



Patriot Series 1000

MADE IN U.S.A.

Electric Wire Rope Hoists

Parts, Instructions and Operation
Manual

Fill in the information below before
installing the hoist.

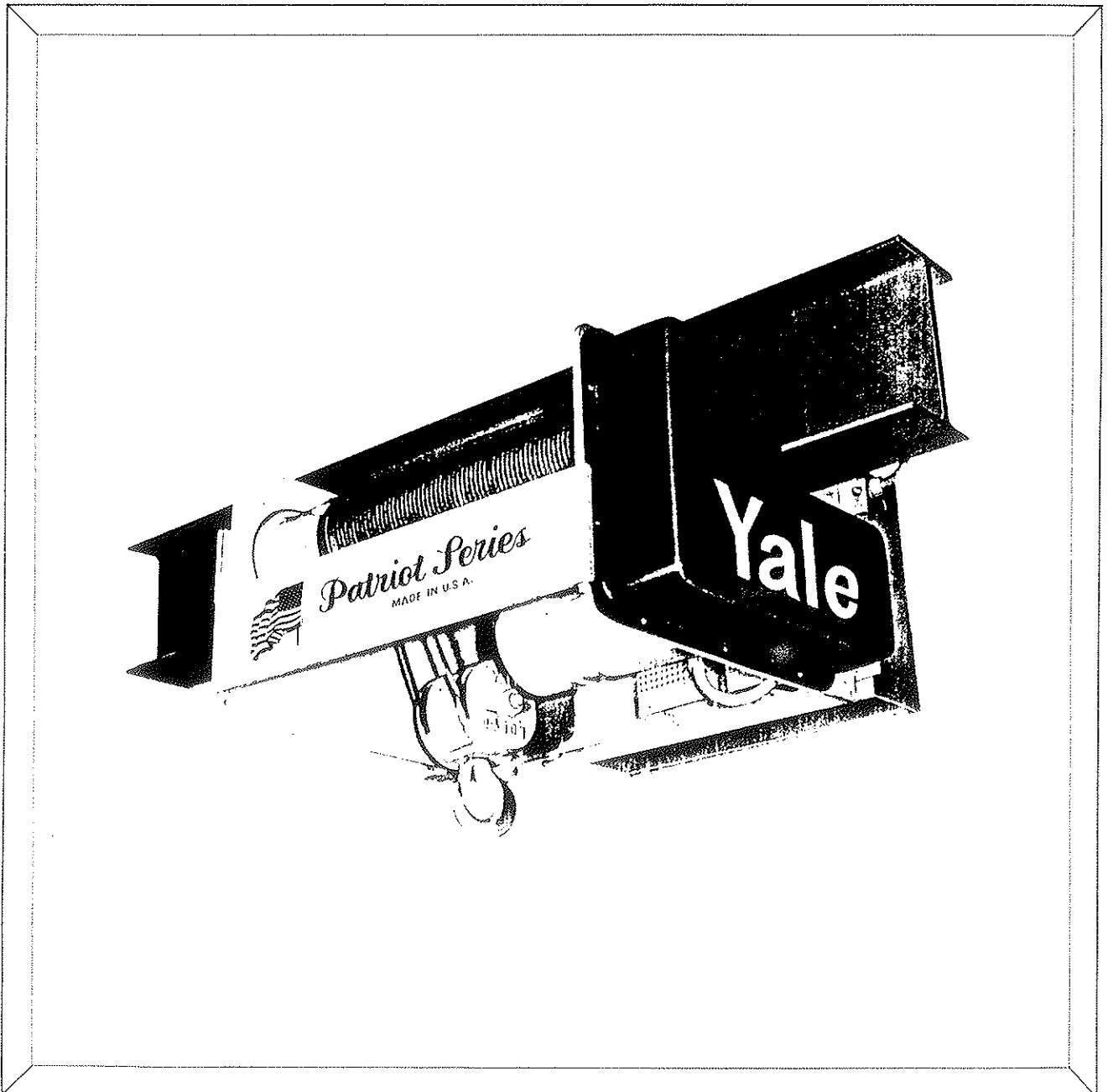
Yale[®]

Hoist Model No. _____

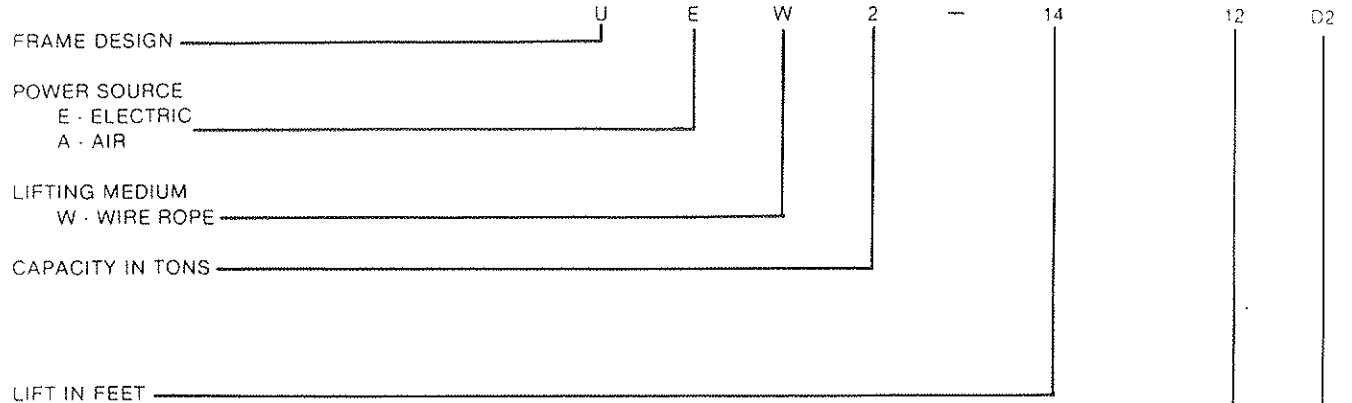
Voltage _____

Capacity _____

Date of Purchase _____



COMMON MODEL NUMBER CODE FOR POWERED HOISTS



SUSPENSION OR MOUNTING

- | | |
|---------------------------|-----------------------------|
| AM AMERICAN MONORAIL | NC NON ROTATION CLEVIS |
| BM BASE MOUNTED | NH NON ROTATION HOOK |
| CB CRANE BUILDERS SPECIAL | ST ST MOTORIZED |
| CC CLEVIS | SM SPAN MASTER |
| CM CEILING MOUNTED WINCH | TC TWIN CITY |
| CT CLEVELAND TRAMRAIL | TH TOP HOOK |
| DM DECK MOUNTED WINCH | TT TRACTOR TROLLEY |
| FM FOOT MOUNTED WINCH | TR TOP RUNNING TROLLEY |
| GT GEARED TROLLEY | WC WHITING CORPORATION |
| IT INTEGRATED TROLLEY | WM WALL MOUNTED WINCH |
| LA LOUDEN ACCO-WRIGHT | WT WT MOTORIZED TROLLEY |
| LG LUG MOUNTED | TL TOP RUNNER LESS CARRIERS |
| LP LOW PROFILE TOP RUNNER | |
| PT PLAIN TROLLEY | |

SPEED IN FPM _____

REEVING _____

- | | |
|-----------------------------|---|
| S = STANDARD HEADROOM | X = STD. HEADROOM, SPECIAL RIGHT ANGLE MTG. |
| S1 ONE PART SINGLE REEVED | X1 ONE PART SINGLE REEVED |
| S2 TWO PART SINGLE REEVED | X2 TWO PART SINGLE REEVED |
| S3 THREE PART SINGLE REEVED | X3 THREE PART SINGLE REEVED |
| S4 FOUR PART SINGLE REEVED | X4 FOUR PART SINGLE REEVED |
| D = CLOSE HEADROOM | P = CLOSE HEADROOM, SPECIAL PARALLEL MTG. |
| D1 ONE PART DOUBLE REEVED | P1 ONE PART DOUBLE REEVED |
| D2 TWO PART DOUBLE REEVED | P2 TWO PART DOUBLE REEVED |
| D3 THREE PART DOUBLE REEVED | P3 THREE PART DOUBLE REEVED |
| D4 FOUR PART DOUBLE REEVED | P4 FOUR PART DOUBLE REEVED |
| D5 FIVE PART DOUBLE REEVED | P5 FIVE PART DOUBLE REEVED |
| D6 SIX PART DOUBLE REEVED | P6 SIX PART DOUBLE REEVED |

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

SECTION A

SAFE HOISTING PRACTICES

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 preventive maintenance and testing as described in the **ANSI B30.16** Safety Code for Overhead Hoists and this manual.

BEFORE OPERATING HOIST-OPERATOR MUST READ THIS MANUAL;

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 manual, **ANSI B30.16** Safety Code for Overhead Hoists, and all pertinent Federal, State, and Local regulations before beginning operating.
2. Do not allow unqualified personnel to operate the hoist.
3. 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 warning, operating, or capacity instructions normally attached to hoist are damaged, obscured or missing. Report these items 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. Be sure the power supply is disconnected before maintenance and repair procedure is performed.
9. Do not use the wire rope as a ground for welding.
10. Do not touch a welding electrode to the wire rope.

APPLYING THE LOAD

11. Never wrap the wire rope 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.

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APPLYING LOAD (Continued)

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 wire ropes are not kinked or twisted or that multiple part ropes are not twisted about each other.
16. Do not operate hoist if wire rope is not seated properly in the grooves of the drum or sheaves.
17. 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 a 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. Never carry personnel on the hook or the load.
25. Inch the hoist slowly into engagement with a load, but avoid excessive plugging, in-ching, 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.
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. Make sure load has proper clearance before moving.
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. Do not use limit devices as a normal means of stopping the hoist. These are emergency devices only.
33. Do not exceed the maximum duty cycle specified by the manufacturer.

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SECTION A

PARKING

34. Do not leave load suspended in the air for extended or unattended periods.
35. Keep load block above head level when not in use.

SAFETY LAWS FOR PASSENGER ELEVATORS



CAUTION DO NOT USE YALE HOISTS OR TROLLEYS FOR PASSENGER ELEVATOR APPLICATIONS.

The safety laws for passenger elevators specify construction details that are not incorporated in Yale Industrial Hoists. We recommend that passenger elevator operation equipment be used that meets all state and national safety codes. Yale Industrial Products, Inc. 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 this hoist immediately after it is entered into service. The preventive maintenance program should comply with recommendations in the applicable Yale Parts and Instruction Manual, and all pertinent National, Federal, State and local regulations. Regular inspections, maintenance, and testing required should be followed for the life of the hoist 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 Distributor.

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REPAIR PARTS ORDERING INFORMATION

This parts and instruction manual contains information required to install and maintain your Yale NEW Series Hoist. To insure prompt service, each repair parts order should be placed with your local distributor, and must contain the following information:

Please give all information listed below in items (a) thru (e). This will enable your distributor to fill your order promptly.

- (a) Give complete data from hoist nameplate, including hoist serial number, model number, voltage, frequency, and hertz.
- (b) Give part numbers, description and quantity of parts required.
- (c) Give correct shipping destination.
- (d) For ordering motor repair parts, give all data on the hoist and motor nameplates.
- (e) If hoist has been purchased for a special application or environment (such as plating, spark resistant, special hook, special controls, etc.), some of the standard parts listed in this manual may not apply and some special parts may not be shown. In such cases you should contact the factory or your nearest Yale authorized repair station for assistance in ordering parts. A full description of the special application or environment for which the hoist has been adapted will be required.

