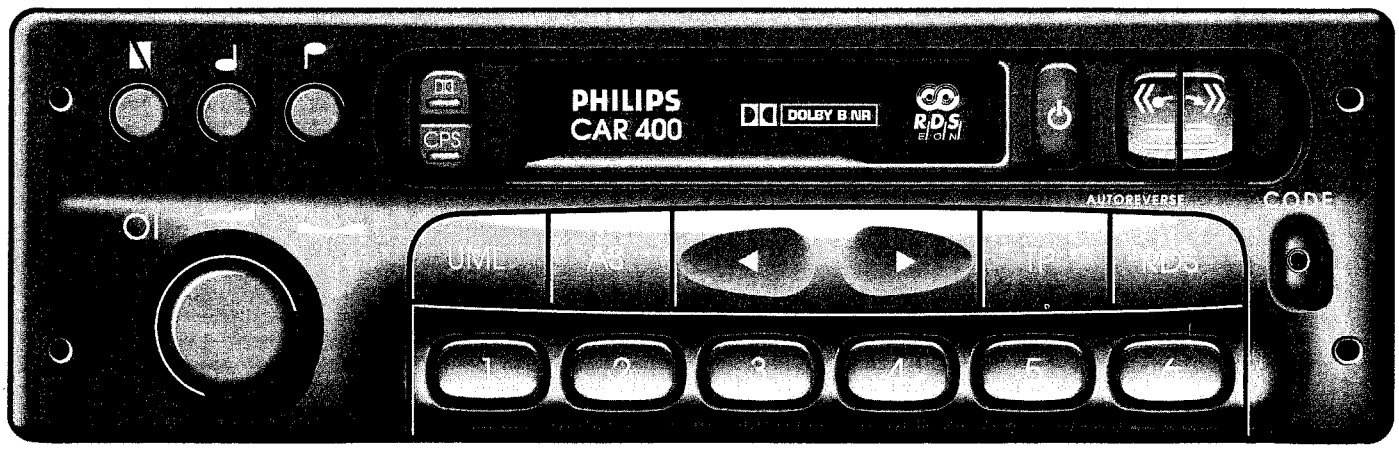
Cassette Car Radio 22 DC 396/75

Service
Service
Service

For repair instructions of the cassette deck see Service Manual LCA *2-4 (4822 725 23523)

Service Manual

12 V



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TECHNICAL DATAS

General

Power supply	9,0 V.....15,6 V
Currents	< 3 mA (set off)
	< 1,1 A (Radio mode, Volume 0)

Radio

FM frequency range	87,5–108 MHz
AM frequency range	153–1620 KHz (MW 530–1620) (LW 153–288)
Search grids	FM: 100 KHz
	MW – default: 9 KHz (autosearch) / 1 KHz (manual search), range 531-1602 KHz
	MW – optional:10 KHz (autosearch) / 1 KHz (manual search), range 530-1620 KHz
	LW: 9 KHz (autosearch) / 1 KHz (manual search)
Presets	6 FM, 6 FM – AS, 6 MW, 6 MW – AS, 6 LW
Sensitivity 26 dB S/N	FM: < 8 dBµV (MONO)
	MW: < 30 dBµV
	LW: < 30 dBµV

Cassette

Number of tracks	2x2
Tape speed	4,76 cm/s +/- 2%
Crosstalk	> 40 dB
Dolby	B
MSS	- 44 dB / 3..6 s
Winding time	~ 100 s (C60)

