

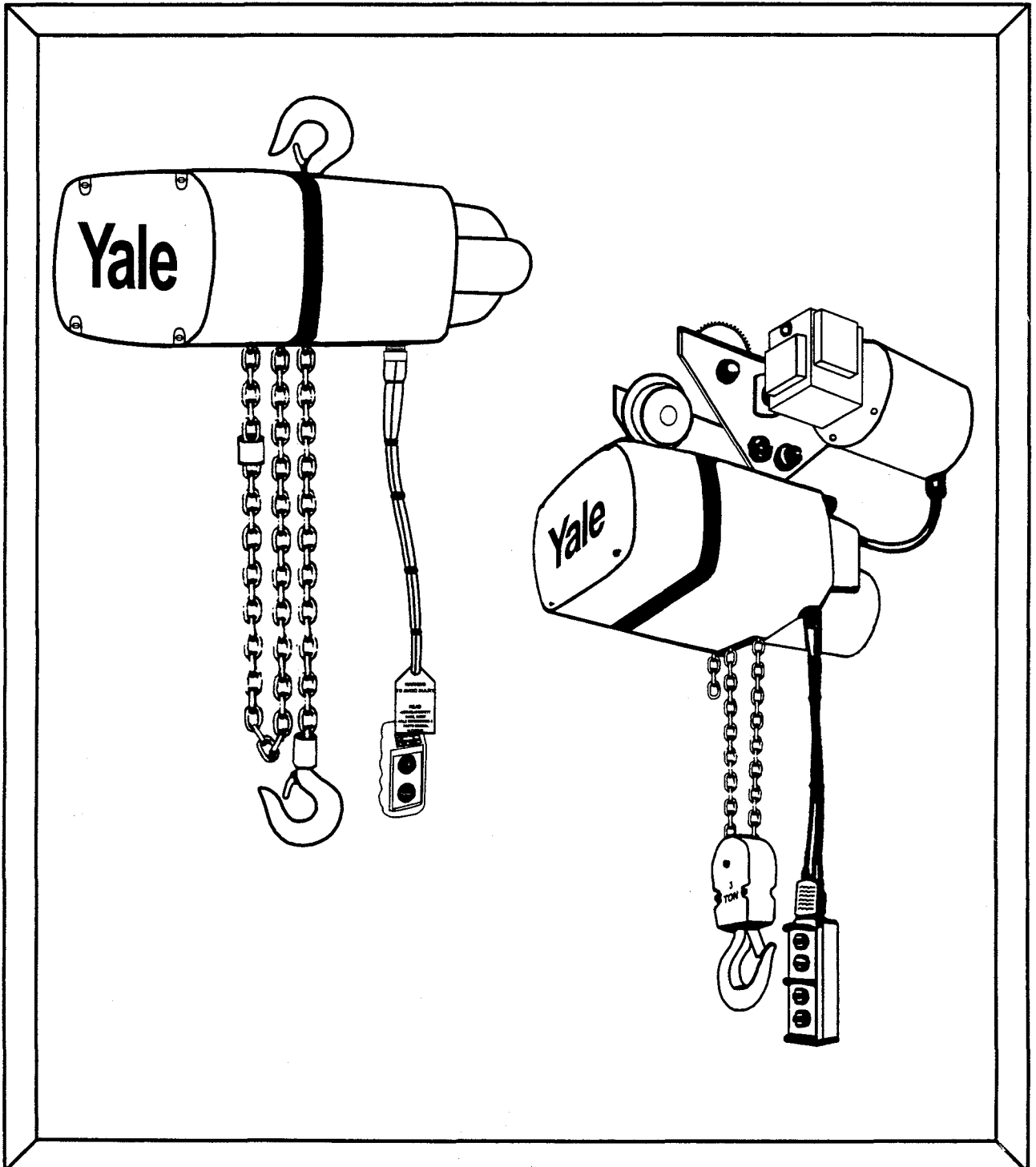
**KEL SERIES**  
**Electric Chain Hoist**

**Parts and Instruction Manual**

Fill in the information below before installing the hoist.

Hoist SN \_\_\_\_\_  
Trolley SN \_\_\_\_\_  
Voltage \_\_\_\_\_  
Capacity \_\_\_\_\_  
Model No. \_\_\_\_\_  
Date of Purchase \_\_\_\_\_

# Yale



# Yale® Hoists

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# Yale® Hoists

## SAFE HOISTING PRACTICES

### YALE ELECTRIC HOIST

For your own safety and that of your fellow workers, Material Handling Equipment must be used as recommended by the Manufacturer. Failure to heed the following recommendations could endanger your life. Use good common sense and judgment at all times. Safety is the responsibility of the operator of the equipment. You must be competent and attempt to foresee and avoid all hazardous conditions. To be safe as possible, the hoist must be given proper preventative maintenance and testing as described in the ANSI B30-16 Safety Code for Overhead Hoists and this manual.

#### BEFORE OPERATING HOIST:

1. Do not operate hoist unless you are properly trained, physically fit, and authorized to do so. You must be familiar with all operating controls of the hoist, warnings and instructions on the hoist, the safe hoisting practices listed in this bulletin, ANSI B30-16 Safety Code for Overhead Hoists, and all pertinent Federal, State, and local regulations before beginning operation.
2. Do not allow unqualified personnel to operate the hoist.
3. On powered hoists, test all controls and limit switches and make sure hoist is well lubricated at beginning of each shift. Make sure needed lubrication, adjustments or repairs are made by appointed personnel before operations are begun.
4. Be familiar with the equipment and its proper care. Do not operate hoist if adjustments or repairs are necessary, if any damage or undue wear is known or suspected, or if any warnings, operating, or capacity instructions normally attached to hoist are obscured, damaged or missing. Report same promptly to the proper person and also notify next operator when changing shifts.
5. Do not operate hoist if it is functioning improperly.
6. Do not operate hoist with an out-of-order sign attached until sign has been removed by a properly authorized person.
7. Do not adjust or repair hoist unless qualified for maintenance of hoist.
8. On powered hoists, be sure the power supply is disconnected before maintenance and repair procedure is performed.
9. Do not use the chain or rope as a ground for welding.
10. Do not touch a welding electrode to the chain or rope.

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## APPLYING THE LOAD:

11. Never wrap the hoist rope or chain around the load, or allow it to drag under load.
12. Always use slings or other approved devices to attach load.
13. Be sure the sling is properly seated in the saddle of the hook. Do not allow hook latch to support any part of load.
14. Do not apply a load to tip of hook, or in such a way as to cause bending or prying forces on the hook or hook support block.
15. Be sure chains or wire ropes are not kinked or twisted or that multiple part chains or ropes are not twisted about each other.
16. Do not operate hoist if wire rope or chain is not seated properly in the grooves of the drum, sheaves or sprockets.
17. On wire rope hoists, do not load hoist with less than two wraps of rope on the drum, unless a lower limit device is provided, in which case, no less than one wrap shall remain on drum.
18. Center hoist unit over the load before lifting. Avoid side pull.
19. Never pick up a load beyond the rated capacity appearing on the hoist, except for properly authorized tests.
20. Do not use the load limiting device to measure the maximum load to be lifted; it is a safety device only.

## MOVING THE LOAD:

21. Do not engage in any activity which will divert your attention while operating hoist.
22. Respond to signals from designated personnel only, except for stop signals.
23. Never lift a load with the hoist until you and all other personnel are clear of load.
24. Make sure a load clears neighboring stock piles or machinery before moving.
25. On powered hoists, inch the hoist slowly into engagement with a load, but avoid excessive plugging, inching, and quick reversals of load.
26. Do not lift load more than a few inches until it is well balanced in the sling or lifting device.

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# Yale® Hoists

27. Each time a load approaching rated capacity is handled, check load brake action by raising load just clear of supports and continuing only after you are sure brake is operating properly.
28. Do not transport load over personnel.
29. Never carry personnel on the hook or the load.
30. Avoid swinging of load or load hook when traveling the hoist.
31. On trolley mounted hoists, avoid sharp contact between trolleys, or between trolleys and rail stops.
32. On powered hoists, do not use limit devices as a normal means of stopping the hoist. These are emergency devices only.
33. On powered hoists, do not exceed the maximum duty cycle specified by the manufacturer.

## PARKING:

34. Do not leave a load suspended in the air for extended or unattended periods.
35. On powered hoists, keep load block above head level when not in use.

## SAFETY LAW FOR PASSENGER ELEVATORS

The safety laws for passenger elevators specify construction details that are not necessarily incorporated in Yale Hoists. We recommend that passenger elevator operation equipment be used that meets all state and national safety codes. Yale Hoists will not accept responsibility for applications of Yale hoists on passenger elevators.

## INSPECTION PREVENTIVE MAINTENANCE AND TESTING

A preventive maintenance program should be initiated for the hoist immediately after it is entered into service. The preventive maintenance program should comply with recommendations in the applicable Yale parts and instructional manual, and all pertinent Federal, State, and local regulations and written inspection records kept as specified. Sample inspection check lists are included at back of this manual. Extra inspection check lists can be obtained from your nearest authorized Yale Hoists Distributor.

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# Yale® Hoists

## REPAIR PARTS ORDERING INFORMATION

This Parts and Instruction manual is provided as a convenience to assist you in ordering repair parts for your YALE KEL Series Electric Hoist. To insure prompt service, place all parts orders with your local distributor.

Give all information listed below in items a, b, c, d, and e. This will enable your distributor to fill your order promptly.

- a. Give complete date from hoist nameplate.
- b. Give part numbers, description and quantity required.
- c. Give the correct shipping destination.
- d. For ordering motor repair parts, give all data on the hoist and motor nameplates.
- e. For motorized trolleys give complete trolley serial number.

If it becomes necessary to return the complete hoist or certain parts to the factory, a letter requesting such a return is necessary. This letter should contain an explanation for requesting the return. A return authorization will be issued giving you clearance for returning the hoist or parts to the factory. Should you need additional help in ordering, contact your local YALE distributor.

### MODEL NUMBER EXPLANATION

	K E L 1/2 - 10 H 15 S1	Suspension
K SERIES DESIGNATOR		L - LUG
(E) ELECTRIC		P - PLAIN TROLLEY
CHAIN (L) LINK CHAIN		G - GEARED TROLLEY
CAPACITY IN TONS		ST - MOTORIZED TROLLEY
LIFT IN FEET		RT - RT MOTORIZED TROLLEY
SUSPENSION		TT - TRACTOR TROLLEY
SPEED IN FEET PER MINUTE		
REEVING, NUMBER OF CHAINS		

FIGURE 1.

**When Replacement Parts Are Needed, Order Only Yale® Factory Engineered Parts**

# Yale® Hoists

## INSTALLATION INSTRUCTIONS

### GEAR CASE VENT


Before hanging the hoist, remove the vinyl plug at the top of the unit with the tag attached. The plug was to prevent oil leakage during shipment and must be removed to prevent oil leaks due to pressure build-up. Check the oil level at the level plug on the side of the unit. See lubrication chart on page 15.

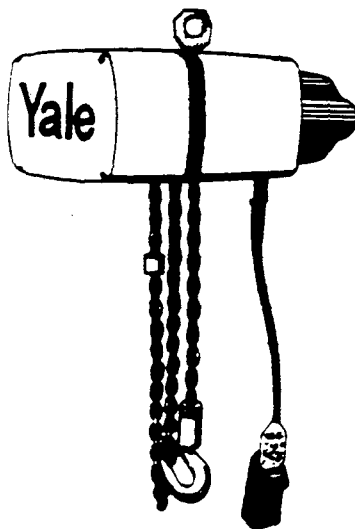
### CHAIN LUBRICATION

The load chain is the only component requiring lubrication prior to putting the hoist in operation. See lubrication chart on page 15.

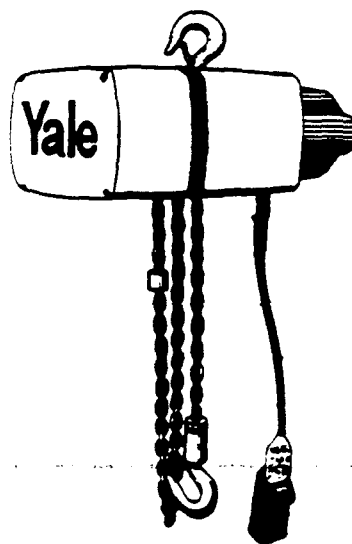
### BASIS SUSPENSION

The basic hoist suspensions are hook, clevis, and lug as shown in Figure 2 below. Unless otherwise specified, the suspensions will be Rigid (non-rotating) types, other types are available. The lug suspension is rigid (non-rotating), and adjustable in 90 degree increments. If it is necessary to reposition the lug, refer to Pages 31, 32, and 33 ASSEMBLY PROCEDURE.

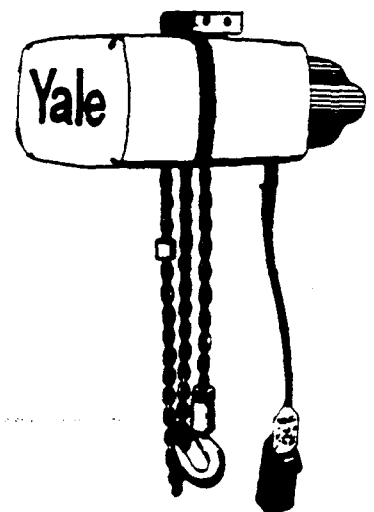
 **CAUTION** FOR MAXIMUM SAFETY, ALL FASTENERS HAVE A LOCKING FEATURE. BE CERTAIN ALL LOCKING DEVICES ARE REPLACED WHEN REASSEMBLING.



CLEVIS TYPE



HOOK TYPE



LUG TYPE

YAP-0322

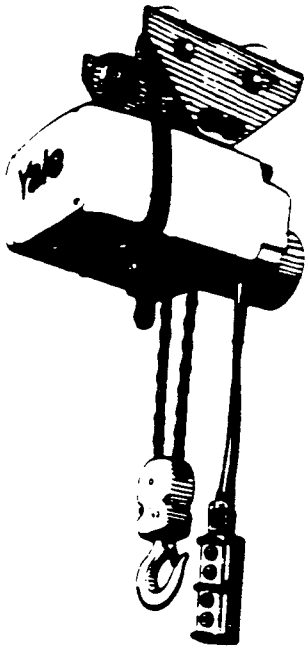
FIGURE 2.

**When Replacement Parts Are Needed, Order Only Yale® Factory Engineered Parts**

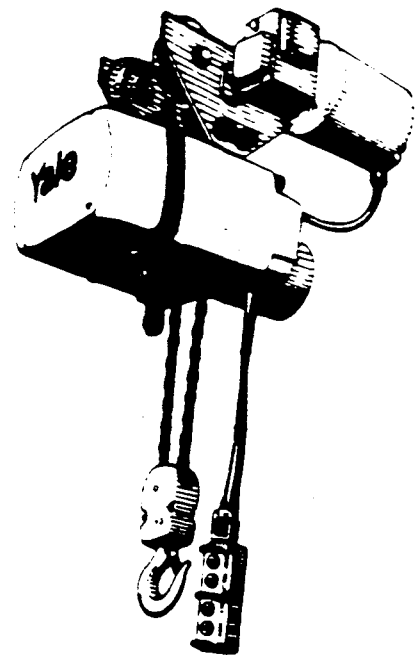
# Yale® Hoists

## TROLLEY SUSPENSION

Standard trolley suspensions are plain, and hand geared (not shown).



PLAIN TROLLEY TYPE



RT TROLLEY TYPE

"ST" and "TT" (not shown) powered trolleys are also available. If the hoist is equipped with an ST trolley, refer to page 73 thru 77 for service information. If TT trolley is used, see separate TT parts manual.

**NOTE:** If your hoist is furnished with an ST trolley, record the serial number in this book for future reference.

To hand hoist furnished with plain, geared, or motorized trolley, first determine the beam size on which the trolley is to be used, then refer to trolley adjustment page 8 for proper spacer arrangement.

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# Yale® Hoists

## TROLLEY ADJUSTMENT

All Yale trolleys are normally properly adjusted at the factory to fit I-Beam size stated on the order.

**NOTE:** When disassembling the trolley for installation on the I-Beam, take note of the arrangement of the spacers and washers for correct reassembly.

For installation on I-Beam other than the size preset at the factory, or if final adjustment to beam is required, follow the instructions below:

Measure the I-Beam flange width and temporarily install the trolley sideplates on the hoist before installation to determine the exact distribution of washers.

The distance between track wheel flanges should be  $\frac{3}{16}$  inch greater than the beam flange width for straight runway beams, or  $\frac{3}{16}$  to  $\frac{1}{4}$  inch on runway systems that include sharp curves. To keep the hoist centered under the I-Beam, the number of washers between the sideplates and the hoist lug should be the same, or differ only by one washer. The distribution of washers outside the trolley sideplates is unimportant except that the total number used must be sufficient to keep the nuts engaged.

**NOTE:** When installing hoist and trolley on beam, tighten nuts to 175 ft. lbs. torque so that the trolley sideplates are parallel and vertical.



**CAUTION** BE SURE THERE IS A LOCKWASHER UNDER EACH NUT.

Center the trolley on the beam, and check the clearance between the wheel flange and beam flange. If the trolley is adjusted properly, this clearance will be  $\frac{3}{32}$ " to  $\frac{1}{8}$ ".

## FUNCTION TESTING OF TROLLEY

After the hoist and trolley are installed on the I-Beam, operate the trolley over the entire length of the beam with a capacity load to be sure that adjustment and operation is satisfactory.


## OPERATING INSTRUCTIONS

For your own safety and that of your fellow workers, Material Handling Equipment must be used as recommended by the manufacturer. Failure to heed the safe hoisting practices spelled out on pages 2 through 4 could endanger your life. Read them carefully.

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# Yale® Hoists

## POWER CONNECTIONS

 **CAUTION** BEFORE CONNECTING POWER TO THE HOIST, BE SURE THE POWER SUPPLY CORRESPONDS TO THE HOIST RATING.

To determine hoist rating or to change rating on units equipped with dual voltage connection, remove the large control cover at the end of the hoist to expose dual voltage terminal strip. Voltage setting is determined by location of the terminal connections in a vertical column on either the high or low voltage side of the terminal strip. To change voltage, simply move the wires to the opposite side of the terminal strip to the identically numbered terminals. Before replacing cover, check for bent terminals, and make sure all connections are tight.


 **CAUTION** CHECK FOR CORRECT PHASING.

On poly phase A.C. hoist, it is impossible to know how to connect the power line for correct direction of the hook travel. If the hook does not travel up when the "up" button is depressed, interchange two of the line wires for three phase, and two of the line wires of any one phase for two phase operation.


 **CAUTION** DO NOT REWIRE THE PUSH BUTTON.

## TRAVEL LIMITS

The KEL chain hoist is equipped with a load limiting clutch to help prevent damage to the hoist which could be caused by loading the hook above 175% of rated load or overrunning the extremities of the chain. The stops attached to the chain provide a positive stop against the bottom steel crosshead in the event the usable length of the chain is overrun. The chain stop at the housing end of the chain may be repositioned further away from the chain end to further limit hook drop.

 **CAUTION** NEVER REMOVE THE STOP AT HOUSING END OF CHAIN OR POSITION IT CLOSER THAN EIGHT LINKS FROM THE END OF THE CHAIN.

The optional chain stop near the load hook (single line models only) may be repositioned as desired to limit lift, or may be removed. A clutching noise may be heard when operating the hoist against the stops. This indicates the unit is in a dangerously overloaded or stalled condition.

 **CAUTION** DO NOT USE THE LIMIT CLUTCH AS A REGULAR MEANS OF STOPPING THE HOOK AT EXTREMITIES OF TRAVEL OR AS A REGULAR MEANS OF MEASURING THE MAXIMUM LOAD TO BE LIFTED. THIS IS A SAFETY BACKUP DEVICE ONLY.

The load limiting clutch is a friction device, and therefore susceptible to overheating and wear. For optimum performance and long life, RELEASE THE PUSHBUTTON IMMEDIATELY WHEN THE CLUTCH SLIPS.

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# Yale® Hoists

## PREVENTIVE MAINTENANCE

### PREVENTIVE MAINTENANCE SCHEDULE

The periods between inspections will vary due to the wide range of duty cycles and operating conditions encountered with this type of equipment. The following inspection periods are based on average duty with single shift operation (40 hours per week) under normal environmental conditions. If the hoist is used in heavier applications or under adverse environmental conditions, it should be inspected more frequently.

### DAILY INSPECTION

Inspect the following items before operating hoist.

1. Controls: Check all controls and operating mechanisms for improper operation.
2. Limit Clutch: Check limit clutch for improper operation. Testing shall be done under no load conditions. Run the upper and lower chain stops into the hoist at slow speed. A clutching noise may be heard when operating the hoist against the stops. This is normal in an overloaded or stalled condition.
3. Electrical Connections: Check for worn or frayed wires or loose connections.
4. Hooks: Check for cracks or deformation. The bottom hook must swivel freely. Check for damaged or missing safety latch. A bent or twisted hook indicates overloading or abuse of the unit. Other load bearing components of the hoist or trolley should be inspected if overloading is apparent or suspected.
5. Chain: Check for nicks, gouges, corrosion, twist, and distorted links.
6. Unusual Conditions: Excessive noise, oil leaks, etc. should be investigated.



**CAUTION DO NOT OPERATE THE HOIST IF IT IS FUNCTIONING IMPROPERLY OR DAMAGE IS NOTED.**

### MONTHLY INSPECTION

1. All items under daily inspection.
2. Chain: If chain binds, jumps, or is noisy, check for cleanliness and proper lubrication. If trouble persists, inspect chain for wear and stretch. See page 13.
3. Hooks: Replace hooks if the throat opening is in excess of maximum shown in table 1, page 14, or if there is 10 degree or more twist from normal plane of hook. Check hook retaining nuts or collars and means used to secure them.
4. Driving and Idler Pocket wheels and Sprockets: Pocket Wheels and sprockets which are worn should be replaced, as they can greatly reduce the life of the hoisting chain.
5. Electrical Parts: Check for signs of contactor pitting and/or deterioration of controls.

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# Yale® Hoists

6. Load Brake: Check the function of the load brake by lifting a light load, disconnecting electrical power, removing the control cover, and manually opening the motor brake. The load may "creep" slowly while the motor brake is held open. This is normal. However, if the load falls to the floor the instant the motor brake is released, the load brake is not functioning and should be repaired. Replace the load brake assembly 6438664-00. See Item 5 under RECOMMENDED SEQUENCE OF DISASSEMBLY, Page 25.
7. Check all bearings for noisy operation, which is an indication of wear.
8. Pushbutton: Check the ground connections to be sure that the wire cores from the pushbutton cable and the power cord are secured. Tighten the grounding screw, replace the lockwasher if it is missing.
9. Load Brake Backlash: With no load on the hoist, check the backlash in the load brake by pulling on both the hook side and dead end side of the chain. If the amount of "free chain" that can be pulled back and forth through the hoist exceeds two full links, the backlash is excessive. Disassemble hoist per Item 5 page 25, and check load brake disc wear. Replace load brake assembly 6438664-00 if discs are less than 1/16" thick. Adjust the brake backlash per note in item 1(d) page 26 during reassembly.
10. LUBRICANT: Check the condition and level of the lubricant. The lubricant should be clear in color. Black color indicates a chemical change in the lubricant caused by excessive heat from the load brake which is in turn caused by heavy duty cycles. Lubricant that is black in color must be replaced to prevent shortened life of drive components. If the level is low, check for leaks. Replace gaskets and seals as required. Lubricant chain and other points as required. (See chart on page 15.)



**CAUTION FOR OPTIMUM LUBRICATION AND LOAD BRAKE COOLING, OIL LEVEL MUST BE MAINTAINED AT THE LEVEL PLUG.**

11. Warning Labels: Check for absence or illegibility of required warning labels and tags, and replace as necessary.
12. Supporting Structure or Trolley: If used, should be checked for continued ability to support the imposed loads. Check for loose suspension or support bolts, axle nuts, etc.
13. Hardware: Check for loose bolts, nuts, and rivets.
14. Inspection Check List: Fill out inspection check list at back of this manual, sign, date, and file for future reference.

## ANNUAL INSPECTION

1. All items under daily and monthly inspection.
2. Hooks: Magnetic particle or other suitable crack detecting inspection should be performed if need is indicated by external appearance. Check for loose retaining nuts and collars.

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3. Load Bearing Parts: Check for worn, cracked, or distorted parts such as hook blocks, suspension housing, outriggers, clevises, yokes, suspension bolts, shafts, locking devices and bearings on hoist. (Also on trolley, if so equipped.)
4. Motor Brake: Check motor brake for worn discs and excessive play between the splines in the discs and the brake hub. If either disc is worn  $1/16"$  or more replace both discs. The new disc measures  $3/16"$ . Check adjustment as shown in Figure 4 below. Clean the solenoid plunger seat and check for even seating between the plunger and coil.
5. Load Limiting Device: Check load limiting device with 175% of rated load. If load can be lifted, the load limiting device must be replaced.



**CAUTION: PRIOR TO TESTING ALL SUPPORTING STRUCTURES, ANCHORAGES, AND/OR SUSPENSIONS MUST BE APPROVED BY THE APPOINTED PERSON FOR THE TEST LOADS USED.**

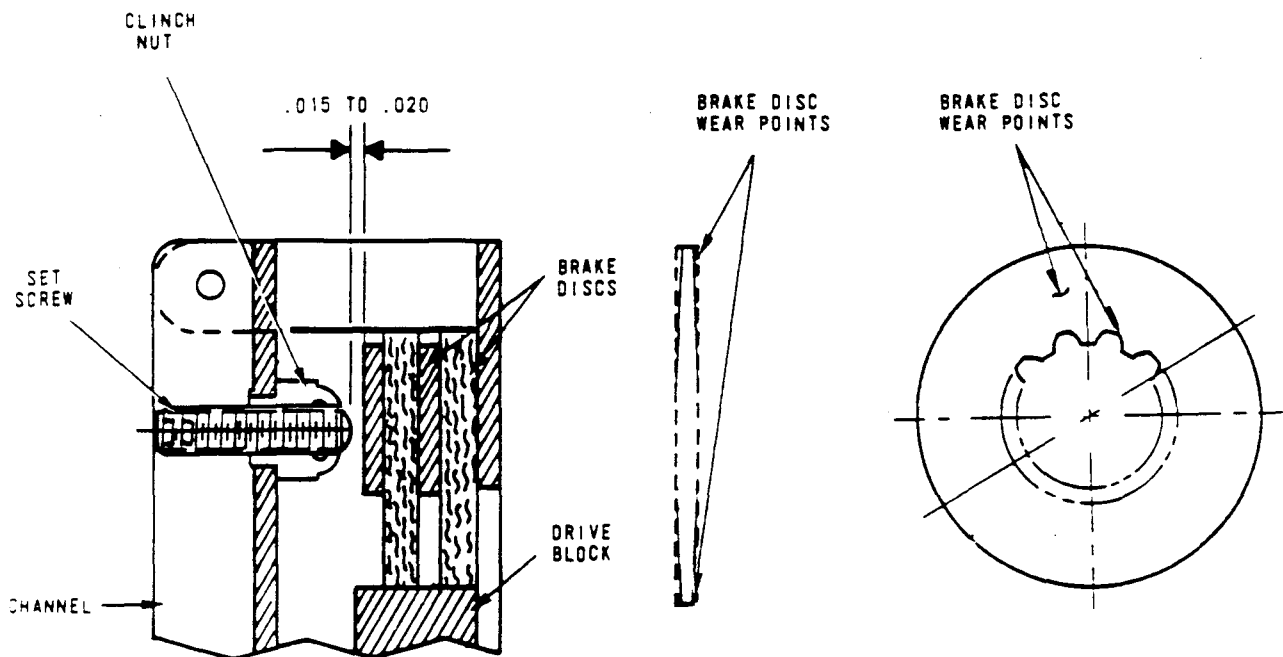


FIGURE 4.  
MOTOR BRAKE

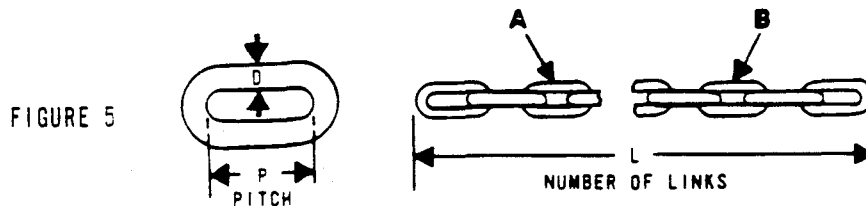
6. Wiring and Terminals: See that all connections are tight. Terminals are to be securely crimped to wires and the insulation sound. Bent terminals can usually be straightened to provide a tight fit. Replace terminals or wire if necessary.
7. Load Chain: Carefully inspect the chain for wear between the links in the section of chain that most often passes over the pocket wheel. Check several links, as wear is seldom even from one link to another. See instructions on page 13 and on pages 19, 20, and 21.

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# Yale® Hoists

9. Chain Guide and Pocket Wheel: If the load chain is worn or stretched and requires replacing, also examine the pocket wheel and load chain guide and stripper. If these parts are worn they should be replaced to avoid damaging the new load chain and jamming of the chain. New link chain should be installed with weld on vertical link as shown in Figure 5, page 19.

**CAUTION** THE CHAIN MUST BE REPLACED IF WEAR HAS INCREASED THE SPECIFIED GAGE LENGTH BEYOND THE MAXIMUM GIVEN IN TABLE BELOW. THE GAGE LENGTH SHOULD BE CHECKED ON PORTION OF CHAIN THAT NORMALLY PASSES OVER THE POCKET WHEEL, AND WITH A LOAD ON THE HOOK.



LINK CHAIN NOTE: OTHER CHAINS MARKED Y5 ARE ALSO ACCEPTABLE

**WARNING**

ZINC PLATED CHAIN NO.	CHAIN MARKING		LINKS BETWEEN MARKINGS	D DIAMETER	P PITCH	L GAUGE LENGTH NOMINAL	L NUMBER OF LINKS IN GAUGE	REPLACE IF L EXCEEDS
	A	B						
6427004-24	Y*ORY1	1K	9	5/16	.790	15.61	19	15.86

**WARNING** WHEN REPLACING LOAD CHAIN, USE ONLY CHAIN STAMPED Y\*-1K OR Y1-1K. FOR PART NUMBER SEE ITEM 21, PAGE 42. INSTALL PER INSTRUCTIONS ON PAGE 19. ALWAYS REPLACE END PINS WHEN REPLACING CHAIN. SEE FOLLOWING PART NUMBERS FOR PINS:  
 1/2 TON - 6428951-00, 1 TON - 6428961-00,  
 2 TON - 6429353-00 AND 3 TON - 6401549-07  
 (SHOULDER BOLT). ALSO CHECK PIN SUPPORT HOLES IN BOTTOM BLOCK CASTINGS AND REPLACE CASTINGS IF HOLES ARE WORN.

10. Inspection Check List: Fill out inspection check list at back of this manual, sign, date, and file for future reference.

**NOTE:** INSPECTION RECORD  
 The last pages of this manual are inspection check lists to be filled out and signed by the person making the monthly or annual inspections.

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# Yale® Hoists

## FUNCTION TESTING

After repair of hoist, test with a light load for proper function. This hoist is equipped with a load limiting device. Load test unit with 100% of rated load, and check load limiting device with 175% of rated load. See item 5 of annual inspection instructions. If the gear train has been disassembled, check the load brake per item 6 of the monthly inspection instructions. (If no load bearing parts were repaired or altered, a normal load lifted may be used for test, and test of load limiting device may be omitted). A written report of the test should be prepared by the person responsible and kept for future reference.



**CAUTION** PRIOR TO TESTING, ALL SUPPORTING STRUCTURES, ANCHORAGES, AND/OR SUSPENSIONS MUST BE APPROVED BY THE APPOINTED PERSON FOR THE TEST LOADS USED.

## NORMAL AND MAXIMUM HOOK OPENINGS FOR KEL SERIES HOISTS



**CAUTION** IF "E" EXCEEDS MAXIMUM SHOWN IN TABLE, REPLACE HOOK AND CHECK OTHER LOAD BEARING PARTS

**TABLE 1 HOOK DIMENSIONS**  
DIMENSIONS IN INCHES

CAPACITY IN TONS	E NORMAL	E MAXIMUM
1/2-BOTTOM	1 1/32	1 7/32
1/2-TOP	1 5/32	1 27/64
1-BOTTOM	1 5/32	1 27/64
1-TOP	1 5/32	1 27/63
2-BOTTOM	1 17/32	1 51/64
2-TOP	1 17/32	1 51/64
3-BOTTOM	1 15/16	2 1/4
3-TOP	1 15/16	2 1/4

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# Yale® Hoists

## KEL SERIES LUBRICATION CHART

PART	LUBRICANT	LUBRICATION POINT	LUBRICATION INSTRUCTIONS	DRAIN POINT
GEAR CASE	PART NO. 6496850-00 * 3/4 PT. Can of YALELUBE  Gear Case Cap. 2 1/4 PTS	Fill Plug in Top of Housing.	Oil Should Be Level With Side Plug in Housing.	Located in Bottom Of Unit.
CHAIN	Yale Part No. Type SS2 Keystone Graphited No.2 Penetrating Oil for Chain (In Spray cans) (Or Equal)	Chain	Spray or brush oil onto chain making sure areas between links are completely covered over entire length of chain. Wipe any excess oil off outside surface of chain, leaving oil between links where lubrication is necessary. <b>WARNING:</b> If hoist is operated during chain lubrication, make sure hands and clothing are kept well clear of chain.	
BOTTOM BLOCK AND IDLER WHEEL BEARINGS	Shell Alvania No. 2 (Or Equal)	Bearing Surfaces and Reservoirs at the End Of the Axle.	Apply Grease to Rollers Of Bearing and Fill the Grease Reservoirs.	

\*Substitutions Are Not Recommended As They Might Cause Load Brake Chatter.

## ST AND TT SERIES TROLLEYS

PART	LUBRICANT	LUBRICATION POINT	LUBRICATION INSTRUCTIONS	DRAIN POINT
GEAR CASE	Gulf XXX No. 1 Grease (Or Equal)	Socket Head Plug In Side of Gear Case.	Fill Until Grease Is Level With Hole.	Socket Head Plug In Bottom of Gear Case

## RT TROLLEY

PART	LUBRICANT	LUBRICATION POINT	LUBRICATION INSTRUCTIONS	DRAIN POINT
	AGMA#8			

## GEARED TROLLEYS

PART	LUBRICANT	LUBRICATION POINT	LUBRICATION INSTRUCTIONS	DRAIN POINT
HAND CHAIN GUIDE	Gulf Crown No. 2 (Or Equal)	Alemite Fitting	Lubricate Until Grease Can Be Seen.	
SUPPORT BRACKET	Gulf Crown No. 2 (Or Equal)	Alemite Fitting	Lubricate Until Grease Can Be Seen.	
TRACK WHEEL	Moly Cote Grease	Pinion and Gear Teeth.	Depending On Application, Light Coating of Grease.	

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# Yale® Hoists

## TROUBLE SHOOTING GUIDE

### 1. HOOK DOES NOT RESPOND TO PUSH BUTTON

<u>Possible Cause</u>	<u>Remedy</u>
(a) Power failure	(a) Check switches, circuit breakers and connections in the supply lines.
(b) Wrong voltage or frequency	(b) Be sure all electrical characteristics are all listed on the hoist nameplate. See power connection, page 9.
(c) Loose or broken connections in the hoist or push button	(c) Disconnect the hoist from the power source. Remove the control cover and the push button cover. Check all connections and the continuity of each wire.
(d) Contactor failure	(d) Disconnect the hoist from the power source. Check all contacts for burned or badly worn condition.
(e) Motor brake not opening. (Motor will hum but not rotate)	(e) Disconnect the hoist from the power source. Check the brake solenoid leads. Replace the solenoid if necessary.

### 2. HOOK LOWERS BUT WILL NOT RAISE, EMPTY HOOK

<u>Possible Cause</u>	<u>Remedy</u>
(a) Hoisting circuit open.	(a) Disconnect hoist from power source, and check for loose connections in the push button and the control section.

### 3. HOOK RAISES BUT WILL NOT LOWER, EMPTY HOOK

<u>Possible Cause</u>	<u>Remedy</u>
(a) Lowering circuit open.	(a) Disconnect hoist from power source, and check for loose connections in the push button and control section.

### 4. HOIST WILL NOT LIFT THE LOAD

<u>Possible Cause</u>	<u>Remedy</u>
(a) Excessive load.	(a) Reduce load to the capacity limit shown on the hoist nameplate.

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(b) Motor centrifugal switch not operating (single phase units only).

(b) Follow the instructions under DISASSEMBLY (2. TO REMOVE THE MOTOR) on page 24. Check connections to the switch and examine the centrifugal mechanism for loose or damaged parts. Replace parts as required.

(c) Worn load limiting clutch

(c) Follow instructions under DISASSEMBLY (Paragraph u, page 24. Replace the clutch hub assembly.

## 5. HOOK DOES NOT STOP PROMPTLY

### Possible Cause

### Remedy

(a) Motor brake slipping

(a) Check for oil on brake discs. Check for proper oil level. Replace the gear case cover oil seal per instructions under RECOMMENDED SEQUENCE OF DISASSEMBLY, Paragraph (o), on page 23, and REASSEMBLY, Paragraph (g) on page 26.

Check brake discs for uneven or excessive wear. Replace if necessary. See DISASSEMBLY (3. To remove MOTOR BRAKE paragraph (a) and (b) page 25.

Check brake mechanism for free operation.

(b) Load brake discs worn

(b) Follow the instructions under preventive maintenance schedule, Monthly Inspection, number 6. Load Brake: page 11.

## 6. MOTOR OVERHEATS

### Possible Cause

### Remedy

(a) Defective centrifugal switch (single phase units only).

(a) Replace.

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- |  |  |
|--|--|
| (b) Defective capacitor (single phase units only). | (b) Replace.   |
| (c) Rotor dragging in stator.                      | (c) Tighten motor bolts. Check for worn motor bearings. See instructions under DISASSEMBLY (1. RECOMMENDED SEQUENCE OF DISASSEMBLY, Paragraph m) on page 23. |
| (d) Motor brake too tight.                         | (d) See motor brake under preventative maintenance schedule page 11 and 12.  |
| (e) Low voltage.                                   | (e) Check voltage at power source with unit under load.  |

## 7. HOIST IS NOISY IN LOWERING DIRECTION

<u>Possible Cause</u>	<u>Remedy</u>
(a) Load brake "chattering" due to improper lubricant	(a) Change lubricant to nameplate specification.
(b) Defective roller clutch.	(b) Replace with Load Brake Assembly 6438664-00 under Item 24 page 41.
(c) In 3 Ton Unit, noise may be caused by defective bearing in bottom block or bottom crosshead.	(c) Replace with new bearings.

## 8. LOAD CHAIN JUMPS ON POCKET WHEEL

<u>Possible Cause</u>	<u>Remedy</u>
(a) Worn chain.	(a) To determine allowable wear, see preventive maintenance schedule, load chain pages 12 and 13.
(b) Worn chain guide or pocket wheel.	(b) Replace. Follow instruction under RECOMMENDED SEQUENCE OF DISASSEMBLY, Paragraph (x) on page 24.
(c) Incorrect chain	(c) Replace with correct chain. See Page 13.

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# Yale® Hoists

## DISASSEMBLY

### INSTRUCTIONS FOR INSTALLING NEW CHAIN

**⚠ CAUTION DO NOT REMOVE THE OLD CHAIN FROM THE HOIST; THIS IS THE LAST STEP.**

- (a) For 1/2 and 1 Ton Units: Remove the socket head screw from the bottom block. Remove bolt from chain dead end at lower crosshead. Remove chain stop.  
For 2 Ton Units: Remove socket head suspension screw holding anchor block, drive out anchor pin. Pull chain through bottom block. Remove bolt from chain dead end at lower crosshead. Remove chain stop.  
For 3 Ton Units: Remove shoulder screw in top of bottom block. Pull chain through idler pocket wheel and bottom block. Remove bolt from dead end at lower crosshead. Remove chain stop.
- (b) Cut a link from the end of the old chain **WITHOUT REMOVING THE CHAIN FROM THE HOIST.**

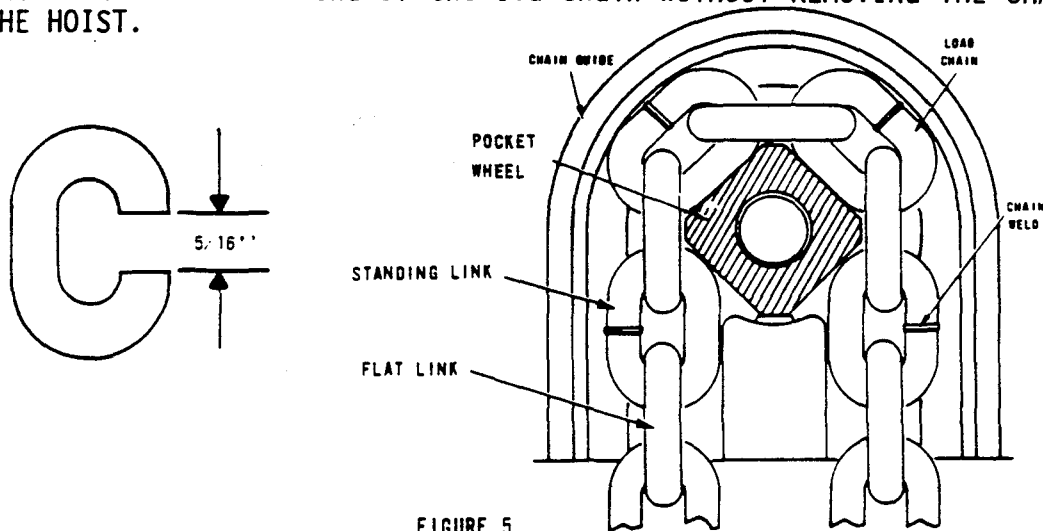


FIGURE 5.

- (c) Notch the links as shown in the illustration above being careful not to distort it in any way. It must pass over the pocket wheel without binding. The chain is hard. An abrasive wheel will be needed to cut it.
- (d) Lubricate the new chain per instructions and lubrication chart on page 15.
- (e) Connect the new chain to the old using the notched link. Be sure the welds of the standing links (links turned perpendicular to the sheave) face away from the driving pocket wheel. On 1/2, 1 and 2-ton units the first link of the new chain must go on flat. On 3 ton units first link of new chain must go on standing. Use 2 notched links if necessary. (See figure 5 above and figure 6 on page 20.)

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# Yale® Hoists

## GUIDE SHEET FOR INSTALLING CHAIN

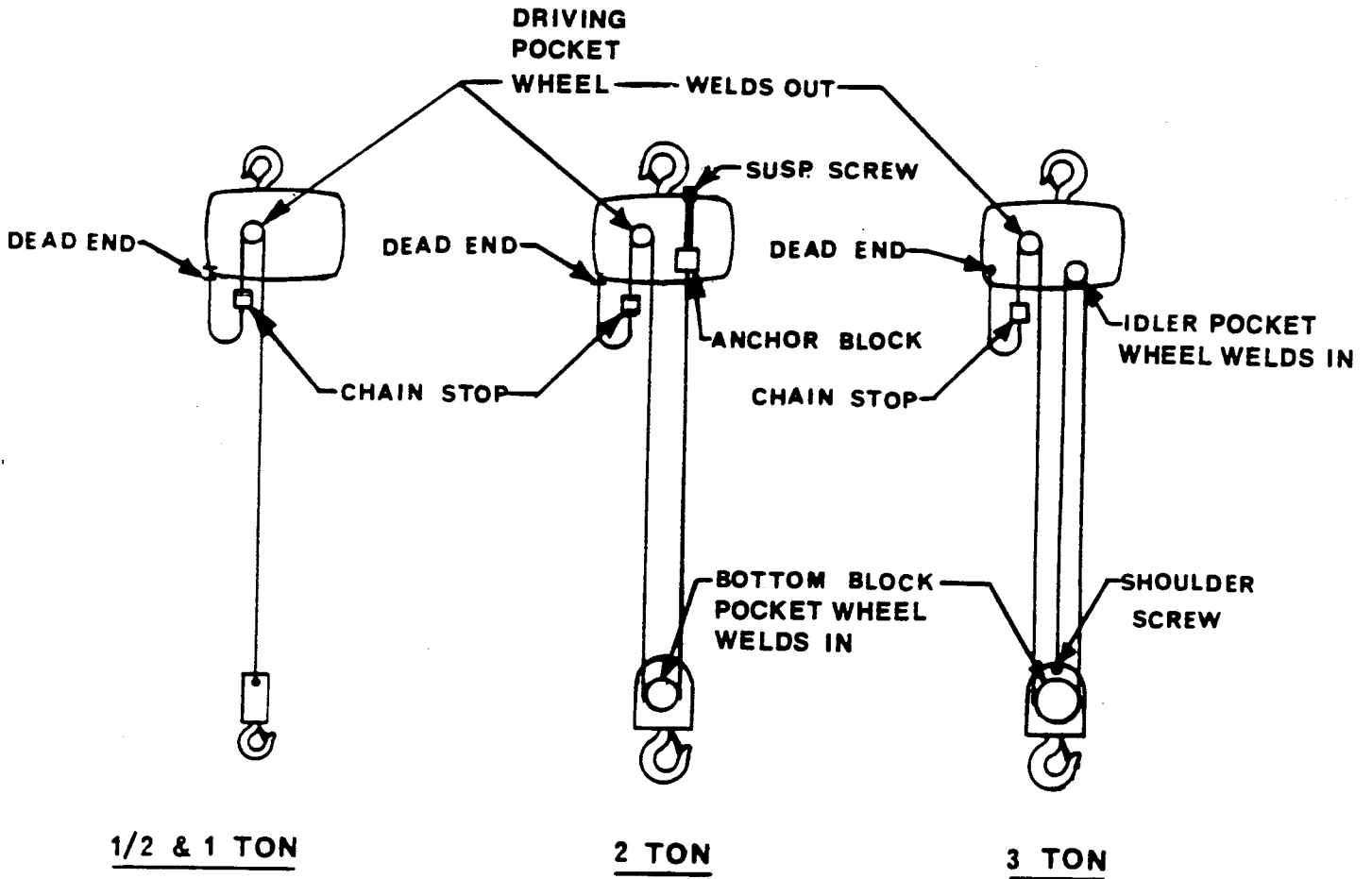


Figure 6

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# Yale® Hoists

- (f) Carefully energize the hoist, paying off the old chain and feeding on the new chain.
- (g) For 1/2 and 1 Ton Units: Assemble chain to bottom block with socket head screw and retaining band. Replace chain stop at least 8 links from dead end of chain. Fasten dead end to lower crosshead. Do not twist chain.

For 2 Ton units: Work chain over bottom block pocket wheel with the chain welds on "Standing Links" toward the pocket wheel. Start with "Flat" link and be sure chain is not twisted. Install chain end to anchor block with anchor pin. BE SURE CHAIN IS NOT TWISTED. Install anchor block to hoist with socket head suspension screw, be sure the top lip of anchor block extends past end of bottom crosshead. Socket head screw must be torqued to 40-50 Ft. Lbs. Replace chain stop at least 8 links from dead end of chain. Fasten dead end of chain to bottom crosshead. Be sure chain is not twisted.

For 3 Ton Units: Work chain over bottom block pocket wheel with the chain welds on "Standing Links" toward the pocket wheel. Start with "Standing Link." Be sure chain is not twisted. Work chain over idler pocket wheel from side away from center line of hoist. Chain welds on "Standing Links" must be toward the pocket wheel. Start with "Standing Lin." BE SURE CHAIN IS NOT TWISTED. Pull end through the fasten to top of bottom block with shoulder screw. Be sure chain is not twisted. Replace chain stop at least 8 links from dead end of chain. Fasten dead end to bottom crosshead. Be sure chain is not twisted. Refer to figure 5, page 19 and figure 6, page 20.

**When Replacement Parts Are Needed, Order Only Yale® Factory Engineered Parts**

# Yale® Hoists

## 1. RECOMMENDED SEQUENCE OF DISASSEMBLY

Before doing any maintenance work on the hoist read the following instructions thoroughly. Refer to the replacement parts section for part identification.

