INSTRUCTIONS
for
STABILINE®
Automatic Voltage Regulators

WHR26*S*** Series
Single Phase
600 X 480 Volt

Superior Electric reserves the right to make engineering changes on all its products. Such refinements may affect information given in the instructions. Therefore, **USE ONLY THE INSTRUCTIONS THAT ARE PACKED WITH THE PRODUCT.**

WARNING: High voltages are present inside this unit during operation. Do not operate this unit unless all covers are in place. Installation and servicing should only be done by qualified personnel.

Superior Electric
Bristol, Connecticut 06010-7488

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INSPECTION

When unpacking the unit, examine it carefully for any shipping damage. The "Damage and Shortage" instructions packed with the unit outline the procedure to follow if any parts are missing or damaged.

SECTION 1.0 : DESCRIPTION

1.1 GENERAL

WHR26*S*** Series STABILINE® Automatic Voltage Regulators are single-phase, 480 X 600 volt, fast acting electromechanical regulators with ratings from 16 to 425 kVA. They have an analog electronic control section and a power section consisting of motor driven, limited range POWERSTAT® Variable Transformers. Units with the suffix-CB at the end of their model numbers are equipped with input circuit breakers.

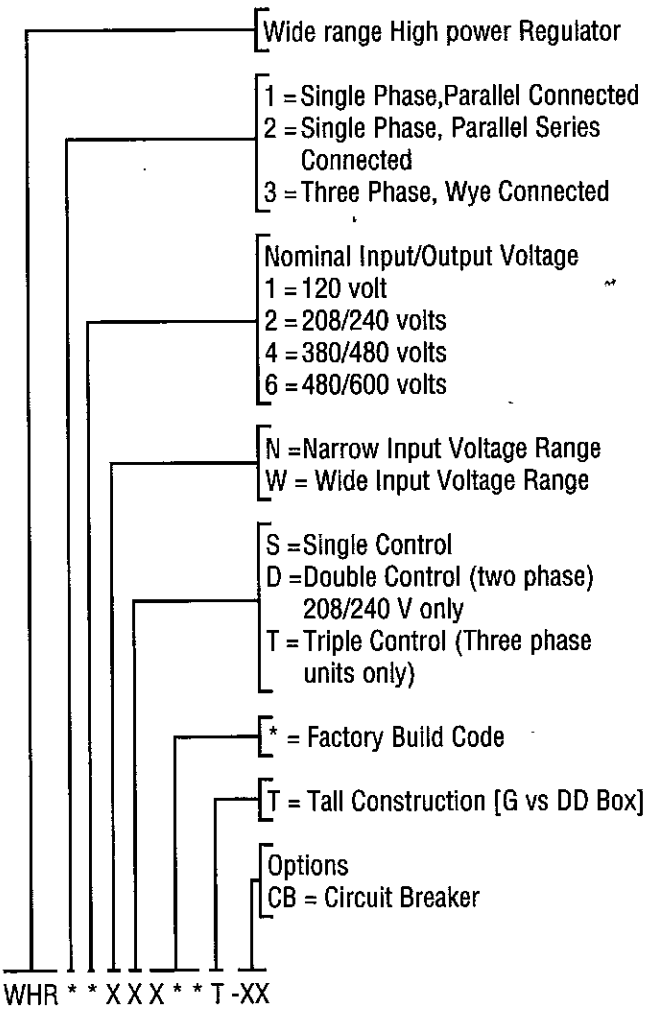
See the enclosed rating charts for complete specifications on each unit.

Advantages of all WHR series regulators include high efficiency (99% typical), high overload capacity and low impedance. These regulators are insensitive to the magnitude and power factor of the load, and have no effect on system power factor. This means these regulators can be used with any type load.

1.2 TYPE NUMBER

The model number for each WHR series regulator identifies the various characteristics of that specific unit. The following table explains the meaning of each character in the model number.

WHR TYPE NUMBERING SYSTEM



1.3 THEORY OF OPERATION

WHR Series units regulate AC voltage by automatically adjusting limited range POWERSTAT Variable Transformers to maintain constant output voltage.

The solid state control unit detects the output voltage and continually compares it with the output and accuracy settings selected by the user. If the output is out of specifications, the control unit drives the POWERSTAT variable transformer brush, by means of a synchronous motor, to the required new position.

SECTION 2.0 : INSTALLATION

2.1 TRANSPORTING THE REGULATOR

Due to its weight and size, proper lifting procedures must be followed when transporting the unit and moving it into the location where it is to be installed.

The proper method for moving these units is to place a forklift under the base. A heavy frame is provided in this area to allow lifting the unit in this manner without damage. The 26 inch (559 mm) wide units can also be lifted by removing the top cover and using the lifting eyes provided in the sides of the cabinet.

2.2 MECHANICAL INSTALLATION

The regulator is designed for floor mounting. When mounting the unit, allow a minimum clearance of 4 inches (100 mm) behind the unit for proper ventilation.

2.3 ELECTRICAL INSTALLATION

All WHR regulators are designed to be hard-wired to the input power and the load using copper wire. When these units increase low input voltage to give nominal output voltage, the input current is substantially higher than the output current. Maximum rated input and output currents for each unit are given in the enclosed rating charts. Select a wire size that is adequate to carry the maximum rated current as specified by local and national code requirements.

The front panel of the regulator must be removed to allow access to the input and load terminals. To remove a panel, use a flat blade screw driver to release the fasteners which hold the front panel in place, and lift the panel off the base. A full range of knockouts is provided in the base and rear panel of the unit for wire entry and exit.

On units with an input circuit breaker, input power connections are made directly to the circuit breaker. On units without a circuit breaker, the input connections are located on the POWERSTAT variable transformer. The input power connections are labeled: L1, L2. Load connections are made to the POWERSTAT variable transformer terminal boards, and are labeled: T1, T2.

The ground terminal is a ground stud on the cabinet wall, and <u>must</u> be connected to a suitable earth ground to reduce the chance of electrical shock.

SECTION 3.0 : START UP

Set the Output Voltage Range toggle switch on the control unit to match **your** application by placing the switch in the 480 or 600 volt position. The Output Voltage Adjustment potentiometer and the Sensitivity potentiometer are set at the factory for nominal output voltage and approximately 2% accuracy, and should not be readjusted until the regulator is initially energized.

After completing and checking all input and output connections, place the front panel(s) in position and tighten the fasteners.

Energize the regulator power source and, if provided, place the regulator's circuit breaker in the "ON" position. The voltmeter should indicate the output voltage (approx 460 or 575 volts), and the POWER pilot lamp and the CONTROL pilot lamp should be lit. This indicates the voltage regulator is operating properly.