Amplifier

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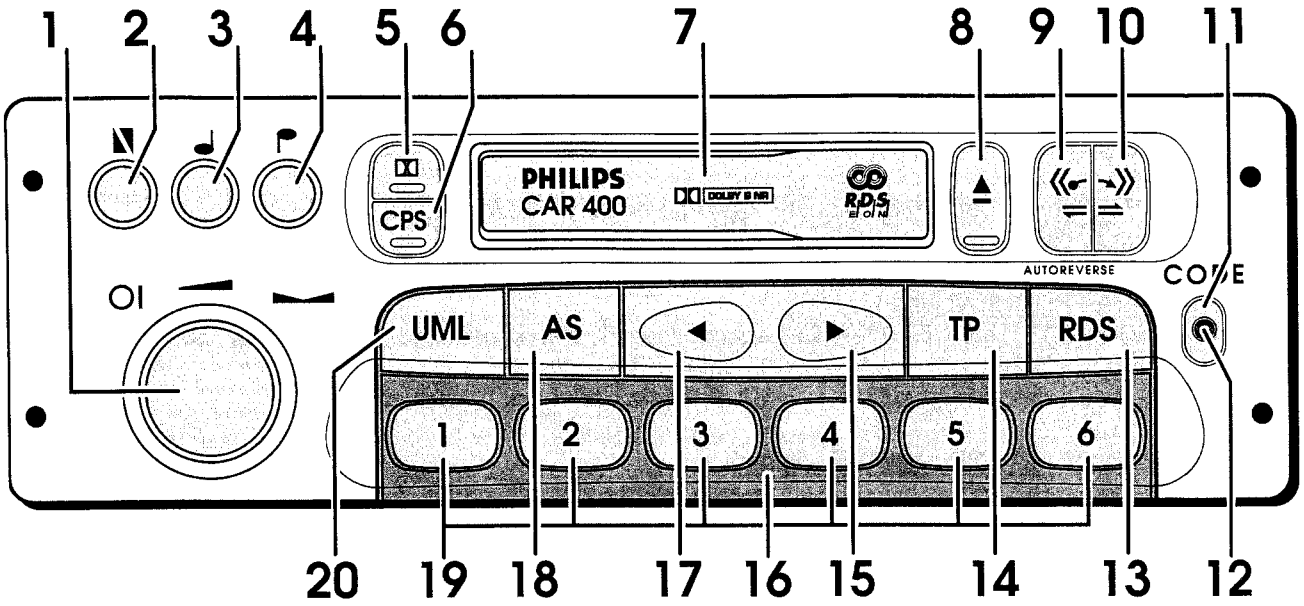
Output	4 x 7 W (max) at 4 Ω load
Channel separation	> 30 dB
Bass	+/- 12 dB (80 Hz), 2 dB grids
Treble	+/- 12 dB (10 KHz), 2 dB grids
Telefonvolume	10 mW +/- 7,5 dB, 2,5 dB grids



RADIO CONTROLS

1. On/Off, Volume, Balance
push: on/off (see also on/off-automatic)
turn: adjust volume
pull-turn: adjust balance

2. Fader
push: sink and release the button
turn: adjust fader

3. Bass
push: sink and release the button
turn: adjust bass

4. Treble
push: sink and release the button
turn: adjust treble

5. Dolby
push: switch DOLBY B on/off

6. CPS (CASSETTE PROGRAM SEARCH)
push: MSS on/off

7. Cassette flap

8. Cassette standby
push: switch between cassette and radio mode

9. FRW

push down:	– while normal cass. mode:	fast rewind (radio during wind)
	– while CPS-mode:	wind back to the beginning of actual track (no radio during wind)
	– together with FFW button:	eject cassette
push half:	– while fast forward wind:	stop fast forward and playback from the current tape position
	– together with FFW button:	change play direction

10. FFW

push down:	– while normal cass. mode:	fast forward wind (radio during wind)
	– while CPS-mode:	wind to the beginning of next track (no radio during wind)
	– together with FRW button:	eject cassette
push half:	– while fast rewind:	stop fast rewind and playback from the current tape position
	– together with FRW button:	change play direction

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11. Release button
push: – release control panel, set will switch off

12. Blink LED – blinking when set off and code activ

13. RDS
push: RDS on/off, default=RDS on: programme name will be displayed instead of frequency.
hold: updates FM learn memory

14. TP (see also TA-, PHONE-volume)
push: TP on (TP), start TP (FM-RDS) search if no TP station selected, interrupt cass. during TA
push: – while TP on: TP off ( )
push-push: – while cass.mode + TA: TP off and switch back to cass. mode

15. Search up (see also TA-, SD-, PHONE-volume)
push: – while RDS off: search next receivable station (LOC level)
– while RDS+TP off: manual search up
– while RDS on: scroll stations off learn memory up

16. Detachable control panel set switches off when released

17. Search down (see also TA-, SD-, PHONE-volume)
push: – while RDS off: search next receivable station (DX level)
– while RDS+TP off: manual search down
– while RDS on: scroll stations off learn memory down

18. AS (see also CODE)
push: switches band from U to U-AS e.g. M to M-AS
hold: search for best stations and store them under presets U-AS e.g. M-AS

19. Presets 1...6
push: select stored stations of the preselected band
hold (2 s): store actual station
hold (5 s): switch REG ON/REG OFF for the concerned station, status will be briefly displayed
REG OFF is default, REG ON is briefly displayed after switch on

20. UML (see also SD-Volume)
push: scroll wavebands – U – M – L – U ...
– while cass. mode: station name e.g. frequency of actual station is displayed for ~5 sec.