TO COMPLETELY DISASSEMBLE THE HOIST: Follow the disassembly procedures in the order listed.

TO DISASSEMBLY ANY ONE SPECIFIC PART OF THE HOIST: Follow the instructions for that specific section.

- (a) Disconnect the dead end of the chain from the hoist (both ends on 2 & 3 ton models), and remove the chain stop.
- (b) Run the hoist in the lowering direction to remove the chain. If power was disconnected before the chain was removed, wait until step (v) to remove chain.
- (c) If it is necessary to separate the bottom block from the chain, on the 1/2 and 1 ton hoists, remove the socket head screw from the block. On 2 ton models, simply pull the chain through the block. On 3 ton models, remove the shoulder screw at the top of the bottom block and pull the chain through the idler Pocket Wheel and bottom block.
- (d) If it is necessary to remove the hook from the block. On the 1/2 and 1 ton hoists, remove the socket head screw and the retainer band. On 2 and 3 ton models, remove the two (2) 3/8 inch hex head bolts and separate the block halves. Drive out the roll pin, unscrew the hook nut, and remove bearing.



**CAUTION** BEFORE CONTINUING FURTHER WITH THE DISASSEMBLY PROCEDURES, CUT OFF ALL POWER TO THE HOIST BY DISCONNECTING THE POWER FEED LINE.

- (e) The hoist should now be removed, if possible, from the working area and placed on a maintenance bench for further disassembly.



**CAUTION** NEVER DISASSEMBLE THE HOIST IN DIRTY SURROUNDINGS, NOR ALLOW DIRT, GRIT OR ANY OTHER FOREIGN MATERIAL TO GET ON THE WORKING PARTS OF THE HOIST OR INTO THE WORKING AREAS OF THESE PARTS.

- (f) Drain the oil from the hoist by removing the 1/2 inch hex socket drain plug from the bottom of the gear case.

**NOTE:** A convenient way to hold the unit for disassembly is to invert the unit and clamp the top hook or suspension lug in a vise.

- (g) Loosen the four (4) slotted 10-24 control cover screws and remove the control cover.

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# Yale® Hoists

- (h) Remove the seven (7) 8-32 hex head nameplate-access cover screws and cover.
- (i) Disconnect the motor leads from the terminal block and contactor. See the wiring diagram on pages 87 through 105.
- (j) Disconnect the power cord and control cord leads from the terminal block, contactor and transformer.
- (k) Loosen the hex nut on the power cord and control cord strain relievers, and disconnect the support cable. Remove the cords from the hoist.
- (l) Disconnect the motor brake solenoid leads and remove the contactor, transformer, terminal block and motor brake assembly from the hoist. DO NOT REMOVE THE SPLINED BRAKE DISC DRIVE BLOCK AT THIS TIME. (When replacing torque brake screws to 50/60 in. lbs. Contactor, Terminal Block & Transformer screws to 25/30 in./lbs.)
- (m) Remove the four (4) 10-32 hex head thru-bolts from the end of the motor and carefully remove the motor strator being careful not to damage the motor leads when pulling them through the housing.
- (n) Remove the motor rotor and shaft. The bearing and coupling sleeve should come out with the motor shaft; if not, remove the bearing and sleeve next.
- (o) Remove the (6) 1/4-20 hex head screws from the gear case cover and carefully pull the cover back together with the pinion shaft. (If the gear case cover oil seal is to be re-used, it is important that the shaft and cover be pulled together to prevent damage to the seal). As the shaft is removed, it must pass through a second oil seal in the end of the sheave shaft. Keep the shaft straight and centered in the sheave shaft until it is free of the hoist. If the cover gasket is not torn or otherwise damaged, it may be re-used. (When replacing cover torque screws to 115 to 125 in. lbs.)
- (p) Remove the retaining ring and brake drive block from the pinion shaft. If the gear case cover oil seal is to be re-used, cover the shaft serration with tape or some other means before pulling the shaft through the seal.
- (q) Remove the retaining ring of the first reduction gear and pull off the gear.
- (r) Remove the three (3) 10-24 hex head bearing retaining screws and pull out the second reduction pinion.

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# Yale® Hoists

- (s) Remove the two (2) allen screws locking the sheave shaft nut, and remove the nut (left hand thread). All shaft components will now slide off.
- (t) Do not disassemble the load brake assembly. This is a Factory Assembly. Individual spare parts cannot be obtained separately. See page 41 Item 24 for further information.
- (u) Do not disassemble the load limiting clutch and second reduction gear assembly. This is a factory calibrated unit that may be damaged if disassembled. Parts for the clutch assembly cannot be obtained separately. See page 41 Item 22 for detailed information.
- (v) If the chain was not removed from the hoist at step (b), remove it now by turning the sheave shaft by hand and feeding the shortest end of the chain straight into the guide.
- (w) Remove the two (2) allen socket head suspension bolts, and the top and bottom crossheads. (See Pages 27 thru 33 for Reassembly).
- (x) Remove the three (3) 1/4-20 hex head sheave shaft bearing retaining screws. Pull the chain guide halves out of the housing far enough to retract the stripper from the sheave then pull the sheave shaft from the housing being careful not to damage the oil seal if it is to be reused. The chain guide halves can now be removed from the housing.
- (y) This completes the disassembly. UNDER NO CIRCUMSTANCES SHOULD THE THREE (3) TEMPER PROOF SCREWS THAT JOIN THE HOUSING HALVES BE REMOVED. The halves mate with an interference fit and were permanently joined by a hydraulic press before machining. If the halves are separated, the dimensional accuracy of the housing will be destroyed.

## 2. TO REMOVE THE MOTOR

- (a) Cut off all power to the hoist by disconnecting the power feed line.
- (b) Do not allow dirt, grit or any other foreign material to get on the working parts of the hoist or into the working areas of these parts.
- (c) Follow steps (e), (g), (h), (i), (m), and (n) under RECOMMENDED SEQUENCE OF DISASSEMBLY.

## 3. TO REMOVE THE MOTOR BRAKE

- (a) Follow steps (a) and (b) above and steps (e) and (g) under RECOMMENDED SEQUENCE OF DISASSEMBLY.

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# Yale® Hoists

- (b) Disconnect the motor brake solenoid leads and remove the four (4) screws holding the brake to the gear case cover. To replace the brake discs it is necessary only to remove the two (2) upper shoulder screws.

## 4. TO REMOVE THE GEARING OR LOAD LIMITING CLUTCH

- (a) Follow steps (a) and (b) under TO REMOVE THE MOTOR.
- (b) Follow steps (e), (f), (g), (i), (j), (o), (p), (q), (r), (s), (t), and (u) under RECOMMENDED SEQUENCE OF DISASSEMBLY.

## 5. TO REMOVE THE LOAD BRAKE

- (a) Follow steps (a) and (b) under TO REMOVE THE MOTOR.
- (b) For convenience in disassembly, invert the unit and clamp the top hook or suspension lug in a vise.
- (c) Follow steps (e), (f), (g), (i), (j), (l), (o), (q), (r), (s), and (x) under RECOMMENDED SEQUENCE OF DISASSEMBLY.

## 6. TO REMOVE THE DRIVING POCKET WHEEL AND CHAIN GUIDE

- (a) Follow steps (a) and (b) under TO REMOVE THE LOAD BRAKE.
- (b) Follow steps (a), (b), (e), (f), (g), (i), (j), (l), (o), (p), (q), (r), (s), (v), (w), (x), and (y) under RECOMMENDED SEQUENCE OF DISASSEMBLY.

## 7. TO REMOVE THE TOP HOOK OR LUG

- (a) Follow steps (a) and (b) under TO REMOVE THE MOTOR.
- (b) Follow steps (e) and (w) under RECOMMENDED SEQUENCE OF DISASSEMBLY.

## 8. TO REMOVE THE BOTTOM HOOK

- (a) Follow step (d) under RECOMMENDED SEQUENCE OF DISASSEMBLY.

## 9. TO REMOVE THE GEAR CASE COVER

- (a) Follow steps (a) and (b) under TO REMOVE THE LOAD BRAKE.
- (b) Follow steps (e), (f), (g), (i), (j), (l), (o), and (p) under RECOMMENDED SEQUENCE OF DISASSEMBLY.

## 10. TO REMOVE IDLER POCKET WHEEL FROM BOTTOM CROSSHEAD-3 TON

- (a) Disconnect bottom crosshead from housing.

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- (b) Drill a hole on the middle of each expansion plug and pull the plugs out. These plugs must be replaced with new plugs.
- (c) Drive out roll pin that locks pocket wheel and axle.
- (d) Remove both retaining rings that lock bearings in position.
- (e) Drive sheave axle out from crosshead.

## 1. REASSEMBLY

- (a) Reverse the procedure for disassembly replacing all worn or damaged parts.
- (b) First install the pocket wheel shaft and chain guide halves. Then the top and bottom crossheads. (See pages 27 through 33 for crosshead assembly.)
- (c) As in disassembly, invert the unit and clamp the top hook or lug in a vise.
- (d) With the unit inverted, feed the chain straight into the guide rotating the pocket wheel shaft by hand. Be sure that the welds of the "standing" links face away from the pocket wheel. See page 19.  
IMPORTANT: When installing the left-hand threaded retaining nut at the end of the pocket wheel shaft, be sure the output gear-clutch assembly is screwed all the way onto the shaft to allow the nut to bottom on the shaft shoulder. Back off the nut as little as possible to line up the locking screw holes.



**CAUTION BE SURE THE TWO (2) LOCKING SCREWS HAVE LOCK WASHERS.**

When the nut is adjusted properly, the output gear will rotate independently of the chain sheave through an arc not exceeding three gear teeth.

- (f) Be sure all fasteners have lockwashers.
- (g) Remember: Oil seals are delicate, easily distorted in installation and easily cut by shaft serrations and burrs. Cover serrations and lubricate seals when assembling.
- (h) See the PREVENTIVE MAINTENANCE SCHEDULE section for proper motor brake adjustment.
- (i) Be sure to replace the chain stop before operating the hoist. THE CHAIN STOP ON THE DEAD END OF THE CHAIN MUST BE AT LEAST EIGHT (8) LINKS FROM THE CHAIN END.
- (j) Fill gear case to level plug only with lubricant specified under "LUBRICATION, page 15.

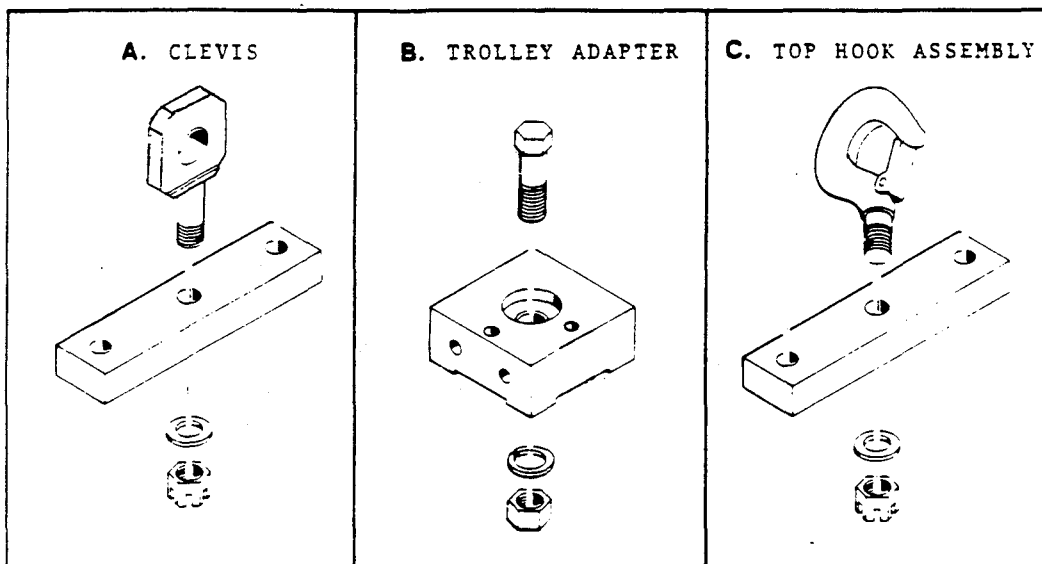
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# Yale® Hoists

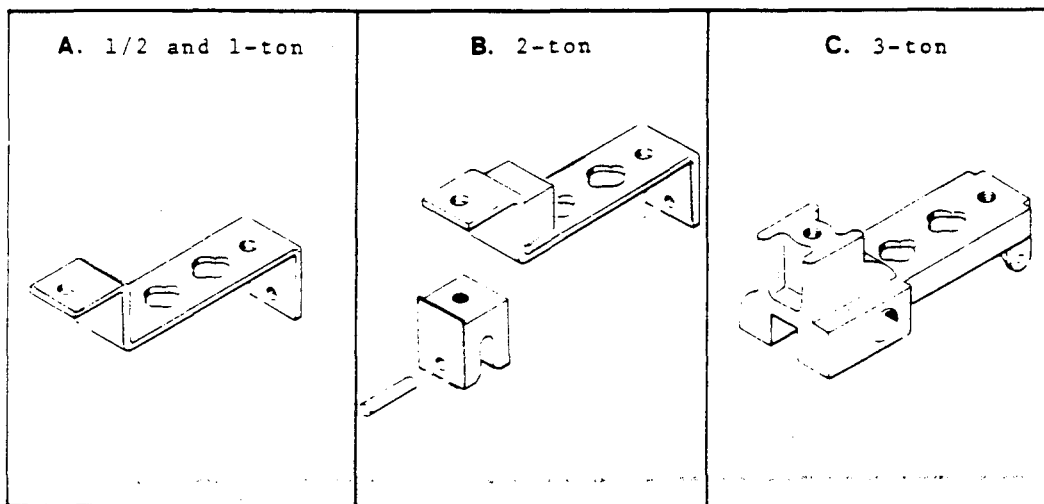
## K - SERIES CHAIN HOIST TOP AND BOTTOM CROSSHEAD ASSEMBLY

Crosshead assembly procedures are slightly different for each hoist rating. The proper procedure **MUST** be followed to insure proper hoist operation.

The Top Crosshead Assembly consists of the Crosshead and one of the illustrated suspensions. **NOTE:** (Rotating is standard.)



The Bottom Crossheads for each hoist rating are illustrated below:



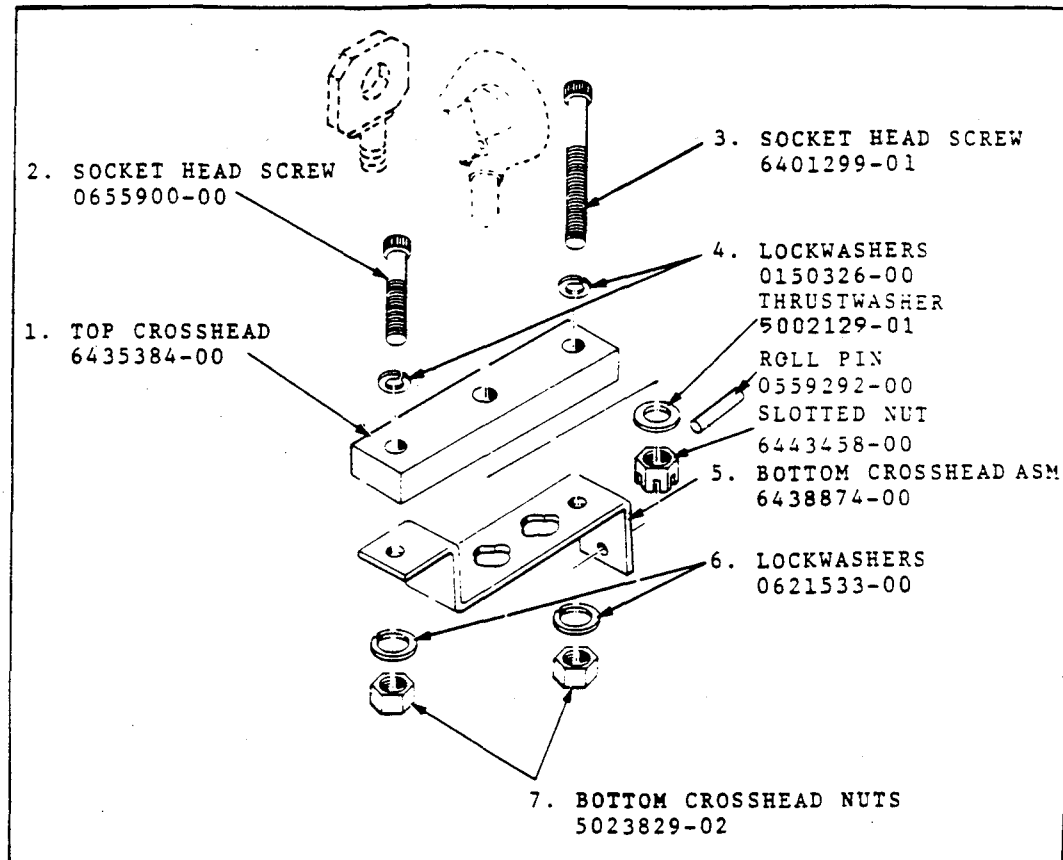
Bottom Crosshead Assembly procedures are described on the following pages. The hoist should be placed on its side to facilitate proper assembly. Wood blocks may be used to hold hoist in position during assembly.

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# Yale® Hoists

## ASSEMBLY PROCEDURE 1/2 AND 1 TON UNITS WITH HOOK OR CLEVIS

NOTE: (Rotating is standard.)



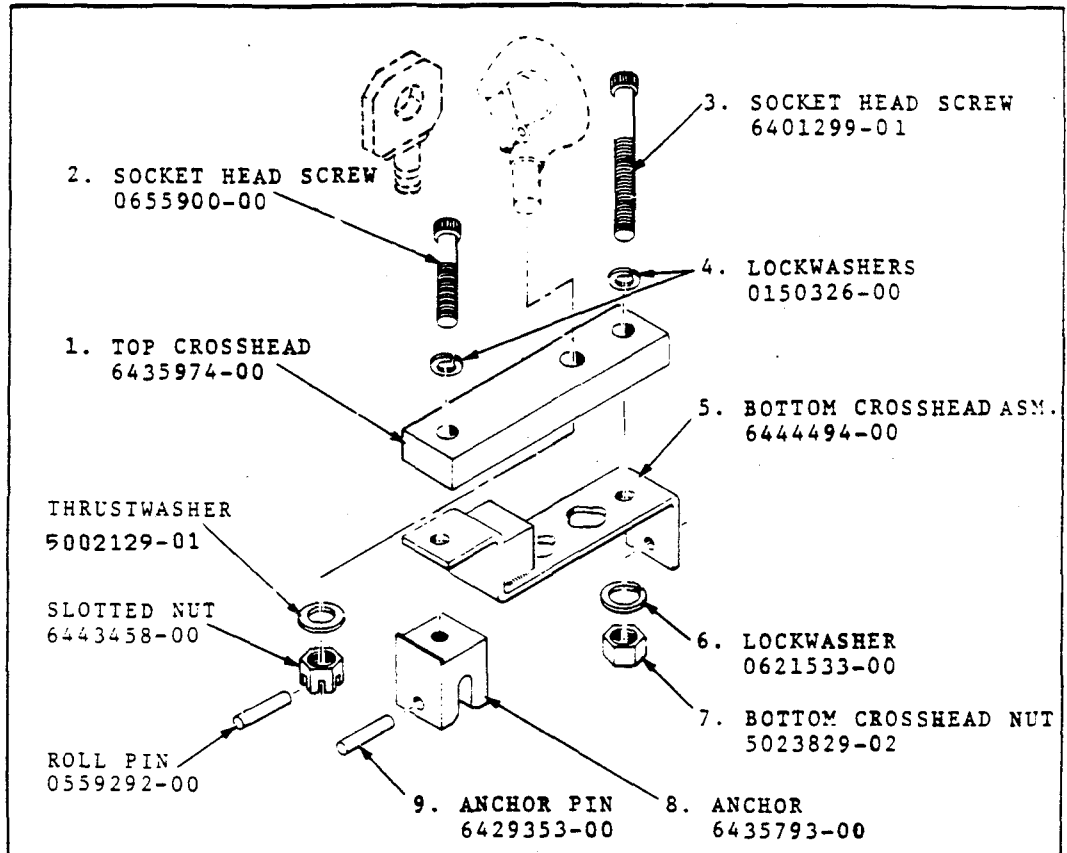
1. Assemble hook or clevis to top crosshead (1) with countersunk holes on hook or clevis side (top). Assemble thrustwasher, slotted nut and roll pin. Allow hook or clevis to swivel freely.
2. Place Top Crosshead Assembly (1) with Socket Head Screws and Lockwashers (4) in position.
3. Place Bottom Crosshead (5) in position.
4. Assemble Lockwashers (6) and Bottom Crosshead Nuts (7). CAUTION: Care should be taken to insure that the nuts do not become cross threaded--they should turn freely until snugged.
5. After nuts are hand-snugged, place Allen Wrench in socket head screw then tighten Bottom Crosshead Nuts to 40 to 50 ft-lb. torque.

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# Yale® Hoists

## ASSEMBLY PROCEDURE 2-TON UNIT WITH HOOK OR CLEVIS

**NOTE:** (Rotating is standard.)



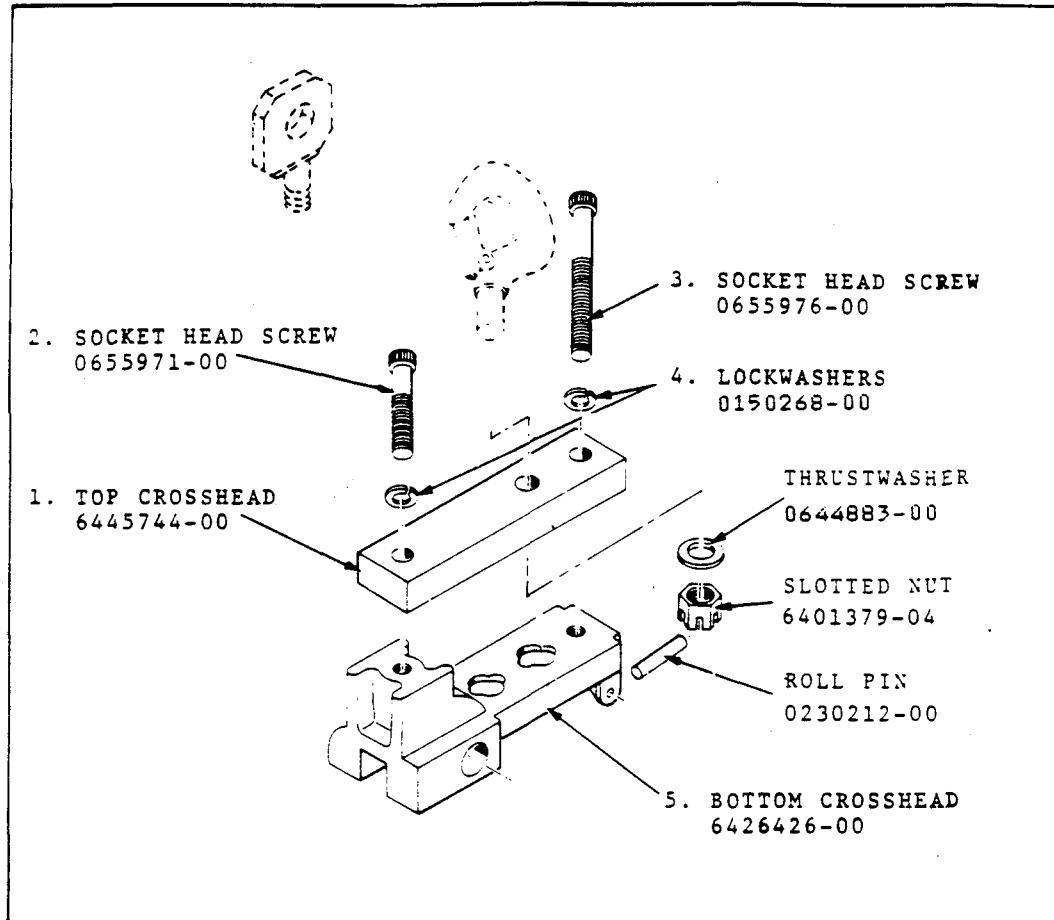
1. Assemble hook or clevis to top crosshead (1) with countersunk holes on hook or clevis side (top). Assemble thrustwasher, slotted nut and roll pin. Allow hook or clevis to swivel freely.
2. Place Top Crosshead Assembly (1) with socket head screws (2 & 3) and Lockwashers (4) in position.
3. Place Bottom Crosshead (5) in position.
4. Assemble Lockwasher (6) and Bottom Crosshead Nut (7) to Socket Head Screw (3). **CAUTION:** Care should be taken to insure that the nut does not become cross threaded--it should turn freely until snugged. Assemble chain to anchor (8) with anchor pin (9).
5. Assemble anchor (8) to Socket Head Screw (2) by turning the screw with an Allen Wrench and aligning the anchor to prevent cross-threading. The anchor should be seated against the Bottom Crosshead before final torque.

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# Yale® Hoists

## ASSEMBLY PROCEDURE 3-TON UNIT WITH HOOK OR CLEVIS

NOTE: (Rotating is standard.)

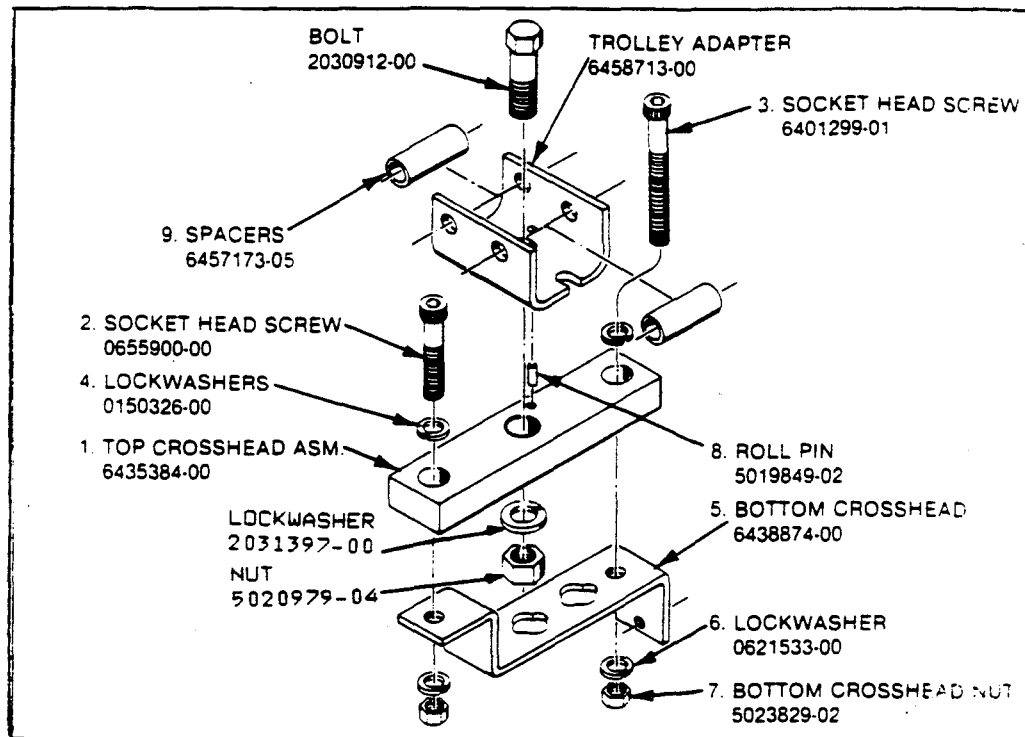


1. Assemble hook or clevis to top crosshead (1) with countersunk holes on hook or clevis side (top). Assemble thrustwasher, slotted nut and roll pin. Allow hook or clevis to swivel freely.
2. Place Top Crosshead Assembly (1) with Socket Head Screws (2 & 3) and Lockwashers (4) in position.
3. Place assembled Bottom Crosshead in position.
4. Assemble Bottom Crosshead (5) to Socket Head Screws (2 & 3) by turning the screws with an Allen Wrench and aligning the crosshead to prevent cross threading. The crosshead must be seated against the housing before applying final torque.
5. Tighten both Socket Head Screws to 40 to 50 ft-lb torque.

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# Yale® Hoists

## ASSEMBLY PROCEDURE 1/2 AND 1 TON UNITS - LUG MOUNTED

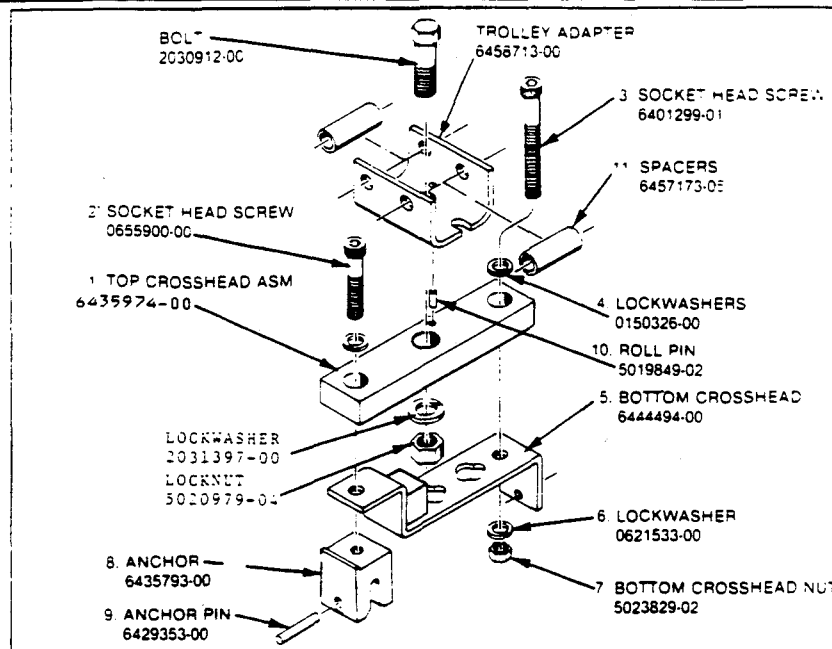


1. Install roll pin (8) into top crosshead and assemble trolley adapter to top crosshead (1). Be sure trolley mounting holes are oriented for proper trolley mounting, assemble bolt, lockwasher, & locknut, tighten locknut to 150 - 160 ft/lbs torque.
2. Place Top Crosshead Assembly (1) with Socket Head Screws (2) and Lockwashers (4) in position.
3. Place Bottom Crosshead (5) in position.
4. Assemble Lockwasher (6) and Bottom Crosshead Nut (7) **CAUTION!** Care should be taken to insure that the nut does not become cross threaded--it should turn freely until snugged.
5. After nuts are hand-snugged, place Allen Wrench in socket head screw then tighten Bottom Crosshead Nuts to 40 to 50 ft/lb.
6. Tighten both Socket Head Screws to 40-50 ft. lbs. torque.
7. Install Spacers (9) on Thru Bolts for Trolley or Lug Mounting. **CAUTION** Spacers item (9) must be installed over the Trolley Thru Bolts on the inside of the Trolley Adapter Channel.



# Yale® Hoists

## ASSEMBLY PROCEDURE 2-TON UNIT-LUG MOUNTED

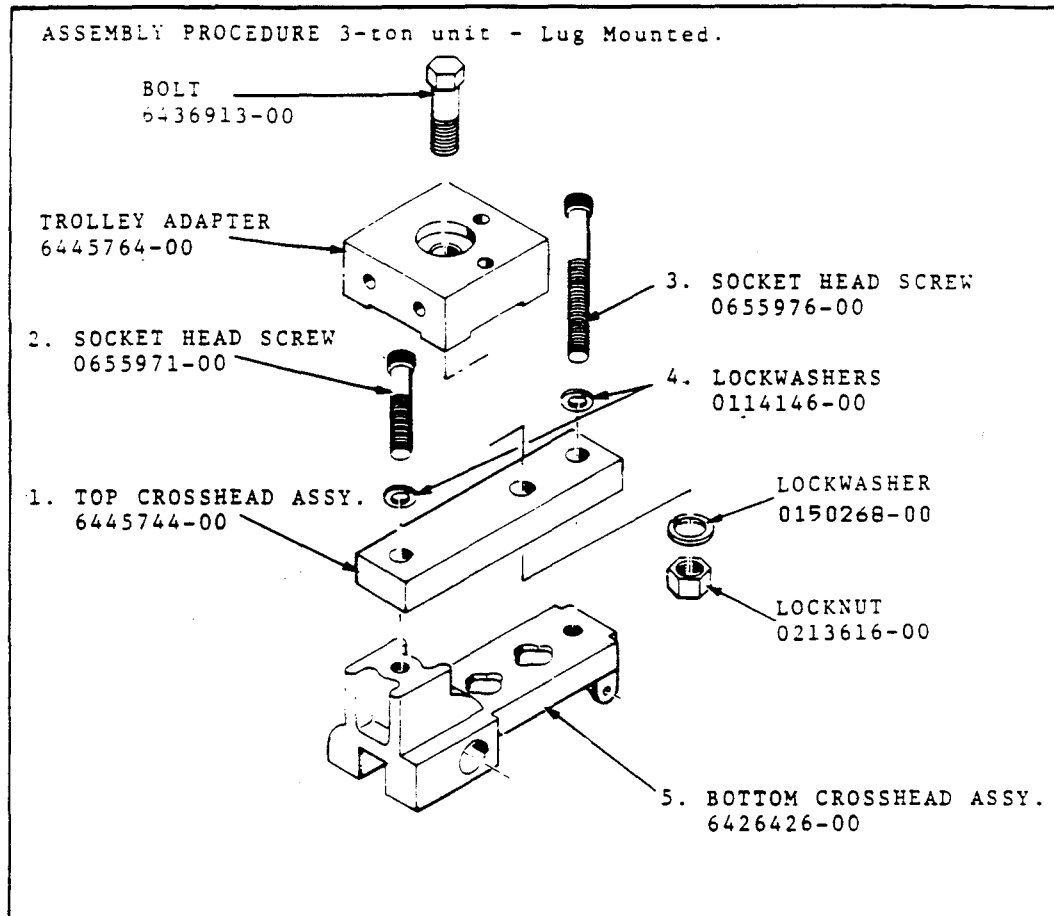


1. Assemble long socket head screw (3) and lockwasher (4) in near hole of crosshead (1) in counter-sunk side. Install roll pin (10) in crosshead. Assemble trolley adapter with trolley mounting holes properly oriented for trolley mounting and thru hole over socket head screw to allow allen wrench access. Assemble lockwasher, bolt and locknut. Tighten locknut to 150-160 ft. lbs. torque.
2. Place Top Crosshead Assembly (1) with socket head screw (2) and lockwasher (4) in position.
3. Place Bottom Crosshead (5) in position.
4. Assemble lockwasher (6) and bottom crosshead nut (7) to socket head screw (3).  
 ⚠ **CAUTION!** Care should be taken to insure that the nut does not become cross threaded -- it should turn freely until snugged.
5. Assemble chain to anchor (8) with anchor pin (9).
6. Assemble anchor (8) to socket head screw (2) by turning the screw with an allen wrench and aligning the anchor to prevent crossthreading. The anchor should be seated against the bottom crosshead before final torque.
7. Tighten both socket head screws to 40-50 ft. lbs. torque.
8. Install spacers (11) on thru bolts for trolley or lug mounting.  
 ⚠ **CAUTION!** Spacers, item (11) must be installed over the trolley thru bolts on the inside of the Trolley Adapter Channel.

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# Yale® Hoists

## ASSEMBLY PROCEDURE 3-TON UNIT - LUG MOUNTED



1. Assemble long socket head screw (3) and lockwasher (4) in near hole of crosshead (1) in countersunk side. Assemble trolley adapter with trolley mounting holes properly oriented for trolley mounting and thru hole over socket head screw to allow allen wrench access. Assemble lockwasher, bolt and locknut. Tighten locknut to 190 to 200 ft./lbs. torque.
2. Place Top Crosshead Assembly with Socket Head Screw (2) and Lockwasher (4) in position.
3. Place assembled Bottom Crosshead in position.
4. Assemble Bottom Crosshead (5) to Socket Head Screws (2 & 3) by turning the screws with an Allen Wrench and aligning the crosshead to prevent cross threading. The crosshead must be seated against the housing before applying final torque.
5. Tighten both Socket Head Screws to 40 to 50 ft-lb.

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# Yale® Hoists

## BOTTOM BLOCK ASSEMBLIES

### S1 REEVED

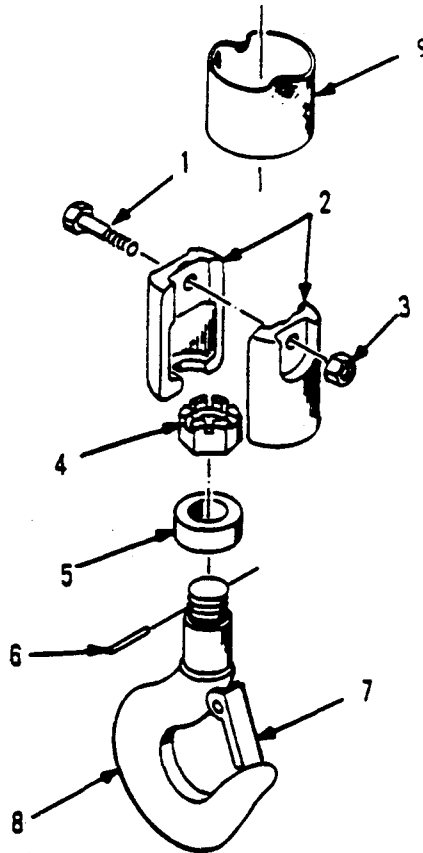


FIGURE 7.

BOTTOM BLOCK ASSEMBLY								
ITEM NO.	STD. HOOKS		BRONZE HOOKS		BULLARD HOOKS		DESCRIPTION	QTY.
	1/2 TON	1 TON	1/2 TON	1 TON	1/2 TON	1 TON		
1	642539200	642596200	642541200	642598200	642543200	642600200	SOCKET HD. SCREW	1
2	642895100	642896100	642895100	642896100	642895100	642896100	BLOCK HALF	2
3	642017100	642039100	642017100	642039100	642017100	642039100	LOCKNUT	1
4	015015200	015015300	015015200	015015300	015015200	015015300	SLOTTED NUT	1
5	010666300	065267300	647204400	065267300	010666300	065267300	THRUST BEARING	1
6	015122100	015122200	015122100	015122200	015122100	015122200	ROLL PIN	1
7	059989100	500409902	059989100	500409902	051191400	500409902	LATCH KIT	1
8	066940000	066940200	646255800	646254800	**	**	HOOK ASM	1
9	642540200	642595202	642542200	642597200	642544200	642599201	RETAINER BAND	1
9	645640100	645671100	645670100	645671100	645670100	645671100		

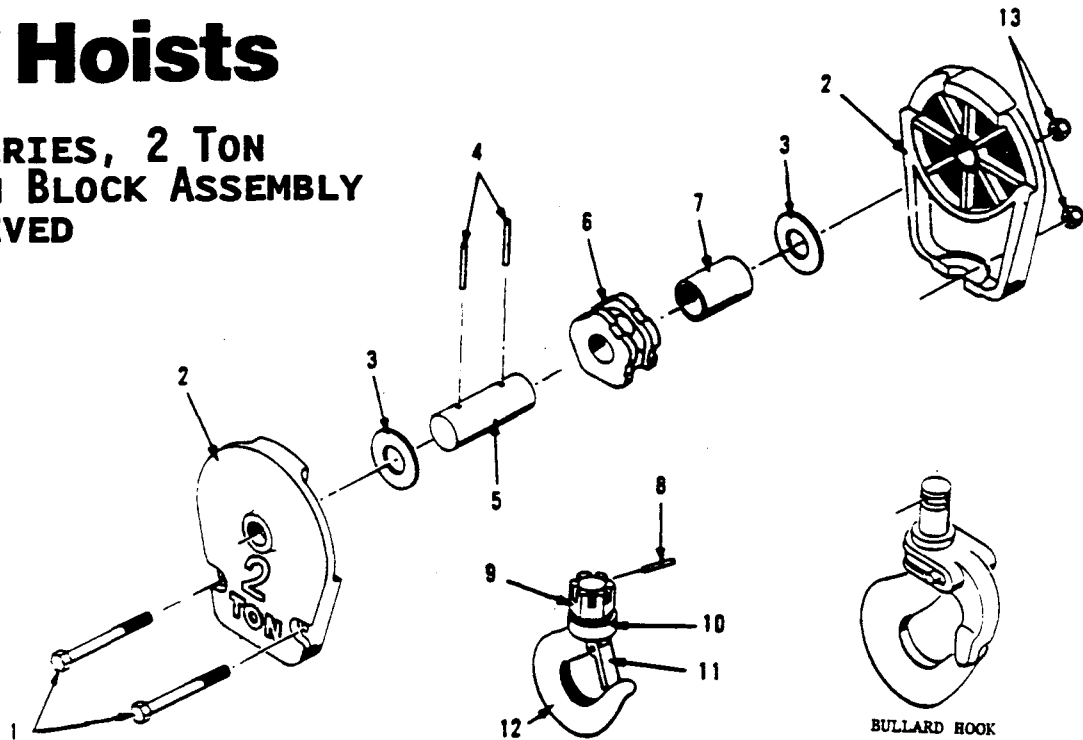
\*\* BULLARD HOOKS DO NOT REQUIRE LATCH KITS

\*\*\* INCLUDES 4, 6, AND 7

**When Replacement Parts Are Needed, Order Only Yale® Factory Engineered Parts**

# Yale® Hoists

## KEL SERIES, 2 TON BOTTOM BLOCK ASSEMBLY S2 REEVED



BOTTOM BLOCK ASSEM (2 TON)			
6466490-00		BTM. BLOCK ASM. W/STD. HOOK	
6498340-00		BTM. BLOCK ASM. W/BRONZE HOOK	
6485930-00		BTM. BLOCK ASM. W/BULLARD HOOK	
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	035023400	BOLT, HEX HD 3/8 - 16 X 2.00	2
2	641823600	BOTTOM BLOCK HALF	2
3	014373400	WASHER .06X1.12	2
4	023020700	ROLL PIN 3/6X1.25	2
5	064489700	SHEAVE AXLE	1
6	647371000	SHEAVE & BEARING (5 POCKET)	1
7	644626800	BEARING, BUSHING (TEFLON)	1
8	055929200	ROLL PIN 1/4 X 1.25	1
9	644345800	NUT, SLOTTED 7/8-14	1
10	050193100	BEARING, THRUST T-88W	1
11	066940400	LATCH KIT (STD. STEEL HOOK)	1
11	500690800	LATCH KIT (BRONZE HOOK)	1
11	**	LATCH KIT (BULLARD HOOK)	*
12	649725000	HOOK & LATCH ASM. (STL. HOOK)	1
12	648749000	HOOK & LATCH ASM. (BRZ. HOOK)	1
12	642455200	HOOK & NUT ASM. (BULL. HOOK)	1
13	015015300	LOCKNUT, HEX 3/8-16	2

\*\* BULLARD HOOKS DO NOT REQUIRE LATCH KITS  
\* HOOK & LATCH ASM. INCLUDES ITEMS 8 & 9

**When Replacement Parts Are Needed, Order Only Yale Factory Engineered Parts**

# Yale® Hoists

## KEL SERIES, 3 TON BOTTOM BLOCK ASSEMBLY S3 REEVED

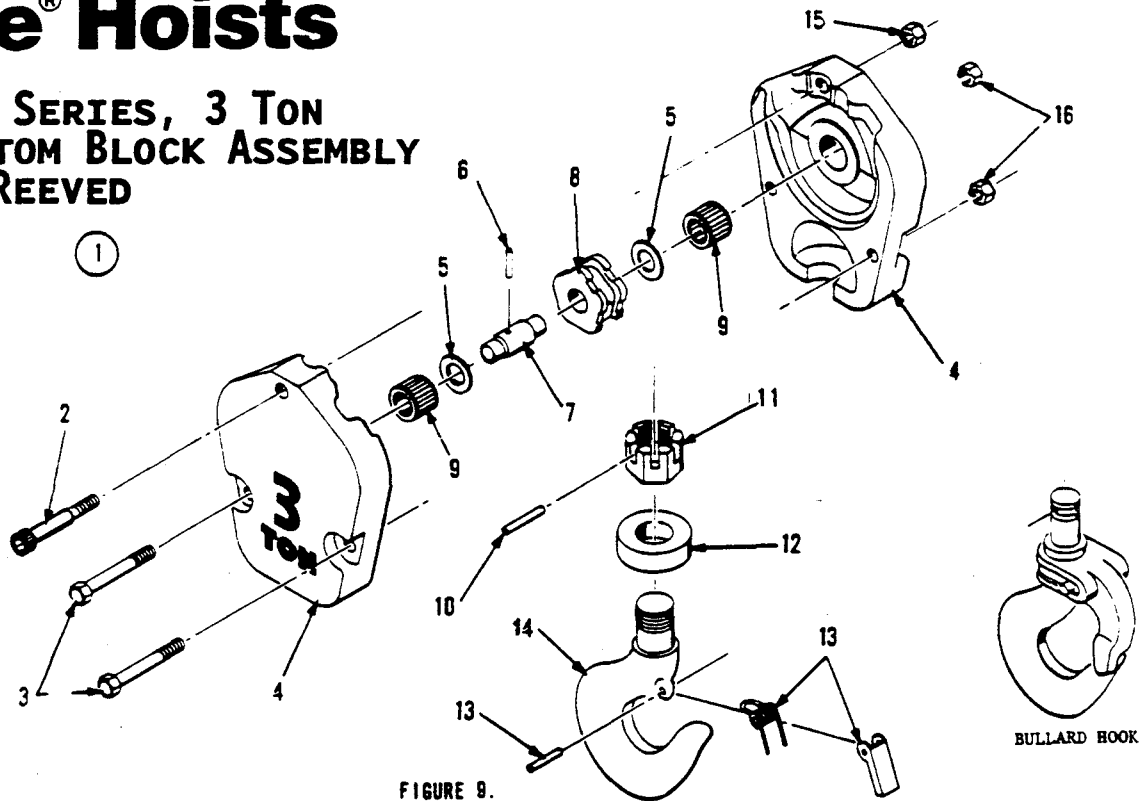


FIGURE 9.

