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www.Eberbachlabtools.com

E5850.00 Reciprocating Shaker
Variable Speed
20-240 Excursions, 115 V, 50/60 HZ

USE AND CARE FOR CATALOG NUMBER:

E5850.00 Shaker Power Unit

Reciprocating, Variable Speed, 20-240 Excursions, 115 V, 50/60 Hz

GENERAL INFORMATION

- 1) Handle this unit with care. Unpack and check that the contents coincide with the packing-list. If any part is damaged or missing, please advise the distributor immediately.
- 2) Do not install or use this equipment without first reading this manual.
- 3) This manual should always be attached to the equipment and made available to all users.
- 4) If you have any doubts or inquiries, please contact your supplier or ***Eberbach Corporation*** technical service.

OPERATION

MOUNTING AND DISMOUNTING CARRIERS:

This Shaker Power Unit is furnished complete with one small platform, Cat. No. E5860.00, 14" x 12", which is secured to the shaker top plate by 4 machine screws. The small platform has 168 - 1/4" holes for securing all sizes of Flask Holders, Cat. No. E6090.00

The platform has the following maximum capacities of Flask Holders, Cat. No. 6090, when flask holders are positioned so they overhang the edges of platform.

<u>SIZE</u>	<u>ALLOWING OVERHANG</u>
10 ml Erlenmeyer Flask	84
25 ml Erlenmeyer Flask	48
50 ml Erlenmeyer Flask	48
125 ml Erlenmeyer Flask	21
250 ml Erlenmeyer Flask	18
500 ml Erlenmeyer Flask	12
1000 ml Erlenmeyer Flask	8
1500 ml Erlenmeyer Flask	2
2000 ml Erlenmeyer Flask	2
2500 ml Low Form Culture Flask	1
2800 ml Fernbach Flask	1
4000 ml Erlenmeyer Flask	2

An additional platform may be mounted above the lower platform by means of a set of four tiering posts, Cat. No. E6190.00, 10" long or a set of four tiering posts, Cat. No. E6191.00, 6" long.

To use tiering posts, remove the four screws holding the small platform and screw threaded end of tiering posts into these four threaded mounting holes, thus securing the lower platform and providing means to secure the top platform with the four screws provided. Any of these tiering posts can be used individually in any one of the four positions used to mount the small platform to the shaker top plate assembly as vertical posts to attach clamps for securing other containers.

A Utility Carrier, Cat. No. E6040.00, complete with one Cat. No. E6042.00 Crosswise Bar Clamp and mounting screws assembles onto Cat. No. E5860.00 Small Platform. Additional Cat. No. E6042.00 Crosswise Bar Clamps can be used in either direction.

Vertical Rod and Support, Cat. No. E6046.00, can be used with the Utility Carrier Cat. No. E5865.00, to accommodate miscellaneous vessels and to increase the capacity of the shaker.

APPLICATIONS:

The platform, Cat. No. E5860.00, supplied with the shaker will accommodate all sizes of flask holders, or any container that can be secured by means of machine screws through any of the 168 - 1/4" holes. An animal cage could be secured to the platform for low speed motion studies.

Two or three platforms may be tiered, one above the other, depending on the load and speed. Again, for flask holder or various types of container.

A Utility Carrier provides means for holding various shaped containers. For example test tube racks fitting inside the Utility Carrier, can be secured by using crosswise bar clamps in either direction. A large Erlenmeyer Flask (4000 ml), a large bottle, a 1-gal. Jerry Can, are examples of containers that can be secured in the Utility Carrier.

LOADING:

It is impossible to outline the exact limitations for loading a shaker, as resulting shaking action is dependent upon several factors. These are size (height) and shape of the containers, speed, length of stroke, and the amount and type of material being shaken.

To illustrate a typical loading, consider 20 - 125 ml Erlenmeyer flasks on the platform each with 50 ml of water solution, shaker stroke of 1" and speed of 150 excursions per minute giving the desired shaking action. Under these conditions, the load on the platform would be approximately 10 lbs., the mass would be as close to the platform as possible and the shaker would be operating within its designed limitations.

To illustrate an overloaded condition, consider the same conditions as above except that each 125 ml flask has 50 ml mercury. The total weight on the platform would then be approximately 34 lbs., which is far in excess of the designed limitations.

Basic considerations should be:

1. Use lowest speed consistent with the required shaking action.
2. At higher speeds use less weight on platform or shorter stroke or both.
3. At lower speeds, weight on platform can be increased, or longer stroke can be used, or both.
4. When using one platform tiered above the other, place equal load on each or, if there is a choice, heavier mass on lower platform and lighter mass on top platform. If shaking action imparts a «whip» to the upper platform, then either the speed is too high or load is too heavy on the upper platform.
5. If shaker has tendency to «walk» on bench, then rubber suction cup feet should be secured to bench top by using rubber bonding or contact cement.

