

**AD-15/AD-25/AD-30/AD-285/AD-50/AD-75
Non-Coin, Timers and Phase 3 Computers
GAS - ELECTRIC - STEAM
Installation/Operator's Manual**

WARNING: For your safety the information in this manual must be followed to minimize the risk of fire or explosion or to prevent property damage, personal injury or loss of life.

Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.

WHAT DO YOU DO IF YOU SMELL GAS

- Do not try to light any appliance.
- Do not touch any electrical switch; do not use any phone in your building.
- Clear the room, building or area of all occupants.
- Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
- If you cannot reach your gas supplier, call the fire department.

Installation and service must be performed by a qualified installer, service agency or the gas supplier.



For replacement parts, contact the distributor from which the dryer was purchased or

American Dryer Corporation

88 Currant Road Fall River, MA 02720-4781

Telephone: (508) 678-9010 / Fax: (508) 678-9447

E-mail: service@andry.com

ADC Part No. 112110

Retain This Manual In A Safe Place For Future Reference

American Dryer Corporation products embody advanced concepts in engineering, design, and safety. If this product is properly maintained, it will provide many years of safe, efficient, and trouble-free operation.

ONLY properly licensed technicians should service this equipment.

OBSERVE ALL SAFETY PRECAUTIONS displayed on the equipment or specified in the installation/operator's manual included with the dryer.

NOTE: UNDER NO CIRCUMSTANCES should the dryer door switch or the heat circuit devices ever be disabled.

WARNING: The dryer must never be operated with any back guards, outer tops, or service panels removed. PERSONAL INJURY or FIRE COULD RESULT.

We have tried to make this manual as complete as possible and hope you will find it useful. ADC reserves the right to make changes from time to time, without notice or obligation, in prices, specifications, colors, and materials and to change or discontinue models.

Important

For your convenience, log the following information:

DATE OF PURCHASE _____ **MODEL NO.** _____
DISTRIBUTOR'S NAME _____
Serial No.(s) _____

Replacements parts can be ordered from your distributor or the ADC factory. When ordering replacement parts from the factory, you can fax your order to ADC at (508) 678-9447 or telephone your orders directly to the ADC Parts Department at (508) 678-9010. Please specify the dryer **model number** and **serial number** in addition to the **description** and **part number**, so that your order is processed accurately and promptly.

The illustrations on the following pages may not depict your particular dryer exactly. The illustration are a composite of the various dryer models. Be sure to check the descriptions of the parts thoroughly before ordering.

INSTRUCTIONS TO BE FOLLOWED IN THE EVENT THE USE SMELLS GAS MUST BE POSTED IN A PROMINENT LOCATION. THE INSTRUCTIONS TO BE POSTED SHALL BE OBTAINED FROM THE LOCAL GAS SUPPLIER.

IMPORTANT

YOU MUST DISCONNECT and LOCKOUT THE ELECTRIC SUPPLY and THE GAS SUPPLY or THE STEAM SUPPLY BEFORE ANY COVERS or GUARDS ARE REMOVED FROM THE MACHINE TO ALLOW ACCESS FOR CLEANING, ADJUSTING, INSTALLATION, or TESTING OF ANY EQUIPMENT per OSHA (Occupational Safety and Health Administration) STANDARDS.

CAUTION

LABEL ALL WIRES PRIOR TO DISCONNECTION WHEN SERVICING THE COMPUTER BOARD and THE IGNITION MODULE. WIRING ERRORS CAN CAUSE IMPROPER AND DANGEROUS OPERATION.

CAUTION

DRYER(S) SHOULD NEVER BE LEFT UNATTENDED WHILE IN OPERATION.

WARNING

CHILDREN SHOULD NOT BE ALLOWED TO PLAY ON OR NEAR THE DRYER(S).

CHILDREN SHOULD BE SUPERVISED IF NEAR DRYER(S) IN OPERATION.

FOR YOUR SAFETY

DO NOT STORE OR USE GASOLINE OR OTHER FLAMMABLE VAPOR AND LIQUIDS IN THE VICINITY OF THIS OR ANY OTHER APPLIANCE.

DO NOT DRY MOP HEADS IN THE DRYER.

DO NOT USE DRYER IN THE PRESENCE OF DRY CLEANING FUMES.

IMPORTANT

PLEASE OBSERVE ALL SAFETY PRECAUTIONS displayed on the equipment and/or specified in the installation/operator's manual included with the dryer.

Dryer(s) **must not** be installed or stored in an area where it will be exposed to water and/or weather.

The wiring diagram for the dryer is located in the front electrical control box.

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IMPORTANT INFORMATION

A. Receiving and Handling

The dryer is shipped with a protective polyethylene cover and protective corners and is enclosed in a cardboard carton as a means of protection in transit. Upon delivery, the shipping carton and wooden skid should be visually inspected for shipping damage. If carton or wooden skid is damaged, inspect further.

Dryers Damaged in Shipment

1. All dryers should be inspected upon receipt and before they are signed for.
2. If there is suspected damage or actual damage, the trucker's receipt should be so noted.
3. If the dryer is damaged beyond repair, it should be refused. Those dryers which were not damaged in a damaged shipment should be accepted, but the number received and number refused must be noted on the receipt.
4. If you determine that the dryer has been damaged after the trucker has left your location, you should call your local freight terminal immediately and request an inspection and freight claim form. The freight company considers this concealed damage. This type of freight claim is very difficult to get paid and becomes extremely difficult when more than a day or two passes after the freight was delivered.
5. If you need assistance in handling the situation, please call Monique Sullivan at American Dryer Corporation.

IMPORTANT: THE DRYER SHOULD BE TRANSPORTED AND HANDLED IN AN UPRIGHT POSITION AT ALL TIMES.

B. Safety Precautions

1. Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.
2. Purchaser/user should consult the local gas supplier for proper instructions to be followed in the event the user smells gas. The instructions should be posted in a prominent location.

3. Dryer must be exhausted to the outdoors.
4. Although the American dryer is a very versatile machine, there are some articles that, due to fabric composition or cleaning method, should not be dried in it.

WARNING: Dry only water-washed fabrics. Do not dry articles spotted or washed in dry cleaning solvents, a combustible detergent, or "all purpose" cleaners. Fire or explosion could result.

WARNING: Do not dry rags or articles coated with gasoline, kerosene, paint, wax, or grease. Fire or explosion could result.

WARNING: Do not dry mopheads. Contamination by wax or flammable solvents will create a fire hazard.

WARNING: Do not use heat for drying articles that contain plastic, foam, or sponge rubber, or similarly textured rubber-like materials. Drying in a heated tumbler may damage plastics or rubber and also may be a fire hazard.

5. A program should be established for the inspection and cleaning of the lint in the burner area and exhaust duct work. The frequency of inspection and cleaning can best be determined from experience at each location.

WARNING: The collection of lint in the burner area and exhaust duct work can create a potential fire hazard.

6. For personal safety, the dryer must be electrically grounded in accordance with local codes and/or the National Electric Code ANSI/NFPA No. 70-1984.

NOTE: Failure to do so will void warranty.

7. Under no circumstances should the dryer door switch or heat circuit safety devices ever be disabled.

WARNING: Personal injury or fire could result.

8. READ AND FOLLOW ALL CAUTION AND DIRECTION LABELS ATTACHED TO DRYER.

INSTALLATION PROCEDURES

Installation should be performed by competent technicians in accordance with local and state codes. In the absence of these codes, installation must conform to applicable AMERICAN NATIONAL STANDARDS:

ANSI Z223.1 - LATEST EDITION (NATIONAL FUEL GAS CODE) or
ANSI/NFPA NO. 70 - LATEST EDITION (NATIONAL ELECTRIC CODE)

A. Unpacking/Set Up

Remove shipping carton, polyethylene cover and protective shipping corners from dryer. For shipping purposes, the main door handle, magnet channel assembly, and mounting screws are shipped in the tumbler. Remove tape and foam pad from main door area and install door handle and channel assembly to door.

NOTE: The access keys to the coin box, control (service) door, and lint door are shipped in the dryer and should be removed and put in a safe place. For coin-operated dryers, the MK-100 key (master key for both control and lint doors) should be made accessible, because it will be needed throughout various phases in the installation of the unit. Non-coin dryers are equipped with dummy locks in both the lint and the control doors. These locks can be turned with a screw driver or other similar tool.

The dryer can be moved to its final location while still attached to the skid or with the skid removed. To un-skid the dryer, locate and remove the four (4) bolts securing the base of the dryer to the wooden skid. Two (2) are located at the rear base, and two (2) are located in the lint chamber. Once the bolts are removed, slide the dryer off the skid.

With the skid removed, to make it easier to slide the dryer into its final position, slightly lower all four leveling legs, so that the dryer will slide on the legs instead of the base frame. The dryer is equipped with four (4) leveling legs, one at each corner of the dryer base. Two (2) are located at the rear of the dryer base, and two (2) are located in the lint chamber.

The tumblers of the AD-50, UD-50, and AD-75 model dryers are supported during shipping by a wooden block. Remove the block before starting the dryer.

The lint coops of the AD-50, UD-50, AD-75, and AD-100 model dryers are supported during shipping by a bracket. Remove this bracket before starting the dryer.

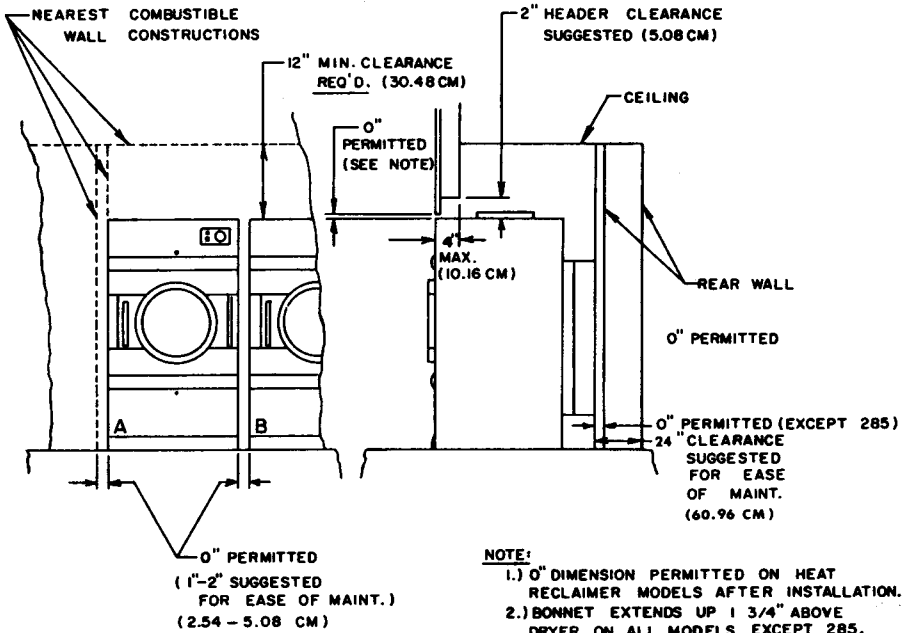
The V-belts are disconnected from the tumbler drive motor of the AD-100 model dryer for shipping. Reconnect the belts before starting the dryer.

B. Location of the Dryer

Before installing the dryer, be sure the location conforms to local codes and ordinances.

The dryer must be installed on a sound, level floor capable of supporting its weight. It is recommended that carpeting be removed from the floor area that the dryer is to rest on.

It is recommended that the rear of the dryer be positioned about two (2) feet away from the nearest obstruction (i.e., wall) for ease of installation, maintenance, and service.



INSTALLATION: DRYER CLEARANCE TO ADJACENT WALL STRUCTURES.

C. Dryer Enclosure Requirements

Bulkheads and partitions should be made of non-combustible materials and must be located a minimum of twelve (12) inches above the dryer outer top, except along the front of the dryer which may be closed in if desired.

NOTE: Allowance must be made for opening the control door.

Dryers may be positioned side wall to side wall. However, allowances should be made for the opening and closing of the control and lint doors. It is suggested that the dryer be positioned about two (2) feet away from the nearest rear obstruction for ease of installation, maintenance, and service. Refer to the previous illustration for details.

NOTE: Air considerations are important for proper and efficient operation.

