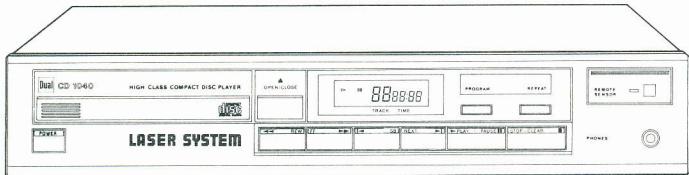


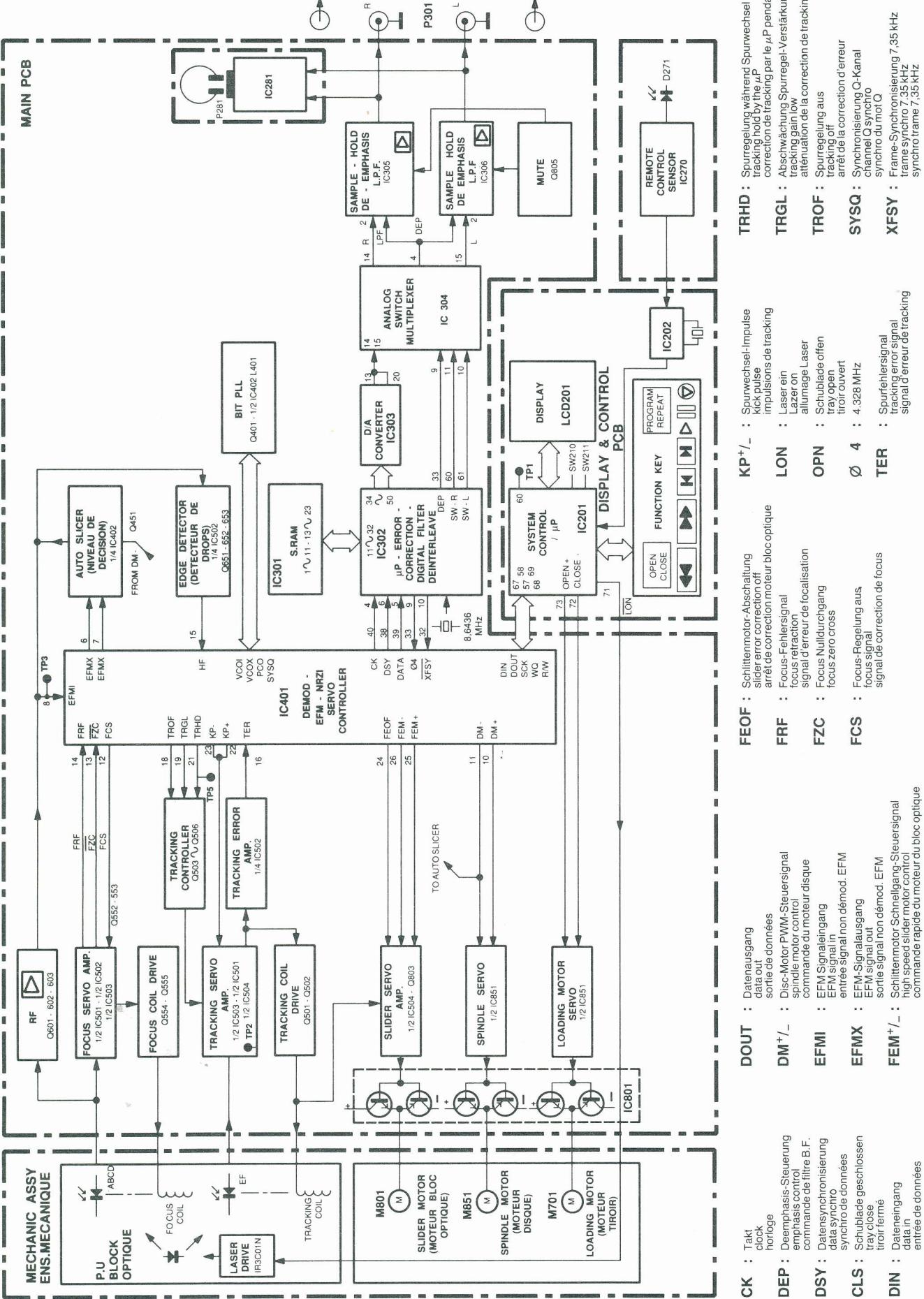
CD 1040



Service-Anleitung
Service Manual
Instructions de Service

Technische Daten	Technical data	Caractéristiques techniques	
Meßwerte = typische Werte	Measured values = typical values	Valeurs mesurées = valeurs typiques	CD 1040
Frequenzbereich ± 0,5 dB	Frequency response	Courbe de réponse	5–20 000 Hz
Geräuschspannungsabstand	Signal to noise ratio	Rapport signal/bruit	96 dB
Dynamikbereich	Dynamic range	Dynamique	93 dB
Übersprechdämpfung (1 kHz)	Crosstalk (1 kHz)	Diaphonie (1 kHz)	90 dB
Klirrfaktor (1 kHz)	Harmonic distortion (1 kHz)	Distorsion harmonique (1 kHz)	0,004 %
Gleichlaufschwankungen	Wow and flutter	Fluctuations	± 0,001 %
Ausgangsspannung	Output voltage	Tension de sortie	2 V
Max. programmierbare Musiktitel	Max. music title programming	Titres de musique au max. programmés	15
D/A Wandler	D/A Converter	D/A Convertisseur	16 Bit linear (Single)
Abtastfrequenz	Pick up frequency	Fréquence de pick-up	88,2 kHz
Abtastsystem	Recording system	Système d'enregistrement	3-Strahl-Laser 3-beam optical pick up
Leistungsaufnahme	Power consumption	Consommation	16 W
Netzspannung	Mains voltage	Tension secteur	220 V
Netzfrequenz	Line frequency	Fréquence secteur	50 Hz

Dual GmbH • Postfach 1144 • 7742 St. Georgen/Schwarzwald



CLASS 1. LASER PRODUCT
LASER KLASSE 1
APPAREIL A LASER DE CLASSE 1



Informationsetikett auf Geräterückseite.
Explanatory label on rear side.

Laser: $\lambda = 780 \text{ nm}$

CAUTION - INVISIBLE LASER RADIATION WHEN
OPEN AND INTERLOCKS FAILED OR DEFEATED
AVOID EXPOSURE TO BEAM

ATTENTION - RAYONNEMENT LASER INVISIBLE
DANGEREUX EN CAS D'OUVERTURE ET LORSQUE
LA SÉCURITÉ EST NEUTRALISÉE.
EXPOSITION DANGEREUSE AU FAISCEAU.

VORSICHT - UNSICHTBARE LASERSTRÄHLUNG.
WENN ABDECKUNG GEÖFFNET UND SICHER-
HEITSVERIEGELUNG ÜBERBRÜCKT.
NICHT DEM LASERSTRÄHL AUSSETZEN!

Warnetikett innen im Gerät.
Warning label inside the unit.

Vorsicht

Das Gerät beinhaltet eine Laserkomponente, daher im Servicefall nachfolgende Hinweise unbedingt beachten:

- Das Gerät arbeitet mit unsichtbarer Laserstrahlung. Bei geöffnetem Gerät tritt unterhalb des Plattenhalters Laserstrahlung aus.
- Nicht in den Laserstrahl blicken.
- Hände und reflektierende Gegenstände nicht in den Laserstrahl bringen.
- Laserschutzbrille nach DIN 58 215 für die angegebene Wellenlänge tragen.
- Unbeteiligte Personen vom Arbeitsplatz fernhalten.

Achtung

Die Einstellungen für den Laserstrahl am Laserabtaster und der LP-Platte dürfen nicht verstellt werden.

Caution

This CD-player operates with an invisible laser beam. If service is necessary please pay attention to the following notes:

- When the set is open, laser radiation emerges beneath the record holder arm.
- Do not look into beam.
- Do not expose hands or reflecting objects into laser beam.
- Please wear laser protective glasses according to DIN 58 215 for mentioned wave length.
- Please keep unconcerned people away from working place.

Attention

It is not allowed to adjust positioning of laser beam at laser scanning and LP-plate.

Servicehinweise

AUSBAU DER SCHUBLADE @

- Anschlagschraube @ herausdrehen und durch Drücken der Taste «OPEN-CLOSE» die Schublade ausfahren und mit der Hand ganz herausziehen.
- Wenn der Schubladenmotor nicht funktioniert s. Fig. 2.

AUSBAU DES LAUFWERKS

- Die 2 Schrauben herausdrehen (s. Fig. 4).

PLATTENWIEDERGABE OHNE SCHUBLADE

- Netzstecker ziehen, Schublade entfernen und anschließend Kurvenrad @ in Pfeilrichtung bis zu der in Fig. 3a angegebenen Position drehen.

Service information

DISMANTLING THE TRAY ASSEMBLY @

- After dismantling the front panel, take off the tray stopper screw @, press the «OPEN-CLOSE» button to begin removing the tray, and pull it out.
- If the loading motor doesn't rotate (see fig. 2).

REMOVING MECHANICAL ASSEMBLY

- Remove the 2 screws (see fig. 4)

PLAYING A C.D. WITHOUT TRAY ASSEMBLY

- Unplug the unit, take off the tray assembly, turn the main gear @ in direction of the arrow up to the position indicated in fig. 3a.

– Platte auflegen @ und Kurvenrad @ in der anderen Richtung bis zu der in Fig. 3b angegebenen Position drehen.

– Netzstecker wieder einstecken: die Wiedergabe kann erfolgen.

– Zur Entnahme der Platte, Kurvenrad @ betätigen (s. Fig. 3a), um den Andruckarm @ anzuheben, dann die Platte entnehmen.

EINBAU DER SCHUBLADE

- Netzstecker ziehen, Kurvenrad @ in Position bringen.
- Schublade ganz einschieben, Schraube @ eindrehen, Netzstecker wieder einstecken.

– Put the C.D. on the turntable @ and turn main gear @ in the other direction up to the position indicated in fig. 3b.

– Reconnect the unit at the mains. Playback can now occur.

– To take off the C.D. move the main gear (see. fig. 3a) so as to raise the counter-lever @ and disengage the C.D.

REPLACING THE TRAY ASSEMBLY

- Umplugs the unit, put the main gear @ in position fig. 3c.
- Slid the tray fully in, replace screw @. Reconnect the unit at a mains outlet.

