

TROUBLE SHOOTING CHART CDM3 and CDM4 S

CONTENTS

CHAPTER I:	Failures with the illumination, display and power system generally.	2
	1. Symptoms: No light, phonograph not working at all.	2
	2. Symptoms: Illumination does not light. Phonograph otherwise works.	2
	3. Symptoms: Bubble tubes do not work, colour tubes do not rotate, lamp 24V does not light.	2
	4. Symptoms: Digital display remains dark, phonograph otherwise works.	2
	5. Symptoms: Digital display shows non-sense figures; phonograph otherwise works.	2
	6. Symptoms: Digital display shows incomplete figures (missing segment). The fault is the same with all four digits.	2
	7. Symptoms: Digital display shows incomplete figures (missing segment). The fault, however, occurs with one (or on to three) of the four digits only.	2
	8. Symptoms: One of the digits of display completely off.	2
CHAPTER II:	Fuses. Which one controls what circuit?	2
CHAPTER III:	Faults with the coin system. The Phonograph, however, operates normally with free credit established with the jumper in the column GP at SCC unit (0-F). The function of the coin system can be checked by observing the LED-light "M" at the com	3
	1. Symptoms: Coins rejected as bad ones.	3
	2. Symptoms: Wrong credits (or none) with one type of coin.	3
	3. Symptoms: Permanent credit, display shows 0001 permanently, free selections.	4
	4. Symptoms: Wrong credits, repetitive or all the time, with credits higher or lower of programmed pricing.	4
	5. Symptoms: No credit, coins are properly accepted. Free Play, with GP-jumper 0-F still possible.	4
	6. Symptoms: No credit although coins are registered (LED-M lights up). Even no free play credit with GP jumper set 0 to F.	4
	7. Symptoms: No credit, LED - M lights permanently.	4
CHAPTER IV:	Faults by selection entry (credit system does work).	4
	1. Symptoms: No selections possible, digital display blinks with given selection.	4
	2. Symptoms: No selections; numbers of actuated keys not displayed (only credit is shown).	4
	3. Symptoms: No selections. In standby the LH digit of display shows a number, but selection keys are disabled. With insertion of further coins the new credit is displayed properly.	4
	4. Symptoms: No response from one key (or some).	4
	5. Symptoms: The CD played is not the one selected. The selection was properly displayed, the according track plays, too.	5
	6. Symptoms: After power up a track or more are played without a selection.	5
	7. Symptoms: The CD played is the one selected, however, not the selected track.	5
	8. Symptoms: The selected CD will not be played, the CD carrier is rotating permanently.	5
	9. Symptoms: The selected CD is placed on the turntable, but it is not playing. Turntable motor is not moving on. TOC-LED is not	5

lightning. Wurlitzer Service Module if connected is dark.
 After six picks of M6 the CD is returned to carrier. Caution!
 Fault 5

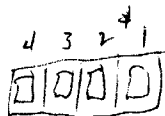
- 10. Symptoms: The selected CD is placed on turntable, but not played. Turntable motor is moving on. TOC-LED lights and goes dark after motor start (correct characteristics). However after this the SCC unit transmits no track number (rc5-signal). The digi 5
- 11. Symptoms: The selected CD is placed on turntable, but not played. Turntable motor moves not on. TOC-LED lights but doesn't go dark after motor start. Wurlitzer Service Module if connected lights, TRAY OUT-LED changes its state after every pick of relais M6. After every attempt of TOC reading the third point from display left side lights for a short time. After 7 picks of relais M6 the CD moves back to carrier. 5
- 12. Symptoms: The selected CD is placed on the turntable, but only after 7 picks of relais M6 the digital display starts to flash (shows the transmitting procedure of track number)and the selected track is played. At a connected Wurlitzer Service Module 6
- 13. Symptoms: The selected CD is placed on the turntable, motor moves on two times for a short time then the track number will be transmitted (digital display flashes). After a new attempt of play the CD is took back into carrier after about 30 seconds. 6
- 14. Symptoms: The selected CD is placed on the turntable and moves on for four short times. Successful TOC reading procedure can watched at the TOC-LED or if connected at the Wurlitzer Service Module. After this the track (rc5 signal) is transmitted to CD 6
- 15. Symptoms: The selected CD is placed on the turntable and moves on for one time but after approximately 35 seconds it will returned into carrier. The correct TOC read procedure and the transmit of the track number (rc5 signal) are watchable with the TO 6
- 16. Symptoms: The selected CD is placed on the turntable and moves on for three short times after this it will returned into carrier. CD is playable with the buttons 6 and 9 in service level one (and also with the test buttons at CD control unit). At this t 7
- 17. Symptoms: CD is only playing after the fifth turntable motor start. The service level 1 shows "11" at the digital display. CD play is accessible with the buttons 6 and 9 in the service program level 1. 7
- 18. Symptoms: CD play is suddenly interrupted, by turntable motor suddenly moving backward very fast or it is permanently moving backward. 7
- 19. Symptoms: The selection will be accepted, displayed but after this the phonograph doesn't do anything. 7
- 20. Symptoms: After Power up the first selection is played normally but then the phonograph takes no notice of any input. Only after a next power up the phonograph one CD again. 7

CHAPTER V: Repetitive apply of selected or non-selected discs to turntable. 7

- 1. Symptoms: Permanently gripper arm movement (with disc or none) with the disc carrier is not making a rotation between a complete cycle. This continues even if plug blue is disconnected at the SCC unit. 7
- 2. Symptoms: Permanently gripper arm movement; discontinued after plug BLUE is pulled off at the SCC unit. 7

CHAPTER VI: Failures of the record changer after a properly completed selection. 8

1. Symptoms:	Record carrier permanently rotating, even after plug BLUE is pulled. If a selection is made the gripper arm randomly takes a disc on turntable.	8
2. Symptoms:	Record carrier permanently rotating. Sometimes the gripper arm randomly takes a disc on turntable, but the CD will not be played. Also by pressing the LT button the gripper arm takes a CD on turntable, the CD will not be played, too. After p 8	
3. Symptoms:	Carrier does not start after a properly completed selection. Carrier latch does not open.	8
4. Symptoms:	Disc carrier does not rotate although the carrier latch opens after a selection.	8
5. Symptoms:	Gripper arm does not move to take the disc out of the carrier although the selected disc was properly brought forward. After approx. 1 second relay M drops out. The phonograph does not work and takes no notice of any input.	8
6. Symptoms:	Disc on turntable returned to carrier before play has started.	8
CHAPTER VII:	Failures with sound reproduction.	8
1. Symptoms:	Clicks and bang noises during CD playing, jump over of traces.	8
2. Symptoms:	CD moves on but no sound.	9
3. Symptoms:	Strong noise at one of both channels.	9
4. Symptoms:	Box plays with fool loudness, loudness is not regulateable.	9
CHAPTER VIII:	CD not properly returned to carrier.	9
1. Symptoms:	Gripper arm does not move to bring the disc home.	9
2. Symptoms:	Returned disc not properly unclamped (not freed) in the carrier.	9
3. Symptoms:	Disc missing in compartment is found in other compartment or somewhere about the chassis.	9
CHAPTER IX:	Hints for trouble shooting	9
CHAPTER X:	Hints to the test program of the Philips Control Board	11



either displays {

- Flashing ^{#(1)} '8' ? ~~Blown FUSE S13 or switch K7~~
- Blinking ^{#(1)} digit very faint & relay #2 energized
(MM) Gear & Cam motor
- ^{#(1)} there a -30 VDC at BLUE PLUG x4 pin 4? if not then check
- S13 ↑ when gripper @ home & K6 open
- K7 defective (-30 on each side then ok)
- break in wiring

Notes: x4-4 is signal to computer that CD is in home position & runs through latch solenoid & switch K7

TROUBLE SHOOTING CHART CDM3 and CDM4 S

CHAPTER I. Failures with the illumination, display and power system generally.

