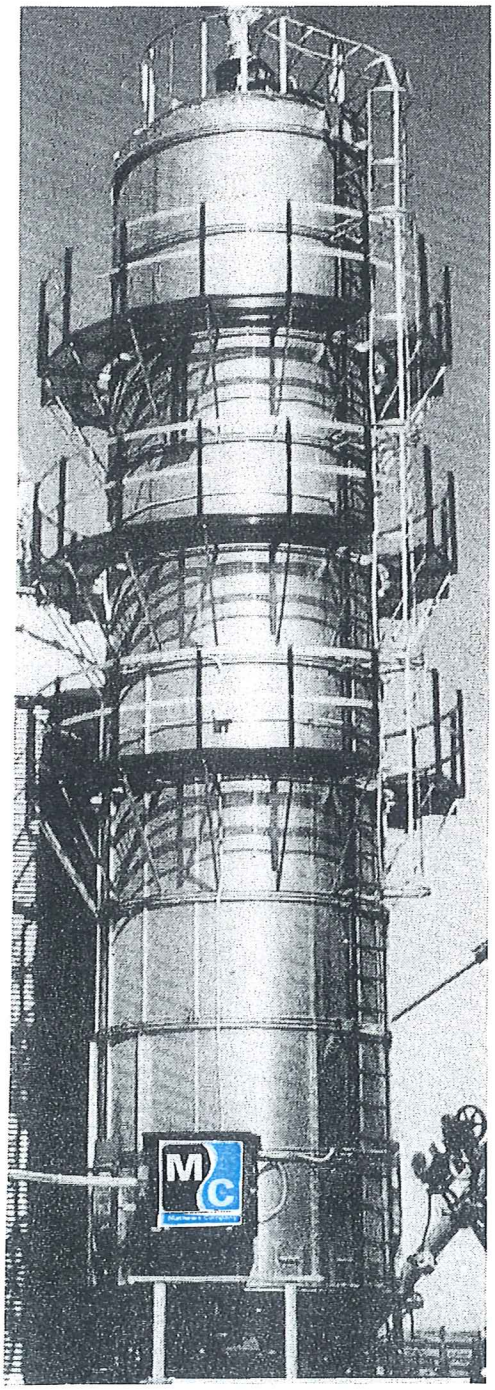
$6.50

TOWER DRYERS



Model 101050 Shown
Outside Walkways Optional
on Models 10520 to 10730

Single Fan Models

10520
10630
10730
101050

10 ft. (3m.) Diameter

Starting with S/N 57942

OPERATOR'S MANUAL & PARTS CATALOG

Form No. TD377
April 2003

Mathews Company
500 Industrial Avenue, P.O. Box 70,
Crystal Lake, Illinois 60039-0070 U.S.A.
Phone: 815/459-2210 ♦ Fax: 815/459-5889
www.mathewscompany.com

CONTENTS

Page

Page

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 Single Fan Tower Dryer Models 10520, 10630, 10730, and 101050.

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 your 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 M-C 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.

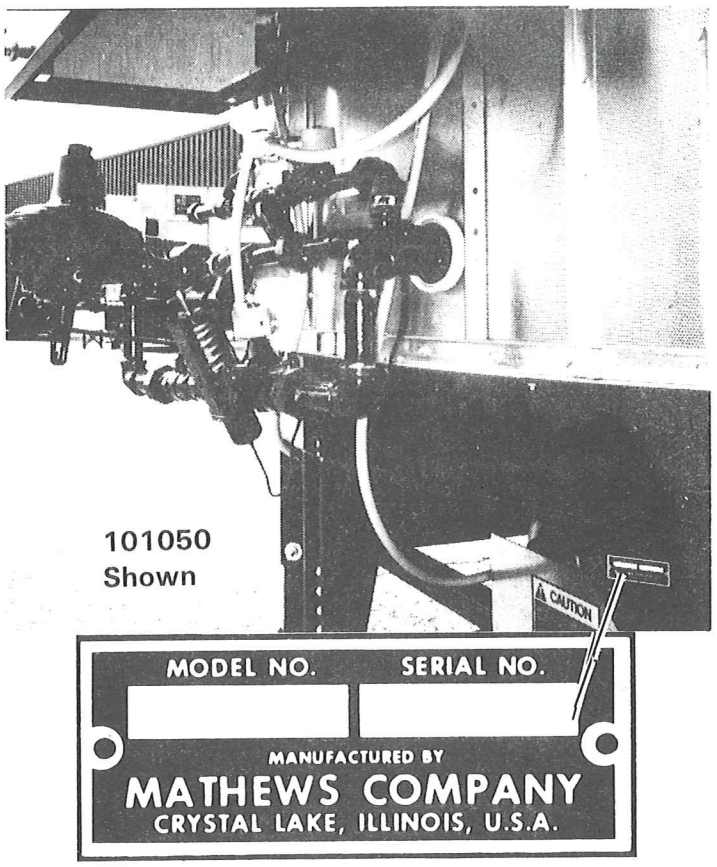


Figure 1

Model and Serial Number Location

The model and serial number of your Grain Dryer are stamped on a plate located on the triangular support leg next to the control panel. For future reference, record the model and serial number in the blank spaces in Figure 1.

Location of Dryer

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 Figures 2, 3 & 4.

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.

FOUNDATION LAYOUT AND ANCHORING INFORMATION FOR 10520, 10630, & 10730

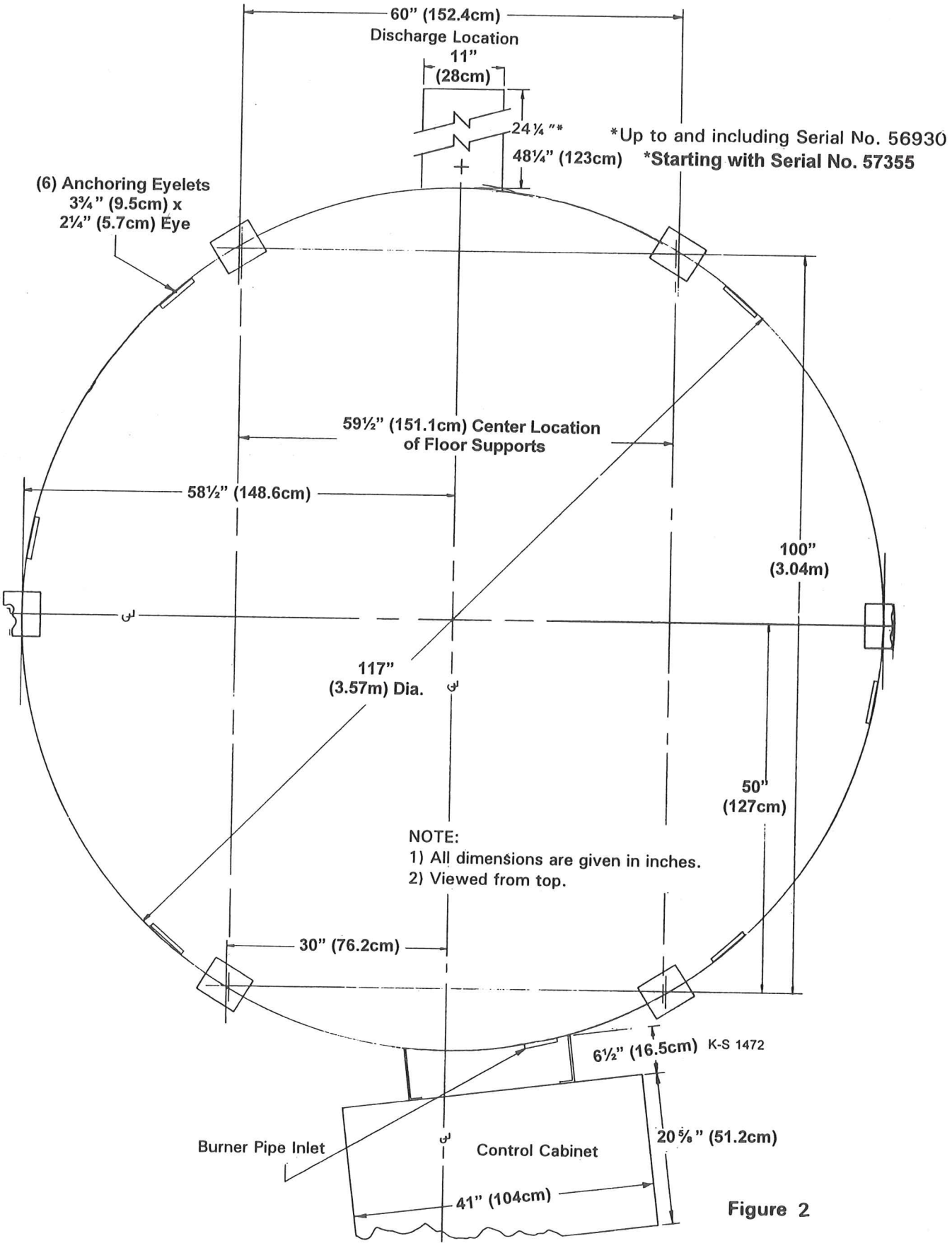
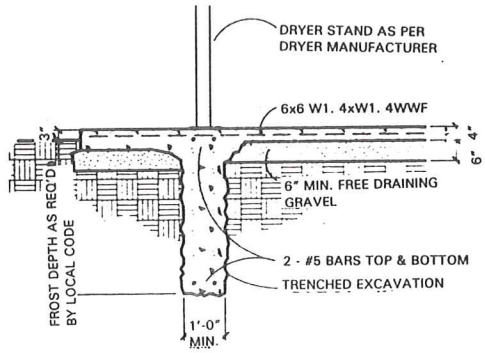


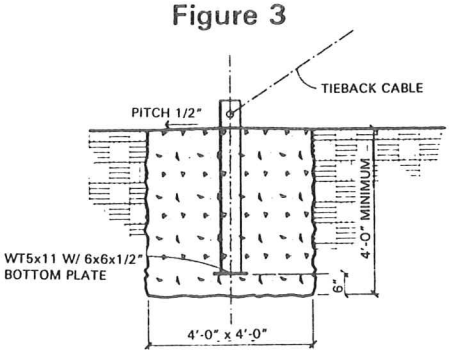
Figure 2



PAD FDN DETAIL 2

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

Figure 3



TIE-DOWN PAD 1

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

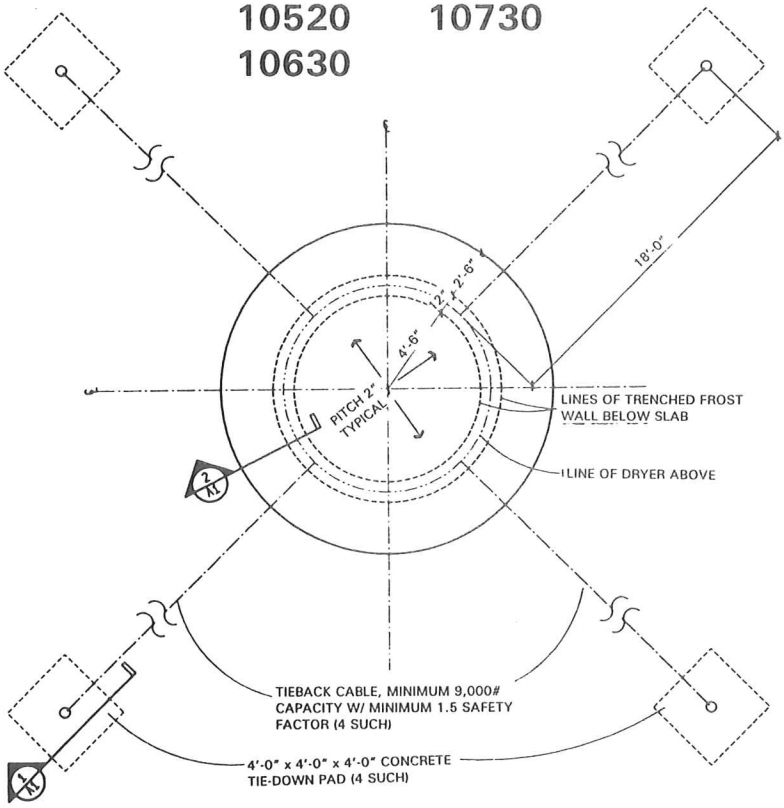


Figure 4 PIER AND FOOTING PLAN

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

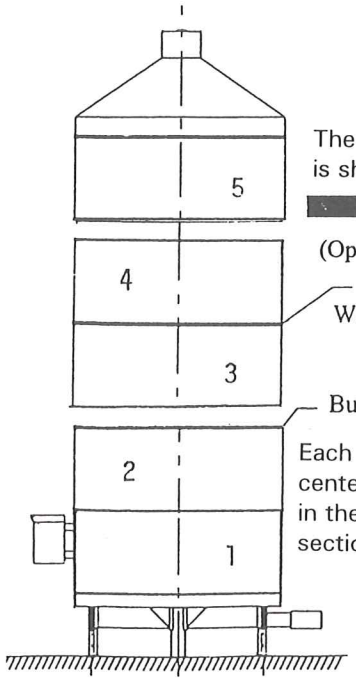
1. CONCRETE WORK SHALL CONFORM TO:
   a. ACI 318-89.R92 STANDARD BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE.
   b. ACI 301, SPECIFICATION FOR STRUCTURAL CONCRETE IN BUILDINGS.
2. ULTIMATE COMPRESSIVE STRENGTH OF PORTLAND CONCRETE, STANDARD WEIGHT, AT 28 DAYS, SHALL BE 3,000 PSI, AIR ENTRAINED (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%)

SHIPPING

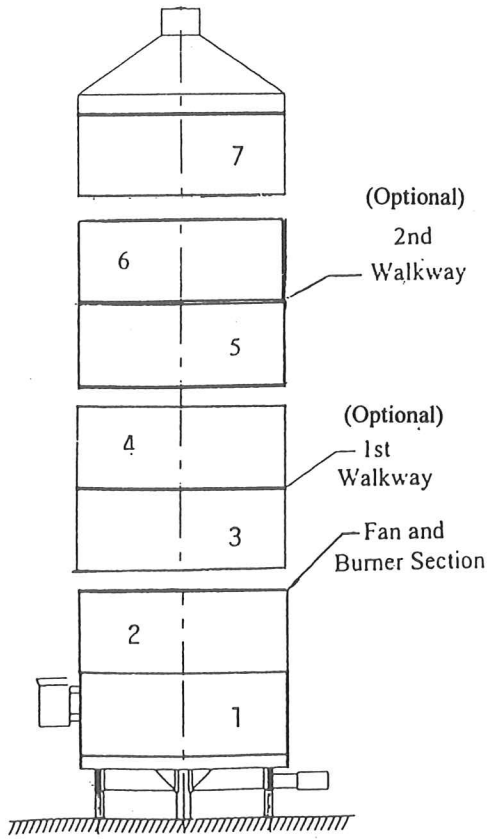
The 10520 Tower Dryer is shipped in (3) sections:



Each section is marked at the center ladder bracket to assist in the proper placement of each section when stacking.

10520 - (1) Base with (2) 4 ft. Screen Sections attached,
(1) 8 ft. Screen Section (two 4 ft. sections bolted together),
(1) 4 ft. Screen Section with Top.

The 10730 Tower Dryer is shipped in (4) sections:



10730 - (1) Base with (2) 4 ft. Screen Sections attached,
(2) 8 ft. Screen Sections (two 4 ft. sections bolted together),
(1) 4 ft. Screen Section with Top.

The 10630 Tower Dryer is shipped in (4) sections:

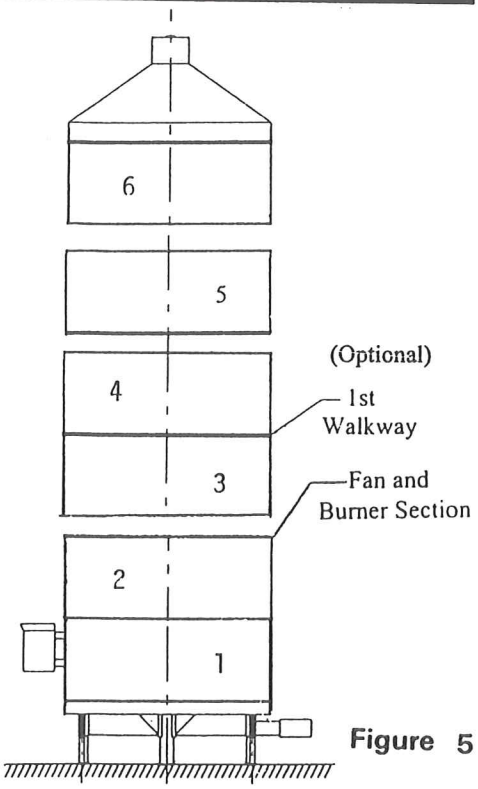


Figure 5

10630 - (1) Base with (2) 4 ft. Screen Sections attached,
(1) 8 ft. Screen Section (two 4 ft. sections bolted together),
(1) 4 ft. Screen Section, and
(1) 4 ft. Screen Section with Top.

Unloading

When unloading the 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 attached the (6) Leg Extensions to the base of Models 10520, 10630 and 10730. 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 section using metal shims as required.

Now unload the remaining Screen Sections using the (3) Lifting Brackets or the Inside Walkway Support Gussets that connect the Inner Walkway Platform #475330 to the inner screens. See page 64.

Screen Section #5 (10520), #6 (10630), and #7 (10730) that are bolted to the Top Section are lifted by placing a hook onto the "U" Bolt attached to the Roof Cap #439063. Access to the "U" Bolt is through the Receiving Tube of the Grain Receiving Top Assembly. See page 83.

Be sure to place the Screen Sections so that there is enough space between them to allow easy installation of the Ladder Safety Cages to screen sections and top.

This spacing is especially important if an optional Outside Walkway #475707 is purchased with the dryer.

Both the Ladder Safety Cages and the optional Walkway(s) should be placed onto the Screen Sections before they are stacked.

Do not lift more than (1) 8 ft. (2.44m.) double screen section.

Dryer Weight – Approximate in pounds (kgs.)

MODEL	EMPTY	FILLED (w/No. 2 Corn)
10520	8150 (3697)	36,150 (16,398)
10630	9100 (4128)	42,084 (19,094)
10730	10,000 (4536)	48,080 (21,809)

SET-UP INSTRUCTIONS

General

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

Ladder Installation

All 8 ft. (2.44m.) Screen Sections will have the Outside Ladders installed except the 8 ft. Screen Section that is bolted to the base.

The (2) 5 ft. (1.5m.) Outside Ladders are also installed, (1) on either the 5th, 6th, or 7th top 4 ft. (1.2m.) screen section and the other on the roof section.

A 10 ft. (3m.) Outside Ladder is to be installed on the base section and the bottom of this Ladder may have to be shortened to fit the installation.

Assembly of the Ladder Safety Cages

All Ladder Safety Cages are assembled with #1282015 Cage Hoops and 4 ft. (1.2m.) #475722 Cage Straps. Use 5/16-18 x 3/4" Grade #5 hex washer head bolts and whiz locknuts where only (2) pieces join and 5/16-18 x 1" bolts where (3) pieces are joined.

The safety cage for the (2) 5 ft. (1.5m.) ladders, (1) mounted on the roof and the other bolted to the top 4 ft. (1.2m.) screen section attached to the roof, requires (2) hoops and (4) 4 ft. cage straps each.

The distance between these (2) 5 ft. ladders is enclosed with (4) Cage Connecting Straps #475090 and (1) Cage Hoop #1282015. The ends of the cage hoop are bolted to the Ladder Connecting Brackets #475723. One end of a connecting strap has a 30° bend that is bolted to the hoop. Two (2) connecting straps go up to the roof ladder cage and (2) go down to the top section ladder cage. All connecting straps will share a 5/16-18 x 1" bolt with a hoop and ladder strap.

The 4 ft. (1.2m.) ladder used on the single 4 ft. screen section of a 10630 requires (1) cage hoop bolted to the bottom rung of this ladder. One end of the (4) 4 ft. cage straps is bolted to this hoop with 5/16-18 x 1" bolts and whiz locknuts.

The other ends of the 4 ft. cage straps are bolted to the bottom cage hoop of the ladder cage directly above sharing the 5/16-18 x 1" bolts and locknuts.

To assemble an 8 ft. (2.4m.) ladder cage, bolt (1) Ladder Cage Hoop #1282015 to the bottom rung of this ladder and (1) to the 5th rung up from the bottom.

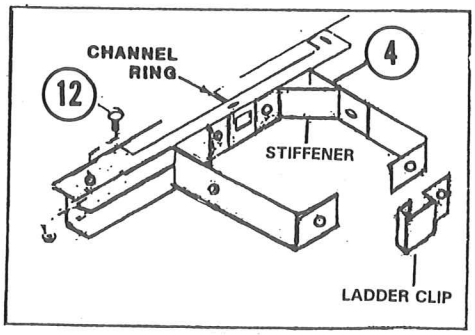
Now bolt the (4) 4 ft. ladder straps #475722 between the (2) hoops with 5/16-18 x 1" bolts and locknuts.

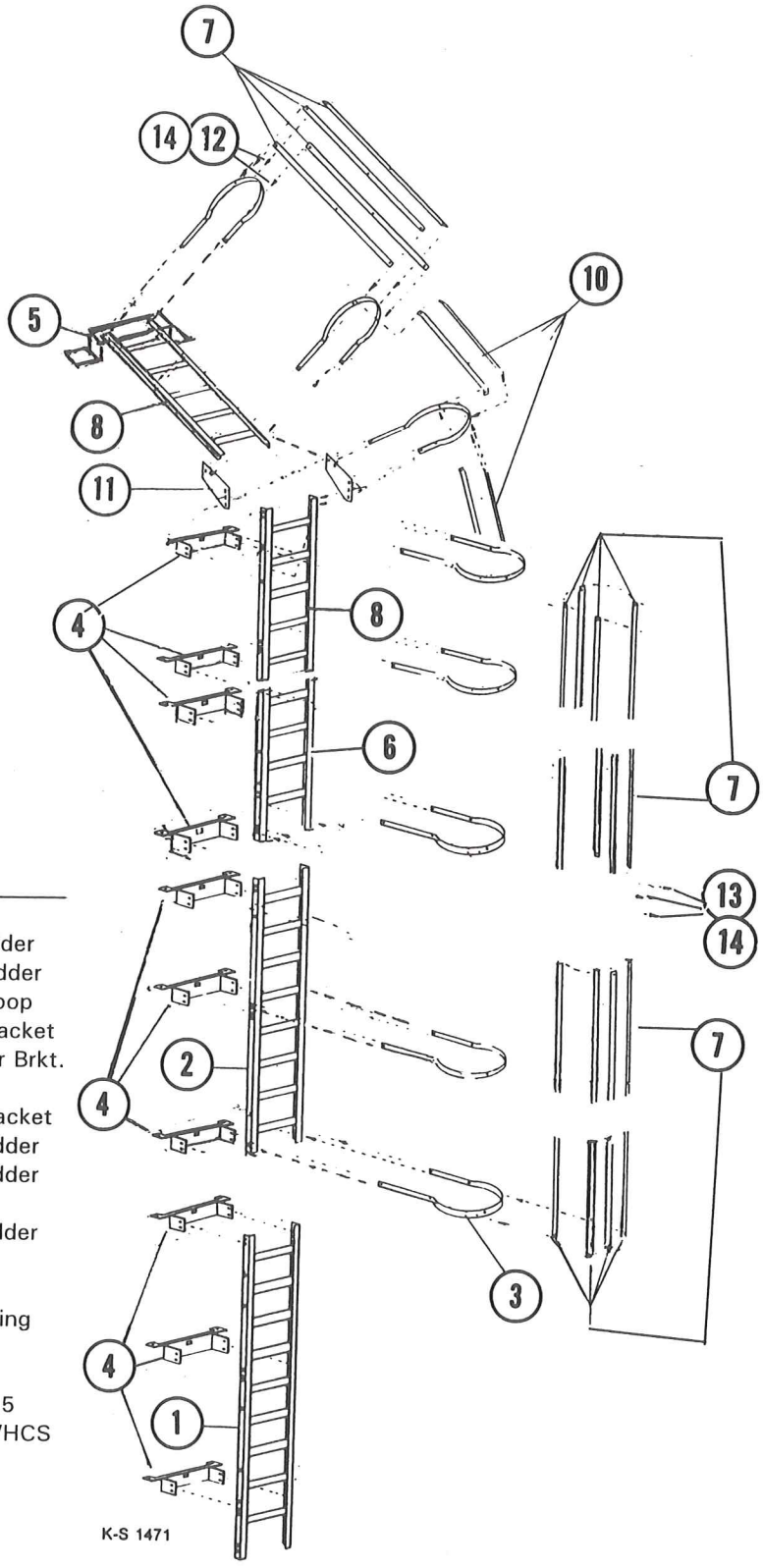
The bottom holes of the top (4) 4 ft. straps that complete the 8 ft. cage share the same bolts that are used for the upper holes of the (4) straps used in the lower 4 ft. ladder cage.

The upper holes of the top 4 ft. straps are bolted to the bottom cage hoop of the ladder cage directly above sharing the 5/16-18 x 1" bolts and locknuts. See Figure 6.

OUTSIDE LADDER & SAFETY CAGE ASSEMBLY

10630 Shown





Ref.	Part No.	Qty. 104	Qty. 105	Qty. 106	Description
1	4908703	1	1	1	10 ft. (3m) Ladder
2	4908711	–	1	1	8 ft. (2.4m) Ladder
3	1282015	6	7	8	Ladder Cage Hoop
4	475721	7	8	10	Main Ladder Bracket
	4902011	14	16	20	Ladder Stiffener Brkt.
	4908704	14	16	20	Ladder Clip
5	475724	1	1	1	Peak Ladder Bracket
6	4908702	1	–	1	4 ft. (1.2m) Ladder
7	475722	12	16	20	4 ft. (1.2m) Ladder Cage Strap
8	4908701	2	2	2	5 ft. (1.5m) Ladder
10	475090	4	4	4	Safety Cage Conn. Strap
11	475723	2	2	2	Ladder Connecting Bracket
12	837524	10	12	16	5/16-18x3/4" HWHCS Grd. 5
13	0008108	10	16	24	5/16-18x1" HWHCS Grd. 5
14	0008169	20	28	40	5/16-18 Whiz Locknut

Figure 6

Stacking of the Screen Sections and Roof Onto Dryer Base

With the Safety Ladder Cages and Optional Outside Walkway (if any) installed, the Screen Sections are ready to be placed into position on top of the Base Section.

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.

Now remove the Burner Cylinder and Transition from shipping skid and bolt assembly to the top of the fan housing which is bolted to the heat floor installed in the 2nd screen section. Use 5/16 x 1" (7.9 x 25.4mm.) Grade #5 hex bolts, large washers on each end, and tighten with whiz locknuts. See Figure 9.

Attach crane spreader bar hooks to #475205 lifting brackets bolted to the center outer channel rings of the 3rd and 4th double screen section and place it onto the 2nd screen section using drift pins to align the holes in the channel rings. Use 5/16 x ¾" (7.9 x 19mm.) hex washer head capscrews and whiz locknuts.

Only hand tighten bolts until all sections are in place.

NOTE: After all screen sections are installed, the Gas Piping, 1/2" (12.7mm.) flex conduit with wires for Ignition Board Box, 3/8" (9.5mm.) flex conduit for Hot Grain Thermistor (Standard Cabinet only), (2) sets of Burner Ignition Wires, Inner Walkway for Burner Service #475746, 3/8" (9.5mm.) flex conduit for Fill Switch, 3/8" flex conduit for Moisture Control Thermistors, and flex conduit with wires for Fan Motor can be connected.

Now use the same procedure for the remaining 4 ft. (1.22m.) or 8 ft. (2.44m.) Screen Sections or use the Inside Walkway Support Gussets that connect the Inner Walkway Platform #475330 (if present) to the Inner Screens (page 12) to attach the crane spreader bar hooks and lift the Screen Sections.

As Screen Sections are placed onto the Section below, the (2) **Inside** Channel Ring splice joints should align with the (2) splice joints of the **Outside** Channel Rings of the Screen Section below. When positioned correctly, all Screen Seams should line up. See Figure 8.

The Top 4 ft. Screen and Roof Section is lifted by placing the crane lift hook into the "U" Bolt attached to the Roof Cap. See page 83. 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 #0018202 and 5/16" whiz locknuts #0008169 to secure inner and outer Channel Rings to lower Screen Section.

Now wrench tighten all Inner and Outer Channel Ring bolts that were hand tightened during stacking process.

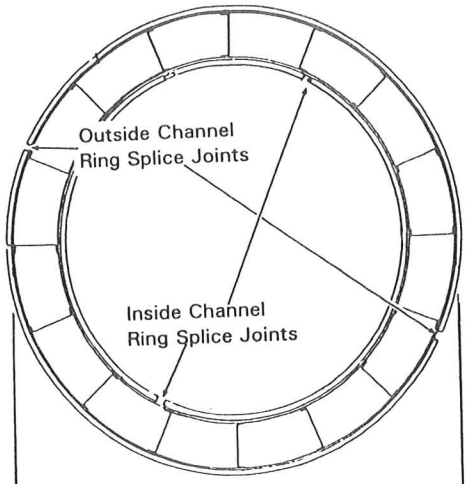


Figure 8 117-1/8"

10630 MODEL SHOWN

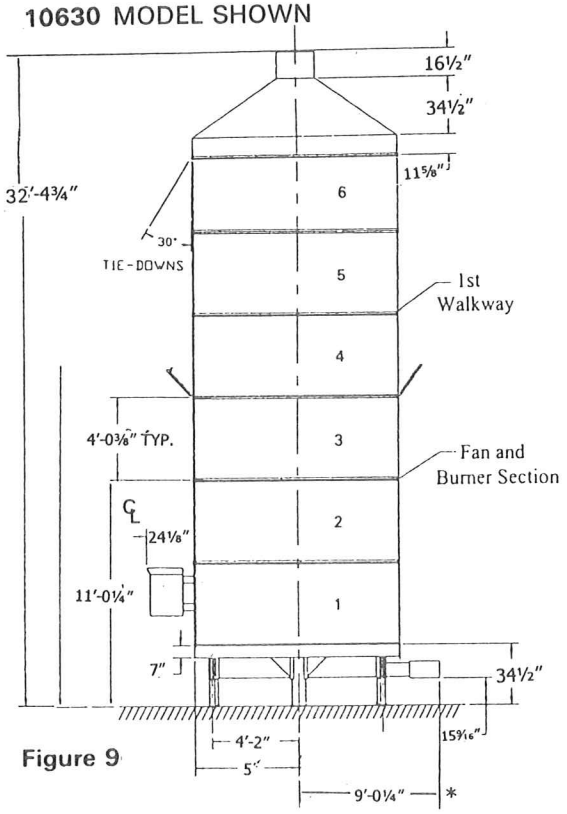


Figure 9

*Starting with S/N 57355

BURNER ASSEMBLY – 10520, 10530, 10630 & 10730

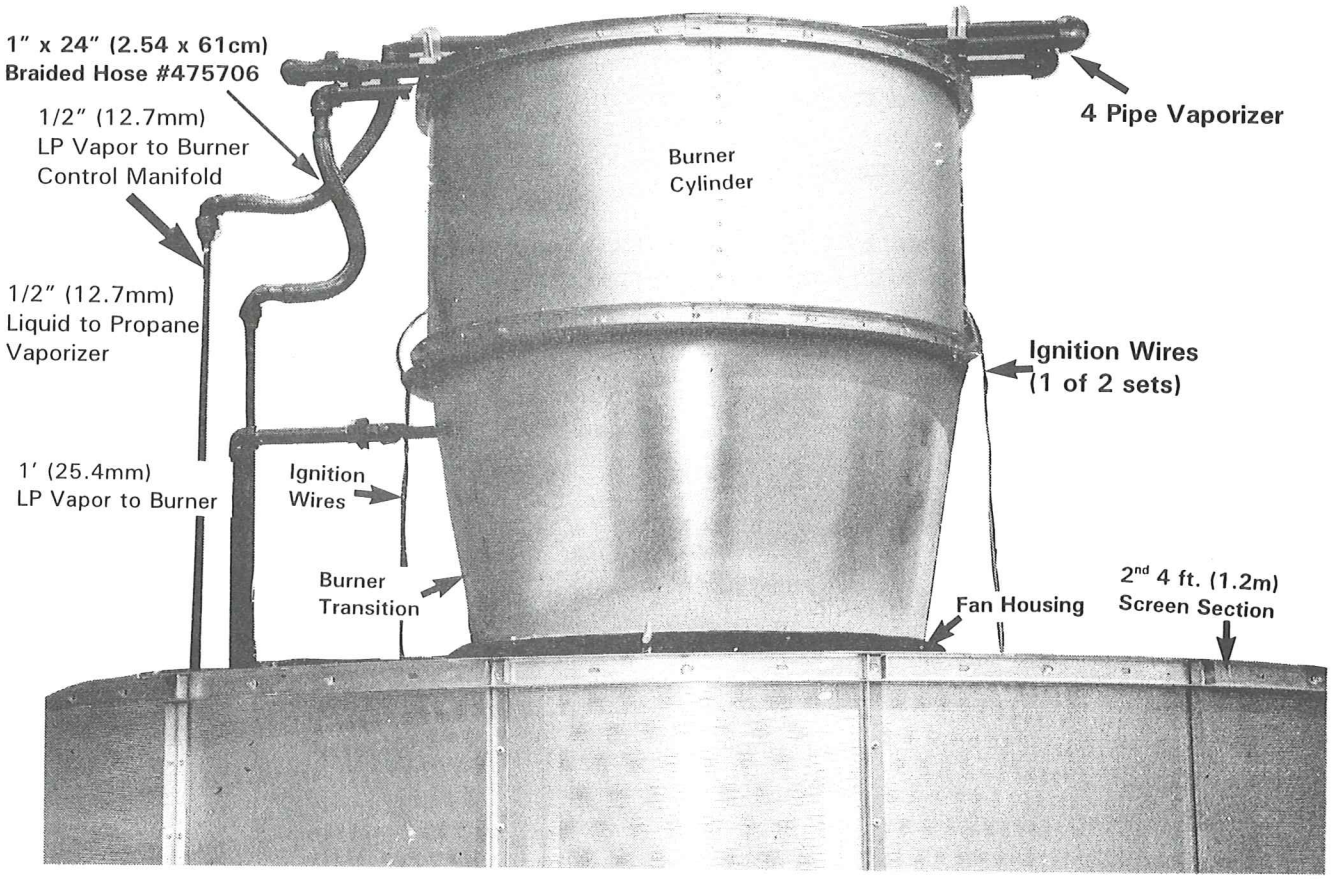
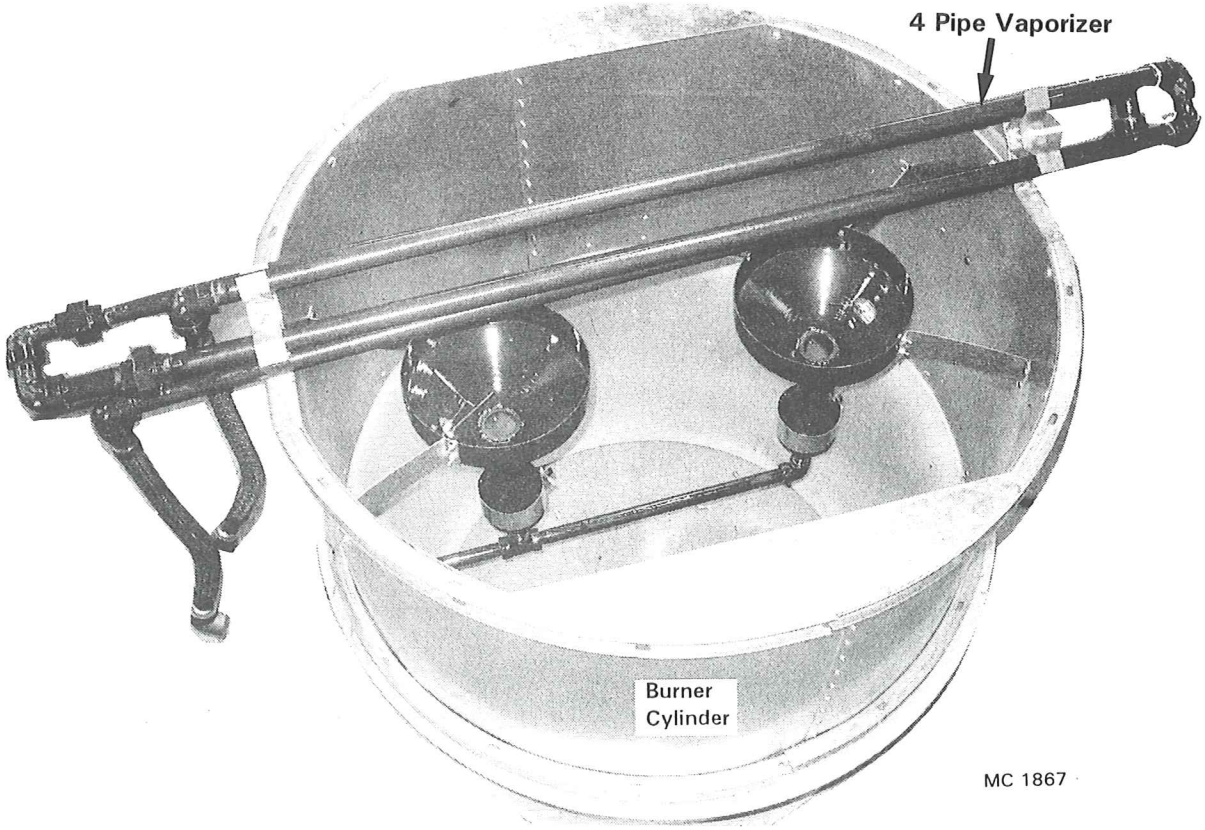


Figure 10



FOUNDATION LAYOUT AND ANCHORING INFORMATION FOR 101050 STANDARD CONTROL CABINET

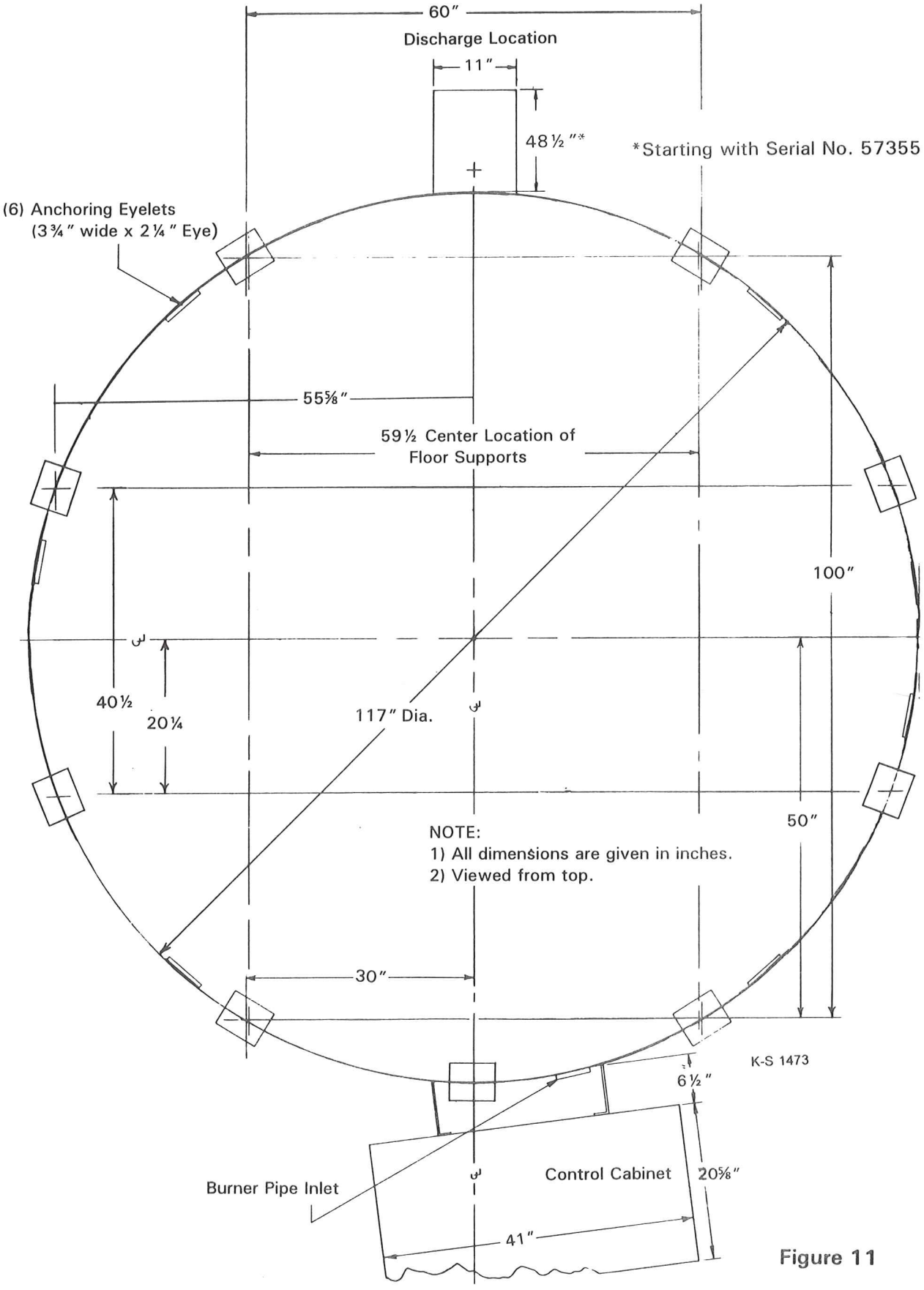


Figure 11

FOUNDATION LAYOUT AND ANCHORING INFORMATION FOR 101050 REMOTE CABINET

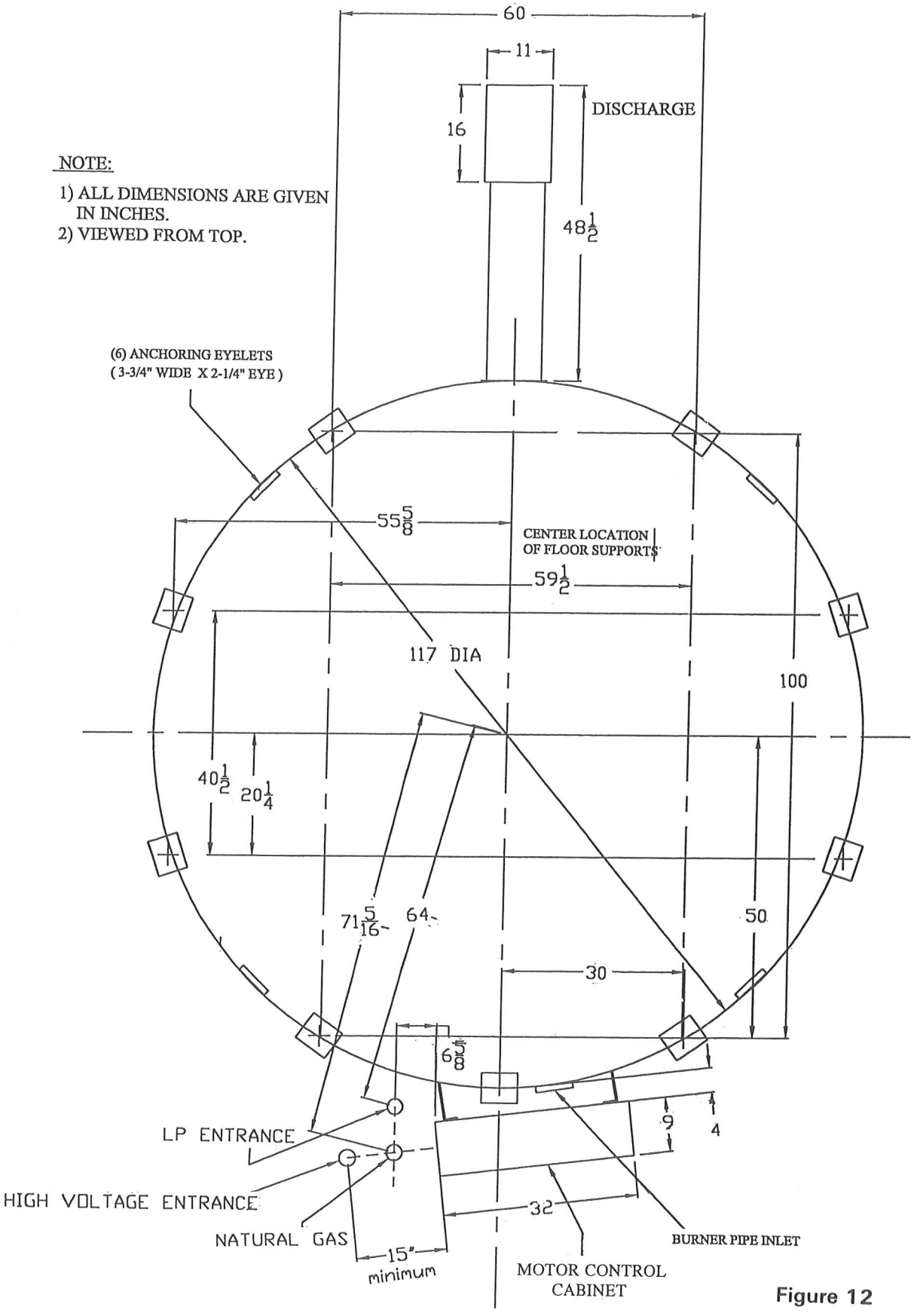
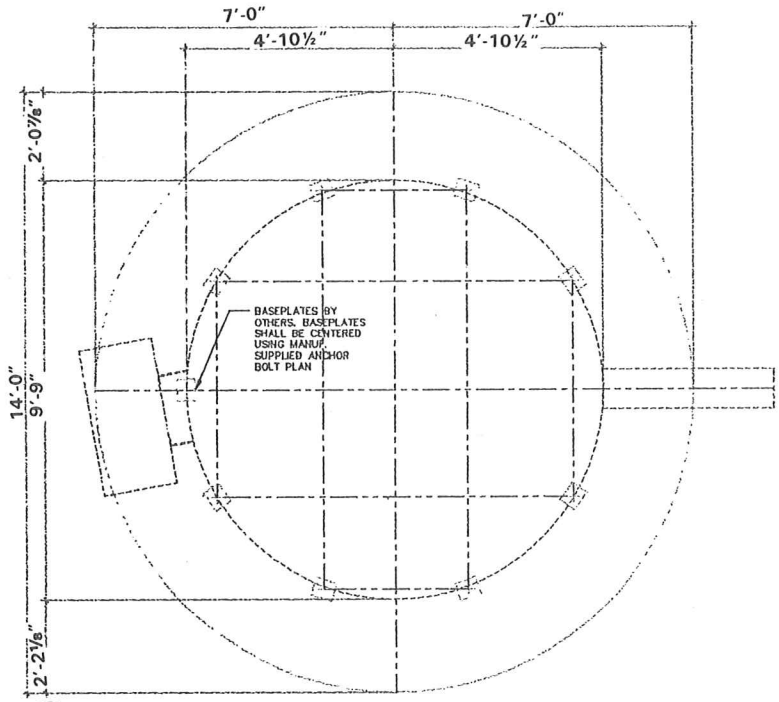
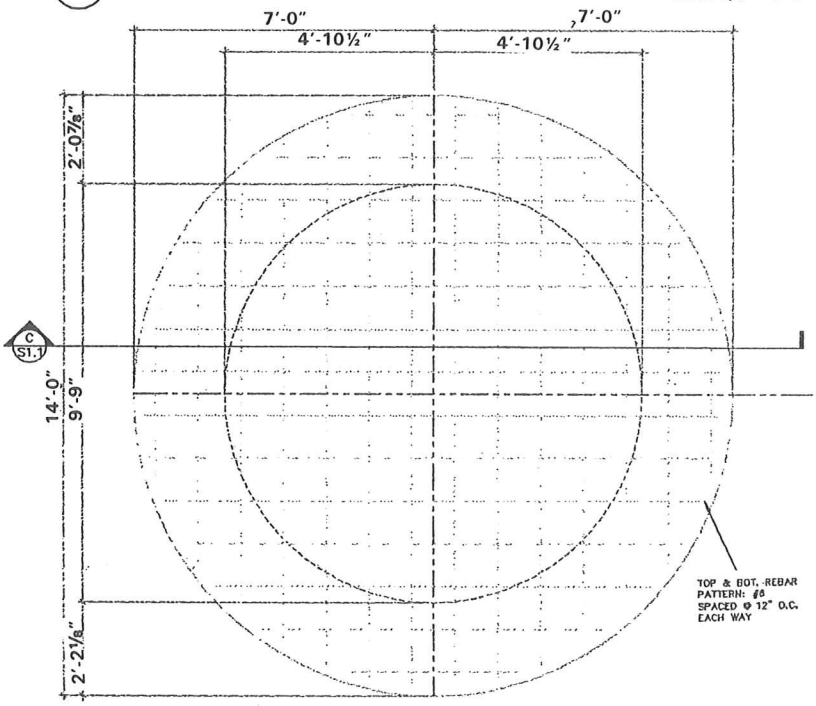


Figure 12



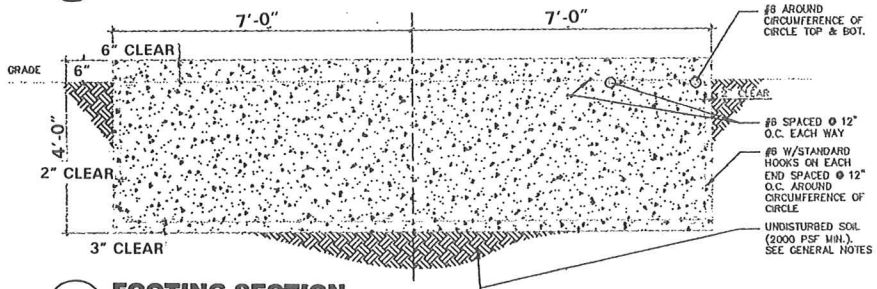
A **TYPE 101050 GRAIN DRYER PLAN** DE01FNC

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



B **FOOTING PLAN FOR TYPE 101050 GRAIN DRYER** DE01FND

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



C **FOOTING SECTION** DE01FND

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

Figure 13

GENERAL NOTES

General

1. Refer to design criteria listed on sheet.
2. Contractors to assume full responsibilities 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 process and construction techniques (including excavation, shoring scaffolding, bracing, erection form work, etc.
   d) Coordination of the various trades.
3. Unless otherwise noted, all details, sections and notes on the drawing are intended to be typical for similar situations elsewhere.

