

**INSTRUCTIONS FOR ORDERING PARTS**

To eliminate error and speed delivery:

1. Write your NAME and ADDRESS on your order PLAINLY.
2. Explain WHERE and HOW to make shipment.
3. GIVE MODEL NAME, NUMBER, and SERIAL NUMBER that is stamped on the NAME PLATE of your product.
4. Order from your PARTS LIST as this is the ONLY means we have of identifying the parts you need. Order by QUANTITY DESIRED, the PART NUMBER, and the description OF PART.
5. Order your parts from your LOCAL M-C DEALER or DISTRIBUTOR.
6. INSPECT ALL SHIPMENTS ON RECEIPT. If any parts are damaged or missing, file a claim with the carrier before accepting.
7. Do not return parts to Mathews Company without a "Return Goods Authorization" from the factory. A list of all returned parts, a letter of explanation, and your name and address should be included with the shipment. TRANSPORTATION CHARGES MUST BE PREPAID.

**OWNERS NOTICE**

**TO INSURE WARRANTY CLAIMS, BE CERTAIN TO FILL OUT AND MAIL WARRANTY CARD WITHIN 30 DAYS.**

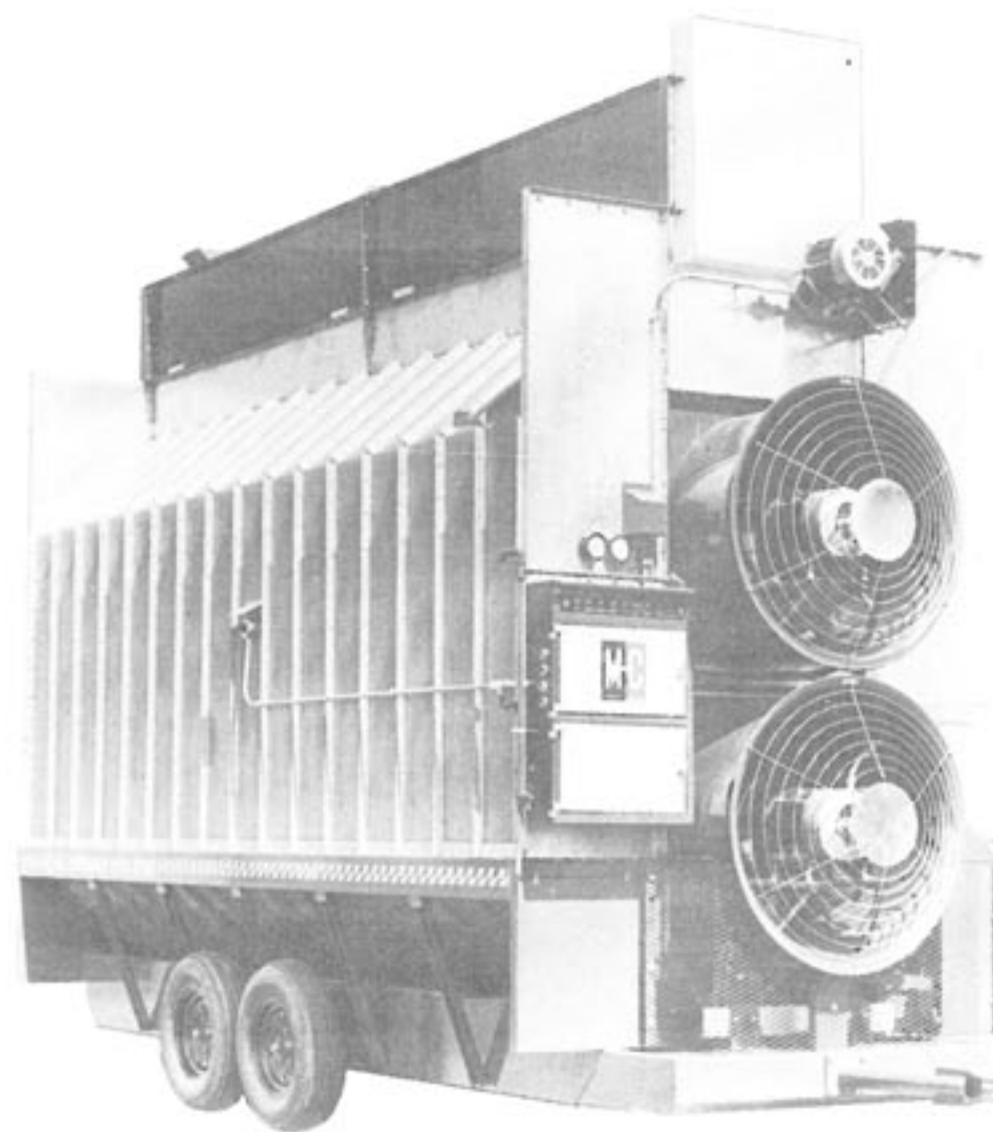
**NOTE:** The Company reserves the right to incorporate any changes in design without obligation to make these changes on units previously sold.

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**CONTINUOUS  
GRAIN DRYER**

**ASSEMBLY-OPERATION AND  
MAINTENANCE INSTRUCTIONS**



**MODELS  
665EM  
665EMS**

**DM1179**

**Mathews Co./** 500 Industrial Ave., Crystal Lake, IL 60014, U.S.A.  
815/459-2210

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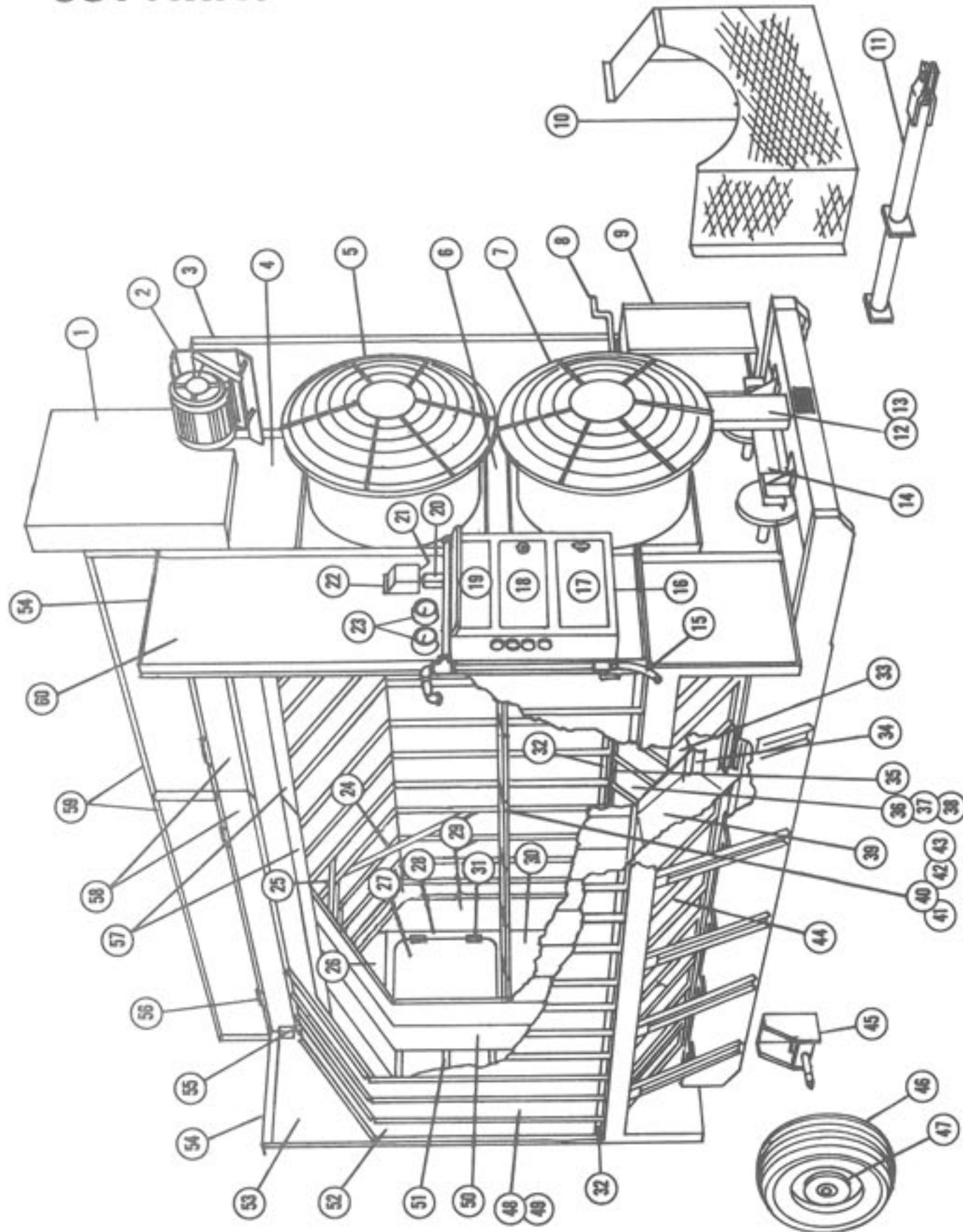


REF.	PART #	DESCRIPTION	REF.	PART #	DESCRIPTION
1	1281500	Level Auger Belt Guard (For Level Auger Assembly - See Page 6)	32	1252732	Screen Mount Angle
2	————	Level Auger Motor Mounting (See Page 8)	33	1282890	Unload Auger Cover
3	0212831	Left Front End Panel	34	1280188	Inner Screen Mount
4	1282921	Panel Above Fans	35	1282739	Lower Screen Mount Angle
5	————	Upper Fan Assembly (See Page 15)	36	1282953	Lower Inside Screen (w/o Hole)
6	0232830	Panel Between Fans	37	1282994	Lower Inside Screen (w/ Hole)
7	————	Lower Fan Assembly (See Page 15)	38	1282995	Screen Cover
8	————	Variable Speed Ass'y. (See Page 14)	39	1282855	Lower Screen Stiffener
9	————	Drive Reduction Ass'y. (See Page 13)	40	1212928	Unit Floor Panel
10	————	Front Guards (See Page 10)	41	1282920	Front Unit Floor Panel
11	1280128	Pole (Part of Portabilities)	42	1210299	Heat Chamber Door Frame
12	1280233	Fan Housing Support	43	1211113	Heat Chamber Door Assembly
13	0214206	Fan Housing Support Angle	44	1282951	Lower Outside Screen
14	————	Metering and Unload Drive (See Page 17 & 18)	45	1201028	Wheel Mount (Part of Portabilities, See Page 8)
15	————	Piping Assembly (See Page 11)	46	1278990	Tire (Optional)
16	0210014	Control Cabinet Weldment	47	0018993	Wheel (Part of Portabilities)
17	0211037	Lower Door Assembly	48	0212945	Outside Screen
	1218254	T-Handle Latch	49	0212947	Moisture Control Screen
18	0211044	Upper Door Assembly	50	0212949	Inside Screens
	1218252	Flush Mount Latch	51	1212952	Screen Stiffener
19	1281523	Control Panel Ass'y. (See Page 9)	52	0212946	End Outside Screen
20	1217018	High Limit Switch	53	0212832	Right Rear End Panel
21	1216849	Air Pressure Switch	54	0212602	End Panel Joiner Angle
22	1280160	H.L. & A.P. Cover	55	0212715	L.A. Joiner Panel Angle
23	1218973	Thermometer	56	1288957	Hopper Hinge
24	1282663	Vertical Peak Tie Angle	57	0212950	Hopper Cap
25	0212600	Horizontal Peak Tie Angle	58	1282743	Hopper Joiner Panel
26	1282919	Panel Above Door	59	1284824	Hopper Side Panel
27	1281183	Rear Door Assembly	60	1282929	Right Front End Panel
28	1282715	Rear Door Frame			
29	0212833	Left Rear End Panel			
30	1282888	Panel Below Door			
31	1215725	Hinge Pin			
	1215726	Single Knuckle Hinge			
	1215727	Double Knuckle Hinge			

**NOT SHOWN:**

0212838 Upper Column Divider Panel

# 665EM DRYER CUT-AWAY



# IGNITION

## OPERATION

Upon a call for heat, power is applied to the control board, creating the spark and powering the gas valve. Electronic timing allows the system to continue to spark and hold the gas valve open for a specified trial for ignition period (approx. 7 seconds). If a flame is not present at the end of the trial for ignition period, the system will lockout. If a flame is present, the system will continue to operate, provided the electrodes are immersed in the flame.

