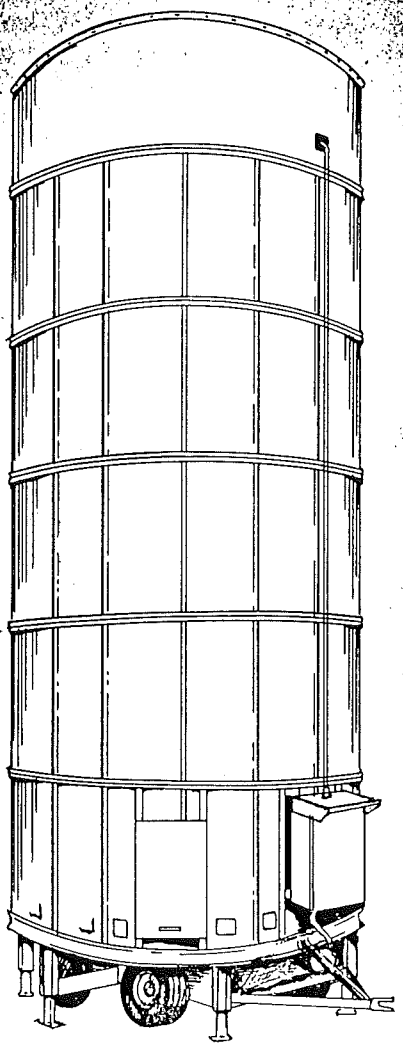
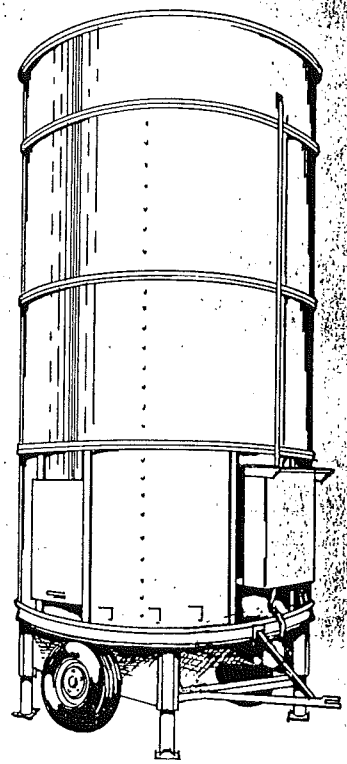
BUTLER®

KAN-SUN®

CONTINUOUS FLOW GRAIN DRYER

OWNERS MANUAL





MODEL 8-15-10

MODEL 10-21-210

MODEL 8-17-15

MODEL 10-25-215

Unit Serial Number_____

WARRANTY

IN GENERAL, BUTLER MANUFACTURING COMPANY manufactures grain drying and handling equipment and component parts and accessories for grain bins and farm buildings ("Agri-Products"). These Agri-Products are then sold to independent dealers and contractors throughout the United States and various foreign countries. We call these independent distributors "Butler Agri-Builders" and rely heavily upon them for the maintenance of our reputation in the market place. The ultimate Agri-Products customer (the "Owner") may contract with the Agri-Builder for the purchase and installation of the Agri-Products or if he has the necessary expertise, he may simply purchase the materials from the Agri-Builder and accomplish the installation himself.

In an effort to encourage proper installation, Butler furnishes the Agri-Builder (and will furnish the Owner upon written request) written plans, specifications and installation procedures, which are recommended for normal installations, and operating and maintenance instructions for the Owner (all of which are hereafter referred to as "Butler Instructions"). However, to keep the Agri-Products costs competitive and due to the varying needs of individual owners, we do not control or supervise the installation of Agri-Products, nor do we check Owner or Agri-Builder compliance with Butler Instructions. We believe this should be left to the people on the scene — the Agri-Builder and/or the Owner.

Based upon this philosophy we warrant our Agri-Products as follows:

PERFORMANCE. Butler warrants that new Agri-Products manufactured by it will be free from defect in material or workmanship when shipped. In addition, if the Agri-Products are installed in a proper and workmanlike manner and in accordance with current Butler Instructions, and if they are thereafter used and maintained in accordance with such instructions, the Agri-Products will perform properly without structural or operational failure. Components of Agri-Products manufactured by others, such as motors, starters, or other trade accessories are only warranted to the extent warranted by their respective manufacturers.

LENGTH OF GUARANTEED PERFORMANCE. The foregoing Warranty shall be effective for a period of one year after installation, unless otherwise specifically provided in writing by Butler prior to installation.

FAILURE OF PERFORMANCE AND REQUIRED NOTICE. If Butler Agri-Products fail to conform to the above Warranty, and if Butler is notified of the defect in writing prior to the end of the warranty period, Butler will provide the materials necessary to correct such failure either by repair or, at its option, by replacement of materials.

ITEMS FOR WHICH BUTLER IS NOT RESPONSIBLE. Butler does not warrant against, and shall not be liable for, loss or damage arising out of circumstances not subject to its control, such as: occurrances during shipment or storage; improper installation, use or maintenance; acts of the Owner, Agri-Builder or any other person not employed by Butler; design, engineering or installation procedures not approved by Butler in writing; non-compliance with local building codes or ordinances; or acts of God, riots, abnormal atmospheric and weather conditions, or similar circumstances. NOR SHALL BUTLER BE LIABLE FOR CONSEQUENTIAL DAMAGES, INCLUDING WITHOUT LIMITATION DAMAGE TO THE CONTENTS OF A STRUCTURE, LOSS OF USE OF A PRODUCT, DAMAGE TO OTHER PROPERTY, OR LOSS OF PROFITS.

NO OTHER AGREEMENTS. This Warranty, which is given only to the initial owner and to the Butler Agri-Builder without right of assignment, IS GIVEN EXPRESSLY AND IN LIEU OF ALL OTHER WARRANTIES, INCLUDING EXPRESS OR IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

Table of Contents

INSTALLATION

Prior to installation, the machine should be inspected. Look for loose bolts, damaged controls and loose wires. Check to make sure the fan blade has sufficient clearance.

TRANSPORTATION

1. Inflate tires to recommended pressure.
2. Tow bar height not to exceed 17".
3. Use safety chains.
4. Oversize permit may be required.
5. Do not exceed 20 mph.
6. Do not transport a fully assembled machine.
7. Machine must be empty.

SITE SELECTION

Whether an installation is permanent or temporary, the following points should be considered:

1. Select a firm, well drained location.
2. Allow unrestricted air flow around the machine and a clean supply of intake air. (It is recommended locating the machine no closer than 10' to another machine.)
3. Place the fuel tank for L.P. gas machines at least 25' from the dryer.
4. A concrete pad is recommended for permanent installations. (See FIGURE A for minimum recommendations.)
5. Use a ground rod embedded 8'.

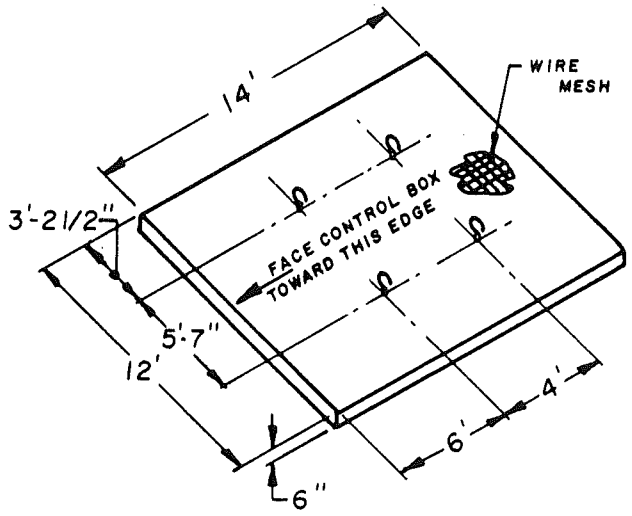
DRYER ORIENTATION

1. To minimize noise disturbances, orient dryer with free air door directed to unoccupied area.
2. To minimize buildup of foreign material in dryer plenum, orient dryer with free air door directed toward prevailing winds. This is particularly important when drying sunflower seeds.

ASSEMBLY

1. Position sections as shown on "Dimensional Data" page. A boom truck or crane should be used to lift sections into place.
2. Be careful not to damage channel rings or perforations while handling.
3. Tighten all bolts.
4. Upon completion of assembly, level the dryer. Dryer legs are adjustable by 1/8" increments. Use a carpenters level to do the job correctly.
5. Anchor machine securely. Guy wires should be used on temporary installations to prevent wind damage.
6. Install ladders as shown on "Ladder Installation" page.

FIGURE A - 8'



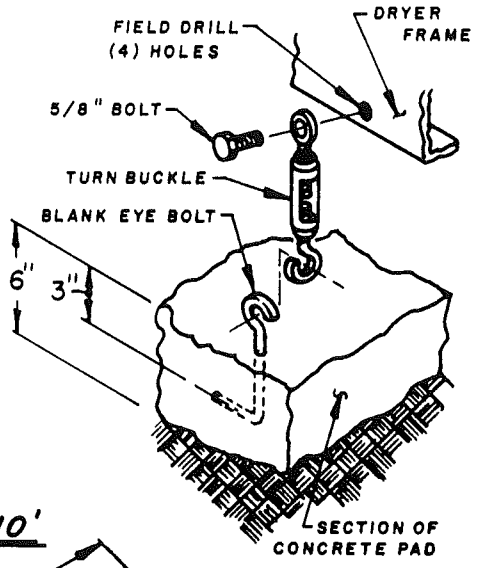
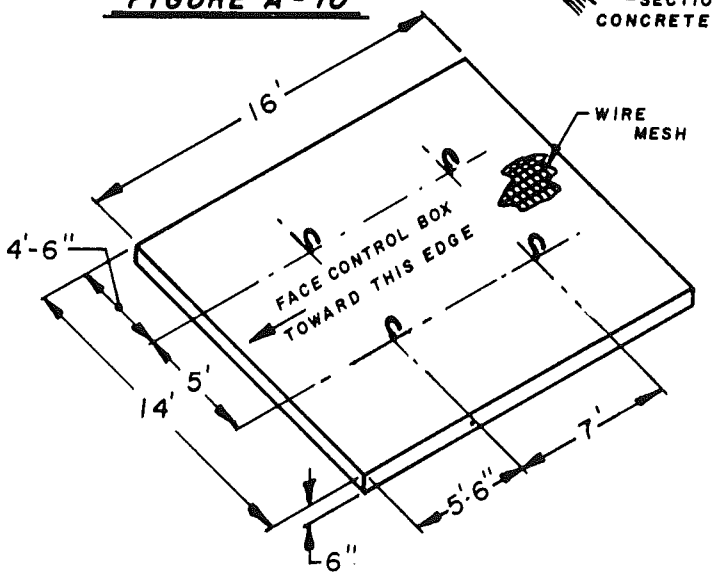
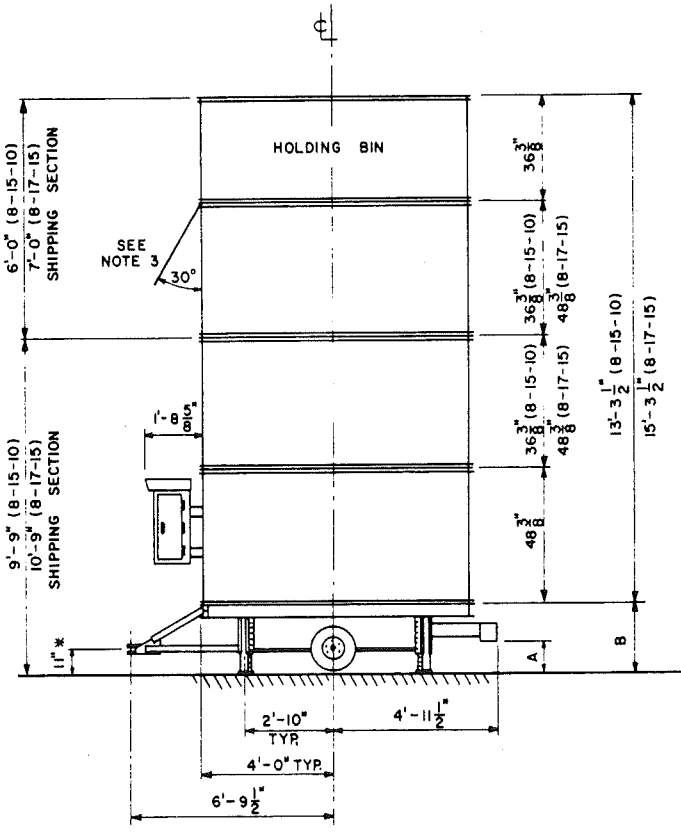
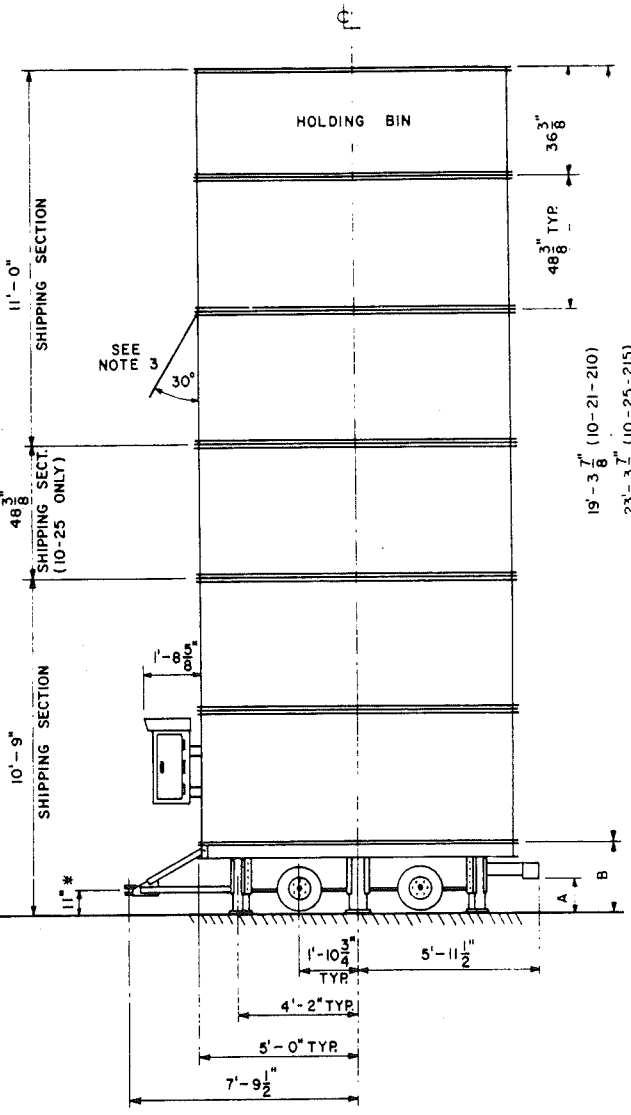


FIGURE A - 10'





8' DRYER



10' DRYER

NOTES

1. * --- MAXIMUM TOWING HEIGHT NOT TO EXCEED 17".
2. WHEN STACKING SECTIONS, MAKE SURE ARROWS ARE ALIGNED.
3. FOR TEMPORARY INSTALLATIONS, GUY IN 3 PLACES USING $\frac{5}{16}$" DIA. CABLE.

DIMENSION	MAX	ON TIRES	MIN
A	21"	21"	12"
B	33"	33"	24"

ORIGINAL DRAWING DATE:

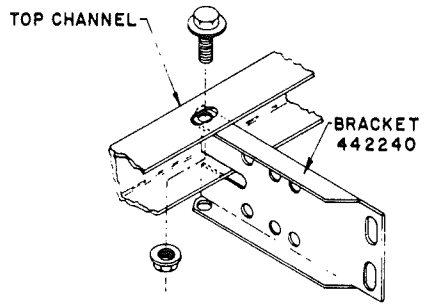
BUTLER MANUFACTURING COMPANY
GENERAL OFFICES: KANSAS CITY, MISSOURI

DIMENSIONAL DATA

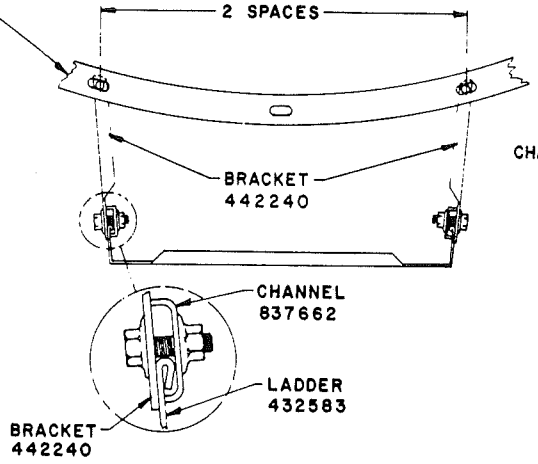
DATE	DR	CH	GROUP NUMBER
12-1-81	GLH	GEM	220

C 446553

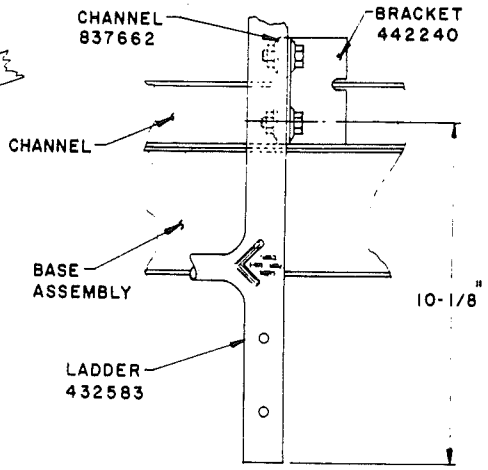
PRINTED IN U.S.A.



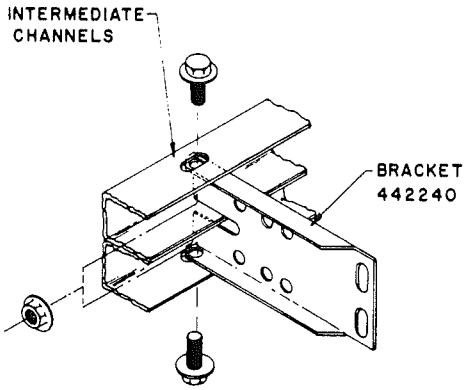
TYPICAL TOP BRACKET MOUNTING



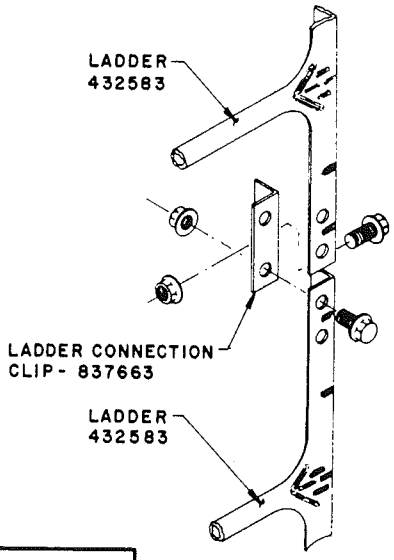
LADDER BRACKET SPACING AND ATTACHMENT



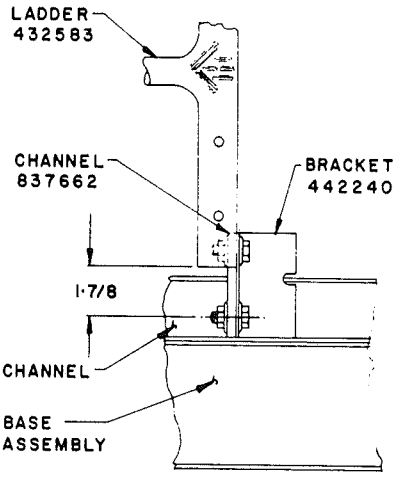
8-15 KAN-SUN



TYPICAL INTERMEDIATE BRACKET MOUNTING

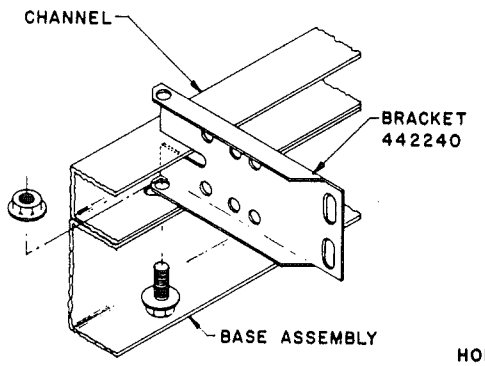


TYPICAL LADDER SPLICE

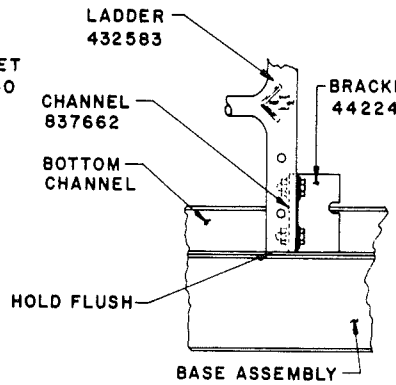


8-17 KAN-SUN

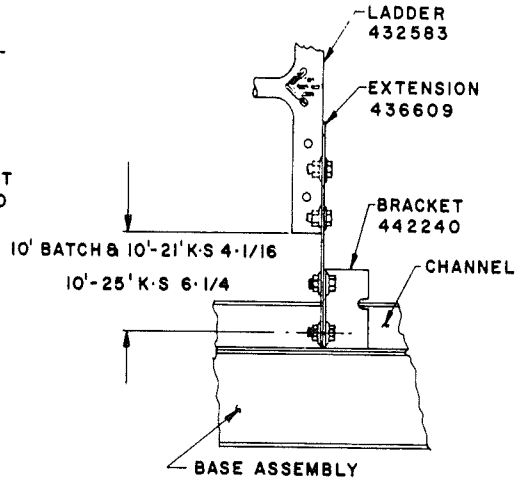
NOTE
ALL BOLTS - 5/16 x 3/4 (SELF-LOCKING)
ALL NUTS - 5/16 (SELF-LOCKING)



TYPICAL BOTTOM BRACKET MOUNTING



8' BATCH



10' BATCH
10-21 & 10-25 KAN-SUN

ORIGINAL Dr. DATE 1-20-81

BUTLER MANUFACTURING COMPANY
GENERAL OFFICES KANSAS CITY

LADDER INSTALLATION 8' & 10' BATCH & K-S DRYERS

DATE	DRAWN	CHECKED	GRP NO
1/20/81	RW	GEM	220

C 444437

FORM NO 225A2 - 2-78 PRINTED IN U.S.A.

FUEL REQUIREMENTS & INSTALLATION

L.P. GAS DRYERS

L.P. gas dryers are equipped with an internal vaporizer. The L.P. tank MUST BE equipped for liquid withdrawal. Locate tank at least 25' from dryer. It is recommended an excess flow valve be installed.

NOTE: Gas line from tank to dryer should be ½" Sch. 80 pipe or ½" I.D. Type K copper tubing.

NATURAL GAS DRYERS

Kan-Sun dryers require 14 PSIG. minimum operating pressure to maintain a 200-220°F plenum temperature with 20°F ambient. Incoming line size should be 1"-1½" inches for 8' machines and 1½"-2"inches for 10' machines for runs under 200 feet.

OPERATING FUEL REQUIREMENTS

	NORMAL CONDITIONS 50° F AMBIENT — 220° F PLENUM				MAXIMUM CONDITIONS 20° F AMBIENT — 220° F PLENUM			
	8-15-10	8-17-15	10-21-210	10-25-215	8-15-10	8-17-15	10-21-210	10-25-215
BTU/HR.	1,950,000	2,220,000	3,550,000	4,100,000	2,800,000	3,200,000	5,150,000	5,950,000
G.P.H. (L.P. LIQUID)*	21.7	24.7	37.4	45.6	31.1	35.6	57.2	66.1
C.F.H. (NAT. GAS)**	1950	2200	3550	4100	2800	3200	5150	5950

*LP Gas — 90,000 BTU's/Gal.
**NG — 1,000 BTU's/Cubic Ft.

LP units have 3/16" orifice, factory installed. (1/8" orifice special — See burner parts page.)

