BLAZER IV

BRC700 Series

Instruction Manual

Models

BRC702-000	BRC705-000
BRC702-0B0	BRC705-0B0
BRC702-E00	BRC705-E00
BRC702-EB0	BRC705-EB0
BRC702-E0C	BRC705-E0C
BRC702-EBC	BRC705-EBC

CAROTRON

Driven by Excellence

D.C. DRIVES, A.C. INVERTERS,
SOLID STATE STARTERS, SYSTEM INTERFACE
CIRCUITS AND ENGINEERED SYSTEMS

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1 General Description

The Carotron Blazer IV® BRC700 Series of motor controls provide a full range of regenerative speed or torque control of shunt wound or permanent magnet D. C. motors. Model BRC702 operates motors between 1/4 and 2 horsepower. Model BRC705 operates motors between 1/2 and 5 horsepower. Each model group has six standard models: two in a compact chassis, and four in an enclosed NEMA 12 assembly. The BRC702 models are customer connectable for operation at 115 VAC or 230 VAC single phase input. When operated at 115 VAC input, each unit supplies variable armature voltage up to 90 VDC and fixed field voltage of 100 VDC. For operation at 230 VAC input, each model supplies up to 180 VDC for armature voltage and a fixed field supply of 200 VDC. The BRC705 models are customer connectable for 230 VAC input operation only and has outputs of up to 180 VDC for the armature voltage and 200 VDC for the field voltage.

1.1 STANDARD FEATURES

- Regenerative action provides four quadrant speed control
- Isolation amplifier for providing isolated armature current feedback
- Impedance isolation, 5 Meg Ohms, for armature voltage feedback isolation
- Tachometer and encoder feedback are insensitive to direction of motor rotation
- Encoder power supply, +12 VDC @ 100 mA, terminal strip accessible
- Jog delay to allow rapid jogging without de-energizing the armature contactor to extend contactor life
- Bridge delay circuitry built in to extend contactor life
- Terminal strip access to the Total Reference Setpoint, Velocity Loop Output and Current Loop Input for systems interface applications
- Internal jog pot for adjustment of Jog Speed
- Summing Input with on board trim pot to allow voltage summing with Speed Reference
- Jumper selection to allow Summing Input to be clamped or not clamped while jogging
- Jumper selection to control summing signal polarity
- 45° angle de-pluggable terminals for all customer connections except Line, Armature, and Field connections
- Terminal strip connections for Forward Run, Reverse Run, Forward Jog, Reverse Jog, Ramp Stop, and Emergency Stop
- Jumper selectable logic for Ramp Stop
- LED indicators for Power, Forward and Reverse directions
- DCM connector and signal test points for easy troubleshooting
- Inner current loop for fast, stable response to load change
- Metal film resistors and cermet pots for temperature stability
- I. C. regulated power supplies
- High frequency multi-pulse gating
- Conservative power device rating
- R – C de-coupling of signal level inputs for superior noise rejection
- A. C. line fuses
- Armature contactor for safety disconnect in stopped condition
- Line MOV and snubber for transient protection
- Functional terminal strip labeling and logical P. C. board layout
- Independent adjustable linear acceleration and deceleration in both the forward and reverse directions from 1 to 60 seconds
- Independent maximum speed adjustments

for forward and reverse directions
- Independent current limit adjustments for forward and reverse directions
- Integral null adjustment
- Adjustable IR compensation
- Current range programmable by jumper
- Armature or tachometer feedback programmable by jumper
- Two tachometer feedback voltages programmable by jumper
- 7 or 50 VDC per thousand RPM tach feedback
- 300 PPR Encoder Feedback

1.2 ADDITIONAL FEATURES FOR ENCLOSED MODELS

- Power On/Off switch for control circuit
- Membrane switch control panel for Run Forward, Run Reverse, Jog Forward, Jog Reverse and Ramp Stop. Mushroom style locking button for Emergency Stop
- NEMA 12 Enclosure

1.3 OPTIONAL FEATURES

- Dynamic Braking for positive stopping in emergency situations
- Enclosed models offered in two styles; one with controls on the enclosure and the other without

1.4 PROGRAMMABLE FEATURES

Power Board

J1 – Current Range selector. Choose from four different current ranges on BRC702 and six on BRC705.
J2 – Select voltage range for Dynamic Brake Resistor.
J3 – 115/230 VAC scaling jumper
J4 & J5 – 115/230 VAC input voltage selectors
Note: J2, J3, J4 and J5 are not on the BRC705 models.

Control Board

J6 – Reserved for future use.
J7 – R-STOP Ramp Stop selector. Allows the use of a normally open (NO) or normally closed (NC) contact to activate the Ramp to Stop state
J8 – TACH TYPE Tach type selector. 7 VDC or 50 VDC per 1000 RPM
J9 – SUM SIGNAL The Summing Signal selector programs the summing signal to be ADDED to or SUBTRACTED from the Reference Signal
J10 -JOG DEL Jog Delay selector chooses whether armature contactor drops out immediately or after a 2.5 sec. delay when Jog button is released.
J11- JOG & SUM The Jog & Sum selector chooses whether or not the Summing Signal is added to the Jog Signal.
J12 - FEEDBACK Choose between Armature (AFB), Tachometer (TFB) or Encoder (EFB) feedback.
J13 –FWD A/D & J14 – REV A/D These jumpers select the accel/decel range.
Choose between 1 – 8 seconds ramp or 8 – 60 seconds ramp.

2 Specifications

A. C. INPUT:

Model BRC702:

- 115 VAC ±10%, 50/60 Hz ±2 Hz
- 230 VAC ±10%, 50/60 Hz ±2 Hz

Model BRC705:

- 230 VAC ±10%, 50/60 Hz ±2 Hz

Note: Suitable for use on a circuit capable of delivering not more than 5000 RMS symmetrical amps, 240V maximum.

ARMATURE OUTPUT:

Model BRC702:

- 0 to 90 VDC, 0 to 10 Amperes continuous for 115 VAC input
- 0 to 180 VDC, 0 to 10 Amperes continuous for 230 VAC input

Model BRC705:

- 0 TO 180 VDC, 0 to 25 Amperes continuous for 230 VAC input

FIELD OUTPUT:

Model BRC702:

- 100 VDC @ 1 Amp for 115 VAC input
- 200 VDC @ 1 Amp for 230 VAC input

Model BRC705:

- 200 VDC @ 1 Amp for 230 VAC input

HORSEPOWER RANGE:

Model BRC702:

- 1/4 to 1 HP @ 115 VAC
- 1/2 to 2 HP @ 230 VAC

Model BRC705:

- 1/2 TO 5 HP @ 230 VAC

SPEED REGULATION:

- Armature Feedback: ±1.0% of base speed
- Tachometer Feedback or Encoder Feedback: ±0.5% of base speed

TORQUE REGULATION:

- ±2% of range selected

ADJUSTMENTS:

- Max Speed: - 20 to + 10% of base speed
- Current Limit: 0 to 150% of current range
- IR Compensation: range set by current range jumper
- ACCEL and DECEL: linear, independently adjustable forward and reverse, 2 ranges, 1 – 8 sec., or 8 – 60 sec.
- Jog Speed: 0 to 25% of base speed
- Sum Trim: 0 to 150% of base speed
- Integral Null: adjust to eliminate motor creeping and backup

SPEED RANGE:

- 20:1, motor dependent

TEMPERATURE:

- Chassis: 0 to 55º C
- Enclosed 0 to 40º C

DIMENSIONS:

- Refer to dimension drawings D11377, D11378, D11445 & D11446 in Section 7 for complete mounting and dimension information on all models.

3 Installation

3.1 Circuit Protection

All BRC700 models should be installed in accordance with the National Electrical Code and any applicable local or state codes.

All wiring should be rated at a min. of 90ºC. Field wiring terminal TB1 should be torqued to 12 in.-lbs. Field wiring terminals TB2 and TB3 should be torqued to 7 in.-lbs. Field wiring lug terminals on BRC705 models should be torqued to 20 in.-lbs.

Wire size and fusing should be based on local electrical codes at each installation. Input requirements with recommended fuse size and type per horsepower are listed in the following tables. All models are supplied from the factory with line fuses sized to allow use at the maximum horsepower rating of control.

INPUT REQUIREMENTS – CONTROL MODEL BRC702

HP	Input Voltage	Input A. C. Current @ F. L.	Recommended Fuse
1/4	115 VAC	4.3 AMPS	5 AMP, MDA
1/2	115 VAC	7.9 AMPS	8 AMP, MDA
3/4	115 VAC	11.7 AMPS	15 AMPS, MDA
1	115 VAC	15.0 AMPS	20 AMP, MDA
1/2	230 VAC	4.3 AMPS	5 AMP, MDA
1	230 VAC	7.9 AMPS	8 AMP, MDA
1 1\2	230 VAC	12.2 AMPS	15 AMP, MDA
2	230 VAC	15.0 AMPS	20 AMP, MDA

NOTE: Fuses shown are manufactured by Bussman. Littelfuse type 326 may be substituted.

INPUT REQUIREMENTS – CONTROL MODEL BRC705

HP	Input Voltage	Input A. C. Current @ F. L.	Recommended Fuse
3	230 VAC	25 AMPS	35 AMP, SC - 35
5	230 VAC	42 AMPS	50 AMPS, SC - 50

NOTE: Fuses shown are manufactured by Bussman. Littelfuse type SLC may be substituted.

3.2 Connection Information

Refer to the following connection diagrams for appropriate model:

- For Model BRC702-E0C, –EBC, -E00 and -EB0 refer to Connection Diagram D11379
- For Models BRC702-000 and -0B0 refer to Connection Diagram D11380
- For Models BRC705-000 and -0B0, refer to Connection Diagram D11382
- For Models BRC705-E0C, –EBC, -E00 and -EB0, refer to Connection Diagram D11381

Wiring Precautions

WARNING!

Although the Blazer® IV Control Circuits are isolated, high voltage potentials can be present between earth or chassis ground and any point in the circuit depending on what the control circuit is connected to. All test instruments should be isolated from ground to prevent damage to the instrument or control.

- Ground the control only at GND position on TB-1.
- Use shielded cable for all speed pot, tachometer, encoder, forward run, reverse run, forward jog, reverse jog, ramp stop, emergency stop and special wiring. Connect the shield to circuit common at the control end only. The shield should not be connected to ground at either end. Connecting the shield to ground may result in noise problems. These wires should be routed away from all A. C. power, armature, field, and relay coil wiring.
- Any relays, contactors, motor starters, solenoids, etc. located in close proximity to or on the same A. C. line as the Blazer® IV control should have a transient suppression device in parallel with the coil to minimize interference with the control.

3.3 Terminal Connections

L1 and L2 (A. C. Line Connections): These terminals are used for the A. C. line input.

For Models BRC702, either 115 VAC or 230 VAC input can be connected to terminals TB1-1 and TB1–2. If 115 VAC is to be used as input, place J2, J3, J4 & J5 in the 115V position. If 230 VAC is to be used as input, place J2, J3, J4 & J5 in the 230V position.

For Models BRC705, only 230 VAC may be used, and there are no jumpers to set. Connect the line to terminal lugs L1 and L2.

A1 and A2 (Armature Connections): Motor lead A1 connects to terminal A1 and motor lead A2 connects to terminal A2. When the drive is engaged in the forward direction, these connections will produce CCW motor rotation when viewed from the commutator end. The armature leads should be switched if reverse rotation is desired.

F1 and F2 (Field Connections): Motor field lead F1 connects to terminal F1 and motor field lead F2 connects to terminal F2. There is no connection required to these terminals when a permanent magnet type motor is used.

TB2 – 1 through 7 (External Logic Control Connections): These connections are provided so that a remote station or PLC can be used to control the drive. The Ramp Stop terminal can be programmed to accept a NO (active high) signal or a NC (active low) signal. Signals provided to any of these terminals can be momentary or maintained signal.

TB2 – 1: Emergency Stop
TB2 – 2: Ramp Stop
TB2 – 3: Run Forward
TB2 – 4: Run Reverse
TB2 – 5: Jog Forward
TB2 – 6: Jog Reverse
TB2 – 7: +15 VDC (logic power)

TB2 – 8 & 11 Circuit Common: This terminal is the common connecting point for all reference input signals and reference wiring shields. Reference input signals can be disable by connecting them to this point.

TB2 – 9 & 10 (Reference Reset): Closing a Contact across these terminals will instantly reset the ACCEL/DECEL circuit to zero and cause the motor to regeneratively brake to a stop at a rate determined by the CURRENT LIMIT pots. This stopping method (normally faster than the quickest controlled deceleration) may subject the motor and A. C. line supply to higher than normal peak currents. The time to stop in Current Limit may not be consistent due to variables such as motor speed, load level, and load inertia.

TB2 – 12 Summing Input: This terminal bypasses the ACCEL/DECEL circuits and is connected directly to the signal summing point. Any change in signal level is immediately reflected in the motor speed (up to CURRENT LIMIT). Input Signals should not exceed ±10 VDC and should be disabled by shorting terminal TB2 – 12 to Common. These signals are summed with the REFERENCE signals (after their rates have been modified) and have approximately the same input scaling as the REFENENCE signals. The SUMMING input can be programmed to add or subtract the signals to REFERENCE. **SEE WARNING UNDER J9 IN SECTION 4.2.**

TB3 – 1 Velocity Loop Output: This terminal connects directly to the output of the velocity loop integrator. If the drive is to be used as a Speed Regulator, jumper this terminal to TB3 – 2. Refer to connection drawings D11379 or D11380 in Section 7.

TB3 – 2 Current Loop In: This terminal connects directly to the input of the current integrator. If the drive is to be used as a Speed Regulator, jumper this terminal to TB3 – 1. If the drive is to be used as a Torque Regulator, jumper this terminal to TB3 – 3. Refer to connection drawings D11379 or D11380 in Section 7. An external Torque Reference Signal may also be applied to this terminal for special engineered applications. The signal applied should not exceed ±10 VDC. NOTE: Jumpers must be removed if an external signal is used.

TB3 – 3 Reference Out: This terminal connects directly to the Total Reference Setpoint. If the drive is to be used as a Torque Regulator, jumper this terminal to TB3 – 2. This terminal may also be used as a Reference Output signal for special engineered applications.

TB3 – 4, 5 & 6: Potentiometer Connections: These three connections are designed so that a potentiometer with a resistance between 2k and 10k can be connected and this pot will control the speed in the direction which is indicated by the logic and the direction LEDs. Terminal 4 is circuit common and normally is connected to the CCW lead on the potentiometer. Terminal 6 reference signal is controlled by the internal logic of the drive and therefore is normally connected to the CW potentiometer lead. Terminal 5 is the REFERENCE INPUT to the drive and should normally be connected to the wiper of the pot. The REFERENCE INPUT has its rate of change buffered by the ACCEL/DECEL circuitry in the drive. Forward direction acceleration is controlled by the FWD ACCEL pot. Forward direction deceleration is controlled by the FWD DECEL pot. Reverse direction signals are controlled in a similar fashion by the REV ACCEL and REV DECEL potentiometers. Therefore, if there is a step change in the reference signal, the motor does not immediately change to reflect the change in reference signal, but rather changes more gradually as the ACCEL/DECEL circuit adjust to the new reference level. Input signals should not exceed ±10 VDC.

TB3 – 7 & 8 Auxiliary Reference Connections: Terminal 7 is a –10 VDC source and terminal 8 is a +10 VDC source. These terminals are provided for applications that require bipolar reference signals. NOTE: If these terminals are used to connect a pot to the drive, remember that the drive's internal directional logic is being defeated. Therefore, the directional LEDs may not indicate the proper direction of the motor.

TB3 – 9 Tachometer Input: Operation of the control in tachometer feedback requires connection of a 7 or 50 VDC per thousand RPM tachometer to terminal 9. The tachometer inputs are polarity insensitive allowing the tachometer to be wired with either the positive or negative lead connected to terminal 9 and the other lead connected to common. See connection diagrams in Section 7.

TB3 – 10 Circuit Common: This common connection is provided for use with either tachometer or encoder feedback inputs.

TB3 – 11 & 12 Encoder Input: An optional motor mounted 300 PPR encoder may be connected to these terminals. See connection diagrams in Section 7. Terminal 11 is for the encoder signal input. Terminal 12 is a +12 VDC, 100 mA supply for powering the encoder.

4 Programming & Adjustments

4.1 Programming Jumpers:

Power Board

J1 – Armature Current/Torque Range: Used to program the control according to the motor nameplate full load armature current. The CURRENT LIMIT pots have a range up to 150% of the current level selected. Refer to the following table to select proper jumper location based on motor horsepower and control input voltage.

JUMPER POSTION	BRC702		BRC705
	115 VAC	230 VAC	230 VAC
3 AMP	¼ HP	½ HP	½ HP
5 AMP	½ HP	1 HP	1 HP
8 AMP	¾ HP	1 ½ HP	1 ½ HP
10 AMP	1 HP	2 HP	2 HP
15 AMP	N/A	N/A	3 HP
25 AMP	N/A	N/A	5 HP

J2 – Dynamic Brake Selector: For dynamic braking models, this selector should be set to the corresponding input voltage.
WARNING! Improper selection can cause serious damage to control!
Note: Not applicable for Model BRC705.

J3 – Armature Feedback Voltage Selector: Designates the armature feedback voltage level according to the A. C. line voltage to be used. Position at 115 VAC for 115 VAC or 230 VAC for 230 VAC input.
Note: Not applicable for Model BRC705.

J4 & J5 – A. C. Input Voltage Jumper: To program the power supply transformer according to the A. C. line voltage to be used. Position each at 115 for 115 VAC input or VAC for 230 VAC input.
Note: Not applicable for Model BRC705.

4.2 Programming Jumpers:

Control Board

J6 – Reserved for future use.

J7 – Ramp Stop Jumper: Allows the use of a normally open (NO) or normally closed (NC) contact to activate the Ramp Stop when external operators are used.

J8 – Tach Voltage: Used when operating in tachometer feedback. Use J8 to select 7 or 50 VDC/1000 RPM according to the rating of the tachometer used.

J9 – Sum Signal: Allows the polarity of the summing signal to be controlled. The signal is trimmed by the Sum Trim pot and combined with the speed reference to make the Total Reference Setpoint and will add or subtract from it depending on the position of J9 and the drive direction command. A positive signal from the speed or jog pot normally calls for forward rotation of the motor and a negative signal normally calls for reverse motor rotation. With SUM ADD selected at J9, a positive Summing Signal will add to a positive (forward) reference. A negative Summing signal would subtract. With SUM SUB selected, like polarities subtract from each other and unlike polarities add.
WARNING! With SUM ADD selected, a negative Summing Signal greater than the positive reference would cause a net negative Total Reference Setpoint. This causes reverse rotation at the summing input level even with forward direction selected. The same situation could occur if the Summing Signal was positive and the Sum Sub was selected at J9. With SUM ADD selected, like polarities add and unlike polarities subtract from each other.

J10 – Jog Delay: Activates or deactivates the contactor disengage delay. This delay is provided to help increase the service life of the armature contactor. The normal setting is in the ACTIVATE position, but for some applications, deactivate may be required.

J11 - Jog & Sum: Programs the control to allow the Sum signal to be added to the Jog signal if J11 is set to JOG SUM. If J11 is set to NOT JOG SUM (JOG SUM with a line over it), then the summing signal will not be added to the jog speed signal.

J12 – Feedback: Sets the control for the method of feedback. If there is no external feedback attached to the control, set J12 to AFB (armature feedback). If a 7 or 50 VDC/1000 RPM tachometer is used, set J12 to TFB. If a 300 PPR encoder is used, set J12 to EFB.

J13 – Forward Accel/Decel and J14 – Reverse Accel/Decel: Sets the ranges of adjustment for the Accel and Decel pots in each direction. The time ranges are 1 to 8 seconds and 8 to 60 seconds.

4.3 Potentiometers

P1 – Sum Trim: Controls the percentage affect of a signal applied to the SUM INPUT, TB2 – 12. It can trim this signal to 0 or increase to approximately 150%.