BOTTOM BLOCK ASSEM (3 TON)			
	6483610-00	BTM. BLOCK ASM. W/STD. HOOK	
	6498340-10	BTM. BLOCK ASM. W/BRONZE HOOK	
	6420092-00	BTM. BLOCK ASM. W/BULLARD HOOK	
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
2	640154907	SCREW, SHOULDER 5/16-18X2.00	1
3	035023400	BOLT, HEX HD 3/8 - 16 X 2.00	2
4	642643600	BOTTOM BLOCK HALF	2
5	645190800	WASHER, FLAT .03X1.50	2
6	032959300	ROLL PIN 1/8 X 1.50	1
7	645173800	SHEAVE AXLE	1
8	643673300	SHEAVE (5 POCKET)	1
9	645176800	BEARING, AXLE B-1212	2
10	023021200	ROLL PIN 3/16 X 1.75	1
11	640137904	NUT, SLOTTED 1 1/8-12	1
12	050193200	THRUST BEARING T-119	1
13	066940600	LATCH KIT (STD. STEEL HOOK)	1
13	500695800	LATCH KIT (BRONZE HOOK)	1
13	**	LATCH KIT (BULLARD HOOK)	1
14	648360000	HOOK & LATCH ASM., (STL. HOOK)	1
14	640865200	HOOK & LATCH ASM. (BRZ. HOOK)	1
14	649846000	HOOK & NUT ASM. (BULL. HOOK)	1
15	015015200	LOCKNUT, HEX 5/16 - 18	1
16	015015300	LOCKNUT, HEX 3/8-16	2

\*\* BULLARD HOOKS DO NOT REQUIRE LATCH KITS  
 \* HOOK & LATCH ASM. INCLUDES ITEMS 10 & 11

When Replacement Parts Are Needed, Order Only Yale Factory Engineered Parts

# Yale® Hoists

## KEL Series, 1/2-1-2 And 3 Ton Housing And Frame Parts

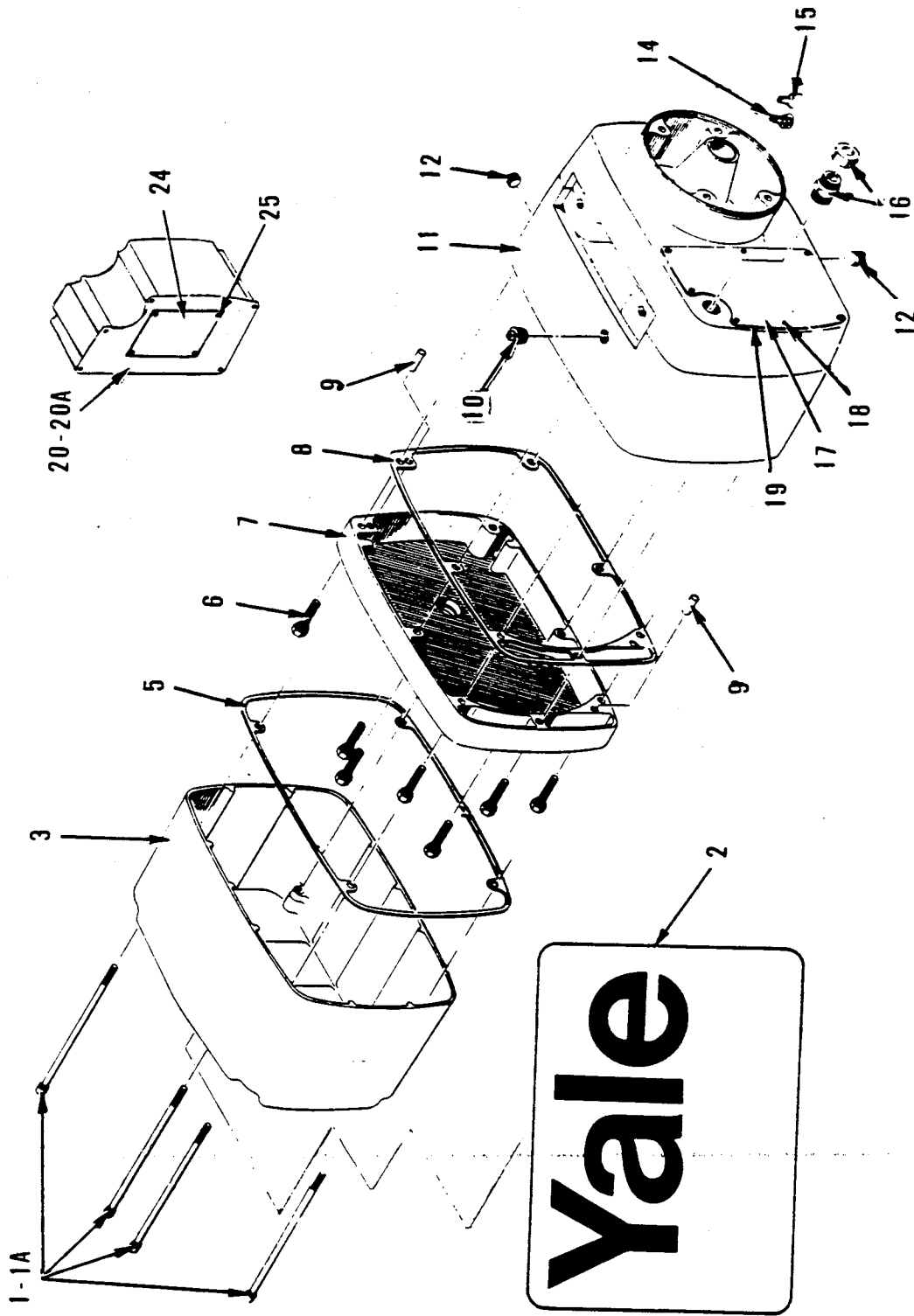


FIGURE 10

When Replacement Parts Are Needed, Order Only Yale® Factory Engineered Parts

# Yale® Hoists

## KEL SERIES, 1/2-1-2 AND 3 TON HOUSING AND FRAME PARTS

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	6416611-00	FILLISTER HEAD SCREW (20 TO 30 IN/LBS. TORQUE)	4
1A	6443488-00	FIBER WASHER	4
2	6465803-00	END DECAL	1
3	6403607-00	CONTROL COVER	1
5	6435574-00	CONTROL COVER GASKET	1
6	6401209-06	THREAD FORMING SCREW(115 TO 125 IN/LBS. TORQUE)	7
7	6403467-00	GEAR CASE COVER	1
8	6435554-00	GEAR CASE COVER GASKET	1
9	0116531-00	DOWEL PIN	2
10	6439518-00	BREATHER FILL PLUG	1
*11	6405217-00	HOUSING ASSEMBLY (1/2, 1, & 2 TON)	1
*11A	6406067-00	HOUSING ASSEMBLY (3 TON)	1
12	0230810-00	OIL LEVEL AND DRAIN PLUG	2
14	6400569-01	TERMINAL	1
15	6400249-09	TERMINAL	**
16	6401569-09	STRAIN RELIEVER	1
17	6447224-00	NAMEPLATE AND COVER	1
18	6401209-02	SCREW	7
19	6435564-00	COVER GASKET	1
20	6418276-00	CONTACTOR COVER (2 SPEED HOIST)	1
21	6436044-00	1/2 TON CAPACITY DECAL (Not Shown)	1
22	6436054-00	1 TON CAPACITY DECAL (Not Shown)	1
	6436064-00	2 TON CAPACITY DECAL (Not Shown)	1
	6446604-00	3 TON CAPACITY DECAL (Not Shown)	1
	6444798-00	WARNING DECAL (Not Shown)	1
24	6435924-00	NAME PLATE (With Extra Contactor)	1
25	6400329-04	RIVET (With Extra Contactor)	4
20A	6422756-00	CONTACTOR COVER (With Motorized Trolley)	1

\* DO NOT DISASSEMBLE UNDER ANY CONDITION

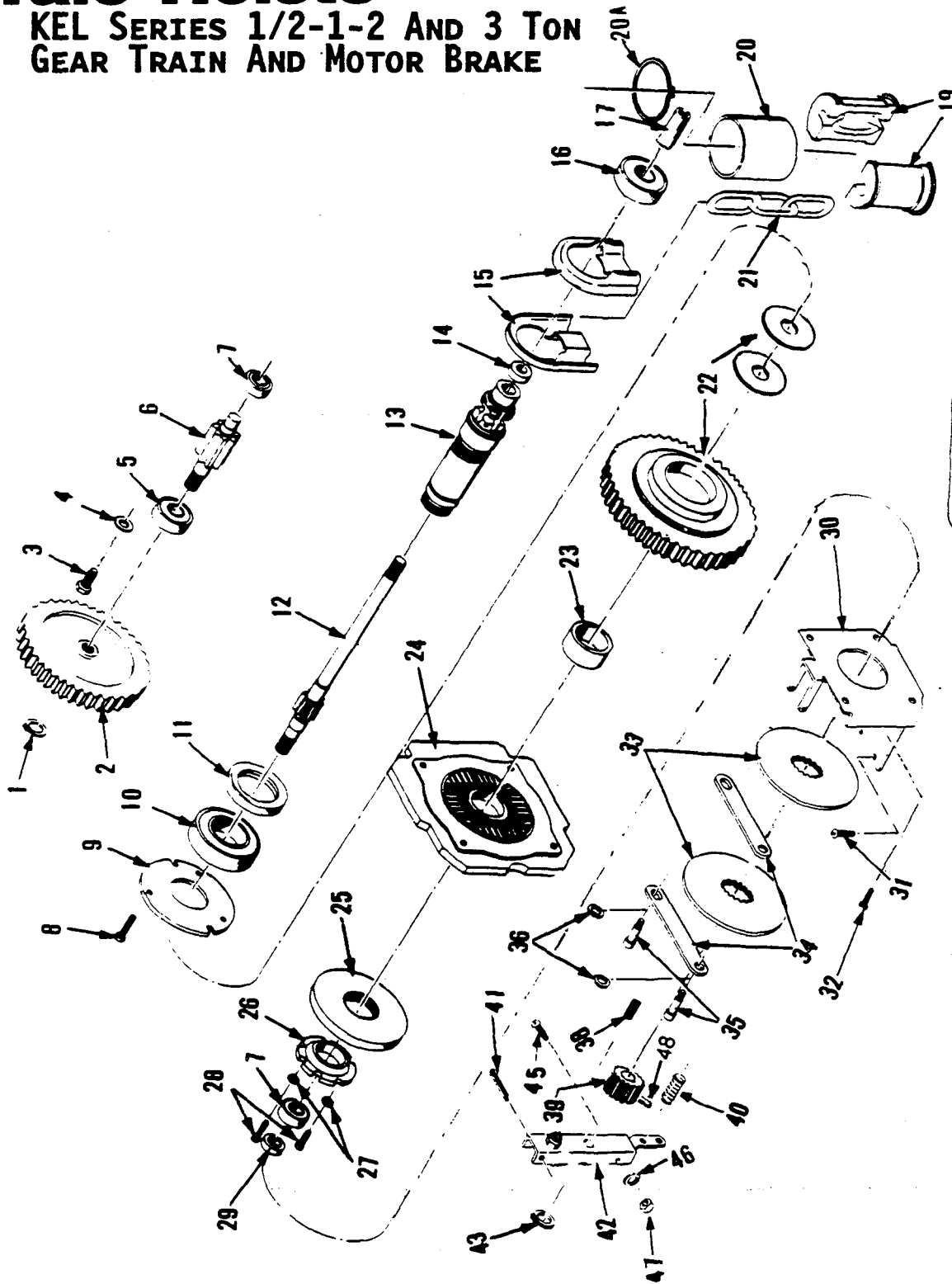
\*\* THREE PHASE REQUIRES 3, SINGLE PHASE AND D.C. REQUIRES 2.

**When Replacement Parts Are Needed, Order Only Yale® Factory Engineered Parts**



# Yale® Hoists

KEL SERIES 1/2-1-2 AND 3 TON  
GEAR TRAIN AND MOTOR BRAKE



**Warning**  
 Damage To Hoist May Occur If  
 The Unit Is Operated With The  
 Chain Limit Stop Removed. The  
 Chain Stop Must Be At Least  
 Eight (8) Links From Dead End  
 Of Load Chain

Decal No 6439883

FIGURE 11.

When Replacement Parts Are Needed, Order Only Yale® Factory Engineered Parts

# KEL SERIES 1/2-1-2 AND 3 TON GEAR TRAIN AND MOTOR BRAKE

ITEM NUMBER	1/2 TON PART NUMBER	1 TON PART NUMBER	2 & 3 TON PART NUMBER	DESCRIPTION	QTY.
1	0216767-00	0216767-00	0216767-00	RETAINING RING	1
2	SEE TABLE	SEE TABLE	SEE TABLE	HIGH SPEED GEAR	1
3	6401209-03	6401209-03	6401209-03	HEX HEAD SCREW	3
4	6401269-02	6401269-02	6401269-02	WASHER	3
5	0312756-00	0312756-00	0312756-00	BEARING	1
6	6435144-00	6435144-00	6435144-00	PINION	1
7	6400889-03	6400889-03	6400889-03	BEARING	2
8	6401209-05	6401209-05	6401209-05	HEX HEAD SCREW	3
9	6433783-00	6433783-00	6433783-00	SPACER PLATE	1
10	0151197-00	0151197-00	0151197-00	BEARING	1
11	6401229-01	6401229-01	6401229-01	SEAL	1
12	SEE TABLE	SEE TABLE	SEE TABLE	DRIVING PINION	1
13	6440244-00	6440244-00	6440244-00	DRIVING POCKET WHEEL	1
14	6443998-00	6443998-00	6443998-00	SEAL	1
15	6438154-00	6438154-00	6438154-00	CHAIN GUIDE AND STRIPPER HALF	2
16	0151208-00	0151208-00	0151208-00	BEARING	1
17	6428333-00	6428333-00	6428333-00	COUPLING	1
18*	6489680-00	6489680-00	6489680-00	LIMIT STOP KIT	1
19	6446544-00	6446544-00	6446544-00	CHAIN STOP HALF	2
20	6435803-00	6435803-00	6435803-00	CHAIN STOP SLEEVE	1
20A	6401889-01	6401889-01	6401889-01	RING	1
21	SEE TABLE	SEE TABLE	SEE TABLE	LOAD CHAIN	1
22	6476792-02	6476792-03	6476792-03	LIMIT CLUTCH	1
23	6416351-00	6416351-00	6416351-00	BUSHING	1
24**	6438664-00	6438664-00	6438664-00	LOAD BRAKE ASSEMBLY	1
25	6444664-00	6444664-00	6444664-00	FRICTION PLATE	1
26	6435913-00	6435913-00	6435913-00	JAM NUT	1
27	0150318-00	0150318-00	0150318-00	LOCKWASHER	2
28	0656253-00	0656253-00	0656253-00	SCREW	2
29	6401219-01	6401219-01	6401219-01	SEAL	1
30	6417316-00	6417316-00	6417316-00	BRACKET	1
31	6401209-07	6401209-07	6401209-07	SCREW (25 TO 30 IN/LBS.)	4
32	6401209-09	6401209-09	6401209-09	SCREW (50 TO 60 IN/LBS.)	2
33	6488583-00	6488583-00	6488583-00	BRAKE DISC	2
34	6416481-00	6416481-00	6416481-00	PLATE	2
35	6416551-00	6416551-00	6416551-00	SHOULDER SCREW (50 TO 60 IN/LBS)	2
36	0150359-00	0150359-00	0150359-00	LOCKWASHER	2
38	6401279-01	6401279-01	6401279-01	SOCKET SCREW	1
39	6488573-00	6488573-00	6488573-00	BRAKE HUB	1
40	6416501-00	6416501-00	6416501-00	SPRING	2
41	6401999-01	6401999-01	6401999-01	PIN	1
42	6423961-01	6423961-01	6423961-02	CHANNEL ASSEMBLY	1
43	6401409-02	6401409-02	6401409-02	RETAINING RING	1
44	6439093-00	6439093-00	6439093-00	DECAL	1
45	6470894-00	6470894-00	6470894-00	SCREW	1
46	0114305-01	0114305-01	0114305-01	WASHER	1
47	6470394-00	6470394-00	6470394-00	NUT NYLON	1
48	0561668-00	0561668-00	0561668-00	SET SCREW (BRAKE HUB)	2

\* INCLUDES ITEMS 19 THRU 20A.

\*\* INCLUDES ITEM 23.

## GEAR TABLE

ITEM NO	DESCRIPTION	1/2 TON		1 TON		2 TON		3 TON	
		15 FPM	30-60 FPM	15-30 FPM	42 FPM	7.5-15 FPM	21 FPM	10 FPM	14 FPM
2	HIGH SPEED GEAR								
	FIRST REDUCTION	6435124-00	6436004-00	6435124-00	6447254-00	6435124-00	6447254-00	6435124-00	6447254-00
12	PINION								
	FIRST REDUCTION	6456524-00	6456504-00	6456524-00	6456514-00	6456524-00	6456514-00	6456524-00	6456514-00

## PLATED LOAD CHAIN TABLE

NUMBER	LIFT	1/2 & 1 TON	2 TON	3 TON
21	10 FT.	6456662-10	6456672-10	6470422-10
21	12 FT.	6456662-12	6456672-12	6470422-12
21	15 FT.	6456662-15	6456672-15	6470422-15
21	20 FT.	6456662-20	6456672-20	6470422-20

NOTE: NON-STANDARD LIFTS ORDER 6427004-24 X LENGTH REQUIRED IN FEET.

**When Replacement Parts Are Needed, Order Only Yale® Factory Engineered Parts**

# Yale® Hoists

## KEL Series 1/2-1-2 And 3 Ton Motor Brake

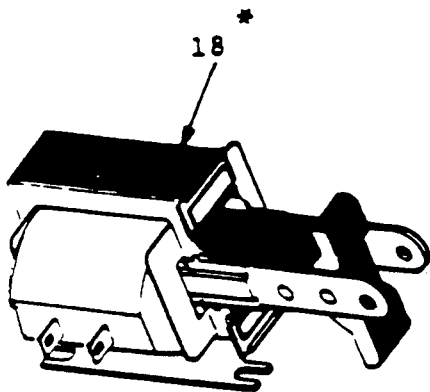
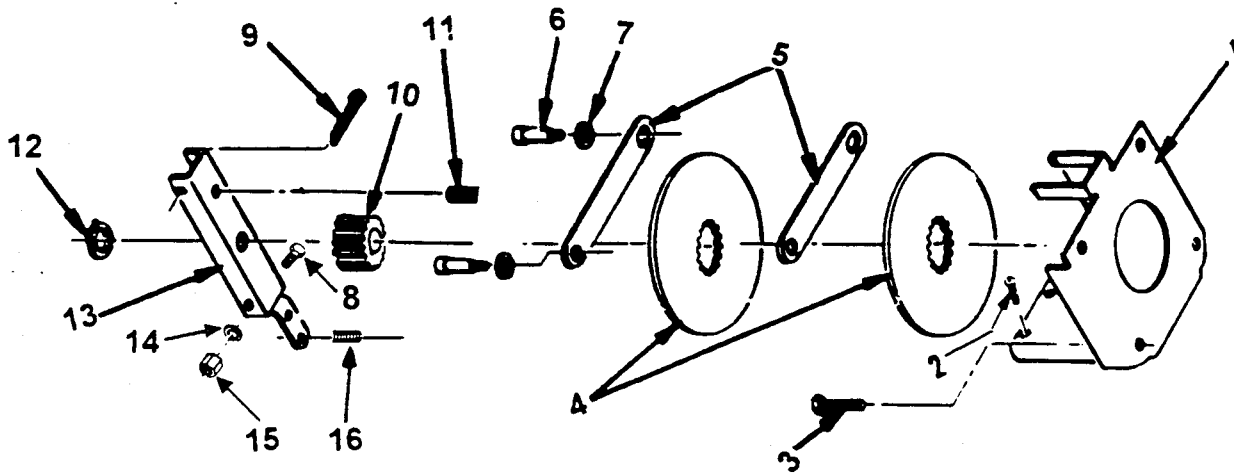


TABLE 5 MOTOR BRAKE SOLENOID ASSEMBLY

VOLTAGE	HERTZ	PART NUMBER
** 115	60	6439508-00
** 230	60	6439548-00
200	60	6439808-00
460	60	6441658-00
575	60	6439818-00

When Replacement Parts Are Needed, Order Only Yale® Factory Engineered Parts

# Yale® Hoists

## KEL SERIES 1/2-1-2 AND 3 TON REPAIR PARTS

### MOTOR BRAKE

ITEM	PART NO.	DESCRIPTION	QTY.
1	6417316-00	BRACKET	1
2	6401209-07	SCREW (TORQ. 25 TO 30 IN/LBS)	4
3	6401209-09	SCREW (TORQ. 50 TO 60 IN/LBS)	2
4	6488583-00	BRAKE DISC	2
5	6416481-00	PLATE	2
6	6416551-00	SHOULDER SCREW (TORQ. 50 TO 60 IN/LBS.)	2
7	0150359-00	LOCKWASHER	2
8	6470894-00	SCREW	1
9	6401999-01	COTTER PIN	1
10	6488573-00	BRAKE DRIVE BLOCK	1
11	6401279-01	SOCKET SCREW	1
12	6401409-02	RETAINING RING	1
13	6423961-01	CHANNEL ASSEMBLY	1
14	6470394-00	NUT NYLON	1
15	0114305-00	WASHER	3
16	6416501-00	SPRING	2
17	0561668-00	SET SCREW	2
18	SEE TABLE 5	MTR. MRK SOLENOID ASSM.	

**When Replacement Parts Are Needed, Order Only Yale® Factory Engineered Parts**

# Yale® Hoists

## KEL SERIES 1/2-1-2 AND 3 TON SINGLE PHASE MOTORS

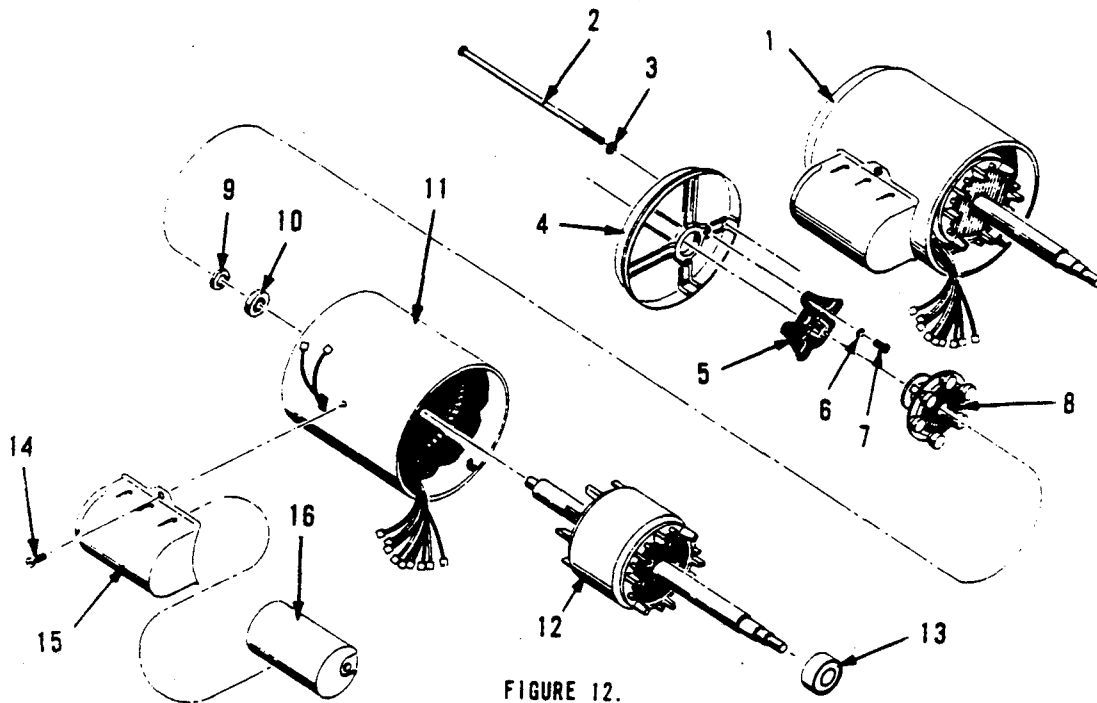


FIGURE 12.

ITEM NUMBER	PART NUMBER	DESCRIPTION	QTY.
1	*	COMPLETE MOTOR ASSEMBLY (Includes items 2 through 16, excluding 13)	1
2	*	THRU-BOLT (25 TO 30 IN/LBS. TORQUE)	4
3	*	WASHER	4
4	*	END BELL	1
5	*	CENTRIFUGAL SWITCH	1
6	*	WASHER	2
7	*	ROUND HEAD SCREW	2
8	8	CENTRIFUGAL MECHANISM	1
9	*	WASHER	1
10	*	BALL BEARING	1
11	*+	STRATOR AND FRAME	1
12	*+	ROTOR	1
13	0220610-00	BEARING	1
14	*	MOUNTING SCREW	2
15	*	CAPACITOR MOUNTING HOUSING	1
16	*	CAPACITOR	1

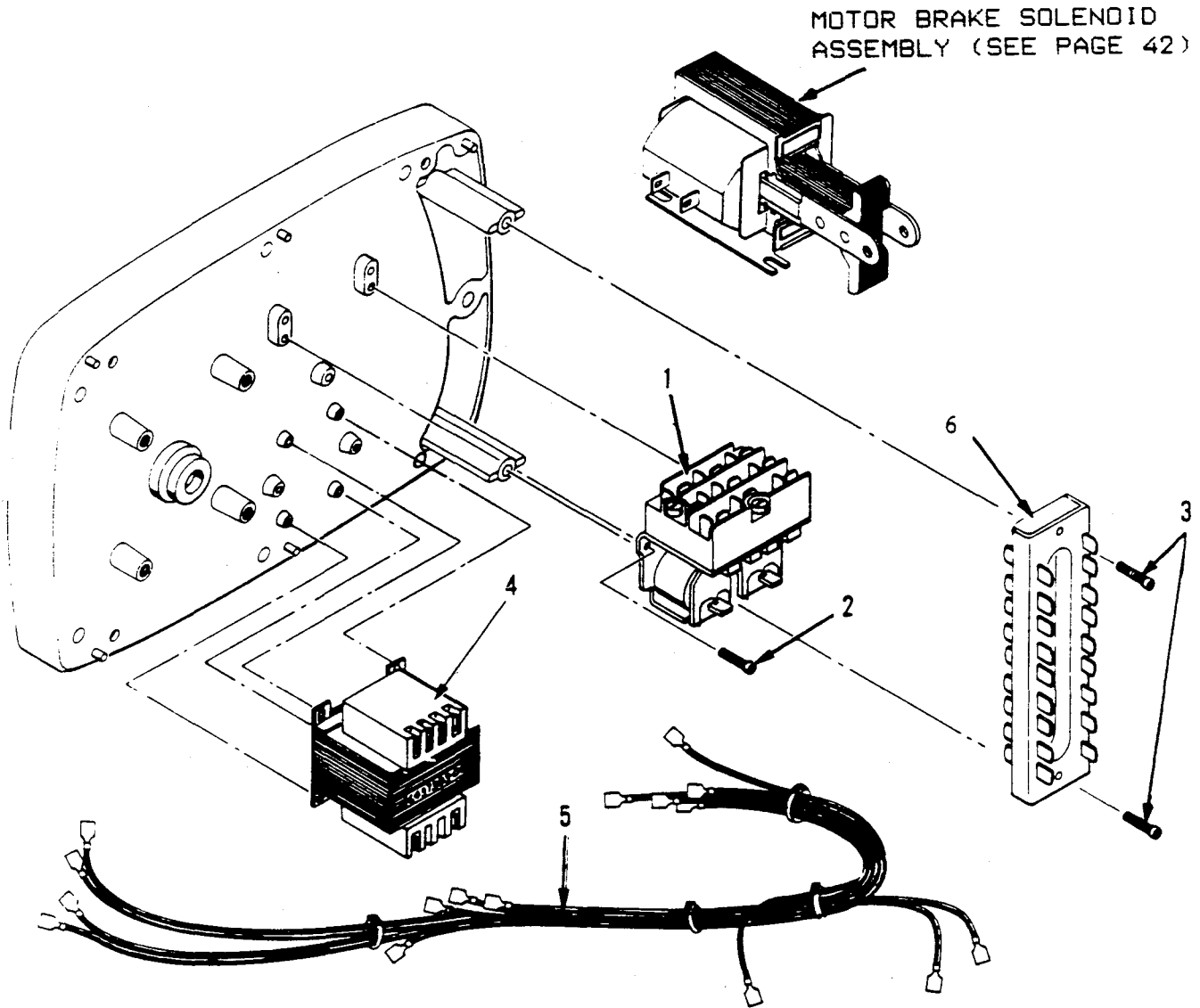
\* When ordering repair parts for motor give quantity, description and complete data from motor nameplate.

+ Strator or Rotor cannot be supplied separately as repair parts.

**When Replacement Parts Are Needed, Order Only Yale® Factory Engineered Parts**

# Yale® Hoists

KEL SERIES 1/2-1-2 AND 3 TON  
ELECTRICAL CONTROLS - SINGLE SPEED

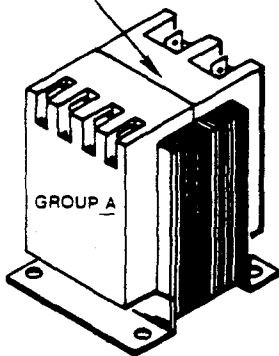


When Replacement Parts Are Needed, Order Only Yale® Factory Engineered Parts

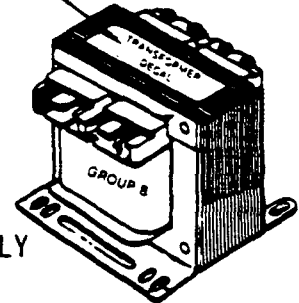
# Yale® Hoists

ITEM	PART NUMBER	DESCRIPTION	QTY.
1A	6401559-01	REVERSING CONTACTOR 24V	1
1B	6401559-02	REVERSING CONTACTOR 115V	1
2	6401209-02	MOUNTING SCREW	3
3	6401209-17	MOUNTING SCREW	2
4	SEE TABLE	TRANSFORMER	1
5	6428756-00	WIRE HARNESS SINGLE PHASE/DUAL VOLTAGE	1
	6421006-00	WIRE HARNESS 230/460 3 PHASE	1
	6421016-00	WIRE HARNESS 200 OR 575 3 PHASE	1
6	6440524-00	TERMINAL BLOCK 115/230-1-60	1
	6440534-00	TERMINAL BLOCK 230/460-3-60	1
7	SEE TABLE	MOTOR BRAKE SOLENOID ASSEMBLY	

TRANSFORMER NINE DIGIT PART NUMBER STAMPED HERE



1. FIND VA, PRIMARY & SECONDARY VOLTS
2. USE CHART TO SELECT TRANSFORMER



SINGLE SPEED HOIST AND/OR TROLLEY ONLY  
GROUP A

VA	PRIMARY VOLTS	SECONDARY VOLTS	HERTZ	NUMBER	FUSE
25	115/230	24	50/60	6437393-01	N/R
	230/460	24	50/60	6437393-02	N/R
	115/230	110	50/60	6437393-03	N/R
	230/460	110	50/60	6437393-04	N/R
	200	24	50/60	6437393-05	N/R
	200	110	50/60	6437393-06	N/R
	575	24	50/60	6437393-07	N/R
	575	110	50/60	6437393-08	N/R

### GROUP B

50	200	115	50/60	6478963-12	6458398-04
	230/460	115	50/60	6478963-13	6458398-04
	575	115	50/60	6478963-14	6458398-04
	200	24	50/60	6478963-16	6458398-11
	230/460	24	50/60	6478963-17	6458398-11
	575	24	50/60	6478963-18	6458398-11
150	200	115	50/60	6478963-22	6458398-08
	230/460	115	50/60	6478963-23	6458398-08
	575	115	50/60	6478963-24	6458398-08
	200	24	50/60	6478963-26	6458398-20
	230/460	24	50/60	6478963-27	6458398-20
	575	24	50/60	6478963-28	6458398-20

When Replacement Parts Are Needed, Order Only Yale® Factory Engineered Parts

# Yale® Hoists

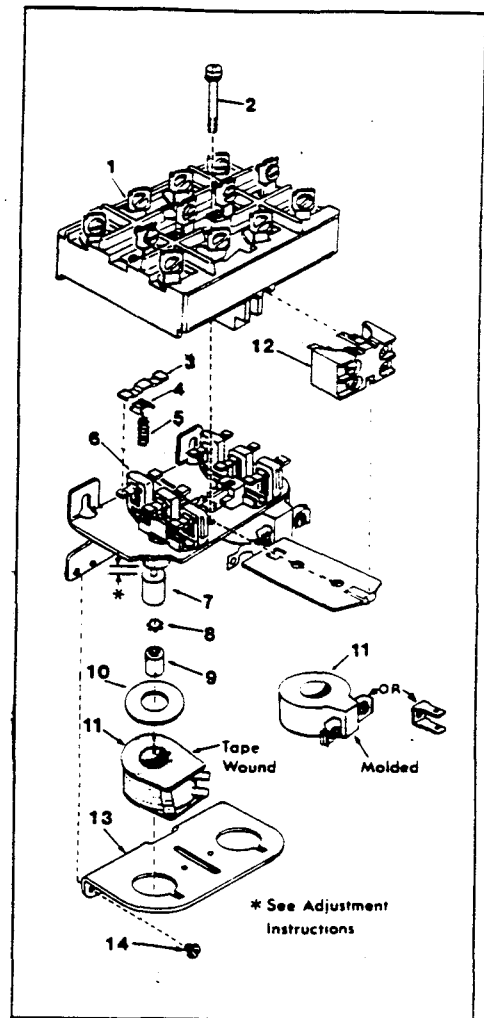
## AC REVERSING CONTACTORS TYPES R0-1, R0-4, & R0-10

**Contacts** - are not harmed by discoloration and slight pitting. Do not file them as dressing only wastes contact material. Replacement is required only when the contact has worn thin.

**Contact inspection** - Disconnect electrical power and remove all power wiring. Make note of the connections so they may be reconnected correctly. Remove the stationary contact assembly (item 1) by loosening mounting screws (2) to expose the stationary and movable contacts. Movable contact finger (3) is removed by pulling straight out. Stationary contacts of newer contactors and of replacement kits are stated in place and cannot be individually replaced. The contact kit includes a stationary contact block assembly a set of movable contacts, a set of contact springs, and a set of spring retainers. The springs and retainers should always be replaced when new contacts are installed.

**Coil replacement** - To replace coil (item 11), disconnect electrical power and remove the wiring from the coil terminals. Remove the coil jumper connecting the two coils. Remove screws (14) holding the bottom plate (13). When the bottom plate is removed, the coils will drop freely. To replace oils, reverse the procedure. The bottom plate must engage the locating nibs on the base before the screws are installed.

**Adjustment instructions** - If the solenoid armature is removed, it should be adjusted when reassembled by screwing the armature (7) to within 19/64" of the magnet core and locked with slotted nut (9) to 20 inch-pounds torque.



Repair parts for Square D Class 8965  
Types R0-1, R0-4, and R0-10 contactors

Dwg. I.D.	Description	Qty.	Part No.
1-3-4-5	Contact kit	1	6489198-00
2	Contact block mtg. screw	2	6489218-00
6	Contact carrier	2	6489238-00
7-8-9	Armature assembly	2	6457238-04
10	Coil washer	2	6489278-00
14*	Bottom plate mtg. screw	2	#8-32 x 1/4"
12	Auxiliary contact N.O.	**	6446608-01
12	Auxiliary contact N.C.	**	6446608-02
11	Coil 24 volts	2	5030618-00
11	Coil 115 volts	2	5030628-00

\* Standard hardware item - obtain locally.

\*\* Optional accessory.

\*\*\*Replacement contact block has slipon type terminals.

If other parts are required, the complete contactor should be replaced.

**When Replacement Parts Are Needed, Order Only Yale® Factory Engineered Parts**



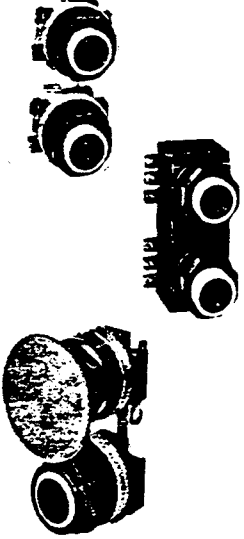








# Yale® Hoists

## PROCEDURE FOR REPLACING FURNAS CONTACTOR WITH SQUARE D CONTACTOR IN YALE KEL HOIST

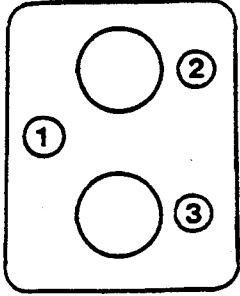
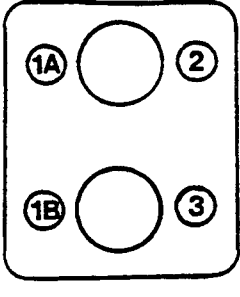
1. Remove all power from hoist. Remove hoist end cover.
2. Remove power leads, coil leads, and motor leads from both contactor and transformer. Be sure to identify these wires as they are disconnected.
3. Remove screws holding contactor and transformer to mounting plate. Discard furnas contactor, retain transformer and all hardware.
4. Remove and discard mounting plate, but retain hardware.
5. Observe gear case cover and locate two (2) angular bosses and one (1) round boss which the mounting plate had been bolted onto. These are the mounting lugs for the Square D contactor.
6. Below the contactor are four (4) round lugs arranged in a rectangular configuration. These are the mounting lugs for transformer.  
**NOTE:** The hardware we use is self tapping, therefore, the holes in the mounting lugs are not tapped for the screws. Do not allow the amount of pressure required to tighten the screws lead you to believe the screws are tight against the components you are mounting on the hoist.
7. After completion of mounting the contactor and transformer connect the wiring to the appropriate terminals and double check before applying power to the hoist.  
**NOTE:** The Square D contactor will not have any jumper wires as shipped from the parts depot. It is suggested you use the wires from the existing contactor. The numbering of the terminals on the contactors is identical so the jumper wires can be transferred directly from one contactor to the other.
8. After completing the wiring apply power to the hoist and perform a functional test of the hoist. If the hoist runs in the wrong direction, remove the power and switch any two of the three "L" leads.

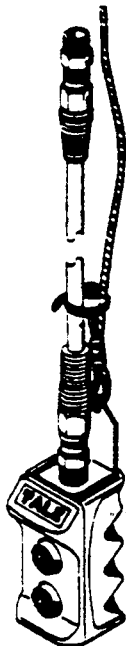
**When Replacement Parts Are Needed, Order Only Yale® Factory Engineered Parts**

	Complete Station	Two Button S / Speed	Up-Down Fwd- Rev	6471993-00 6471993-00	
		Two Button Two Speed	UP-DOWN FWD-REV	6469823-01 6469823-02	
		Special Push Button Station			
	Enclosure (Less) (Elements)	Two Button Four Button Six Button Eight Button Ten Button		6452753-02 6452753-04 6452753-06 6452753-08 6452753-10	
	Elements	Single Speed		6452763-01	
		Two Speed		6452763-02	
		Five Speed		6452763-05	
		Maintained/ Momentary		6455953-00	
	Selector Switch	Two Position Three Position		6463493-00 6482733-00	
	Pilot Light	115 Volt Red		6455973-00	
	Potentiometer	1000 Ohm		64651821-41	
	Elements	Single Button		6456263-00	
	Off/On Element	Locking Non-Locking		6455963-00 6448821-21	
	Closing Plate			6452883-00	

# Yale® Hoists

THESE NAME PLATES ARE  
APPLICABLE TO P/B STATION  
SHOWN IN SECTION 2740 ONLY

NAME PLATES	Component Number	Markings				
		1	1A	1b	2	3
	6452803-01	Hoist			Up	Down
	6452803-02	Trolley			East	West
	6452803-03	Trolley			Forward	Reverse
	6452803-04	Trolley			North	South
	6452803-05	Bridge			Forward	Reverse
	6452803-06	Bridge			East	West
	6452803-07	Bridge			North	South
	6452803-08				Start	Stop
	6452803-09				Reset	Stop
	6452803-10					
	6452803-11				Forward	Reverse
	6452803-12				North	South
	6452803-13				East	West
	6452803-14				In	Out
	6452803-15				Left	Right
	6452803-16	Crane			Forward	Reverse
	6452803-17				Off	On
	6452803-18				On	Off
	6452803-19				Stop	Start
	6452803-20				Stop	Reset
	6452803-21			Inch		Run
	6452803-22			Slow		Fast



COMPLETE PENDANT WITH  
CORD AND FITTINGS

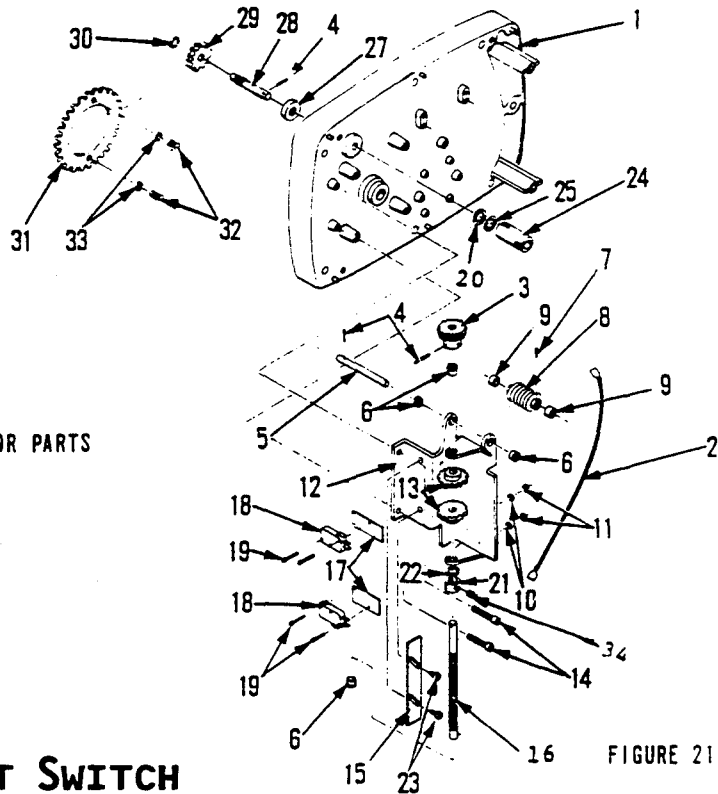
TWO BUTTON	1 SPEED 2 SPEED	6464970xx 6456650xx
4 BUTTON	1 SPEED	6475530xx

xx LENGTH IN FEET ONLY AVAILABLE IN  
07, 08, 09, 10, 12, 15, 16, 17,  
18, 22, 27, 47 ONLY

When Replacement Parts Are Needed, Order Only Yale® Factory Engineered Parts

# Yale® Hoists

## KEL SERIES LIMIT SWITCH (ADJUSTABLE UPPER AND LOWER)



SEE REVERSE SIDE FOR PARTS LISTING

FIGURE 21.

### ADJUSTMENT OF LIMIT SWITCH



**WARNING** EACH STEP OUTLINED BELOW MUST BE FOLLOWED FOR PROTECTION AGAINST ELECTRICAL SHOCK AND INJURY FROM MOVING COMPONENTS.

To adjust the limit switches, or to set them at other levels:

1. REMOVE ALL ELECTRICAL POWER FROM THE HOIST.
2. Loosen the four control cover screws and remove the control cover.
3. Loosen the locking bar from under the traveling cams and turn both cams until they meet at the center of the shaft.
4. Replace the locking bar under the traveling cams.
5. Replace the control cover and hand tighten the four control cover screws.
6. Apply electrical power to the hoist.
7. Run hoist to the desired lower limit.
8. Remove electrical power from the hoist and remove the control cover.
9. Swing locking bar from under the traveling cams.
10. Rotate the lower cam until it contacts the switch. Continue rotating until switch can be heard to trip.
11. Replace locking bar under traveling cams (Slight adjustment of traveling cams may be necessary).

**NOTE:** REQUIRES SPECIAL WIRING DIAGRAM.

**When Replacement Parts Are Needed, Order Only Yale® Factory Engineered Parts**

# Yale® Hoists

## KEL SERIES LIMIT SWITCH (ADJUSTABLE UPPER AND LOWER)

12. Replace control cover and hand tighten control cover screws.
13. Apply power and check lower limit switch operation. If minor adjustment is necessary, repeat steps 8 through 13, rotating cam one step at a time until proper adjustment is accomplished.
14. Repeat steps 7 through 13 to adjust the upper limit switch. (By substituting "upper" for "lower" in steps 7 & 10).

ITEM	PART NO.	DESCRIPTION	QTY.
1	6426056-00	GEAR CASE COVER	1
2	6451968-04	JUMPER (FOR LIMIT SWITCH ASSEMBLY)	1
3	6419231-00	HELICAL GEAR (STD.)	1
	6422491-00	HELICAL GEAR (LONG LIFT)	1
4	6401689-03	ROLL PIN	3
5	6451128-00	WORM SHAFT	1
6	6451648-00	BUSHING	4
7	0318061-00	ROLL PIN	1
8	6412921-00	WORM GEAR (STD.)	1
	6412931-00	WORM GEAR (LONG LIFT)	1
9	6451208-00	WORM SPACER	2
10	5000309-02	WASHER	4
11	0326435-00	NUT	4
12	6445134-00	BRACKET	1
13	6440883-00	TRAVELING CAMS	2
14	6401209-02	SCREW	2
15	6440833-00	LOCKING PLATE	1
16	6443383-00	SHAFT	1
17	6450008-00	INSULATOR	2
18	6455998-00	MICRO-SWITCH	2
19	5004169-07	SCREW	4
20	6439233-00	DECAL (NOT SHOWN)	1
21	6443403-00	RETAINING COLLAR AND SET SCREW	1
22	0236034-00	WASHER	1
23	6401209-07	SCREWS	2
24	6451188-00	COUPLING	1
25	6452168-00	RETAINING RING	1
26	0161037-00	WASHER	1
27	6453718-00	SEAL	1
28	6451278-00	PINION SHAFT	1
29	6436113-00	DRIVE PINION	1
30	0159144-00	RETAINING RING	1
31	6436093-00	DRIVE GEAR	1
32	6451658-00	BUTTON HEAD SCREW	2
33	0656193-00	LOCKWASHER	2
34	0333847-00	SET SCREW	1

**When Replacement Parts Are Needed, Order Only Yale® Factory Engineered Parts**

# Yale® Hoists

## KEL SERIES, 1/2 THROUGH 3 TON SUSPENSION PARTS

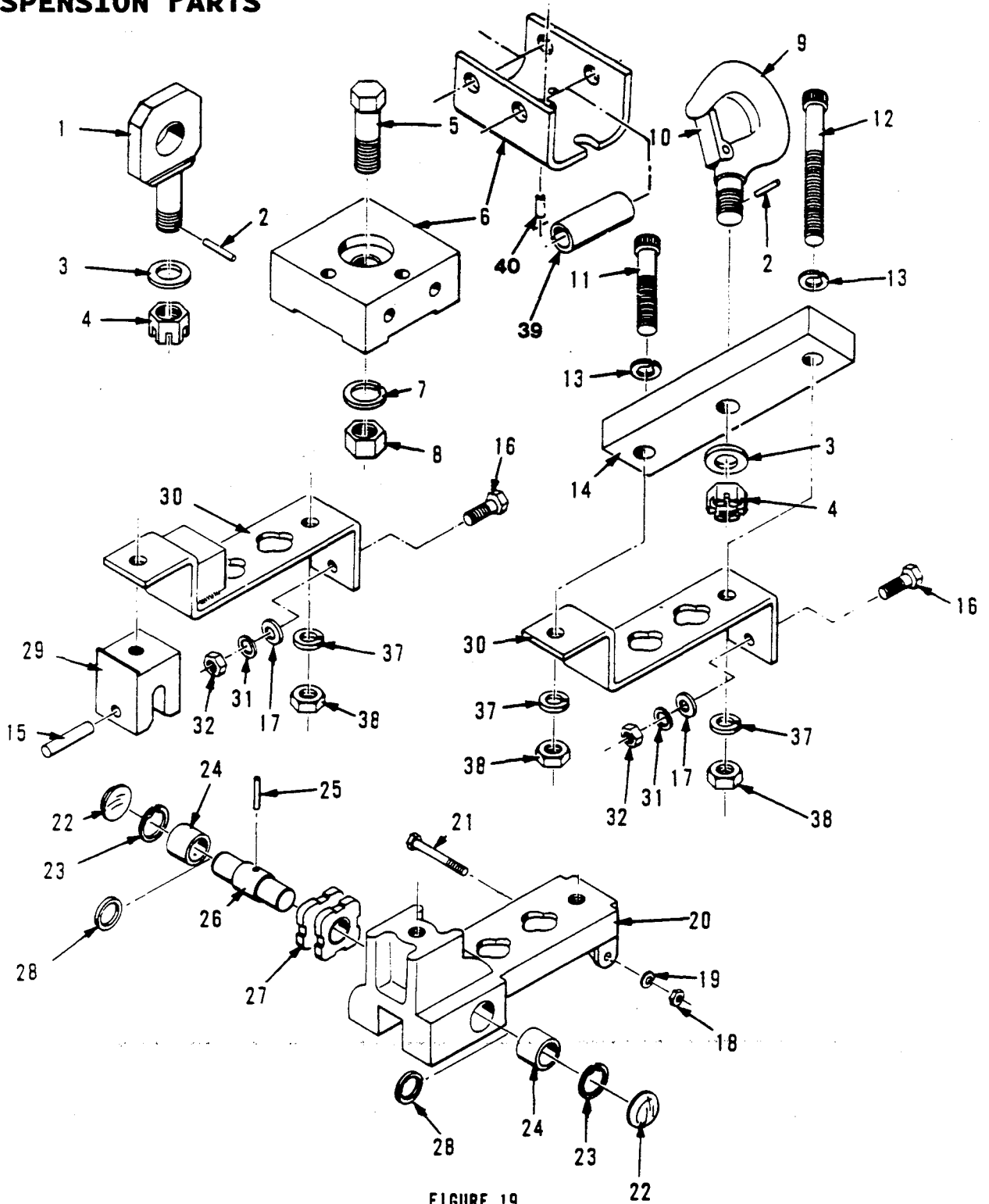


FIGURE 19.