1. Symptoms: No light, phonograph not working at all.
Cause: No power at wall socket; open primary circuit.
Possible faultss: Wall socket defective. Main fuse blown. Fuse Si1 blown (ref. to chapter II). Internal break in line cord or plug. Line switch off or defective.
2. Symptoms: Illumination does not light. Phonograph otherwise works.
Cause: Defective lamp circuit (refer to chapter IX/1).
Possible faultss: Lamp's circuit plug not in light socket at amplifier. Lamp not properly seated in holder. Defective starter, defective lamp.
3. Symptoms: Bubble tubes do not work, colour tubes do not rotate, lamp 24V does not light.
Cause: Defective 24V circuit.
Possible faultss: Power supply leads from transformer to distribution interface interrupted. Fuses on interface (1A/M) defective. Caution: Short circuit in harness of heating resistors possible.
4. Symptoms: Digital display remains dark, phonograph otherwise works.
Cause: Signal supply leads to display interrupted.
Possible faultss: 14-pole D.I.L. plug not set or wrong way 'round (right: flat cable is coming from LH side, orange below).
5. Symptoms: Digital display shows non-sense figures; phonograph otherwise works.
Cause: Signal lines interchanged.
Possible faultss: 14-pole D.I.L. plug displaced (not in line with the base). Computer defective, e.g. IC 7.
6. Symptoms: Digital display shows incomplete figures (missing segment). The fault is the same with all four digits.
Cause: Signal for one (or some) segments missing.
Possible faultss: One pin (or some) of 14-pole plug broken off. One wire (or some) of flat cable broken. Broken connection at display PC-board. Computer defective, e.g. IC 7.
7. Symptoms: Digital display shows incomplete figures (missing segment). The fault, however, occurs with one (or on to three) of the four digits only.
Cause: Segment signal does not reach this digit.
Possible faultss: Cracked connection on display PC-board. Defective display unit (4 identical one-digit units).
8. Symptoms: One of the digits of display completely off.
Cause: multiplex signal missing.
Possible faultss: Defective D.I.L. plug or broken wire. (A1, A2, A3, A4). Computer defective (T23 - T26).

CHAPTER II: Fuses. Which one controls what circuit?

1. Main fuse: (in screw holder in chassis pan apron) T 3.15 (F 6.3 in U.S.)

Symptoms if blown: No illumination, phonograph completely dead.

2. Fuses Si1 and Si2: Loudspeaker fuses.

Symptoms if blown: No sound on L.H. channel (Si1) or R.H. channel(Si2); the reason for a blown fuse here might be a shorted power transistor.

3. Fuse Si3: 30 V negative supply.

Symptoms if blown: Amplifier distorting on both channels, green LED 1 not lit. Gripper arm is still moving on. Digital display shows a flashing 8 on the RH digit #1 (EPROM 2.15 or higher Version). *NOTE SW K7 GIVES SAME ERROR - CHECK PLASTIC ACTUATOR*

4. Fuse Si4: 30V positive supply.

Symptoms if blown: Amplifier silent, although the red LED(mute) is dark. Gear motor not working. After power up disc carrier moves on and stops, but no CD is moving to turntable. Then the player tries to play a (not present) CD. After this no further function.

5. Fuse Si5: 12V positive supply.

Symptoms if blown: SCC unit dead - digital display dark (except red LED M still lightning up on coin insertion).••

6. Fuse Si6: 30V AC supply.

Symptoms if blown: Disc carrier motor KM not working power supply for CD-Control unit (one digit display dark) and CD player interrupted. Break in credit circuit (LED M). The Wurlitzer Service Module, if connected doesn't light. After power up carrier latch solenoid picks up, digital display shows 0000 and then no further function.••

CHAPTER III: Faults with the coin system. The Phonograph, however, operates normally with free credit established with the jumper in the column GP at SCC unit (0-F). The function of the coin system can be checked by observing the LED-light "M" at the computer, which should light up with every coin accepted. Credits also can be given with the credit bottom at the interface for electronic slug rejecter, if a mechanical slug rejecter is installed with credit bottom near to it.

1. Symptoms: Coins rejected as bad ones. •

Cause: •Disabled slug rejecter. No power supply (electronic slug rejecter).

Possible faults: Dirt, oil or dust particle in the rejecter; rejecter maladjusted. Reject lever jammed holding the coin acceptor open. Rejecter or entire phonograph not levelled. Interruption in harness from SCC unit over slug rejecter interface to electronic slug rejecter. (Amplifier Si4 - Option socket pin 1 - Interface). Interface defective.

2. Symptoms: Wrong credits (or none) with one type of coin.

Cause: Coin actuates the wrong coin switch. Coin pulse does not reach the computer. Electronic slug rejecter defective.

Possible faults: Slug rejecter not properly positioned, leads the coin to an improper switch paddle or by passing it. One line of the coin switches to Computer cable broken, disconnected at either end or wrongly set at computer connector. Electronic slug rejecter: switching transistor at the interface defective. Using MMS 111 rejecter: coins may be blocked by D.I.L. micro switches at the interface. Input of computer defective (IC2 - IC4; diodes: D14-D25; capacitors: C20 - C27).

3. Symptoms: Permanent credit, display shows 0001 permanently, free selections.
Cause: jumper is set from 0 to F (Free Play).
4. Symptoms: Wrong credits, repetitive or all the time, with credits higher or lower of programmed pricing.
Cause: Programming mistake.
Possible faults: Jumper BR is not set, then reset to bonus level 1 (B1) if bonus level 4 is overstepped. Unintentional programming in "Happy Hour" programming level (service level 2 buttons 6 and 7). Programming jumper making poor contact (Note: changements in reposition of jumpers are only efficient by switch off or pressing the LT button).
5. Symptoms: No credit, coins are properly accepted. Free Play, with GP-jumper 0-F still possible.
Cause: All coin input lines disabled.
Cause: Credit inputs inactive (LED M does not light up). Checking of the single inputs (1, 2, 4, 5, T1, 10, 20) with a ground connected test wire.
Possible faults: 30V AC does not reach the computer (from amplifier Si6 to CD mechanism to plug red pin 1 at the SCC unit). Computer defective (D7, LED M).
6. Symptoms: No credit although coins are registered (LED-M lights up). Even no free play credit with GP jumper set 0 to F.
Cause: Computer out of operation.
Possible faults: No 12V power supplied to the computer (pin 2 and 4 plug red; Ampl. Fuse 5 broken), compare to chapter II/5. Computer defective.
7. Symptoms: No credit, LED - M lights permanently.
Cause: Permanent connection of one or more credit lines (check by displace the single credit plugs at the SCC unit).
Possible faults: Defective transistors at the interface to the electronic coin acceptor (if build in). Not complete defective transistors may cause credit giving by itself. Function check of SCC credit inputs by connect every single input pin to ground.

