

CASSETTE RECEIVER

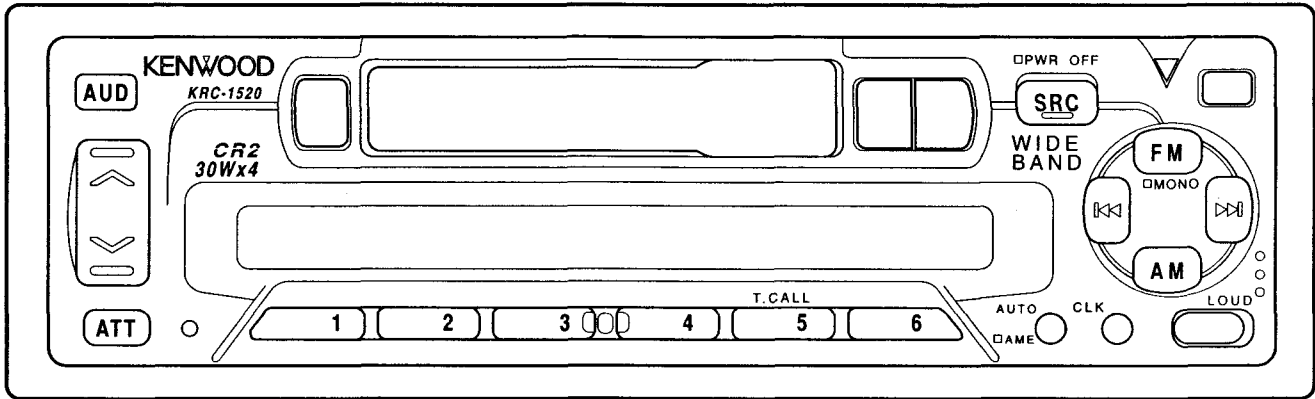
KRC-1520Y/1590G

SERVICE MANUAL

KENWOOD

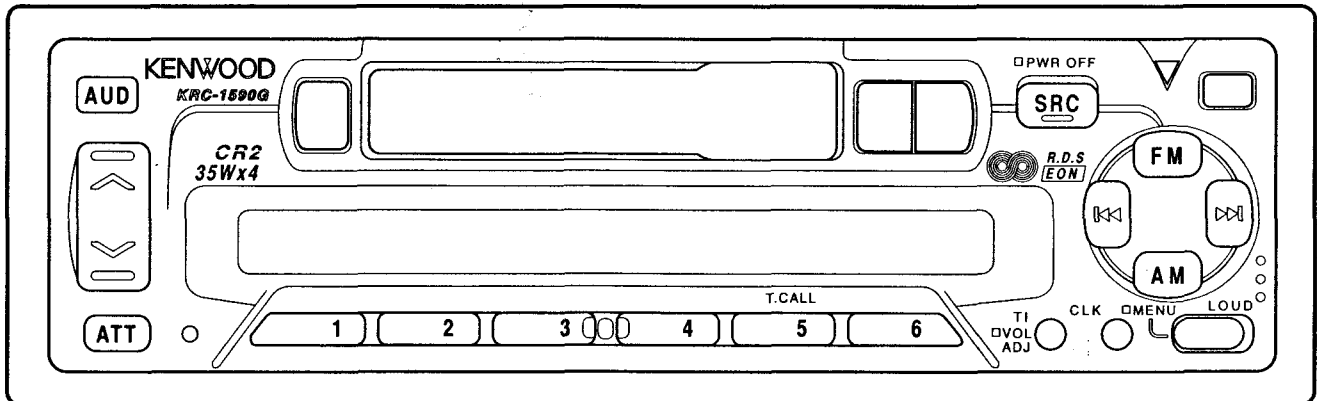
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KRC-1520Y



KRC-1590G

FIAT GENUINE (ITALY)



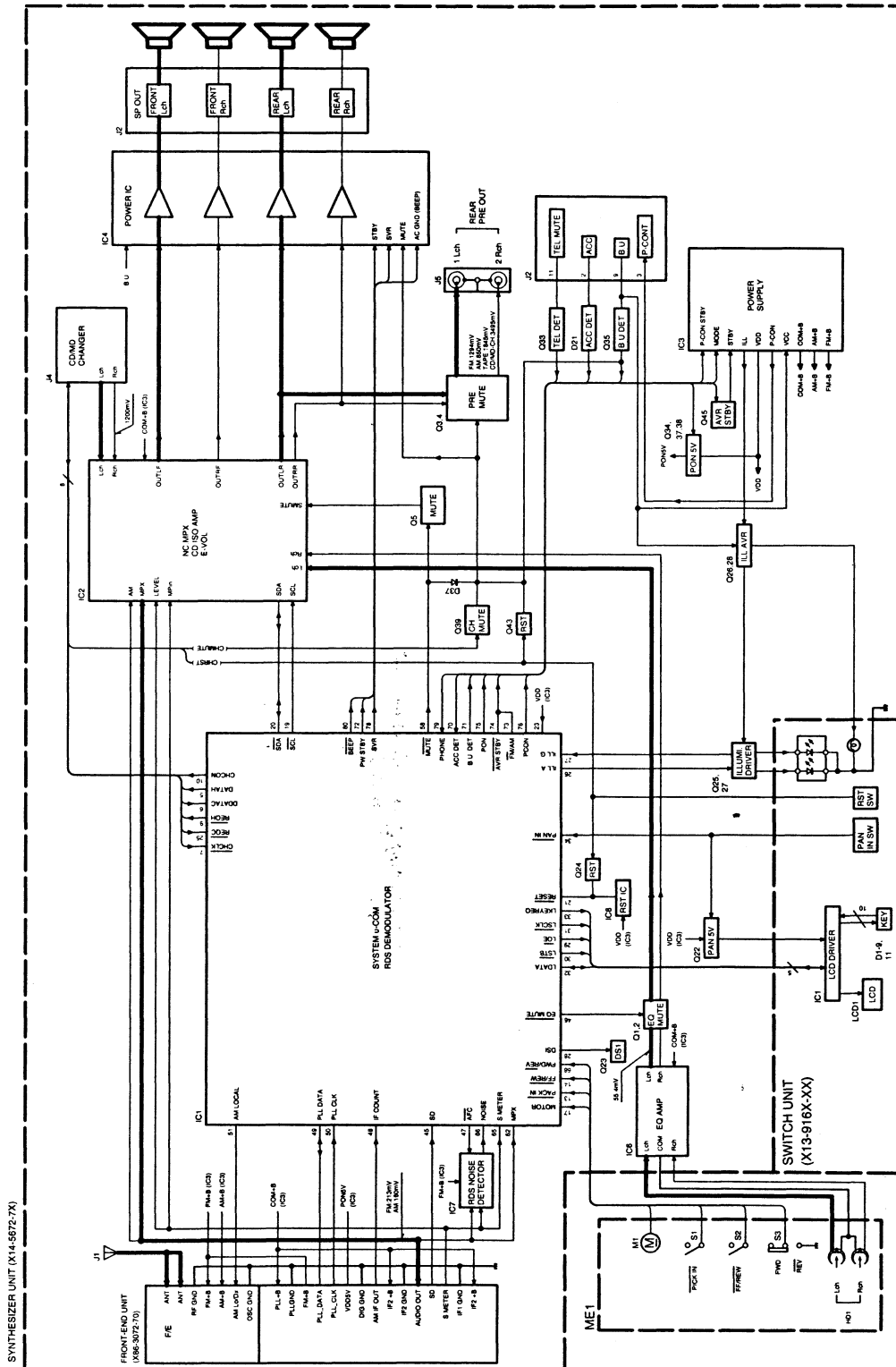
KRC-1520Y/1590G

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CONTENTS

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BLOCK DIAGRAM



KRC-1520Y/1590G

COMPONENT DESCRIPTION

SYNTHESIZER UNIT (X14-567x-xx)

