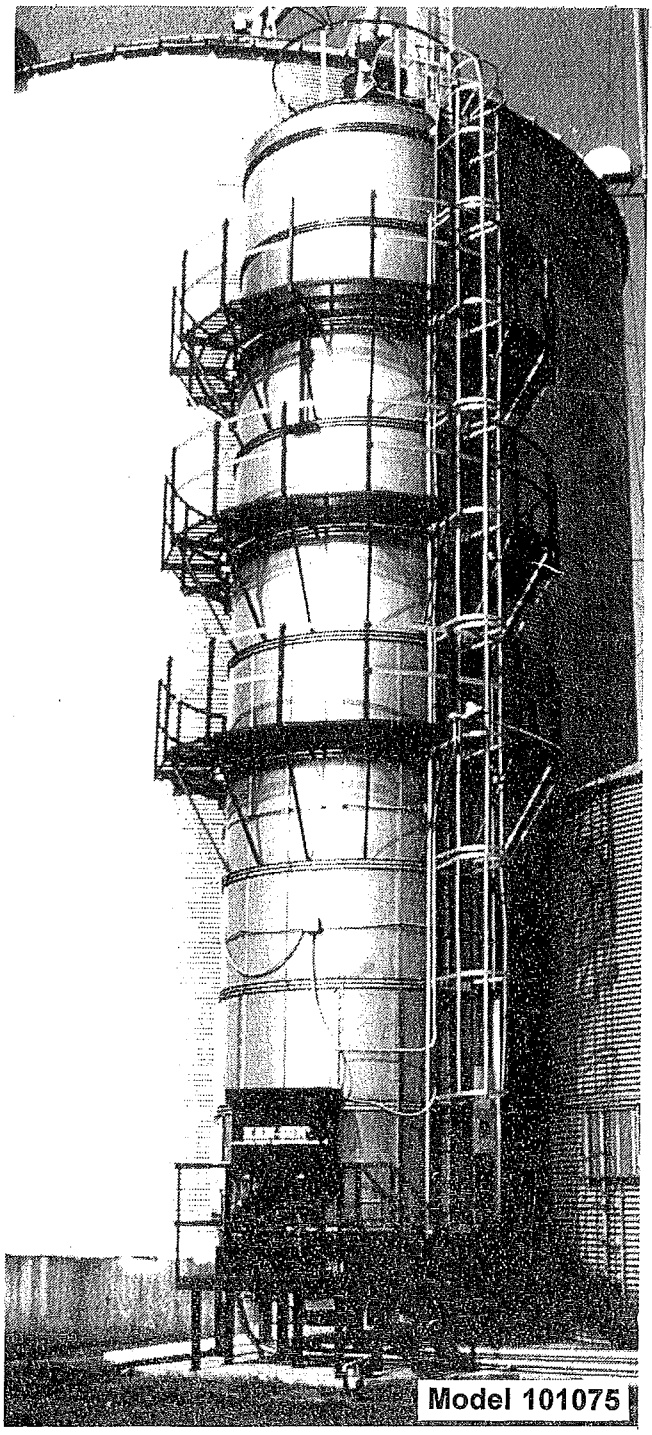
101075 TOWER DRYER



OPERATOR'S

and

PARTS MANUAL

(Starting with S/N 55974)

MODEL 101075

Form No. K349
February 1999

Mathews Company / 500 Industrial Ave., Crystal Lake, IL 60012, U.S.A.
815/459-2210 FAX: 815/459-5889

CONTENTS

Safety Precautions:

A trained electrician should do all electrical work. When electrical work is being done, the main disconnect should be locked and tagged out. Disconnect all electrical power before servicing or opening control box, adjusting, or lubricating the equipment.

In accordance with your local area, you must have the proper qualified person work on plumbing. When working on plumbing, you must lock and tag out fuel supply line. Fuel line must be drained and shut off before servicing. Some regulations specify that no one under the age of 16 may operate power machinery. This includes farmstead equipment.

OSHA regulations state in part: "At the time of initial assignment and at least annually thereafter, the employer shall instruct every employee in the safe operation and servicing of all equipment with which the employee is, or will be involved."

Unqualified persons are to stay out of the work area. The "work area" is defined as any area within the grain drying and storage complex where this equipment is installed.

A person who has not read and does not understand all operating and safety instructions is not qualified to operate the machine.

NEVER WORK AROUND THE DRYER WITH CONTROLS ON. Dryer has automatic controls and will turn on and off without warning! Stay clear of motors, belts, pulleys, sprockets, and AUGERS.

Failure to follow these instructions may result in personal injury or property damage.

NOTES

INTRODUCTION

To The Owner - Operator

This manual provides information on set-up, initial start-up, operation, shutdown, and maintenance as well as a parts breakdown for M-C Tower Dryer Model 101075 to keep your Tower Dryer operating at peak efficiency.

Use this manual before operating your Grain Dryer. Read the Start-Up and Operating Instructions. Check each item referred to and become familiar with the controls, adjustments and settings required to obtain efficient operation.

To keep the 101075 Dryer operating efficiently, refer to "Pre-Season Check" in the Maintenance section. The pre-season check can be made when the dryer is empty and any necessary repairs or adjustments can be made so the dryer will be ready to operate before the drying season.

Safety Precautions

This symbol is used to call your attention to instructions concerning your personal safety. Be sure to observe and follow these instructions.

A safe operator is the best insurance against accidents. The precautions listed below must be observed at all times.

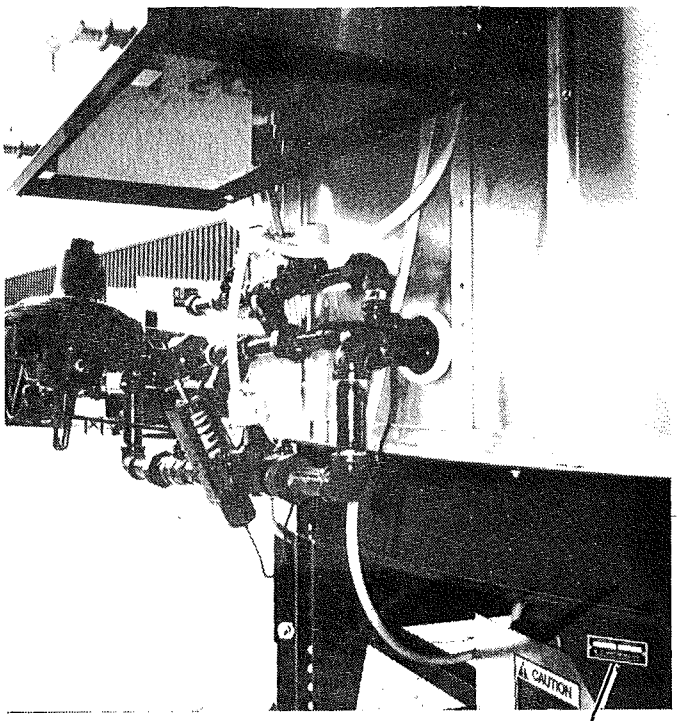
- Do not allow children or bystanders to be near the Grain Dryer or grain handling machinery while it is operating.
- Do not operate the Grain Dryer without all safety shields in place and secure.

A trained electrician should do all electrical work. When electrical work is being done, the main disconnect should be locked and tagged out. Disconnect all electrical power before servicing or opening control box, adjusting, or lubricating the equipment.

NOTE: To provide clear illustrations some of the covers, guards and shields were removed.

Warranty Registration

It is important to send in your warranty registration sheet as soon as your new 101075 Tower Dryer is delivered. The sheet validates your Grain Dryer Warranty and it is also our way of knowing who has purchased M-C equipment so we can keep in touch with you.



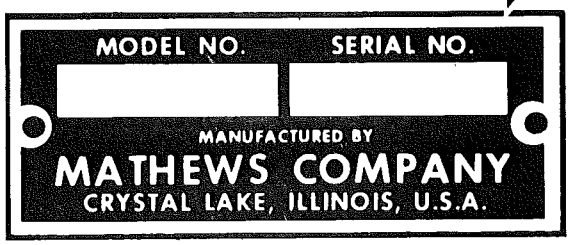


Figure 1

Model and Serial Number Location

The model and serial number of your Grain Dryer are stamped on a plate located on the leg support gusset just to the lower right of the control cabinet, see Figure 1. Record the model and serial number in the blank spaces provided in Figure 1.

CAPSCREW GRADE IDENTIFICATION

There are four grades of hex-head capscrews. Grade 1 and 2 are common capscrews, grade 5 and grade 8 are used when greater strength is required. Each grade can be identified by the marking on the head of the capscrew, see chart.

When servicing the Dryer and/or replacing capscrews, be sure to use the correct size and grade.

CAPSCREW GRADE IDENTIFICATION CHART

S.A.E. Grade	Description	Capscrew Head Marking*
1 2	WILL HAVE A PLAIN HEAD - NO RADIAL LINES Low or Medium Carbon Steel Not Heat Treated	
5	WILL HAVE 3 RADIAL LINES Quenched and Tempered Medium Carbon Steel	
8	WILL HAVE 6 RADIAL LINES Quenched and Tempered Special Carbon or Alloy Steel	

*The center marking identifies the capscrew manufacturer.

Metric (SI) Measurements

(English Units & Metric (SI) Equivalents)

Area
1 square inch = 6.4516 square centimeters
1 square foot = 0.0929 square meters
1 square yard = 0.8361 square meters
1 acre = 4047 square meters
1 acre = 0.4047 hectare

Force
1 pound (force) = 4.45 newtons

Length
1 inch = 25.4 millimeters
1 inch = 2.54 centimeters
1 foot = 304.8 millimeters
1 foot = 30.5 centimeters
1 foot = 0.305 meters
1 yard = 0.9144 meters
1 mile = 1.6093 kilometers

Mass
1 ounce = 28.35 grams
1 pound = 0.454 kilograms
1 ton = 907.1848 kilograms

Power
1 horsepower = 0.7457 kilowatts

Pressure
1 psi = 6.89 kilopascals
1 psi = 0.00689 megapascals
1 inch of mercury = 3.377 kilopascals

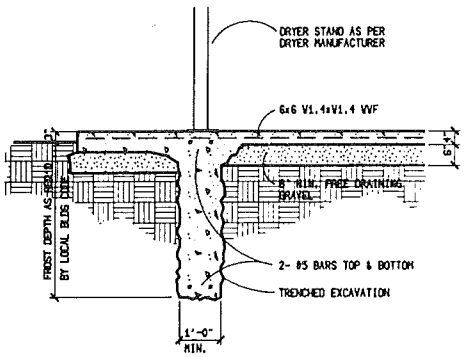
Temperature
1 degree Fahrenheit (°F – 32) ÷ 1.8 = °Celsius

Torque
1 inch pound = 0.113 newton meters
1 foot pound = 1.356 newton meters

Velocity
1 mile per hour = 1.61 kilometers per hour

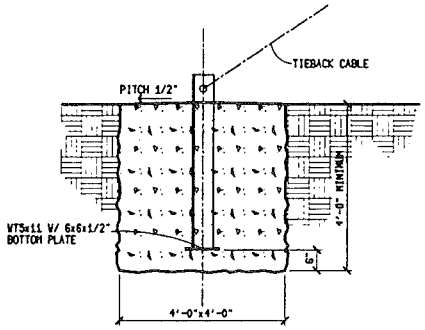
Volume
1 bushel = 35.24 liters
1 bushel = 0.0352 cubic meters
1 pint = 0.4731 liters
1 quart = 0.9464 liters
1 gallon = 3.7854 liters
1 cubic inch = 16.387 cubic centimeters
1 cubic foot = 0.0283 cubic meters
1 cubic yard = 0.7646 cubic meters

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



PAD FDN DETAIL **2**

SCALE: 1/2"=1'-0"



TIE-DOWN PAD **1**

SCALE: 1/2"=1'-0"

101075

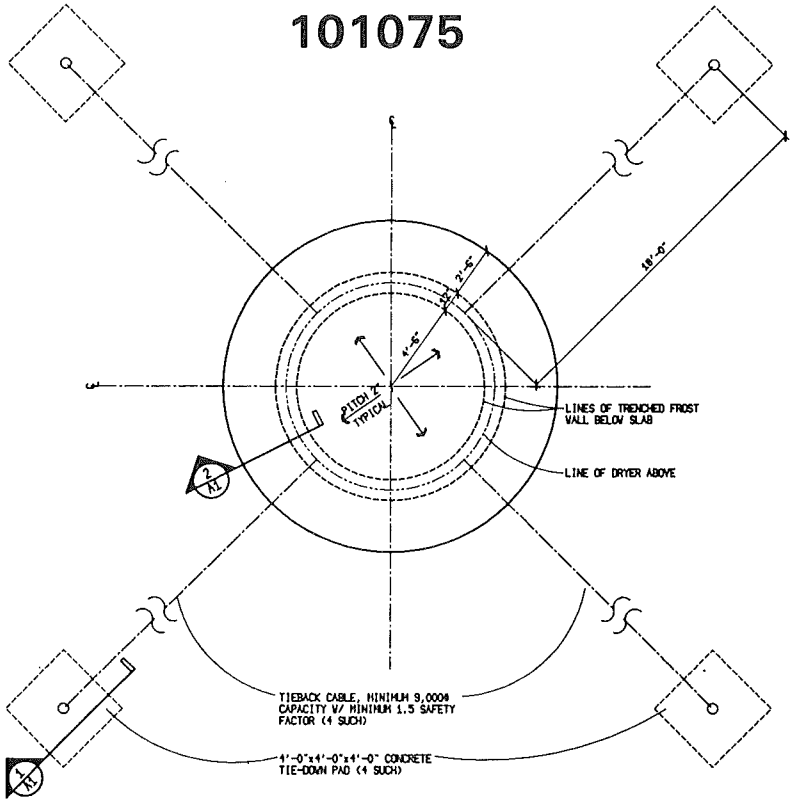


Figure 2 PIER AND FOOTING PLAN

SCALE: 1/4"=1'-0"

GENERAL NOTES

GENERAL

1. REFER TO DESIGN LOADS LISTED BELOW.
2. CONTRACTORS TO ASSUME FULL RESPONSIBILITY FOR:
   a. COMPLIANCE WITH THE CONTRACT DOCUMENTS.
   b. DIMENSIONS TO BE CONFIRMED AND CORRELATED ON THE JOB SITE AND BETWEEN INDIVIDUAL DRAWINGS OR SET OF DRAWINGS.
   c. FABRICATION PROCESSES AND CONSTRUCTION TECHNIQUES (INCLUDING EXCAVATION, SHORING, SCAFFOLDING, BRACING, ERECTION, FORMWORK, ETC.)
   d. COORDINATION OF THE VARIOUS TRADES.
   e. SAFE CONDITIONS ON THE JOB SITE.
3. UNLESS OTHERWISE NOTED, ALL DETAILS, SECTIONS, AND NOTES ON THE DRAWINGS ARE INTENDED TO BE TYPICAL FOR SIMILAR SITUATIONS ELSEWHERE.

FOUNDATIONS

1. FOOTINGS ARE DESIGNED FOR A MINIMUM SOIL BEARING CAPACITY OF 3,000 PSF.
2. ALL FOUNDATIONS SHALL BE CARRIED DOWN TO DEPTHS SHOWN ON THE DRAWINGS, OR DEEPER, IF NECESSARY TO REACH UNDISTURBED SOIL OF DESIGN CAPACITY.
3. APPROVED FILL MATERIAL IN LOCATIONS WHERE ENGINEERED FILL IS REQUIRED TO OBTAIN PROPER FOUNDATION BEARING CONDITIONS SHALL BE PLACED IN LAYERS NOT EXCEEDING 9" IN LOOSE THICKNESS AND COMPACTED TO A MINIMUM OF 95% OF THE MAXIMUM DENSITY OBTAINED IN ACCORDANCE WITH ASTM SPECIFICATION D1557, MODIFIED PROCTOR METHOD, LATEST EDITION.
4. BENEATH SILO AREA SUBGRADE PREPARATION SHALL INCLUDE THE REMOVAL OF ALL UNSUITABLE SURFACE SOILS INCLUDING SOFT CLAYS, HIGHLY ORGANIC TOPSOIL, ROOT MATTER, DEBRIS AND OTHER DELETERIOUS MATERIALS.
5. IF FILL MATERIAL IS REQUIRED, THE ZONE OF COMPACTED FILL SHALL EXTEND BEYOND THE EDGES OF THE FOOTING A DISTANCE OF ONE FOOT FOR EACH FOOT OF THICKNESS COMPACTED FILL BELOW THE FOOTINGS.

CONCRETE

1. CONCRETE WORK SHALL CONFORM TO:
   a. ACI 318-89.R92 STANDARD BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE.
   b. ACI 301, SPECIFICATION FOR STRUCTURAL CONCRETE IN BUILDINGS.
2. ULTIMATE COMPRESSIVE STRENGTH OF PORTLAND CONCRETE, STANDARD WEIGHT, AT 28 DAYS, SHALL BE 3,000 PSI, AIR ENTRAINED (6% +/- 1%)
3. CONCRETE CONTRACTOR SHALL NOT POUR ANY CONCRETE IN ADVERSE WEATHER CONDITIONS OR WHEN SUCH ARE FORECAST FOR THE TIME PERIOD FOLLOWING THE POUR UNLESS PROPER CURING AND PROTECTION IS PROVIDED CONTINUOUSLY UNTIL CONCRETE DEVELOPS ITS DESIGN STRENGTH.
4. CONCRETE CONTRACTOR SHALL SUPERVISE ALL TRADES REGARDING PIPING, ELECTRICAL CONDUIT, FIXTURE INSERTS, ANCHORS, ETC., PASSING THRU CONCRETE. BARS SHALL NOT BE CUT OR DISPLACED UNLESS ABSOLUTELY NECESSARY, AND THEN ONLY BY CONCRETE CONTRACTOR. MATCHING BARS EQUAL TO CUT BARS SHALL BE ADDED WITH PROPER LAPS AND EMBEDMENTS. CLEAR DISTANCE BETWEEN SLEEVES SHALL BE MINIMUM OF 8".
5. NO ALUMINUM OF ANY TYPE SHALL BE ALLOWED IN THE CONCRETE WORK UNLESS COATED TO PREVENT ALUMINUM-CONCRETE REACTION. THIS INCLUDES PUMPING THROUGH ALUMINUM PIPE.
6. REINFORCING BARS SHALL CONFORM TO ASTM SPECIFICATIONS A-615, GRADE 60.
7. ALL LAPS FOR REBA, WHEN NOT DIMENSIONED ON DRAWINGS, SHALL BE 40 BAR DIAMETERS.
8. UNLESS OTHERWISE NOTED, PRINCIPAL REINFORCEMENT SHALL HAVE THE FOLLOWING CONCRETE PROTECTION:
   a. SURFACES NOT FORMED - 3" COVER MINIMUM.
   b. FORMED SURFACES IN CONTACT WITH SOIL OR WATER OR EXPOSED TO WEATHER - 2" COVER MINIMUM.

NOTES

1. MAX. DRYER OPERATING WEIGHT = 110,000#
2. DESIGN WIND SPEED: 80 MPH (35 PSF)
3. DESIGN SOIL PRESSURE: 3,000 PSF (SOILS ENGINEER TO VERIFY)
4. CONCRETE: F '$_c$ = 3,000 PSI, AIR ENTRAINED (6% +/- 1%)

FOUNDATION LAYOUT AND ANCHORING INFORMATION FOR 101075

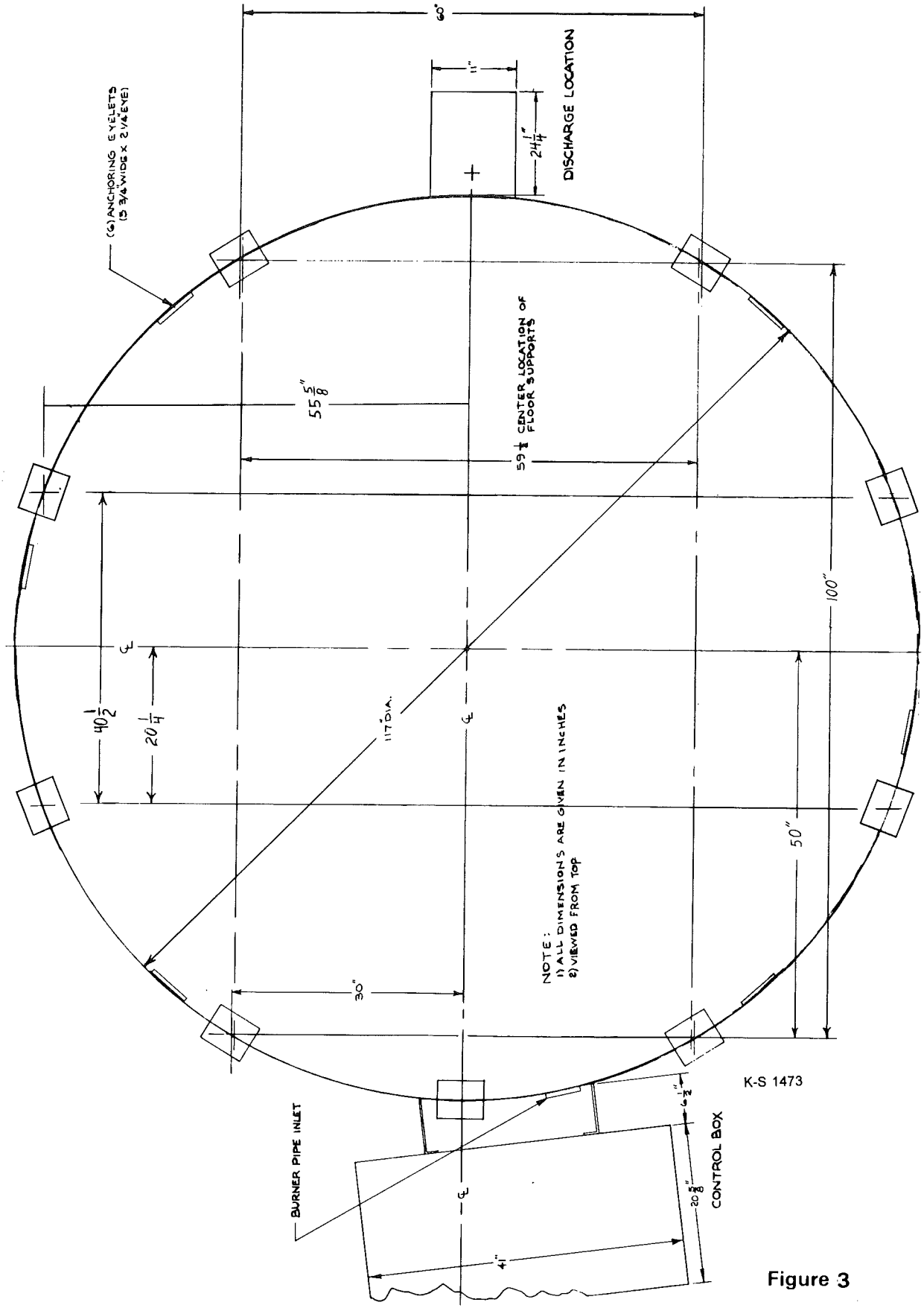


Figure 3

SET-UP INSTRUCTIONS

General

Check to make sure that all the parts and hardware listed on the packing list have been received.

Permanent Installation

The dryer must be installed on a level concrete foundation designed to carry the weight of the dryer when full of grain. The foundation must be engineered locally for ground and weather conditions to prevent settling and frost upheaval. See Figure 2 and 3 .

Allow for unrestricted air flow around the dryer and a clean supply of intake air.

It is recommended that the dryer be at least 10 feet from another dryer.

Shipping

The 101075 Tower Dryer is shipped in (6) sections: Base, (4) Double Screen Sections, and (1) Screen with Top Section. See Figure 4.

Each section is marked at the center ladder bracket to assist in the proper placement of each section when stacking. Ladders are bolted to all screen sections except the base section which has a 9 ft. ladder that may have to be shortened to fit the installation.

Unloading

When unloading the (6) sections from the delivering carrier, start by positioning the Base Section on the concrete foundation using the lifting brackets located beneath the base in a (4) point lift.

Discard the shipping legs and attach the (9) leg extensions to the base. The top of each leg should make contact with the base to support the weight of the dryer and crop to be dried. When the top of the leg makes contact with the base, only (1) set of holes will line up to accept the 5/8-11 x 7" Grade 5 Hex Head Capscrew, (2) Flatwashers and Hex Nut to secure each leg.

Set the base section into place so the discharge auger is correctly positioned. Level base sections using metal shims as required.

Now unload (4) of the remaining sections using the special Lifting Bracket provided by the factory which will be bolted to the top of one of the sections.

Do not lift more than (1) double screen section with special lifting bracket or any other type of bracket.

Screen Section #10 and the Top Section are lifted by placing a hook into the "U" Bolt attached to the Roof Cap. Access to the "U" Bolt is through the Receiving Tube of the Grain Receiving Top Assembly. See page 54.

Be sure to place the sections so that there is enough space between them to allow easy assembly of the Outside Walkways and the Ladder Safety Cages. Both the Walkways and Safety Cages should be placed onto the sections before they are stacked.

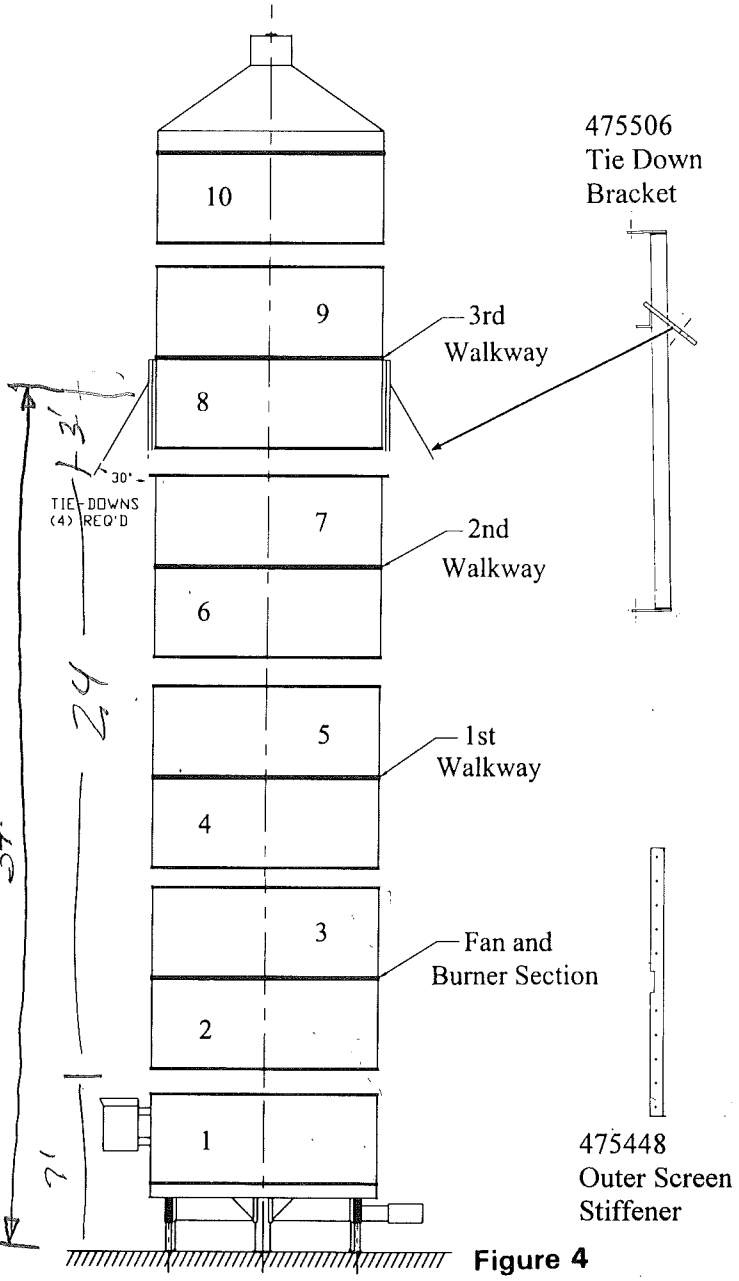


Figure 4

OUTSIDE WALKWAY ASSEMBLY

Walkway Installation

The Walkway Floor Brackets are mounted to the center channel rings of the sections and must be pulled out until they are perpendicular to the rings allowing the channels of the Walkway Sections to slide over the Floor Brackets. Bolt brackets to channels with 5/16" x 3/4" hex washer head capscrews and whiz locknuts. There are (5) Walkway Floor Sections for each double screen section.

Only hand tighten bolts until entire walkway is installed.

Be sure to install the first Walkway Floor Section on either side of the Ladder Mount Bracket and work around the section and back to the ladder bracket.

The first Walkway Floor Section will slide onto (4) Walkway Mount Brackets. However, the second floor section side will be bolted to the side of the first floor section using the (3) bolts of the first Walkway Floor Mount Bracket. Therefore, the second floor section will only use (3) Walkway Mount Brackets as it will be sharing the end bracket of the first floor section. The same will be true for the remaining (3) Walkway Floor Sections.

Once a Walkway Section is bolted to the Floor Brackets, install (4) #475342 Walkway Diagonal Supports to front end of the mounting channels with (2) 5/16" hex washer head capscrews and whiz locknuts. The lower end of the diagonal support is bolted to the top of the lower ring with (1) 5/16" hex washer head capscrew and a whiz locknut.

After the Walkway Floor Sections and the Diagonal Supports are installed, the Upright Posts #475347 are to be installed. Place each Post so that the side plate at the bottom faces into the walkway floor mount channel. The Post will rest against the front edge of the Walkway Floor Section. Here again, when the Floor Sections meet, the (3) bolts used to hold the Post to the floor section will also be used to join the floor sections at the front. Be sure that all Posts are placed in the same way (on one side of the joint or the other) all the way around the dryer. If they are not, the holes in the Hand Rails #475353 will not match the holes in the Posts.

Install the Hand Rails to the Upright Posts (center and top holes) with 5/16 x 3/4" hex washer head capscrews and whiz locknuts.