CHAPTER IV: Faults by selection entry (credit system does work).

1. Symptoms: No selections possible, digital display blinks with given selection.
Cause: Selection is not accepted.
Possible faults: Box has not got any credits or free play not programmed (Attention: After setting of program jumpers press LT-button for one time). The given selection is greater then the programmed number of CD's (Service level 3, button 8 is set on xx01). The selected CD is disabled (Service level 2, button 4).
2. Symptoms: No selections; numbers of actuated keys not displayed (only credit is shown).
Cause: •Open circuits in the keyboard wiring.
Possible faults: Plug yellow displaced or not inserted deep enough. Key RESET permanently closed or shorted to ground (pole 12, brown, plug yellow). Computer defective.
3. Symptoms: No selections. In standby the LH digit of display shows a number, but selection keys are disabled. With insertion of further coins the new credit is displayed properly.
Cause: Permanent selection signal from that key who's number is shown on the display. Jammed key permanently close key contact. Wire of this shorted to ground. Computer defective (C60 - C70, D44-D66 possibility of ground shorting, IC 8, IC 9). Check with digital multimeter: plug yellow pin 2 to 12 approximately 5V DC, function check with test wire to ground.
4. Symptoms: No response from one key (or some).

Cause: Open circuit with this key.

Possible faults: Malfunction of this key's contact. Insufficient key travel. Broken wire with this key. Plug yellow not seated good enough. Computer defective with a affected input circuit (R65 to 86, D45 to 65, IC 8, IC 9).

5. Symptoms: The CD played is not the one selected. The selection was properly displayed, the according track plays, too.

Cause: Improper counting of disc carrier's position.

Possible faults: Wrong adjustment of light control gates (ref. to chapt. IX/2). ^{not near of} ~~tablett~~
Illumination light affecting the Z light gate; reflections at the edges of carrier base plate. Record carrier latch delayed by mechanical friction or to widely opening (latching to late). Light control gate retarded (ref. to Chap. IX/2).

6. Symptoms: After power up a track or more are played without a selection.

Cause: There are selections left in memory.

Possible faults: Credit and selection resetting after power down to be set in service level 2 button 9 is not used (EPROM 2.15 or higher Version).

7. Symptoms: The CD played is the one selected, however, not the selected track.

Cause: Selection does not correspond to the label. If phonograph plays lower track numbers as selected or plays the complete CD then TOC (Table Of Contents) reading time of the player is to long.

Possible faults: The selected track number is higher then the number of tracks on CD. After reaching the highest CD number the laser control board starts to count at track one again.
CD-player defective. Laser light to low.(ref. to Capt. X/4).

8. Symptoms: The selected CD will not be played, the CD carrier is rotating permanently.

Cause: Counting pulse "Z" or sensing pulse "K" missing.

Cause: Lamp of light gate dark. Breaks in harness to plug BLACK. SCC Computer defective (IC 10, C75 - C78, D92, D94 ref. to Capt. IX/2C).

9. Symptoms: The selected CD is placed on the turntable, but it is not playing. Turntable motor is not moving on. TOC-LED is not lightning. Wurlitzer Service Module if connected is dark. After six picks of M6 the CD is returned to carrier. Caution! Fault may be arise after a few hours.

Cause: No AC 30V for laser control board and player.

Possible faults: Fuse Si6 defective. Interrupts in lines from Amplifier (to changer, pin 1) over plug connector interface (line brown, plug RED) to CD-control. PTC at plug connector interface defective or cracked connection (Voltage over PTC approximately 0.4V AC). Intermediate transformer on CD control board defective.

10. Symptoms: The selected CD is placed on turntable, but not played. Turntable motor is moving on. TOC-LED lights and goes dark after motor start (correct characteristics). However after this the SCC unit transmits no track number (rc5-signal). The digital display is not flashing instead of which two attempts of TOC reading will be started. After this the CD will be returned to carrier. The CD may be played in service program by the keys 7,6 and 9 in this mode all signal statements are correct.

Cause: Programming mistake.

Possible faults: In service level 2 button 3 is set a 0 instead of 01 to 25 (factory pre-set 04). In this case reset the program and credit memory by hold button 3 and press then reset button in service level one and check the hole programmed data. Correct them if necessary.

11. Symptoms: The selected CD is placed on turntable, but not played. Turntable motor moves not on. TOC-LED lights but doesn't go dark after motor start. Wurlitzer Service Module if connected lights, TRAY OUT-LED changes its state after every pick of relais M6. After every attempt of TOC reading the

third point from display left side lights for a short time. After 7 picks of relais M6 the CD moves back to carrier.

Cause: Laser light to low or not active. Read or encode procedures not correct.

Possible faults: Optical assembly dirty or maladjusted. CD player or CD -control defective.

12. Symptoms: The selected CD is placed on the turntable, but only after 7 picks of relais M6 the digital display starts to flash (shows the transmitting procedure of track number) and the selected track is played. At a connected Wurlitzer Service Module the TRAY OUT-LED doesn't change its state.

Cause: OPEN/CLOSE pulses doesn't reach the CD control unit.

Possible faults:

1. OPEN/CLOSE command with the so-called button at the CD control unit is possible: Breaks in harness from SCC unit (plug blue, pin 3 (blue) or plug brown, pin 6 (white, +35V)) to plug connector interface or from there (plug right hand below - CD interface pin 5 (green) and pin 1 (brown, +35V)) to optocoupler interface at the CD control unit. Optical coupler circuit IC3 defective. Cable (two wires) from optical coupler interface to the circuit board with the five test buttons (CD control unit) not connected or defective. Last check possibility with a multimeter (better a pointer instrument) before optical coupler: on right side of resistor 47 k ohms (+35V) and pin 2 IC3 (third from R.H.). Check after optical coupler: make a short circuit over pins 4 and 5 of IC3.
2. OPEN/CLOSE command with open/close button not practicable: CD control unit defective.

13. Symptoms: The selected CD is placed on the turntable, motor moves on two times for a short time then the track number will be transmitted (digital display flashes). After a new attempt of play the CD is took back into carrier after about 30 seconds.

Cause: SCC unit doesn't reach the signal of a succesless C reading experiment instead of this a successful reading procedure is simulated. (Fault only will be noticed together with symptom 9).

Possible faults: Two wire cable (green/black) between TOC circuit board (CD control) and plug connector interface broken or not connected. IC2 on TOC circuit board defect.

14. Symptoms: The selected CD is placed on the turntable and moves on for four short times. Successful TOC reading procedure can watched at the TOC-LED or if connected at the Wurlitzer Service Module. After this the track (rc5 signal) is transmitted to CD control (flashing display, Service Module). The CD plays on and suddenly brought back into carrier.

Cause: Simulation of a permanently succesles TOC read procedure

Possible faults: Black wire of two wire cable (green/black) between TOC circuit board (CD control) and plug connector interface is ground connected.

15. Symptoms: The selected CD is placed on the turntable and moves on for one time but after approximately 35 seconds it will returned into carrier. The correct TOC read procedure and the transmit of the track number (rc5 signal) are watchable with the TOC LED and the digital display.

