

HCD-H771/H771D


SERVICE MANUAL



US Model
Canadian Model
HCD-H771/H771D
AEP Model
UK Model
E Model
Australian Model
HCD-H771

HCD-H771/H771D is the tuner, deck, CD and amplifier section in MHC-D6/G77/771.

Photo : H771 US model

- * Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation. "DOLBY" and the double-D symbol  are trademarks of Dolby Laboratories Licensing Corporation.

CD SECTION	Model Name Using Similar Mechanism	NEW
	CD Mechanism Type	CDM38-5BD19
	Base Unit Type	BU-5BD19
	Optical Pick-up Type	KSS-213BA/F-NP
TAPE DECK SECTION	Model Name Using Similar Mechanism	HCD-H701
	Tape Transport Mechanism Type	TCM-220WR2E

SPECIFICATIONS

For the U.S. model

AUDIO POWER SPECIFICATIONS POWER OUTPUT AND TOTAL HARMONIC DISTORTION:

With 6 ohm loads, both channels driven, from 40 – 20,000 Hz; rated 50 watts per channel minimum RMS power, with no more than 0.9 % total harmonic distortion from 250 milliwatts to rated output.

CD player section

System Compact disc and digital audio system
Laser Semiconductor laser
($\lambda = 780 \text{ nm}$)
Emission duration: continuous
Laser output Max. 44.6 μW *

* This output is the value measured at a distance of 200 mm from the objective lens surface on the Optical Pick-up Block with 7 mm aperture.

Frequency response 2 Hz–20 kHz ($\pm 0.5 \text{ dB}$)
Wavelength 780–790 nm
Signal-to-noise ratio More than 90 dB
Dynamic range More than 90 dB

Tuner section

FM stereo, FM/AM superheterodyne tuner

FM tuner section

Tuning range
East European, CIS models:
65.0–74.0 MHz
87.5–108.0 MHz
Other models:
87.5–108.0 MHz
Antenna FM lead antenna
Antenna terminals 75 ohm unbalanced
Intermediate frequency 10.7 MHz

AM tuner section

Tuning range
US, Canadian models:
AM: 531–1,710 kHz
German, Italian models:
AM: 531–1,602 kHz
(with the interval set at 9 kHz)
AEP, UK, East European models:
MW: 531–1,602 kHz
(with the interval set at 9 kHz)
LW: 153–279 kHz
(with the interval set at 3 kHz)
E2, Australian, Argentine, Mexican, Thailand models:
531–1,602 kHz (with the tuning interval set at 9 kHz)
530–1,710 kHz (with the tuning interval set at 10 kHz)
E3, Saudi Arabia, Malaysia, Singapore, Hong Kong models:
MW: 531–1,602 kHz
(with the interval set at 9 kHz)
530–1,710 kHz
(with the interval set at 10 kHz)
SW: 5.95–17.90 MHz

— Continued on next page —

COMPACT DISC DECK RECEIVER
SONY®



6-2. IC PIN FUNCTION

• IC500 GRAPHIC CONTROL (ASD0204-012-3BA)

Pin No.	Pin Name	I/O	Function
1	V _{DD}	—	+5V
2-9	LED8-LED1	O	LED drive signal output.
10	RESET	I	Reset signal input.
11	X2	O	} X'tal (5 MHz).
12	X1	I	
13	IC (V _{pp})	—	GND
14	XT2	I	Not used. (Open)
15	JOG B	I	MULTI JOG STATION (S562) encoder signal input.
16	V _{DD}	—	+5V
17, 18	LED10, 9	O	LED drive signal output.
19	KEY SEL	O	Key select control.
20	VOL B	I	Volume encoder signal input.
21	REQ. GM	I/O	Request signal from/to master control.
22	CLK MG	I	Serial clock input.
23	DATA GM	O	Serial data output.
24	DATA MG	I	Serial data input.
25	AV _{ss}	—	GND
26-29	SPEANA 4-1	I	Spectram analyzer signal input.
30-33	KEY 4-1	I	Key matrix input.
34	AV _{DD}	—	} +5V
35	AV _{REF}	—	
36	VOL A	I	Volume encoder signal input.
37	JOG A	I	MULTI JOG STATION (S562) encoder signal input.
38	RDY MG	I	Ready signal from master control.
39	SIRCS	I	SIRCS signal input.
40	V _{ss}	—	GND
41	DOOR. SW	O	LED drive signal output.
42	LED SELECT	O	LED select signal output.
43-45	LED13-11	O	LED drive signal output.
46	V _{DD}	—	+5V
47-50	LEDS7-4	O	Not used.
51-53	LEDS3-1	O	LED drive signal output.
54-78	SEG32-8	O	FL segment signal output.
79	V. LOAD	—	-25V for FL
80-86	SEG7-1	O	FL segment signal output.
87-100	GR14-1	O	FL grid signal output.

- Abbreviation
FL : FLUORESCENT INDICATOR TUBE
GND : Ground

• IC701 MASTER CONTROL (TMP87CP64YF)

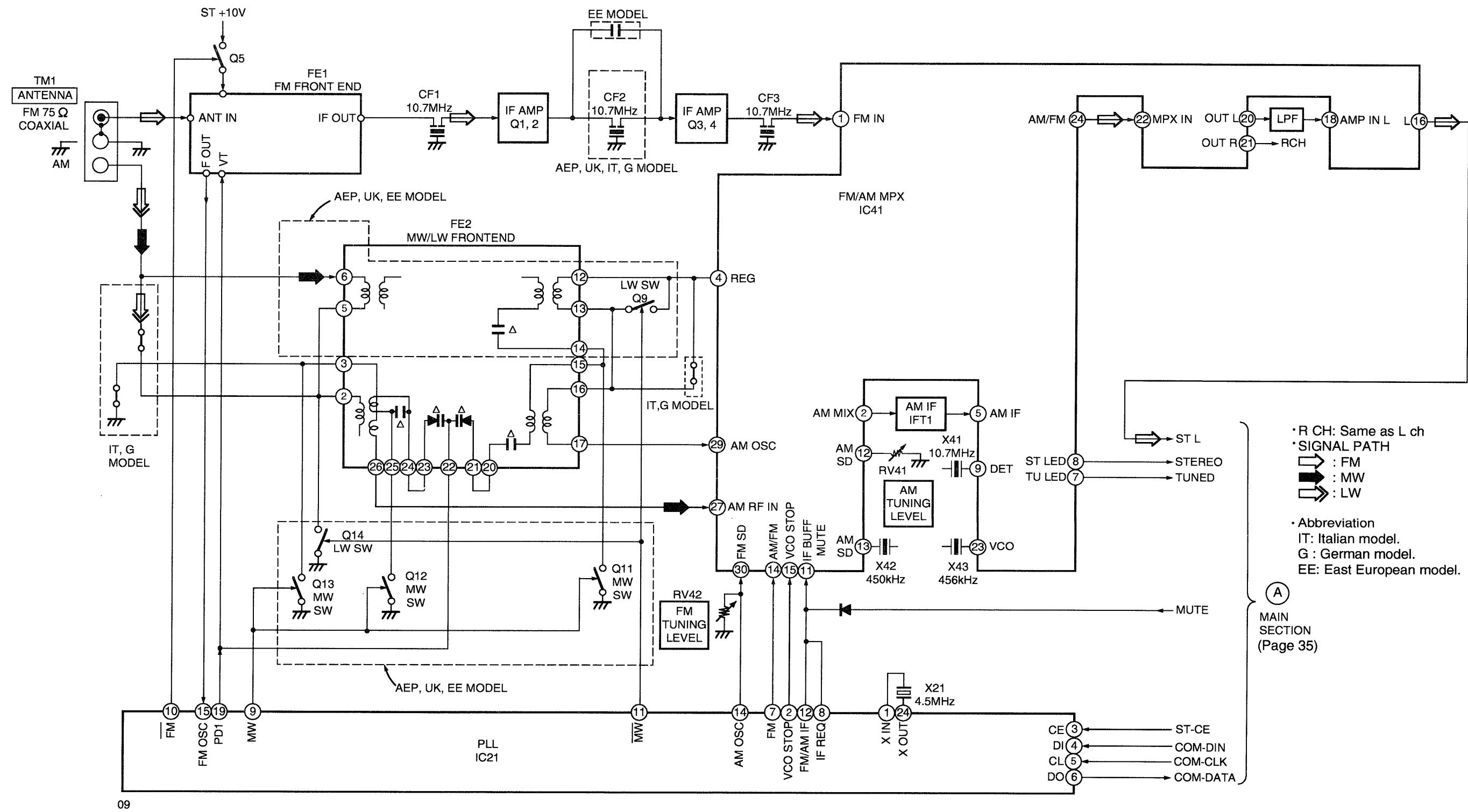
Pin No.	Pin Name	I/O	Function
1	V _{SS}	—	GND
2	XOUT	O	} X'tal (10 MHz).
3	XIN	I	
4	RESET	I	Reset signal input.
5	XOUT	O	} X'tal for clock (32.768 kHz)
6	XIN	I	
7	GND (test)	—	GND
8	AC CUT	I	Back up signal input.
9	SUPER WOOFER ON	O	Not used. (Connected to GND)
10	ST-MUTE ON	O	Mute signal output for tuner.
11	180-A-PLAY	I	} Tape detection signal input. (Not used) (Connected to GND)
12	180-B-PLAY	I	
13	180-B-REC	I	
14	CLK CHK	I	Not used.
15	UP-SW	I	Disc table up detect. (Not used)
16	IN-SW	I	Not used.
17	ENCODER-0	I	} Disc tray address detect encoder input.
18	ENCODER-1	I	
19	ENCODER-2	I	
20	OUT SW OPEN	I	Out switch signal input.
21	LOAD IN	O	} Loading motor control signal output.
22	LOAD OUT	O	
23	TBL-L	O	} Table motor control signal output.
24	TBL-R	O	
25	SCOR	I	Sub-code sync signal input.
26	TBL-SENS	I	CD Table sensor signal input.
27	RDS INT	I	RDS data start input. (Connected to GND)
28	RDS DATA	I	RDS data output. (Connected to GND)
29	DF LAT	O	Latch signal for digital filter.
30	SENS	I	Table sense signal input.
31	XRST	O	Reset signal output for CD.
32	MG-RDY	O	Ready signal to graphic control.
33	ADJ	I	Test mode input.
34	GM-REQ	I	Request signal from graphic control.
35	MG-CLK	O	Clock signal to graphic control.
36	GM-DATA	I	Data input from graphic control.
37	MG-DATA	O	Data output to graphic control.
38	CD-CLK	O	Clock output. Serial bus line.
39	ADJ-2	I	Test mode input.
40	CD-DATA	O	Data output. Serial bus line.