P2 – Jog Speed: Controls the speed of the drive only when in the Jog mode and can produce up to 25% of the maximum output of the drive.

P3 – I. R. Comp: Functional only when operating in the AFB (armature feedback) mode. It is used to improve motor speed regulation by using some of the current amplifier output as a positive feedback signal with the speed reference signal. Its effect is to keep motor speed from dropping as load is increased. This drop in speed is due to IR losses in the motor. Individual motors have different IR losses and those losses are usually

greater in the lower half of the speed range. For these reasons, P3 is best adjusted with the actual load motor to be used, under normal loading conditions for the application and at the speed normally run.

P8 – Integral Null: An integral feedback loop adjustment used to minimize the effect of undesirable offset voltages. Clockwise rotation will increase the amount of integral null signal and can affect control response. Rather than increase the amount of input signal required to produce an output, it increases the time for the control to respond to very low input signals.

Note: The following four potentiometers are duplicated for each direction, forward and reverse, and each only affects operation when running in its respective direction.

P4 – Forward Max and P9 – Reverse Max: Sets the maximum motor speed when the external Speed pot is set at 100%. Clockwise rotation increases speed. When the control is used in the torque mode, the MAX pots set the maximum torque levels in each direction.

P5 – Forward Current Limit and P10 – Reverse Current Limit (C. L.): Sets the maximum armature current level. Its range is 0 to 150% of the current selected by jumper J1 on the control board. Clockwise rotation increases the Current Limit setting. When the control is operated as a torque regulator, the C. L. pot should be turned full clockwise since the range of current is determined by other adjustments.

P6 – Forward Accel and P11 – Reverse Accel: Set the acceleration time based on the position of the ACCEL/DECEL programming jumpers. Clockwise rotation of the ACCEL pots increase the time to accelerate the motor linearly to full speed. To accelerate to speeds less than full speed will take less time. For example, to accelerate to 50% speed would take 50% of the acceleration time.

P7 – Forward Decel and P12 – Reverse Decel: Sets the deceleration time based on the position of the ACCEL/DECEL programming jumpers. Clockwise rotation of the DECEL pots increases the time to decelerate the motor linearly to stop. Controlled deceleration can be initiated by decreasing the speed reference or by shorting the W (TB3-5) terminal to CCW (TB3-4) or one of the COM terminals.

4.4 Adjustment Procedure

Speed Regulator

Note: If auxiliary Reference connections or an external reference signal such as a follower signal is used to control the speed of the drive, remember that the drive's internal directional logic is being defeated. Therefore, the directional indicator lights may not indicate the proper direction of the motor.

Potentiometers Initial Settings Chart		
POT Number	**POT Name**	**Initial Setting**
P1	SUM TRIM	Full Counter Clockwise
P2	JOG SPEED	Mid Range
P3	I. R COMP	Full counter Clockwise
P4	FWD MAX	Mid Range
P5	FWD C. L.	Full Clockwise
P6	FWD ACCEL	Mid Range
P7	FWD DECEL	Mid Range
P8	INTERGAL NULL	Mid Range
P9	REV MAX	Mid Range
P10	REV C. L.	Full Clockwise
P11	REV ACCEL	Mid Range
P12	REV DECEL	Mid Range

STEP 1

- Visually inspect all connections to check for tightness, proper insulation and agreement with the connection diagram. ONLY the GND on TB1 terminal can be connected to earth or chassis ground.
- Verify the line voltage level and for Model

BRC702, the positions of jumpers J2, J3, J4 and J5 on the power board.

- Note the motor nameplate full load current and select the proper range at jumper J1 on the Control Board. Place the control board jumper J12 in the AFB position even if tachometer or encoder feedback is to be used. Select the desired accel and decel time ranges with Control Board jumpers J13 and J14.
- Initially set the potentiometer using the Potentiometer Initial Settings Chart.

STEP 2

- With no load on the motor or machine, apply line voltage and start the control in the forward direction. Apply maximum forward (positive) reference. Measure the motor speed or armature voltage and adjust the FWD MAX pot for base speed or rated armature voltage.

STEP 3

- Repeat STEP 2 for the reverse direction and adjust the REV MAX pot for base speed or rated armature voltage.

STEP 4

- If tachometer is to be used, go to STEP 5.
- If encoder feedback is to be used, go to STEP 6.
- If armature feedback is to be used, adjust the speed (either direction) to mid-range or if known, the speed at which the motor will be run most often. Closely note the motor or line speed. Apply rated or normal load to the motor. The speed will usually drop a small percentage. Increase the IR COMP pot rotation clockwise until the loaded speed matches the unloaded speed. Recheck the unloaded speed level and repeat this step until there is no difference from no load to full load.
  NOTE: The IR COMP signal may affect the maximum speed settings. After setting the IR COMP, recheck the MAX speed in each direction and readjust if necessary.

Go to STEP 7.

STEP 5

- If tachometer feedback is to be used, verify that the tach leads are connected to TB3-9 and –10. The tach inputs are polarity insensitive which means the tach can be wired either way. With the control in armature feedback, run the motor at full speed and verify approximately 9 VDC at TP16 or setting N on a Carotron DCM. Remove power from the control and change J12 to TFB. **NOTE:** The maximum speed settings may change slightly because of variations in the tachometer voltage. Recheck and readjust the MAX pots if necessary. Go to STEP 7.

STEP 6

- Verify that the encoder leads are connected to TB3-10, -11 and –12. With the control in armature feedback, run the motor at full speed and verify approximately 9 VDC at TP17 or setting 0 on a Carotron DCM.
- Remove power from the control and change J12 to EFB. **NOTE:** The Maximum speed settings may change slightly because of variations in the encoder voltage. Recheck and readjust the MAX pots if necessary.
-

STEP 7

- The C. L. (CURRENT LIMIT) pots are normally adjusted to full clockwise to allow 150% of the amperage level selected by jumper J1 on the Control Board. The BRC700 Series controls can safely handle this current level on an intermittent basis, that is, during rapid accelerations and decelerations or upon application of a cyclic or stepped load. If desired, the maximum current levels can be limited to a lower level by rotating the C. L. pots counter clockwise.
  NOTE: Precise setting of the Current

Limit setpoints requires the insertion of a D. C. ammeter in series with the motor armature.

STEP 8

- Adjust the ACCEL and DECEL pots as required to achieve the desired rate of the speed change. Clockwise rotation increases time.

4.5 Adjustment Procedure

Torque Regulator

NOTE: If Auxiliary Reference connections or an external reference signal such as a follower signal is used to control the torque of the drive, remember that the drive's internal directional logic is being defeated. Therefore, the directional indicator lights may not indicate the proper direction of the motor.

STEP 1

Visually inspect all connections to check for tightness, proper insulation and agreement with the connection diagram. ONLY the GND terminal on TB1 can be connected to earth ground.

- Verify the line voltage level and for model BRC702, the positions of jumpers J2, J3, J4 and J5 on the power board.
- Note the motor nameplate full load current and select the proper range at jumper J1 on the Control Board.
- Place the control board jumper J12 in the TFB position since neither armature nor tachometer feedback is used in the Torque Regulator mode.
- Move the jumper between TB3-1 and –2 to jumper TB3-2 and –3.
- Select the desired ACCEL/DECEL range with Control Board jumpers J13 and J14.
- Initially set potentiometers as specified in the Potentiometers Initial settings chart.

- **NOTE:** Motor full rated torque is produced at full rated armature current. In the following steps, motor torque should be monitored directly by use of a D. C. ammeter connected in series with the motor armature. The motor shaft must be prevented from rotating in order to properly set the Current Limit. There are two recommended ways of preventing motor rotation:
  1) Mechanically lock the motor shaft to prevent rotation. This is probably the best way to keep the motor from turning. However, this may be impractical on some equipment.
  2) If the motor is a shunt wound motor, remove power from the control and disconnect the motor field from the drive (F1 and F2 on the Power Board). This reduces the amount of torque the motor can produce to near zero, so that a mechanical lock is not needed or the need is greatly reduced. Exercise caution however, because residual magnetism may allow the motor to turn.
     WARNING! Do Not operate the motor stalled at full load for more than a few seconds or overheating will result.

STEP 2

- In the Torque Regulator mode, the reference signal applied to TB3-5 becomes the torque reference. Apply A. C. power, zero volts reference and enable the control. Gradually increase the reference (FWD or REV) to maximum and adjust the corresponding max pot to set the armature current to 100% of motor rated current.

STEP 3

- Adjust the ACCEL and DECEL pots for the desired rate of change in torque because of a reference change. Engaging EMERGENCY STOP will turn off the current instantly.

STEP 4

- After C. L. adjustment are made, remove power from the control and remove the mechanical lock from the motor shaft

and/or reconnect the motor field. The Torque Regulator is now ready for use. Check the torque/speed range of the motor to determine the lowest operating speed at full torque without overheating.

4.6 DCM Checkpoints, Circuit Test Points & Buffered Outputs

Monitoring Outputs, Control Board		
Signal Being monitored	**DCM Check Point**	**Test Point Number**
Circuit Common (isolated)	NONE	TP1
+ 24 VDC (isolated)	A	TP8
-24 VDC (isolated)	B	TP9
+15 VDC (isolated)	C	TP10
-15 VDC (isolated)	D	TP11
Total Reference Setpoint	E	TP2
Forward Accel/Decel	F	TP3
Reverse Accel/Decel	G	TP4
Start Logic	H	TP5
Stop Logic	I	TP6
Brake Pilot	J	TP7
Enable	K	TP12
Isolated Current Feedback	L	TP13
Scaled Armature Feedback	M	TP14
Scaled Tachometer Feedback	N	TP16
Scaled Encoder Feedback	O	TP17
Scaled Bipolar Velocity Feedback	P	TP15
Velocity Integrator	Q	TP18
Current Integrator	R	TP19
IR Compensator	S	TP20
Zero Speed Out	T	TP21

CIRCUIT COMMON
The isolated common test point provides a reference point for all of the following signals.

+ 24 VDC and –24 VDC
These are power supplies that will vary no more than 5% with 5% line voltage variation.

+15 VDC and – 15 VDC
These are regulated power supplies that will vary no more than 5% with a ±10% change in line voltage.

TOTAL REFERENCE SETPOINT
The Total Reference Setpoint equals 10.0 VDC at 100% speed reference command. Negative polarity indicates a forward direction command (A1 motor terminal positive with respect to A2 motor terminal) and positive polarity indicates a reverse direction command. This signal is the total of the reference input and the summing signal when the control is in run mode, or the total of the Jog Reference and summing signal when in Jog mode.

FORWARD ACCEL/DECEL
The Forward Accel/Decel circuit output shows the positive RUN reference as rate controlled by the ACCEL and DECEL pots.

REVERSE ACCEL/DECEL
The Reverse Accel/Decel circuit output shows the negative RUN reference as rate controlled by the Accel and Decel pots.

START LOGIC
When the control is in RUN, JOG (either direction) or in the process of ramping to a stop, this signal should be high ($\geq$ +10 VDC). When the Emergency Stop has been activated, or the control has Ramped to a stop, then this signal should be low($\leq$ +5 VDC).

STOP LOGIC
When the control is in RUN, JOG (either direction) or in the process of ramping to a stop, this signal should be low ($\leq$ +5 VDC). When the Emergency Stop has been activated, or the control has Ramped to a stop, then this signal should be high ($\geq$ +10 VDC).

BRAKE PILOT
This signal should be the same as the Start Logic.

ENABLE
When the control is in RUN, JOG (either direction) or in the process of ramping to a stop, this signal should be ≤ -22 VDC. When the Emergency Stop has been activated, or the control has Ramped to a stop, then this signal should be ≥ +14 VDC.

ISOLATED CURRENT FEEDBACK
This is the scaled current feedback signal which is used to create an error signal for the current integrator.

SCALED ARMATURE FEEDBACK
The armature voltage signal selected by J3 on the power board is scaled to an 8 volt level and used for velocity feedback in the AFB mode, for zero speed sensing and for control of the ACCEL/DECEL circuits. The polarity is the same as the armature voltage polarity.

SCALED TACHOMETER FEEDBACK
The tachometer voltage selected by J8 on the control board is scaled to an 8 volt level at motor base speed and used for velocity feedback in the TFB mode.

SCALED ENCODER FEEDBACK
The 300 PPR encoder signal is scaled to 8 volts.

SCALED BIPOLAR VELOCITY FEEDBACK
This signal is primarily used to create a velocity error signal so that the speed can be controlled. It is also used for zero speed sensing.

VELOCITY INTEGRATOR
This is the Velocity loop output and the torque demand signal.

CURRENT INTEGRATOR
This is the Current loop output and the conduction angle reference.

IR COMPENSATOR
This test point shows the set point of the IR Comp.

ZERO SPEED OUT
If this signal is ≥ +14 VDC, then the zero speed circuits are active.

CIRCUIT COMMON
The unisolated common test point provides a reference point for all of the following signals.

MONITORING OUTPUT, POWER BOARD	
Signal Being Monitored	**Test Point Number**
BRC702 MODELS	
Circuit Common (unisolated)	TP1
+15 VDC (unisolated)	TP2
-15 VDC (unisolated)	TP3
CS (current shunt)	TP4*
+24 VDC (unisolated)	TP5
-24 VDC (unisolated)	TP6
CFB (current feedback)	TP7*
FMP	TP8*
Q9	TP9*
Q6	TP10*
RES	TP11*
Q4	TP12*
RMP	TP13*
Q7	TP14*

MONITORING OUTPUTS, POWER BOARD	
Signal Being Monitored	**Test Point Number**
BRC705 MODELS	
CFB (current feedback)	TP1*
CS (current shunt)	TP2*
+24 VDC (unisolated)	TP3
-24 VDC (unisolated)	TP4
+15 VDC (unisolated)	TP5
-15 VDC (unisolated)	TP6
COM (unisolated)	TP7
Q8	TP8*
Q4	TP9*
Q9	TP10*
Q5	TP11*
RES	TP12*
RMP	TP13*
FMP	TP14*

* These test points are provided for use with an oscilloscope by a qualified technician.

+15 VDC and –15 VDC
These are regulated power supplies that will vary no more than 5% with a ± 10% change in line voltage.

+24 VDC and –24 VDC
These are power supplies that will vary no more than 5% with a 5% line voltage variation.

5 Run – Brake Models

- Models BRC702-0B0. –EB0 and –EBC are designed for Run-Brake operation on 1/4 to 1HP, 90 VDC armature motors or 1/2 to 2 HP, 180 VDC armature motors.
- Model BRC705-0B0, -EB0 and –EBC are designed for Run-Brake operation on 1/2 to 5 HP, 180 VDC armature motors.
- For BRC702 with 180 VDC application:

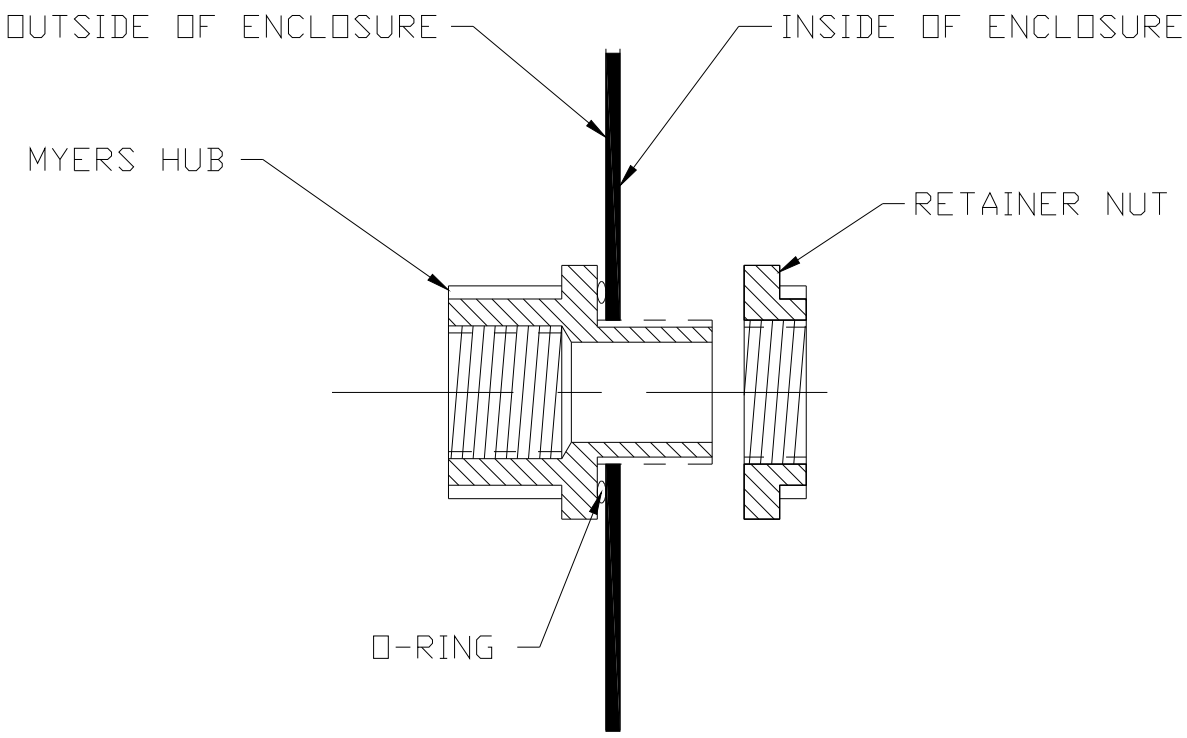
Insure that jumper J2 is connected to 230.
WARNING!!!
Improper selection of J2 may result in damage to the control.

- For BRC702 with 90 VDC application: Insure that jumper J2 is connected to 115 for full dynamic braking. If less dynamic braking is desired, the drive may be operated with J2 placed on 230.

