PM 3330 ACCESSORIES

Fig. 1

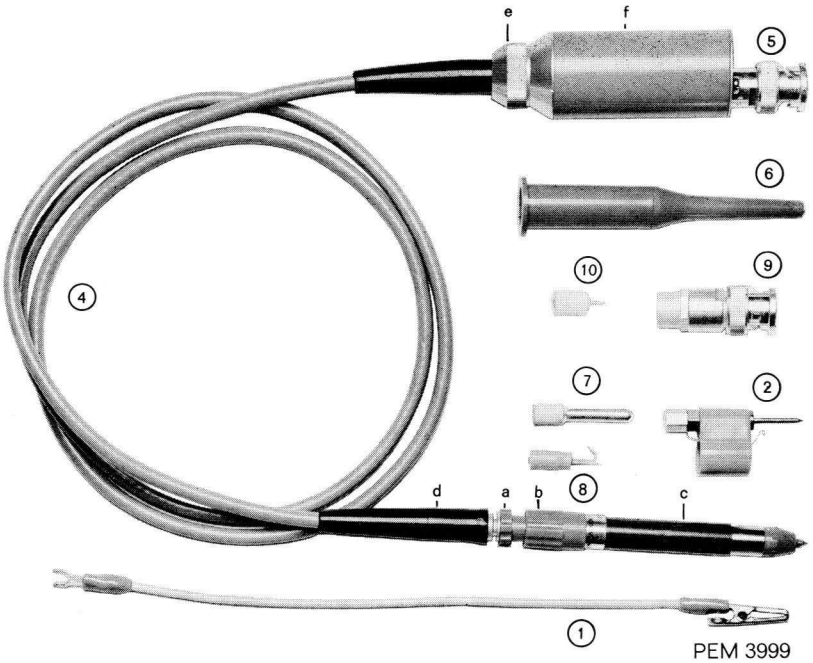


Fig. 2

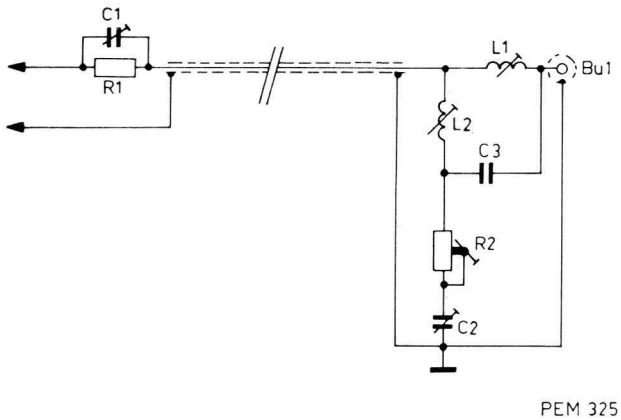


Fig. 3

ACCESSORIES

A. ADAPTOR PM 9051 (Fig. 1)

This adaptor is used for the connection of 4 mm banana-plugs to a BNC connector.

B. MEASURING PROBE PM 9331 A/10

This attenuator probe provides an attenuation of ten times.

A complete set (Fig. 2) consists of:

1. Earthing lead with alligator clip
2. Spring-loaded earthing pin
3. 1 : 10 Attenuator probe (green)
4. 45″ Coaxial cable
5. Correction network
6. Pincer tip
7. 4 mm Bananatip
8. Hook tip
9. Bush converting the probe-tip into a BNC-plug.
10. Insulation piece.
    The set can be ordered mentioning codenumber PM 9331A/10.

Technical data

Attenuation	1 : 10 (± 3%)
Input impedance	10 MΩ//8 pF
Maximal voltage	1000 V peak to peak
Length of cable	45″ (115 cm)

Adjustment

- Plug the correcting network to the input terminal of a Y-plug-in and apply a suitable square wave (e.g. the "Ampl. Cal.") to the probe tip.
- Grasp the serrated end "a" and loosen bush "b" (See fig. 2).
- Holding "a" steady, turn "c" until the square wave is displayed optimally.
- Lock "c" in this position tightening "b".