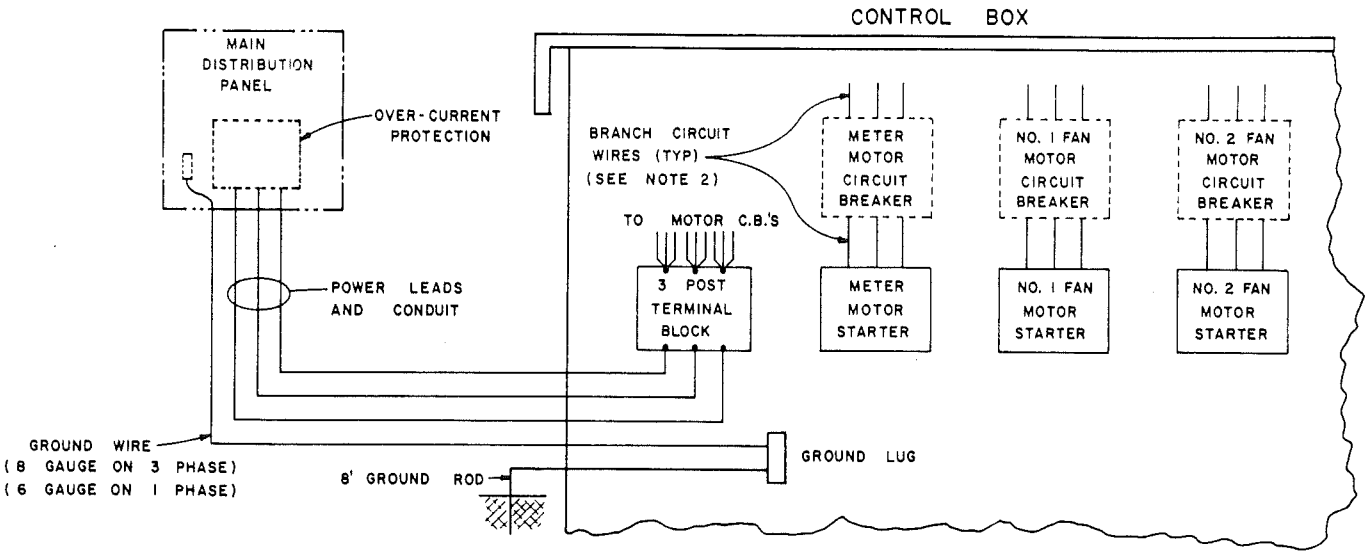
LP/NG units have no orifice factory installed, 3/16" orifice provided.

FUEL	ORIFICE	
	HIGH-TEMP (175 - 240°F)	LOW-TEMP (110 - 175°F)
LP	3/16	1/8
NG	NONE	NONE

ELECTRICAL HOOK-UPS

All electrical work to be performed by a qualified electrician.

1. See "Recommended Electrical Specifications" page for power and ground lead hook-up. Check for proper fan rotation.
2. Connect bin fill and low bin conduit assembly from control box to unilet on holding section. Use wire nuts provided in unilet to make electrical connections. Unnumbered blue wires are connected to the bin fill switch for dryer bin fill equipment control. See page 6 for suggested wiring of bin fill and take-away augers.
3. Attach thermistor conduit from four-way thermistor box to three-way box. Solder leads per decal inside four-way thermistor box cover, coat with silicon sealer and install wire nuts.



BUTLER MANUFACTURING COMPANY, INC., ASSUMES NO RESPONSIBILITY THAT FOLLOWING RECOMMENDATIONS COMPLY WITH PREVAILING CODES. RECOMMENDATIONS ARE FURNISHED ONLY AS AN AID TO THE ERECTOR/ ELECTRICIAN. ALL ELECTRICAL WORK TO BE PERFORMED BY A QUALIFIED ELECTRICIAN TO MEET PREVAILING CODES.

DRYER MODEL	SUPPLY POWER	FULL LOAD AMPS	DISTRIBUTION PANEL OVER-CURRENT PROTECTION		POWER LEADS AND CONDUIT		CIRCUIT BREAKERS * *		BRANCH CIRCUIT WIRE AWG * * *	
			TIME DELAY FUSE *	CIRCUIT** BREAKER	WIRE AWG***	CONDUIT SIZE	METER MOTOR	FAN MOTOR(S)	METER MOTOR	FAN MOTOR(S)
8-15-10 8-17-15 10-21-210 10-25-215	230 VOLT 1φ	69 81 119 143	FRN-R 100 FRN-R 125 FRN-R 150 FRN-R 200	110 KA 150 KA 175 KA 200 KA	4 3 0 2/0	1" 1" 1-1/2" 1-1/2"	40 FA 40 FA 40 FA 40 FA	90 FA 100 FA 90 FA 100 FA	10 10 10 10	4 3 4 3
8-15-10 8-17-15 10-21-210 10-25-215	230 VOLT 3φ	41 52 72 94	FRN-R 50 FRN-R 70 FRN-R 80 FRN-R 125	70 FA 90 FA 100 FA 150 KA	6 4 4 2	1" 1" 1" 1-1/4"	20 FA 20 FA 20 FA 20 FA	60 FA 80 FA 60 FA 80 FA	14 14 14 14	8 6 8 6
8-15-10 8-17-15 10-21-210 10-25-215	460 VOLT 3φ	21 26 37 47	FRS-R 25 FRS-R 35 FRS-R 40 FRS-R 50	30 FA 45 FA 50 FA 60 FA	10 8 6 6	1/2" 3/4" 1" 1"	15 FA 15 FA 15 FA 15 FA	25 FA 40 FA 25 FA 40 FA	14 14 14 14	12 10 12 10

* -------- SIZES SHOWN FOR "FUSETRON" BRAND TIME DELAY FUSES.
* * ----- CIRCUIT BREAKERS SHOWN ARE "SQUARE D" BRAND SERIES.
* * * -- WIRE SIZES ARE FOR TYPE THW COPPER.

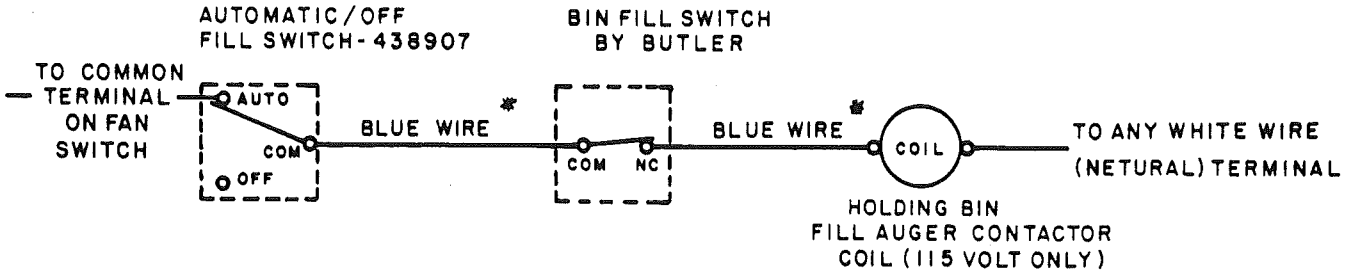
NOTES:

1. BRANCH CIRCUIT BREAKERS RECOMMENDED ONLY FOR INSTALLATIONS REQUIRING INDIVIDUAL MOTOR CIRCUIT OVER CURRENT PROTECTION. REMOVE FACTORY WIRING FROM THREE POST TERMINAL BLOCK TO MOTOR STARTERS AND INSTALL CIRCUIT BREAKERS AND BRANCH CIRCUITS PER ABOVE DETAILS. TWO BLOCK AND THREE BLOCK CIRCUIT BREAKERS ARE REQUIRED FOR SINGLE AND THREE PHASE UNITS RESPECTIVELY.
2. CONTROL BOX, MOTOR STARTERS, THREE POST TERMINAL BLOCK, AND GROUND BAR ARE FURNISHED BY BUTLER MANUFACTURING COMPANY. ALL OTHER ITEMS SHOWN ARE TO BE FURNISHED BY CUSTOMER.

ORIGINAL DR. DATE:

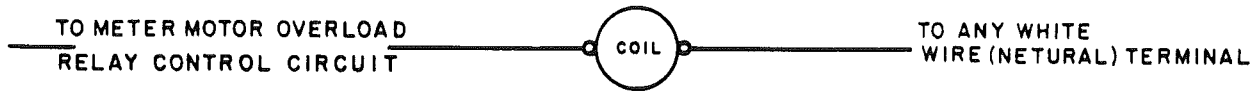
SUGGESTED WIRING OF AUXILIARY EQUIPMENT

TYPICAL FILL CIRCUIT



*WIRE BIN FILL CONTROL CIRCUIT TO (2) UNNUMBERED BLUE WIRES PROVIDED IN CONTROL BOX.

TYPICAL TAKE AWAY AUGER CIRCUIT

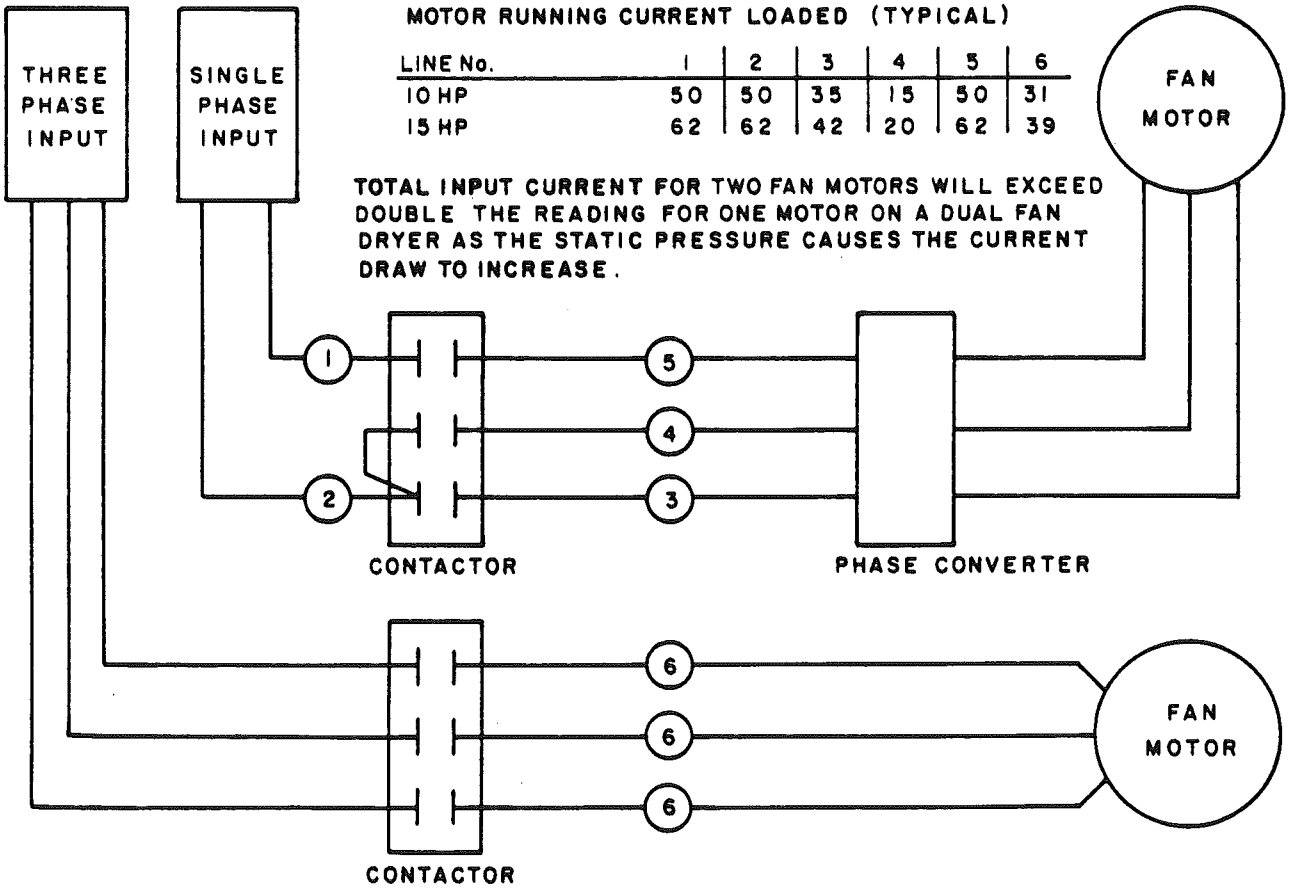


NOTE:
COMPONENTS FURNISHED BY OWNER UNLESS OTHERWISE NOTED.
USE 18 AWG WIRE SIZE FOR CONTROL CIRCUIT.

FAN MOTOR CURRENT DATA

MOTOR RUNNING CURRENT LOADED (TYPICAL)

LINE No.	1	2	3	4	5	6
10 HP	50	50	35	15	50	31
15 HP	62	62	42	20	62	39



DRYING INFORMATION

DEFINITIONS

BUSHELS: One bushel equals 1-1/4 cubic feet. The generally accepted weights in pounds per bushel of grain are as follows:

Shelled Corn	56 lbs. @ 15.5%
Soybeans	60 lbs. @ 14.0%
Milo	56 lbs. @ 14.0%
Wheat	60 lbs. @ 14.0%
Sunflower Seeds	24-28 lbs. @ 11.0%

CFM: Air volume, cubic fee per minute.

MOISTURE CONTENT: The moisture content of grain is measured by dividing the weight of the water which it contains by the total weight of the wet grain. This is the moisture content upon which grain is bought and sold commercially.
(Sometimes referred to as wet basis.)

MOISTURE MATIC

The moisture matic system regulates discharge rate of grain to maintain moisture at a pre set level. It senses discharge air temperature as an indicator of drying performed.

CAPACITY

Capacity figures listed on page 9 are the average of several years data, and refer to wet bushels into the dryer. In a given year, the rate may be above or below this average.

Drying rate is largely affected by physical characteristics of the grain. Variety, fertilization program, rainfall, sunlight (degree days), planting date, disease/insect damage, and hail and storm damage all affect drying rate. 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% may reduce capacity as much as 20%.

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

Outdoor temperature and relative humidity variations have little affect on drying rate. The dryer will burn more fuel at lower ambient temperature, but will continue to heat and superdry the air to 2-3% R.H.

MOISTURE CONTENT RECOMMENDATIONS

Harvest of grain should not begin until certain moisture levels are reached to minimize kernel damage and threshing losses. In addition, different grains have various allowable moisture levels for safe storage. Recommended moisture contents are show on page 9.

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 on page 9.

COOLING

Grain should be cooled to no more than 10 to 15°F. above outside temperature for safe storage.

Cooling is controlled by the cooling chamber door. Maximum cooling occurs with the door closed and minimum cooling with it open. Cooling requires power thus 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 door open. If the cooling door is abruptly closed, the plenum temperature will rise so rapidly (faster than the modulating valve can operate) it will trip the high limit switch. Readjust the regulator and restart.

DRYING IN GENERAL

Corn

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

Clean grain dries faster, more cheaply and more uniformly. All possible trash should be removed in harvesting. Additional cleaning prior to drying is desirable for pollution control and may be necessary in extreme cases.

Drying equipment should be serviced at least daily. Heating and cooling chambers should be inspected and all foreign material removed. Perforated walls may need wire brushing to remove foreign material. Drying temperature, flow rate, and moisture content are established as shown in the operation section. The bottom row of roof inserts may be removed for corn below 27% mc.

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.

For air drying all roof inserts may be removed.

WHEAT & MILO

Wheat and milo 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 as shown in the capacity table page 9. Fill dryer with fan off. Clean dryer after filling and before starting heater.

Milo, in particular, is frequently very trashy as harvested. This trash, if not removed, will reduce capcity, waste fuel, and cause uneven drying. Trash should be removed at least twice daily to prevent fire. Do not remove roof inserts.

SUNFLOWER SEEDS

Sunflower seed drying requires special operations and constant supervision. The fuzz from sunflower seeds collects in the dryer perforations and heat chamber reducing airflow and increasing the danger of fire.

Walls plus heating and drying chamber floors must be cleaned at least every 6 to 12 hours of operation and more often if buildup is severe. A shop vacuum cleaner is recommended to remove fuzz. Cooling door should face up wind or so as to intake least material. Special handling is desirable to minimize floating fuzz.

Due to potential fire hazards, fire prevention and control equipment should be available.

The roof inserts should be left on at all times for sunflower seeds. Dryers used pimarily for sunflower seed drying should have a solid drying roof, and have optional low temperature modulating valve installed.

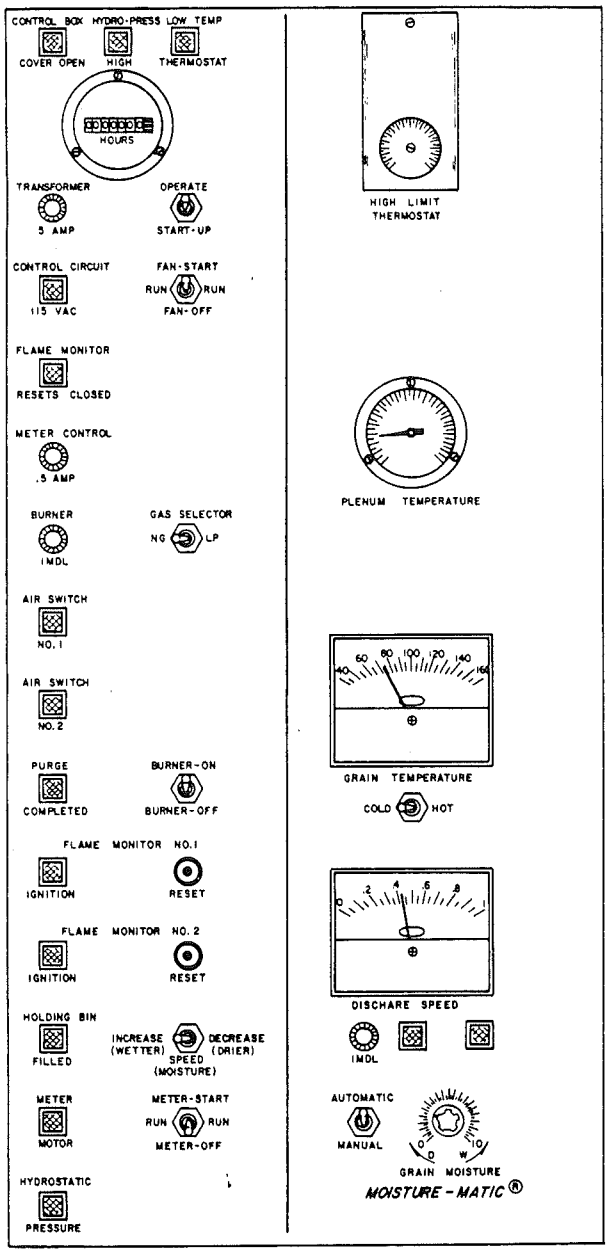
MOISTURE CONTENT RECOMMENDATIONS Obtain Samples per instructions on Discharge Auger			
	Maximum Harvest	Moisture in Storage	
	Wet Basis	Short Term	Long Term
Corn	30%	15%	13%
Soybeans		12	11
Wheat & Milo	18-20	12	11
Sunflower Seeds	25	12	9.5

DRYING CAPACITIES Wet Bushels per Hour					
Grain	Drying Temp. °F.	8-15-10	8-17-15	10-21-210	10-25-215
Corn 10 pt. removal	220 15 Hrs. 220 130 110	183 2745 108 90	220 3300 130 110	365 5475 215 180	435 6525 255 217
Corn 5 pt. removal	220 130 110	265 155 133	320 190 160	500 295 250	608 360 304
Wheat & Milo 5 pt. removal	170 130 105	210 160 135	250 190 160	420 320 270	500 385 325
Sunflower Seeds	Due to many variables of drying sunflower seeds, drying rates have not been established.				
Soybeans 10 pt. removal	130 110	113 95	135 115	220 185	260 222
Soybeans 5 pt. removal	130 110	158 136	193 163	298 253	363 307

RECOMMENDED DRYING TEMPERATURES °F*			
Grain	Seed	Commercial Use	Feed
Corn	110*	130*	220
Soybeans	110	130	—
Wheat & Milo	105	130	170
Sunflower Seeds	80-110	80-110	80-110

DISCHARGE MOISTURE CONTENT — Moisture samples of the discharged grain should be taken every 60 minutes during operation to prevent the possibility of putting grain with excessive moisture into storage. See above for moisture content recommendations for storage moistures.

*Standard modulating valves supplies with KanSun Dryers have a minimum control range of 140°F. Drying below this temperature requires manual regulation or substitution of a low temperature modulating valve.



ORIGINAL DRAWING DATE:

BUTLER MANUFACTURING COMPANY

CONTROL PANEL (OPERATION)

DATE	DR	CR	GROUP NUMBER
12-1-81	GLH	GM	220

C 446607

PRINTED IN U.S.A.

OPERATION

Before attempting to operate the dryer, the operator should thoroughly familiarize himself with the following information on dryer operation:

CONTROL PANEL LIGHTS

The control panel lights are designed to assist the operator in following normal operating sequences.

MALFUNCTION LIGHTS

The three top lights indicate malfunctions if lit. The "CONTROL BOX COVER OPEN" indicates front cover is open and dryer cannot be run in "OPERATE".

The "HYDRO-PRESS HIGH" lamp will blink as the meter system high pressure switch trips. A suspected high pressure trip can be confirmed by holding the meter switch in "START" for two or three cycles.

The "LOW TEMP THERMOSTAT" indicates the plenum has not reached a preset temperature when lit. The dryer cannot be run in "OPERATE" until the set point has been reached. The low temperature thermostat, located in the control box, set point should be approximately 25°F. below the drying temperature.

STATUS LIGHTS

The remaining vertically aligned lights show the status of their related component. By comparing the lights that are lit to the wiring schematic, it is possible to determine the status of the indicated components. If the component light is lit, that component is functioning as expected.

"START UP-OPERATE" SWITCH

The "START UP-OPERATE" switch is located near the top of the control panel. With the switch in "START-UP", the dryer fan(s) and burner(s), and metering motor can be operated independent of each other. This switch must be in the "START-UP" position to start the dryer. After the fans, burners, and metering systems are operating and the plenum temperature has exceeded the set point of the low temperature set point, the "START UP-OPERATE" switch should be switched to "OPERATE". In this mode the dryer will shut down if there is a malfunction of the fans, burners, metering systems, or the dryer runs out of wet grain (low bin switch opens). The dryer should NEVER be left unattended unless the "START UP-OPERATE" switch is in the "OPERATE" position.

INITIAL DRYER START-UP

To eliminate the need to recycle wet grain once the dryer is in operation, fill the grain columns with dry grain up to the heating floor.

1. Place the "START-UP" — "OPERATE" switch in start-up position, and the MOISTURE MATIC "MANUAL" — "AUTOMATIC" switch in "MANUAL" position.
2. Adjust high limit thermostat set point 25°F. above drying temperature. (See Recommended Drying temperature.)
3. Start fan(s) by moving fan toggle switch to "START POSITION".
4. Open fuel valve at fuel source.
5. Place Gas Selector Switch to proper fuel type.
6. Turn modulating valve "T-HANDLE" (clockwise) until fully open.
7. Place burner switch in the "ON" position.
8. LP Fuel —
   Turn pressure regulator screw counter-clockwise (out) about 2/3 of full travel.
9. LP Fuel —
   Open dryer fuel valve completely.

   NG Fuel —
   Open dryer fuel valve until sufficient fuel flow is obtained for ignition.
10. After ignition, slowly adjust pressure regulator. (LP fuel) or hand valve (NG fuel) until drying temperature is 15-20°F. above the desired drying temperature. Hold this temperature at least 10 minutes before proceeding to the next step.
11. To set drying air temperature, slowly turn modulating valve T-handle counter-clockwise until a reduction in burner noise is noticed. Wait several minutes until drying temperature, as indicated by the plenum thermometer on the right hand side of the control panel, has stablized. Turn T-handle counter-clockwise to decrease drying temperature and clockwise to increase drying temperature. After each adjustment, wait until drying temperature has stablized before making further adjustments.
12. Set high limit thermostat 20°F. above drying temperature.
13. Use "Increase-Decrease" switch to set discharge speed at approximately 0.18 for first trial drying.
14. Start metering motor by moving meter toggle switch to "Start" position.
15. Slowly place the "Start-up Operate" switch in the "Operate" position. Do not switch machine to "Operate" until all of the preceding steps have been completed and all the status lights are lit.

CONTROLLING MOISTURE CONTENT

MANUAL CONTROL

Check and record grain moisture content every 30 minutes. Obtain a representative grain sample by collecting six cups of grain at 10 second intervals. Mix samples thoroughly for testing. Check moisture tester against a certified tester periodically.

If the moisture content of the dried grain is lower than desired, increase the discharge speed.

If the moisture content of the dried grain is higher than desired, decrease the discharge speed.

After adjustment of discharge speed, wait one to one and one-half hours to make further speed adjustments since it takes about that long for grain to pass through the dryer and for the full effect of the speed adjustment to be made on moisture content.

