



Operating, Maintenance
and Parts Manual

Series 635 Motor Driven Trolley

Capacities: $\frac{1}{8}$ - 2 and 3 Tons

CAUTION – IMPORTANT

**FOLLOW ALL INSTRUCTIONS AND WARNINGS IN INSPECTING,
MAINTAINING AND OPERATING THIS TROLLEY.**

The use of any hoist and trolley presents some risk of personal injury or property damage. That risk is greatly increased if proper instructions and warnings are not followed. Before using this trolley, each user should become thoroughly familiar with all warnings, instructions and recommendations herein:

RETAIN THIS MANUAL FOR FUTURE REFERENCE AND USE.

FORWARD THIS MANUAL TO OPERATOR. FAILURE TO OPERATE EQUIPMENT AS DIRECTED IN MANUAL MAY CAUSE INJURY.

CM® COLUMBUS McKINNON CORPORATION
HOIST DIVISION
140 JOHN JAMES AUDUBON PARKWAY
AMHERST, NEW YORK 14228 U.S.A.

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Instruction Sheet No. 635-H
Price: \$8.00

SAFETY PRECAUTIONS

Each Series 635 Motor Driven Trolley is manufactured in accordance with our interpretation of the applicable sections of the American Society of Mechanical Engineers Code *B30.11 Monorail Systems and Underhung Cranes, the National Electric Code (ANSI/NFPA No. 70) and the Occupational Safety and Health Act. Since OSHA states that the National Electrical Code applies to all electrical installations and utilization equipment, installers are required to provide current overload protection and grounding in accordance with the code. Users should check each installation for compliance with the application, operation and maintenance requirements of this act.

After you have completely familiarized yourself with the contents of this manual, we recommend that you carefully file it for future reference.

*Copies of this standard may be obtained from the American Society of Mechanical Engineers, 22 Law Drive, P.O. Box 2300, Fairfield, N.J. 07007-2300, U.S.A.



THIS SYMBOL POINTS OUT IMPORTANT SAFETY INSTRUCTIONS WHICH IF NOT FOLLOWED COULD ENDANGER THE PERSONAL SAFETY AND/OR PROPERTY OF YOURSELF AND OTHERS. READ AND FOLLOW ALL INSTRUCTIONS IN THIS MANUAL AND ANY PROVIDED WITH THE EQUIPMENT BEFORE ATTEMPTING TO OPERATE YOUR SERIES 635 MOTOR DRIVEN TROLLEY.



OPERATING AND SAFETY PROCEDURES

The following are operating and safety procedures for safe operation of the Series 635 Motor Driven Trolley. Taking precedence over any specific rules listed here, however, is the most important rule of all, **USE COMMON SENSE**. A few minutes spent reading these rules can make an operator aware of dangerous practices to avoid and precautions to take for his own safety and the safety of others. Frequent examinations and periodic inspections of the equipment as well as a conscientious observance of safety rules may save lives as well as time and money.

1. Immediately after installation, operate trolley (according to the operating and safety procedures as follows) with a capacity load over the entire length of runway or monorail system to be sure that all adjustments and operations are satisfactory.
2. Rail stops must be installed for all trolleys operating on open end beams. These stops must be positioned such that impact forces are absorbed by the trolley side frames only.
3. When preparing to lift a load, be sure that the attachments to the hook are firmly seated in hook saddle. Avoid off center loading of any kind, especially loading on the point of hook.
4. When lifting, raise the load only enough to clear the floor or support and check to be sure that the attachments to hook and load are firmly seated. Continue lift only after you are assured the load is free of all obstructions.
5. When applying a load, it should be directly under the trolley. Avoid off center loading of any kind.
6. Take up a slack load chain carefully and start lifting load slowly to avoid shock and jerking of hoist load chain. If there is any evidence of overloading, immediately lower the load and remove the excess load.
7. Do not allow the load to swing or twist while hoisting.
8. Anticipate the stopping point and allow trolley to coast to a smooth stop. Reversing or "plugging" to stop trolley causes overheating of motor and swaying of load.
9. Do not load trolley beyond the rated capacity. Overload can cause immediate failure of load carrying parts or cause damage resulting in future failure at less than rated capacity.
10. Do not use this or any other overhead materials handling equipment for lifting or transporting people.
11. Stand clear of all loads and avoid moving a load over the heads of other people. Warn people of your intention to move a load in their area.
12. Do not leave the load suspended in the air unattended.
13. Do not wrap the load chain around the load and hook onto itself as a choker chain. Doing this will result in the following:
 - (a) Operation of the upper limit switch is bypassed and the load could hit the hoist.
 - (b) The loss of the swivel effect of the hook which could mean twisted chain and a jammed liftwheel.
 - (c) The chain could be damaged at the hook.
14. Permit only qualified personnel to operate unit.

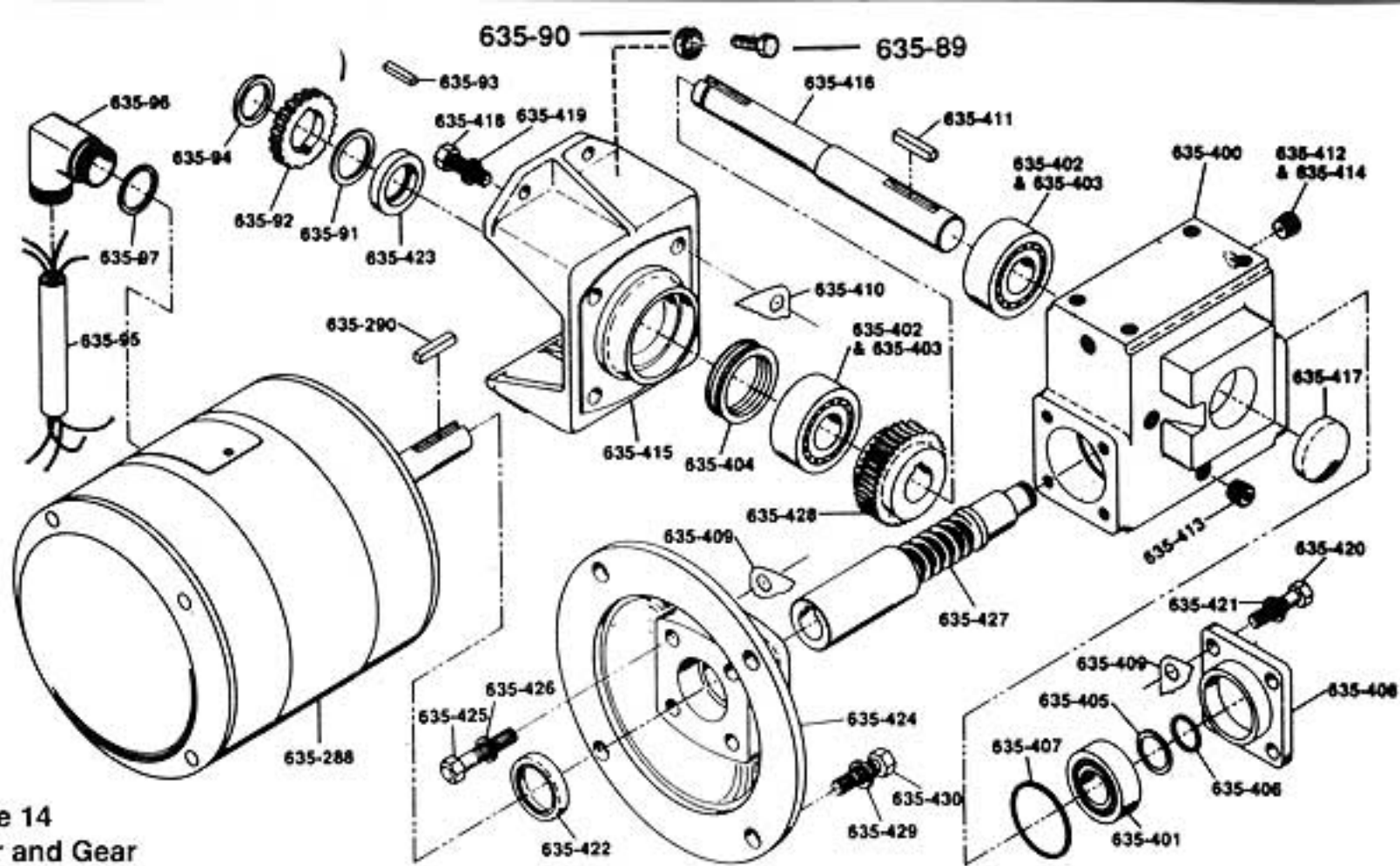


Figure 14
Motor and Gear
Reducer Exploded View

Motor And Peerless-Winsmith Type Gear Reducer Parts List

Key No.	No. Req'd	Part Name	Part Number
635-89	4	Gear Reducer Mtg. Screw	927764
635-90	4	Gear Reducer Screw L.W.	982226
635-91	1	Pinion Washer	982263
635-92	1	Pinion	35429
635-93	2	Pinion Key	85546
635-94	1	Pinion Retaining Ring	82680
635-95	1	Motor Cable Assembly	36500 For Single Phase Units, 51440 For Three Phase Units
635-96	1	Motor Cable Connector	83969 For Single Phase Units, 83968 For Three Phase Units
635-97	1	Connector Locknut	989771
635-288	1	Motor-Complete (Individual Components Not Available For Repairs).	36925 For 115-1-60 Motor 36924 For 230/460-3-60 And 220/380-3-50 Motor 36923 For 575-3-60 Motor
635-289	1	Gear Reducer-Complete	36204 (10:1) For 75 F.P.M. Trolleys 36205 (25:1) For 30 F.P.M. Trolleys
635-290	1	Motor Shaft Key	85554
635-291	4 Ea.	Motor Attaching Screw And Lockwasher	987005 (Screw), 987919 (Lockwasher)
635-400	1	Housing	
635-401	1	Ball Bearing	
635-402	2	Cone, Roller Bearing	
635-403	2	Cup, Roller Bearing	
635-404	1	Temper Load Ring	
635-405	1	Truarc Spacer	
635-406	1	Retaining Ring	
635-407	1	Retaining Ring	
635-408	1	High Speed Cap Closed	
635-409	2	Gasket High Speed Cap	
635-410	1	Gasket Slow Speed Cover	
635-411	1	3/16x3/16x1 inch Long Square Key	
635-412	1	1/8x.375 Hex CTSK PP/Vent	
635-413	5	1/8x.375 Hex CTSK PP Steel	
635-414	1	1/4x1/2 Brass Escutcheon Pins	
635-415	1	Slow Speed Cover & Base	
635-416	1	Slow Speed Shaft	
635-417	1	Slow Speed Plug Cover & Housing	
635-418	4	3/16 - 18x7/8 Hex Head Cap Screw	
635-419	4	3/16 Stand Non Link Lockwasher	
635-420	4	1/4 - 20x3/4 Sems Hex Head Cap Screw	
635-421	4	1/4 Non Link LW	
635-422	2	Oil Seal	
635-423	1	Oil Seal	
635-424	1	Motor Adapter	
635-425	4	1/4 - 20x1-1/4 Hex Head Cap Screw	
635-426	4	1/4 Non Link LW	
635-427	1	Worm On Shaft	
635-428	1	Gear	
635-429	4	3/8 Standard Non Link Lockwasher	
635-430	4	3/8 - 16x7/8 Hex Head Cap Screws	

CONTACT CM
FOR PART
NUMBER OF
GEAR
REDUCER
COMPONENTS
KEY NUMBERS
635-400 Thru 635-430

Motor Brake Parts List

Key No.	No. Req'd	Part Name	Part Number
635-206	1	Brake Cord	51074
635-260	1	Coupler Brake Shaft Kit (includes Shaft, Bearing, Snap Ring, Retainer Ring and Key)	<p>Contact CM For Part Numbers Of Brake Components Key Numbers 635-260 Thru 635-286, 635-294 And 635-353</p>
635-261	1	Housing	
635-262	4	Mounting Stud With Nut	
635-263	2	Access Cover - Plain	
635-264	—	Access Cover Screw (Specify No. Req'd.)	
635-265	2	* Access Cover Gasket	
635-266	1	* Drain Plug	
635-267	1	* Housing To End Plate Gasket	
635-268	2	* Gasket - Each End Of Brake	
635-269	1	Stationary Disc	
635-270	1	Friction Disc Kit (Includes 3 Discs With Stabilizer Spring - Only One Disc Required Per Brake)	
635-271	1	Hub Kit (Includes Hub And Set Screws)	
635-272	1	End Plate Assembly	
635-273	1	Plug—External Lead Hole	
635-274	1	Bearing	
635-275	1	Solenoid Lever	
635-276	1	Retaining Ring	
635-277	2	Spacer	
635-278	2	Torque Adjusting Screw	
635-279	2	Wear Adjusting Screw	
635-280	2	Pressure Spring	
635-281	1	Lever Arm And Stop Nut Assembly	
635-282	1	Bearing Pin	
635-283	1	Support Plate And Stop Nut Assembly	
635-284	1	Pivot Pin	
635-285	1	Solenoid Kit (Includes Plunger, Link, Frame Link Screw, Link Nut And Mounting Screws)	
635-286	1	Coil Kit (Includes Coil, Plunger Guides, Guide Screw and Lockwasher)	
635-287	1	Motor Brake Kit (Includes Complete Brake Assembly, Brake Cord, Connector Wire Nuts and Installation Instructions)	9597 For 115 Volt Brake, 9598 For 220, 230, 380 And 460 Volt Brake
635-292	1	Brake Cord Connector	83968
635-293	4	Wire Nut	982473
635-294	3	Brake Attaching Screw	Contact CM
635-353	1	** Access Cover With Manual Release Knob	Contact CM

