Troubleshooting Guide
CTTG #146

This document is pertinent to the fan on SPMD, Unidrive SP
Commander GP20, Commander SK and Affinity Sizes 5 and 6

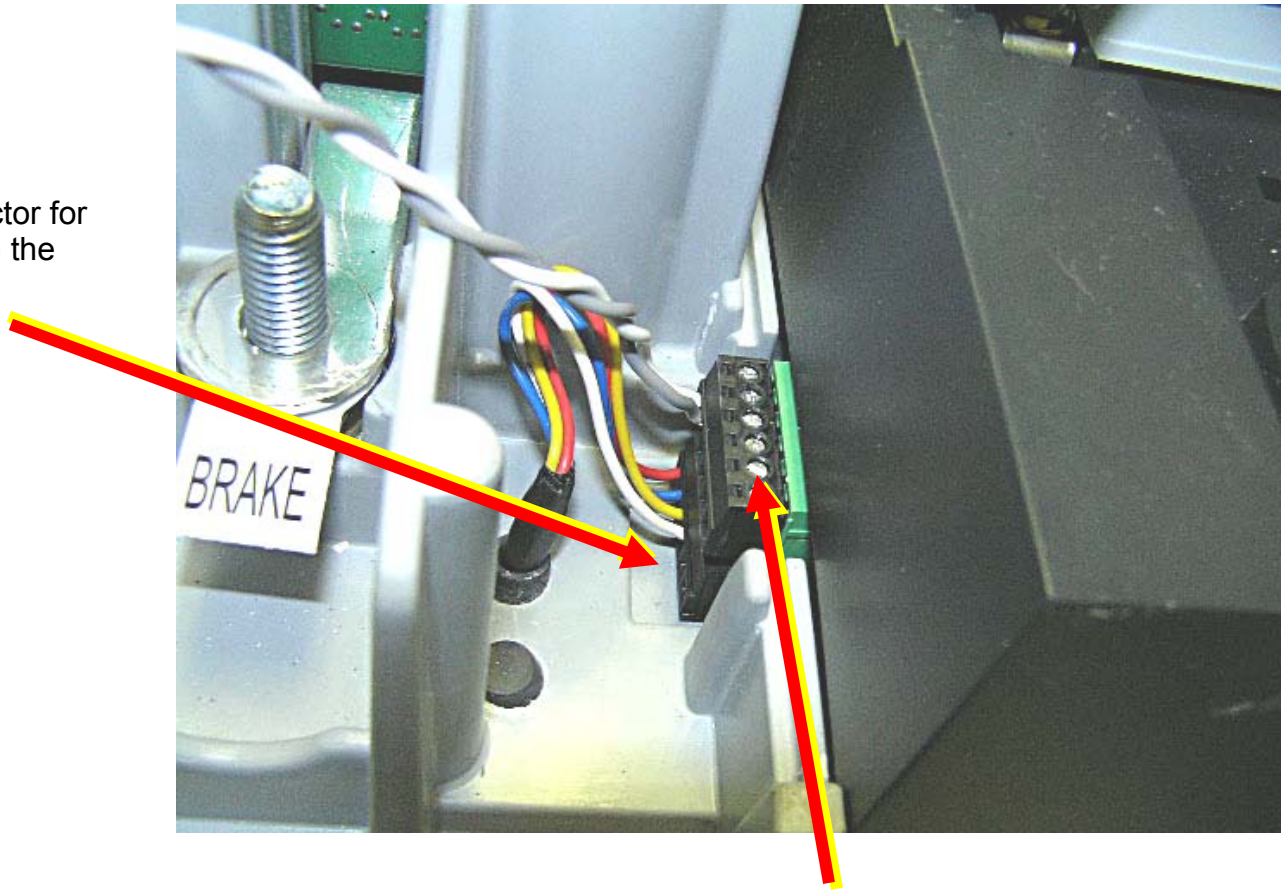
Problem: **Determining if the fan is defective.**

What is the difference between fans on the size 5 and size 6?
SPMD and Size 6 Affinity, Commander SK, Commander GP20 and Unidrive SP: Customer needs to supply the +24VDC for the fan.

Size 5 Affinity, Commander SK, Commander GP20 and Unidrive SP: Drive supplies the +24VDC for the fan.

How do you know when the main cooling fan is defective? Check for fan obstruction preventing free motion. Check and note if the wires/connector is tight and sound. If wires and connector are good then voltage checks need to be performed.

Fan connector for Size 6 is on the bottom.

