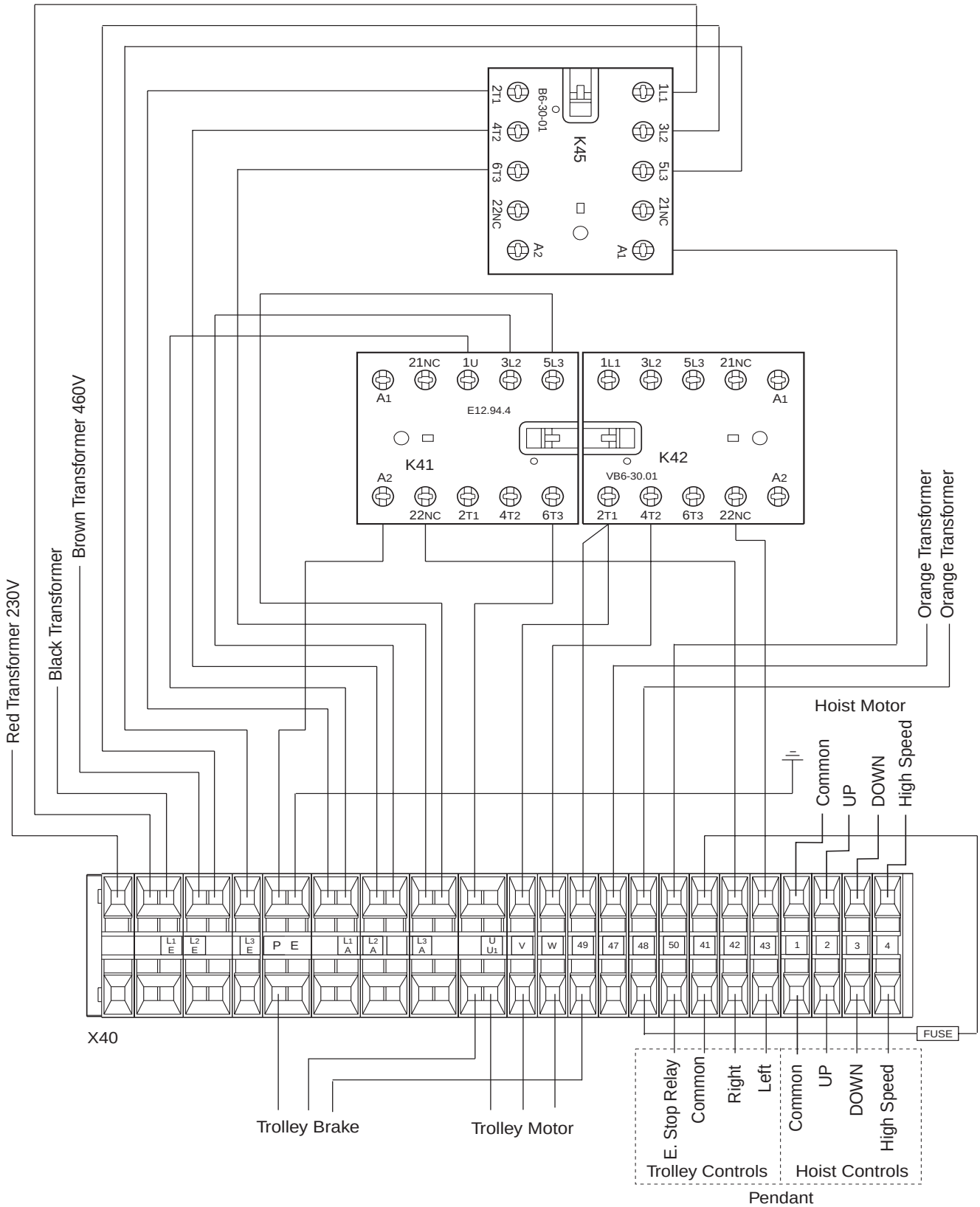
Dual Speed, Three Phase Trolley with Emergency Stop and Dual Speed, Three Phase Hoist



(Dwg. MHP1114)

WIRING DIAGRAM

Trolley Control Assembly Wiring for Single Speed Trolley with Dual Speed Hoist



(Dwg. MHP0970)

The four most important aspects of trolley operation are:
1. Follow all safety instructions when operating trolley.
2. Allow only people trained in safety and operation on this product to operate trolley.
3. Subject each trolley to a regular inspection and maintenance program.
4. Be aware of the trolley capacity and weight of load at all times.

Operators must be physically competent. Operators must have no health condition which might affect their ability to act, and they must have good hearing, vision and depth perception. The trolley operator must be carefully instructed in his duties and must understand the operation of the trolley, 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 trolley under unsafe conditions.

⚠WARNING

• The trolley is not designed or suitable for lifting, lowering or moving persons. Never lift loads over people.
• Do not side load or "yard" a load with a powered trolley.

Motorized Trolley Operation

The motorized trolley is used to move SUSPENDED loads over the length of the runway. The trolley motor is not a variable speed motor it has only one speed. For loads to be positioned accurately the trolley direction button on the pendant may be bumped (pushed momentarily). Trolleys are available with a two speed option. On two speed trolleys, select the high speed setting when moving between stations.

⚠CAUTION

• A swinging load can cause injury and/or damage to property. Do not allow load to swing freely. Maintain contact with load at all times.

Use the low speed setting when accurate load positioning is required. A swinging load has a large amount of force while it is swinging freely. Care should be taken to prevent the load from swinging.

Before starting the motorized trolley, ensure that load is lifted clear of the ground. Observe the path to be covered and warn any personnel in the area. Do not combine hoisting and moving operations. Either lift, lower a load or travel a load, do not do both.

⚠WARNING

• When using motorized trolleys lift the load only high enough to clear the ground or any obstacles.
• Do not side load or "YARD" a load with a powered trolley.
• Do not lift or move any load over people.

Initial Operating Checks

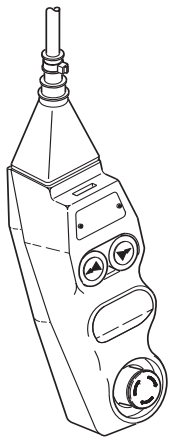
Trolleys are tested for proper operation before leaving the factory. Prior to placing the trolley into service the following initial operating checks should be performed.
1. After installation of trolley, check to ensure the hoist is centered and secure.
2. Check connections and position of all electrical supply cords and plugs.
3. Operate trolley along the entire length of the beam.
4. Check trolley and hoist performance when raising, moving and lowering test load(s). Hoist and trolley must operate smoothly prior to being placed in service.
5. Check that hoist is properly installed on hanger shaft and centered with the hook latch engaged.

Control Pendants

Standard pendants for **"Quantum"** series electric trolleys provide push button control for the following functions. Refer to Dwg. MHP0852 below:

Hoist Down / Up
Trolley Left / Right
Single or Dual speed
Emergency Stop (red button)

Ensure hoist and motorized trolley operation matches direction of pendant buttons.



(Dwg. MHP0852)

Dual speed operation control pendant buttons have two positions. Depressing the button to the first position produces normal speed. Depressing the button to the full extent of its travel produces high speed.

Emergency Stop

The emergency stop button will remain depressed after activation. To reset twist (rotate) emergency stop button clockwise until button releases and spring returns to its original position. When a hoist and trolley combination is used the emergency stop is integrated in the trolley relay box.

INSPECTION

Inspection information is based in part on American National Standards Institute Safety Codes (ASME B30.16).

⚠WARNING

• All new, altered or modified equipment should be inspected and tested by personnel instructed in safety, operation and maintenance of this equipment to ensure safe operation at rated specifications before placing equipment in service.
• Never use trolley 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 service personnel and include observations made during routine equipment operation. Periodic inspections are thorough inspections conducted by personnel trained in the safety, operation and maintenance of this equipment. ASME B30.16 states inspection intervals depend upon the nature of the critical components of the equipment and the severity of usage.

The inspection intervals recommended in this manual are based on intermittent operation of the trolley eight hours each day, five days per week, in an environment relatively free of dust, moisture, and corrosive fumes. If the trolley is operated almost continuously or more than the eight hours each day, more frequent inspections will be required.

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 instructed in safety, operation and maintenance of this equipment. A determination as to whether a condition constitutes a safety hazard must be decided, and the correction of noted safety hazards accomplished and documented by written report before placing the equipment in service.

Records and Reports

Inspection records, listing all points requiring periodic inspection should be maintained for all load bearing equipment. Written reports, based on severity of service, should be made on the condition of critical parts as a method of documenting **periodic** inspections. These reports should be dated, signed by the person who performed the inspection, and kept on file where they are readily available for authorized review.

Frequent Inspection

For trolleys in continuous service, frequent inspection should be made by operators at the beginning of each shift. In addition, visual inspections should be conducted during regular operation for indications of damage or evidence of malfunction.

1. OPERATION. Check for visual signs or abnormal noises (grinding etc.) which could indicate a potential problem. Do not operate the trolley until all problems have been corrected.
2. CONTROLS. During operation of trolley, verify response to pendant is quick and smooth. Ensure that the Up/Down and Left/Right controls return to neutral when released. If trolley responds slowly or movement is unsatisfactory, do not operate trolley until all problems have been corrected.
3. ELECTRICAL SYSTEM. Visually inspect all connections and components for indication of damage or loose connections. Shut off and disconnect power prior to removing inspection covers, repairing any damage or tightening connections.
4. SUSPENSION PARTS. All statically loaded parts are known as suspension parts. Refer to Nut Torque Table 4 in “INSTALLATION” section.

