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SPEED REDUCER	
MOTOR	
TEMPERATURE CONTROLLER	

MACHINE MODEL NO.:_____

SERIAL NO.:_____

LST20 HOT WATER SHRINK TANK

FEATURES

- * All stainless steel construction
- * Water is electrically heated
- * Easy to clean -- easy to service
- * Easily removable dipping platform
- * Simple operation by push Button Control
- * Adjustable dipping cycle
- * Heating elements of corrosion - proof material
- * Insulated tank reduces heat loss
- * Plastic balls cover water surface to reduce loss of heat and evaporation.
- * Easy filling and draining of dipping tank
- * Digital temperature control displays actual water temperature
- * Water level switch prevents heating element burnout
- * Four swivel castors for ease in moving

SPECIFICATIONS

- * Approximate Machine Size
 - 35" Working height (51" OAH with platform raised)
 - 29" Width
 - 32" Depth (FRONT TO BACK)
- * Maximum size of product for dipping platform
 - 10" x 16" x 24"
- * Adjustable dipping time 2 - 8 seconds
- * Dipping temperature is adjustable by digital temperature control--180 DEG. F to 205 DEG. F
- * Water level for operation approximately 11" deep
- * Water volume for operation approximately 20 Gal.
- * Size of Dipping tank -- 17.5" depth x 24.5" width x 17"DP
- * Fill pipe -- 1/2 NPT
- * Drain valve -- 1/2 NPT
- * Electrical - 240 volt, 60 HZ, 3 Phase, 40 AMP Breaker
- Electrical - 240 volt, 60 HZ, 1 Phase, 60 AMP Breaker
- Electrical - 208 volt, 60 HZ, 3 phase, 40 AMP Breaker

Short Circuit Current Rating: 10kA @ 240V AC

CAUTION

UNPACKING INSTRUCTIONS

1. Remove all packing material from around shrink tank.
2. Check control switch to make sure it is in the off position.
3. Attach the correct plug to the power cord coming from the back of the machine (voltage requirement labeled on back of machine.)
4. Notice that the dipping platform is down, stand clear from the machine and turn the control switch "ON", the platform will raise to the top and stop.
5. Pressing the cycle button, the dipping platform will cycle down and up.
6. The temperature controller will not turn on until the tank is half full of water. (This is controlled by a pressure switch, it will also turn off the temperature controller if the water level gets to low.)
7. The temperature controller is set at 200°. The upper numbers on the display reads the actual water temperature, the lower display is the actual set-point. To change the set-point press the return arrow button. The set-point should now be displayed on the upper display, use the up or dn. arrows to change the temperature. Press the return arrow button again to enter the set-point temperature.(Consult temperature controller manual for other parameter settings.)
8. Cycle time control is for controlling your dipping time.
9. The plastic balls in the tank are to prevent heat loss from the water.

CONTROL PANEL FUNCTIONS

CONTROL OFF/ON SWITCH

Supplies power to the control panel in the machine.

CYCLE TIME CONTROL

Sets the cycle time of the dipping platform.

CYCLE PUSH BUTTON

Starts the cycle of the dipping platform.

TEMPERATURE CONTROLLER

Sets the temperature of the water in the tank.

OPERATING INSTRUCTIONS

1. Fill the tank with water, 8" of water must be in the tank before the temperature controller display will come on. There is a pressure switch by the drain valve that will turn off the temperature controller and heating elements if the water level gets to low (5") in the tank to prevent burning out the heating elements.)
2. Turn the control switch on, the display on the temperature controller will come on and display the temperature of the water in the tank and the set-point.
3. Set the temperature on the controller to meet the needs of you application. Important functions of the controller listed as follows.

A. SETTING TEMPERATURE

1. Press the (return) button, The set-point will be displayed in the upper display, "SP" will be displayed in the lower display.
 2. To change the set-point, use the up or dn. arrow buttons to change the set-point.
 3. Press the (return) button to enter the temperature.
4. Set the platform cycle time knob to meet your application, the platform cycle time ranges from 2 sec. to 8 sec.
 5. Set the product to be dipped on the dipping platform, press the cycle button to start the dipping cycle. The platform will lower into the water, come back up and stop.

LST20 TROUBLESHOOTING GUIDE

1. Nothing happens when power switch is turned on.
 - A. Check power cord to see if plugged in.
 - B. Check circuit breaker behind rear panel to see if tripped. (Unplug power cord before removing panel.)
 - C. Check 12 Amp. Fuses on the rear panel.
 - D. Check 1/2 Amp. Fuses on the rear panel.

2. Temperature controller won't turn on.
 - A. There must be at least 8" of water in the tank for the temperature controller to turn on.
 - B. Control power switch not turned on.

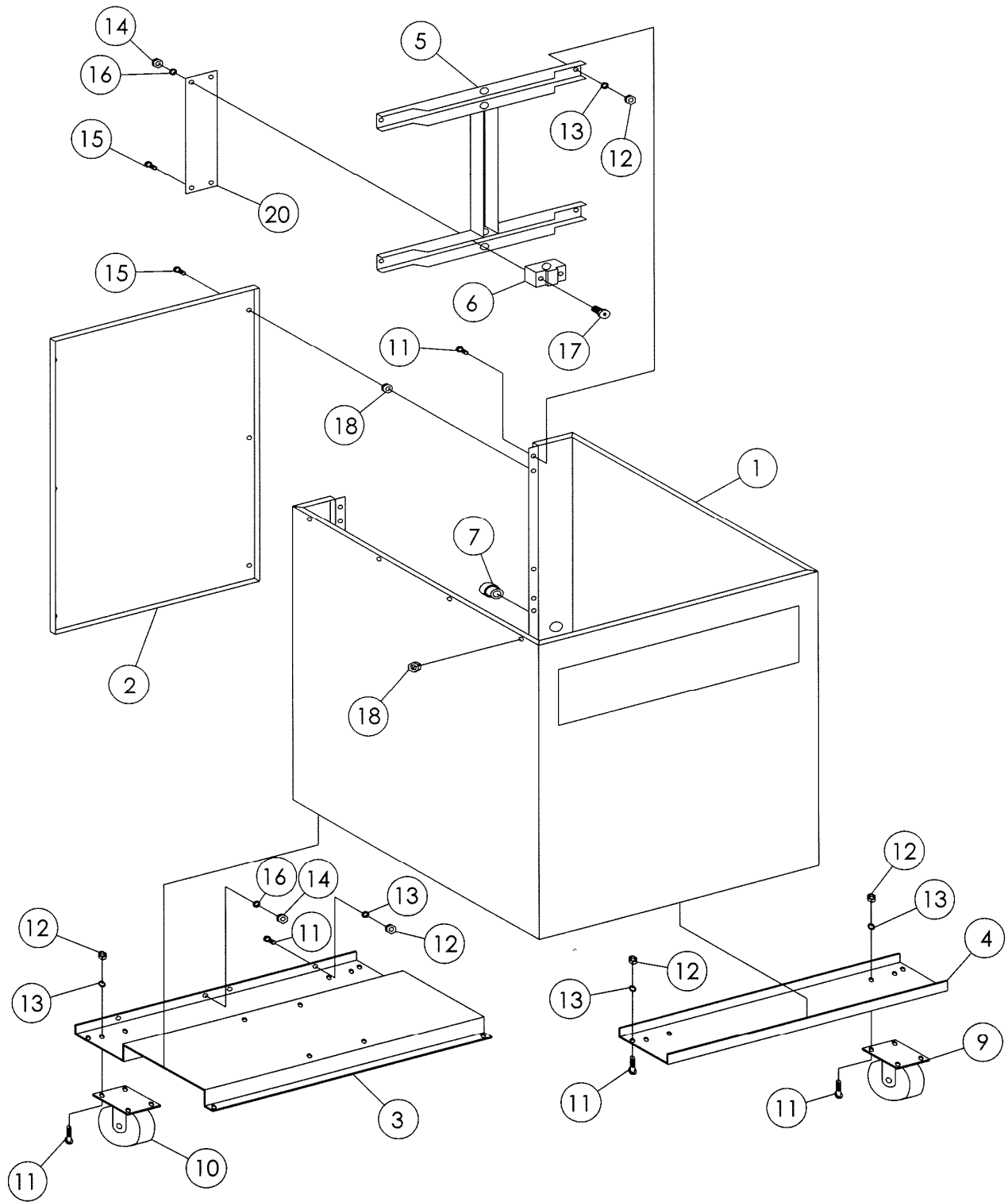
3. Platform won't move
 - A. Check 4 Amp. DC motor fuse on the controller board Behind the front panel.