Foundation

1. Footings are designed for a minimum soil bearing capacity of 2000 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 condition, 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, sub grade preparation shall include the removal of all unsuitable surface soils including soft clays, highly organic topsoil, root matters, debris and other deleterious materials.
5. If fill material is required, the zone of compacted fill shall be extended beyond the edges of the footing a distance of one foot for each foot of thickness compacted fill below the footing.

Concrete

1. Concrete work shall conform to:
   a) ACI 318-89.R.92, standard building requirements for reinforced concrete.
   b) ACI 301, specification for structural concrete in buildings.
2. Ultimate compressive strength of Portland Cement concrete, 150 pcf standard weight, at 28 days, shall be 3000 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 8".
5. No aluminum of any type shall be allowed in the concrete works unless coated to prevent aluminum-concrete reaction. This includes pumping thru aluminum pipe.
6. Reinforcing bars shall conform to ASTM specification 1-615, Grade 60.
7. All laps for rebar, when not dimensioned on drawings, shall be 40 bar diameters.
8. Unless otherwise noted, principal reinforcement shall have following reinforcement cover: 3" on bottom, 6" on top, 2" on sides.

Anchor Bolts

1. Anchor bolts - 3/4" Hilty HY 150 anchors or equivalent with A36 steel and 10" embed.
2. Anchor bolts shall be placed no closer than 10" from the edge of foundation.

DESIGN CRITERIA

Dryer Height – 48 ft. 4 in.
Dryer Diameter – 117 in. or 9 ft. 9 in.
Dryer Weight – 13,300 lbs.
Grain Weight – 64,430 lbs.
Maximum Dryer Leg Load – 28,675 lbs.
Maximum Dryer Leg Uplift – 15,035 lbs.
Compressive Strength of Soil – 2000 psf
Compressive Strength of Concrete – 3000 psf
Rebar Yield Strength – 60 ksi (grade 60)
Normal Concrete Weight – 15- pcf

101050
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 Figures 12 and 13.

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 101050 Tower Dryer is shipped in (6) sections: Base, (4) Double Screen Sections, and (1) Screen with Top Section. See Figure 14.

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 10 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) 28-5/16" (72cm) 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 section using metal shims as required.

Now unload (4) of the remaining sections using the (3) Lifting Brackets #475205 attached to the center outside channel rings of section (2 & 3) and (4 & 5). On section (6 & 7) and (8 & 9) the (4) Inside Walkway Support Gussets can be used as lifting brackets.

Do not lift more than (1) double screen section with #475205 lifting brackets 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 83.

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.

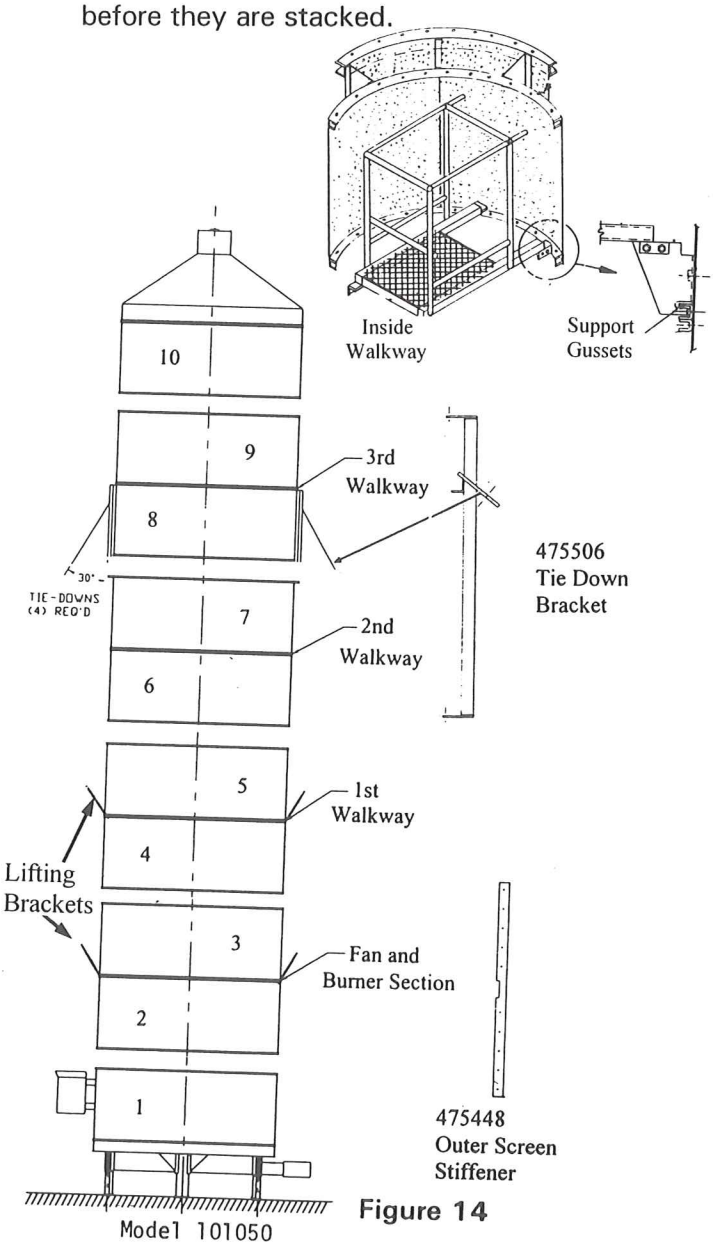


Figure 14

10 FT. (3.0m.) M-C TOWER OUTSIDE WALKWAY ASSEMBLY #475707 (OPTIONAL ON MODELS 10520, 10630 & 10730)

Optional Outside Walkway Installation

When an Optional Outside Walkway is purchased with the dryer, the (18) Walkway Mounting Brackets #4903250 are bolted to the screen section that will hold the walkway. The top (9) Walkway Mounting Brackets are where the (8) Walkway Plank Supports (RH) #4902635 and the (1) Walkway Plank Support (LH) are to be bolted to the screen section. Use 3/8-16 x 3/4" Hex Washer Head Bolts and Whiz Locknuts on all walkway parts except for the Floor Panel Anchors #1208994 which require 5/16-18 x 3" Carriage Bolts #0018276, Flatwashers #0007173, and Whiz Locknuts #0008304.

Only hand tighten bolts until entire walkway is installed.

Walkway Plank Supports #4902635 have a top flange that is bent to the right. Before bolting the (8) walkway plank supports #4902635 to the top walkway mount brackets #4903250, bolt (7) #475711 Floor Plank Support Angles to the left side of (7) of the walkway panel brackets. Bolt the first walkway plank support #4902635, the (1) without a #475711 floor plank support angle, to the first top walkway mounting bracket that is just to the right of the ladder.

Bolt the remaining (7) walkway plank supports #4902635 with the #475711 floor plank support angles to the remaining top walkway mounting brackets #4903250 until you come back around the screen section to the ladder.

Now bolt the (1) walkway plank support #475710 (which has a top flange that is bent to the left) to the top walkway mounting bracket #4903250 that is just to the left of the ladder.

Now bolt the top of the (9) Walkway Support Legs #475708 to the 2nd bottom hole from the front edge of the walkway plank supports #4902635 and #475710 and to the bottom hole of the legs to the bottom hole of the bottom walkway mounting brackets.

Once the (9) walkway support legs #475708 have been bolted in place, there are (2) Walkway Stiffeners #475744 that must be installed between the 2nd and 3rd Plank Supports #4902635 and between the 8th and 9th Supports. The top side of the stiffeners

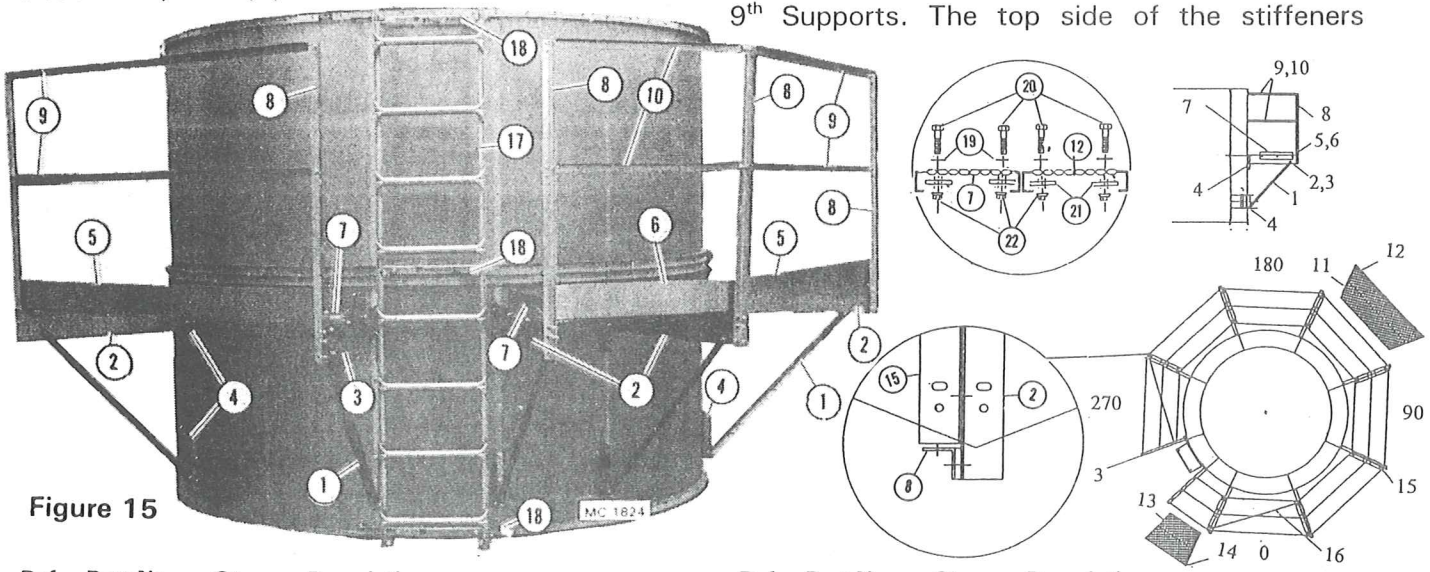


Figure 15

Ref.	Part No.	Qty.	Description
1	475 708	9	Walkway Support Leg - 45"
2	490 2635	8	Walkway Plank Support RB - 36"
3	475 710	1	Walkway Plank Support LB - 36"
4	490 3250	18	Walkway Mnt. Bracket
5	475 712	7	Toe Kick Long - 69¾"
6	475 713	1	Toe Kick Short - 34¾"
7	475 714	2	End Cap Plate - 23½"
8	490 3248	9	Guard Rail Post - 50-5/16"
9	475 715	14	Guard Rail - 73-9/16"
10	475 716	2	Guard Rail Short - 37-1/16"
11	475 717	7	Inner Walkway Plank Long
12	475 718	7	Outer Walkway Plank Long

Ref.	Part No.	Qty.	Description
13	475 719	1	Inner Walkway Plank Short
14	475 720	1	Outer Walkway Plank Short
15	475 711	7	Floor Plank Support Angle 4x26½"
16	475 744	2	Walkway Stiffener - 64⅛"
17	490 8711	1	8 Ft. (2.44m) Ladder
	490 8703	1	10 Ft. (3.0m) Ladder
18	475 721	–	Outside Ladder Bracket
	490 2011	12	Ladder Stiffener Bracket
	490 8704	12	Sure Grip Ladder Clip
19	120 8994	64	Floor Plank Anchor
20	001 8276	64	5/16-18x3" (7.9x76mm) Carr. Bolt
21	000 8173	64	5/16" (7.9mm) Flatwasher
22	000 8304	64	5/16" (7.9mm) Whiz Locknut

have a bolt hole at both tapered ends which must face in toward the screen section.

The tapered end of the stiffener that bolts to the outside end of the 2nd walkway plank support will share a bolt with the 1st Toe Kick-Long #475712 to the right of the ladder.

The 2nd stiffener will also share a bolt with the last (7th) Toe Kick-Long when the stiffener is bolted to the top outside hole of the 8th walkway plank support.

Place the (1) Toe Kick-Short #475713 onto the 92) walkway plank supports #4902635 just to the right of the ladder. There is a hole at the outside edge of each walkway plank support where the Toe Kick is to be bolted.

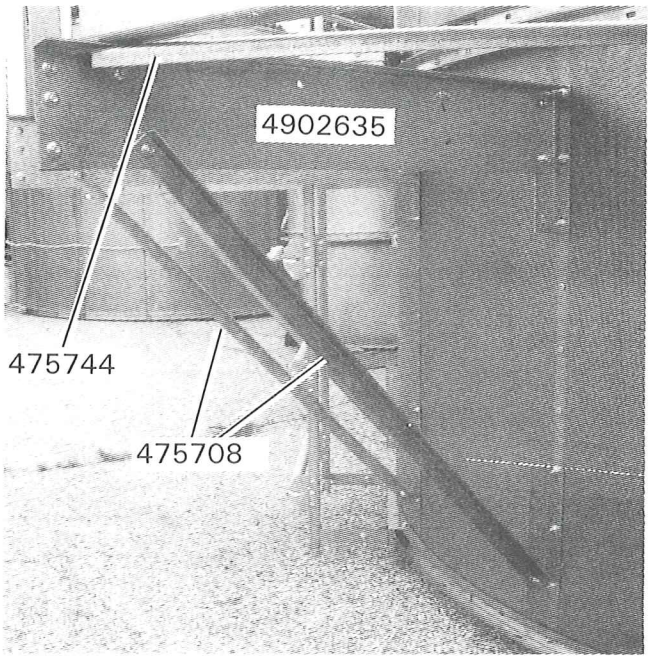
Now bolt the (7) Toe Kick-Long #475712 around the outside edge of the walkway panel supports.

Place the Inner and Outer Short Walkway Planks #47519 and #47520 onto the (2) walkway plank supports to the right of the ladder. Use (2) Floor Panel Anchors, 5/16-18 x3" (7.9x76mm.) carriage bolts, flatwashers, and whiz locknuts at each end of the planks. Anchors under bolt head and flatwashers next to the locknut. Use slotted holes in plank support. Now do the same thing with the Inner and Outer Walkway Planks-Long #475717 and #475718 working around screen section to the ladder.

Bolt (1) of the End Cap Plates #476714 to the left side of the 1st walkway plank support that is to the right of the ladder. The other End Cap Plate is bolted to the right side of walkway plank support #475710 that is just to the left of the ladder.

Now bolt the (9) Guard Rail Posts #4903248 to the left side of each walkway plank support. The outside corner of the rail post should face the screen section leaving a flat surface upon which to mount the guard rails. When the rail post is installed correctly, the (3) bolt holes in the rail post will match perfectly with the (3) holes in the plank support. If only portions of the (3) holes line up, the rail post is not installed correctly.

Place the (2) Guard Rail-Short #475716 between the 1st and 2nd guard rail posts #4903248 that are just to the right of the ladder. The top flange of the guard rail should face away from the screen section.



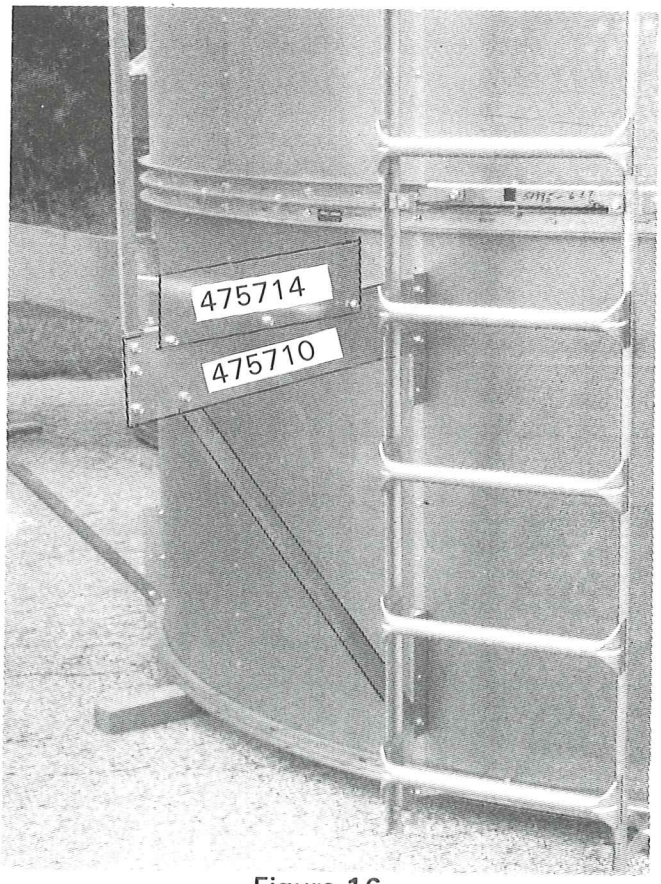


Figure 16

Now place the (14) Guard Rails-Long #475718-73-9/16" between the remaining guard rail posts #4903248. Again, the top flange of the guard rail should face away from the screen section.

Ladder Installation

All Screen Sections will have the Outside Ladders installed except the 8 ft. (2.44m.) Screen Section that is bolted to the base.

A 10 ft. (3m.) Ladder is to be installed on the base section and the bottom of this Ladder may have to be shortened to fit the installation.

Assembly of the Ladder Safety Cages

All Ladder Safety Cages are assembled with #1282015 Cage Hoops and 4 ft. (1.2m.) #475722 Cage Straps. Use 5/16-18 x 3/4" Grade #5 hex washer head bolts and whiz locknuts where only (2) pieces join and 5/16-18 x 1" bolts where (3) pieces are joined.

The safety cage for the (2) 5 ft. (1.5m.) ladders, (1) mounted on the roof and the other bolted to the top 4 ft. (1.2m.) screen section attached to the roof, requires (2) hoops and (4) 4 ft. cage straps each.

The distance between these (2) 5 ft. ladders is enclosed with (4) Cage Connecting Straps #475090 and (1) Cage Hoop #1282015. The ends of the cage hoop are bolted to the Ladder Connecting Brackets #475723. One end of a connecting strap has a 30° bend that is bolted to the hoop. Two (2) connecting straps go up to the roof ladder cage and (2) go down to the top section ladder cage. All connecting straps will share a 5/16-18 x 1" bolt with a hoop and ladder strap.

To assemble an 8 ft. (2.4m.) ladder cage, bolt (1) Ladder Cage Hoop #1282015 to the bottom rung of this ladder and (1) to the 5th rung up from the bottom.

Now bolt the (4) 4 ft. ladder straps #475722 between the (2) hoops with 5/16-18 x 1" bolts and locknuts.

The bottom holes of the top (4) 4 ft. straps that complete the 8 ft. cage share the same bolts that are used for the upper holes of the (4) straps used in the lower 4 ft. ladder cage.

The upper holes of the top 4 ft. straps are bolted to the bottom cage hoop of the ladder cage directly above sharing the 5/16-18 x 1" bolts and locknuts. See Figure 6.

OUTSIDE LADDER & SAFETY CAGE ASSEMBLY WITH OPTIONAL GRAIN TURNER 101050 Shown

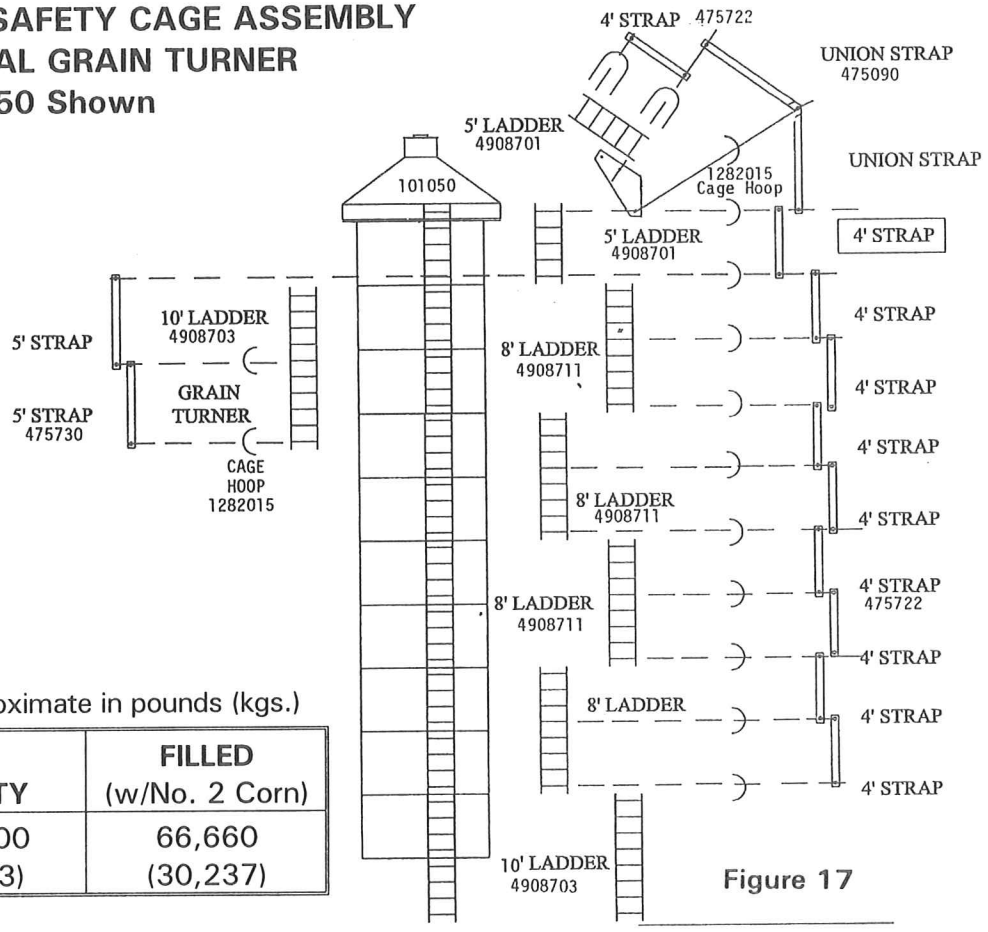


Figure 17

Dryer Weight – Approximate in pounds (kgs.)

MODEL	EMPTY	FILLED (w/No. 2 Corn)
101050	13,300 (6033)	66,660 (30,237)

OUTSIDE LADDER & SAFETY CAGE ASSEMBLY
101050 Shown

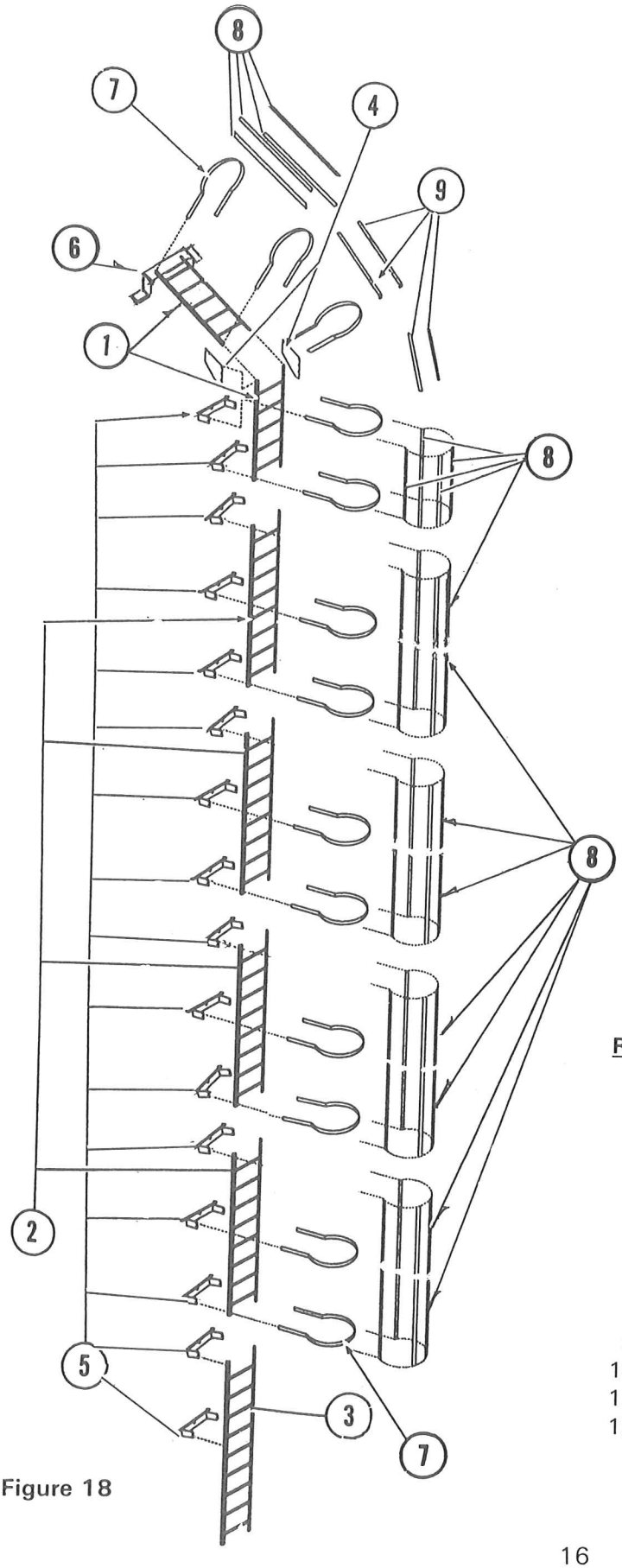
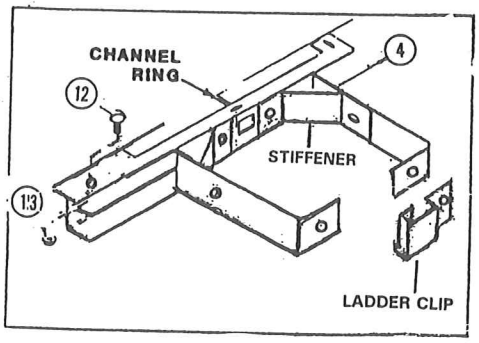


Figure 18



Ref.	Part No.	Qty.	Description
1	4908701	2	5 ft. (1.5m.) Ladder
2	4908711	4	8 ft. (2.4m.) Ladder
3	4908703	1	10 ft. (3m.) Ladder (Base, cut to size)
4	475723	2	Ladder Connecting Bracket
5	475721	16	Main Ladder Bracket
6	475724	2	Peak Ladder Bracket
7	1282015	13	Ladder Cage Hoop
8	475722	40	4 ft. (1.2m.) Ladder Cage Strap
9	475090	4	Safety Cage Connecting Strap
10	837524	36	5/16-18 x 3/4" HWHCS
11	0008108	50	5/16-18 x 1" HWHCS
12	0008169	86	5/16"-18 Whiz Hex Nut

Installation - 101050

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 crane spreader bar hooks to #475205 lifting brackets bolted to the center outer channel rings of the 2nd and 3rd double screen section and place it onto the base screen section using drift pins to align the holes in the channel rings. Be sure that the holes for the (3) pipes with unions on LP burner -- 1¼" (31.75mm.) for burner vapor line, ¾" (19mm.) for vaporizer to manifold line and ¾" (19mm.) for the liquid propane to vaporizer line -- are aligned so the pipes can be easily installed and tightened after channel rings are bolted together. Use 5/16 x ¾" (7.9 x 19mm.) hex washer head capscrews and whiz locknuts. Natural Gas burners have only (1) 1¼" (31.75mm.) pipe with union to supply gas to the burners.

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.

Now remove the Burner Cylinder and Transition from shipping skid and bolt assembly to the top of the fan housing which is bolted to the heat floor installed in the 2nd screen section. Use 5/16 x 1" (7.9 x 25.4mm.) Grade #5 hex bolts, large washers on each end, and tighten with whiz locknuts.

NOTE: After all screen sections are installed, the gas piping, ¾" (19mm.) liquatite with wires for Ignition Board Box #1, 3/8" (9.5mm.) liquatite for Cold Grain Thermistor (Standard Cabinet only), (3) sets of burner Ignition Wires, 3/8" (9.5mm.) liquatite for Fill Switch, 3/8" (9.5mm.) liquatite for Moisture Control Thermistors, Inner Walkway for Burner Service #475746, and Motor Wires can be installed.

Now install the 4th and 5th double screen section exactly like the 2nd and 3rd.

The 6th and 7th and the 8th and 9th double screen section can be installed by attaching the crane spreader bar hooks to the (4) Inside Walkway Support Gussets that were used to unload the sections when delivered.

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 83. Again use ladders for correct positioning and drift pins to align holes in channel rings. Use 5/16 x ¾" hex washer head capscrews Grade #5 and whiz locknuts to join sections.

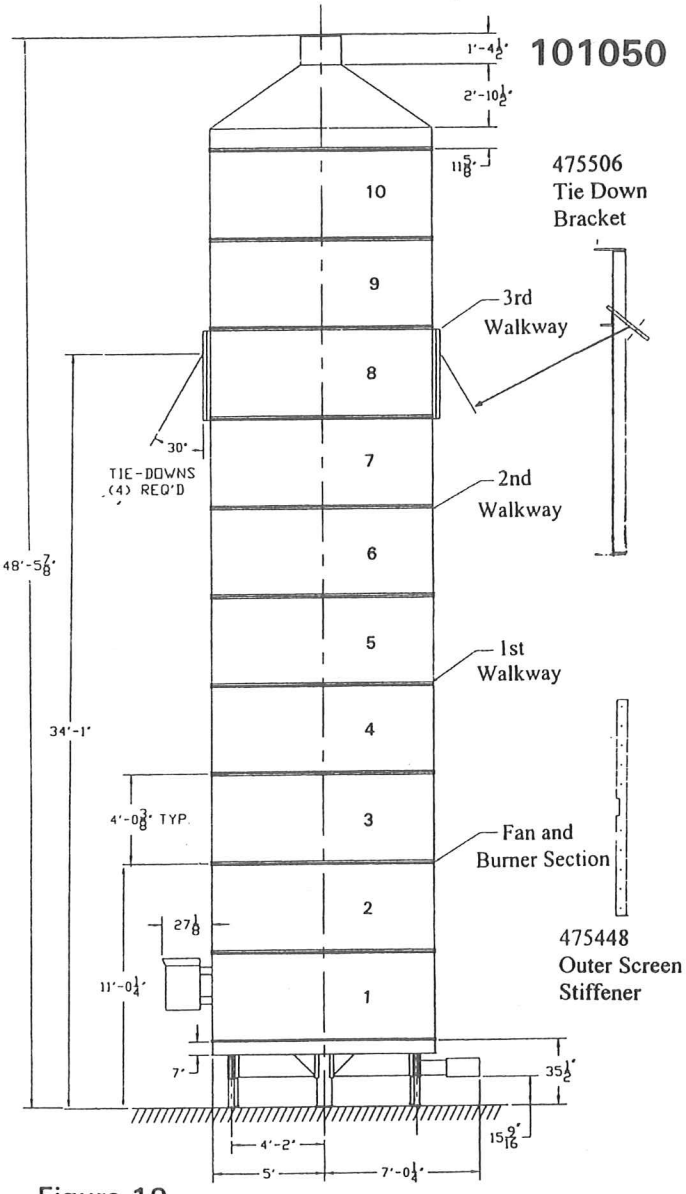


Figure 19

BURNER ASSEMBLY – 101050

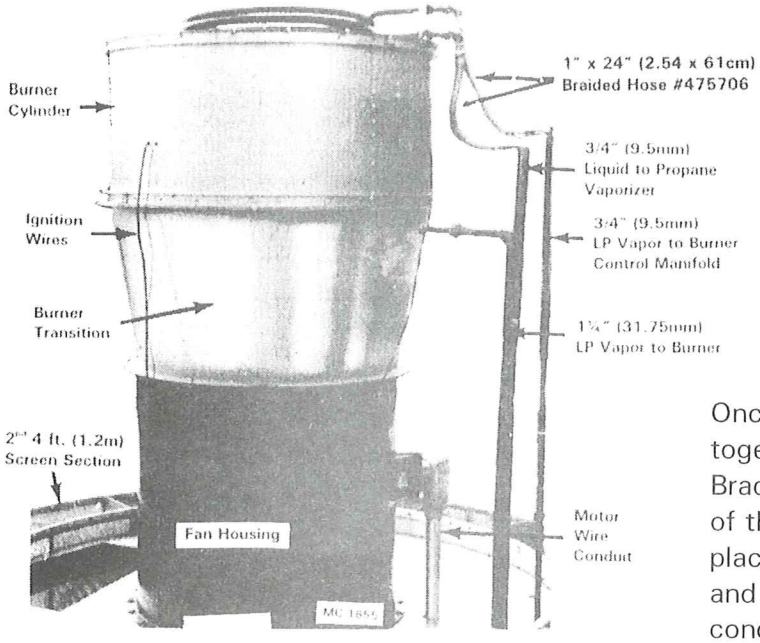
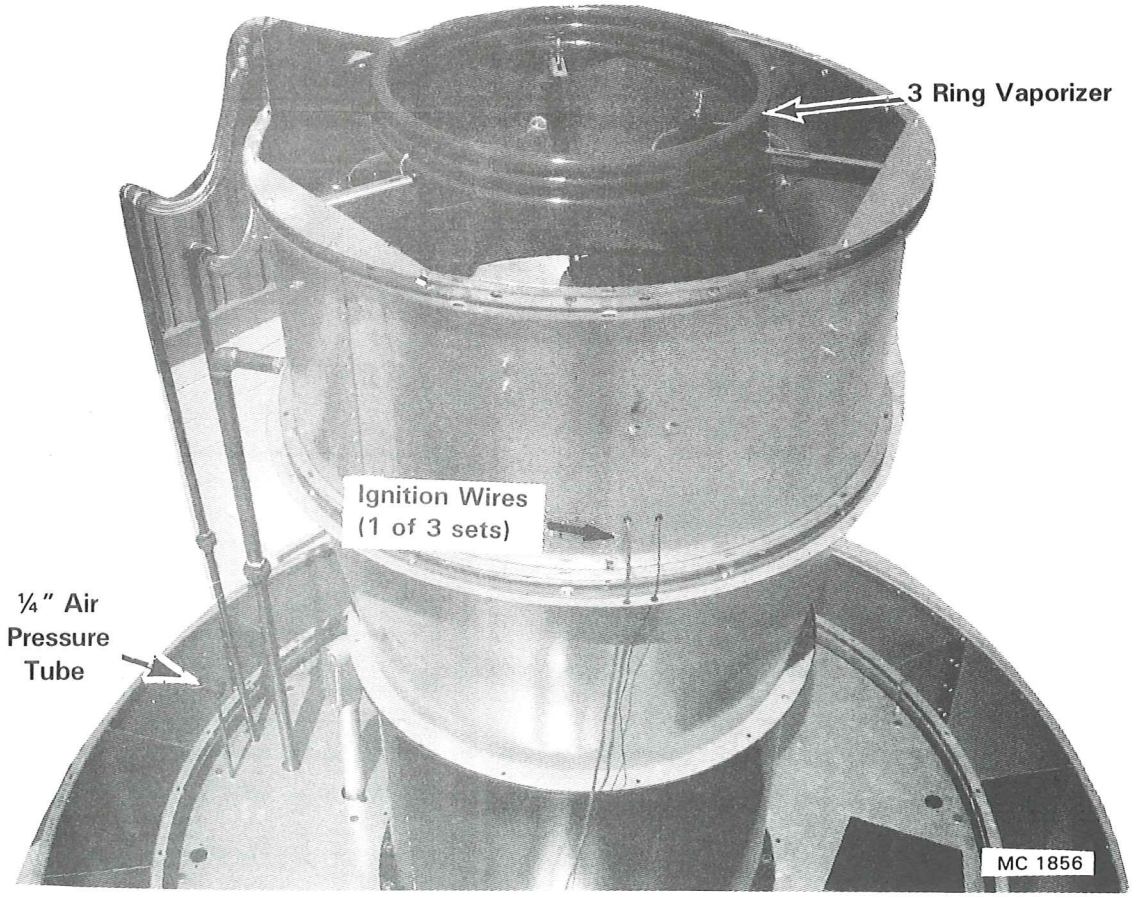


Figure 20

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 19 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.



Installation of Inner Walkway (Burner Service Platform)

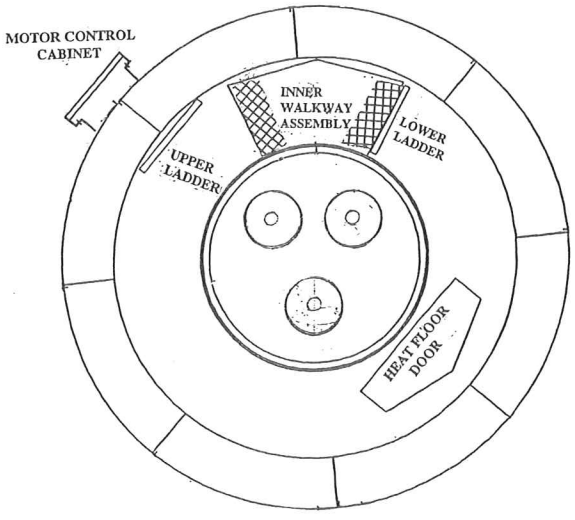
The (3) #475343 Floor Mounting Brackets for the Inner Walkway are to be bolted to the Top Channel Ring of the 3rd Screen Section and the Bottom Channel Ring of the 4th Screen Section just to the right of the Inside Service Ladder. Use 5/16 x 18 x 3/4" Hex Washer Head Bolts and 5/16" Whiz Locknuts.

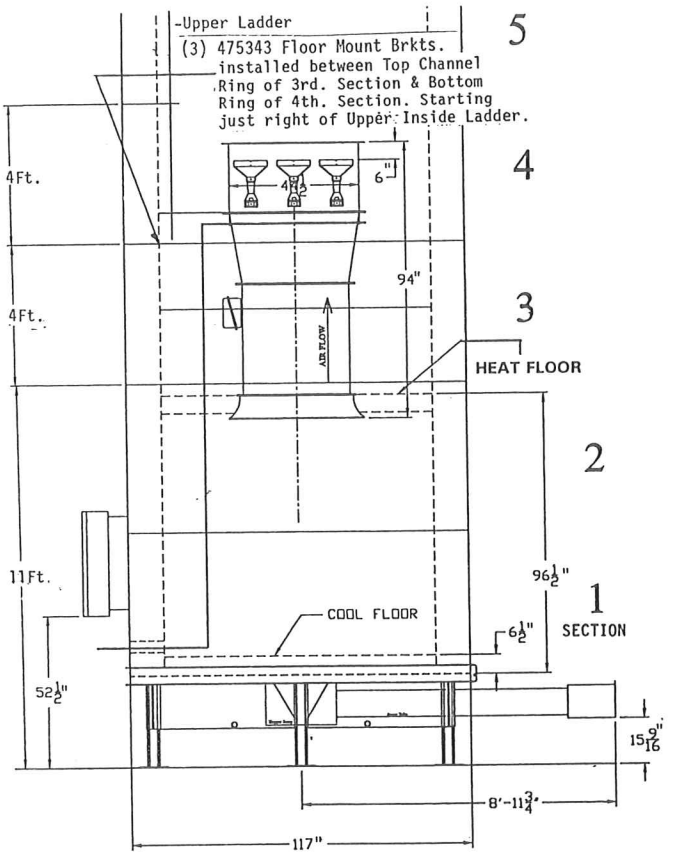
Bolt (3) #475747 Inner Walkway Supports to the (3) #475343 brackets. Use 5/16-18 x 3/4" HWHCS and Whiz Locknuts.

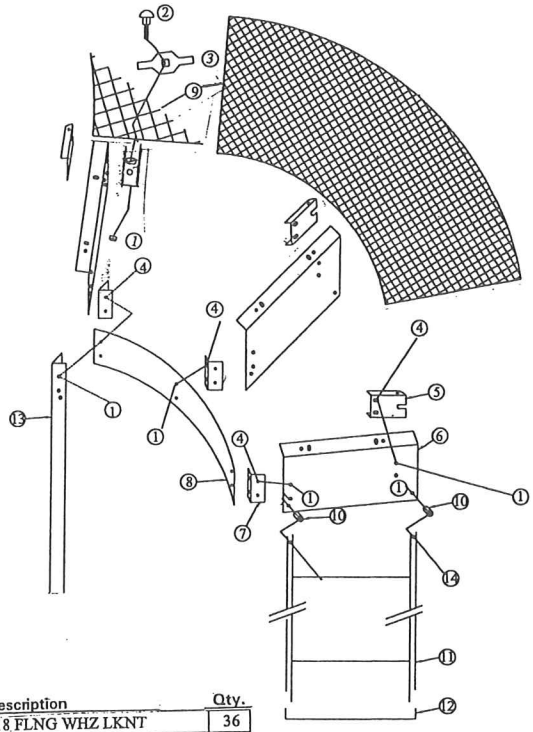
Now bolt (3) Walkway Lateral Brackets #475748 to the (3) Walkway Supports #475747. The 1st and 3rd Lateral Brackets must have (1) of their sides facing in toward the 2nd Walkway Support. The 2nd Lateral Bracket can be installed with (1) of its side facing in either direction.

Bolt the Walkway Stiffener #475749 to the (3) Lateral Brackets. At one end of the Inner Walkway Stiffener (next to Upper Ladder), the Walkway Leg #475779 will use the same 5/16 x 18 x 3/4" HWHCS and Whiz Locknuts as the Walkway Stiffener. At the opposite end of the Inner Walkway a 5 ft. (1.5m.) Ladder is to be bolted to the Walkway Support #475747 with (2) 5/16 x 18 x 2" HWCS, (2) #1285405 Spacers and 5/16" Whiz Locknuts. It may be necessary to trim bottom of the 5 ft. to obtain proper fit. Use a #475776 Ladder Bracket to secure bottom of ladder to Heat Chamber Floor.

Now bolt Walkway Platform #475750 to Walkway Supports #475747 using 5/16-18 x 3/4" Carriage Bolts #0008220, Whiz Locknuts, and Floor Grating Anchors #1208994 under bolt head. See Figure 21.







Ref.	Part No.	Description	Qty.
1	0008169	5/16-18 FLNG WHZ LKNT	36
2	0008220	5/16-18 x 3/4" CARR. BOLT	6
3	1208994	FLOOR GRATING ANCHOR	6
4	837524	5/16-18 x 3/4" HWHCS WHIZ	26
5	475343	FLOOR MOUNTING BRACKET	3
6	475747	INNER WALKWAY SUPPORT	3
7	475748	INNER WALKWAY LATERAL	3
8	475749	INNER WALKWAY STIFFENER	1
9	475750	INNER WALKWAY PLATFORM	1
10	1285405	3/8" x 1-3/4" SPACER	2
11	1290005	LADDER WELD. 5' SECTION	1
12	475776	INSIDE LADDER BRACKET	1
13	475779	INNER WALKWAY LEG	1
14	0018220	5/16"-18 x 2" HWHCS	2

Figure 21

Installation of the (4) Clean-Out Pipes (101050 Only)

The (4) Clean-Out Pipes #475621 1¼ x 88¾" must be installed between the bottom of the Heat Floor and the top of the Cool Floor. Each pipe will have a Floor Flange #475107 installed on the threaded top end of the pipe. The other end of the pipe is not threaded and will just slide through the Clean-Out Floor Seal and Pipe Gasket that must be bolted to the Cool Floor. Use 5/16 x ¾" HWHCS and whiz locknuts to bolt Floor Flanges and Seals to heat and cool floors. See page 88.

Burner Gas Piping

Liquid Propane - Models 10520/10630/10730

Connect the 1/2" (1.27cm.) liquid propane supply line to the 1 x 24" (2.54 x 61cm.) Braided Hose attached to (4) Pipe Vaporizer. Connect the 1/2" (1.27cm.) Vaporizer to Burner Control Manifold vapor line to the 1 x 24" (2.54 x 61cm.) Braided Hose attached to the (4) Pipe Vaporizer. Connect the 1" (2.54cm.) Burner Control Manifold vapor supply line to the 3/4" (1.9cm.) Burner vapor supply pipe. See page 8 .

Liquid Propane - Model 101050

Same as above except the pipe sizes are larger: 3/4" (1.9cm.) and 1¼" (3.175cm.) and Vaporizer is (3) ringed. See page 18 .

Natural Gas Models - 10520/10630/10730

Connect the 1" (2.54cm.) Burner Control Manifold vapor supply line to the 3/4" (1.9cm.) Burner vapor supply pipe. See page 8 .

Natural Gas Model - 101050

Same as above except vapor supply line is 1¼" (3.175cm.). See page 18 .

Wiring

Fan Motor 3 Phase, 60Hz

There is a 2" (5cm.) black flexible conduit containing (4) wires (red, black, blue, - power, and a green - ground) for the fan motor. This conduit is shipped in the cool section of the dryer, and must be inserted into the special exit port in the cooling column and connected to the bottom of the Standard Control Cabinet or the Motor Control Cabinet of the Optional Remote Cabinet Controls. Once the power wires have been drawn into the Cabinet and up to the bottom of the Overload Contactor, they must be trimmed to length, insulation removed from ends, then inserted into the proper lugs. The green ground wire is connected to the closest ground lug. If the dryer is equipped with a Soft Starter, the power wires are connected to terminal lugs 2T1, 4T2, and 6T3. The green ground wire is connected to the closest ground lug.