* For Weatherproof Units - Not Shown

** Not Shown

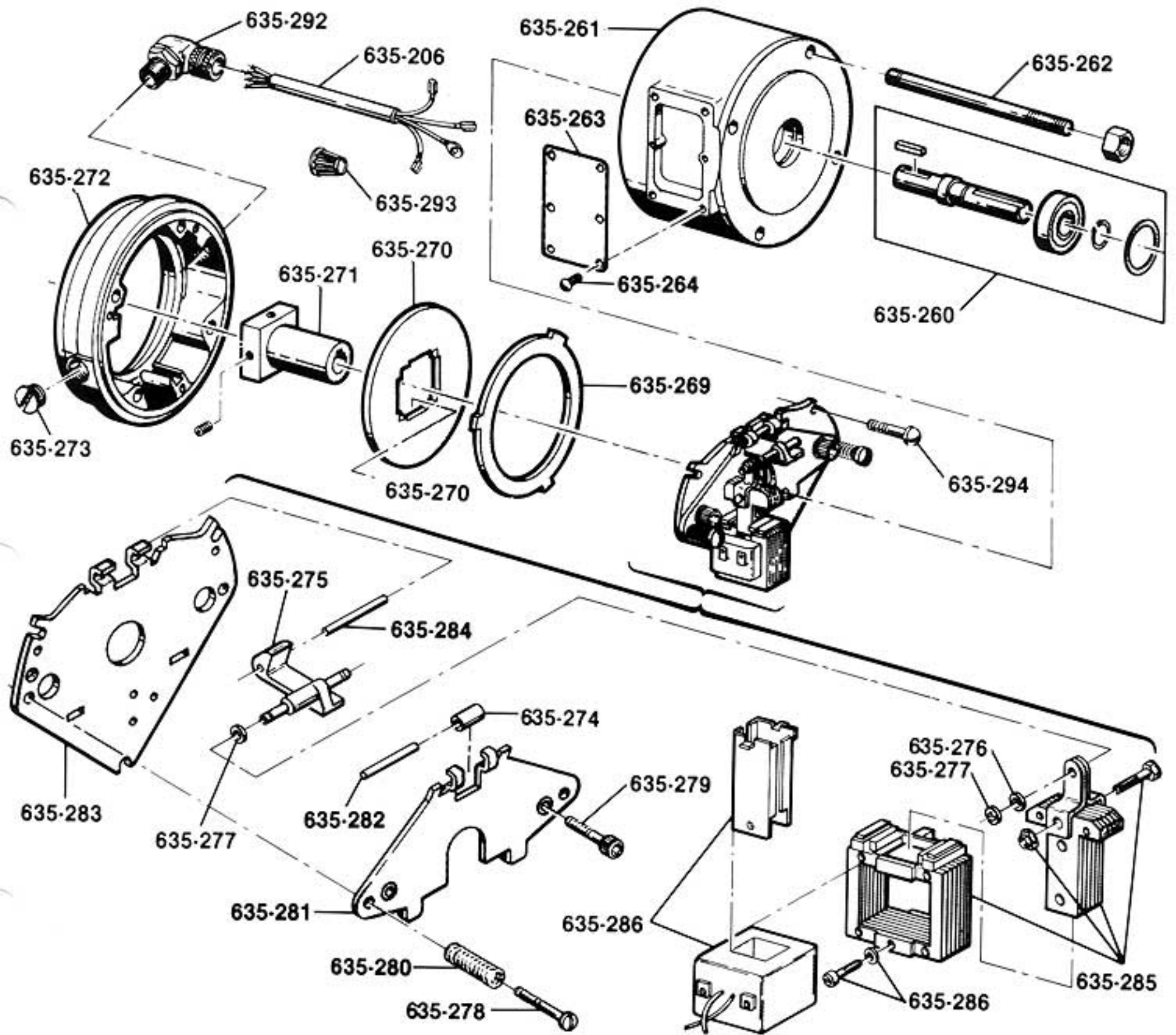


Figure 15
Motor Brake Exploded View

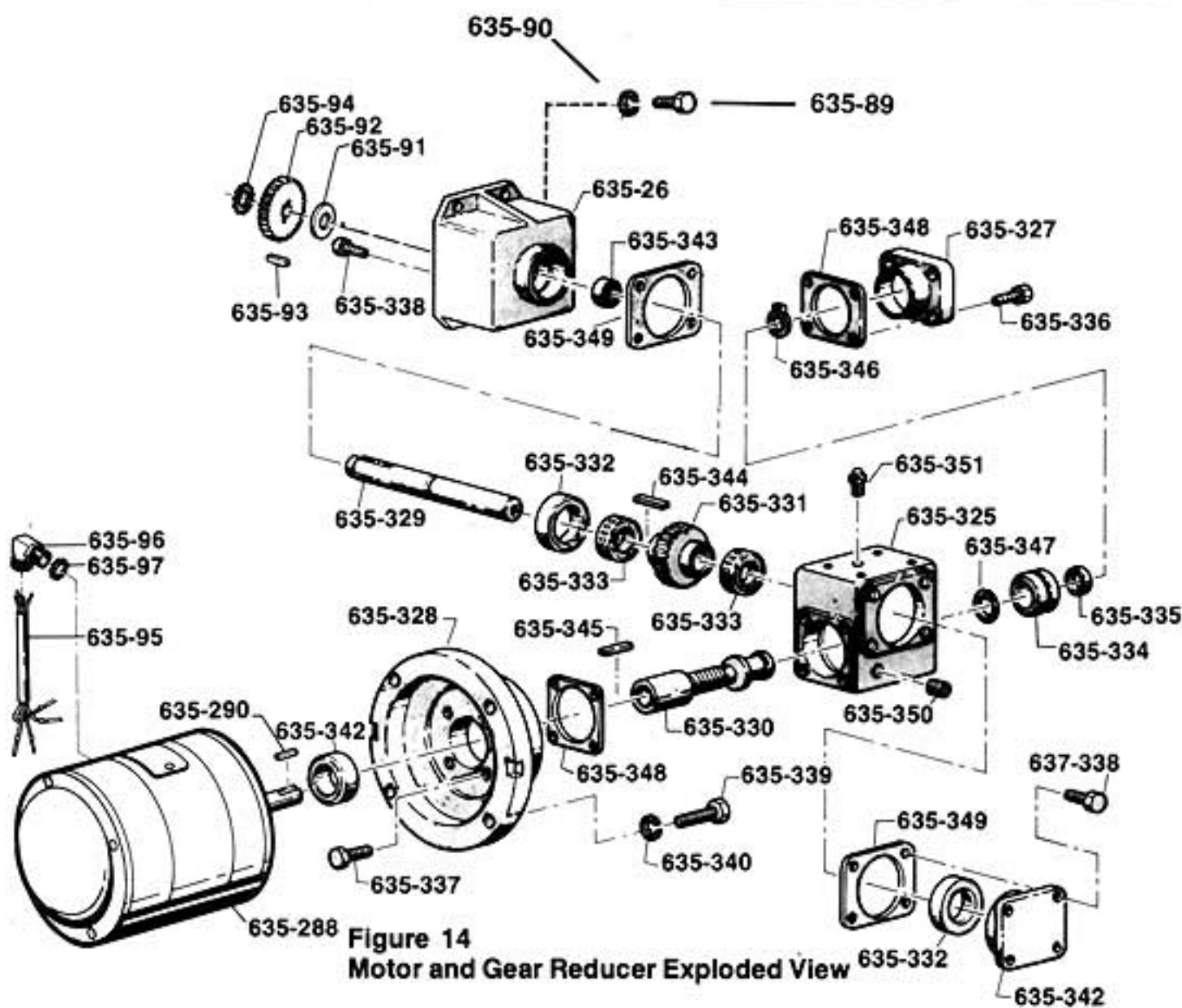


Figure 14
Motor and Gear Reducer Exploded View

Motor And Hub City Type Gear Reducer Parts List

Key No.	No. Req'd	Part Name	Part Number
635-89	4	Gear Reducer Mtg. Screw	927764
635-90	4	Gear Reducer Screw L.W.	982226
635-91	1	Pinion Washer	982263
635-92	1	Pinion	35429
635-93	2	Pinion Key	85546
635-94	1	Pinion Retaining Ring	82680
635-95	1	Motor Cable Assembly	36500 For Single Phase Units, 51440 For Three Phase Units.
635-96	1	Motor Cable Connector	83969 For Single Phase Units, 83968 For Three Phase Units.
635-97	1	Connector Locknut	989771
635-288	1	Motor-Complete (Individual Components Not Available For Repairs).	36925 For 115-1-60 Motor 36924 For 230/460-3-60 And 220/380-3-50 Motor 36926 For 575-3-60 Motor
635-289	1	Gear Reducer-Complete	36204 (10:1) For 75 F.P.M. Trolleys 36205 (25:1) For 30 F.P.M. Trolleys
635-290	1	Motor Shaft Key	85554
635-291	4 Ea.	Motor Attaching Screw And Lockwasher	987005 (Screw), 987919 (Lockwasher)
635-325	1	Housing	<p>CONTACT CM FOR PART NUMBERS OF GEAR REDUCER COMPONENTS KEY NUMBERS 635-325 Thru 635-352</p>
635-326	2	Cap, Output	
635-327	1	Cap, Closed Input	
635-328	1	Flange, Motor	
635-329	1	Shaft, Output	
635-330	1	Worm, Integral	
635-331	1	Gear, Worm	
635-332	2	Cup, Bearing	
635-333	2	Cone, Bearing	
635-334	1	Bearing, Ball	
635-335	1	Washer	
635-336	4	Screw, Hex Cap (1/4 NC x 5/8-GR5)	
635-337	4	Screw, Hex Cap (1/4 NC x 7/8-GR5)	
635-338	8	Screw, Hex Cap (1/4 NC x 1/2-GR5)	
635-339	4	Screw, Hex Cap (3/8 NC x 1-GR5)	
635-340	4	Washer, Locking (3/8)	
635-341	1	Kit, Repair (Includes 635-342 Thru 635-351)	
*635-342	1	Seal, Input Shaft	
*635-343	1	Seal, Output Shaft	
*635-344	1	Key, P&W (7/16 Sq. x 1")	
*635-345	1	Key, P&W (7/16 Sq. x 1 3/8)	
*635-346	1	Ring, Retaining	
*635-347	1	Ring, Retaining	
*635-348	12	Gasket, Input Cap	
*635-349	12	Gasket, Output Cap	
*635-350	4	Plug, Pipe, Socket (1/2 NPT)	
*635-351	1	Plug, Vented	
635-352	1	Cap, Closed	

*These Items Are Only Available In Repair Kit Form. Order "Kit, Repair, Key No. 635-341"

Control Box Components Parts List

Refer To Figure 13

Key No.	No. Req'd.	Part Name	Capacity	
			1/8-2 Ton	3 Ton
			Part Number	
635-82**	1	Bridge Control Cord Connector Locknut	989772	
635-83**	1	Cable Clamp Screw Nut	982514	
635-84**	1	Cable Clamp	27833	
635-85**	1	Cable Clamp Screw Washer	954802	
635-86**	1	Cable Clamp Screw	982688	
635-87	1	Label (For Wiring Diagram)	968996	
635-88	1	Connector Washer	987177 (Used with control box part No. 36801 only)	
635-126†	1	Contactors	28835 For Contactor with 115 V. Coils, 28846 For Contactor With 48 V. Coils, 28837 For Contactor With 24V. Coils	
635-197‡	1	Field Wiring Kit (Units with 2 button control station)	36665	
635-198‡	1	Field Wiring Kit (Units with 4 button control station)	36666	
635-217	3	Ground Screw	958805	
635-218	3	Ground Screw Lockwasher	987873	
635-223	1	Short Hoist Power Cord	51247 For 1 Phase Lodestar, 51246 For 3 Phase Lodestar, 51081 For 1 Phase Techstar, 51082 For 3 Phase Techstar, For Valustar, Contact CM	
635-224	1	Short Hoist Control Cord	51245 For Lodestar, 51080 For Techstar For Valustar, Contact CM	
635-300	—	Line Connector (Specify No. Req'd.)	982158	
635-304	1	Brake Cord Conn. Locknut	989771	
635-305*	1	Brake Cord Conn.'O' Ring	983967	
635-306	1	Brake Cord Connector	89916	

*For weatherproof units only
 **For use with 6 button control stations
 †Individual components not available for repairs
 ‡Not shown

Separate Parts List For Units With Main Line Contactor

Key No.	No. Req'd.	Part Name	Part Number
635-45	1	Transformer	68810 For 230 & 460 Volt Trolleys 68786 For 575 Volt Trolleys
635-38	1	Power Cord	51192 (Single Phase) 51194 (Three Phase)
‡	1	Main Line Contactor	36947 (115 V. Coil)
‡	2	Main Line Contactor Screw	982537
‡	2	Main Line Contactor Screw L.W.	957844
‡	4	Transformer Spacer	68759
‡	4	Transformer Mtg. Screw	959200
‡	4	Transformer Screw L.W.	987873