Good judgment in the selection of the above mentioned factors will contribute to proper use and extend the life of the shaker.

If you have any doubts or inquiries concerning operation contact your supplier or ***Eberbach Corporation*** technical service.

SPEED CONTROL:

Before plugging the power plug into the correct electrical source, be sure the motor switch is in the «off» position. Also, it is advisable to start the shaker

initially without containers secured to the shaker platform to allow proper adjustment of the speed control, thus eliminating danger of too fast an operation before proper speed setting is established.

Turn the shaker on by means of the switch on the front panel. With the shaker operating, rotate the speed control knob to the desired speed setting. Rotating the knob in a clockwise direction increases the speed of the shaker. Speed range can be adjusted from 20 to 240 excursions per minute.

NOTE: USE SLOWEST SPEED NECESSARY TO PRODUCE REQUIRED SHAKING ACTION.

STROKE ADJUSTMENT:

Remove power cord plug from receptacle so that shaker cannot be accidentally started. To gain access to the shaker mechanism, remove the top platform to expose the mounting plate below. Remove the mounting plate by first removing the spill guard top panels held on by the 8-32 phillips-head machine screws. Next, remove the 4 hex head bolts that attach the aluminum mounting plate to the linear assembly. Remove plate and the spacers exposing the crank body, connecting arm, and other assemblies. There are two positions available for the location of the crank pin(EP5650.002) in the crank body(EP5650.015). These positions provide for a stroke of 1" and 1-1/2" (set to 1" from factory). The crank pin and crank body are secured by means of a 1/4-20 allen set screw, requiring the use of a 1/8 inch size allen wrench. The crank body is held by two 1/4-20 allen set screws, loosen both at least 3 full turns to completely disengage the recessed groove in the shaft. Pull crank body from shaft output shaft. Remove and install the crank pin (with connecting rod assembly) into the new desired stroke setting and move set screw to the new corresponding hole. Care should be taken upon reassembly to be sure that both shafts are completely inserted. This will ensure that the 1/4-20 allen set screw engages the recessed portion both shafts. If necessary the flexible connecting joint (EP5650.005) may have to removed for unimpeded removal and installation of the crank pin and body.

FUSE REPLACEMENT:

Replacement fuses are 3 Amp Slow Blow (Time Delay). Replace fuses only once. Preventative maintenance has set the fuse to blow if the motor is over worked. The problem is generally in extreme wear of the bearings or an object obstructing the shaking action.

NOTE: If replacement fuse blows almost immediately, repairs may be needed.