- Abbreviation
GND : Ground

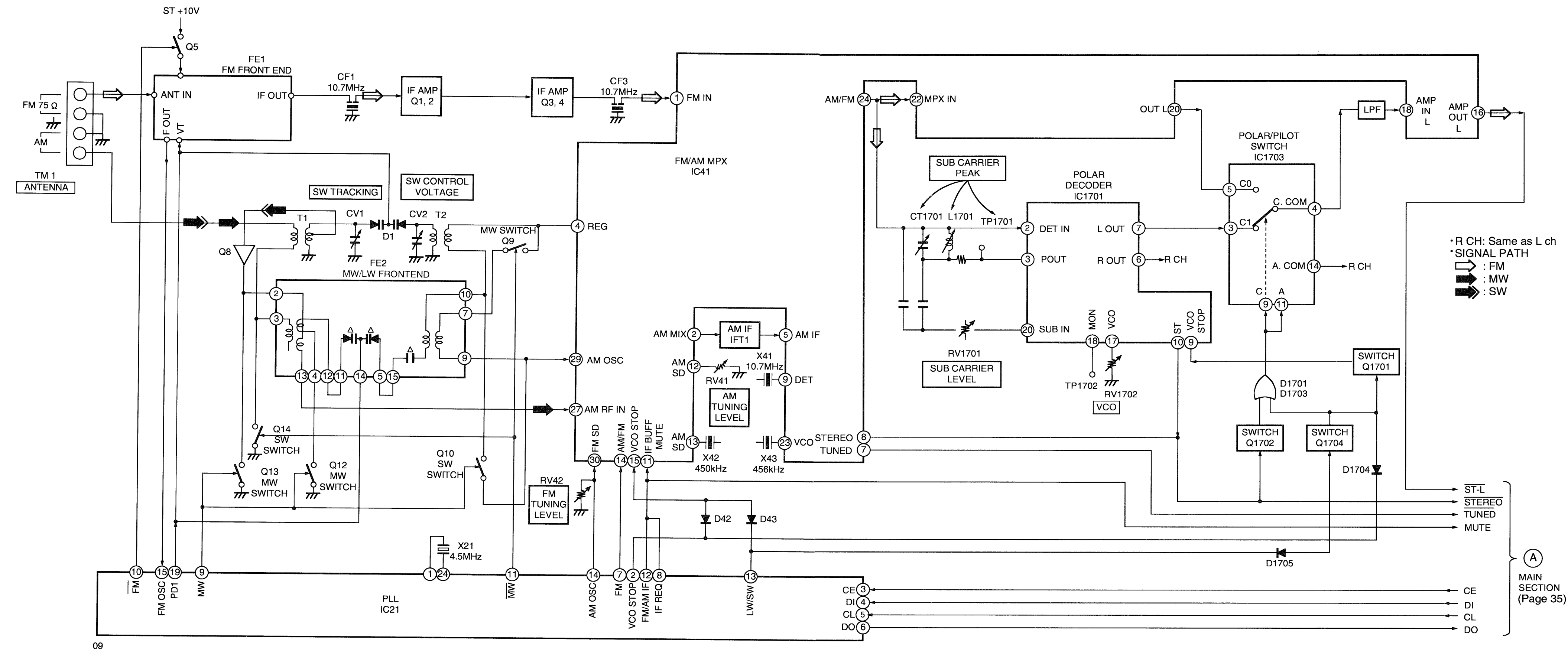
Pin No.	Pin Name	I/O	Function
41	AUB IN	I	} Audio bus in/output. (Open)
42	AUB OUT	O	
43	FOCUS SW	O	Focus switching signal output.
44	SQ-CLK	O	Subcode Q data read clock output.
45	SQ-DATA	I	Subcode Q data input.
46	X-LAT	O	Latch signal digital signal processor.
47	TEST	I	Test land.
48	VAREF	I	Analog reference voltage input.
49	VAss	—	} GND
50	Vss	—	
51	VDD	—	+5V
52	SPEC	I	} Destination detection setting input.
53	DESTINATION	I	
54	DISC SENS	I	Not used. (Connected to GND)
55	TC RELAY	O	REC/PB select signal output.
56	A-SHUT	I	} Control signal input from deck.
57	B-SHUT	I	
58	B-HALF	I	
59	A-HALF	I	
60	220-A-PLAY	I	
61	220-B-PLAY	I	
62	62427 LAT	O	PLL latch output.
63	K-CON-LAT	O	Not used.
64	VOL LAT (AV)	O	Latch signal for electrical volume. (Not used) (Open)
65	REAR SP RELAY B	O	} Not used. (Open)
66	FRONT SP RELAY C	O	
67	POWER ON	O	Power on signal output.
68	CD POWER	O	CD power control signal output.
69	PROLOG LAT	O	Not used. (Open)
70	MUTE	O	Mute signal for AMP.
71	COM CLK	O	PLL clock output.
72	COM DIN	I	PLL data input.
73	COM DATA	O	PLL data output.
74	K CON ON	O	Not used. (Open)
75	LIDDED LED	O	Disc No. LED drive signal output. (Not used) (Open)
76	PROLOG ON	O	PRO LOGIC control output.
77	DBFB-HIGH	O	DBFB switching signal output.
78	URG STB STDBY	I	} Not used.
79	URG STB ON	O	
80	TC A	O	Deck A, B select output.

Pin No.	Pin Name	I/O	Function
81	NORM	O	NORMAL/HIGH control signal output.
82	BIAS OFF	O	Bias oscillation output.
83	REC MUTE	O	Mute output.
84	NR OFF	O	Dolby ON/OFF signal output.
85	PB	O	REC/PB control signal output.
86	PASS. AMP/DOLBY	O	Dolby switching signal output.
87	LINE MUTE ON	O	Mute signal output for deck.
88	CAP. M-HIGH	O	Capstan motor control signal output.
89	A-TRG	O	} Trigger motor control signal output.
90	B-TRG	O	
91	TRG LOW	O	Trigger motor high/low control signal output.
92	CAP M ON	O	Capstan motor ON/OFF control signal output.
93	STEREO	I	Stereo detection signal from tuner.
94	TUNED	I	Tuned detection signal from tuner.
95	ST-CE	O	Latch signal output for tuner.
96	DELAY SEL MIC	O	} Not used. (Connected to GND)
97	DELAY ON	O	
98	DELAY LEVEL A	O	
99	DELAY LEVEL B	O	
100	VDD	—	+5V

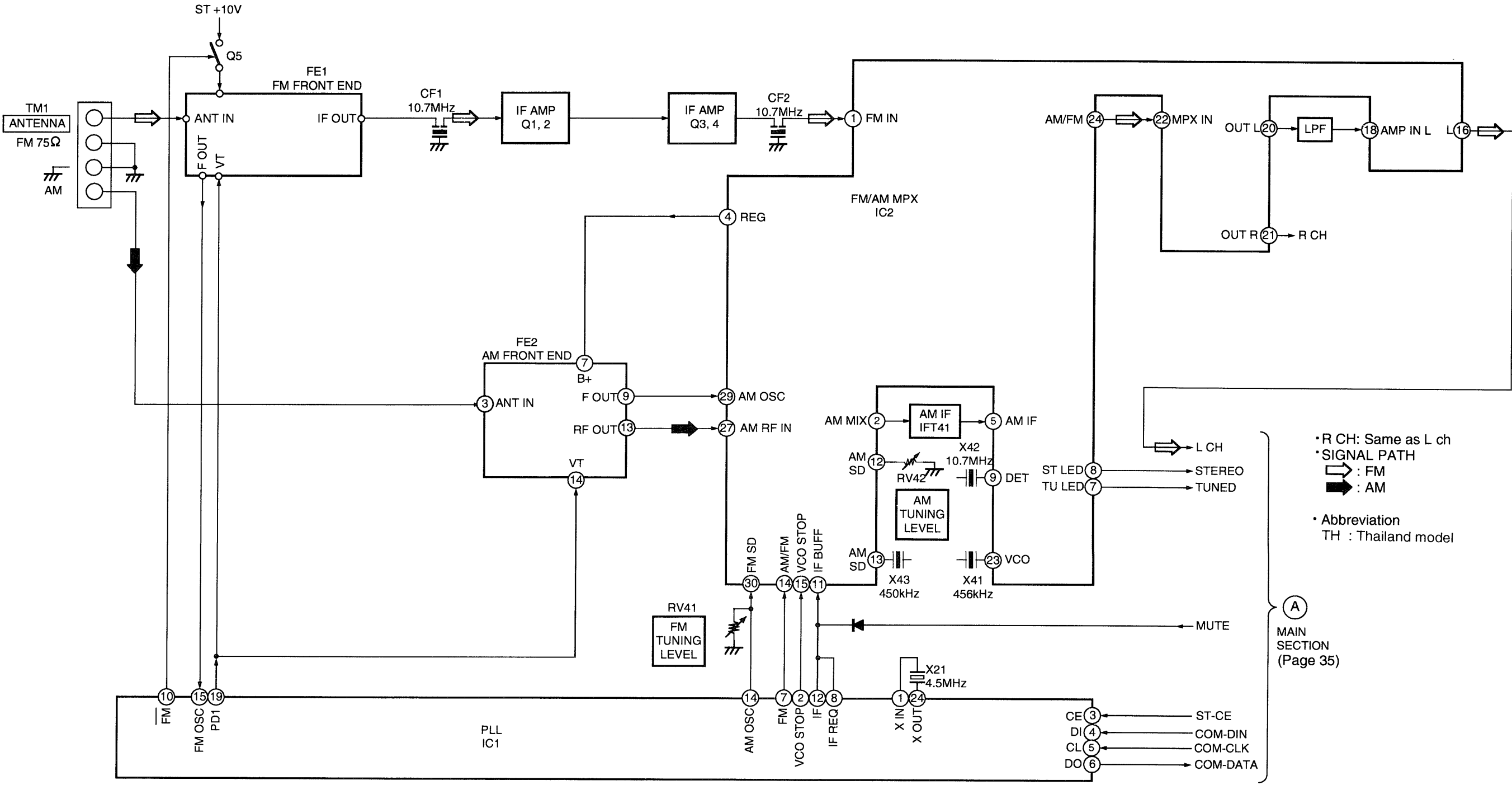
6-3. BLOCK DIAGRAMS
— TUNER SECTION — (AEP, UK, G, IT, EE MODELS)



— TUNER SECTION — (CIS MODEL)

