

**KS-20183 L2 AND L3 AIR DRYERS
(LECTRODRYER DIVISION, AJAX MAGNETHERMIC)
REPLACEMENT PARTS AND PROCEDURES**

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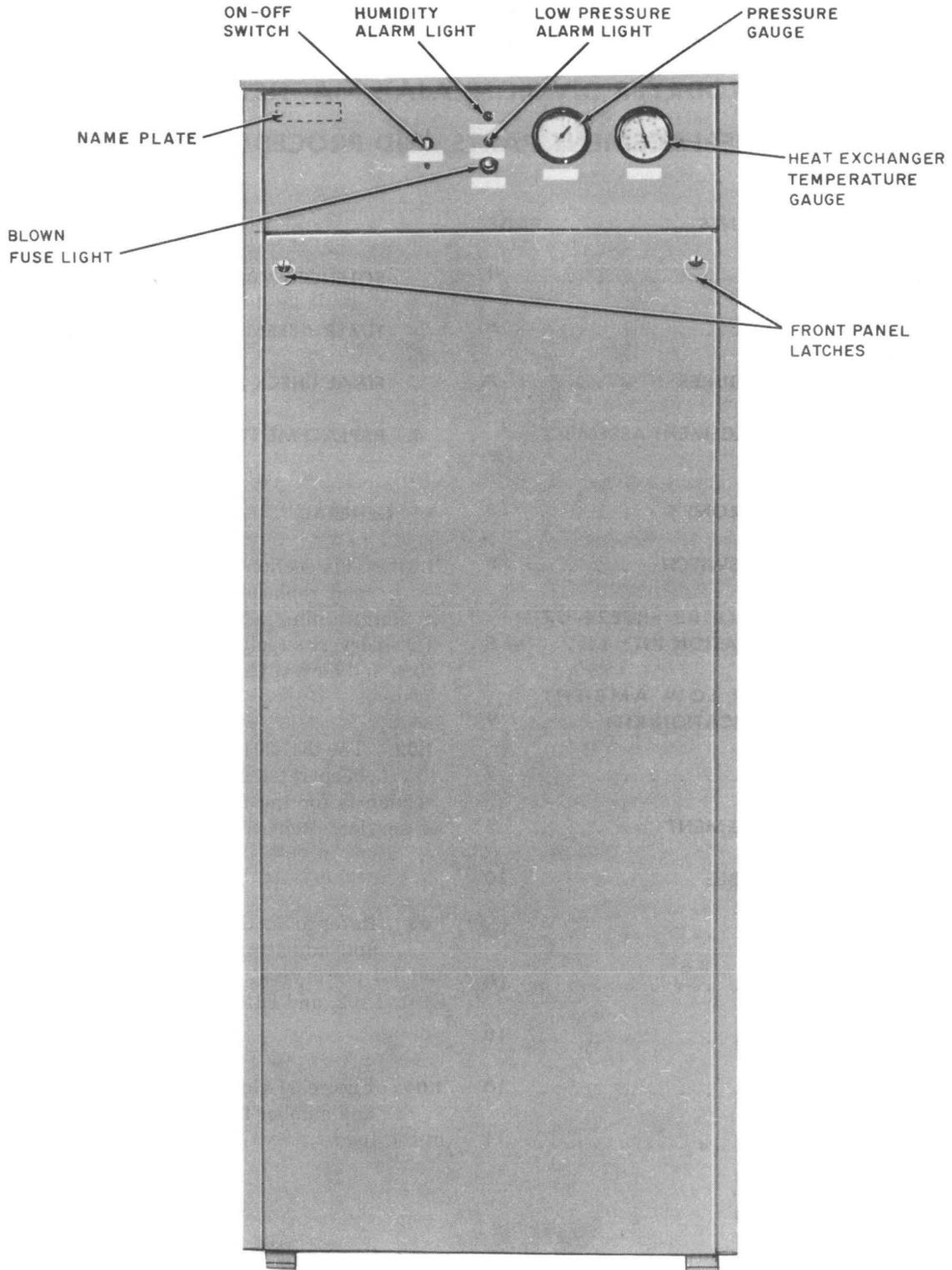


