REPLACEMENT PARTS AND PROCEDURES

KS-16001 DEHYDRATOR

1. GENERAL

1.01 This section covers the information necessary for ordering parts to be used in the maintenance of the KS-16001 dehydrator. It also covers the approved procedures for replacing these parts.

1.02 This section is reissued to include information for the KS-16001 dehydrator operating on a humidity-cycled basis. Distribution of issue 2 of this section was limited. It was cancelled on discovery of a printing error.

1.03 Part 2 of this section covers the part numbers and the corresponding names of the parts which it is practicable to replace in the field in the maintenance of the dehydrator. No attempt should be made to replace parts not designated. Part 2 also contains explanatory figures showing the different parts. This information is called Replacement Parts.

1.04 Part 3 of this section covers the approved procedures for the replacement of the parts covered in Part 2. This information is called Replacement Procedures.

2. REPLACEMENT PARTS

2.01 The figures included in this part show the replaceable parts in their proper relation to the other parts of the apparatus. The part numbers of the various parts are given together with the names listed by the Western Electric Company Merchandise Department. When these names differ from those in general use in the field, the latter names, in some instances, are shown in parentheses.

2.02 When ordering parts for replacement purposes, give both the part number and the name of the part and state that the part is for the KS-16001 Dehydrator. For example: "C-1527-9 Blower Motor for the KS-16001 Dehydrator." The part numbers and names specified in this section, except the pressure switch, are names of parts assigned by the Pittsburgh Lectrodryer Corporation. Do not refer to the BSP number or to any information shown in parentheses.