Periodic Inspection

Frequency of periodic inspection depends on the severity of usage:

NORMAL	HEAVY	SEVERE
yearly	semiannually	quarterly

Disassembly may be required for HEAVY or SEVERE usage. Keep accumulative written records of periodic inspections to provide a basis for continuing evaluation.
Inspect all the items in “Frequent Inspection”. Also inspect the following:

1. FASTENERS. Check all rivets, split pins, capscrews and nuts. Replace if missing or tighten if loose.
2. ALL COMPONENTS. Inspect for wear, damage, distortion, deformation and cleanliness. If external evidence indicates the need, disassemble. Check shafts, wheels, side plates, bearings, and covers. Replace worn or damaged parts. Clean, lubricate and reassemble.
3. SUPPORTING STRUCTURE. Check for distortion, wear and continued ability to support load. A visual inspection of connecting bolts should be done periodically depending on frequency of use.
4. TROLLEY. Check that the trolley wheels track the beam properly. Refer to “INSTALLATION” section. Check that wheels are not excessively worn and inspect side plates for spreading due to bending. Ensure trolley wheels and beam are clean. Remove any oil, grease or buildup to avoid slipping and ensure unobstructed trolley operation. Do not operate the trolley until problems have been determined and corrected.
5. LABELS AND TAGS. Check for presence and legibility. Replace if necessary. Refer to “WARNING LABELS” and “PARTS LIST” sections for label requirements.

Trolleys Not in Regular Use

1. A trolley which has been idle for a period of one month or more, but less than one year, should be given an inspection conforming with the requirements of “Frequent Inspection” prior to being placed into service.
2. A trolley which has been idle for a period of more than one year should be given an inspection conforming with the requirements of “Periodic Inspection” prior to being placed into service.
3. Standby trolleys should be inspected at least semiannually in accordance with the requirements of “Frequent Inspection”. In abnormal operating conditions trolleys should be inspected at shorter intervals.

INSPECTION AND MAINTENANCE REPORT

Ingersoll-Rand QUANTUM 'QIMT' Series Electric Trolley

Model Number:	**Date:**
Serial Number:	**Inspected by:**

Reason for Inspection: (Check Applicable Box)

	1. Scheduled Periodic Inspection ____Quarterly ____Semiannually ____Yearly	Operating Environment
	2. Discrepancy(s) noted during Frequent Inspection	
	3. Discrepancy(s) noted during maintenance	Normal____ Heavy____ Severe____
	4. Other:_____	

Refer to the Parts, Operation and Maintenance Manual "INSPECTION" section for general inspection criteria. Also, refer to appropriate National Standards and codes of practice. If in doubtabout an exhisting condition contact the nearest **Ingersoll-Rand** Distributor or the factory for technical assistance.

COMPONENT	CONDITION		CORRECTIVE ACTION		NOTES
	Pass	Fail	Repair	Replace	
Fasteners					
Shafts					
Bearings			---		
Brake*			---		
Covers					
Controls					
Electrical System					
Supporting Structure					
Motor					
Drive Gears					
Wheels					
Counterweight					
Hangar Shaft Assy.					
Labels and Tags			---		
Other Components					

*Optional attachment. May not be equipped on all trolleys

This page may be copied and used by inspectors or maintenance personnel.

LUBRICATION

To ensure continued satisfactory operation of the trolley, all points requiring lubrication must be serviced with the correct lubricant at the proper time interval as indicated for each assembly. Correct lubrication is one of the most important factors in maintaining efficient operation.

The lubrication intervals recommended in this manual are based on intermittent operation of the trolley eight hours each day, five days per week. If the trolley is operated almost continuously or more than the eight hours each day, more frequent lubrication will be required. The lubricant types are based on operation in an environment relatively free of dust, moisture, and corrosive fumes. Use only those lubricants recommended. Other lubricants may affect the performance of the trolley. Approval for the use of other lubricants must be obtained from your **Ingersoll-Rand** Technical Support Department or distributor. Failure to observe this precaution may result in damage to the trolley and/or its associated components**.**

Hook and Suspension Assemblies

1. Lubricate the hook and hook latch pivot points. Hook and latch should pivot freely.
2. Use **Ingersoll-Rand** LUBRI-LINK-GREEN or a SAE 50 to 90 EP ISO VG220 oil.

Powered Trolleys

Periodically, grease the trolley wheel and drive pinion gear teeth with **Ingersoll-Rand** No. 68 grease or a standard No. 2 multipurpose grease**.**

Trolley wheel bearings are prepacked with grease and sealed.

Gears

The gear compartment is prepacked with grease at the factory and has continual lubrication. Replacement of the grease, for the life of the trolley, should not be required.

The gearbox contains 0.2 pints (1 dl) of gearbox grease “Blasolube”, a semifluid sodium soap/mineral oil based grease with a NLGI consistency: “0” (nought). Texaco MARFAK 0 (Texaco product code 0927) is a suitable replacement. Gearbox grease “Chevron Duralith EP O”, is also suitable (this grease is also used in the QUANTUM Series hoists).

NOTICE

• Ensure that different base greases (sodium based and lithium based) are not mixed. The gear box must be emptied and cleaned when switching types of lubricant.

Make sure that the gear cover is perfectly sealed after any dismantling.

If it becomes necessary to remove the gear box assembly, first ensure the trolley assembly is standing on end with the gear box assembly down. Failure to observe this procedure may allow the grease to flow from the trolley. Whenever the gear box assembly is removed, always replace the gasket.

TROUBLESHOOTING

This section provides basic troubleshooting information. Specific causes to problems are best identified by thorough inspections performed by personnel instructed in safety, operation and maintenance of this equipment. The chart below provides a brief guide to common trolley symptoms, probable causes and remedies.

Symptom	Cause	Remedy
Trolley will not operate.	No electrical supply to trolley.	Check electrical system connections, cords and fuses.
	Trolley is overloaded.	Reduce load to within rated capacity.
	Damaged gear wheel and/or drive shaft.	Inspect gear wheel and drive shaft gear teeth. Replace damaged parts.
	Control voltage transformer damaged or burned out.	Check voltage and frequency at trolley. Ensure they are within specifications on nameplate. Replace transformer.
	Emergency Stop engaged.	Disengage Emergency Stop button.
Trolley continues to move when controls are released.	Optional brake is slipping.	Check trolley is equipped with optional brake. Check brake spring and brake adjustment. Check brake discs are clean.
Trolley does not move load or does not travel at rated speed.	Motor may be damaged.	Remove and disassemble motor as described in the “MAINTENANCE” section. Examine all parts and replace any that are worn or damaged.
	Insufficient electrical supply.	Verify electrical voltage, phase, voltage drop and amperes under load/no-load conditions.
	Trolley wheels are slipping.	Clean beam track and trolley wheels.
Trolley runs in opposite direction of Control Pendant operation.	Power cables (L1 and L2) are incorrectly located.	Reverse the two power cables (L1 and L2).
Control Pendant is operated but trolley does not operate.	Control Pendant may be damaged.	Check Control Pendant for signs of damage. Refer to “INSPECTION” section.
	Motor may be damaged.	Remove and disassemble motor as described in the “MAINTENANCE” section. Examine all parts and replace any that are worn or damaged.
	No electrical supply to trolley.	Check electrical system connections, cords, fuse, transformer and circuit breaker.
Trolley runs slow.	Improper electrical supply.	Verify electrical voltage, phase, voltage drop and amperes under load/no-load conditions.
	Oily or sticking brake discs.	Disassemble, clean and dry discs.
	Motor may be damaged.	Remove and disassemble motor as described in the “MAINTENANCE” section. Examine all parts and replace any that are worn or damaged.
Brake Solenoid hums, buzzes or vibrates.	Brake Solenoid air gap(s) incorrect.	Reset air gap(s). Refer to “MAINTENANCE” section.
Motor hums or travel speed is slow.	Oily or sticking brake discs.	Disassemble, clean and dry discs.
	Brake disc tabs may be binding in brake cage.	Check brake discs slide freely in brake cage.
Electrical leak.	Poor grounding (earth).	Correctly ground (earth) power supply. Check wiring for broken wires.
	Foreign material or moisture on electrical connectors.	Dry or remove foreign material which may have accumulated on electrical parts.
	Short in power supply system.	Check all switches, connections and circuit breakers in power supply line for damaged insulation or contact with trolley frame.

⚠WARNING

- **Never perform maintenance on the trolley while it is supporting a load.**
- **Before performing maintenance, tag controls:**
  DANGER - DO NOT OPERATE -
  EQUIPMENT BEING REPAIRED.
- **Only allow personnel trained in service and repair of this trolley to perform maintenance.**
- **After performing any maintenance on the trolley, test trolley before returning trolley to service.**
- **Shut off and tag electrical disconnect switch before performing any maintenance.**

Maintenance Intervals

The maintenance interval chart is based on intermittent operation of the trolley eight hours each day, five days per week. If trolley operation is more than eight hours per day, or in severe applications or environments, more frequent maintenance should be performed.