Fig. 1—KS-20183 L2 and L3 Air Dryer Cabinet

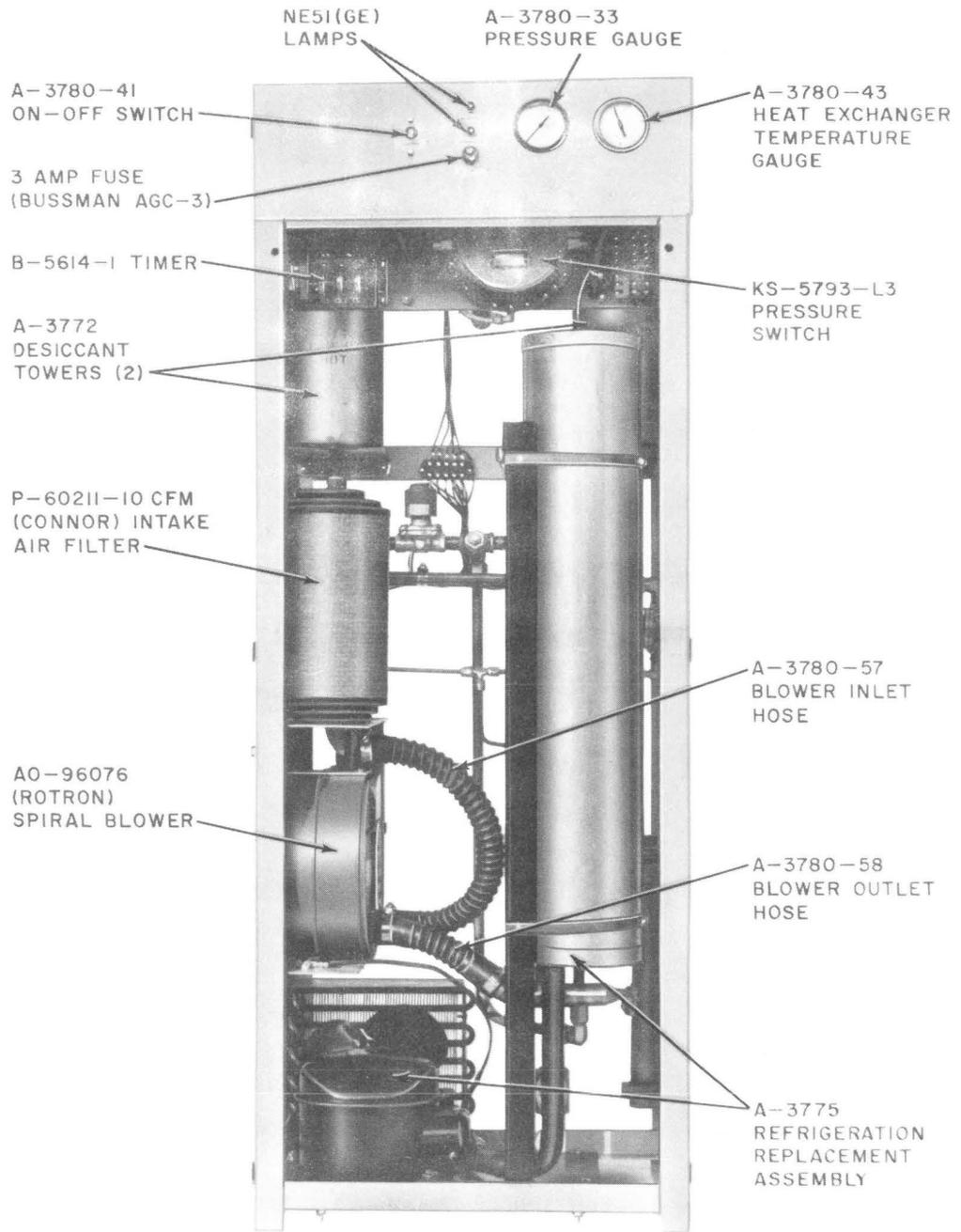


Fig. 2—KS-20183 L2 and L3 Air Dryers—Front Cover Removed

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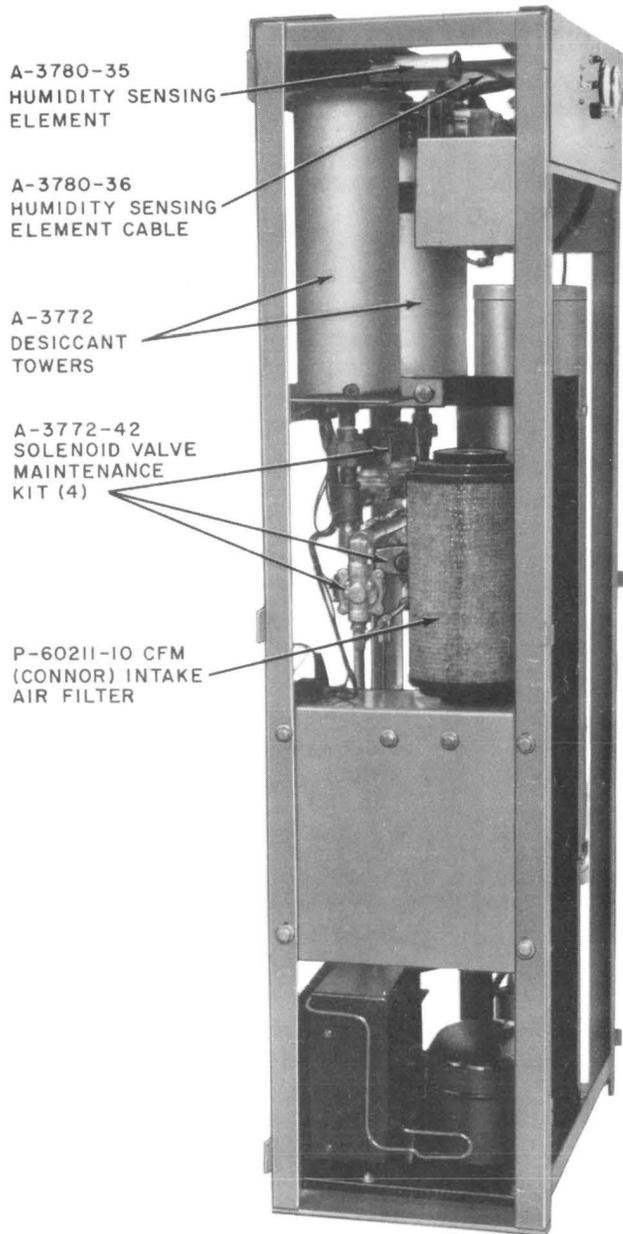