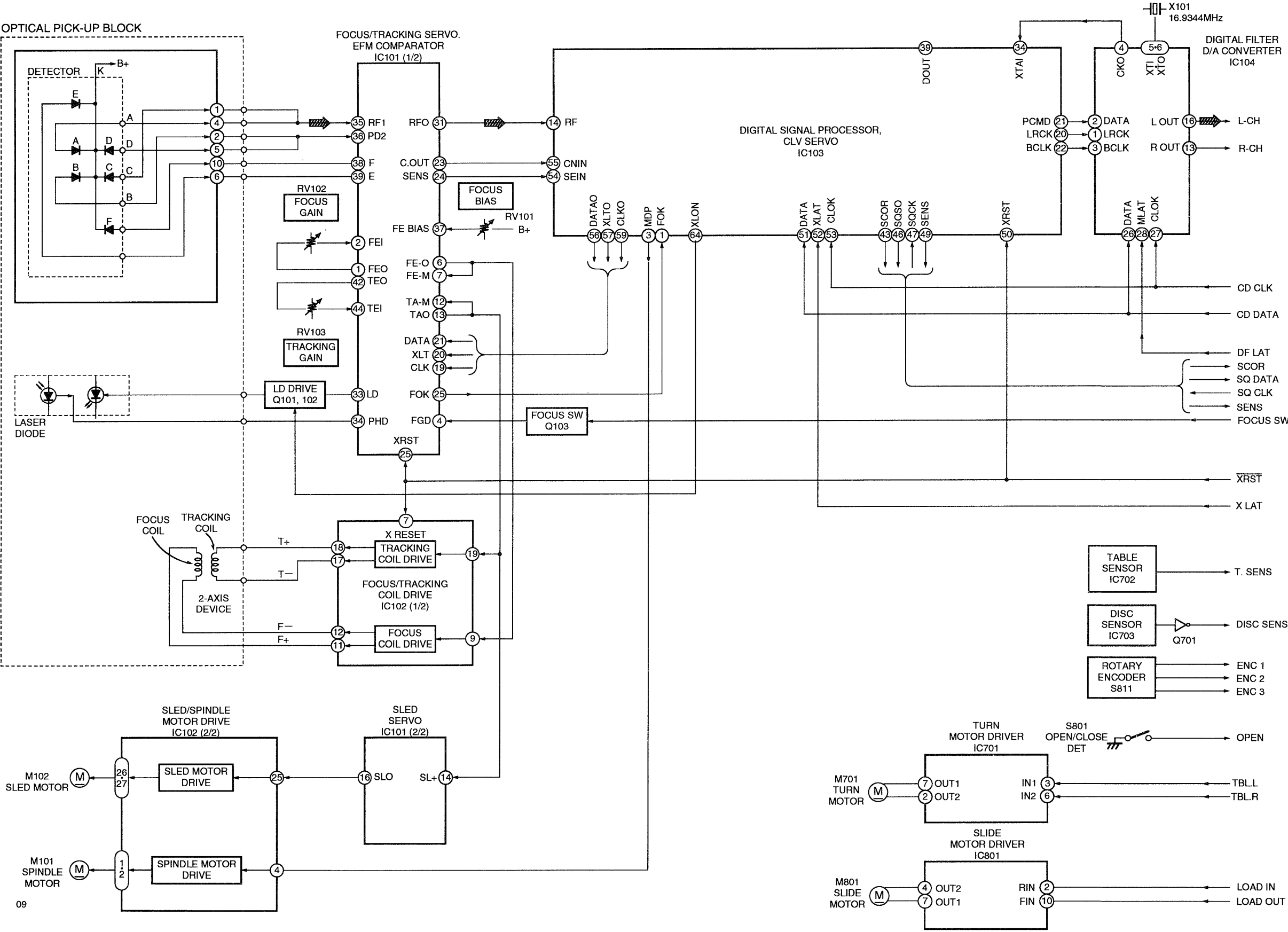


— TUNER SECTION — (TH MODEL)



09

— CD SECTION —

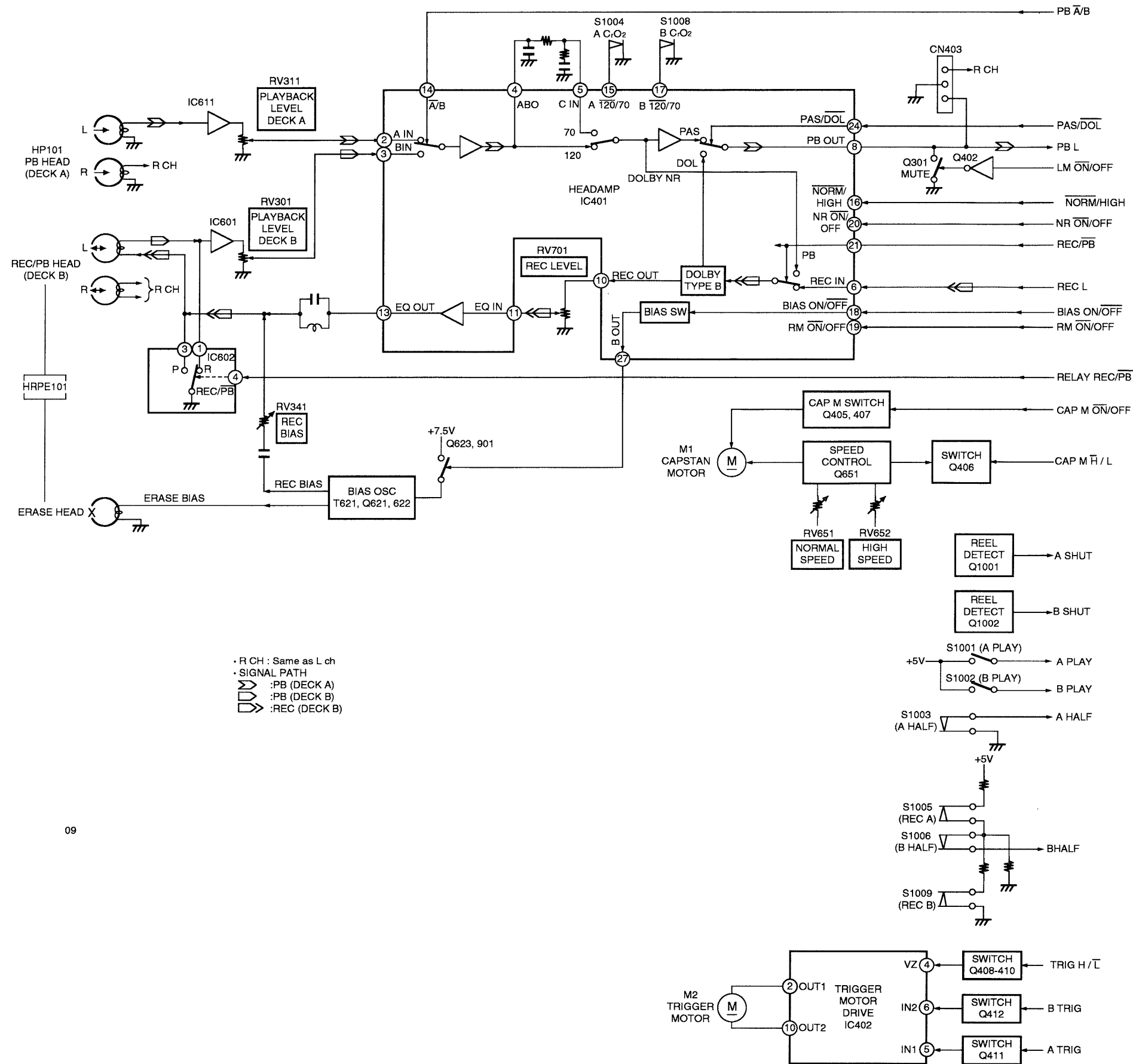


C
MAIN
SECTION
(Page 35)