INTERVAL	MAINTENANCE CHECK
Start of each shift(Operator or Maintenance Personnel)	Make a thorough visual inspection of the trolley for damage. Do not operate the trolley if damaged.
	Operate the trolley in both directions. Trolley must operate smoothly without sticking, binding or abnormal noises.
Semiannually (Maintenance Personnel)	Inspect trolley wheels and external components. Clean or replace parts as required.
Yearly (Maintenance Personnel)	Inspect the trolley gearing, shafts and bearings for wear and damage. Repair or replace as necessary.
	Check all the supporting members, including the suspension and fasteners, etc. for indications of damage or wear. Repair or replace as required.

General Maintenance Instructions

NOTICE

- **It is recommend that maintenance work be performed by an Ingersoll-Rand service repair center.**

All maintenance work performed on the trolley must be recorded with the date in the inspection report.

Proper use, inspections and maintenance increase the life and usefulness of your **Ingersoll-Rand** equipment. During assembly, lubricate gears and shafts with applicable lubricants. Use of antiseize compound and/or thread lubricant on capscrew and nut threaded areas will help to prevent corrosion and allows for ease of disassembly of components.

It is recommended that all maintenance work on the trolley be performed on a bench in a clean dust free work area. During the process of disassembling the trolley, observe the following:

1. Turn off and tag electrical disconnect switch before performing any maintenance. Disconnect electrical cable from trolley.
2. Never disassemble the trolley any further than is necessary to accomplish the needed repair. A good part can be damaged during the course of disassembly.
3. Never use excessive force when removing parts. Tapping gently around the perimeter of a cover or housing with a soft hammer, for example, is sufficient to break the seal.
4. Do not heat a part with a flame to free it for removal, unless the part being heated is already worn or damaged beyond repair and no additional damage will occur to other parts.

In general, the trolley is designed to permit easy disassembly and assembly. The use of heat or excessive force should not be required.

5. Keep the work area clean to prevent dirt and other foreign matter from getting into bearings and other moving parts.
6. All seals and ‘O’ rings should be discarded once they have been removed. New seals and ‘O’ rings should be used when assembling the trolley.
7. When grasping a part in a vise, always use leather or copper covered vice jaws to protect the surface of the part and help prevent distortion. This is particularly true of threaded members, machined surfaces and housings.
8. Do not remove any part which is press fit in or on a subassembly unless the removal of the part is necessary for repairs or replacement.
9. To avoid damaging bearings during trolley assembly or disassembly always tap or press on the bearing inner race for shaft fit bearings or the outer race for bore fit bearings. When removing bearings from housings, drive out the bearing with a sleeve slightly smaller than the outside diameter of the bearing. The end of the sleeve or pipe that is used to contact the bearing must be square. Protect bearings from dirt by keeping them wrapped in clean cloths.
10. If repair work can only be conducted above body height, suitable working platforms or ladders should be made available.
11. Work on electrical equipment or machinery should only be conducted by licensed electricians or persons under the supervision and guidance of licensed electricians, in accordance with all appropriate electrical codes and regulations.

Brake Adjustment Procedure (optional feature)

NOTICE

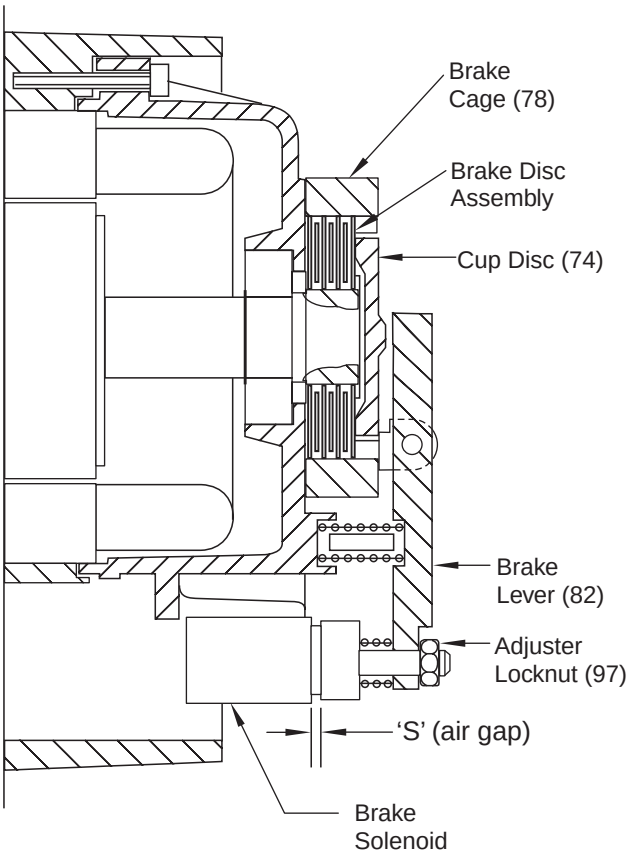
• By releasing the disc brake (careful apply pressure on the brake lever (82) Dwg. MH1083), the trolley can be moved in a manual mode.
• Replace brake discs if they are distorted or severely discolored.

Follow the correct installation procedure for the brake discs. Refer to Dwg. MHP0826 on page 25.

1. Turn locknut (97) until air gap 'S' is established. Refer to Table 5.
2. Push brake solenoid in and rotate cup disc (74) with fingers. Disc should rotate with a little drag. Adjust locknut until disc rotates with a little drag. If cup disc is too loose the brake will chatter or hum during operation.
3. Repeat steps 1 and 2 until air gap 'S' is correct and cup disc just rotates.

Brake Test

1. With cover off, operate trolley, in low speed mode, along the beam.
2. Listen to brake during travel.
3. When control button is released, brake should stop trolley travel.



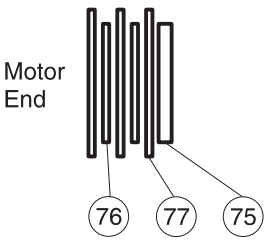
(Dwg. MHP1083)

Table 5 Brake Disc Chart

Air Gap 'S'		Number of Discs	
in	mm	internal	external
0.060 to 0.079	1.5 to 2	2	3

Brake Assembly

QIMT50
QIMT150
QIMT300



(Dwg. MHP0826)

Disassembly

Refer to Dwg. MHP1005 on page 30.
The following instructions provide the necessary information to disassemble, inspect, and repair the trolley assembly. Parts drawings are provided in the Parts Section to assist in locating components.

If a trolley is being completely disassembled for any reason, follow the order of topics as they are presented. When working on a motorized trolley it is recommended that the unit be removed from the overhead beam and placed on a clean work bench in a well lighted area. In the process of disassembling the trolley, observe the information provided in the General Maintenance Instructions, also:

1. Use a soft metal punch such as brass, when removing metal shafts from housings.
2. The gear lubricant is very messy and should be cleaned off all parts and disposed of in accordance with local procedures.

⚠WARNING

• Quantum hoist assemblies can weight up to 172 lbs (78 kgs). Use adequate support during removal.
• Disconnect power from trolley and hoist assembly.
• Mark area, to inform personnel, trolley is being serviced.

Hoist Removal

1. Remove screws (2) from relay box cover (1) and remove cover (1) and gasket (3).
2. Disconnect the incoming power leads from the terminal strip going to the hoist. Refer to Dwg. MHP0970 on page 18.
3. Disconnect the hoist control leads from the terminal strip to the hoist.
4. Loosen the cable connectors (19) and pull both cables free from relay box (18).
5. Remove hoist.

Trolley Removal

1. Remove locknut (47) and nut (48) from only one side of trolley.
2. Slowly and very carefully separate side plate assemblies (59 and 52), catching the spacers and washers (63 and 64) as they slide off shaft (105).
3. Lower trolley from beam and move to work bench.

Trolley Disassembly

1. Remove capscrews (57) and lockwashers (58), lift off counterweight (62).
2. Using special tool, pull wheels (53) and (54) from side plates. Remove retainer rings (56) and bearings (55) from wheels.
3. Remove locknut (47) and nut (48) from shaft (105). Note how many spacers (63) are on each side of side plate (59 or 52), this will be used during assembly.
4. Remove capscrews (49) and lockwashers (50).
5. Remove side plate (52).

Brake Disassembly (optional feature)

Refer to Dwg. MHP1075 on page 34.

1. Remove the four capscrews (70 and 71) and lockwashers (16) from brake cover (72). Remove cover and gasket (73). Gasket (73) is rubber and should not be glued to either cover (72) or brake housing (90).
2. Remove retainer (84). Push down on brake lever (82), while pulling brake pin (83) out of lever block (80). Carefully release pressure on brake lever (82).
3. Remove locknut (97, not available separately, part of 85) on solenoid (85) end of brake lever (82). Remove brake lever (82), spring (87), spring guide (88) and spring (98, not available separately, part of 85).
4. Remove cup disc (74), brake washer (75) and brake discs (76 and 77).
5. Remove retainer ring (29) and brake hub (92) depending on position of rotor shaft (31), key (93) might fall out also. Remove key (93).
6. Record how control cable wires are connected to solenoid (85) through terminal block (89). This will be used during reassembly.
7. Disconnect control cable wires from terminal block (89) and ground (earth) connection (items 81 and 16).
8. Separate cable connector (95) and pull control cable out of housing (90).
9. Remove plug (94).
10. Going through access holes in housing (90) remove capscrews (86) and washers (16). Slide solenoid (85) out of housing.

