MAKESAFE® TOOLS
PREVENTING INJURIES SINCE 2016

Power Tool Brake / Industrial Machinery Brake

Owner's Manual Supplement

Dear Customer,

You have ordered a customized braking panel. While the overall operation of your new panel is very similar to our standard product, there are some key differences. These differences are described in the following pages. Please review them along with our standard manual before installation.

If you have any questions, please don't hesitate to contact me.

Scott Swaaley
Founder, MAKESafe Tools
(415) 937-1808
scott@makesafetools.com

P.S. Please include the attached supplemental information w/ your operators manual.

Table of Contents

Specifications

Review the included schematic for all specifications.

Preparing For Installation

1. Review the included ‘Power Tool Brake’ manual. This information is intended to supplement that existing document.
2. Make plans for this machine to be completely off-line for the entirety of this installation. Include a generous allocation of time for troubleshooting, verification, and shipment of any replacement parts (just in case).
3. Make sure that the machine has been disconnected from all sources of energy (electrical plugs, compressed air, etc.) then lockout and tagout any connections that could supply any kind of energy to the machine.
4. Take note of what other machines and devices are on the same electrical circuit so you can make machine operators aware during machine testing (in case a wiring error trips the breaker).
5. Have spare fuses on hand (see later section for fuse locations).
6. Ensure that the installation site has adequate circuit protection for the control panel supply cable.
7. Verify that the ratings of the control panel match the machine the panel is being installed on.
8. Plan the physical mounting of the control panel. Additional mounting hardware and mounting flanges have been provided.
9. Open the control panel and gently remove any shipping materials or filler.
10. Once shipping materials have been removed, visually inspect the control panel interior for parts, wires, or connections that may have been damaged during shipping.
11. If the machine is three-phase, take note of the machine's existing direction of rotation.

Warning: *This guide is meant as a helpful aide but is not a replacement for electrical expertise or qualifications. All electrical work should be performed by someone qualified to do the work. It is the installers sole responsibility to perform the installation in compliance with all local codes and standards.*

Control Panel Installation

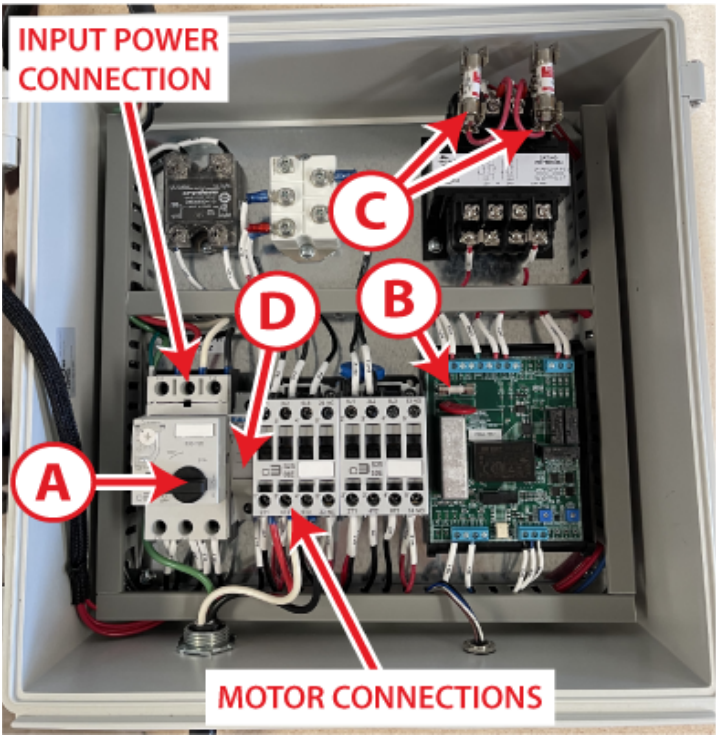
Review all the existing steps in the user manual. In addition to those steps, perform the following:

1. Decide where to mount your new MAKESafe Control Panel. Select a location that satisfies the following requirements:
   - the control panel door is free to swing open
   - the control panel does not pose a tripping hazard or otherwise obstruct access
   - enough cord is available to route from the control panel to the machine and a power source without creating a tripping hazard or otherwise obstructing access.
2. Once you've confirmed the location, use the provided mounting flanges to rigidly mount the control panel to the machine frame or other solid surface.
3. Connect the panel according to the diagram and table below. If a wire already exists at a terminal, add your wire in addition to the existing wire. Do not remove any existing wires from terminals.

Connection Table

Machine Type	Line Input			Output to Motor		
	Line 1	Line 2	Line 3	Phase 1	Phase 2	Phase 3
Single-Phase	1L1	5L3	N/A	2T1	4T2	N/A
Three-Phase	1L1	3L2	5L3	2T1	4T2	6T3

