

IGBT Tester

Field Service Bulletin

804810 – Revision 2 – April, 2005

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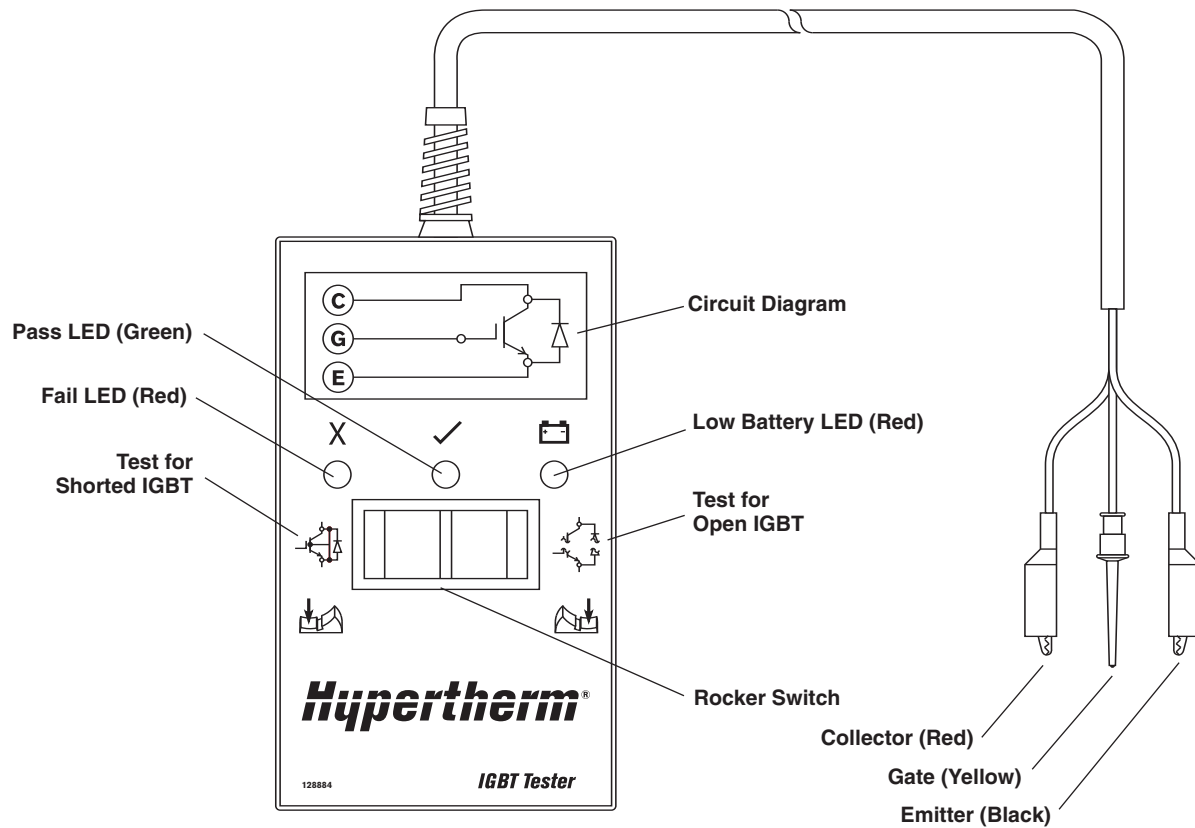
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Contents of package

Kit 128883



Part Number	Description	Qty
128884	IGBT Tester	1
804810	Field Service Bulletin	1

Controls and indicators



Prepare IGBTs for test

The complexity of the circuits requires that service technicians have a working knowledge of inverter power supply theory. In addition to being technically qualified, technicians must perform all testing with safety in mind. See Section 1 in the manual for your power supply for more safety precautions before proceeding.

	<h2>WARNING</h2>
	<p>ELECTRIC SHOCK CAN KILL</p> <ul style="list-style-type: none"> • Use extreme caution when working near live electrical circuits. Dangerous voltages exist inside the power supply that can cause serious injury or death. • Turn off the power and remove the input plug from its receptacle before removing the cover from the power supply. • See warnings in the manual of the unit under test before proceeding.