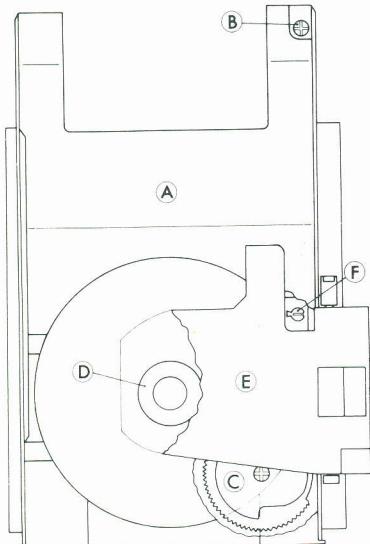


Fig. 1

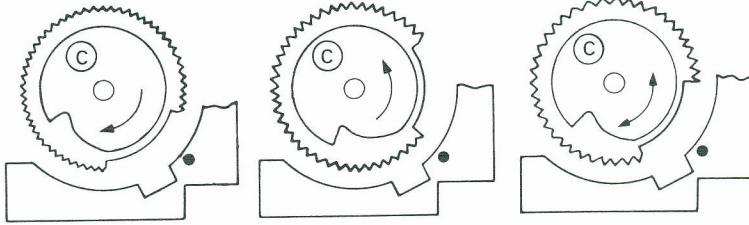


Fig. 3a

Fig. 3b

Fig. 3c

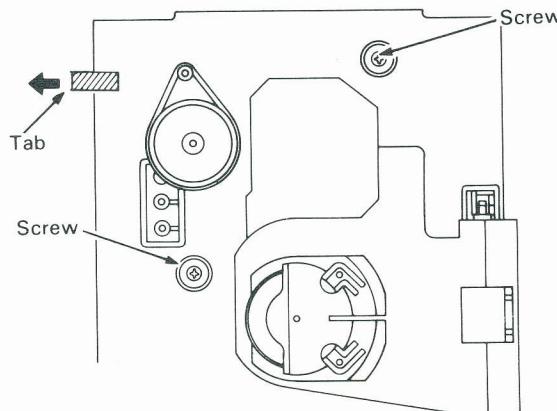


Fig. 4

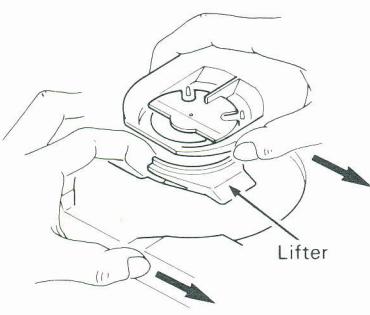
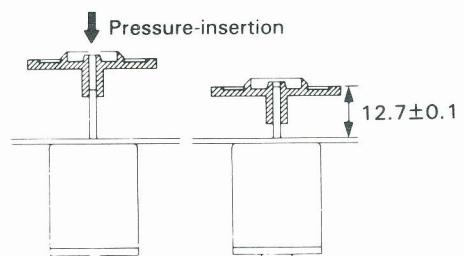
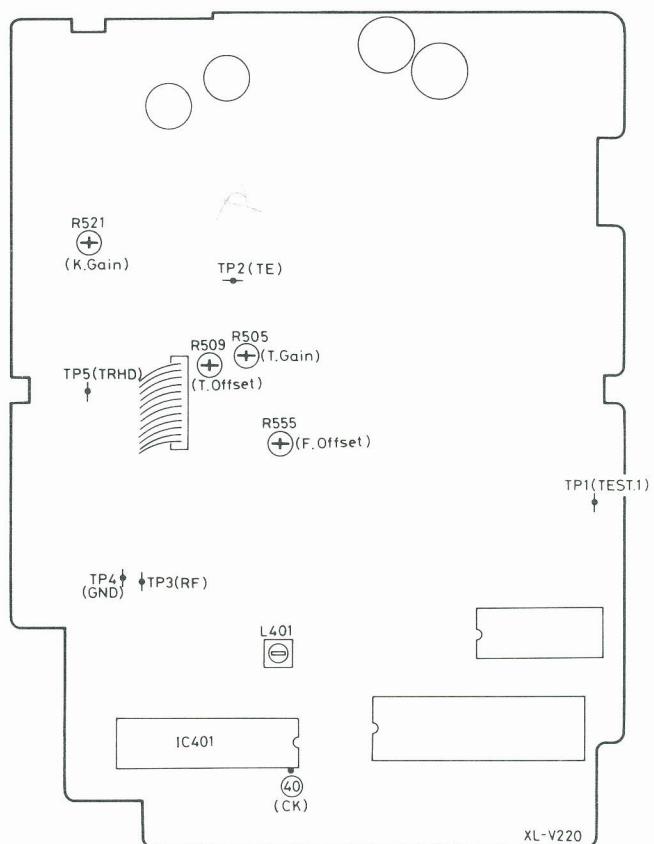
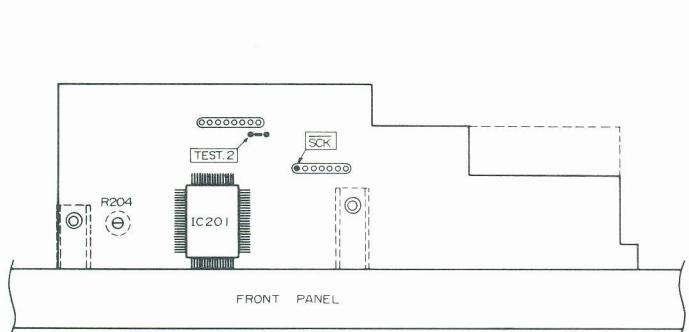
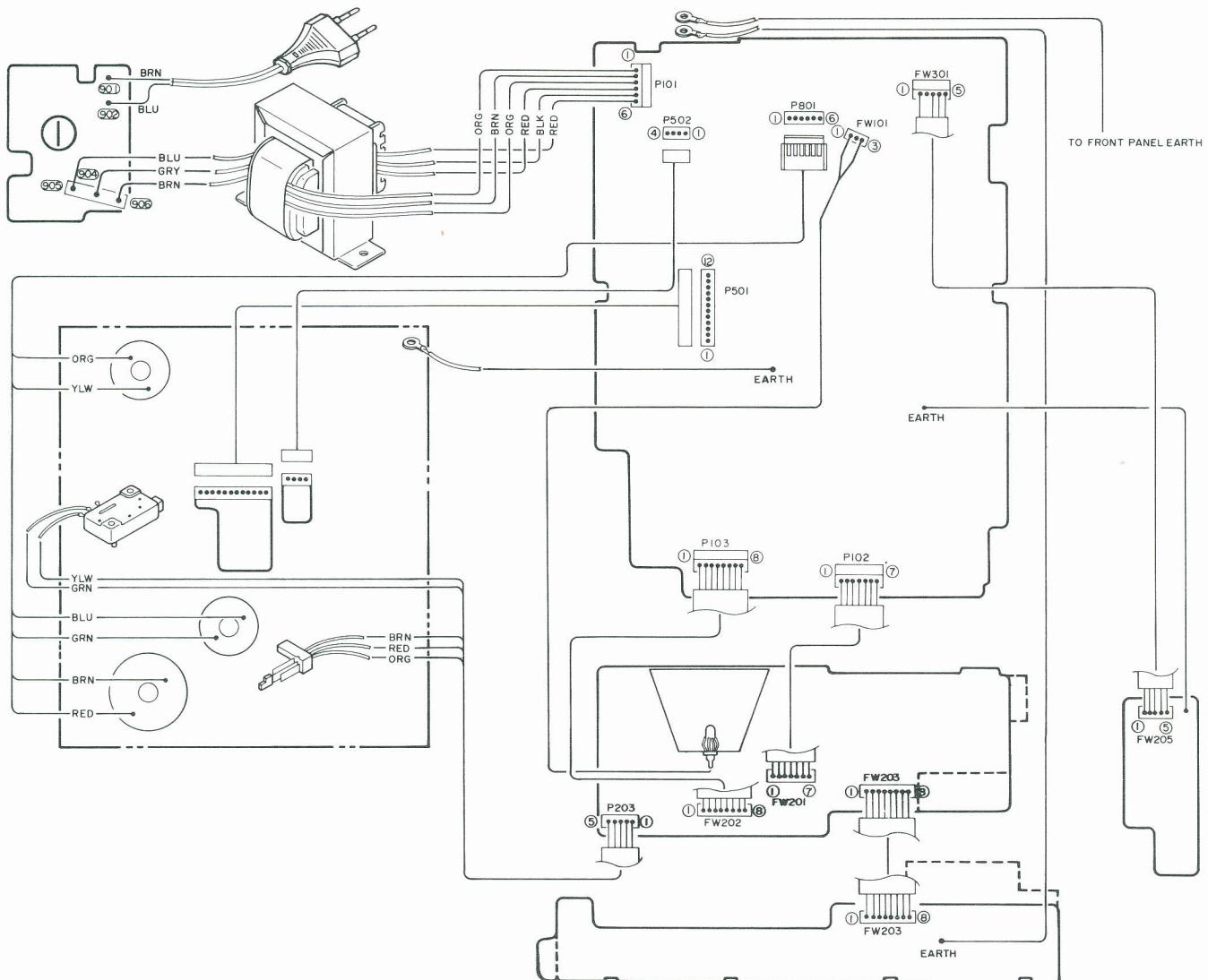


Fig. 2



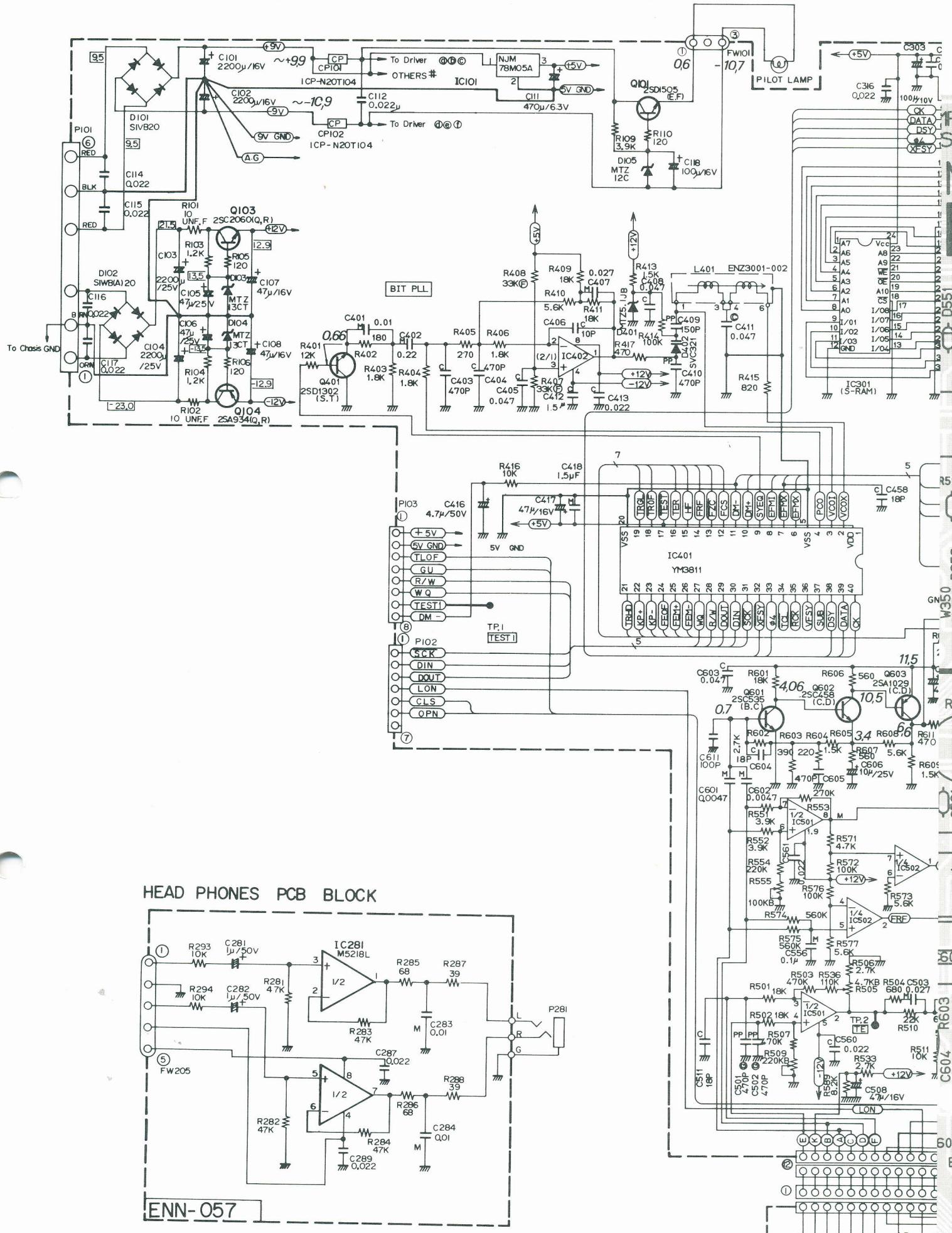
* Wenn
Steller
If Vpp
Don't t
(adjust)

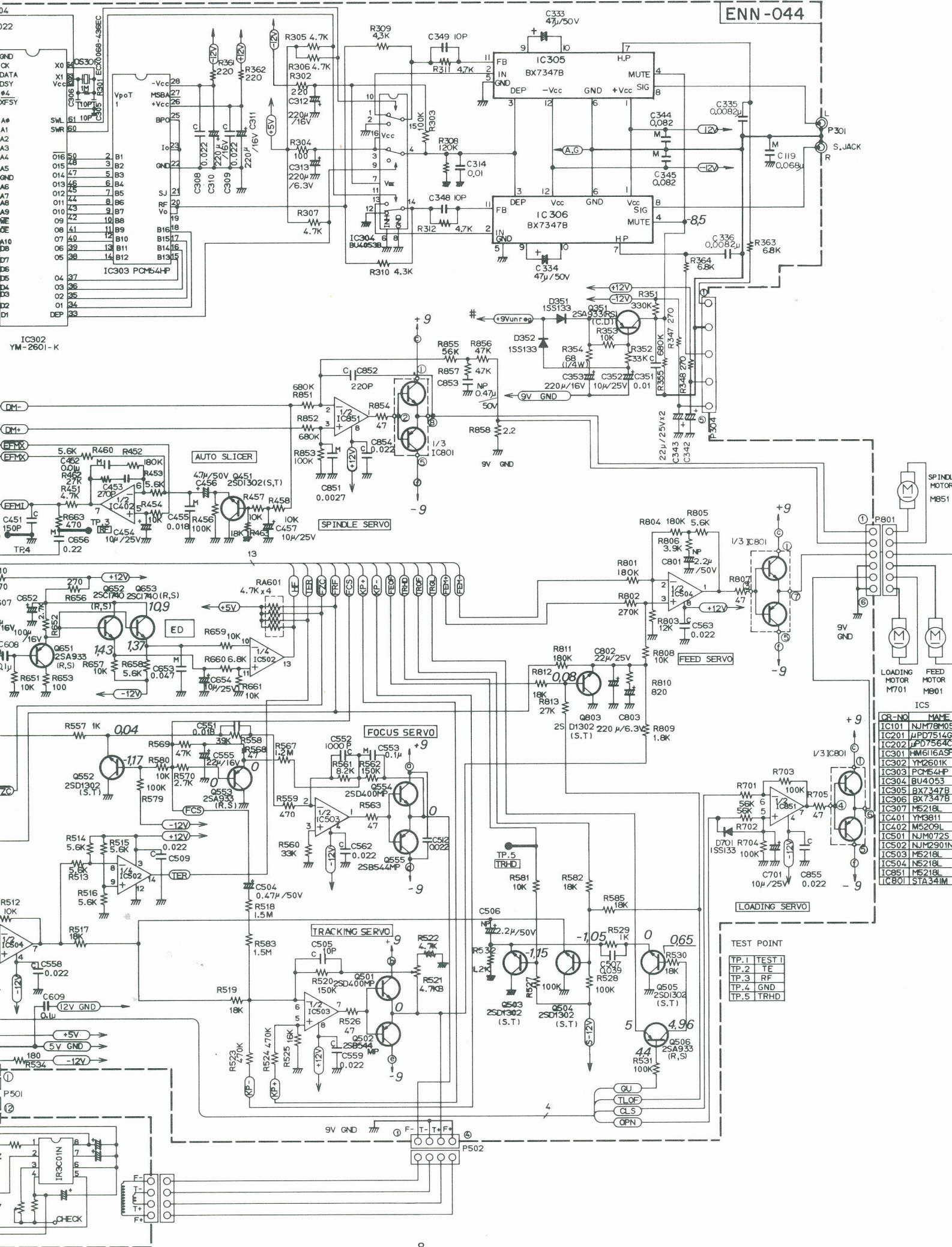


* Wenn Vss < 1,7 V, ist die Laserdiode defekt.
 Steller auf der Laserplatte nicht verstellen! (Fabrikeinstellung)
 If Vpp < 1,7 V Laser diode is considered defective.
 Don't touch the semifixed on the pick up R.C.B.
 (adjusted by manufacturer)

