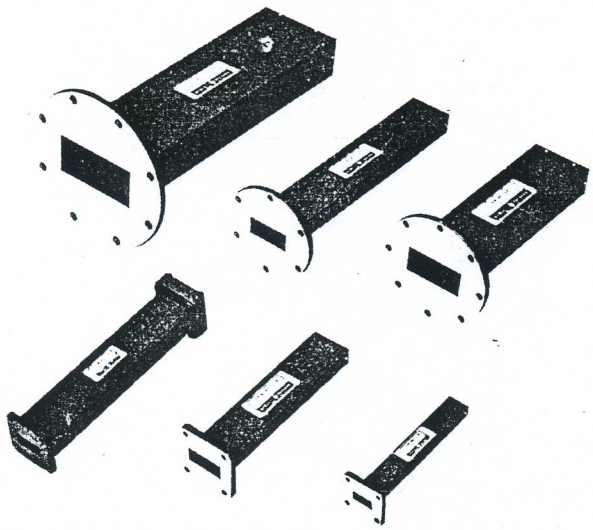

WAVEGUIDE TERMINATIONS

910A/B

1. GENERAL INFORMATION.

2. The Models 910A and B are terminations for waveguide systems operating at low average powers. The device is so designed that virtually all the applied power is absorbed, thus assuring a low SWR. The Models 910A and B are useful wherever a matched load is required, such as in the measurement of the reflection coefficient of a discontinuity or obstacle in a waveguide system. The termination may be used with a slotted line, directional coupler, or hybrid tee. Specifications for each model are given in Table 1.

3. The Models 910A and B consists of a section of waveguide terminated in a tapered lossy material which absorbs power. The difference between the A and B models of the 910 is in the waveguide section. The Model 910A section is standard waveguide stock. The waveguide section of the Model 910B is a precision broached aluminum casting which is held to close tolerances.

4. UNPACKING AND INSPECTION.

5. INITIAL INSPECTION.

6. MECHANICAL CHECK. Inspect the Model 910 as soon as possible after receipt. If the shipping carton is damaged, ask that the carrier's representative be present when the Model 910 is unpacked. Look for mechanical damage to the flange, waveguide, or load, and check the cushioning material for signs of stress. The load is brittle, and could be broken if the package was mishandled. The surfaces of the load material should be smooth and the load body should taper to a fine point. Severe damage will be obvious, while damage that will degrade electrical performance may not. The best indication of electrical and mechanical condition is a standing wave ratio (SWR) measurement.

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Table 1. Specifications

Model	Frequency Range (GHz)	SWR	Fits Waveguide Size Nom. OD (in.)	(EIA)	Equiv. Flange	Power Rating (approx.)	Length (in.)	(mm)	Net Weight (lbs.)	(kg)
S910A	2.60-3.95	1.04	3 x 1-1/2	WR284	UG53/U	2 W	10-1/4	260	4-1/2	2
G910A	3.95-5.85	1.04	2 x 1	WR187	UG149A/U	2 W	6-5/8	168	2	0,90
J910A	5.30-8.20	1.02	1-1/2 x 3/4	WR137	UG344/U	1 W	8-1/8	206	1	0,45
H910A	7.05-10.0	1.02	1-1/4 x 5/8	WR112	UG51/U	1 W	5-9/16	141	1/2	0,22
X910B	8.20-12.4	1.015	1 x 1/2	WR90	UG39/U	1 W	6-5/8	168	1	0,45
P910A	12.4-18.0	1.02	0.702 x 0.391	WR62	UG419/U	1 W	4-3/8	111	1/4	

7. CLAIM FOR DAMAGE. If the Model 910 shows physical damage or does not meet electrical specifications notify the carrier and the nearest Hewlett-Packard office immediately. (Regional sales and service offices are listed in Table 3.) Retain the shipping container and padding material for the carrier's inspection. The HP office will arrange for repair or replacement without waiting for the claim against the carrier to be settled.

8. MEASURING SWR.

9. Since the purpose of the SWR measurement is only to determine whether the load is damaged*, a simple slotted line setup may be used. Since the accuracy of a slotted-line measurement depends on a number of factors, the figures given below are not absolute limits. However, if the slotted-line setup is put together carefully and good techniques are used, the following figures can be used as a guide. The load tip may be assumed to be damaged if the SWR measured is

1.0 or higher S- and G-band
1.05 or higher J-,H-,X-, and P-band

10. PACKING FOR RESHIPMENT.

11. If you need packing materials or further information on packaging, contact the nearest HP office. (Regional sales and service offices are listed in Table 3.)