Cause: CD-control unit doesn't receive the rc5 signal (watchable with the Wurlitzer Service Module)

Possible faults:

1. CD play is accessible with the buttons at the CD control unit: Interrupts in the wires of the rc5 signal, starts from SCC unit plug brown, pin 5 (grey) over plug at plug connector interface (pin 2, red) to optical coupler circuit board at the CD control unit (plug P6 pin 2) or defective IC2 at this board. Interrupts in harness after IC 1 : Plug P4 pin 2 (red) to resistor 6327 at Philips Main CD Control Board (220 Ohm). Missing 5V DC voltage at IC 1 (optical coupler circuit board). Interrupt at the 35V DC supply for optical coupler from SCC unit plug brown pin 6 (white). SCC unit defective (T 13).
2. CD play is not accessible with the buttons at the CD control unit: CD control unit defective.

(TOC OK)

16. Symptoms: The selected CD is placed on the turntable and moves on for three short times after this it will returned into carrier. CD is playable with the buttons 6 and 9 in service level one (and also with the test buttons at CD control unit). At this test the digital display doesn't change "00" to "01".
Cause: SCC unit receives no play-signal.

check for PLAY signal change going to SCC

Possible faults: Interrupts or cracked connection in harness of plug P4, pin 3 (orange) from Philips Board to optical coupler circuit board (OCCB). Missing ground connection of T1 OCCB plug P4 pin 1 (yellow). Missing 5V supply from Philips Board to OCCB (over resistor 5 to IC 2) plug 4 pin 1 (brown). IC 2 or T1 defective. Interrupts in harness from OCCB plug P7 (in front, near the two reset pins (two short black wires)) pin 3 (orange) over plug connector interface plug green, pin 3 (red) to SCC unit (plug green, pin 3).

16 B symptom. CD TOC is Read OK, then spins forever - ~~rotor arm seized~~ rotor arm seized - needs lube

17. Symptoms: CD is only playing after the fifth turntable motor start. The service level 1 shows "11" at the digital display. CD play is accessible with the buttons 6 and 9 in the service program level 1.

Cause: SCC unit receives the play-signal permanently.

Possible faults: Ground connection of the play signal lead from SCC unit (plug green, pin 3 (red)) to optical coupler circuit board (plug P7 pin 3 (orange)). IC2 defective or T1 permanently switched through (short).

-OPTOCOUPLER IN CD CONTROL BOX TRANSISTORS!

18. Symptoms: CD play is suddenly interrupted, by turntable motor suddenly moving backward very fast or it is permanently moving backward.

Cause: CD control unit receives a reset signal permanently or for a short time.

Possible faults: T2 at optical coupler circuit board defective. Ground connection with the leads from SCC unit plug P8 pin 2 (grey, if Continuous Play Switch present, at first violet) to optical coupler circuit board plug P9 pin 2. IC4 defective. Philips Board defective. SCC unit defective (in this case the symptoms will disappear if the two black wires at optical coupler circuit board are disconnected).

19. Symptoms: The selection will be accepted, displayed but after this the phonograph doesn't do anything.

Cause: The SCC unit is simulated that a CD is still playing.

Possible faults: In case of a defective or wrong adjusted K7 switch the Voltage -30V DC at plug blue pin 4 (grey) is missing. This Voltage indicates the SCC unit that a CD is brought back into the carrier (watchable at digital display in Seville level 1, display shows "10"). Is this circuit wrong (display shows "00" Caution! Don't confuse this information with CDM4/I, make sure that you've got a CDM3 player) the SCC unit acts so as when a CD is still playing. So the SCC unit starts no further search. SCC unit defective (T22, ref. Chap. IX/8).

20. Symptoms: After Power up the first selection is played normally but then the phonograph takes no notice of any input. Only after a next power up the phonograph one CD again.

Cause: Reaction of the SCC unit of a to slow moving gear motor.

Possible faults: Gear motor defective (ref. to Chap. IX/7 part 2 and Chap. IX/4) SCC unit defective (ref. to Capt. IX/8).

CHAPTER V: Repetitive apply of selected or non-selected discs to turntable.

1. Symptoms: Permanently gripper arm movement (with disc or none) with the disc carrier is not making a rotation between a complete cycle. This continues even if plug blue is disconnected at the SCC unit.

Cause: Main cam motor not stopping at the end of the play cycle.

Possible faults: Wiper switch K6 maladjusted. Breaking resistor R10 (47 Ohms) at motor MM open. Shortage in capacitor C4.

2. Symptoms: Permanently gripper arm movement; discontinued after plug BLUE is pulled off at the SCC unit.

Cause: Computer running out of program.

Possible faults: Computer out of program routine (cut power to SCC unit for a second, to initiate a restart of program). Computer defective (Relais 2, T2 or T22 def. ref. to chap. XI/8).

CHAPTER VI: Failures of the record changer after a properly completed selection.

1. Symptoms: Record carrier permanently rotating, even after plug BLUE is pulled. If a selection is made the gripper arm randomly takes a disc on turntable.
Cause: Carrier latch permanently open.
Possible faults: Carrier latch or its solenoid jammed.
2. Symptoms: Record carrier permanently rotating. Sometimes the gripper arm randomly takes a disc on turntable, but the CD will not be played. Also by pressing the LT button the gripper arm takes a CD on turntable, the CD will not be played, too. After power off for short time a flashing 8 will appear on display additionally.
Cause: Carrier latch solenoid permanently switched on.
Possible faults: Grey line from M3 to pole 4 of plug BLUE shorted to ground. SCC unit defective (rel. 4 sticks, T4 def.).
3. Symptoms: Carrier does not start after a properly completed selection. Carrier latch does not open.
Cause: Circuit of the carrier latch solenoid not completed.
Possible faults: DC supply -30V missing (Fuse Si3). Coil of latch solenoid open. Grey line from M3 to pole 4, or green line to pole 1 (relays common), plug BLUE, interrupted. Computer defective; go to service program, key 8, to check relay 4 (M3). Test only successful if -30V DC Voltage across the M3 coil reached pin4 X4 of the SCC unit (plug BLUE). Test the machine with a programming jumper from pin1, green, to pin 4, grey.
4. Symptoms: Disc carrier does not rotate although the carrier latch opens after a selection.
Cause: Carrier motor KM disabled.
Possible faults: Micro switch M3 (at carrier latch) maladjusted or defective. Micro switch K8 (at gripper arm) maladjusted or gripper arm not fully in rest position (ref. to chap. IX/3). Defective motor KM, broken wiring.
5. Symptoms: Gripper arm does not move to take the disc out of the carrier although the selected disc was properly brought forward. After approx. 1 second relay M drops out. The phonograph does not work and takes no notice of any input.
Cause: Main cam motor (MM) does not work.
Possible faults: Motor MM defective. Pre resistor R15 interrupted. DC 30V supply missing (Fuse Si4). Blue wire to motor broken. Shortage in capacitor C5 or in motor itself (then R15 hot). Test: Connecting plug BLUE pin1 (green) with pin2 (blue) with jumper wire of SCC unit. If motor is moving on then SCC unit defective (rel. 2, T2). test also with service program level 1 key 7.
6. Symptoms: Disc on turntable returned to carrier before play has started.
Cause: Main cam motor not resting when system in play position.
Possible faults: Wiper switch K1 does not open. Cancel button at amplifier jammed in "cancel" position, same with cancel button of the remote control; shorted remote control cable. Retarding resistor R10 at motor MM open (ref. Chap. IX/3C).

