

LITTLE MULE[®]

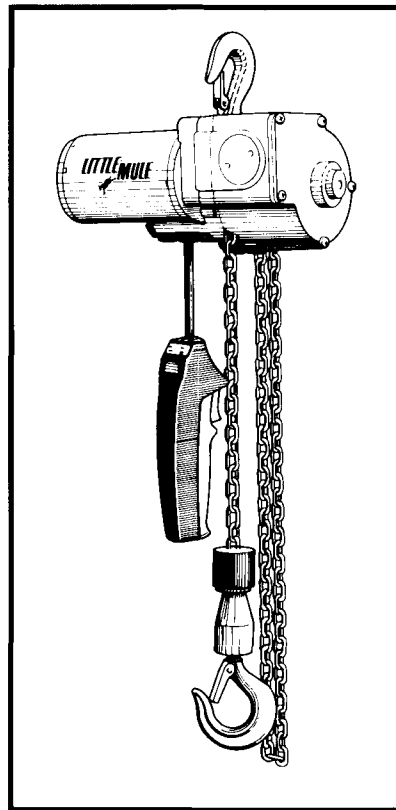


OPERATING & MAINTENANCE INSTRUCTIONS WITH PARTS LIST PUBLICATION PART NO. LMES-1

HOISTS

Americrane & Hoist Corp 1-800-652-1932

ELECTRIC CHAIN HOISTS



**MODEL: LMES
500 and 1000 LBS.
CAPACITY**

IMPORTANT — CAUTION

This manual contains important information for the correct installation, operation and maintenance of the equipment described herein. All persons involved in such installation, operation, and maintenance should be thoroughly familiar with the contents. To safeguard against the possibility of personal injury or property damage, follow the recommendations and instructions of this manual and keep it for further reference.

WARNING

The equipment shown in this manual is intended for industrial use only and should not be used to lift, support, or otherwise transport people.

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DO'S AND DO NOT'S

Electric and Air Powered Hoists

The following warnings and operating practices have been taken from American National (Safety) Standard ANSI B30.16 and are intended to avoid unsafe hoisting practices which might lead to personal injury or property damage.

These recommendations apply to all electric and air powered hoists for vertical lifting service involving material handling of freely suspended unguided loads.

WARNING: TO AVOID INJURY

1. **DO** read ANSI B30.16 Safety Standard for Overhead Hoists and Hoist Manufacturer's Operating and Maintenance Instructions.
2. **DO** be familiar with hoist operating controls, procedures, and warnings.
3. **DO** make sure hook travel is in the same direction as shown on controls.
4. **DO** make sure hoist limit switches function properly.
5. **DO** maintain firm footing when operating hoist.
6. **DO** make sure that load slings or other approved sling attachments are properly sized and seated in the hook saddle.
7. **DO** make sure that the hook latch, if used, is closed and not supporting any part of the load.
8. **DO** make sure that load is free to move and will clear all obstructions.
9. **DO** take up slack carefully, check load balance, lift a few inches and check load holding action before continuing.
10. **DO** avoid swinging of load or load hook.
11. **DO** make sure that all persons stay clear of the suspended load.
12. **DO** warn personnel of an approaching load.
13. **DO** protect wire rope and load chain from weld spatter or other damaging contaminants.
14. **DO** promptly report any malfunction, unusual performance, or damage of the hoist.
15. **DO** inspect hoist regularly, replace damaged or worn parts, and keep appropriate records of maintenance.
16. **DO** use the hoist manufacturer's recommended parts when repairing a hoist.
17. **DO** use hook latches wherever possible.

