
TECHNICAL MANUAL

OPERATOR'S, ORGANIZATIONAL, DIRECT SUPPORT, AND
GENERAL SUPPORT MAINTENANCE MANUAL
INCLUDING REPAIR PARTS AND SPECIAL TOOLS LISTS
FOR

**SIGNAL GENERATOR SG-735 / URM-165
(HEWLETT-PACKARD MODEL 8616A)
(NSN 6625-00-254-6671)**

TECHNICAL MANUAL }
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HEADQUARTERS
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**OPERATOR'S, ORGANIZATIONAL, DIRECT SUPPORT, AND
GENERAL SUPPORT MAINTENANCE MANUAL
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(INCLUDING DEPOT MAINTENANCE REPAIR
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This manual is an authentication of the manufacturer's commercial literature which, through usage, has been found to cover the data required to operate and maintain this equipment. Since the manual was not prepared in accordance with military specifications, the format has not been structured to consider levels of maintenance.

SECTION	Page	Illus Figure	SECTION	Page	Illus Figure
0 INTRODUCTION	0-1		6-30. RF Power Output Adjustment	6-10	
I GENERAL INFORMATION	1-1		5-31. Meter Amplifier	5-12	
1-1. Introduction	1-1		5-32. Frequency Tracking, Final	5-12	
1-6. Supplementary Instruments	1-1		6-33. ALC Amplifier	5-13	
1-9. Instrument Options	1-1		5-34. Pulse Modulation Adjust.	5-14	
1-11. Instrument Identification.	1-1		5-35. Square-Wave Adjust	5-14	
1-13. Klystron Warranty Claim Sheet	1-1		5-35A. AM Adjust	5-14	
II INSTALLATION	2-1		6-36. Performance Checks.	5-14	
2-1. Incoming Inspection.	2-1		5-38. Frequency Range and Accuracy	5-14	
2-3. Installation	2-1		5-39. AFControl Check	5-14	
2-6. Conversion to Rack Mount.	2-1		5-40. Power Output Check.	5-15	
2-7. Air Filter Inspection	2-1		5-41. Leveled Output Check	5-15	
2-9. Power Requirement	2-1		6-42. Pin Diode On-Off Ratio.	5-15	
2-11. Three Conductor Power Cable.	2-1		6-43. Internal Square-Wave Check	5-15	
2-14. Repackaging for Shipment	2-1		5-44. External Pulse Check	5-17	
III OPERATION	3-1		5-45. External AM Check	5-17	
3-1. Introduction	3-1		5-46. Measurement of Residual and Incidental FM	5-18	
3-3. Controls and Indicators	3-1		6-47. Cam Cable Replacement	5-18	
3-5. Operating Procedures.	3-1		5-48. Tools Required	5-18	
3-7. Stabilized Source	3-1		5-49. Procedure	5-18	
IV PRINCIPLES OF OPERATION	4-1		5-51. Low Pass Filter Replacement	5-21	
4-1. Introduction	4-1		5-52. Tools Required	5-21	
4-3. RF Oscillator	4-1		5-63. Procedure	5-21	
4-6. Pin Diode Modulator	4-1		5-65. Cavity Wiper Replacement	6-21	
4-16. Modulation Circuits.	4-3		5-57. Parts Required	5-21	
4-18. External Pulse	4-3		5-59. Replacement Procedure	5-21	
4-20. Internal Square Wave.	4-3		5-60. Frequency Drive Gear Replacement	5-24	
4-22. External AM	4-4		VI REPLACEABLE PARTS	6-1	
4-25. Internal Meter and Automatic Level Control (ALC)	4-5		6-1. Introduction	6-1	
4-36. External Leveling	4-6		6-3. Abbreviations	6-1	
4-37. Regulated Power Supply.	4-6		6-5. Replaceable Parts List.	6-1	
V MAINTENANCE	5-1		6-7. Ordering Instructions	6-1	
5-1. Introduction	6-1		APPENDIX		
5-3. Test Instruments Required.	5-1		0 REFERENCES	0-1	
5-5. Periodic Maintenance.	5-1		I MANUAL CHANGES	i-1	
5-6. Cleaning the Air Filter	6-1		SECTION		
5-8. General Maintenance	6-1		I-1. Introduction	i-1	
5-10. Cover Removal	5-1		I-3. Manual Changes	i-1	
6-12. Troubleshooting.	6-1		I-6. Manual Changes Instructions	i-3	
6-14. Repair	5-6		APPENDIX		
6-16. Klystron Removal and Replacement	5-6		II Illustrated Parts Identification	ii-1	
6-17. Tube Removal	6-6		III MAINTENANCE ALLOCATION	III-1	
6-18. Tube Replacement	6-6		IV. ORGANIZATIONAL, DIRECT SUP- PORT, AND GENERAL SUPPORT MAINTENANCE REPAIR PARTS AND SPECIAL TOOLS LIST (INCLUDING DEPOT MAINTENANCE REPAIR PARTS AND SPECIAL TOOLS)		
6-19. RF Probe Removal and Replacement	5-6		SECTION		
6-20. Probe Assembly Removal	5-6		I Introduction	IV-1	
6-21. Probe Replacement.	6-7		II Repair Parts List	IV-6	
6-22. Pin Modulator Removal and Replacement	5-9		Group		
5-23. Modulator Removal	5-9		00 Signal Generator		
5-25. Modulator Replacement.	5-9		SC 735/URM-165	IV-5	
6-26. Calibration	6-9				
5-27. Regulated Power-Supply Adjustment	6-9				
6-28. Frequency Tracking, preliminary.	5-10				
6-29. Power Adjustment	5-10				