SECTION 4.0 : OPERATION

4.1 OPERATING CONTROLS

4.1.1 Circuit Breaker, CB1

Only units with the suffix -CB at the end of their type numbers have with an input circuit breaker. The circuit breaker controls the input power to the regulator and is located on the front of the unit. Placing the circuit breaker in the "ON" position will energize the regulator.

4.1.2 POWER Pilot Lamp, A1-DS1 (On Front Panel)

The POWER lamp lights when power is present for the motor and indicates the regulator is energized.

4.1.3 CONTROL Pilot Lamp, A1-DS2 (On Front Panel)

This lamp will light whenever the control unit sense voltage is energized. The control sense voltage must be energized for automatic correction of voltage changes to occur.

4.1.4 Analog Voltmeter, A1-M1 (On Front Panel)

This display shows the output voltage.

4.1.5 Output Voltage Range Toggle Switch, A1-S1 (Behind Front Panel)

This is a three-position switch. When the switch is in the center (off) position, the control unit sense voltage is disconnected, and automatic correction of voltage changes will not take place. Any change in input voltage will be reflected in output voltage.

The upper and lower switch positions select the nominal output voltage. The switch should be placed in the position that corresponds with the desired nominal output voltage for YOUR application.

4.1.6 OUTPUT VOLTAGE Potentiometer A1-R1 (Behind Front Panel)

This potentiometer sets the output voltage. It's adjustment range is approximately ±10% of the selected nominal output voltage.

4.1.7 SENSITIVITY Potentiometer A1-R2 (Behind Front Panel)
This potentiometer adjusts the output accuracy of the regulator, i.e., sets how much the output voltage will change before the unit will correct. Follow the instructions in Section 4.2 to adjust the sensitivity.

4.2 SETTING THE OUTPUT VOLTAGE AND SENSITIVITY POTENTIOMETERS
Normally, the WHR regulator should not be operated without the front panel(s) of the cabinet in place. However, during the initial operation of the regulator the front panel can be removed to allow setting the OUTPUT VOLTAGE and SENSITIVITY potentiometers. To set these potentiometers:

4.2.1 Energize the regulator power source and if provided, place the regulator's circuit breaker in the "ON" position. The pilot lamps should light, indicating that the regulator is energized and that the control unit is on. If necessary, move the OUTPUT VOLTAGE RANGE switch to the desired nominal output voltage position.Check the voltmeter. This will indicate the output voltage.

4.2.2 To adjust the output voltage, turn the OUTPUT VOLTAGE potentiometer clockwise to increase or counterclockwise to decrease the output voltage, as indicated on the regulator's voltmeter.

4.2.3 The sensitivity must be adjusted if the regulator hunts (the motor driven variable transformer section of the regulator cycles back and forth) or if the regulator allows too great a change from the set voltage before correction occurs.

Turning the SENSITIVITY control clockwise increases the sensitivity to maximum (1/2% to 1% output voltage accuracy). For maximum sensitivity, turn the SENSITIVITY control clockwise to the point where the regulator begins to hunt. Turn the control counterclockwise (CCW) until the hunting stops. Turn the control an additional 1/8 turn CCW. For most applications the SENSITIVITY control can be set fully counterclockwise, which will provide approximately 3% accuracy. This setting will provide accurate control of output voltage and will eliminate operation of the regulator due to small voltage or load changes.

4.2.4 Replace the front cover(s).

4.3 REMOTE SENSING
Normally, WHR regulators sense and regulate the voltage at the regulator's output terminals. In some cases better control can be obtained by monitoring the voltage at another point, such as at the end of long lines between the regulator and the load. This is known as remote sensing. If remote sensing is desired, remove the jumpers between terminals 6 and 7 and between terminals 8 and 9 on the control module terminal panel. This will disconnect the control module sense terminals from the output terminals of the regulator. Connect the wires for remote sensing to terminals 7 and 9 on the control module.

4.4 ALL-BUCK & ALL-BOOST OPERATION
All WHR Series regulators can be connected to provide all-buck (unit will only lower the input voltage) or all-boost (unit will only increase the input voltage) operation. This feature can be used to shift the nominal voltage or to correct input voltages that are always extremely high or extremely low.

4.4.1 All-Boost Operation
When connected for all-boost operation, WHR units will bring extra low voltages up to nominal, but will not correct high input voltages. Since operation in the all-boost mode will increase the voltage and heating in the WHR regulator, the rated load current, and in some cases the maximum rated nominal input voltage, must be reduced. The chart on page 5 shows the all-boost ratings.

For all-boost operation, the input line to each POWERSTAT variable transformer must be moved from terminal 2 to terminal 5.

4.4.2 All-Buck Operation
When connected for all-buck operation, WHR units will bring extra high input voltages down to nominal, but will not correct low input voltages. Since all-buck operation reduces the voltage in the regulator, the nominal input voltage can be increased. The current ratings remain the same. The chart on page 5 shows the all-buck ratings.

All-buck operation requires moving the input line to each POWERSTAT Variable Transformer from terminal 2 to terminal 4.

NORMAL INPUT VOLTAGE RANGE	NARROW +7%, -15%	WIDE +12.5%, -25%
ALL BOOST OPERATION		
INPUT VOLTAGE RANGE (% OF SET OUTPUT VOLTAGE)	0%, -20%	0%, -33%
MAXIMUM LOAD CURRENT (% OF NORMAL RATING)	77%	72%
NOMINAL INPUT VOLTAGE	480 V, 50/60 HZ 600 V, 60 HZ	480 V, 50/60 HZ 600 V, 60 HZ
ALL BUCK OPERATION		
INPUT VOLTAGE RANGE (% OF SET OUTPUT VOLTAGE)	+25%, 0%	+50%, 0%
MAXIMUM LOAD CURRENT (% OF NORMAL RATING)	100%	100%
NOMINAL INPUT VOLTAGE (MAX ALLOWABLE INCREASE)	15%	25%

SECTION 5.0 : MAINTENANCE

To ensure maximum life of the equipment, the following should be part of an annual maintenance program.

Warning: Deenergize unit before performing maintenance. Voltages are present inside this unit which can cause injury. Therefore, only persons qualified to service electrical equipment should perform maintenance on this unit.

5.1 Vacuum the regulator inside and out to remove accumulated dirt which could lead to overheating or insulation failure.

