



MODEL 545XL
GRAIN DRYER
OPERATOR'S MANUAL
& PARTS BOOK



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MANUFACTURERS OF FARM AND INDUSTRIAL EQUIPMENT

MODEL 545XL

OPERATORS MANUAL & PARTS CATALOG

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



DO NOT OPERATE OR ALLOW ANYONE TO OPERATE THIS EQUIPMENT WHO HAS NOT BEEN PROPERLY TRAINED IN ITS SAFE OPERATION.

Throughout your operator's manual and at various locations on your machine you will see the Safety-Alert symbol shown below. 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.



SAFETY-ALERT SYMBOL FOR AGRICULTURAL EQUIPMENT

The following labels found on your machine provide important safety messages and instruction for safe operation.



As these labels become worn, damaged, or illegible replace them immediately. These labels are available at your authorized dealer.

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.



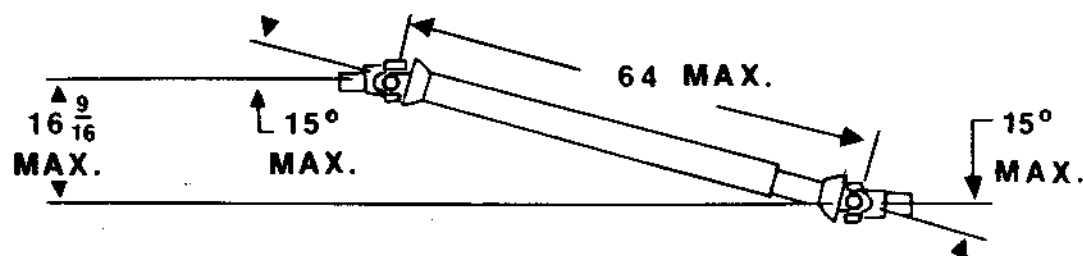
CAUTION

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



ROTATING DRIVELINE
CONTACT CAN CAUSE DEATH
KEEP AWAY!

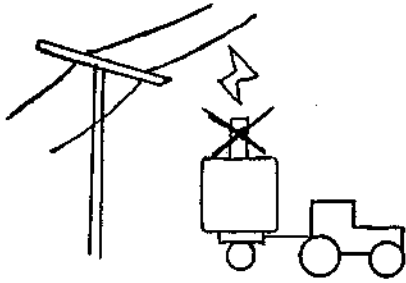
DO NOT OPERATE WITHOUT —

- ALL DRIVELINE, TRACTOR AND EQUIPMENT SHIELDS IN PLACE
- DRIVELINES SECURELY ATTACHED AT BOTH ENDS
- DRIVELINE SHIELDS THAT TURN FREELY ON DRIVELINE

L1

279561

DANGER



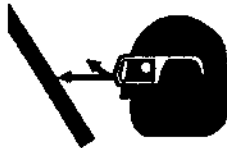
ELECTROCUTION HAZARD

To prevent serious injury or death from electrocution:

- Remove unloading head when transporting.
- Stay away from overhead power lines when transporting.
- This machine is not grounded.
- Electrocution can occur without direct contact.



DANGER



CONNECT TO LIQUID PROPANE ONLY.

Wear Rubber Gloves and Eye Protection.

Avoid Contact with Propane.



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

CAUTION

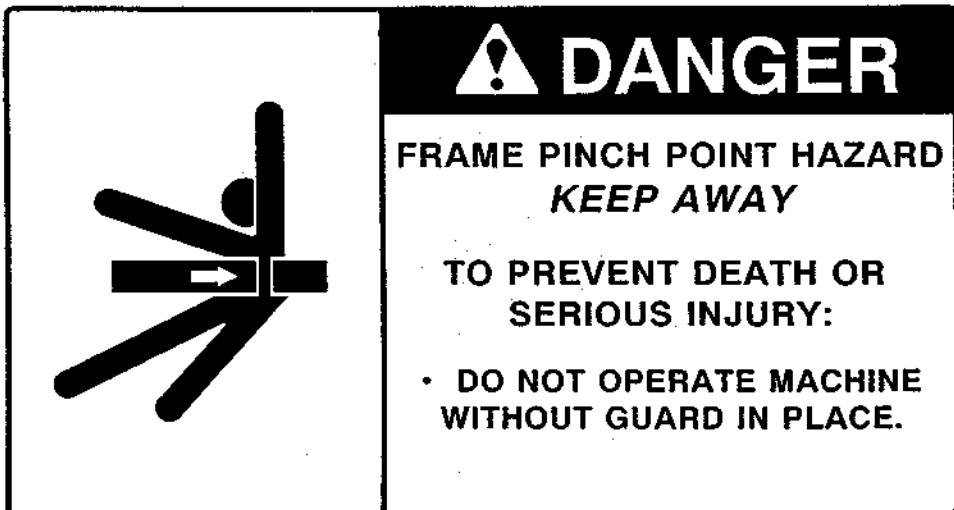
**ENGAGE FAN CLUTCH
VERY SLOWLY WHEN
PTO IS OPERATING**



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





1. Keep all guards and shield in place.



2. Inspect your drive before adding power and know how to shut down in an emergency.



3. Stop all moving parts before allowing anyone to approach the equipment for cleaning, unplugging, adjusting, performing maintenance or any other duty.



4. Replace all safety shields/guards before restarting.



5. Replace all safety shields/guards as they become worn, damaged, unusable, missing or lost.

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, Canadian Standard's Association B 149, or applicable state or Provincial 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 (6 on Model 545) 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) ½" minimum inside diameter for Model 545. 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 Model 545 dryer will require up to 20 psi, depending on locality. Pressure shown is at the dryer. Maximum Natural Gas volume required is up to 50 ft³ per minute on the Model 545.

6. ELECTRICAL CONNECTIONS

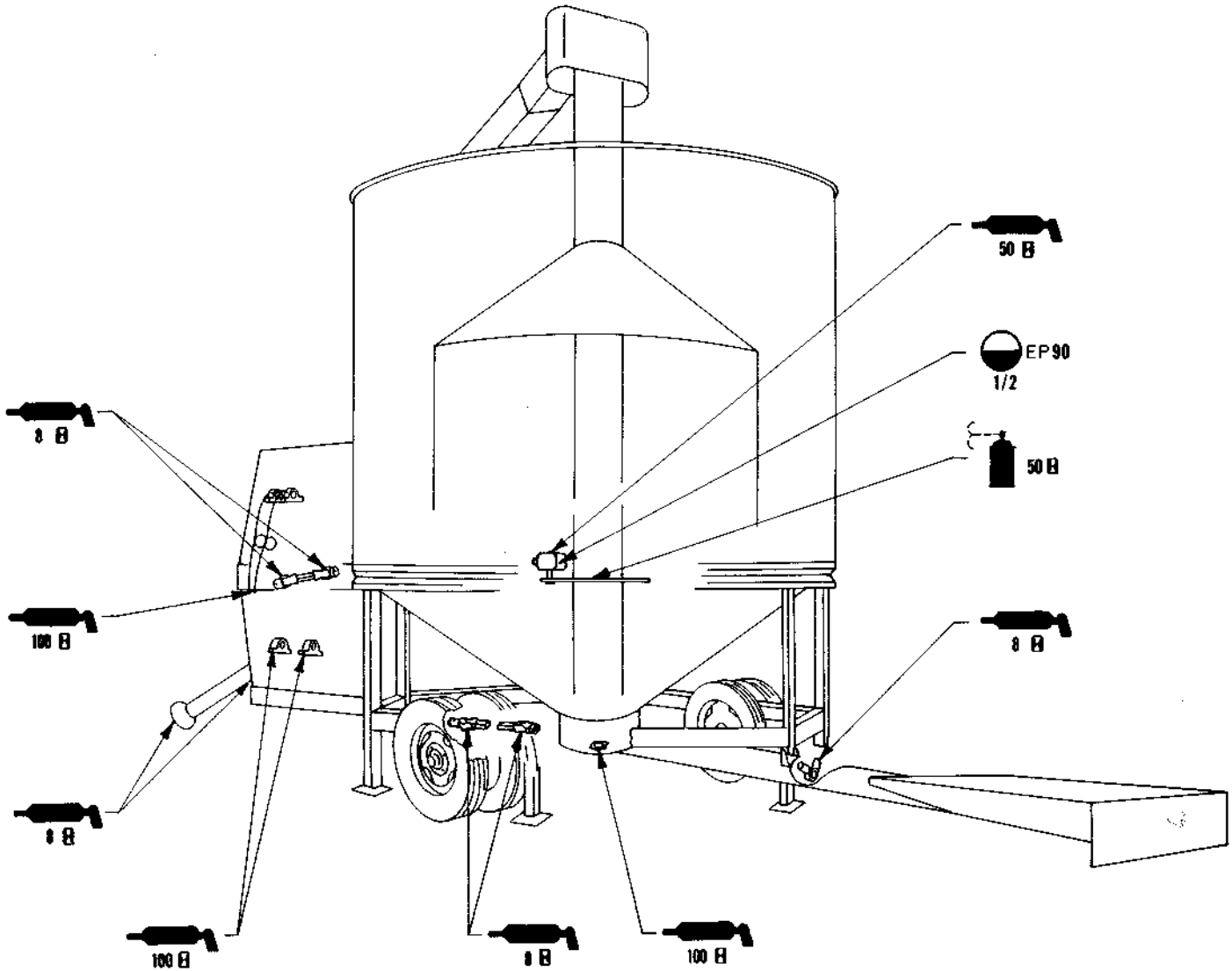
Power take off machines have as standard equipment a 12 VDC negative ground control circuit. The lead in wires must be properly connected to the tractor battery. Red clip to hot (+) side of battery and black clip to ground (-) side of battery. See proper battery connections on page 19.

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 |  | Gearbox Oil Level & Type |
| x H | Lubrication Frequency (Hours of Operation) |  | Dry Film Spray Lubricant |

When performing the 100 hour lubrication, check to see that set screws in bearing and tumblers 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 580 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 round operation. However, the temperature of the vapor controls (pressure regulator, solenoid valves, 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 controls. The temperature of the vapor controls can also be adjusted by moving the vaporizer ring closer or farther from the burner by changing the position of the vaporizer on the burner in the clamp. The vapor plumbing under normal conditions should be operating at a temperature of approximately 120F to 140F. 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.

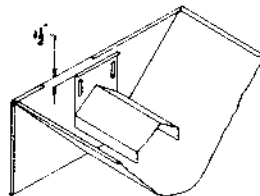
12. LOADING THE BIN

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 $1\frac{1}{2}$ " as shown in the drawing.



DO NOT LEAVE GRAIN IN DRYER OVERNIGHT

13. STARTING THE BURNER (PROPANE)

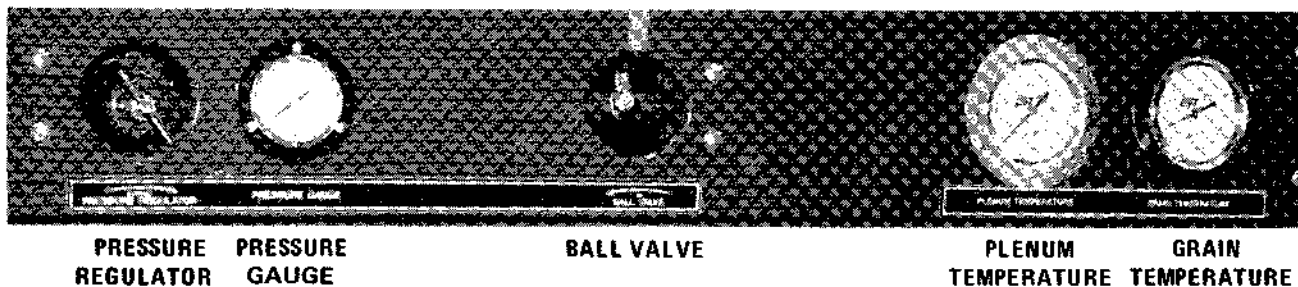
- A. Fan should be at operating speed, approximately 2200 RPM for Model 545. This speed can be obtained by approximately 525 RPM PTO speed, however, a lower fan and PTO speed is recommended in some conditions.
- B. Check the Plenum and grain temperature controls in the control box for proper setting. (Refer to instructions No. 16 and 17 in this manual.) Re-set the controls if necessary.
- 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, 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. Move power switch to the "on" position. Depress and hold burner start switch, and at the same time turn the regulator screw clockwise until burner lights. Hold start switch depressed until flame detector is activated, usually 20 to 30 seconds.

- 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.
- H. For restarting the burner it is not necessary to change the setting of the pressure regulator 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. Move power switch to the "on" position. Depress and hold burner start switch, and at the same time turn the regulator screw clockwise until burner lights. Hold start switch depressed until flame detector is activated, usually 20 to 30 seconds.
- J. After flame is established gradually open the ball valve until completely open. NOTE: Opening the ball valve too rapidly may cause frost to form in the gas lines.

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



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 COMMERCIALY 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 PLENUM CONTROL

The plenum temperature control is located inside the control box and is used to set the desired drying temperature inside the plenum chamber. Use the above chart as a guide to set the control. The actual plenum temperature will go approximately 5°-10° above or below the specified setting on the control.

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 and the circuit breaker switch in 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

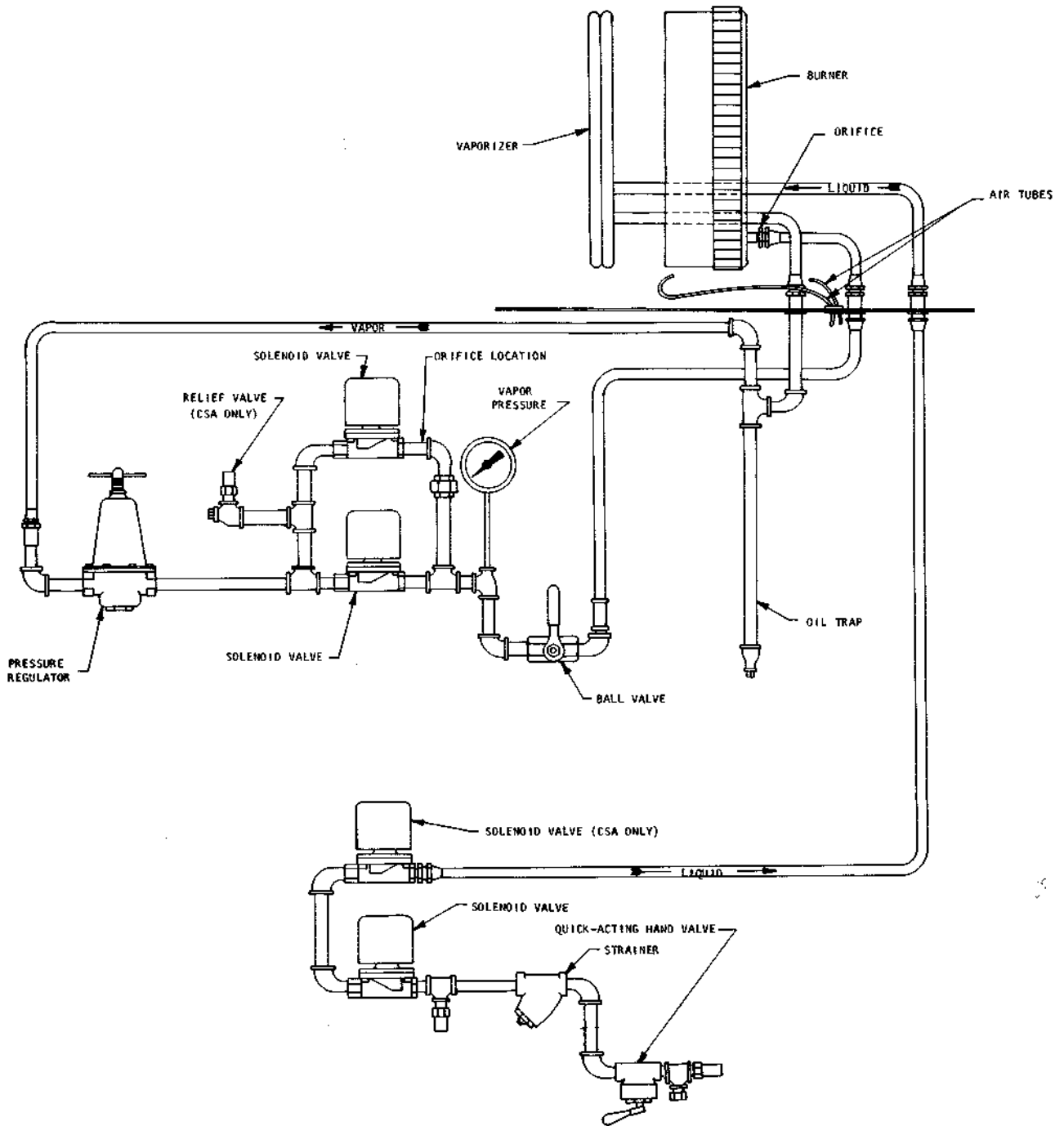
- (a) Remove masking tape covering openings.
- (b) Tighten Belts.
- (c) Lubricate all bearings.
- (d) Make certain bottom well is clean and close clean out door just prior to using.
- (e) Close plenum access door.
- (f) Check burner ports and clean if necessary. See item (8) of general operating maintenance.
- (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.