HOIST SERIAL NUMBERS

The hoist serial number is stamped in the nameplate. Trolley serial numbers are stamped on the trolley sideplate. The nameplates also designate the model number, capacity, speed, current characteristics, and service rating of the hoist or trolley.

RETURN OF PARTS

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.

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SECTION B

INSTALLATION INSTRUCTIONS

Before the unit is shipped from the factory it is rigidly tested and carefully adjusted for proper operation. However, the following points must be checked to insure correct installation and avoid damage to the hoist.

Suspension - Suspend the hoist following the installation procedures for the type of suspension used on your hoist. See pages 8.

Rope And Drum - Check the hoist rope for any signs of damage and make sure it lies properly in the grooves of the drum and sheaves. Make sure the rope is well lubricated. (See chart on page 13.)



CAUTION BEFORE OPERATING THE HOIST, REMOVE THE WOODEN SHIPPING WEDGE

Current Supply - Make sure the electric current supply corresponds with the rating listed on the hoist nameplate. Make sure duty cycle capabilities of hoist are fully understood by all operators.

Electrical Connections - Open the control box and check all the electrical connections to be sure they are tight and that none of the hardware vibrated loose during shipment.

Connect the **power lines** to the point on the reversing switch indicated by the tag and remove tag. If current collectors are used, be sure they make good contact with the conductor bars.



CAUTION THE HOIST MUST BE GROUNDED. TO DO THIS, CONNECT ONE END OF THE GREEN WIRE IN THE POWER CORD TO A SOLID GROUND AND THE OTHER END TO THE SPECIFIED GROUNDING LUG PROVIDED ON THE HOIST.

Push Button Control



CAUTION ON POLY PHASE AC HOISTS, IT IS IMPOSSIBLE TO KNOW HOW TO CONNECT THE POWER LINE FOR CORRECT DIRECTION OF THE HOOK TRAVEL.

TO INSURE CORRECT OPERATION OF THE SAFETY LIMIT STOPS IT IS VERY IMPORTANT THAT THE HOOK TRAVEL IS IN THE HOISTING DIRECTION WHEN THE UP BUTTON IS PRESSED. IF IT IS NOT, INTERCHANGE TWO OF THE LINE WIRES FOR 3 PHASE OR TWO OF THE LINE WIRES OF ANY ONE PHASE OR 2 PHASE OPERATION. IF THE HOIST IS OPERATED WITH INCORRECT POWER CONNECTIONS THE SAFETY LIMIT STOPS WILL BE INEFFECTIVE AND SERIOUS HOIST DAMAGE AND DANGEROUS ACCIDENTS MAY RESULT.



CAUTION DO NOT ATTEMPT TO REWIRE THE PUSH BUTTON.

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Adjustment Of Limit Switches

1. UPPER AND LOWER LIMIT SWITCH.



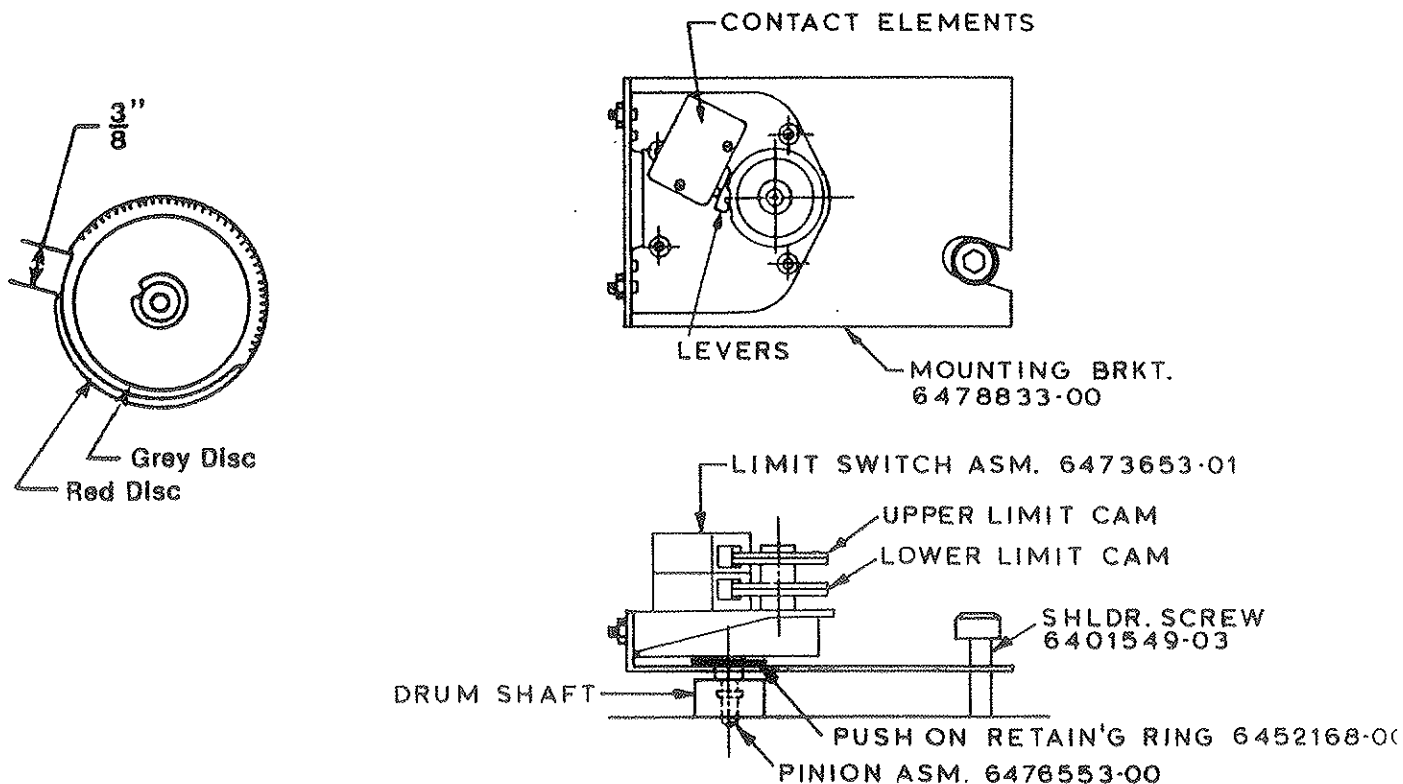
WARNING EACH STEP OUTLINED BELOW MUST BE FOLLOWED FOR PROTECTION AGAINST ELECTRICAL SHOCK AND INJURY FROM MOVING COMPONENTS.

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

- (a) Remove all electrical power from the hoist.
- (b) Remove control cover.
- (c) Adjustment **cams** rotate in a clockwise direction when hoist is lifting and in a counter-clockwise direction when lowering.
- (d) For upper limit switch, move the adjusting disc.
- (e) For lower limit switch, move the adjusting disc.
- (f) Each **cam** includes two movable sectors independent from each other (one red and one grey).
- (g) Move each of the two red and grey discs in the desired direction keeping a gap of $\frac{3}{8}$ " between the discs.



WARNING AT LEAST 1 WRAP OF ROPE MUST REMAIN ON THE DRUM IN THE LOWEST POSITION.



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

Basic Suspensions - The basic hoist suspension types are : lug mounted, frame mounted plain trolley, hand chain operated trolley and single beam under running motorized trolley. Before connecting hoist to supporting structure, or mounting on beam or rail, make sure supporting structure has adequate strength to safely support the loading which will be imposed.

When installing lug mounted types, make sure hoist is bolted securely in place with the proper size bolts, that it is level, that nuts on mounting hole bolts are tightened securely, and the lockwashers, or other means of locking the nuts are used.

If hoist is furnished with a motorized trolley, record the serial number in this book for future reference, and refer to the trolley manual included.

To hang hoist furnished with plain, hand chain operated, motorized trolley, first determine the beam size on which the trolley is to be used, then refer to trolley adjustment instructions below for proper spacer arrangements.

Trolley Adjustment - All Yale under running trolleys are properly adjusted at the factory to fit the I-Beam size stated on the order. However, final check should be made to assure that setting falls within the range as indicated below.

For installation on I-Beam other than the size preset at the factory, follow the instructions listed 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 3/16 inches greater than the beam flange width for straight runway beams, and 3/16 to 1/4 inches 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 (1) 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 snugly so that the trolley sideplates are parallel and vertical.



CAUTION

BE SURE THERE IS A LOCKWASHER UNDER EACH NUT OR A JAM NUT IS PRESENT.

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. Then tighten all sideplate nuts to maximum standard torque for bolt size used.

Trolley With Guide Rollers - To adjust trolleys equipped with guide rollers add spacers in even quantities on each side of the spacer block until the distance between guide rollers is 1/8 inches wider than the beam flange width.

NOTE: When properly installed and adjusted the guide rollers should be 1/16 inches from the edge of the I-Beam.

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PREVENTIVE MAINTENANCE SCHEDULE

The required periods between inspections will vary due to the wide range of duty cycles and operating conditions encountered with the type of equipment. The following recommended inspection periods are based on duty cycle specified service rating with single shift operation (40 hours per week) under normal environmental conditions. If the hoist is used under adverse environmental conditions it should be inspected more frequently.

Daily Inspection - Inspect the following items before operating hoist.

1. **Manual Controls** - Check all manual controls for proper operation.
2. **Electrical Connections** - Check for worn or frayed wires, for loose connections and for damage to, or improper operation of, push button assembly.
3. **Limit Switch** - Check the upper and lower limit switch by running the hook **without load**, and at the slowest speed obtainable, to the maximum up and maximum down positions. Then test with increasing speeds up to maximum. The switch should shut the hoist off before the bottom block contacts the rod or weight type limit switch at the upper extreme. 1 Wrap of rope should remain on the drum at the shut-off point at the lowest extreme. If adjustment is necessary, see page 7.
4. **Hook** - Check for cracks or deformation. Check for damaged or missing latch. A bent or twisted hook indicates overloading or abuse of unit. Other load bearing components of the hoist or trolley should be inspected if overloading is apparent or suspected. The bottom hook must swivel freely.
5. **Wire Rope** - Check for proper seating in drum grooves. Check for wear, unstranding, fraying, kinks, or broken wires in the wire rope, and condition of end connections. (If damage is noted, see wire rope instructions under monthly inspection.)
6. **Hook Drift** - With a load, the hook should stop promptly when the push button is released. Hook drift of more than 3 inches indicates that the hoist brake is malfunctioning. (See monthly and annual inspection instructions for more details.)
7. **Unusual Conditions** - Excessive noise, lubrication leaks, etc. should be investigated.



CAUTION: DO NOT OPERATE THE HOIST IF ABOVE INSPECTION INDICATES THAT MAINTENANCE IS NEEDED.

Monthly Inspection

1. ALL ITEMS UNDER DAILY INSPECTION.
2. **Hook** - Check hook retaining nuts and collars, and means used to secure them. Replace hook if throat opening is in excess of maximum shown in table on page 12, or if there is 10 degrees or more twist from normal plane of hook.
3. **Brake** - Check the function of the brake by lifting a light load (approximately 25% of rated load) 6 to 12 inches above the floor.
4. **Contactors** - Check for burned or badly pitted contacts.
5. **Push Button** - Check the ground connections to be sure that the wire cores from the push button cable and the power cord are secured. Tighten the grounding screw and replace the lockwasher if it is missing. On two button station, replace push button pendant when diaphragm buttons become cracked.