5.2 Tighten all electrical connections, particularly all power wiring to, and in, the unit.

5.3 Inspect all brushes and commutators for signs of wear or pitting. Replace as required.

Do not attempt to clean a commutator with an abrasive such as sandpaper or a file. This will ruin the soft precious metal plating on the commutator and will shorten the life of the unit. It is normal for commutators to become black due to carbon brush tracking. If a commutator is to be cleaned, use denatured alcohol and a soft cloth.

5.4 Inspect the variable transformer drive belts, sprockets, gears, cams, etc for signs of slippage or wear and adjust as required.

5.5 Check the variable transformer radiator(s) (the die cast part that holds the brush assembly) for signs of slippage, and see if all brushes driven by the same motor are aligned with each other. The alignment of the radiator and brushes depends on the set screws that hold the variable transformer center tube(s) to the shaft and the set screws that hold the radiator to the center tube. Adjust as required.

5.6 Lubrication of the WHR Series regulator is not required since it has been lubricated at the factory for its lifetime.

SECTION 6.0 : TROUBLESHOOTING

WHR Series regulators will provide long, reliable service with little attention. Unless the unit is overloaded, there is little likelihood of component failure.

Warning: Voltages are present inside this unit which can cause injury. Therefore, only persons qualified to service electrical equipment should perform trouble-shooting procedures on this unit.

If the regulator fails to operate correctly, the following checks will help locate and correct the problem. Refer to the enclosed schematic diagram, replacement parts list and rating charts for further information on the unit.

6.1 Check the load connected to the regulator to be sure the unit's output current rating is not being exceeded.

6.2 See if the POWER pilot lamp is on. If the lamp is not on, there is no power to the regulator, or fuses F1 and F2 (POWER LIGHT-MOTOR) are blown, or the lamp has burned out. Check the POWER LIGHT-MOTOR fuses (F1 and F2). Check the power input to the unit to be sure the voltage is within the range specified for the selected output voltage.

6.3 Check the output voltmeter. If the meter shows zero output voltage, check the input line, input circuit breaker, control unit fuses F3 and F4 (CONTROL fuses), remote sense wiring if applicable (see section 4.3), and input connections.

6.4 Check the CONTROL pilot lamp. If it is not lit, check the control unit switch to be sure it is on and check for blown CONTROL fuses (F3 and F4). If applicable, check the remote sense wiring (see section 4.3).

6.5 If the motor hunts (cycles continuously), readjust the SENSITIVITY control per section 4.2.

6.6 If the motor drives the POWERSTAT variable transformer to one end of its travel, and the voltage decreases when it should increase or increases when it should decrease check to see if the input and output power connections to the regulator are reversed.

If the unit has been reworked or repaired check to see if the leads driving the motor have been reversed so that the motor runs in the wrong direction. If leads driving the motor are changed check to see that the limit switches turn the motor off in the proper direction., i.e., once a limit switch is actuated the motor should run only in the opposite direction from the one it was running in when it actuated the limit switch.

6.7 If the motor continues to hum or buzz after the OUTPUT VOLTAGE RANGE switch is turned off, the solid-state switch controlling the motor may be defective. Deenergize the input line to the regulator, and replace the plug-in control unit.

6.8 To see if the motor drive is functioning correctly: Refer to the unit's schematic diagram and: deenergize the input line to the regulator; place the output voltage RANGE switch in the center (off) position; and remove POWER LIGHT-MOTOR fuses F1 and F2.

Apply 115 volts between terminals 1 and 2 on the control or the variable transformer motor drive terminal board (TB1) (these terminal boards are connected point for point). The motor should turn the variable transformer so as to lower the output voltage (rotates it CCW when viewed from the top) until it reaches the end of its travel where the limit switch will prevent further rotation in the CCW direction. Applying 115 volts between terminals 1 and 3 should run the motor in the opposite direction until a limit switch stops the motor at the end of travel. If the motor operates successfully in this test the problem may be with the control unit.

6.9 Inspect the POWERSTAT variable transformer brush(s) and commutator(s) for signs of wear or damage. The brush assemblies on the variable transformer section will not need replacement under normal conditions. When excessive brush wear or commutator damage occurs it is usually the result of an overload. If either condition exists, the POWERSTAT Variable Transformer section or the brush must be replaced or repaired.

Do not attempt to clean a commutator with an abrasive such as sandpaper or a file. This will ruin the soft precious metal plating on the commutator and will shorten the life of the unit. It is normal for commutators to become black due to carbon brush tracking. If a commutator is to be cleaned, use denatured alcohol and a soft cloth.

Check the radiator(s) (the die cast part that holds the brush assembly) for signs of slippage, and see if all brushes driven by the same motor are aligned with each other. The alignment of the radiator and brushes depends on the set screws that hold the POWERSTAT's center tube(s) to the shaft and the set screws that hold the radiator to the center tube. Adjust as required.

Check the load connected to the power conditioner to be sure the regulators output current rating is not being exceeded.

RATING CHART
SINGLE PHASE - 480 X 600 VOLTS - NARROW RANGE

INPUT/OUTPUT VOLTAGE (NOMINAL)

LINE-LINE	& LINE-NEUTRAL	FREQUENCY (HZ)	SELECTABLE OUTPUT VOLTAGE
480 V	N/A	50/60	432 TO 538
600 V	N/A	60	520 TO 635

INPUT CORRECTION RANGE: +6%, -12% OF SELECTED OUTPUT VOLTAGE
OUTPUT ACCURACY: SELECTABLE 0.5% TO 3%

RATED OUTPUT AMPS	RATED KVA AT 480V	600V	MODEL NUMBER	MAX INPUT AMPS	RECOVERY TIME (SEC/% @ 60 HZ)	APPROXIMATE WEIGHT POUNDS NET	SHIP	KILOGRAMS NET	SHIP	CABINET
60	29	36	WHR26NSX12-CB	70	0.140	341	391	155	178	C
120	55	70	WHR26NSX14-CB	140	0.210	544	594	247	270	E
180	85	105	WHR26NSX16-CB	210	0.210	737	787	335	357	F
240	115	145	WHR26NSX24	280	0.270	1079	1179	490	535	DD
300	145	175	WHR26NSX25	350	0.410	1265	1365	574	620	EE
360	175	200	WHR26NSXT6	420	0.410	1495	1595	679	724	FF
420	200	250	WHR26NSX27	490	0.410	1627	1727	739	784	FF
480	225	275	WHR26NSXT8	560	0.820	1759	1859	799	843	FF
540	250	325	WHR26NSX29	630	0.820	1967	2067	893	938	GG
720	350	425	WHR26NSX38	840	0.820	2287	2387	1038	1084	FF