**When Replacement Parts Are Needed, Order Only Yale® Factory Engineered Parts**

# Yale® Hoists

## KEL SERIES, 1/2 THROUGH 3 TON SUSPENSION PARTS

ITEM NO.	PART NO. 1/2 & 1 TON	PART NO. 2 TON	PART NO. 3 TON	DESCRIPTION	QTY.
1		6431333-03	6445774-00	CLEVIS	1
2	0559292-00	0559292-00	0230212-00	ROLL PIN	1
3	5002129-01	5002129-01	0644883-00	THRUST WASHER	1
4	6443458-00	6443458-00	6401379-04	SLOTTED NUT	1
5	2030912-00	2030912-00	6436913-00	HEX HEAD BOLT	1
	150/160 FT. LBS.	150/160 FT. LBS.	190/200 FT. LBS.		
6	6458713-00	6458713-00	6445764-00	TROLLEY ADAPTER	
7	2031397-00	2031397-00	0150298-00	LOCKWASHER	1
8	5020979-04	5020979-04	0213616-00	HEX NUT	1
9	6465830-00	6465840-00	6483620-00	TOP HOOK W/LATCH	1
10	0669402-00	0669404-00	0669406-00	LATCH KIT	1
11	0655900-00	0655900-00	0655971-00	SOCKET HEAD SCREW (40 TO 50 FT/LBS TORQUE)	1
12	6401299-01	6401299-01	0655976-00	SOCKET HEAD SCREW (40 TO 50 FT/LBS TORQUE)	1
13	0150326-00	0150326-00	0150268-00	LOCKWASHER	1
14	6447992-00	6410552-00	6410522-00	HOOK SUSP. KIT N/R (INCLUDE ITEMS 2,3,4,9)	2
	6410582-00	6410572-00	6410532-00	CLEVIS SUSP. KIT N/R (INCLUDES ITEM 1 THROUGH 4)	1
	6435384-00	6435972-00	6445744-00	TOP CROSSHEAD	1
15		6429353-00		ANCHOR PIN	1
16	0623067-00	0623067-00		HEX HEAD BOLT	1
17	0161037-00	0161037-00		WASHER	1
18			5004429-01	HEX NUT	1
19			0150290-00	LOCKWASHER	1
20			6426426-00	BOTTOM CROSSHEAD	1
21			0655803-00	HEX BOLT	1
22			6451748-00	EXPANSION CAP	1
23			5019089-01	RETAINING RING	2
24			6451768-00	ROLLER BEARING	2
25			0329593-00	ROLL PIN	2
26			6451738-00	POCKET WHEEL AXLE	1
27			6451728-00	POCKET WHEEL	1
28			6451908-00	WASHER	1
29		6435793-00		ANCHOR	2
30	6438874-00	6444494-00		BOTTOM CROSSHEAD	1
31	0150262-00	0150262-00		LOCKWASHER	1
32	0149366-00	0149366-00		HEX NUT	1
34			6491450-00	BEARING & CAP ASSEMBLY (INCLUDES ITEM 22,23,24 & 28)	1
35			6491460-00	POCKET WHEEL & PIN ASM. (INCLUDES ITEM 25,26,27, & 34)	1
36			6491090-00	CROSSHEAD KIT (INCLUDES ITEM 18 THROUGH 28)	1
37	0621533-00	0621533-00		LOCKWASHER	2**
38	5023829-02	5023829-02		1/2 - 13 HEX NUT (40 TO 50 FT./LBS TORQUE)	2**

\* One half ton Part Number 6431333-02, one ton Part Number 6431333-02.

\*\* One (1) each On two Ton.

\*\*\* (Non-Rotating) sold in kits only.

**When Replacement Parts Are Needed, Order Only Yale® Factory Engineered Parts**

# Yale® Hoists

## KEL SERIES PLAIN TROLLEY ASSEMBLY 1/2, 1 AND 2 TON WITH PRESSED STEEL WHEELS

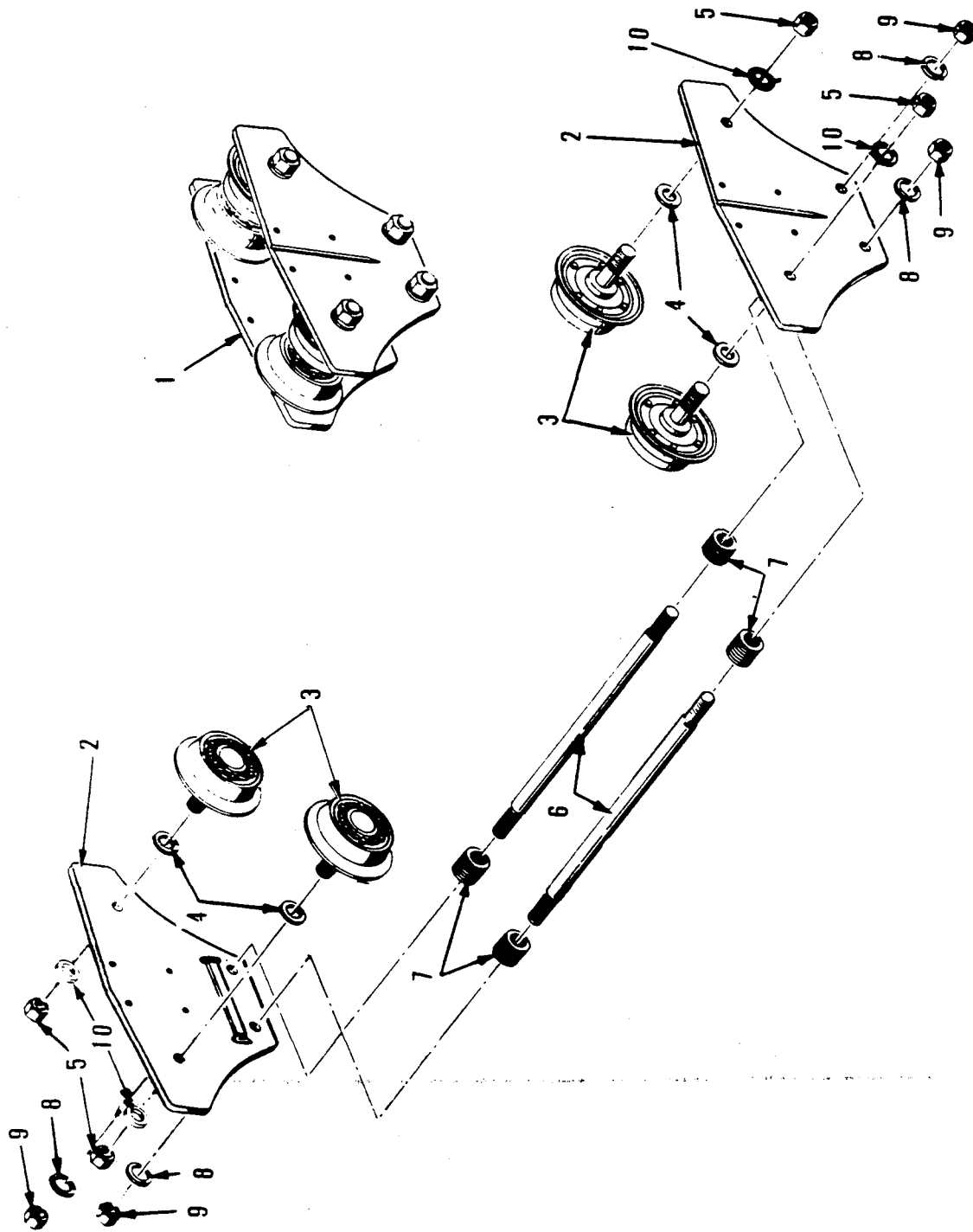


FIGURE 21.

**When Replacement Parts Are Needed, Order Only Yale® Factory Engineered Parts**



# Yale® Hoists

## KEL SERIES 1/2 AND 1 TON PLAIN TROLLEY ASSEMBLY WITH PRESSED STEEL WHEELS FOR 5 TO 12 INCH STANDARD I-BEAM

ITEM NUMBER	PART NUMBER	DESCRIPTION	QTY.
1	6477960-00	TROLLEY ASSEMBLY (CONSISTS OF ITEMS 2 THROUGH 10)	1
2	0112320-00	TROLLEY SIDE PLATES	2
3	0249628-00	TRACK WHEELS	4
4	5006371-00	SPACER	4
5	0149375-00	HEX NUT	4
6	0101024-00	DOUBLE END STUDS	2
7*	0114200-00	ADJUSTING WASHERS	40
8	0150268-00	LOCKWASHER	4
9	0149374-00	HEX NUT	4
10	0150270-00	LOCKWASHER	4

## KEL SERIES 2 TON PLAIN TROLLEY ASSEMBLY WITH PRESSED STEEL WHEELS FOR 6 TO 18 INCH STANDARD I-BEAMS

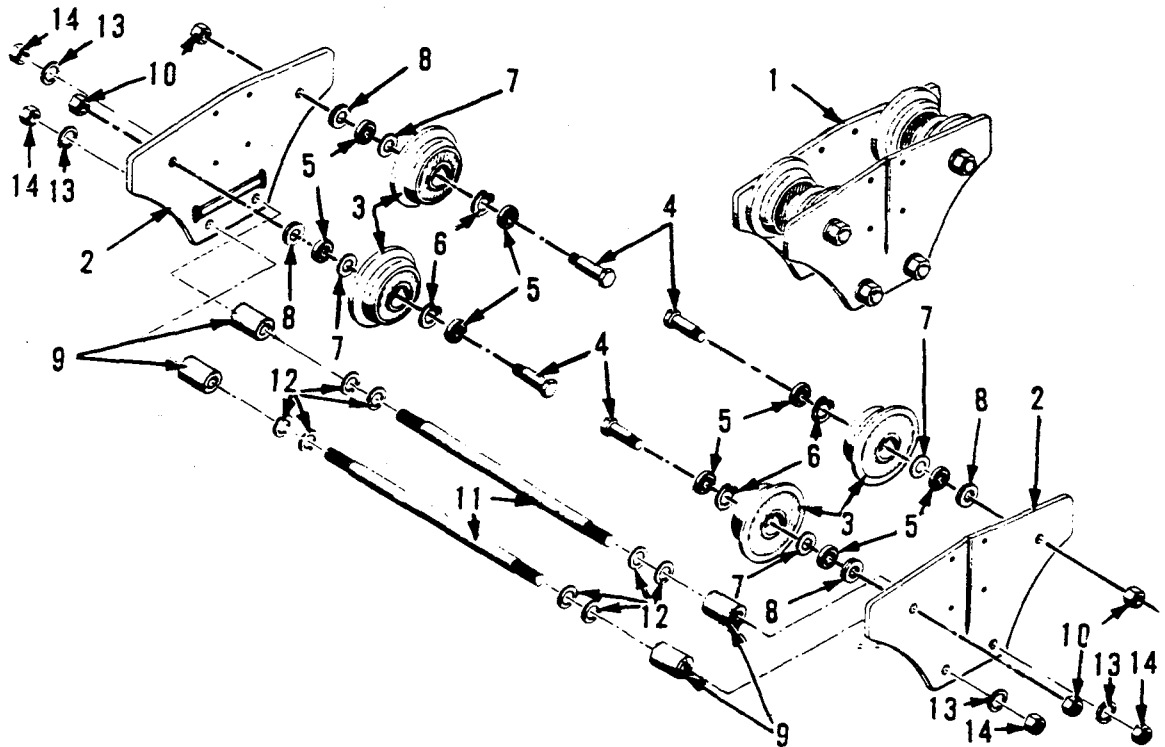
ITEM NUMBER	PART NUMBER	DESCRIPTION	QTY.
1	6477970-00	TROLLEY ASSEMBLY (CONSISTS OF ITEMS 2 THROUGH 10)	1
2	0595378-00	TROLLEY SIDE PLATE	2
3	6457073-01	TRACK WHEEL	4
4	0236018-00	WHEEL SPACER	8
5	0149375-00	HEX NUT	4
6	0101020-00	DOUBLE END STUD	2
7*	0114200-00	ADJUSTING WASHERS	60
8	0150268-00	LOCKWASHERS	4
9	0149374-00	HEX NUT	4
10	0150270-00	LOCKWASHER	4

\* For spacing of adjusting washers, see page 8.

**When Replacement Parts Are Needed, Order Only Yale® Factory Engineered Parts**

# Yale® Hoists

## KEL SERIES 3 TON PLAIN TROLLEY ASSEMBLY FOR 6 TO 24 INCH STANDARD I-BEAM



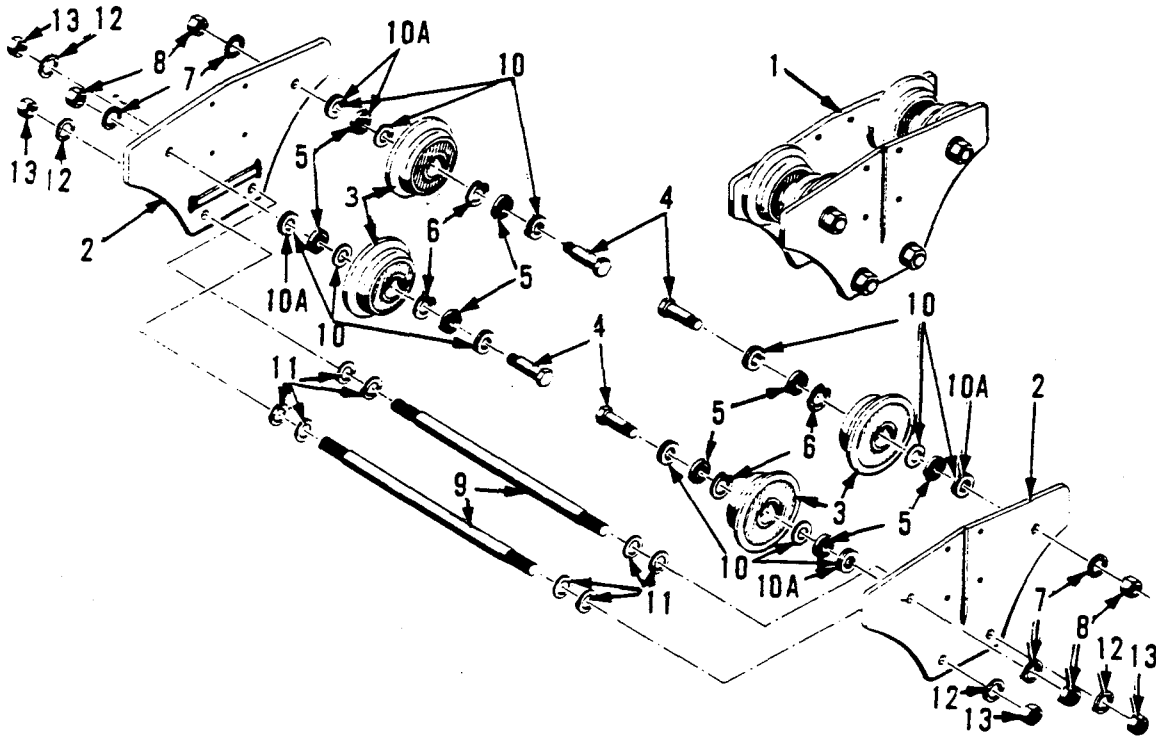
ITEM NUMBER	PART NUMBER	DESCRIPTION	QTY.
1	6490870-00	PLAIN TROLLEY ASM. (INC. ITEMS 2 THRU 14)	1
2	0664025-00	SIDE PLATE	2
3	6412133-00	WHEEL	4
4	0664038-00	WHEEL AXLE	4
5	0664037-00	BEARING ASM.	8
6	6447913-06	BEARING SPACER	8
7	5024531-00	BEARING SHIM	8
8	0664039-00	SPACER	4
9	0629893-00	SPACER	4
10	0213606-00	STOVER NUT	4
11	0101055-00	STUD	2
12*	0114197-00	ADJUSTING WASHER	24
13	0150297-00	LOCKWASHER	4
14	0149716-00	HEX NUT	4

\* For Spacing of Adjusting Washers See Page 8.

**When Replacement Parts Are Needed, Order Only Yale® Factory Engineered Parts**

# Yale® Hoists

## KEL SERIES (FOR 4 INCH I-BEAMS) SPECIAL TROLLEY ASSEMBLY



ITEM NUMBER	1/2 TON PART NO.	1 & 2 TON PART NO.	DESCRIPTION	QTY.
1	6477980-00	6478040-00	TROLLEY ASSEMBLY (CONSISTS OF ITEMS 2 THROUGH 13)	1
2	0112381-00	5035954-00	TROLLEY SIDEPLATES	2
3	0112725-00	5029871-00	TRACK WHEELS	4
4	0250610-00	5029881-00	WHEEL AXLE	4
5	0100861-00	5003539-07	BEARING	8
6	0645705-00	6400469-04	SNAP RING	4
7	0150370-00		SHAKEPROOF WASHER	4
8	0149713-00	0150158-00	AXLE NUT	4
9	0101018-00	0101015-00	DOUBLE END STUDS	2
10	6459738-00		SPACER	20
10A		0161158-00	SPACER	24
11	0114200-00		ADJUSTING WASHER	8
	0114200-00		ADJUSTING WASHER	12
12	0150268-00	0150370-00	LOCKWASHER	4
13	0149374-00	0149374-00	HEX NUT	4

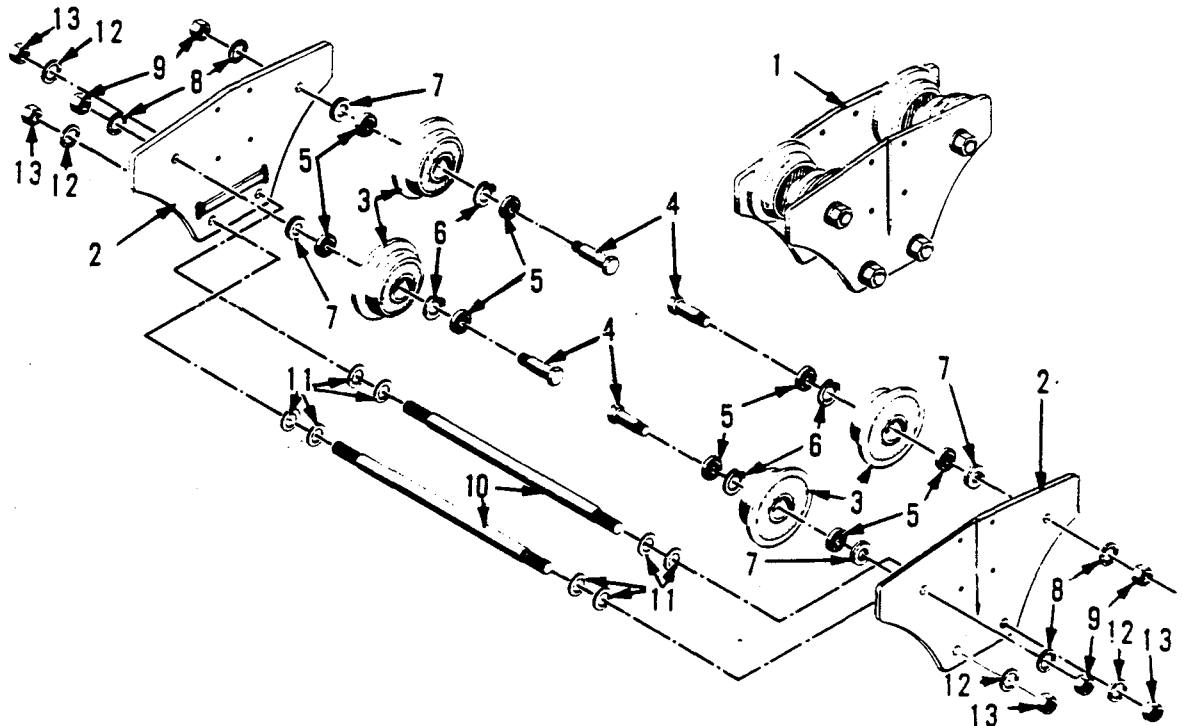
**When Replacement Parts Are Needed, Order Only Yale® Factory Engineered Parts**

# Yale® Hoists

**KEL SERIES** (For Patented Track - 2 In., 3 1/4 In. & 4 1/16 In.)

Flange - 5/8 Max. Thickness)

## TROLLEY ASSEMBLY



ITEM NO.	1/2 & 1 TON 2 IN. TRACK	2 TON 2 IN. TRACK	1/2 & 2 TON 3 1/4 IN. TRACK	DESCRIPTION	QTY.
1	6490900-00	6490910-00	6478000-00	ASSEMBLY	1
2	0112320-00	0112320-00	0112320-00	SIDEPLATE	2
3	0112738-00	0112738-00	5000473-00	WHEEL	4
4	0112519-00	0112519-00	0660518-00	WHEEL AXLE	4
5	5003539-02	5003539-02	5003539-02	BEARING	8
6	0645708-00	0645708-00		SNAP RING	4
7			0114221-00	SPACER WASHER (Between Wheel & Sideplate)	4
8	0150371-00	0150371-00		LOCKWASHER FOR WHEEL	4
9	0149714-00	0149714-00	0150160-00	LOCK NUT	4
10	0101018-00	0101018-00	0101017-00	DOUBLE END STUD	2
11		0114200-00	0114200-00	ADJUSTING WASHER	38
12	0214111-00	0214111-00	0214111-00	LOCKWASHER (Double End Stud)	4
13	0149374-00	0149374-00	0149374-00	HEX NUT	4
14	6494681-00	6494681-00	6494681-00	WASHER	8

\*\* As Required.

**When Replacement Parts Are Needed, Order Only Yale® Factory Engineered Parts**

# Yale® Hoists

## KEL SERIES 3 TON TROLLEY ASSEMBLY (Patented Track - 3 1/4 & 4 1/16 Flange - 5/8 Max. Thickness)

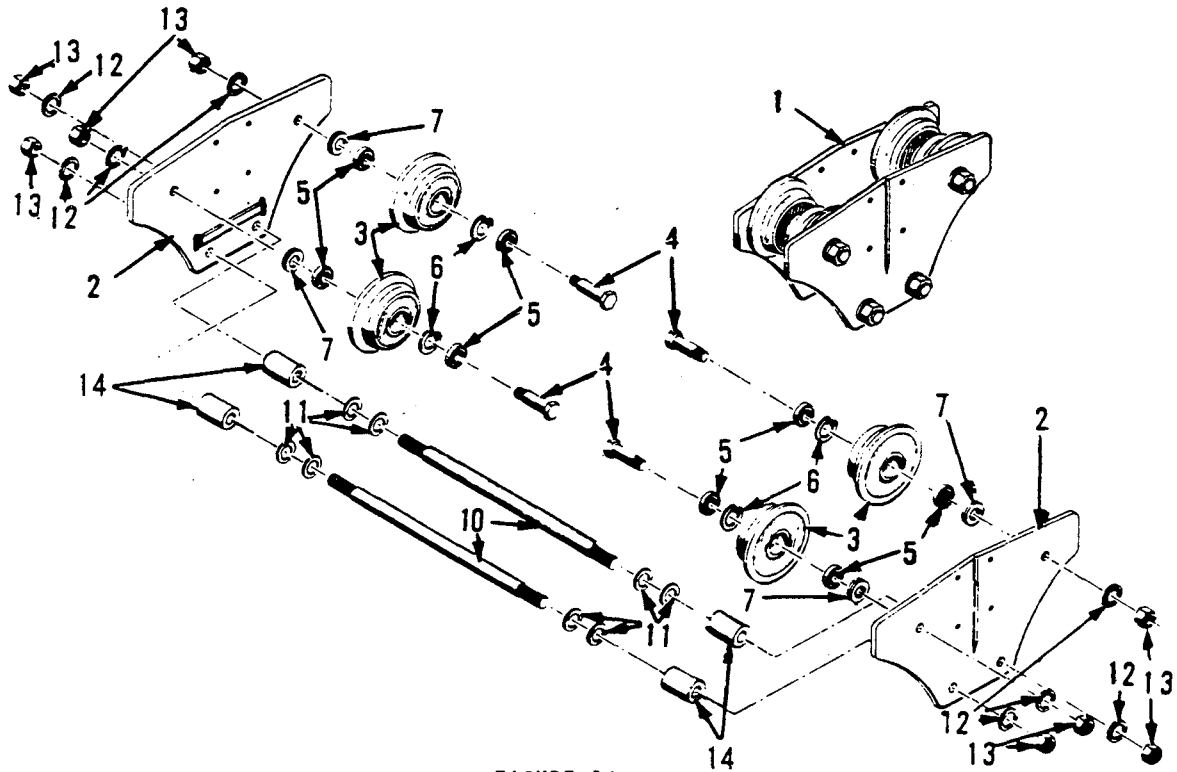


FIGURE 24

ITEM NBR.	3 TON PART NO.	DESCRIPTION	QTY.
1	5024080-00	TROLLEY ASSEMBLY	1
2	0664025-00	SIDE PLATE	2
3	6465981-00	WHEEL	4
4	0664038-00	WHEEL AXLE	4
5	0664037-00	BEARING	8
6	6447913-06	SPACER	8
7	5005201-00	SPACER WASHER (Between Wheel & Sideplate)	4
10	0101053-00	DOUBLE END STUD	2
11	0114197-00	ADJUSTING WASHER	4
12	0150297-00	LOCKWASHER	8
13	0149716-00	HEX NUT	8
14	5000239-23	SPACER FOR END STUD	4
15	5024531-00	SHIM	8

When Replacement Parts Are Needed, Order Only Yale® Factory Engineered Parts



## KEL SERIES, TROLLEY ASSEMBLY 1/2-, 1-, & 2-TON PATENTED TRACK-LOAD BAR

### 2, 1 AND 2 TON PATENTED TRACK-LOAD BAR

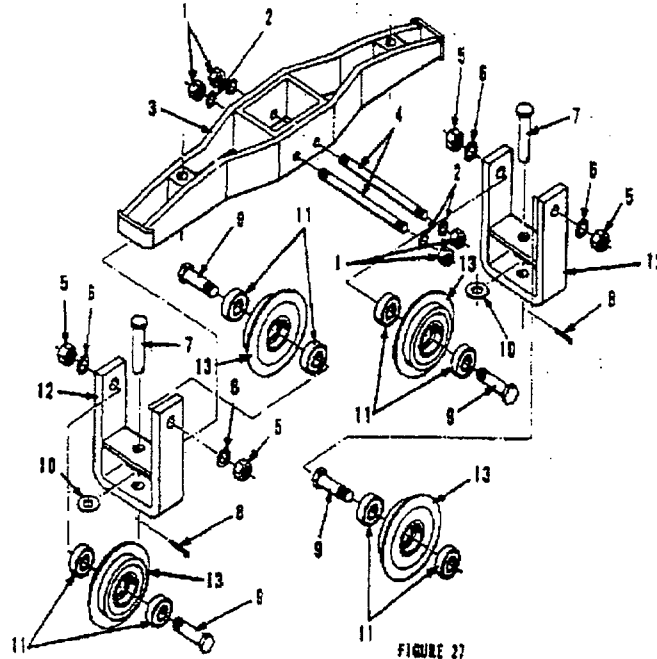


FIGURE 27

649089000 Trolley Assembly 1/2 - 1 Ton 2" track  
 649092000 Trolley Assembly 1/2 - 1 Ton 3 1/4" Track  
 649335000 Trolley Assembly 2 Ton 2" track  
 066415000 Trolley Assembly 2 Ton 3 1/4" Track

ITEM NO.	2" Pat. Track No.	3 1/4" Pat. Track No.	Description	Qty.
1	0149374-00	0149374-00	Hex nut	4
2	0150371-00	0150371-00	Lockwasher	4
3	0117144-00	0117144-00	Load bar	1
4	0101018-00	0101018-00	Double end stud	2
5	0149714-00	0149714-00	Jam nut	4
6	0150268-00	0150268-00	Lockwasher	4
7	0107065-00	0107065-00	Pin	2
8	0154216-00	0154216-00	Cotter pin	2
9	0112321-00	0112321-00	Axle Shaft 1/2 - 1 Ton	4
	0112519-00	0112519-00	Axle Shaft 2 Ton	
10	0114188-00	0114188-00	Washer	2
11	5003539-02	5003539-02	Bearing	8
12	0112507-00	0112426-00	Yoke	2
13	0112738-00	0112727-00	Trolley wheel	4
	0645708-00	0645708-00	Retaining ring for wheel (Not shown)	4
15	6494681-00	6494681-00	Washer	8
16	0612798-00	0612798-00	Washer	8

**When Replacement Parts Are Needed, Order Only YALE® Factory Engineered Parts**

HOIST SAFETY INSPECTION AND MAINTENANCE GUIDE

REVISED MARCH 2004

# Yale® Hoists

## KEL SERIES GEARED TROLLEY ASSEMBLY

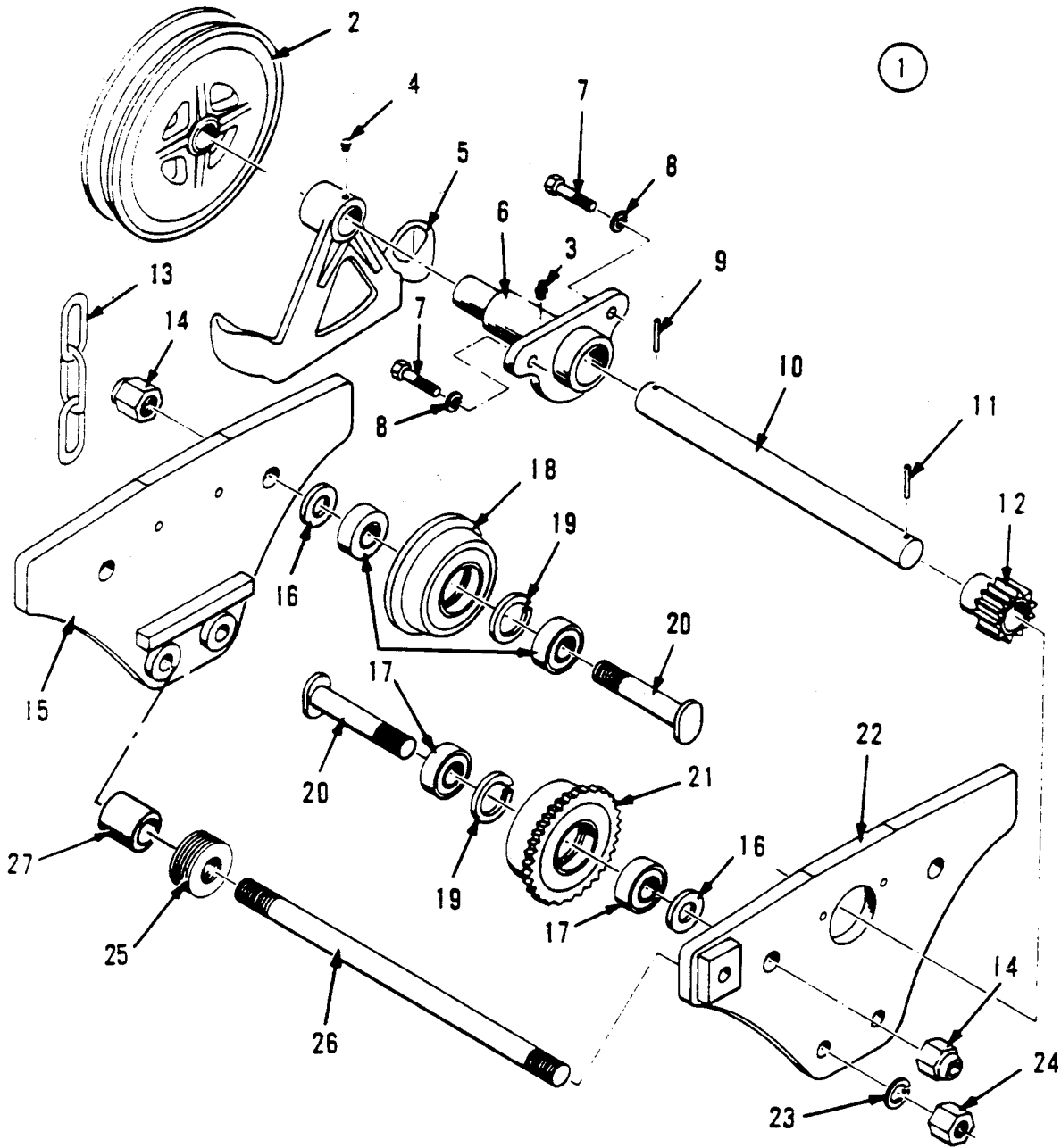


FIGURE 20.

**When Replacement Parts Are Needed, Order Only Yale® Factory Engineered Parts**

# Yale® Hoists

## KEL SERIES GEARED TROLLEY ASSEMBLY

5-12 IN.      6-12 IN.      6-24 IN.  
BEAM          BEAM          BEAM

ITEM NO.	1/2 & 1 TON PART NO.	2 TON PART NO.	3 TON PART NO.	DESCRIPTION	QTY.
1	6446530-00	6490860-00	6490880-00	GEARED TROLLEY ASSEMBLY (INCLUDES ITEMS 2 THRU 28)	1
2	0250218-00	0250218-00	0250218-00	HAND WHEEL	1
3	0227845-00	0227845-00	0227845-00	ALEMITE FITTING	1
4	0156287-00	0156287-00	0156287-00	ALEMITE FITTING	1
5	0603328-00	0603328-00	0603328-00	CHAIN GUIDE	1
6	0603329-00	0603329-00	0646611-00	EXTENSION BRACKET	1
7	0570482-00	0570482-00	0570482-00	HEX HEAD SCREW	2
8	0150264-00	0150264-00	0150264-00	LOCKWASHER	2
9	0230207-00	0230207-00	0230207-00	ROLL PIN	1
10	0603336-00	0603336-00	0646612-00	SHAFT	1
11	0250666-00	0250666-00	0250666-00	DRIVE-LOK PIN	1
12	0250202-00	0250202-00	0250202-00	PINION	1
13	0033730-00	0033730-00	0033730-00	HAND CHAIN (SPECIFY LENGTH)	1
14	0150160-00	0150158-00	X379004-00	NUT	4
15	6481724-00	6481634-00	6481654-00	TROLLEY SIDEPLATE, PLAIN	1
16	5006371-00	6445021-05	0664039-00	SPACER	4
17	5003539-02	5003539-07	0664037-00	BEARING	8
18	0249664-00	6412103-00	6412133-00	TROLLEY WHEEL, PLAIN	2
19	0645708-00	6400469-04	*	RETAINING RING	4
20	5024441-00	0650864-00	0664038-00	AXLE	4
21	0249666-00	6412113-00	6412143-00	TROLLEY WHEEL, GEARED	2
22	6481704-00	6481714-00	6481734-00	TROLLEY SIDEPLATE, GEARED	1
23	0150268-00	0150268-00	0150297-00	LOCKWASHER	4
24	0149713-00	0149374-00	0149716-00	HEX NUT	4
25	0114200-00	0114200-00	0114197-00	ADJUSTING WASHERS	**
26	0101016-00	0101020-00	0101055-00	DOUBLE END STUD	2
27			0629893-00	SPACER	4
28			5024531-00	BEARING SHIM (NOW SHOWN)	4
29	6494681-00			WASHER (NOT SHOWN)	8

\* 3 Ton units use spacers between the wheel bearings.  
8 Part No. 6247913-06 and 12 Part No. 5024531-00 required.

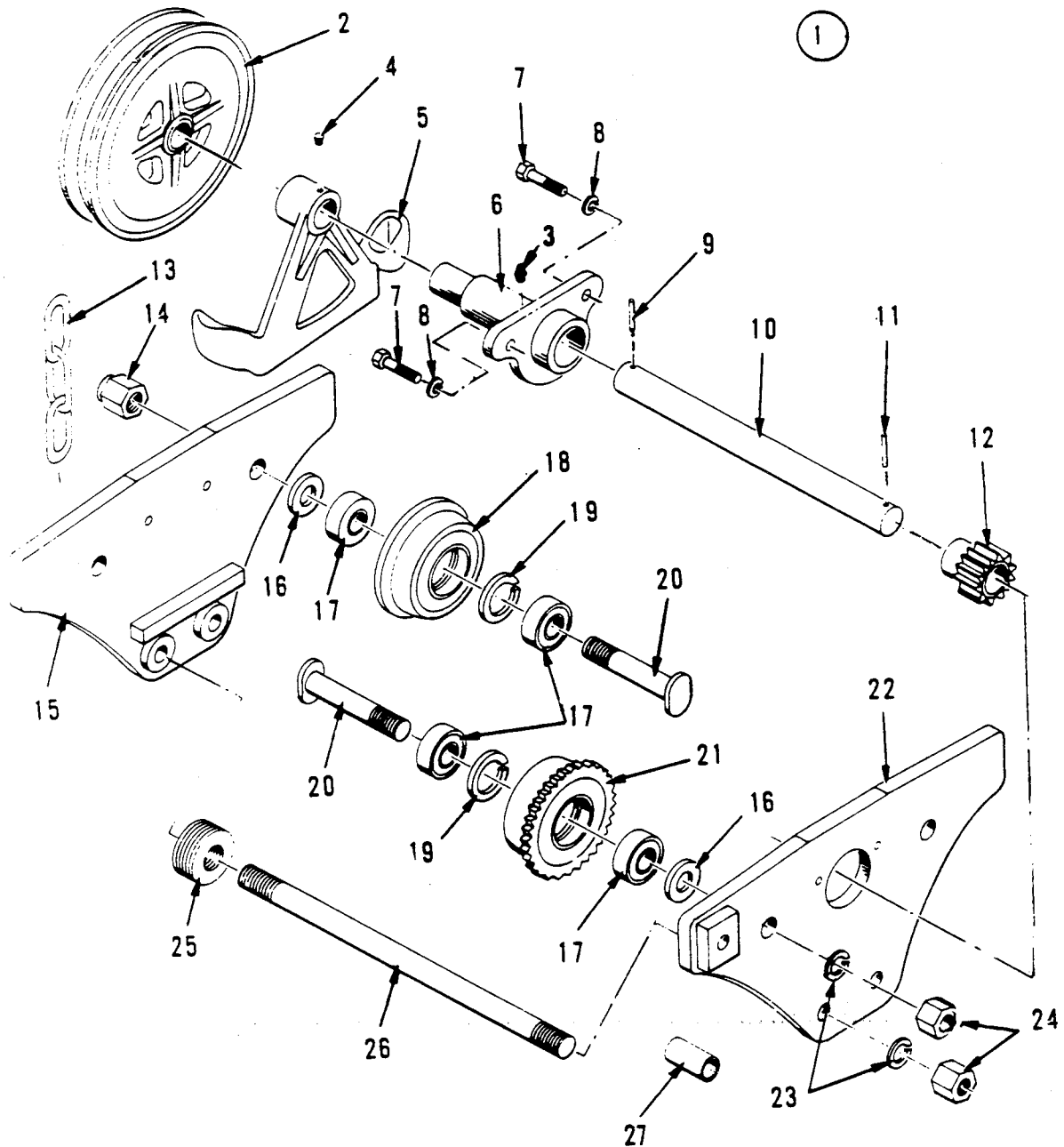
**When Replacement Parts Are Needed, Order Only Yale® Factory Engineered Parts**



# Yale® Hoists

## KEL SERIES GEARED TROLLEY ASSEMBLY

PATENTED TRACK - 3 1/4 & 4 1/16 FLANGE - 5/8 MAX. THICKNESS



When Replacement Parts Are Needed, Order Only Yale® Factory Engineered Parts

# Yale® Hoists

## KEL SERIES GEARED TROLLEY ASSEMBLY

PATENTED TRACK - 3 1/4 & 4 1/16 FLANGE - 5/8 MAX. THICKNESS

ITEM NO.	1/2, 1 & 2 TON PART NO.	3 TON PART NO.	DESCRIPTION	QTY.
1	6474570-00	5024390-00	GEARED TROLLEY ASSEMBLY (INCLUDES ITEMS 2 THROUGH 27)	1
2	0250218-00	0250218-00	HANDWHEEL	1
3	0227845-00	0227845-00	ALEMITE FITTING	1
4	0156287-00	0156287-00	ALEMITE FITTING	1
5	0603328-00	0603328-00	CHAIN GUIDE	1
6	0603329-00	0646611-00	EXTENSION BRACKET	1
7	0570482-00	0570482-00	HEX HEAD SCREW	2
8	0150264-00	0150264-00	LOCKWASHER	2
9	0230207-00	0230207-00	ROLL PIN	1
10	0603336-00	0646612-01	SHAFT	1
11	0250666-00	0250666-00	DRIVE-LOK PIN	1
12	0250202-00	0250202-00	PINION	1
13	0033730-00	0033730-00	HAND CHAIN (SPECIFY LENGTH)	1
14	0150158-00		STOVER NUT	4
15	6481634-00	6481654-00	TROLLEY SIDEPLATE, PLAIN	1
16	0114207-00	5005201-00	SPACER	4
17	5003539-07	0664037-00	BEARING	8
18	0650863-00	6465981-00	TROLLEY WHEEL, PLAIN	2
19	*	6447913-06	SPACER	8
20	0650864-00	0664038-00	AXLE	4
21	5011583-00	6465991-00	TROLLEY WHEEL, GEARED	2
22	6481714-00	6481734-00	TROLLEY SIDEPLATE, GEARED	1
23	0214111-00	0150297-00	LOCKWASHER	4***
24	0149374-00	0149716-00	HEX NUT	4***
25	0114200-00	0114197-00	ADJUSTING WASHERS	18**
26	0101017-00	0101053-00	DOUBLE END STUD	2
27		5000239-23	SPACER (DE,STUD)	4
28	0161158-00		WASHER	24
29		5024531-00		8

\* 1/2, 1 & 2 Ton Unit Uses a Retaining Ring Between The Wheel Bearings Part Number 6400469-04, 4 Required.

\*\* Four (4) On 3 Ton.

\*\*\* Eight (8) On 3 Ton.

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# Yale® Hoists

## MECHANICAL INSTALLATION

### Trolley To Beam

Place the nuts on one end of the suspension bolts. Arrange the sideplates, and spacers on the bolts according to Fig. 1 and Table 1 for the proper beam size. Assemble the Trolley on beam by sliding one sideplate out far enough to allow the wheel to clear the beam flange. Draw the sideplates together, assemble the additional spacers and nuts. Tighten nuts to 175 ft/lbs. torque.

TABLE 1

I-BEAM		NO. OF SPACERS			
SIZE	FLANGE	A	B	C	D
6"x12.5	3 3/8	9	3	4	8
6"x17.2	3 5/8	8	4	4	8
7"x15.3	3 5/8	8	4	4	8
7"x20.0	3 7/8	7	5	5	7
8"x18.4	4	7	5	6	6
8"x23.0	4 1/8	6	6	6	6
10"x25.4	4 5/8	5	7	8	4
10"x35.0	5	4	8	9	3
12"x31.8	5	4	8	9	3
12"x35.0	5 1/8	3	9	9	3
12"x40.8	5 1/4	3	9	10	2
12"x50.0	5 1/2	2	10	10	2
15"x42.9	5 1/2	2	10	10	2
15"x50.0	5 5/8	2	10	11	1
18"x54.7	6	0	12	12	0

**⚠ WARNING:** Deviation from washer adjustment recommendations could cause the trolley to fall from the beam. The trolley should be inspected periodically to assure its continued safe operation. The number of spacers indicated is nominally correct. However, due to variations in structural steel, it may be necessary to vary the number used.

THE DISTANCE BETWEEN TRACK WHEEL FLANGES SHOULD BE 1/8" TO 3/16" GREATER THAN THE WIDTH OF THE BEAM FLANGE FOR STRAIGHT RUNWAYS, AND 3/16" TO 1/4" GREATER FOR RUNWAYS THAT INCLUDE SHARP CURVES.

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When used on monorail with curves lightly lubricate edges of beam at curve section with grease.

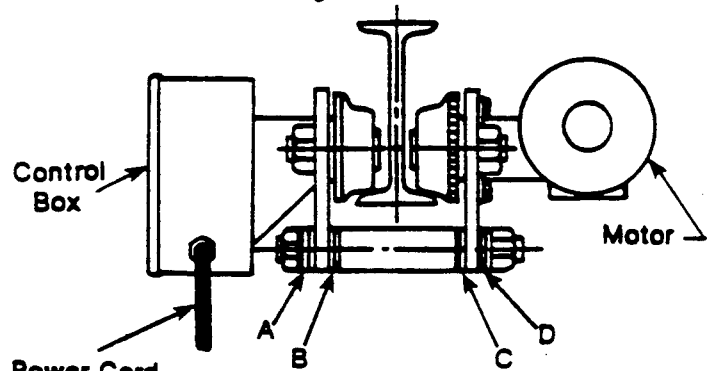


FIG. 1  
ELECTRICAL INSTALLATION

Be sure all power is disconnected before starting any electrical work.

### POWER CORD TO HOIST

A short length of power cord is installed in the trolley control box (Fig.1). Remove 4 inches of the outer jacket and strip each wire 3/8 inches. Insert the cord into the power cord entrance on the hoist. Connect the green wire to the ground lug and the line wires to the "L" terminals.

### ⚠ CAUTION:

Before connecting power to the trolley, be sure the power supply corresponds to the ratings of the trolley and of the hoist. If necessary, reconnect the trolley motor and transformer of dual voltage units according to the wiring diagram, using the terminals and jumpers provided in the field wiring kit.

A three phase motor can rotate in either direction depending on its connection to the power line. If the direction of hook travel of a three phase hoist does not match the push

# Yale® Hoists

button markings, interchange any two of the line wires at the terminal strip. **DO NOT** rewire the push button.

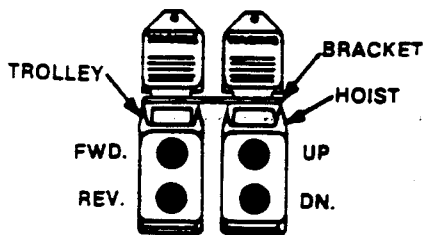
## PENDANT LENGTH CHANGE

If it is necessary to lengthen the pendant, the cord and strain relief cable must be replaced. The necessary parts can be obtained from your Yale dealer or service center. Use the old cord as a guide for cutting and installing the new cord. Be sure to observe the correct color code of the wires. The pendant cord must be slightly longer than the strain relief cable to prevent strain on the electrical wires and connections.

The pendant can be shortened simply by loosening the clamp on the strain relief cable at the control box, and shortening the strain relief cable. The pendant cord need not be shortened unless the extra slack in the cord causes interference with moving parts. If it is necessary to shorten the cord, be sure to observe the correct color code when reconnecting the wires.

## DUAL CONTROL STATION ASSEMBLY

If desired, the two button control stations furnished with the Trolley and Hoist can be joined into a single rigid unit, as shown in Fig. 2, using the bracket furnished with the Trolley.



PUSH BUTTON  
FIGURE 2

To install the bracket, loosen the clamping nut on cord fitting on hoist push button station. Unscrew the fitting from the station and slide it up the cord a few inches. Locate the bracket so that it will be locked in place by the suspension bracket. Replace the fitting in the station and tighten it on the cord.

## FOR TROLLEYS FURNISHED WITH 4 BUTTON STATIONS:

Cut the hoist push button cord 42 inches from the bottom of the hoist. Remove and discard the strain relief rope. Remove 4 inches of the outer jacket and strip each wire 3/8 inches. Install the cord in the trolley control box as shown in Figure 3. Connect the green wire to the ground lug, the red wire to terminal (15), the blue wire to terminal (H6) and the black wire to terminal (L). For two speed hoist only, connect the orange wire to terminal (28) and the blue wire to terminal (29).