In the spark source, a capacitor is charged and discharged rapidly through the primary of high voltage transformer. The current to charge the capacitor also energizes the valve control circuit so that as long as this action continues, the valve will remain open. The capacitor is discharged by a solid state switch, triggered by a neon circuit.

The flame detector monitors the spark current and the flame conductance to ground. If the spark of the flame is not present, feedback to the spark source removes power from the valve control circuit.

## LOCATION OF ELECTRODE TIP

The electrode assembly should be located so that the tips are inside the flame envelope and about 1/2 inch above the base of the flame. **IMPORTANT:** Ceramic insulator should not be within or close to the flame pattern. Study the illustration before positioning the electrodes.

**NOTE:** Electrode assemblies are precision components and should not be adjusted or disassembled. Electrodes should have a gap spacing of 0.125 (+ or -) 0.032". If this spacing is not correct, return the electrode assembly to the factory for replacement. Electrodes within their ceramic casing are **NOT** field adjustable. Adjust only the electrode mounting bracket. **WARNING: HIGH VOLTAGE.**

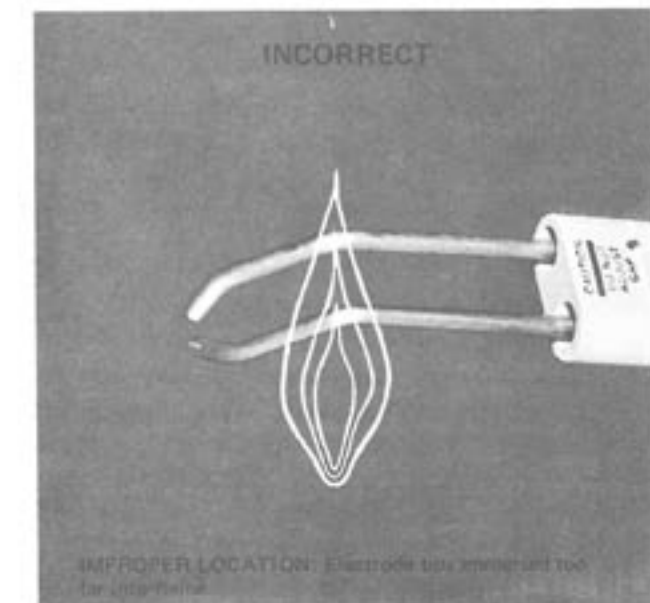
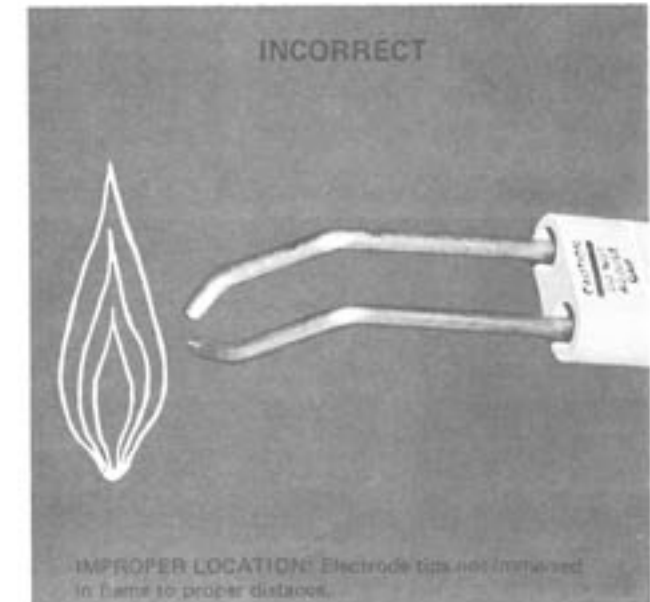
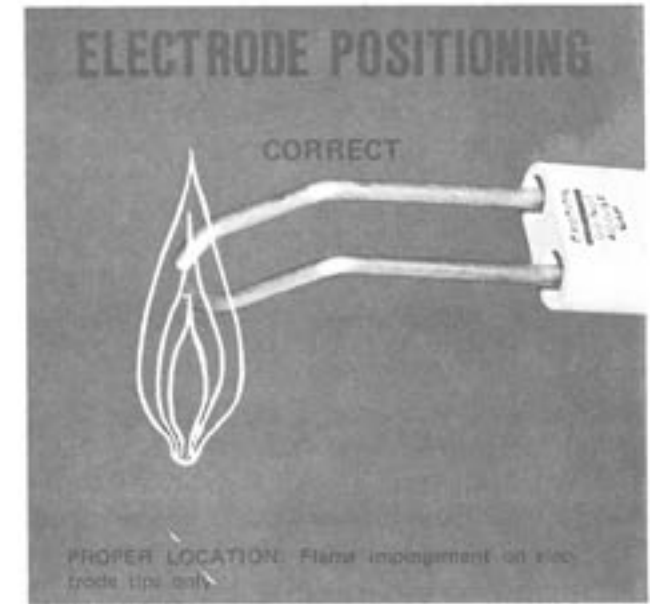
## SAFETY CHECKS

1. Manually shut off the gas supply and apply power to the control board. The system shall lockout after the trial for ignition period. Check that there is no voltage output between terminals B and V2 using a suitable voltmeter or neon tester.
2. Manually open the gas valve and apply power to the control unit. The system shall lockout after the trial for ignition period and there shall be no voltage between terminals B and V2 under the following conditions:
  - (1) The low voltage electrode is shorted to the ground.
  - (2) The high voltage electrode is shorted to the ground.
 The electrodes are shorted together.

**NOTE**  
Recycle system before each test.

## REPAIRS

The Ignition System is not field repairable. Faulty units should be returned to the factory for repair or replacement.





## LEVEL AUGER AND HOPPER ASSEMBLY

Refer to Level Auger Assembly Drawing, Page 6.

The wet holding hopper and the level auger must be assembled on the site.

1. Bolt hopper side panels and hinges (Refs. 27 & 28) in place using  $\frac{3}{8}$ " x 1" bolts and  $\frac{3}{8}$ " whiz nuts. NOTE: Be sure the joiner tie straps (Refs. 16) are in place between the hopper panel and in the center hole at the bottom of each hopper panel.
2. Bolt the front end hopper panel (Ref. 1) in place using  $\frac{3}{8}$ " x 1" bolts and  $\frac{3}{8}$ " whiz nuts. At this time, do not put bolts in the top holes or bottom holes of the vertical seams. The belt guard will be bolted at these hole locations later.
3. The auger front shaft (Ref. 6) should be bolted into the level auger front section (Ref. 4). Insert the auger shaft through the bearing in the front end panel, but do not tighten the set screws on the bearing at this time.
4. The center auger shaft (Ref. 7) should be bolted into the auger section. Slide the center hanger bearing support assembly (Ref. 5) onto the shaft and bolt the support to the tops of the side hopper cross braces (Ref. 15) are in place before bolting down the bearing support with  $\frac{3}{8}$ " x 1" bolts and  $\frac{3}{8}$ " whiz nuts. The bottoms of the cross braces will bolt to two angles that are mounted at the bottom of hopper area.
5. Slide the rear auger section (Ref. 17) over the center auger shaft (Ref. 7) and bolt together with  $2\frac{3}{8}$ " x 2" Grade 5 bolts and  $\frac{3}{8}$ " lock nuts. Be sure the flightings from the two auger sections match up and are aligned properly.
6. The auger rear shaft (Ref. 8) should be bolted into the rear auger section. Slide the bearing and rear hopper end panel (Ref. 1) over the shaft and bolt the end panel in place with  $\frac{3}{8}$ " x 1" bolts and  $\frac{3}{8}$ " whiz nuts.
7. After checking clearance and alignment, the auger end bearings can be tightened to the front and rear auger shafts.
8. Bolt the receiving hopper (Ref. 9) in place using  $\frac{3}{8}$ " x 1" bolts and  $\frac{3}{8}$ " whiz nuts.
9. Bolt the level switch assembly (Ref. 10) in place using  $\frac{3}{8}$ " x 1" bolts and  $\frac{3}{8}$ " whiz nuts. Bring the two-wire cord up from the junction box near the level auger motor and connect the two wires to the terminal strip in the level switch assembly.
10. Mount the level auger pulley, bushing, key and belt (Refs. 12, 13, 14 and 20). Align pulleys and lock onto motor shaft.
11. Adjust motor mount for proper belt tension with the two motor mount adjusting bolts.
12. Install belt guard and secure with  $\frac{3}{8}$ " x 1" bolts and  $\frac{3}{8}$ " whiz nuts through the holes left open in step 2.

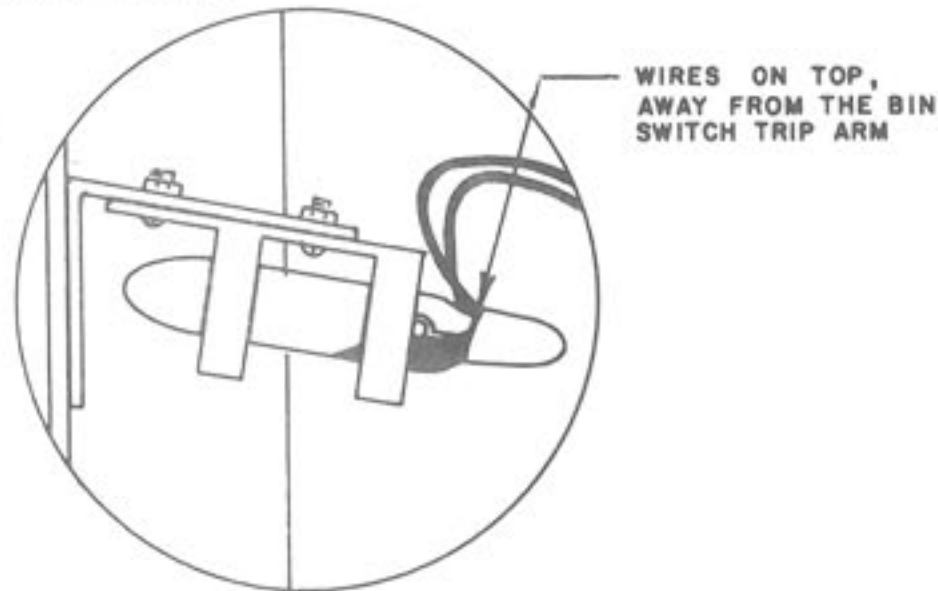


### WARNING



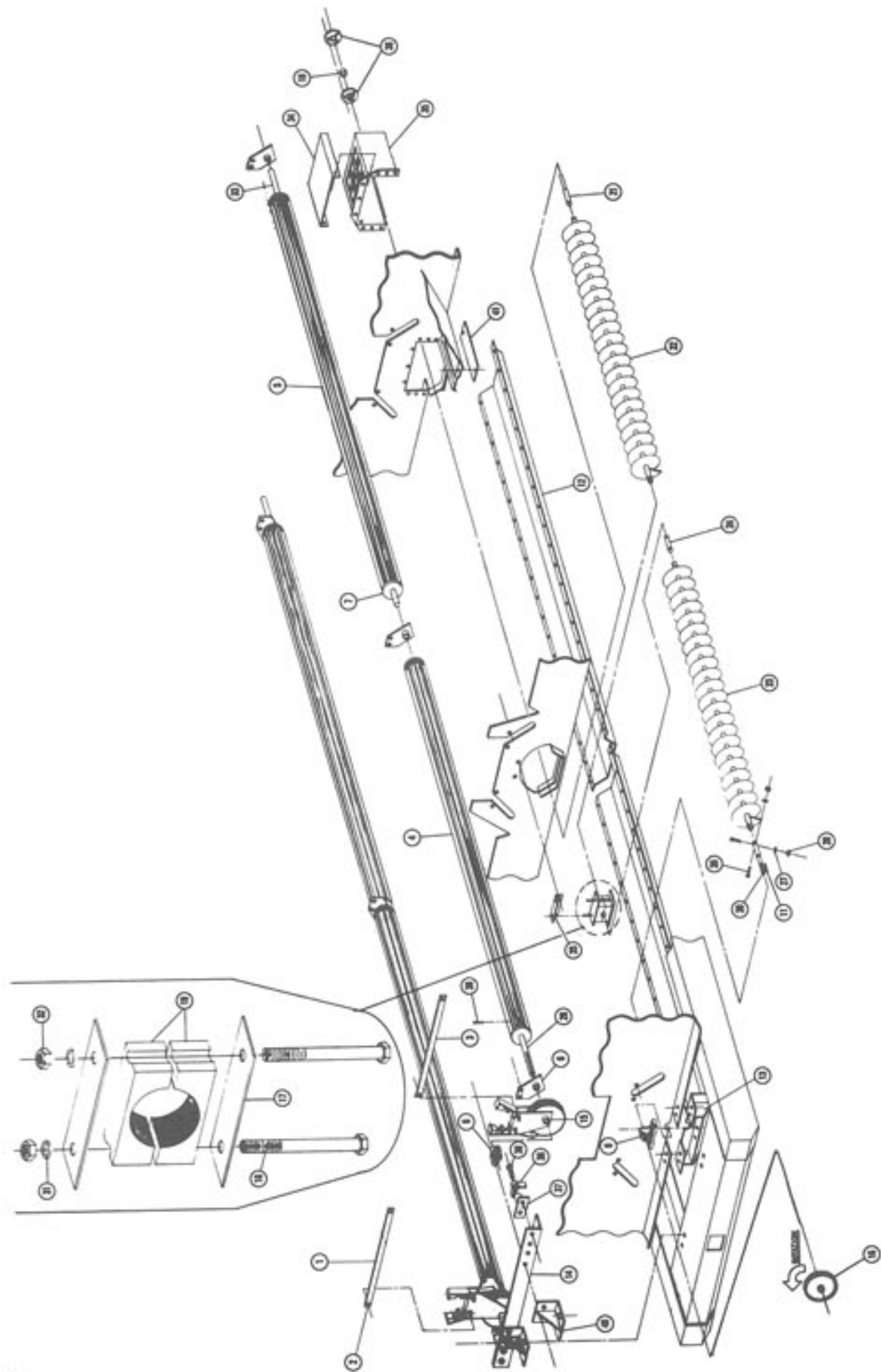
Do not make any adjustments on the mercury switch with the electric power turned on, as any movement of the mercury switch could start the level auger. With the bin switch trip arm hanging straight down, the mercury switch mounting bracket should be bent so the mercury in the glass bulb just runs down and makes contact with the two forks in the wire end of the bulb.