Ignition Boards (101050 Only)

There is a 3/4" (19mm.) flexible conduit with (14) wires (Standard Cabinet) and (12) wires (Remote Cabinet) that must be connected to the bottom of Ignition Board Box #1. Once wires have been drawn into Ignition Board Box #1, they must be cut to length, insulation removed from ends, fitted with a female wire connector and pushed onto the black terminal spade that has a wire with the same markings.

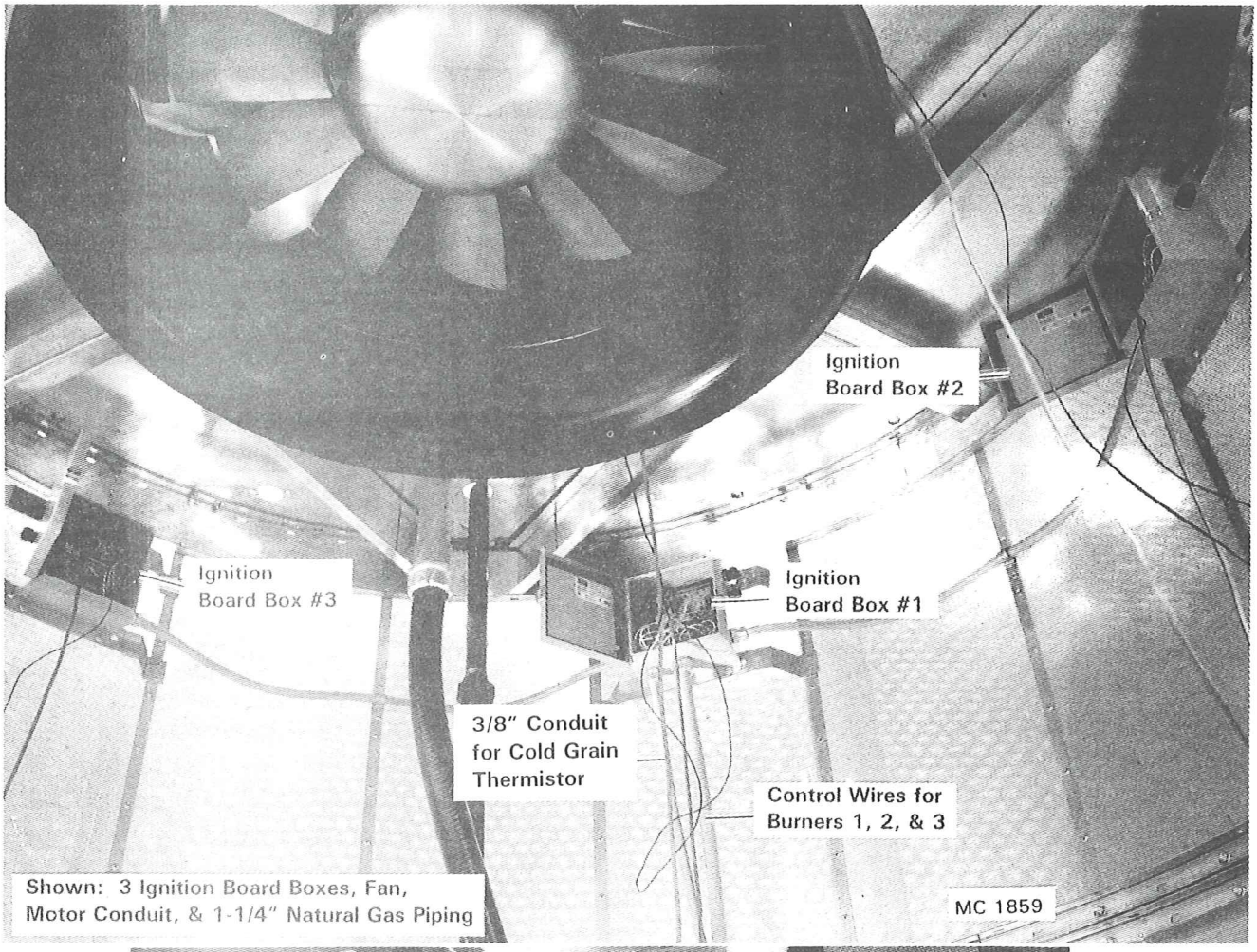
Ignition Electrode Wires

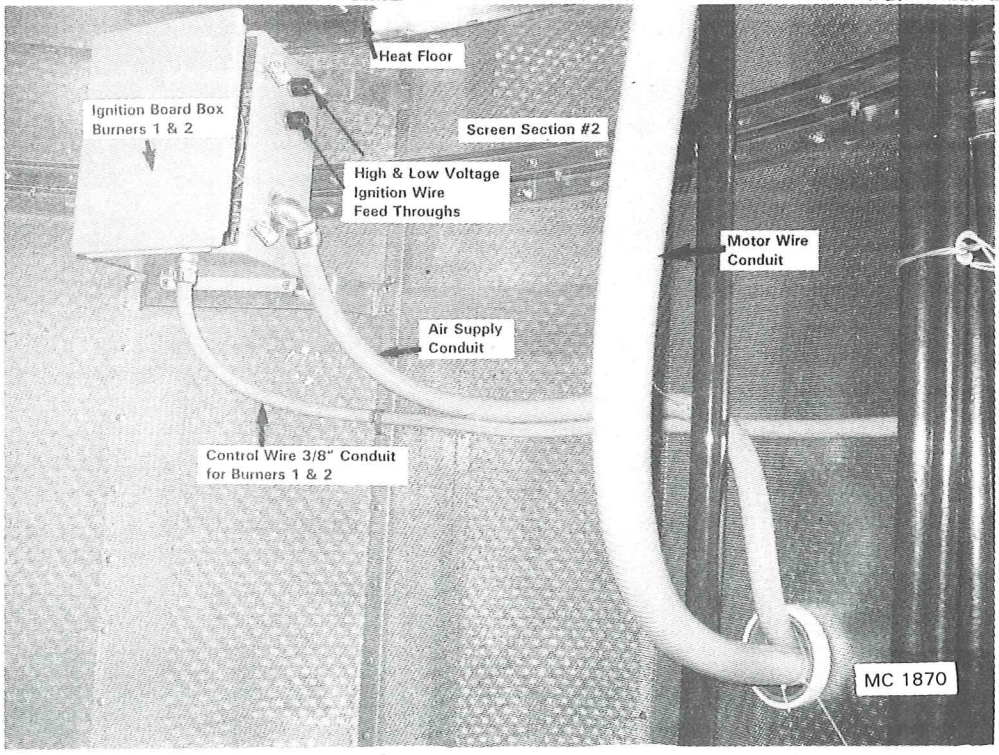
Models 10520/10630 & 10730 have (2) sets of Ignition Electrode Wires: (1) large orange High Tension and (1) black 18 gauge Flame Sense which must be lowered from the side of the Burner Cylinder down through the Heat Floor and to the sides of the Ignition Board Box.

There are (2) black Feed Through Fittings on each side of the Ignition Board Box, (1) for the large orange Ignition Wire and the other for the black 18 gauge Flame Sense Wire. Insert wires into proper Feed Through and pull into Ignition Board Box. The orange High Tension Wire will be placed onto the E1 spade terminal on top of the High Tension Coil and the black Flame Sense Wire will be placed onto the spade terminal S1 of correct Ignition Board.

Cut both wires to correct length plus a little extra, remove insulation from ends and install female wire connectors. A 1" (2.54cm.) piece of shrink insulation is to be placed over the end of the orange high tension wire and the end of the female wire connector for extra protection. Heat piece of shrink insulation so that it forms a tight seal over wire and connector.

COOL SECTION 101050





COOL SECTION 10520, 10530 OR 10730

Figure 22

Model 101050

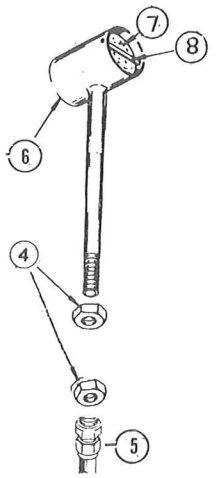
There are (3) sets of Ignition Electrode Wires: (1) large orange High Tension and (1) black 18 gauge Flame Sense which must be lowered from the sides of the Burner Cylinder down through the Heat Floor and to the side of each of the (3) Ignition Board Boxes. There are (2) black Feed Through Fittings on (1) side of each Ignition Board Box, (1) for the large orange High Tension Wire and the other for the black 18 gauge Flame Sense Wire.

Insert wires into proper Feed Through and pull into correct Ignition Board Box #1, #2, or #3. Orange High Tension Wire will be placed onto the E1 spade on top of the High Tension Coil and black Sense Wire will be placed onto the spade terminal S1 of Ignition Board.

Cut both wires to correct length plus a little extra, remove insulation from ends, and install female connectors. A 1" (2.54cm.) piece of shrink insulation is provided for placement over the end of the orange high tension wire and the end of the female wire connector for extra protection. Heat piece of shrink insulation so that it forms a tight seal over wire and connector.

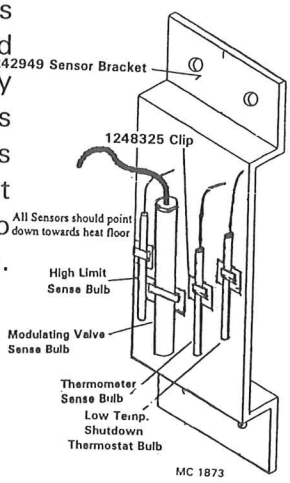
Air Pressure Switch (101050)

The Air Pressure Switch is located in the motor control portion of the Standard Cabinet or in the large Motor Control Cabinet of the Remote Cabinet Controls option. The 1/4" copper tubing for the Air Pressure Switch is coiled in the cool section of the dryer. Unwind copper tubing and connect open end to the Air Pressure Tube that is installed in the Heat Floor next to the 3/4" vapor line coming from the (3) ring vaporizer. A special compression fitting is supplied. See page 18.



Thermometer, High Limit Low Temp Shutdown Thermostat and Modulating Valve Sensing Bulbs

Unwind the capillary tubes for the thermometer, high limit low temp shutdown thermostat, and modulating valve sensing bulbs. Now place the bulbs up through the closest hole in the Heat Floor to the mount bracket located in the 3rd screen section. A bushing is provided for installation around the hole to protect the capillary tubes from being cut by edges of the hole. Place the (4) bulbs onto the Mount Bracket #1242949 and attach bulbs to bracket with #1248325 Clips. See page 34.



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

Cold Grain Thermistor (Standard Cabinet Only)

There is also a 3/8" flexible conduit that will have to be connected to the bottom of Ignition Board Box #1 (101050 only). 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 terminal blocks (just below the Ignition Board) with wires marked CGT-GT-3 and GTSW-CGT. Trim wires to proper length, remove piece of insulation, and place a female electrical connection to end of wires.

Level (Rotary Fill) Switch

There is a roll of 3/8" (9.5mm.) I.D. gray liquatite conduit that is attached to the 5 ft. ladder on the roof. One end of the conduit is connected to the Rotary Fill Switch and the other must be lowered to the Control Cabinet where the 3/8" 90° conduit elbow is connected to the hole in the bottom right hand corner of the cabinet.

- Place the (3) wires through the hole and secure 90° elbow to bottom of cabinet with locknut.
- Now connect the (2) yellow wires: LASW-LSW-5 and LSW-3-LASW to the Wet Grain Switch.
- Now connect the white wire TB5-LSW-2 to terminal block #5. Check wiring diagram 1615033.
- If dryer is equipped with Remote Cabinet Controls, connect the 90° conduit elbow to the bottom left hand corner of the large Motor Control Cabinet.
- Now connect yellow wire TB24-LSW-5 to terminal block #24 in motor control cabinet, and yellow wire LSW-3>LASW to terminal block #45.
- Connect the white wire TB5-LSW to terminal block #5. Check wiring diagram

Moisture Control Thermistors

Unwind the 3/8" (9.5mm) flexible conduit from the (4) way Thermistor Box on the side of the 4th Screen Section on 101050's or the 2nd Screen Section on Models 10520, 10530, 10630, and 10730, and let flex conduit down to the Standard Cabinet or Motor Cabinet of the optional Remote Cabinet System. Place 90° elbow fitting at the end of flex conduit into the hole in the bottom of cabinet (wires first) and secure with locknut. Be sure to place blue plastic wire protector cap next to locknut.

IMPORTANT: Check resistance reading of Thermistor wires when disconnected from Moisture Control Board. Determine that neither wire is shorted to ground and resistance reading is correct for current outside temperature. Check page 26.

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 23.

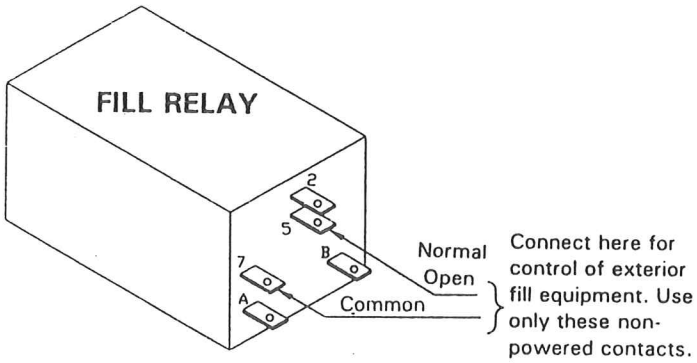


Figure 23 Fill Relay Non-Powered Contacts

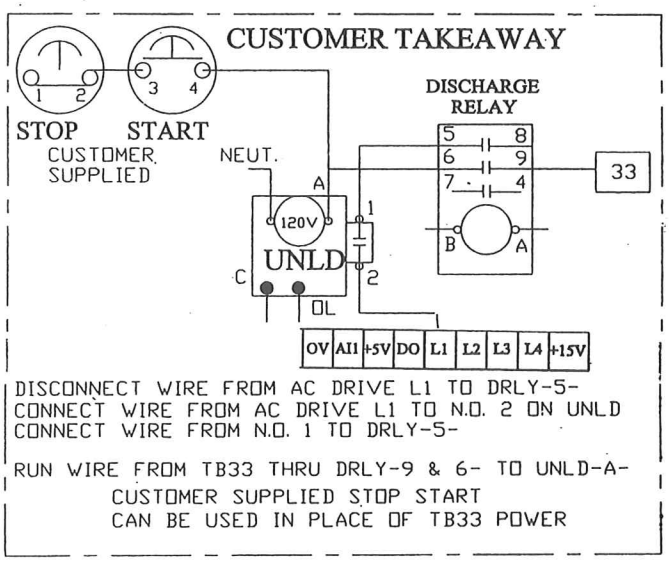


Figure 24 - Unload Auger Magnetic Contactor Non-Powered Auxiliary Contacts

Unloading Equipment (Customer Supplied)

The 3HP unload auger/sweep AC motor controller has a discharge relay that can be used to supply 115 volt control power to customer's unload auger/leg drive motor magnetic starter coil. See Figure 24.

THERMISTOR WIRING FOR STANDARD CONTROL CABINET

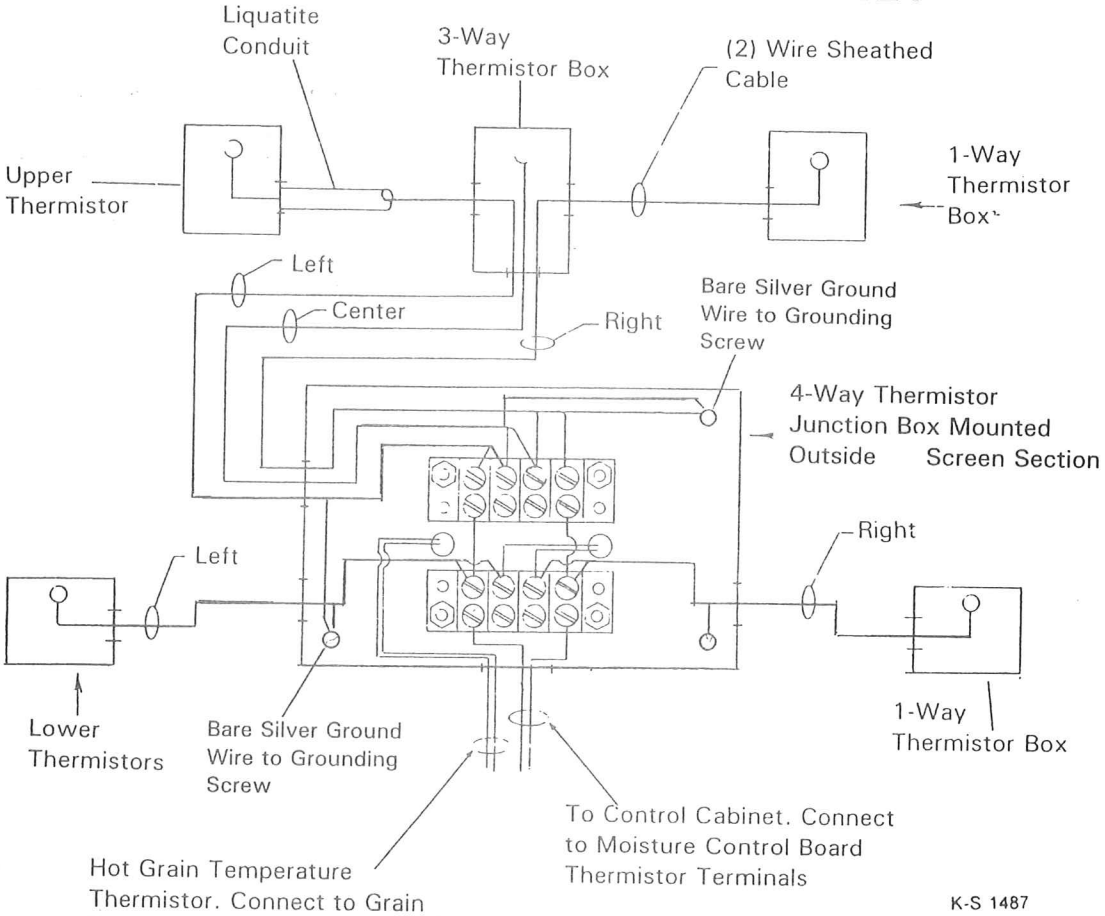
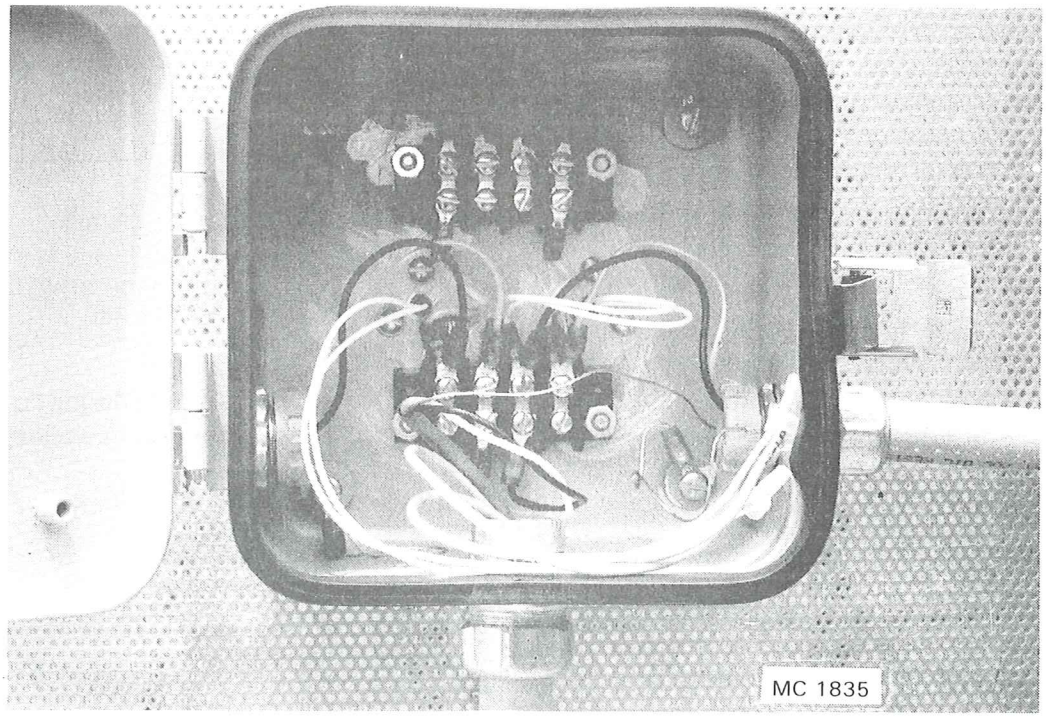


Figure 25



THERMISTOR WIRING FOR OPTIONAL REMOTE CABINET CONTROLS

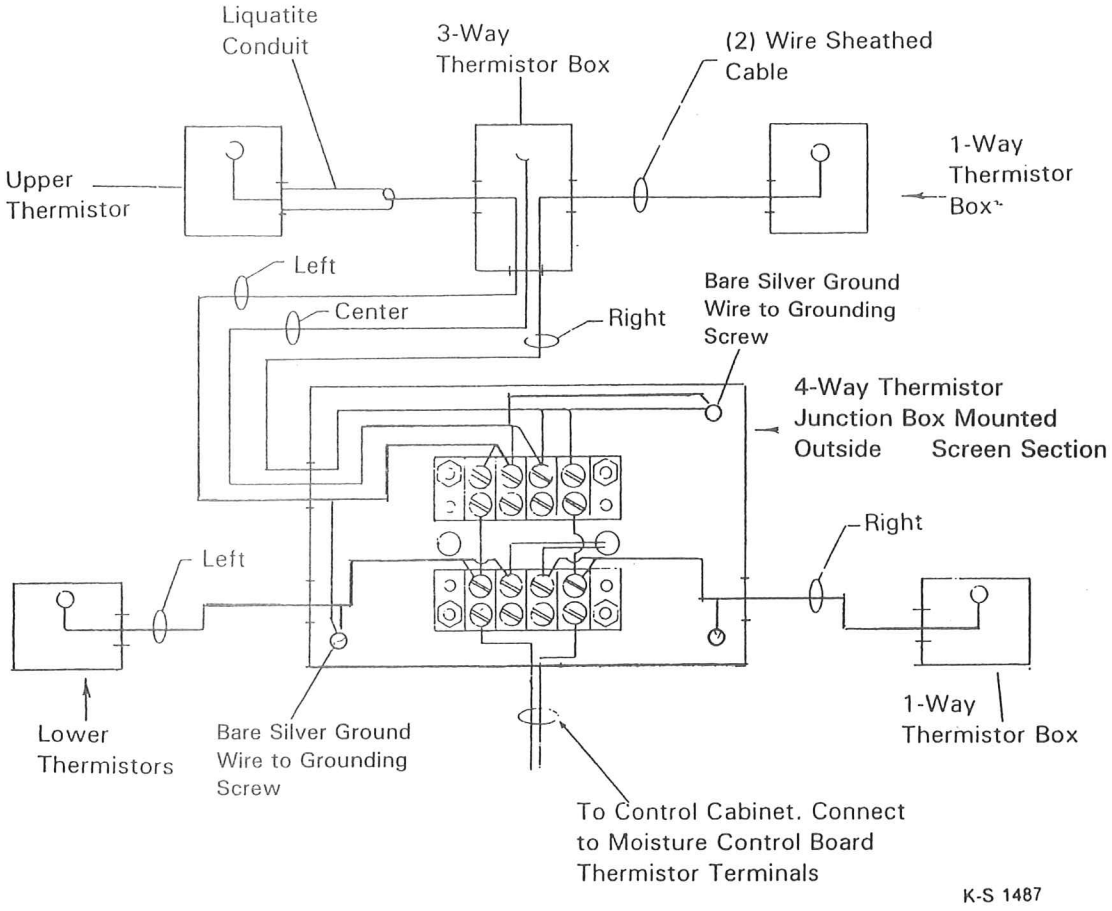
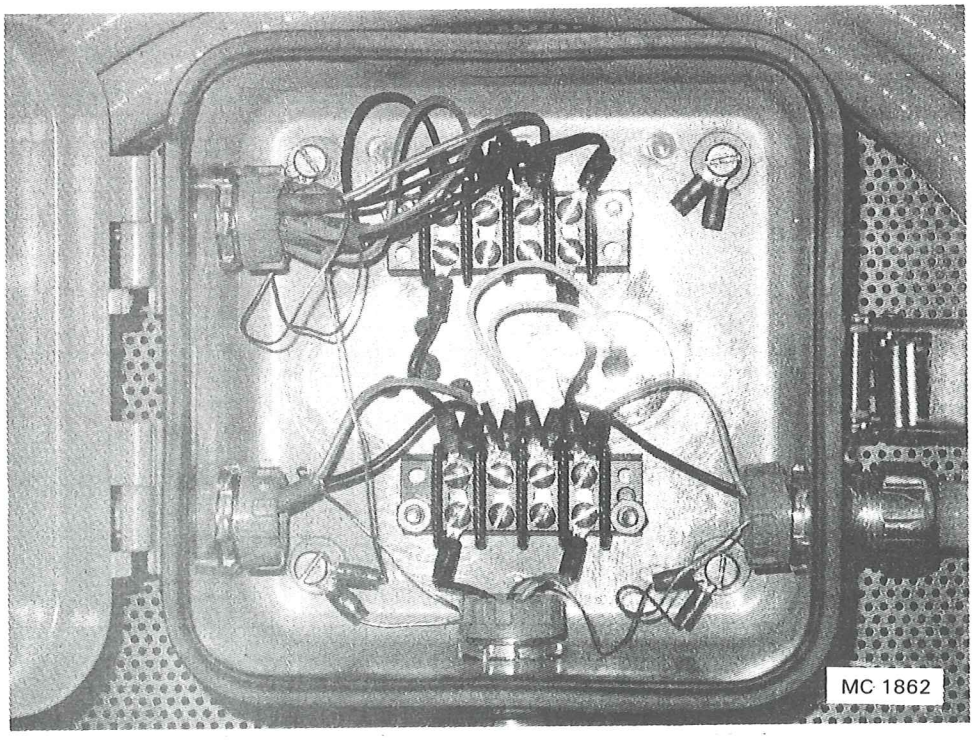
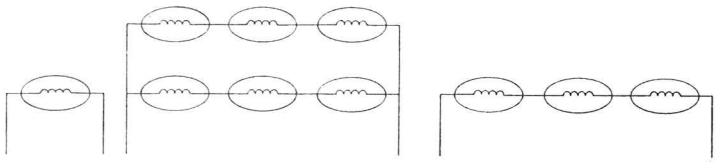
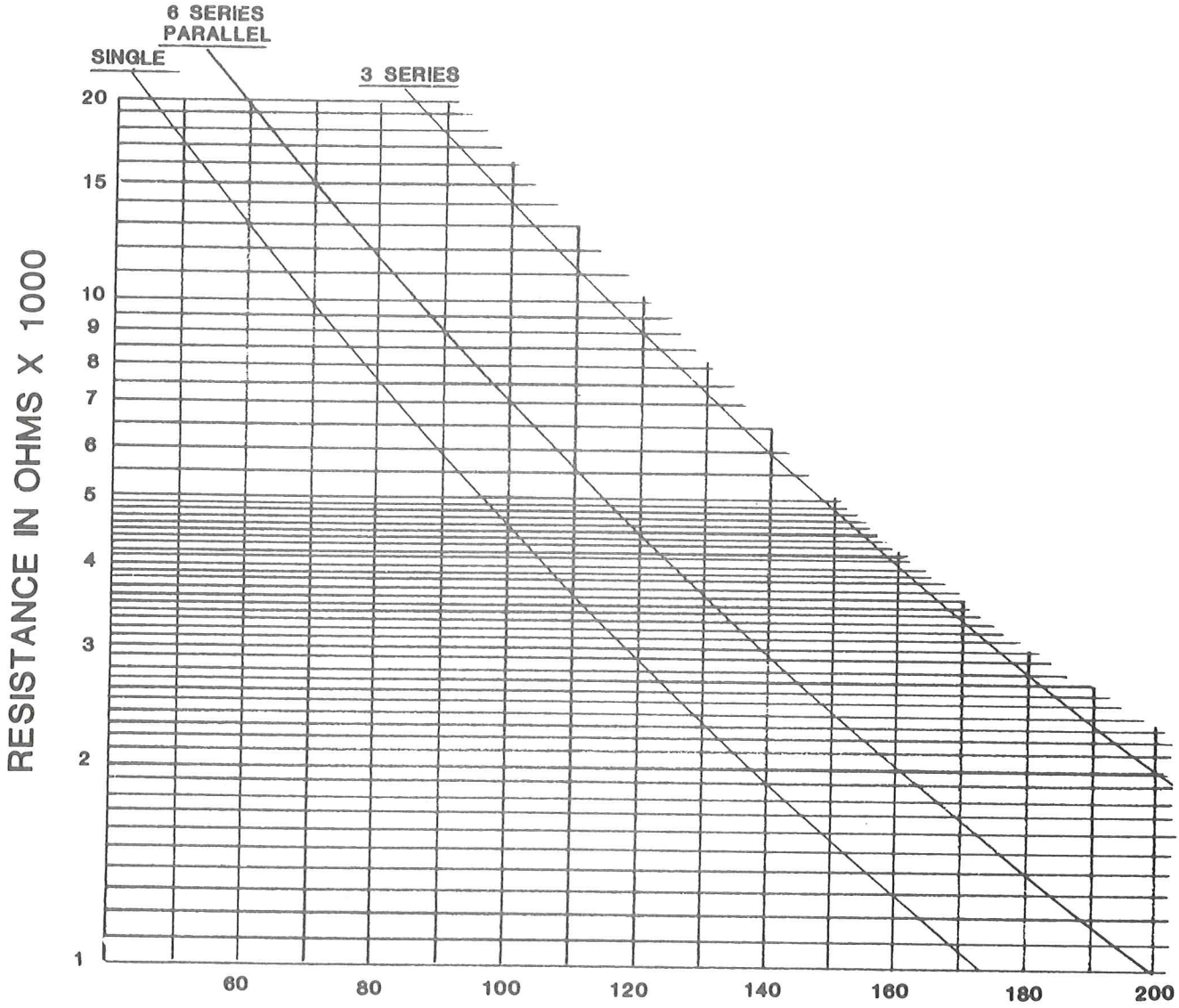


Figure 26



THERMISTOR CHART

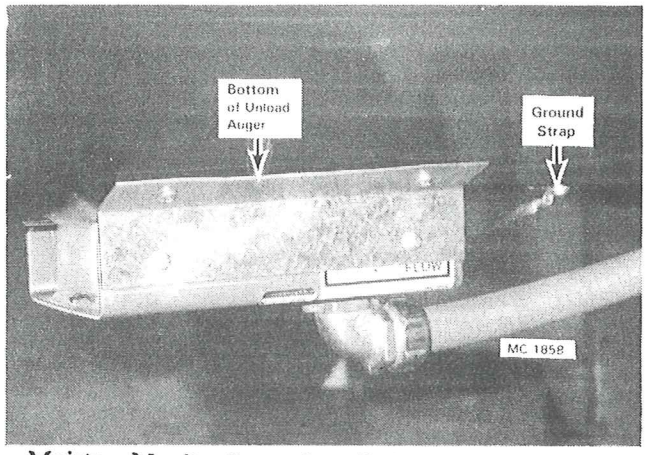




KS1367

Remote Cabinet Moisture Monitor Sensor

1. If the Sensor for the Moisture Monitor was not installed in the bottom of the discharge auger tube at the factory, it should be installed at this time.
2. There is a Cover Plate over the rectangular cutout in the auger tube for the Sensor. Remove the (4) #8 sheet screws and cover plate.
3. Remove tape holding Sensor and flex conduit to discharge auger tube.
4. Attach the (2) Sensor Mount Brackets #1282779 to the sides of the Sensor using (4) #8 sheet screws. Place Sensor into the cutout and attach the sensor mount brackets to the discharge auger tube with #8 sheet screws. See Figure 28.
5. The ground strap attached to the Sensor must be attached to the auger tube with a #8 sheet screw. Check Figure 27.



Moisture Monitor Sensor Installation

Figure 27

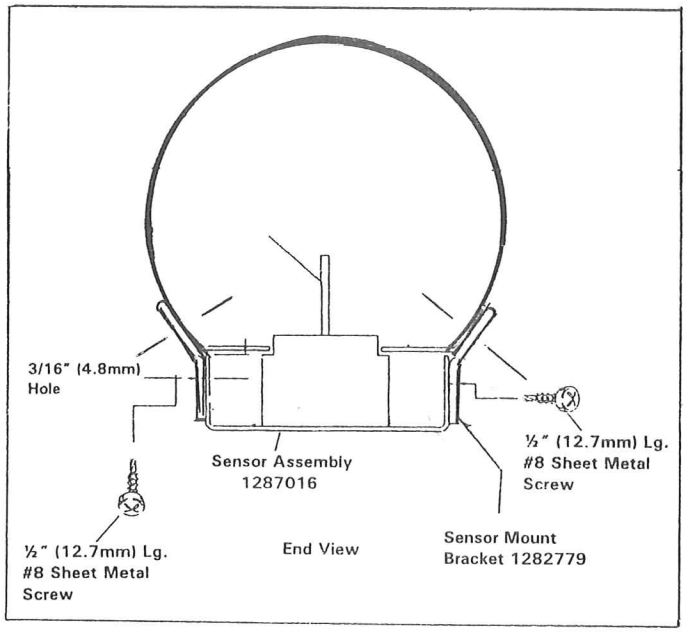


Figure 28 Sensor and Sensor Mounting Brackets

Dryers with Optional Remote Cabinet

1. Loosen 5/16" locknuts holding Remote Cabinet to Shipping Brackets bolted to Crawl Door Frame for shipment. See Figure 29.
2. Attach (2) Remote Cabinet Stands #1280323 to back of remote cabinet. Use (4) 5/16" (7.9mm.) bolts and nuts used to hold cabinet to shipping brackets during delivery. See Figure 31.
3. Position Remote Cabinet in desired location and secure. See Figure 30.

   The standard length of flexible conduit and control wires is 20 ft. (6.1m.). Longer control wires are available at extra cost. Contact factory for details.
4. Remove remote cabinet shipping brackets that are bolted to crawl door frame.

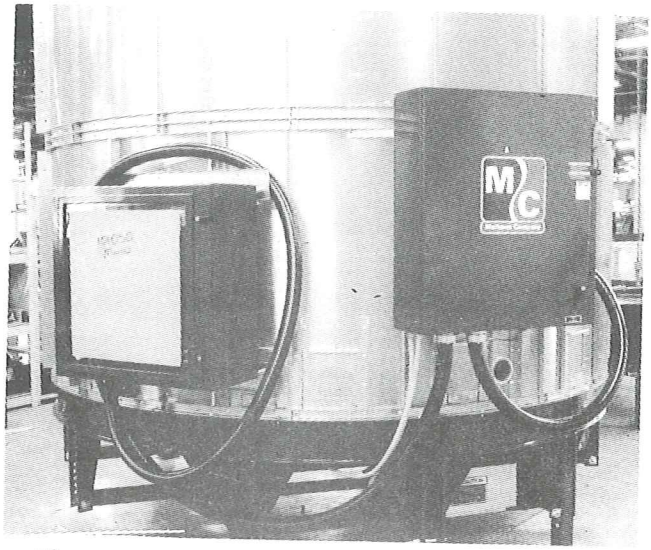


Figure 29 - Remote Cabinet Mounted for Transport Only (101050 shown)

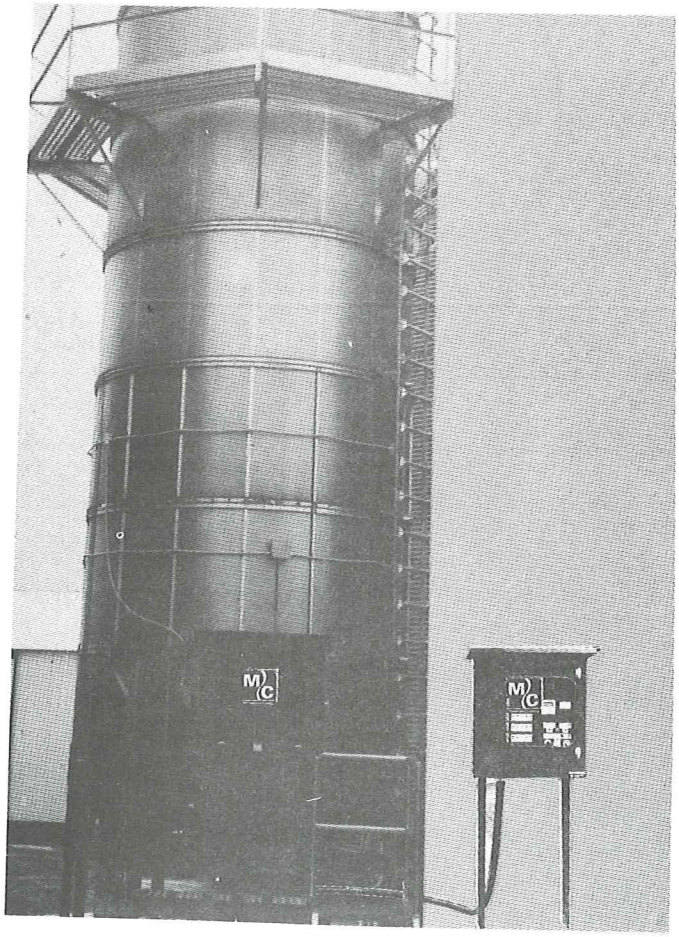


Figure 30 - Remote Cabinet Set-Up with Stands (10730 shown)

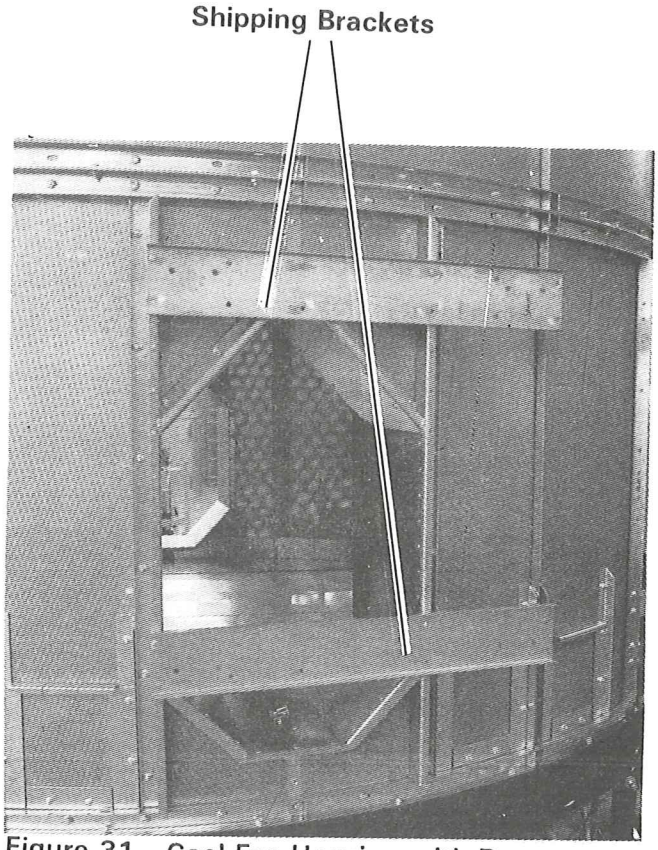


Figure 31 - Cool Fan Housing with Remote Cabinet Transport Brackets

MC 1865

Electric Power Supply

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

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 of the Power Distribution Block in the top left hand corner of the **Standard Control Cabinet.** See page 31 .

   Models equipped with the optional Remote Cabinet Controls will have a Quick Disconnect Switch in the upper right hand corner of the Motor Control Cabinet. See page 32 .

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 or in the Motor Control Cabinet (Remote Cabinet Controls) 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.

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. 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 Check

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

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

Models with Standard Control Cabinet

1. Flip all switches on the control panel to OFF. Make sure that the Low Temp Shutdown Switch is in the START position. Turn on the electric power supply to the control cabinet. The 115V POWER ON light will be on.

2. Flip the Control Circuit Toggle Switch up to the ON position. The control circuit ON light will light if the burner resets are closed, motor starter and AC Discharge Speed Controller overloads are closed, and Unload Auger Overload Door Switch is closed.

3. Push the spring loaded control circuit toggle switch up to the START position and release. The READY light and LEVEL light will be on.

4. With everyone clear of the dryer, push the fan start button and let fan run for (10) seconds. Then push stop button, let fan slow down for (20) seconds and check fan rotation by looking into the cool section crawl door. (Be sure to wear safety glasses.) Fan should be turning **counterclockwise.**

5. If fan rotation is not correct, it can be changed as follows:

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

   Three phase motor - Move the wire from terminal T1 to T3 and T3 to T1 on the fan magnetic starter in the control cabinet. See page 31.

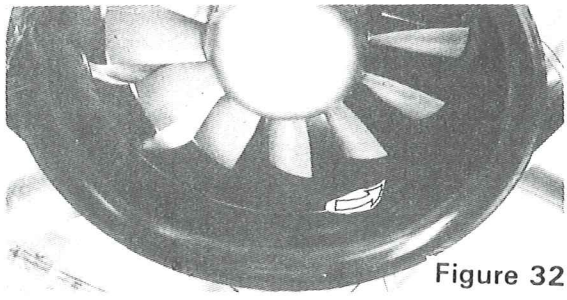


Figure 32

Models with Remote Cabinet Controls (Optional)

1. Turn all selector switches on the Remote Cabinet Inside Control Panel Door to OFF. Make sure that the Low Temp. Shutdown Switch is in the START position. Turn on the electrical power supply to the Motor Control Cabinet.
2. Push the Quick Disconnect Switch Handle on the upper right hand corner of the Motor Control Cabinet up to the ON position.
3. Turn the spring loaded Power On Selector Switch to the ON position. The Power On Light will light if the burner resets, motor starter overloads, and the unload auger overload door switch are closed activating the Main Relay. The High Limit Light will also light if the High Limit Switch is closed. If the (2) lights do not come on, check resets, overloads, door switch, and push high limit reset.
4. With everyone clear of the dryer, push the fan start button and let fan run for (10) seconds. Then push stop button, let fan slow down for (20) seconds and check fan rotation by looking into the cool section crawl door. (Be sure to wear safety glasses.) Fan should be turning **counterclockwise**.
5. If fan rotation is not correct, it can be changed as follows:

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

Three phase motor - Move the wire from terminal T1 to T3 and T3 to T1 on the fan magnetic starter in the control cabinet. See page 31.

If motor is controlled with **Soft Starter**, move the wire from terminal 2T1 to 6T3 and 6T3 to 2T1. Be extremely careful when connecting motor wires to Soft Starter. Only terminals 2T1, 4T2, and 6T3 are to be used or Soft Starter will be damaged and have to be replaced.

STANDARD
CONTROL CABINET 101050 - SINGLE FAN DIRECT START 3Ø 230V

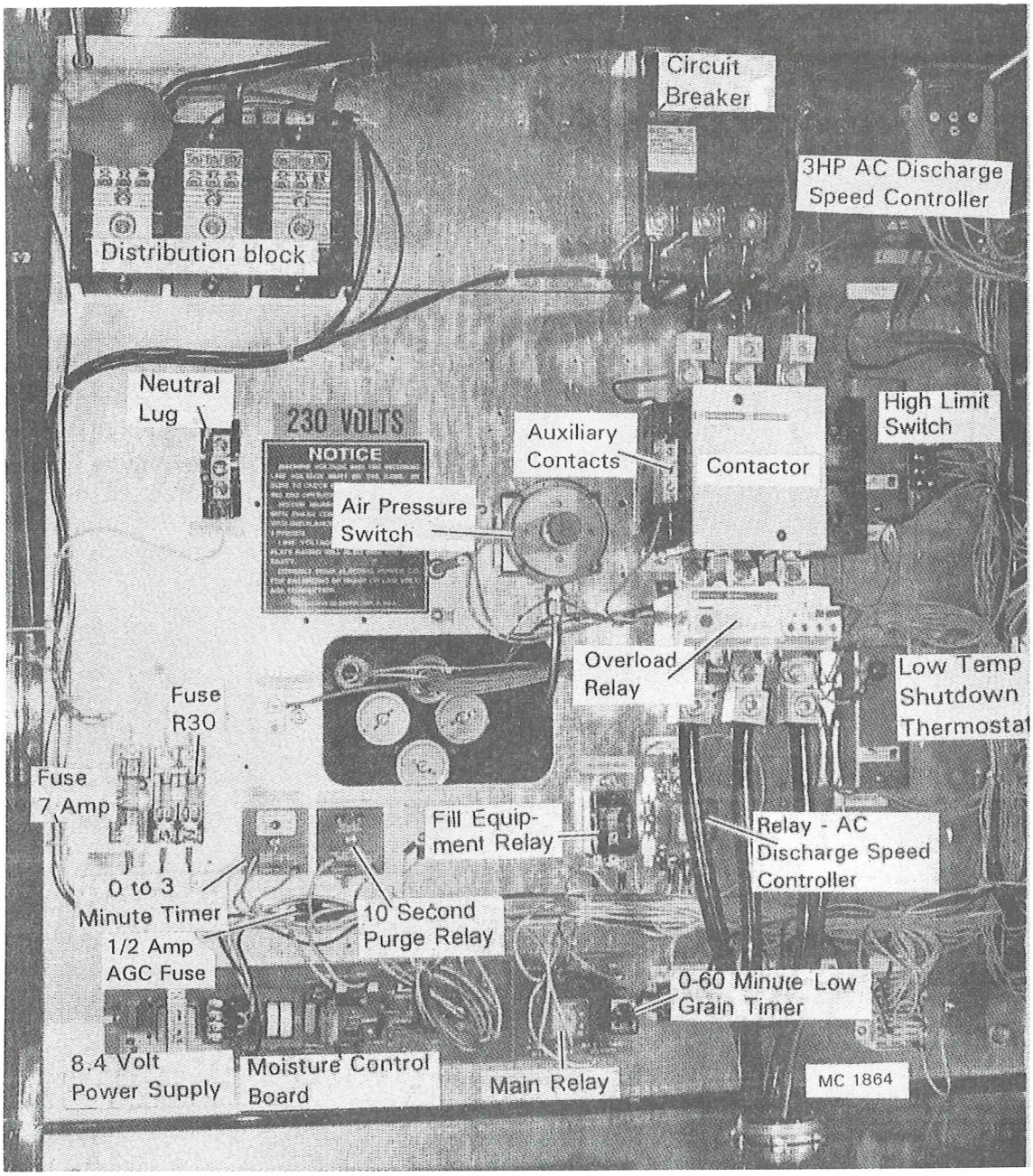


Figure 34

MOTOR CONTROL CABINET 101050 (1) FAN - SOFT START 3Ø 230V W/REMOTE CABINET CONTROLS

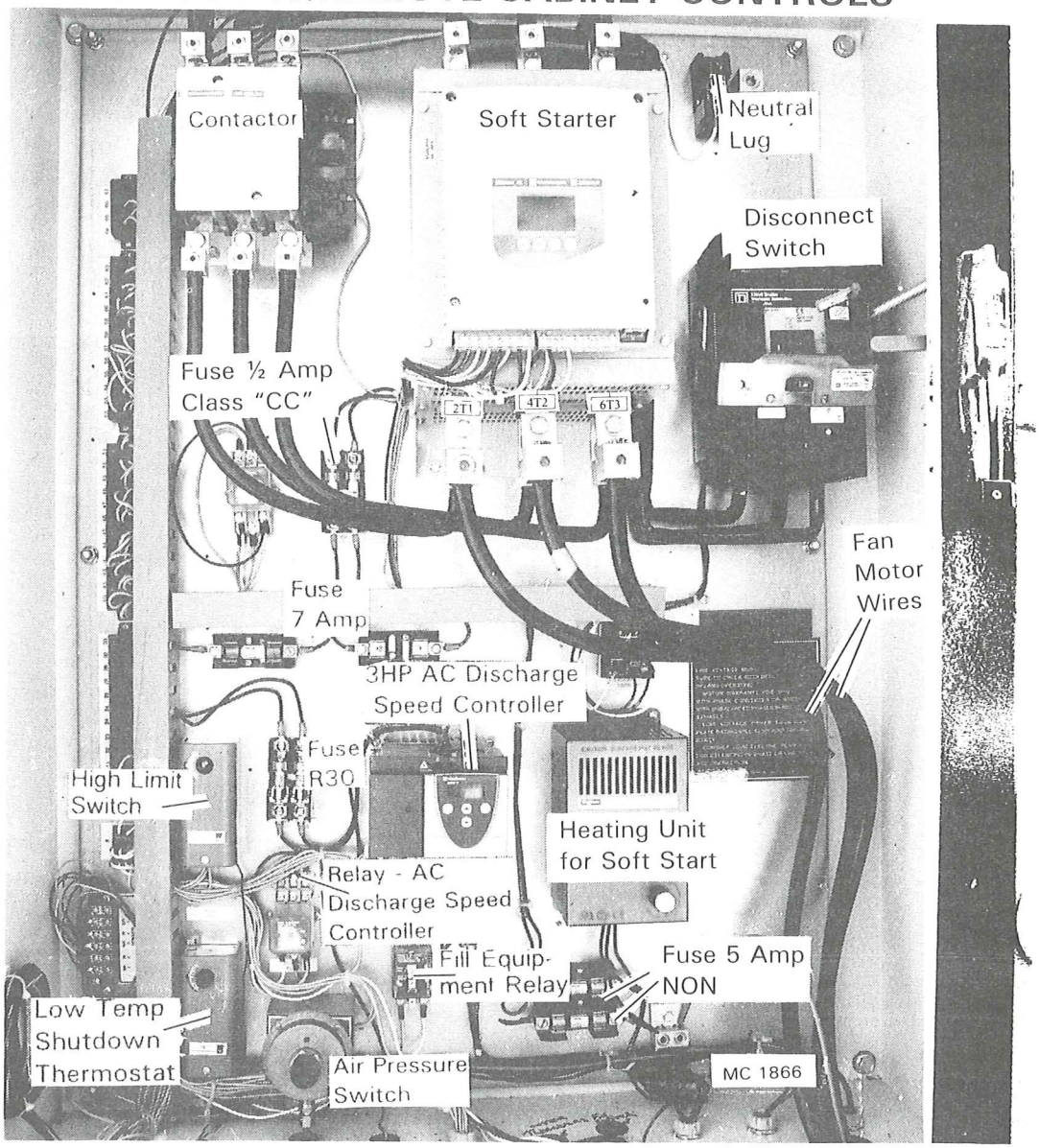
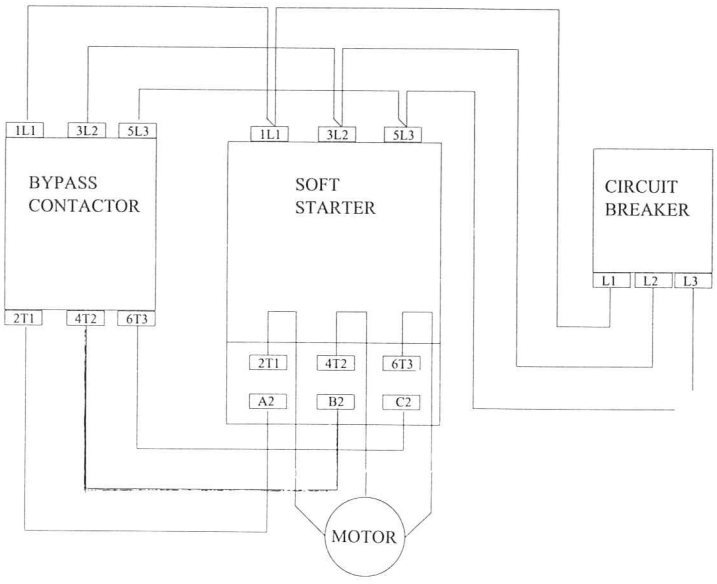


Figure 33



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 psig. (172 to 207 KPa) 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.

