

TEKTRONIX®

This insert is provided as a supplement to the instruction manual furnished with this modified instrument. The information given in this insert supersedes that given in the manual.

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**PS 503A
MOD FF**

MODIFICATION INSERT

DESCRIPTION

This manual insert describes MOD FF as it applies to the Tektronix PS 503A Dual Power Supply plug-in unit. MOD FF provides a front-panel control for adjustment of the +5 V supply by + or -0.5 V. The front-panel control allows fixed or variable operation of the +5 V supply by means of a push-in/pull-out switch integral to the control knob.

CHARACTERISTICS

Regulator

MOD FF removes three-terminal regulator U1 from Main circuit board assembly A1 and replaces it with an adjustable regulator circuit on a new circuit board assembly, A2 Adjust. Regulator output voltage is determined by the ratio of R251, plus either R253 or R255 (depending on the position of S255 PULL-TO-ADJUST), to R250.

The regulator output voltage can be calculated with the following equation:

$$V_{OUT} = 1.25 \text{ volts} (1 + ((R251 + R_{VAR})/R250))$$

The values chosen for R250 and R251 assure a minimum adjustment range of $\pm 10\%$ under all conditions. Different adjustment limits may be set by selecting other values for R250 and R251.

Front Panel Control

The front-panel control provided by MOD FF is located to the left of the +5 V supply ground connector. The control has dual functions: a push-in/pull-out switch to select FIXED or VARIABLE +5 V supply operation and a variable control for the +5 V supply when VARIABLE mode has been selected.

FIXED Mode

With S255 of the front-panel +5 V ADJ control pushed in, the +5 V supply output is fixed as in a standard instrument. MOD FF does, however, provide internal adjustment R253 on the A2 Adjust circuit board assembly for adjustment of the +5 V supply.

VARIABLE Mode

With S255 of the front-panel +5 V ADJ control pulled out, the +5 V supply output is adjustable from $\leq +4.5$ V (control full counterclockwise) to $\geq +5.5$ V (full clockwise).

PERFORMANCE CHECK

Perform the Performance Check Procedure as given in Section 2 of the Instruction Manual with the following changes:

7. Check +5 Volt Output Voltage

The front-panel +5 V ADJ control must be pushed in for FIXED operation.

9. Check Variable Current Limiting

Do not perform steps n and o.

10. Check +5 Volt Adjustment Range

Add the following new procedure:

- a. Connect the digital voltmeter between the +5 V @ 1A red and white binding posts.
- b. Push in the OUTPUT button and pull out the +5 V ADJ knob.
- c. Rotate the +5 V ADJ knob to full counterclockwise.
- d. CHECK—for a meter reading less than +4.50 volts.
- e. Rotate the +5 V ADJ knob to full clockwise.
- f. CHECK—for a meter reading greater than +5.50 volts.

ADJUSTMENT

g. Connect a 5 Ω load resistor between the +5 V @ 1A binding posts.

Add the following step to the Instruction Manual Adjustment Procedure:

h. Repeat steps c through f.

i. Turn the power off to the TM 500-Series Power Module. Disconnect the 5 Ω load resistor and the digital voltmeter. Push and release the OUTPUT button, push in the +5 V ADJ and the VOLTS DUAL TRACKING knobs, and set all front-panel controls full counterclockwise.

2. Adjust +5 Volt FIXED Voltage

- a. CHECK—that the +5 V ADJ knob is pushed in.
- b. Connect the digital voltmeter between the 5 V @ 1A binding posts.
- c. Set the voltmeter to the 20 volts dc range.
- d. Adjust R253 (on Adjust circuit board assembly A2) for a reading between +4.75 and +5.25 volts.

j. This completes the Performance Check Procedure for PS 503A MOD FF.

REPLACEABLE ELECTRICAL PARTS LIST CHANGES

ADD:

A2 037-6369-00 CKT BOARD ASSY:ADJUST

Assembly A2 consists of the following components:

C250	290-0974-00	CAP.,FXD,ELCTLT:10 UF,20%,50 VDC
C251	285-1189-00	CAP.,FXD,MTLZD:0.1 UF,5%,100 V
R250	321-0079-00	RES.,FXD,FILM:64.9 OHM,1%,0.125 W
R251	321-0112-00	RES.,FXD,FILM:143 OHM,1%,0.125 W
R253	311-1858-00	RES.,VAR,NONWW:TRMR,100 OHM,0.5 W,LINEAR

Front-panel +5 V ADJ control consists of the following components:

R255	037-0084-00	RES. VARIABLE:100 OHM,10%,LINEAR
S255	_____	(PART OF R255)

CHANGE TO:

U1 156-1161-00 MICROCKT,LINEAR:VOLTAGE REGULATOR,POS,ADJ,LM317T

REPLACEABLE MECHANICAL PARTS LIST CHANGES

<u>TEK</u>	<u>QTY.</u>	<u>DESCRIPTION</u>
<u>P/N</u>		

ADD:

		Part of A2 Assembly
131-0589-00	4	TERMINAL,PIN:0.46 L X 0.025 SQ,PH,BRZ GLD PL

166-0024-00	1	SPACER,SLEEVE:0.125 L X 0.125 ID,AL
210-0586-00	2	NUT,PL,ASSEM WA:4-40 X 0.25,STL CD PL
210-1171-00	1	WASHER,SHLDR:0.12 ID X 0.143 OD X 0.07 D,NYL
211-0038-00	1	SCREW,MACHINE:4-40 X 0.312,FLH,100 DEG,STL CD PL
211-0114-00	1	SCREW,MACHINE:4-40 X 0.438,FLH,100 DEG,STL CD PL
333-2925-01	1	PANEL,FRONT:PS 503A,MOD FF
337-3036-01	1	SHIELD,ELEC:FRONT SUBPANEL,PS 503A,MOD FF
342-0355-00	1	INSULATOR,PLATE:TRANSISTOR,SILICONE RUBBER
386-4864-01	1	SUBPANEL,FRONT:MOD FF

WIRE KIT CHANGES

TEK P/N	QTY.	DESCRIPTION
034-3244-00	1	CA ASSY, SP, RIBBON: 4 COND, 7.5 L, W/CONNECTORS ONE END
175-0826-00	2	CABLE, SP, ELEC: 3, 26AWG, STRD, PVC, JKT, RBN

ACCESSORIES CHANGES

TEK P/N	QTY.	DESCRIPTION
061-3171-00	1	INSERT, MANUAL: PS 503A MOD FF