NOTES

LST20 FRAME PARTS ASSEMBLY

REF NO	PART NO	DESCRIPTION	QTY
1	LST20-1	WRAP	1
2	LST20-7	BACK PANEL	1
3	LST20-9	REAR CASTER MOUNT	1
4	LST20-10	FRONT CASTER MOUNT	1
5	LST20-A	GUIDE BRACKET ASSEMBLY	1
6	LST20-A3	GUIDE BLOCK	2
7	CR3223	CORD RESTRAINT	1
8	CS4W887	SWIVEL CASTERS	2
9	CS4W890	RIGID CASTERS	2
10	CB4W932	BRAKE	2
11	BOS0AA240075	3/8-16 X 3/4" LG. HHCS SS	35
12	NUS0EA24	3/8-16 HEX NUT SS	35
13	WASGIO38	3/8" STD. LOCKWASHER SS	35
14	NUS0EA20	1/4-20 HEX NUTS SS	6
15	BOS0AA200100	1/4-20 X 1" LG. SCREW	8
16	WGSGI020	1/4" STD. LOCKWASHER SS	6
17	BOS0AA200175	1/4-20 X 1-3/4" LG. HHCS SS	4
18	RNAHA1-420-165	1/4-20 ALUM. RIVNUT HEX	26
19			
20	LST20-20	SHAFT COVER	1

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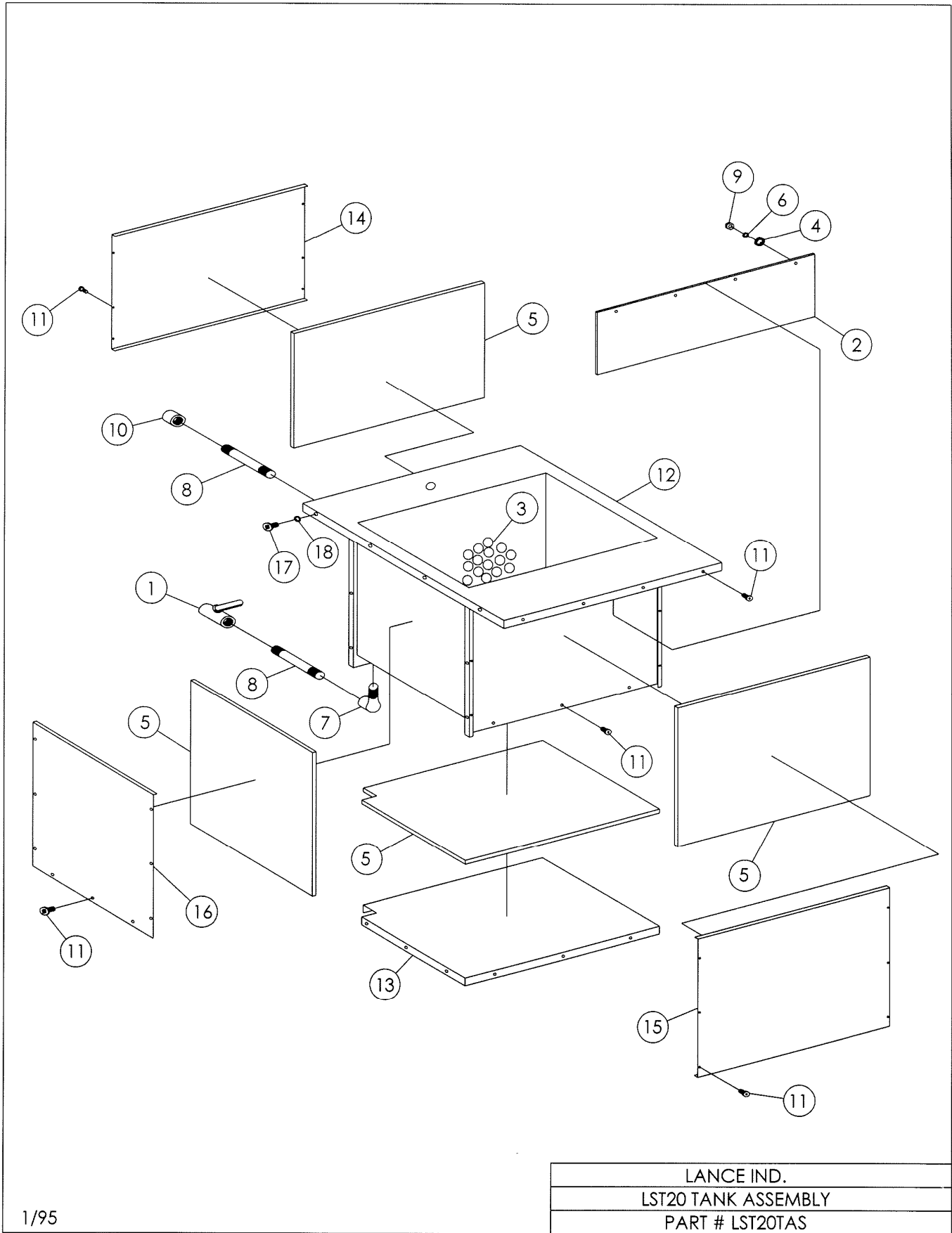


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LST20 FRAME ASSEMBLY
PART # LST20FAS

LST20 TANK PARTS ASSEMBLY

<u>REF NO</u>	<u>PART NO</u>	<u>DESCRIPTION</u>	<u>QTY</u>
1	BV4726K23	BALL VALVE	1
2	LST20-22	PLASTIC CURTAIN	1
3	HB-02103	HEAT LOSS BALLS	200
4	WASGA020	#10 STD. FLAT WASHER SS	4
5	IS51050482	FOAM INSULATION	24sq'
6	WASGJ016	#10 INT. TOOTH LOCKWASHER SS	4
7	EL4464K38	1/2"-90° STREET ELBOW	1
8	PN4548K179	8" PIPE NIPPLE	2
9	NUS0EG16	10-24 HEX NUT SS	4
10	PC4464K87	1/2" NPT CAP	1
11	BOS0AU160050	10-24 X 1/2" LG. PH RHMS SS	20
12	LST20-2W	TANK	1
13	LST20-5	BOTTOM COVER	1
14	LST20-6	BACK TANK COVER	1
15	LST20-8	FRONT TANK COVER	1
16	LST20-19	SIDE COVER	2
17	BOS0AA200075	1/4-20 X 3/4" LG. PH RHMS SS	10
18	WGSIGI020	1/4-20 STD. LOCKWASHER SS	10

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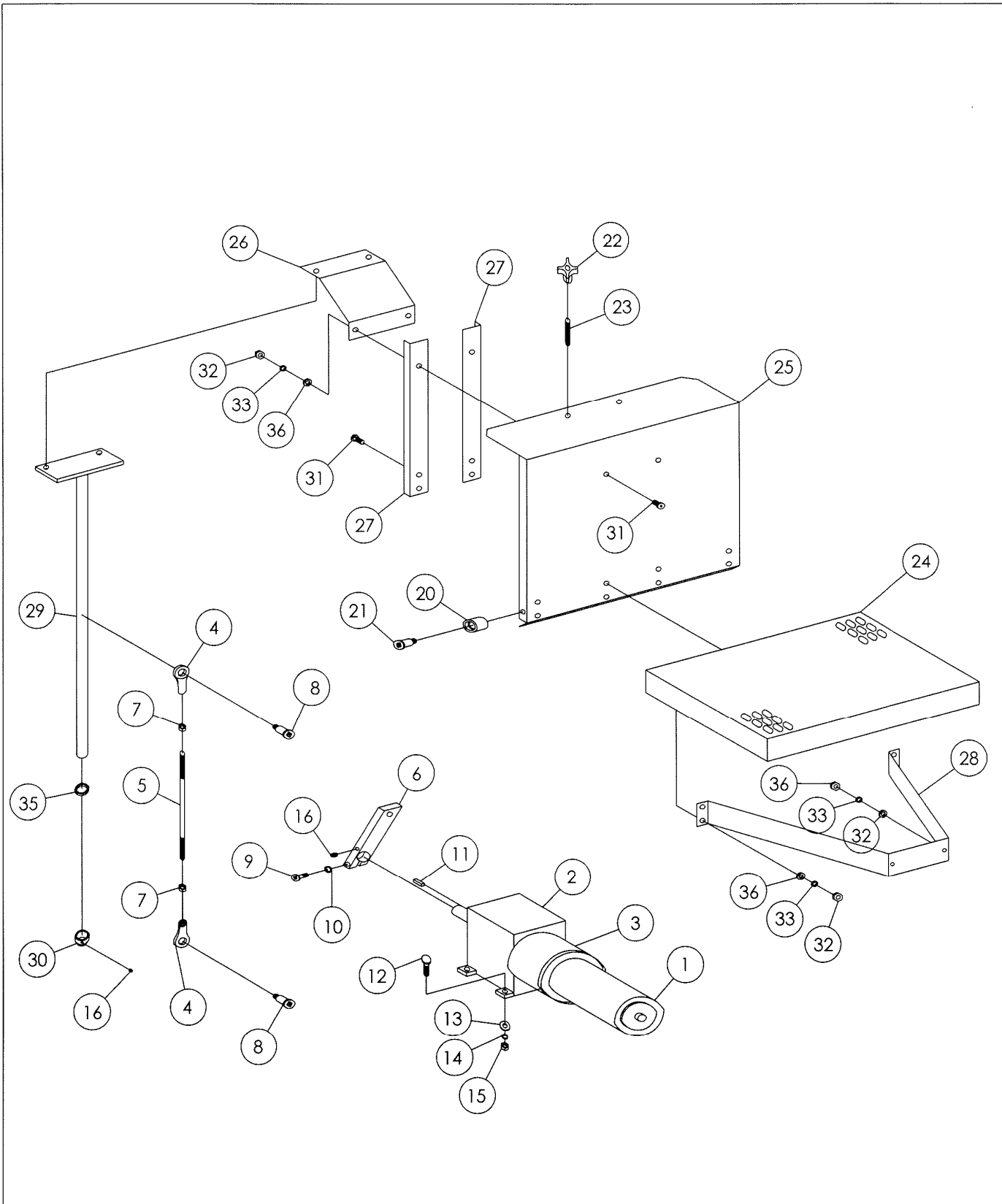


