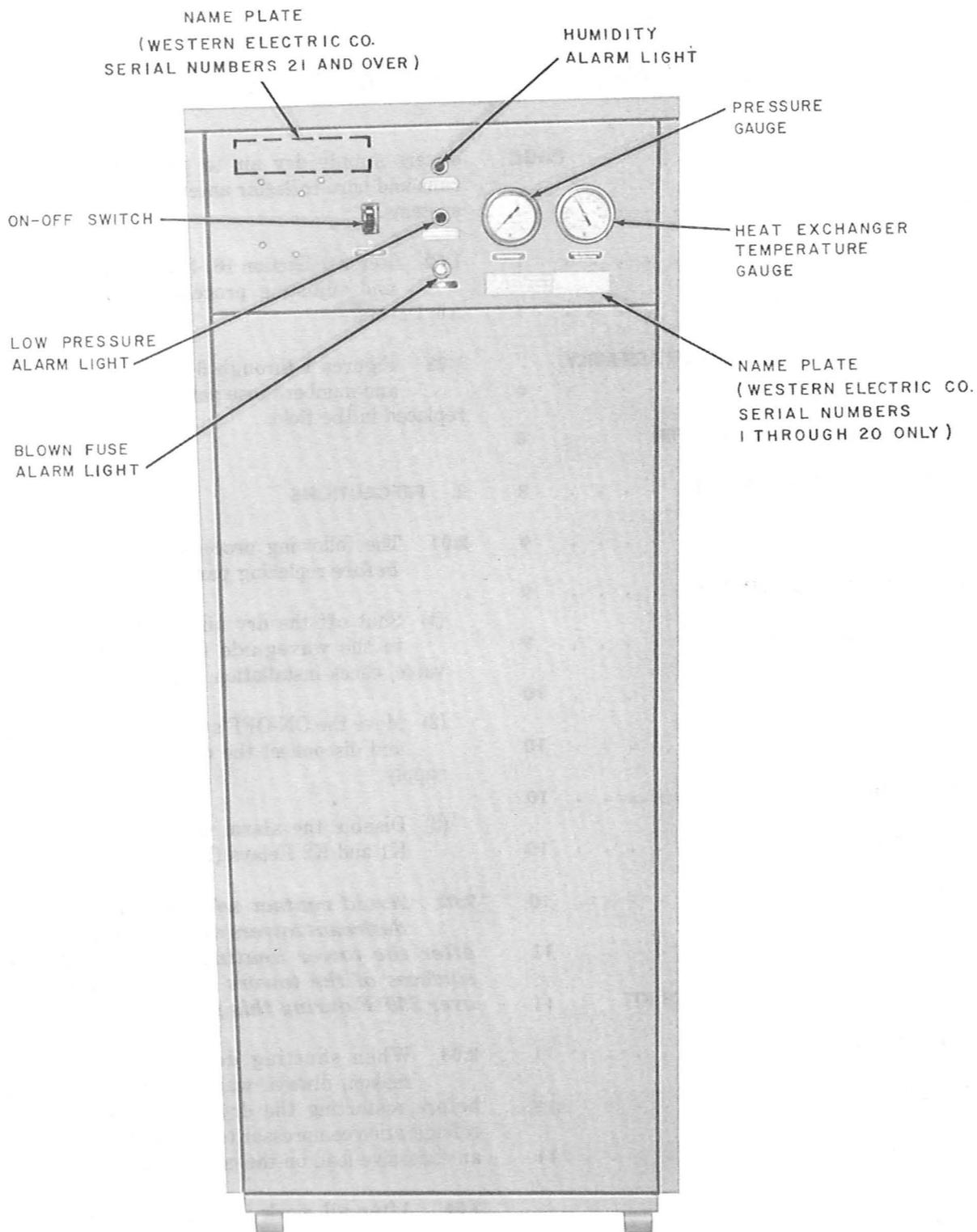


## KS-20183 L1 AIR DRYER

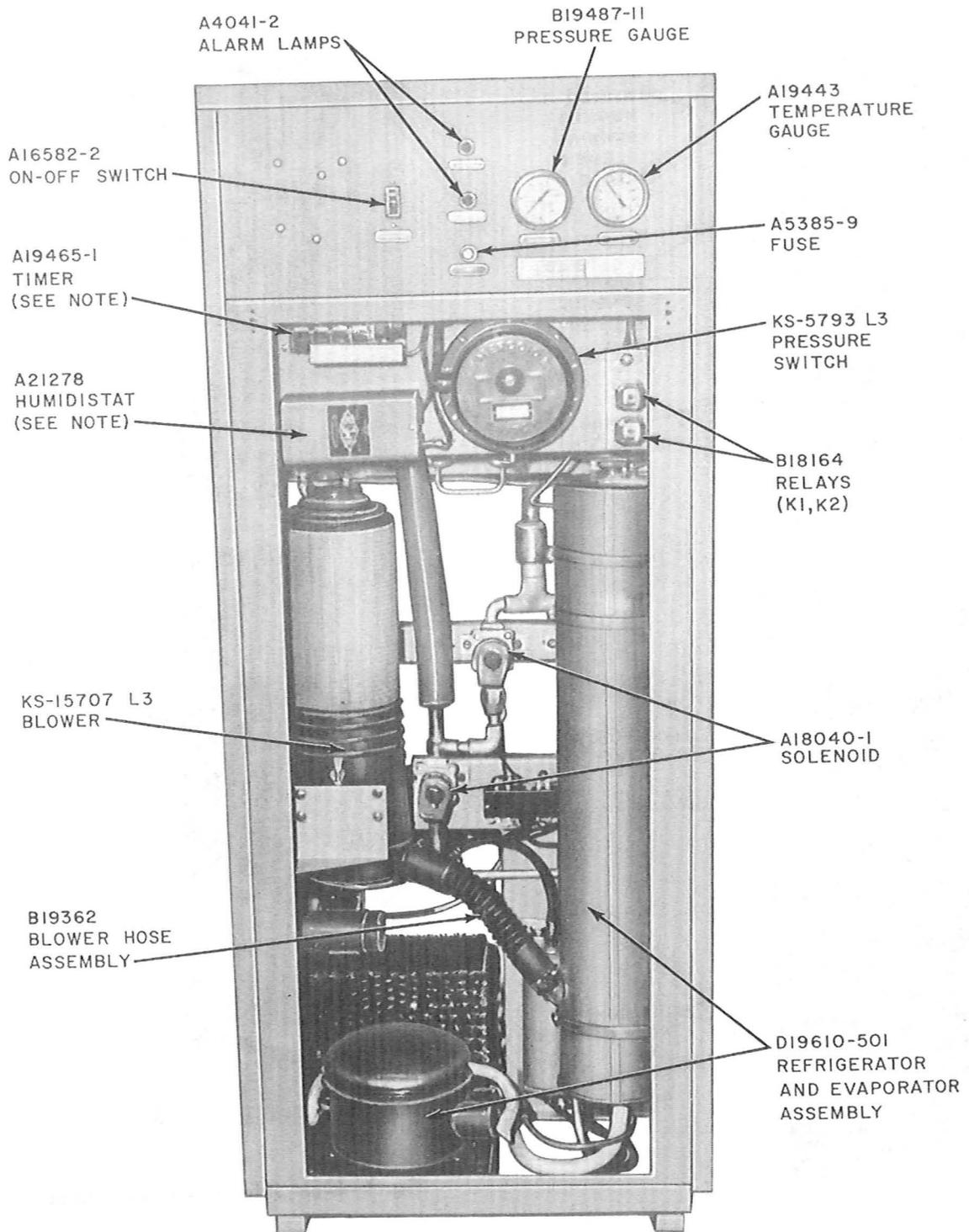
### REPLACEMENT PARTS AND PROCEDURES

	CONTENTS	PAGE	
1.	GENERAL . . . . .	1	dryers supply dry air to pressurized waveguide runs and horn reflector antennas in microwave radio systems.
2.	PRECAUTIONS . . . . .	1	<b>1.02</b> Refer to Section 161-309-701 for requirements and adjusting procedures for KS-20183 L1 Air Dryers.
3.	REPLACEMENT PROCEDURES . . . . .	5	<b>1.03</b> Figures 1 through 6 illustrate by part name and number those parts which can practicably be replaced in the field.
	REFRIGERATOR AND EVAPORATOR ASSEMBLY . . . . .	6	
	KS-15707 L3 BLOWER LESS FILTER . . . . .	8	
	KS-5793 L3 PRESSURE SWITCH . . . . .	8	<b>2. PRECAUTIONS</b>
	HUMIDISTAT . . . . .	9	<b>2.01</b> The following procedures must be observed <i>before</i> replacing parts:
	HUMIDITY SENSING ELEMENT . . . . .	9	(1) Shut off the dry air supply from the dryer to the waveguide system (for location of valve, check installation drawing).
