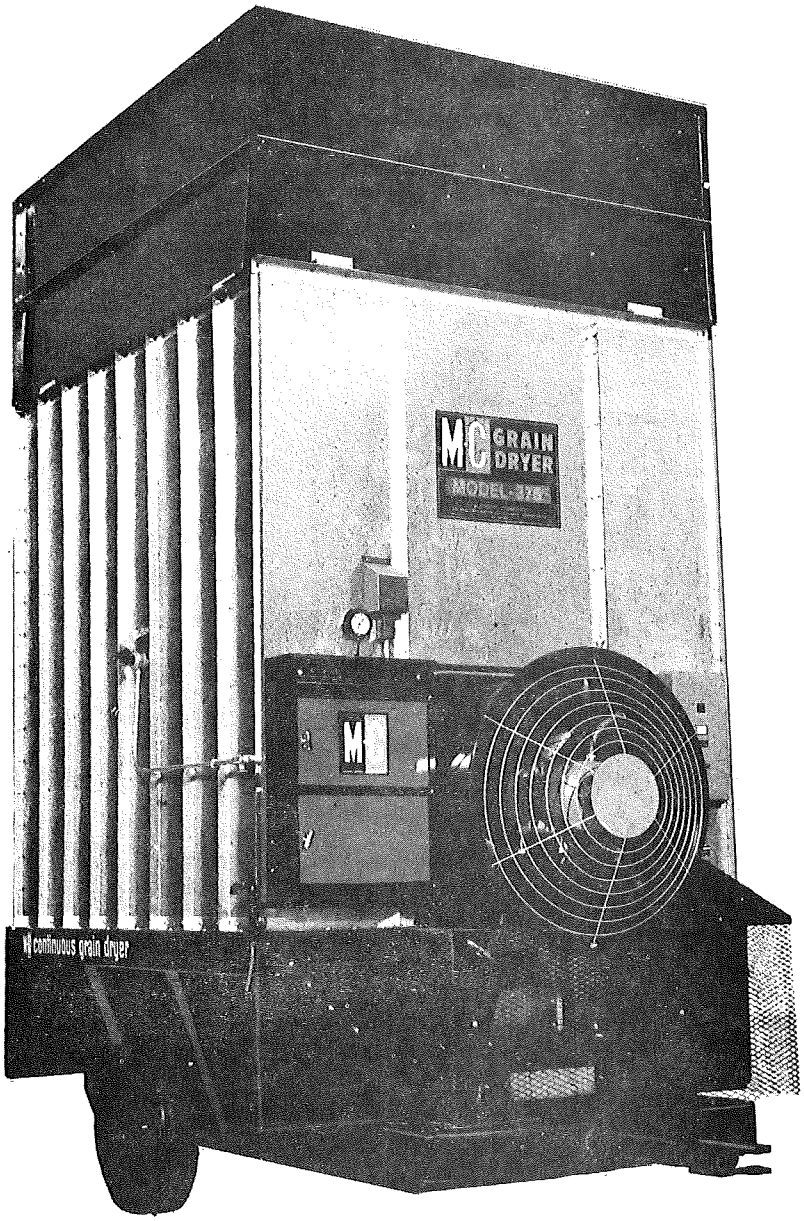
$2.00

M-C

CONTINUOUS GRAIN DRYER

ASSEMBLY-OPERATION AND MAINTENANCE INSTRUCTIONS



MODELS
375 EM
375 B115
375 B12

DM1078

MATHEWS COMPANY

P.O. BOX 70, 500 INDUSTRIAL AVE.
CRYSTAL LAKE ILL., 60014 · U.S.A.

TABLE OF CONTENTS

DANGER

1. KEEP ALL GUARDS IN PLACE.
2. STOP MOTORS OR ENGINE BEFORE ADJUSTING, LUBRICATING, CLEANING, OR UNCLOGING MACHINES, UNLESS OTHERWISE SPECIFICALLY RECOMMENDED IN THE "OPERATOR'S MANUAL".
3. WAIT FOR ALL MOVEMENT TO STOP BEFORE SERVICING THE MACHINE.
4. KEEP HANDS, FEET AND CLOTHING AWAY FROM POWER DRIVEN PARTS.
5. KEEP OFF EQUIPMENT UNLESS SEAT OR PLATFORM FOR OPERATION AND OBSERVATION IS PROVIDED.
6. KEEP ALL OTHERS OFF.
7. USE FLASHING WARNING LIGHTS WHEN OPERATING ON HIGHWAYS EXCEPT WHEN PROHIBITED BY LAW.
8. MAKE CERTAIN EVERYONE IS CLEAR OF MACHINE BEFORE STARTING OPERATION.

SET-UP INSTRUCTIONS

NOTE: The end of the dryer with the fan is considered the front. Left and Right is determined by standing behind the dryer and looking at the rear door.

1. Place dryer in a level position.

   A. Permanent installation:

      Place dryer on concrete slab or piers with planks between concrete and skids. Anchor dryer down to prevent blow over.

   B. For Portable or Temporary installation:

      Place planks under full length of skids. Remove wheels or dig holes for wheels. Full weight of dryer must rest on the dryer skids. Dryer should be anchored down to prevent blow over.

2. Install Variable Speed Crank Assembly - see page 13.

3. Install lower ladder, set up Wet Holding Hopper and install Peak - see pages 5 & 6.

4. Install all safety guards. See page 3.

5. Connect electrical power to dryer. For all electrical connections, refer to the proper wiring diagrams in rear of this manual.

   A. For "E" Model Single Phase dryers connect customer supplied fused power lines to the top lugs of the magnetic starter in the starter box and connect the ground line to the ground lug.

      NOTE: For Canadian Control Models be sure to connect the Neutral line to the Neutral lug.

   B. For "E" Model Three Phase dryers connect customer supplied fused power lines to the top lugs of the magnetic starter in the starter box. Connect the ground line to the ground lug. Then connect the 115V control power line onto one of the 115V legs of the three phase power coming into the lugs at the top of the magnetic starter.

      NOTE: Damage to the controls can result if the 115V control line is connected to the 230V leg of the three phase power.

   C. For B115 Models connect grounded, three-line 115V power line to the three-pronged, fused, male plug on the outside of the control cabinet. Be sure that polarity of the plug and the supply cord are the same. See polarity check, page 18.

   D. For B12 Models connect battery cables from control cabinet direct to the tractor battery terminals. Brown to negative (-) post, Red to positive (+) post. The connections must be this way or blown fuses and failures in the ignition system will result.

(Continued on page 3)

SET-UP INSTRUCTIONS...Cont.

6. On "B" models, remove snap ring from Jackshaft, item 21, page 16, and install PTO shaft and connect to dryer shear flange using one 3/8-16 x 2¼ special shear bolt, part number 0018133, supplied with the dryer. DO NOT use hardened bolts or standard long thread bolts. Re-install the snap ring on Jackshaft.

7. Position tractor so there is only a small angle on the universal joints of the PTO shaft. Connect PTO to tractor power take off. BE SURE that the guard over the universal joint and shear flange at dryer and the tractor guard over the power take off are in place.

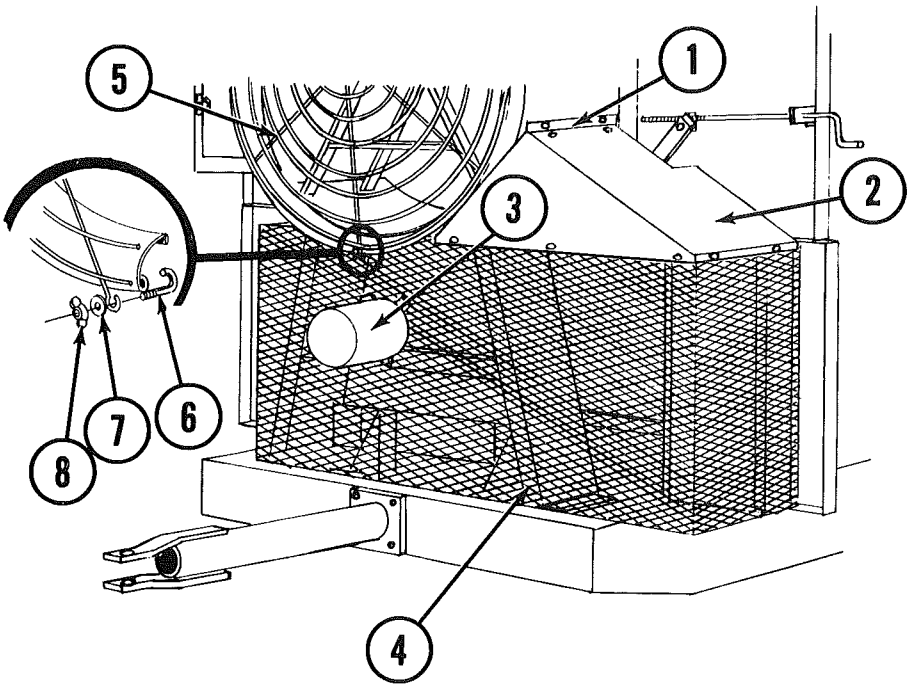
8. Connect gas supply to machine.

   A. L.P. Gas - Advise your L.P. Gas supplier that the dryer takes liquid from the tanks (not vapor). When the gas system is connected to the dryer, be sure an Excess Flow Valve is installed at the tank, preferably the one furnished with the dryer as it will shut off quicker (in case of line breakage) than those normally furnished by the gas supplier. In any case NEVER have two Excess Flow Valves on the same line.

   Use a minimum of ½" ID gas line between tank and dryer. For distances over 100 feet use a 3/4" ID diameter line. Connect the gas line from the tank to the short flexible hose on the dryer.

   B. Natural Gas - A minimum of 5 lbs. of operating pressure is required on all models. Use minimum two-inch line from Natural Gas regulator to dryer. Use reducing bushing to 1¼" just before connecting to pipe outside dryer control cabinet.

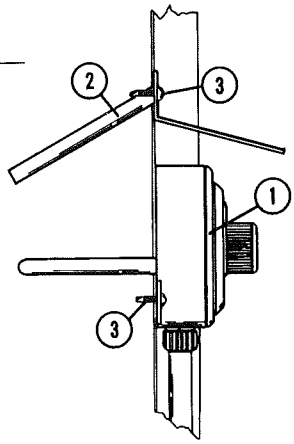
GUARDS FOR ELECTRIC AND P.T.O. MODELS

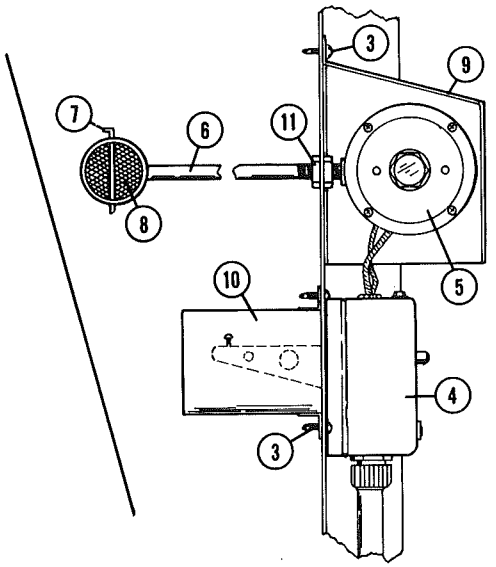


REF. #	PART #	ITEM
1.	1284866	Front Guard Mount Angle
2.	1284887	Front Guard Top
3.	1280083	P.T.O. Shear Flange Guard
4.	1285761	Front Guard Screen
4.-A	1284890	Front Guard Hole Cover
5.	1218956	Fan Guard
6.	1218255	5/16 - 18 × 1½" J-Bolt
7.	0008176	5/16 Flat Washer
8.	0008166	5/16 - 18 Wing Nut

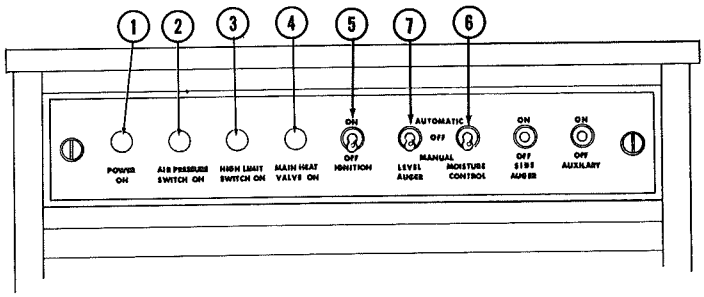
SAFETY CONTROLS

REF. NO.	PART NO.	DESCRIPTION
1	1216851	Thermoswitch (Moisture Control)
2	1210031	Thermoswitch Shield Weldment
3	0008184	#8 x ½ 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	¼" Pipe Lock Nut





CONTROL CABINET — INDICATOR LIGHTS AND CONTROL SWITCHES



Item	Part #	Description
1,2,3,4	1216808	115V Lamp Ass'y Complete
	1286860	12V Lamp Ass'y Complete
	1216977	Lamp Cover, Clear Lens Only
	1226810	115V Light Bulb Only
	1216978	12V Light Bulb Only
5	1216815	Ignition Toggle Switch
6	1216807	Moisture Control Toggle Switch
7	1216806	Load Toggle Switch (Included with optional load switch kit 1239076)

The Control Cabinet consists of temperature and safety controls. There are four lights wired in series with controls to indicate operation.

Indicator Lights:

No. 1 Lights when electric power is on.

No. 2 Lights when fan is running and dryer is full of grain (air pressure completes circuit to ignition switch.

No. 3 Lights when high limit control circuit is closed.

No. 4 Lights when Fenwal Ignition Switch is turned on, electrodes are firing, and the gas solenoid is open.

WET HOLDING HOPPER & PEAK ASSEMBLY SET-UP INSTRUCTIONS (REFER TO ILLUSTRATIONS PAGE 6)

WET HOLDING HOPPER

The hopper is shipped folded down and must be assembled at the installation.