Trolley Motor Disassembly

1. Position motor assembly with the gear cover (40) facing up (cavity in gear housing (33) is full of lubricant). Remove four capscrews (42) and lockwashers (34). Remover gear cover (40) by tapping around sides with a polyurethane hammer. Once cover is off remove retainer ring (36).
2. Pull out gear assembly group (32, 37, 39, 44, 45 and 46).
3. Disassemble the gear group consisting of bearing (32), bearing (37), gear (39), retainer ring (44), key (45) and pinion shaft (46).
   a. Remove bearing (37) with two small pry bars or small gear puller, this bearing is pressed on.
   b. Remove gear (33) and key (35).
   c. Remove bearing (27).
   d. Remove retainer ring (44).
4. Remove capcrews (35) with lockwashers (34). Remove gear housing (33).
5. Remove retainer ring (36) from gear housing (33).
6. Rotor (31) may come out with gear housing (33) if it does then tap rotor (31) out of housing (33).
7. Pull rotor (31) out of stator (28).
8. Remove retainer ring (29) from opposite end of rotor (31). Remove bearings (30 and 32).
9. Remove motor cover (27) by removing capscrews (26) and lockwashers (16). If unit has no brake.

Control Housing Disassembly

1. Disconnect the following lettered or numbered wires from terminal strip (part of item 5).
   a. Motor wires (U1, V and W).
   b. Housing ground (earth)(PE).
   c. Pendant (50, 41, 42, 44, 1, 2, 3 and 4 depending on options)
   d. If equipped, brake (PE, U1 and 49).
2. Remove screws (4) from control assembly (5) mounting plate.
3. Loosen cable connectors (19 and 22) and pull out control cables.
4. Remove screws (17) and washers (16). Remove relay box (18) and gasket (24).
5. Remove screw (81) and washer (16) pull out ground (earth) wire.

Cleaning, Inspection and Repair

Use the following procedures to clean, inspect, and repair the components of the trolley.

Cleaning

⚠ CAUTION

• Bearings that are loose, worn or rotate in the housing must be replaced. Failure to observe this precaution will result in additional component damage.
• Do not use trichloroethylene to clean parts.

Clean all trolley components parts in solvent. The use of a stiff bristle brush will facilitate the removal of accumulated dirt and sediments on the gears and frames. Dry each part using low pressure, filtered compressed air.

Inspection

All disassembled parts should be inspected to determine their fitness for continued use. Pay particular attention to the following:

1. Inspect all gears for worn, cracked, or broken teeth.
2. Inspect shafts for ridges caused by wear. If ridges caused by wear are apparent on shafts, replace the shaft.
3. Inspect all threaded items and replace those having damaged threads.
4. Check bearings for wear and ability to freely rotate. Replace bearings if rotation is rough or bearings are excessively worn.

Repair

Actual repairs are limited to the removal of small burrs and other minor surface imperfections from gears and shafts. Use a fine stone or emery cloth for this work.

1. Worn or damaged parts must be replaced. Refer to the applicable parts listing for specific replacement parts information.
2. Inspect all remaining parts for evidence of wear or damage. Replace or repair any part which is in questionable condition. The cost of the part is often minor in comparison with the cost of redoing the job.
3. Smooth out minor nicks, burrs, or galled spots on shafts, bores, pins, or bushings.
4. Examine all gear teeth carefully, and remove nicks or burrs.
5. Polish the edges of all shafts shoulders to remove small nicks which may have been caused during handling.
6. Remove all nicks and burrs caused by lockwashers.
7. Replace all seals, 'O' Rings and gaskets.

Replace any electrical components that have tested bad or are burnt. Check all bearings for smooth operation, and replace as necessary. Inspect gears and gear teeth for burrs, chips, cracks or missing teeth. For burrs use a hone or fine emery cloth and remove. When honing gear teeth make sure gear is thoroughly clean before reassembly to prevent metal particle contamination. Replace parts with chipped or missing teeth.

Assembly

Control Housing Assembly

1. Apply a small amount of gasket sealant to motor stator (28), just to hold gasket (24) in place. Attach new gasket (24) to stator (28).
2. Place screw (17) through washer (16) and insert it into relay box (18). Ensure motor wires (U1, V, and W) are pushed through opening in relay box (18). Mount to stator (28) and tighten. When looking at the relay box opening on the stator, the longest part of the stator should be on the left.
3. Take screw (81) washer (16) and insert it into ground (earth) wire eye and fasten to ground (earth) connection in stator (28).
4. Push motor wires (U1, V, and W) through hole in control assembly (5) mounting plate.
5. Push control cables back through the cable connectors (19 and 22).
6. Using screws (4) fasten control assembly (5) mounting plate to relay box (18).
7. Using a small, narrow bladed screwdriver (refer to Dwg. MHP0795 on page 10) connect the appropriate wires to terminal strip, refer to wiring diagrams.
8. Insert screws (2) through cover (1) and gasket (3) and fasten into relay box (18), tighten.

Trolley Motor Assembly

1. Place motor cover (27) over (longest) end of stator (28) loosely.
2. Insert screws (26) and washers (34) into motor cover (27). Twist until screws (26) are aligned with holes in stator (28) and tighten.
3. Press bearing (30) on short end of rotor (31) and bearing (32) on long end. Slide into stator (28). Install retainer ring (29) after rotor shaft protrudes from motor cover (27).
4. Insert retainer ring (36) into gear housing (33). Place this assembly loosely over rotor (31) and on stator (28). Install capscrews (35) and lockwashers (34) through gear housing (33) and into stator (28). Use a polyurethane hammer to lightly tap gear housing (33) down until capscrews (35) can be fastened. Capscrews will pull gear housing (33) down tight, seating the bearings.
5. Assemble the following gear components. Pinion shaft (46), retainer ring (44), bearing (32), key (45), gear (39) and bearing (37).
6. Apply a thick coat of gear lubricant to bearing (37), refer to "LUBRICATION" section. Insert this assembly into the opening in gear housing (33) and seat with polyurethane hammer. Fill the rest of the housing with the same lubricant.
7. Apply a bead of Loctite® 515 to surface of gear housing (33).
8. Place retainer ring (36) into cover (40).
9. Insert capscrews (42) and lockwashers (34) into cover (40), place this over dowels (38) in gear housing (33) and tap down. Use capscrews (42) to fully seat and tighten gear cover (40).

Trolley Assembly

1. Insert capscrews (49) with lockwashers (50) through gear cover (40) and into trolley side plate (52) and tighten.
2. Slide spacer (65), washer (64) and same number of washers (63), as was taken off during disassembly, onto shaft (105).
3. Insert this assembly into side plate (52). Place the remaining washers (63) on the shaft (105).
4. Thread nut (48) onto shaft (105) also locknut (47).
5. Place counterweight (62) onto side plate (59).
6. Install capscrews (57) and lockwashers (58) through side plate (59) and into counterweight (62) and tighten.
7. Install retainer ring (56) into back of wheel (54) followed by bearing (55), then install second retainer ring (56). Press bearing and wheel assembly onto axle taking care to apply pressure to inter race of bearing only.
8. Place spacer (65), washer (64) plus the same number of washers (63) as were used in step 2 on the other side of shaft (105).
9. Position both side plates on the beam. Place the rest of washers (63) on the shaft (105). Thread nut (48) on shaft (105) followed by locknut (47).
10. Tighten both nuts (48) equally and then tighten locknut (47). Refer to Table 4 Nut Torque: in "INSTALLATION" section for specifications.

Brake Assembly (optional feature)

1. Position solenoid (85) in housing (90). Insert capscrews (86) with lockwashers (16) into access holes in bottom of housing through solenoid and fasten.
2. Replace plug (94) in bottom left (as you look at brake) hole.
3. Push control cable through other access hole and connect wires to terminal block (89). Insert screw (81) into lockwasher (16), ground tab and eye of ground (earth) wire, into housing (90) and tighten. Maintain a little slack in wires and route around springs. Fasten cable connector (95).
4. Place key (93) in rotor shaft (31) slide brake hub (92) onto rotor shaft (31) and secure with retainer ring (29).
5. Insert brake discs (starting with 77 then 76, repeat until all discs are inserted), brake washer (75) and cup disc (74).
6. Place spring (98, not available separately, part of 85) on screw section of solenoid (85). Place spring (87) and spring guide (88) into slot in housing (90).

7. Place brake lever (82) into lever block (80) and press down. While pressing brake lever (82), slide pin (83) through lever block (80) and brake lever (82) until pin protrudes through other side. Press on retainer (84). Thread locknut (97, not available separately, part of 85) onto threaded shaft of solenoid (85) until 2 to 3 threads are exposed beyond locknut (97).
8. Check to ensure that wires are not interfering with spring (87).
9. Adjust air gap 'S' as described in "Brake Adjustment Procedures".
10. Insert capscrews (71) with lockwashers (16) through bottom holes in brake cover (72). Locate gasket (73) on capscrews and place this assembly onto brake housing (90). Make sure that control cable wires are not pinched by capscrews. Tighten a couple of turns.
11. Insert capscrews (70) with lockwashers (16) through top holes in cover (72), screw into housing (90) and tighten.
12. Tighten capscrews (71).