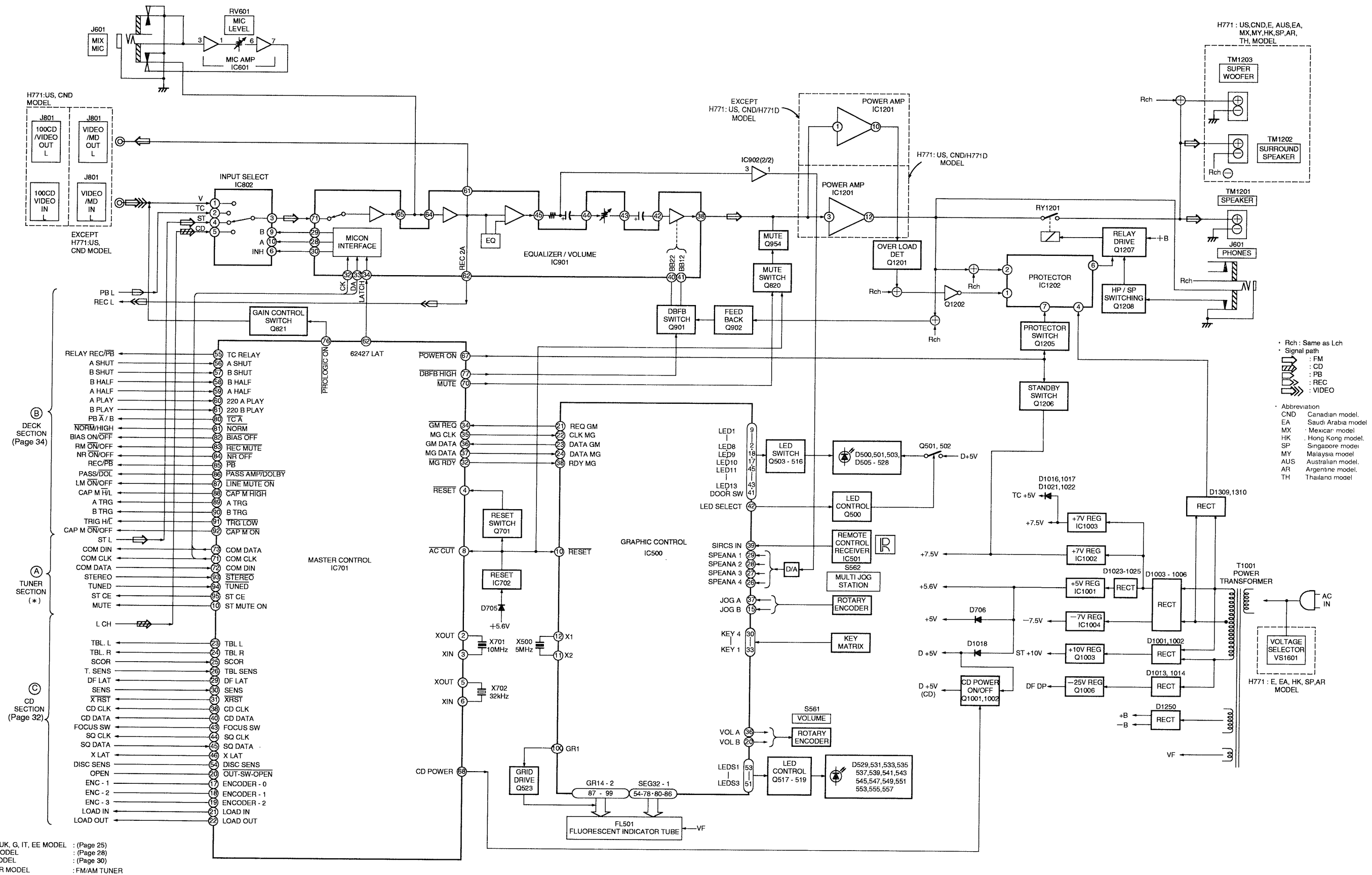
• R CH : Same as L ch
• SIGNAL PATH

▨ : CD

— TC SECTION —



— MAIN SECTION —

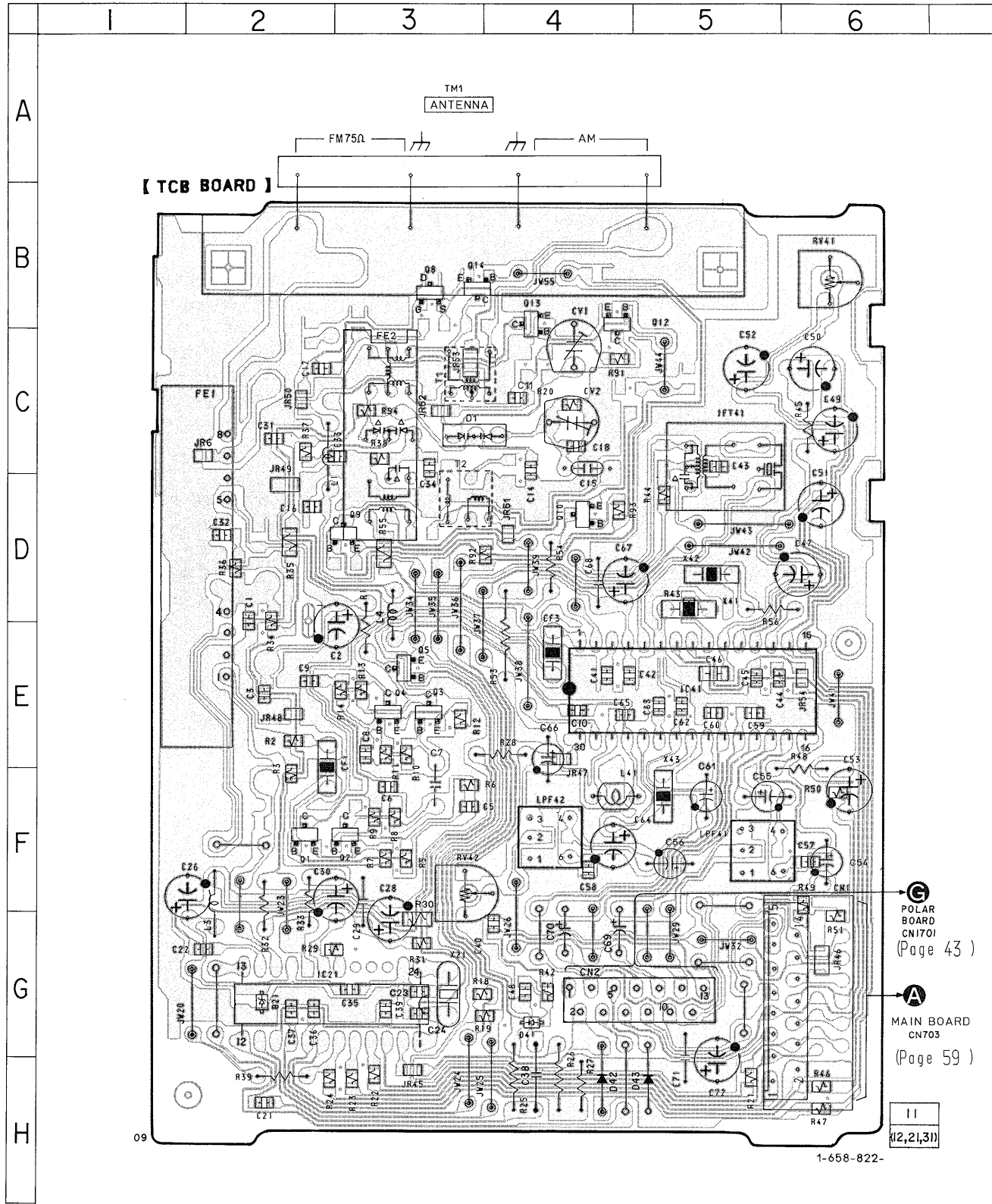


* AEP, UK, G, IT, EE MODEL : (Page 25)
CIS MODEL : (Page 28)
TH MODEL : (Page 30)
OTHER MODEL : FM/AM TUNER

6-6. PRINTED WIRING BOARD — TUNER SECTION — (CIS MODEL)

• See page 19 for Circuit Boards Location.

Semiconductor Location	
Ref. No.	Location
D1	C-3
D21	G-2
D41	G-4
D42	H-4
D43	H-4
IC21	G-2
IC41	E-5
Q1	F-2
Q2	F-3
Q3	F-3
Q4	E-3
Q5	E-3
Q8	B-3
Q9	D-3
Q10	D-4
Q12	B-5
Q13	B-4
Q14	B-3

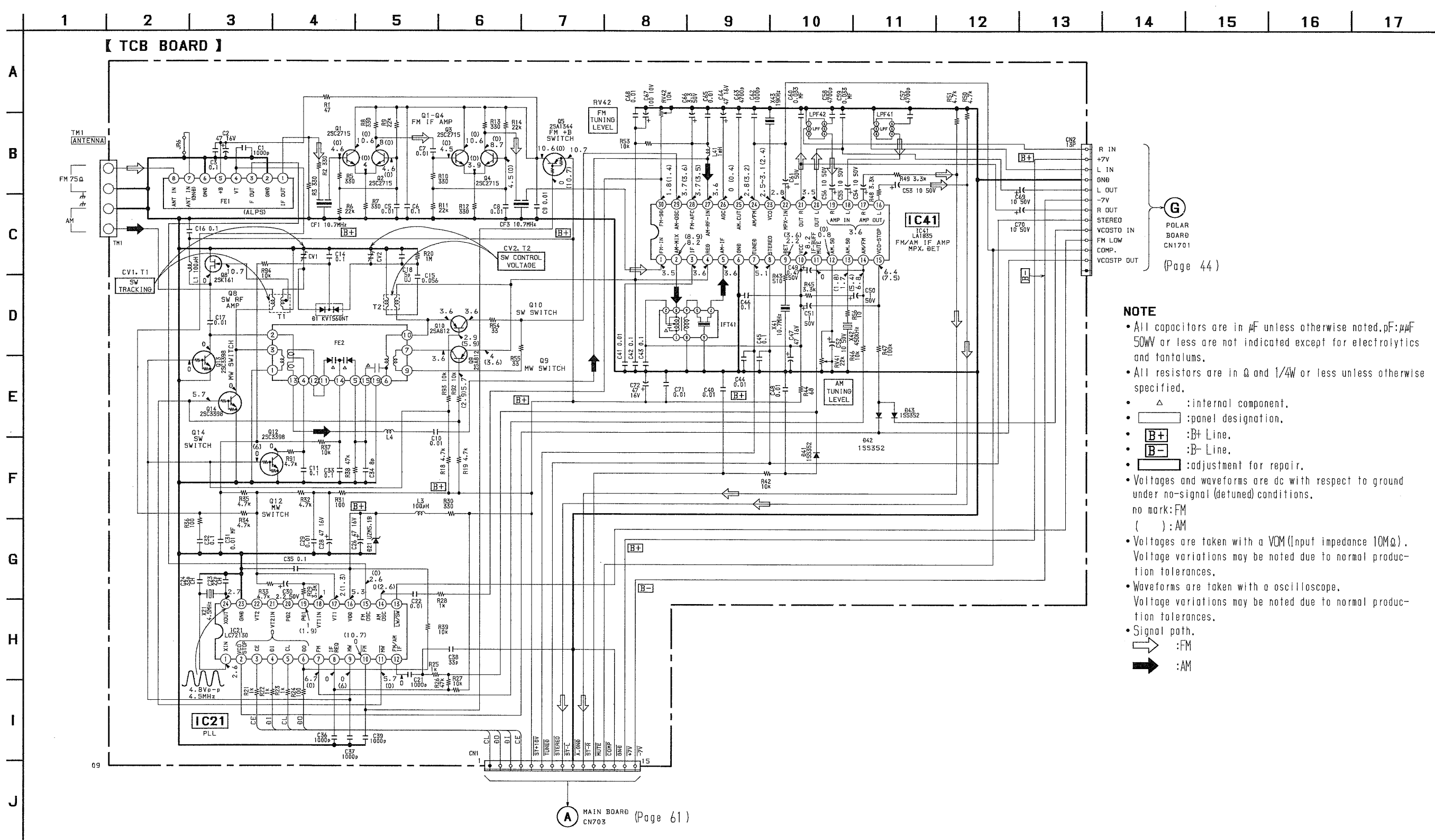


Note:

- : parts extracted from the component side.
- △ : internal component.
- : Pattern from the side which enable seeing.

6-7. SCHEMATIC DIAGRAM — TUNER SECTION — (CIS MODEL)

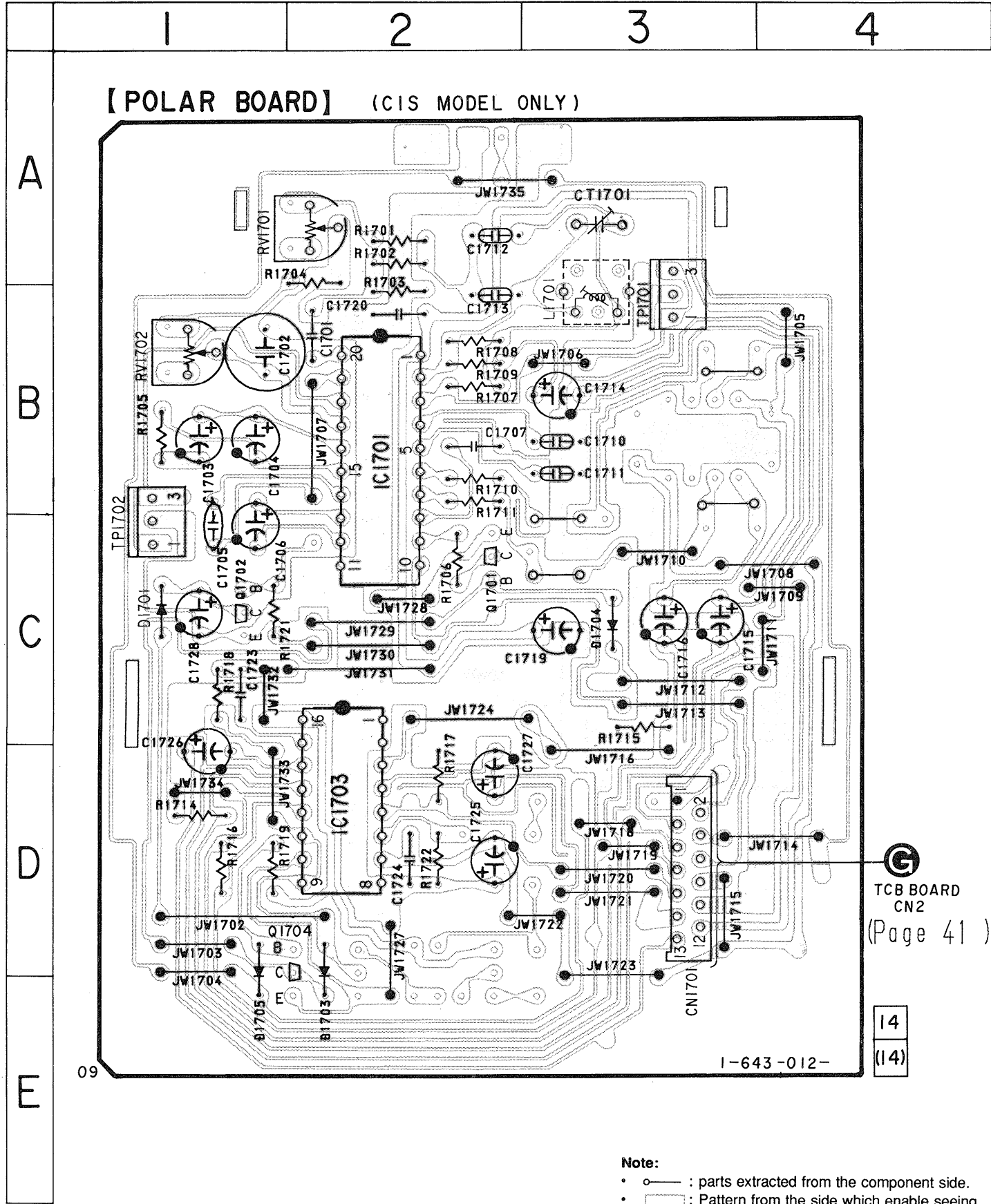
• See page 47 for IC Block Diagrams.