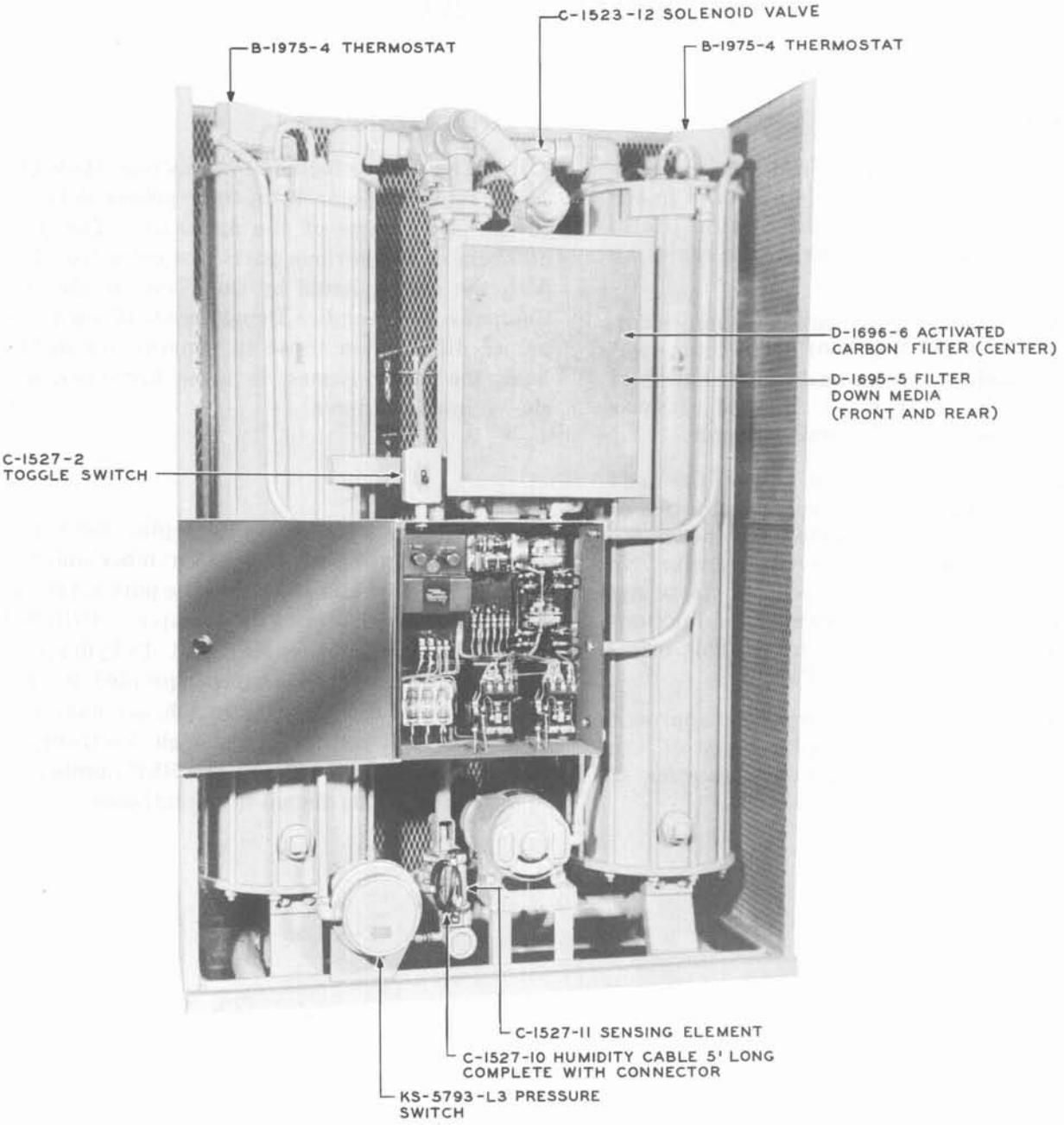

Fig. 1 – Front View With Time Cycle Operation

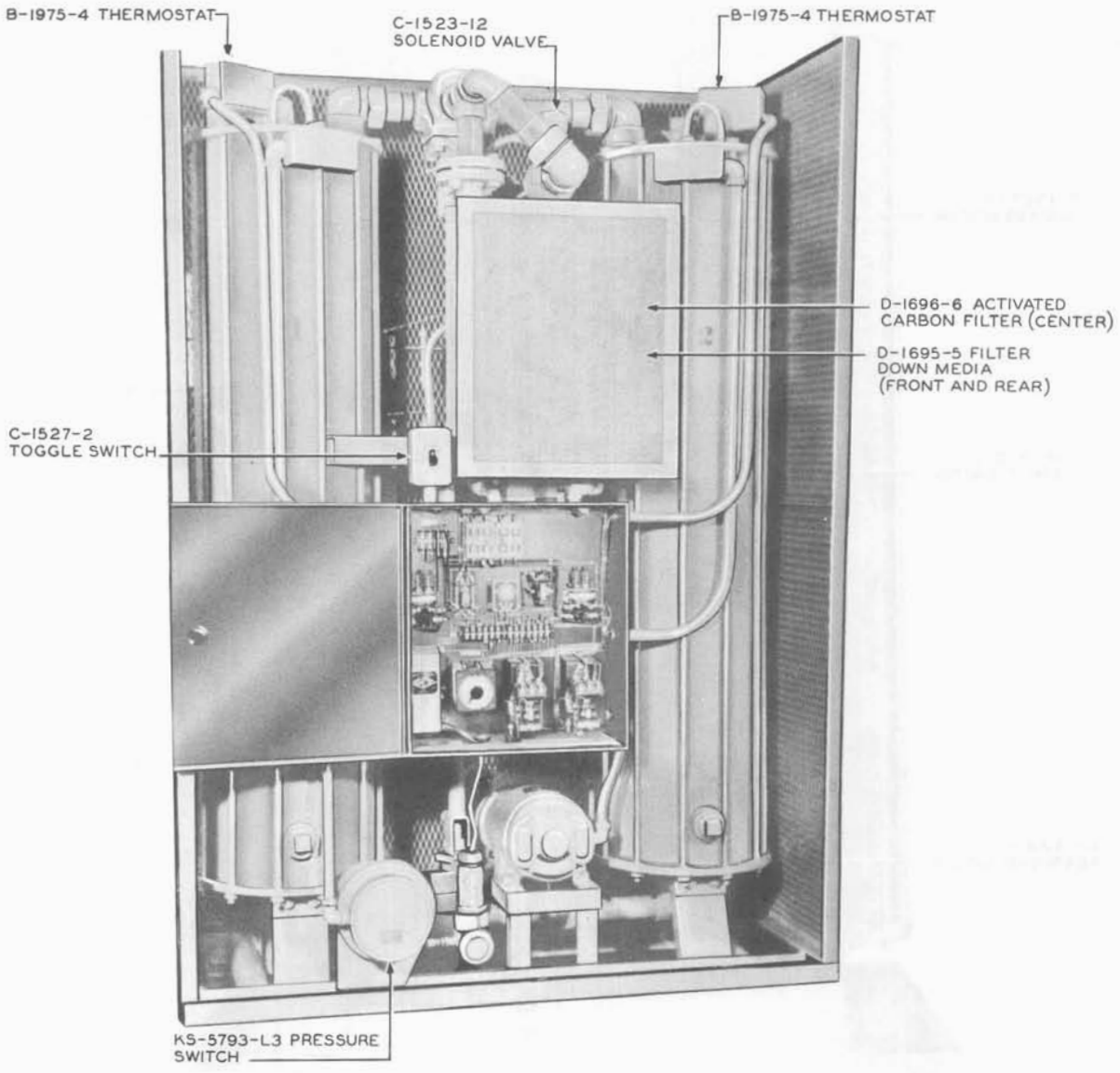

Fig. 2 – Front View With Humidity Cycle Operation

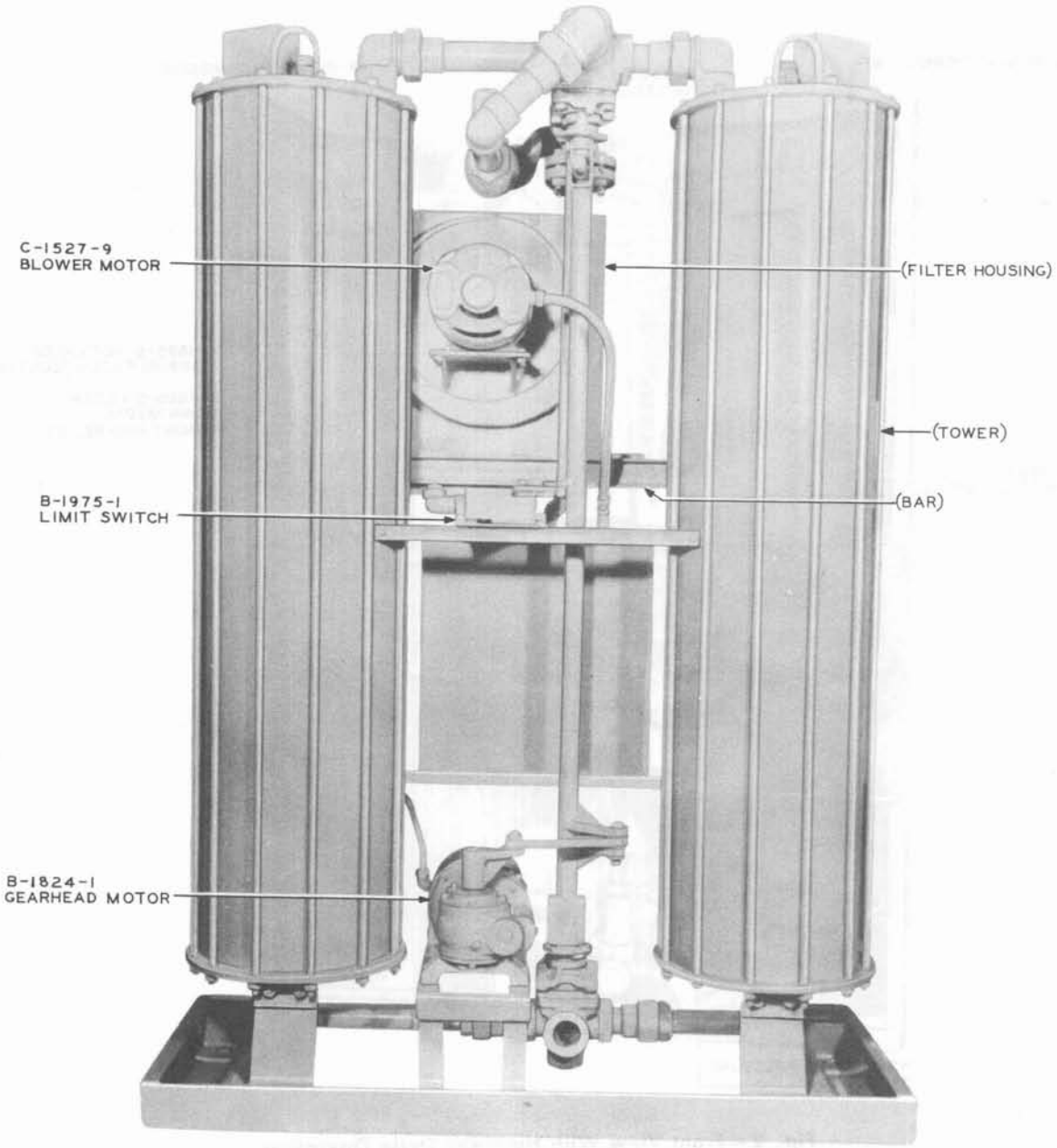

Fig. 3 – Rear View

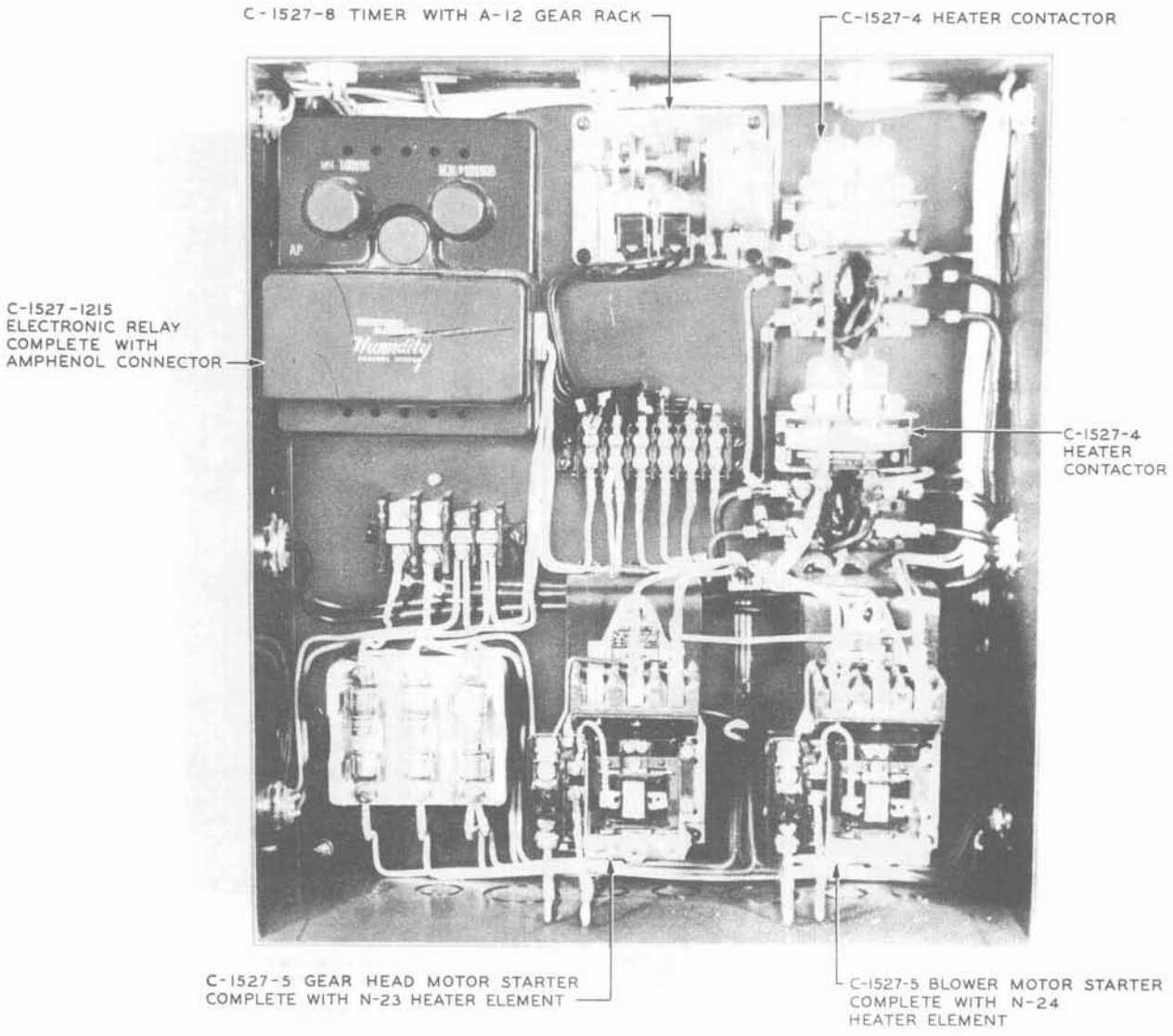

Fig. 4 – Control Box For Time Cycle Operation

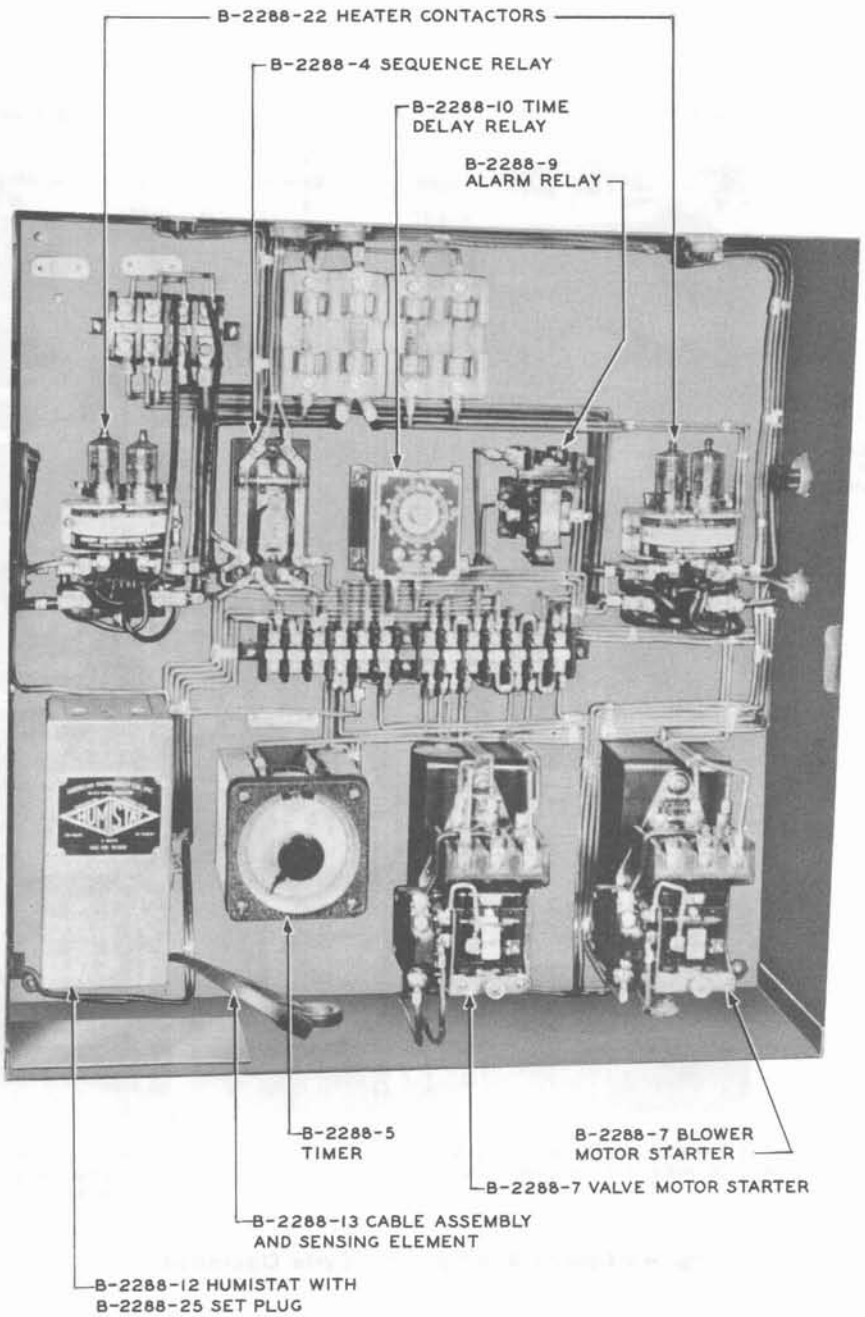

Fig. 5 – Control Box For Humidity Cycle Operation

3. REPLACEMENT PROCEDURES