AUTOMATIC MOISTURE CONTROL — MOISTURE MATIC

After obtaining the desired moisture content by manually adjusting the discharge speed, the dryer can be switched to automatic moisture control by the following steps:

1. Turn the Grain Moisture dial until both lights directly above the dial are off.
2. Place "Automatic-Manual" switch in the "Automatic" position.

The Moisture-Matic system aids in controlling the discharge moisture content by varying the dischage speed.

Continue checking discharge grain moisture content every 60 minutes. Should the moisture content be consistently too wet or too dry, adjust the Grain Moisture dial clockwise (drier) or counter clockwise (wetter) respectively.

After any adjustment of the 'Grain Moisture' dial, wait 1 to 1½ hours before making further adjustments because of the lag in response due to the time it takes grain to pass through the dryer. A major cause of inconsistent discharge moisture content is too frequent adjustment of the grain moisture dial.

DRYER SHUT-DOWN

WARNING

NEVER ENTER A DRYER WHICH HAS SHUT DOWN AUTOMATICALLY UNTIL THE FAN(S) HAVE BEEN RUN FOR 15 MINUTES TO PURGE THE PLENUM CHAMBER AND COOL THE GRAIN.

When dryer is full of grain

1. Place the "Start-Up-Operate" switch in the "Start-Up" position and the Moisture Matic "Manual-Automatic" switch in the manual position.
2. Shut fuel valve at fuel source and let fuel burn out.
3. Place burner switch in the "OFF" position.
4. Shut fuel valve at dryer.
5. Stop metering motor by moving meter toggle switch to the "Off" position.
6. Continue to operate the fans for about 15 minutes to cool the grain unless the dryer is to be shut down for less than 30 minutes. After cooling, stop fans by placing fan toggle switch in "Off" position.

SECOND OR SUBSEQUENT DAY START-UP

1. Place the "Start-Up Operate" switch in the "Start-Up" position and the Moisture-Matic "Manual-Automatic" switch in the "Manual" position.
2. Start fan(s) by moving fan toggle switch to the start position.
3. Open fuel valve at fuel source.
4. Place burner switch in the "ON" position.
5. LP Fuel —
   Open dryer fuel valve completely.
   NG Fuel —
   Open dryer fuel valve until sufficient flow is obtained for ignition.
6. Use "Increase-Decrease" switch to reduce discharge speed approximately **three minor divisions** from previous day's final setting.
7. After the plenum temperature has reached a temperature 30°F. below the desired drying temperature, start the metering motor by moving the meter toggle switch to "Start".

8. Slowly place the "Start-Up Operate" switch in the "Operate" position.
9. After about 15 minutes both lights above the 'Grain Moisture' dial will go off. When this occurs, the dryer should be placed in Automatic Moisture Control by moving the "Automatic-Manual" switch in the "Automatic" position. Switching into automatic moisture control without both lights off will result in an abnormal speed change that will cause the Moisture Matic to discharge grain at a moisture content significantly different from the previous day.

EMPTYING THE DRYER

When the last grain to be dried has been put into the dryer, stop the metering motor before the grain has dropped below the low bin switch. Dry this remaining grain for approximately 30 minutes. Then shut off the burner(s) and cool the grain for 15 minutes. After cooling, shut off the fan(s) and empty the dryer.

OFF SEASON STORAGE

WARNING!

DISCONNECT POWER ANY TIME WORK IS PERFORMED INSIDE THE DRYER.

1. Place plugs in burners and cover burner shields with plastic.
2. Disconnect power to dryer and remove cooling floor sections and remove grain from bottom of dryer.
3. Brush, blow, or wash all dirt and residue from dryer walls and floors. Use power washer on outer surfaces if dirt has filled perforations.
4. With no one in the dryer, reconnect power to the dryer and start the metering motor. Auger trash out discharge. Hose off floor, sump, and U-trough.
5. Disconnect power to the dryer and replace cooling floor sections.
6. Grease fan motors one or two strokes.
7. Use compressed air to blow any dirt from control box.
8. Grease traveling block on shift motor shaft. Use "Increase-Decrease" switch to move traveling block through its full travel.
9. Paint any rusted perforated areas per instructions on page 14.
10. Release spring tension on regulator and modulating valves.
11. Disconnect power and lock control box doors.

SEASONAL MAINTENANCE

MAINTENANCE INSIDE MACHINE FOR STARTUP

1. Turn power off at main distribution panel.
2. Clean out heating and cooling chamber.
3. Remove plug and/or cover from burner.
4. Remove grease relief fittings from fan motors.
5. Grease fan motor at top and bottom bearing.
   a. Grease until grease comes out relief port opening with Chevron SRI-2 or other approved lubricant.
6. Reinstall grease relief fittings.
7. Check oil in 50:1 gear box and grease.
   a. Oil must be at least 1/4" over gear.
   b. Grease top bearing with gun grease.
8. Grease U-Joint on 50:1 drive shaft.

MAINTENANCE OUTSIDE MACHINE

9. Grease metering motor.
   a. Two pumps per bearing.
10. Check set screws in flex. coupling between motor and hydrostatic for tightness.
11. Hydrostatic transmission
    a. Change fluid.
    b. Change filter.
    c. Check hoses for leaks.
12. Grease belt tightener pivot.

MAINTENANCE INSIDE CONTROL BOX

13. Shifting motor screw
    a. Grease fitting.
    b. Oil slide mechanism.
14. Inspect and clean control panel connections.
    a. Spray socket and pins of purge timer with TV tuner cleaner.

PROTECTION OF RUSTING GALVANIZED MATERIAL

In time the galvanized surfaces of the Kan-Sun dryer will rust. To protect the machine, paint rusty surfaces as soon as possible after rust appears. To paint galvanized metal, use any commercially available zinc dust primer, or zinc alkyd primer that is intended for use on galvanized surfaces.

FOLLOW ALL LABEL INSTRUCTIONS

When painting perforation, avoid plugging the holes in the perforation. Spray painting is preferred. A top coat may be applied if the color of the primer is objectionable. If the inside of the wet holding bin becomes rusty, use the same recommendations as for painting on galvanized surfaces.

When cleaning grain residue from painted surfaces, use only a non-metal brush, as scraping or wire brushing will remove the paint.

EXAMPLES OF ZINC DUST PRIMERS:

Cooks ..... "Primer Coat — 471R153"
CO-OP ..... "Zinc Metal Paint"
Pratt & Lambert ..... "Galvanized Metal Primer"
Tru-Test ..... "Galvanized Metal Primer"
Sherwin-Williams ..... "All Surface Enamel"

Touchup Paint to go on Orange Polyester — BMC 439449.

LUBRICATION

All areas that need lubrication are properly lubricated before leaving the factory. You should maintain a lubrication schedule as described in the following chart:

ITEM	LUBRICATION REQUIRED	INTERVAL
50:1 Gearbox Oil Level	Fill 1/4" over gear with SAE 90 gear lubricant.	Maintain proper level. Check every 100 hours.
50:1 Gearbox Grease Fitting	Use five (5) strokes of gun grease.	And at beginning and end of season.
U-Joints	Use one (1) stroke of gun grease.	Every 50 hours of operation.
Fan Motor(s) & Metering Motor	Lubricate with SRI-2 (Chevron) grease or equivalent. (Equivalents below)	Prior to operation & end of season
Hydrostatic Transmission Oil	Fill 2-3/4" below top of filler neck (Sunstrand) Oil listed below.	Change ever 500 hours &/or at beginning of each drying season.
Hydrostatic Transmission Oil Filter	Use 25 micron filter. (See below)	Change after 1st 30 hours of operation. Change every 500 hours &/or at the beginning of each drying season
Shifting Motor Screw & Cable Bracket	Coat with light oil or graphite and grease fitting.	Prior to operation and end of season — 100 hr.

LUBRICANTS AND FILTERS

FAN AND METERING MOTOR GREASES	SUNDSTRAND HYDROSTATIC OIL
	SUNDSTRAND 6 QTS.
Chevron SRI-2 Standard Oil of Calif. Aeroshell #16 Shell Oil Co.	ATF Type "F" — 6 quarts Hydraulic Transmission Fluid Type used by Agricultural Industry
Hi Temp Texaco, Inc.	Anti-Wear Hydraulic Oil 10W40 SE
	SUNDSTRAND FILTERS
	SUNDSTRAND
Andok 260 Humble Oil	Baldwin HS 839
Rykon #2 American Oil	Cross 1A9021
	Ripley OP-742-10 25 micron
	IH 702 03 C1

TROUBLESHOOTING

The following table is provided as an aid to the Operator to determine the cause and corrective action required for problems occurring during dryer operation. If the corrective action recommended does not correct the problem, contact an authorized Kan-Sun Dryer Serviceman.

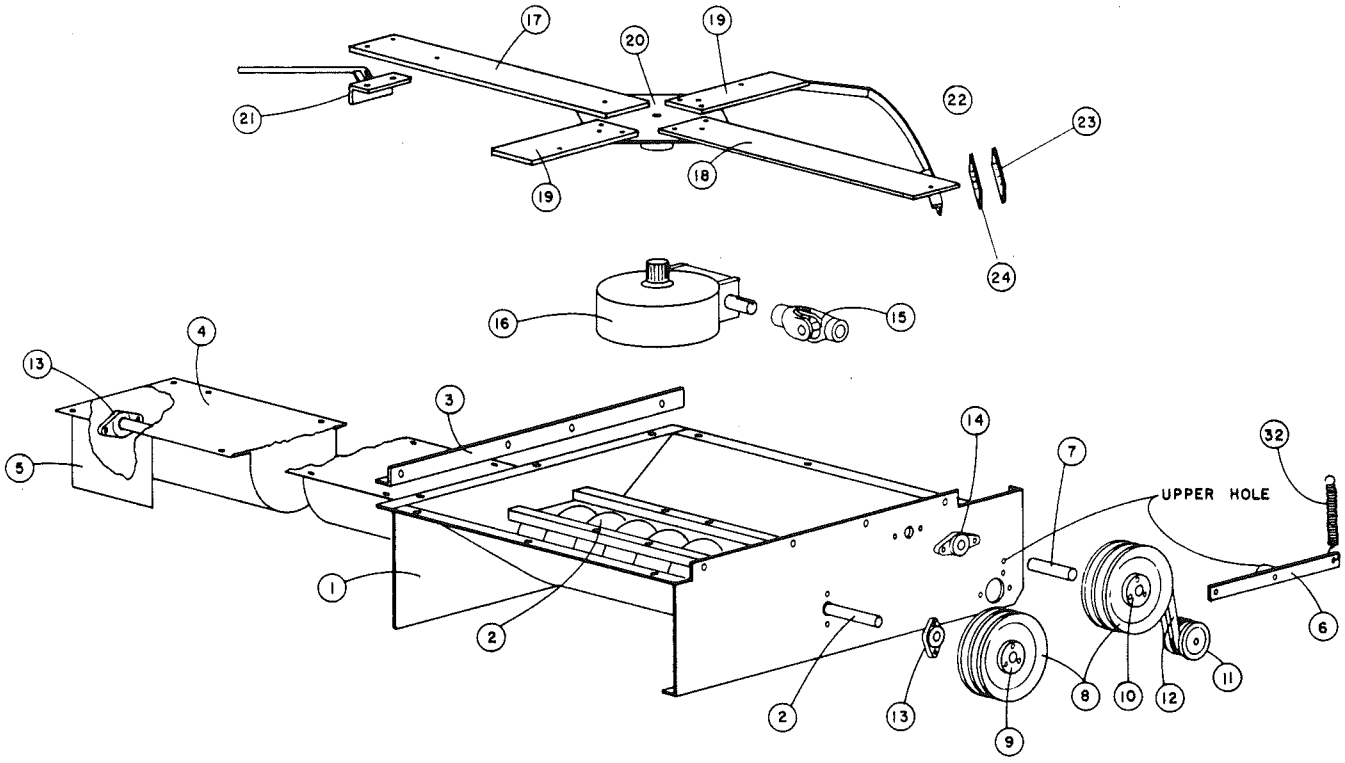
PROBLEM	POSSIBLE CAUSES AND CHECKS
Control Circuit Light Off	Power Disconnected. Transformer input fuse blown (2 amp slow-blow 460 volt) Control circuit fuse blown (5 amp)
Flame Monitor Reset Light Off	Flame Monitor Reset(s) Tripped
Motors fail to start (no power)	"Start-Up Operate" Switch in "Operate" High limit switch tripped Motor overload tripped Manual reset on meter motor (Baldor single phase only) tripped
Fan motor(s) hum, but fail to start, or turn slowly.	Check motor bearings (spin blade by hand).
Magnetic starter(s) trip out repeatedly.	Call authorized serviceman.
Fan runs but air switch doesn't light	Check 1 amp fuse.
Machine runs through purge period, but fails to ignite or flame out occurs before temperature reaches drying temperature.	Check gas pressure, regulator, modulating valve setting, and gas selector switch. Reset high limit. Check probes for proper gap, or cracks. Check secondary and high tension lines for cracks, nicks or loose ends.
High limit thermostat kicks out repeatedly.	Check high limit thermostat setting. Check for clogged heating chamber walls. Check temperature gauge for accuracy.
Machine stops when switched into the "OPERATE" circuit. (All status lights must be lit before switching to "OPERATE".)	Control box cover open — close cover. Low temperature thermostat open. Check setting and/or plenum temperature.

TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSES AND CHECKS
Machine will not achieve desired temperature or temperature is erratic.	Check supply tank fill and pressure for LP units; supply pressure on NG units. Check regulator and modulating valve for proper adjustment. Check temperature gauge. Check excess flow valve at fuel supply for clicking noise or frost indicating blockage. Call LP serviceman. Check for frost on supply line indicating blockage. Call LP serviceman. Check for correct burner orifice.
Machine uses excessive fuel.	Check for overdrying. (Check accuracy of moisture tester.) Check for proper grain level in holding bin.
Uneven moisture content of the discharged grain.	Check fill auger for proper positioning over cone and fines distribution. Check to see if machine is level. Check metering arm. (Centered in dryer with arms sweeping parallel to the lower edge of the inner perforated wall.)
Machine shuts down in "Operate".	Check for wet grain at low bin switch. Check gas pressure, regulator and modulating valve setting. Check high limit. Check flame probes for proper gap or cracks. Check secondary and high tension lines for cracks, nicks or loose.
Status lights flicker, solenoids chatter, or unit shuts down repeatedly.	Contact authorized Kan-Sun dryer serviceman.
Low dryer throughput	Grain overdried. More than 10 points moisture removed. Check moisture tester for accuracy. Check drying temperature. Check perforated sheets for plugging.

ITEM NO.	PART NO.	DESCRIPTION	QTY. 8'	QTY. 10'
1	438722	SUMP ASSEMBLY - 8'	1	
	438729	SUMP ASSEMBLY - 10'		1
2	436483	AUGER ASSEMBLY - 8'	1	
	438727	AUGER ASSEMBLY - 10'		1
3	439779	ATTACHMENT ANGLE	1	1
4	436480	TROUGH COVER - 8'	1	
	438725	TROUGH COVER - 10'		1
5	436482	AUGER GUARD	1	1
6	444601	BELT TIGHTENER WELD'T	1	1
7	830017	DRIVE SHAFT	1	1
8	837742	SHEAVE 6.9" O.D.	2	2
9	438747	HUB 3/4" BORE WITH KEY	1	1
10	837739	HUB 1" BORE	1	1
11	833318	BELT IDLER	1	1
12	837356	DRIVE "V" BELT	1	1
13	437438	BEARING 3/4" BORE WITH COLLAR	2	2
14	821372	BEARING 1" BORE WITH CASTING	1	1
15	820026	"U" JOINT	1	1
16	437752	GEAR BOX 50:1	1	1
17	834681	SWEEP ARM - LONG - 8'	1	
	834683	SWEEP ARM - LONG - 10'		1
18	834680	SWEEP ARM - SHORT - 8'	1	
	834682	SWEEP ARM - SHORT - 10'		1
19	446361	SWEEP FIN TAIL BRACKET - 8'	2	
	446360	SWEEP FIN TAIL BRACKET - 10'		2
20	821633	SWEEP ARM HUB ASSEMBLY	1	1
21	821364	SWEEP ARM FINGER ASSEMBLY	1	1
22	821648	SWEEP FIN - 8'	2	
	821649	SWEEP FIN - 10'		2
23	833278	SWEEP FIN FINGER	2	
24	441965	SWEEP FIN FINGER - CLEANER - (TEFLON)	2	2
25 *	439883	BASE WELD'T - 8'	1	
	438021	BASE WELD'T - 10'		1
26 *	439837	LEG EXTENSION ASSEMBLY	4	6
27 *	439867	HITCH ASSEMBLY	1	1
28 *	443693	WHEEL / TIRE ASSEMBLY	2	4
		(WHEEL - 830089 TIRE - 443690)		
29 *	821647	SPINDLE ASSEMBLY	2	4
30 *	820014	HUB ASSEMBLY	2	4
31 *	837848	SPACER FERRULE	4	8
32	441969	SPRING (6" LONG)	1	1

* ITEMS 25 - 31 NOT SHOWN



ORIGINAL DRAWING DATE:

BUTLER MANUFACTURING COMPANY

AUGER - SWEEP

DATE	BY	CH	GROUP NUMBER
12-1-81	GLH	GEM	220

C 446487

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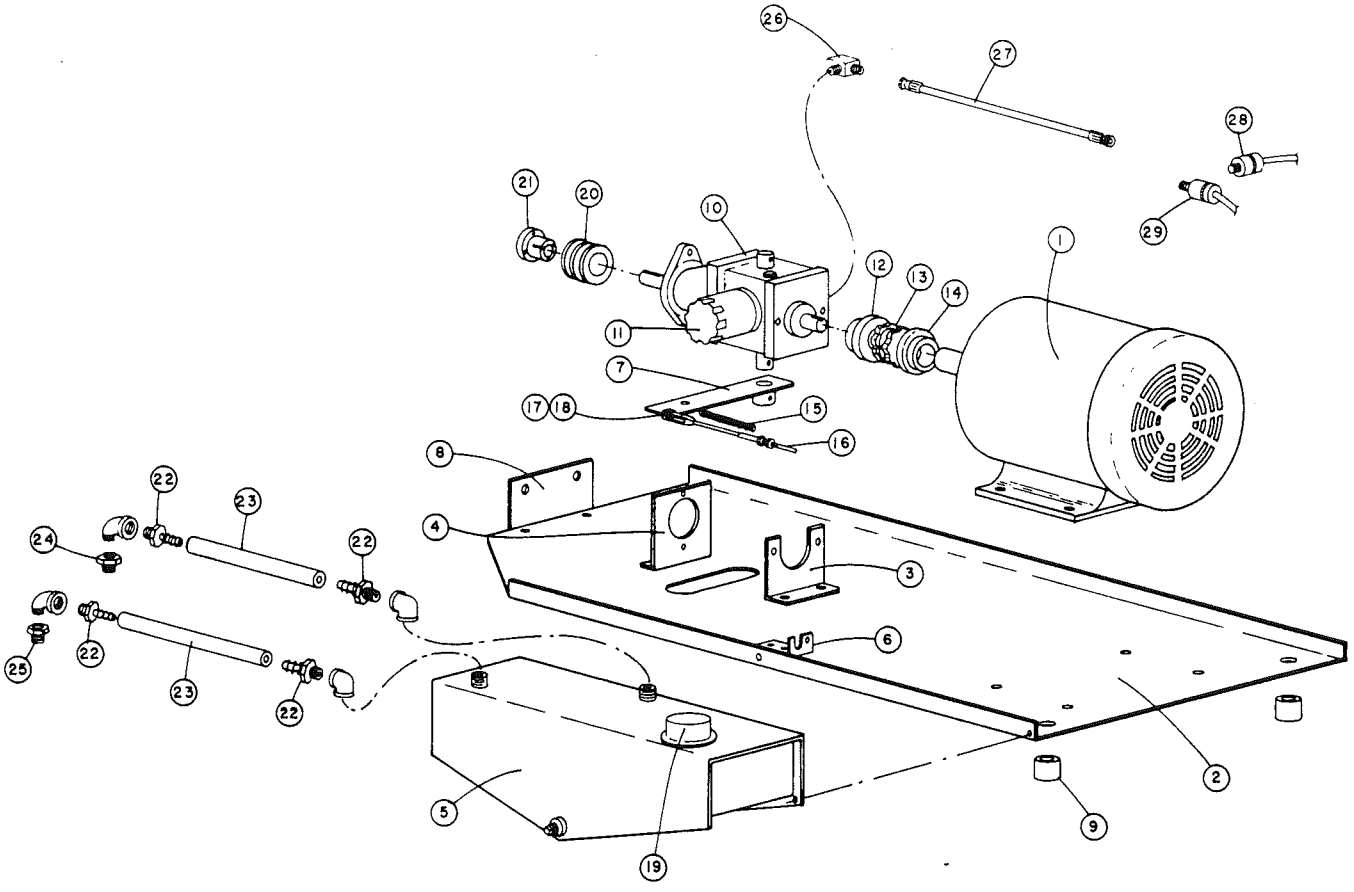
ITEM NO.	PART NO.	DESCRIPTION	QTY. 8'	QTY. 10'
1	823235	MOTOR 3 HP 1 PHASE	1	1
	435943	MOTOR 3 HP 3 PHASE	1	1
2	444597	DRIVE PLATE	1	1
3	444596	PUMP END BRACKET	1	1
4	444595	MOTOR END BRACKET	1	1
5	444590	HYDRAULIC TANK ASSEMBLY	1	1
6	444600	CABLE & SPRING CLIP	1	1
7	444598	SHIFT ARM ASSEMBLY	1	1
8	441969	SWEEP MOTOR ATTACHMENT PLATE	1	1
9	441021	SPACER	2	2
10	444469	INLINE TRANSMISSION (INCLUDES FILTER)	1	1
11	837637	REPLACEMENT FILTER WITH GASKET	1	1
12	833382	COUPLING - PUMP HALF	1	1
13	833383	RUBBER SLEEVE	1	1
14	833518	COUPLING - MOTOR HALF	1	1
15	834716	SPRING	1	1
16	446001	CABLE CONTROL ASSEMBLY - 8'	1	
	444706	CABLE CONTROL ASSEMBLY - 10'		1

ITEM NO.	PART NO.	DESCRIPTION	QTY. 8'	QTY. 10'
17	444636	YOKE	1	1
18	444638	CLEVIS PIN	1	1
19	442795	BREATHER & DIPSTICK ASSEMBLY	1	1
20	837357	SHEAVE 2.65 O.D.	1	1
21	837740	BUSHING 3/4 BORE	1	1
22	444607	BARBED HOSE FITTING	4	4
23	444608	HOSE 1/2 DIA. X 14" LG.	2	2
24	444609	HYDRAULIC HOSE BOSS	1	1
25	444610	HYDRAULIC HOSE BOSS	1	1
26	444995	ADAPTER	1	1
27	446000	PRESSURE SWITCH HOSE ASSEMBLY- 8'	1	
	444705	PRESSURE SWITCH HOSE ASSEMBLY-10'		1
28	444588	LOW PRESSURE SWITCH	1	1
29	444587	HIGH PRESSURE SWITCH	1	1



ORIGINAL DRAWING DATE:

BUTLER

BUTLER MANUFACTURING COMPANY

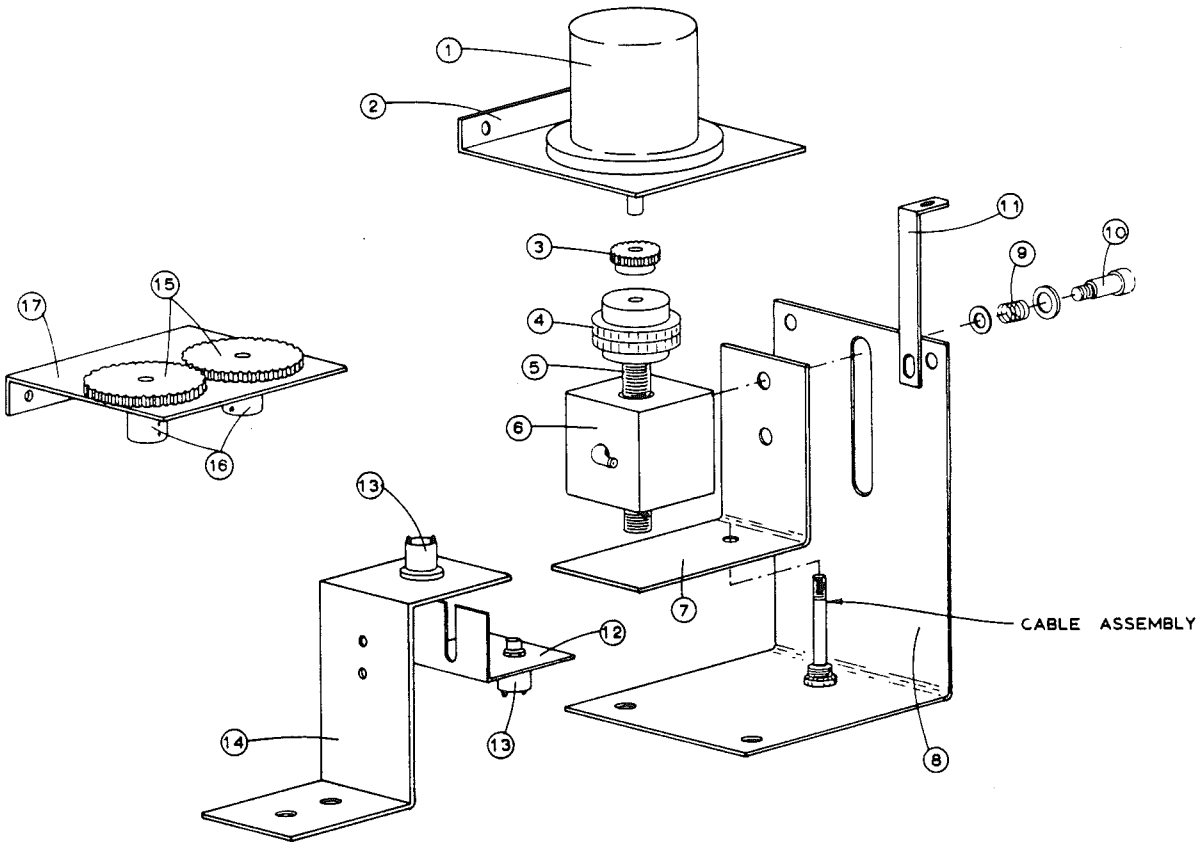
DRIVE

DATE	BY	CH	GROUP NUMBER
12-1-81	GLH	GEM	220

C 446488

FORM NO. 1225 2-72 PRINTED IN U.S.A.