DETAIL  
MERCURY SWITCH

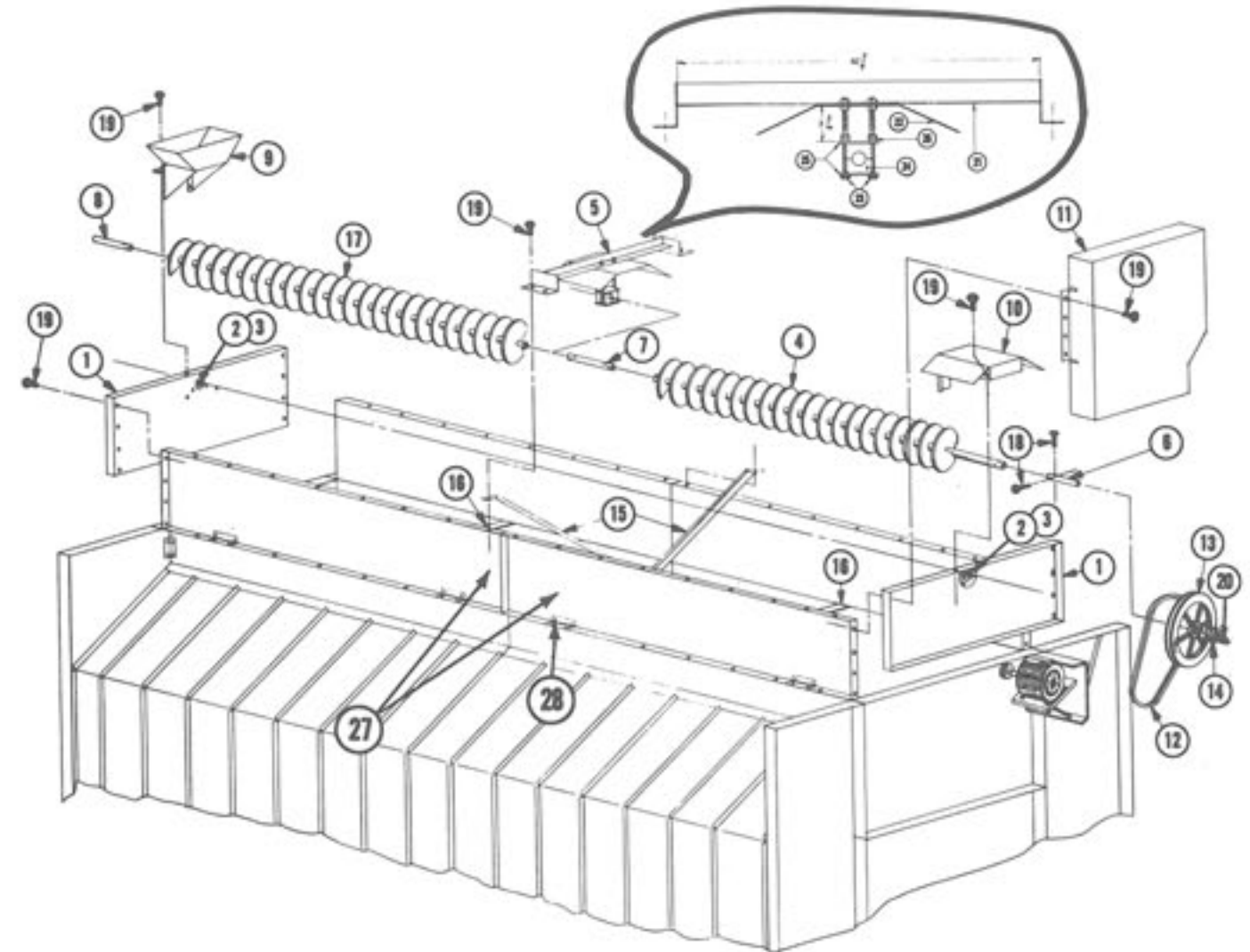


REF.	PART #	DESCRIPTION
22	1280074	Long Unload Auger (Rear)
23	1280189	Front Unload Auger
24	1285618	Unload Auger Link
25	1283932	Unload Auger Bearing Hanger
26	0018136	$\frac{3}{8}$ -16 x 3 $\frac{1}{4}$ " HHCS Grade #5
27	0018179	$\frac{3}{8}$ " Lockwasher
28	0008162	$\frac{3}{8}$ -16" Hex Nut
29	1285042	Front Shaft 1 $\frac{1}{4}$ " Dia. x 13 $\frac{1}{2}$ " Long
30	0008259	5/16" x 1 $\frac{1}{4}$ " Roll Pin
31	0008180	$\frac{1}{2}$ " Lockwasher
32	0008163	$\frac{1}{2}$ -13" Hex Nut
33	1215042	Stub Shaft 1 $\frac{1}{4}$ " Dia. x 5" Long
34	1284712	Discharge Cover
35	1280096	Unload Auger Discharge
36	1216006	1 $\frac{1}{4}$ " Stamping (4 - Bolt) Square
	0016004	1 $\frac{1}{4}$ " Stamping (3 - Bolt) Square
37	1210355	Ratchet Stop Mount
38	1210354	Ratchet Stop Dog
39	1218162	$\frac{3}{8}$ -16" x 1 $\frac{1}{2}$ " HHCS w/ 1" Shoulder
40	1280191	Feed Roll Outboard Brg. Weldment
41	1212637	Cleanout Cover

REF.	PART #	DESCRIPTION
1	1281261	Connecting Arm Assembly
2	1216001	1 $\frac{1}{4}$ " O.D. x 1 $\frac{1}{2}$ " I.D. Bearing
3	1281262	Transfer Arm Assembly
4	1281254	Front Feed Roll Assembly
5	1211082	Rear Feed Roll Assembly
6	1281063	Feed Roll Brg. w/ Bronze Bushing
7	1214438	Feed Roll Washer
8	1216022	1 $\frac{1}{4}$ " Bore Wood Bearing
9	1286018	1-7/16" Bore Pillow Block Bearing
10	0016003	1 $\frac{1}{4}$ " Bore Bearing with Lock Collar
11	0015119	$\frac{1}{4}$ x $\frac{1}{4}$ x 2" Key
12	1282733	Unload Auger Pan
13	1280075	Unload Auger Front Plate
14	1282652	Ratchet Dog Stop Mounting Plate
15	1211163	Double Ratchet Assembly
16	1286418	RC-40-B Type 45-T Sprocket
17	1284250	Unload Auger Mid Bearing Support
18	0018263	$\frac{1}{2}$ -13 x 8 HHCS F.T.
19	1286020	1-15/16" Wood Bearing (2 Halves)
20	1285996	Unload Auger Input (Drilled)
21	1285998	Unload Auger Output (Drilled)