6 Spare Parts List

Power Board Assembly for BRC702……..……Part Number D11270-000
Power Board Assembly for BRC705……..…Part Number D11272-000
Control Board Assembly for Encoded Models……...Part Number D11267-000
Control Board Assembly for Chassis Model…..……....Part Number D11267-001
Line Fuse, 20 AMP, 250 VAC for BRC702…….……..Part Number FUS1005-05
Line Fuse, 50 AMP, 250 VAC for BRC705……..……..……Part Number FUS1002-00
Armature Contactor for BRC702……...…….Part Number REL2013-00
Armature Contactor for BRC705……..…….Part Number REL2014-00
Dynamic Brake Resistor, 4 Ohms, 100 Watts…….…..….Part Number RES62-0004
Control Panel (membrane switch) for BRC702…….……Part Number SWI5004-00
Control Panel (membrane switch) for BRC705…….……Part Number SWI5005-00

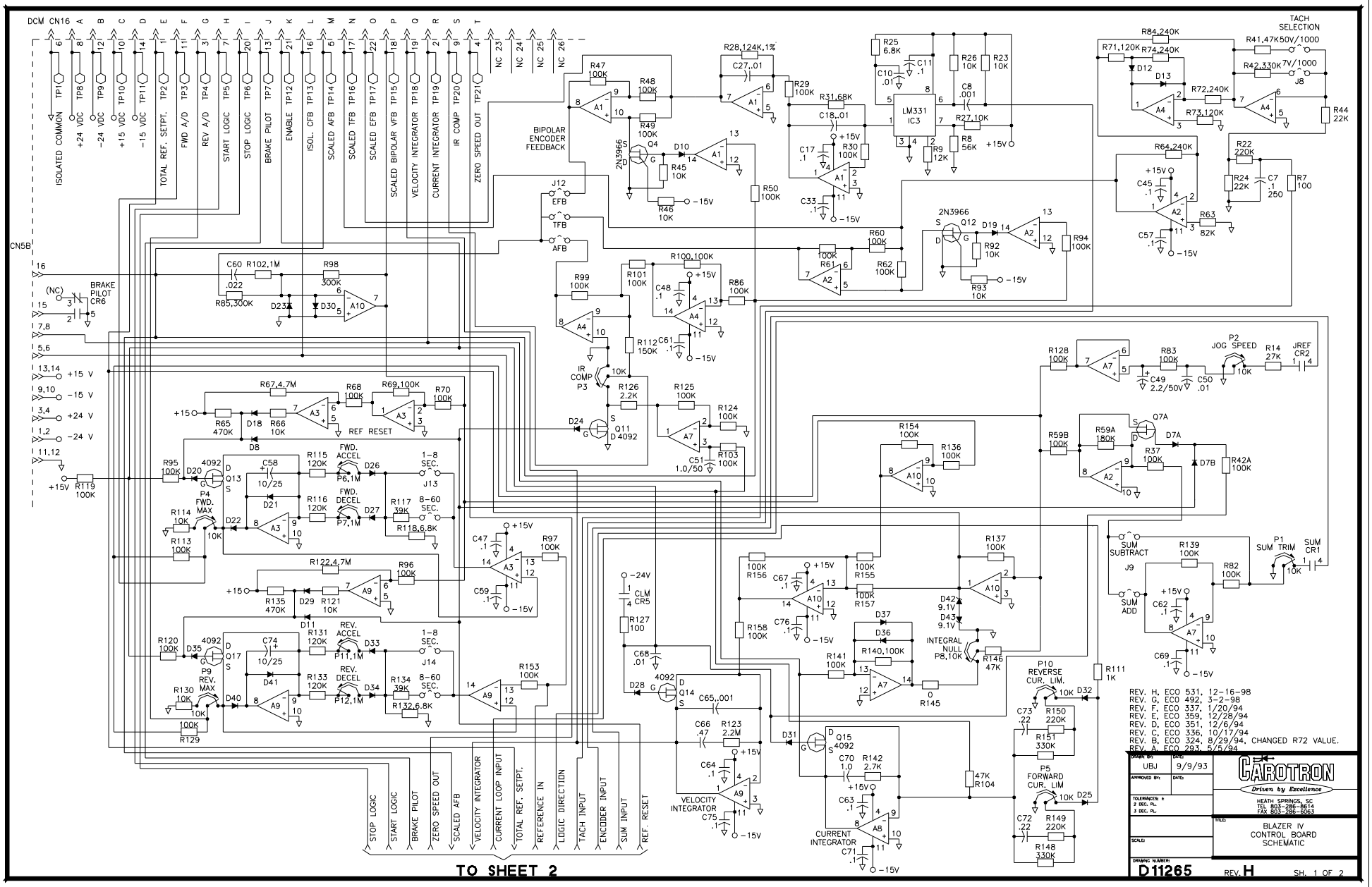
TYPICAL INSTALLATION OF A MYERS HUB FOR A TYPE 4 APPLICATION

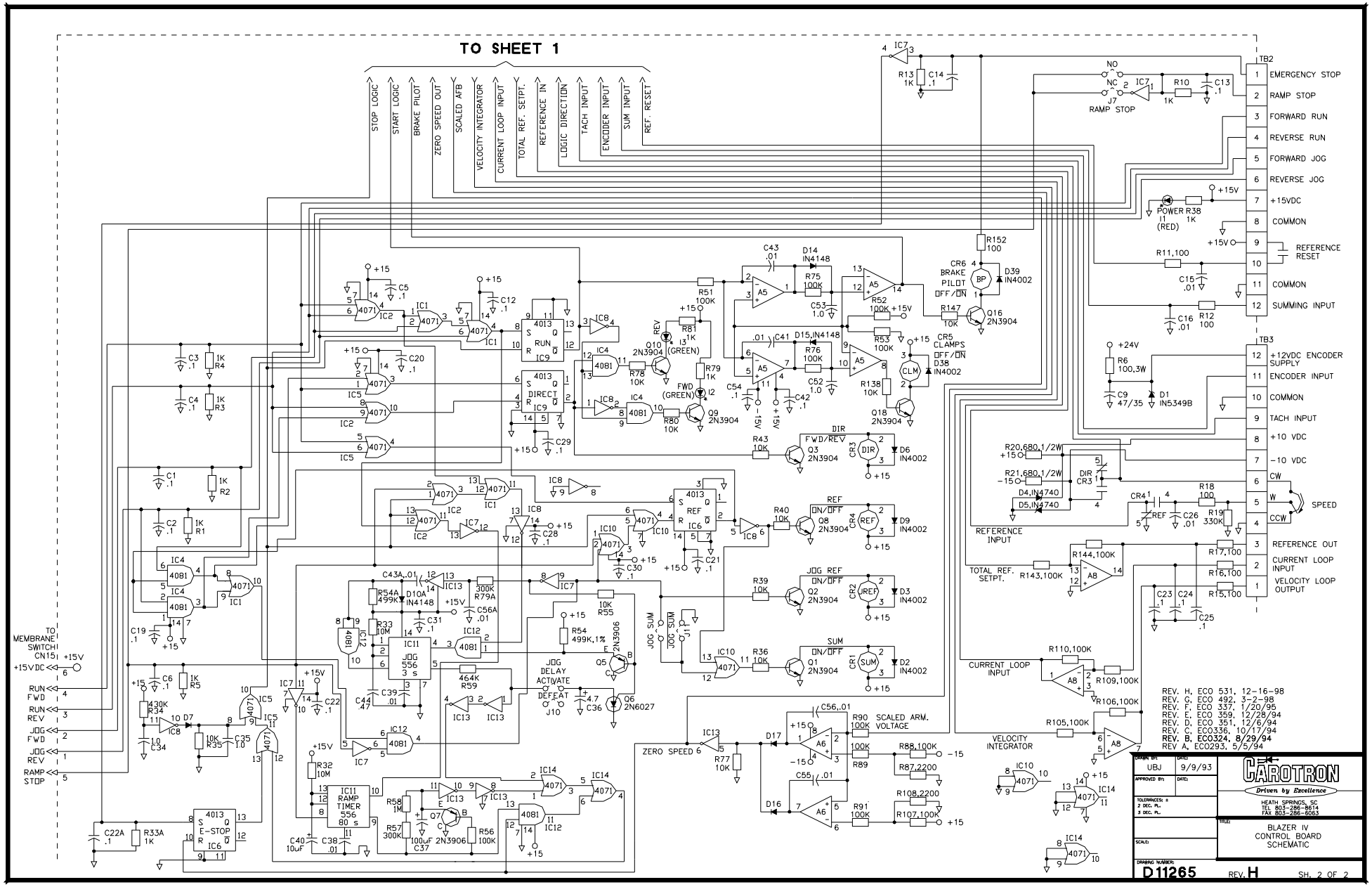


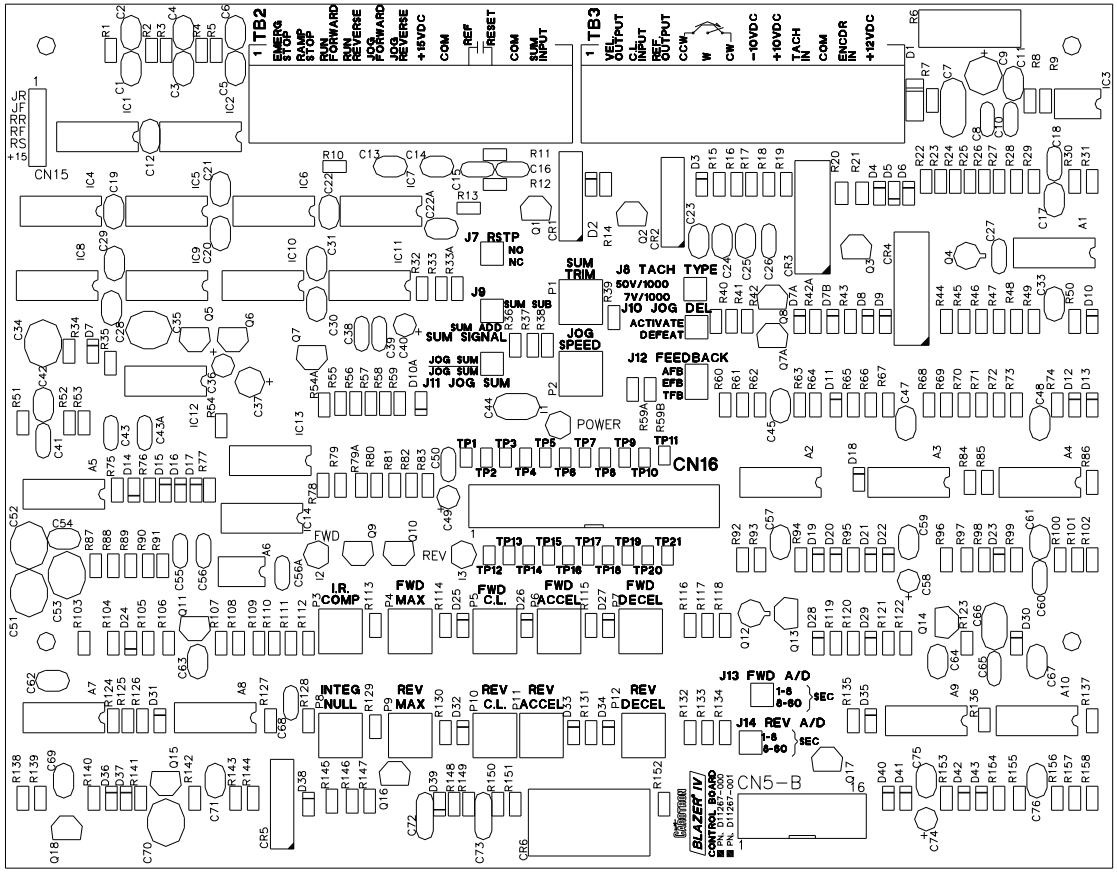
MAKE SURE SURFACE FOR O-RING IS CLEAN AND FREE OF BURRS OR SHARP EDGES.
TORQUE RETAINER NUT TO COMPRESS O-RING.

CAROTRON

TITLE: MYERS HUB INSTALLATION			DWG. NO. A11097	
DRAWN BY:	APPROVED BY:	DATE:	SCALE:	SHEET 1 OF 1


DCM CN16
ISOLATED COMMON
+24 VDC
-24 VDC
+15 VDC
-15 VDC
TOTAL REF. SETPT.
FWD A/D
REV A/D
START LOGIC
STOP LOGIC
BRAKE PILOT
ENABLE
ISOL. CFB
SCALED AFB
SCALED TFB
SCALED EFB
SCALED BIPOLAR VFB
VELOCITY INTEGRATOR
CURRENT INTEGRATOR
IR COMP
ZERO SPEED OUT
NC
CN5B
BRAKE PILOT CR6
+15 V
-15 V
+24 V
-24 V
BIPOLAR ENCODER FEEDBACK
TACH SELECTION
LM331 IC3
REF RESET
FWD. ACCEL
FWD. DECEL
REV. ACCEL
REV. DECEL
P4 FWD. MAX
P9 REV. MAX
1-8 SEC.
8-60 SEC.
IR COMP P3
P2 JOG SPEED
P1 SUM TRIM
SUM SUBTRACT
SUM ADD
INTEGRAL NULL P8,10K
P10 REVERSE CUR. LIM.
P5 FORWARD CUR. LIM
VELOCITY INTEGRATOR
CURRENT INTEGRATOR
TO SHEET 2
REV. H, ECO 531, 12-16-98
REV. G, ECO 492, 3-2-98
REV. F, ECO 337, 1/20/94
REV. E, ECO 359, 12/28/94
REV. D, ECO 351, 12/6/94
REV. C, ECO 336, 10/17/94
REV. B, ECO 324, 8/29/94, CHANGED R72 VALUE.
REV. A, ECO 293, 5/5/94
DRAWN BY: UBJ
DATE: 9/9/93
APPROVED BY:
DATE:
TOLERANCES: ± 2 DEC. PL. ± 3 DEC. PL.
SCALE:
CAROTRON
Driven by Excellence
HEATH SPRINGS, SC
TEL 803-286-8614
FAX 803-286-6063
TITLE: BLAZER IV CONTROL BOARD SCHEMATIC
DRAWING NUMBER: D11265
REV. H
SH. 1 OF 2

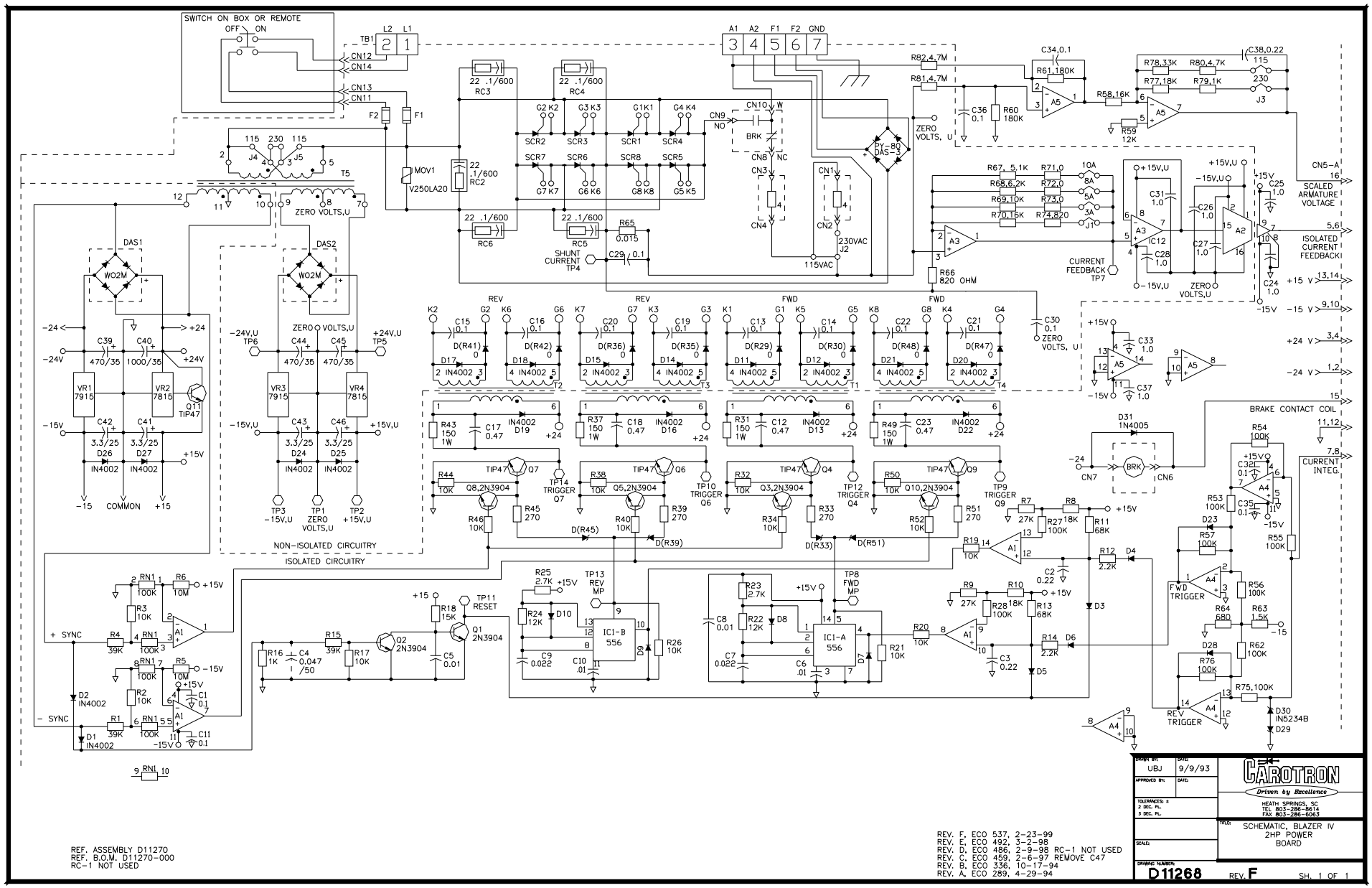

TO SHEET 1
STOP LOGIC
START LOGIC
BRAKE PILOT
ZERO SPEED OUT
SCALED AFB
VELOCITY INTEGRATOR
CURRENT LOOP INPUT
TOTAL REF. SETPT.
REFERENCE IN
LOGIC DIRECTION
TACH INPUT
ENCODER INPUT
SUM INPUT
REF. RESET
TB2
1 EMERGENCY STOP
2 RAMP STOP
3 FORWARD RUN
4 REVERSE RUN
5 FORWARD JOG
6 REVERSE JOG
7 +15VDC
8 COMMON
9 REFERENCE RESET
10
11 COMMON
12 SUMMING INPUT
TB3
12 +12VDC ENCODER SUPPLY
11 ENCODER INPUT
10 COMMON
9 TACH INPUT
8 +10 VDC
7 -10 VDC
6 CW
5 W
4 CCW
3 REFERENCE OUT
2 CURRENT LOOP INPUT
1 VELOCITY LOOP OUTPUT
SPEED
REFERENCE INPUT
TOTAL REF. SETPT.
CURRENT LOOP INPUT
VELOCITY INTEGRATOR
ZERO SPEED
SCALED ARM. VOLTAGE
RAMP STOP
BRAKE PILOT OFF/ON
CLAMPS OFF/ON
FWD/REV
DIR
REF ON/OFF
JOG REF ON/OFF
SUM ON/OFF
JOG DELAY ACTIVATE DEFEAT
RAMP TIMER 556 90 s
JOG 556 3 s
E-STOP
TO MEMBRANE SWITCH CN15
+15VDC
RUN FWD
RUN REV
JOG FWD
JOG REV
RAMP STOP
REV. H, ECO 531, 12-16-98
REV. G, ECO 492, 3-2-98
REV. F, ECO 337, 1/20/95
REV. E, ECO 359, 12/28/94
REV. D, ECO 351, 12/6/94
REV. C, ECO336, 10/17/94
REV. B, ECO324, 8/29/94
REV A, ECO293, 5/5/94
DRAWN BY: UBJ
DATE: 9/9/93
APPROVED BY:
DATE:
TOLERANCES: ± 2 DEC. PL. ± .DEC. PL.
SCALE:
CAROTRON
Driven by Excellence
HEATH SPRINGS, SC
TEL 803-286-8614
FAX 803-286-5063
TITLE: BLAZER IV CONTROL BOARD SCHEMATIC
DRAWING NUMBER: D11265
REV. H
SH. 2 OF 2



NOTES:
1. REF. SCHEM. D11265
2. REF. BOM A11267
3. REF. ARTWORK D11266

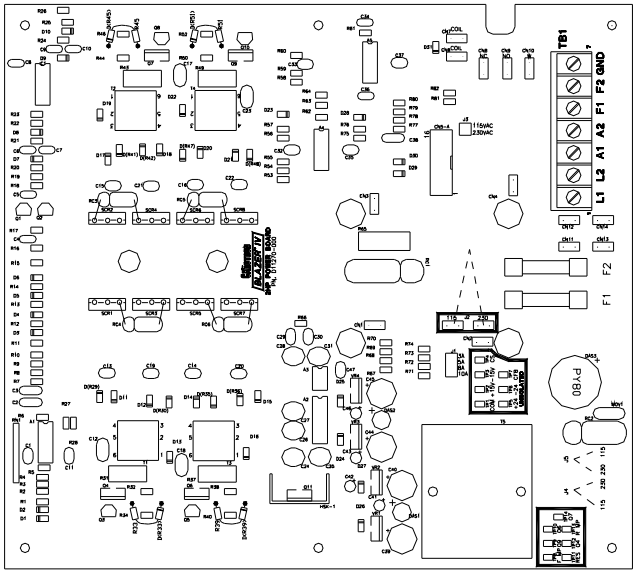
REV. C, ECO 337, 2-20-94
REV. B, ECO 351, 12-6-94
REV. A, ECO 293, 9-19-94