	SENSING ELEMENT CABLE . . . . .	9	(2) Move the ON-OFF switch to the OFF position and disconnect the dryer from the ac power supply.
	DESICCANT TOWERS . . . . .	10	(3) Disable the alarm circuit by removing the K1 and K2 Relays (Fig. 2).
	RELAYS . . . . .	10	<b>2.02</b> <i>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.</i>
	ALARM LAMPS . . . . .	10	<b>2.03</b> When shutting down the dryer for any reason, always wait at least <i>five minutes</i> before restarting the dryer. This will allow the refrigeration compressor to unload, thereby avoiding an excessive load on the compressor motor.
	FILTER CANNISTER . . . . .	10	<b>2.04</b> After all work is completed, the dryer is placed back in operation, as follows:
	FILTER DOWN . . . . .	10	(1) Reconnect the ac power supply
	FUSE (3 AMP) . . . . .	11	(2) Move the ON-OFF switch to the ON position.
	SOLENOID VALVE MAINTENANCE KIT . . . . .	11	
	TIMER ASSEMBLY . . . . .	11	
	FINAL CHECK . . . . .	11	
4.	REPLACEMENT PARTS . . . . .	11	
1.	GENERAL		
1.01	This section covers the ordering information and replacement procedures for parts used in maintaining KS-20183 L1 Air Dryers. These		