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	444586	SHIFT MOTOR	1
2	444584	MOTOR BRACKET	1
3	444642	GEAR 18 TOOTH	1
4	821665	FLEX - JOINT	1
5	444695	DRIVE SHAFT	1
6	444582	CARRIER	1
7	444581	CABLE BRACKET	1
8	444580	TORQUE ELIMINATOR	1
9	444578	SPRING	2
10	444696	SOCKET HEAD SHOULDER SCREW	2
11	444996	STABILIZER BRACKET	1
12	444579	SWITCH CLIP	1
13	834940	SWITCH	2
14	444585	SWITCH MOUNTING BRACKET	1
15	444643	GEAR 50 TOOTH	2
16	835851	POT (10 TURN - 10K)	2
17	444583	POT MOUNTING BRACKET	1



ORIGINAL DRAWING DATE:

BUTLER MANUFACTURING COMPANY
GENERAL OFFICES KANSAS CITY, MISSOURI

SHIFT MOTOR

DATE	DR	CK	GROUP NUMBER
12 - 1 - 81	GLH	GEM	220

C 446489

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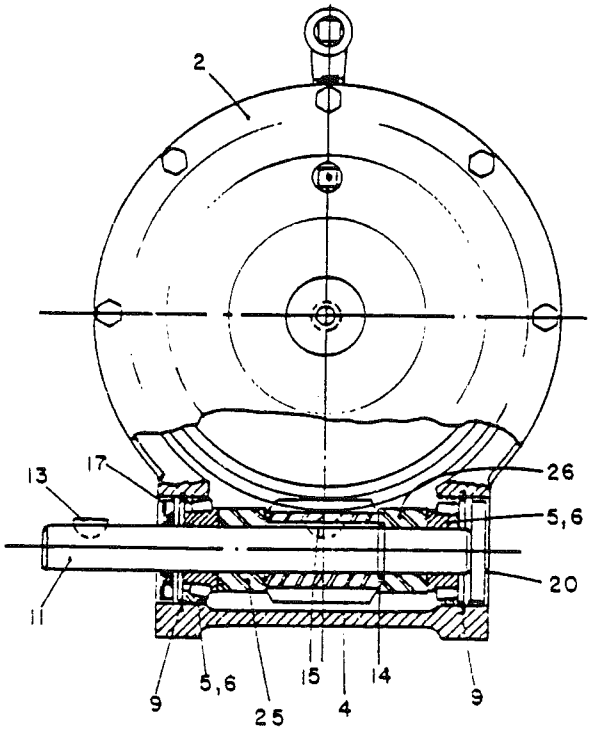
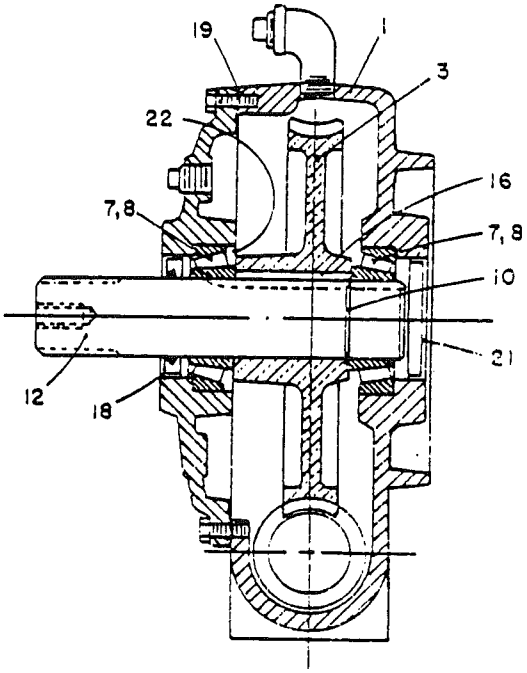
REF. NO.	*BUTLER PART NO.	DESCRIPTION	DURST PART NO.	QTY.
1	437754	HOUSING	A26BE6	1
2	437755	COVER	A27A385	1
3	437756	WORM GEAR (BRONZE)	B28A146CT	1
4	434781	WORM	B31-23	1
5	830588	BEARING CONE	C12	2
6	830589	BEARING CUP	C13	2
7	437759	BEARING CUP	C21	2
8	437760	BEARING CONE	C64	2
9	830604	SNAP RING	D24	2
10	437761	SNAP RING	D136	1
11	437762	INPUT SHAFT	E2205-2	1
12	437763	OUTPUT SHAFT	E3479	1
13	833607	WOODRUFF KEY (SOFT)	J10	1
14	437764	SNAP RING	D197	1
15	837879	WOODRUFF KEY (HARD)	J56	1
16	437765	KEY	J58	1
17	830597	SEAL (INPUT)	K10	1
18	833946	SEAL (OUTPUT)	K25	1
19	830579	GASKET	K47	1
20	835446	CAP (INPUT)	K154	1
21	835447	CAP (OUTPUT)	K155	1
22	437767	NILOS SEAL	K243	1
23	831427	SHIM (INPUT) — NOT SHOWN	P17	
24	437768	SHIM (OUTPUT) — NOT SHOWN	P-50-A	
25	834782	SPACER	P103	1
26	437769	SPACER COUNTER-BORED	P103/CTBR	1

*WHEN ORDERING REPLACEMENT PARTS, USE "DURST" PART NUMBERS ONLY.





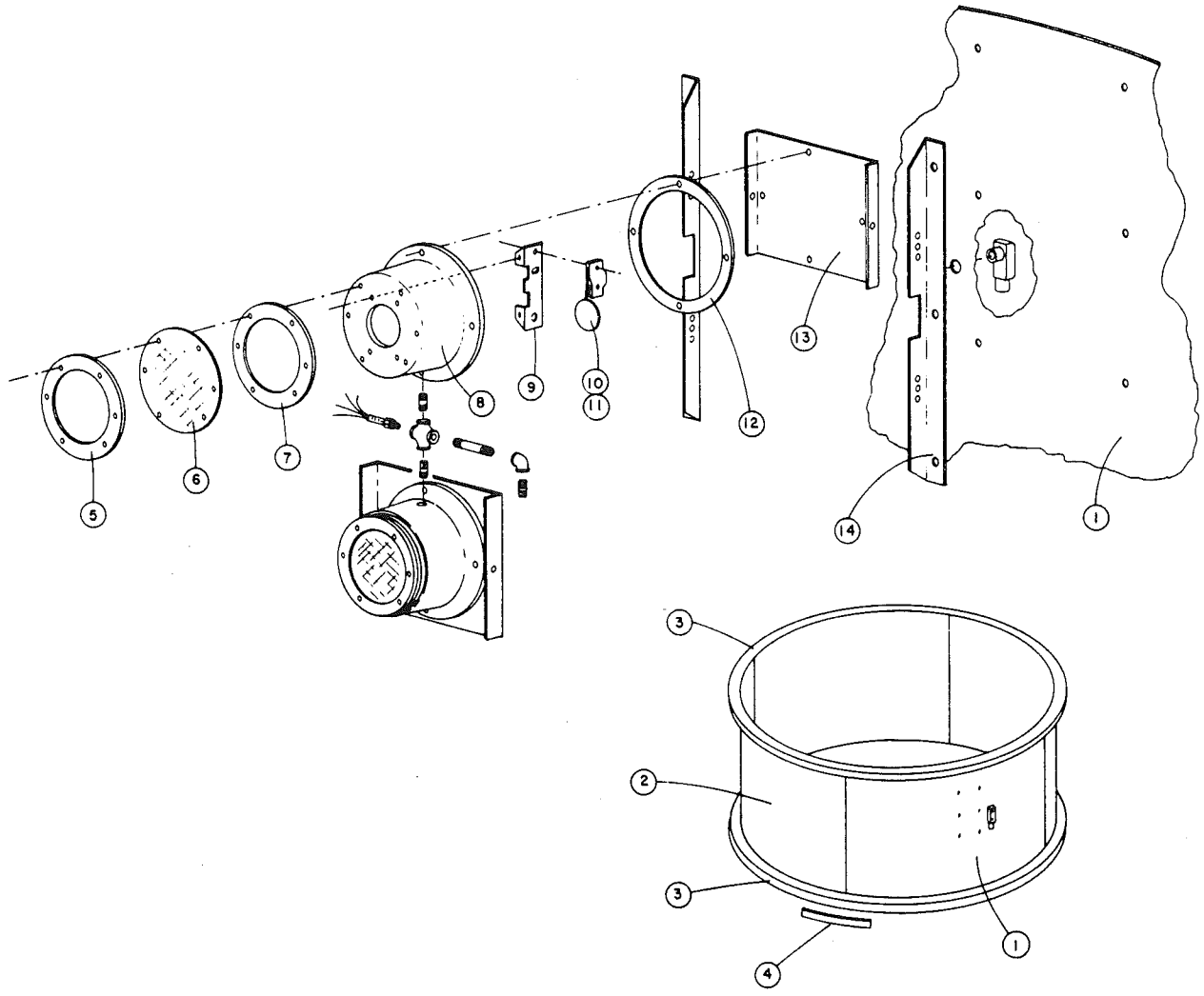
DRD 2-16-79

BUTLER | BUTLER MANUFACTURING COMPANY
GENERAL OFFICES - KANSAS CITY 26, MISSOURI

GEAR BOX-437752

DRAWN	CHECKED	DATE
GEM		2-16-79
A	442155	

ITEM NO.	PART NO.	DESCRIPTION	QTY. 8'	QTY. 10'
1	446004	LIMIT SWITCH SHEET	1	
	445503	LIMIT SWITCH SHEET		1
2	835291	STD. TOP BIN SHEET	3	
	835293	STD. TOP BIN SHEET		3
3	438759	OUTSIDE CHANNEL RING	4	
	438761	OUTSIDE CHANNEL RING		4
4	438649	OUTER RING BOLTING TAB	4	4
5	444335	METAL RETAINING RING	2	2
6	444337	DIAPHRAGM	2	2
7	444338	DIAPHRAGM GASKET	2	2
8	444341	CASTING	2	2
9	444339	SWITCH MOUNTING BRACKET	2	2
10	444344	LIMIT SWITCH	2	2
11	446472	LIMIT SWITCH REPLACEMENT SPRING	2	2
12	444336	REAR GASKET	2	2
13	444334	BACK PLATE	2	2
14	446454	SWITCH MOUNTING ANGLE	2	2



ORIGINAL DRAWING DATE:

BUTLER MANUFACTURING COMPANY

HOLDING BIN & SWITCH ASS'Y

DATE	BY	CK	GROUP NUMBER
11-20-81	GLH		220

C 446481

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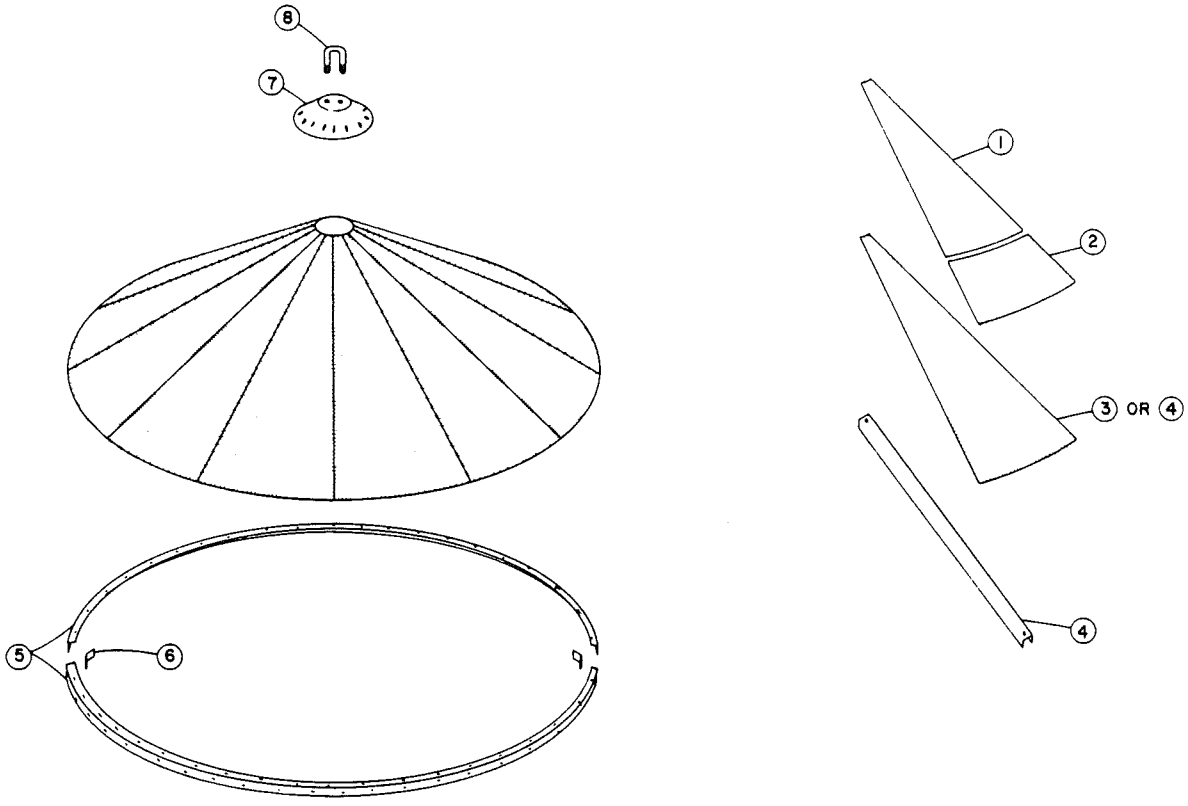
ITEM NO.	PART NO.	DESCRIPTION	QTY 8'	QTY 10'
1	440032	UPPER ROOF INSERT	8	
	440034	UPPER ROOF INSERT		16
2	440033	LOWER ROOF INSERT	8	
	440035	LOWER ROOF INSERT		16
3	439776	ROOF SHEET (PERFORATED)	8	
	439780	ROOF SHEET (PERFORATED)		16
4	441551	REINFORCEMENT CHANNEL		16
5	833218	TRANSITION RING	2	
	833219	TRANSITION RING		2
6	834721	FILLER CLIP	2	2
7	439063	ROOF CAP	1	1
8	830109	U - BOLT	1	1
9	440088	ROOF SHEET (SOLID)	8	
	442832	ROOF SHEET (SOLID)		16



ORIGINAL DRAWING DATE:

BUTLER MANUFACTURING COMPANY

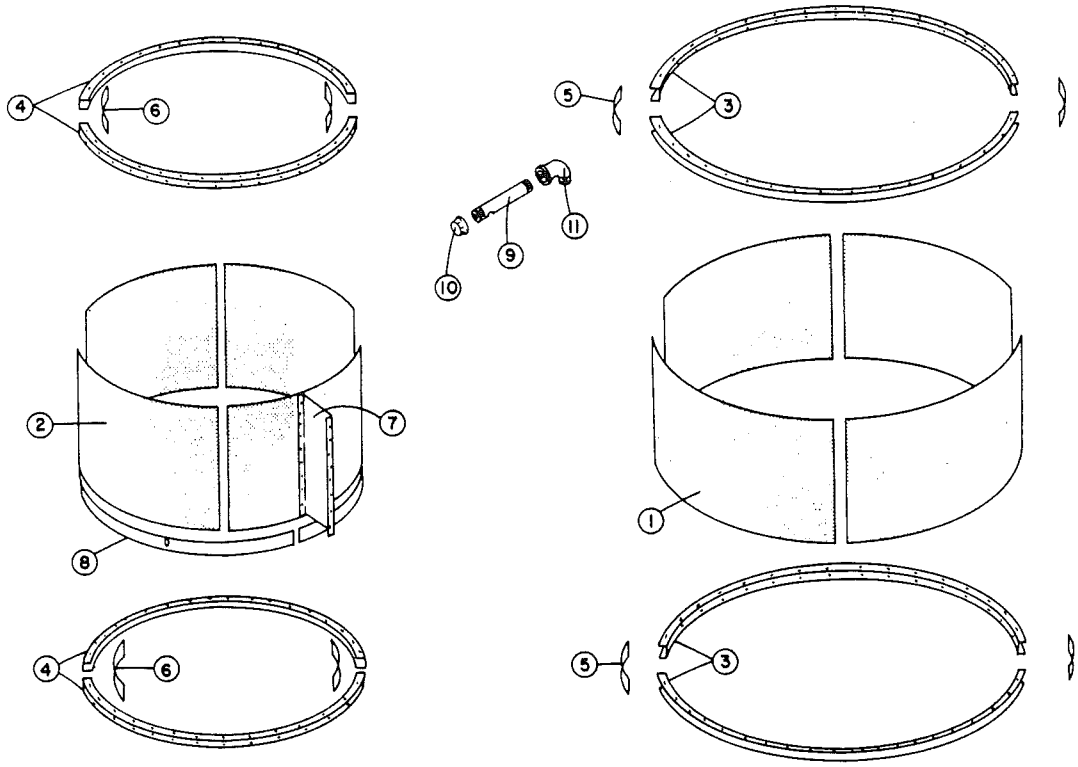
INNER ROOF

DATE 12 - 1 - 81 | DR GLH | CH GEM | GROUP NUMBER 220

C 446490

ITEM NO.	PART NO.	DESCRIPTION	QTY. 8'	QTY. 10'
1	836462	OUTER 3' SHEET-8'	4	
	834521	OUTER 4' SHEET-8'	4	
	834530	OUTER 4' SHEET-10'		4
2	836463	INNER 3' SHEET-8'	4	
	834522	INNER 4' SHEET-8'	4	
	834531	INNER 4' SHEET-10'		4
3	438759	OUTSIDE CHANNEL RING-8'	4	
	438761	OUTSIDE CHANNEL RING-10'		4
4	438758	INSIDE CHANNEL RING-8'	4	
	438760	INSIDE CHANNEL RING-10'		4
5	438649	OUTER RING BOLTING TAB	4	4
6	833353	INNER RING BOLTING TAB	4	4
7	836442	PARTITION 3'	12	
	834589	PARTITION 4'	12	16
8	444366	CLEANOUT PLENUM STRIP	3	
	444365	CLEANOUT PLENUM STRIP		3
9	440562	CLEANOUT PIPE	3	3
10	440563	PIPE CAP	3	3
11	831989	STREET ELBOW 1 1/4 X 90°	3	3

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



ORIGINAL DRAWING DATE:

BUTLER MANUFACTURING COMPANY

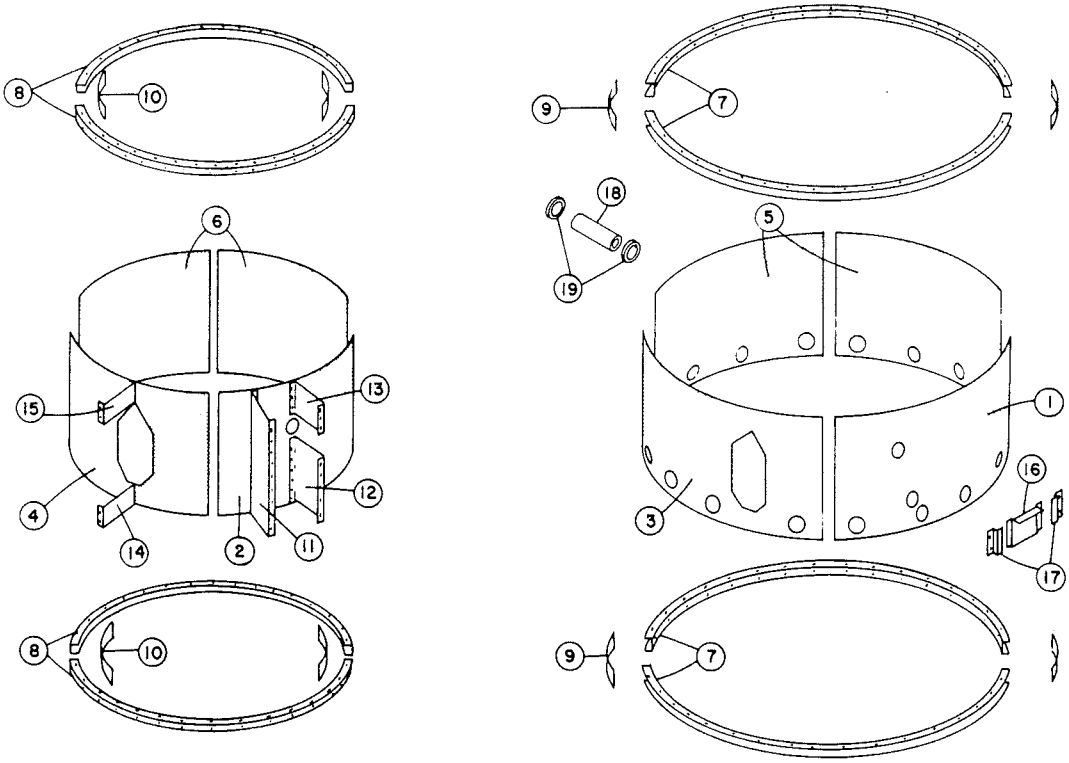
HEAT SECTION

DATE	DR	CH	GROUP NUMBER
12 - 1 - 81	GLH	GEM	220

C 446491

PRINTED IN U.S.A.

