GT® Gilmore & Tatge

MANUFACTURERS OF FARM AND INDUSTRIAL EQUIPMENT

MODEL 280
OPERATORS MANUAL & PARTS CATALOG

DECEMBER 1982

INTRODUCTION

Your GT Grain Dryer is one of the finest grain dryers ever built; designed to give you excellent service for many years. The information and suggestions found in this owners manual will help you achieve this.

Your GT Grain Dryer dealer is well trained and equipped to give you complete service when and if the need should arise.

We would also like to take this opportunity to thank you for choosing GT and to assure you of our continuing interest in your complete satisfaction.

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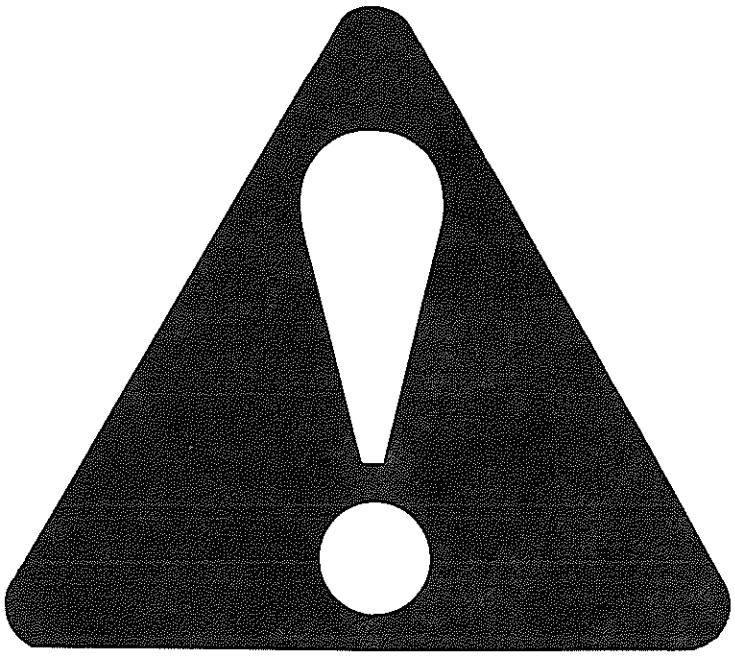


SAFETY-ALERT SYMBOL
FOR AGRICULTURAL EQUIPMENT

Throughout your operator's manual and at various locations on your machine you will see the Safety-Alert symbol shown above. This emblem has been adopted by the agricultural equipment industry to provide a universal symbol which means ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

This symbol is our way of telling you to pay special attention to the instructions or warnings which follow because your safety is involved.

BE A SAFE OPERATOR

BY THINKING – BEFORE ACTING

AND

BY READING YOUR OPERATORS MANUAL

AVOID ACCIDENTS

Most accidents, whether they occur in industry, on the farm, at home, or on the highway, are caused by the failure of some individual to follow simple and fundamental safety rules or precautions. For this reason most accidents can be prevented by recognizing the real cause and doing something about it before the accident occurs.

Regardless of the care used in the design and construction of any type of equipment, there are many conditions that cannot be completely safeguarded against without interfering with reasonable 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:

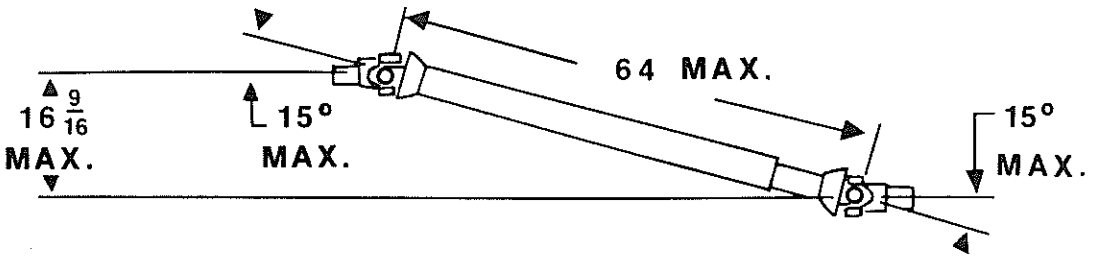
STOP MACHINE TO ADJUST, LUBRICATE, SERVICE, CLEAN OR MOVE.

CAUTION

1. Read and understand the Operator's Manual before operating the unit.
2. Keep children, visitors and all untrained personnel away from machine while in operation.
3. Keep all shields and safety devices in place.
4. Stop machine to adjust, lubricate, service, clean or move.
5. Keep hands, feet and clothing away from moving parts.
6. Disconnect electrical power before servicing.
7. Keep unit level when operating.
8. Maintain proper tire pressure when transporting machine. (Refer to Manufacturers Recommendations.)

DANGER

For maximum safety and smoothest operation keep p.t.o. shaft in closed position while under load. Keep u-joint angles equal. Do not remove safety shields. Do not exceed 540 r.p.m.



FAILURE TO HEED WILL CAUSE PTO SHAFT FAILURE OR SEPARATION & RESULT IN SERIOUS INJURY OR DEATH.

DANGER

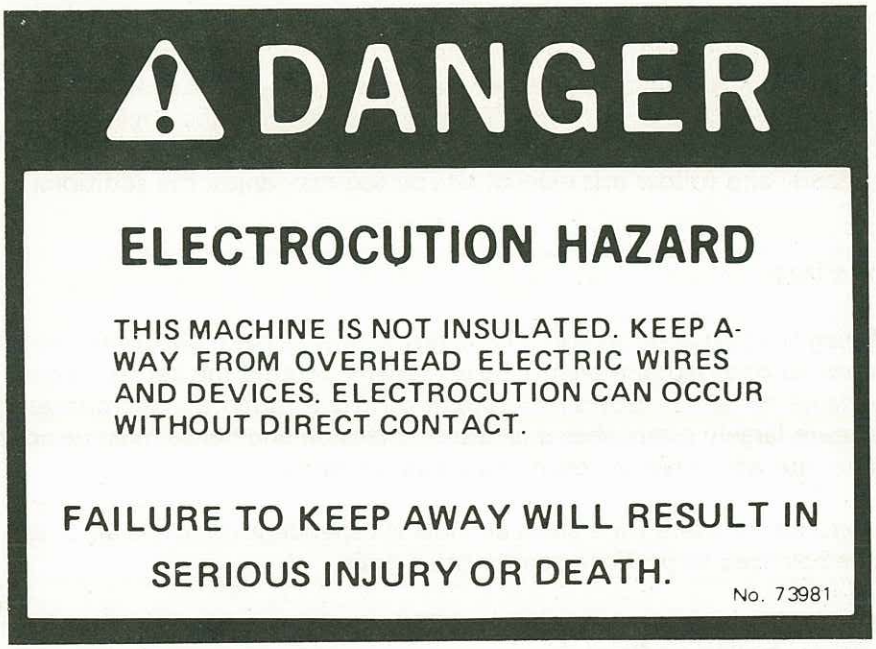
CONNECT TO LIQUID PROPANE ONLY.
Wear Rubber Gloves and Eye Protection.
Avoid Contact with Propane.

FLAMMABLE

Check for Leaks with Soap and Water.
NEVER USE FLAME.

CAUTION

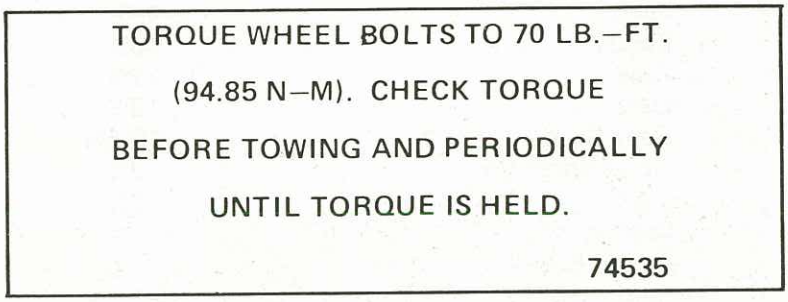
ENGAGE FAN CLUTCH VERY SLOWLY WHEN PTO IS OPERATING


DANGER
ELECTROCUTION HAZARD
THIS MACHINE IS NOT INSULATED. KEEP AWAY FROM OVERHEAD ELECTRIC WIRES AND DEVICES. ELECTROCUTION CAN OCCUR WITHOUT DIRECT CONTACT.
FAILURE TO KEEP AWAY WILL RESULT IN SERIOUS INJURY OR DEATH.
No. 73981


DANGER
KEEP HANDS
& FEET AWAY


DANGER
DO NOT ENTER DOOR WHEN
MACHINE IS RUNNING


MAX. PTO SPEED 540 R.P.M.


TORQUE WHEEL BOLTS TO 70 LB.–FT.
(94.85 N–M). CHECK TORQUE
BEFORE TOWING AND PERIODICALLY
UNTIL TORQUE IS HELD.
74535

GENERAL INFORMATION

Mechanical drying of grain is a relatively new process; therefore, emphasis must be placed on proper operation of grain drying equipment. Your GT Dryer was designed and engineered to retain grain quality, and to dry grain as rapidly as possible at the lowest cost consistent with retention of quality grain. Study and follow this manual so you too may enjoy the additional profits derived from drying.

THEORY OF DRYING

The theory of drying has two basic stages: (1) diffusing of internal moisture to the surface of the kernel, and (2) removal of external moisture by air flowing around the kernel. Vapor pressure is increased inside the kernel which causes moisture to diffuse through the micropores of the seed coat. The grain temperature largely establishes this rate of diffusion and hence must be controlled to not exceed a maximum rate which would result in a ruptured kernel.

Removal of the exterior moisture for a given air flow is dependent upon the air temperature. These two stages must be balanced to produce quality dried grain.

This balance is accomplished quite simply in the GT Grain Dryer with its uniform circulation, regulated heat, and controlled air flow.

RATE OF DRYING

In addition to the kind and variety of grain, the drying rate is controlled by atmospheric conditions. Hard and fast rules cannot be set forth because of these variables. It will be necessary to dry several batches to determine the exact dryer settings in a specific area. A chart for recording necessary information for later use is included in the back of this manual.

WHEN GRAIN IS MATURE

Grain is mature at 30% to 35% moisture. While some grain may be harvested easily at 30%, others do not harvest well above 20%. Therefore, grain should be harvested as soon as possible after maturity, as long as grain damage is at a minimum and gleaning is thorough.

STORAGE MOISTURE LEVELS

To properly store grain, the grain moisture content must be compatible with the length of time the grain will be in storage, and with the grain's intended use. This moisture content will vary due to locale.

GRAIN	1 YEAR STORAGE (% Moisture)
Corn	13%
Wheat	13-14%
Barley	13%
Rice	12%
Oats	13%
Rape Seed	10.5%
Grain Sorghum	12%
Flax	9%
Soybeans	11%
Edible Beans	14-16%
Sunflower Seed (Oil Type)	10%
Sunflower Seed (Bird Seed Type)	12%

Corn may be stored at 15% moisture if moved before warm spring weather. For long time storage — up to 5 years, or for grain stored as seed stock, moisture level should be 2% lower than shown above.

MOISTURE TESTING

Since grain must go into storage at not more than specified moisture content, it is necessary to use a reliable tester to determine moisture content. When marketing grain from the dryer, it should be only dry enough to eliminate moisture discounts. The moisture tester may also be profitably used to determine when to harvest.

COOLING OF GRAIN

It is very important to cool grain. Grain being put in storage should be cooled after drying to within 20 degrees F of atmospheric temperature or, 10 degrees F of grain already in the storage bin. Moisture migration from the air to grain will occur if the grain is not cooled to these limits.

PREPARING DRYER FOR OPERATION

1. INSTALLATION OF EQUIPMENT

The equipment shall be installed in accordance with the installation code for gas burning appliances and equipment, or applicable state Regulations for the class. Instructions should be carefully followed in all cases. Authorities having jurisdiction should be consulted before installations are made.

2. PLACING MACHINE FOR OPERATION

Select a site as level as possible, 50 ft. (15 meters) from inflammable buildings. Set machine, if possible, with fan into prevailing winds. Lower the supporting legs (4 on Model 280) and insert pins. If machine is being set on a level concrete slab, no additional blocking will be necessary. However, if being set on dirt, at least 2" x 8" x 12" Board or equivalent should be placed under each leg for additional flotation. Add any additional blocking material necessary to bring machine level. Use a level on main frame to determine this.

3. INSTALLING TOP SECTION OF AUGER AND ADJUST FOR UNLOADING

When installing the top section of auger, it may be necessary to jack the lower flight up to allow the bolt holes in the connecting shaft to align. The weight of the complete auger should be supported by the top auger bearing when in proper adjustment.

If the dryer is equipped with the standard swivel head, removing bolts through mounting flanges which hold the upper and lower auger tubes together will allow the upper tube to be rotated to provide unloading at several points. It should be also noted that on the standard swivel head when the unloading spout is set for unloading one direction, it will also unload in the opposite direction. One-fourth turn, of unloading spout, relocates the auger head to recirculating position. When unloading or recirculating, the unloading spout must rest in holders provided at top of bin. These holders may be relocated by drilling bin wall and rebolting holders. Should use of both unloading positions be desired, an additional holder may be obtained through your dealers parts department. Be sure that the openings in the upper auger tube and the auger head are properly aligned to insure good circulation.

If the dryer is equipped with the hydraulic drive horizontal top unloading head, the discharge should be set directly off the right or left hand sides of the dryer. It is recommended that the hydraulic lines to the drive motor be connected to a source with a capacity of 7 gallons per minute at 1000 psi.

After connecting hydraulic source to lines at dryer, make certain that the unloading flight has the proper rotation to remove grain from the head. When looking into the discharge end of the auger it should be rotating counter clockwise.

When using the horizontal unloading head, it is not advisable to leave grain set in the dryer for any length of time (such as over night) without the vertical auger operating. If grain must be left in the dryer, it should be lowered to a level below the top of the unload auger head to prevent grain from running back down the vertical auger.

4. LOCATING PROPANE GAS SUPPLY TANK

Location of the Propane Gas Supply Tank must be in accordance with local, state or provincial regulation. It should also be approved by the insurance company. A minimum distance of twenty-five (25) ft. (7.5 meters) is recommended for safety and will allow room for maneuvering grain hauling equipment.

GT Propane Gas fired dryers are equipped with Vaporizers and must be connected to the supply tank for LIQUID withdrawal. It is recommended that rubber hose specifically made for Propane gas be used as a supply line connecting tank to dryer. Specifications for the line are: (1) minimum working pressure 350 psi, (2) minimum bursting strength 1,750 psi, and (3) 3/8" minimum inside diameter for Model 280. Tank pressure is used at the dryer; therefore, it is not necessary to install a pressure regulator at the tank.

DANGER

All lines and fittings should be checked periodically for leaks before and during operation. Check for leaks with liquid detergent suds or comparable substance, but NEVER with flame.

CAUTION

Do not use storage tanks that have been used to store Anhydrous Ammonia. This causes corrosion to the gas line controls.

Always protect gas supply line against vehicle or animal damage.

5. NATURAL GAS

Specifications for Natural Gas connections are available from the gas supplier and must be adhered to. The Natural Gas dryers will require up to 20 psi, depending on locality. Pressure shown is at the dryer. Maximum Natural Gas volume required is up to 33 ft^3 per minute on the Model 280.

6. ELECTRICAL CONNECTIONS

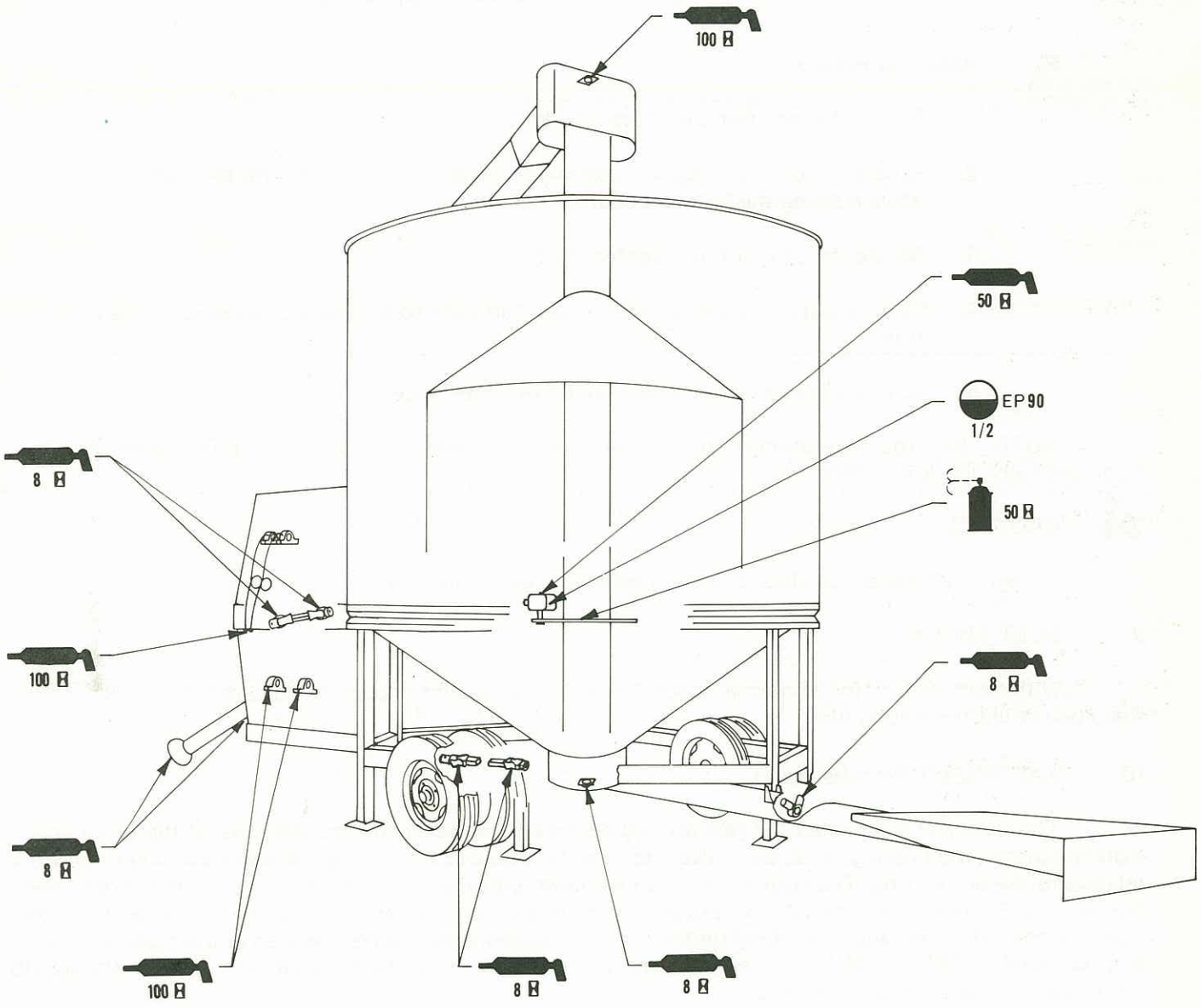
Power take off machines have as standard equipment a 12 VDC negative ground control circuit. The lead in wires must be properly connected to the tractor battery. Red clip to hot (+) side of battery and black clip to ground (—) side of battery. See proper battery connections on page 19.

IMPORTANT: Battery connections other than that described above will be harmful to the ignition system.

7. LUBRICATION

Use a high-low temperature grease or equivalent made especially for ball and roller bearings in extreme temperatures.

Refer to the following chart for location of lubrication points and frequency of lubrication. A small amount of grease at the specified intervals is recommended over a large amount at less frequent intervals.



Symbol descriptions:

Grease Point

EP 90 1/2 Gearbox Oil Level & Type

x Lubrication Frequency (Hours of Operation)

Dry Film Spray Lubricant

When performing the 100 hour lubrication, check to see that set screws in bearings are tight.

IMPORTANT: In extremely cold weather, it may be necessary to operate the dryer at a low RPM for a short period of time to allow the grease in the bearings to warm up.

8. SERVICING AND CARE OF AGITATOR

It is important that the agitator be inspected before and after the first load. Then after each 100 hours of operation.

A. The tapered agitator rollers must support the plate sprocket so there is no horizontal movement of sprocket.

The Model 280 has four rollers mounted on the agitator sprocket so each roller supports an equal load. These rollers are tapered so all horizontal and vertical slack may be taken up.

B. Adjusting Rollers

1. Secure the cam nut and loosen the bolt.
2. Rotate the cam nut counter-clockwise (when looking down into the cam nut) while holding the bolt stationary.
3. Secure the cam nut and tighten the bolt.
4. All cam nuts must be rotated an equal amount so the agitator sprocket remains true.
5. Rotate agitator arms by hand and check clearance.

NOTE: Agitator drive chain is provided with a spring loaded idler, however, it is necessary to periodically check the chain slack.

⚠ CAUTION

Do not open inspection door or enter machine while in operation.

9. BELT TENSION

With machine running at normal speed, belts should be tight enough to keep out the slack. Keep belts tight to prolong life.

10. VAPORIZER(Propane Only)

The vaporizer is designed for year around operation. However, the temperature of the vapor controls (regulator, modulating valve, ball valve, etc.) can be adjusted by moving the vaporizer ring up or down relative to the burner ring. The controls will run warmest with the vaporizer ring directly in line with the burner ring. By loosening the vaporizer bracket from the burner, the vaporizer can be slid up or down to cool the controls. The vapor plumbing under normal conditions should be operated at a temperature of approximately 120° to 140°F. The temperature may be checked by placing your bare hand on the plumbing and will range from warm to hot.

If the vaporizer has been overheated causing possible rupture you will be unable to control the plenum temperature. Check propane tank for liquid withdrawal. Vapor withdrawal will cause over-heating of the vaporizer and possible damage to the gas controls.

11. CHECK OUT – BEFORE LOADING

All piping and burners have been checked and test fired at the factory. It is possible, however, that some of the connections may have been loosened or damaged during shipment. After connecting supply tank to dryer all connections should be tested under pressure with gas pressure on. DANGER: Check with liquid soap solution, never with flame. Tractor can be started and dryer test run before loading with grain.

12. LOADING THE BIN

NOTE: The fan clutch can be disengaged during loading and unloading of dryer to lower the energy requirement. It also reduces the amount of dirt and dust which is blown out of the dryer during the load and unload cycle.

When the loading attachment is not used, overhead bins or a conventional farm type elevator or auger may be used. In using any method of filling from the top, make delivery of grain into dryer as near to center as possible. Start machine, without burner, at the same time loading begins. This helps keep bin loaded evenly. Bin will fill to rim and pyramid evenly to auger outlet.

When the loading hopper attachment is used for filling the dryer, follow these steps to prevent the grain from being fed into the dryer faster than the vertical auger can recirculate it. When this happens the grain can build up in the bottom of the dryer until it gets into the agitator assembly and causes damage to the agitator.

A. Make sure that the vertical auger drive belt is kept tight and is not slipping.

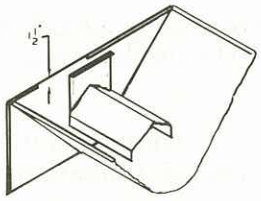
B. Make sure the discharge holes at the top of the vertical auger housing are completely open with the swivel head in the recirculating position.