LASER OUTPUT		
	Check Contrôle Kontrollieren	TP3 Vpp > 1,7 V *
PLL FREERUN (Battement libre du PLL)		
	L401	IC401 pin 40 F = 4.322 ± 0.001 MHz
CLOCK FREQUENCY (Fréquence d'horloge)		
	TEST 2 Power off	R204 SCK FW201 F = 200 kHz ± 4 kHz
Y AXIS		
	Schublade entfernen Screw Vis Schraube (fig. 1)	TP3 V maximum
FOCUS SERVO OFFSET		
	R555 	TP3 V maximum
TRACKING SERVO GAIN		
	R505 	TP2 V = 2 Vpp
TRACKING SERVO OFFSET		
	R509 	TP2 a = b
KICK GAIN		
	R521 	Emitter T 501 1. Max. Linksschlag Max. Left-hand stop 2. minus 3 dB

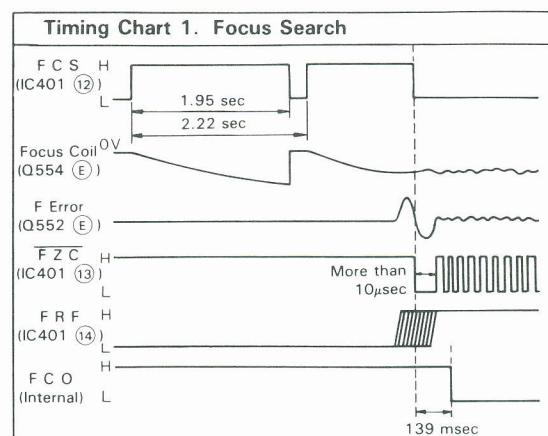






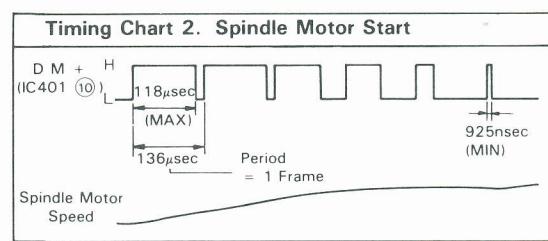
	▷	□
1	0,01	0,01
2	2,52	2,52
3	2,51	2,51
4	- 12,9	- 12,9
5	2,47	2,2
6	2,47	2,2
7	2,17	2,2
8	12,9	12,9

	▷	□
1	12,9	12,9
2	0,01	0
3	1,93	0
4	1,93	0
5	- 12,9	- 12,9
6	0,01	0
7	0,01	0
8	0,04	0
9	12,9	12,9



	▷	□
1	- 0,75	0,57
2	0	0
3	0	0
4	- 12,9	- 12,9
5	0	0
6	0	0
7	0	0
8	12,9	12,9

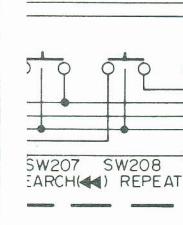
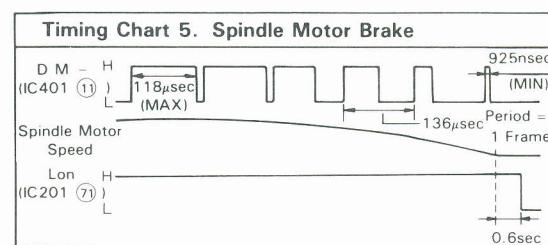
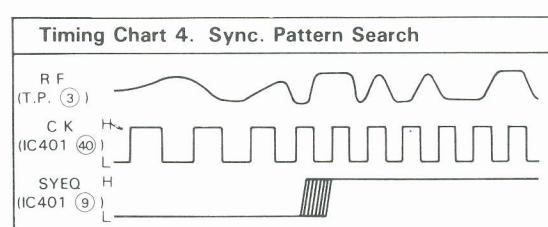
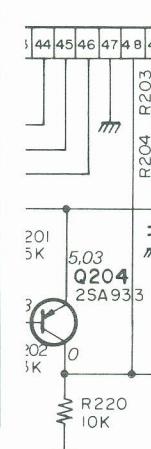
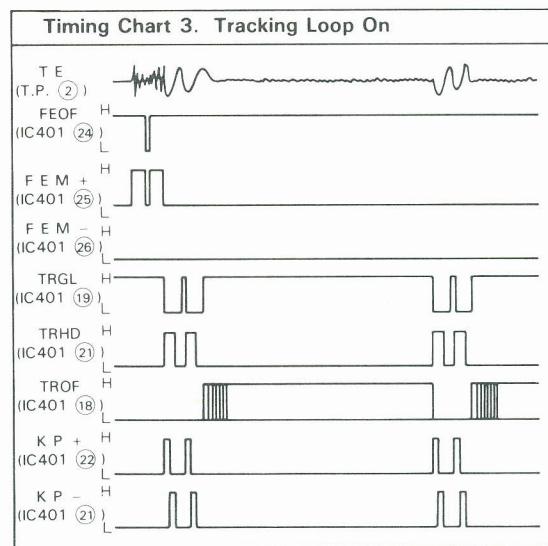
	▷	□
1	1,23	0
2	0,07	0
3	0,07	0
4	- 12,9	- 12,9
5	0	0
6	0	0
7	0	0
8	12,9	12,9



	▷	□
1	9,6	10,2
2	1,48	0,57
3	1,2	0,01
4	0	0
5	- 10,6	- 10,8
6	0	0
7	0,5	0
8	0,9	0,03

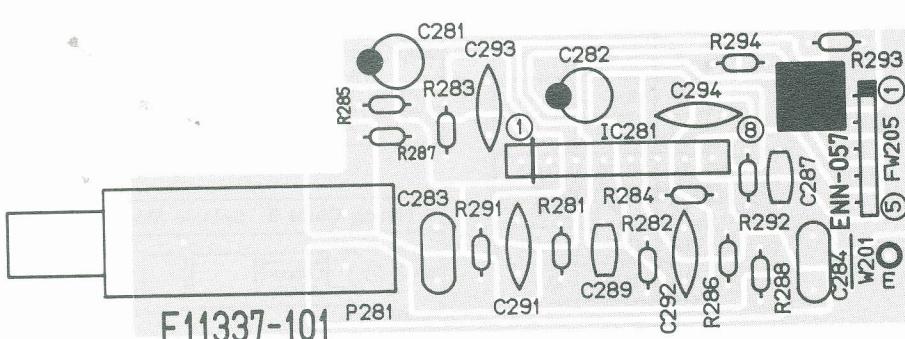
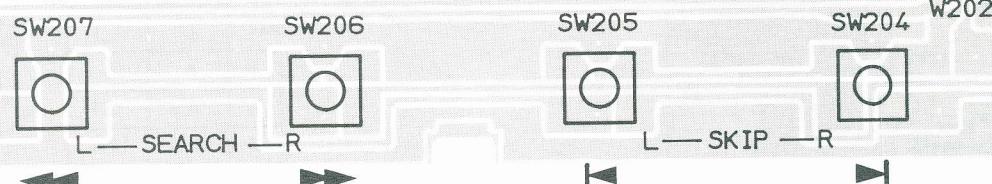
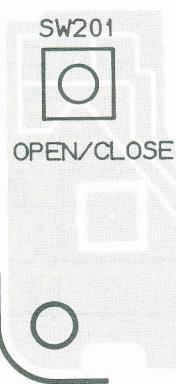
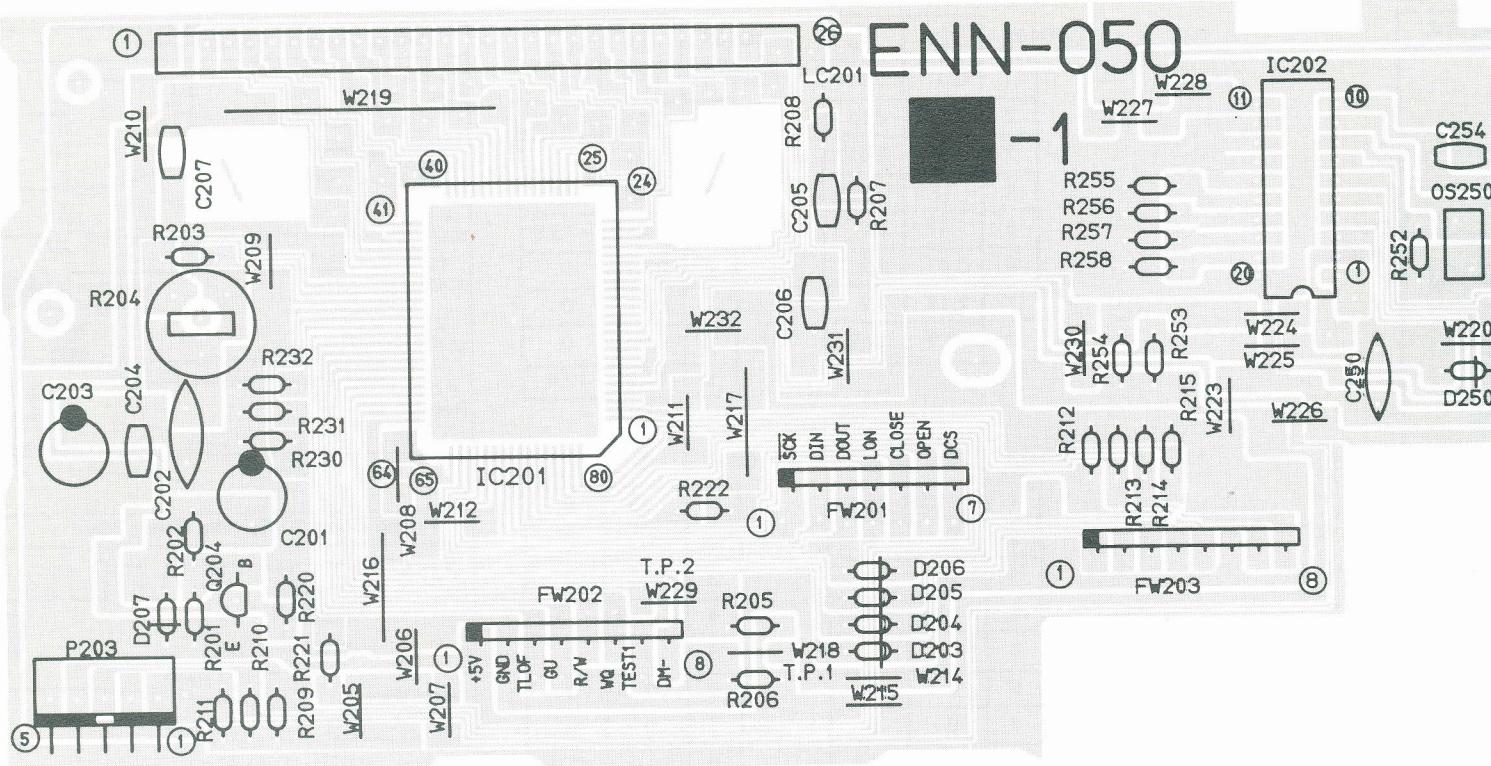
	▷	□
1	1,5	0,57
2	0,05	0
3	0,05	0
4	- 12,9	- 12,9
5	0	0
6	0	0
7	0	0
8	12,9	12,9