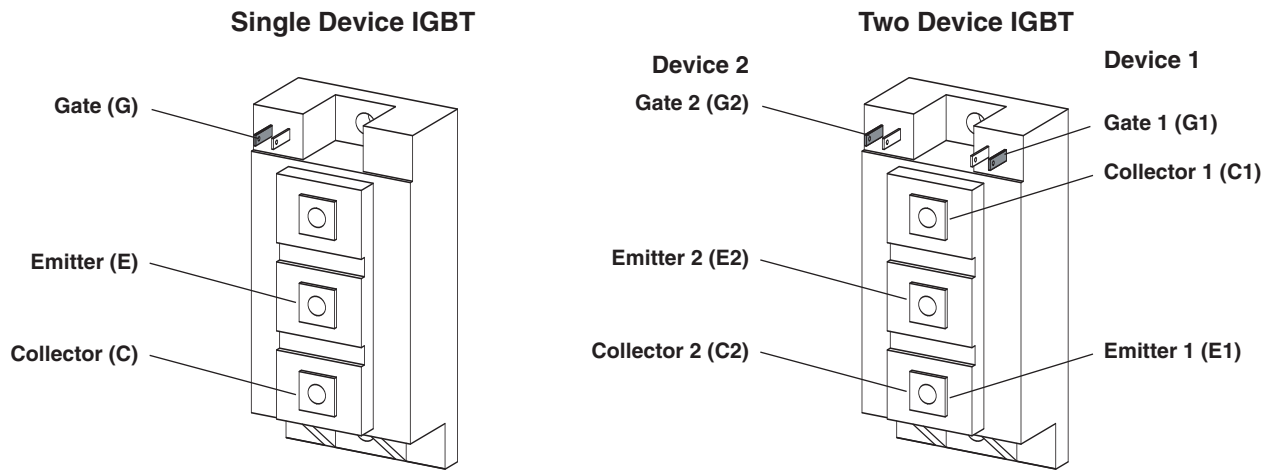
Connect leads

Connect the colored leads to the IGBT as shown below.

Before the IGBT can be tested it must be electrically isolated from all circuits. If the IGBT is installed in a power supply the power board and any lead connections must be removed before testing. Failure to do so may result in false readings and/or damage to the IGBT tester.

CAUTION: Failure to ensure that IGBT is isolated may result in false readings and/or damage to the IGBT Tester.

The IGBTs in Hypertherm power supplies may have one or two devices contained within the same housing. The illustration below depicts two common configurations of an IGBT. Each connection on the IGBT will be labeled with an abbreviation. They may be labeled as C, E, G or 1, 2, 3 with a schematic depicting numbers and pin functions.



Note: Each device should be tested separately.

Indicator LEDs and device tests



Red fail LED

When illuminated during test this indicates that the IGBT failed the test, for either an open IGBT when switch is pressed to the right or a shorted IGBT when switch is pressed to the left.



Green pass LED

When illuminated during test this indicates that the IGBT passed the test, for either an open IGBT when switch is pressed to the right or a shorted IGBT when switch is pressed to the left.



Red low battery LED

When illuminated during test this indicates that the remaining voltage in the battery is insufficient to power the test circuitry. Replace battery immediately.

NOTE: The IGBT Tester requires a minimum of 8V to properly power its circuitry.

Perform IGBT device test

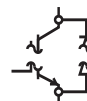
Press and hold the switch in the desired direction to perform test.

Switch Position	LED			This May Mean	Corrective Action
	Fail	Pass	Battery		
Left	X	–	–	IGBT is shorted	Replace IGBT
Left	–	X	–	IGBT passed short test	None
Left	–	–	X	Battery below 8V	Replace battery
Left	–	–	–	Dead battery	Replace battery
Right	X	–	–	IGBT is open	Replace IGBT
Right	–	X	–	IGBT passed open test	None
Right	–	–	X	Battery below 8V	Replace battery
Right	–	–	–	Dead battery	Replace battery

Note: The IGBT is considered to be good only if it passes both the open and short device tests.

Troubleshooting

1. Visually inspect leads and IGBT Tester for damage.
2. Verify that the battery voltage is greater than 8V.
3. Perform a self test on the IGBT Tester as shown below. If the results do not match the table replace the lead connections.



Connect leads	Short Test	Open Test
None	Pass	Fail
Red to Black	Fail	Pass

Technical questions

If you are unable to fix the problem by following this basic troubleshooting guide or if you need further assistance call Hypertherm Technical Service at (800) 643-9878.

Warranty

Hypertherm, Inc. warrants that its Products shall be free from defects in materials and workmanship, if Hypertherm is notified of a defect within a period of six (6) months from its date of delivery to you. This warranty shall not apply to any Product which has been incorrectly installed, modified, or otherwise damaged. Hypertherm, at its sole option, shall repair, replace, or adjust, free of charge, any defective Products covered by this warranty which shall be returned with Hypertherm's prior authorization (which shall not be unreasonably withheld), properly packed, to Hypertherm's place of business in Hanover, New Hampshire, or to an authorized Hypertherm repair facility, all costs, insurance and freight prepaid. Hypertherm shall not be liable for any repairs, replacement, or adjustments of Products covered by this warranty, except those made pursuant to this paragraph or with Hypertherm's prior written consent. **The warranty above is exclusive and is in lieu of all other warranties, express, implied, statutory, or otherwise with respect to the Products or as to the results which may be obtained therefrom, and all implied warranties or conditions of quality or of merchantability or fitness for a particular purpose or against infringement. The foregoing shall constitute the sole and exclusive remedy for any breach by Hypertherm of its warranty.** Distributors/OEMs may offer different or additional warranties, but Distributors/OEMs are not authorized to give any additional warranty protection to you or make any representation to you purporting to be binding upon Hypertherm.

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