C. Make sure that the bottom auger well is kept clean of trash or fine material build up which restricts the flow of grain into the intake of the vertical auger.

D. The vertical auger flighting cannot be worn down at the intake end.

E. Slow down the PTO speed to approximately 450 RPM when filling the dryer with lightweight grains such as sunflower seeds, oats, etc.

F. Set the grain flow regulator in the loading hopper down 1½" as shown in the drawing.



DO NOT LEAVE GRAIN IN DRYER OVERNIGHT

13. STARTING THE BURNER (PROPANE)

A. Fan should be at operating speed, approximately 2200 RPM for Model 280. This speed can be obtained by approximately 525 RPM PTO speed; however, a lower fan and PTO speed is recommended in some conditions.

B. Check the Plenum Hi-Limit and grain temperature controls in the control box for proper setting. (Refer to instructions No. 16 and No. 17 in this manual.) Re-set the controls if necessary. Press the re-set button on the Plenum Hi-Limit Control.

C. NOTE: For other than initial starting, skip to step H and continue.
For initial starting, the ball valve and quick acting valves should be open, the modulating valve handle should be screwed all the way in (clockwise) and the High pressure regulator handle should be turned out (counter-clockwise) until the screw turns freely, then turn back in (clockwise) one full turn.

D. Flip the burner start switch to the "on" position. ("Power on" and "airflow" indicators will light). The unit will wait approximately 10 seconds from the time the switch is flipped to "on" until it attempts ignition. (The "ignition" and "gas on" lights will come on). If burner does not light within about five seconds after gas valves open, turn the pressure regulator handle clockwise to increase gas pressure. Note: It may require up to 5 psi gas pressure to get ignition. If ignition is not established within 90 seconds the gas valves will automatically close. To re-attempt ignition, flip the power switch to the "off" position and then back "on".

E. If frost should appear on the gas lines wait 2 to 3 minutes to allow the vaporizer to heat before increasing the gas pressure.

F. Gradually increase the plenum temperature by screwing the pressure regulator handle in (clockwise). If frost appears on the line at any time wait a few minutes before increasing pressure further. Continue to increase the gas pressure until the plenum temperature is at least 10°F above the desired operating plenum temperature. NOTE: In extreme temperature changes, it may be necessary to go more than 10°F above the desired plenum temperature.

G. Turn the modulating valve handle very slowly counter-clockwise until the gas pressure begins to drop. After pressure drops slightly allow plenum temperature to stabilize. Continue adjustment in this manner until desired plenum temperature is reached. Once the modulating valve is set, it is not necessary to change the setting when restarting the burner unless a different plenum temperature is desired.

H. For restarting the burner it is not necessary to change the setting of the pressure regulator or modulating valve unless a different plenum operating temperature is desired. Simply turn the ball valve handle so that it is only partially (one quarter) open. Open the quick acting valve.

I. Flip the burner start switch to the "on" position. The unit will wait approximately 10 seconds from the time the switch is flipped to "on" until it attempts ignition (watch "ignition" and "gas on" indicator lights).

J. After flame is established gradually open the ball valve until completely open. NOTE: Opening the ball valve to rapidly may cause frost to form in the gas lines. It will also raise the plenum temperature faster than the modulating valve can react thus causing the gas pressure to fluctuate greatly for several minutes.

STARTING THE BURNER (NATURAL GAS)

A. Fan should be at operating speed, approximately 2200 RPM for Model 280. This speed can be obtained by approximately 525 RPM PTO speed; however, a lower fan and PTO speed is recommended in some conditions.

B. Check the high limit and grain temperature controls in the control box for proper setting. (Refer to instructions No. 16 and No. 17 in this manual.) Reset the controls if necessary.

C. For other than initial starting skip to step G and continue.

For initial starting, the modulating valve handle should be screwed all the way in (clockwise). The gate valve handle should be turned nearly all the way in (clockwise), and the ball valve should be completely open.

D. Flip the burner start switch to the "on" position. ("Power on" and "airflow" indicators will light). The unit will wait approximately 10 seconds from the time the switch is flipped to "on" until it attempts ignition (the ignition and gas on lights will come on). If burner does not light within about five seconds after gas valves open turn the gate valve handle counter clockwise to increase gas pressure. NOTE: It may require up to 5 psi gas pressure to get ignition. If ignition is not established within 90 seconds the gas valves will automatically close. To re-attempt ignition flip the power switch to the "off" position and then back to "on".

E. Gradually increase the plenum temperature by screwing the gate valve handle out (counter clockwise). Increase to at least 10°F above the desired operating plenum temperature.

F. Turn the modulating valve handle out very slowly counter-clockwise until the gas pressure begins to drop. After pressure drops slightly allow plenum temperature to stabilize. Continue adjustment in this manner until desired plenum temperature is reached. Once the modulating valve is set, it is not necessary to change the setting when restarting the burner unless a different plenum temperature is desired.

G. For restarting the burner it is not necessary to change the setting of the modulating valve unless a different plenum operating temperature is desired. Simply turn the ball valve handle so that it is only partially (one quarter) open.

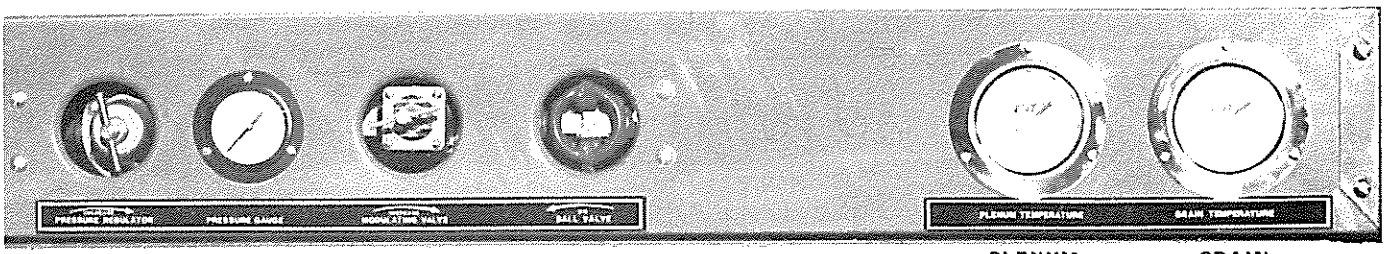
H. Flip the burner start switch to the "on" position. The unit will wait approximately 10 seconds from the time the switch is flipped to "on" until it attempts ignition (watch "ignition" and "gas on" indicator lights).

I. After flame is established gradually open the ball valve until completely open. NOTE: Opening the ball valve too rapidly will cause the plenum temperature to rise faster than the modulating valve can react thus causing the gas pressure to fluctuate greatly for several minutes.

14. ADJUSTMENT OF FUEL – AIR MIXTURE

Your burner is factory set for correct air input for various pressures. Burner will not operate properly unless fan is at the approximate recommended operating speed.

15. ASSEMBLY OF CONTROLS

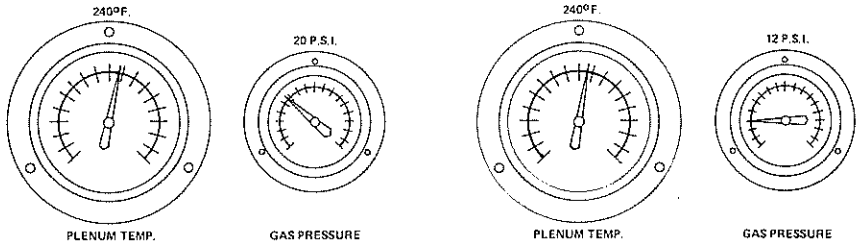


PRESSURE REGULATOR **PRESSURE GAUGE** **MODULATING VALVE** **BALL VALVE** **PLENUM TEMPERATURE** **GRAIN TEMPERATURE**

PURPOSE OF THE MODULATING VALVE

The purpose of the modulating valve is to maintain a constant plenum temperature regardless of outside temperature changes. Take for example the following illustration.

(A) (B)



8:00 a.m.; 35°F Outside 1:00 p.m.; 60°F Outside

Notice in illustrations A & B above that the plenum temperature is 240°F. but the gas pressure is 20 psi. for illustration "A" and only 12 psi. for illustration "B". The reason for this is that the outside air temperature went up 25° from illustration A to B. Consequently it requires less gas to get 240° under ill. B conditions than under ill. A conditions. Now if the pressure were held constant (20 psi.) for both of the illustrations above the plenum temperature in illustration B would be much higher than the 240° because the burner would be getting more gas than required to maintain the 240°. This is exactly what would happen without the use of the modulating valve. The modulating valve with its heat sensing bulb located inside the plenum chamber opens and closes itself whatever amount is necessary to maintain a set plenum temperature. Refer to the starting procedure (Section 13) of this manual for proper valve adjustment.

To set modulating valve, screw the modulating valve handle clockwise all the way in. Bring the plenum temperature up to approximately 10°F above the desired plenum temperature by turning the pressure regulator handle clockwise and then allow temperature to stabilize. Turn modulating valve handle counter-clockwise until gas pressure begins to drop. After pressure drops slightly, allow plenum temperature to stabilize. Continue adjustment in this manner until desired plenum temperature is reached. Once the modulating valve is set, it is NOT necessary to change its setting unless a different plenum temperature is desired.

16. PLENUM TEMPERATURE RANGES FOR DRYING

GRAIN	PLENUM TEMP (°F) IF GRAIN TO BE USED FOR SEED	PLENUM TEMP (°F) IF GRAIN TO BE SOLD COMMERCIALLY OR USED FOR ANIMAL FEED
Shelled Corn	140° – 180°	200° – 230°
Wheat	100° – 150°	150° – 180°
Grain Sorghum	140° – 180°	230° – 250°
Barley	120° – 170°	180° – 200°
Oats	140° – 180°	200° – 230°
Soybeans	120° – 170°	180° – 200°
Rough Rice	90° – 120°	140° – 160°
Flax	90° – 120°	140° – 160°
Rape Seed	90° – 120°	140° – 160°
Edible Beans	10° – 15° above outside air temp.	
Sunflower Seeds (Oil Type)		110° – 150°
Sunflower Seeds (Bird Seed)		110° – 150°

ADJUSTING HIGH LIMIT CONTROL (See No. 8, page 18)

The high limit control safeguards against excessive plenum temperatures. Recommended setting is 50° above the desired plenum drying temperature.

NOTE: This control is equipped with a manual reset. If the plenum temperature gets above the dial setting the control will shut the burner down and the red plenum temperature light will come on. It will be necessary to push the reset button on top of the control before the burner can be re-lit.

17. ADJUSTING GRAIN TEMPERATURE CONTROL (See No. 9, page 18)

The grain temperature control is located inside control panel and serves to prevent over-heating of grain. When the grain temperature gets above the dial setting the control will shut the burner off and the red grain temperature light will come on. Check periodically. Refer to chart under maximum temperature of grain. (See page 15.)

To initially set the grain temperature control turn the dial setting to about 10° or 20°F above the "commercial use" grain temperature in the following table. (NOTE: When drying grain for seed purposes refer to instructions in next paragraph.) Example: Shelled corn for commercial sale; set dial at 140° or 150°F. As the batch is drying, periodically take grain samples from the sampler tube and check the moisture content on an accurate moisture tester. When the moisture gets within 1 – 1½ percentage points of the desired final moisture content slowly turn the dial on the grain temperature control down until the gas is shut off thus extinguishing the burner. Let the grain cool to the desired temperature. The grain will continue to dry during the cooling process so should be near the desired dryness after cooling. If the grain is still a little too wet raise the temperature control setting one or two degrees on the next batch. If the grain was a little too dry lower the temperature control setting one or two degrees on the next batch.

When drying grain for seed purposes set the grain temperature control at or slightly below the temperature specified in the malt or seed column of the grain temperature chart. The plenum temperature should be set according to the seed column of the plenum temperature chart. When the grain in the dryer reaches the control setting the burner will be extinguished. Check the moisture content of the grain in the dryer. If this batch of grain is too wet, lower the plenum temperature slightly for the next batch. Lowering the plenum temperature will increase the drying time and therefore decrease the grain moisture. Conversely, if the batch of grain is too dry, raising the plenum temperature slightly for the next batch will decrease the drying time and therefore increase the grain moisture. Do not exceed maximum plenum or grain temperature shown in charts.

The grain temperature control serves as an indicator to degree of dryness, but settings must be ascertained at user level. For recording temperatures used, a sheet is provided in back of this manual. Each batch should be tested to be sure the proper moisture level is reached. Different varieties of the same grain may require different grain temperature settings to achieve the same degree of dryness.

GRAIN DRYING INFORMATION

MAXIMUM TEMPERATURE FOR GRAIN WHEN CROP IS USED AS CHART INDICATES

GRAIN	MALT OR SEED	COMMERCIAL USE	ANIMAL FEED
Shelled Corn	110° F	130° F	140° F
Wheat	105° F	120° F	140° F
Grain Sorghum	110° F	140° F	140° F
Barley	105° F	120° F	140° F
Oats	105° F	140° F	140° F
Rye	105° F	140° F	140° F
Soybeans	105° F	120° F	140° F
Rough Rice	110° F	110° F	110° F
Flax	110° F	120° F	
Rape Seed	110° F	120° F	
Edible Beans		Does not apply	
Sunflower Seed (oil type)		100° F	
Sunflower Seed (bird seed)		90° F	

18. WHEN TO TURN OFF BURNER

The burner can be extinguished either manually by the Off—On switch or automatically by the grain temperature control when the grain reaches the desired dryness. This can be determined by use of a moisture tester. Allow the fan to run until the grain cools to about 20° above the outside temperature or 10° above grain in storage. Grain will dry as much as 1% during the cooling period, depending on the relative humidity.

19. UNLOADING

After grain has cooled, swing the unloading spout to the unloading position if dryer is equipped with the standard swivel head or engage hydraulics to motor if equipped with horizontal unloading head.

20. DRYER NOT IN USE

When dryer is not in use, the hand valve under the control panel must be in "off" position. The supply line should be shut off at the tank also. If location is such as to permit traffic or livestock between dryer and supply tank, protection of supply line is a must.

NOTE: When shutting the burner off for an extended period of time (even overnight) it is a good safety practice to shut the gas off at the supply tank and let all of the gas in the lines burn out.

21. GENERAL OPERATING MAINTENANCE

(1) Keep area clean of shucks, chaff and other combustible foreign material.
(2) Keep Fan Screen cleaned.
(3) Drain propylene out of oil trap pipe in upper plumbing weekly.
(4) All controls should be cycled and checked periodically.
(5) Screen in supply line strainer checked and cleaned periodically.
(6) Check all belts for tension.
(7) Lubricate bearings as outlined.
(8) Depending on operating and fuel conditions the burner ports may need to be cleaned periodically. Working from inside the plenum chamber and using a 5/64" diameter drill bit or torch tip cleaner open up the burner ports.
(9) Keep all safety decals and operating instructions clean and legible. If any decals become non-legible, they should be replaced.

REMEMBER! ! ! An ounce of prevention is worth a pound of cure.

PREPARING DRYER FOR STORAGE

(a) Open clean out door on bottom well, clean out all grain.

(b) With masking tape or equivalent, seal holes in air switch tube, and openings in fuel system.

(c) Relax belts.

(d) Brush protective coating of oil on agitator roller & chain.

(e) Lubricate all bearings.

(f) Inspect for worn or damaged parts which should be replaced before being used again.

(g) Set jacks to support dryer weight.

PREPARING DRYER FOR USE – OUT OF STORAGE

(a) Remove masking tape covering openings.

(b) Tighten Belts.

(c) Lubricate all bearings.

(d) Make certain bottom well is clean and close clean out door just prior to using.

(e) Close plenum access door.

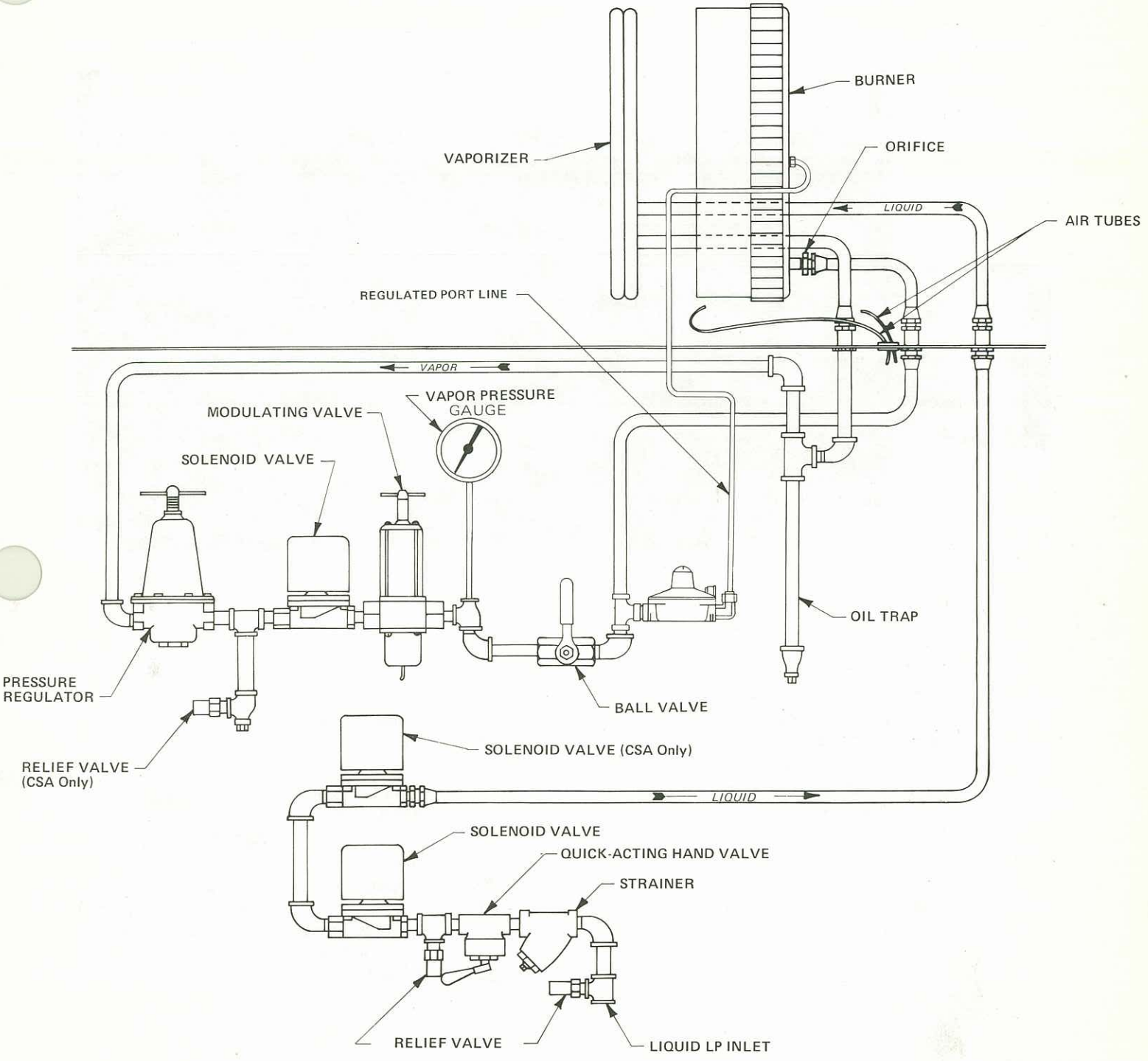
(f) Check burner ports and clean if necessary. See item (8) of general operating maintenance.

(g) Test fire the burner and check out all the controls to make sure they are working properly.

(h) Level dryer and make certain the weight is equally distributed on the jacks.

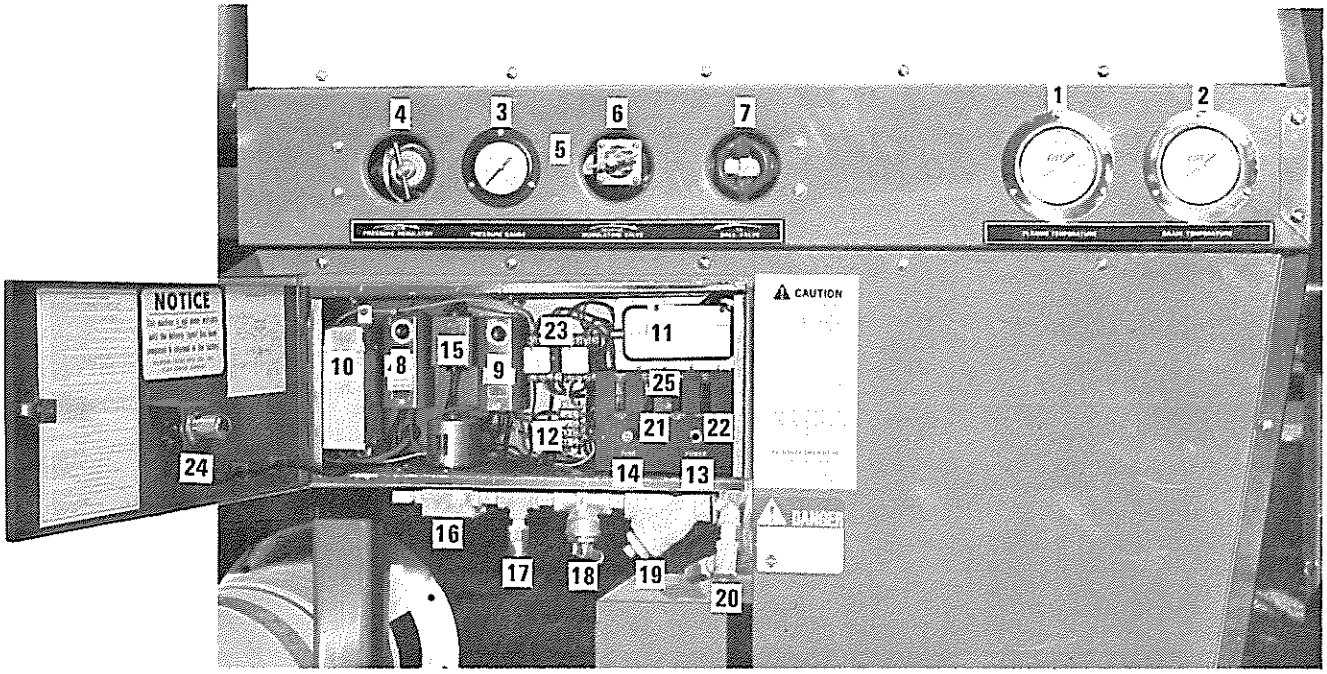
(i) Check safety and operating decals. If any are not legible they should be replaced.

PROPANE **GAS FLOW CHART**



THIS PICTURE SHOWS ALL COMPONENTS OF THE CONTROL SYSTEM OF THE GT DRYER. ALL PARTS ARE NUMBERED AND IDENTIFIED BY DESCRIPTION. THE FOLLOWING PAGES OF THIS MAINTENANCE AND SERVICE BULLETIN REFER TO THE INFORMATION CONTAINED HEREIN.

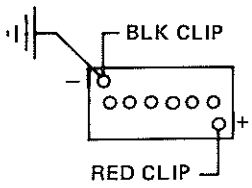
STUDY THIS INFORMATION. IT WILL GREATLY ASSIST YOU IN THE OPERATION OF YOUR DRYER.