Replacing the cable

- Holding sleeve "d", remove probe "3" by pulling firmly.
- Pull off earthing cable "1".
- Unscrew knurled nut "e" and push back screening "f".
- Unsolder the inner conductor of toe cable from the correction network and remove the cable.
- Wire the cable operating in the reversed order.

Note: Do not try to repair a damaged cable by shortening its length, as the length is critical regarding capacitance and reflections.

Adjustment of the correction network

- Unscrew knurled nut "e" (Fig. 2) and push back screening "f".
- Connect the cable to a Y-plug-in unit (e.g. PM 3333) and apply the calibration voltage at a convenient amplitude.
- At the correction network adjust C2 (Fig. 3) to its electrical midposition.
- Interconnect a pulse shaper having a 1.5 nanosecond rise-time (e.g. Tektronix cat. nr. 015–0038–00, adapted by connecting a 2600 Ω resistor, 0.1 Watt 5%. parallel to its 3300 Ω resistor).

Terminate the pulse shaper by a 50 Ω pad (e.g. XE101. 96).

- Increase the speed of the X-deflection to 25 nsec./cm. ("Time/cm" at 0.05 sec./cm and "MAGN" at "×2").
- Turn potentiometer R2 counterclockwise to its end stop. Some ringing will be visible.
- With R2 for ringing and L1 (leading pip) L2 (reflections) adjust for optimum square wave response.
- Enclose the correction network.
- At a lower speed of X-deflection, adjust the probe as explained earlier.