NOTE: Inspect and remove all foreign material from feed rolls and augers. Avoid dropping nuts, bolts, parts, etc. down the grain columns. If anything is accidently dropped, it must be removed before filling dryer.

Use ⅜-16 × ¾" bolts and ⅜-16 Whiz Nuts through steps 1 and 2.

STEP 1: Fold up the front and rear Hopper Panel Assemblies and their two adjoining side Hopper Panel Assemblies. Bolt them together along the corner seams. Put a plank on top of heat chamber cross angles to walk on. Avoid standing on grain column tie straps.

STEP 2: Bolt the bottom flanges of all the Hopper Panel Assemblies to the Galvanized Angles, to which the hinges are fastened.

NOTE: Place a ⅜ flat washer between the head of the bolt and Hopper Panel.

STEP 3: Fasten Ladder Mounting Brackets to right rear Hopper Panel Assembly using 5/16-18 × ¾" bolts and 5/16-18 Whiz Nuts.

STEP 4: Bolt Ladder to Ladder Mounting Brackets using 5/16-18 × ¾" bolts and 5/16-18 Whiz Nuts.

PEAK ASSEMBLY

NOTE: Leave all bolts loose (finger tight) until Step 5.

STEP 1: Beginning at front of dryer, install two Peak Panels, Ref. 1, to the top of the inner perforated screens, one on each side. Use 5/16-18 × ¾" Truss Head Screws and 5/16-18 Whiz Nuts. The head of screw should be on the inside of grain column. DO NOT bolt the peak panels to the End Hopper Panel Assemblies until Step 5.

STEP 2: Bolt a Hopper Cap, Ref. 2, onto these first two Peak Panels using 5/16-18 × ¾" Truss Head Screws and 5/16-18 Whiz Nuts. The Whiz Nut must be inside the air chamber.

STEP 3: After two sets of Hopper Peak Panels are in place, install 31¼" Inner Hopper Cross Ties, Ref. 4. Install 29¼" Inner Hopper Support Angles, Ref. 5, at the center hole along the Hopper Peak Panel seams. Use 5/16-18 × 1¼" bolts and 5/16-18 Whiz Nuts. The other end of the Inner Hopper Support Angles fasten at the third bolt holes down from the top along the vertical seam of the Inner Perforated Screens on each side. Remove the 5/16-18 × ½" bolt, and replace with 5/16-18 × ¾" bolts, to hold the Support Angle. These angles should be installed at each seam of the Hopper Peak Panels.

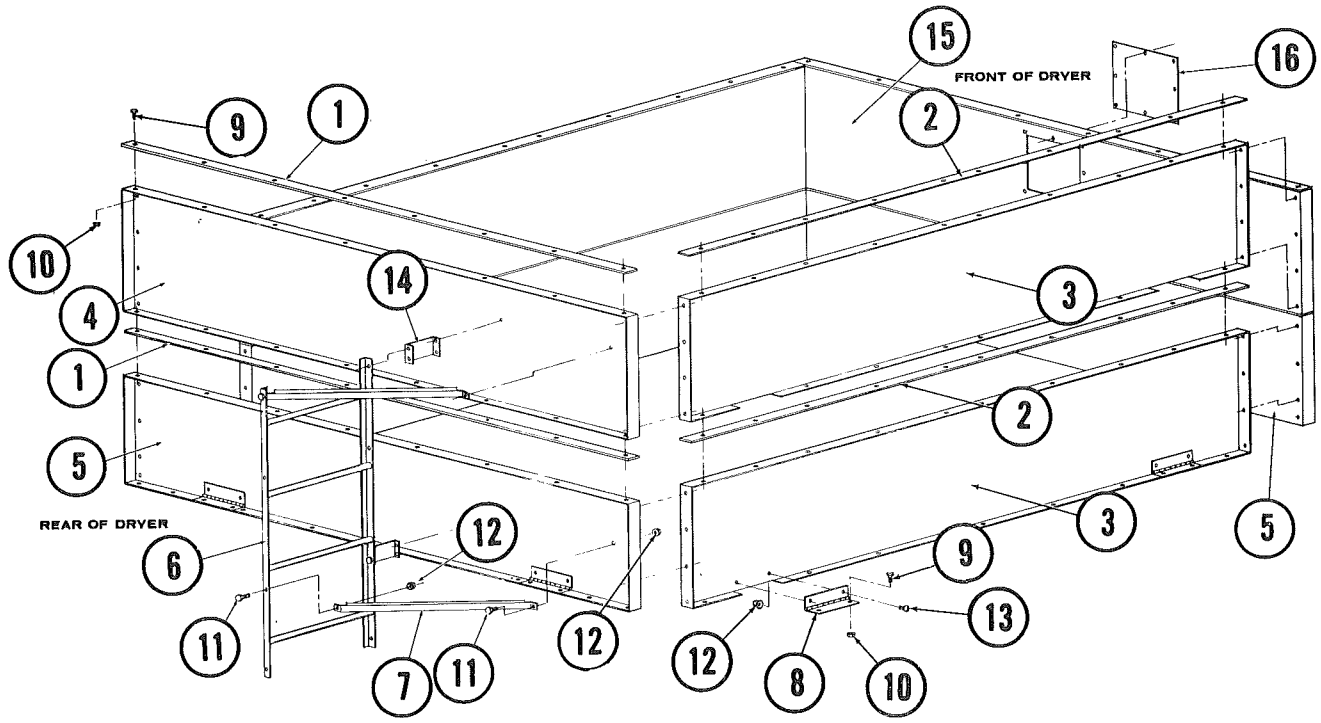
STEP 4:Continue along the dryer installing sets of two Peak Panels (one on each side), fastening to Inner perforated screens, Hopper Cap, and to each other using 5/16-18 × ¾" bolts and 5/16-18 Whiz Nuts. Install Inner Hopper Support Angles and Cross Ties after each set of Peak Panels.

STEP 5: Install the hopper seal angles, Ref. 3, at each end of the Peak. Then bolt the Hopper Peak panels to the Hopper End Panel Assemblies using 5/16-18 × ¾" bolts and 5/16-18 Whiz Nuts. The head of the bolts should be on the outside of the Hopper.

TIGHTEN ALL BOLTS AT THIS POINT.

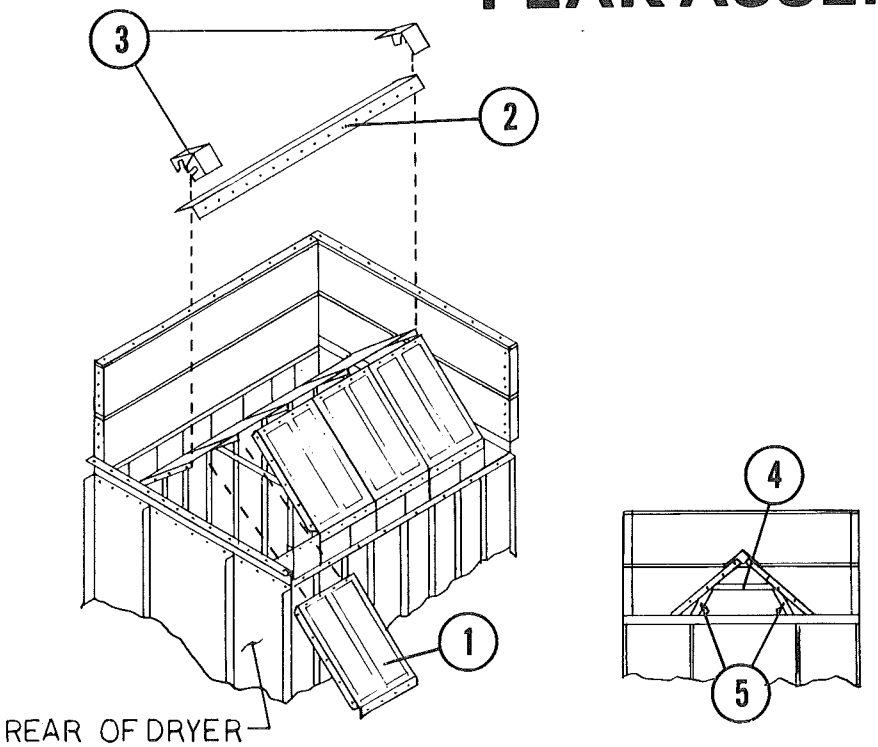
The Hoppper and Peak are now complete.

375 WET HOLDING HOPPER ASSEMBLY



REF. #	PART #	DESCRIPTION	REF. #	PART #	DESCRIPTION
1	1282052	End Hopper Flange Stiffener	9	0008119	⅜-16 × ¾ HHCS
2	1282051	Side Hopper Flange Stiffener	10	0008168	⅜-16 Whiz Nut
3	1284824	Hopper Side Panel	11	0008106	5/16-18 × ¾ HHCS
4	1284822	Hopper Ind Panel - Upper	12	0008169	5/16-18 Whiz Nut
5	1284823	Hopper End Panel - Lower	13	0008103	5/16-18 × ½ Truss Head
6	1280162	4 Foot Ladder	14	1282660	Ladder Mount Bracket
7	1282661	Ladder Mounting Angle	15	1284808	Load Switch Hopper Panel
8	1288957	Hopper Hinge	16	1282996	Cover Plate

PEAK ASSEMBLY



REF. #	PART #	DESCRIPTION
1	1282891	Perf. Peak Panel
	1272834	Solid Peak Panel
2	1282991	Hopper Cap
3	1282908	Hopper Seal Angle
4	1282012	Horizontal Peak Angle 31¼" Long
5	1282003	Vertical Peak Angle 29¼" Long

OPERATING INSTRUCTIONS

1. Be sure all electrical power and gas valves are turned off.

2. Be sure there is adequate clearance between fan and fan housing and between the fan and the burner.

3. Before proceding make sure all safety guards are in place, see page 3.

4. Be sure all switches on the control cabinet are in the "OFF" position.

5. Turn on electrical power to the dryer. On B115 Models plug in the three-pronged plug outside the control cabinet. On B-12 Models connect the battery. REMEMBER: Red to Positive (+) terminal and Brown to Negative (–) terminal. The "Power On" and "High Limit" lights should glow. Trouble: See page 20.

6. Be sure that the adjusting screws of the pressure regulator and the modulating valve are not turned all the way in. This could result in damage to the valves from excessive pressure or may cause difficulty in starting the burner.

7. Fill the dryer with grain. If the dryer is equipped with the optional load switch kit, a toggle switch is located on the control cabinet marked "Level Auger". This switch will activate a 115V coil in a standard magnetic starter used to start and stop the electric motor on the grain filling conveyor. (Magnetic starter not included in load switch kit.)

   A. AUTOMATICALLY OPERATED FILLING: When the toggle switch is flipped to the "Automatic" position the filling conveyor should run until the dryer is full of grain and then automatically shut off.

   B. MANUALLY OPERATED FILLING: When the toggle switch is flipped to the "Manual" position the filling conveyor will run continuously. NOTE: Care must be taken not to overflow the top of the dryer. The "Manual" operation is more or less a "stand-by" system in the event of damage to the automatic switch assembly in the hopper.

8. Slowly open the gas supply line. On LP dryers the flip valve--Item 18, page 9, should also be opened slowly. Check thoroughly for gas leaks--both inside and outside the dryer.

9. Start the fan. If dryer is full, the "Air Pressure Switch" light should come on. Trouble: see page 20. At this time the Air Pressure Switch should be adjusted. See top of page 4, Item #5. Remove the red plastic cap to expose the adjusting screw. Turn screw into the unit until the Air Pressure Switch light goes out. Then back the screw out until the light comes back on and then about ½ turn further out. This should assure that the burner will go out if the dryer runs low on grain or the fan looses RPM.

STARTING THE BURNER

10. INITIAL START UP OF A NEW DRYER. Partially open hand valve--Item 20, page 9.

NOTE: The hand valve is shown fully closed on page 9. Flip on the Ignition Switch. The main Heat Valve Light should glow. turn Pressure Regulator Adjusting Screw in or out until 5-7 pounds of pressure is reached on the dial gauge. Adjust the pressure regulator only when the hand valve is open and the Main Heat Valve light is glowing. If the burner does not ignite in 6-7 seconds, turn the Ignition Switch to "OFF", wait one minute and try again.

SETTING TEMPERATURE

11. The temperature is regulated by the Modulating Valve. To increase the temperature, turn the handle in. To reduce the temperature, turn the handle out. (See Drying Chart on Page 8 for suggested operating temperatures of various grains.)

12. The cooling section of the dryer will have wet grain in it, and will not be dried on the first run. This grain will have to be recycled back into the heating section.

13. Make sure Automatic Moisture Control Switch is in "OFF" position. In order to dry all the grain in the upper section, it will require approximately one hour of continuous heat to dry the first load from 30% to 15% moisture and proportionately less for moistures under 30%.

14. After approximately one hour of drying on the first load, turn Moisture Control Switch to "Manual" position. This will engage Ratchet Solenoids and begin unloading the grain. When grain in cooling section has moved through and dried grain begins to auger out, after about 45 minutes, test it for moisture content. If moisture content is too high, slow the unloading down. If moisture content is too low, speed unloading up.

OPERATING INSTRUCTIONS....Cont.

15. To change the speed of unloading, a combination of two adjustments is available.
    (A) By turning Variable Crank arm CLOCKWISE to SPEED UNLOADING and COUNTER CLOCKWISE TO SLOW UNLOADING. This is normally used for fine adjustment.

CAUTION:
Do not put extreme pressure on belts. ADJUST VARIABLE SPEED PULLEY ONLY WHEN MACHINE IS OPERATING.

(B) The Feed Rolls can be adjusted independently of the auger by sliding the "Connecting Arm" along the slotted bracket on the Eccentric Sprocket. The Eccentric Sprocket is located in the lower part of the speed reduction assembly on the drive end of the dryer. Moving the Connecting Arm TOWARDS THE CENTER of the sprocket will DECREASE the stroke and SLOW down the UNLOADING of the Feed Rolls. Moving it AWAY from the CENTER of the sprocket will INCREASE the stroke and SPEED UP the UNLOADING of the feed rolls. CAUTION: NEVER MAKE ADJUSTMENT ON SPROCKET UNTIL IT HAS COME TO A COMPLETE STOP.