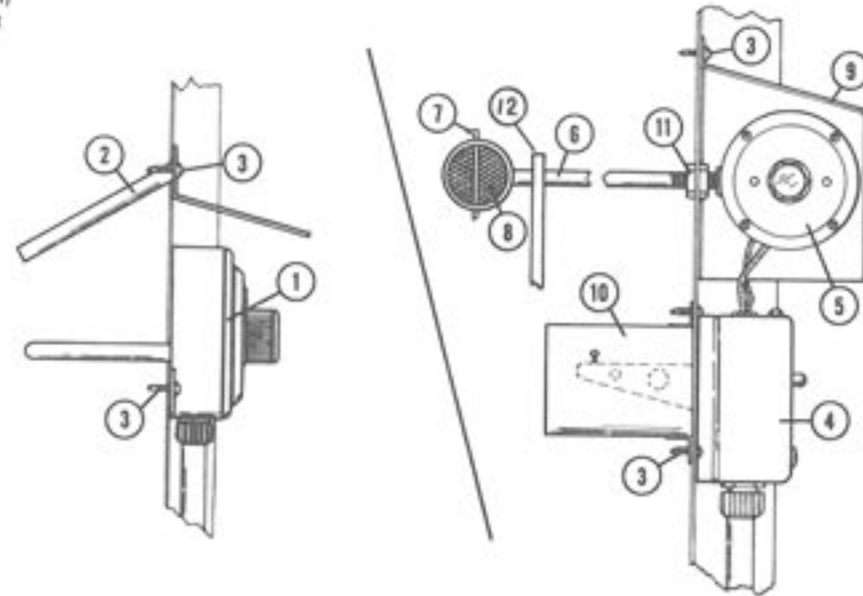
665EM LEVEL AUGER ASSEMBLY



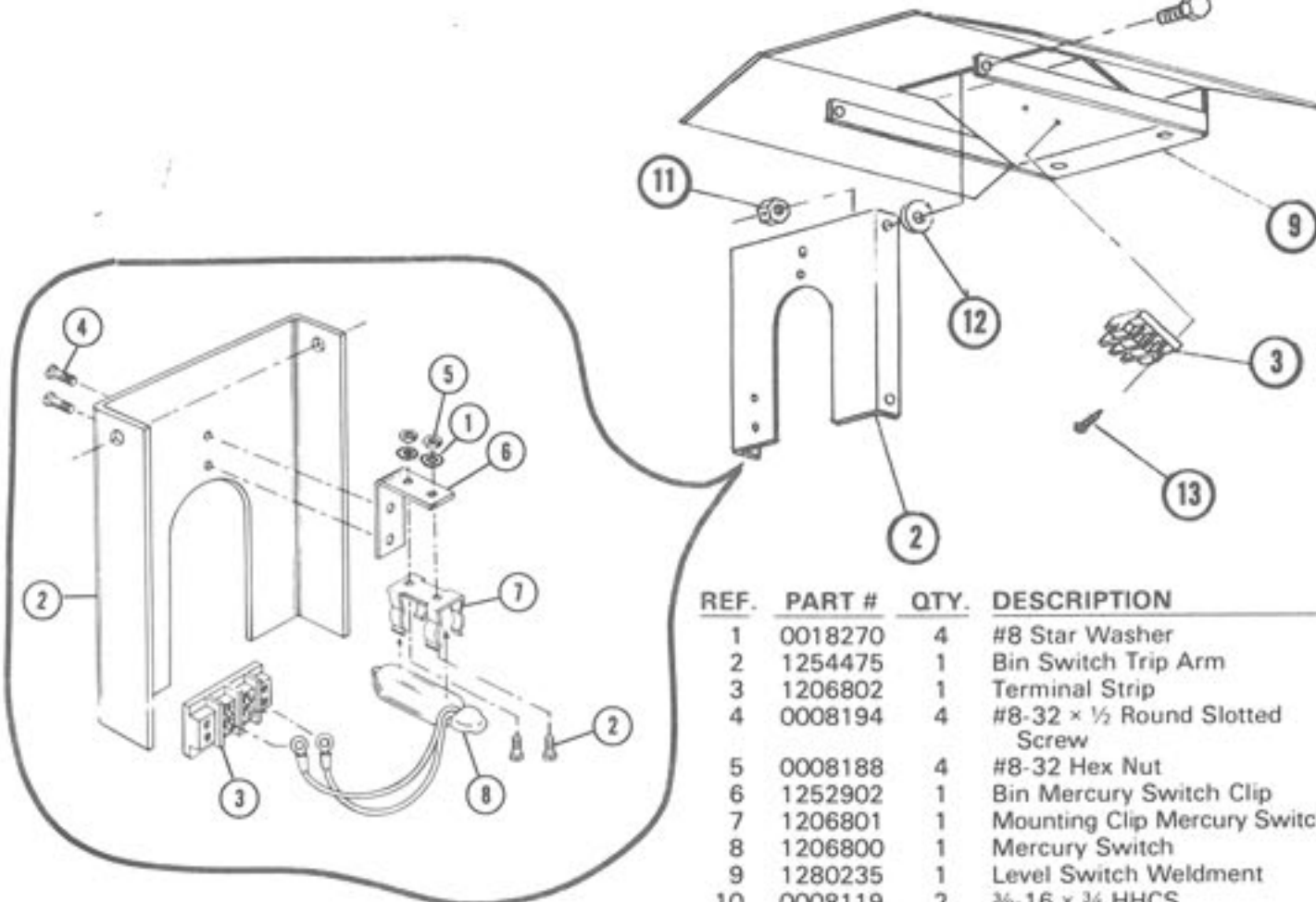
REF.	PART #	QTY.	DESCRIPTION	REF.	PART #	QTY.	DESCRIPTION
1	1284875	2	End Hopper Panel	15	1282662	2	Cross Brace
2	0016004	4	1 1/4" Bearing Stampings	16	1282028	2	Joiner Tie Straps
3	0016003	2	1 1/4" Bearing w/ Collar	17	1280122	1	Rear Level Auger
4	1280121	1	Front Auger	18	0018137	8	3/8-16 x 2" HHCS Grade #5
5	1281507	1	Bearing Support Assembly (Includes Items #21 thru #26)		0018149	8	3/8-16 2-Way Locknut
6	1285051	1	Front Auger Shaft (Keyed)	19	0008121	84	3/8-16 x 1 HHCS
7	1285050	1	Center Auger Shaft		0008168	84	3/8-16 Whiznut
8	1285052	1	Rear Auger Shaft		0008174	84	3/8" Flatwasher
9	1280236	1	Receiving Hopper	20	0015120	1	1/4 x 1/4 x 1 1/2" Key
10	1281454	1	Level Switch Ass'y (See Page 7)	21	1280232	1	Bearing Support
11	1281500	1	Level Auger Belt Guard	22	1204876	1	Bearing Cover
12	1286120	1	3V/900 Belt	23	1288134	2	3/8-16 x 7" HHCS F.T.
13	1286210	1	1/3V/19.0 SK Sheave	24	1286021	1	1 1/4" Wood Bearing
14	1216241	1	SK-1 1/4" Bushing	25	1283415	2	Bearing Retainer Bar
				26	0008162	8	3/8-16 Hex Nut
				27	1284824	4	Side Hopper Panel
				28	1288957	8	Hopper Hinge

## SAFETY CONTROLS

REF. NO.	PART NO.	DESCRIPTION
1	1216851	Thermoswitch (Moisture Control)
2	1210031	Thermoswitch Shield Weldment
3	0008184	#8 x 1/2 Sheet Metal Screw
4	1217018	High Limit Switch
5	1216849	Air Pressure Switch
6	1210169	Air Pressure Tube Weld Wire Filter Retainer
8	1215716	Air Pressure Tube Filter
9	1280160	Air Pressure Switch Cover
10	1210081	High Limit Shield
11	1218000	1/4" Pipe Lock Nut
12	1212007	Air Pressure Tube Brk't.



## LEVEL SWITCH ASSEMBLY

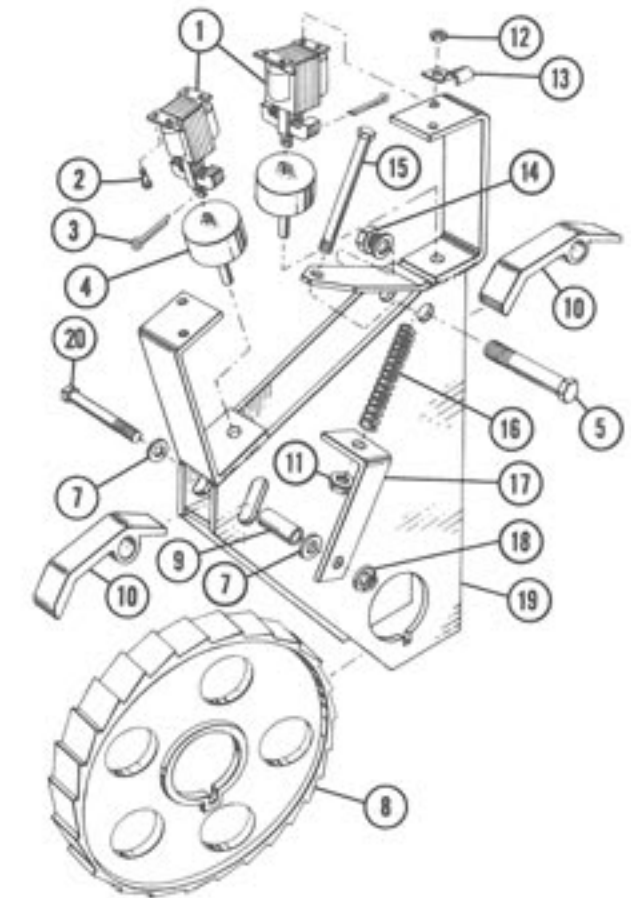


REF.	PART #	QTY.	DESCRIPTION
1	0018270	4	#8 Star Washer
2	1254475	1	Bin Switch Trip Arm
3	1206802	1	Terminal Strip
4	0008194	4	#8-32 x 1/2 Round Slotted Screw
5	0008188	4	#8-32 Hex Nut
6	1252902	1	Bin Mercury Switch Clip
7	1206801	1	Mounting Clip Mercury Switch
8	1206800	1	Mercury Switch
9	1280235	1	Level Switch Weldment
10	0008119	2	3/16-16 x 3/4 HHCS
11	0018149	2	3/16-16 Punch Nut
12	0008174	2	3/8 Flatwasher

## DOUBLE RATCHET ILLUSTRATION

1211163

REF. NO.	PART NO.	DESCRIPTION
1	1216856	Solenoid constant duty (115V ratchet solenoid)
	1256883	Solenoid constant duty (12V ratchet solenoid)
2	0008186	6-32 x 1/2" Slotted Machine Screw
3	0008249	1/4 x 1/4 Cotter Pin
4	1210029	Solenoid Weight Weld.
5	0008144	1/2 x 3 1/2" HHCS
7	0008173	5/16 Flat Washer
8	1216404	Ratchet Wheel
9	1215571	Ratchet Dog Bushing
10	1210030	Ratchet Dog
11	0008167	1/4" Lock Nut
12	0008157	6-32 Hex Nut
13	1216859	Jiffy Clip #115
14	0008163	1/2" Hex Nut
15	0008102	1/4 x 2 1/2" HHCS
16	1218261	Ratchet Spring .325 O.D. x 2.45
17	1213357	Pivot Arm Slide
18	0008169	5/16" Flange Whiz Lock Nut
19	1210326	Double Ratchet Arm Weld.
20	0008110	5/16-18 x 1 1/2 HHCS

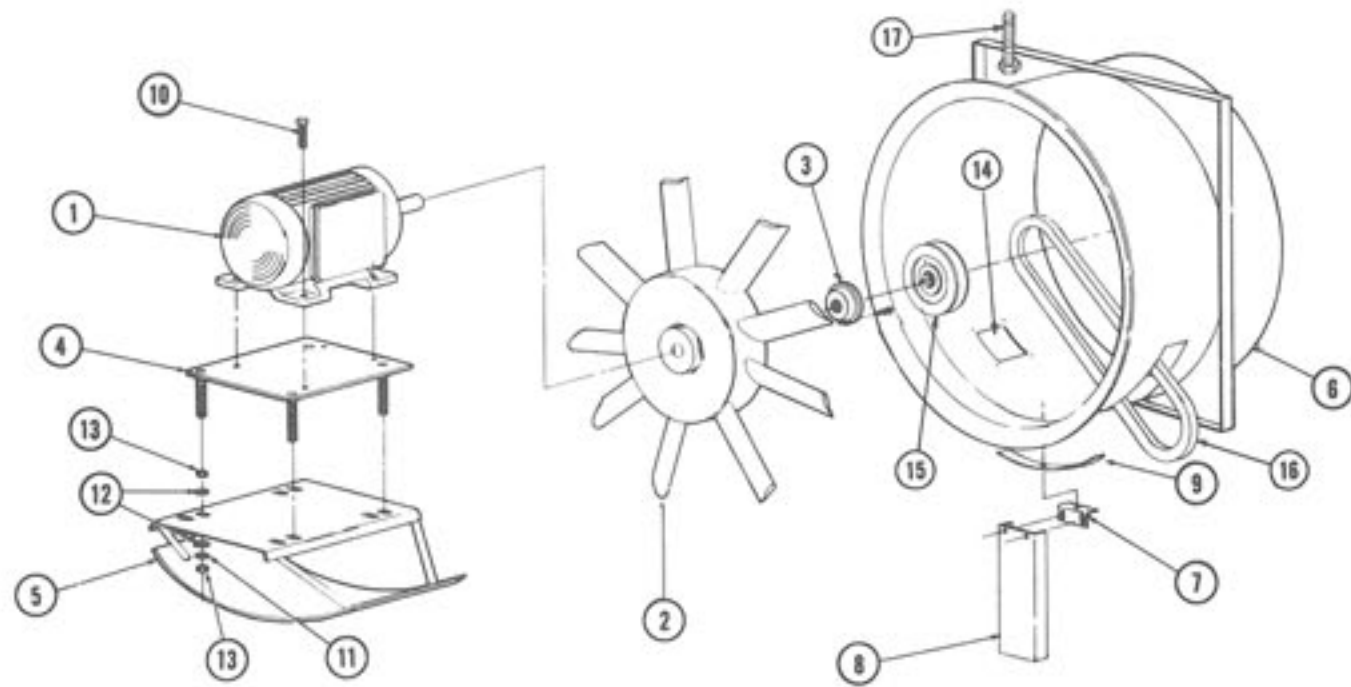


## OPERATION OF DOUBLE RATCHET SYSTEM

- The Outer Ratchet Pawls will be activated by two different switch positions.
  - When the Automatic Moisture Control Toggle Switch is in the MANUAL position (located on control panel).
  - When the Automatic Moisture Control Toggle Switch is in the AUTOMATIC position and the grain is warm and dry enough to activate the independent Moisture Controls located on each side of the dryer.
- The Inner Ratchet Pawls engage only when the Automatic Moisture Control Toggle Switch is in the AUTOMATIC position.
- The Inner and Outer Ratchet Pawls are disengaged when the Automatic Moisture Control Toggle Switch is in the "OFF" position.
- The Inner Ratchet Pawls are set to engage one less notch than the Outer Ratchet Pawl (when Outer Ratchet Pawl engages one notch, the Inner Ratchet Pawls engage none).
- When drying extremely high moisture grain (approx. 30% and higher), we recommend setting the Outer Ratchet Pawls on the metering rolls to engage one notch per stroke. They are set at the factory for two notches. To change amount of notches, see Operating Instructions, Step 18 (A).
- The dryer operates at its best when the Outer Ratchet Pawls operate approximately 90% of the time. This will vary according to weather and grain conditions.