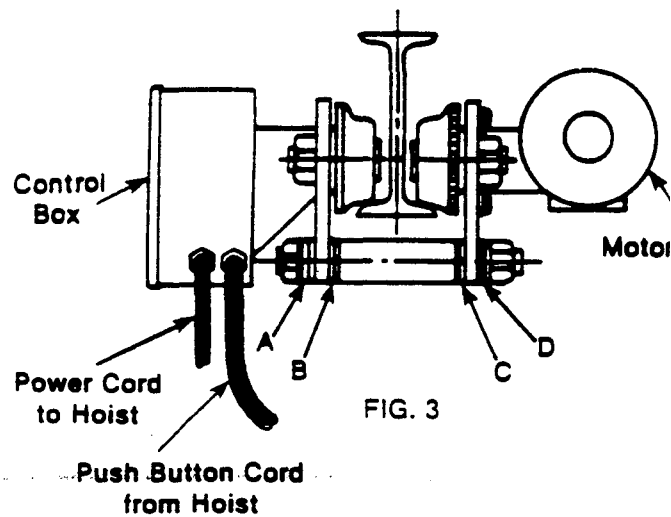


FIG. 3

**When Replacement Parts Are Needed, Order Only Yale® Factory Engineered Parts**

# Yale® Hoists

## OPERATING AND SAFETY PROCEDURES

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.

Rail stops must be installed for all trolleys operating on open end beams. These stops must be positioned to exert impact force on the trolley side frames only.

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.

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.

When applying a load, it should be directly under the trolley. Avoid off center loading of any kind.

Take up slack load chain carefully and start load easily 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.

Do not allow the load to swing or twist while hoisting.

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.

**When Replacement Parts Are Needed, Order Only Yale® Factory Engineered Parts**

Do not load trolley beyond the rated capacity. Overload can cause immediate failure of some load carrying part or create a defect causing future failure at less than rated capacity..

Do not use this or any other overhead materials handling equipment for lifting or transporting persons.

Stand clear of all loads and avoid moving a load over the heads of other personnel. Warn personnel of your intention to move a load in their area.

Do not leave the load suspended in the air unattended.

Do not wrap the load chain around the load and hook onto itself as a choker chain.

Permit only qualified personnel to operate unit.

## MAINTENANCE

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 schedule below.

# Yale® Hoists

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

All fasteners including track wheel axle nuts, and suspension bolt nuts.

Contactors and control station for burnt or pitted contacts and loose or corroded terminals.

Cable and leads for broken wires, loose or corroded terminals, also damaged insulation.

Terminal board for loose or corroded connections.

Track wheels for wear of tread and flange and for bearing wear indicated by excessive looseness of wheel on axle.

Trackwheel gear and pinion for wear.

Collector or power supply system for damage, wear, corrosion and proper operation.

Once a month lubricate trackwheel gear and pinion with Texaco Novatex No. 2 or an equivalent heavy cup grease or graphite grease.

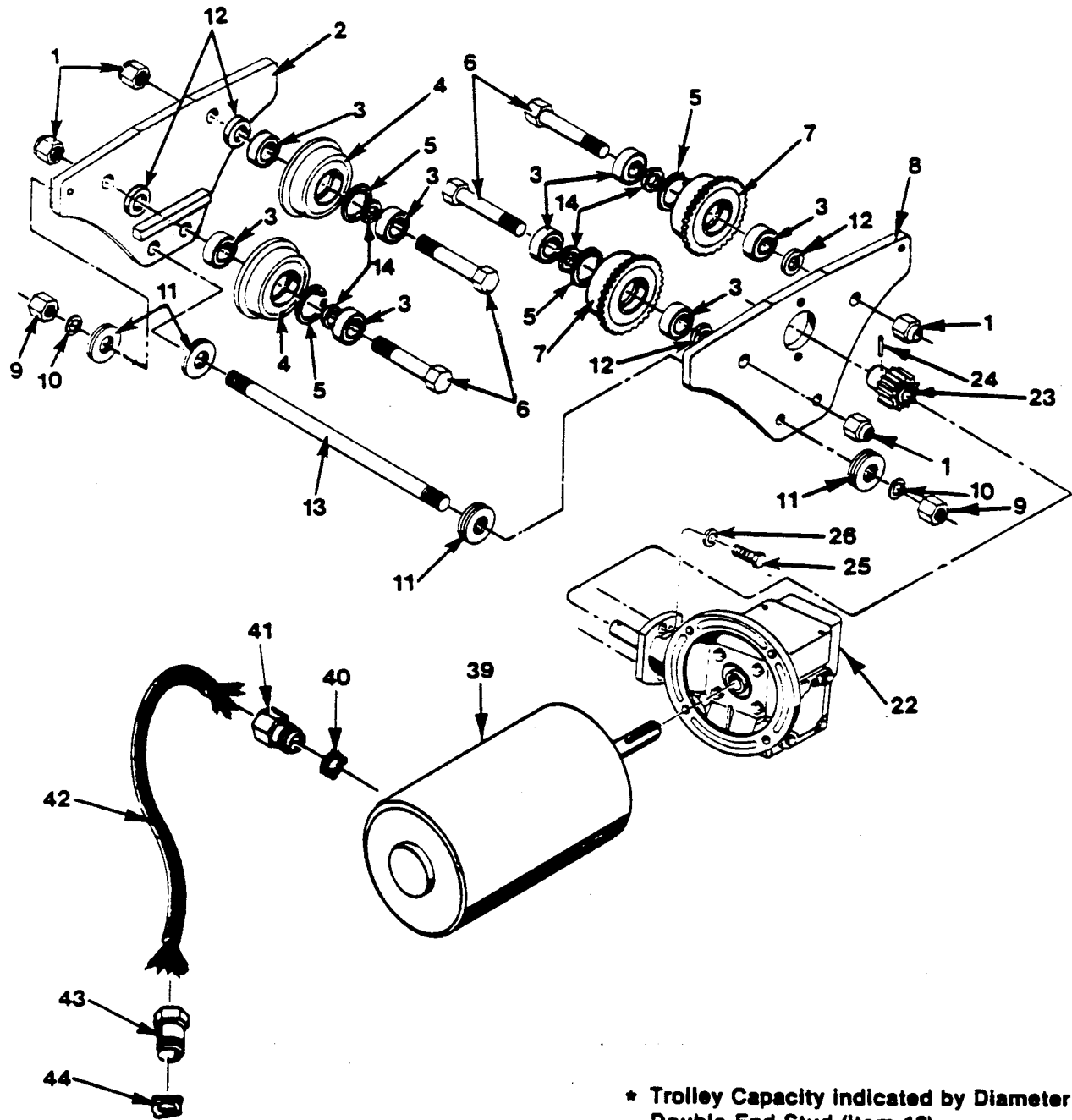
Motor gear box oil must be changed after first 100 hours of operation, then every six months or 2500 hours of normal service, whichever comes first. Use 1/2 pint of Omala Oil Grade 37 (product of Shell Oil Co.) for each oil change.

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

**When Replacement Parts Are Needed, Order Only Yale® Factory Engineered Parts**

# Yale® Hoists

## RT SERIES 1/2 THROUGH 2 TON TROLLEY ASSEMBLY



\* Trolley Capacity indicated by Diameter of Double End Stud (Item 13).

When Replacement Parts Are Needed, Order Only Yale® Factory Engineered Parts

# Yale® Hoists

## RT 1/2 THROUGH 2 TON (6-15 Inch I-Beam) TROLLEY ASSEMBLY

ITEM NBR.	AMERICAN STANDARD 6-15" I-BEAM	PATENTED TRACK	DESCRIPTION	QTY.
	6465932-00	6467752-00	TROLLEY ASSEMBLY (INCL ITEMS 1 THRU 14)	1
1	0150158-00	0150158-00	NUT	4
2	6481634-00	6481634-00	SIDEPLATE, PLAIN	1
3	5003539-07	5003539-07	BEARING	8
4	6412103-00	0650863-00	WHEEL, PLAIN	2
5	6400469-04	6400469-04	RETAINING RING	4
6	0650864-00	0650864-00	AXLE, WHEEL	4
7	6412113-00	5011583-00	WHEEL, GEARED	2
8	6481644-00	6481634-00	SIDEPLATE, GEARED	1
9	0149374-00	0149374-00	HEX NUT	4
10	0150268-00	0150268-00	LOCKWASHER	4
11	0114200-00	0114200-00	ADJUSTMENT WASHERS	48/20
12	6445021-05	0114207-00	WASHER	4
13	0101020-00	0101024-00	DOUBLE END STUD (5/8 IN.)	2
14	0161158-00	0161158-00	WASHER	16/24
22	SEE TABLE	SEE TABLE	GEAR CASE	1
	6467002-00		RT MTG KT INCL ITEMS 23,24,25 & 26	
23	6462883-00	6462883-00	PINION	1
24	6462973-01	6462973-01	GROOVE PIN	1
25	0554856-00	0554856-00	BOLT	2
26	0150266-00	0150266-00	LOCK WASHER	2
39	*	*	MOTOR ASSEMBLY	1
40	0103739-00	0103739-00	LOCK NUT	1
41	6401569-10	6401569-10	WATER TIGHT CONNECTOR	1
42	6431261-81	6431261-81	POWER CORD	7 FT
43	6401569-18	6401569-18	WATER TIGHT CONNECTOR	1
44	0103740-00	0103740-00	LOCKNUT	1

\* When Ordering Motors Give Complete Data On Motor Nameplate.

### GEAR TABLE

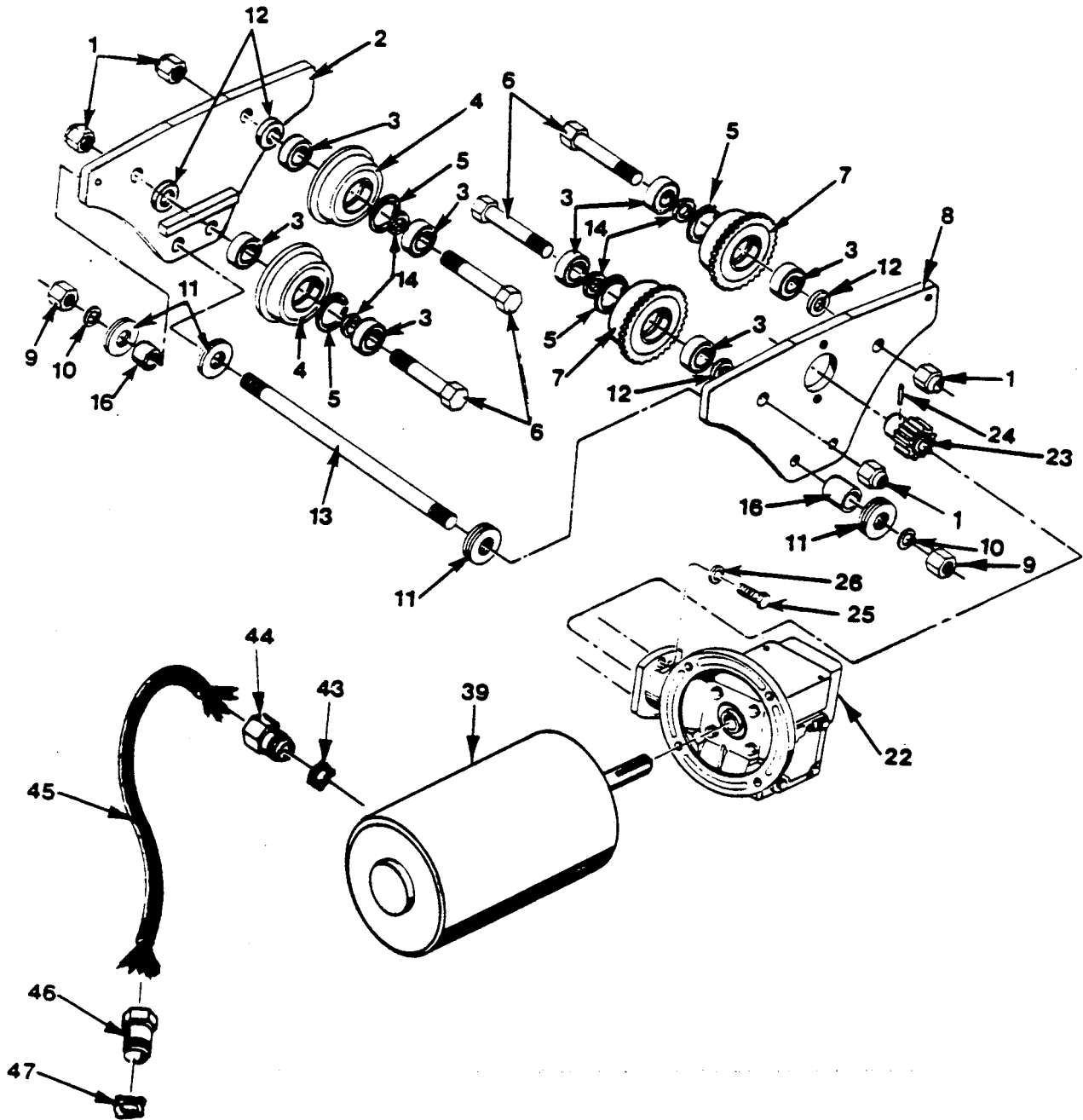
TRAVEL SPEED (FT/MIN)	GEAR CASE	RATIO
15	6462923-30	30:1
30	6462923-15	15:1
45	6462923-10	10:1
90	6462923-05	5:1

When Replacement Parts Are Needed, Order Only Yale® Factory Engineered Parts



# Yale® Hoists

## RT SERIES 3 TON TROLLEY ASSEMBLY



\* Trolley Capacity Indicated by Diameter of Double End Stud (Item 13).

When Replacement Parts Are Needed, Order Only Yale® Factory Engineered Parts

# Yale® Hoists

## RT 3 Ton (8-24 INCH I-BEAM) TROLLEY ASSEMBLY

ITEM NBR.	AMERICAN STD. 8-25" I-BEAM	PATENTED TRK. 3 1/4 & 4 1/16 FLG.	DESCRIPTION	QTY.
	6467762-00	6467772-00	TROLLEY ASSEMBLY (INCL. ITEMS 2 THRU 16)	1
1	0213606-00	0149716-00	NUT	4
2	6481654-00	6481654-00	SIDE PLATE, PLAIN	1
3	0664037-00	0664037-00	BEARING ASSEMBLY	8
4	6412133-00	6465981-00	WHEEL, PLAIN	2
5	5024531-00	5024531-00	SHIM	4
6	0664038-00	0664038-00	AXLE, WHEEL	4
7	6412143-00	6465991-00	WHEEL, GEARED	2
8	6481664-00	6481664-00	SIDE PLATE, GEARED	1
9	0149716-00	0149716-00	HEX NUT	4
10	0150297-00	0150297-00	LOCKWASHER	4
11	0114197-00	0114197-00	ADJUSTMENT WASHERS	24/4
12	0664039-00	5005201-00	WHEEL SPACER	4
13	6449073-00	0101053-00	DOUBLE END STUD (1 IN.)	2
14	6447913-06	6447913-06	BEARING SPACER	8/8
16	0629893-00	5000239-23	SPACER	4
22	SEE TABLE 6467002-00	SEE TABLE	GEAR CASE RT MTG. KIT (INC. ITEMS 23,24,25 & 26)	1
23	6462883-00	6462883-00	PINION	1
24	6462973-01	6462973-01	GROOVE PIN	1
25	0554856-00	0554856-00	BOLT	2
26	0150266-00	0150266-00	LOCK WASHER	2
39	*	*	MOTOR	1
43	0103739-00	0103739-00	LOCKNUT	1
44	6401569-10	6401569-10	WATERTIGHT CONNECTOR	1
45	6431261-81	6431261-81	POWER CORD	7 FT.
46	6401569-18	6401569-18	WATERTIGHT CONNECTOR	1
47	0103740-00	0103740-00	LOCKNUT	1

\* When Ordering Motors Give Complete Data On Motor Nameplate.

GEAR TABLE

TRAVEL SPEED (FT/MIN)	GEAR CASE	RATIO
15	6462923-30	30:1
30	6462923-15	15:1
45	6462923-10	10:1
90	6462923-05	5:1

When Replacement Parts Are Needed, Order Only Yale® Factory Engineered Parts

# Yale® Hoists

## KEL SERIES 1/2 THROUGH 2 TON ST TROLLEY ASSEMBLY

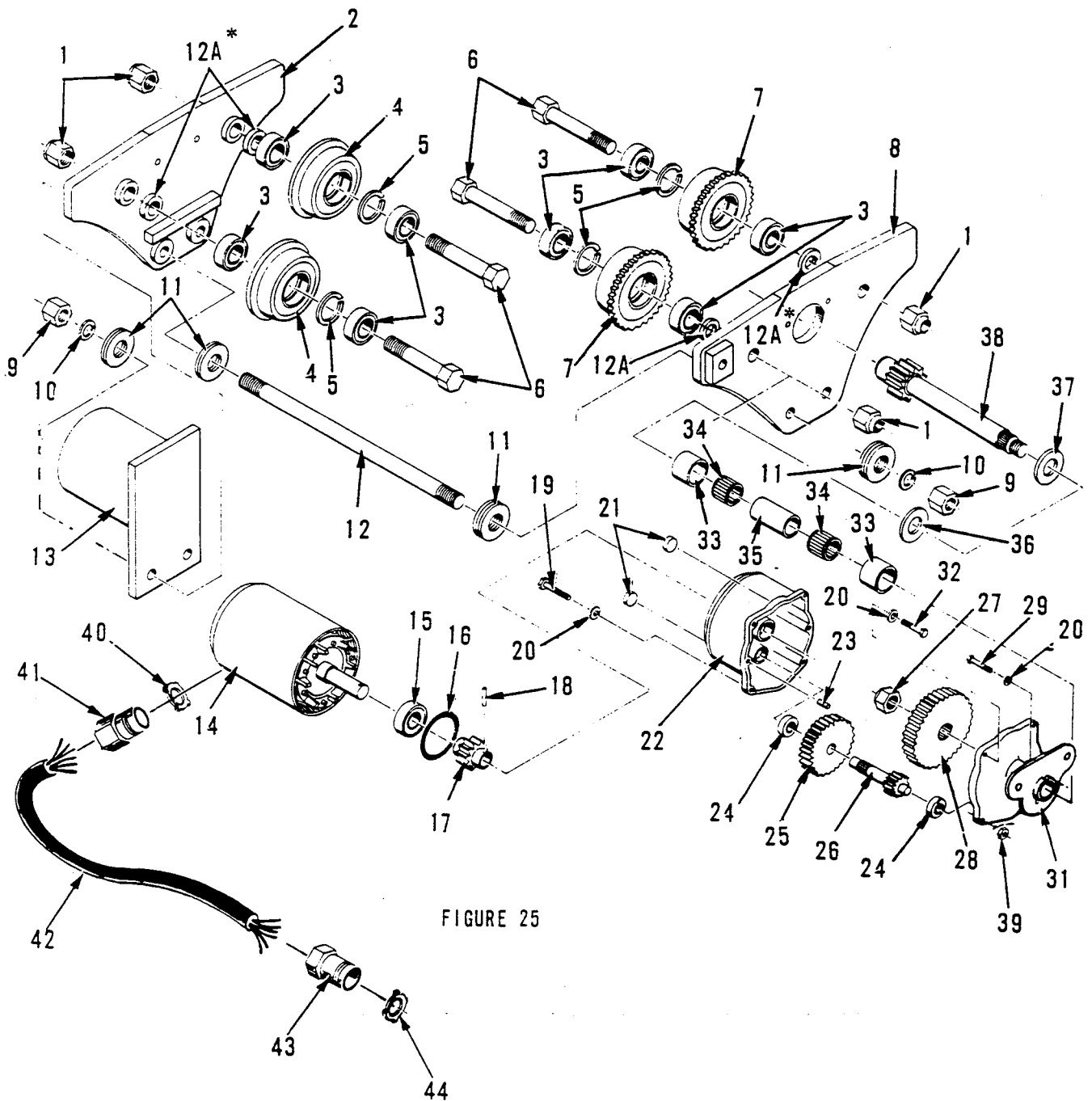


FIGURE 25

**When Replacement Parts Are Needed, Order Only Yale® Factory Engineered Parts**

# Yale® Hoists

## KEL SERIES 1/2 THROUGH 2 TON (6-15 INCH I-BEAM) ST TROLLEY ASSEMBLY

ITEM NUMBER	AMERICAN STD. 6-15 IN. I-BEAM	PATENTED TRACK	DESCRIPTION	QTY.
	0625397-00	5019690-00	TROLLEY ASSEMBLY (INC. ITEMS 1 THRU 12)	1
1	0150158-00	0150158-00	NUT	2
2	0625392-00	5019264-00	SIDE PLATE, PLAIN	1
3	5003539-07	5003539-07	BEARING	8
4	6412103-00	0650863-00	TROLLEY WHEEL, PLAIN	2
5	6400469-04	6400469-04	RETAINING RING	4
6	0250576-00	0650864-00	WHEEL AXLE	4
7	6412113-00	5011583-00	GEARED WHEEL	2
8	0625391-00	5019274-00	SIDE PLATE, GEARED	1
9	0149374-00	0149374-00	HEX NUT	4
10	0150268-00	0150268-00	LOCKWASHER	4
11	0114200-00	0114200-00	ADJUSTMENT WASHERS	**34
12	0101020-00	0101017-00	DOUBLE END STUD	2
12A		0114207-00	WASHER	8
13	6441514-00	6441514-00	COUNTER WEIGHT, 1/2 & 1 TON W/BRAKE - 2 TON W/O BRAKE	1
	6443454-00	6443454-00	COUNTER WEIGHT, 1/2 & 1 TON W/O BRAKE-SINGLE SPEED	1
	6443464-00	6443464-00	COUNTER WEIGHT, W/BRAKE, 2 TON SINGLE SPEED	1
14	*	*	MOTOR ASSEMBLY	1
15	0325737-00	0325737-00	MOTOR BEARING	1
16	0193248-00	0193248-00	"O" RING	1
17	SEE TABLE	SEE TABLE	MOTOR PINION	1
18	SEE TABLE	SEE TABLE	LOCK PIN	1
19	0146723-00	0146723-00	SCREW	2
20	0150264-00	0150264-00	LOCKWASHER	6
21	0230825-00	0230825-00	PIPE PLUG	2
22	0192483-00	0192483-00	GEAR CASE	1
23	6400529-01	6400529-01	DOWEL PIN	2
24	0100850-00	0100850-00	BEARING	2
25	SEE TABLE	SEE TABLE	GEAR	1
26	SEE TABLE	SEE TABLE	PINION	1
27	0326590-00	0326590-00	LOCK NUT	1
28	SEE TABLE	SEE TABLE	GEAR	1
29	0570482-00	0570482-00	SCREW	4
31	0307058-00	0307058-00	GEAR CASE COVER	1
33	0610994-00	0610994-00	INNER RACE	2
34	0572813-00	0572813-00	NEEDLE BEARING	2
35	0317344-00	0317344-00	BEARING SPACER	1
36	0535816-00	0535816-00	WASHER	1
37	0544158-00	0544158-00	THRUST WASHER	1
38	6400851-00	6400851-00	PINION SHAFT	1
39	0149369-00	0149369-00	HEX NUT	2
40	0103739-00	0103739-00	LOCK NUT	1
41	6401569-10	6401569-10	WATERTIGHT CONNECTOR	1
42	6431261-81	6431261-81	POWER CORD TO HOIST	7 FT
43	6401569-18	6401569-18	WATERTIGHT CONNECTOR	1
44	0103740-00	0103740-00	LOCKNUT	1
45	0161158-00	0161158-00	WASHER (NOT SHOWN)	24

\* When Ordering motor parts give complete data on hoist and motor nameplates.

\*\* 18 Used on patent track.

When Replacement Parts Are Needed, Order Only Yale® Factory Engineered Parts

# Yale® Hoists

## KEL SERIES 1/2 THROUGH 2 TON ST TROLLEY ASSEMBLY

GEAR TABLE

ITEM	PART NO.	DESCRIPTION	TRAVEL SPEEDS		
			30 FPM	45 FPM	80 FPM
17	0104602-00	MOTOR PINION, 16 TOOTH		1	1
17	0104607-00	MOTOR PINION, 12 TOOTH	1		
18	0106953-00	LOCK PIN FOR 16 TOOTH PINION		1	1
18	0106959-00	LOCK PIN FOR 12 TOOTH PINION	1		
25	6407541-00	GEAR, 48 TOOTH		1	1
25	6407531-00	GEAR, 52 TOOTH	1		
26	6407521-00	PINION, 22 TOOTH			1
26	6407501-00	PINION, 15 TOOTH	1	1	
28	0226408-00	GEAR, 47 TOOTH	1	1	
28	0610986-00	GEAR, 40 TOOTH			1

## KEL SERIES 3 TON ST TROLLEY ASSEMBLY

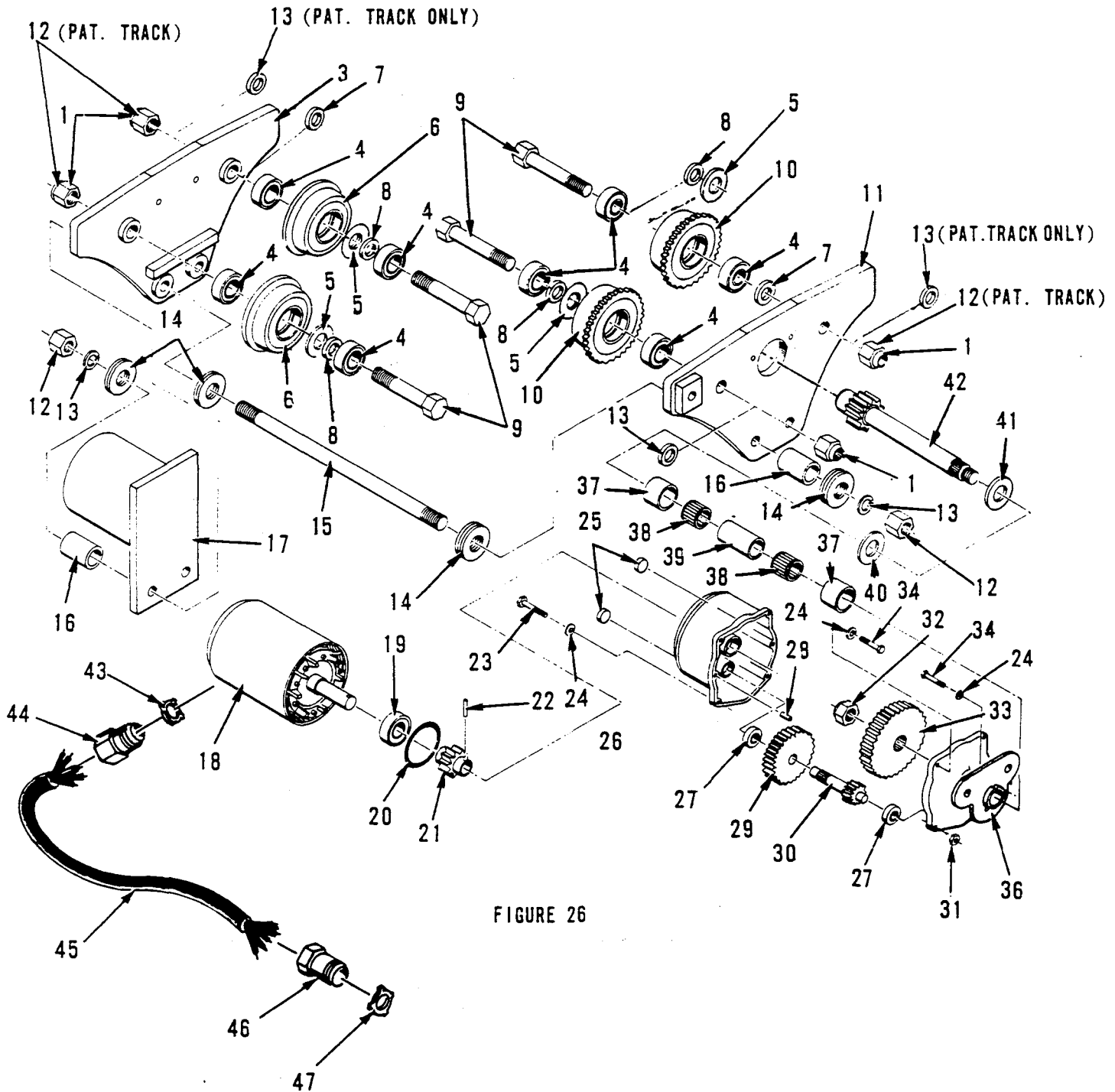
GEAR TABLE

ITEM	PART NO.	DESCRIPTION	TRAVEL SPEEDS		
			30 FPM	45 FPM	80 FPM
21	0104602-00	MOTOR PINION, 16 TOOTH		1	
21	0104607-00	MOTOR PINION, 12 TOOTH	1		
22	0106953-00	LOCK PIN FOR 16 TOOTH PINION		1	1
22	0106959-00	LOCK PIN FOR 12 TOOTH PINION	1		
29	6407541-00	GEAR		1	1
29	6407531-00	GEAR	1		
30	6407521-00	PINION			1
30	6407501-00	PINION	1	1	
33	0226408-00	GEAR, 47 TOOTH	1	1	
33	0610986-00	GEAR, 40 TOOTH			1

When Replacement Parts Are Needed, Order Only Yale® Factory Engineered Parts

# Yale® Hoists

## KEL SERIES 3 TON ST TROLLEY ASSEMBLY



**When Replacement Parts Are Needed, Order Only Yale® Factory Engineered Parts**

# Yale® Hoists

## KEL SERIES 3 TON ST TROLLEY ASSEMBLY

ITEM NUMBER	AMERICAN STANDARD 8-25 INCH I-BEAM	PATENTED TRACK 3 1/4 & 4 1/16 FLG.	DESCRIPTION	QTY.
1	0665140-00	5024410-00	TROLLEY ASSEMBLY (INCL. ITEMS 2 THROUGH 16)	1
3	0213606-00		NUT	4
4	0664025-00	0664025-00	SIDEPLATE, PLAIN	1
5	0664037-00	0664037-00	BEARING ASSEMBLY	8
6	5024531-00	5024531-00	SHIM	4
7	6412133-00	6465981-00	TROLLEY WHEEL, PLAIN	2
8	0644039-00	5005201-00	WHEEL SPACER	4
9	6447913-06	6447913-06	BEARING SPACER	4
10	0664038-00	0664038-00	WHEEL AXLE	4
11	6412143-00	6465991-00	TROLLEY WHEEL, GEARED	2
12	0664027-00	0664027-00	SIDEPLATE, GEARED	1
13	0149716-00	0149716-00	HEX NUT	*4
14	0150297-00	0150297-00	LOCKWASHER	*4
15	0114197-00	0114197-00	ADJUSTMENT WASHERS	**24
16	6449073-00	0101053-00	DOUBLE END STUD	2
17	0629893-00	5000239-23	SPACER	4
18	5028104-00	5028104-00	COUNTERWEIGHT	1
19	***	***	MOTOR ASSEMBLY	1
20	0325737-00	0325737-00	MOTOR BEARING	1
21	0193248-00	0193248-00	"O" RING	1
22	SEE TABLE	SEE TABLE	MOTOR PINION	1
23	SEE TABLE	SEE TABLE	LOCK PIN	1
24	0146723-00	0146723-00	SCREW	2
25	0150264-00	0150264-00	LOCKWASHER	6
26	0230825-00	0230825-00	PIPE PLUG	2
27	0192483-00	0192483-00	GEARCASE	1
28	0100850-00	0100850-00	BEARING	2
29	6400529-01	6400529-01	DOWEL PIN	2
30	SEE TABLE	SEE TABLE	GEAR	1
31	SEE TABLE	SEE TABLE	PINION	1
32	0149369-00	0149369-00	HEX NUT	2
33	0326590-00	0326590-00	LOCK NUT	1
34	SEE TABLE	SEE TABLE	GEAR	1
35	0570482-00	0570482-00	SCREW	4
36	0307058-00	0307058-00	GEARCASE COVER	1
37	0610994-00	0610994-00	INNER RACE	2
38	0572813-00	0572813-00	NEEDLE BEARING	2
39	0317344-00	0317344-00	SPACER	1
40	0535816-00	0535816-00	WASHER	1
41	0544158-00	0544158-00	THRUST WASHER	1
42	6400851-00	6400851-00	PINION SHAFT	1
43	0103739-00	0103739-00	LOCKNUT	1
44	6401569-10	6401569-10	WATERTIGHT CONNECTOR	1
45	6431261-81	6431261-81	POWER CORD TO HOIST	7 FT.
46	6401569-18	6401569-18	WATERTIGHT CONNECTOR	1
47	0103740-00	0103740-00	LOCKNUT	1

\* 8 EACH ON PATENT TRACK  
 \*\* 4 EACH ON PATENT TRACK  
 \*\*\* When Ordering Motor Parts give Complete Date on Hoist and Motor Nameplates.

When Replacement Parts Are Needed, Order Only Yale® Factory Engineered Parts

# Yale® Hoists

## ST SERIES, AC OR DC MOTOR BRAKE ASSEMBLY

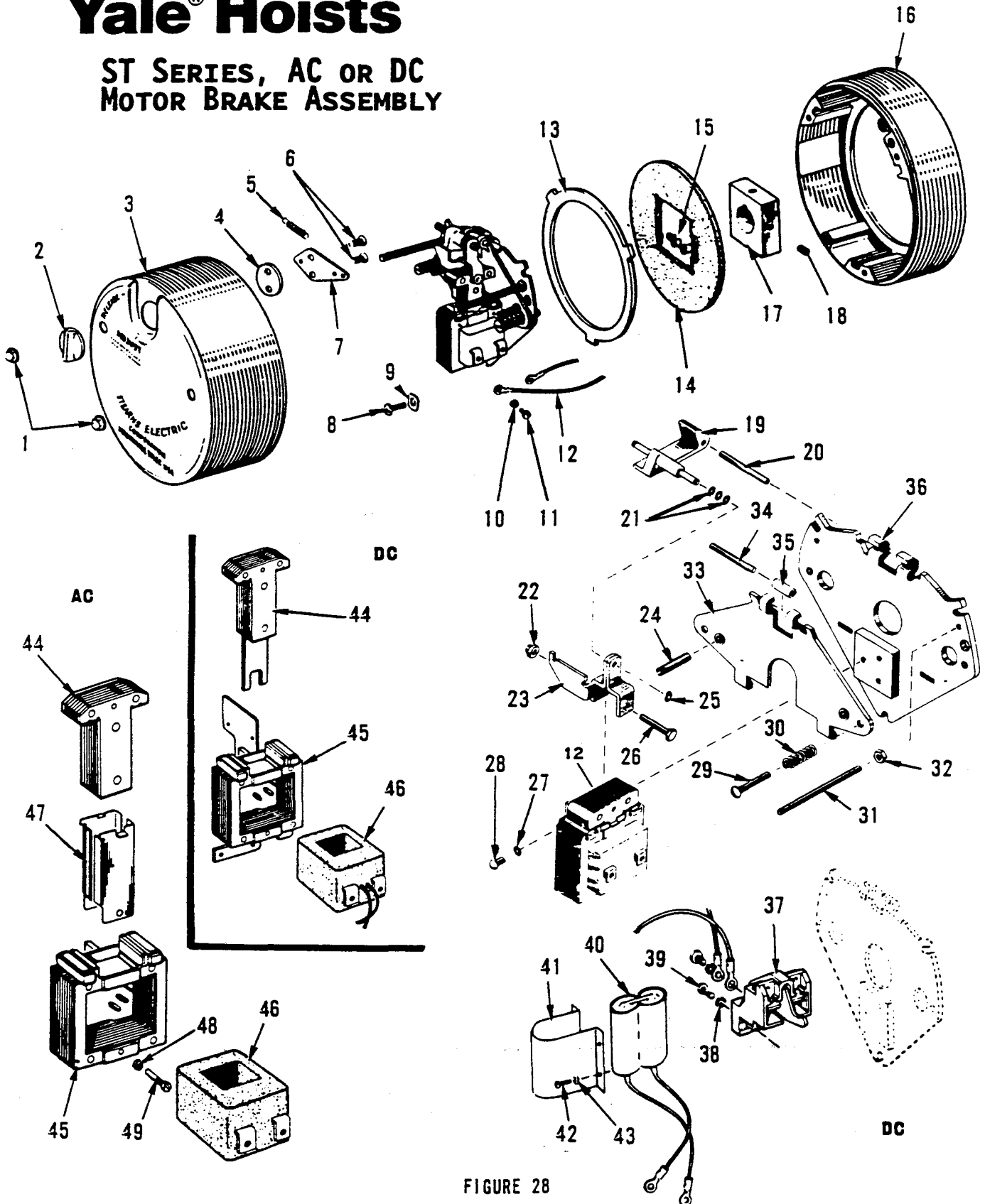


FIGURE 28

When Replacement Parts Are Needed, Order Only Yale® Factory Engineered Parts



# Yale® Hoists

## ST SERIES, AC OR DC MOTOR BRAKE ASSEMBLY

ITEM NUMBER	AC 1.5.&3 MODEL 1-055-515* PART NO. 6426086-00	DC 1.5.&3 MODEL 1-055-515 PART NO. 6426086-00	AC 6 FT.LBS MODEL 1-055-521 PART NO. 6426-96-00	DC 6FT.LBS MODEL 1-055-525 PART NO. 6426096-00	DESCRIPTION	QTY.
1	6426086-01	6426086-01	6426086-01	6426086-01	HOUSING NUT	2
2	6445184-17	6445184-17	6445184-17	6445184-17	RELEASE KNOB	1
3	6445184-02	6445184-02	6445184-02	6445184-02	HOUSING ASSEMBLY	1
4	6445184-11	6445184-11	6445184-11	6445184-11	WASHER	1
5	6426086-02	6426086-02	6426086-02	6426086-02	RELEASE SPRING	1
6	6426086-07	6426086-07	6426086-07	6426086-07	SCREW	2
7	6445185-06	6445184-06	6445184-06	6445184-06	RELEASE PLATE	1
8	6426086-05	6426086-05	6426086-05	6426086-05	SCREW	3
9	6426086-06	6426086-06	6426086-06	6426086-06	LOCKWASHER	3
10	6425676-16	6425676-16	6425676-16	6425676-16	LOCKWASHER	2
11	6425676-15	6425676-15	6425676-15	6425676-15	SCREW	2
12	6445184-12	6445184-12	6445184-12	6445184-12	LEAD WIRE AND TERMINAL	2
13	6419938-01	6419938-01	6419938-01	6419938-01	STATIONARY DISC	1
14	6419938-02	6419938-02	6419938-02	6419938-02	FRICTION DISC	1
15	6434348-06	6434348-06	6434348-06	6437348-06	STABILIZING SPRING	2
16	6445184-01	6445184-01	6445184-01	6445184-01	END PLATE ASSEMBLY	1
17	6445184-04	6445184-04	6445184-04	6445184-04	HUB	1
18	6445184-05	6445184-05	6445184-05	6445184-05	SET SCREW	2
19	6426086-08	6426086-08	6426086-08	6426086-08	SOLENOID LEVER	1
20	6426086-13	6426-86-13	6426086-13	6426086-13	PIVOT PIN	1
21	6426086-10	6426-86-10	6426086-10	6426086-10	SPACER	4
22	6426086-12	6426086-12	6426086-12	6426086-12	NUT	1
23	6445184-20	6445184-20	6445184-20	6445184-20	SOLENOID LINK	1
24	6434348-05	6434348-05	6434348-05	6434348-05	WEAR ADJUST SCREW	2
25	6426086-09	6426086-09	6426086-09	6426-86-09	RETAINING RING	1
26	6426086-11	6426086-11	6426086-11	6426086-11	SCREW	1
27	6445184-30	6445184-30	6445184-30	6445184-30	LOCKWASHER	3
28	6445184-29	6445184-29	6445184-29	6445184-29	SCREW	3
29	6445184-19	6445184-19	6445184-19	6445184-19	TORQUE ADJUSTMENT SCREW2	
30	6434348-01	6434348-01	6434348-01	6434348-01	PRESSURE SPRING	2
31	6445814-31	6445184-31	6445184-31	6445184-31	HOUSING STUD	2
32	6426086-14	6426086-14	6426086-14	6426086-14	LOCKNUT	2
33	6445184-22	6445184-22	6445184-22	6445814-22	LEVER ARM AND STOP NUT	1
34	6445184-23	6445184-23	6445184-23	6445184-23	BEARING PIN	1
35	6434348-03	6434348-03	6434348-03	6434348-03	BEARING	1
36	6445184-27	6445184-27	6445184-27	6445184-27	SUPPORT PLATE AND STOP NUT	1
37		6426086-20		6426086-20	D. C. SWITCH	1
38		6425676-53		6425676-53	LOCKWASHER	2
39		6425676-52		6425676-52	SCREW	2
40		6426086-22		6426-86-22	CAPACITOR	2
41		6426086-21		6426086-21	CAPACITOR HOLDER	1
42		6425676-58		6425676-58	SCREW	4
43		6425676-59		6425676-59	LOCKWASHER	4
44	6426086-15	6426086-23	6426096-01	6426086-23	PLUNGER	1
45	6426086-16	6426086-24	6426096-02	6426086-24	FRAME	1
46	SEE TABLE	SEE TABLE	SEE TABLE	SEE TABLE	SOLENOID COIL	1
47	6426086-17	6426086-25	6426096-03	6426086-25	COIL HOLDER	2
48	6426086-19	6426086-27	6426096-05	6426086-27	LOCKWASHER	1
48	6426086-18	6426086-26	6426096-04	6426086-26	PLUNGER SCREW	1
49	6426086-18	6426086-26	6426096-04	6426086-26	PLUNGER SCREW	1
50	6426086-03	6426086-03	6426086-03	6426086-03	NAME PLATE	1

\* Model Number 1-055-501 (1.5 Lbs. Ft.) is identical to 1-055-511. Only the adjustment is different.

**When Replacement Parts Are Needed, Order Only Yale® Factory Engineered Parts**

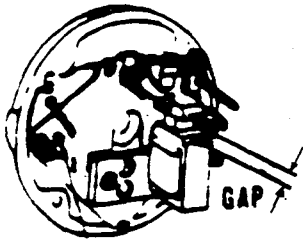
# Yale® Hoists

## ST SERIES, AC OR DC MOTOR BRAKE ASSEMBLY

### AC COIL TABLE

ITEM NO.	PART NO. 3 FT. LBS.	PART NO. 8 FT. LBS.	DESCRIPTION	HERTZ	VOLTAGE
46	6426086-28	6426096-06	SOLENOID COIL	50/60	110
46	6426086-29	6426096-07	SOLENOID COIL	50/60	208
46	6426086-30	6426096-08	SOLENOID COIL	50/60	550
46	6426086-31	6426086-31	SOLENOID COIL	50/60	220/440

### ADJUSTMENT



WEAR ADJUSTMENT  
SCREW

### ADJUSTMENT:

1. Remove Housing.
2. Turn both adjusting screws equal amounts. Approximately 1/8 turn clockwise until proper solenoid gap is attained. AIR GAP SHOULD BE APPROXIMATELY 13/32 INCH.
3. Maximum torque may be obtained after operating brake several times. Then turning adjusting screws very slightly either way and noting which position of fine adjustment provides satisfactory stopping without changing solenoid gap.
4. On brakes with manual release knob or button integral with housing, turn housing so knob assembly is about 20 degrees to left of vertical centerline. After mating with endplate rotate housing to right to align with mounting studs. In other models, mount and attach.

When Replacement Parts Are Needed, Order Only Yale® Factory Engineered Parts

# Yale® Hoists

## KL SERIES (MOLDED) CHAIN CONTAINERS

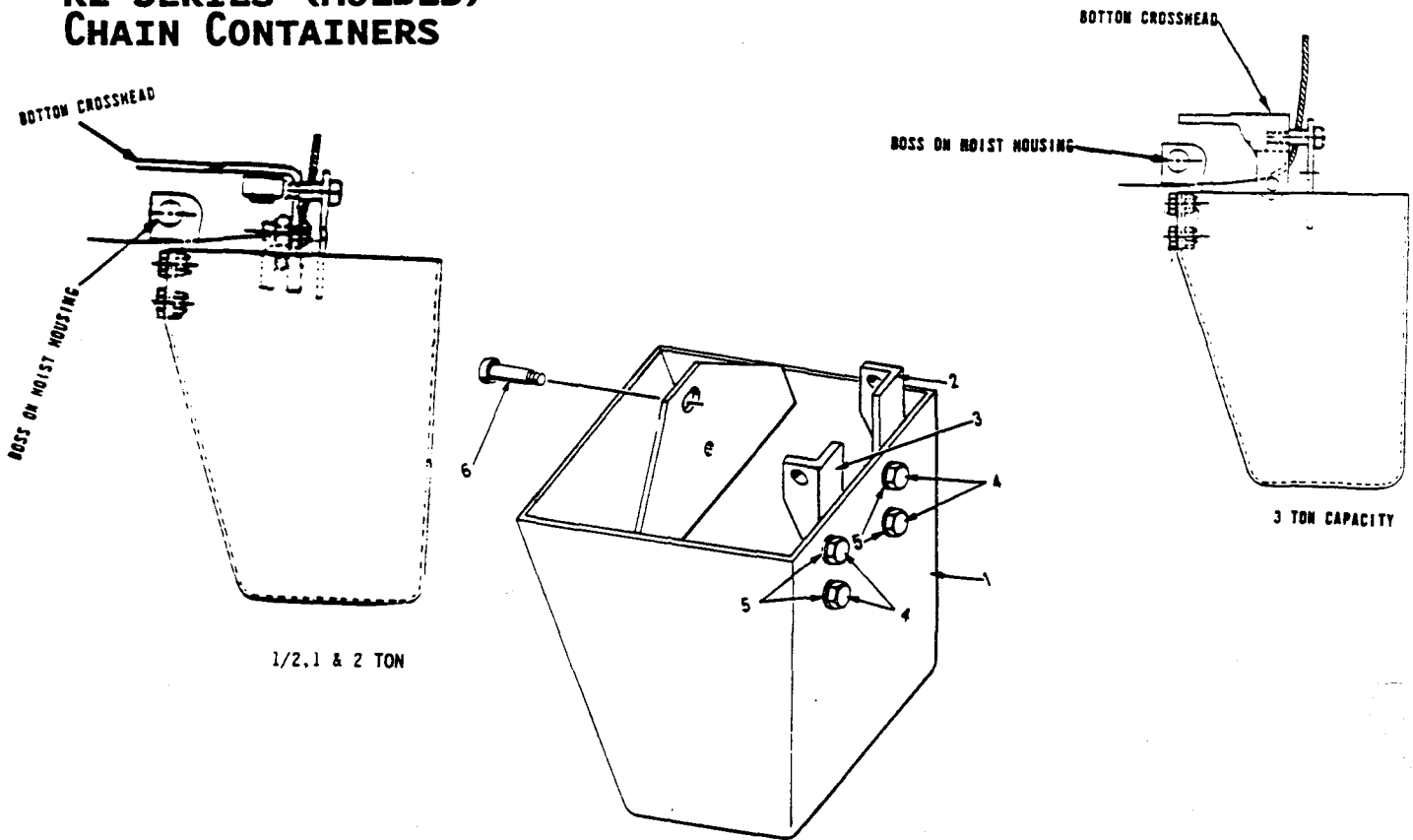


FIGURE 29

ITEM	1/2 TON THRU 3 TON PART NO.	DESCRIPTION	QTY.
1	6480592-00	CHAIN CONT. ASSY (50 FT. CAPACITY)	1
	6480592-01	CHAIN CONT. ASSY (75 FT. CAPACITY)	1*
2	6469841-00	LUG (RIGHT HAND)	1
3	6469831-00	LUG (LEFT HAND)	1
4	0597163-00	HEX HEAD SCREW	4
5	0161036-00	LOCKWASHER	4
6	6402149-02	SHOULDER BOLT	1

\* Use On Right Angle Trolley Mounted Hoists Only.

### INSTALLATION INSTRUCTIONS

1. Attach chain container to bottom crosshead as shown above.
2. Attach chain container to hoist by placing hanger bracket on bosses of hoist. Then attach hanger bracket to bottom crosshead with socket head shoulder bolt as shown above.

3. For field conversion tap 5/16 - 18 hole in bottom crosshead (as shown above) and use 5/16 - 18 shoulder bolt to attach container. (HOLE TAP ONLY REQD. ON 1/2, 1 and 2 TON UNITS).