**SECTION 161-309-801**



**Fig. 1—KS-20183 Air Dryer**



NOTE:  
 POSITIONS OF TIMER AND HUMIDISTAT ARE INTERCHANGED  
 ON DRYERS WITH WE CO. SERIAL NUMBERS 21 AND OVER TPA 546198

**Fig. 2—Front View—Panel Removed**

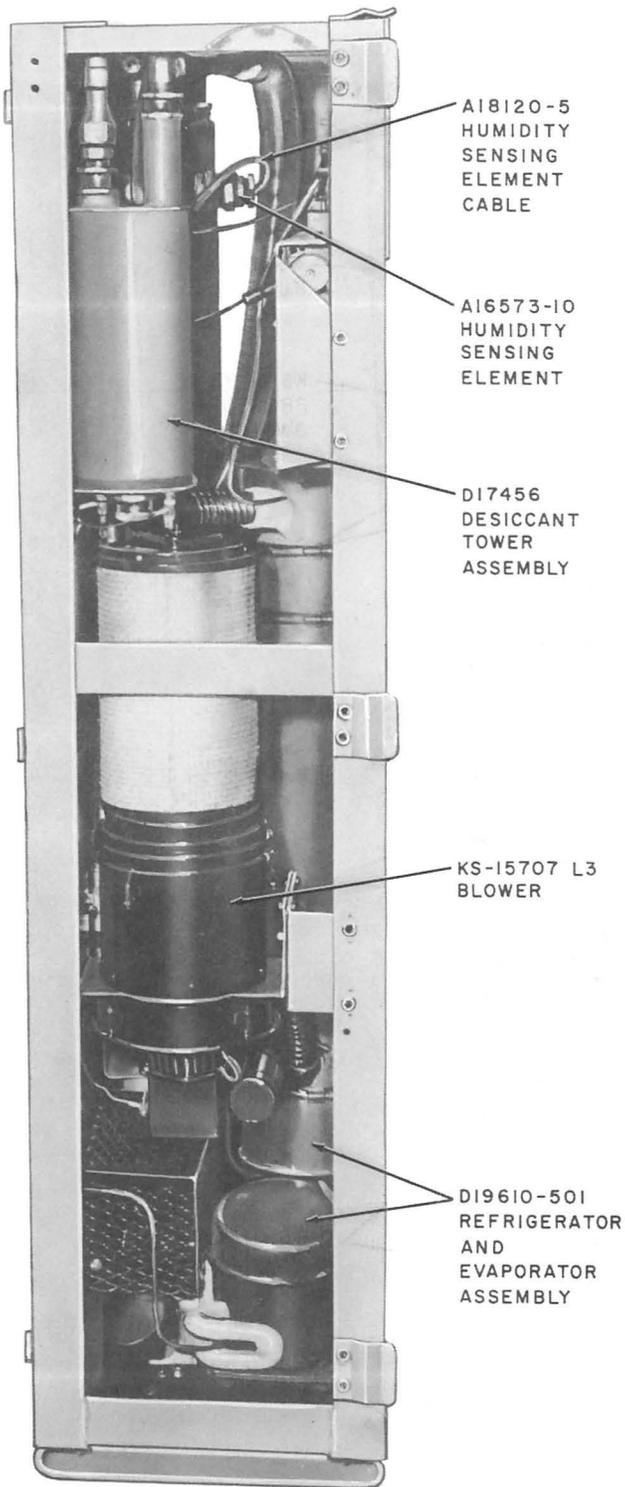


Fig. 3—Left Side View—Panel Removed

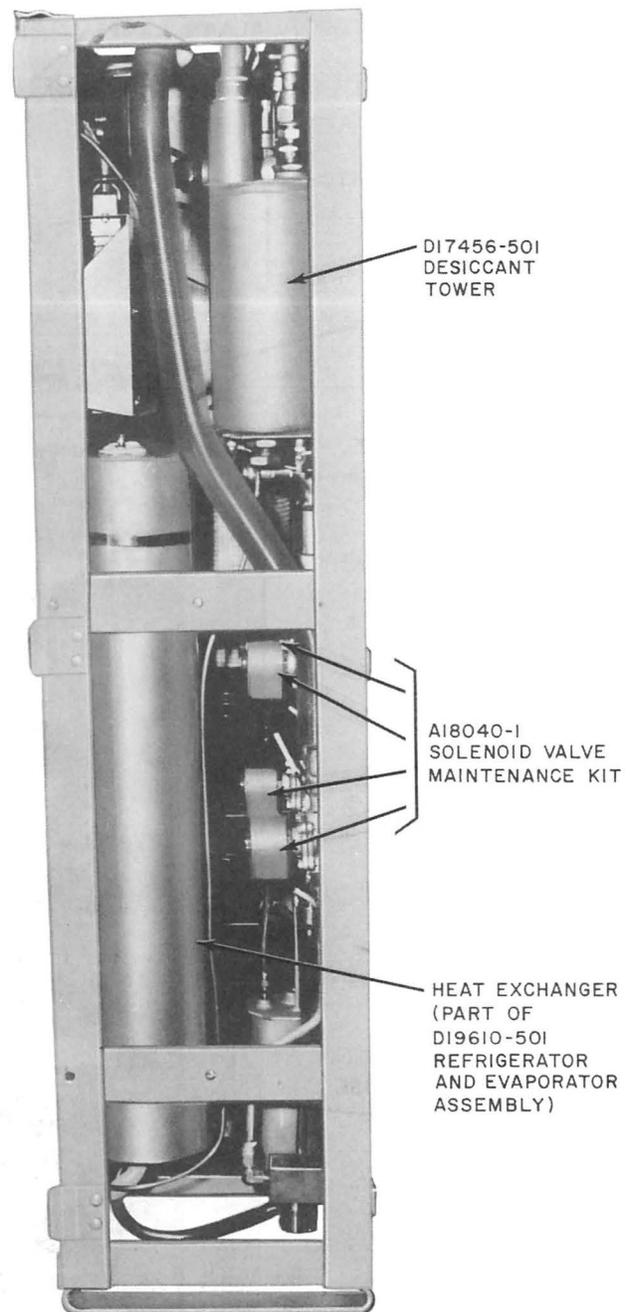


Fig. 4—Right Side View—Panel Removed

(3) When the dryer reaches normal operating temperature (40°), and pressure ( $9 \pm 0.25$  inches of water), the alarm lamps will extinguish.

**Note:** To obtain a reading on the pressure gauge, block off the dry air outlet with a wadded lint-free cloth or other suitable plug.