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ACCESSORIES

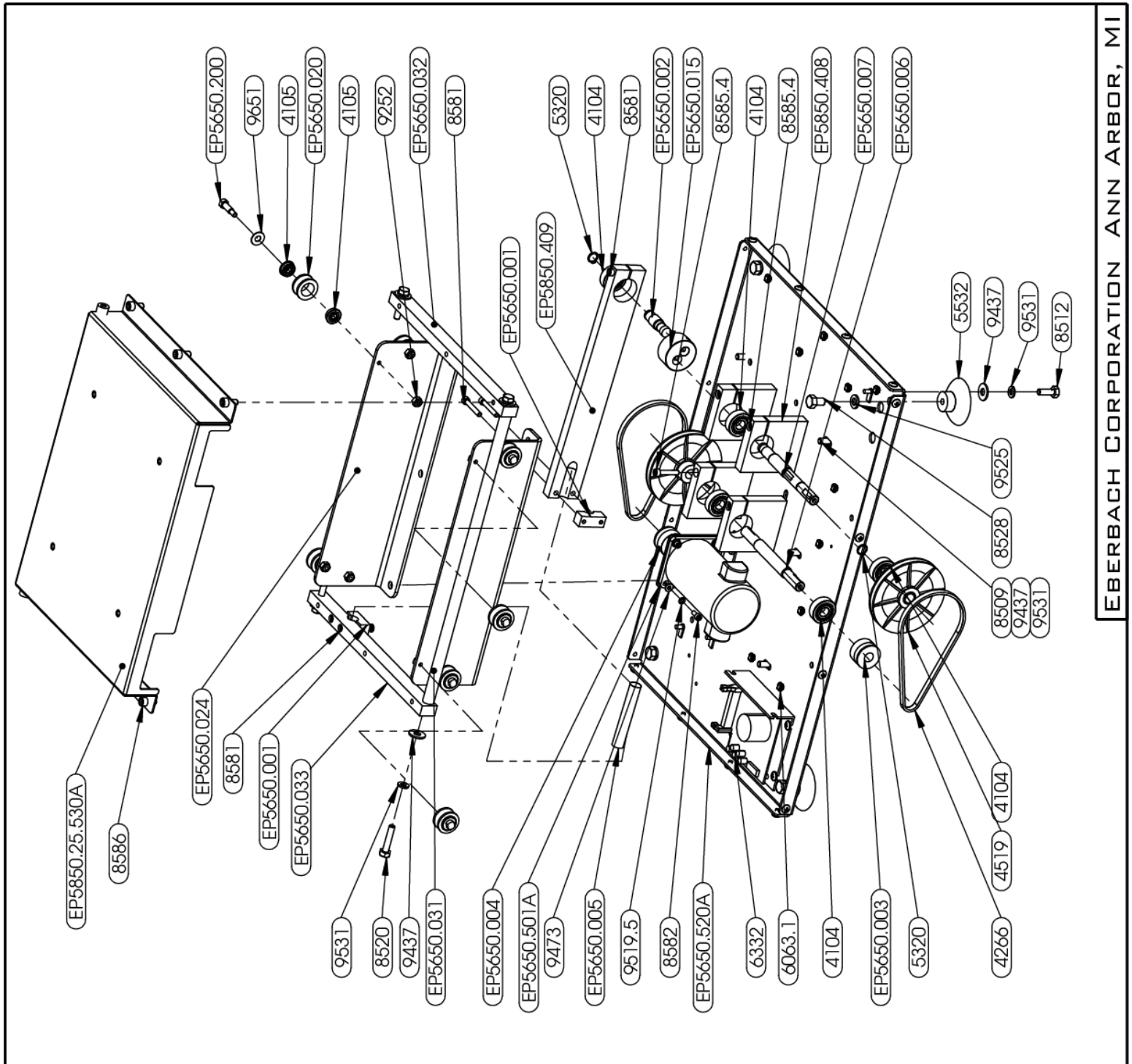
<u>CAT. NO.</u>	<u>DESCRIPTION</u>
E5860.00	Platform, Small, 14" x 12" (included)
E6040.00	Utility Carrier, complete with one No. 6042 Crosswise Bar Clamp and mounting screws. (Assembles onto No. 5860 Platform).
E6042.00	Crosswise Bar Clamp (Use in either direction in Utility Carrier, No. E5865.00).
E6046.00	Vertical Rod & Support, (Use in corners of No. E5865.00 Utility Carrier to increase capacity.).
E6090.00	Flask Holders (Specify Size): 10 ml Erlenmeyer 1000 ml Erlenmeyer 25 ml Erlenmeyer 1500 ml Erlenmeyer 50 ml Erlenmeyer 2000 ml Erlenmeyer 125 ml Erlenmeyer 2500 ml Erlenmeyer 250 ml Erlenmeyer 2800 ml Erlenmeyer 500 ml Erlenmeyer 4000 ml Erlenmeyer
E6190	Tiering Posts, 10", Set of 4 (For tiering one platform above the other).
E6191	Tiering Posts, 6", Set of 4.