**When Replacement Parts Are Needed, Order Only Yale® Factory Engineered Parts**

# Yale® Hoists

## KL SERIES (METAL) CHAIN CONTAINERS

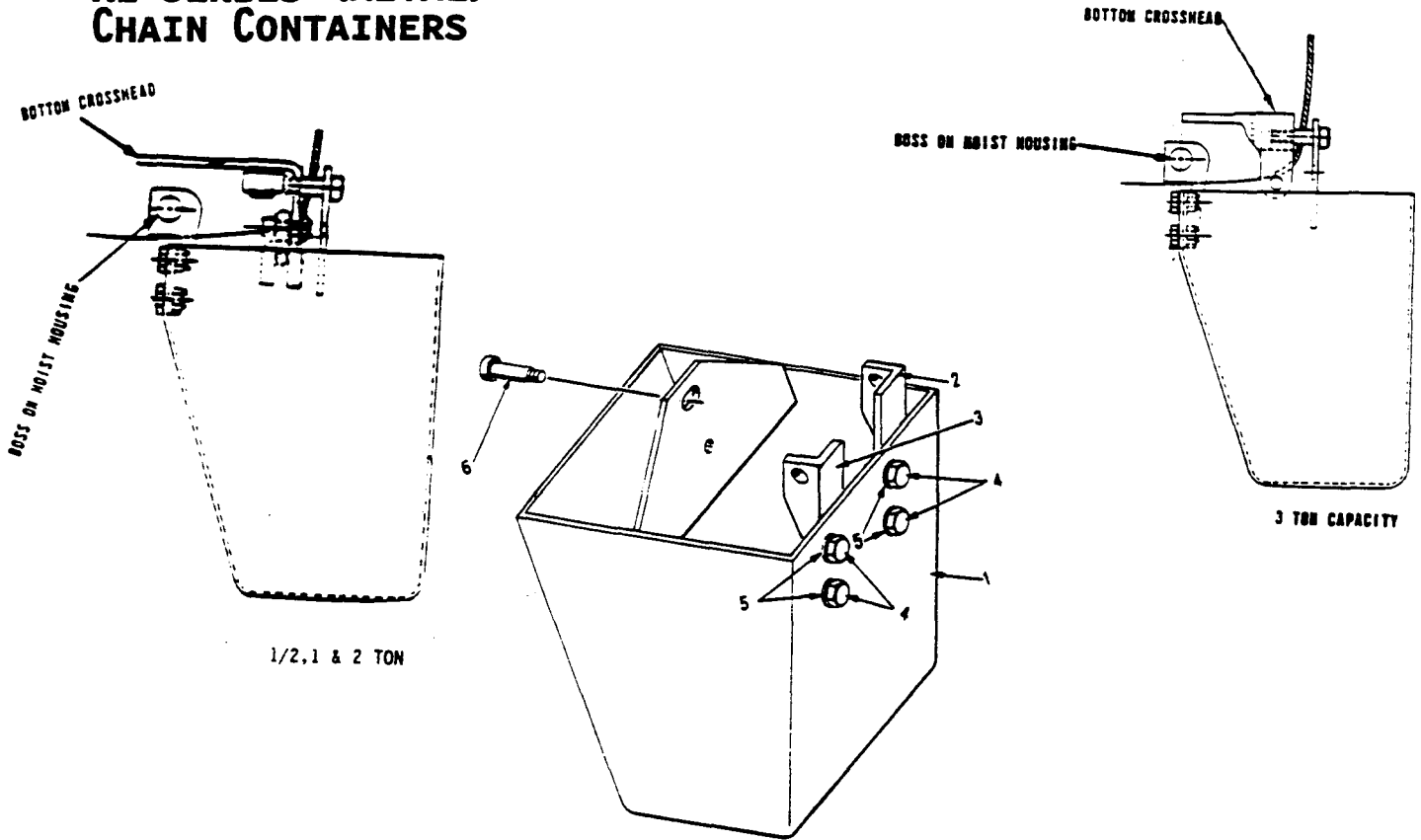


FIGURE 29

ITEM	1/2 TON, 1 & 2 TON PART NO.	3 TON PART NO.	DESCRIPTION	QTY.
1	6405647-00		CHAIN CONT. ASSY (25 FT. CAPACITY)	1
	6405647-00	6405647-00	CHAIN CONT. ASSY (50 FT. CAPACITY)	1
	6407867-00	6407867-00	CHAIN CONT. ASSY (75 FT. CAPACITY)	1*
2	6469841-00	6469841-00	LUG (LEFT HAND)	1
3	6469831-00	6469831-00	LUG (RIGHT HAND)	1
4	0597163-00	0597163-00	HEX HEAD SCREW	4
5	0325860-00	0325860-00	LOCKWASHER	4
6	6402149-01	6402149-01	SHOULDER BOLT	1

\* Use on Right Angle Trolley Mounted Hoists Only.

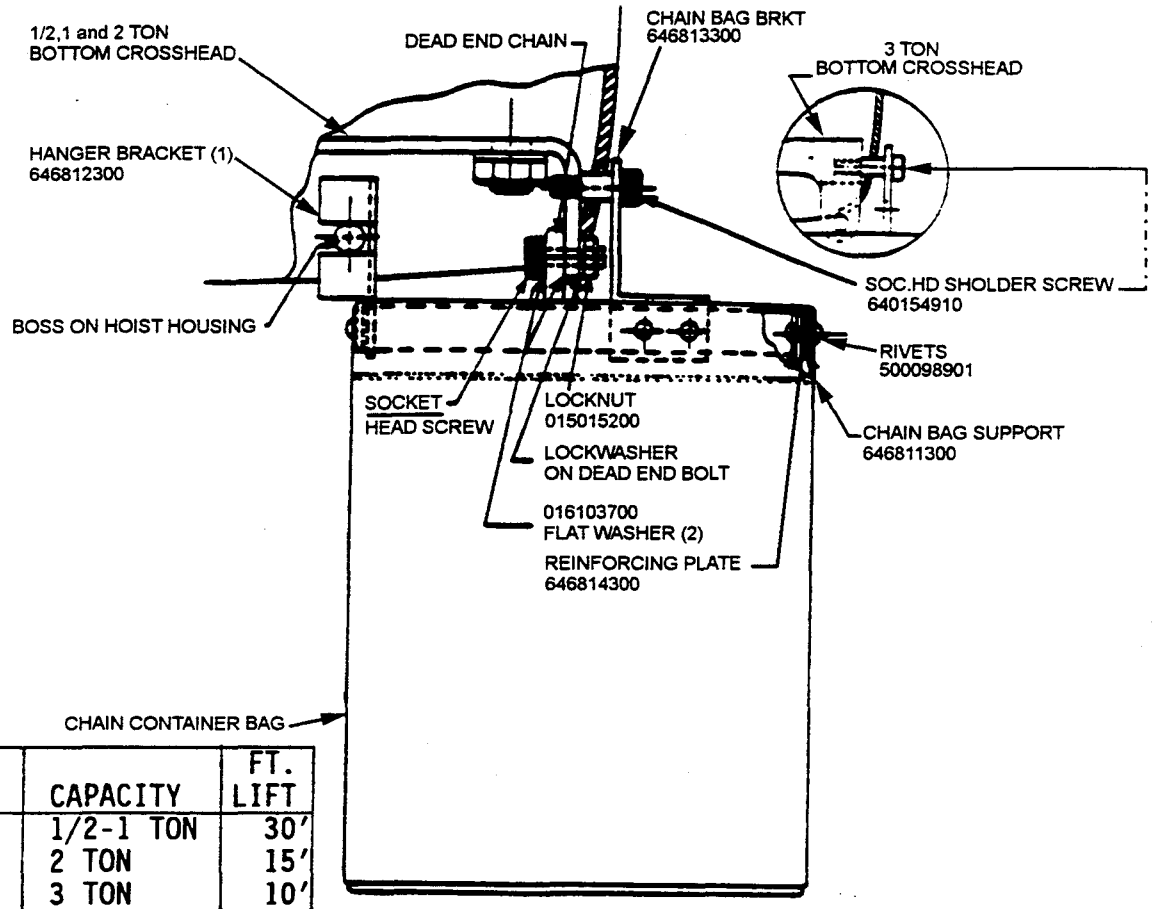
### INSTALLATION INSTRUCTIONS

1. Attach chain container to bottom crosshead as shown above.
2. Attach chain container to hoist by placing hanger bracket on bosses of hoist. Then attach hanger bracket to bottom crosshead with socket head shoulder bolt as shown above.
3. For field conversion tap 5/16 - 18 hole in bottom crosshead (as shown above) and use 5/16 - 18 shoulder bolt to attach container. (HOLE TAP ONLY REQD. ON 1/2, 1 and 2 TON UNITS).

**When Replacement Parts Are Needed, Order Only Yale® Factory Engineered Parts**

# Yale® Hoists

## KL CHAIN CONTAINERS (CANVAS BAG) INSTALLATION INSTRUCTIONS 1/2, 1, 2 AND 3 TON CAPACITY



ASSEMBLY NBR.	CAPACITY	FT. LIFT
6468093-00	1/2-1 TON	30'
6468093-00	2 TON	15'
6468-93-00	3 TON	10'



**CAUTION**

**DO NOT TWIST CHAIN**

1. Attach chain container to bottom crosshead as shown above.
2. Attach chain container to hoist by placing hanger bracket on bosses of hoist. Then attach hanger bracket to bottom crosshead with socket head shoulder bolt as shown above.
3. For field conversion tap 5/16 - 18 hole in bottom crosshead (as shown above) and use 5/16 - 18 shoulder bolt to attach container. (HOLE TAP ONLY REQD. ON 1/2, 1 and 2 TON UNITS).

**When Replacement Parts Are Needed, Order Only Yale® Factory Engineered Parts**

# **Yale® Hoists**

## **WIRING DIAGRAMS**

### **WIRING DIAGRAMS**

#### **KEL HOIST**

**NOTE:**  
THE WIRING DIAGRAMS INCLUDED IN THIS MANUAL ARE STANDARD DIAGRAMS SHOWING TYPICAL WIRING OF KEL HOISTS. IF SPECIAL OPTIONS OR ACCESSORIES HAVE BEEN PROVIDED, USE THE SPECIAL WIRING DIAGRAM FURNISHED WITH THE HOIST.

**When Replacement Parts Are Needed, Order Only Yale® Factory Engineered Parts**

# Yale® Hoists

## DEVICE TERMINOLOGY

### DEVICE TERMINOLOGY

- ULS UPPER LIMIT SWITCH-TRIPPED AT HOIST UPPER LIMIT
- UPLS UPPER PLUGGING LIMIT SWITCH-TRIPPED AT HOIST UPPER LIMIT - PLUGS ON OVERTRAVEL.
- GULS GEARED UPPER LIMIT SWITCH-TRIPPED JUST BEFORE UPLS OR ULS-ADJUSTABLE.
- GLLS GEARED LOWER LIMIT SWITCH-TRIPPED AT HOIST LOWER LIMIT - ADJUSTABLE.
- TTLS TROLLEY TRAVEL LIMIT SWITCH-TRIPPED AT END OF TROLLEY TRAVEL.
- OLS OVERLOAD LIMIT SWITCH-TRIPPED IF LOAD EXCEEDS RATED CAPACITY OF HOIST.

- |    |                            |      |                                |
|----|----------------------------|------|--------------------------------|
| C  | -CONTACTOR                 | BF   | -BRIDGE FORWARD CONTACTOR      |
| M  | -MAINLINE CONTACTOR        | BR   | -BRIDGE REVERSE CONTACTOR      |
| U  | -HOIST UP CONTACTOR        | SB   | -BRIDGE SLOW CONTACTOR         |
| D  | -HOIST DOWN CONTACTOR      | FB   | -BRIDGE FAST CONTACTOR         |
| SH | -HOIST SLOW CONTACTOR      | CR   | -CONTROL RELAY                 |
| FH | -HOIST FAST CONTACTOR      | TD   | -TIME DELAY RELAY              |
| TF | -TROLLEY FORWARD CONTACTOR | OL   | -OVERLOAD RELAY                |
| TR | -TROLLEY REVERSE CONTACTOR | MTOL | -MOTOR THERMAL OVERLOAD DEVICE |
| ST | -TROLLEY SLOW CONTACTOR    | TO   | -TIMED OPEN                    |
| FT | -TROLLEY FAST CONTACTOR    | TC   | -TIMED CLOSED                  |
| CB | -CIRCUIT BREAKER           | FU   | -FUSE                          |

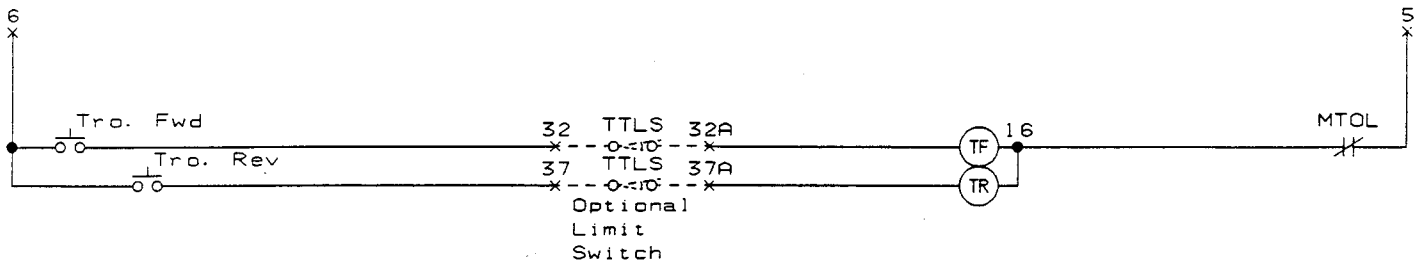
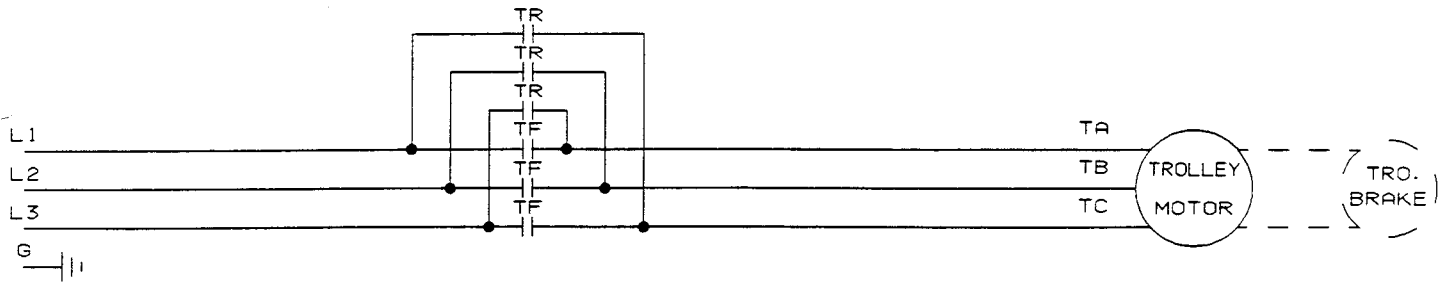
**When Replacement Parts Are Needed, Order Only Yale® Factory Engineered Parts**

## STANDARD WIRING DIAGRAMS

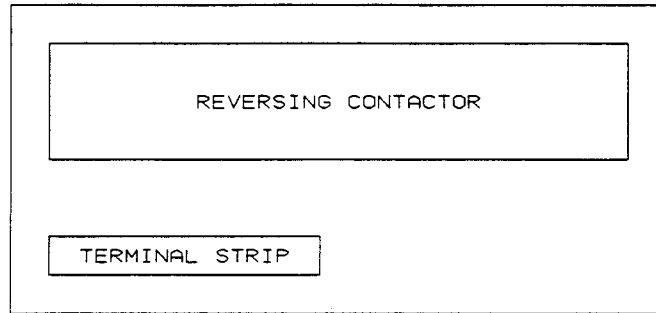
		SPEED		MODEL	MODEL
HOIST	TROLLEY	PHASE	VOLTAGES	KEL	KEW
				DIAGRAM #	DIAGRAM #
1		1	115 OR 230	WD1007024	WD1007024
1		1	115 & 230	WD1007025	WD1007025
1		3	230 & 460	WD1007023	WD1007023
1		3	200-230-460-575	WD1007022	WD1007022
1	1	1	115 OR 230	WD1107024	WD1107024
1	1	1	115 & 230	WD1107025	WD1107025
1	1	3	230 & 460	WD1107023	WD1107023
1	1	3	200-230-460-575	WD1107022	WD1107022
2		3	200-230-460-575	WD2007021	WD2007021
2		3	200-230-460-575	WD2007021	
	1	3	230 & 460	WDO100014	
2	1	3	230 & 460		WD2107000
2	2	3	200-230-460-575	WD2207000	



# Yale® Hoists

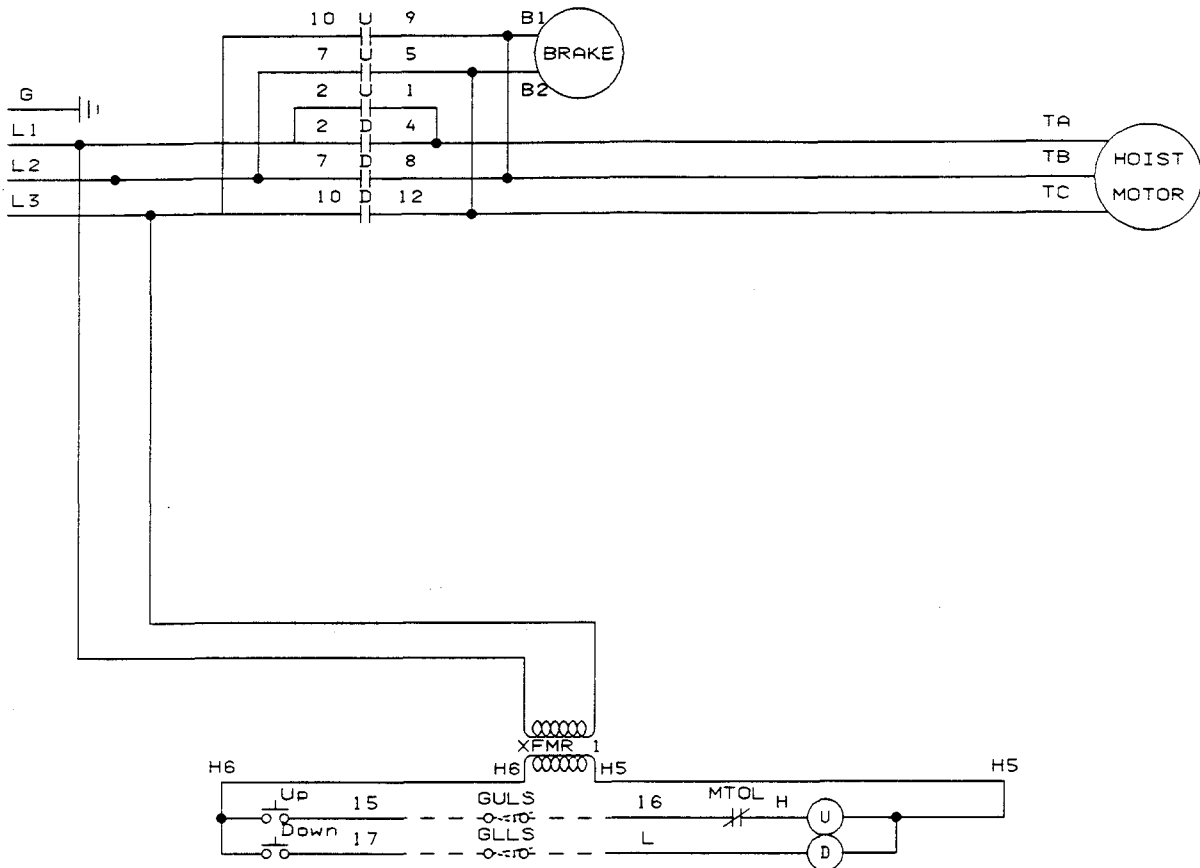


### COMPONENT LOCATION



DUAL VOLTAGE MOTOR CONNECTIONS		DUAL VOLTAGE TRANSFORMER CONNECTIONS	
LOW VOLTAGE	HIGH VOLTAGE	LOW VOLTAGE	HIGH VOLTAGE
<p>TA TB TC</p> <p>T1 T2 T3</p> <p>T7 T8 T9 B1 B2</p> <p>T4 T5 T6</p>	<p>TA TB TC</p> <p>T1 T2 T3</p> <p>T7 T8 T9 B1 B2</p> <p>T4 T5 T6</p>	<p>XFMR</p>	<p>XFMR</p>

# Yale® Hoists



SINGLE SPEED HOIST & TROLLEY  
 MULTI-VOLTAGE HOIST MOTOR  
 200-3-60, 230-3-60, 460 & 575-3-60

Yale Hoists  
 Highway 1 North P.O. Box 1000  
 Forrest City, Arkansas 72335

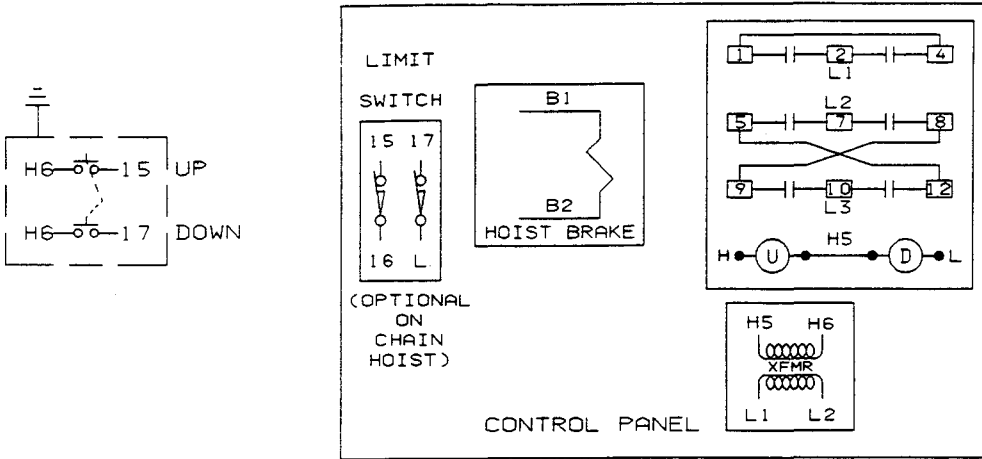
Dr. By: DJ  
 Date: 10/09/92

Rev. By:  
 Date:

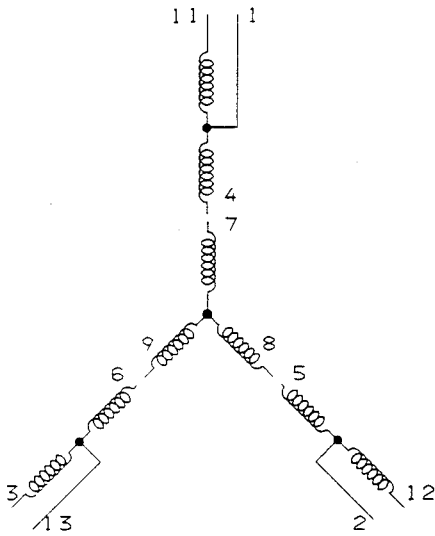
WIRING DIAGRAM  
 Dwg. No. WD1007022  
 Page 1 of 2

# Yale® Hoists

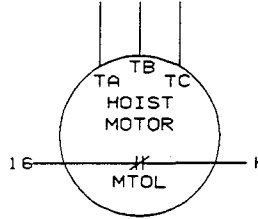
## PANEL LAYOUT



MULTI-VOLTAGE MOTOR WINDING ARRANGEMENT



SEE CONNECTION CHART



200-230 VOLTS	460 VOLTS	575 VOLTS
* (13) (12) (11)	* (13) (12) (11)	* (1) (2) (3)
(4) (5) (6)	(4) (5) (6)	(4) (5) (6)
(7) (8) (9)	(7) (8) (9)	(7) (8) (9)
(1) (2) (3)	(1) (2) (3)	(11) (12) (13)
TA TB TC	TA TB TC	TA TB TC

\*INSULATE THESE TERMINATION POINTS SEPERATELY.

TRANSFORMER CONNECTIONS		
SINGLE VOLTAGE	DUAL VOLTAGE	
	LOW	HIGH
H1 TO L1 H2 TO L3	H1 TO H3 TO L1 H2 TO H4 TO L2	H2 TO H3 H1 TO L1 H4 TO L2
H5 H6 H1 H2	H5 H6 H1 H2 H3 H4	

SINGLE SPEED HOIST & TROLLEY  
MULTI-VOLTAGE HOIST MOTOR  
200, 230, 460 & 575-3-60

Yale Hoists

Highway 1 North P.O. Box 1000  
Forrest City, Arkansas 72335

Dr. By: DJ

Date: 10/09/92

Rev. By:

Date:

WIRING DIAGRAM

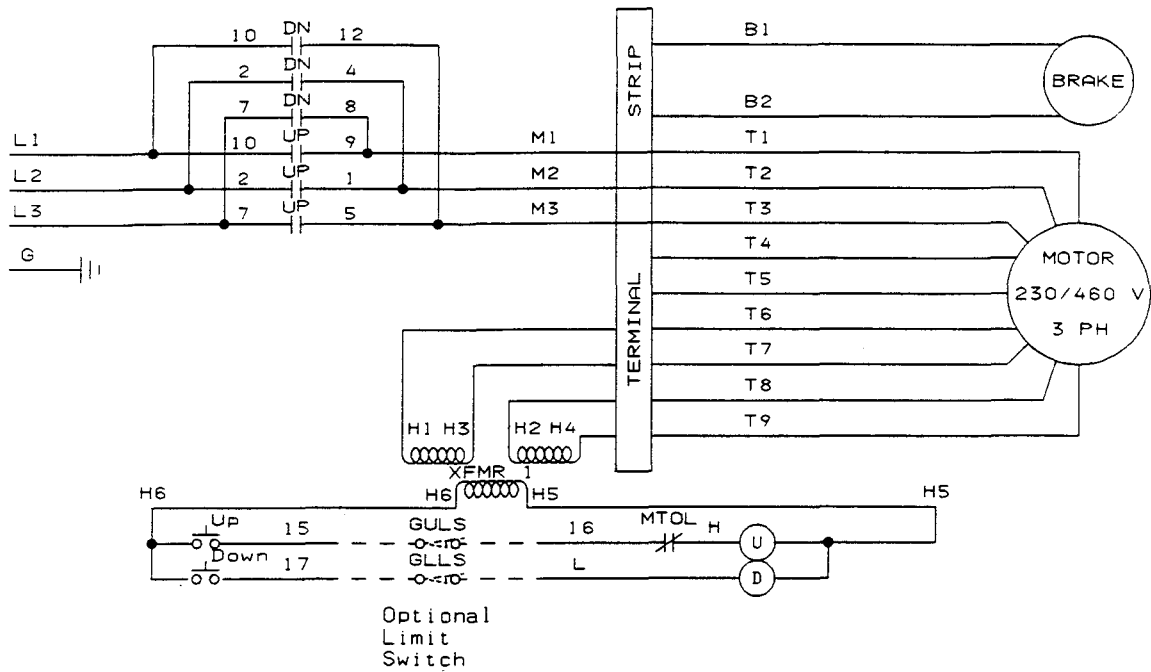
Dwg. No.

WD1007022

Page

2 of 2

# Yale® Hoists



DEVICE TERMINOLOGY	
U	- HOIST UP CONTACTOR
D	- HOIST DOWN CONTACTOR
MTOL	- MOTOR THERMAL OVERLOAD DEVICE

SINGLE SPEED HOIST  
230/460-3-60

Yale Hoists  
Highway 1 North P.O. Box 1000  
Forrest City, Arkansas 72335

Dr. By: FW  
Date: 12/11/87

Rev. B By: DJ  
Date: 07/31/92

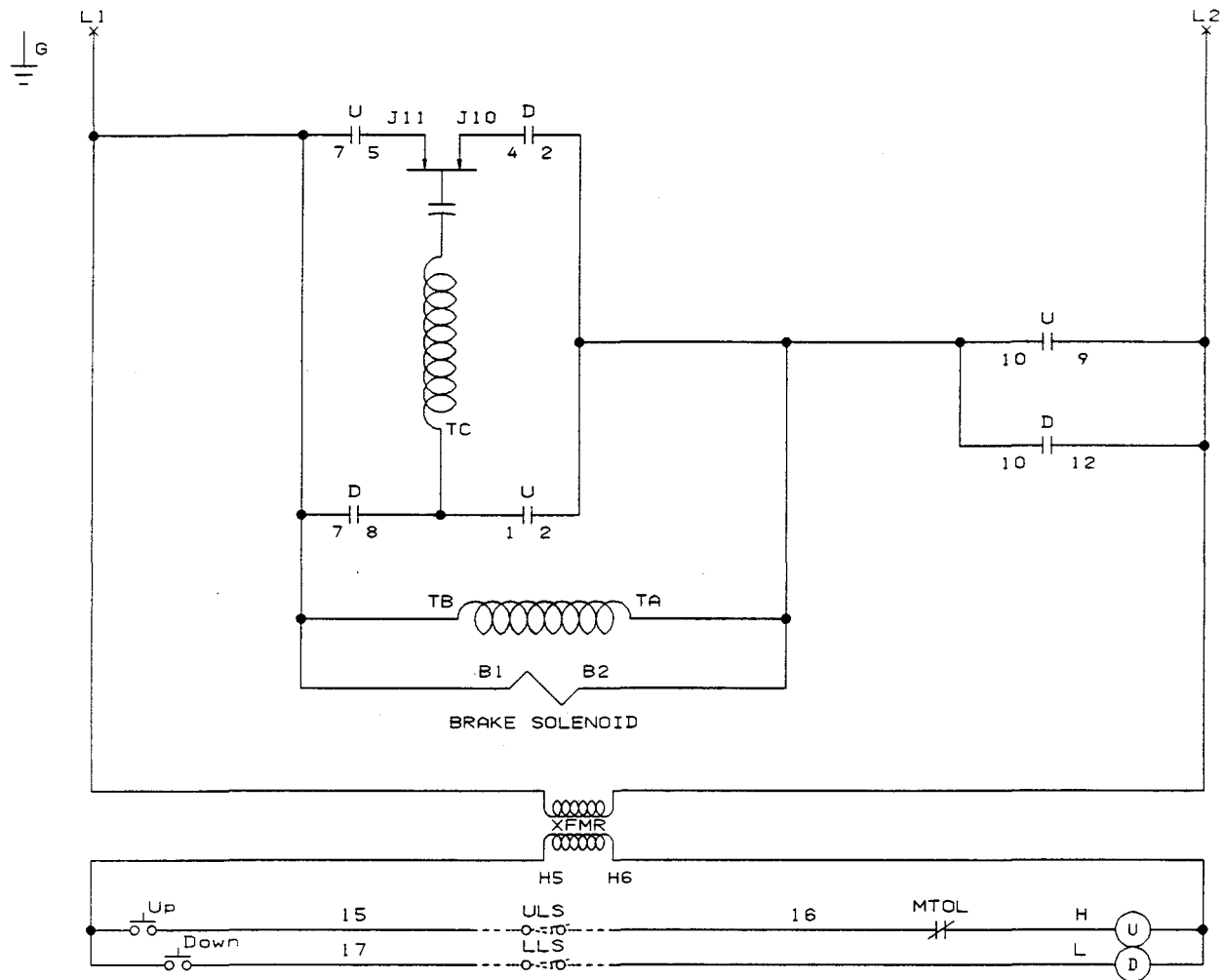
WIRING DIAGRAM

Dwg. No.  
WD1007023

Page  
1 of 2



# Yale® Hoists



DEVICE TERMINOLOGY	
U	- HOIST UP CONTACTOR
D	- HOIST DOWN CONTACTOR
MTOL	- MOTOR THERMAL OVERLOAD DEVICE

SINGLE SPEED HOIST  
115 OR 230-1-60

Yale Hoists  
Highway 1 North P.O. Box 1000  
Forrest City, Arkansas 72335

Dr. By: DJ  
Date: 10/23/90

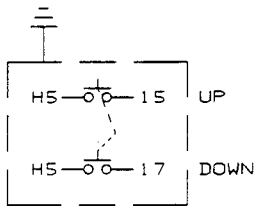
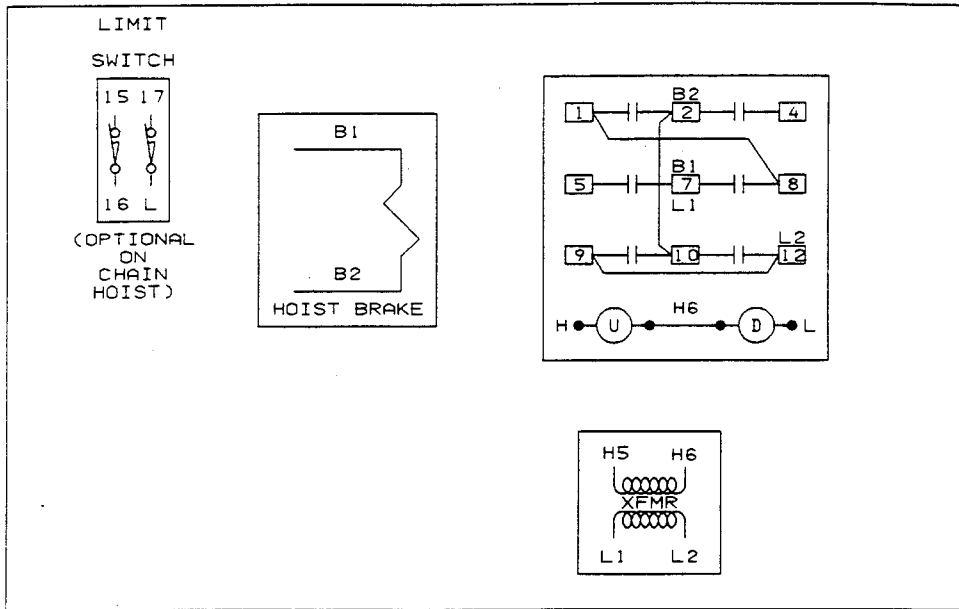
Rev. By:  
Date:

WIRING DIAGRAM

Dwg. No.  
WD1007024

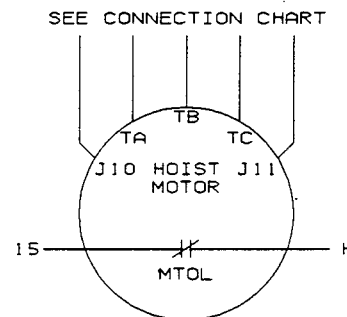
Page  
1 of 2

## PANEL LAYOUT



HOIST MOTOR CONNECTIONS														
SINGLE VOLTAGE MOTOR					DUAL VOLTAGE MOTORS									
					LOW VOLTAGE				HIGH VOLTAGE					
HOIST CONTACTOR TERMINAL					HOIST CONTACTOR TERMINAL				HOIST CONTACTOR TERMINAL					
10	7	1	4	5	10	7	1	4	5	10	7	4	5	
TA	TB	TC			TA	TB	TC			TA	TB			
										T1	T4			
					T3	T2	T5	J10	J11	T2	T3	T5	J10	J11

TRANSFORMER CONNECTIONS			
SINGLE VOLTAGE		DUAL VOLTAGE	
		LOW	HIGH
H1 TO L1			
H2 TO L2		H1 TO H3 TO L1 H2 TO H4 TO L2	H2 TO H3 H1 TO L1 H4 TO L2
H5 H6			
H1 H2			

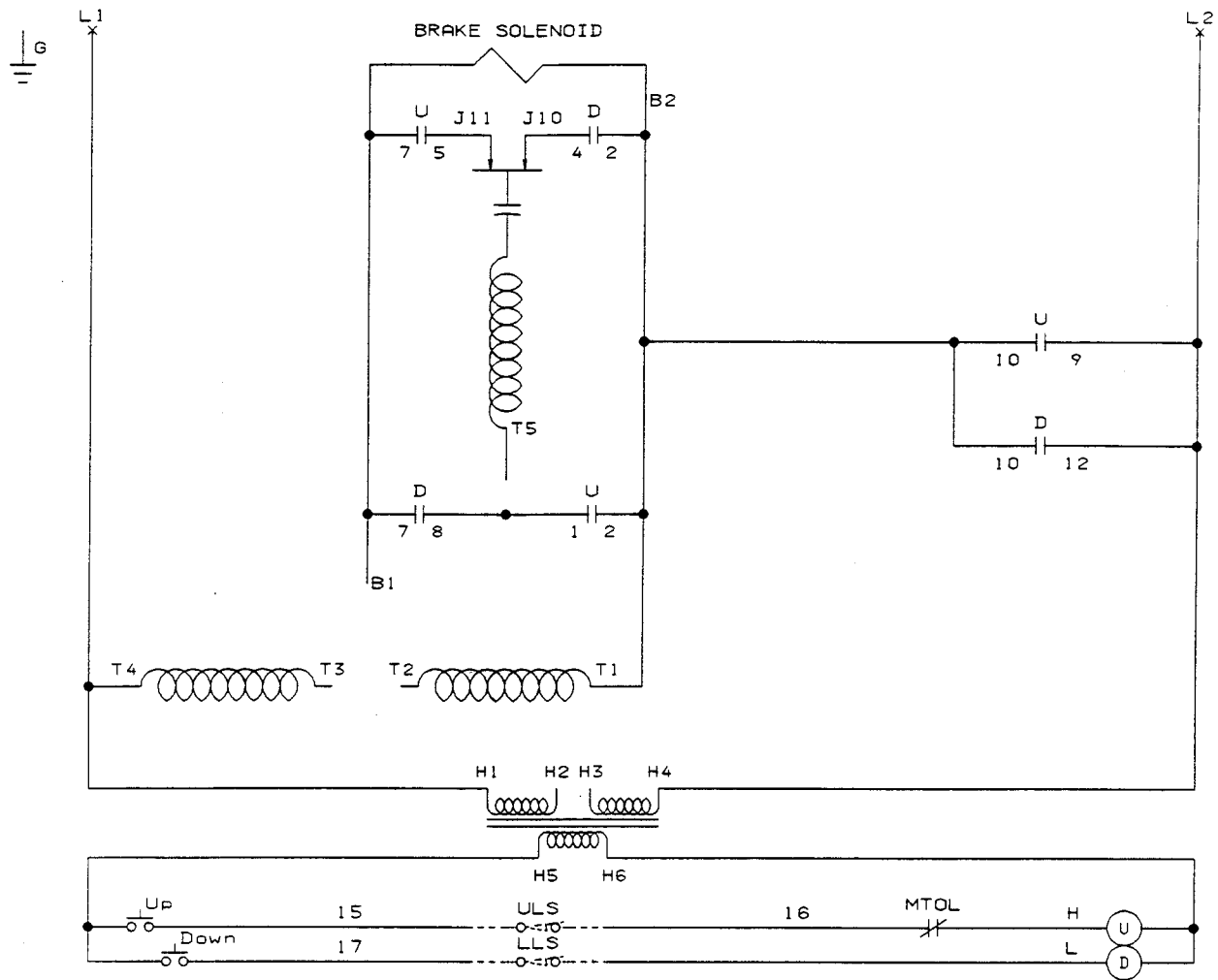


NOTE: UNIT CAN NOT BE FIELD CONNECTED FOR DIFFERENT VOLTAGE. HOIST BRAKE SOLENOID IS SINGLE VOLTAGE.

SINGLE SPEED HOIST  
115 OR 230-1-60

Yale Hoists Highway 1 North P.O. Box 1000 Forrest City, Arkansas 72335			WIRING DIAGRAM	
	Dr. By: DJ Date: 10/23/90	Rev. By: Date:	Dwg. No. WD1007024	Page 2 of 2

# Yale® Hoists



DEVICE TERMINOLOGY	
U	- HOIST UP CONTACTOR
D	- HOIST DOWN CONTACTOR
MTOL	- MOTOR THERMAL OVERLOAD DEVICE

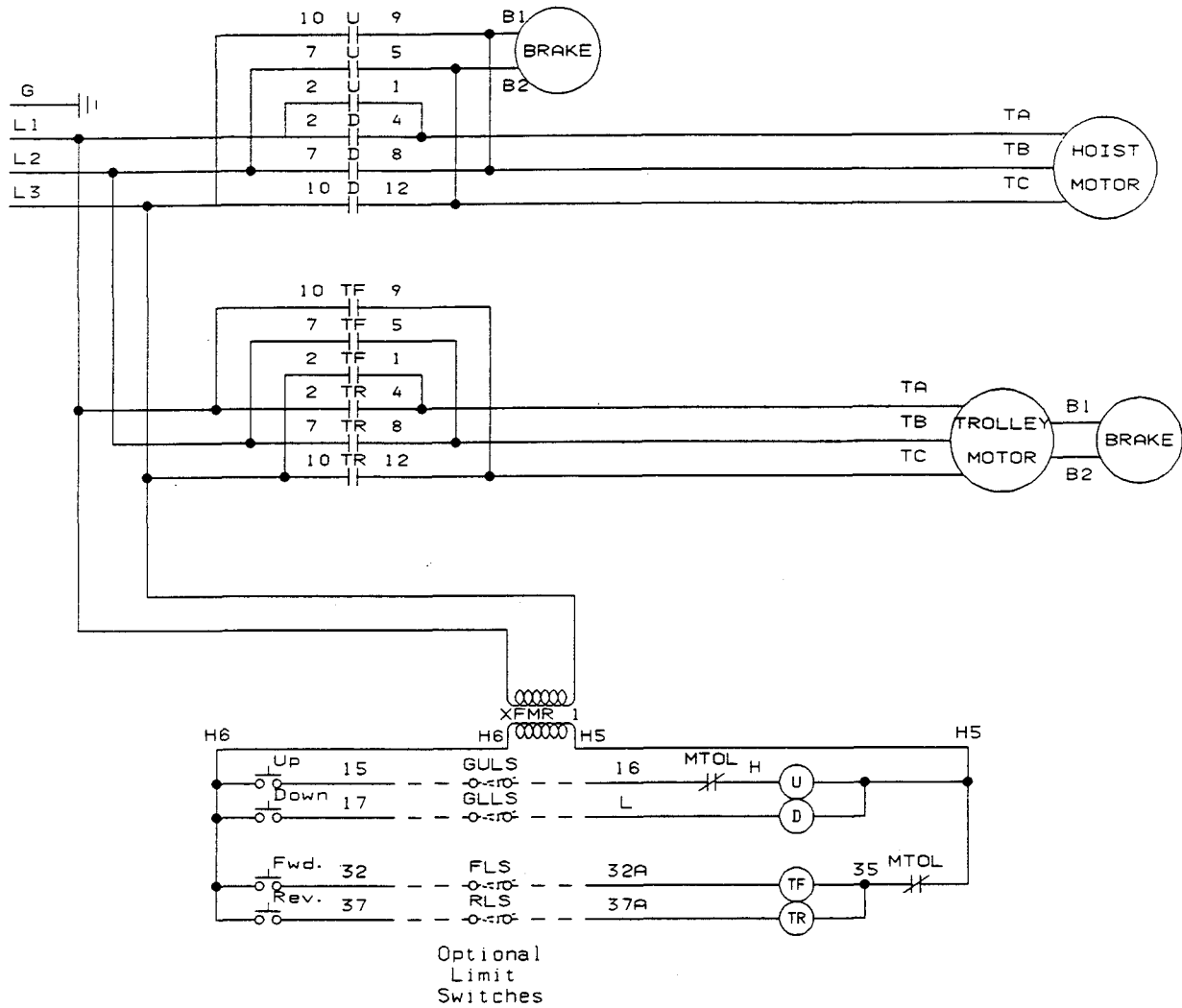
SINGLE SPEED HOIST  
115/230 - 1 - 60

Yale Hoists Highway 1 North P.O. Box 1000 Forrest City, Arkansas 72335			WIRING DIAGRAM	
	Dr. By: DJ Date: 10/24/90	Rev. By: Date:	Dwg. No. WD1007025	Page 1 of 2





# Yale® Hoists



SINGLE SPEED HOIST & TROLLEY  
 MULTI-VOLTAGE HOIST MOTOR  
 200-3-60, 230-3-60, 460 & 575-3-60

Yale Hoists

Highway 1 North P.O. Box 1000  
 Forrest City, Arkansas 72335

Dr. By: DJ  
 Date: 10/09/92

Rev. By:  
 Date:

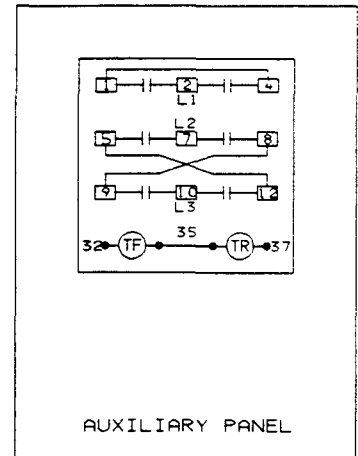
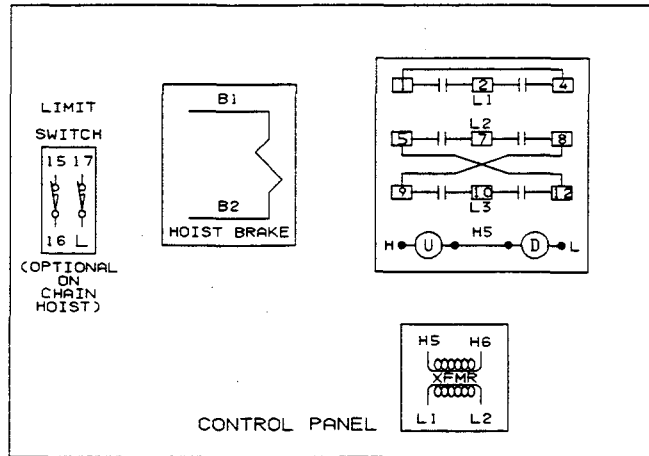
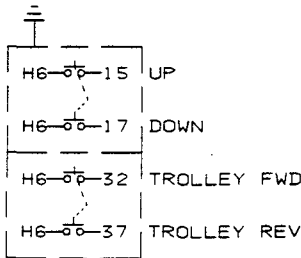
WIRING DIAGRAM

Dwg. No.  
 WD1107022

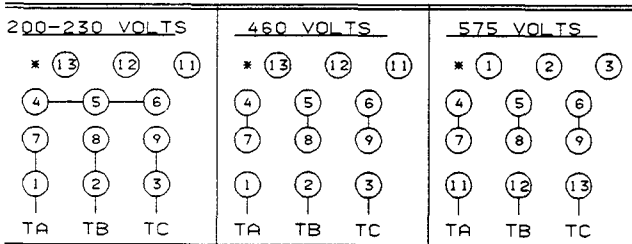
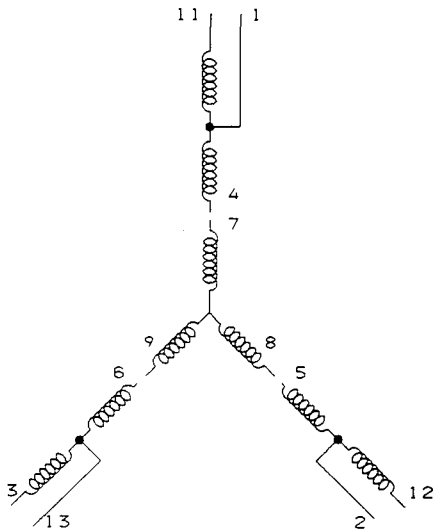
Page  
 1 of 2

# Yale® Hoists

## PANEL LAYOUT

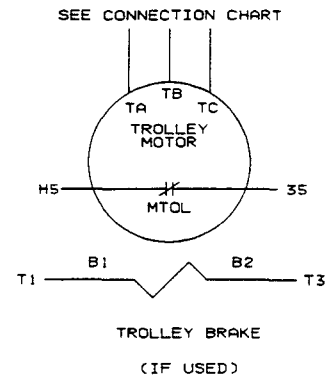
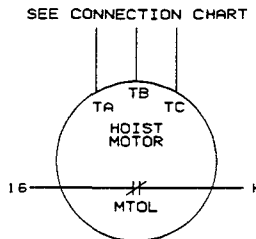


### MULTI-VOLTAGE MOTOR WINDING ARRANGEMENT



\*INSULATE THESE TERMINATION POINTS SEPERATELY.