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LST20 TANK ASSEMBLY
PART # LST20TAS

LST20 DRIVE-TRAIN & PLATFORM PARTS ASSEMBLY

REF NO	PART NO	DESCRIPTION	QTY
1	MO098008	DRIVE MOTOR	1
2	RD2Z933	REDUCER	1
3	BK6K233	BRAKE	1
4	RD59915K86	ROD END	2
5	LST20-C4	ROD	1
6	LST20-D1	ARM	1
7	NU91847A433	JAM NUT	2
8	BO90298A709	SHOULDER SCREW	2
9	BOS0AA200125	1/4-20 X 1-1/4" HHCS SS	1
10	WASGI025	1/4" STD. LOCKWASHER SS	1
11	KESQ2500100	1/4 X 1" LG. KEY	1
12	BOS0AA240100	3/8-16 X 1" LG. HHCS SS	4
13	WASGA037	3/8" STD. FLAT WASHER SS	4
14	WASGI038	3/8" STD. LOCKWASHER SS	4
15	NUS0EA24	3/8-16 HEX NUT SS	4
16	BOS0AM20025	1/4-20 X 1/4" LG. SETSCREW SS	2
17			
18			
19			
20	LST20-D	NYLON BUSHING	2
21	BO90298A619	SHOULDER SCREW	2
22	PK5993K36	KNOBS	2
23	BO92311A628	3/8-16 X 1.5" LG. SETSCREW SS	2
24	LST20-11	PLATFORM	1
25	LST20-13	LIFT BACK	1
26	LST20-14	GUSSET	1
27	LST20-16	ANGLE	2
28	LST20-18	PLATFORM SUPPORT	1
29	LST20-B	LIFT ROD ASSEMBLY	1
30	LST20-B3	STOP COLLAR	1
31	BOS0AA200050	1/4-20 X 1/2" LG. HHCS SS	10
32	NUS0EA20	1/4-20 HEX NUT SS	12
33	WASGI025	1/4" STD. LOCKWASHER SS	12
34			
35	UC9691K29	U-CUP	1
36	WASGA020	1/4" STD. FLAT WASHER SS	12
*37	BRBP900163.11	MOTOR BRUSHES	2

* NOT SHOWN

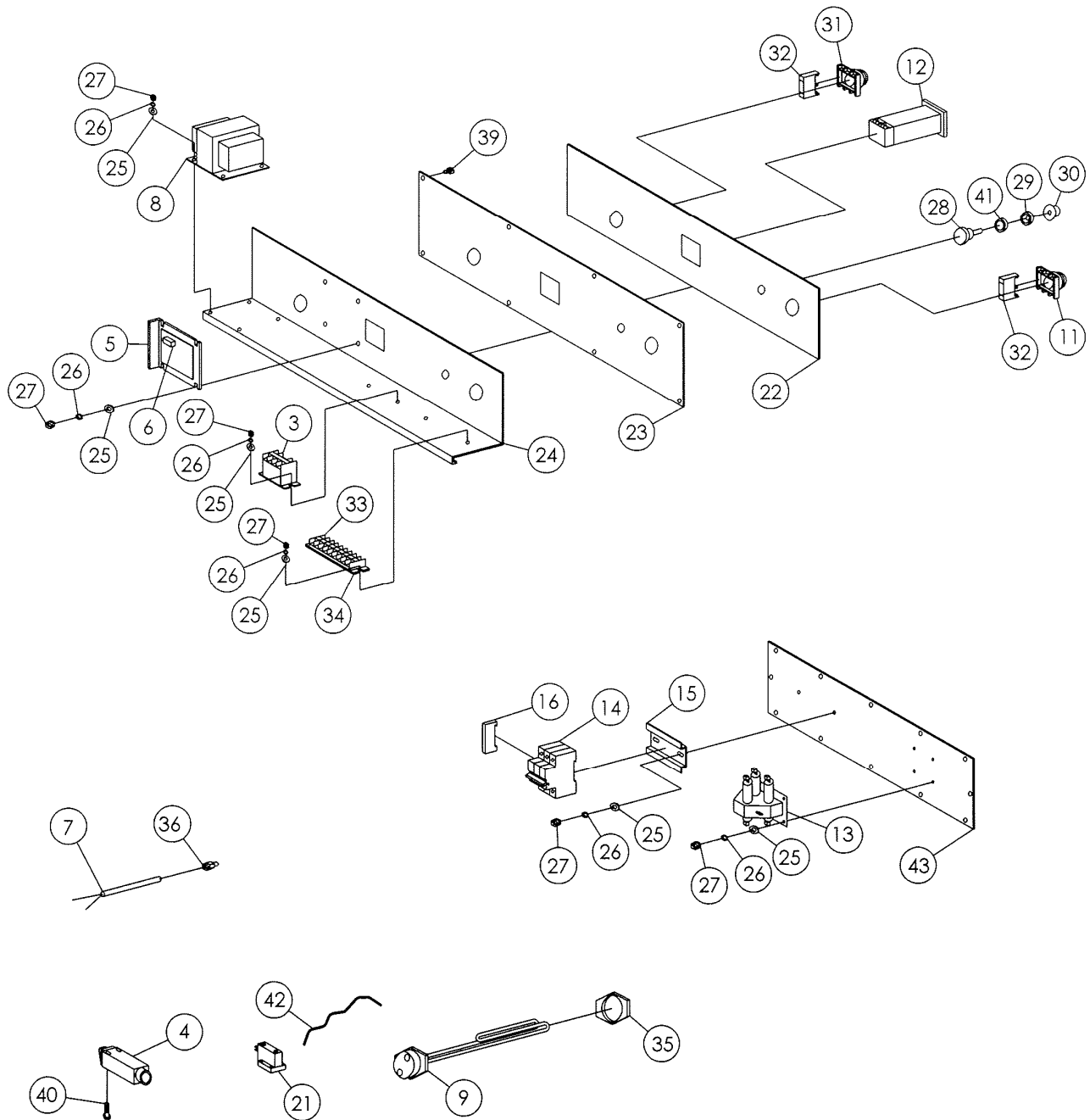


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LST20 DRIVE-TRAIN & PLATFORM ASSEMBLY
PART # LST20DTA

LST20 ELECTRICAL PARTS ASSEMBLY

REF NO	PART NO	DESCRIPTION	QTY
1			
2			
3	RL2XC20	RELAY	1
4	SW4B796	LIMIT SWITCH	1
5	BCBC142	CONTROLLER	1
6	BCBR0050	HP RESISTOR	1
7	TS6A843	TEMPERATURE SENSOR	1
8	TR4R874	TRANSFORMER	1
9	HE2E303	HEATER ELEMENTS	3
10			
11	SWP9CSMDON	SELECT SWITCH	1
12	HCP11601000	HEAT CONTROL	1
13	RL360N0-120A	RELAY(3 PHASE)	1
	RL260NO-120A	RELAY(1 PHASE)	
14	CI501-0118	CIRCUIT BREAKER(3 PHASE)	1
	CI2G60	CIRCUIT BREAKER(1 PHASE)	
15	DR502-2020	DIN RAIL	1
16	ES502-2040	END STOP	2
*17	WI7422K29	POWER CORD 10/4(3 PHASE) POWER CORD 6/3(1 PHASE)	8'
*18	FH7641K36	FUSE HOLDER	4
*19	FP741K49	END PLATE	4
*20	FS7641K35	END STOP	2
21	PSF42002FMB80.1B	PRESSURE SWITCH	1
22	LST20-PA	FACE PANEL	1
23	LST20-12	FRONT CONTROL PANEL	1
24	LST20-15	CONTROL BRACKET	1
25	WASGA014	#8 STD. FLAT WASHER SS	16
26	WASGI014	#8 STD. LOCKWASHER SS	16
27	NUSEA014	8-32 HEX NUT SS	16
28	SPBC-148	5K SPEED POTENTIOMETER	1
29	NU70205K21	SEALING NUT	1
30	SK753-2352	SPEED KNOB	1
31	PBP9CPNVG	PUSH BUTTON	1
32	CBP9B10VN	NO CONTACT BLOCK	2
33	TE2A691	TERMINAL SECTION	6
34	TE2A696	END SECTION	1
35	LN5530K46	HEATER LOCKNUT	3
36	FI50915K312	COMPRESSION FITTING	1
*37	FU6F042	ABC-4 4 AMP FUSE	1
*38	FU1BX44	ABC-12 12 AMP FUSE	2
39	BOS0AA200075	¼-20 X ¾" LG. PH RHMS SS	8
40	BOS0AH160150	10-24 X 1.5" LG. SHCS SS	2
41	WA93650A160	SEALING WASHER	1
42	HS51845K18	HOSE	6"
43	LST20-21	ELECTRICAL SUB-PANEL	1
*44	HB5116K78	NYLON HOSE BARB	1
*45	FU1CL90	MDA-1/2, ½ AMP FUSE	2

* NOT SHOWN



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LST20 ELECTRICAL ASSEMBLY
PART # LST20EA1

Please read and save these instructions. Read carefully before attempting to assemble, install, operate or maintain the product described. Protect yourself and others by observing all safety information. Failure to comply with instructions could result in personal injury and/or property damage! Retain instructions for future reference.