18. **DO** apply lubricant to the wire rope or load chain as recommended by the hoist manufacturer.
19. **DO NOT** lift more than rated load.
20. **DO NOT** use the hoist load limiting device to measure the load.
21. **DO NOT** use damaged hoist or hoist that is not working correctly.
22. **DO NOT** use the hoist with twisted, kinked, damaged or worn wire rope or chain.
23. **DO NOT** lift a load unless wire rope is properly seated in its groove(s) or unless chain is properly seated in chain wheel(s) or sprocket(s).
24. **DO NOT** use load rope or load chain as a sling or wrap rope or chain around the load.
25. **DO NOT** lift a load if any binding prevents equal loading on all supporting ropes or chains.
26. **DO NOT** apply the load to the tip of the hook.
27. **DO NOT** operate unless load is centered under hoist.
28. **DO NOT** allow your attention to be diverted from operating the hoist.
29. **DO NOT** operate the hoist beyond limits of load rope or load chain travel.
30. **DO NOT** use limit switches as routine operating stops unless recommended. They are emergency devices only.
31. **DO NOT** use hoist to lift, support or transport people.
32. **DO NOT** lift loads over people.
33. **DO NOT** leave a suspended load unattended unless specific precautions have been taken.
34. **DO NOT** allow sharp contact between two hoists or between hoist and obstructions.
35. **DO NOT** allow the rope, chain or hook to be used as a ground for welding.
36. **DO NOT** allow the rope, chain or hook to be touched by a live welding electrode.
37. **DO NOT** remove or obscure the warnings on the hoist.
38. **DO NOT** adjust or repair a hoist unless qualified to perform hoist maintenance.
39. **DO NOT** attempt to lengthen the load rope or chain or repair damaged load rope or chain.

SPECIFICATIONS

Americrane & Hoist Corp 1-800-652-1932

LMES Model	Rated Load (lbs.)	Standard Lift (ft.)	Lifting Speed (FPM)	Voltage	Horse Power	Amp Draw	Limit Switches	Head-room (in.)	Overall Dimensions (in.)	Net Weight (lbs.)
3151	500	10	12	115V	.3	4.0	Upper & Lower	16	4 ¹ / ₄ H × 5 ¹ / ₄ W × 9 ³ / ₄ L	14
3167	500	10	12	230V	.3	4.0	Upper & Lower	16	4 ¹ / ₄ H × 5 ¹ / ₄ W × 9 ³ / ₄ L	24
3166	500	20	12	115V	.3	4.0	Upper & Lower	16	4 ¹ / ₄ H × 5 ¹ / ₄ W × 9 ³ / ₄ L	17
3168	500	20	12	230V	.3	4.0	Upper & Lower	16	4 ¹ / ₄ H × 5 ¹ / ₄ W × 9 ³ / ₄ L	27
3152	1000	10	6	115V	.3	4.0	Upper & Lower	19	4 ¹ / ₄ H × 5 ¹ / ₄ W × 9 ³ / ₄ L	17
3169	1000	10	6	230V	.3	4.0	Upper & Lower	19	4 ¹ / ₄ H × 5 ¹ / ₄ W × 9 ³ / ₄ L	27

Push button drop is approximately 3 feet less than lift.

A transformer is supplied for 230 volt applications.

4 mm link chain (welded and heat treated) minimum breaking strength 3,400 lbs.

OPERATING INSTRUCTIONS

Description

The Little Mule LMES Electric Chain Hoist features self-locking, hardened steel gears that also function as a load brake. The hoist is equipped with electronic overload protection, adjustable upper and lower limit switches, permanently lubricated and hardened steel gear train, and pendant trigger control.

General Safety Information

This hoist is designed for safe operation within the limits of its rated capacity. There are safety features built into the hoist to protect the operator and others from injury due to failure of the hoist itself. However, listed below are safety precautions which must be followed in order to protect personnel and property.