22. TRANSPORTING THE DRYER

- a) Make certain the hitch pin is securely attached and an alternate hitch safety chain is secured to the dryer and towing vehicle.
- b) Do not transport the dryer at speeds in excess of 20 MPH (32 KPH) and comply with any local regulations governing marking, towing and maximum width.
- c) Do not transport the dryer after dark or during periods of poor visibility.
- d) Be alert to overhead obstructions and wires. Failure to do so will result in injury or electrocution. Removal of the top auger section is recommended before towing.
- e) Maintain proper tire pressure. (Refer to tire manufacturer's recommendations on the side-wall).

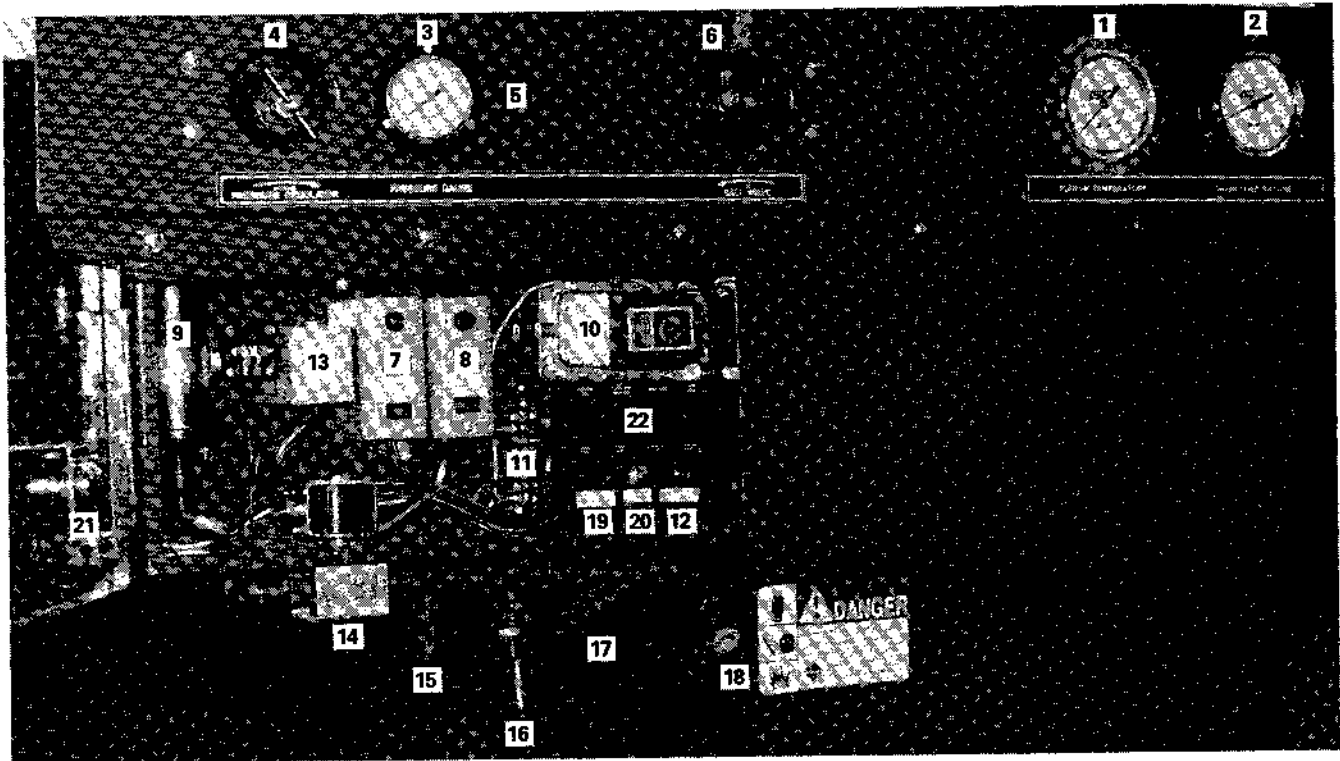
MAINTENANCE SERVICE AND TROUBLE SHOOTING FOR GT GRAIN DRYERS

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.

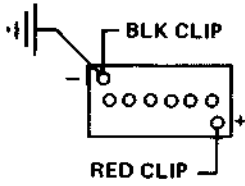
STUDY THIS INFORMATION. IT WILL GREATLY ASSIST YOU IN THE OPERATION OF YOUR DRYER.



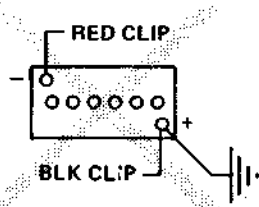
- | | | | |
|-----|--|-----|------------------------------|
| 1. | Plenum Thermometer | 12. | On-Off Switch (Power Switch) |
| 2. | Grain Thermometer | 13. | Flame Detector |
| 3. | Pressure Gauge | 14. | Solenoid Valve - Liquid |
| 4. | Pressure Regulator | 15. | Pressure Relief Valve |
| 5. | Solenoid Valve -- Vapor
(located directly behind panel) | 16. | Manual Valve - Propane |
| 6. | Ball Valve | 17. | Strainer |
| 7. | Plenum Control | 18. | Propane Inlet |
| 8. | Grain Control, Temperature | 19. | Fuse |
| 9. | Ignition Coil | 20. | Start Switch |
| 10. | Air Switch | 21. | Panel Light |
| 11. | Terminal Block | 22. | Indicator Lights |

BATTERY CONNECTIONS

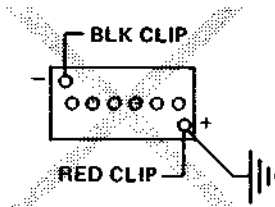
12 VOLT SYSTEM (ONE 12 VOLT BATTERY)



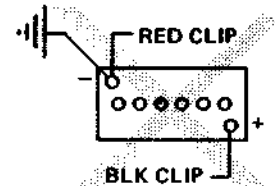
CORRECT



INCORRECT

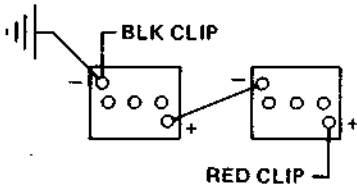


INCORRECT

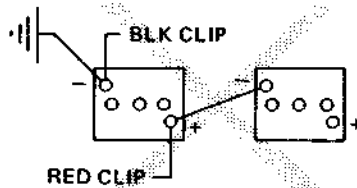


INCORRECT

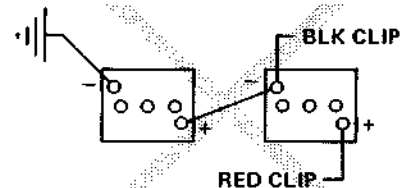
12 VOLT SYSTEM (TWO 6 VOLT BATTERIES)



CORRECT

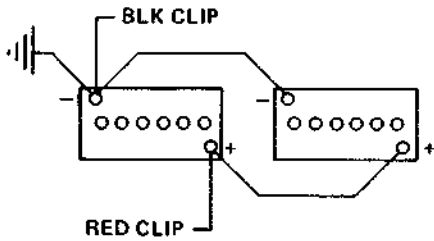


INCORRECT

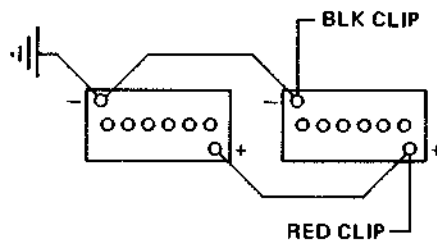


INCORRECT

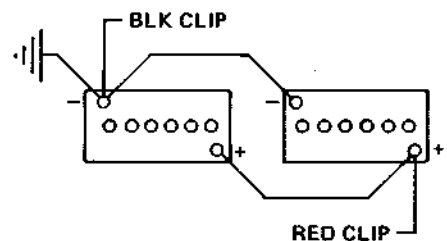
12 VOLT SYSTEM (TWO 12 VOLT BATTERIES)



CORRECT

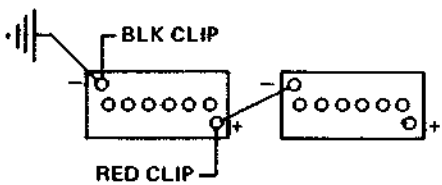


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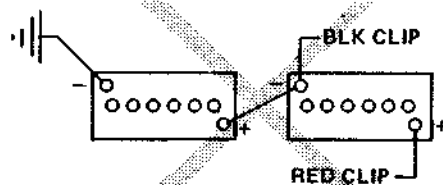


CORRECT

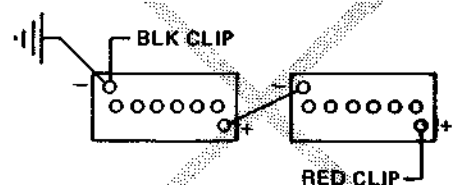
24 VOLT SYSTEM (TWO 12 VOLT BATTERIES)