NOTE

- All capacitors are in μF unless otherwise noted. $\text{pF} = \mu\text{F} \times 10^{-6}$. 50W or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and $1/4\text{W}$ or less unless otherwise specified.
- △ : internal component.
- □ : panel designation.
- B+ : B+ Line.
- B- : B- Line.
- □ : adjustment for repair.
- Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.
- no mark: FM
- () : AM
- Voltages are taken with a VOM (Input impedance $10\text{M}\Omega$). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Signal path.
- → : FM
- → : AM

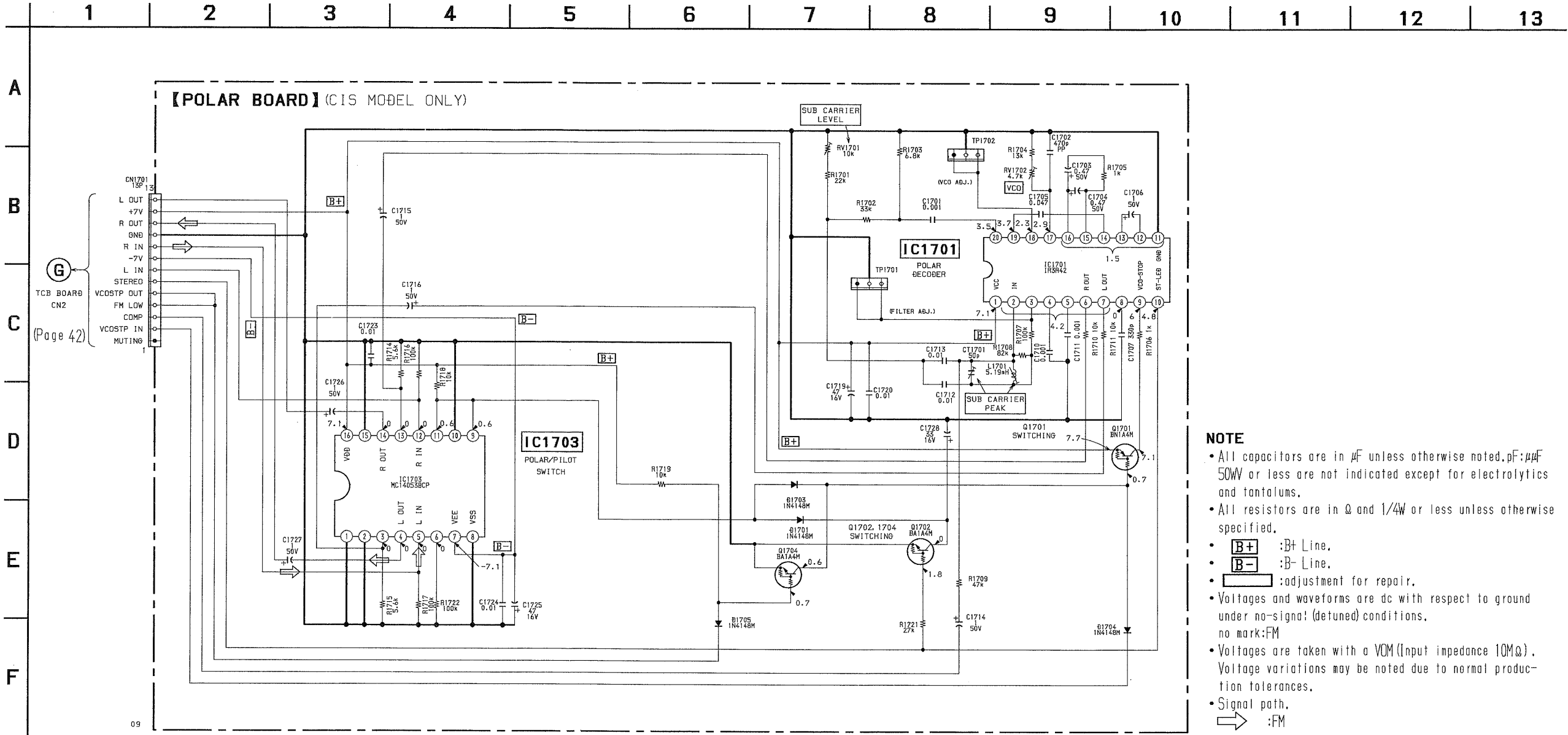
6-8. PRINTED WIRING BOARD — POLAR SECTION —
• See page 19 for Circuit Boards Location.



• Semiconductor Location

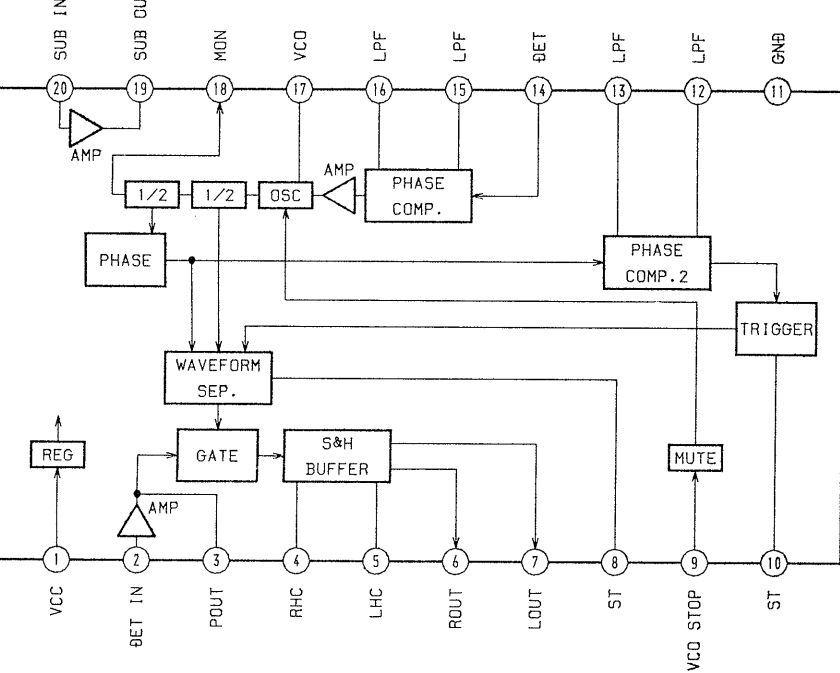
Ref. No.	Location
D1701	C-1
D1703	E-2
D1704	C-3
D1705	E-2
IC1701	B-2
IC1703	D-2
Q1701	C-3
Q1702	C-1
Q1704	E-2