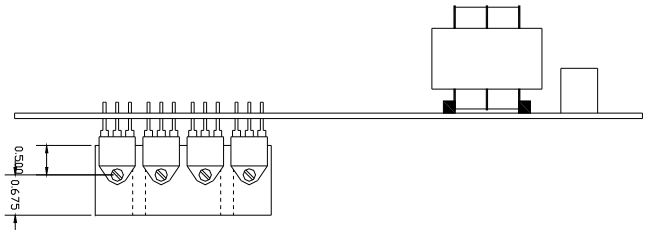
DRAWN BY: UBJ	DATE: 10-7-93
APPROVED BY:	DATE:
TOLERANCES: ± 2 DEC. PL. ± 3 DEC. PL.	CAROTRON Driven by Excellence
SCALE:	HEATH SPRINGS, SC TEL 803-286-8614 FAX 803-286-6063
DRAWING NUMBER: D11267 REV. C	TITLE: ASSEMBLY 2 HP BLAZER IV CONTROL BOARD
	SH. 1 OF 1

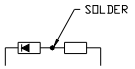


REF. ASSEMBLY D11270
REF. B.O.M. D11270-000
RC-1 NOT USED

REV. F, ECO 537, 2-23-99
REV. E, ECO 492, 3-2-98
REV. D, ECO 486, 2-9-98 RC-1 NOT USED
REV. C, ECO 459, 2-6-97 REMOVE C47
REV. B, ECO 336, 10-17-94
REV. A, ECO 289, 4-29-94





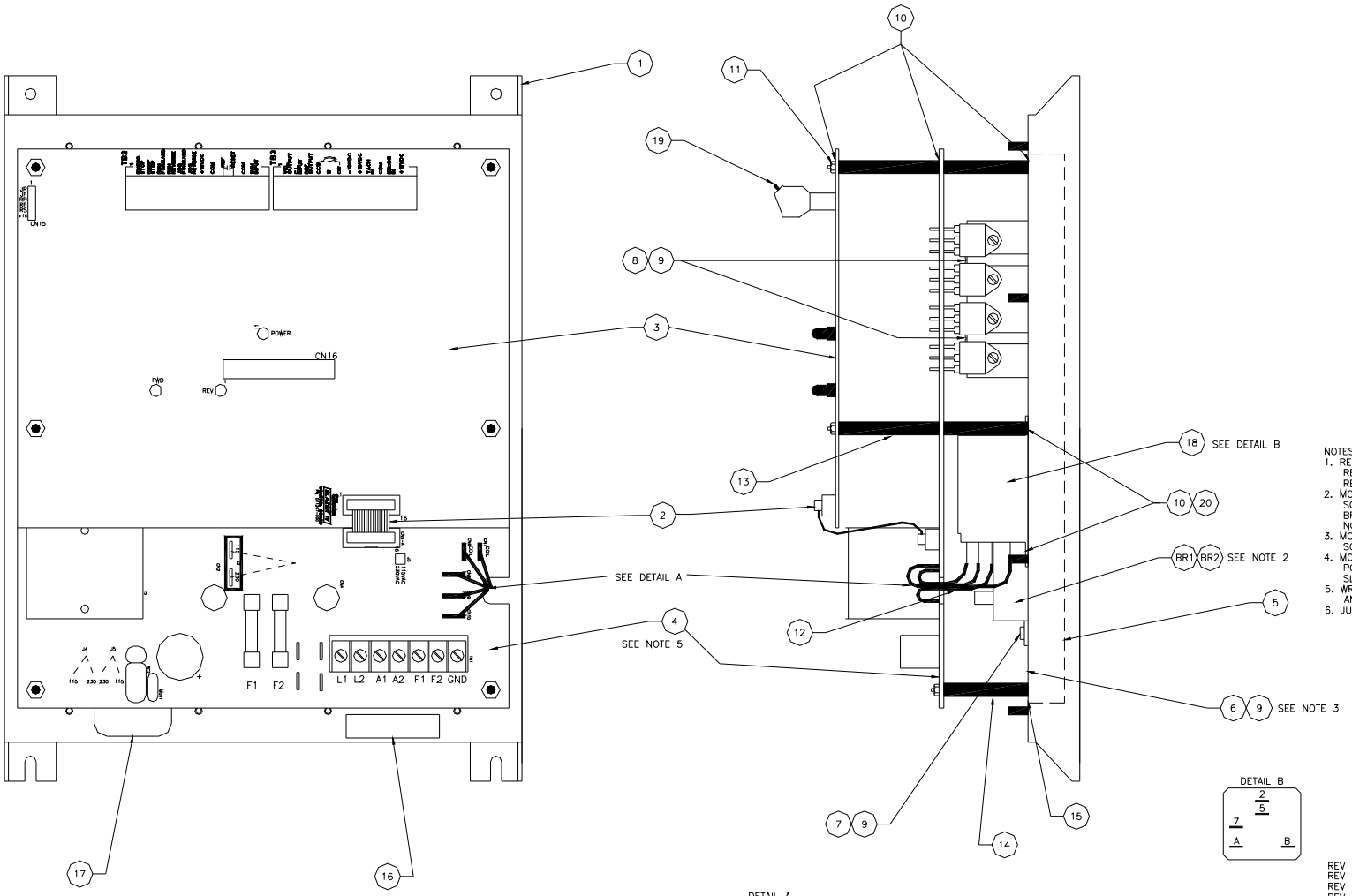


INSTALL WITH THE CATHODE END OF DIODE IN THE LOWER HOLE FOR R33 AND R39.
FOR R45 AND R51 INSTALL WITH THE CATHODE END IN THE UPPER HOLE.

NOTES:
1. REF SCHEMATIC D11268
2. REF ARTWORK D11269
3. REF BOM A11270-000
4. USE BLAZER IV 2 HP FIXTURE TO POSITION SCR LEGS FOR SOLDERING.
5. C47 NOT USED
6. RC-1 NOT USED

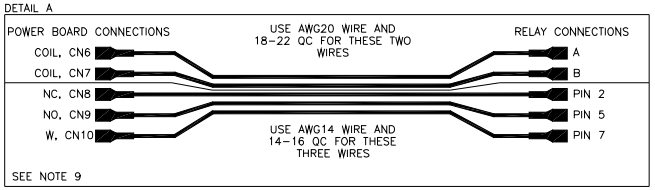
REV. NOTE 5, 8-17-01
REV. E, ECO 537, 2-23-99
REV. D, ECO 492, 2-27-98
REV. C, ECO 486, 2-9-98 RC-1 NOT USED
REV. B, ADDITION OF SIDE VIEW & NOTE 4.
REV. A, ECO 289, 4-29-94

DRAWN BY: UBJ	DATE: 1/10/93	CAROTRON Driven by Excellence
APPROVED BY:	DATE:	HEATH SPRINGS, SC TEL 803-286-8614 FAX 803-286-6063
TOLERANCES: ± 2 DEC. PL. ± 3 DEC. PL.		TITLE: ASSEMBLY BLAZER IV 2 HP POWER BOARD
SCALE:		
DRAWING NUMBER: D11270	REV. E	SH. 1 OF 1



NOTES:
1. REF BOM A11384-001 FOR MODEL BRC702-000
   REF BOM A11384-000 FOR MODEL BRC702-0B0
   REF CONNECTION DIAGRAM D11380.
2. MOUNT WITH (4) #8-32X1/4" PAN HEAD SCREWS WITH STAR WASHERS (ITEMS 7 & 9). BR1, BR2, JUMPER WIRES, SCREWS & WASHERS NOT USED ON BRC702-000 MODEL.
3. MOUNT WITH (14) #8-32X3/8" PAN HEAD SCREWS WITH STAR WASHERS (ITEMS 6 & 9).
4. MOUNT RELAY WIRES BEFORE INSTALLING POWER BOARD AND FEED WIRES UP THROUGH SLOT IN POWER BOARD.
5. WRAP HARNESS TOGETHER WITH CABLE TIES AND MARK WITH WIRE MARKERS.
6. JUMPER TB3-1 AND TB3-2.

DETAIL A



SEE NOTE 9

REV D, 12-6-94, ECO 351
REV C, 10-18-94, ECO339
REV B, 6/29, ECO308, ADD VELOCITY/TORQUE JUMPER
REV A, 5/16/94, ADDED -000 MODEL INFORMATION

DRAWN BY: UBJ	DATE: 4/29/94
APPROVED BY:	DATE:
TOLERANCES: ± 2 DEC. PL. ± 3 DEC. PL.	
SCALE:	

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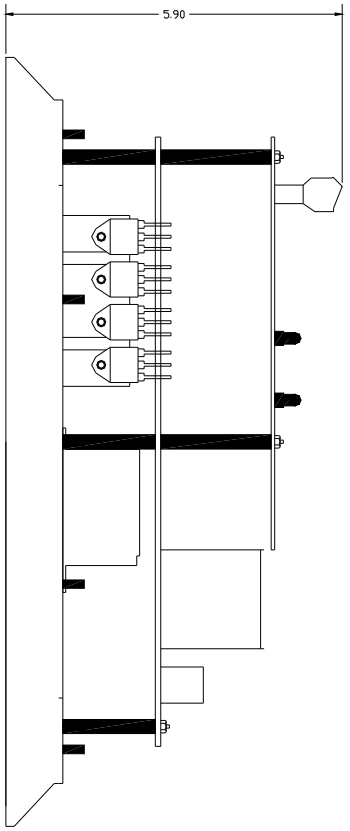
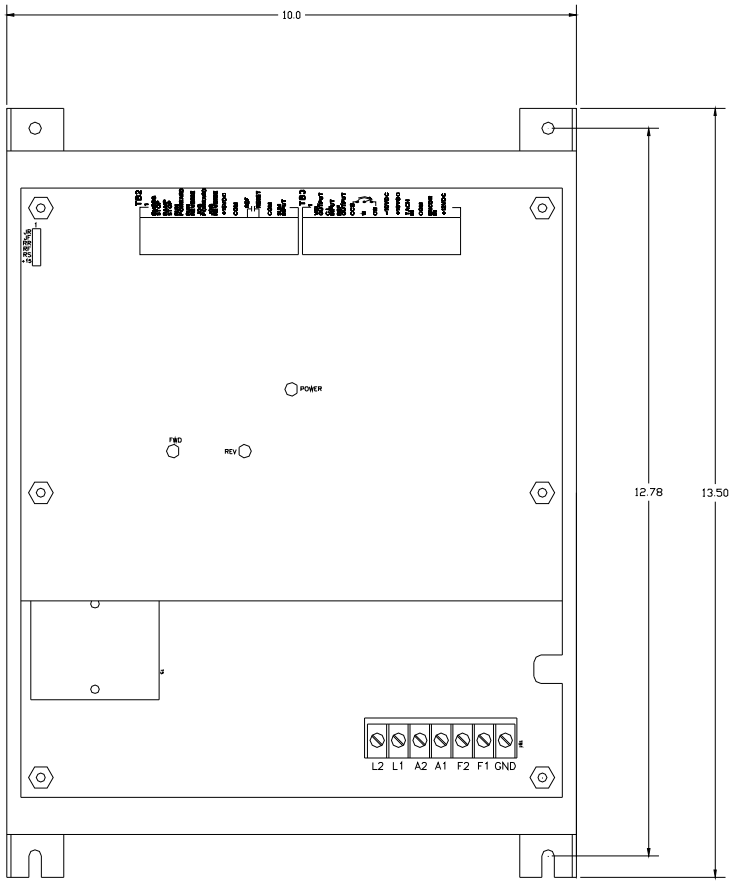
FAX 803-286-6063

TITLE: FINAL ASSEMBLY, BLAZER IV MODEL BRC702-000, -0B0

DRAWING NUMBER: D11384 REV. D SH. 1 OF 1



SIDE VIEW

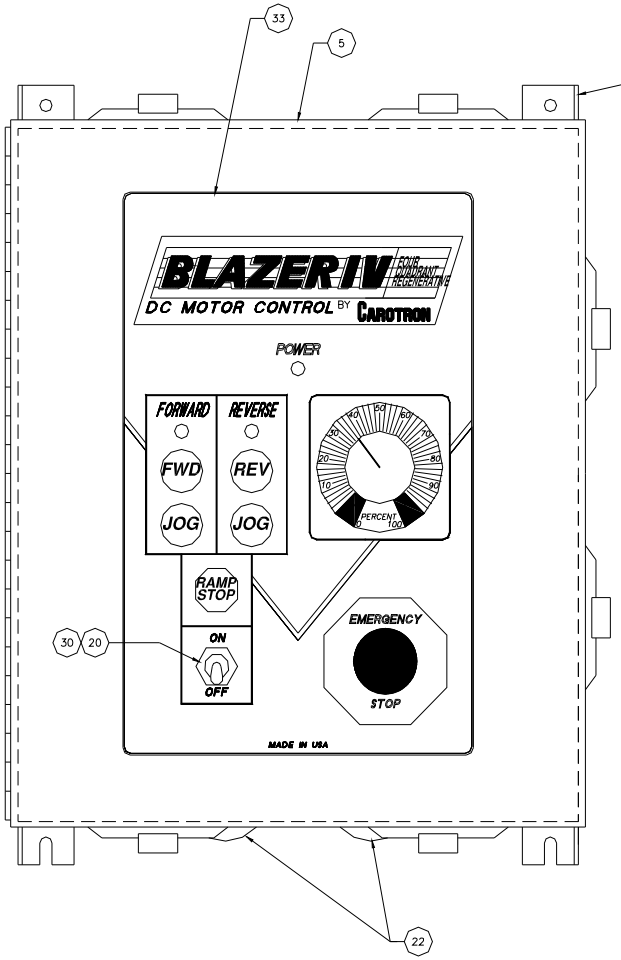


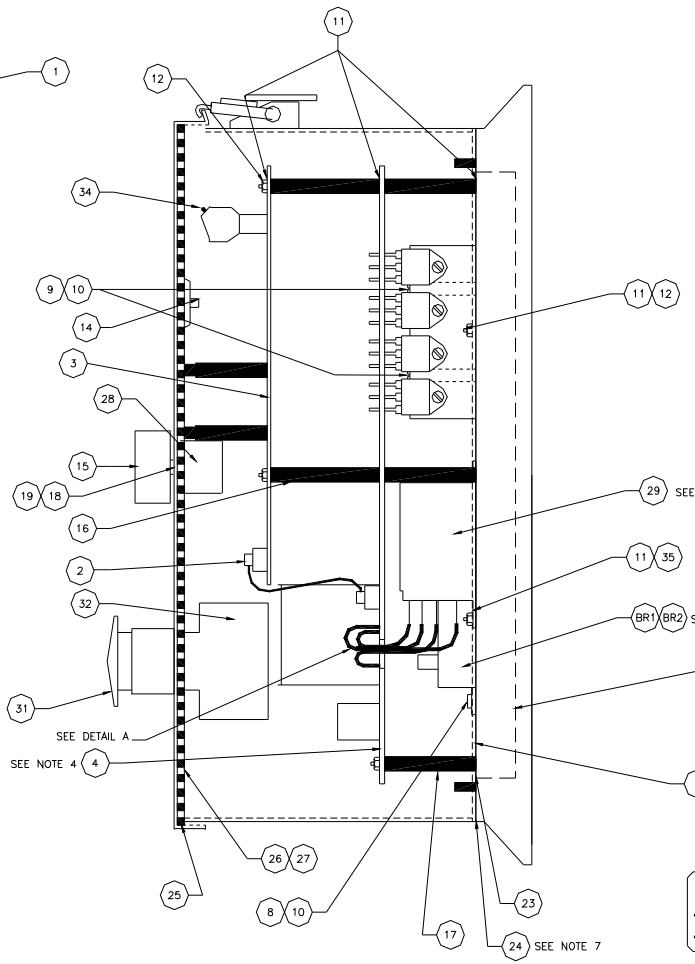
FRONT VIEW

NOTE:
1. REF. ASSEMBLY DRAWING D11384
2. REF. CONNECTION DRAWING D11380

REV B, ECO 351, 12-6-94
REV A, 6/29/94, REMOVED REFERENCE TO VOID WIRING DIAGRAM NUMBER.

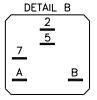
DRAWN BY: UBJ	DATE: 2/24/94	CAROTRON Driven by Excellence
APPROVED BY:	DATE:	HEATH SPRINGS, SC TEL 803-286-8614 FAX 803-286-6063
TOLERANCES: 2 DEC. PL. 3 DEC. PL.		TITLE: DIMENSIONS 2 HP BLAZER IV CHASSIS MODELS
SCALE:		
DRAWING NUMBER: D11378	REV. B	SH. 1 OF 1



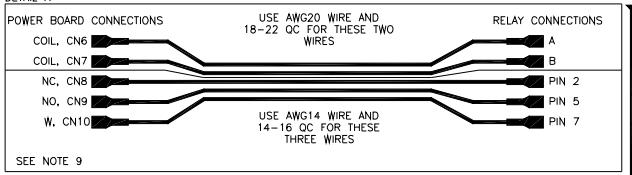


NOTES:
1. REF BOM A11388-000 FOR MODEL BRC702-EBC
   REF BOM A11388-001 FOR MODEL BRC702-EOC
   REF WIRING DIAGRAM D11379.
2. MOUNT WITH (4) #8-32X1/4" PAN HEAD SCREWS WITH STAR WASHERS (ITEMS 8 & 10). BR1, BR2, AND ASSOCIATED JUMPERS, SCREWS AND WASHERS NOT USED ON BRC702-EOC.
3. MOUNT WITH (14) #8-32X3/8" PAN HEAD SCREWS WITH STAR WASHERS (ITEMS 7 & 10).
4. MOUNT RELAY WIRES BEFORE INSTALLING POWER BOARD AND FEED WIRES UP THROUGH SLOT IN POWER BOARD.
5. USE HWA1007-00 AND HWA1006-00 ON INSIDE OF DOOR TO HOLD WIRING IN PLACE.
6. USE HWA1062-00 TO HOLD MEMBRANE SWITCH TAIL IN PLACE.
7. MOUNT ENCLOSURE TO CHASSIS WITH ITEMS 11, 12 AND 17. PLACE GASKET (ITEM 24) BETWEEN ENCLOSURE & HEATSINK.
8. AFFIX ITEM 25 TO INSIDE OF DOOR.
9. WRAP HARNESS TOGETHER WITH CABLE TIES AND MARK WITH WIRE MARKERS.
10. PLACE JUMPER (ITEM 34) BETWEEN TB3-1 AND TB3-2.
11. AFFIX ITEM 14 TO INSIDE OF DOOR AND BOX AS NEEDED

DETAIL B



DETAIL A



SEE NOTE 9

REV. E, ECO 419, 1-29-96
REV. D, ECO 363, 1-20-95
REV. C, ECO 333, 9-26-94
REV B, 6/29/94, ADDED JUMPER FOR TB3.
REV A, 5/16/94, ADDED -EOC MODEL INFORMATION

DRAWN BY: UBJ	DATE: 4/29/94
APPROVED BY:	DATE:
TOLERANCES: ± 2 DEC. PL. ± 3 DEC. PL.	
SCALE:	
DRAWING NUMBER: D11388	REV. E