CORRECT



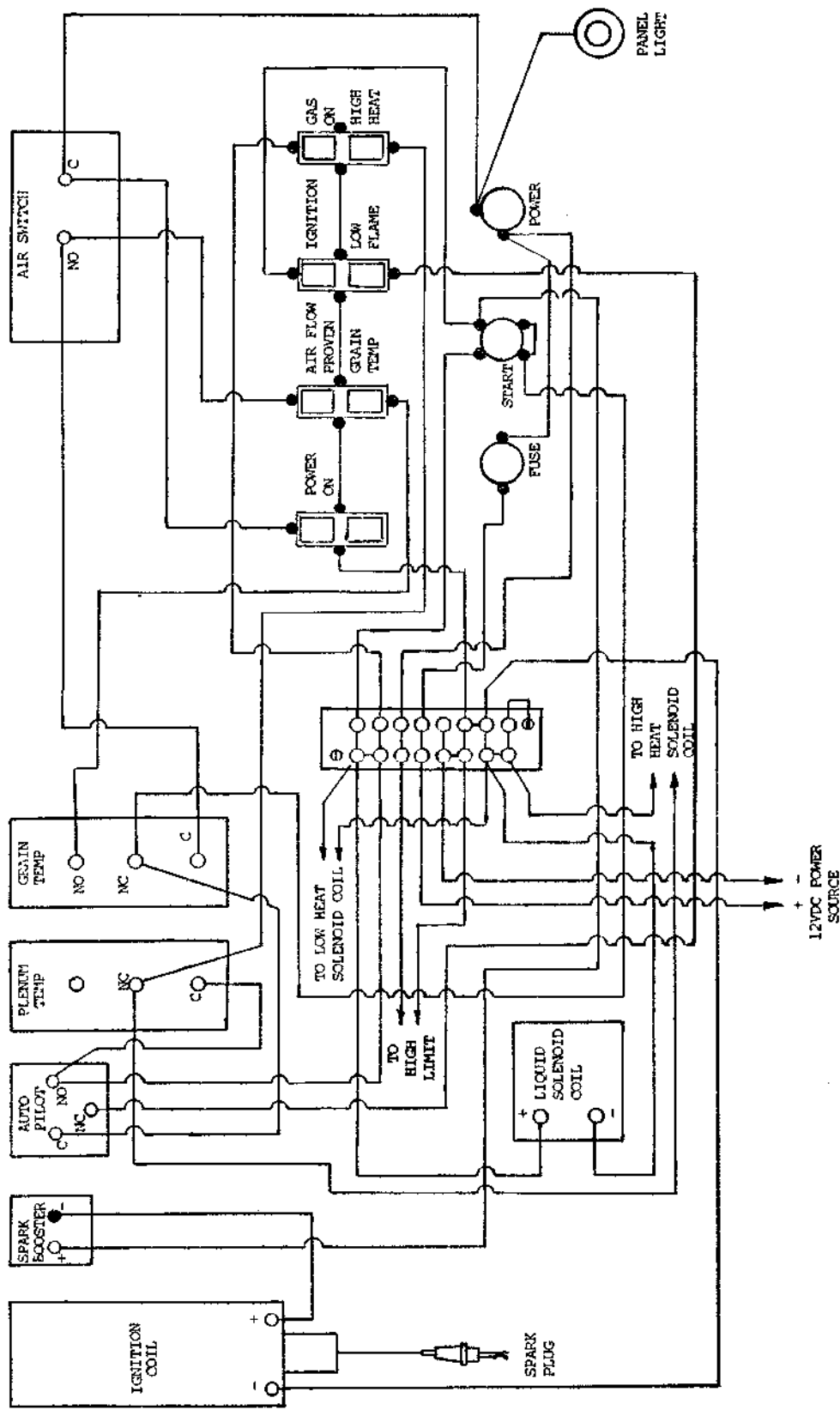
INCORRECT



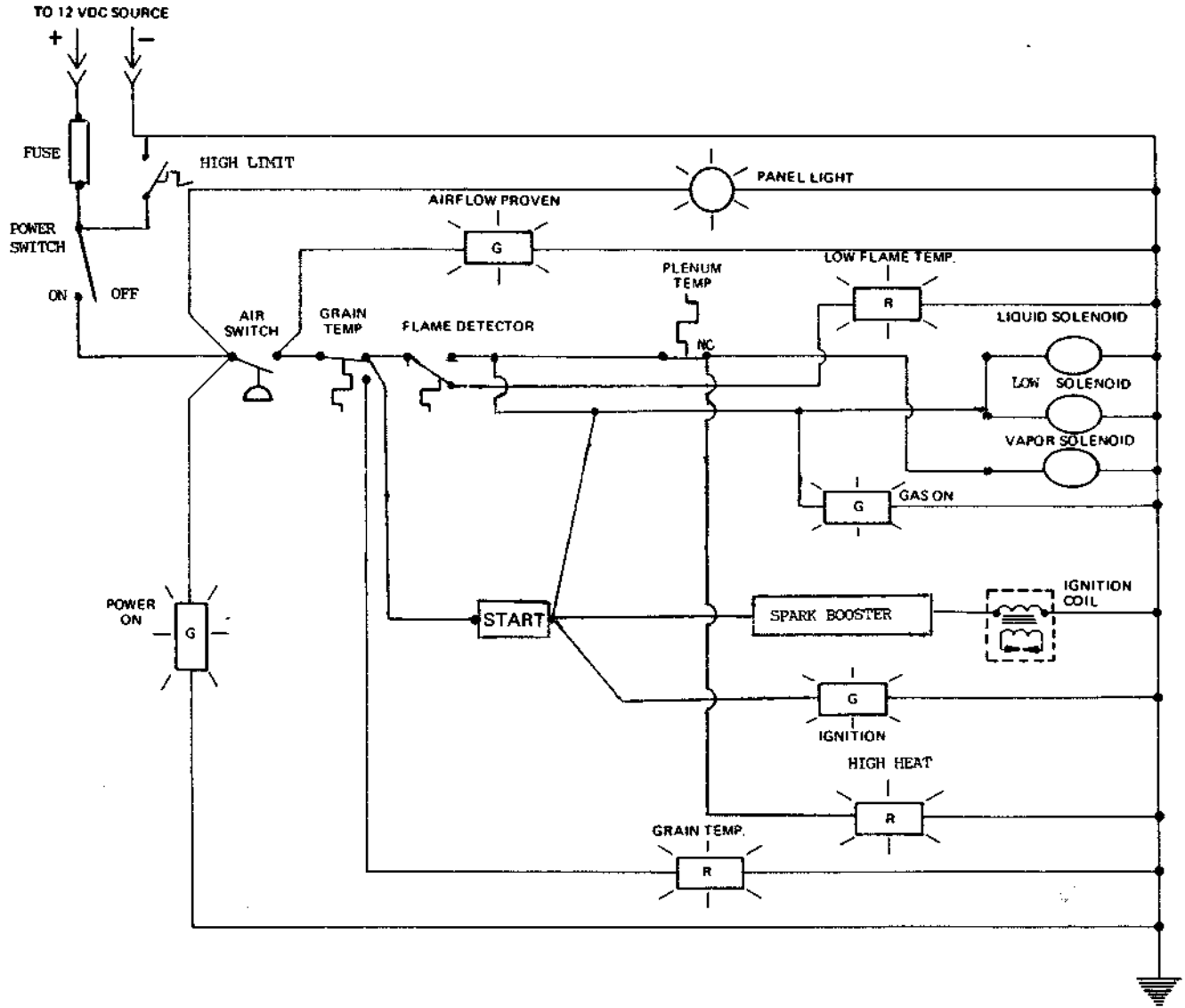
INCORRECT



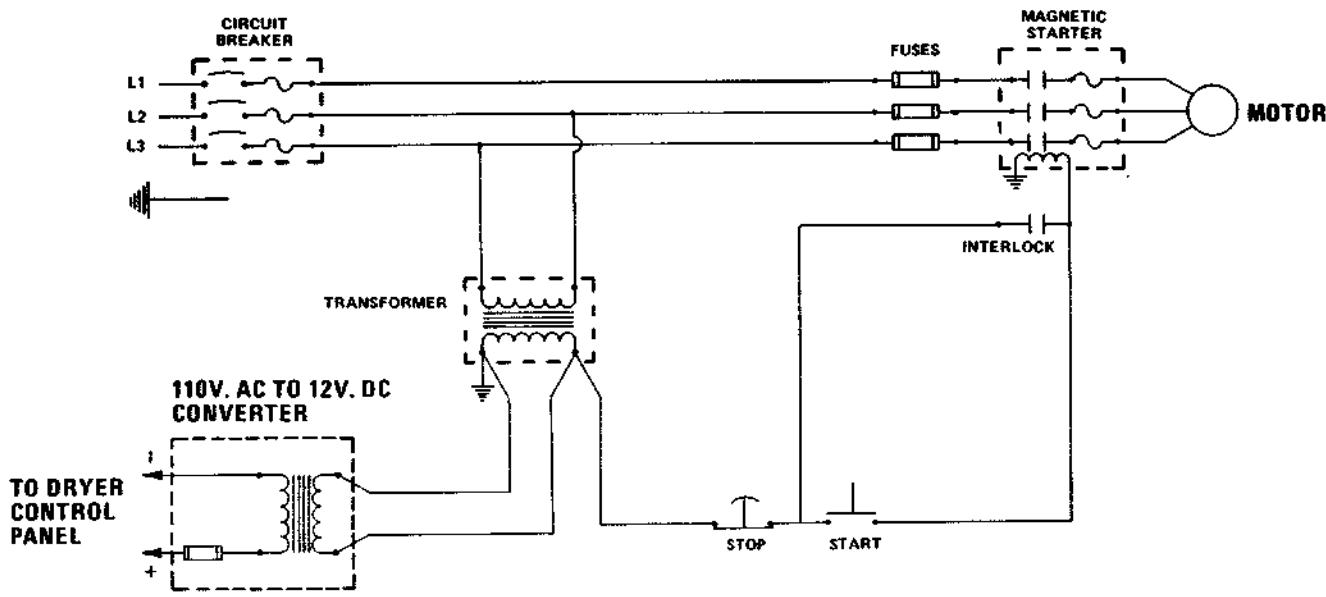
WIRING DIAGRAM



ELECTRIC SCHEMATIC - NON MICRO



SIDE MOUNT DRIVE SCHEMATIC



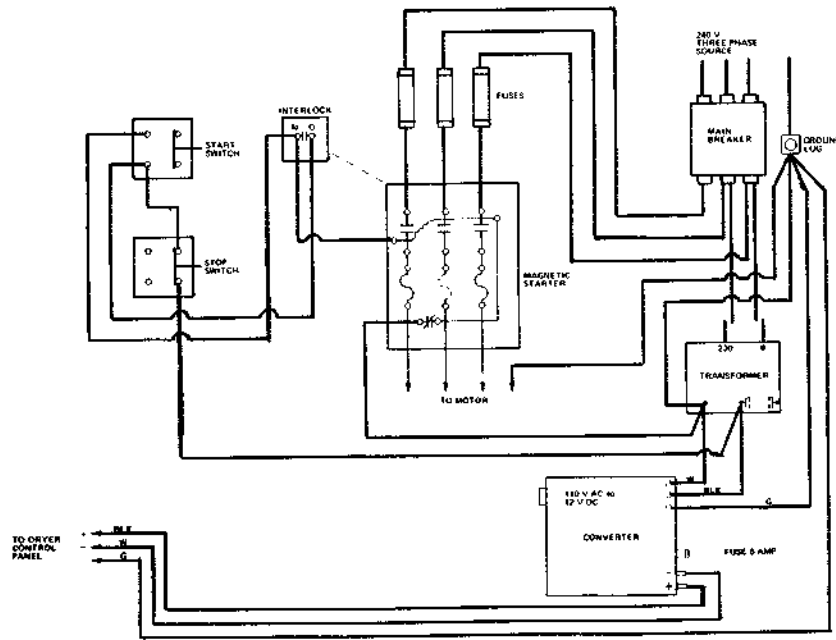
SIDE MOUNT DRIVE SEQUENCE OF OPERATION

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.

SIDE MOUNT WIRING DIAGRAM



TROUBLE SHOOTING

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

Problem A. BURNER WILL NOT LIGHT.

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 that circuit breaker switch didn't trip.
4. Is grain temperature above control setting? (Red grain temperature light will be on if control setting is exceeded.)
5. Check to see that both solenoid gas valves are opening. With fan at operating speed, or with air switch jumpered, flip the "power" switch to "on" and watch pressure gauge. If valves open there should be a pressure reading.
6. Air switch not closing (Airflow light not on). Remove and clean or replace air switch tube.
7. Check for plugged orifice.
8. Possible loose wire connection.
9. Gas pressure too low. May require up to 5 psi. for ignition with propane burner.
10. Gas pressure too high. 30 psi. is near maximum for ignition with the propane burner. If gas pressures above 30 psi. are encountered, check the 5/64" diameter burner parts for signs of plugging and clean them out if necessary.
11. System improperly grounded. Check lead wire connections at terminal block.
12. Check plug for spark. If no spark check the following after disconnecting power to the system.
 - a. Check spark gap. Gap should be $3/32'' \pm 1/32''$. 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.
13. 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. Plenum 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 delay 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" light comes on.

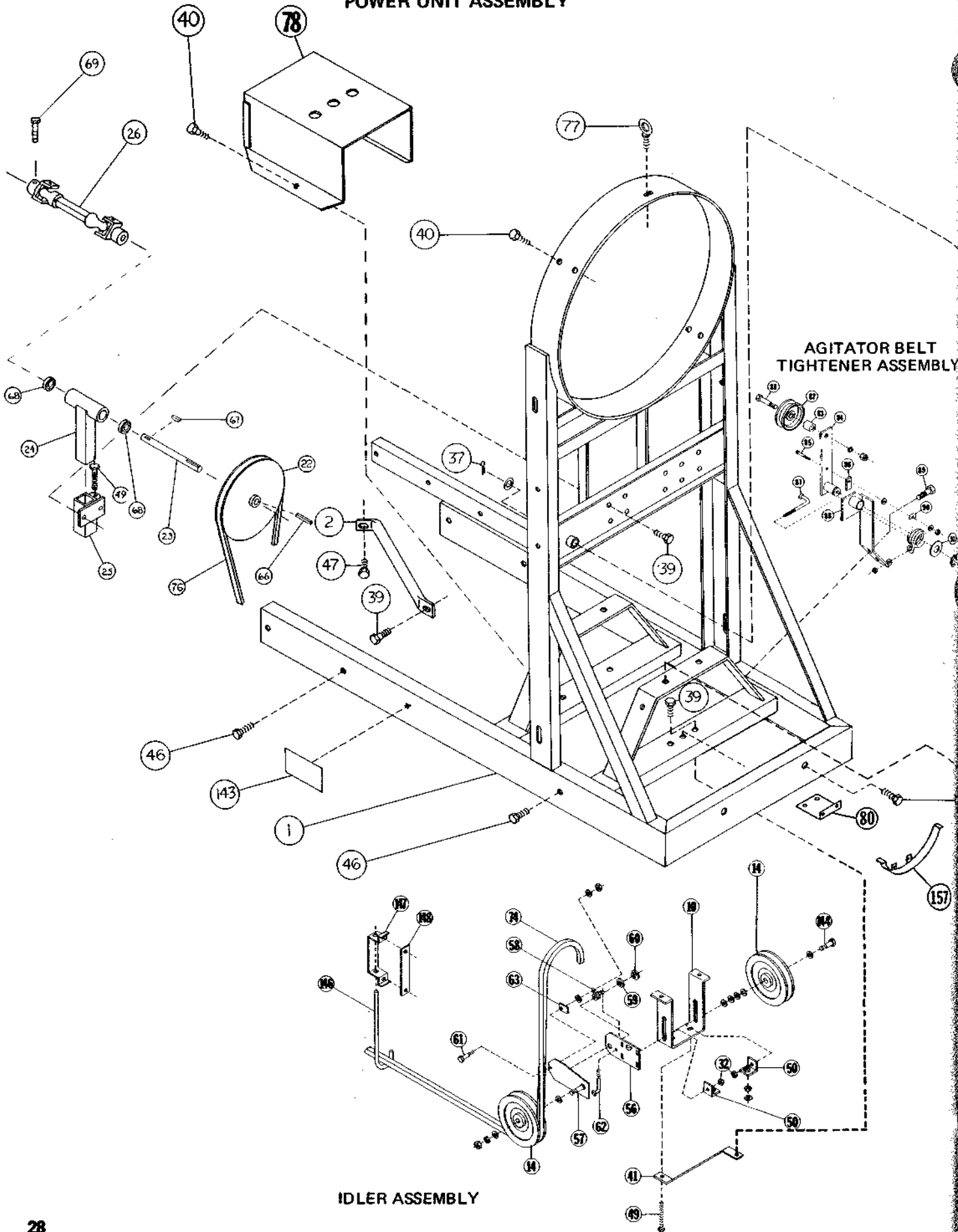
Push the start button, the ignition light and the gas on light will come on. Hold start button until the red low flame light goes off and then release.

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 unless the High Heat thermostat is above the plenum temperature, then the High Heat Red light will be on.

Turn grain temperature thermostat below indicated grain temperature. The red grain temperature light will come on and the gas on light should go off. After approximately 20 sec. the low flame light will come on.

**ASSEMBLY DRAWINGS
AND
PARTS LISTS**

POWER UNIT ASSEMBLY



AGITATOR BELT TIGHTENER ASSEMBLY

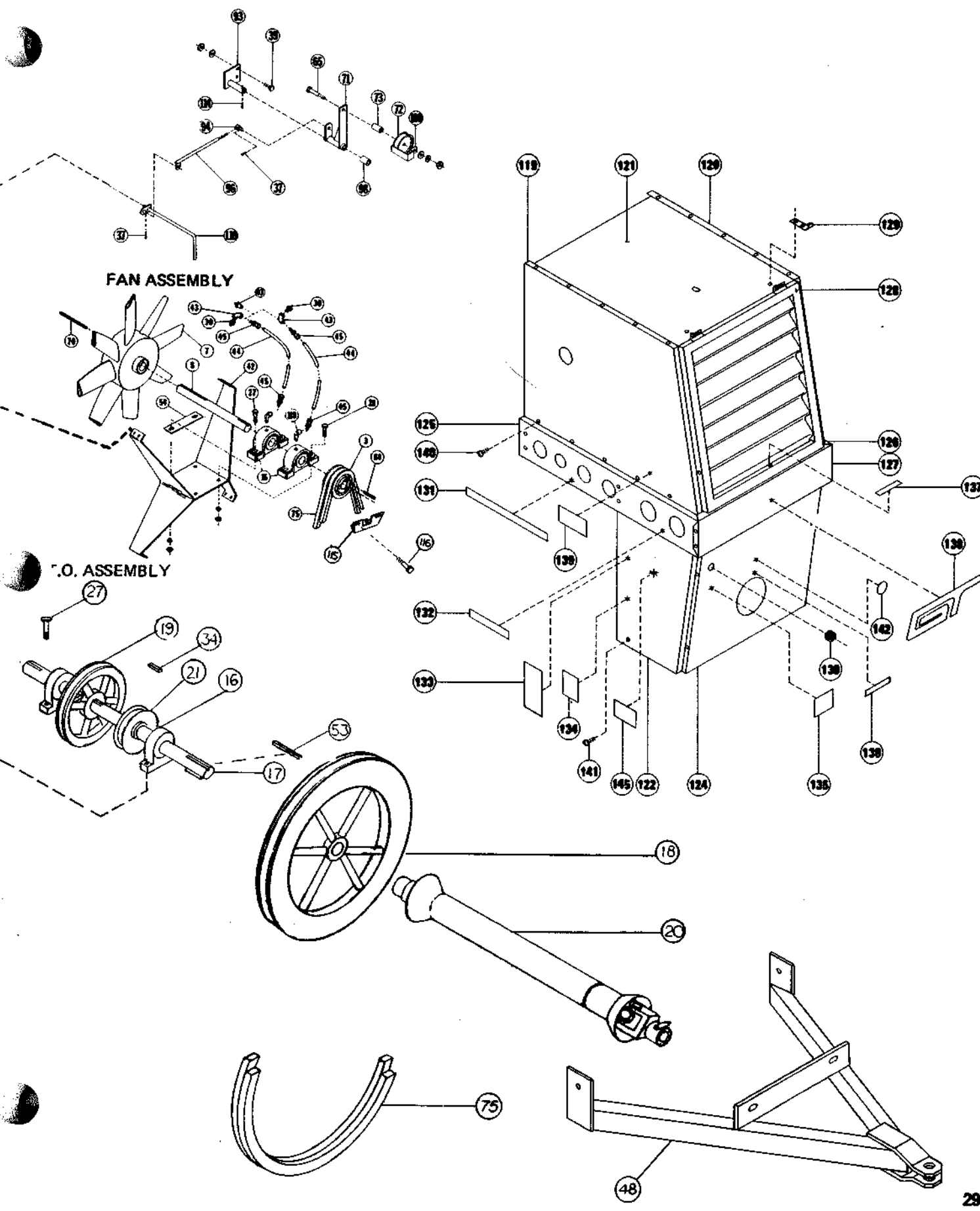
IDLER ASSEMBLY

POWER UNIT ASSEMBLY

FAN CLUTCH ASSEMBLY

FAN ASSEMBLY

P.O. ASSEMBLY



POWER UNIT ASSEMBLY

REF. NO.	PART NO.	NO. REQ'D.	DESCRIPTION
1	D52016	1	Frame Power
2	D52021	2	Brace
3	76006	1	Sheave, Fan Driven (2B 5.6)
	76007	1	Hub, Fan Driven Sheave
7	D52071	1	Fan
8	D52081	1	Shaft, Fan
10	D32010	1	Support, Idler
14	D22142	2	Sheave, Idler
15	D22090	2	Bearing, 1½" Pillow Block w/Shim & Adapter
16	D22097	2	Bearing, 1½" Pillow Block
17	D22161	1	Shaft, Power
18	D22170	1	Sheave, Fan Drive (2B 24)
19	D22180	1	Sheave, Auger Drive (1C9)
20	D52192	1	Tumbler, PTO Drive (See page 35 for parts)
21	D22780	1	Sheave, Agitator Drive (1B4)
22	D22790	1	Sheave, Agitator Driven (1B16)
23	D22850	1	Jackshaft, Agitator
24	D22861	1	Housing, Agitator Bearing w/o Bearings
24	D22866	1	Agitator Bearing Housing w/Bearings
25	D22871	1	Mount, Agitator Bearing Housing
26	D58250	1	Tumbler, Agitator Drive (See page 34 for parts)
27	71106	6	Capscrew, ½" x 2"
28	71107	2	Capscrew, ½" x 2¼"
29	71823	28	Machine Screw - ¼" - 20 x ½" Slotted Head
31	72591	4	Machine Bushing, 7/8"
32	72255	2	Nut, 5/8" Jam
34	73411	2	Key, 3/8" sq. x 1½" lg.
37	73534	2	Pin, Cotter 1/8" x 1¼"
38	71129	3	Capscrew, 5/8" x 1½"
39	71102	11	Capscrew, ½" x 1"
40	71053	12	Capscrew, 3/8" x 1¼"
41	D52632	1	Brace, Idler Support
42	D52691	1	Brace, Fan Shaft Support
43	73332	2	Zerk, 1/8" NPT Female Grease
44	D52930	2	Grease Line, Fan Bearing
45	73109	4	Compression Fitting, 3/16" Tube to 1/8 N.P.T.
46	71111	8	Capscrew, ½" x 3½"
47	71113	1	Capscrew, ½" x 4½"
48	D52461	1	Hitch
49	71957	3	Capscrew, ½" x 5" Full Thread
50	D22260	2	Tightener
53	73415	1	Key 3/8" sq. x 4¼"
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
60	73231	1	Ring, Retaining
61	71028	1	Capscrew, 5/16" x 1¼"
62	D22840	1	L-Bolt
63	D22830	1	Stop, Pivot
64	73411	1	Key, 3/8" x 3/8" x 1½"
65	71110	3	Capscrew, ½" x 3"
66	73400	1	Key, ¼" sq. x 1¼"
67	42-18282	1	Key, 808 Woodruff
68	42-16334	2	Bearing, Agitator Jackshaft
69	73508	1	Capscrew, 3/8" x 2½" H.T.
70	73420	1	Key, 3/8" sq. x 6-3/8"
71	D52161	1	Arm, Fan Clutch Idler
72	42-16336	1	Pulley, Idler
73	D32220	1	Spacer
74	D52620	1	Belt, Auger Drive (C255)
75	D52272	1	Belt, Fan Drive (B148) (Set of 2)