Dayton® Magnetic Disc Brakes

Description

Dayton magnetic disc brakes, models 6K233D & 1L388A are used on 56C Face Motors and speed reducers. Models 3M366C & 1L389A are used on 56C, 143TC, and 145TC Face Motors and speed reducers. These brakes are not rated for more than three stops per minute.

Models 6K233D & 3M366C are standard enclosures and may or may not be mounted between a motor and speed reducer coupling them.

Models 1L388A & 1L389A are washdown enclosures and must be mounted between a speed reducer and motor (using gaskets furnished) to complete the waterproof seal.

NOTE: These brakes are not intended for accurate positioning applications. They are designed for applications that require rapid stopping and holding power such as conveyors, door openers, etc.

▲ WARNING Do not install or use these brakes in an explosive atmosphere.

Dimensions & Specifications

Duty cycle Continuous
Maximum ambient 40°C
Maximum input speed 3600 RPM
Parts in brake (wk²)
(1L388A & 6K233D)0061 lb-ft²
Parts in brake (wk²)
(1L389A & 3M366C)0100 lb-ft²

Thermal capacity 6 HPS/min.
Enclosure construction:
Models 6K233D & 3M366C . . . Standard
Models 1L388A & 1L389A . . . Washdown
Electrical Data: Rated for operation on
single phase 115/208-230V, 60 Hz and
on 110/280-220V, 50 Hz.
Electrical lead length 15"

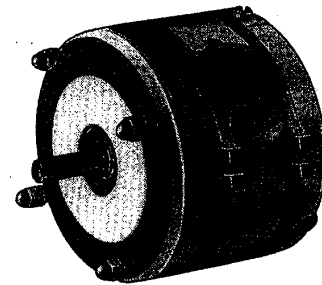


Figure 1 - Washdown

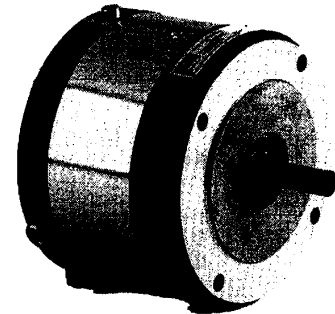


Figure 1A - Standard

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Model		Brake Hub Bore "X"	Nominal Static Torque Rating	Use on Motor Frames:
1L388A	Figure 1	5/8"	3 ft.-lbs.	56C-Face Motors & Speed Reducers
6K233D	Figure 1A			
1L389A	Figure 1	*7/8"	6 ft.-lbs.	56C, 143TC & 145TC-Face Motors & Speed Reducers
3M366C	Figure 1A			

(*) Includes 7/8" O.D. x 5/8" ID bushing.

Dayton[®] Magnetic Disc Brakes

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Dimensions & Specifications (Continued)

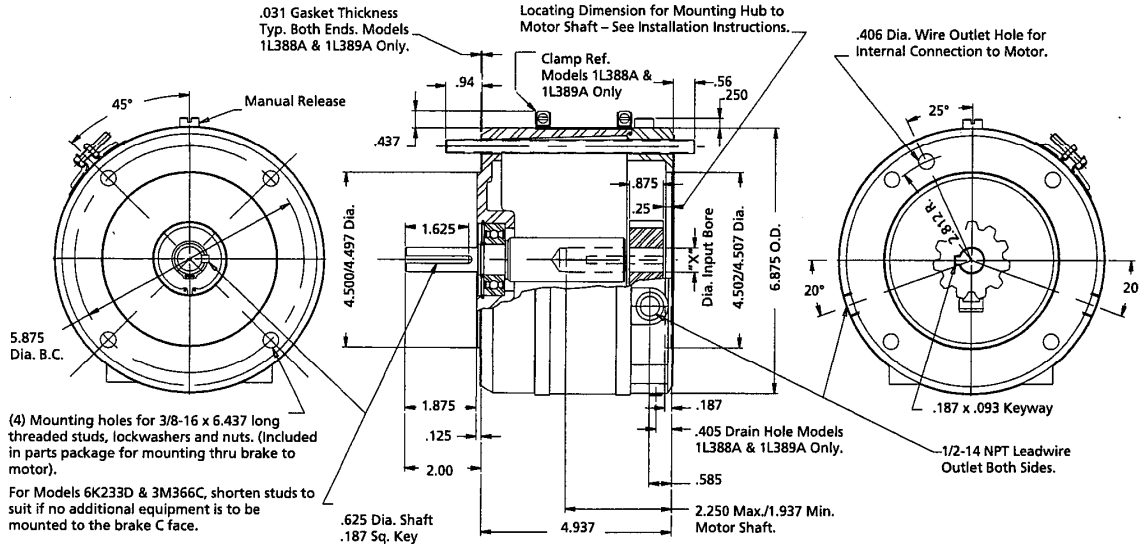


Figure 2 - Dimensions

Voltage	Hz	Allowable Voltage Range	Amps Holding	Amps Inrush
110	50	79-121	0.34	3.2
115	60	94-145	0.25	2.8
208	50	158-242	0.15	1.5
208	60	188-290	0.10	1.3
220	50	158-242	0.17	1.6
230	60	188-290	0.12	1.4

Unpacking

When unpacking the brake, inspect it carefully for damage that may have occurred during transit.

General Safety Information

1. For applications with high inertia-type loads or rapid cycling, the thermal capacity of the brake must be considered.

2. Observe all local electrical and safety codes, as well as the United States National Electrical Code (NEC) and the Occupational Safety and Health Act (OSHA).

3. Brake motors and brake gearmotors must be securely and adequately grounded. This can be accomplished by wiring with a grounded metal-clad raceway system, by using a separate

ground wire connected to the bare metal of the motor frame or other suitable means. Refer to NEC Article 250 (Grounding) for additional information. All wiring should be done by a qualified electrician.

4. Always disconnect power before working on or near a brake motor, a brake gearmotor, or its connected load. If the power disconnect point is out of sight, lock it in the open position and tag it to prevent unexpected application of power.
5. When working on brake, be sure load is completely removed, secured or blocked to prevent injury or property damage.
6. Provide guarding for all moving parts.

Models 1L388A, 1L389A, 6K233D and 3M366C

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General Safety Information (Continued)

7. Be careful when touching the exterior of an operating motor, gearmotor or brake. It may be hot enough to cause injury or to be painful. This condition is normal for modern motors, which operate at higher temperatures when running at rated load and voltage.
8. Protect all electrical lead wires and power cables against contact with sharp objects or moving parts.
9. Do not kink electrical lead wires and power cables, and never allow them to touch oil, grease, hot surfaces, or chemicals.
10. Be sure output shaft key is removed before running brake motor without load.

Installation

▲ CAUTION *To preserve pre-alignment of rotating discs for ease of installation, do not operate manual release or energize brake coil before installation.*

NOTE: Brakes may be mounted in all positions. The rotating disc(s) life decreases when mounted in positions other than horizontal. Life could decrease up to 20% depending upon model, loading, and position. For Models 1L388A and 1L389A only, the brake drain should be located at the bottom. If the application causes excessive condensation build-up, vertical mounting below the motor is not recommended. See Figure 3.

Numbers in parentheses refer to parts illustrated in Figures 8 thru 12.

1. Mount hub (Ref. No. 22) over key on the motor shaft, 1/4" from the motor

mounting face as shown in Figure 2. (Part No. on hub to face away from motor.) Use 3/16 sq. key furnished for all models when adapter sleeve (Ref. No. 49) is not used. Use 3/16 x 5/16 key furnished for Models 1L389A & 3M366C when adapter sleeve is used. Key must extend to, and be flush with, end of motor shaft. Tighten both setscrews in hub with 8-10 ft. lbs. torque.