Control Box Components Parts List

Refer To Figure 13

Key No.	No. Req'd.	Part Name	Capacity	
			1/8-2 Ton	3 Ton
			Part Number	
635-26	1	Control Box & Brackets w/ Cover & Cover Mounting Screws	36801 For Units Without Main Line Contactor 36248 For Units With Main Line Contactor	
635-29	4	Control Box Mounting Screw	982693	
635-30	1	C.M. Nameplate	935899	936828
635-31	1	Wiring Diagram	Contact CM	
635-32	2	Current Label	935884 (115-1-60), 935885 (230-3-60), 935886 (460-3-60), 935887 (220-3-50) 935888 (380-3-50), 935889 (Blank)	
635-33	1	Strain Relief Screw	982695	
635-34	2	Strain Relief Screw Washer	954802	
635-35	1	Cable Clamp	27833	
635-36	1	Cable Clamp Screw Washer	954802	
635-37	1	Cable Clamp Screw	982688	
635-38	1	Power Cord (specify length)	51436 (Single Phase), 51434 (Three Phase) - See Separate Listing for Units With Main Line Contactor.	
635-39	1	Power Cord Connector	89926 (Single Phase), 89916 (Three Phase)	
635-40	1	Power Cord Connector Locknut	989771	
635-43	1	Hoist Power Cord Connector	89916	
635-44	1	Hoist Power Cord Connector Locknut	989771	
635-45	1	Transformer (See Separate Listing For Units With Main Line Contactor).	35734 For 230-3-60 and 460-3-60 Trolleys, 36756 For 220-3-50 and 380-3-50 Trolleys, 35807 For 575-3-60 Trolleys, 35810 for 115-1-60 Trolley For Use With 24 Volt Control and 35809 For 230, 220, 380 and 460 Volt Trolleys for use with 24 Volt Control	
635-46	2	Transformer Mounting Screw	982686	
635-47	1	Terminal Board	35880	
635-48	2	Terminal Board Mounting Screw	982684 (Single Phase), 982537 (Three Phase)	
635-49	2	Terminal Board Mounting Screw Nut	988101	
635-50	1	Control Cord Connector	983979 for Control Cords With 8 Conductors 83982 for Control Cords With 10 Conductors	
635-51	1	Control Cord Connector Locknut	989772 for Control Cords With 8 Conductors 989773 for Control Cords With 10 Conductors	
635-52	1	Terminal Insulator	35881	
635-53	2	Contact Mounting Screw	982683	
635-54	—	Jumper	51573 (2 req'd.), 51653 (3 req'd.), 51652 (5 req'd.) - 1 Phase 51653 (1 req'd.), 51533 (2 req'd.), 51652 (5 req'd.), 51573 (1 req'd.) - 3 Phase	
635-55	1	Jumper (Between Coil Terminals)	51694	
635-58	2	Term. Bd. Nut	982484	
635-59	1	Term. Bd. (Motor Cable)	28719	
635-61*	1	Cover Gasket	35941	
635-65	1	Motor Cable Connector	89916	
635-66*	1	Motor Cable Connector "O" Ring	983967	
635-67	1	Motor Cable Conn. Locknut	989771	
635-68*	1	Power Cord Connector "O" Ring	983967 (Weatherproof Units)	
635-69*	1	Hoist Power Cord Connector "O" Ring	983967 (Weatherproof Units)	
635-70*	1	Control Cord Connector "O" Ring	983963 For Control Cord With 8 Conductors 984901 For Control Cord With 10 Conductors	
635-71*	2	Control Box Plug Screw	982686 (Single Phase), 982683 (3 Phase)	
635-72*	1	Gasket Cement	986913	
635-76	1	Hoist Control Cord Connector	89926	
635-77*	1	Hoist Control Cord Connector "O" Ring	983967	
635-78	1	Hoist Control Cord Connector Locknut	989771	
635-79**	1	Bridge Control Cord	89683 (Specify Length Req'd.)	
635-80**	1	Bridge Control Cord Connector	83980	
635-81**	1	Bridge Control Cord Connector "O" Ring	983963 (Weatherproof Units)	

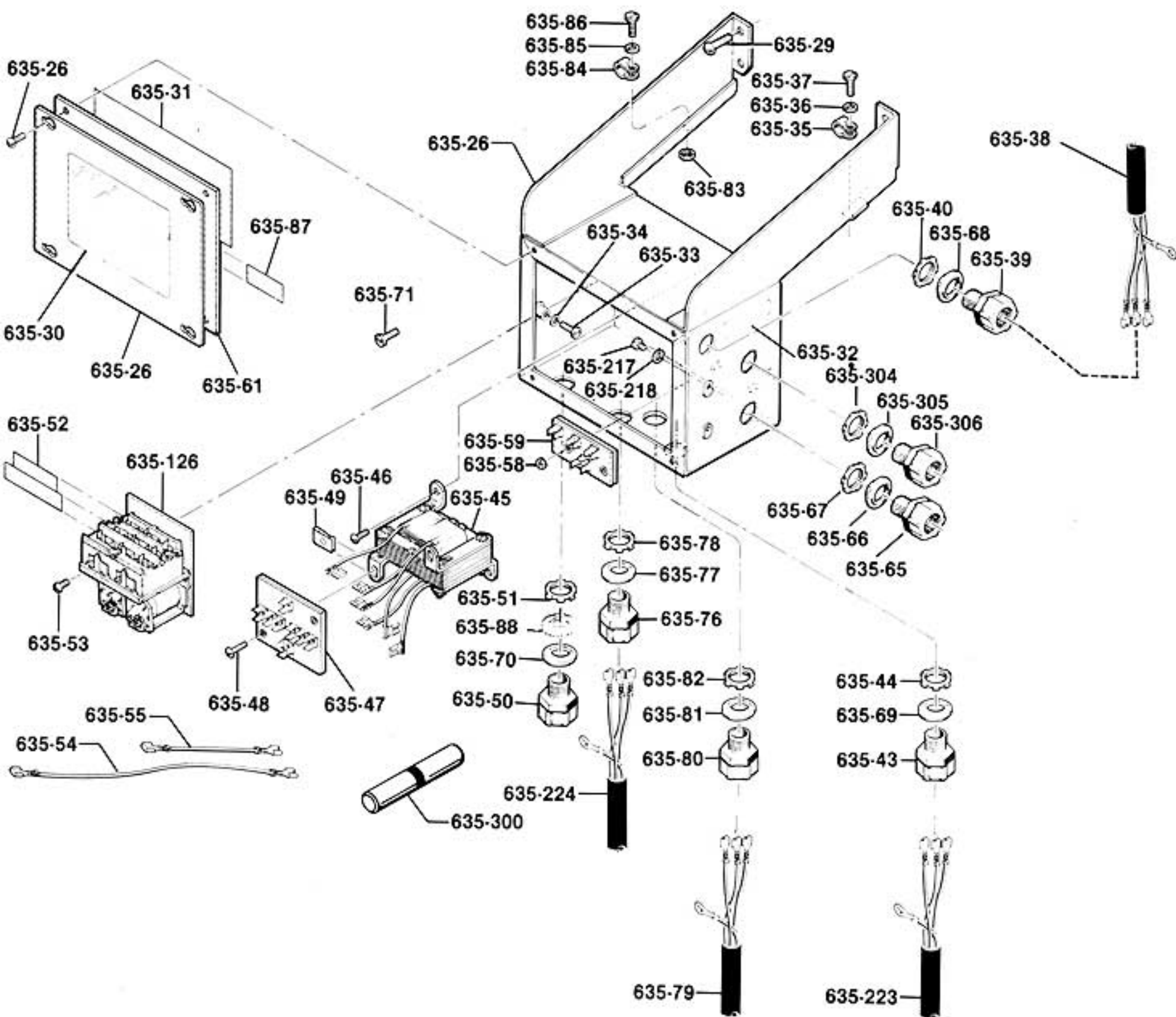


Figure 13
Control Box Exploded View

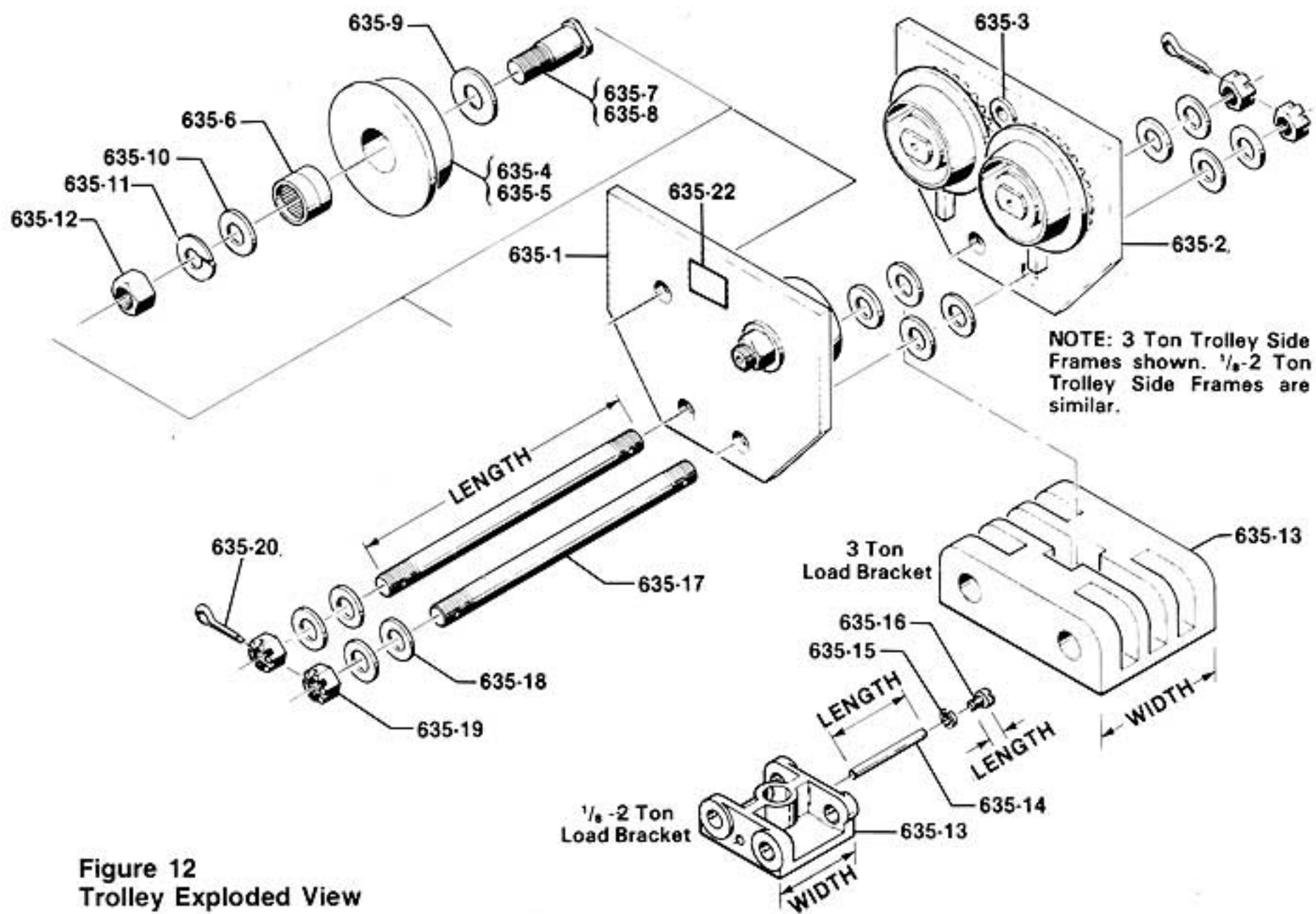
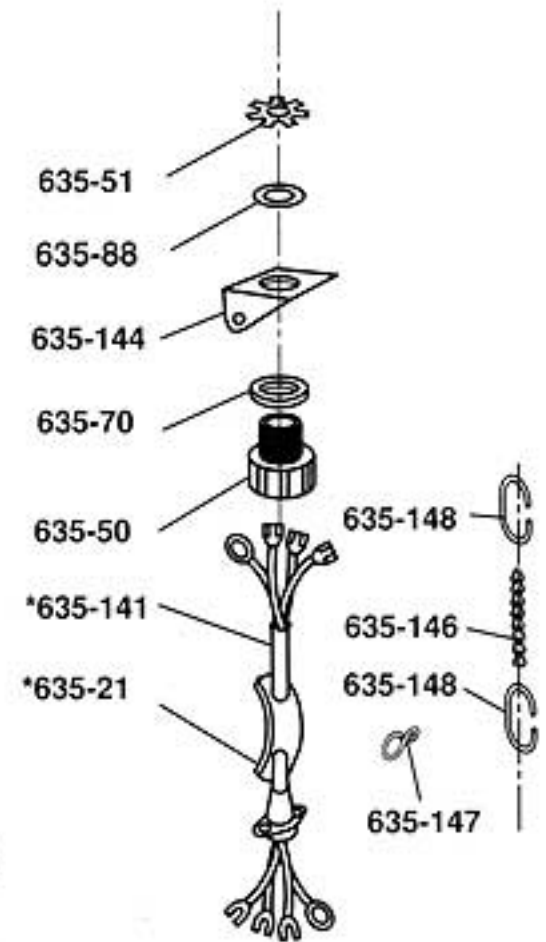
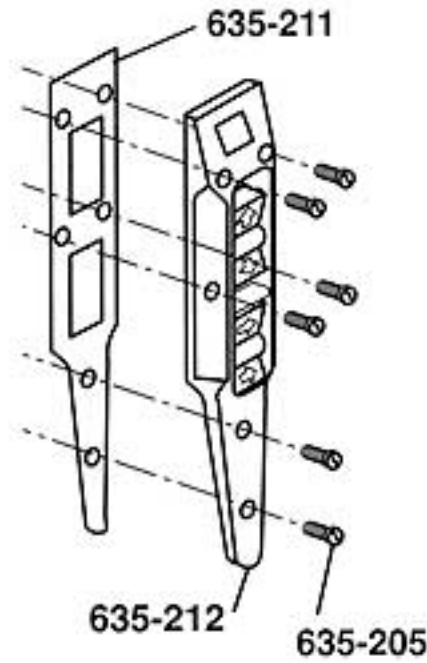
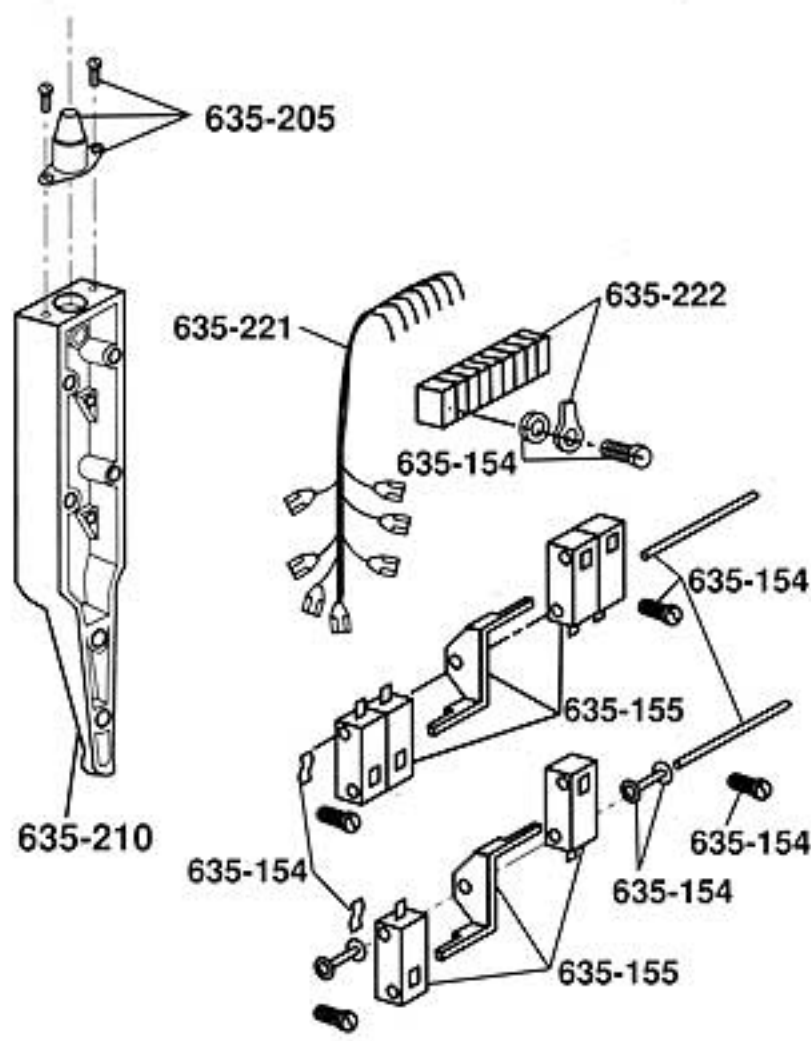


