

COOKSON OWNER'S MANUAL

FDO A & B

SOLID STATE

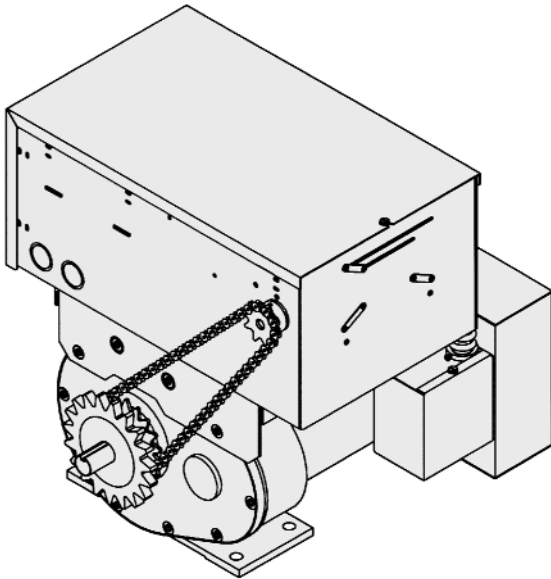
INDUSTRIAL DUTY FIRE DOOR OPERATOR

LMPLC CONTROL

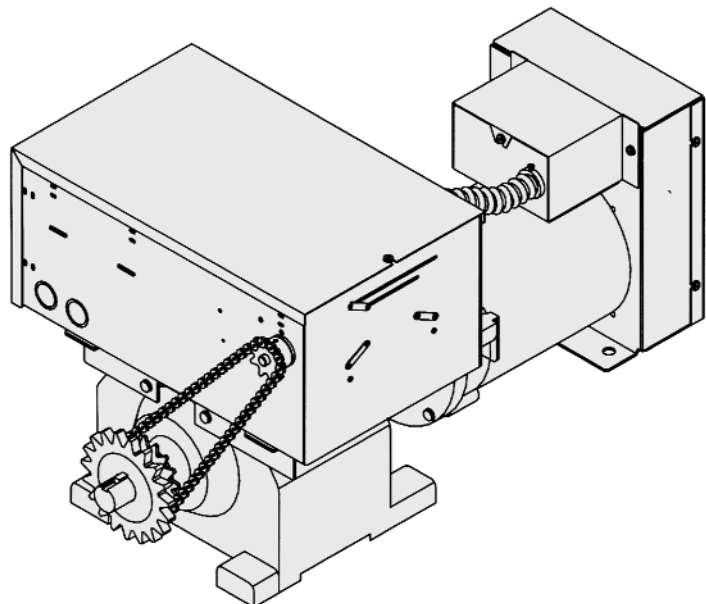
LMPLC

CONTROL WIRED

B2/C2 Wiring



**FDO 1/2 HP
FDO A & B**



**FDO 1 HP
FDO A & B**

2 YEAR WARRANTY

Serial # _____
(located on electrical box cover)

Installation Date _____

Wiring Type _____

NOT FOR RESIDENTIAL USE

41B6



LISTED DOOR OPERATOR

SPECIFICATIONS

MOTOR

TYPE:Continuous duty

HORSEPOWER:1/2 HP
.....1 HP

SPEED:1725 RPM

VOLTAGE:115 Single phase
.....230/460 Three Phase

CURRENT:115 Volt = 8.2A
.....230/460 Volt = 3.6/1.8A

ELECTRICAL

TRANSFORMER:.....MODEL (A) = 24 VAC, 40 VA
MODEL (B) = 24 VAC, 200 VA

CONTROL STATION:NEMA 1 three button station.
OPEN/CLOSE/STOP

WIRING TYPE:.....C2 (Standard)/B2 (Optional)
To convert to B2 see pages
14 thru 17.

LIMIT ADJUST:.....Linear driven, fully adjustable
screw type cams. 70 revolutions maximum at limit shaft.

MECHANICAL

DRIVE REDUCTION 1/2 Hp: .56:1 Reduction
In Line Gear Reduced
Motor.

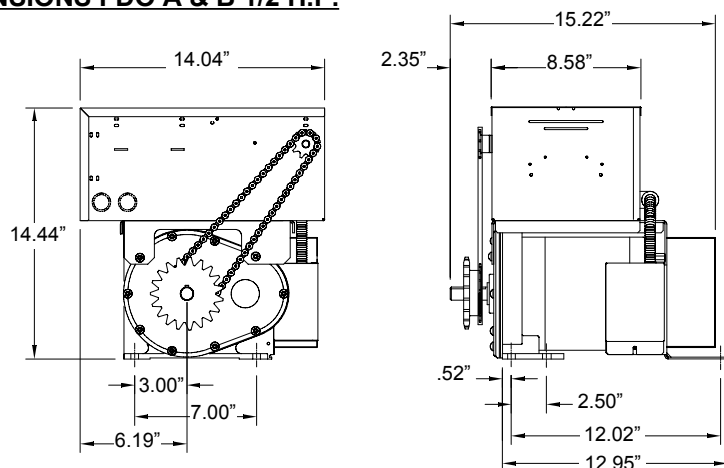
DRIVE REDUCTION 1 Hp:56:1 Reduction
In Line Gear Reducer

OUTPUT SHAFT SPEED 1/2 & 1 Hp :...31 R.P.M.

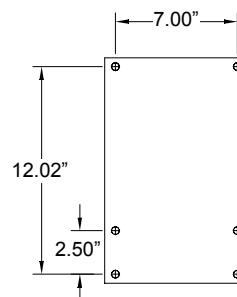
DOOR SPEED 1/2 & 1 Hp:....12" per sec.
depending on door

BRAKE:Solenoid actuated disc brake.

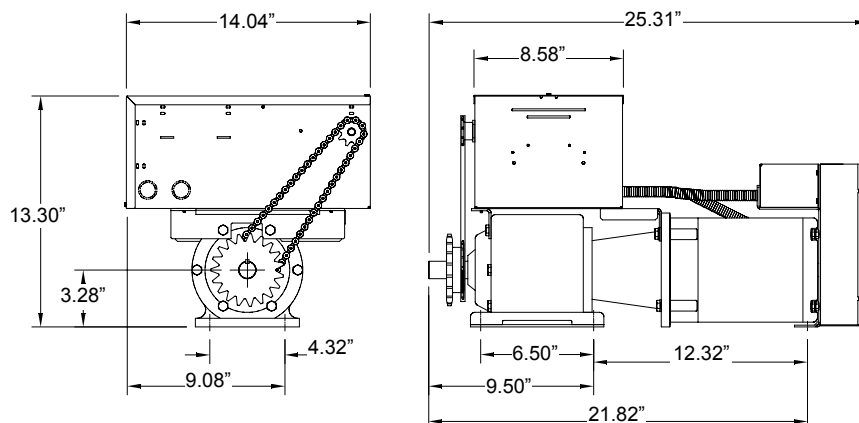
DIMENSIONS FDO A & B 1/2 H.P.



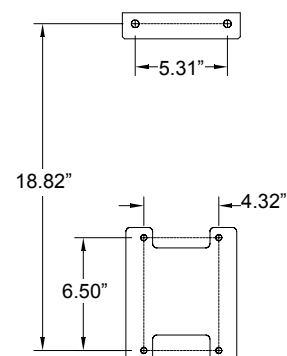
MOUNTING DIMENSIONS



DIMENSIONS FDO A & B 1 H.P.



MOUNTING DIMENSIONS



THEORY OF OPERATION

GENERAL DESCRIPTION:

The Fire Door Operator, FDO-A or FDO-B, is an integrated fire door control system. It is designed to interface with a normally close (NC) or normally open (NO) dry contact alarm system to control the operation of a fire door. The control station is the standard B2/C2 wiring. There are two (2) models for the FDO:

- **A model:** A (AC only) model has no battery backup nor electronic speed control for door's descent. The brake is disengaged when there is no AC power.
- **B model:** B (Battery backup) model provides battery backup operations and electronic speed control for door's descent when there is no AC power. The brake is engaged when there is no power.

1. FDO-A MODEL:

Door Descent Speed Control is required for FDO-A model.

1.1 UNIT HAS AC POWER & NO ALARM CONDITION:

- The B2/C2 control station is used to operate the door electrically.
- Activation of the safety edge while door is closing will cause it to reverse to full open limit.
- Activation of safety edge while door is opening will cause it to stop.
- Activating the optional key-test switch for at least 6 seconds will put the operator in active alarm mode.

1.2 UNIT HAS AC POWER & ACTIVE ALARM CONDITION:

- The warning system (optional) will activate. The door will automatically close after the preset time delay. The time delay is set by means of DIP switches 1 and 2, (See page 12).
- The door will reverse to full open limit if an obstruction is encountered while closing. The door will automatically close again after the preset time delay. If the obstruction is not cleared, upon the 3rd attempt to close, the door will stop on the obstruction and activate the warning system (optional) then release the brake. Subsequent obstruction will cause the door to stop for two (2) seconds then release the brake.

1.3 UNIT HAS NO AC POWER:

- The unit is not functional and the brake is released.



NOTICE

**THIS OPERATOR IS NOT A FIRE ALARM SYSTEM.
IT CAN NOT DETECT A FIRE CONDITION.**

2. FDO-B MODEL:

2.1 BATTERY MANAGEMENT SYSTEM:

- The battery is charged, tested and monitored automatically by the microprocessor based system.
- The battery is tested under load every 30 days. If the battery fails this load test then the on-board buzzer will sound for 3 seconds of every minute to indicate that the battery needs to be replaced. If the battery is not replaced within 45 days, the door will activate the warning system (optional) and automatically close and will not allow door to be opened until the battery has been replaced.
- The door will activate the warning system and automatically close whenever there is not enough backup power in the battery. When this occurs the strobe will flash until the battery is sufficiently charged

2.2 UNIT HAS AC POWER & NO ALARM CONDITION:

- The B2/C2 control station is used to operate the door electrically.
- Activation of the safety edge while door is closing will cause it to reverse to full open limit.
- Activation of safety edge while door is opening will cause it to stop.
- Activating the optional key-test switch for at least 6 seconds will put the operator in alarm active mode (see ACTIVE ALARM section for detail operation of alarm active mode).