Once the complete Walkway Assembly is put together **all the bolts can be tightened.**

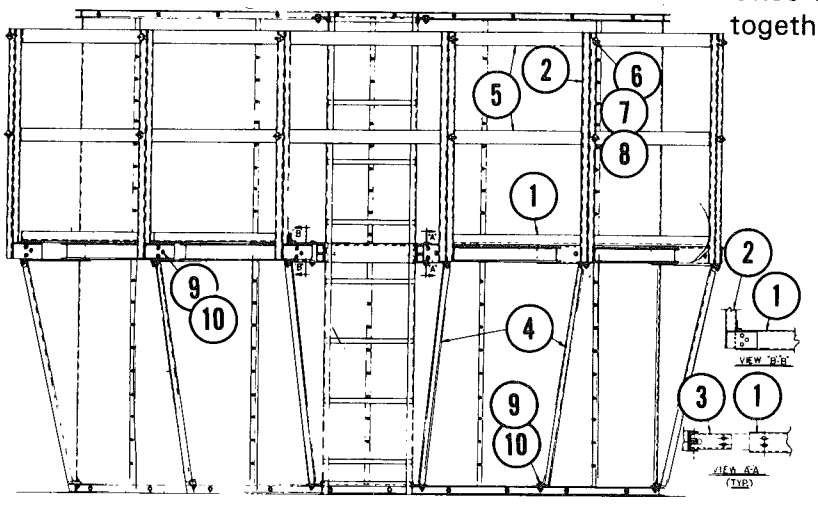


Figure 5

Ref.	Part No.	Qty.	Description
1	475348	5	Walkway Floor Section
2	475347	16	Upright Post Weldment
3	475343	16	Floor Mounting Bracket
4	475342	16	Walkway Diagonal Support
5	475353	8	Walkway Hand Rail
6	097121	34	3/8-16 x 2¾" Hex Head Capscrew
7	095013	34	3/8 Flatwasher
8	434111	34	3/8-16 Flange Whiz Locknut
9	837524	170	5/16-18 x ¾" HWH Screw
10	434632	170	5/16-18 Flange Whiz Locknut

Ladder Bracket

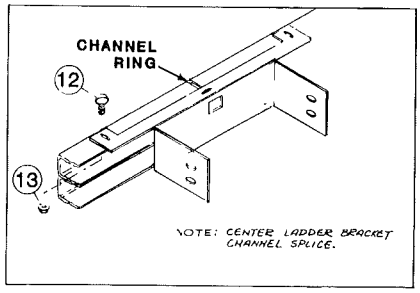


Figure 6

Dryer Weight - Approximate in pounds (kgs)

MODEL	EMPTY	FILLED (w/No. 2 Corn)
101075 TOWER	13,300 (6,033)	66,660 (30,237)

Ladder Assembly

			101075 Ladder Part List
Ref.	Part No.	Qty.	Description
1	475060	2	5' Ladder Weldment
2	475062	4	8' Ladder Weldment
3	475061	1	9' Ladder Weldment (Base, Cut to size)
4	475059	2	Ladder Connecting Bracket
5	475351	5	Main Ladder Bracket
6	475352	11	Ladder Bracket
7	475063	18	Ladder Cage Hoop
8	475066	16	8' Ladder Cage Strap
9	475090	4	Safety Cage Connecting Strap
10	475067	8	5' Ladder Cage Strap
11	837524	152	5/16"-18 x 3/4" HWHCS
12	434632	152	5/16"-18 Whiz Hex Nut

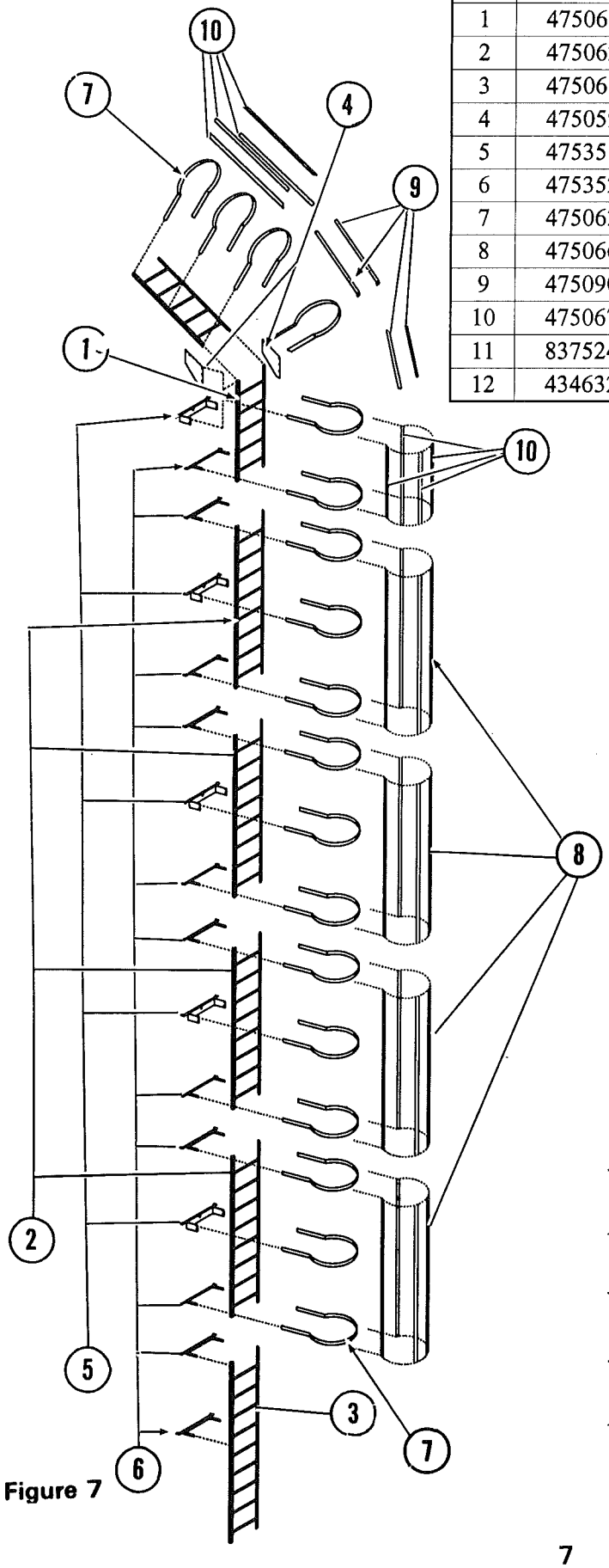


Figure 7

Assembly of the Ladder Safety Cages

There are (4) 8 ft. and (2) 5 ft. Ladder Safety Cages to assemble.

To assemble an 8 ft. ladder safety cage, bolt (1) Ladder Cage Hoop #475063 to the top and (1) hoop to the bottom of the ladder brackets of the 8 ft. ladder. Use the 5/16 x 3/4" hex washer head capscrews that are holding ladder to brackets.

Now bolt (2) 8 ft. Cage Straps #475066 to the (2) hoops with 5/16 x 3/4" hex washer head capscrews and whiz locknuts. Bolt the 3rd cage hoop to the cage straps to locate correct hole on center ladder bracket to be used to attach the 3rd hoop. Now install the remaining (2) cage straps.

Complete assembly of the (3) remaining 8 ft. safety cages.

The (2) 5 ft. ladder cages are to be installed (1) on the 10th screen section ladder and the other on the 5 ft. ladder bolted to the roof section.

The 5 ft. cage on the 10th screen section uses (2) hoops and (4) 5 ft. cage straps. The bolts at the top of the cage straps are also used as the bottom bolts for the Connecting Straps #475090 that are attached to a cage hoop bolted to the (2) Ladder Connecting Brackets #475059.

The 5 ft. ladder cage for the roof section uses (3) hoops and (4) 5 ft. cage straps. On this cage the bolts at the bottom of the cage straps are also used as the top bolts of the (4) Connecting Straps #475090.

Installation

Stacking of the (4) Double Screen Sections Onto Dryer Base

With the (3) Outside Walkways and (6) Ladder Cages installed, the (4) Double Screen Sections are ready to be placed into position on top of the dryer base. Be sure that the base is level and anchored to the foundation using turn buckles attached to the base section frame and secured to the foundation.

The ladders are used as a guide to correctly position each double screen section as it is stacked.

Attach the special lifting bracket to the top of the 2nd and 3rd double section, attach crane hook to bracket and place section onto the base using drift pins to align holes. Be sure that the (3) pipe unions on LP burners -- 1¼" for burner vapor line, ¾" for vaporizer to manifold line and ¾" for the liquid propane to vaporizer line -- are aligned so they can be easily tightened after angle rings are bolted together. Natural gas has only (1) 1¼" union. Use 5/16 x 3/4" hex washer head capscrews and whiz locknuts to join sections.

Once the base and the double screen section 2 and 3 are bolted together, the (10) Outer Screen Stiffeners #475448 are bolted to the (10) Outer Screen Support Angles #475447 on the base section and the (10) Support Angles on section 2. Use 5/16 x ¾" hex washer head bolts and whiz locknuts.

Remove special lift bracket and bolt to top of section (5). Again, use ladders on both double sections to position 4th and 5th double screen section onto the 2nd and 3rd section using drift pins to align holes. Use 5/16 x 3/4" hex washer head capscrews-grade 5 and whiz locknuts to join sections.

Now use the same procedure for the 6th and 7th section and the 8th and 9th double section as described for the 4th and 5th section. Don't forget to remove the special lift bracket from the top of the 9th section before starting to stack the 10th screen section and the roof section.

The 10th section and roof double section is lifted by placing the crane lift hook into the "U" Bolt attached to the Roof Cap. See page 54. Again use ladders for correct positioning and drift pins to align holes in channel rings. Use 5/16 x 3/4" hex washer head capscrews-grade 5 and whiz locknuts to join sections.

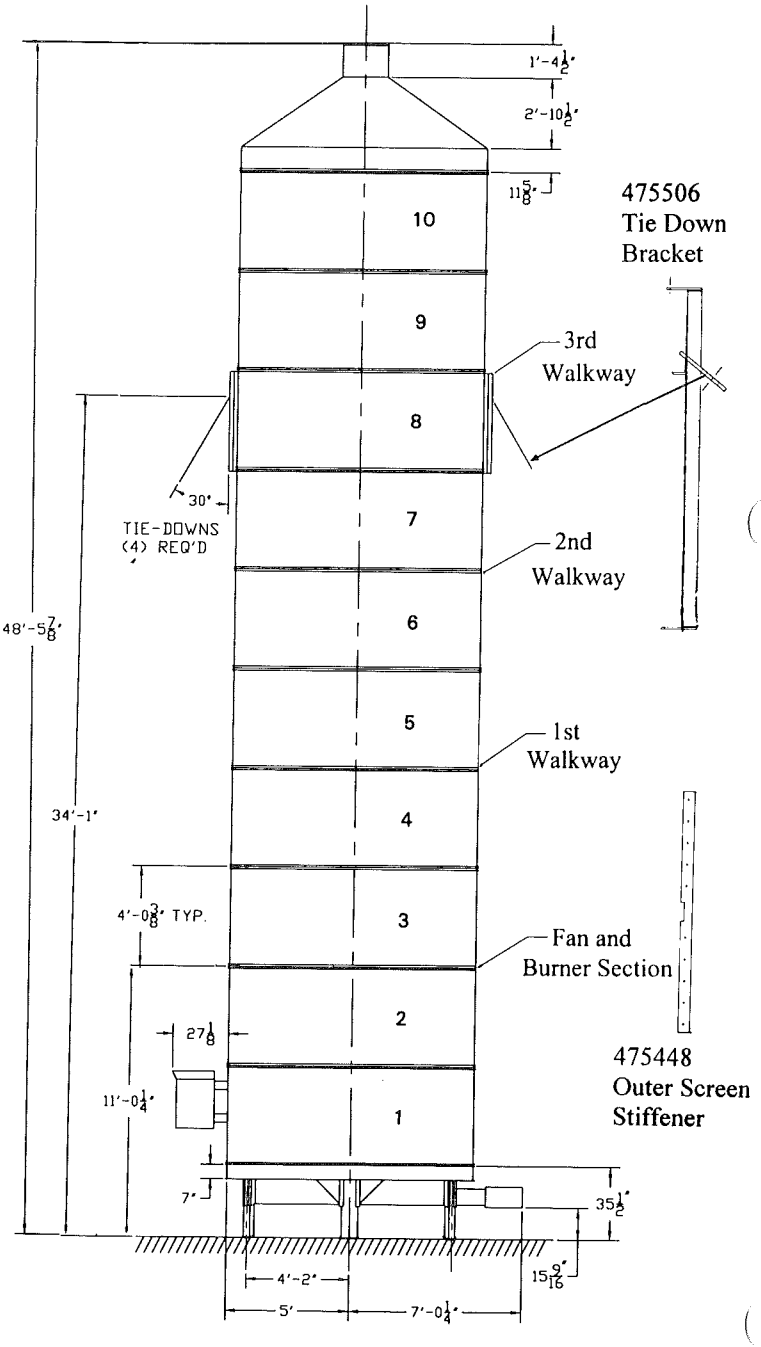


Figure 8

Once all sections are stacked and bolted together, install the (4) guy wire tie Down Brackets #475506 to the outside channel rings of the screen section selected. Figure 8 shows placement of these brackets between the 8th and 9th screen sections, but this may vary with conditions at the dryer site.

NOTE: All anchoring material is to be supplied and installed by customer.

IMPORTANT: If the dryer has not been completely erected by the end of the day, it MUST be guy wired to prevent blow-over damage from wind.

Wiring

Fan Motors

There are (3) 1" gray flexible liquatite conduits containing (4) wires (red, black, blue-power and green-ground) for each of the (3) fan motors. These conduits are in the base section coming from the back of the control cabinet and will have to be connected to the conduit boxes of the (3) fan motors located in the 2nd section. Both the (3) conduits and motors are numbered so that each conduit is connected to the correct motor. Use the following chart for correct wire connections of 25HP motors. Also double check with connections on motor name plate.

101075 25HP Fan Motor Wiring 3 Phase, 60Hz

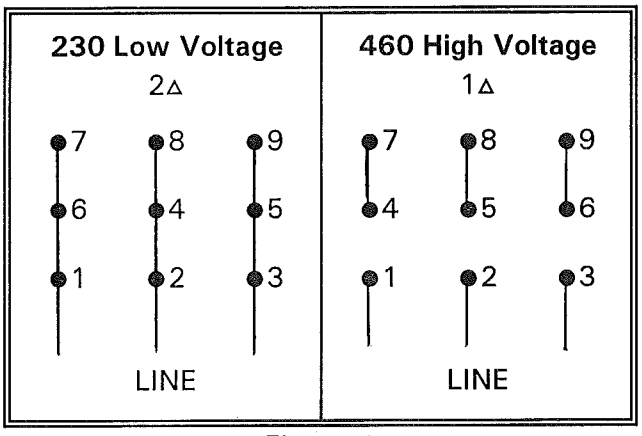


Figure 9

Ignition Boards, Air Pressure Switches and Cold Grain Thermistor

There is a ¾" flexible conduit that will have to be connected to the bottom of the gray 17 x 14 x 8½ Ignition Board Cabinet mounted in the 2nd section. There are (22) wires in this conduit. Each wire will have to be trimmed to length and fitted with the proper wire connector. Use the following chart for correct wire connections.

There are (11) wires for the (3) Ignition Boards:

#1 Ignition Board	DR-LD→IBA (L1) IB-B→ILT IB→RESET IB→RESET
#2 Ignition Board	IB2-B→ILT2 IB2→RESET2 IB2→RESET2
#3 Ignition Board	IB3-B→IT3 IB3-B→GV IB3→RESET IB3→RESET

Each of the above wires are to be fitted with a female wire connector.

Air Pressure Switches

Besides the (11) ignition board wires, there are (7) wires for the (3) Air Pressure Switches that have to be connected to the (3) terminal blocks marked #1, #2 and #3 that are just below ignition board #3. These wires are:

#1 Terminal Block	COIL-1→APSWIC APSW1→APLT1 APSW1→IN2MS2
#2 Terminal Block	IN3MS2→APSW2 APSW2→IN2MS3
#3 Terminal Block	COIL3-APSW3 APSW3→ISW

Each of the above wires are to be fitted with a fork wire connector for easy connection to the screw type terminal blocks.

Cold Grain Thermistor

There is also a ⅜" flexible conduit that will have to be connected to the bottom of the ignition board cabinet. This conduit contains (2) wires coming from the Cold Grain Thermistor located in the base section. These (2) wires must be connected to the black screw-type (4) position terminal block located below ignition board #2. Use (2) of the positions and connect the (2) thermistor wires using fork wire connectors for

easy installation. Now connect the (2) yellow wires marked CTSW→CGT and CGT→GT-3 to the (2) wires coming from the cold grain thermistor.

There are (2) remaining white wires in the ¾" conduit from the control cabinet, TBB5→TB5 and the other TB5→GV, that are to be connected to the (3) position white terminal block to the left of ignition board #1.

Thermometer, High Limit and Modulating Valve Sensing Bulbs

Unwind the capillary tubes for the thermometer, high limit and modulating valve sensing bulbs. Now place the bulbs up through the closest 1⅜" clean-out hole (Heat Floor) to the mount bracket located in the 3rd screen section. A bushing is provided for installation around the clean-out hole to protect the capillary tubes from being cut by edges of the hole. Place the (3) bulbs onto the mount bracket and fasten bulbs to bracket with (2) 14" Tie Wraps. See page 48.

Once all the above wires are connected, the wiring outside the dryer can begin.

Level (Rotary Fill) Switch

There is a ⅜" flexible conduit that is rolled up next to the right side of the control cabinet (as you face it) that will have to be unrolled and taken up to the top of the roof section and connected to the ¾" NPT opening of the Rotary Fill Switch. The Rotary Fill Switch is located between the ladder to fill mount brackets, see page 55. The (2) yellow wires and (1) white wire are to connected to the switch. Yellow wire LASW→LSW-5- is connected to terminal #5 and the yellow wire LSW-3-→LASW is connected to terminal #3. The white wire TB5→LSW-2- is connected to terminal #2.

Moisture Control Thermistors

A ½" flexible conduit that is also rolled up and next to the left side of the control cabinet will have to be unrolled and connected to the bottom of the gray (4) way Thermistor Box (6 x 6 x 4") which is attached to the side of the 5th screen section.

Now connect the ½" flexible conduit from the gray (3) way Thermistor Box attached to the side of the 7th screen section to the side of the Thermistor Box attached to the 5th screen section. Now connect the wires from both conduits to the terminal blocks as shown on Thermistor Wiring Diagram page 33.

Filling Equipment (Customer Supplied)

1. Be sure that the system used has the grain moving capacity to fill the dryer faster than the grain shrinks and dries. If it does not, the Low Grain Timer will time out and shut down the dryer when the Wet Grain Switch is in the AUTOMATIC position. If this happens, the EMPTY and FILLING indicator lamps will be on.
2. The filling equipment MUST be controlled by the dryer. The take-away equipment can be controlled by the dryer or separately.
3. The power for the fill equipment motor magnetic starter coil is controlled by the non-powered contacts of the relay provided in the control cabinet. Use terminals #5 and #7. See Figure 10.

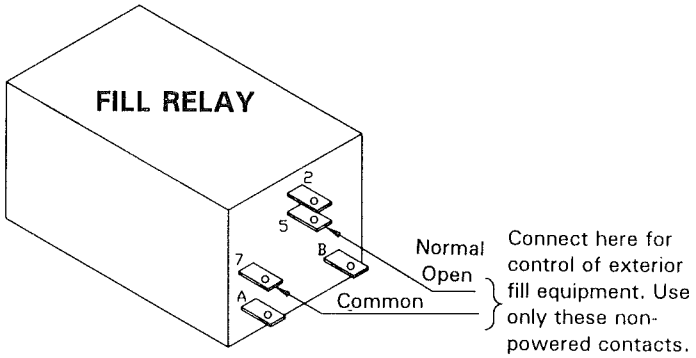


Figure 10 - Fill Relay Non-Powered Contacts

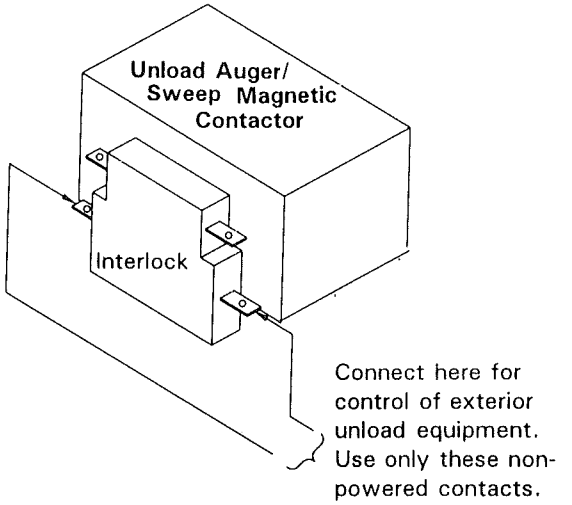


Figure 11 - Unload Auger Magnetic Contactor Non-Powered Auxiliary Contacts

Gas Supply and Connections

Liquid Propane (LP)

1. Advise your LP gas supplier that the burners require liquid propane from the LP tank (not vapor).
2. The burners require 25 to 30 lbs. of gas pressure at the gauge on the manifold when operating.
3. Consult the LP gas supplier for gas line size required from the supply tank to the dryer gas manifold that will provide the amount of fuel to meet the dryer BTU/Hr. requirement at the recommended operating pressure. See Gas Consumption BTU/Hr. Chart.

IMPORTANT: Use type of supply line specified by local codes.

4. Connect the LP gas liquid line from the tank valve to the ¾" extra heavy duty intake pipe below the left side of the Control Cabinet (as you look at cabinet).

NOTE: LP Burners have an ¼" orifice.

CAUTION: Before starting the dryer test for any gas leaks. Turn the gas supply on and apply soap water to ALL pipe joints and unions, including pipes assembled on site and those assembled at the factory.

Gas Consumption (BTU/Hr.)

MODEL	DRY & COOL	MAXIMUM
101075	10,000,000*	15,750,000

*Based on 220°F (104°C) drying temperature and 50°F (10°C) outside air temperature.

Natural Gas

1. Consult the natural gas company to obtain the size of the supply line to the dryer gas manifold. This supply line must be large enough to provide the volume of gas required for the burners at an operating pressure of 15 to 20 psig. See Gas Consumption BTU/Hr. Chart.

IMPORTANT: Use type of supply line specified by local codes.

2. Connect the NG supply line to the 1¼" standard pipe hand valve below the Control Cabinet.

NOTE: Natural Gas Burners are shipped from the factory without a burner orifice.

CAUTION: Before starting the dryer test for any gas leaks. Turn the gas supply on and apply soap water to ALL pipe joints and unions, including pipes assembled on site and those assembled at the factory.

NOTE: Natural Gas Burners are shipped from the factory without a burner orifice.

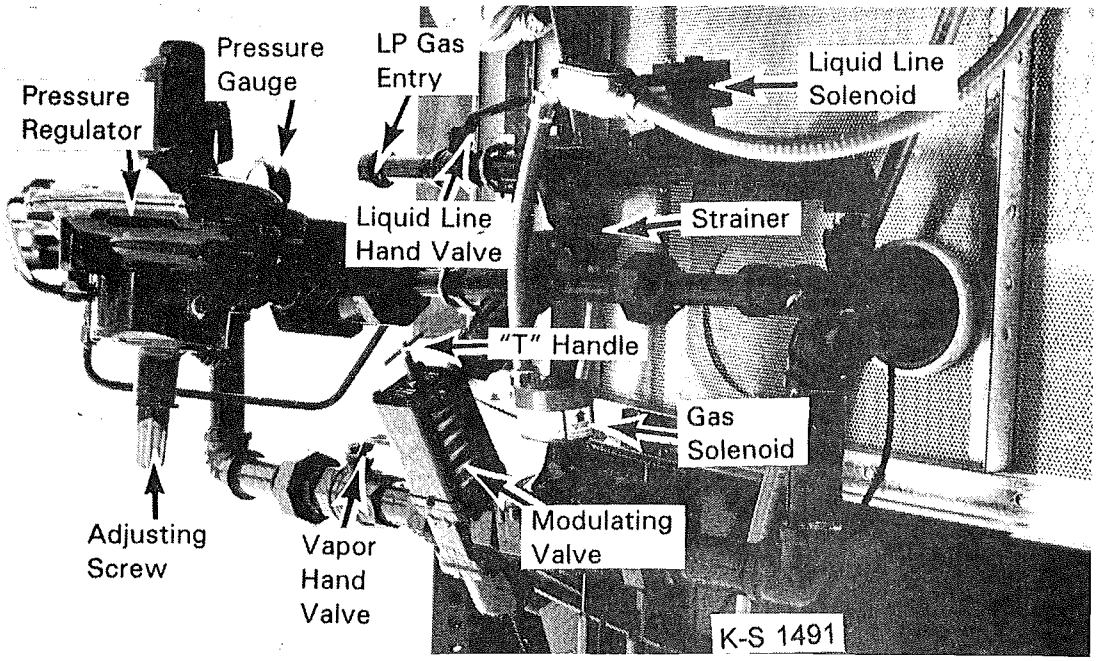


Figure 12

Unloading Equipment (Customer Supplied)

The dryer unload auger/sweep contactor can be equipped with a set of non-powered auxiliary contacts (interlock switch) that can be used to control the customer supplied take-away equipment. See Figure 11.

Electric Power Supply

NOTE: All wiring must be done by a qualified electrician.

Power Supply Requirements

DRYER MODEL	SUPPLY POWER	FULL LOAD AMPS
101075	230 Volts 3 Phase	215
101075	460 Volts 3 Phase	107.5

1. It is the customer's responsibility to provide the power source to the control cabinet power distribution block that meets all requirements of the local electrical codes. The power source must be adequately fused and have a main disconnect.
2. Connect the power source to the lugs on the power distribution block. See Figure 13.
3. The dryer must be grounded to the grounding rod that is supplied with the dryer. Connect the grounding rod to the ground lug mounted in the control cabinet with at least a #6 copper wire or in accordance with local code.

IMPORTANT: The dryer controls operate on 60 cycle single phase 115V power. Dryers that operate on 230V three phase power must have the 230V supply wire connected to the center lug of the distribution block as shown in Figure 13 . If the 230V power supply is connected to a 115V lug and the 115V wire that supplies power to the dryer controls is connected to this lug by mistake, the dryer controls will be damaged by the 230 high voltage power. For this reason, the 115V power supply wire to the dryer control panel is not connected to the distribution block at the factory. There is a loose black wire close to the distribution block with an orange tag attached that reads "115VOLTS." Dryers that will be operated on 460V power will have a step-down transformer installed and wired to provide the 115V electricity for the dryer controls.

Fan Rotation

IMPORTANT: Before checking fan rotation, inspect for and remove any foreign material (nuts, bolts, tools, parts, etc.) from the cool and heat chambers.

CAUTION: Do not turn the electric power on until the fan guards have been installed.

1. Flip all switches on the control panel OFF. Turn on the electric power supply to the dryer. The 115V POWER ON light will be on.
2. Flip the control circuit toggle switch ON. The control circuit ON light and high limit light will be on. If the high limit light is not on, push the reset button on the high limit switch.
3. Push the spring loaded control circuit toggle switch up to the START position and release it. The READY light and LEVEL light will be on.
4. With everyone clear of the dryer, push the fan start button and let fans run for (10) seconds. Then push stop button, let fans slow down for (20) seconds and check fan rotation by looking into the cool section crawl door. (Be sure to wear safety glasses.) Fans should be turning counterclockwise.
5. If fan rotation(s) is not correct, it can be changed as follows:

CAUTION: Turn off and lock the electric power supply to the dryer.

Three phase motors - Move the wire from terminal T1 to T3 and T3 to T1 on the fan magnetic starter in the control cabinet. See Figure 13.

CONTROL CABINET (INSIDE)

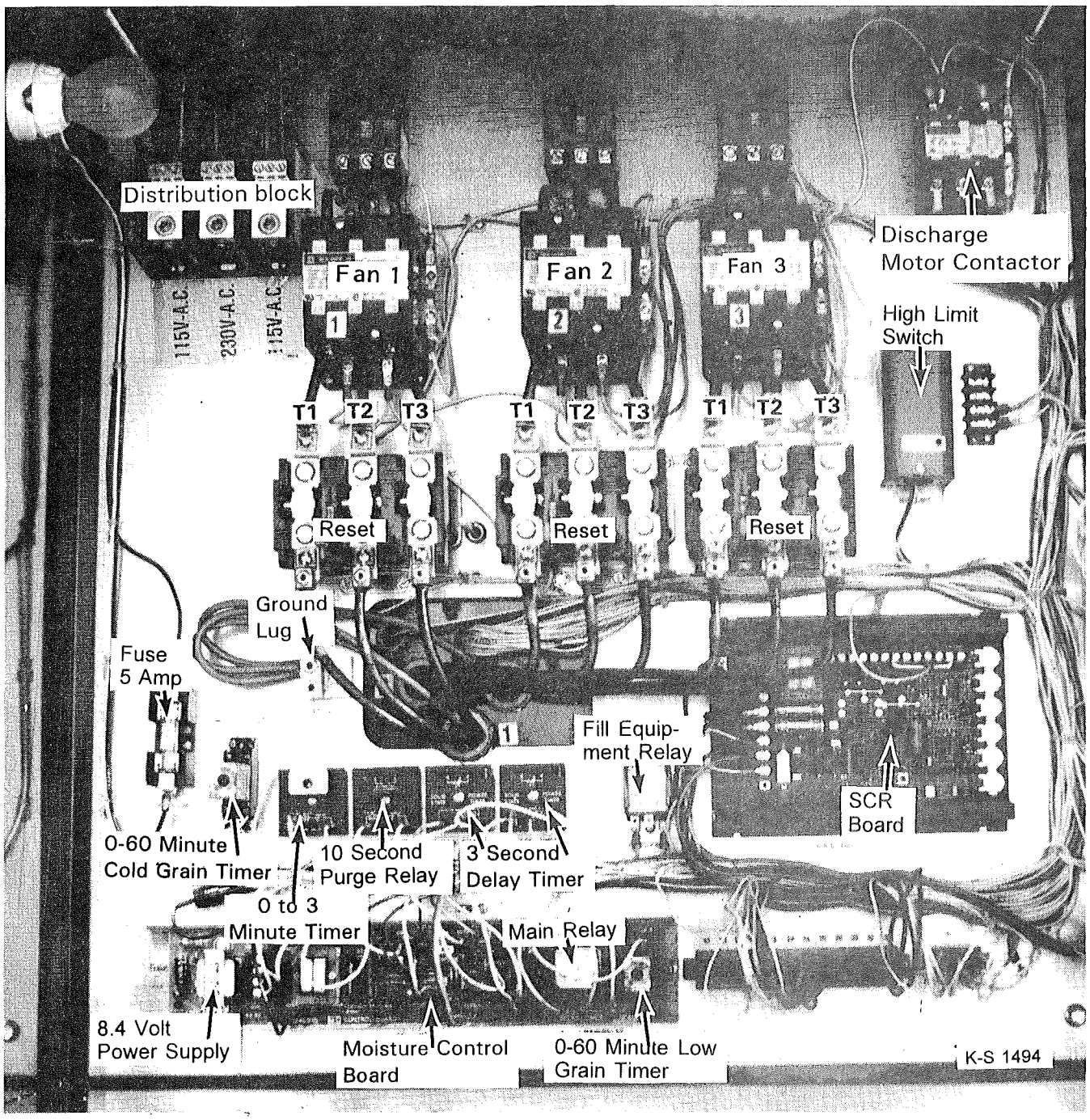


Figure 13

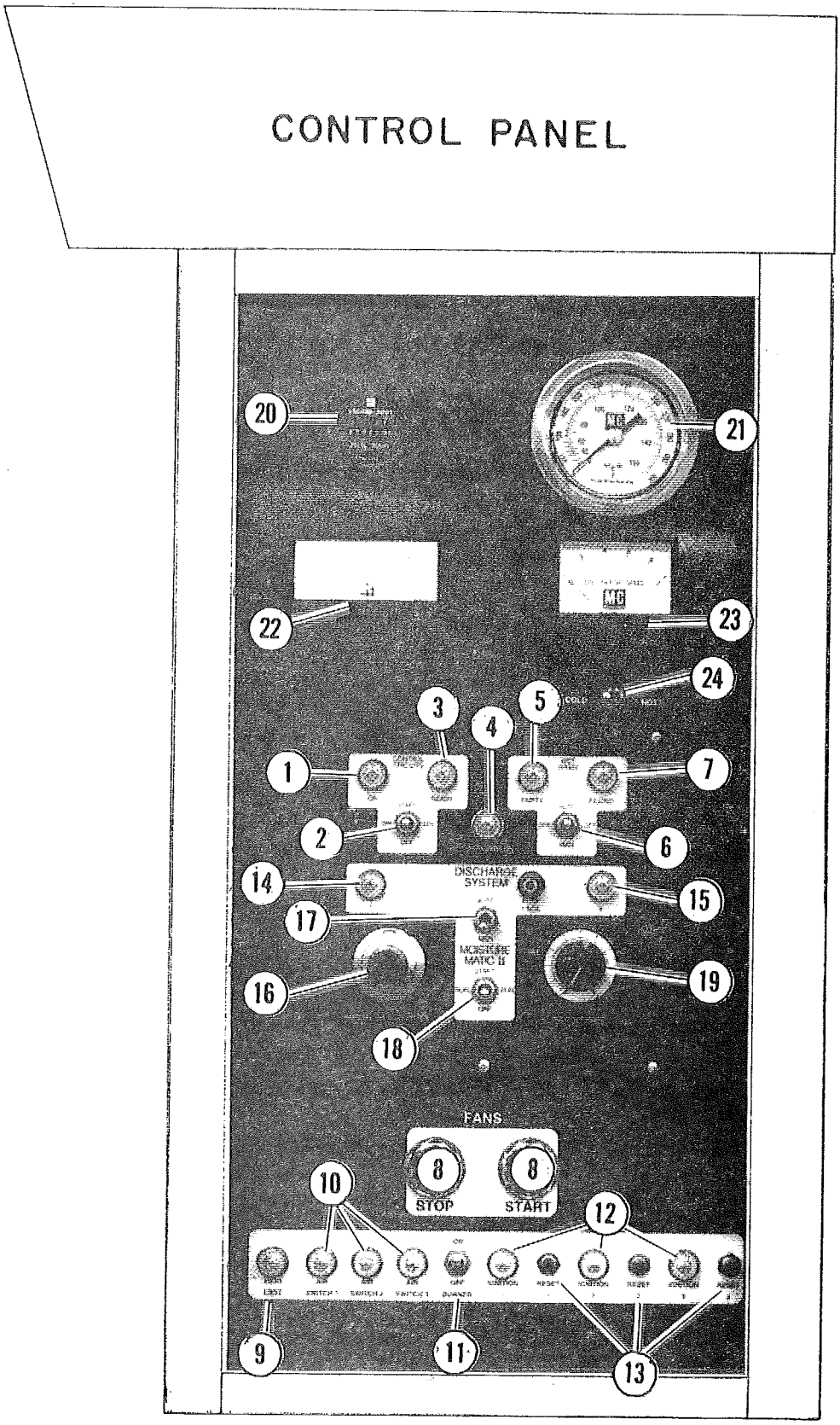


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Figure 14 – Control Panel

CONTROLS, PANEL LIGHTS, SWITCHES & METERS

Ref. 1 - Control Circuit On Light

Indicates that the CONTROL CIRCUIT toggle switch is in the ON position, the IGNITION RESETS are closed, the fan motor magnetic starter overloads are closed and the unload auger rear discharge door switch is closed.