	▷	□
1	5	5
2	4,9	0,1
3	12,9	12,9
4	0,7	0,7
5	1,22	0,02
6	0	0
7	0,62	0,58
8	6,46	6,47
9	6,4	6,41
10	1,37	0,11
11	0,85	0,07
12	0	0
13	0,1	0,09
14	2,26	0,1



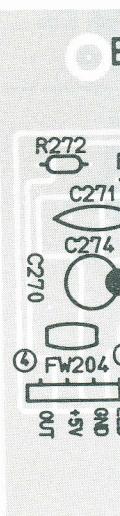
10 MΩ

▷ play
□ stop

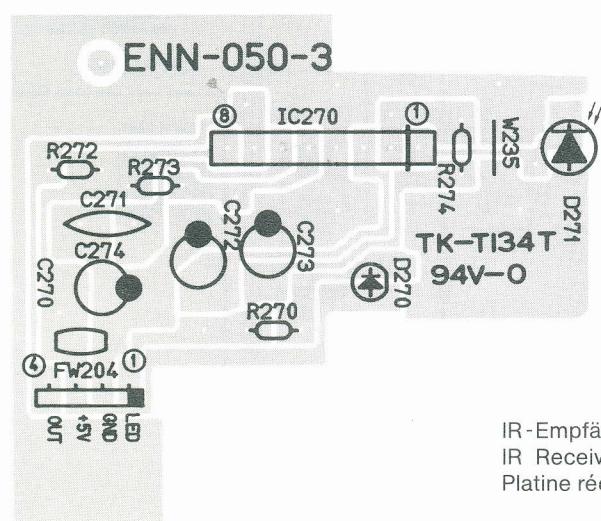
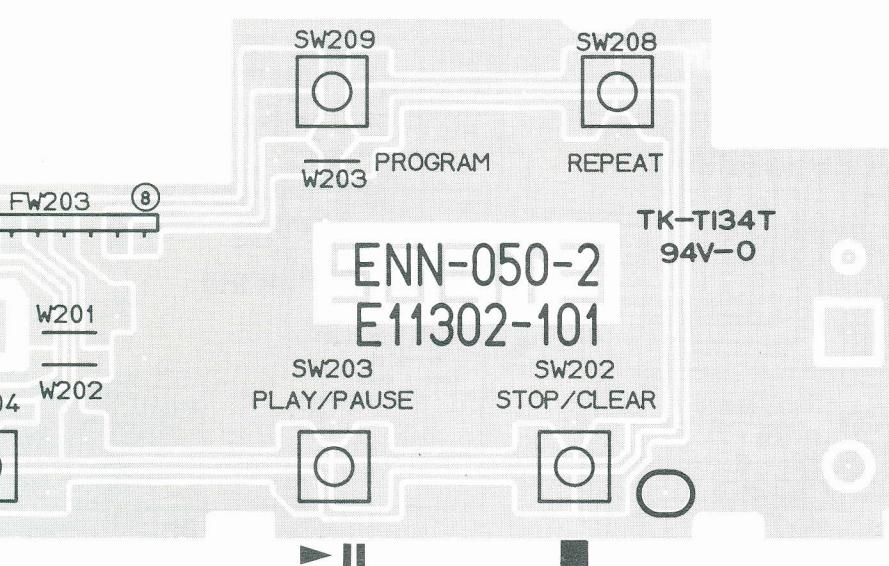
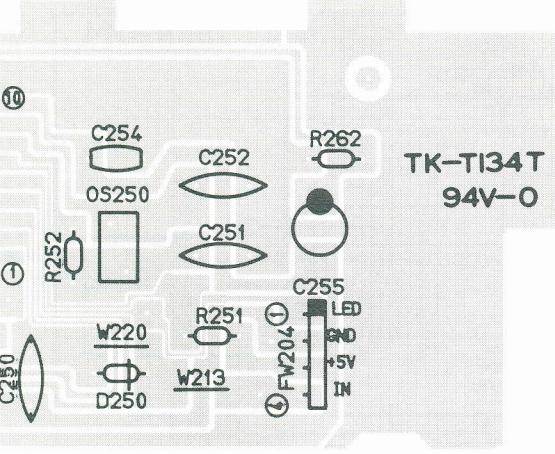


Kopfhörerplatte
Headphone board
Platine prise-casque

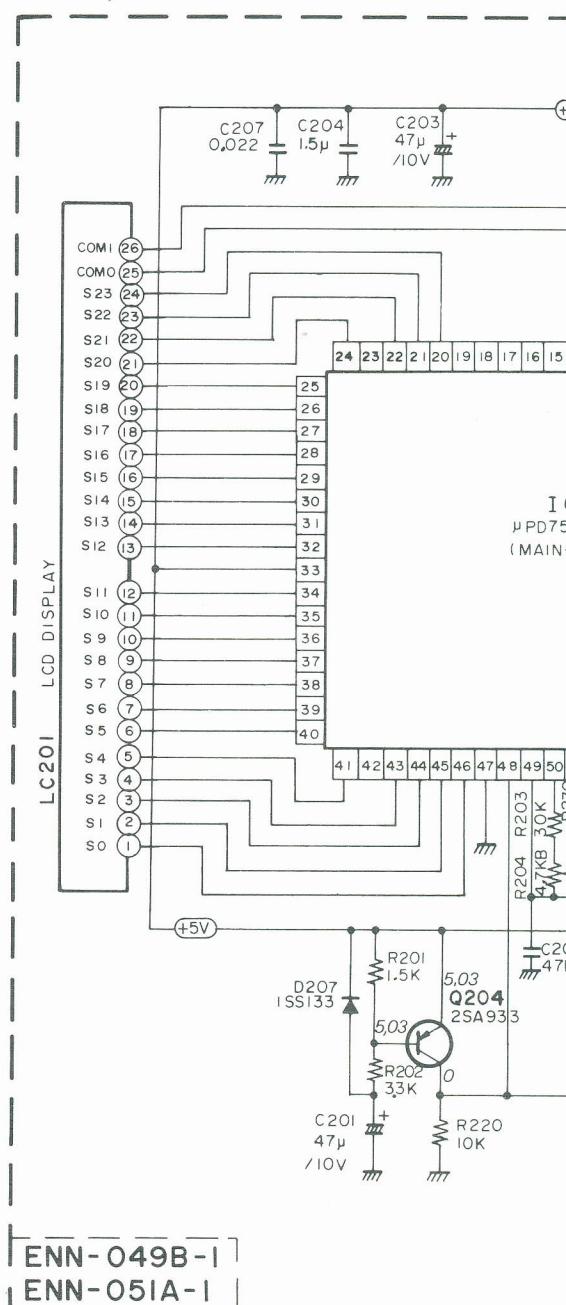
Bestückungsseite
Component side
Côté composants



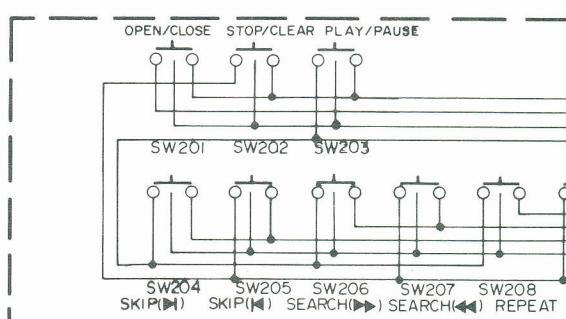
Anzeigeplatte
Display / control board
Platine afficheur / commandes