STEERING WHEEL CONTROLS (SWC)
The SWC works in parallel to the radio controls.
They are recognized by the set (pin A2 of connectorblock) by different voltages.

+	volume up	1,28 V +/- 0,1 V
-	volume down	0,73 V +/- 0,1 V
o	source selection (radio – cassette)	1,85 V +/- 0,1 V
>	search up	2,43 V +/- 0,1 V
<	search down	3,05 V +/- 0,1 V
->	scroll presets of selected band	3,66 V +/- 0,1 V

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ADDITIONAL FEATURES

1. On/Off Automatic

Automatic switch on
When the set is switched on it can be switched off and on with the ignition key (default)
This feature can be switched off as follows:
– ignition on, set off
– switch set on while holding 'PRESET 1' and 'PRESET 3' until bleep
Now the set can only be switched on and off with the the on/off button.
Proceed the same way to activate automatic switch on again.
Just before the confirmation bleeps the status IGNI ON or IGNI OFF is briefly displayed

Automatic switch off
You can switch on the set by pushing the on/off button although when the ignition is off.
After one hour it will switch off automatic.
This feature does not depend on the chosen automatic switch on mode.

2. GALA – individual volume adjustment (optional)

You can set the speed dependent volume control in 5 different levels (car dependent):
– push 'UML' for about 3 sec. until bleep, display shows SD-VOL 2 (default value)
– push '<' or '>' to get the wanted volume level (SD-VOL 0 = GALA OFF)
– push 'UML' for about 3 sec. until bleep to store the setting

3. Telefon

If a telephon is connected to the radio, PHONE will be displayed every time the telefon is switched on. Radio and cassette playback will be interrupted. The telefon audio signal can be reproduced via the speakers. The telefon volume can be set in 7 different levels (LEVEL -3....LEVEL +3; +/- 7,5 dB):
– switch set on while holding the 'TP' button depressed until bleep, display shows PH-VOL 2 (default value)
– push '<' or '>' to get the wanted volume level
– push 'TP' for about 3 sec. until bleep to store the setting
Telefon has priority over traffic announcement (ta). In case of a ta during a call the name of the TP station name will be displayed instead of PHONE. By pushing the 'TP' button you make the ta audible. Push 'TP' again to switch back to telefon audio reproduction.

4. TA Volume

You can set the TA volume in 7 different levels:
– push 'TP' for about 3 sec. until bleep, display will show TP-VOL 0 (default value)
– push '<' or '>' to get the wanted volume level (LEVEL -3....LEVEL +3)
– push 'TP' for about 3 sec. until bleep to store the setting.

5. Display adaptation

The radio can be connected to a 8 or 10 digit display.
To toggle between the display modes switch set on while holding PRESET 4 and PRESET 6 depressed until bleep. Status will be displayed.

6. Impuls setting

Depending on the car three different kinds of GALA impulses are generated.
To adapt the set to the corresponding impulses switch set on while holding UML and PRESET 1, 2 or 3 depressed until bleep. Status will be displayed.
Setting 1: 7000 impulses/Km (194 Hz)
Setting 2: 16000 impulses/Km (444 Hz)
Setting 3: 25000 impulses/Km (695 Hz)

8. Power on events

Besides switch on by pushing volume knob or by ignition key the set switches on when:
– a cassette is inserted (only when no cassette was in before switch off)
– the telefon is switched on. After telefon off the set switches off again, except another power on event happens during the call.

MW tuning step setting

The MW search tuning grids can be adapted to the different bands (EUROPE - 9 KHz, US - 10 KHz):
– switch set on while holding PRESET 2 and PRESET 5 depressed until bleep. Status will be displayed.

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SECURITY CODE HANDLING AND CONTROL PANEL MATCHING

Action	Displayed character
Activation and deactivation	
Push 'AS' while switching set on	CODE (for 3 sec.) - - -
Push presets '1...4'	Digits of code number changes
Push 'AS' 3 sec. until bleep	Mode information

When the Code is activated display briefly shows CODE after every power on.