6-9. SCHEMATIC DIAGRAM — POLAR SECTION —

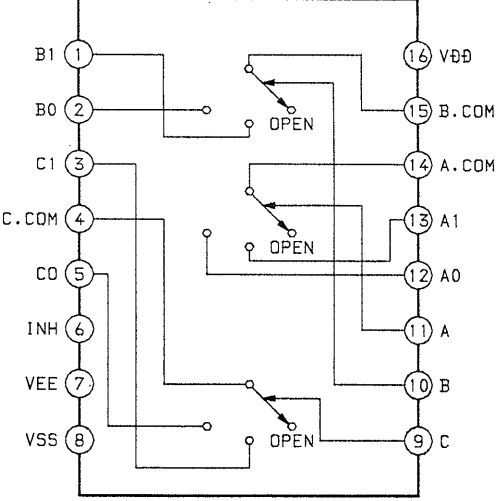


• IC Block Diagrams

IC1701 IR3R42

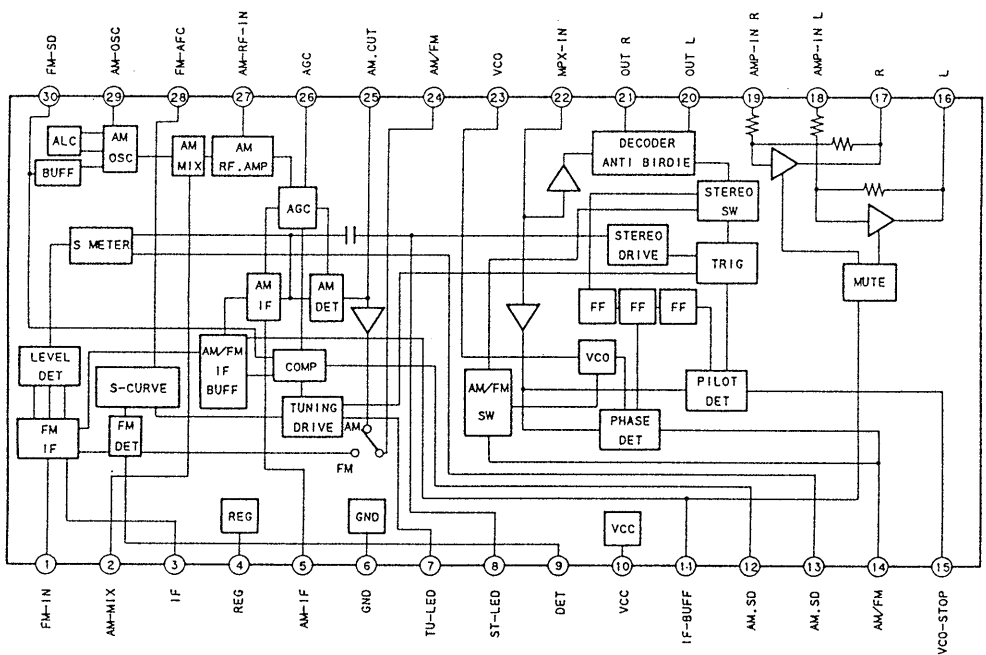


IC1703 MC14053BCP

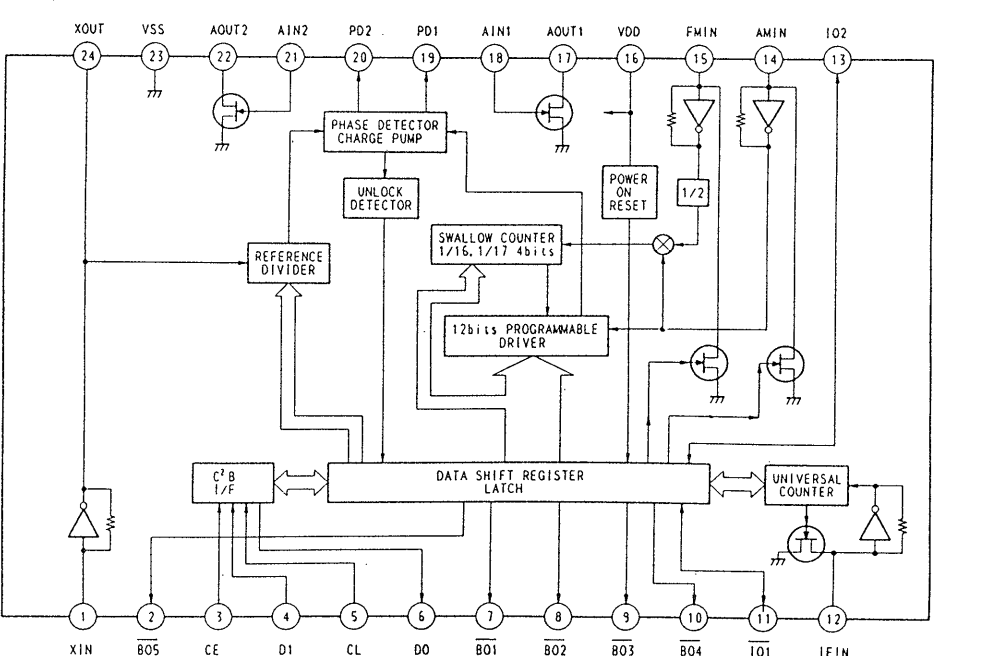


• IC Block Diagrams

IC1, 21 LC72130



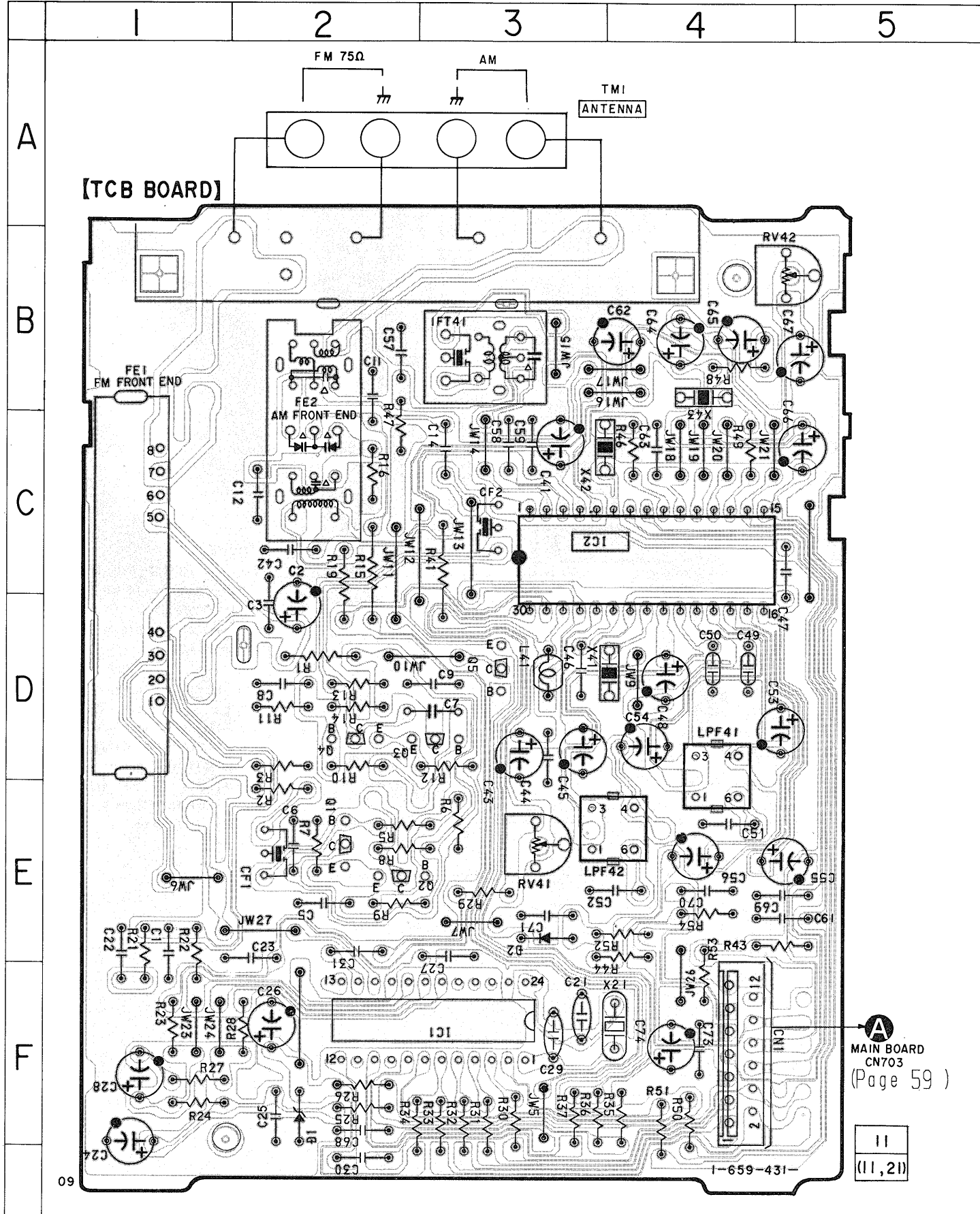
IC2, 41 LA1835



Note:

- : parts extracted from the component side.
- △ : internal component.
- : Pattern from the side which enable seeing.
- Abbreviation
- TH : Thailand model.

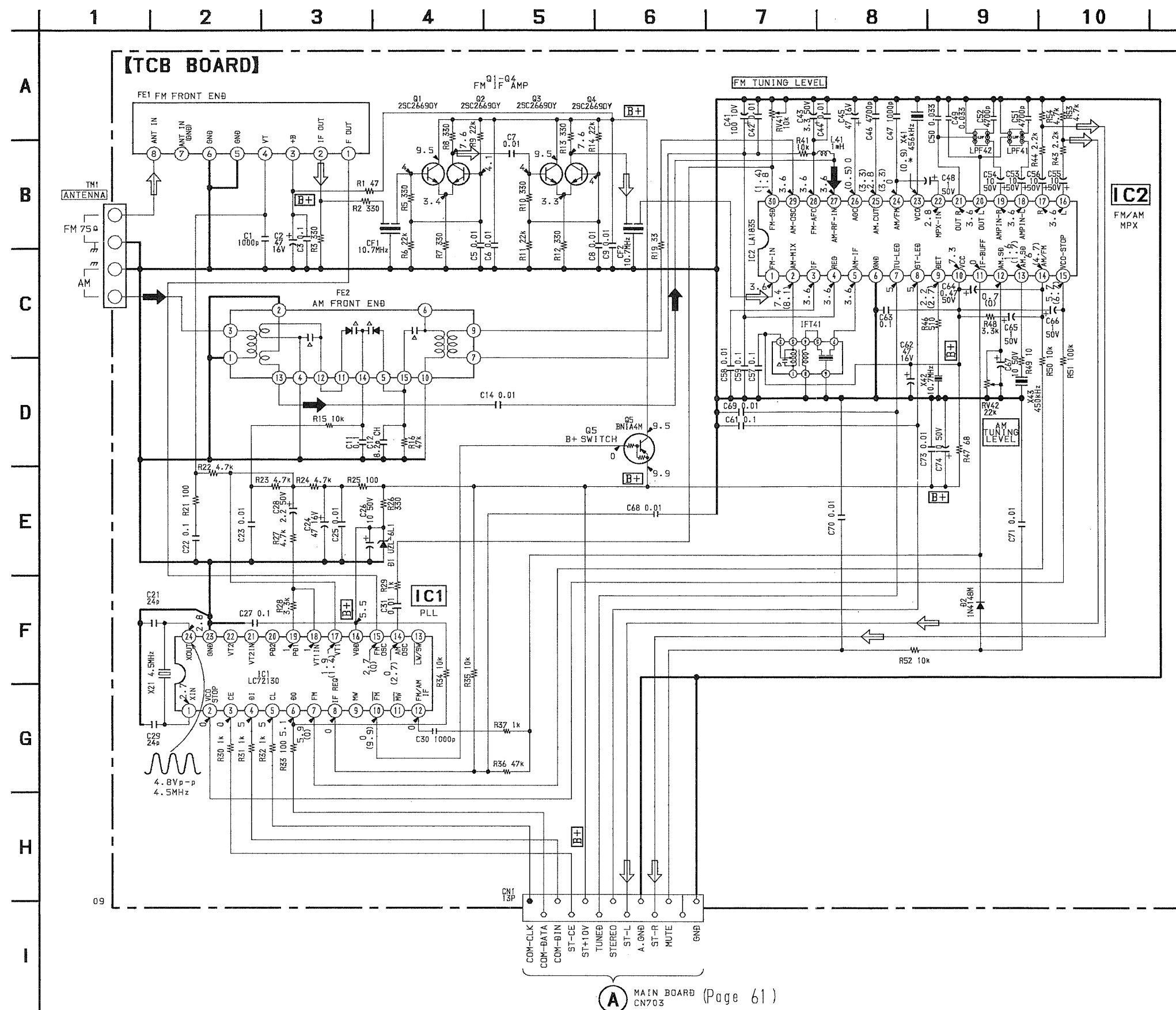
6-10. PRINTED WIRING BOARD — TUNER SECTION — (TH MODEL)
• See page 19 for Circuit Boards Location.



