

POWER PLANT
661A (J86895A)
OPERATING METHODS

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Figure

1. 661A Power Plant—Front View

1. GENERAL

1.01 The 661A power plant uses dc-to-dc regulated converters which supply a +48 volt, 6-ampere output from a -48 volt input for Miniaturized Dial Long Lines and the Dial Tone First Coin Line application. See Fig. 1.

1.02 This section is reissued to:

- (a) Revise the starting procedure for the 661A power plant
- (b) Clarify conditions for the operation of minor and major alarms
- (c) Add a test meter.

Revision arrows are used to emphasize the more significant changes. This reissue does not affect the Equipment Test List.

1.03 The positive 48-volt output is obtained from the negative 48-volt input using J87391 dc-to-dc converters. Each converter is self-regulating and capable of supplying from 0 to 2.0 amperes. Each converter has a low output voltage alarm circuit to provide signals to the plant circuit. For a more detailed description of the operation of individual J87391 converters, refer to Section 161-277-301.

1.04 Two to four converters are connected in parallel to provide a load current of up to 6 amperes. Since there is no battery reserve associated with the plant, one more converter than that required for the peak load must be furnished. Blocking diodes in the converter output leads prevent a fault in any one converter from disabling the entire plant. The converter input is isolated from the converter output.

1.05 This issue of the section is based on drawing SD-82053-01, Issue 1. For a more detailed description of the operation, see the corresponding circuit description.

2. LIST OF TOOLS AND TEST APPARATUS

CODE OR SPEC NO.	DESCRIPTION
TOOLS	
—	3-inch C Screwdriver
411C	Test Pick (2 reqd)
W1AF	Cord (8-1/2 feet long; 1 reqd)

NOTICE

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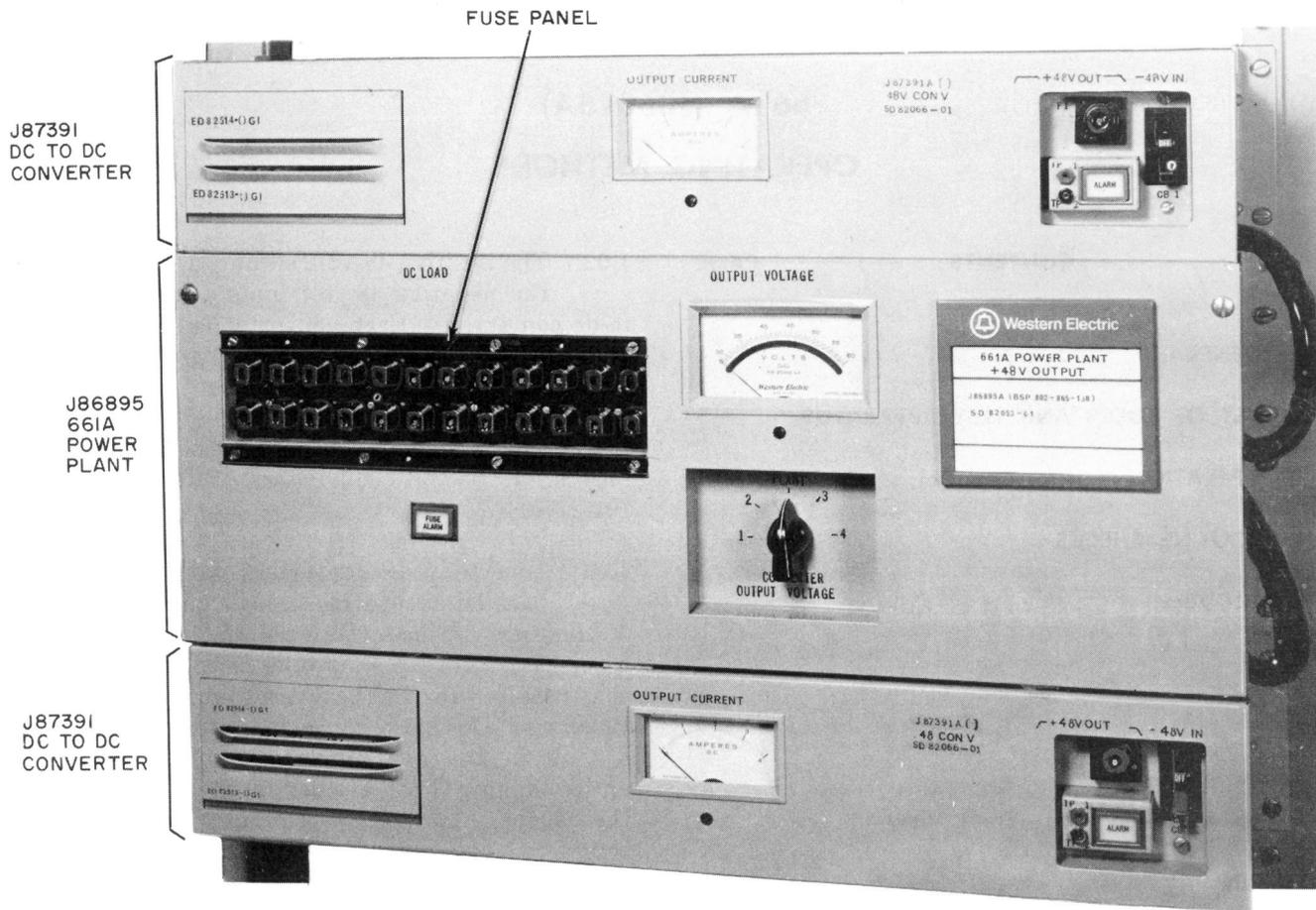