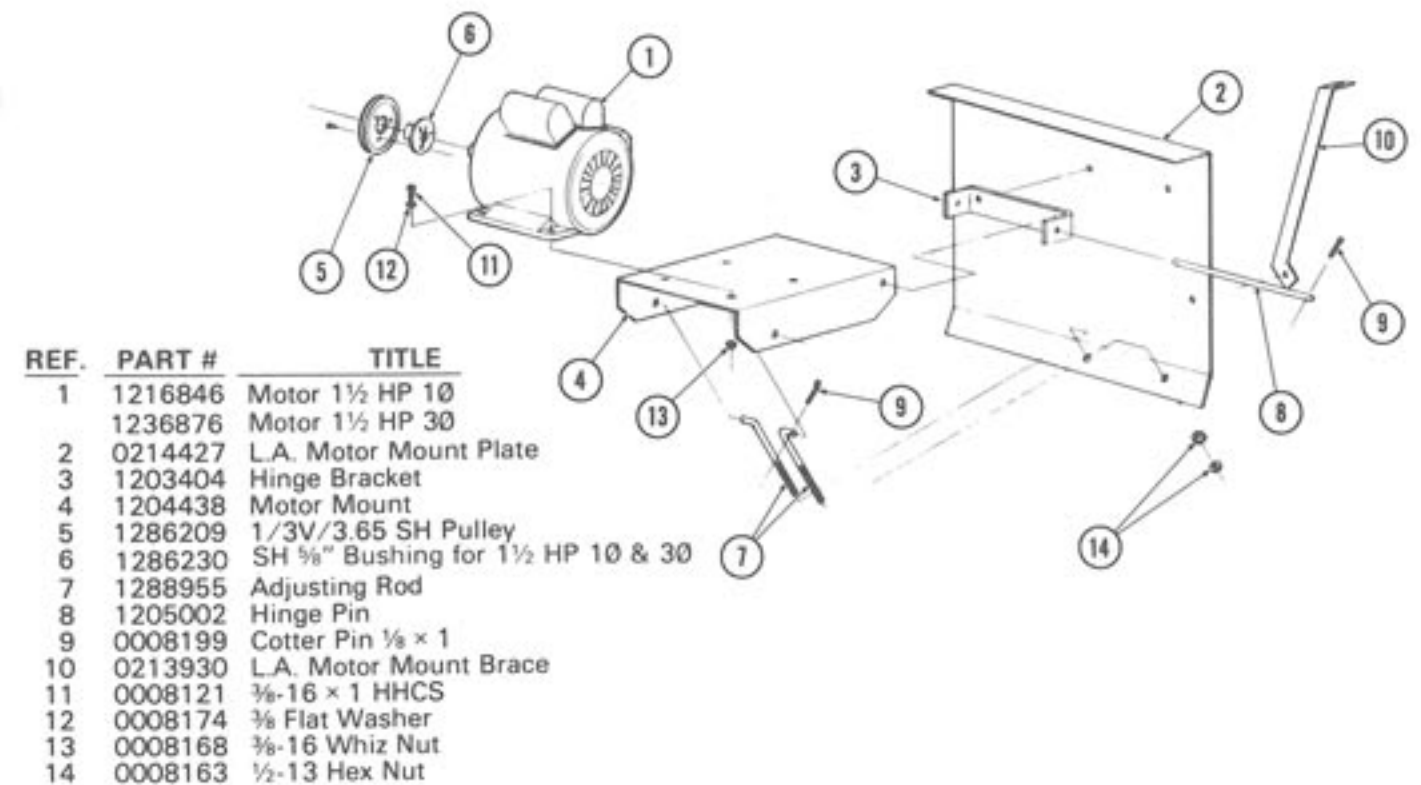
## 665EM FAN ASSEMBLIES



REF.	PART #	DESCRIPTION
1	1216924	10 HP 10 Motor
2	1210337	Upper Fan (9 Bld. 18°)
*	1210331	Lower Fan (6 Bld. 18°)
3	1216239	Fan Bushing SK-1 $\frac{3}{8}$
4	1280167	Motor Mount Stand Off
5	1210258	Motor Mount Base
6	0210004	Upper Orifice Housing
*	1280178	Lower Orifice Housing
* 7	0214206	Orifice Support Bracket
* 8	1280233	Orifice Support
9	1213356	Orifice Reinforcement
10	0008123	$\frac{3}{8}$ -16 x 1 $\frac{1}{4}$ HHCS
11	0008182	$\frac{3}{4}$ " Lockwasher
12	0008165	$\frac{3}{4}$ " Flatwasher
13	0008165	$\frac{3}{4}$ -10 Hex Nut
*14	1212978	Orifice Cover Plate
*15	1216233	4" O.D. x 1 $\frac{3}{8}$ Br. Pulley
*16	1286119	B-58 Belt
17	1288162	$\frac{1}{2}$ -13 x 8" HHCS Grd. #5 F.T.

\*FOR LOWER FAN ASSEMBLY ONLY

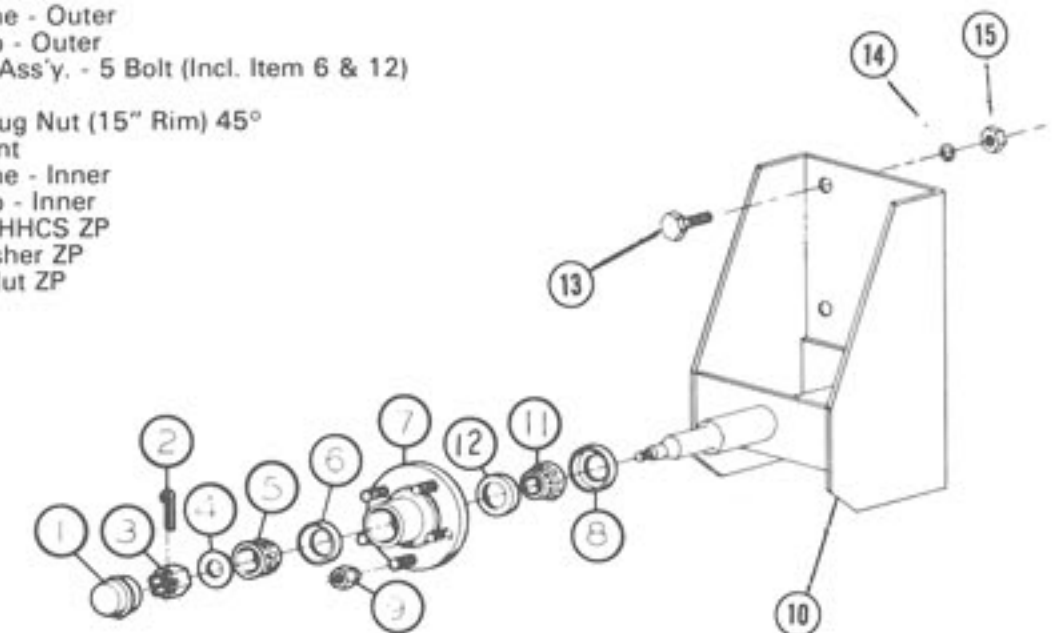
## LEVEL AUGER MOTOR MOUNTING



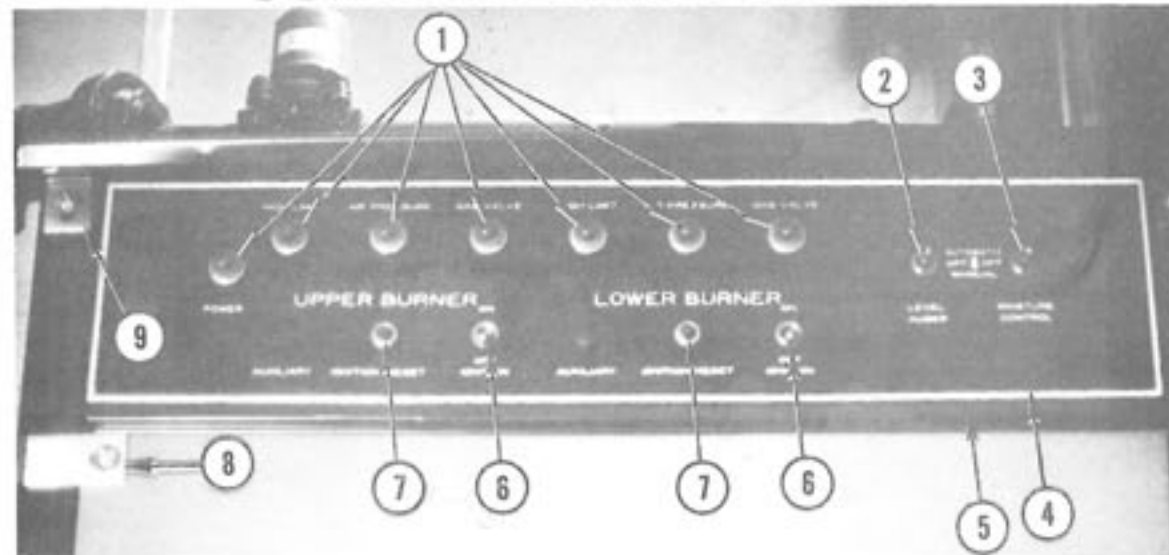
REF.	PART #	TITLE
1	1216846	Motor 1 $\frac{1}{2}$ HP 10
	1236876	Motor 1 $\frac{1}{2}$ HP 30
2	0214427	L.A. Motor Mount Plate
3	1203404	Hinge Bracket
4	1204438	Motor Mount
5	1286209	1/3V/3.65 SH Pulley
6	1286230	SH $\frac{5}{8}$ " Bushing for 1 $\frac{1}{2}$ HP 10 & 30
7	1288955	Adjusting Rod
8	1205002	Hinge Pin
9	0008199	Cotter Pin $\frac{1}{8}$ x 1
10	0213930	L.A. Motor Mount Brace
11	0008121	$\frac{3}{8}$ -16 x 1 HHCS
12	0008174	$\frac{3}{8}$ Flat Washer
13	0008168	$\frac{3}{8}$ -16 Whiz Nut
14	0008163	$\frac{1}{2}$ -13 Hex Nut

## WHEEL HUB & MOUNT ILLUSTRATION

REF.	PART #	DESCRIPTION
1	0018996	Hub Cap
2	0018252	$\frac{1}{8}$ " x 1 Cotter Pin
3	0018253	Spindle Nut
4	0018254	Spindle Washer
5	0016000	Bearing Cone - Outer
6	0026000	Bearing Cup - Outer
7	0018992	Wheel Hub Ass'y. - 5 Bolt (Incl. Item 6 & 12)
8	0018991	Seal
9	0018989	$\frac{1}{2}$ "-20 NF Lug Nut (15" Rim) 45°
10	1200031	Wheel Mount
11	0016001	Bearing Cone - Inner
12	0026001	Bearing Cup - Inner
13	0008146	$\frac{5}{8}$ -11 x 1 $\frac{1}{2}$ HHCS ZP
14	0008181	$\frac{5}{8}$ " Lockwasher ZP
15	0008164	$\frac{5}{8}$ -11 Hex Nut ZP