RATING CHART
SINGLE PHASE - 480 X 600 VOLTS - WIDE RANGE

INPUT/OUTPUT VOLTAGE (NOMINAL)

LINE-LINE & LINE-NEUTRAL		FREQUENCY (HZ)	SELECTABLE OUTPUT VOLTAGE
480 V	N/A	50/60	432 TO 538
600 V	N/A	60	520 TO 635

INPUT CORRECTION RANGE: +10%, -20% OF SELECTED OUTPUT VOLTAGE
OUTPUT ACCURACY: SELECTABLE 1% TO 3%

RATED OUTPUT AMPS	RATED KVA AT 480V	RATED KVA AT 600V	MODEL NUMBER	MAX INPUT AMPS	RECOVERY TIME (SEC/% @ 60 HZ)	APPROXIMATE WEIGHT POUNDS NET	POUNDS SHIP	KILOGRAMS NET	KILOGRAMS SHIP	CABINET
33	16	20	WHR26WSX12-CB	45	0.082	341	391	155	178	C
67	32	40	WHR26WSX14-CB	90	0.120	539	589	245	267	E
100	48	60	WHR26WSX16-CB	135	0.120	737	787	335	357	F
130	64	80	WHR26WSX24-CB	180	0.160	1089	1189	494	540	DD
165	80	100	WHR26WSX25-CB	225	0.250	1275	1375	579	624	EE
200	95	120	WHR26WSXT6	270	0.250	1495	1595	679	724	FF
230	110	140	WHR26WSX27	315	0.250	1627	1727	739	784	FF
265	125	160	WHR26WSXT8	360	0.490	1759	1859	799	844	FF
300	140	180	WHR26WSX29	405	0.490	1967	2067	893	938	GG
400	190	240	WHR26WSX38	540	0.490	2287	2387	1038	1084	FF

REPLACEMENT PARTS
for
WHR SERIES
STABILINE® AUTOMATIC VOLTAGE REGULATORS
480/600 VOLT, 1-PHASE MODELS

The following parts are used in all models covered in this Instruction Manual.

Reference Symbol	Description	Part Number
A1	Control Module	213244-005
A1-A1	Control Unit, CU80	209066-001
A1-DS1, DS2	Light, Indicating	052095-002
A1-F1, F2, F3, F4	Fuse, 1 Ampere, 600 Volt	213274-001
A1-M1	Voltmeter, 0-600 Volt	212917-003
A1-R1	Potentiometer, 100 Ohm	103159-011
A1-R2	Potentiometer, 10k Ohm	103159-024
A1-S1	Switch, 3-Position	144665-001
A1-T1	Transformer, Sense	006722-000
A1-T2	Transformer, Power	217477-001
A1-TB1	Terminal Strip, 9-Terminal	104051-009

The following parts are supplied only on models having type numbers ending with the following characters: 27, 28, 29 and 38.

Reference Symbol	Description	Part Number
A2	Auxiliary Power Module	217487-003
A2-F1, F2	Fuse, 1 Ampere, 600 Volt	213274-001
A2-T1	Transformer, Power	217477-001
A2-TB1	Terminal Strip, 3-Terminal	007120-016
B2	Fan, 120 Volt	212137-001

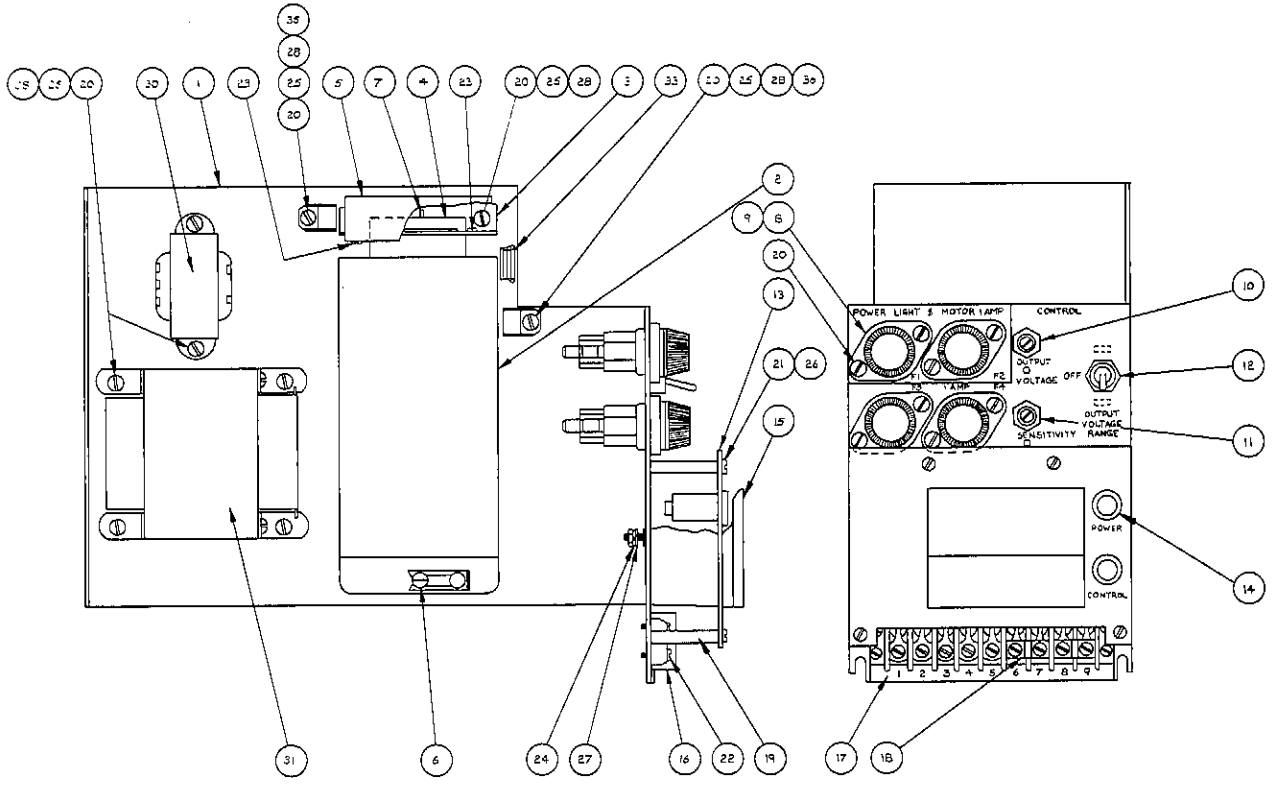
REPLACEMENT PARTS, CONT'D.