Normal factory setting is for two teeth. When removing more than 10 points of moisture, it may require slowing down to one tooth. When removing less than 10 points of moisture, it may require increasing to three or more teeth.

NOTE: Be careful not to discharge more grain out of the Feed Rolls than the Auger can carry away!

16. After your dryer is operating properly and is discharging grain at the desired moisture content for one hour, switch to "Automatic Moisture Control". Flip the "Moisture Control Switch" to Automatic position, then set the Moisture Control on each side of the dryer by turning the indicator knob to the point that will just maintain Feed Roll operation. Most likely each moisture control will have a slightly different setting. Normally they will be set within the limits shown in the following chart.

APPROXIMATE SETTING FOR SHELLED CORN AND MOST SMALL GRAINS

Thermometer Setting	Set Control Dial At	To Get—— Percent Moisture
140°	3.5	13-14%
180°	4.0	14-15%
180°	4.5	13-15%
180°	5.0	12-13%

If the moisture content of the grain coming out of the dryer starts to increase, increase the setting of the control one mark at a time until the correct moisture content is reached. Allow ample time between adjustments for machine to correct itself, suggested time to be 1 hour.

Adjust the unloading mechanism to correspond with the rate of feeding of the grain by the automatic control. These adjustments will only be slight if you have had your dryer operating correctly before switching it to "Automatic Moisture Control."

The speed of the Variable Drive should be fast enough to cause the Automatic Moisture Controls to operate intermittently but having the Feed Rolls engaged 85% to 90% of the time. If the unloading mechanism is working too slow, the Moisture Control Solenoids will operate constantly and the grain will come out drier than desired.

16. If you have followed the instructions carefully your dryer will operate continuously without watching or adjusting as long as you keep it full of grain.

17. SUGGESTED DRYING CHART

Types of Grain	Drying Temp.
Corn	180°F to 200°F
Grain Sorghum	160°F to 180°F
Wheat or Oats	160°F to 170°F
Soybeans or Barley	130°F to 140°F

SHUT-OFFS AND RESTARTS

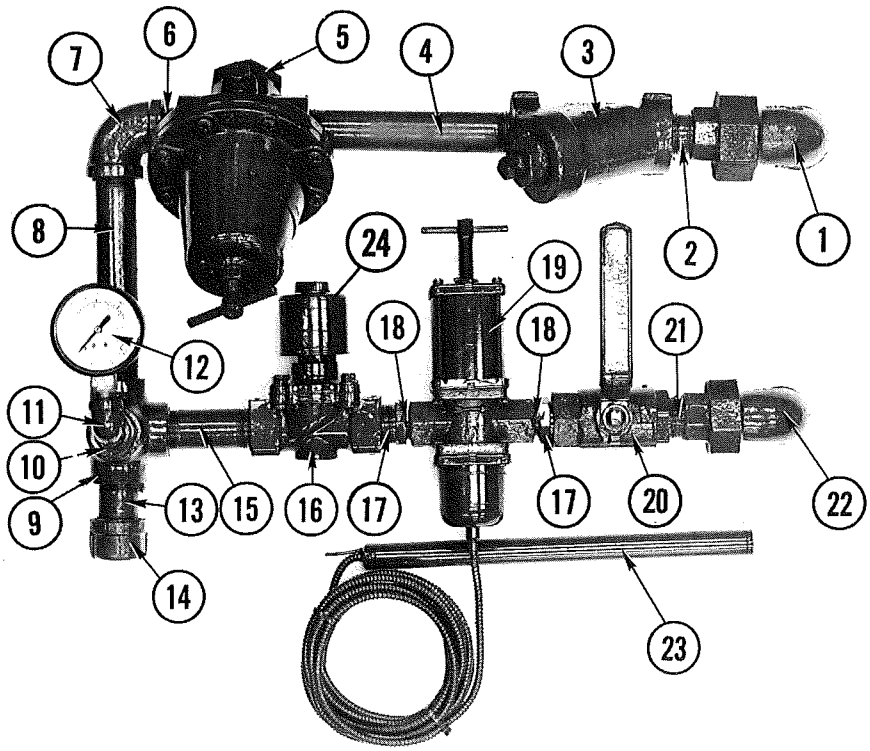
When stopping the dryer, shut off the heat and let the grain cool. (Turn off Ignition Switch and run fan for 15 to 20 minutes with cool air.) Shut off Hand Valve, Flip Valve, and Tank Valve on LP models.

To re-start, open Tank Valve, Flip Valve, turn on Ignition Switch, and gradually open Hand Valve. Remember to open Hand Valve gradually to prevent freeze ups.

FINAL SHUT DOWN OF DRYER

Your dryer is a continuous flow dryer, and it is necessary to hold the grain in the dryer for a period of time when finishing a crop or at the end of the season. Ratchet Pawls should be disengaged by flipping Moisture Control Switch to OFF. This will give the grain remaining in the dryer time to become dried. Allow about 30 minutes of drying time for high moisture grain (30%) and proportionately less for drier grain. Then turn Moisture Control Switch to Manual position for emptying. At end of season, lubricate all moving parts and remove the unloading auger pan underneath the dryer.

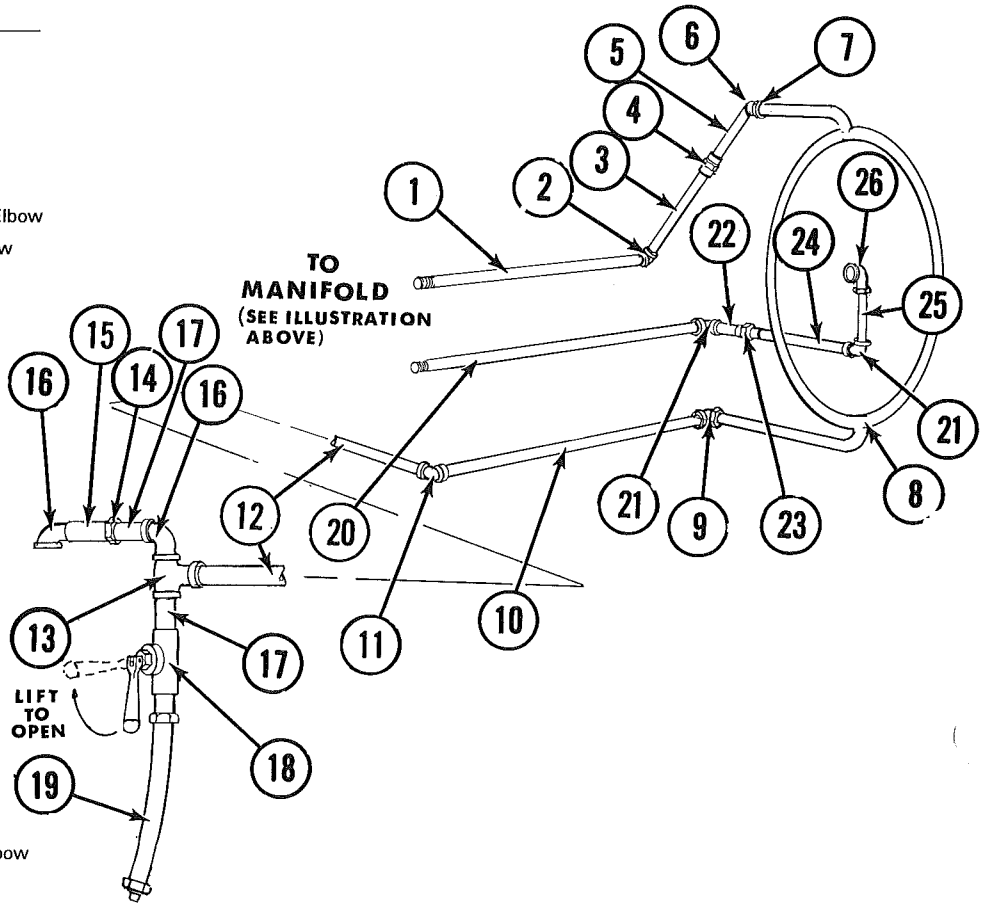
LP GAS MANIFOLD



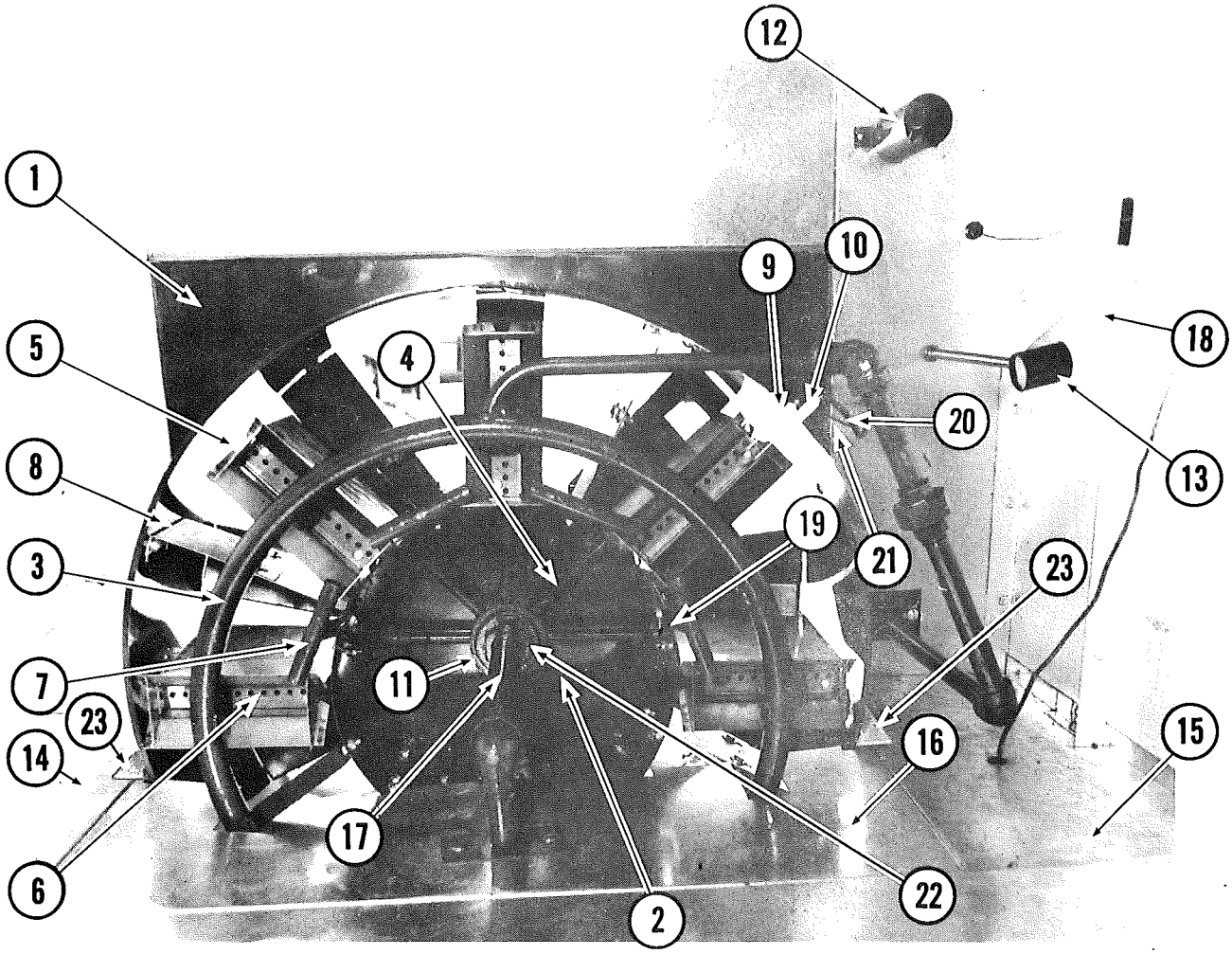
REF #	PART #	DESCRIPTION
1	1288019	¾" Union Elbow Ex. Hvy.
2	1218005	¾" × 1 ½" Nipple Ex. Hvy.
3	1218060	¾" Strainer
4	1288006	¾" × 6" Nipple Ex. Hvy.
5	1217006	¾" REGO Regulator
6	1218067	¾" × 1 ½" Nipple Std.
7	1218074	¾" 90° Elbow Std.
8	1278008	¾" × 6" Nipple Std.
9	1288035	¾" Side Outlet Tee
10	1218030	¾" to ¼" Reducing Bushing
11	1218039	¼" 90° Street Elbow
12	1207002	Pressure Gauge
13	1218007	¾" × 2" Nipple Std.
14	1218050	¾" Cap Std.
15	1218008	¾" × 3" Nipple Std.
16	1217002	¾" Gas Solenoid Valve for 115V
16A	1217025	¾" Gas Solenoid Valve for 12V
17	1218029	¾" to ½" Reducing Bushing
18	1218013	½" × Close Nipple
19	1217012	½" Modulating Valve
20	1217011	¾" Hand Valve
21	1218007	¾" × Close Nipple
22	1288039	¾" Union Elbow Std.
23	1227002	Power Element 90° to 210°-"B"
24	1227001	Replacement Coil for 115V Dryers
24A	1227024	Replacement Coil for 12V Dryers