1. Plenum Thermometer
2. Grain Thermometer
3. Pressure Gauge
4. Pressure Regulator
5. Solenoid Valve — Vapor (located directly behind panel)
6. Modulating Valve
7. Ball Valve
8. Plenum Control, High Limit
9. Grain Control, Temperature
10. Ignition Coil
11. Air Switch
12. Terminal Block
13. Power Switch
14. Fuse
15. Flame Detector
16. Solenoid Valve — Liquid
17. Pressure Relief Valve
18. Manual Valve — Propane
19. Strainer
20. Propane Inlet
21. Pre-Purge Timer (behind switch panel)
22. Ignition Timer (behind switch panel)
23. Control Relays
24. Panel Light
25. Indicator Lights

BATTERY CONNECTIONS

12 VOLT SYSTEM (ONE 12 VOLT BATTERY)



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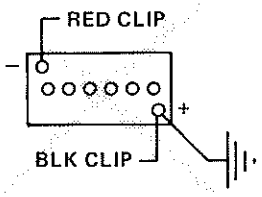

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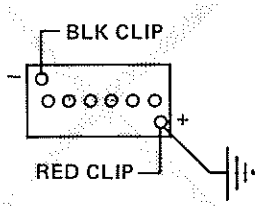

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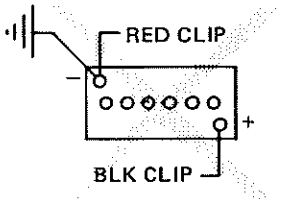
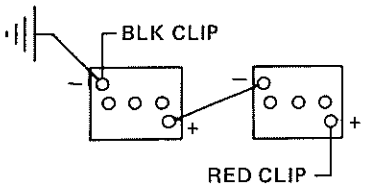


INCCORRECT

12 VOLT SYSTEM (TWO 6 VOLT BATTERIES)



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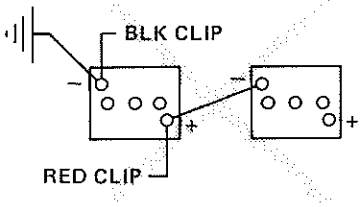

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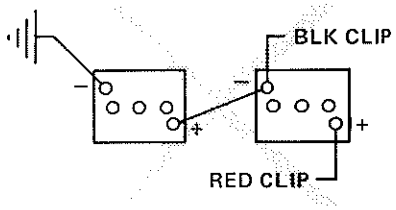

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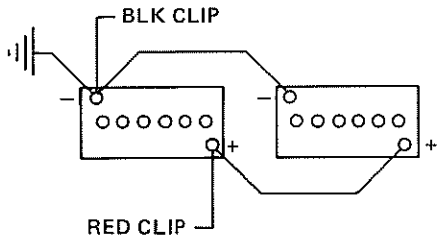
12 VOLT SYSTEM (TWO 12 VOLT BATTERIES)



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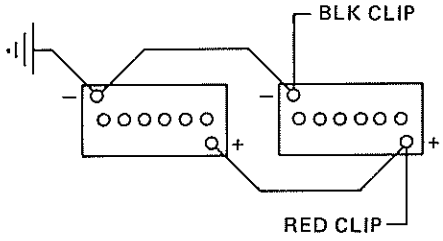

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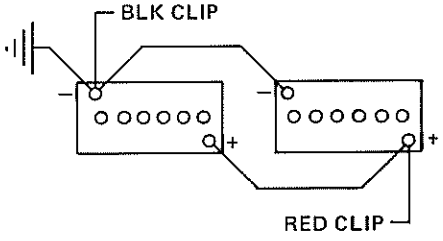
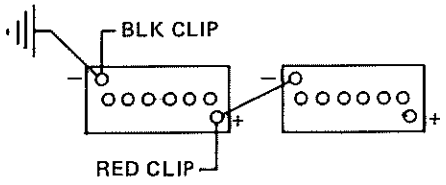


CORRECT

24 VOLT SYSTEM (TWO 12 VOLT BATTERIES)



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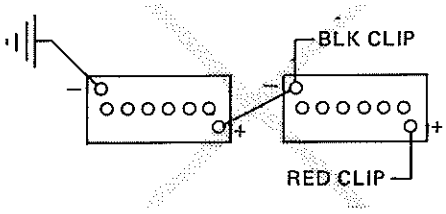

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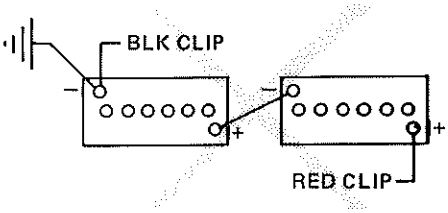

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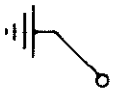
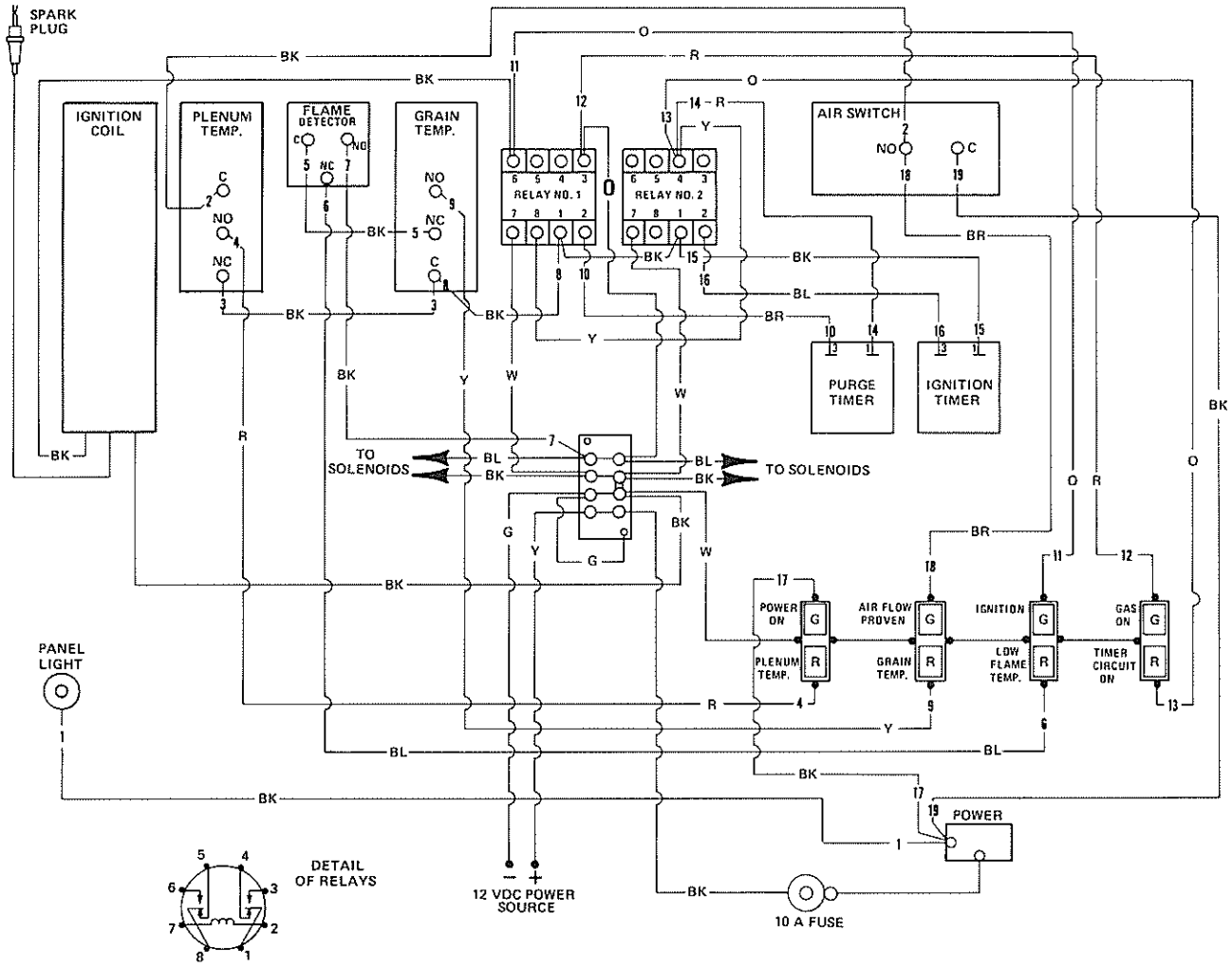
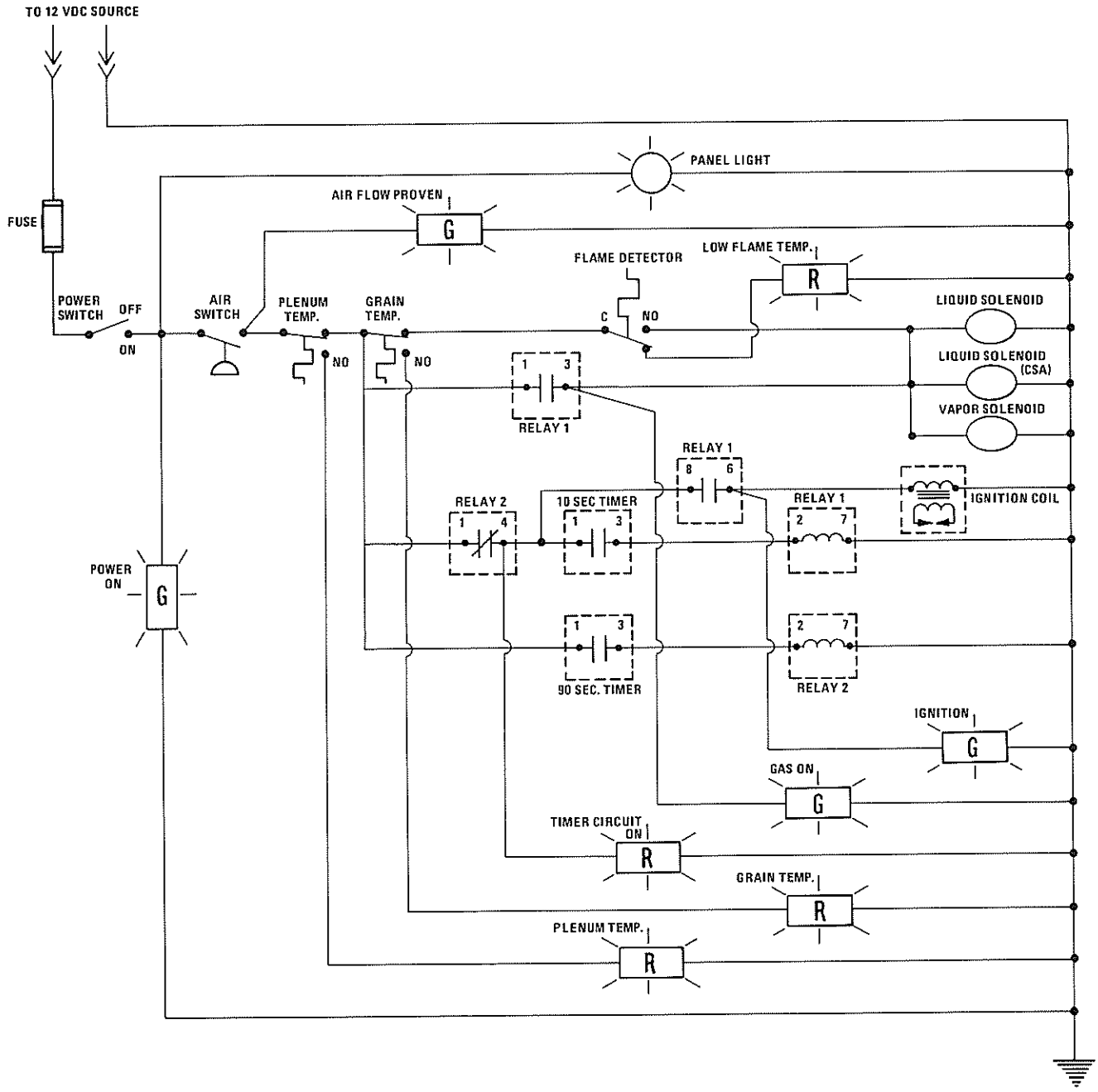


DENOTES TRACTOR GROUND

WIRING DIAGRAM



ELECTRIC SCHEMATIC



SEQUENCE OF OPERATION

With the lead wires connected to the proper power source (12 VDC negative ground) there is power through the fuse to the power switch. Providing the plenum and grain temperature controls are set above the actual temperatures in the dryer and the fan is operating at the recommended speed the dryer is ready for burner ignition.

Several things happen or begin to happen when the power switch is flipped to the "on" position.

1. The panel light will come on.
2. The "power on" indicator light will come on.
3. The "airflow proven" light will come on.

4. The circuit is completed to the 90 second delay timer which starts its delay period. (it will close at the end of 90 seconds.)

5. The circuit is completed through the normally closed contact (4) of relay No. 2 to the 10 second delay timer which starts its delay period. (It will close at the end of 10 seconds.)

6. The "timer on" indicator light will come on.

7. The circuit is also completed through the normally closed contact (4) of relay No. 2 to one of the common terminals (8) of relay No. 1.

8. The circuit is also completed directly to the other common terminal (1) of relay No. I.

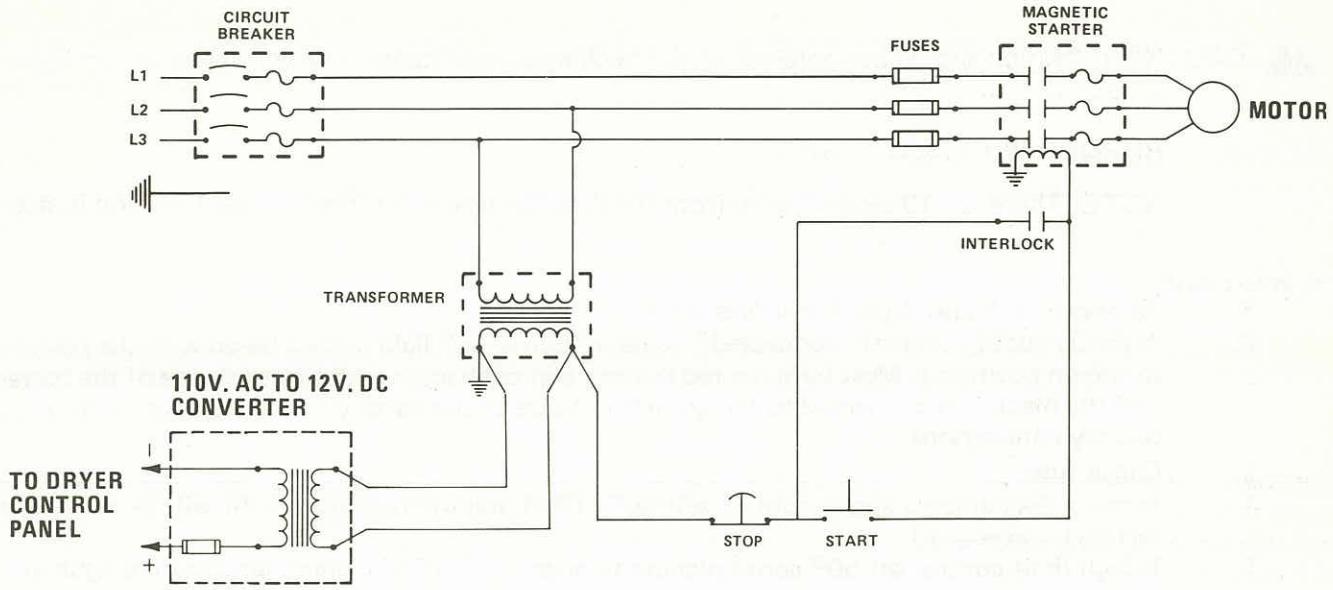
9. The "low flame temp." indicator will come on.

After the 10 second delay, the 10 second timer will close and complete the circuit through the holding coil contacts (2 & 7) of relay No. 1. When this happens, both normally open contacts (3 & 6) of relay No. 1 will close. This completes the circuit through the solenoid coils (gas will come on) and the ignition coil (sparking at plug will start). The "ignition" and "gas on" lights will come on now. The burner should ignite at this time.

After 20 to 30 seconds the flame detector will pick up enough heat from the burner to close its contacts. (The "low flame" indicator will go off). The circuit is now complete direct from the grain temperature control to the solenoid gas valves so that the gas supply to the burner will remain on until the grain temperature control or one of the other safety switches open.

After the 90 second delay (from the time the power switch was flipped to the "on" position) the 90 second timer will close and complete the circuit through the holding coil contacts (2 & 7) of relay No. 2. When this happens the normally closed contact (4) of relay No. 2 will open thus breaking the circuit to the holding coil of relay No. 1. The normally open contacts of relay No. 1 (3 & 6) will then open and break the circuit to the ignition coil (sparking stops) and the solenoid coils. (The "ignition" and "timer circuit" indicators will go off now.

SIDE MOUNT DRIVE SCHEMATIC



SIDE MOUNT DRIVE SEQUENCE OF OPERATION

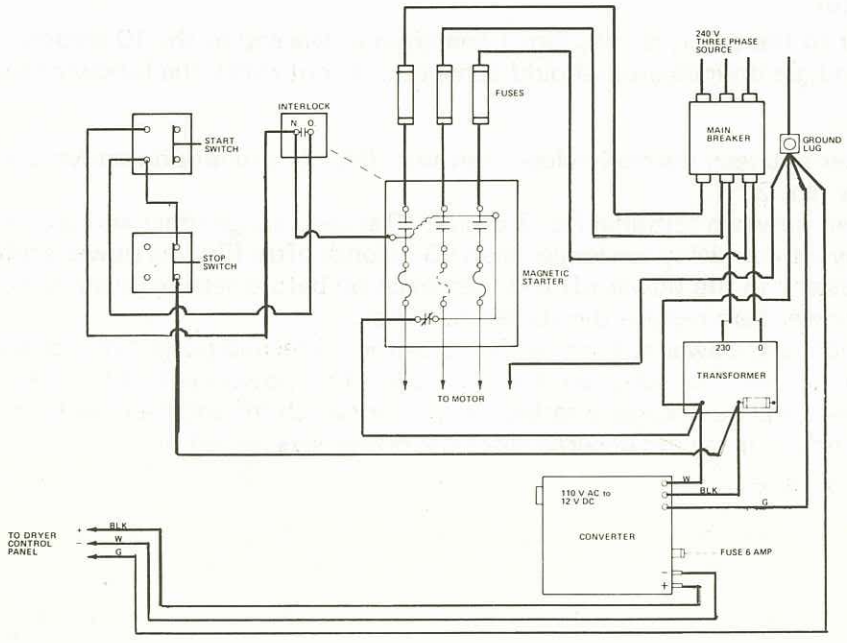
With the circuit breaker connected to the proper source and in the "on" position the circuit is completed to the magnetic starter and to the stepdown voltage transformer. Voltage to the magnetic starter controls is now reduced to 110 VAC. Voltage to the burner control panel is fed through the 110 VAC to 12 VDC converter so that the burner controls operate on 12 volts.

Pushing the motor start button completes the circuit through the holding coil on the magnetic starter causing its contacts to close thus supplying power to start and run the motor.

When the starter contacts close, the contacts on the interlock also close which completes the circuit bypassing the start button. The start button may be released.

For operation of burner controls refer to upper panel sequence of operation (Page 21 & 22).

SIDE MOUNT WIRING DIAGRAM



⚠ **CAUTION:** Caution should be exercised when checking control panel. Use volt meter or test light.

Problem A. BURNER WILL NOT LIGHT

NOTE: There is a 10 second delay from the time the power is turned on until ignition is attempted.

Probable Cause

1. Are both tank and dryer fuel valves open?
2. Is power supply properly connected? (Green "power on" light should be on with the power switch in the on position.) Must have the red battery clip connected to the hot (+) side of the battery and the black clip connected to the ground (—) side of the battery. Refer to page 19 for proper battery connections.
3. Check fuse.
4. Is grain temperature above control setting? (Red grain temperature light will be on if control setting is exceeded.)
5. Is high limit control set 50° above plenum temperature? (Red plenum temperature light will be on if control setting is exceeded.)
6. Press manual reset button on high limit control.
7. Check to see that both solenoid gas valves are opening. With fan at operating speed, or with air switch jumpered, flip the "on-off" switch to "on" and watch pressure guage. If valves open there should be a pressure reading. NOTE: There is a built in 10 second delay from the time the switch is flipped to "on" until the gas valves will open.
8. Air switch not closing (Airflow light not on). Remove and clean or replace air switch tube.
9. Check for plugged orifice.
10. Possible loose wire connection.
11. Gas pressure too low. May require up to 5 psi. for ignition with propane burner.
12. Gas pressure to high. 30 psi. is near maximum for ignition with the propane burner.
13. System improperly grounded. Check lead wire connections at terminal block.
14. Check plug for spark. If no spark check the following after disconnecting voltage to the system.
    a. Check spark gap. Gap should be 3/32" ± 1/32". If plug is carboned at the points clean and replace after checking gap.
    b. Check high voltage lead wire for cracks or breaks, and replace if necessary.
    c. Check that the high voltage lead wire is not too close to a metal surface to insure that arcing will not occur at any point other than across the high voltage electrode at the ignitor.
15. With power to the dryer, is relay No. 1 energized at the end of the 10 second delay period? (Ignition and gas on indicators should come on.) If not check the following using a volt meter or test light.
    a) Power between normally closed terminal (No. 4) and ground on No. 2 relay. If not replace relay No. 2.
    b) Power between terminal No. 3 on the 10 second purge timer and ground after the 10 second delay. If you delay for longer than 90 seconds after flipping power switch on it will be necessary to flip power off and then back on before getting power at this point. If there is no power here replace the 10 second timer.
    c) If there was power at terminal No. 3 of the 10 second purge timer check for power between terminal No. 7 of relay No. 1 and ground. If no power replace relay No. 1. NOTE: Here again it will be necessary to flip the power switch off and then back on if a delay of 90 seconds or more has occured since the power was turned on.
16. Check fuel strainer.

Problem B. BURNER LIGHTS BUT PRESSURE WILL NOT EXCEED 5 TO 6 POUNDS AND/OR HAS EXCESSIVE FLUTTERING.

Probable Cause

1. Vapor solenoid valve malfunctioning.
   Solution:
   Disassemble solenoid valve body and remove diaphragm. If diaphragm is oily or dirty, wipe clean and replace. If diaphragm is ruptured replace with new diaphragm.
2. Pressure regulator malfunctioning.
3. Modulating valve malfunctioning.

Problem C. BURNER IGNITES BUT GOES OUT DURING OPERATION.

Probable Cause

1. High limit control set below plenum temperature. (Red plenum temperature light will be on.)
2. Grain temperature exceeds control setting. (Red grain temperature light will be on.)
3. Electrical connections may be loose.
4. Worn insulation or wet wires may be grounding out.
5. Excess flow valve at fuel tank may be closing.
6. Check for stoppage in air switch tube. (Green airflow light not on.) (Remove tube from switch and blow out dirt.)
7. The flame detector bulb is not sensing flame at the burner. (Red low flame light on) The flame detector must sense enough heat from the flame to close its contacts before the 90 second timer times out or the gas valves will close. If the flame detector is not closing it will be necessary to adjust the sensor bulb mounted to the burner so that it picks up more heat from the flame. To do this adjust bulb so that it protrudes into the burner 3/8 to 1/2". Do not over-tighten the locking nut on the flame detector bulb.