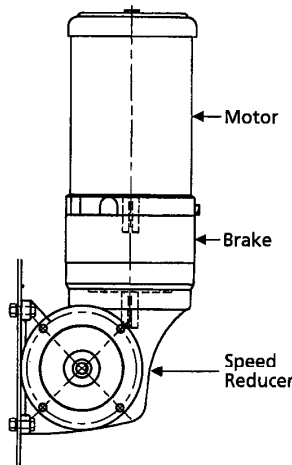


Figure 3 - Brake Mounting - Vertical Below Position

2. Place gasket (Ref. No. 58) on motor C face. For Models 1L388A & 1L389A only.
3. Remove adapter housing (Ref. No. 7). Remove cover (Ref. No. 9) or sleeve and clamps (Ref. Nos. 9 & 55) and tap lightly with a soft mallet in the openings in the side of the adapter housing. Place the brake assembly onto the motor "C" face, engaging hub splines into brake disc splines.

The release knob (Ref. No. 15) should be located at the top.

4. Screw in four 3/8-16 threaded rods (Ref. No. 45) through bracket (Ref. No. 1) into motor "C" face (approx. 9/16" engagement or 9 turns). Bring coil lead wires out of conduit hole before installing the adapter housing. Align adapter housing (Ref. No. 7) with four threaded rods.

NOTE: Arrow head on adapter housing should be in line with manual release knob (Ref. No. 15); see Figure 12.

Slide adapter housing onto threaded rods, turning output shaft (Ref. No. 8) so that the keyway in the brake shaft lines up with the key in the motor shaft. Make sure adapter housing seats against the bracket (Ref. No. 1). Tap adapter housing in place lightly. If excessive force is required, the key may have to be filed. Replace cover or sleeve and clamps.

5. Install additional equipment, such as a gear reducer, by installing a key into the brake shaft extension. Install gasket (Ref. No. 58, for Models 1L388A and 1L389A only) onto "C" face and slide the additional equipment onto threaded rods, aligning key in brake shaft with keyway in additional equipment. Fasten with washers (Ref. No. 47), washers (Ref. No. 46 when used), and nuts (Ref. No. 48).

Dayton® Magnetic Disc Brakes

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Installation (Continued)

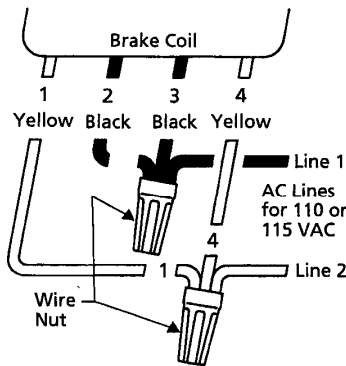


Figure 4 - Low Voltage Connection for 110 & 115 VAC

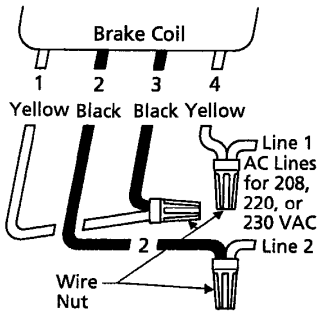


Figure 5 - High Voltage Connection for 208, 220, and 230 VAC

CONNECTION OF COIL LEADS

After securing the brake to the motor, connect coil leads for proper voltage per wiring diagram (Figures 4, 5 and 6). Incorrect connection can result in brake failure.

CAUTION The voltage supplied to the coil must match the voltage that the coils are connected for, or the coils will burn out.

DUAL VOLTAGE COIL

Connect leads 2 and 4 to any two motor line leads (single or three phase) of

same voltage as brake. Connect leads 1 and 3 as shown for voltage desired. Brake must be energized with motor. The brake coil may be connected to a 460 volt 3 phase motor as shown below. The brake coil must be connected for 230 volts as shown in Figure 5.

Operation

These brakes are spring set devices with an electrical (magnet) release. They contain a rotating friction disc which is driven by a hub mounted on the motor shaft. When energized, the magnet compresses the torque springs, removing the force pressing the stationary disc and friction disc together. This permits free rotation of the shaft.

WARNING High start-stop rates may damage motor. Consult motor manufacturer if high cycling rates are expected.

If brake torque rating is higher than motor full-load torque rating, use brake rating rather than motor rating when selecting other drive components.

Take the following precautions when operating the brake:

1. Do not operate the brake at higher than nominal static torque capacity.
2. For applications with high inertia-type loads or rapid cycling, the thermal capacity of the brake must be considered.

mal capacity of the brake must be considered.

3. Observe proper safety precautions when an application involves a holding or overhauling load operation; keep personnel away from load area.
4. Be sure power supply conforms to electrical rating of brake.

MANUAL RELEASE

The brake is equipped with a manual release. Turn the release knob (Ref. No. 15) clockwise to stop position to release the brake. The brake will remain released until the release knob is turned counterclockwise (approx. 65 degrees) or until the brake coil is energized, automatically resetting the brake.

Maintenance

CAUTION Before attempting to service or remove any components, make certain that the power is disconnected and that the load is completely removed, secured or blocked to prevent injury or property damage.

WEAR ADJUSTMENT

(Refer to Figures 7, 8 and 12.)

CAUTION Load must be removed or blocked. Brake will be inoperative during this procedure.

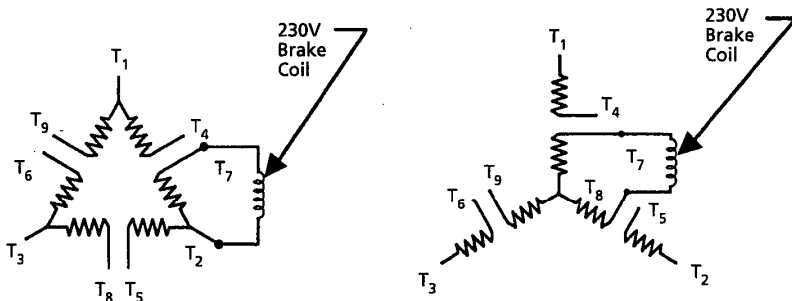


Figure 6 - Brake Coil Connection for 460 VAC 3 Phase Motor

Models 1L388A, 1L389A, 6K233D and 3M366C

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Maintenance (Continued)

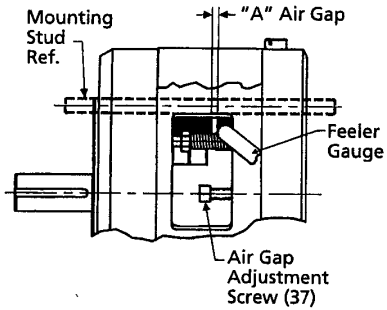


Figure 7

Before air gap "A" reaches 0.100", adjustment is required. Any delay in adjusting the magnetic air gap will result in eventual loss of torque.

1. To adjust, remove cover (Ref. No. 9) or remove clamp (Ref. No. 55) closest to the motor and pull sleeve (Ref. No. 9) back to expose adjusting screws (Ref. No. 37) and magnet air gap "A".
2. Measure air gap "A" using 3/8" to 1/2" wide feeler gauge as shown in Figure 7.
3. Turn two square head setscrews (Ref. No. 37) until air gap "A" measures:
 0.045/0.050 for 1 disc models
 0.050/0.055 for 2 disc models

Air gap should be the same on both sides.

TORQUE ADJUSTMENT (Refer to Figures 8 and 12.)

CAUTION *Load must be removed or blocked. Brake will be inoperative during this procedure.*

Parts Included in Item No. 25 Operator Assembly

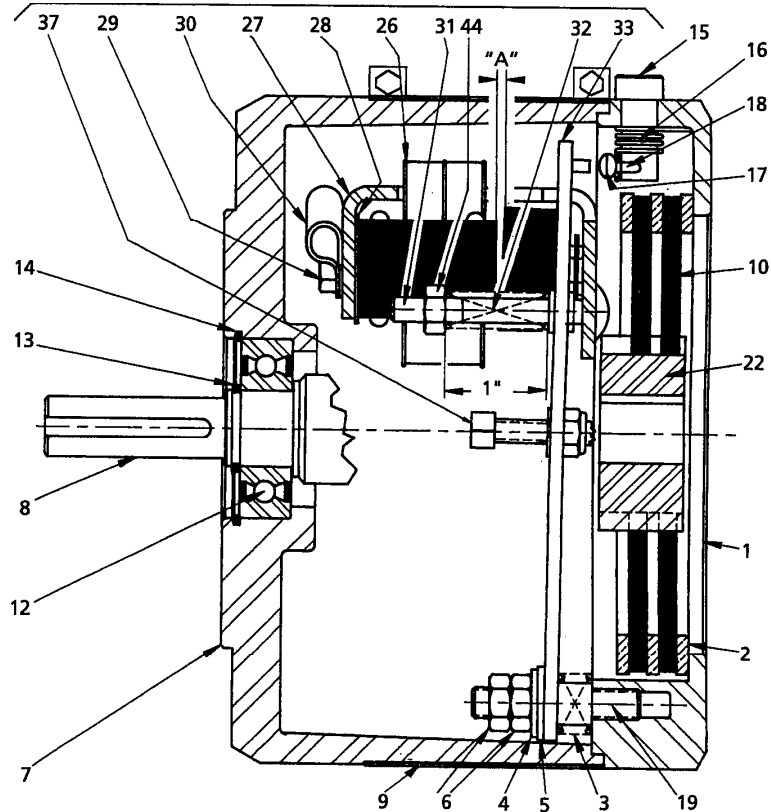


Figure 8

The magnetic disc brake is factory set for rated static torque. The brake can be adjusted to reduce torque which increases stopping time. Do not attempt to adjust brake for higher torque, as this will cause coil burnout.