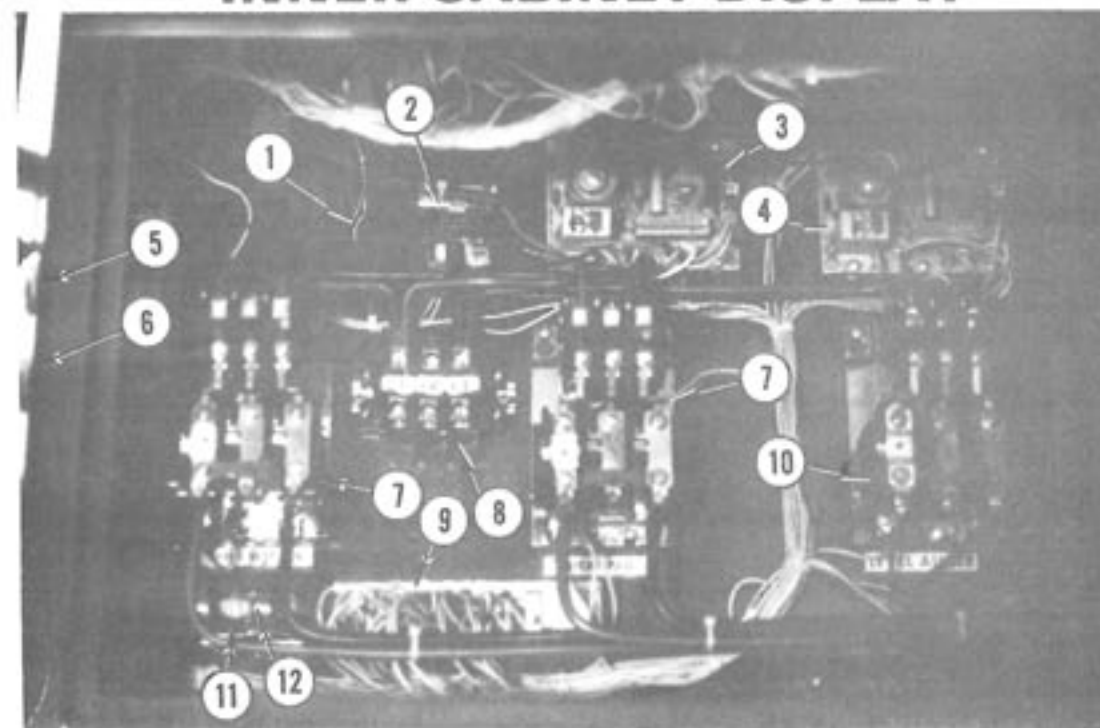


## CONTROL PANEL DOOR



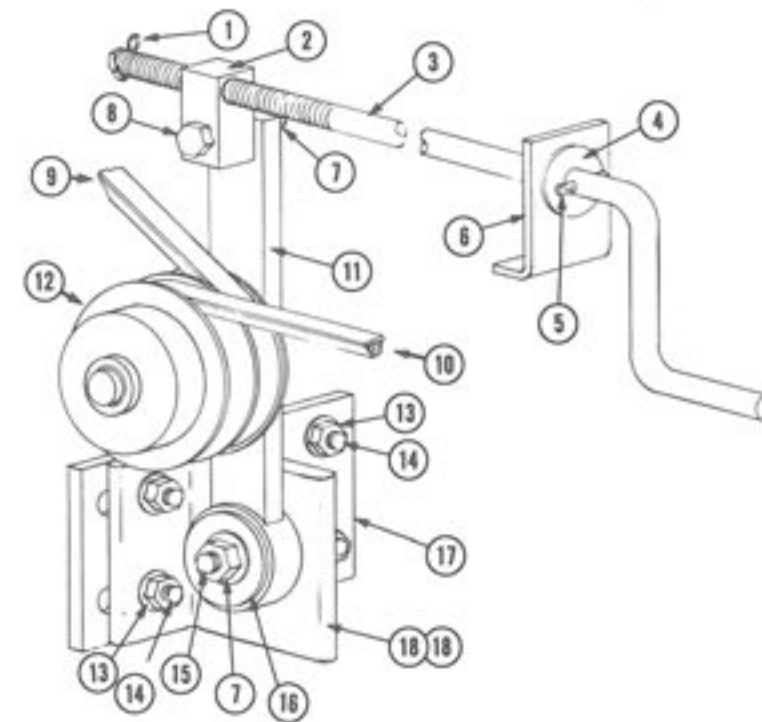
REF.	PART #	DESCRIPTION	REF.	PART #	DESCRIPTION
1	1216808	110V. Bayonet Light	4	1288345	Light Strip Bezel
	1226810	110V. Neon Bulb Only	5	0210013	Light Strip Panel
	1226800	Lens Only	6	1216815	S.P.S.T. Toggle Switch
2	1216806	S.P.D.T. Toggle Switch	7	1226814	Reset Button
3	1216807	D.P.D.T. Toggle Switch	8	0210012	Hinge Weld Half
			9	1214656	Hinge Half

## INNER CABINET DISPLAY



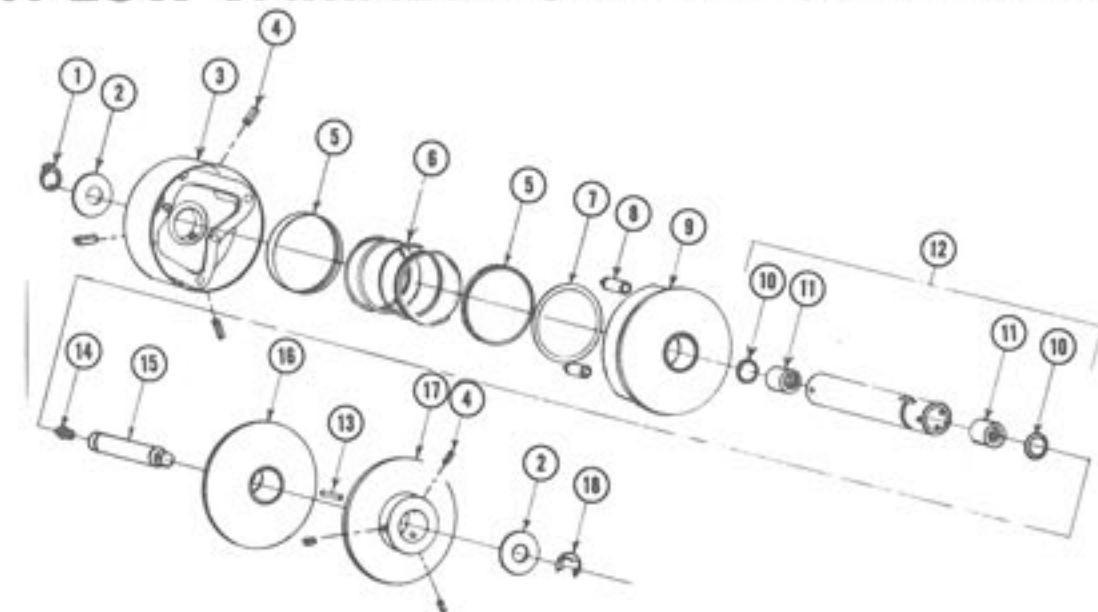
REF.	PART #	DESCRIPTION	REF.	PART #	DESCRIPTION
1	1284770	Component Mounting Panel	7	1286976	MO-33 Def. PRPS. Starter
2	1276802	60 Sec. Delay Relay	8	1286918	3 Circuit Terminal Block
3	1216925	Upper Ignition Board	9	1271020	Terminal Track Assembly
4	1216925	Lower Ignition Board	10	1286977	KO-33 Def. PRPS. Starter
5	1286844	Start Button (Black)	11	1286828	Fuse Holder
6	1286845	Stop Button (Red)	12	1286967	15 AMP Non Fuse

## VARIABLE DRIVE ARM ASSEMBLY



REF.	PART #	DESCRIPTION
1	0008199	1/8 x Cotter Key
2	1215190	Variable Crank Nut
3	1285192	Variable Speed Crank
4	0008176	5/8" Flatwasher
5	0008260	1/4 x 1 1/2" Roll Pin
6	1253425	V.S. Crank Mount Bracket
7	0008170	1/2-13 Whiz Nut
8	0008140	1/2-13 x 2 HHCS
9	1286119	B-58 Belt
10	1286107	B-43 Belt
11	1281066	V.S. Adjusting Arm Assembly
12	1286236	Hi-Low Variable Speed Pulley
13	0008168	3/8-16 Whiz Nut
14	0008121	3/8-16 x 1 HHCS
15	1288166	1/2-13 x 2 1/2 HHCS Grade #5
16	1288165	1/2" Washer
17	1283449	Base Mount Bracket
18	1284060	Variable Speed Base
18A	1285053	Variable Speed Arm Pivot

## HIGH-LOW VARIABLE SPEED PULLEY #1286236

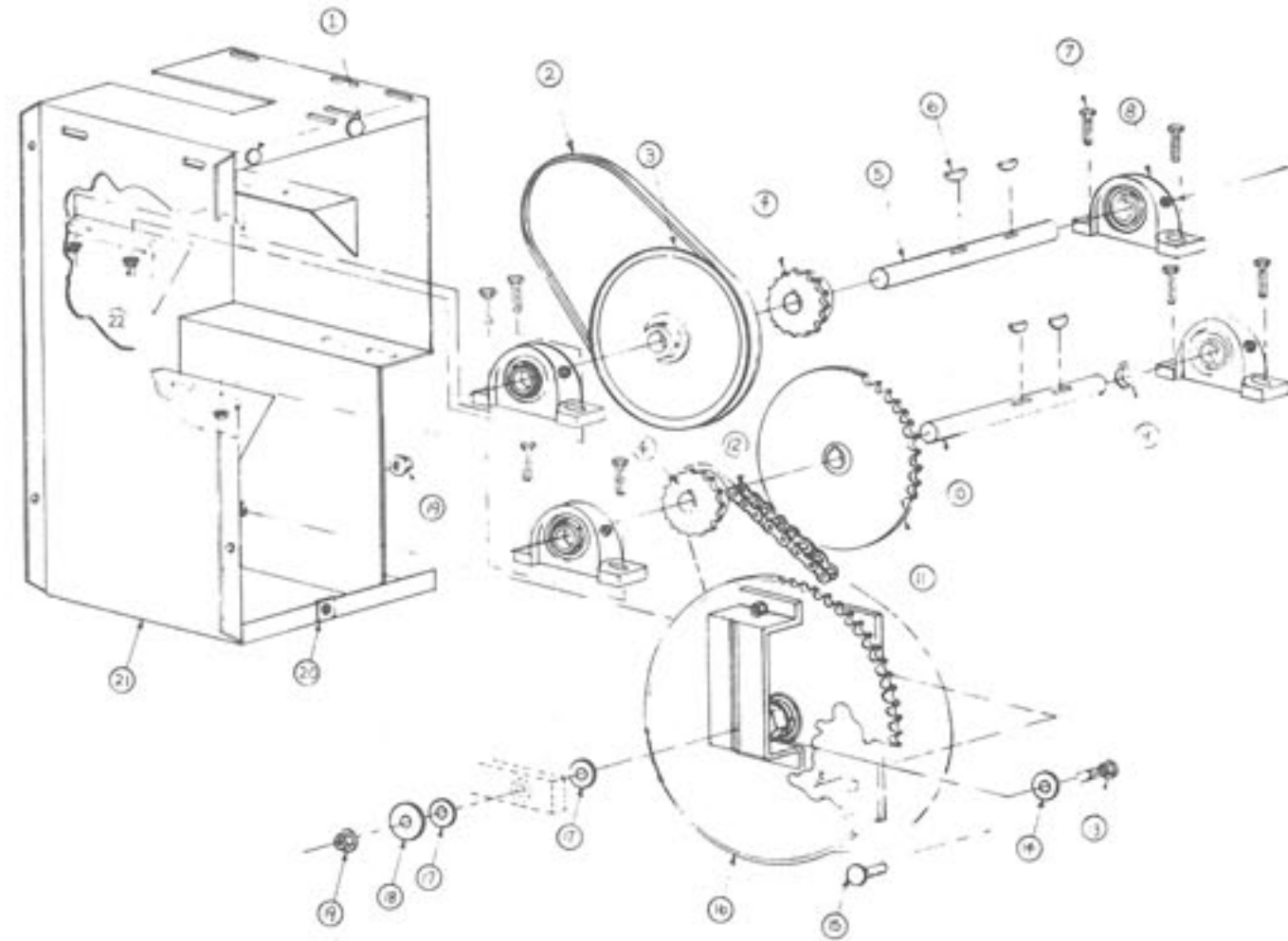


REF.	QTY.	PART #	DESCRIPTION	REF.	QTY.	PART #	DESCRIPTION
1	1	1226200	Outer Retaining Ring	10	2	1226209	Lub Seal
2	2	1226201	Retaining Washer	11	2	1226210	Sleeve Bearing
3	1	1226202	End Bell Assembly	12	1	1226211	Sleeve Assembly
4	6	1226203	Spring Pin	13	1	1226212	Slide Face Key
5	2	1226204	Spring Retainer	14	1	1226213	Straight 3/16 Drive Zerk
6	1	1226205	Spring	15	1	1226214	Shaft Assembly
7		NOT AVAILABLE		16	1	1226215	Center Face Assembly
8	3	1226207	Cam Follower	17	1	1226216	Fixed Face
9	1	1226208	Slide Face Assembly	18	1	1226217	Inner Retaining Ring