Testing

Prior to initial use, all new, extensively repaired, or altered trolleys shall be tested by, or under the direction of a person trained in maintenance and repair of this trolley and a written report furnished confirming the rating of the tested equipment.

⚠WARNING

• Only attach a hoist having a rated capacity equal to or less than the capacity of the trolley.

Trolley Operational Test

To ensure proper operation of the trolley conduct the following:
1. Turn on power to trolley and observe.
2. On powered trolleys, verify that the pendant is properly attached and that trolley movement agrees with the pendant arrows.
3. Operate trolley **without** a load. Verify trolley operates smoothly along entire length of the beam.
4. Operate trolley **with** a load. Verify trolley operates smoothly along entire length of the beam.

Trolley Load Test

NOTICE

• Conduct load test with hoist attached to trolley. Refer to "SPECIFICATIONS" section in hoist manual for applicable maximum hoist load capacity.

With the hoist properly attached, conduct a load test to 125% of the **rated trolley capacity.** Lift a load 5 - 10 inches (127 - 254 mm). Using trolley move load a short distance in both directions.

Testing to more than 125% may be necessary to comply with standards and regulations set forth in areas outside of the USA.

PARTS ORDERING INFORMATION

Quantum **'QIMT**' electric trolleys are designed and constructed to provide long, trouble-free service. In time it may become necessary to order and install new parts to replace those that have been subjected to wear.

The use of other than **Ingersoll-Rand** Material Handling replacement parts may result in decreased trolley performance, and may invalidate the warranty. For prompt service and genuine **Ingersoll-Rand** Material Handling parts, provide your nearest Distributor with the following:

1. Complete trolley model number and serial number as it appears on the labels attached to the trolley.
2. Voltage.
3. Part number and part description as shown in the parts section.
4. Quantity required.

The model and serial number label is located on the trolley side plate.

For your convenience and future reference it is recommended that the following information be recorded.

Trolley Model Number _____

Trolley Serial Number _____

Date Purchased _____

Return Goods Policy

If it becomes necessary to return the complete trolley or certain parts to the factory, contact the Distributor from whom you purchased the trolley, or the nearest **Ingersoll-Rand** Distributor in your locality.
Ingersoll-Rand will not accept any returned goods for warranty or service work unless prior arrangements have been made and written authorization has been provided from the location where the goods were purchased.

NOTICE

• Continuing improvement and advancement of design may cause changes to this trolley which are not included in this manual. Manuals are periodically revised to incorporate changes. Always check the manual edition number on the front cover for the latest issue.

Disposal

When the life of the trolley has expired, it is recommended that the trolley be disassembled, degreased and parts separated as to materials so that they may be recycled.

For additional information contact:

Ingersoll-Rand Distribution Center
P. O. Box 618
510 Hester Drive
White House, TN 37188
Phone: (615) 672-0321
Fax: (615) 672-0801

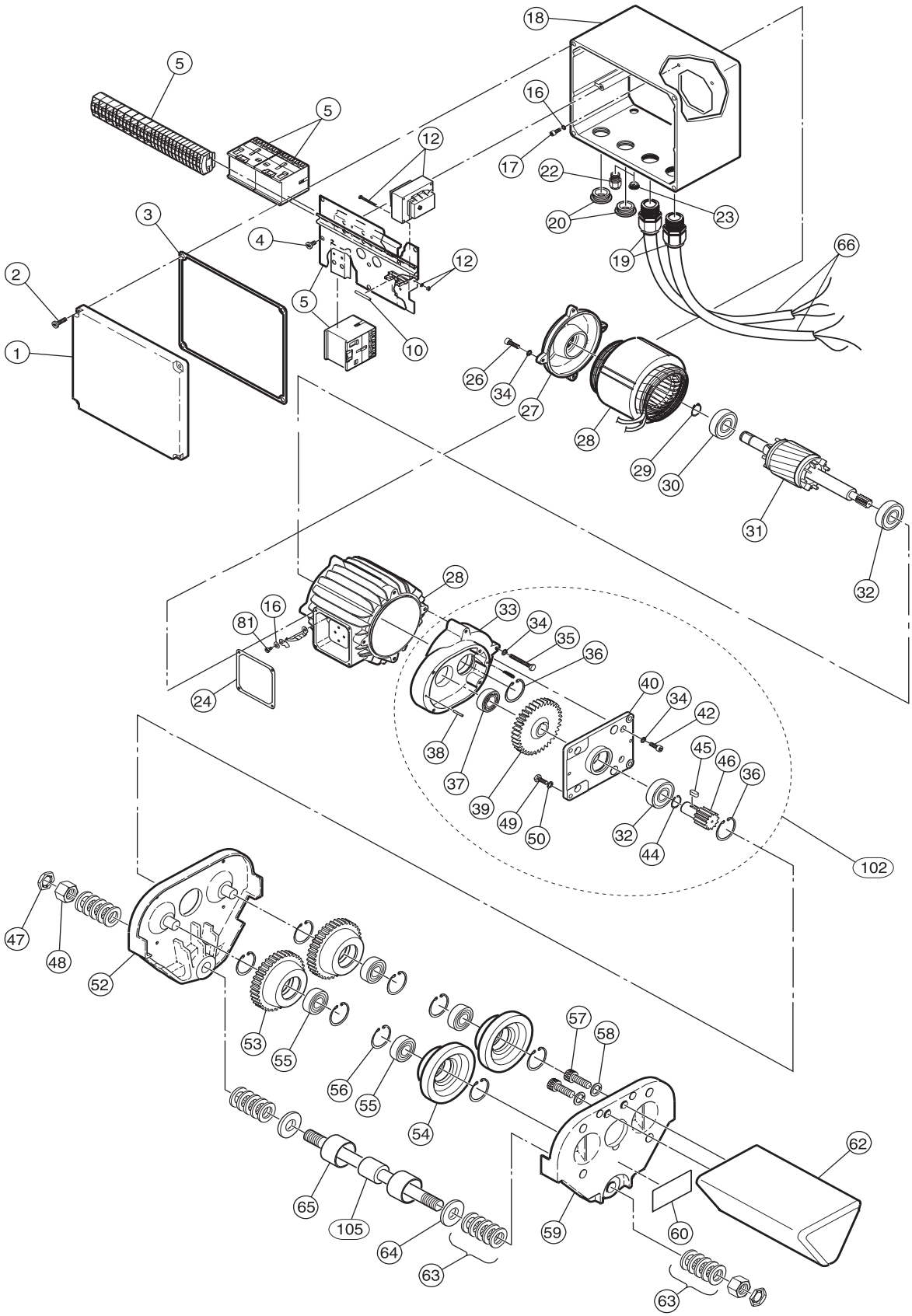
or

Europe, Middle East and Africa
Ingersoll-Rand Material Handling
Douai Operations
111, avenue Roger Salengro
59450 Sin Le Noble, France
Phone: (33) 3-27-93-08-08
Fax: (33) 3-27-93-08-00

Additional information on the QUANTUM Electric Chain Hoist and its options is available in the following documents:

QUANTUM Electric Hoist Parts, Operation and Maintenance Manual Form Number MHD56105
QUANTUM International Electric Hoist Parts, Operation and Maintenance Manual Form Number MHD56124
QUANTUM Electric Trolleys Parts, Operation and Maintenance Manual Form Number MHD56108
PT/RT Series Manual Trolley Parts, Operation and Maintenance Manual Form Number MHD56102

TROLLEY ASSEMBLY PARTS DRAWING



(Dwg. MHP1005)

TROLLEY ASSEMBLY PARTS LIST

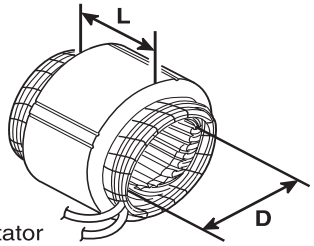
Item No.	Description of Part	Qty. Total	Part Number		
			QIMT50 fits hoists QI25 and QI50	QIMT150 fits hoist QI100	QIMT300 fits hoists QI200, QI300 and QI500
1	Relay Box Cover	1	71276232		
2	Screw	4	71284251		
• 3	Gasket	1	71276240		
4	Screw	4	71284236		
5	Control Assembly		See Descriptions		
	1 sp, 230/460-42v	1	71273429		
	1 sp, 575-42v		71273437		
	2 sp, 230/460-42v		71273460		
	2 sp, 575-42v		71273478		
	1 sp, 230/460-110v		71273445		
	1 sp, 575-110v		71273452		
	2 sp, 575-110v		71273494		
	2 sp, 230/460-110v		71273486		
10	Fuse	1	71275259		
12	Transformer		See Descriptions		
	230/460-42v	1	71296883		
	575-42v		71296891		
	230/460-110v		71273528		
	575-110v		71273536		
16	Washer	16	71277628		
17	Screw	4	71285381		
18	Relay Box	1	71284244		
19	Cable Connector (PG 16)	2	71284228		
20	Plug (PG 16)	2	71284194		
22	Cable Connector (PG 7)	1	71284210		
23	Plug (PG 7)	1	71284202		
• 24	Gasket	1	71276257		
26	Capscrew	4	71284178		71284186
27	Motor Cover	1	71284962		71284970
28	Motor Stator (with housing)		See Descriptions		
	1 sp, NS, 230/460v, D=50 L=45	1	71276554		---
	1 sp, NS, 575v, D=50 L=45		71276588		
	1 sp, HS, 230/460v, D=45 L=45		71276547		
	1 sp, HS, 575v, D=45 L=45		71276539		
	2 sp, ND, 230v, D=55 L=60		71276521		
	2 sp, ND, 460v, D=55 L=60		71276513		
	2 sp, ND, 575v, D=55 L=60		71276562		
	2 sp, HD, 230v, D=50 L=60		71276596		
	2 sp, HD, 460v, D=50 L=60		71276604		
	2 sp, HD, 575v, D=50 L=60		71276612		