3.01 *List of Tools and Materials*

CODE OR SPEC NO.	DESCRIPTION
TOOLS	
KS-6854	Screwdriver
R-1539	Pipe Wrench
R-1542	6-inch Adjustable Wrench
R-2512	8-inch Adjustable Wrench
—	3-inch Cabinet Screwdriver
—	4-inch Regular Screwdriver
—	Spanner Wrench, Cat. #4-4896, American Instrument Co
—	Monkey Wrench, 15 inches, No. 90 Billings and Spencer Co
—	D-1858 Wheel Puller (Obtained from the Pittsburgh Lectrodryer Corporation, Pittsburgh, Penn)
— (2 rqd)	*Cap Screw 3/8 by 6 inches long (Obtained from Owatonna Tool Co, Owatonna, Minn)
—	**Pilot Bearing Puller #MD-955 (Obtained from Owatonna Tool Co, Owatonna, Minn)
—	*Gear and Pulley Puller #515A (Obtained from Owatonna Tool Co, Owatonna, Minn)
—	*Bearing Puller Attachment #950 (Obtained from Owatonna Tool Co, Owatonna, Minn)

*For removing ball-bearing race from shaft.

**For removing ball-bearing race from end-bell if required.

MATERIALS	
KS-7860	Petroleum Spirits
KS-14666	Cloth
260-300P	Grease (See Section A710.012)

3.02 Before starting to make any replacements on the dehydrator remove the fuse designated DEHY CONT in the power supply fuse cabinet and the 20-ampere fuse in the telephone company service panel when a separate fuse is furnished for the dehydrator heaters. In general, before starting to make any replacements it will be necessary to remove the guard screen that protects that portion of the equipment where the work is to be done.