2.3 UNIT HAS AC POWER & ACTIVE ALARM CONDITION:

- The warning system (optional) will activate. The door will automatically close after the preset time delay. The time delay is set by means of DIP switches 1 and 2, (See page 12).

- The door will reverse to full open limit if obstruction is encountered while closing. The door will automatically close again after the preset time delay. If the obstruction is not cleared, upon the 3rd attempt to close, the door will stop on the obstruction and activate the warning system (optional) then release the brake. Subsequent obstruction will cause the door to stop for two (2) seconds then release the brake.
- After the 3rd attempt to close, the integrated braking system controls the door's descending speed.

2.4 UNIT HAS NO AC POWER & NO ALARM CONDITION:

- The CLOSE and STOP buttons of the B2/C2 control station are functional. The door's descending speed is controlled by the integrated braking system.
- The door will stop if obstruction is encountered while closing.
- The OPEN button is NOT functional.

2.5 UNIT HAS NO AC POWER & ACTIVE ALARM CONDITION:

- The warning system (optional) will activate. The door will automatically close after the preset time delay. The time delay is set by means of DIP switches 1 and 2, (See page 12).
- The door will stop if obstruction is encountered while closing. The door will automatically try to close again after the preset time delay. If the obstruction is not cleared, upon the 3rd attempt to close, the door will stop on the obstruction and activate the warning system (optional) then release the brake. Subsequent obstruction will cause the door to stop for two (2) seconds then release the brake.

OPERATOR MOUNTING

Before your operator is installed, be sure the door has been properly aligned and is working smoothly. The operator may be wall mounted or mounted on a bracket or shelf. Refer to the illustration and instructions below that suits your application.

- 1a. **Bracket or Shelf Mounting (Left Hand Shown)** The operator may be mounted either above or below the door shaft. The optimum distance between the door shaft and operator drive shaft is between 12" - 15". Refer to Figure 1.

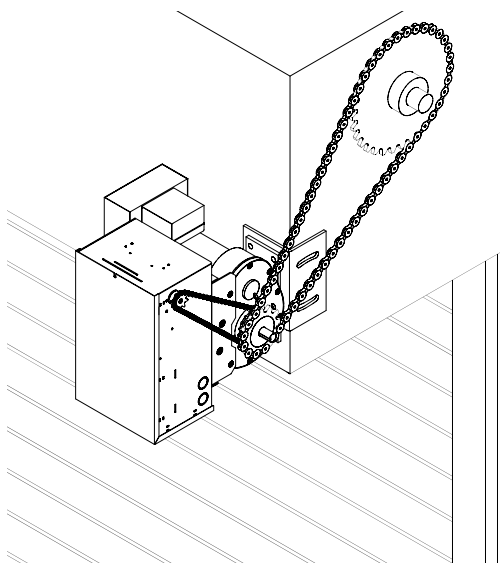


FIGURE 1

- 1b. **Wall Mounting (Left Hand Shown)**

The operator should generally be installed below the door shaft, and as close to the door as possible. The optimum distance between the door shaft and operator drive shaft is between 12" - 15". Refer to Figure 2.

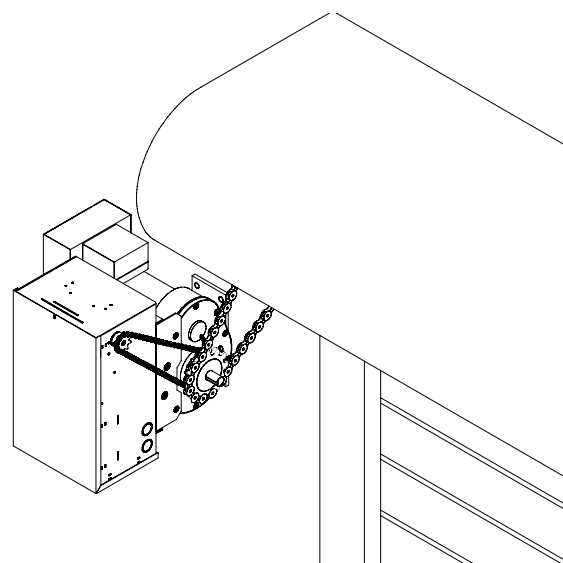


FIGURE 2

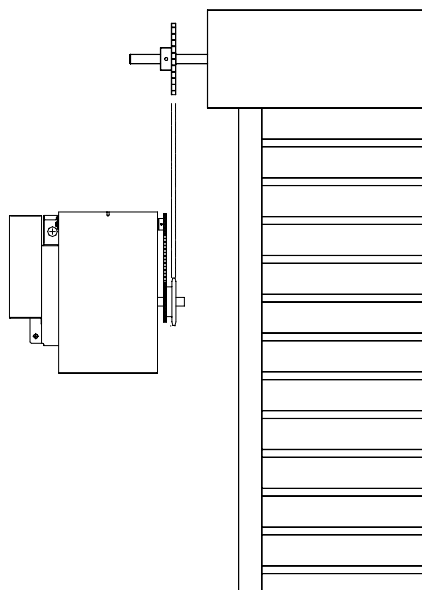


FIGURE 3

- 1c. Place door sprocket on the door shaft. Do not insert the key at this time.
2. Wrap drive chain around door sprocket and join roller chain ends together with master link.
3. Raise operator to approximate mounting position and position chain over operator sprocket.
4. Raise or lower operator until the chain is taut (not tight). Make sure the operator output shaft is parallel to door shaft and sprockets are aligned. When in position, secure the operator to wall or mounting bracket.
5. Align sprockets and secure, (see Figure 3).



WARNING

KEEP DOOR BALANCED. STICKING OR BINDING DOORS MUST BE REPAIRED. DOORS, DOOR SPRINGS, BRACKETS AND THEIR HARDWARE MAY BE UNDER EXTREME TENSION AND CAN CAUSE SERIOUS PERSONAL INJURY. CALL A PROFESSIONAL DOOR SERVICEMAN TO MOVE OR ADJUST DOOR SPRINGS OR HARDWARE.

ENTRAPMENT PROTECTION

SENSING EDGES (REQUIRED)

All types of sensing edges with an isolated normally open (N.O.) output are compatible with your operator. This includes pneumatic edge. If your door does not have a bottom sensing edge and you wish to purchase one, contact the supplier of your operator.

The operator has been pre-wired to accept connection of a reversing edge device. Connect the normally open contacts to terminals J2-5 and J2-6 on the PCB Board. The cut-off switch will de-activate the safety device during the last few inches of the door's downward travel.

Important Notes:

- a) Proceed with Limit Switch Adjustments before making any sensing edge wiring connections to operator as described below.
- b) Electrician must hardwire the junction box to the operator electrical box in accordance with local codes.
- c) See safety edge coil cord/ take-up installation instructions for details

IT IS STRONGLY RECOMMENDED THAT A SENSING EDGE OR OTHER ENTRAPMENT PROTECTION DEVICE BE USED IN CONJUNCTION WITH THIS OPERATOR.

WIRING:

For wiring of your sensing device to the operator, refer to the wiring diagram supplied with your operator. See field connection terminals identified as Sensing Device or Safety Edge.

NOTICE:

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

LIMIT SWITCH ADJUSTMENT

MAKE SURE THE LIMIT NUTS ARE POSITIONED BETWEEN THE LIMIT SWITCH ACTUATORS BEFORE PROCEEDING WITH ADJUSTMENTS.

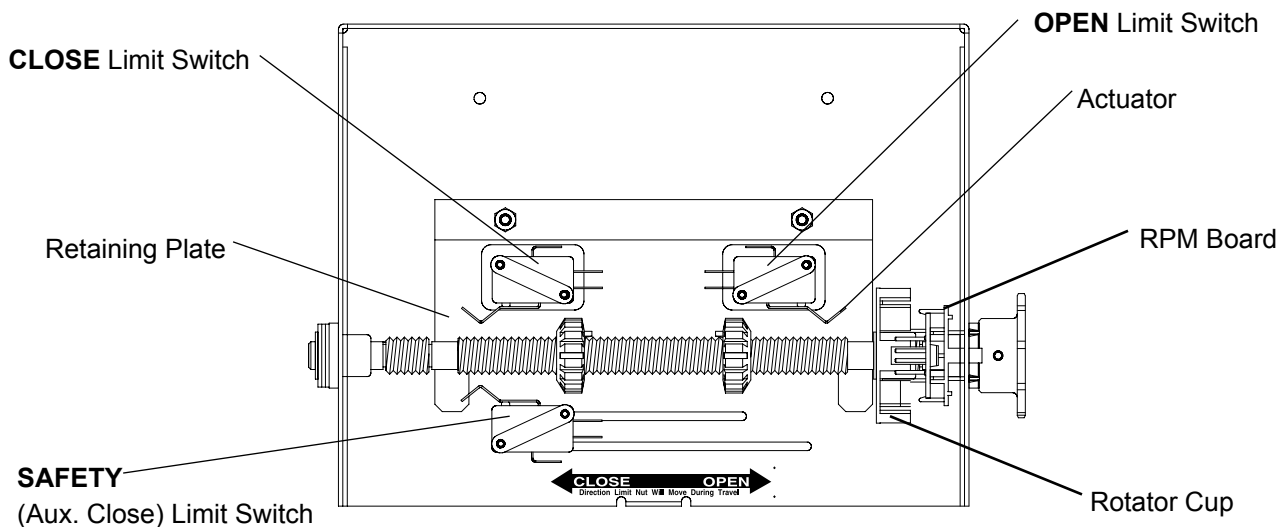
1. To adjust limit nuts depress retaining plate to allow nut to spin freely. After adjustment, release plate and ensure it seats fully in slots of both nuts.
2. To **increase** door travel, spin nut **away** from actuator. To **decrease** door travel, spin limit nut **toward** actuator.
3. Adjust open limit nut so that door will stop in open position with the bottom of the door even with top of door opening.
4. Repeat Steps 1 and 2 for close cycle. Adjust close limit nut so that actuator is engaged as door fully seats at the floor.