• Recommended Spare

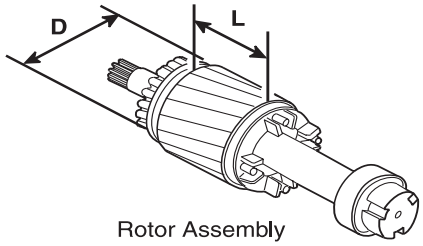
TROLLEY ASSEMBLY PARTS LIST (CONTINUED)

Motor Stator and Rotor Assembly part descriptions may include a reference 'D' and 'L' dimension in millimeters.

Item 28



Item 31



(Dwg. MHP1084)

Item No.	Description of Part	Qty. Total	Part Number		
			QIMT50 fits hoists QI25 and QI50	QIMT150 fits hoist QI100	QIMT300 fits hoists QI200, QI300 and QI500
28 Cont'd.	Motor Stator		See Descriptions		
	1 sp, NS, 230/460v, D=62 L=50	1	---		71276620
	1 sp, NS, 575v, D=62 L=50				71276638
	1 sp, HS, 230/460v, D=55 L=50				71276703
	1 sp, HS, 575v, D=55 L=50				71276646
	2 sp, ND, 230v, D=70 L=65				71276570
	2 sp, ND, 460v, D=70 L=65				71276653
	2 sp, ND, 575v, D=70 L=65				71276661
	2 sp, HD, 230v, D=62 L=65				71276679
	2 sp, HD, 460v, D=62 L=65				71276687
	2 sp, HD, 575v, D=62 L=65				71276695
29	Retainer Ring	2	71277792		
30	Bearing	1	71284988		
31	Rotor Assembly		See Descriptions		
	1 sp, NS, D=61 L=50	1	---		71285423
	2 sp, ND, D=54 L=60		71285472		---
	2 sp, ND, D=69 L=65		---		71285480
	2 sp, HD, D=61 L=65		---		71285464
	2 sp, HD, D=49 L=60		71285456		---
	1 sp, HS, D=44 L=45		71285431		---
	1 sp, NS, D=49 L=45		71285415		---
	1 sp, HS, D=54 L=50		---		71285449
32	Bearing	2	71284400		71278709
33	Gear Housing	1	71284442		71284459
34	Lockwasher	11	71278717		
35	Capscrew	3	71284483		71311245
36	Retainer Ring	2	71278618		71284434
37	Bearing	1	71278600		71284509
38	Dowel	2	71284608		---
39	Gear	1	71284517		71284525
40	Gear Cover	1	71284590		71284582
42	Capscrew	4	71277966		71284616
44	Retainer Ring	1	71277792		71277917
45	Key	1	71277701		71284541
46	Pinion Shaft	1	71284566		71284574
• 47	Locknut	2/4	71285316	71285324	
48	Nut	2/4	71285290	71285308	

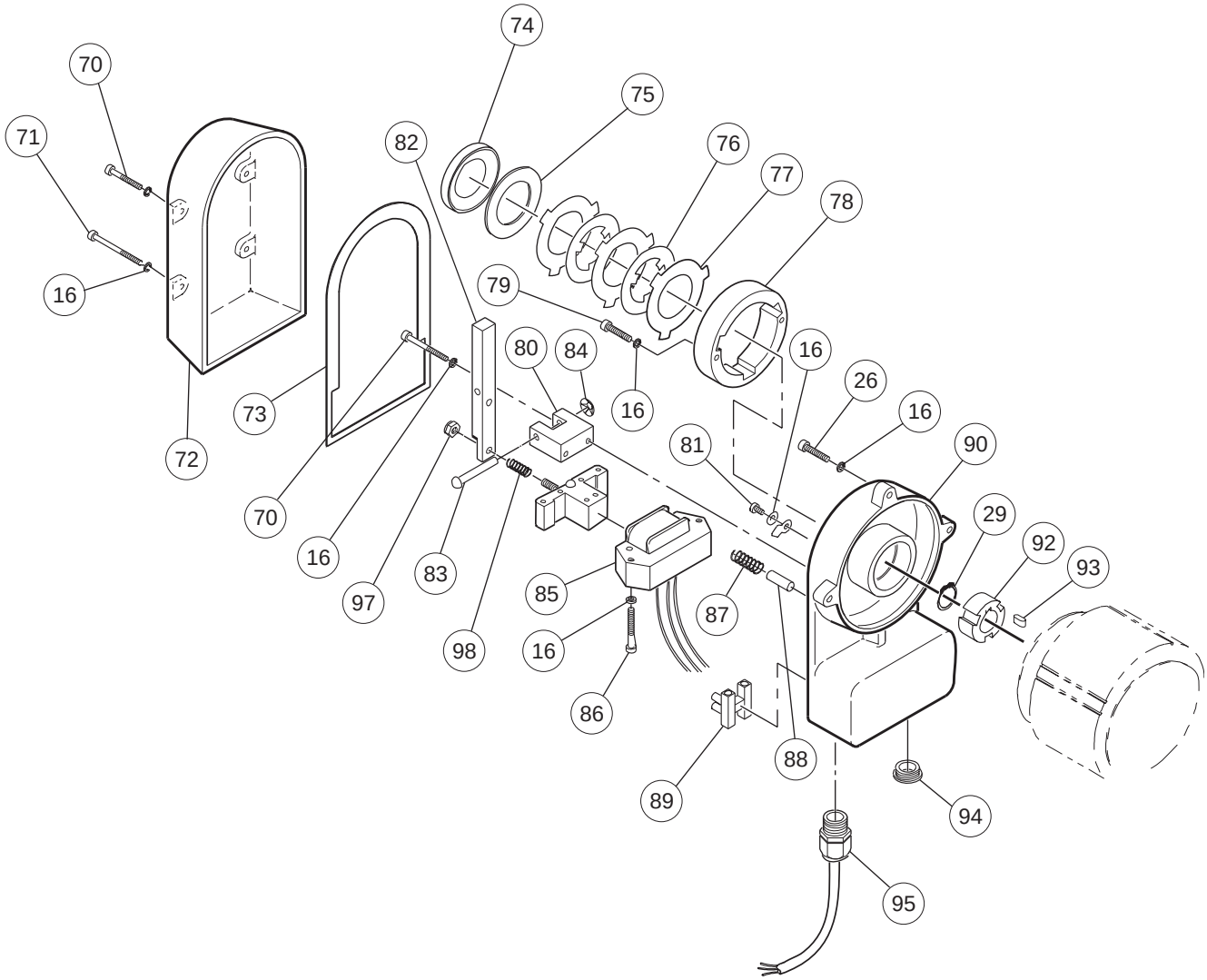
• Recommended Spare

TROLLEY ASSEMBLY PARTS LIST (CONTINUED)

Item No.	Description of Part	Qty. Total	Part Number		
			QIMT50 fits hoists QI25 and QI50	QIMT150 fits hoist QI100	QIMT300 fits hoists QI200, QI300 and QI500
49	Capscrew	4	71285399		71279517
50	Lockwasher	4	71277685		
52	Side Plate (motor side)	1	71285001	71285019	71285027
53	Wheel (geared)	2	Order Wheel Assembly item 103		
54	Wheel (plain)	2	Order Wheel Assembly item 104		
55	Bearing	4	71284988	71279350	71285084
56	Retainer Ring	8	71285035	71285043	71278790
57	Capscrew	2	71285092		
58	Lockwasher	2	71285100		
59	Side Plate (counterweight side)	1	71285118	71285126	71285134
60	Capacity Label	1	71285167	71285175	71285183
62	Counterweight	1	71285142		
63	Spacer	As Req'd	71285274	71285282	
64	Washer	2/4	71285258	71285266	
65	Spacer		See Descriptions		
	260-320 / 240-300 mm	2/4	---	71285241	
	200-259 / 180-240 mm		---	71285233	
	140-199 / 120-179 mm		---	71285225	
	100-149 mm	2	71285191	---	
	200-240 mm		71285217	---	
	150-199 mm		71285209	---	
66	Cable Assembly	1	71285571		
69	Hanger Bracket *	1	71278782	71279954	71272819
81	Screw	1	71284152		
102	Gear Assembly (Incl's items 32 thru 44 and 46)	1	71276265		71276273
103	Wheel Assembly (geared) (Incl's item 55)	1	71276315	71276331	71276299
104	Wheel Assembly (plain) (Incl's item 55)	1	71276307	71276281	71176323
105	Shaft Assembly - Refer to Table 3		See Descriptions		
	Beam Flange Type A, 50-99 mm	1	71285498	---	
	Beam Flange Type B, 100-149 mm		71273171	---	
	Beam Flange Type C, 150-199 mm		71273189	---	
	Beam Flange Type D, 200-240 mm		71273197	---	
	Beam Flange Type A 76-139/56-119 mm	1 or 2	---	71285330	
	Beam Flange Type B 140-199/120-179 mm		---	71273205	
	Beam Flange Type C 200-259/180-240 mm		---	71273213	
	Beam Flange Type D 260-320/240-300 mm		---	71273221	
136	Terminal, 2 wire	1	71278311		
137	Terminal, 4 wire	1	71278303		
138	Terminal, ground (green/yellow)	1	71278295		
139	Terminal, End Plate	2	71278089		
---	Cable Connector (PG 21)		71293559		

* Refer to hoist Parts, Operation and Maintenance Manual for additional information.