12. If the Model 910 termination is being returned to Hewlett-Packard for servicing, attach a tag indicating the type of service required, return address, model number, and full serial number. Assure careful handling of the instrument by marking FRAGILE on the shipping container.

13. OPERATION.

14. HANDLING PRECAUTIONS.

15. PROTECT FLANGES. The 910A/B series is fitted with standard cover-type flanges; equivalent JAN type flanges are listed in Table 1. Keep the flange cover on when the Model 910A/B is not in use to protect the face of the flange from damage. Any scoring or burring of waveguide mating surfaces causes discontinuity which results in an increase in SWR.

16. KEEP OUT DUST AND MOISTURE. Use the supplied plastic flange cover to keep dust and moisture out of the interior of the Model 910A/B when not in use.

17. PROTECT LOAD. The low SWR of the Model 910 is due to both the shape and the material of the load and a critical detail of the shape is the tip: the sharper the tip, the lower the SWR. Since the Model 910 loads are relatively long and made of brittle material, the tips are easily broken. To prevent this damage:

a. When using, do not subject the waveguide section to mechanical shock.

b. When cleaning, do not direct air under pressure against the load.

c. When storing, cover the flange with the supplied plastic cap.

18. MAINTENANCE.

19. REPLACING THE LOAD.

CAUTION

Handle loads with care. Load tips are easily broken.

20. Replacement loads for the Model 910A/B are pretested; HP stock numbers for these loads are listed in Table 2.

21. The load is mounted on an end block which fits into the body of the Model 910A/B. Machine screws through the waveguide hold the end block in place on all except the X band model; nuts and screws hold the end block in place in the Model X910B.

22. To replace a load:

a. Remove the screws which hold the end block in the waveguide.

*The SWR of Model 910 terminations is so small that a single frequency reflectometer system is recommended for checking its conformance to specifications. (The system should include equipment for tuning out the directivity signal of the reverse coupler.)

b. Carefully pull the end block out of the waveguide. (It is a tight fit.)

c. Remove the screw which holds the load on the end block.

d. Mount the new load on the end block, and carefully reinstall the end block. The load is very brittle and should not be allowed to touch the sides of the waveguide body.

23. REPLACEABLE PARTS.

24. ORDERING INFORMATION.

25. Table 2 lists replaceable parts, the total quantity (TQ column) used in the instrument, and recommended spare quantity (RS) for one year isolated service.

26. To order a replacement part, address order or inquiry to the nearest Hewlett-Packard sales and service office.

27. For each part ordered, give the HP Model number, HP stock number, and description.

Table 2. Replaceable Parts

Model	Load						End Block					
	HP Stock #	TQ	RS	Screw	TQ	RS	HP Stock #	TQ	RS	Screw	TQ	RS
S910A	S372C-2	1	1	1/4-20 x 3/4	1	0	S910A-2	1	0	4-40 x 1/4	4	0
G910A	G372C-2	1	1	10-32 x 1/2	1	0	G910A-2	1	0	4-40 x 1/4	4	0
J910A	5020-3200	1	1	8-32 x 1/2	1	0	J910A-2	1	0	4-40 x 1/4	2	0
H910A	5020-0399	1	1	8-32 x 1/2	1	0	H910A-4	1	0	4-40 x 1/4	2	0
X910B	5020-3026	1	1	8-32 x 1/2	1	0	X910B-3	1	0	8-32 x 3/4	4	0
P910A	5020-3203	1	1	6-32 x 5/8	1	0	P910A-2	1	0	4-40 x 1/4	2	0

Table 3. Hewlett-Packard Regional Sales and Service Offices

To obtain servicing information and order replacement parts, contact the nearest Hewlett-Packard Sales and Service Office in HP Catalog, or contact the nearest regional office.

IN THE UNITED STATES:

CALIFORNIA
3939 Lankershim Blvd.
North Hollywood 91604

GEORGIA
P.O. Box 28234
450 Interstate North
Atlanta 30328

ILLINOIS
5500 Howard Street
Skokie 60076

NEW JERSEY
W. 120 Century Road
Paramus 07652

IN CANADA:

QUEBEC
Hewlett-Packard (Canada) Ltd.
275 Hymus Blvd.
Pointe Claire

IN EUROPE:

SWITZERLAND
HEWPAK S.A.
54 Route des Acacias
1211 Geneva 24

IN AFRICA, ASIA AND AUSTRALIA:

Hewlett-Packard Export Marketing
3200 Hillview Ave.
Palo Alto, California 94304

IN CENTRAL AND SOUTH AMERICA:

Hewlett-Packard Inter-Americas
3200 Hillview Ave.
Palo Alto, California 94304