Model Number	B1, Motor	C1, Motor Capacitor	CB1, Circuit Breaker	R1, Motor Resistor	S1, S2, Limit Switch	T1, POWERSTAT Variable Transformer	T2, Paralleling Choke	TB1, Terminal Strip	Replacement Brush
WHR26NSX12-CB	102154-027	207419-041	213927-003	103788-018	058743-001	212995-005	-	027375-007	017702-011
WHR26NSX14-CB	400022-070	207419-041	213757-001	103788-018	051214-000	212995-005	006724-000	007037-007	017702-011
WHR26NSX16-CB	400022-070	207419-041	213757-005	103788-018	051214-000	212995-005	006724-000	007037-007	017702-011
WHR26NSX24	400022-069	207419-041	-	103788-018	051214-000	212995-005	006724-000	007037-007	017702-011
WHR26NSX25	400022-070	207419-041	-	103788-018	051214-000	212995-005	006724-000	007037-007	017702-011
WHR26NSX26	400022-070	207419-041	-	103788-018	051214-000	212995-005	006724-000	007037-007	017702-011
WHR26NSX27	400022-070	207419-041	-	103788-018	051214-000	212995-005	006724-000	007037-007	017702-011
WHR26NSX28	400022-070	207419-041	-	103788-018	051214-000	212995-005	006724-000	007037-007	017702-011
WHR26NSX29	400022-070	207419-041	-	103788-018	051214-000	212995-005	006724-000	007037-007	017702-011
WHR26NSX38	400022-070	207419-041	-	103788-018	051214-000	212995-005	006724-000	007037-007	017702-011
WHR26WSX12-CB	102154-027	207419-041	213927-001	103788-018	058743-001	212995-004	-	027375-007	017702-003
WHR26WSX14-CB	400022-070	207419-041	213927-005	103788-018	051214-000	212995-004	005587-000	007037-007	017702-003
WHR26WSX16-CB	400022-070	207419-041	213757-001	103788-018	051214-000	212995-004	005587-000	007037-007	017702-003
WHR26WSX24-CB	400022-069	207419-041	213757-002	103788-018	051214-000	212995-004	005587-000	007037-007	017702-003
WHR26WSX25-CB	400020-070	207419-041	213757-005	103788-018	051214-000	212995-004	005587-000	007037-007	017702-003
WHR26WSX26	400022-070	207419-041	-	103788-018	051214-000	212995-004	005587-000	007037-007	017702-003
WHR26WSX27	400022-070	207419-041	-	103788-018	051214-000	212995-004	005587-000	007037-007	017702-003
WHR26WSX28	400022-070	207419-041	-	103788-018	051214-000	212995-004	005587-000	007037-007	017702-003
WHR26WSX29	400022-070	207419-041	-	103788-018	051214-000	212995-004	005587-000	007037-007	017702-003
WHR26WSX38	400022-070	207419-041	-	103788-018	051214-000	212995-004	005587-000	007037-007	017702-003

SPECIFICATIONS

Electrical	
Efficiency	97% minimum, 99% typical @ full load
Distortion	less than 0.25% added total harmonic distortion
Surge Withstand Capability	6000 volts per IEEE 587-1980, Location Category B
Environmental	
Temperature	
Operating	Average temperature for any 24 hour period not to exceed 30°C (86°F) and maximum temperature not to exceed 40°C (104°F). Average temperature for 24 hour period may be increased to 40°C (104°F) and maximum temperature may be increased to 50°C (122°F) if load is decreased to 90% of standard rating. Minimum temperature is -20°C (-4°F).
Storage	-40°C to +70°C (-40°F to +158°F)
Humidity, Operating and Storage	10% to 75% relative humidity continuous 75% to 90% relative humidity intermittant, noncondensing
Altitude	
Operating	6,600 feet (2,000 meters) max.
Storage	50,000 feet (15,000 meters) max.

ITEM	PART NO.	DESCRIPTION	G1	G2	G3	G4	G5	G6	G7	G8	G9	G10
1	D212676G6	CHASSIS CONTROL MODULE	1				1				1	
1	D212676G7	CHASSIS CONTROL MODULE		1				1				1
1	D212676G8	CHASSIS CONTROL MODULE			1				1			
1	D212676G9	CHASSIS CONTROL MODULE				1				1		
2	C2D9066-009	CONTROL UNIT CU-80-NF							1	1	1	1
2	C2D9066-001	CONTROL UNIT CU-80	1	1	1	1	1	1				
3	BR103110-001-PA	BRACKET, CONNECTOR	1	1	1	1	1	1	1	1	1	1
4	BR103129-002	CONNECTOR, RECEPTICAL	1	1	1	1	1	1	1	1	1	1
5	BR103158-001-PA	COVER, RECEPTICAL	1	1	1	1	1	1	1	1	1	1
6	AB19801-001	FASTENER, STUD	1	1	1	1	1	1	1	1	1	1
7	B24012-236	SLEEVING, PLASTIC YELLOW	13	13	13	13	13	13	13	13	13	13
8	A214364-001	FUSEHOLDER	4	4	4	4	4	4	4	4	4	4
9	A213274-001	FUSE (600V-1 AMP)	4	4	4	4	4	4	4	4	4	4
10	BR103159-011	RESISTOR, 24,100 OHM	1	1	1	1	1	1	1	1	1	1
11	BR103159-024	RESISTOR, 24,10K OHM	1	1	1	1	1	1	1	1	1	1
12	BM144665-001	SWITCH, TOGGLE	1	1	1	1	1	1	1	1	1	1
13	C212670-001	PANEL, INDICATOR	1	1	1	1	1	1	1	1	1	1
14	BP52095-002	LIGHTS, INDICATOR	2	2	2	2	2	2	2	2	2	2
15	B212917-003	METER, (0-600V)	1	1			1	1			1	1
15	B212917-006	METER, (0-1040/0-600V)			1				1			
15	B212917-005	METER, (0-520/0-300V)				1				1		
16	DR104051-009	STRIP, TERMINAL	1	1	1	1	1	1	1	1	1	1
17	BR27376-007-SA	STRIP, MARKER	1	1	1	1	1	1	1	1	1	1
18	A213701-001	JUMPER	2	2	2	2	2	2	2	2	2	2
19	A212945-001-AE	SPACER, SLEEVE	4	4	4	4	4	4	4	4	4	4
		SCREWS										
20	B203502-179-AE	8-32 X .38 LG.	14	14	14	14	14	14	14	14	14	14
21	B203502-162-AE	6-32 X 1.50 LG.	4	4	4	4	4	4	4	4	4	4
22	B204351-154-AE	6-32 X .56 LG.	4	4	4	4	4	4	4	4	4	4
23	B203502-129-AE	4-40 X .31 LG.	4	4	4	4	4	4	4	4	4	4
		LOCKWASHER										
24	B203604-110-AE	#10 WASHER, LOCK	2	2	2	2	2	2	2	2	2	2
25	B203604-108-AE	#8 WASHER, LOCK	10	10	10	10	10	10	10	10	10	10
		FLATWASHER										
26	B203601-106-AE	#6 (NARROW)	4	4	4	4	4	4	4	4	4	4
27	B203601-110-AE	#10 (NARROW)	2	2	2	2	2	2	2	2	2	2
28	B203601-108-AE	#8 (NARROW)	10	10	10	10	10	10	10	10	10	10
29	A210516-002	CONNECTOR, BUTT INS.	4	4	4	4	4	4	4	4	4	4
30	T6722	TRANSFORMER, SENSE	1	1	1	1	1	1	1	1	1	1
31	T6756	TRANSFORMER, CNTL PWR	1	1	1	1			1	1		
31	A217477-001	TRANSFORMER, CNTL PWR					1	1			1	1
32												
33	C213069-001	HARNESS	1	1	1	1	1	1	1	1	1	1
34	A207018-001	TERM. QUICK CONNECT	2	2	2	2	2	2	2	2	2	2
35	AP8145-002	CLAMP, CABLE .250	1	1	1	1	1	1	1	1	1	1
36	AP8145-003	CLAMP, CABLE .500	1	1	1	1	1	1	1	1	1	1
37	A835507-002	SLEEVING (*2 IN.)	*	*	*	*	*	*	*	*	*	*
38	A849500-010	WIRE #20 AWG (*2 IN.)	*	*	*	*	*	*	*	*	*	*