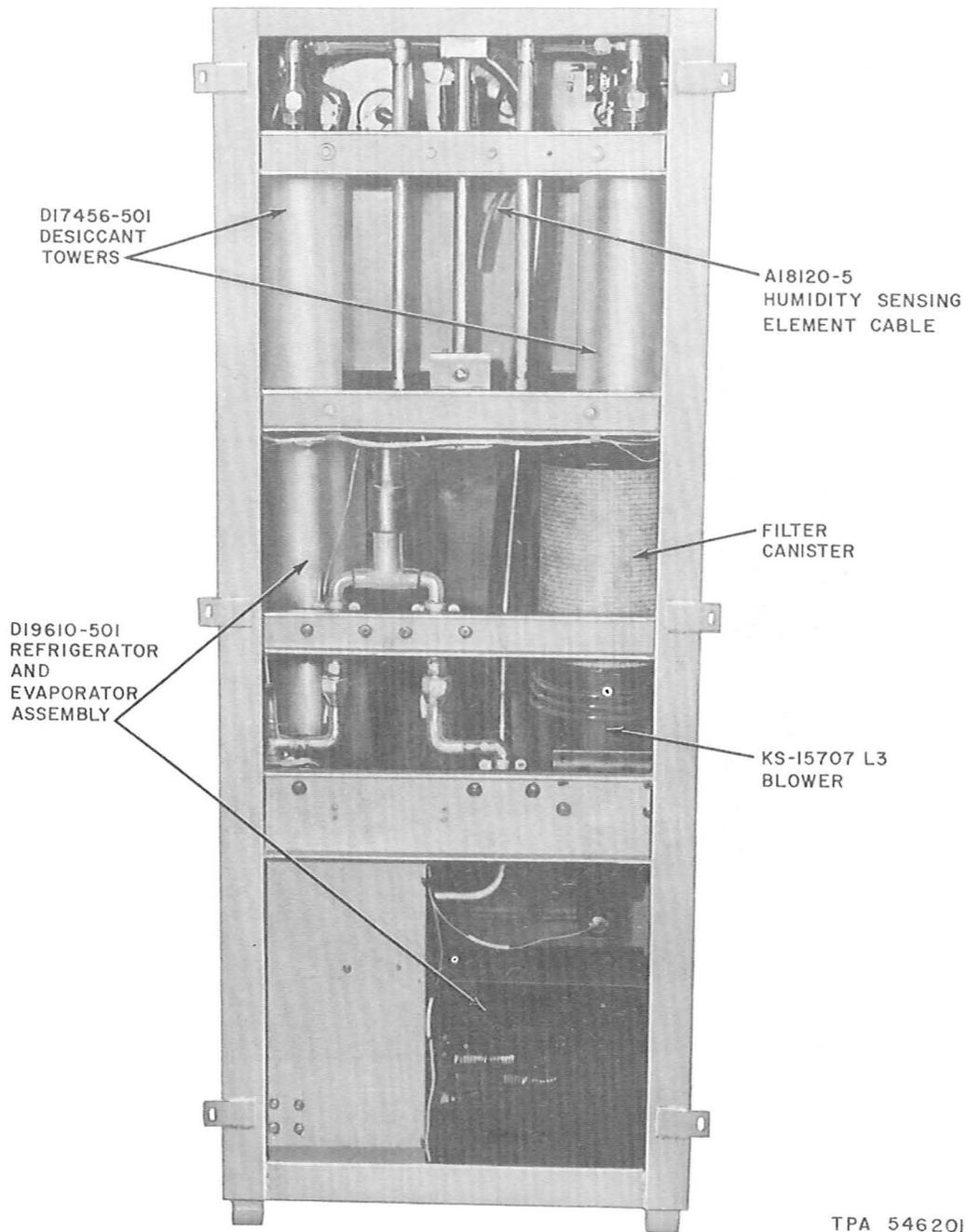


Fig. 5—Rear View—Panel Removed

(4) Replace the K1 and K2 alarm circuit relays.

**3. REPLACEMENT PROCEDURES**

(5) Open the valve in the air pipe system and resume supplying air from the dryer to the waveguide system.