MAIN BOARD
CN703
(Page 59)

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(11, 21)

6-11. SCHEMATIC DIAGRAM — TUNER SECTION — (TH MODEL)



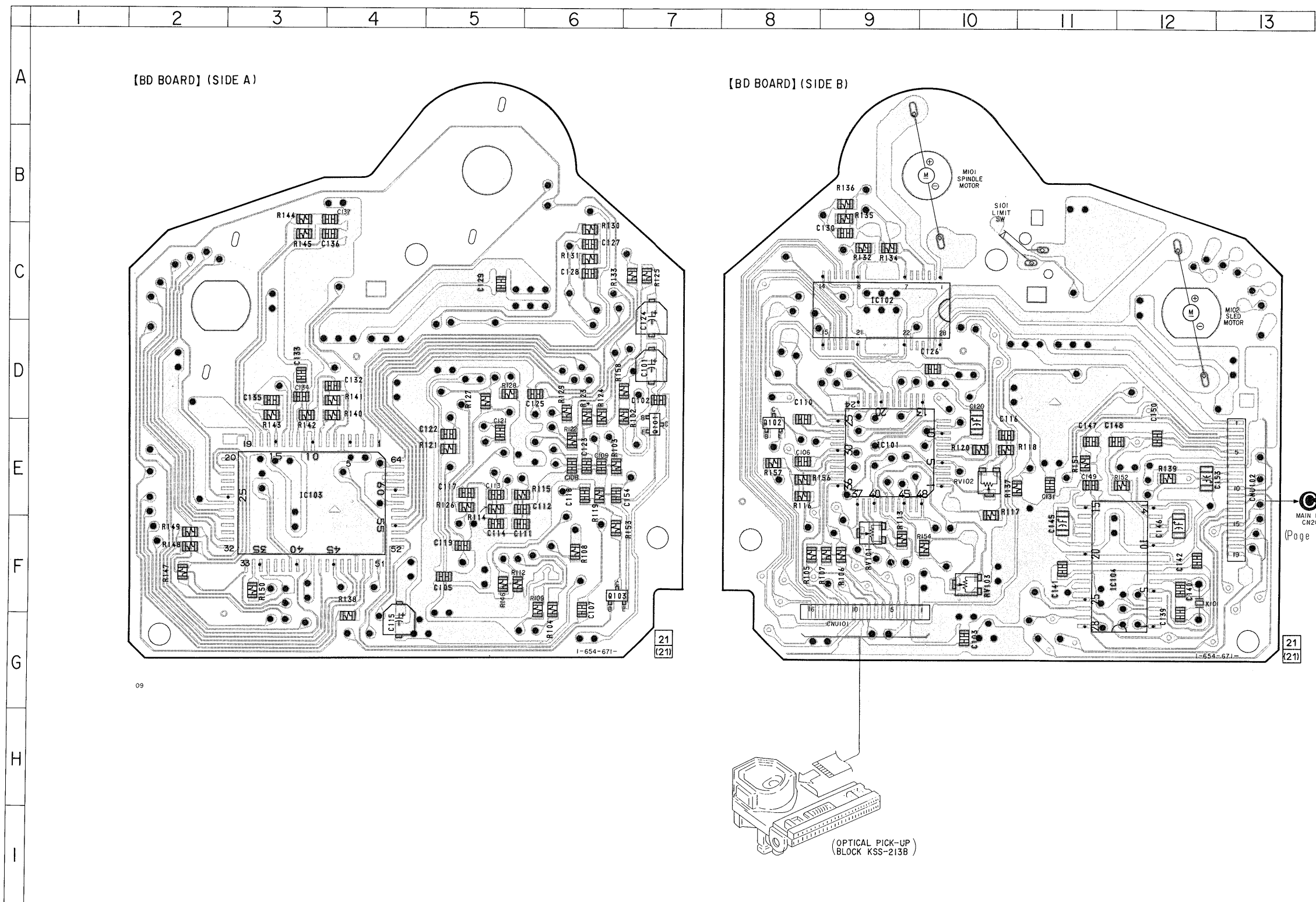
MAIN BOARD
CN703
(Page 61)

NOTE

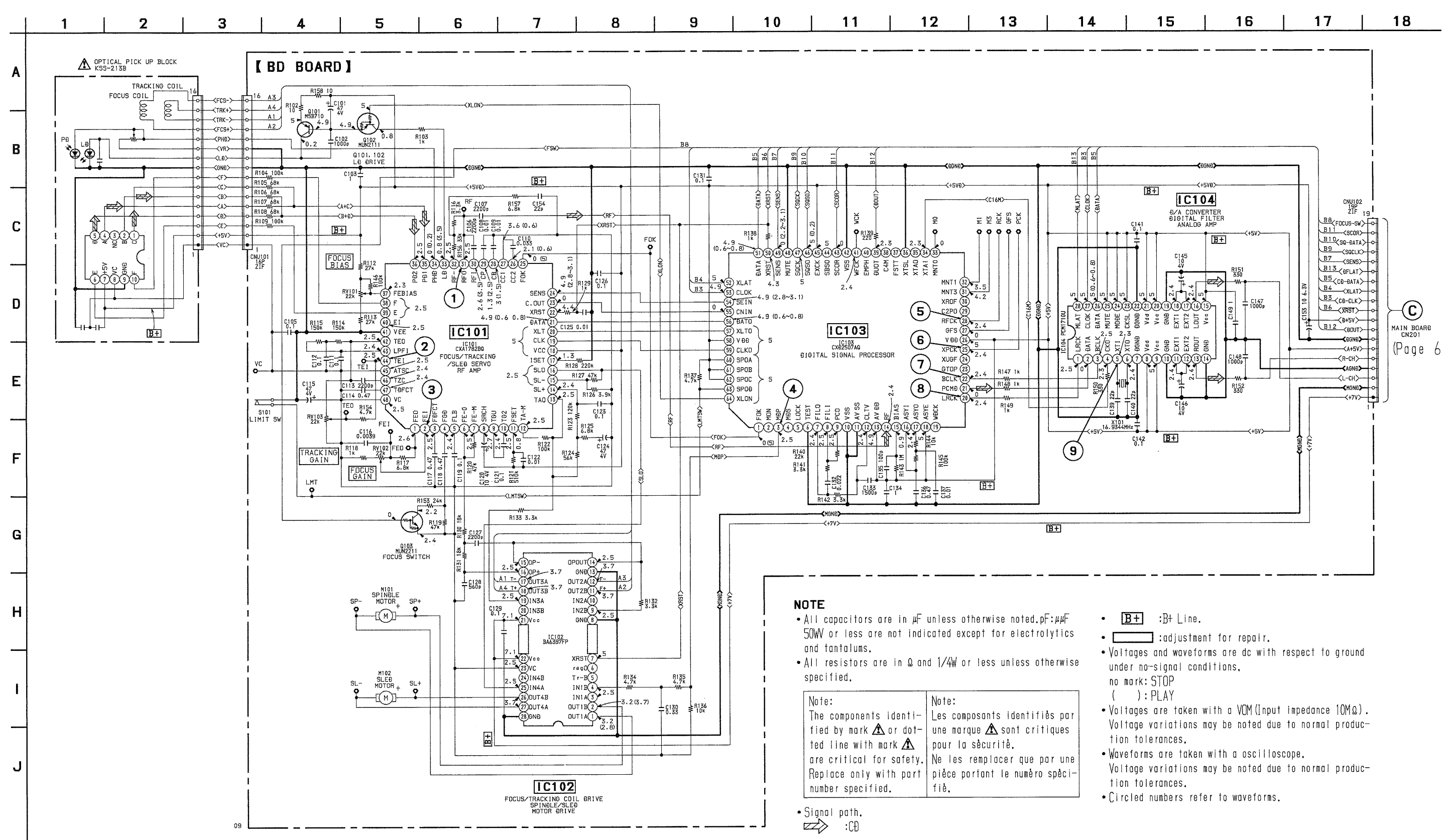
- All capacitors are in μF unless otherwise noted. pF : μF 50W or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and $1/4\text{W}$ or less unless otherwise specified.
- △ : internal component.
- □ : panel designation.
- B+ : B+ Line.
- □ : adjustment for repair.
- Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.
- no mark: FM
- (): AM
- * : can not be measured.
- Voltages are taken with a VOM (Input impedance $10\text{M}\Omega$). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with an oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Abbreviation
- TH : Thailand model.
- Signal path.
- → : FM
- → : AM

6-12. PRINTED WIRING BOARD — CD SECTION —
• See page 19 for Circuit Boards Location.

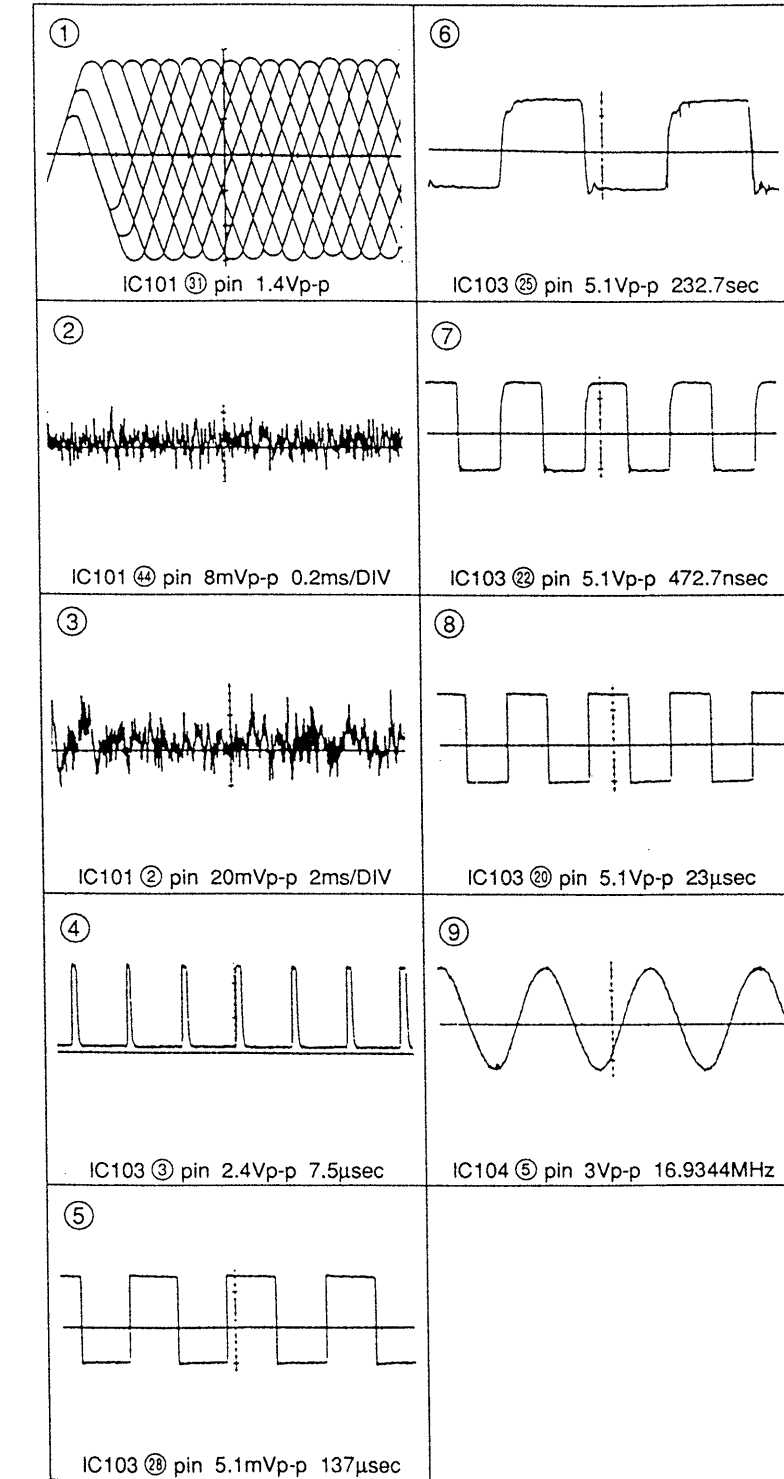
Semiconductor Location	
Ref. No.	Location
IC101	E-9
IC102	C-8
IC103	E-3
IC104	F-11
Q101	D-6
Q102	D-7
Q103	F-6