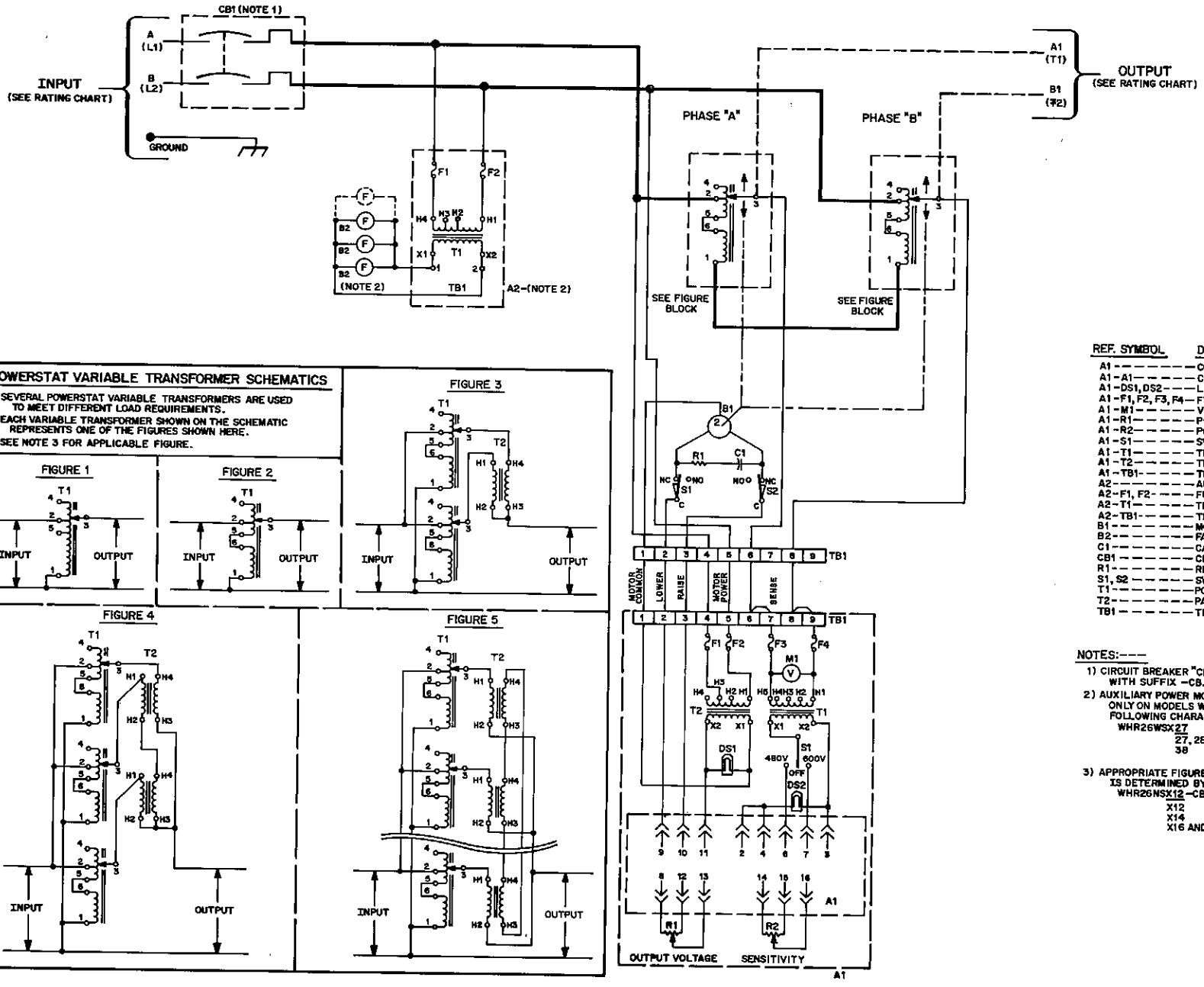


GROUP NUMBER	1	2	3/7	4/8	5/9	6/10
OUTPUT VOLTAGE RANGE	575/480	480/380	575Y/332 480Y/277	480Y/277 380Y/220	575/480	480/380
CONNECTION DIAGRAM	C213240-001	C213240-002	C213240-003	C213240-004	C213840-005	C213240-006
SCHEMATIC	C213320	C213320	C213320	C213320	C213320	C213320

29 NOT SHOWN
34 NOT SHOWN
37 NOT SHOWN
38 NOT SHOWN
— REFER TO CONNECTION DIAGRAM C213240

NOTE:
1) GR.-001/-002 ARE NOT USED ON NEW DESIGN; THE CONTROL POWER IS DERIVED FROM LINE-NEUTRAL VOLTAGE WHILE THE SENSE IS LINE-LINE. GR.-005/-006 ARE SIMILAR TO GR.-001/-002 EXCEPT CNTL POWER / SENSE ARE RATED FOR LINE-LINE VOLTAGE.
2) FOR TEST INSTRUCTIONS SEE A217691.
3) GR 7,8,9/10 ARE THE SAME AS GR. 3,4,5/6 EXCEPT TROPICALIZED.