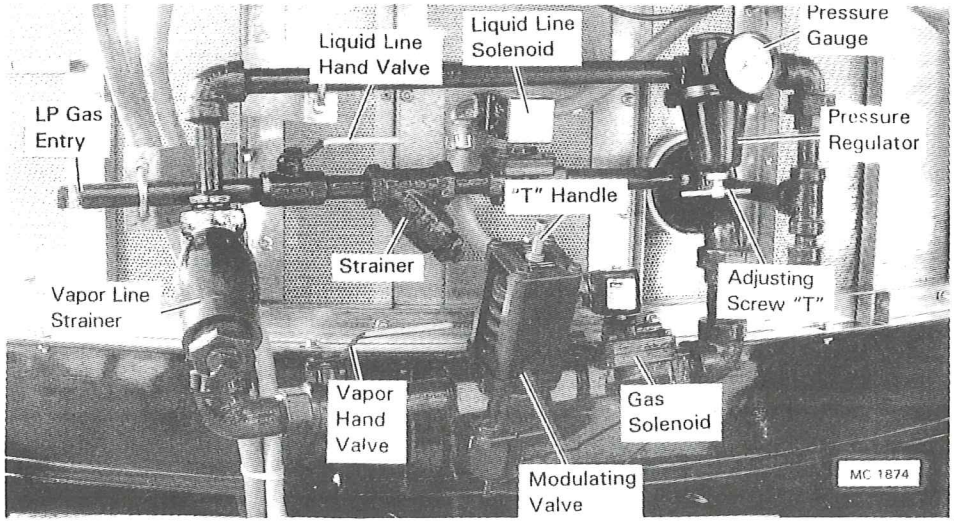
4. Connect the LP gas liquid line from the tank valve to the ¾" extra heavy duty intake pipe below the left side of the Control Cabinet (as you look at cabinet).

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
10520	3,432,000	5,808,000
10630	4,290,000	7,260,000
10730	4,862,000	8,228,000
101050	7,293,000	12,342,000

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



LP Gas Liquid & Vapor Manifolds 10520/10630 & 10730

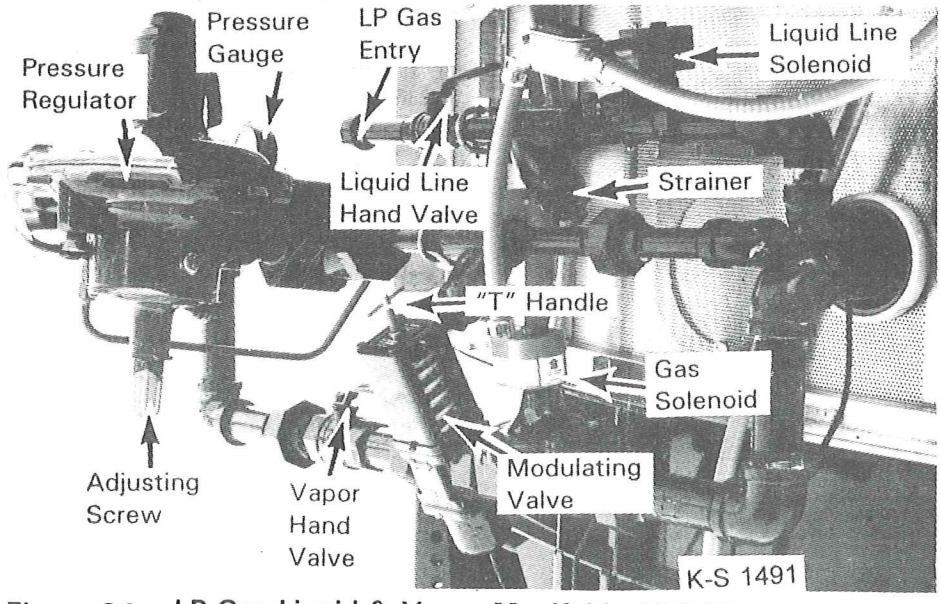


Figure 34 LP Gas Liquid & Vapor Manifolds 101050

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.

NATURAL GAS BURNER CONTROL MANIFOLD

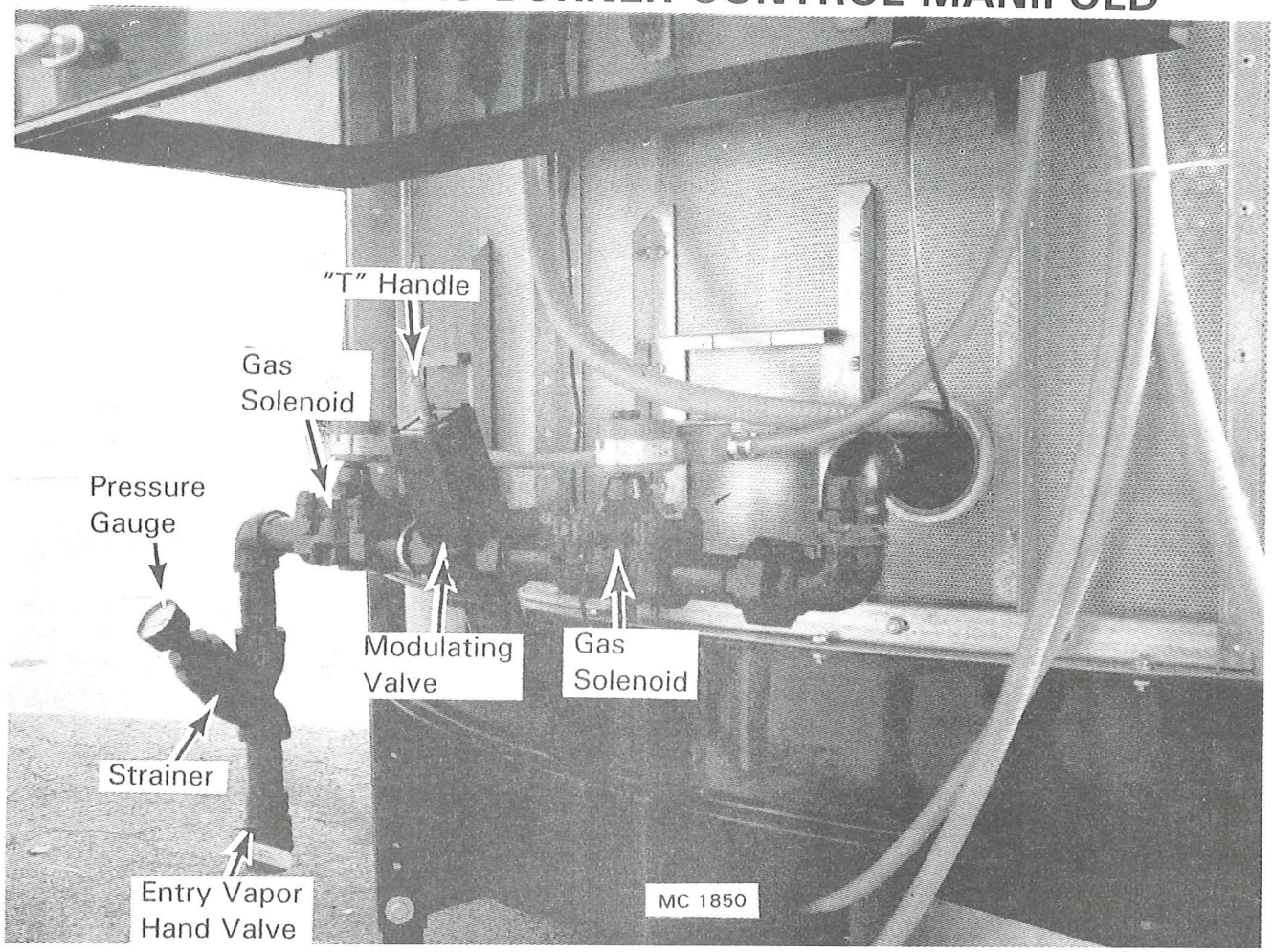
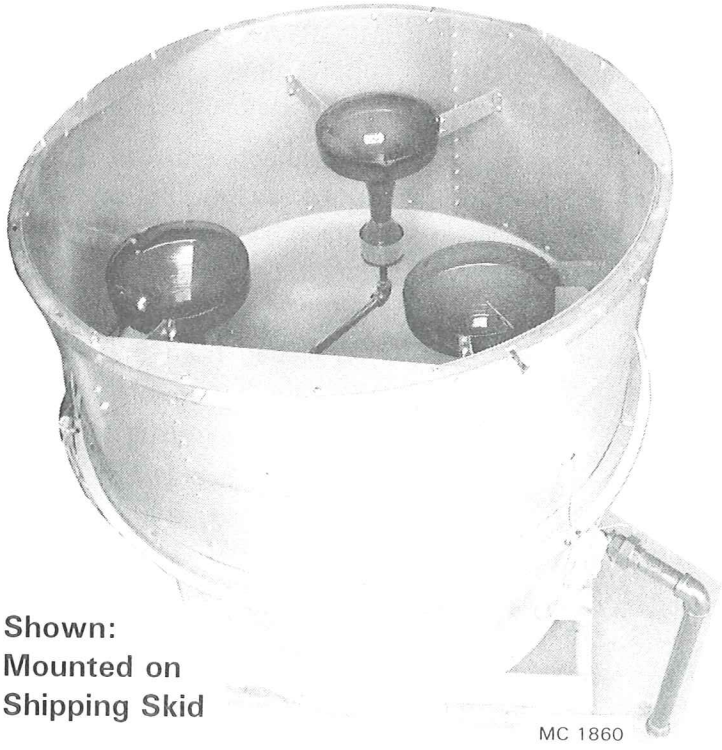
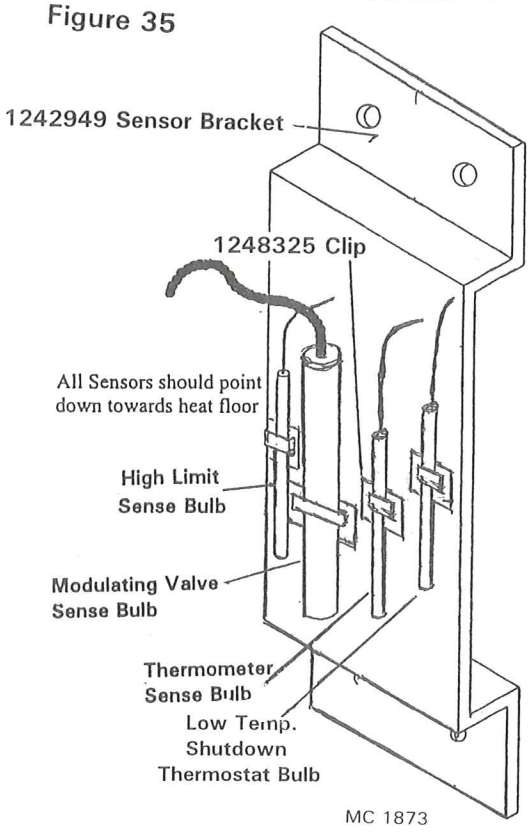


Figure 35

101050 NATURAL GAS BURNER



Shown:
Mounted on
Shipping Skid



Suggested Drying 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
10520, 10630, 10730 & 101050	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 all models 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 (60° to 121°C) standard power element with a 90° to 210°F (32 to 99°C) low temperature power element.

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. Grain dries faster, cheaper, and more uniformly when it is CLEAN. As much trash as possible should be removed from the grain before it is placed into the dryer.

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.

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 empty 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.

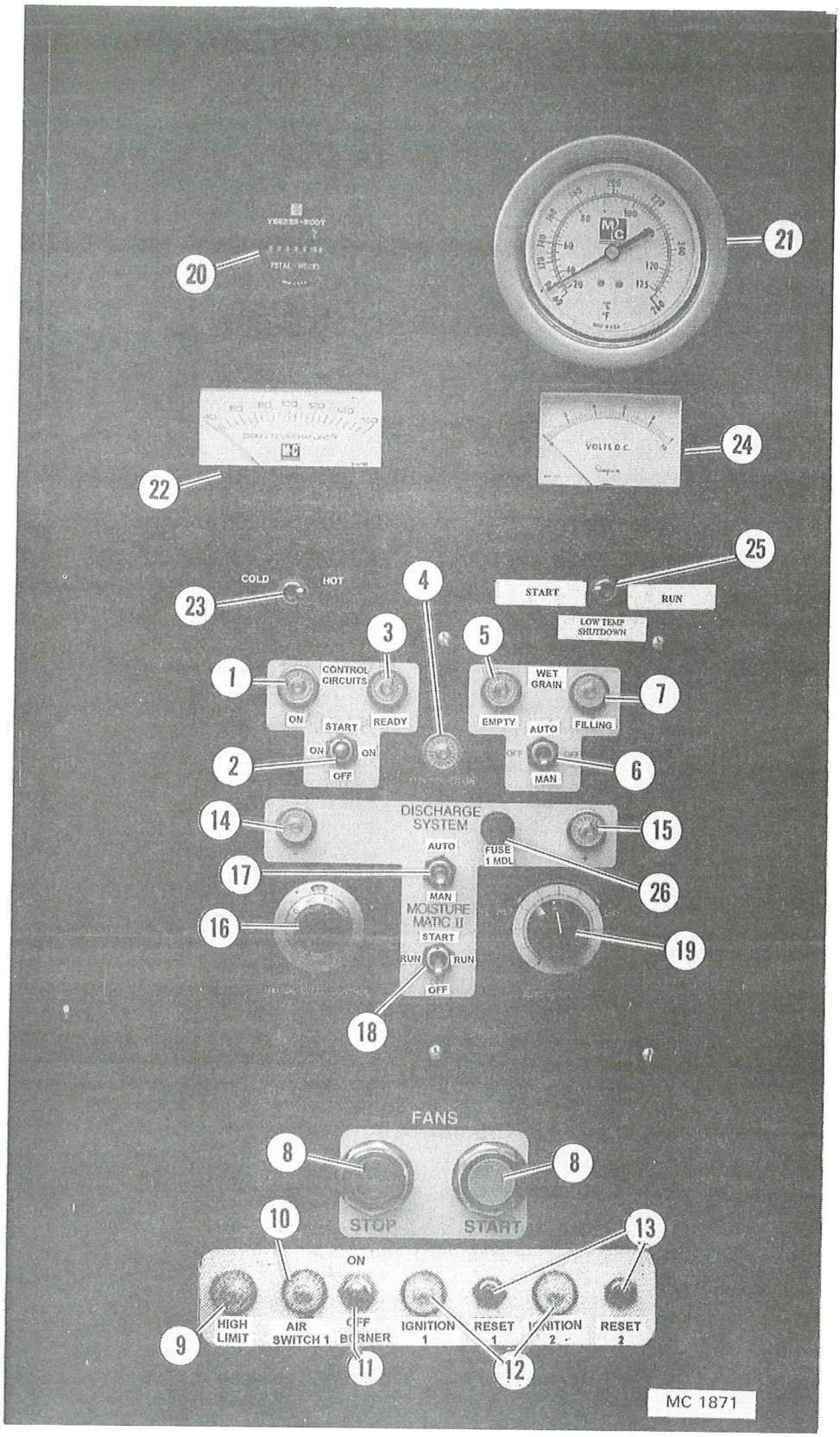


Figure 36 – Standard Cabinet Control Panel - Models 10520, 10630, & 10730

STANDARD CABINET
BUTTONS, DIALS, LIGHTS, METERS, & SWITCHES

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 Light

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 and 2 or 3 (101050)

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 relay circuit for the gas solenoids, and a flame sensing circuit. 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.

The #2 Ignition Light for a 101050 indicates that Ignition Board #2 is providing high voltage for burner #2 ignition, a flame sensing circuit, and a power circuit for Ignition Board #3.

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 (2) or (3) 101050 ignition boards are connected in series, if (1) "locks out" the other will lock out closing the gas solenoid valves and ignition lights will be out.

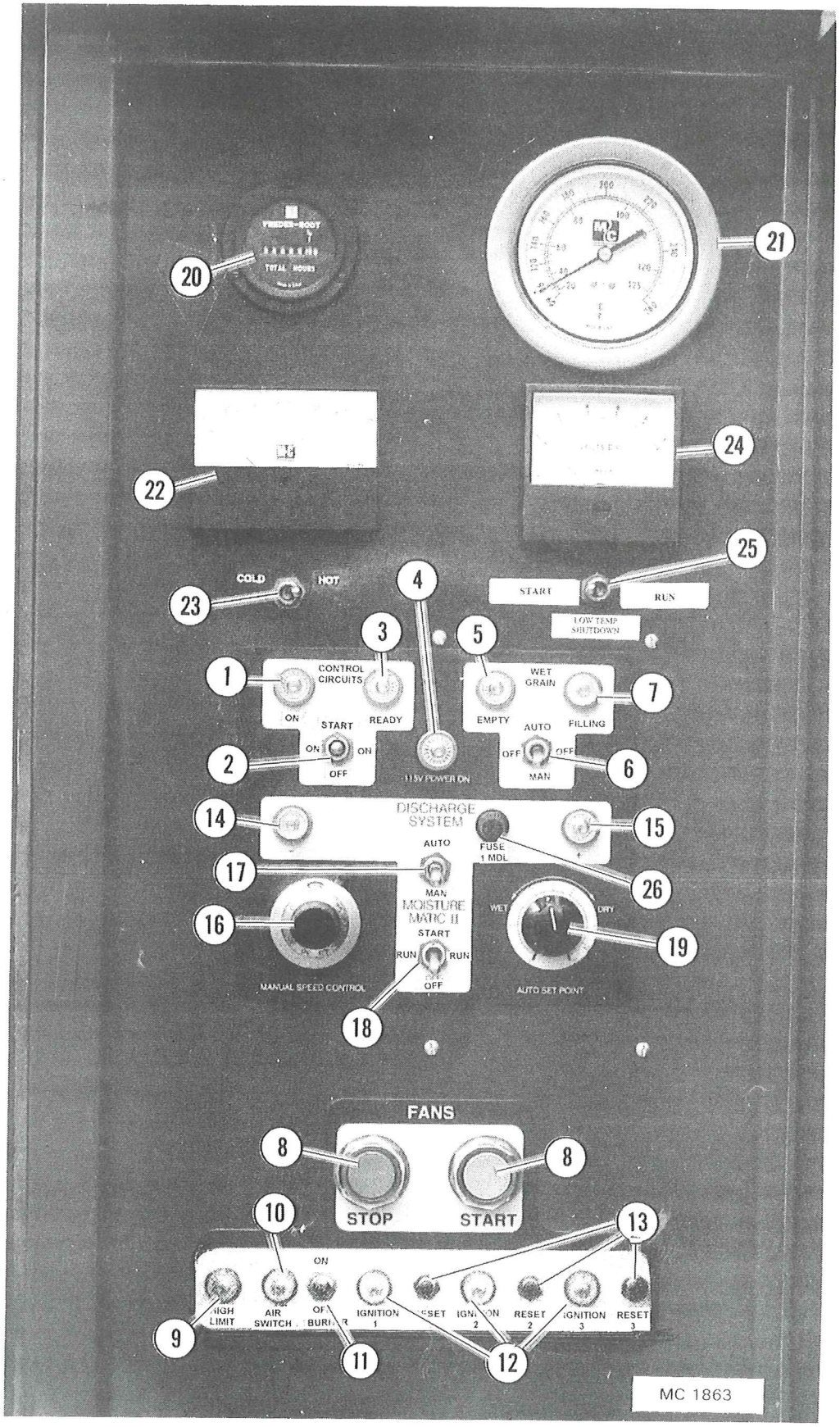


Figure 37 – **Standard Cabinet Control Panel - Model 101050**

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 – Decrease Light (–)

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

Ref. 15 – Increase 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 - Heat Chamber Thermometer

Indicates the temperature inside the heat chamber.

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 - 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.

Ref. 24 - Discharge Speed Meter

Indicates the speed of the discharge system.

Ref. 25 – Low Temperature Shutdown Switch – Start/Run

Activates thermostat that monitors air temperature in Heat Chamber. When temperature drops below setting on thermostat, dryer shuts down. Always start dryer with switch in the START position.

Ref. 26 – 1 Amp Fuse and Holder for Moisture Control Board

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%.

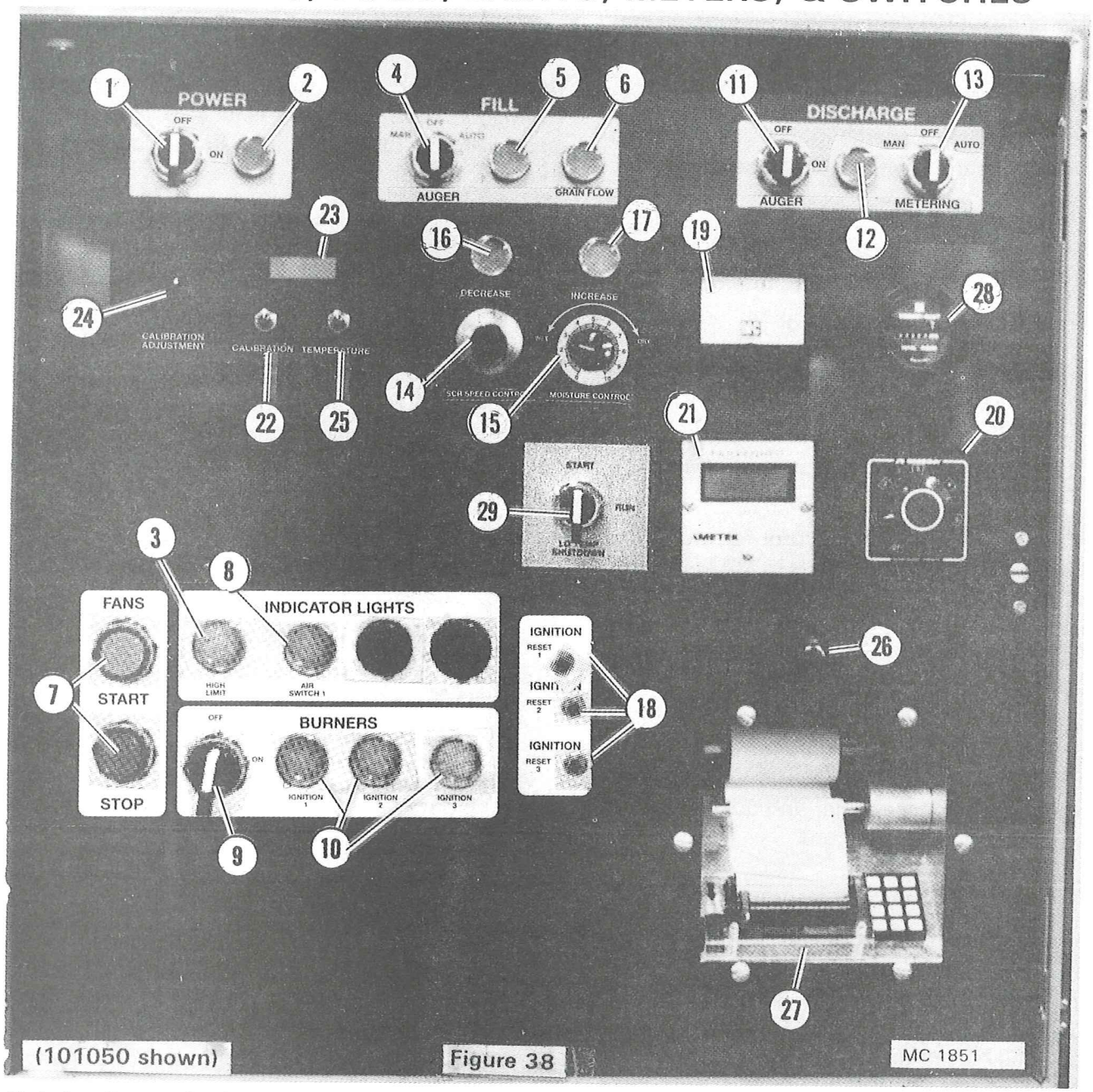
Trash in grain reduces the drying rate and may cause uneven drying and flow patterns.

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 42 .

OPTIONAL REMOTE CABINET
BUTTONS, DIALS, LIGHTS, METERS, & SWITCHES



(101050 shown) Figure 38 MC 1851

Ref. 1 – Power On Switch

When this spring loaded switch is turned to the ON position, the power on light will be on if the rear discharge overload door is closed, all magnetic starter overload relay blocks are closed, and the relay is activated. High limit lights will also be on. If not, push the reset button on the high limit switch.

NOTE: If there is a momentary loss of electricity, the dryer will shut down and the dryer will have to be restarted by turning power on switch to the ON position again.

Ref. 2 – Power On Light

Indicates power on switch has been turned on, discharge overload door and starter overloads are closed, and dryer relay is activated.

Ref. 3 – High Limit Light

Indicates power switch has been turned on and high limit switch is closed.

Ref. 4 – Wet Grain Fill Switch

When switch is in the MANUAL position, the wet hopper fill equipment will start immediately

when the rotary FILL switch in the hopper signals for grain and stops when the hopper is full.

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

Ref. 5 – Fill Light

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

Ref. 6 – Grain Flow Light

Indicates low grain level in wet hopper. Light comes on when Grain Flow Timer reaches zero and dryer is shut down.

Ref. 7 – Fan Start-Stop Buttons

Green Button starts and Red Button stops the fan.

Ref. 8 – Air Pressure Light

Indicates that the air pressure switch is closed, the fan motor magnetic starter is engaged, and the dryer is full of grain.

Ref. 9 – Burner Switch

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

Ref. 10 – Ignition Lights 1, 2, or 3 (101050)

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 the ignition board for burner #2 is providing high voltage for ignition and a flame sensing circuit for burner #2 plus a relay circuit for the gas solenoid valves on models 10520, 10630, and 10730. On a model 101050 #2 board provides power to #3 ignition board instead of to gas solenoid valves.

Ignition Light (3) indicates ignition board #3 is providing high voltage for ignition and a flame sensing circuit for burner #3 plus a relay circuit for the gas solenoid valves.

As the (2) or (3) ignition boards are connected in series, if (1) locks out, the others will lock out de-energizing the gas solenoid valves and ignition lights.

Ref. 11 – Discharge (Unload) Auger Switch

Turn this spring loaded switch to the ON position to start discharge auger. If there is a momentary loss of electricity, the dryer will shut down and the dryer will have to be restarted.

If the discharge auger was operating when the dryer shut down, the Discharge Switch will have to be turned to the ON position again to start the auger.

Ref. 12 – Discharge Auger Light

Indicates that the discharge sweep and auger are operating.

Ref. 13 – Discharge Metering Switch

When the switch is turned to the MANUAL position, the AC drive motor will run constantly and the speed of the sweep and discharge auger will be controlled by the Manual Drive Speed Control Dial.

When this switch is in the AUTOMATIC position, the Moisture Control Board will speed up or slow down the AC motor automatically.

Ref. 14 – Manual AC Drive Speed Control

This manual speed control is used to adjust the speed of the AC motor that drives the grain sweep and discharge auger and changes discharge speed when discharge metering switch (Ref. 13) is in the MANUAL POSITION only. Be sure to disengage lock before turning dial.

Ref. 15 – Moisture Control Balance Dial

This balance dial is used to equalize the Moisture Control Decrease and Increase Indicator Lights before turning the discharge metering switch to AUTOMATIC.

Once in AUTOMATIC the dial is used to make small adjustments in the moisture content of the discharged grain.

Ref. 16 – Moisture Control Decrease Light

Indicates that the discharge rate is decreasing if Moisture Control is in AUTOMATIC.

Ref. 17 – Moisture Control Increase Light

Indicates that the discharge rate is increasing if Moisture Control is in AUTOMATIC.

Ref. 18 – 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. 19 – Discharge Meter

Indicates the rate of discharge when discharge metering switch is in the MANUAL or AUTOMATIC position.

Ref. 20 – Selector Switch

This switch is used to select the heat chamber temperature (1) that will appear on the Digital Thermometer Display Window.

Ref. 21 – Digital Thermometer

This thermometer is an electronic system that provides a remote temperature readout of the heat chamber at the dryer Control Cabinet. Just turn the Selector Switch (20) to the heat chamber number (1) and the temperature will appear on the Digital Thermometer Display Window.

Ref. 22 – Calibration Display Button

Push button to display amount added or subtracted (–9.9 to +9.9) from the discharge grain moisture shown on the digital display meter (23).

Ref. 23 – Digital Display Meter

Displays discharge grain moisture constantly, grain temperature and calibration setting when respective display button is pushed.

Ref. 24 – Calibration Adjustment Dial

Turn dial to change calibration.

Ref. 25 – Temperature Display Button

Push button to display temperature of grain moving over Sensor.

Ref. 26 – Printer ON/OFF Switch

Turns printer on or off.

Ref. 27 – Printer

Provides printed record of time, day, discharge grain moisture, temperature, and average moisture content.

Ref. 28 – Hour Meter

Records hours of dryer operation.

Ref. 29 – Low Temp Shutdown Switch-Start/Run

Activates thermostat that monitors air temperature in heat chamber. When temperature drops below setting on thermostat, dryer shuts down. Always start dryer with switch in the START position.

Suggested Drying 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
10520, 10630, 10730 & 101050	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.

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.**

Moisture Monitor and Printer

As soon as electric power is supplied to dryer, the Moisture Monitor and Printer will be activated. The Printer is equipped with an on and off switch to control its operation.

Moisture Monitor Instructions

A. The Digital Display Meter shows grain moisture constantly and should read approximately 6% when Sensor is in open air (no grain passing over Sensor), see Figure 39.

B. Push Grain Temperature Button and the display meter will show Temperature of Grain on the sensor, see Figure 39.

C. Push Calibration Button and the display meter will show the amount added to or subtracted from the displayed moisture (–9.9 to +9.9), see Figure 39.

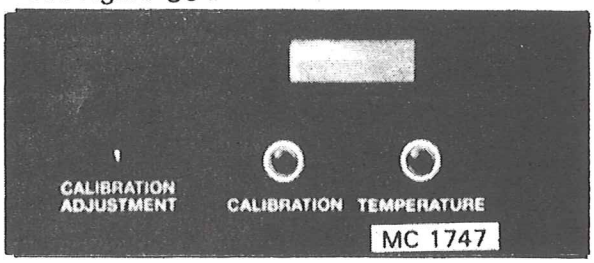


Figure 39

D. The Moisture Monitor may need to be calibrated to compensate for different grains and sensor configurations. Make sure that the calibration is set at zero before comparing the displayed moisture values with the samples tested with a reliable moisture tester. See Figure 40, Moisture Monitor Sampling Chart.

1. If the displayed moisture value is less than from a moisture tester, push the "Display Calibration" and turn the calibration knob to display the actual difference (+ Value).
2. If the displayed moisture value is more than from the moisture tester value, push the "Display Calibration" and turn the calibration knob to display the actual difference with a minus sign (– Value).

CAUTION: Use a safe sampling procedure. Do not sample from a hopper with an unguarded auger. Keep hands, feet and clothing away from rotating parts.

3. The following sampling guidelines are recommended:

   a. Take samples when the displayed moisture values are not changing rapidlly.

   b. Observe the moisture display when the sample is taken. Record both the displayed values and tested values for at least six (6) samples and take the average of each.

   c. Take samples from the Grain Sampler located on the left side of the Unload (Discharge) Auger Box, see Figure 53,

Question: Where would you set the moisture offset, +0.3 or 0.6?
Answer: Most would want to set it to +0.3 which would make it match the point of sale's moisture reading.

Moisture Monitor Sampling

The chart shows grain moisture readings (from a real situation) as they should be taken to obtain a realistic moisture value.

Time	M-C Monitor		Dole		Elevator
	Temp.	Moisture	Temp.	Corrected Moisture	Moisture
9:33AM	112	14.4%	109	14.7%	
9:36AM	112	14.4%	111	14.4%	
9:38AM	108	16.0%	107	17.5%	
9:40AM	110	14.6%	109	14.7%	
9:43AM	108	15.9%	104	17.3%	
9:50AM	111	14.5%	107	15.0%	
Total		89.8%		93.6%	
Average		15.0%		15.6%	15.3%

Figure 40

Printer

The printer provides a printed record of:

1. Time.
2. Mode.
3. Grain Discharge Moisture.
4. Grain Discharge Temperature.
5. Ambient Temperature from Weather Station.
6. Average Discharge Moisture.
7. Relative Humidity from Weather Station.
8. Calibration (Moisture Offset).
9. Bin # that is being filled with dry grain.

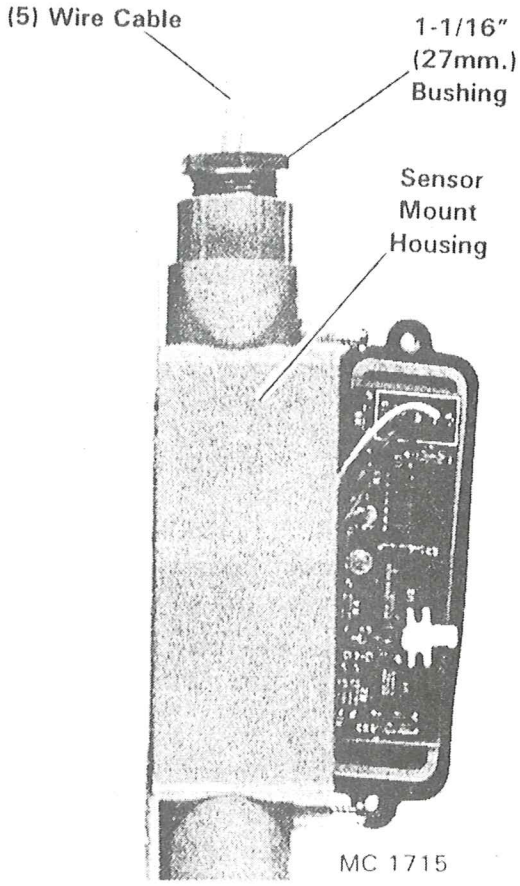


Figure 41 – Weather Sensor

A Weather Sensor is supplied with the Printer but must be installed by customer when dryer installation is completed, see Figure 41.

The Weather Sensor is not required for the proper operation of the Monitor or Printer.

It is recommended that the Sensor be located about (20) ft. (6.1m.) from the heat and humidity of the dryer.

There are (5) colored wires connected to the Weather Sensor Circuit Board that will have to be connected to the (36) Pin Black Connector (Number Side) that is attached to the top of the Monitor and Printer Interface Board Holder in the Control Cabinet. The (5) wires are:

White to terminal 11,
Black to terminal 10,
Brown to terminal 9,
Green to terminal 8, and
Red to terminal 7.

If the Remote Cabinet is a sufficient distance from the heat and humidity produced by the dryer, the Weather Sensor can be mounted to the outside bottom of the Remote Cabinet.

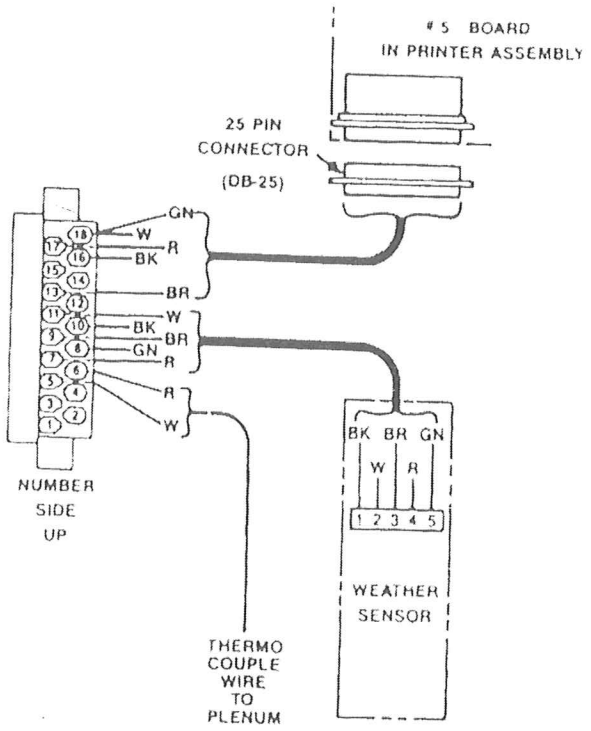


Figure 42

A 1-3/32" (27.8mm.) diameter hole will have to be drilled in the bottom of the Remote Cabinet. The special 1-1/16" (27mm.) threaded bushing is then placed into the hole with the thread end to the bottom.

The (5) wire cable from the Sensor Board is pulled up through the bushing and the Mount Housing is secured to the bottom of the cabinet by turning the bushing into the mount housing until tight. Now place the (5) wires listed above into their correct terminals and tighten, see Figure 42.

If the Remote Cabinet is located too close to the dryer, a location away from the dryer is recommended (about 20 ft. (6.1m.) if possible. Once a suitable location is selected, secure the Weather Sensor Mount Housing.

A length of (5) wire cable will probably have to be spliced and soldered to the 8 ft. (2.44m.) cable supplied with the Weather Sensor to reach the distance selected from the dryer. Be sure to allow 36" (92cm.) from the bottom of the remote cabinet to the (36) Pin Black Connector at the top inside of the cabinet. See Figure 42.

The (5) wire cable should be placed into a separate 3/8" (9.5mm.) flexible liquatite conduit or a 1/2" (12.7mm.) metal conduit from Sensor Mount Housing to the bottom of the Control Cabinet. No high voltage (115V) wires are to be placed in same conduit as the (5) low voltage Sensor wires.

PRINTER DEFINITIONS

Printer Module and Printout

A "COLD START" OCCURS WHEN BATTERIES ARE NOT INSTALLED OR ARE WEAK AND NEED REPLACING (APPROXIMATELY EVERY 2 YEARS).

THIS DATA NEEDS TO BE ENTERED FOR OPERATION.

IF ENTRY IS NOT ACCEPTED THE QUESTION IS REPEATED.
ACCEPTABLE NUMBER INPUTS ARE:

MM	=	MONTH	01 THRU 12
DD	=	DAY	01 THRU 31
YY	=	YEAR	00 THRU 99
HH	=	HOUR	01 THRU 12
MM	=	MINUTE	01 THRU 60

PRINTS OUT YOUR ENTERED INFORMATION.

AUTOMATICALLY SET AT FIVE MINUTES. CAN BE SET FROM TWO MINUTES THRU 30 MINUTES.

AUTOMATICALLY SET AT "1", CAN BE NUMBERED UP TO 999.

```
COLD START - CHECK BATTERIES
ENTER THE DATE      MMDDYY
DAY? - SUN=1 M=2 T=3 W=4 T=5 F=6 SAT=7
ENTER THE TIME     HHMM (12 HR FORMAT)
ENTER 0 FOR AM OR 1 FOR PM
DATE THURSDAY 08-17-89     TIME  08:36A
ENTER 0 TO CHANGE OR # TO ACCEPT
CURRENT INTERVAL IS    5 MINUTES
ENTER 2-DIGITS OR # TO ACCEPT
CURRENT BIN IS #    1
ENTER 3 DIGIT NUMBER OR # TO ACCEPT
```

PRINTER DEFINITIONS (continued)

MENU IS PRINTED WHEN ANY KEY IS PUSHED.

DATA ENTERED AT COLD START. BATTERY BACKUP, EVEN WITH POWER LOSS.

ENTER IF OTHER GRAIN IS RUN:
- "1" - CORN
- "2" - MILO
- "3" - RICE
- "4" - WHEAT
- "5" - SOYBEANS
- "6" - SUNFLOWER
- "7" - OTHER

```
GRAIN TYPE? - CORN=1  MILO=2  RICE=3
WHEAT=4 SOYBEAN=5 SUNFLOWER=6 OTHER=7

DATE THURSDAY 08-17-89     TIME 08:54A
1 TO BEGIN PERIODIC READOUT
2 TO CHANGE PRINT INTERVAL--NOW  5 MIN.
3 TO AVERAGE---BEGAN 08-17-89 AT 08:36A
4 TO CHANGE BIN NUMBER--NOW     1
5 TO CORRECT DATE/TIME
6 TO CHANGE GRAIN TYPE--NOW     CORN
```

FROM WEATHER STATION INPUT AT TIME OF PRINTING. READS "0" WHEN NOT HOOKED UP.

HEADER ALWAYS PRINTED AFTER MENU, EVERY TWO HOURS OF RUNNING TIME, MOISTURE LIMIT CHANGE, AND MOISTURE OFFSET CHANGE.

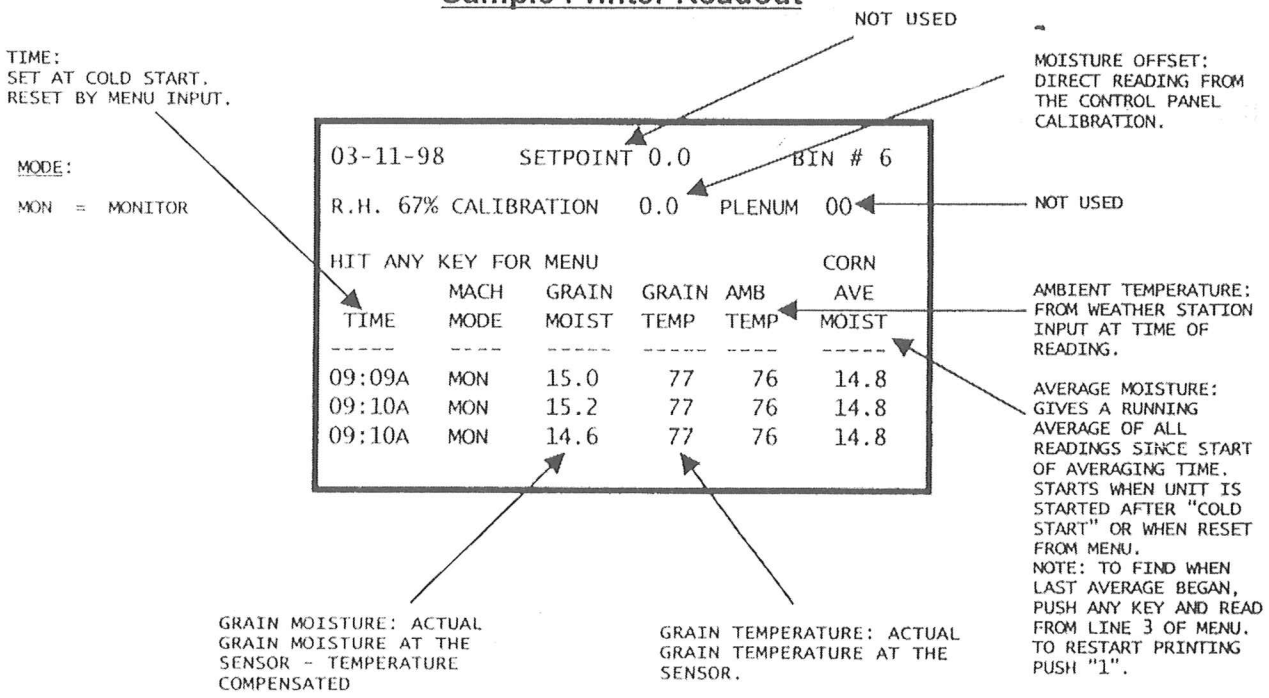
ANY TIME YOU WANT TO GO TO THE MENU, HIT ANY KEY ON THE KEYBOARD. THIS WILL INTERRUPT THE PRINTING AND PRINT THE MENU.

NOTE: AFTER YOU ARE FINISHED USING THE MENU, PRESS "1" TO AGAIN BEGIN THE READOUT. THIS WILL NOT AFFECT THE AVERAGING, UNLESS YOU HAD RESET THE AVERAGING.

```
R.H. 67% CALIBRATION    0.0    PLENUM  00

HIT ANY KEY FOR MENU                    CORN
          MACH    GRAIN  GRAIN  AMB      AVE
 TIME     MODE    MOIST  TEMP   TEMP    MOIST
 -----    ----    -----  -----  ----    -----
09:09A    MON     15.0     77     76     14.8
09:10A    MON     15.2     77     76     14.8
09:10A    MON     14.6     77     76     14.8
```

Sample Printer Readout



NOTE: Replace batteries every year, use two "AA" alkaline batteries. Turn off power to the unit, replace the batteries, then turn on power and reprogram if "Cold Start" notation is printed.