Code entering after power interruption	
Switch power on	SAFE
Switch set off	
Push 'AS' while switching set on	SAFE (for 3 sec.) - 10 - - - - (10 = number of allowed entry trials)
Push presets '1...4'	Digits of code number changes
Push 'AS' 3 sec. until bleep	Mode information

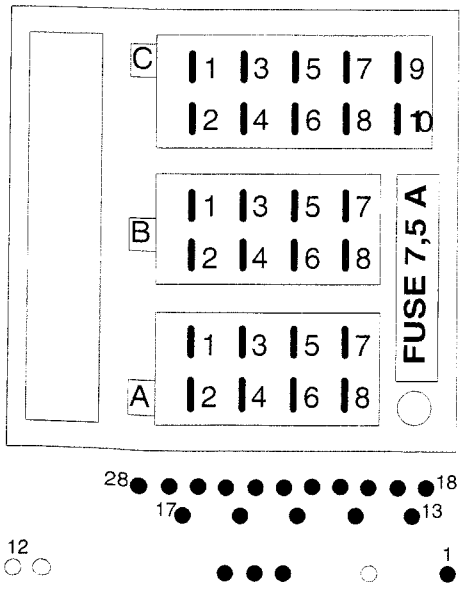
Wrong code	
Enter wrong code number 1st	SAFE (10 sec. waiting time) - 9 - - -
Enter wrong code number 2nd	SAFE (10 sec. waiting time) - 8 - - -
Enter wrong code number 3rd	SAFE (10 min. waiting time) - 7 - - -
Enter wrong code number 4th	SAFE (20 min. waiting time) - 6 - - -
Enter wrong code number 5th	SAFE (40 min. waiting time) - 5 - - -
Enter wrong code number 6th	SAFE (80 min. waiting time) - 4 - - -
Enter wrong code number 7th	SAFE (160 min. waiting time) - 3 - - -
Enter wrong code number 8th	SAFE (320 min. waiting time) - 2 - - -
Enter wrong code number 9th	SAFE (640 min. waiting time) - 1 - - -
Enter wrong code number 10th	SAFE (Eeprom to be reloaded !)

If you have to apply a **new detachable control panel** to a set you have to proceed as described under **Code entering** after the set shows PANEL.

! NOTE
If you have any problems with activation of security code or others which belongs to the code, send the set to:

Philips Apparatefabrik Wetzlar
Department SP-CS
Philipsstrasse 1
D-35576 Wetzlar
GERMANY

CONNECTORBLOCK 22DC396



C1: SDA DISPLAY	>5	C6: DIAGNOSE	>27
C2: SCL DISPLAY	>26	C7: NC	
C3: TEL. AUDIO IN	>14	C8: TEL. AUDIO GND	>9
C4: MRQ DISPLAY	>17	C9: NC	
C5: NC		C10: NC	
B1: RR+	>13	B5: FL+	>22
B2: RR-	>25	B6: FL-	>21
B3: FR+	>23	B7: RL+	>19
B4: FR-	>24	B8: RL-	>20
A1: GALA	>16	A5: SWITCHED + (AERIAL)	>4
A2: STEERING WHEEL CONTROL	>15	A6: EXT.ILL.	>2
A3: TEL.MUTE	>28	A7: PERM.+	>1
A4: IGN.KEY	>3	A8: GND	>18

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PARAMETER SETTINGS

With this function several parameters of the car radio can be set to the wishes of the customer.
To reach the parameter setting menu switch set on while holding 'RDS' depressed for 5 sec. until bleep: Testmode A will be executed.
Push 'RDS' briefly to enter the first parameter P10 and all the next ones up to P55.
With 'PRESETS 1', 'PRESET 2' and 'PRESET 3' you can change the digits of the parameter values.
If no key is pushed within 10 sec. set will switch back to testmode A.