WARNING

TO AVOID SERIOUS PERSONAL INJURY OR DEATH FROM ELECTROCUTION, DISCONNECT ELECTRIC POWER BEFORE MANUALLY MOVING LIMIT NUTS.

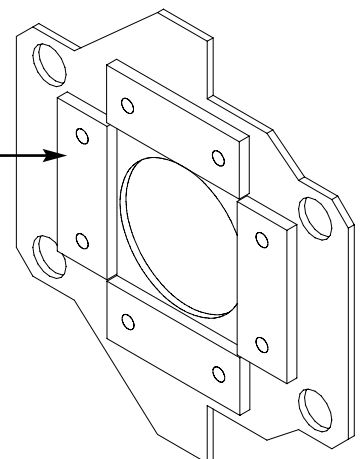
If other problems persist, call our toll-free number for assistance - 1-800-294-4358



BRAKE ADJUSTMENT

The brake is adjusted at the factory and should not need additional adjustment for the the life of the friction pad. Replace friction pads when necessary. Refer to the illustrations on page 19, 21, 23 and 25 for identification of components for the solenoid type brake system.

BRAKE PAD



POWER WIRING CONNECTIONS

Remove the cover from the electrical enclosure. Inside this enclosure you will find the wiring diagram(s) for your unit. Refer to the diagram (glued on the inside of the cover) for all connections described below. If this diagram is missing, call the number on the back of this manual. **DO NOT INSTALL ANY WIRING OR ATTEMPT TO RUN THIS OPERATOR WITHOUT CONSULTING THE WIRING DIAGRAM.**



WARNING

DISCONNECT POWER AT THE FUSE BOX BEFORE PROCEEDING.

OPERATOR MUST BE PROPERLY GROUNDED AND PERMANENTLY WIRED IN ACCORDANCE WITH LOCAL ELECTRICAL CODES. NOTE: THE OPERATOR SHOULD BE ON A SEPARATE FUSED LINE OF ADEQUATE CAPACITY.

ALL ELECTRICAL CONNECTIONS MUST BE MADE BY A QUALIFIED INDIVIDUAL.



WARNING

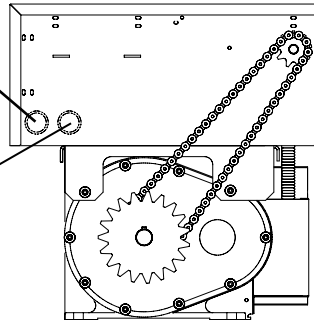
TO AVOID DAMAGE TO DOOR AND OPERATOR, MAKE ALL DOOR LOCKS INOPERATIVE. SECURE LOCK(S) IN "OPEN" POSITION.

IF THE DOOR LOCK NEEDS TO REMAIN FUNCTIONAL, INSTALL AN INTERLOCK SWITCH.

FDO 1/2 H.P. OPERATOR

7/8" dia. Control
Wiring Access Hole
(On Either Side)

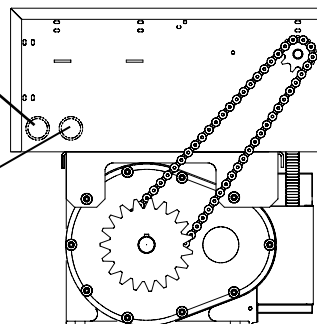
7/8" Dia. Power
Wiring Access Hole
(On Either Side)



FDO 1 H.P. OPERATOR

7/8" dia. Control
Wiring Access Hole
(On Either Side)

7/8" Dia. Power
Wiring Access Hole
(On Either Side)



POWER WIRING

1. Be sure that the power supply is of the correct voltage, phase, frequency, and amperage to supply the operator. Refer to the operator nameplate on the cover.

2. Using the 7/8" dia conduit access knockout as shown below, bring supply lines to the operator and connect wires to the terminals indicated on the WIRING CONNECTIONS DIAGRAM.

DO NOT TURN POWER ON UNTIL YOU HAVE FINISHED MAKING ALL POWER AND CONTROL WIRING CONNECTIONS AND HAVE COMPLETED THE LIMIT SWITCH ADJUSTMENT PROCEDURE.

IMPORTANT: THIS UNIT MUST BE PROPERLY GROUNDED. A GROUND SCREW IS SUPPLIED IN THE ELECTRICAL BOX FOR CONNECTION OF THE POWER SUPPLY GROUND WIRE. FAILURE TO PROPERLY GROUND THIS UNIT COULD RESULT IN ELECTRIC SHOCK AND SERIOUS INJURY.

ON THREE PHASE MACHINES ONLY!

Incorrect phasing of the power supply will cause the motor to rotate in the wrong direction (open when CLOSE button is pressed and vice-versa). To correct this, interchange any two of the incoming three phase power lines.

INSTALL CONTROL STATION

Before installing control station be sure to follow all warnings described below. Failure to do so may result in severe injury to persons and/or damage to operator. Do not install any wiring or attempt to run the operator without consulting the wiring diagram. Install the Reversing Edge before proceeding with the Control Station installation.

IMPORTANT SAFETY NOTES



WARNING

INSTALL THE CONTROL STATION WHERE THE DOOR IS VISIBLE, BUT AWAY FROM THE DOOR AND ITS HARDWARE. IF CONTROL STATION CANNOT BE INSTALLED WHERE DOOR IS VISIBLE, OR IF ANY DEVICE OTHER THAN THE CONTROL STATION IS USED TO ACTIVATE THE DOOR, A *REVERSING EDGE* MUST BE INSTALLED ON THE BOTTOM OF THE DOOR. FAILURE TO INSTALL A REVERSING EDGE UNDER THESE CIRCUMSTANCES MAY RESULT IN SERIOUS INJURY OR DEATH TO PERSONS TRAPPED BENEATH THE DOOR.



WARNING

TO AVOID DAMAGE TO DOOR AND OPERATOR, MAKE ALL DOOR LOCKS INOPERATIVE. SECURE LOCK(S) IN "OPEN" POSITION.
IF THE DOOR LOCK NEEDS TO REMAIN FUNCTIONAL, INSTALL AN INTERLOCK SWITCH.



WARNING

DISCONNECT POWER AT THE FUSE BOX BEFORE PROCEEDING.
OPERATOR MUST BE PROPERLY GROUNDED AND CONNECTED IN ACCORDANCE WITH LOCAL ELECTRICAL CODES. NOTE: THE OPERATOR SHOULD BE ON A SEPARATE FUSED LINE OF ADEQUATE CAPACITY.
ALL ELECTRICAL CONNECTIONS MUST BE MADE BY A QUALIFIED INDIVIDUAL.

CONTROL STATION WIRING

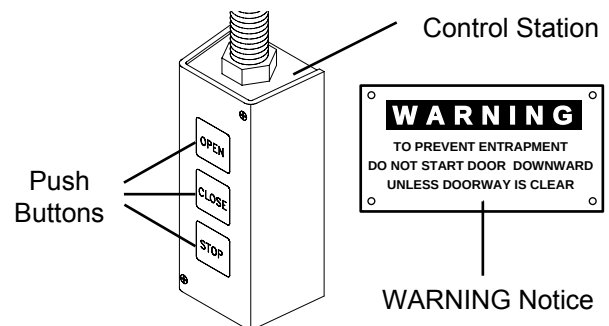
Refer to Control Connection Diagrams on pages 11 & 28. Make connection through hole labeled for control. Do not run control wires in the same conduit as power wires.

CABLE CONNECTION NOTE:

Be sure to use the control box opening with the 7/8" dia. knockout for CONTROL cable(s). All power wires use the 1-1/16" dia. knockout.

MOUNT WARNING NOTICE

IMPORTANT: Mount WARNING NOTICE beside or below the push button station.



1. Complete electrical connections to the operator and the control station. Fasten the control station to the wall and **MOUNT THE WARNING NOTICE BESIDE OR BELOW THE PUSH BUTTON STATION.**

2. Apply power to the operator. Press OPEN push button and observe direction of door movement and then **Press the STOP button.**

If door did not move in the correct direction, check for improper wiring at the control station or between operator and control station.

If the operator is three phase and control station wiring is correct, exchange any two of the three incoming power leads.

If electrical problems persist, call our Toll Free number for assistance (1-800-528-2806).

MAINTENANCE SCHEDULE

Check at the intervals listed in the following chart.

ITEM	PROCEDURE	EVERY 3 MONTHS	EVERY 6 MONTHS	EVERY 12 MONTHS
Drive Chain	Check for excessive slack. Check & adjust as required. Lubricate.*	●		●
Sprockets	Check set screw tightness	●		●
Fasteners	Check & tighten as required		●	●
Bearings & Shafts	Check for wear & lubricate	●		●

● Use SAE 30 Oil (Never use grease or silicone spray).

- Repeat ALL procedures.
- Do not lubricate motor. Motor bearings are rated for continuous operation.
- Inspect and service whenever a malfunction is observed or suspected.
- CAUTION: BEFORE SERVICING, ALWAYS DISCONNECT OPERATOR FROM POWER SUPPLY.