1. Align hoist for straight line pull. Avoid side pulls and pulling horizontally.
2. Limit switches are emergency devices only. Do not use limit switches to stop the hoist in normal operation. Repeated actuation of these limit switches under load could damage the hoist.
3. Do not operate hoist with twisted, kinked, or damaged chain.
4. Do not operate a damaged or malfunctioning hoist until adjustments or repairs have been made.
5. Do not use hoist to lift people or carry loads over people.
6. Do not lift more than rated capacity of the hoist.
7. Do not leave a load suspended in the air unattended.
8. Avoid jogging controls or quick reversals of load.
9. Always remove load and disconnect hoist from power supply before making repairs.
10. Read American National Standards Institute — B30.16
WARNING: DO NOT USE HOIST FOR MOVEMENT OF PERSONNEL OR LOADS OVER PERSONNEL. DO NOT OPERATE HOIST IN AN EXPLOSIVE ATMOSPHERE OR CORROSIVE ENVIRONMENT.
11. Do not replace chain supplied with hoist with any other type.
12. Do not attempt to operate hoist on any other power supply other than 115 volt, 50/60 Hz, single phase.

INSTALLATION

Mounting

The hoist must be hung by the upper hook only, and should not be mounted by any other means. The mounting support must be capable of handling loads in excess of hoist rating. Suggested locations are on a support beam or trolley.

Electrical Connection

This hoist is to be connected to a 115-volt A.C., single phase, 50/60 Hz current only. The outlet must be grounded.

Limit Switches

The hoist is equipped with an upper and lower limit switch. The upper switch is intended as an emergency shut-off to limit the upward travel of the load hook and should not be used during normal operation of the hoist. The lower limit switch is also intended as an "emergency only" stop and should not be used during normal operation of the hoist. Repeated use of the upper and lower limit switch under load can cause shock loads that could damage the hoist.

If one of the limit switches has been activated, do not attempt to continue hoist movement in the same direction. Hoist must be reversed. Continued attempts to operate the hoist in the direction of the activated limit will break limit switch arm. A broken arm on limit switch is not covered by warranty.

Chain Bucket

A chain bucket is standard equipment and may be used when slack chain hanging from hoist is not desired. Note how the hook is fastened to the bucket before removing it for installation on the hoist. To install, feed the hook through the third link down of the fixed chain end. Attach hook to the bucket by inserting hook ends through the **TOP** of the tabs at the bucket rim.

OPERATION

This hoist is operated by the pistol grip switch at the end of the control cord.

To raise a load, move the direction lever to the "up" position and squeeze the trigger to operate. To lower a load, move direction lever to "down" position and squeeze the trigger. The load will stop and hold from either direction by releasing the trigger.

NOTE: The direction lever cannot be moved unless the trigger is released. Forcing the direction lever while holding the trigger in will only result in broken switch.

A load, whether being raised or lowered, will stop in approximately 1/8 inch when the control trigger is released. At this point, the motor and face gears are locked and the load will remain in position until the control switch is again activated.

Duty Cycle

This is an intermittent duty hoist. Failure to comply with this duty cycle will cause overheating of the gear box and the motor. Overheated gears thin out the lubricant causing excessive wear on the gears. An overheated motor breaks down insulation on the winding causing premature motor failure. A temperature sensing device built into the hoist will indicate if the duty cycle has been exceeded. **EXCEEDING THE DUTY CYCLE VOIDS THE WARRANTY.** Therefore, it is very important to allow sufficient time for the motor and gear box to cool down after each usage. The following chart gives recommended rest periods for varying amounts of usage. Running the motor over 2 minutes at full load is not recommended.

MOTOR "ON" TIME (MINUTES)	VERTICAL TRAVEL DISTANCE (FEET)		COOL DOWN PERIOD (MINUTES)	
	500 LB. HOIST	1,000 LB HOIST	FULL RATED LOAD	HALF RATED LOAD
1/4	3	1 1/2	1	1/2
1/2	6	3	3	1 1/2
1	12	6	7	3 1/2
2*	24	12	15	7 1/2

*Do Not Exceed 2 Minutes "on" Time

Trouble Shooting

If hoist operated in one direction only, check for a jammed limit switch arm. This can be done by removing the limit switch cover.