CHAPTER VII: Failures with sound reproduction.

1. Symptoms: Clicks and bang noises during CD playing, jump over of traces.
Cause: Reading of CD data disturbed.

Possible faults: CD defective (error correction for insignificant defects only). Dirty optic caused of nicotine and/or dust particle. Maladjusted optic assembly. Faults in CD player or laser control board.

2. Symptoms: CD moves on but no sound.

Cause: Faults in the system of CD-control - amplifier - speaker.

Possible faults: Audio frequency cable at CD-control or amplifier (chinch socket) not inserted. Audio cable is inserted in the phono input of amplifier not in CD-input. Fuses Si1 and/or Si2 blown (Speaker fuses). Fuse Si4 blown (then motor MM does not work, too). Wire grey (pin 8) amplifier to mechanic shorted to ground (ref. Capt. IX/6). Amplifier defective (Transistor 2).

3. Symptoms: Strong noise at one of both channels.

Cause: Audio lead of this channel is connected to digital output. Do not connect plug black to socket black but to socket white !

4. Symptoms: Box plays with fool loudness, loudness is not regulateable.

Cause: Loudness regulator is not in function. **Possible faults:** Plug of remote control unit is not set in socket at amplifier or some wire may be broken inside the plug.

CHAPTER VIII: CD not properly returned to carrier.

1. Symptoms: Gripper arm does not move to bring the disc home.

Cause: Main cam motor does not starting.

Possible faults: Error at MM-motor could have developed while a disc was playing (ref. to Capt. VI/5).

2. Symptoms: Returned disc not properly unclapsed (not freed) in the carrier.

Cause: Main cam motor switched off to early.

Possible faults: Wiper switch wrongly adjusted (compare with Capt. IX/3).

3. Symptoms: Disc missing in compartment is found in other compartment or somewhere about the chassis.

Cause: Gripper arm generally moving to fast. (Time for one complete cam rotation is 11 to 13 seconds).

Possible faults: Disadjustment of gripper arm. Gripper arm sticks to the centring disc (disc holder arm, ref. to Capt. IX/7) Wrong adjustment of puck arm height. Cam motor to fast. Retarding resistor interrupted or value to low.

CHAPTER IX: Hints for trouble shooting

Note 1: There are always 220V in plug-in unit for fluorescent lamps on amplifier disregarding the actual voltage the phonograph is adjusted to or operating with. Possible operating voltages are 100V, 117V, 210V, 220V, 230V and 240V. Lamp, starter and ballast is a matched group, never use replacements of other wattage.

Note 2A: A selected disc can properly be located as long as the light gate controls are working properly. The counting pulses can be checked easily by observing the LED indicator Z which has to light up rhythmically when the carrier is rotating (manually unlock the carrier latch for check). LED Z is dark, whenever the carrier is at a standstill but has to light up as soon as a tooth of the carrier's base plate has passed the carrier latch's front edge for about 1-2 mm. For a check lift the carrier off its friction drive wheel a little, unlock the carrier latch with the other hand and advance the carrier slowly manually.

Note 2B: The locating pulse "01" can be checked with the LED indicator K. For a check bring the disc preceding "00" ("50", if fifty discs in carrier) beneath the gripper arm. Then advance the carrier slowly (lift off the drive as explained with note 2A): K now has to light up by all means before Z but a very little advance in time is sufficient and K must still be alight when Z lights up. Which LED then goes out first does not

matter but K by all means must be out before Z lights up again for the next disc approaching the gripper arm. If K lights up behind Z, the SCC unit cannot find its starting position and the disc to be located will never be found, the carrier then rotates permanently. If K is still alight when Z lights up for 03/04, the SCC will consider this one as 01 and any disc located will be that one "behind" the one actually selected. The light gate assembly can be shifted for about 1 mm to find a proper timing. Four K signalise succession without a selection played in between causes a memory erase same as if the LT button is actuated. Therefore, rotation checks with the carrier should be terminated with an actuation of LT button to prevent complaints raised by the first patron making a selection after the service, that he lost his money because his selection led the fourth K-signal in succession!

Note 2C: The lamp of light gates is one of 24 Volts, 3 Watts. The relieved power supply is 12 Volts, comes from amplifier fuse Si5. The photo transistors can be checked with an Ohm-meter at plug BLACK when disconnected. Read between poles 3 and 5 for the gate K and between poles 2 and 3 for gate Z. Results will be obtained only if poles 2 or 5 are positive to pole 3, hence, interchange the poles for a test. With an open light gate the Ohms reading should be below 2 Kilo-Ohms (Digital-Multimeter about 300 Ohms) and with the light broken it should be above 2 Meg.-Ohms (Digital-Multimeter shows overflow).

Note 3: Micro switch K8 is actuated by the large disc clamp of the gripper arm. If this switch is maladjusted or if the main camgear box stops before this disc clamp is fully retraced, K8 will not be actuated. This disables the changer for the next search run and keeps the turntable running all the time. The same situation, however, can be produced by a main cam and gear box overrunning the proper rest positions and stopping finally at a time when K8 is released again. Symptom 4 of chapter VI refers to the first situation, symptom 2 of chapter VIII to the second.
To test, actuate K8 manually and run the changer through some play cycles. The disc clamp has to actuate K8 before it reaches the most retraced position and has come to rest before it has passed this position; compare the adjustment instructions.
If the system overruns the most retraced position with a K6 switch of proper adjustment, check R10, the braking resistor parallel to (and located at) the motor, it should not read more than 55 Ohms.

Note 4: With a dead motor MM check the carbon brushes. Worn-out brushes are not likely before some years of service, however, a lack of contact pressure is feasible (binding brush holder). Watch for the insulation ring at one end of brush's tension spring; without this ring the motor is shorted and resistor R 15 will burn-out.

Note 5: A detail of circuit timing: Main cam motor MM is started by relay 2 of the SCC unit for about 3 seconds. After thus the transfer switch K6 should made well within these seconds. If K6 is maladjusted or defective, the main cam motor will stop in this moment, that is when the gripper arm is about half way between the disc carrier and the turntable.

Note 6: The amplifier muting at an electronic circuit is governed by transistor Tr2, and controlled by switch K1 via the grey line, pole 8, amplifier-to-changer cable. The amplifier is mute as long as this line is grounded, hence, the amplifier works outside the phonograph without any need of unmuting.♦♦

Note 7: The gripper arm is linked with the cam & gear shaft by two-way spring clutch. If the gripper arm somehow is locked with the centring disc and the arm is unable to take it off, the gear box still does advance and load the clutch spring. Finally, the spring at a certain tension will free the disc and then the arm flips to catch up. The disc then is thrown about and may land in wrong compartment or any where.
With a main cam and gear unit generally moving to fast, the arm may run the returning record into the neighbour compartment or even lose it. A complete gear cycle normally takes about 12 seconds, never permit times shorter then ten seconds. To check time, make a selection and hold the cancel button (amplifier) down all the time the arm moves. Time is counted from the moment the disc carrier stops till the homed disc is unclamped and micro switch K8 is actuated.

