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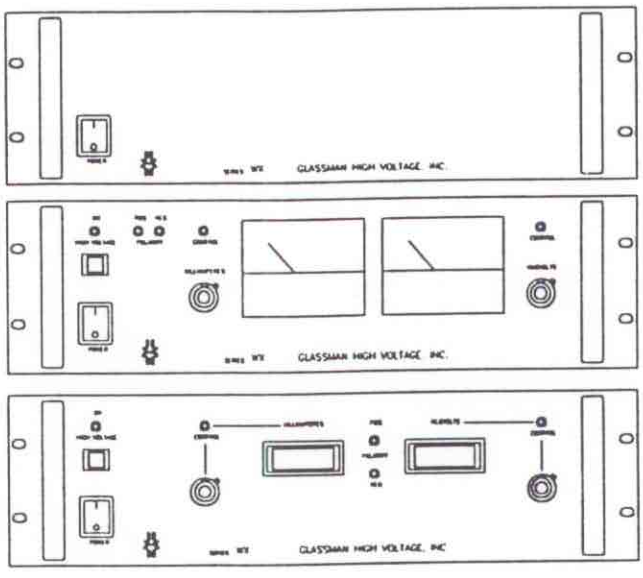
INSTRUCTION MANUAL

WX SERIES

MODEL: PS/WX10N100-Y66

SERIAL #: M818160-04

DATE: 2-29-96



Innovations in high voltage power supply technology.

GLASSMAN HIGH VOLTAGE INC.

Route #22 East, Salem Industrial Park, P.O. Box 551

Whitehouse Station N.J. 08889

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SPECIFICATION CONTROL

Model: PS/WX10N100-Y66

This model is in full accordance with the standard catalog specifications for the WX series, except as follows:

1. Includes the standard NC (blank front panel) option.

2. The left side panel is modified to accept the users' installation of a "cable tidy bracket", Applied Materials drawing number C0020-96140, revision D. See note below.

3. The base pan is modified to facilitate the users' installation of the power supply onto a "support tray", Applied Materials drawing number E0020-82576, revision C (formally E0020-97872, revision B). See note below.

4. J3, a 15 pin, male D-Sub connector is added to the rear panel. The connector provides standard HV ENABLE, V-PROGRAM, I-MONITOR, and COMMON functions, and is fitted with a pair of ITT/Cannon part number 015-8755-000, locking hooks. The mating connector is not provided.

5. A HV output cable is not provided with this unit. Instead, it is understood that the user can separately purchase the previously supplied output cable under GHV part number OPC8U-010A-Y66. Cable deviates from the standard in that it is fitted at the users' end with two #10 ring lug terminals.

6. An input cable is not provided with this unit. Instead, it is understood that the user can separately purchase the previously supplied standard input cable under the GHV part number WLC005-163-IEC.

Note: Refer to the Outline & Interface drawing normally provided with the instruction manual text for specific information regarding mounting hole locations, thread types, and acceptable screw depths.

REVISIONS			
DESCRIPTION	CHK	DATE	LTR
ECN 3920: 5 was connector termination.	DWS	041295	A
ECN 4298: OPC & IPC removd	DWS	012596	B

GLASSMAN HIGH VOLTAGE, INC.

FILE: TXTSPEC\ 12007Y66 .B

DRWN	DATE
DWS	021095
CHK	DATE
DWS	021395

SPECIFICATION CONTROL
Y66 OPTION

PS/WX10N100-Y66

DWG. NO.	REV.
102007-Y66	B

SHEET 1 OF 1

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UNPACKING AND INSPECTION

First inspect package exterior for evidence of rough handling in transit. If none, proceed to unpack....carefully. After removing the supply from its' shipping container, inspect it thoroughly for damage.

IMPORTANT! In cases of damage due to rough handling in transit, notify the carrier immediately if damage is evident from appearance of package. Do not destroy or remove any of the packing material used in a damaged shipment. Carrier companies will usually not accept claims for damaged material unless they can inspect the damaged item and its' associated packing material. Claims must be made promptly - certainly within five days of receipt of shipment.