Ref. 2- Control Circuit Switch

When the switch is in the ON position, the control light will be ON if the IGNITION RESETS are closed, the fan motor magnetic starter overload relay blocks are closed and the unload auger rear discharge door switch is closed. The HIGH LIMIT light will also be ON.

When the switch is pushed up to the START position, the ready light will be ON if the HIGH LIMIT light is on. When the READY light is ON, the dryer can be started.

NOTE: If there is a momentary loss of electric power, the dryer will shut down. When the power comes back on, the 115V POWER ON light will be ON. The dryer will have to be restarted. This feature prevents an unattended dryer from restarting.

Ref. 3 - Control Circuit Ready Light

Indicates that the CONTROL CIRCUIT toggle switch has been pushed up to the START position and the dryer is ready to be started.

Ref. 4 - 115V Power On Light

Indicates that 115 Volt electric power to the dryer control panel is ON.

Ref. 5 - Empty Light

Indicates low grain level in the wet hopper. The dryer will shut down when this light comes on.

Ref. 6 - Wet Grain Switch

When the switch is in the MANUAL position, the wet hopper fill equipment will start immediately when the rotary FILL switch in the hopper calls for grain and stops when the hopper is full.

When the switch is in the AUTOMATIC position, the rotary FILL switch will start and stop the fill equipment automatically after the preset time on the delay.

Ref. 7 - Filling Light

Indicates that the grain level in the hopper is low and the rotary FILL switch in the hopper has closed activating the customer fill equipment.

Ref. 8 - Fan Start-Stop Buttons

Green button starts and red button stops the fans.

Ref. 9 - High Limit Light

Indicates that the HIGH LIMIT switch is closed and the temperature in the plenum chamber has not exceeded the high limit setting.

Ref. 10 - Air Switch

Indicates that the respective burner fan is running.

Ref. 11 - Burner Switch

Flip this switch ON to light the burner. After a (10) second delay the IGNITION light will come on and the burner will light. If the burner does not light in (5) seconds, the ignition board will "lock out" closing the gas solenoid valves.

Ref. 12 - Ignition Lights 1, 2 and 3

Ignition Light (1) indicates that the ignition board for burner (1) is providing high voltage for ignition, a flame sensing circuit, and a power circuit for the ignition board for burner (2). The trial period for establishing a flame is (10) seconds; if flame is not sensed, the ignition board will "lock out" and the light will go out.

Ignition Light (2) indicates that the ignition board for burner (2) is providing high voltage for ignition, a flame sensing circuit, and a power circuit for the ignition board for burner (3). The trial period for establishing a flame is (10) seconds; if flame is not sensed, board will "lock out" and the light will go out.

Ignition Light (3) indicates that the ignition board for burner (3) is providing high voltage for ignition, a flame sensing circuit, and a relay circuit for the solenoid valves. If flame is not sensed in (10) seconds, the board will "lock out" closing gas solenoid valves. Ignition Light will be out.

As the (3) ignition boards are connected in series, if (1) "locks out" the other (2) will lock out closing the gas solenoid valves and ignition lights will be out.

CONTROL PANEL

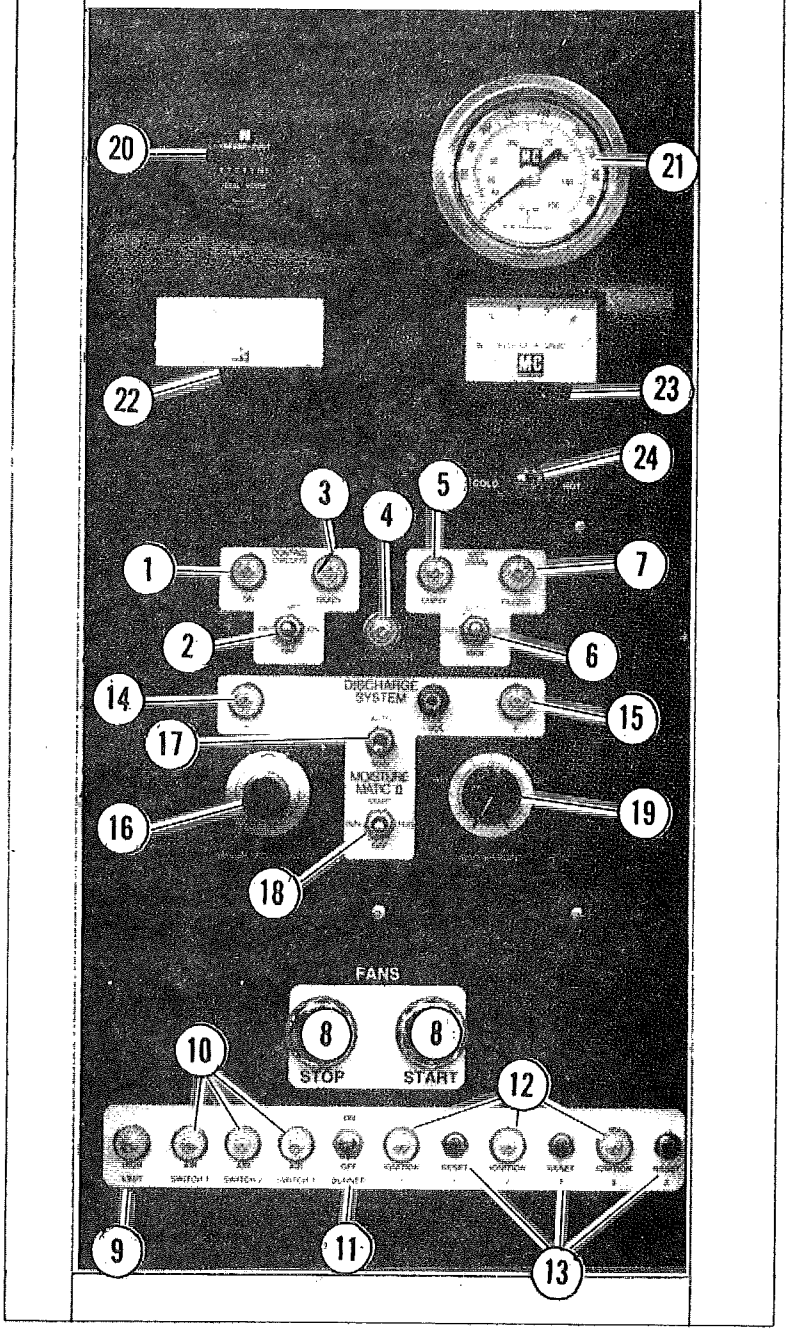

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Figure 14 - Control Panel

Ref. 13 - Ignition Reset Buttons

These resets trip out any time the ignition board goes through a (10) second trial for ignition and does not sense flame.

Ref. 14 - (–) Light

Indicates that the discharge rate is slowing down if Moisture Control Switch is in automatic.

Ref. 15 - (+) Light

Indicates that the discharge rate is speeding up if Moisture Control Switch is in automatic.

Ref. 16 - Manual Speed Control

The MANUAL SPEED CONTROL potentiometer is used to set the grain discharge rate in the manual mode.

Ref. 17 - Moisture Control Automatic/Manual Switch

Used to set the moisture control for manual or automatic operation. When it is in MANUAL, the MANUAL SPEED CONTROL potentiometer controls the grain discharge speed. When it is in AUTOMATIC, the Moisture Control Board controls the grain discharge speed.

Ref. 18 - Discharge System Start-Run-Off Switch

Controls the discharge auger and auxiliary take-away equipment if connected.

Ref. 19 - Auto Set Point Potentiometer

Used when the Moisture Control is in the MANUAL position to balance the system. When the Moisture Control is in the AUTOMATIC position, the AUTO SET POINT potentiometer can be used to increase or decrease the desired moisture content of discharge grain. To increase the moisture content of discharge grain the AUTO SET POINT potentiometer must be turned counterclockwise. To decrease the moisture content of discharge grain the AUTO SET POINT potentiometer must be turned clockwise.

Ref. 20 - Total Hour Meter

Records the number of hours of dryer operation.

Ref. 21 - Plenum Temperature Meter

Indicates the temperature inside the plenum.

Ref. 22 - Grain Temperature Meter

Indicates the grain temperature in the dryer in the heat (HOT) or cool (COLD) chambers. It has no effect on operation.

Ref. 23 - Discharge Speed Meter

Indicates the speed of the discharge system.

Ref. 24 - Hot-Cold Switch

Used to read grain temperature from two thermistors. One thermistor is located in the heat section (HOT) and one thermistor is located in the cool section (COLD). This switch does not effect operation in any way.

Balance lamps may be on when in the MANUAL mode of operation.

When in the AUTOMATIC mode and incoming grain moisture content is constant, the BALANCE lamps are normally OFF. BALANCE lamps ON indicate a change in the moisture content of incoming grain has taken place and that the Moisture Control system is adjusting the discharge speed to maintain the preset moisture content of discharged grain.

Drying Information

Drying Rate

Drying rate is largely affected by physical characteristics of the grain. Variety, fertilization program, rainfall, sunlight (degree days), planting date and hail and storm damage all affect drying rate. Dryer capacity changes of up to 30% have been observed simply by changing from one field of corn to another of equal moisture content.

Capacity stated by industry standards is for 10 point moisture removal based on 25% dried to 15% moisture content. Five point is from 20% to 15%. Drying below 15% is slower and drying to 13% will reduce capacity as much as 30%.

Trash in grain reduces the drying rate and may cause uneven drying and flow patterns.

Drying Temperature Limits

Commonly dried grains have various maximum allowable drying temperatures depending upon anticipated storage, handling, and end usage.

Excessive temperatures affect palatability to livestock, milling, germination and cracking. Commonly accepted temperature limits are shown in the chart on page 18.

Cooling

Cooling is controlled by the cooling chamber doors. Maximum cooling occurs with the doors closed and minimum cooling with them open. Less cooling allows faster drying. To achieve a maximum drying rate, use an aeration bin to cool the grain with a minimum airflow of 1/2 CFM per bushel and leave the cooling doors open. **If the cooling doors are abruptly closed, the plenum temperature will rise so rapidly (faster than the modulating valve can operate) it will trip the high limit switch.**

Drying in General

Corn

Corn is the most commonly dried grain, thus general drying instructions apply to it.

Clean grain dries faster, more cheaply and more uniformly. All possible trash should be removed in harvesting.

IMPORTANT: Drying equipment should be serviced at least daily. Heating and cooling chambers should be inspected and all foreign material removed. Perforated walls may need cleaning to remove foreign material. Drying temperature, flow rate, and moisture content are established as shown in the operation section.

Soybeans

Soybeans are not dried as a common practice; however, they are dried successfully by operating at a lower temperature with added inspection for cracks and special handling care.

Wheat

Wheat kernels are smaller than corn and pack more densely causing higher resistance to air flow. The increased resistance results in drying capacity somewhat below that of corn.

Fill dryer with fan off.

WARNING: Check and clean the inside of the dryer heating and cooling chambers daily or more often if needed. Most dryer fires are caused by poor housekeeping.

Suggested Burner Operating Temperature Settings °F (°C)

IMPORTANT: Use this chart as a starting point for drying the crops listed. Depending on the condition of the crop, you may have to increase or decrease the temperature shown.

Dryer Model	Corn (Maize)	Sorghum & Wheat	Sunflowers, Oats, Barley, Soybeans
101075	Dry & Cool	Dry & Cool	Dry & Cool
	220°F (104°C)	170°F (77°C)	140°F (60°C)

NOTE: When drying grains for seed or food processing, lower temperatures must be used which results in a reduced drying capacity.

The standard modulating valve installed on the 101075 has a minimum control range of 140°F (60°C). Drying below 140°F requires manual regulation of the gas supply or replacing the 140° to 250°F standard power element with a 90° to 210°F (32 to 99°C) low temperature power element.

START-UP INSTRUCTIONS

General

IMPORTANT: Inspect for and remove any foreign material (nuts, bolts, tools, parts, etc.) from the grain columns, discharge auger and heat chambers before filling the dryer with grain.

1. Flip all the toggle switches on the control panel to the OFF position.
2. Liquid Propane (LP) Fuel:
   A. Turn the LP liquid line hand valve (Figure 15) 90° to the piping to shut off the LP at the dryer.
   B. Turn the vapor hand valve (Figure 15) 90° to the piping to shut off the gas to the burner.
   C. Open the LP valve at the source.
3. Natural Gas (NG) Fuel:
   A. Turn the NG hand valve 90° to the piping to shut off the NG at the dryer.
   B. Open the NG valve at the source.
4. Adjust the high limit thermostat (Figure17), located in the upper right side of the control cabinet, 30-50° above the desired drying temperature or just enough to avoid nuisance shutdowns. (See Recommended Drying Temperatures, page 18.)
5. Turn the LP inlet hand valve parallel to the piping.

CAUTION: Check the modulating valve in gas manifold to be sure the "T" handle has **NOT** been turned all the way in to the wide open position. The "T" handle should be halfway between the closed and fully open position.

6. Turn on the electric power supply to the dryer. The 115V POWER ON light will be on.
7. Flip the control circuit toggle switch ON. The control circuit ON light and high limit light will be on, see Figures 16 and 20. If the high limit light is not on, turn off power to control cabinet before attempting to reset the high limit switch.
8. Push the spring loaded control circuit toggle switch up to the START position and release it. The READY light will be on.

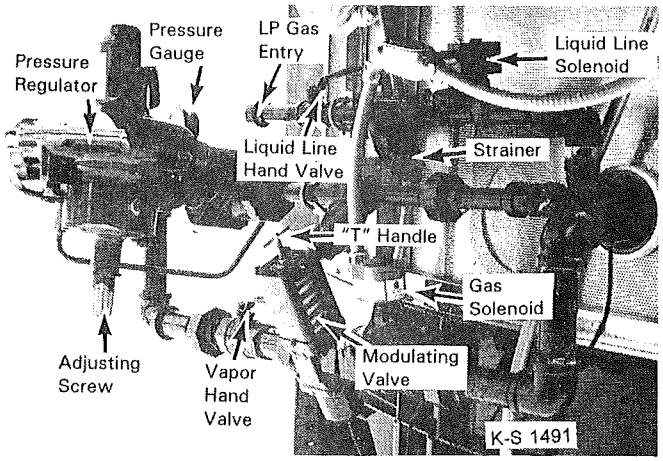


Figure 15

Figure 16

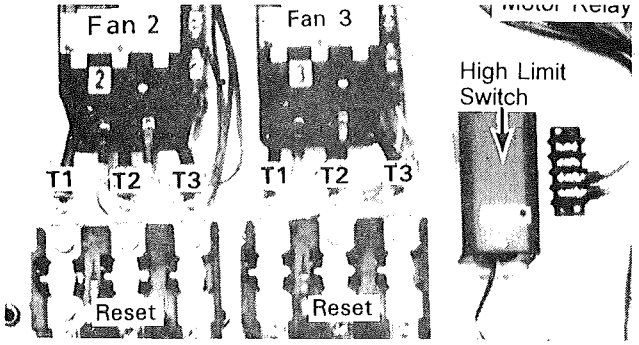


Figure 17

Filling the Dryer

Description

There is an adjustable 0 to 3 minute delay in the dryer wet fill circuit. See Figure 18. The delay is activated when the Wet Grain Filling Switch is

in the AUTOMATIC position and the filling light is signaling for grain.

This delay prevents nuisance starting and stopping of the fill system. If the wet grain filling switch is placed in the OFF and back to the AUTOMATIC position, the delay will recycle.

The Grain Flow Timer (see Figure 18) will shut down the dryer if there is an insufficient amount of wet grain to fill the hopper. When the fill system starts, the Grain Flow Timer will be activated. When the timer counts down to zero, the dryer will shut down and the Empty Lamp will light.

CAUTION: Do not allow anyone to be in the dryer when filling it with grain. Always turn off and lock the electric power supply to the control cabinet before allowing anyone to work in dryer.

NOTE: Either start with dry grain in the cool section or be prepared to catch wet grain and recycle it back into the dryer.

1. Set the adjustable 0 to 3 minute fill switch delay (Figure 18) to time desired.
2. Flip the Wet Grain switch (AUTOMATIC/OFF/MANUAL) to the MANUAL position (bypassing the 0 to 60 minute Low Grain Timer). The Filling Lamp will now be on.
3. After the desired time (0 to 3 minutes) is reached on the Rotary Fill Switch Delay, the fill system will start to fill the dryer with wet grain until it reaches the Rotary Fill Switch in the hopper. When the rotary switch opens from the pressure of the wet grain, the fill system stops and the Filling Lamp goes out.

Setting the Grain Flow Timer

IMPORTANT: If the timer has not been set, the dryer will shut down when the wet grain toggle switch is flipped from MANUAL TO AUTOMATIC.

1. Set the adjustable wet fill delay, Figure 18, for time desired (0 to 3 minutes) if not already set.
2. Set the Grain Flow Timer arrows at the bottom of the timer face to X10 (times ten) and to M (minutes). It may be necessary to remove the timer from its socket to make this adjustment. Now turn the timer control knob to 3 (3x10) or 30 minutes and flip the wet grain switch to AUTOMATIC. The fill system will start after the 0 to 3 minute delay if the filling light is on signaling for grain.
3. Check the refill time a minimum of 6 times. The filling light will come ON when the rotary fill switch in the hopper signals for grain and will go OUT when the hopper is full. The length of time that the filling light is on is the refill time (including the 0 to 3 minute delay).
4. Average (6) refill times and reset the Grain Flow Timer, Figure 18, to run 5 minutes longer. For example, if it takes the fill system an average of 5 minutes to refill the dryer, set the Grain Flow Timer to run 10 minutes.

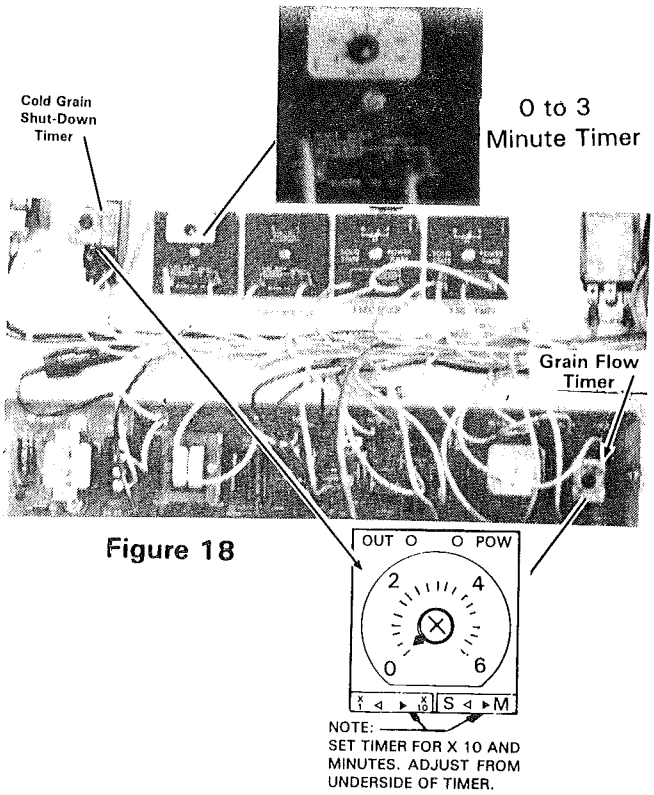


Figure 18

NOTE: The timer does not operate when the wet grain toggle switch is in the MANUAL or OFF position.

Grain Flow Timer Operation

With the Grain Flow Timer set to run 5 minutes longer than the fill system refilling time, the timer will work as follows:

1. The timer will start when the fill system starts. The red light on the face of the timer will be on and the timer will start to count down to zero.
2. After the fill system refills the dryer and shuts off, the filling light will go out and the timer will automatically reset. The red light on the face of the timer will be out.

3. If there is an insufficient grain supply, the fill system will continue to run beyond the 5 minute refilling period. When the fill system has run the length of time that the Grain Flow Timer has been set, the dryer will shut down.

4. The grain flow, high limit, control circuit ON, 115V power ON and the two red lights at the top of the Grain Flow Timer will be on.

   Flip the wet grain toggle switch OFF.

NOTE: When the Grain Flow Timer shuts the dryer down determine the problem.

CAUTION: Turn off and lock the electric power supply to the dryer before any service work is performed.

5. When the problem has been corrected, flip the control circuit switch OFF, then ON to reset the Grain Flow Timer. Flip the control circuit switch up to the START position and release it, the READY light will go on.

NOTE: If equipped - the main gas supply safety shut-off valve must be opened manually before the burners can be started.

6. Flip the wet grain switch to MANUAL. Restart the fans, burners and discharge system. Flip the wet grain switch to the AUTOMATIC position. The fill system 0 to 3 minute delay will be activated if the filling light is on signaling for grain.

CAUTION: Do not allow anyone to be in the hopper as the fill system will start automatically.

Starting the Burners

1. Start fans by pressing the FAN START BUTTON. There is a (3) second delay between Fan No. 1 starting and Fan No. 2 starting. There is also a (3) second delay before Fan No. 3 starts. Check to make sure that all (3) Air Switch Indicator Lamps are ON.

2. Open the gas vapor hand valve (Figure 19) half way.

3. Flip the BURNER SWITCH up to the ON position. After a (10) second purge delay, the Ignition Indicator Lamps will be on and the burners will light.

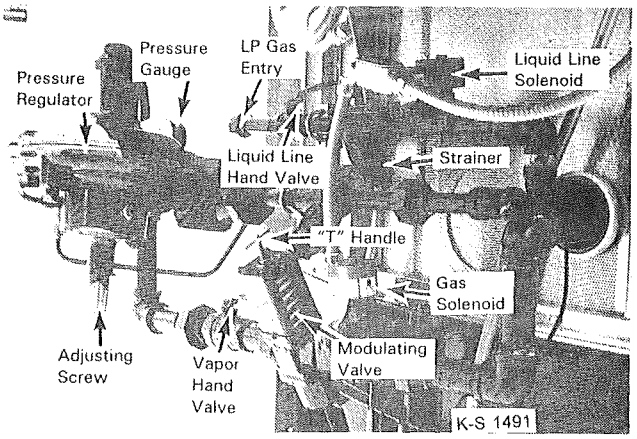


Figure 19

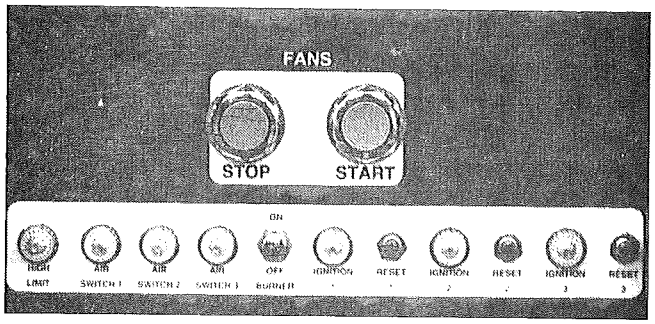


Figure 20

NOTE: The (10) second purge is a safety feature that allows the fans to purge the heat chamber of any unburned gases that may remain after burners have been shut down for any reason.

4. After the flame is established, **slowly** open the gas vapor hand valve all the way (handle parallel to the piping).

NOTE: Opening the gas vapor hand valve slowly will prevent possible freezing of the LP gas line and also prevent the temperature from rising too fast. If the temperature rises too fast, the high limit switch will trip out and the dryer will shut down.

5. If the LP gas line freezes, close the gas vapor hand valve and flip the BURNER switch OFF. After the gas line thaws out repeat steps 3 and 4 but open the gas vapor hand valve **slower**.

NOTE: The Ignition Board is electronically timed so that the ignition system will spark and hold the solenoid gas valves open for a "trial ignition" period (10 seconds). If the burner does not light, the system will "lock out" (after the 10 second trial period) closing the gas solenoid valves and the ignition resets will trip, shutting down the complete dryer.

6. Push the ignition reset buttons and then restart the dryer. Flip the BURNER switch OFF then ON again; a new trial for ignition will take place.

NOTE: If the burners fail to light, turn OFF and LOCK electric power to dryer. Close liquid LP intake valve and gas vapor valve. Now check wires to electrode, flame sensing probe, and ignition boards looking for loose, burned or broken wires or poor connections. Also check ignition switch with a continuity tester.

7. If the High Limit Switch trips out, close the gas vapor hand valve and flip the BURNER switch OFF. Push the reset button on the High Limit Switch (located in the upper right side of the control cabinet).

NOTE: When the High Limit Switch trips out, the dryer will shut down. The fans and burners will have to be restarted.

8. Start the fans by pressing the FAN START BUTTON. Check to make sure that indicator lamps for Air Pressure Switches 1, 2 and 3 are on.
9. Open the gas vapor hand valve half way.
10. Flip the BURNER switch to the ON position; the IGNITION lamps come on and the burners light.
11. Gas Pressure - gas pressure should read 2-3 pounds above what is required to maintain operating temperature to allow for temperature variations from day to night operation.

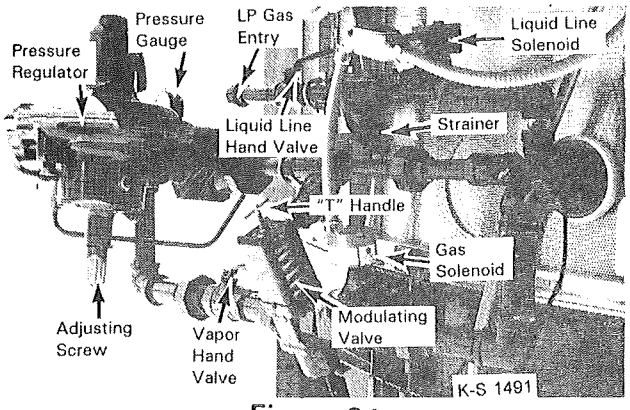


Figure 21

Setting Burner Operating Temperature

NOTE: Refer to the Recommended Drying Temperatures on page 18. Temperatures shown are initial settings and may have to be adjusted for local crop and weather conditions.

1. With the burners operating, set the operating temperature by adjusting the modulating valve "T" handle.
2. Turn the "T" handle on the modulating valve IN to increase temperature and OUT to decrease temperature (see Figure 21). There is a temperature gauge mounted on the control panel.

NOTE: After the dryer has been operating for about (1) hour, check the thermometer to make sure drying temperature is correct. If not, adjust Modulating Valve "T" handle. Turn handle clockwise to increase and counterclockwise to decrease temperature. It will not be necessary to adjust the modulating valve "T" for future start-ups unless the burner temperature is to be changed.

Operation of the Discharge System with the Automatic Moisture Control System

1. The dryer discharge auger and sweep are driven by a 3HP (DC) electric motor.
2. The discharge system is started by placing the DISCHARGE SYSTEM START/RUN/OFF spring loaded switch up to the START position and released so that it moves down to the RUN position.
3. When the Moisture Control Switch is in the MANUAL position, the Automatic Moisture Control System is bypassed and power flows directly to the 3HP discharge system drive motor. The speed of the discharge system motor is controlled by the setting on the Manual Speed Control Dial and appears on the Discharge Speed Meter. The Speed Control Dial is graduated from (0) slow to (10) fast.
4. When the Moisture Control Switch is in the AUTOMATIC position, the speed of the Discharge System Motor is determined by the Moisture Control Board, Thermistors and setting of the Auto Set Point Dial.

   When the moisture content of the incoming grain increases, the Thermistors sense the change in grain temperature (cooler) and signal the Automatic Moisture Control Board to slow down or stop the discharge system motor to prevent the discharge of wet grain from the dryer when moisture is above setting of the Auto Set Point Dial.

   When the moisture content of the incoming grain decreases, the Thermistors sense the change in grain temperature (warmer) and signal the Automatic Moisture Control Board to increase the speed of the discharge motor to prevent the over drying of the grain.

Rear Discharge Overload Door

1. If the customer supplied grain take away system fails, the dryer will continue to discharge grain until the rear discharge overload door, Figure 22, is raised by the grain.
2. When the overload door rises, the dryer will shut down and all of the lights except the 115V POWER ON light will be out. The Grain Flow Timer will automatically reset.
3. When the problem has been corrected and the rear discharge overload door closes, the control circuit ON and the high limit light will be on. Flip the control circuit switch up to the start position and release it, the READY light will be on.
4. If the WET GRAIN-AUTOMATIC/OFF/MANUAL switch is in the AUTOMATIC position and the 0 to 3 minute delay timer for the Rotary Fill Switch times out, the fill system will start to fill the dryer.
5. Place the ignition switch in the OFF position and restart the fans, burner and discharge system.

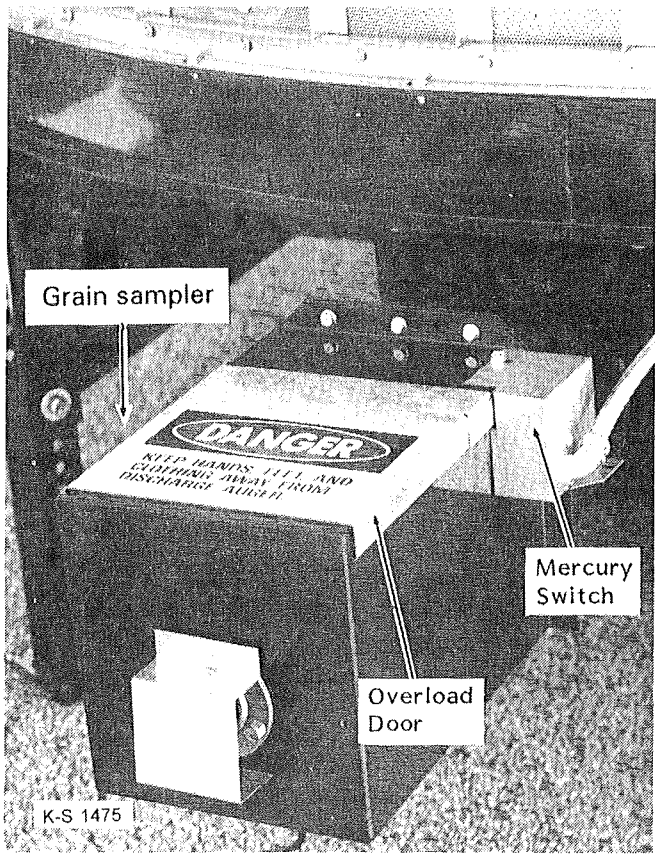


Figure 22

Automatic Moisture Control System

There is a direct relationship between grain temperature and grain moisture. Any change in grain temperature will mean a change in grain moisture. If the temperature of the grain goes down, the moisture content will have increased. If the temperature of the grain goes up, the moisture content will have gone down.

The automatic moisture control on M-C Dryers maintains uniform moisture content of the grain being discharged from the dryer by changing the unloading speed of the dryer.

The moisture control is sensing grain temperature and reacting to it by slowing down or speeding up the unload rate of the metering rolls.