REF. No.	FUNCTION	OPERATION
IC1	SYSTEM u-COM / RDS DEMODULATOR	-
IC2	ELECTRONIC VOLUME	E-vol, Bass / Tre / BAL / FAD, NC / MPX, CH-ISO.
IC3	POWER SUPPLY	-
IC4	4-CH POWER AMP (HI / LOW)	-
IC6	EQ AMP.	-
IC7	RDS NOISE DETECTION AMP.	-
IC8	RESET IC	-
Q1, 2	MUTING SW	Controlled by u-COM (Pin 46).
Q3, 4	MUTING SW	"ON" when Q41 is turned on.
Q5	MUTING SW	"ON" when Q42 is turned on.
Q19	NOISE BUFFER	-
Q20	PIAFC SW	Controlled by Q21.
Q21	PIAFC SW	Turned on by u-COM (Pin 47).
Q22	PANEL 5V DRIVER	"ON" when panel is attached.
Q23	DSI DRIVER	Controlled by u-COM (Pin 28).
Q24	RESET SW	"ON" when Reset SW is pushed.
Q25	ILLUMINATION-AMBER SW	Turned on by u-COM (Pin 26).
Q26	ILLUMINATION-AMBER DRIVER	"ON" when Q25 is turned on.
Q27	ILLUMINATION-GREEN SW	Turned on by u-COM (Pin 27).
Q28	ILLUMINATION-GREEN DRIVER	"ON" when Q28 is turned on.
Q29, 30	ILLUMINATION AVR	Turned on by Power supply IC (Pin 4).
Q31	MOTOR SW	Turned on by u-COM (Pin 17).
Q32	MOTOR DRIVER	"ON" when Q31 is turned on.
Q33	TEL MUTE DETECTOR	-
Q34	P. ON 5V DRIVER	"ON" when Q37 is turned on.
Q35	BACK-UP DETECTOR	"ON" when back-up voltage is detected.
Q36	BACK-UP 5V DRIVER	Turned on by Power supply IC (Pin 5).
Q37	P. ON 5V SW	Turned on by u-COM (Pin 75).
Q38	P. ON 5V DRIVER	"ON" when Q37 is turned on.
Q39	MUTING SW	Controlled by CD-CH.
Q40	MUTING SW	"ON" when Q35 is turned on.
Q41	MUTING SW	Controlled by Q39 or Q40 or Q43.
Q42	MUTING SW	Controlled by u-COM (Pin 58), Q39 or Q40 or Q43.
Q43	MUTING SW	"ON" when Reset SW is pushed.
Q44	BEEP SW	Controlled by u-COM (Pin 80).
Q45	STANDBY CONTROLLER	"ON" when power is "OFF".
Q46	SVR SW	Controlled by u-COM (Pin 78).
Q103	FM COMPOSITE BUFFER	-

SWITCH UNIT (X13-916x-xx)

REF. No.	FUNCTION	OPERATION
IC1	LCD DRIVER with KEY INPUT	-

KRC-1520Y/1590G

CIRCUIT DESCRIPTION

(X14-) IC1 : SYSTEM u-COM

PORT No.	PORT NAME	I/O	MODE	FUNCTION
1	GNDP	-	-	-
2	VDDP	-	-	-
3	OSCOU	O	-	-
4	OSCIN	I	-	-
5	DATAH	O	Changer	5-LINE COMMUNICATION Serial data by head unit.
6	DATAC	I	Changer	5-LINE COMMUNICATION Serial data by changer.
7	CHCLK	I	Changer	5-LINE COMMUNICATION Serial clock by changer.
8	GND	-	-	-
9	REQH	O	Changer	5-LINE COMMUNICATION Request by head unit.
10	CHCON	O	Changer	Changer on / off.
11, 12	-	-	-	-
13	T_PACKIN	I	Tape	Pack in detection.
14	T_FF/REW	I	Tape	FF/REW detection.
15, 16	-	-	-	-
17	T_MOTOR	O	Tape	Main motor on/off.
18	-	-	-	-
19	SCL	I/O	Audio	Audio I ² C BUS clock.
20	SDA	I/O	Audio	Audio I ² C BUS data.
21	RESET	I	-	-
22	GND	-	-	-
23	VDD	-	-	-
24	GND	-	-	-
25	REQC	I	Changer	5-LINE COMMUNICATION Request by changer.
26	ILL_AMB	O	Illumination	Amber on/off.
27	ILL_GRN	O	Illumination	Green on/off.
28	DSI	O	DSI	DSI on/off.
29	L_OE	O	LCD driver	Output enable.
30	L_STB	O	LCD driver	Data latch.
31	L_SCK	O	LCD driver	Serial clock.
32	L_DATA	I/O	LCD driver	Serial data.
33	L_KEYREQ	I	LCD driver	Key in request detection.
34	PANIN	I	Panel	Panel on/off detection.
35~37	-	-	-	-
38	IC2_ROFF	I	Initial set up	IC2 tuner audio roll-off.
39	IC2_NC	I	Initial set up	IC2 tuner audio noise cancellor.
40	IC2_CRSC	I	Initial set up	IC2 tuner audio CRSC.
41	GNDP	-	-	-
42	VDDP	-	-	-
43	AIN	I	-	-
44	ARS	I	-	-
45	SD	I	Tuner	Station Signal detection.
46	EQ_MUTE	O	Tape	Equalizer mute on/off.
47	AFC	O	Tuner	Fast tuning on/off.
48	AM_IF_COUNT	I	Tuner	AM IF count detect.
49	PLL_DATA	I/O	Tuner	Tuner I ² C data.
50	PLL_CLK	O	Tuner	Tuner I ² C clock.
51	AM_LOCAL	O	Tuner	AM local seek on/off.
52	-	-	-	-

KRC-1520Y/1590G

CIRCUIT DESCRIPTION

(X14-) IC1 : SYSTEM u-COM

PORT No.	PORT NAME	I/O	MODE	FUNCTION
53	SEL 1	I	Initial set up	Model detection.
54	SEL 2	I	Initial set up	Model detection.
55~ 57	-	-	-	-
58	$\overline{\text{MUTE}}$	O	Audio	Audio mute on/off.
59	RDSCOMP	-	RDS	-
60	RDSFIL	-	RDS	-
61	RDSREF	I	RDS	-
62	MPX	I	RDS	-
63	VDDA	-	-	-
64	GND A	-	-	-
65	S-METER	I	Tuner	Signal meter detection.
66	NOISE	I	Tuner	FM noise detection.
67	-	-	-	-
68	T_FWD / REV	I	Tape	FWD / REV detection.
69	TEST	-	Test mode	-
70	ACC	I	Power supply	Accessory detection.
71	BUP	I	Power supply	Back up detection.
72	PW_STBY	O	Power IC	Power stand-by on/off.
73	$\overline{\text{FM / AM}}$	O	Tuner	FM / AM circuit changing.
74	$\overline{\text{AVR_STBY}}$	O	Power IC	AVR stand-by on/off.
75	PON	O	Power control	Inner power on/off.
76	PCON	O	Power control	External power on/off.
77	P-MUTE	O	Power IC	Power mute on/off.
78	SVR	O	Power IC	Power quick cut on/off.
79	PHONE	I	Phone	Telephone call detection.
80	BEEP	O	Beep	Beep clock out.