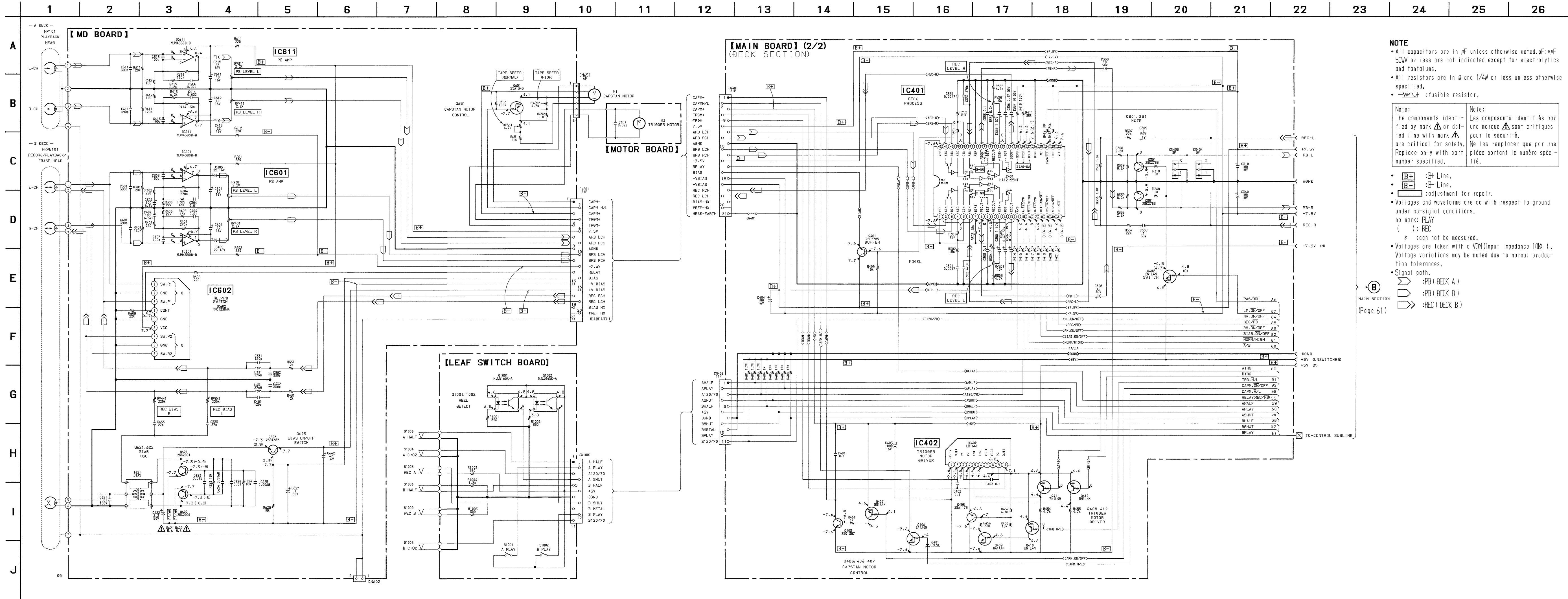
6-13. SCHEMATIC DIAGRAM — CD SECTION —
• See page 80 for IC Block Diagrams.



Waveforms



6-17. SCHEMATIC DIAGRAM — DECK SECTION —
• See page 56 for Printed Wiring Board. (MD BOARD)
• See page 58 for Printed Wiring Board. (MAIN BOARD)
• See page 65 for IC Block Diagrams.



NOTE
• All capacitors are in μF unless otherwise noted, $\mu\text{F}:\mu\text{F}$
50WV or less are not indicated except for electrolytics
and tantalums.
• All resistors are in Ω and $1/4\text{W}$ or less unless otherwise
specified.
• $\text{---}\nabla\text{---}$: fusible resistor.

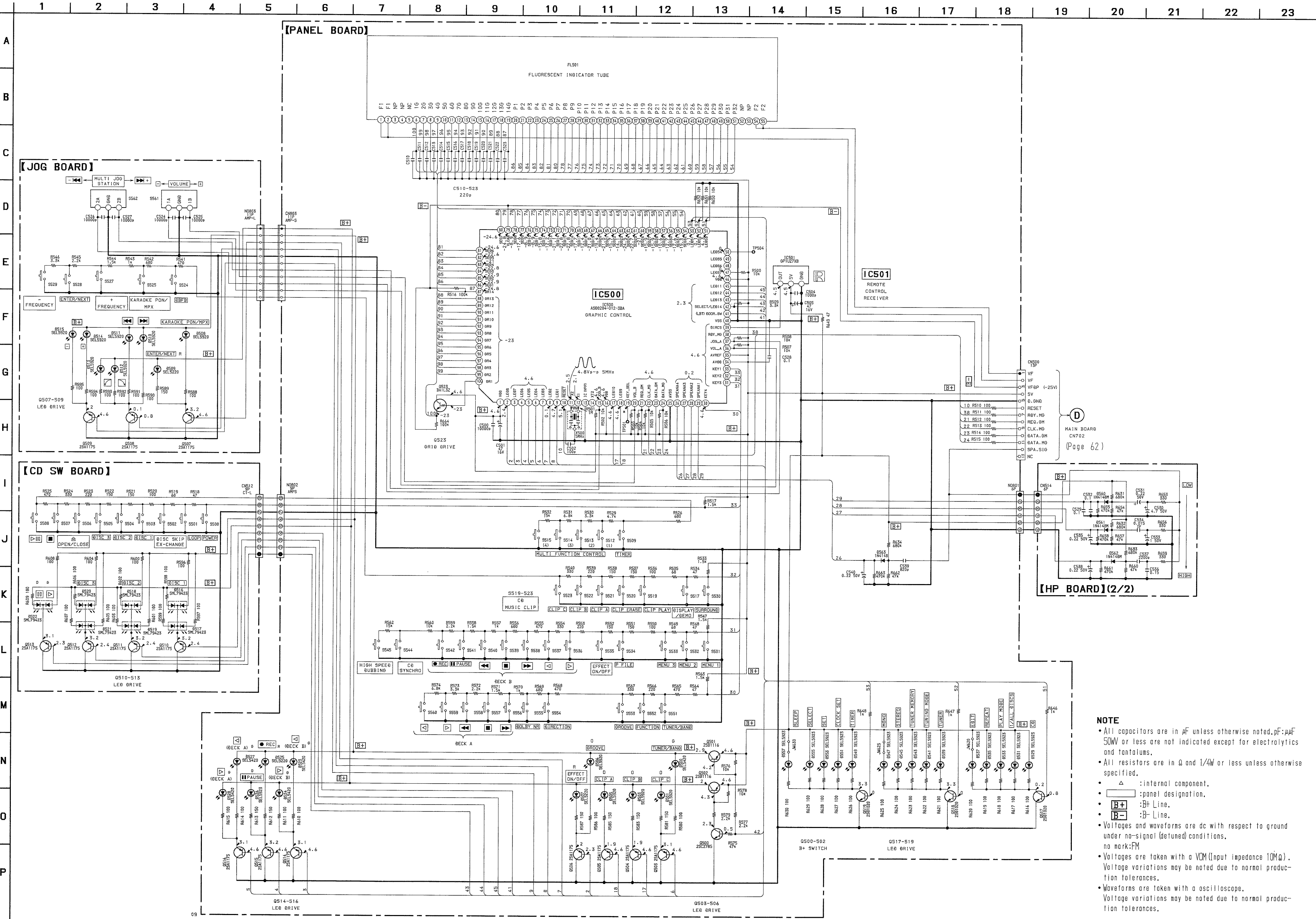
Note:
The components identified
by mark Δ or dot-
ted line with mark Δ
are critical for safety.
Replace only with part
number specified.

Note:
Les composants identifiés par
une marque Δ sont critiques
pour la sécurité.
Ne les remplacer que par une
pièce portant le numéro spéci-
fié.

• B+ : B+ Line.
• B- : B- Line.
• B : adjustment for repair.
• Voltages and waveforms are dc with respect to ground
under no-signal conditions.
no mark: PLAY
(): REC
* : can not be measured.
• Voltages are taken with a VOM (input impedance $10\text{M}\Omega$).
Voltage variations may be noted due to normal produc-
tion tolerances.
• Signal path.
:PB (BECK A)
:PB (BECK B)
:REC (BECK B)

B
MAIN SECTION
(Page 61)

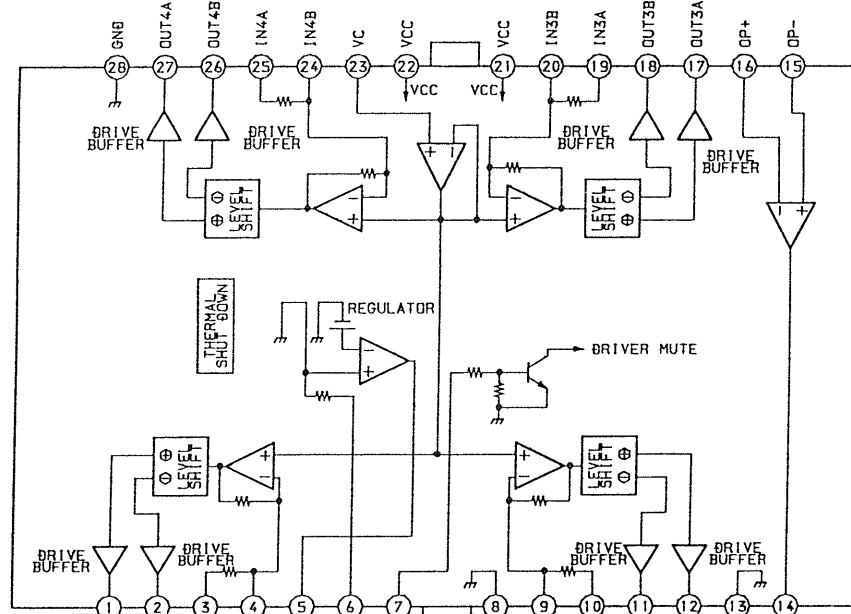
6-21. SCHEMATIC DIAGRAM — PANEL SECTION —
• See page 20 for IC Pin Function. (IC500)



NOTE

- All capacitors are in μF unless otherwise noted, pF : μF 50W or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and $1/4\text{W}$ or less unless otherwise specified.
- Δ : internal component.
- \square : panel designation.
- $\text{B}+$: B+ Line.
- $\text{B}-$: B- Line.
- Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions, no mark-FM.
- Voltages are taken with a VOM (input impedance $10\text{M}\Omega$). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with an oscilloscope. Voltage variations may be noted due to normal production tolerances.

IC102 BA6397FP



IC104 PCM1710U