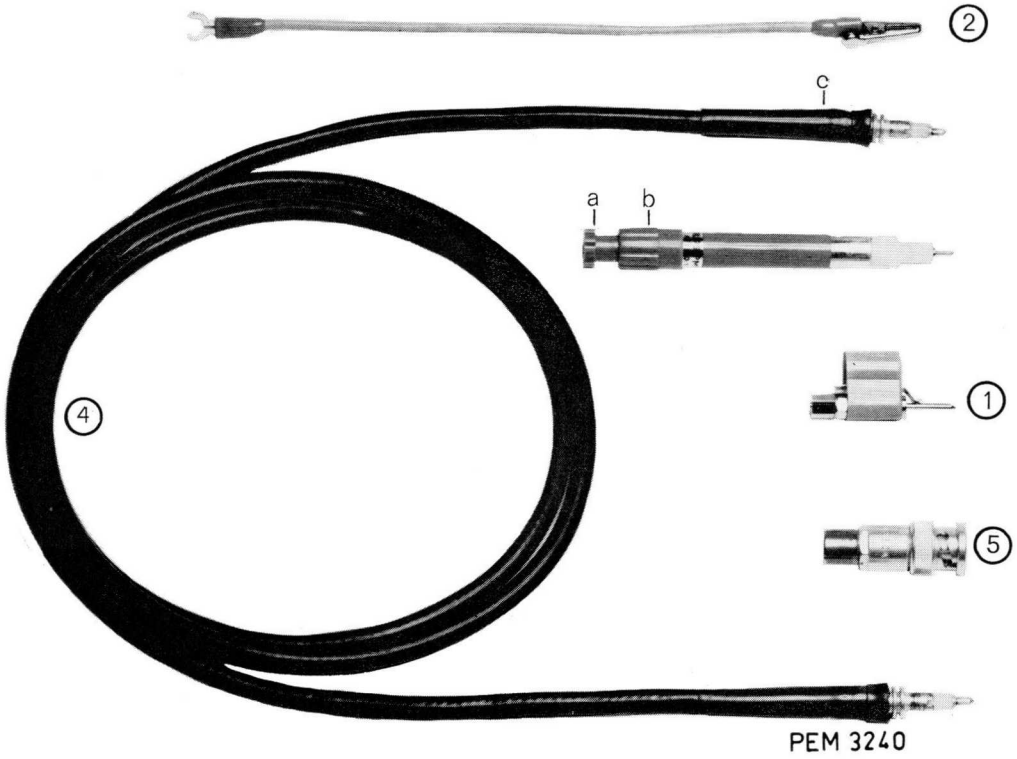


Fig. 4

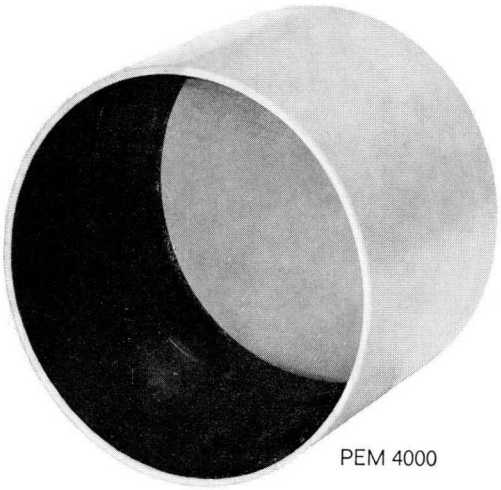


Fig. 5

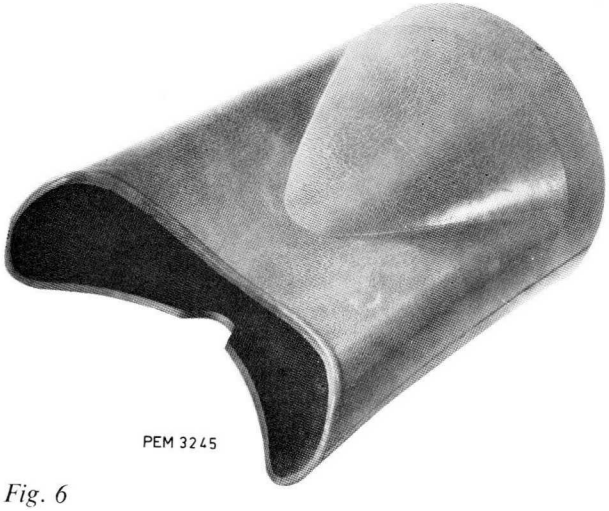


Fig. 6

PARTS LIST MEASURING PROBE PM 9331

Pos.	*Description*	*Code number*	*Necessary for*			
			1	*2*	*5*	*10 App.*
1	Earthing lead with alligator clip	4822 321 20096	1	2	2	4
2	Earthing pin	4822 265 20029	1	1	1	2
3	Attenuator probe	4822 210 70046	1	1	2	4
4	45″ cable (complete)	4822 321 20085	1	2	2	4
	with insulating sleeve	4822 325 50039	1	2	2	4
5	Correction network	4822 210 70049	1	1	1	2
6	Pincer tip	4822 268 10009	1	2	2	4
7	4 mm Banana tip	4822 268 10029	1	2	2	4
8	Hook tip	4822 268 10039	1	2	2	4
9	Bush with	4822 265 10012	1	2	2	4
10	Insulating piece	4822 447 60034	1	2	2	4

C. MEASURING PROBE 9332

This probe is delivered with plug-in unit PM 3333, where it will be used exclusively as a H.F. probe for the measuring ranges 20–50–100 mV/cm with the 1 : 1 probe tip and 200–500–1000 mV/cm with the 1 : 10 probe tip (see also the Directions for Use of the PM 3333).

The probe consists of: (Fig. 4).
1. Spring-loaded earthing pin
2. Earthing with alligator clip
3. Two probe tips (red), 1 : 1, 1 : 10
4. 60″Coaxial cable
5. Bush converting the probe-tip into a BNC-plug.