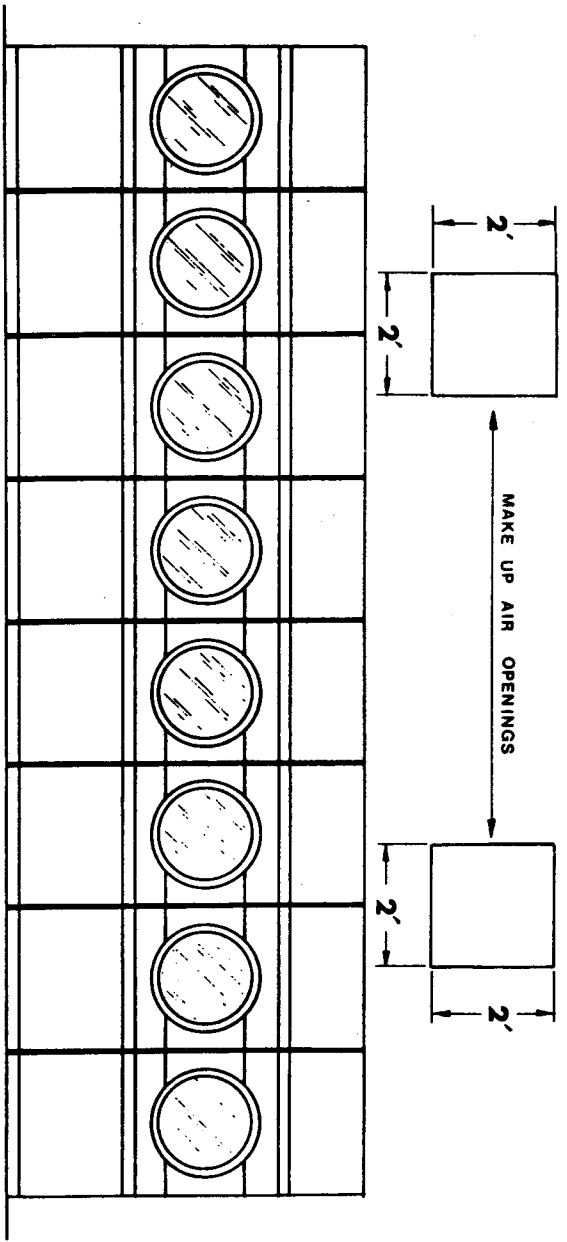
D. Fresh Air Supply

Air supply (make-up air) must be given careful consideration to assure proper performance of each dryer. An unrestricted source of air is necessary for each dryer. As a general rule, an unrestricted air entrance from the outdoors (atmosphere) of a minimum of one (1) square foot is required for each dryer. If registers or louvres are installed over the openings, then the area must be increased. It is not necessary to have a separate make-up air opening for each dryer. Common make-up air openings are acceptable. However, they must be set up in such a manner that the make-up air is distributed equally to the dryers. Example: for a bank of eight (8) dryers, two (2) openings measuring 2'x2' (4 square feet) is acceptable. Refer to the following illustration for details.

Allowances must be made for remote or constricting passageways or where dryers are located at excessive altitudes or predominantly low pressure areas.

IMPORTANT: Make-up air must be provided from a source free of dry cleaning fumes. Make-up air that is contaminated by dry cleaning fumes will result in irreparable damage to motors and other dryer components.

NOTE: Component failure due to dry cleaning fumes voids warranty.



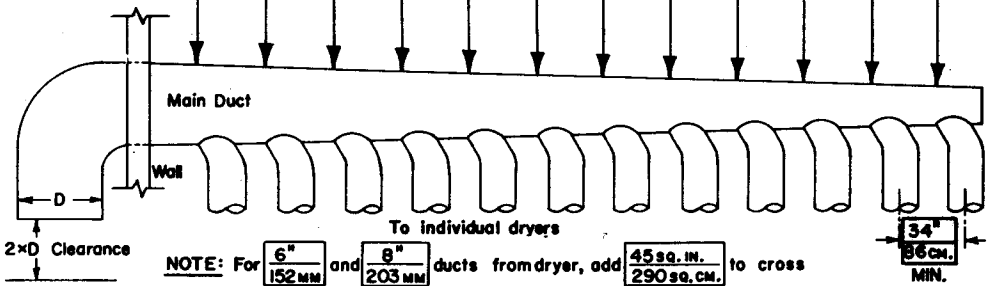
TYPICAL INSTALLATION SHOWING MAKE-UP AIR OPENINGS

E. Exhaust Requirements

Exhaust duct work should be designed and installed by a competent technician. Improperly sized duct work will create excessive back pressure which will result in slow drying, increased use of energy, and shutdown of the burner by the air flow (sail) switch, burner hi-limit or lint chamber hi-heat protector thermostat. Refer to the following illustrations for details.

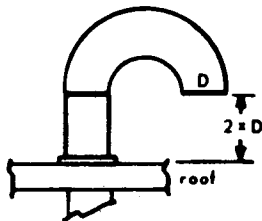
CAUTION: Improperly sized or installed exhaust duct work can create a potential fire hazard.

duct diam. from dryer	Minimum cross-section area in sq.in. & sq.cm.											
6" dia.	530	485	440	395	350	315	270	225	180	135	90	45
152 m.m.	3419	3129	2839	2547	2257	2031	1741	1451	1161	870	580	290
NO. OF DRYERS	12	11	10	9	8	7	6	5	4	3	2	1
8" dia.	900	825	750	675	600	525	450	375	300	225	150	75
203 m.m.	5806	5322	4838	4354	3871	3387	2903	2418	1935	1451	967	483



NOTE: For $\frac{6"}{152\text{MM}}$ and $\frac{8"}{203\text{MM}}$ ducts from dryer, add $\frac{45\text{sq.in.}}{290\text{sq.cm.}}$ to cross sections of main duct introduced and $\frac{75\text{sq.in.}}{483\text{sq.cm.}}$ for each

$\frac{8"}{203\text{MM}}$ ducts introduced.



F. Electrical Information

1. Electrical Requirements

It is your responsibility to have all electrical connections made by a properly licensed and competent electrician to assure that the electrical installation is adequate and conforms with local and state regulations or codes. In the absence of such codes, all electrical connections, material, and workmanship must conform to the applicable requirements of the NATIONAL ELECTRIC CODE ANSI/NFPA NO. 70-LATEST EDITION.

IMPORTANT: Failure to comply with these codes or ordinances, and/or the requirements stipulated in this manual can result in personal injury or component failure.

NOTE: Component failure due to improper installation voids warranty.

It is recommended that a separate circuit serving each dryer be provided. The dryer must be connected to copper wire only. Do not use aluminum wire which could cause a fire hazard.

NOTE: The use of aluminum wire voids warranty.

2. Electrical Service Specifications

A. Electric Service - Gas and Steam Dryers

Model	115VAC, 1 Phase	208/230VAC, 1PH	208/230VAC, 3 PH
	Wire Amp Size 2-Pole Breaker	Wire Amp Size 2-Pole Breaker	Wire Amp Size 3-Pole Breaker
ADG15 ADG25 ADG285 ADG30	14 #12 20 Amp	7 #14 15 Amp	5 #14 15 Amp
ADS15 ADS25 ADS30	9 #14 15 Amp	5 #14 15 Amp	4 #14 15 Amp
ADG50 UDG50 ADG75	14 #12 20 Amp	7 #14 15 Amp	R-13 #14 15 Amp NR-5 #14 15 Amp
ADS50 UDS50 ADS75	14 #12 20 Amp	7 #14 15 Amp	R-13 #14 15 Amp NR-5 #14 15 Amp

R - Reversing dryer

NR - Non-reversing dryer

IMPORTANT: The dryer must be connected to the electrical supply shown on the data label affixed to the dryer. In the case of 208 or 230 volts, the supply voltage must match the electric service specs of the data label exactly. The voltages 208 and 230 are not the same. Should it be found that a gas dryer was manufactured for operation at 230 volts and the service supply voltage is 208 volts, (or vice versa), a slight wiring change is necessary on gas dryers at the heat circuit transformer. This transformer is located behind the control wire box and is used to step down the control (primary) voltage (i.e., 208 or 230) down to 110 volts. The transformer is dual (primary) voltage; however, it must be wired accordingly. In the case of 208 volts, the yellow primary lead must be used, and the red lead dead ended. For 230 volts, the red primary lead must be used, and the yellow lead dead ended. See the wire diagram located on the rear side of the control door.

B. Electric Service - Electrically Heated Dryers

All electrically heated dryers must be connected to the electric supply service shown on the dryer's data label which is affixed to the back of the dryer. On the ADE-75 model dryers, this label is located on the inside of the control door. The connecting wires must be properly sized to handle the rated current.

NOTE: Component failure due to improper voltage application will void warranty.

3. Grounding

A ground (earth) connection must be provided and installed in accordance with state and local codes. In the absence of these codes, grounding must conform to applicable requirements of the NATIONAL ELECTRIC CODE (ANSI/NFPA NO. 70-1984). The ground connection may be to a proven earth ground at the location service panel.

For added personal safety, when possible, it is suggested that a separate ground wire (no. 18 minimum) be connected from the ground connection of the dryer to a grounded cold water pipe. Do not ground to a gas pipe. The grounded cold water pipe must have metal to metal connection all the way to electrical ground. If there are any non-metallic interruptions, such as, a meter, pump, plastic, rubber, or other insulating connectors, they must be jumped with no. 4 copper wire and securely clamped to bare metal at both ends.

IMPORTANT: For personal safety and proper operation, the dryer must be grounded.

4. Electrical Connections

A wire diagram is located on the back side of the control (service) door for connection data.

A. Gas and Steam - Single Phase Hookup

On the ADG285BH and ADG75BH single-phase dryers, the electrical input connection is made to the three connection leads (L1, L2 or N and ground) extending out of the top of the dryer. The electrical connections on all other single-phase gas and steam dryers are made into the junction box located at the upper rear of the dryer.

Single-Phase Electrical Connection Leads

Black	White	Green
+	-	
Positive	Neutral	Ground
	or	
	L2	

B. Electric Dryers - Single-Phase Hookup

The electrical input connection is made into the electric oven contactor located at the upper rear of the dryer. Input connection wiring must be sized properly to handle the dryers current draw. This information is printed on the dryer's data label.

If local codes permit, power to the dryer can be made by the use of a flexible U.L. listed power cord/pigtail (wire size must conform to rating of dryer) or the dryer can be hard wired directly to the service breaker panel. In both cases, a strain relief must be installed where the wiring enters the dryer.

NOTE: It is recommended that a circuit serving each dryer be provided.

5. 3-Phase Wiring Connections

The only electrical input connections to the dryer are the 3-phase power leads and (L1, L2, L3, N) ground. Single-phase power for the control circuit and for any single-phase motors (if present) is done internally to the dryer. No single-phase input connection is required on a 3-phase dryer.

A. Gas and Steam Dryers - 3-Phase Hookup

For gas and steam dryers manufactured for operation at 3-phase, the electrical connections are made at the 3-pole contactor

(relay) located in the service box at the rear, upper left corner of the dryer. To gain access to the service box and contactor, the service box cover must be removed. For the model ADG285BH and AD-75 dryers, the back guard must be removed to gain access to the service box.

Providing local codes permit, power to the dryer can be made by the use of a flexible U.L. listed chord/pigtail (wire size must conform to the rating of the dryer), or the dryer can be hard wired directly to the service breaker. The power supply wiring may enter the dryer through the top back area at the outer top or through the upper back guard section. In all cases, a strain relief should be used both where the wiring enters the dryer and the service box.

B. Electric Dryers - 3-Phase Hookup

The electrical input connection is made into the electric oven contactor located at the upper rear of the dryer. Input connection wiring must be sized properly to handle the dryer's current draw. This information is printed on the dryer's data label.

NOTE: It is recommended that a circuit serving each dryer be provided.

CAUTION: The dryer must be grounded. A ground lug has been provided in the service box for this purpose.

The only electrical connections to the dryer are the 3-phase leads (L1, L2, L3, N) and ground. Single-phase power for the control circuit is done by the factory at the contactor (relay), and no other wiring connections are necessary.

G. Gas Information

The dryer and its individual shut off valve must be disconnected from the gas supply piping system during any pressure testing of that system at test pressures in excess of 1/2 psig.

The dryer must be isolated from the gas supply piping system by closing its individual manual shut off valve during any pressure testing of the gas supply piping system at test pressures equal to or less than 1/2 psig.

1. Gas Supply

The gas dryer installation must meet the AMERICAN NATIONAL STANDARD, NATIONAL FUEL GAS CODE ANSI Z223.1-LATEST EDITION, as well as, local codes and ordinances and must be done by a qualified technician.

NOTE: Undersized gas piping will result in ignition problems, slow drying, and increased use of energy and can create a safety hazard.