PRINTER ASSEMBLY

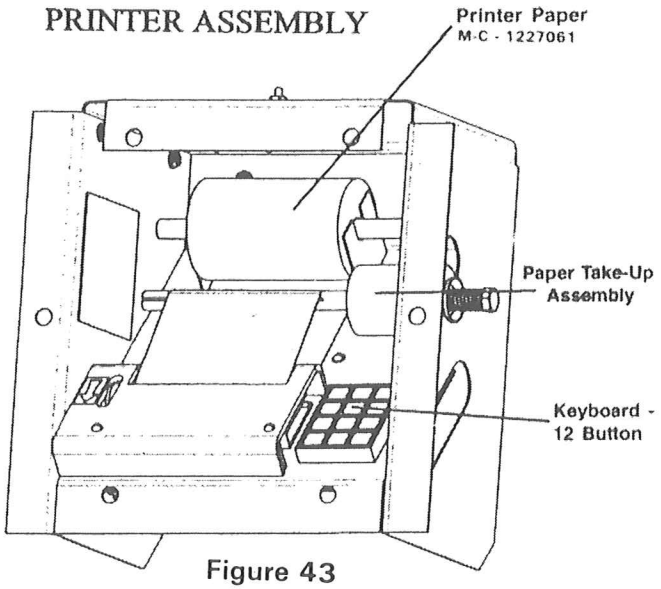


Figure 43

DIP SWITCH SETTING ON MONITOR BOARD

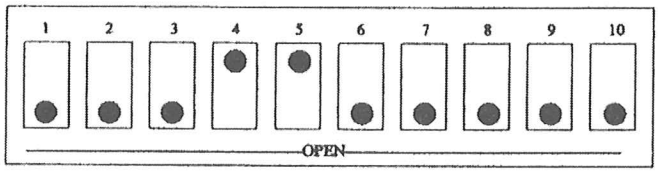


Figure 44

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 chamber before filling the dryer with grain.

1. Flip all toggle switches or rotary switches (Remote Cabinet) 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 45) 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 (Figure 47), 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 42)

4A. **Be sure to place Low Temp Shutdown Switch into the START position.**

5. Turn the LP liquid line hand valve on (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. Standard Cabinet
   Turn on electric power to cabinet. The 115V ON light will light.
   Remote Cabinet Controls
   Push Disconnect Switch on Motor Control Cabinet up to the ON position.
7. Standard Cabinet
   Flip the Control Circuit Toggle Switch ON. The control circuit ON light and high limit light will light, see Figure 46. If the high limit light is not on, turn off power to control cabinet before attempting to reset the high limit switch.
   Remote Cabinet Controls
   Turn the spring loaded Power On Switch clockwise all the way and release. The Power On Light and the High Limit Light will light.
8. Standard Cabinet Only.
   Push the spring loaded control circuit toggle switch up to the START position and release. The READY light will light.

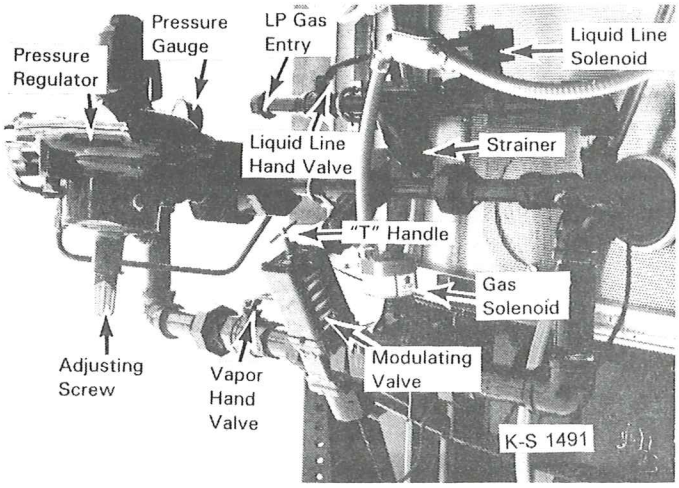


Figure 45 - LP Gas Manifold 101050

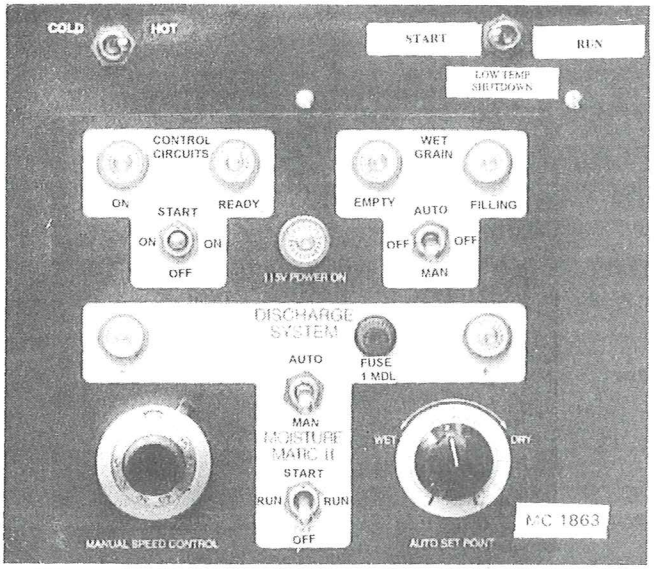


Figure 46 - Standard Cabinet Control Panel

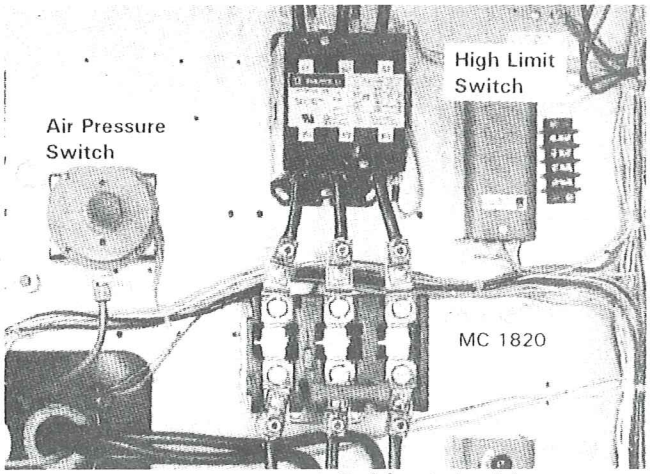


Figure 47 - Standard Cabinet Inside

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 (Fill) 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 48) 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 48) to time desired.
2. Flip the Wet Grain Toggle Switch or turn the Fill Dial Switch (Remote Cabinet) to the MANUAL position (bypassing the 0 to 60 minute Low Grain Timer). The Filling (Fill) Light will now be On.
3. After 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 (Fill) Light 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 or Fill Dial Switch (Remote) is flipped or turned from MANUAL TO AUTOMATIC.

1. Set the adjustable wet fill delay, Fig. 48, 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 (Fill) Light is on signaling for grain.
3. Check the refill time a minimum of 6 times. The Filling (Fill) 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 (Fill) 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 48, 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.

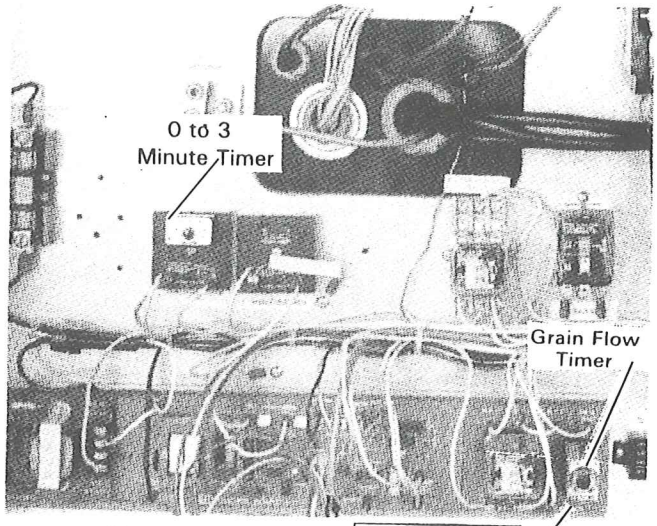
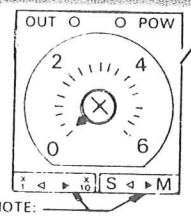


Figure 48
Standard Cabinet



NOTE: The timer does not operate when the Wet Grain Toggle Switch or Fill Dial 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 (Fill) 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 was set on the Grain Flow Timer, the dryer will shut down.

4. The Standard Cabinet will have the Empty, High Limit, Control Circuit On, 115V Power On, and the (2) red lights at the top of the Grain Flow Timer lit.

   The Remote Cabinet Panel will have no lights On. However, the (2) red lights at the top of the Grain Flow Timer inside the Remote Cabinet will be On.

   Flip the Wet Grain Switch or turn the Fill Switch (Remote) to 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. Standard Cabinet. 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.

   Remote Cabinet. Turn Power On Switch to the OFF position, then to the ON position to reset the Grain Flow Timer.

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 or turn the Fill Switch (Remote) to MANUAL. Restart the fan, burner, and discharge system. Flip the Wet Grain Switch or turn the Fill Switch (Remote) to the AUTOMATIC position. The fill system 0 to 3 minute delay will be activated if the Filling (Fill) Light is signaling for wet grain.

Starting the Burner

Be sure Low Temp Shutdown Switch is in START position.

1. Start fan by pressing the Fan Start Button (Green). Check to make sure that Air Switch Indicator Light is On.
2. Open the gas vapor hand valve (Figure 49) half way.

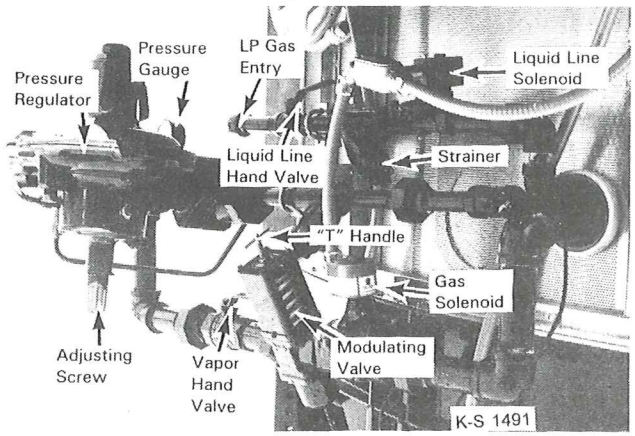


Figure 49 - LP Gas Manifold 101050

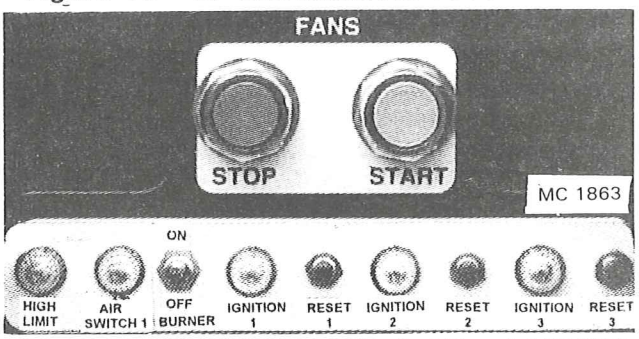


Fig. 50 - Standard Cabinet Control Panel 101050

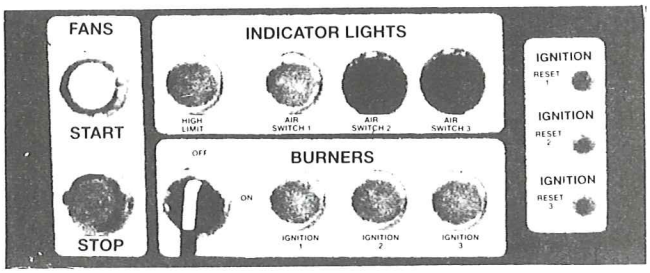


Fig. 51 - Remote Cabinet Control Panel 101050

3. Flip or turn (Remote) the Burner Switch to the ON position. After a (10) second purge delay, the Ignition Indicator Light will be On and the burner will light.

NOTE: The (10) second purge is a safety feature that allows the fan to purge the heat chamber of any unburned gases that may remain after a burner has 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 or turn (Remote) the Burner Switch to 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 or turn (Remote) 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 electrodes 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 or turn (Remote) 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 fan and burners will have to be restarted.

8. Push Control Circuit Switch up to START or turn Power On Switch to ON position and release.
9. Start the fan by pressing the FAN START BUTTON. Check to make sure that the indicator light for Air Pressure Switch is on.
10. Open the gas vapor hand valve half way.
11. Flip or turn (Remote) the BURNER switch to the ON position. The IGNITION lights will light and the burners will light.
12. 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.

Setting Drying Temperature

NOTE: Refer to the Recommended Drying Temperatures on page 42. 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 34). 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 IN (clockwise) to increase and OUT (counter-clockwise) to decrease temperature. It will not be necessary to adjust the modulating valve "T" handle for future start-ups unless the drying temperature is to be changed.

Operation of the Discharge System with the Automatic Moisture Control System

The dryer discharge auger and sweep are driven by a 3HP variable speed 3 phase 230V AC motor and reduction gearbox drive.

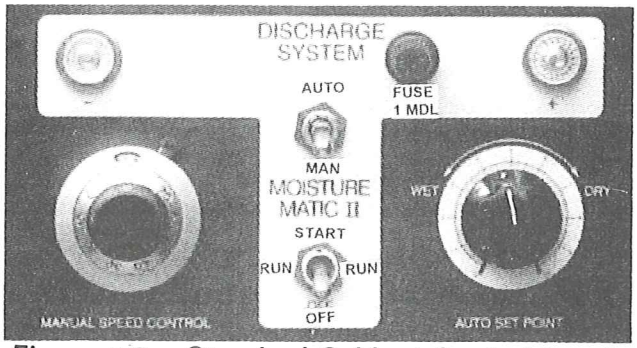


Figure 52 - Standard Cabinet Control Panel

Figure 52 - Remote Cabinet Control Panel

1. The discharge system is started by placing the Discharge System Start/Run/Off spring loaded toggle switch up to the START position and releasing it so it moves down to the RUN position. The Remote Cabinet has a spring loaded dial Auger Switch that is turned clockwise all the way and released. At this time the discharge light will be ON.
2. When the Moisture Matic Control Switch or Metering Switch (Remote) is in the MANUAL position, the Automatic Moisture Control System is bypassed and power flows directly to the 3HP AC discharge system drive motor. The speed of the discharge system drive 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.
3. When the Moisture Matic Control Switch or Metering Switch (Remote) is in the AUTOMATIC position, the speed of the discharge system drive 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 53, is raised by the grain.
2. When the overload door rises, the dryer will shut down and all of the indicator lights except the 115V POWER ON Light will be out on the Standard Control Cabinet Panel. No Remote Cabinet indicator lights will be

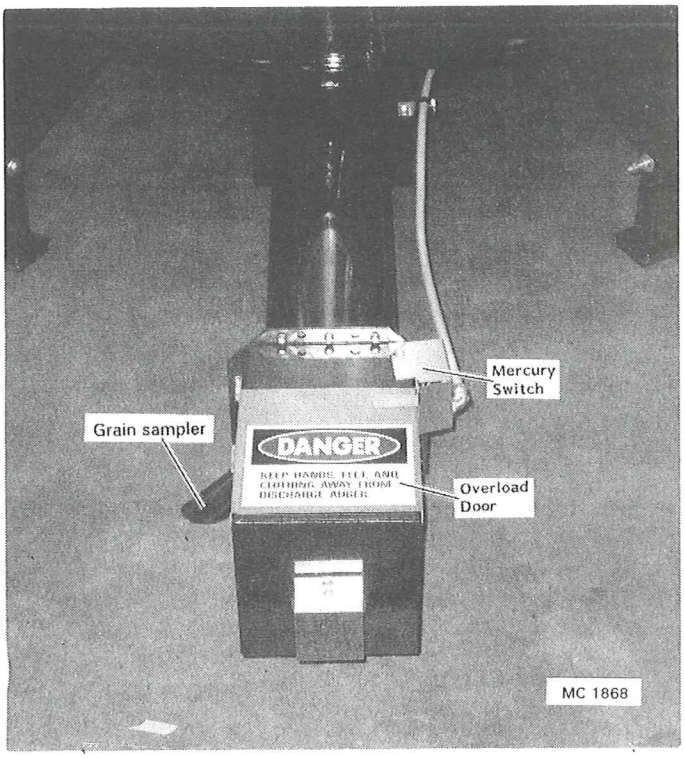


Figure 53 - Discharge Auger

   On. The Grain Flow Timer will automatically reset on both style cabinets.
3. When the problem has been corrected and the rear discharge overload door closes, the Control Circuit On and the High Limit Lights on the Standard Cabinet Control panel will be On. Flip the Control Circuit Switch up to the start position and release it and the READY Light will be On. The Remote Cabinet Control Panel will only have the High Limit Light On. Now turn the spring loaded Power On Switch clockwise all the way and release it. The Power On Light will light on the Remote Cabinet Control Panel.
4. If the Wet Grain or Fill (Remote) 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 Burner Switch into the OFF position and restart the Fan, Burner, and Discharge System. Don't forget to place the Low Temp Shutdown Switch into the START position on both style cabinets.

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 or dial switches (Remote Cabinet) to the OFF position.
2. Standard Cabinet
   A. Turn on the electric power supply to the dryer. The 115V Power On Light will be ON.
   B. Flip the Control Circuit Switch ON. The Control Circuit On Light and the High Limit Light will light.
   C. Push the Control Circuit Switch up to the START position and release it. The READY Light will light.
   D. Flip the Wet Grain Switch to the MANUAL position. Set the Grain Flow Timer as explained under "Filling the Dryer" on page 48.
   E. When dryer is full of grain, flip the Wet Grain Switch to AUTOMATIC and start the Fan. Air Pressure Switch Light will light.
   F. Start Burners by flipping Burner Switch up to On. Ignition Lights will light. Be sure Low Temp Shutdown Switch is in the START position or burners will not light.
3. Remote Cabinet
   A. Push Disconnect Switch on Motor Control Cabinet up to the ON position. Power will be supplied to dryer controls.
   B. At Remote Cabinet turn spring loaded Power On Switch clockwise all the way and release. The Power On and High Limit Light will light.
   C. Turn the Fill Switch to the MANUAL position. Set Grain Flow Timer as explained under "Filling the Dryer" on page 48. The Fill Light will be on if dryer is not full of grain.
   D. With dryer full of grain, turn Fill Switch to AUTOMATIC and start Fan. Air Switch Light will light.
   E. Start Burners by turning Burner Switch to ON. Ignition Lights will light. Be sure Low Temp Shutdown Switch is in the START position or burners will not light.

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.

4. Running on continuous heat, it will take approximately (6) minutes per point of moisture being removed to dry the first load.
5. When the first load is dry, push the Discharge System Spring Loaded Toggle up to the START position and release to the RUN position. With the Remote Cabinet turn the spring loaded dial Auger Switch to ON and release. The Discharge Light will be ON.
6. Flip the Moisture Matic Switch down to the MANUAL position or turn the Metering Switch (Remote) to the MANUAL position. The discharge system drive motor will start and the dryer will begin unloading grain.
7. Test moisture content of the grain being discharged every (15) minutes until it stabilizes.
8. 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 Matic or Metering Switch (Remote) into AUTOMATIC, the dryer should be operated in the MANUAL position to establish a setting on the Manual Speed Control Dial that will unload dry grain at the desired moisture content. When the moisture content of the discharged grain has been consistent for (2) or more hours, it is time to switch to AUTOMATIC. Be sure the Set Point Dial or Moisture Control Dial is set at 0.

2. While the Moisture Matic or Metering Switch (Remote) is in MANUAL, turn the Auto Set Point Dial or Moisture Control Dial (Remote) clockwise to balance the Moisture Control System to the point where both the (–) Decrease and (+) Increase Lights are off. At this point the Moisture Control System is calibrated to the moisture content established in the MANUAL position.

3. Now flip the Moisture Matic Switch up to the AUTOMATIC position or turn the Metering Switch to AUTOMATIC on the Remote Panel.

   Now the Manual Speed Control is OFF and the discharge rate is being controlled by the Moisture Control Board, Thermistors, and the setting on the Auto Set Point Dial or the Moisture Control Balance Dial on the Remote Panel.

   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 (–) Decrease Light will come on and the discharge meter indicator will drop until the unload speed is automatically adjusted. When the adjustment is completed, the (–) Decrease 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 (+) Increase 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 (+) Increase 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 (+) increase or (–) decrease 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 or Moisture Control Dial (Remote) up to a higher number for drier grain or down to a lower number for wetter grain. When you turn the dial either the (+) Increase Light or the (–) Decrease Light will come on and you will see the discharge meter indicator change to reflect the change in speed.

START-UP AC MANUAL SPEED CONTROL SETTINGS

MODEL	CROP & DRYING MODE	MOISTURE REMOVAL	
		20%-15%	25%-15%
10520	Corn - Dry & Cool	7.9	4.5
10630	Corn - Dry & Cool	8.7	5.2
10730	Corn - Dry & Cool	9.8	5.9
101050	Corn - Dry & Cool	10	7.0

Low Temperature Shutdown

A thermostat is used to monitor the air temperature in the heat chamber. When the air temperature drops below the setting on the Low Temp Thermostat, the dryer will shut down and only the 115V Power On Light, Control Circuit On Light, and the High Limit Light will be lit on the Standard Cabinet Control Panel. The Remote Cabinet Panel will only have the High Limit Light lit.

The recommended setting on the Low Temp Thermostat is 140°F (60°C). **ALWAYS PLACE LOW TEMP SHUTDOWN SWITCH INTO START POSITION BEFORE STARTING BURNERS.** If heat chamber air temperature is below setting on Low Temp Thermostat, burners will not light unless Low Temp Switch is in the START position.

End of Day Shutdown

1. To shut off the dryer, close the liquid propane (LP) gas supply valve at the tank or close the natural gas supply valve. Operate burners 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 liquid propane (LP) burners.
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 fan about (15) to (20) minutes to cool grain in dryer, then turn off fan and flip the Control Circuit Toggle Switch or Power On Swith (Remote) to OFF.
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 or turn Power On Switch (Remote) to ON, place Wet Grain Switch or Fill Switch (Remote) into AUTOMATIC, place Low Temp Shutdown Switch into START, and push Green Button to start fan.
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 liquid propane burners. Now open the vapor hand valve.
3. Start burners. Allow thermometer to reach drying temperature before placing the Discharge System Switch up to the START position and release to RUN position or turn Discharge Auger Switch to On and release (Remote). Now place Moisture Matic Switch or turn Metering Switch to MANUAL.
4. After the dryer has been unloading grain for at least (15) minutes, the Moisture Matic Switch or Metering Switch (Remote) 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 Matic Switch or turn the Metering Switch (Remote) 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 (+) Increase and (–) Decrease 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 (+) Increase and (–) Decrease Lights, but 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 or Discharge Auger Switch (Remote) 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 or Burner Switch (Remote) into the OFF position. Close gas vapor hand valve (handle 90° to the piping). LP Gas - Close the liquid intake valve. Run the fan approximately (20) minutes to cool grain in the dryer.

After cooling, shut off fan and empty dryer by placing the Discharge System Switch into the RUN position or Discharge Auger Switch (Remote) to ON. 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 or Discharge Auger Switch (Remote) 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 circuit breaker in the control cabinet into the OFF position and lock the control cabinet doors.

1. Cover burner shields with plastic. See page 78, Ref. #2.
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 76, 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 circuit breaker 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(es) 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

NOTES

3HP AC DISCHARGE DRIVE SPEED CONTROL

Description

The Discharge System is driven by a 3HP variable speed 3 phase 230V AC motor and reduction gearbox.

The speed of the motor is directly proportional to the amount of AC frequency in hertz supplied to it. When frequency in hertz increases, speed increases and when frequency in hertz decreases, speed decreases.

The AC speed control (Figure 54) controls the amount of AC frequency in hertz going to the motor. The Manual Speed Control Dial regulates the amount of AC frequency in hertz the AC speed control 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 AC speed control supplies to the discharge motor.

Configuration

- 230 volt - single phase input to unit
- 600 volt - class "cc" 30 amp fuse on AC Drive input
- 230 volt - three phase output to 3HP motor
- 110 volt - control power "on"
- 110 volt - safety circuit relay
- 0-10 volt - input to drive from M-C Board
- 0-10 volt - PWM signal output to DC Meter

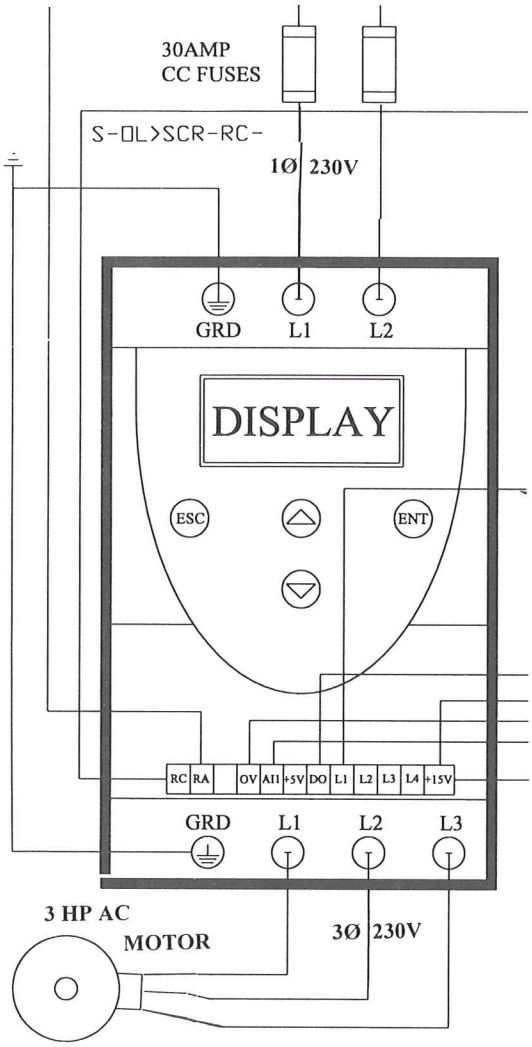


Figure 54

AC Drive Settings	M-C Settings
Rdy = Ready Menu	
• bFr = Motor Frequency - 50Hz or 60Hz	60Hz
• ACC = Acceleration - .1 to 99.9 seconds	5 seconds
• DEC = Deceleration - .1 to 99.9 seconds	5 seconds
• LSP = Low Speed - Hertz	10Hz
• HSP = High Speed - Hertz	60Hz
• LtH = Motor Thermal Current - 0 to 1.5 mult	10 ac amps
• Alt = Input Signal - 1-10dcv	IOU
drc = Motor Control Menu	
• StA = Frequency loop - 0 to 100%	20%
• Ufr = IR Compensation - 0 to 200%	50%
• CL1 = Limiting Current - 0.5 to 1.5 mult	10 ac amps
FUN = Function Menu	
• Use all factory settings	M-C Settings
SUP = Monitoring Menu	
• Frh = Display Frequency	M-C Setting
• LCr = Display Motor Current	
• Uln = Display Line Voltage	
• THr = Display Motor Thermal State - 118% shutdown	

3HP AC DISCHARGE DRIVE SPEED CONTROL (continued)

Keypad Instructions

Keys are - "ESC", "ENT", ARROW UP & ARROW DOWN.

- ESC - Backs out of menus
- ARROWS - Scroll up and down through menus
- ENT - Displays data numbers and saves data

Codes That Display Faults On Drive

- OCF = Overcurrent
- SCF = Motor Short - circuit insulation fault
- InF = Internal Fault
- CFF = Configuration Fault
- SOF = Over Speed
- OHF = Drive Overload
- OLF = Motor Overload
- OSF = Over Voltage
- ObF = Over Voltage During Deceleration
- PHF = Line Phase Failure
- USF = Under Voltage
- CrF = Charging Circuit

CHANGING SETTINGS ON AC DRIVE

All settings for AC Drive Unit can be changed with power on to dryer, but power off to discharge system. The 230-volt single phase must be powered on, so that the digital display on the unit is powered up.

1.0 How to increase or decrease minimum discharge rate.

1.1 Press the "ESC" key until "rdy" appears on display.
1.2 Arrow down until unit displays "LSP".
1.3 Press "ENT" to display data.
1.4 The data displayed is in units of hertz, our range is 0 to 60Hz.
1.5 Arrow up or down to change the number. The higher the number the faster we discharge. Factory setting should be 5.0 Hz.
1.6 Press "ENT" twice to save valve, once it is at desired setting.
1.7 Press "ESC" to get back to the "rdy" display.

2.0 How to increase or decrease maximum discharge rate.

2.1 Press the "ESC" key until "rdy" appears on display.
2.2 Arrow down until unit displays "HSP".
2.3 Press "ENT" to display data.
2.4 The data displayed is in units of hertz, our range is 0 to 60 HZ.
2.5 Arrow up or down to change the number. The higher the number the faster we discharge. Factory setting should be 60.0 Hz.
2.6 Press "ENT" twice to save valve, once it is at desired setting.
2.7 Press "ESC" to get back to the "rdy" display.

3.0 How to increase or decrease current limit of discharge rate.

3.1 Press the "ESC" key until "rdy" appears on display.
3.2 Arrow down until unit displays "drC".
3.3 Press "ENT" to display data (Motor Control Data).
3.4 Arrow down the menu until "nCr" appears.
3.5 The data displayed is in units of AC amps.
3.6 Arrow up or down to change the number. This will increase the amount of amps the motor can draw to drive the discharge system. The higher the number, the more torque the motor has. Factory setting is (10 amps), this could be increased to 12 amps if discharge will not start-up.
3.7 Press "ENT" twice to save valve, once it is at desired setting.
3.8 Press "ESC" to get back to the "rdy" display.

3HP AC DISCHARGE DRIVE SPEED CONTROL (continued)

4.0 How to increase IR Compensation for discharge.

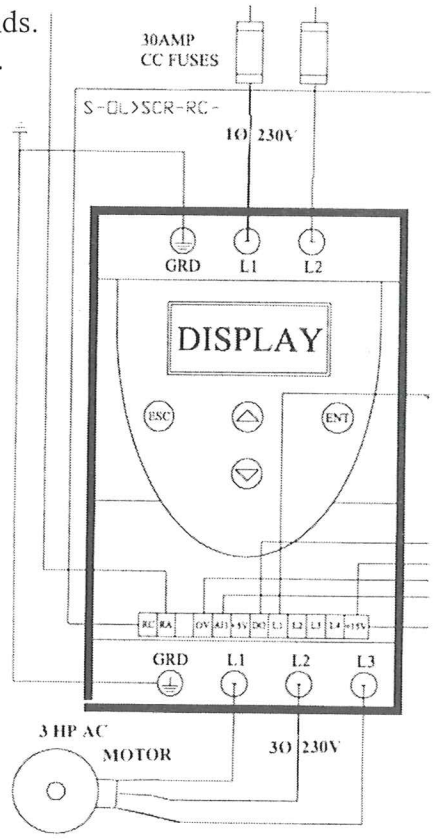
4.1 Press the "ESC" key until "rdy" appears on display.
4.2 Arrow down until unit displays "drC".
4.3 Press "ENT" to display data (Motor Control Menu).
4.4 Arrow down until unit displays "Ufr".
4.5 The data displayed is in units of percentage.
4.6 Arrow up or down to change the number. The range is from 0 to 200%. This is used to optimize torque while adjusting speed. This should only be re-adjusted if discharge rate **can not** be held steady in manual mode. Factory set should be 50%.
4.7 Press "ENT" twice to save valve, once it is at desired setting.
4.8 Press "ESC" to get back to the "rdy" display.

5.0 How to increase or decrease Acceleration for discharge.

5.1 Press the "ESC" key until "rdy" appears on display.
5.2 Arrow down until unit displays "ACC".
5.3 Press "ENT" to display data.
5.4 The data displayed is in units of seconds.
5.5 Arrow up or down to change the number. The higher the number the faster we change speed of discharge.. Factory setting should be 5 seconds.
5.6 Press "ENT" twice to save valve, once it is at desired setting.
5.7 Press "ESC" to get back to the "rdy" display.

6.0 How to increase or decrease Decelleration for discharge.

6.1 Press the "ESC" key until "rdy" appears on display.
6.2 Arrow down until unit displays "dEC".
6.3 Press "ENT" to display data.
6.4 The data displayed is in units of seconds.
6.5 Arrow up or down to change the number. The higher the number the faster we change speed of discharge. Factory setting should be 5 seconds.
6.6 Press "ENT" twice to save valve, once it is at desired setting.
6.7 Press "ESC" to get back to the "rdy" display.



FAN MOTOR SOFT STARTER

Configuration

- Input Volt - 208, 230, 460 & 575 Voltage
- 600 volt – (2) class "cc" 0.5 amp fuses on controller input
- 110 volt – Non-7amp fuse for 110 volt input
- By-pass Contactor for normal running
- 110 volt – control power "on" through relay
- 110 volt – safety circuit relay to circuit breaker shunt trip

Settings — MC settings

Rdy = Ready Menu

SET = Setting Menu

- In = Nominal Motor Current (3Ø 230V 50HP) 124 amps
- ILt = Current Limit in Percentage 450%
- ACC = Acceleration Ramp Time 15 seconds
- T90 = Initial Starting Torque 50%
- Sty = Type of Fan Stop F

SUP = Monitoring Menu

- tHr = Motor Thermal State in Percentage
- LCr = Display Motor Current in Amps MC Setting
- Rnt = Operating Time (Last Reset)
- Ltr = Motor Torque in Percentage

KEYPAD INSTRUCTIONS

KEYS ARE – "ESC", "ENT", ARROW UP & ARROW DOWN

- ESC – BACKS Out of Menu's
- ARROWS – Scroll up and down through menu's
- ENT – Displays Data Numbers and Saves Data

CODES THAT DISPLAY FAULTS ON DRIVE

NON-RESETTABLE FAULTS

- InF = Internal Fault
- OCF = Over Current
- PIF = Phase Inversion
- EEF = Internal Memory Fault

RESETTABLE FAULTS

- CFF = Invalid Configuration

AUTO-RESET FAULT

- PHF = Loss of a Line Phase
- FrF = Line Frequency is out of Tolerance
- USF = Powr Supply Fault
- CLF = Control Line Failure

MANUAL RESET FAULT

- OLC = Current Overload
- OLF = Motor Thermal Overload
- ULF = Motor Underload

CHANGING PARAMETERS ON SOFT STARTER

All parameters for Soft Starter Unit can be changed with power on to dryer. The disconnect must be powered on, so that the digital display on the unit is powered up.

1.0 How to set Motor Current.

1.1 Press the "ESC" key until "rdy" appears on display.
1.2 Arrow down until unit displays "In".
1.3 Press "ENT" to display data.
1.4 The data displayed is in units of AC amps.
1.5 Arrow up or down to change the number. Set number to match motor name plate AC amps. Factory setting should match motor name plate.
1.6 Press "ENT" twice to save valve, once it is at desired setting.
1.7 Press "ESC" to get back to the "rdy" display.

2.0 How to set Current Limit.

2.1 Press the "ESC" key until "rdy" appears on display.
2.2 Arrow down until unit displays "ILt".
2.3 Press "ENT" to display data.
2.4 The data displayed is in units of percentage of motor amps.
2.5 Arrow up or down to change the number. The number should be 450% of motor full load amps. Factory setting should be 450%.
2.6 Press "ENT" twice to save valve, once it is at desired setting.
2.7 Press "ESC" to get back to the "rdy" display.

3.0 How to set acceleration time for by-pass contactor take-over.

3.1 Press the "ESC" key until "rdy" appears on display.
3.2 Arrow down until unit displays "ACC".
3.3 Press "ENT" to display data.
3.4 The data displayed is in units of time (seconds).
3.5 Arrow up or down to change the number. The number that is the time from when the soft starter begins fan rotation until by-pass contactor takes over. Factory setting is 15 seconds.
3.6 Press "ENT" twice to save valve, once it is at desired setting.
3.7 Press "ESC" to get back to the "rdy" display.

4.0 How to set Starting Torque.

4.1 Press the "ESC" key until "rdy" appears on display.
4.2 Arrow down until unit displays "T90".
4.3 Press "ENT" to display data.
4.4 The data displayed is in units of percentage.
4.5 Arrow up or down to change the number. The starting applied motor torque in percentage. Factory set should be 50%.
4.6 Press "ENT" twice to save valve, once it is at desired setting
4.7 Press "ESC" to get back to the "rdy" display.

5.0 How to set Thermal Protection.

5.1 Press the "ESC" key until "rdy" appears on display.
5.2 Arrow down until unit displays "PRO".
5.3 Press "ENT" to display data.
5.4 Arrow down until unit displays "tHP".
5.5 The data displayed is in units of classification.
5.6 Arrow up or down to change the number. The number that appears is the rated classification of the soft starter unit. Factory setting should be 20.
5.7 Press "ENT" twice to save valve, once it is at desired setting
5.8 Press "ESC" to get back to the "rdy" display.

6.0 How to Voltage Boost.

6.1 Press the "ESC" key until "rdy" appears on display.
6.2 Arrow down until unit displays "drC".
6.3 Press "ENT" to display data.
6.4 Arrow down until unit displays "bSt".
6.5 The data displayed is in units of AC voltage by percentage.
6.6 Arrow up or down to change the number. The number is percentage of motor voltage available for motor and fan start-up. Factory setting should be 50%.
6.7 Press "ENT" twice to save valve, once it is at desired setting
6.8 Press "ESC" to get back to the "rdy" display.

PARTS CATALOG
MODELS 10520, 10630, 10730, & 101050
SINGLE FAN

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.

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 55.

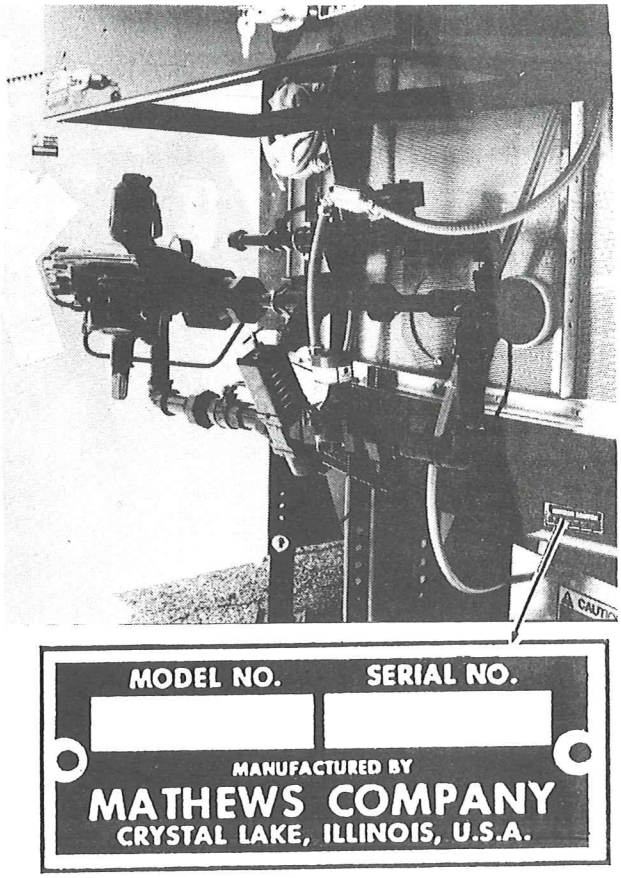


Figure 55

STANDARD CABINET CONTROL PANEL PARTS

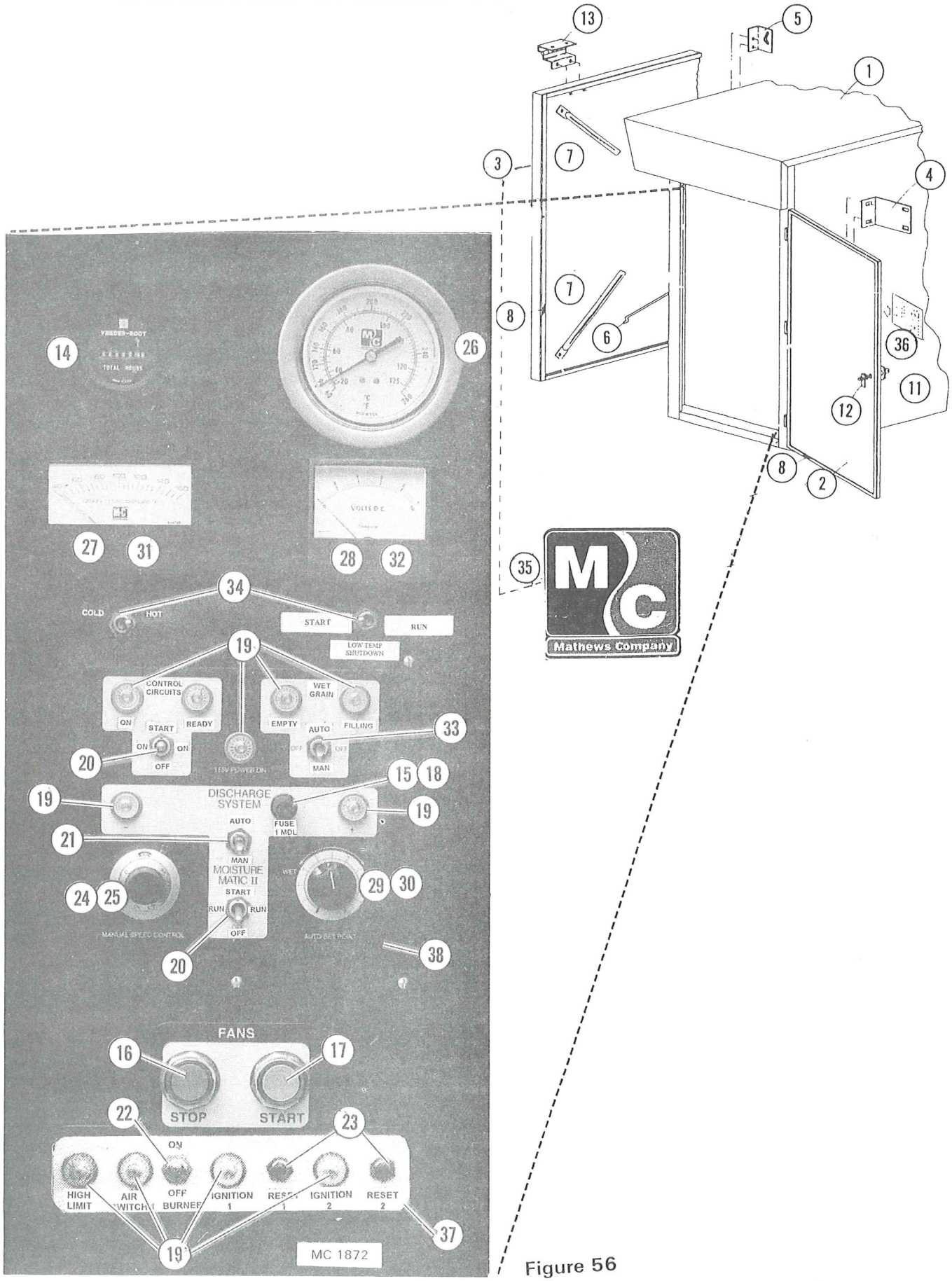


Figure 56

STANDARD CABINET CONTROL PANEL PARTS

Ref.	Part No.	Qty.	Description
1	475375	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	11	10520-10730 Indicator Lamp Assembly
	475016	12	101050 Indicator Lamp Assembly
20	1206827	2	Start Up-Run Momentary Contact Switch
21	475326	1	Auto-Manual On-None-On DPDT Switch
22	438907	1	Burner On-Off Switch
23	441959	2	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 Only - #475269)
28	1256862	1	Discharge Speed Meter 0-10 DC Volt (Gasket Only - #475269)
29	438698*	1	Potentiometer
30	438699	1	Knob
31	445961*	1	Temperature Bridge
32	1276865	1	Resistor 3.9K-1/2 Watt
33	1246895	1	Wet Grain Fill Switch
34	475194	2	Cold-Hot Switch & Low Temperature Shutdown Switch
35	1248308	1	Decal "M-C" Logo12 x 12" (30 x 30cm.)
36	1248322	1	Decal "M-C" Logo 5 x 5" (13 x 13cm.)
37	475366	1	10520-10730 Fan/Burner Control Bezel
	475513	1	101050 Fan/Burner Control Bezel
38	475367	1	115 Power Control Bezel

*Items Not Shown.