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

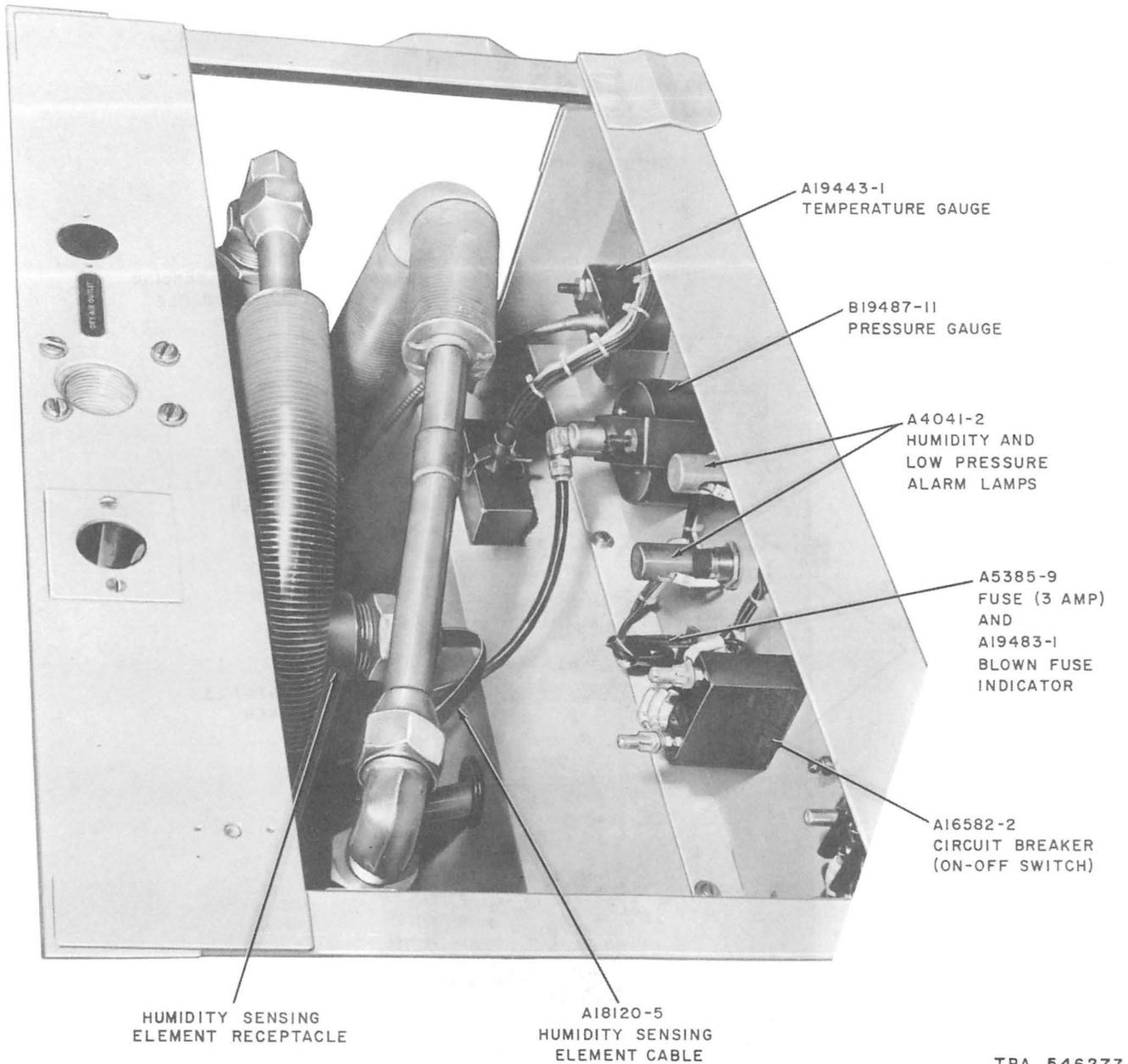


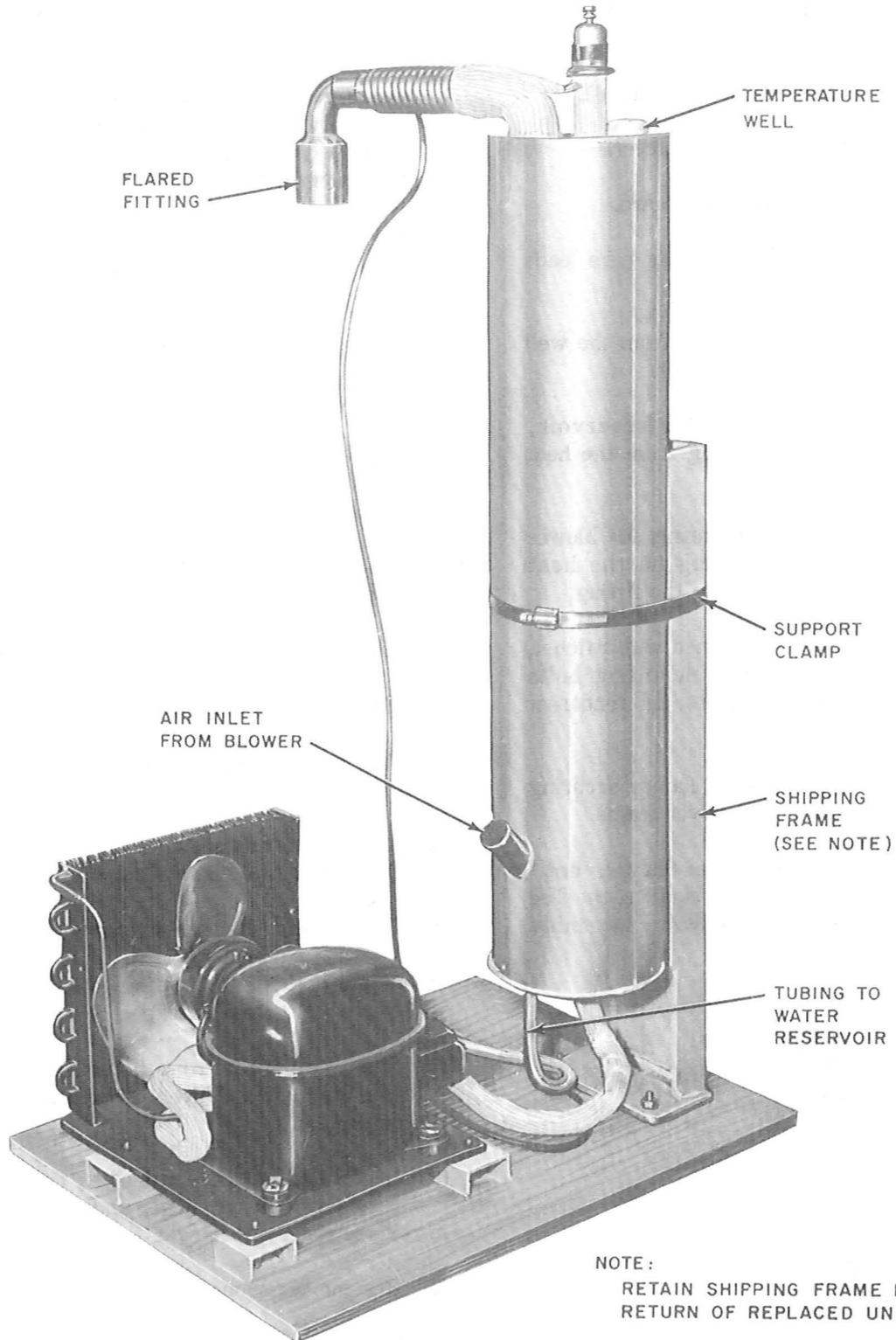
Fig. 6—Top View—Cover Removed

**REFRIGERATOR AND EVAPORATOR 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 D19610-501 Refrigerator and Evaporator Assembly (Fig. 7).