Drying Grain

1. Flip all of the toggle switches on the control panels to the OFF position.
2. Turn on the electric power supply to the dryer. The 115V POWER ON light will be on.
3. Flip the Control Circuit Switch ON. The control circuit ON light and high limit light will be on.
4. Push the Control Circuit Switch up to the START position and release it. The READY light will be on. The filling lamp will be on if the dryer is not full of grain.
5. Flip the Wet Grain Switch to the MANUAL position. Set the Grain Flow Timer as explained under "Filling the Dryer" on page 20.
6. With the dryer full of grain, flip the Wet Grain Switch to AUTOMATIC and start the fans.

NOTE: As the dryer is operated "Dry and Cool" it will be necessary to recycle the wet grain in the cooling section back through the heat section after drying the first load or start with dry grain in the cooling section.

7. Start the burner.
8. Running on continuous heat, it will take approximately 6 minutes per point of moisture being removed to dry the first load.
9. When the first load is dry, push the Discharge System Spring Loaded Toggle

Switch up to the START position and release it. It will move down to the RUN position.

10. Flip the Moisture Control System (Moisture-Matic II) Switch down to the MANUAL position. The discharge system drive motor will start and the dryer will begin unloading grain.
11. Test the moisture content of the grain being discharged every 15 minutes until it stabilizes.
12. If the moisture content is too high after it stabilizes, turn the Manual Speed Control Dial down to a lower number to decrease the unloading speed. If it is too low, turn the speed control up to a higher number to increase the unloading speed.

NOTE: After any adjustment of the discharge speed, wait 1½ to 2 hours to make further speed adjustments since it takes that long for grain to pass through the dryer and for the full effect of the speed adjustment to be made on the moisture content.

Switching from Manual to Automatic

1. Before placing the Moisture Control System Switch into the automatic position, the dryer must be operated in the MANUAL position. Set the Manual Speed Control Dial to establish a discharge rate that will unload dry grain at the desired moisture content. When the moisture content of the discharged grain has been consistent for two or more hours, it is time to switch up to AUTOMATIC.
2. While the Moisture Control System (Moisture-Matic) Switch is in MANUAL, turn the Auto Set Point Dial to balance the Moisture Control System to the point where both the (-) and (+) lights are off. At that point the Moisture Control System is calibrated to the moisture content established in the MANUAL setting.
3. Now flip the Moisture Control System Switch up to the AUTOMATIC position.

   Now the Manual Speed Control is OFF and the discharge rate is being controlled by the Moisture Control System Board and the Thermistors (sensing probes).

   The unloading speed on the discharge meter should be the same as when the switch was in MANUAL, but the meter will begin to change automatically.

   When the moisture content of the incoming grain changes (wetter or drier), the discharge rate will change automatically. If the speed slows down because the incoming grain is wetter, the (-) light will come on and the discharge meter indicator will drop until the unload speed is automatically adjusted. When the adjustment is completed, the (-) light will go out and the discharge meter indicator and the unload speed will remain constant until another change is required.

   If the discharge speed increases because the incoming grain is drier, the (+) light will come on and the discharge meter indicator will move up until the unload speed is automatically adjusted. When the adjustment is completed, the (+) light will go out and the discharge meter indicator and the unload speed will remain constant until another change is required.

   The system will automatically change speed (+) or (-) to keep the discharge grain at the moisture content that was selected when the Moisture Control System was in the MANUAL position.

Moisture Control Setting and Adjustments When in Automatic

The discharge rate will change to keep moisture content the same as when in manual. However, if you want to change the discharge moisture content when operating in automatic, simply turn the Auto Set Point Dial up to a higher number for drier grain or down to a lower number for wetter grain. When you turn the dial either the (+) light or the (-) light will come on and you will see the discharge meter indicator change to reflect the change in speed.

Cold Grain Shut-Down Timer
(Starting with Serial Number 56052)

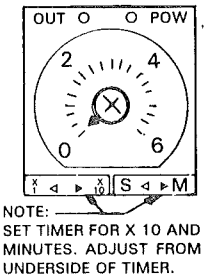
This 0 to 60 minute timer is provided to limit the time that the dryer will discharge grain after the burner unexpectedly goes out (lack of fuel, etc.).

The timer is only activated when the Moisture Control System reduces the speed of the Discharge System. At this time one of the red lights on the face of the timer will be on and the timer will start to move to zero.

If the speed of the Discharge System is not increased before the time selected on the timer is reached, the dryer will be shut down and only the 115V power ON, control circuit ON, and high limit lights will be on.

Set the timer arrows at the bottom of the timer face to X10 (times ten) and to M (minutes). Now turn the time control knob to 3 (3x10) or 30 minutes for a starting point.

Figure 23



End of Day Shutdown

1. To shut off the dryer, close the liquid propane gas supply valve at the tank or close the natural gas supply valve. Operate burner until the flame goes out then turn off ignition switch.
2. Close gas vapor hand valve and liquid line intake valve on dryers equipped with a liquid propane (LP) burner.
3. To make next day start-up much easier, check the reading of the needle on the Discharge Speed Meter while the Moisture Control System Switch is in AUTOMATIC. Now place the Moisture Control Switch into MANUAL and turn the Manual Speed Control Dial until the Discharge Speed Meter Needle is at the same reading as when the Moisture Control System was in AUTOMATIC. Now place the Discharge System Switch into the OFF position. Another choice would be to place the Moisture Control System Switch into MANUAL and then place the Discharge System Switch into the OFF position.
4. Operate fans about 15 to 20 minutes to cool grain in dryer, then turn off fans and flip the Control Circuit Toggle Switch to the OFF position.
5. Turn off and lock the electric power supply to the dryer.

Next Day Start-Up

1. Turn on electrical power to dryer, flip Control Circuit Switch up to START, place Wet Grain Switch into AUTOMATIC, and start fans.
2. Open liquid propane (LP) gas supply valve at tank or natural gas (NG) supply valve and liquid line intake valve on dryers equipped with a liquid propane burner. Now open the vapor hand valve.
3. Start burner. Allow burner to operate for a couple of minutes before placing the Discharge System Switch into the RUN position and the Moisture Control System Switch into MANUAL position.
4. After the dryer has been unloading grain for at least (45) minutes, the Moisture Control System Switch can be placed into AUTOMATIC. DO NOT ATTEMPT TO RE-BALANCE THE MOISTURE CONTROL SYSTEM.

Going Back to Manual

You can switch back to manual at any time. Just flip the Moisture Control System Switch down to the MANUAL position. At this time the Moisture Control System will be off and the discharge system speed will be controlled by the Manual Speed Control Dial. The discharge meter will indicate the manual speed setting. If you want to unload at the same speed in manual as automatic, adjust the Manual Speed Control Dial until the discharge meter needle is at the same reading as in automatic.

When operating in manual the (+) and (-) lights may be lit. However, they are only indicating what would happen if you were in automatic based on the set point of the moisture control knob. When in manual you can balance the (+) and (-) lights. However, unless you go to the automatic position nothing will change. In the manual position the discharge rate can only be changed by adjusting the Manual Speed Control Dial.

Warning: Check and clean the inside of the dryer heating and cooling chambers daily or more often if needed. Most dryer fires are caused by poor housekeeping.

Final Shut Down

When the last grain to be dried has been put into the dryer, place the discharge system switch into the OFF position to stop the discharge system motor before the grain has dropped below the perforated area in the wet grain holding area of the Roof Section.

Dry this remaining grain for approximately (6) minutes per point of moisture to be removed. When grain is dry, close the LP gas supply valve at the tank or close the natural gas supply valve.

Operate the burner until flame goes out, then place ignition switch into the OFF position. Close gas vapor hand valve (handle 90° to the piping). LP Gas - Close the liquid intake valve. Run the fans approximately (20) minutes to cool grain in the dryer.

After cooling, shut off fans and empty dryer by placing the discharge system switch into the RUN position. Wait until the last of the grain has been removed from the dryer discharge auger by the customer's dry grain take-away equipment. Now place discharge system switch into the OFF position to stop the discharge motor.

Off Season Storage

CAUTION: Before starting the following steps, turn off and lock the electric power supply to the dryer. Place all of the circuit breakers in the control cabinet into the OFF position and lock the control cabinet doors.

1. Cover burner shields with plastic. See page 48 Ref. #3.
2. Remove cooling floor sections and remove grain from the bottom of dryer.
3. Brush (non-metallic), blow or wash all dirt and residue from the dryer walls and floors. Use power washer on the outer screens if dirt has filled the perforations.
4. Remove discharge auger sump trough and clean out trash. See page 46 Ref. #2.
5. Replace the cooling floor sections.
6. Grease fan motor bearings with Chevron SR1-2 or equivalent.
7. Use compressed air to blow any dirt from control cabinet.
8. Release spring tension on discharge system belt tightener.

Preseason Check

CAUTION: Before starting the following steps, turn off and lock the electric power supply to the dryer. Place all of the circuit breakers in the control cabinet into the OFF position and lock the control cabinet doors.

1. Clean out heating and cooling chambers.
2. Remove covers from burner shields. At this time also check ignition electrodes and wires for cracks, heat damage and loose connections.
3. Check wires in 17 x 14 x 8½" Ignition Board Box located in upper cool section for cracks and loose connections.
4. Grease fan motor bearings. Apply grease until it comes out relief port. Use Chevron SRI-2 grease or equivalent.
5. Check oil in 50:1 gearbox and grease.
   A. Oil must be at least ¼" over gears.
   B. Grease top bearing.
6. Grease U-Joint on 50:1 gearbox drive shaft.
7. Grease Belt Tightener Pivot.
8. Replace spring tension on Belt Tightener.
9. Grease 1" discharge system Jackshaft Bearings.
10. LP Gas - Remove Plug at end of Gas Strainer, remove and clean Screen. Replace Screen and Plug.
11. Unlock control cabinet door **(Be Sure Power Still OFF)** and check all wires for cracks, nicks and loose connections, especially on High Voltage Wires. Also be sure to check connections on earth Ground Wire Lug in control cabinet and at copper Ground Rod next to dryer.

Lubrication

Lubrication is applied to all required areas before leaving the factory; however, a lubrication schedule should be maintained as described below.

Item	Lubrication Required	Interval
50:1 Gearbox Oil Level	Fill ¼" over gear with SAE 90 gear lubricant.	Maintain proper level. Check every 100 hours.
50:1 Gearbox Grease Fitting	Use (5) strokes of gun grease.	At beginning and end of season.
U-Joints	Use (1) stroke of gun grease.	Every 50 hours of operation.
Fan Motor(s) & Discharge System 3HP (DC) Motor	Lubricate with SRI-2 (Chevron) grease or equivalent. (Equivalents below.)	Prior to operation and end of season.

Fan and Discharge Motor Greases
Chevron SRI-2 Standard Oil of California Aeroshell #16 Shell Oil Company Hi Temp Texaco, Inc. Andok 260 Humble Oil Rykon #2 American Oil

Discharge System

Description

The Discharge System is driven by a 3HP variable speed permanent magnet DC motor and reduction gearbox.

The speed of the motor is directly proportional to the amount of DC voltage supplied to it. When voltage increases speed increases and when voltage decreases speed decreases.

The SCR control board (Figure 24) converts incoming AC current to DC current and controls the amount of DC voltage going to the motor. The Manual Speed Control Dial regulates the amount of DC voltage the SCR control board supplies to the motor.

When the Moisture Control Switch is in the AUTOMATIC position, the Moisture Control Board controls the amount of DC voltage the SCR control board supplies to the discharge motor.

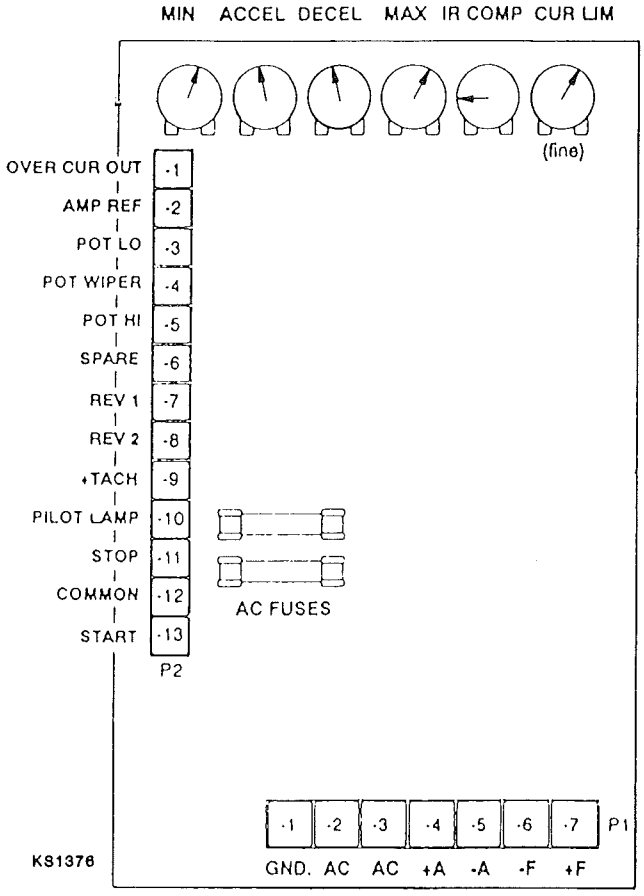


Figure 24 - 500 SERIES SCR BOARD

SCR Board Terminal Strip Connections

P2.4 WIPER - Connects to (+) of Moisture Control Board

P1.4 +ARM - Connects to motor armature wires 0-180 volts DC. MUST NOT BE SWITCHED OR BROKEN WHILE POWER IS ON or serious damage to SCR board may result.

P1.5 -ARM - Connects to motor armature wires. Reverse + and - motor leads to reverse motor rotation. MUST NOT BE SWITCHED OR BROKEN WHILE POWER IS ON or serious damage to SCR board may result.

P1.6 -FIELD - Connects to (-) of Moisture Control Board.

P1.3 AC LINE - Connects to hot wire 115 volt AC.

P1.2 AC LINE - Connects to hot wire 115 volt AC.

SCR Board Trim Pot Adjustment Procedure

NOTE: Figure 24 shows approximate trim pot settings. Follow adjustment procedure below for final calibration.

Trim Pot	Function	Adjustment
MIN.	The Dart SCR Board minimum speed trim pot is non-functional. The minimum speed is now fixed by the M-C Moisture Control Board for both the auto and manual mode.	None.
MAX.	Sets Maximum Motor Speed when Speed Control is set at maximum (10) 100% rotation CW. CW rotation of MAX trim pot increases maximum motor speed.	1. TURN DRIVE POWER OFF! 2. Connect DC Voltmeter + to + ARM, - to - ARM. 3. Turn power on. Set SPEED control at 100% (10). 4. Adjust MAX pot for 170 volts on DC meter connected between Arm (-) and Arm (+), or 1.0 reading on discahrge meter or 1750 RPM on DC motor output shaft.
ACCEL	Allows Adjustment of Acceleration	1. CW rotation increases time of acceleration.
DECEL	Allows adjustment of Deceleration.	1. CW trim pot rotation increases deceleration time.
I.R. COMP.	Provides a means of improving speed regulation in the armature feedback mode. If a change in motor speed during a load change is of no concern, rotate this trim pot fully CCW.	1. Set SPEED pot at 50%. 2. Observe motor speed during a no load condition. 3. Apply a full load to the motor. 4. Adjust the I.R. COMP. trim pot CW (while the load is applied) until the no load motor speed is maintained.
CUR. LIM.	Limits DC motor armature current (torque) to prevent damage to the motor or control. The current limit is set for 125% of the rated motor current. CW rotation of this trim pot increases the armature current (or torque produced).	1. TURN DRIVE POWER OFF! 2. Connect a DC ammeter in series with the + Arm line (between +A on motor and +Arm on the control). Preset the current limit trim pot CCW. 3. Turn power on and set Speed pot to 50%. 4. Increase the motor load until the motor stalls (zero RPM). 5. Set CUR.LIM. trim pot to 125% of the rated motor armature current (see "TRIM POT CHART" on page 28).

Troubleshooting Discharge System

Problem	Possible Causes(s)	Corrective Action
Plus (+) and minus (-) lights will not go off when calibrating Moisture Control System.	Deadband potentiometer out of adjustment.	Adjust the deadband trim pot on Moisture Control Board (R-7) until both lights stay off when turning moisture control dial two spaces on the scale.
Sweep and discharge auger DC motor will not run.	High limit light off. (High limit control not reset.)	Reset.
	Discharge motor relay coil burned out.	Replace.
	SCR board fuse(s) blown.	Replace.
	Moisture Control Board 1 amp fuse blown.	Replace.
	Moisture Control Board inoperative.	Check output voltage between Arm (+) and Arm (-) which should be approximately 20 to 170 volts DC depending on the SCR speed control potentiometer setting. If no voltage, consult factory.
	No power source.	Repair power source.
	Worn or broken motor brushes.	Replace brushes.
Sweep and discharge auger will not run.	Belts loose.	Tighten belts.
	Belts broken.	Replace belts.
Moisture Control does not control grain moisture.	Moisture Control Board MANUAL-AUTO switch in MANUAL position.	Switch to AUTOMATIC.
	Bad thermistor. Check response with ohmmeter. Reference thermistor chart, page 32.	Replace if bad.
	Bad Moisture Control Board.	Replace.
	Bad moisture control potentiometer. Check potentiometer with ohmmeter.	Replace.

Troubleshooting Discharge System

Problem	Possible Causes(s)	Corrective Action
Motor stalls or runs very slowly with speed control turned fully CW.	Low DC voltage.	Should be above 108V. Max. speed set incorrectly. See "Adjustment Procedure" page 29.
	Overload condition.	Reduce load or readjust Current Limit.
	Worn motor brushes.	Replace motor brushes.
Repeated SCR Board fuse blowing. Fuse Size: 20 Amp Fuse Type: Bussman ABC-20 Littlefuse 314020	Low AC voltage. Overload condition. Worn motor brushes. Defective motor bearings. Failed electrical components.	Check AC supply voltage. Reduce load. Replace motor brushes. Replace motor bearings. Return SCR board for repair.
Motor runs but will not stop.	Incorrect wiring. Defective wiring. Failed component.	Check "Terminal Strip Wiring sections. Check wiring. Return SCR board for repair.

NOTE: Both sides of VAC input to SCR board are fused.

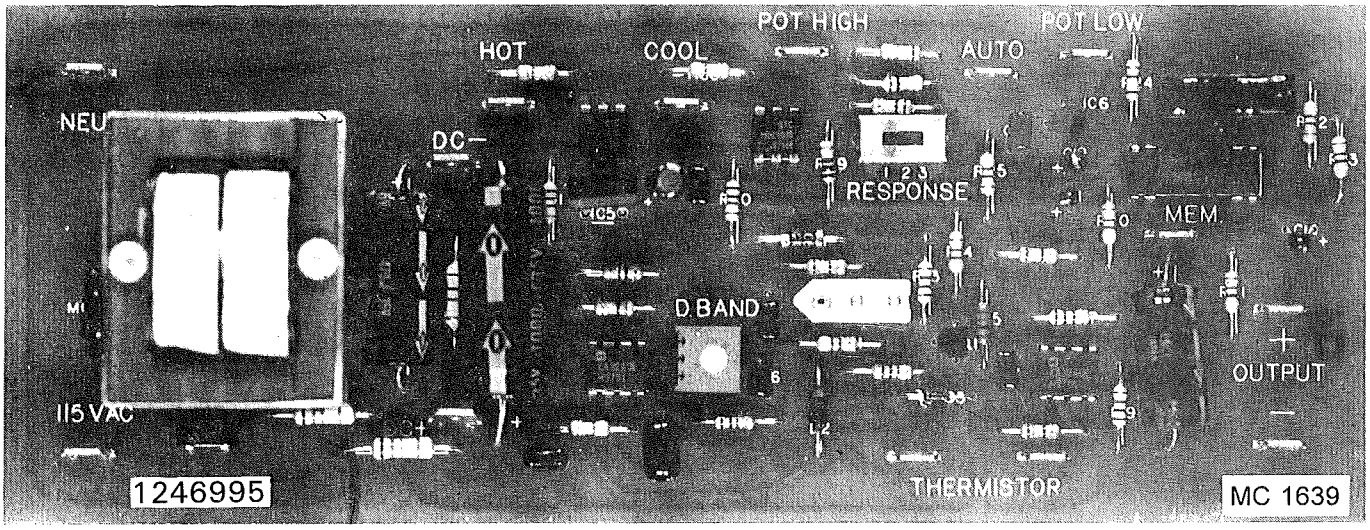
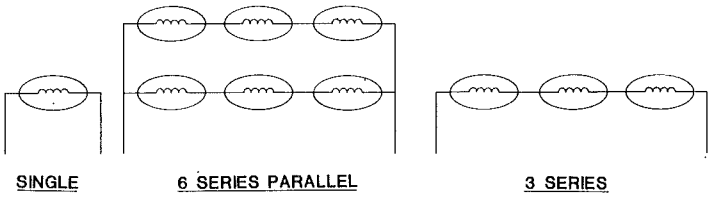


Figure 25

THERMISTOR CHART



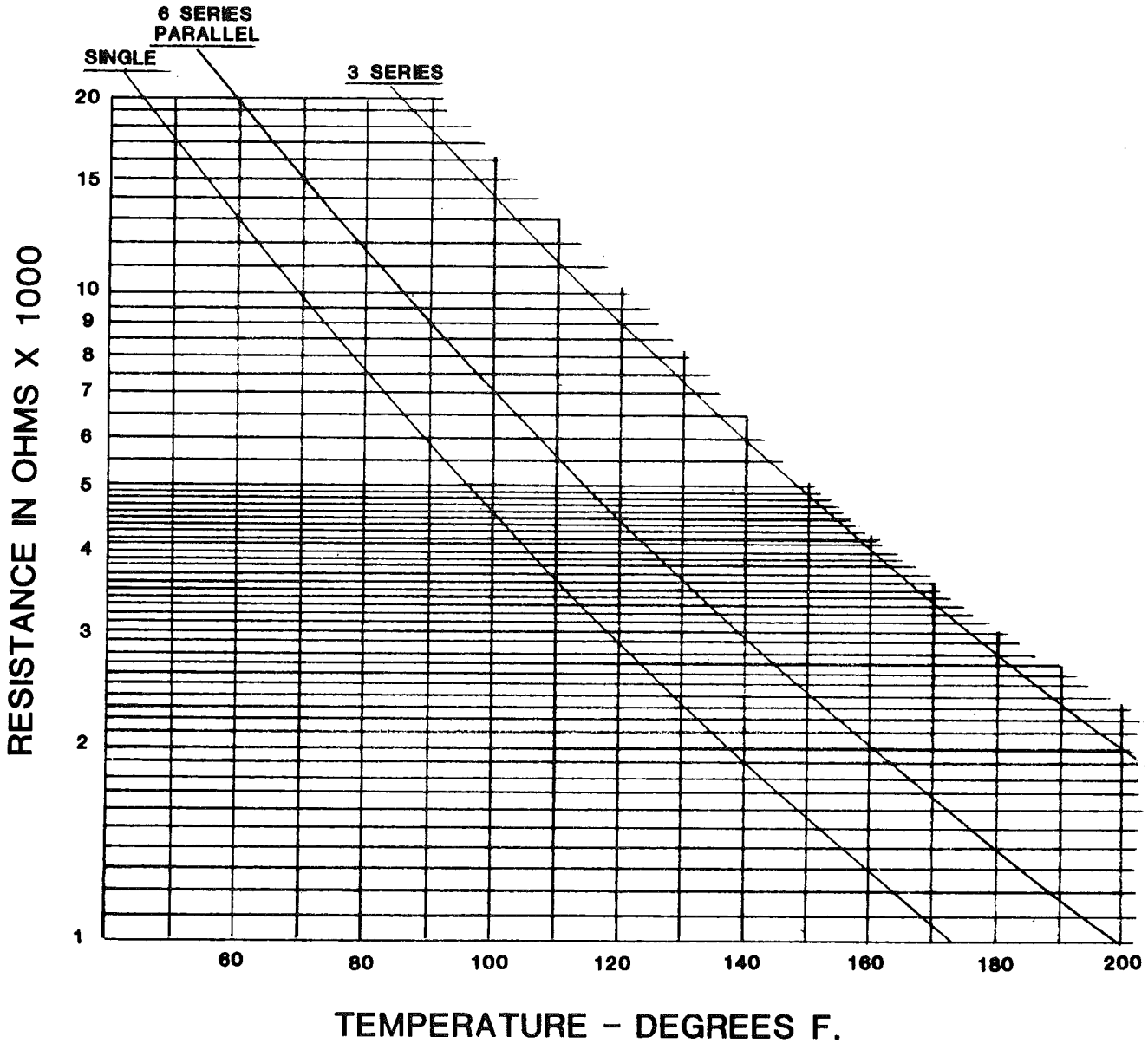


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Figure 26

THERMISTOR WIRING

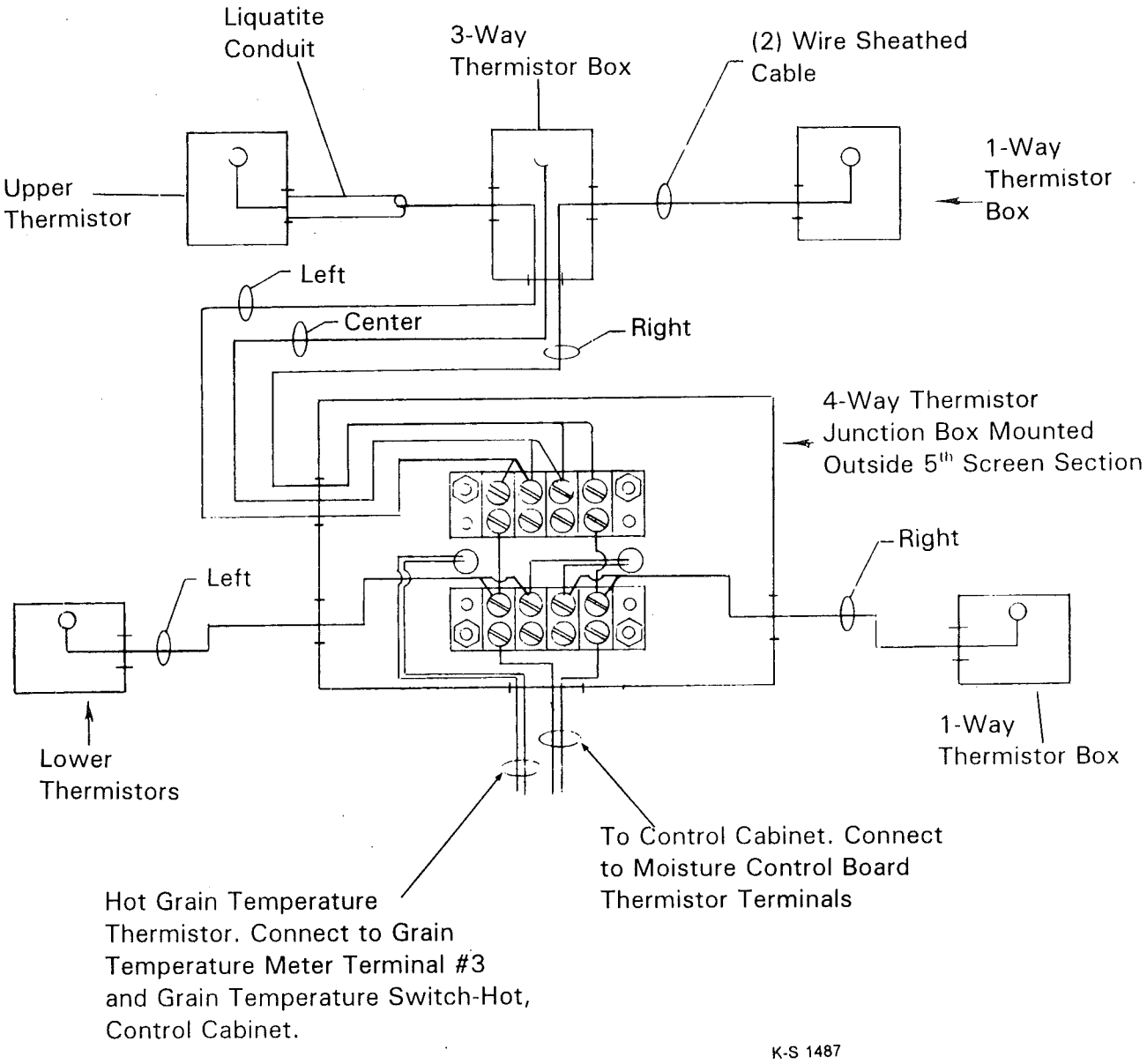

Figure 27

M-C TOWER DRYER 101075
GENERAL TROUBLESHOOTING
START-UP AND RUNNING OF DRYER

Main power to the dryer comes into the Starter Cabinet and to the splitter block. Control voltage (115) is obtained through one leg to neutral for 230 volt or by using a step-down transformer.

All dryers are to be grounded. A ground rod is supplied with all dryers. Ground wires are all green and run from chassis to motors, control panels and control doors.

Isolated neutral block wired to all 230 volt dryers only. "B" phase 230 volt excluded. For 208, 460, 575 voltage and 230 "B" phase voltage, neutral from transformer will wire direct to TB5/neutral.

When dryer is ready for testing operation, make sure Lexan Guard for HIGH VOLTAGE is properly installed. This Lexan Guard is on every dryer.

	PROCEDURE	TROUBLESHOOTING
1.	Start of Operation of Dryer: 115 volt Power Light should be ON.	If not, check: a. Main disconnect (customer supplied disconnect) b. Fuse is not functional. c. TB33 for connection (115 volts). d. 115 volt bulb and socket.
2.	Switch Control Toggle to ON position. ON and HIGH LIMIT lights should be ON.	If not, check: a. Ignition reset. b. Overload Circuit through starters. c. Cold Grain Flow Timer. d. Back door Mercury Switch. e. High Limit reset.
3.	Switch Control Toggle to START position. READY and FILL lights ON.	If not, check: a. FILL light will only come on when FILL switch is in MANUAL or AUTO position. b. Main relay. c. Rotary Fill Switch is not calling for grain. d. Grain Flow Timer elapsing (EMPTY light).
	PRIMARY CIRCUIT IS NOW COMPLETE (SAFETY CIRCUIT), TB24 IS ENERGIZED.	
4.	Switch Fill Relay ON to MANUAL. Fill Relay closes to provide 115 volts to customer supplied fill equipment.	
5.	Adjust 0 to 3 minute Fill Timer to desired setting.	
6.	After dryer has filled with grain, switch Fill Toggle to AUTO position.	
7.	Fill Timer and Grain Flow Timer are only in the circuit in AUTO position.	
8.	Set both Fill Timer and Grain Flow Timer for 30 minutes.	
	DRYER IS NOW FILLED AND READY TO DRY GRAIN	
9.	Start fan with push button. Sequence is as follows: Fan #1 immediate start-up, then Sail Switch closes and AIR light comes ON. This starts 3 Second Delay Timer to start Fan #2, then Sail Switch closes and AIR light comes ON. Fan #3 also has 3 Second Delay Timer before starting.	If problem with sequence, check: a. If Sail Switch for a fan fails, that fan's Air Switch light will not come ON. b. If 3 Second Timer fails, Fan #2 will not start. c. Problem with Start and Stop Button contacts. d. Problem with Fan Starter, Reset Overloads or Contactor Coil. e. Fan rotation incorrect.

Continued . . . . .