1. To adjust, remove cover (Ref. No. 9) or remove clamp (Ref. No. 55) closest to the motor and pull sleeve (Ref. No.

9) back to expose locknuts (Ref. No. 44) which are above torque springs (Ref. No. 32).

2. To increase stopping time and reduce torque, turn two locknuts (Ref. No. 44) counterclockwise, increasing spring length. Each full turn reduces torque approx. 8%.

Dayton® Magnetic Disc Brakes

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Maintenance (Continued)

FRICION DISC REPLACEMENT

(Refer to Figures 8 and 12.)

▲ CAUTION *Load must be removed or blocked.*

Brake will be inoperative during this procedure.

When total wear on a rotating friction disc (Ref. No. 10) reaches 1/16", replace disc:

1. Remove operator assembly and disconnect power.
2. Remove any equipment mounted on the brake "C" face, such as a gear reducer, by removing nuts (Ref. No. 48) and washers.
3. Remove adapter housing (Ref. No. 7) which includes shaft (Ref. No. 8).
4. Remove operator assembly (Ref. No. 25) by removing screws (Ref. No. 11) and pivot studs (Ref. No. 19), washer (Ref. No. 4), bushing (Ref. No. 5), and spring (Ref. No. 3). Item 19 has a hex socket in end of stud for removal.

NOTE: Do not loosen nuts (Ref. No. 6) on pivot stud (Ref. No. 19), or "Pivot Stud Adjustment" to quiet the brake will have to be made again.

5. Replace the friction disc.

Remove worn rotating discs (Ref. No. 10) and stationary discs (Ref. No. 2). Replace worn discs and install new discs in the same order. Install stabilizer clip (Ref. No. 23) on rotating discs prior to installing.

6. Reassembly of operator assembly (Ref. No. 25):
 - a. Turn two screws (Ref. No. 37) counterclockwise five turns.
 - b. Place operator assembly onto brake, bracket (Ref. No. 1) and install two screws (Ref. No. 11).

- c. Replace compression spring (Ref. No. 3), bushing (Ref. No. 5), washer (Ref. No. 4), and pivot stud (Ref. No. 19) which has the two nuts (Ref. No. 6) in place.

- d. Tighten firmly.

7. Readjust magnet air gap "A" as described under "Wear Adjustment".
8. Check manual release operation before completing installation. Adjust per "Manual Release Adjustment" if required.

9. Complete installation by reassembling as described under "Installation".

MAGNET ASSEMBLY REPLACEMENT

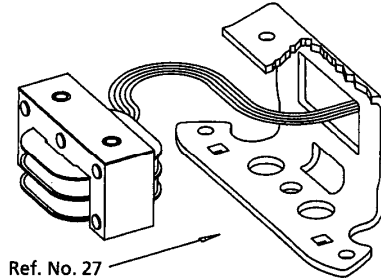
(Refer to Figures 8, 9 and 12.)

▲ CAUTION *Load must be removed or blocked.*

Brake will be inoperative during this procedure.

1. Disconnect power supply.
2. Remove adapter assembly as described under "Friction Disc Replacement".
3. Remove two capscrews (Ref. No. 29), wire clamps (Ref. No. 30), magnet assembly (Ref. No. 26) and shock mount (Ref. No. 28).
4. Replace shock mount and magnet, feeding coil wires through hole in back of bracket (Ref. No. 27) (see Figure 9). Use Loctite on screws (Ref. No. 29). Replace screws and clamps (Ref. No. 30). Tighten mounting screws with 55 to 60 in. lbs. torque.
5. Set air gap "A" as described under "Wear Adjustment".
6. Energize coil. Coil should be quiet; if not, refer to "Pivot Stud Adjustment".

7. Check manual release. If it does not operate properly, adjust as outlined under "Manual Release Adjustment".



Ref. No. 27

Figure 9

8. Reassemble as described under "Friction Disc Replacement" and "Installation".

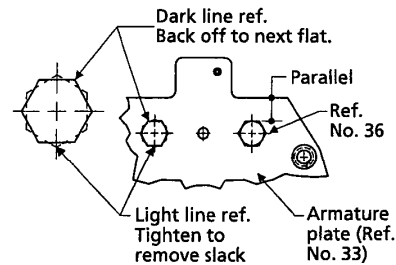


Figure 10

ARMATURE REPLACEMENT

(Refer to Figures 8, 10 and 12.)

▲ CAUTION *Load must be removed or blocked.*

Brake will be inoperative during this procedure.

If the magnet assembly is replaced, it may be necessary to replace the armature (Ref. No. 34). If it is badly deformed, it will be difficult to make the magnet quiet.

Models 1L388A, 1L389A, 6K233D and 3M366C

Maintenance (Continued)

1. To replace, remove operator assembly (Ref. No. 25) from brake. See "Friction Disc Replacement Steps 1-4".

Remove nuts (Ref. No. 44), springs (Ref. No. 32), and carriage bolts (Ref. No. 31). This will allow the armature plate assembly to be removed from magnet bracket.

2. Remove screw (Ref. No. 42), lockwasher (Ref. No. 41), locking plate (Ref. No. 40), two screws (Ref. No. 36), spacers (Ref. No. 38), and armature (Ref. No. 34). Inspect these parts and shock mount (Ref. No. 39). If worn, replace also.

3. Put armature in place (ground side up) and install spacers (Ref. No. 38) and screws (Ref. No. 36).

NOTE: Screws (Ref. No. 36) should be tightened to remove slack only. Then back off, counterclockwise on screw so that the next flat on screw is parallel with edge of the armature plate (Ref. No. 33). (See Figure 10.)

Install locking plate (Ref. No. 40), screw (Ref. No. 42), and lockwasher (Ref. No. 41). Tighten screw with 30 in. lbs. torque.

4. Reassemble to magnet bracket (Ref. No. 27) using items (Ref. No. 31), (Ref. No. 32), and (Ref. No. 44). Reassemble operator assembly to brake bracket. Set magnet air gap "A" and set torque springs (Ref. No. 32) to 1" dimension shown in Figure 8.

MANUAL RELEASE ADJUSTMENT (Refer to Figures 8, 11 and 12.)

CAUTION *Load must be removed or blocked. Brake will be inoperative during this procedure.*

The manual release (Ref. No. 15) may require adjustment after replacing the operator assembly (Ref. No. 25), magnet (Ref. No. 26), or armature (Ref. No. 34). It also may be required if adjustments are made on the pivot stud nuts (Ref. No. 6).

The release is working properly if: a) you turn release knob (Ref. No. 15) clockwise to stop and the brake is released; b) the release knob returns to its normal position automatically when power is applied to the magnet.

NOTE: Adapter housing (Ref. No. 7) must be removed to make this adjustment.

1. To adjust: Set air gap "A" as described under "Wear Adjustment".
2. If the brake does not release, turn adjusting screw (Ref. No. 17) counterclockwise 1/4 turn and try again.
3. If the release knob (Ref. No. 15) does not return to its normal position automatically, turn screw (Ref. No. 17) clockwise 1/4 turn and try again.

NOTE: Repeating Steps 2 or 3 may be required to get the release to operate properly.

It is important that the release knob returns to its normal position automatically when power is applied to the magnet.

MANUAL RELEASE ASSEMBLY (Refer to Figures 8, 11 and 12.)

1. Apply a small amount of grease or Never-Seez to O-ring (Ref. No. 57, Models 1L388A and 1L389A only). Place shaft of release knob (Ref. No. 15) through hole in bracket (Ref. No. 1).

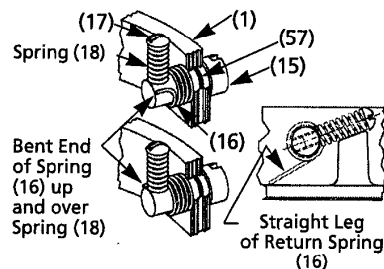


Figure 11

2. Slide return spring (Ref. No. 16) over shaft; straight leg of spring should enter shaft first with leg in the position shown.
3. Slip spring (Ref. No. 18) over screw (Ref. No. 17) and install in tapped hole in release shaft. Screw in until it stops.
Make sure spring (Ref. No. 16) is not caught under spring (Ref. No. 18).
4. Engage bent end of spring (Ref. No. 16) over spring (Ref. No. 18) as shown. Pull it over with a needle-nose pliers or screwdriver.
5. Adjust release. See "Manual Release Adjustment".

PIVOT STUD ADJUSTMENT (Refer to Figures 8 and 12.)

CAUTION *Load must be removed or blocked. Brake will be inoperative during this procedure.*

This adjustment is made at the factory and may be required when replacing the magnet assembly (Ref. No. 26) or the armature (Ref. No. 34).

