REPAIR

Read the following *"Safety Inspection after Repair"* before commencing any repair on the unit.

Power up the instrument at least 30 minutes before measuring to let it attain normal working temperature.

Required measuring equipment, see page 7.

Safety Inspection after Repair

Make sure that creeping distances and clearances have not been reduced.

The condition and correct connection of the protective earth must be checked by visual inspection and by measuring the resistance between the protective lead at the plug and the cabinet. The resistance must not be more than 0.5 ohm. Move the power cord during the measure ment. Resistance variations indicate a defect.

Logic Levels

The PM 6665 and PM 6666 counters contain logic of four families. The levels for these families are listed in the following table.

	LOGIC FAMILY			
	ECL positive	ECL negative	CMOS	TTL
Supply voltage	+5	-5	+5	+5
designation	V_{CC}	V_{EE}	V_{dd}	V_{cc}
Signal ground	0	0	0	0
designation	Vee	V_{CC}	Vss	GND
Input voltage				
High, V_{IH}	>+3.9	>-1.1	>+4	>+2
Low, V_{IL}	<+3.5	<-1.5	<+1	<+0.8
Output voltage				
High, V_{qh}	>+4	>-1	>+4.9	>+2.7
Low, V_{OL}	<+3.3	<-1.7	<+0.05	<+0.4
Bias ref. voltage, V_{BB}	+3.7	-1.3	-	-

All values in volt.

Fault-Finding

This fault-finding guide is intended to be used as follows:

Read the *"General"* section, which contains information on the built-in-test program.

Use the following fault-finding tree to find the source of the fault. This tree takes you, if appropriate, to the sections *"Extended Test Program", "Counting Fault",* and *"Faulty Push Button".*

The three last sections of this chapter, *"HF Input", "MTCXO Oscillator",* and *"Battery Unit"* contain instructions for these option circuits not included in the fault-finding tree.

• General

When the instrument is switched on, it automatically runs an initial test program. This program contains display-, RAM-, and measuring logic tests. After completing these tests the instrument automatically enters the operational mode.

If the test jumper is moved from the NORM to the TEST position, the instrument starts an extended test program when the power is switched on. This test is described under *"Extended Test Program".*

If the CALIB button on the basic board is pressed in test mode (with the jumper in the TEST position), a test sub-program is started. This program performs a test of the display circuitry, and, in the PM 6666, also the LED circuitry. The program then displays identity/option code and activated button code. The tables of these codes are given on page 42 under *"Push Buttons".*

» Fault-Finding Tree

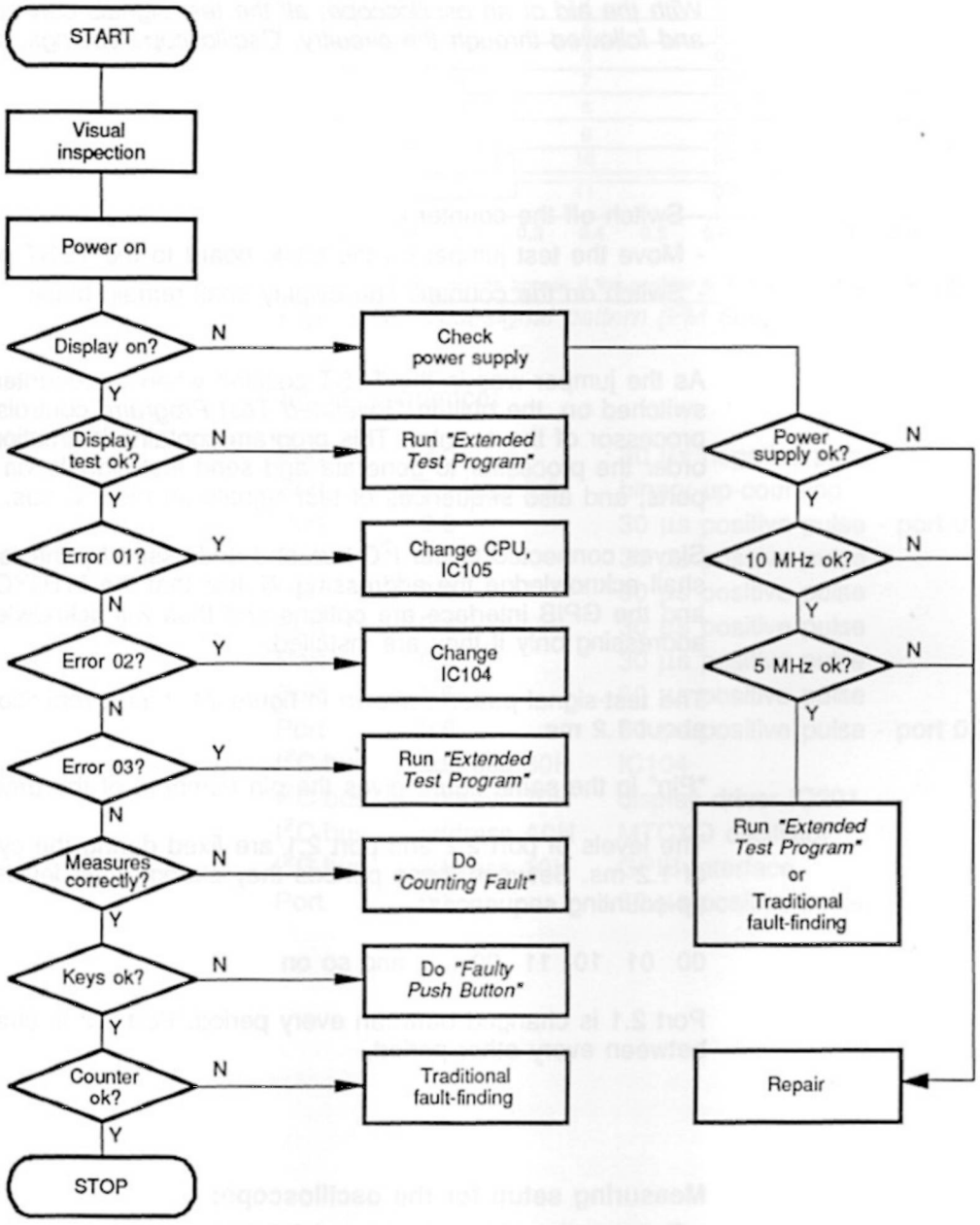

Figure 70. Fault-finding tree.