E5850.00 REPLACEMENT PARTS LIST

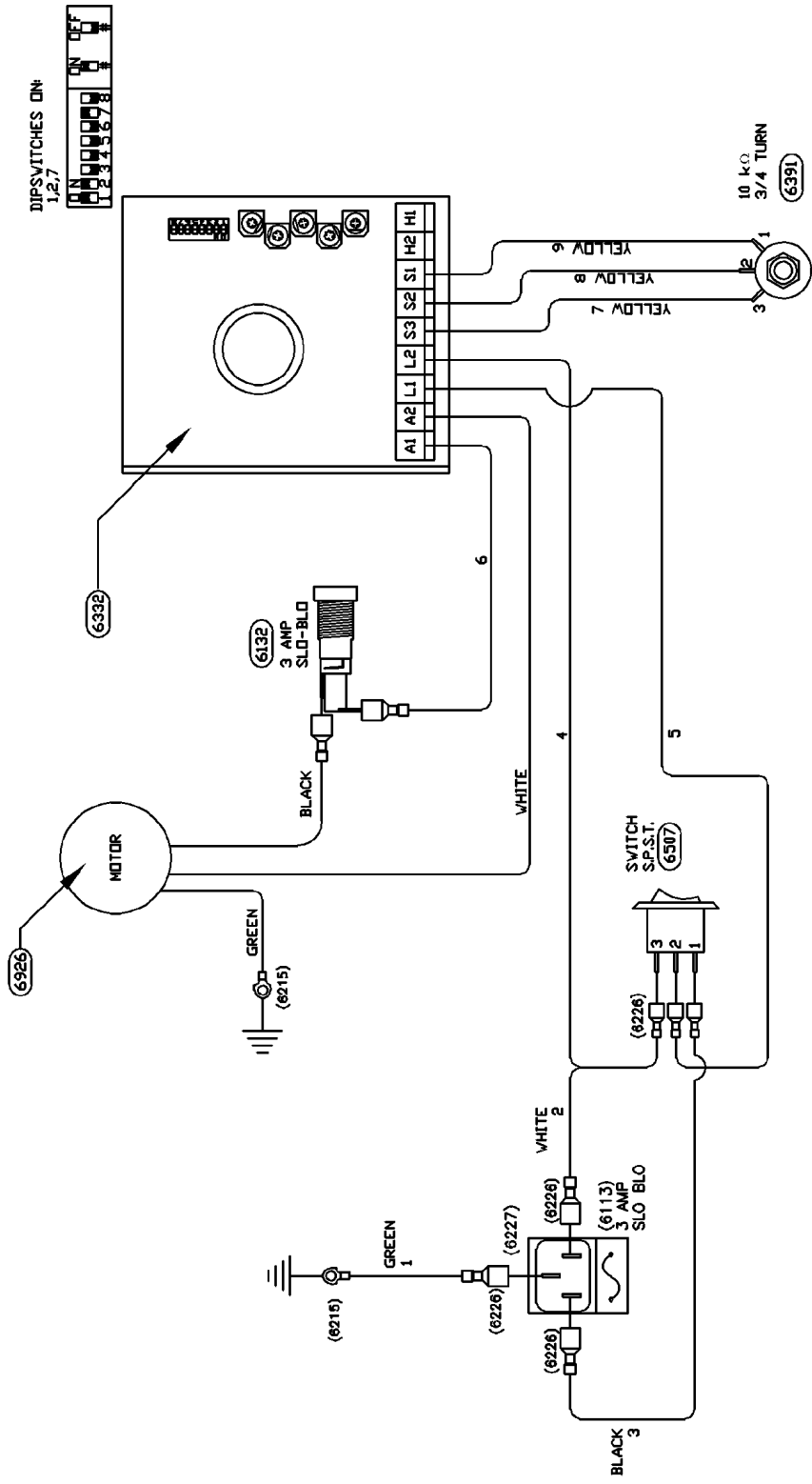
PartNo	DESCRIPTION	QTY.
4104	BEARING 1615-2RS	5
4105	BEARING FLANGED 0.25 BOREX 0.625	16
4266	2L150R TRUFLEX BELT #0150, .28	1
4266	2L150R TRUFLEX BELT #0150, .28	1
4519	#PO-3.5 Pulley, with 7/16 bore	2
4779	KNOB, COMFORT GRIP	1
5320	7/16 RETAINING CLIP ZINC PLATED	2
5532	SUCTION CUP FOOT	4
6063.1	CABLE TIE MOUNT, HOLE DIA (.025 - .125")	12
6063.2	CABLE TIE DOWN	12
6113	FUSE, CYLINDER TIME LAG 3A	1
6131	BUSS FUSE HOLDER	1
6132	FUSE, 3AMP TIME DELAY	2
6210	QUICK DISCONNECTS 22-19G, 0.25	1
6215	RING TERMINAL	1
6217.5	FEMALE QUICK DISCONNECT	1
6272	AC POWER INLET	1
6332	BODINE DC MOTOR CONTROLLER MODEL #780	1
6507.5	ROCKER SWITCH RED ILLUMINATED	1
6649	115 V POWER CORD, TYPE B PLUG	1
6800	EBERBACH NAME PLATE	1
6924	0043 BODINE MOTOR	1
7617	#6-32 X 1/2" S/S ROUND HD MACHINE SCREW	2
8285	#8-32 X 1/4" TRUST HEAD SCREW	29
8321.5	10-32 x 1/4 SET SCREW KNURLED CUP POINT	2
8325	1/4-20 X 1/4" SET SCREW	4
8509	1/4"-20 X 5/8" HEX HD. CAP SCREW	8
8512	1/4"-20 X 3/4" HEX HD. CAP SCREW	8
8520	1/4"-20 X 1-1/4" ZINC PLATED HEX HD SCREW	4
8528	5/16"-18 X 1/2" ZINC PLTD HEX HD CAP SCREW	4
8581	#10-32 X 1.25 SOCKET HEAD CAP SCREW	5
8582	#8-32 x 3/8" SOCKET HD. CAP SCREW	4
8585.4	#10-32 x 1" SOCKET HEAD STEELI CAP SCREW	4
8586	1/4-20 X 1/2" SOCKET HD CAP SCREW	6
9206	#6-32 NYLON LOCK NUT	2