The dryer MUST be connected to the type of heat/gas indicated on the dryer data label located on the inside of the control door. If this information does not agree with the type of gas available, contact the distributor who sold the dryer or the factory.

NOTE: Any burner changes must be made by a qualified technician.

The gas input ratings shown on the dryer data label are for elevations up to 2,000 feet, unless elevation requirements of over 2,000 feet were specified at the time the dryer order was placed with the factory. The adjustment for dryers in the field for elevations over 2,000 feet are made by changing the burner orifices. If this adjustment is necessary, contact the distributor who sold the dryer or contact the factory.

NOTE: Any burner changes must be made by a qualified technician.

2. Technical Gas Data

a. Natural Gas

The natural gas supply pressure to the dryer must be between 6 and 12 inches water column. If the pressure is too low, ignition failure and /or slow drying times may result. Excessively high supply pressure will result in erratic operation of the gas valve's internal pressure regulator. The pressure measured at the pressure tap on the body of the gas valve must be 4 inches water column. This will make the manifold pressure 3-1/2 inches water column.

b. Liquid Petroleum (L.P.) Gas

Dryers made for use with L.P. gas have the gas valve pressure regulator blocked open, so that the gas pressure must be regulated downstream of the dryer. The pressure measured at the gas valve body pressure tap must be 11 inches water column. This will make the manifold pressure 10 inches water column.

3. Piping/Connections

The dryer is provided with a 1/2" N.P.T. inlet pipe connection extending out the rear area or through the top of the dryer. For ease of servicing, the gas supply line of each dryer should have its own shut-off valve.

The size of the gas supply line (header) will vary depending on the distance this supply line travels from the gas meter or, in the case of L.P. gas, the supply tank, the amount of tees, other gas-operated appliances, etc. Specific information regarding supply line size should be determined by the gas supplier.

NOTE: Undersized gas supply piping can create a low or inconsistent gas pressure which will result in erratic operation of the burner ignition system.

Consistent gas pressure is essential at all gas connections. It is recommended that a 3/4" pipe gas loop be installed in the supply line serving the bank of dryers. An inline pressure regulator must be installed in the gas supply line (header) if (natural) gas line pressure exceeds 12 inches water column pressure. Refer to the following illustrations for details.

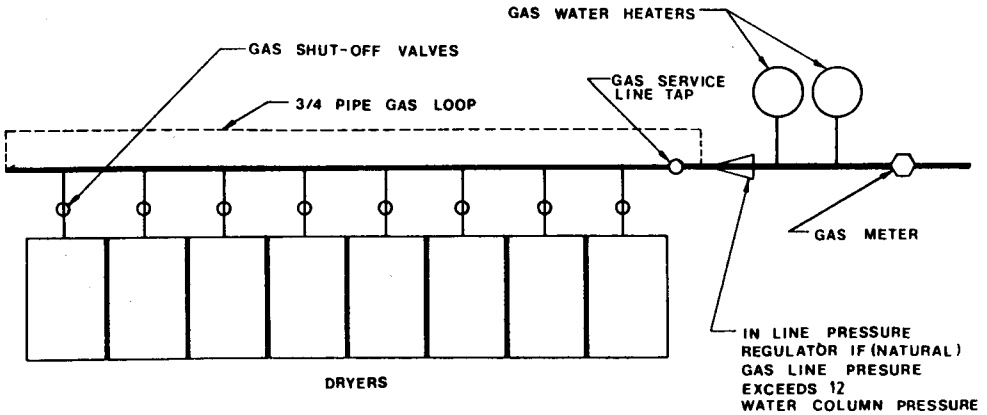
IMPORTANT: Water column pressure of 4 inches for natural gas dryers and 11 inches for L.P. dryers is required at the gas valve pressure tap of each dryer for proper and safe operation. This will make the manifold pressure 3-1/2 inches water column for natural gas and 10 inches for L.P.

- A 1/8" N.P.T. plugged tapping, accessible for test gauge connection, must be installed in the main gas supply line immediately upstream of the dryer.

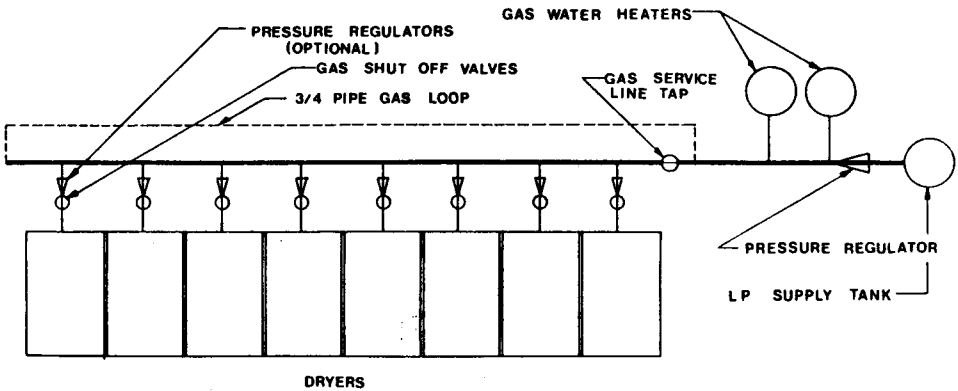
IMPORTANT: Pipe joint compounds that resist the action of natural and L.P. gas MUST be used.

WARNING: Test all connections for leaks by brushing on a soapy water solution (Liquid detergent also works well.) NEVER TEST FOR GAS LEAKS WITH A FLAME.

All components/materials must conform to National Fuel Gas Code specifications. It is important that gas pressure regulators meet applicable pressure requirements, and gas meters be rated for the total amount of appliance BTU's being supplied.



TYPICAL NATURAL GAS INSTALLATION



TYPICAL L.P. GAS INSTALLATION

H. Steam Piping Hookup

Piping must be installed in accordance with good commercial steam system practice.

Care must be exercised when leveling steam dryers in final position. After leveling the dryer, check the downward pitch of the heat exchanger from front to rear with a level. Likewise, check the downward pitch of the return condensate manifold toward its outlet part. Absence of these downward pitches will result in probable water hammer and premature heat exchanger fracture and leakage.

The presence of condensate in the steam will cause water hammer and subsequent heat exchanger failure. The steam supply connection must be taken from the top of a well-dripped steam main. If the supply run-out to the dryer exceeds twenty feet, it should be dripped just before the control valve with a proper trap and dirt pocket.

1. Low Pressure Steam (10-15 psig)

Low pressure steam requires oversized piping. Our recommendations for 3 to 7 dryers are a 3" steam main line, a 2" return line, and 1" lines running from each main to each dryer.

We recommend an F&T (float and thermostatic) trap for low pressure.

Do not elevate the condensate return line after the F&T trap. Drain only by gravity into a properly vented low pressure return or condensate tank. Locate trap 12" below coil outlet to assure proper drainage.

If a steam valve is factory supplied with the dryer, it will be a solenoid type steam valve. Wire the steam solenoid into the dryer per the electrical wiring diagram supplied with the dryer.

2. High Pressure Steam (100-125 psig)

Dryers equipped to operate with high pressure steam require a 1" supply line and a 1/2" return line.

We recommend an inverted bucket trap for high pressure dryers. DO NOT USE THERMODYNAMIC, DISC, OR IMPULSE TRAPS.

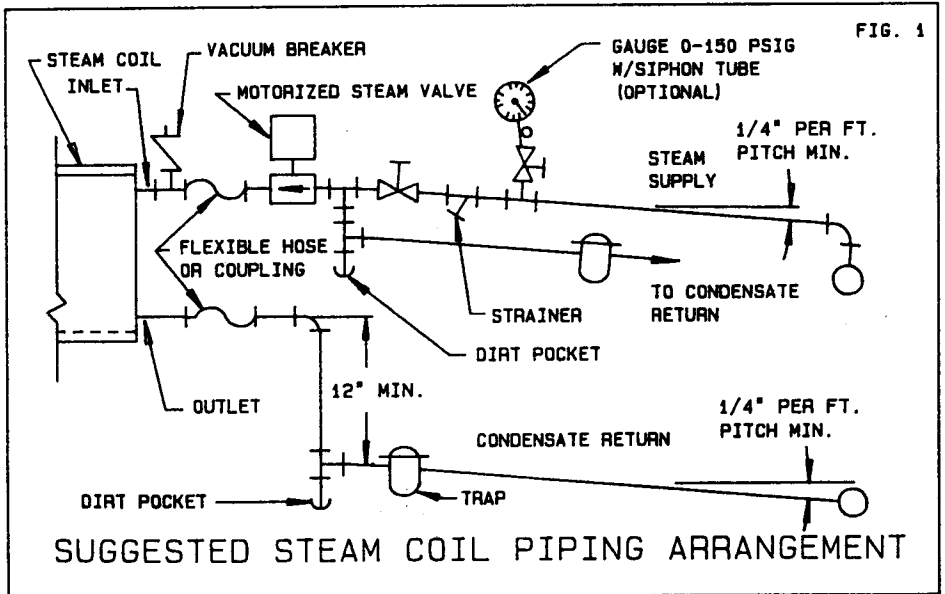
The condensate return line may be elevated after a bucket trap, but only if there is sufficient line pressure to overcome the head. Determine head loss by deducting 12 psi for the control valve, coil, and trap losses, and deduct 1/2 psi for each foot of elevation.

Locate trap 12" below coil outlet.

If a steam valve is factory supplied with a high pressure dryer, it will be a motorized steam valve. This is a slow opening and closing valve which will significantly reduce water hammer. Remove the motor cover and connect power wires to the motor's terminal trip per the wiring diagram supplied with the dryer. The motor operates on 120 volts only, so a power transformer will be supplied with the dryer if input voltage to the dryer is higher than 120V. It is important to remember that the motor requires electrical power to open the valve and electrical power to close the valve. So, if main dryer power is cut off when the valve is open, it will remain open. Steam flow must be in the direction of the arrow printed on the steam valve body.

The motorized steam valve should be mounted horizontally, so that the motor is directly above the valve.

The preceding precautions are necessary and any variation from them will void the warranty on the heat exchanger.



I. Preparation for Operation

The following items should be checked before attempting to operate the dryer:

1. Read and follow all caution, warning and direction labels attached to the dryer.
2. Check incoming supply voltage to be sure that it is the same as indicated on the dryer data label located on the rear side of the control door.
3. Check to assure that the dryer is connected to the type of heat/gas indicated on the dryer data label.
4. The sail switch damper assembly is installed and pre-adjusted at the factory prior to dryer shipment. However, the sail switch adjustment must be checked to assure that this important safety control is functioning.
5. Check bolts, nuts, screws, terminals, and fittings for security.
6. Be sure all gas shut-off valves are in the open position.
7. Be sure all back guard panels and service box covers (3-phase models only) have been replaced.
8. Check the lint door to assure that it is closed and secured in place.

IMPORTANT: If during installation the lint door safety chain was disconnected, it must be reconnected or personal injury may result.

9. Rotate the tumbler (drum) by hand to be sure it moves freely.

J. Pre-operational Test

All dryers are thoroughly tested and inspected before leaving the factory. However, a pre-operational test should be taken before the dryer is publicly used. It is possible that adjustments have changed in transit.

1. Turn on electric power to dryer.
2. Refer to the operating instructions for starting your particular model dryer.

3. Start dryer. Using a "high heat" selection, accumulate about 20 minutes of time.
4. Remove air from the gas line. Run the dryer about 5 minutes. If the burner does not ignite during these 5 minutes, turn the dryer off and wait a minute.

NOTE: The dryer has a safety device (I.R. sensor) which shuts off the gas if the burner does not ignite in a short time. Wait a minute for this safety device to reset.

During this waiting period, check to be sure all gas shut-off valves are open. If the dryer still fails to heat, refer to the trouble shooting section.

5. Make a complete operational check of all the operating controls to assure that the timing is correct, temperature selection switches are functioning, etc.
6. Make a complete operational check of all safety related circuits - door switch(es), hi-limit thermostat, sail switch, cycling thermostats, etc.
7. A gas pressure test should be taken at the gas valve pressure tap of each dryer to assure that the water column pressure is correct and consistent.

NOTE: Water column pressure requirements as measured at the gas valve pressure tap are:

Natural Gas	-	4 inches W.C.
L.P. Gas	-	11 inches W.C.

This will give a 3-1/2 inch water column manifold pressure for natural gas and a 10 inch for L.P.

8. If program changes are required, refer to the Phase 3 Computer Programming section of this manual.
9. The dryer should be operated through one complete cycle to assure that no further adjustments are necessary and that all components are functioning properly.