PAR-No.	Function	PAR-range	value range	default PAR	Grid	default value	EEPROM-location
	Tuner adjustments						
P10	TP maximum time out / auto tuning time cycle	01–0F	10–150 sec	06	10 sec	60 sec	A0 45
	RDS Parameter						
P16	TP synchronization break down time out cycle	01–0F	10–150 sec	0C	10 sec	120 sec	A0 4F
P17	TP-EON acceptance level for TA	35–C0	10–200 µV	8A	* 1	36 dBµV	A0 46
P18	FM memory, non RDS station acceptance level	35–C0	10–200 µV	8A	* 1	36 dBµV	A0 3F
P19	LV = Field strenght level	00–06		03	* 2		A0 42
P20	MP = Multipath reaction level	00–06		03	* 2		A0 44
P21	REL = Suppression counter release	40–C0		60	* 2		A0 41
P22	SUPP = Suppression counter	10–C0		96	* 2		A0 40
P23	NS = Noise reaction level	00–06		03	* 2		A0 43
P24	AF check agility static	11–30		1A	* 2		A0 4B
P25	AF check agility dynamic	02–05	0,2–0,5 sec	04	0,1 sec	0,4 sec	A0 4C
P26	Minimum duration between AF checks	02–14	0,2–2,0 sec	04	0,2 sec	0,8 sec	A0 4D
P27	AF minimum quality base	5A–80		74	* 2		A0 4E
	Audio controls						
P31	TA bass level	003–300	–6dB – +6dB	003	2 dB	–6 dB	A0 53
P32	TA treble level	003–300	–6dB – +6dB	001	2 dB	–2 dB	A0 54
P33	TA fader level	000–600	–15dB – 0dB	500	2,5 dB	–2,5 dB	A0 52
P34	Telephone bass level	003–300	–6dB – +6dB	002	2 dB	–4 dB	A0 59
P35	Telephone treble level	003–300	–6dB – +6dB	001	2 dB	–2 dB	A0 5A
P36	Telephone fader level	000–600	–15dB – 0dB	500	2,5 dB	–2,5 dB	A0 58
P37	Power on volume level	00–1A	–80dB – 0dB	06	* 3	–37 dB	A0 5E
	Speed dependent controls						
P41	SD-FRQ 1 (V1) / +2 dB BASS	00–FF	0–255 Km/h	46	1 Km/h	70 Km/h	A0 63
P42	SD-FRQ 2 (V2) / +2 dB BASS	00–FF	0–255 Km/h	78	1 Km/h	120 Km/h	A0 64
P43	SD-FRQ 3 (V3) / +2 dB BASS	00–FF	0–255 Km/h	28	1 Km/h	40 Km/h	A0 65
P44	SD-FRQ 4 (V4) / +2 dB BASS	00–FF	0–255 Km/h	5A	1 Km/h	90 Km/h	A0 66
P45	SD-FRQ 5 (V5) / +2 dB BASS	00–FF	0–255 Km/h	8C	1 Km/h	140 Km/h	A0 67
	Illumination						
P51	Illumination logic A/B	00–01	A-B	01	on/off	Logic B	A0 68
P52	Illumination level X0	00–FF		30	* 4	940 mV	A0 69
P53	Illumination level Y0	00–FF		30	* 4	18 %	A0 6A
P54	Illumination level X1	00–FF		BE	* 4	3,742 V	A0 6B
P55	Illumination level Y1	00–FF		BE	* 4	74,5 %	A0 6C

*1 see table 'Representation of fieldstrenght'
*2 synthetic values for receiver subsystem
*3 see table 'volume levels'
*4 see figure 'illumination conversion curve'

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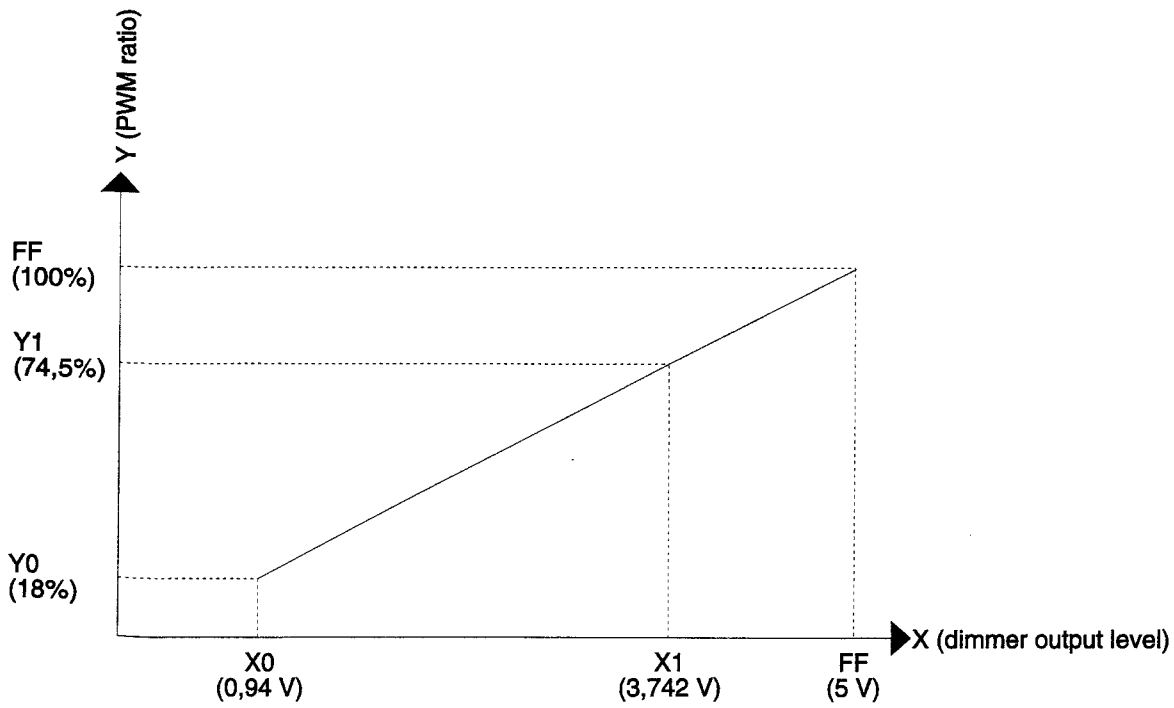
REPRESENTATION OF FIELDSTRENGHT