CONTROL MODULE ASSEMBLY



REF. SYMBOL	DESCRIPTION
A1	CONTROL MODULE
A1-A1	CONTROL UNIT
A1-DS1, DS2	LIGHT, INDICATOR
A1-F1, F2, F3, F4	FUSE, 1AMP., 600V.
A1-M1	VOLTMETER
A1-R1	POTENTIOMETER, 100-OHM
A1-R2	POTENTIOMETER, 10K-OHM
A1-S1	SWITCH, 3-POSITION
A1-T1	TRANSFORMER, SENSE
A1-T2	TRANSFORMER, POWER
A1-TB1	TERMINAL STRIP, 9-TERM
A2	AUX. POWER MODULE
A2-F1, F2	FUSE, 1AMP., 600V.
A2-T1	TRANSFORMER, STEPDOWN
A2-TB1	TERMINAL STRIP, 3-TERM.
B1	MOTOR, A.C.
B2	FAN, 120V.
C1	CAPACITOR
CB1	CIRCUIT BREAKER
R1	RESISTOR
S1, S2	SWITCH, LIMIT
T1	POWERSTAT, VARIABLE TRANS.
T2	PARALLING CHOKE
TB1	TERMINAL STRIP, 9-TERM.

NOTES:—

1) CIRCUIT BREAKER "CB1" SUPPLIED ONLY ON UNITS WITH SUFFIX —CB.

2) AUXILIARY POWER MODULE "A2" AND FANS "B2" ARE SUPPLIED ONLY ON MODELS WITH TYPE NUMBER ENDING WITH THE FOLLOWING CHARACTERS—

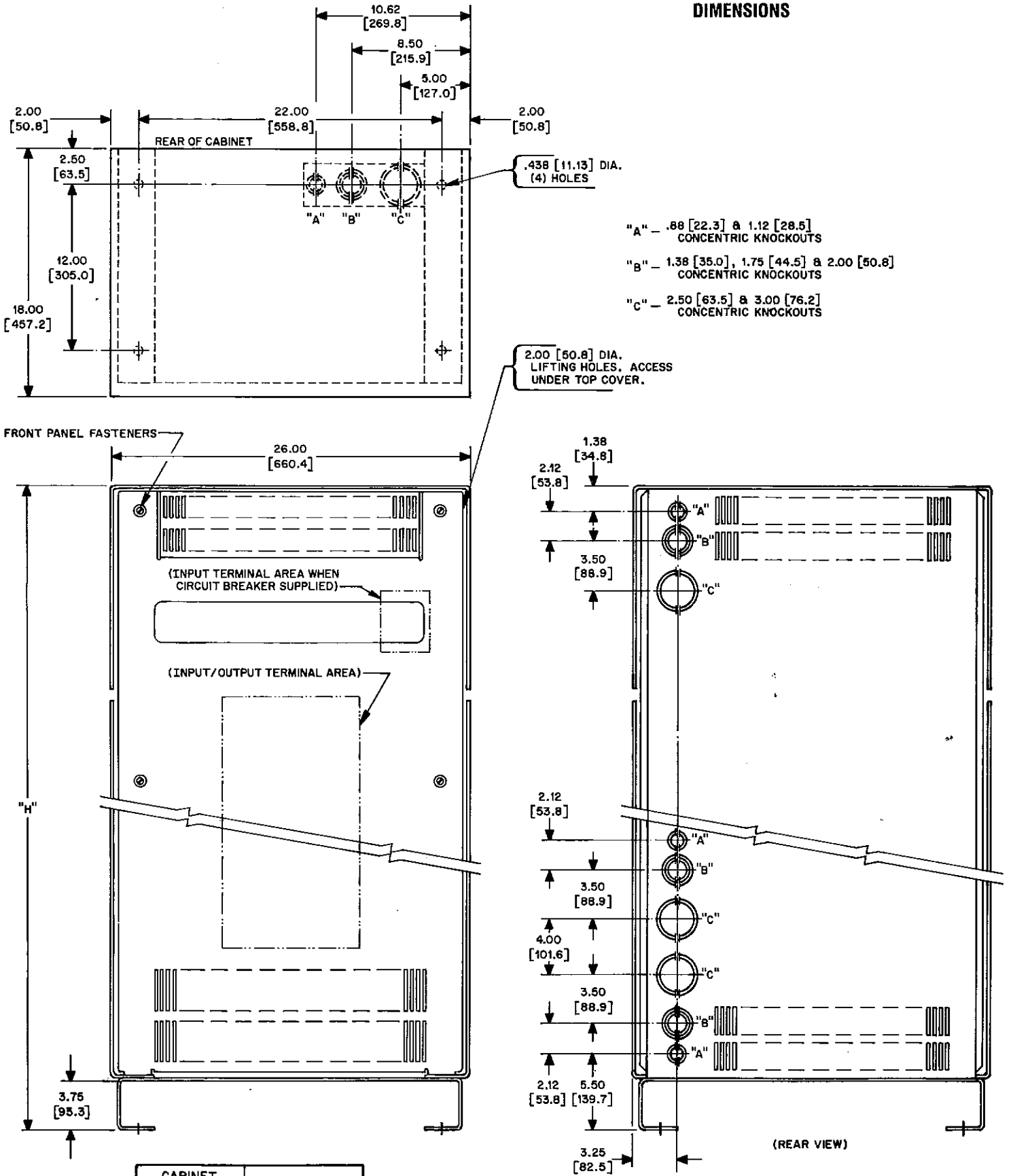
WHR26WSX27	QUANTITY "A2"	QUANTITY "B2"
27, 28, 29	1	4
38	2	8