Problem D. UNCONTROLLABLE HEAT

Probable Cause

1. Cracked Vaporizer.
2. Ruptured gas line.

Problem E. TRASH OR GRAIN FIRE

Probable Cause

1. Excessive plenum temperature.
2. Trash build-up in plenum.
3. Poor circulation due to agitator being out of operation or adjustment.
4. Ruptured gas line or vaporizer.
5. Improper burner and baffle adjustment.

   Solution:
   a. Shut off gas supply.
   b. Disengage fan clutch and continue to circulate grain in machine or empty machine if necessary.

Problem F. GAS WILL NOT SHUT OFF IMMEDIATELY WHEN POWER IS SHUT OFF.

Probable Cause

1. Perforated diaphragm in vapor solenoid valve.
2. Plunger upside down in vapor solenoid valve.
3. Lack of diaphragm in vapor solenoid valve.

Problem G. AGITATOR DRIVE CHAIN OFF

 DANGER Do Not open inspection door or enter machine when in operation.

Probable Cause

1. Roller stuck – seized bearing – may be flat on one side.
2. Too much horizontal play between agitator race and rollers.
3. Agitator drive sprocket out of line.
4. Too slack a chain.
5. Excess feeding of loading auger causing grain level to rise above agitator. (Close grain flow regulator slightly to reduce feed rate.)

Problem H. AUGER STOPPAGE

Probable Cause

1. Slack belt.
2. Block of wood or rock lodged between auger flight and housing.
3. Extremely wet grain standing over night.
4. Bottom auger bearing frozen

Problem I. EXCESSIVE DRYING TIME

Probable Cause

1. Too low plenum temperature for conditions.
2. Inaccurate plenum temperature gauge
3. Poor circulation of grain.
4. Dirty or trashy grain.
5. Hard to dry grain variety (Thick seed coat)
6. Incorrect Fan Speed.
7. Adverse weather conditions.
8. Re-circulation of exhaust air from dryer back into plenum.

Problem J. POOR GRAIN CIRCULATION

Probable Cause

1. Fan speed above that recommended.
2. Build up of foreign material, especially in bottom section of dryer.
3. Agitator not operating.

INDICATOR LIGHT CHECK OUT PROCEDURE

The indicator lights on the dryer's switch panel have been put there to aid in the operation of the dryer. These lights should be checked periodically to assure that they are operating.

With the fan operating at the recommended RPM, the electrical power source properly connected, the gas supply turned on, and all the gas valves open complete the following test.

Turn the power switch on and see that the green "power on" and "air flow proven" lights come on. Also see that the red "low flame temperature" and "timer circuit on" lights come on.

After approximately a ten (10) second delay from the time the power switch was turned on see that the green "ignition" and "gas on" lights come on.

After the burner has been operating for approximately 30 seconds see that the red "low flame temperature" light goes off.

After approximately a ninety (90) second delay from the time the power switch was turned on see that the green "ignition" and red "timer circuit on" lights go off.

Panel should now register the normal operating condition, i.e. green "power, airflow and gas on" lights on. There will be no red lights on.

Turn the plenum (Hi–Limit) thermostat down until the burner is shut off. See that the red "plenum temperature" light comes on and the green "gas on" light goes off. Turn the thermostat back up and press the manual reset button on top of the thermostat. See that the red "plenum temperature" light goes off. After approximately a 10 second delay the burner will re-light.

After the "ignition" and "timer on" lights go off again, turn the grain temperature thermostat down until the burner is shut off. See that the red "grain temperature" light comes on and the green "gas on" light goes off.

GRAIN SHRINK

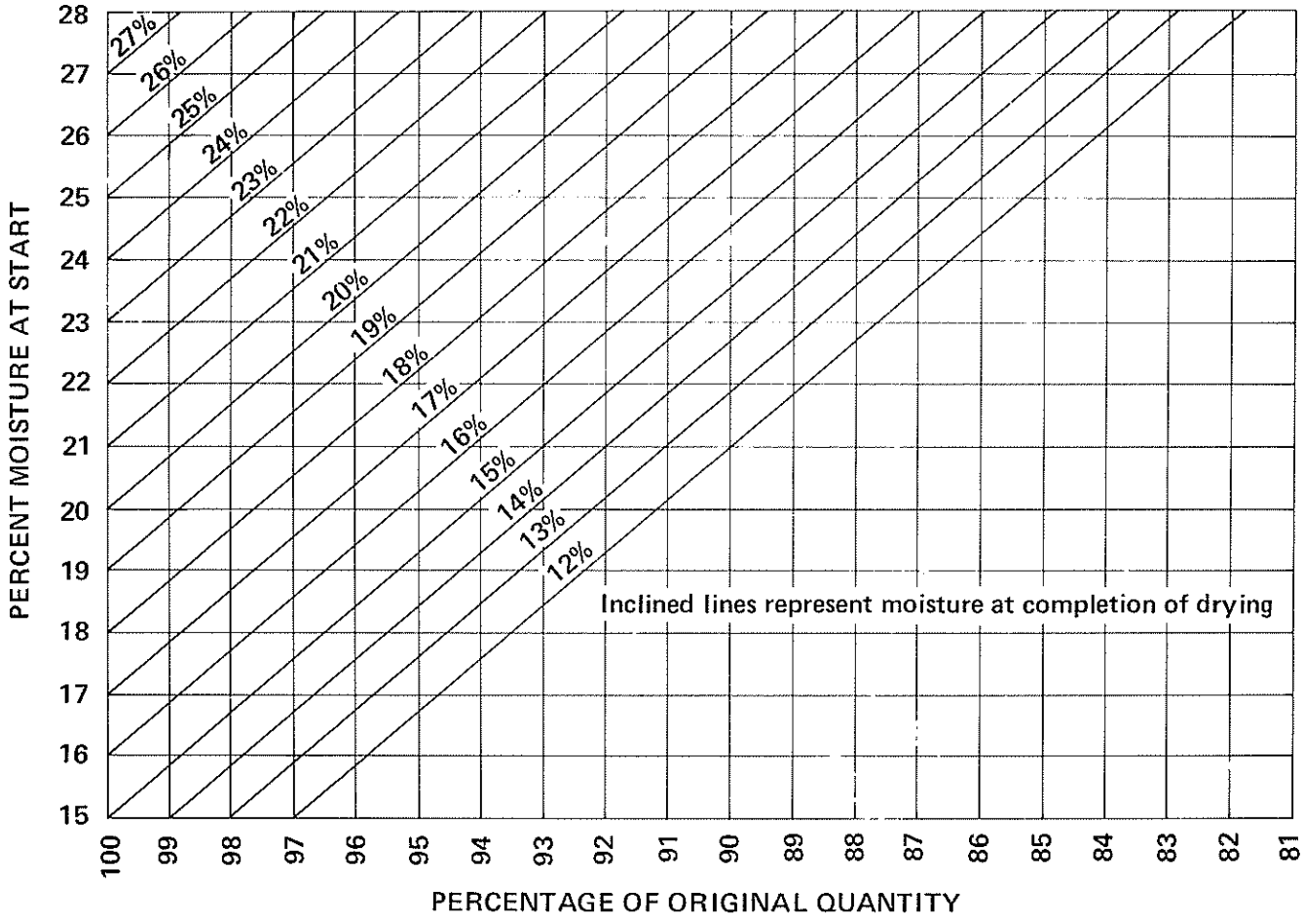
Grain "shrink" is the weight loss which occurs when grain is dried. The dry matter of grain does not change, consequently when a percentage of water is removed the "shrink" percentage is greater than the percentage of water removed. For example, if you dried a bushel of corn from 27% down to 15%, the corn loses 14.2% of its weight and the moisture content was dropped 12% (27%—15%). To find this weight loss from the chart below, follow the horizontal line (27% moisture at start) across until it intersects the 15% inclined line (moisture at completion of drying).

The final weight of any amount of grain can be figured from this formula:

$$\text{Original Weight} \times \frac{100 - \text{Moisture content of Wet Grain}}{100 - \text{Moisture content of Drying Grain}} = \text{Final Weight}$$

Example: 100 bushel of corn weighing 6200 pounds at 25% moisture content dried to 15%.

$$6200 \text{ pounds} \times \frac{100 - 25\%}{100 - 15\%} = 5471 \text{ pounds}$$



WHY CROP DRYING PAYS

SOME GRAINS ARE FULLY MATURED AT 35% MOISTURE ——then, quality begins to deteriorate. **Corn drying reduces field losses up to 95%:**

1½ % Loss @ 30% moisture — in field
4 % Loss @ 20% moisture — in field
15% Loss @ 15% moisture — in field

USDA SAYS UP TO 20% CAN BE LOST AFTER NOVEMBER 15TH.

HARVEST EARLY! AND DRY TO AVOID EXCESSIVE LOSSES!

FIELD SHELLING AND DRYING ON THE FARM:

1. Reduces Labor
2. Less Grain Handling
3. Grain Ready for Immediate Marketing or Storing in Less Space.
4. Earlier Harvesting
5. Less Field Loss
6. No Dockage For Moisture
7. Higher Grade Grain
8. Earlier Plowing After Harvest

HARVEST EARLIER AND HARVEST MORE —

because you beat: Rain, Wind, Hail, Insects and Rodents. Many crops are totally lost by waiting on Mother Nature to dry in field. Less labor, cribbing eliminated and shelling from crib eliminated.

SAVE 10% BASED ON 180 ACRES OF PLANTED CROPS

100 Acres Corn @ 100 bu. per Acre	10,000 bu.
40 Acres Oats @ 60 bu. per Acre	2,400 bu.
40 Acres Beans @ 30 bu. per Acre	1,200 bu.

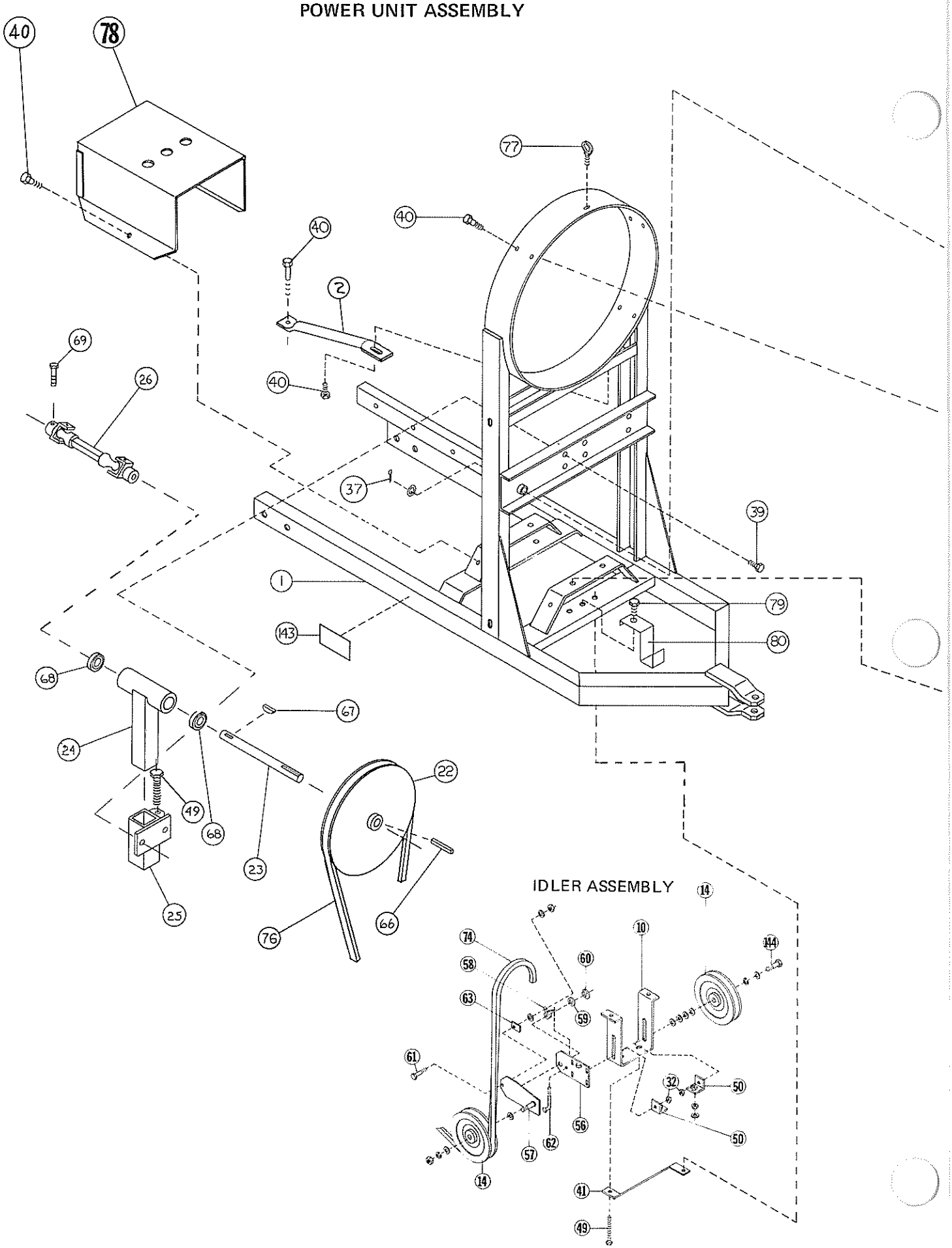
SAVE 10% FIELD LOSS:

On 100 Acres Corn, 10% or 1,000 bu. @ 2.80	$ 2,800.00
On 40 Acres Oats, 10% or 240 bu. @ 1.68	403.20
On 40 Acres Beans, 10% or 120 bu. @ 5.00	600.00
You gain for 1 year	$ 3,803.20
Based on 360 Acres and ten years — 10% saved	$ 76,064.00

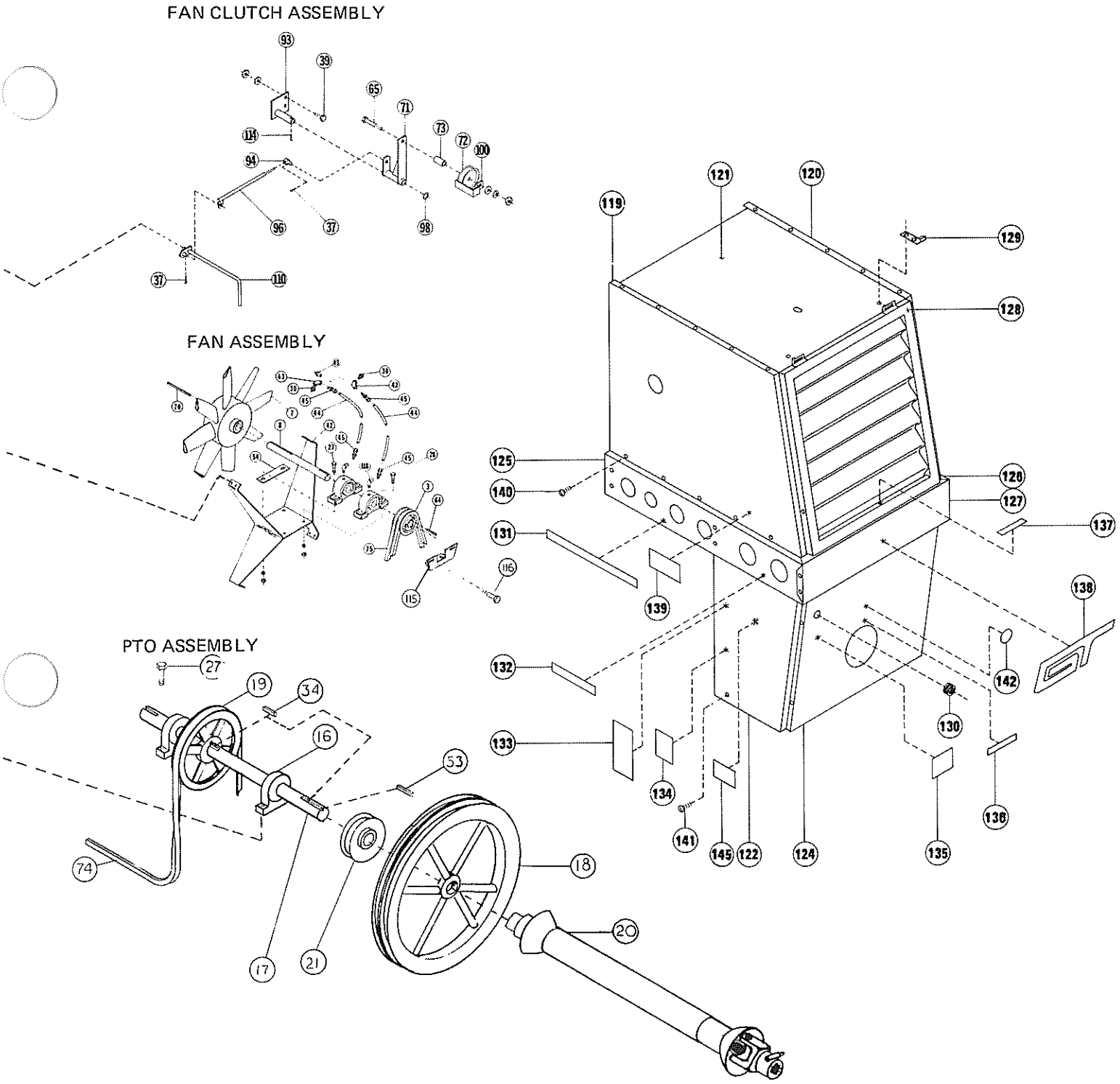
IT PAYS TO HARVEST EARLY AND DRY GRAIN —

once over and it's all over—out of the field up to 2 months earlier, ready for market up to 6 months earlier and plow earlier, early plowing is worth up to $20.00 per acre in some places.

POWER UNIT ASSEMBLY



POWER UNIT ASSEMBLY



POWER UNIT ASSEMBLY

REF. NO.	PART NO.	NO. REQ'D	DESCRIPTION
1	D22015	1	Power Frame Assembly
2	D22022	2	Brace
3	76006	1	Fan Sheave, PTO (2B 5.6" x 1½")
	76007	1	Hub, Fan Sheave
7	D22070	1	Fan Wheel
8	D22080	1	Fan Shaft
10	D32010	1	Idler Support
14	D22142	2	Idler Sheave
16	D22090	4	1½" Pillow Block Bearing
17	D22161	1	Power Shaft
18	D22170	1	Fan Drive Sheave (2B 24" x 1½")
19	D22180	1	Auger Drive Sheave (1C 9" x 1½")
20	D52192	1	Tumbler Shaft (See page 35 for parts)
21	D22780	1	Sheave, 1B 4" x 1½"
22	D22790	1	Pulley, 1B 16" x 1"
23	D22850	1	Agitator Jackshaft
24	D22861	1	Agitator Brg. Housing w/o Bearings
	D22866	1	Agitator Brg. Housing w/ Bearings
25	D22871	1	Agitator Brg. Housing Mount
26	D28250	1	Agitator Drive Tumbler (See page 34 for parts)
27	71106	6	½" x 2" Capscrew
28	71107	2	½" x 2¼" Capscrew
32	72255	2	5/8" Jam Nut
34	73411	3	3/8" x 3/8" x 1½" Key
37	73534	2	Cotter Pin, 1/8" x 1¼"
38	71129	4	5/8" x 1½" Capscrew
39	71102	8	½" x 1" Capscrew
40	71053	12	3/8" x 1¼" Capscrew
41	D22631	1	Idler Support Brace
42	D22240	1	Fan Shaft Support Brace
43	73332	2	Zerk, 1/8" N.P.T. Female Grease
44	D52705	2	Fan Shaft Bearing Grease Line
45	73109	4	3/16" x 1/8" Pipe Compression Fitting
	73048	2	¼ - 28 x 1/8" N.P.T. adapter (NTN Bearing only)
49	71957	3	½" x 5" Full Thread Capscrew
50	D22260	2	Tightener
51	71110	4	½" x 3" Capscrew
52	71825	8	¼ - 20 x 3/4" Slotted HD Machine Screw
53	73415	1	3/8" x 3/8" x 4¼" Key
54	D22099	as req'd	Spacer
56	D22801	1	Fixed Member, Spring Loaded Idler
57	D22812	1	Pivot Member, Spring Loaded Idler
58	73308	1	Spring
59	D22820	1	Washer 1" x 2-1/8" O.D.
60	73231	1	Retaining Ring
61	71028	1	5/16" x 1¼" Capscrew
62	D22840	1	L-Bolt Spring Loaded Idler

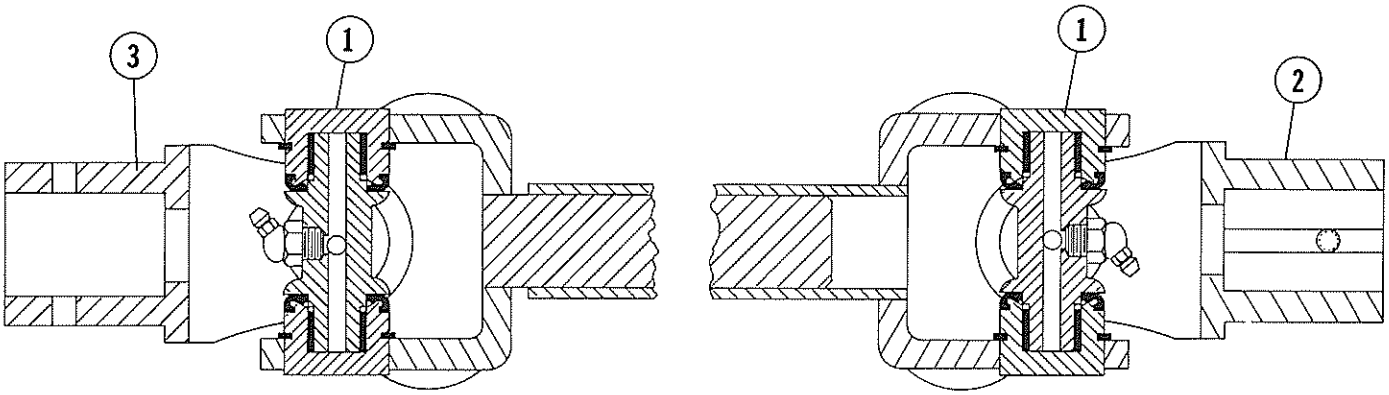
NOTE: For nuts, washers and lockwashers see page 62.