HOW TO ORDER REPAIR PARTS

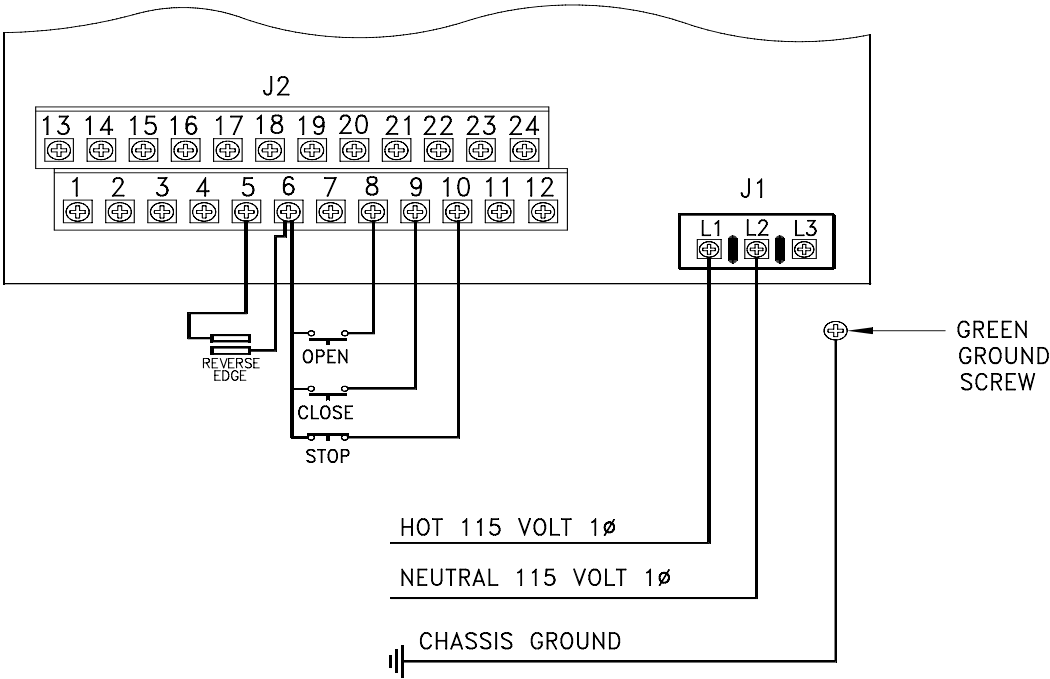
OUR LARGE SERVICE ORGANIZATION
SPANS AMERICA
INSTALLATION AND SERVICE INFORMATION
ARE AVAILABLE 6 DAYS A WEEK
CALL OUR TOLL FREE NUMBER - 1-800-528-2806
HOURS 7:00 TO 3:30 p.m. (Mountain Std. Time)
MONDAY Through SATURDAY

**WHEN ORDERING REPAIR PARTS
PLEASE SUPPLY THE FOLLOWING INFORMATION:**
PART NUMBER DESCRIPTION MODEL NUMBER

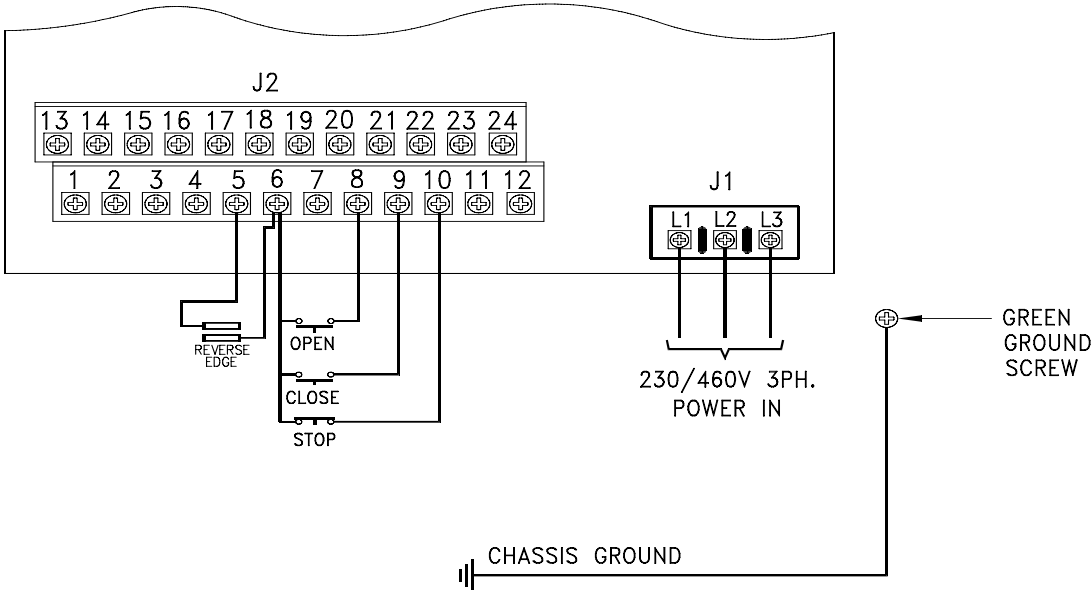
ADDRESS ORDER TO:
THE CHAMBERLAIN GROUP, INC.
Electronic Parts & Service Dept.
2301 N. Forbes Blvd., Suite 104
Tucson, AZ 85745

STANDARD POWER & CONTROL CONNECTION DIAGRAMS

LMPLC Board - 115V 1PH



LMPLC Board - 230V, 460V 3PH

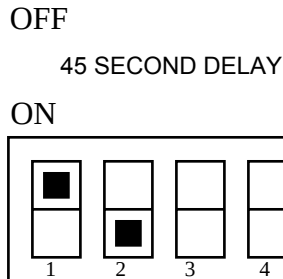
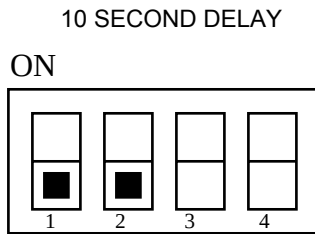


OPTIONAL CONTROL SETTINGS

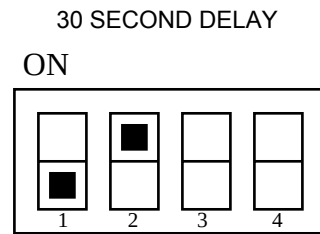
NOTE: All functions are independent of each other and do not require other control settings to be set at any certain configuration. **SWITCH 4 IS NOT USED BUT MUST BE SET IN THE OFF POSITION IN ORDER FOR THE OPERATOR TO WORK PROPERLY.** For dip switch location refer to illustration on next page.

ALARM DELAY TO CLOSE

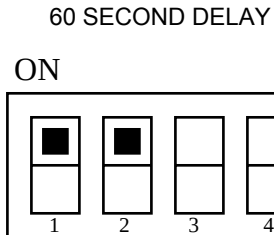
S1,1 and S1,2 set the Alarm Delay to Close time of the operator. Alarm Delay to Close is the time between when the operator first receives an active alarm signal and the door starts to close. Refer to illustrations below for various settings.



OFF



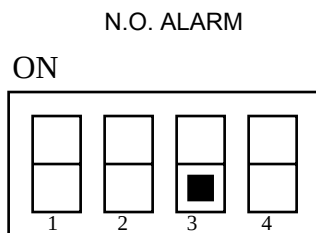
OFF



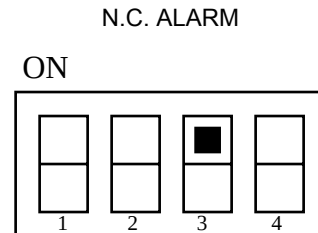
OFF

FIRE ALARM SYSTEM

Select the alarm system being used. If the alarm is a normally open system then S1,3 must be off. If the alarm is a normally close system then S1,3 must be on.

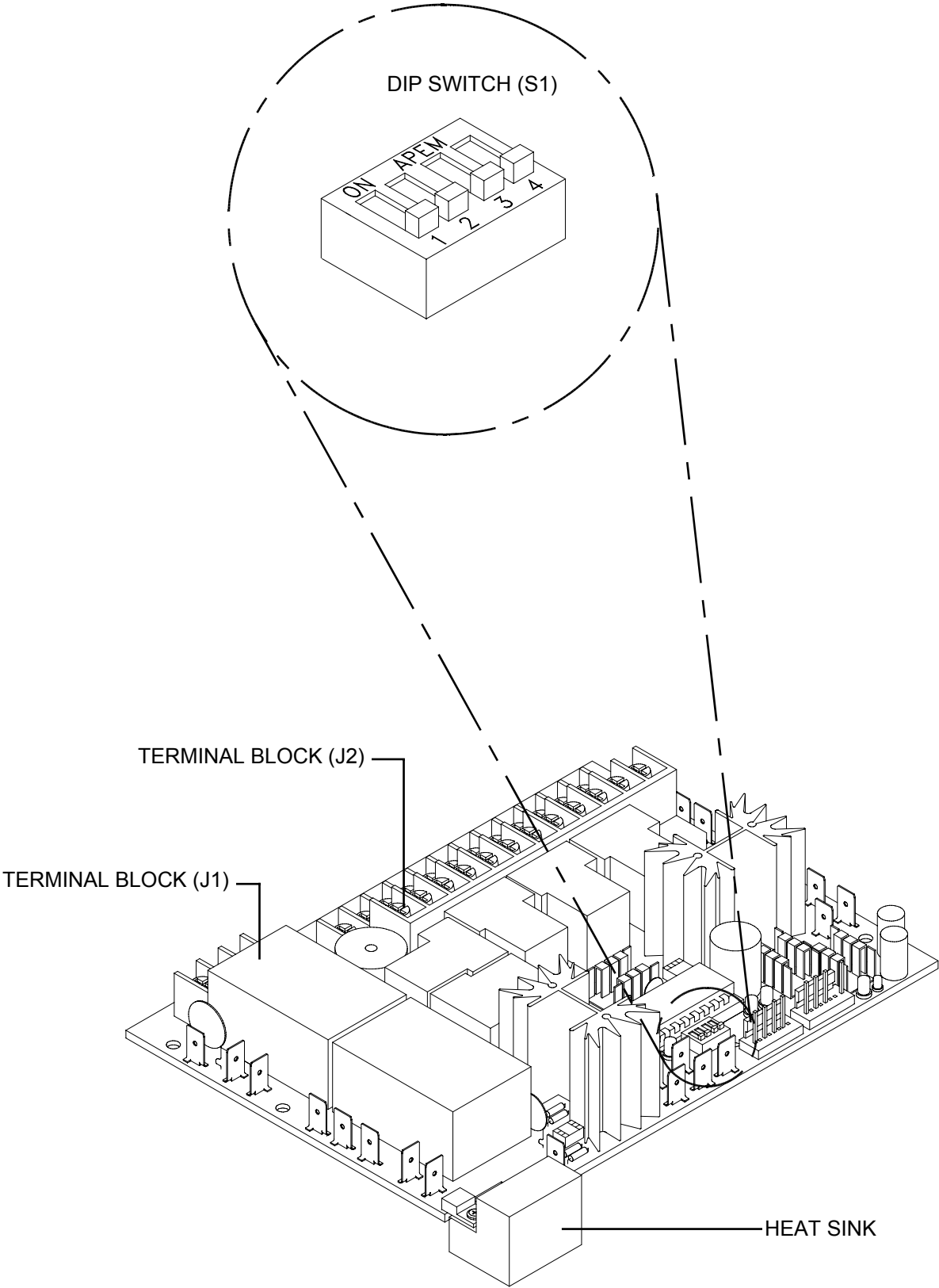


OFF



OFF

PCB BOARD ILLUSTRATION



3) For B2 Wiring Remove One End of Jumper from J2-3 and Connect to J2-16.