KRC-1520Y/1590G

ADJUSTMENT / EINSTELLUNGEN (MECHA.)

Head Angle Adjustment

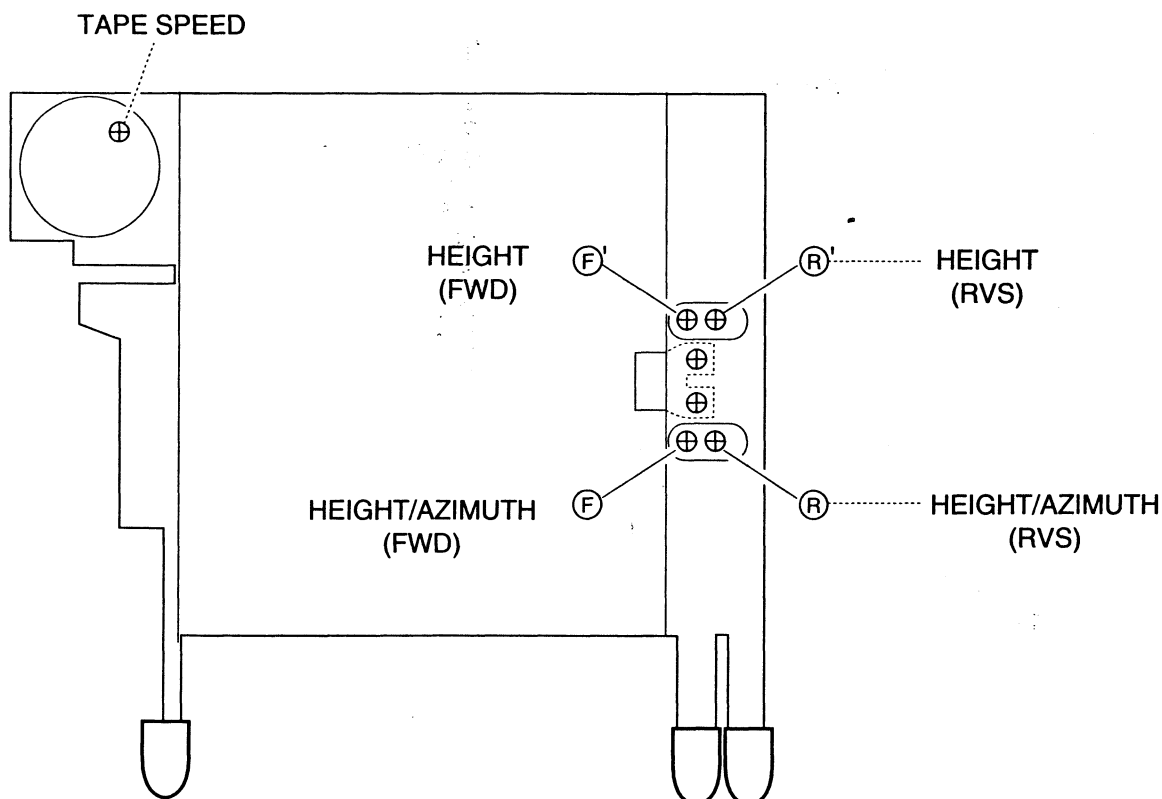
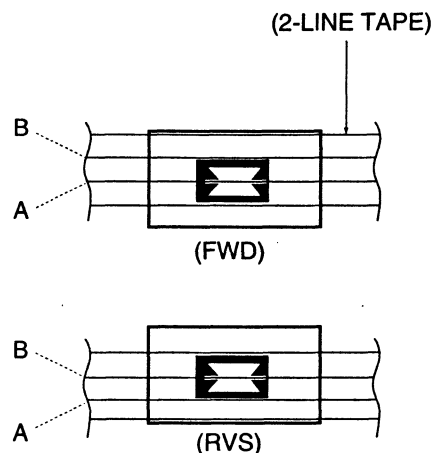
Head height alignment procedure

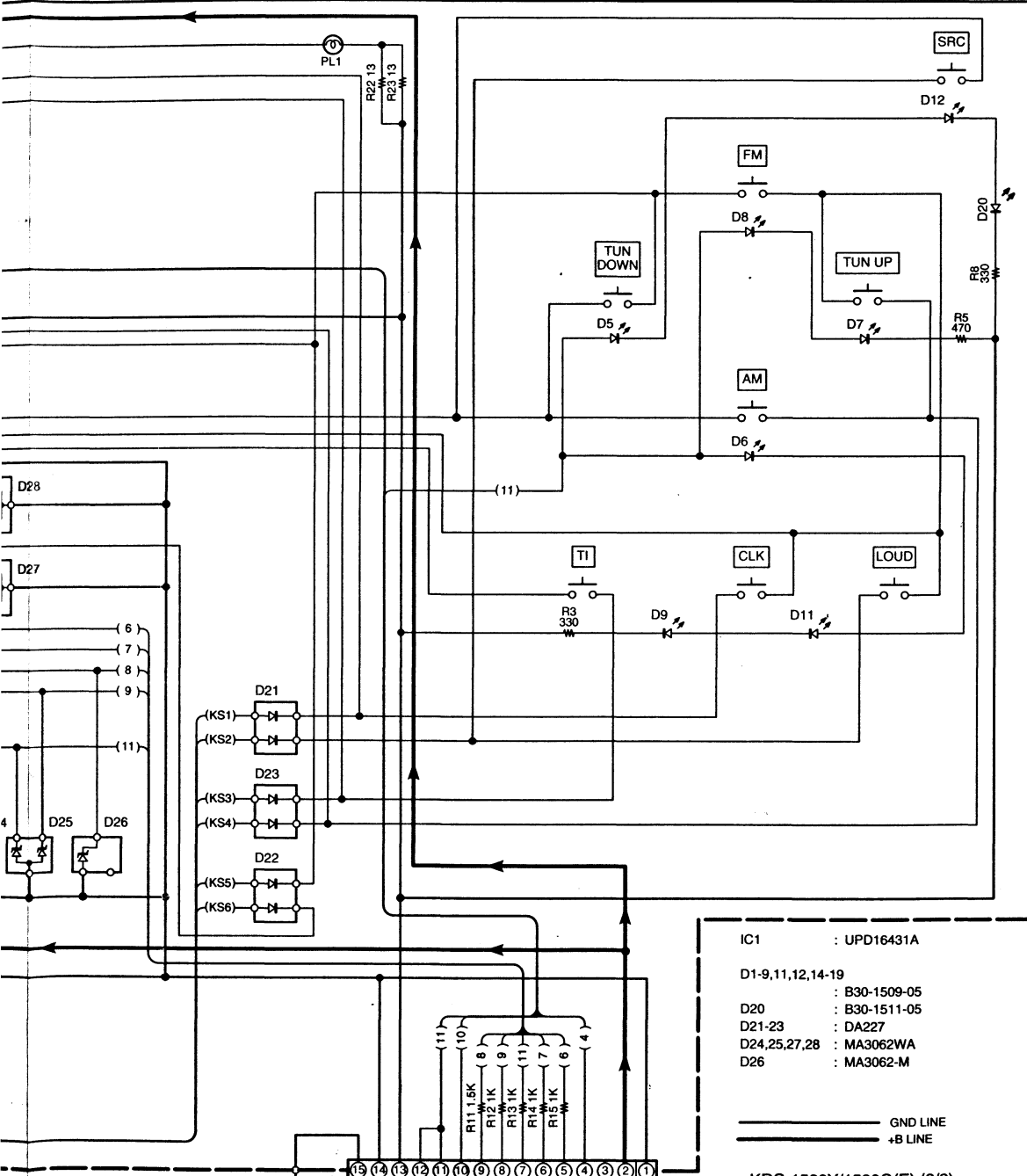
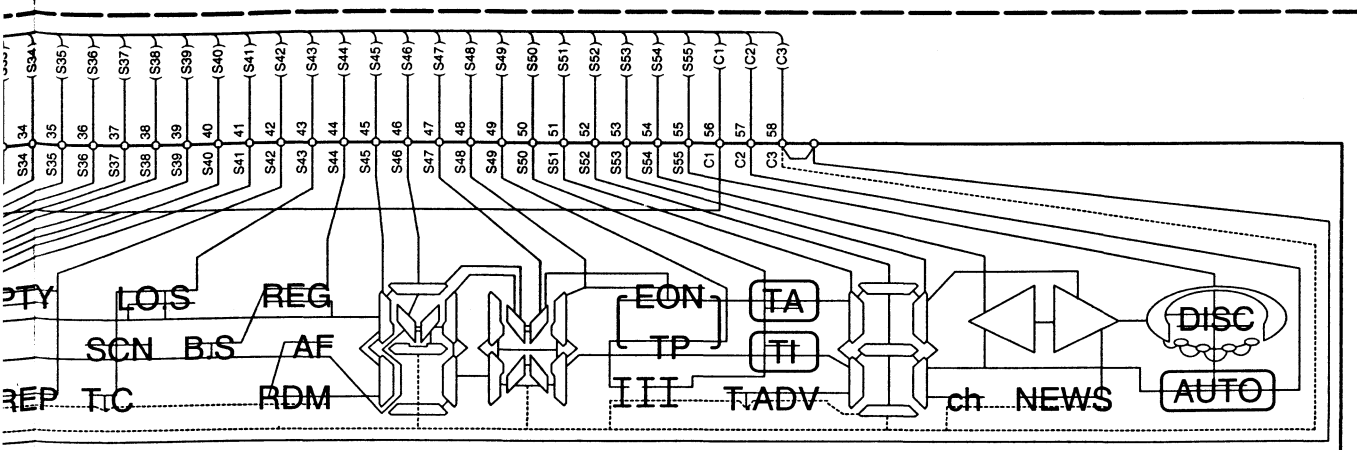
- During FWD transport adjust screws \textcircled{F} and \textcircled{F}' so that line A of 2-LINE TAPE passes through the center of the head shield plate (core center area)
- During RVS transport adjust screws \textcircled{R} and \textcircled{R}' so that line B of 2-LINE TAPE passes through the center of the head shield plate core (center area)
- After the alignment above, reverse the transport direction and check the FWD alignment again. If it is deviated, perform alignment again. (Tape used : SCC-1659, manufactured by A-BEX)