	PROCEDURE	TROUBLESHOOTING
10.	Switch Ignition Toggle to ON position. After 10 Second Purge Timer times out, #1, 2 & 3 Ignition Lights will come ON. This will ignite burners.	If not, check: a. Ignition Board #1 as follows: b. L1 is hot, L2 is neutral (115 volt power to unit). c. V1 is hot, V2 is neutral (115 volt power to Ignition Board Fan #2). d. E1 is HIGH VOLTAGE to Electrode. **(DANGER! Never test with meter.)** e. E2 is LOW VOLTAGE from Electrode (completes Electrode circuit). f. Ignition Board #1 as follows: #2 Ignition Light comes ON. g. L1 is hot, L2 is neutral (115 volt power to unit from V1 and V2 of Ignition #1). h. V1 is hot, V2 is neutral (115 volt power to Solenoids). i. E1 is HIGH VOLTAGE to Electrode. **(DANGER! Never test with meter.)** j. E2 is LOW VOLTAGE from Electrode (completes Electrode circuit). k. Solenoid problems usually result from poor ground.
11.	Switch Discharge System Toggle Switch to START position. Sweep and Discharge Auger should start.	If not, check: a. AC Fuse on SCR Board. b. Brushes on DC Motor (seated properly). c. AC Fuse (on control panel). d. Cold Grain Timer and Grain Flow Timer elapsed. e. Input AC and Output DC of Moisture Control Board. f. Input DC and Output DC of SCR Board (SCR Board functions as 230 volts).
12.	Grain Flow Timer and Cold Grain Flow Timer have a 1 second to 60 minute range. Set the Moisture Control Board response switch to 2. Responses 1, 2, 3: 1 being fastest response, 3 the slowest response from Thermistors to change speed of Discharge System. Set maximum DC volts of SCR Board at 150 volts or maximum of Discharge System. To set maximum: Turn Manual Speed Control Dial to 10. Then measure voltage between ARM+ and ARM- with multimeter to read 150 DC volts.	
13.	Use Manual Speed Control Dial to adjust discharge speed. Adjust speed until moisture content of grain is the desired percentage. After running dryer long enough to stabilize moisture output, the Moisture Control (Moisture-Matic) Switch is ready to be placed up into Automatic.	
14.	Use Auto Set Point Dial to balance lights so that both are OFF. Before switching to Automatic, adjust Cold Grain Timer. Timer will shut down entire dryer if (–) light is held on past the setting of the Cold Grain Timer.	
15.	Place Discharge System into Automatic at this point by placing Moisture Control (Moisture-Matic) Switch up into Automatic.	If not, check: a. Auto/Manual Switch for wiring problem. b. 1.0 Amp Fuse (Moisture Control Board). c. SCR Board and 3HP Discharge System (DC) Motor.

Quick Reference Troubleshooting Chart

The following chart is provided as an aid to the Operator in determining the probable cause and corrective action required to solve operating problems that may occur during the drying process. If the corrective action recommended does not solve the problem, contact your authorized M-C Dealer.

✳FIRST SHUT OFF & LOCKOUT POWER AND GAS SUPPLY!

Problem	Possible Cause(s)	Corrective Action
115V Power Light Off	Power disconnected. Control Circuit 5 amp. fuse blown.	Turn on power. Replace.✳
On Light Off	Control Circuit Switch off. Flame Monitor Reset(s) tripped. Fan Overloads tripped. Rear Discharge Door open. Auxillary Fill or Take-Away Equipment safety switches tripped.	Reset. Reset.✳ Determine cause.✳ Reset.✳
Motors fail to start (no power).	High Limit Switch tripped. Motor Overload tripped.	Reset.✳ Reset.✳
Magnetic Starter(s) trip out repeatedly.	Starter Contacts dirty or rusty. Defective Interlock Switch on Starter. Starter Coil weak. Low Voltage Power Supply	Call qualified Electrician.✳
Fan runs, but Air Switch Light does not light.	Bad bulb in Lamp Assembly. Flap on Air Switch stuck or missing. Fan rotation wrong.	Replace.✳ Make sure flap is free and not missing.✳ All fans turn counterclockwise. Check page 12.✳
Dryer runs through purge period, but fails to ignite or flame out occurs before drying temperature reached.	Low gas pressure. Improper air adjustment. Modulating Valve improperly adjusted. Improper Electrode gap or cracks in Electrode.	Adjust pressure with regulator: Liquid Propane 20-25 psig. Natural Gas 14-18 psig. @ 55°F outside air temp. Check Air Damper opening, page 48.✳ Adjust Modulating Valve "T" Handle. Adjust or replace.✳

Quick Reference Troubleshooting Chart

✳FIRST SHUT OFF & LOCKOUT POWER AND GAS SUPPLY!

Problem	Possible Causes(s)	Corrective Action
High Limit Thermostat kicks out repeatedly.	High Limit Thermostat set too low.	Adjust as required.✳
	Heat Chamber walls (screens) clogged with fines and chaff.	Clean drying chamber.✳
	Temperature Gauge reading incorrect.	Replace gauge.✳
Dryer will not achieve desired temperature or temperature is erratic.	Low gas supply in tank.	Contact gas supplier.
	Gas Pressure Regulator and Modulating Valve out of adjustment.	Adjust as required.
	Temperature Gauge bad.	Replace.✳
	Excess Flow Valve at supply tank with clicking noise or frost indicating blockage of LP line.	Replace if incorrect size.
	Incorrect burner orifice: LP - ¼" orifice Natural Gas – no orifice	Remove if orifice installed in Natural Gas Burner.
Uneven moisture content of discharged grain.	Sweep arms not level.	Check that sweep arms are sweeping parallel to the lower edge of the inner perforated sheets.✳
	Dirt built up on Sweep Floor.	Clean Sweep Floor.✳
	Dryer not level.	Level dryer when empty.✳
Dryer shuts down.	Grain Flow Timer times out - no wet grain.	Check fill system and wet grain supply.
	Cold Grain Timer times out.	Wet grain at Thermistors because burner out. Restart burner. Check (LP) gas supply tank.
	Rear Discharge Door open because of shut down of dry grain take-away system.	Determine problem with take-away equipment.✳ Then restart dryer.
	Magnetic overload drops out because of low voltage, bad interlock switch, bad coil, loose wire connections, or dirt build up on contactors.	Reset.✳ If starter still drops out, call qualified Electrician.

Quick Reference Troubleshooting Chart

***FIRST SHUT OFF & LOCKOUT POWER AND GAS SUPPLY!**

Problem	Possible Cause(s)	Corrective Action
Dryer shuts down. (Continued)	Burner Reset Switch drops out because of no gas supply, bad electrode, loose wire connections to electrode, cracked wires to electrode, or improper air adjustment on burner.	Check gas supply tank. Check electrode connections and condition of wires. * Check Air Damper on burner. *
Indicator Lamps (lights) flicker, solenoids chatter, or dryer shuts down repeatedly.	Poor machine ground.	Tighten connections for ground at machine lug terminal and at earth ground rod supplied with dryer. *
	Loose wire connections.	Check and tighten connections. *
	Improper air damper adjustment on burner resulting in weak flame that is moving in and out of electrode. This action causes temporary loss of flame sensing by Ignition Board and shut down of burner.	Check position of Air Damper on burner. *
Low drying capacity.	Grain overtired.	Adjust Auto Set Point Dial to lower number.
	More than (10) points of moisture being removed.	Allow more time for drying under this condition.
	Moisture Tester out of calibration.	Re-calibrate or replace.
	Drying Temperature too low.	Adjust "T" Handle of Modulating Valve by turning clockwise to increase drying temperature.
	Plugged inner or outer perforated sheets.	Clean as required. *

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101075 PARTS CATALOG
INTRODUCTION

Parts Ordering Instructions

1. Order parts from your local M-C Dealer.
2. Always furnish the model and serial number. This information is stamped on the serial number plate.
3. When ordering parts be sure to furnish the part number, description and quantity required.

NOTE: Attaching hardware is listed, but not included, with the main part. It must be ordered separately.

4. Inspect all shipments upon receipt. If any packages and/or boxes are missing, or parts are damaged, file a claim with the carrier immediately. Failure to do so may void a claim. Check the shipment against the packing list carefully. Report any shortages to the shipper immediately.
5. Do not return any parts to the Mathews Company without a "Return Goods Authorization" from the factory. All return parts shipments must be shipped prepaid (COD shipments will not be accepted). Shipments must also include the following:
   A. A letter of explanation including the "Return Goods Authorization Number," your name and address.
   B. A list of all parts being returned. List must include part numbers, description, quantity, and original invoice number.

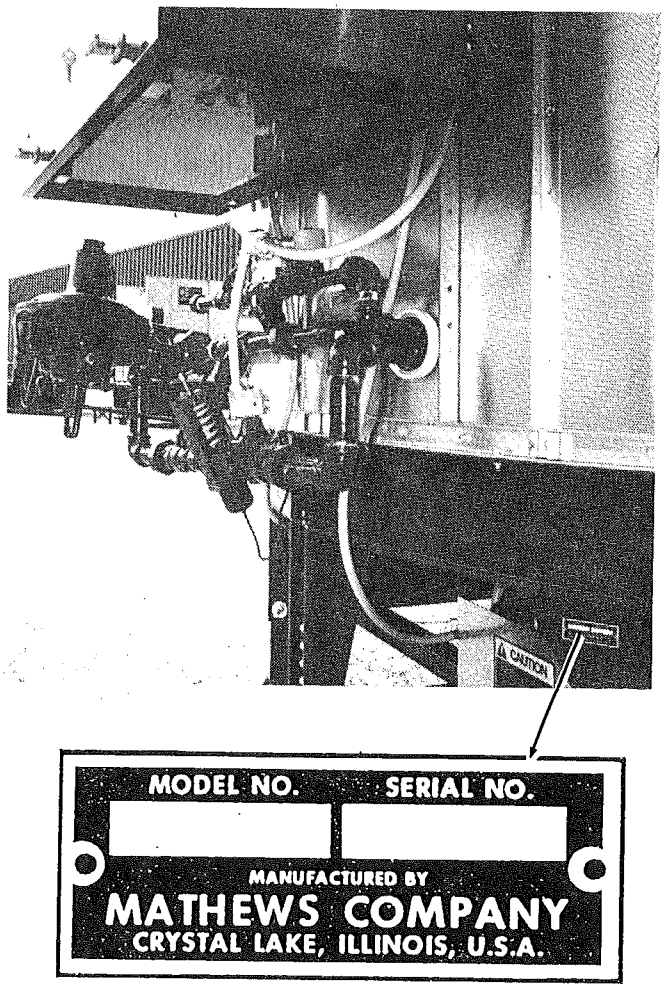


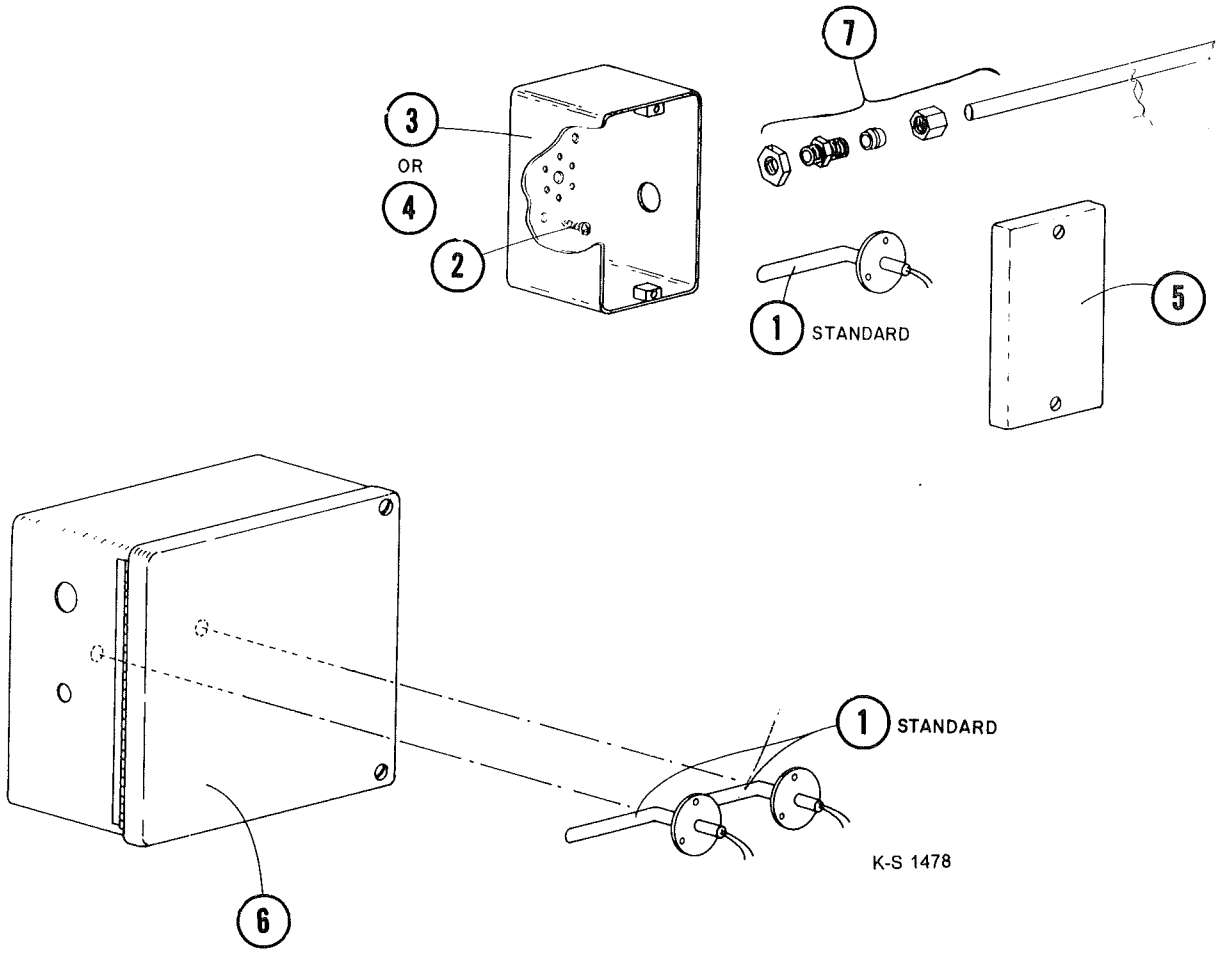
Figure 28

Model and Serial Number Location

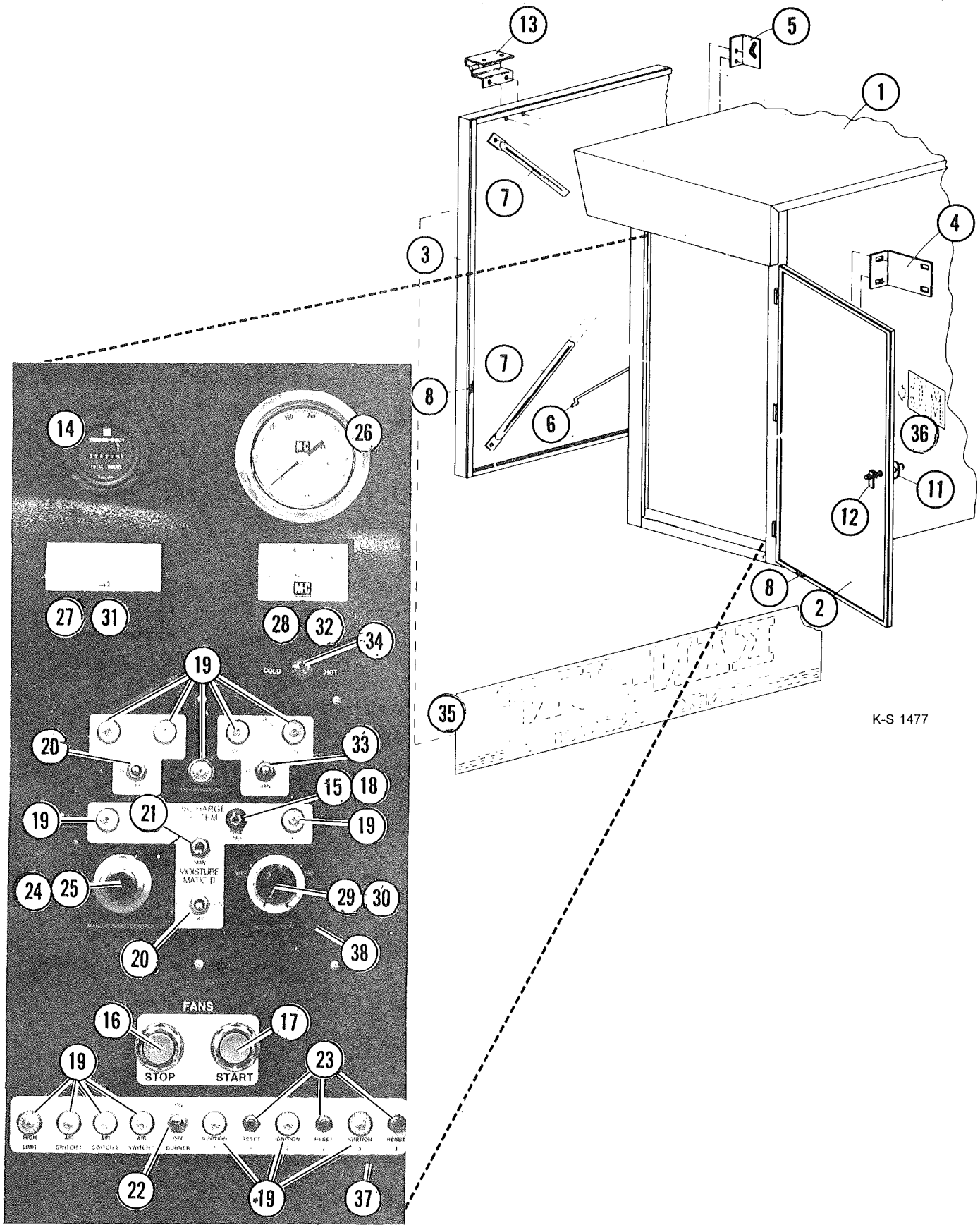
The model and serial number of your Grain Dryer are stamped on a plate located on the leg support gusset just to the lower right of the control cabinet, see Figure 1. Record the model and serial number in the blank spaces provided in Figure 28.

THERMISTORS
101075

Ref.	Part No.	Qty.	Description
1	438700	8	Thermistor (Standard)
2	095180	12	8-18 x ½" Pan Head Self Tap Screw
3	475195	5	Thermistor Box - 1 Way
4	475196	1	Thermistor Box - 3 Way
5	435507	6	Thermistor Box Cover
6	475275	1	Thermistor Box - 4 Way
7	475389	4	Liquatite Assembly



CONTROL PANEL CABINET



101075 CONTROL PANEL PARTS LIST

Ref.	Part No.	Qty.	Description
1	475512	1	Control Cabinet Assembly
2	445690	1	Control Door Cover Assembly
3	448109	1	Control Cabinet Cover
4	836894	4	Control Cabinet Mounting Bracket
5	445507	1	Door Support Bracket
6	445509	1	Door Support Rod
7	445527	2	Cross Brace
8	436448	-	Gasket Strip - 30" Long (Quantity as required)
9	445508*	1	Door Support Rod Pivot Mount
10	420005*	2	Cover Door Slot
11	444589	3	Locking "T" Handle
12	433800	3	Locking Cam
13	444628	2	Hinge
14	444645	1	Hour Meter
15	433100	1	Fuse Holder
16	475364	1	Stop Switch Red
17	475365	1	Start Switch Green
18	833447*	1	Fuse (1 Amp)
19	475016	14	Indicator Lamp Assembly
20	475354	2	Start Up - Run Switch
21	1246895	1	Auto - Manual Switch
22	438907	1	Burner On-Off Switch
23	441959	3	Remote Reset Switch
24	475013*	1	10 Turn Potentiometer
25	475014	1	Speed Control Dial
26	475015	1	Temperature Gauge
27	444782	1	Grain Temperature Meter (Gasket #475269)
28	1246981	1	Discharge Speed Meter (Gasket #475269)
29	438698*	1	Potentiometer
30	438699	1	Knob
31	445961*	1	Temperature Bridge
32	475428	1	88K Resistor
33	475369	1	Wet Grain Fill Switch
34	475194	1	Cold-Hot Switch
35	475182	1	Decal "Kan-Sun - The Next Generation"
36	475273	1	Decal "M-C"
37	475513	1	Fan/Burner Control Bezel
38	475367	1	115 Power Control Bezel

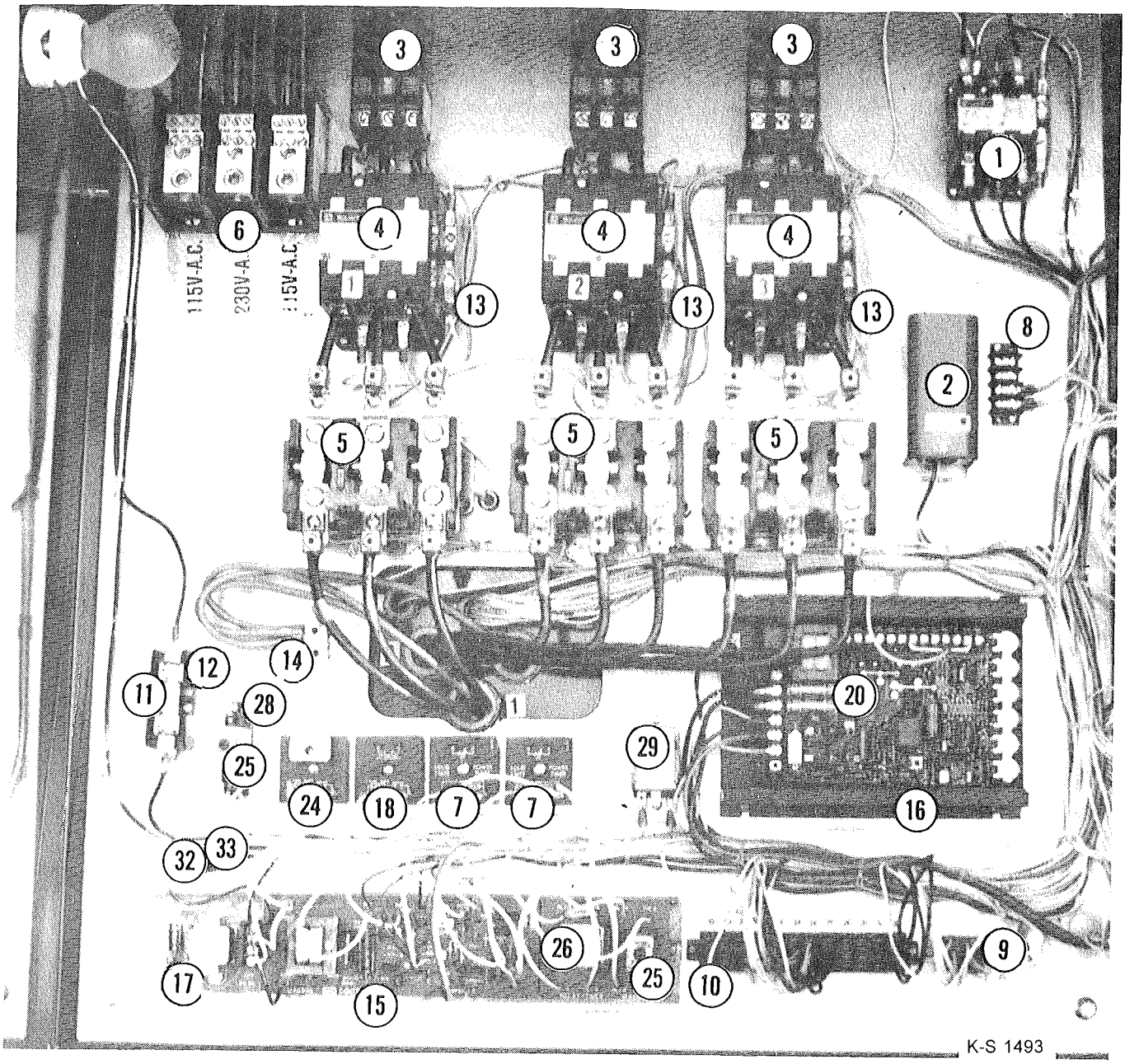
*Items Not Shown.

ELECTRICAL COMPONENTS

Ref.	Part No.	Qty.	Description
1	475307	1	Contactor 30 Amp-3 Pole (3HP Discharge Motor)
2	835916	1	High Limit Control 10 Ft. Lead
3	1286966	3	Circuit Breaker Fan Motor 3Ø 230V
	1256929	3	Circuit Breaker Fan Motor 3Ø 460V
4	1241082	3	Fan Motor Starter 25HP DPA73 3Ø 230V
	1246930	3	Fan Motor Starter 25HP DPS053 3Ø 460V
5	1286827	3	Thermal Unit Fan Motor 3Ø 230V CC87.7
	1286983	3	Thermal Unit Fan Motor 3Ø 460V B56
6	475372	1	Power Distribution Block (3 Pole)
7	475482	2	Time Delay Relay (3 Second)
8	835872	1	Terminal Block (4 Position)
9	475012	1	Terminal Grounding Block (4 Position)
10	475025	1	Terminal Block (12 Position)
11	475325	2	Fuse 5 Amp
12	475426	1	Fuse Block
13	475362	1	Auxiliary Contacts
14	475308	2	Ground Lug

Ref.	Part No.	Qty.	Description
15	1246995	1	Moisture Control Board
16	475008	1	SCR Board
17	445960	1	8 Volt Power Supply
18	475363	1	Time Delay Relay (10 Second)
20	475202	2	SCR Fuse
24	1246996	1	0 to 3 Minute Timer
25	1246978	1	0 to 60 Minute Timer
26	1246972	1	Main Relay and Timer Socket
27	475311	1	Main Relay
28	1246987	1	Cold Grain Timer Base
29	475313	1	Fill Relay
32	444613	1	Fuse (½ Amp)
33	475368	1	In Line Fuse Holder
34	*475218	1	Transformer (7500 VA) 460V
35	*475204	2	Fuse 37 Amp 460V
36	*475219	1	Fuse Holder 460V

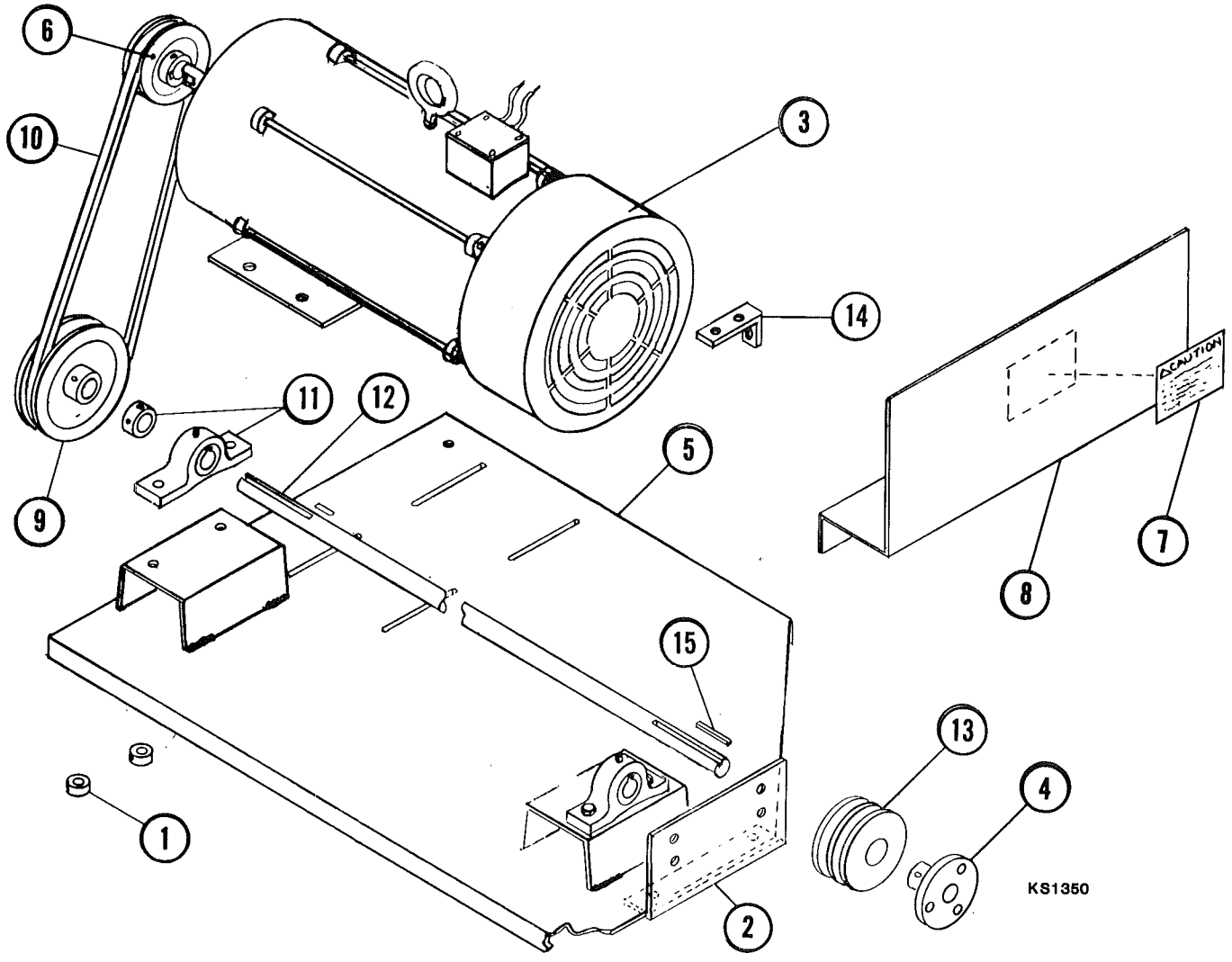
*Not Shown



K-S 1493

DISCHARGE SYSTEM 3HP (DC)
MOTOR DRIVE AND MOUNT

Ref.	Part No.	Qty.	Description
1	441021	2	Spacer, Motor Mount
2	441969	1	Sweep Motor Atttach. Plate
3	475010	1	3HP DC Motor
4	475236	1	1" J.A. Bushing
5	475240	1	Drive Plate DC Motor Weldment
6	475235	1	Pulley, 3¾" O.D.
7	475272	1	Decal, Caution
8	475244	1	Belt Guard
9	475234	1	Pulley, 6½" O.D.
10	475237	1	Drive Belt
11	475239	2	Bearing, Jack Shaft, 1" and Collar
12	475241	1	Jack Shaft 1" Diameter
13	837357	1	Sheave, 2.65 O.D.
14	475243	1	Belt Tension Adjusting Bracket
15	475246	3	¼ x ¼ x 1½ Key Stock