Figure 12
Trolley Exploded View

Trolley Components Parts List

Key No.	No. Req'd.	Part Name	Capacity	
			1/8-2 Ton	3 Ton
			Part Number	
635-1*	1	Side Frame-Plain Side (does not include wheels)	35680	36696
635-2*	1	Side Frame-Gearred Side (does not include wheels)	35690	36697
635-3	1	Motor Shaft Bearing	82055	
635-4	2	Trackwheel, Plain	39002	
635-5	2	Trackwheel With Gear	35642	
635-6	4	Trackwheel Bearing	82113	
635-7	2	Trackwheel Stud-Plain Wheel	36361	
635-8	2	Trackwheel Stud-Gearred Wheel	36362	
635-9	4	Trackwheel Washer—Steel	81014	
635-10	4	Trackwheel Washer—Oilite	82046	
635-11	4	Trackwheel Stud Lockwasher	987926	
635-12	4	Trackwheel Stud Nut	988155	
635-13	1	Load Bracket	35033 (4- ³ / ₁₆ " wide) 35043 (6- ¹ / ₁₆ " wide)	36012 (4- ¹ / ₁₆ " wide) 36021 (6- ¹ / ₁₆ " wide)
635-14	1	Suspension Lug Pin	35413 (2- ⁷ / ₈ " long) 35400 (3- ³ / ₄ " long)	---
635-15	1	Suspension Lug Pin Screw Lockwasher	983547	---
635-16	1	Suspension Lug Pin Screw	982433 (³ / ₄ " long) 987209 (1- ¹ / ₂ " long)	---
635-17	2	Suspension Bolt	35446 (1" dia.x10 ²³ / ₃₂ " lg) 35430 (1" dia.x13 ¹ / ₄ " lg)	36358 (1 ¹ / ₄ dia.x11 ¹³ / ₃₂ " lg) 36380 (1 ¹ / ₄ dia.x12 ²³ / ₃₂ " lg)
635-18	—	Spacer Washer	981012 (42)	936827 (36)
635-19	4	Suspension Bolt Nut	958818	945835
635-20	4	Suspension Bolt Cotter Pin	988368	988382
635-22	1	Warning Label	936984	

* For Trolleys with standard ranges of adjustment and without trolley guards. For all others, contact CM for side frame part numbers.

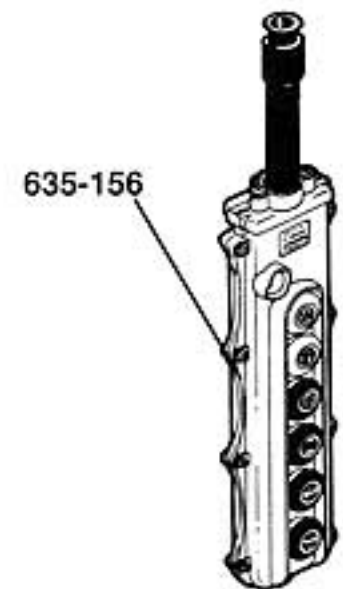


CM 4 Directional Control Station Parts List

Key No.	No. Req'd	Part Name	Part Number
635-21	1	Warning Tag	81704
635-141	1	Control Cord Complete—Specify Length Req'd.—includes Control Cord, Grommet and Grommet Retaining Ring (If Req'd), and Warning Tag.	Contact CM For Part Numbers. (For 8 Conductor Cord With A Length of 16'-3". The Part Number is 36645)
635-144	1	Chain clip at control box: 68704 for control cord with 8 conductors, 57817 for control cord with 10 conductors	-
635-146	-	Control station support chain (Specify length req'd)	621431
635-147	-	Cable clip—specify no. req'd	54749
635-154	1	Control station parts kit consisting of: 1-Strain cable attach. screw 1-Terminal strip spacer 2-Switch mounting pins 4-Pin retainer screws 2-Switch spacers 2-Switch spacer washers 6-Leaf springs	71601
635-155	1	Control station switch kit Consisting of: 6-Switch 2-Interlocks	71602
635-156	1	Control station complete: *CM 4 directional (1 or 2 speed hoist with 1 speed trolley) 6 Button type SBP 5 Button SBP (For other control stations contact CM)	70620 58209 58207
635-205	1	Control station kit consisting of: 1-Grommet 1-Grommet retaining ring 2-Retaining ring screws 6-Cover screws	70507
635-210	1	Case	28874
635-211	1	Gasket	28877
635-212	1	Cover assembly (cover, rockers and decal)	71604
635-221	1	Wiring harness	51546
635-222	1	Terminal strip and mounting lug kit consisting of: 1-Terminal strip 2-Mounting lug	71603

Control Cord, Chain Strain Relief and Related Parts

Note: For key numbers not listed—see pages 16 & 17



Type SBP 5 and 6 Button Control Station—Individual components not available for repair

Multifunction Control Station

*Also order control station kit part number 70507 (635-205)

REPLACEMENT PARTS ORDERING INSTRUCTIONS

The following information must accompany all correspondence or repair parts orders.

- 1) Serial Number—This is stamped on the side frame above the motor mounting, as shown below.
- 2) Voltage, Phase, Hertz—See the labels located next to the power cord and on the inside of the control box cover.

When ordering motor parts, give the motor name plate data in addition to the above.

For parts orders also specify:

- | | |
|-----------------------|----------------|
| 1) Quantity desired | 3) Part name |
| 2) Key number or part | 4) Part number |

When ordering replacement parts, consideration should be

given to the need to replace other items: bearings, contacts, fasteners, etc. Items that may be damaged or lost during disassembly or just unfit for future use because of deterioration from age or service.

Parts should be ordered from CM's authorized Master Parts Depots conveniently located throughout the United States and Canada. Refer to the back cover of this manual to locate the Master Parts Depot nearest you.

⚠ WARNING
Using "commercial " or other manufacturer's parts to repair the Series 635 Motor Driven Trolley may cause load loss.
TO AVOID INJURY:
Order all replacement parts from CM. Some parts may look alike but often CM parts are made of specific materials or processed to achieve specific properties.