Einstellung des Kopfwinkels

Vorgehensweise bei der Kopfhöhen-Einstellung

- Während des Bandlaufs in Vorwärtsrichtung die Schrauben \textcircled{F} und \textcircled{F}' so einstellen, daß die Linie A eines 2-Linien-Bands (2-LINE TAPE) durch die Mitte der Kopfabschirmplatte (Zentrum des Mittelbereichs) verläuft.
- Während des Bandlaufs in Rückwärtsrichtung die Schrauben \textcircled{R} und \textcircled{R}' so einstellen, daß die Linie B eines 2-Linien-Bands (2-LINE TAPE) durch die Mitte der Kopfabschirmplatte (Zentrum des Mittelbereichs) verläuft.
- Nachdem die obige Einstellung abgeschlossen ist, die Bandlaufrichtung umkehren und die Ausrichtung in Vorwärtsrichtung noch einmal überprüfen. Wenn eine Abweichung festgestellt wird, ist diese Einstellung zu wiederholen. (Verwendetes Band: SCC-1659, hergestellt von A-BEX)





- IC1 : UPD16431A
- D1-9,11,12,14-19 : B30-1509-05
- D20 : B30-1511-05
- D21-23 : DA227
- D24,25,27,28 : MA3062WA
- D26 : MA3062-M

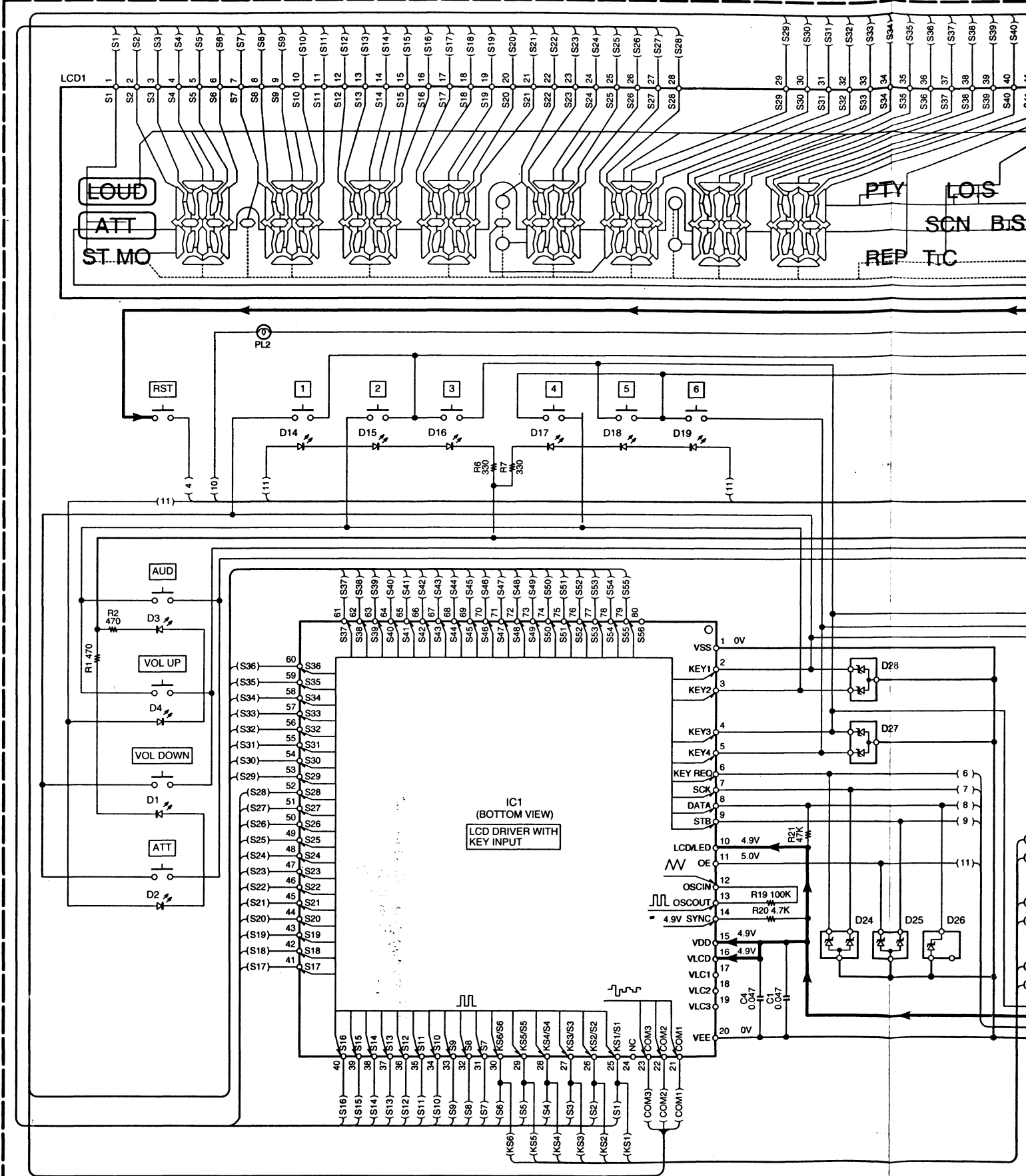
— GND LINE
 — +B LINE

KRC-1520Y/1590G(E) (2/2)