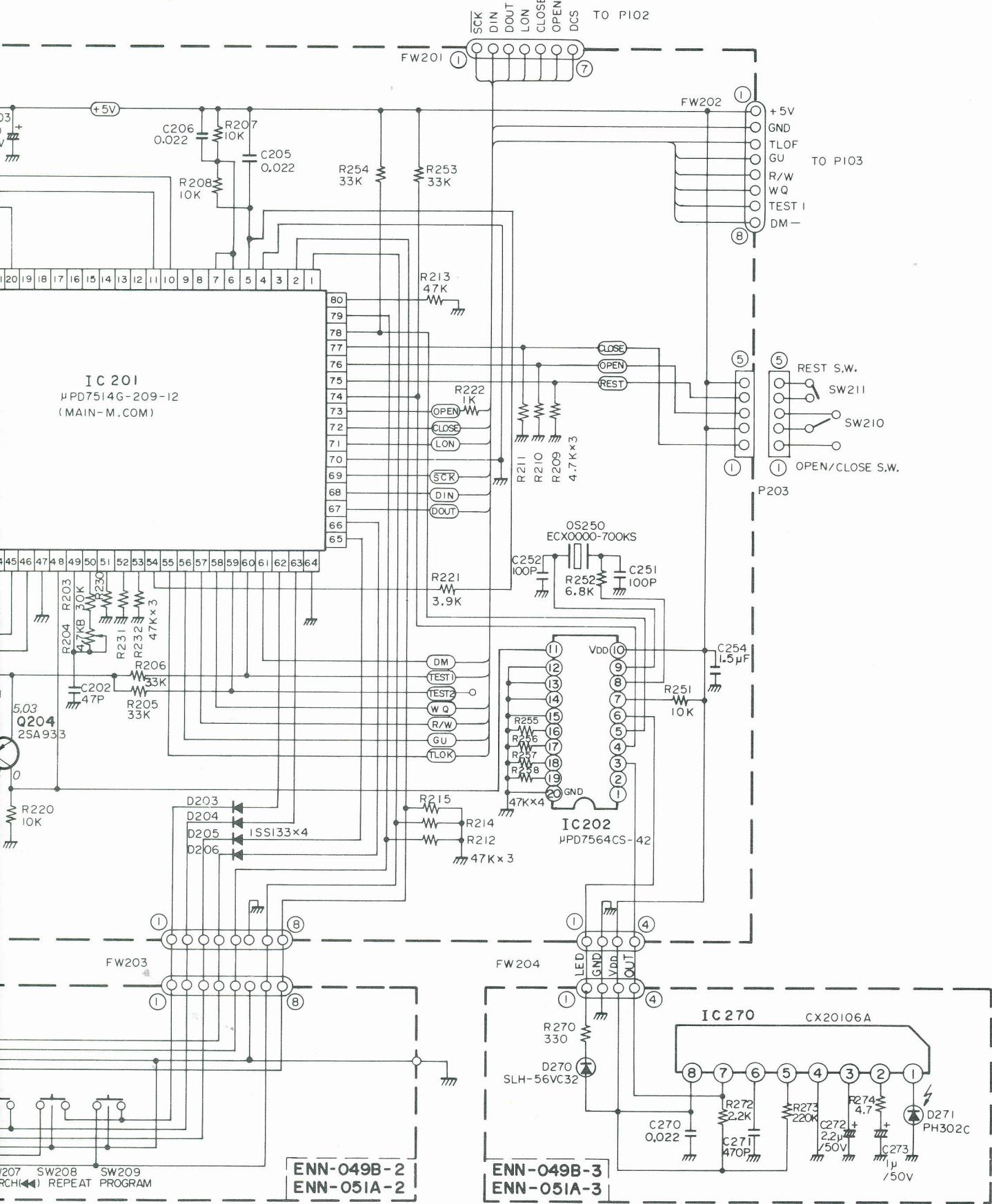


IR-Empfängerplatte
IR Receiver board
Platine récepteur IR

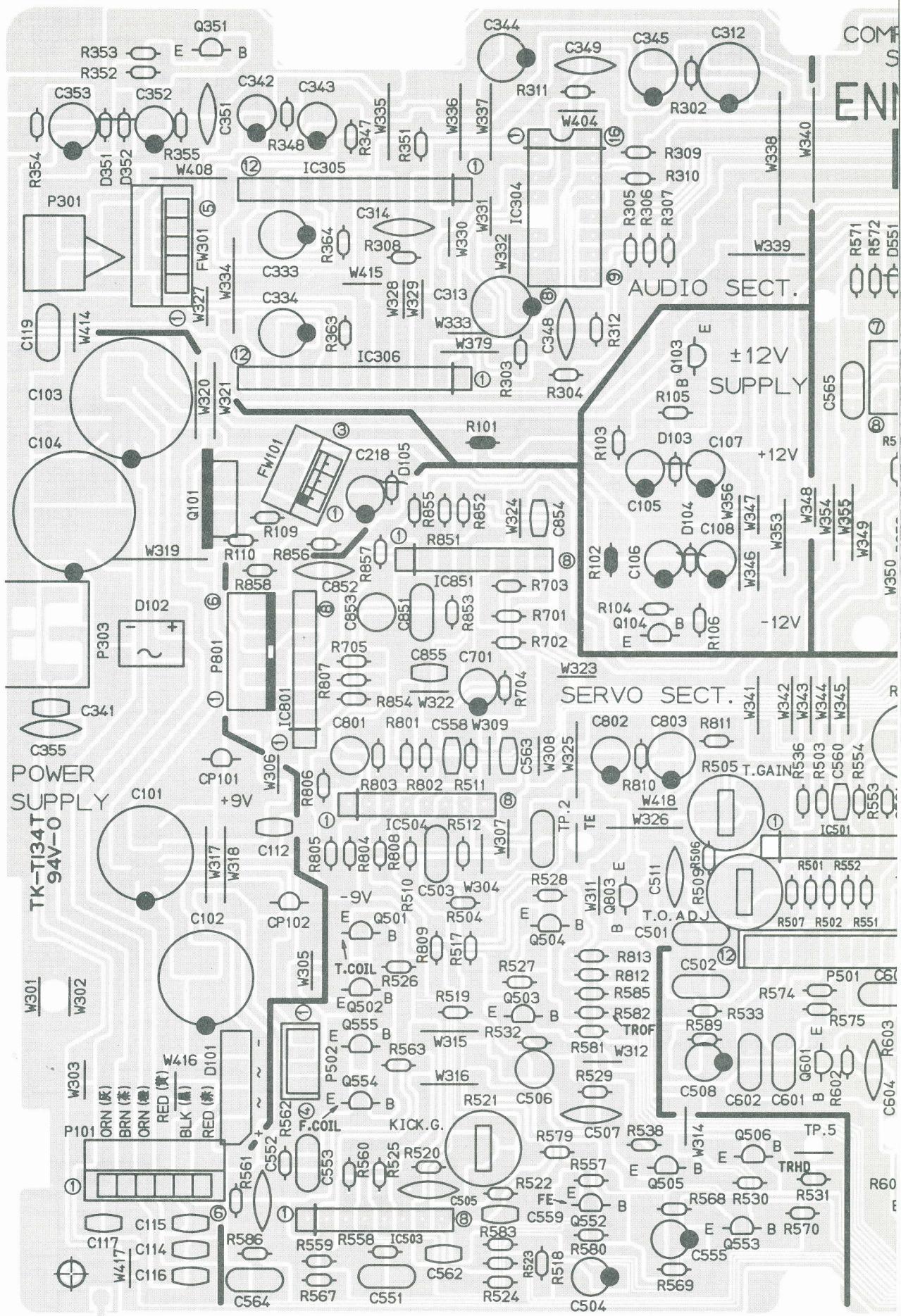


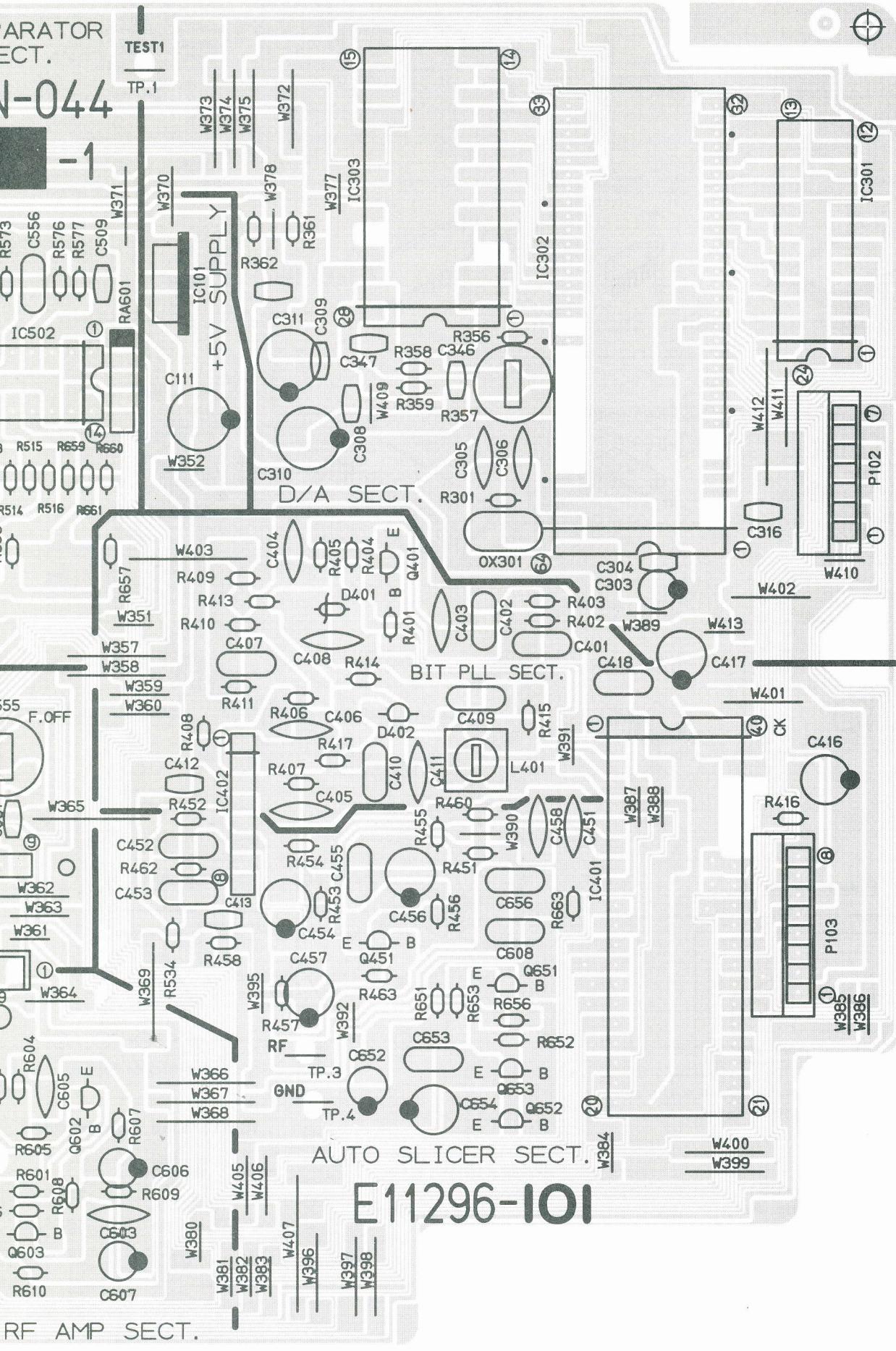
ENN-049B-1
ENN-051A-1

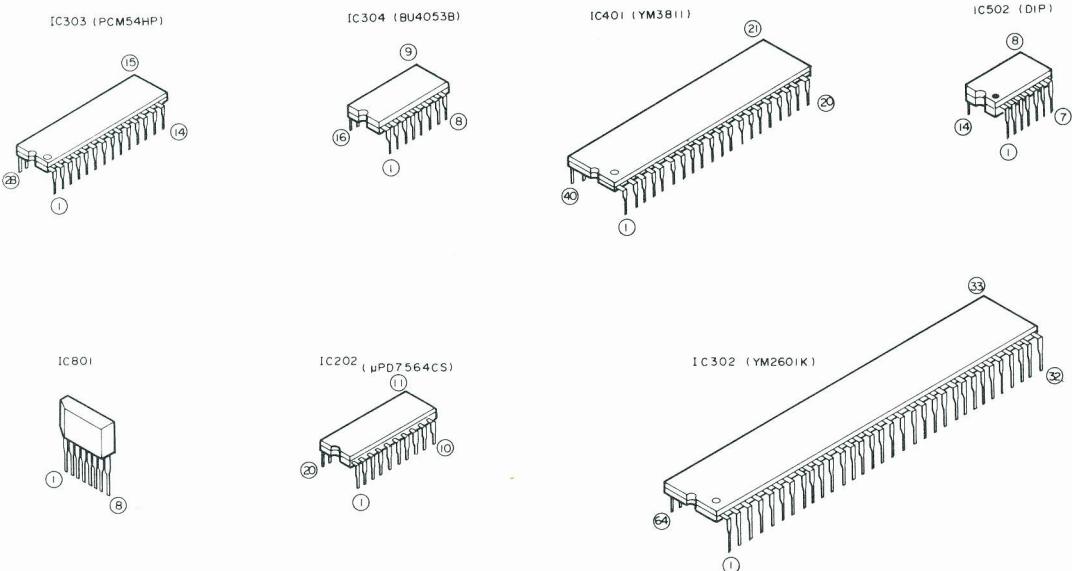
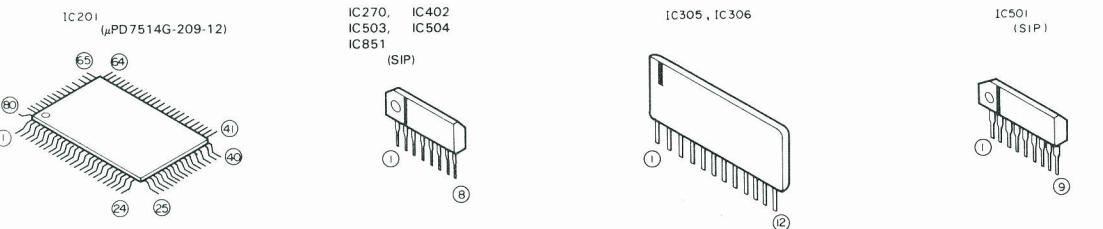
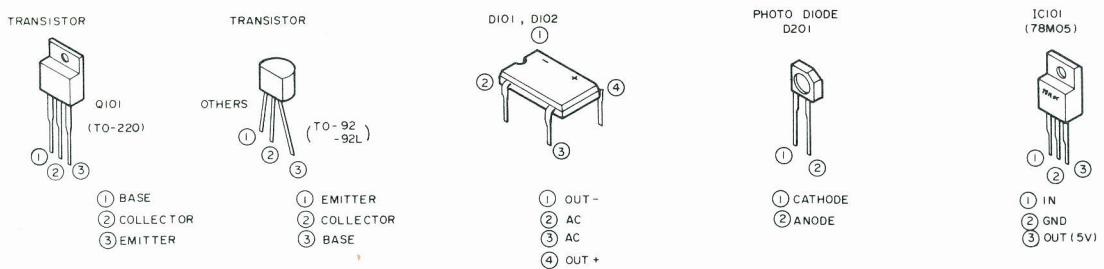




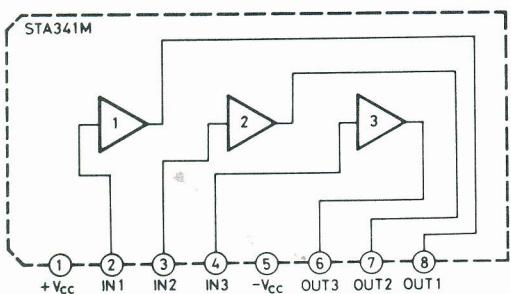
Grundplatte
Main board
Platine de base



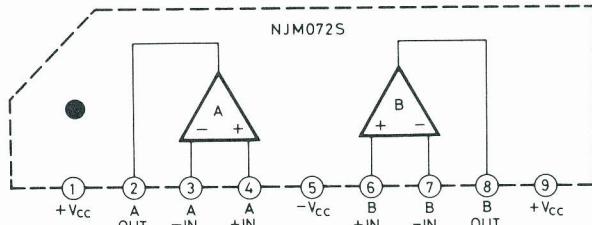




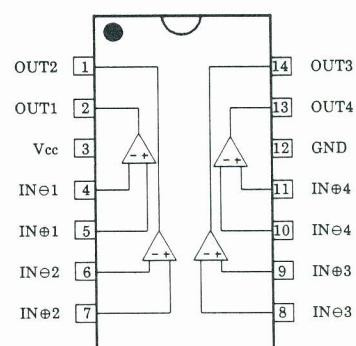
IC801 Power op. Amp.



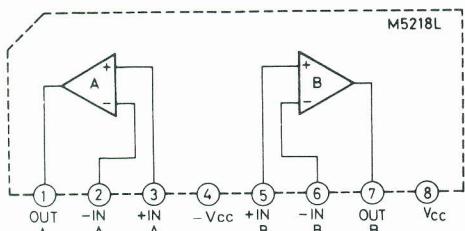
IC501 Dual op. Amp.



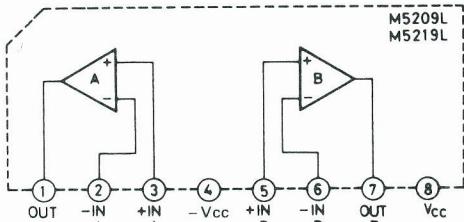
IC502 Quad. Comparator



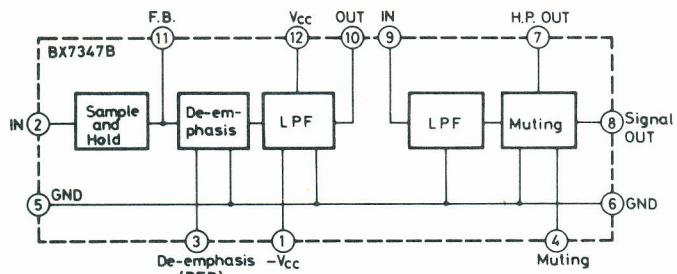
IC281/307/503/504/851 Dual op. Amp.