CORRESPONDENCE

Each Glassman power supply has an identification label on the chassis that bears its' model and serial number. When requesting engineering or applications information, reference should be made to this model and serial number. If specific components or circuit sections are involved in the inquiry, also indicate the component symbol number(s) shown on the applicable schematic diagram.

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CONNECTIONS AND CONTROLS

REAR PANEL ELEMENTS

AC POWER INPUT J2

WARNING! The ground (center) terminal of this input should be connected to the AC outlet ground or other good earth ground.

J2 is a standard IEC receptacle. A mating line cord is provided with a plug for a standard North American grounded outlet. In other regions, an appropriate IEC cord set may be substituted. If the plug is removed from the cord provided, the wires should be connected as follows:

Green/Yellow - Ground

Brown - Line

Blue - Line or Neutral

Check to see that your input line voltage matches the rating of the supply before applying power (see Figures 8 and 9).

POWER ON INDICATOR

WARNING! When this lamp is illuminated, AC power is present. Do not apply or remove any connections to this unit until AC power is removed and the DC output has discharged.

HIGH VOLTAGE OUTPUT J1

WARNING! Do not insert or remove the output cable from this connector until AC power is off and the DC output has discharged.

Engage the connector as follows:

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UNITS > 6kV: Insert the end of the high voltage cable provided into the receptacle. Screw the threaded barrel onto the receptacle.

UNITS <= 6kV: Align plug, push in and rotate 1/2 turn to engage.

GROUND STUD E1

WARNING! Do not operate unit without good external earth ground connected to this point.

This is the main grounding terminal for the supply (see Figures 8 and 9).

REMOTE CONTROL CONNECTORS TB1 & TB2

WARNING! Do not make or remove connections to these connectors or any other connector until power is off and the output has discharged.

These connectors provide inputs and outputs for the remote control functions. For a description of each of these signals and their applications see Figures 1-9 and the remote control interface section of this manual.

OPTIONAL J3 & E2

Reserved for special options.

FRONT PANEL ELEMENTS

POWER Switch/Indicator

WARNING! Do not apply or remove any connections to this unit when power is on.

This switch applies AC power to the unit when in the on ("1") position (as long as power is present at J2). The integral lamp will illuminate when power is present.

NOTE: THE FOLLOWING FRONT PANEL ELEMENTS ARE NOT PRESENT ON "NC" OPTION MODELS.

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HIGH VOLTAGE ON Pushbutton

Enables the high voltage output when depressed. This switch will not activate the high voltage if the interlock is open.

HIGH VOLTAGE ON Indicator

Illuminates after the HV ENABLE pushbutton is depressed (if the INTERLOCK signal is closed). If this indicator is on and the HV ENABLE signal is present, the supply will generate high voltage. If the INTERLOCK signal is opened, even temporarily, the high voltage will be disabled and the HIGH VOLTAGE ON indicator will extinguish. Once the interlock is closed, the HIGH VOLTAGE ON pushbutton must again be depressed to restart the supply.

Local KILOVOLTS & MILLIAMPERES CONTROL

10-turn controls provide a 0-10V signal for local MILLIAMPERE and KILOVOLT programming. Clockwise rotation increases output. A 10-turn dial with brake is provided to secure the settings, if desired.

KILOVOLT & MILLIAMPERE CONTROL Indicators

These indicators are located above their respective controls. If the KILOVOLTS CONTROL indicator is illuminated, the supply is operating as a constant voltage source with an output voltage determined by the local KILOVOLTS CONTROL or remote V-PROGRAM signal. If the MILLIAMPERES CONTROL lamp is illuminated, the supply is operating as a constant current source with the output current determined by the local MILLIAMPERES CONTROL or remote I-PROGRAM signal.

Output Meters

STANDARD: Analog meters that display output voltage and current with an accuracy of +/- 2% (Note: Meters operational only when power is applied to the unit. See WARNING! statement below.)

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DM OPTION: 3-1/2 digit digital panel meters are provided in place of the analog meters.

WARNING! When system is powered down under light or no load conditions, the output may retain a charge even after power is removed. This charge may not show on the kilovoltmeter. Discharge the output to ground or use an external meter to determine if output has discharged. Or, wait at least 15 seconds before making or removing any connections to the supply.