KRC-1520Y/1590G

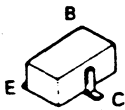
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SWITCH UNIT (X13-9162-71)

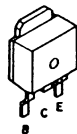


X14-J3
1/2
A

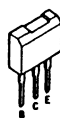
DTA124EK
DTC114TK
DTC114YK
DTC124EK
DTC143TK
DTC144EK
2SC2412K



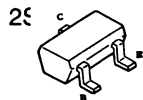
2SB1184



2SB1443



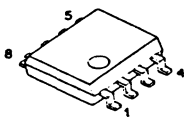
2SD1760



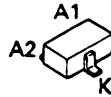
LA3161



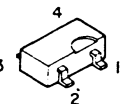
NJM4565M-TE2



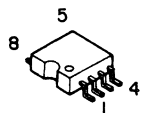
DAN202K



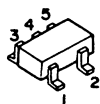
3SK126



BR24C01AF



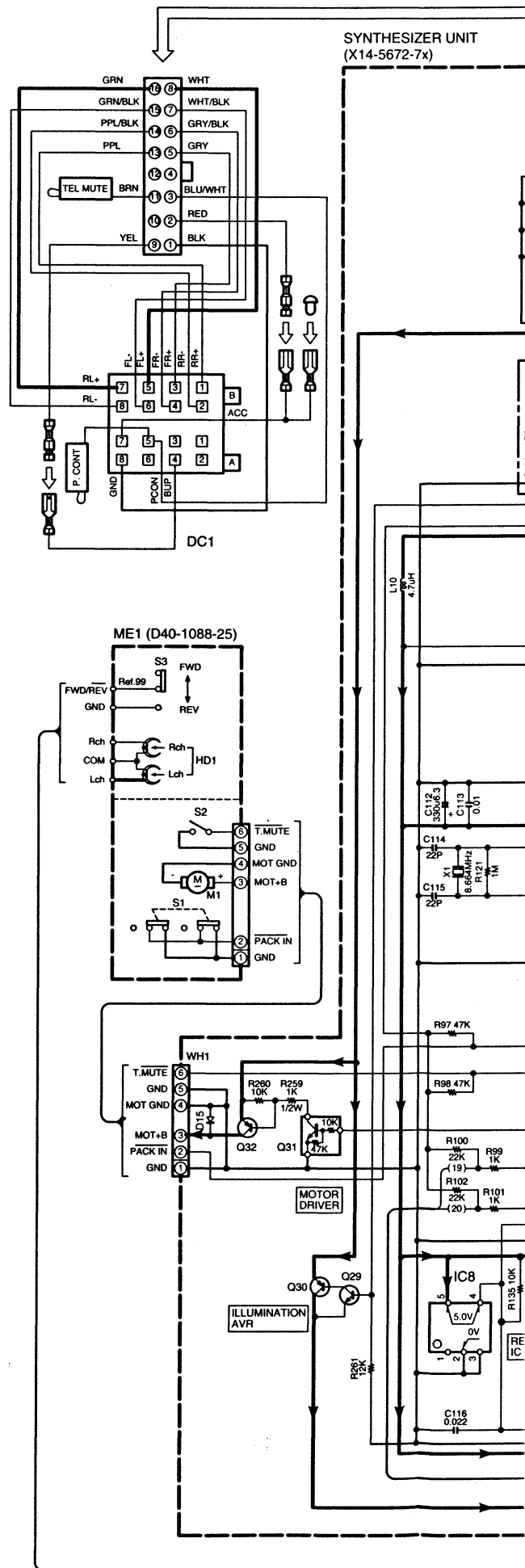
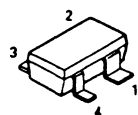
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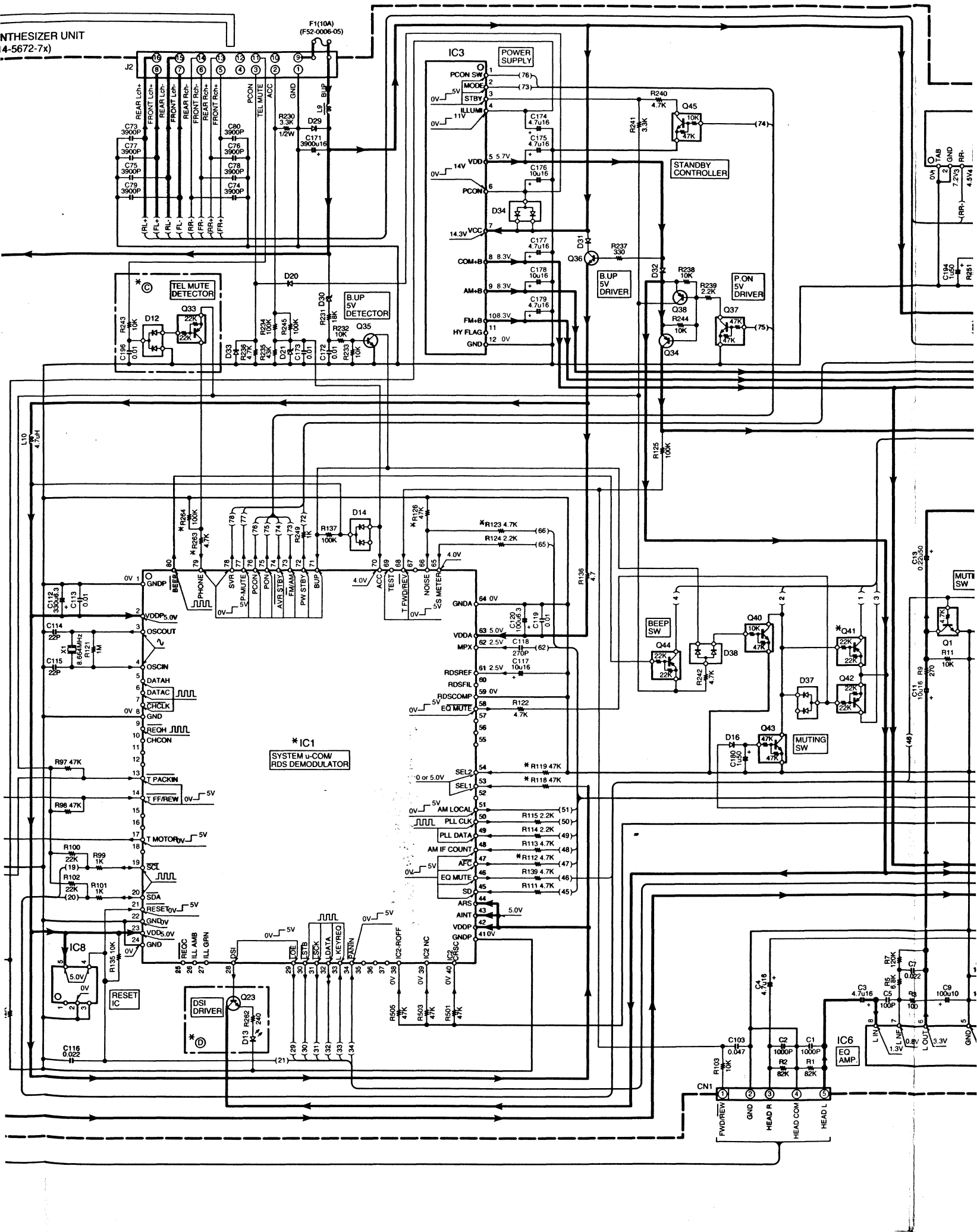