LP GAS PIPING DIAGRAM

REF. #	PART #	DESCRIPTION
1	1258064	¾" × 19½" Ex. Hvy. Nipple
2	1218027	¾" × 90° Ex. Hvy Elbow
3	1218083	¾" × 9" Ex. Hvy. Nipple
4	1218072	¾" Ex. Hvy. Union
5	1218098	¾" × 5" Ex. Hvy. Nipple
6	1218032	¾" to ½" × 90° Ex. Hvy. Red. Elbow
7	1218071	½" × 90° Ex. Hvy. Street Elbow
8	1210336	Vaporizer
9	1288010	½" Ex. Hvy. Union Elbow
10	1218041	½" × 16 ½" Ex. Hvy. Nipple
11	1218036	½" × 90° Ex. Hvy. Elbow
12	1288036	½" × 28 ½" Ex. Hvy. Nipple
13	1218035	½" Ex. Hvy. Tee
14	1217014	Relief Valve Adapter
15	1217013	Relief Valve
16	1218048	½" × 90° Std. Street Elbow
17	1208047	½" × 2" Ex. Hvy. Nipple
18	1217015	½" Liquid Line Hand Valve
19	1217005	Inlet Hose
20	1218019	¾" × 20" Std. Nipple
21	1218074	¾" × 90° Std. Elbow
22	1218067	¾" × 1 ½" Std. Nipple
23	1218028	¾" Std. Union
24	1288038	½" × 18 ½" Std. Nipple
25	1218049	¾" × 6 ½" Std. Nipple
26	1238049	1 ¼" to ¾" × 90° Std. Red. Elbow

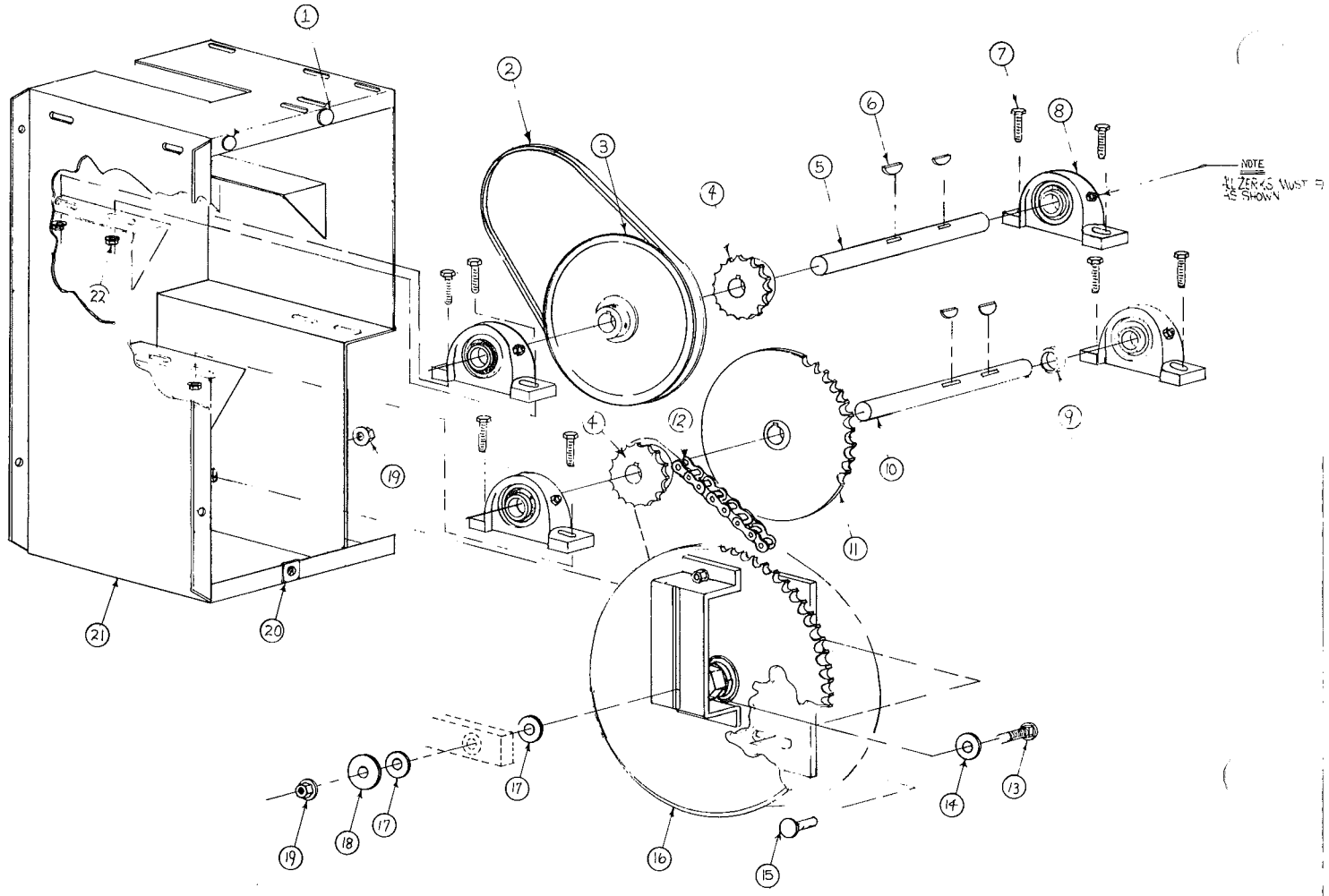


375 BURNER ASSEMBLY



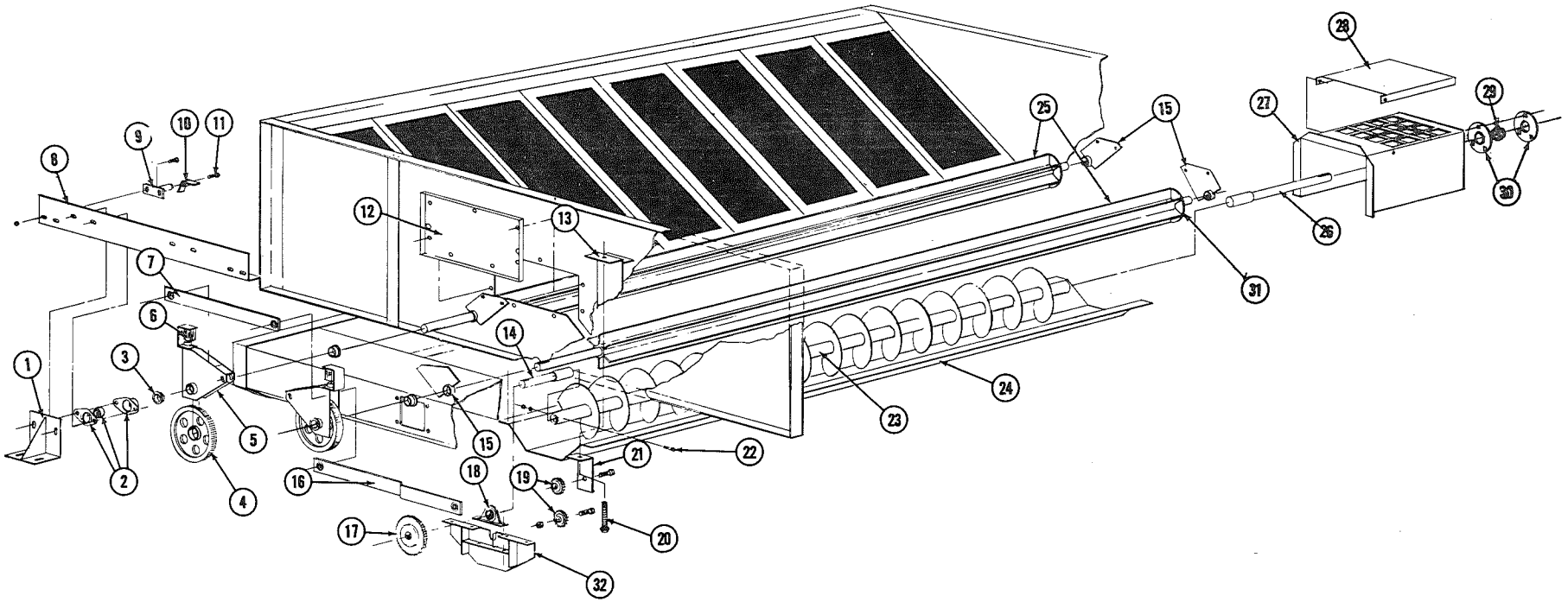
REF. #	PART #	TITLE
1	1280178	Orifice Weld.
2	1210322	Burner Tube Weld.
3	1210336	Vaporizer
4	1215987	Burner Gas Lead Tube
5	1211241	Burner Unit
6	1215988	Face Plate Insert
7	1210316	Ignition Tube Weld.
8	1214867	Air Chamber Mounting Bracket
9	1212640	Electrode Mounting Bracket (2 For 12 Volt DC)
10	1216926	Electrode (2 For 12 Volt DC)
11	1215501	Burner Head
12	1210081	High Limit shield
13	1210169	Air Pressure Tube Weld.
14	1252870	Front Floor Panel - Left
15	1252871	Front Floor Panel - Right
16	1282881	Front Floor Panel - Center
17	1238065	1¼" × 14" -Long Pipe
18	1282027	Air Pressure Tube Brk't.
19	1214468	Burner Locater Strip
20	1215744	High Voltage Wire
21	1215742	Low Voltage Wire*
		*(For 12 Volt DC Electric System, See Page 21)
22	1215738	3" to 1¼" Reducing Bush.
23	1212980	Orifice Seal Plate
(NOT SHOWN)	1212882	Sensing Bulb Clip
	1212883	Sensing Bulb Bracket
	1282880	Burner Tube Baffle

375 DRIVE REDUCTION BASE ASSEMBLY



REF.	QTY.	PART #	DESCRIPTION
1	2	0008122	3/8-16 × 1" Carriage Bolts
2	1	1286121	BX54 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" × 3/4 Woodruff Key
7	8	0008123	3/8-16 × 1 1/4" HHCS
8	4	1276000	1" Pillow Block Bearing
9	1	6524000	1/4" × 1 1/4" Spacer
10	1	1285027	Lower Jackshaft
11	1	1286421	RC40 B-48T 1" Bore Sprocket
12	1	1286308	#40 × 74 Pitch Chain
13	1	0018164	1/2-13 × 2" Carriage Bolt
14	1	0008299	5/8" S.A.E. Flatwasher
15	2	0008136	1/2-13 × 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

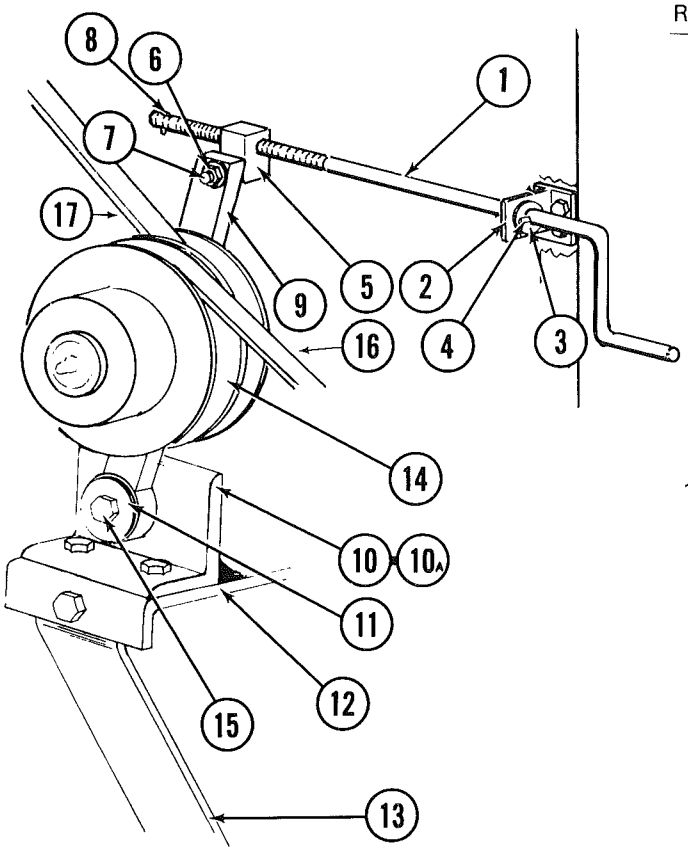
375 METERING SYSTEM



REF. #	PART #	TITLE
1	1280191	Feed Roll Outboard Br'g. Mount
2	1216022	1¼" Bore Wood Bearing - Complete
3	1286011	Nylon Ratchet Bushing
4	1216404	Ratchet Wheel
5	1281413	Ratchet Assembly—See Page 11
6	1216856	Solenoid (115V.)
6A	1256883	Solenoid (12V.)
7	1281261	Transfer Arm
8	1282652	Ratchet Stop Dog Mount Plate
9	1210355	Ratchet Stop Dog Mount
10	1210354	Ratchet Stop Dog
11	1218162	⅜-16 × 1⅝ HH Shoulder Bolt
12	1281258	Base Panel Access Cover
13	1280224	Idler Bracket (Bolt-On)
14	1285996	Input Shaft
15	1281063	Feed Roll Bearing w/ Bronze Bushing
16	1281411	Connecting Arm

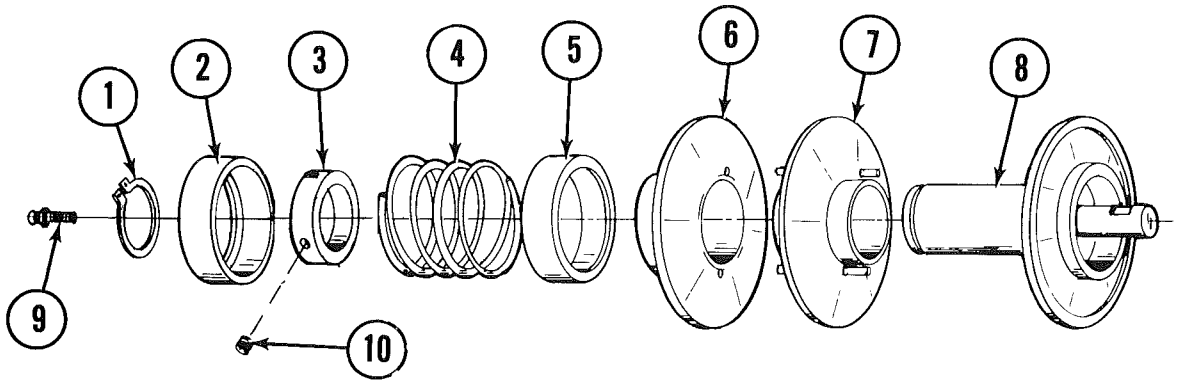
REF. #	PART #	TITLE
17	1286418	Unload Auger Sprocket (RC - 40 - B 45 - T Sprk't.)
18	1286018	1-7/16" Pillow Block Br'g.
19	1286414	RC-40 Idler Sprocket
20	0008257	⅜-16 × 5 HHCS Full Thread
21	1284492	RC-40 Take Up Brk't.
22	0018136	⅜-16 × 3¼ HHCS - Grd. #5
23	1280079	Unloading Auger
24	1282733	Unloading Auger Pan
25	1281186	Feed Roll Ass'y. (Left & Right)
26	1285998	Output Shaft
27	1280096	Unload Auger Discharge
28	1284712	Unload Auger Discharge Cover
29	0016003	1¼ Bearing w/ Collar
30	0016004	3-Bolt 1¼ Br'g. Stamping
31	1214438	Feed Roll End Washer
32	1280075	U.A. Front Plate