If hoist starts to lift a heavy load and then stops, check the overload light while holding the control switch in the up position. If the light comes on, then lower and reduce the load and repeat the procedure.

If hoist will not operate, check for tripped circuit breaker. The circuit breaker is located in the bottom of the control handle. If the circuit breaker is tripped push the button to reset it.

MAINTENANCE

On a daily basis, the following should be checked:

1. Controls — Check all controls and operating mechanisms for proper function.
2. Safety Devices — Check upper and lower limit switches for proper function.
3. Hooks — Check for cracks or deformation.
4. Chain — Inspect for wear, distortion, and proper attachment at each end. Check for dirt and foreign matter on chain that can be carried back into hoist.

On a periodic basis (suggested intervals of one to three months, depending on service), the following should be checked:

1. Bolts, screws, and connections for any loosening.
2. Pocket wheel for wear.
3. Wear of chain, including chain stretch. Chain stretch can be checked by measuring 11 links of a section of chain that normally runs over the pocket wheel.

This hoist is equipped with a 4 MM welded link chain with a .472 nom. pitch; therefore, 11 links of a new chain should measure 5.197 + .016 – .008 inches.

If any 11 links of chain measure more than 5.275 inches, then stretch and wear is excessive and the chain must be replaced.

4. Hooks — Check for cracks with dye penetrants, magnetic particles, or other suitable methods at least once a year.
5. Check electrical components for corrosion or other signs of deterioration.
6. Check hook retaining pins for wear and secureness.

Testing

After repair, check to see that the welds on each link face away from the pocket wheel. After repair or modification of a hoist, it must be tested for proper operation. Begin test with a light load and increase to rated capacity. Test should also include operation of upper and lower limit switch.

Lubrication

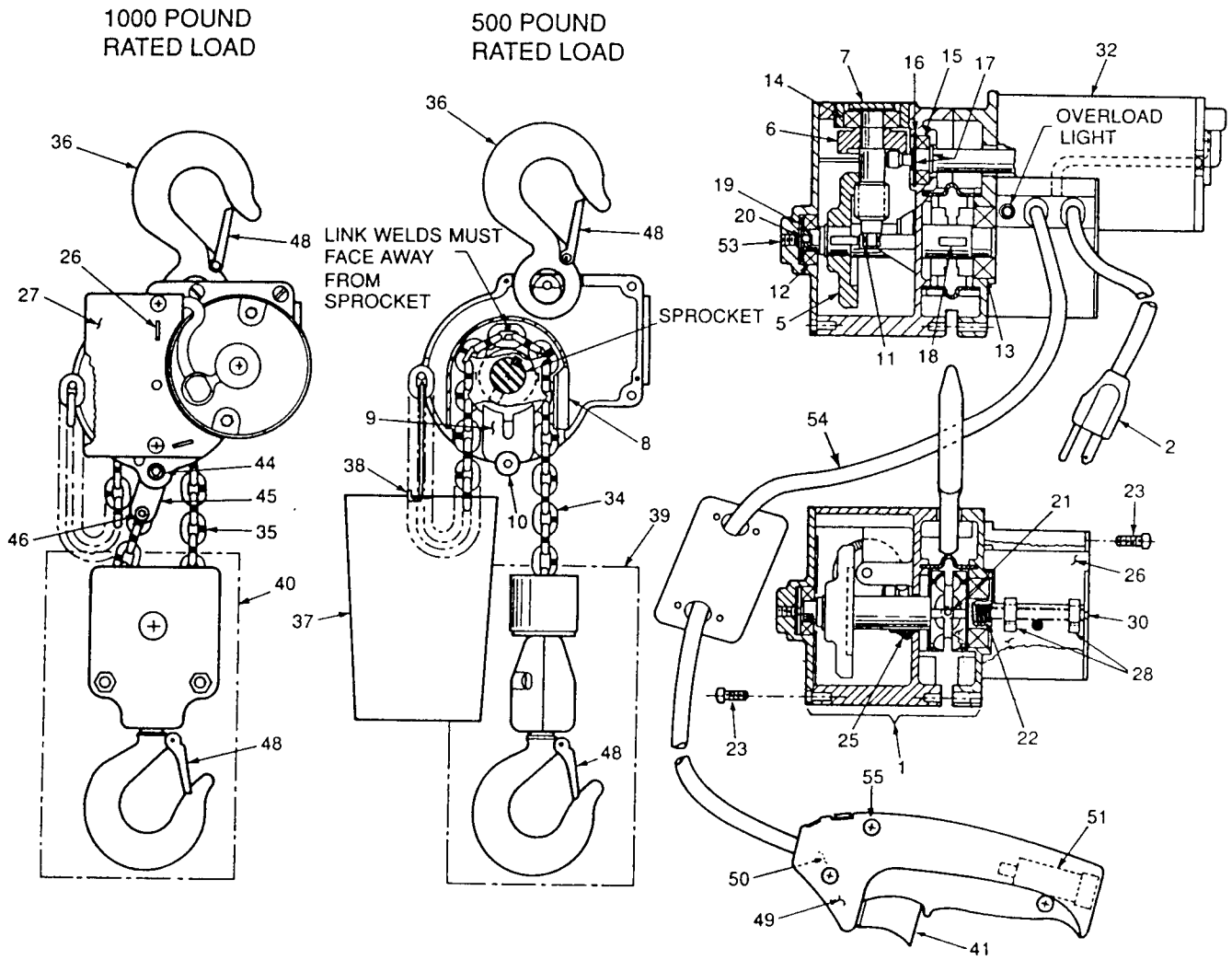
If lubrication of the gearbox is required because of unusual conditions, then use only Yale grease Part No. 911502000. This is the only grease approved for use in the Yale hoist.