Hex	µV	dBµV	Hex	µV	dBµV	Hex	µV	dBµV	Hex	µV	dBµV
F0	562	55	C0	200	46	8E	71	37	5E	25	28
EB	501	54	BA	178	45	8A	63	36	58	22	27
E7	447	53	B4	158	44	82	56	35	53	20	26
E4	398	52	AE	141	43	7E	50	34	4D	18	25
DB	355	51	AB	126	42	76	45	33	48	16	24
D5	316	50	A6	112	41	73	40	32	41	14	23
D2	282	49	A0	100	40	6D	35	31	3E	13	22
CC	251	48	9A	89	39	68	32	30	38	11	21
C6	224	47	95	79	38	63	28	29	35	10	20

VOLUME LEVELS

Hex	Level (dB)	Hex	Level (dB)	Hex	Level (dB)
00	- 80	09	- 29	12	- 15
01	- 70	0A	- 26	13	- 14
02	- 60	0B	- 24	14	- 13
03	- 51	0C	- 23	15	- 12
04	- 45	0D	- 21	16	- 11
05	- 41	0E	- 20	17	- 10
06	- 37	0F	- 19	18	- 7
07	- 34	10	- 17	19	- 4
08	- 31	11	- 16	1A	0

ILLUMINATION CONVERSION CURVE



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TESTMODE

Push 'RDS' for 5 sec. until second bleep to activate testmode.
– Display shows hardware/software version of the set for 1 sec. (test mode IDENT):

8-digit display	HHHHSSSS	H = Hardware version		
10-digit display	■■HHHHSSSS	S = Software version (0130 = Mask RC1)		

Testmode A

8-digit display:	AQSXFFF.F	A = Fieldstrenght	0-F	(F=good)
		Q = Quality	0-F	(F=good)
	CPS □□ CR	S = Suppression counter	0-F	(F=good)
		X = Switching reasons	1-F	(see table next page)
		FFF.F = Frequency	MHZ	
10-digit display	VWAQSXFFF.F	CPS = RDS sync.state		on=locked
		□□ = PI code verification state		on=verified
	CPS □□ CR	Cr+blinking LED = AF change request		on=request
		V = Waveband		
		W = Preset number		

During test mode A all tuner features are accessible except RDS on/off.

– to leave testmode A push 'RDS' again for 5 sec. or switch set off.
– to reach testmode B push 'RDS' briefly, display shows PI code and frequency of the leader for 3 sec. (test mode PI):

8-digit display	PPPPFFF.F	P = PI Code
10-digit display	■■PPPPFFF.F	FFF.F = Frequency

Testmode B (if no key is pushed for 10 sec. set will switch back to testmode A)

Testmode LEADER (memorized values of the leader frequency)

8-digit display	■QAMNIRP	Q = Quality	0-F	(F=good)
		A = Fieldstrenght	0-F	(F=good)
	CPS	M = Multipath	0-F	(0=good)
		N = Noise	0-F	(0=good)
		I = Neighbor channel disturbance	0-3	(0=good)
10-digit display	■■■QAMNIRP	R = RDS sync.state	0-F	(F=good)
		P = PI confidence level	0-F	(F=good)
	CPS	CPS = AF connection attribute		on=AF in link list

– to get information about the alternative frequencies linked to the leader push ◄ or ►.

Testmode AF FREQUENCY (memorized quality of AF frequency, displayed for about 3 sec.)

8-digit display	F■Q■FFF.F	F = Testmode AF FREQUENCY indication		
		Q = Quality	0-F	(F=good)
10-digit display	■■F■Q■FFF.F	FFF.F = Frequency	MHZ	

Testmode AF VALUATED (memorized values of alternative frequencies, displayed for about 5 sec.)

8-digit display	V■AMNIRP	V = Testmode AF VALUATED indication		
		A = Fieldstrenght	0-F	(F=good)
	CPS	M = Multipath	0-F	(0=good)
		N = Noise	0-F	(0=good)
		I = Neighbor channel disturbance	0-3	(0=good)
10-digit display	■■V■AMNIRP	R = RDS sync.state	0-F	(F=good)
		P = PI confidence level	0-F	(F=good)
	CPS	CPS = AF connection attribute		on=AF in link list

Testmode AF CURRENT (current values of alternative frequencies, displayed for about 5 sec.)

