610B (J86801)
DC-TO-DC CONVERTER
POWER PLANT
DESCRIPTION

CONTENTS PAGE

1. GENERAL

INTRODUCTION

1.01 This section describes the 610B power plant. Included in this section are the following:

- Physical description of the 610B power plant
- Functional description of the 610B power plant
- Description of operation
- Description of maintenance requirements.

1.02 Whenever this section is reissued, the reason for reissue will be given in this paragraph. The Equipment Test List is not affected.

PURPOSE OF 610B POWER PLANT

1.03 The 610B (J86801) power plant provides a nominal positive and negative 120- or 130-volt dc output. It is primarily intended for coin control power, but may be used wherever its design characteristics are applicable.

EQUIPMENT CHARACTERISTICS

1.04 The 610B power plant (Fig. 1) consists of a dc-to-dc converter, either a step regulator or output voltage regulator, alarms and an optional distribution fuse panel. Where additional reliability is required, duplicate load-sharing converters are paralleled across the load. Should one of the duplicate converters fail, the other converter would automatically assume the load provided the total load does not exceed the maximum capacity of either converter. There is a maximum of two converters in a 610B power plant configuration. The number of power plants required in a given

office is determined by the total office load requirement.

2. PHYSICAL DESCRIPTION

A. General

2.01 The 610B power plant is designed for mounting in a 23-inch central office frame. The 610B power plant for a positive and negative 120-volt output may consist of the following:

- J86801A-( )L1 dc-to-dc converter measuring 4 inches high and 8-3/32 inches deep, and
- J86801A-( )L6 step regulator measuring 2 inches high and 8-3/32 inches deep or
- J86801A-( )L4 voltage regulator measuring 4 inches high and 10-3/32 inches deep and
- J86801C-( )L1 or L2 fuse and alarm unit panel which measures 2 inches high and 5 inches deep.

The 610B power plant for a positive and negative 130-volt output may consist of the following:

- J86801B-( )L1 dc-to-dc converter measuring 4 inches high and 8-3/32 inches deep, and
- J86801B-( )L2 voltage regulator measuring 4 inches high and 10-3/32 inches deep, and
- J86801C-( )L1 or L2 fuse and alarm unit panel which measures 2 inches high and 5 inches deep.

B. DC-to-DC Converter J86801

2.02 The J86801A-( )L1 converter (Fig. 1) provides a positive and negative 120-volt at 0.50 ampere output when equipped with a J86801A-( )L6 step regulator and a positive and negative 120-volt at 0.75 ampere output when equipped with a J86801A-( )L4 voltage regulator. The J86801B-( )L1 converter provides a positive and negative 130-volt at 0.75 ampere output when equipped with a J86801B-( )L2 voltage regulator.

C. Regulator

2.03 The following features are located on the converter regulator panel:

- The HV or HNV adjustment and indicator lamp
- The NV or HNV indicator lamp
- Regulator 2AMP output fuses F1 and F2 for step regulator and F3 and F4 for voltage regulator
- HV ADJ-1 and HV START ADJ-2 pushbutton switches for step regulator or a 3-position rotary switch for voltage regulator
- Positive (+), negative (-) and ground (GRD) DC output voltage test jacks.

3. FUNCTIONAL DESCRIPTION

A. General

3.01 The function of the 610B power plant is to supply a positive or negative 120-volt output at 0.50 ampere maximum when equipped with a step regulator and a positive and negative 120-volt or a 130-volt output at 0.75 ampere maximum when equipped with a voltage regulator.

B. DC-to-DC Converter J86801

3.02 The J86801 dc-to-dc converter provides an unregulated positive and negative 120-volt dc output or 130-volt dc output from a -48V dc input.

C. Regulator

3.03 This plant can be equipped with either a step or voltage regulator. The step regulator provides regulation for the 120-volt output from the dc-to-dc converter with a maximum capacity of 0.50 ampere. The voltage regulator provides regulation for either the 120-volt or 130-volt output from the dc-to-dc converter with a maximum capacity of 0.75 ampere.

D. Plant Alarms

3.04 Alarm circuits are provided which will operate in the event of a circuit failure or high-output voltage. Major alarms are provided if a single