IMPORTANT: The dryer tumbler (basket/drum) is treated with a protective coating. We suggest tumbling old clothes or material in the basket using a mild detergent to remove coating.

10. On 3-phase models, check the electric service phase sequence. While the dryer is operating, check to see if the tumbler (basket/drum) is rotating in the clockwise direction (when viewed from the front). If so, the phasing is correct. If the tumbler rotates counter-clockwise, the phasing is incorrect. Correct by reversing two (2) leads at connections L1, L2, or L3 of power supply to the dryer.

OPERATING INSTRUCTIONS

A. Mechanical Coin Meter Controls (non-computer)

1. The controls of a coin-metered model dryer consist of:

<u>Component</u>	<u>Function</u>
Coin Meter	Permits the dryer to be started after the insertion of coins. The meter also controls the timing of the drying and cooling cycles.
Heat Selector Switch	Controls temperature of a drying cycle.
"Push to Start"	Safety Device which must be manually Button "pressed" to start the dryer. Whenever the dryer is stopped by opening the main door during a cycle, the "Push to Start" button must be pressed to restart the dryer.
Indicator Light	Lights to indicate that the dryer is in the drying or cooling cycle.

2. Operating Sequence

- a. Insert coin. Rotate knob fully clockwise and release after coin is accepted.
- b. Make temperature selection in accordance with the type of material being dried.
- c. To start unit, press "Push to Start" button.

NOTE: Main door must be closed.

- d. The dryer will start. The heat circuit activates.
- e. During operation, the heat circuits will continue to be active until the thermostat controlling the "temperature selected" is satisfied and opens. The dryer will continue to operate under these conditions until the dryer enters the cool down cycle or until the completion of metered time.

Time can be accumulated at any time by the insertion of more coins. Cool down time is not accumulative. The dryer can be stopped at any time by opening the main door. While the door is open, the meter will continue to count time. Continuation of the cycle will only resume after the door is closed and the "Push to Start" button is again depressed.

B. Mechanical Timer Controls (non-computer)

1. The controls of a timer model dryer consist of:

<u>Component</u>	<u>Function</u>
Drying Timer	Permits the dryer to run in the heating mode for a maximum time of 60 minutes.
Cool Down Timer	Permits the dryer to run in the cool down mode for a maximum of 15 minutes. Cool down time starts at the conclusion of the drying time.
Heat Selector Switch	Controls the temperature during the drying cycle. Selections available are high temp, low temp, and permanent press.
"Push to Start" Button	Safety Device which must be manually "pressed" to start the dryer. Whenever the dryer is stopped by opening the main door during a cycle, the "Push to Start" button must be pressed to restart the dryer.
Indicator Light	Lights to indicate that the dryer is in the drying or cooling cycle.

2. Operating Sequence

- a. Turn drying timer knob to desired drying time. Turn cool down timer knob to desired cool down time.
- b. Make temperature selection in accordance with the type of material being dried.
- c. To start unit, press "Push to Start" button.

NOTE: Main door must be closed.

- d. The dryer will start, and the heat circuit will activate. The indicator light will come on.
- e. The heat will come on and stay on until the tumbler reaches the temperature setting of the selected thermostat. The thermostat will open shutting off the heat. As the tumbler temp cools, the thermostat will reclose, turning on the heat. The dryer will operate in this manner for the duration of the drying time. At the completion of the drying time, the cool down time will start. The dryer will run without heat for the duration of the cool down time.

SECTION I

INTRODUCTION TO PHASE 3

Programmable

All programming for the Phase 3 OPL computer is done through the computer keyboard and the programs are displayed for verification. Dip switches are eliminated to avoid the possibility of switch failure, due to an accumulation of lint or moisture. To enter the programs, a security code is entered into the computer through the keyboard. The security code prevents unauthorized entry.

Manually Loaded Cycles

These cycles are not stored in the computer memory. They are entered by the operator when the cycle is needed.

a. Automatic Mode - This program will cycle the dryer off when the pre-programmed dryness levels have been reached. The operator will enter the dryness levels (1-225 peaks) and the drying temperature. At the end of the drying cycle, the dryer will begin an automatic pre-programmed cooling cycle.

b. Manual Mode - In this program, the operator will enter the dry time (0-99 minutes), the cool down time (0-99 minutes) and the drying temperature.

Drying Temperature

Operating temperatures can be programmed from a minimum of 110° F (45° C) to 200° F (90° C) in 1° increments.

Pre-Programmed Cycles

The Phase 3 OPL computer can store in its memory six (6) pre-programmed cycles (A through F on the keyboard) which are entered complete into the computer prior to operation. Any of these programs can be started by pressing one button. These pre-programmed cycles can be set in either the automatic or manual mode and are displayed at the beginning of each cycle start up.

System Parameters

The function of the dip switches in our previous computers has been to set the basic system parameters. With the elimination of the dip switches, these parameters are now entered through the keyboard and stored in four program locations. These programs are entered only once and are called up to each cycle selection when required.

Pre-Programmed Cycle Check

To check the parameters of the pre-programmed cycles, without entering the program mode, the operator can open the tumbler door and press any of the pre-program keys (A through F on keyboard). The cycle parameters will be displayed for verification only, a cycle will not begin with the door open.

Temperature Conversion Status

Temperature-related circuits are programmable, to be operated in Fahrenheit or Celsius. Programs affected are:

- a. Temperature Display mode
- b. Temperature selections
- c. Cool down temperatures

L.E.D. Flash Display

The display is programmable to allow the L.E.D. readout to display while a cycle is in progress, a choice of cycle time or temperature. Programming also allows the L.E.D. readout to flash back and forth from cycle time to temperature, which can be set from 1 - 15 seconds.

If the temperature display program is not used, the temperature can be viewed through the L.E.D. display by pressing the enter/start button at any time while a cycle is in progress.

Anti-Wrinkle Cycle

This program helps keep permanent press items, wrinkle free, when they are not removed from the dryer promptly at the end of the drying and cooling cycle. Programming allows the dryer to automatically restart in the cool down cycle, if the clothes are not removed in a pre-programmed amount of time. Anti-wrinkle program settings:

- a. Guard Delay Time: 15-4095 seconds in 1-second increments.
- b. Guard On Time: 10-63 seconds in 1-second increments.
- c. Maximum Guard Time: 1-127 minutes in 1-minute increments.

Audible Tone

A tone will sound for each program entry. In addition, programming allows the tone to sound from 1-15 seconds at the end of the drying and cooling cycle to indicate that the cycle is complete.

Reversing Option

Programming allows:

- a. Select Reverse or Always Reverse or, in the case of the pre-programmed cycle, Reverse or No Reverse.
- b. Stop Time - 4-19 seconds in 1-second increments.
- c. Spin Time - 30-93 seconds in 1-second increments.

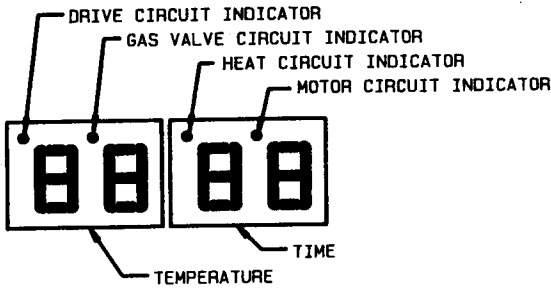
Battery Back-up

This feature allows the computer to maintain its operating status, should a momentary power interruption occur, while the dryer cycle is in progress.

Diagnostics

All major circuits, including door, micro-processor, temperature sensor, heat, and motor circuits, are monitored.

SECTION II
LED DISPLAY CODES



AUTO	Automatic Mode
ArEv	Always Reverse
bUZ	Buzzer (tone)
bUZ--tinE	Buz Time
°CEL	Degree in Celsius
CL	Cool Down Cycle in Progress
OOOL--tinE	Cool Down Time
OOOL-tEnP	Cool Down Temperature
CY A	Pre-Programmed Cycle A
CY b	" " b
CY C	" " C
CY d	" " d
CY E	" " E
CY F	" " F
d	Cycle Display Time
donE	Dryness Level (auto peaks)
	Drying or Cooling Cycles Complete
	or
door	Dryer is in Anti-Wrinkle Cycle
dr	Door Circuit is Open
drY--LEvL	Drying Cycle in Progress
drY--tEnP	Dryness Level (auto peaks)
dSFL	Drying Temperature
F	Dryer Sensor Circuit Failure
°FAr	Fabric (temperature)
FILL	Degree in Fahrenheit
FLS	No Cycle in Progress
GdLY	Flash Display Active
G on--tinE	Anti-Wrinkle Delay Time
Grd	Anti-Wrinkle On Time
	Anti-Wrinkle Program Active
LC	Load Cool Down Time
Ld	Load Drying Time
nAnU	Manual Mode
nGrd	Maximum Guard Time
nbUZ	No Buzzer (tone)

nFLS	No Flash Display
nGrd	No Anti-Wrinkle Cycle
nrEv	No Reverse
ProG	Program Mode
rEv	Reverse
SPin--tinE	Spin Time
SrEv	Select Reverse
StOP--tinE	Stop Time
tEnP	Temperature
tEnP--tinE	Temperature Display Time
tinE	Time

SECTION III

OPERATING INSTRUCTIONS

NOTE: Unless otherwise specified, at the time of ordering, the Phase 3 OPL computer has been pre-programmed, by the factory, with the parameters shown on pages 53 and 54. Should program changes be found necessary, please read this manual carefully to thoroughly familiarize yourself with the Phase 3 programming characteristics.

A. Manually Operated Timed Mode

1. When turning on power, or when no cycle is in progress, the L.E.D. display will read "FILL".
2. Press key number 5.
3. Select cycle drying time. Display will read "Ld__". Enter the drying time desired in the two blank spaces. Press enter
start key.
4. Select cycle cool down time. Display will read "LC__". Enter the cool down time desired, in the two blank spaces. Press enter
start key.
5. Select cycle drying temperature. Display will read "F__". Enter the drying temperature desired in the three blank spaces. Press enter
start key.
6. (For reversing dryers in select reverse mode only). Display will read "Sr__". Press enter
start to begin a reversing cycle and 0 to begin a non-reversing cycle.
7. Upon completion of drying and cooling cycles, the tone will sound and the display will read "donE" at which time the dryer will shut off.

NOTE:

- a. If the anti-wrinkle program is active, the display will remain reading "donE", and the computer will proceed through the anti-wrinkle program until the maximum Guard On Time has expired or until the door is opened, whichever comes first. The display will read "FILL".
- b. If the anti-wrinkle program is not active or in use, the display will read "donE" until the door is opened.

B: Manually Operated Automatic Mode

1. When turning on power, or when no cycle is in progress, the L.E.D. display will read "FILL".
2. Press key number 2.
3. Select cycle drying temperature. Display will read "F__". Enter the drying temperature required in the three blank spaces. Press ^{enter}_{start} key.
4. Select number of dryness levels. Display will read "d__". Enter dryness levels required in the three blank spaces. Press ^{enter}_{start} key.
5. (For reversing dryers in select reverse mode only). Display will read "Sr__". Press ^{enter}_{start} to begin a reversing cycle and 0 to begin a non-reversing cycle.
6. Once the pre-programmed drying time and cool down period have been reached, the tone will sound and the display will read "donE", at which time the dryer will shut off.

NOTE:

- a. If the anti-wrinkle program is active, the display will continue to read "donE", and the computer will proceed through the anti-wrinkle program until the maximum Guard On Time has expired or until the door is opened, whichever comes first. The display will read "FILL".
- b. If the anti-wrinkle program is not active, or in us, the display will read "donE", until the door is opened.

C. Pre-Programmed Cycles

1. All programming for the pre-programmed cycles is already complete. Simply press the letter on the keyboard corresponding to the cycle desired (A through F) and the cycle will begin.

NOTE: The anti-wrinkle program will operate identical to manually entered programs.

SECTION IV

INTRO TO PROGRAMMING

In order to enter the program mode, to access the four program locations (basic system parameters) or the six pre-programmed cycles, the security code must be entered. The procedure for entering the security code is as follows:

First, make sure no cycle is in progress and the display shows "FILL". Then press the ^{enter} key once and the 0 key three times. The three zeros must be entered within two seconds after pressing ^{enter}. If this sequence is not entered correctly, the computer will deny access into the program mode. If the code is entered correctly, the computer will display "ProG". From this point, any of the program locations or pre-programmed cycles can be accessed.