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SECTION B

Monthly Inspection (Continued)

6. **Bearings** - Check all bearings for noisy operation, which is an indication of wear.
7. **Hardware** - Check for loose bolts, nuts and rivets.
8. **Wire Rope** - Check condition of wire rope using inspection check list. (See instructions page 14.)
Lubricate per chart on page 13 as needed.



WARNING NEVER ALLOW WIRE ROPE TO OPERATE DRY.

9. **Warning Labels** - Check for absence or illegibility of warning decals and tags and replace if necessary.
10. **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.
11. **Inspection Check List** - Fill out inspection check list at the back of this manual, sign, date and file for future reference.

Quarterly Inspection

1. ALL ITEMS UNDER DAILY AND MONTHLY INSPECTIONS.
2. **Gearing** - Remove gearbox cover and visually inspect gearing for excessive or uneven wear of the gear teeth. Replace if necessary.
3. **Brake** - Check for excessive or uneven disc wear. Clean solenoid plunger seat and check for uneven seating between the plunger and coil.

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

Annual Inspection

1. ALL ITEMS UNDER DAILY, MONTHLY AND QUARTERLY INSPECTIONS.
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.
3. **Load Bearing Parts** - Check for worn, cracked or distorted parts, such as suspension housings, outriggers, clevises, yokes, hook blocks, suspension bolts, shafts, locking devices and bearings on hoist. (also on trolley, if so equipped).
4. **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.
5. **Sheaves And Drums** - Inspect rope sheaves and drums for excessive wear. When the groove of a sheave or rope drum becomes worn excessively it should be replaced. Worn grooves on the drum or sheave can greatly reduce the useful life of the hoisting rope.
6. **Bearing Lubrication** - The motor, sheave and outer drum bearings are packed with grease at the factory and normally will not need to be lubricated. If conditions require, repack with grease as needed.
7. **Inspection Check List** - Fill out inspection check list at the back of this manual, sign, date and file for future reference.

FUNCTION TESTING AFTER REPAIR

After repair or replacement of parts, function test hoist by operating unloaded hoist into both upper and lower limits, first with slowest speed possible, then with increasing speeds up to maximum. Limit switch mechanisms must be adjusted so they will trip in sufficient time to prevent damage to any part of the hoisting arrangement. See instructions for adjustment of limit switches on page 7. Then test operation of hoist and brake by lifting 100% of rated load. (A normal load lifted may be substituted if no load bearing parts were altered.) A written report of the test should be prepared by the person responsible and kept on file for future reference.

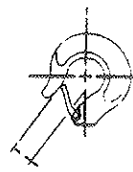
CAUTION PRIOR TO TESTING ALL SUPPORTING STRUCTURES, ANCHORAGES, AND/OR SUSPENSIONS MUST BE APPROVED BY THE APPOINTED PERSON FOR THE TEST LOADS USED.

HOOK DIMENSIONS

CAPACITY IN TONS	E (in.) NORMAL	E (in.) MAXIMUM
1/2	1 1/32	1 7/32
1	1 9/64	1 11/32
1 1/2	1 21/64	1 9/16
2	1 21/64	1 9/16
2 1/2	1 15/16	2 1/4
3	1 15/16	2 1/4
5	1 15/16	2 1/4
6	1 15/16	2 1/4
7 1/2	1 15/16	2 1/4
8	3 1/16	3 9/16
10	3 1/16	3 9/16



WARNING



E OPENING WITH LATCH

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

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**LUBRICATION
HOIST**

PART	LUBRICANT	LUBRICATION POINT	LUBRICATION INSTRUCTIONS	DRAIN POINT
Gear-case	Moly Cote Grease	Pinion & Gear Teeth		
Wire Rope	Keystone WRD-OW Spray Type Wire Rope Dressing, Or Other Prepared Cable Lubricant	Wire Rope	Light Coat Of Lubricant	

IT SERIES TROLLEYS

PART	LUBRICANT	LUBRICATION POINT	LUBRICATION INSTRUCTIONS	DRAIN POINT
Gear-Case	Use 140 EP Gear Oil	Socket Head Plug In side of Gearcase	Fill Until Lubricant Is Level With Hole	Socket Head Plug In Bottom Of Gearcase
Track Wheel Pinion & Gear Teeth	Moly Cote Grease	Pinion & Gear Teeth	Depending On Applications Light Coating Of Grease	

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

SECTION B

WIRE ROPE INSPECTION

All wire rope should be inspected once a month and a signed and dated inspection report maintained. The Inspection Check Lists at back of this manual can be used to record these inspections. Wire rope should be replaced if any of the following conditions are noted.

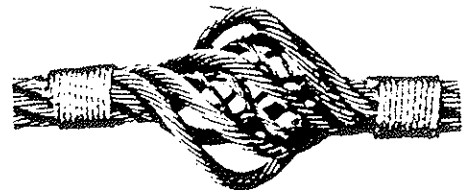
1. Twelve randomly distributed broken wires in one rope lay, or four broken wires in one strand in one rope lay.
2. Wear of one-third (1/3) of the original diameter of outside individual wires.
3. Kinking, crushing, bridging or any distortion of the wire rope structure.
4. Evidence of heat damage.



"Broken Wires"



"Kinked"



Bird Cage

5. Reductions from nominal diameter of more than the following values.

New Rope Diameter	Maximum Reduction
5/16 Inch and under	1/64 Inch
3/8 Inch Thru 1/2 Inch	1/32 Inch
9/16 Inch Thru 3/4 Inch	3/64 Inch
7/8 Inch Thru 1 1/8 Inch	1/16 Inch

6. Rope sockets should be inspected for broken wires. If broken wires are noted, the rope should be replaced.

 CAUTION

REPLACEMENT WIRE ROPE SHOULD BE THE SAME SIZE, GRADE AND CONSTRUCTION AS THE ORIGINAL WIRE ROPE, AND ONLY YALE ROPE IS RECOMMENDED. BEFORE REPLACING WIRE ROPE, READ PROCEDURE ON PAGE 19. AFTER WIRE ROPE REPLACEMENT CHECK FOR PROPER LIMIT SWITCH OPERATION. (SEE PAGE 7.)

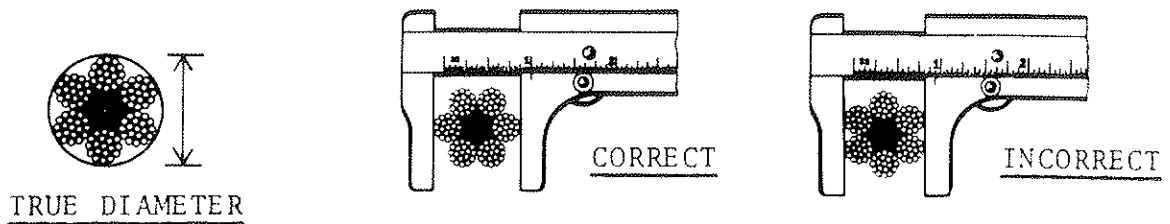
 CAUTION

ROPE PILE-UP ON THE HOISTING DRUM WILL SEVERLY DAMAGE THE HOISTING ROPE. IF THIS CONDITION IS NOTED THE HOISTING ROPE SHOULD BE INSPECTED ACCORDING TO THE ABOVE PARAGRAPH ON WIRE ROPE INSPECTION. IF DAMAGED ROPE IS FOUND, CHECK DRUM AND FRAME MEMBERS FOR DAMAGE.

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

HOW TO MEASURE WIRE ROPE

The correct diameter of a wire rope is the diameter of a circumscribed circle which will enclose all the strands. It is the largest cross-sectional measurement as illustrated below. The measurement should be made carefully with calipers. The illustrations below show the correct and incorrect method of measuring the diameter of wire rope.



PROCEDURE FOR REEVING WIRE ROPE ON DRUM

NOTE UPPER AND LOWER LIMIT SWITCH MUST BE PRESET BEFORE REEVING, PER INSTRUCTIONSON PAGE 7 AND RE-ADJUSTED AFTER REEVING.

DOUBLE REEVED UNITS:

1. Anchor the rope in the drum on one side. Install rope retainer.
2. Stretch out rope to make sure there are no twists or kinks.
3. Reeve the free end of the rope through the bottom block and all sheaves. (See page 17.)
4. Anchor the free end of the rope in the other side of the drum. Install rope retainer.
5. Push the "UP" button to reeve both sides of the drum, making sure there is enough force on the rope to insure proper reeving in all drum grooves.

NOTE WHEN THE BOTTOM BLOCK IS RAISED TO THE UPPER LIMIT THE BLOCK SHOULD BE AT THE MID-POINT OF THE UNGROOVED PORTION OF THE DRUM AND EVEN WITH THE IDLER SHEAVE. IF THIS IS NOT SO, THE UNIT IS REEVED INCORRECTLY.

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

SECTION B

SINGLE REEVED UNITS:

1. Anchor the rope in the drum. Install rope retainer.
2. Stretch out rope to make sure there are no twists or kinks.
3. Reeve the free end of the rope through the bottom block. (see next page.)
4. Attach the dead end of the rope to the suspension frame.
5. Push the "UP" button to reeve the drum making sure there is enough force on the rope to insure proper reeving in all drum grooves.



CAUTION

ALL UNITS MUST HAVE A MINIMUM OF 1 WRAP OF WIRE ROPE ON THE DRUM WHEN THE BOTTOM BLOCK IS IN THE LOWEST POSITION.

REEVING TYPES

Yale powered wire rope hoists and winches are reeved in various ways to gain desired advantages. Proper reeving insures maximum life of the hoist drum, wire rope and bottom block assembly while obtaining the best characteristics of capacity, lift and speed for the basic unit.

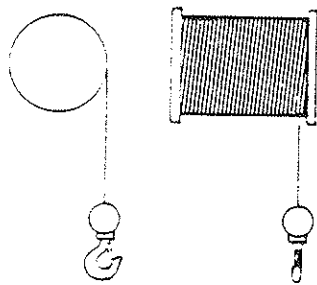
Reeving is either "single" or "double," i.e. one or two ropes coming from the drum. Standard headroom hoists are single reeved; close headroom hoists are double reeved. Part designates the mechanical use of each rope coming from the drum.

The table and drawings pictured on the next page show the characteristics of each principal method of reeving.

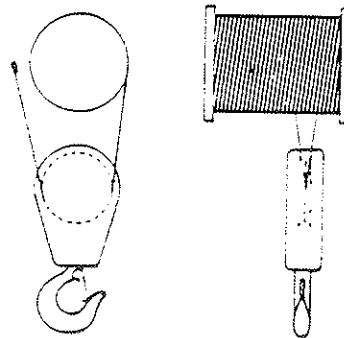
The advantages of single reeved units are fewer ropes and longer lifts from comparable units. Advantages of double reeved units include minimum lateral hook drift (keeping load in the same approximate position in relation to the drum and beam) and a lower hoist headroom requirement in certain configurations.