REF. NO.	PART NO.	NO. REQ'D	DESCRIPTION
63	D22830	1	Pivot Stop for Spring Loaded Idler
64	73420	1	Key, 3/8" x 3/8" x 6-3/8"
65	71108	3	Capscrew, ½" x 2½"
66	73400	1	¼" x ¼" x 1¼" Key
67	42-18282	1	No. 808 Woodruff Key
68	42-16334	2	1" Bearing
69	73508	1	3/8" x 2½" Capscrew
71	D32161	1	Arm, Fan Clutch Idler
72	42-16336	1	Pulley, Idler
73	D32220	1	Spacer
74	D22620	1	Auger Drive Belt (C195)
75	D22272	1	Fan Belt, PTO (B131) (Set of 2)
76	K52701	1	B75 Belt, Agitator Drive
77	71941	1	Eyebolt, ½" x 1½"
78	D22652	1	Guard, Power Shaft
79	71051	1	Capscrew, 3/8" x 3/4"
80	D32980	1	Belt Retainer, Lower Fan
93	D32171	1	Pivot, Clutch Idler
94	D32270	1	Pin, Fan Clutch Swivel
96	D32235	1	Arm, Link
98	72553	1	Bushing, 1" Machine
100	D32260	1	Guide, Fan Clutch Belt
110	D32151	1	Handle, Fan Clutch
114	73536	1	Cotter Pin, 1/8" x 1 3/4"
115	D32250	1	Brake, Fan Sheave
116	71061	2	Capscrew, 3/8" x 3½"
118	73048		Adapter, Grease Line, ¼" x 28 Male to 1/8" N.P.T. Female x 90°
119	D22213	1	Panel, Right Fan Guard
120	D22221	1	Panel, Left Fan Guard
121	D22042	1	Panel, Top Fan Guard
122	D32110	1	Panel, Right Belt Guard
123	D32100	1	Panel, Left Belt Guard
124	D22062	1	Guard, Front Belt
125	D32090	1	Wrapper, Right Power Frame (LP Gas)
125	D32095	1	Wrapper, Right (Nat. Gas)
126	D32070	1	Wrapper, Left Power Frame
127	D32080	1	Wrapper, Front Power Frame
128	D22052	1	Grill
129	D32120	2	Grill Hinge Strap
130	73278	1	Grommet
131	73957	1	Decal, Valve
132	73958	1	Decal, Plenum & Grain Temperature
133	73682	1	Decal, Caution Be a Safe Operator
134	73661	1	Decal, Danger LP Gas Supply
135	73668	1	Decal, Caution Fan Clutch
136	73607	1	Decal, Max. PTO Speed 540 RPM
137	73619	1	Decal, Max. Fan Speed 2250 RPM
138	73949	1	Decal, GT Logo
139	73953	1	280, Decal
140	71823	42	¼" x 20 x ½" Slotted HD Machine Screw
141	71825	6	¼" x 20 x 3/4" Slotted HD Machine Screw
142	73606	1	Decal, FEMA Seal of Quality
143	73833	2	Decal, Danger Keep Hands & Feet Away
144	71135	1	Capscrew, 5/8" x 3"
145	73981	1	Decal, Danger—Electrocution

NOTE: For nuts, washers and lockwashers see page 62.

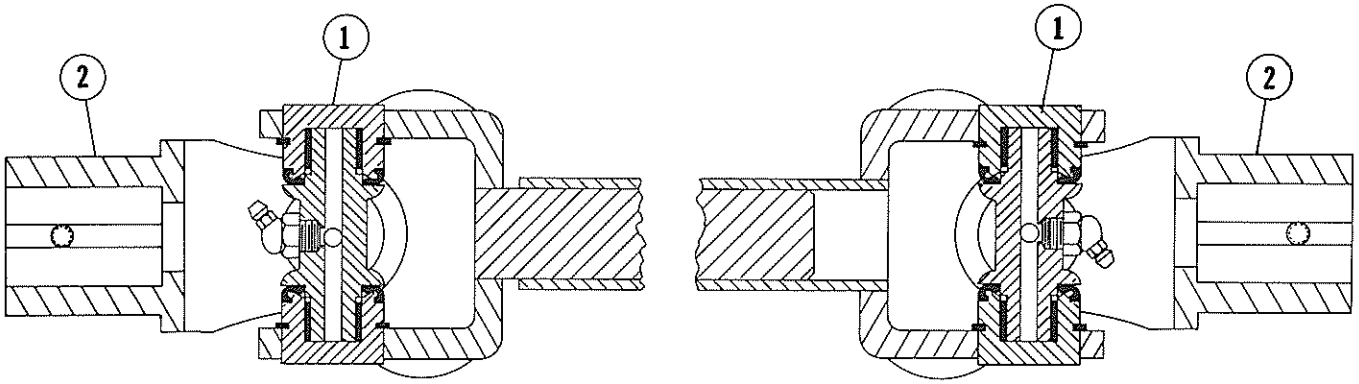
AGITATOR DRIVE TUMBLER
D28250

REF. NO.	PART NO.	NO.REQ'D	DESCRIPTION
1	42-16181	2	U-Joint Kit
2	42-16182	1	Yoke w/Keyway
3	73596	1	Yoke w/Pin Hole



LOADING AUGER TUMBLER
D59342

REF. NO.	PART NO.	NO.REQ'D	DESCRIPTION
1	42-16181	2	U-Joint Kit
2	42-16182	2	Yoke w/Keyway

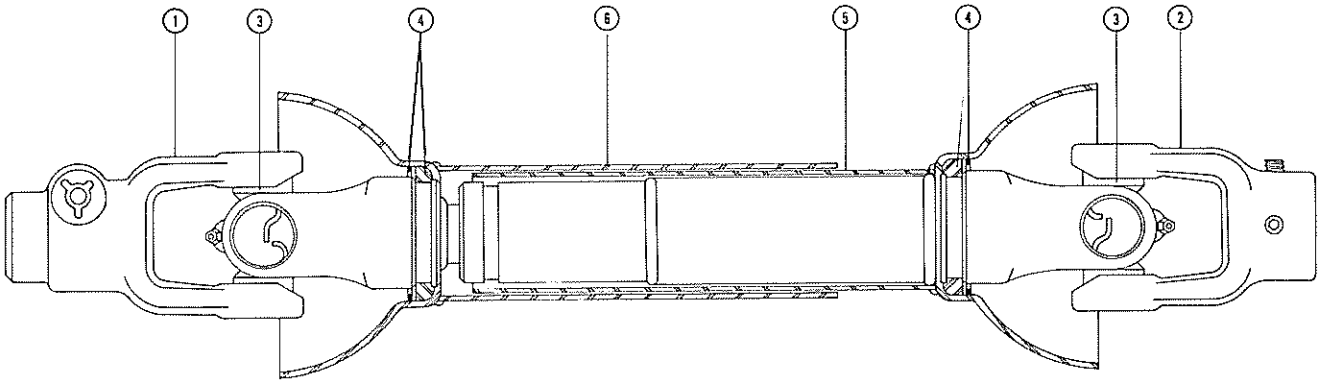


NOTE: For nuts, washers and lockwashers see page 62.

PTO TUMBLER SHAFT

D52190
NEAPCO TUMBLER

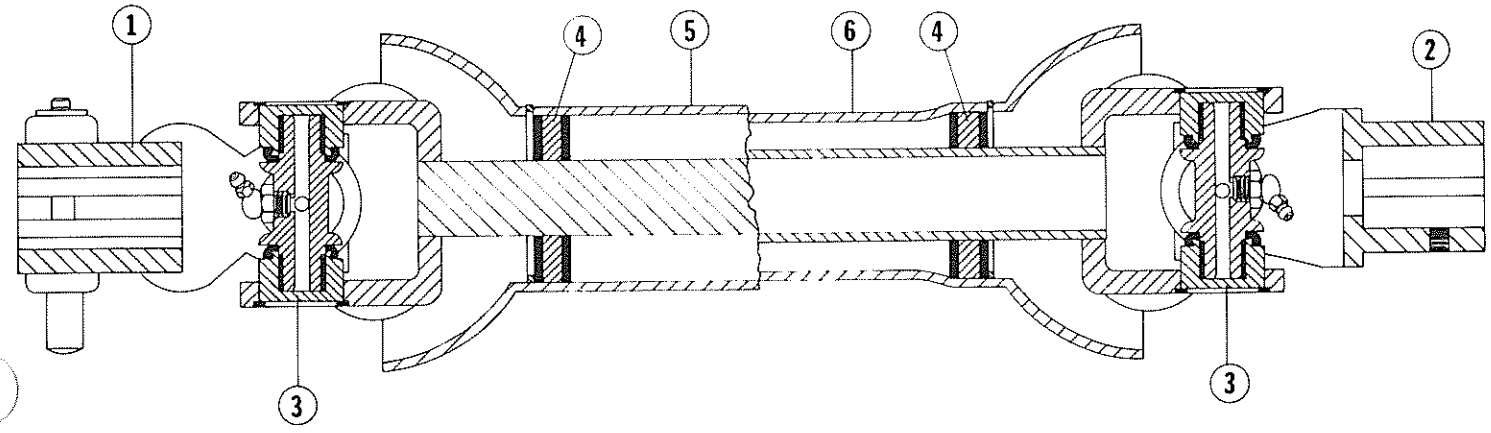
REF. NO.	PART NO.	NO.REQ'D.	DESCRIPTION
1	73191	1	Yoke W/Spline
2	73192	1	Yoke W/Keyway
3	73548	2	U-joint Kit
4	73196	2	Shield Bearing & Retainer
5	75504	1	Safety Shield, Inner
6	75505	1	Safety Shield, Outer



PTO TUMBLER SHAFT

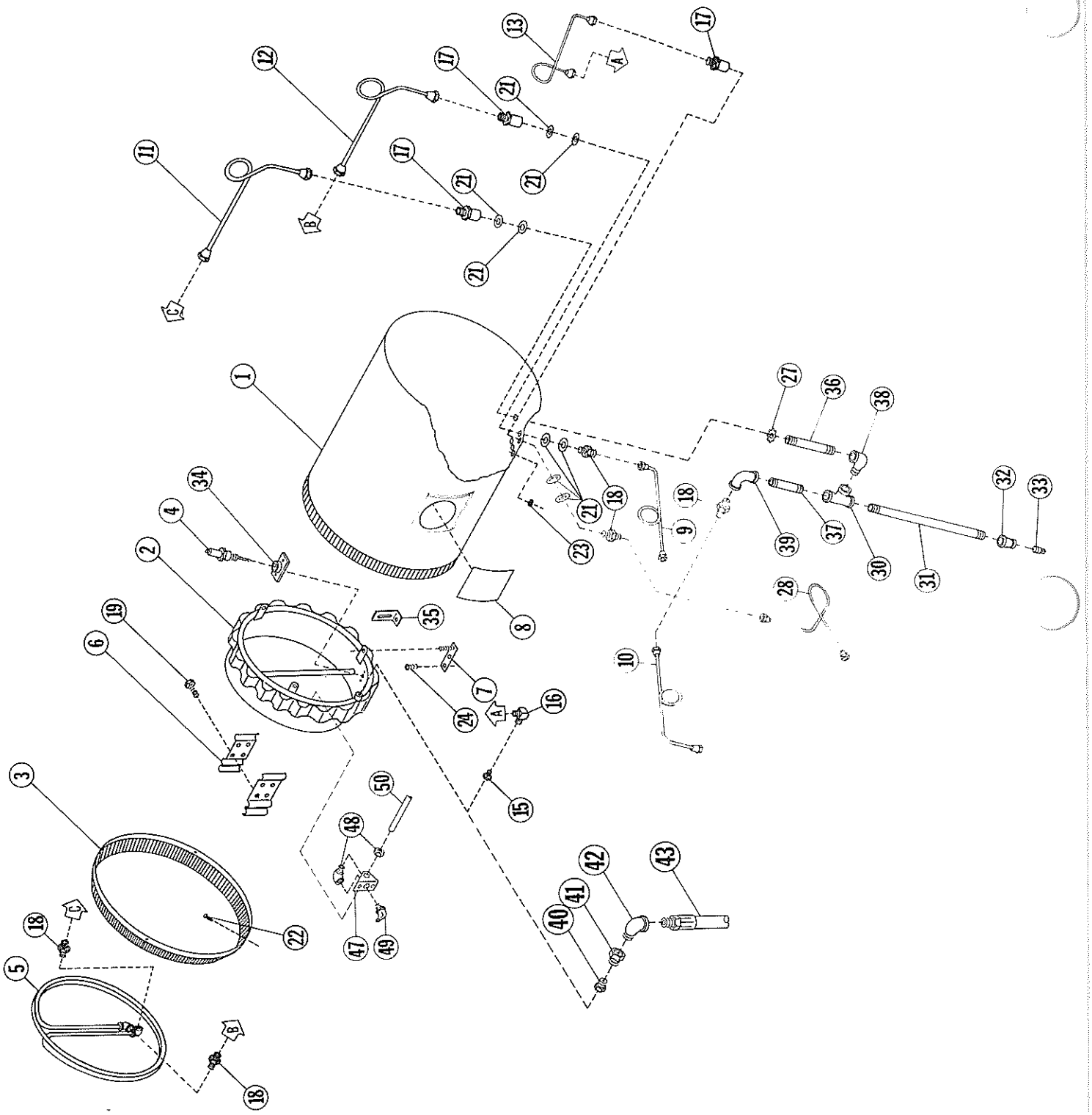
D52192
REX TUMBLER

REF. NO.	PART NO.	NO. REQ'D	DESCRIPTION
1	73549	1	Yoke w/Spline
2	73550	1	Yoke w/Keyway
3	73548	2	U-Joint Kit
4	73573	2	Nylon Bearing Kit
5	75500	1	Safety Shield, Outer
6	75501	1	Safety Shield, Inner



NOTE. For nuts, washers and lockwashers see page 62.

BURNER ASSEMBLY



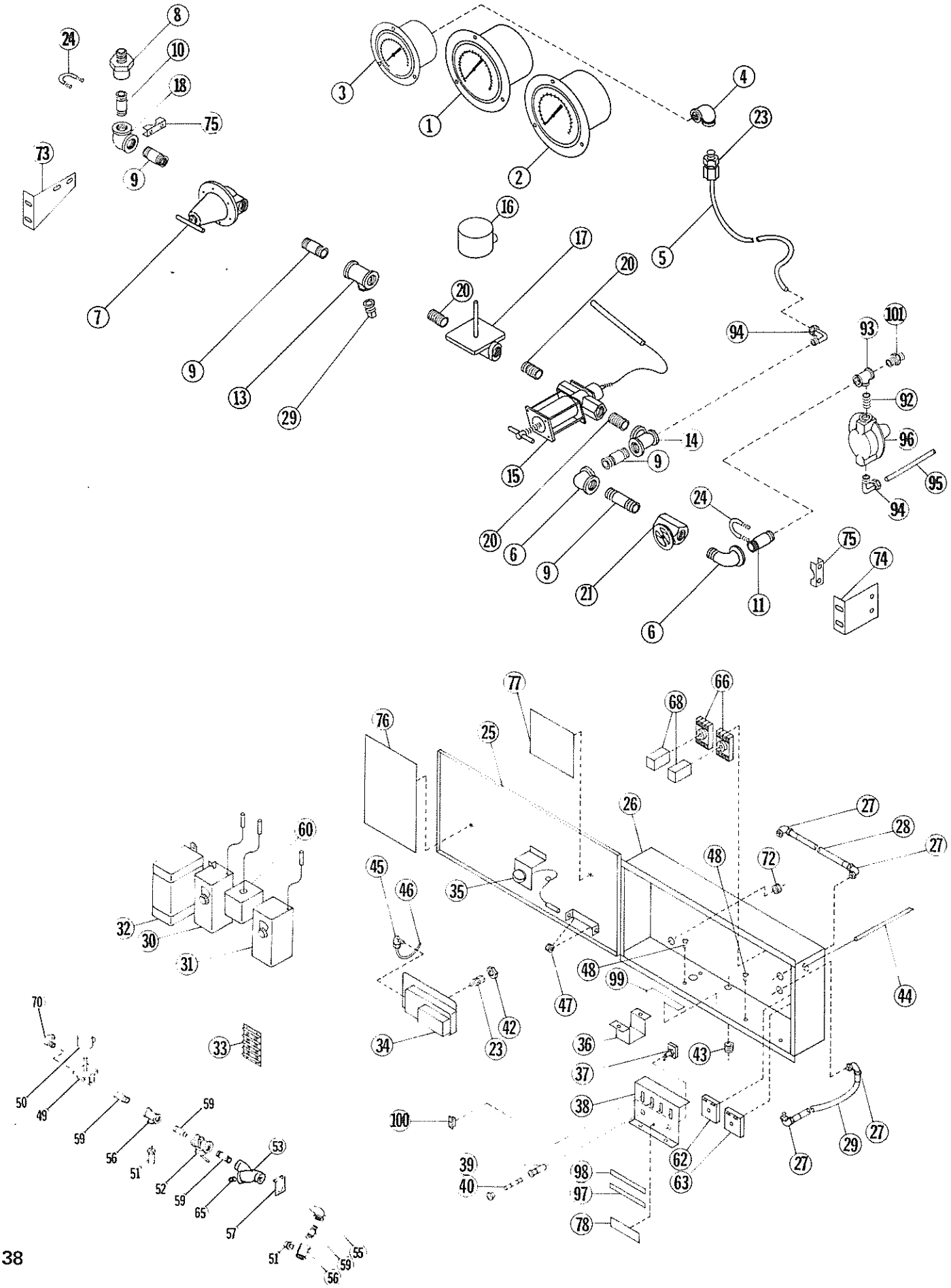
BURNER ASSEMBLY

REF. NO.	PART NO.	NO. REQ'D.	DESCRIPTION
1	D22295	1	Tube, Burner (Propane)
1	D32960	1	Tube, Burner (Natural Gas)
2	D22303*	1	Burner, Ring (Propane)
2	D22305	1	Burner, Ring (Natural Gas)
3	D22690*	1	Ring, Flame Deflector
4	D22320	1	Spark Plug
5	D22341*	1	Vaporizer, Ring
6	57001242*	2	Bracket, Vaporizer
7	57001240	3	Mount, Burner
8	D22462	1	Window, Plexiglass
9	D22333*	1	Tube, Outside Liquid to Vapor
10	D32312*	1	Tube, Outside Vapor to Plumb.
11	D22361*	1	Tube, Inside Vapor
12	D22454*	1	Tube, Inside Liquid
13	D22373	1	Tube, Inside Vapor to Burner
14	D22352	1	Door, Inspection
15	D22400*	1	Orifice - LP
16	D32300*	1	Holder, Orifice
17	73071*	3	Coupling, ½" Female
18	73086*	3	Adapter, ½" P. to ½" T. Union
19	71028*	4	Capscrew, 5/16" x 1¼" Hex
21	72552*	8	Bushing, 7/8" x 14 Ga. Machine
22	71942*	4	Screw, No. 14 x ¾" Metal
23	73270	2	Grommet, 3/8" I.D. Rubber
24	71825	8	Machine Screw, ¼" - 20 x ¾" SL HD
25	72035	2	Screw, No. 8 x ¼" Metal
27	77100*	1	Nut, Conduit
28	D32321*	1	Tube, Outside, Vapor to Burner
29	72790*	1	Nipple, ½" Close
30	72886*	1	Tee, ½" x ½" x ½" N.P.T.
31	72928*	1	Nipple, ½" x 13"
32	72910*	1	Reducer, ½" x¼"
33	72633*	1	Plug, ¼" N.P.T. Pipe
34	57001241	1	Mount, Spark Plug
35	D32130	1	Bracket, Flame Detector Bulb Mount
36	72797*	1	Nipple, ½" x 4½ XH
37	72793*	1	Nipple, ½ x 2½ XH
38	72858*	1	Elbow, ½" x 90° St.
39	72843*	1	Elbow, ½" x 90°
40	D22411	1	Orifice, Natural Gas
41	74021	1	Holder, Orifice
42	72859	1	Elbow, ¾" Street
43	D25291	1	Hose, ¾" x 30" Natural Gas
47	D32180*	1	Bracket, Regulated Orifice
48	73045*	1	Elbow, 90° 1/8 F. NPT to ½ T, Brass
49	73342*	1	Orifice, Regulated
50	D32020	1	Tube, Copper ¼" x 42"

NOTE: *Propane Burners Only

NOTE: For nuts, washers and lockwashers see page 62.

PROPANE CONTROL CABINET ASSEMBLY



PROPANE CONTROL CABINET ASSEMBLY

REF. NO.	PART NO.	NO. REQ'D.	DESCRIPTION
1	D24033	1	Thermometer, Plenum Temperature
2	D24123	1	Thermometer, Grain Temperature
3	D25102	1	Gauge, Pressure
4	72841	1	Elbow, ¼" N.P.T. x 90°
5	D55310	1	Line, Pressure Gauge
6	72858	2	Elbow, ½" N.P.T. Street
7	D25191	1	Regulator, ½" N.P.T. Pressure
8	73071	1	Connector, ½" T. to ½" N.P.T. Female
9	72791	2	Nipple, ½" N.P.T. x 1½" X.H.
10	72792	2	Nipple, ½" N.P.T. x 2¼" X.H.
11	72793	1	Nipple, ½" N.P.T. x 2½" X.H.
12	72796	1	Nipple, ½" N.P.T. x 4" X.H.
13	72886	1	Tee, ½" N.P.T. x ½" N.P.T. x ½" N.P.T.
14	72909	1	Tee, ½" N.P.T. x ¼" N.P.T. x ½" N.P.T.
15	D25222	1	Valve, ½" N.P.T. Modulating
16	D25542	1	Coil, Solenoid Valve 12 Volt
17	77193	1	Body, ½" N.P.T. Solenoid Valve
18	72843	1	Elbow, ½" N.P.T. x 90°
20	72790	3	Nipple, ½" N.P.T. x Close X.H.
21	D25640	1	Valve, ½" N.P.T. Ball
22	73086	1	Connector, ½" Tube to ½" N.P.T. Male (48-F)
23	73110	3	Connector, ¼" Tube to ¼" N.P.T. Male (68-F)
24	71987	2	U-Bolt
25	D25511	1	Door, Cabinet
26	D25503	1	Cabinet
27	73159	2	Connector, 3/8 Conduit x 90° Liquid Tight
28	D25261	1	Conduit
30	K25021	1	Switch, Plenum High Limit
31	K25231	1	Thermostat, Grain Temperature
32	K55055	1	Coil, Ignition, 12V
32	74027	1	Coil Parts, Set of Points
33	K25180	1	Block, Terminal
34	K25030	1	Switch, Air
35	73223	1	Light, Utility 12 Volt Only
36	D25251	1	Bracket, Solenoid
37	D25130	1	Switch, On-Off
38	D25212	1	Bracket, Switch
39	D25170	1	Holder, Fuse
40	77143	1	Fuse, 10 Amp
41	72093	2	Screw, No. 8 x 1" Metal
42	72279	1	Nut, 1" N.F. Hex Jam
43	73278	1	Grommet, 5/8 I.D. Rubber
44	D52321	1	Tube, Air Switch
	D22200	1	Wire, Tractor Lead-In

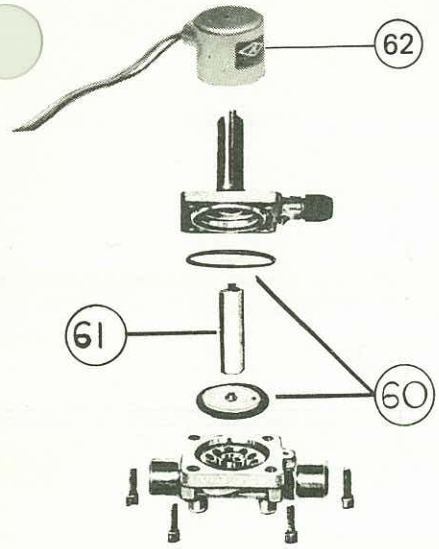
NOTE. For nuts, washers and lockwashers see page 62.