If there is a second disc in one compartment and the original disc is selected, there is a 50% chance that the wrong one is played; the service call to be expected in such a case will be likely one of a "wrong selection".

Note 8: Transistor T22 pulls its collector to L as soon as the negative supply of the changer appears at the switch of relay 4 thus indicating that the disc just been played is now back in the carrier. If this circuit

Time must not be longer than ~16 seconds for complete cycle! check arm motor & clear slips there!

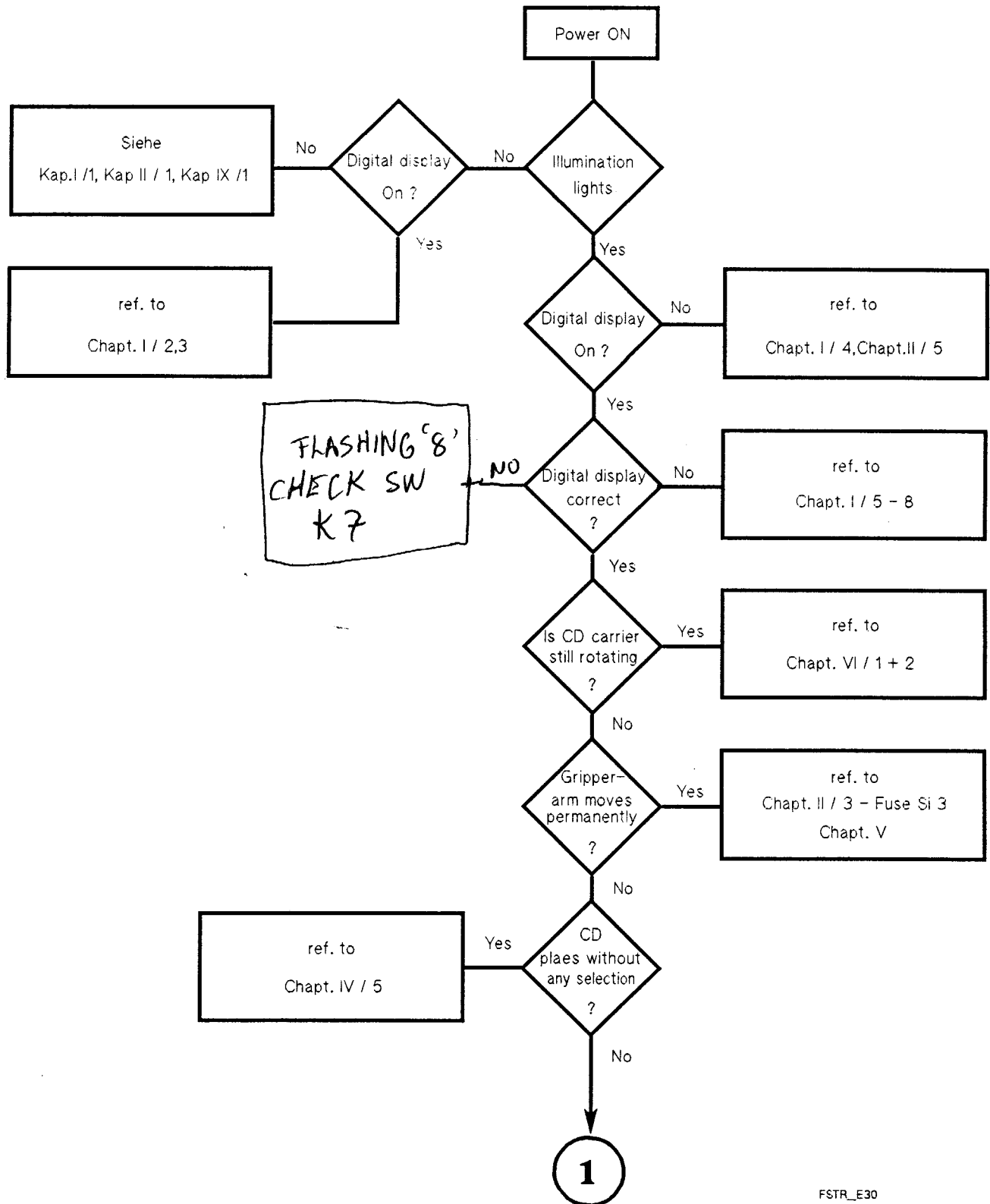
is defective, the computer does not sense this because it gets impression that the disc is still playing. Hence it will not start a new search run although it has accepted coins and selections properly. Typical for this fault is that after power off the main cam motor is still moving on and on digital display a flashing "8" in the RH digit appears. For a start short the collector of T22 to ground momentarily. If transistor T22 is permanently shorted to ground the just playing disc can not be cancelled while it is playing. After this last play and also after power off the phonograph does not do anything.