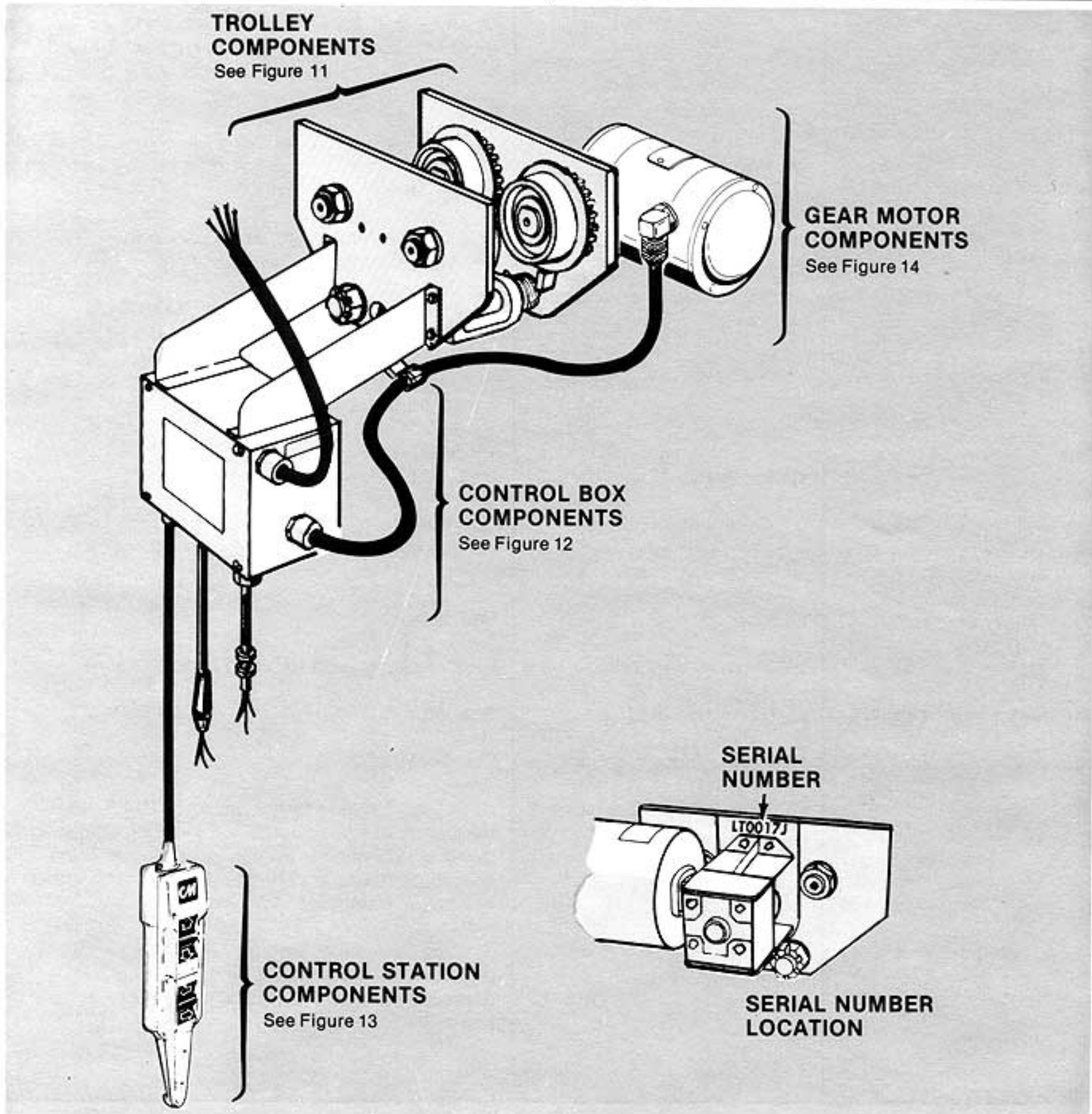


Figure 10. Trolley Arrangement

Table 4. Troubleshooting and Remedial Action

IF	CAUSE MAY BE	REMEDY														
<p>1. Trolley does not operate in either direction</p>	<p>a) No voltage at trolley</p> <p>b) Phase failure (Single phasing)</p> <p>c) Open control circuit</p> <p>d) Wrong voltage or frequency</p> <p>e) Low voltage</p> <p>f) Excessive load</p>	<p>Main line or branch circuit switch open; branch line fuse blown or circuit breaker tripped. Close, replace, or re-set.</p> <p>Check for grounded or open connection in supply lines or current collectors.</p> <p>Open circuit, grounded or open connection in one line of supply system, collectors, hoist wiring, reversing contactor, motor leads or windings.</p> <p>Check for electrical continuity.</p> <p>Open or shorted windings in transformer or reversing contactor coil; loose connection or broken wire in circuit; mechanical binding in contactor; control station switch contacts not making.</p> <p>The voltage and frequency must be the same as shown on trolley control box.</p> <p>Voltage at the motor must be above the minimum with the unit in operation:</p> <table border="1" data-bbox="1233 1299 1889 1585"> <thead> <tr> <th>UNIT RATING</th> <th>MINIMUM VOLTAGE</th> </tr> </thead> <tbody> <tr> <td>110-120/1/60</td> <td>99</td> </tr> <tr> <td>208-240/3/60</td> <td>187</td> </tr> <tr> <td>440-480/3/60</td> <td>396</td> </tr> <tr> <td>220/3/50</td> <td>198</td> </tr> <tr> <td>380/3/50</td> <td>342</td> </tr> <tr> <td>575/3/60</td> <td>517</td> </tr> </tbody> </table> <p>Reduce loading to the capacity limit of trolley</p>	UNIT RATING	MINIMUM VOLTAGE	110-120/1/60	99	208-240/3/60	187	440-480/3/60	396	220/3/50	198	380/3/50	342	575/3/60	517
UNIT RATING	MINIMUM VOLTAGE															
110-120/1/60	99															
208-240/3/60	187															
440-480/3/60	396															
220/3/50	198															
380/3/50	342															
575/3/60	517															
<p>2. Trolley operates in one direction only</p>	<p>a) Open control circuit</p>	<p>See Item 1c.</p>														
<p>3. Trolley operates sluggishly</p>	<p>a) Excessive load</p>	<p>See Item 1f.</p>														
<p>3. Trolley operates sluggishly</p>	<p>b) Low voltage</p>	<p>See Item 1e.</p>														
<p>3. Trolley operates sluggishly</p>	<p>c) Worn or dirty rails</p>	<p>Clean rails, inspect for worn spots.</p>														
<p>4. Motor overheats</p>	<p>a) Excessive load</p>	<p>See Item 1f.</p>														
<p>4. Motor overheats</p>	<p>b) Low voltage</p>	<p>See Item 1e.</p>														
<p>4. Motor overheats</p>	<p>c) Extreme external heating</p>	<p>Above an ambient temperature of 104°F., the frequency of trolley operation must be limited to avoid overheating of motor. Special provision should be made to ventilate the space or shield the trolley from heat radiation</p> <p>Excessive inching, jogging or plugging should be avoided since this type of operation will drastically shorten the life of motor and contactor.</p> <p>See Item 1b.</p>														

Wiring diagrams shown are representative. Consult diagram attached to contractor box cover or furnished with unit.

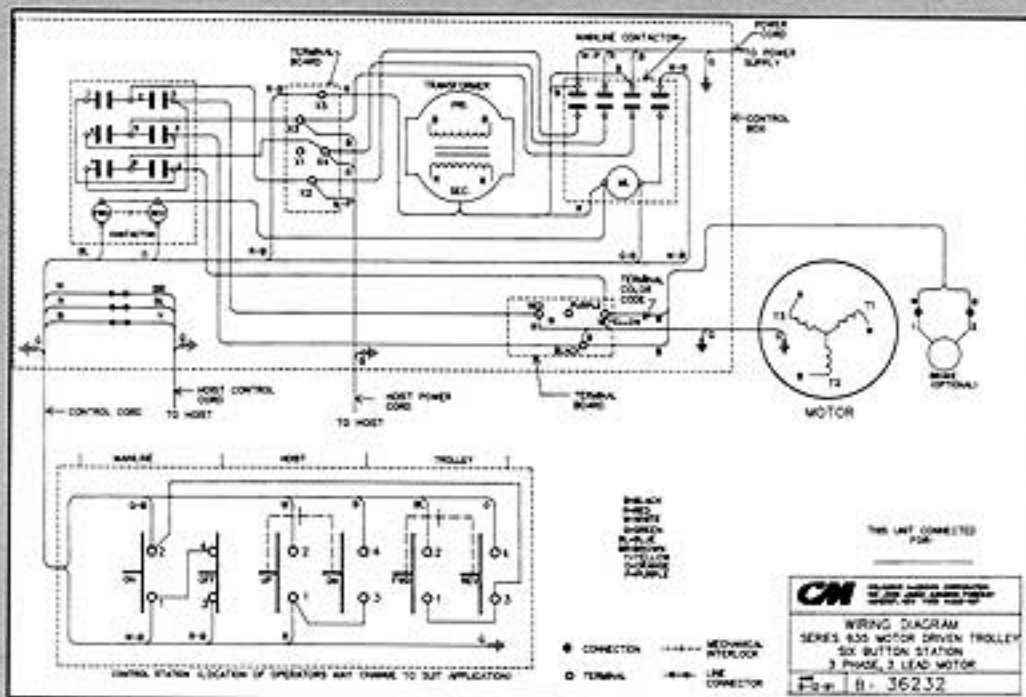
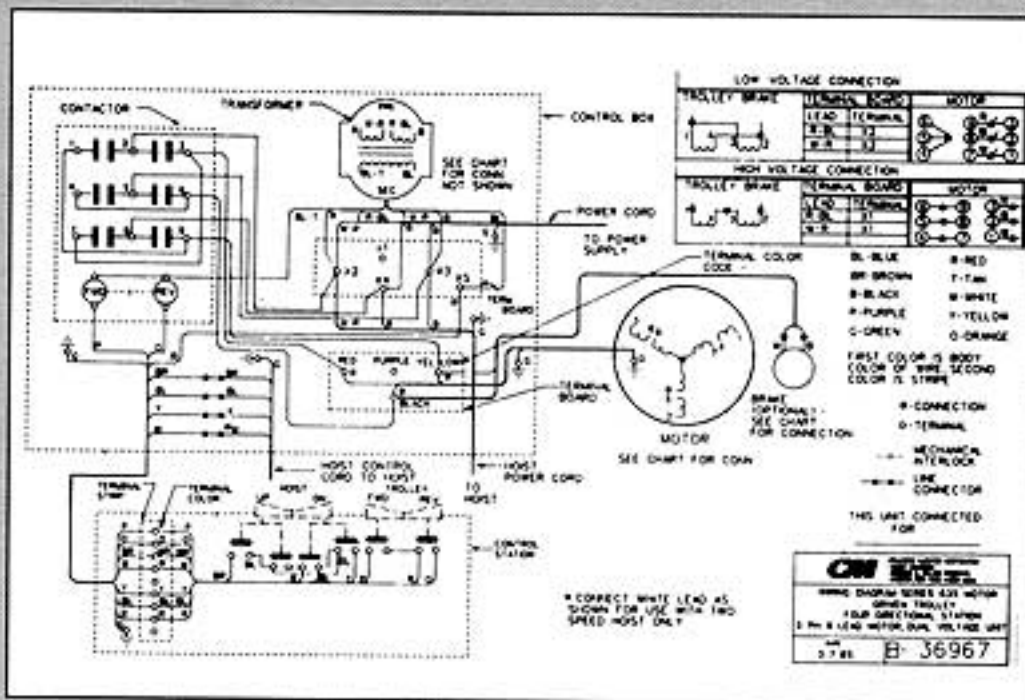
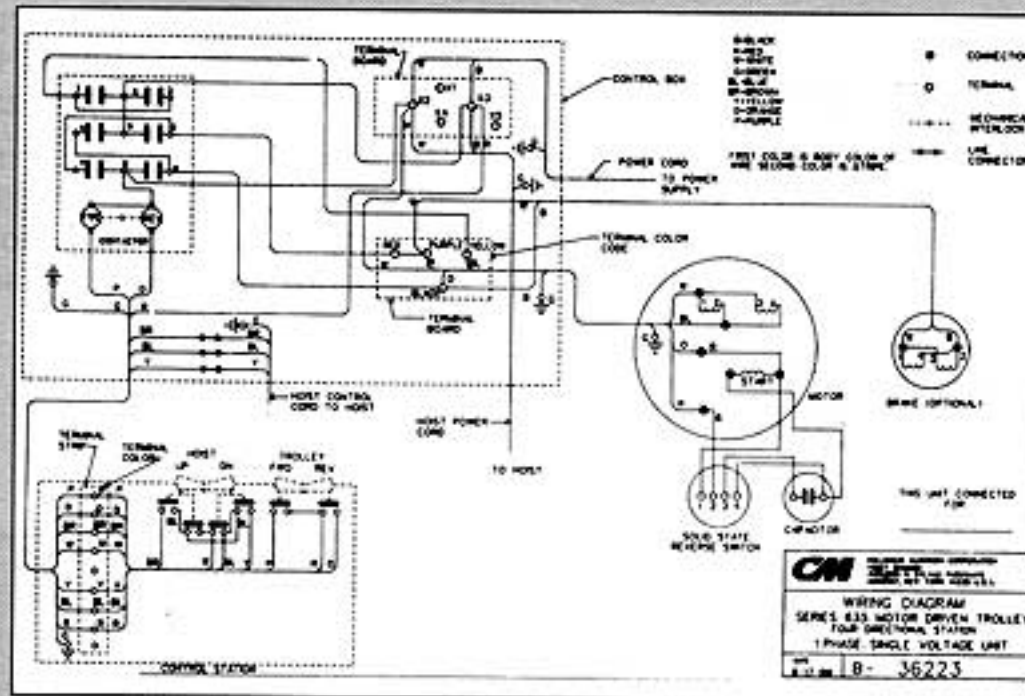


Figure 9, Wiring Diagrams

TROUBLESHOOTING ELECTRICAL DATA

To detect open and short circuits in electrical components use the following procedure.

Open circuits in the coils of electrical components may be detected by isolating the coil and checking for continuity with an ohmmeter or with the component in series with a light or bell circuit.

Shorted turns are indicated by a current draw substantially above normal (connect ammeter in series with suspected element and impose normal

voltage) or D.C. resistance substantially below normal. The current method is recommended for coils with very low D.C. resistance.

Motor current should be measured with the motor running under full load with rated voltage applied. Contactor coil current should be measured with the contactor armature (contacts) closed and full voltage on the coil.


Table 3. Electrical Data For Trolley Components

Motors			
Voltage-Phase Hertz	Full Load Current (Amps.)	Leads	D.C. Resistance (Ohms)
115-1-60/50	3.4/4.2	T1-T3 T2-T3	3.3 3.1
230/460-3-60	1.3/.65	T1-T4 T2-T5 T3-T6 T7-T8 T7-T9 T8-T9	15.3 15.3 15.3 30.5 30.5 30.5
220/380-3-50	1.7/.85	T1-T4 T2-T5 T3-T6 T7-T8 T7-T9 T8-T9	15.3 15.3 15.3 30.5 30.5 30.5
575-3-60	.52	T1-T2 T1-T3 T2-T3	95.0 95.0 95.0
Transformer			
Voltage	Leads	D.C. Resistance (Ohms)	
230/460 to 115	Red to White Red Black to Red Blue Blue to Blue Tan	150 150 21	
Contactor Coil			
Voltage Hertz	Current (Amps.)	D.C. Resistance (Ohms)	
120-60 110-50 115-60/50	0.10 0.12 .124/.140	150 210 132	

ADJUSTMENT

The motor brake should be checked periodically for wear of the friction discs and/or proper adjustment of the solenoid air gap. Refer to Figure 8. Normal lining wear will cause the solenoid lever (8) to move away from the solenoid frame (79) and thus increase the air gap and trolley stopping time.


When the gap reaches approximately 11/16" the brake should be adjusted. To adjust the brake, de-energize the power supply to the trolley.

 WARNING
High electrical potential exists within the trolley control box and contact with the wiring terminals will cause serious electrical shock and injury.
TO AVOID INJURY:
Always de-energize the power supply system feeding the trolley before removing the control box cover.

Remove both access covers to expose the brake. Depress the plunger (13) towards the solenoid frame until spring pressure is felt. Hold the plunger firmly in this position and measure the air gap between the mating (ground) surfaces of the solenoid (79) and the solenoid plunger (29). To adjust, turn both wear adjustment screws (10) equal amounts clockwise until the air gap measures 13/32".

Replacement of Friction Disc (Refer to Figure 15 page 19)

1. De-energize the power supply to the trolley and remove the motor/brake assembly from the gear reducer. Remove housing (635-261) from the brake.

 WARNING
High electrical potential exists within the trolley control box and contact with the wiring terminals will cause serious electrical shock and injury.
TO AVOID INJURY:
Always de-energize the power supply system feeding the trolley before removing the control box cover.

2. Remove the entire support plate assembly by unscrewing 3 screws (635-294). Remove the stationary disc (635-269) and worn friction disc (635-270). Install the new friction disc, making sure that the two stabilizing springs are at 90° in the recessed portion of the square hole in the friction disc, with the prongs pointing into the brake. Place the stationary disc on the friction disc and re-assemble the entire support plate assembly engages the guide pins of the end plate.
3. Remove both access covers (635-263) from the housing (635-261) and slide the housing with its shaft assembly on to the mounting studs. Be sure the housing is assembled with the access windows above the horizontal centerline. Rotate shaft to engage key into the hub keyway.

4. Re-assemble the motor/brake assembly to the gear reducer using the four nuts and lockwashers.
5. Adjust air gap per above instructions (adjustment).
6. Re-energize power supply and operate trolley a few times to make sure air gap is correct and then replace access covers (635-263).

Replacement of Coil (Refer to Figure 8 on page 7 and Figure 15 on page 19).

1. De-energize the power supply to the trolley and remove the motor/brake assembly from the gear reducer.
2. Remove housing (635-261) from the brake and disconnect the coil lead wires from brake cord.
3. Insert screw driver between support plate (126) and the top of lever arm (17). Wedge these apart and remove bearing pin (26) and solenoid lever (8) with link (13) and plunger (29).
4. Remove plunger guide screw (84) and both plunger guides (82). Slide old coil sideways out of frame (79). If coil is difficult to move, tap lightly with a soft hammer.
5. Install new coil in the same relative position as the old coil and replace the plunger guides (82) and screw (84 and 84W).
6. Re-assemble following Step 3 in reverse order.
7. Re-connect the coil leads to the brake cord. Slide housing and shaft assembly onto mounting studs, rotating shaft to engage key into hub keyway. Be sure the access covers are above the horizontal centerline.
8. Re-assemble motor/brake assembly to gear reducer using the four nuts and lockwashers.
9. Adjust air gap per above instructions (Adjustment).
10. Re-energize power supply and operate trolley a few times to make sure air gap is correct and then replace access covers.