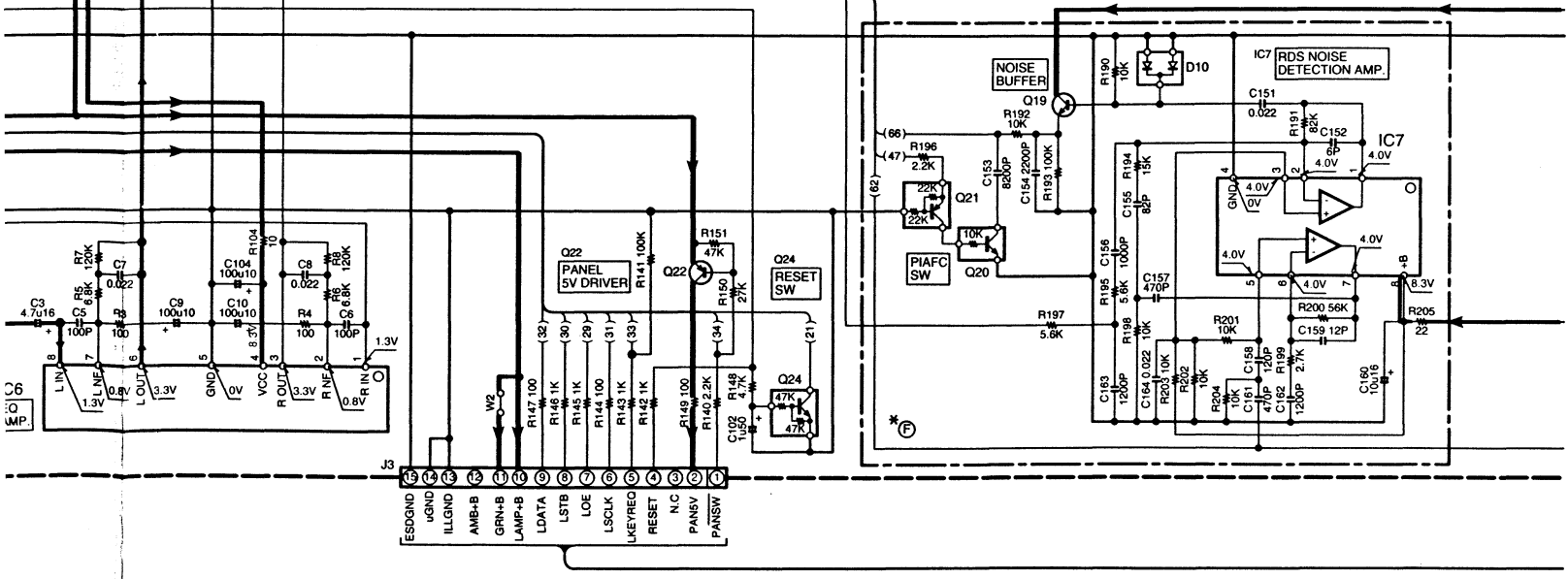
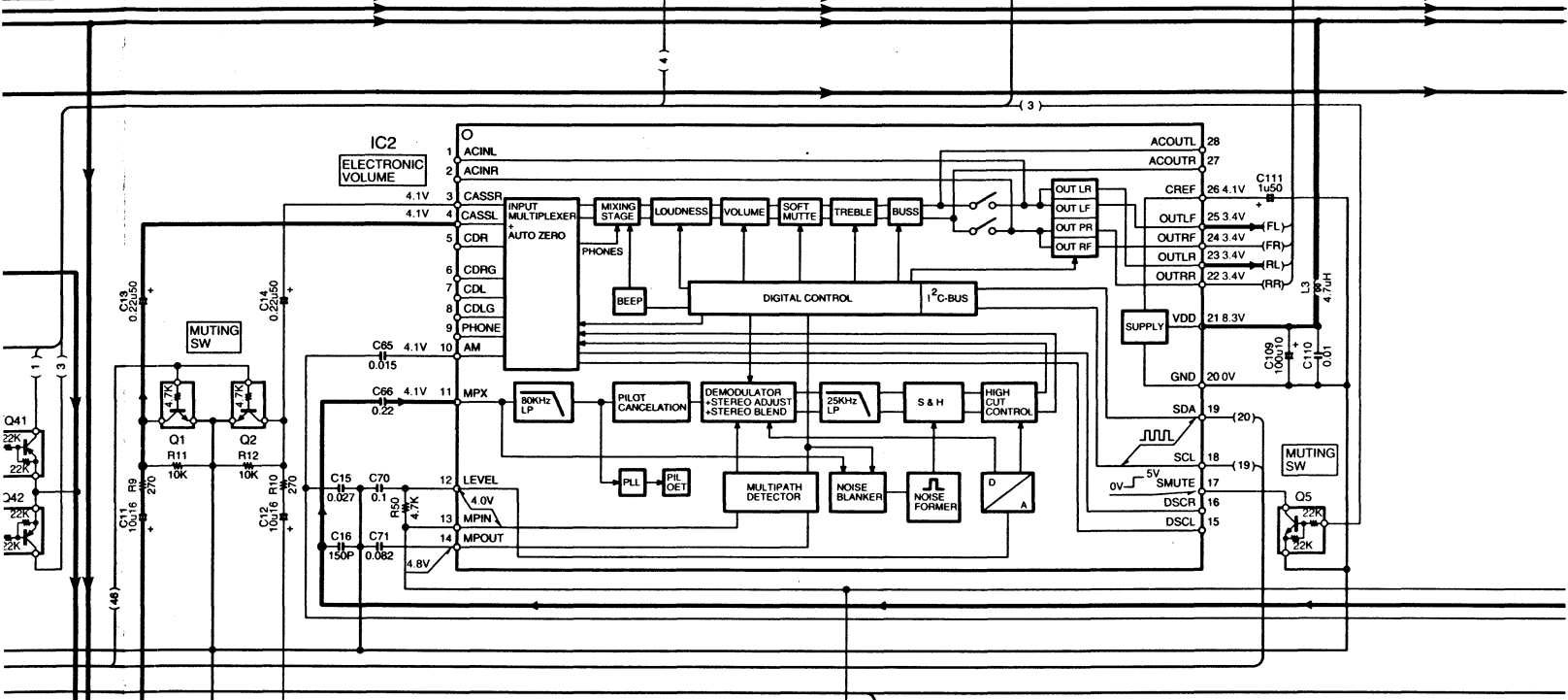
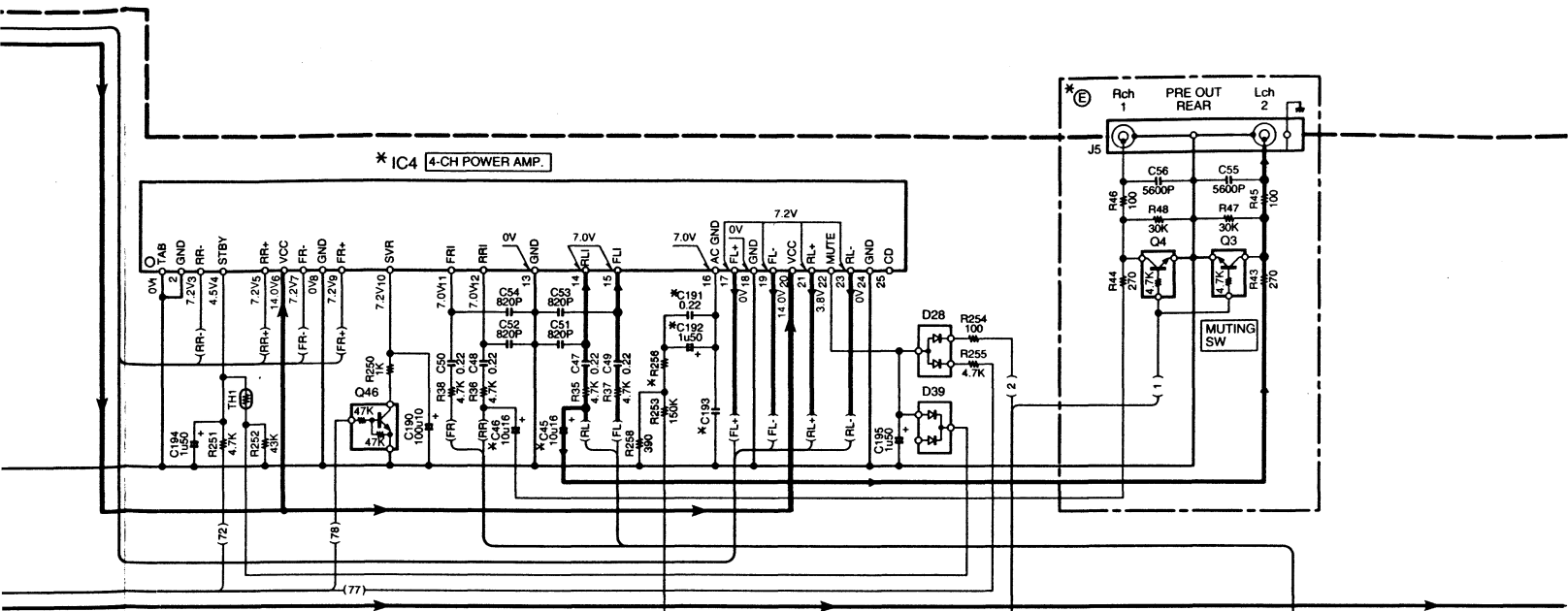
UPD16431A