The chain should be lubricated with SAE 20-30 grade motor oil.

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LITTLE MULE LMES — CHAIN HOIST

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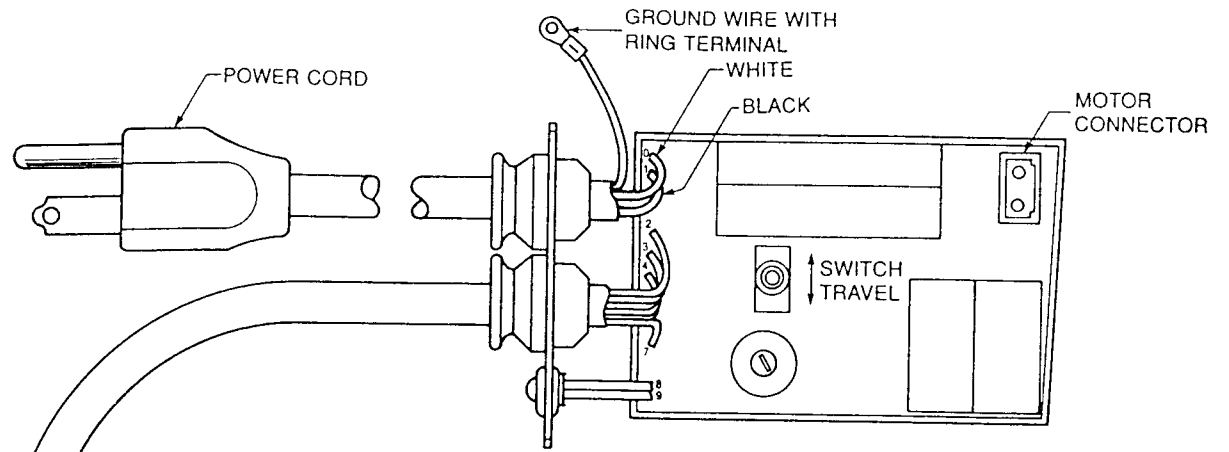