**3.04 Tools:** The only tools required to remove and replace the refrigeration system are a screwdriver and 7/16 in. socket wrench with ratchet.

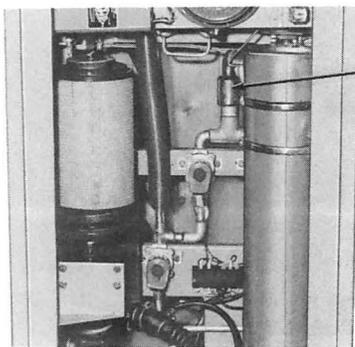


**Fig. 7—D19610-501 Refrigerator and Evaporator Assembly**

## SECTION 161-309-801

**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) Remove the refrigeration fan guard.
- (4) Tag and disconnect the incoming wire leads at the refrigeration compressor.
- (5) Remove the temperature bulb from the well at the top of the heat exchanger.
- (6) At the bottom of the water reservoir, disconnect the tubing leading from the heat exchanger.
- (7) Loosen the hose clamp securing the blower hose to the air inlet fitting on the heat exchanger and pull the hose from the fitting.
- (8) Using a 7/16 in. socket wrench with ratchet, remove the four hex-head mounting bolts securing the refrigeration compressor and condenser to the dryer frame.
- (9) Unfasten the three support clamps securing the heat exchanger to the dryer frame.
- (10) Carefully raise the heat exchanger until the flared O-ring fitting is clear of the Tee fitting leading to the solenoid valve assembly (Fig. 8).



UNFASTEN SUPPORT STRAPS AND RAISE HEAT EXCHANGER UNTIL FLARED O-RING FITTING IS CLEAR OF TEE FITTING

- (11) Simultaneously lift the heat exchanger and the refrigeration unit from the dryer.

**Caution:** *When lifting the heat exchanger and refrigeration unit maintain their same relative positions to avoid damaging the interconnecting tubing.*

- (12) Remove the replacement unit from the shipping frame and place it in position in the dryer.
- (13) Fasten the supporting clamps, tighten bolts and reconnect all fittings and wiring in reverse order of removal.
- (14) Resume dryer operation as covered in 2.04

### KS-15707 L3 BLOWER LESS FILTER

**3.06** The KS-15707 L3 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 at the blower motor.
- (4) Loosen the hose clamp and pull the hose from the blower air outlet.
- (5) Remove the filter canister as covered in 3.14.
- (6) Remove the four mounting bolts from the blower mounting bracket
- (7) Slide the blower from the mounting pins at the rear of the dryer cabinet and remove the blower.
- (8) Install the replacement blower, tighten bolts, reconnect wiring, hose, and filter canister in reverse order of removal.
- (9) Resume dryer operation as covered in 2.04.

### KS-5793 L3 PRESSURE SWITCH

**3.07** The KS-5793 Pressure Switch is removed and replaced as follows:

- (1) Shut down the dryer as covered in 2.01.

**Fig. 8—Refrigerator and Evaporator Assembly Removal**

- (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 161-309-701.

#### HUMIDISTAT

**3.08** The humidistat is removed and replaced as follows:

- (1) Shut down the dryer as covered in 2.01.
- (2) Remove the front panel.
- (3) Loosen the two humidistat cover mounting screws and remove the cover.
- (4) Remove the sensing element cable plug from the receptacle and withdraw the plug and cable from the housing.
- (5) Tag and disconnect the external leads from humidistat terminal strip and withdraw the leads from the housing.
- (6) Remove the mounting screws securing the humidistat to the electrical panel.
- (7) Install the new humidistat in the reverse order of removal.

- (8) Resume dryer operation as covered in 2.04.
- (9) Check the operation of the new humidity alarm as covered in 161-309-701.