8-digit display	C■AMNIR■	C = Testmode AF CURRENT indication		
		A = Fieldstrenght	0-F	(F=good)
		M = Multipath	0-F	(0=good)
		N = Noise	0-F	(0=good)
		I = Neighbor channel distance	0-3	(0=good)
10-digit display	■■C■AMNIR■	R = RDS sync.state	0-F	(F=good)

During testmodes AF Frequency, AF valuated, AF Current a next or previous AF can be selected with ◄ or ►

Switch set off to leave the testmode.

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Indications for AF switching reasons

0 unused
1 weak field strenght
2 weak multipath
3 weak field strenght and weak multipath
4 strong multipath
5 strong multipath and weak field strenght
6 very strong multipath
7 very strong multipath and weak field strenght
8 adjacent channel distortion
9 adjacent channel distortion and weak field strenght
A adjacent channel distortion and weak multipath
B adjacent channel distortion, weak multipath and weak field strenght
C adjacent channel distortion and strong multipath
D adjacent channel distortion, strong multipath and weak field strenght
E adjacent channel distortion and very strong multipath
F adjacent channel distortion, very strong multipath and weak field strenght

Check On/Off-Logic

If one of the following conditions is not fulfilled the on/off logic can not function properly.
Before you check or adjust other parts of the set you have to eliminate the fault.

Set off, ignition off

IC 7701 PIN 4 = > 3,8 V
IC 7701 PIN 5 = 0,0 V
IC 7701 PIN 7 = 5,0 V
IC 7701 PIN 9 = 0,0 V
IC 7911 PIN 7 = 0,0 V
IC 7911 PIN 58 = > 3,4 V
IC 7911 PIN 62 = 0,0 V

Set off, ignition on

IC 7701 PIN 4 = < 0,5 V
IC 7701 PIN 5 = 5,0 V
IC 7701 PIN 7 = 5,0 V
IC 7701 PIN 9 = 5,0 V
IC 7911 PIN 7 = > 2,7 V
IC 7911 PIN 58 = 0,0 V
IC 7911 PIN 62 = 0,0 V

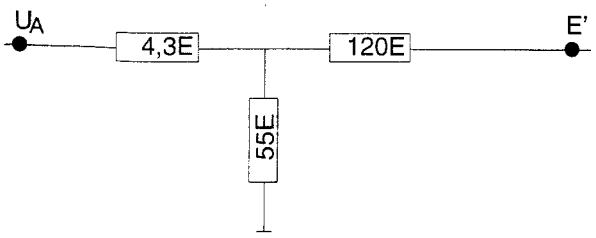
Set on, ignition off

IC 7701 PIN 4 = < 0,5 V
IC 7701 PIN 5 = 5,0 V
IC 7701 PIN 7 = 5,0 V
IC 7701 PIN 9 = 5,0 V
IC 7911 PIN 7 = 0,0 V
IC 7911 PIN 58 = 0,0 V
IC 7911 PIN 62 > 3,0 V

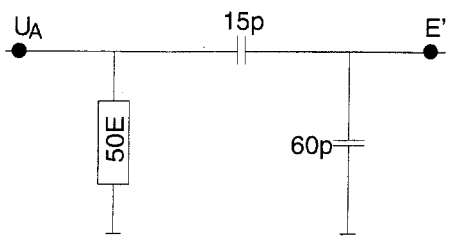
Set on, ignition on

IC 7701 PIN 4 = < 0,5 V
IC 7701 PIN 5 = 5,0 V
IC 7701 PIN 7 = 5,0 V
IC 7701 PIN 9 = 5,0 V
IC 7911 PIN 7 = > 2,7 V
IC 7911 PIN 58 = 0,0 V
IC 7911 PIN 62 = > 3,0 V

For all the following checks and alignments use Dummy-aerials according Philips PQR FDT-009-0561:
FM: -6 dB