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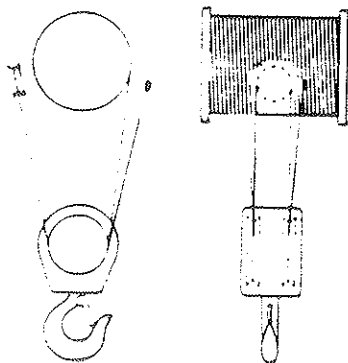
REEVING TYPES:



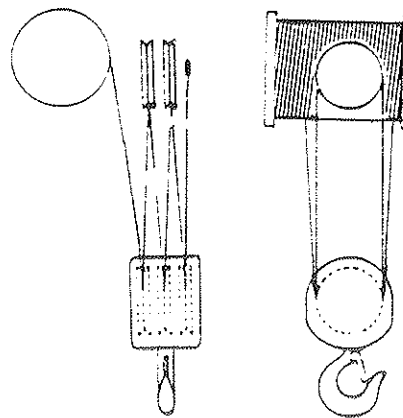
1 part single



2 part single



3 part single




6 part single

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

SECTION B

DISASSEMBLY

 **CAUTION:** BEFORE DOING MAINTENANCE WORK ON THIS HOIST, READ THE FOLLOWING INSTRUCTIONS THOROUGHLY. REFER TO THE REPLACEMENT PARTS SECTION FOR PARTS IDENTIFICATION.

To completely disassemble the hoist, follow the disassembly procedures in the order listed.

To disassemble any one specific part of the hoist, follow the instructions for that specific section.

DISASSEMBLY

I. Remove Hoist Rope, Bottom Block Or Bottom Hook

A. Standard Headroom Hoist

1. Remove or re-adjust upper and lower limit switch to negate lower limit [see instructions on page 7.]
2. Operate hoist in down direction until no cable remains on the drum. Remove rope retainers and pull rope sockets from the drum.
3. Remove power from the hoist.
4. Disassemble bottom block and remove hoist rope.
5. Remove pin holding the cable in the hoist frame.

B. Low Headroom Hoist

1. Follow procedures in I.A - 1, 2 and 3.
2. Remove pin holding equalizer sheave yoke in hoist frame.
3. Remove axle holding the sheave in the yoke and remove cable.

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

REPAIR PARTS

DISASSEMBLY (Continued)

II. Remove Hoist Motor



CAUTION: CUT OFF ALL POWER TO THE HOIST BY DIS-CONNECTING THE POWER FEED LINE BEFORE ATTEMPTING SERVICE OR REPAIR.

1. Run hoist in lowering direction and clear all rope from the hoist drum.
2. Remove gear cover and remove snap ring around motor pinion.
3. Pull out motor pinion.
4. Disconnect motor and motor brake leads.
5. Support the weight of motor and brake assembly before proceeding.
6. Remove our (4) motor mounting bolts and pull assembly out of hoist frame.
7. Unbolt motor from brake assembly.

III. Remove Gearing

1. Loosen and remove four (4) nuts holding back bearing plate.
2. Remove back plate.
3. Remove snap rings to remove drum gear or motor pinion.

IV. Remove Hoist Brake

1. Run hoist in down direction and clear all rope from the hoist drum.
2. Remove motor and brake assembly as in procedure II.
3. Unbolt motor from brake assembly.

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

SECTION B

DISASSEMBLY (Continued)

V. Remove Hoist Rope Drum

1. Follow procedures above to remove bottom block and rope assembly and to remove drum gear.
2. Remove upper and lower limit switch (located under the control cover).
3. Support rope drum. Remove bolts holding drum bearing cap to the frame end plate.
4. Remove bearing cap and bearing. Slide drum through bearing cap opening.

VI. Remove Upper and Lower Limit Switch.

1. Disconnect all power from hoist.
2. Remove the control cover, disconnect the limit switch wiring. Note the color coding or tag the wires so they can be reconnected correctly.
3. Remove the two screws and lockwashers that hold the limit switch assembly to the mounting brackets. Carefully remove limit switch assembly.

VII. Remove Controls

1. Remove all power from the hoist.
2. Remove control and cover. Disconnect and tag all wires coming into the control area.
3. Remove screws holding control panel on sideplate.
4. Remove control panel.

REASSEMBLY

The assembly sequence is basically the reverse of the disassembly sequence previously described. The following special instructions should be observed during reassembly:

1. Inspect the **drum support bearing** at both ends of the hoist drum. Replace if damaged.
2. Be sure the **motor brake** is properly adjusted before it is installed on the hoist. See Page 11.

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

REPAIR PARTS

TROUBLE SHOOTING

UNIT NOISY

Possible Cause	Remedy
(a) Nicked gears.	(a) Examine teeth for nicks and burrs. Remove with honing stone, replace if teeth are severely damaged.
(b) No grease on gears.	(b) Apply grease to pinion and gear teeth.
(c) Defective bearing.	(c) Replace.

LOAD DRIFTS OR DROPS

Possible Cause	Remedy
(a) Brake slipping.	(e) Adjust brake. Check for oil on brake discs.
(b) Brake not closing.	(f) Adjust for proper clearance. (See Page 11).

BRAKE COIL BURNED OUT



CAUTION ALWAYS DISCONNECT POWER CIRCUIT BEFORE WORKING ON ELECTRICAL COMPONENTS.

Possible Cause	Remedy
(a) Wrong coil.	(a) Replace with proper voltage coil.
(b) Brake too tight.	(b) Adjust brake (See Section J).

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

SECTION B

TROUBLE SHOOTING (Continued)

HOIST DOES NOT OPERATE

Possible Cause	Remedy
(a) Blown or loose fuse.	(a) Replace or tighten fuse.
(b) Tripped breaker.	(b) Reset breaker.
(c) Loose terminal screws.	(c) Check and tighten all loose screws.
(d) Low voltage.	(d) Check voltage at line side of reversing switch.
(e) Low voltage or no voltage to push button circuit.	(e) Check voltage at output side of transformer. Wrong voltage tap may have been selected. For example: 460 volt tap used when line voltage is 230 volt. Check control circuit fuse.
(f) Defective push button.	(f) Check contact points at push button to see if points touch. If not, replace.
(g) Defective push-button cord. (Wire may be pinched, broken or bare).	(g) Check for continuity of ground.
(h) Burned coil in reversing switch.	(h) Replace.
(i) Reversing switch plunger jammed in switch.	(i) Check for burned coil. Dis-assemble and replace defective components. Do not lubricate.
(j) Burned contact tips.	(j) Replace tips.
(k) Brake coil burned.	(k) Replace, check to make sure coil is proper coil for voltage applied.
(l) Defective stator.	(l) Rewind stator.
(m) Rotor loose on shaft.	(m) Reposition rotor and tack weld in place.

MOTOR OVERHEATS, EXCESSIVE AMPERAGE DRAW

Possible Cause	Remedy
(a) Defective stator.	(a) Replace or rewind stator.
(b) Worn motor bearings.	(b) Replace.
(c) Bent rotor shaft.	(c) Replace rotor shaft.
(d) Rotor dragging in stator.	(d) Tighten motor bolts. Check for foreign matter between rotor and stator. Check for worn motor bearings.
(e) Stator loose in frame.	(e) Rewind stator if necessary. Reposition and anchor in accordance with motor manufacturers instructions.

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

TROUBLE SHOOTING (Continued)**MOTOR NOISY**

Possible Cause	Remedy
(a) Motor bolts loose.	(a) Tighten.
(b) Rotor dragging in stator.	(b) Check for bent rotor shaft or worn bearings. Replace defective parts.
(c) Motor bearings loose.	(c) Replace bearings.

TRANSFORMER OVERHEATS OR BURNS OUT

Possible Cause	Remedy
(a) Wrong tap used on primary side.	(a) Replace transformer if necessary. Primary tap must match line voltage.
(b) Shorted transformer.	(b) Replace.
(c) Shorted control circuit.	(c) Correct short.

REVERSING SWITCH COIL BURNED OUT

Possible Cause	Remedy
(a) Wrong coil used.	(a) Replace coil. Be sure coil conforms to voltage of circuit it is used on.
(b) Jammed plunger.	(b) Disassemble and clean. Do not lubricate plunger or coil.
(c) Shorted coil.	(c) Replace.

HOIST SHOCKS OPERATOR

Possible Cause	Remedy
(a) Power leads or control wires shorted to hoist frame.	(a) Repair or replace.
(b) Grounded motor.	(b) Replace.
(c) Slight electrical leakage from any of the electrical components on hoist.	(c) Make sure hoist is properly grounded.
(d) Pendant diaphragm buttons have become cracked.	(d) Replace pendant.

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

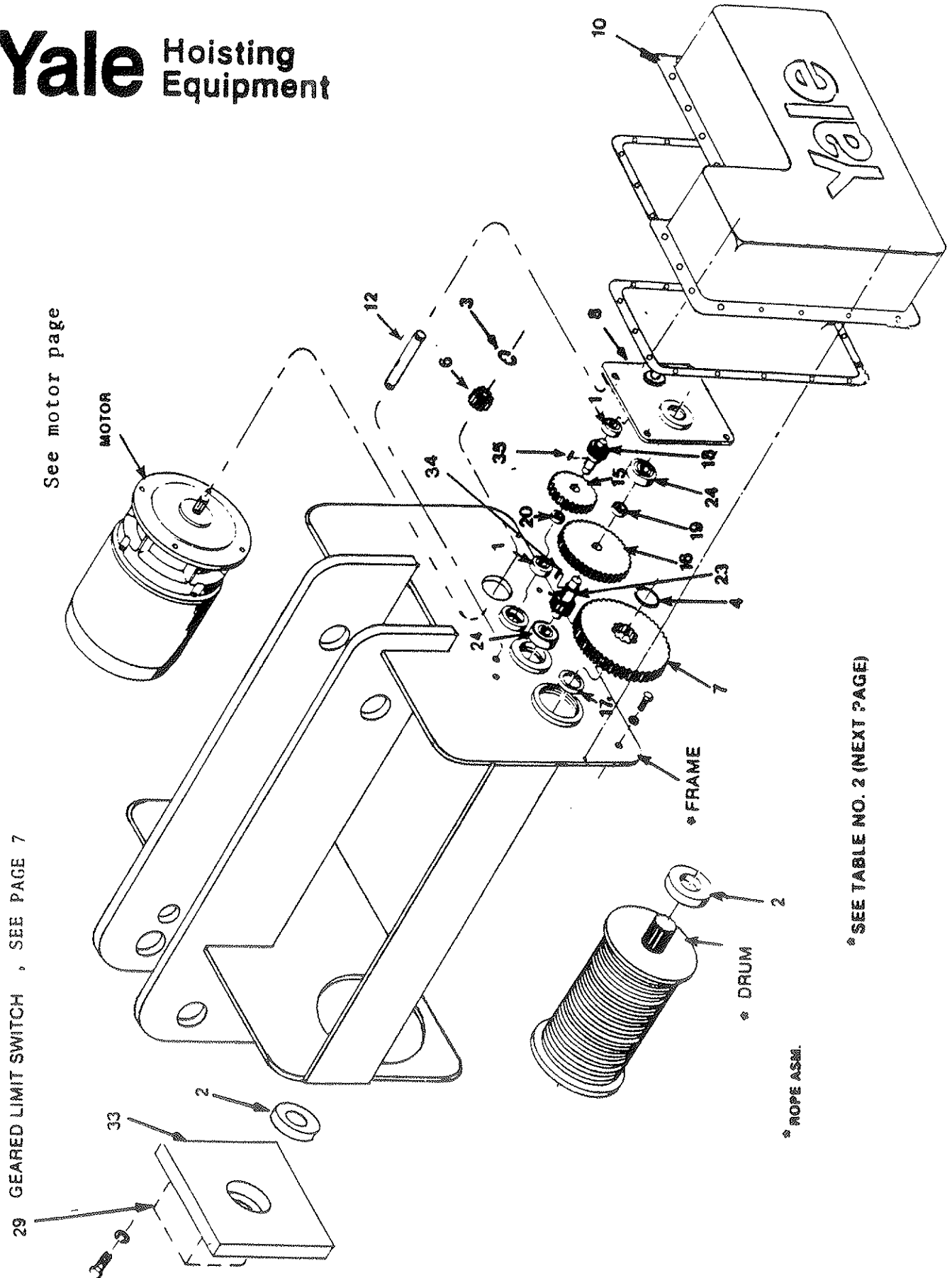
MOTORS

TROLLEY MOTOR	2 SPEED WITHOUT BRAKE	
1/2 HP	647094306	200V
	647095306	230V
	646890306	460V
	647096306	575V
1 HP	647090306	200V
	647091306	230V
	647092306	460V
	647093306	575V