PROPANE CONTROL CABINET ASSEMBLY

REF. NO.	PART NO.	NO. REQ'D.	DESCRIPTION
45	73125	1	Elbow, 3/16" Tube to 1/8" N.P.T. x 90° Male (69-F)
47	73271	2	Grommet, ¼" I.D. Rubber
48	71683	5	Screw, 10-24 x ½" Slotted Head Machine
49	77192	1	Body, 3/8" N.P.T. Solenoid Valve
50	D25522	1	Coil, Solenoid Valve 12 Volt
51	D25240	2	Valve, ¼" N.P.T. Relief
52	D25120	1	Valve, 3/8" N.P.T. Quick Acting
53	D25280	1	Strainer, 3/8" N.P.T.
55	72857	1	Elbow, 3/8" N.P.T. Street
56	72884	2	Tee, 3/8" N.P.T. x 3/8" N.P.T. x ¼" N.P.T.
57	D25271	1	Bracket, Plumbing
59	72781	4	Nipple, 3/8" N.P.T. x 1½" X.H.
60	D25161	1	Flame Detector
61	72633	1	Plug, ¼" N.P.T. Pipe
62	77138	1	Timer, 10 Sec. Purge 12 Volt
63	77139	1	Timer, 90 Sec. Ignition 12 Volt
64	72910	1	Reducer, ½" N.P.T. to ¼" N.P.T. Ball
65	72653	1	Plug, 3/8" N.P.T. Pipe
66	77141	2	Base, Relay
68	77140	2	Relay, Control 12 Volt
69	72035	3	Screw, No. 8 x ¼" Metal
70	73100	1	Elbow, ½" Tube to 3/8" N.P.T. x 90° Male (49-F)
72	73270	2	Grommet, 3/8" I.D. Rubber
73	D25631	1	Bracket, Rear Plumbing
74	D25620	1	Bracket, Front Plumbing
75	D25610	2	Clamp, ½" Pipe Saddle
76	74532	1	Decal, Operating Instruction - Propane
77	74533	1	Decal, Wiring Diagram
78	74528	1	Decal, Switch Panel
79	72673	1	Plug, ½" N.P.T. Pipe
92	72620	2	Nipple, ¼" Close
93	72885	1	Tee, ½" x ½" x ¼"
94	73047	2	Elbow, 90° Brass, ¼ T. to ¼ M. NPT
95	D32020	1	Tube, ¼" x 42" Copper
96	D25700	1	Regulator, Pressure
97	74531	1	Decal, Red Indicator
98	74530	1	Decal, Green Indicator
99	74529	1	Decal, Polarity
100	77162	4	Light, Indicator
101	73086	1	Adapter, ½" Pipe to ½" Tube

NOTE: For nuts, washers and lockwashers see page 62.

SOLENOID VALVE ASSEMBLY

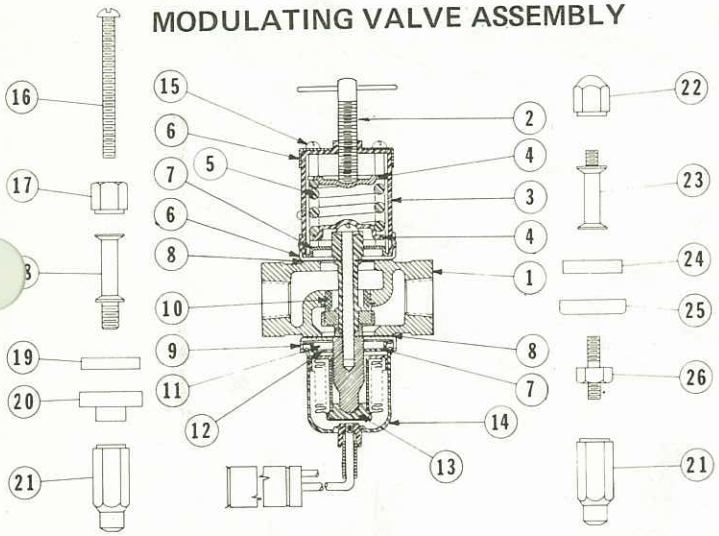


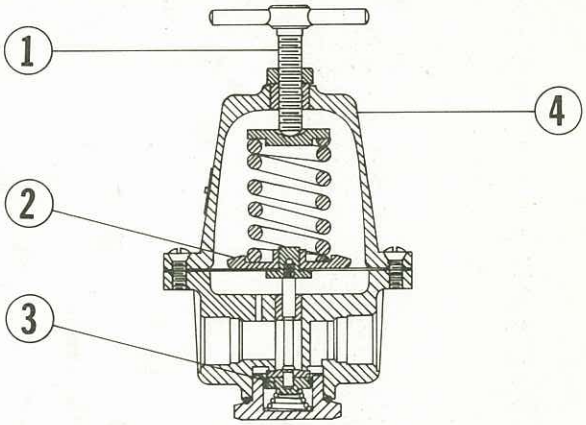
REF. NO.	PART NO.	DESCRIPTION
60	73201	Kit, 3/8" Solenoid Valve Diaphram Repair
60	73202	Kit, ½" Solenoid Valve Diaphram Repair
60	73203	Kit, ¾" Solenoid Valve Diaphram Repair (Natural Gas)
61	77194	Plunger, Solenoid Valve
62	D25542	Coil, 12 Volt Solenoid Valve, 27" Leads W/Forks

½" PRESSURE REGULATOR ASSEMBLY

REF. NO.	PART NO.	DESCRIPTION
1	74070	Adjusting Screw
2	74071	Diaphram Yoke Assembly
3	74072	Steam Seat Disc. & Seat Disc. Retainer Assembly
4	74073	Bonnet Assembly

MODULATING VALVE ASSEMBLY



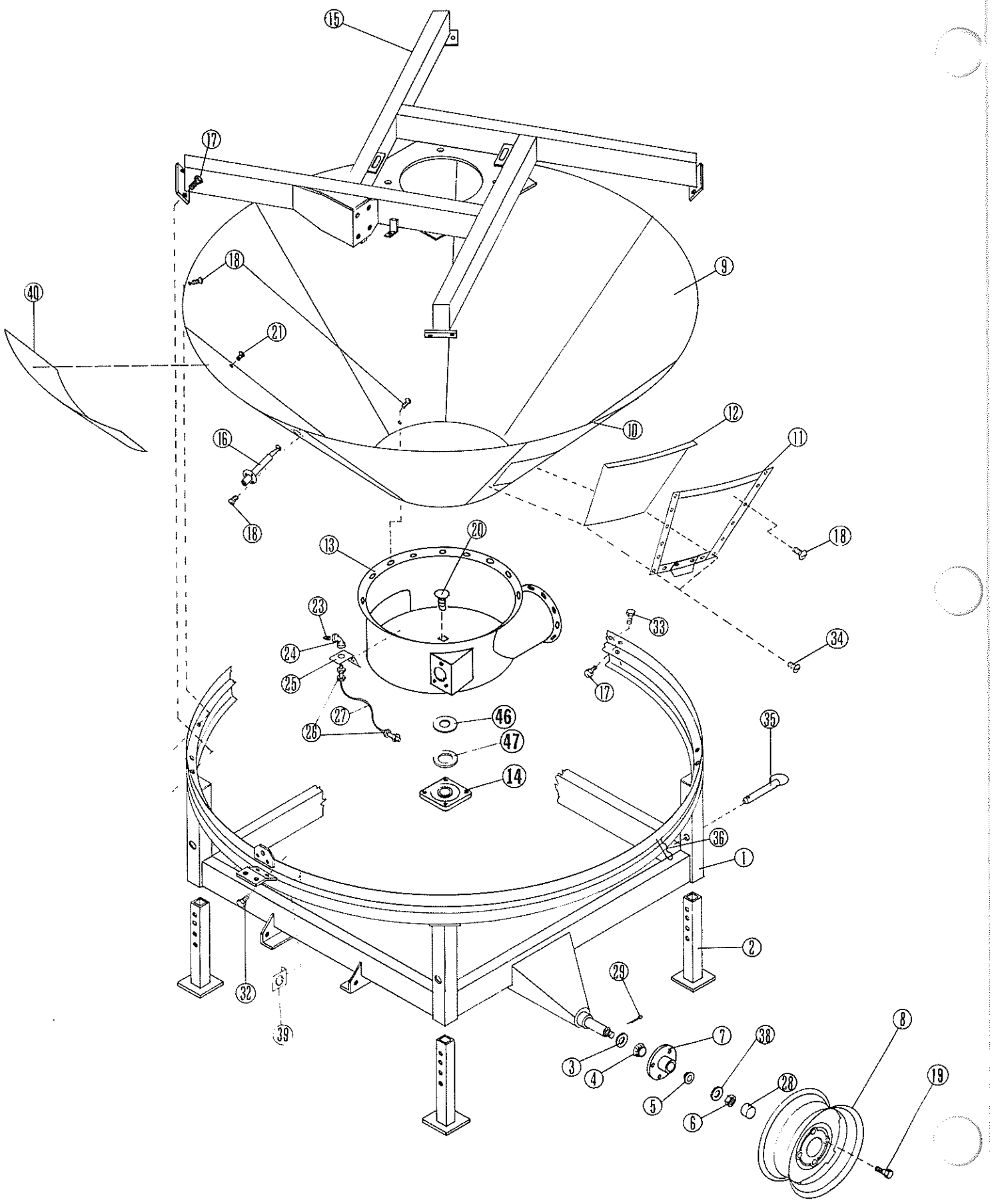


REF. NO.	PART NO.	NO.REQ'D	DESCRIPTION
1		1	Valve Body
2		1	Adjusting Screw
3		1	Spring Housing
4		2	Spring Guide
5		1	Range Spring
6		2	Upper Diaphram Press Plate
7		2	Diaphram Guide Plate
8		4	Diaphram, Rubber
9		1	Lower Diaphram Press Plate
10		1	Valve Seat
13		1	Bellows Reinforcing Plate
14	74066	1	Temperature Element
14	74067	1	Temperature Element (¾") Nat. Gas
15		4	Spring Housing Screw
21		1	Bellows Push Rod
27	74036	1	Diaphram & Stem Repair Kit (Kit includes ref. no's. 8, 10, 11, 12, 22,23,24,25 & 26)
27	74050	1	Renewal Diaphram Kit. (¾" Nat. Gas)

NOTE: Individual Parts without Part No.'s are NO LONGER AVAILABLE.

NOTE: For nuts, washers and lockwashers see page 62.

FRAME ASSEMBLY



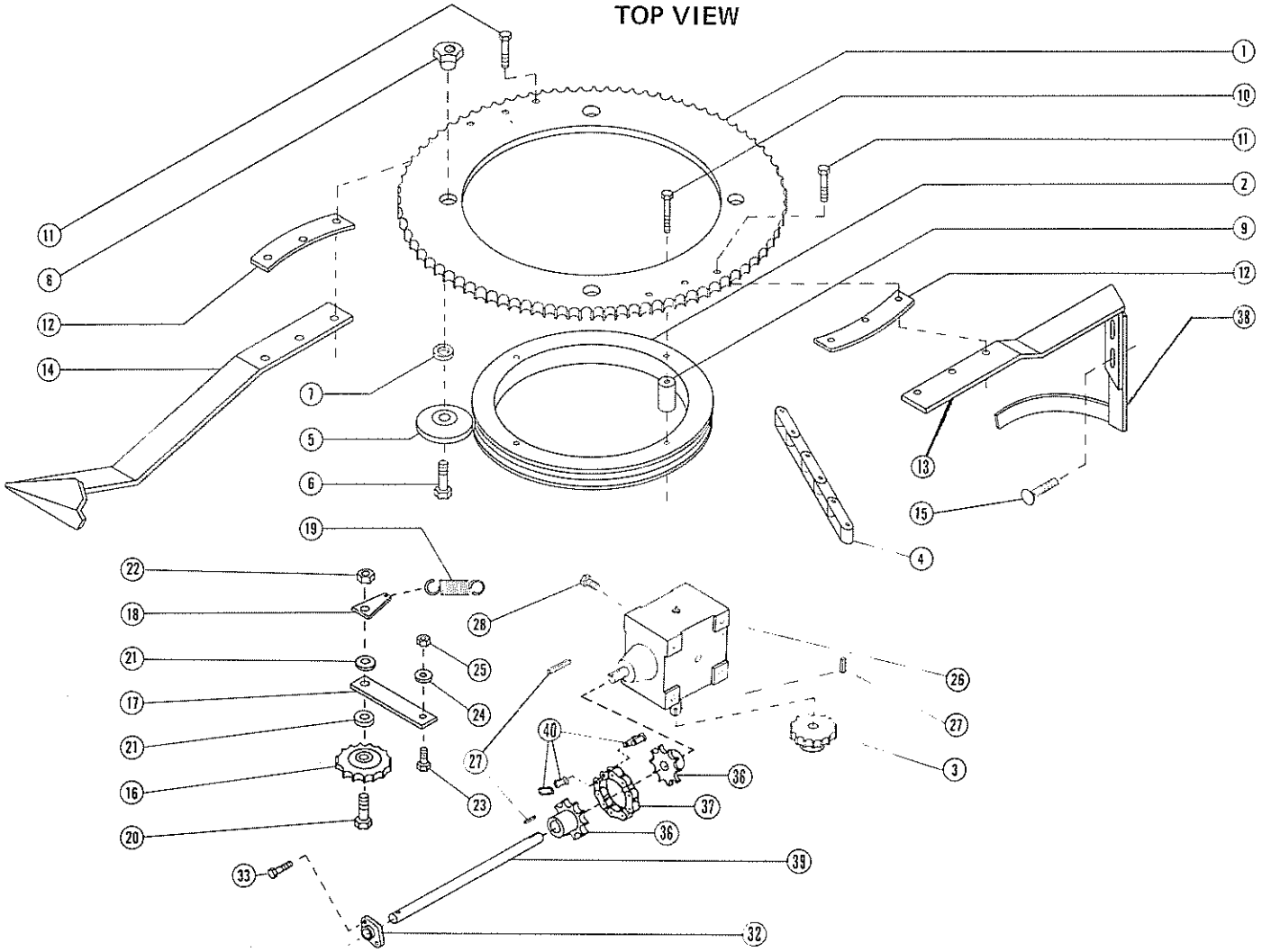
FRAME ASSEMBLY

REF. NO.	PART NO.	NO.REQ'D	DESCRIPTION
1	D21013	1	Main Welded Frame
2	D21021	4	Jack
3	D21190	2	Seal
4	42-110149	2	Inner Bearing
5	D21050	2	Outer Bearing
6	D21060	2	Nut
7	D21075	2	Hub with Bearing Cups
8	D21080	2	Wheel Rim 15"
	D21085	2	Wheel, Tire & Tube Mounted
9	D23311	6	Bin Bottom Sheets Fine Perforated
10	D23322	1	Bin Bottom Sheets w/Access Hole Fine Perf.
11	D21123	1	Access Door Frame
12	D21133	1	Access Door
13	D21142	1	Bin Bottom Well w/Boot
14	D21161	1	Bottom Auger Bearing
15	D21172	1	Spider
16	D21182	1	Grain Sampler
17	71053	16	3/8" x 1¼" Capscrew
18	71823	114	¼" - 20 x ½" Slotted HD Machine Screw
19	42-16053	8	Stud
20	71329	4	½" x 1½" Carriage Bolt
21	71822	75	¼" - 20 x 3/8" Slotted HD Machine Screw
23	42-16127	1	1/8" Zerk
24	72840	1	1/8" x 90° Elbow
25	D21220	1	Grease Line Bracket
26	73109	2	3/16" Compression Fittings w/1/8" Pipe Thread
27	D51190	1	Lower Bearing Grease Line
28	D21200	2	Cap
29	73527	2	5/32" x 1¼" Cotter Pin
33	71054	2	3/8" x 1½" Capscrew
34	71825	2	¼" - 20 x 3/4" Slotted HD Machine Screw
35	73586	4	Pin
36	73587	4	Clip
38	72474	2	3/4" Washer
39	D22491	1	Conduit Bracket
40	D21370	1	Baffle, Bin Bottom Air
46	73289	1	Seal, 2" I.D. Neoprene Shaft
47	73290	1	Seal, 2.72" I.D. Neoprene Bearing

NOTE: For nuts, washers and lockwashers see page 62.

AGITATOR ASSEMBLY

TOP VIEW

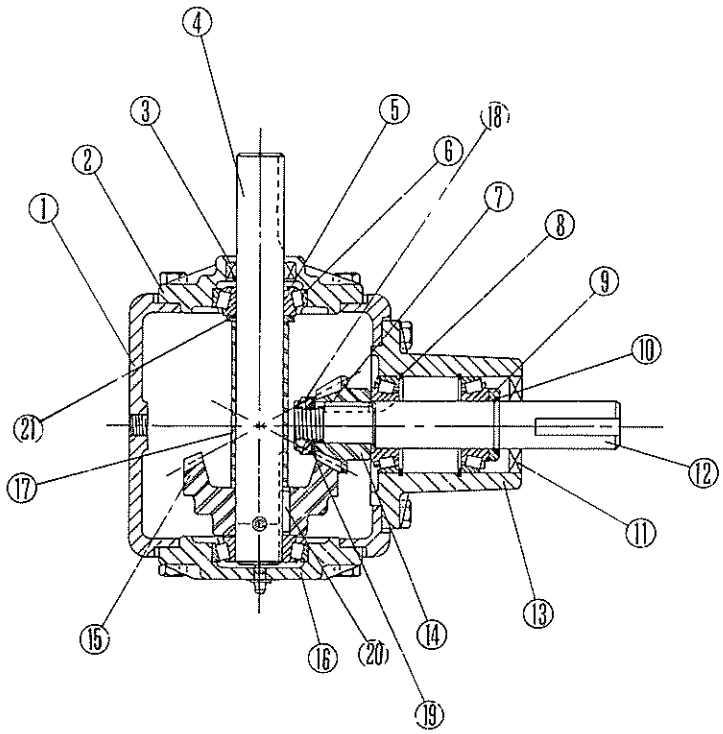


AGITATOR ASSEMBLY

REF. NO.	PART NO.	NO.REQ'D	DESCRIPTION
1	D28032	1	Sprocket, No. 60, 112 Tooth
2	D28260	1	Race, Agitator
3	D28090	1	Sprocket, No. 60, 13 Tooth
4	D28141	1	Chain, Roller No. 60, 128 Pitches
5	D28161	4	Roller, Agitator w/Bearing
	D28300	8	Bearing (only), Agitator Roller
6	73521	4	Capscrew, ¾" x 2¾" HT
7	72522	4	Washer
8	D28204	4	Nut, Cam
9	D28270	4	Spacer
10	73519	4	Capscrew, 7/16" x 5" HT
11	71081	6	Capscrew, 7/16" x 2"
12	D28082	4	Spacer
13	D28211	1	Arm, Horiz. Sect. Vertical Agitator
14	D28062	1	Arm, Horizontal Agitator
15	71331	2	Bolt, ½" x 2" Carriage
16	D28172	1	Sprocket, Idler No. 60, 15 Tooth
17	D28181	1	Arm, Idler
18	D28280	1	Tab, Spring
19	D28190	1	Spring
20	71132	1	Capscrew, 5/8" x 2¼"
21	72413	2	Washer
22	72376	1	Nut, 5/8" Lock
23	71103	1	Capscrew, ½" x 1¼"
24	72412	1	Washer, ½"
25	72379	1	Nut, ½" Lock
26	D28241	1	Gearbox
27	73400	3	Key, ¼" Square x 1¼" Lg.
28	71052	4	Capscrew, 3/8" x 1"
32	D28290	1	Bearing
33	71029	2	Capscrew, 5/16" x 1½"
36	D28335	2	Coupler Half, 60B 10 x 1
37	D28331	1	Chain, No. 60 Roller 9 Pitch
38	D28221	1	Paddle, Vertical Agitator Arm
39	D28123	1	Shaft, Agitator
40	73368	1	Link, No. 60 Roller Chain Connecting

NOTE: For nuts, washers and lockwashers see page 62.

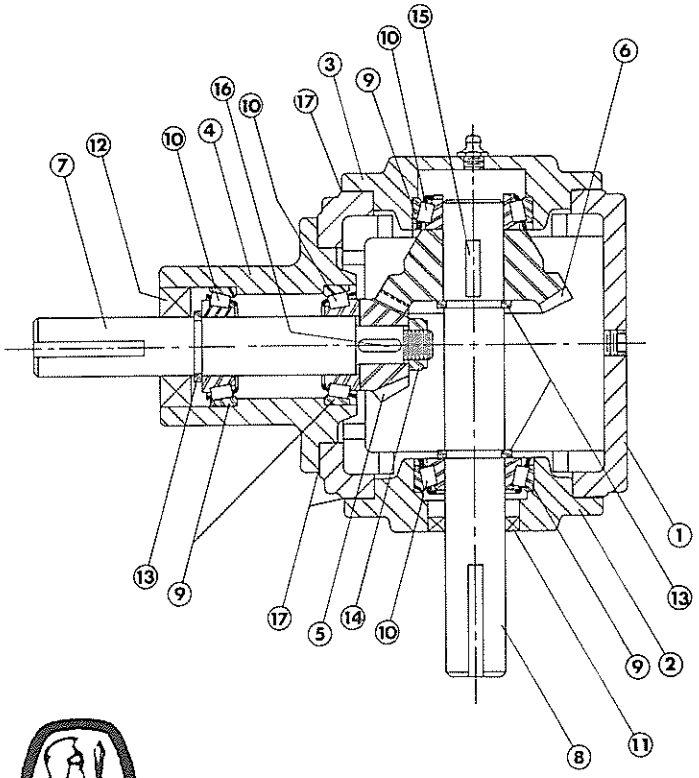
GEARBOX ASSEMBLY
GT D28241



Identification No. D28241 is located on a metal tag under cap bolt.