STANDARD CONTROL CABINET 10630 & 10730 - SINGLE FAN DIRECT START 3Ø 230V

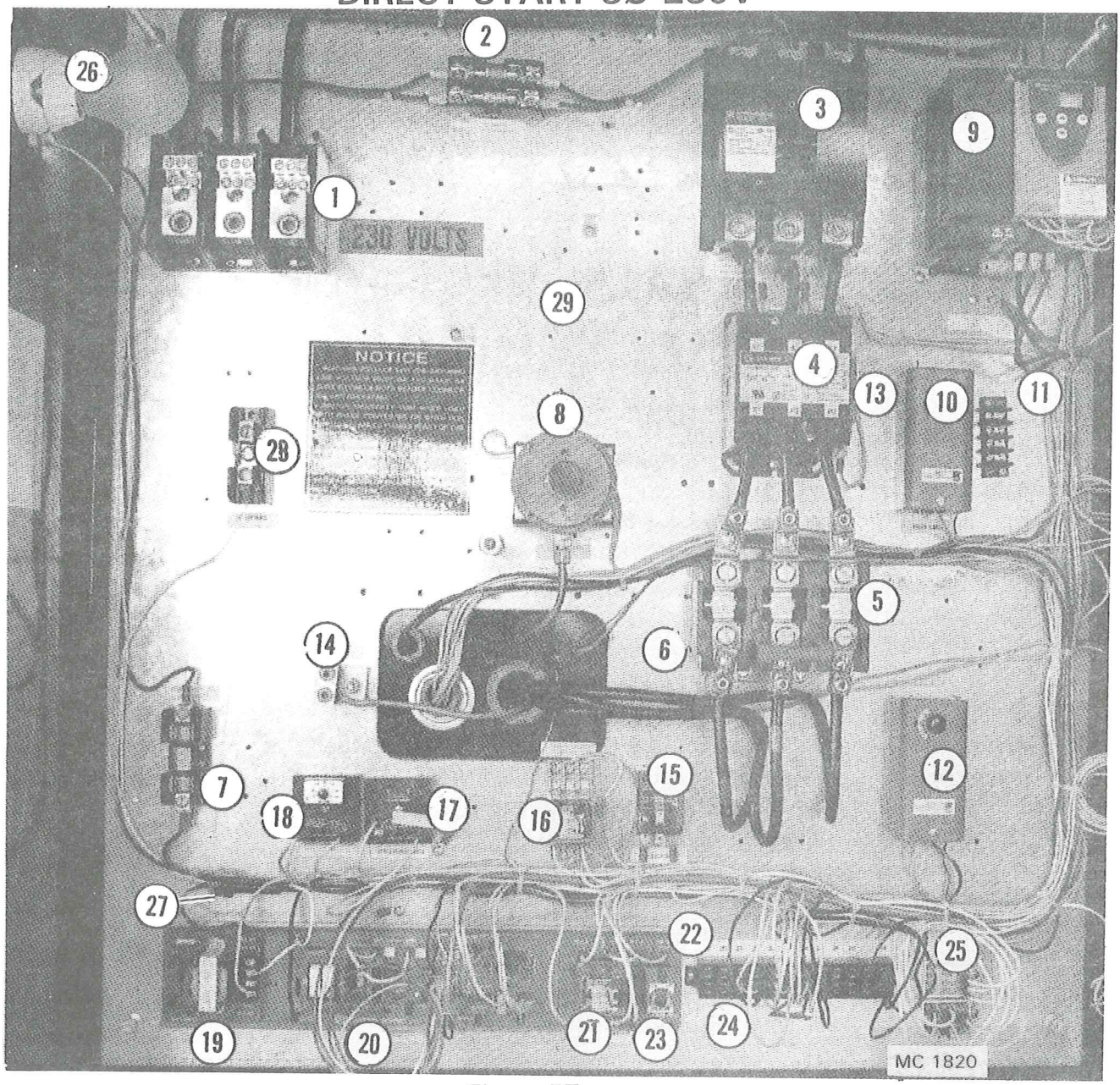


Figure 57

Ref.	Part No.	Qty.	Description
1	1286957	1	Power Distribution Block (3 Pole)
2	4906822	2	Fuse R30 Amp CC (AC Drive)
	4906824	1	Fuse Holder
3	1286887	1	Circuit Breaker 110 Amps Q2L-3110 3Ø/230V
4	1246944	1	Contactor 93 Amps DPA93V02 3Ø/230V w/o #1246933 Interlock
5	1246856	1	Overload Relay 86 Amps SE012DP 3Ø/230V
6	1286820	3	Thermal Unit CC156 30HP Motor 3Ø/230V
7	1256956	1	Fuse 7 Amp NoN 7
	1286851	1	Fuse Holder
8	1216849	1	Air Pressure Switch
9	1256976	1	3HP AC Discharge Speed Controller
10	835916	1	High Limit Control
11	1246970	1	Terminal Block (4 Position)
12	444603	1	Low Grain Temp Thermostat
13	1246933	1	Auxiliary Contacts (Interlock)

Ref.	Part No.	Qty.	Description
14	1256918	1	Ground Lug (#1246929)
15	1246954	1	Fill Relay
16	0216809	1	Relay (AC Drive)
	0216810	1	Relay Socket
17	1246831	1	Time Delay Relay (10) Seconds
	1276812	1	Resistor 10W-3K OHM
18	1246996	1	0 to 3 Minute Timer
19	1246966	1	8 Volt Power Supply
20	1256892	1	Moisture Control Board – 3/1/03
21	0216809	1	Relay – Main
22	1246972	1	Relay & Timer Socket
23	1246978	1	0 to 60 Minute Timer
24	1246928	1	Terminal Block (12) Position (Black)
25	1246929	2	Terminal Block (3) Position (White)
26	1246842	1	50W Rough Service Bulb
	1246841	1	Light Bulb Socket
27	1246965	1	Fuse 1/2 Amp AGC
	1246964	1	Inline Fuse Holder
28	1276823	1	Isolated Neutral Log 230V
29	475370	1	Component Mount Panel

STANDARD
CONTROL CABINET 101050 - SINGLE FAN DIRECT START 3Ø 230V

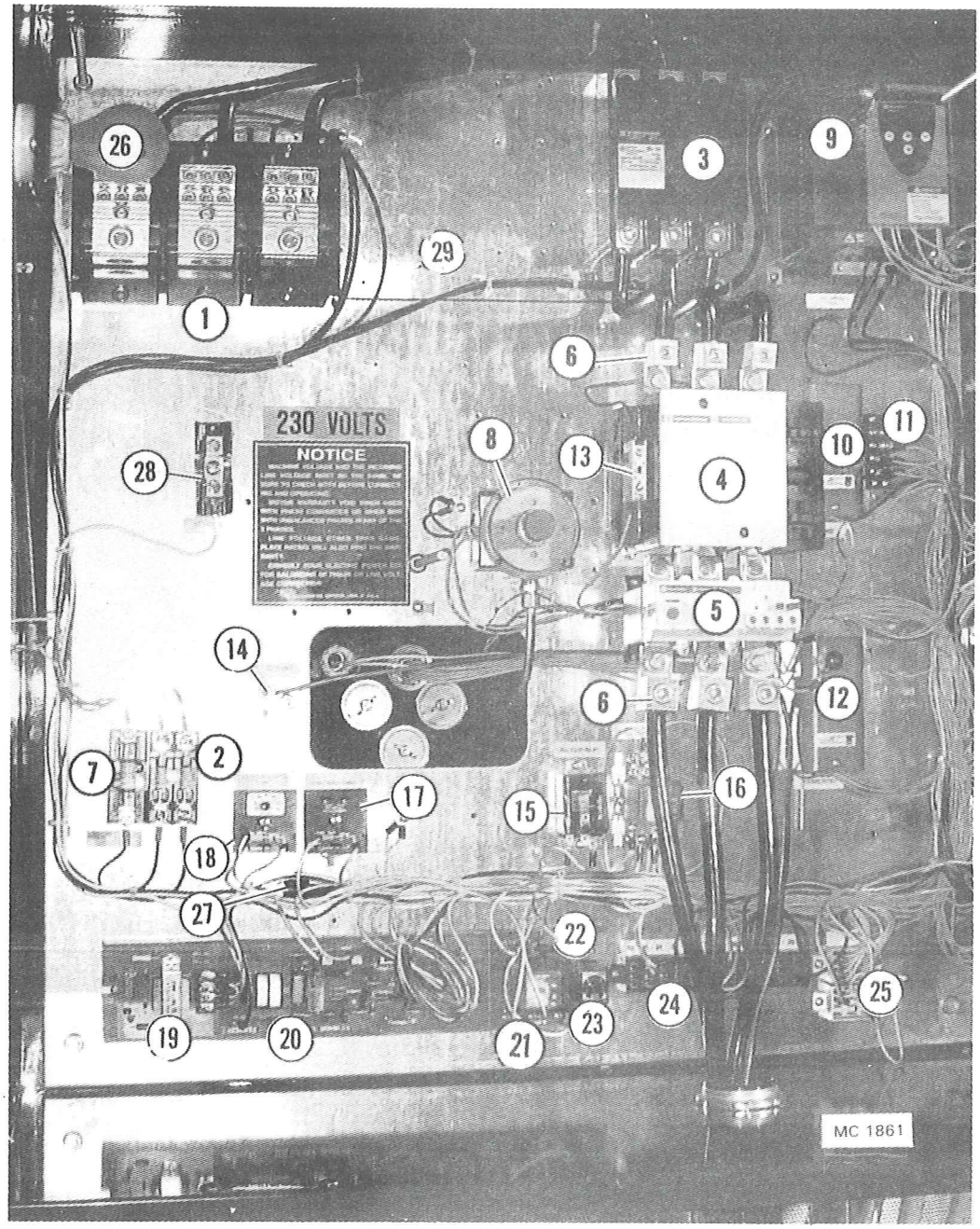


Figure 58

Ref.	Part No.	Qty.	Description
1	1256950	1	Power Distribution Block (3 Pole)
2	4906822	2	Fuse R30 Amp CC (AC Drive)
	4906824	1	Fuse Holder
3	1256957	1	Circuit Breaker 200 Amps Q2L-3210 3Ø/230V
4	1256858	1	IEC Contactor 150 Amps 3Ø/230V
5	1236949	1	IEC Overload Relay 90-150 Amps 3Ø/230V
6	4906808	2	Lug Kit
7	1256956	1	Fuse 7 Amp NON 7
	1286851	1	Fuse Holder
8	1216849	1	Air Pressure Switch
9	1256976	1	3HP AC Discharge Speed Controller
10	835916	1	High Limit Control
11	1246970	1	Terminal Block (4 Position)
12	444603	1	Low Grain Temp Thermostat
13	4906829	1	Auxiliary Contacts (Interlock)

Ref.	Part No.	Qty.	Description
14	1256918	1	Ground Lug
15	1246954	1	Fill Relay
16	0216809	1	Relay (AC Drive)
	0216810	1	Relay Socket
17	1246831	1	Time Delay Relay (10) Seconds
	1276812	1	Resistor 10W-3K OHM
18	1246996	1	0 to 3 Minute Timer
19	1246966	1	8 Volt Power Supply
20	1256892	1	Moisture Control Board – 3/1/03
21	0216809	1	Relay – Main
22	1246972	1	Relay & Timer Socket
23	1246978	1	0 to 60 Minute Timer
24	1246928	1	Terminal Block (12) Position (Black)
25	1246929	2	Terminal Block (3) Position (White)
26	1246842	1	50W Rough Service Bulb
	1246841	1	Light Bulb Socket
27	1246965	1	Fuse 1/2 Amp AGC
	1246964	1	Inline Fuse Holder
28	1276823	1	Isolated Neutral Log 230V
29	1242669	1	Component Mount Panel

STANDARD
CONTROL CABINET 101050 (1) FAN - DIRECT START 3Ø 460V

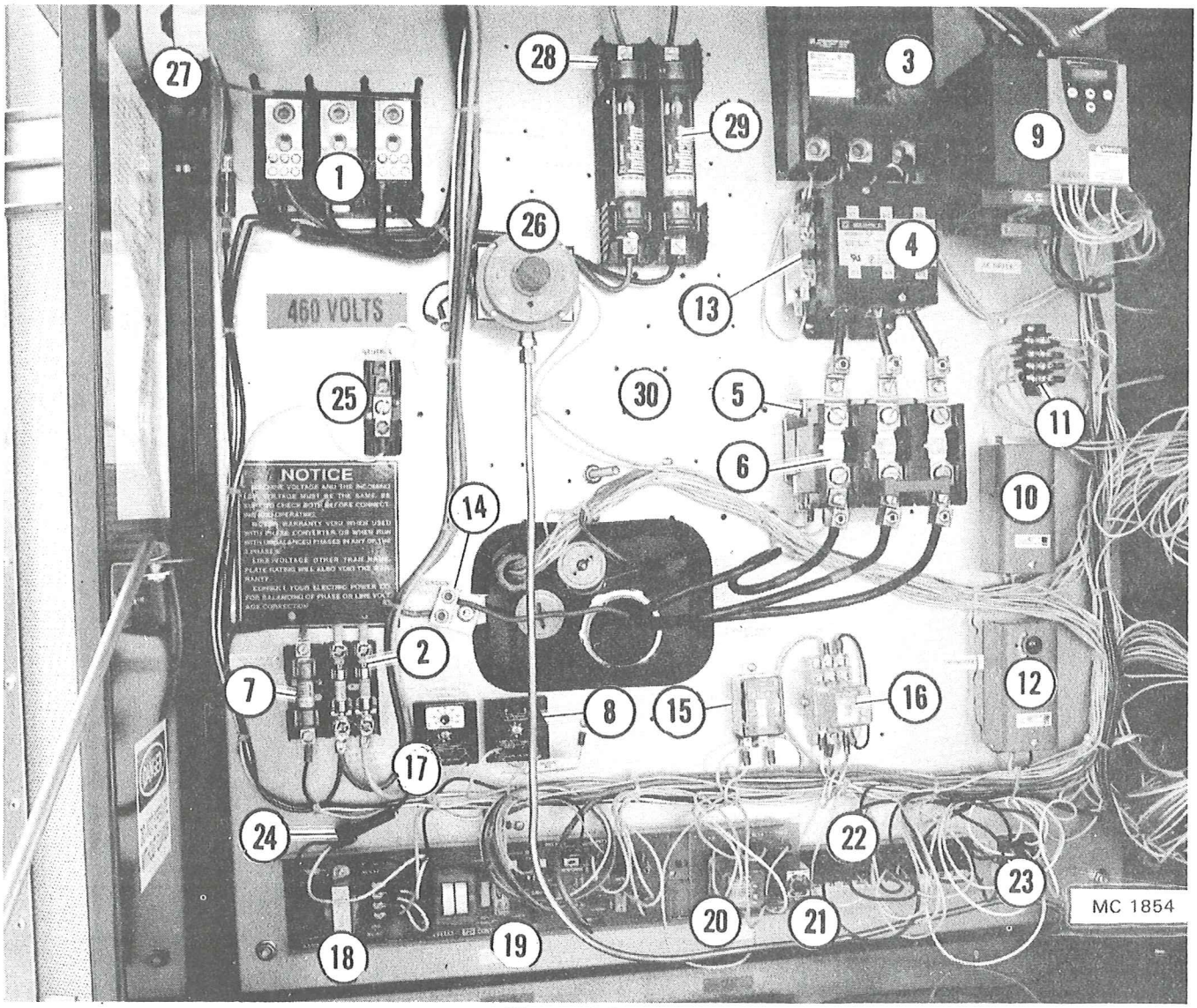


Figure 59

Ref.	Part No.	Qty.	Description
1	1286957	1	Power Distribution Block (3 Pole)
2	4906822	2	Fuse R30 Amp CC (AC Drive)
	4906824	1	Fuse Holder - Double
3	1286966	1	Circuit Breaker QOU-3100-100 Amps-50HP-460V
4	1241082	1	Contactor DPA73-75 Amps-50HP Fan Motor-460V
	1226861	1	Coil 9998-DA73
5	1246856	1	Overload Relay SE012DP-86 Amps-50HP
6	1286827	3	Thermal Unit CC87.7-50HP Motor-460V
7	1256956	1	Fuse 7 Amp NoN 7
	1286851	1	Fuse Holder
8	1246831	1	Time Delay Relay (10) Seconds
	1276812	1	Resistor 10W-3K OHM
9	1256976	1	3HP AC Discharge Speed Controller
10	835916	1	High Limit Control
11	1246970	1	Terminal Block (4 Position)
12	444603	1	Low Temperature Shutdown Thermostat
13	1246933	1	Auxiliary Contacts (Interlock)

Ref.	Part No.	Qty.	Description
14	1256918	1	Ground Lug (#1246929)
15	1246954	1	Fill Relay
16	0216809	1	Relay (AC Drive)
	0216810	1	Relay Socket
17	1246996	1	0 to 3 Minute Timer
18	1246966	1	8 Volt Power Supply
19	1256892	1	Moisture Control Board – 3/1/03
20	0216809	1	Relay – Main
21	1246972	1	Relay & Timer Socket
22	1246978	1	0 to 60 Minute Timer
23	1246928	1	Terminal Block (12) Position (Black)
25	1246929	2	Terminal Block (3) Position (White)
24	1246965	1	Fuse 1/2 Amp AGC
	1246964	1	Inline Fuse Holder
25	1276823	1	Isolated Neutral Lug 230V
26	1216849	1	Air Pressure Switch
27	1246842	1	50W Rough Service Bulb
	1246841	1	Light Bulb Socket
28	475217	1	Fuse Holder - Double
29	475204	2	Fuse 35 Amp Ferrule
30	475370	1	Component Mount Panel

OPTIONAL REMOTE CABINET
BUTTONS, DIALS, LIGHTS, METERS, & SWITCHES

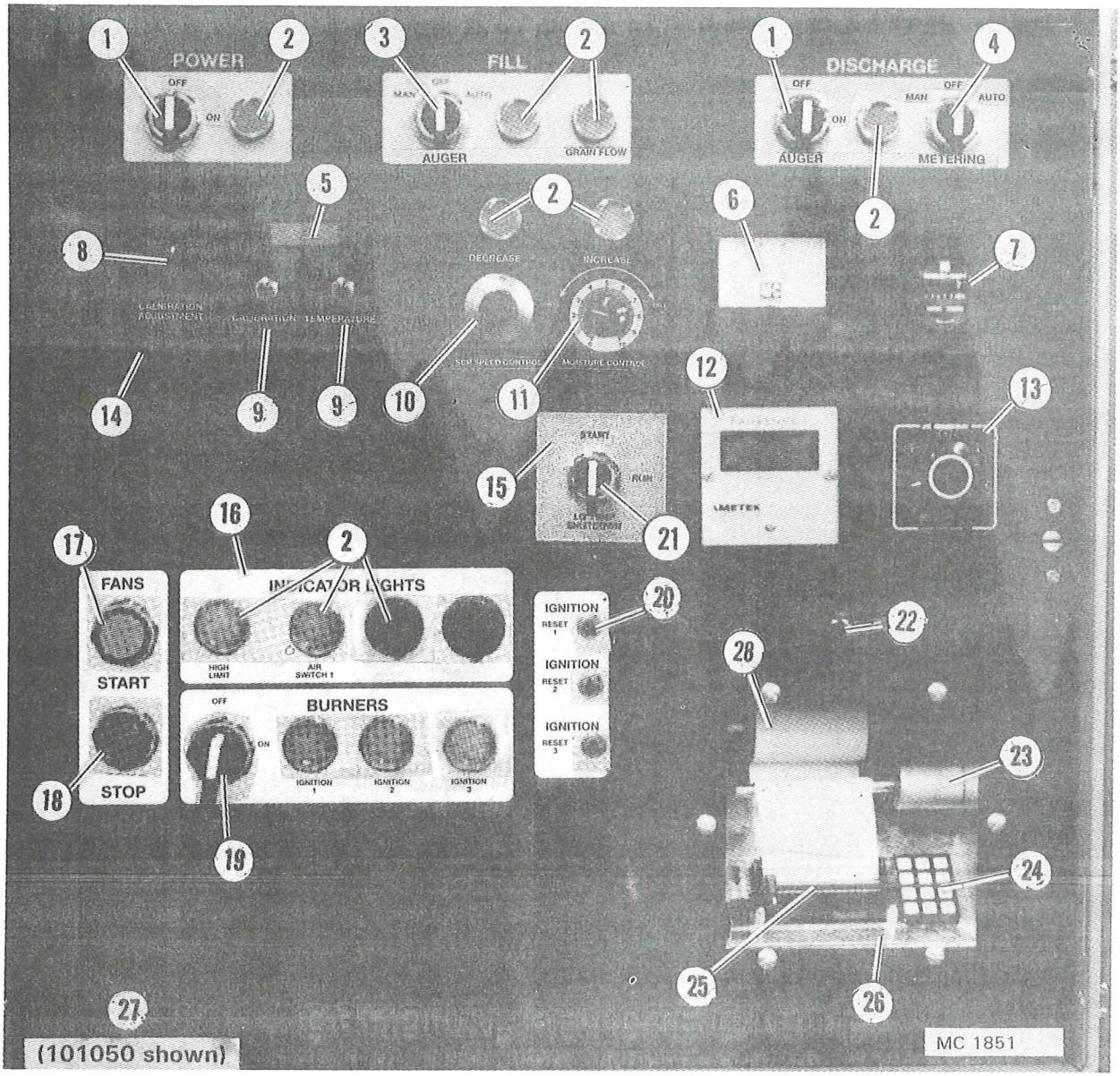


Figure 60

Ref.	Part No.	Qty.	Description
1	125 6809	2	OFF-ON-ON Momentary Contact Switch
2	125 6808	AR	Indicator Light
3	125 6810	1	Switch ON-OFF-ON (Fill)
4	125 6811	1	Switch ON-OFF-ON (Metering Rolls)
5	122 7068	1	Digital Display Meter
6	125 6862	1	Discharge Meter 0-10 DC Volt
	127 6865	1	Resistor 3.9K-½ Watt
7	444 645	1	Hour Meter
8	122 7069	1	Calibration Potentiometer-Monitor
9	125 6834	2	Push Button-Calibration & Grain Temp.
10	124 1195	1	SCR Drive Potentiometer (10 Turn with Wires) 42" (107cm)
	124 6892	1	Multi Dial with Lock
11	124 6955	1	Moisture Control Potentiometer & Wires 60" (153cm.)
	124 6941	1	Dial
12	124 6958	1	Digital Thermometer Main Frame °F
	123 6920	1	Digital Thermometer Main Frame °C
	124 6961	AR	Digital Thermometer Thermocouple180" (4.6m)
13	124 6959	1	Rotary Selector Switch 5-Way for 124 6958
14	124 8303	1	Power Control Bezel
15	475 751	1	Decal "Low Temp Shutdown"
16	124 8306	1	Fan & Burner Control Bezel
17	128 6844	1	Start Button – Fan
18	128 6845	1	Stop Button – Fan
19	125 6812	2	Switch OFF-ON – Ignition/Low Temp
20	441 959	AR	Remote Reset Switch
21	125 6817	1	Switch - Low Temp Shutdown
22	125 6839	1	Switch ON-OFF – Printer
	128 8377	1	ON-OFF Decal
23		1	Printer Take-Up Assembly
24		1	Keyboard, 12 Button
25		1	Printer with Flat Cable
26	122 7074	1	Printer Assembly
27	124 4888	1	1-Fan Inside Control Panel Door (only)
28	122 7061	1	Thermal Paper 3⅛" x 246 ft. (7.94cm x 75m)

OPTIONAL REMOTE CABINET 115V ELECTRICAL COMPONENTS

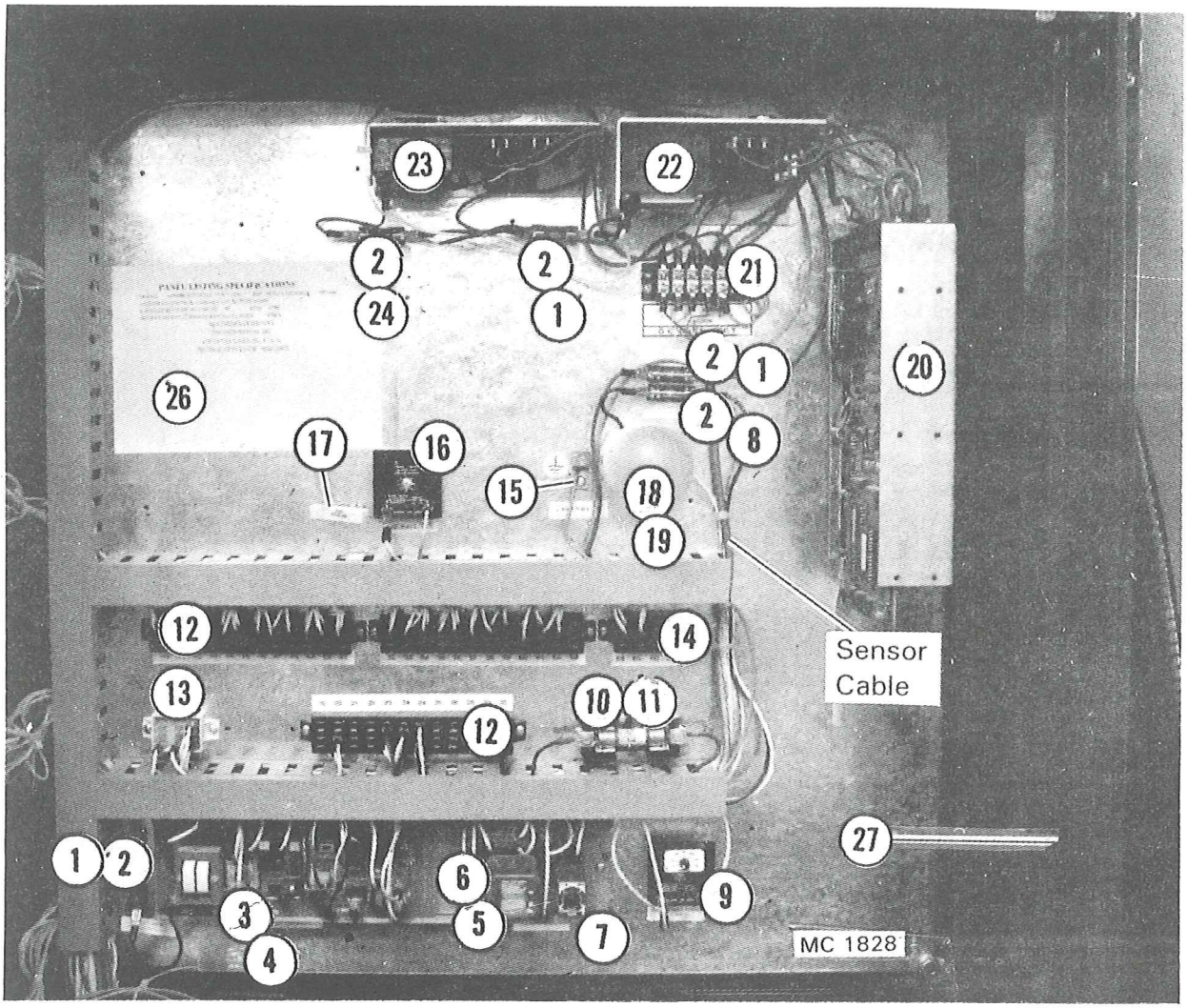


Figure 61

Ref.	Part No.	Qty.	Description
1	124 6937	3	1 Amp Fuse – Slow Blow
2	125 6836	5	Fuse Holder
3	125 6892	1	Moisture Control Board
4	128 5828	1	Snap Track 14" (36cm)
5	021 6809	1	Relay
6	124 6972	1	Relay and Timer Socket Board
7	124 6978	1	60 Minute Adjustable Timer
8	125 6861	1	2 Amp Fuse
9	124 6996	1	0 to 3 Minute Adjustable Level Switch Timer
10	125 6956	1	7 Amp Fuse (NON-7)
11	128 6851	1	Fuse Holder
12	124 6928	3	Terminal Block 12-Position (Black)
13	124 6929	1	Terminal Block 3-Position (White)
14	125 6805	1	Terminal Block 4-Position (Black)
15	125 6918	1	Ground Lug
16	124 6831	1	Time Delay Relay (10) Seconds

Ref.	Part No.	Qty.	Description
17	127 6812	1	Resistor 10W-3K OHM
18	124 6841	1	Light Bulb Socket
19	124 6842	1	50 Watt Rough Service Bulb
20		1	Monitor & Printer Interface Board Holder
	122 7066	1	Monitor Interface Board °Fahrenheit
	122 7067	1	Monitor Interface Board °Celsius
	122 7071	1	Printer Interface Board °Fahrenheit
	122 7072	1	Printer Interface Board °Celsius
21	125 6830	1	Terminal Block-Sensor-6 Position
22	122 7070	1	Printer Power Supply
23	122 7065	1	Moisture Monitor Power Supply
24	125 6838	1	3/4 Amp Fuse
25	124 6214	1	Mount Bracket for Interface Board Holder #
26	124 4877	1	Component Mounting Board
27	125 6952	1	Cabinet 30 x 30" (76 x 76cm)
Not Shown:			
	128 7016	1	Sensor with 40 ft. (12.2m) Cable

MOTOR CONTROL CABINET 10630 OR 10730 (1) FAN – DIRECT START 3Ø 230V W/REMOTE CABINET CONTROLS

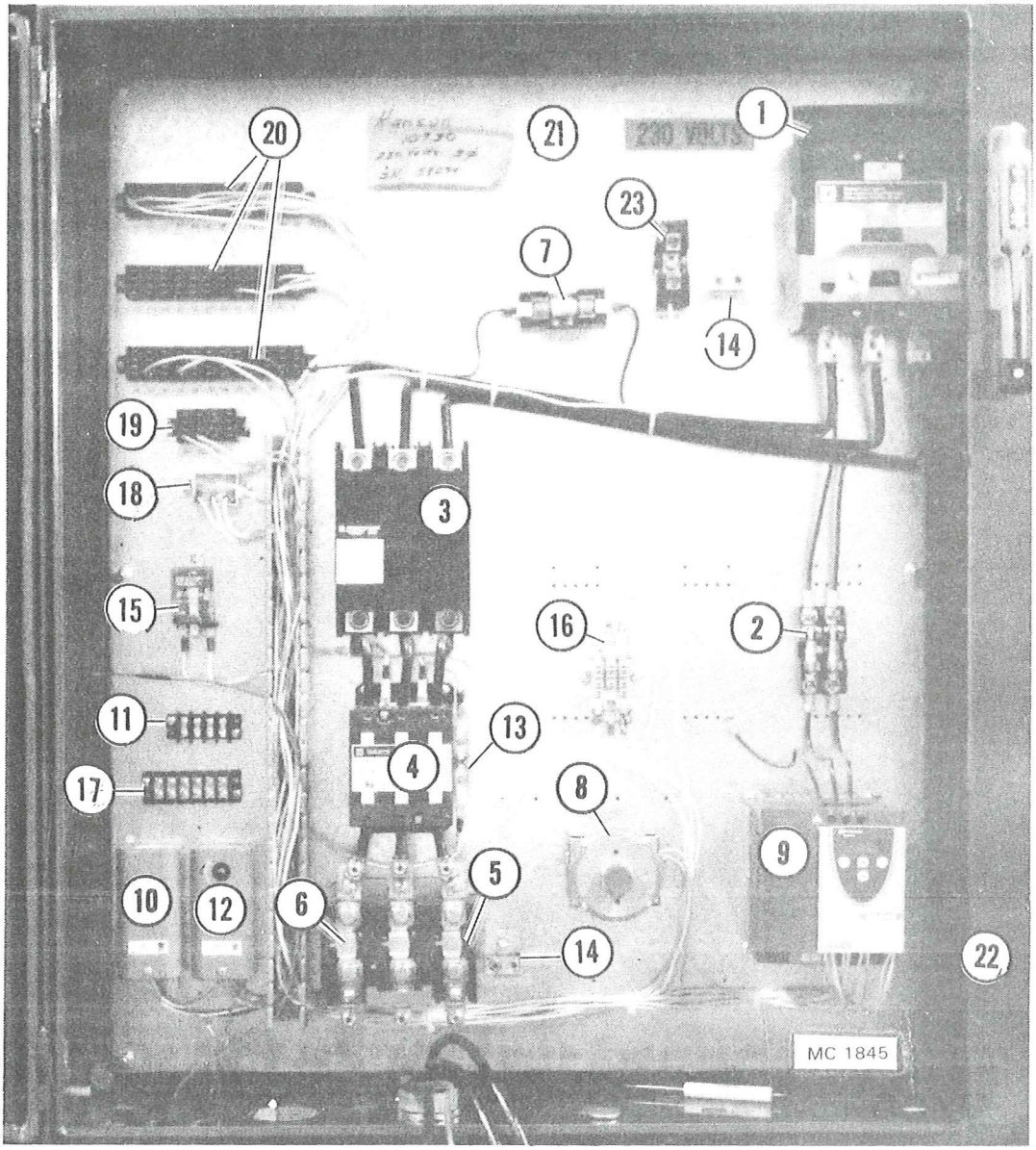


Figure 62

Ref.	Part No.	Qty.	Description
1	1287517	1	Disconnect Switch 150 Amp
	1256945	1	Quick Disconnect Handle & Mechanism
	1256948	1	Lug Kit
2	4906822	2	Fuse R30 Amp CC (AC Speed Controller)
	4906824	1	Fuse Holder-Double
3	1286887	1	Circuit Breaker Q2L-3110
4	1246944	1	Contactor DPA93
	1226861	1	Coil
5	1246856	1	Overload Relay SE012
6	1286820	3	Thermal Unit CC156
7	1256956	1	Fuse 7 Amp NON 7
	1286851	1	Fuse Holder
8	1216849	1	Air Pressure Switch
9	1256976	1	3HP AC Discharge Speed Controller
10	835916	1	High Limit Control

Ref.	Part No.	Qty.	Description
11	1246970	1	Terminal Block (4) Position Screw Type
	1246961	1	Thermocouple 180"(4.57m.)-Remote Temp
12	444603	1	Low Temperature Shutdown Thermostat
13	1246933	1	Auxiliary Contacts (Interlock)
14	1256918	2	Grounding Lug
15	1246954	1	Fill Relay
16	0216809	1	Relay (AC Drive)
	0216810	1	Relay Socket
17	1256830	1	Terminal Block (6) Position Screw Type
18	1246829	1	Terminal Block (3) Position (White) Spade
19	1256805	1	Terminal Block (4) Position (Black) Spade
20	1246928	3	Terminal Block (12) Position (Black) Spade
21	1242881	1	Component Mount Panel
22	1256902	1	High Voltage Cabinet 36x32x8"
23	1276823	1	Isolated Neutral Lug – 230V

MOTOR CONTROL CABINET 101050 (1) FAN - DIRECT START 3Ø 460V W/REMOTE CABINET CONTROLS

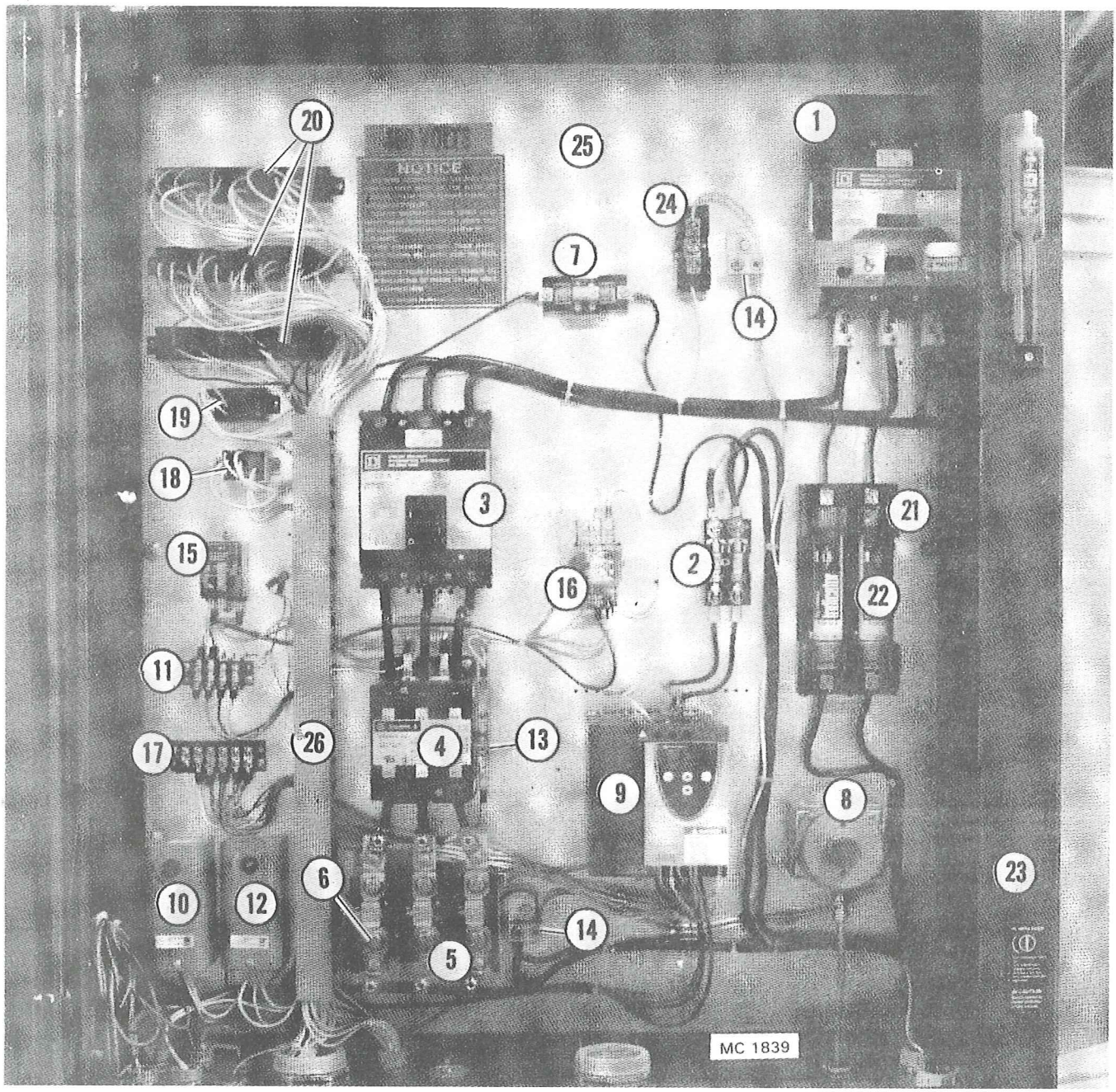


Figure 63

Ref.	Part No.	Qty.	Description
1	1287517	1	Disconnect Switch-Shunt Trip-150 Amp
	1256945	1	Quick Disconnect Handle & Mechanism
	1256948	1	Lug Kit
2	4906822	2	Fuse R30 Amp CC (AC Speed Controller)
	4906824	1	Fuse Holder-Double
3	1286966	1	Circuit Breaker Q0U3100-100 Amp
4	1241082	1	Contactor DPA73
	1226861	1	Coil 9998-DA3V02
5	1246856	1	Overload Relay SE012-86 Amp
6	1286827	3	Thermal Unit CC 87.7
7	1256956	1	Fuse 7 Amp NON 7
	1286851	1	Fuse Holder
8	1216849	1	Air Pressure Switch
9	1256976	1	3HP AC Discharge Speed Controller
10	835916	1	High Limit Control
11	1246970	1	Terminal Block (4) Position Screw Type

Ref.	Part No.	Qty.	Description
12	444603	1	Low Temperature Shutdown Thermostat
13	1246933	1	Auxiliary Contacts (Interlock)
14	1256918	2	Grounding Lug
15	1246954	1	Fill Relay
16	0216809	1	Relay (AC Drive)
	0216810	1	Relay Socket
17	1256830	1	Terminal Block (6) Position Screw Type
18	1246829	1	Terminal Block (3) Position (White) Spade
19	1256805	1	Terminal Block (4) Position (Black) Spade
20	1246928	3	Terminal Block (12) Position (Black) Spade
21	475217	1	Fuse Holder-Double
22	475204	2	Fuse 35 Amp Ferrule
23	1256902	1	High Voltage Cabinet 36x32x8"
24	1276823	1	Isolated Neutral Lug – 230V
25	1242881	1	Component Mount Panel
26	1246961	1	Thermocouple 180" (4.57m.)-RemoteTemp.

MOTOR CONTROL CABINET 101050 (1) FAN - SOFT START 3Ø 230V W/REMOTE CABINET CONTROLS

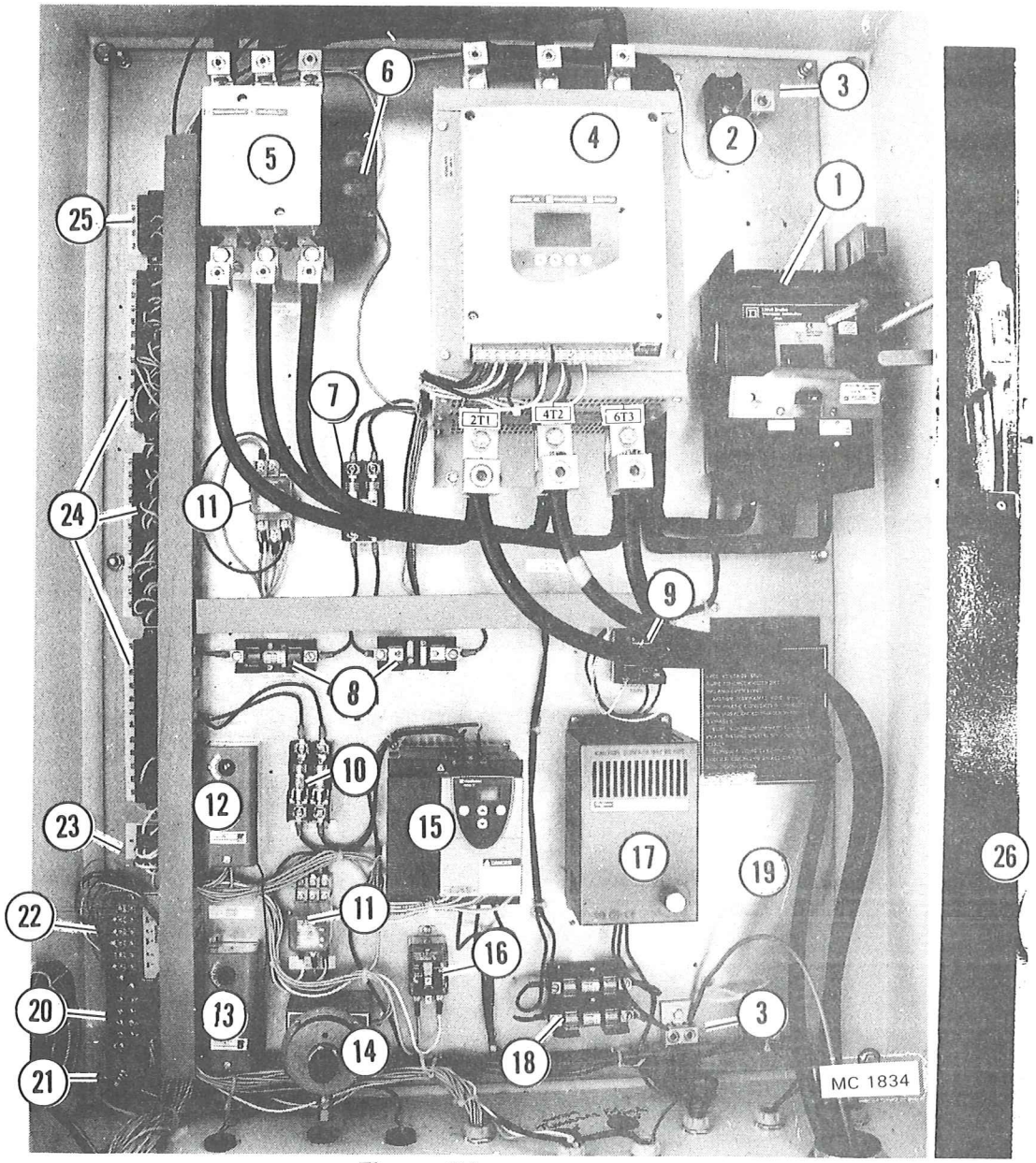


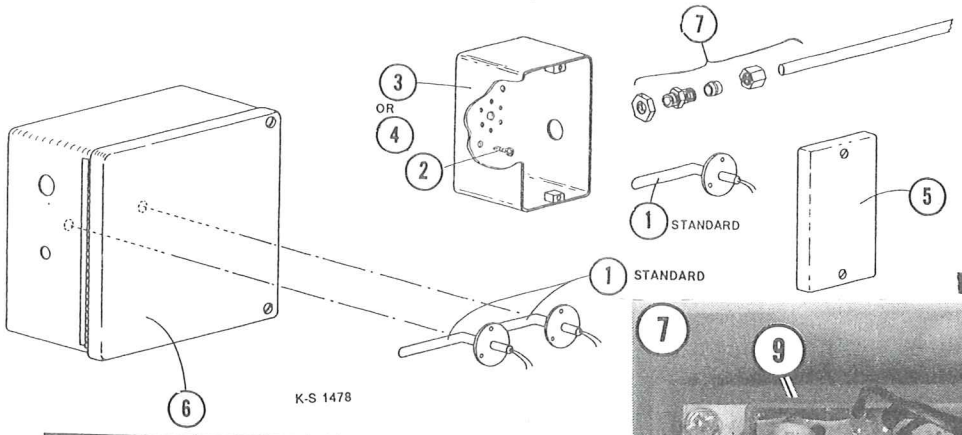
Figure 64

Ref.	Part No.	Qty.	Description
1	4906903	1	Disconnect Switch-Shunt Trip
	1256947	1	Quick Disconnect Handle & Mechanism
2	1276828	1	Isolated Neutral Block
3	1256918	2	Ground Lug
4	1256969	1	Soft Starter 50HP 230V
	4906808	3	Lug Kit (3)
5	1256858	1	Contactor-150 amps
	4906808	2	Lug Kit (3)
6	1256855	1	Auxiliary (Interlock) Contact N.O.
7	1247001	2	Fuse 1/2 Amp Class "CC"
	4906824	1	Fuse Holder
8	1256956	2	Fuse 7 Amp NON
	1286851	1	Fuse Holder-Double
9	475482	1	Time Delay Relay (3) Seconds
10	4906822	2	Fuse R30 Amp CC (AC Controller)
	4906824	1	Fuse Holder-Double
11	0216809	2	Relay
	0216810	2	Relay Socket

Ref.	Part No.	Qty.	Description
12	835916	1	High Limit Control
13	444603	1	Low Temperature Shutdown Thermostat
14	1216849	1	Air Pressure Switch
15	1256976	1	3HP AC Discharge Speed Controller
16	1246954	1	Fill Relay
17	1256974	1	Heating Unit for #1256858
18	1246833	2	Fuse 5 Amp NON
	1286851	2	Fuse Holder
19	1244877	1	Component Mounting Panel 230/460V
20	1246970	1	Terminal Block-Screw (4) Position
21	1246961	1	Thermocouple 180" (457cm.)-RemoteTemp.
22	1256830	1	Terminal Block-Screw (6) Position
23	1246829	1	Terminal Block (3) Position-White
24	1246928	3	Terminal Block (12) Position-Black
25	1256805	1	Terminal Block (4) Position-Black
26	1256970	1	High Voltage Cabinet 42x32x12" (107x81x30cm.) Hoffman

THERMISTORS

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 - 6 x 6 x 4"
7	475389	4	Liquatite Assembly ⅜"



IGNITION BOARD CABINETS MOUNTED INSIDE COOL SECTION (BASE)

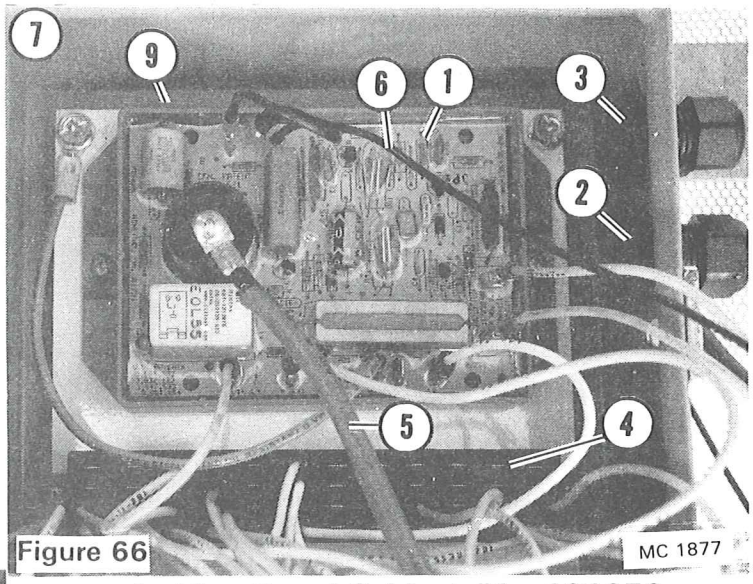


Figure 66

Ignition Board Cabinet #1 - 101050

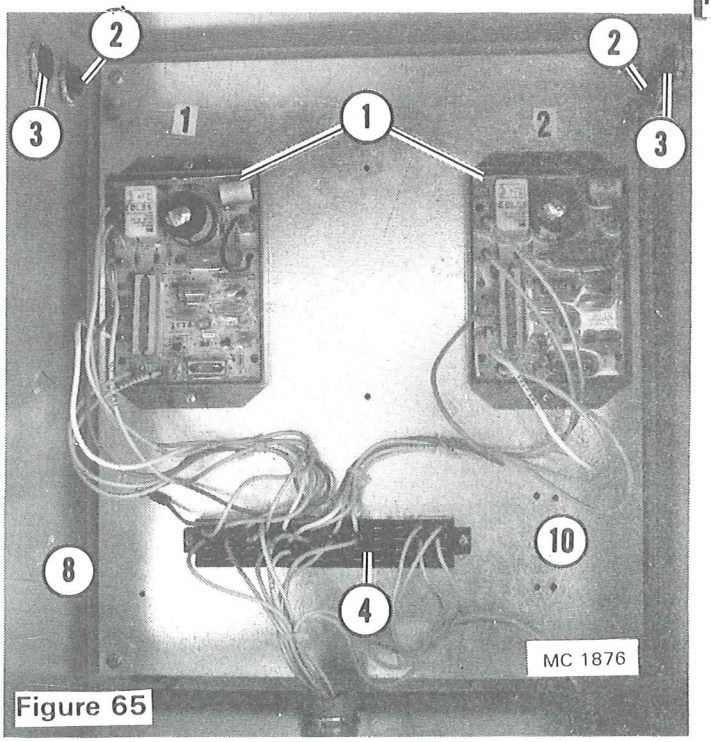


Figure 65

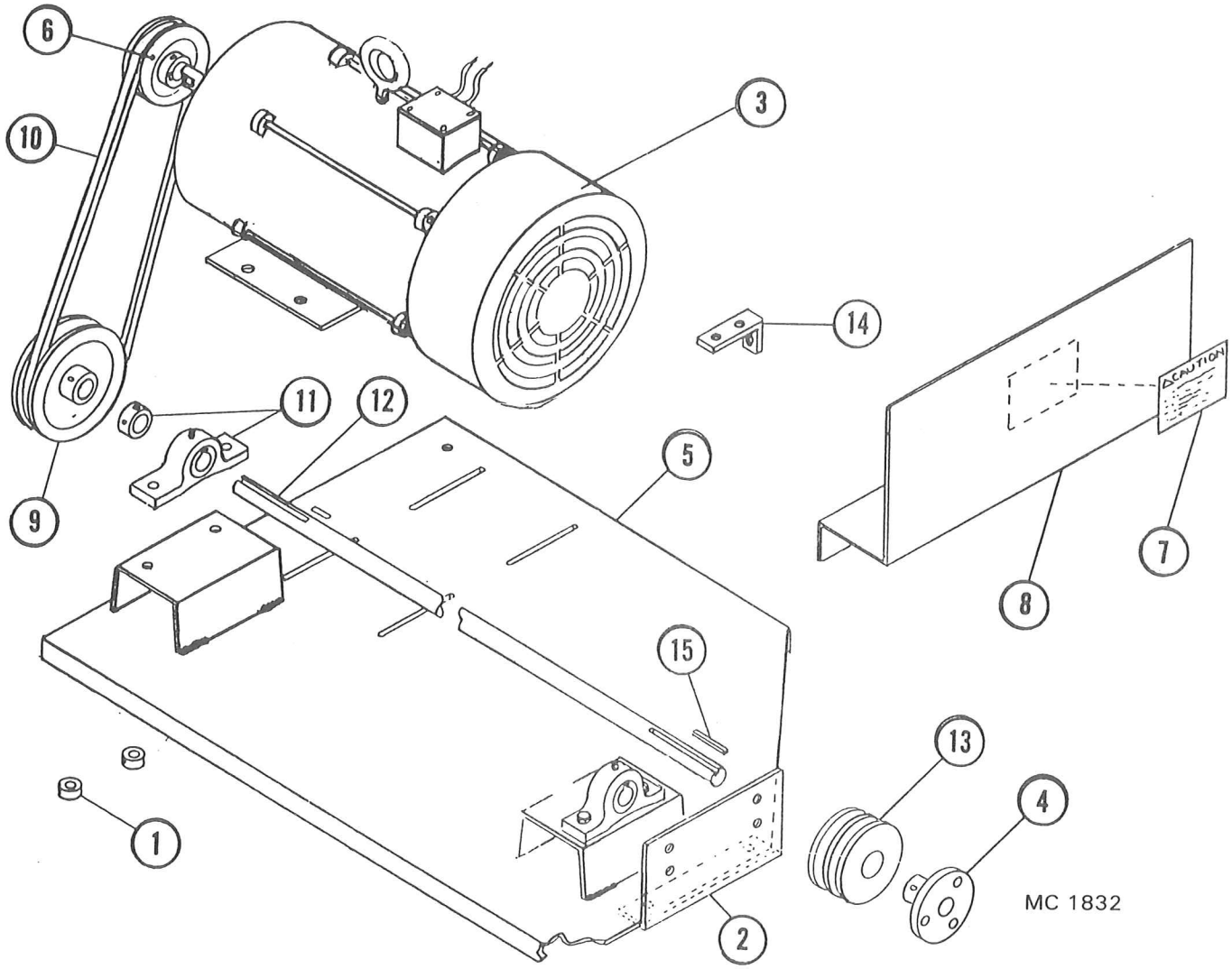
Ignition Board Cabinet - 10630 & 10730

Ref.	Part No.	Qty.	Description
1	978389	AR	Ignition/Flame Monitor Board w/Reset #441959*
	448064	AR	Spark/Flame Sense Probe*
2	1216813	AR	Feed Through Fitting for (1) High Voltage Wire
3	1216814	AR	Feed Through Fitting for 18 ga. Sense Wire
4	1246928	1	Terminal Block 12 Position
5	1216879	AR	Ignition Wire - Special "Radix"
6	1246935	AR	Sense Wire 18ga.
7	1286994	3	Ignition Board Cabinet - 101050
8	475497	1	Ignition Board Cabinet-10520 - 10730
9	1286938	3	Ignition Board Mount Plate - 101050
10	475493	1	Ignition Board Mount Plate - 10520 - 10730