WHEN ORDERING REPLACEMENT PARTS:  
REF. 9 INCLUDES REF. 8

REF. 12 INCLUDES REF. 10 & 11  
REF. 15 INCLUDES REF. 1, 2, 14 & 18

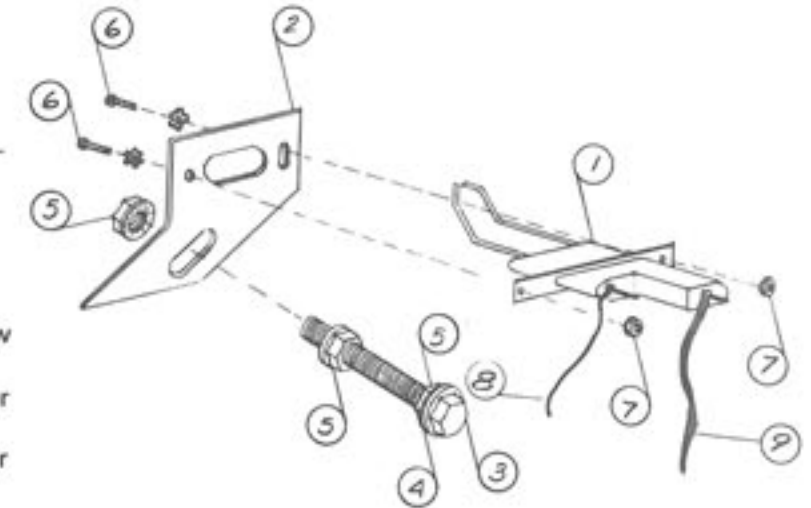
# 665 DRIVE REDUCTION BASE ASSEMBLY



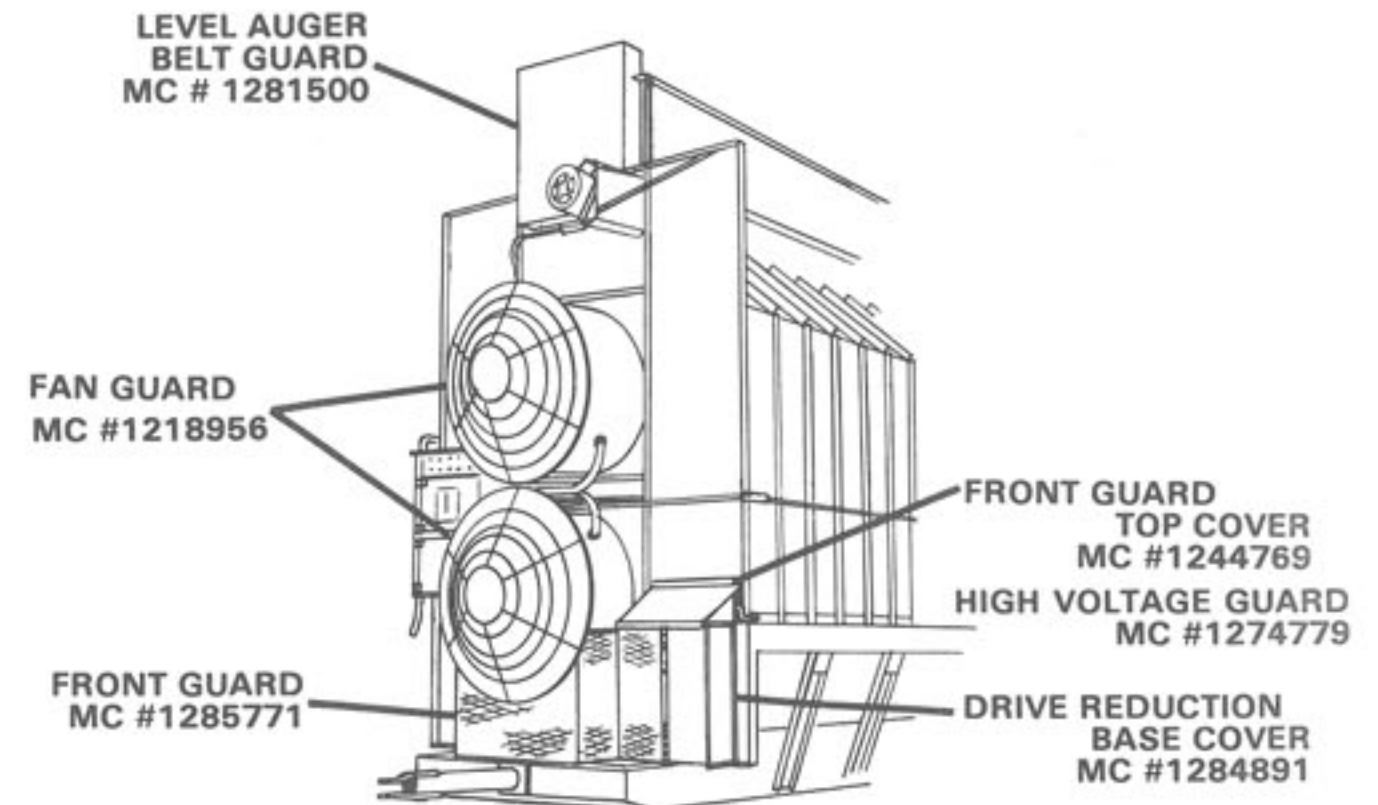
REF.	QTY.	PART #	DESCRIPTION
1	2	0008122	3/8-16 x 1" Carriage Bolts
2	1	1286107	B43 Belt
3	1	1286213	12" O.D. 1" Bore Pulley
4	2	1216405	RC40 B16T 1" Bore Sprocket
5	1	1285026	Upper Jackshaft
6	4	0008298	1/4" x 3/4" Woodruff Key
7	8	0008123	3/8-16 x 1 1/4 HHCS
8	4	1276000	1" Pillow Block Bearing
9	1	6524000	1/4" x 1 1/4" Spacer
10	1	1285027	Lower Jackshaft
11	1	1286421	RC40 B-48T 1" Bore Sprocket
12	1	1286308	#40 x 74 Pitch Chain
13	1	0018164	1/2-13 x 2" Carriage Bolt
14	1	0008299	5/8" S.A.E. Flatwasher
15	2	0008136	1/2-13 x 1" Carriage Bolt
16	1	1281069	Eccentric Sprocket Assembly
17	2	0018257	1/2" S.A.E. Flatwasher
18	1	0008175	1/2" Standard Flatwasher
19	3	0008170	1/2-13 Whiznuts
20	1	0018111	5/16-18 Clipnut
21	1	1280239	Reduction Base Weldment
22	8	0008168	3/8-16 Whiznut

# ELECTRODE ASSEMBLY

REF.	PART #	DESCRIPTION
1	1216926	Electrode
2	1282658	Electrode Mount
3	0008227	3/8-16 x 2 3/4 HHCS F.T.
4	0008174	3/8" Flatwasher
5	0008168	3/8-16 Whiz Nut
6	0008280	6-32 x 3/8 Slotted Mach. Screw
7	0008185	6-32 Whiz Nut
8	1281544	72" Secondary Wire for Lower Burner
	1211545	36" Secondary Wire for Upper Burner
9	1281543	72" Ignition Wire for Upper Burner
	1211544	36" Ignition Wire for Lower Burner

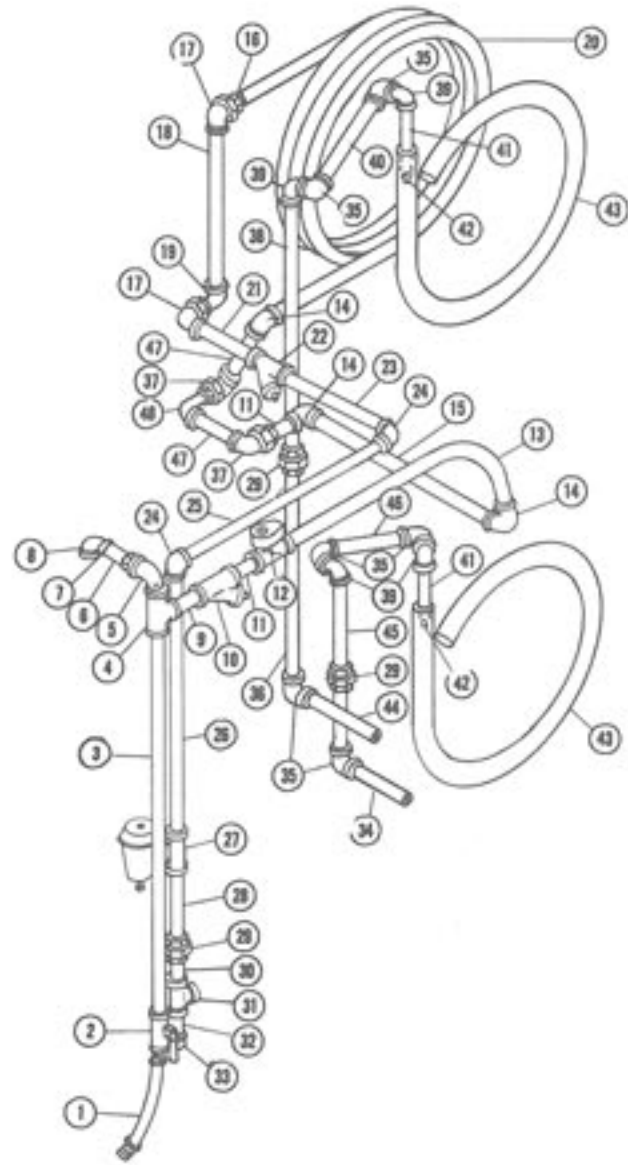


# SAFETY GUARDS





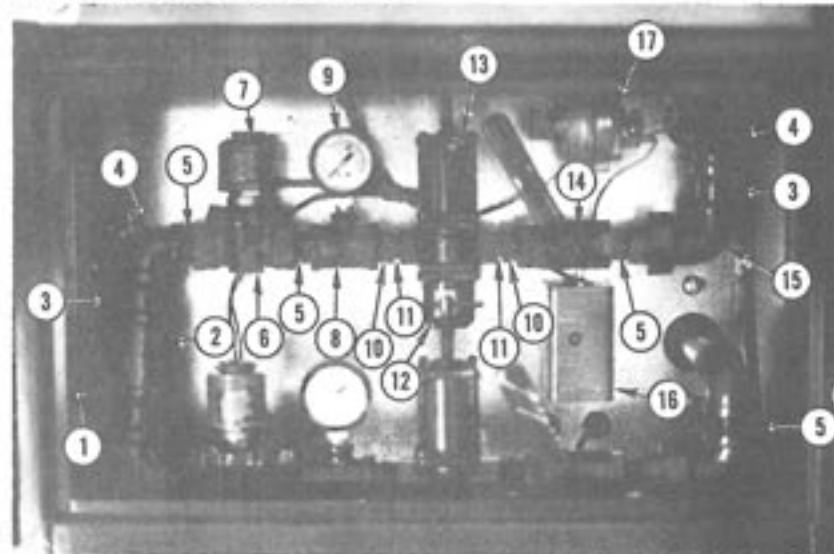
# 665 L.P. PIPING



REF.	PART #	DESCRIPTION
1	1217005	1/2" Inlet Hose
2	1217015	1/2" Liquid Line Hand Valve
3	1288036	1/2 x 28 1/2" Nipple - Extra Heavy
4	1218035	1/2" Tee - Extra Heavy
5	1218071	1/2" Street Elbow - Extra Heavy
6	1217013	Relief Valve
7	1217014	Relief Valve Adapter
8	1218048	1/2" Street Elbow - Standard
9	1208047	1/2 x 2" Nipple - Extra Heavy
10	1237007	1/2" Strainer
11	1288048	1/2 x 2 1/2" Nipple - Extra Heavy
12	1257082	1/2" Liquid Line Solenoid
	1227001	110V. Replacement Coil
13	1285779	1/2" Nipple With Bend
14	1218036	1/2" x 90° Elbow - Extra Heavy
15	1278002	1/2 x 15" Nipple - Extra Heavy
16	1218029	1/2" to 3/4" Reducing Bushing
17	1288019	3/4" x 90° Union Elbow - Extra Heavy
18	1218097	3/4 x 20 1/2" Nipple - Extra Heavy
19	1258063	3/4" Street Elbow - Extra Heavy
20	1210393	3-Ring Vaporizer
21	1218005	3/4 x 1 1/2" Nipple - Extra Heavy
22	1218060	3/4" Strainer
23	1218051	3/4 x 17" Nipple - Extra Heavy
24	1218027	3/4" x 90° Elbow - Extra Heavy
25	1218080	3/4" x 20" Nipple - Extra Heavy
26	1258064	3/4" x 19 1/2" Nipple - Extra Heavy
27	1217006	3/4" Regulator
28	1218096	3/4" x 4" Nipple - Standard
29	1218028	3/4" Union - Standard
30	1218007	3/4" x Close Nipple - Standard
31	1218070	3/4" Tee - Standard
32	1218077	3/4" x 2" Nipple - Standard
33	1218050	3/4" Pipe Cap
34	1258062	3/4" x 7 1/2" Nipple - Standard
35	1218074	3/4" x 90° Elbow - Standard
36	1288050	3/4" x 14" Nipple - Standard
37	1288010	1/2" Union Elbow - Extra Heavy
38	1218040	3/4" x 24 3/4" Nipple - Standard
39	1218033	3/4" Street Elbow - Standard
40	1218049	3/4" x 6 1/2" Nipple - Standard
41	1217529	Burner Inlet Pipe
42	0215711	Burner Nozzle
43	1210132	Ring Burner Weldment
44	1218002	3/4" x 2 1/2" Nipple - Standard
45	1218089	3/4" x 5" Nipple - Standard
46	1288049	3/4" x 10 1/2" Nipple - Standard
47	1288025	1/2" x 3 1/2" Nipple - Extra Heavy
48	1218071	1/2" Street Elbow - Extra Heavy

