

PRODUCT SUPPORT PLAN

February 25, 1982
Supersedes: none

To: PT-01, PT-11 INSTRUMENT SALES AND SERVICE OFFICES

From: NETWORK MEASUREMENTS DIVISION (4500),
SANTA ROSA, CALIFORNIA

Subject: MODEL 83595A .01 to 26.5 GHz RF PLUG-IN

DESCRIPTION

The 83595A is a broad band RF Plug-in compatible with the 8350A Sweep Oscillator, covering frequencies from 10 MHz to 26.5 GHz in a continuous sweep. There are five separate frequency bands available. Band 0 (10 MHz to 2.4 GHz), Band 1 (2.4 to 7.0 GHz) Band 2 (7.0 to 13.5 GHz), Band 3 (13.5 to 20.0 GHz) and Band 4 (20.0 to 26.5 GHz), or all five bands can be swept sequentially for 10 MHz to 26.5 GHz frequency coverages. The specified maximum leveled output power is +10 dBm with <20 kHz peak residual FM. The 83595A uses a Switched YIG Tuned Multiplier (SYTM), which allows the selection of the heterodyned frequencies .01 to 2.4 GHz (Band 0), the fundamental 2.4 to 7.0 GHz (Band 1) or the second, third, or fourth harmonic of the fundamental. The 83595A has internal leveling standard. The available options are:

- Option 002 — Internal 55 dB Step Attenuator
- Option 004 — Rear Panel RF Output

The 83595A U.S.A. list price is \$27,000. The first customer shipment is December 1, 1981.



SUPPORT STRATEGY

The repair strategy is bench repair to the component level. There are six microcircuits, all of which are on the Rebuilt Exchange program (Blue Stripe). See Attachment II for a list of HP part numbers and prices.

Jim Stead



**HEWLETT
PACKARD**

SERVICE TRAINING

United States Product Service Training for the 8350A Sweep Oscillator and the family of six RF Plug-ins was completed in November (83525A, 83540A, 83522A, 83545A, 83570A, and 83592A). HPSA Product Service Training is scheduled for November 30 through December 11, 1981 and ICON Product Service Training is scheduled for March 8 - 12, 1982 in Santa Rosa.

DOCUMENTATION PLAN

The first customer shipments are being made with preliminary manuals. The first edition manual is planned to be ready for customer shipment starting the first of February. The final manual will be distributed in May, 1982.

SERVICE SPECIFICATIONS

The expected failure rate for the 83595A is less than 20% with a mean time to repair of less than five hours, ARC \$540. The calibration cycle will be twice a year with a calibration time of less than two hours.

WARRANTY

The 83595A carries the standard instrument product warranty, one year return to Hewlett-Packard.

TEST EQUIPMENT REQUIRED

A list of service accessories and recommended test equipment to support the 83595A is provided in Attachment III. The Weinschel power splitter and attenuators are necessary to ensure accurate power related measurements from 18 to 26.5 GHz.

PARTS STOCKING RECOMMENDATIONS

A parts stocking recommendation will be sent to CPC and PCE for those parts that are unique to the 83595A. This will include both purchased and fabricated parts. The expected number of repairs per region per quarter are shown in Attachment I.

Attachments:

- I. Projected Repairs by Region
- II. Rebuilt Exchange Parts
- III. Recommended Test Equipment

Attachment I. 83595A Projected Repairs by Region

	NEELY	EAST	MIDWEST	SOUTH	EUROPE	JAPAN	ICON	Total
Q1	0	0	0	0	0	0	0	0
Q2	1	0	0	0	1	0	0	2
Q3	1	1	1	0	1	1	0	5
Q4	2	2	0	1	2	1	1	9
Total	4	3	1	1	4	2	1	16

Attachment II. Rebuilt Exchange Parts

Description	Part Numbers		New Price	Exchange Price
	New	Restored		
YIG Oscillator 2.2 - 7.0 GHz	5086-7337	5086-6337	\$2050.00	\$1250.00
SYTM .01 - 26.5 GHz	5086-7340	5086-6340	3400.00	1700.00
Power Amp 2.0 - 7.0 GHz	5086-7386	5086-6386	3200.00	1600.00
Power Amp .01 - 2.4 GHz	5086-7217	5086-6217	1550.00	750.00
Modulator-Splitter	5086-7339	5086-6339	2250.00	1200.00
Modulator-Mixer	5086-7219	5086-6219	1200.00	475.00