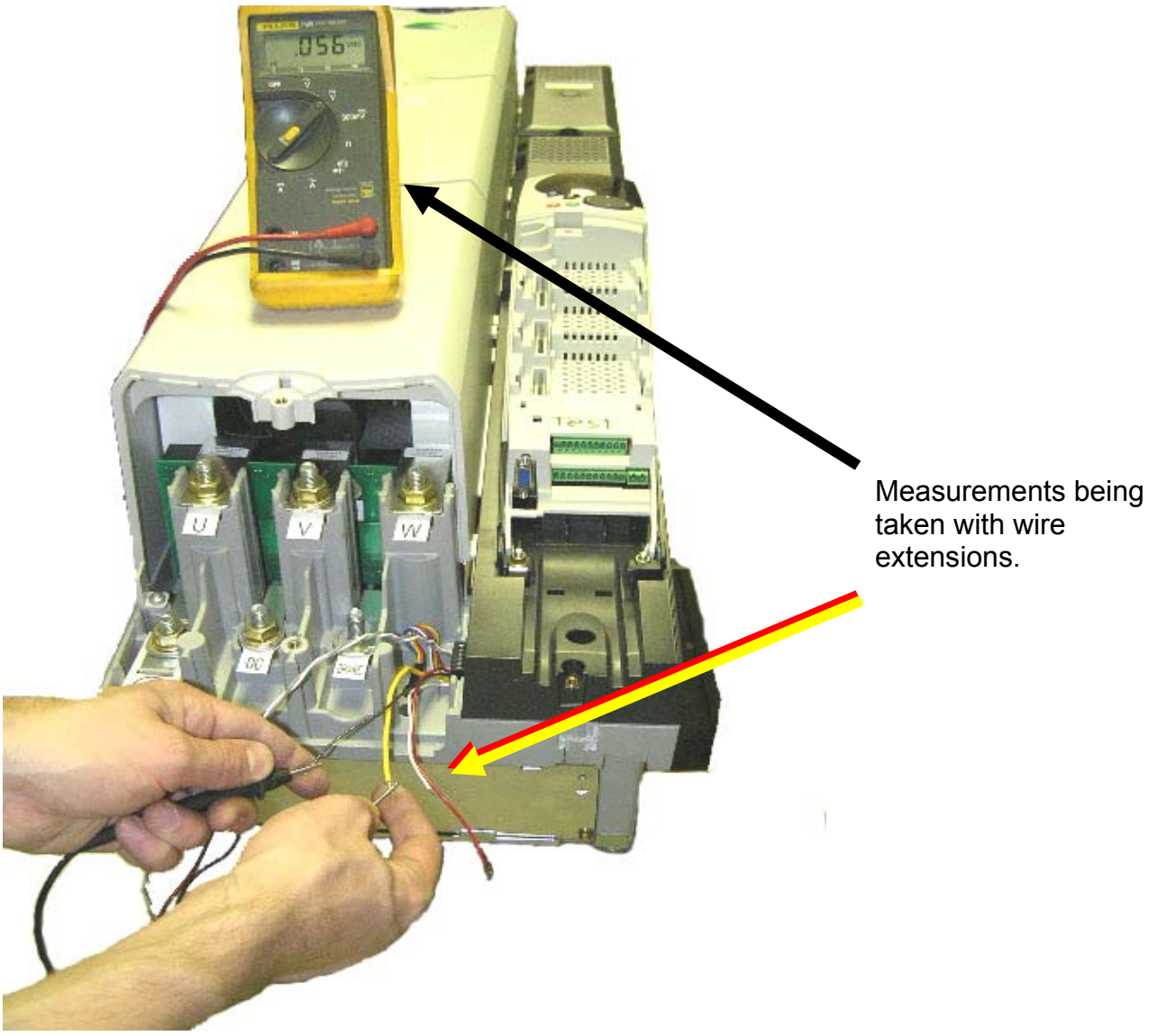


Note the supplied +24VDC is already connected on the top terminal. Positive terminal, the white wire, is on terminal #1. Negative terminal, the gray wire, is terminal #2.

Fan Connector Terminal Layout

Terminal #52	Terminal #53	Terminal #54	Terminal #55
White	Yellow or **Green on high-current SPMD**	Blue or **Black on high-current SPMD**	Red

Voltage checks of the fan need to be collected. There is little space to put meter probes to make contact with the terminals of the bottom connector. Insert a wire into each of the terminals from #52 to #55. See the photo as an example:



When checking a Size 6 or SPMD drive, apply the user-supplied +24VDC to power the fan. Turn the main power to the drive on.