CHAPTER X: Hints to the test program of the Philips Control Board

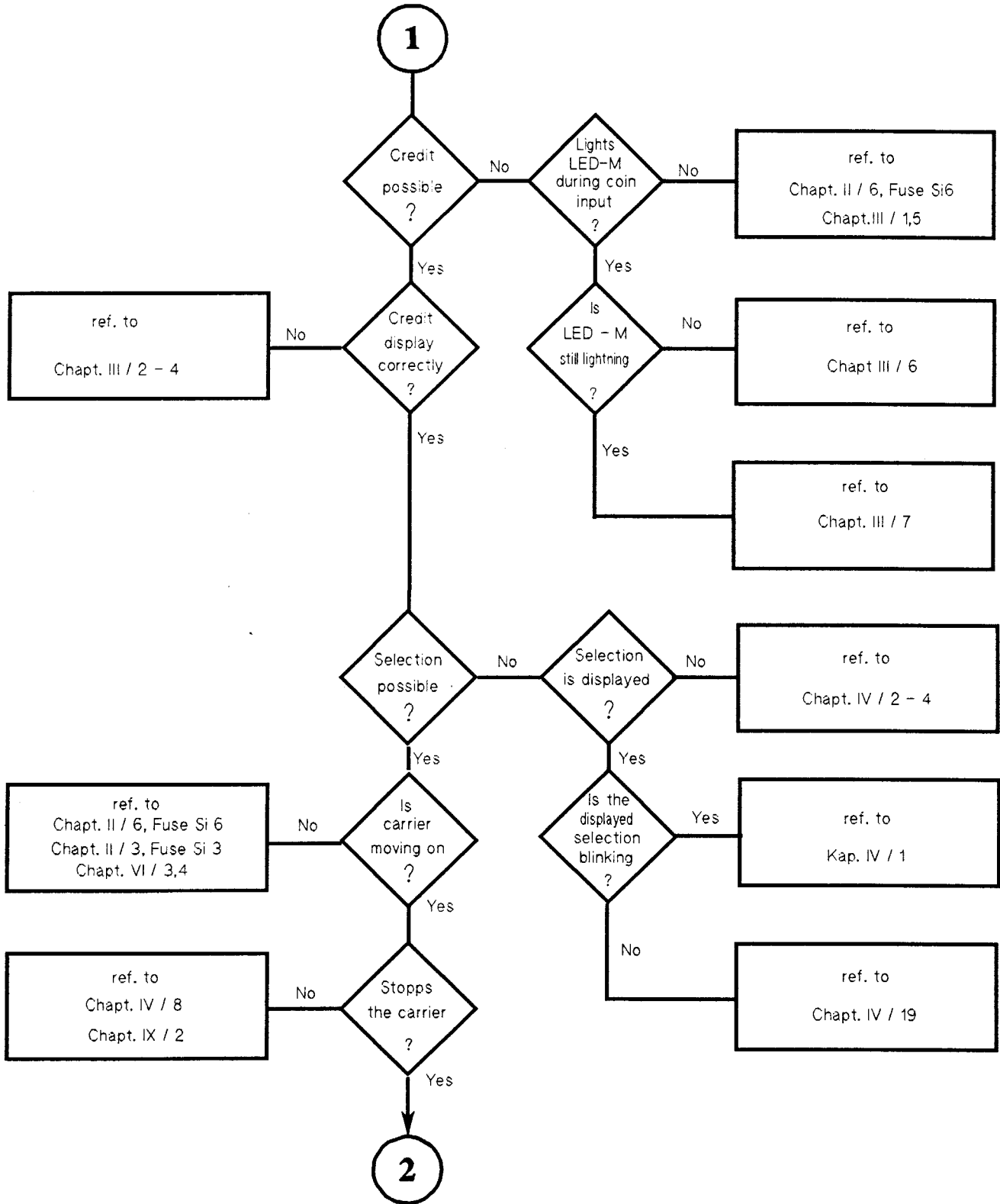
1. To reach this test switch off the phonograph and connect the Wurlitzer Service Module to plug P14 of CD control unit (remove dummy plug before).
2. After this press and hold the buttons TIME, PREVIOUS at the service module and press and hold the NEXT button at the CD control unit then switch the phonograph on.
3. Now the display of the test module shows "0". In this mode the function of the laser arm (radial drive) can be checked by pressing the buttons FR and FF. After a successful test procedure the mode 1 is reachable by pressing the NEXT button at the CD control unit.
4. In mode "1" the laser is switched on, the focus procedure is started and up to 16 times repeated if not successful. Even when the correct focus point is founded a "1" appears at the display of the test module. This is a very important information about the quality of the laser beam and the hole adjustment of the optical assembly. The time from actuating the NEXT button to the appearance of the "1" at the display must not be longer than a half second.
5. If test "1" was successful test "2" is reachable by pressing the NEXT button again. Turntable motor must move on and at the display appears a "2".
6. If test "2" was successful test "3" is reachable by pressing the NEXT button.
7. In test mode "3" the CD is playable at the Table Of Contents (TOC) By pressing the buttons F and FR the laser arm is moving forward or backward. With this test the adjustment of optical assembly can be checked.
8. The focus lens should have the same middle high position over the hole CD range. The laser arm should follow the instructions of the FF or FR buttons and must not interrupt the play procedure with abruptly movements.
9. Exit out of this mode by switch off the phonograph.

3209/3306 neu-ze (b:feh13eng.doc)