SECTION	Page	Illus Figure	SECTION	Page	Illus Figure
Rear Panel	IV-7	2	ALC A500	IV-23	8
High Voltage Power Supply	IV-9	3	03 Cavity Assembly	IV-27	9
Control Panel	IV-11	4	04 Probe Assembly (No parts authorized)		
Leveler Assembly	IV-15	5	SECTION		
Low Pass Filter Assembly	IV-17	6	III Special Tools List		
01 Circuit Card Assembly, High Voltage Power Supply A100	IV-19	7	(Nonapplicable)		
02 Circuit Card Assembly, Low Voltage and			IV National Stock Number and Part Number Index.	IV-28	

ILLUSTRATIONS

Figure	Page	Figure	Page
1-1. Mode 18616A Signal Generator	1-0	5-11. Top View, Cover Removed	5-19
2-1. Conversion to Rack Mount	2-0	5-12. Residual and Incidental FM Chk	5-20
3-1. Front and Rear Panel Controls and Indicators	3-2	5-13. Exploded View-Cam Assembly	5-20
3-2. Unleveled RF Power Output	3-3	5-14. Low Pass Filter Assembly Drawing	5-22
3-3. Internally-Leveled RF Output	3-4	5-15. Forming the Center Conductor Fingers	5-24
3-4. Externally-Leveled RF Output	3-5	5-16. Modulation and Klystron Circuits	5-27
3-5. Internal Square-Wave Modulation	3-6	5-17. ALC Board (A500)	5-29
3-6. External Pulse Modulation	3-7	5-18. ALC Circuit	5-29
3-7. External FM Modulation	3-8	5-19. Regulated +20 Volt and Filament Supplies ..	5-31
3-8. External AM Modulation	3-9	5-20. High Voltage Board (A100)	5-33
4-1. Circuit Block Diagram	4-1	5-21. High Voltage Power Supply	5-33
4-2. Simplified Block Diagram of PIN Modulator	4-1	A-1. High Voltage Board (A100)	i-4
4-3. RF Attenuator Unit	4-2	A-2. Partial Schematic of Figure 5-17 ALC Circuit (Part of Change D)	i-6
4-4. ALC Attenuator Unit	4-3	B-1. HP Model 8616A, Signal Generator, Generator Arrangement	ii-3
4-5. Pulse Modulation Circuit	4-4	B-2. HP Model 8616A, Signal Generator, Control Panel	ii-5
4-6. Square Wave Modulation Circuit	4-4	B-3. HP Model 8616A, Signal Generator, Cavity Assembly	ii-7
4-7. External AM Circuit	4-4	B-4. HP Model 8616A, Signal Generator, Probe Assembly	ii-9
4-8. ALC and Meter Circuit	4-5	B-5. HP Model 8616A, Signal Generator, High Voltage Power Supply Assembly	ii-11
4-9. Series-Regulated Power Supply	4-6	B-6. HP Model 8616A, Signal Generator, Rear Panel	ii-13
5-1. Model 8616A Block Diagram	5-4	B-7. HP Model 8616A, Signal Generator, Leveler Chassis	ii-15
5-2. Cut-Away View of Klystron Cavity and Klystron Assembly	5-7	B-8. HP Model 8616A, Signal Generator, Cabinet Assembly	ii-17
5-3. RF Probe Assembly	5-8		
5-4. PIN Modulator (External View)	5-10		
5-5. Frequency Tracking Setup	5-11		
5-6. Frequency Tracking	5-13		
5-7. Frequency and Power Measurement	5-14		
5-8. Internal Square Wave Check	5-16		
6-9. External Pulse Check	5-16		
5-10. External AM Check	5-17		