Fig. 3—KS-20183 L2 and L3 Air Dryers—Left Side Panel Removed

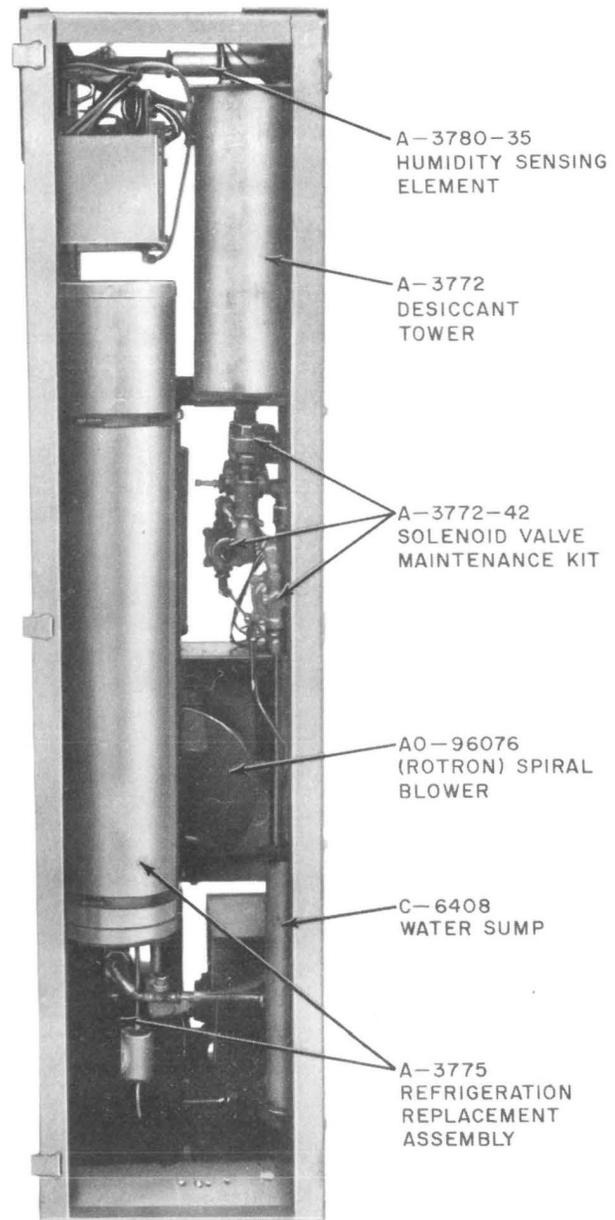


Fig. 4—KS-20183 L2 and L3 Air Dryers—Right Side Panel Removed

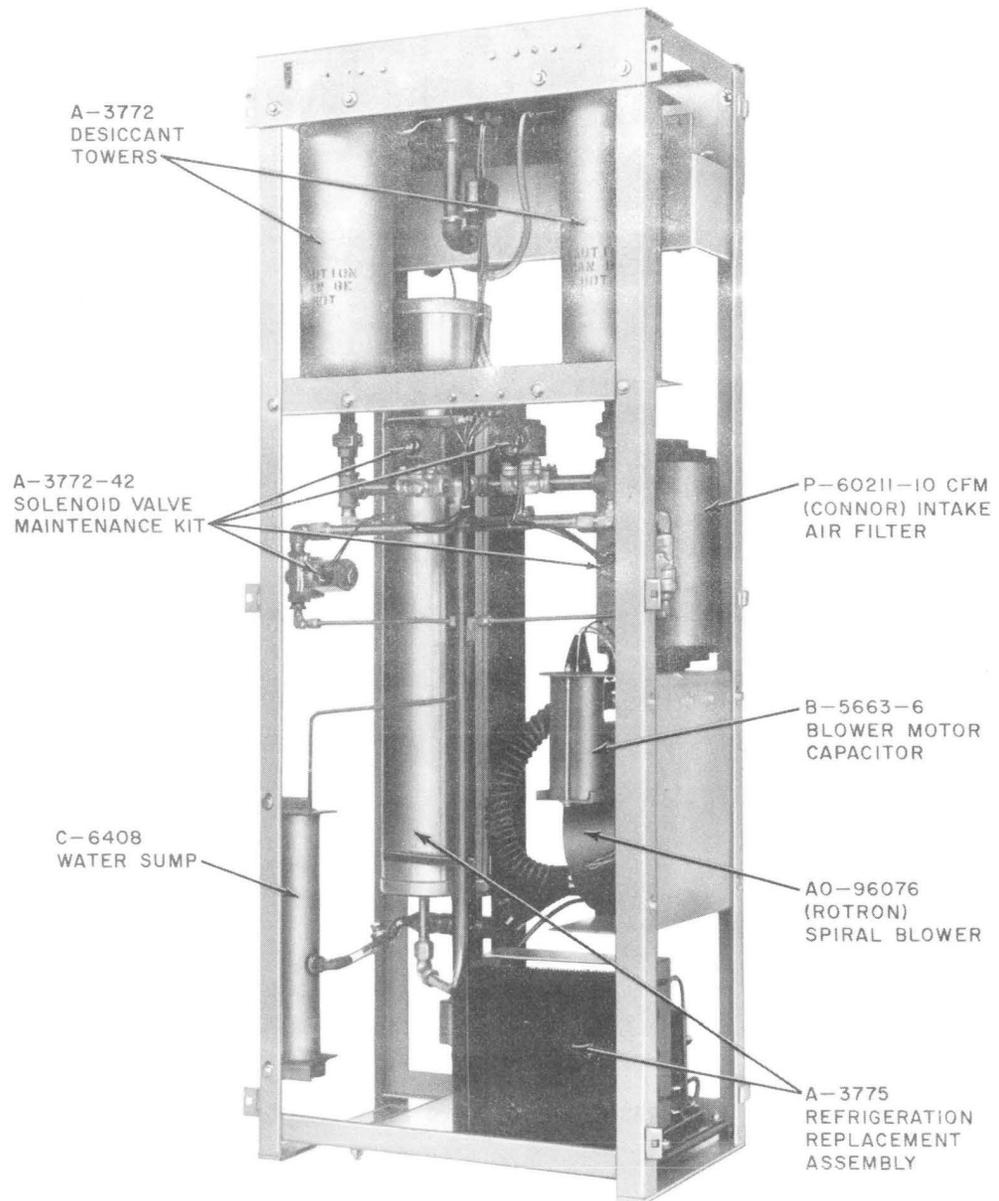


Fig. 5—KS-20183 L2 and L3 Air Dryers—All Panels Removed

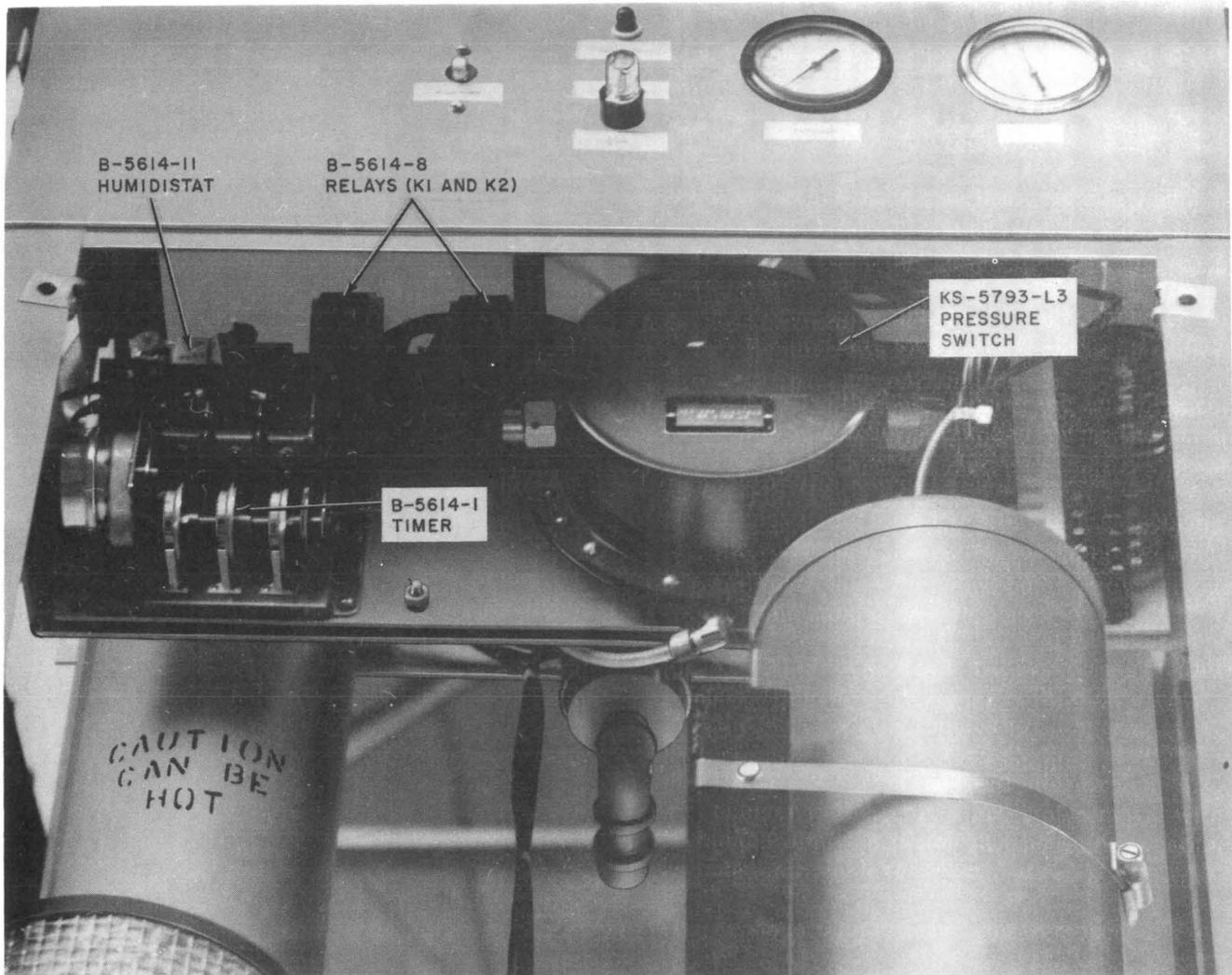


Fig. 6—KS-20183 L2 and L3 Air Dryers—Electrical Panel

2. PRECAUTIONS

2.01 The following procedures must be observed *before* replacing parts:

- (1) Shut off the dry air supply from the dryer to the waveguide system (for location of valve, check installation drawing).
- (2) Move the ON-OFF switch to the OFF position and disconnect the dryer from the ac power supply.
- (3) Disable the alarm circuit by removing the K1 and K2 relays (Fig. 6).

2.02 *Avoid contact with the surfaces of the desiccant towers during and immediately after the tower heating period. The outer surfaces of the towers reach temperatures of over 250 F during this period.*