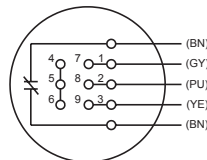
3) For B2 Wiring Remove One End of Jumper from J2-3 and Connect to J2-16.



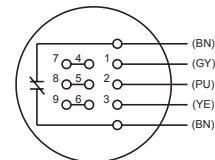
Note:

- 1) See Owner's Manual for Dip Switch Functions and Programming Procedures
- 2) TO REVERSE MOTOR DIRECTION: REVERSE PURPLE AND GRAY MOTOR WIRES.
- 3) For B2 Wiring Remove One End of Jumper from J2-3 and Connect to J2-16.

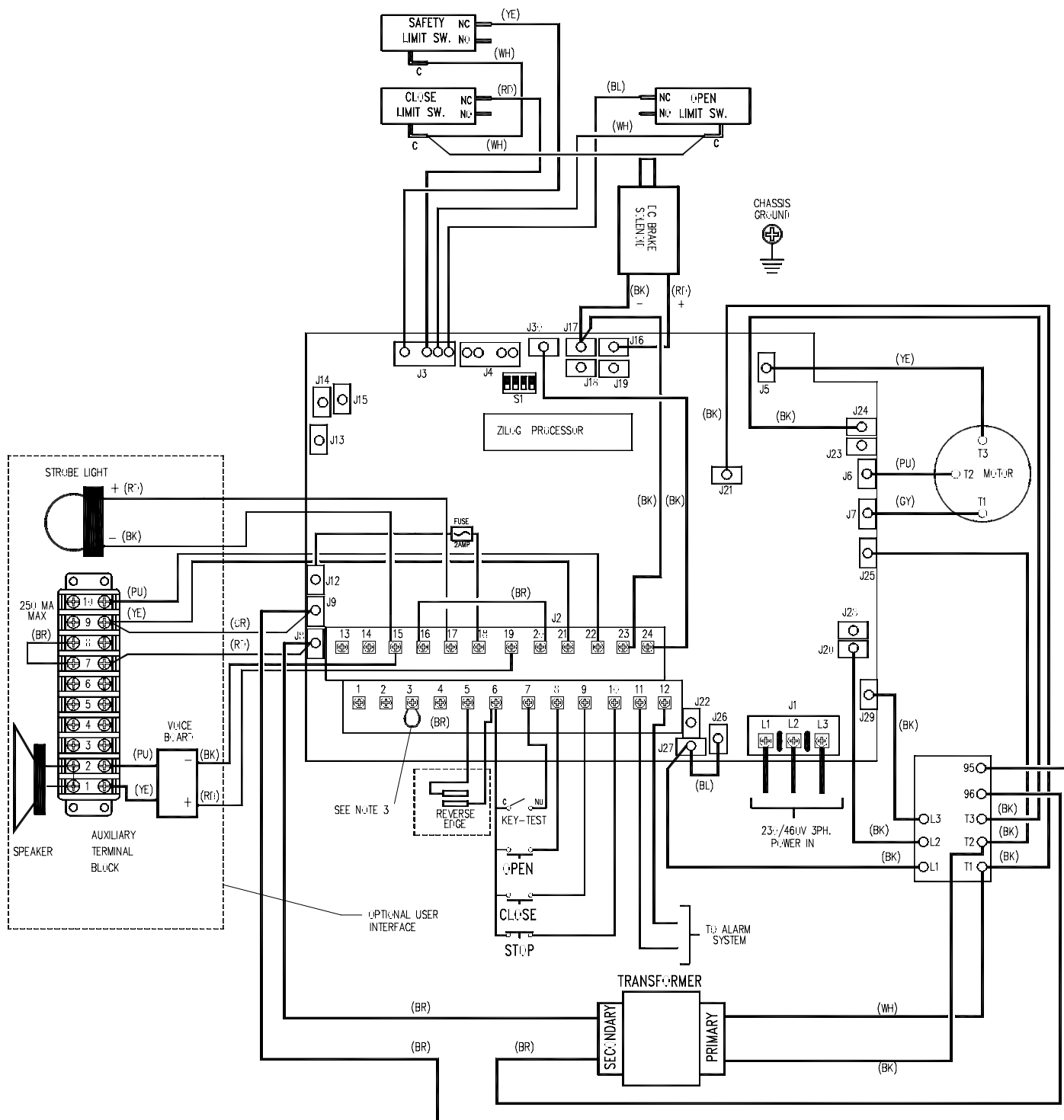
230V - 3 PH □
MOTOR CONNECTION



460V - 3 PH □
MOTOR CONNECTION



INTERNAL MOTOR CONNECTIONS



1937

REPAIR PARTS KITS – FDO5011B

Refer to the parts lists below for replacement kits available for your operator. If optional modifications and/or accessories are included with your operator, certain components may be added or removed from these lists. Individual components of each kit may not be available. Please consult a parts and service representative regarding availability of individual components. Refer to page 10 for all repair part ordering information.

K-FDO5011EB ELECTRICAL BOX KIT

ITEM	PART #	DESCRIPTION	QTY
E1	79-15016-1	RPM Board	1
E2	093D0148	RPM Housing	1
E3	10-13351	Electrical Box Cover	1
E4	10-13352-1	Electrical Box	1
E5	10-13358	Battery Top Plate	1
E6	10-13699	Battery Strap	1
E7	21-3240-3	Transformer, 200VA	1
E8	25-2010	Overload, 10 AMP	1
E9	29-C222U50E85	Capacitor	1
E10	29-NP712	Battery, 12V	2
E11	29-R250B7KWR	Power Resistor	1
E12	35-203	Fuse, 3 AMP	1
E13	42-110	10 Pole Terminal Block	1
E14	50-13788	Voice Board	1
E15	75-13705	Standoff Assembly, FDO PCB	7
E16	79-13493	PCB, LMPLC Assembly	1
E17	80-13715	Bracket, Resistor	2

* Electrical Box Kits include parts from K72-13580 and K75-13816

K75-13584 MOTOR KIT

ITEM	PART #	DESCRIPTION	QTY
M1	15-11987	Dual Sprocket, 48B19 and 50B19	1
M2	20-5200	Motor, VW40	1
M3	80-207-22	Key, 3/16" x 1" Long	1

K72-13580 LIMIT SHAFT ASSEMBLY KIT

ITEM	PART #	DESCRIPTION	QTY
L1	09-13701	Rotator Cup	1
L2	11-13361	Limit Shaft	1
L3	12-10028	Flange Bearing	2
L4	13-10024	Limit Nut	2
L5	15-48B9A1	Sprocket, #48B9 x 3/8" Bore	1
L6	80-10053	Washer, Spacer	2
L7	86-RP04-100	Roll Pin, 1/8" x 1" long	1
L8	87-E-038	E-Ring, 3/8"	1

K79-13493 PCB, LMPLC ASSEMBLY KIT

ITEM	PART #	DESCRIPTION	QTY
E16	79-13493	PCB, LMPLC Assembly	1

K75-13583 BRAKE ASSEMBLY KIT

ITEM	PART #	DESCRIPTION	QTY
B1	10-10190	Brake Release Lever	1
B2	10-10191	Brake Disc	1
B3	10-13355	Brake Cover	1
B4	10-13356	Extension Bracket	1
B5	10-13357	Plate, DC Solenoid	1
B6	10-13359	Solenoid Cover	1
B7	11-10192	Spring Cup	4
B8	11-10193	Brake Stud	4
B9	18-10194	Spring, Brake	4
B10	19-48001	Chain, #48 x 1 Pitch	1
B11	22-13028	DC Solenoid	1
B12	31-10186	Standoff	2
B13	75-10177	Brake Hub Assembly	1
B14	75-11572	Pressure Plate Assembly	1
B15	75-13581	Mounting Bracket Assembly	1
B16	86-CP04-112	Cotter Pin, 1/8" x 1-1/4"	2
B17	10-16719	Stop, DC Solenoid	1

K75-13816 LIMIT SWITCH ASSEMBLY KIT

ITEM	PART #	DESCRIPTION	QTY
S1	10-10013	Depress Plate	1
S2	10-12553	Nut Plate Switch	3
S3	10-12806	Backup Plate	3
S4	18-10036	Spring, Depress	2
S5	23-10041	Limit Switch	3
S6	31-12542	Standoff, Switch	3
S7	82-PX04-20	Screw, #4-40 Pan Head	6
S8	82-PX06-16	Screw, #6-32 Pan Head	2
S9	84-LH-06	Lock Nut, #6-32	2