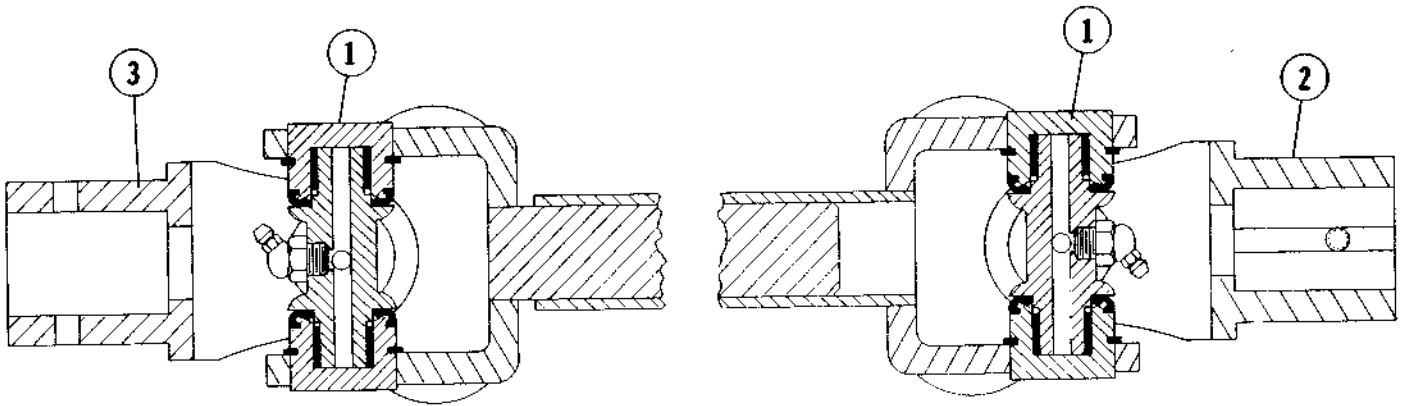
POWER UNIT ASSEMBLY

REF. NO.	PART NO.	NO. REQ'D.	DESCRIPTION
76	42-16125	1	Belt, Agitator Drive (B85)
77	71941	1	Eyebolt, 1/2" x 1 1/2"
78	D22652 D52921	1	Guard, Power Shaft Agitator Idler Assembly (includes items 81-92 inclusive)
79	71051	1	Capscrew, 3/8" x 3/4"
80	D57135	1	Belt Retainer, Lower Fan
81	71109	1	Capscrew, 1/2" x 2 3/4"
82	42-16335	1	Pulley, Idler
83	D22927	1	Spacer, Idler
84	D22926	1	Arm, Idler
85	71029	1	Capscrew, 5/16" x 1 1/2"
86	D22830	1	Stop, Pivot
87	D22840	1	L-Bolt
88	D52926	1	Mount, Idler
89	71053	2	Capscrew, 3/8" x 1 1/4"
90	73308	1	Spring
91	D22820	1	Washer
92	73231	1	Ring, Retainer
93	D52171	1	Pivot Clutch Idler
94	D32270	1	Pin, Fan Clutch Swivel
96	D52235	1	Arm, Link
98	D32040	1	Tube, Belt Retaining
100	D32260	1	Guide, Fan Clutch Belt
110	D52152	1	Handle, Fan Clutch
114	73536	1	Pin, Cotter 1/8" x 1 3/4"
115	D32250	1	Brake, Fan Sheave
116	71061	2	Capscrew, 3/8" x 3 1/2"
117	72364	1	Nut, 3/8" Spot Weld
118	73048		Adapter, Grease Line, 1/4" x 28 Male to 1/8" N.P.T. Female x 90°
119	D52663	1	Panel, Right Fan Guard
120	D52671	1	Panel, Left Fan Guard
121	D52042	1	Panel, Top Fan Guard
122	D52885	1	Panel, Right Belt Guard
123	D52880	1	Panel, Left Belt Guard
124	D52062	1	Guard, Front Belt
125	D52893	D52898	Wrapper, Right Power Frame - (LP Gas)
126	D52130	1	Wrapper, Left Power Frame
127	D52900	1	Wrapper, Front Power Frame
128	D52052	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	74712	1	Decal, 545XL
140	71823	42	1/4" x 20 x 1/2" Slotted HD Machine Screw
141	71825	6	1/4" x 20 x 3/4" Slotted HD Machine Screw
143	73833	1	Decal, Danger: Keep Hands & Feet Away
144	71135	1	Capscrew, 5/8" x 3"
145	73981	1	Decal, DANGER - Electrocution
146	D21420	1	Rod, Auger Belt Guide
147	D21430	1	Bracket, Auger Belt Guide Rod
148	D21440	1	Clamp, Auger Guide Bracket
157	D57325	1	Guide, Fan Belt

Note: For nuts, washers and lockwashers, see page 59.

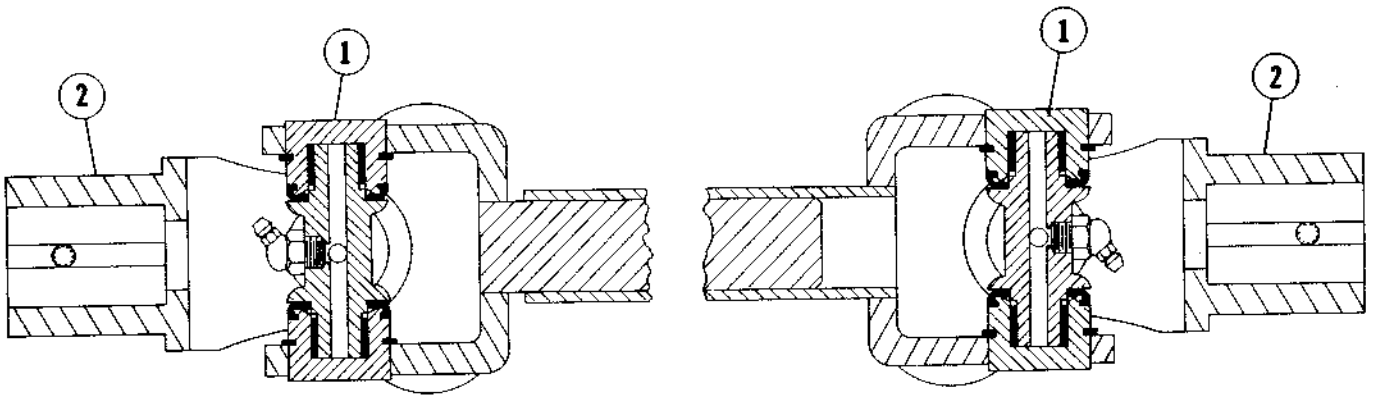
**AGITATOR DRIVE TUMBLER
D58250**

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
D59343**

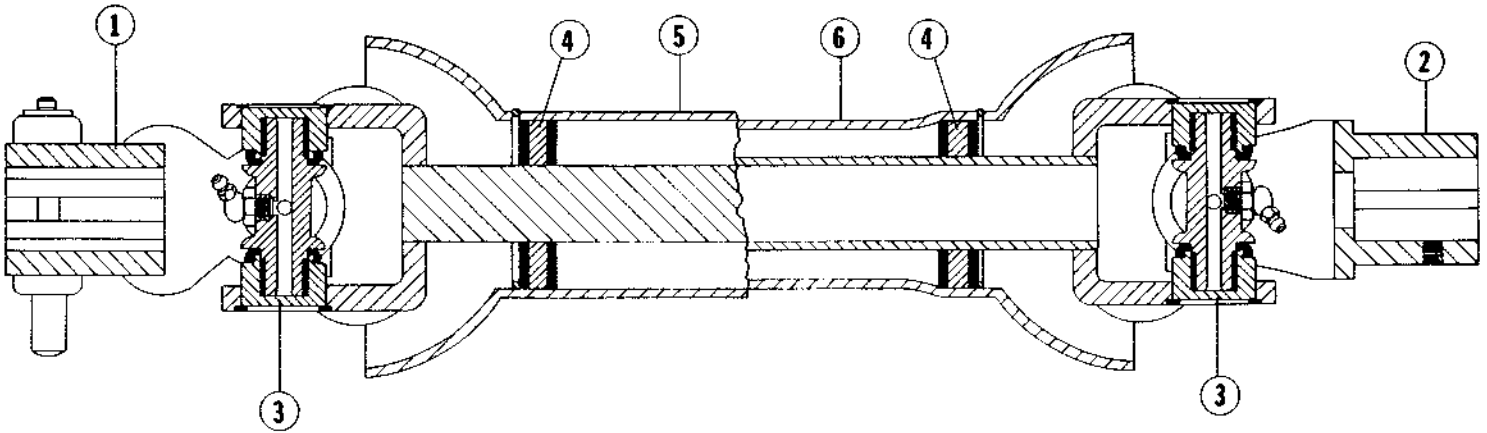
REF. NO.	PART NO.	NO.REQ'D	DESCRIPTION
1	42-16181	2	U-Joint Kit
2	42-16182	2	Yoke w/Keyway



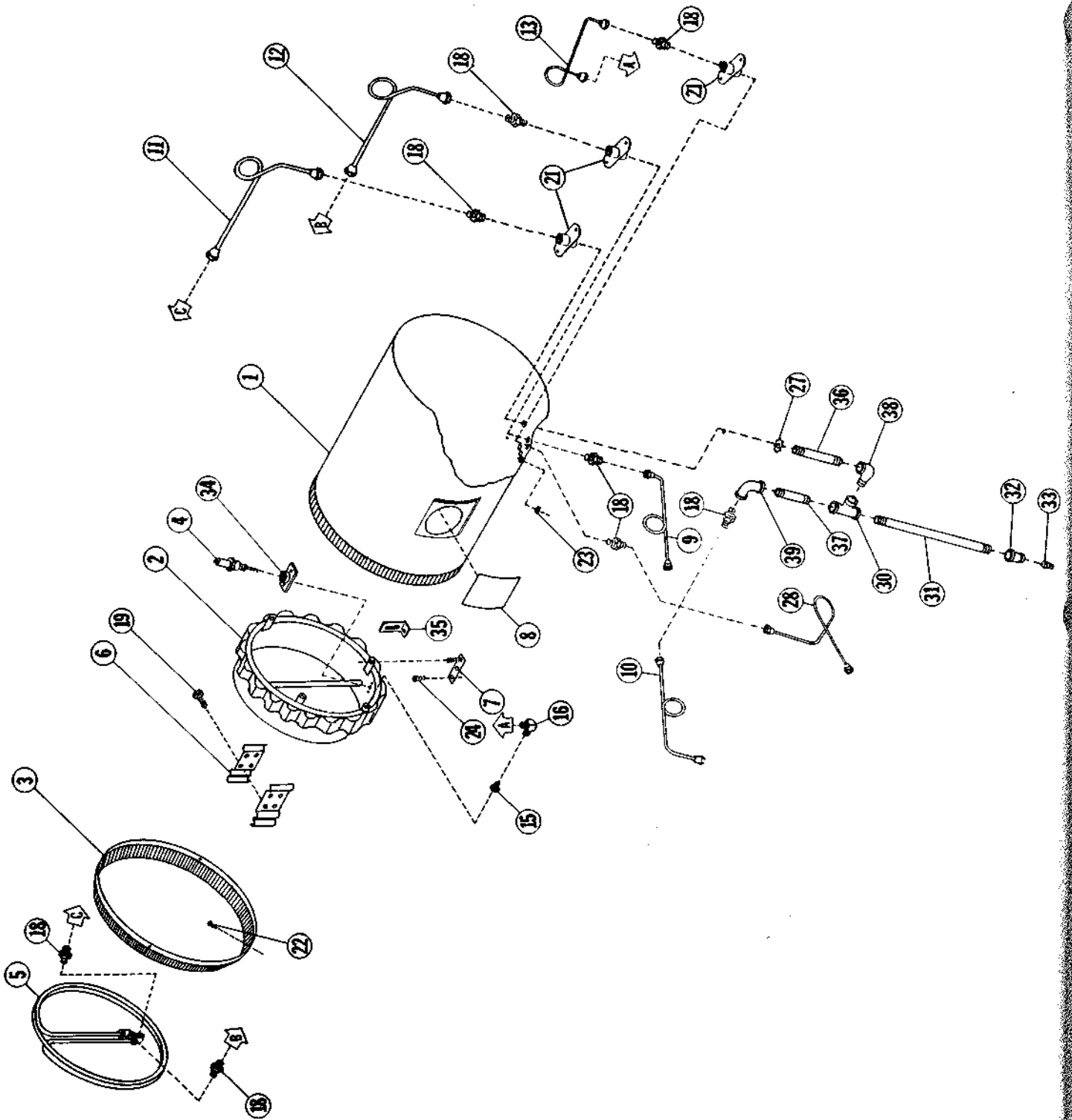
Note: For nuts, washers and lockwashers, see page 59.