POLARITY Indicators

Indicates the output polarity of the supply with respect to ground.

INSTALLATION AND OPERATION

WARNING!

NEVER ATTEMPT TO OPERATE THIS UNIT WITHOUT A GOOD EARTH GROUND CONNECTED TO THE GROUND STUD "E1" ON THE REAR PANEL. THE GROUND WIRE OF THE AC LINE CORD MUST ALSO BE GROUNDED.

READ AND FULLY UNDERSTAND THE OPERATING INSTRUCTIONS BEFORE APPLYING POWER TO THIS UNIT.

THIS EQUIPMENT EMPLOYS VOLTAGES THAT ARE DANGEROUS. EXTREME CAUTION MUST BE EXERCISED WHEN WORKING WITH THIS EQUIPMENT.

DO NOT HANDLE THE LOAD OR EXPOSED HIGH VOLTAGE TERMINATIONS OR ATTEMPT TO MAKE OR REMOVE ANY CONNECTIONS TO THE SUPPLY UNTIL THE LOAD AND/OR SUPPLY HAS BEEN DISCHARGED (GROUNDED). AN UNLOADED SUPPLY MAY TAKE UP TO 15 SECONDS TO FULLY DISCHARGE.

ALWAYS MAKE CERTAIN THAT THE RETURN SIDE OF THE LOAD IS

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CONNECTED TO COMMON OR GROUND.

INITIAL TURN ON

The following procedure, to connect and operate this equipment, should be carried out only after the unit has been placed or mounted in position.

1. Check the input voltage rating on the identification label of the power supply and make certain that this is the rating of the available power source.

2. Check to see that the POWER switch is in the off ("0") position.

3. Check to see that the jumpers are present on TB2 and are connected for local operation (see Figure 9).

   USERS WITH "NC" OPTION SUPPLIES: Connect external pot or control signal to V- PROGRAM terminal.

4. Connect the high voltage output cable to the load and ground the return lead of the load as shown in Figure 7. Connect the high voltage output cable to the receptacle on the rear panel.

   "NC" OPTION USERS: Connect an external kilovoltmeter to the high voltage output or monitor the V-MONITOR terminal with a DVM (0 to 10VDC = 0 to rated kV output).

5. Connect the AC input cable provided to J2 and to the power source.

6. Rotate KILOVOLTS CONTROL to the fully counterclockwise position (set external pot or control signal on "NC" option units for zero volts programming). This is optional, but desirable so as to prevent damage to external equipment caused by inadvertent overvoltage setting. Not required if correct setting has already been established.

"NC" OPTION USERS SKIP STEP 7

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7. Rotate the MILLIAMPERES CONTROL clockwise to a level that is greater than the amount that the connected load will require (any setting above zero if no load is connected).

8. Apply input power to the supply by setting POWER switch to the on ("1") position.

"NC" OPTION USERS SKIP STEP 9

9. Depress HIGH VOLTAGE ON pushbutton. The HIGH VOLTAGE ON indicator should illuminate.

10. Rotate KILOVOLT CONTROL (or increase external V-PROGRAM signal) until kilovoltmeter indicates desired output voltage.

11. To shut down supply, set POWER SWITCH to the off ("0") position.

WARNING !

DO NOT HANDLE THE LOAD OR EXPOSED HIGH VOLTAGE TERMINATIONS OR ATTEMPT TO MAKE OR REMOVE ANY CONNECTIONS TO THE SUPPLY UNTIL THE LOAD AND/OR SUPPLY HAS BEEN DISCHARGED (GROUNDED). AN UNLOADED SUPPLY MAY TAKE UP TO 15 SECONDS TO FULLY DISCHARGE.