#### HUMIDITY SENSING ELEMENT

**3.09** The humidity sensing element is removed and replaced as follows:

- (1) Shut down the dryer as covered in 2.01.
- (2) Remove the nut in the end of the sensing element receptacle (Fig. 6).
- (3) Carefully remove the sensing element from the receptacle by pulling on the cable.
- (4) Remove the element from its socket by removing the mounting screw located inside the sensing element. Mount the new element and tighten the mounting screw.
- (5) 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.*

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

#### SENSING ELEMENT CABLE

**3.10** 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) Remove the plug end of the cable from the humidity alarm as covered in 3.08.
- (4) Mount the sensing element on the new cable and return the sensing element to its receptacle.
- (5) Insert the plug and cable into the alarm receptacle and remount the humidistat cover.
- (6) Resume dryer operation as covered in 2.04

## SECTION 161-309-801

### DESICCANT TOWERS

**3.11** 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.*

- (1) Shut down the dryer as covered in 2.01.
- (2) Disconnect conduit and dry air line and move dryer away from wall. Where necessary, unbolt from floor.
- (3) Remove the side panel on the same side of the dryer as the tower to be replaced.
- (4) Tag and disconnect the tower heater leads at the tower.
- (5) Disconnect the tubing connections at the tower.
- (6) Remove the four bolts holding the tower mounting brackets to the frame of the dryer cabinet, and remove the tower.
- (7) Install the new tower by following the reverse order of removal (5) through (2).
- (8) Resume dryer operation as covered in 2.04.

### RELAYS

**3.12** 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 the pin sockets.

### ALARM LAMPS

**3.13** 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.

### FILTER CANISTER

**3.14** To replace the filter canister, proceed as follows:

- (1) Shut down the dryer as covered in 2.01.
- (2) Remove the front panel.
- (3) Remove the wingnut at the top of the canister.
- (4) Tilt the canister forward and partially raise it from the hold-down rod.
- (5) Release the hold-down rod from the blower air inlet.
- (6) Remove the canister and hold-down rod.
- (7) Place the hold-down rod through the center of the replacement canister and follow the reverse order of removal.
- (8) Resume dryer operation as covered in 2.04.
- (9) Return the old canister for reconditioning in accordance with local procedures.

### FILTER DOWN

**3.15** To replace the filter down proceed as follows:

- (1) Remove the filter canister from the blower.
- (2) Place the canister in an upright position and remove the top cover.
- (3) Remove the dirty filter down.
- (4) Wrap the replacement filter down snugly around its inner retainer.
- (5) Wrap a sheet of stiff paper around the filter down.
- (6) Insert the filter into the canister and withdraw the paper.
- (7) Reassemble the canister and replace it on the blower.

**FUSE (3 AMP)**

**3.16** Replacement fuses may be obtained locally. Replace with Bussman AGC-3 amp, or equivalent. To replace the fuse, unscrew the fuseholder, remove and replace the operated fuse and return the fuseholder to the panel.

**SOLENOID VALVE MAINTENANCE KIT**

**3.17** The solenoid valve maintenance kit contains a replacement diaphragm and attached plunger. The Kit is installed as follows:

- (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**

**3.18** The timer assembly is removed and replaced as follows:

*Note:* KS-20183 L1 Air Dryers bearing W.E. Co. serial numbers 1 to 60 have timer assemblies containing four micro-switches only three of which are connected. Dryers bearing W.E. Co. serial numbers 61 and above have timer assemblies containing three micro-switches, all of which are connected.

- (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 161-309-701.

**FINAL CHECK**

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

**3.20** Make certain that the part, or parts, replaced meet the requirements specified in Section 161-309-701. 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.

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

D19611-501 Refrigerator and Evaporator Assembly, for KS-20183 L1 Air Dryer (Dielectric Communications, Raymond, Maine)

D17456-501 Desiccant Tower for KS-20183 L1, Air Dryer (Dielectric Communications)

**SECTION 161-309-801**

A21278-1 Humidistat for KS-20183 L1 Air Dryer (Dielectric Communications)

A16573-10 Humidity Sensing Element for KS-20183 L1 Air Dryer (Dielectric Communications)

A18120-5 Sensing Element Cable for KS-20183 L1 Air Dryer (Dielectric Communications)

A19465-1 Timer Assembly for KS-20183 L1 Air Dryer (Dielectric Communications)

B-18164-2 Relay for KS-20183 L1 Air Dryer (Dielectric Communications)

A4041-2 Alarm Lamp for KS-20183 L1 Air Dryer (Dielectric Communications) or obtain locally as General Electric NE51 Lamp or equivalent.

A5385-9 Fuse (3 amp) for KS-20183 L1 Air Dryer (Dielectric Communications) or obtain locally as Bussman AGC 3 Amp Fuse or equivalent.

158-927 Solenoid Valve Maintenance Kit for KS-20183 L1 Air Dryer (Automatic Switch Company, Florham Park, New Jersey)

A23221-1 Filter Down for KS-20183 L1 Air Dryer (Dielectric Communications)

B22015-1 Filter Canister for KS-20183 L1 Air Dryer (Dielectric Communications)

KS-15707 L3 Blower Less Filter for KS-20183 L1 Air Dryer (Western Electric Co.)

KS-5793 L3 Pressure Switch for KS-20183 L1 Air Dryer (Western Electric Co.)