REF. NO.	PART NO.	NO.REQ'D	DESCRIPTION
1	77400		Housing
2	42-16144		Cap
	42-16152		Sems Cap Screws
3	42-16146		Seal
4	77401		Shaft
5	42-16147		Bearing Cone
6	42-16148		Bearing Cup
	42-16155		Gasket (.015)
	42-16156		Gasket (.005)
7	77402		Key
8	77403		Retaining Ring
9	77404		Collar
10	77405		Retaining Ring
11	77406		Seal
12	77414		Shaft
13	77408		Cap
14	77079		Gear
15	77080		Gear
16	77412		Cap
17	42-90058		Spacer
18	77410		Locknut
19	77409		Washer
20	77411		Key
21	42-90057		Washer
	42-16151		Roll Pin
	77413		Pipe Plug (Solid)
	72924		Relief Valve
	72921		Reducer

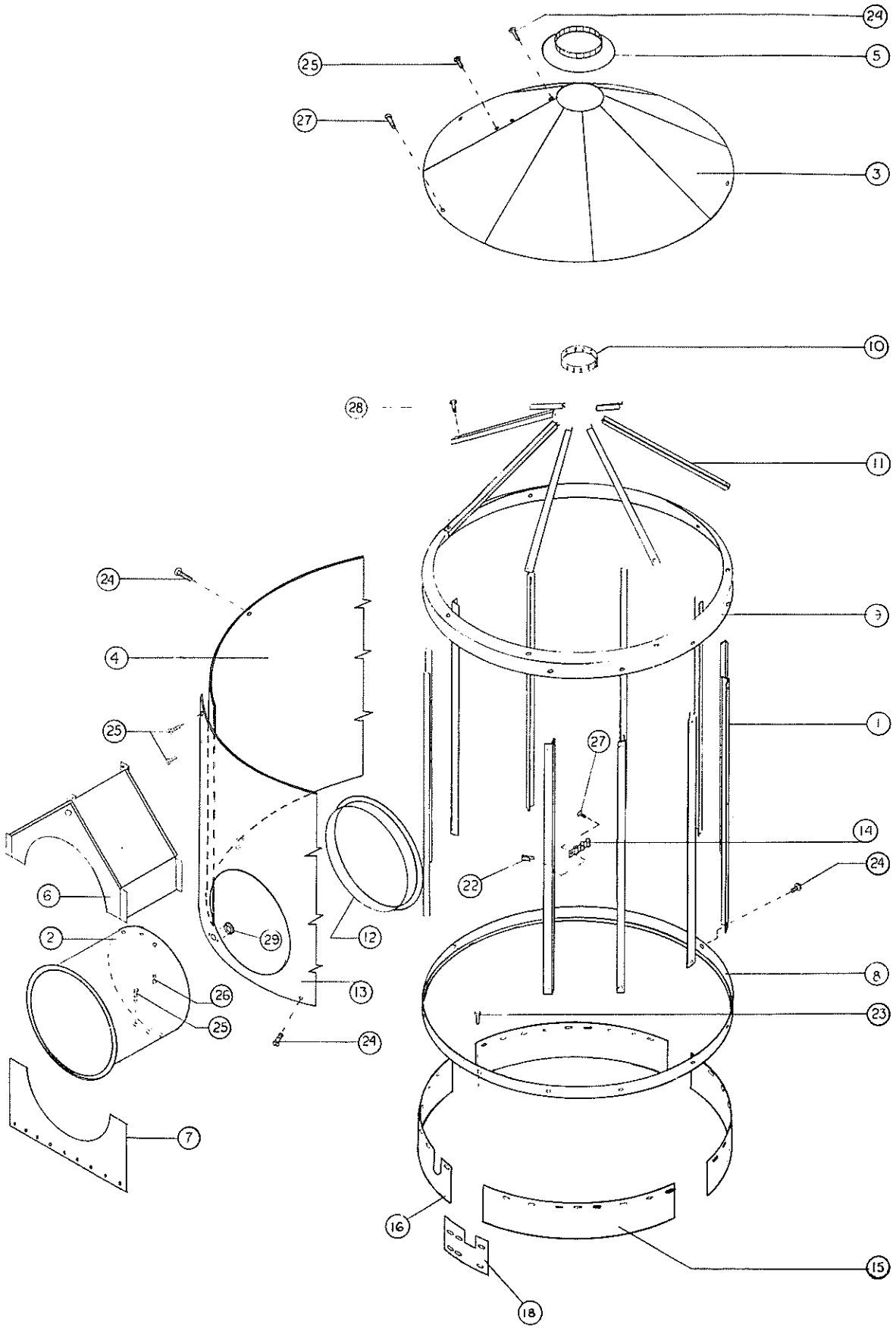
GEARBOX ASSEMBLY
GT D28241



This emblem is identification mark for Hub City Gearbox.

REF. NO.	PART NO.	NO.REQ'D	DESCRIPTION
1	77430	1	Case
2	77431	1	Open End Cap
3	77432	1	Closed End Cap
4	77433	1	Pinion Housing
5	77434	1	Pinion Gear
6	77435	1	Gear
7	77456	1	Pinion Shaft
8	77437	1	Output Shaft
9	42-16148	4	Bearing Cup
10	42-16147	4	Bearing Cone
11	42-16146	1	Seal
12	77438	1	Seal
13	42-16477	3	Snap-Ring
14	77439	1	Pinion Nut (½")
15	42-18282	1	Woodruff Key No. 808
16	42-94057	1	Key, 3/16" x ¾"
17	42-16481	As Needed	Gasket (.011")

PLENUM ASSEMBLY

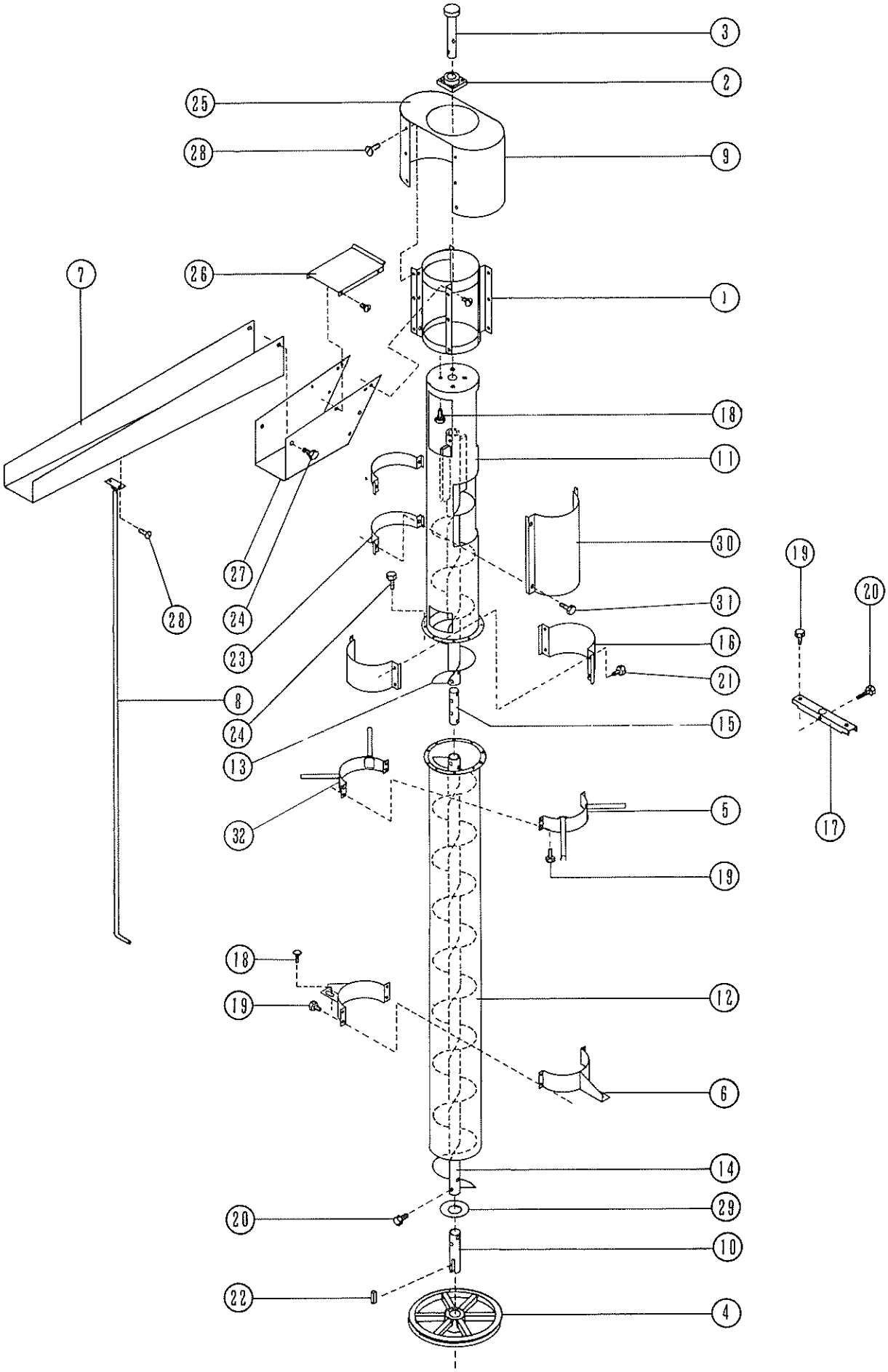


PLENUM ASSEMBLY

REF. NO.	PART NO.	NO. REQ'D	DESCRIPTION
1	D23010	21	Plenum Frame Angle
2	D23020	1	Tube, Connecting
3	D23030	7	Sheet, Lid
4	D23040	1	Sheet, w/o connecting tube hole
5	D23051	1	Cap, Cone
6	D23060	1	Saddle
7	D23070	1	Enclosure, Front
8	D23080	1	Band, Lower
9	D23100	1	Band, Transition
10	D23110	1	Ring, Top
11	D23120	14	Angle, Lid Frame
12	D23130	1	Ring, Connecting Tube Trim
13	D23140	1	Sheet, w/connecting Tube Hole
14	D23161	2	Bracket, Thermometer Support
15	D23172	3	Skirt
16	D23182	1	Skirt, w/Slot
18	D23192	4	Splices, Plenum Skirt
22	D23210	2	Clip, Push On
23	71052	4	3/8" x 1" Capscrew
24	71825	44	Machine Screw, ¼ - 20 x ¾" Slotted Truss Head
25	71822	132	Machine Screw, ¼ - 20 x 3/8" Slotted Truss Head
26	71942	7	No. 14 x ¾" Metal Screw (Self-Tapping)
27	71823	92	Machine Screw, ¼ - 20 x ½" Slotted Truss Head
28	71001	14	Capscrew, ¼" x ¾"

NOTE: For nuts, washers and lockwashers see page 62.

AUGER ASSEMBLY

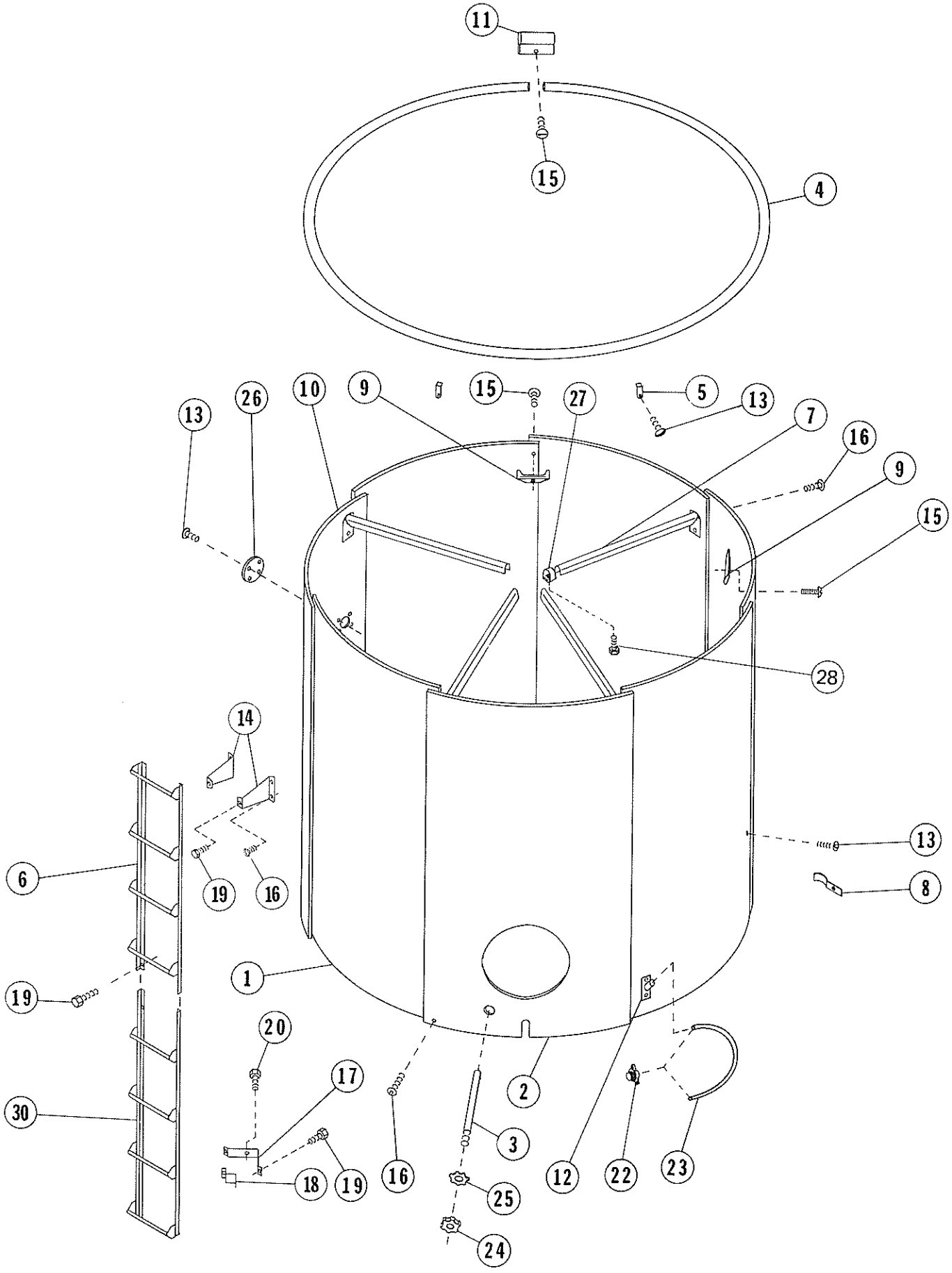


AUGER ASSEMBLY

REF. NO.	PARTS NO.	NO.REQ'D	DESCRIPTION
1	D26013	1	Swivel Head
2	D21161	1	2" Flange Bearing
3	D26020	1	Upper Stub Shaft
4	D26030	1	Sheave 1C 18 x 2"
5	D26056	1	Clamp, Brace (Right)
6	D26065	2	Clamp, Support (at Spider)
7	D26071	1	Spout
8	D26081	1	Spout Control Handle
9	D26091	1	Head Baffle, Side
10	D26101	1	Lower Stub Shaft
11	D41140	1	Auger Tube (Top Section)
12	D26120	1	Auger Tube (Bottom Section)
13	D26131	1	Flighting (Top Section)
14	D26141	1	Flighting (Bottom Section)
15	D26150	1	Stub Connecting Shaft
16	D26162	2	Inspection Hole Cover
17	D26170	1	Split Auger Support
18	71329	6	½" x 1½" Carriage Bolt
19	71056	10	3/8" x 2" Capscrew
20	73520	8	5/8" x 3½" HT Capscrew
21	71001	4	¼" x ¾" Capscrew
22	73417	1	½" x ½" x 1½" Key
23	D41030	2	Cleaning Attachment Band
24	71052	10	3/8" x 1" Capscrew
	73180	1	Flighting Repair Section
25	D26180	1	Head Baffle Top
26	D26190	1	Head Baffle Spout Cover
27	D26200	1	Head Baffle Spout
28	71825	24	¼" - 20 x ¾" Slotted HD Machine Screws
29	72424	1	2" Washer
30	D26220	1	Grain Cleaner Hole Cover
31	71054	4	3/8" x 1½" Capscrew
	DA26000		Head Baffle Assy. (Includes Items 1, 9, 25, 26 & 27)
32	D26076	1	Clamp Brace (Left)

NOTE: For nuts, washers and lockwashers see page 62.

OUTSIDE SKIN ASSEMBLY

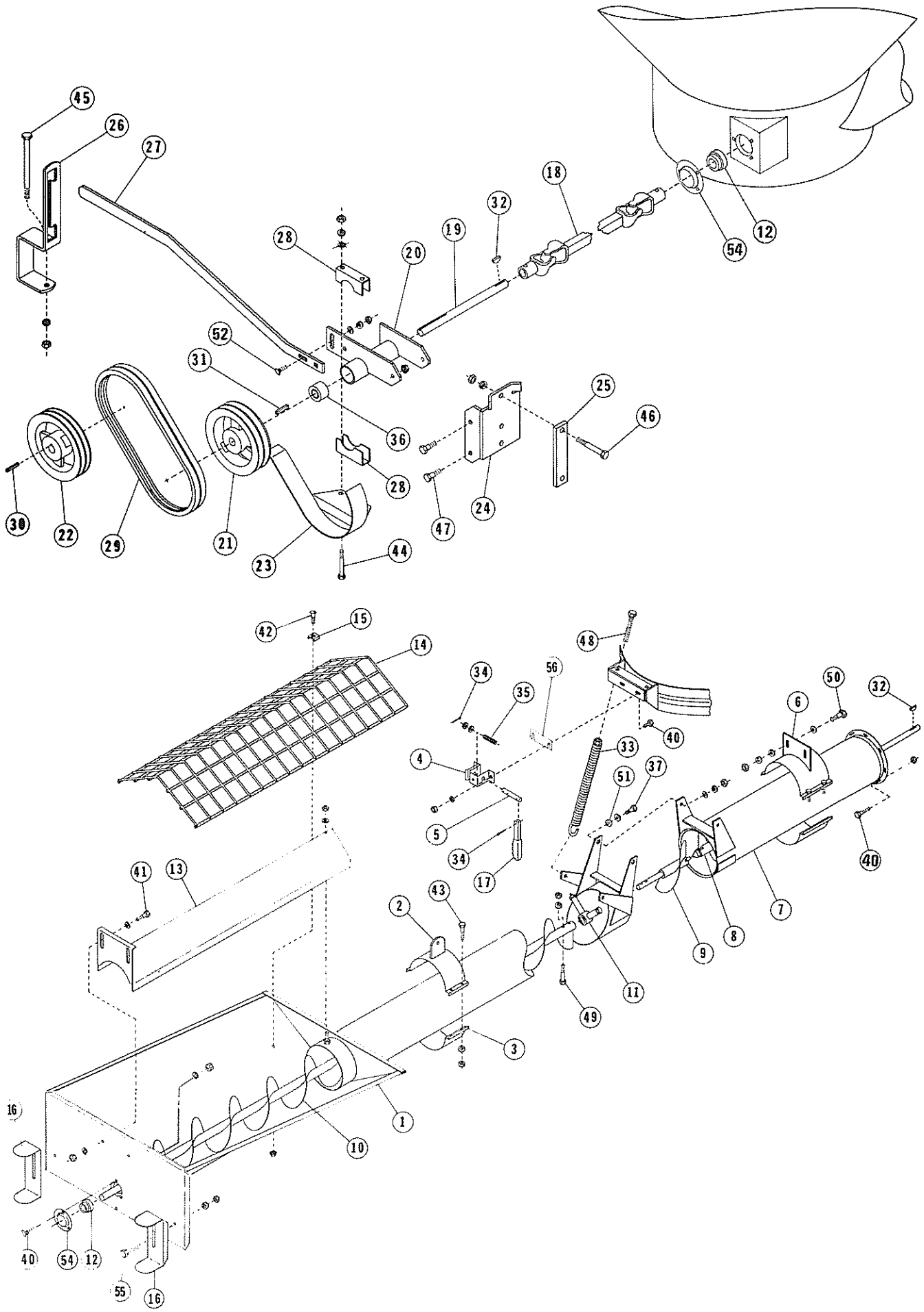


OUTSIDE SKIN ASSEMBLY

REF. NO.	PART NO.	NO.REQ'D	DESCRIPTION
1	D23380	5	Outside Sheet 46" x 113½" Fine Perforated
2	D23391	1	Outside Sheet with Hole Fine Perforated
3	D24140	1	Pipe Support for Capillary Tube
4	D24040	1	Cap Ring
5	D24050	6	Ring Holder
6	D34080	1	Ladder, Upper Section
7	D24071	4	Auger Brace
8	D24080	1	Spout Control Catch
9	D24091	2	Spout Support
10	D24220	1	Outside Sheet w/Hole for Grain Cleaner - Fine Perf.
11	D24110	1	Rim Connector
12	D24131	1	Grain Temperature Capillary Support Bracket
13	71822	196	¼" - 20 x 3/8" Slotted HD Machine Screw
14	D24152	8	Ladder Bracket, Upper
15	71825	16	¼" - 20 x ¾" Slotted HD Machine Screw
16	71823	101	¼" - 20 x ½" Slotted HD Machine Screw
17	D24161	1	Ladder Bracket, Lower
18	D24170	1	Ladder Bracket, Clamp
19	71025	12	5/16" x ½" Capscrew
20	71027	2	5/16" x 1" Capscrew
22	73263	2	¾" Two Screw Connector
23	D54191	1	Liquitite Conduit
24	72839	1	1" Pipe Nut
25	73167	1	Conduit Drive Nut
26	D24210	1	Cover Plate
27	D24230	4	Connector, Auger Brace
28	71053	4	Capscrew, 3/8" x 1¼"
	72364	4	Nut, 3/8" Offset
	73966	2	Logo, GT
30	58001326	1	Ladder, Lower Section

NOTE: For nuts, washers and lockwashers see page 62.