HOIST MOTOR	2 SPEED WITH BRAKE	
5 HP	648714301	200V
	648716301	230V
	648718301	460V
	648720301	575V
10 HP	648738301	200V
	648739301	230V
	648740301	460V
	648741301	575V

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

Yale Hoisting Equipment



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

ITEM NUMBER	PART NUMBER		DESCRIPTION	QTY.
	5 TON	10 TON		
1	015120400	015126400	BRG. BALL	2
2	640162903	502507902	BRG. BALL	2
3	645216800	645216800	RET. RING EXT.	1
4	053352800	500186907	RET. RING EXT.	1
6	648904300	647814300	MOTOR PINION	1
7	647118300	647511300	DRUM GEAR	1
8	649097300	649167300	BACKING PLATE	1
10	649110300	649176300	END COVER	1
12	649107300	649246300	STAND-OFF	4
15	649324300	647508300	1ST RED. GEAR	1
16	SEE TBL 1	SEE TBL 1	2ND RED. GEAR	1
17	647205301	647205307	GEAR SPACER	1
18	SEE TBL 1	SEE TBL 1	1ST INTERMEDIATE PINION	1
19	647205302	647205306	GEAR SPACER	1
20	647205303	647205305	GEAR SPACER	1
23	649325300	647509300	2ND INTERMEDIATE PINION	1
24	015129400	642176100	BRG. BALL	2
33	649148300	649165300	BRG. CAP	
34	647003302	N/A	KEY	1
35	501707908	501707908	KEY	1

TABLE 1

CAPACITY	RATIO	ITEM 16		ITEM 18	
		NO. TEETH	PART NO.	NO. TEETH	PART NO.
5 Ton	93.9:1	87	649326301	13	649323301
	56.1:1	80	649326302	20	649323302
	44.4:1	76	649326303	24	649323303
10 Ton	89.4:1	67	647510302	12	647507302
	58.4:1	62	647510301	17	647507301

TABLE 2

CAP	MODEL REEVING	LIFT	FRAME	DRUM	ROPE ASM
5	S4	27	649106300	649076302	647509203
5	S4	50	649106301	649076303	646727206
10	S4	27	649170300	649171302	644738205
10	S4	50	649170301	649171303	644755204

Yale Hoisting Equipment

STANDARD HOOK

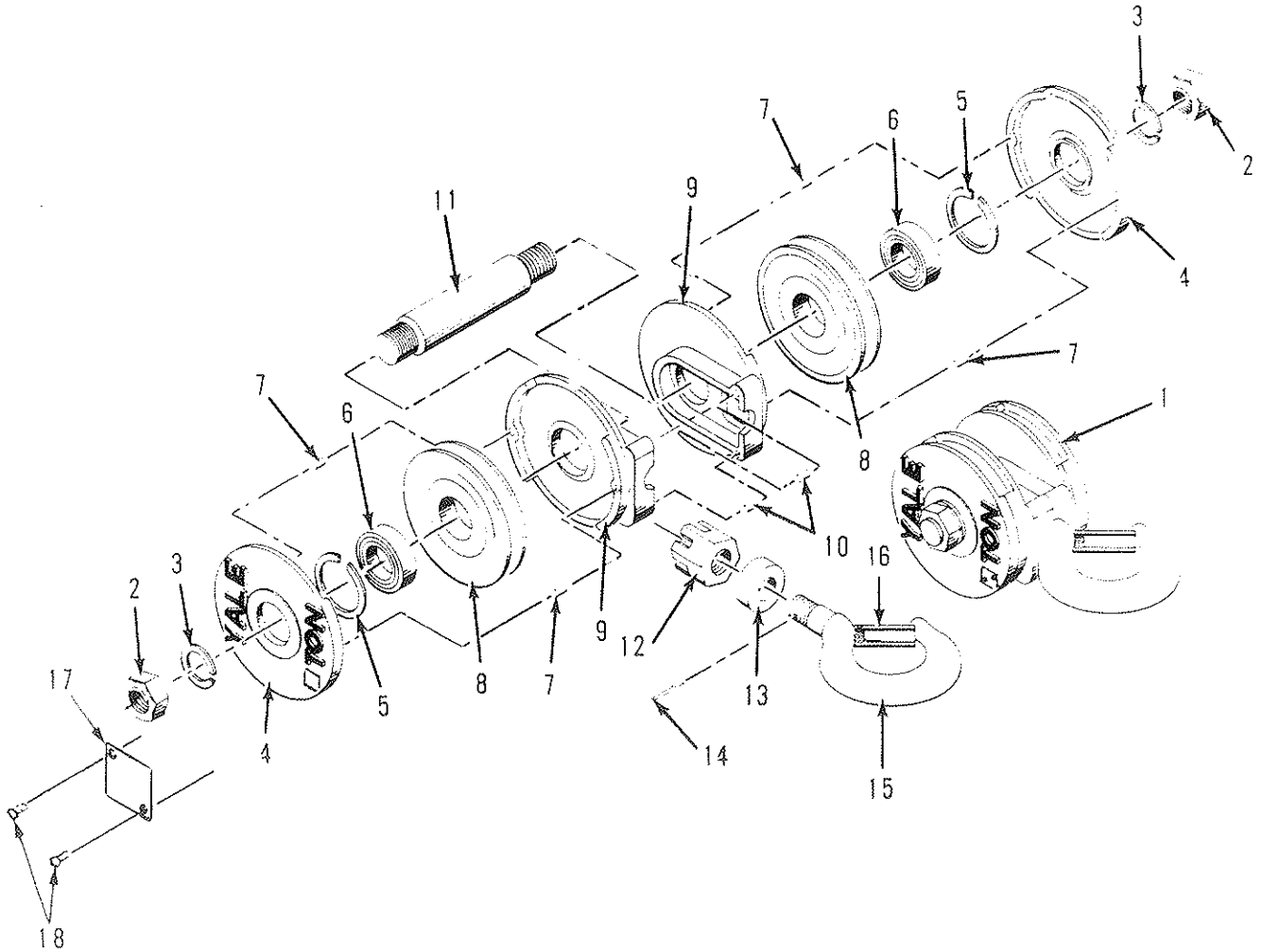
- 0101552-00 3 TON
- 6432932-00 4 TON
- 6432942-00 5 TON

BULLARD HOOK

- 5005890-00 3 TON
- 6434602-00 4 TON
- 6434612-00 5 TON

BRONZE HOOK

- 6434422-00 3 TON
- 6434432-00 4 TON
- 6434442-00 5 TON



YE-0334

FORM NO. 165-911-029

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

ITEM	PART NO.	DESCRIPTION	QTY.
1	SEE FRONT PAGE	BOTTOM BLOCK ASM. STANDARD HOOK	1
2	0149718-00	NUT, SHEAVE SHAFT 1 1/4 - 7	2
3	0114166-00	LOCKWASHER 1 1/4	2
4	0666655-00	COVER	2
5	5003439-14	RETAINING RING	2
6	0151281-00	BEARING SHEAVE	2
7	0116526-00	DOWEL PIN 3/16 x 1/2	4
8	0109885-00	SHEAVE	2
9	0221090-00	BLOCK CENTER	2
10	0116531-00	DOWEL PIN 1/4 x 1/2	2
11	0109665-00	SHEAVE SHAFT	1
12	6401379-03	NUT, SLOTTED 1 1/4 - 12	1
13	0334120-00	BEARING, HOOK	1
14	0616475-00	ROLL PIN, HOOK NUT	1
15	SEE CHART	HOOK AND LATCH ASM.	1
16	SEE CHART	LATCH KIT (INCLUDED IN ITEM 15)	1
17	0633413-00	NUMERAL 3 TON	2
	5000371-00	NUMERAL 4 TON	2
	5000381-00	NUMERAL 5 TON	2
18	0149896-00	DRIVE SCREW	4
19	6432671-00	WARNING TAG (NOT SHOWN)	1
20	6467811-00	HOOK SPACER 5 TON (NOT SHOWN)	1