VARIABLE SPEED MOUNT AND CRANK



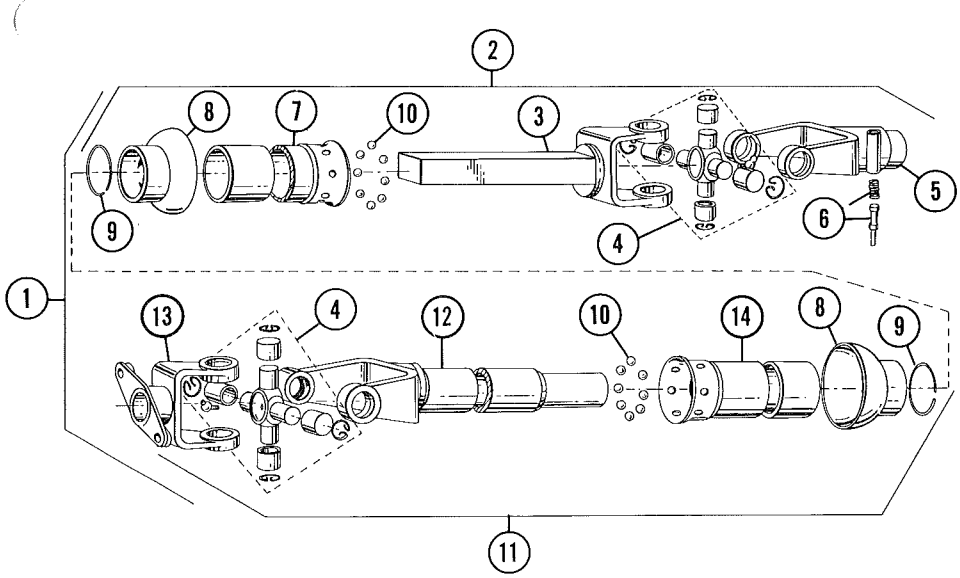
REF. #	PART #	DESCRIPTION
1	1285192	Variable Speed Crank
2	1210320	Variable Speed Crank Mount Bracket
3	1218102	Roll Pin ¼ × 1½
4	0008176	⅝ Flat Washer
5	1215190	Variable Crank Nut
6	0008170	½-13 Whiz Nut
7	0008140	½-13 × 2 HHCS
8	0008199	⅛ × 1 Cotter Key
9	1281066	Adjusting Arm Ass'y.
10	1284060	Variable Speed Base
10A	1285053	Variable Speed Arm Pivot
11	1288165	½" Washer
12	1283444	Base Mount Bracket
13	1283445	Base Mount Bracket Support
14	1286217	Variable Speed Pulley Assembly
15	1288166	½-13 × 2½ HHCS Grd. #5
16	0016100	B-56 Belt
17	1286105	B-63 Belt

VARIABLE SPEED PULLEY 1286217



REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
1	1228919	Snap Ring	7	1228910	Center Sheave & Spindle Ass'y.
2	1228918	Outer Spring Cover	8	1228914	Inner Sheave & Spindle Ass'y.
3	1228906	Set Collar 1½" I.D. (4404-6)	9	0008996	¼-28 Nft. Straight Zerk
4	1228917	Spring	10	0008201	5/16-18 × 5/16 Socket Head Set Screw Knurled Cup Point
5	1228916	Inner Spring Cover			
6	1228915	Outer Sheave w/Bushing			

TRACTOR P.T.O. SHAFT

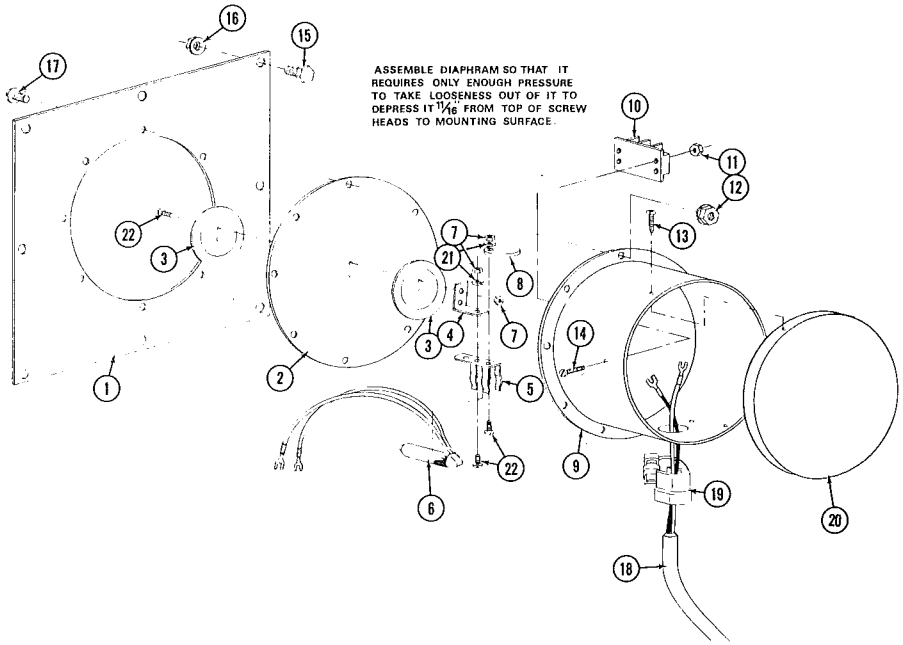


REF.	PART NO.	DESCRIPTION
1	0016600	PTO Drive Shaft
2	0026620	Tractor Half Assembly w/O.D. Yoke
3	0026627	Male Shaft & Yoke Weldment
4	0026628	Universal Joint Repair Kit
5	0027651	Quick Detachable Yoke Assembly
6	0026629	Safety Lock Pin & Spring Kit
7	0026624	Female Guard Tube
8	0026626	Bell Shield
9	0026625	External Snap Ring
10	0026606	⅜" Diameter Ball
11	0026621	Complete Machine Half PTO w/Shear Flange
12	0026622	Female Shaft & Yoke Weldment
13	0027652	Flange Yoke 1-¼ Bore
14	0026623	Male Guard Tube

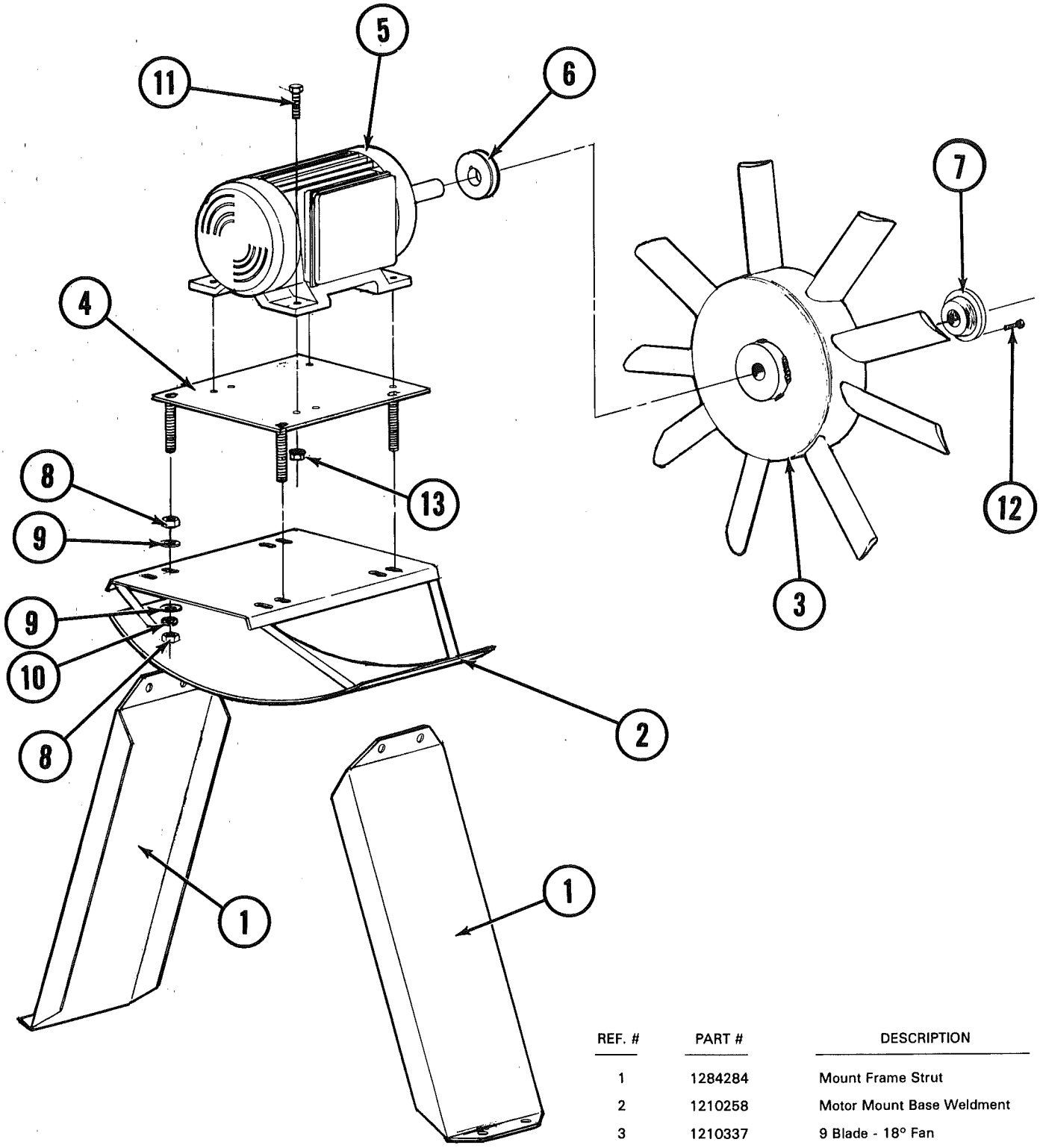
LOAD SWITCH 1201011

USED IN KIT 1239076

REF. NO.	PART NO.	DESCRIPTION
1	1272832	Load Switch Mn't. Plate
2	1208996	Diaphram
3	1205200	Merc. Switch Brk't. Washer
4	1202946	Mount Bracket
5	1206801	Merc. Switch Clip
6	1206800	Mercury Switch
7	0008157	6-32 Hex Nut
8	1254486	Level Switch Weight
9	1205201	Level Switch Housing
10	1206802	Terminal Strip
11	0008188	8-32 Hex Nut
12	0008210	¼-20 Hex Nut
13	0008184	#8 × ½ Self Drilling Sheet Metal Screw
14	0008192	8-32 × ¾ Screw
15	0008105	5/16 - 18 × ½ HHCS
16	0008169	5/16 - 18 Whiz Nut
	0008212	¼ × 20 × ½ R.D. Head
18	1216920	18/2 Dynaprene Cable
19	1256901	Strain Relief Bushing
20	1207981	L.A. Control Switch Cover
21	———	#6 Lockwasher
22	0008280	6-32 × ⅜ R.D. Head