POLARITY REVERSAL

REVERSIBLE POLARITY MODELS > 6kV

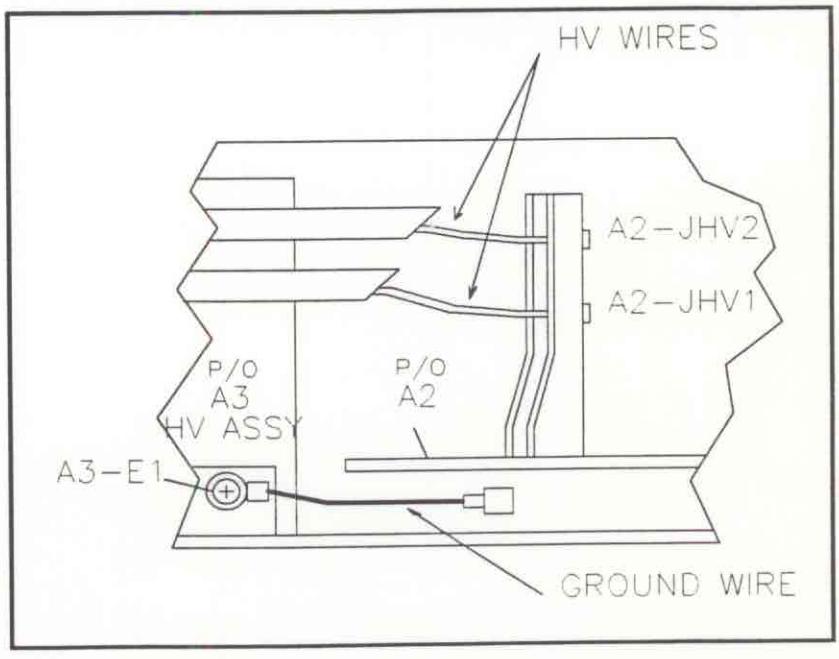
For reversible polarity models, the power supply has been shipped with two high voltage assemblies; one positive and one negative. One assembly is mounted in the chassis and the other one is shipped separately. A label on each high voltage assembly indicates its' polarity. To reverse the polarity of the power supply, it is necessary to interchange the high voltage assemblies.

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1. Remove the top cover from the unit. **BE SURE AC POWER IS DISCONNECTED AND HV IS DISCHARGED!**

2. Remove the 5 screws holding the rear panel to the chassis. "Hinge" the rear panel back to provide access to the HV modules' connectors.

3. Remove the electrical connectors which are mounted on the high voltage assembly presently installed. Remove the ground lug connection to the



chassis and carefully disconnect the 2 HV wires from A2-JHV1 & A2-JHV2.

4. Tip the unit on its' side to expose the 2 countersunk screws used to mount the high voltage module to the chassis basepan. Remove these screws.

5. Interchange the two high voltage assemblies. Reinstall the 2 screws that hold the HV module to the chassis basepan.

6. Reconnect the electrical connectors, HV wires, and grounding connection. **Warning: For continued safety, the ground wire must be reinstalled!**

7. Reattach the rear panel and top cover.

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ALL MODELS 6kV OR LESS

A polarity card has been provided, internal to the unit, to reverse the output polarity of the supply. If it is desired to determine the present setting of the polarity or to change the polarity, follow this procedure:

1. Remove the top cover from the unit. **BE SURE AC POWER IS DISCONNECTED AND HV IS DISCHARGED!**
2. Locate the high voltage board on the right hand side of the chassis (as viewed from the front).
3. Locate the polarity card plugged into the high voltage board and observe that the card is labeled to indicate the installed polarity.
4. If it is desired to change the polarity of the supply, simply unplug the card, flip it over, and reinstall carefully.
5. Replace the top cover.

REMOTE CONTROL INTERFACE

User Interface Connectors TB1 & TB2

GROUND TB1-6

This is the instrumentation ground connection. This terminal should not be used as the main connection to earth ground. Use the main ground terminal, "E1", for that purpose. TB1-6 is normally connected to the adjacent COMMON terminal unless a floating common is desired (see TB1-5). If a floating common is employed, this connection (or E1) should be used as the load return (see Figure 7).

COMMON TB1-5

This terminal is the instrumentation/measurement return. Normally, COMMON is maintained at ground potential via a jumper to the GROUND terminal. In this

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configuration, instrument returns and the load return may be connected to either COMMON or GROUND. If desired, the user may remove this jumper and allow COMMON to "float". This may be done for isolation or for the purpose of inserting a current monitoring device.