TROLLEY BRAKE ASSEMBLY PARTS DRAWING (OPTIONAL FEATURE)



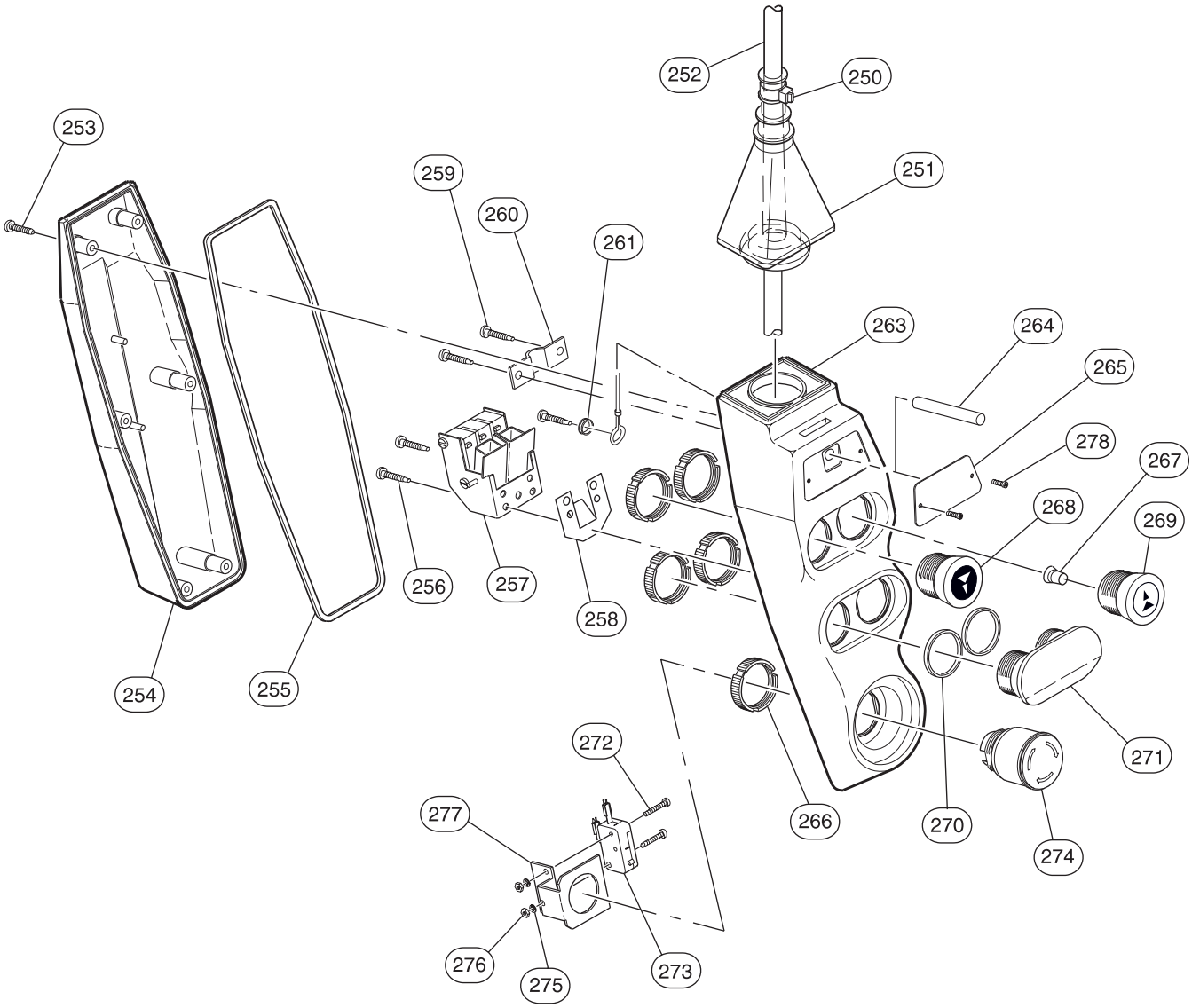
(Dwg. MHP1075)

TROLLEY BRAKE ASSEMBLY PARTS LIST (OPTIONAL FEATURE)

Item No.	Description of Part	Qty. Total	Part Number		
			QIMT50 fits hoists QI25 and QI50	QIMT150 fits hoist QI100	QIMT300 fits hoists QI200, QI300 and QI500
101	Brake Assembly, 230/460v	1	71276208		71276190
	Brake Assembly, 575v		71282461		71276174
16	Lockwasher	16	71277628		
26	Capscrew	4	71284178		71284186
29	Retainer Ring	2	71277792		
70	Capscrew	4	71284889		
71	Capscrew	2	71284111		
72	Brake Cover	1	71284319		71284327
• 73	Gasket	1	71284335		71284343
• 74	Cup Disc	1	71275242		
75	Brake Washer	1	71277602		
76	Brake Disc (outer)	3	71278006		
77	Brake Disc (inner)	2	71277990		
78	Brake Cage	1	71284905		
79	Capscrew	3	71284145		
80	Lever Block	1	71284897		
81	Screw	2	71284152		
82	Brake Lever	1	71284863		71284871
83	Brake Pin	1	71277941		
• 84	Retainer	1	71278360		
85	Brake Solenoid Assembly, 230/460v (Incl's items 97 and 98)	1	71275101		
	Brake Solenoid Assembly, 575v (Incl's items 97 and 98)		71296875		
86	Capscrew	1	71277776		
• 87	Spring	1	71278451		
88	Spring Guide	1	71278097		
89	Terminal Block	1	Available only with item 90		
90	Brake Housing	1	71284913		71284921
92	Brake Hub	1	71284954		
93	Key	1	71284392		
94	Plug (PG9)	1	71284947		
95	Cable Connector (PG9)	1	71284939		
97	Locknut	1	Available only with item 85		
98	Spring	1	Available only with item 85		

• Recommended Spare

CONTROL PENDANT ASSEMBLY PARTS DRAWING



(Dwg. MHP0853)

Item No.	Description of Control Pendant Assembly	Pendant Length		Part Number
		ft	metre	
246	Down/Up and Emergency Stop	11	3.4	71272983
		21	6.4	71272991
247	Down/Up and Left/Right with Emergency Stop	11	3.4	71273023
		21	6.4	71273031

Contact your nearest **Ingersoll-Rand** distributor or the factory for Pendant drop lengths not shown.