REPLACEMENT PARTS LIST

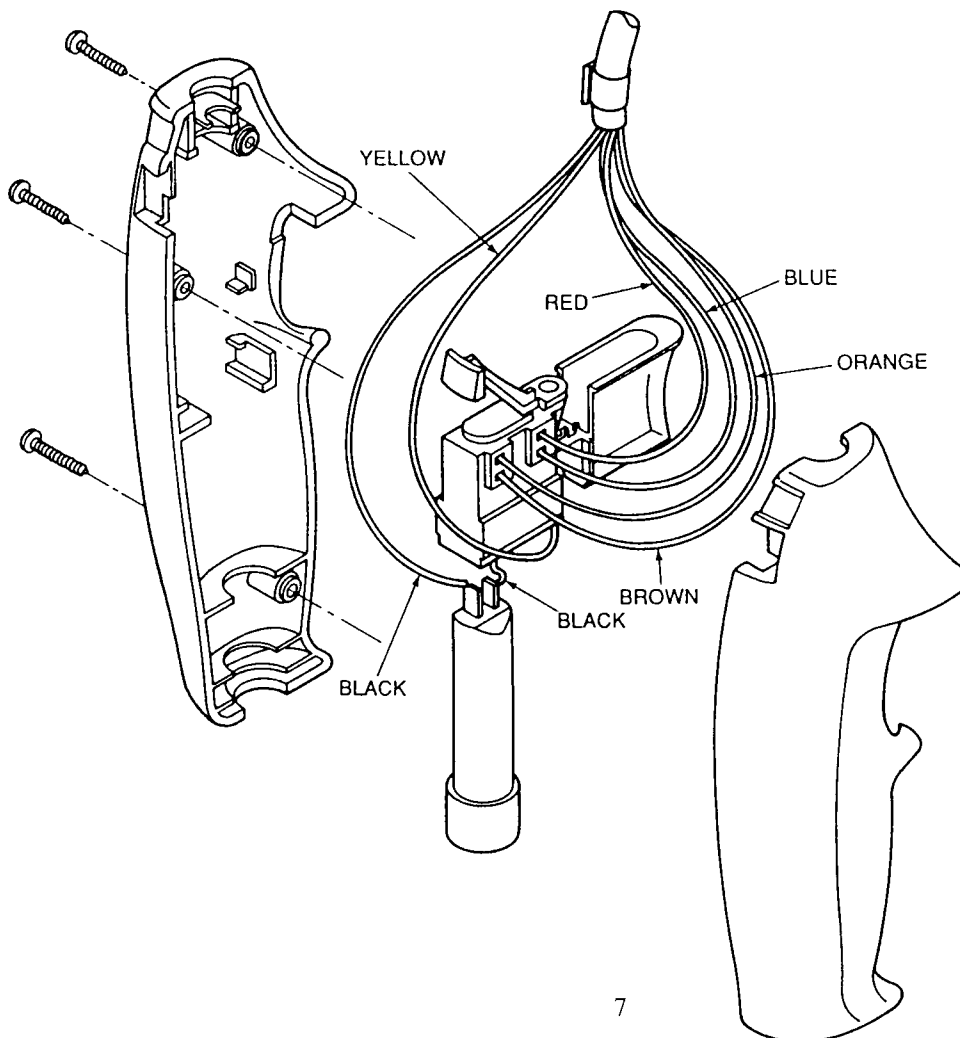
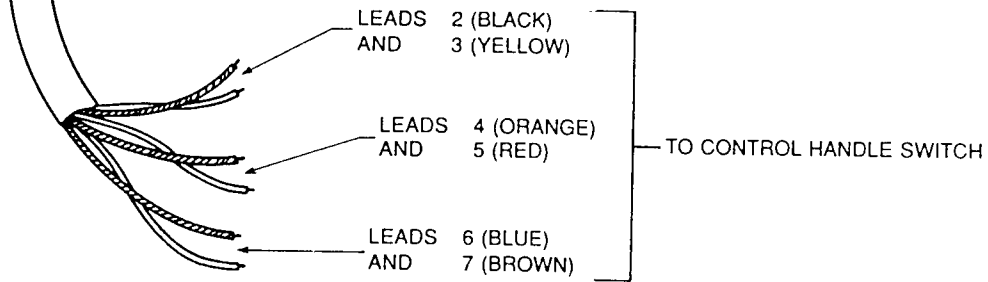
Key No.	Part No.	Description	Qty.
1	914500400	Housing & Sprocket Cover	1
2	912307401	Power Cord	1
5	912501300	Sprocket Shaft & Gear Ass'y.	1
6	912501200	Primary Gear & Pinion Ass'y.	1
7	911500200	Adjusting Plug	1
8	911500902	Chain Guide	1
9	911501000	Chain Stripper	1
10	911501200	Spacer (500 Lb. Hoist)	1
11	912304115	Needle Bearing	1
12	912307904	Ball Bearing	1
13	912307905	Ball Bearing	1
14	912307906	Ball Bearing	1
15	912307903	Ball Bearing	1
16	912302912	Retaining Ring	1
17	912302910	Retaining Ring	2
18	912303502	Woodruff Key	1
19	911501100	Spacer (Gear Cover)	1
20	911500800	Shaft Adj. Ball	1
21	912316403	Set Screw 1/4 - 20 x 1/4	1
22	912316402	Set Screw 1/2 - 13 - 3/8	1
23	912303002	Screw 10-32 x 1/2	7
25	912500901	Checkseal	1
26	911501400	Guide Plate	1
27	911501300	Limit Switch Housing Cover	1
28	911501603	Limit Switch Arm	2
30	912501501	Limit Switch Drive Screw	1
32	913204600	Motor	1
34	912501801	Chain (4 MM x 10 Ft.)	1
35	912501802	Chain (4 MM x 20 Ft.)	1
36	902285900	Top Hook (with Safety Latch)	1
37	912502000	Chain Bucket (500 Lb.)	1
	912502100	Chain Bucket (1000 Lb.)	1