When COMMON is floating, it is clamped internally to GROUND through a bidirectional zener diode. Thus, the inserted drop should not exceed 5.0V or erroneous readings may be obtained. In this configuration, the load return must be connected to GROUND and all instrument/ programming returns must be connected to COMMON. In addition, instrument returns to COMMON must be isolated from GROUND (see Figures 7, 8 & 9).

INTERLOCK TB1-4

This terminal must be connected to COMMON to enable the supply. If desired, the jumper may be removed and replaced by an external switch. This switch must be closed for the supply to operate. If the external switch is opened, the supply output will drop to zero. When the switch is again closed, the front panel HIGH VOLTAGE ON pushbutton must be depressed to re-enable the supply (except on "NC" option supplies which will re-enable immediately) (see Figure 1).

V-MONITOR TB1-3

A 0-10V positive signal (with respect to COMMON), in direct proportion to the output voltage, is available at this terminal. An internal 10k ohm, 1%, limiting resistance protects the circuitry. Therefore, it is recommended that a digital voltmeter be used to monitor this output. It is also acceptable to use a 1mA DC full scale instrument (e.g. analog meter) for monitor purposes (see Figure 5).

V-PROGRAM TB2-6
LOCAL V-CONTROL TB2-5
"NC" OPTION: NO CONNECTION TB2-5

A positive 0-10V signal (with respect to COMMON) at TB2-6 will program the output voltage proportionally from zero to rated output. This input can be programmed in several ways (see Figures 3, 8 & 9):

* A user supplied 0 - +10V signal.

* A user supplied potentiometer (10-50k ohms, 10k nominal) can be con-

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nected between the 10V REFERENCE and COMMON, with the wiper connected to the V-PROGRAM terminal.

* The 0 - +10V signal available at TB2-5, and adjusted by the local (front panel) KILOVOLTS CONTROL (except on "NC" option supplies).

* The V-PROGRAM input may be jumpered to the REFERENCE voltage terminal(s) for a fixed output at the maximum voltage.

I-MONITOR TB1-2

A 0-10V signal, positive with respect to COMMON, and in direct proportion to the output current, is available at this terminal. An internal 10k ohm, 1%, limiting resistance protects the circuitry. Therefore, it is recommended that a digital voltmeter be used to monitor this output. It is also acceptable to use a 1mA DC full scale instrument (e.g. analog meter) for monitor purposes (see Figure 6).

I-PROGRAM TB2-4
LOCAL I-CONTROL TB2-3

A 0-10V positive signal (with respect to COMMON) at TB2-4 will program the output current proportionally from zero to full output. This input can be programmed in several ways (see Figures 4, 8 & 9):

* A user supplied 0 - +10V signal.

* A user supplied potentiometer (10-50k ohms, 10k nominal) can be connected between the 10V REFERENCE and COMMON, with the wiper connected to the I-PROGRAM terminal.

* The 0 - +10V signal available at TB2-3, adjusted by the local (front panel) MILLIAMPERES CONTROL. "NC" OPTION USERS: No local control is provided. Instead an additional REFERENCE is provided at TB2-3.

* The I-PROGRAM input may be jumpered to the REFERENCE voltage terminal(s) for a fixed current limit at the maximum rated current.

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REFERENCE TB2-2 ("NC" OPTION: TB2-3 ALSO)

The output of this terminal is an ultra-stable, positive, 10V reference voltage (with respect to common) that is supplied for user programming applications. Maximum current drain from this point should be limited to 4mA.

HV ENABLE TB2-1

This terminal must be connected to a positive 2.5-10V source (with respect to common) to enable the supply. A 0-1.5V signal at this input will disable the supply. When no external control is required this input can be jumpered to the 10V REFERENCE terminal (see Figure 2).

X1 TB1-1

This terminal is reserved for special options or future expansion of features.

NOTE:

Figure 8 is just one example of the many possible interface configurations.

Figure 9 shows the minimum number of connections to completely enable the supply. In this configuration, output voltage and current are controlled by the front panel controls (except on "NC" option units which have no front panel controls). No external interlock or TTL signals are required.

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