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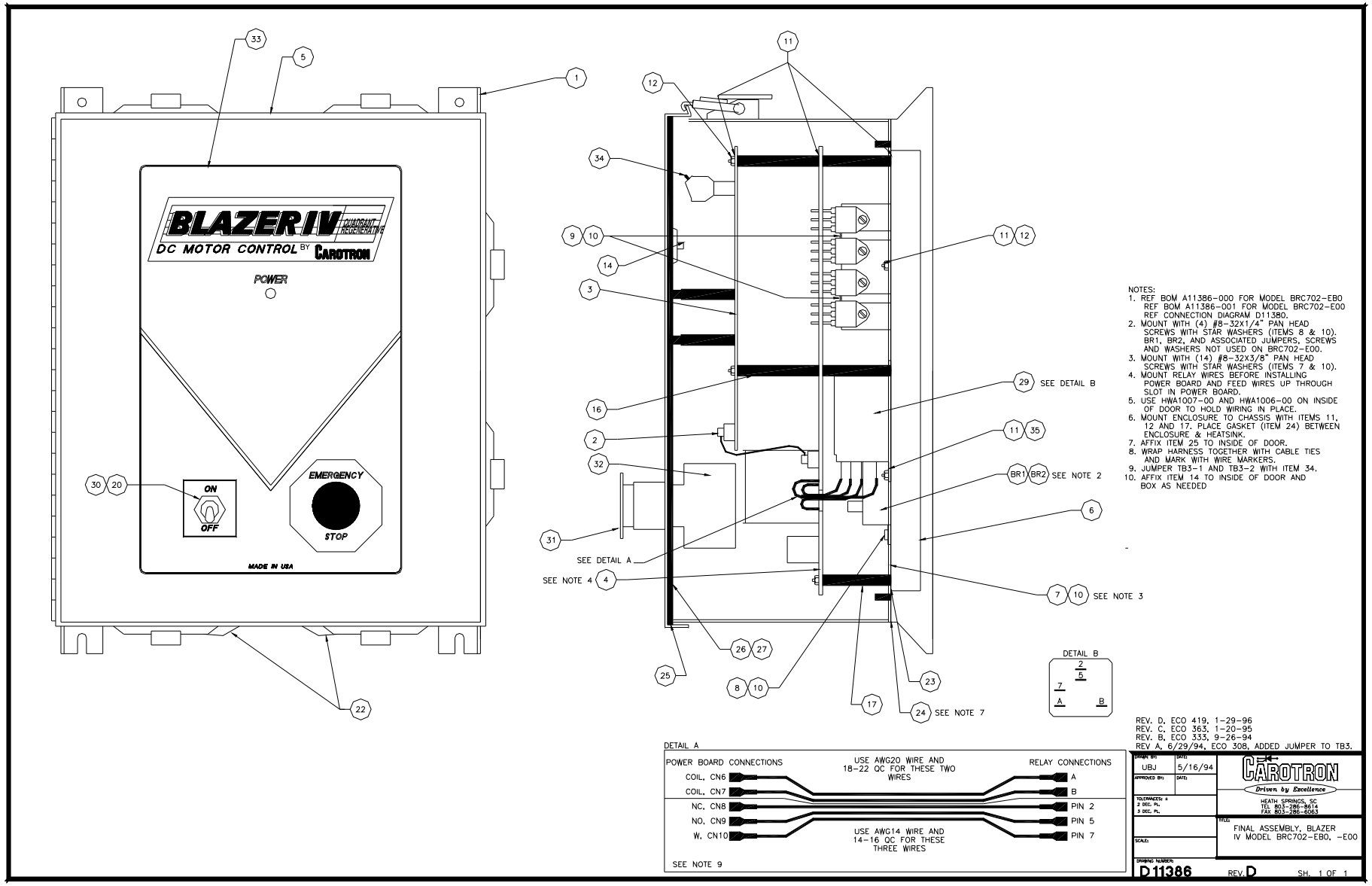
FAX 803-286-6063

TITLE: FINAL ASSEMBLY, BLAZER IV MODEL BRC702-EBC, -EOC

SH. 1 OF 1



NOTES:
1. REF BOM A11386-000 FOR MODEL BRC702-EB0
   REF BOM A11386-001 FOR MODEL BRC702-E00
   REF CONNECTION DIAGRAM D11380.
2. MOUNT WITH (4) #8-32X1/4" PAN HEAD SCREWS WITH STAR WASHERS (ITEMS 8 & 10). BR1, BR2, AND ASSOCIATED JUMPERS, SCREWS AND WASHERS NOT USED ON BRC702-E00.
3. MOUNT WITH (14) #8-32X3/8" PAN HEAD SCREWS WITH STAR WASHERS (ITEMS 7 & 10).
4. MOUNT RELAY WIRES BEFORE INSTALLING POWER BOARD AND FEED WIRES UP THROUGH SLOT IN POWER BOARD.
5. USE HWA1007-00 AND HWA1006-00 ON INSIDE OF DOOR TO HOLD WIRING IN PLACE.
6. MOUNT ENCLOSURE TO CHASSIS WITH ITEMS 11, 12 AND 17. PLACE GASKET (ITEM 24) BETWEEN ENCLOSURE & HEATSINK.
7. AFFIX ITEM 25 TO INSIDE OF DOOR.
8. WRAP HARNESS TOGETHER WITH CABLE TIES AND MARK WITH WIRE MARKERS.
9. JUMPER TB3-1 AND TB3-2 WITH ITEM 34.
10. AFFIX ITEM 14 TO INSIDE OF DOOR AND BOX AS NEEDED

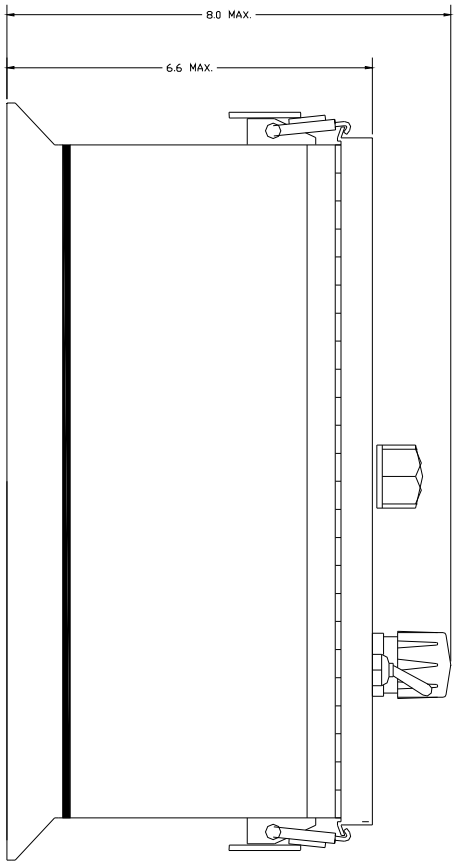
REV. D, ECO 419, 1-29-96
REV. C, ECO 363, 1-20-95
REV. B, ECO 333, 9-26-94
REV A, 6/29/94, ECO 308, ADDED JUMPER TO TB3.

DRAWN BY: UBJ	DATE: 5/16/94
APPROVED BY:	DATE:
TOLERANCES: ± 2 DEC. PL. ± 3 DEC. PL.	
SCALE:	

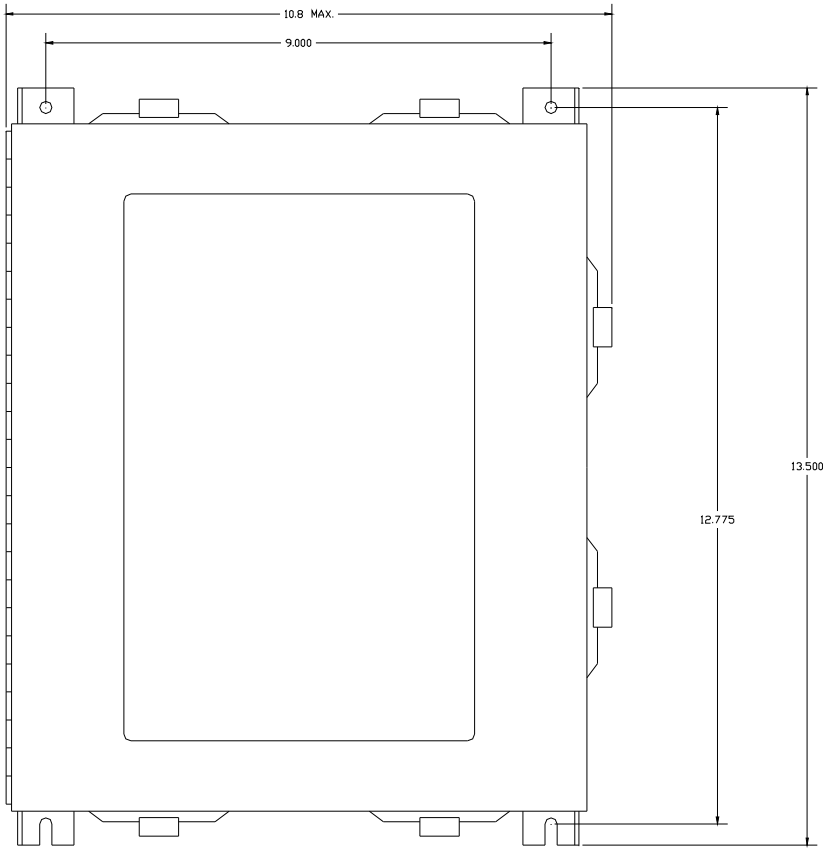
CAROTRON
Driven by Excellence
HEATH SPRINGS, SC
TEL 803-286-8614
FAX 803-286-6063

TITLE: FINAL ASSEMBLY, BLAZER IV MODEL BRC702-EB0, -E00

DRAWING NUMBER: D11386 REV. D SH. 1 OF 1



SIDE VIEW



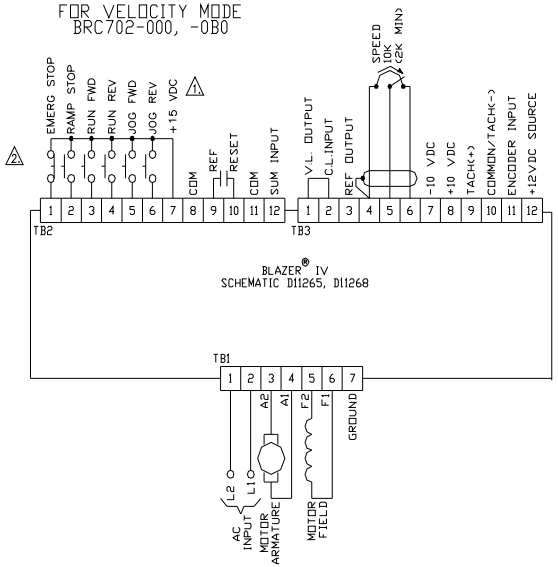
FRONT VIEW

NOTE:
1. RECOMMENDED CLEARANCE FOR OPENING CLAMPS IS 2 INCHES MINIMUM
2. RECOMMENDED CLEARANCE ON LEFT SIDE OF CONTROL IS 0.75 INCHES, MINIMUM
3. REF. ASSEMBLY DRAWINGS D11385 THRU D11388
4. REF. CONNECTION DRAWING D11379
5. MODELS BRC702-E00 AND EB0 USE INNER DIMENSION ON SIDE VIEW

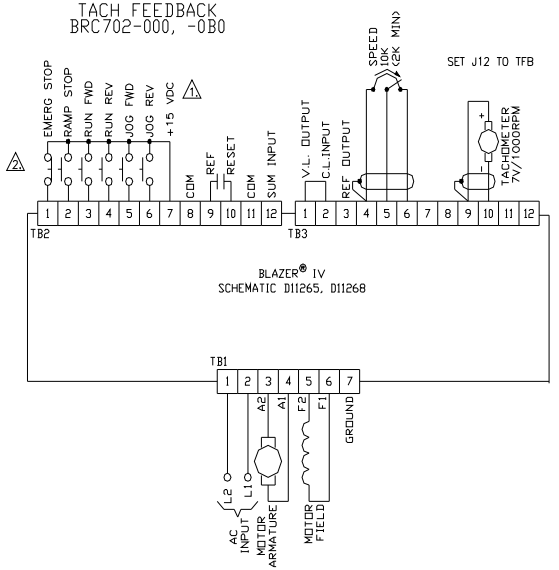
REV A, 6/29/94, REMOVED REFERENCE TO VOID WIRING DIAGRAM NUMBER.

DRAWN BY: UBJ	DATE: 2/23/94
APPROVED BY:	DATE:
TOLERANCES: ± 2 DEC PL. 3 DEC PL.	CAROTRON Driven by Excellence
	HEATH SPRINGS, SC TEL 803-286-8614 FAX 803-286-6063
SCALE:	TITLE: DIMENSIONS, 2 HP BLAZER IV ENCLOSED MODELS
DRAWING NUMBER: D11377	REV. A SH. 1 OF 1

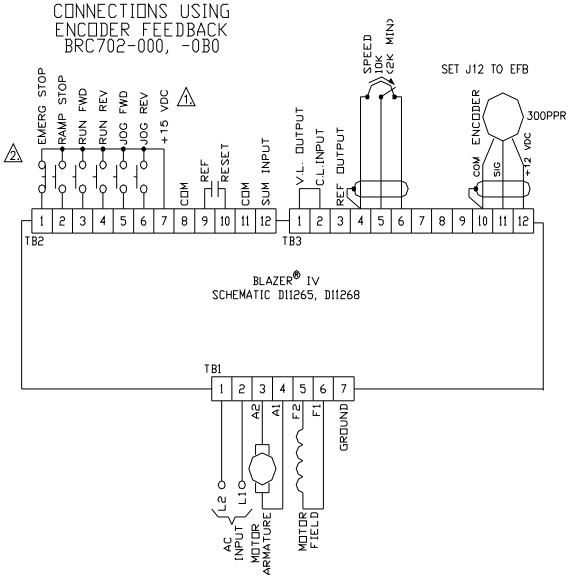
GENERAL CONNECTIONS FOR VELOCITY MODE BRC702-000, -0B0



CONNECTIONS USING TACH FEEDBACK BRC702-000, -0B0



CONNECTIONS USING ENCODER FEEDBACK BRC702-000, -0B0



NOTES:

1. NOT REQUIRED FOR ENCLOSED MODELS BUT MAY BE USED FOR AN OPTIONAL REMOTE STATION.
2. FOR A NORMALLY OPEN REMOTE SWITCH ON RAMP STOP SET J7 TO NO.
3. ALL FUNCTIONS (EXCEPT E-STOP) ONLY REQUIRE N.O. MOMENTARY CONTACT SWITCH. MAINTAINED LOGIC MAY ALSO BE USED.
4. RAMP STOP CAN BE PROGRAMMED TO ACCEPT A N.O. OR N.C. CONTACTOR. SEE MANUAL FOR ADDITIONAL CONNECTION INFORMATION.
5. IF E-STOP (TB2-1) IS NOT USED, JUMPER TB2-1 TO TB2-7.

JUMPER SELECTION CHART				
INPUT VOLTAGE	J2*	J3	J4	J5
115VAC	115VAC	115VAC	115VAC	115VAC
230VAC	230VAC	230VAC	230VAC	230VAC

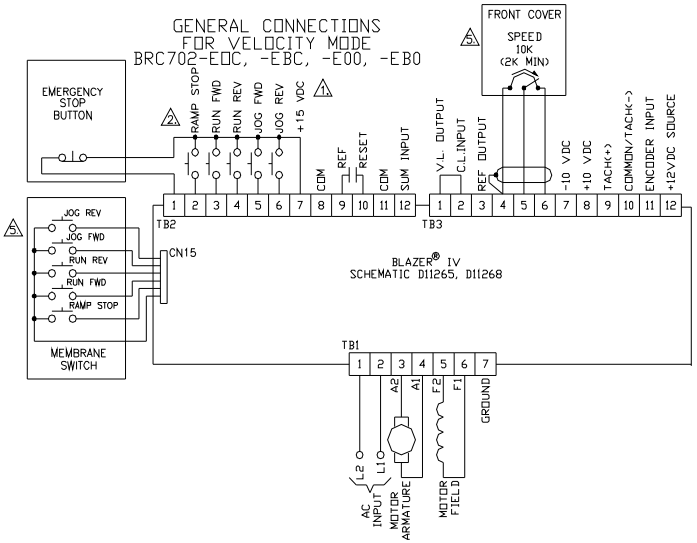
*J2 IS ONLY ON DYNAMIC BRAKING MODELS

MOTOR RATING CHART			
INPUT	RANGE	ARMATURE	FIELD
115VAC	1/8-1 HP	0-90 VDC	100 VDC
230VAC	1/4-2 HP	0-180 VDC	200 VDC

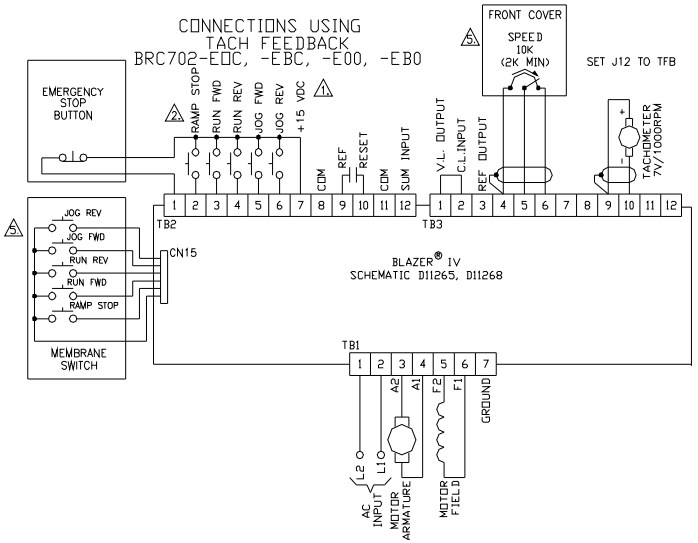
REV. D, CORRECTED TACH POLARITY ON TFB FIGURE
REV. C CHANGE E-STOP CONTACT & NOTES
REV. B, ECO 361, 12-6-94
REV. A, RENUMBER TB2, TB3

DRAWN BY: UBJ DATE: 2/24/94	CAROTRON Driven by Excellence
APPROVED BY: DATE:	HEATH SPRINGS, SC TEL 803-286-8614 FAX 803-286-6063
TOLERANCES: ± 2 DEC PL ± 3 DEC PL	TITLE: CONNECTION DIAGRAM 2 HP BLAZER IV CHASSIS MODELS
SCALE:	
DRAWING NUMBER: D11380	REV. D SH. 1 OF 1

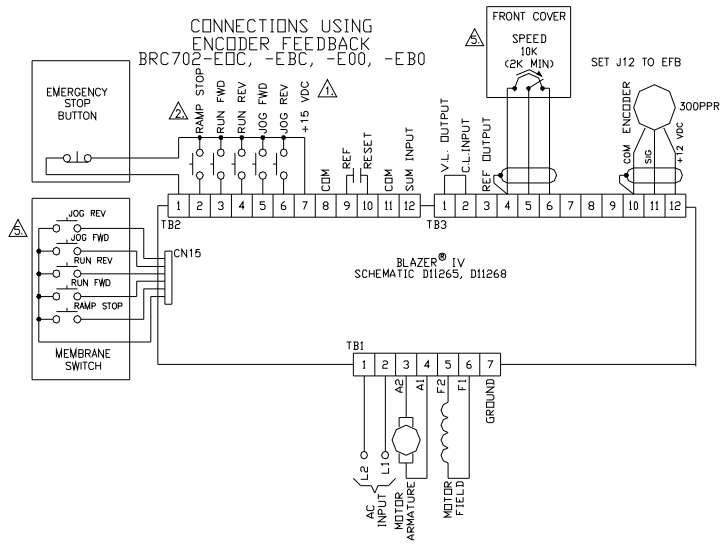
GENERAL CONNECTIONS FOR VELOCITY MODE BRC702-E0C, -EBC, -E00, -EB0



CONNECTIONS USING TACH FEEDBACK BRC702-E0C, -EBC, -E00, -EB0



CONNECTIONS USING ENCODER FEEDBACK BRC702-E0C, -EBC, -E00, -EB0



NOTES:

1. NOT REQUIRED FOR ENCLOSED MODELS BUT MAY BE USED FOR AN OPTIONAL REMOTE STATION.
2. FOR A NORMALLY OPEN REMOTE SWITCH ON RAMP STOP SET J7 TO NO.
3. ALL FUNCTIONS (EXCEPT E-STOP) ONLY REQUIRE N.O. MOMENTARY CONTACT SWITCH. MAINTAINED LOGIC MAY ALSO BE USED.
4. RAMP STOP CAN BE PROGRAMMED TO ACCEPT A N.O. OR N.C. CONTACTOR. SEE MANUAL FOR ADDITIONAL CONNECTION INFORMATION.
5. CONNECTION INFORMATION FOR MODELS BRC702-E00 AND -EB0 IS THE SAME AS FOR -E0C AND EBC, EXCEPT THERE IS NO MEMBRANE SWITCH OR POTENTIOMETER CONNECTIONS.
6. IF AN ADDITIONAL E-STOP SWITCH IS USED, IT MUST BE WIRED IN SERIES WITH THE E-STOP SWITCH ON THE ENCLOSURE.