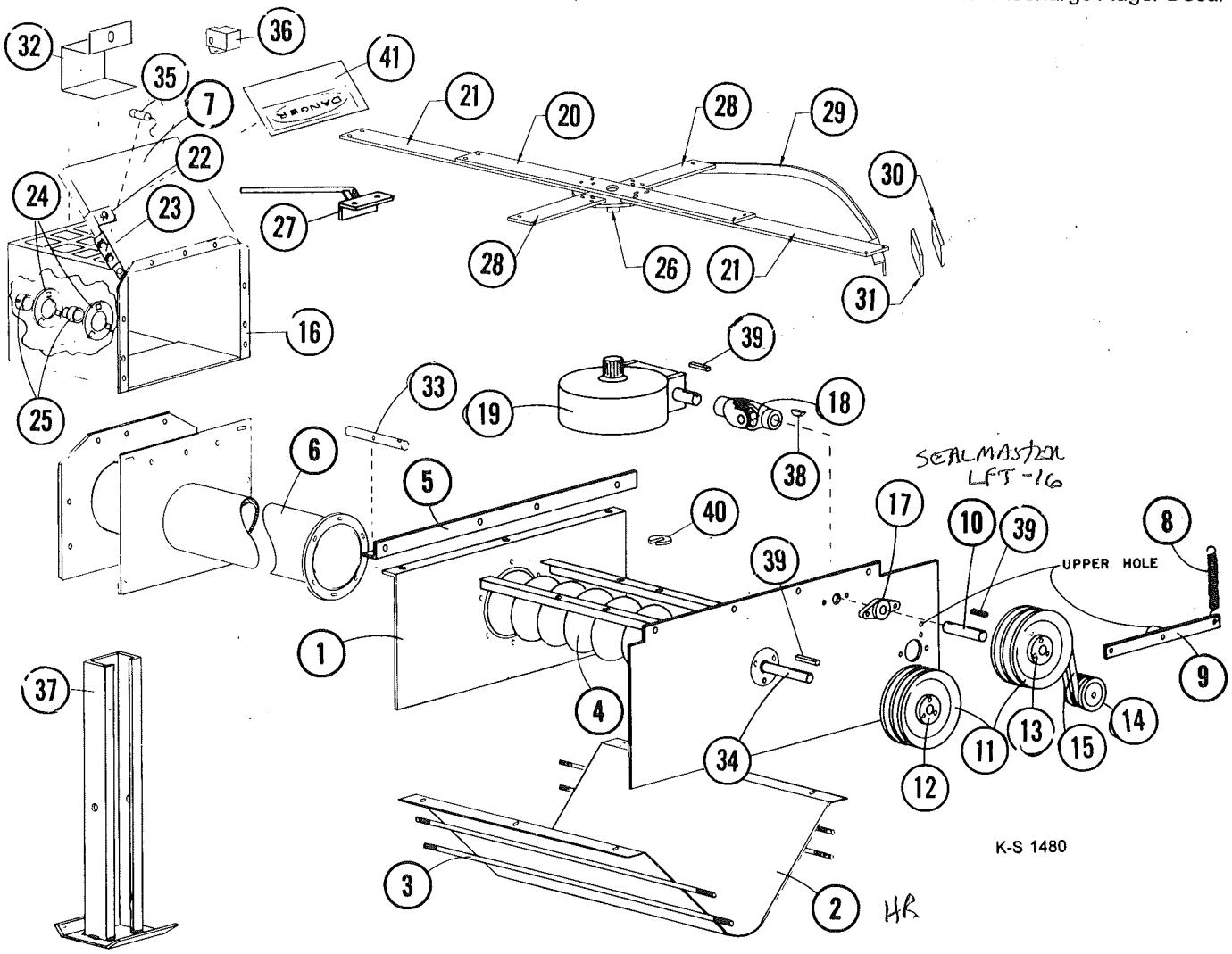


PARTS LIST

AUGER - SWEEP

Ref.	Part No.	Qty.	Description
1	475044	1	Discharge Sump Body Weldment
2	475071	1	Sump Trough
3	475053	4	Sump Tie Bolts
4	475086	1	Auger Weldment, 8"
5	439779	1	Attachment Angle
6	475315	1	Discharge Auger Tube Weldment
7	475052	1	Auger Extension Overload Door
8	441966	1	Spring, 6" Long
9	444601	1	Belt Tightener Weldment
10	830017	1	Drive Shaft
11	837742	2	Sheave, 6.9" O.D.
12	475074	1	Hub, 1¼" Bore w/Key
13	837739	1	Hub, 1" Bore
14	833318	1	Belt Idler
15	837356	1	Drive "V" Belt
16	475049	1	Unload Auger Discharge
17	821372	1	Bearing, 1" Bore w/Casting
18	820026	1	"U" Joint
19	437752	1	Gear Box, 50:1
20	475522	1	Sweep Arm Brace

Ref.	Part No.	Qty.	Description
21	834683	2	Sweep Arm, Long
22	475170	1	Mounting Clip Level Switch
23	475171	1	U.A. Bulb Mount
24	475050	4	1¼" Bearing Flangette
25	475051	2	1¼" Bearing w/Locking Collar
26	821633	1	Sweep Arm Hub Assembly
27	821364	1	Sweep Arm Finger Assembly
28	446360	2	Sweep Fin Tail Bracket
29	475439	1	Sweep Fin
30	833278	2	Sweep Fin Finger
31	441965	2	Sweep Fin Finger Cleaner, Teflon
32	475069	1	Auger Stub Shaft Guard
33	475073	1	Auger Stub Shaft
34	475072	1	Auger Drive Shaft
35	475147	1	Mercury Switch
36	475172	1	Mercury Switch Cover
37	475150	6	Leg Extension Weldment
38	833607	1	¼ X ⅞" Woodruff Key
39	475246	3	¼ x ¼ x 1½" Keystock
40	475140	–	Shim, 20 Ga. (Qty. as required)
41	836424	1	"DANGER" Discharge Auger Decal

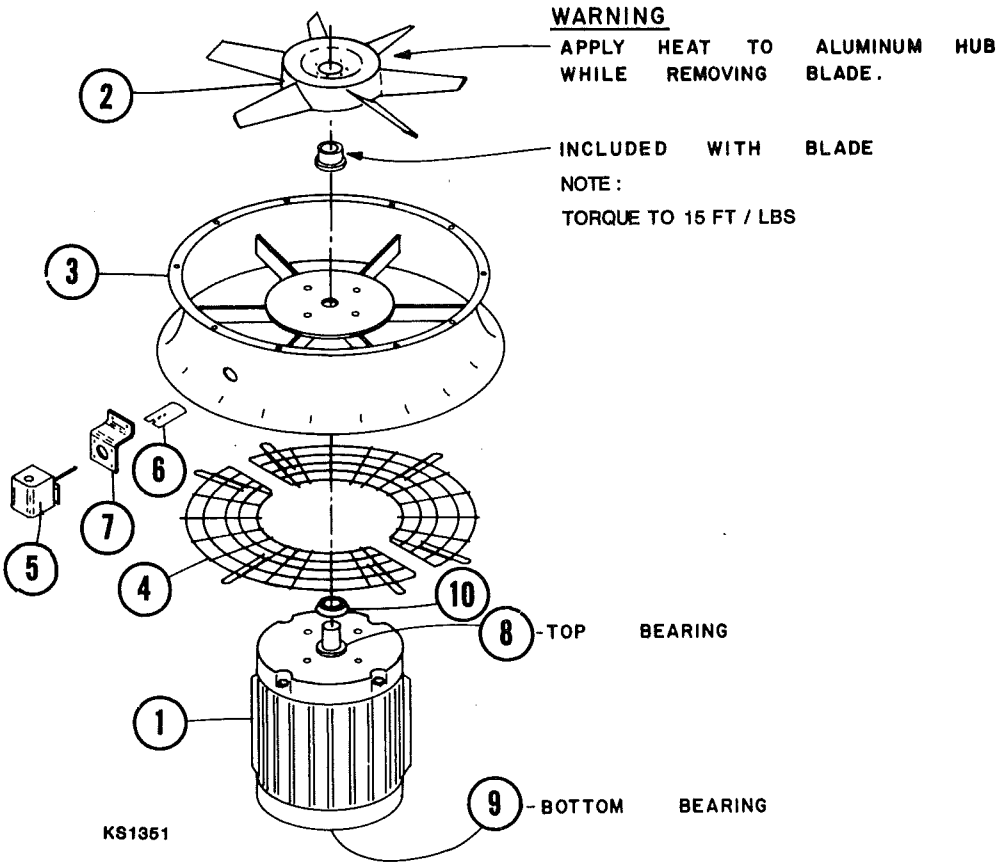


FAN ASSEMBLY 10, 15 & 25 HP

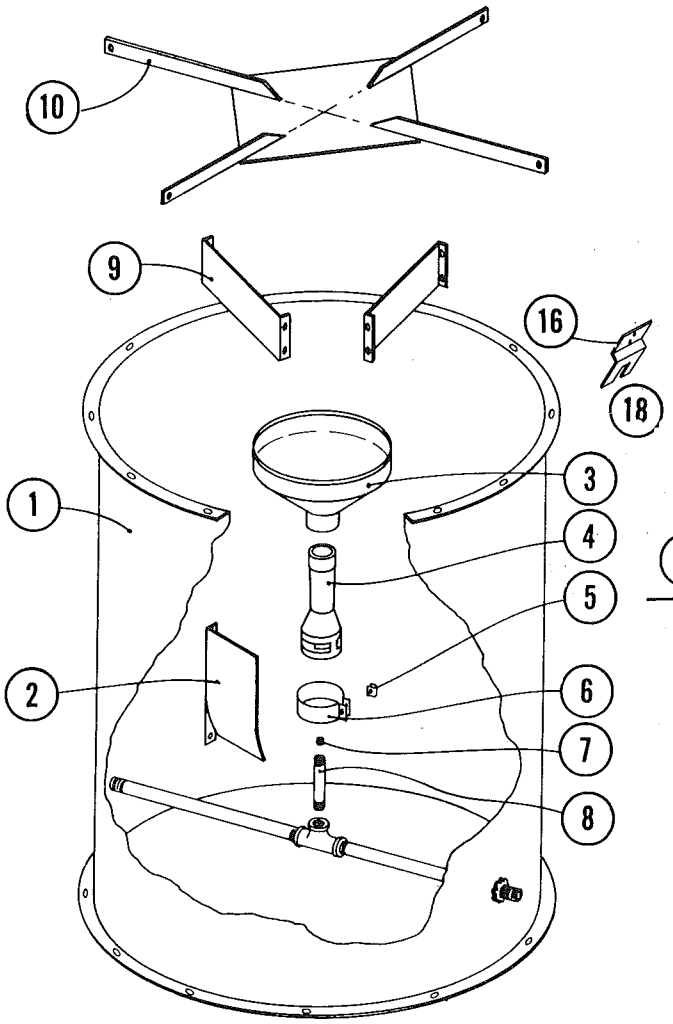
Ref.	Part No.	Qty.	Description
1	821576	2	Motor 10HP 3Ø
	821577	2	Motor 15HP 3Ø
	475467*	2	Motor 25HP 3Ø
2	835253	2	Blade Assembly 10HP (includes Bushing)
	835258	2	Blade Assembly 15HP (includes Bushing)
475528	~~475525~~*	2	Blade Assembly 25HP (includes Bushing)
3	475525	2	Venturi
4	833220	4	Fan Guard (Half)
5	821632	2	Air Switch
6	837253	2	Air Switch Sail
7	834568	2	Air Switch Bracket
8	835184	2	Top Replacement Bearing
9	835185	2	Bottom Replacement Bearing
10	444766	2	Slinger

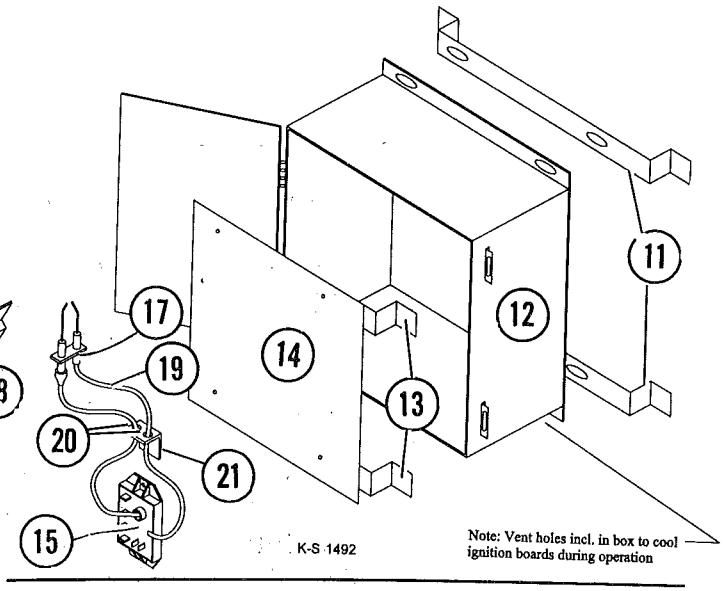
- FAN ONLY & 475465

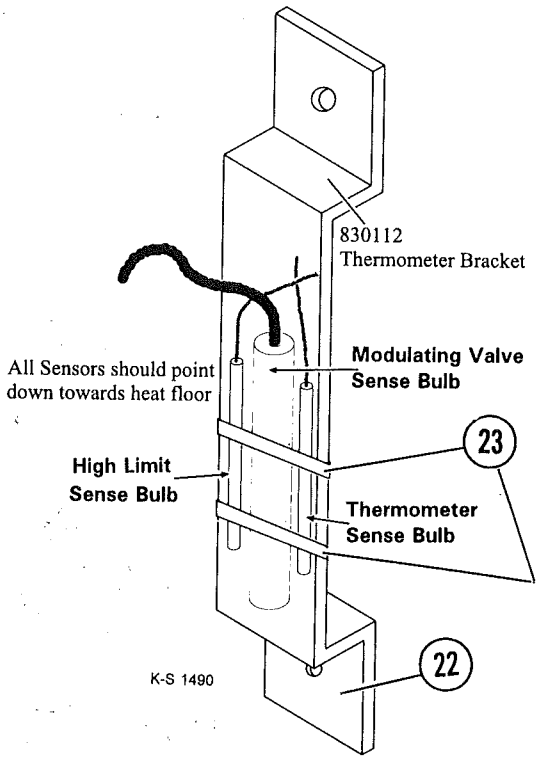
*Model 10750 starting with Serial Number 55970 June 30, 1998.



BURNER







Ref.	Part No.	Qty.	Description
1	438499	3	Burner Shell
2	833224	18	Air Fin
3	835368	3	Burner Shield
4	835367	3	Burner
5	837537	6	Tinnerman Clip
6	833745	3	Air Damper
7	475496	3	LP Orifice ¼" Dia.
8	835366	3	Pipe
9	440105	6	Burner Retainer
10	441000	3	Vaporizer Baffle Assembly
11	833411	2	Bracket
12	475497	1	Ignition Board Cabinet
13	475526	2	Ignition Board Panel Spacer Brackets
14	475493	1	Ignition Board Mounting Panel
15	978389	3	Ignition/Flame Monitor Board w/Reset
	1246929	1	Terminal Block 3 Position (not shown)
	835872	4	Terminal Block (4) Screw (not shown)

Ref.	Part No.	Qty.	Description
16	448064	3	Probe Clip
17	448068	3	Flame Control Probe
18	823551	3	High Voltage Ignition Wire
19	823552	3	Low Voltage Sense Wire
20	833468	6	Bushing
21	833461	3	Wire Holder
22	830112	1	Thermometer/High Limit/Mod. Valve Sense Bulb Mount Brkt.
23	1286964	10	Tie Wraps 14"

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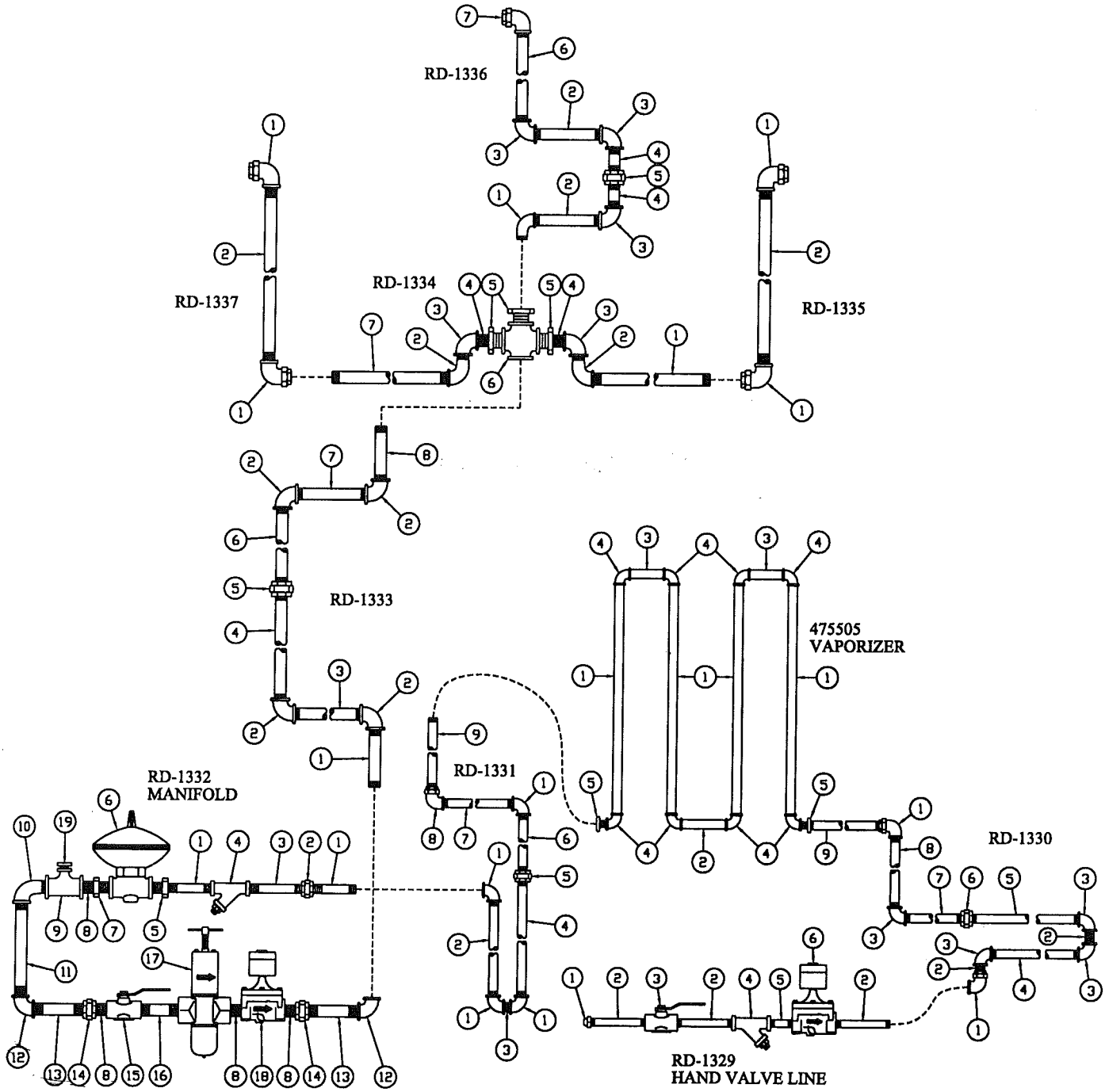
101075 LP GAS MANIFOLD & PIPING



101075 LP GAS MANIFOLD & PIPING

RD-1329 3/4" Liquid Line Assembly

Ref.	Part No.	Qty.	Description
1	121 8034	1	¾" Extra Heavy Pipe Cap
2	121 8092	3	¾ x 4" Extra Heavy Nipple
3	127 7002	1	¾" Hand Valve
4	121 8060	1	¾" Extra Heavy Strainer
5	121 8006	1	¾ x 2" Extra Heavy Nipple
6	475 561	1	¾" Liquid Line Solenoid 120V

RD-1330 Hand Valve to Vaporizer LP

Ref.	Part No.	Qty.	Description
1	128 8019	2	¾" Union Elbow Extra Heavy
2	837 245	2	¾" Close Nipple
3	475 136	4	¾" 90° Elbow Extra Heavy
4	475 551	1	¾ x 17½" Extra Heavy Nipple
5	475 555	1	¾ x 38½" Extra Heavy Nipple
6	475 137	1	¾" Union Extra Heavy
7	475 557	1	¾ x 31" Extra Heavy Nipple
8	833 708	1	¾ x 8" Extra Heavy Nipple
9	475 558	1	¾ x 46" Extra Heavy Nipple

RD-1331 Vaporizer to Manifold LP

Ref.	Part No.	Qty.	Description
1	475 136	4	¾" 90° Extra Heavy Elbow
2	475 550	1	¾ x 18½" Extra Heavy Nipple
3	837 245	1	¾" Close Nipple
4	475 555	1	¾ x 38½" Extra Heavy Nipple
5	475 137	1	¾" Extra Heavy Union
6	475 557	1	¾ x 31" Extra Heavy Nipple
7	833 708	1	¾ x 8" Extra Heavy Nipple
8	128 8019	1	¾" Extra Heavy Union Elbow
9	475 558	1	¾ x 46" Extra Heavy Nipple

RD-1332 LP Manifold Assembly

Ref.	Part No.	Qty.	Description
1	121 8092	2	¾ x 4" Extra Heavy Nipple
2	475 137	1	¾" Extra Heavy Union
3	121 8098	1	¾ x 5" Extra Heavy Nipple
4	121 8060	1	¾" Strainer
5	475 559	1	1½ to ¾" Reducing Bushing
6	475 481	1	LP Pressure Regulator
7	125 8036	1	1½ to 1¼" Reducing Bushing
8	123 8069	4	1¼" Close Nipple Standard
9	127 8131	1	1¼ x 1¼ x ⅜" Tee
10	123 8062	1	1¼" 90° Street Elbow
11	120 8053	1	1¼ x 6" Extra Heavy Nipple
12	123 8051	2	1¼" 90° Elbow Standard
13	128 8001	1	1¼ x 4½" Extra Heavy Nipple
14	123 8053	2	1¼" Union Standard
15	123 7003	1	1¼" Hand Valve
16	123 8003	1	1¼ x 3½" Extra Heavy Nipple
17	123 7024	1	1¼" Modulating Valve 140-250
18	128 7001	1	1¼" Solenoid Valve
19	127 8132	1	⅜ to ¼" Reducing Bushing

RD-1333 Piping to Burners, LP and NG

Ref.	Part No.	Qty.	Description
1	128 8024	1	1¼ x 5" Nipple Standard
2	123 8051	4	1¼" 90° Elbow Standard
3	475 553	1	1¼ x 23" Nipple Standard
4	475 552	1	1¼ x 40" Nipple Standard
5	123 8053	1	1¼" Union Standard
6	475 554	1	1¼ x 21" Nipple Standard
7	120 8053	1	1¼ x 6" Nipple Standard
8	127 8016	1	1¼ x 4½" Nipple Standard

RD-1334 Burner Piping Split, LP and NG

Ref.	Part No.	Qty.	Description
1	475 548	1	¾ x 30¼" Extra Heavy Nipple
2	125 8063	2	¾" Extra Heavy Street Elbow
3	475 136	2	¾" 90° Extra Heavy Elbow
4	837 245	2	¾" Close Nipple
5	123 8078	3	1¼" to ¾" Reducing Bushing
6	127 8013	1	1¼" Cross
7	475 556	1	¾ x 32¼" Extra Heavy Nipple

RD-1335 Piping to Burner, LP and NG

Ref.	Part No.	Qty.	Description
1	128 8019	2	¾" Extra Heavy Union Elbow
2	475 549	1	¾ x 20½" Nipple

RD-1336 Piping to #1 Burner, LP and NG

Ref.	Part No.	Qty.	Description
1	125 8063	1	¾" Extra Heavy Street Elbow
2	121 8098	2	¾ x 5" Nipple
3	121 8027	3	¾" x 90° Extra Heavy Elbow
4	125 8058	2	¾ x 2½" Nipple
5	121 8072	1	¾" Union Standard
6	128 8066	1	¾ x 8" Nipple Standard
7	128 8019	1	¾" Extra Heavy Union Elbow

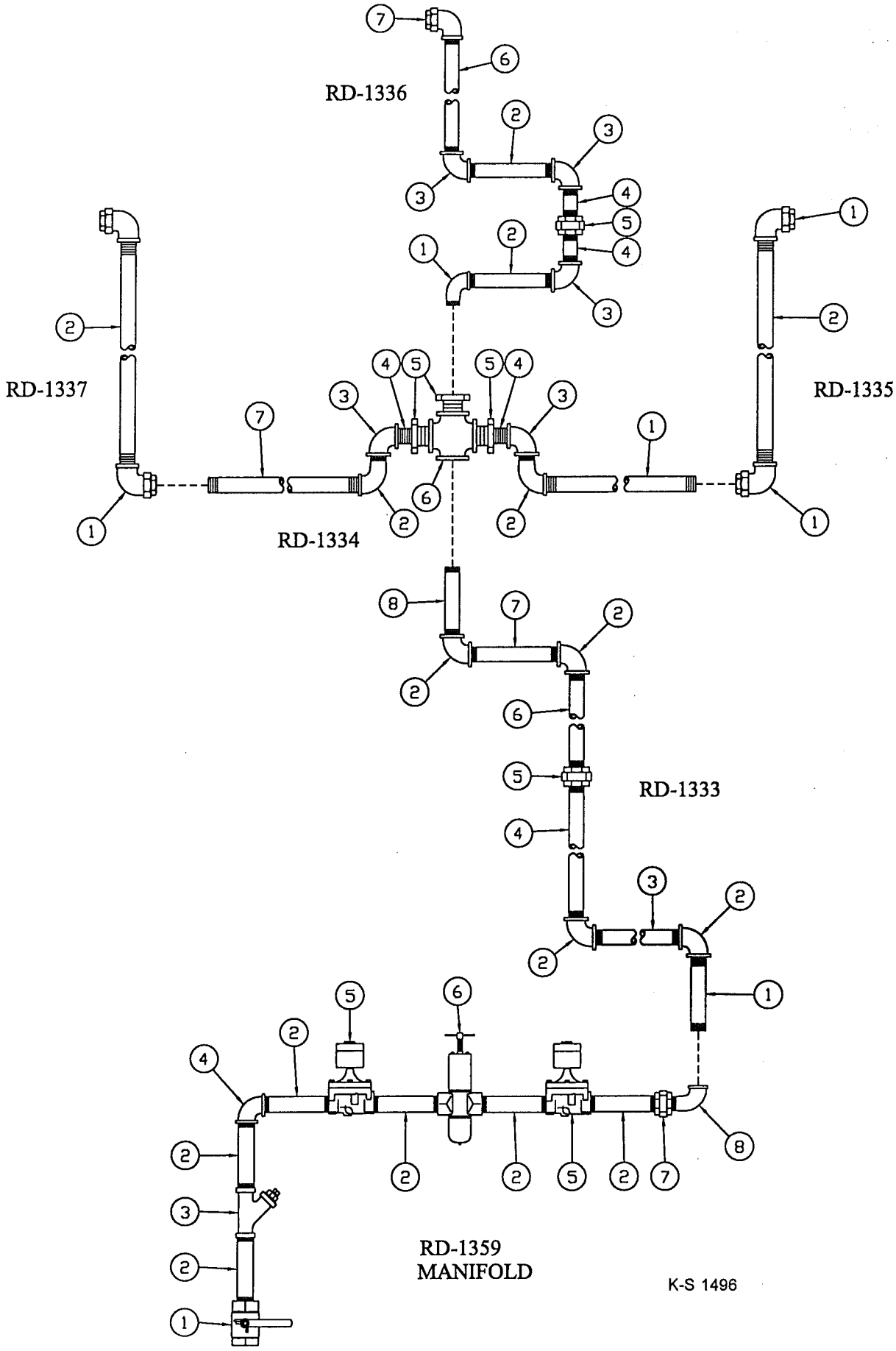
RD-1337 Piping to Burner, LP and NG

Ref.	Part No.	Qty.	Description
1	128 8019	2	¾" Extra Heavy Union Elbow
2	475 551	1	¾ x 17½" Nipple

475 505 LP Vaporizer

Ref.	Part No.	Qty.	Description
1	475 507	4	1 x 59" Extra Heavy Nipple
2	128 8043	1	1 x 6" Extra Heavy Nipple
3	120 8066	2	1 x 4½" Extra Heavy Nipple
4	125 8026	8	1" 90° Extra Heavy Elbow
5	123 8027	2	1 x ¾" Reducing Bushing

101075 NATURAL GAS MANIFOLD & PIPING



101075 NATURAL GAS MANIFOLD & PIPING

RD-1333 Piping to Burners, LP and NG

Ref.	Part No.	Qty.	Description
1	128 8024	1	1¼ x 5" Nipple Standard
2	123 8051	4	1¼" 90° Elbow Standard
3	475 553	1	1¼ x 23" Nipple Standard
4	475 552	1	1¼ x 40" Nipple Standard
5	123 8053	1	1¼" Union Standard
6	475 554	1	1¼ x 21" Nipple Standard
7	120 8053	1	1¼ x 6" Nipple Standard
8	127 8016	1	1¼ x 4½" Nipple Standard

RD-1334 Burner Piping Split, LP and NG

Ref.	Part No.	Qty.	Description
1	475 548	1	¾ x 30¼" Extra Heavy Nipple
2	125 8063	2	¾" Extra Heavy Street Elbow
3	475 136	2	¾" 90° Extra Heavy Elbow
4	837 245	2	¾" Close Nipple
5	123 8078	3	1¼" to ¾" Reducing Bushing
6	127 8013	1	1¼" Cross
7	475 556	1	¾ x 32¼" Extra Heavy Nipple

RD-1335 Piping to Burner, LP and NG

Ref.	Part No.	Qty.	Description
1	128 8019	2	¾" Extra Heavy Union Elbow
2	475 549	1	¾ x 20½" Nipple

RD-1336 Piping to #1 Burner, LP and NG

Ref.	Part No.	Qty.	Description
1	125 8063	1	¾" Extra Heavy Street Elbow
2	121 8098	2	¾ x 5" Nipple
3	121 8027	3	¾" x 90° Extra Heavy Elbow
4	125 8058	2	¾ x 2½" Nipple
5	121 8072	1	¾" Union Standard
6	128 8066	1	¾ x 8" Nipple Standard
7	128 8019	1	¾" Extra Heavy Union Elbow

RD-1337 Piping to Burner, LP and NG

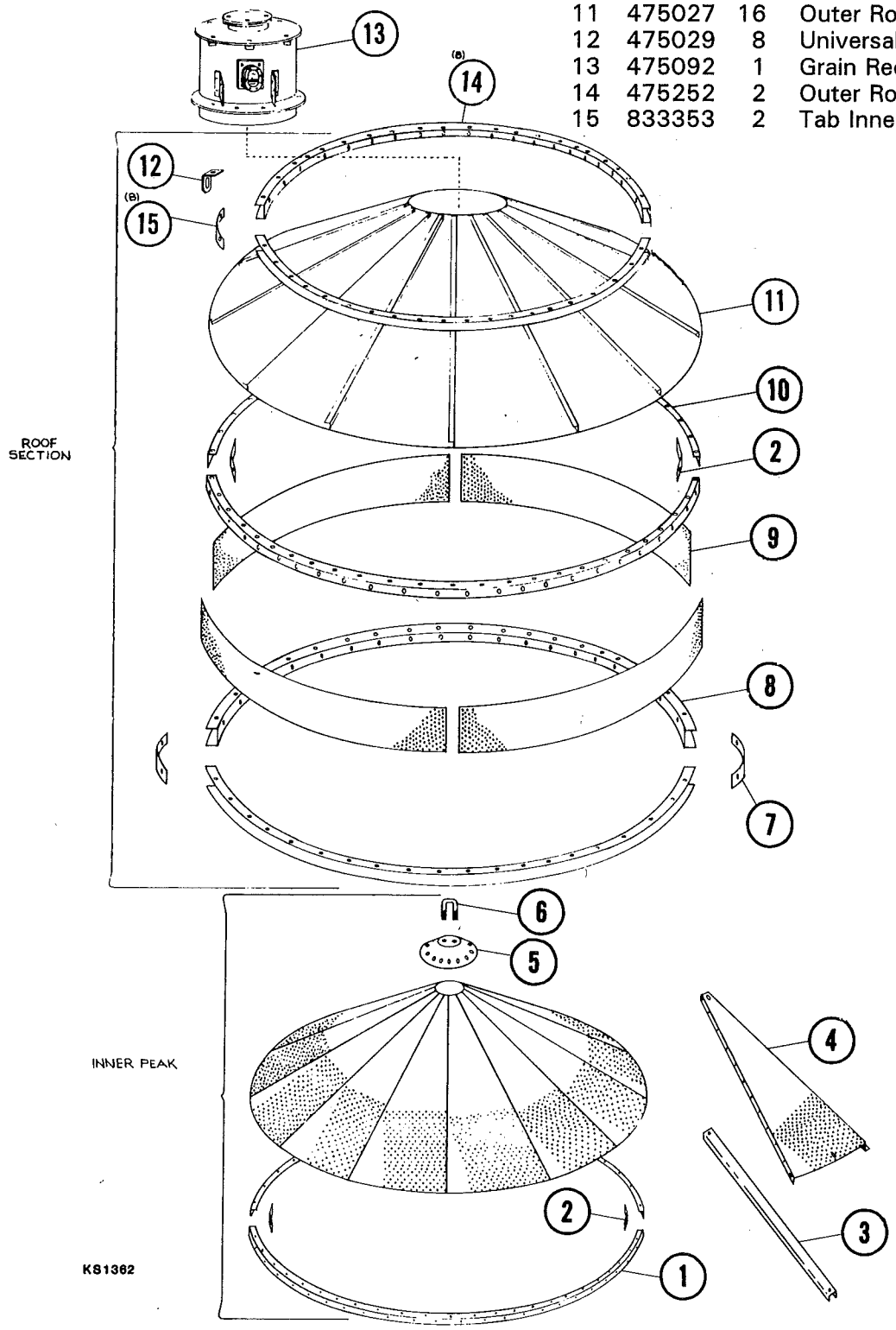
Ref.	Part No.	Qty.	Description
1	128 8019	2	¾" Extra Heavy Union Elbow
2	475 551	1	¾ x 17½" Nipple