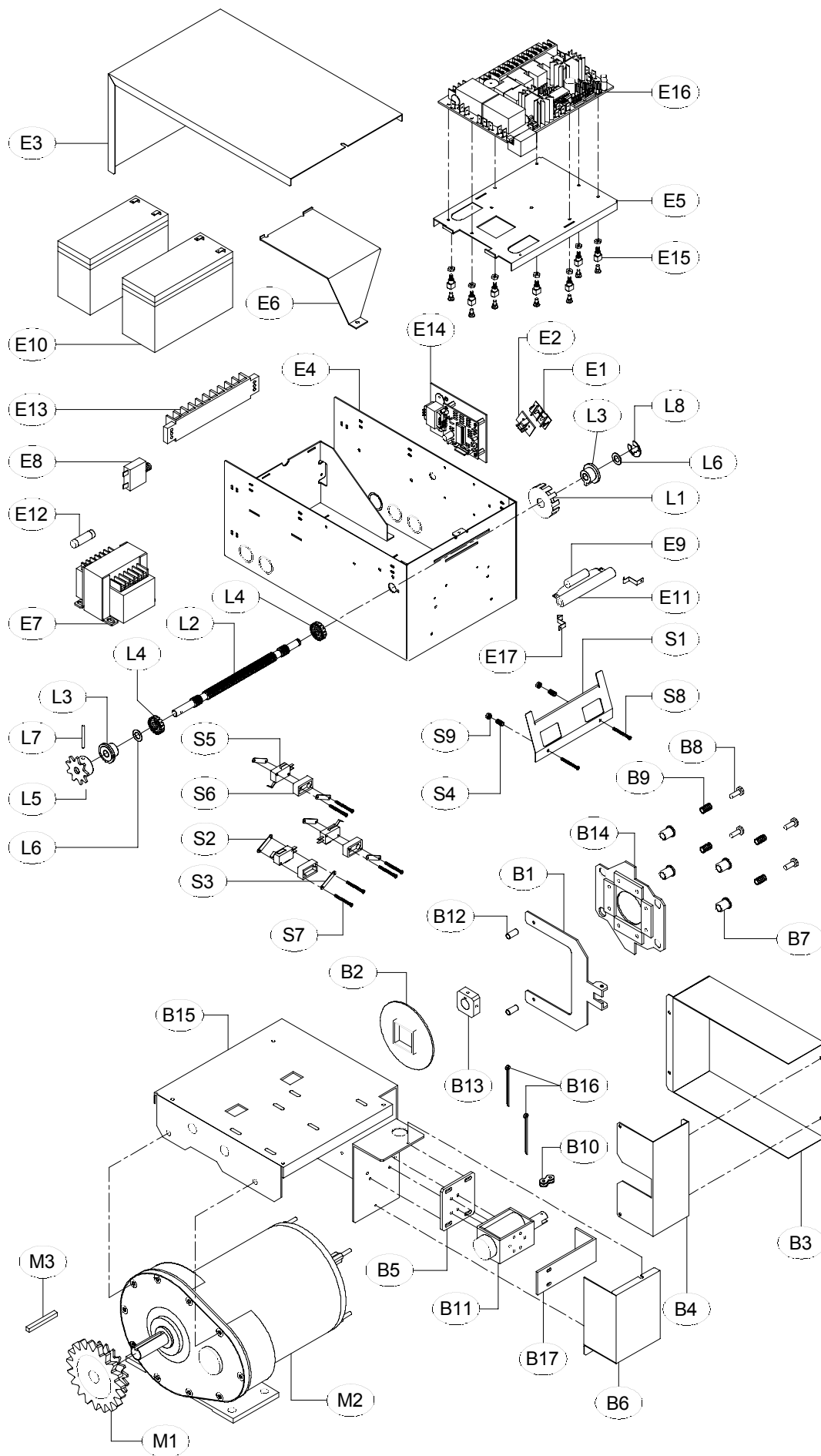
K74-16437 RPM SENSOR ASSEMBLY KIT

ITEM	PART #	DESCRIPTION	QTY
E1	79-15026-1	RPM Board	1
E2	093D0148	RPM Housing	1

K74-16438 POWER RESISTOR ASSEMBLY KIT

ITEM	PART #	DESCRIPTION	QTY
E9	29-C222U50E85	Capacitor	1
E11	29-R250B7KWR	Power Resistor	1

ILLUSTRATED PARTS – FDO5011B



REPAIR PARTS KITS – FDO5011A

Refer to the parts lists below for replacement kits available for your operator. If optional modifications and/or accessories are included with your operator, certain components may be added or removed from these lists. Individual components of each kit may not be available. Please consult a parts and service representative regarding availability of individual components. Refer to page 10 for all repair part ordering information.

K-FDO5011A ELECTRICAL BOX KIT

ITEM	PART #	DESCRIPTION	QTY
E1	10-13351	Electrical Box Cover	1
E2	10-13352	Electrical Box	1
E3	10-13358	Battery Top Plate	1
E4	21-5115	Transformer, 40VA	1
E5	25-2010	Overload, 10 AMP	1
E6	42-110	10 Pole Terminal Block	1
E7	50-13788	Voice Board (Optional)	1
E8	75-13715	Standoff Assembly, FDO PCB	7
E9	79-13493	PCB, LMPLC Assembly	1

* Electrical Box Kits include parts from K72-13581 and K75-13816

K75-13584 MOTOR KIT

ITEM	PART #	DESCRIPTION	QTY
M1	15-11987	Dual Sprocket, 48B19 and 50B19	1
M2	20-5200	Motor, VW40	1
M3	80-207-22	Key, 3/16" x 1" Long	1

K75-13726 BRAKE ASSEMBLY KIT

ITEM	PART #	DESCRIPTION	QTY
B1	10-10191	Brake Disc	1
B2	10-11545	Brake Release Lever	1
B3	10-13355	Brake Cover	1
B4	10-13356	Extension Bracket	1
B5	10-13359	Solenoid Cover	1
B6	11-11546	Spring Cup	4
B7	11-11547	Spring Cap	2
B8	11-11548	Brake Stud	4
B9	11-11549	Standoff	2
B10	18-10194	Spring, Compression	2
B11	18-11550	Spring, Compression	4
B12	19-48001	Chain, #48 x 1 Pitch	1
B13	22-13028	DC Solenoid	1
B14	75-10177	Brake Hub Assembly	1
B15	75-11572	Pressure Plate Assembly	1
B16	75-13581	Mounting Bracket Assembly	1
B17	82-PX06-06T	Screw, #6-32 Pan Head	2
B18	86-CP04-112	Cotterpin, 1/8" x 1-1/4"	2
B19	10-13357	Plate, DC Solenoid	1
B20	10-16719	Stop, DC Solenoid	1

K72-13581 LIMIT SHAFT ASSEMBLY KIT

ITEM	PART #	DESCRIPTION	QTY
L1	11-13361	Limit Shaft	1
L2	12-10028	Flange Bearing	2
L3	13-10024	Limit Nut	2
L4	15-48B9A1	Sprocket, #48B9 x 3/8" Bore	1
L5	80-10053	Washer, Spacer	2
L6	86-RP04-100	Roll Pin, 1/8" x 1" long	1
L7	87-E-038	E-Ring, 3/8"	1