Fig. 1—661A Power Plant-Front View

TEST APPARATUS

- John Fluke Model 8100A-01 Digital Voltmeter
or
- KS-8039 Volt-Milliammeter
or
- KS-20599 L4 Digital Multimeter
or
- Weston Model 1240 Digital Multi-meter

3. OPERATION

3.01 Preparing to Start: When preparing to put the power plant in service, check the following.

- (1) All external connections are made in accordance with the schematic drawing which covers the associated circuitry.
- (2) All associated fuses are installed in their respective fuse holders in the control panel.
- (3) The P1 and P2 connectors are disconnected.
- (4) The -48 V IN (CB1) circuit breaker on each J87391 converter is in the OFF position.

3.02 Starting: Start the power plant as follows.

- (1) Operate the -48V IN (CB1) circuit breaker on the J87391 converter to the OFF position.
- (2) Connect the P2 connector.
- (3) Connect the P1 connector.

Requirement: A minor alarm is sounded.

- (4) Operate the -48V IN (CB1) circuit breaker to the ON position.

Requirement: The minor alarm is deactivated.

- (5) Turn the CONVERTER OUTPUT VOLTAGE (S1) switch on the plant control panel to the position corresponding to the converter being connected.

Requirement: The OUTPUT VOLTAGE (M1) meter indicates the desired voltage between 48 and 52 volts.

Note: If the requirement is met, proceed to (9). If the requirement is not met, continue with (6).

- (6) Operate the -48V IN (CB1) circuit breaker to the OFF position.

Requirement: A minor alarm is sounded.

- (7) Disconnect the P1 and P2 connectors.

Requirement: The minor alarm is silenced.

- (8) Repeat (1) through (5).
- (9) Adjust the output voltage, low-voltage alarm, and high-voltage shutdown of converter 1 in accordance with Section 161-277-301.
- (10) Perform (1) through (5) for converters 2, 3, and 4.

3.03 Stopping: Remove power plant from service as follows.

- (1) Operate the -48V IN (CB1) circuit breaker on converter 1 to the OFF position.

Requirement: A minor alarm is sounded.

- (2) Disconnect the P1 and P2 connectors.

Requirement: The minor alarm is silenced.

- (3) Perform steps (1) and (2) for converters 2, 3, and 4 (if provided).

4. ROUTINE CHECKS

4.01 The 661A power plant is equipped with a visible indication of fuse operation and connection to provide a minor alarm in the event of one converter failure and a major alarm in the event of the failure of converters 1 and 2, or the load on the last operating converter(s) 1 and/or 2 is enough to operate the low-voltage alarm. The power plant should be checked periodically in accordance with the Equipment Test List, after any troubles have been corrected or if the plant has been out of service.

4.02 Routine checks for the J87391 converter should be performed in accordance with Section 161-277-301.

4.03 Converter and Plant Output Voltage Check: Check the plant output voltage as follows.

- (1) Turn the CONVERTER OUTPUT VOLTAGE (S1) switch to the PLANT position.