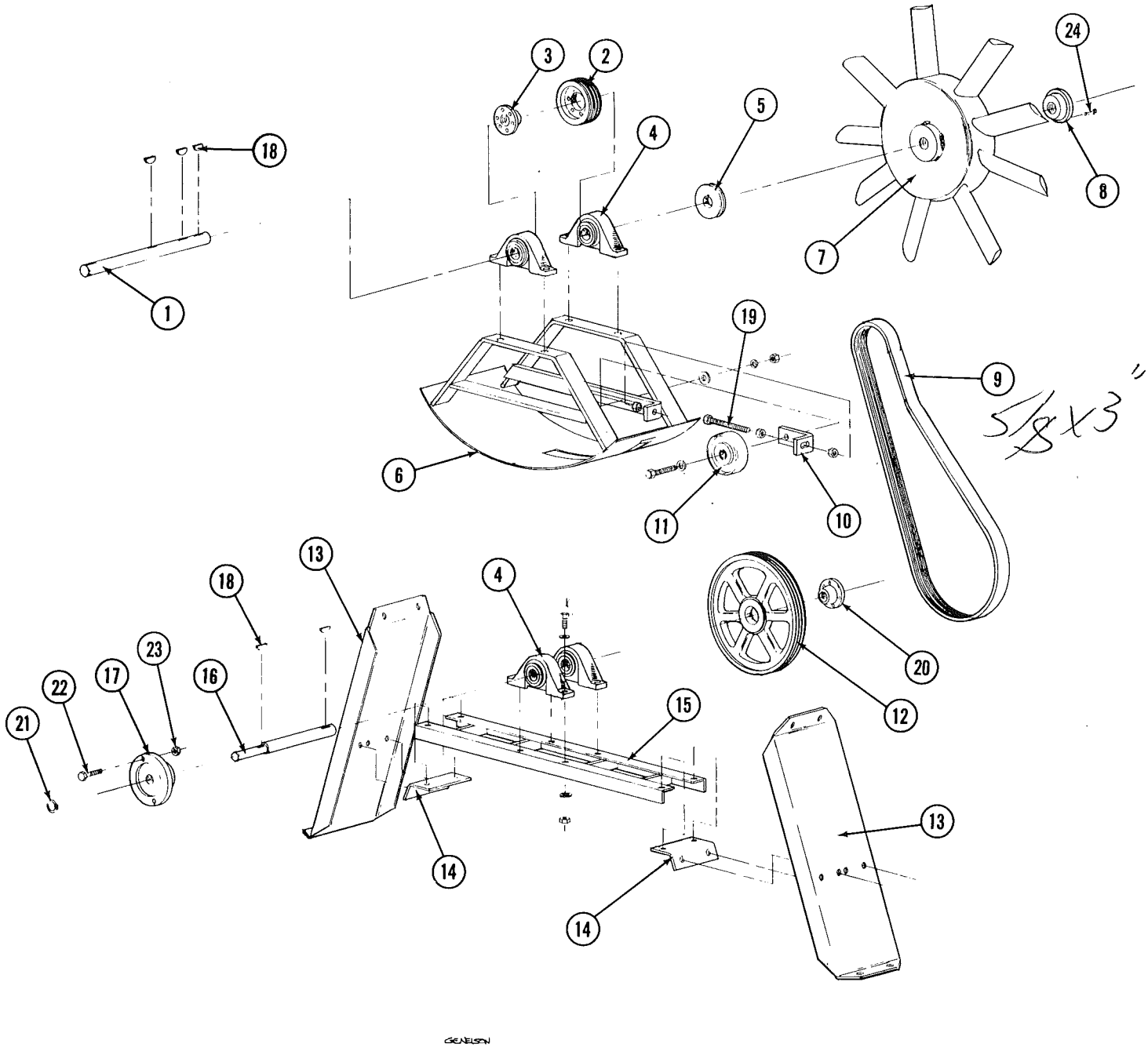


FAN DRIVE ELECTRIC



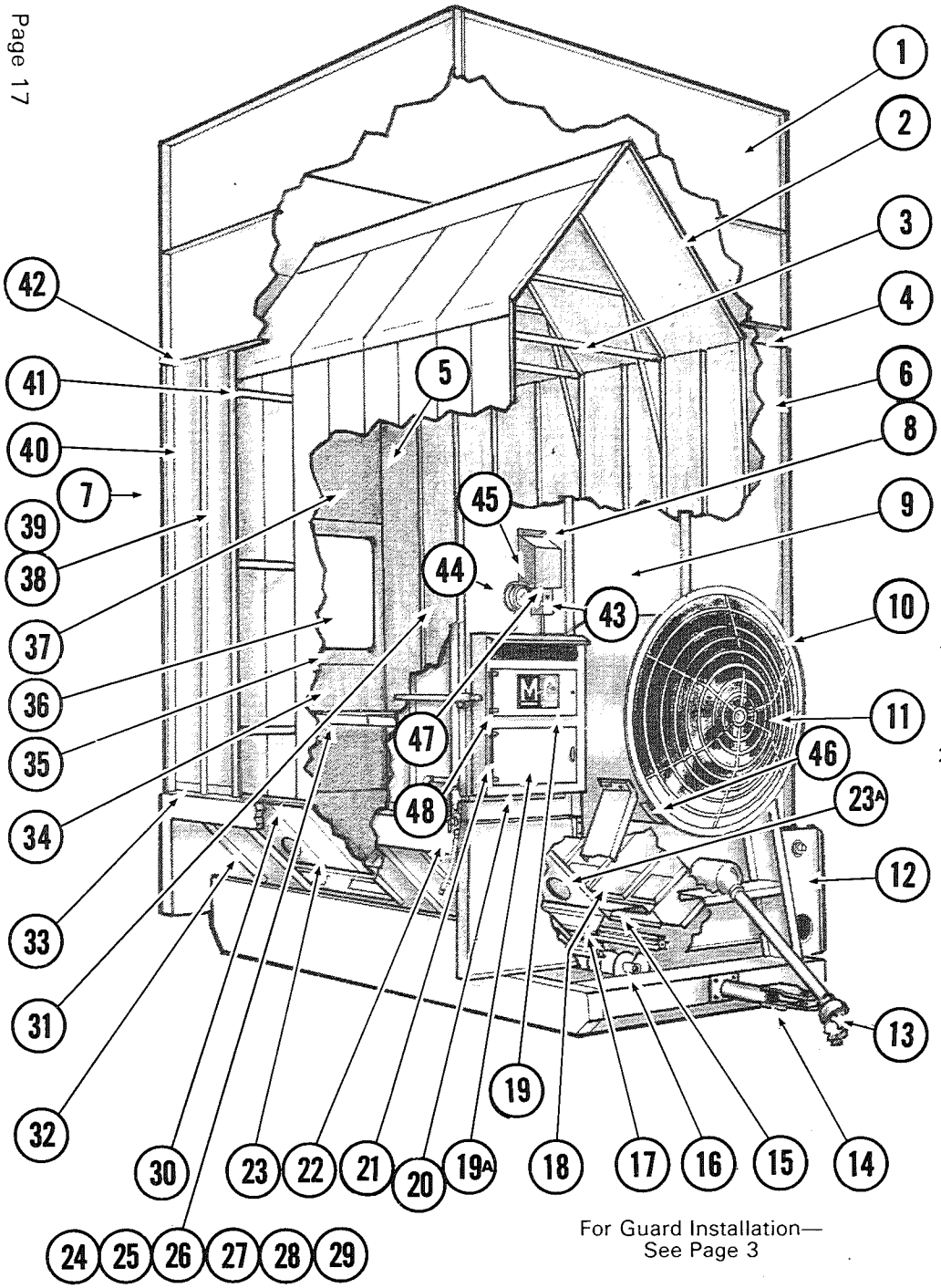
REF. #	PART #	DESCRIPTION
1	1284284	Mount Frame Strut
2	1210258	Motor Mount Base Weldment
3	1210337	9 Blade - 18° Fan
4	1280167	Stand Off Motor Mount Weldment
5	1216924	10 HP Motor 1 Ø 55 Amp
6	1216233	V-Pulley 4" O.D. × 1 ⅜ Bore
7	1216239	SK Bushing 1 ⅜ Bore
8	0008165	¾-10 Hex Nut
9	0008177	¾ Flatwasher
10	0008182	¾ Lockwasher
11	0008123	⅜-16×1 ¼ HHCS
12	1218117	5/16-18 × 1¾ Socket Head Cap Screw - Grade 5
13	0008168	⅜-16 Whiz Nut

FAN DRIVE P.T.O.



REF.	QTY.	PART #	TITLE
1	1	1215078	Fan Shaft
2	1	0016203	V-Pulley 3V6.0 × 4 Groove
3	1	1206220	SDS Bushing 1⅝ Bore
4	4	1216003	1⅝ Bore P.B. Bearing
5	1	1206218	1B 4.40D × 1⅝ Bore V. Pulley
6	1	1280049	Fan Pedestal
7	1	1210337	9 Blade 18° Fan
8	1	1216229	SK Bushing 1⅝ Bore
9	1	1286100	4/3V - 1000 Belt
10	1	1283402	Tensioning Bracket
11	1	0016201	Flat Idler w/Brg's Bearings
12	1	1216235	4/3V 19.0 Pulley
13	2	1284284	Mount Frame Strut
14	2	1283940	Mount Frame Adj. Angle
15	1	1280177	Mount Frame Base
16	1	1285065	Jackshaft 375B
17	1	0017650	Shear Flange 1¼" Bore
18	5	0018998	Woodruff Key
19	1	1238160	½-13 × 6 Full Thread HHCS
20	1	1236236	SF 1⅝ Bushing
21	1	0018250	Snap Ring 1¼"
22	2	0018133	⅜-16 × 2¼" Spec. Shear Bolt
23	2	0018149	⅜" Lock Nut
24	3	1218117	5/16 - 18 × 1¾ Socket Head Cap Screw - Grade 5

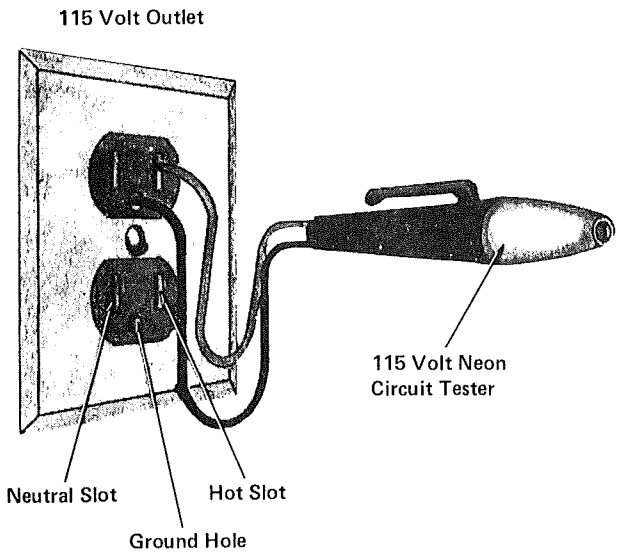
375 CUT-AWAY



For Guard Installation—
See Page 3

REF. #	PART #	TITLE
1	———	Wet Holding Hopper Ass'y. —See Page 6
2	———	Inner Peak Ass'y. —See Page 6
3	1282014	Inner Perf. Sheet Cross Angle
4	1282650	End Panel To Hopper Joiner Angle
5	1282866	Left Rear End Panel
6	1282831	Left Front End Panel
7	1282867	Right Rear End Panel
8	1282833	Right Front End Panel
9	1282839	Panel Above Fan
10	1280178	375 Orifice Weld
		For "E" Model Fan Drive Ass'y. See Page 15
		For "B" Model Fan Drive Ass'y. See Page 16
11	1218956	Fan Guard
12	———	Drive Reduction Base —See Page 11
13	0016600	P.T.O. Shaft —See Page 14
14	1201037	Portabilities For 375 Includes:
	1280128	Pole
	1201028	Wheel Mount & Hub Assembly
	0018993	Wheel
	1278990	Tires (Optional)
15	1282890	Unload Auger Cover
16	———	Metering System —See Page 12
17	1280225	Inner Screen Mount Weld.
18	1282995	Screen Cover
19	0211037	Control Cab. Door - Upper
19A	0211044	Control Cab. Door - Lower
20	0210014	Control Cabinet Weld.
21	1218254	Control Cab. Door Latch ("T" - Handle)
22	———	L.P. Piping Ass'y. —See Page 9
23	1282953	Lower Inside Screen - w/o Cleanout Hole
23A	1282994	Lower Inside Screen - with Cleanout Hole
24	1212928	Unit Floor Panel
25	1210299	Heat Chamber Door Frame
26	1211113	Heat Chamber Door Ass'y.
27	1252871	Right Front Floor Panel
28	1252872	Left Front Floor Panel
29	1282881	Center Front Floor Panel
30	1282739	Lower Screen Mn't. Angle
31	1282974	Inner End Screen
32	1282951	Lower Outside Screen
33	1252732	Screen Mn't. Angle
34	1282888	Panel Below Door
35	1282715	Rear Door Frame
36	1281183	Rear Door Ass'y.
37	1282876	Panel Above Door
38	1282945	Outer Screen
39	1282971	Moisture Control Screen
40	1282965	Outer End Screen
41	1212952	Screen Stiffener
42	1282380	Hopper Joiner Angle
43	1217018	High Limit Switch
44	1218973	Thermometer
45	1280160	Rain Guard
46	1213356	Orifice Reinforcing Flange
47	1216849	Air Pressure Switch
48	1214656	Control Cabinet Hinge

DRYER ELECTRICAL SYSTEM POLARITY & GROUND TEST



Using a 115 Volt Neon Circuit Tester, insert as shown. It should light, proving two things:

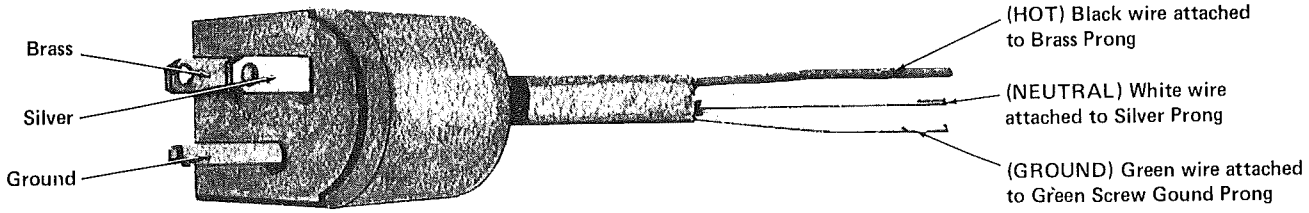
1) The right hand slot is hot.

2) the ground hole is properly grounded.

If the Tester does not light when inserted as shown, (AND THIS WAY ONLY) have an electrician look at your service as there is something wired wrong. This is the Standard Electrical Code for all wiring. The Dryer Electrical System must be properly polarized for the Fenwal Ignition System.

NOTE

If an extension cord is used, it MUST be a Three Wire Cord with a Three Prong Plug and a Three Hole Socket wired to the above code.



(Above) The Three Prong Fused Male Plug Pig Tail as it comes out of the Dryer Control Cabinet.

LUBRICATION

All bearings on the unload auger and the speed reduction assembly are pre-lubricated and require no further attention. The bearings on the fan shafts of the dryer should be lubricated with regular gun grease every 100 hours of operation. CAUTION: DO NOT OVER GREASE. Excess greasing blows out seals. All other parts - ratchets, ratchet drive and chains, should be oiled with number 10 oil daily. Variable Speed Pulley, PTO Jackshaft bearings, and the PTO shaft and U-Joints should also be lubricated about every 100 hours of operation. At the end of your drying season, grease and oil all parts to prevent rust.

CARE SHOULD BE TAKEN TO AVOID GETTING OIL INTO THE RATCHET PAWL SOLENOIDS OR ON BELTS.