2.03 When shutting down the dryer for any reason, always wait at least *five minutes* before restarting the dryer. This will allow the refrigeration compressor to unload, thereby avoiding an excessive load on the compressor motor.

2.04 After all work is completed, the dryer is placed back in operation, as follows:

- (1) Reconnect the ac power supply

- (2) Move the ON-OFF switch to the ON position.
- (3) When the dryer reaches normal operating temperature (38°F to 40°F) and pressure (9 \pm 0.25 inches of water), replace the K1 and K2 alarm circuit relays and the alarm lamps will extinguish.
- (4) Open the valve in the air pipe system and resume supplying air from the dryer to the waveguide system.

3. REPLACEMENT PROCEDURES

3.01 When the dryer must be shut down for maintenance, follow local instructions for supplying an interim dry air source.

REFRIGERATION REPLACEMENT ASSEMBLY

3.02 Replacement of components of the refrigeration system must be done by personnel trained in refrigeration equipment maintenance. Therefore, replacement procedures for these parts are not covered in this section.

3.03 Replacement of the entire refrigeration system can be made by field personnel with the A-3775 refrigeration replacement assembly (Fig. 7).

3.04 Tools: The tools required to remove and replace the refrigeration system are a 3/8-inch drive ratchet wrench set, 7/16- and 1/2-inch sockets and open end wrenches, long-nose pliers, and screw driver.

3.05 The refrigeration system is removed and replaced, as follows:

- (1) Shut down the dryer as covered in 2.01.
- (2) Remove the front panel of the dryer.
- (3) Disconnect blower outlet hose between blower and refrigeration unit by unscrewing the hose clamp at the connection to the refrigeration unit.
- (4) Disconnect the wire leads at the quick disconnect terminal located on the blower base plate.