Requirement: The OUTPUT VOLTS (M1) meter indicates 48 to 52 volts.

- (2) Turn the CONVERTER OUTPUT VOLTAGE (S1) switch to position 1.

Requirement: The OUTPUT VOLTS (M1) meter indicates the desired converter output voltage between 48 and 52 volts.

Note: If the requirement is met, continue with (3). If the requirement is not met, adjust the converter being checked in accordance with Section 161-277-301.

- (3) Perform (2) for positions 2, 3, and 4 of the CONVERTER OUTPUT VOLTAGE (S1) switch (if additional converters are provided).

4.04 Converter Low-Voltage Alarm and High-Voltage Shutdown Check: To check or adjust the setting of the converter low-voltage alarm and high-voltage shutdown circuits, proceed as follows.

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- (1) Operate the -48V IN (CBI) circuit breaker on converter 1 to the OFF position.
- (2) Disconnect P1 connector for converter 1.
- (3) Turn the CONVERTER OUTPUT VOLTAGE (S1) switch to position 1.
- (4) Adjust the converter in accordance with Section 167-277-301.
- (5) Verify that the -48V IN (CBI) circuit breaker is in the OFF position.
- (6) Connect P1 connector.
- (7) Turn the -48V IN (CBI) circuit breaker to the ON position.
- (8) Perform (1) through (7) for converters 2, 3 and 4 (if provided).

4.05 Fuse Alarm: Test the fuse alarm circuit as follows.

- (1) Using the W1AF cord equipped with two 411C test picks as follows, connect the one end to the +TP1 (+48 volt output) test jack and then carefully insert the test pick through the aperture in front of the fuse holder, adjacent to the colored fuse bead, to a point where contact is made with the alarm surface of the fuse cap.

Requirement: The FUSE ALARM lamp lights and an audible alarm is sounded.

- (2) Remove the cord from the test jack and fuse cap.

Requirement: The FUSE ALARM lamp extinguishes and the audible alarm is silenced.

4.06 Minor Alarm Check: To check for a minor alarm, proceed as follows.

- (1) Operate the -48V IN (CB1) circuit breaker on converter 1 to the OFF position.

Requirement: A minor alarm is sounded and the ALARM (DSI) lamp on the converter lights.

- (2) Operate the -48V IN (CB1) circuit breaker on converter 1 to the ON position.

Requirement: The minor alarm is silenced and the ALARM (DSI) lamp extinguishes.

- (3) Perform (1) and (2) for converters 2, 3 and 4 (if provided).

4.07 Major Alarm Check: For a major alarm to occur, two converters must fail. To check the major alarm circuit without interrupting service, proceed as follows.

- (1) Remove the CBS fuse from fuse board.

Requirement: A major alarm is sounded.

- (2) Replace the fuse.

Requirement: The major and minor alarms are silenced and the MULT ALARM lamp (if provided) is extinguished.

4.08 Voltmeter Calibration Check: Check the converter voltmeter accuracy as follows.

- (1) Connect the John Fluke 8100A voltmeter set on the 100-volt scale to +TP1 (+48 volt output) and to -TP2 (+48 volt return) test jacks on converter 1. An equivalent meter should be set on an appropriate scale and connected in the same manner.

Requirement: The John Fluke meter indicates the desired output voltage, between 48 and 52 volts.

- (2) Operate the CONVERTER OUTPUT VOLTAGE (S1) switch to position 1.

Requirement: The OUTPUT VOLTS (M1) meter should indicate the same voltage as the John Fluke meter.

Note: If the requirement is met, proceed to (4). If the requirement is not met, continue with (3).

- (3) Turn the adjustment screw on the OUTPUT VOLTAGE (M1) voltmeter with a screwdriver until both meters indicate the same voltage.

- (4) Disconnect the John Fluke meter.

4.09 For additional tests on individual converter circuits and alarms, refer to the converter operating methods, Section 161-277-301.

5.01 Due to the arrangement of the 661A power plant, most troubles will be caused by the individual converters. If the plant malfunctions, determine which converter or converters are malfunctioning and perform the corrective action outlined in Section 161-277-301.

5. TROUBLES