TABLES

Table	Page	Table	Page
1-1. Specifications	1-0	6-1. Reference Designations and Abbreviations ..	6-2
5-1. Test Equipment Required	5-2	6-2. Replaceable Parts	6-4
5-2. Trouble Location	5-5	6-3. Manufacturers Code List	6-9
5-3. Power Supply Adjust	5-5	A-1. Manual Changes by Serial Number	i-2
5-4. Klystron Repeller Voltages	5-10	A-2. Manual Changes by Assembly	i-2
5-5. Klystron Probe Adjust	5-12	A-3. 8616A Recommended Changes	i-7
5-6. ALC Amplifier Adjust	5-12		

SECTION I GENERAL INFORMATION

1-1. INTRODUCTION

1-2. The Model 8616A Signal Generator provides RF power in the 1800- to 4500-MHz range. The instrument produces an RF power output of at least 2 mW. Output frequency and attenuation are read directly on digital dials, and fine frequency changes can be made by means of the front-panel A F control. Complete specifications are given in Table 1-1. The 8616A is shown in Figure 1-1.

1-3. The instrument has two power output connectors which supply RF power simultaneously. One output provides at least 10 mW (2 mW from 3000 to 4500 MHz) of power and may be leveled. When in the leveled output mode of operation and the output is 0 dBm or less, the RF output is held quite constant across the band without resetting the attenuator or power monitor. The other output connector provides an uncalibrated output of at least 0.5 mW. A wave-guide-beyond-cutoff attenuator, which is referenced to the RF output, accurately attenuates the calibrated RF power output from 0 to -127 dBm.

1-4. RF power output can be internally square-wave modulated. In addition, the RF power can be externally AM, FM, or pulse modulated. An external ALC (automatic level control) input which can be used for remote leveling loop control and an external DC-coupled FM input which can be used for external AFC is also provided.

1-5. PIN diode attenuators are used for leveling, square wave, pulse, and amplitude modulation. The PIN attenuator is an absorption device that can be electrically controlled to attenuate RF power. A sampling loop which includes a PIN diode attenuator compensates for changes in RF power output to hold the RF power output nearly constant.

1-6. SUPPLEMENTARY INSTRUMENTS

1-7. Two instruments capable of extending the operating parameters of the generator are the 8403A and the Model 2650A. The Model 8403A Modulator produces output pulses with 30 to 40

nanosecond rise and decay time characteristics. Pulse outputs are accurately variable in frequency, width, and delay. Amplitude modulation is available with frequency responses to 10 MHz for sine waves. Square-wave frequency capability is accurately available. The modulator also provides sync and delayed-sync outputs.

1-8. The Model 2650A Oscillator Synchronizer may be used directly to stabilize all internal cavity reflex klystron signal generators. Short-term stability is one part in 10⁸/sec, and long-term stability is one part in 10⁶/week over 0 to 50 degrees centigrade.

1-9. INSTRUMENT OPTIONS

1-10. In addition to the standard instrument, the option 01 is available. The option 01 instrument has its input connectors located on both the front and rear panel and its output connectors located on the rear panel; in all other respects it is the same as the regular signal generator.

1-11. INSTRUMENT IDENTIFICATION

1-12. Hewlett-Packard uses a ten digit serial number (on instrument rear panel) to identify instruments. The first four numbers and letter are the serial prefix number and the last five digits are unique to a specific instrument. If the serial prefix on your instrument does not appear on the title page of this manual, there are differences between the manual and your instrument which are described in a Manual Change sheet included with the manual. If the change sheet is missing, it may be obtained, on request, from your nearest Hewlett-Packard office.