RECOMMENDED SPARE PARTS

To ensure continued operation of the Series 635 Motor Driven Trolleys, the following is a list of parts that are recommended to be kept on hand at all times to replace parts that have worn or failed:

KEY NO.	PART NAME	QTY. FOR EACH TROLLEY IN SERVICE
635-45	Transformer (3 phase units only)	1
635-126	Contactors	1
635-156	Control Station	1
635-286	Coil Kit (for units equipped with brake)	1

Refer to page 12 for ordering information and the parts lists for the part numbers.

OPERATING INSTRUCTIONS

After the trolley and hook travel directions are correct, operate the trolley (according to the operating and safety procedures—see page i) with a capacity load over the entire length of the runway or monorail system to be sure that all adjustments and operations are satisfactory.

The hoist/trolley combination is not ready for service and it should be moved by operating the controls marked **▶** (FORWARD) and **◀** (REVERSE) in control station. Unless altered by the erector, depressing **▶** (FORWARD) control will move the hoist toward motor housing end. Anticipate the stopping point and allow trolley to coast to a smooth stop. Reversing or “plugging” to stop trolley causes overheating of motor and swaying of load.

INSPECTION

To maintain continuous and satisfactory operation, a regular periodic inspection procedure must be initiated so that worn or damaged parts can be replaced before they become unsafe. The frequency of inspection must be determined by the individual application.

The following list gives an inspection procedure for normal usage under normal conditions. When the unit is subjected to heavy usage or dusty, gritty, moist or other adverse atmospheric conditions, shorter time periods must be assigned. Inspection must be made of all parts for unusual wear, corrosion or damage in addition to those specifically mentioned in the list below.

It is suggested that the unit be inspected monthly for wear damage and corrosion effects to all parts with particular attention to the following:

1. Tightness of all fasteners including trackwheel stud nuts and suspension bolt nuts.
2. Contactor and control station for burnt or pitted contacts and loose or corroded terminals.
3. Cables and leads for broken wires, loose or corroded terminals, also damaged insulation.
4. Terminal board for loose or corroded connections.
5. Trackwheels for wear of tread and flange and for bearing wear as indicated by excessive looseness of wheel on stud.
6. Trackwheel gear, pinion and pinion bearing for wear.
7. On the 1/8-2 Ton trolley, check suspension lug, load bracket, suspension adapter and suspension lug pin for excess wear by manipulating hoist and visually inspecting suspension parts.

8. On the 3 Ton trolleys, check shackle pin for proper seating in groove of load bracket.

Manipulate hoist and check for freedom of movement (swinging) in both planes and all four directions. Also examine the shackle, shackle pin, suspension lug pin retaining pins, sheave stud and suspension adapter for excess wear by manipulating hoist and visually inspecting suspension parts.

9. Collector or power supply system for damage, wear corrosion and proper operation.
10. On trolleys equipped with the optional motor brake, check for friction disc wear and proper adjustment of the solenoid air gap.

MAINTENANCE

Once a month lubricate trackwheel gear and pinion with Texaco Novatex #2 or an equivalent heavy cup grease or graphite grease.

Motor gear box oil must be changed after the first 100 hours of operation, then every six months or 2500 hours of normal service, whichever comes first. Use 1/2 pint of Mobile SHC-626 or equal lubricant, for each oil change.

All other trolley parts are lubricated for life at the factory.

▲ WARNING

The lubricants used in and recommended for the Series 635 Motor Driven Trolley may contain hazardous materials that mandate specific handling and disposal procedures.

TO AVOID CONTACT AND CONTAMINATION:

Handle and dispose of lubricants only as directed in applicable material safety data sheets and in accordance with applicable local, state and federal regulations.

IMPORTANT: Refer to manual packed with the hoist for the inspection and maintenance of the hoist.

Motor Brake (Optional Equipment)

A motor brake is available as optional equipment. The brake can be ordered with the trolley or it is available in kit form for installation on a unit in the field. To order a brake kit for an existing unit, order brake kit Key No. 635-287 and indicate the serial number of the trolley on which it is to be installed and the voltage on which the trolley operates.

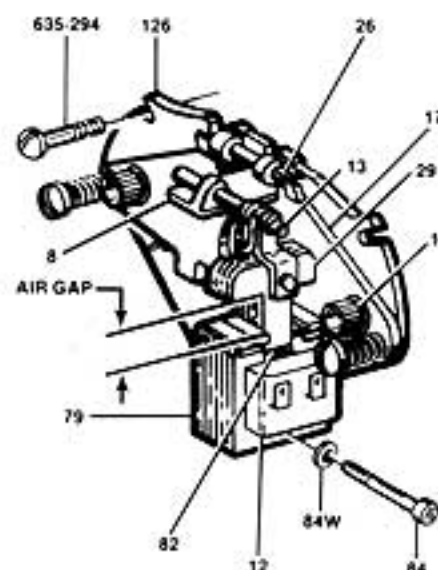


Figure 8. Motor Brake Adjustment



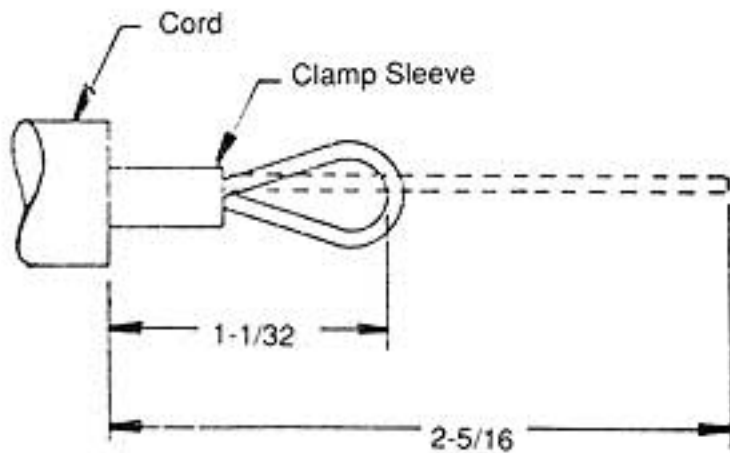
WARNING

Tying knots or loops to shorten the drop of the control station will make the strain relief ineffective and the internal conductors of the cord may break.

TO AVOID PROBLEMS:

Shorten the control cord per the following instructions.

To shorten the cord, measure the distance the control station is to be raised. Disconnect the trolley from the power supply system. Remove the cover from the control station and disconnect the conductors of the control cord from the various terminals. For cords with the internal type strain relief, disconnect the strain relief loop from the control station housing and retain the strain relief screw, washer and the terminal block tab. For cords with the external, chain strain relief, disconnect the chain from the control station by twisting open the link. Measuring from the end of the longest conductor, cut-off the cord the distance the control is to be raised. Using the cut-off piece of cord as an example, prepare the end of the shortened cord. For cords with the internal type strain relief, prepare the strain relief loop as shown below.



NOTE: Conductors Not Show For Clarity

Be sure to firmly squeeze the clamp sleeve (from the field wiring kit) using a vise or very large pliers to secure the loop end and insulate the clamp sleeve using the rubber sleeve from the cut-off piece of cord.

For units with external chain strain relief, cut-off the chain the distance the control station is to be raised.

Slide the prepared cord thru the grommet or box connector on top of the control station. Using the wiring diagram supplied with the trolley, connect the conductors of the control cord to the various terminals. For units with the internal type strain relief, attach the loop to the control station housing using the screw washer and the terminal block tab. For units with external type chain strain relief, attach the chain to the control station by re-closing the link. On these units, also firmly tighten the top ring of the box connector to seal the opening between the cord and the grommet.

Re-attach the cover to the control station. Energize the power supply system and test the trolley and hoist for proper operation.

NOTE: The four directional control station can only be used with a hoist that has a reversing contactor.

If the trolley and hoist shipped direct from the factory, the hoist may not be equipped with the normal power cord or a control station and cord assembly. As a result, these items will not have to be removed as indicated and the short hoist power and control cord on the hoist can be wired directly into the trolley. Use the wiring diagram supplied with the trolley for making the connections.

Hoist Control Cord

It is necessary to remove the control station (if supplied—see note above) from the hoist since the trolley is supplied with a short hoist control cord. Remove the control station and control cord assembly from the hoist. Connect the short hoist control cord from the trolley to the hoist control circuit following the wiring diagram supplied with the hoist. After this is completed, re-assemble the End Cover or Back Frame Cover to the hoist frame.

The single phase units are now ready for operation. However, on the three phase units, the direction of trolley and hook travel must be checked (as indicated below) before the unit is put into service.

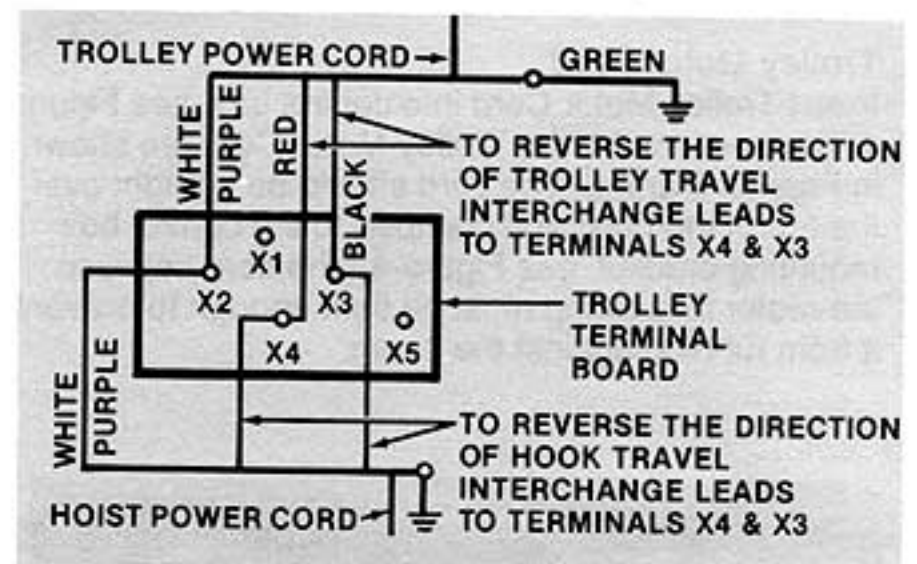


Figure 7. Connections for Proper Hook and Trolley Travel.

Three Phase Units

A three phase motor can rotate in either direction depending on its connection to the power supply. Therefore, the direction of trolley and hook travel relative to the selected indicated direction must be checked before the unit is put in service. If the hoist is incorrectly phased, the limit switches are ineffective and serious damage can result. Refer to hoist manual. The trolley should be checked out first, then the hoist. See Figure 7.

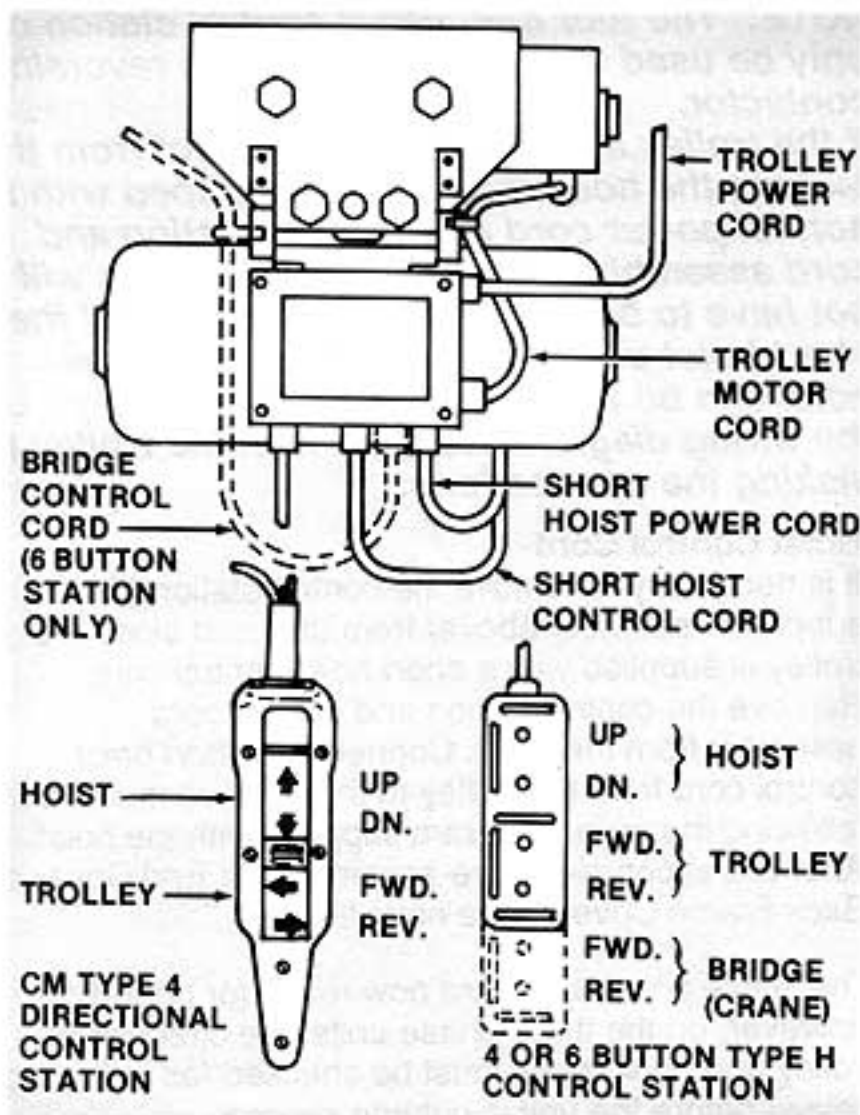


Figure 4. Hoist and Trolley General Arrangement

Trolley Motor Cord

Insert Trolley Motor Cord into control box, see Figure 4. Connections for the Trolley Motor Cord are shown in Figures 5 and 6. The cord should be brought over the top of the hoist and clamped to the control box mounting bracket, see Figure 4. The cord between the motor and clamp must be tight enough to prevent it from rubbing against the beam.