Programming of System Parameters

The four program location, containing the system parameters (basic program information) are located at keys 2, 5, 8 and 0 on the keyboard. By touching any of those keys when the display reads "ProG" will access that particular program.

The parameters stored in each location are listed on page 31 and a description of each parameter follows the chart. All of these parameters affect the manually loaded program cycles and some affect the pre-programmed cycles. The chart on page 31 also shows which parameters affect which programs.

To alter the programming of the system parameters, the operator will first locate the parameter he wishes to change. If the change is a numerical one (time or temperature), the operator will simply enter the numerical value desired. If the change is a status change, such as changing the temperature readout from °F (degree Fahrenheit) to °C (degree Celsius), the operator will press the 0 key. This zero key acts as a flip-flop switch to change the programming of a parameter.

The actual programming steps are covered in the flow charts in Section V.

These parameters will be pre-set at the factory and may suit your needs as is. The pre-set parameters are listed on pages 53 and 54 and the limits for these parameters are listed on page 55.

PHASE 3 O.P.L. PROGRAM LOCATIONS

<u>Program Location 1 (Key 2)</u>	<u>Program Affected</u>
Temperature Conversion Status (°F or °C)	MLC & PPC
Select Reverse or Always Reverse	MLC only
Reversing Stop Time (Dwell)	MLC only
Reversing Spin Time	MLC only
<u>Program Location 2 (Key 5)</u>	
Flash or No Flash (Time or Temperature)	MLC & PPC
Cool Down Temperature	MLC only
Cool Down Time	MLC only
Flash Cycle Display Time	MLC & PPC
Flash Temperature Display Time	MLC & PPC
<u>Program Location 3 (Key 8)</u>	
With or Without Anti-Wrinkle feature	MLC only
With or Without Anti-Wrinkle Buz (Tone)	MLC & PPC
Maximum Anti-Wrinkle Time	MLC & PPC
Anti-Wrinkle On Time	MLC & PPC
<u>Program Location 4 (Key 0)</u>	
Anti-wrinkle Delay Time (Dwell)	MLC & PPC
Buz (Tone) Time	MLC & PPC

MLC - Manually Loaded Cycles
 PPC - Pre-Programmed Cycles

Description of Basic System Parameters

Program Location 1 - Temperature Conversion Status

This program controls whether the temperature-related programs will be operated in Fahrenheit or Celsius. Programs affected are:

1. Temperature display mode
2. Selection cycling temperature
3. Cool down temperatures

Select Reverse (Sr) Reversing dryers only.

When this parameter is chosen (Sr), the computer will prompt the operator to decide whether or not the Manually Loaded Cycle he is entering is to be a reversing cycle. After loading the cycle the computer will display "Sr_". At this point, if the operator presses the ^{enter}~~start~~ key a reversing cycle will begin. If however, he presses the 0 key a non-reversing cycle will begin.

Always Reverse (ArEv) Reversing dryers only

When this parameter is chosen (ArEv) any Manually Loaded Cycle will be a reversing cycle.

Reversing Stop Time (StoP--tinE) Reversing dryer only

The computer will prompt the operator to enter the dwell time (time tumbler stops rotating before changing direction) for Manually Loaded Cycles only. This time is programmable from 4 to 19 seconds in one-second increments.

Reversing Spin Time (Spin--tinE) Reversing dryer only

The computer will prompt the operator to enter the spin time (time tumbler rotates in one direction before stopping to change direction) for Manually Loaded Cycles only. This time is programmable from 30 to 93 seconds in one-second increments.

Program Location 2 - Flash Display (FLS)

When the Flash Display is chosen (FLS) the L.E.D. readout will alternate during the drying cycle between displaying the time remaining in the cycle when programmed in the timed mode (or the time elapsed when programmed in the automatic mode) and the tumbler temperature.

No Flash Display (nFLS)

When the No Flash display is chosen (nFLS) the operator will choose whether the display will read the cycle time (tinE) or the tumbler temperature (tEnP) during the cycle. The L.E.D. display will not alternate between the two.

Cool Down Temperature (COOL--tEnP)

The operator will be prompted to enter the minimum Cool Down Temperature for Manually Loaded Cycles. This time is programmable from 70 to 100°F in 10°F increments or from 25 to 40°C in 5°C increments.

Cool Down Time (COOL--tinE)

The operator will be prompted to enter the maximum Cool Down Time for Manually Loaded Cycles in the automatic mode. This time is programmable from 0 to 15 minutes in one-minute increments.

Flash Cycle Display Time (FLS--tinE)

If the Flash Display (FLS) was chosen at the beginning of program location 2, the operator will now be prompted to enter the time the display will read the cycle time (tinE) before flashing to the tumbler temperature (tEnP). The time is programmable from 1 to 15 seconds in one-second increments.

Flash Temperature Display Time (FLS-tEnP)

If the Flash Display (FLS) was chosen at the beginning of program location 2, the operator will now be prompted to enter the time the display will read the tumbler temperature (tEnP) before flashing to the cycle time (tinE). The time is programmable from 1 to 15 seconds in one-second increments.

Program Location 3 - Anti-Wrinkle Active (Grd)

When this feature is chosen (Grd) the Anti-Wrinkle program will be active in the Manually Loaded Cycles. In this program, when the drying and cooling cycles are completed, the dryer will shut off, the tone will sound, and the L.E.D. display will read "donE". If the door is not opened, the computer will wait until the Anti-Wrinkle Delay Time (Program Location 4) has expired, at which time the clothes will be tumbled (without heat) for the programmed Anti-Wrinkle On Time (Program Location 3). The computer will repeat this process until the programmed Maximum Anti-Wrinkle Time (Program Location 3) has expired or until the dryer door is opened, at which time the L.E.D. display will read "FILL". The operator may also choose to activate this feature in each pre-programmed cycle.

BUZ/TONE (bUZ)

When in the Anti-Wrinkle program, the option is available to have the tone sound at the end of each Anti-Wrinkle On Time cycle.

Maximum Anti-Wrinkle Time (nGrd--tinE)

This parameter controls the maximum time that the Anti-Wrinkle cycle will be in progress and is programmable from 1 to 127 minutes in one minute increments.

Anti-Wrinkle On Time (G on--tinE)

This parameter controls the amount of time that the tumbler will turn without heat when anti-wrinkle is selected. The on time is programmable from 10 to 63 seconds in one second increments.

Program Location 4 - Anti-Wrinkle Delay Time (GdLY--tinE)

This parameter controls the dwell (stop) time and activation of the Anti-Wrinkle On Time. The dwell time can be programmed from 15 to 4095 seconds in one second increments.

Buz Time (bUZ--tinE)

This parameter allows the operator to adjust the time the signal tone sounds from 1 to 15 seconds in one second increments.

Programming of Pre-programmed Cycles

The six pre-programmed cycles are located at keys A through F on the keyboard. By touching any of those keys when the display reads "ProG" will access that particular cycle. The actual programming steps are covered in flow chart A, in section V.

The following chart lists the parameters which are programmed in each pre-programmed cycle.

Pre-Programmed Parameters (Keys A-F)

Cycle Status (manual or automatic)
Anti-Wrinkle feature status (active or off)
Cycle drying temperature
Number of dryness levels (automatic cycles only)
Cycle drying time (manual cycles only)
Cycle cool down time
Minimum cool down temperature (automatic cycles only)
Reversing status (reversing dryers only)

After programming a pre-programmed cycle, the operator then has the choice of entering any of the other pre-programmed cycles or program locations or, by pressing clear on the keyboard, exiting the program mode.

Once the program has been stored in the memory, and the computer is out of the program mode, the operator can begin that cycle by pressing the corresponding letter on the keyboard.

The actual programming steps are covered in flow chart A in section V.

An example for programming a pre-programmed cycle is shown on page 41 .

The pre-programmed cycles are pre-set at the factory and may already suit your needs without having to re-program. The pre-set parameters are listed on pages 53 and 54 .

The limitations of the pre-programs are listed on page 55 .

Manually Entered Programs

There may be times when the six pre-programmed cycles will not suit the needs of the operator. At that time, a manually entered cycle can be used. This cycle can be set to run in the automatic or manual mode and will not be stored in the computer memory.

All the basic system parameters have already been entered into the four program locations and the dryer will operate from them. The only parameters that now have to be entered to begin a cycle are certain specifics, such as drying time and temperature. The exact parameters are listed as follows:

Manually Entered Automatic Cycles (Key 2)

Cycle drying temperature
Number of dryness levels
Reversing Status (reversing dryers set in select, reverse mode only)

Manually Entered Manual Cycles (Key 5)

Cycle drying time
Cycle cool down time
Cycle drying temperature
Reversing Status (reversing dryers set in select reverse mode only)

Description of Parameters
For Pre-Programs and Manually Loaded Cycles

Timed or Manual Mode (nAnU)

When this parameter is selected (nAnU) the cycle has been set to run on time only. The dryer will continue to run until the pre-set time including the cool down period has elapsed, at which time the dryer will cycle off or go into the optional anti-wrinkle program.

Automatic Mode (Aut0)

When this parameter is selected (Aut0) the cycle has been set to run for a pre-set level of dryness. At the end of the drying cycle, the dryer will go into the cool down cycle for the time period programmed or until the temperature has dropped to the programmed cool down temperature.

Cycle Drying Temperature (drY--tEnP)

The Cycle Drying Temperature (drY--tEnP) is programmable from 110-200°F or 45 to 90°C in one-degree increments.

Dryness Level (drY--LEvL)

When in the automatic mode, the dryer will run until the pre-set level of dryness (number of auto peaks) has been reached. The dryness level is programmable from a minimum of 1 to 127 peaks for all pre-programs and from 1 to 255 in all Manually Loaded Cycles.

Cycle Drying Time (drY--tinE)

When in the manual (timed) mode, the dryer will run until the pre-set time has been reached. The Cycle Drying Time is programmable from 0 to 127 minutes for all pre-programs and from 0 to 99 minutes for all Manually Loaded Cycles.

Cycle Cool Down Time (COOL--tinE)

For all pre-programs and Manually Loaded Cycles in the manual mode the operator will enter the desired Cycle Cool Down Time which will be activated when the drying time has expired. The time is programmable from 0 to 31 minutes for manual pre-programs and 0 to 99 minutes for Manually Loaded Cycles.

For pre-programs in the automatic mode the operator will enter the maximum cool down time programmable from 0 to 14 minutes in two-minute increments.





Reversing Status (rEv or nrEu) Reversing Dryers Only

When programming a pre-programmed cycle or entering a Manually Loaded Cycle in the select reverse mode, the choice is available to begin a reversing cycle (rEv) or a non-reversing cycle (nrEv).