3.03 No replacement procedures are specified for screws or other parts where the procedure consists of a simple operation.

3.04 After making any replacement of parts of the dehydrator, the part or parts replaced shall meet the readjust requirements involved as specified in Section A401.916. Other parts whose adjustments may have been directly disturbed by the replacing operation shall be checked to the readjust requirements and an over-all operation check shall be made of the dehydrator before restoring the circuit to service.

KS-16001 DEHYDRATOR TIME OR HUMIDITY CONTROLLED ←

Gearhead Motor

3.05 To replace the gearhead motor, remove the coverplate on the end of the motor using the 3-inch cabinet screwdriver. Tag and disconnect the wires. Loosen the nut on the conduit on the side of the motor using the R-2512 wrench. Remove the screw holding the linkage to the shaft with the R-2512 wrench, loosen the two setscrews on the operating arm with the 3-inch cabinet screwdriver, and remove this linkage. Remove the screws from the motor base using the R-2512 wrench and remove the motor. Mount the replacing motor on its mounting and securely tighten the screws. Remount the other parts that were removed in the reverse order of removal.

Gearhead Motor Bearing (Front End)

3.06 To replace the bearing, remove the motor as covered in 3.05.

3.07 Remove the four end-bell through bolts using the R-1542 wrench.

3.08 Remove the end-bell on the terminal box end of the motor.

Caution: The brush ring assembly is provided with two notches, left side of frame, one of which is engaged with a stationary tension clip. The position of the brush ring assembly with respect to the tension clip, determines the direction of rotation of the rotor. Note which notch is engaged.

3.09 Lift the brush tension springs from the brushes and temporarily place them in front of the spring back stops, thus removing tension from the brushes. Pull the brushes half way out of the brush holders in order to clear the centrifugal starter assembly and ball bearing. Remove the brush assembly from the end of the motor housing.

→**3.10** Remove the ball-bearing races with the → No. 515A puller.

3.11 Clean all the parts except commutator with KS-7860 petroleum spirits and wipe dry with a KS-14666 cloth.

3.12 Pack the bearing with 260-300P grease and mount it on the armature shaft with the closed side of the bearing facing the armature.

3.13 Hold the brushes clear of the bearing and the commutator and assemble the brush ring assembly, taking care to engage the stationary clip in the notch from which it was removed.

3.14 Assemble the end-bell on the motor pulling the motor leads out through the entrance in the terminal box. Assemble the end-bell through bolts taking up on the nuts a little at a time until all are tight.

3.15 Remount the motor on its mounting and securely tighten the screws. Remount the other parts that were removed in the reverse order of removal.

Filters

3.16 To replace the filters, proceed as follows.

3.17 Remove the frame from the filter housing. In some cases the frame is secured in place by screws which should be removed using the 4-inch regular screwdriver, after which the frame can be removed.

3.18 Remove all the filters, discarding the outermost one. If the center filter which is activated carbon requires replacement, return the filter for reconditioning to the Western Electric Company Distributing House.

3.19 Clean the interior of the housing if necessary, using a KS-14666 cloth.

3.20 Mount the filter so that the replacing filter is innermost and the one that was previously innermost is now outermost.

3.21 Assemble the frame to the filter housing.

Blower Motor

3.22 To replace the blower motor, remove the frame from the filter housing as covered in 3.16 and remove the filters. Note the clearance between the impeller and the periphery around the lip of the filter housing for future reference when reassembling.

3.23 Remove the coverplate screws from toggle switch using the 3-inch cabinet screwdriver. Remove the screws from the switch receptacle using the 4-inch regular screwdriver and free the switch from the mounting bar.

3.24 Remove the bolts from the blower output flange using the R-2512 wrench, taking care not to damage the gasket. Remove the cap screws from the bar attached to the towers using the R-2512 wrench. Tilt the framework forward and remove the terminal box cover on the motor. Disconnect the incoming wires from the motor wires. Loosen the nut on the conduit and free the cable from the motor. Remove the blower assembly from the dehydrator. Remove the cap screws from the circular plate using the R-2512 wrench and remove the motor assembly.

3.25 Remove the setscrew from the hub of the impeller. Note the separation between the impeller and the back of the round mounting plate and with the D-1858 wheel puller remove the impeller from the motor shaft. Remove the motor from the bracket using the R-2512 wrench. Mount the new motor and reassemble the parts in the reverse order. In reassembling the impeller on the motor shaft the separation between the impeller and the plate shall be equal to the amount noted above.