ITEM NO.	PART NO.	DESCRIPTION	QTY. 8'	QTY. 10'
1	834526	OUTER CONTROL BOX SHEET	1	
	834535	OUTER CONTROL BOX SHEET		1
2	834527	INNER CONTROL BOX SHEET	1	
	834536	INNER CONTROL BOX SHEET		1
3	834524	OUTER DOOR SHEET	1	
	834533	OUTER DOOR SHEET		1
4	834525	INNER DOOR SHEET	1	
	834534	INNER DOOR SHEET		1
5	834523	OUTER COOLING SHEET	2	
	834532	OUTER COOLING SHEET		2
6	834522	INNER COOLING SHEET	2	
	834531	INNER COOLING SHEET		2
7	438759	OUTSIDE CHANNEL RING	4	
	438761	OUTSIDE CHANNEL RING		4
8	438758	INSIDE CHANNEL RING	6	
	438760	INSIDE CHANNEL RING		6
9	438649	OUTER RING BOLTING TAB	4	4
10	833353	INNER RING BOLTING TAB	4	4
11	834589	PARTITION 4'	10	14
12	834600	PARTITION BOTTOM PVC	1	1
13	834599	PARTITION TOP PVC	1	1
14	834598	PARTITION BOTTOM DOOR	1	1
15	834597	PARTITION TOP DOOR	1	1
16	833324	DUMP GATE	12	16
17	833323	DUMP GATE SLIDE	24	32
18	438912	ENTRANCE TUBE	2	2
19	438913	COLLAR	4	4



ORIGINAL DRA. ATE:

BUTLER MANUFACTURING COMPANY

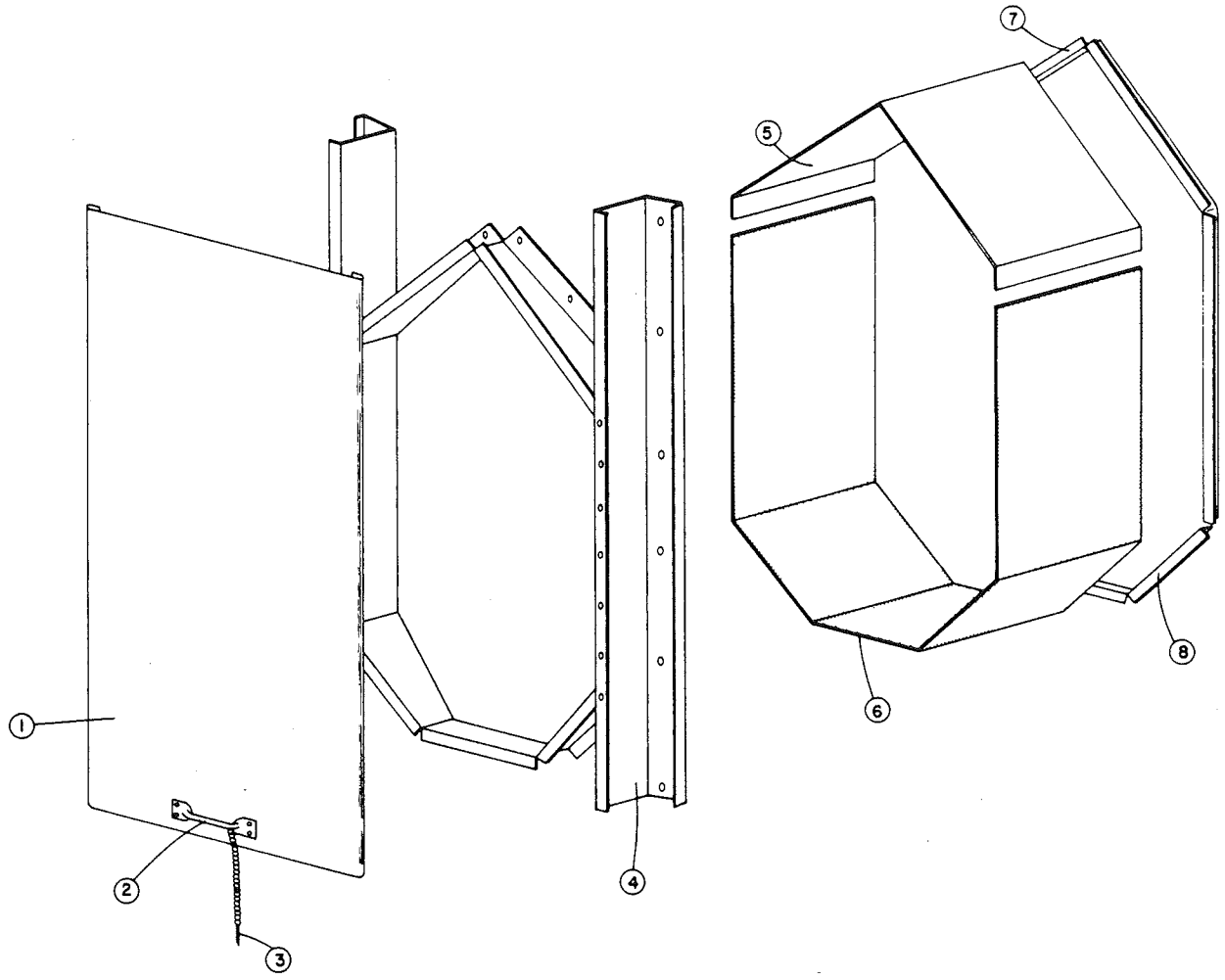
COOLING SECTION

DATE 12 - 1 - 81 | BY GLH | CK GEM | 220

C 446492

FORM NO. 1225 2-72 PRINTED IN U.S.A.

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	830125	CRAWL DOOR COVER	1
2	830126	DOOR HANDLE	1
3	830127	DOOR CHAIN	1
4	440504	CRAWL DOOR FRAME	1
5	830114	CRAWL DOOR TOP	1
6	830115	CRAWL DOOR BOTTOM	1
7	830116	TOP FILLER ANGLE	1
8	830117	BOTTOM FILLER ANGLE	1



ORIGINAL DRAWING DATE:

BUTLER MANUFACTURING COMPANY

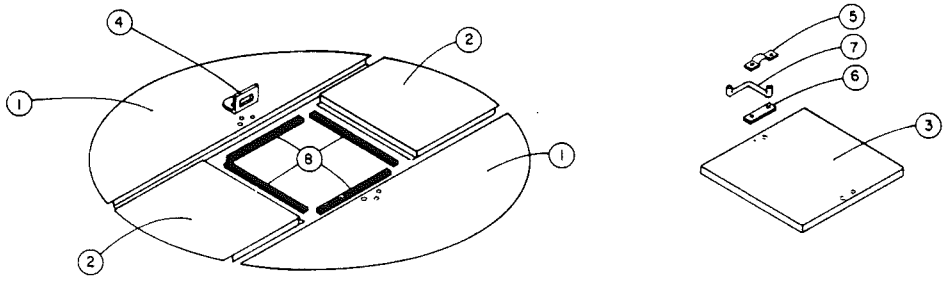
CRAWL DOOR

DATE	DR	CK	GROUP NUMBER
12-1-81	GLH	GEM	220

C 446493

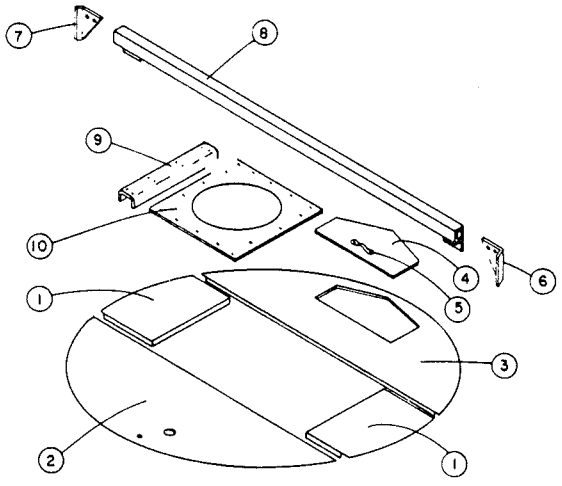
PRINTED IN U.S.A.

ITEM NO.	PART NO.	DESCRIPTION	QTY. 8'	QTY. 10'
1	833163	FLOOR SIDE PLATE	2	
	833355	FLOOR SIDE PLATE		2
2	833164	FLOOR END PLATE	2	
	833356	FLOOR END PLATE		2
3	833165	FLOOR HOPPER COVER	1	1
4	438712	LATCH SIDE PLATE	2	2
5	438710	BEARING CAP	2	2
6	438711	BEARING PLATE	2	2
7	438709	HANDLE	2	2
8	978028	FOAMITE STRIP 31.5" LONG	4	4



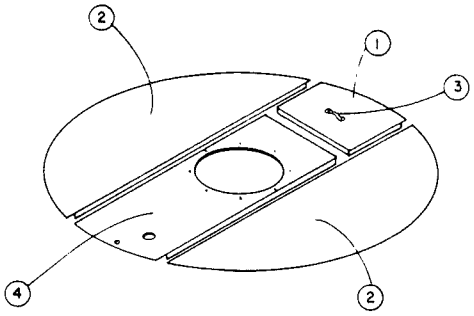
COOLING FLOOR

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	833372	PLENUM FLOOR END	2
2	437156	PLENUM FLOOR SIDE	1
3	833370	PLENUM FLOOR ENTRANCE	1
4	821305	PLENUM DOOR ASS'Y (INCLUDES HANDLE)	1
5	830126	DOOR HANDLE	1
6	834759	RIGHT HAND SUPPORT GUSSET	2
7	834760	LEFT HAND SUPPORT GUSSET	2
8	821659	PLENUM SUPPORT WELDMENT	2
9	833727	BURNER SHROUD SUPPORT	1
10	833221	FLOOR PLATE	2



10' HEAT FLOOR

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	436665	FLOOR DOOR	1
2	436666	FLOOR SIDE PLATE	2
3	830126	DOOR HANDLE	1
4	436664	BURNER MOUNTING PLATE	1



8' HEAT FLOOR

ORIGINAL DRAWING DATE:

BUTLER MANUFACTURING COMPANY
GENERAL OFFICES KANSAS CITY, MISSOURI

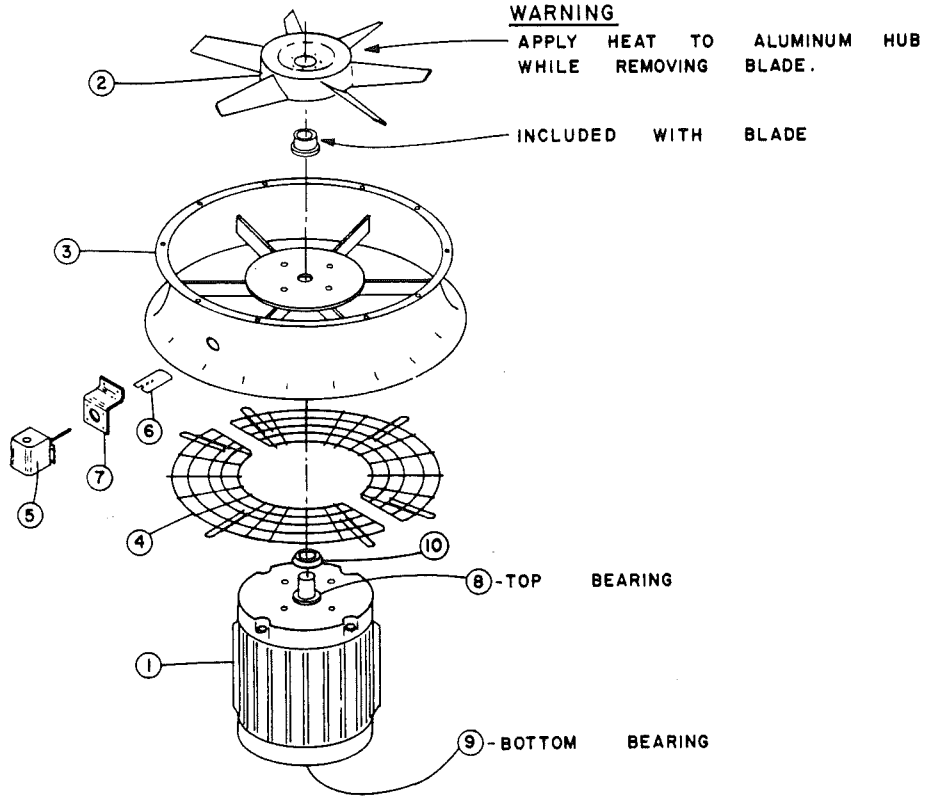
COOLING - HEAT FLOORS

DATE	DR	CR	GROUP NUMBER
12-1-81	GLH	GEM	220

C 446494

FORM NO. 1225 2-72 PRINTED IN U.S.A.

ITEM NO.	PART NO.	DESCRIPTION	QTY. 10 HP	QTY. 15 HP
1	821576	MOTOR 10 HP	1	
	821577	MOTOR 15 HP		1
2	835253	BLADE ASS'Y (INCLUDES BUSHING)	1	
	835258	BLADE ASS'Y (INCLUDES BUSHING)		1
3	821316	VENTURI	1	1
4	833220	FAN GUARD (HALF)	2	2
5	821632	AIR SWITCH	1	1
6	837253	AIR SWITCH SAIL	1	1
7	834568	AIR SWITCH BRACKET	1	1
8	835184	TOP REPLACEMENT BEARING	1	1
9	835185	BOTTOM REPLACEMENT BEARING	1	1
10	444766	SLINGER	1	1



ORIGINAL DRAWING DATE:

BUTLER MANUFACTURING COMPANY

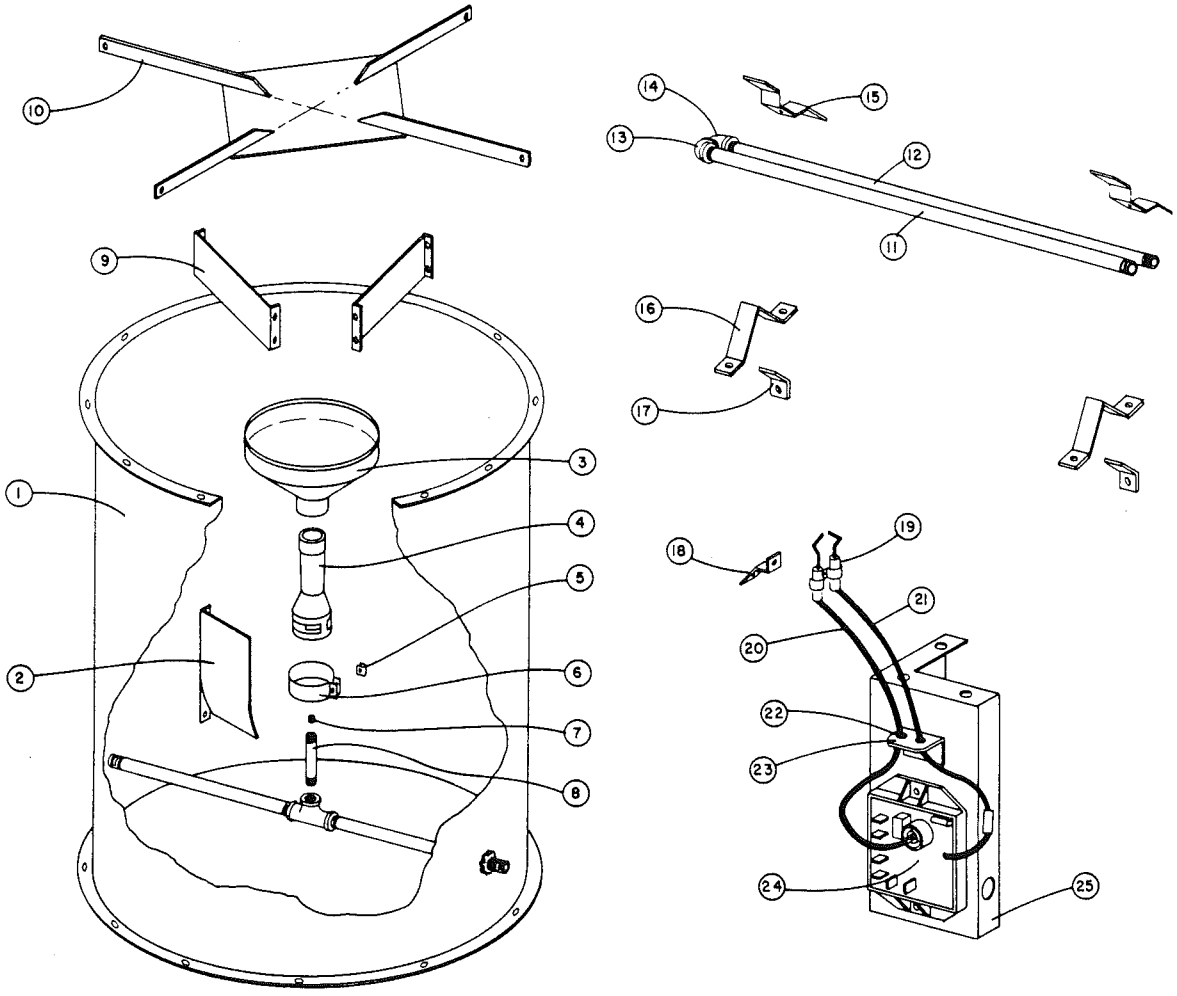
FAN

DATE	DR	CH	GROUP NUMBER
12-1-81	GLH	GEM	220

C 446495

PRINTED IN U.S.A.

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	438499	BURNER SHELL	1
2	833224	AIR FIN	6
3	835368	BURNER SHIELD	1
4	835367	BURNER	1
5	837537	TINNERMAN CLIP	1
6	833745	AIR DAMPER	1
7	433888	LP ORIFICE 3/16 DIA.	1
	437168	LP ORIFICE 1/8 DIA. (LOW TEMP)	1
8	835366	PIPE	1
9	440105	BURNER RETAINER	2
10	441000	VAPORIZER BAFFLE ASSEMBLY	1
11	437082	UPPER VAPORIZER PIPE	1
12	437083	LOWER VAPORIZER PIPE	1
13	837634	EL 1"-90° 300#	1
14	837248	STREET EL 1"-90° 300#	1
15	437119	VAPORIZER CLAMP	2
16	437118	VAPORIZER MOUNTING BRACKET	2
17	440106	BAFFLE END RETAINER	2
18	835403	PROBE CLIP	1
19	833227	FLAME CONTROL PROBE	1
20	823551	HIGH TENSION LINE	1
21	823552	SECONDARY TENSION LINE	1
22	833468	BUSHING	2
23	833461	WIRE HOLDER	1
24	441958	IGNITOR CONTROL BOARD	1
25	833524	FLAME MONITOR BRACKET	1



ORIGINAL DRAW. DATE:

BUTLER MANUFACTURING COMPANY

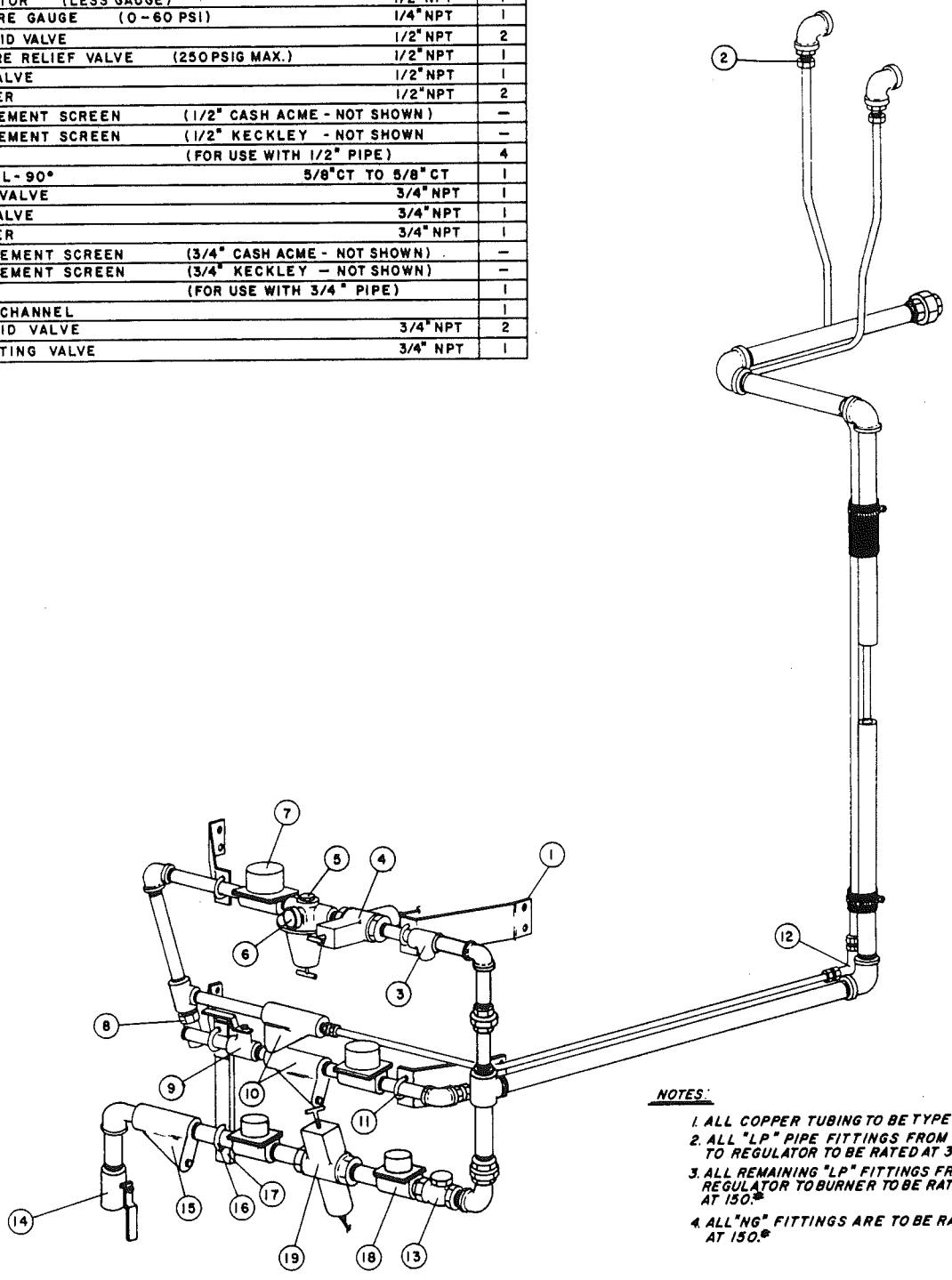
BURNER

DATE	DR	CH	GROUP NUMBER
12-1-81	GLH	GEM	220

C 446496

FORM NO. 1225 2-72 PRINTED IN U.S.A.

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	436349	PIPING BRACKET	4
2	436700	MALE CONNECTOR 5/8"CT TO 1/2"NPT	4
3	437085	CHECK VALVE 1/2"NPT	1
4	821439	MODULATING VALVE 1/2"NPT	1
5	445521	REGULATOR (LESS GAUGE) 1/2"NPT	1
6	445520	PRESSURE GAUGE (0-60 PSI) 1/4"NPT	1
7	821438	SOLENOID VALVE 1/2"NPT	2
8	831065	PRESSURE RELIEF VALVE (250PSIG MAX.) 1/2"NPT	1
9	823387	BALL VALVE 1/2"NPT	1
10	823291	STRAINER 1/2"NPT	2
10A	837597	REPLACEMENT SCREEN (1/2" CASH ACME - NOT SHOWN)	—
10B	837657	REPLACEMENT SCREEN (1/2" KECKLEY - NOT SHOWN	—
11	436359	U-BOLT (FOR USE WITH 1/2" PIPE)	4
12	437146	UNION EL-90° 5/8"CT TO 5/8"CT	1
PARTS FOR UNITS WITH "NG" PLUMBING 13	437087	CHECK VALVE 3/4"NPT	1
14	822283	BALL VALVE 3/4"NPT	1
15	823292	STRAINER 3/4"NPT	1
15A	837599	REPLACEMENT SCREEN (3/4" CASH ACME - NOT SHOWN)	—
15B	837658	REPLACEMENT SCREEN (3/4" KECKLEY — NOT SHOWN)	—
16	436360	U-BOLT (FOR USE WITH 3/4" PIPE)	1
17	437081	PIPING CHANNEL	1
18	821440	SOLENOID VALVE 3/4"NPT	2
19	437088	MODULATING VALVE 3/4" NPT	1



NOTES:

1. ALL COPPER TUBING TO BE TYPE "L"
2. ALL "LP" PIPE FITTINGS FROM INLET TO REGULATOR TO BE RATED AT 300.*
3. ALL REMAINING "LP" FITTINGS FROM REGULATOR TO BURNER TO BE RATED AT 150.*
4. ALL "NG" FITTINGS ARE TO BE RATED AT 150.*

ORIGINAL DRAWING DATE:

BUTLER MANUFACTURING COMPANY

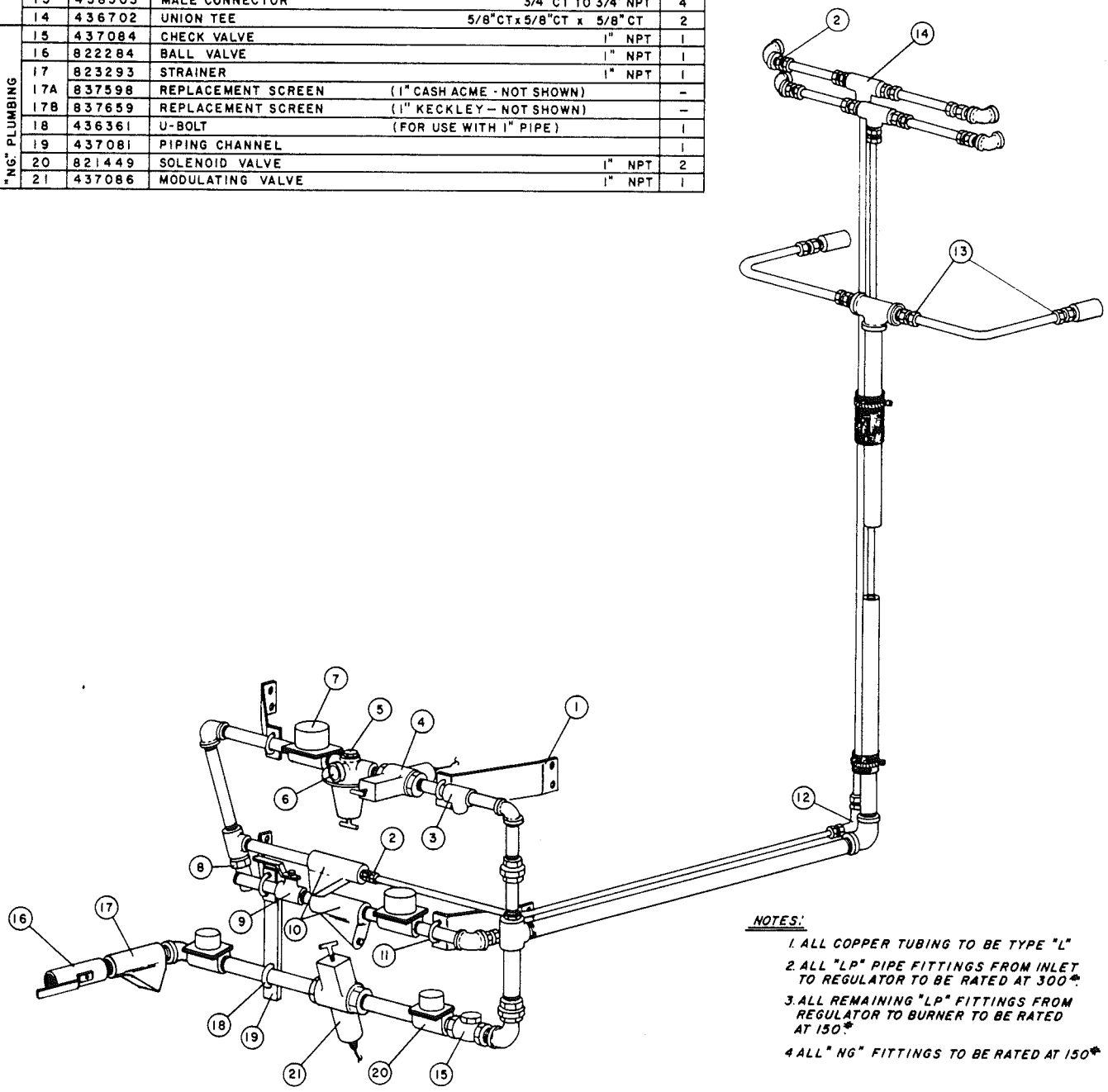
8' PLUMBING

DATE	BY	GROUP NUMBER
12-1-81	HRW GEM	220

C 446497

PRINTED IN U.S.A.