SECTION V

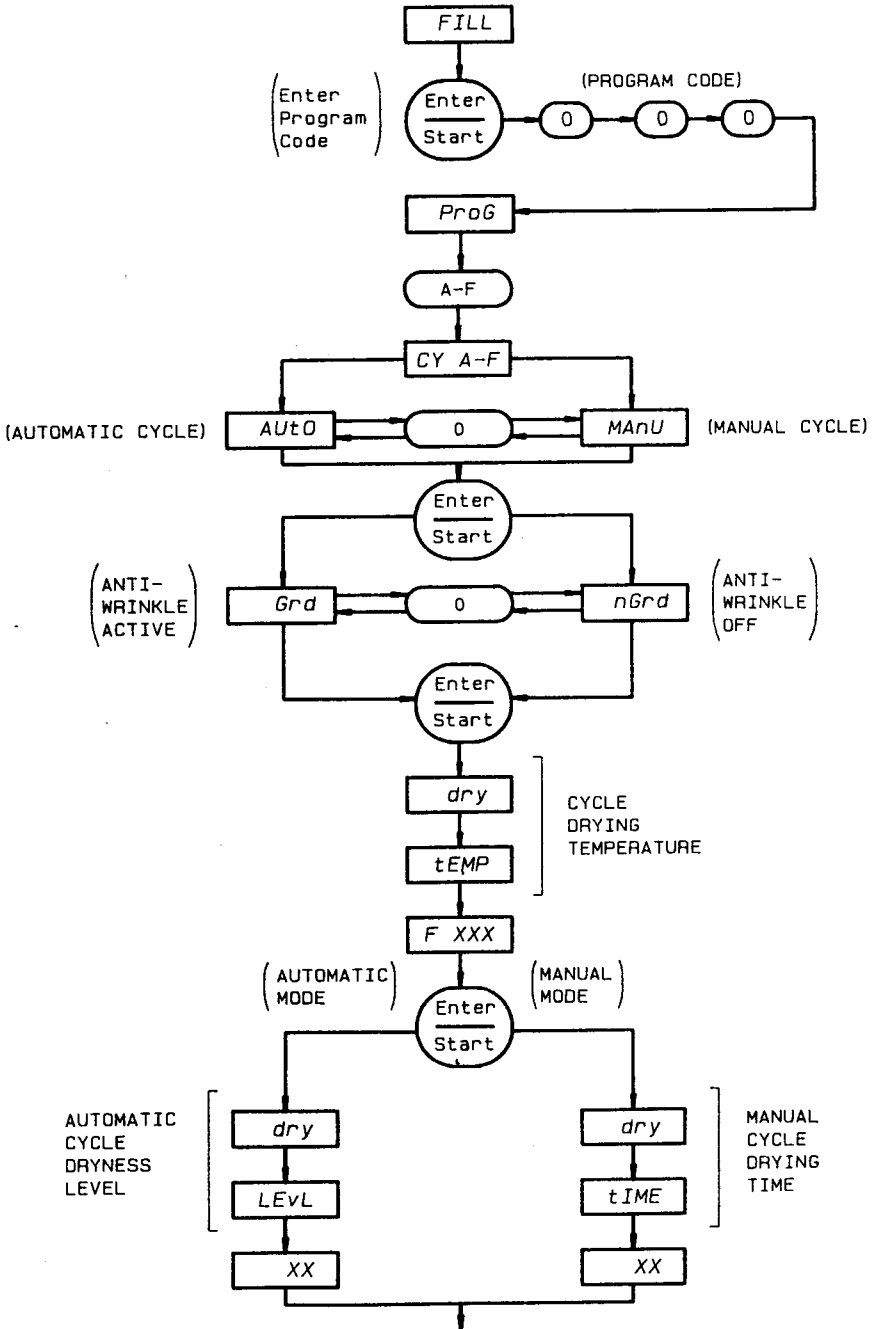
FLOW CHARTS

This section explains the programming of the pre-programmed cycles and the system parameters through flow charts. A flow chart is nothing more than a diagram of the programming process.

Two different symbols will be used in the flow charts, a rectangle  and an oval . Each rectangle will represent a readout on the computer display and each oval will represent a key pressed. For instance, if the flow chart shows the symbol  the computer readout will display the same. Also, if the flow chart shows  you will press that key, on the label. The flow chart arrows represent the program path.

The following is an index for the flow charts.

<u>Program</u>	<u>Flow Chart</u>	<u>Page</u>
Pre-programmed cycle	A	39
Example of a Pre-programmed cycle	B	41
Program Location 1	C	44
Program Location 2	D	46
Program Location 3	E	48
Program Location 4	F	50
Manually Entered Automatic Cycle	G	51
Manually Entered Manual Cycle	H	52



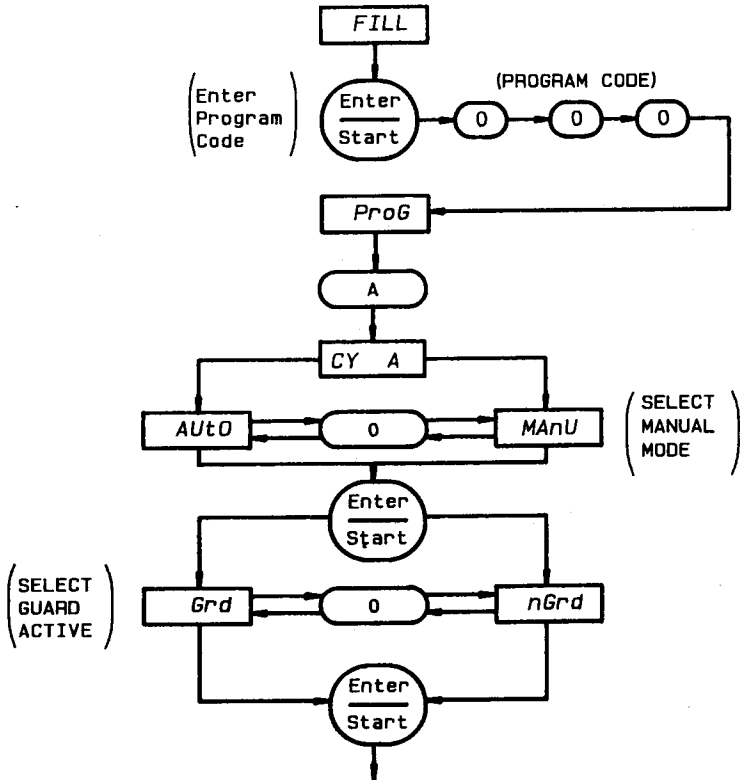
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EXAMPLE OF A PRE-PROGRAMMED CYCLE

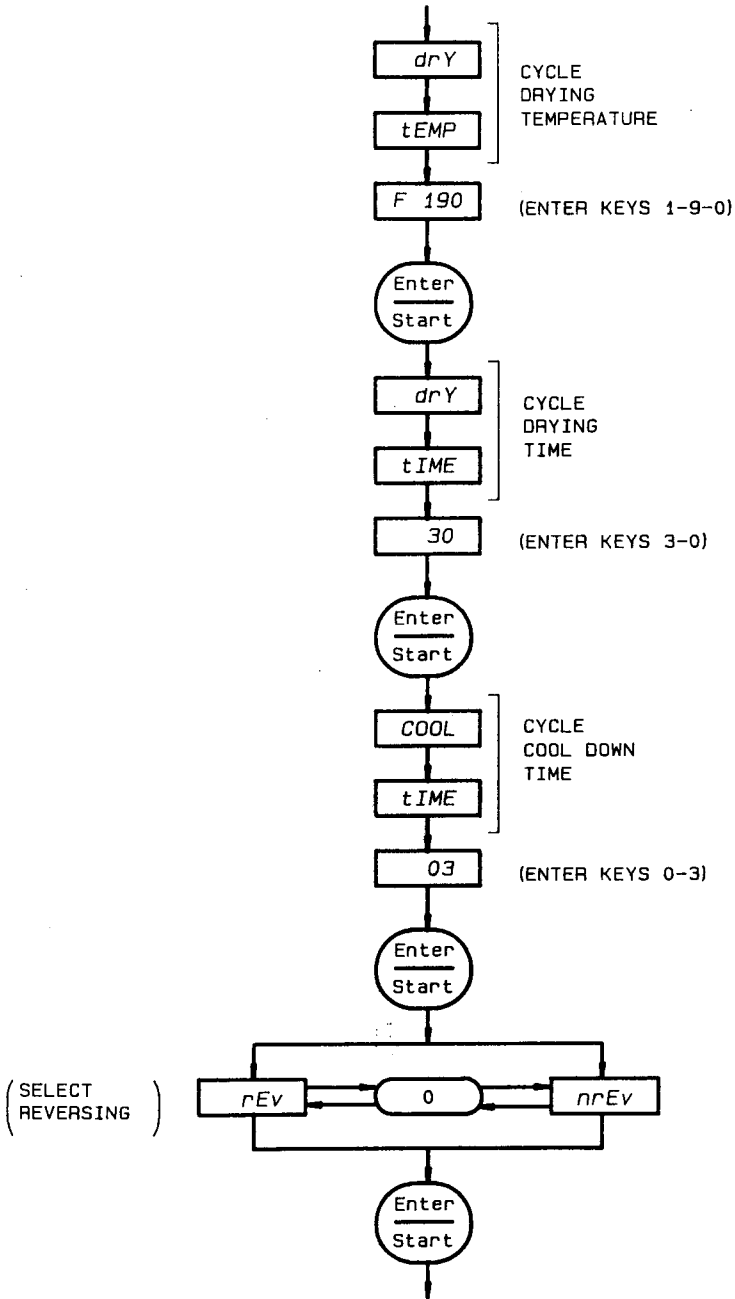
Program a cycle with the following parameters:

1. Enter cycle under program A.
2. Set a manual cycle.
3. Set Anti-Wrinkle active.
4. Set the drying temperature at 190° F.
5. Set the cycle drying time at 30 minutes.
6. Set the cycle cool down time at 3 minutes.
7. Set the dryer in the reversing mode.

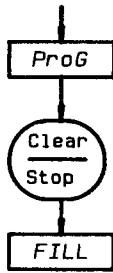
1. Enter cycle under program A.



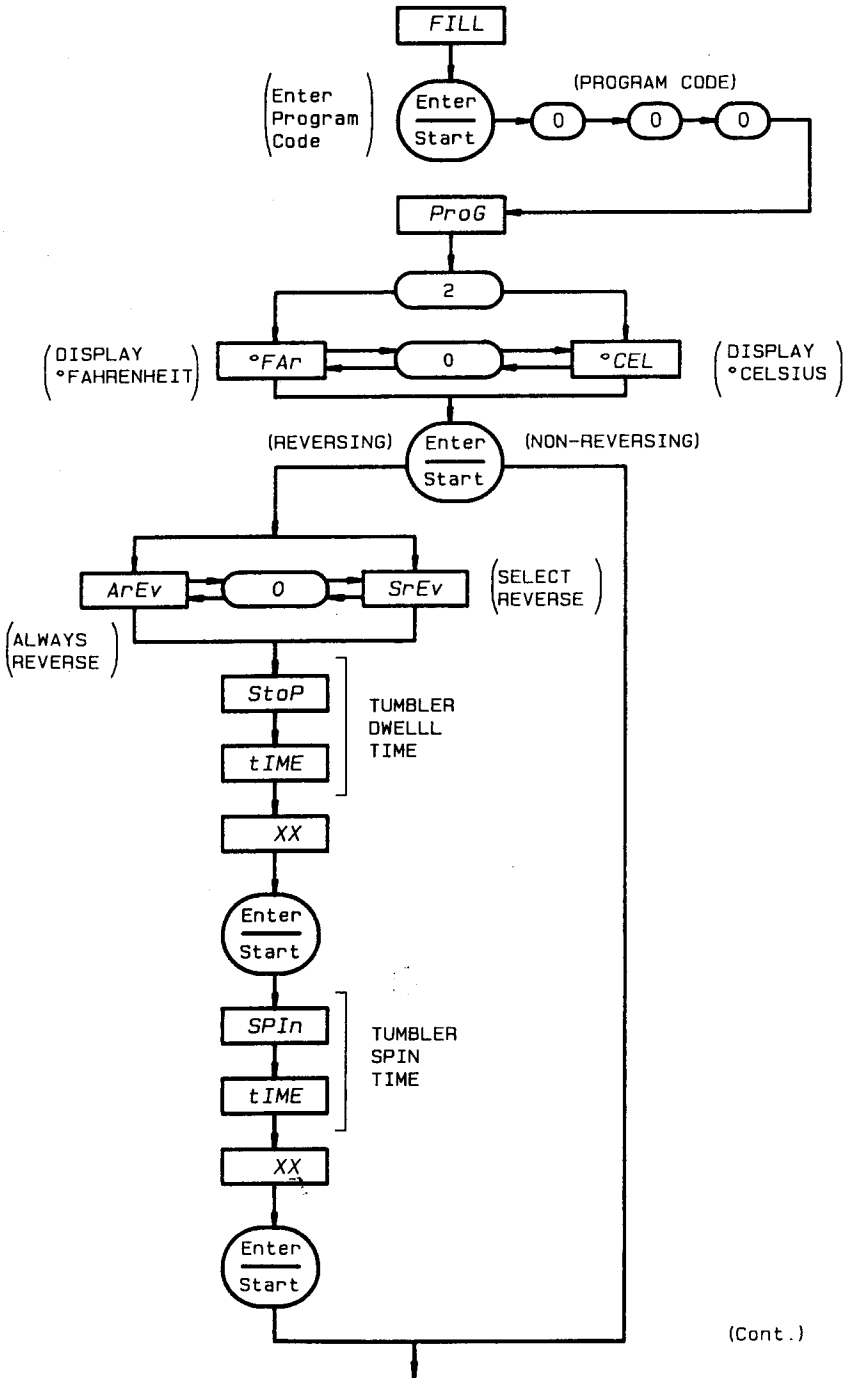
(Cont.)



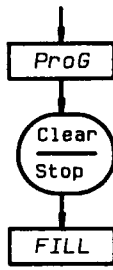
(Cont.)