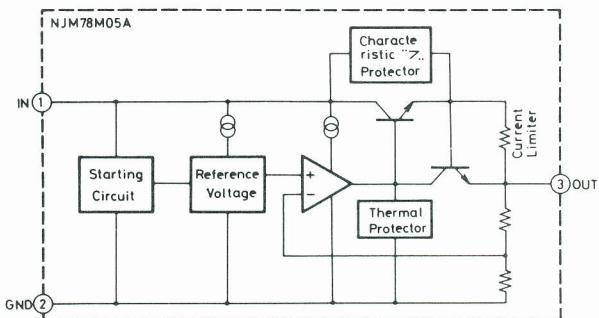
IC402 Dual op. Amp.



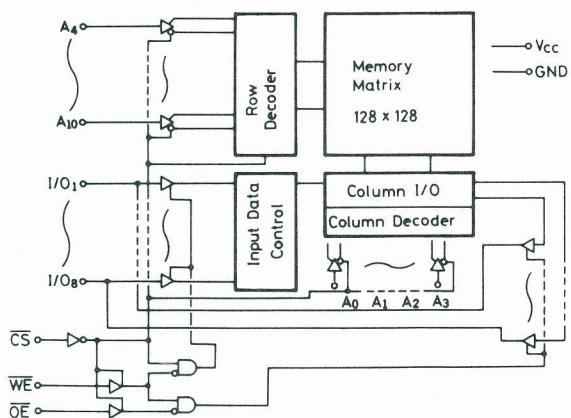
IC305 / 306 LPF



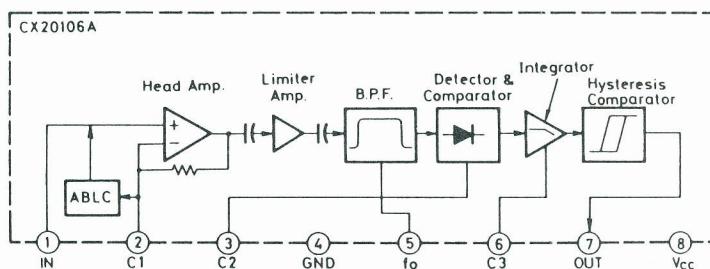
IC101 Voltage Regulator



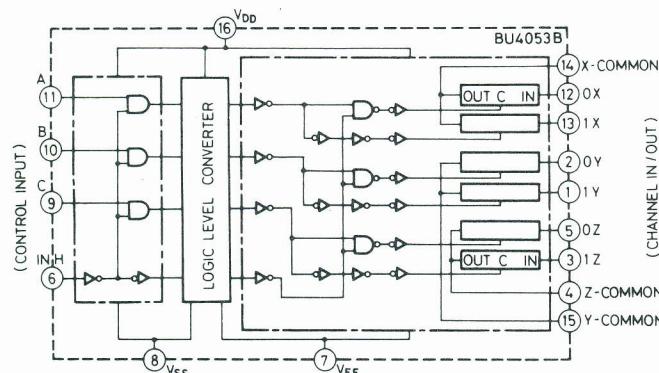
IC301 Static RAM



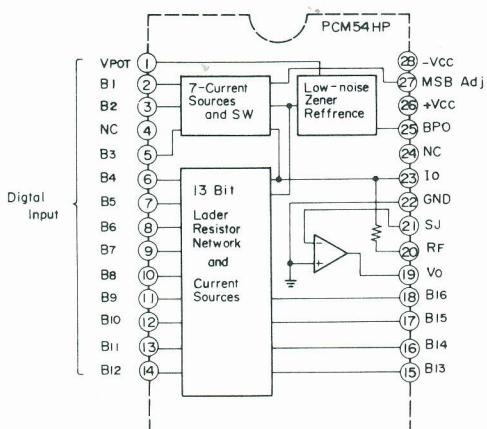
IC207 Remote Control Sensor



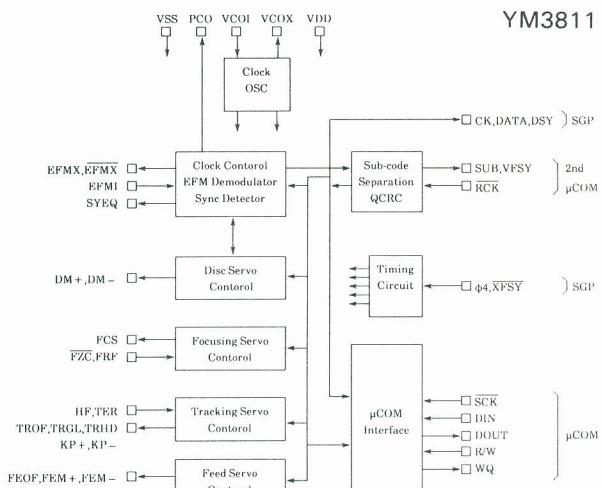
IC304 Analog. Switch Multiplexer



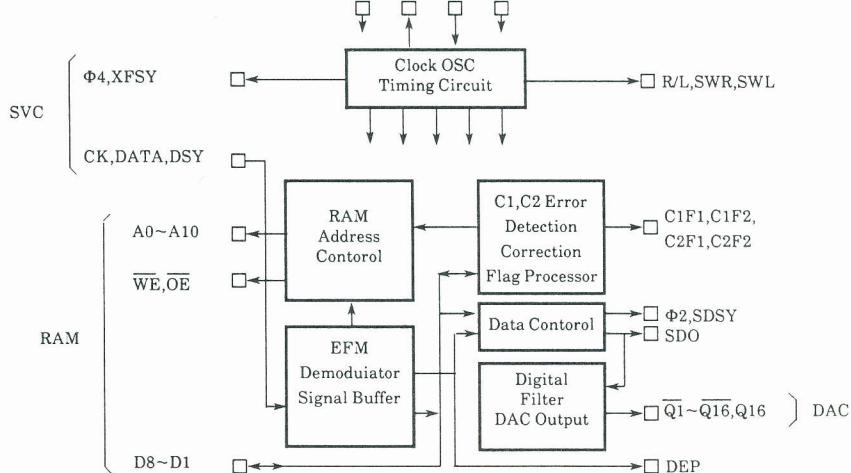
IC503 Digital Analog Converter



YM3811



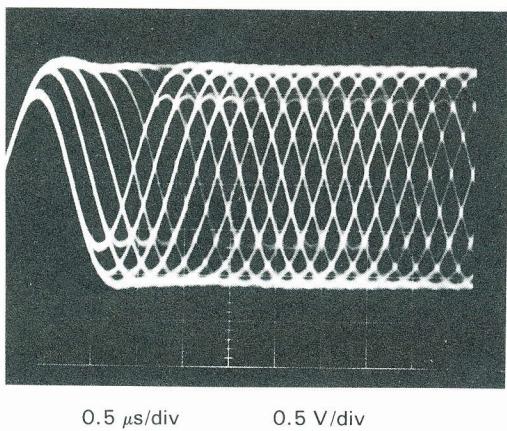
YM2601



Important Waveforms

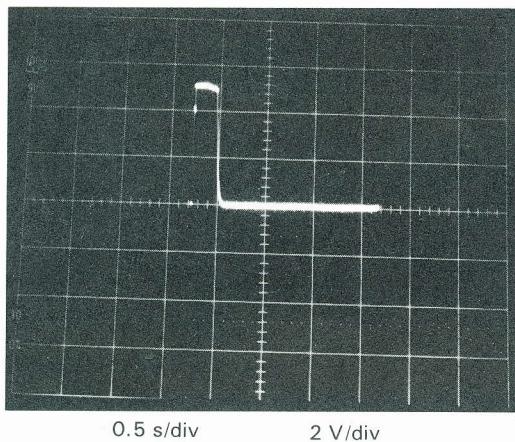
1. Eye pattern (RF signal)

TP3 (RF); standard eye pattern.



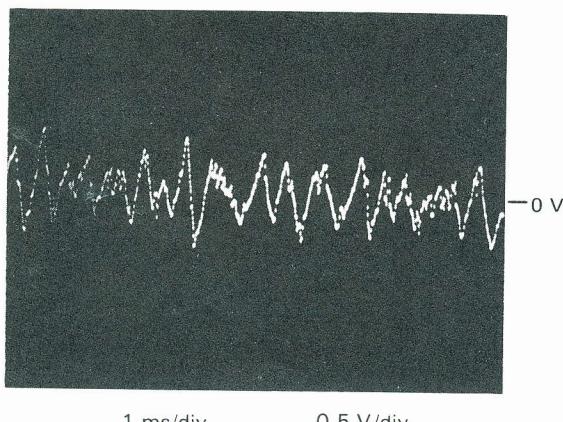
2. Reset signal of microcomputer

Q204 collector



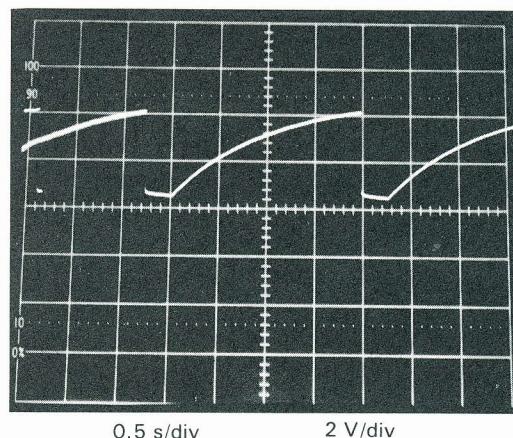
3. Focus signal during play

Q554 emitter; operates with period of about 0.2–1 ms.



4. Focus search voltage

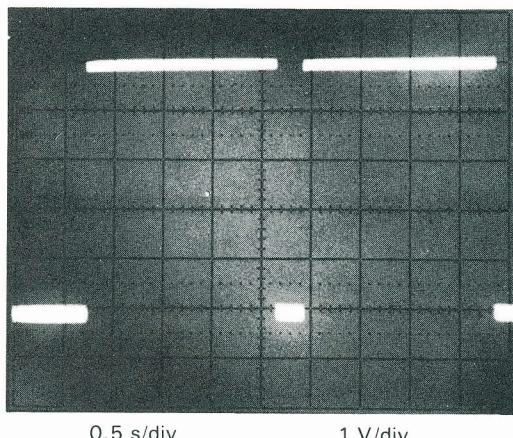
Voltage across C555; the waveform lens is moved up and down by this voltage when the platter is loaded without a disc.



5. Pulse for focus search voltage

Pulse for focus search transmitted from IC401

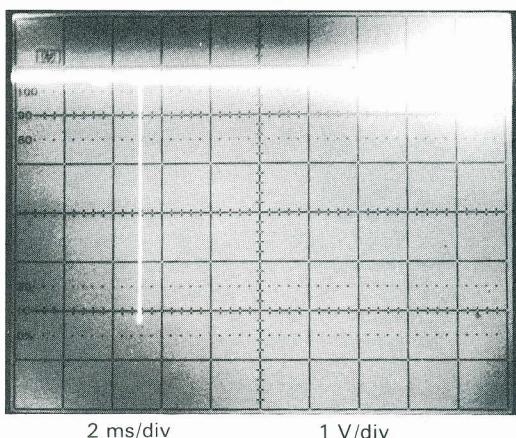
IC401 Pin ⑫ FCS signal



6. Focus zero-cross output

Pulse showing that focus output waveform has almost passed the zero point.

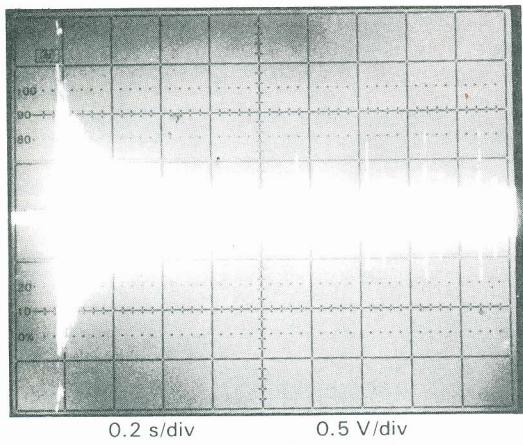
IC502 Pin ① output



7. Focus drive waveform

Waveform until focus is obtained, spindle motor starts to rotate and TOC is read.*

Q554 emitter; when focus has been finished and motor starts to rotate

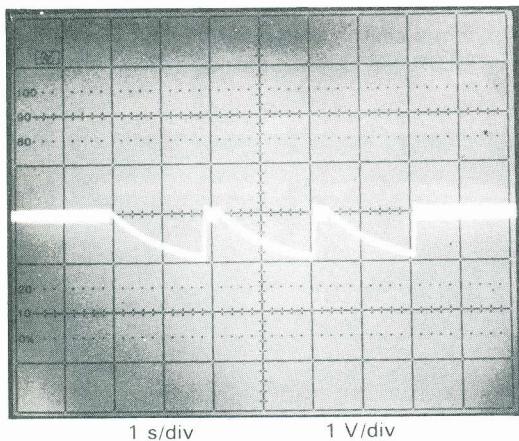


0.2 s/div 0.5 V/div

8. Drive waveform during focus search

Drive waveform of focus coil when the platter is loaded without a disc.