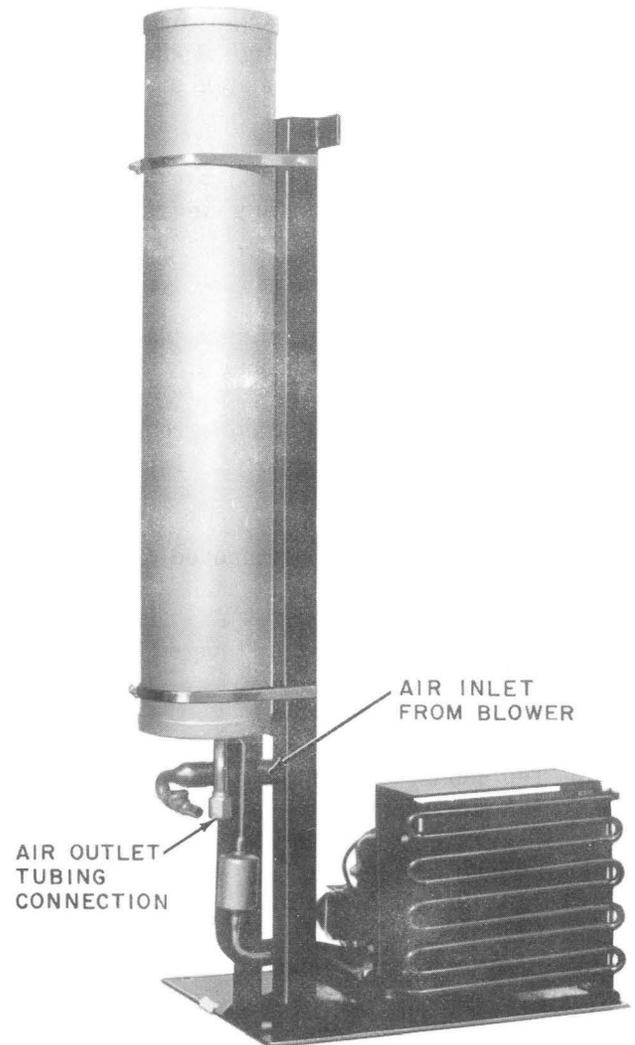


Fig. 7—A-3775 Refrigeration Replacement Assembly

- (5) Using a 7/16-inch socket wrench, remove the three 1/4-inch cap screws from the refrigeration unit base plate.
- (6) Using 1/2-inch socket and 1/2-inch open end wrenches, remove the 5/16-inch cap screw, nut and washers from the top mount of the refrigeration unit. This mount is located between the bottom portion of the desiccant towers.
- (7) Uncoil temperature gauge capillary lead located at the top of the refrigeration unit.
- (8) Lift the unit up and out of the dryer housing.

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- (9) Remove snap-in cover plug from refrigeration unit at temperature gauge capillary entrance. Carefully remove loose insulation around packing gland.
- (10) Using long-nose pliers, carefully unscrew packing gland bushing and then remove temperature gauge sensing bulb from the refrigeration unit.
- (11) Install the refrigeration replacement unit in reverse order of removal.
- (12) Resume dryer operation as covered in 2.04.

SPIRAL BLOWER (ROTRON)

3.06 The spiral blower is removed and replaced as follows:

- (1) Shut down the dryer as covered in 2.01.
- (2) Remove the front panel.
- (3) Tag and disconnect the leads from the blower motor to the capacitor and terminal block.
- (4) Loosen the hose clamp and pull the hose from the blower air inlet and outlet (Fig. 2).
- (5) Remove the four mounting bolts fastening the blower to the shelf.
- (6) Remove the blower.

Note: If the L102 bypass block modification kit has been installed on the old blower, remove the bypass and install it on the replacement blower.

- (7) Install the replacement blower, tighten bolts, reconnect wiring, and hoses in reverse order of removal.

Note: Where applicable, adjust the bypass as outlined in Section 161-309-702.

- (8) Resume dryer operation as covered in 2.04.

KS-5793 L3 PRESSURE SWITCH

3.07 The KS-5793 L3 pressure switch is removed and replaced as follows (Fig. 2):

- (1) Shut down the dryer as covered in 2.01.
- (2) Remove the front panel.
- (3) Loosen the two cover-mounting screws on the sides of the switch and remove the switch cover.
- (4) Disconnect the two external leads from their terminals and pull them through the grommet in the side of the switch.
- (5) Loosen the tubing nut and disconnect the tubing from the switch.
- (6) Remove the three mounting screws securing the switch to the electrical panel and remove the switch.
- (7) Mount the new switch, remove the cover, reconnect the external leads and tubing and remove the tie-down device from the switch contacts.
- (8) Resume dryer operation as covered in 2.04.
- (9) Check, and adjust as required, the operation of the new switch as covered in Section 161-309-702.

PRESSURE SWITCH (L103 FREEZE-UP PROTECTION MODIFICATION KIT)

3.08 The pressure switch associated with the KS-20183 L103 freeze-up kit is checked and adjusted as outlined in Section 161-309-702. This pressure switch is removed and replaced as follows:

- (1) Disconnect all leads and copper tubing from the KS-5793 L3 pressure switch and remove switch from unit.
- (2) Install dual pressure switch provided with kit using the same mounting screws.
- (3) Wire leads 42 and 24 disconnected from KS-5793 pressure switch should be reconnected to the terminals in the top right-hand corner of the new switch.
- (4) Resume proper operation of the air dryer and set pressure switch as follows:

(a) Set the front mercury contact switch for closure at 5.5 inches wg by turning the knurled screw in the center of the switch (clockwise to raise and counterclockwise to lower) while holding the pressure at 5.5 inches wg. By lowering or raising the deadweight relief valve and observing the contact closure point (when the refrigeration motor shuts off) on the pressure gauge on the front of the air dryer.