LOADING HOPPER & DRIVE ASSEMBLY

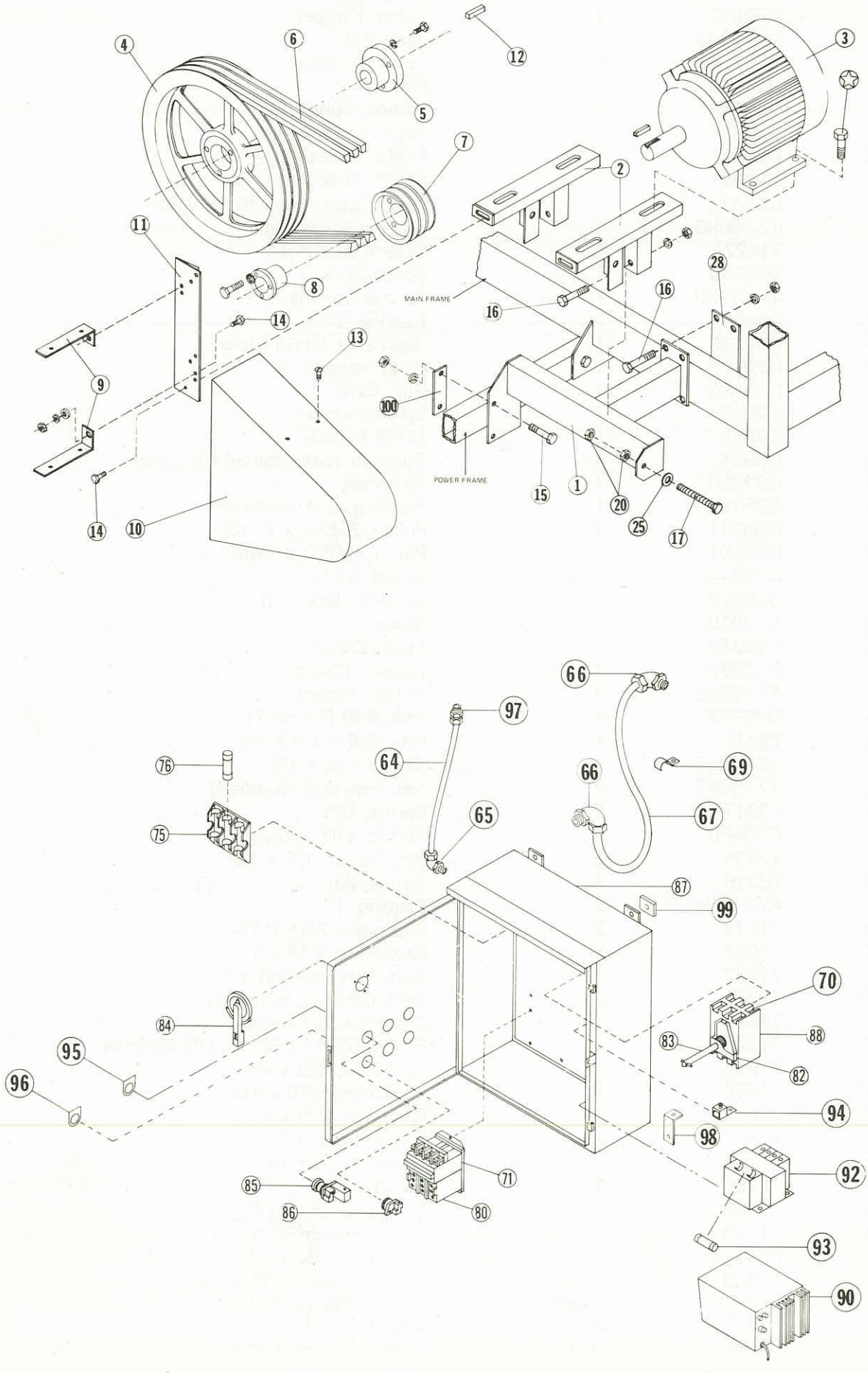


LOADING HOPPER & DRIVE ASSEMBLY

REF. NO.	PART NO.	NO.REQ'D	DESCRIPTION
1	D29014	1	Hopper, Extended
2	D29500	1	Catch, Hopper
3	41-10143	1	Band, Half
4	D29521	1	Latch, Hopper
5	D29540	1	Pin, Latch
6	D59141	1	Mount, Tube
7	D29031	1	Tube, Front Auger
8	D29052	1	Flight, Front Auger
9	D59391	1	Flight, Short Sect. Rear Auger
10	D29042	1	Flight, Long Sect. Rear Auger
11	42-98080	1	Bearing & Casting
	71127	1	Capscrew, 5/8 x 1
	D29510	1	Bolt w/zerk
	42-18183	1	Bronze Bearing
12	85000	2	Bearing, 1"
13	D59150	1	Regulator, Grain Flow
14	D29470	1	Grill, Hopper
15	D29560	4	Clip, Grill
16	D29161	2	Stand, Hopper
17	D29531	1	Latch Handle
18	D59342	1	Tumbler (See page 34 for parts)
19	D22850	1	Jackshaft
20	D29490	1	Housing, L.H. Jackshaft
21	D59311	1	Pulley, 6.6PD x 1" ID
22	D59301	1	Pulley, 6.6PD x 1½ID
23	D29372	1	Guard, Belt
24	D29352	1	Bracket, Jackshaft
25	D52910	1	Strap
26	D29382	1	Lock, Clutch
27	D29362	1	Handle, Clutch
28	42-16453	2	Clamp, Mount
29	D29322	1	Belt, B40 (Set of 2)
30	73411	1	Key, 3/8 x 3/8 x 1½
31	42-66057	1	Key, ¼ x ¼ x 1½
32	42-18282	2	Key, No. 808 Woodruff
33	73317	2	Spring, Lift
	D29480	2	Spring, Lift w/plug nut
34	73534	2	Pin, Cotter, 1/8 x 1¼
35	73316	1	Spring, Pin
36	42-16334	2	Bearing, 1"
37	71079	2	Capscrew, 7/16 x 1½
38	71027	8	Capscrew, 5/16 x 1
39	71277	1	Bolt, Carriage, 3/8 x 1
40	71251	10	Bolt, Carriage, 5/16 x ¾
41	71026	2	Capscrew, 5/16 x ¾
42	71825	4	Screw, 5/16" x ¾" SL HD Machine
43	71054	8	Capscrew, 3/8 x 1½
44	71038	2	Capscrew, 5/16 x 4½
45	71062	1	Capscrew, 3/8 x 4
46	71111	2	Capscrew, ½ x 3 ½
47	71103	2	Capscrew, ½ x 1¼
48	71988	2	Capscrew, ½" x 6" Full THD
49	71083	2	Capscrew, 7/16 x 2½
50	71329	2	Bolt, Carriage ½" x 1½"
51	D29020	2	Spacer, ½" ID x 1" OD x 5/16
52	71303	1	Bolt, Carriage, 7/16 x 1¼"
54	42-54054	1 pair	Bearing Flange
55	71051	2	Capscrew, 3/8" x ¾"
56	D29550	As Req'd.	Spacer, Hopper Latch

NOTE: For nuts, washers and lockwashers see page 62.

SIDE MOUNT ELECTRIC POWER UNIT ASSEMBLY



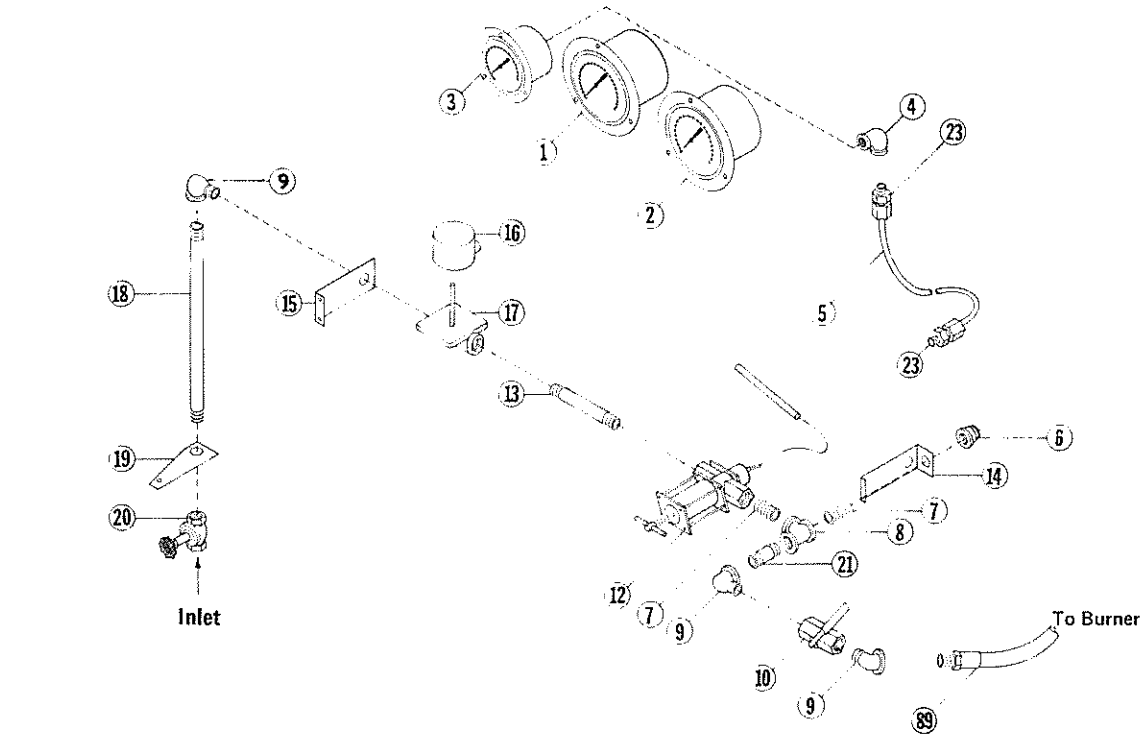
SIDE MOUNT ELECTRIC POWER UNIT ASSEMBLY

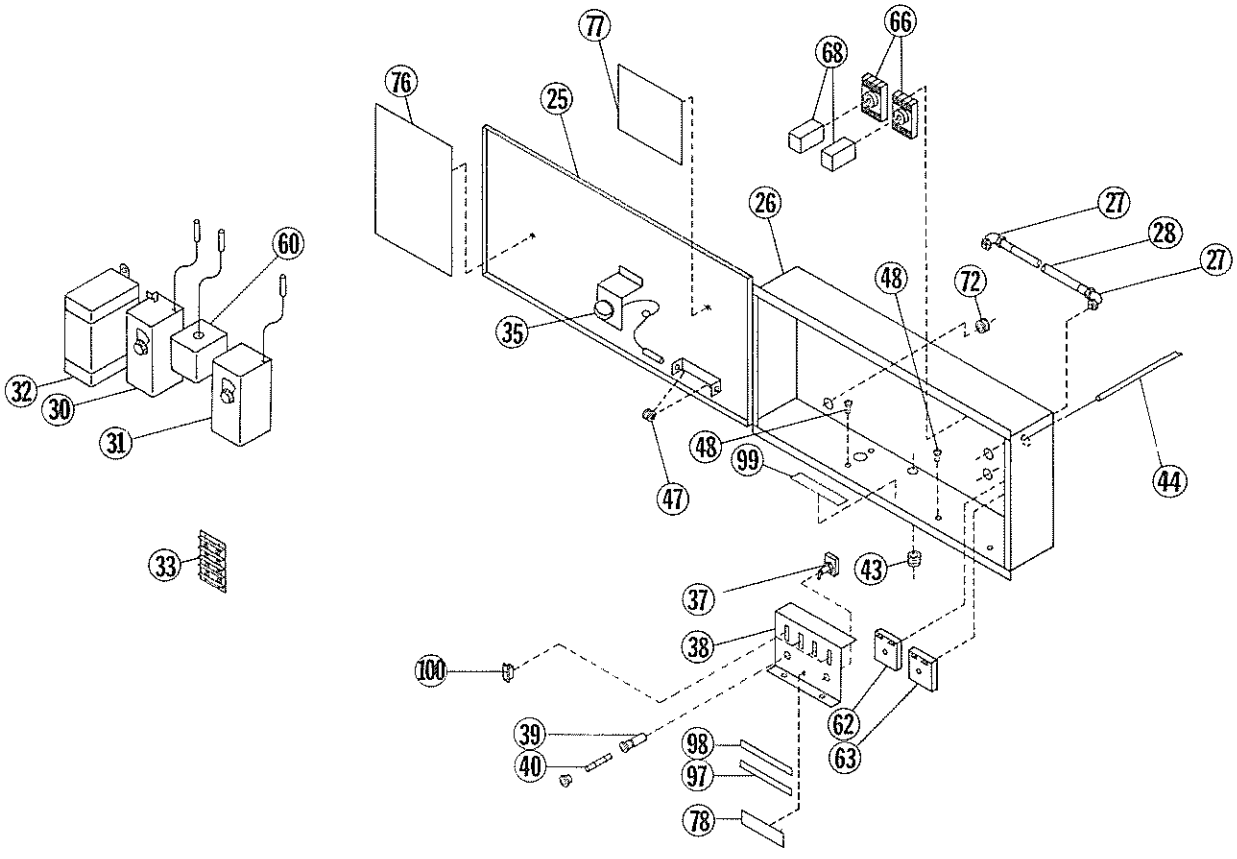
ITEM	PART NO.	NO. REQ'D.	DESCRIPTION
1	D22917	1	Frame
2	D22916	2	Channel, Motor Mount
3	D52213	1	Motor, 20 HP TEFC
4	76001	1	Sheave, 18.4" Less Hub
5	76011	1	Hub, 1½" SK
6	D32990	1	Belt, B90 (Set of 3)
7	76012	1	Sheave, 5.2" Less Hub
8	76014	1	Hub, 1-5/8" SD
9	D32670	1	Bracket, Belt Guard
10	D59430	1	Guard
11	D32660	1	Mount, Belt Guard
12	42-510050	1	Key, 3/8" x 2"
13	71825	4	Screw, ¼-20 x ¾ Machine
14	71052	4	Capscrew, 3/8" x 1" Hex
15	71060	2	Capscrew, 3/8" x 3" Hex
16	71061	6	Capscrew, 3/8" x 3½" Hex
17	71988	1	Capscrew, ½" x 6" Full Thread
19	72210	12	Nut, 3/8" Hex
20	72212	2	Nut, ½" Hex
21	72382	4	Nut, ¼" Whiz Lock
24	72440	12	Washer, 3/8" Spring Lock
25	72412	1	Washer, ½" Wrought
28	D22910	1	Plate, Mounting
64	73166	4½'	Conduit, 3/8" Liquid Tight
65	73159	1	Elbow, 3/8" Liquid Tight x 90°
66	73737	2	Elbow, 1" Liquid Tight x 90°
67	73734	4'	Conduit, 1" Liquid Tight
69	73742	6	Strap, Conduit
70	73703	3	Terminal, Line
71	77060	1	Starter, Magnetic No. 3 240 Volt
75	73704	1	Base, Fuse
76	73715	3	Fuse, 60 Amp 240 Volt
80	73709	3	Heater, H82 240 Volt
82	73700	1	Mechanism, Vari-Depth
83	73702	1	Shaft
84	73701	1	Handle
85	77052	1	Button, Push Green Start
86	77051	1	Button, Push Red Stop
87	77027	1	Cabinet
88	74004	1	Breaker, Circuit 100 Amp 240 Volt
90	77158	1	Convertor, 110 Volt AC to 12 Volt DC
92	77112	1	Transformer, 300 VA
93	77078	1	Fuse, 2.8 Amp FNM
94	77109	1	Lug, Ground
95	73725	1	Plate, Start
96	73726	1	Plate, Stop
97	73157	1	Connector, 3/8 Liquid Tight Conduit
98	D32050	2	Bracket, Angle Mounting
99	500671	1	Spacer, Neoprene
100	D52910	1	Strap, Mounting – Side Motor Mount

✪ Items furnished by customer

NOTE: For nuts, washers and lockwashers see page 62.

NATURAL GAS CONTROL CABINET ASSEMBLY





NATURAL GAS CONTROL CABINET ASSEMBLY

REF. NO.	PART NO.	NO. REQ'D	DESCRIPTION
1	D24033	1	Thermometer, Plenum Temperature
2	D24123	1	Thermometer, Grain Temperature
3	D25102	1	Guage, Pressure
4	72841	1	Elbow, ¼" N.P.T. x 90°
5	D25305	1	Line, Pressure Gauge ¼ x 21
6	72912	1	Reducer, ¾" to ¼" Bell
7	72680	2	Nipple, ¾" Close
8	72887	1	Tee, ¾" x ¾" x ¾"
9	72859	3	Elbow, ¾" x 90° St.
10	D25650	1	Valve, ¾" Ball
12	D55222	1	Valve, ¾" Modulating
13	72689	1	Nipple, ¾" x 5½"
14	D22945	1	Bracket, Front Plumbing
15	D22940	1	Bracket, Rear Plumbing
16	D25542	1	Coil, Solenoid Valve 12 Volt
17	77190	1	Valve, ¾" Solenoid
18	72933	1	Nipple, ¾" x 15"
19	D22930	1	Bracket, Lower Plumbing
20	73184	1	Valve, ¾" Gate
21	72683	1	Nipple, ¾" x 2½"
23	73110	3	Connector, ¼" Tube to ¼" N.P.T. Male (68-F)
25	D25511	1	Door, Cabinet
26	D25503	1	Cabinet
27	73159	2	Connector, 3/8" Conduit x 90° Liquid Tight
28	D25261	1	Conduit
30	K25021	1	Switch, Plenum High Limit
31	K25231	1	Thermostat, Grain Temperature
32	K55055	1	Coil, Ignition, 12V
32	74027	1	Coil Parts, Set of Points
33	K25180	1	Block, Terminal
34	K25030	1	Switch, Air
35	73223	1	Light, Utility 12 Volt Only
37	D25130	1	Switch, On-Off
38	D25212	1	Bracket, Switch
39	D25170	1	Holder, Fuse
40	77143	1	Fuse, 10 Amp 12 Volt
41	72093	2	Screw, No. 8 x 1" Metal
42	72279	1	Nut, 1" N.F. Hex Jam
43	73278	1	Grommet, 5/8" I.D. Rubber
44	D52321	1	Tube, Air Switch
47	73271	2	Grommet, ¼" I.D. Rubber
48	71683	5	Screw, 10 - 24 x ½" Slotted Head Machine
60	D25161	1	Flame Detector
62	77138	1	Timer, 10 Sec Purge
63	77139	1	Timer, 90 Sec Ignition
66	77141	2	Base, Relay

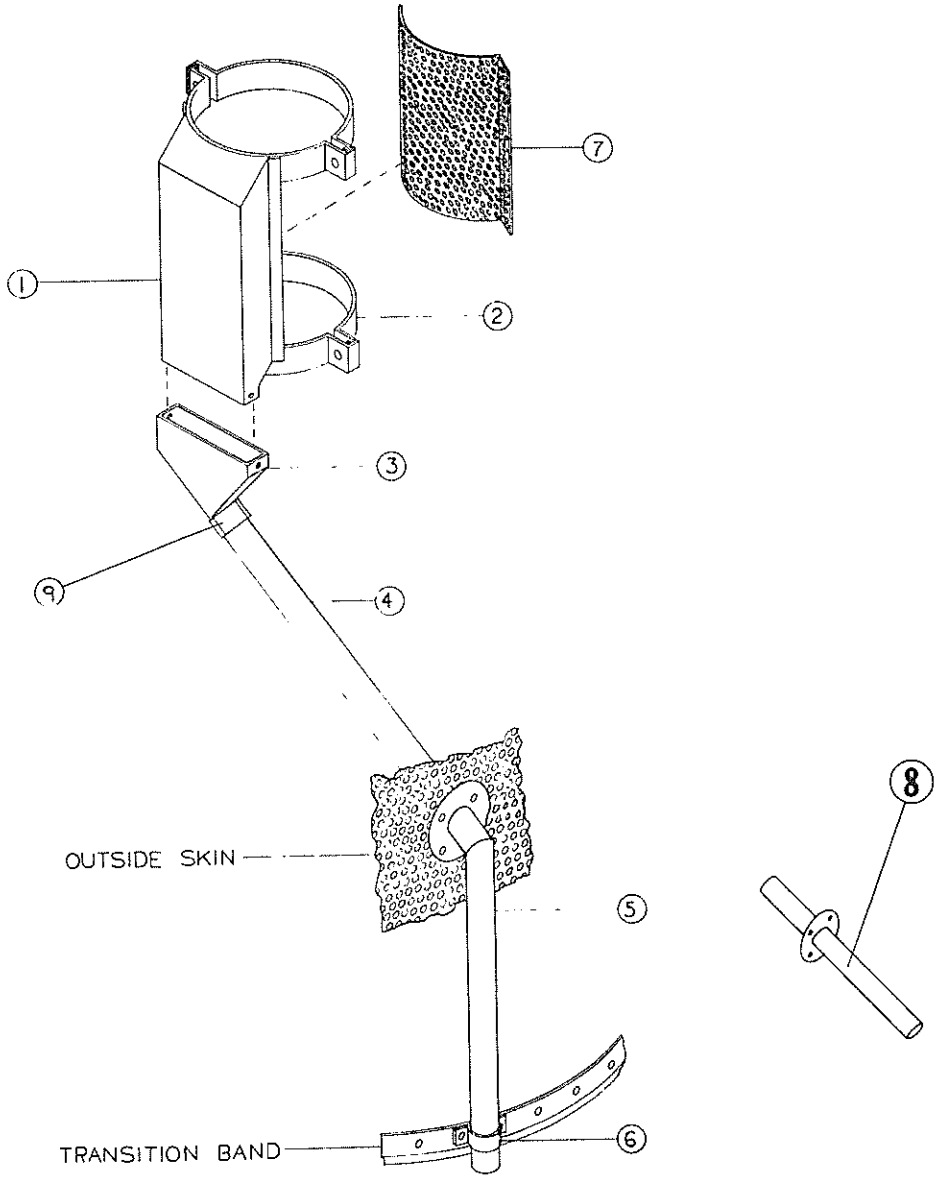
NOTE: For nuts, washers and lockwashers see page 62.

NATURAL GAS CONTROL CABINET ASSEMBLY

REF. NO.	PART NO.	NO. REQ'D	DESCRIPTION
68	77140	2	Relay, Control 12 Volt
69	72035	3	Screw, No. 8 x ¼" Metal
72	73270	2	Grommet, 3/8" I.D. Rubber
76	74534	1	Decal, Operating Instruction
77	74533	1	Decal, Wiring Diagram
78	74528	1	Decal, Switch Panel
97	74531	1	Decal, Red Indicator
98	74530	1	Decal, Green Indicator
99	74529	1	Decal, Polarity
100	77162	4	Light, Indicator

NOTE: For nuts, washers and lockwashers see page 62.

GRAIN CLEANING ATTACHMENT



REF. NO.	PART NO.	NO. REQ'D	DESCRIPTION
	A41010	1	Grain Cleaning Attachment
1	D41020	1	Cleaning Attachment Body
2	D41030	2	Cleaning Attachment Bands
3	D41080	1	Cleaning Attachment Transition
4	D41050	1	Cleaning Attachment Top Tube
5	D41060	1	Cleaning Attach. Lower Tube & Elbow
6	D41070	1	Cleaning Attach. Tube Bracket
7	A41100	1	Cleaning Attachment Screen (Corn, Sunflower)
7	A41110	1	Cleaning Attachment Screen (Wheat, Oats, Barley Milo)
7	A41120	1	Cleaning Attachment Screen (Soybeans)
7	A41130	1	Cover Plate (To replace screen)
7	A41105	1	Cleaning Attachment Screen (Flax)
8	A41030	1	Optional Straight Discharge Spout
9	D41081	1	Band, Transition ½

NUTS, WASHERS AND LOCKWASHERS

PART NO.	DESCRIPTION	PART NO.	DESCRIPTION
72208	¼" Nut	72438	¼" L-Washer
72209	5/16" Nut	72439	5/16" L-Washer
72210	3/8" Nut	72440	3/8" L-Washer
72211	7/16" Nut	72441	7/16" L-Washer
72212	½" Nut	72442	½" L-Washer
72213	5/8" Nut	72443	5/8" L-Washer
72380	¼" L-Nut	72408	¼" Washer
72379	½" L-Nut	72409	5/16" Washer
72375	¾" L-Nut	72410	3/8" Washer
72382	¼" Whiz Lock-Nut	72411	7/16" Washer
72334	¼" Tinnerman Nut	72412	½" Washer
72376	5/8" Lock Nut	72413	5/8" Washer

GRAIN	USED FOR	PLENUM TEMP.	GRAIN TEMP.	DRYING TIME	COOLING TIME

TORQUE ALL BOLTS PER TORQUE SPECIFICATION CHART

COARSE THREAD FASTENER	GRADE DESIGNATION	SCREW, STUD, OR BOLT SHANK SIZE OR DIAMETER							
		1/4"	5/16"	3/8"	7/16"	1/2"	9/16"	5/8"	3/4"
 CAP SCREW	S.A.E. 2 STEEL	5	11	20	30	50	70	100	170
 CAP SCREW	S.A.E. 5 STEEL	8	17	30	50	75	110	150	270
 CAP SCREW	S.A.E. 8 STEEL	12	24	45	70	105	155	210	375

Torques are in ft - lbs.
Torques shown are for National Coarse Thread Plain or Zinc plated fasteners carrying residual oil of Manufacture.