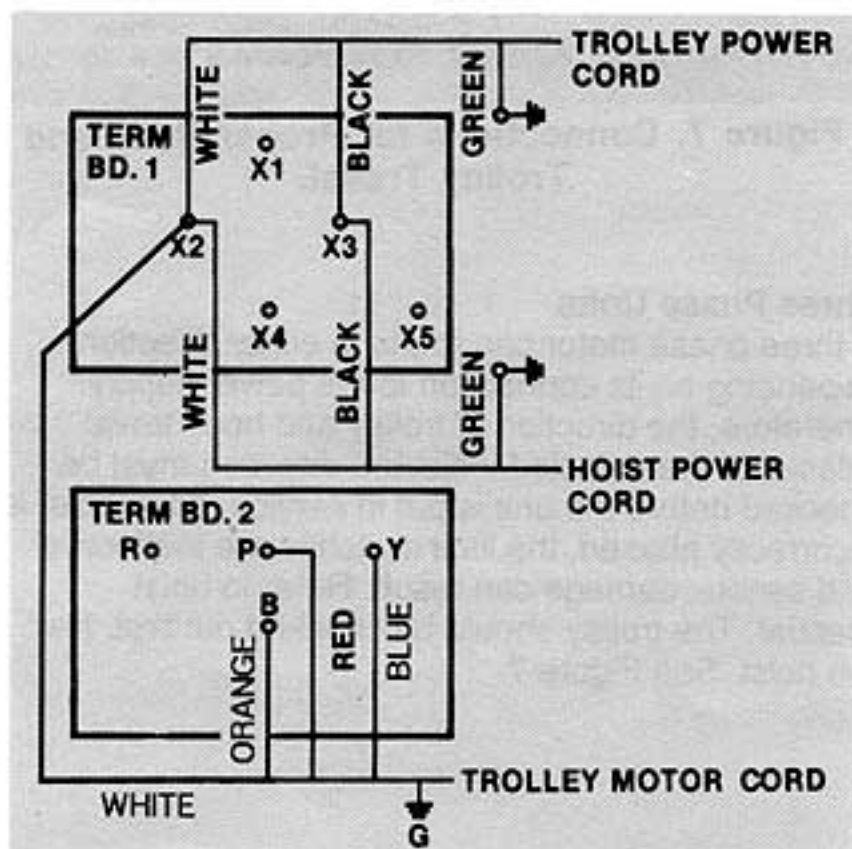


Figure 5. Hoist Power Cord Connections -Single Phase

Trolley Power Cord

The short power cord furnished is for use with a collector and bus system. It should be discarded if a cable is to supply the trolley. Terminals for use on the trolley end of the supply cable are furnished in the "Field Wiring Kit." Connections to the trolley are shown in Figures 5 and 6. The box connector must be made tight on the cable, and if necessary, a separate strain relief provided to prevent any stress on the terminals.

Hoist Power Cord

The trolley is supplied with a short hoist power cord connected into the power circuit of the trolley—refer to Figure 4. As a result, it is necessary to remove the power cord (if supplied—see note on page 6) from the hoist. To do this, remove the end cover (Techstar Hoists) or back frame cover (Lodestar and Valustar Hoists) from the hoist and remove and discard the power cord from the hoist. Then connect the short hoist power cord attached to the trolley to the hoist power circuit according to the wiring diagram furnished with the hoist. The trolley is also supplied with a short hoist control cord, and it should be connected to the hoist control circuit, as indicated below (see Hoist Control Cord) before the end cover (Techstar) or back frame cover (Lodestar and Valustar Hoists) is reassembled to the hoist frame.

Control Station

The standard trolleys for use with Lodestar and Valustar Hoists are supplied with a four directional control station.

Unless ordered special, the control station is suspended from the trolley control box by a cord that is approximately 16' - 3" long. If this is too long for your application, the cord should be shortened so that the control station is suspended approximately four feet above the operating floor.

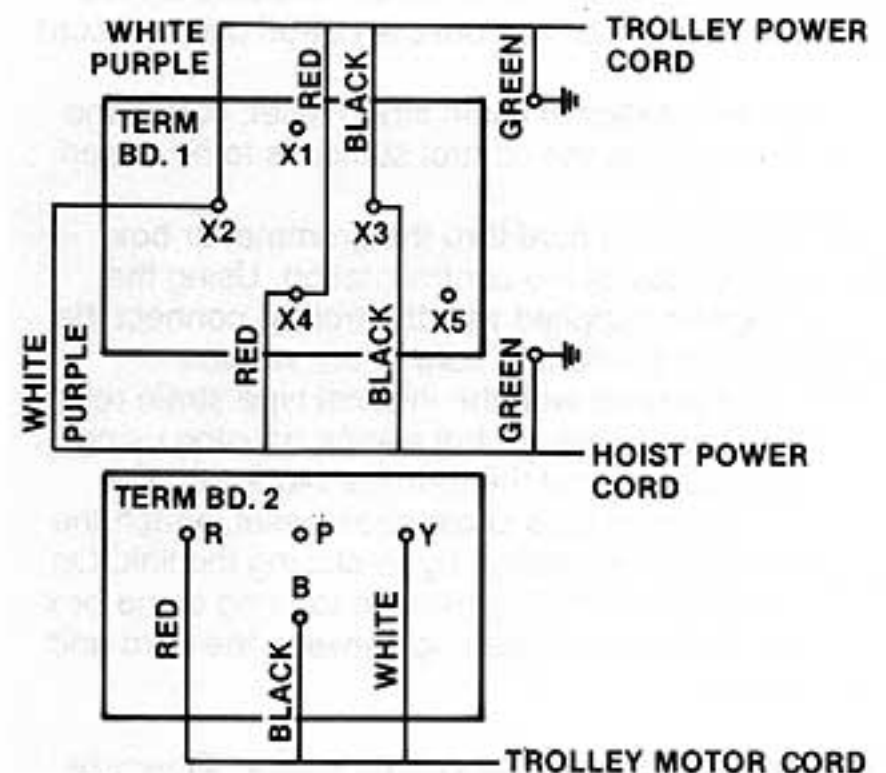


Figure 6. Hoist Power Cord Connections -Three Phase

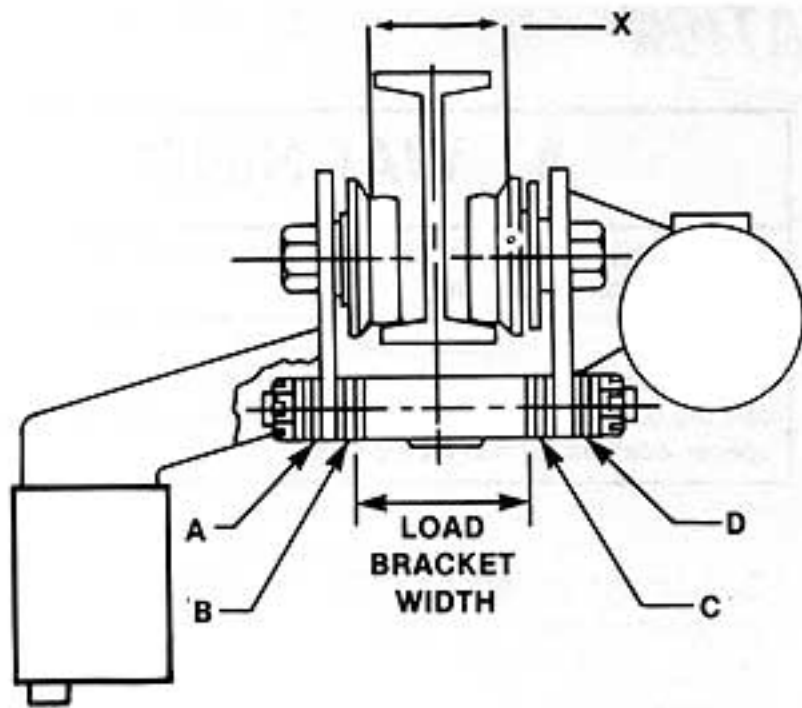


Figure 1. Trolley to Beam Installation

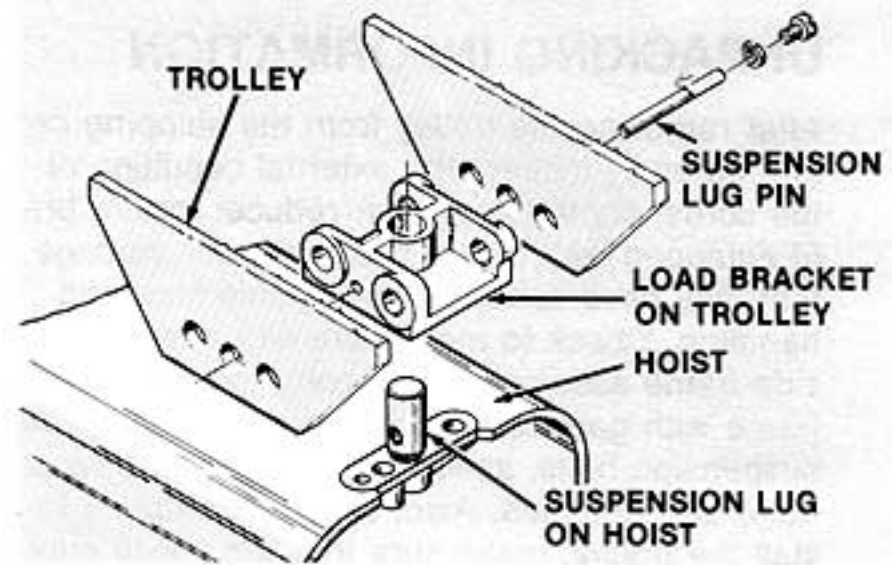


Figure 2. 1/8-2 Ton Hoist to Trolley Assembly

Hoist to Trolley

On the 1/8-2 Ton trolley, assemble the suspension lug (on hoist) to the trolley (on beam) as shown in Figure 2. The lug is inserted in the trolley load bracket and retained by the suspension lug pin. A socket head cap screw and lockwasher are used to keep the pin in place. This assembly must be made with the hoist mounted parallel to the beam and the control cord to the right when facing the trolley control box.

On the 3 Ton trolley, drive one retaining pin into the hole on one end of the lug pin (627-730). Raise the hoist into position so that the lug (627-728) is between the legs of the shackle. Align the holes in the shackle and lug. Insert the lug pin in the aligned holes and secure the lug pin by driving the remaining retaining pin into the hole in the lug pin. Make certain that the shackle pin (627-729) is properly seated in the load bracket by manipulating the hoist and checking for freedom of movement (swinging) in both planes and all four directions.

Standard Bracket (4-3/16" Wide)				
FLANGE WIDTH (IN.)	NO. OF SPACER WASHERS			
	A	B	C	D
3-3/8	14	2	5	0
3-5/8	12	3	6	0
3-7/8	11	3	7	0
4	10	4	7	0
4-1/8	9	4	8	0
4-5/8	6	6	9	0
5	4	7	10	0
5-1/8	3	7	11	0
5-1/4	2	8	11	0
5-1/2	1	8	12	0
5-5/8	0	9	12	0

Special Load Bracket (6-11/16" Wide)				
FLANGE WIDTH (IN.)	NO. OF SPACER WASHERS			
	A	B	C	D
6	14	2	5	0
6-1/4	12	3	6	0
6-3/8	11	3	7	0
7	7	5	9	0
7-1/8	7	5	9	0
7-1/4	6	6	9	0
7-7/8	2	8	11	0
8	1	8	12	0

Chart A. 1/8-2 Ton Trolley

STANDARD BRACKET (4-13/16" WIDE)				
FLANGE WIDTH (IN.)	NO. OF SPACER WASHERS			
	A	B	C	D
4	13	1	4	0
4-5/8	9	3	6	0
5	7	4	7	0
5-1/4	5	5	8	0
5-1/2	4	5	9	0
5-5/8	3	6	9	0

SPECIAL LOAD BRACKET (6-7/16" WIDE)				
FLANGE WIDTH (IN.)	NO. OF SPACER WASHERS			
	A	B	C	D
5-5/8	13	1	4	0
6	11	2	5	0
6-1/4	9	3	6	0
6-3/8	8	4	6	0
7	4	5	9	0
7-1/4	3	6	9	0

Chart B. 3 Ton Trolley

Table 2. Washer Spacing Chart

⚠ WARNING
An excessively worn beam flange may fail and allow the trolley to fall from the beam.
TO AVOID INJURY:
Periodically inspect the beam flange for wear. Replace beam if flange is worn.