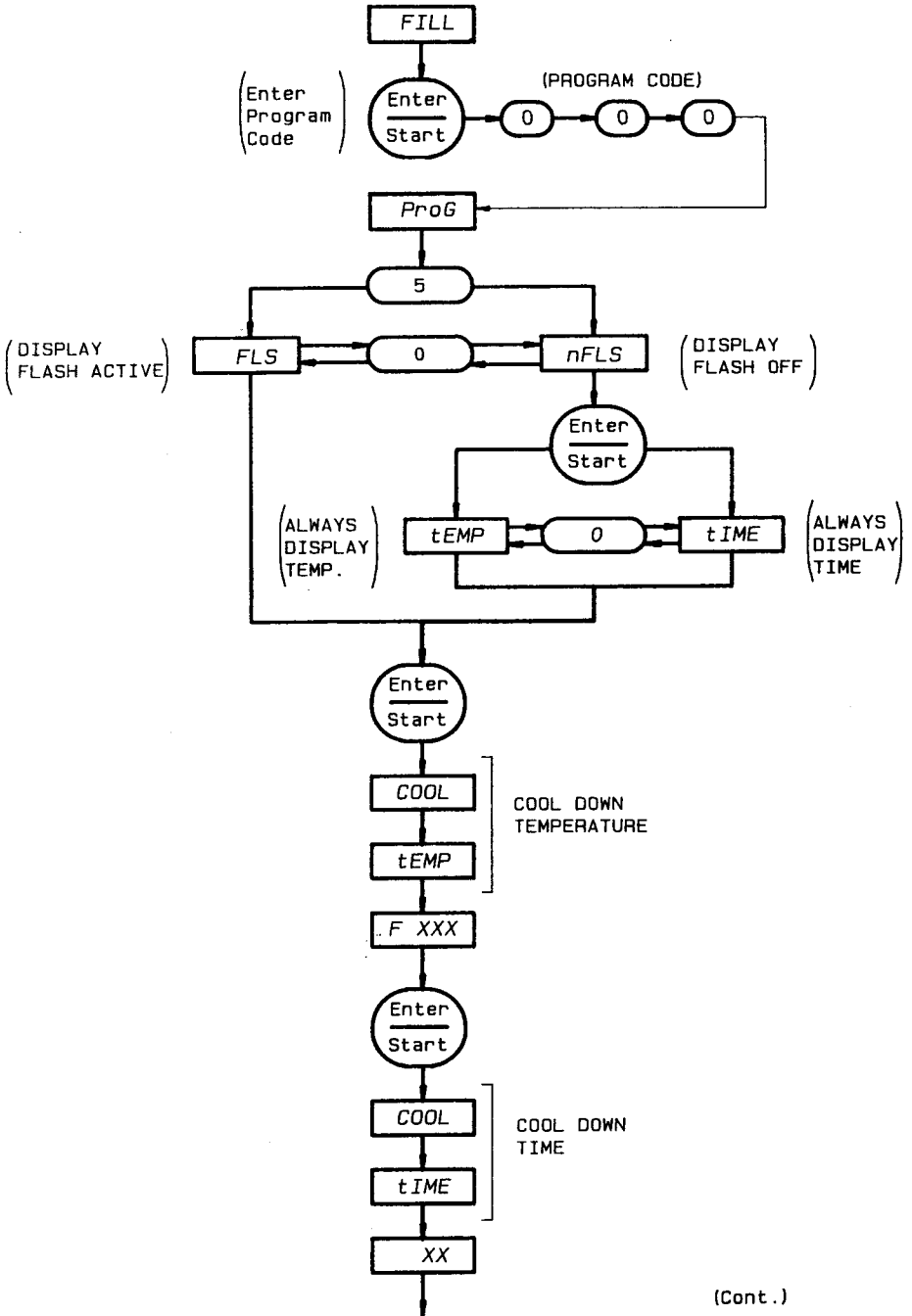


The cycle has now been entered and stored into the computer under key A. By pressing key A when the computer readout displays "FILL" will begin this drying cycle.

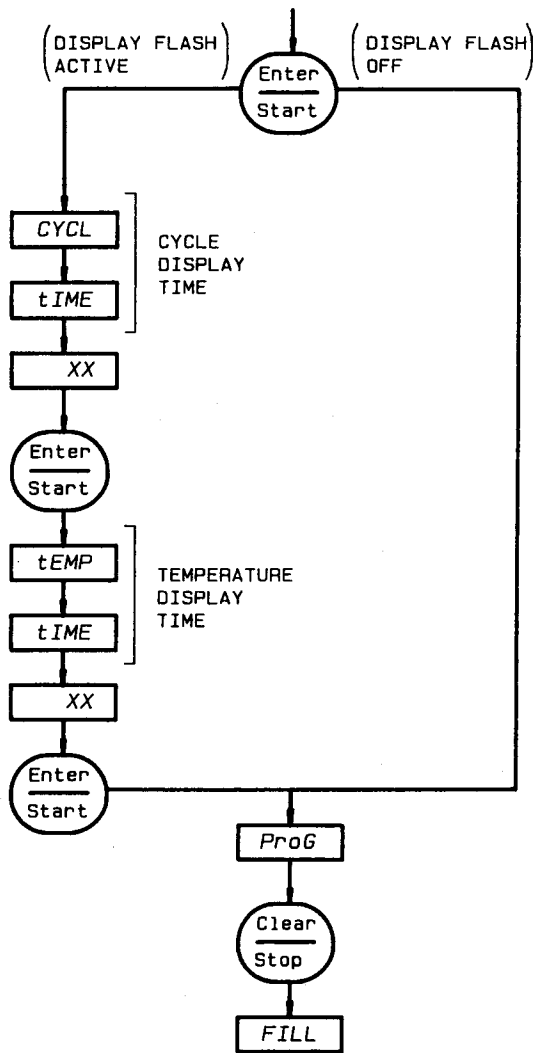


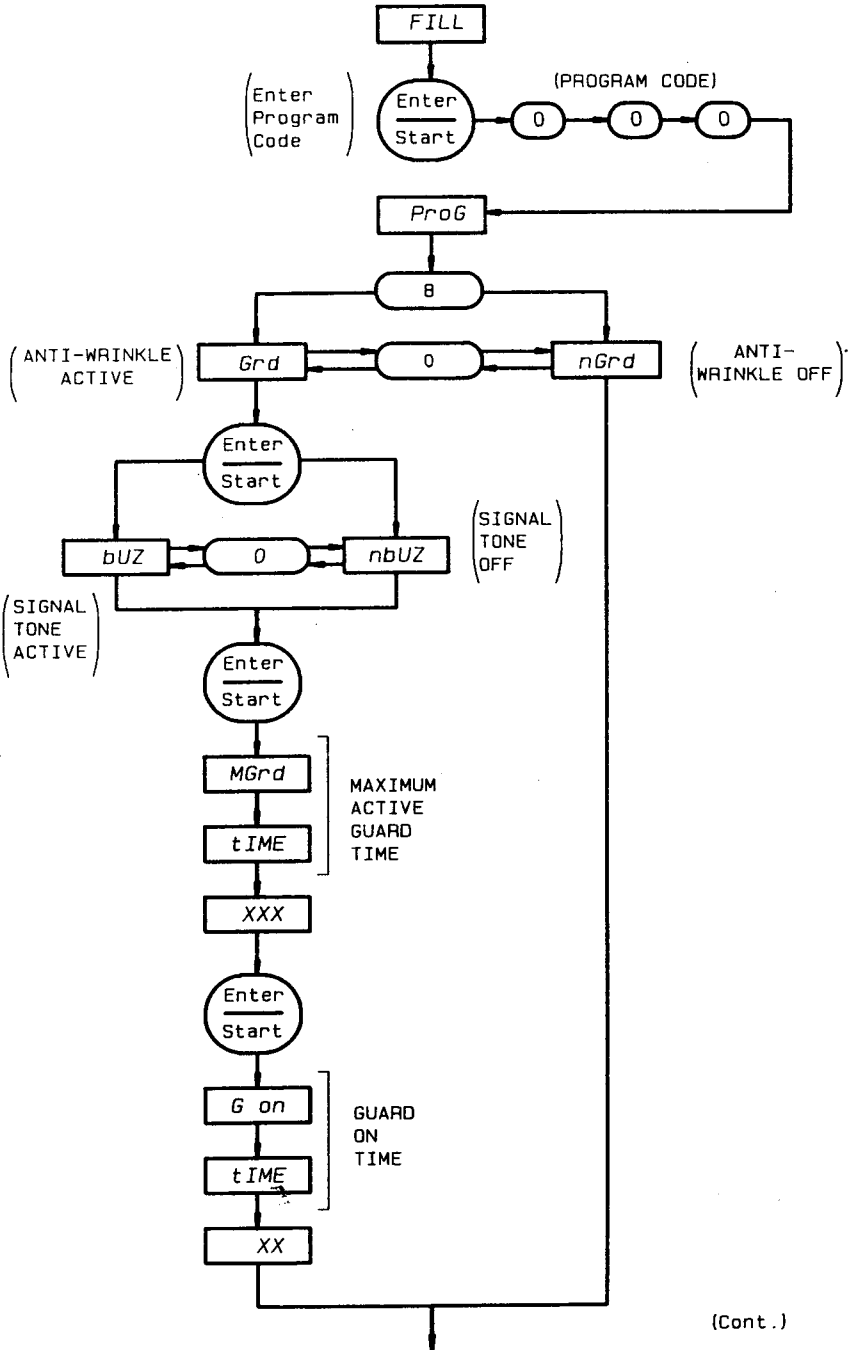
(Cont.)



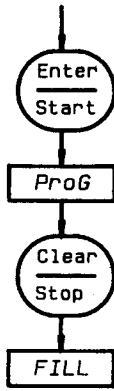


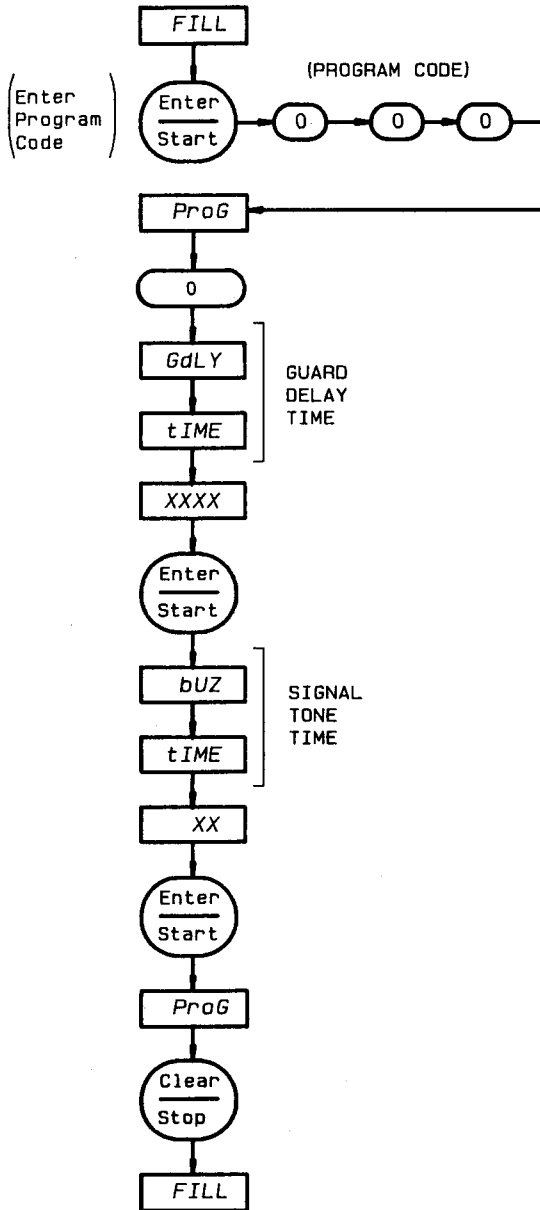
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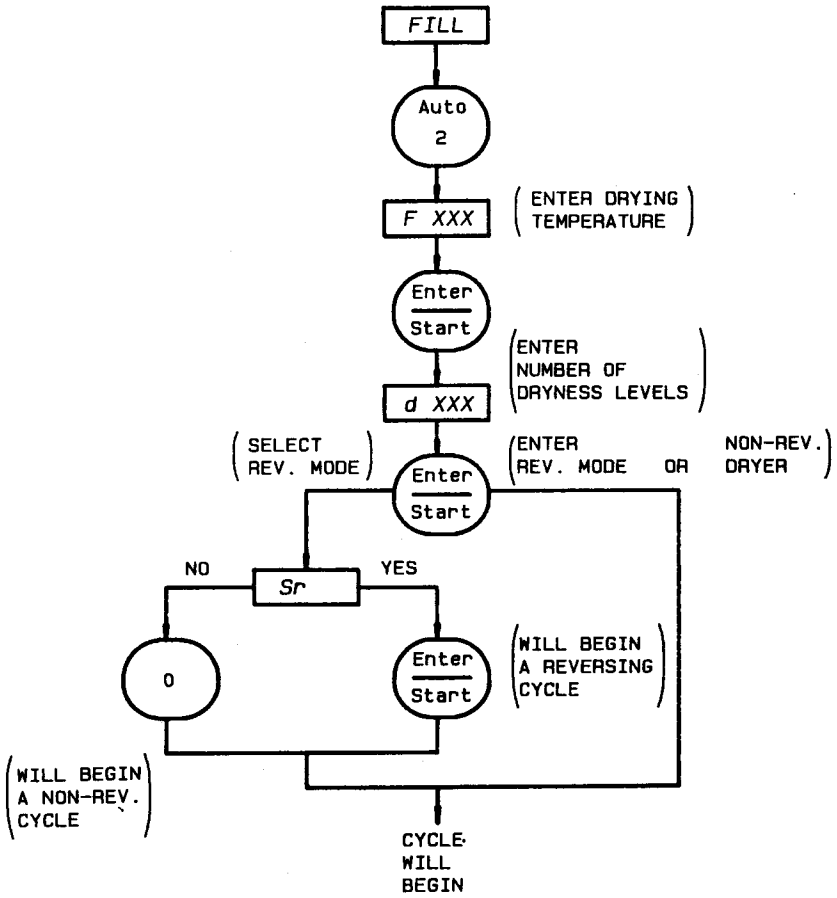