**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	75514	2	Nylon Bearing Kit
5	75513	1	Safety Shield, Outer
6	75512	1	Safety Shield, Inner



BURNER ASSEMBLY



BURNER ASSEMBLY

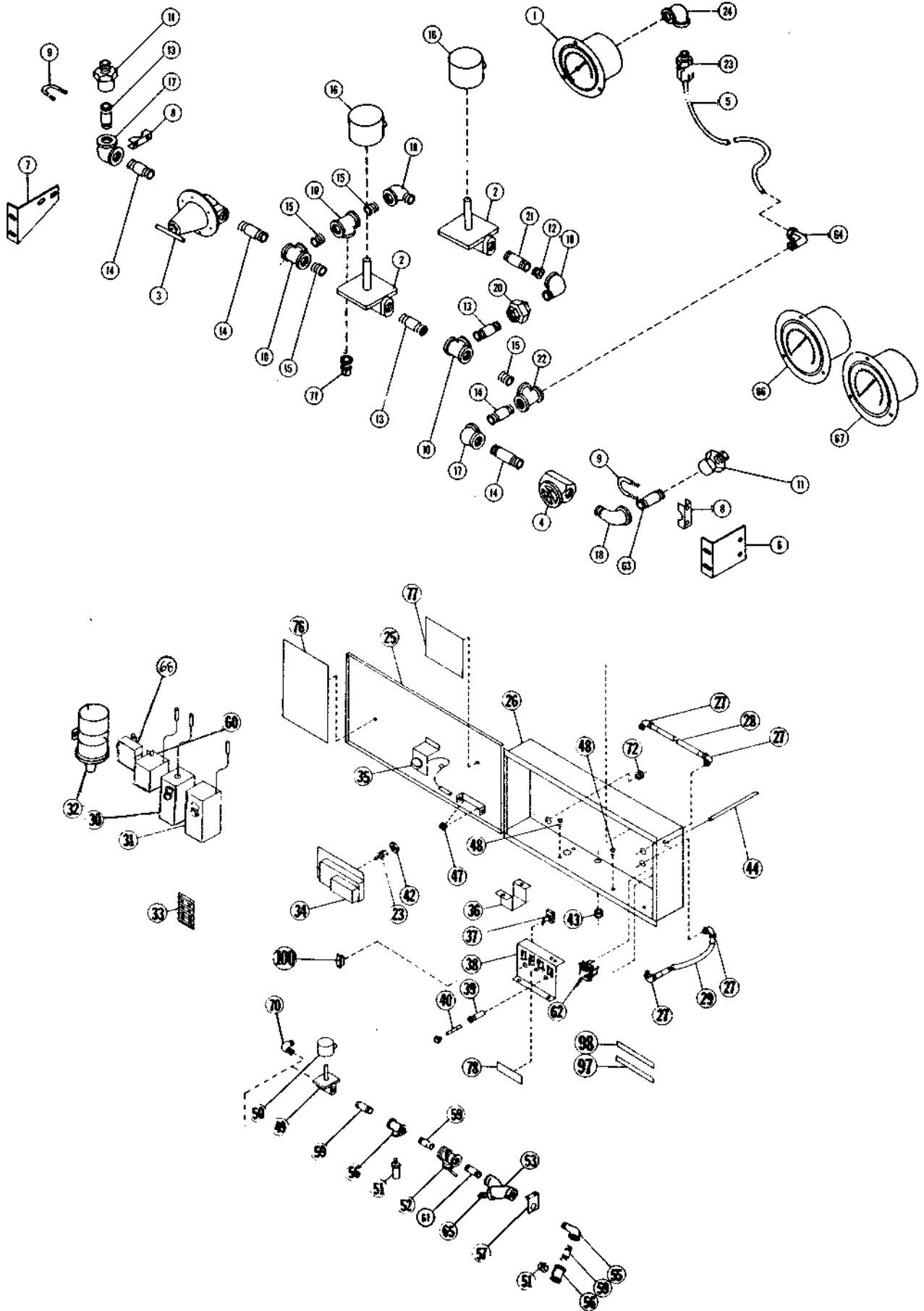
REF. NO.	PART NO.	NO. REQ'D.	DESCRIPTION
1	D52295	1	Tube, Burner (Propane)
1	D52960	1	Tube, Burner (Natural Gas)
2	D52303	1	Burner, Ring (Propane)
2	D52305	1	Burner, Ring (Natural Gas)
3	D52520*	1	Ring, Flame Deflector
4	D22320	1	Spark Plug
5	57001279*	1	Vaporizer, Ring
6	57001242*	2	Bracket, Vaporizer
7	57001240	3	Mount, Burner
8	D22462	1	Window, Plexiglass
9	D32331*	1	Tube, Outside Liquid to Vapor
9	D52110	1	Tube, Outside Liquid to Vapor (CSA)
10	D32312*	1	Tube, Outside Vapor to Plumb.
11	57001268*	1	Tube, Inside Vapor
12	57001267*	1	Tube, Inside Liquid
13	D52374*	1	Tube, Inside Vapor to Burner
15	57001247	1	Orifice - LP
16	D32300*	1	Holder, Orifice
18	73086*	8	Adapter, 1/2" P. to 1/2" T. Union
19	71028*	4	Capscrew, 5/16" x 1 1/4" Hex
21	D37330	3	Coupler, Union Brkt.
22	71942*	4	Screw, No. 14 x 3/4" Metal
23	73270	2	Grommet, 3/8" I.D. Rubber
24	71825	8	Machine Screw, 1/2" - 20 x 3/4" SL HD
25	72035	2	Screw, No. 8 x 1/2" Metal
27	77100*	1	Nut, Conduit
28	D52121*	1	Tube, Outside, Vapor to Burner
29	72790*	1	Nipple, 1/2" Close
30	72886*	1	Tee, 1/2" x 1/2" x 1/2" N.P.T.
31	72928*	1	Nipple, 1/2" x 13"
32	72910*	1	Reducer, 1/2" x 1/2"
33	72633*	1	Plug, 1/2" N.P.T. Pipe
34	57001241* D55520	1	Mount, Spark Plug
35	D32130 NG	1	Bracket, Flame Detector Bulb Mount
36	72797*	1	Nipple, 1/2" x 4 1/2" XH
37	72793*	1	Nipple, 1/2" x 2 1/2" XH
38	72858*	1	Elbow, 1/2" x 90° St.
39	72843*	1	Elbow, 1/2" x 90°

D55510 } NG
D32370 } LP shield.

NOTE: *Propane Burners Only

Note: For nuts, washers and lockwashers, see page 59.

PROPANE CONTROL CABINET ASSEMBLY



PROPANE CONTROL CABINET ASSEMBLY

REF. NO.	PART NO.	NO. REQ'D	DESCRIPTION
1	D25102	1	Gauge, Pressure
2	77193	2	Valve, $\frac{1}{2}$ " Solenoid
3	D25191	1	Regulator, $\frac{1}{2}$ " Pressure
4	57001285	1	Valve, Ball
5	D55310	1	Line, Pressure Gauge
6	D25620	1	Bracket, Front Plumbing
7	D25631	1	Bracket, Rear Plumbing
8	D25610	2	Clamp, $\frac{1}{2}$ " Saddle
9	71987	2	U-Bolt
10	72886	3	Tee, $\frac{1}{2}$ "
11	73071	2	Connector, $\frac{1}{2}$ " T to $\frac{1}{2}$ " Pipe
12	D22415	1	Orifice
13	72792	3	Nipple, $\frac{1}{2}$ " x 2"
14	72791	4	Nipple, $\frac{1}{2}$ " x 1.5"
15	72790	4	Nipple, $\frac{1}{2}$ " close
16	D25542	2	Coil, Solenoid
17	72945	2	Elbow, $\frac{1}{2}$ "
18	72858 72946	3	Elbow, $\frac{1}{2}$ " Street
19	72673	1	Plug, $\frac{1}{2}$ " Pipe
20	72978	1	Union, $\frac{1}{2}$ "
21	D25865	1	Nipple, Orifice
22	72886	1	Tee, $\frac{1}{2}$ " x $\frac{1}{2}$ " x $\frac{1}{2}$ "
23	73110	1	Connctor, $\frac{1}{4}$ " T to $\frac{1}{4}$ " Pipe
24	72841	1	Elbow, $\frac{1}{4}$ " x 90 Degree
25	D25511	1	Door, Cabinet
26	D25503	1	Cabinet
27	73159	2	Connector, 3/8 Conduit x 90°
28	D25261	1	Conduit 16" Lg
29	D25263	1	Conduit, 12" Lg
30	D25770	1	Switch, Plenum
31	K25231	1	Thermostat, Grain Temperature
32	77228	1	Coil, Ignition, 12 Volt
33	77230	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 Ham
43	73278	1	Grommet, 5/8 I.D. Rubber
44	D52321	1	Tube, Air Switch
	D22200	1	Wire, Tractor Lead-In

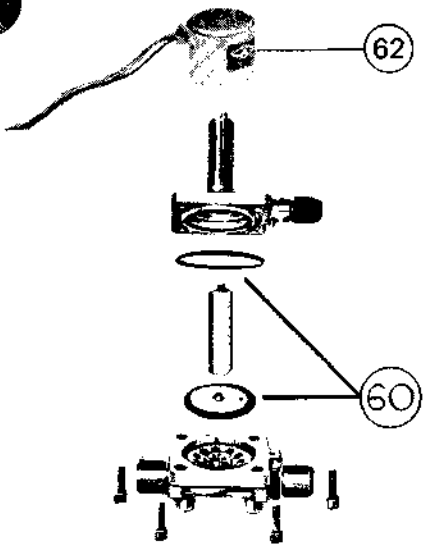
PROPANE CONTROL CABINET ASSEMBLY

REF. NO.	PART NO.	NO. REQ'D.	DESCRIPTION
47	73271	2	Grommet, 1/4" I.D. Rubber
48	71683	5	Screw, 10 - 24 x 1/2" Slotted Head Machine
49	77192	1	Body, 3/8" N.P.T. Solenoid Valve (2) FOR CSA
50	D25522	1	Coil, Solenoid valve 12 Volt
51	D25240	2	Valve, 1/4" N.P.T. Relief
52	D25120	1	Valve, 3/8" N.P.T. Quick Acting
53	D25280	1	Strainer, 3/8" N.P.T.
54	73085	1	Connector, 1/2" Tube to 3/8" M.N.P.T. (CSA)
55	72857	1	Elbow, 3/8" N.P.T. Street (3) FOR CSA
56	72956	2	Tee, 3/8" N.P.T.
	72980	2	Bushing, 3/8" x 1/4" Red
57	D25271	1	Bracket, Plumbing
58	72784	1	Nipple, 3/8" N.P.T. x 3" X.H. CSA
59	72781	3	Nipple, 3/8" N.P.T. x 1 1/2" X.H.
60	D25161	1	Flame Detector
61	72782	1	Nipple, 3/8" x 2"
62	D25140	1	Switch, Push to Start
63	72793	1	Nipple, 1/2" x 2.5"
64	73128	1	Elbow, 1/2" to 1/2" NPT Brass
65	72653	1	Plug, 3/8" N.P.T. Pipe
66	D24033	1	Thermometer, Plenum
67	D24123	1	Thermometer, Grain
68	77384	1	Booster, Spark
69	72035	3	Screw, No. 8 x 1/4" Metal
70	73100	1	Elbow, 1/2" T - 3/8" NPT x 90° Male
71	72673	1	Plug, 1/2" N.P.T. Pipe
72	73270	2	Grommet, 3/8" I.D. Rubber
76	74714	1	Decal, Operating Instruction - Propane
77	74715	1	Decal, Wiring Diagram
78	73962	1	Decal, Push to Start
92	72620	2	Nipple, 1/4" Close
93	72885	1	Tee, 1/2" x 1/2" x 1/4"
94	73047	2	Elbow, 90° Brass, 1/4" T. to 1/4" M.N.P.T.
97	74531 74615	1	Decal, Red Indicator
98	74530	1	Decal, Green Indicator
100	77162	4	Light, Indicator

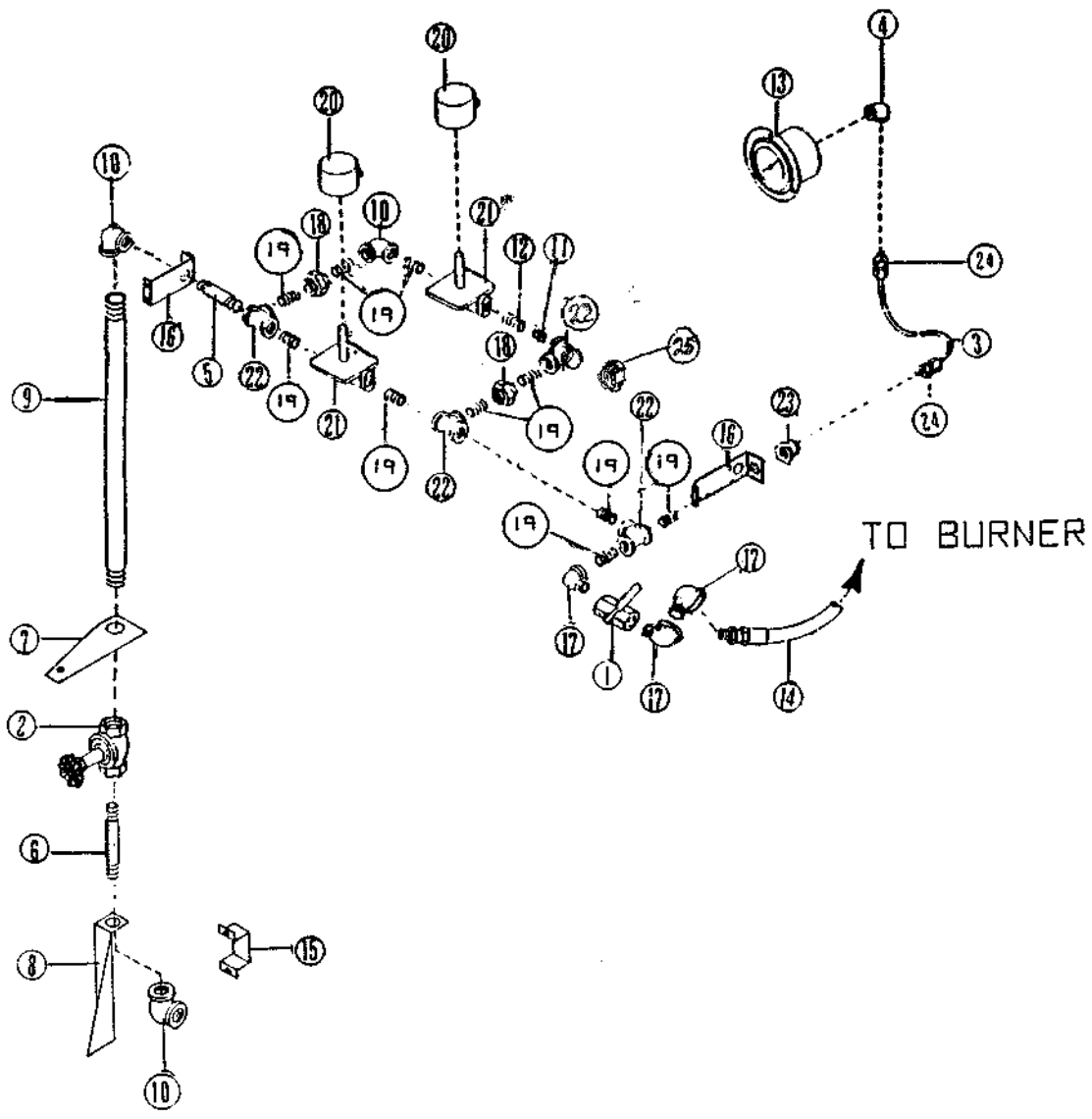
Note: For nuts, washers and lockwashers, see page 59.

SOLENOID VALVE ASSEMBLY

REF. NO.	PART NO.	DESCRIPTION
60	77507	Kit, 3/8" Solenoid Valve Diaphragm Repair
60	77508	Kit, 1/2" Solenoid Valve Diaphragm Repair
60	77506	Kit, 1" Solenoid Valve Diaphragm repair (Natural Gas)
62	D25542	Coil, 12 Volt Solenoid Valve, 27" Leads w/Forks