SINGLE SPEED HOIST & TROLLEY  
 MULTI-VOLTAGE HOIST MOTOR  
 200-3-60, 230-3-60, 460 & 575-3-60



TROLLEY MOTOR CONNECTIONS		
SINGLE VOLTAGE MOTORS	DUAL VOLTAGE MOTORS	
	LOW VOLTAGE	HIGH VOLTAGE
TROLLEY CONTACTOR TERMINAL 4 TA 8 TB 12 TC T10 T20 T30 B10 T20 B20	TROLLEY CONTACTOR TERMINAL 4 TA 8 TB 12 TC T10 T20 T30 T70 T80 T90 B1 B2 T40 T50 T60	TROLLEY CONTACTOR TERMINAL 4 TA 8 TB 12 TC T10 T20 T30 T70 T80 T90 B1 B2 T40 T50 T60

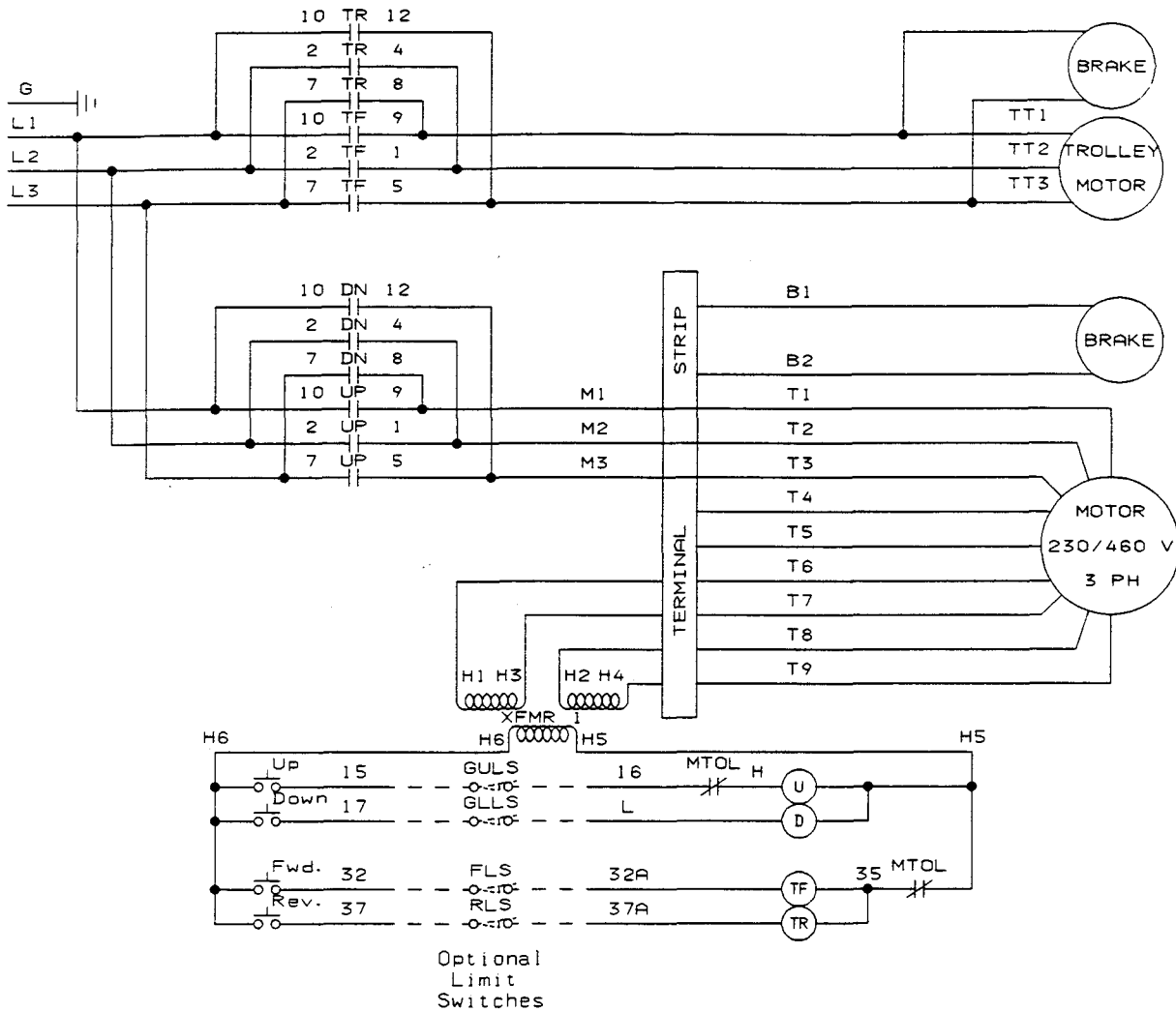
TRANSFORMER CONNECTIONS		
SINGLE VOLTAGE	DUAL VOLTAGE	
	LOW	HIGH
H1 TO L1 H2 TO L3	H1 TO H3 TO L1 H2 TO H4 TO L2	H2 TO H3 H1 TO L1 H4 TO L2
H5 H6 H1 H2	H5 H6 H1 H2 H3 H4	

Yale Hoists  
 Highway 1 North P.O. Box 1000  
 Forrest City, Arkansas 72335

Dr. By: DJ		Rev. By:		Dwg. No.		Page	
Date: 10/09/92		Date:		WD1107022		2 of 2	

### WIRING DIAGRAM

# Yale® Hoists



SINGLE SPEED HOIST-TROLLEY  
230/460-3-60

Yale Hoists

Highway 1 North P.O. Box 1000  
Forrest City, Arkansas 72335

Dr. By: FW

Date: 06/27/88

Rev. A

Date: 10/07/92

By: DJ

10/07/92

WIRING DIAGRAM

Dwg. No.

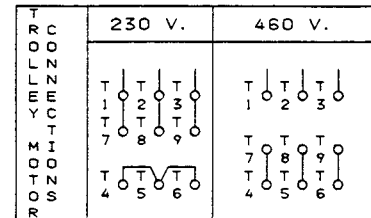
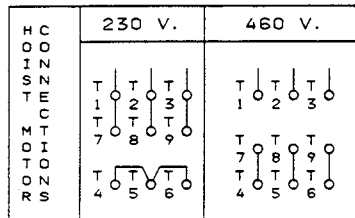
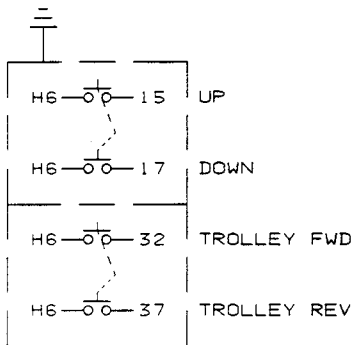
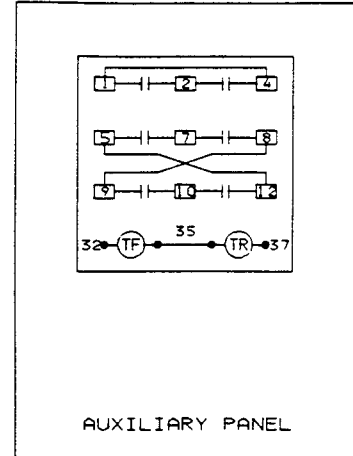
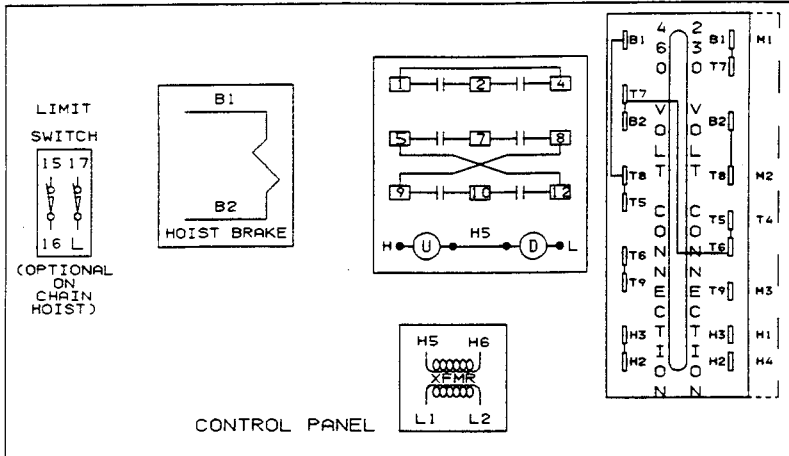
WD1107023

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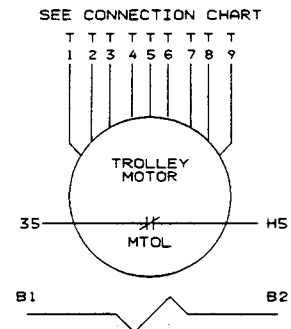
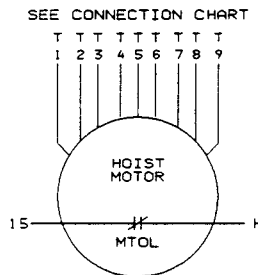
1 of 2

# Yale® Hoists

## PANEL LAYOUT



TRANSFORMER CONNECTIONS	
DUAL VOLTAGE	
LOW	HIGH
H1 TO H3 TO L1 H2 TO H4 TO L2	H2 TO H3 H1 TO L1 H4 TO L2
<p>H5 H6 L1 L2</p>	



TROLLEY BRAKE  
(IF USED)

SINGLE SPEED HOIST-TROLLEY  
230/460-3-60

Yale Hoists

Highway 1 North P.O. Box 1000  
Forrest City, Arkansas 72335

Dr. By: DJ  
Date: 08/11/92

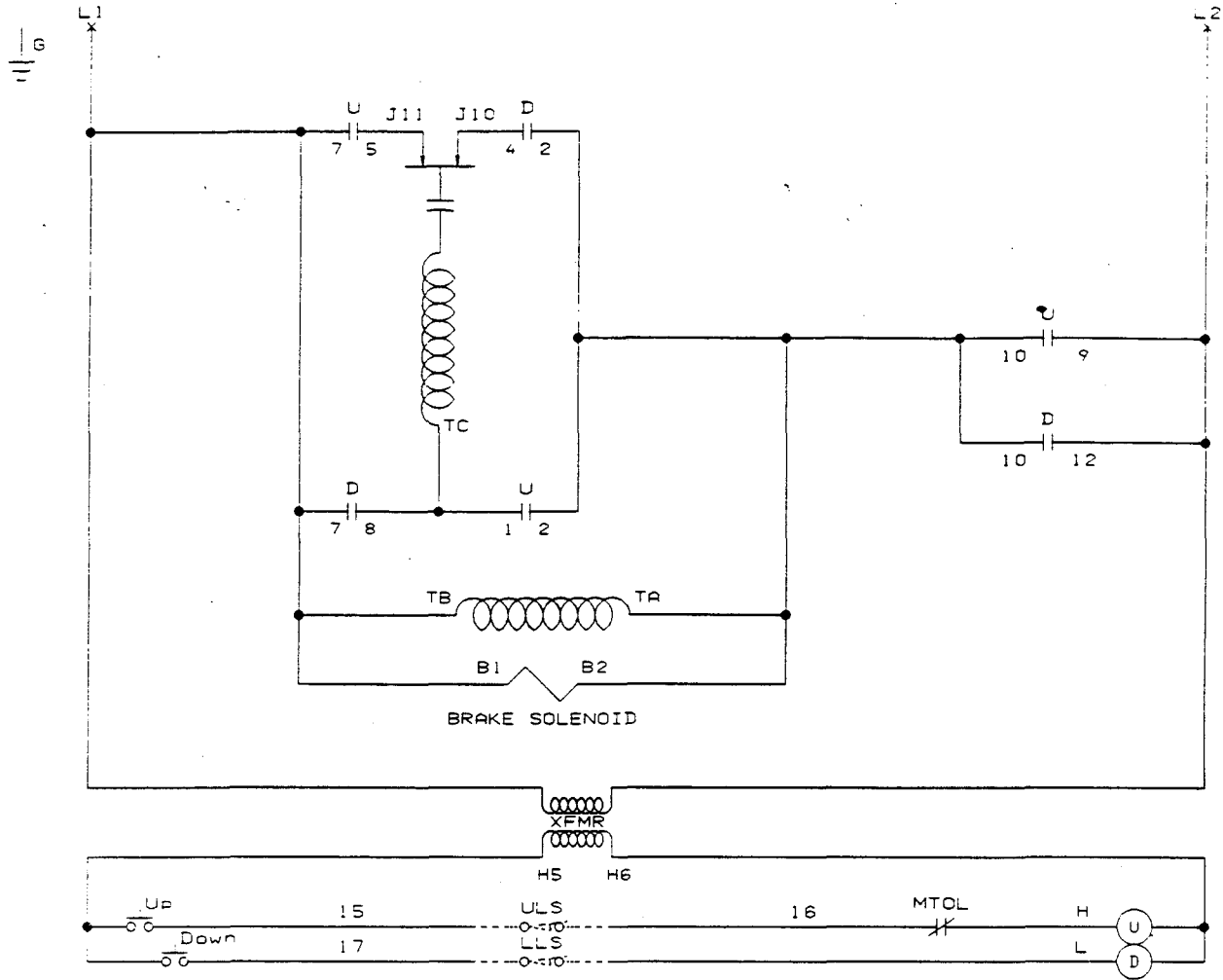
Rev. A By: DJ  
Date: 10/07/92

WIRING DIAGRAM

Dwg. No.  
WD1107023

Page  
2 of 2

# Yale® Hoists

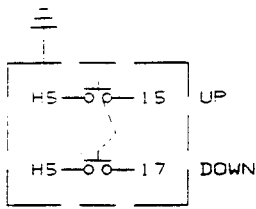
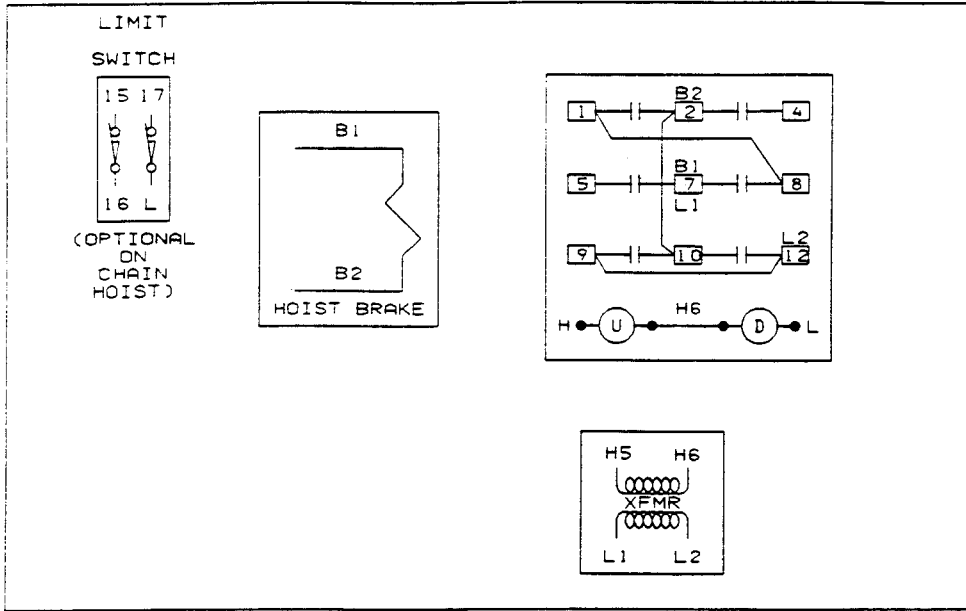


DEVICE TERMINOLOGY	
U	HOIST UP CONTACTOR
D	HOIST DOWN CONTACTOR
MTOL	MOTOR THERMAL OVERLOAD DEVICE

SINGLE SPEED HOIST  
115 OR 230-1-60

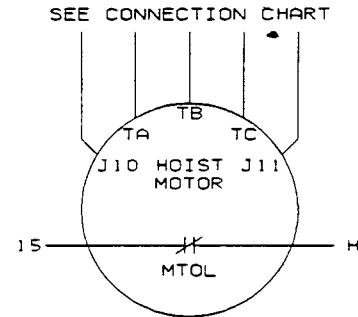
Yale Hoists Highway 1 North P.O. Box 1000 Forrest City, Arkansas 72335		WIRING DIAGRAM	
Dr. By: DJ Date: 10/23/90	Rev. A By: DJ Date: 10/25/95	Dwg. No. WD1007024	Page 1 of 2

## PANEL LAYOUT



HOIST MOTOR CONNECTIONS														
SINGLE VOLTAGE MOTOR					DUAL VOLTAGE MOTORS									
					LOW VOLTAGE					HIGH VOLTAGE				
HOIST CONTACTOR TERMINAL					HOIST CONTACTOR TERMINAL					HOIST CONTACTOR TERMINAL				
10	7	1	4	5	10	7	1	4	5	10	7	4	5	
TA	TB	TC			TA	TB	TC			TA	TB			
T1	T4	T5	J10	J11	T1	T4				T1	T4			
					T3	T2	T5	J10	J11	T2	T3	T5	J10	J11

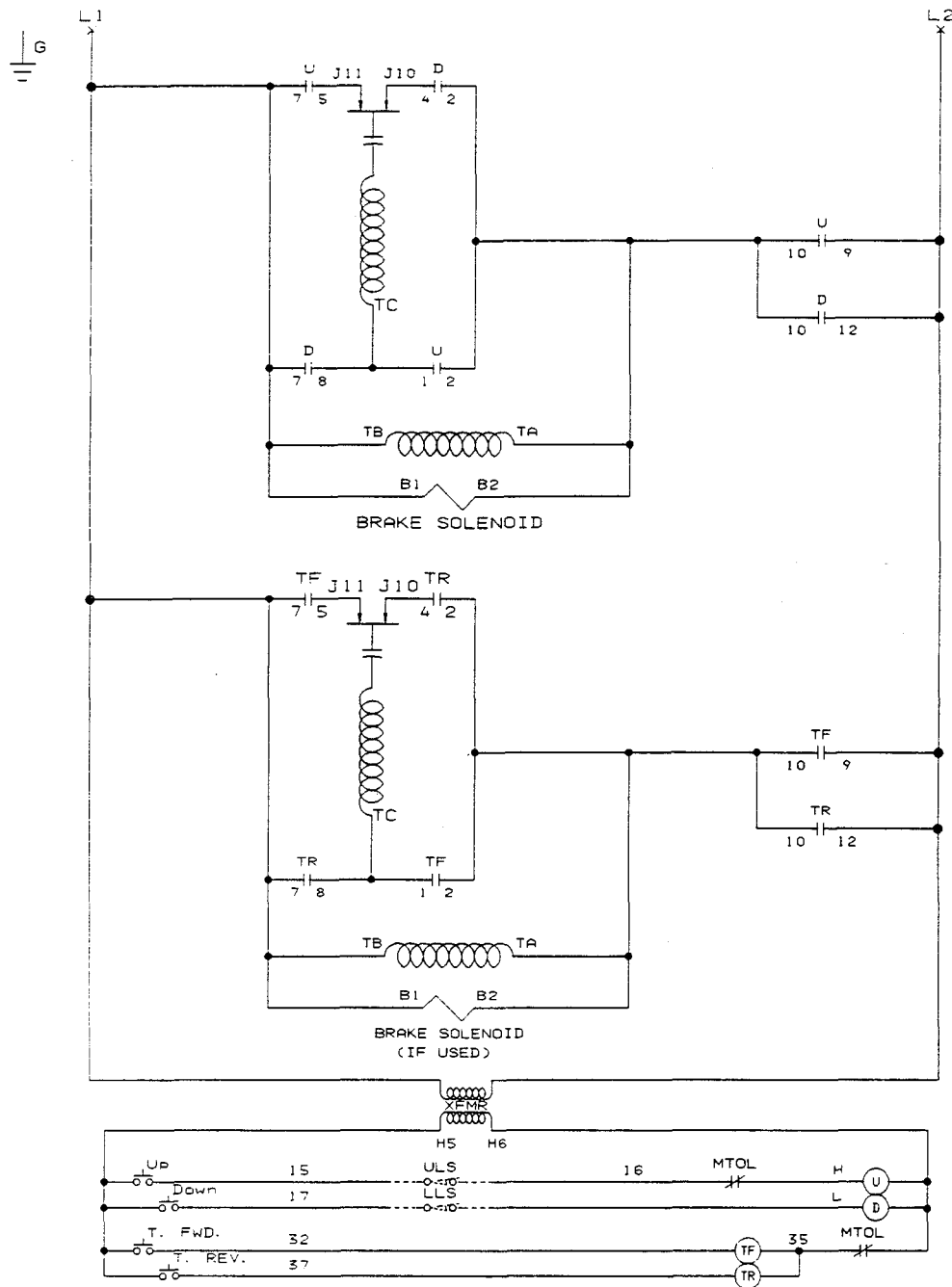
TRANSFORMER CONNECTIONS			
SINGLE VOLTAGE		DUAL VOLTAGE	
		LOW	HIGH
H1 TO L1			
H2 TO L2		H1 TO H3 TO L1 H2 TO H4 TO L2	H2 TO H3 H1 TO L1 H4 TO L2
H5 H6		H5 H6	H5 H6
H1 H2		H1 H2 H3 H4	



NOTE: UNIT CAN NOT BE FIELD CONNECTED FOR DIFFERENT VOLTAGE. HOIST BRAKE SOLENOID IS SINGLE VOLTAGE.

SINGLE SPEED HOIST  
 115 OR 230-1-60

# Yale® Hoists



DEVICE TERMINOLOGY	
U	HOIST UP CONTACTOR
D	HOIST DOWN CONTACTOR
TF	TROLLEY FWD CONTACTOR
TR	TROLLEY REV CONTACTOR
MTOL	MOTOR THERMAL OVERLOAD DEVICE

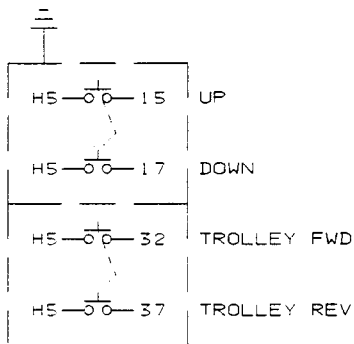
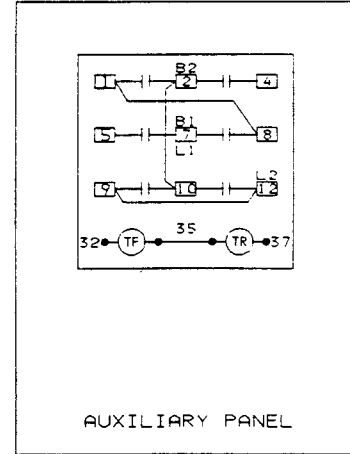
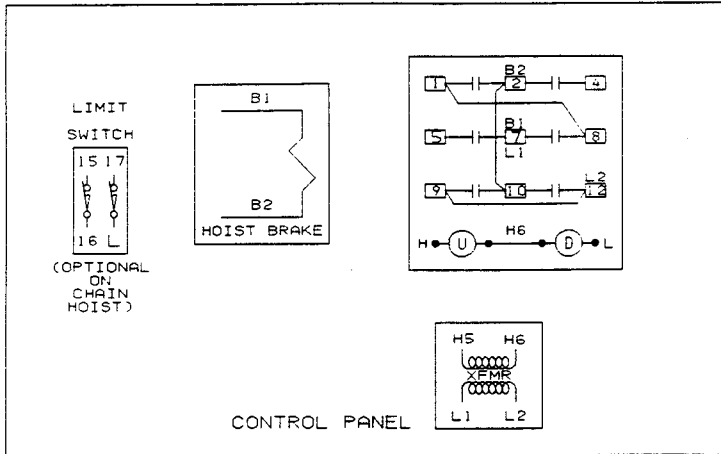
SINGLE SPEED HOIST-TROLLEY  
115 OR 230-1-60

Yale Hoists Highway 1 North P.O. Box 1000 Forrest City, Arkansas 72335		WIRING DIAGRAM	
Dr. By: DJ	Rev. A	By: DJ	Dwg. No.
Date: 10/23/90	Date: 10/25/95	WD1107024	Page 1 of 2



# Yale® Hoists

## PANEL LAYOUT

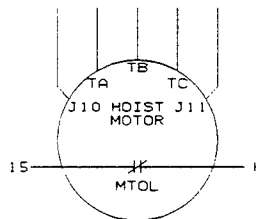


HOIST MOTOR CONNECTIONS														
SINGLE VOLTAGE MOTOR					DUAL VOLTAGE MOTORS									
					LOW VOLTAGE				HIGH VOLTAGE					
HOIST CONTACTOR TERMINAL					HOIST CONTACTOR TERMINAL				HOIST CONTACTOR TERMINAL					
10	7	1	4	5	10	7	1	4	5	10	7	4	5	
TA	TB	TC			TA	TB	TC			TA	TB			
					T1	T4				T1	T4			
T1	T4	T5	J10	J11	T3	T2	T5	J10	J11	T2	T3	T5	J10	J11

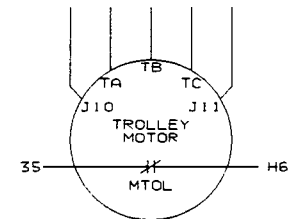
TROLLEY MOTOR CONNECTIONS														
SINGLE VOLTAGE MOTOR					DUAL VOLTAGE MOTORS									
					LOW VOLTAGE				HIGH VOLTAGE					
TROLLEY CONTACTOR TERMINAL					TROLLEY CONTACTOR TERMINAL				TROLLEY CONTACTOR TERMINAL					
10	7	1	4	5	10	7	1	4	5	10	7	4	5	
TA	TB	TC			TA	TB	TC			TA	TB			
					T1	T4				T1	T4			
T1	T4	T5	J10	J11	T3	T2	T5	J10	J11	T2	T3	T5	J10	J11

TRANSFORMER CONNECTIONS			
SINGLE VOLTAGE		DUAL VOLTAGE	
H1 TO L1		LOW	HIGH
H2 TO L2		H1 TO H3 TO L1 H2 TO H4 TO L2	H2 TO H3 H1 TO L1 H4 TO L2
H5 H6			
H1 H2		H1 H2 H3 H4	

SEE CONNECTION CHART



SEE CONNECTION CHART



NOTE: UNIT CAN NOT BE FIELD CONNECTED FOR DIFFERENT VOLTAGE. HOIST BRAKE SOLENOID IS SINGLE VOLTAGE.

TROLLEY BRAKE  
(IF USED)

SINGLE SPEED HOIST-TROLLEY  
115 OR 230-1-60

Yale Hoists

Highway 1 North P.O. Box 1000  
Forrest City, Arkansas 72335

WIRING DIAGRAM

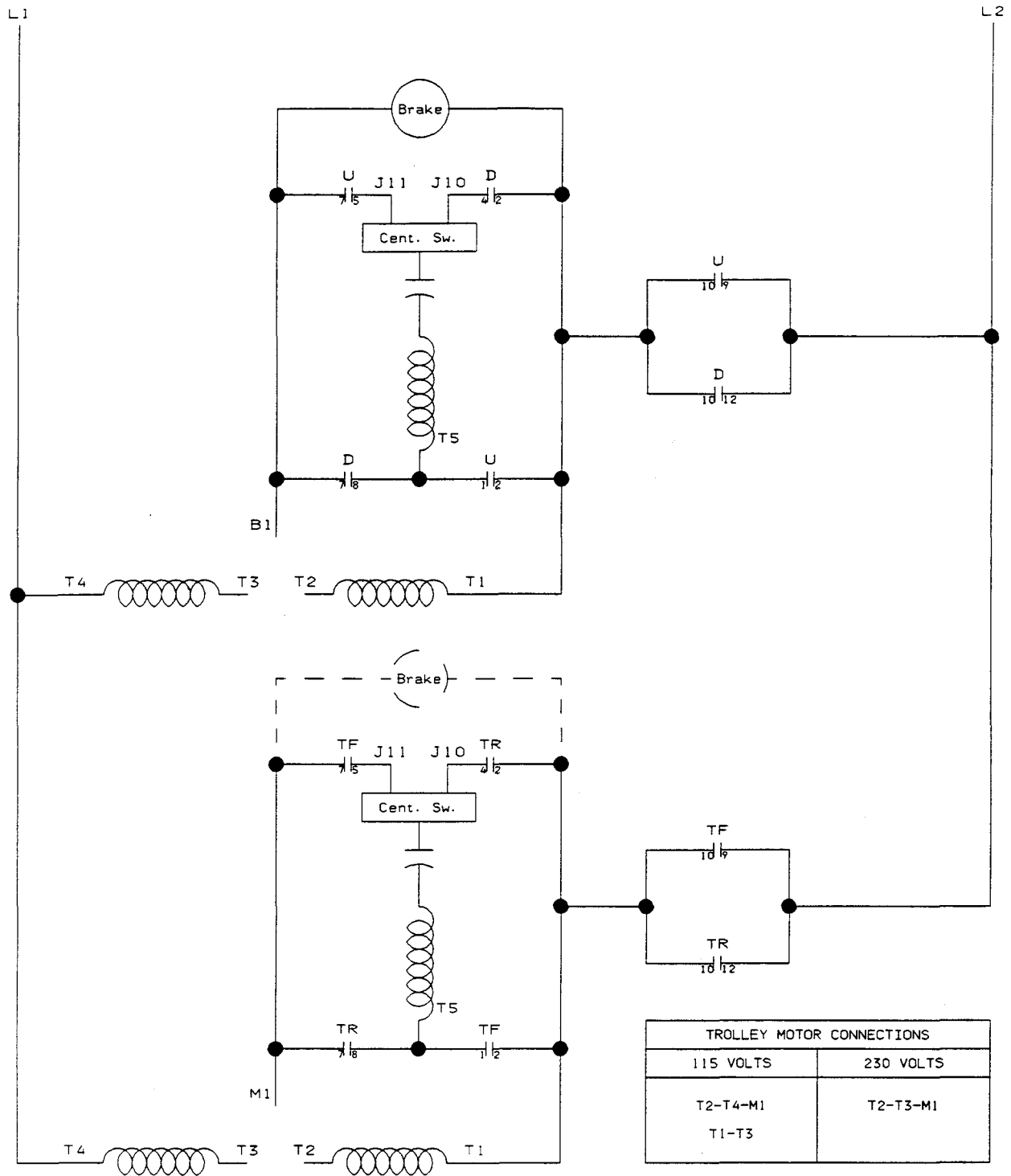
Dr. By: DJ  
Date: 10/23/90

Rev. A By: DJ  
Date: 10/25/95

Dwg. No.  
WD1107024

Page  
2 of 2

# Yale® Hoists



SINGLE SPEED HOIST-TROLLEY  
115/230-1-60

Yale Hoists  
Highway 1 North P.O. Box 1000  
Forrest City, Arkansas 72335

Dr. By: FW  
Date: 12/11/87

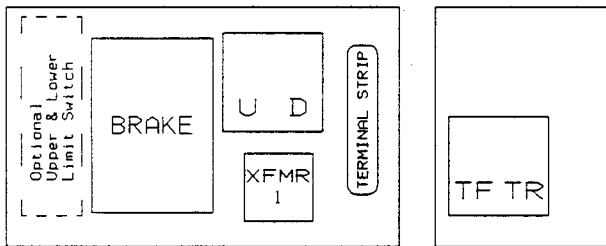
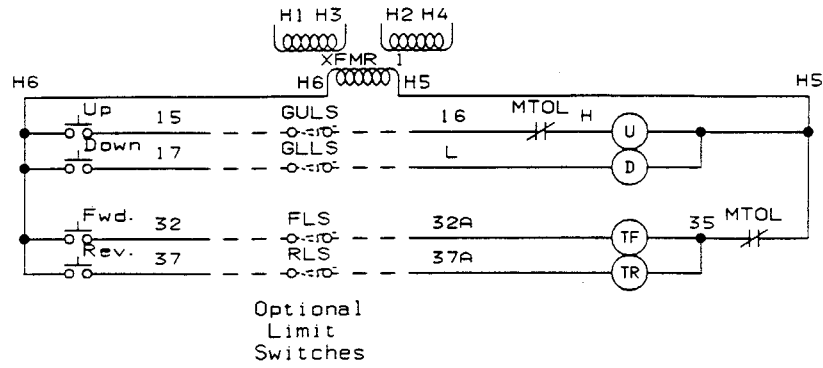
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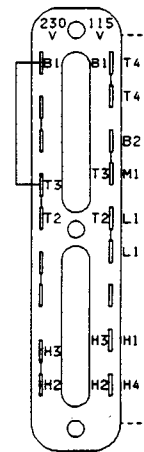
Dwg. No.  
WD1107025

Page  
1 of 2

# Yale® Hoists



Panel Layout



Terminal  
Strip  
Detail

SINGLE SPEED HOIST-TROLLEY  
115/230-1-60

Yale Hoists

Highway 1 North P.O. Box 1000  
Forrest City, Arkansas 72335

WIRING DIAGRAM

Dr. By: FW

Date: 12/11/87

Rev. A

Date: 03/15/90

By: FW

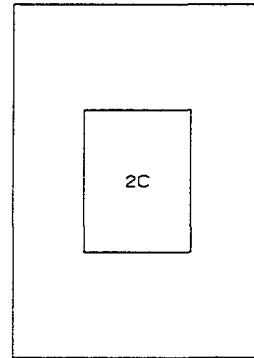
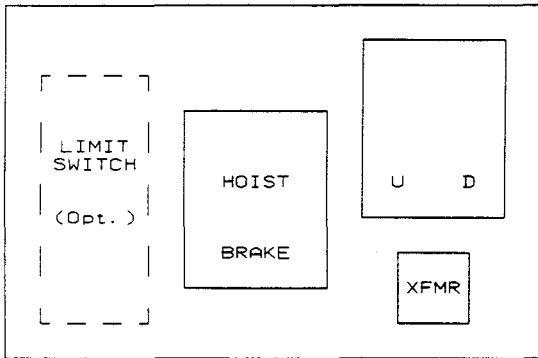
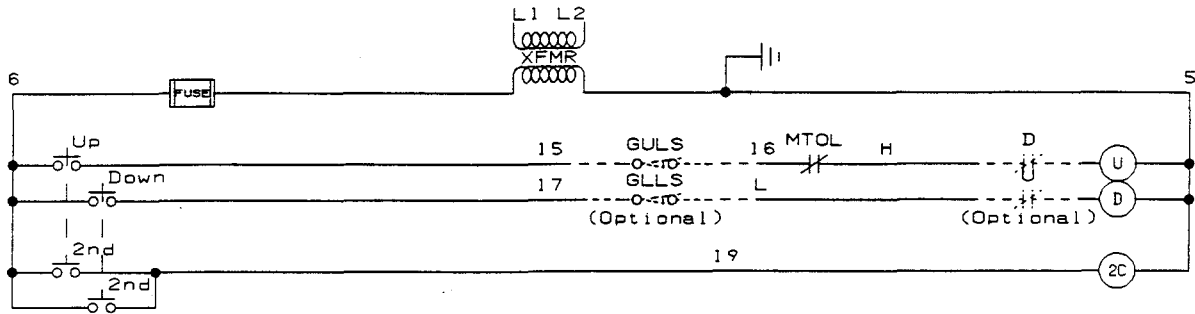
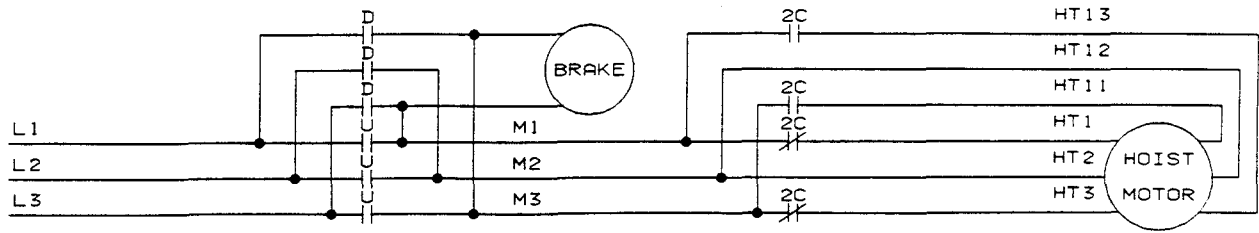
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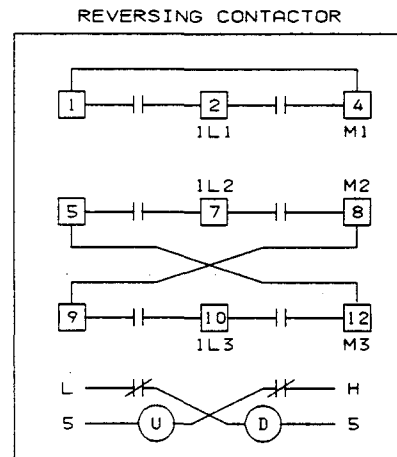
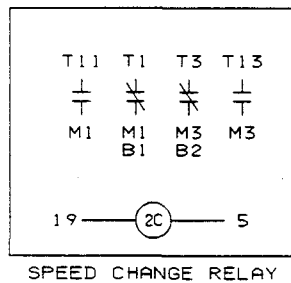
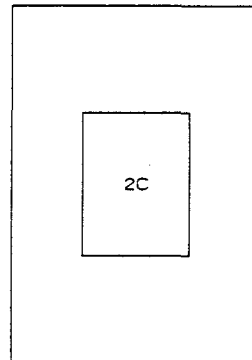
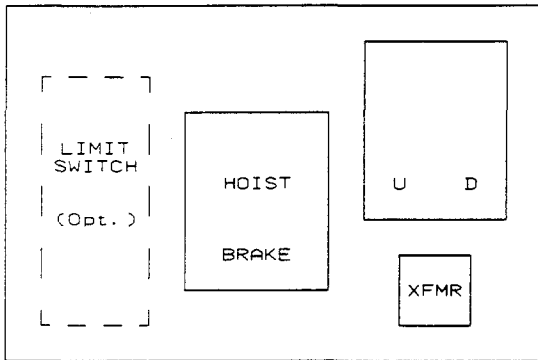
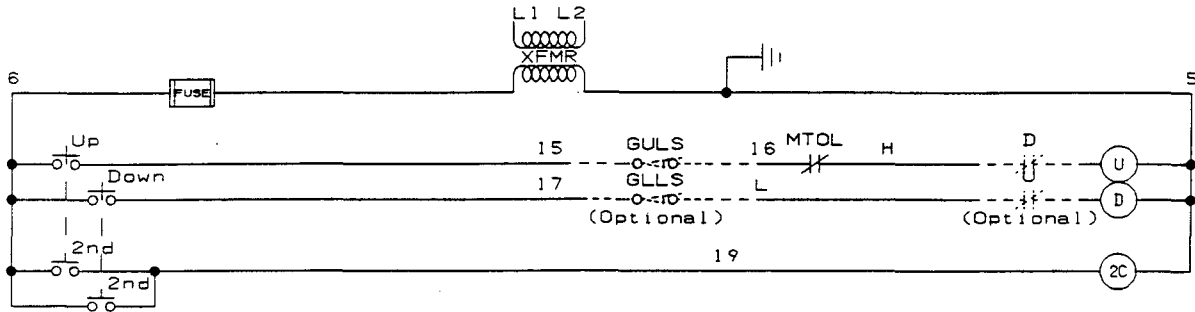
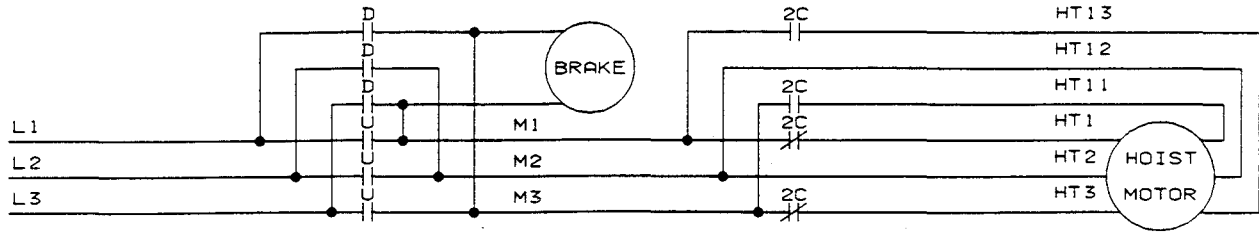
Page

2 of 2

# Yale® Hoists



# Yale® Hoists



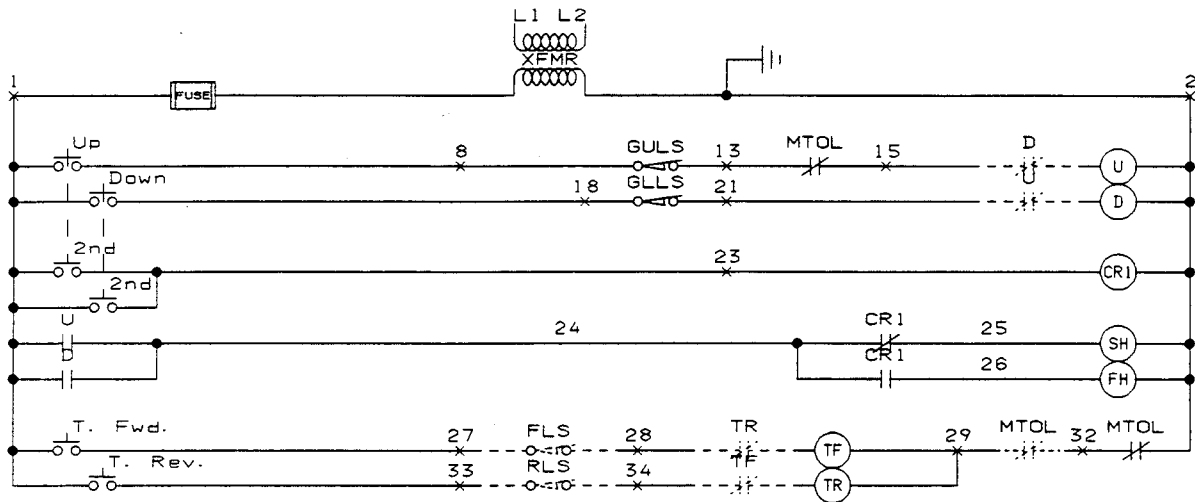
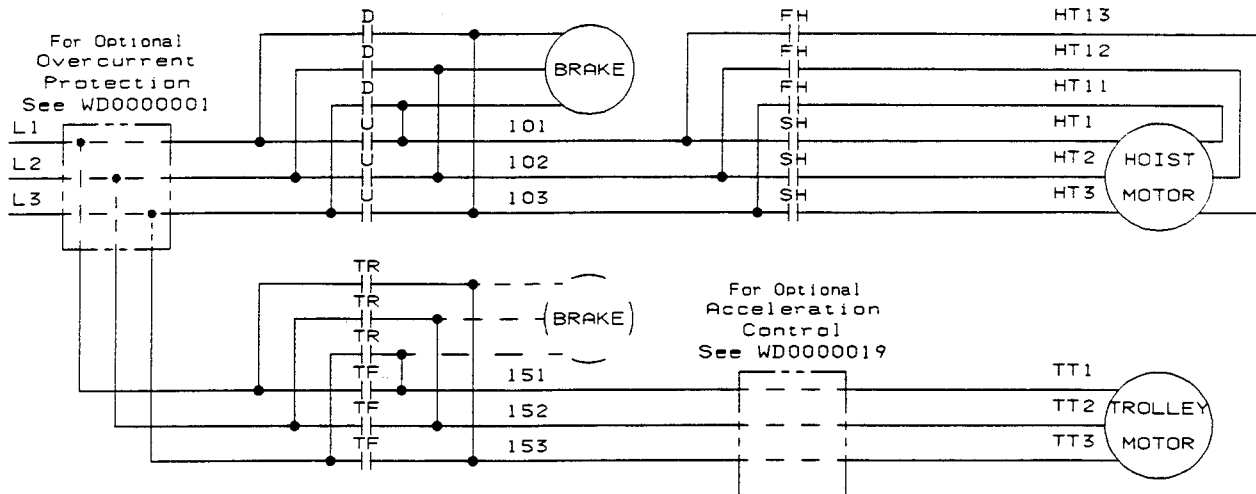
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 Rev. by: \_\_\_\_\_ Date: \_\_\_\_\_

Drawing No. \_\_\_\_\_

WD2007021

Page 1 of 1

# Yale® Hoists



TWO SPEED HOIST-SINGLE SPEED TROLLEY  
230 & 460-3-60

**Yale® Hoists**

Highway 1 North P.O. Box 1000  
Forrest City, Arkansas 72335

WIRING DIAGRAM

Dr. By: FW

Rev. E By: FW

Dwg. No.

Page

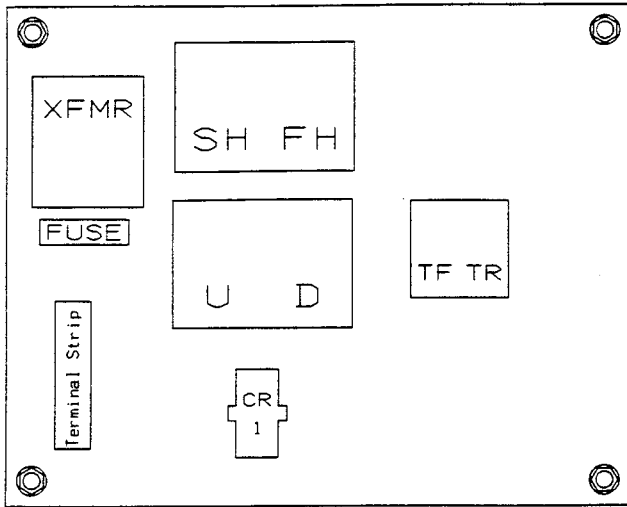
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Date: 08/31/89

WD2107000

1 of 2

# Yale® Hoists



TWO SPEED HOIST-SINGLE SPEED TROLLEY  
230 & 460-3-60

**Yale® Hoists**

Highway 1 North P.O. Box 1000  
Forrest City, Arkansas 72335

Dr. By: FW  
Date:

Rev. E By: FW  
Date: 08/31/89

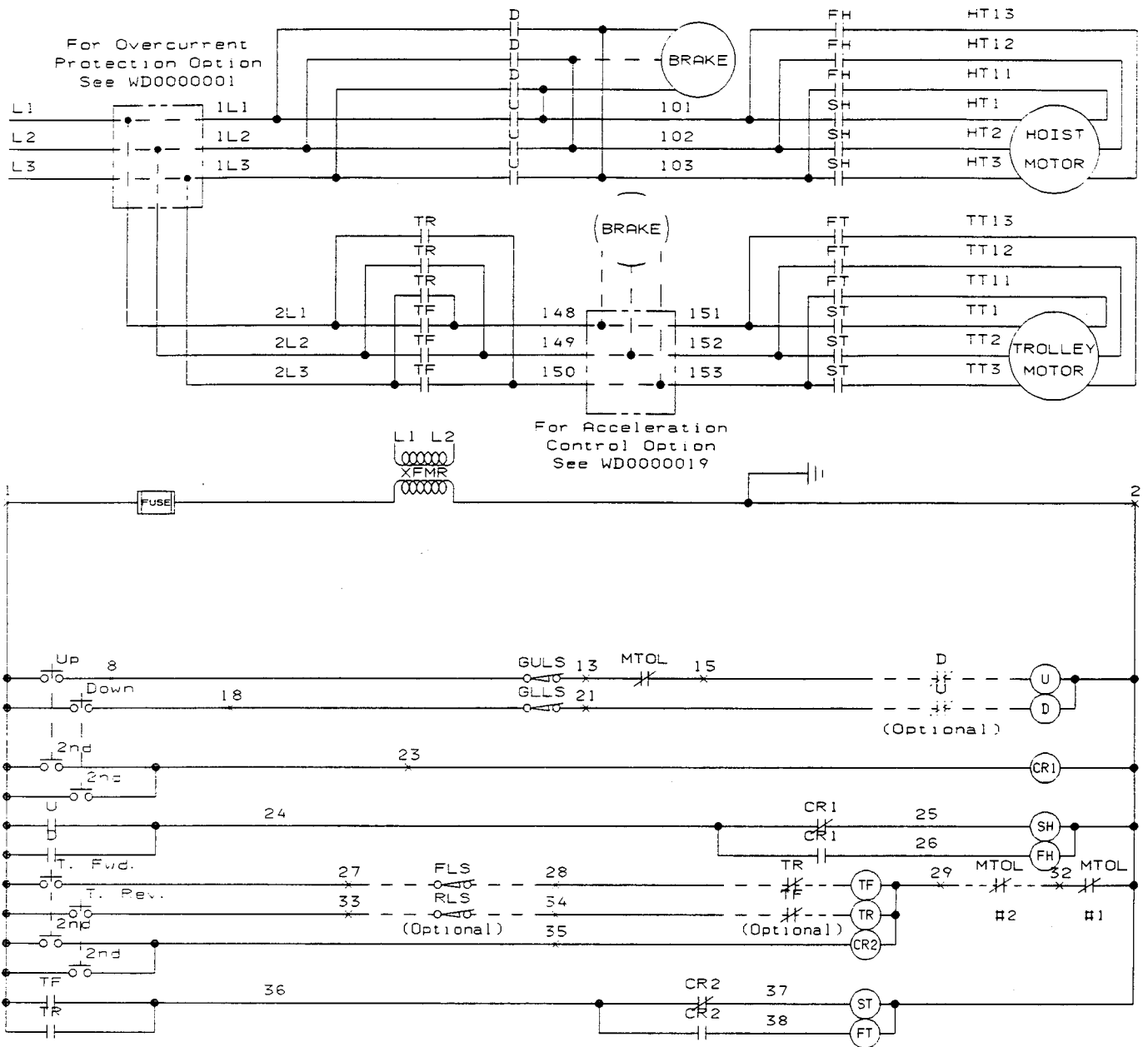
WIRING DIAGRAM

Drawing No.