RD-1359 101075 Natural Gas Manifold

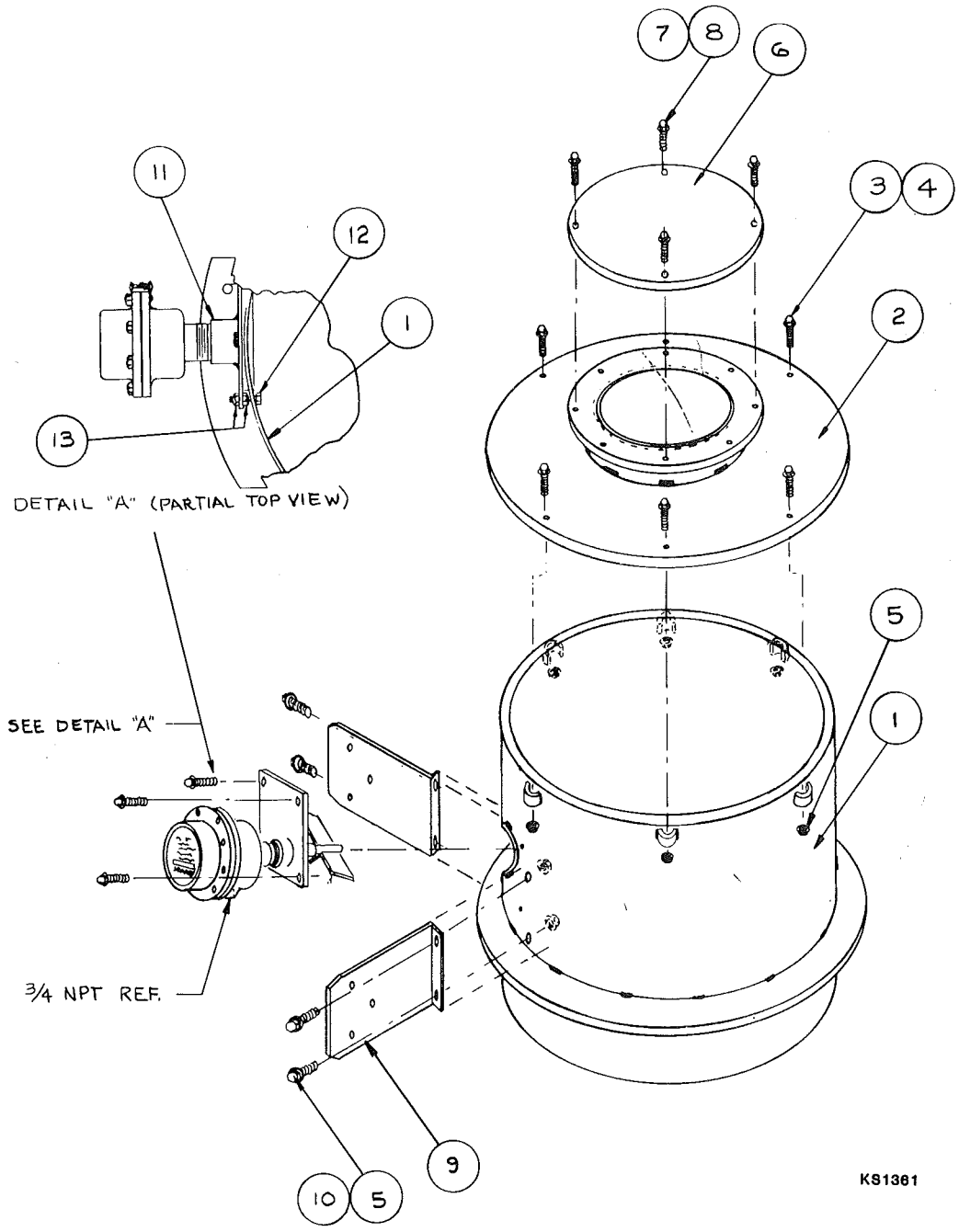
Ref.	Part No.	Qty.	Description
1	123 7003	1	1¼" Hand Valve Standard
2	123 8055	6	1¼ x 4" Nipple Standard
3	475 560	1	1¼" Strainer
4	123 8051	1	1¼" 90° Elbow Standard
5	128 7001	2	1¼" Solenoid
6	123 7024	1	1¼ Modulating Valve
7	123 8053	1	1¼ Union
8	123 8062	1	1¼" Street Elbow

101075 ROOF SECTION

Ref.	Part No.	Qty.	Description
1	833219	2	Ring, Transition
2	834721	4	Clip, Filler M480
3	441551	16	Rein Channel 10' KS Roof
4	439780	16	Inner Perforated Peak Panel 10'
5	439063	1	Roof Cap M001
6	830109	1	U-Bolt, Roof Cap M021
7	438649	2	Tab Outer Ring Bolting
8	438761	2	Outside Channel Ring
9	475028	4	Wet Holding Bin Screen
10	475026	2	Outer 10' Transition Ring
11	475027	16	Outer Roof Panel
12	475029	8	Universal Angle
13	475092	1	Grain Receiving Assembly
14	475252	2	Outer Roof Channel Ring
15	833353	2	Tab Inner Ring Bolting



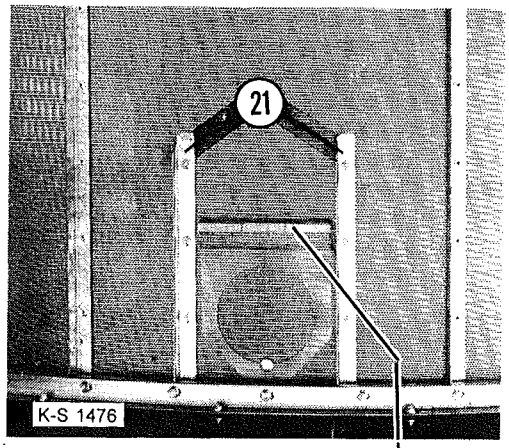
GRAIN RECEIVING TOP ASSEMBLY

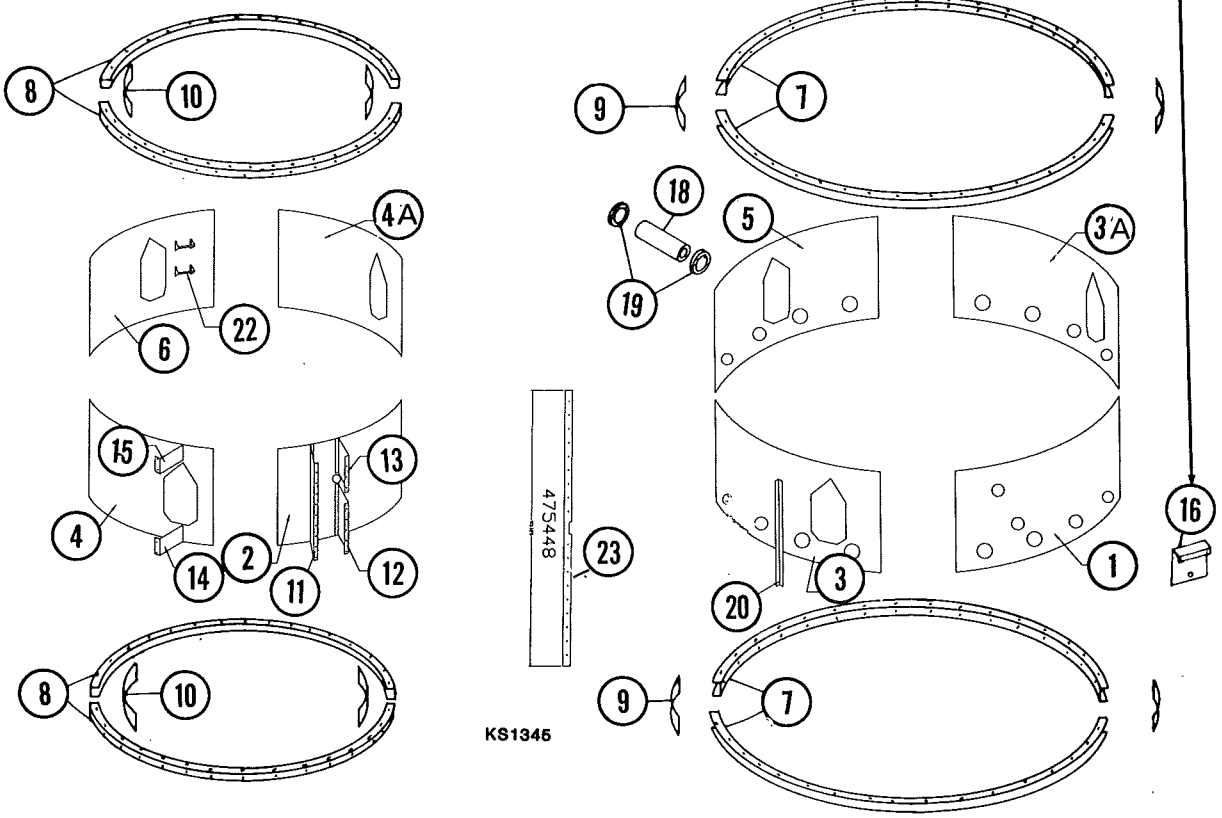


Ref.	Part No.	Qty.	Description
1	475030	1	Grain Receiving Weld.
2	475091	1	Receiving Tube Weld.
3	475094	6	3/8-16 x 2" HHCS
4	095013	6	3/8 Flat Washer
5	434111	10	3/8-16 Whiz Hex Nut
6	475037	1	Receiving Tube Cover
7	837524	4	5/16-18 x 3/4" HWHCS Whiz
8	434632	4	5/16-18 Whiz Hex Nut
9	475058	2	Ladder to Fill Mount
10	095078	4	3/8-16 x 3/4" HHCS
11	475232	1	Rotary Fill Switch Ass'y
12	095058	4	¼-20 x 1½" HHCS Gr.5
13	834038	8	¼-20 Whiz Hex Locknut

101075 COOLING SECTION

Ref.	Part No.	Qty.	Description
1	475443	1	Outer Control Box Sheet AL
2	834536	1	Inner Control Box Sheet
3	475441	1	Outer Door Sheet (Offset) AL
3A	475442	1	Outer Door Sheet (Offset) AL
4	834534	1	Inner Door Sheet (Offset)
4A	475446	1	Inner Door Sheet (Offset)
5	475444	1	Outer Door Sheet (Center) AL
6	475445	1	Inner Door Sheet (Center)
7	438761	4	Outside Channel Ring
8	438760	4	Inside Channel Ring
9	438649	4	Outer Ring Bolting Tab
10	833353	4	Inner Ring Bolting Tab
11	834589	12	Partition, 4'
12	834600	1	Partition, Bottom PVC
13	834599	1	Partition, Top PVC
14	834598	3	Partition, Bottom Door
15	834597	3	Partition, Top Door
16	475011	16	Dump Gate
17	475447	10	Outer Screen Support Angles
18	438912	2	Entrance Tube
19	438913	4	Collar
20	834718	2	Brace Angle
21	475384	17	Quick Dump Screen Stiffener
22	475519	2	Cooling Section Ladder Rung
23	475448	10	Outer Screen Stiffener



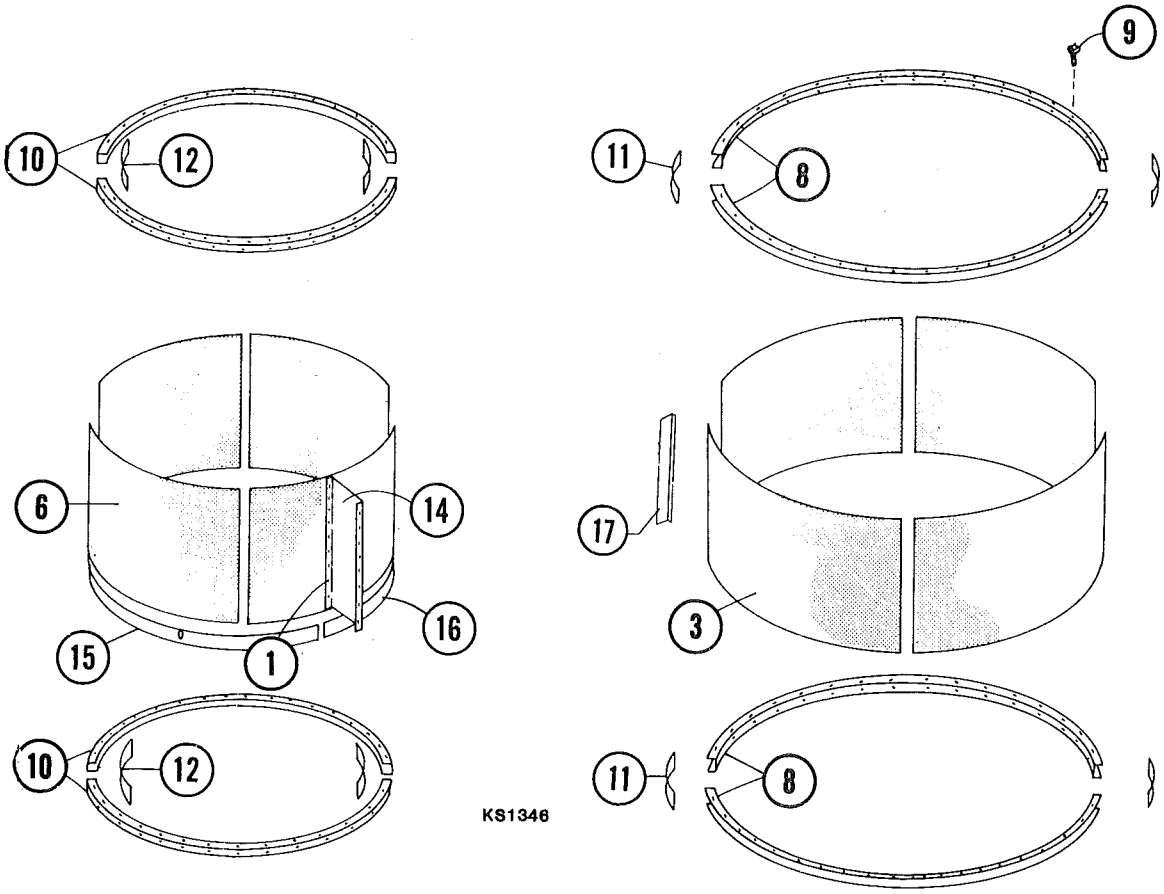


101075 HEAT SECTION

Ref.	Part No.	Qty.	Description
1	834065	288	¼ x ½" Pop Rivet
2*	834133	144	¼ x 9/16" Pop Rivet
3	444762	4	Outer 4' Sheet-10' AL
4*	475440	100	5/16-18 x ¾ Truss Bolt
5*	095316	76	5/16-18 x ½" Truss Bolt
6	834531	4	Inner 4' Sheet-10'
7*	434632	304	5/16-18 Whiz Hex Nut
8	438761	4	Outside Channel Ring-10'
9	837524	128	5/16-18 x ¾" Hex Washer Head Capscrew
10	438760	4	Inside Channel Ring-10'
11	438649	4	Outer Ring Bolting Tab
12	833353	4	Inner Ring Bolting Tab
14	834589	16	Partition 4'
15	475104	2	Cleanout Plenum Strip Long
16	475105	2	Cleanout Plenum Strip Short
17**	475447	10	Outer Screen Support Angle

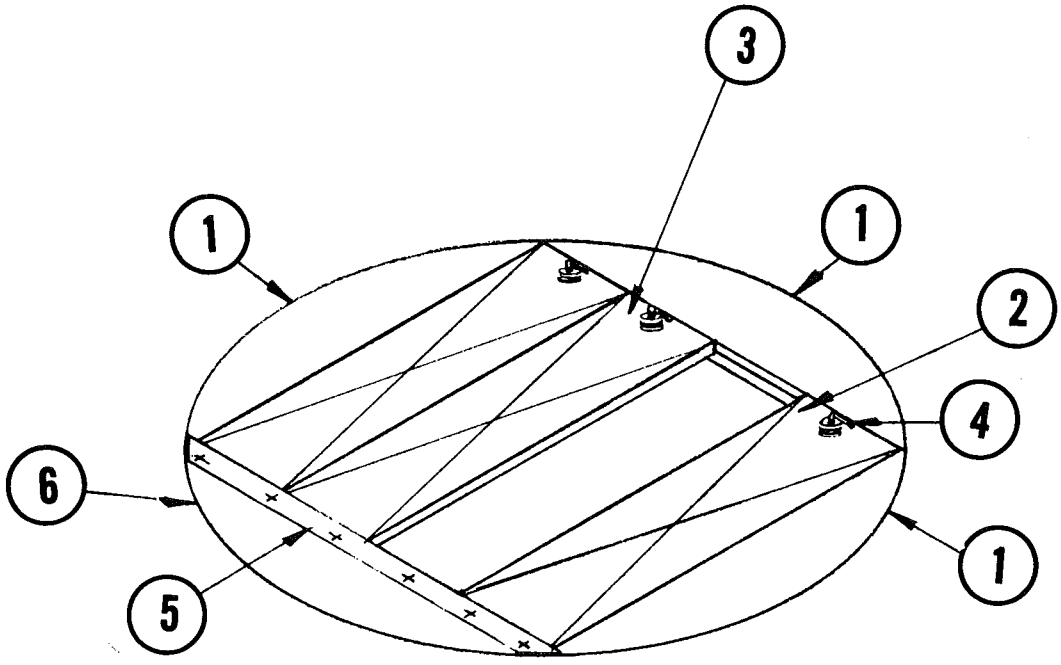
*Items Not Shown
**Used on Base Section and First Heat Section Only!

REPLACEMENT POP RIVETS - 834065 - 1/4" DIA. x 1/2"
8' DIA. - 3' SECTION - 168 REQ'D
8' DIA. - 4' SECTION - 216 REQ'D
10' DIA. - 4' SECTION - 288 REQ'D



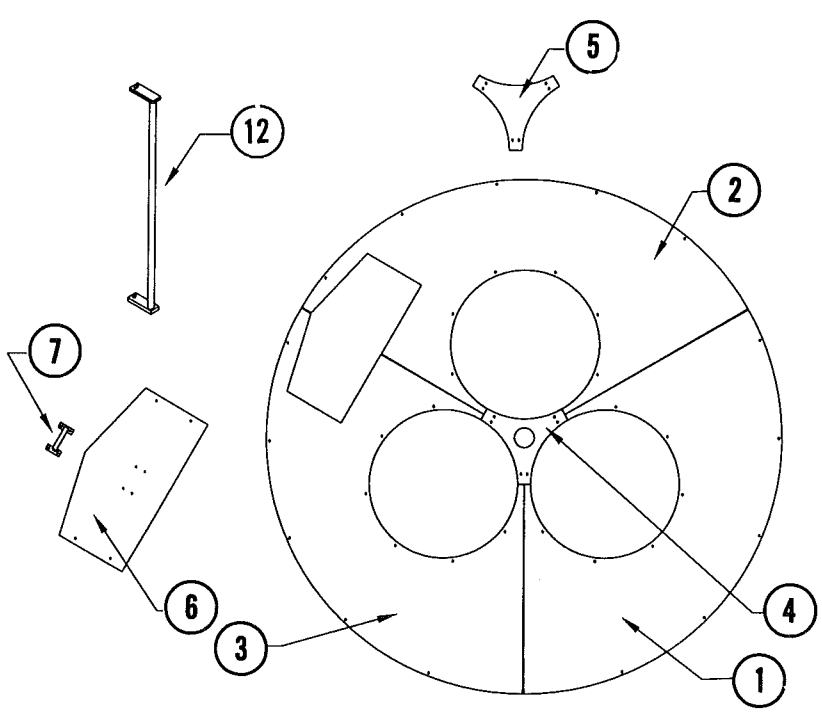
101075 COOLING FLOOR

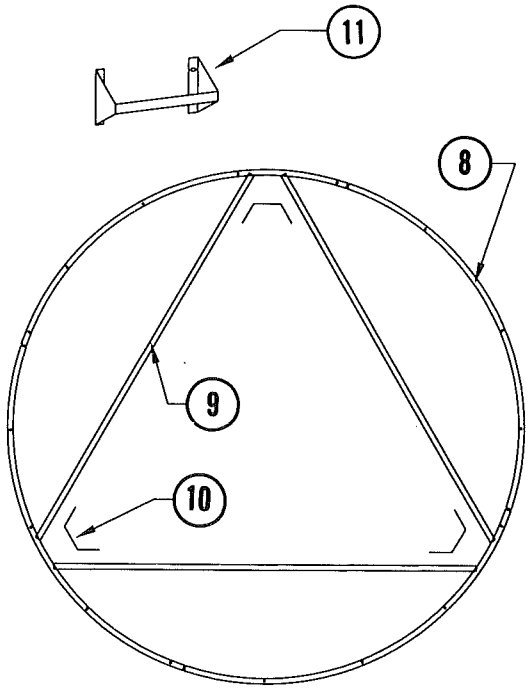
Ref.	Part No.	Qty.	Description
1	475495	3	Cooling Floor Panel, Reg.
2	475398	3	Cooling Floor Panel - "B"
3	475399	1	Cooling Floor Panel - "C"
4		4	Handle Assembly
5	475087	1	Seal Plate
6	475494	1	Cooling Floor Panel, Seal Strip



101075 HEAT FLOOR

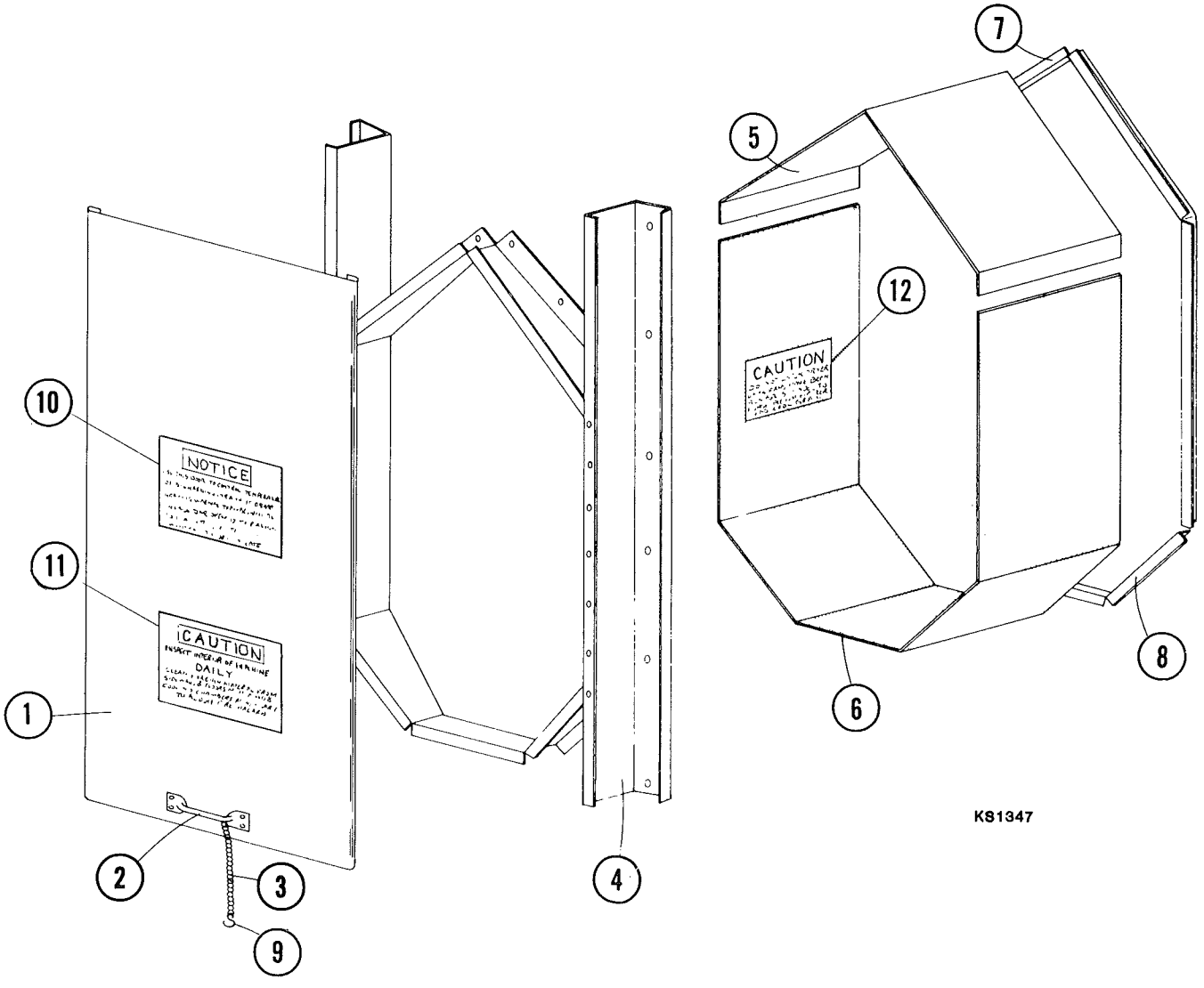
Ref.	Part No.	Qty.	Description
1	475485	1	Heating Floor, Full Section
2	475484	1	Heating Floor, Door Left
3	475483	1	Heating Floor, Door Right
4	475488	1	Center Floor Support, Bottom
5	475489	1	Center Floor Support, Top
6	475520	1	Plenum Door Ass'y (incl. Handle)
7	830126		Door Handle
8	475476	4	Rolled Floor Support Channel
9	475477	3	Floor Brace (Triangle)
10	475487	3	Floor Support Channel Brace
11	475519	1	Cooling Section Ladder Rung
12	475490	2	Pull-up Pipe



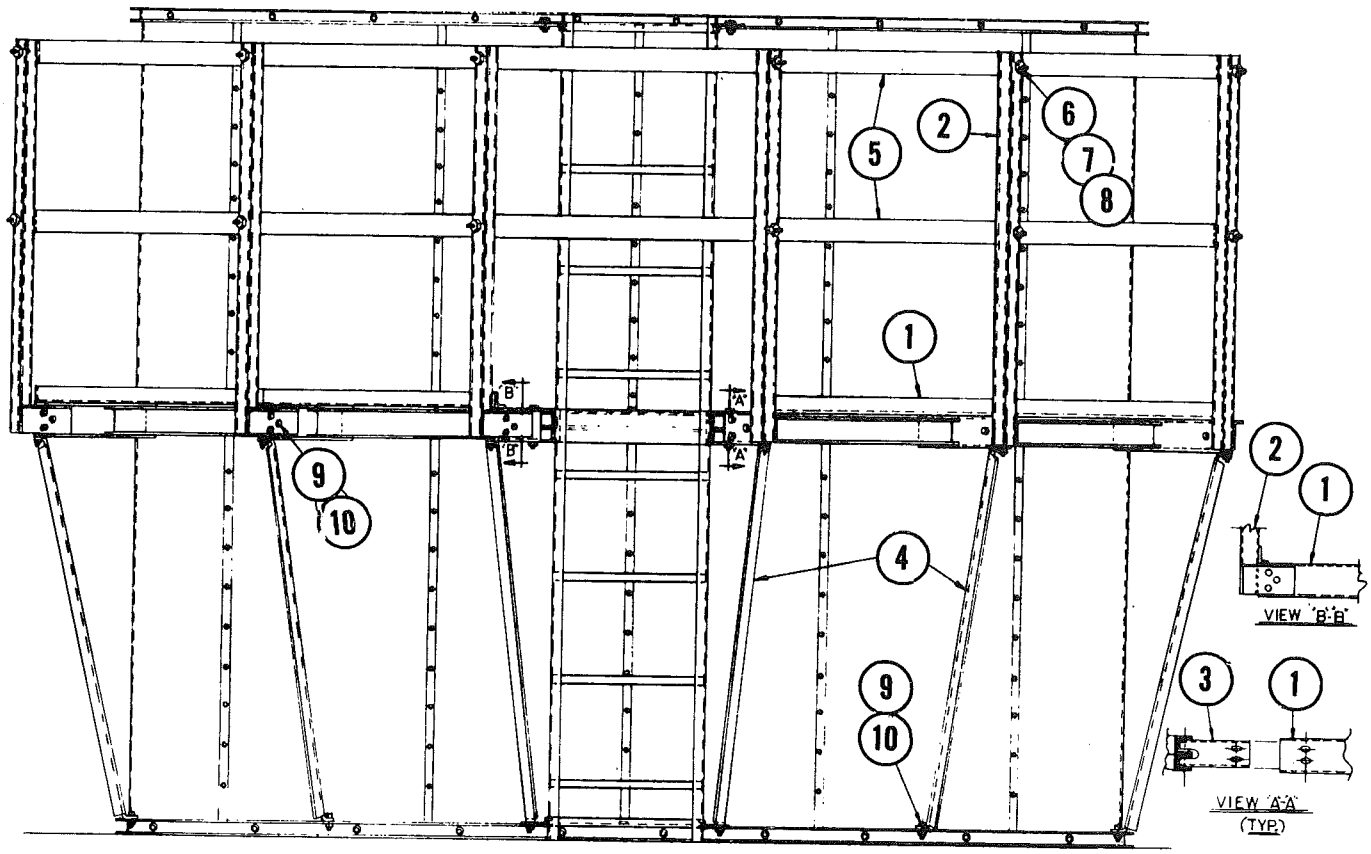


101075 CRAWL DOOR

Ref.	Part No.	Qty.	Description
1	830125	1	Crawl Door Cover
2	830126	1	Door Handle
3	830127	1	Door Chain
4	440504	1	Crawl Door Frame
5	830114	1	Crawl Door Top
6	830115	1	Crawl Door Bottom
7	830116	1	Top Filler Angle
8	830117	1	Bottom Filler Angle
9	475210	1	"S" Hook
10	836427	1	Decal - "Notice-Use This Door, etc."
11	836425	1	Decal-"Caution-InspectInterior,etc."
12	837667	1	Decal - "Caution-Do Not Enter, etc."