9222	RECTANGULAR STEEL SPEED NUT 1/8"	2
9252	#10-32 NYLON-INSERT LOCKNUT	8
9437	1/4" TYPE A WIDE ZINC PLATED WASHER	20
9473	#8 S/S WASHER, .375 X .174 X .035	4
9499	25/64 OD X 1/16" THICK SPACER #8 BORE NYLON	4
9519.5	#8 S/S SPLIT LOCK WASHER	4
9521	#10 ZINC PLATED SPLIT LOCK WASHER	4
9525	5/16" ZINC PLATED SPLIT WASHER	4
9531	1/4" ZINC PLATED SPLIT LOCK WASHER	20
9651	.312ID X 11/16OD X 1/32 PHENOLIC WASHER	8
EP5650.001	CLAMP	2
EP5650.002	CRANK OSCILLATING SHAFT	1
EP5650.003	PULLEY INTERMEDIATE 1" P.D. X 2L	1
EP5650.004	PULLEY INTERMEDIATE 1" P.D. X 2L	1
EP5650.005	FLEXIBLE PIVOT	1
EP5650.006	SHAFT INTERMEDIATE DRIVE	1
EP5650.007	SHAFT OUTPUT DRIVE	1
EP5650.015	CRANK BODY	1
EP5650.020	ROLLER BEARING	8
EP5650.024	RUNNER BEAM	2
EP5650.031	GUIDE RAIL	2
EP5650.032	LOWER PLATFORM CONNECTOR	1
EP5650.033	LOWER PLATFORM CONNECTOR, DRIVE	1
EP5650.200	SHOULDER SCREW	8
EP5650.501A	MOTOR MOUNT ASSEMBLY	1
EP5650.520A	BASE ASSEMBLY	1
EP5850.25.202	SIDE PANEL	2
EP5850.25.510A	TOP FRONT PANEL ASSEMBLY	1
EP5850.25.530A	TOP COVER ASSEMBLY	1
EP5850.408	BEARING MOUNT	4
EP5850.409	CONNECTING ROD	1
EP5850.506A.DEV	REAR PANEL ASSEMBLY	1
EP5850.650A	WIRING HARNESS ASSEMBLY	1

Contact your supplier or **Eberbach Corporation** technical support with any inquiries concerning replacement parts and installation.



Part No.	Description	Qty
4104	BEARING 1615-2RS	5
4105	BEARING FLANGED 0.25 BORE X 0.625	16
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8512	1/4-20 X 3/4" HEX HD. CAP SCREW	8
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EP5650.006	SHAFT INTERMEDIATE DRIVE	1
EP5650.007	SHAFT OUTPUT DRIVE	1
EP5650.015	CRANK BODY	1
EP5650.020	ROLLER BEARING	8
EP5650.024	RUNNER BEAM	2
EP5650.031	GUIDE RAIL	2
EP5650.032	LOWER PLATFORM CONNECTOR	1
EP5650.033	LOWER PLATFORM CONNECTOR, DRIVE	1
EP5650.200	SHOULDER SCREW	8
EP5650.501A	MOTOR MOUNT ASSEMBLY	1
EP5650.520A	BASE ASSEMBLY	1
EP5850.25.202	SIDE PANEL	2
EP5850.25.510A	TOP FRONT PANEL ASSEMBLY	1
EP5850.25.530A	TOP COVER ASSEMBLY	1
EP5850.408	BEARING MOUNT	4
EP5850.409	CONNECTING ROD	1
EP5850.506A.DEV	REAR PANEL ASSEMBLY	1
EP5850.650A	WIRING HARNESS ASSEMBLY	1



ELECTRICAL DIAGRAM		ANN ARBOR, MI	
ASSEMBLY	-	PART NAME	-
MATERIAL	-	SCALE	N/A
FINISH	-	REQ'D	1
REVISED	-	REVISED	-
SPEED RANGE		PART NO. EP5850.605A	
rev/min (cont)	20-240	APPR. BY	T.L.
rev/min (cont)		DATE	04/06/12
TOLERANCE UNLESS OTHERWISE STATED		DRW.	
DECIMAL		FAB.	
X ± 1		ASM.	
.XX ± .01			