	ITEM NO.	PART NO.	DESCRIPTION	QTY.
	1	436349	PIPING BRACKET	4
	2	436700	MALE CONNECTOR 5/8"CT TO 1/2"NPT	6
	3	437085	CHECK VALVE 1/2"NPT	1
	4	821439	MODULATING VALVE 1/2"NPT	1
	5	445521	REGULATOR (LESS GAUGE) 1/2"NPT	1
	6	445520	PRESSURE GAUGE (0-60 PSI) 1/4" NPT	1
	7	821438	SOLENOID VALVE 1/2"NPT	2
	8	831065	PRESSURE RELIEF VALVE (250 PSIG MAX.) 1/2"NPT	1
	9	823387	BALL VALVE 1/2"NPT	1
	10	823291	STRAINER 1/2"NPT	2
	10A	837597	REPLACEMENT SCREEN (1/2" CASH ACME - NOT SHOWN)	–
	10B	837657	REPLACEMENT SCREEN (1/2" KECKLEY — NOT SHOWN)	–
	11	436359	U-BOLT (FOR USE WITH 1/2" PIPE)	4
	12	437146	UNION EL-90° 5/8"CT TO 5/8"CT	1
	13	438503	MALE CONNECTOR 3/4"CT TO 3/4"NPT	4
	14	436702	UNION TEE 5/8"CT x 5/8"CT x 5/8"CT	2
PARTS FOR UNITS WITH "NG" PLUMBING	15	437084	CHECK VALVE 1" NPT	1
	16	822284	BALL VALVE 1" NPT	1
	17	823293	STRAINER 1" NPT	1
	17A	837598	REPLACEMENT SCREEN (1" CASH ACME - NOT SHOWN)	–
	17B	837659	REPLACEMENT SCREEN (1" KECKLEY – NOT SHOWN)	–
	18	436361	U-BOLT (FOR USE WITH 1" PIPE)	1
	19	437081	PIPING CHANNEL	1
	20	821449	SOLENOID VALVE 1" NPT	2
	21	437086	MODULATING VALVE 1" NPT	1



NOTES:

1. ALL COPPER TUBING TO BE TYPE "L"
2. ALL "LP" PIPE FITTINGS FROM INLET TO REGULATOR TO BE RATED AT 300#
3. ALL REMAINING "LP" FITTINGS FROM REGULATOR TO BURNER TO BE RATED AT 150#
4. ALL "NG" FITTINGS TO BE RATED AT 150#

ORIGINAL DRAWING DATE:

BUTLER MANUFACTURING COMPANY

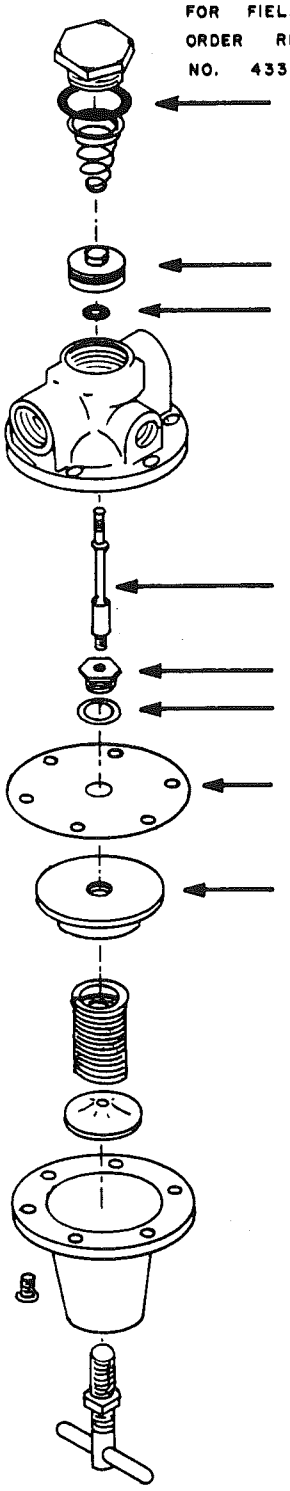
10' PLUMBING

DATE	DR	CH	GROUP NUMBER
12-1-81	HRW	GEM	220

C 446498

FORM NO. 1225 2-72 PRINTED IN U.S.A.

ONLY PARTS INDICATED BY ARROW WILL BE AVAILABLE FOR FIELD REPLACEMENT. ORDER REPAIR KIT NO. 433328

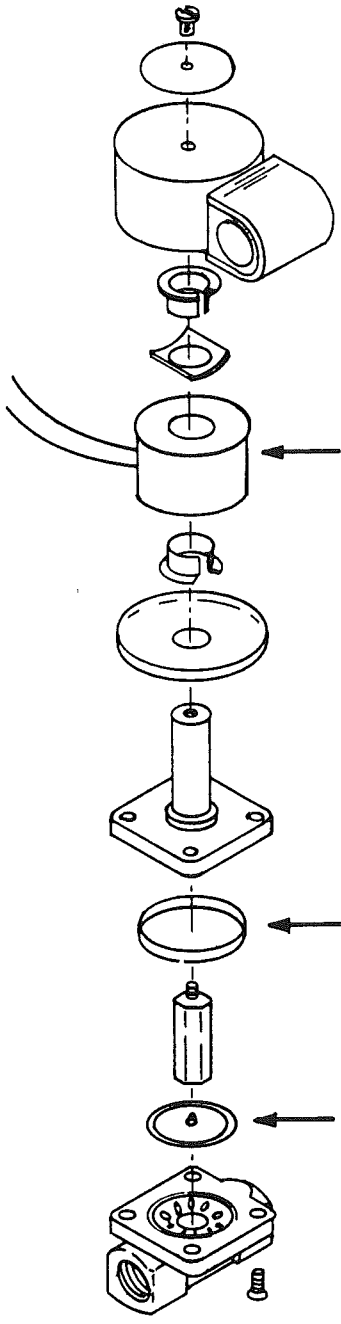


445521

1/2" REGULATOR (LESS GAUGE)

PRESSURE GAUGE 445520

ONLY PARTS LISTED WITH PART No.s WILL BE AVAILABLE FOR FIELD REPLACEMENT. THE OTHER PARTS ARE SHOWN SO THE UNIT CAN BE PROPERLY REASSEMBLED.



821438

1/2" SOLENOID VALVE

BUTLER MANUFACTURING COMPANY

GENERAL OFFICES - KANSAS CITY 26, MISSOURI

REGULATOR — SOLENOID

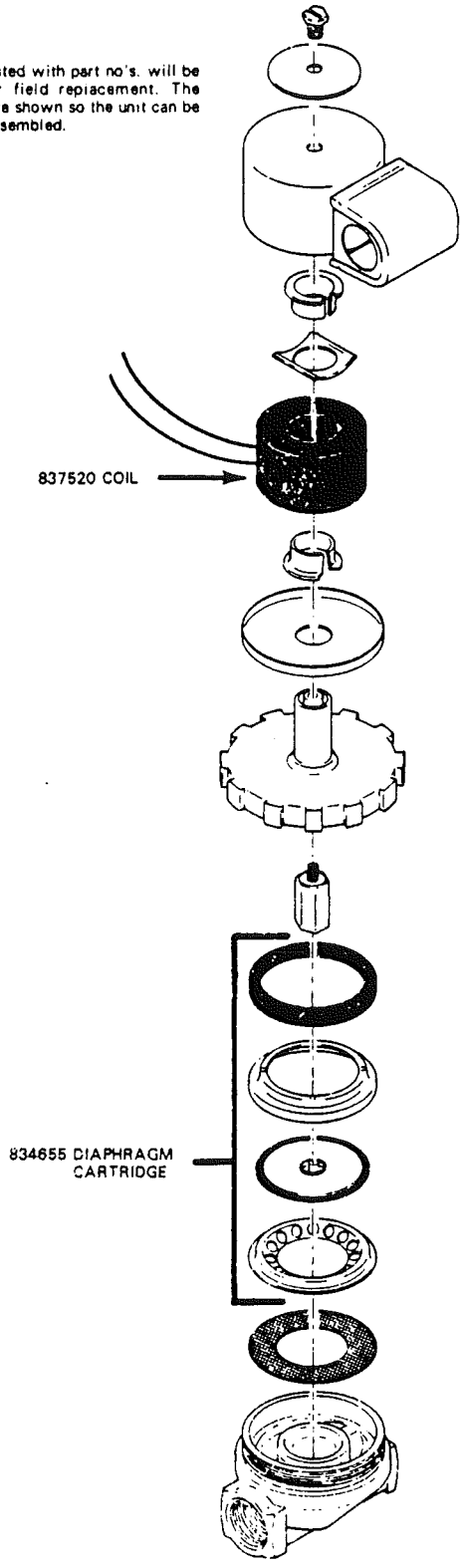
DRAWN	CHECKED	DATE
GLH		10-16-81

GROUP NO.

A 446402

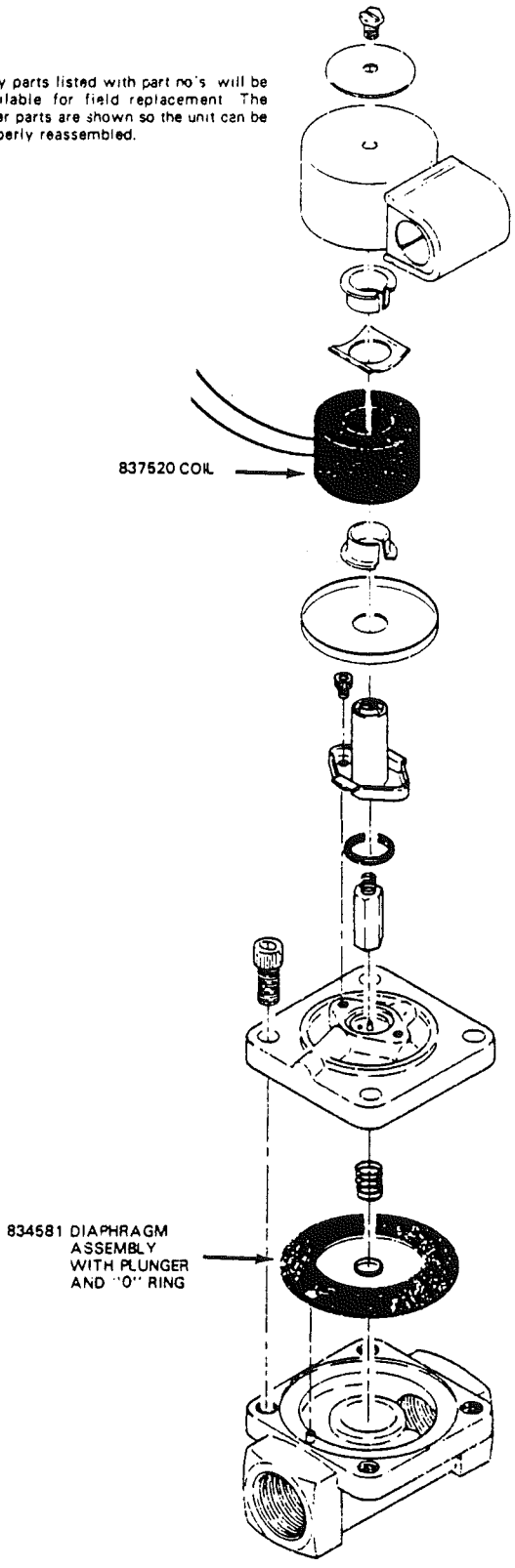
PRINTED IN U.S.A.

Only parts listed with part no's. will be available for field replacement. The other parts are shown so the unit can be properly reassembled.



821440
3/4" SOLENOID VALVE

Only parts listed with part no's will be available for field replacement The other parts are shown so the unit can be properly reassembled.



821449
1" SOLENOID VALVE

BUTLER | BUTLER MANUFACTURING COMPANY
GENERAL OFFICES - KANSAS CITY 26, MISSOURI

SOLENOID VALVES

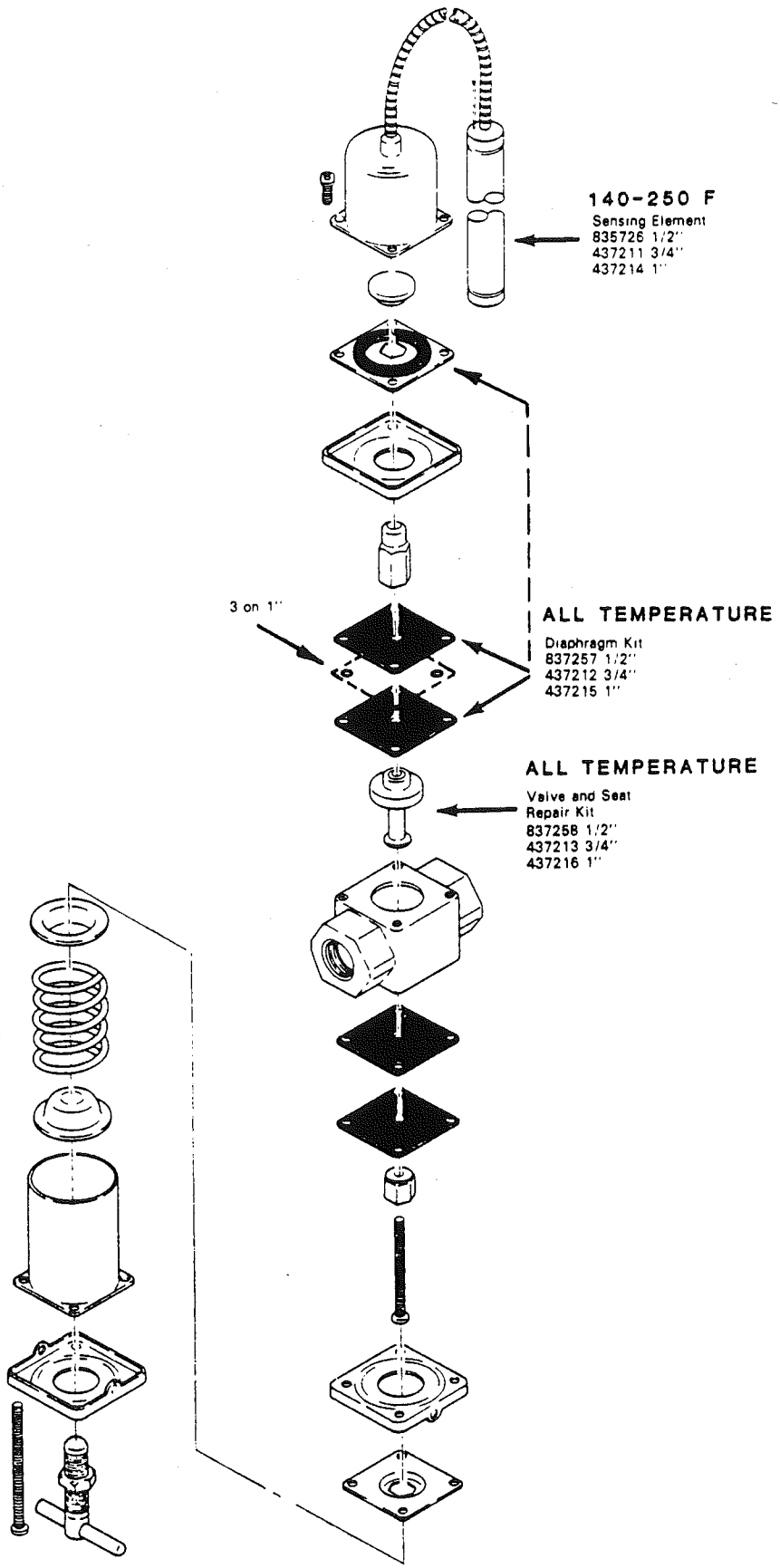
DRAWN	CHECKED	DATE
GEM		2-16-79
A	442153	

821439
1/2" MODULATING VALVE

437088
3/4" MODULATING VALVE

437086
1" MODULATING VALVE

Only parts listed with part no's will be available for field replacement. The other parts are shown so the unit can be properly reassembled



DRD 2-18-80

BUTLER | BUTLER MANUFACTURING COMPANY
GENERAL OFFICES - KANSAS CITY 26, MISSOURI

MOD. VALVE (Penn)

DRAWN	CHECKED	DATE
RW	GM	2-18-80

A 442152

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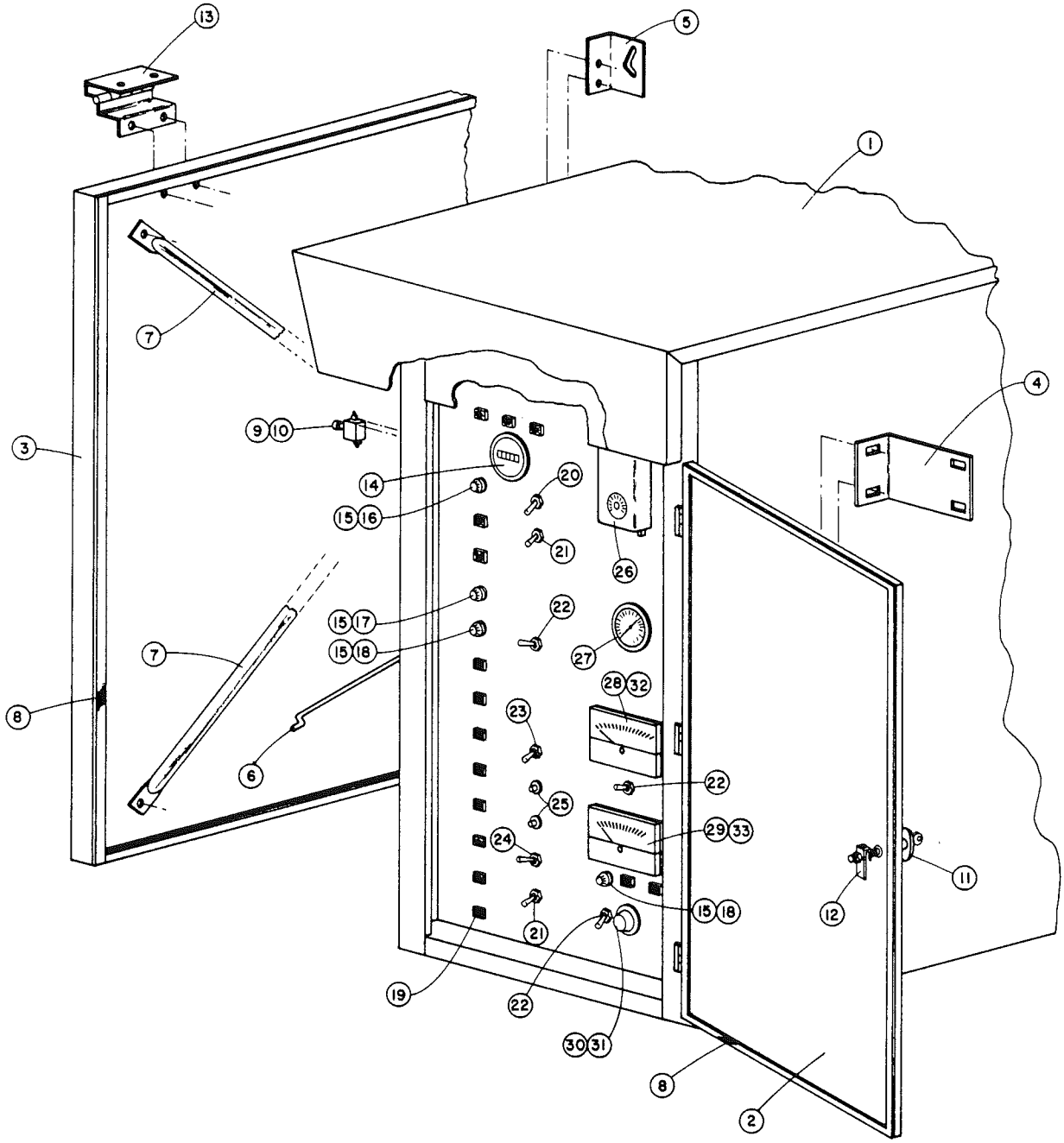


ORIGINAL DRAWING DATE:

BUTLER MANUFACTURING COMPANY

CONTROL PANEL

DATE	DR	CH	GROUP NUMBER
12-1-81	RW	GEM	220

C 446499

PRINTED IN U.S.A.