38	911501700	Hook, Chain Bucket (500 Lb.)	1
	911502400	Hook, Chain Bucket (1000 Lb.)	1
39	912502200	Clevis & Hook Ass'y. 500 Lb. Hoist	1
39A	912306700	Hook & Latch Ass'y. (Part of Key #39)	1
39B	912501700	Clevis Half (Part of Key #39)	2
39C	911232500	Bumper (Part of Key #39)	1
39D	932312014	Flat Washer (Part of Key #39)	1
39E	912306604	Dowel Pin (Part of Key #39)	1
40	913500500	Pulley Block Ass'y. 1000 Lb. Hoist	1
40A	912306700	Hook & Latch Ass'y. (Part of Key #40)	1
40B	911500100	Sprocket (Part of Key #40)	1
40C	911501800	Pin Pulley Block (Part of Key #40)	1
40D	913500300	Block Half (Part of Key #40)	2
41	913500700	Switch, Single Speed	1
42	911502000	Synco TFE Grease (Not Shown)	3 cu/in
43	912305802	Cable Tie (Not Shown)	1
44	912305505	Screw, Hex Socket Hd. Cap	1
45	911503100	Clevis	1
46	912305504	Screw, Hex Socket Hd. Cap	1
47	912307303	Hex Nut Prevailing Torque (Not Shown)	1
48	911232600	Safety Latch Set	2
49	904095700	Control Handle Left Half	1
50	904095800	Control Handle Right Half	1
51	912318004	Circuit Breaker	1
53	912316408	Screw 9/16 - 24 x 3/8	1
54A	912306003	Pushbutton Cord For 10 Ft. of Lift	6.5 Ft.
54B	912306003	Pushbutton Cord For 20 Ft. of Lift	16.5 Ft.
55	912303701	Screw	3