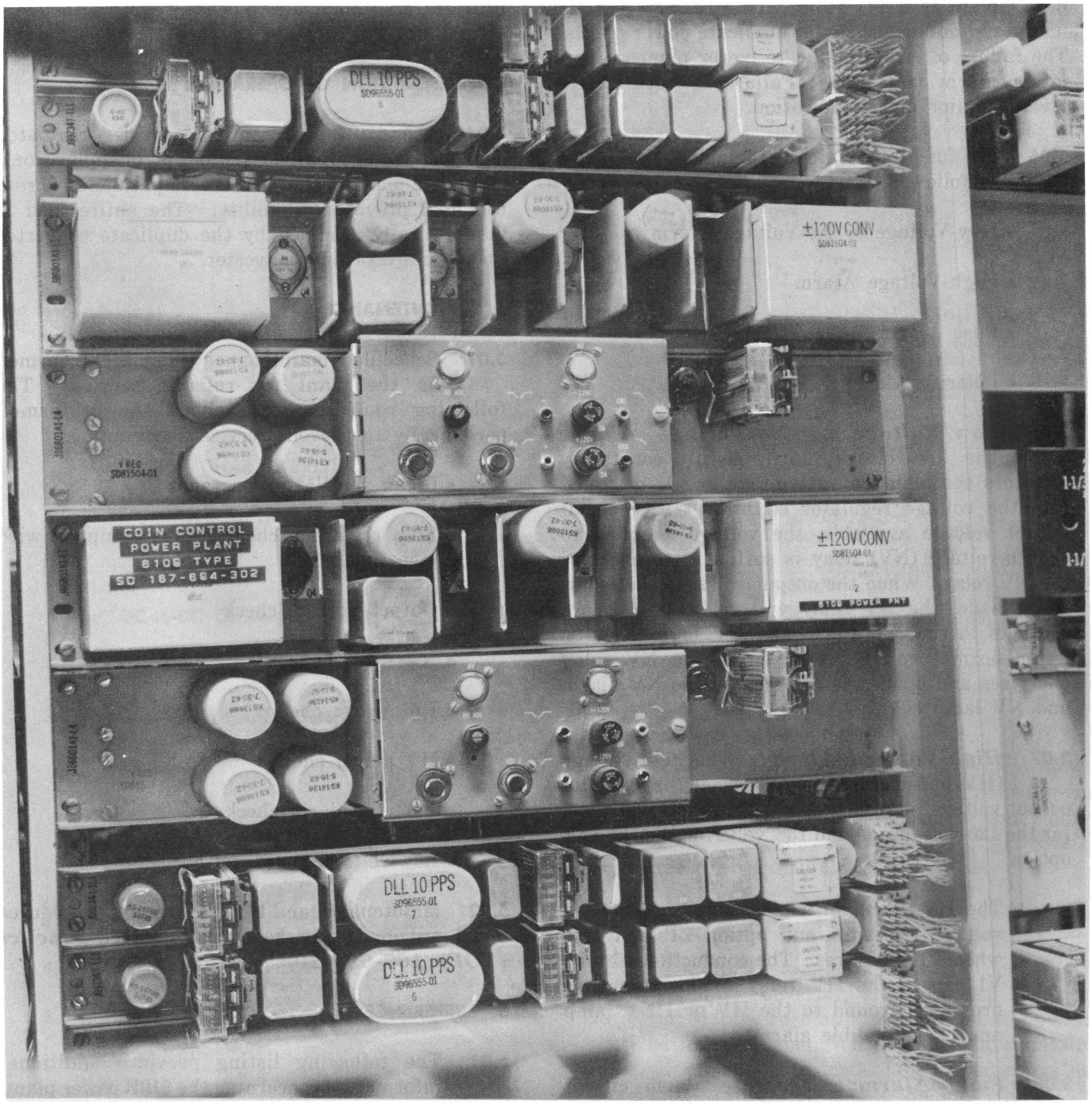

Fig. 1—610B Power Plant—Front View

power plant is used, while wiring options provide major and minor alarms for duplicate power plants. The failure of either duplicate power plant gives a minor alarm indication. Failure of both plants gives a major alarm indication.

3.05 The functional units of the alarm circuit are as follows:

- Low-Voltage or No-Voltage Alarm
- High-Voltage Alarm
- Fuse Alarm
- Polarity Alarm.

3.06 ***Low-Voltage or No-Voltage Alarm:*** The low-voltage alarm circuit constantly monitors the plant output voltage and is designed into the voltage regulator circuit. With normal output voltage available, the voltage supplied to the no-voltage (NV) relay is sufficient to energize the NV relay. When the output voltage falls below 35 volts dc, the NV relay will release and close contacts to the NV alarm and NV lamp circuits. After normal voltage is restored, the NV relay energizes and opens the contacts to the NV alarm and NV lamp circuits.

3.07 ***High-Voltage Alarm:*** The high-voltage (HV) alarm circuit operates when the regulator output voltage increases to approximately 130 volts for the 120-volt option and 138 volts for the 130-volt option.

- The HV alarm in a plant equipped with a voltage regulator and option ZP activates when V1 tube fires. The conduction of tube V1 causes the HV relay to energize thus providing ground to the HV or HNV lamp and office audible alarm.

3.08 ***Fuse Alarm:*** The fuse alarm circuit activates when a load distribution fuse located on the load distribution panel operates. When a distribution fuse operates, the FA or FA1 relay energizes and ground to the FA lamp and office audible alarm circuit is provided.

3.09 ***Polarity Alarm:*** The polarity alarm circuit for a plant equipped with a voltage regulator provides additional alarm leads required in TSPS offices.

4. DESCRIPTION OF OPERATION

4.01 The 610B power plant provides regulated dc voltage for use in coin control applications. Duplicate load sharing converters paralleled across the load provides reliability. The entire load is automatically assumed by the duplicate converter upon failure of one converter.

5. MAINTENANCE

5.01 Scheduled maintenance must be performed on the plant for reliable service. The following routine checks should be performed periodically to prevent service interruption.

- Clean ventilating passages
- Step regulator check (plant equipped with step regulator)
- Output voltage check
- NV Alarm check
- FA Alarm check
- HV alarm check
- Polarity alarm check
- Low-voltage shutdown check.

5.02 Maintenance and trouble-locating procedures are provided in the ***Task Oriented Practice (TOP) 167-684-102.***

6. REFERENCES

6.01 The following listing provides additional information concerning the 610B power plant.

SECTION	TITLE
802-852-151	610B Power Plant—Equipment Design Requirements
SD-81504-01	610B Power Plant—Power Supply Circuit.