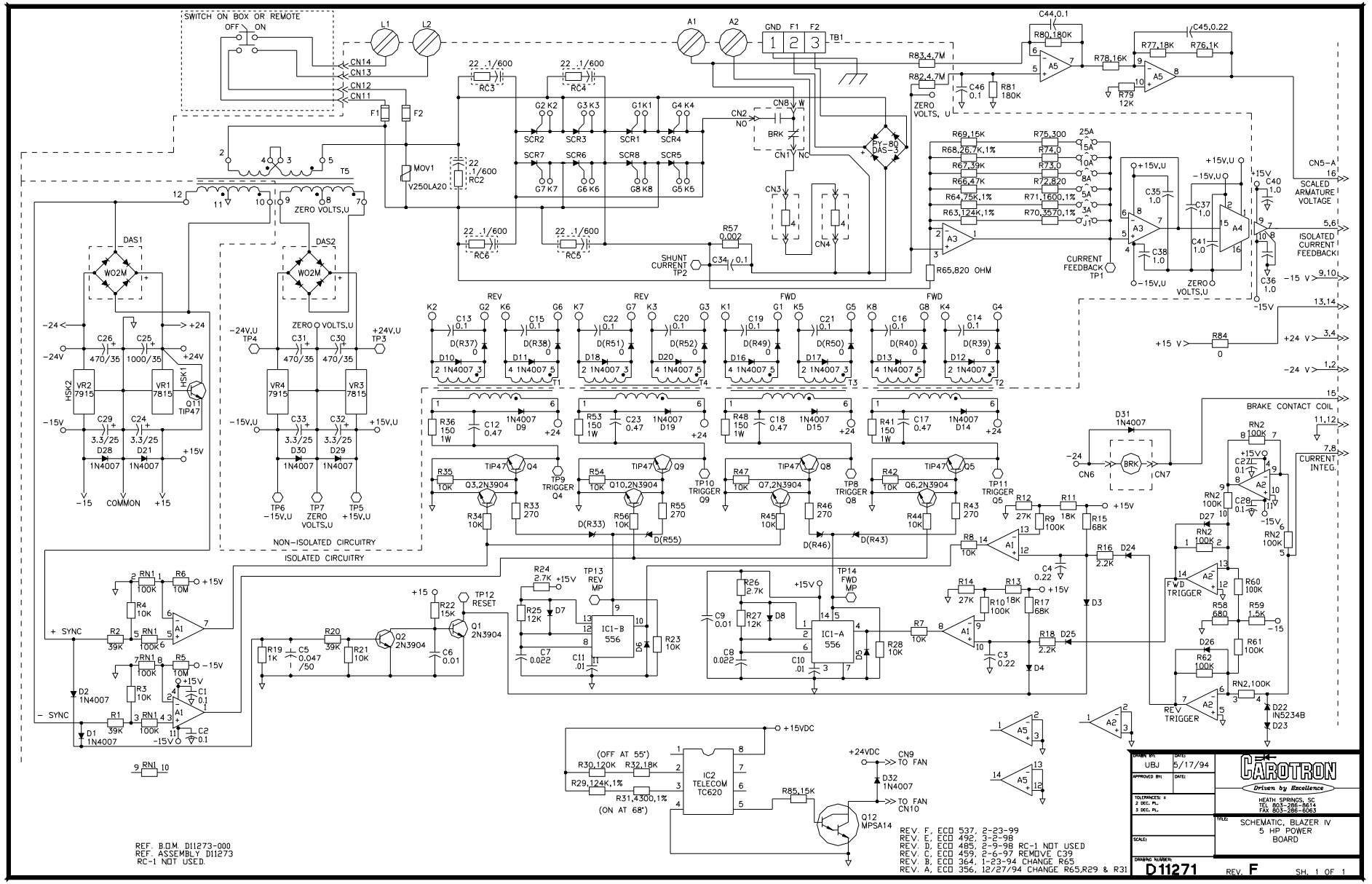
JUMPER SELECTION CHART				
INPUT VOLTAGE	J2*	J3	J4	J5
115VAC	115VAC	115VAC	115VAC	115VAC
230VAC	230VAC	230VAC	230VAC	230VAC

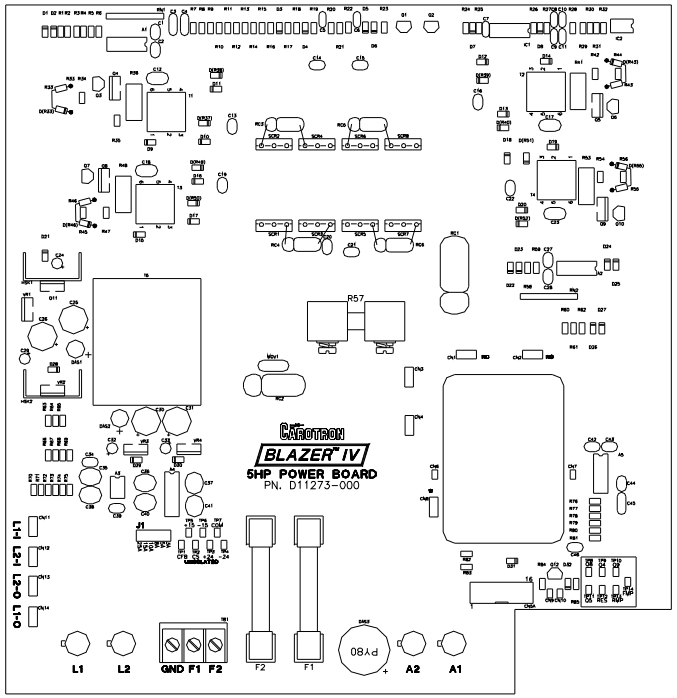
*J2 IS ONLY ON DYNAMIC BRAKING MODELS

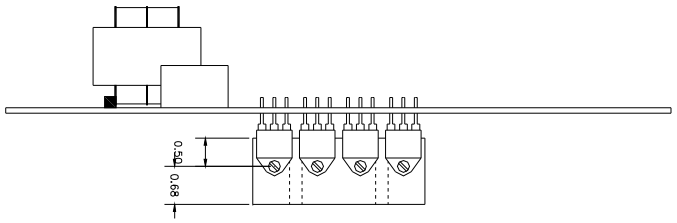
MOTOR RATING CHART			
INPUT	RANGE	ARMATURE	FIELD
115VAC	1/8-1 HP	0-90 VDC	100 VDC
230VAC	1/4-2 HP	0-180 VDC	200 VDC

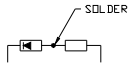
REV. D. CORRECTED TACH POLARITY ON TFB FIGURE
REV. C CHANGE E-STOP CONTACTOR & NOTES
REV. B, ECO 351, 12-6-94
REV. A, RENUMBER TB2, TB3

DRAWN BY: UBJ	DATE: 2/24/94	CAROTRON Driven by Excellence
APPROVED BY:	DATE:	HEATH SPRINGS, SC TEL 803-286-8614 FAX 803-286-6063
TOLERANCES: 2 DEC. PL. 3 DEC. PL.		TITLE: CONNECTION DIAGRAM 2 HP BLAZER IV ENCLOSED MODELS
SCALE:		
DRAWING NUMBER: D11379	REV. D	SH. 1 OF 1


SWITCH ON BOX OR REMOTE
OFF ON
CN14
CN13
CN12
CN11
L1
L2
A1
A2
GND F1 F2
1 2 3
TB1
F1
F2
MOV1
V250LA20
T5
DAS1
DAS2
WO2M
ZERO VOLTS,U
-24
+24
-24V,U
+24V,U
+15V,U
-15V,U
+15V
-15V
COMMON
NON-ISOLATED CIRCUITRY
ISOLATED CIRCUITRY
SCR1
SCR2
SCR3
SCR4
SCR5
SCR6
SCR7
SCR8
CN1
CN2
CN3
CN4
CN8
BRK
NO
NC
FY-80
DAS-5
SHUNT CURRENT TP2
CURRENT FEEDBACK TP1
ZERO VOLTS, U
R57 0.002
R65,820 OHM
R69,15K
R68,26.7K,1%
R67,39K
R66,47K
R64,75K,1%
R63,124K,1%
R75,300
R74,0
R73,0
R72,820
R71,1600,1%
R70,3570,1%
25A
15A
10A
8A
5A
3A
J1
R80,180K
R81 180K
R82,4.7M
R83,4.7M
R78,16K
R79 12K
R77,18K
R76,1K
C44,0.1
C45,0.22
C46 0.1
A3
A4
A5
C35 1.0
C38 1.0
C37 1.0
C41 1.0
C40 1.0
C36 1.0
CN5-A
SCALED ARMATURE VOLTAGE
ISOLATED CURRENT FEEDBACK
-15 V
REV
FWD
D(R37)
D(R38)
D(R51)
D(R52)
D(R49)
D(R50)
D(R40)
D(R39)
1N4007
T1
T2
T3
T4
+15 V
R84
0
+24 V
-24 V
BRAKE CONTACT COIL
D31 1N4007
CN6
CN7
CURRENT INTEG.
R36 150 1W
R53 150 1W
R48 150 1W
R41 150 1W
C12 0.47
C23 0.47
C18 0.47
C17 0.47
D9
D19
D15
D14
TIP47
Q4
Q9
Q8
Q5
Q3,2N3904
Q10,2N3904
Q7,2N3904
Q6,2N3904
TP9 TRIGGER Q4
TP10 TRIGGER Q9
TP8 TRIGGER Q8
TP11 TRIGGER Q5
R35 10K
R54 10K
R47 10K
R42 10K
R34 10K
R33 270
R56 10K
R55 270
R45 10K
R46 270
R44 10K
R43 270
D(R33)
D(R55)
D(R46)
D(R43)
R12 27K
R11 18K
R9 100K
R15 68K
R8 10K
R16 2.2K
D24
C4 0.22
D3
D4
R18 2.2K
D25
C3 0.22
R14 27K
R13 18K
R10 100K
R17 68K
R7 10K
R28 10K
R23 10K
RN1 100K
RN2 100K
R6 10M
R5 10M
R4 10K
R3 10K
R2 39K
R1 39K
+ SYNC
- SYNC
D1 1N4007
D2 1N4007
C1 0.1
C2 0.1
R19 1K
C5 0.047 /50
R20 39K
R21 10K
Q2 2N3904
R22 15K
C6 0.01
TP12 RESET
R24 2.7K
R25 12K
D7
D6
IC1-B 556
C7 0.022
C11 .01
R26 2.7K
R27 12K
D8
IC1-A 556
C9 0.01
C8 0.022
C10 .01
TP13 REV MP
TP14 FWD MP
R60 100K
R59 1.5K
R58 680
R61 100K
R62 100K
D26
D27
D22 IN5234B
D23
FWD TRIGGER
REV TRIGGER
IC2 TELECOM TC620
(OFF AT 55°)
R30,120K
R32,18K
R29,124K,1%
R31,4300,1%
(ON AT 68°)
R85,15K
Q12 MPSA14
+15VDC
+24VDC
CN9 TO FAN
D32 1N4007
TO FAN CN10
REF. B.O.M. DI1273-000
REF. ASSEMBLY DI1273
RC-1 NOT USED.
REV. F, ECO 537, 2-23-99
REV. E, ECO 492, 3-2-98
REV. D, ECO 485, 2-9-98 RC-1 NOT USED
REV. C, ECO 459, 2-6-97 REMOVE C39
REV. B, ECO 364, 1-23-94 CHANGE R65
REV. A, ECO 356, 12/27/94 CHANGE R65,R29 & R31
DRAWN BY: UBJ
DATE: 5/17/94
APPROVED BY:
DATE:
TOLERANCES: ± 2 DEC. PL. ± 3 DEC. PL.
SCALE:
DRAWING NUMBER: D11271
REV. F
SH. 1 OF 1
CAROTRON
Driven by Excellence
HEATH SPRINGS, SC
TEL 803-286-8614
FAX 803-286-6063
TITLE:
SCHEMATIC, BLAZER IV
5 HP POWER
BOARD





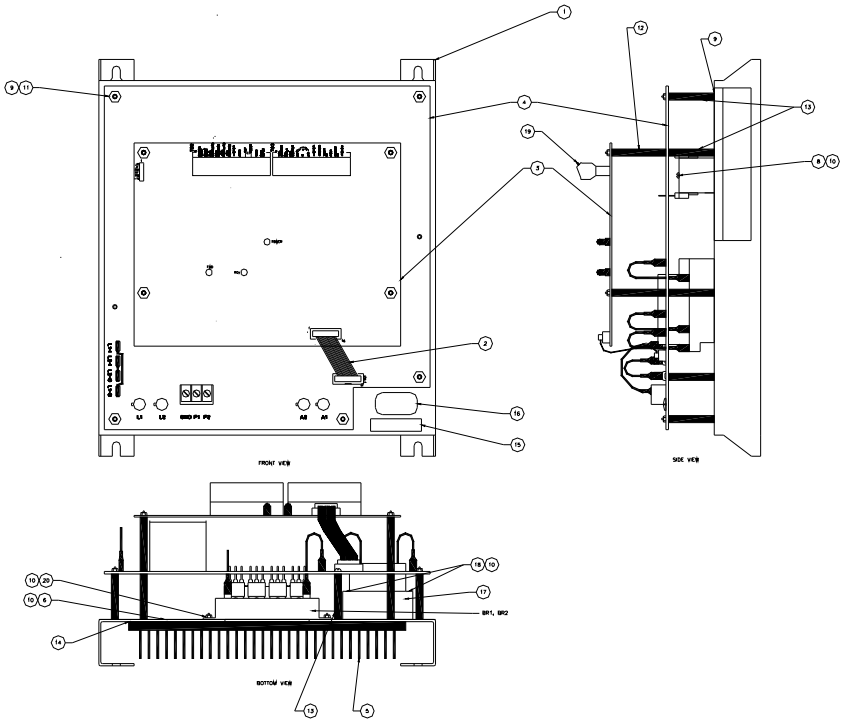


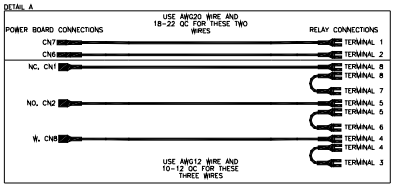
INSTALL WITH THE CATHODE END OF DIODE IN THE LOWER HOLE FOR R33 AND R46. FOR R43 AND R55 INSTALL WITH THE CATHODE END IN THE UPPER HOLE.

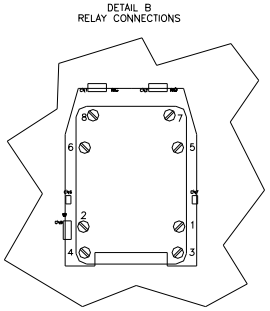
NOTES:
1. REF SCHEMATIC D11271
2. REF ARTWORK D11272
3. REF BOM A11273-000
4. USE BLAZER IV 5HP FIXTURE FOR SOLDERING SCRs TO BOARD.
5. C39 NOT USED.
5. RC-1 NOT USED.

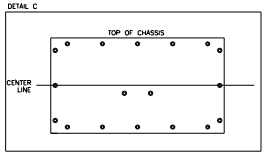
REV. C ECO 537, 2-23-99
REV. B ECO 492, 3-2-98
REV. A, ECO 485, 2-9-98, RC-1 NOT USED

DRAWN BY: UBJ	DATE: 8/8/94
APPROVED BY:	DATE:
TOLERANCES: X ± DEC PL. .X ± DEC PL.	CAROTRON Driven by Excellence HEATH SPRINGS, SC TEL 803-286-8614 FAX 803-286-6063
SCALE: 1 TO 1	TITLE: BLAZER IV 5 HP POWER BOARD ASSEMBLY
DRAWING NUMBER: D11273	REV. C SH. 1 OF 1





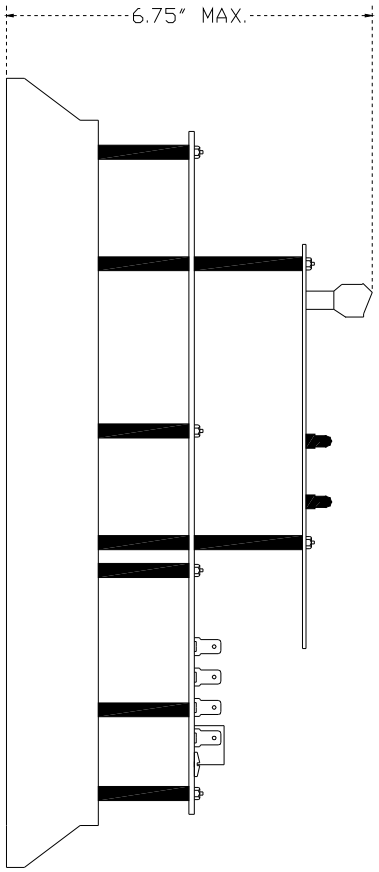




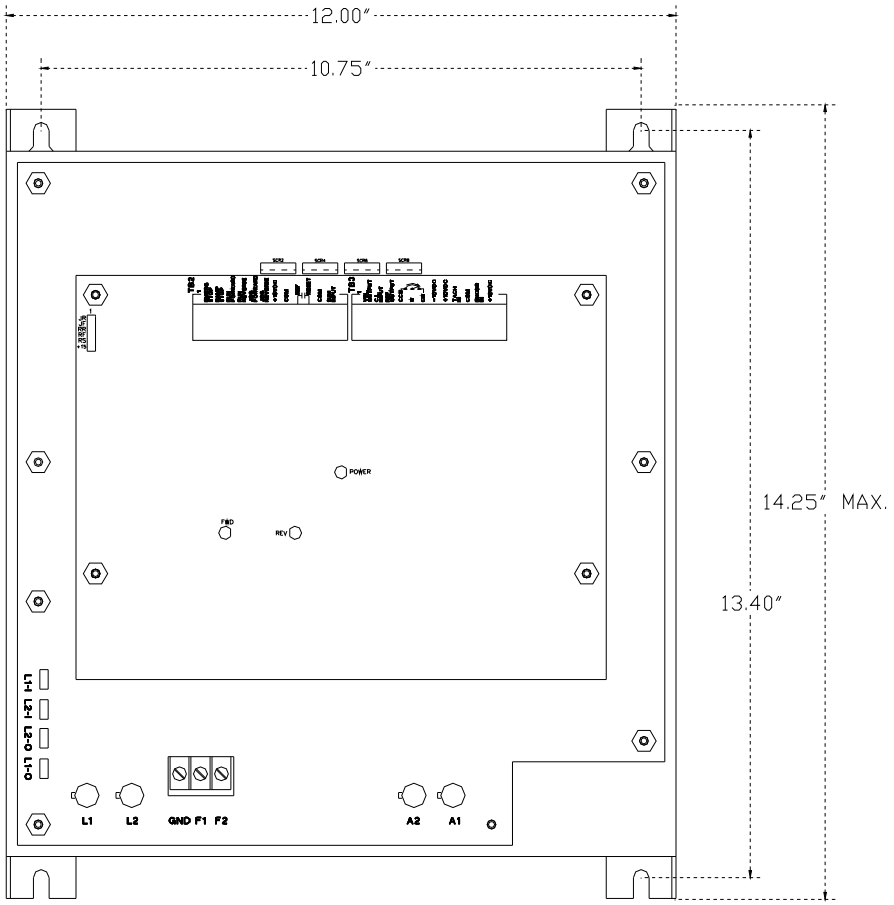
NOTES:
1. REF BOM A11442-000 FOR MODEL BRC705-000
   REF BOM A11442-001 FOR MODEL BRC705-080
   REF CONNECTION DIAGRAM D11382.
   REF WIRE LIST A11605-000 FOR BRC705-000
   REF WIRE LIST A11605-001 FOR BRC705-080
2. MOUNT BR1 & BR2 WITH (4) HWA1005-06 HEX NUTS WITH HWA1004-01 STAR WASHERS.
   BR1 & BR2 AND ASSOCIATED CONNECTOR WIRES, SCREWS & WASHERS NOT USED ON BRC705-000 MODEL.
3. WHEN MOUNTING HSK2015-00 AND HWA1098-00 GASKET TO BACK OF CHASSIS, MAKE SURE THAT HEAT SINK IS TURNED SO THAT SCR HOLES ARE BELOW THE CENTER LINE OF THE HEAT SINK, SEE DETAIL C.
4. MOUNT HEAT SINK WITH (16) HWA1002-00 PAN HEAD SCREWS WITH HWA1004-01 STAR WASHERS.
5. PUT DOW 340 HEAT SINK COMPOUND ON BOTTOM OF SCR BLOCK BEFORE MOUNTING POWER BOARD.
6. MOUNT RELAY WIRES TO RELAY BEFORE INSTALLING POWER BOARD AND FEED WIRES UP THROUGH HOLE IN POWER BOARD, REFER TO DETAIL A AND B.
7. CONNECT THE FOLLOWING TOGETHER USING WHR1003-00 AND CNT1052-04:
   A. CONNECT CN13 TO CN12.
   B. CONNECT CN11 TO CN14.
   C. CONNECT CN13 TO BR1.
   D. CONNECT CN14 TO BR2.
   E. CONNECT THE OTHER END OF BR1 TO OTHER END OF BR2.
8. AFTER MOUNTING POWER BOARD, CONNECT FREE ENDS OF RELAY WIRES TO POWER BOARD PER DETAIL A & B.
9. AFTER MOUNTING CONTROL BOARD, CONNECT CN5A TO CN5B WITH CNT1066-00.
10. JUMPER TB3-1 AND TB3-2 USING WHR1009-00.