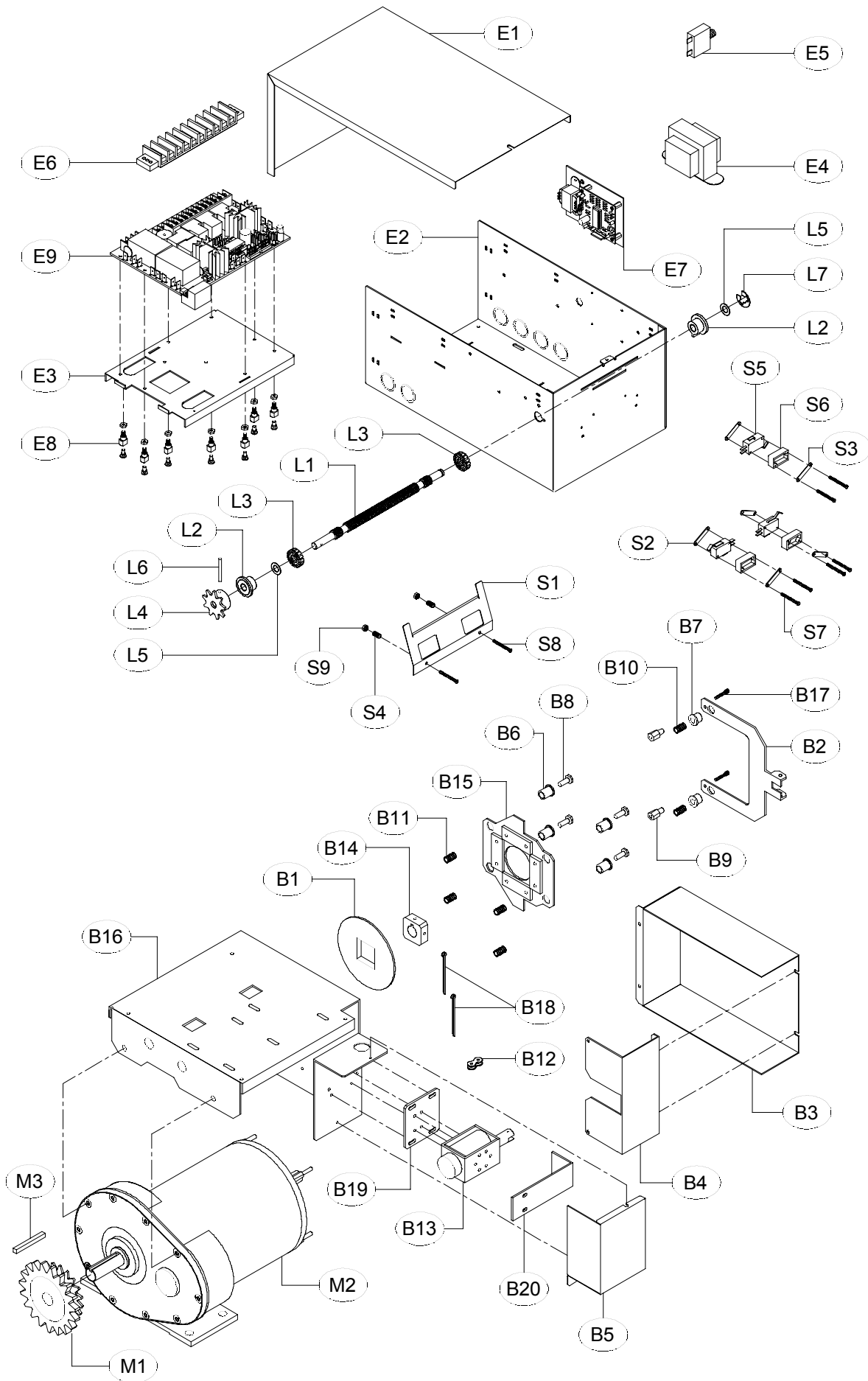
K75-13816 LIMIT SWITCH ASSEMBLY KIT

ITEM	PART #	DESCRIPTION	QTY
S1	10-10013	Depress Plate	1
S2	10-12553	Nut Plate Switch	3
S3	10-12806	Backup Plate	3
S4	18-10036	Spring, Depress	2
S5	23-10041	Limit Switch	3
S6	31-12542	Standoff, Switch	3
S7	82-PX04-20	Screw, #4-40 Pan Head	6
S8	82-PX06-16	Screw, #6-32 Pan Head	2
S9	84-LH-06	Lock Nut, #6-32	2

K79-13493 PCB, LMPLC ASSEMBLY KIT

ITEM	PART #	DESCRIPTION	QTY
E9	79-13493	PCB, LMPLC Assembly	1

ILLUSTRATED PARTS – FDO5011A



REPAIR PARTS KITS – FDO1023B & FDO1043B

Refer to the parts lists below for replacement kits available for your operator. If optional modifications and/or accessories are included with your operator, certain components may be added or removed from these lists. Individual components of each kit may not be available. Please consult a parts and service representative regarding availability of individual components. Refer to page 10 for all repair part ordering information.

K-FDO1023EB & K-FDO1043EB ELECTRICAL BOX KIT

ITEM	PART #	DESCRIPTION	QTY
E1	79-15016-1	RPM Board	1
E2	093D0148	RPM Housing	1
E3	10-13351	Electrical Box Cover	1
E4	10-13352-1	Electrical Box	1
E5	10-13358	Battery Top Plate	1
E6	10-13699	Battery Strap	1
E7	21-14355	Transformer, 200VA PT Series	1
E8	See Variables	Overload	1
E9	29-C222U50E85	Capacitor	1
E10	29-NP712	Battery, 12V	2
E11	29-R250B7KWR	Power Resistor	1
E12	35-203	Fuse, 3 AMP	1
E13	42-110	10 Pole Terminal Block	1
E14	50-13788	Voice Board	1
E15	75-13705	Standoff Assembly, FDO PCB	7
E16	79-13493	PCB, LMPLC Assembly	1
E17	80-13715	Bracket, Resistor	2
E18	25-3000-K	Overload Bracket	1

* Electrical Box Kits include parts from K72-13580 and K75-13816

VARIABLE COMPONENTS

ITEM	PART #	DESCRIPTION	QTY
E5	25-4004-K	Overload 3.3 - 5.5 Amp (230V 3 Ph)	1
	25-4002-5K	Overload 1.6 - 2.5 Amp (460V 3 Ph)	1

K75-13742 MOTOR KIT

ITEM	PART #	DESCRIPTION	QTY
M1	07-10179-2	Brake Hub	1
M2	20-3100C-4T	Motor, 1 Hp 230/460V 3Ph, TEFC	1

K72-13580 LIMIT SHAFT ASSEMBLY KIT

ITEM	PART #	DESCRIPTION	QTY
L1	09-13701	Rotator Cup	1
L2	11-13361	Limit Shaft	1
L3	12-10028	Flange Bearing	2
L4	13-10024	Limit Nut	2
L5	15-48B9A1	Sprocket, #48B9 x 3/8" Bore	1
L6	80-10053	Washer, Spacer	2
L7	86-RP04-100	Roll Pin, 1/8" x 1" long	1
L8	87-E-038	E-Ring, 3/8"	1

K79-13493 PCB, LMPLC ASSEMBLY KIT

ITEM	PART #	DESCRIPTION	QTY
E16	79-13493	PCB, LMPLC ASSEMBLY	1

K75-14995 BRAKE ASSEMBLY KIT

ITEM	PART #	DESCRIPTION	QTY
B1	10-10190	Brake Release Lever	1
B2	10-10191	Brake Disc	1
B3	10-14646	Brake Cover	1
B4	10-13357	Plate, DC Solenoid	1
B5	10-14647	Solenoid Cover	1
B6	11-10192	Spring Cup	4
B7	11-10193	Brake Stud	4
B8	18-10194	Spring, Brake	4
B9	19-48001	Chain, #48 x 1 Pitch	1
B10	22-13028	DC Solenoid	1
B11	31-10186	Standoff	2
B12	75-11572	Pressure Plate Assembly	1
B13	75-14994	Mounting Bracket Assembly	1
B14	86-CP04-112	Cotter Pin, 1/8" x 1-1/4"	2
B15	10-16719	Stop, DC Solenoid	1

K75-13816 LIMIT SWITCH ASSEMBLY KIT

ITEM	PART #	DESCRIPTION	QTY
S1	10-10013	Depress Plate	1
S2	10-12553	Nut Plate Switch	3
S3	10-12806	Backup Plate	3
S4	18-10036	Spring, Depress	2
S5	23-10041	Limit Switch	3
S6	31-12542	Standoff, Switch	3
S7	82-PX04-20	Screw, #4-40 Pan Head	6
S8	82-PX06-16	Screw, #6-32 Pan Head	2
S9	84-LH-06	Lock Nut, #6-32	2

INDIVIDUAL COMPONENTS

ITEM	PART #	DESCRIPTION	QTY
1	10-14643	Electrical Box Mounting Bracket	1
2	10-14644	Shim, Gear Reducer	1
3	10-14645	Electrical Box Mounting Bracket	1
4	15-14650	Dual Sprocket	1
5	32-10412	Gear Reducer, 56:1	1
6	80-10973	Key, 1/4" x 2" Long	1

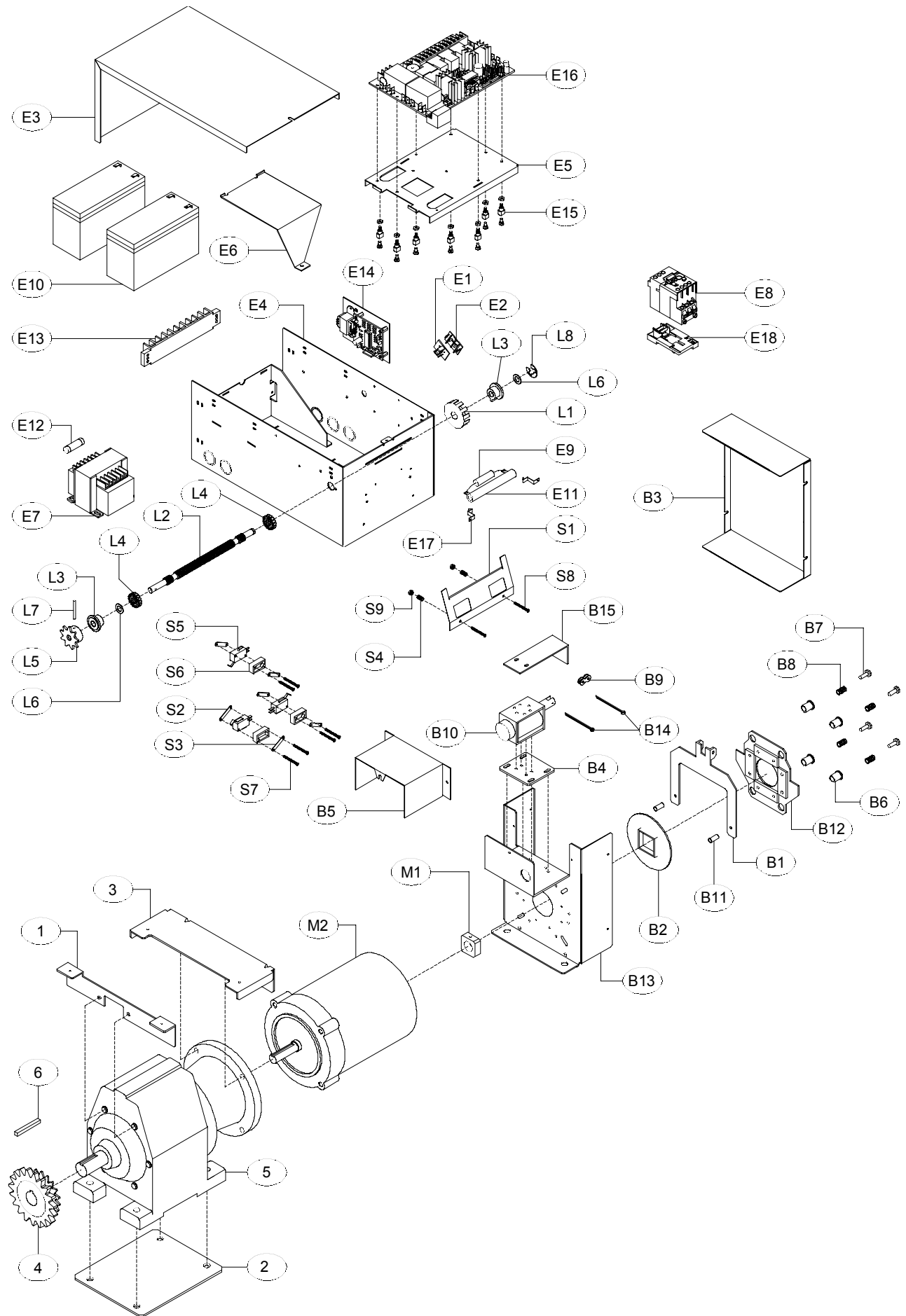
K74-16437 RPM SENSOR ASSEMBLY KIT

ITEM	PART #	DESCRIPTION	QTY
E1	79-15016-1	RPM Board	1
E2	093D0148	RPM Housing	1

K74-16438 POWER RESISTOR ASSEMBLY KIT

ITEM	PART #	DESCRIPTION	QTY
E9	29-C222U50E85	Capacitor	1
E11	29-R250B7KWR	Power Resistor	1

ILLUSTRATED PARTS – FDO1023B & FDO1043B



REPAIR PARTS KITS – FDO1023A & FDO1043A

Refer to the parts lists below for replacement kits available for your operator. If optional modifications and/or accessories are included with your operator, certain components may be added or removed from these lists. Individual components of each kit may not be available. Please consult a parts and service representative regarding availability of individual components. Refer to page 10 for all repair part ordering information.