NATURAL GAS CONTROL CABINET ASSEMBLY

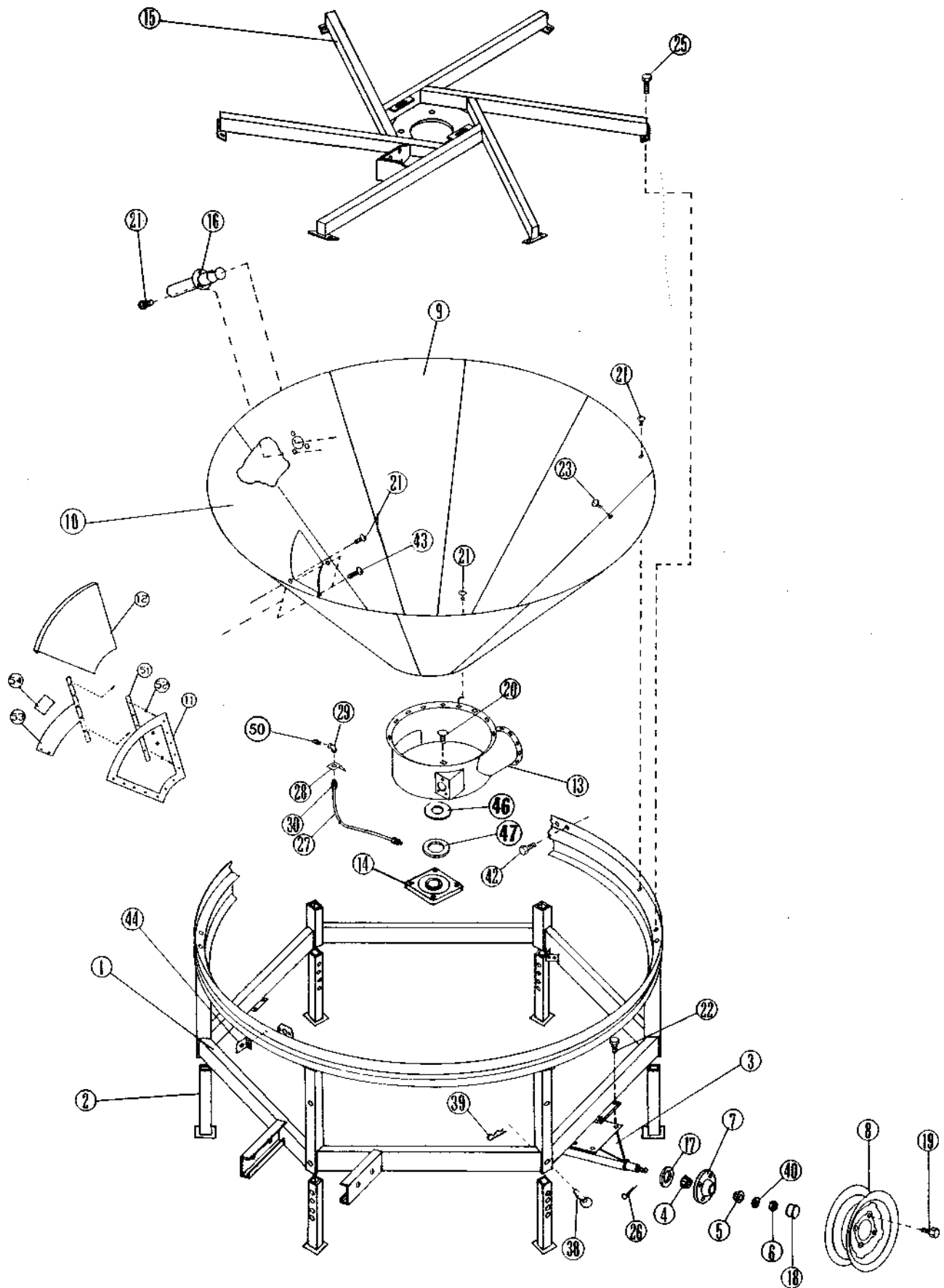


545 NATURAL GAS PLUMBING

REF. NO.	PART NO.	NO. REQ'D	DESCRIPTION
1	D55650	1	Valve, 1" Ball
2	73185	1	Valve, 1" Gate
3	D25305	1	Line, Pressure Gauge
4	72841	1	Elbow, 1/4" NPT x 90°
5	72705	1	Nipple, 1" x 3 1/2"
6	72712	1	Nipple, 1" x 7"
7	D52950	1	Bracket, Lwr Plumbing
8	D32940	1	Bracket, Long Lwr Plumbing
9	72932	1	Nipple, 1" x 15"
10	72845	3	Elbow, 1" x 90°
11	D52412	1	Orifice, NG Low Burn
12	D55895	1	Holder, Orifice
13	D25102	1	Gauge, Pressure
14	D52441	1	Hose, 1" x 32" NG
15	D52955	1	Clamp, Lwr NG Plumbing Brkt.
16	D52941	2	Bracket, NG Plumbing
17	72860	3	Elbow, 1" x 90° Street
18	72716	2	Union, 1" Pipe
19	72700	10	Nipple, 1" Close
20	D25542	2	Coil, Solenoid Valve 12 VDC (27")
21	77191	2	Valve, 1" Solenoid
22	72916	4	Tee, 1" x 1" x 1"
23	72911	1	Reducer, 1" to 1/4" Bell
24	73110	2	Fitting, 1/4" NPT to 1/4" comp.
25	72713	1	PLUG, 1" NPT

NOTE: For nuts, washers and lockwashers - see page 59.

FRAME ASSEMBLY



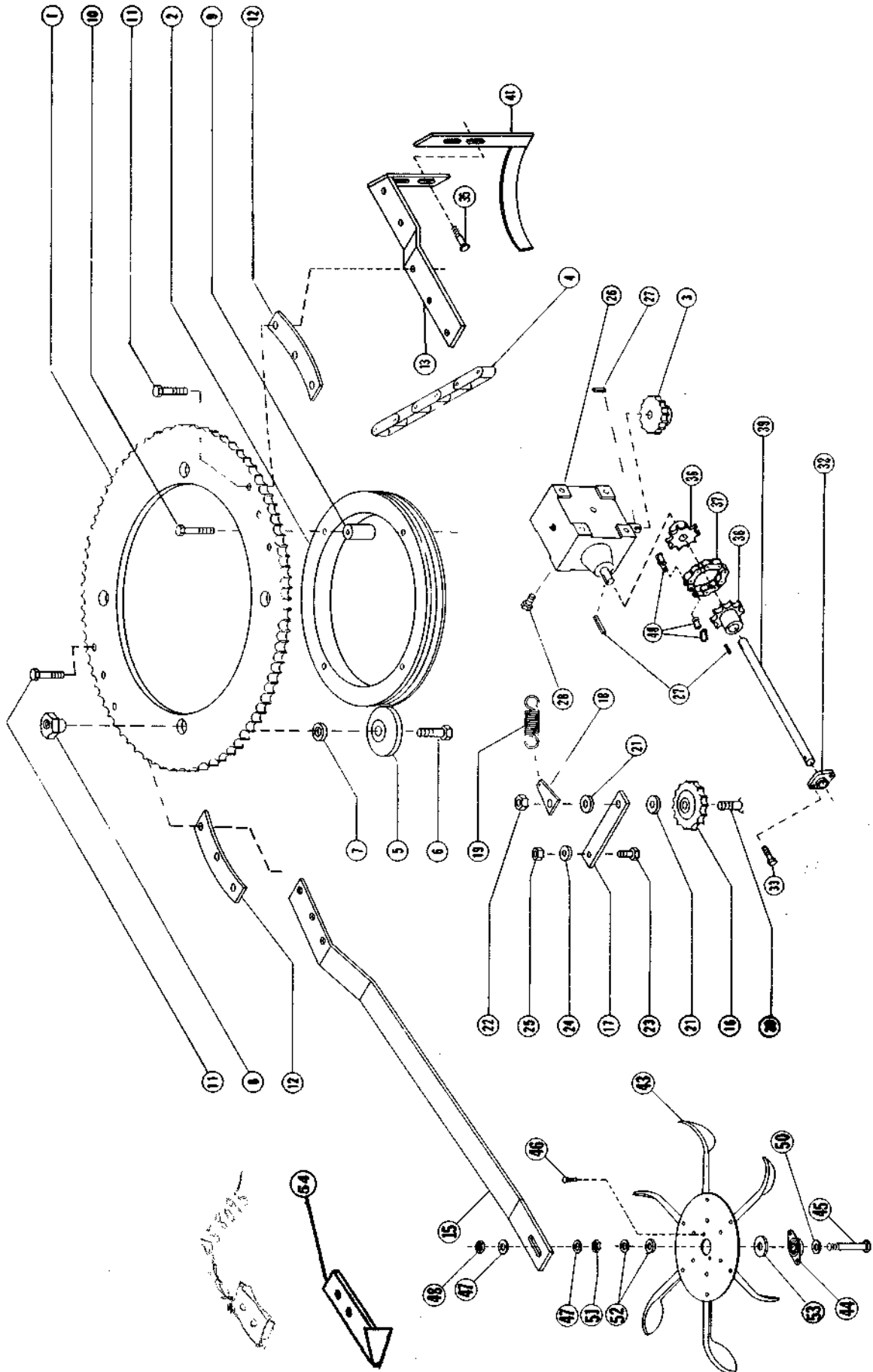
FRAME ASSEMBLY

REF. NO.	PART NO.	NO. REQ'D.	DESCRIPTION
1	D51015	1	Main Welded Frame Less Hitch
2	D21021	6	Jack
	D21022	6	Adjustable Jack (Optional)
3	D51032	2	Axle Assembly
4	42-110149	4	Inner Bearing
5	D21050	4	Outer Bearing
6	D21060	4	Nut
7	D21075	4	Hub with Bearing Cups
8	D21080	4	Wheel Rim 15"
	D21085	4	Tire, Tube & Rim (Mounted)
9	D51450	8	Bin Bottom Sheet (Perf. Coated)
9	D53311	8	Bin Bottom Sheet (Perf.)
10	D51460	1	Bin Bottom Sheet w/Access Hole (Perf. Coated)
10	D53322	1	Bin Bottom Sheet w/Access Hole (Perf.)
11	D21124	1	Access Door Frame
12	D21133	1	Access Door
13	D51144	1	Bin Bottom Well w/Boot
14	D21161	1	Bottom Auger Bearing
15	D51173	1	Spider
16	D21182	1	Grain Sampler
17	D21190	4	Seal
18	D21200	4	Cap
19	42-16053	16	Lug Bolt
20	71329	4	Carriage Bolt ½" x 1½"
21	71823	129	¼" - 20 x ½" Slotted HD Machine Screw
22	71103	8	½" x 1¼" Capscrew
23	71822	150	¼" - 20 x 3/8" Slotted HD Machine Screw
25	71053	20	3/8" x 1¼" Capscrew
26	73527	4	5/32" x 1¼" Cotter Pin
27	D51190	1	Line, Grease
28	D21220	1	Bracket, Line
29	72840	1	Elbow, 1/8"
30	73109	2	1/8" Compression Fittings
38	73586	6	Pin
39	73587	6	Clip
40	72474	4	¼" Washer
42	71054	2	3/8" x 1¼" Capscrew
43	71825	2	¼" - 20 x ¼" Slotted Head Machine Screw
44	D22491	1	Bracket, Conduit
46	73289	1	Seal, 2" I.D. Neoprene Shaft
47	73290	1	Seal, 2.72" I.D. Neoprene Bearing
48	D51400	1	Bin Bottom Sheet (Solid)
50	42-16127	1	Zerk, 1/8" Grease
51	D21500	1	Track
52	72488	6	Washer, Hi-Lock
53	D21136	1	Bar, Safety
54	74716	1	Decal

NOTE: For nuts, washers and lockwashers - see page 59.

AGITATOR ASSEMBLY

TOP VIEW

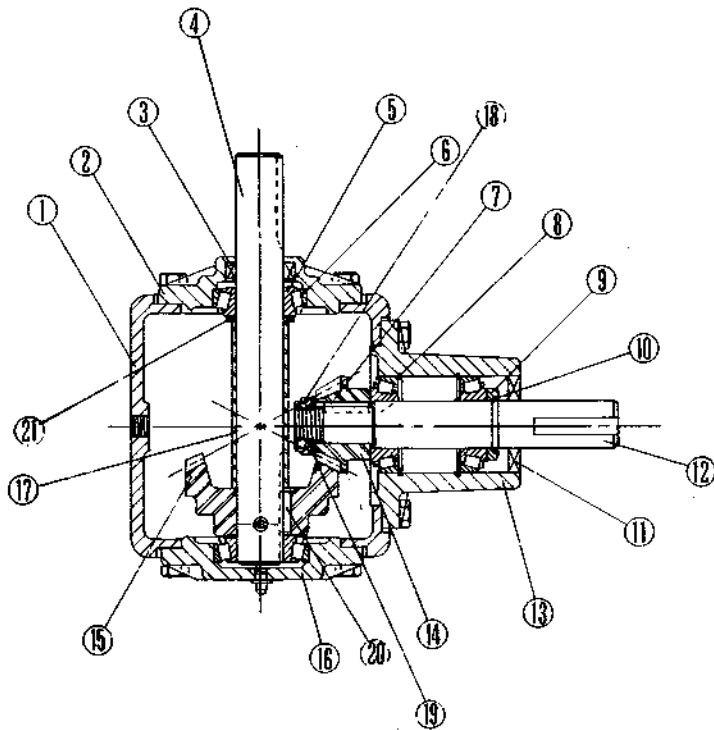


AGITATOR ASSEMBLY

REF. NO.	PART NO.	NO. REQ'D	DESCRIPTION
1	D28033	1	Sprocket, No. 60, 112 Teeth
2	D28260	1	Race, Agitator
3	D28090	1	Sprocket, No. 60, 13 Teeth
4	D28141	1	Chain, No. 60 Roller 128 Pitches
5	D28161	4	Roller, Agitator w/Bearings
	A28000	4	Roller Brg. Kit
6	73521	4	Capscrew, 3/4" x 2 3/4" HT
7	72522	4	Washer
8	D28204	4	Nut, Cam
9	D28270	4	Spacer
10	73519	4	Capscrew, 7/16" x 5" HT
11	73504	6	Capscrew, 7/16" x 2 1/2" HT
12	D28082	4	Spacer, Agitator Arm
13	D58212	1	Arm, Horiz. Sect. Vertical Agitator (Standard)
15	D58064	1	Arm, Horizontal Agitator
16	D28172	1	Sprocket, No. 60 Idler 15 Teeth
17	D28181	1	Arm, Idler
18	D28280	1	Tab, Spring
19	D28190	1	Spring
20	71132	1	Capscrew, 5/8" x 2 1/4"
21	72413	2	Washer, 5/8"
22	72376	1	Nut, 5/8" Lock
23	71103	1	Capscrew, 1/2" x 1 1/4"
24	72412	1	Washer, 1/2"
25	72379	1	Nut, 1/2" Lock
26	D28241	1	Gearbox
27	73400	3	Key, 1/4" Square x 1 1/4" Lg.
28	71052	4	Capscrew, 3/8" x 1 1/2"
32	D28290	1	Bearing w/Collar
33	71029	2	Capscrew, 5/16" x 1 1/2"
35	71331	2	Bolt, 1/2" x 2" Carriage
36	D28330	2	Coupler Half, 60B 10 x 1"
37	D28331	1	Chain, No. 60 Roller 9 Pitch
39	D58126	1	Shaft, Agitator
40	73368	1	Link, No. 60 Roller Chain Connecting
41	D58230	1	Paddle, STD Vertical Agitator Arm (Inner)
43	D58080	1	Wheel, Rotary Agitator (Ass'y) (Optional)
	D58160	1	Disc (For above)
	D58170	6	Paddle (For above)
44	85020	1	Bearing, 3/4"
45	75342	1	Capscrew, 3/4" x 4"
46	71051	2	Bolt, 3/8" x 3/4"
47	72591	3	Washer, 3/4" Wide Rim
48	72375	1	Nut, 3/4" Hex Lock
50	72595	1	Bushing, 3/4" NR Machine
51	72256	1	Nut, Jam
52	D28370	2	Bushing, 3/4" Machine (Thick)
53	72415	1	Washer, 7/8" Flat
54	D58091	1	Shovel, Horz. Agit (Std.)

Note: For nuts, washers and lockwashers, see page 59.