REV. B, ECO 361, 1-17-95
REV. A, ECO 351, 12-6-94

DRAWN BY: UBJ	DATE: 9/8/94
APPROVED BY:	DATE:
TOLERANCES: ± 2 DEC PL. ± 3 DEC PL.	CAROTRON Driven by Excellence
	HEATH SPRINGS, SC TEL 803-286-8614 FAX 803-286-6063
SCALE: 1=2	TITLE: BLAZER®IV 5 HP CHASSIS MODELS -000, -080 ASSEMBLY DRAWING
DRAWING NUMBER D11442	REV. B SH. 1 OF 1



SIDE VIEW



FRONT VIEW

NOTE:
1. REF. ASSEMBLY DRAWING D11442
2. REF. CONNECTION DRAWING D11380

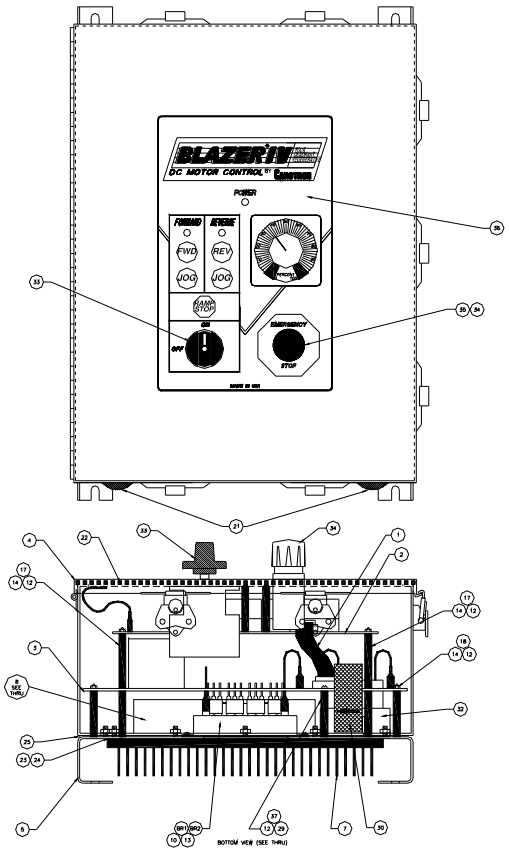
REV. A, ECO 351, 12-6-94

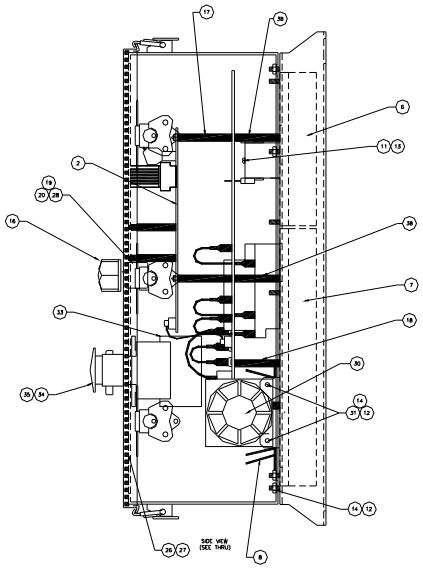
DRAWN BY: UBJ	DATE: 7/11/94
APPROVED BY:	DATE:
TOLERANCES: X ± DEC PL. .X ± DEC PL.	
SCALE:	
DRAWING NUMBER: D11445	REV. A

CAROTRON
Driven by Excellence
HEATH SPRINGS, SC
TEL 803-286-8614
FAX 803-286-6063

TITLE: BLAZER IV 5 HP CHASSIS MODELS DIMENSION DRAWING

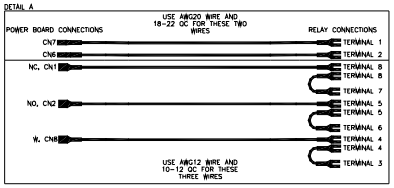
SH. 1 OF 1



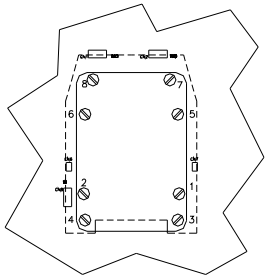


NOTES:
1. REF BOM A11443-000 FOR MODEL BRC705-EOC.
   REF BOM A11443-001 FOR MODEL BRC705-EBC.
   REF CONNECTION DIAGRAM D11381.
   REF WIRE LIST A11606-002 FOR BRC705-EOC
   REF WIRE LIST A11606-003 FOR BRC705-EBC
2. WHEN MOUNTING HSK2015-01 AND HWA1099-00 GASKET TO BACK OF CHASSIS, MAKE SURE THAT HEAT SINK IS TURNED SO THAT BRAKE RESISTOR HOLES ARE TOWARD THE TOP OF THE HEAT SINK. SEE DETAIL D.
3. WHEN MOUNTING HSK2015-00 AND HWA1098-00 GASKET TO BACK OF CHASSIS, MAKE SURE THAT HEAT SINK IS TURNED SO THAT SCR HOLES ARE BELOW THE CENTER LINE OF THE HEAT SINK. SEE DETAIL C.
4. MOUNT OUTER HEAT SINKS WITH (34) HWA1002-00 PAN HEAD SCREWS AND HWA1004-01 STAR WASHERS.
5. MOUNT INNER HEAT SINK AS SHOWN IN DETAIL D WITH DOW 340 HEAT SINK COMPOUND. (6) HWA1002-00 SCREWS AND HWA1004-01 WASHERS.
6. MOUNT BR1 & BR2 WITH (4) HWA1002-04 SCREWS AND HWA1004-01 STAR WASHERS. BR1 & BR2 AND ASSOCIATED CONNECTOR WIRES, SCREWS & WASHERS NOT USED ON BRC705-E00 OR -E0C MODELS.
7. PUT DOW 340 HEAT SINK COMPOUND ON BOTTOM OF SCR BLOCK BEFORE MOUNTING POWER BOARD.
8. MOUNT RELAY WIRES TO RELAY BEFORE INSTALLING POWER BOARD AND FEED WIRES UP THROUGH HOLE IN POWER BOARD. REFER TO DETAIL A AND B.
9. AFTER MOUNTING POWER BOARD, CONNECT FREE ENDS OF RELAY WIRES TO POWER BOARD PER DETAIL A & B.
10. CONNECT THE FOLLOWING TOGETHER USING WAR1003-00 AND CNT1052-04:
    A. CONNECT CN13 TO BR1.
    B. CONNECT CN14 TO BR2.
    C. CONNECT THE OTHER END OF BR1 TO OTHER END OF BR2.
11. AFTER MOUNTING CONTROL BOARD, CONNECT CN5A TO CN5B WITH CNT1066-00.
12. JUMPER TB5-1 AND TB5-2 USING WIR1099-00.
13. CONNECT MEMBRANE SWITCH TAIL TO CN15 ON CONTROL BOARD.
14. CONNECT SW15005-00 TO POWER BOARD PER DETAIL E.
15. CONNECT SW11029-00 TO TB1-1 AND TO TB2-7.
16. CONNECT FAN1003-00 TO POWER BOARD. USE CNT1052-01 CONNECTORS AND CONNECT THE POSITIVE LEAD TO CN9, & NEG LEAD TO CN10.

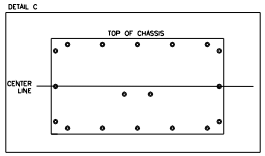
DETAIL A



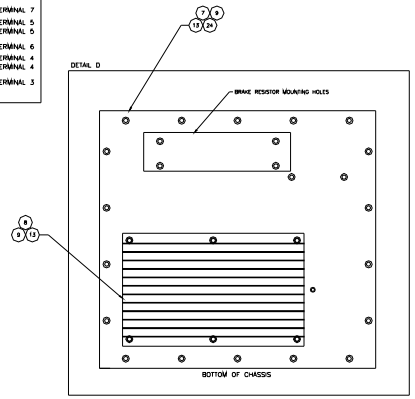
DETAIL B
RELAY CONNECTIONS



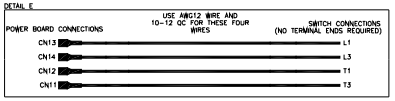
DETAIL C



DETAIL D

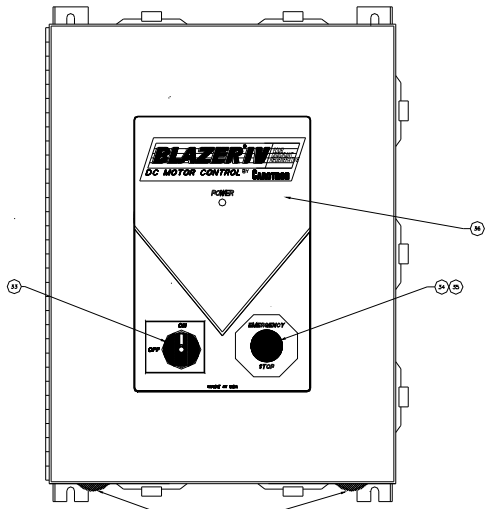


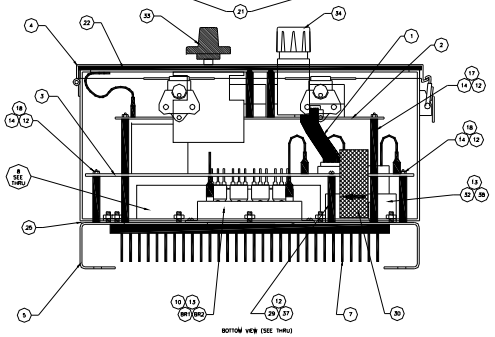
DETAIL E

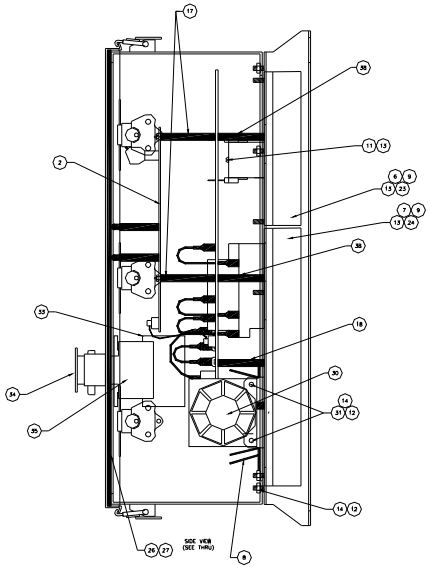


REV. C, ECO 419, 1-29-96
REV. B, ECO 367, 2-27-95
REV. A, ECO 361, 1-18-95

DRAWN BY: UBJ	DATE: 9/6/94
APPROVED BY:	DATE:
TOLERANCES: ± 2 DEC PL. 3 DEC PL.	CAROTRON Drives by Excellence HEATH SPRINGS, SC TEL 803-286-8614 FAX 803-286-6063
SCALE: 1=2	TITLE: BLAZER®IV 5 HP ENCLOSED MODELS -E0C, -EBC FINAL ASSEMBLY
DRAWING NUMBER: D11443	REV. C SH. 1 OF 1

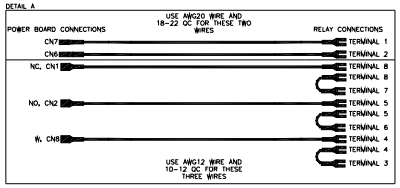




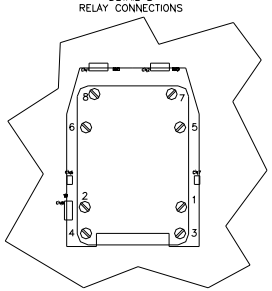


NOTES:
1. REF BOM A11444-000 FOR MODEL BRC705-E00.
   REF BOM A11444-001 FOR MODEL BRC705-EB0.
   REF CONNECTION DIAGRAM D11361.
   REF WIRE LIST A11605-004 FOR BRC705-E00
   REF WIRE LIST A11605-005 FOR BRC705-EB0
2. WHEN MOUNTING HSK2015-01 AND HWA1099-00 GASKET TO BACK OF CHASSIS, MAKE SURE THAT HEAT SINK IS TURNED SO THAT BRAKE RESISTOR HOLES ARE TOWARD THE TOP OF THE HEAT SINK, SEE DETAIL D.
3. WHEN MOUNTING HSK2015-00 AND HWA1098-00 GASKET TO BACK OF CHASSIS, MAKE SURE THAT HEAT SINK IS TURNED SO THAT SCR HOLES ARE BELOW THE CENTER LINE OF THE HEAT SINK, SEE DETAIL C.
4. MOUNT OUTER HEAT SINKS WITH (34) HWA1002-00 PAN HEAD SCREWS AND HWA1004-01 STAR WASHERS.
5. MOUNT INNER HEAT SINK AS SHOWN IN DETAIL D WITH DOW 340 HEAT SINK COMPOUND, (6) HWA1002-00 SCREWS AND HWA1004-01 WASHERS.
6. MOUNT BR1 & BR2 WITH (4) HWA1002-04 SCREWS AND HWA1004-01 STAR WASHERS. BR1 & BR2 AND ASSOCIATED CONNECTOR WIRES, SCREWS & WASHERS NOT USED ON BRC705-E00 OR -E0C MODELS.
7. PUT DOW 340 HEAT SINK COMPOUND ON BOTTOM OF SCR BLOCK BEFORE MOUNTING POWER BOARD.
8. MOUNT RELAY WIRES TO RELAY BEFORE INSTALLING POWER BOARD AND FEED WIRES UP THROUGH HOLE IN POWER BOARD, REFER TO DETAIL A AND B.
9. AFTER MOUNTING POWER BOARD, CONNECT FREE ENDS OF RELAY WIRES TO POWER BOARD PER DETAIL A & B.
10. CONNECT THE FOLLOWING TOGETHER USING WIR1003-00 AND CNT1052-04:
    A. CONNECT CN14 TO BR2,
    B. CONNECT CN14 TO BR1,
    C. CONNECT THE OTHER END OF BR1 TO OTHER END OF BR2.
11. AFTER MOUNTING CONTROL BOARD, CONNECT CN5A TO CN5B WITH CNT1066-00.
12. JUMPER TB3-1 AND TB3-2 USING WIR1009-00.
13. CONNECT SW3005-00 TO POWER BOARD PER DETAIL E.
14. CONNECT SWT1029-00 TO TB2-1 AND TO TB2-2
15. CONNECT FAN1003-00 TO POWER BOARD, USE CNT1052-01 CONNECTORS AND CONNECT THE POSITIVE LEAD TO CN9, & NEG LEAD TO CN10.