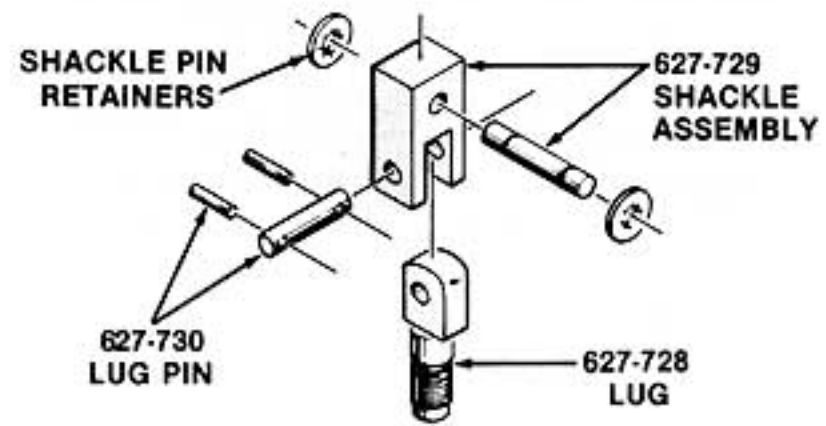


Figure 3. 3 Ton Hoist to Trolley Assembly

Note that the shackle pin should be retained and centered in the shackle with retainers.

Electrical Installation

The trolley electrical connections must be completed as shown in Figure 4. Power to the trolley and hoist should be furnished from a compatible source through a disconnect device. Overcurrent protection and proper grounding means should be accomplished in accordance with the "National Electrical Code" and local codes if applicable. Power should be disconnected when making or changing connections. A Field Wiring Kit 635-198 (part number 36666 for units with 4 button control station) is furnished containing the necessary material to complete the trolley electrical connections.

Diagrams show connections to be made within trolley control box for standard units. For special units, see wiring diagram supplied with unit.


INSTALLATION

UNPACKING INFORMATION

After removing the trolley from the shipping carton, carefully inspect the external condition of the cords, control box, gear reducer, motor brake (if equipped with same) and motor for damage that may have occurred during shipment and handling. Check to make sure all parts (trolley side frame assembly with control box, trolley side frame with gear reducer and motor, load bracket, suspension bolts, spacer washer, cotter pins and nuts) are furnished. Also, before attempting to install the trolley, make sure that the power supply indicated on the labels attached to the control box is the same as the power supply on which the unit is to operate.

INSTALLATION

The hoist, trolley and lug suspension for suspending the hoist from the trolley are packed separately. Assemble the lug suspension to the hoist according to the instructions furnished with the suspension and/or the instructions in the manual furnished with the hoist.

 WARNING
Operating the trolley on a beam that has no rail stops may allow the trolley to fall off the end of the beam.
TO AVOID INJURY:
Install rail stops at each end of the beam on which the trolley is to operate.

The stops must be positioned so as to not exert impact force on the hoist frame or trolley wheels. They must contact the ends of the trolley side frames.

Trolley to Beam

It is recommended that the trolley be mounted on the beam prior to attaching the hoist to the trolley. Before attempting to mount the trolley on the beam, measure the actual width of the beam flange on which the trolley is to operate. Using this measurement determine the arrangement of the spacer washers using Figure 1 and Table 2. Chart A of Table 2 shows the washer arrangement for the 1/8-2 Ton trolley while chart B provides data for the 3 Ton trolley. Loosely assemble the side frames, load bracket, spacer washers and nuts on the suspension bolts as shown in Figure 1.

 WARNING
If CM's washer spacing recommendations are not followed, trolley may fall from beam.
TO AVOID INJURY:
Measure the actual beam flange on which the trolley is to operate and use Table 2 to determine the arrangement of the spacer washers for that flange width.

Due to the variations in beam flange widths, it is suggested that the beam flange width be measured to determine the exact distribution of spacer washers. The distance between trackwheel flanges (dimension "X") should be 1/8 to 3/16 inch greater than the beam flange width for straight runway beams, and 3/16 to 1/4 inch greater than the beam flange width if runway system includes sharp curves. Also, the use of other than CM supplied washers may result in trackwheel to beam flange variations and thus Table 2 will not apply.

For the 3 Ton trolley, (refer to Figure 3), a shackle and pin assembly (627-729) consisting of a pin retained in a central position by retainers is packed loose with the suspension. Insert this assembly into the opening in the top of the load bracket (635-13) with the legs of the shackle down. Position the shackle pin in the groove provided for same in the load bracket making sure it is centered between the suspension bolts.

Now install the trolley (1/8-2 Ton or 3 Ton) on the beam by sliding one side frame out far enough to allow the trackwheels to clear the beam flange. Lift the trolley up so that the trackwheels are riding on the beam and draw the side frames together and tighten the nuts snugly. Do not overtighten the nuts. Insert the cotter pins through the slotted nuts and holes in the suspension bolts and spread the legs of the cotter pins to secure.

IMPORTANT

After the trolley is installed on the beam, remove the hex socket plug from the top of the gear reducer and replace same with the breather packed loose with the trolley or remove the small brass nail projecting from the side of the gear reducer. This provides a vent for the gear reducer and failure to install the breather may cause the seals to leak.

GENERAL INFORMATION

SPECIFICATIONS

The Series 635 Motor Driven Trolleys are designed for use with the Lodestar, Valustar and Techstar Electric Chain Hoists. The trolleys are available in two capacities: 1/8 through 2 Tons and 3 Tons. These trolleys are similar except for the sizes of the load carrying members.

The trolleys have rugged steel side plates, hardened steel axles, steel suspension bolts, cast iron load bracket from which the hoist is suspended and hardened cast iron wheels that are suitable for operation on sloped or flat flanged beams. Hardened steel gears are attached to two trackwheels and driven by a hardened steel pinion. The pinion is driven by a right angle worm gear reducer. The worm and gear of the gear reducer operate in an oil bath. A weatherproof motor drives the gear reducer.

The control box contains a reversing contactor, terminal boards and a transformer (as required). A four button control station is suspended from the control box. An electric brake, which fits between the motor and gear reducer, is available as optional equipment.

Table 1 provides the general specifications for the trolley. It should be noted that the table indicates that the standard travel speed is 75 FPM. However, other travel speeds are available.

CM REPAIR/REPLACEMENT POLICY

All Columbus McKinnon (CM) Series 635 Motor Driven Trolleys are thoroughly inspected and performance tested prior to shipment. If any properly maintained Series 635 Motor Driven Trolley develops a performance problem due to a material or workmanship defect, as verified by CM or an authorized service station, repair or replacement of the unit will be made to the original purchaser without charge. This repair/replacement policy applies only to Series 635 Motors Driven Trolleys installed, maintained and operated as outlined in this manual, and specifically excludes parts subject to abuse, improper installation, improper or inadequate maintenance, hostile environmental effects, and unauthorized repairs/modifications, and normal wear.

We reserve the right to change materials or design if, in our opinion, such changes will improve our product. Abuse, repair by an unauthorized person, or use of non-CM replacement parts voids the guarantee and could lead to dangerous operation. For full Terms of Sale, see Sales Order Acknowledgement. Also, refer to the back cover for Limitations of Warranties, Remedies and Damages and, Indemnification and Safe Operation.

Table 1. Trolley Specifications

Code	DC Code	Capacity (Tons)	For Use With Models	*Power Supply	Travel Speed (FPM)	Motor H.P	Adjustment for Standard S. Beams		Minimum Radius Curve (In.)	Approx. Shipping Weight
							Depth (In.)	Flange Width (In.)		
3670	63670	1/8	A	115-1-60	75	1/4	6 thru 15	3 3/4 thru 5 1/2	30	103
3671	63671	to	thru	230-3-60						112
3672	63672	2	RR	460-3-60						112
9577	69577	3	RT-RRT	115-1-60	75	1/4	6 thru 15	4 thru 5 1/2	30	130
9578	69578			230-3-60						130
9579	69579			460-3-60						130

*Trolleys are also available for operation on 573-3-60 and 220/380-3-50 power supply systems.

FOREWORD

This manual contains important information to help you properly install, operate and maintain the Series 635 Motor Driven Trolley for maximum performance, economy and safety.

Please study its contents thoroughly before putting the trolley into operation. By practicing correct operating procedures and by carrying out the recommended preventative maintenance suggestions, you will be assured of dependable service.

A copy of this manual is packed with each Series 635 Motor Driven Trolley.

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CM HOIST PARTS AND SERVICES ARE AVAILABLE IN THE UNITED STATES AND IN CANADA

As a CM Hoist user, you are assured of reliable repair and parts services through a network of Master Parts Depots and Service Centers that are strategically located in the United States and Canada. These facilities have been selected on the basis of their demonstrated ability to handle all parts and repair requirements promptly and efficiently.

Below is a list of the Master Parts Depots in the United States and Canada. To quickly obtain the name of the U.S. Service Center located nearest you, call (800) 888-0985. Fax: (716) 689-5644. In the following list, the Canadian Service Centers are indicated.

UNITED STATES MASTER PARTS DEPOT

ALABAMA

ABB POWER SERVICES
612 32nd Street, South
Birmingham, AL 35233
205/328-5952
Fax 205/251-6759

CALIFORNIA

OTTO SYSTEMS, INC.
12010 Bloomfield Ave.
Santa Fe Springs, CA 90670
310/462-1612
Fax 310/462-1617
or
2439 Verna Court
San Leandro, CA 94577
510/667-3730
Fax 510/667-3726

COLORADO

MATERIALS HANDLING EQUIPMENT CO.
1740 W. 13th Ave.
Denver, CO 80204
303/573-5333
Fax 303/893-3854

FLORIDA

TAMPA ARMATURE WORKS, INC.
440 South 78th Street
Tampa, FL 33619
813/621-5661
Fax 813/622-7040

GEORGIA

ACE INDUSTRIES, INC.
6295 McDonough Drive
Norcross, GA 30093
770/441-0898
Fax 770/441-0326

ILLINOIS

SERVICE ELEVATOR & ELEC. CO.
5819 West Irving Park Rd.
Chicago, IL 60634
773/545-5848
Fax 773/545-8610

TORRANCE ELECTRIC COMPANY

415-31st. Ave.
Rock Island, IL 61201
309/786-7777
Fax 309/786-8705

INDIANA

HORNER ELECTRIC COMPANY, INC.
1521 East Washington St.
Indianapolis, IN 46201
317/639-4261
Fax 317/639-4269

LOUISIANA

BEERMAN PRECISION, INC.
4206 Howard Avenue
New Orleans, LA 70125
504/486-9391
Fax 504/486-7482

MASSACHUSETTS

ABEL DISTRIBUTORS, INC.
70 Flagship Drive
N. Andover, MA 01845
508/975-8234
Fax 508/683-7025

MICHIGAN

GAYLORD HOIST SALES & SERVICE
34471 Industrial Road
Livonia, MI 48150
313/261-1910
Fax 313/261-1788

MISSOURI

INDEPENDENT ELECTRIC MACHINERY
310 West 20th Street
Kansas City, MO 64108
816/471-2610
Fax 816/421-3054

NEW JERSEY

LIVELY AND COMPANY
10 Merry Lane
East Hanover, NJ 07936
201/887-6440
Fax 201/887-9586

NEW YORK

VOLLAND ELECTRIC EQUIPMENT CO.
75 Innsbruck Drive
Buffalo, NY 14227
716/656-9900
Fax 716/656-8898

NORTH CAROLINA

SOUTHERN ELECTRIC SERVICE CO., INC.
2225 Freedom Drive
Charlotte, NC 28208
704/372-4832
Fax 704/342-2604

OHIO

MAZZELLA WIRE ROPE & SLING COMPANY
14600 Brookpark Road
Cleveland, OH 44135
216/362-4600
Fax 216/362-4952

PENNSYLVANIA

AMICK ASSOCIATES, INC.
11 Sycamore Street
Carnegie, PA 15106-0529
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Fax 412/429-0191

RAM INDUSTRIES, INC.

70 Pitney Rd.
Lancaster, PA 17602
717/392-2128
Fax 717/392-2788

TEXAS

ABEL EQUIPMENT CO., INC.
3710 Cavalier Drive
Garland, TX 75042
972/272-7706
Fax 972/272-6955

HYDRAULIC EQUIPMENT SERVICE, INC.

1021 North San Jacinto St.
Houston, TX 77002
713/228-9601
Fax 713/228-0931

WASHINGTON

UNITED ELECTRIC MOTORS
308 9th Ave. North
Seattle, WA 98109
206/624-0044
Fax 206/622-4894

WISCONSIN

TRESTER HOIST & EQUIPMENT, INC.
4465 North 124th St., Unit B
Brookfield, WI 53005
414/790-0700
Fax 414/790-1009

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Edmonton, Alberta T8H 1N3

NOVA SCOTIA

* W & A MOIR
95 Ilsley Ave.
Dartmouth, Nova Scotia B3B 1L5
902/468-7720
Fax 902/468-3777

ONTARIO

* R & W HOIST REPAIR, LTD.
790 Redwood Square
Units 5, 6, & 7
Oakville, Ontario L6L 6N3
905/825-5500
Fax 905/825-5315

***TORONTO ELECTRIC HOIST**

SALES & SERVICE
72 Crockford Blvd.
Scarborough, Ontario M1R 3C4
416/755-7716
Fax 800/461-0290

***MASLACK SUPPLY, LTD.**

488 Falconbridge Road
Sudbury, Ontario P3A 4S4
705/566-1270
Fax 705/566-4208

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P.O. Box 1106
10 Brook Road, North
Cobourg, Ontario K9A 4W5
905/372-0153
Fax 905/372-3078

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2525 Louis A. Amos
Lachine, Quebec H8T 1C3
514/631-5511
Fax 514/636-1084

***LEGER HOIST EQUIPMENT CO.**

7995-17th Ave.
Montreal, Quebec H1Z 3R2
514/376-3050
Fax 514/376-0657

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