Technical data

Deflection coefficient	20–50–100 mV/cm; (± 3%)
Frequency response	30 Hz/s ± 50 MHz/s
Input impedance	100 kΩ//5 pF
Maximal voltage	400 V d.c.
Length of the cable	60 inches (1.5 metres)

Adjustment

- Plug the free end of the cable into the ″H.F. PROBE″ terminal of plug-in unit PM 3333 and apply a square wave with a rise time of at most 25 nsec to the probe tip. A suitable pulse is present at the ″AMP. CAL″ output BU6 when SK13 is set to ″4 mA″
- Adjust for a suitable trace height.
- Grasp the serrated end ″a″ and loosen bush ″b″ (See Fig. 4).
- Holding ″a″ steady, turn ″3″ until the square wave is displayed optimally.
- Lock ″a″ in this position by tightening bush ″b″.

Replacing the cable

- Holding sleeve ″c″ pull firmly to remove probe tip ″3″.
- Pull off earthing lead ″2″.
- Apply the new cable by operating in the reversed order.

PARTS LIST OF MEASURING PROBE PM 9332

Pos.	*Description*	*Code number*	*Necessary for*			
			1	*2*	*5*	*10 App.*
2	Earthing lead with alligator clip	4822 321 20096	1	2	2	4
1	Earthing pin	4822 265 20029	1	1	1	2
3	Measuring probe (1 : 1)	4822 210 70047	1	1	2	4
	Measuring probe (10 : 1)	4822 210 70048	1	1	2	4
4	Cable (complete)	4822 321 20086	1	2	2	4
	Insulating sleeve for same	4822 325 50038	1	2	2	4
5	Bush		1	2	2	4

Fig. 7

Fig. 8

Fig. 9

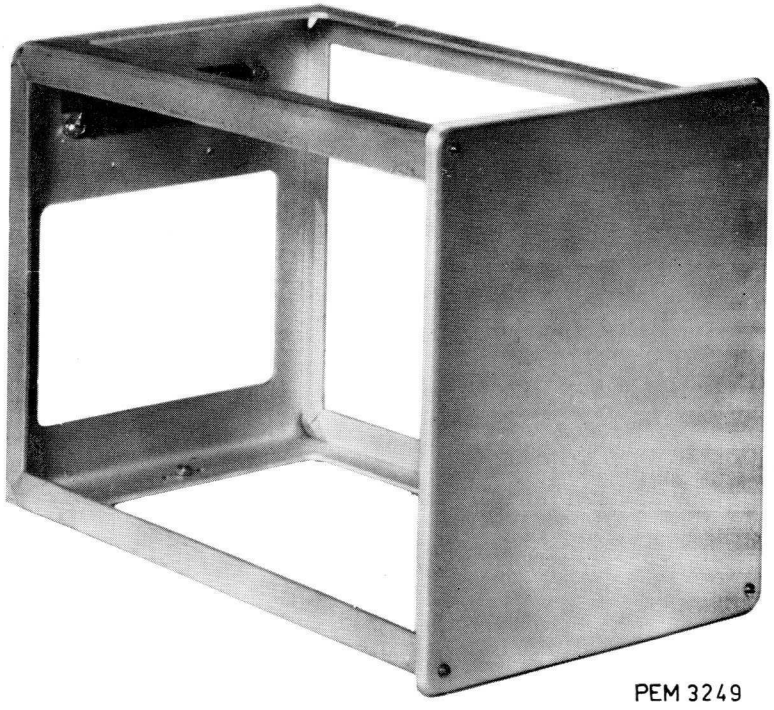


Fig. 10

D. VIEWING HOOD PM 9371

Entirely moulded-rubber eye-piece, which fits directly on the bezel in front of the cathode-ray tube. Fig. 6.

Anti-reflex viewing hood PM 9316
This hood permits of reflex-free observation of the oscillogram in environments with a high light-intensity Fig. 5.

E. CABLE (50 OHM) COAXIAL 4822 320 10043

One end is provided with a BNC-connector, the other end is provided with two 4 mm bananaplugs. Fig. 7.