CHART

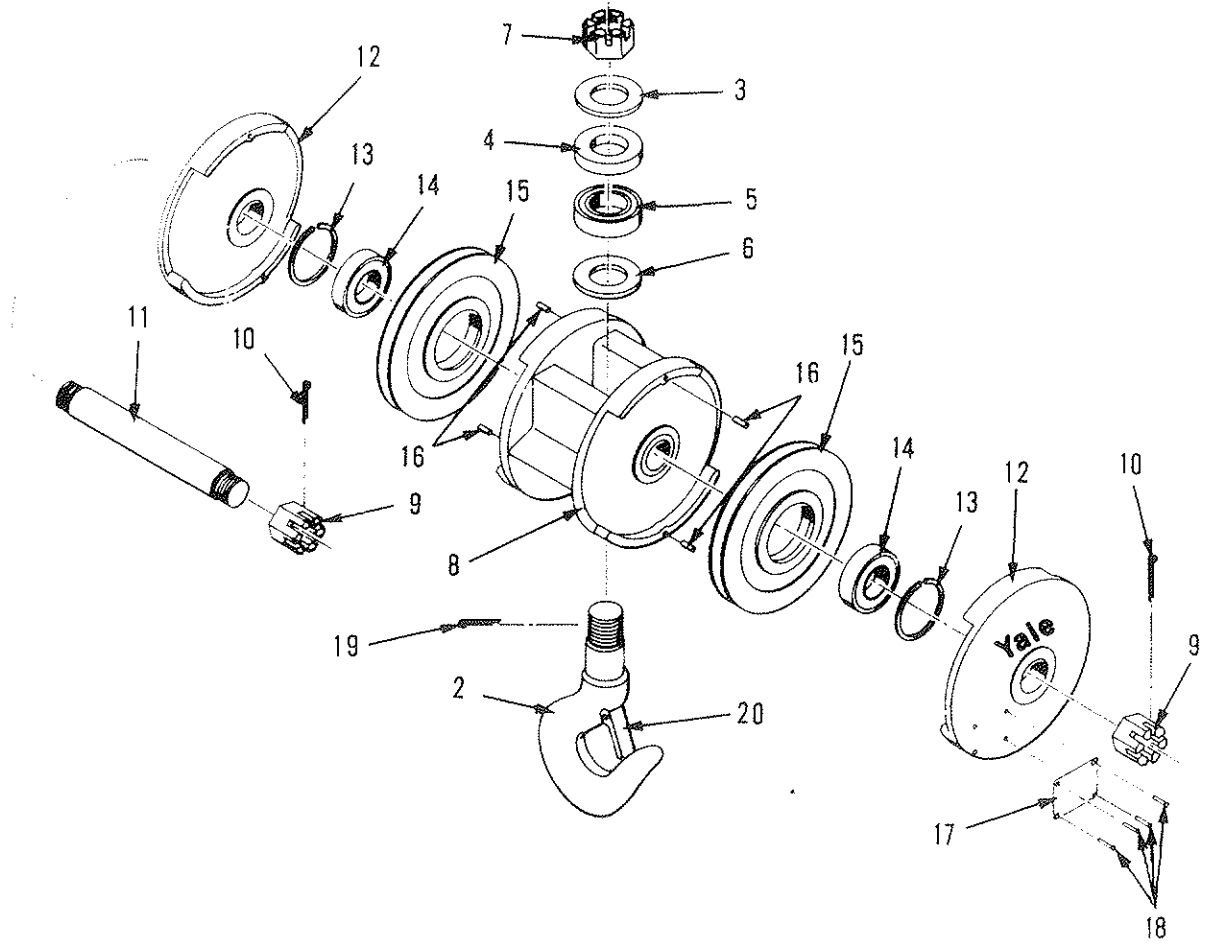
BOTTOM BLOCK ASM.	HOOK ASSEMBLY	LATCH KIT
0101552-00	6479070-00	0669406-00
5005890-00	6449914-00	N/A
6434422-00	6494710-00	6437013-00
6432932-00	6479080-00	0669406-00
6434602-00	6453214-00	N/A
6434432-00	6422881-00	0616675-00
6432942-00	6479080-00	0669406-00
6434612-00	6453214-00	N/A
6434442-00	6422881-00	0616675-00

FORM NO. 165-911-029

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



Bottom Block Assembly



Y0-0255

165-911-908

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



Bottom Block Assembly

8, 10 AND 12 TON PARTS LISTING

ITEM NUMBER	PART NUMBER	DESCRIPTION	QTY
1	0101400-00	BOTTOM BLOCK ASSEMBLY (8 TON)	1
	0101376-00	BOTTOM BLOCK ASSEMBLY (10 TON)	
	0101397-00	BOTTOM BLOCK ASSEMBLY (12 TON)	
2	6479110-00	BOTTOM HOOK W/LATCH	1
3	0114241-00	WASHER	1
4	0116582-00	WASHER	1
5	0100916-00	TAPERED BEARING	1
6	0116320-00	SPACER	1
7	6401699-03	SLOTTED NUT	1
8	0101377-00	BOTTOM BLOCK CENTER	1
9	0150131-00	SLOTTED NUT	2
10	0102829-00	COTTER PIN	2
11	0109734-00	SHAFT	1
12	0666658-00	COVER	2
13	0110027-00	RETAINING RING	2
14	0100846-00	BEARING	2
15	0109946-00	SHEAVE	2
16	0116531-00	DOWEL PIN	4
17	5000411-00	NUMERAL 8	2
	5000421-00	NUMERAL 10	
	5000431-00	NUMERAL 12	
18	0109453-00	SEMS SCREW (8 TON)	4
	0149896-00	DRIVE SCREW(10&12 TON)	
19	0154277-00	COTTER PIN	1
20	0616675-00	LATCH KIT	1

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

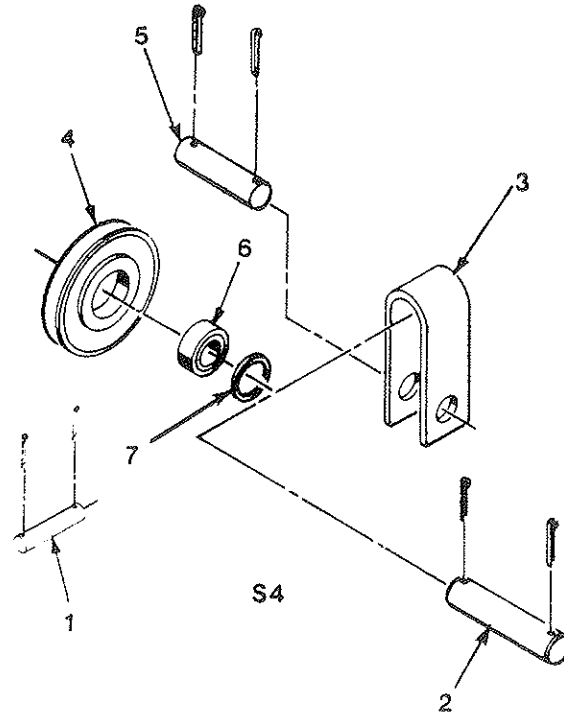
Yale Hoisting Equipment

REPAIR PARTS

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

REPAIR PARTS

REEVING KITS



ITEM	DESCRIPTION	5 TON S4	10 TON S4
	COMPLETE REEVING KIT	648077200	647940200
1	ROPE ANCHOR PIN	647018304	010688100
2	IDLER SHEAVE PIN (TOP)		649152300
3	YOKE IDLER	649427300	649153300
4	IDLER SHEAVE	010988500	010999600
5	IDLER SHEAVE PIN	645203123	645203109
6	IDLER SHEAVE PIN BEARING	015128100	500353905
7	RETAINING RING	500343914	501989909

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

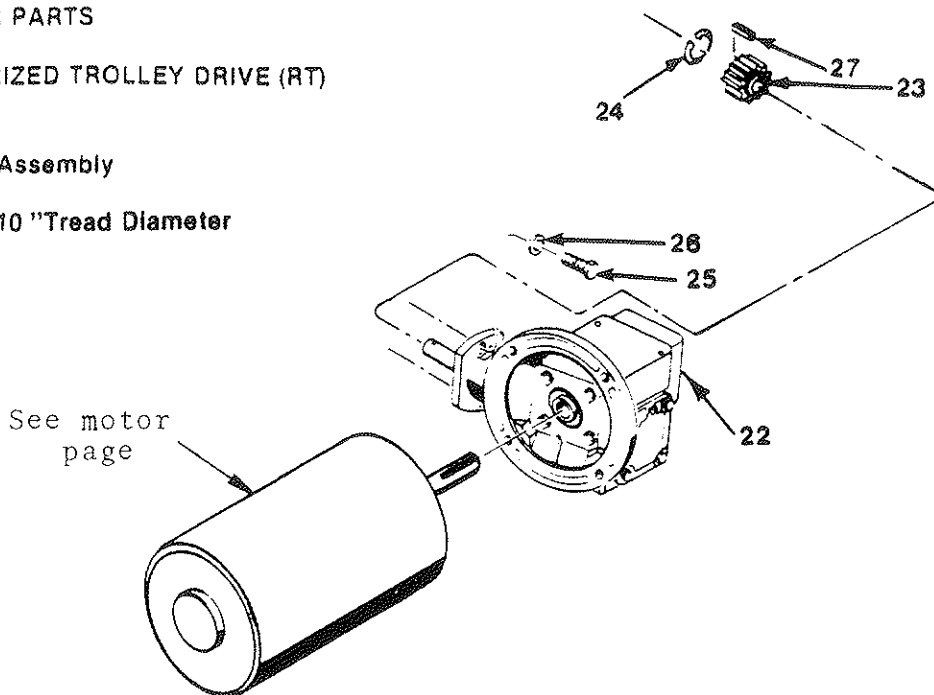
Yale Hoisting Equipment

REPAIR PARTS

MOTORIZED TROLLEY DRIVE (RT)

Trolley Assembly

6" & 10" Tread Diameter



ITEM NBR	PART NUMBER	DESCRIPTION	QTY.
22	SEE TABLE 6467012-01	GEAR CASE RT MGT. KIT (Incl. Items 23, 24, 25 & 26) 6" TREAD	1
	6467022-01	RT MGT. KIT (Incl. Items 23, 24, 25 & 26) 8" TREAD	
23	6462893-00	PINION 6" TREAD	1
	6492633-00	PINION 8" TREAD	1
24	5002279-04	RETAINING RING	1
25	0554856-00	BOLT	2
26	0150266-00	LOCK WASHER	2
39	*	MOTOR	1
27	6462913-01	KEY	1