*Not shown

DISCHARGE SYSTEM 3HP (AC)
MOTOR DRIVE AND MOUNT

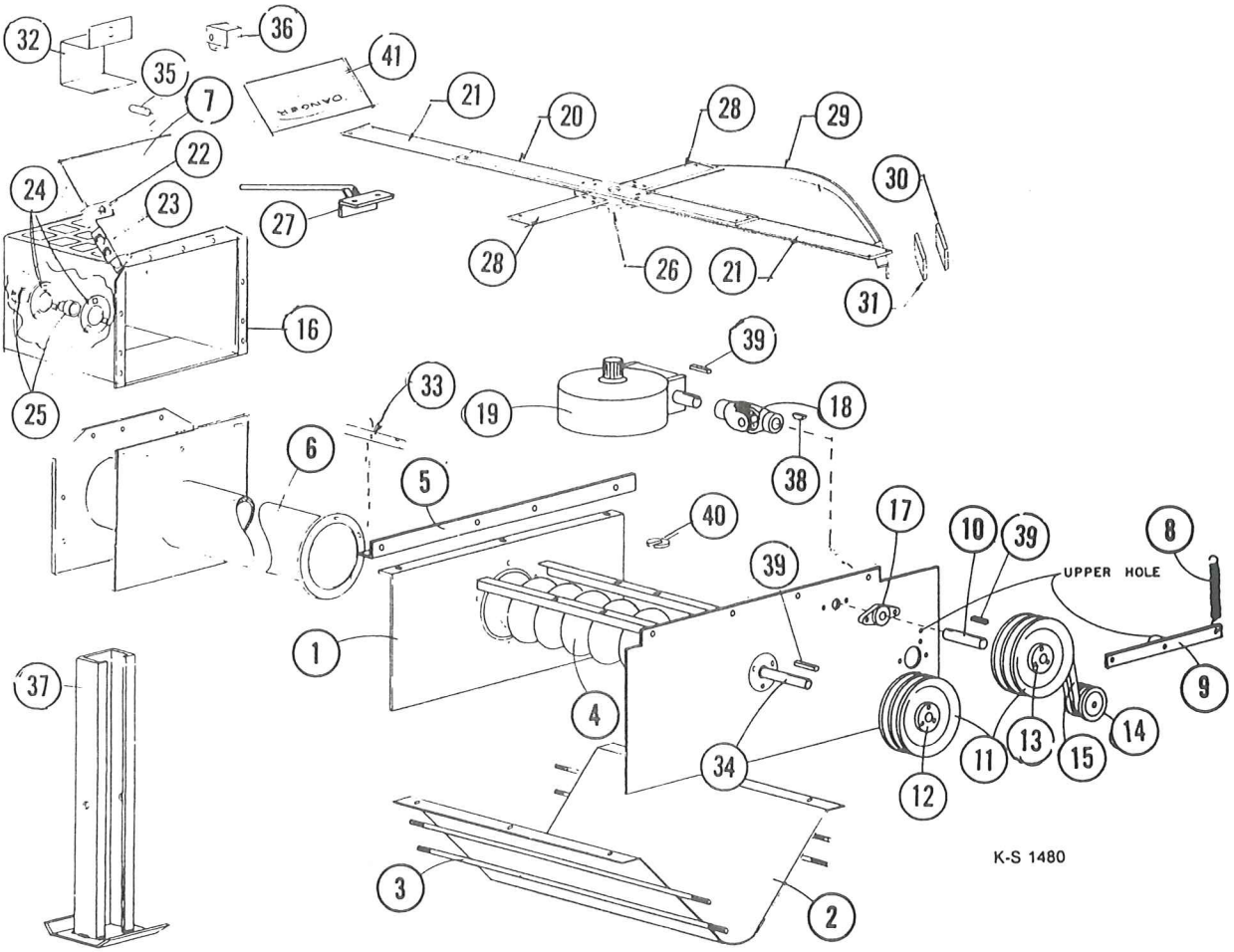
Ref.	Part No.	Qty.	Description
1	441021	2	Spacer, Motor Mount
2	441969	1	Sweep Motor Atttach. Plate
3	1286818	1	3HP 3Ø 230V AC Motor
4	475236	1	1" J.A. Bushing
5	475240	1	Drive Plate AC Motor Weldment
6	475235	1	Pulley, 3¾" O.D.
7	475272	1	Decal, Caution
8	475244	1	Belt Guard
9	475234	1	Pulley, 6½" O.D.
10	475237	1	Drive Belt B32
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



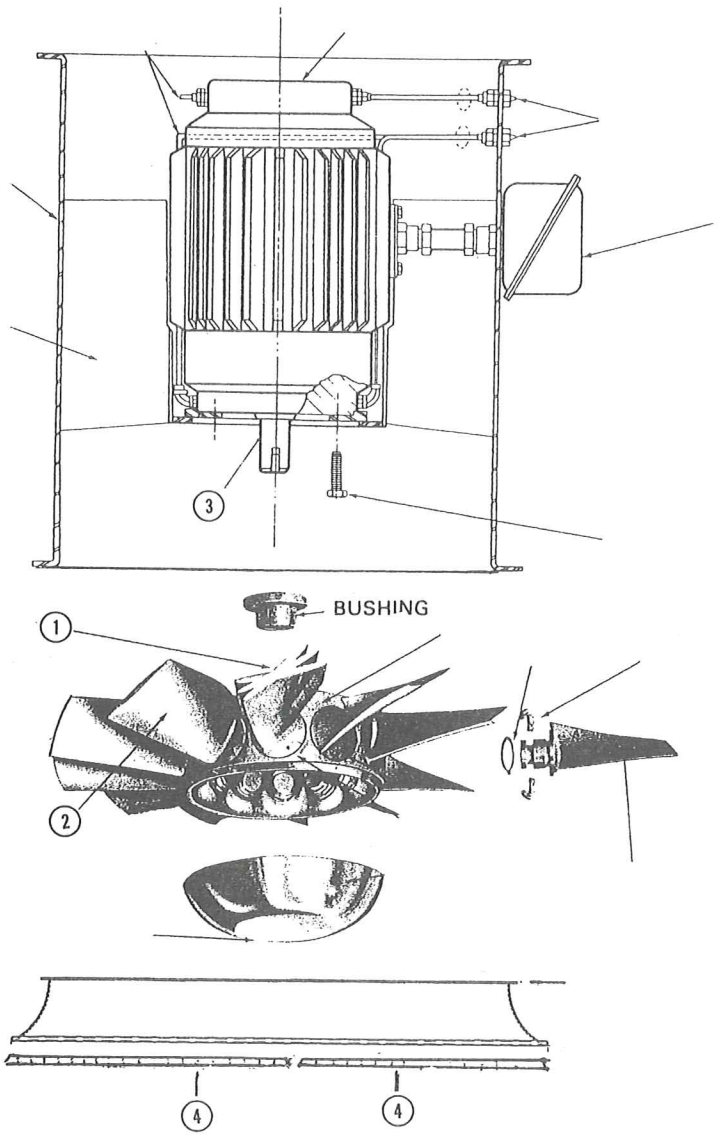
PARTS LIST – SWEEP & DISCHARGE AUGER

Ref.	Part No.	Qty.	Description
1	475044	1	Discharge Sump Body
2	475071	1	Sump Trough
3	475053	4	Sump Tie Bolts
4	475086	1	Auger 8 x 97½"up to & incl.SN 56930
	475435	1	Auger 8x120" starting with SN 57355
	475593	1	Auger 8x120"for Moisture Monitor Sensor
5	439779	1	Attachment Angle
6	475315	1	Discharge Auger Tube up to & incl. SN 56930
	475437	1	Discharge Auger Tube starting with SN 57355
	475595	1	Discharge Auger Tube for Moisture Monitor Sensor
7	475052	1	Auger Extension Overload Door
8	441966	1	Spring, 6" Long
9	444601	1	Belt Tightener
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 2/3V560
16	475049	1	Unload Auger Discharge
17	821372	1	Bearing, 1" Bore w/Casting

Ref.	Part No.	Qty.	Description
18	820026	1	"U" Joint
19	437752	1	Gear Box, 50:1
20	475522	1	Sweep Arm Brace
21	834683	2	Sweep Arm, Long
22	475170	1	Switch Mount Clip
23	475171	1	Switch 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	Discharge Switch
36	475172	1	Discharge Switch Cover
37	475150	6	Leg Extension 28-5/16" (71.9cm.)Std.
	475321	6	Leg Extension 43" (109cm.) Optional
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



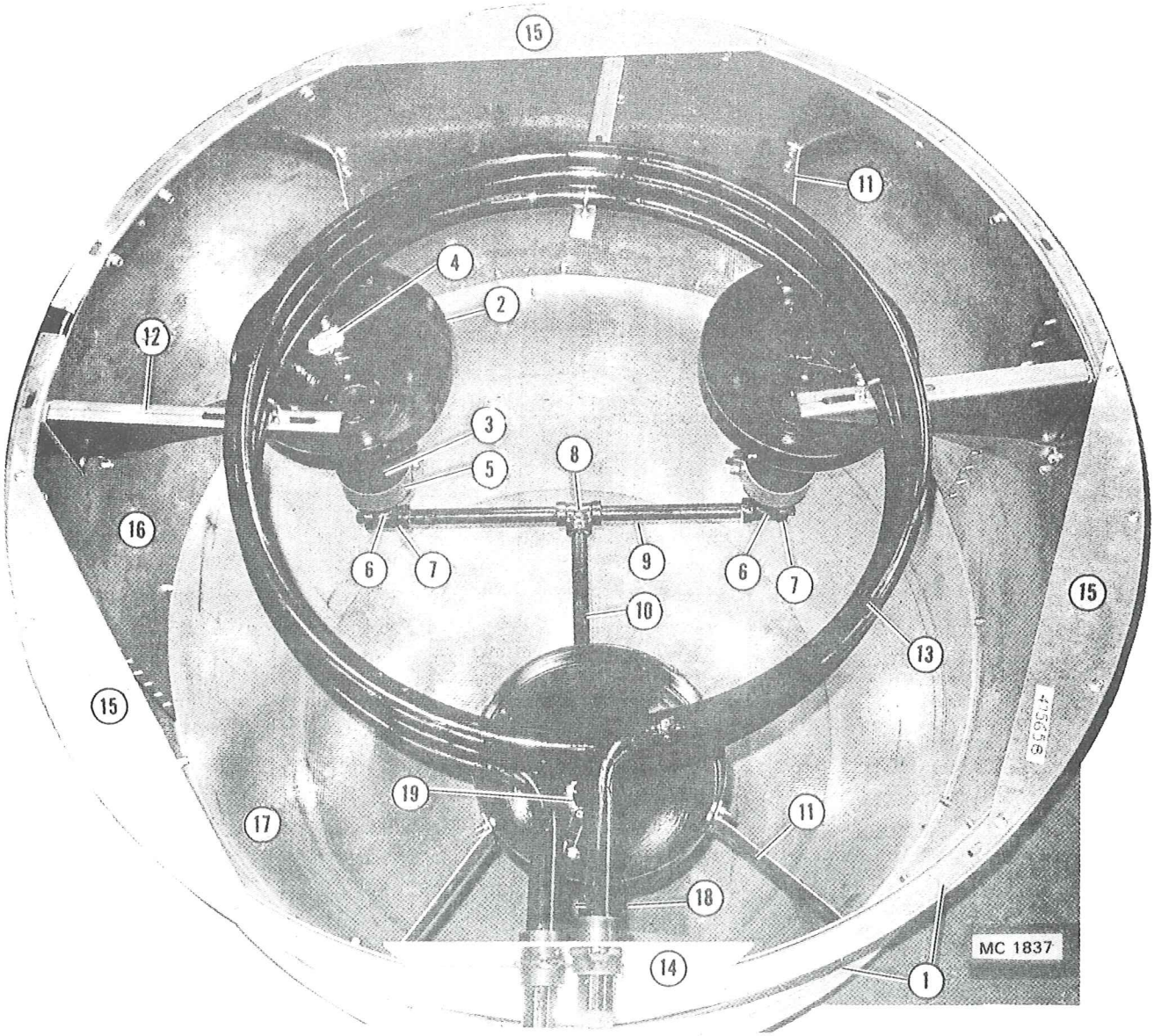
FAN ASSEMBLIES - 20HP, 30HP, & 50HP



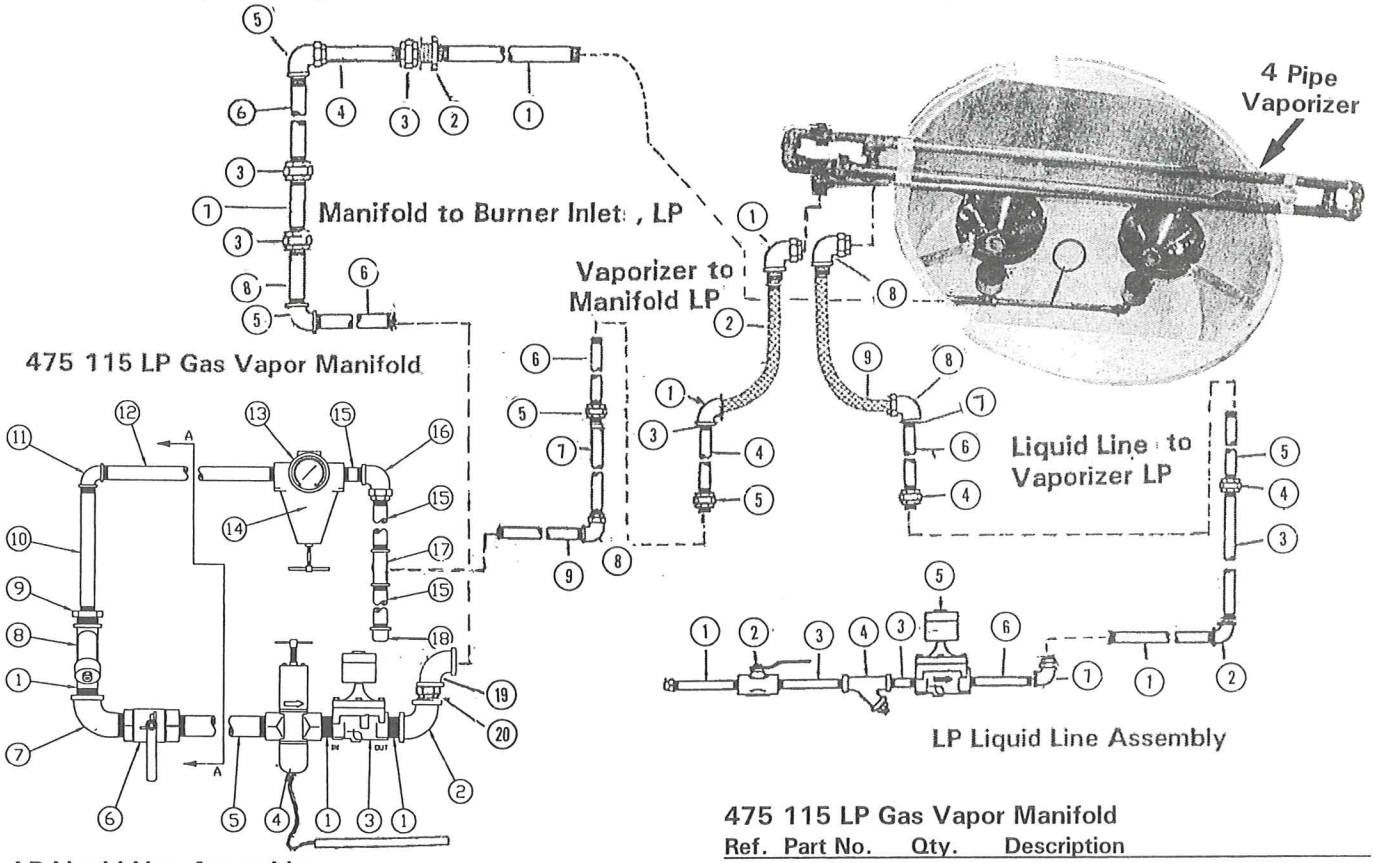
Ref.	Part No.	Qty.	Description
1	475652	1	20HP Motor, Fan, & Housing - 10520
	475653	1	30HP Motor, Fan, & Housing - 10630
	475654	1	30HP Motor, Fan, & Housing - 10730
	475651	1	50HP Motor, Fan, & Housing - 101050
2	475815	1	20HP Fan - 10520
	475816	1	30HP Fan - 10630
	475817	1	30HP Fan - 10730
	475818	1	50HP Fan - 101050
3	475819	1	20HP Motor - 10520
	475820	1	30HP Motor - 10630 & 10730
	475821	1	50HP Motor - 101050
4	475782	2	Fan Guard 1/2 - 10520, 10630, & 10730 (36" dia.)
	475780	2	Fan Guard 1/2 - 101050 (40" dia.)

BURNER

Ref.	Part No.	Qty. 30HP	Qty. 50HP	Description
1	475307	4	–	Burner Cylinder Ring 105/106/107
	475756	–	4	Burner Cylinder Ring 101050
2	835368	2	3	Burner Shield
3	835367	2	3	Burner
	433888	2	–	LP Orifice 3/16" 10520 & 10630
	475496	2	3	LP Orifice 1/4" 10730 & 101050
	475496	2	–	NG Orifice 1/4" 10520 & 10630
	475806	–	2	NG Orifice 5/16" 101050 Only
	475787	2	–	NG Orifice 3/8" 10730
4	448068	2	3	Flame Control Probe
5	833745	2	3	Air Damper
6	835366	2	3	½ x 7" (12.7mm. x 18cm.) Schedule 80 Pipe
	1218029	1	1	¾" to ½"(19 to 12.7mm) Reducer Bushing
7	1218032	1	2	¾" (19mm.) 90° Elbow Ex. Hvy.
8	1218031	1	2	¾" (19mm) Tee Ex. Hvy.
9	1288049	–	2	¾x10½" (19mmx26.7cm) Pipe Ex.Hvy.
	1258064	1	–	¾x19½" Nipple
10	475549	–	1	¾x20½" (19mmx52cm) Pipe Ex. Hvy.
11	440105	4	6	Burner Retainer
12	475703	–	3	Support Bracket – Vaporizer
		–	3	U Bolt 5/16" (7.94mm)
		–	6	5/16" (7.94mm) Flatwasher
		–	6	5/16" (7.94mm) Whiz Locknut
13		1	–	Vaporizer
	475700	–	1	Vaporizer (3) Ring 101050
14		1	–	Vaporizer Mount
	475753	–	1	Vaporizer Mount (3) Ring 101050
15	475658	–	3	Profile Plate
16	475642	–	2	Burner Cylinder 101050
	475641	2	–	Burner Cylinder 105/106/107
17	475695	1	–	Burner Transition 30HP
	475694	–	1	Burner Transition 50HP
18	1288046	–	1	¾x12½" (19mmx32cm) Pipe Ex.Hvy.
19	475787	–	1	NG Orifice 3/8" (9.5mm.)



10520, 10630 & 10730 LP GAS MANIFOLD & PIPING



LP Liquid Line Assembly

Ref.	Part No.	Qty.	Description
1		1	½ x 12" Nipple Ex. Hvy.
2	823 387	1	½" Hand Valve
3	120 8047	2	½ x 2" Nipple Ex. Hvy.
4	823 297	1	½" "Y" Strainer
			Screen for 823 297
5	465 554	1	½" Solenoid Valve
	833 618		Coil
	834 656		Diaphragm Kit
6	475 114	1	½ x 5½" Nipple Ex.Hvy.
7	128 8010	1	½" x 90° Union Elbow Ex. Hvy.

Liquid Line to LP Vaporizer

Ref.	Part No.	Qty.	Description
1	440 957	1	½ x 20" Nipple Ex. Hvy.
2	121 8036	1	½" x 90° Elbow Ex. Hvy.
3	128 8071	1	½ x 36" Pipe Ex. Hvy.
4	121 8022	2	½" Union Ex. Hvy.
5		1	½ x 66" Pipe Ex. Hvy.
6	120 7520	1	½ x 21" Pipe Ex. Hvy.
7	125 8029	1	1" to ½" Reducing Bushing
8	125 8026	2	1" x 90° Elbow Ex. Hvy.
9	475 507	1	1 x 24" Braided Hose

Vaporizer to Vapor Manifold

Ref.	Part No.	Qty.	Description
1	125 8026	2	1" x 90° Elbow Ex. Hvy.
2	475 706	1	1 x 24" Braided Hose
3	125 8029	1	1" to ½" Reducing Bushing
4	121 8057	1	½ x 24¾" Pipe Ex. Hvy.
5	121 8022	2	½" Union Ex. Hvy.
6		1	½ x 66" Pipe Ex. Hvy.
7	128 8071	1	½ x 36" Pipe Ex. Hvy.
8	121 8036	1	½" x 90° Elbow Ex. Hvy.
9		1	½ x 22" Pipe Ex. Hvy.

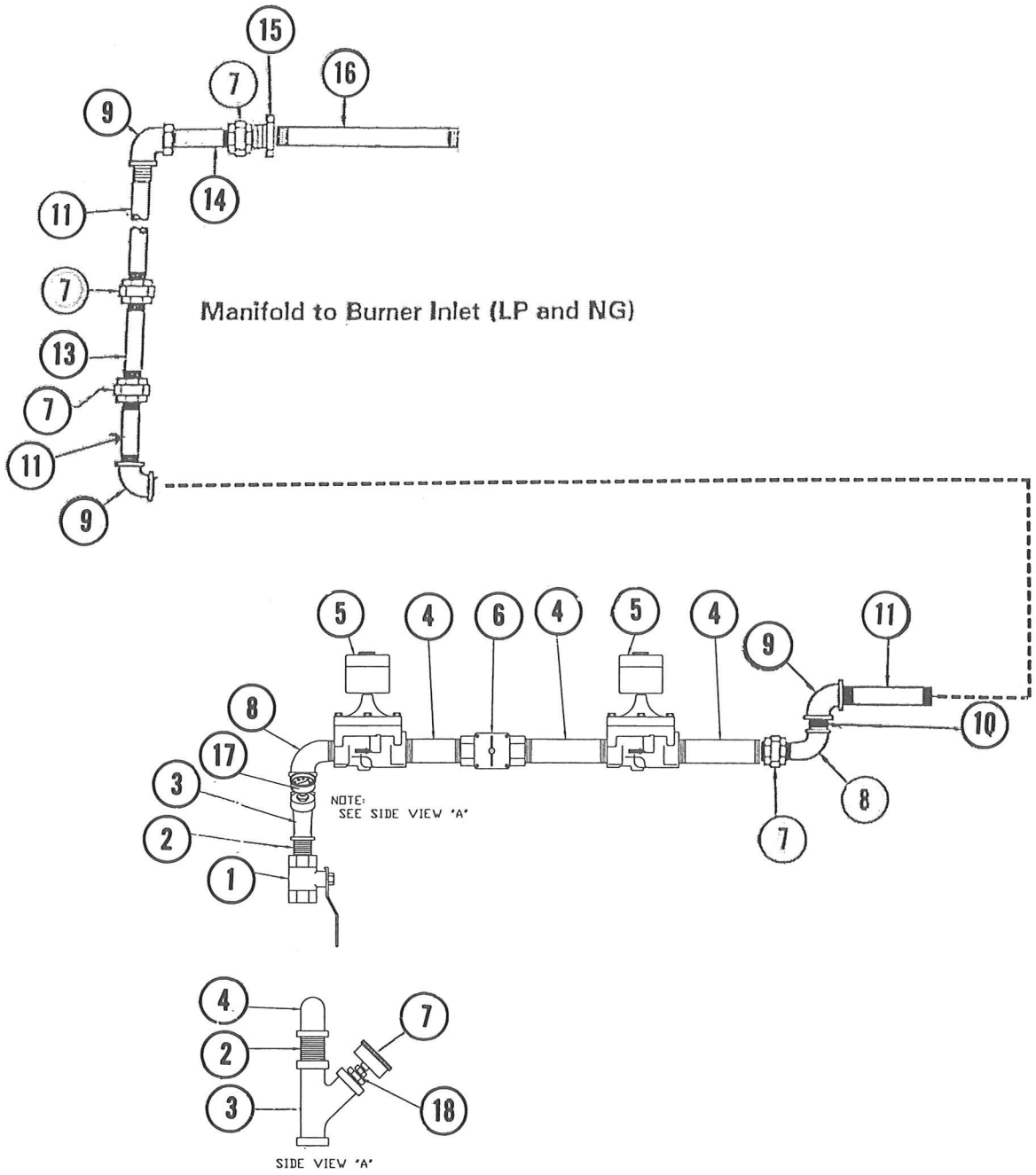
475 115 LP Gas Vapor Manifold

Ref.	Part No.	Qty.	Description
1	837 268	3	1 x 2½" Nipple Ex. Hvy.
2	125 8026	1	1" x 90° Elbow Ex. Hvy.
3	465 556	1	1" Solenoid Valve
4	437 086	1	1" Modulating Valve
	437 214		Power Element 140-250°F
	437 215		Diaphragm Kit
	437 216		Valve & Seat Kit
	475 310		Coil
	475 309		Diaphragm Kit
5	120 8066	1	1 x 4½" Nipple Ex. Hvy.
6	120 8012	1	1" Gas Valve
7	125 8028	1	1" x 90° Street Elbow Ex. Hvy.
8	125 8095	1	1" Gas Strainer #13408
	837 659		Screen for 125 8095 Strainer
9	125 8029	1	1" to ½" Reducing Bushing
10	128 8052	1	½ x 3½" Nipple Ex. Hvy.
11	120 8036	1	½" x 90° Elbow Ex. Hvy.
12	440 811	1	½ x 16" Nipple Ex. Hvy.
13	445 520	1	Pressure Gauge 0-60 psig
14	445 521	1	Gas Pressure Regulator ½"
15	121 8094	3	½ x 1½" Nipple Ex. Hvy.
16	128 8010	1	½" x 90° Union Elbow Ex. Hvy.
17	120 8035	1	½" Tee Ex. Hvy.
18	123 8080	1	½" Pipe Cap Ex. Hvy.
19	475 128	1	1" x 90° Union Elbow Ex. Hvy.
20	125 8030	1	1" Close Nipple Ex. Hvy.

Manifold to Burner Inlet

Ref.	Part No.	Qty.	Description
1	128 8037	1	¾ x 13" Nipple Ex. Hvy.
2	127 8020	1	1" to ¾" Reducing Bushing
3	125 8031	3	1" Union Ex. Hvy.
4	128 8022	1	1 x 9" Nipple Ex. Hvy.
5	125 8026	2	1" x 90° Elbow Ex. Hvy.
6	120 7516	2	1 x 21" Pipe Ex. Hvy.
7		1	1 x 66" Pipe Ex. Hvy.
8	128 5445	1	1 x 38" Pipe Ex. Hvy.

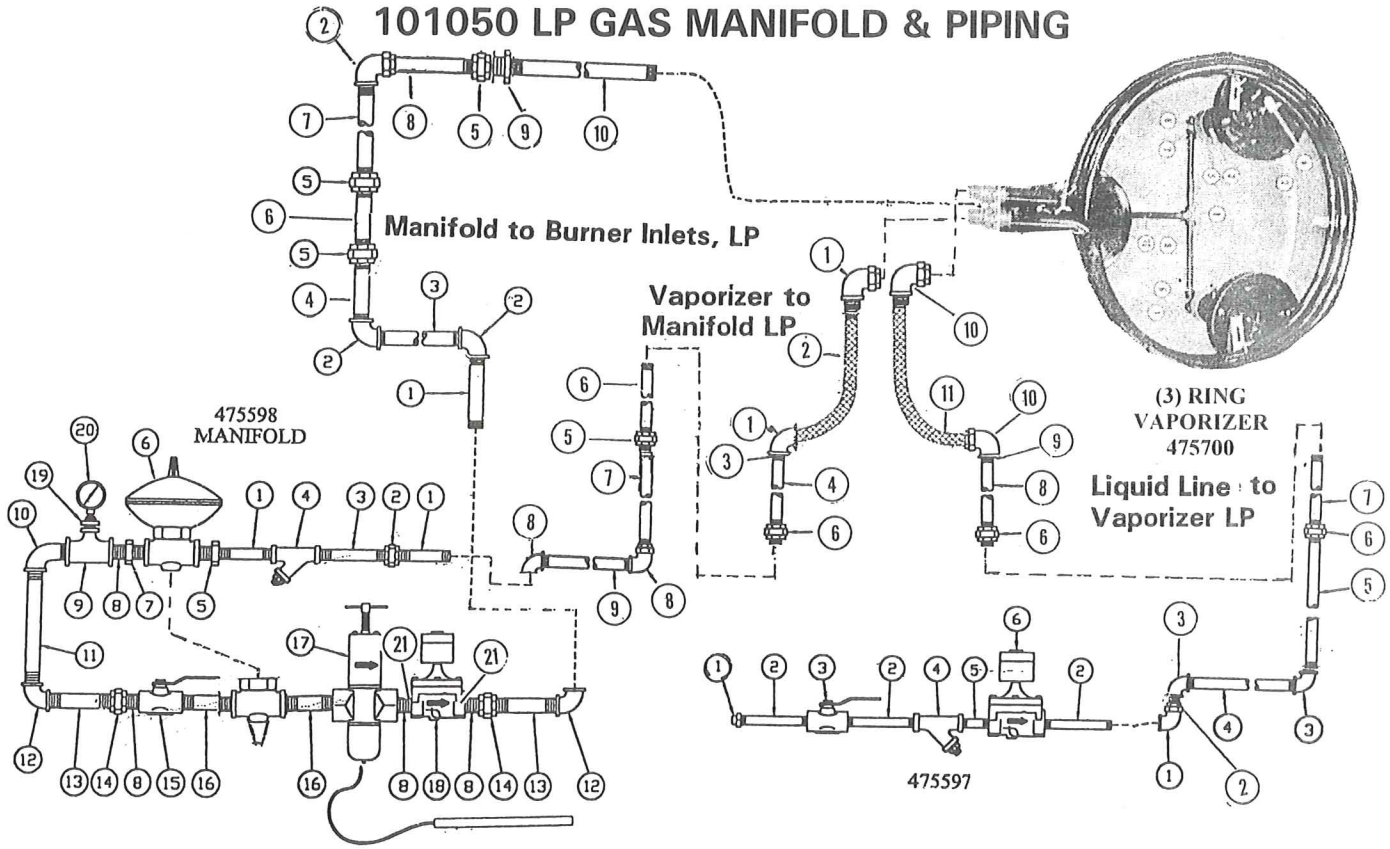
10520, 10630 & 10730 NATURAL GAS MANIFOLD & PIPING



Ref.	Part No.	Qty.	Description
1	1288012	1	1" Hand Valve
2	837268		1 x 2½" Nipple Ex. Hvy.
3	1258095	1	1" "Y" Strainer
	823293		1" Screen
4	1258017	3	1 x 5" Nipple Ex. Hvy.
5	465556	2	1" Solenoid Valve
	475310		Replacement Coil
	475309		Diaphragm Kit
6	437086	1	1" Modulating Valve 140-250°F
	437214		Power Element Only 140-250°F (60 to 121°C) 15 ft. (4.6m.) Capillary Code "D" Standard
	437215		Diaphragm Kit

Ref.	Part No.	Qty.	Description
7	1258031	4	1" Union Ex. Hvy.
8	1258028	2	1" x 90° Street Elbow Ex. Hvy.
9	1258026	3	1" x 90° Elbow Ex. Hvy.
10	1258030	1	1" Close Nipple Ex. Hvy.
11	1207516	2	1 x 21" Pipe Ex. Hvy.
12	1285445	1	1 x 38" Pipe Ex. Hvy.
13		1	1 x 66" Pipe Ex. Hvy.
14	1288022	1	1 x 9" Nipple Ex. Hvy.
15	1278020	1	1" to ¾" Reducer Bushing
16	1288037	1	¾ x 13" Nipple Ex. Hvy.
17	445520	1	Pressure Gauge 0-60 psig.
18	1278132	1	⅜ to ¼" Reducer Bushing

101050 LP GAS MANIFOLD & PIPING



475 598 LP Manifold Assembly

Ref.	Part No.	Qty.	Description
1	121 8092	2	¾ x 4" Nipple Ex. Hvy.
2	475 137	1	¾" Union Ex. Hvy.
3	121 8098	1	¾ x 5" Nipple Ex. Hvy.
4	121 8060	1	¾" Strainer
5	475 559	1	1½ to ¾" Reducing Bushing
6	475 481	1	LP Pressure Regulator-16 to 35 psi
7	125 8036	1	1½ to 1¼" Reducing Bushing
8	123 8069	4	1¼" Close Nipple Std.
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" Nipple Std.
12	123 8051	2	1¼" 90° Elbow Std.
13	128 8001	1	1¼ x 4½" Nipple Std.
14	123 8053	2	1¼" Union Std.
15	123 7003	1	1¼" Hand Valve
16	128 8003	2	1¼ x 3½" Nipple Std.
17	123 7024	1	1¼" Modulating Valve 140-250°F
	122 7036		Power Element 140-250°F
	122 9993		Seat Kit (stem, disc holder & diaphragm
	122 7006		Diaphragm
18	465 556		1" Solenoid Valve
	833 618		Coil Only
	475 309		Diaphragm
19	127 8132	1	⅜" to ¼" Reducing Bushing
20	445 521	1	Pressure Gauge 0-60 psig.
21	123 8094	2	1¼ to 1" Reducing Bushing

Manifold to Burner Inlet, LP & NG

Ref.	Part No.	Qty.	Description
1	128 8024	1	1¼ x 5" Nipple Std.
2	123 8051	3	1¼" 90° Elbow Std.
3	475 554	1	1¼ x 21" Nipple Std.
4		1	1¼ x 52" Nipple Std.
5	123 8053	3	1¼" Union Std.
6		1	1¼ x 67" Nipple Std.
7	123 8054	1	1¼ x 22" Nipple Std.
8	128 8072	1	1¼ x 7" Nipple Std.
9	123 8078	1	¾ to 1¼" Reducing Bushing
10	128 8046	1	¾ x 12½" Close Nipple Std.

475 597 3/4" Liquid Line Assembly

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

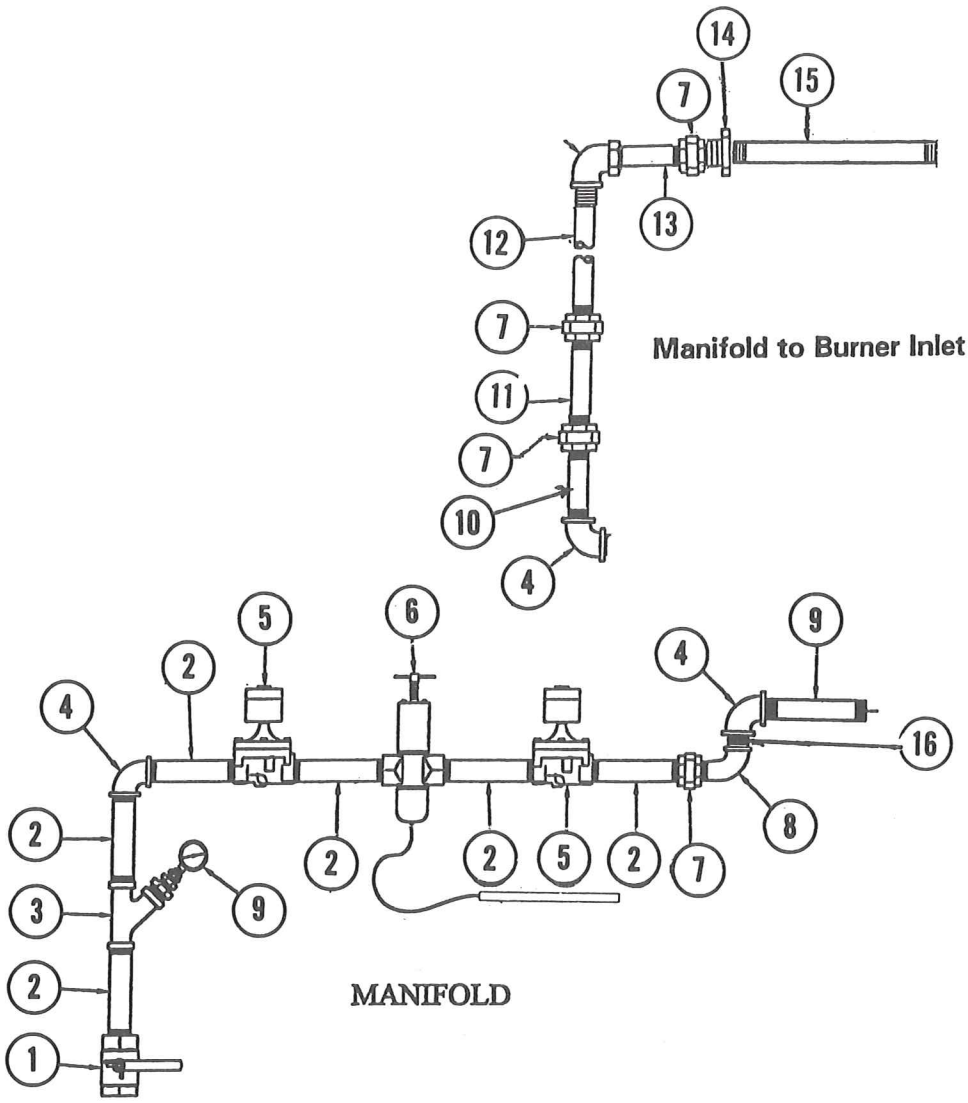
Liquid Line Assembly to LP Vaporizer

Ref.	Part No.	Qty.	Description
1	128 8019	2	¾" Union Elbow Ex. Hvy.
2	121 8005	2	¾" Close Nipple Ex. Hvy.
3	121 8027	2	¾" 90° Elbow Ex. Hvy.
4		1	¾ x 19" Nipple Ex. Hvy.
5		1	¾ x 45½" Nipple Ex. Hvy.
6	121 8072	2	¾" Union Ex. Hvy.
7		1	¾ x 69½" Nipple Ex. Hvy.
8		1	¾ x 39" Nipple Ex. Hvy.
9	127 8020	1	¾ to 1" Reducing Bushing
10	125 8026	2	1" 90° Elbow Ex. Hvy.
11	475 706	1	1 x 24" Braided Hose

Vaporizer to LP Manifold

Ref.	Part No.	Qty.	Description
1	125 8026	2	1" 90° Elbow Ex. Hvy.
2	475 706	1	1 x 24" Braided Hose
3	127 8020	1	¾ to 1" Reducing Bushing
4		1	¾ x 39" Nipple Ex. Hvy.
5	121 8072	2	¾" Union Ex. Hvy.
6		1	¾ x 69½" Nipple Ex. Hvy.
7		1	¾ x 45½" Nipple Ex. Hvy.
8	121 8027	2	¾" 90° Elbow Ex. Hvy.
9	120 7518	1	¾ x 21" Nipple Ex. Hvy.