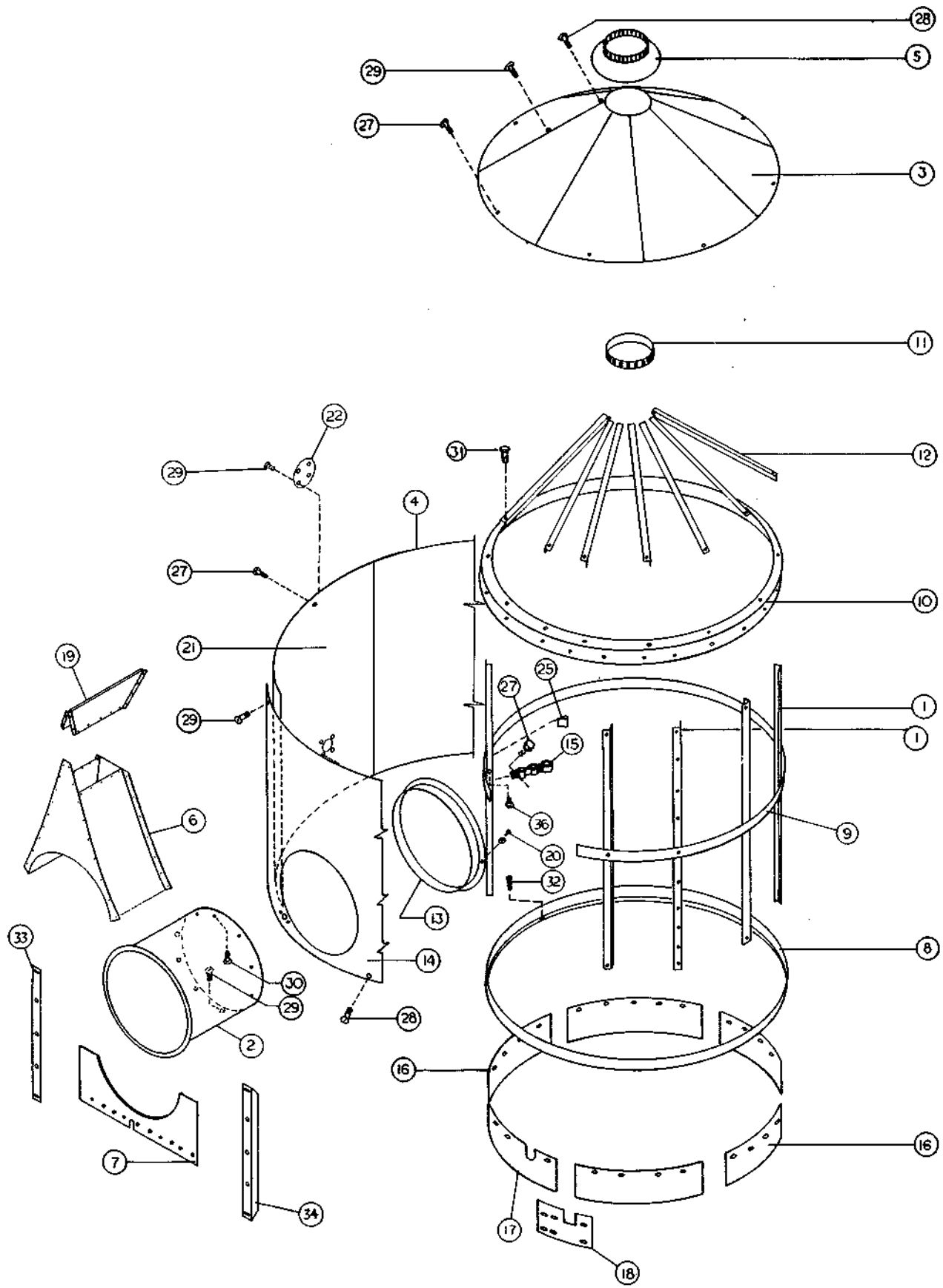
**GEARBOX ASSEMBLY
GT D28241**



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

PLENUM ASSEMBLY

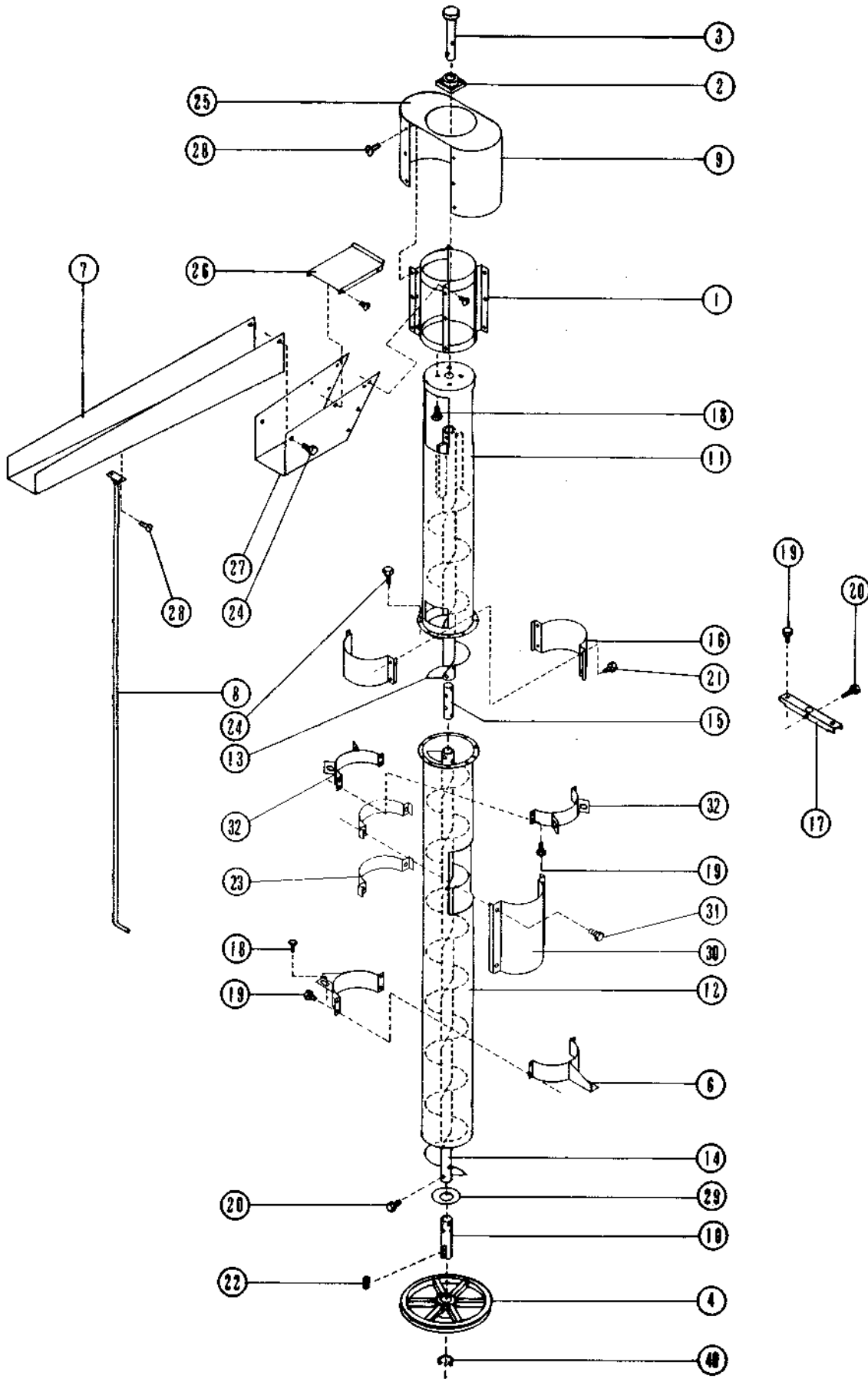


PLENUM ASSEMBLY

REF. NO.	PART NO.	NO. REQ'D.	DESCRIPTION
1	D33010	31	Plenum Frame Angle, Straight
2	D53020	1	Connecting Tube
3	D53030	7	Lid Sheet
4	D53040	4	Side Sheet Without Connecting Tube Hole
5	D23051	1	Cone Cap
6	D53061	1	Saddle
7	D53070	1	Front Enclosure
8	D53080	1	Lower Frame Band
9	D53091	1	Center Band, 1/8" Thick
10	D53100	1	Transition Band
11	D53110	1	Top Ring
12	D53120	35	Lid Frame Angles
13	D53130	1	Connecting Tube Trim Ring
14	D53140	1	Sheet With Connecting Tube Hole
	D53150	1	Side Sheet (Narrow Strip)
15	D23161	2	Thermometer Support Bracket
16	D53172	5	Skirt
17	D53182	1	Skirt With Slot
18	D53192	6	Splices, Plenum Skirt
19	D53160	1	Extension, Saddle
20	71942	11	No. 14 x 3/4" Self Tapping Screw
21	D53210	1	Side Sheet W/Cleaner Hole
22	D24210	1	Plate, Cover
25	D23210	2	Push on Clip
27	71823	85	1/4" - 20 x 1/2" Slotted Hd Machine Screw
28	71825	108	1/4" - 20 x 3/4" Slotted Hd Machine Screw
29	71822	104	1/4" - 20 x 3/8" Slotted Hd Machine Screw
31	71001	35	1/4" x 3/4" Capscrew
32	72155	6	5/16" x 3/4" Self-tapping Hex Hd Screw
33	D54320	1	Stiffener, Front Sheet, Right
34	D54330	1	Stiffener, Front Sheet, Left
36	77386	1	Sensor, High Limit Control

Note: For nuts, washers and lockwashers, see page 59.

AUGER ASSEMBLY

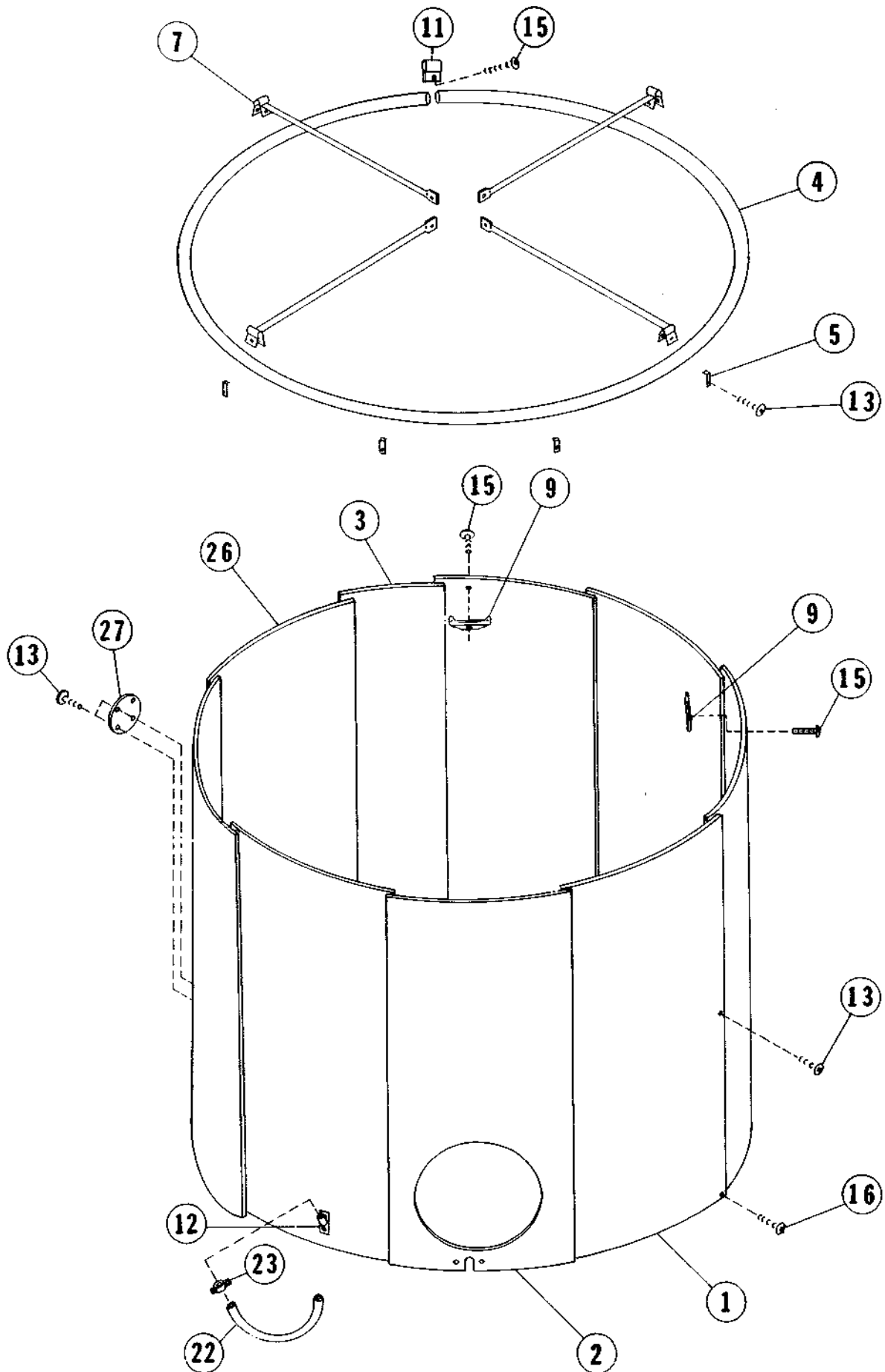


AUGER ASSEMBLY

REF. NO.	PART 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"
6	D26065	2	Clamp, Support (at Spider)
7	D36071	1	Spout
8	D36081	1	Spout Control Handle
9	D26091	1	Head Baffle, Side
10	D26101	1	Lower Stub Shaft
11	D36111	1	Auger Tube (Top Section)
12	D56120	1	Auger Tube (Bottom Section)
13	D36131	1	Flighting (Top Section)
14	D36141	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	1/2" x 1 1/2" Carriage Bolt
19	71056	8	3/8" x 2" Capscrew
20	73520	8	5/8" x 3 1/2" Capscrew
21	71001	4	1/4" x 3/4" Capscrew
22	73417	1	1/2" x 1/2" x 1 1/2" Key
23	D41030	2	Cleaning Attachment Band
24	71052	12	3/8" x 1" Capscrew
25	D26180	1	Head Baffle, Top
26	D26190	1	Head Baffle, Spout Cover
27	D26200	1	Head Baffle, Spout
28	71825	26	1/4" - 20 x 3/4" Slotted HD Machine Screw
29	72424	1	2" Washer
30	D26220	1	Grain Cleaner Hole Cover
31	71054	4	3/8" x 1 1/2" Capscrew
	DA26000	1	Includes Item Number 1, 9, 25, 26, 27 Assembled
	73180	1	Flighting Repair Section
32	D26057	2	Clamp, Brace
40	69503	1	Snap Ring

Note: For nuts, washers and lockwashers, see page 59.

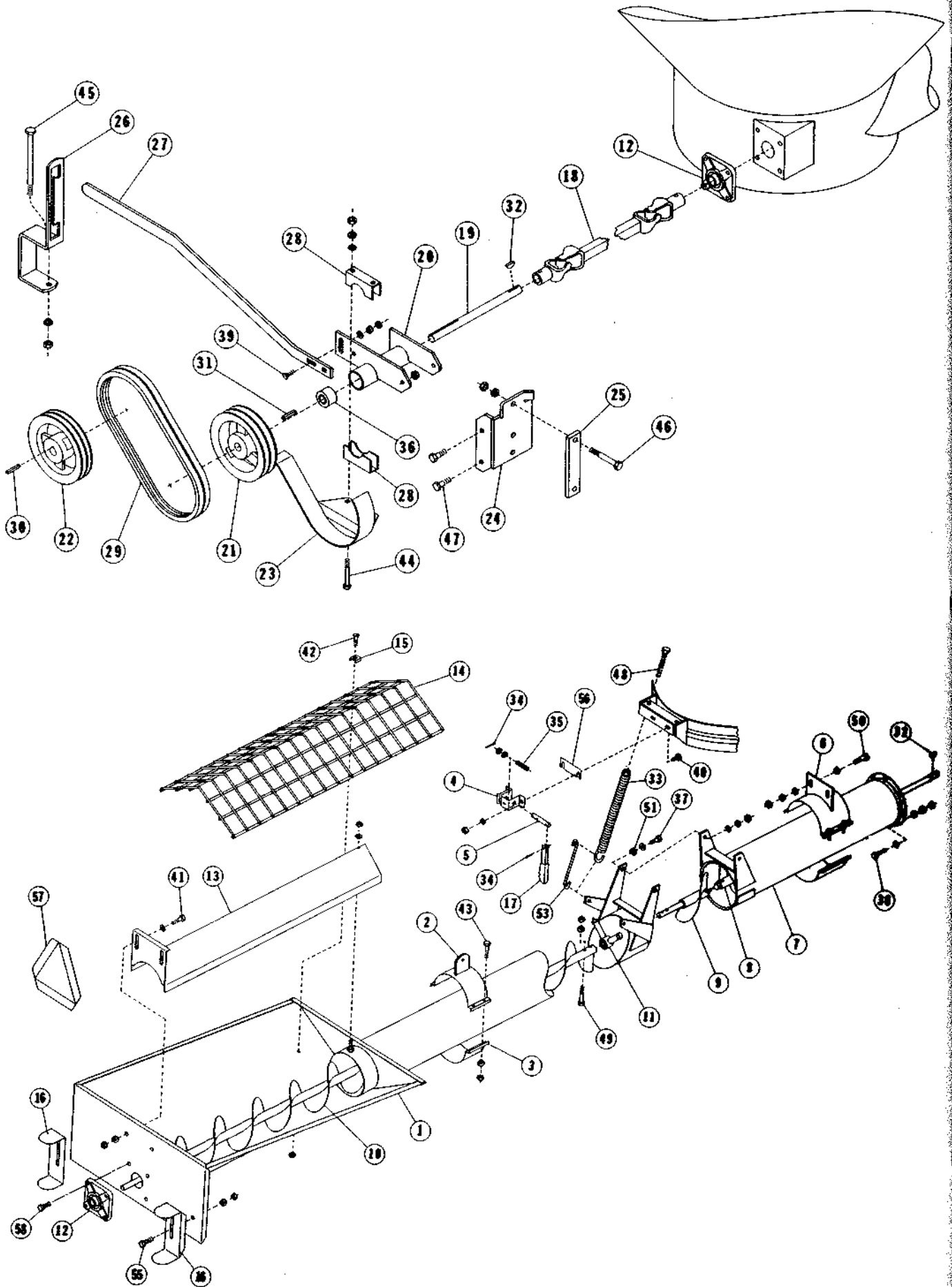
OUTSIDE SKIN ASSEMBLY



OUTSIDE SKIN ASSEMBLY

REF. NO.	PART NO.	NO. REQ'D.	DESCRIPTION
1	D54260	6	Outside Sheet Fine Perforated (Coated)
1	D53381	6	Outside Sheet Fine Perforated
1	D54300	6	Outside Sheet Std. Perforated (Coated)
1	D54010	6	Outside Sheet Std. Perforated
2	D54240	1	Outside Sheet with Hole Fine Perforated (Coated)
2	D53392	1	Outside Sheet with Hole Fine Perforated
2	D54280	1	Outside Sheet with Hole Std. Perforated (Coated)
2	D54021	1	Outside Sheet with Hole Std. Perforated
3	D54270	1	Outside Sheet 34" Wide Fine Perforated (Coated)
3	D53401	1	Outside Sheet 34" Wide Fine Perforated
3	D54310	1	Outside Sheet 34" Wide Std. Perforated (Coated)
3	D54090	1	Outside Sheet 34" Wide Std. Perforated
4	D54040	1	Cap Ring
5	D24050	8	Ring Holder
7	D54072	4	Auger Brace
8	D24080	1	Spout Control Catch
9	D24091	2	Spout Support
11	D24110	1	Rim Connector
12	D24131	1	Grain Temperature Capillary Support Bracket
13	71822	220	1/4" - 20 x 3/8" Slotted Hd. Machine Screw
15	71825	12	1/4" - 20 x 3/4" Slotted Hd. Machine Screw
16	71823	105	1/4" - 20 x 1/2" Slotted Hd. Machine Screw
22	D54191	1	Liquitite Conduite
23	73263	1	3/4" Two Screw Connector
26	D54250	1	Outside Sheet with Hole for Grain Cleaner-Fine Perf. (Coated)
26	D54222	1	Outside Sheet with Hole for Grain Cleaner-Fine Perf.
26	D54290	1	Outside Sheet with Hole Grain Cleaner-Std. Perf. (Coated)
26	D54201	1	Outside Sheet with Hole for Grain Cleaner-Std. Perf.
27	D24210	1	Cover Plate
	73966	1	(GT Logo)