For Commander SK:

Go to parameter 7 1 and enter the value of 6.45

Go to parameter 6 1 and change the setting to On or OFF

Consult **CTAN272** if parameter 7 1 is occupied with another value.
http://www.emersonct.com/download_usa/appNotes/CTAN272.pdf

For SMPD and Unidrive SP:

Go to parameter #00.49 and change the value to **L2**.
Parameters #06.45 can now be accessed and turned on (1) to force the fan to run at full speed or off (0).

Use the chart below to compare the measured readings.

Size 5 Chassis:

Use low-flow blower (**3251-1025-00**) +24VDC supplied by the drive.

"+" meter lead to terminal:	"-" meter lead to terminal:	6.45 = 0	6.45 = 1
Yellow (53)	Blue (54)	.08VDC	9.6VDC
Red (55)	Blue (54)	24VDC	24VDC

Size 6 chassis and SPMD 1201, 1202, 1203, 1204, 1401, 1402, 1421, and 1422:

Use low-flow blower (**3251-1025-00**). Customer must supply 24VDC from external source. There readings were taken from an SP6402.

"+" meter lead to terminal:	"-" meter lead to terminal:	With external 24VDC applied		With external 24VDC removed	
		6.45 = 0	6.45 = 1	6.45 = 0	6.45 = 1
Yellow (53)	Blue (54)	.08VDC	11.77V	.08VDC	11.77V
Red (55)	Blue (54)	24VDC	24VDC	0V	0V

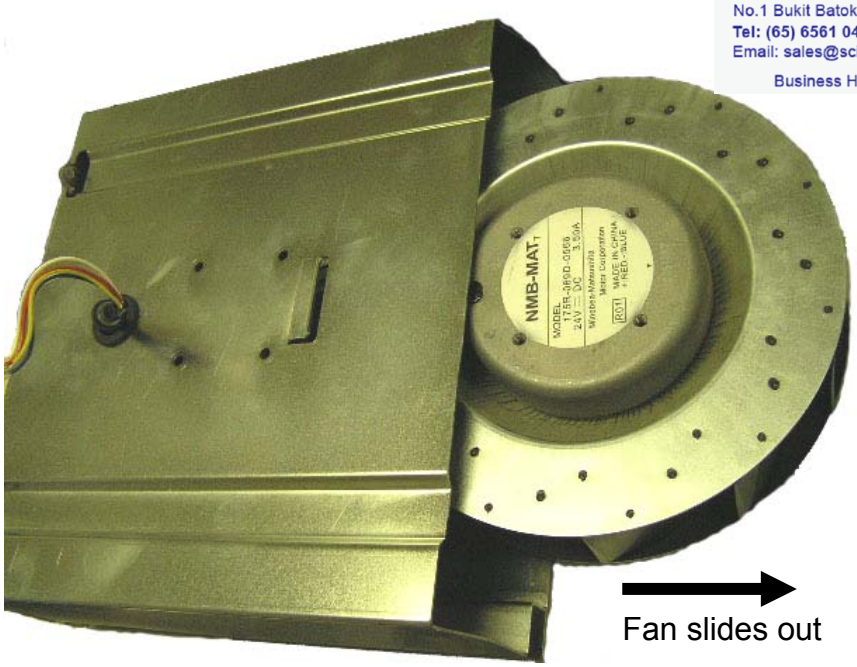
* Current draw from external +24V supply when 6.45=1 is ≈3.0A

SPMD 1403, 1404, 1423, 1424, 1603, 1604, 1623, 1624:

Uses high-flow blower (**3251-7124-00**). Customer must supply 24VDC from external source. These readings were taken on an SPMD1404.

"+" meter lead to terminal:	"-" meter lead to terminal:	With external 24VDC applied		With external 24VDC removed	
		6.45 = 0	6.45 = 1	6.45 = 0	6.45 = 1
Yellow (53)	Blue (54)	0.042VDC	11.45VDC	0.042VDC	11.45VDC
Red (55)	Blue (54)	24VDC	24VDC	0V	0V

* Current draw from external +24V supply when 6.45=1 is ≈4.4A



If the fan is found to be defective, please refer to **CTRI259** for Fan Replacement Instructions on for this drive.

Size 5 and 6 Fan, SPMD
Part Number: **3251-1025-00**

Some SPMD models
Part Number **3251-7124-00**

To purchase this fan or other spare parts please call:
Parts at 800-367-8067

For questions call Control Techniques Technical Support-USA at 716-774-1193 Grand Island, NY 14072