DA227



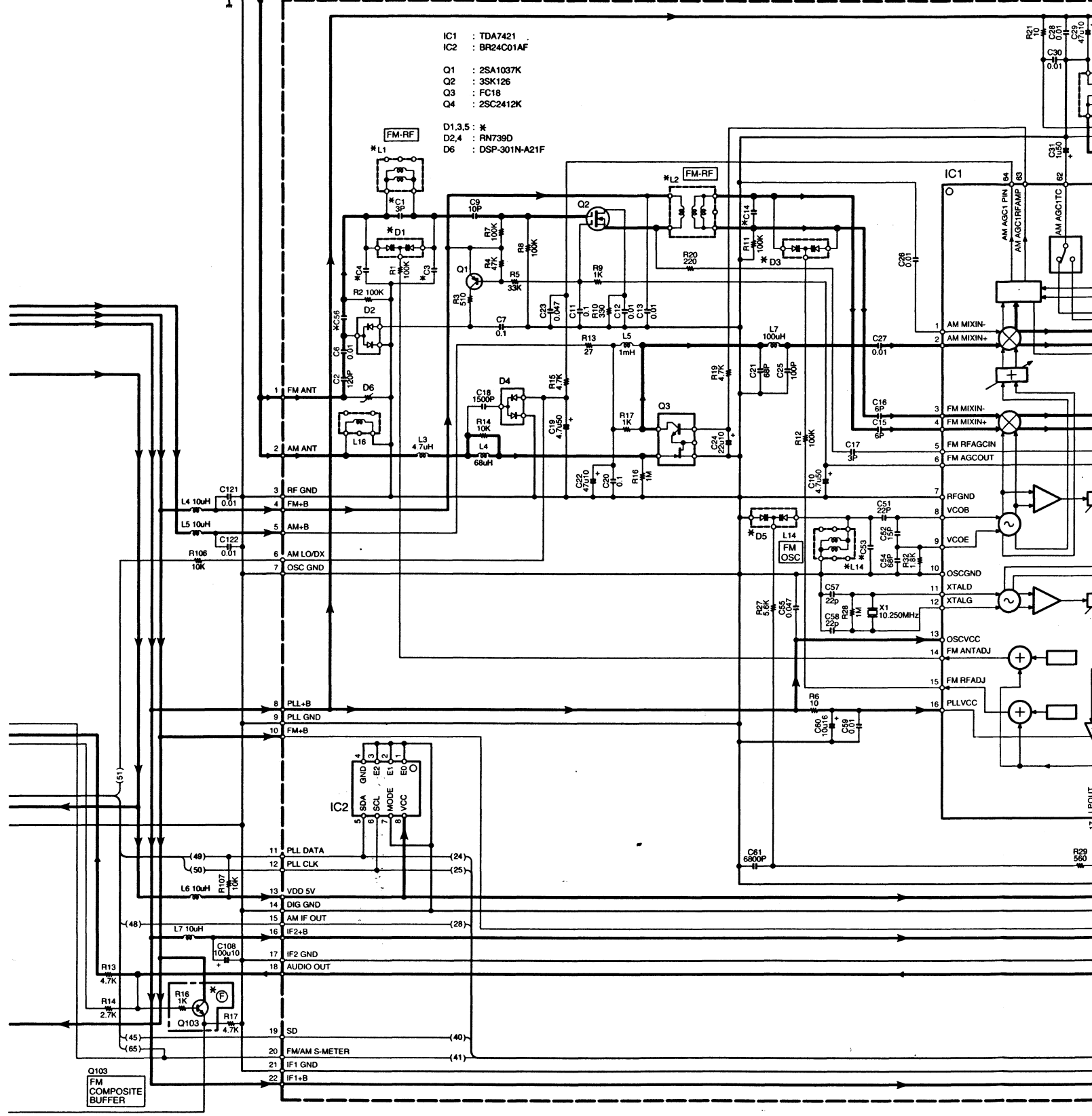




IC1 : *	Q1-4	DTC143TK	Q24,37,43,46	DTC144EK	D10,12,14,39	DAN202K	D28,34,37,38
IC2 : TDA7461D	Q5	DTC124EK	Q30	2SB1184	D13	B30-1511-05	DAP202K
IC3 : BA3917-V4	Q19,23,29,35,103	2SC2412K	Q31,40,45	DTC114YK	D15,20,31	AM01Z	RM10ZLF
IC4 : *	Q20	DTC114TK	Q32	2SB1443	D16,32	1SS133	MA4068(N)-M
IC6 : LA3161	Q21,33,41,42,44	DTA124EK	Q36	2SD1760	D21	MA4051-L	M1F60
IC7 : NJM4565M-TE2	Q22,34,38	2SA1037K					
IC8 : PST9137NR							

(X14-567x-xx)	
MODEL NAME	UNIT
KRC-1590G	2
KRC-1520Y	2

FRONT-END UNIT (X86-3072-7x)

