



**TEKTRONIX®**

**465**  
OSCILLOSCOPE  
AND  
**DM43/DM40**  
DIGITAL MULTIMETERS  
OPERATORS

INSTRUCTION MANUAL

Serial Number \_\_\_\_\_ First Printing OCT 1974

tektronix, Inc.  
P. O. Box 500  
Beaverton, Oregon 97077

070-1738-01

# TABLE OF CONTENTS

<b>BEFORE OPERATING</b>	<b>Page</b>	<b>BASIC OSCILLOSCOPE DISPLAYS (cont)</b>	<b>Page</b>
INTRODUCTION	1	DELAYED SWEEP DISPLAY	17
SAFETY INFORMATION	1	MIXED SWEEP DISPLAY	18
OPERATING VOLTAGE	2	X-Y DISPLAY	18
OPTIONS	3	SINGLE SWEEP DISPLAY	19
<b>CONTROLS, CONNECTORS AND INDICATORS</b>		<b>DM43/DM40 DISPLAYS AND MEASUREMENTS</b>	
VERTICAL	4	RESISTANCE	20
DISPLAY	6	VOLTS	22
DM43/DM40	6	TEMPERATURE (DM43 ONLY)	24
TRIGGER	8	<b>APPLICATIONS AND MEASUREMENTS</b>	
HORIZONTAL, CALIBRATOR, AND POWER	12	PRELIMINARY	28
REAR PANEL	14	OPERATOR'S ADJUSTMENTS AND CHECKS	29
SIDE PANEL	15	PEAK-TO-PEAK VOLTAGE MEASUREMENTS —AC	31
<b>BASIC OSCILLOSCOPE DISPLAYS</b>		INSTANTANEOUS VOLTAGE MEASUREMENTS —DC	32
NORMAL SWEEP DISPLAY	16	ALGEBRAIC ADDITION	34
MAGNIFIED SWEEP DISPLAY	17		

# TABLE OF CONTENTS (cont)

<b>APPLICATIONS AND MEASUREMENTS (cont)</b>	<b>Page</b>	<b>APPLICATIONS AND MEASUREMENTS (cont)</b>	<b>Page</b>
<b>COMMON-MODE REJECTION</b>	35	<b>DM43/DM40 DELAYED OR MIXED SWEEP TIME MEASUREMENTS</b>	48
<b>AMPLITUDE COMPARISON MEASUREMENTS</b>	36	<b>Time Difference Between Repetitive Pulses (DM43/DM40)</b>	48
<b>TIME DURATION MEASUREMENTS</b>	37	<b>Time Duration (DM43/DM40)</b>	49
<b>FREQUENCY MEASUREMENTS</b>	38	<b>Frequency (DM43/DM40)</b>	50
<b>RISETIME MEASUREMENTS</b>	39	<b>Time Difference Between Two Pulses From Different Sources (DM43/DM40)</b>	51
<b>TIME-DIFFERENCE BETWEEN TWO PULSES FROM DIFFERENT SOURCES</b>	40	<b>Risetime (DM43/DM40)</b>	52
<b>TIME COMPARISON MEASUREMENTS</b>	41	<b>Mix (DM43/DM40)</b>	53
<b>BASIC 465 DELAYED OR MIXED SWEEP TIME MEASUREMENTS</b>	42	<b>DELAYED OR MIXED SWEEP MAGNIFICATION</b>	53
<b>Time Difference Between Repetitive Pulses (Basic 465)</b>	42	<b>Magnified Sweep Starts After Delay</b>	53
<b>Time Duration Measurements (Basic 465)</b>	43	<b>Triggered Delayed Sweep Magnification</b>	55
<b>Frequency (Basic 465)</b>	44	<b>PHASE DIFFERENCE MEASUREMENTS</b>	56
<b>Time Difference Between Two Pulses From Different Sources (Basic 465)</b>	45	<b>HIGH RESOLUTION PHASE DIFFERENCE MEASUREMENTS</b>	57
<b>Risetime (Basic 465)</b>	47	<b>PULSE JITTER MEASUREMENTS</b>	58
<b>Mix (Basic 465)</b>	48		

# TABLE OF CONTENTS (cont)

<b>OPERATOR'S SPECIFICATIONS</b>	<b>Page</b>	<b>OPERATOR'S SPECIFICATIONS (cont)</b>	<b>Page</b>
VERTICAL	59	TEMPERATURE—DM43 ONLY, WITH PROBE	63
TRIGGERING	60	DC VOLTAGE DM43/DM40	63
DIFFERENTIAL TIME MEASUREMENT (BASIC 465)	60	AC POWER SOURCE	64
DIFFERENTIAL TIME MEASUREMENT (DM43/DM40)	61	ENVIRONMENTAL	64
HORIZONTAL	61	ACCESSORIES	
CALIBRATOR	61	STANDARD ACCESSORIES INCLUDED	65
Z-AXIS INPUT	62	OPTIONAL ACCESSORIES	65
OUTPUTS	62	OPTIONS	
RESISTANCE DM43/DM40	62	OPTION 4	66
TIME DM43/DM40	62	OPTION 7	66