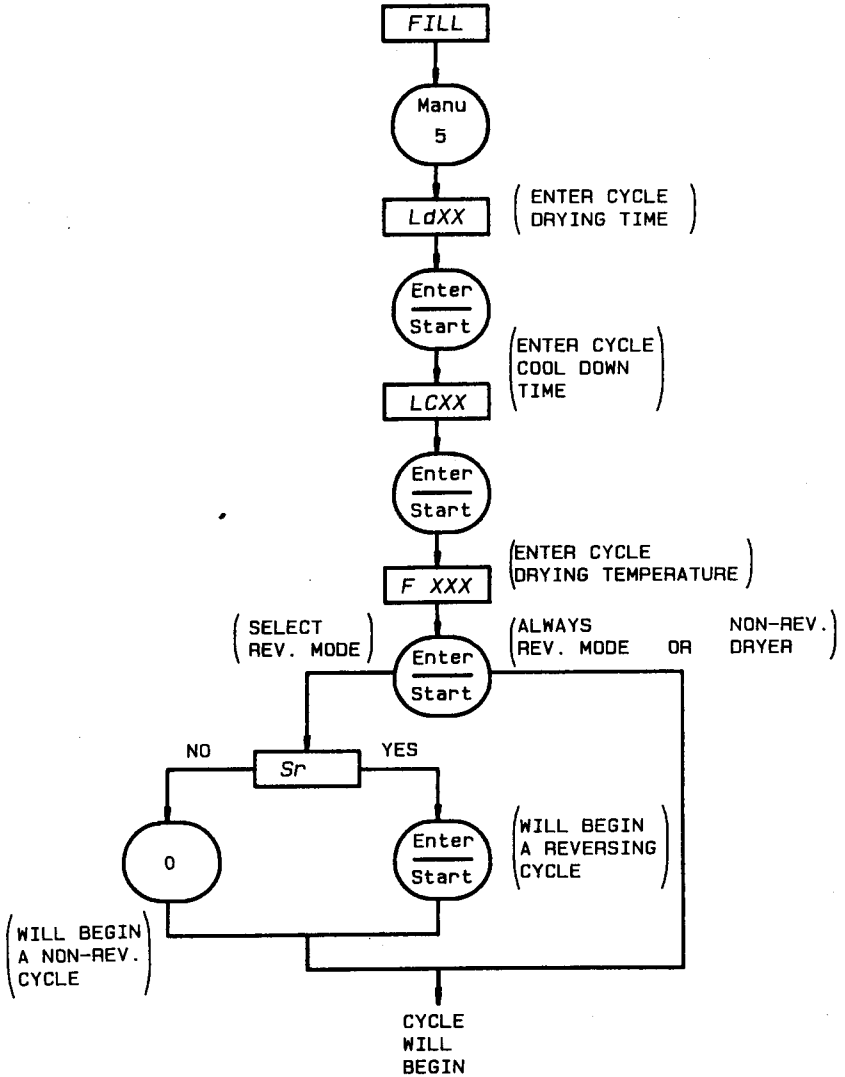


(Cont.)









PHASE 3 O.P.L. PARAMETERS

Pre-set by the Factory for REVERSING DRYERS

- Cycle A: Automatic mode, Anti-Wrinkle active, dry temperature 190°F, dryness level 30, cool down time 6 minutes, cool down temperature 100°F, no reverse.
- Cycle b: Automatic mode, Anti-Wrinkle active, dry temperature 190°F, dryness level 20, cool down time 4 minutes, cool down temperature 100°F, no reverse.
- Cycle C: Automatic mode, Anti-Wrinkle active, dry temperature 160°F, dryness level 20, cool down time 4 minutes, cool down temperature 100°F, no reverse.
- Cycle d: Manual mode, Anti-Wrinkle active, dry temperature 190°F, dry time 40 minutes, cool down time 6 minutes, no reverse.
- Cycle E: Manual mode, Anti-Wrinkle active, dry temperature 180°F, dry time 30 minutes, cool down time 4 minutes, no reverse.
- Cycle F: Manual mode, Anti-Wrinkle active, dry temperature 170°F, dry time 10 minutes, cool down time 2 minutes, no reverse.

SYSTEM PARAMETERS

- Program System 1: Temperature conversion status set in Fahrenheit, reverse, stop time 8 seconds, spin time 45 seconds.
- Program System 2: No flash, display time, cool temperature 100°F, cool time 6 minutes, cycle display time 15 seconds, temperature display time 1 second.
- Program System 3: Anti-Wrinkle active, buzzer (tone) active, maximum Anti-Wrinkle time 10 minutes, Anti-Wrinkle on time 20 seconds.
- Program System 4: Anti-Wrinkle delay time 90 seconds, buz time 7 seconds.

PHASE 3 O.P.L. PARAMETERS

Pre-set by the Factory for NON-REVERSING DRYERS

- Cycle A: Automatic mode, Anti-Wrinkle active, dry temperature 190°F, dryness level 30, cool down time 6 minutes, cool down temperature 100°F.
- Cycle b: Automatic mode, Anti-Wrinkle active, dry temperature 190°F, dryness level 20, cool down time 4 minutes, cool down temperature 100°F.
- Cycle C: Automatic mode, Anti-Wrinkle active, dry temperature 160°F, dryness level 20, cool down time 4 minutes, cool down temperature 100°F.
- Cycle d: Manual mode, Anti-Wrinkle active, dry temperature 190°F, dry time 40 minutes, cool down time 6 minutes.
- Cycle E: Manual mode, Anti-Wrinkle active, dry temperature 180°F, dry time 30 minutes, cool down time 4 minutes.
- Cycle F: Manual mode, Anti-Wrinkle active, dry temperature 170°F, dry time 10 minutes, cool down time 2 minutes.

SYSTEM PARAMETERS

- Program System 1: Temperature conversion status set in Fahrenheit.
- Program System 2: No flash, display time, cool down temperature 100°F, cool down time 6 minutes, cycle display time 15 seconds, temperature display time 1 second.
- Program System 3: Anti-Wrinkle active, buzzer (tone) active, maximum Anti-Wrinkle time 10 minutes, Anti-Wrinkle on time 20 seconds.
- Program System 4: Anti-Wrinkle delay time 90 seconds, buz (tone) time 7 seconds.

PHASE 3 O.P.L. PROGRAMMING LIMITS

System Parameters

Stop Time: 4-19 seconds in one-second increments
Spin Time: 30-93 seconds in one-second increments
Auto Cool Temperature: 70-100F or 25-40C in 10F or 5C increments
Auto Cool Time: 0-15 minutes in one-minute increments
Cycle Display Time: 1-15 seconds in one-second increments
Temperature Display Time: 1-15 seconds in one-second increments
Guard On Time: 10-63 seconds in one-second increments
Guard Delay Time: 15-4095 seconds in one-second increments
Maximum Guard Time: 1-127 minutes in one-minute increments
Buz Time: 1-15 seconds in one-second increments

Pre-programmed Cycles

Dry Temperature: 110-200F or 45-90C in one-degree increments
Dry Time (manual): 0-127 minutes in one-minute increments
Cool Temperature (auto): 70-100F or 25C-40C in 10F or 5C increments
Cool Time (manual): 0-31 minutes in one-minute increments
Cool Time (auto): 0-14 minutes in 2-minute increments
Stop Time: 4-19 seconds in one-second increments
Spin Time: 30-93 seconds in one-second increments
Dryness Level: 1-127 peaks in one-peak increments

Manually Loaded Cycles

Dry Temperature (auto): 110-200F or 40-95C in one-degree increments
Dryness Level (auto): 1-255 peaks in one-peak increments
Dry Time (manual): 0-99 minutes in one-minute increments
Cool Time (manual): 0-99 minutes in one-minute increments
Dry Temperature (manual): 110-200F or 40-95C in one-degree increments

SECTION VI

MAINTENANCE

A. Cleaning

A program or schedule should be established for periodic inspection, cleaning, and removal of lint from various areas of the dryer, as well as throughout the duct work system. The frequency of cleaning can best be determined from experience at each location.

Maximum operating efficiency is dependent upon proper air circulation. The accumulation of lint can restrict this air flow. If the guidelines in this section are met, an American dryer will provide many years of efficient, trouble-free, and....most importantly....safe operation.

WARNING: Lint from most fabrics is highly combustible. The accumulation of lint can create a potential fire hazard. Keep area around dryer clear and free from combustible materials, gasoline and other flammable vapors or liquids.

Suggested Interval

Function

Daily Clean lint from the lint screen. Inspect lint screen and replace if torn.

Weekly Clean any lint accumulation from the floors and walls of the lint chamber.

90 Days Remove lint accumulation from lint chamber, thermostats and sensors.

WARNING: To avoid the hazard of electrical shock, discontinue electrical supply to the dryer.

90 Days Remove lint from the motor air vents and surrounding area.

IMPORTANT: Lint accumulation will restrict internal motor air flow, causing overheating and irreparable motor damage. Motor failure due to lint accumulation WILL VOID THE MANUFACTURER'S WARRANTY.

Remove lint accumulation from around the openings in the dryer's back panels.

120 Days Remove lint from gas burner area with a dusting brush or vacuum cleaner attachment. Remove any lint accumulation from between the inner and outer firing chambers of the gas burner.

6 Months Inspect and remove lint accumulation in customer-furnished exhaust duct work system and from the dryer's internal exhaust ducting, including the 3" diameter flex duct.

IMPORTANT: The accumulation of lint in the exhaust duct work can create a potential fire hazard.

6 Months Inspect and remove lint accumulation from the dryer exhaust back draft damper.

NOTE: A back draft damper that is sticking partially closed can result in slow drying and shutdown of the heat circuit safety switches or thermostats.

As Required In the cleaning and care of the cabinet, avoid using harsh abrasives. A product intended for the cleaning of appliances is recommended.

B. Adjustments

Suggested Interval

Function

7 Days After Installation and Every 6 Months Inspect bolts, nuts, screws, non-permanent gas connections (unions, orifices, etc.), electrical terminals, and grounding connections.

6 Months Motor and drive belts should be examined. Cracked or seriously frayed belts should be replaced. Tighten loose belts when necessary and check belt alignment.

6 Months Complete operational check of controls and valves.

6 Months Complete operational check of all safety devices (door switches, sail switch, burner and lint chamber thermostats).

C. Lubrication

The motor bearings, idler bearings, and tumbler bearings are permanently lubricated and NO relubrication is necessary. Some tumbler bearings are equipped with grease fittings. Should lubrication ever be found necessary, use a general purpose lithium-based grease. (Do not use animal- or vegetable-based lubricants.) Do not overgrease. Be sure grease fitting is thoroughly cleaned of all foreign material before greasing.

ADC 112110

1 - 07/17/91-1,125

2 - 10/22/91-635

3 - 01/10/92-555

4 - 01/19/96-550

5 * 06/04/97-500