OUTSIDE WALKWAY ASSEMBLY

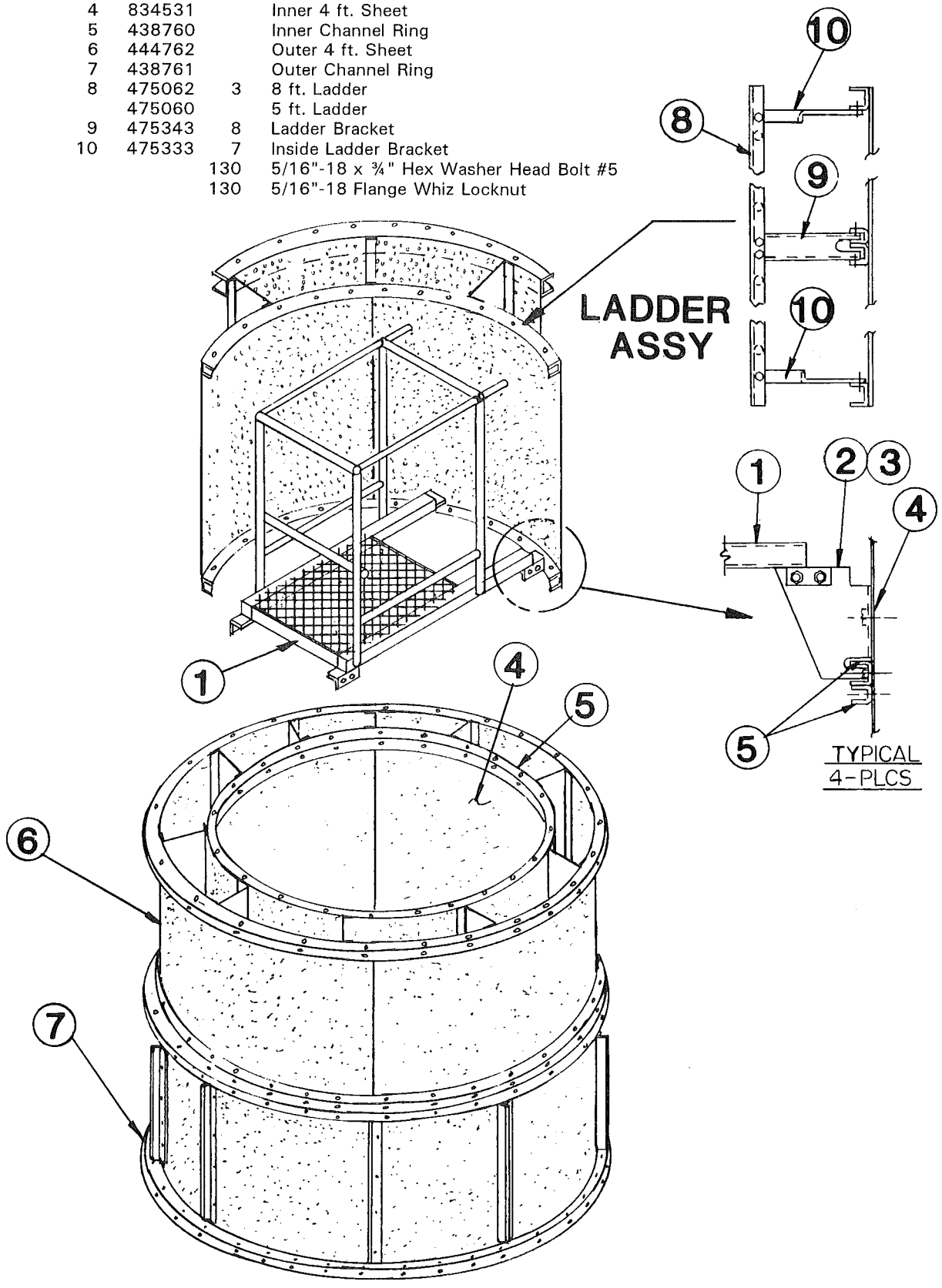


Ref.	Part No.	Qty.	Description
1	475348	5	Walkway Floor Section
2	475347	16	Upright Post Weldment
3	475343	16	Floor Mounting Bracket
4	475342	16	Walkway Diagonal Support
5	475353	8	Walkway Hand Rail
6	097121	34	3/8-16 x 2¾" Hex Head Capscrew
7	095013	34	3/8 Flatwasher
8	434111	34	3/8-16 Flange Whiz Locknut
9	837524	170	5/16-18 x ¾" HWH Screw
10	434632	170	5/16-18 Flange Whiz Locknut

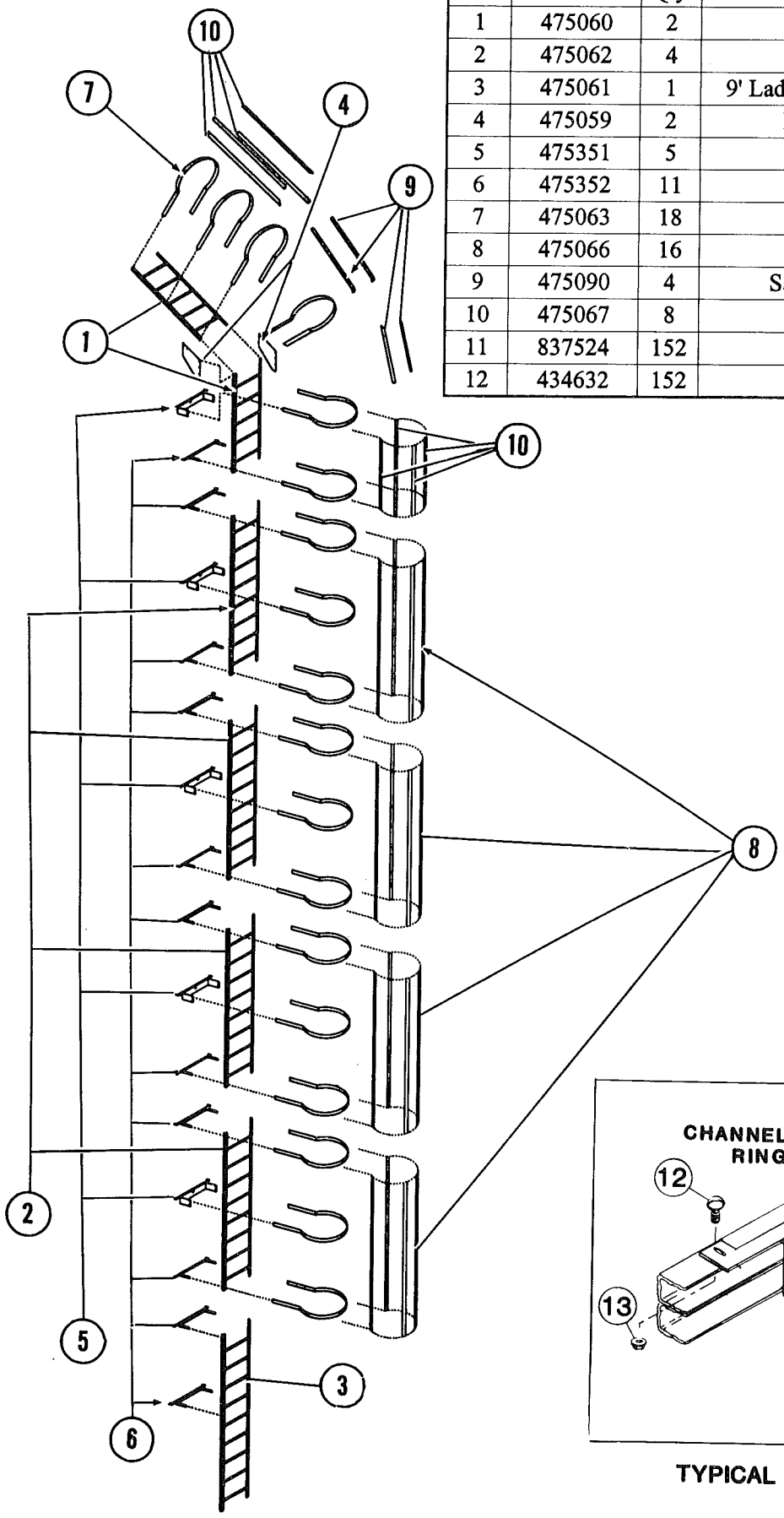
CLEAN-OUT WALKWAY & LADDER - 10 FT.

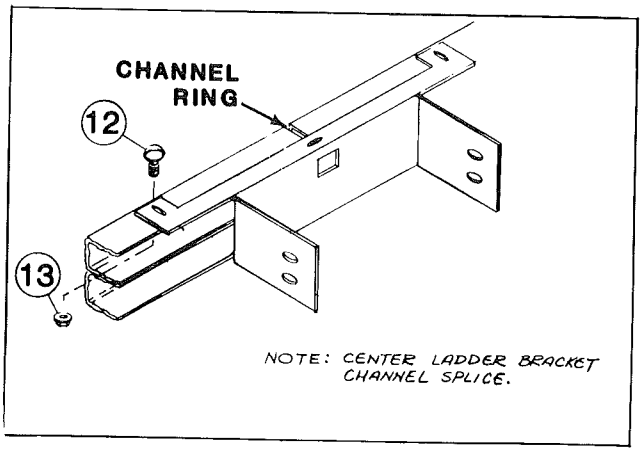
101075

Ref.	Part No.	Qty.	Description
1	475330	3	Cleaning Walkway
2	475057	3	Floor Support Gusset LH
3	475056	3	Floor Support Gusset RH
4	834531		Inner 4 ft. Sheet
5	438760		Inner Channel Ring
6	444762		Outer 4 ft. Sheet
7	438761		Outer Channel Ring
8	475062	3	8 ft. Ladder
	475060		5 ft. Ladder
9	475343	8	Ladder Bracket
10	475333	7	Inside Ladder Bracket
		130	5/16"-18 x ¾" Hex Washer Head Bolt #5
		130	5/16"-18 Flange Whiz Locknut

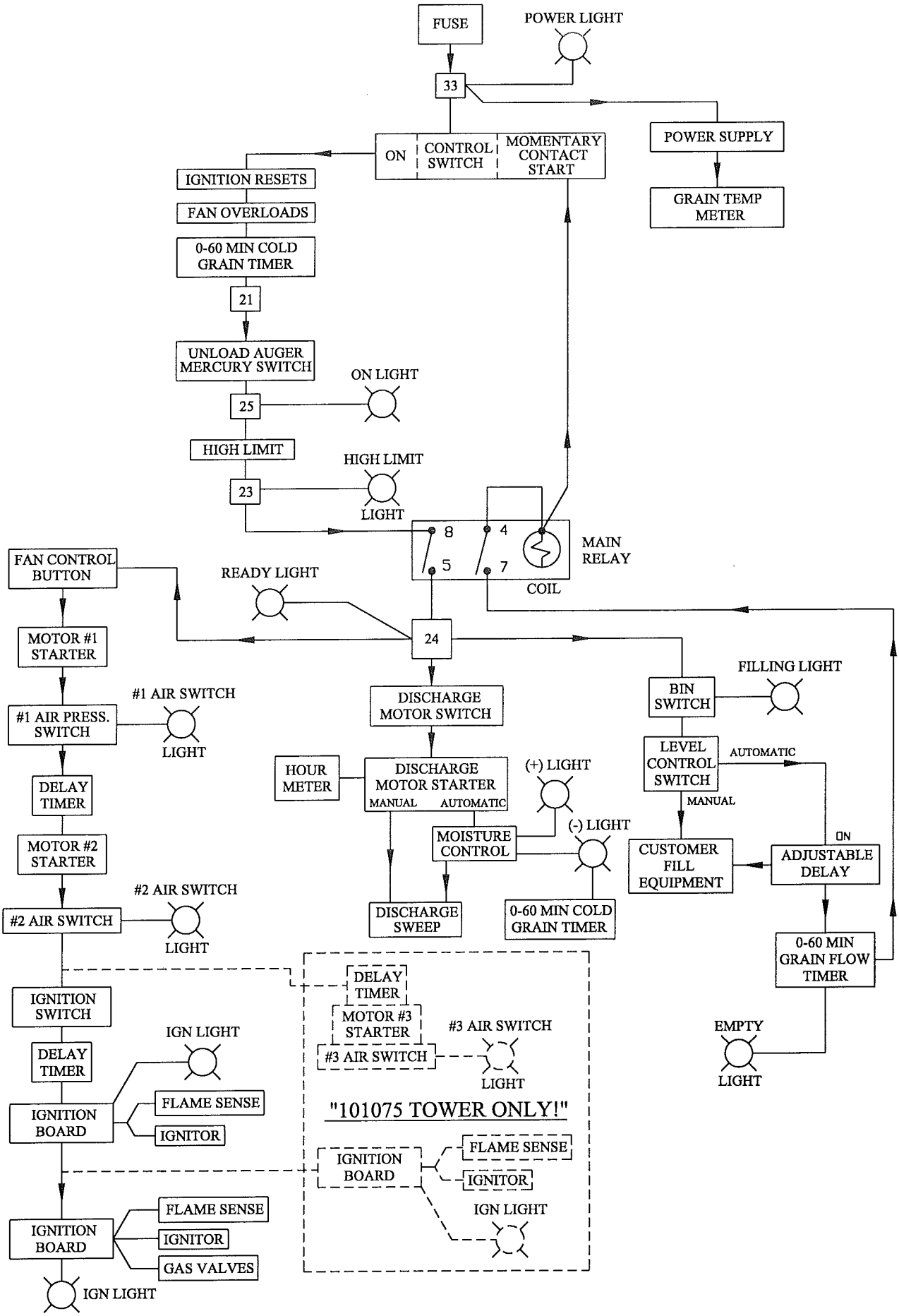


			101075 Ladder Part List
Ref.	Part No.	Qty.	Description
1	475060	2	5' Ladder Weldment
2	475062	4	8' Ladder Weldment
3	475061	1	9' Ladder Weldment (Base, Cut to size)
4	475059	2	Ladder Connecting Bracket
5	475351	5	Main Ladder Bracket
6	475352	11	Ladder Bracket
7	475063	18	Ladder Cage Hoop
8	475066	16	8' Ladder Cage Strap
9	475090	4	Safety Cage Connecting Strap
10	475067	8	5' Ladder Cage Strap
11	837524	152	5/16"-18 x 3/4" HWHCS
12	434632	152	5/16"-18 Whiz Hex Nut

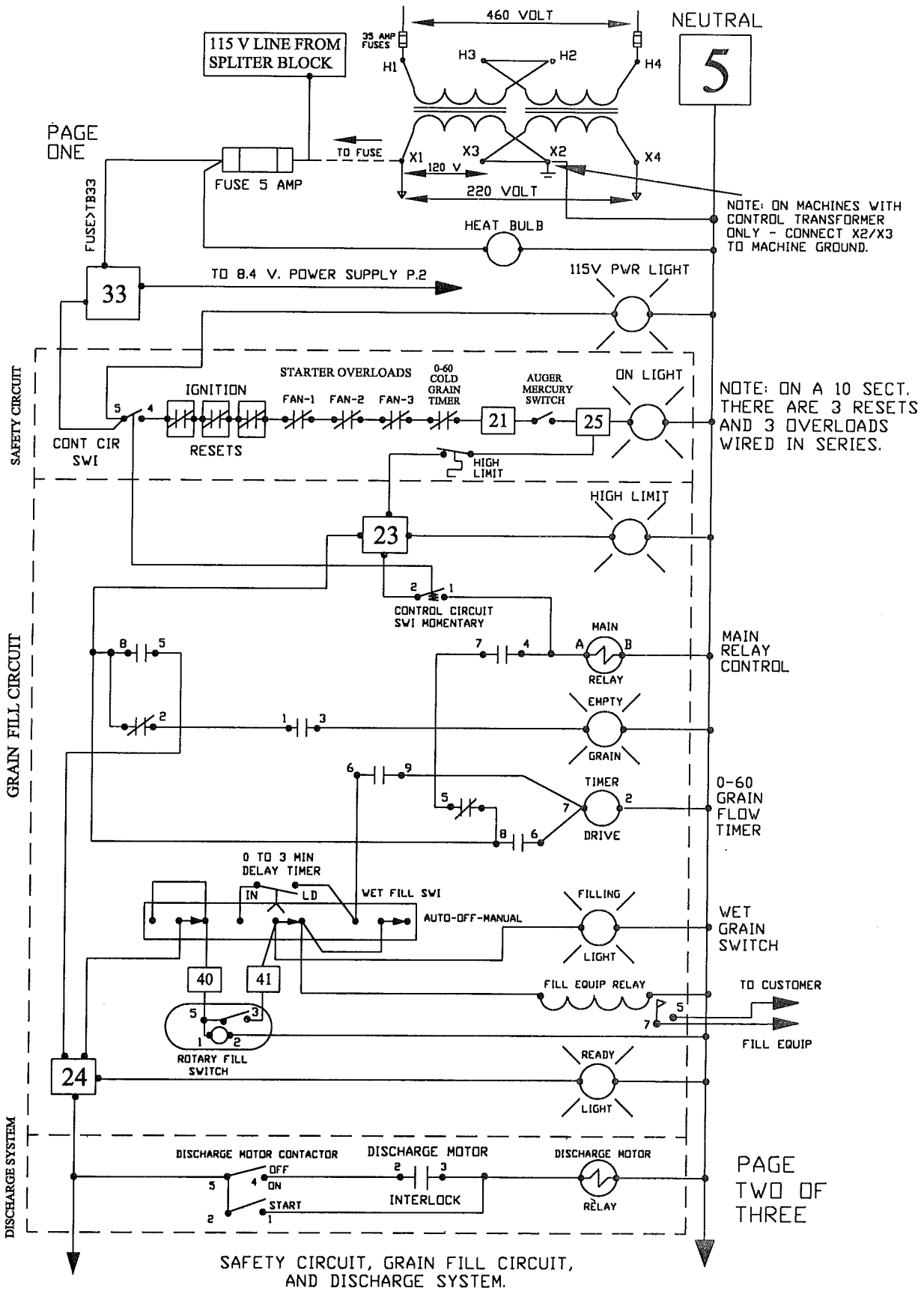




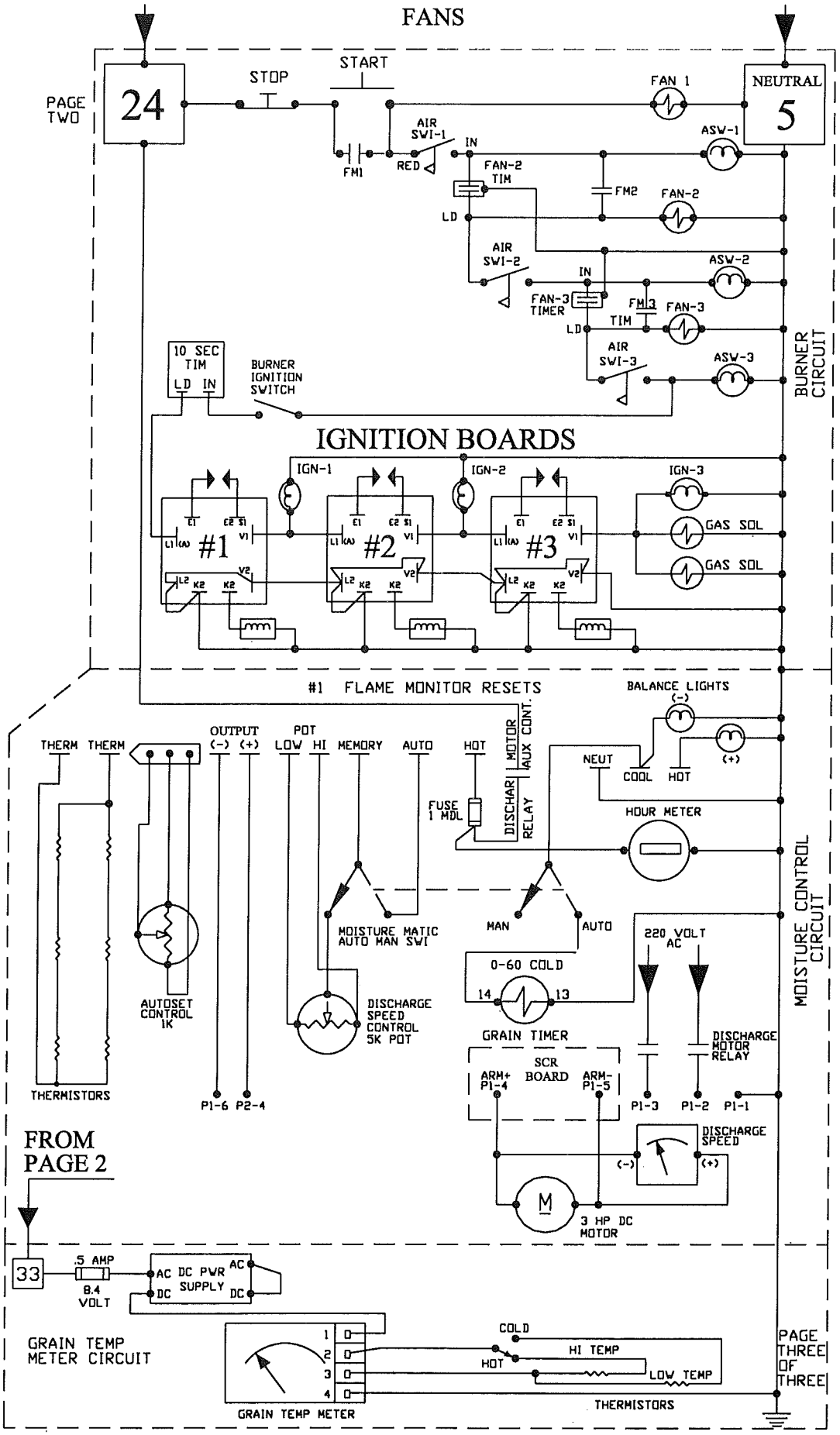
TYPICAL BRACKET MOUNTING



MC/KAN-SUN FLOW CHART	ALL MC/KAN-SUN TOWER DRYERS	1615014	
		REVISED 10-18-99	PG.1

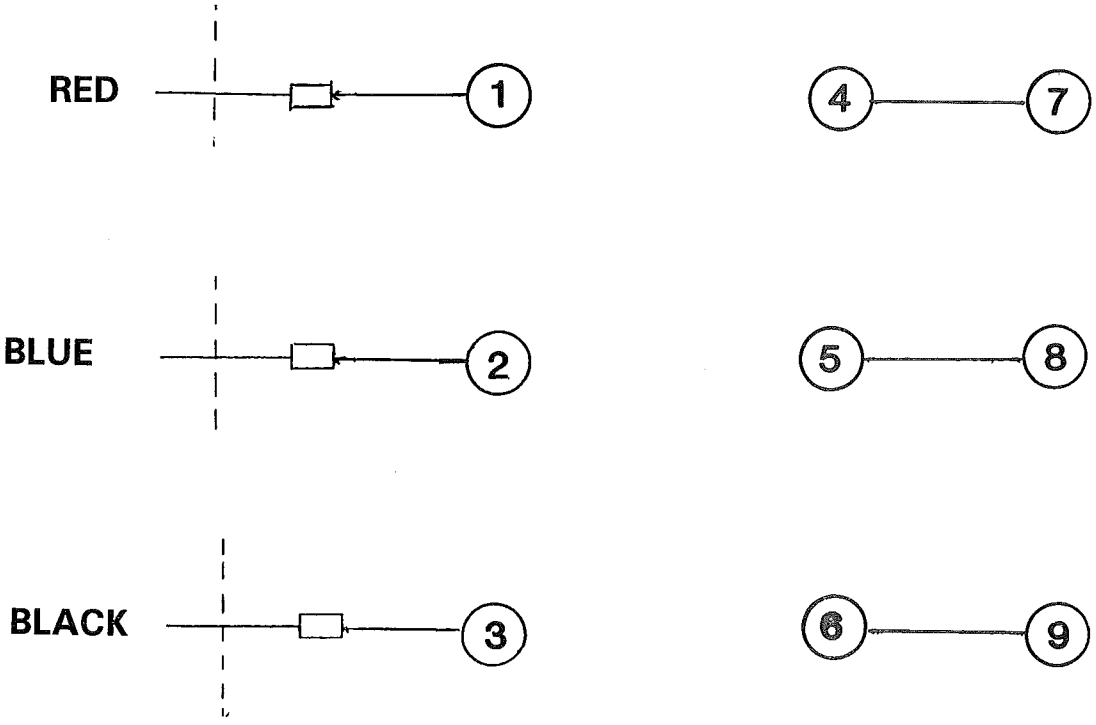


MC 101075 TOWER DRYER	SCHEMATIC	START S/N 55974	
	1615014	REVISED 10-19-99	PG.2

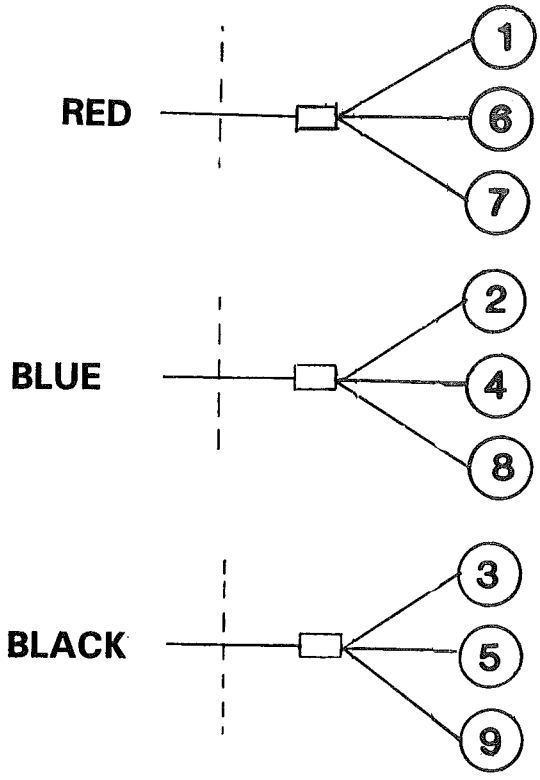


MC 101075 TOWER DRYER	SCHEMATIC	START S/N 55974	
	1615014	REVISED 10-15-99	PG 3

101075
460 Volt 3PH 25HP Baldor Fan Motor Wiring

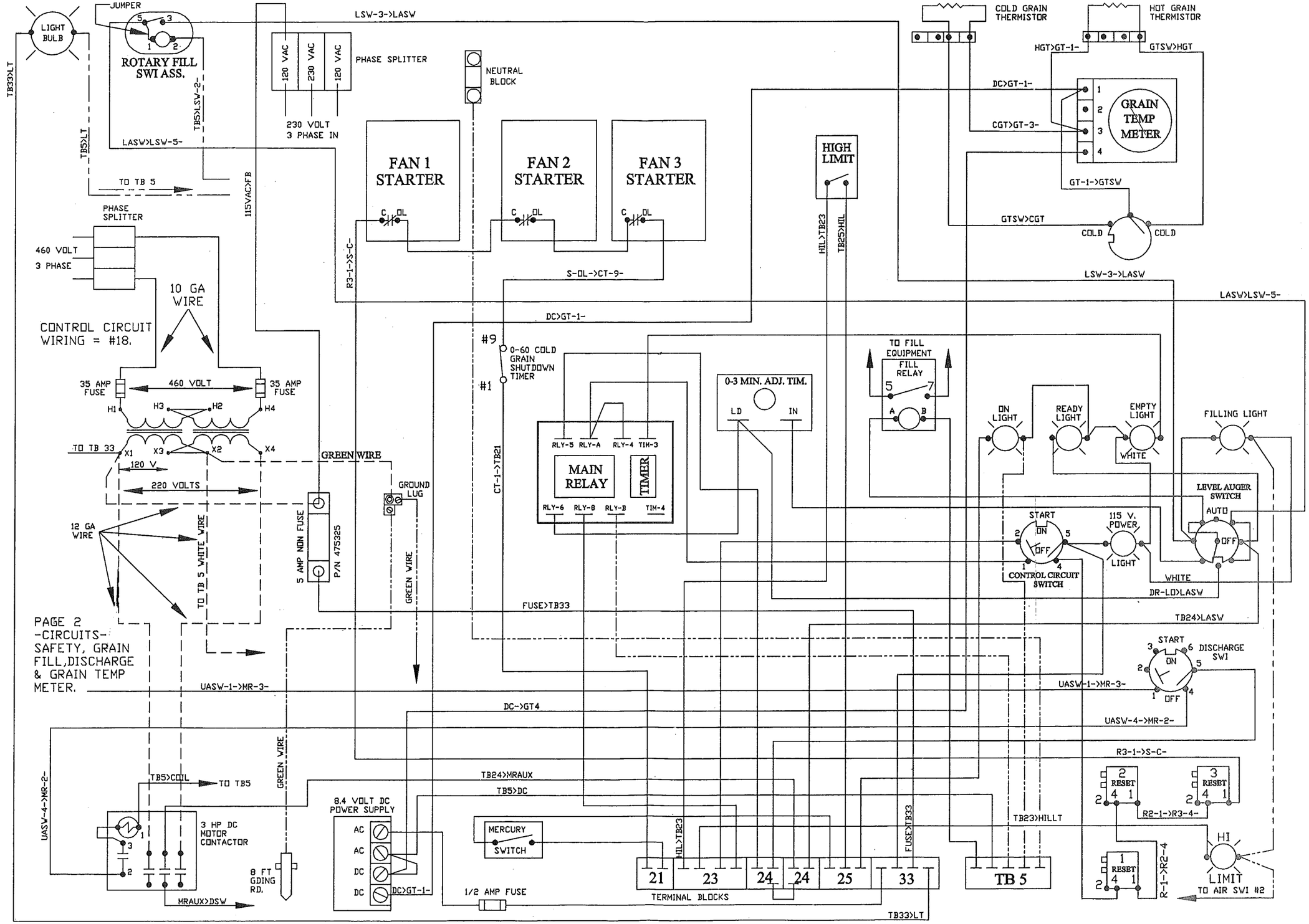


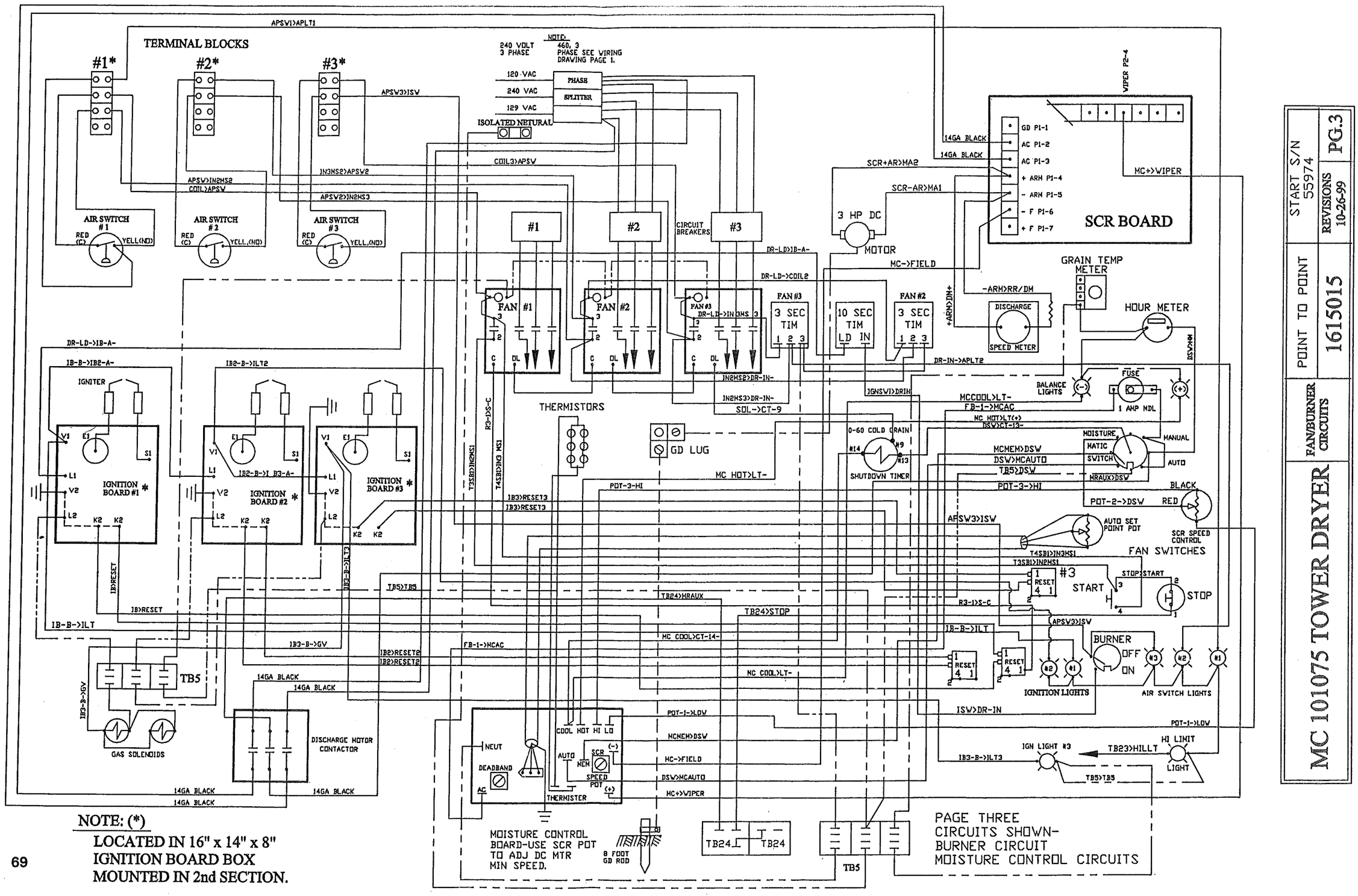
101075
230 Volt 3PH 25HP Baldor Fan Motor Wiring



MC 101075 TOWER DRYER

START S/N 55974	PG 2
REVISED 10-26-99	
POINT TO POINT	1615015
SAFETY CIRCUITS GRAIN FILL & DISCHARGE.	





NOTE: (*)

LOCATED IN 16" x 14" x 8" IGNITION BOARD BOX MOUNTED IN 2nd SECTION.

START S/N 55974 | REVISIONS 10-26-99 | PG.3

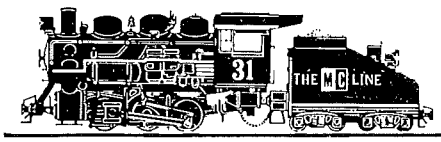
POINT TO POINT 1615015

FAN/BURNER CIRCUITS

MC 101075 TOWER DRYER

M-C®

MATHEWS COMPANY



Iron Horse Quality

Printed in the United States of America