F. FILTER MAT. 4822 480 40012

Spun glas air filter $9_1/_2 \times 8_1/_{22}$ inches (25 × 21 cm) see documentation PM 3330 Fig. 53.

G. SERVICING ADAPTER 4822 263 70008

This plug-in extension with flexible cord allows any plug-in pre-amplifier to be operated entirely out of its housing e.g. during fault-tracing. Fig. 8.

Servicing adapter 4822 321 20104
Plug-in extension with flexible cable which enables the rear panel to operate outside the main frame e.g. when fault tracing. Fig. 13.

H. SERVICING ADAPTER 4822 263 70009

Plug-in extension, which allows any plug-in unit to be operated partially out of its housing e.g. during adjustment. Fig. 9.

Servicing adapter 4822 263 70019
Plug-in extension (Fig. 14) enabling measurements to be carried out at the lower voltage-regulating print (U11).
Note: The adapter should be inserted with the current carrying tracks down.

J. BLANK PLUG-IN SKELETON PM 3360, Fig. 10.

If some circuit is built into this unit the present power supplies can be loaded according to the following table (irrespective the type of Y-Unit in use).

Supply volts	*Max. load mA*	*Terminal number*
—150	65	30
— 70	75	29
— 24	320	28
— 12	15	14
— 6.3	1190	13
+ 12	60	3
+ 24	550	9
+ 70	10	23
+130	40	7
+200	5	21
+330	10	5
+400	5	4
6.3~	1.5 A	2 3 (+ 12 V)
6.3~	0.5 A	19 29 (—70 V)
6.3~	1 A	25 23 (+ 70 V)

K. PLUG-IN TEST UNIT PM 3322 395 30016) Fig. 11

Test-unit PM 3361 is designed for servicing activities on the basic oscilloscope PM 3330. With this test-unit it is possible:

- to read off on a voltmeter the deviation of the power supplies in per cents of their rated values.
- The same at full load.
- To apply a fast rising square wave (2.5 nsec.) for the adjustment of the Y-amplifier.
- to check the correct "chopped" operation when a multitrace unit will be used.
- to check the Y-deflection sensitivity and the correct "alternate" operation.

For further details see the "Instructions for Use" delivered with the unit.

L. MOBILE OSCILLOSCOPE TABLE PM 9318

The tilt of the table top can be set to 5 positions in order to promote a convenient observation of the CRT display. A drawer provides storing space for probes, cables, etc. An open shelf at the bottom can take up to 2 plug-in units. A partition underneath the shelf can take the manuals of the instrument. Fig. 12.

M. PROJECTION LENS PM 9301

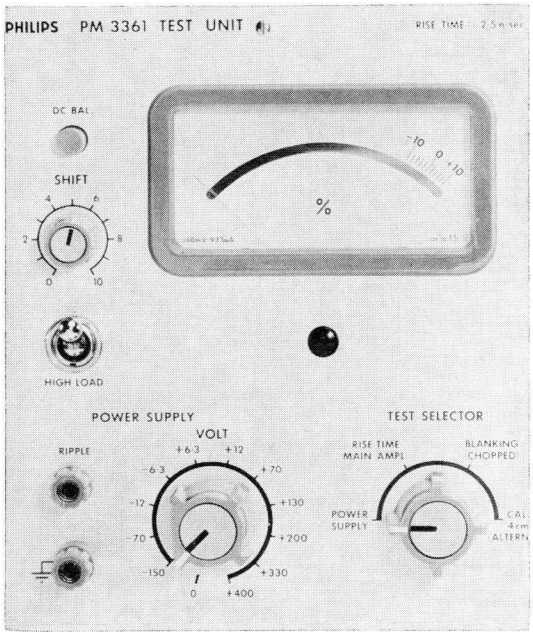
This lens is designed for tde projection of oscillograms direct from the oscilloscope screen. Fig. 15.
Lens: Heidormat 1 : 2.8
Focal distance: 150 mm.
Projection distance: 53 cm...240 cm
Magnification: 2,5 ×...15×
Dimensions: diameter 140 mm. max.
length 170 mm

N. CAMERA ADAPTER PM 9314

Adapter for connecting a C12 camera direct to the front of the oscilloscope. Fig. 16.