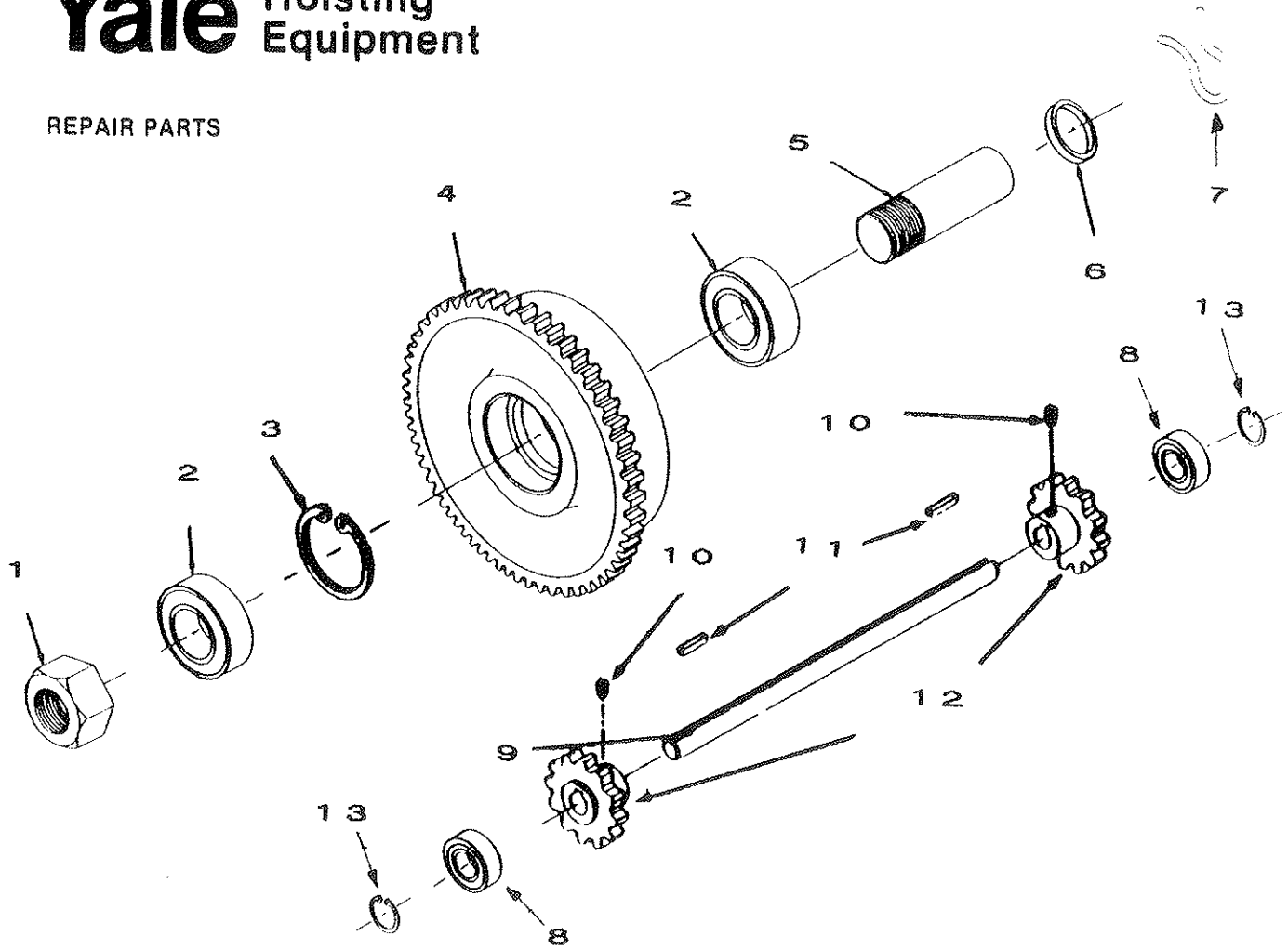
GEAR TABLE

TRAVEL SPEED (FT/MIN)	GEAR CASE	RATIO
15	6467093-36	40:1
30	6467093-34	20:1
45	6467093-33	15:1
65	6467093-32	10:1

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

Yale Hoisting Equipment

REPAIR PARTS



ITEM NBR	PART NUMBER		DESCRIPTION	QTY.
	6" TREAD WHL	8" TREAD WHL		
	647911202	647959204	WHL/AXLE GRP PLAIN (INCL. ITM 1-7)	
	647912202	647959203	WHL/AXLE GRP GEARED (INCL. ITM 1-7)	
1	649080300	649206300	NUT JAM	2
2	015126400	642346100	BRG. BALL	2
3	640046920	642345100	RET. RING	2
4	649089302	649196304	WHEEL PLAIN	1
	649090302	649196303	WHEEL GEARED	
5	649079300	649205300	AXLE	1
6	649081300	649211300	WASHER	1
7	649084300	649084300	RETAINER CLIP	1
8	080818600	080818600	BRG. BALL	2
9	649098300	649098300	JACK SHAFT	1
10	014803600	014803600	SET SCREW	2
11	016240800	016240800	KEY	2
12	649096300	649154300	PINION	2
13	015915600	015915600	RETAINING RING	2

Yale Hoisting Equipment

HUB LOCATION DIMENSIONS

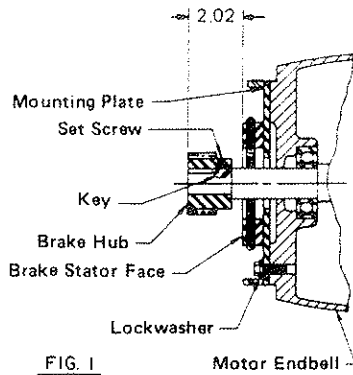


FIG. 1

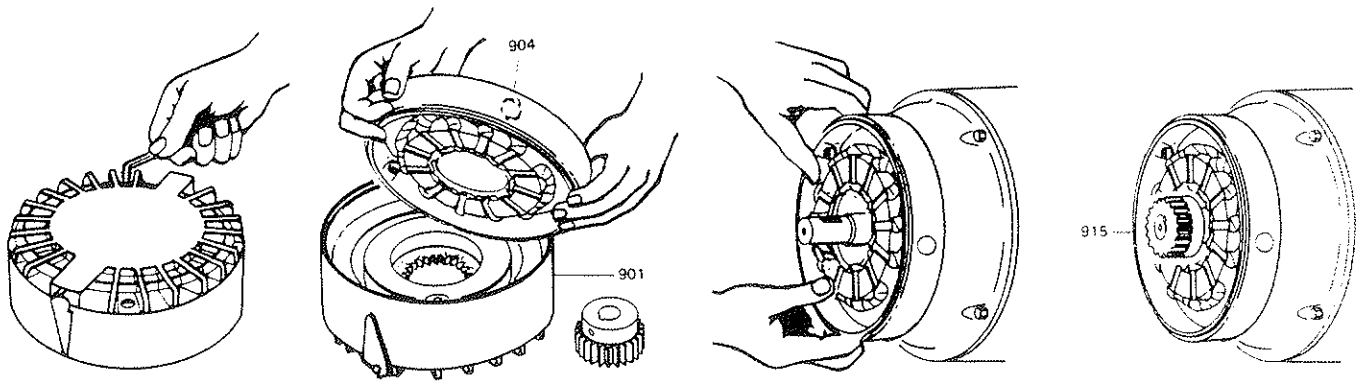
MAINTENANCE INSTRUCTIONS

The Stator-Armature air gap is factory set and requires no resetting, even when installing a new friction disc. However, as with any electro-mechanical device periodic inspection will insure optimum performance. Recommended inspection procedure is as follows.

1. Inspect brake disc every 3,000 cycles. The disc should be replaced when worn to .475" thickness.
2. Inspect brake disc for general condition, and signs of unusual wear, remove any build-up of wear particles.
3. Inspect all bolts, hub set screws, etc. for tightness.

WARNING

Brake failure may be caused by improper application and/or lack of maintenance. Additional means shall be provided to insure safety of personnel if injury could be caused by brake failure. Do not energize brake with cover assembly removed. Wound stator can be damaged, voiding warranty.



STEP 1

Remove three brake housing cover bolts (931) from cover.

STEP 2

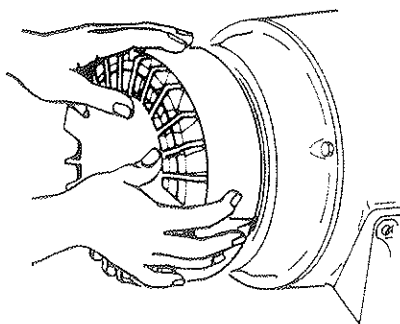
Brake now comes apart in two assemblies. Stator assembly (904) and Brake housing assembly (901).

STEP 3

Align brake lead hole in stator assembly with corresponding hole in motor and feed brake leads into motor. Mount stator assembly to motor, using care to insure the "lining up" of diameter of stator assembly with the register on motor endbell for proper fit of housing assembly. Use mounting bolts to secure stator assembly in place.

STEP 4

Position brake hub (915) on motor shaft (see Fig. 1 for installation location). Tighten set screws.



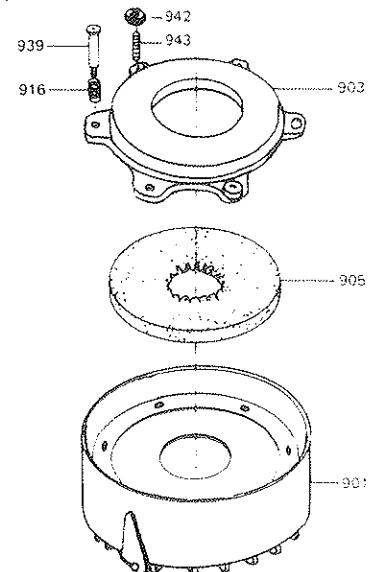
STEP 5

Using care to insure proper mating of hub spline and brake lining disc, secure housing assembly to stator assembly. If housing assembly fails to align easily with register of motor endbell, releasing of brake release levers momentarily will allow centering of brake disc and alignment of fit. Secure with brake housing cover bolts furnished, and return release levers to normal position.

STEP 6

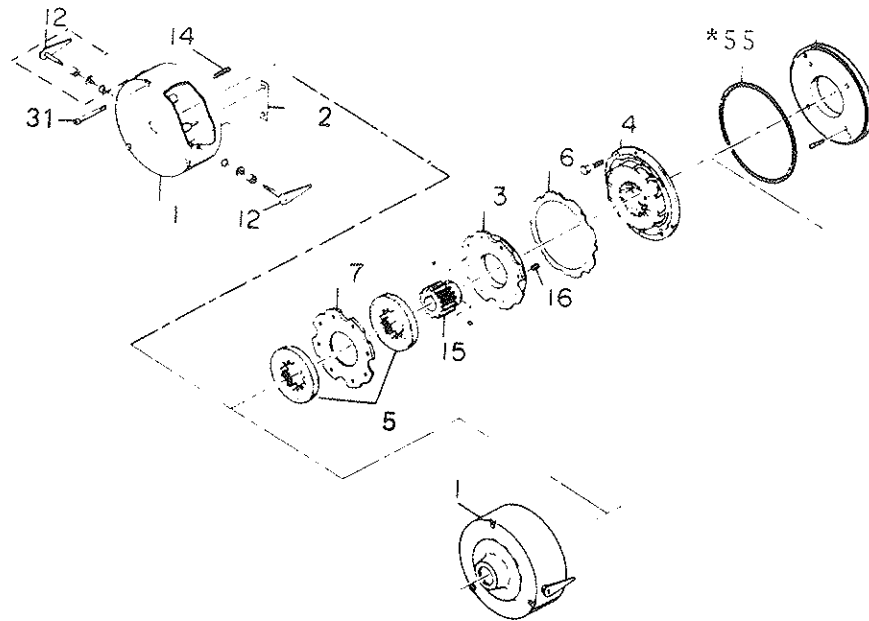
Friction Disc Renewal - Remove power from system. Now follow the steps one and two. Then proceed to remove all six shoulder bolts (939) from the brake housing assembly.

NOTE: The location of each torque spring (916). Do not remove the two elastic stop nuts (942). These are factory set to regulate rotor lift height. Armature can be removed without removing elastic stop nuts. Lift out the armature assembly (903) from the brake housing. The friction disc (905) is now accessible for removal and replacement. Visually check all parts for foreign material. Insert new friction disc into brake housing, making sure it is located in approximately the center and reassemble the armature assembly, torque springs and shoulder bolts into their original positions. Then tighten to 35 ft. lb. with torque wrench.