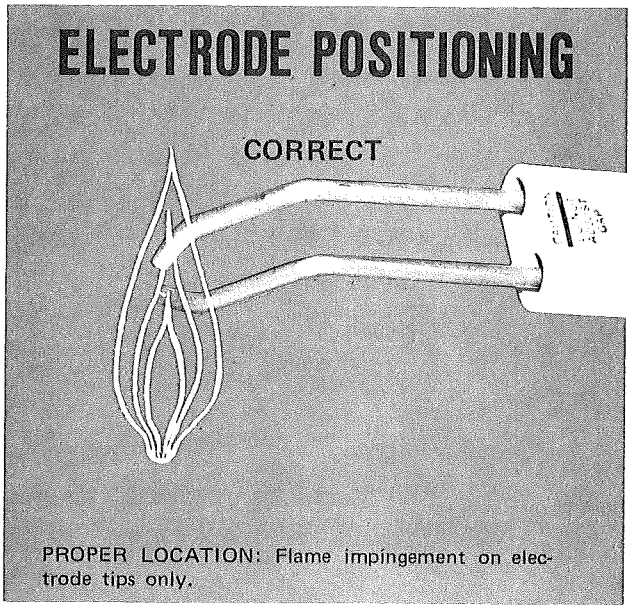
IGNITION

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.

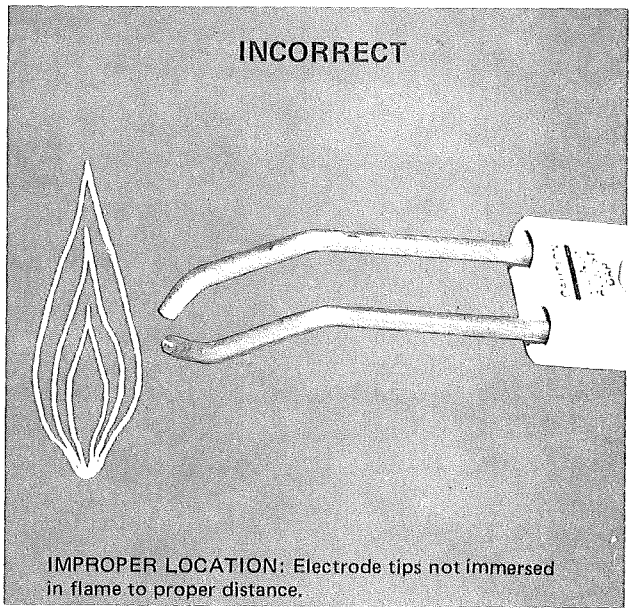
The flame detector monitors the spark current and the flame conductance to ground. If the spark of the flame is not present, feedback to the spark source removes power from the valve control circuit.



PROPER LOCATION: Flame impingement on electrode tips only.

LOCATION OF ELECTRODE TIP

The electrode assembly should be located so that the tips are inside the flame envelope and about ½ 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.

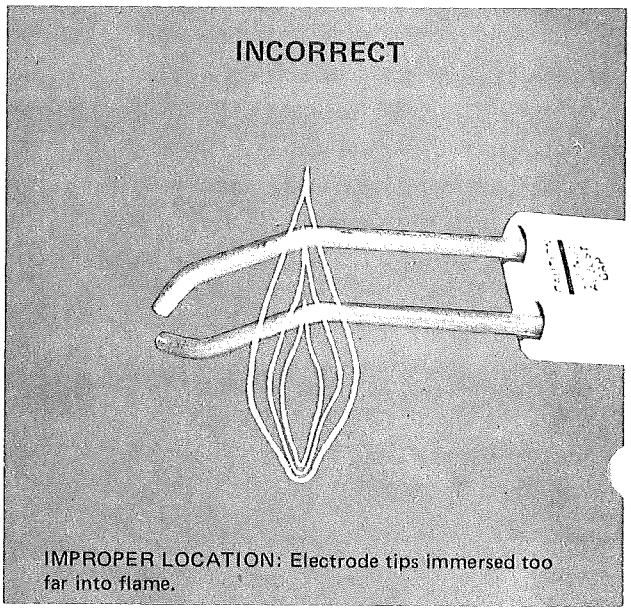


IMPROPER LOCATION: Electrode tips not immersed in flame to proper distance.

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.



IMPROPER LOCATION: Electrode tips immersed too far into flame.

NOTE
Recycle system before each test.

REPAIRS

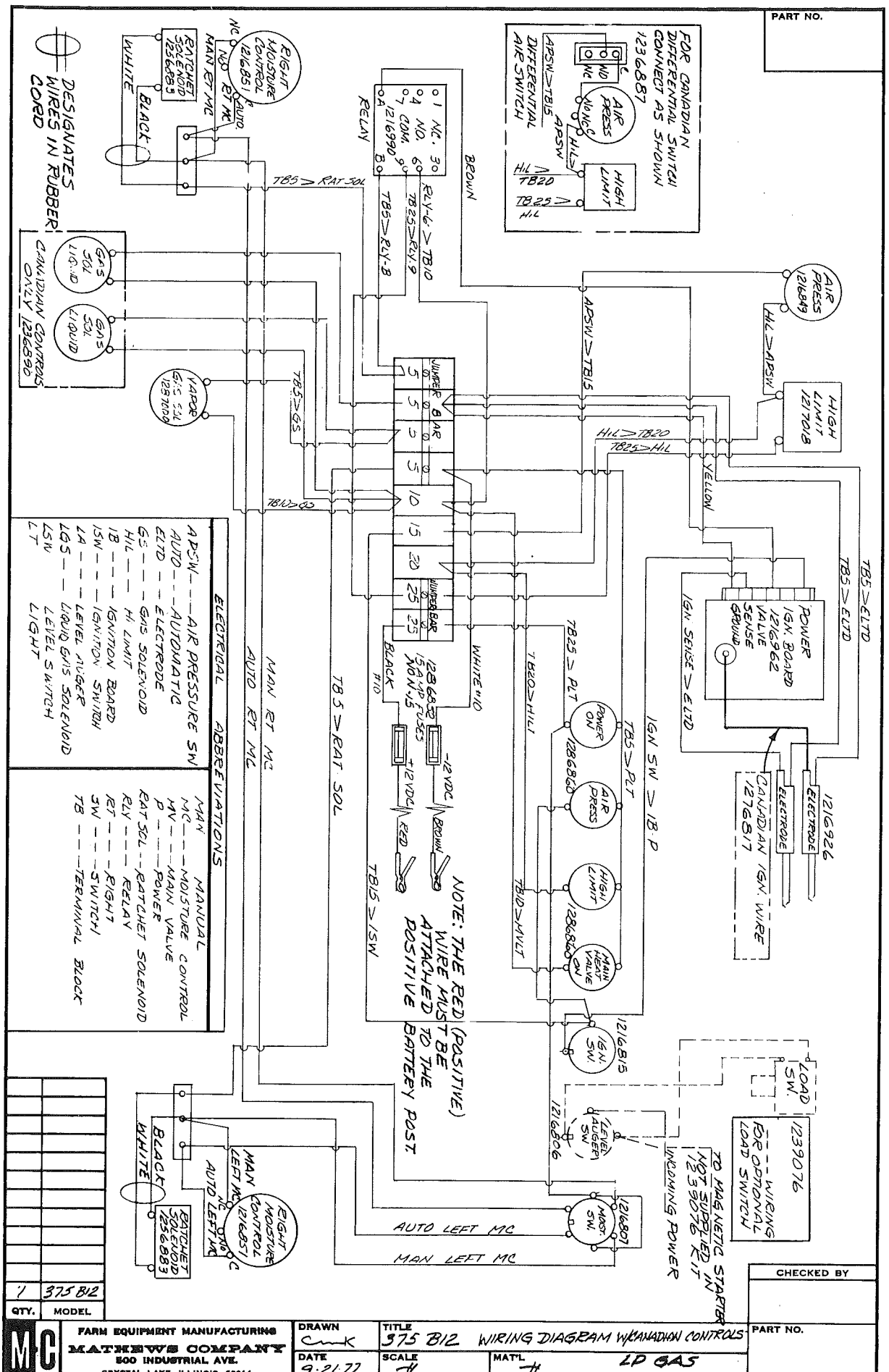
The Ignition System is not field repairable. Faulty units should be returned to the factory for repair or replacement.

TROUBLE SHOOTING

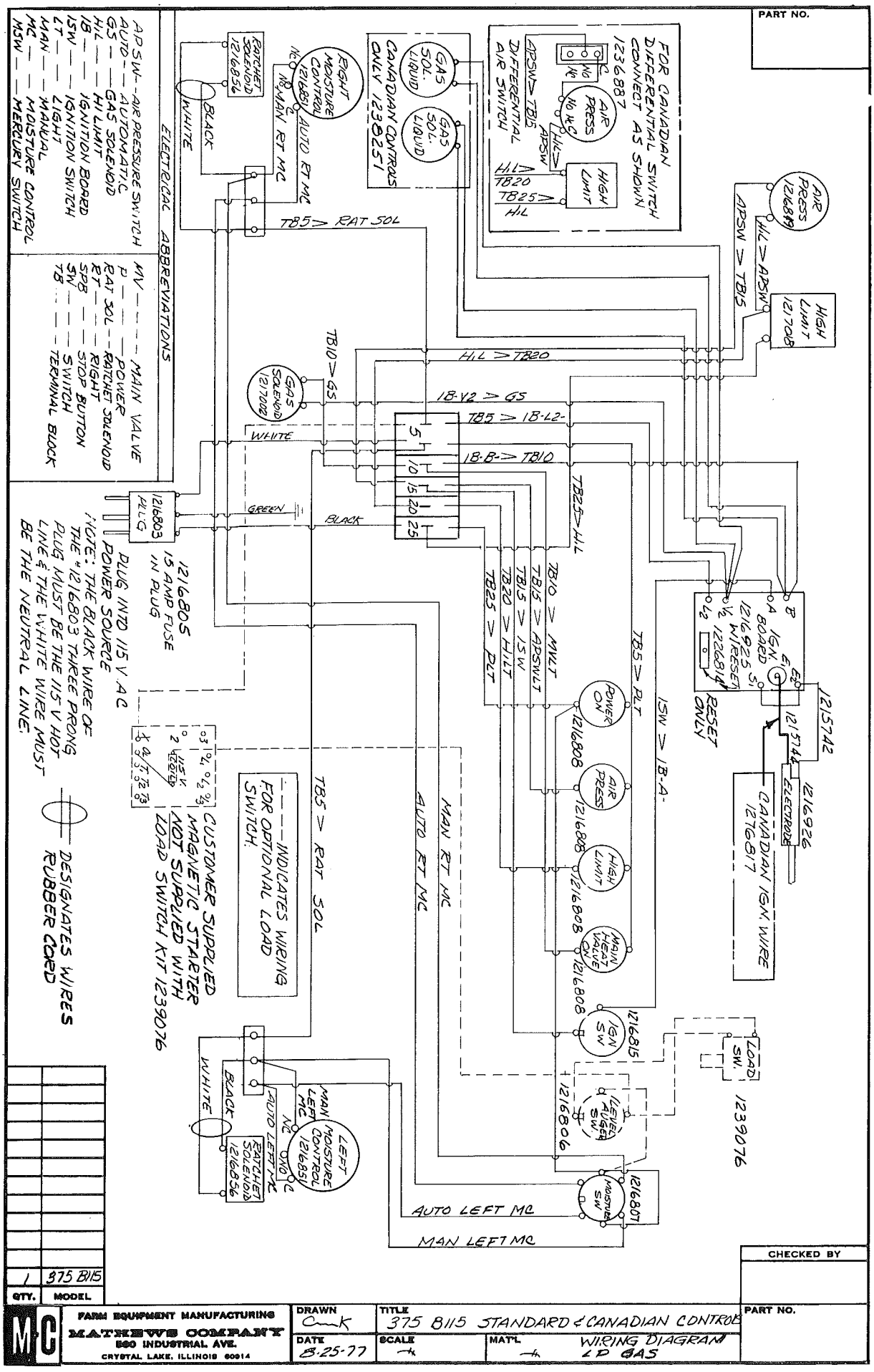
PROBLEM	SOME POSSIBLE CAUSES AND SOLUTIONS
1. Lights do not work.	(a) No electricity. Light bulbs burned out. (b) Fuse blown. (c) Broken or loose wire.
2. High Limit Light does not work.	(a) Light bulb burned out. (b) High Limit tripped out. (Reset by pushing Red Button.) (c) Switch itself burned out (Replace)
3. Air Pressure Switch not functioning.	(a) Dryer must be full of grain to operate. If dryer runs out of grain, the air will escape freely and loss of air pressure causes air pressure switch to open circuit. (b) Air tube from pressure switch into dryer may be filled with chaff. (Clean) (c) Adjust setting for less pressure. To close circuits, turn adjusting screw counter clockwise. CAUTION: DO NOT adjust to point that lights will stay on when fans are not running.
4. If flame does not light. (Fenwal Ignition)	(a) Electrodes not positioned in flame properly. (b) Electric Power not on. (c) Polarity of 115 Volts coming to dryer reversed or 15 amp fuse in plug or in control cabinet blown. (d) Machine not grounded. (e) Gas not on. Modulating valve not open far enough. (f) Gas solenoid not opening. (Faulty or loose wire). (g) High Limit Control (reset) tripped out. (h) Air Pressure Switch not functioning. (i) Broken wire from ignition board to electrodes. (j) Ignition board faulty--replace only. (k) Push reset button on ignition board.

PROBLEM	SOME POSSIBLE CAUSES AND SOLUTIONS
5. Heat shuts off	(a) Dryer has run low on grain. (b) Modulating Valve faulty. (c) High Limit Control tripped out. (d) Solenoid faulty. (e) Out of gas. (f) Faulty or broken electrodes. (g) Machine not grounded.
6. Not enough heat.	(a) Valves from gas supply are not fully open. (b) Increase pressure at pressure regulator. (On LP units, this is set at factory for approximately 7 - 8 pounds. However, to increase gas flow on LP units, turn adjusting screw in.) (c) Burner partially plugged. Remove and clean. (d) Hand valve not fully open. (e) Adjust Modulating Valve.
7. Gas Lines frosting up.	(a) When first starting burner, open the Main Hand Valve only partially until the unit becomes warm. (b) Gas valve on tank not completely open. (c) Dirty strainer-clean. (d) Check gas line for leaks. (e) On LP machine, vaporizer not in flame enough.
8. Automatic Moisture Control does not work	(a) Switch in dial control is faulty or there is a loose or broken wire to the dial control. Check and make replacement. IN THE MEANTIME, OPERATE ON MANUAL. (b) Loose or broken wire at toggle switch, ratchet solenoid, or in rubber cord. (c) Switch or solenoid burned or shorted out. (d) Dial set too high.