Dayton® Magnetic Disc Brakes

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Maintenance (Continued)

The purpose is to regulate the height of the armature plate (Ref. No. 33) so that when the magnet (Ref. No. 26) is energized, the armature (Ref. No. 34) is parallel with it. This is required so that the magnet will be quiet.

NOTE: Adapter housing (Ref. No. 7) must be removed to make this adjustment.

1. To adjust: Hold the nut (Ref. No. 6) which is adjacent to washer (Ref. No. 4) and loosen the other nut (Ref. No. 6) and remove it from the stud.
2. Energize the magnet and turn remaining nut (Ref. No. 6) counterclockwise slowly until the magnet becomes noisy. Turn magnet on and off several times to find the position where the magnet first becomes quiet.

At this point turn nut (Ref. No. 6) 1/3 turn (two flats) in a clockwise position. Hold nut in this position and turn magnet on and off to make sure the magnet does not become noisy.

3. Holding this nut in place, screw on other nut and tighten it against the first nut. Tighten firmly.
4. Operate the manual release. If the release does not operate properly, see "Manual Release Adjustment".

Models 1L388A, 1L389A, 6K233D and 3M366C

Troubleshooting Chart

Symptom	Possible Cause(s)	Corrective Action
Brake does not release	<ol style="list-style-type: none"> 1. Broken or damaged parts 2. Wrong voltage 3. Burned out coil 4. Incorrect wiring connections or broken wires 	<ol style="list-style-type: none"> 1. Replace 2. Check for correct voltage. Voltage must correspond to that listed on brake nameplate. If the voltage is more than 10% below the nameplate voltage, the magnet may not pull in 3. Replace magnet assembly (Ref. No. 26) 4. Find the connection or wiring fault. Correct or repair as required
Brake does not stop properly	<ol style="list-style-type: none"> 1. Broken or damaged parts 2. Worn friction disc 3. Hub positioned incorrectly (models with two-piece shaft and hub only) 4. Brake is manually released 	<ol style="list-style-type: none"> 1. Replace 2. Replace disc if worn to 1/8" thickness. If disc replacement is not required, adjust air gap. (Refer to "Wear Adjustment" section) 3. Relocate hub (Ref. No. 22) and key, if required. (Refer to "Installation" section) 4. Determine if manual release is in normal position
Brake chatters or hums	<ol style="list-style-type: none"> 1. Dirty magnet faces 2. Magnet faces are not parallel in closed position 3. Loose or broken shading coil 4. Wrong voltage supply 	<ol style="list-style-type: none"> 1. To remove dirt, insert a clean sheet of paper between faces and energize brake. Move paper around between faces to dislodge dirt, then remove paper. 2. See "Pivot Stud Adjustment" section 3. Replace magnet assembly (Ref. No. 26) 4. Check for low voltage
Manual release does not work	<ol style="list-style-type: none"> 1. Broken or damaged parts 2. Improper setting 	<ol style="list-style-type: none"> 1. Replace 2. See "Manual Release Adjustment" section

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For Replacement Parts, call 1-800-323-0620

24 hours a day - 365 days a year

Please provide following information:

- Model number
- Serial number (if any)
- Part descriptions and number as shown in parts list

Address parts correspondence to:

Grainger Parts Operations
 P. O. Box 3074
 1657 Shermer Road
 Northbrook, IL 60065-3074 U.S.A.

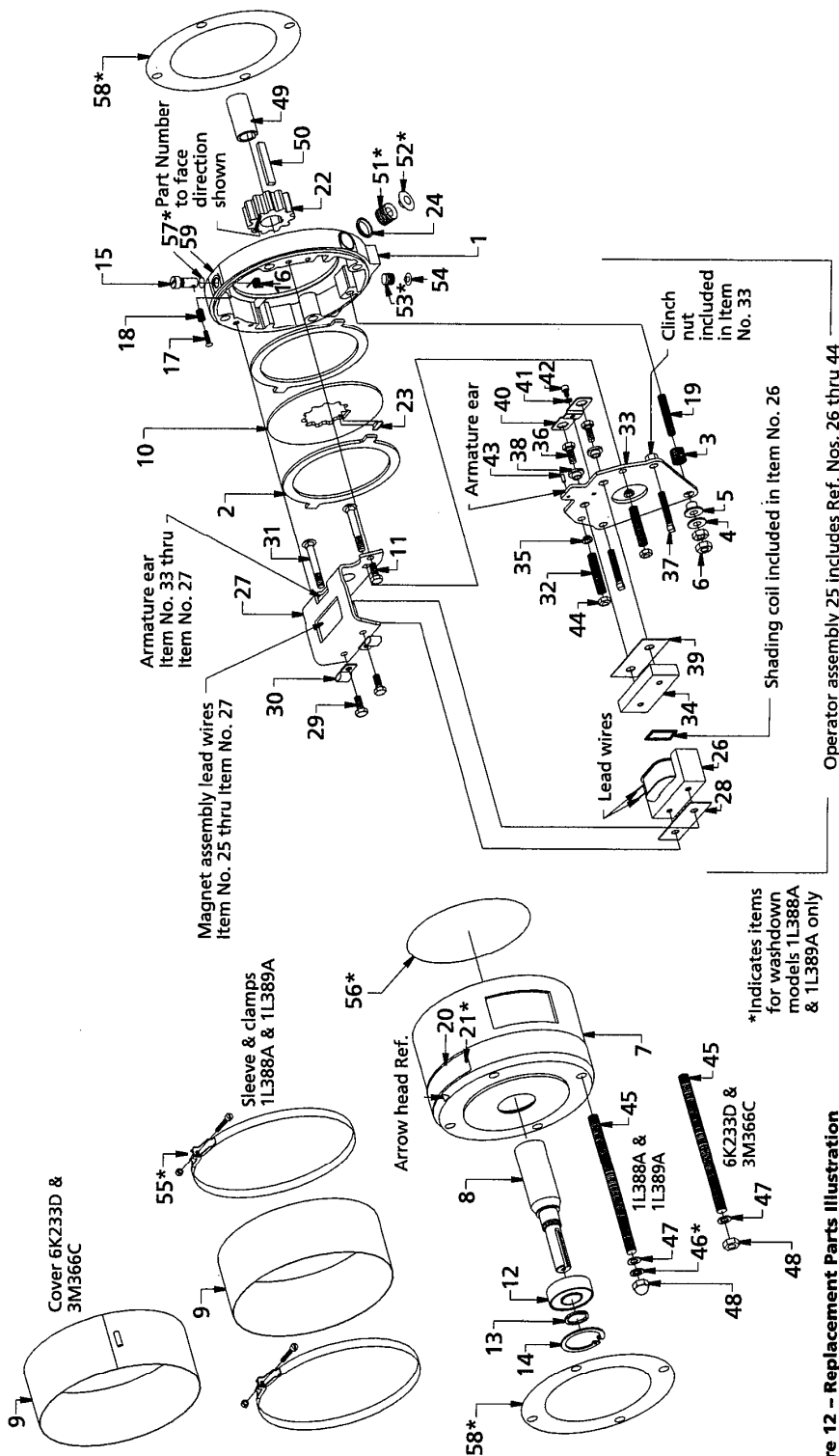


Figure 12 - Replacement Parts Illustration

Replacement Parts List

Ref. No.	Description	Models 1L388A & 1L389A Part Number	Models 6K233D & 3M366C Part Number	Qty.
1	Bracket	L060256-011	L060252-002	1
2	Stationary Disc	H060147-001	H060147-001	*
3	Compression Tail Spring	G060821-001	G060821-001	1
4	Plain Brass Washer	W004003-024	W004003-024	1
5	Nylon Bushing	G060820-001	G060820-001	1
6	5/16-18 Hex Nut	W003002-002E	W003002-002E	2
7	Adaptor Housing	L060284-001	L060251-001	1
8	Shaft Models 1L388A, 6K233D Models 1L389A, 3M366C	K060366-001 K060379-001 K060379-001	K060366-001 K060379-001 K060379-001	1 1 1
9	Cover, or Sleeve	G060851-001	K060462-001	1
10	Splined Rotating Friction Disc	H060157-003	H060157-003	**
11	1/4-20 x 1/2" Lg. Hex. Hd. Capscrew	W001008-001E	W001008-001E	2
12	Ball Bearing	W009001-001	W009001-001	1
13	Retaining Ring	W006007-001	W006007-001	1
14	Retaining Ring	W006002-001	W006002-001	1
15	Release Knob	G060848-001	G060785-001	1
16	Release Return Spring	G060881-001	G060797-001	1
17	Release Adjustment Screw	W001002-056C	W001002-056C	1
18	Release Adjustment Lockspring	G060795-001	G060795-001	1
19	Pivot Stud	W002005-303A	W002005-303A	1
20	Nameplate Model 1L388A, 6K233D Model 1L389A, 3M366C	K060502-† K060502-†	K060494-† K060494-†	2 2
21	Nameplate Drive Screw	W001012-048A	—	4
22	Hub Models 1L388A, 6K233D Models 1L389A, 3M366C	K060107-032 K060107-228	K060107-032 K060107-228	1 1
23	Stabilizer Clip, Rotation Friction Disc	H060466-001	H060466-001	***
24	Wire Outlet Cap Plug	W008003-001	W008003-001	1
25	Operator Assy.: (Includes Ref. Nos. 26-44) (Not Shown as an Assembly)	Models 1L388A, 6K233D Models 1L389A, 3M366C	K060463-002P K060463-003P K060463-003	1 1 1
26	Magnet Assembly	H060548-068P	H060548-068	1
27	Magnet Mounting Bracket	H060544-001	H060544-001	1
28	Magnet Shock Mount	G060813-001	G060813-001	2
29	1/4-20 x 5/8 Lg. Hex. Hd. Capscrew	W001007-002E	W001007-002E	2
30	Cable Clamp	W021003-001	W021003-001	2
31	1/4-20 Carriage Bolt	G060803-001	G060803-001	2
32	Torque Spring	G060792-001	G060792-001	1
33	Armature Plate w/Clinch Nut	H060545-003	H060545-003	2
34	Armature Lamination Assembly	G060788-001P	G060788-001	2
35	Nylon Bushing	W013005-001	W013005-001	2