LOADING HOPPER & DRIVE ASSEMBLY

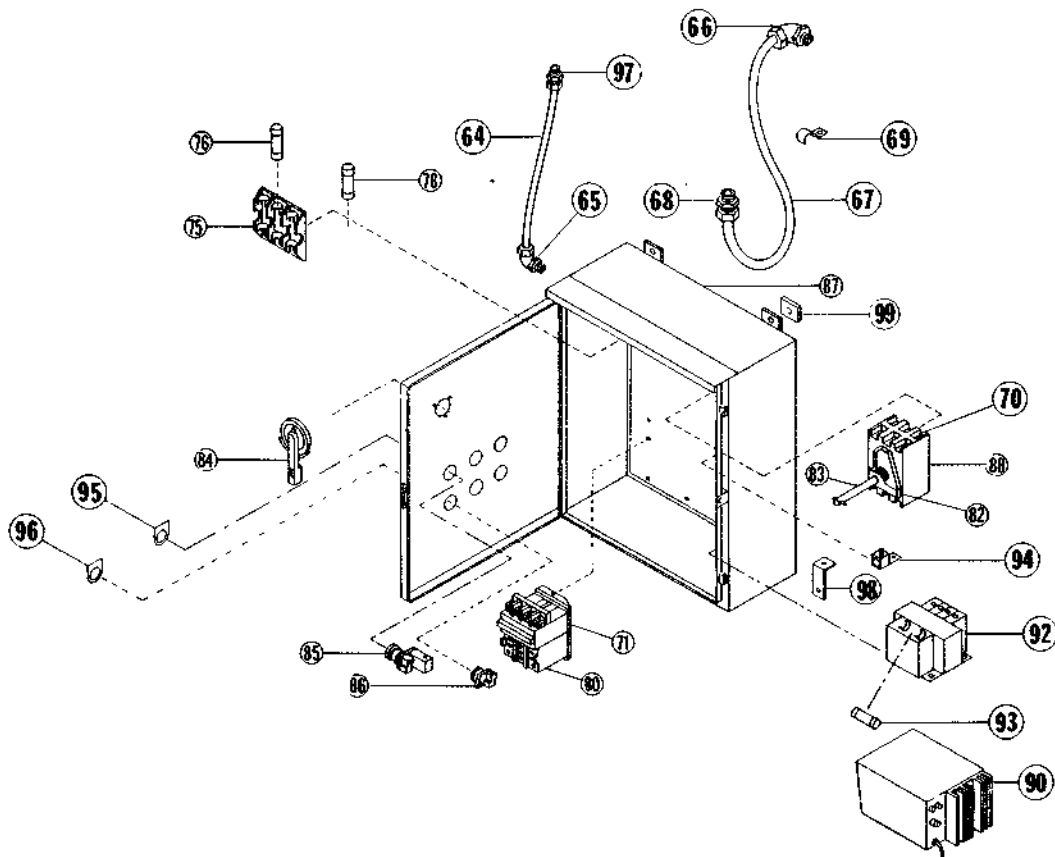
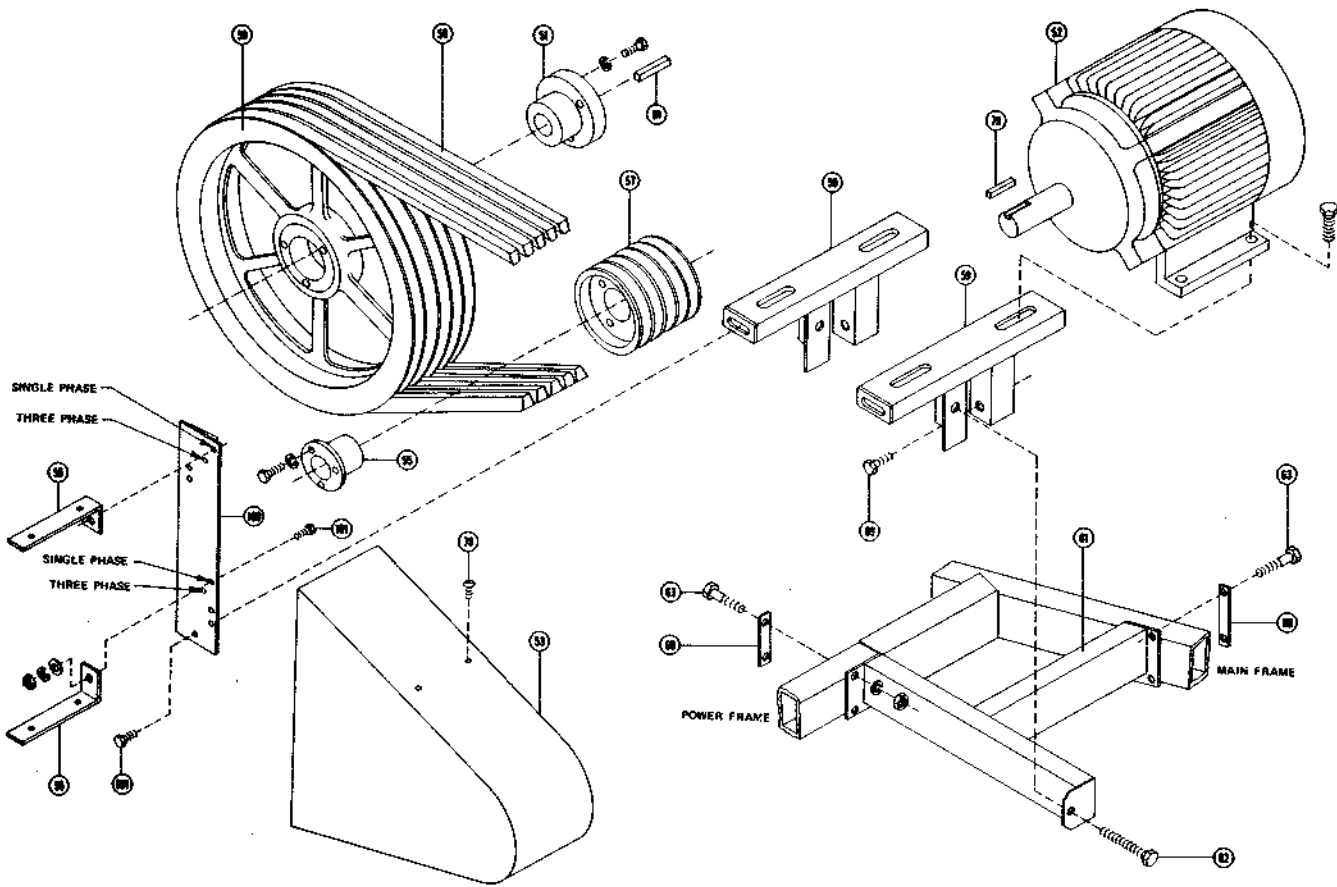


LOADING HOPPER & DRIVE ASSEMBLY

REF. NO.	PART NO.	NO. REQ'D.	DESCRIPTION
1	D29013	1	Hopper, Extended
2	D59540	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	D59031	1	Tube, Front Auger
8	D59053	1	Flight, Front Auger
9	D59391	1	Flight, Short Sec. 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	42-66022	2	Bearing
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	D59343	1	Tumbler (See page 34 for parts)
19	D22850	1	Jackshaft
20	D29490	1	Housing, L.H. Jackshaft
21	D59311	1	Pulley, 6.6 PD x 1" ID
22	D59301	1	Pulley, 6.6 PD x 1½ ID
23	D29372	1	Guard, Belt
24	D29352	1	Bracket, Jackshaft
25	D52720	1	Strap
26	D59382	1	Lock, Clutch
27	D59362	1	Handle, Clutch
28	42-16453	2	Clamp, Mount
29	D59322	1	Belt, B58 (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 1½
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	8	Bolt, Carriage 5/16 x 3/4
41	71026	2	Capscrew, 5/16 x 3/4
42	71825	4	Screw, 5/16 x 3/4 SL HD Machine
43	71054	8	Capscrew, 3/8 x 1½
44	71038	2	Capscrew, 5/16 x 4½
45	71066	1	Capscrew, 3/8 x 6
46	71112	2	Capscrew, ½ x 4
47	71103	2	Capscrew, ½ x 1½
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 1½"
53	D59172	2	Rod, Spring Connecting
55	71051	2	Capscrew, 3/8" x 3/4"
56	D29550	As Req'd.	Spacer, Hopper Latch
57	73899	1	Decal, Slow Moving Vehicle
58	71053	8	Capscrew, 3/8" x 1½"

Note: For nuts, washers and lockwashers, see page 59.

SIDE MOUNT ELECTRIC POWER UNIT ASSEMBLY

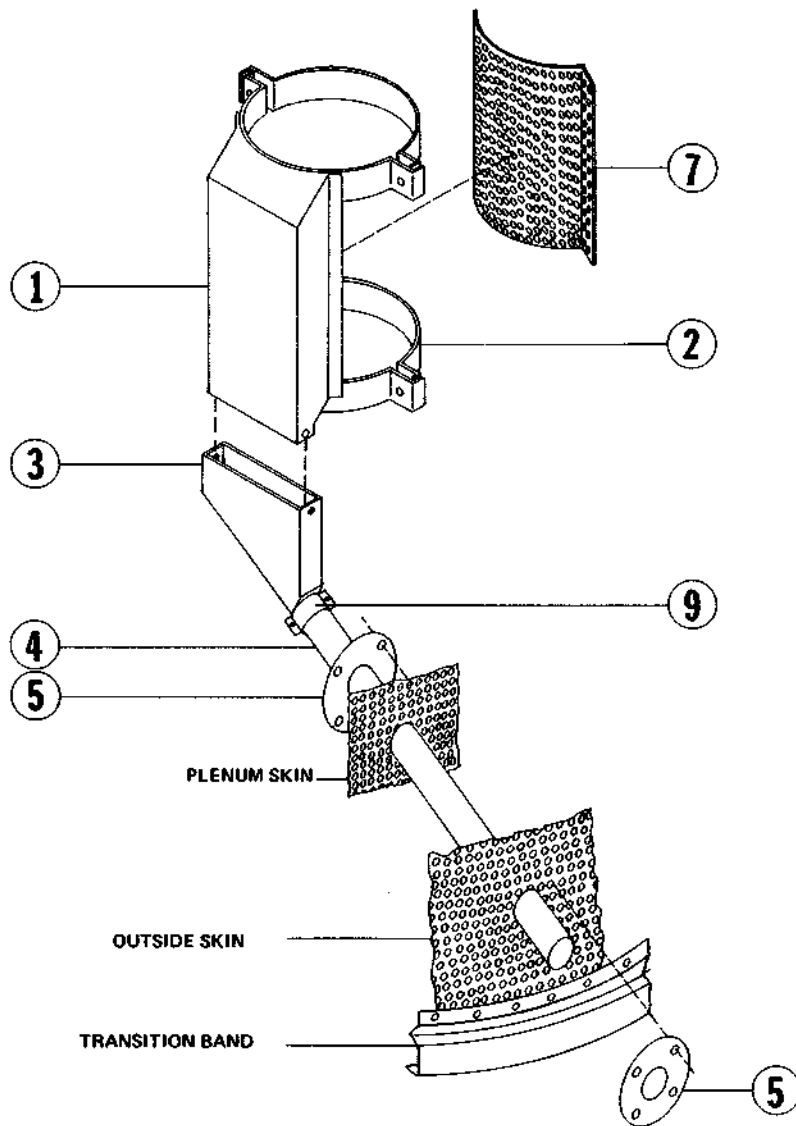


SIDE MOUNT ELECTRIC POWER UNIT ASSEMBLY

REF. NO.	PART NO.	NO. REQ'D.	DESCRIPTION
50	76013	1	Sheave, 5B x 18.4
51	76015	1	Hub, 1½" SF
52	D52391	1	Motor, Electric 25 HP
53	D59430	1	Guard Belt
55	76009	1	Hub, 1-7/8" SD
56	D32670	2	Bracket, Belt Guard
57	76010	1	Sheave
58	D52990	1	Belt B88 (Set of 5)
59	D52916	2	Channel, Motor Mount
60	D52720	2	Strap, Mount
61	57001272	1	Frame, Motor Mount
62	71988	1	Capscrew, ½" x 6" Full Thread
63	71112	4	Capscrew, ½" x 4"
64	D54191	1	Conduit, 3/8" Liqueatite x 34"
65	73159	2	Elbow, 3/8" Liqueatite x 90°
66	73737	1	Elbow, 1" Liqueatite x 90°
67	73734	4½'	Conduit, 1" Liqueatite
68	73738	1	Connector, 1" Liqueatite Straight
69	73742	6	Strap, Conduit
70	73703	3	Terminal, Line
71	77060	1	Starter Magnetic No. 3 - 240 Volt
75	77160	2	Base, Fuse (Adder)
	77161	1	Base, Fuse (End)
76	73732	3	Fuse, 80 Amp 240 Volt
79	73418	1	Key, 5/16" x ½" x 1-3/4"
80	73710	3	Heater, H85 - 240 Volt
81	73411	1	Key 3/8" Sq. 1½"
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	Converter, 110 VAC to 12 VDC
92	77112	1	Transformer, 300 VA
93	77113	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" Liqueatite Conduit
98	D32050	2	Bracket, Angle Mounting
99	500671	2	Spacer, Neoprene
100	D32660	1	Mount, Belt Guard
101	71052	4	Capscrew, 3/8" x 1"

Note: For nuts, washers and lockwashers, see page 59.

GRAIN CLEANING ATTACHMENT






REF. NO.	PART NO.	NO. REQ'D.	DESCRIPTION
	A41011	1	Grain Cleaning Attachment
1	D41020	1	Cleaning Attachment Body
2	D41030	2	Cleaning Attachment Bands
3	D41082	1	Cleaning Attachment Transition
4	D41090	1	Cleaning Attachment Top Tube
5	D41100	1	Flange, Cleaning Attachment Tube
7	A41100	1	Cleaning Attachment Screen (Corn, Sunflower) 7/32" Holes
7	A41110	1	Cleaning Attachment Screen (Wheat, Oats, Barley, Milo) 7/64" Holes
7	A41120	1	Cleaning Attachment Screen (Soybeans) 5/32" Holes
7	A41130	1	Cover Plate (To replace screen)
7	A41105	1	Cleaning Attachment Screen (Flax) 5/64" Holes
7	A41115	1	Cleaning Attachment Screen (Rape Seed) 1/16" Holes
9	D41081	1	Band, Transition 1/2

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

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.

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



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