Yale Hoisting Equipment

REPAIR PARTS



REULAND MOTOR BRAKE 25 FT. LB

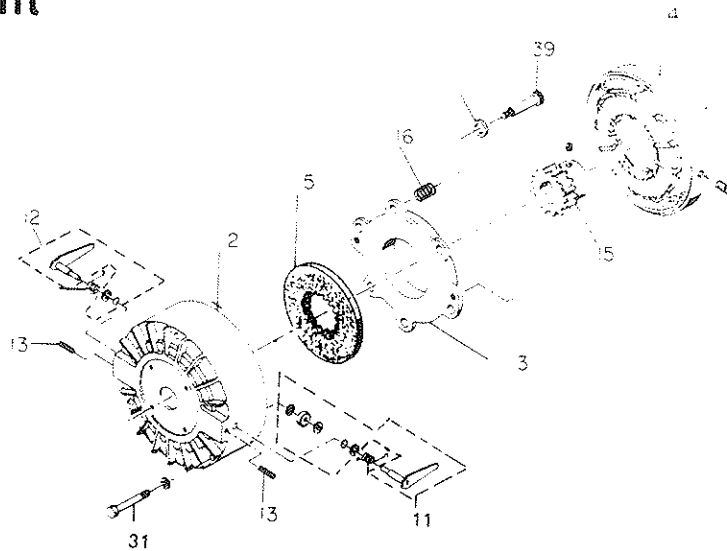
ITEM NUMBER	PART NUMBER	DESCRIPTION	QTY.
55	648939301	GASKET	1
1	648939302	HOUSING	1
2	648939303	BRAKE SHIM	1
3	648939304	ARMATURE ASM.	4
4	648939305	STATOR 200V	1
	648939306	STATOR 230/400V	1
	648939307	STATOR 575V	1
5	648939308	FRICTION DISC	1
6	648939309	COMPRESSION PLATE	2
7	648939310	BRAKE PLATE	1
12	648939313	MANUAL RELEASE SPRING ASM.**	1
14	648939314	GUIDE PIN	2
15		BRAKE HUB	8
	648939315	.750 BORE	
	648939316	.875 BORE	
	648939317	1.125 BORE	
	648939318	1.375 BORE	
	648939319	1.625 BORE	
16	648939320	TORQUE SPRING	
		3 HP 15 FT. LB.	4
		5 HP 25 FT. LB.	6
31	648939321	HOUSING COVER BOLT	3

* AS REQUIRED
 ** SPECIFY LEFT OR RIGHT

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

Yale Hoisting Equipment

REPAIR PARTS



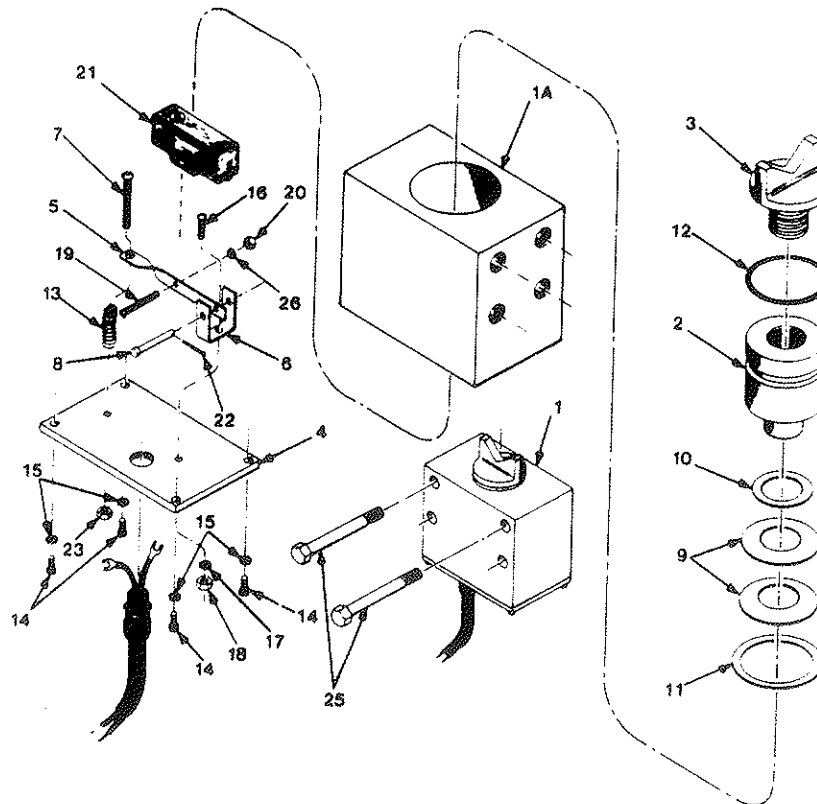
REULAND MOTOR BRAKE 50/75 FT. LB

ITEM NUMBER	PART NUMBER	DESCRIPTION	QTY.
2	648940301	BRAKE HOUSING	1
3	648940302	ARMATURE ASM.	1
4	648940303	STATOR 200V)	1
	648940304	STATOR 230/460V) SELECT 1	
	648940305	STATOR 575)	
5	648940306	FRICTION DISC	1
11	648940309	MANUAL RELEASE SPRING ASM. LEFT	1
12	648940310	MANUAL RELEASE SPRING ASM. RIGHT	1
13	648940311	STOP PIN	1
15	648940312	BRAKE HUB	1
	648940313	1.375 BORE	
	648940314	1.625 BORE	
	648940315	1.875 BORE	
16	648940315	TORQUE SPRING 25 FT. LB. BRAKE	4
		50 FT. LB. BRAKE	6
31	648940316	HOUSING COVER BOLT	3
39	648940317	SHOULDER BOLT	6

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

ACCESSORIES

EW SERIES
OVERLOAD LIMIT SWITCH
LIMIT SWITCH ASSEMBLIES NUMBERS
6448482-01 1/2 - 5 TON
6448482-02 7 1/2 - 10 TON



To Calibrate the Load Limiter Switch:

1. Attach load to hook which meets the minimum desired weight limit above established limit of maximum hoisting performance.
2. Suspend the load approximately 1/2 - 1" above normal load surface.
3. Turn main power supply "OFF".
4. Refer to wiring diagram WDX□XX for your equipment that the fifth digit must be 1, or 3, or 4 or 7.
5. Loosen hex jam nut on slotted adjusting screw and turn adjusting screw "CLOCKWISE" until ohm meter verifies continuity between terminals 1 and 7.
6. While maintaining the position of the adjusting screw, tighten the hex jam nut to lock the screw in place.
7. Turn main power supply "ON" and lower the test load to normal load surface.
8. Try to raise the load; if load is raised beyond your specified limits, repeat steps 2 through 6.

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

SECTION 1442
LOAD LIMITER

COMMON PARTS			
ITEM	PART NO.	DESCRIPTION	QTY.
1	SEE TABLE	HOUSING (SIDE MOUNT)	1
	SEE TABLE	HOUSING (END MOUNT)	1
2	6483721-00	PLUNGER	1
3	6483731-00	ADJUSTING BLOCK	1
4	6483701-00	COVER (LIMIT SWITCH)	1
5	6453923-00	BRACKET (SWITCH)	1
6	6454013-00	MOUNTING BRACKET	1
7	6483681-00	ADJUSTING SCREW	1
8	6483671-00	CLEVIS PIN	1
9	6402478-17	BELLEVILLE SPRING	1
10	6484161-02	THRUST WASHER (1.56 O.D.)	1
11	6484161-01	THRUST WASHER (2.062 O.D.)	1
12	0128244-00	"O" RING	1
13	0167773-00	SPRING	1
14	0148633-00	SCREW (COVER)	4
15	0114108-00	LOCKWASHER (CAD. PLATED)	4
16	0148615-00	SCREW (MTG. BRACKET)	1
17	0114099-00	LOCKWASHER (SHAKEPROOF)	1
18	0149360-00	NUT (MTG. BRACKET)	1
19	0210676-00	ROUND HEAD SCREW	1
20	0211973-00	HEX NUT	1
21	6484141-00	MICRO SWITCH	1
22	0102775-00	COTTER PIN	1
23	0149393-00	HEX NUT (ADJUSTING SCREW)	1
24	0150266-00	LOCKWASHER, 1/2 MED. (NOT SHOWN)	4
25	2031527-00	SCREW, 1/2 - 13 (NOT SHOWN) LOW HEADROOM	AR**
	0554850-00	SCREW, 1/2 - 13 (NOT SHOWN) STD. HEADROOM	4
26	0515453-00	LOCKWASHER, SHAKEPROOF	1

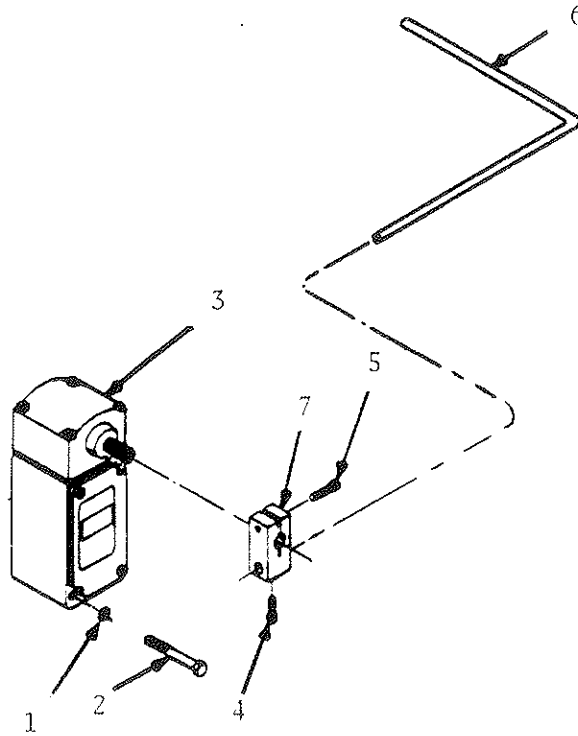
* SEE TABLE FOR QUANTITY REQUIRED.
**AR AS REQUIRED FOR FRAME MTG. BRACKET.

LOAD LIMITER ASSEMBLY NUMBER	TYPE OR MOUNT	HOUSING ITEM 1	BELLEVILLE SPRING ITEM 9 QUANTITY
6448482-01	SIDE MOUNT OR LOW HEADROOM	6483741-00	1
6448482-02	SIDE MOUNT OR LOW HEADROOM	6483741-00	2

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ACCESSORIES

UPPER PLUGGING LIMIT SWITCH



5 & 10 TON S4 UPPER PLUGGING LIMIT SWITCH 648081200

Item	Part No.	Description	Qty.
1	0150285-00	Lock Washer #10	2
2	0148768-00	Screw 10-32 x 2	2
3	6455291-00	Limit Switch	1
4	0656254-00	Screw 10-32 x 3/8	1
5	0656255-00	Screw 10-32 x 5/8	1
6	6494303-00	Rod	1
7	6467791-00	Hub	1

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

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 SN _____

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"/>
BRAKES			WIRING			DRUM & SHEAVES		
VICTOR 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"/>			
LIMIT SWITCHES			LOAD LIMITING DEVICE			COLLECTORS		
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"/>
HOUSING			OPERATION CONTROLS			LUBRICATION		
DISTORTED	<input type="checkbox"/>	<input type="checkbox"/>	CONTACTOR PITTING	<input type="checkbox"/>	<input type="checkbox"/>	ALL POINTS LUBRICATED -S 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"/>			
SUPPORTING STRUCTURE			AIR SYSTEM			WARNING LABELS		
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 _____

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"/>
BRAKES			WIRING			DRUM & SHEAVES		
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"/>			
LIMIT SWITCHES			LOAD LIMITING DEVICE			COLLECTORS		
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"/>
HOUSING			OPERATION CONTROLS			LUBRICATION		
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"/>			
SUPPORTING STRUCTURE			AIR SYSTEM			WARNING LABELS		
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 _____

SIGNATURE _____ DATE _____ CLOCK NUMBER _____

Yale® Hoists Warranty

Yale

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 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 Duff-Norton 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 Duff Norton 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, DUFF-NORTON MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

Improvements:

Yale 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 cannot be responsible in such cases and our warranty should be voided.

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

ALL SHIPMENTS SUBJECT TO CHANGE WITHOUT NOTICE AND MAY BE ADJUSTED TO SELLER'S PRICE IN EFFECT AT TIME OF SHIPMENT.
THIS CANCELS AND SUPERSEDES ALL PREVIOUS PRICES.
ALL PRICES IN U.S. DOLLARS.



Yale® Hoists
Highway 1 North
P.O. Box 1000
Forrest City, Arkansas 72335
Customer Service Phone (800) 999-6318
Fax (800) 766-0223

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