Q544 emitter; focus signal when no disc is loaded

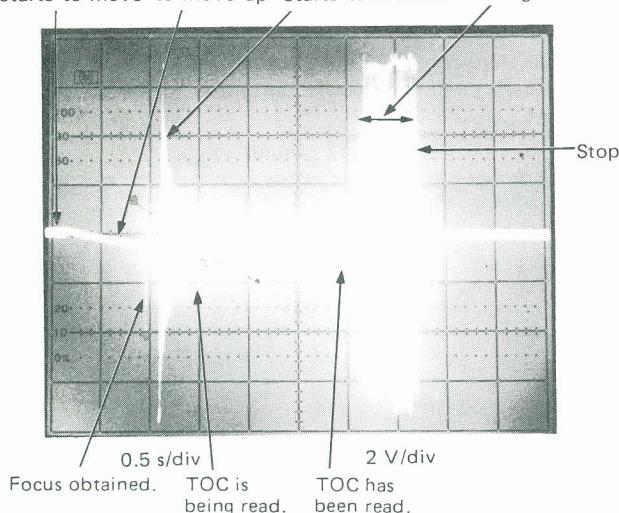


1 s/div 1 V/div

9. Waveform until TOC is read

Q554 emitter; until TOC has been read and spindle motor stops

Before lens Lens starts to move up Spindle motor starts to rotates. Spindle motor is being braked.

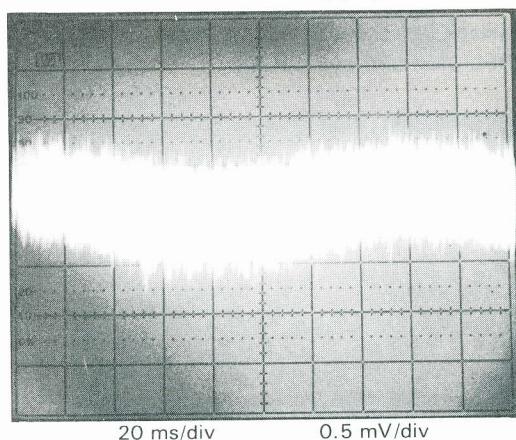


0.5 s/div 2 V/div
Focus obtained. TOC is being read. TOC has been read.
Stop

10. Tracking waveform during normal play

Q501 emitter

Waveform during play

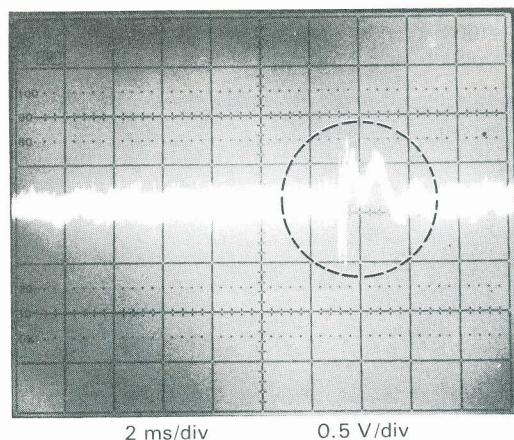


20 ms/div 0.5 mV/div

11. TP2 (TE) waveform of high speed search in forward direction

Output when track is jumped is visible

TP2 (TE); in case of transporting in high speed search ►►

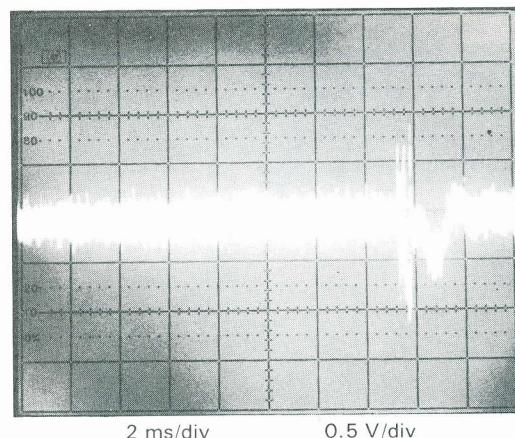


2 ms/div 0.5 V/div

12. TP2 (TE) waveform of high speed search in backward direction

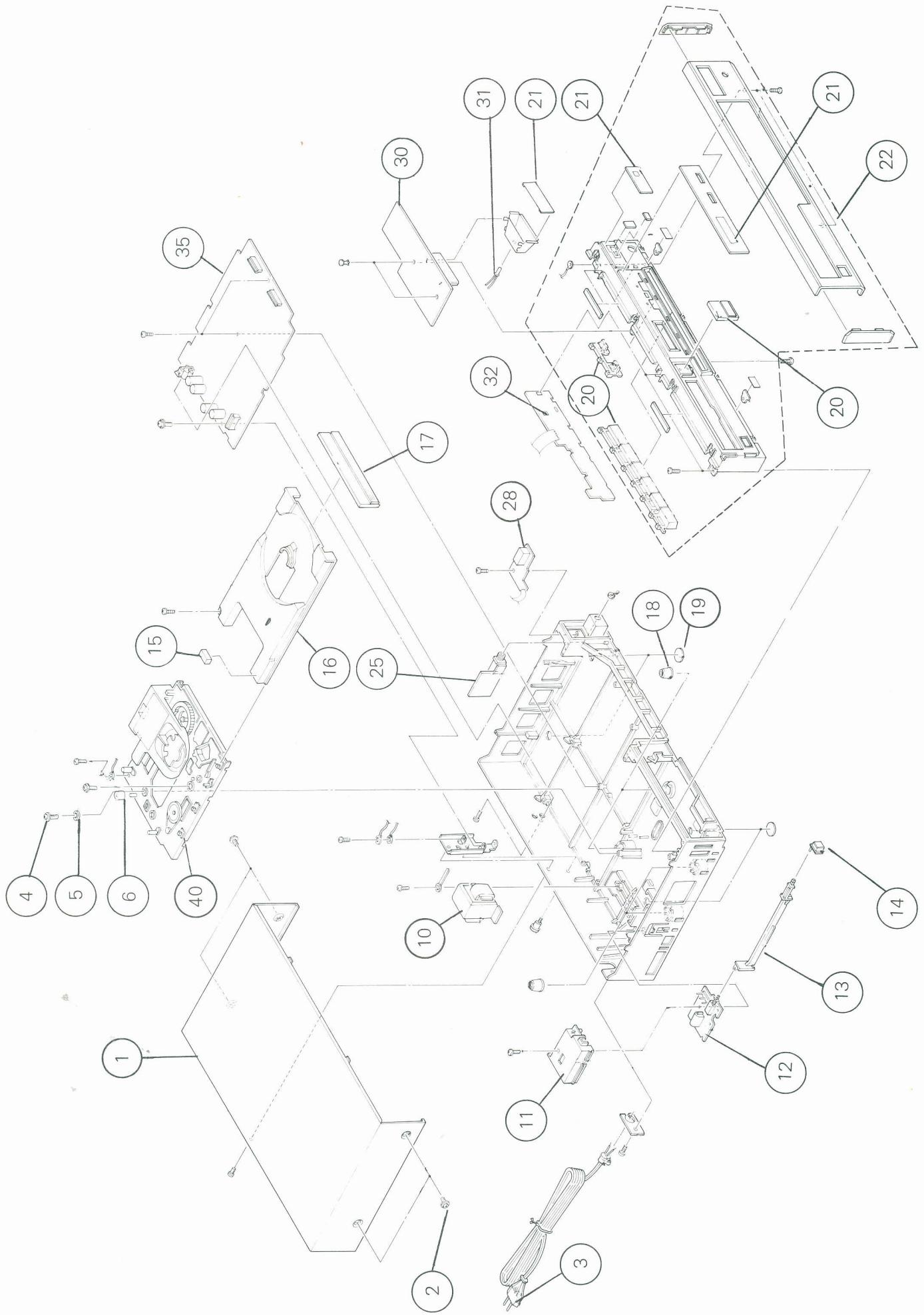
The waveform the reverse of that in high speed search in forward direction is shown.

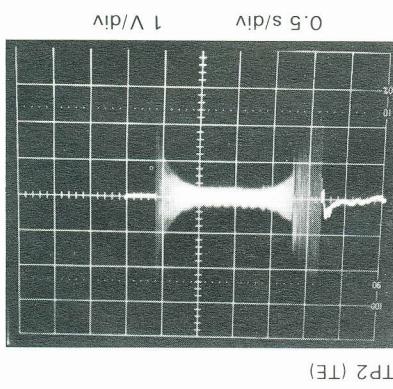
TP2 (TE); in case of returning by high speed search ◀◀



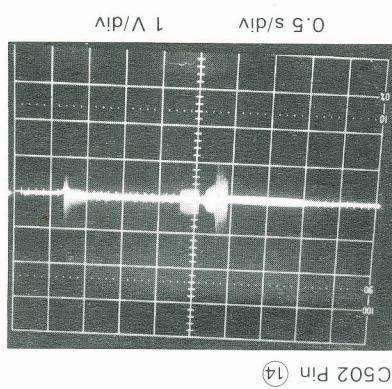
2 ms/div 0.5 V/div

* TOC : Display words / Mots d'affichage / Anzeigewort

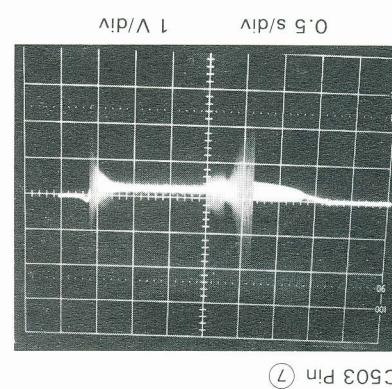




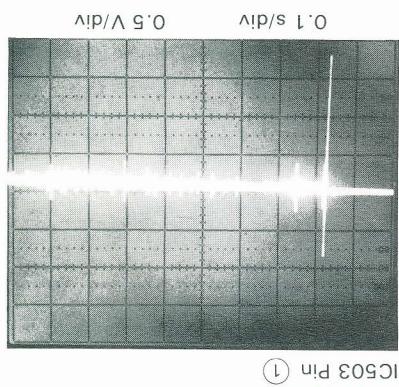
(F) Waveform when a disc is loaded
Shows until brake is operated after
TOC has been read.



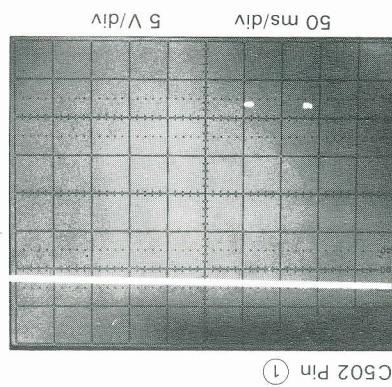
(E) Waveform when a disc is loaded
Shows until brake is operated after
TOC has been read.



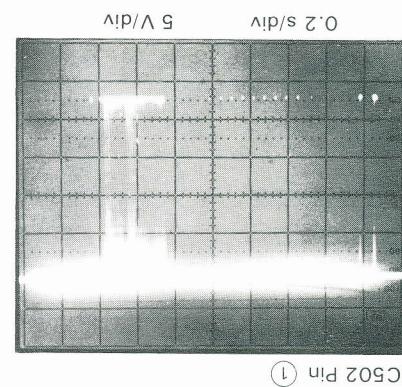
(D) Waveform when a disc is loaded
Shows until brake is operated after
TOC has been read.



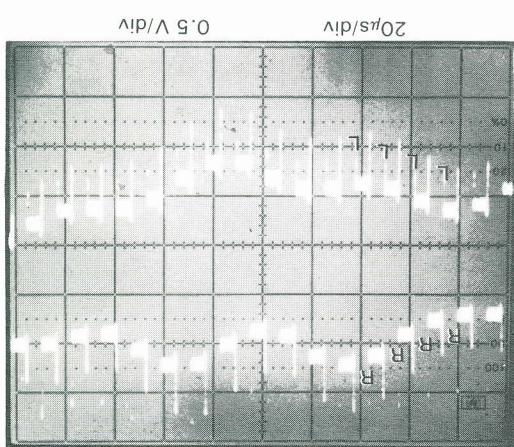
(C) Focus signal when a loaded disc starts
to be played
Strong signal is output when focus
starts to be obtained but it becomes
of small amplitude when it enters in
servo loop.



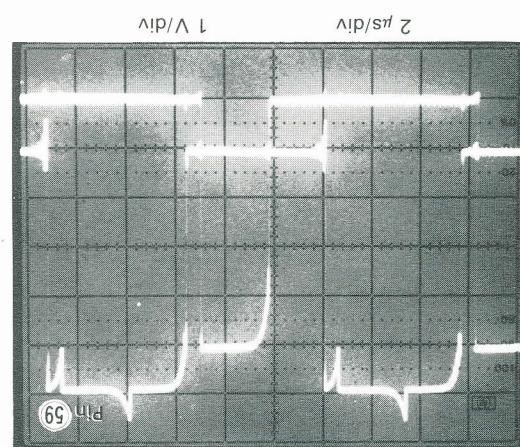
(B) Waveform when focus zero-cross is
started to play
Focus zero-cross signal just before
play starts; pulse width is about
10 ms.