(b) The differential or pressure difference between the operation of the high (Front Contact—Refrigeration Motor shut-off) and the low (Rear Contact—Low Pressure Alarm) switches can be adjusted to approximately 3 inches wg lower or 2.5 to 2 wg. By the knurled screw to the right of the front mercury contact. To widen the differential, turn screw clockwise, (widest differential should be used). To decrease, turn screw counterclockwise. Do not turn this screw too far in either direction, otherwise the magnetic switch to the left will not operate in the proper sequence.

(5) The switch operation should then be checked by slowly raising the dead weight relief valve and observing the Refrigeration Motor shut-off at approximately 5.5 inches wg and the low pressure alarm operating at approximately 2.5 to 2 wg, as observed on the front panel pressure gauge of the dryer.

THERMOSTAT (L101 LOW AMBIENT TEMPERATURE MODIFICATION KIT)

3.09 The thermostat associated with the KS-20183 L101 low temperature kit is removed and replaced as follows:

- (1) De-energize the power supply and move the ON-OFF switch to OFF.
- (2) Remove cover from thermostat and disconnect the conductor at terminal "R" and "W".
- (3) Remove thermostat from wall and install new thermostat.
- (4) Reconnect conductors to terminals "R" and "W".
- (5) Resume dryer operation.

HUMIDISTAT

3.10 The humidistat is removed and replaced as follows (Fig. 6):

- (1) Shut down the dryer as covered in 2.01.
- (2) Remove the front panel.
- (3) Tag and disconnect the external leads from humidistat terminal strip.
- (4) Remove the mounting screws securing the humidistat to the electrical panel.
- (5) Install the new humidistat in the reverse order of removal.
- (6) Resume dryer operation as covered in 2.04.
- (7) Check the operation of the new humidity alarm as covered in 161-309-702.

HUMIDITY SENSING ELEMENT

3.11 The humidity sensing element is removed and replaced as follows (Fig. 3).

- (1) Shut down the dryer as covered in 2.01.
- (2) Remove top cover.
- (3) Remove the nut in the end of the sensing element receptacle.
- (4) Carefully remove the sensing element from the receptacle by pulling on the cable.
- (5) Remove the element from its socket by removing the mounting screw located inside the sensing element using a small blade screwdriver. Mount the new element and tighten the mounting screw.
- (6) Insert the sensing element into the receptacle in the reverse order of removal.

Caution: The receptacle nut should be hand tightened only. Do not use a wrench.

- (7) Resume dryer operation as covered in 2.04.

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SENSING ELEMENT CABLE

3.12 The sensing element cable is removed and replaced as follows:

- (1) Shut down the dryer as covered in 2.01.
- (2) Remove the sensing element from its receptacle and the element from the cable as covered in 3.09.
- (3) Disconnect end of cable from humidistat terminal strip.
- (4) Mount the sensing element on the new cable and return the sensing element to its receptacle.
- (5) Reconnect end of cable to humidistat terminal strip.
- (6) Resume dryer operation as covered in 2.04.

DESICCANT TOWERS

3.13 Tools: The tools required to remove and replace the desiccant towers are a 12-inch pipe wrench, screwdriver, 3/8-inch drive ratchet wrench set, 7/16-inch socket and 7/16-inch open end wrenches.

3.14 Desiccant towers are removed and replaced as follows:

Warning: *If the tower to be replaced is in the heating portion of the reactivation cycle, delay the replacement until the tower has cooled.*

Left Tower

- (1) Shut down the dryer as covered in 2.01.
- (2) Remove top and front cover from dryer.
- (3) With the 12-inch pipe wrench, unscrew upper and lower piping unions.
- (4) Pull back terminal covers on top of the tower and using screwdriver remove electrical leads.
- (5) Using 7/16-inch socket wrench and 7/16-inch open end wrench, remove four 1/4-inch cap screws and nuts holding tower to dryer frame.

- (6) Pull bottom of tower forward and lower tower down and out of the dryer cabinet.

Right Tower

- (1) Use same procedure as used for left tower, but the refrigeration replacement assembly must first be removed (See 3.04 and 3.05)

RELAYS

3.15 The K1 humidity alarm and K2 pressure alarm relays are plug-in type relays. To replace a relay, pull the defective relay from its socket and insert the replacement relay, making certain to match the relay pins and pin the sockets. (See Part 2 for precautions.)

ALARM LAMPS

3.16 Replacement humidity and pressure alarm lamps may be obtained locally. Replace with General Electric Company NE51 or equivalent. To replace a lamp, unscrew the lampholder, remove and replace the defective lamp, and return the lampholder to the panel. (See Part 2 for precautions.)

FILTER

3.17 To replace the filter, proceed as follows (See Fig. 2):

- (1) Shut down the dryer as covered in 2.01.
- (2) Remove the front panel.
- (3) Remove the nut at the top of the canister.
- (4) Tilt the filter forward and partially raise it from the hold-down rod.
- (5) Release the hold-down rod from the blower mounting plate.
- (6) Remove the filter and hold-down rod.
- (7) Place the hold-down rod through the center of the replacement filter and follow the reverse order of removal.
- (8) Resume dryer operation as covered in 2.04.