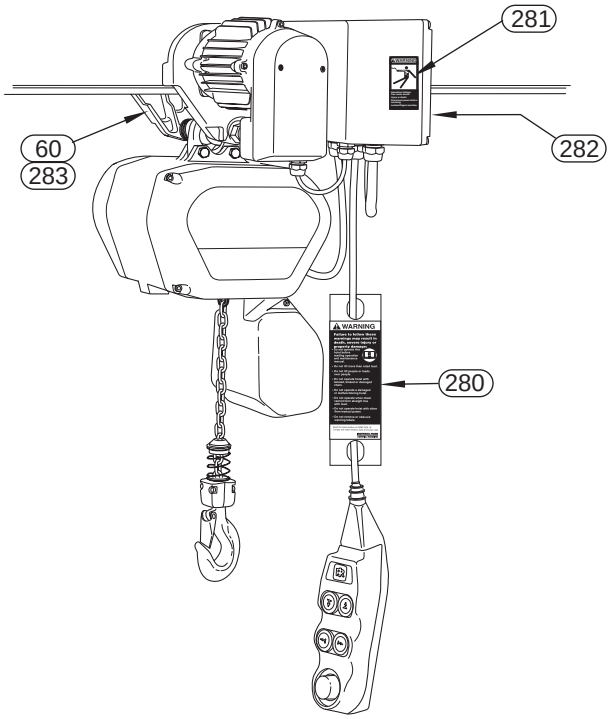
CONTROL PENDANT ASSEMBLY PARTS LIST

Item No.	Description of Part	Qty. Total	Part Number		
			QIMT50 fits hoists QI25 and QI50	QIMT150 fits hoist QI100	QIMT300 fits hoists QI200, QI300 and QI500
248	Direction Switch Assembly (Incl's items 256, 257, 258, 266, 267 and 268 or 269)	1	71312482		
249	Emergency Stop Switch Assembly (Incl's items 266, 267, 272, 273, 274, 275, 276 and 277)	1	71312490		
250	Wire Tie	1	54235		
251	Pendant Cap	1	04556387		
252	Control Cable (Hoist only)	1	71307086		
	Control Cable (Hoist and Trolley)		71307094		
253	Screw	6	71312268		
254	Cover	1	Order Pendant Assembly item 246 or 247		
•255	Gasket	1	71312284		
256	Screw (Hoist only)	2	71312292		
	Screw (Hoist and Trolley)	4			
257	Switch (Hoist only)	1	Order Switch Assembly item 248		
	Switch (Hoist and Trolley)	2			
258	Spring Plate (Hoist only)	1	71312318		
	Spring Plate (Hoist and Trolley)	2			
259	Screw	3	71312326		
260	Clamp	1	71312334		
261	Eyelet	1	71277651		
263	Pendant Body	1	Order Pendant Assembly Item 246 or 247		
264	Pin	1	71312359		
265	Label	1	71270342		
266	Locking Ring	5	71312367		
267	Plunger (Hoist only)	2	71312375		
	Plunger (Hoist and Trolley)	4			
268	Direction Button (White Arrow)	1	71312383		
269	Direction Button (Black Arrow)	1	71312391		
•270	* Gasket	2	71312409		
271	* Plug	1	71312417		
272	Screw	2	71312425		
273	Switch	1	Order Switch Assembly item 249		
274	Emergency Stop Button Assembly	1			
275	Lockwasher	2	71312458		
276	Nut	2	71280663		
277	Switch Bracket	1	Order Switch Assembly item 249		
278	Screw	2	71312474		

• Recommended Spare

* Required on Pendant without Hoist control (for Left/Right only).

LABEL ASSEMBLY DRAWING AND PARTS LIST



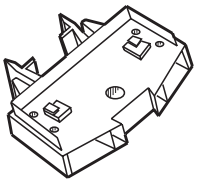
Item No.	Description of Part	Qty. Total	Part Number		
			QIMT50	QIMT150	QIMT300
60	Capacity Label	1	71285167	71285175	71285183
280	Warning Label	1	04612776		
281	Warning Label	1	71125751		
282	Warning Label	1	04306445		
283	Model / Serial Number Label	1	04612248		

(Dwg. MHP0820)

ADDITIONAL PART INFORMATION

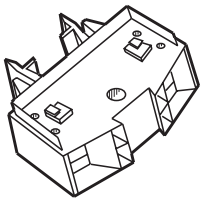
Terminal Assemblies (reference item 5) may be constructed from the individual components shown.

Item 136



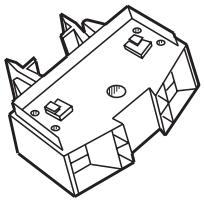
Terminal
2 Wire

Item 137



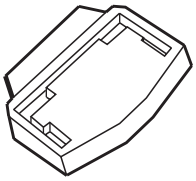
Terminal
4 Wire

Item 138



Terminal
Ground/Earth
Green/Yellow

Item 139



Terminal
End Cap

(Dwg. MHP1138)

SPECIAL TOOLS AND ACCESSORIES

Description	Part Number		
	QIMT50	QIMT150	QIMT300
Chain Lubricant	LUBRI-LINK-GREEN		
Touch-Up Paint	FAP-237Y		
Trolley Wheel Puller	04612024	04612032	04612040

Copies of Special Tool drawings can be obtained by contacting your nearest **Ingersoll-Rand** Material Handling distrubutor.

WARRANTY

LIMITED WARRANTY

Ingersoll-Rand Company (**I-R**) warrants to the original user its Hoists and Winches (Products) to be free of defects in material and workmanship for a period of one year from the date of purchase. **I-R** will repair, without cost, any Product found to be defective, including parts and labor charges, or at its option, will 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 period.

If any Product proves defective within its original one year warranty period, it should be returned to any Authorized Hoist and Winch Service Distributor, transportation prepaid with proof of purchase or warranty card.

This warranty does not apply to Products which **I-R** 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 **I-R** parts**.**

I-R makes no other warranty, and all implied warranties including any warranty of merchantability or fitness for a particular purpose are limited to the duration of the expressed warranty period as set forth above. I-R's maximum liability is limited to the purchase price of the Product and in no event shall I-R be liable for any consequential, indirect, incidental, or special damages of any nature rising from the sale or use of the Product, whether based on contract, tort, or otherwise.

Note: Some states do not allow limitations on incidental or consequential damages or how long an implied warranty lasts 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.

IMPORTANT NOTICE

It is our policy to promote safe delivery of all orders.

This shipment has been thoroughly checked, packed and inspected before leaving our plant and receipt for it in good condition has been received from the carrier. Any loss or damage which occurs to this shipment while enroute is not due to any action or conduct of the manufacturer.

VISIBLE LOSS OR DAMAGE
If any of the goods called for on the bill of lading or express receipt are damaged or the quantity is short, do not accept them until the freight or express agent makes an appropriate notation on your freight bill or express receipt.

CONCEALED LOSS OR DAMAGE
When a shipment has been delivered to you in apparent good condition, but upon opening the crate or container, loss or damage has taken place while in transit, notify the carrier's agent immediately.

DAMAGE CLAIMS
You must file claims for damage with the carrier. It is the transportation company's responsibility to reimburse you for repair or replacement of goods damaged in shipment. Claims for loss or damage in shipment must not be deducted from the **Ingersoll-Rand** invoice, nor should payment of **Ingersoll-Rand** Part Number invoice be withheld awaiting adjustment of such claims as the carrier guarantees safe delivery**.**

You may return products damaged in shipment to us for repair, which services will be for your account and form your basis for claim against the carrier.

United States Office Locations

For Order Entry, Order Status

Ingersoll-Rand
Distribution Center
P.O. Box 618
510 Hester Drive
White House, TN 37188
Phone: (615) 672-0321
Fax: (615) 672-0801

For Technical Support

Ingersoll-Rand
1725 U.S. Highway #1-N
Southern Pines, NC 28387
Phone: (910) 692-8700
Fax: (910) 692-7822

Web Site at:
www.ingersoll-rand.com

Regional Sales Offices

Chicago, IL
888 Industrial Drive
Elmhurt, IL 60126
Phone: (630) 530-3800
Fax: (630) 530-3891

Detroit, MI
23192 Commerce Drive
Farmington Hills, MI 48335
Phone: (248) 476-6677
Fax: (248) 476-6670

Houston, TX
450 Gears Road
Suite 210
Houston, TX 77067-4516
Phone: (281) 872-6800
Fax: (281) 872-6807

Los Angeles, CA
11909 E. Telegraph Road
Santa Fe Springs, CA 90670
Phone: (562) 948-4189
Fax: (562) 948-1828

Philadelphia, PA
P.O. Box 425
900 E. 8th Ave., Suite 103
King of Prussia, PA 19406
Phone: (610) 337-5930
Fax: (610) 337-5912

International Office Locations

Offices and distributors in principal cities throughout the world. Contact the nearest **Ingersoll-Rand** office for the name and address of the distributor in your country or write/fax to:

Ingersoll-Rand
Distribution Center
P.O. Box 618
510 Hester Drive
White House, TN 37188
Phone: (615) 672-0321
Fax: (615) 672-0801

Canada
National Sales Office
Regional Warehouse
Toronto, Ontario
51 Worcester Road
Rexdale, Ontario
M9W 4K2
Phone: (416) 213-4500
Fax: (416) 213-4510
Order Desk
Fax: (416) 213-4506

Regional Sales Offices

Edmonton, Alberta
1430 Weber Center
5555 Calgary Trail N.W.
Edmonton, Alberta
T6H 2P9
Phone: (403) 438-5039
Fax: (403) 437-3145

Montreal, Quebec
3501 St. Charles Blvd.
Kirkland, Quebec
H9H 4S3
Phone: (514) 695-9040
Fax: (514) 695-0963

British Columbia
1200 Cliveden Avenue
Delta, B.C.
V3M 6G4
Phone: (604) 523-0803
Fax: (604) 523-0801

Latin America Operations
Ingersoll-Rand
Production Equipment Group
730 N.W. 107 Avenue
Suite 300, Miami, FL
33172-3107
Phone: (305) 559-0500
Fax: (305) 222-0864

Europe, Middle East and Africa
Ingersoll-Rand Material Handling
Douai Operations
111, avenue Roger Salengro
59450 Sin Le Noble, France
Phone: (33) 3-27-93-08-08
Fax: (33) 3-27-93-08-00

Asia Pacific Operations
Ingersoll-Rand
Suite 1201-3 12/F
Central Plaza
18 Harbour Road
Wanchai, Hong Kong
Phone: (852) 9794 1673
Fax (852) 9794 7895

Russia
Ingersoll-Rand
Kuznetsky Most 21/5
Entrance 3
Moscow, Russia 103895
Phone: (7) 501 923 9134
Fax: (7) 501 924 4625

Printed in USA