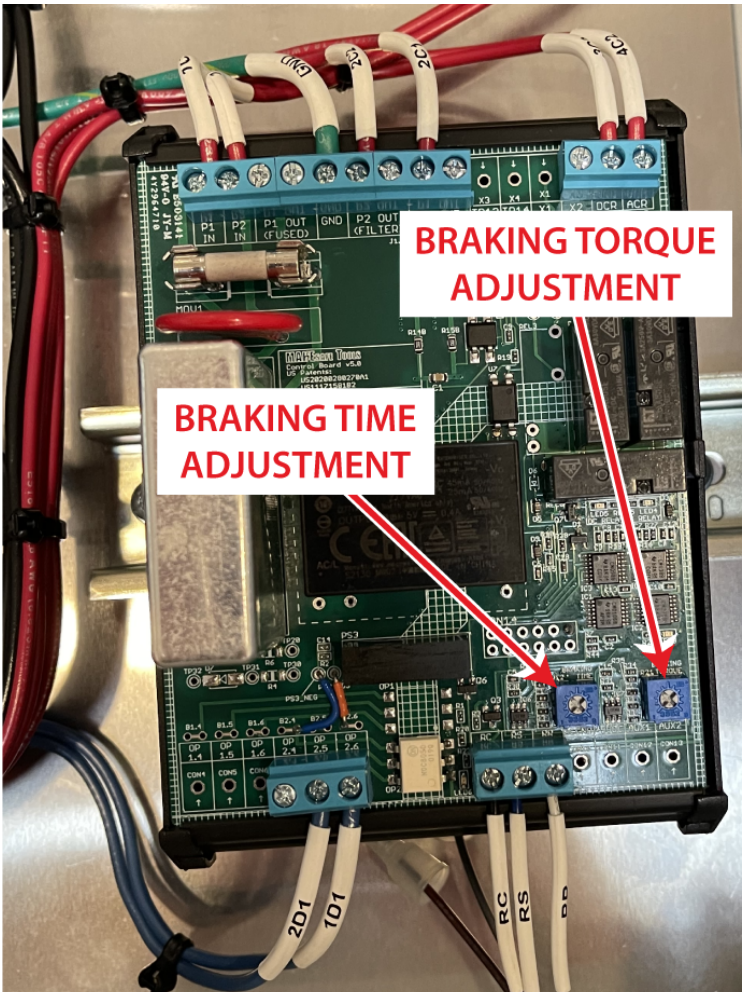
Connection Diagram



Note: This panel replaces ALL EXISTING CONTROLS on the machine. If any other controls are present on the machine, contact us for assistance.

Calibration

The calibration process is described in detail in the user manual. The braking torque and braking time adjustments on your custom control panel are not externally accessible. They are accessible on the printed circuit board inside your control panel, as shown on the image below.



Warning: Remove power from the entire control panel before making any adjustments.

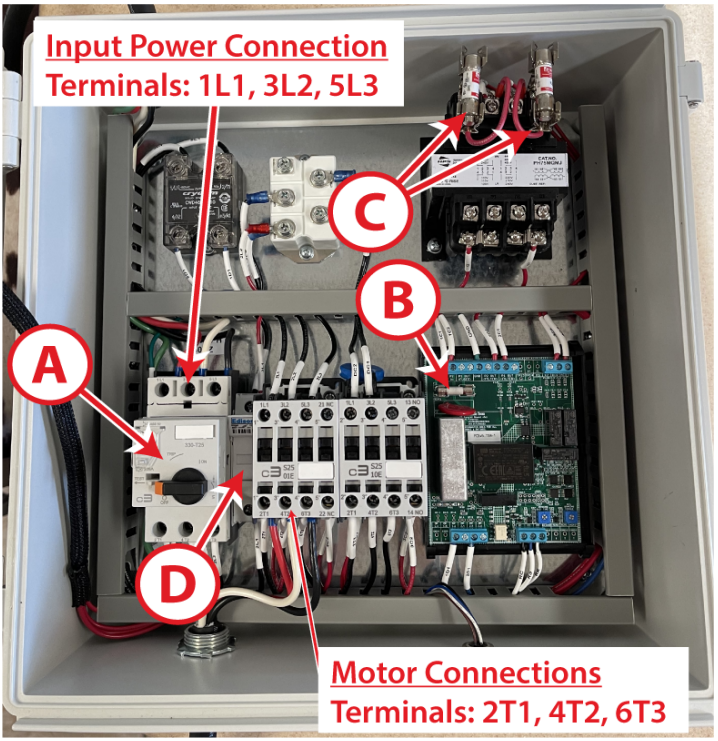
Note: if your circuit board has additional switches labeled “TIME++” or “TORQ++” - those switches are not intended for customers to set in the field. Consult with MAKESafe Tools for guidance if you need additional information or require additional range in your settings.

Circuit Protection

Your control panel contains multiple levels of circuit protection. Refer to the table below for more information.

Schematic Reference	Description	Location	Reset / Replacement
CB1	Motor Protection Circuit Breaker (short circuit & overload protection)	A	Reset manually by rotating THE handle CCW to the ‘OFF’ position then CW back to the ‘ON’ position.
F8	Braking Fuse	D	Exact replacement only:
F7	Transformer Primary Fuses (2 fuses)	C	Replace with 2x UL Class CC fuses. Ratings: 600V, 0.5A, Time-Delay
F5	AC Filter Fuse	B	Replace with equivalent fuse. Ratings: 250V, 1.0A, 5 x 20 mm

Circuit Protection Locations



Troubleshooting

Problem	Potential Solution(s)
Your machine will not start.	Solution 1: Reset the emergency stop by pressing it down then twisting it gently clockwise until you feel it pop out. The machine will not start while the e-stop is engaged. Solution 2: Remove power from the control panel and check the circuit protection elements. See previous section for locations. If any elements have tripped, identify the fault before resetting.
The circuit breaker or motor overload trips often.	Solution 1: Check the motor and identify faults. Solution 2: Adjust the motor overload setting. Solution 3: Reduce the braking torque.

Service & Support

If you have any questions or your device needs service, please contact us.

service@makesafetools.com

(415) 937-1808

www.makesafetools.com