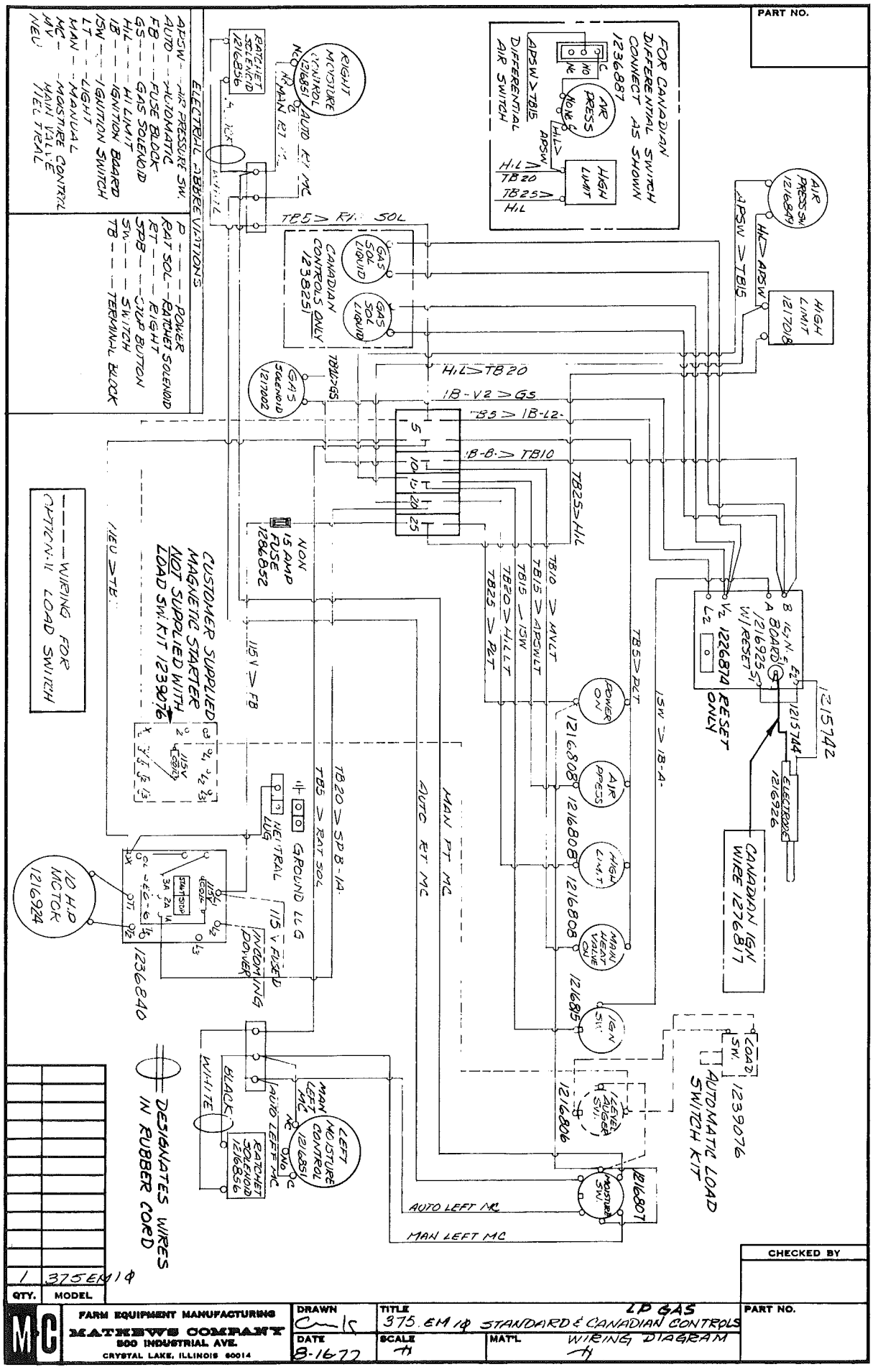
WIRING DIAGRAM 375 B-12 STANDARD & CANADIAN CONTROLS



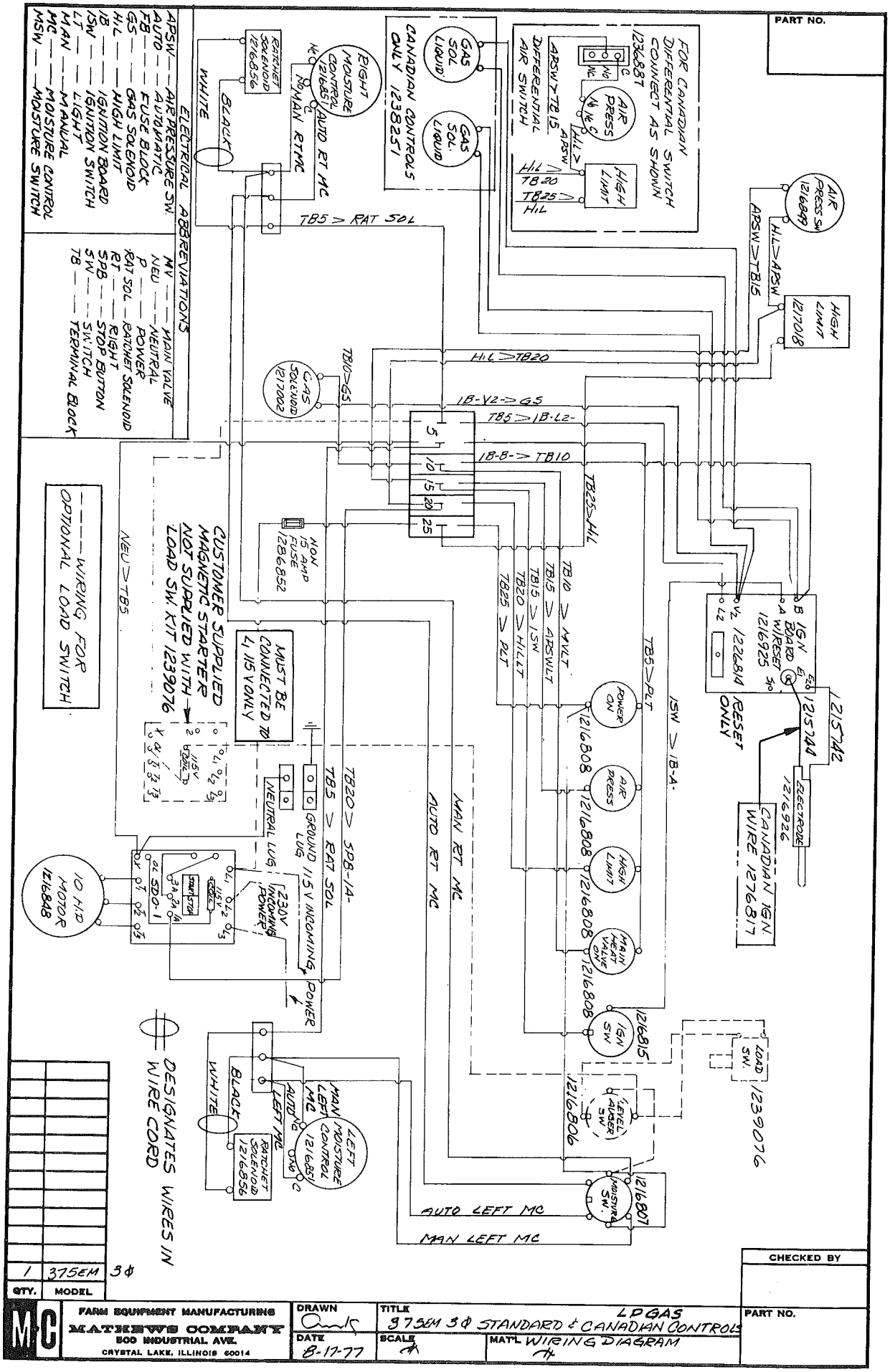
WIRING DIAGRAM 375 B115 STANDARD & CANADIAN CONTROLS



WIRING DIAGRAM 375 EM SINGLE PHASE STANDARD & CANADIAN CONTROLS



WIRING DIAGRAM 375 EM 3 PHASE STANDARD & CANADIAN CONTROLS



375 ALL HEAT CONVERSION

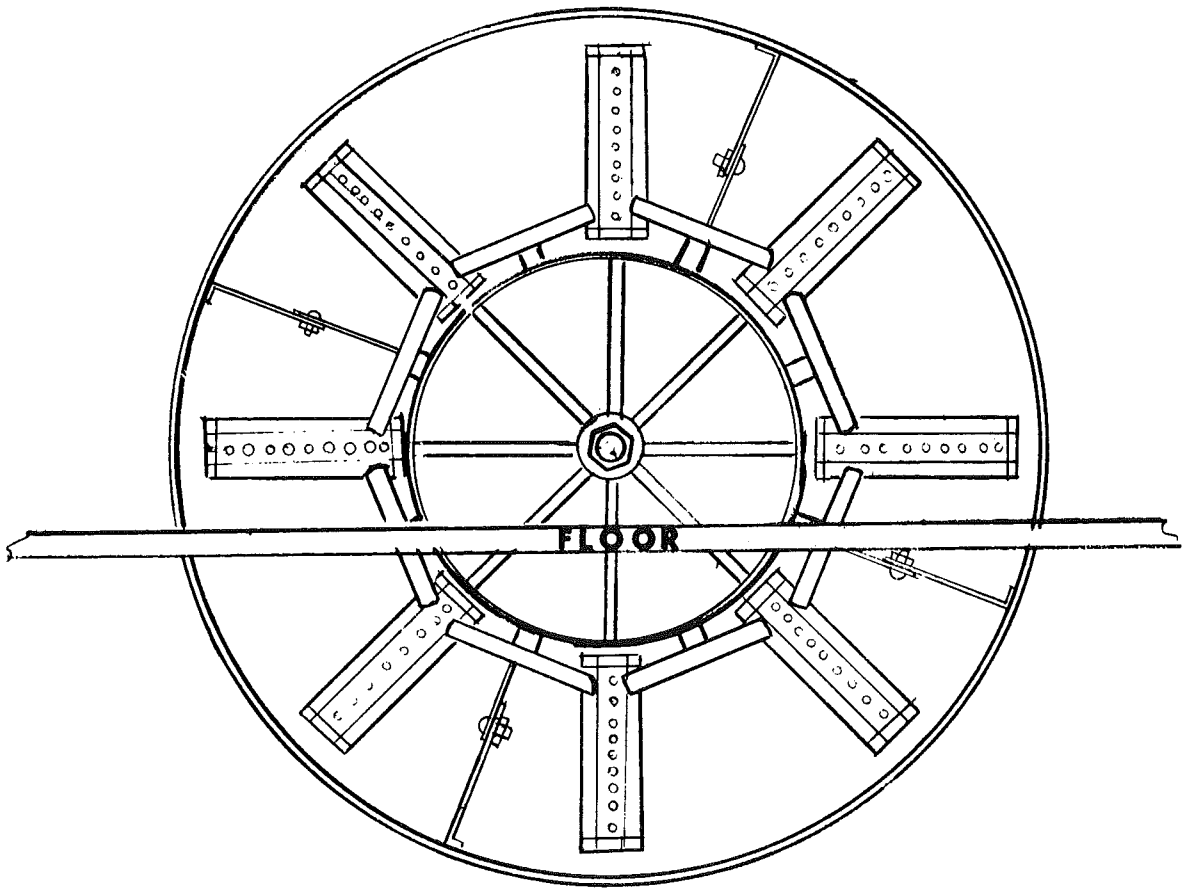
It is possible to operate your Model 375 Dryer as "all-heat" for use with "combination drying" or "dryeration" system. These systems save fuel and energy and produce even finer quality grain.

To convert the machine, install Kit 1279062-L.P. 1279063-NAT. consisting of:

3 -	1211241	Burner Unit Weld.
4 -	1210316	Ignition Tube Weld.
4 -	1214468	Burner Locator Strips
and either:		
3 -	1215987	Burner Gas Lead Tubes for LP Gas
or 3 -	1235999	Burner Gas Lead Tubes for Nat. Gas

Then follow these steps:

1) Remove the center front floor panel, item 16, page 10.
2) Remove the three 3/8" pipe plugs from the bottom three holes of the burner head, item 11, page 10.
3) Install the three new burner units and gas lead tubes in the same manner that the five existing burner units are mounted.
4) Install the burner locator strips and ignition tube weldments between each burner unit making sure that the ignition tube ends are fitted tightly into the corners of the flanges of the burner units.
5) Be sure that the small spot of weld on the gas lead tubes is facing the rear of the dryer.



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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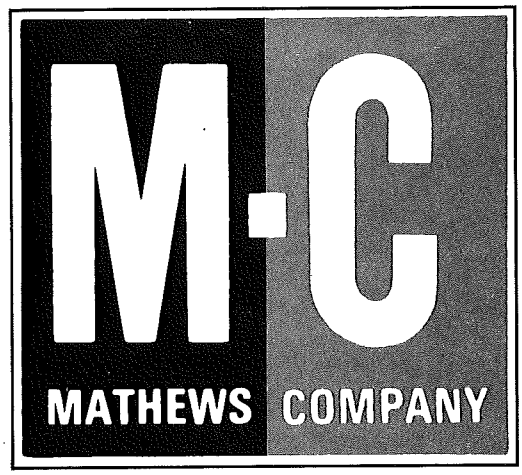

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