K-FDO1023A & K-FDO1043A ELECTRICAL BOX KIT

ITEM	PART #	DESCRIPTION	QTY
E1	10-13351	Electrical Box Cover	1
E2	10-13352	Electrical Box	1
E3	10-13358	Battery Top Plate	1
E4	See Variables	Transformer	1
E5	See Variables	Overload	1
E6	42-110	10 Pole Terminal Block	1
E7	50-13788	Voice Board (Optional)	1
E8	75-13715	Standoff Assembly, FDO PCB	7
E9	79-13493	PCB, LMPLC Assembly	1
E10	25-3000-K	Overload Bracket	1

* Electrical Box Kits include parts from K72-13581 and K75-13816

VARIABLE COMPONENTS

ITEM	PART #	DESCRIPTION	QTY
E4	21-5230	Transformer, 230 Volt	1
	21-5460	Transformer, 460 Volt	1
E5	25-4004-K	Overload 3.3 - 5.5 Amp (230V 3 Ph)	1
	25-4002-5K	Overload 1.6 - 2.5 Amp (460V 3 Ph)	1
B12	22-240-1	Brake Solenoid, 240V (230V 3 Ph)	1
	22-460-1	Brake Solenoid, 460V (460V 3 Ph)	1

K75-13742 MOTOR KIT

ITEM	PART #	DESCRIPTION	QTY
M1	07-10179-2	Brake Hub	1
M2	20-3100C-4T	Motor, 1 Hp 230/460V 3Ph, TEFC	1

K72-13581 LIMIT SHAFT ASSEMBLY KIT

ITEM	PART #	DESCRIPTION	QTY
L1	11-13361	Limit Shaft	1
L2	12-10028	Flange Bearing	2
L3	13-10024	Limit Nut	2
L4	15-48B9A1	Sprocket, #48B9 x 3/8" Bore	1
L5	80-10053	Washer, Spacer	2
L6	86-RP04-100	Roll Pin, 1/8" x 1" long	1
L7	87-E-038	E-Ring, 3/8"	1

K75-14998 & K75-15006 BRAKE ASSEMBLY KIT

ITEM	PART #	DESCRIPTION	QTY
B1	10-10191	Brake Disc	1
B2	10-11545	Brake Release Lever	1
B3	10-14646	Brake Cover	1
B4	10-14647	Solenoid Cover	1
B5	11-11546	Spring Cup	4
B6	11-11547	Spring Cap	2
B7	11-11548	Brake Stud	4
B8	11-11549	Standoff	2
B9	18-10194	Spring, Compression	2
B10	18-11550	Spring, Compression	4
B11	19-48001	Chain, #48 x 1 Pitch	1
B12	22-13028	DC Solenoid	1
B13	75-11572	Pressure Plate Assembly	1
B14	75-14997	Mounting Bracket Assembly	1
B15	82-PX06-06T	Screw, #6-32 Pan Head	2
B16	86-CP04-112	Cotterpin, 1/8" x 1-1/4"	2
B17	10-13357	Plate, DC Solenoid	1
B18	10-16719	Stop, DC Solenoid	1

K75-13816 LIMIT SWITCH ASSEMBLY KIT

ITEM	PART #	DESCRIPTION	QTY
S1	10-10013	Depress Plate	1
S2	10-12553	Nut Plate Switch	3
S3	10-12806	Backup Plate	3
S4	18-10036	Spring, Depress	2
S5	23-10041	Limit Switch	3
S6	31-12542	Standoff, Switch	3
S7	82-PX04-20	Screw, #4-40 Pan Head	6
S8	82-PX06-16	Screw, #6-32 Pan Head	2
S9	84-LH-06	Lock Nut, #6-32	2

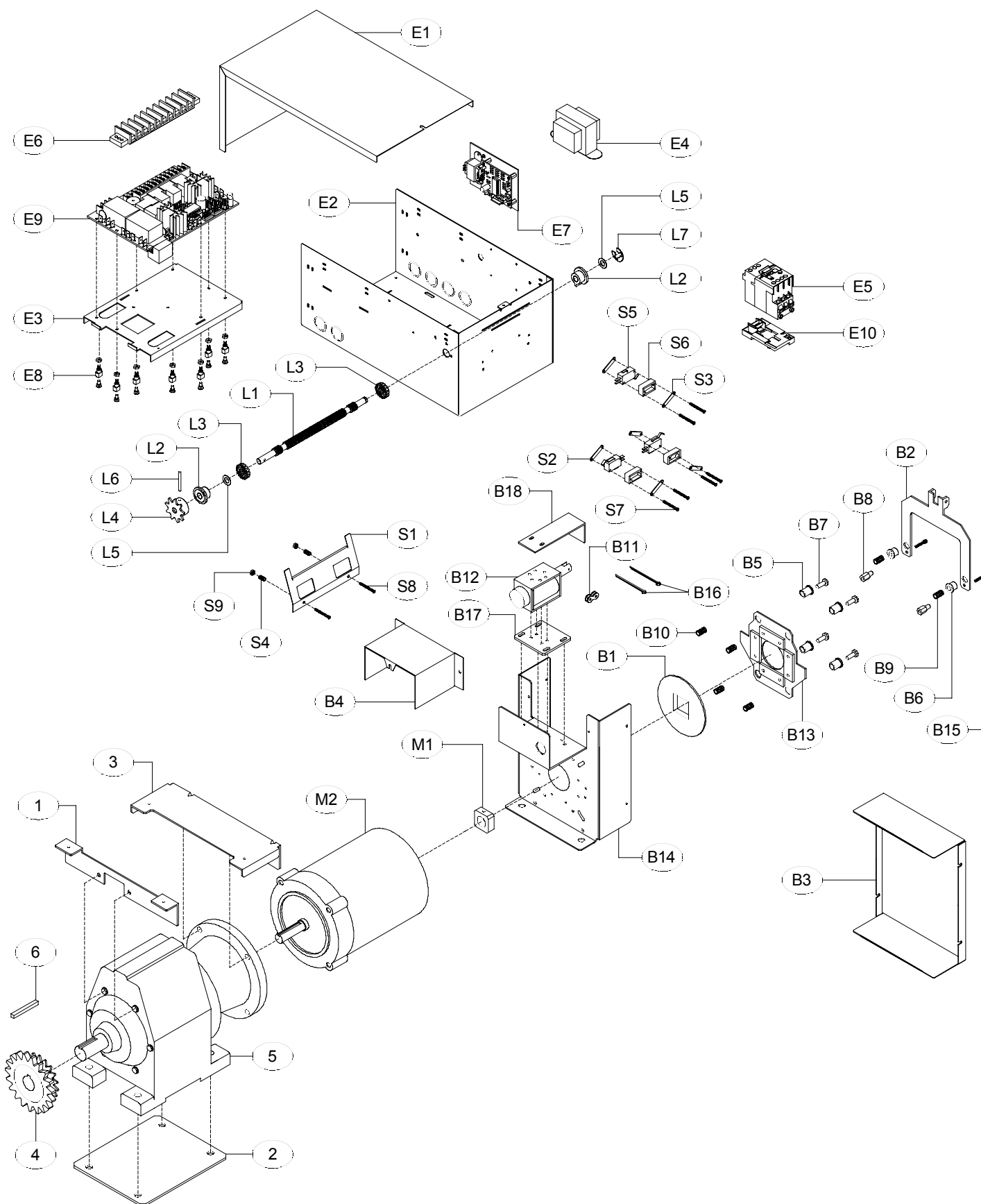
INDIVIDUAL COMPONENTS

ITEM	PART #	DESCRIPTION	QTY
1	10-14643	Electrical Box Mounting Bracket	1
2	10-14644	Shim, Gear Reducer	1
3	10-14645	Electrical Box Mounting Bracket	1
4	15-14650	Dual Sprocket	1
5	32-10412	Gear Reducer, 56:1	1
6	80-10973	Key, 1/4" x 2" Long	1

K79-13493 PCB, LMPLC ASSEMBLY KIT

ITEM	PART #	DESCRIPTION	QTY
E9	79-13493	PCB, LMPLC Assembly	1

ILLUSTRATED PARTS – FDO1023A & FDO1043A



OPERATOR NOTES

This image shows a full page of blank white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page, providing a template for writing or drawing. There are no margins, text, or other markings present.

OPERATOR NOTES

This image shows a full page of blank, lined paper. It features approximately 30 evenly spaced horizontal black lines running across the width of the page, providing a guide for writing. The background is a solid off-white color. There are no margins, text, or other markings present.

CONTROL CONNECTION DIAGRAM

IMPORTANT NOTES:

- The 3-Button Control Station provided must be connected for operation.