3) APPROPRIATE FIGURE FOR POWERSTAT VARIABLE TRANSFORMER IS DETERMINED BY MODEL TYPE NUMBER AS SHOWN—

WHR26WSX12—CB	FIGURE №
X12	2
X14	3
X16 AND UP	5

SCHEMATIC DIAGRAM

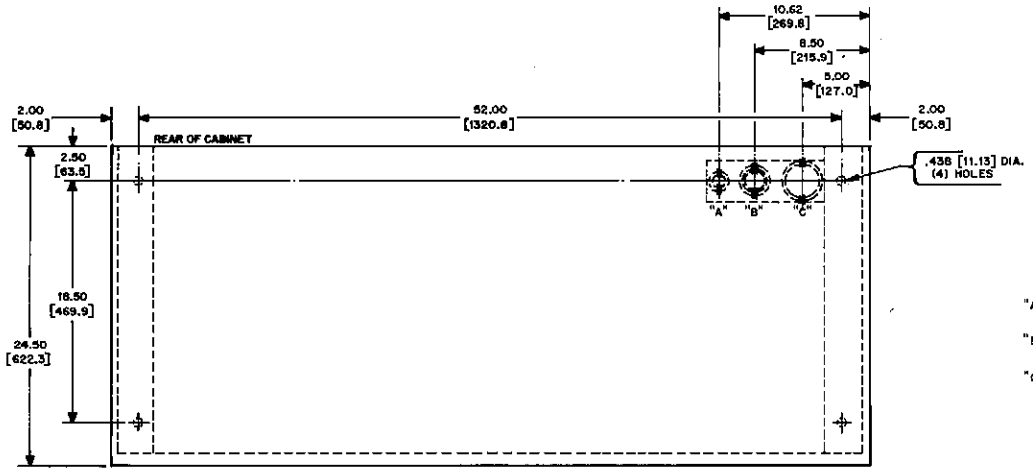
DIMENSIONS



CABINET DESIGNATION	"H"
B	24.25 [616.0]
C	34.25 [870.0]
D	46.25 [1174.8]
E	56.25 [1428.8]
F	74.25 [1886.0]
G	88.25 [2141.6]

Cabinets B through G

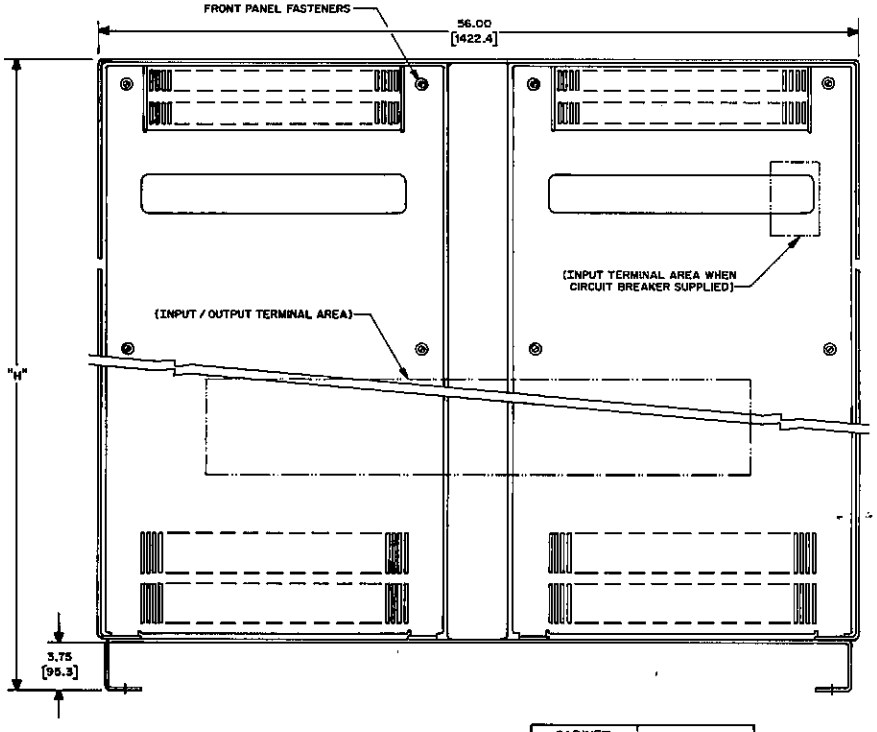
Cabinets DD through GG

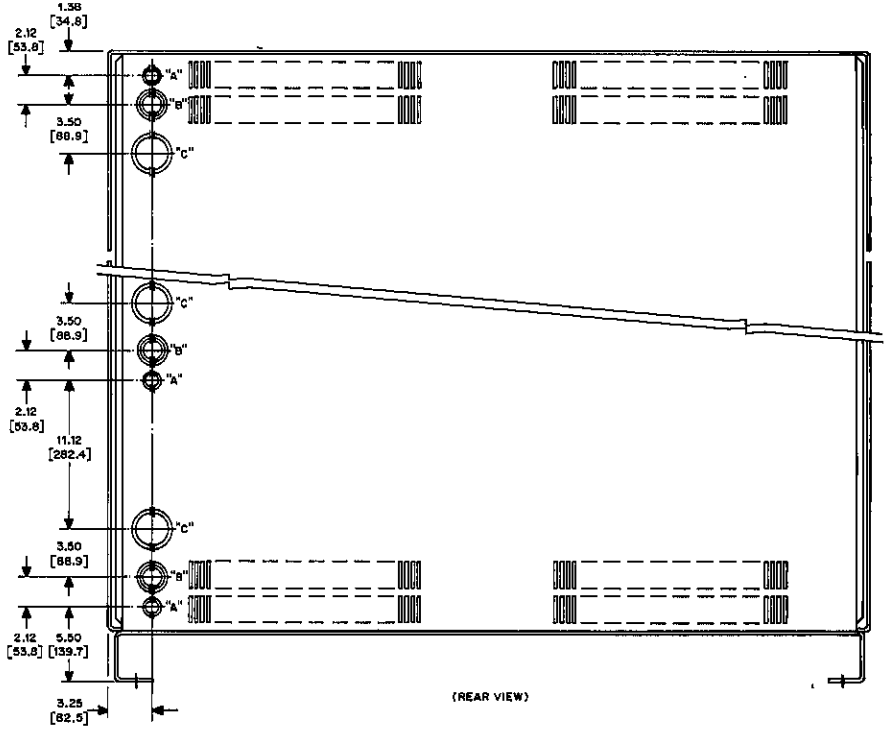


"A" – .88 [22.3] & 1.12 [28.5] CONCENTRIC KNOCKOUTS

"B" – 1.38 [35.0], 1.75 [44.5] & 2.00 [50.8] CONCENTRIC KNOCKOUTS

"C" – 2.50 [63.5] & 3.00 [76.2] CONCENTRIC KNOCKOUTS





(REAR VIEW)

CABINET DESIGNATION	"H"
DD	46.25 [1174.8]
EE	56.25 [1428.8]
FF	74.25 [1886.0]
GG	98.25 [2141.6]