Ref. No.	Description	Models 1L388A & 1L389A Part Number	Models 6K233D & 3M366C Part Number	Qty.
36	1/4-20 x 5/8" Lg. Cap Screw	W001007-002E	W001007-002E	2
37	1/4-20 x 1 1/2" Lg. Screw Sq. Hd.	W002003-001	W002003-001	1
38	Armature Spacer	G060798-002	G060798-002	1
39	Armature Shock Mount	G060808-003	G060808-003	1
40	Locking Plate	G060812-001	G060812-001	1
41	#8 Split Spring Lockwasher	W004006-003	W004006-003	1
42	#8-32 x 1/4" Lg. Soc. Hd. Capscrew	W001013-201	W001013-201	2
43	5/32" Dia. x 3/8" Lg. Roll Pin	W005003-098	W005003-098	4
44	1/4-20 Locknut	W003013-001	W003013-001	4
45	3/8-16 x 6/16" Lg. Stud	W012001-001E	W012001-001E	4
46	3/8 Plain Washer	W004004-003D	—	4
47	3/8 Washer or 3/8 Lockwasher	W011007-002	W004006-008	1
48	3/8 - 16 Acorn Nut or 3/8 - 16 Hex Nut	W003005-002A	W003005-002A	1
49	Sleeve Adaptor 1L389A & 3M366C Only	H060456-001	H060456-001	1
50	Key Rectangular (1L389A & 3M366C Only)	W007003-022	W007003-022	1
51	1/2" Hex. Soc. Pipe Plug	W010002-004A	—	1
52	Socket Screw Cap Plug	W008006-004	—	1
53	1/8" Hex Soc. Pipe Plug	W010002-001A	—	2
54	Cap Plug	W008006-001	—	1
55	Clamp Assembly	G060733-001	—	1
56	O-Ring Bracket	W006001-019	—	2
57	O-Ring Release	W006001-025	—	1
58	Gasket Mounting Face	H060344-003	—	1
59	Release Instruction Label	G060859-001	G060859-001	1
△	Hardware Bag Models 1L388A & 6K233D (Includes Ref. Nos. 45-48) and O.I.P.M.	H060237-073	H060237-068	1
△	Hardware Bag Models 1L389A & 3M366C (Includes Ref. Nos. 45-50) and O.I.P.M.	H060237-074	H060237-069	1
△	3/16" Square Key	W007001-017	W007001-017	1
△	Foot Mounting Bracket Optional (6K233D & 3M366C Only)	—	H060237-072	1
△	Armature Plate Assembly: (Includes Ref. Nos. 33-44) (Not Shown as an Assembly)	H060541-001P	H060541-001	1
△	Models 1L388A, 6K233D (1 Disc)	H060541-002P	H060541-002	1
△	Models 1L389A, 3M366C (2 Disc)	G060940-001	G060940-001	1

(**) Models 1L388A & 6K233D Have 1 Rotating Friction Disc (H060157-003).

(*) Models 1L388A & 6K233D Have 2 Stationary Discs (H060147-001).

(***) Same Quantity as Rotating Friction Discs.

(†) Supply model no. when ordering.

Limited Warranty

Dayton One-Year Limited Warranty. Dayton® Magnetic Disc Brakes, Models covered in this manual, are warranted by Dayton Electric Mfg. Co. (Dayton) to the original user against defects in workmanship or materials under normal use for one year after date of purchase. Any part which is determined to be defective in material or workmanship and returned to an authorized service location, as Dayton designates, shipping costs prepaid, will be, as the exclusive remedy, repaired or replaced at Dayton's option. For limited warranty claim procedures, see PROMPT DISPOSITION below. This limited warranty gives purchasers specific legal rights which vary from jurisdiction to jurisdiction.

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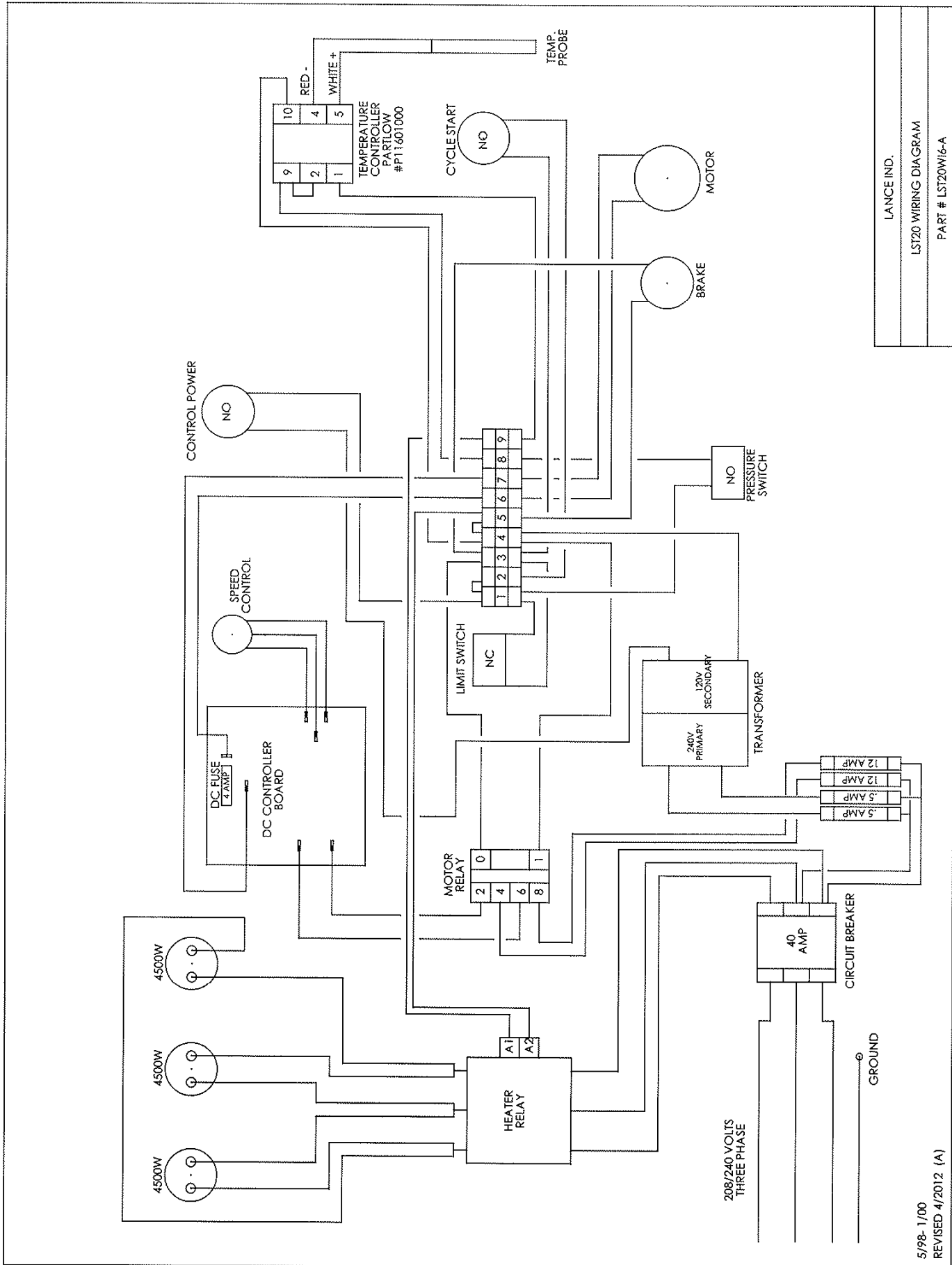
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Manufactured for Dayton Electric Mfg. Co., 5959 W. Howard St., Niles, Illinois 60714 U.S.A.

**Manufactured for Dayton Electric Mfg. Co.
Niles, Illinois 60714 U.S.A.**





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 LST20 WIRING DIAGRAM
 PART # LST20W16-A

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