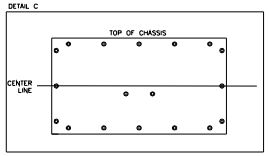
DETAIL A



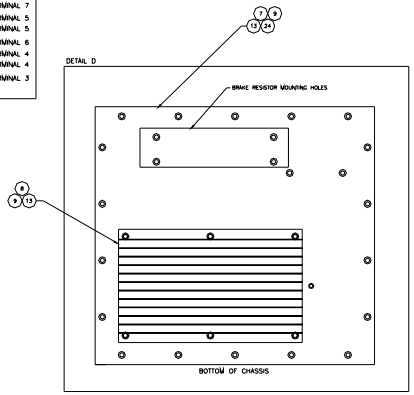
DETAIL B
RELAY CONNECTIONS



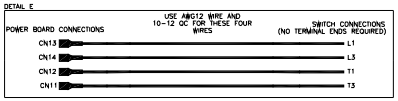
DETAIL C



DETAIL D

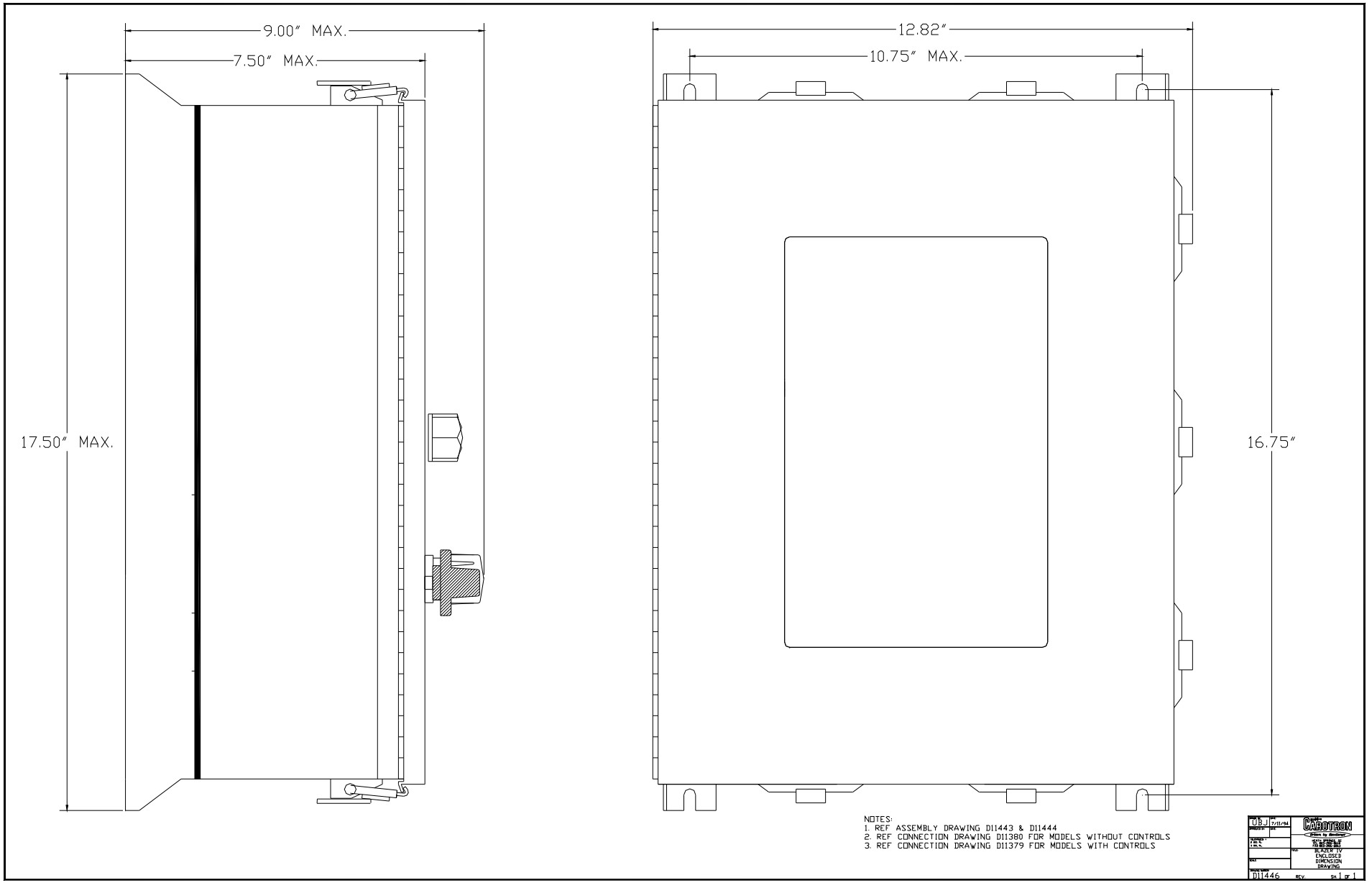


DETAIL E

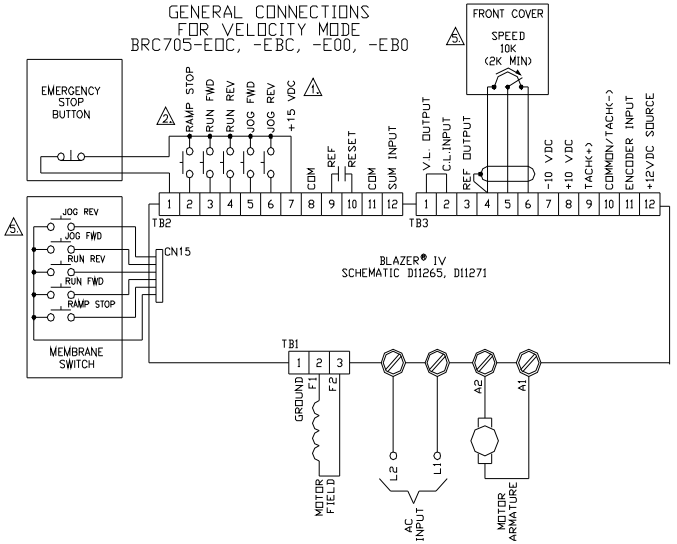


REV. C, ECO 419, 1-29-96
REV. B, ECO 367, 2-27-95
REV. A, ECO 361, 1-19-95

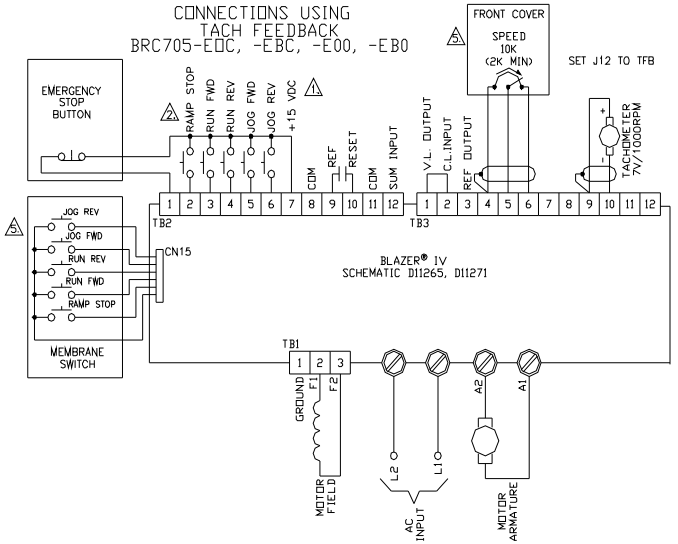
DRAWN BY: UBJ	DATE: 9/6/94	CAROTRON Driven by Excellence
APPROVED BY:	DATE:	HEATH SPRINGS, SC TEL 803-286-8614 FAX 803-286-6063
TOLERANCES: ± 2 DEC. PL. ± 3 DEC. PL.		TITLE: BLAZER®IV 5 HP ENCLOSED MODELS -E00, -EB0 FINAL ASSEMBLY
SCALE: 1=2		
DRAWING NUMBER: D11444	REV. C	SH 1 OF 1


9.00" MAX.
7.50" MAX.
17.50" MAX.
12.82"
10.75" MAX.
16.75"
NOTES:
1. REF ASSEMBLY DRAWING D11443 & D11444
2. REF CONNECTION DRAWING D11380 FOR MODELS WITHOUT CONTROLS
3. REF CONNECTION DRAWING D11379 FOR MODELS WITH CONTROLS
CARDTRON
BLANK TV ENCLOSED DIMENSION DRAWING
D11446

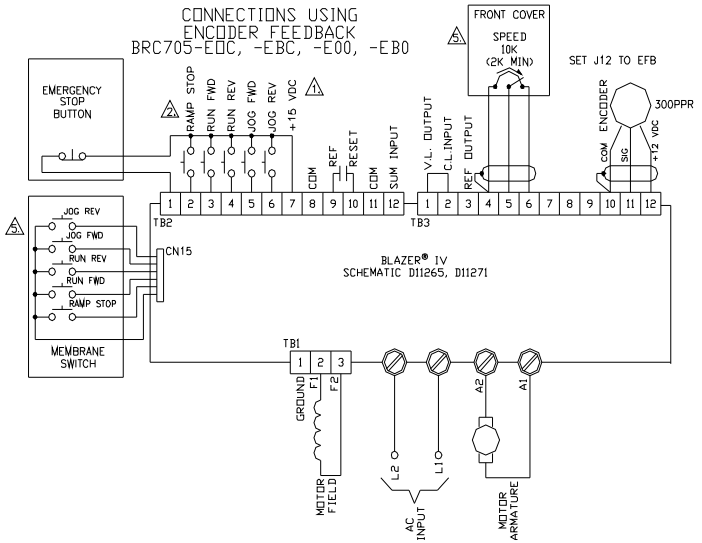
GENERAL CONNECTIONS FOR VELOCITY MODE BRC705-E0C, -EBC, -E00, -EB0



CONNECTIONS USING TACH FEEDBACK BRC705-E0C, -EBC, -E00, -EB0



CONNECTIONS USING ENCODER FEEDBACK BRC705-E0C, -EBC, -E00, -EB0



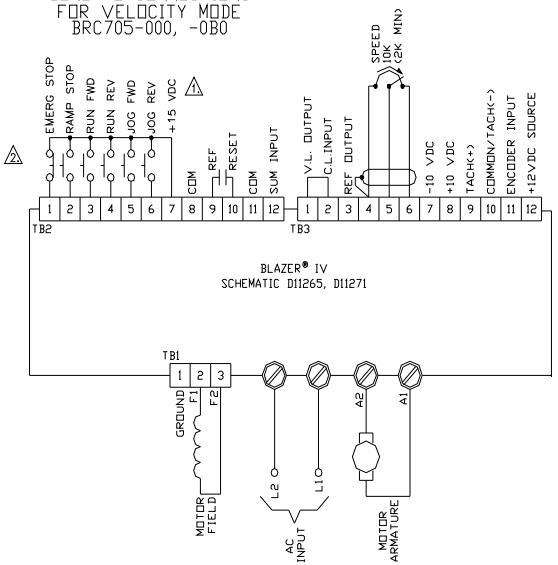
NOTES;

1. NOT REQUIRED FOR ENCLOSED MODELS BUT MAY BE USED FOR AN OPTIONAL REMOTE STATION.
2. FOR A NORMALLY OPEN REMOTE SWITCH ON RAMP STOP SET J7 TO NO.
3. ALL FUNCTIONS (EXCEPT E-STOP) ONLY REQUIRE N.O. MOMENTARY CONTACT SWITCH. MAINTAINED LOGIC MAY ALSO BE USED.
4. RAMP STOP CAN BE PROGRAMMED TO ACCEPT A N.O. OR N.C. CONTACTOR. SEE MANUAL FOR ADDITIONAL CONNECTION INFORMATION.
5. CONNECTION INFORMATION FOR MODELS BRC702-E00 AND -EB0 IS THE SAME AS FOR -E0C AND EBC, EXCEPT THERE IS NO MEMBRANE SWITCH OR POTENTIOMETER CONNECTIONS.
6. IF AN ADDITIONAL E-STOP SWITCH IS USED, IT MUST BE WIRED IN SERIES WITH THE E-STOP SWITCH ON THE ENCLOSURE.

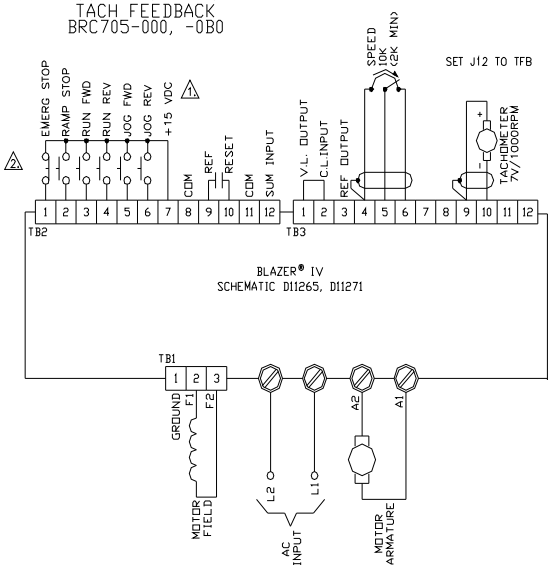
REV. D, CORRECTED TACH POLARITY ON TFB FIGURE
REV. C CHANGE E-STOP CONTACT & NOTES
REV B, ECO 351, 12-6-94
REV A, RENUMBER TB2, TB3

DRAWN BY: UBJ DATE: 9/9/94	CAROTRON Driven by Excellence
APPROVED BY: DATE:	HEATH SPRINGS, SC TEL 803-286-8614 FAX 803-286-6063
TOLERANCES: ± 2 DEC PL. 3 DEC. PL.	TITLE: CONNECTION DIAGRAM 5 HP BLAZER®IV ENCLOSED MODELS
SCALE:	
DRAWING NUMBER D11381	REV. D SH. 1 OF 1

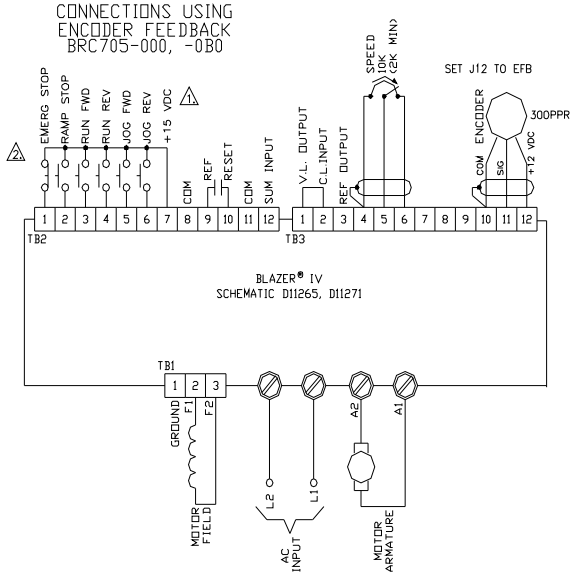
GENERAL CONNECTIONS FOR VELOCITY MODE BRC705-000, -0B0



CONNECTIONS USING TACH FEEDBACK BRC705-000, -0B0



CONNECTIONS USING ENCODER FEEDBACK BRC705-000, -0B0



NOTES:

1. NOT REQUIRED FOR ENCLOSED MODELS BUT MAY BE USED FOR AN OPTIONAL REMOTE STATION.
2. FOR A NORMALLY OPEN REMOTE SWITCH ON RAMP STOP SET J7 TO NO.
3. ALL FUNCTIONS (EXCEPT E-STOP) ONLY REQUIRE N.O. MOMENTARY CONTACT SWITCH. MAINTAINED LOGIC MAY ALSO BE USED.
4. RAMP STOP CAN BE PROGRAMMED TO ACCEPT A N.O. OR N.C. CONTACTOR. SEE MANUAL FOR ADDITIONAL CONNECTION INFORMATION.
5. IF E-STOP (TB2-1) IS NOT USED, JUMPER TB2-1 TO TB2-7.

REV. D, CORRECTED TACH POLARITY ON TFB FIGURE
REV. C CHANGE E-STOP CONTACT & NOTES
REV B, ECO 351, 12-6-94
REV A, RENUMBER TB2, TB3

DRAWN BY: UBJ	DATE: 9/9/94
APPROVED BY:	DATE:
TOLERANCES: X 0 DEC. PL. 3 DEC. PL.	CAROTRON "Driven by Excellence" HEATH SPRINGS, SC TEL 803-286-8614 FAX 803-286-6063
SCALE:	TITLE: CONNECTION DIAGRAM 5 HP BLAZER® IV CHASSIS MODELS
DRAWING NUMBER: D11382	REV. D SH. 1 OF 1

Notes:

Standard Terms & Conditions of Sale

1. General

The Standard Terms and Conditions of Sale of Carotron, Inc. (hereinafter called "Company") are set forth as follows in order to give the Company and the Purchaser a clear understanding thereof. No additional or different terms and conditions of sale by the Company shall be binding upon the Company unless they are expressly consented to by the Company in writing. The acceptance by the Company of any order of the Purchaser is expressly conditioned upon the Purchaser's agreement to said Standard Terms and Conditions. The acceptance or acknowledgement, written, oral, by conduct or otherwise, by the Company of the Purchaser's order shall not constitute written consent by the Company to addition to or change in said Standard Terms and Conditions.

2. Prices

Prices, discounts, allowances, services and commissions are subject to change without notice. Prices shown on any Company published price list and other published literature issued by the Company are not offers to sell and are subject to express confirmation by written quotation and acknowledgement. All orders of the Purchaser are subject to acceptance, which shall not be effective unless made in writing by an authorized Company representative at its office in Heath Springs, S.C. The Company may refuse to accept any order for any reason whatsoever without incurring any liability to the Purchaser. The Company reserves the right to correct clerical and stenographic errors at any time.

3. Shipping dates

Quotation of a shipping date by the Company is based on conditions at the date upon which the quotation is made. Any such shipping date is subject to change occasioned by agreements entered into previous to the Company's acceptance of the Purchaser's order, governmental priorities, strikes, riots, fires, the elements, explosion, war, embargoes, epidemics, quarantines, acts of God, labor troubles, delays of vendors or of transportation, inability to obtain raw materials, containers or transportation or manufacturing facilities or any other cause beyond the reasonable control of the Company. In no event shall the Company be liable for consequential damages for failure to meet any shipping date resulting from any of the above causes or any other cause.

In the event of any delay in the Purchaser's accepting shipment of products or parts in accordance with scheduled shipping dates, which delay has been requested by the Purchaser, or any such delay which has been caused by lack of shipping instructions, the Company shall store all products and parts involved at the Purchaser's risk and expense and shall invoice the Purchaser for the full contract price of such products and parts on the date scheduled for shipment or on the date on which the same is ready for delivery, whichever occurs later.

4. Warranty

The Company warrants to the Purchaser that products manufactured or parts repaired by the Company, will be free, under normal use and maintenance, from defects in material and workmanship for a period of one (1) year after the shipment date from the Company's factory to the Purchaser. The Company makes no warranty concerning products manufactured by other parties.

As the Purchaser's sole and exclusive remedy under said warranty in regard to such products and parts, including but not limited to remedy for consequential damages, the Company will at its option, repair or replace without charge any product manufactured or part repaired by it, which is found to the Company's satisfaction to be so defective; provided, however, that (a) the product or part involved is returned to the Company at the location designated by the Company, transportation charges prepaid by the Purchaser; or (b) at the Company's option the product or part will be repaired or replaced in the Purchaser's plant; and also provided that Cc) the Company is notified of the defect within one (1) year after the shipment date from the Company's factory of the product or part so involved.

The Company warrants to the Purchaser that any system engineered by it and started up under the supervision of an authorized Company representative will, if properly installed, operated and maintained, perform in compliance with such system's written specifications for a period of one (1) year from the date of shipment of such system.

As the Purchaser's sole and exclusive remedy under said warrant in regard to such systems, including but not limited to remedy for consequential damages, the Company will, at its option, cause, without charges any such system to so perform, which system is found to the
Company's satisfaction to have failed to so perform, or refund to the Purchaser the purchase price paid by the Purchaser to the Company in regard thereto; provided, however, that (a) Company and its representatives are permitted to inspect and work upon the system involved during reasonable hours, and (b) the Company is notified of the failure within one (1) year after date of shipment of the system so involved.

The warranties hereunder of the Company specifically exclude and do not apply to the following:

a. Products and parts damaged or abused in shipment without fault of the Company.

b. Defects and failures due to operation, either intentional or otherwise, (l) above or beyond rated capacities, (2) in connection with equipment not recommended by the Company, or (3) in an otherwise improper manner.

c. Defects and failures due to misapplication, abuse, improper installation or abnormal conditions of temperature, humidity, abrasives, dirt or corrosive matter.

d. Products, parts and systems which have been in any way tampered with or altered by any party other than an authorized Company representative.

e. Products, parts and systems designed by the Purchaser.

f. Any party other than the Purchaser.

The Company makes no other warranties or representation, expressed or implied, of merchantability and of fitness for a particular purpose, in regard to products manufactured, parts repaired and systems engineered by it.

5. Terms of payment

Standard terms of payment are net thirty (30) days from date of the Company invoice. For invoice purposed, delivery shall be deemed to be complete at the time the products, parts and systems are shipped from the Company and shall not be conditioned upon the start up thereof. Amounts past due are subject to a service charge of 1.5% per month or fraction thereof.

6. Order cancellation

Any cancellation by the Purchaser of any order or contract between the Company and the Purchaser must be made in writing and receive written approval of an authorized Company representative at its office in Heath Springs, S.C. In the event of any cancellation of an order by either party, the Purchaser shall pay to the Company the reasonable costs, expenses, damages and loss of profit of the Company incurred there by, including but not limited to engineering expenses and expenses caused by commitments to the suppliers of the Company's subcontractors, as determined by the Company.

7. Changes

The Purchaser may, from time to time, but only with the written consent of an authorized Company representative, make a change in specifications to products, parts or systems covered by a purchase order accepted by the company. In the event of any such changes, the Company shall be entitled to revise its price and delivery schedule under such order.

8. Returned material

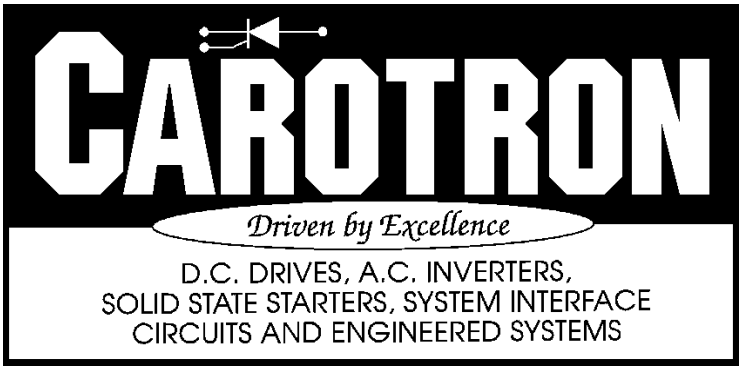
If the Purchaser desires to return any product or part, written authorization thereof must first be obtained from the Company which will advise the Purchaser of the credit to be allowed and restocking charges to be paid in regard to such return. No product or part shall be returned to the Company without a "RETURNTAG" attached thereon which has been issued by the Company.

9. Packing

Published prices and quotations include the Company's standard packing for domestic shipment. Additional expenses for special packing or overseas shipments shall be paid by the Purchaser. If the Purchaser does not specify packing or accepts parts unpacked, no allowance will be made to the Purchaser in lieu of packing.

10. Standard transportation policy

Unless expressly provided in writing to the contrary, products, parts and systems are sold f.o.b. first point of shipment. Partial shipments shall be permitted, and the Company may invoice each shipment separately. Claims for non-delivery of products, parts and systems, and for damages thereto must be filed with the carrier by the Purchaser. The Company's responsibility therefor shall cease when the carrier signs for and accepts the shipment.



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Web: www.carotron.com
MAN1008-00 Rev. E
Issued 01-30-2019