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POWER SOURCE



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Little Mule Limited Warranty

LIMITED WARRANTY. Little Mule ("Seller") warrants all parts and components to be free from defects in materials and workmanship for a period of 90 days from the provable date of purchase. Any Little Mule LMES chain hoist which is defective will be repaired or replaced without charge to the Buyer upon compliance with these procedures. Other warranties — express or implied — are limited or excluded, and remedies are limited, as provided herein.

LIMITED WARRANTY PERFORMANCE PROCEDURE. Upon discovery of a defective Little Mule LMES chain hoist, the Buyer shall mail to the Seller at his factory or to any Factory Authorized Service Center written notice of such defect and mail, ship, or otherwise deliver the defective Little Mule LMES chain hoist, postage or shipping prepaid. Repairs or replacements by Seller under this Limited Warranty will normally be accomplished within 15 business days after receipt of the defective Little Mule LMES chain hoist. Seller or his Authorized Agents may make reasonable charges for parts and labor for repairs not covered by this Limited Warranty.

WARRANTY AND REMEDY LIMITATIONS AND EXCLUSIONS. Repair and/or replacement of the defective Little Mule LMES chain hoist or component part thereof as provided herein is the primary remedy for the Buyer. The following exclusions or limitations or warranties and limitations or remedies shall be expressly applicable:

A. Express Warranties. Seller warrants that the Little Mule LMES chain hoist is as described in the "Little Mule LMES Owner's Manual" provided herewith; no other express warranty is made in respect to the Little Mule LMES chain hoist. If any model or sample was shown to the Buyer, such model or sample was used for illustrative purposes only, and shall not be construed as a warranty that the Little Mule LMES chain hoist will conform to the sample or model.

B. Implied Warranties. THE IMPLIED WARRANTY OF MERCHANTABILITY AND ALL OTHER IMPLIED WARRANTIES SHALL ONLY EXTEND FROM THE PROVABLE DATE OF PURCHASE FOR 90 DAYS.

C. Incidental and Consequential Damages. SELLER SHALL NOT BE RESPONSIBLE FOR INCIDENTAL DAMAGES OF ANY KIND, OR FOR CONSEQUENTIAL DAMAGES TO PROPERTY, LOSS OF PROFITS AND LOSS OF USE WHICH MAY BE CAUSED BY ANY DEFECT IN OR MALFUNCTION OR FAILURE OF THE ENCLOSED LITTLE MULE LMES CHAIN HOIST.

D. Condition of Warranty. Seller shall not be required to comply with its warranty duties provided herein if the defect, malfunction, or failure of the Little Mule LMES chain hoist was caused by damage (not resulting from defective components) while in the possession of the Buyer, or unreasonable use by the Buyer. Unreasonable use shall include, but is not limited to, installation or use of the Little Mule LMES chain hoist without compliance with the instructions contained in the Little Mule LMES Owner's Manual, and subjecting the Little Mule LMES chain hoist to loads in excess to the load listed in the Owner's Manual for the particular model number.

LEGAL REMEDIES OF BUYER. This Limited Warranty gives a Buyer specific legal rights. The Buyer also has implied warranty rights. In the event of a problem with Limited Warranty Service or performance, the Buyer may be able to go to a small claims court, a State court, or a Federal district court.

INQUIRIES. Any inquiries regarding compliance with the warranties provided herein may be addressed in writing to:

Little Mule Products
3255 S.W. 11th Avenue
Fort Lauderdale, FL 33315

WARNING: The equipment shown in this manual is intended for industrial use only and should not be used to lift, support, or otherwise transport people, or to suspend loads over people.

**AVAILABLE FROM YOUR LOCAL
LITTLE MULE® HOIST DISTRIBUTOR:**

Americrane & Hoist Corp 1-800-652-1932



Little Mule® Products
3255 S.W. 11th Avenue
Ft. Lauderdale, Florida 33315
Phone (305) 522-5761
FAX (305) 763-1275