FUSE (3 AMP)

3.18 Replacement fuses may be obtained locally.

Replace with Bussman AGC-3 amp, or equivalent. To replace the fuse (Fig. 2), unscrew the fuseholder cap, remove and replace the blown fuse and return the fuseholder to the panel. (See Part 2 for precautions.)

SOLENOID VALVE MAINTENANCE KIT

3.19 The solenoid valve maintenance kit contains a replacement diaphragm and attached plunger. The kit is installed as follows. (See Fig. 3.)

- (1) Shut down the dryer as covered in 2.01.
- (2) Remove the front panel.
- (3) Remove the four mounting bolts securing the solenoid to the valve body, and separate the solenoid from the valve body.
- (4) Withdraw the diaphragm and plunger from the valve body. Take care not to lose the spring at the top of the plunger.
- (5) Remove the spring from the old plunger and install it on the replacement plunger.
- (6) Install the replacement diaphragm and plunger in the reverse order of removal.
- (7) Resume dryer operation as covered in 2.04.

TIMER ASSEMBLY

3.20 The timer assembly is removed and replaced as follows. (See Fig. 6.)

- (1) Shutdown the dryer as covered in 2.01.
- (2) Remove the front panel.
- (3) Note the position of the cams on the timer assembly.
- (4) Tag and disconnect the external leads at the timer.
- (5) Remove the four mounting screws securing the timer assembly to the electrical panel.

(6) Remove the timer assembly and install the new timer in the reverse order of removal.

(7) Manually rotate the timer thumbwheel until the cams are in the same position as noted in (3).

(8) Resume dryer operation as covered in 2.04.

(9) Check the operation of the timer as covered in Section 169-309-702.

FINAL CHECK

3.21 After completing work on the dryer, check that any tubing and wiring disconnected has been reconnected and any panels removed, remounted.

3.22 Make certain that the part, or parts, replaced meet the requirements specified in Section 161-309-702. Other parts whose adjustment may have been disturbed shall be checked to the applicable requirements.

4. REPLACEMENT PARTS

4.01 Parts that can be practicably replaced in the field are shown in the illustrations and/or identified in the text by part name and number. No attempt should be made to replace parts not designated in this section.

4.02 When ordering replacement parts, give the part name, part number, manufacturer's name (when identified), and dryer identification (W.E. Serial Number).

4.03 The following list of replacement parts gives ordering information, including part number, and the supplier's name and location.

A-3775 Refrigeration Replacement Assembly, for KS-20183 L2 or L3 Air Dryers (Lectrodryer Division, Ajax Magnethermic, Pittsburg, Pa.)

A-3772 Desiccant Tower for KS-20183 L2 or L3 Air Dryers (Lectrodryer Division, Ajax Magnethermic)

B-5614-11 Humidistat for KS-20183 L2 or L3 Air Dryers (Lectrodryer Division, Ajax Magnethermic)

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A-3780-35 Humidity Sensing Element for KS-20183 L2 or L3 Air Dryers (Lectrodryer Division, Ajax Magnethermic)

A-3780-36 Sensing Element Cable for KS-20183 L2 or L3 Air Dryers (Lectrodryer Division, Ajax Magnethermic)

B-5614-1 Timer Assembly for KS-20183 L2 or L3 Air Dryers (Lectrodryer Division, Ajax Magnethermic)

B-5614-8 Relay for KS-20183 L2 or L3 Air Dryers (Lectrodryer Division, Ajax Magnethermic)

A-3780-40 Alarm Lamp for KS-20183 L2 or L3 Air Dryers (Lectrodryer Division, Ajax Magnethermic) or obtain locally as General Electric NE51 Lamp or equivalent.

A-3780-42 Fuse (3 amp) for KS-20183 L2 or L3 Air Dryers (Lectrodryer Division, Ajax Magnethermic) or obtain locally as Bussman AGC 3 Amp Fuse or equivalent.

A-3772-42 Solenoid Valve Maintenance Kit for KS-20183 L2 or L3 Air Dryers (Lectrodryer Division, Ajax Magnethermic)

P-60211-10 CFM Filter for KS-20183 L2 or L3 Air Dryers (Connor Engineering Company, Danbury, Conn.)

A0-96076 Spiral Blower for KS-20183 L2 or L3 Air Dryers (Rotron, Woodstock, N.Y.)

KS-5793 L3 Pressure Switch for KS-20183 L2 or L3 Air Dryers (Western Electric Co.)

L101 Low Ambient Temperature Modification Kit for KS-20183 L2 Air Dryer only (Western Electric Co.)

L102 By-Pass Block Modification Kit for KS-20183 L2 or L3 Air Dryers (Western Electric Co.)

L103 Freeze-Up Protection Modification Kit for KS-20183 L2 or L3 Air Dryers (Western Electric Co.)

B-5663-6 Blower Motor Capacitor for KS-20183 L2 or L3 Air Dryers (Lectrodryer Division, Ajax Magnethermic)