WD2107000

Page  
2 of 2

# Yale® Hoists



TWO SPEED HOIST-TWO SPEED TROLLEY  
200-230-460-575 V-3-60

Yale® Hoists

Highway 1 North P.O. Box 1000  
Forrest City, Arkansas 72335

WIRING DIAGRAM

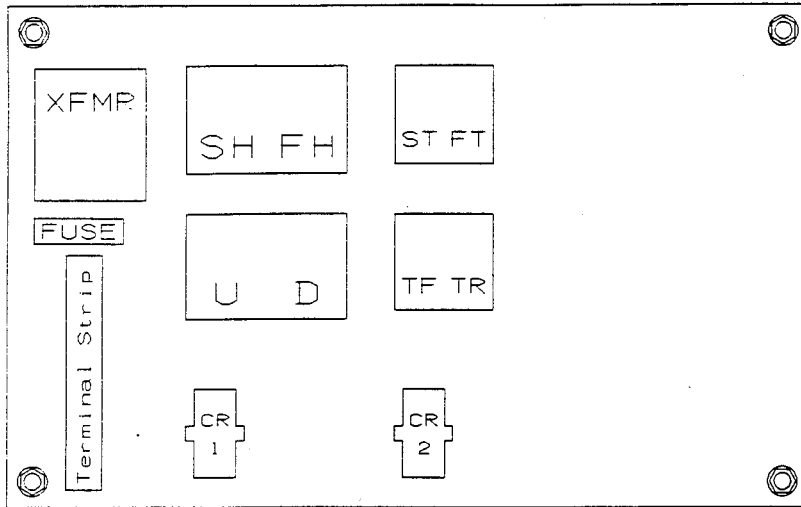
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Date:

Rev. B By: DJ  
Date: 06/21/90

Dwg. No.  
WD2207000

Page  
1 of 2





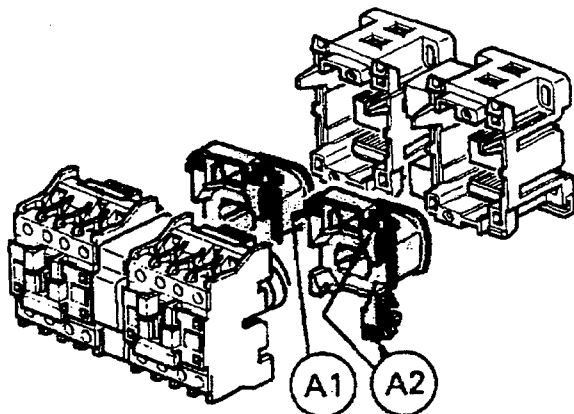
TWO SPEED HOIST-TWO SPEED TROLLEY  
 200-230-460-575 V-3-60

# Yale® Hoists

## REVERSING CONTACTOR Type LC2D1210

649275601 Complete contactor with 24 volt coils  
649275602 Complete contactor with 115 volt coils

647028611 24 volt replacement coil  
647028602 115 volt replacement coil



### COIL REPLACEMENT

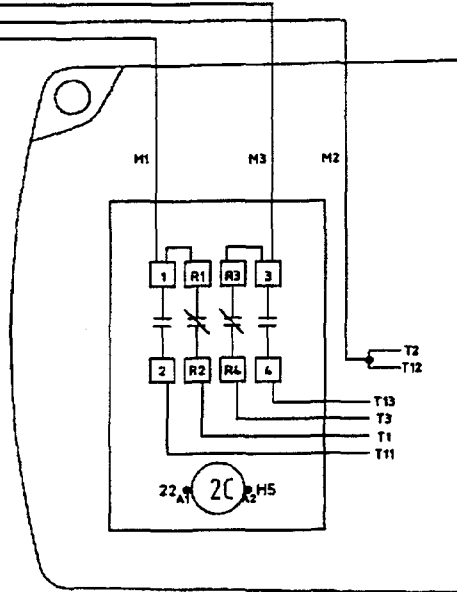
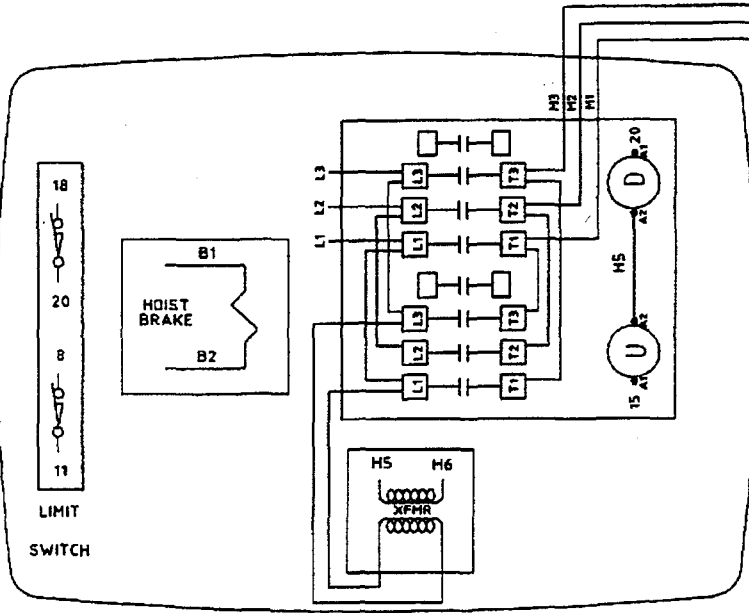
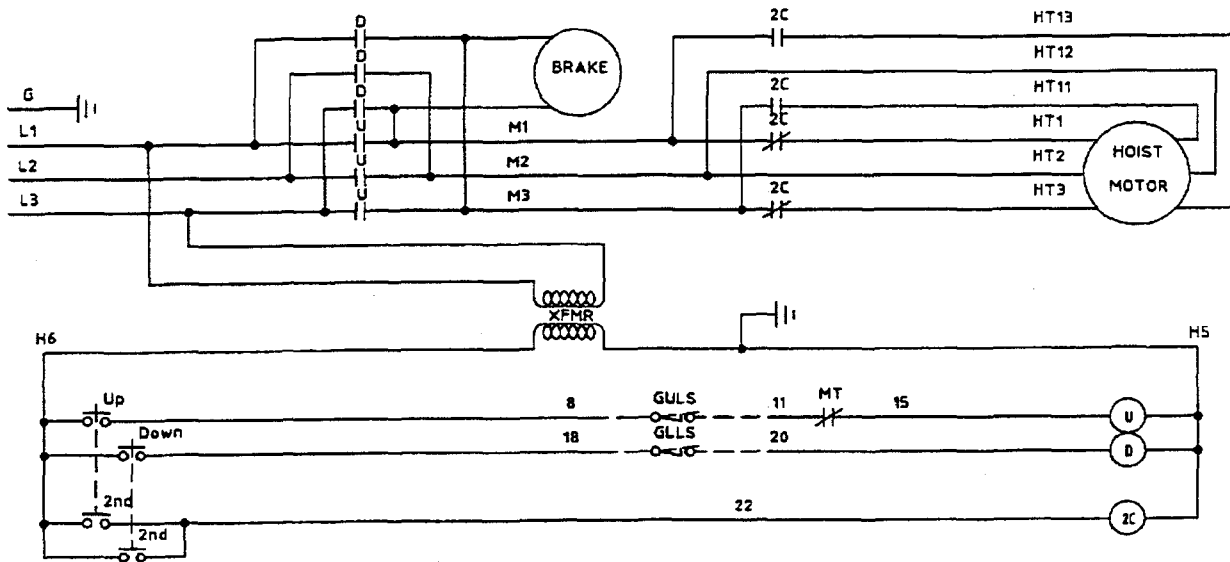
Disconnect all electrical power from the equipment and remove the wiring from the coil terminals. Note that the "A2" coil terminal appears on both sides of the contactor and may have connections on either or both sides. Mark the wires if necessary to ensure that they are replaced on the correct terminals.

Loosen the screws holding the top half of the contactor to the base. These screws are adjacent to the "A2" coil terminals and may be identified by a dark gray finish. Lift the top section from the base. If there is insufficient slack in the power wiring, it may be necessary to disconnect the wiring at this time. Be sure to mark any wires that are disconnected to ensure proper reconnection.

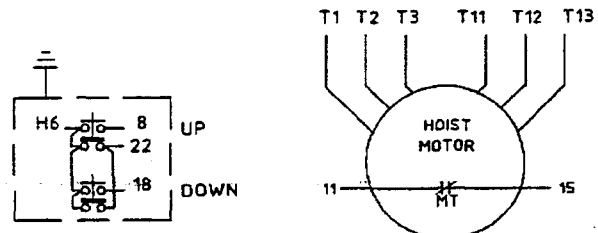
Inspect the contactor carefully. If any parts are worn or broken, the complete contactor should be replaced.

Lift the coils from the base. Drop the new coils into position, replace the upper section of the contactor, and tighten the screws to 1.1-1.4 Nm (10-12 lb-in). Reconnect all wiring that was removed during the disassembly process. Tighten the terminal screws to 1.2 Nm (10 lb-in).

**When Replacement Parts Are Needed, Order Only Yale® Factory Engineered Parts**

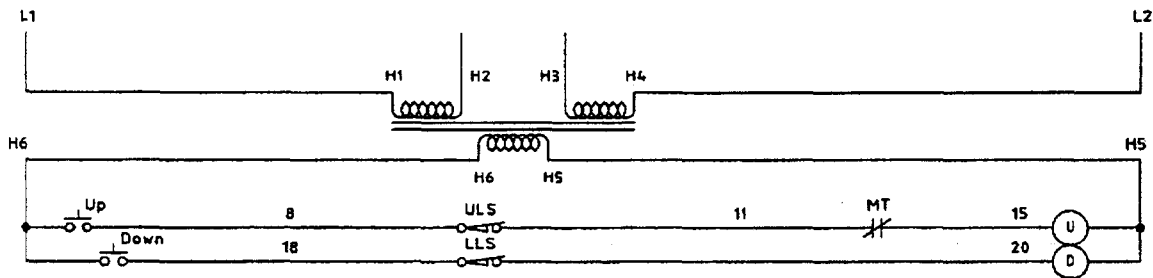
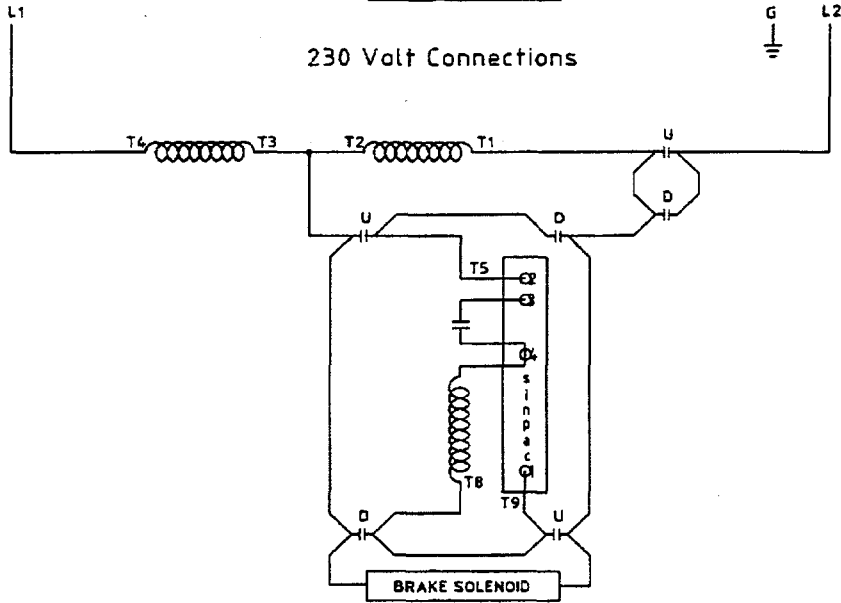
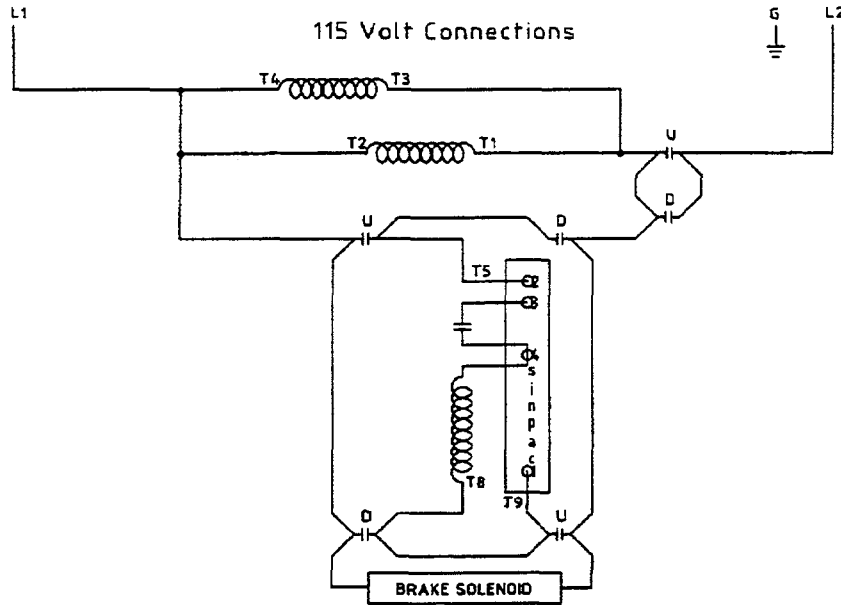


TRANSFORMER CONNECTIONS		
SINGLE VOLTAGE	DUAL VOLTAGE	
	LOW	HIGH
H1 TO L1 H2 TO L3	H1 TO H3 TO L1 H2 TO H4 TO L2	H2 TO H3 H1 TO L1 H4 TO L2



Two Speed Hoist 3 phase

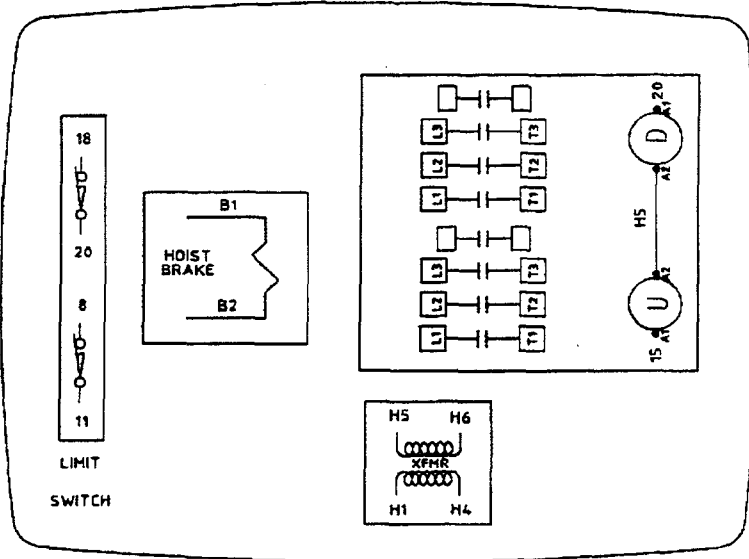
Yale® Hoists 3105 North Washington P.O. Box 1000 Forrest City, Arkansas 72335	<b>WIRING DIAGRAM</b>	
	Dr. By: F. Winter Date: 8/14/2000	Rev. C Date: 8/16/2000
Dwg. No. WD -K20S3-0000	Page 1 of 1	



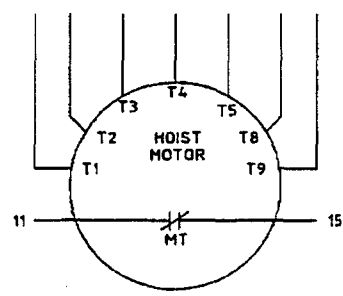
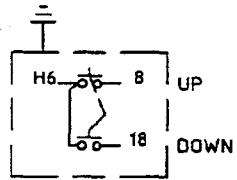
Single Speed Hoist 115, 230 volts 1 phase

Yale® Hoists 3105 North Washington P.O. Box 1000 Forrest City, Arkansas 72335	Dr. By: F. Winter Date: 8/14/2000		Rev. C Date: 8/16/2000		By: F. Winter Dwg. No. WD-K10D1-0000		Page 1 of 2
	WIRING DIAGRAM						

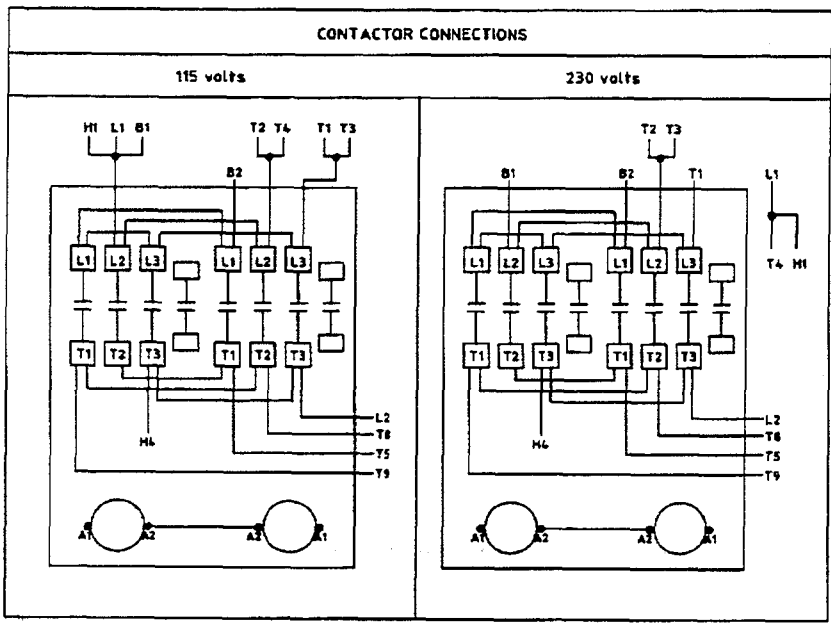
### PANEL LAYOUT



SEE CONNECTION CHART



### CONTACTOR CONNECTIONS

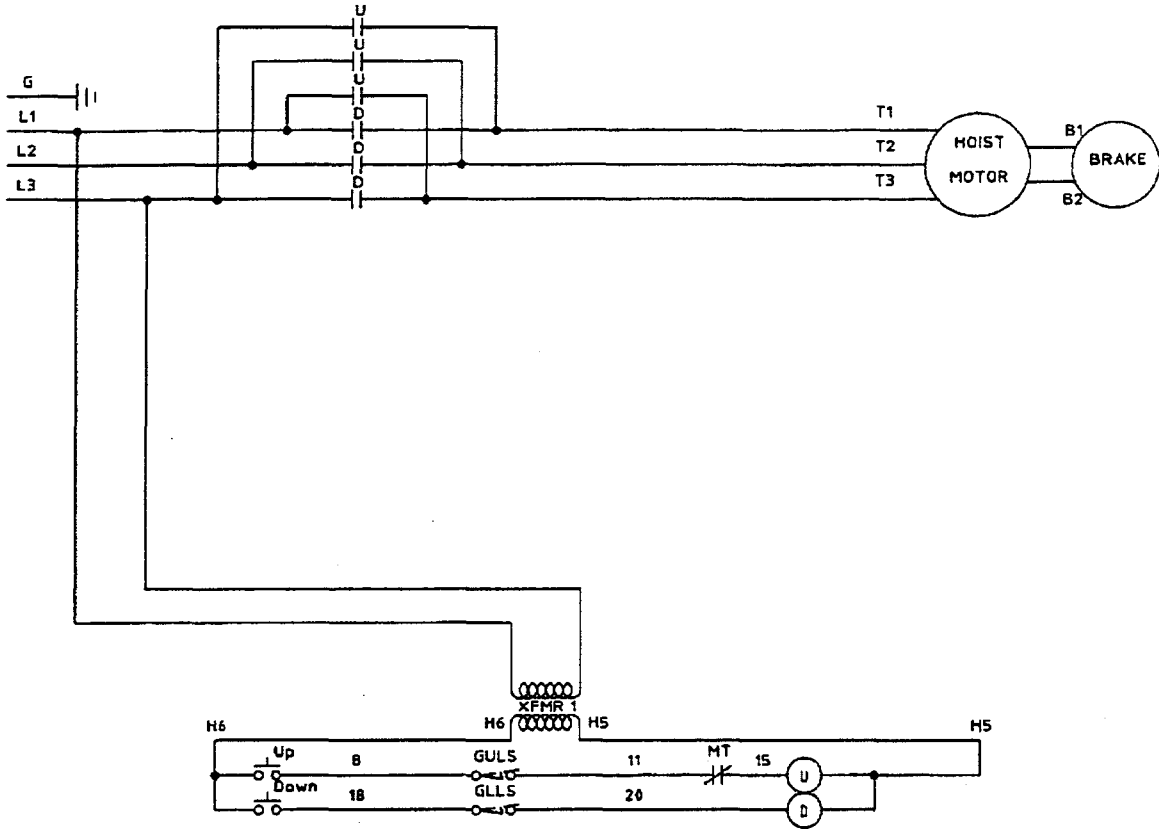


### TRANSFORMER CONNECTIONS

DUAL VOLTAGE	
115 volts	230 volts
H1 & H3 TO L1 H2 & H4 TO L2	H2 TO H3 H1 TO L1 H4 TO L2

Single Speed Hoist 115 volts, 230 volts 1 phase

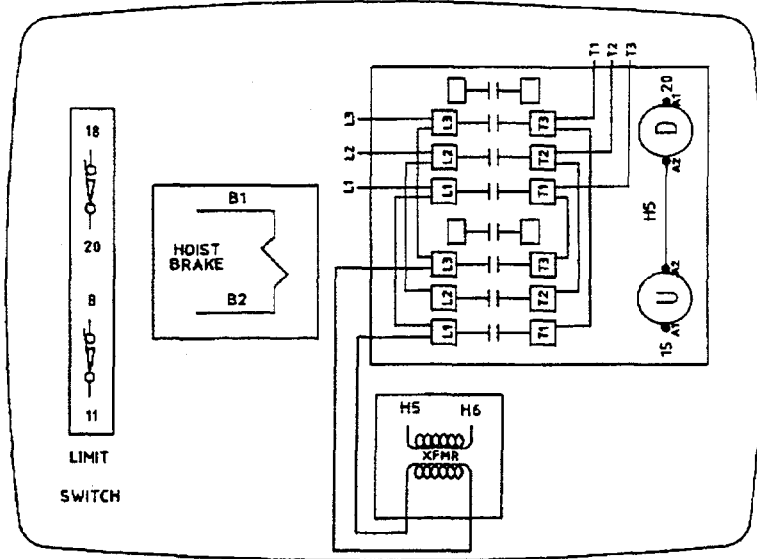
Yale® Hoists 3105 North Washington P.O. Box 1000 Forrest City, Arkansas 72335			WIRING DIAGRAM	
	Dr. By: F. Winter Date: 8/16/2000	Rev. C Date: 8/16/2000		



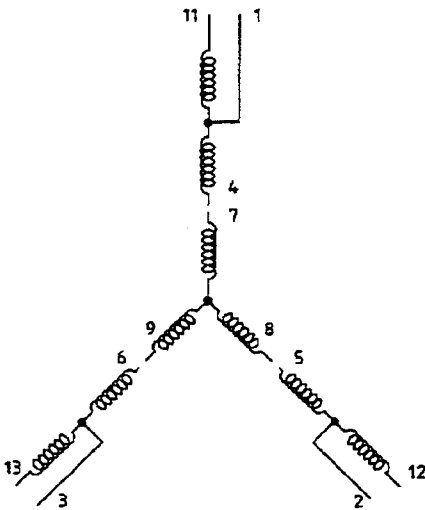
Single Speed Hoist 3 phase

Yale® Hoists. 3105 North Washington P.O. Box 1000 Forrest City, Arkansas 72335			<b>WIRING DIAGRAM</b>	
	Dr. By: F. Winter Date: 8/14/2000	Rev. C Date: 11/16/2000	By: F. Winter	Dwg. No. WD -K10M3-0000

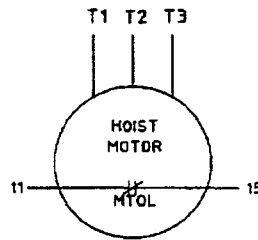
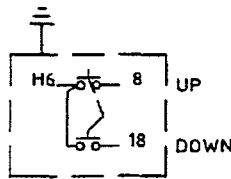
# PANEL LAYOUT



MULTI-VOLTAGE MOTOR WINDING ARRANGEMENT



SEE CONNECTION CHART



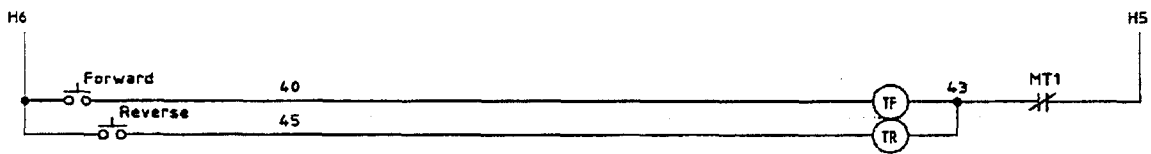
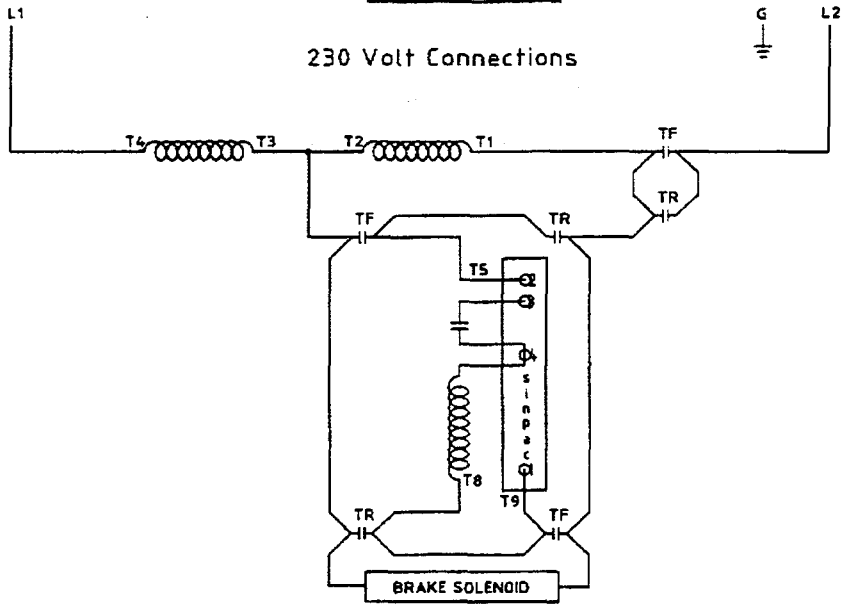
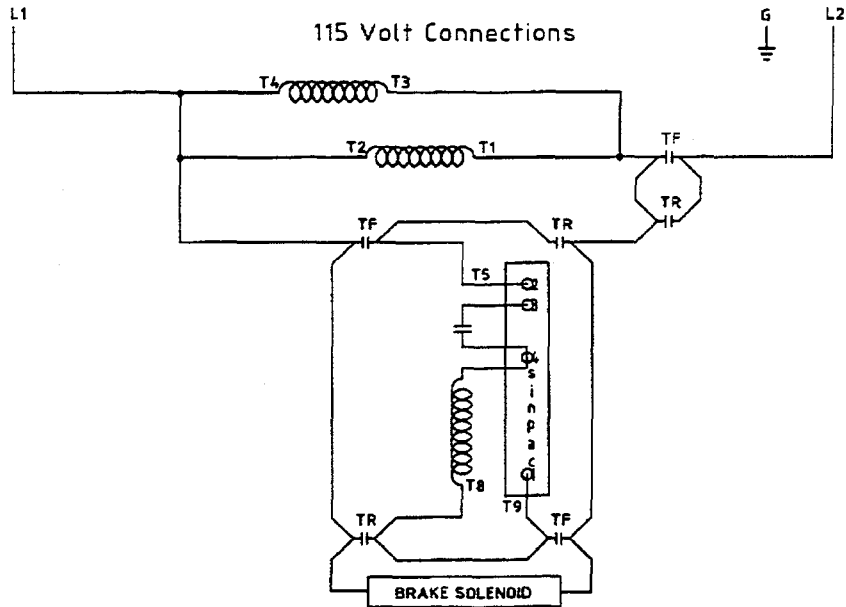
200-230 VOLTS	460 VOLTS	575 VOLTS

\* INSULATE THESE TERMINATION POINTS SEPARATELY. SOME MOTORS MAY NOT HAVE LEADS 11, 12, & 13.

TRANSFORMER CONNECTIONS		
SINGLE VOLTAGE	DUAL VOLTAGE	
	LOW	HIGH
H1 TO L1 H2 TO L3	H1 TO H3 TO L1 H2 TO H4 TO L2	H2 TO H3 H1 TO L1 H4 TO L2

Single Speed Hoist 3 phase

Yale® Hoists 3105 North Washington P.O. Box 1000 Forrest City, Arkansas 72335			<b>WIRING DIAGRAM</b>	
	Dr. By: F. Winter Date: 8/14/2000	Rev. C Date: 11/16/2000	By: F. Winter Dwg. No. WD -K10M3-0000	Page 2 of 2

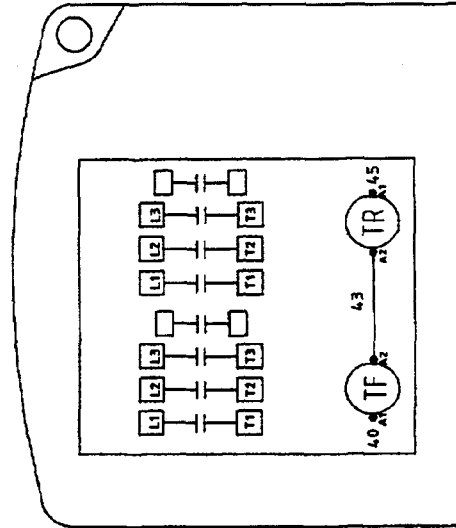


Single Speed Trolley 115, 230 volts 1 phase

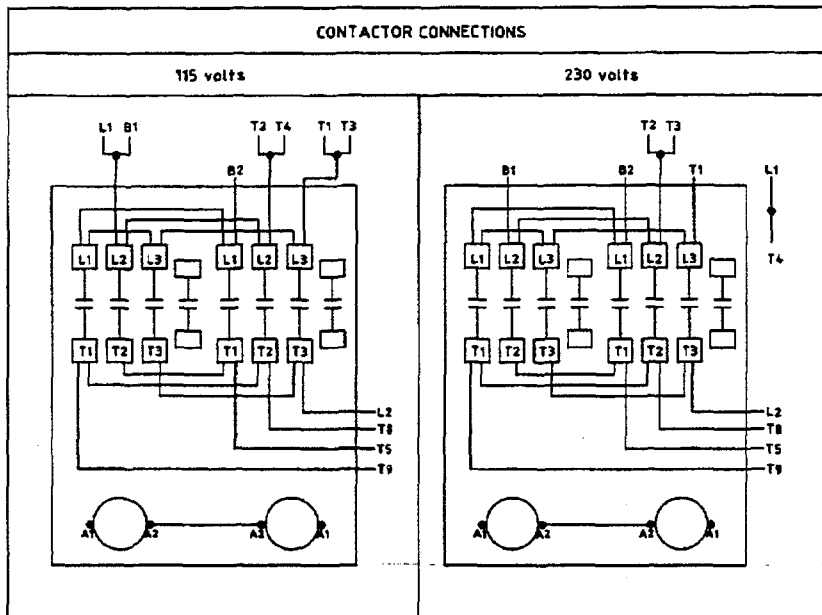
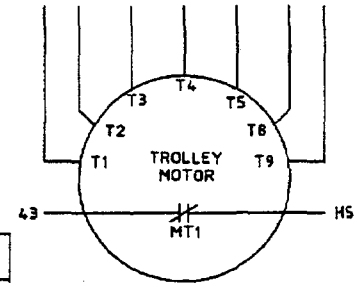
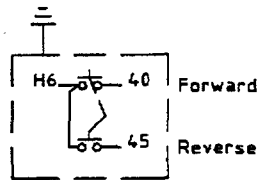
<b>Yale® Hoists</b> 3105 North Washington P.O. Box 1000 Forrest City, Arkansas 72335			<b>WIRING DIAGRAM</b>	
	Dr. By: F. Winter Date: 8/14/2000	Rev. C Date: 11/16/2000	By: F. Winter	Dwg. No. WD -K01D1-0000



# PANEL LAYOUT



SEE CONNECTION CHART



Single Speed Trolley 115 volts, 230 volts 1 phase

<b>Yale® Hoists</b> 3105 North Washington P.O. Box 1000 Forrest City, Arkansas 72335			<b>WIRING DIAGRAM</b>	
	Dr. By: F. Winter Date: 8/14/2000	Rev. C Date: 11/16/2000	By: F. Winter	Dwg. No. WD-K01D1-0000

# POWERED HOIST INSPECTION CHECK LIST

SEE PREVENTIVE MAINTENANCE SECTION OF INSTRUCTION MANUAL FOR DETAILS.

CHECK ONLY COMPONENTS APPLICABLE FOR SPECIFIC EQUIPMENT AND INSPECTION TYPE.

HOIST MODEL \_\_\_\_\_

HOIST S/N \_\_\_\_\_

HOOKS	YES	NO	CABLE	YES	NO	CHAINS	YES	NO
HARDWARE LOOSE	<input type="checkbox"/>	<input type="checkbox"/>	BROKEN WIRES AT ENDS	<input type="checkbox"/>	<input type="checkbox"/>	BINDING	<input type="checkbox"/>	<input type="checkbox"/>
CRACKS	<input type="checkbox"/>	<input type="checkbox"/>	BROKEN WIRES EXCESSIVE	<input type="checkbox"/>	<input type="checkbox"/>	CRACKED	<input type="checkbox"/>	<input type="checkbox"/>
EXCESSIVE WEAR	<input type="checkbox"/>	<input type="checkbox"/>	EXCESSIVE WEAR	<input type="checkbox"/>	<input type="checkbox"/>	TWISTED	<input type="checkbox"/>	<input type="checkbox"/>
BENT	<input type="checkbox"/>	<input type="checkbox"/>	KINKED OR DISTORTED	<input type="checkbox"/>	<input type="checkbox"/>	DISTORTED	<input type="checkbox"/>	<input type="checkbox"/>
SPREADING	<input type="checkbox"/>	<input type="checkbox"/>	CORROSION	<input type="checkbox"/>	<input type="checkbox"/>	CORRODED	<input type="checkbox"/>	<input type="checkbox"/>
FREELY ROTATE	<input type="checkbox"/>	<input type="checkbox"/>	HEAT DAMAGED	<input type="checkbox"/>	<input type="checkbox"/>	EXCESSIVE WEAR	<input type="checkbox"/>	<input type="checkbox"/>
LATCH DAMAGED	<input type="checkbox"/>	<input type="checkbox"/>				WORN CHAIN GUIDES	<input type="checkbox"/>	<input type="checkbox"/>
						POCKET WHEELS WORN	<input type="checkbox"/>	<input type="checkbox"/>
<b>BRAKES</b>			<b>WIRING</b>			<b>DRUM &amp; SHEAVES</b>		
MOTOR BRAKE WORN OR NOT OPERATING	<input type="checkbox"/>	<input type="checkbox"/>	LOOSE CONNECTIONS	<input type="checkbox"/>	<input type="checkbox"/>	WORN EXCESSIVELY	<input type="checkbox"/>	<input type="checkbox"/>
EXCESSIVE LOADBRAKE DRIFT OR BLACKLASH	<input type="checkbox"/>	<input type="checkbox"/>	FRAYED	<input type="checkbox"/>	<input type="checkbox"/>	CRACKED OR SCORED	<input type="checkbox"/>	<input type="checkbox"/>
EXCESSIVE DISC WEAR	<input type="checkbox"/>	<input type="checkbox"/>	DAMAGED	<input type="checkbox"/>	<input type="checkbox"/>			
			PROPER GROUNDING	<input type="checkbox"/>	<input type="checkbox"/>			
<b>LIMIT SWITCHES</b>			<b>LOAD LIMITING DEVICE</b>			<b>COLLECTORS</b>		
OPERATING PROPERLY	<input type="checkbox"/>	<input type="checkbox"/>	OPERATING PROPERLY	<input type="checkbox"/>	<input type="checkbox"/>	BINDING	<input type="checkbox"/>	<input type="checkbox"/>
						EXCESSIVE WEAR	<input type="checkbox"/>	<input type="checkbox"/>
<b>HOUSING</b>			<b>OPERATION CONTROLS</b>			<b>LUBRICATION</b>		
DISTORTED	<input type="checkbox"/>	<input type="checkbox"/>	CONTACTOR PITTING	<input type="checkbox"/>	<input type="checkbox"/>	ALL POINTS LUBRICATED AS GIVEN IN LUB CHART	<input type="checkbox"/>	<input type="checkbox"/>
CRACKS	<input type="checkbox"/>	<input type="checkbox"/>	OPERATING PROPERLY	<input type="checkbox"/>	<input type="checkbox"/>	OIL DARK OR LOW	<input type="checkbox"/>	<input type="checkbox"/>
LOOSE HARDWARE	<input type="checkbox"/>	<input type="checkbox"/>	DAMAGED PUSH BUTTON	<input type="checkbox"/>	<input type="checkbox"/>	OIL LEAKS	<input type="checkbox"/>	<input type="checkbox"/>
BEARING NOISE	<input type="checkbox"/>	<input type="checkbox"/>	HOUSING	<input type="checkbox"/>	<input type="checkbox"/>			
<b>SUPPORTING STRUCTURE</b>			<b>AIR SYSTEM</b>			<b>WARNING LABELS</b>		
CONTINUED ABILITY TO SUPPORT IMPOSED LOADS	<input type="checkbox"/>	<input type="checkbox"/>	LEAKING	<input type="checkbox"/>	<input type="checkbox"/>	MISSING	<input type="checkbox"/>	<input type="checkbox"/>
WORN OR DISTORTED TROLLEY PARTS	<input type="checkbox"/>	<input type="checkbox"/>	LOOSE CONNECTIONS	<input type="checkbox"/>	<input type="checkbox"/>	ILLEGIBLE	<input type="checkbox"/>	<input type="checkbox"/>
			BROKEN CONTROL PENDANT	<input type="checkbox"/>	<input type="checkbox"/>			

NOTE: IF ANY ( ) IS CHECKED DO NOT OPERATE THE HOIST UNTIL REPAIRS HAVE BEEN MADE.

REMARKS AND REPAIRS MADE \_\_\_\_\_

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SIGNATURE \_\_\_\_\_ DATE \_\_\_\_\_ CLOCK NUMBER \_\_\_\_\_

# POWERED HOIST INSPECTION CHECK LIST

SEE PREVENTIVE MAINTENANCE SECTION OF INSTRUCTION MANUAL FOR DETAILS.

CHECK ONLY COMPONENTS APPLICABLE FOR SPECIFIC EQUIPMENT AND INSPECTION TYPE.

HOIST MODEL \_\_\_\_\_

HOIST S/N \_\_\_\_\_

HOOKS	YES	NO	CABLE	YES	NO	CHAINS	YES	NO
HARDWARE LOOSE	<input type="checkbox"/>	<input type="checkbox"/>	BROKEN WIRES AT ENDS	<input type="checkbox"/>	<input type="checkbox"/>	BINDING	<input type="checkbox"/>	<input type="checkbox"/>
CRACKS	<input type="checkbox"/>	<input type="checkbox"/>	BROKEN WIRES EXCESSIVE	<input type="checkbox"/>	<input type="checkbox"/>	CRACKED	<input type="checkbox"/>	<input type="checkbox"/>
EXCESSIVE WEAR	<input type="checkbox"/>	<input type="checkbox"/>	EXCESSIVE WEAR	<input type="checkbox"/>	<input type="checkbox"/>	TWISTED	<input type="checkbox"/>	<input type="checkbox"/>
BENT	<input type="checkbox"/>	<input type="checkbox"/>	KINKED OR DISTORTED	<input type="checkbox"/>	<input type="checkbox"/>	DISTORTED	<input type="checkbox"/>	<input type="checkbox"/>
SPREADING	<input type="checkbox"/>	<input type="checkbox"/>	CORROSION	<input type="checkbox"/>	<input type="checkbox"/>	CORRODED	<input type="checkbox"/>	<input type="checkbox"/>
FREELY ROTATE	<input type="checkbox"/>	<input type="checkbox"/>	HEAT DAMAGED	<input type="checkbox"/>	<input type="checkbox"/>	EXCESSIVE WEAR	<input type="checkbox"/>	<input type="checkbox"/>
LATCH DAMAGED	<input type="checkbox"/>	<input type="checkbox"/>				WORN CHAIN GUIDES	<input type="checkbox"/>	<input type="checkbox"/>
						POCKET WHEELS WORN	<input type="checkbox"/>	<input type="checkbox"/>
<b>BRAKES</b>	<b>YES</b>	<b>NO</b>	<b>WIRING</b>	<b>YES</b>	<b>NO</b>	<b>DRUM &amp; SHEAVES</b>	<b>YES</b>	<b>NO</b>
MOTOR BRAKE WORN OR NOT OPERATING	<input type="checkbox"/>	<input type="checkbox"/>	LOOSE CONNECTIONS	<input type="checkbox"/>	<input type="checkbox"/>	WORN EXCESSIVELY	<input type="checkbox"/>	<input type="checkbox"/>
EXCESSIVE LOADBRAKE DRIFT OR BLACKLASH	<input type="checkbox"/>	<input type="checkbox"/>	FRAYED	<input type="checkbox"/>	<input type="checkbox"/>	CRACKED OR SCORED	<input type="checkbox"/>	<input type="checkbox"/>
EXCESSIVE DISC WEAR	<input type="checkbox"/>	<input type="checkbox"/>	DAMAGED	<input type="checkbox"/>	<input type="checkbox"/>			
			PROPER GROUNDING	<input type="checkbox"/>	<input type="checkbox"/>			
<b>LIMIT SWITCHES</b>	<b>YES</b>	<b>NO</b>	<b>LOAD LIMITING DEVICE</b>	<b>YES</b>	<b>NO</b>	<b>COLLECTORS</b>	<b>YES</b>	<b>NO</b>
OPERATING PROPERLY	<input type="checkbox"/>	<input type="checkbox"/>	OPERATING PROPERLY	<input type="checkbox"/>	<input type="checkbox"/>	BINDING	<input type="checkbox"/>	<input type="checkbox"/>
						EXCESSIVE WEAR	<input type="checkbox"/>	<input type="checkbox"/>
<b>HOUSING</b>	<b>YES</b>	<b>NO</b>	<b>OPERATION CONTROLS</b>	<b>YES</b>	<b>NO</b>	<b>LUBRICATION</b>	<b>YES</b>	<b>NO</b>
DISTORTED	<input type="checkbox"/>	<input type="checkbox"/>	CONTACTOR PITTING	<input type="checkbox"/>	<input type="checkbox"/>	ALL POINTS LUBRICATED AS GIVEN IN LUB CHART	<input type="checkbox"/>	<input type="checkbox"/>
CRACKS	<input type="checkbox"/>	<input type="checkbox"/>	OPERATING PROPERLY	<input type="checkbox"/>	<input type="checkbox"/>	OIL DARK OR LOW	<input type="checkbox"/>	<input type="checkbox"/>
LOOSE HARDWARE	<input type="checkbox"/>	<input type="checkbox"/>	DAMAGED PUSH BUTTON	<input type="checkbox"/>	<input type="checkbox"/>	OIL LEAKS	<input type="checkbox"/>	<input type="checkbox"/>
BEARING NOISE	<input type="checkbox"/>	<input type="checkbox"/>	HOUSING	<input type="checkbox"/>	<input type="checkbox"/>			
<b>SUPPORTING STRUCTURE</b>	<b>YES</b>	<b>NO</b>	<b>AIR SYSTEM</b>	<b>YES</b>	<b>NO</b>	<b>WARNING LABELS</b>	<b>YES</b>	<b>NO</b>
CONTINUED ABILITY TO SUPPORT IMPOSED LOADS	<input type="checkbox"/>	<input type="checkbox"/>	LEAKING	<input type="checkbox"/>	<input type="checkbox"/>	MISSING	<input type="checkbox"/>	<input type="checkbox"/>
WORN OR DISTORTED TROLLEY PARTS	<input type="checkbox"/>	<input type="checkbox"/>	LOOSE CONNECTIONS	<input type="checkbox"/>	<input type="checkbox"/>	ILLEGIBLE	<input type="checkbox"/>	<input type="checkbox"/>
			BROKEN CONTROL PENDANT	<input type="checkbox"/>	<input type="checkbox"/>			

NOTE: IF ANY ( ) IS CHECKED DO NOT OPERATE THE HOIST UNTIL REPAIRS HAVE BEEN MADE.

REMARKS AND REPAIRS MADE \_\_\_\_\_

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SIGNATURE \_\_\_\_\_ DATE \_\_\_\_\_ CLOCK NUMBER \_\_\_\_\_

# WARRANTY

Every hoist is thoroughly inspected and tested prior to shipment from the factory. Should any problems develop, return the complete hoist prepaid to your nearest Yale Hoists Authorized Warranty Repair Station.

This warranty does not apply where: (1) deterioration is caused by normal wear, abuse, improper or inadequate power supply, eccentric or side loading, overloading, chemical or abrasive actions, improper maintenance or excessive heat; (2) problems resulted from repairs, modifications or

alterations made by persons other than factory or Yale Hoists personnel; (3) the hoist has been abused or damaged as a result of an accident; (4) repair parts or accessories other than those supplied by Yale Hoists are used on the hoist. Equipment and accessories not of the seller's manufacture are warranted only to the extent that they are warranted by the manufacturer. EXCEPT AS STATED HEREIN, YALE HOISTS MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

## Improvements:

Yale Hoists is constantly striving to improve its product. Changes in design and improvements will be made whenever manufacturer believes the efficiency of the product will be improved without incurring any obligation to incorporate such improvements in any products which have been shipped or are in service.

## Important Notice:

Use of chain, wire rope or replacement parts other than as supplied as original equipment on Yale hoists may lead to dangerous operation. Accordingly, Yale Hoists cannot be responsible in such cases and our warranty will be voided.

For more information, write Yale Hoists, Forrest City, Arkansas 72335.

**Yale® HOISTS**  
3105 N. Washington  
P. O. Box 1000  
Forrest City, Arkansas 72335  
Customer Service (800) 999-6318  
FAX (800) 766-0223