1-13. KLYSTRON WARRANTY CLAIM SHEET

1-14. The klystron supplied and replacement klystrons purchased from Hewlett-Packard are guaranteed as set forth in the CONDITIONS OF WARRANTY FOR KLYSTRON TUBES which is found on the next to last page of this manual.

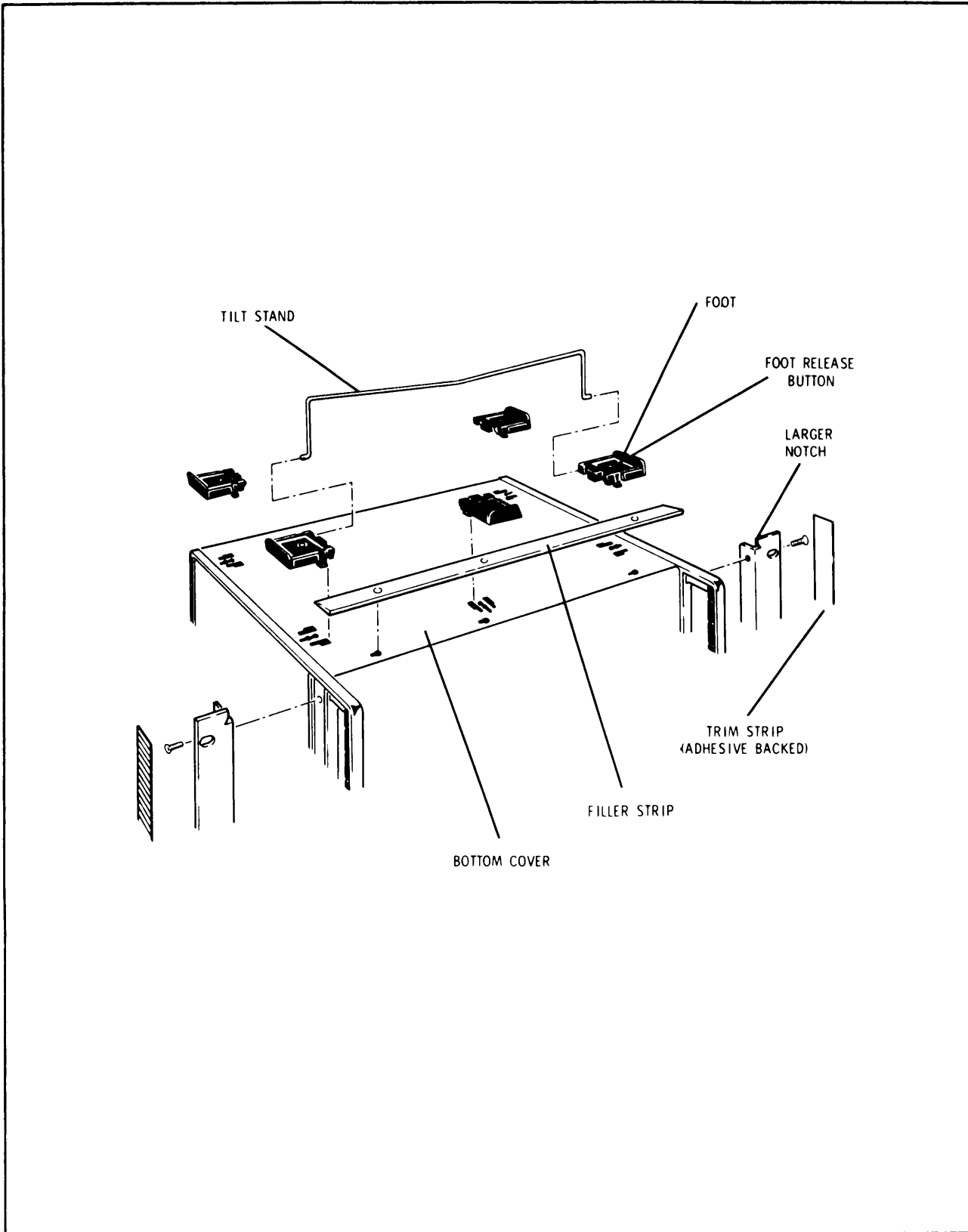


Figure 2-1. Conversion to Rack Mount