Blower Motor Bearings

3.26 To replace the bearings, remove the motor as covered in 3.21 to 3.24, inclusive.

3.27 Remove the four end-bell through bolts using the R-1542 wrench.

3.28 Remove the end-bell on the terminal box end of the motor.

Caution: The brush ring assembly is provided with two notches, left side of frame, one of which is engaged with a stationary tension clip. The position of the brush ring assembly with respect to the tension clip, determines the direction of rotation of the rotor. Note which notch is engaged.

3.29 Lift the brush tension springs from the brushes and temporarily place them in front of the spring backstops, thus removing the tension from the brushes. Pull the brushes half way out of the brush holders in order to clear the centrifugal starter assembly and ball bearing. Remove the brush assembly from the end of the motor housing.

3.30 Remove the end-bell on the shaft end of the motor.

3.31 Remove the armature from the shaft end of the motor by carefully pulling it through the stator. Note the position of the bearing spacer washer on one or both ends of the outside flat surfaces of the bearings, and place in exact positions when reassembling the motor.

3.32 Remove the ball-bearing races with the No. 515A bearing puller.

3.33 Clean all parts with KS-7860 petroleum spirits and wipe dry with a KS-14666 cloth.

3.34 Pack the new bearings with 260-300P grease and mount the bearings on the armature shaft with the closed side of the bearings facing the armature.

Caution: In handling the new bearings extreme caution should be taken to avoid contact with foreign materials such as dirt or grit. If it is necessary to tap the bearings into position, use a metal tube that fits squarely against the inner bearing race and then tap the end of the tube.

3.35 Inspect the armature and remove any foreign particles.

3.36 Reassemble the end-bell over the shaft end of the armature and see that the bearing race is positioned properly in the end-bell.

3.37 Assemble the armature carefully in the stator, commutator end first.

3.38 Hold the brushes clear of the bearing and commutator and reassemble the brush ring assembly, taking care to engage the stationary clip in the notch from which it was removed.

3.39 Place the end-bell on the motor, pulling the motor leads out through the entrance in the terminal box.

3.40 See that the armature turns freely after the end-bells have been assembled and that the brushes are seated properly on the commutator.

3.41 Assemble the through bolts, tightening the nuts a little at a time until all the bolts are tight.

3.42 See that the armature turns freely and the starting mechanism is satisfactory.

3.43 Assemble the motor as covered in 3.21 to 3.24, inclusive.

Other Parts

3.44 ***Solenoid Valve:*** To replace the solenoid valve, remove the plate from the side of the valve with the 3-inch cabinet screwdriver. Tag and disconnect the wires. Loosen the coupling nuts on each side of valve using the 15-inch monkey wrench. Remove the pipe connections to the valve using the R-1539 pipe wrench. Assemble a new valve to the pipe connections. Mount the valve assembly in place and securely tighten the coupling nuts. Reconnect the wires to the terminals and remount the cover.

3.45 ***Thermostat:*** To replace the thermostat, remove the coverplate screws on the front of the thermostat using the 3-inch cabinet screwdriver and remove the wires. Remove the conduit connectors using the R-2512 adjustable wrench. Remove the thermostat from the mounting bracket. Mount a new thermostat on the mounting bracket taking care that the element extends to the bottom of the well of the tower. Reconnect the conduit connector and the wires to the terminals. Remount the cover.

3.46 ***Toggle Switch:*** To replace the toggle switch, remove the cover mounting screws using the 3-inch cabinet screwdriver. Tag and remove the wires to the switch terminals. Remove the switch from its mounting using the 4-inch regular screwdriver. Mount a new switch on its mounting and remount the other parts that were removed in the reverse order of removal.

3.47 ***Motor Starter (Gearhead Motor or Blower Motor):*** To replace the motor starter, tag and disconnect all external leads to the starter. Remove the three screws securing the starter to the bracket using the 4-inch regular screwdriver. Mount a new starter on the bracket and securely tighten the screws. Connect the wires to their proper terminals.

3.48 ***Limit Switch:*** To replace the limit switch, remove the cover and disconnect the wires. Loosen the conduit nut using the R-2512 wrench and remove the switch. Note the position of the arm on the switch to be replaced. Mount a new switch. The trip arm of the new switch should be adjusted by loosening the setscrews that hold it in place and moving the arm to the same position as the replaced switch. Connect the conduit nut to the switch and connect the wires to their proper terminals. Remount the cover.

3.49 ***Sensing Element:*** The sensing element is mounted at the inner end of the hexagonal fitting in the air outlet. To replace the element, proceed as follows. Unscrew the ring nut from the fitting, using the American Instrument Co spanner wrench. Then slowly remove the element from the fitting. Remove the mounting screw at the inner end of the element using the KS-6854 screwdriver. The element plugs into the element socket. Substitute a new element and tighten the screw securely. Insert the element into the fitting and securely tighten the ring nut.

