

# Calibration of 590 External Stack Drives with on-board Cal switches

This procedure is to be used only with the 590xC/xx/061 control board that has built-in calibration switches. Use procedure HW470219 if calibrating a control board with a plug-in resistor calibration card.

## Armature Current

For armature currents less than 799 amps, dial the setting directly into the switches SW1, SW2, SW3. Calibrate a 720 amp drive by setting SW1, SW2, SW3, to 7, 2, 0, respectively.

If armature current is greater than or equal to 800 amps, dial in 700 amps on the IA CAL rotary switches on the control board, by setting SW1, SW2, SW3, to 7, 0, 0, respectively. Then additional current may be added by inserting resistors R1 through R4 on the suppression board, according to the following formula. See sketch overleaf for resistor locations.

$$R_{IA} = \frac{2200}{(I_A - 699)} \text{ ohms} \quad \text{Resistor wattage guidelines are covered overleaf.}$$

If armature current is 2000 amps,  $R_{IA} = 2200/(2000-699) = 1.691$  ohms.

**Hint:** Use a standard 1.5 ohm resistor yielding 1467 amps, and set the switches to 533 amps, to total 2000 amps.

## Field Current

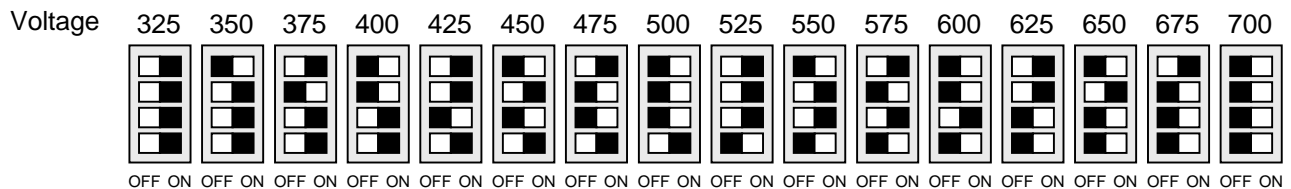
Dial in exactly **75%** of the motor field current using the IF rotary calibration switches, SW4, SW5, SW6 which represent the tens, units and decimal place. If the field current is 20.8amps, set SW4, SW5, SW6 to 1, 5, 6 respectively for 15.6A.

For stack controllers with **Option 43**, high field current option, dial in exactly **15%** of the motor field current, using the same procedure.

When in field voltage control mode, set the switches to 0.2

## Armature Voltage

Armature voltage calibration is done on the DIP switch VA CAL, according to the following sketch.



**NOTE:** For 230V external stack drives, use control board part number 590DC/xx/000.

Follow the armature voltage calibration procedure from the drive instruction manual.

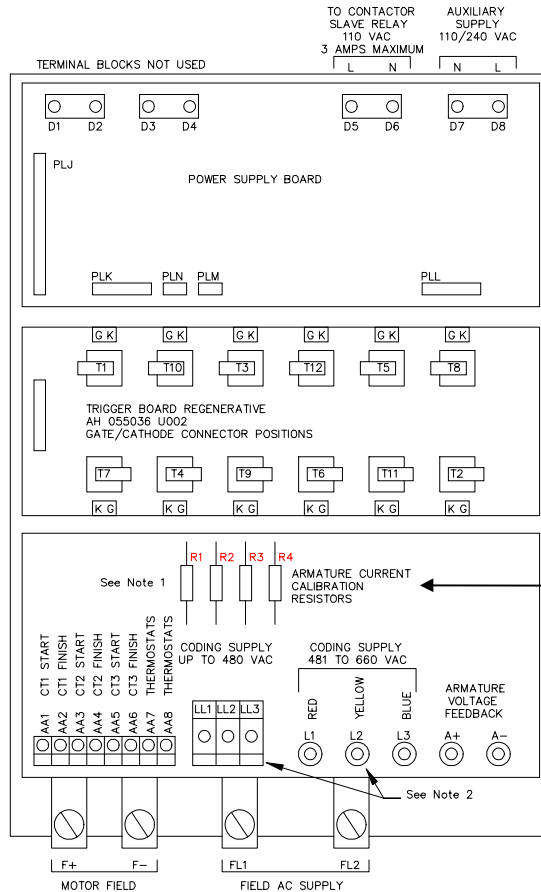
For armature current, field current and tach feedback calibration, follow this procedure.

## Tach Feedback

Use the optional analog tach feedback card AH38587U001 and set the on-board switches for the maximum tach voltage expected. See the drive manual for setup procedure.

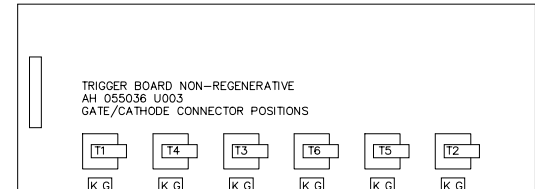
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## Suppression Board



### Header Functions

- PLJ Control door signals
- PLK Current transformers
- PLL Field thyristor firing
- PLM Armature sense
- PLN Stack heatsink trip



### Armature current calibration resistors

1. If any resistor value > 5 ohms use a 0.5 W resistor  
For resistors 2.5 to 5 ohms use a 1 W resistor  
For resistors 1.25 to 2.5 ohms use a 2 W resistor  
For resistors 0.75 to 1.25 ohms use a 3 W resistor
2. Terminals LL1, LL2, LL3 are rated to 480VAC. For higher line voltages, from 481 to 660VAC, use terminals L1, L2, L3.

- **All 590DRV models are factory calibrated at the full load currents of their respective HP ratings.**
- **All 590 controller models are factory calibrated at the full current rating of their respective stacks. The User should recalibrate the controller to match the motor armature current rating. See previous page for procedure.**
- **All external stack drives are shipped with the field in 'Voltage Control' mode and calibrated at 0.2. If Current control mode is desired, the User must calibrate the controller to match the rated field current of the motor. See previous page for procedure.**