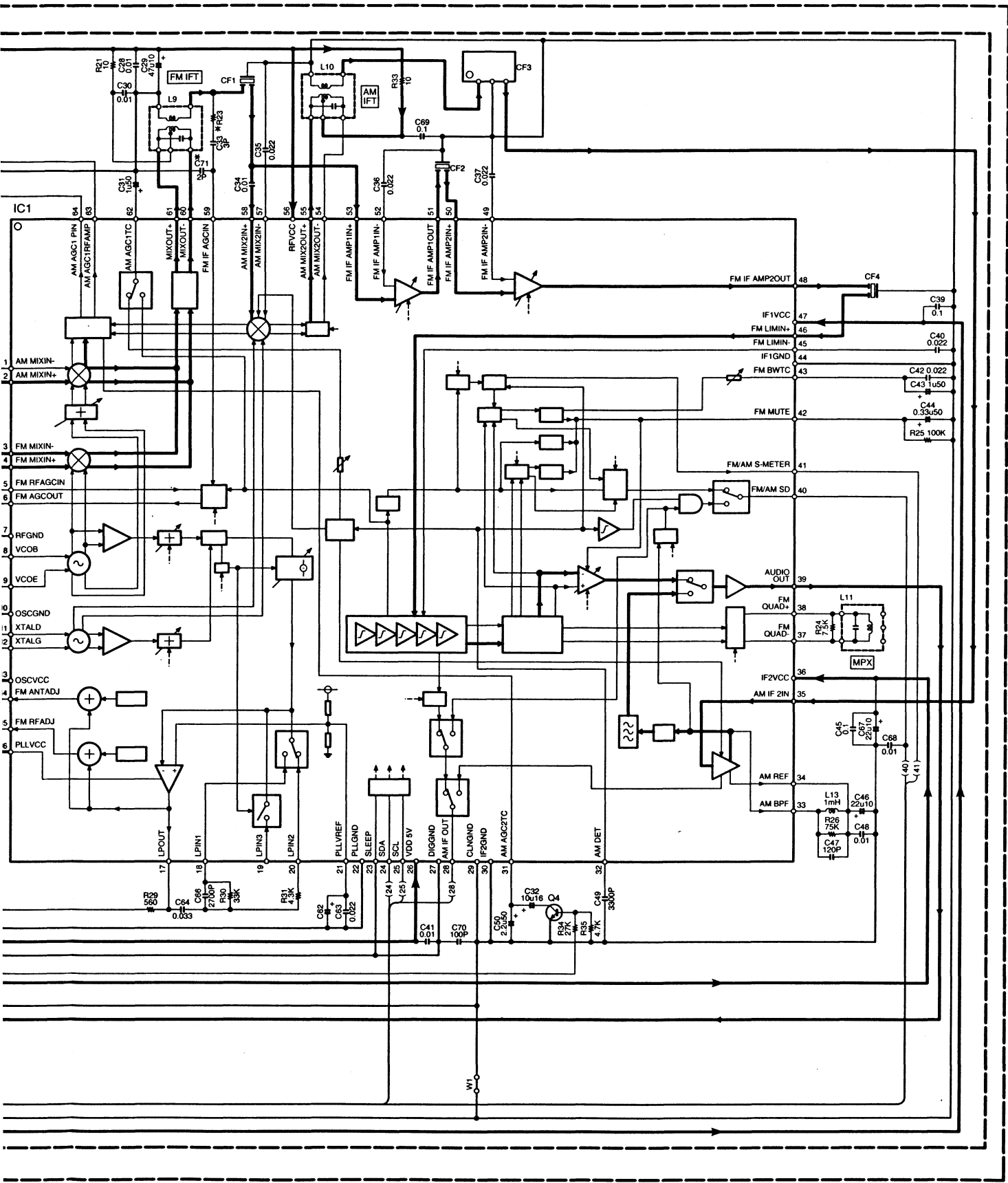


(X14-567x-xx)

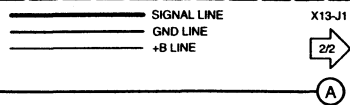
MODEL NAME	UNIT No.	Ⓢ	Ⓢ	Ⓢ	Ⓢ	C45.46	C193	Q41	R112.118.119	R126	R256	IC1	IC4
KRC-1590G	2-71	YES	YES	YES	YES	191.192	3300P	YES	123.263.264	NO	680	ST7285A5C06CXE	TDA7384A
KRC-1520Y	2-77	NO	NO	NO	NO	820P	NO	NO	NO	YES	3.6K	ST7285A5C06CXM	TDA7385

(X86-307x-xx)

MODEL NAME	UNIT No.	C1	C3	C4	C14	C53	C56	C62	C71	R23	D1.3.5	L1	L2	L14
KRC-1590G	2-70	YES	4P	22P	6P	4P	39P	47u10	NO	12K	KV1410(2.3)	L31-0907	L31-0909	L32-0910
KRC-1520Y	2-71	NO	3P	10P	3P	1P	68P	22u10	YES	7.5K	KV1430	L31-0911	L31-0912	L32-0912



KRC-1520Y/1590G(E) (1/2)



KRC-1520Y/1590G

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KRC-1520Y/1590G

SPECIFICATIONS

		KRC-1520Y	KRC-1590G
Tuner Type		TDF CR2	TDF, RDS CR2
FM	FM I : Frequency Range (MHz) (Frequency step)	65MHz-74MHz 30KHz	
	FM II III: Frequency Range (MHz) (Frequency step)	87.5MHz-108.0MHz 50KHz	
	Frequency Range (MHz) (Frequency step)		87.5MHz-108.0MHz 50KHz
	Usable Sensitivity (S/N 26dB)	0.7 μ V/75 Ω	0.7 μ V/75 Ω
	Quieting Sensitivity (S/N 46dB)	1.6 μ V/75 Ω	1.6 μ V/75 Ω
	Frequency Response (\pm 3.0dB)	30Hz-15KHz	30Hz-15KHz
	S/N (dB)	65dB (MONO)	65dB (MONO)
	Selectivity (DIN) (dB)	\geq 80dB (\pm 400KHz)	\geq 80dB (\pm 400KHz)
Stereo Separation	35dB (1KHz)	35dB (1KHz)	
MW	Frequency Range (KHz) (Frequency step)	531KHz-1611KHz (9KHz)	531KHz-1611KHz (9KHz)
	Usable Sensitivity (S/N 20dB)	25 μ V	25 μ V
LW	Frequency Range (KHz)	153KHz-281KHz 9KHz (Manual 1KHz)	153KHz-281KHz
	Usable Sensitivity (S/N 20dB)	45 μ V	45 μ V
CASSETTE	Tape Speed	4.76cm/sec.	4.76cm/sec.
	Wow/Flutter (wrms) (%)	0.12% (WRMS)	0.12% (WRMS)
	Frequency Response (Hz) (\pm 3.0dB)	30-14KHz (120 μ s)	30-14KHz (120 μ s)
	Separation (dB)	40dB (1KHz)	40dB (1KHz)
	S/N (dB) Dolby NR OFF	54dB	54dB
Preout Level (mV) / Load			1800mV/10K Ω
Preout Impedance (Ω)			\leq 600 Ω
AMPLIFIER	Power (MAX)	30Wx4	35Wx4
	Power DIN45324, +B=14.4V	20Wx4	25Wx4
TONE	Bass	100Hz \pm 10dB	100Hz \pm 10dB
	Treble	10KHz \pm 10dB	10KHz \pm 10dB
GENERAL	Operating Voltage (11-16V allowable)	14.4V	14.4V
	Current Consumption	10A	10A
	Installation Size (W)	182 (mm)	182 (mm)
	(H)	53 (mm)	53 (mm)
	(D)	154 (mm)	154 (mm)
	Weight	1400g	1400g

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