3.50 ***Heater Contactors:*** To replace the heater contactors, tag and remove the connections from the terminals. Remove the screws holding the contactor to the back of the control box using the 4-inch regular screwdriver. Install a new contactor and reconnect the wires to their proper terminals.

3.51 ***Pressure Switch:*** To replace the pressure switch, loosen the two screws on the side of the switch using the 3-inch cabinet screwdriver and remove the cover. Tag and disconnect the wires from the terminals. Loosen the conduit nut using the R-2512 wrench. Remove the three mounting screws using the 4-inch regular screwdriver and remove the switch. Mount a new switch, securely tighten the screws. Reconnect the conduit nuts and connect the leads to the terminals. Mount the cover and securely tighten the screws.

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3.52 ***Timer:*** To replace the timer, tag and disconnect the wires from the terminals. Remove the screws holding the timer to the back of the control box using the 4-inch regular screwdriver. Note the position of the cams on the timer to be replaced. Install a new timer and securely tighten the screws. Adjust the new timer by manually rotating the knurled wheel in a downward direction until the cams are in the same position as the replaced timer. Connect the wires to the proper terminals on the timer.

3.53 ***Electronic Relay:*** To replace the relay, loosen all the captive screws on the relay unit and remove the unit from the mounting. Hold the new relay unit against the base with the captive screws inserted in the correct holes in the terminal blocks of the base. Start all screws first and then tighten them securely.

Humidity Cable

3.54 To replace the humidity cable, proceed as follows. Disconnect the cable from the electronic relay by manually loosening the knurled locking ring from the connector and pull out the plug. Unscrew the ring nut from the mounting receptacle in the air supply, using the American Instrument Co spanner wrench. Then slowly lift the element from the receptacle. Remove the mounting screw at the inner end of the element using the KS-6854 screwdriver. The element plugs into the receptacle at the end of the cable. Mount the element in the replacing cable and securely tighten the screw. Assemble the ring nut over the cable. Insert the element into the mounting receptacle and securely tighten the ring nut. Plug the connector into the electronic relay connector and manually tighten the knurled nut.

KS-16001 DEHYDRATOR HUMIDITY CONTROLLED

3.55 ***Humistat:*** To replace the humistat, proceed as follows. Remove the cover. Tag and disconnect the wires from the terminal block. Remove the element cable plug from the socket in the humistat and remove the sensing element cable. Loosen the mounting screws using the 4-inch regular screwdriver and remove the humistat. Mount the new humistat and securely tighten the mounting screws. Insert the cable plug through the hole in the controller box. Insert the groove pin provided into the hole located in the center of the sensing element socket in the humistat. Plug the sensing element cable plug into the socket; the groove pin will hold the cable firmly in place. Remount the cover.

3.56 ***Time-delay Relay:*** To replace the relay, tag and disconnect the wires. Remove the mounting screws using the 4-inch regular screwdriver and remove the relay. Mount a new relay, securely tighten the mounting screws and connect the wires to their proper terminals. Adjust the relay by turning the knob until the pointer on the dial is in the same position as on the replaced relay.

3.57 ***Sequence Relay:*** To replace the relay, tag and disconnect the wires from the relay terminals. Remove the mounting screws using the 4-inch regular screwdriver and remove the relay. Mount a new relay and securely tighten the mounting screws. Connect the wires to their proper terminals.

3.58 ***Timer:*** To replace the timer, tag and disconnect the wires. Remove the mounting screws using the 4-inch regular screwdriver and remove the timer. Mount a new timer and securely tighten the mounting screws. Connect the wires to their proper terminals. Adjust the timer by turning the knob until the pointer is in the same position as on the replaced timer.

3.59 ***Alarm Relay:*** To replace the alarm relay, tag and disconnect the wires from the relay terminals. Remove the mounting screws using the 4-inch regular screwdriver and remove the relay. Mount a new relay and securely tighten the mounting screws. Connect the wires to their proper terminals.

3.60 ***Cable and Sensing Element:*** To replace the cable and sensing element, proceed as follows. Remove the element cable plug from the socket in the humistat and remove the cable. Unscrew the ring nut from the mounting receptacle in the air supply, using the American Instrument Co spanner wrench. Then slowly lift the element from the receptacle. Assemble the sensing element of a new cable and sensing element into the receptacle and securely tighten the ring nut. Insert the other end of the cable through the hole in the control box. See that the groove pin is in the hole located in the center of the sensing element socket in the humistat. Plug the cable into the socket; the groove pin will hold the cable firmly in place.