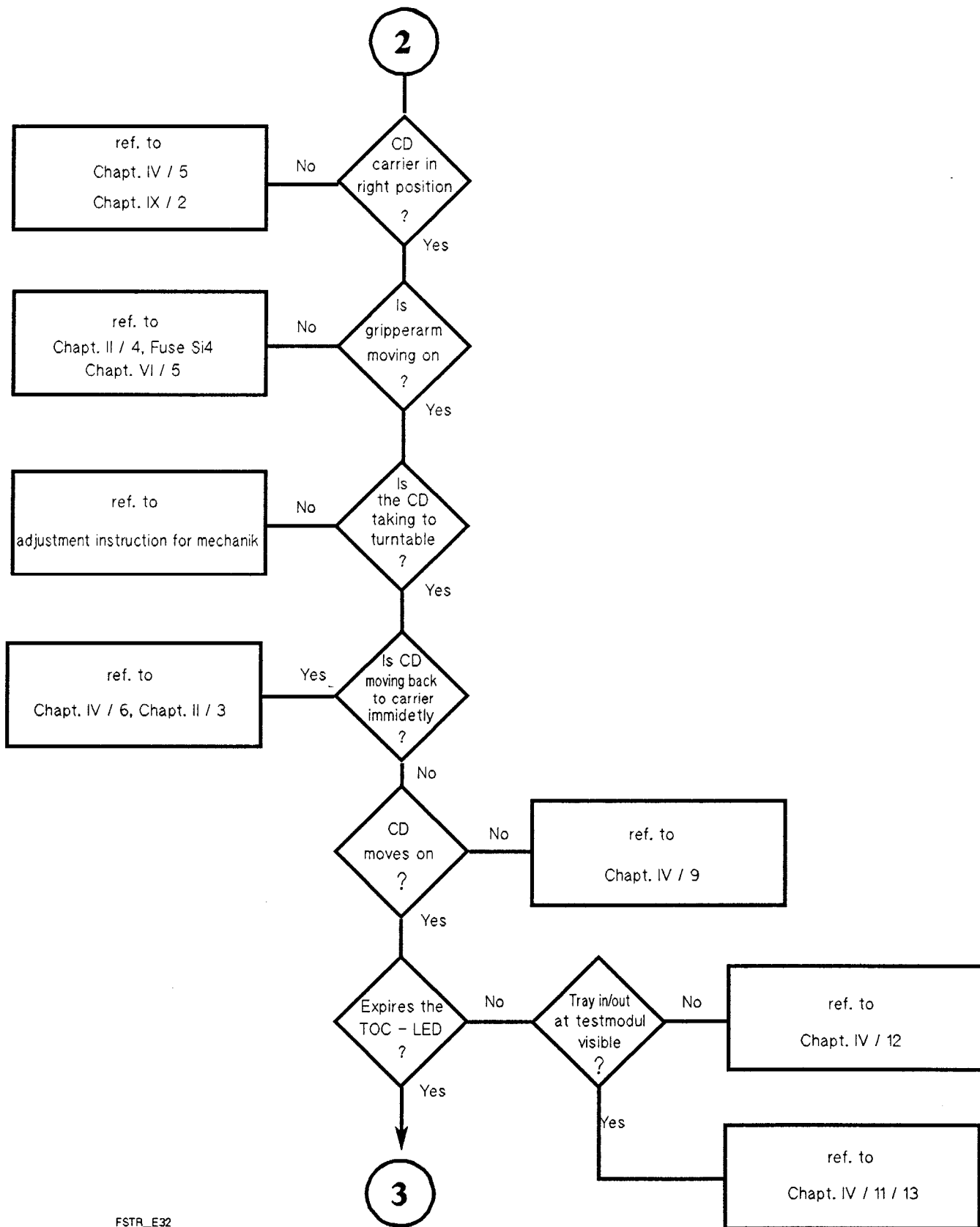
QUICK TROUBLE SHOOTING CART CDM 3 AND CDM 4S



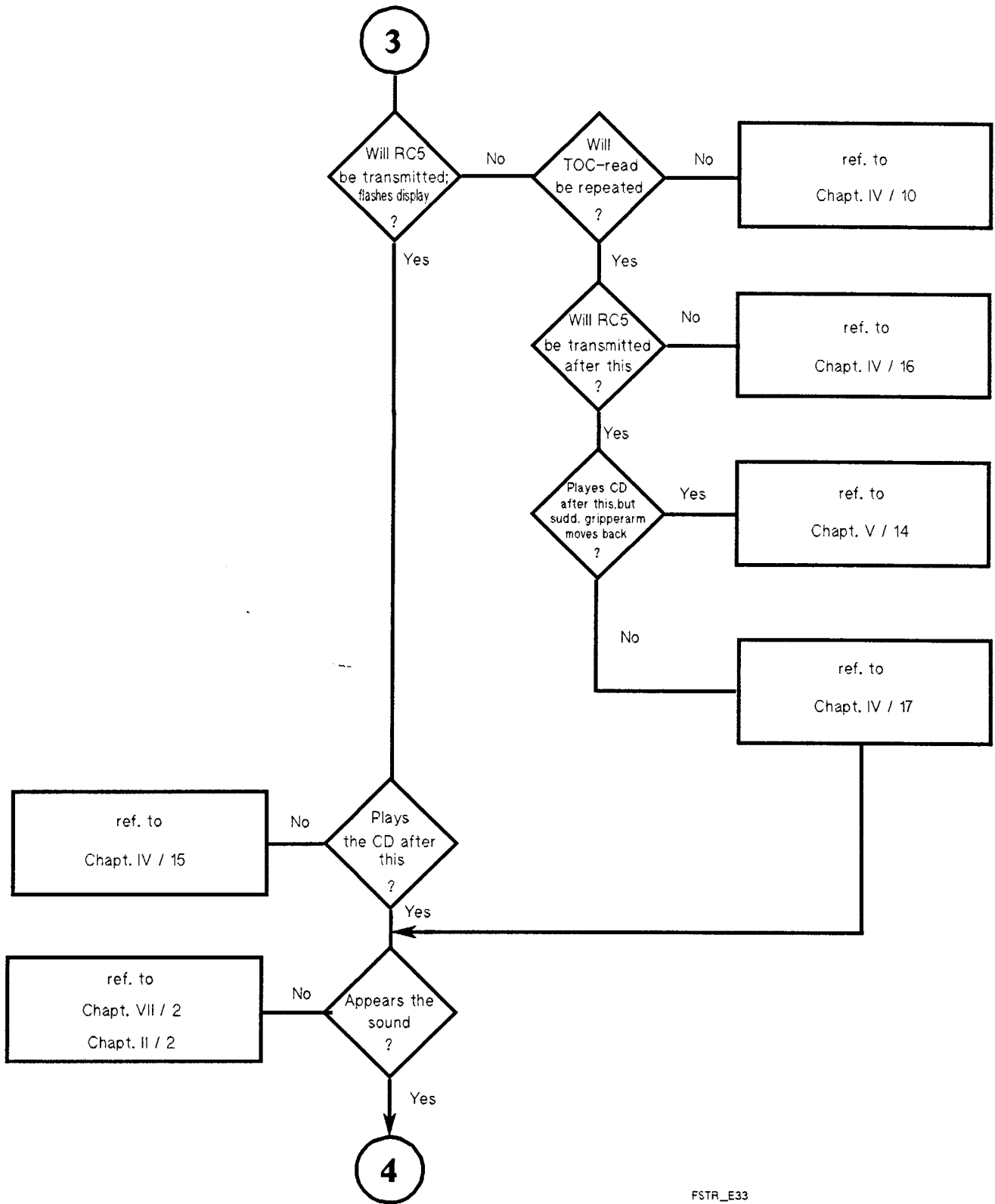
FSTR_E30



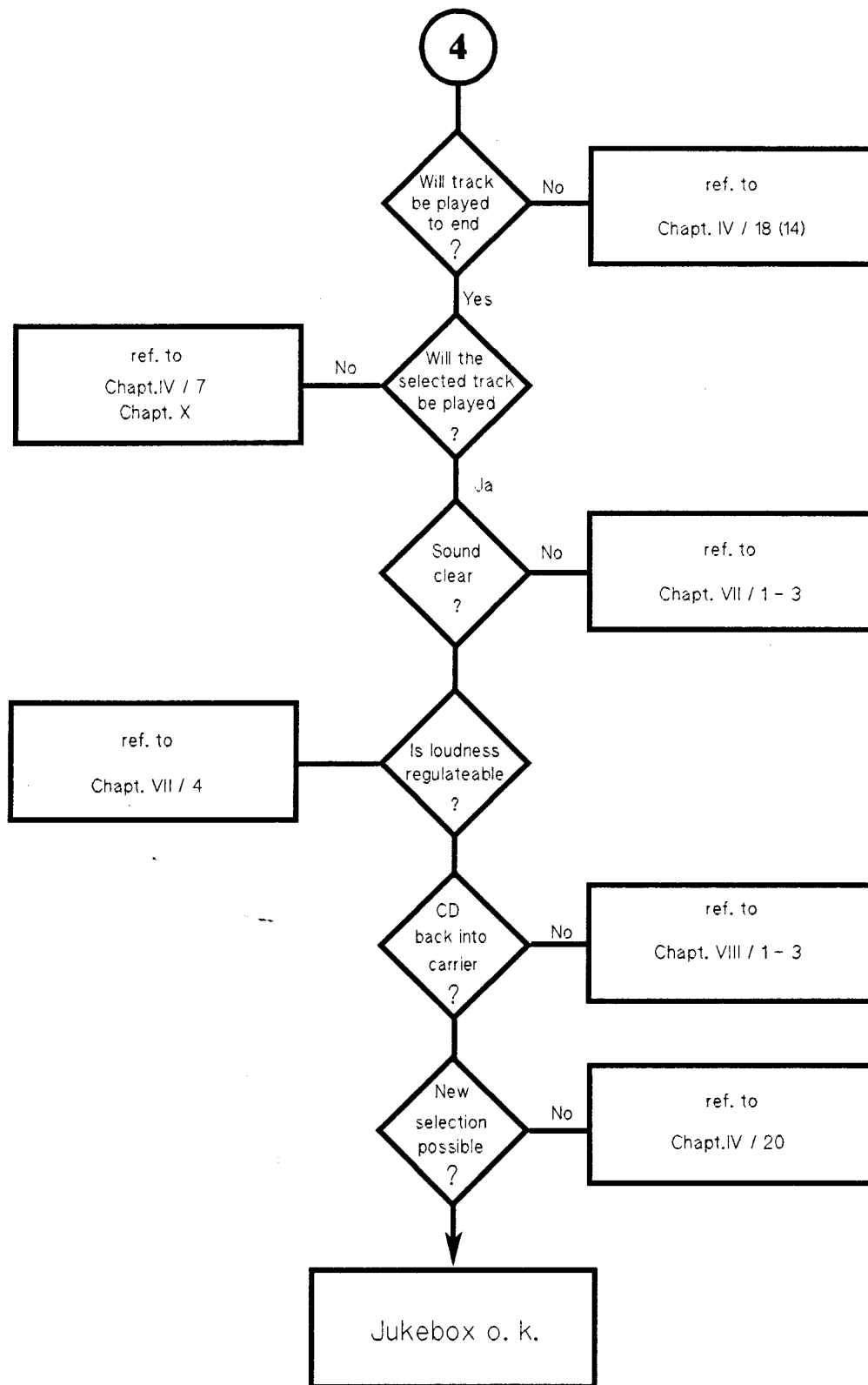
FSTR_D31



FSTR_E32



FSTR_E33



FSTR_E34