(A) Output waveform of focus zero-cross
minus pulse is generated when focus
starts to play.



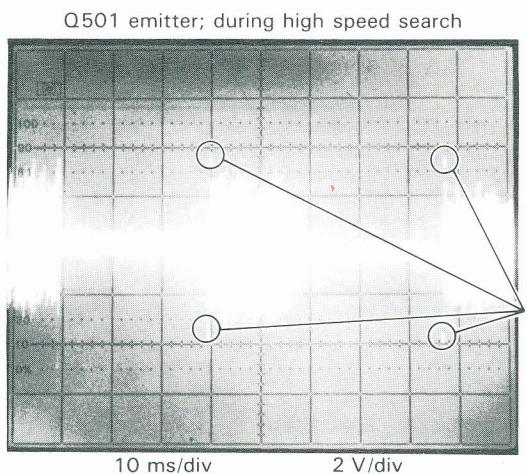
18. L/R switching signal and digital switching signal
Waveform showing that R and L are output alternately.
19. AF signal switched after D/A



Pin 59) is at "L" level.
Pin 61) is input when switch signal
L digital signal (Pin 61) is input when switch signal
L digital switching signal (Pin 59) is at "L" level.
Output.

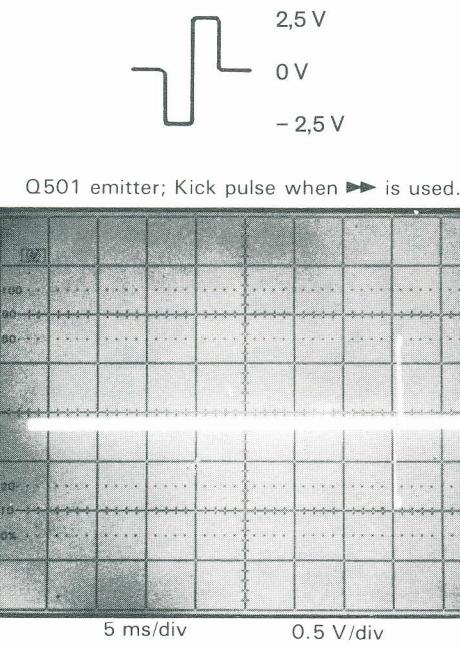
13. Drive waveform during high speed search

Output such as noise is output when track is crossed.



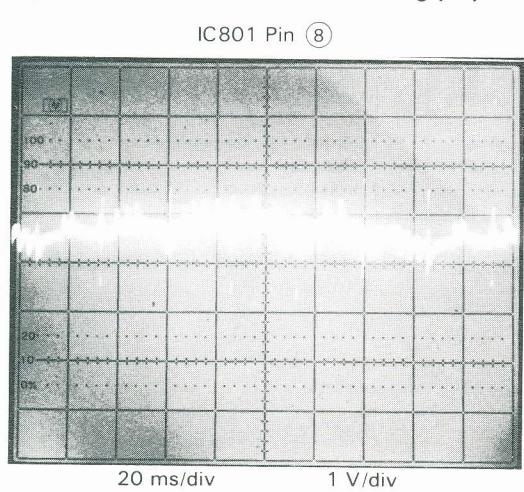
14. Kick pulse when searching

When advancing the track, waveform below is output.



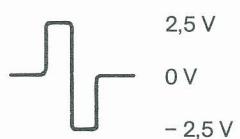
Note: Insert the LPF shown below between the test point and the measuring equipment.

15. Spindle motor drive waveform during play

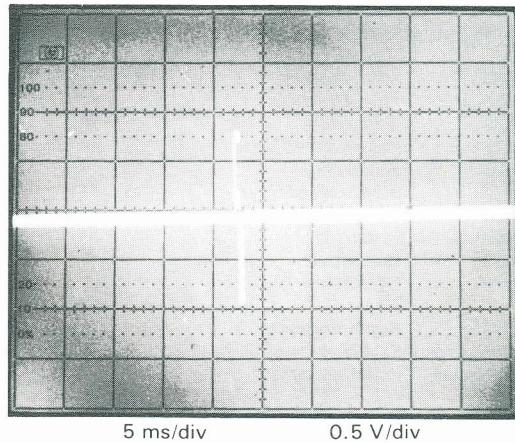


16. Kick pulse when searching

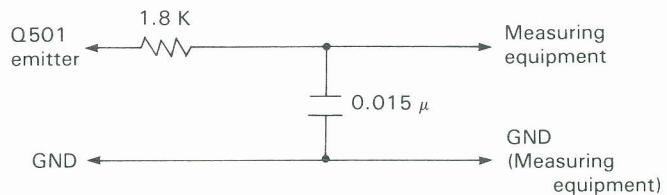
When returning the track, waveform below is output.



Q501 emitter; Kick pulse when ➡ is used.



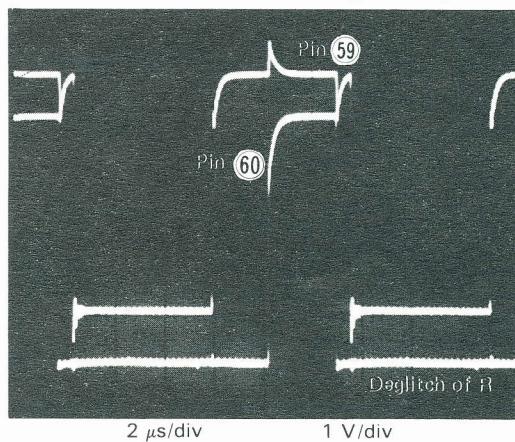
LPF circuit



17. L/R switching signal and deglitch signal of R

R deglitch signal (Pin ⑥〇) is input when switching signal (Pin ⑤〯) is at "H" level.

Waveforms of IC302 Pins ⑤〯 and ⑥〇



rsatzteile · Replacement parts · Pièces détachées · CD 1040

Pos.	Art.-Nr.	Stck	Bezeichnung
1	281 523	1	Gehäuseblech
2	281 545	5	Schraube
3	243 750	1	Netzkabel
4	281 542	1	Schraube
5	281 543	1	Scheibe
6	281 544	1	Distanzrolle
10	281 477	1	Netztrafo
11	281 541	1	Abdeckung
12	281 540	1	Netzplatte
MA 1	281 476	1	Schalter
13	281 533	1	Schaltstange
14	281 535	1	Taste (Power)
15	281 538	1	Distanzstück
16	281 478	1	Plattenhalter
17	281 526	1	Abdeckung
18	281 537	4	Gummidämpfer
19	281 539	4	Fuß
20	281 923	1	Tastensatz
21	281 929	1	Blendensatz
22	281 473	1	Frontblende
25	281 474	1	Kopfhörerplatte
IC 281	274 955	1	IC M 5218 L
P 281	281 475	1	Kopfhörerbuchse
28	281 934	1	IR-Empfängerplatte
D 270	281 513	1	LED SLH 56 VC 32
D 271	281 514	1	LED PH 302 C
IC 270	281 512	1	IC CX 20106 A
30	281 935	1	Anzeigeplatte
31	281 472	1	Anzeigelampe
D 203	281 494	5	Diode 1 SS 133 HV
D 204	281 494	5	Diode 1 SS 133 HV
D 205	281 494	5	Diode 1 SS 133 HV
D 206	281 494	5	Diode 1 SS 133 HV
D 207	281 494	5	Diode 1 SS 133 HV
Q 204	281 505	1	Transistor 2 SA 933 S
R 204	281 920	1	Steller 4,7 kΩ
IC 201	281 510	1	IC UPD 7514 G
IC 202	281 511	1	IC UPD 7564
LC 201	281 509	1	Anzeige
OS 250	281 515	1	Keramikfilter 700 kHz
32	281 936	9	Tastenplatte
SW 201	281 516	9	Microschalter
bis			
SW 209	281 516	9	Microschalter
35	281 524	1	Grundplatte
D 101	281 491	1	Diode S1VB 20
D 102	281 492	1	Diode S1WB 20
D 103	281 493	2	Diode BZX 79 C 13
D 104	281 493	2	Diode BZX 79 C 13
D 105	266 950	1	Diode RD 12 EB
D 351	281 494	3	Diode 1 SS 133 HV
D 352	281 494	2	Diode 1 SS 133 HV
D 401	281 495	1	Diode MTZ 5,1 B
D 402	281 496	1	Diode SVC 321-AWAA2
D 701	281 494	3	Diode 1 SS 133 HV
L 401	281 479	1	Spule
P 301	281 922	1	Cinchbuchse
Q 101	281 502	1	Transistor 2 SD 1505 F
Q 103	269 095	1	Transistor 2 SC 2060 Q
Q 104	281 504	1	Transistor 2 SA 934 R
Q 351	281 505	4	Transistor 2 SA 933 S
Q 401	274 774	7	Transistor 2 SD 1302 T
Q 451	274 774	7	Transistor 2 SD 1302 T
Q 501	281 506	2	Transistor 2 SD 400 E
Q 502	281 507	2	Transistor 2 SB 544 E
Q 503	274 774	7	Transistor 2 SD 1302 T
Q 504	274 774	7	Transistor 2 SD 1302 T

Pos.	Art.-Nr.	Stck	Bezeichnung
Q 506	281 505	4	Transistor 2 SA 933 S
Q 552	274 774	7	Transistor 2 SD 1302 T
Q 553	281 505	4	Transistor 2 SA 933 S
Q 554	281 506	2	Transistor 2 SD 400 E
Q 555	281 507	2	Transistor 2 SB 544 E
Q 601	273 842	1	Transistor 2 SC 535 C
Q 602	247 645	1	Transistor 2 SC 458 D
Q 603	281 508	1	Transistor 2 SA 1029 C
Q 651	281 505	4	Transistor 2 SA 933 S
Q 652	269 146	2	Transistor 2 SC 1740 S
Q 653	269 146	2	Transistor 2 SC 1740 S
Q 803	274 774	7	Transistor 2 SD 1302 T
R 101	281 501	2	Sicherungswiderstand 10/5%/1W
R 102	281 501	2	Sicherungswiderstand 10/5%/1W
R 505	281 920	2	Steller 4,7 kΩ
R 509	281 498	1	Steller 220 kΩ
R 521	281 920	2	Steller 4,7 kΩ
R 555	281 499	1	Steller 100 kΩ
CP 101	281 480	2	Schutzschaltung ICP-N20T1
CP 102	281 480	2	Schutzschaltung ICP-N20T1
IC 101	271 075	1	IC NJM 78 M 05 A
IC 301	281 481	1	IC HM 6116 ASP-20
IC 302	281 482	1	IC YM 2601 K
IC 303	281 483	1	IC PCM 54 HP
IC 304	281 484	1	IC BU 4053 B
IC 305	281 485	2	IC BX 7347 C
IC 306	281 485	2	IC BX 7347 C
IC 401	281 486	1	IC YM 3811
IC 402	281 487	1	IC M 5209 L
IC 501	281 488	1	IC NJM 072 S
IC 502	281 489	1	IC NJM 2901 N
IC 503	274 955	3	IC M 5218 L
IC 504	274 955	3	IC M 5218 L
IC 801	281 490	1	IC STA 341 M
IC 851	274 955	3	IC M 5218 L
QS 301	281 500	1	Quarz 8,6436 MHz
RA 601	281 497	1	Widerstandsnetzwerk 4x4,7
40	281 517	1	CD-Laufwerk
41	281 518	1	Andruckarm
42	281 551	1	Plattenteller
43	281 549	2	Riemen
44	281 503	1	Antriebsrolle
45	281 918	1	Antriebsrad
46	281 916	1	Achse
47	281 919	1	Zwischenrad
48	281 522	1	Motor
49	281 548	1	Schalter
50	281 521	1	Discmotor
51	281 547	1	Abdeckung
52	281 905	2	Mutter
53	281 911	1	Halbewinkel
54	281 914	1	Achse
55	281 932	1	CD-Pickup
57	281 546	1	Zwischenrad
58	281 912	1	Pickup Support
59	281 917	1	Mutter
60	281 915	1	Feder
61	281 520	1	Schalter
65	281 907	1	Zwischenrad
66	281 906	1	Schraube
67	281 904	1	Hauptrad
68	281 913	1	Feder
69	281 550	1	Antriebsrad
70	281 908	1	Antriebsritzel
72	281 909	1	Zwischenrad
73	281 910	1	Hebel
74	281 519	1	Motor (Schlitten)
80	281 921	1	RC 1040 Fernbedienung
	226 817	1	Cinchkabel
	280 881	1	Bedienungsanleitung CD 1040
	281 933	1	Verpackung kpl.

Änderungen vorbehalten! Subject to change! Sous réserve de modification!