ITEM NO.	PART NUMBER	DESCRIPTION	QTY. 8'	QTY. 10'
1	445683	CONTROL BOX WELD ASSEMBLY	1	1
2	445690	CONTROL DOOR COVER WELD ASSEMBLY	1	1
3	445688	CONTROL BOX COVER	1	1
4	836894	CONTROL BOX MOUNTING BRACKET	4	4
5	445507	DOOR SUPPORT BRACKET	1	1
6	445509	DOOR SUPPORT ROD	1	1
7	445527	CROSS BRACE	2	2
8	436448	GASKET STRIP (30" LONG)	AS REQ'D.	
9	444644	DOOR SWITCH	1	1
10	444675	DOOR SWITCH BRACKET (NOT SHOWN)	1	1
11	444589	LOCKING "T" HANDLE	2	2
12	433800	LOCKING CAM	2	2
13	444628	HINGE	2	2
14	444645	HOUR METER	1	1
15	433100	FUSE HOLDER	4	4
16	423336	FUSE (5 AMP)	1	1
17	444613	FUSE (1/2 AMP)	1	1
18	833447	FUSE (1 AMP)	2	2
19	837118	PILOT LAMP ASSEMBLY	13	15
20	438905	OPERATE-START-UP SWITCH	1	1
21	433658	START-STOP SWITCH	2	2
22	438904	AUTO-MANUAL SWITCH	3	3
23	438907	BURNER ON-OFF SWITCH	1	1
24	438906	INCREASE-DECREASE SWITCH	1	1
25	441959	REMOTE RESET SWITCH	1	2
26	835916	HIGH LIMIT SWITCH	1	1
27	830155	TEMPERATURE GUAGE	1	1
28	444782	GRAIN TEMPERATURE METER	1	1
29	444783	DISCHARGE SPEED METER	1	1
30	438698	POTENTIOMETER	1	1
31	438699	KNOB	1	1
32	445961	TEMPERATURE BRIDGE	1	1
33	445963	DISCHARGE SPEED BRIDGE	1	1

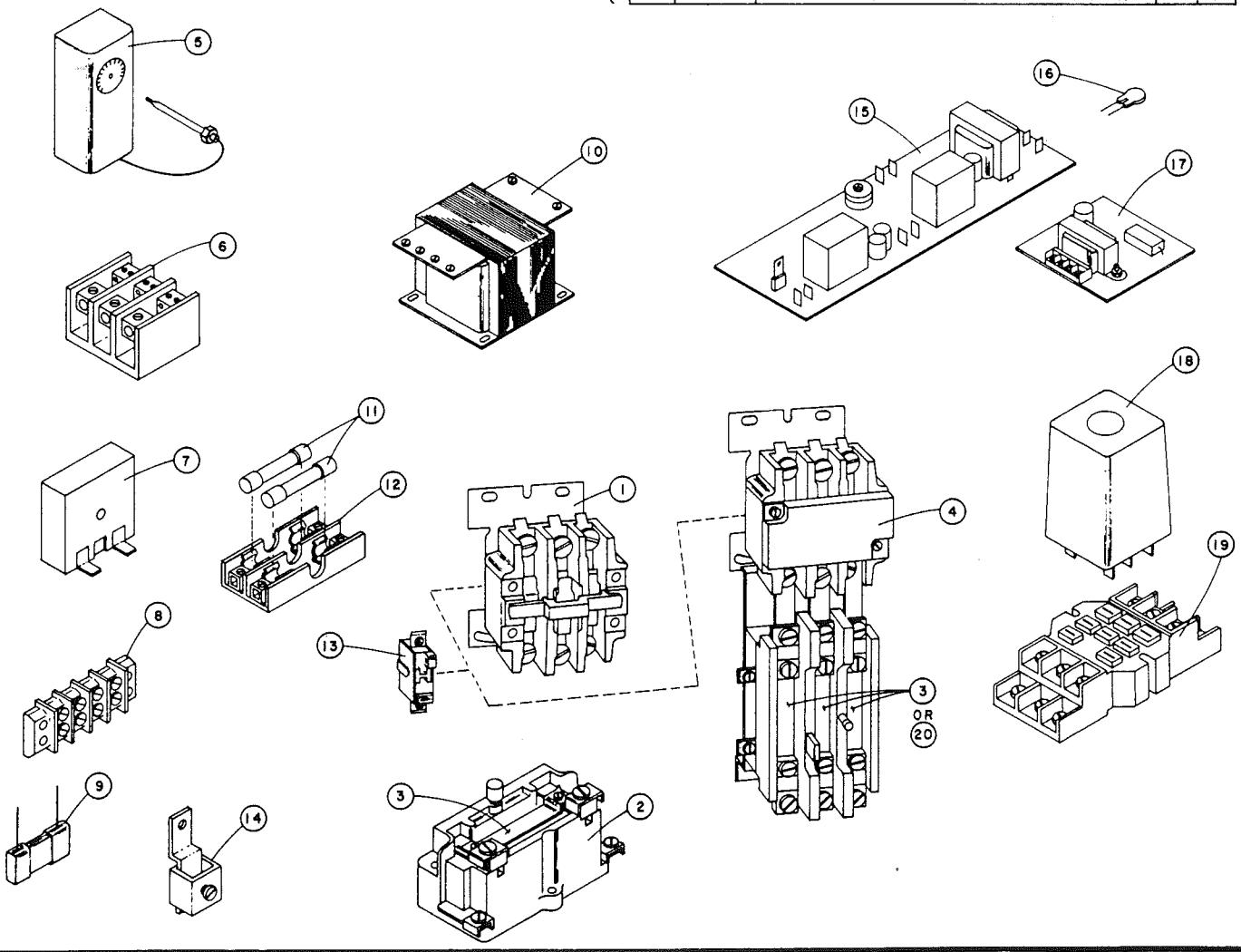
ORIGINAL DRAWING DATE:

PRINTED IN U.S.A.

1 PHASE ELECTRICAL COMPONENTS				
ITEM NO	PART NO.	DESCRIPTION	QTY. 8'	QTY. 10'
1	438642	CONTACTOR 30AMP-3POLE (3HP METER MOTOR)	1	1
2	835283	OVERLOAD RELAY (3HP METER MOTOR)	1	1
3	441560	HEATER STRIP (3HP METER MOTOR- SDW-100)	1	1
	837700	HEATER STRIP (10HP FAN MOTOR - FURNAS E-78)	3	6
	837699	HEATER STRIP (15HP FAN MOTOR- FURNAS E-81)	3	6
4	437052	MOTOR STARTER (10&15HP FAN MOTOR- 60AMP-3POLE)	1	2
5	444603	LOW TEMPERATURE THERMOSTAT	1	1
6	444511	POWER DISTRIBUTION BLOCK (3 POLE)	1	1
7	442533	TIME DELAY RELAY (6 SEC.)	—	1
8	835872	TERMINAL BLOCK	6	6
9	443197	CAPACITOR	2	2
10	837102	TRANSFORMER	1	1
11	444796	FUSE (2AMP-600V.)	2	2
12	446047	FUSE BLOCK	1	1
13	431155	AUXILIARY	3	5
14	434822	GROUND LUG	1	1
15	438697	MOISTURE CONTROL BOARD	1	1
16	443198	METAL OXIDE VARISTOR	1	1
17	445960	8 VOLT POWER SUPPLY	1	1
18	444614	TIME DELAY RELAY (15 SEC.)	1	1
19	444615	SQUARE BASE RELAY SOCKET	1	1

3 PHASE ELECTRICAL COMPONENTS				
ITEM NO.	PART NO.	DESCRIPTION	QTY. 8'	QTY. 10'
1	------	----------	—	—
2	------	----------	—	—
3	442111	HEATER STRIP (3HP METER MOTOR - FURNAS E-52)	3	3
	837672	HEATER STRIP (10HP FAN MOTOR - FURNAS E-72)	3	6
	837673	HEATER STRIP (15HP FAN MOTOR- FURNAS E-76)	3	6
4	437051	MOTOR STARTER (10&15HP FAN MOTOR- 40AMP-3POLE)	1	2
	438646	MOTOR STARTER (3HP METER MOTOR- 30AMP-3POLE)	1	1
5	444603	LOW TEMPERATURE THERMOSTAT	1	1
6	444511	POWER DISTRIBUTION BLOCK (3POLE)	1	1
7	442533	TIME DELAY RELAY (6 SEC.)	—	1
8	835872	TERMINAL BLOCK	6	6
9	443197	CAPACITOR	2	2
10	837102	TRANSFORMER	1	1
11	444796	FUSE (2AMP-600V.)	2	2
12	446047	FUSE BLOCK	1	1
13	431155	AUXILIARY	4	6
14	434822	GROUND LUG	1	1
15	438697	MOISTURE CONTROL BOARD	1	1
16	443198	METAL OXIDE VARISTOR	1	1
17	445960	8 VOLT POWER SUPPLY	1	1
18	444614	TIME DELAY RELAY (15 SEC.)	1	1
19	444615	SQUARE BASE RELAY SOCKET	1	1
20	442111	HEATER STRIP (3HP METER MOTOR- FURNAS E-42)	3	3
	436821	HEATER STRIP (10HP FAN MOTOR - FURNAS E-57)	3	6
	436822	HEATER STRIP (15HP FAN MOTOR - FURNAS E-62)	3	6

460 VOLT



ORIGINAL DRAWING DATE:

BUTLER MANUFACTURING COMPANY

ELECTRICAL COMPONENTS

DATE	DR	CH	GROUP NUMBER
12-1-81	HRW	GM	220

C 446501

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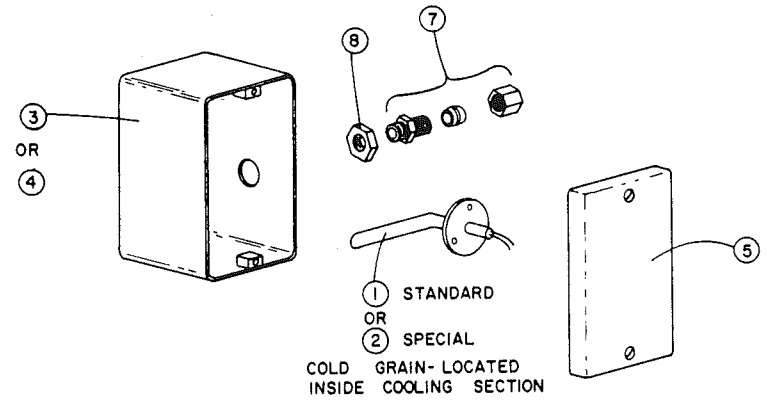
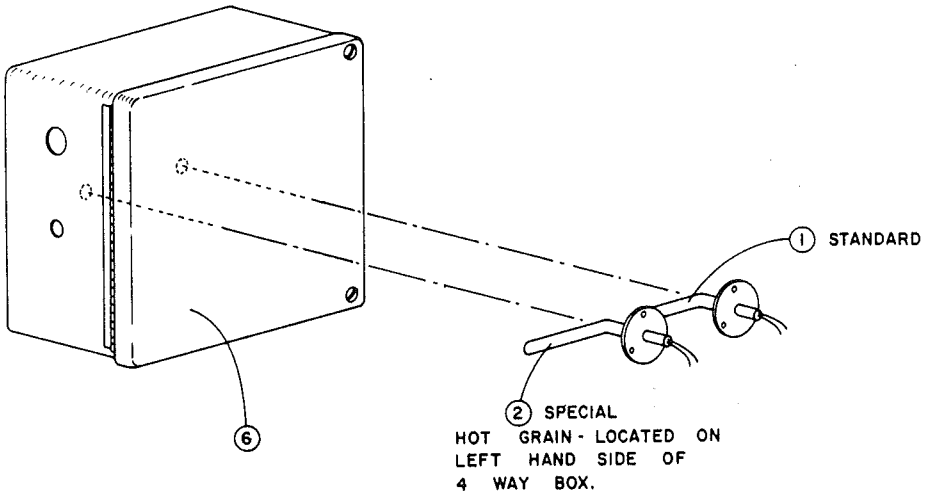
ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	438700	THERMISTOR (STANDARD)	6
2	444576	THERMISTOR (SPECIAL) - HOT & COLD GRAIN	2
3	835320	THERMISTOR BOX - 1 WAY	4
4	835319	THERMISTOR BOX - 3 WAY	1
5	435507	THERMISTOR BOX COVER	5
6	445696	THERMISTOR BOX - 4 WAY	1
7	437607	MALE CONNECTOR (FLEX-TUBE)	8
8	835317	BULK HEAD NUT	8





ORIGINAL DRAWING DATE:

BUTLER MANUFACTURING COMPANY

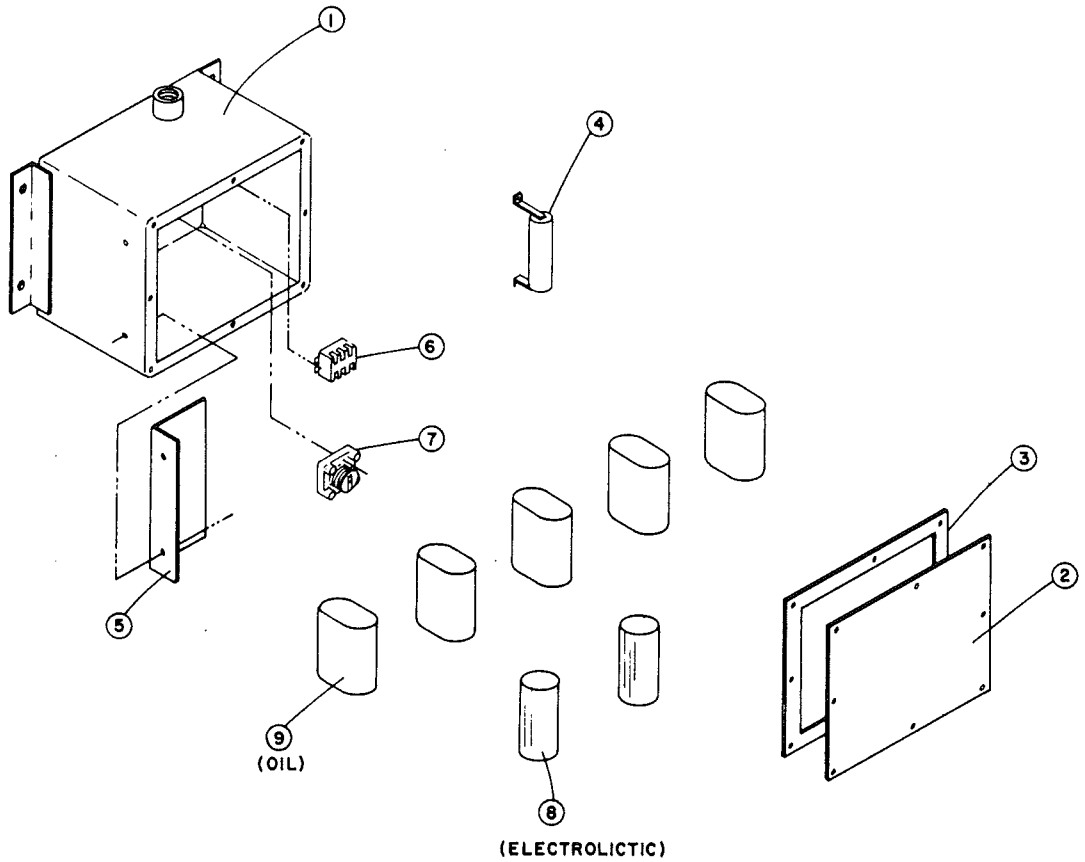
THERMISTORS

DATE	BY	CH	GROUP NUMBER
12-1-81	GLH	GEM	220

C 446502

PRINTED IN U.S.A.

ITEM NO.	PART NO.	DESCRIPTION	QTY. 10 HP	QTY. 15 HP
1	833508	BOX	1	1
2	833509	COVER	1	1
3	833510	GASKET	1	1
4	837526	RESISTOR	1	1
5	833700	BRACKET	1	
6	837527	TERMINAL BOARD	2	2
7	833500	RELAY	1	1
8	430885	CAPACITOR (ELECTROLITIC) 216 MFD	2	3
9	430886	CAPACITOR (OIL) 20 MFD	5	9



ORIGINAL DRAWING DATE:

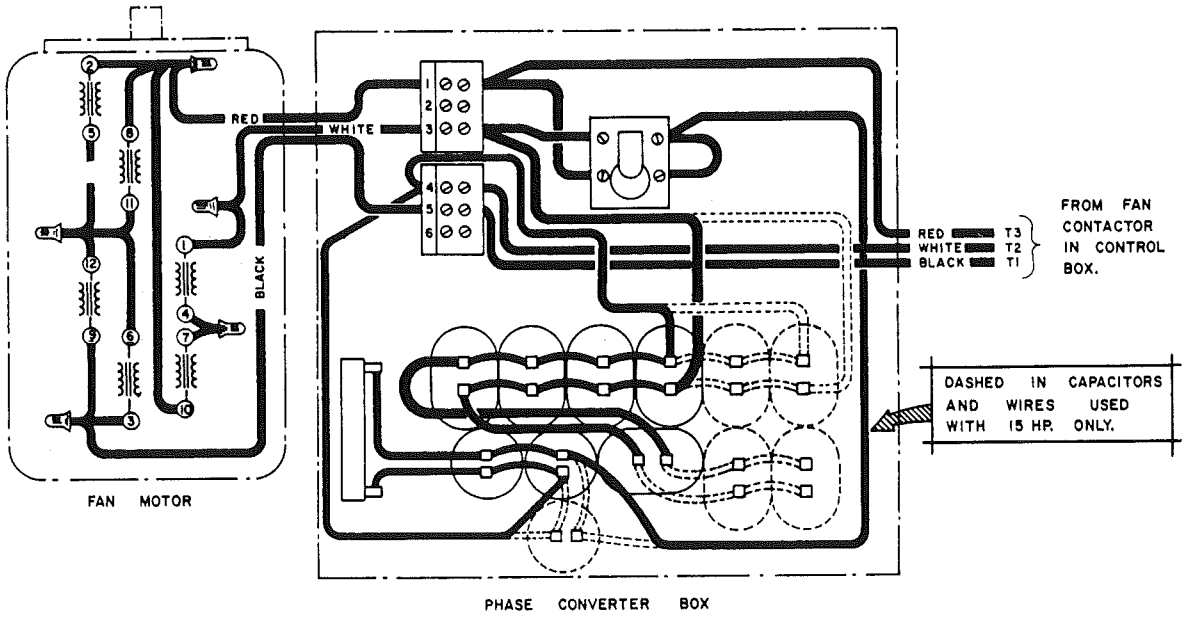
BUTLER MANUFACTURING COMPANY

PHASE BOX

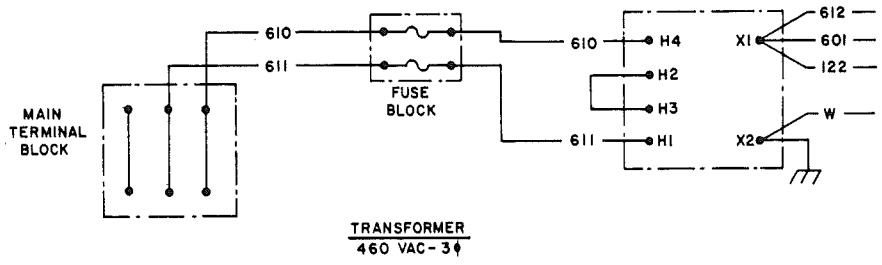
DATE 12-1-81 | DR GLH | CH GEM | GROUP NUMBER 220

C 446503

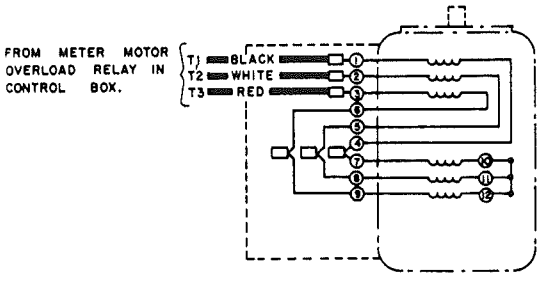
FORM NO. 1225 2-72 PRINTED IN U.S.A.



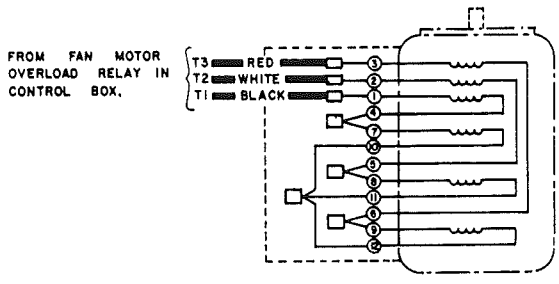
PHASE CONVERTER WIRING DETAILS
230 VAC - 1PH. 10 OR 15 HP.



TRANSFORMER
460 VAC - 3φ



METER MOTOR
3 HP. - 460 VAC - 3 PHASE



FAN MOTOR
10 OR 15 HP. - 460 VAC - 3 PHASE

MOTOR - TRANSFORMER WIRING DETAILS
460 VAC - 3PH. 10 OR 15 HP.

BUTLER MANUFACTURING COMPANY	PHASE BOX - 460 VOLT WIRING	DATE 12-1-81	DR. GLH CH. GEM	GROUP NUMBER 220
		C	446504	

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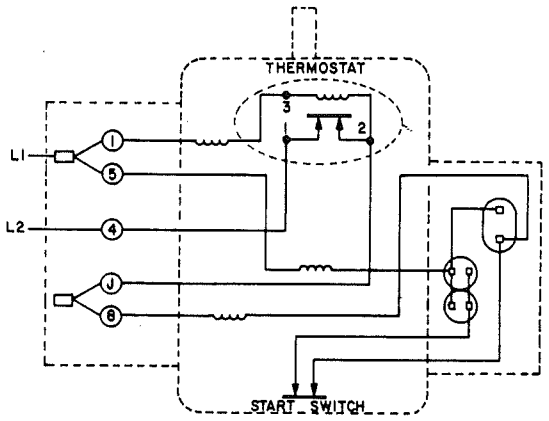
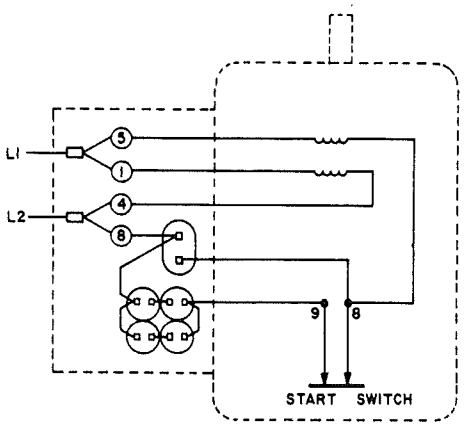


BALDOR 3 HP-230 VAC-1 PH

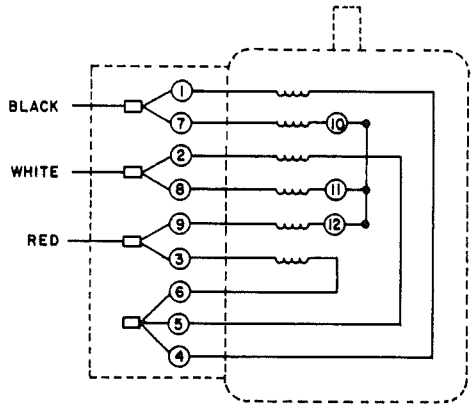
(MOTOR EQUIPPED WITH MANUAL RESET ON SIDE OF JUNCTION BOX.)

REPLACEMENT CAPACITORS		
430885	ELECTROLYTIC	2 REQ'D
430886	OIL	1 REQ'D



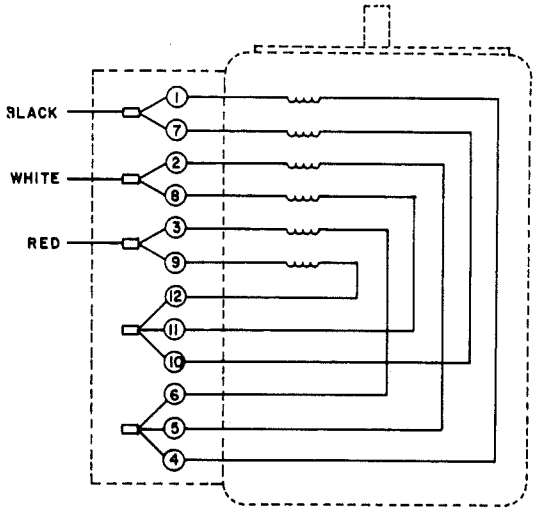
CENTURY 3 HP-230 VAC-1 PH

REPLACEMENT CAPACITORS		
446317	ELECTROLYTIC	4 REQ'D
446318	OIL	1 REQ'D



BALDOR 3 HP-230 VAC-3 PH

CCW ROTATION, SHAFT END REQUIRED.
REVERSE TWO LEADS TO CHANGE ROTATION.