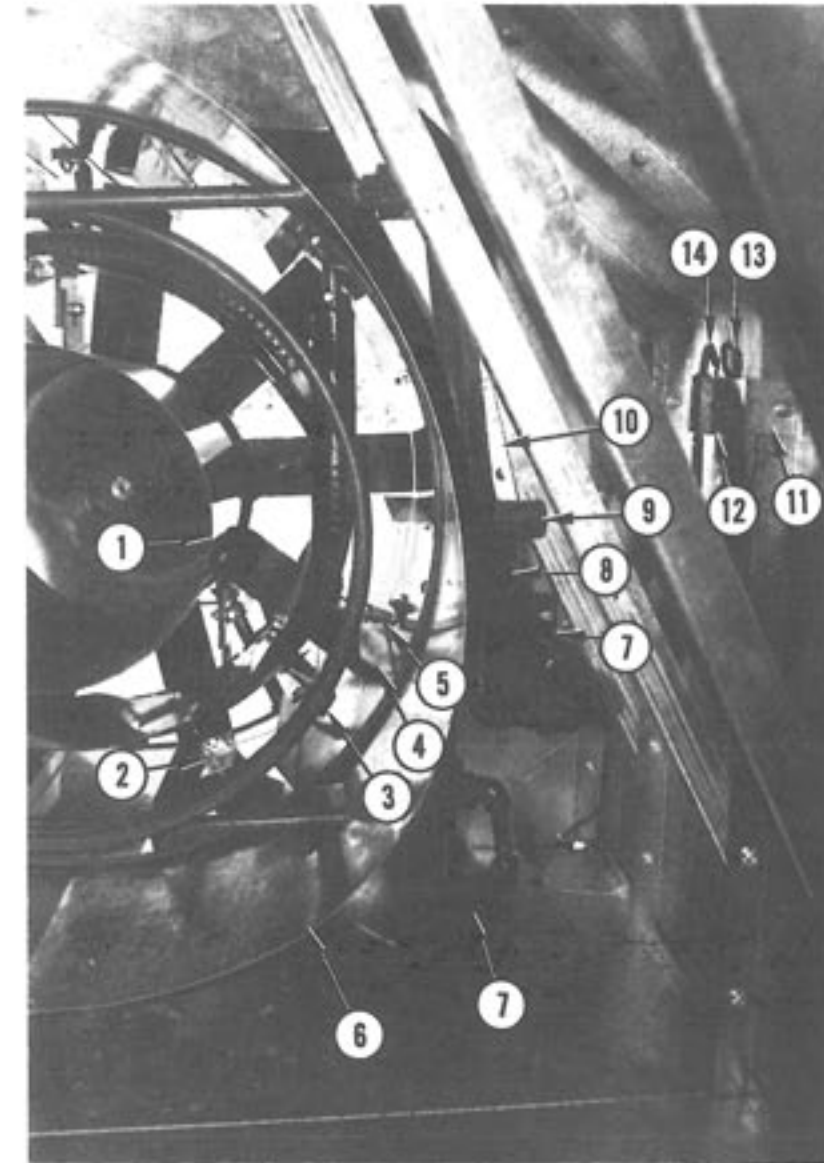
## MANIFOLD ASSEMBLY

REF.	PART #	DESCRIPTION
1	1218096	3/4" x 4 Nipple Std.
2	1218070	3/4" Tee Std.
3	1218077	3/4" x 2 Nipple Std.
4	1218074	3/4" Elbow Std.
5	1218007	3/4" x Close Nipple Std.
6	1217002	3/4" Solenoid (L.P. Gas)
	1237000	1 1/4" Solenoid (Nat. Gas)
7	1227001	3/4" 110V. Solenoid Replacement Coil
	1227011	1 1/4" 110V. Solenoid Replacement Coil
8	1238092	3/4 x 3/4 x 1/4 Tee Std.
9	1207002	Pressure Valve
10	1218029	3/4" x 1/2" Bushing
11	1218013	1/2" x Close Nipple Std.
12	1227002	Power Element 90° To 210° "B" Std.
12	1227014	Power Element 140° To 250° "D" Opt.
13	1217012	1/2" Modulating Valve
14	1217011	3/4" Main Hand Valve
15	1288039	3/4" Union Elbow Std.
16	1217018	High Limit Switch For Lower Burner
17	1216849	Air Pressure Switch For Lower Burner



NOTE: Opposite branch of manifold for lower burner consists of the same part as upper branch, unless otherwise indicated.  
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## INNER VIEW OF TOP BURNER



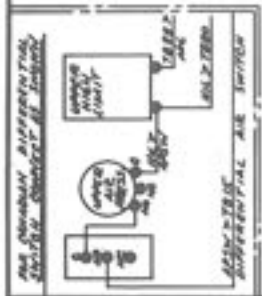
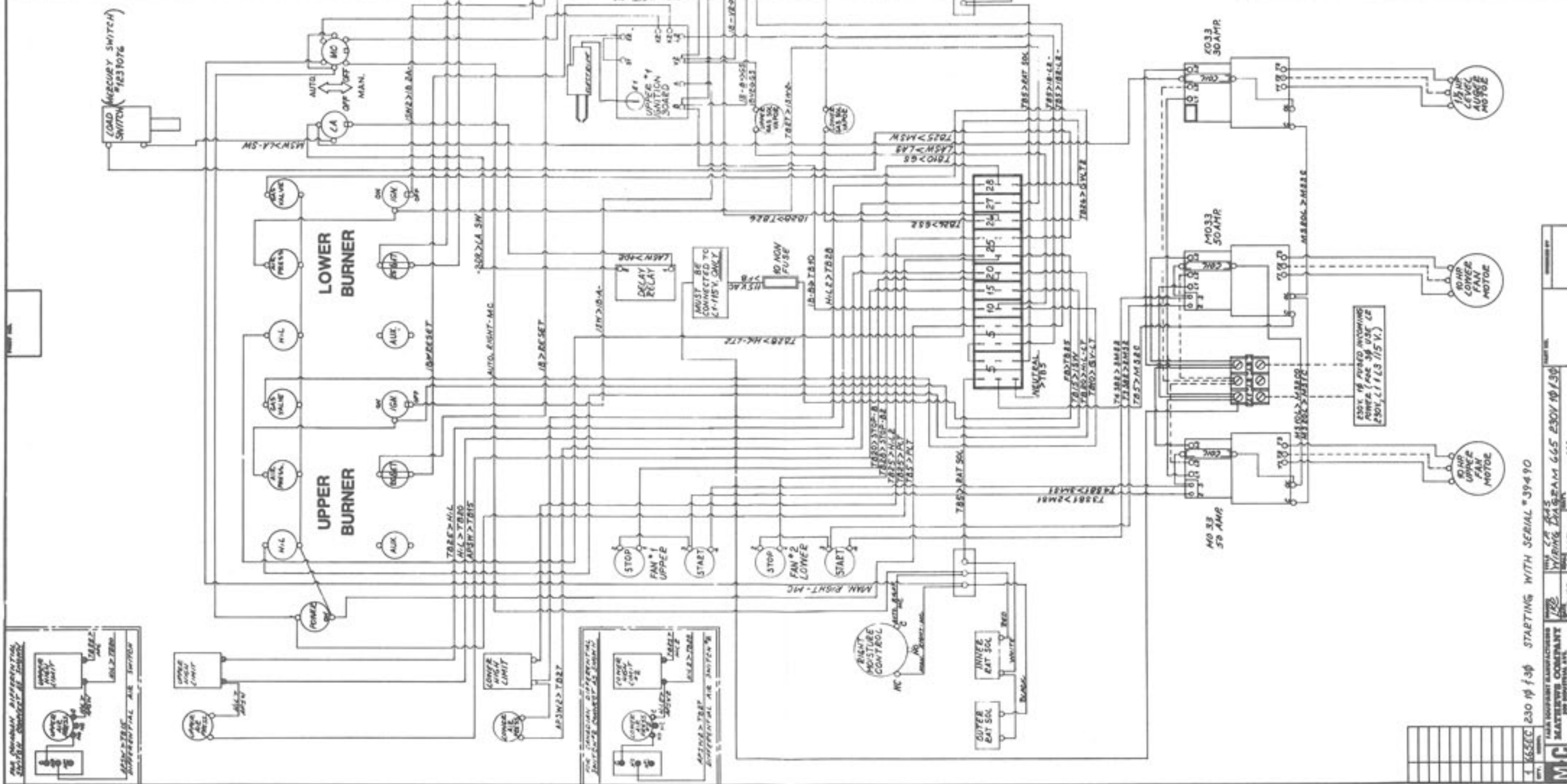
REF.	PART NO.	DESCRIPTION
* 1	1210131	Air Stabilizer Weldment
* 2	1281407	Electrode Assembly
* 3	1244442	Vaporizer Mount Bracket
* 4	0212845	Air Straightener
* 5	1213459	Burner Mounting Bracket
* 6	1282930	Orifice Extension
* 7		3/4" Pipe Seal Plate
* 8	1210081	High Limit Shield
* 9	1210169	Air Pressure Tube Weldment
* 10	1212007	Air Pressure Tube Bracket
* 11	1212883	Sensing Bulb Bracket
* 12	1212882	Sensing Bulb Clip
* 13	1227002	Modulating Sensing Bulb
* 14	NPN	Thermometer Sensing Bulb

NOTE: Sensing bulbs must be mounted in this position.

\*Also used in bottom burner assembly.  
All of the above parts are used in the lower section burner except Ref. #3.



APSW	AIR PRESSURE SW.
AUTO	AUTOMATIC
BL	115 VOLT
DR	DELAY RELAY
FB	FUSE BLOCK
GRD	GROUND
GS	GAS SOLENOID
H.L.	HIGH LIMIT
IB	IGNITION SWITCH
LA	LEVEL AUGER
LY	LIGHT
MAN	MANUAL
MC	MOISTURE CONTROL
MS	MAGNETIC STARTER
MSW	MERCURY SWITCH
P	PURGE VALVE
RAT SOL	PATCHET SOLENOID
RES	RESET BUTTON
RNT	RIGHT
S	STARTER
SB	STOP BUTTON
STOP B	STOP BUTTON
SW	SWITCH
TB	TERMINAL BLOCK
C	COMMON
CO	COIL
OL	OVERLOAD



PART NO.	DESCRIPTION
1286980	1 TERMINAL BLOCK
1286980	2 INTERLOCK
1286977	1 M033 STARTER
1286976	2 M033 STARTER
1257082	AIR GAS SOL. & LIQUID
1216846	1 1/2 HP MOTOR 1Ø
1216844	2 1/2 HP MOTOR 1Ø
1216845	1 1/2 HP MOTOR 3Ø
1216848	2 10HP MOTOR 3Ø
1216807	1 DPDT 3POS SWITCH
1216815	2 SPST 2POS SWITCH
1216806	1 SPST 3POS. SWITCH
1286825	6 LIGHT
1216856	4 PATCHET SOLENOID
1216857	2 MOISTURE CONTROL
1286844	2 START BUTTON (2A3)
1286845	2 STOP BUTTON (2A3)
1286857	1 FUSE HOLDER
1286977	1 FUSE 10AMP
1236887	2 ELECTRICAL (Terminal)
1236884	2 RESET BUTTON
1216926	2 ELECTRODE
1217020	1 TERMINAL TRACK ASS
1217002	2 GAS SOL. & LIQUID
1216925	2 MOTOR BOARD
1217018	2 HIGH LIMIT SWITCH
1216849	2 AIR PRESS. SWITCH

1 65555C 230 1Ø f3Ø STARTING WITH SERIAL #39490

**MC** MAHLE MANUFACTURING COMPANY  
 200 INDUSTRIAL BLVD.  
 GAITHERSBURG, MD. 20878  
 800-275-6229  
 WIRING DIAGRAM 665 230V 1Ø f3Ø  
 DATE: 10-1-79  
 DRAWN: [Signature]  
 CHECKED: [Signature]