Attachment III. Recommended Test Equipment (2 of 3)

<u>Instrument</u>	<u>Critical Specifications</u>	<u>Recommended Model</u>	<u>Use*</u>
Thermistor Sensor	Frequency Range: 18 to 26.5 GHz Maximum SWR: ≤ 2.0	HP K486	P, A
Power Meter	Power Range: 1 μ W to 100 mW	HP 436A	P, A
Power Sensor	Frequency Range: 0.01 to 26.5 GHz	HP 8485A	P, A
Crystal Detector**	Frequency Response: 0.01 to 26.5 GHz Maximum Input Power: 100 mW	HP 8473C	P, A
Attenuator**	Frequency Range: 0.01 to 26.5 GHz Maximum Input Power: +20 dBm Attenuation: 20 dB ± 1.0 dB 10 dB ± 0.8 dB 6 dB ± 0.6 dB 3 dB ± 0.5 dB	Weinschel Model M9-20 Weinschel Model M9-10 Weinschel Model M9-6 Weinschel Model M9-3	P P, A P P
Power Splitter**	Frequency Range: 0.01 to 26.5 GHz Maximum Input Power: $\geq +20$ dBm	Weinschel Model 1579A	P, A
Directional Coupler	Frequency Range: 0.1 to 2.0 GHz Nominal Coupling: ≥ 20 dB Maximum Coupling Variation: $\leq +1$ dB Minimum Directivity: ≥ 32 dB	HP 778D	P
Directional Coupler	Frequency Range: 2.0 to 18 GHz Nominal Coupling: ≥ 22 dB Maximum Coupling Variation: ± 1 dB Minimum Directivity: 26 dB	HP 11691D	P
Directional Coupler	Frequency Range 18 to 26.5 GHz Nominal Coupling: 10 dB Maximum Coupling Variation: ± 0.5 dB Minimum Directivity: 40 dB	HP K752C	P
RMS Voltmeter	dB Range: -20 to -70 dBm (0 dBm = 1 mW into 600 ohms) Frequency Range: 10 Hz to 10 MHz Accuracy: $\pm 5\%$ of full scale	HP 3400A	P
Air Line Extension (2 required)	Impedance: 50 Ohms Frequency Range: dc to 18 GHz Reflection Coefficient: 0.018 + 0.001 (times the frequency in GHz)	HP 11567A	P
Step Attenuator	Frequency Range: dc to 26.5 GHz Incremental Attenuation 0 to 70 dB in 10 dB steps Calibration Accuracy: ≤ 0.1 dB at all steps	HP 8495D Option 890	P

Attachment III. Recommended Test Equipment (3 of 3)

<u>Instrument</u>	<u>Critical Specifications</u>	<u>Recommended Model</u>	<u>Use*</u>
Adjustable Short	Frequency Range: 1.1 to 18 GHz Impedance: 50 \pm 1.5 ohms	Maury Microwave 1959-2	P
Waveguide short	Frequency Range: 18 to 26.5 GHz	HP K920B	
DC Power Supply	DC Output: 0 to 6.5Vdc \pm 0.05Vdc	HP 6213A	A
50 Ohm Termination	Type N, 50 \pm 0.5 Ohms	HP 909A	P
Adapter (2 required)	APC 3.5 to waveguide SWR \leq 1.2	HP K281C	PA
Delay Line Discriminator	Refer to Figure 1-3.		P,A
PC Board Extender	44-pin, extends printed circuit boards	HP Part No. 08350-60031 A,T	

*P = Performance Test; A = Adjustments; T = Troubleshooting

**For testing at frequencies of \leq 18 GHz, the following equipment may be substituted:

ATTENUATORS

20 dB HP 8491B Option 020
 10 dB HP 8491B Option 010
 6 dB HP 8491B Option 006
 3 dB HP 8491B Option 003

POWER SPLITTER

HP 11667A

CRYSTAL DETECTOR

HP 8470B

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