O. CAMERA ADAPTER PM 9375

Adapter for connecting a "Polaroid" camera in front of the oscilloscope. Fig. 17.

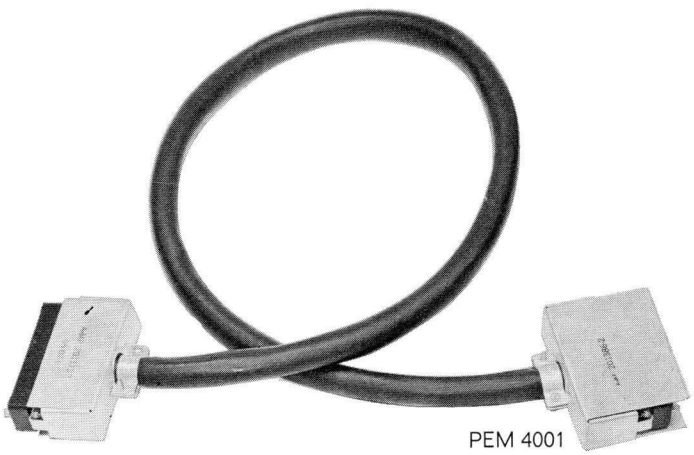


PEM 4004

Fig. 11

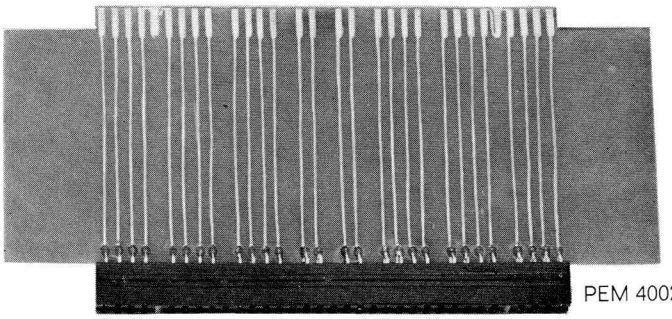
PEM 3980

Fig. 12



PEM 4001

Fig. 13

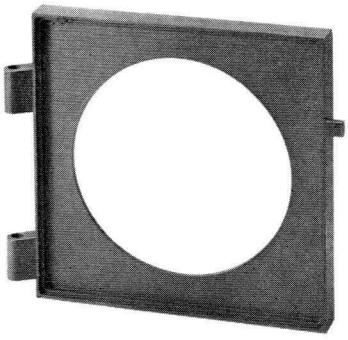


PEM 4002

Fig. 14

PEM 4003

Fig. 15



PEM 4005

Fig. 16

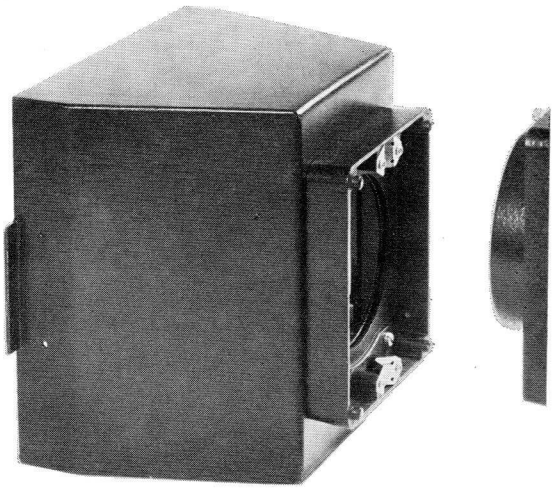


Fig. 17