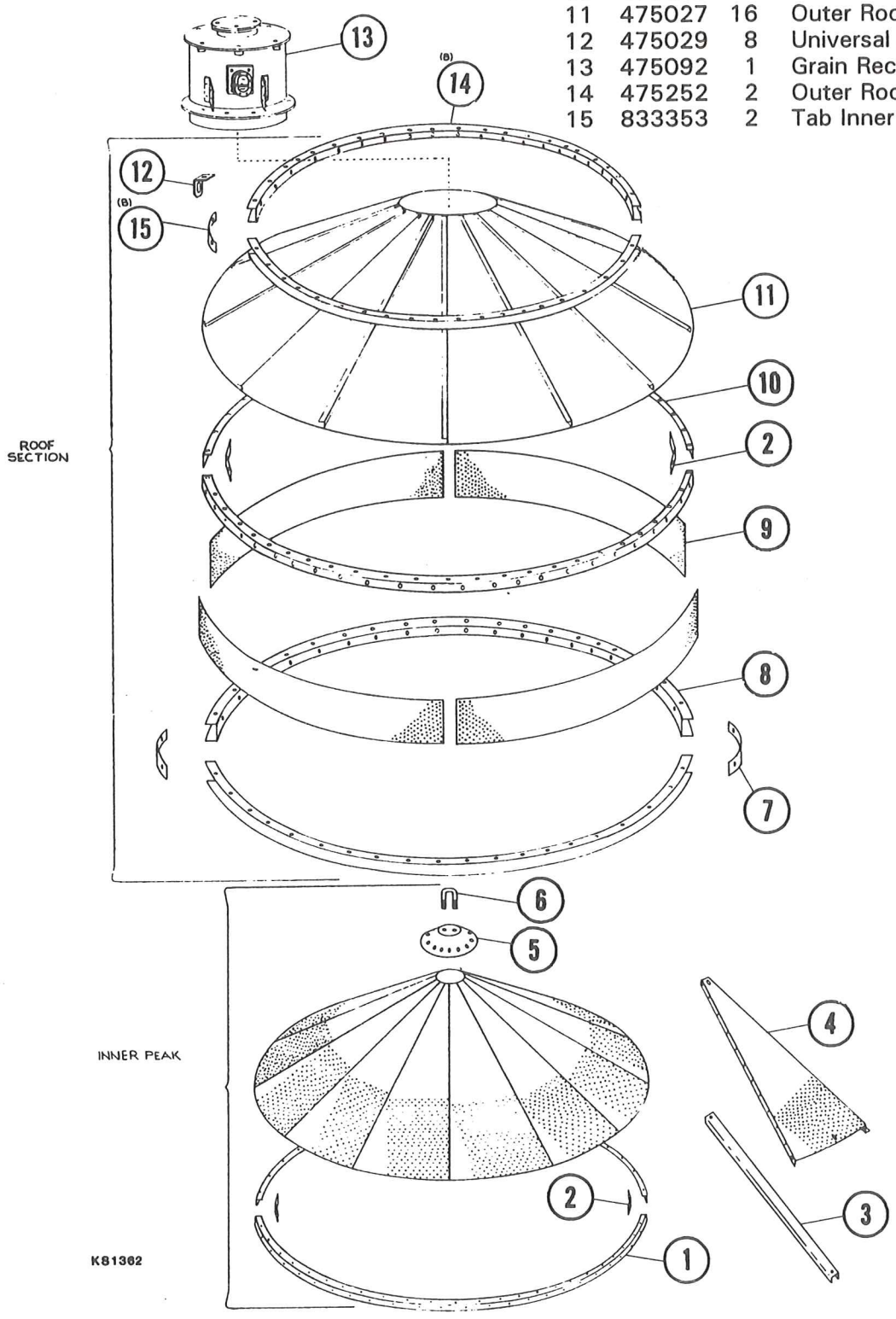
101050 NATURAL GAS MANIFOLD & PIPING



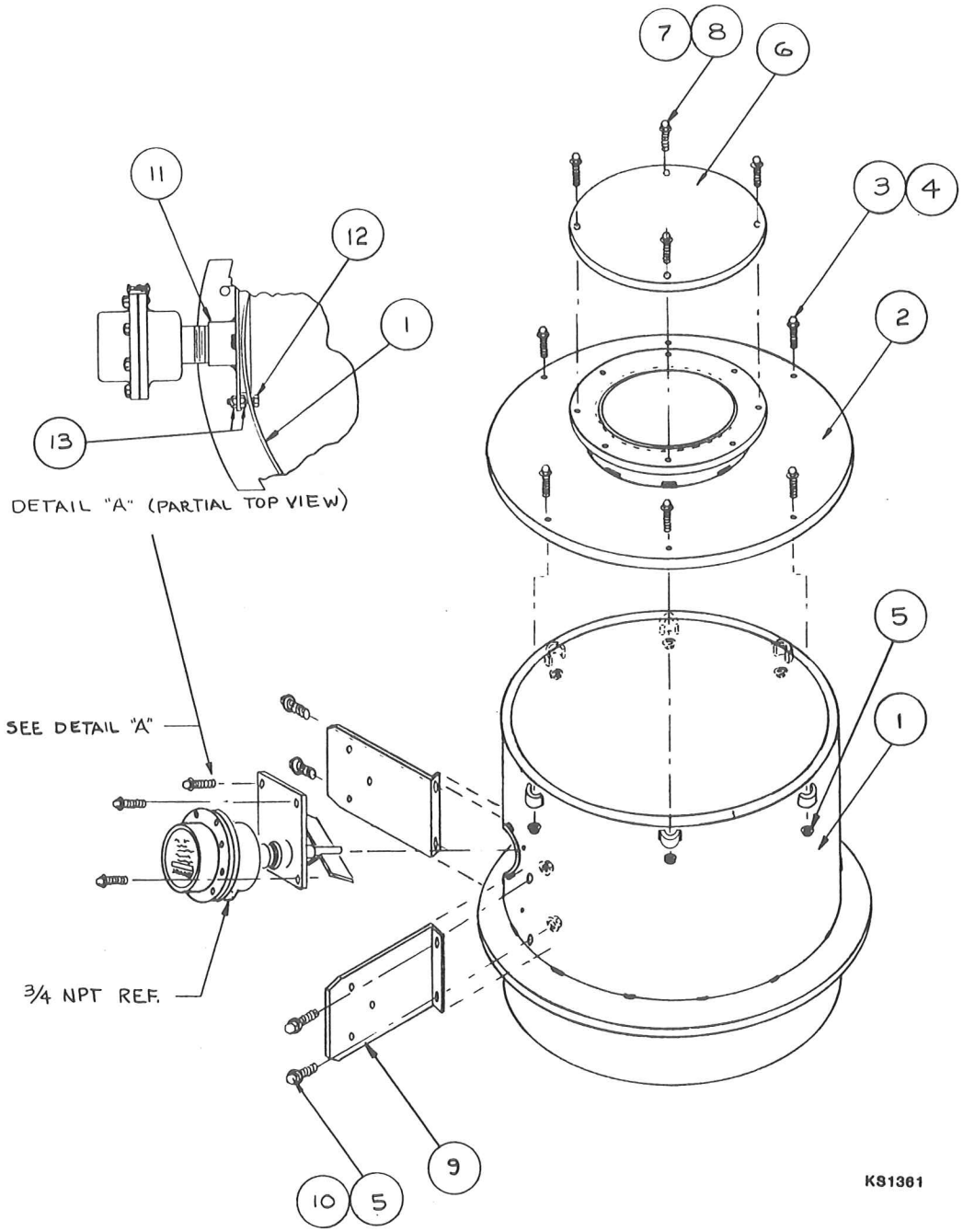
Ref.	Part No	Qty.	Description
1	123 7003	1	1¼" Hand Valve Standard
2	123 8055	6	1¼ x 4" Nipple Standard
3	475 560	1	1¼" Strainer
4	123 8051	1	1¼" 90° Elbow Standard
5	128 7001	2	1¼" Solenoid
	4607		Coil Only
	122 7039		Repair Kit
6	123 7024	1	1¼ Modulating Valve
	122 7036	1	Power Element 140-250°F (60 to 121°C) 15 ft. (4.6m.) Capillary - Code "D" (Standard)
	122 9993		Seat Kit (stem, disc holder, & diaphragm
	122 7006		Diaphragm
7	123 8053	1	1¼ Union
8	123 8062	1	1¼" Street Elbow
9	123 8070	1	1¼ x 23" Std. Pipe
10			1¼ x 52" Std. Pipe
11			1¼ x 67" Std. Pipe
12	123 8054	1	1¼ x 22" Std. Pipe
13	128 8072	1	1¼ x 7" Std. Nipple
14	123 8078	1	¾ to 1¼" Reducer Bushing
15	128 8046	1	¾ x 12½" Ex. Hvy. Nipple
16	123 8069	1	1¼" Std. Close Nipple

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

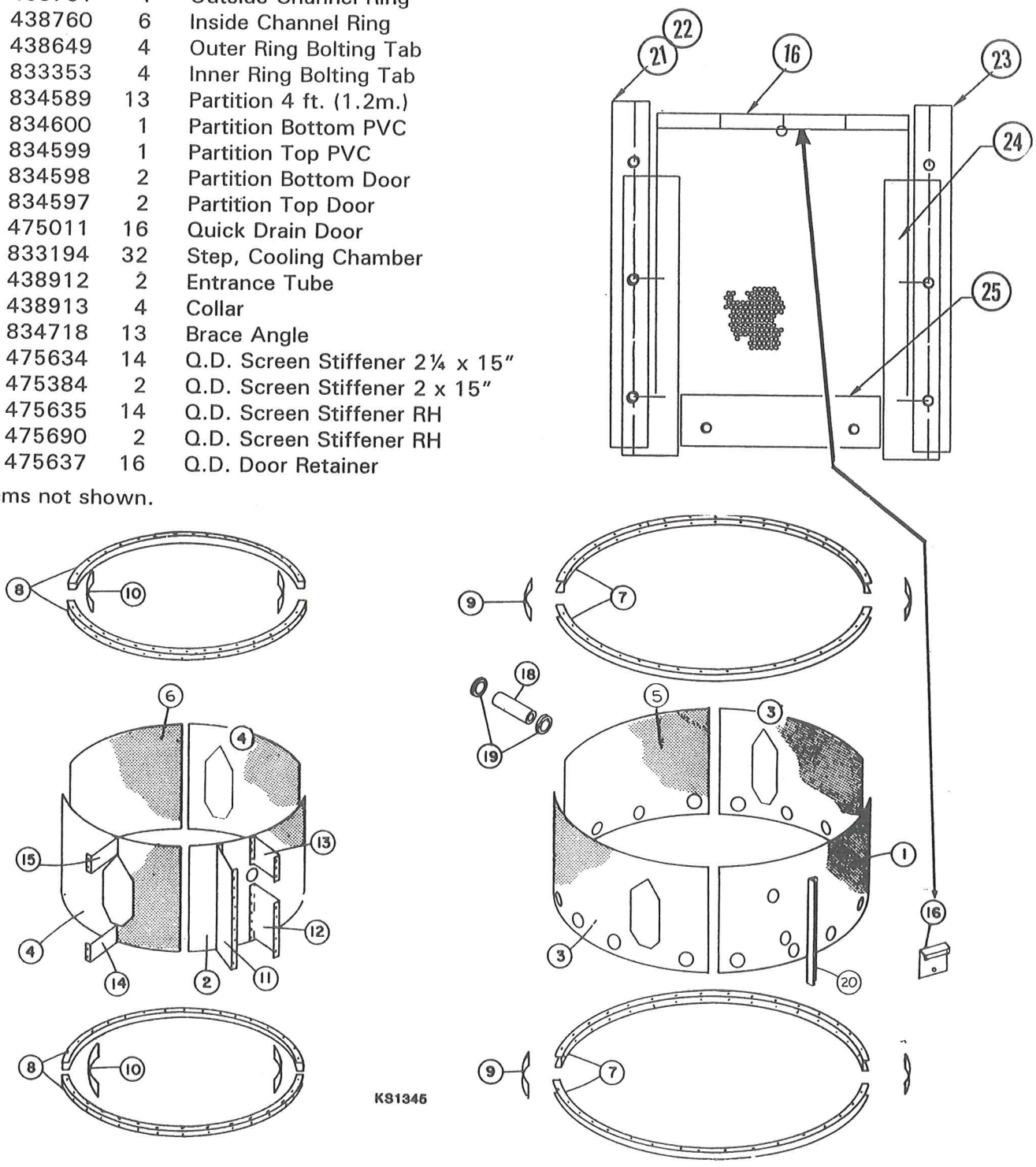


Ref.	Part No.	Qty.	Description
1	475030	1	Grain Receiving Weld.
2	475091	1	Receiving Tube Weld.
3	475094	6	3/8-16 x 2" HHCS
4	095013	6	3/8 Flat Washer
5	434111	10	3/8-16 Whiz Hex Nut
6	475037	1	Receiving Tube Cover
7	837524	4	5/16-18 x 3/4" HWHCS Whiz
8	434632	4	5/16-18 Whiz Hex Nut
9	475058	2	Ladder 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

COOLING SECTION – 10520, 10630, & 10730
10 ft. (3m.) Diameter

Ref.	Part No.	Qty.	Description
1	475683	1	Outer Control Box Screen - Aluminum
2	834536	1	Inner Control Box Screen - Galvanized
3	475681	2	Outer Door Screen - Aluminum
4	834534	2	Inner Door Screen - Galvanized
5	475685	1	Outer Cooling Screen - Aluminum
6	834531	1	Inner Screen - Galvanized
7	438761	4	Outside Channel Ring
8	438760	6	Inside Channel Ring
9	438649	4	Outer Ring Bolting Tab
10	833353	4	Inner Ring Bolting Tab
11	834589	13	Partition 4 ft. (1.2m.)
12	834600	1	Partition Bottom PVC
13	834599	1	Partition Top PVC
14	834598	2	Partition Bottom Door
15	834597	2	Partition Top Door
16	475011	16	Quick Drain Door
17*	833194	32	Step, Cooling Chamber
18	438912	2	Entrance Tube
19	438913	4	Collar
20	834718	13	Brace Angle
21	475634	14	Q.D. Screen Stiffener 2¼ x 15"
22	475384	2	Q.D. Screen Stiffener 2 x 15"
23	475635	14	Q.D. Screen Stiffener RH
24	475690	2	Q.D. Screen Stiffener RH
25	475637	16	Q.D. Door Retainer

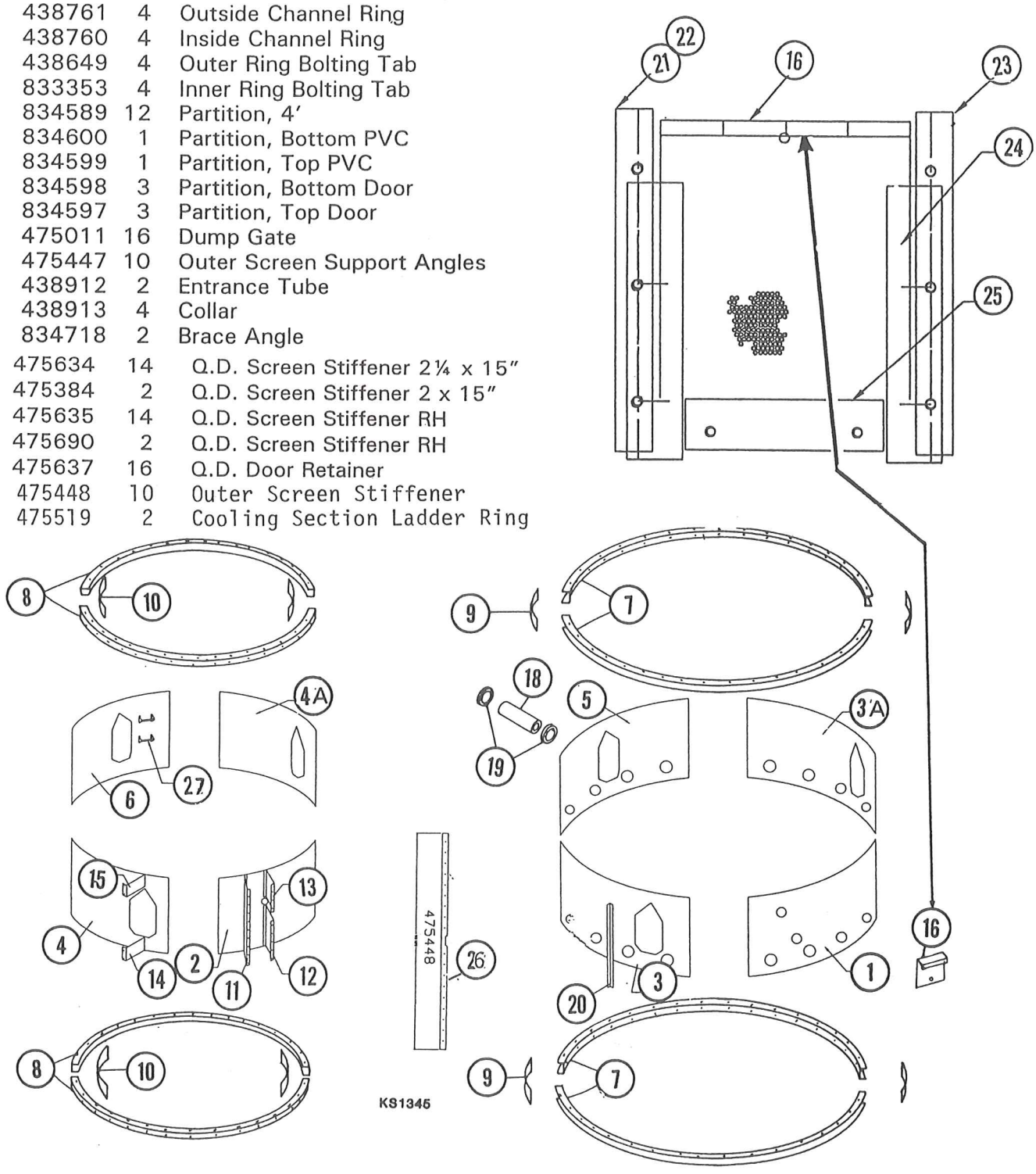
*Items not shown.



KS1345

101050 COOLING SECTION

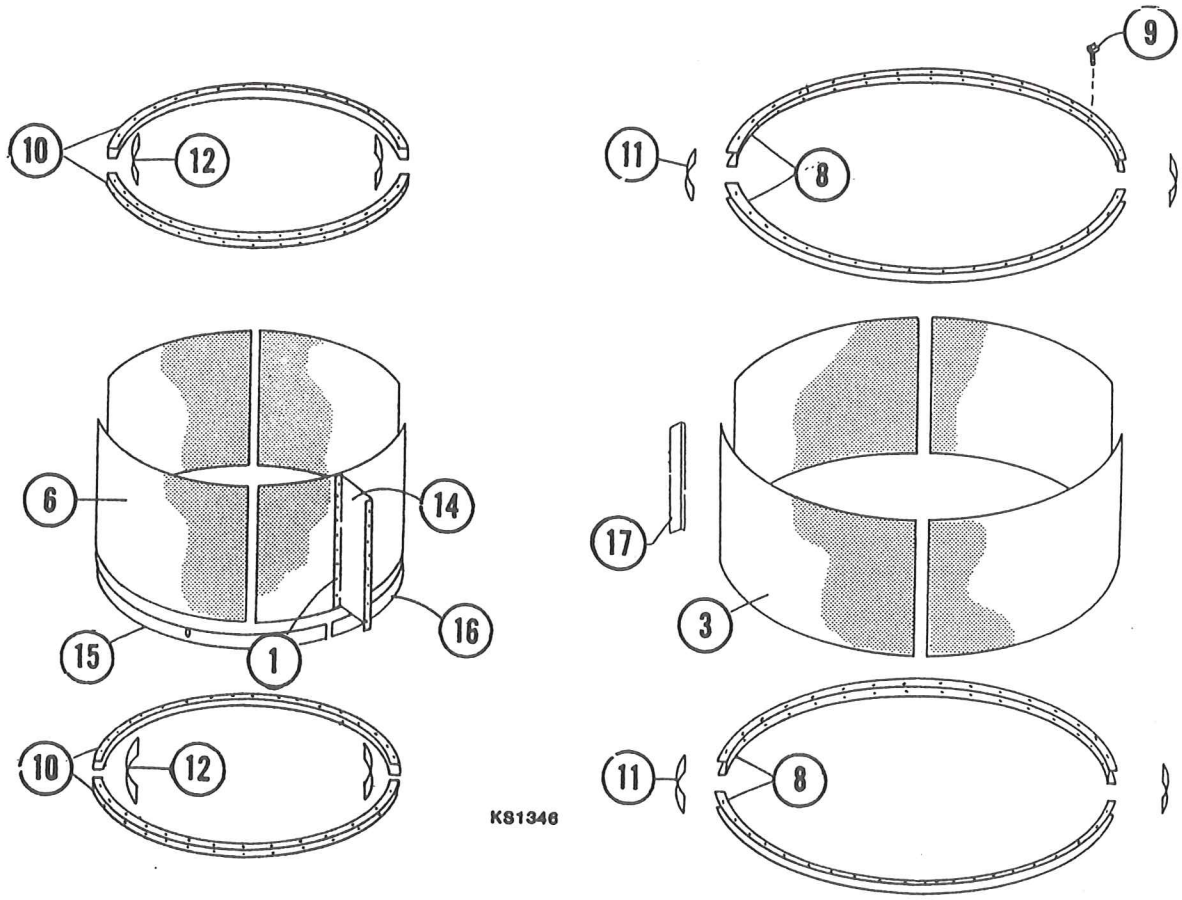
Ref.	Part No.	Qty.	Description
1	475443	1	Outer Control Box Sheet AL
2	834536	1	Inner Control Box Sheet
3	475441	1	Outer Door Sheet (Offset) AL
3A	475442	1	Outer Door Sheet (Offset) AL
4	834534	1	Inner Door Sheet (Offset)
4A	475446	1	Inner Door Sheet (Offset)
5	475444	1	Outer Door Sheet (Center) AL
6	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	475634	14	Q.D. Screen Stiffener 2¼ x 15"
22	475384	2	Q.D. Screen Stiffener 2 x 15"
23	475635	14	Q.D. Screen Stiffener RH
24	475690	2	Q.D. Screen Stiffener RH
25	475637	16	Q.D. Door Retainer
26	475448	10	Outer Screen Stiffener
27	475519	2	Cooling Section Ladder Ring



HEAT SECTION
10 ft. (3m.) Diameter

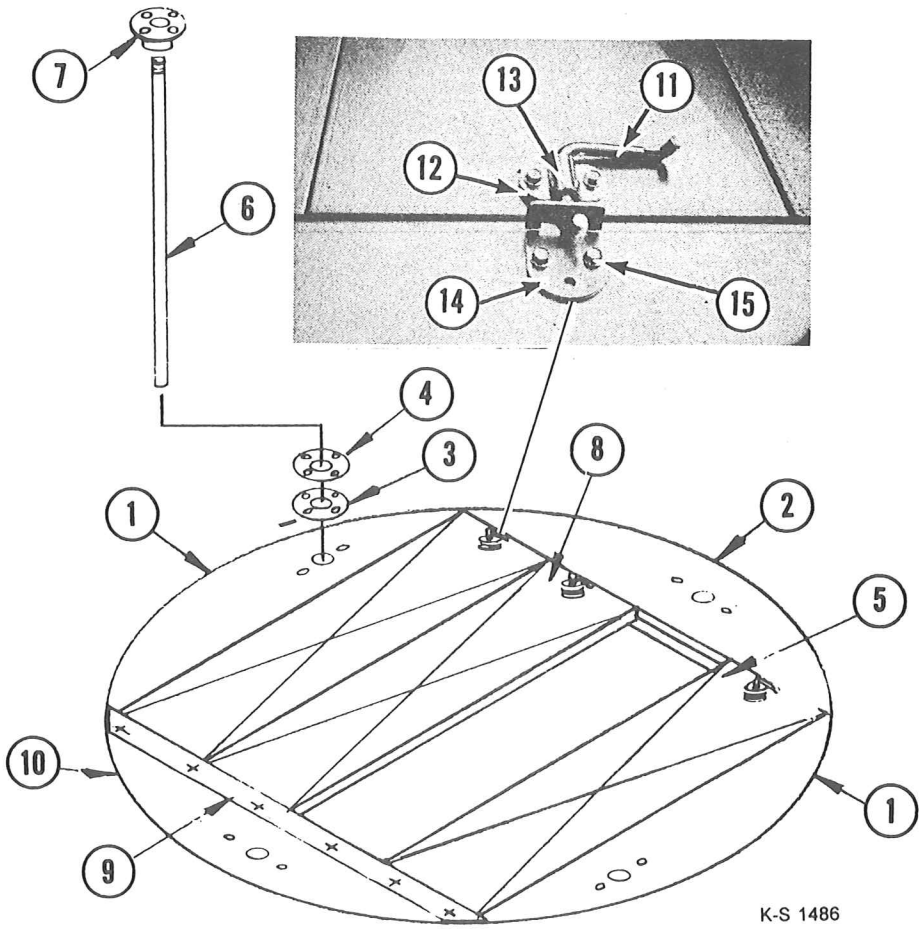
Ref.	Part No.	Qty.	Description
1	834065	288	¼ x ½ (6.35 x 12.7mm.) Pop Rivet
2*	834133	144	¼ x 9/16" (6.35 x 14.3mm.) Pop Rivet
3	475440	4	Outer 4 ft. (1.22m.) Screen - Aluminum
4*	0008307	100	5/16-18 x ¾ (7.9 x 19mm.) Truss Head Bolt
5*	0008308	76	5/16-18 x ½" (7.9 x 12.7mm.) Truss Head Bolt
6	834531	4	Inner 4 ft. (1.22m.) Screen - Galvanized
7*	0008304	304	5/16-18 (7.9mm.) Whiz Locknut
8	438761	4	Outside Channel Ring
9	0008306	128	5/16-18 x ¾" (7.9 x 19mm.) Hex Washer Hd. Bolt
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 ft. (1.22m.)
15	475104	2	Cleanout Plenum Strip Long
16	475105	2	Cleanout Plenum Strip Short
17**	475447	10	Outer Screen Support Angle

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

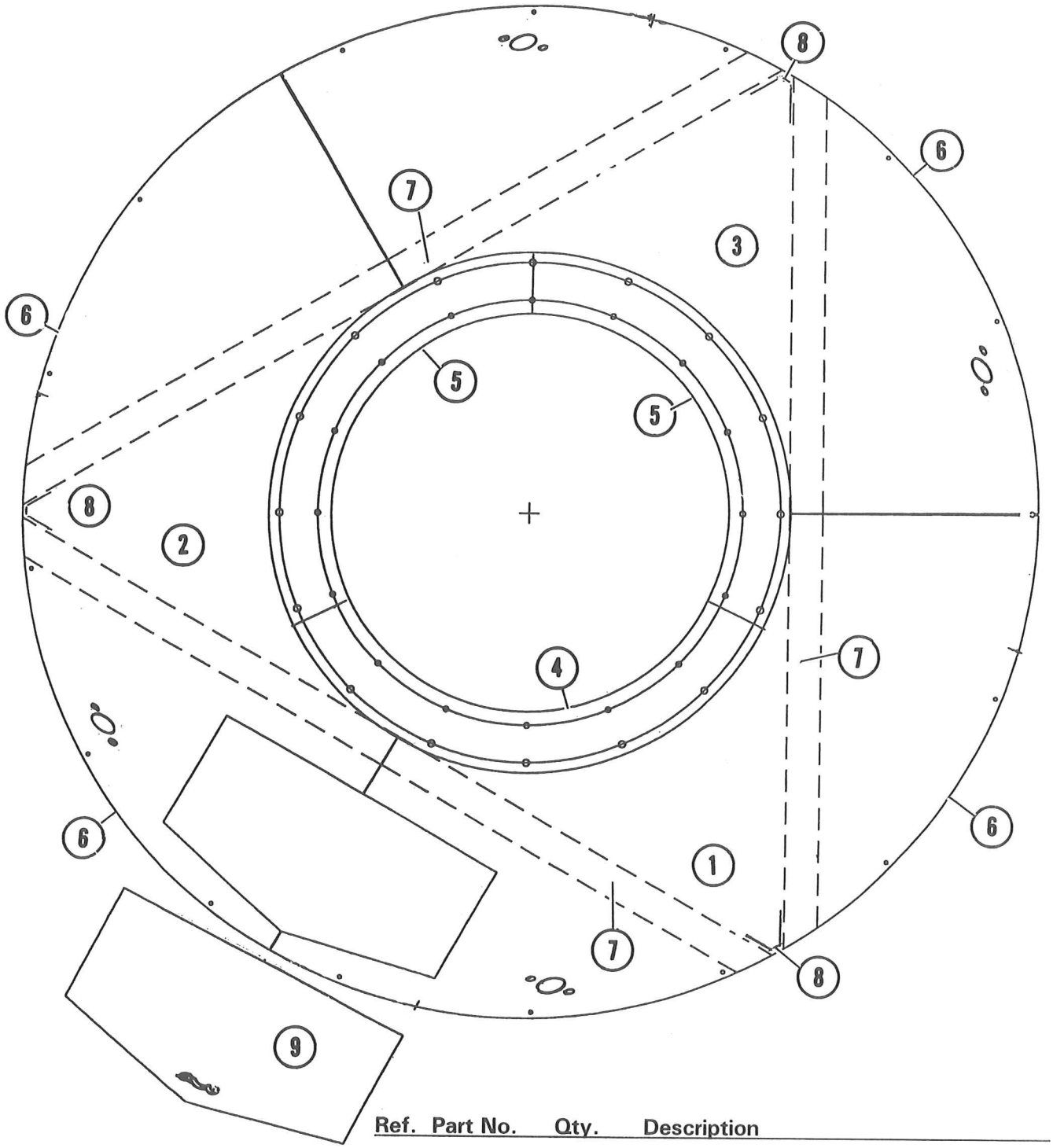


COOLING FLOOR

Ref.	Part No.	Qty.	Description
1	475397	2	Cooling Floor Panel – "AA"
2	475396	1	Cooling Floor Panel – "A"
3	475108	4	Clean-out Pipe Gasket
4	475109	4	Clean-out Floor Seal
5	475398	3	Cooling Floor Panel – "B"
6	475106	4	Clean-out Pipe 1¼ x 56¼" (10520 & 10630)
	475380	4	Clean-out Pipe 1¼ x 61½" (10730 only)
	475621	4	Clean-out Pipe 1¼ x 88¾" (101050 only)
7	475107	4	Floor Flange
8	475399	1	Cooling Floor Panel ' "C"
9	475087	1	Seal Plate
10	475424	1	Cooling Floor Panel – "D"
11	438709	4	Handle
12	438711	4	Bearing Plate
13	438710	4	Bearing Latch Plate
14	438712	4	Latch Side Plate
15	0018202	16	5/16-18 x ¾" HWH Bolt Gr. 5
	0008169	16	5/16-18 Whiz Locknut



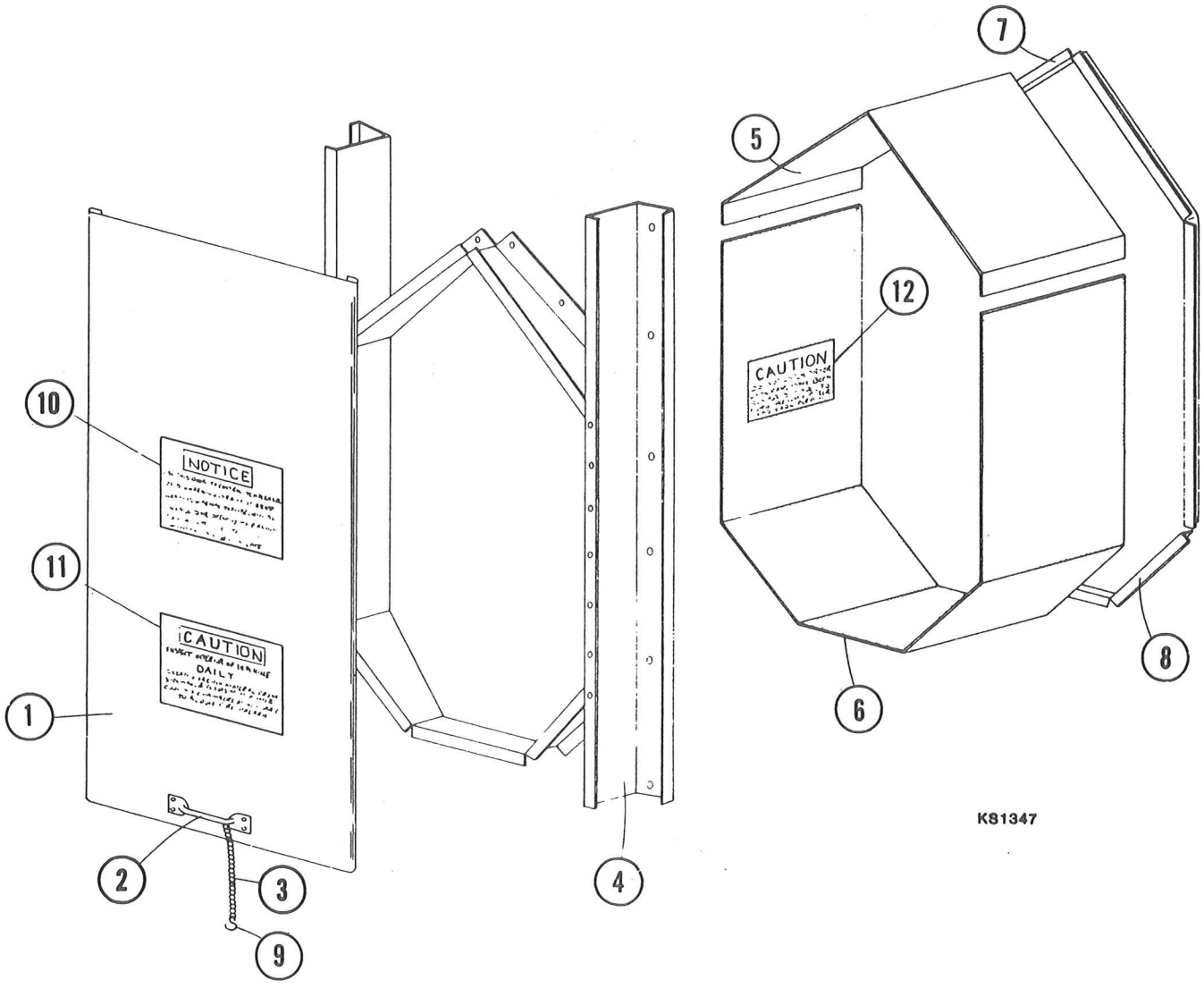
10 FT. HEAT CHAMBER FLOOR



Ref.	Part No.	Qty.	Description
1	475626	1	Heat Floor - Door Right
2	475627	1	Heat Floor - Door Left
3	475628	1	Heat Floor Full
4	475639	1	Fan Transition Ring (10630 & 10730 only)
5	475640	2	Fan Transition Ring (10630 & 10730 only)
6	475476	4	Floor Support Channel
7	475477	3	Floor Brace
8	475487	3	Floor Support Channel Brace
9	821305	1	Heat Floor Door with Handle #830126

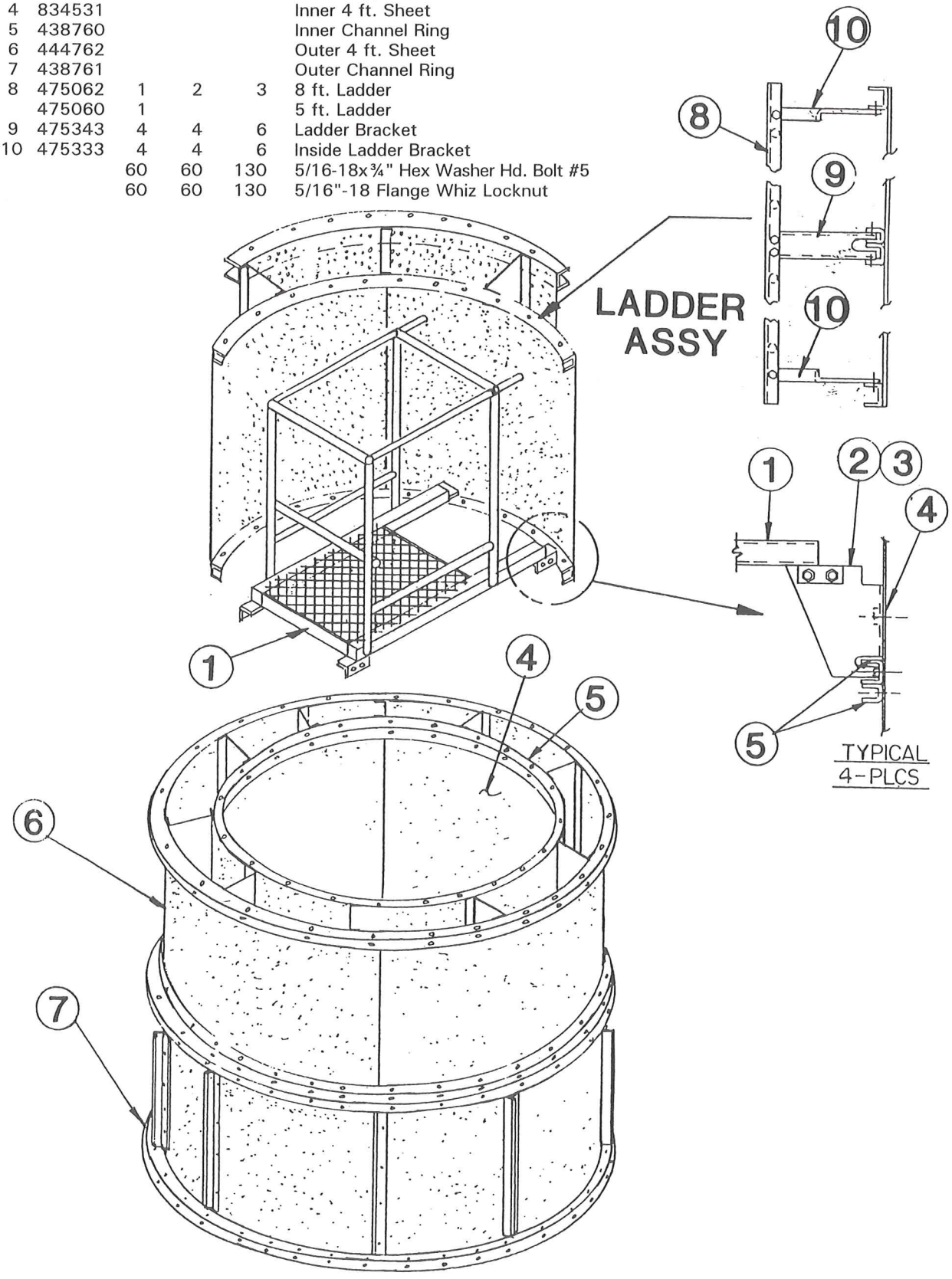
CRAWL DOOR

Ref.	Part No.	10520 thru 10730 Qty.	101050 Only Qty.	Description
1	830125	2	3	Crawl Door Cover
2	830126	2	3	Door Handle
3	830127	2	3	Door Chain
4	440504	2	3	Crawl Door Frame
5	830114	2	3	Crawl Door Top
6	830115	2	3	Crawl Door Bottom
7	830116	2	3	Top Filler Angle
8	830117	2	3	Bottom Filler Angle
9	475210	2	3	"S" Hook
10	836427	2	3	Decal - "Notice-Use This Door, etc."
11	836425	2	3	Decal - "Caution-Inspect Interior, etc."
12	837667	2	3	Decal - "Caution-Do Not Enter, etc."

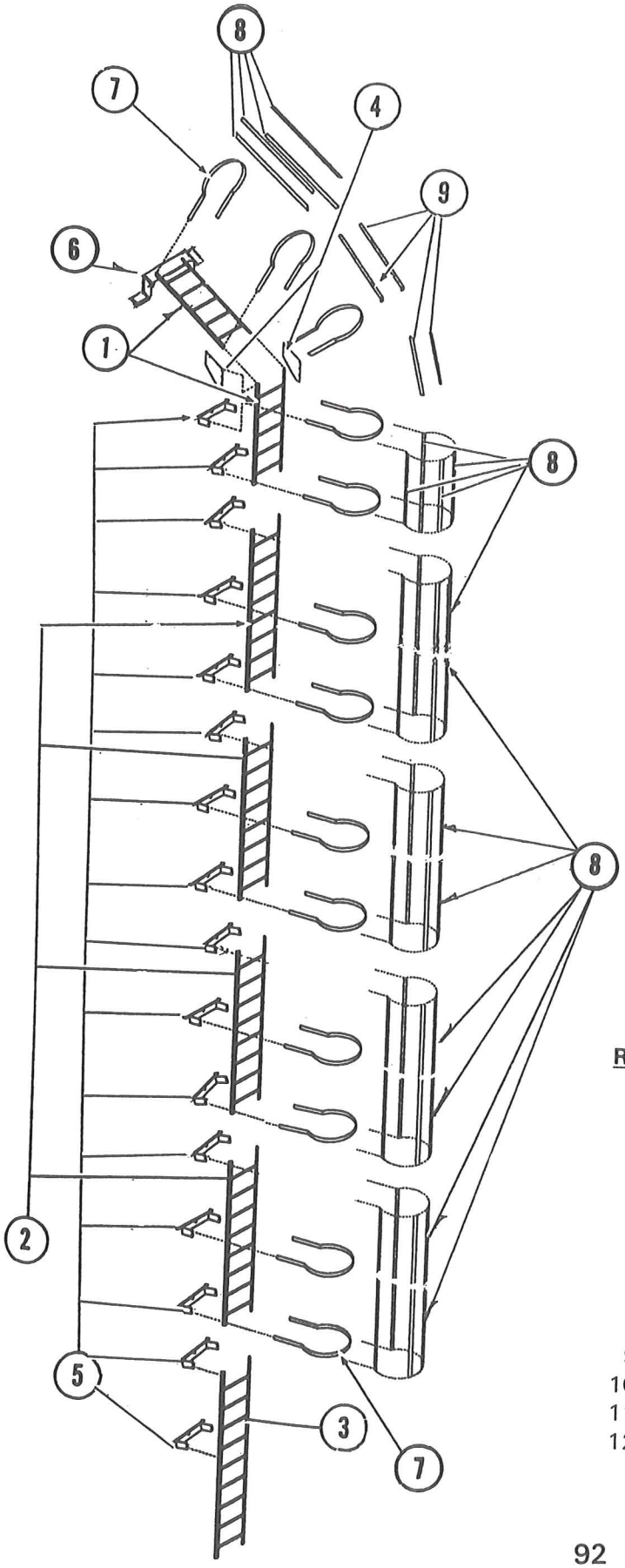


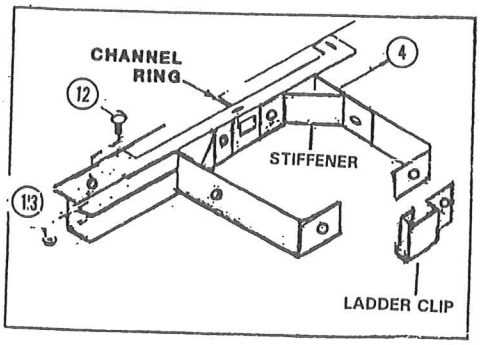
CLEAN-OUT WALKWAY & LADDER - 10 FT.

Ref.	Part No.	10630 Qty.	10730 Qty.	101050 Qty.	Description
1	475330	1	1	2	Cleaning Walkway
2	475057	2	2	4	Floor Support Gusset LH
3	475056	2	2	4	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	1	2	3	8 ft. Ladder
	475060	1			5 ft. Ladder
9	475343	4	4	6	Ladder Bracket
10	475333	4	4	6	Inside Ladder Bracket
		60	60	130	5/16-18x¾" Hex Washer Hd. Bolt #5
		60	60	130	5/16"-18 Flange Whiz Locknut



OUTSIDE LADDER & SAFETY CAGE ASSEMBLY
101050 Shown





Ref.	Part No.	Qty.	Description
1	4908701	2	5 ft. (1.5m.) Ladder
2	4908711	4	8 ft. (2.4m.) Ladder
3	4908703	1	10 ft. (3m.) Ladder (Base, cut to size)
4	475723	2	Ladder Connecting Bracket
5	475721	16	Main Ladder Bracket
6	475724	2	Peak Ladder Bracket
7	1282015	13	Ladder Cage Hoop
8	475722	40	4 ft. (1.2m.) Ladder Cage Strap
9	475090	4	Safety Cage Connecting Strap
10	837524	36	5/16-18 x 3/4" HWHCS
11	0008108	50	5/16-18 x 1" HWHCS
12	0008169	86	5/16"-18 Whiz Hex Nut

10 FT. (3.0m.) M-C TOWER OUTSIDE WALKWAY ASSEMBLY #475707 (OPTIONAL ON MODELS 10520, 10630 & 10730)

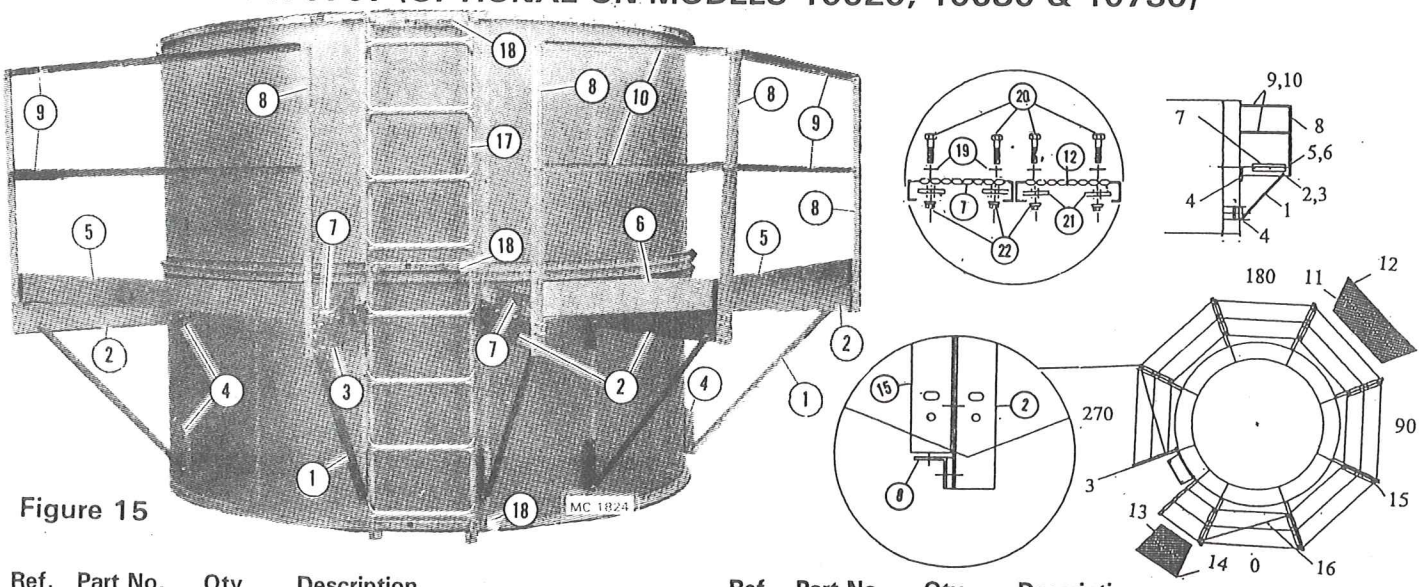
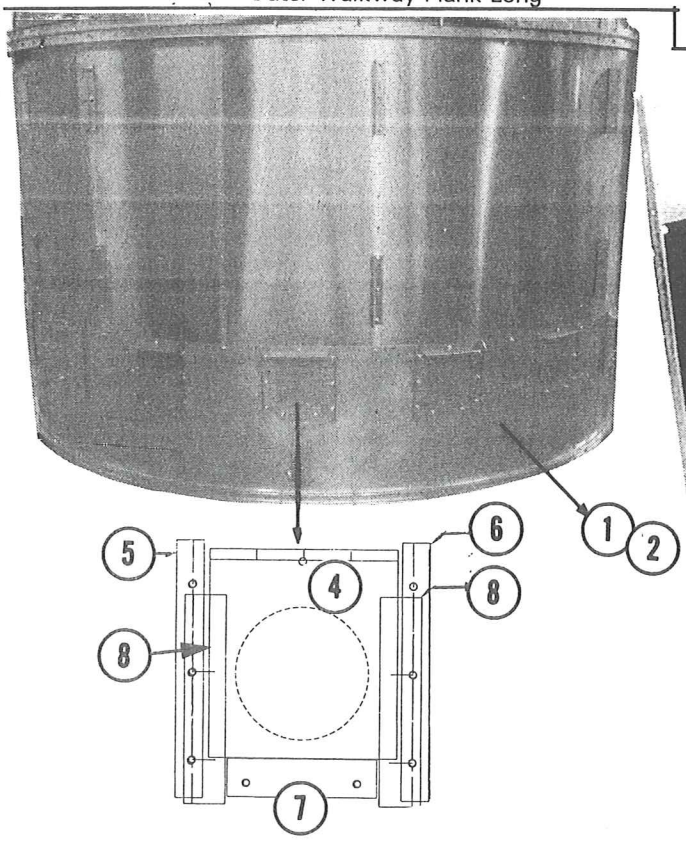


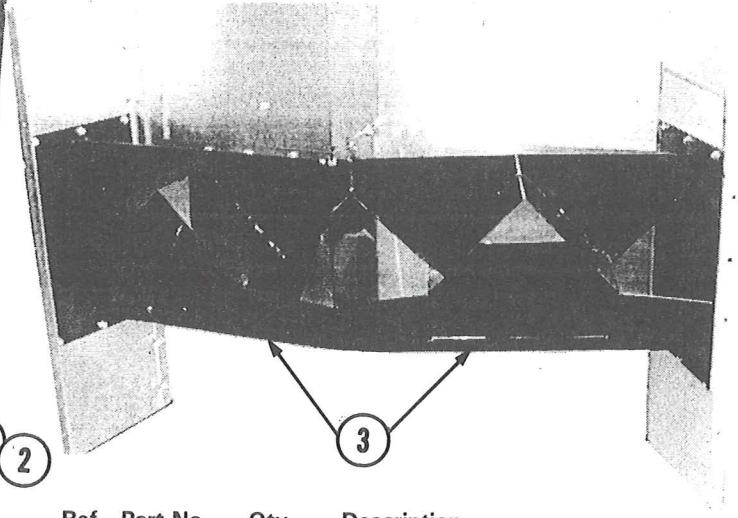
Figure 15

Ref.	Part No.	Qty.	Description
1	475 708	9	Walkway Support Leg - 45"
2	490 2635	8	Walkway Plank Support RB - 36"
3	475 710	1	Walkway Plank Support LB - 36"
4	490 3250	18	Walkway Mnt. Bracket
5	475 712	7	Toe Kick Long - 69¾"
6	475 713	1	Toe Kick Short - 34¾"
7	475 714	2	End Cap Plate - 23½"
8	490 3248	9	Guard Rail Post - 50-5/16"
9	475 715	14	Guard Rail - 73-9/16"
10	475 716	2	Guard Rail Short - 37-1/16"
11	475 717	7	Inner Walkway Plank Long
12	475 718	7	Outer Walkway Plank Long

Ref.	Part No.	Qty.	Description
13	475 719	1	Inner Walkway Plank Short
14	475 720	1	Outer Walkway Plank Short
15	475 711	7	Floor Plank Support Angle 4x26½"
16	475 744	2	Walkway Stiffener - 64⅛"
17	490 8711	1	8 Ft. (2.44m) Ladder
	490 8703	1	10 Ft. (3.0m) Ladder
18	475 721	–	Outside Ladder Bracket
	490 2011	12	Ladder Stiffener Bracket
	490 8704	12	Sure Grip Ladder Clip
19	120 8994	64	Floor Plank Anchor
20	001 8276	64	5/16-18x3" (7.9x76mm) Carr. Bolt
21	000 8173	64	5/16" (7.9mm) Flatwasher
22	000 8304	64	5/16" (7.9mm) Whiz Locknut

GRAIN TURNER - OPTIONAL - 101050

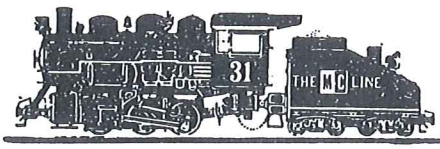




Ref.	Part No.	Qty.	Description
1	475589	4	2 ft. Grain Turner Outer Sheet (holes)
2	475588	4	2 ft. Grain Turner Inner Sheet (solid)
3	475596	16	Grain Turner Section
4	475761	16	Grain Turner Door
5	475760	16	Door Stiffener LF
6	475759	16	Door Stiffener RH
7	475758	16	Door Retainer Short (Bottom)
8	475757	32	Door Retainer (Side)

Grain Turner installed at bottom of #8 4ft. (1.2m.) Screen Section and shipped bolted to #9 4ft. (1.2m.) Screen Section as a 10ft. (3.1m.) Section.

Mathews Company



Iron Horse Quality

Printed in the United States of America