BALDOR 10-15 HP-230 VAC-3 PH

ORIGINAL DRAWING DATE:

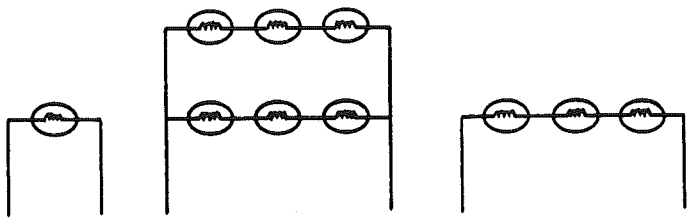
BUTLER MANUFACTURING COMPANY

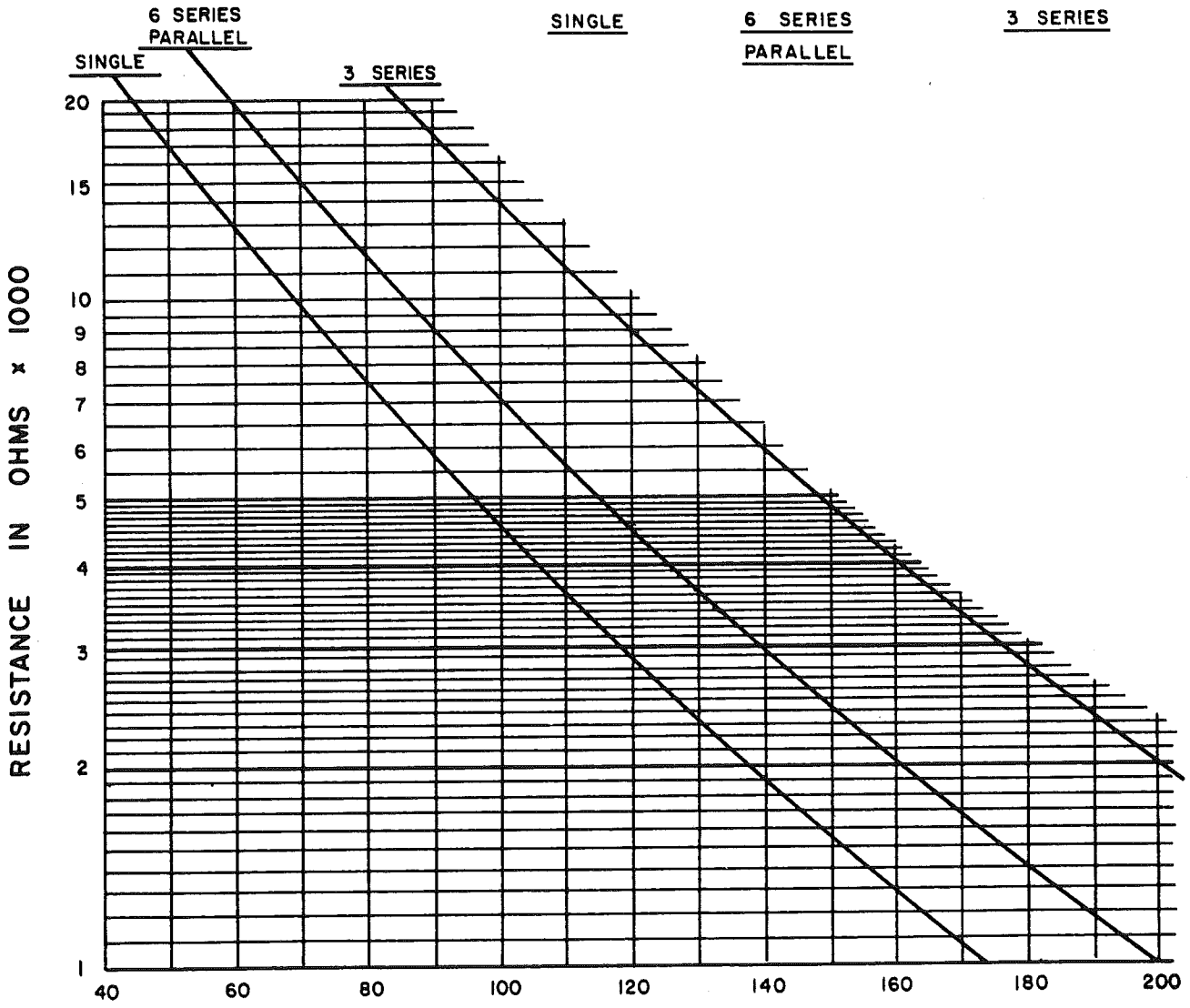
230 VOLT MOTOR WIRING

DATE 12-1-81 | DR GLH | CH GEM | GROUP NUMBER 220

C 446525

FORM NO. 1225 2-72 PRINTED IN U.S.A.





BUTLER MANUFACTURING COMPANY GENERAL OFFICES - KANSAS CITY 26, MISSOURI	THERMISTOR CHART	DRAWN GLH / CHECKED GM	DATE 12-1-81
			GROUP NO. 220
		A	446554

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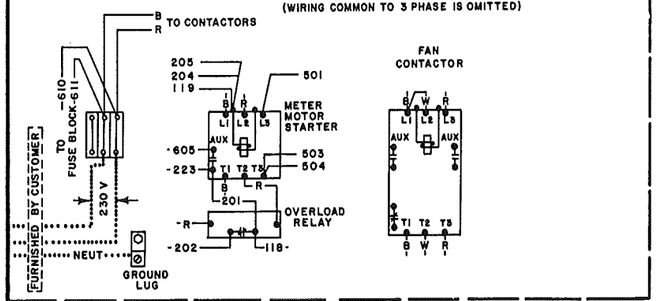
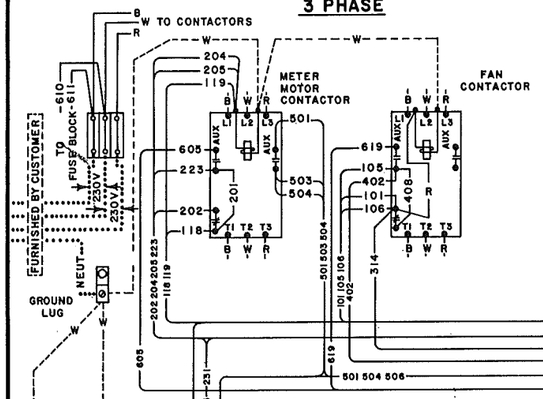
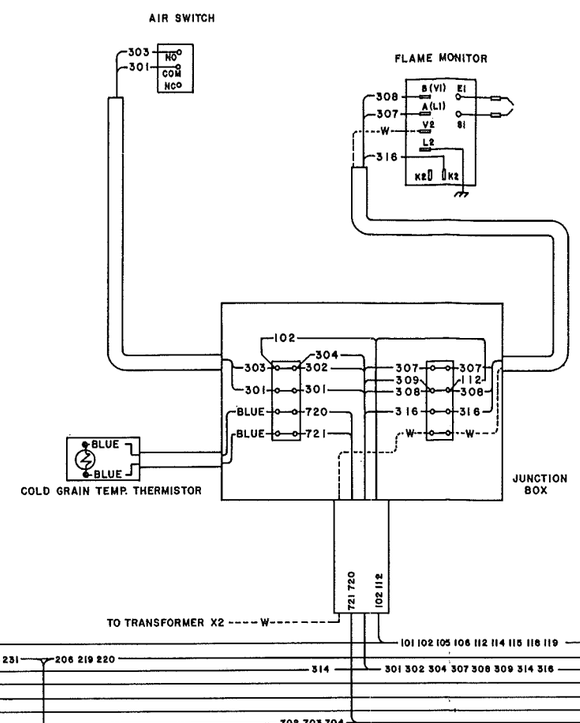
SINGLE PHASE

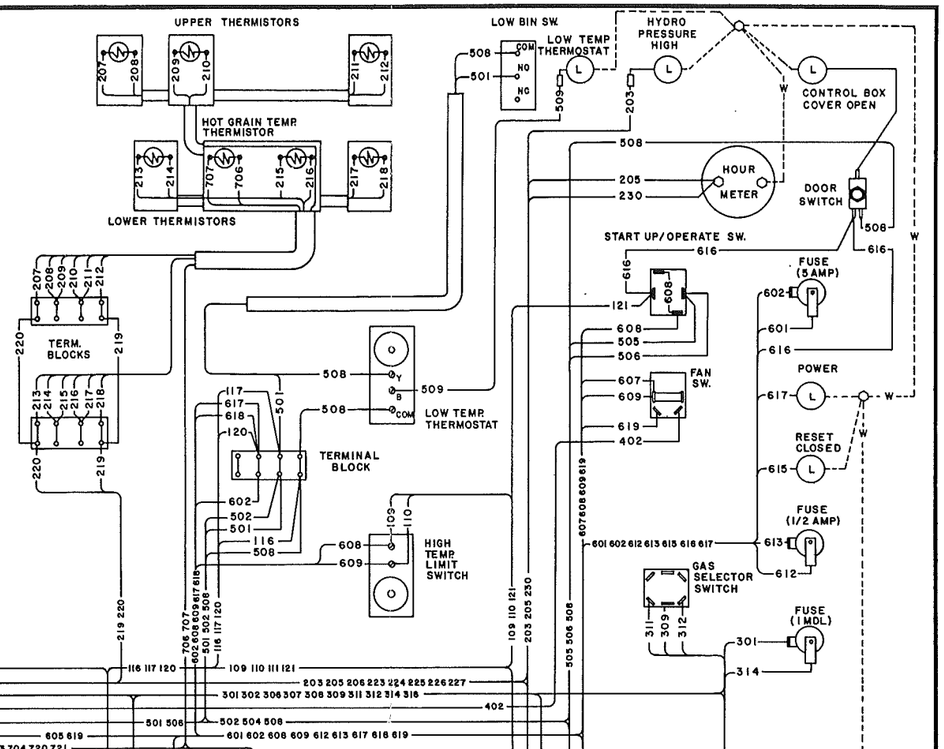
(WIRING COMMON TO 3 PHASE IS OMITTED)

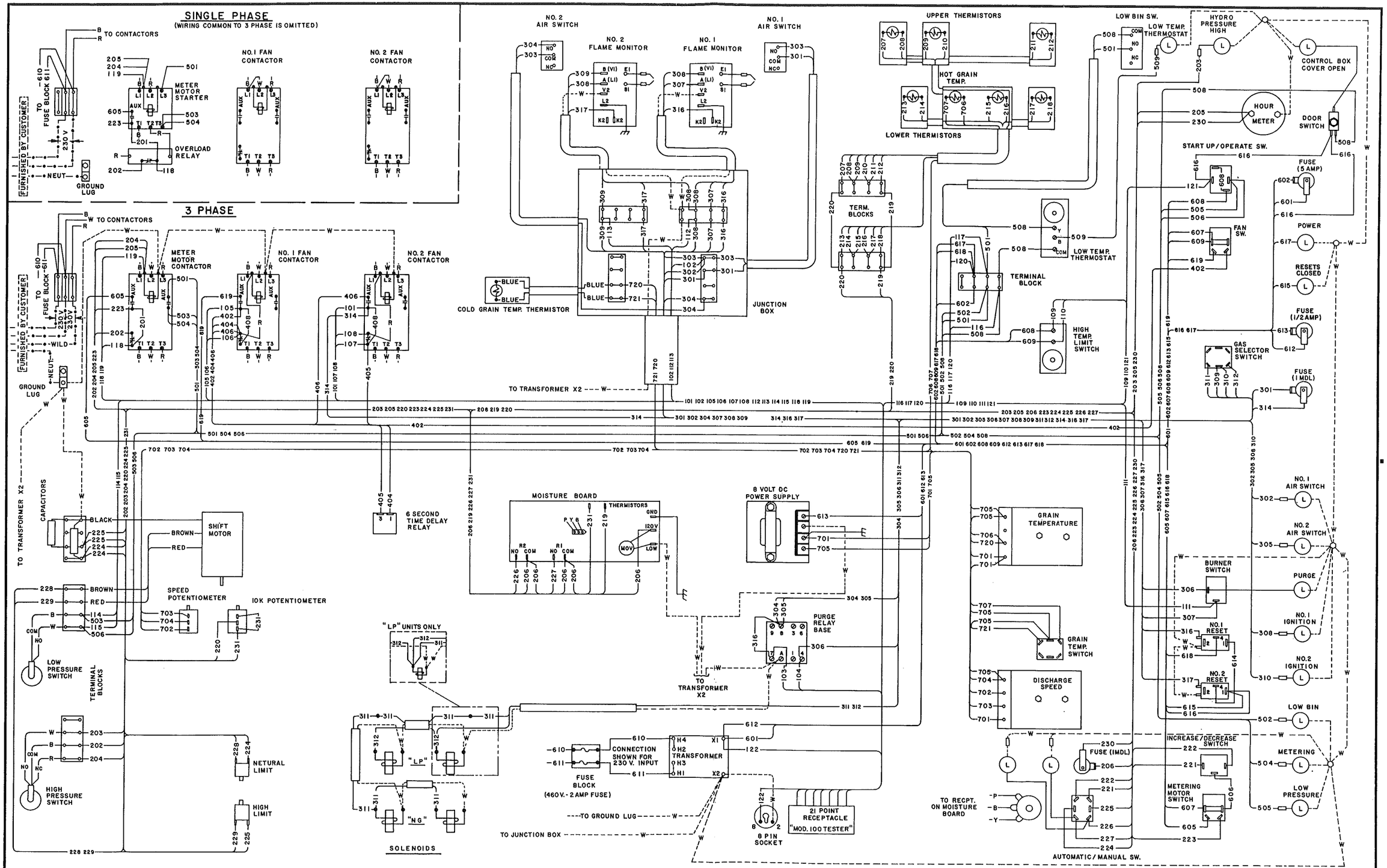


3 PHASE









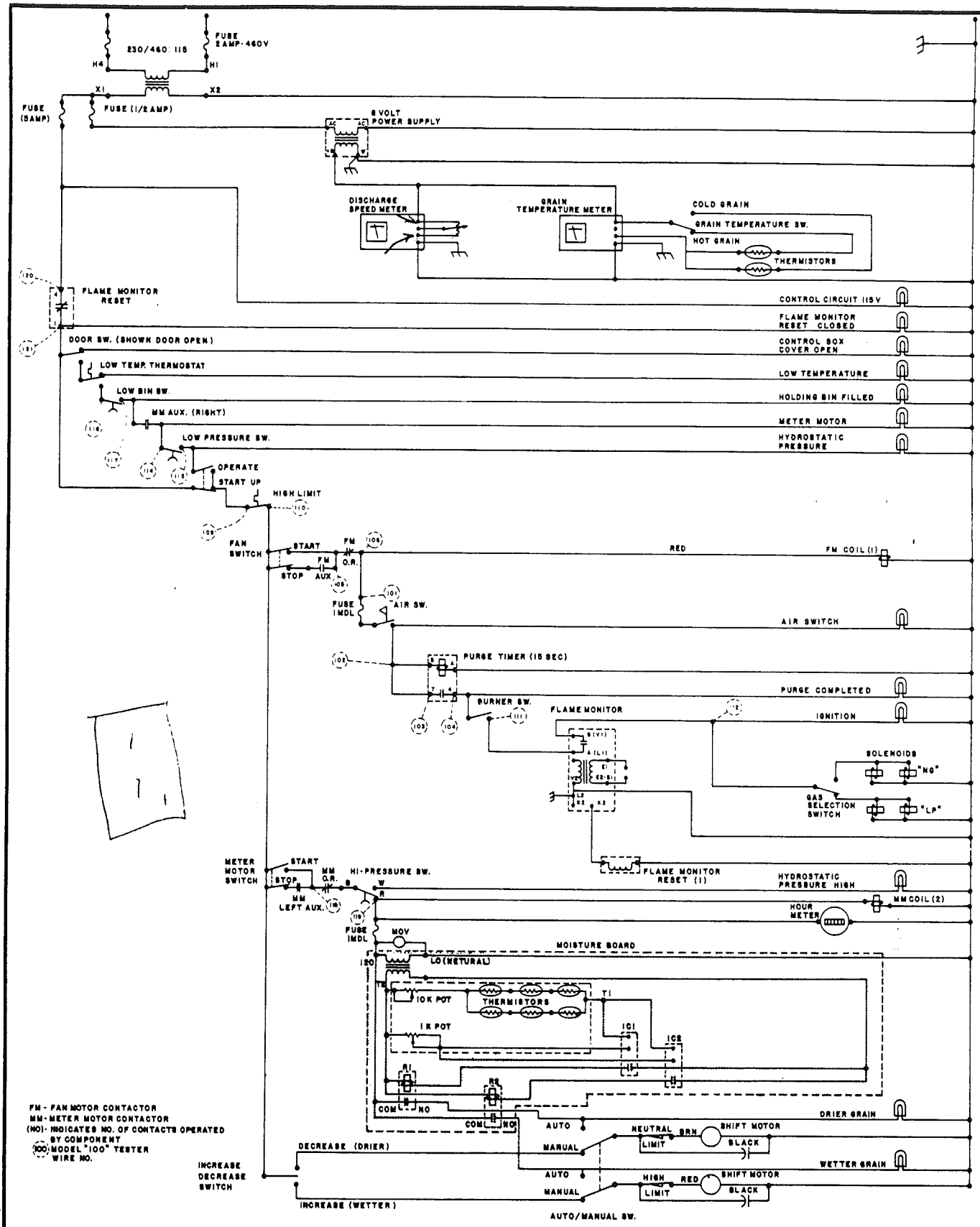
BUTLER MANUFACTURING COMPANY
GENERAL OFFICES: KANSAS CITY, MISSOURI

WIRING DIAGRAM 10' KAN-SUN

DATE	DR CH	GROUP NUMBER
8/14/81	HRW ELM	220

D 446015

FORM NO. 0769R-2 12-76 PRINTED IN U.S.A.



ORIGINAL DRAWING DATE: 8-4-81

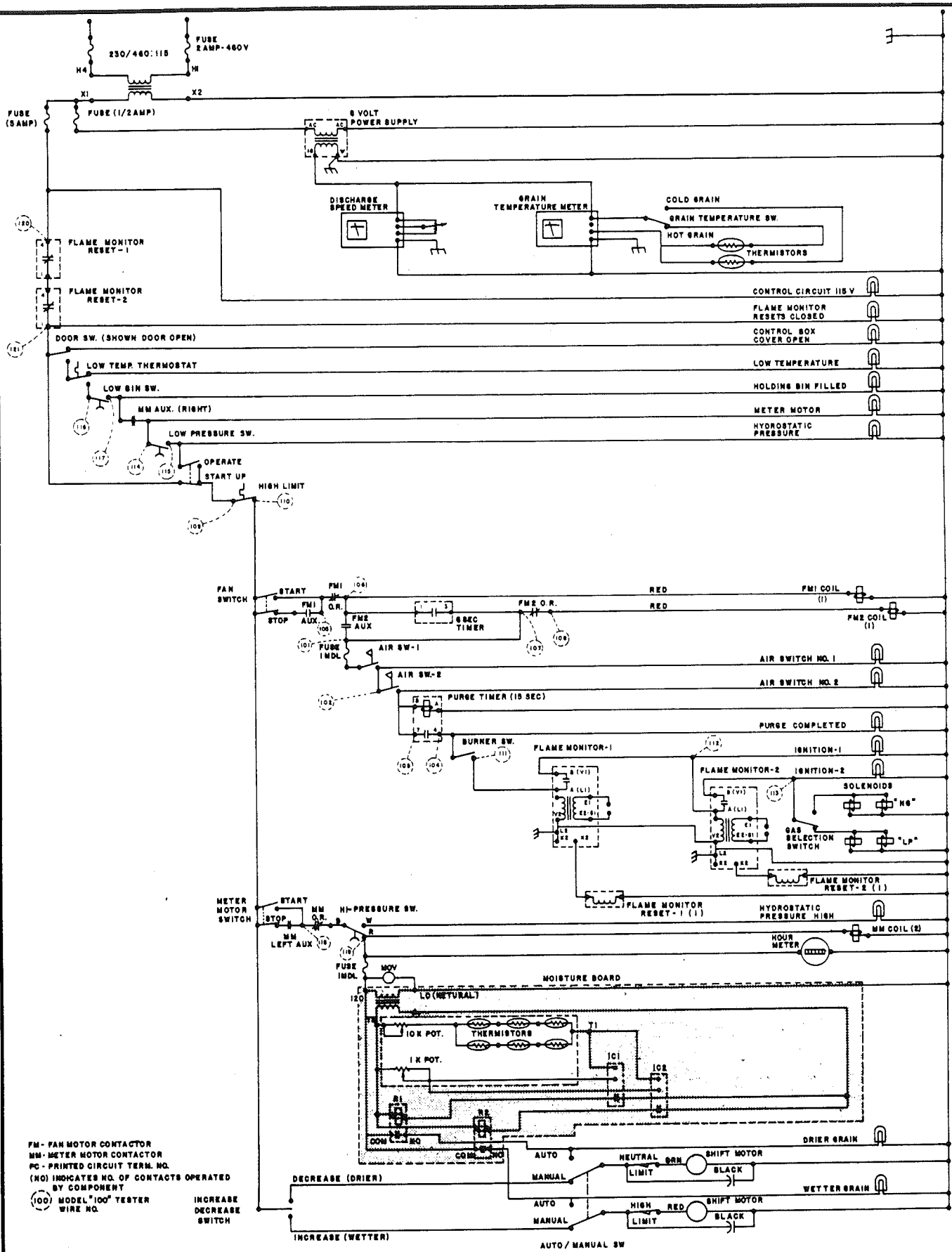
BUTLER MANUFACTURING COMPANY

WIRING SCHEMATIC- 8' KAN-SUN

DATE	DR	CH	GROUP NUMBER
12/14/81	HRW	ELM	220

C 446185

FORM NO. 1225 2-72 PRINTED IN U.S.A.



ORIGINAL DRAWING DATE: 4-4-81

BUTLER MANUFACTURING COMPANY

WIRING SCHEMATIC - 10' KAN-SUN

DATE	DR	CH	GROUP NUMBER
9/14/81	RW	REB	220

C 446080

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SPECIFICATIONS

	8-15-10	8-17-15	10-21-210	10-25-215
FANS Horsepower Rating	10 HP	15 HP	two-10 HP	two-15 HP
HEATING AIR AVAILABLE	125 cfm/bu.	110 cfm/bu.	105 cfm/bu.	108 cfm/bu.
COOLING AIR AVAILABLE	113 cfm/bu.	133 cfm/bu.	105 cfm/bu.	154 cfm/bu.
OUTER SCREEN AREA				
Heating	146 sq/ft.	195 sq/ft.	306 sq/ft.	429 sq/ft.
Cooling	97 sq/ft.	97 sq/ft.	183 sq/ft.	183 sq/ft.
COLUMN THICKNESS	12 in.	12 in.	12 in.	12 in.
WEIGHT EMPTY	4215 lbs.	4428 lbs.	7020 lbs.	7880 lbs.
MOTOR SIZES				
Fan	10 HP	15 HP	two-10 HP	two-15 HP
Metering	5 HP	5 HP	5 HP	5 HP
HOLDING CAPACITY				
Heating	101 bu.	135 bu.	219 bu.	307 bu.
Cooling	67 bu.	67 bu.	131 bu.	131 bu.
AMPERAGE DRAW (Total Running)				
1Ø	72 amp.	87 amp.	122 amp.	152 amp.
3Ø	47 amp.	55 amp.	81 amp.	97 amp.
DRYING CAPACITY* (Corn-Normal Operating Conditions-Free Air Door Open)				
5 pt. Removal (20 to 15%)	265 bu/hr.	320 bu/hr.	500 bu/hr.	608 bu/hr.
10 pt. Removal (25 to 15%)	183 bu/hr.	220 bu/hr.	365 bu/hr.	435 bu/hr.
10 pt. Removal (15 hr.)	2745 bu.	3300 bu.	5475 bu.	6525 bu.

*Drying rate is shown as wet bushels into the dryer. Actual drying rate may vary depending on weather conditions, hybrid variety, fertilization program, grain maturity and other uncontrolled variables. The figures shown here are averages based on actual field experience.

DANGER

1. KEEP ALL SHIELDS IN PLACE.
2. DISCONNECT POWER SOURCE TO ADJUST OR SERVICE.
3. MAKE CERTAIN EVERYONE IS CLEAR OF EQUIPMENT BEFORE APPLYING POWER.
4. DISCONNECT POWER BEFORE RESETTING MOTOR OVERLOAD.
5. KEEP HANDS, FEET, AND CLOTHING AWAY FROM POWER DRIVEN PARTS IN MOTION.

FAILURE TO HEED MAY RESULT IN PERSONAL INJURY

1. **DO NOT ENTER MACHINE WHILE IN OPERATION.**
2. **CLOSE GAS SUPPLY VALVE AT SOURCE IF MACHINE IS TO BE STOPPED LONGER THAN 30 MINUTES.**
3. **DISCONNECT ELECTRICAL POWER TO MACHINE BEFORE MAKING REPAIRS.**
4. **KEEP CLEAR OF FREE AIR DOOR.**
5. **CLEAN MACHINE DAILY — MAKE SURE CLEAN OUT PORTS ARE OPEN.**
6. **MAKE SURE METERING FLOOR DOOR IS IN POSITION AND FASTENED.**

Most farm accidents, like industrial, home and highway accidents, are caused by the failure of some individual to observe simple and fundamental safe rules or precaution. For this reason farm accidents, just as other types of accidents, can be prevented by recognizing the cause of accidents and doing something about it before accident occurs.

Regardless of the care used in the design and construction of farm equipment, there are many points that cannot be completely safeguarded without interfering with accessibility and efficient operation.

A careful operator is the best insurance against an accident.

The complete observance of one simple rule would prevent many thousand serious injuries each year. That rule is "NEVER ATTEMPT TO CLEAN, OIL, OR ADJUST A MACHINE WHILE IN MOTION."

National Safety Council

BUTLER®

BUTLER MANUFACTURING COMPANY

7400 EAST 13TH STREET, KANSAS CITY, MO. 64126

Form No. 446111 1/82

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