AM: -14 dB



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CHECKS 22DC396

ITEM	SIGNAL	TUNE/ADJUST	POINT OF MEASURE	VALUE
1.	Demodulated FM level			
1.1	FM 94,1MHz, 1mV, AF=1KHz, Δf=22,5KHz	FM 94,1MHz	Pos.7300 (TEA6821) pin 43	AC 210 mV +/-40 mV
1.2	94,1MHz, 1mV, AF=19KHz, Δf=6,75KHz			AC 60 mV +/-10 mV
1.3	FM 94,1MHz, 1mV, AF=57KHz, Δf=3,75KHz			AC 30 mV +/-10 mV
2.	Demodulated AM level			
2.1	AM 1053KHz, 1mV, AF=1KHz, 30% mod.	AM 1053KHz	Pos.7300 (TEA6821) pins 41+44	AC 300 mV+/-50 mV
3.	Varicap voltages			
3.1		FM 87,5 MHz	Pos.7202 (TEA6811) pin 39	DC >1,2 V
		FM 108 MHz		DC <5,5 V
3.2		AM 153KHz		DC >1,6 V
		AM 1602KHz		DC <6,5 V
4.	Search sensitivities			
4.1	FM 94,1MHz, 20µV, AF=1KHz, Δf=22,5KHz	Autosearch	Stop at 94,1MHz after third time run through	
4.2	AM 1053KHz, 20µV, AF=1KHz, 30% mod.	Autosearch	Stop at 1053KHz after third time run through	
5.	Signal/Noise ratio			
5.1	FM 98MHz, 11µV, Δf=22,5KHz, AF=1KHz	FM 98MHz	CONN.BLOCK pins B3, B5	Referencelevel (0 dB)
	FM 98MHz, 11µV, Δf=22,5KHz, no modulation			– 26 dB
5.2	AM 1053KHz, 30µV, 30% mod., AF=1KHz	MW 1053KHz		Referencelevel (0 dB)
	AM 1053KHz, 30µV, no modulation			– 26 dB
5.3	AM 207KHz, 30µV, 30% mod., AF=1KHz	LW 207KHz		Referencelevel (0 dB)
	AM 207KHz, 30µV, no modulation			– 26 dB

NOTE !
FM- and AM- search sensitivities are only programable with a special equipment via software. If you get sets with this adjustments out of specification, send them to factory service in Wetzlar until further notice.

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GERMANY

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ADJUSTMENTS 22DC3

ITEM	SIGNAL	REGULATOR	POINT OF MEASURE	VALUE
1.	IC91			
1.1	No signal	Pos.5201	Pos.7202 (TEA6811) pin 39	DC 1,35 V +/-50 mV
1.2	FM 88MHz, no modulation	Pos.5100	Pos.7300 (TEA6821) pin 50	DC max
1.3	FM 104MHz, no modulation	Pos.2226	Pos.7300 (TEA6821) pin 50	DC max
	The loop 1.1 - 1.3 must be checked again and adjusted if necessary, leave the loop after item 1.1			
1.4	FM 98MHz, no modulation	Pos.5208	Pos.7300 (TEA6821) pin 50	DC max
		Pos.5209	Pos.7300 (TEA6821) pin 50	DC max
		Pos.5210	Pos.7300 (TEA6821) pin 50	DC max
1.5	AM 1053KHz, 1mV, AF=1KHz, 30% mod.	Pos.5301	Pos.7300 (TEA6821) pin 50	DC max
2.	α-3dB			
2.1	FM 98MHz, 1mV, AF=1KHz, Δf=22,5KHz	VOLUME	CONN.BLOCK pins B3, B5	Referencelevel (0 dB)
2.2	FM 98MHz, 4,5µV, AF=1KHz, Δf=22,5 KHz	Pos.3321	CONN.BLOCK pins B3, B5	Referencelevel - 3 dB
3.	10 dB Channelseparation			
3.1	FM 98MHz, 125µV, AF=1KHz, Δf=22,5KHz, 10% Stereopilot	Pos.3322	CONN.BLOCK pin B3<->B5	10 dB +/-1 dB
4.	Channelseparation maximum			
4.1	FM 98MHz, 1mV, AF=1KHz, Δf=22,5KHz, 10% Stereopilot	Pos.3320	CONN.BLOCK pin B3<->B5	> 25 dB
	Check α-3dB again and adjust if necessary			
5.	Noise detector			
5.1	FM 98MHz, 1mV, AF=40KHz, Δf=75KHz	Pos.3426	Pos.7420 (TL074) pin 14	AC 850 mV +/-80 mV
6.	Dolby			
6.1	CC 200nWb/m, 400Hz (SBC 419)	Pos.3540	Pos.7510 (TEA0675T) pin 17	AC 385 mV
		Pos.3543	Pos.7510 (TEA0675T) pin 8	AC 385 mV

Regulators on positions 3303, 3319, 5206, 5207, 5302 are not relevant for adjustments - do not change the preadjusted values !

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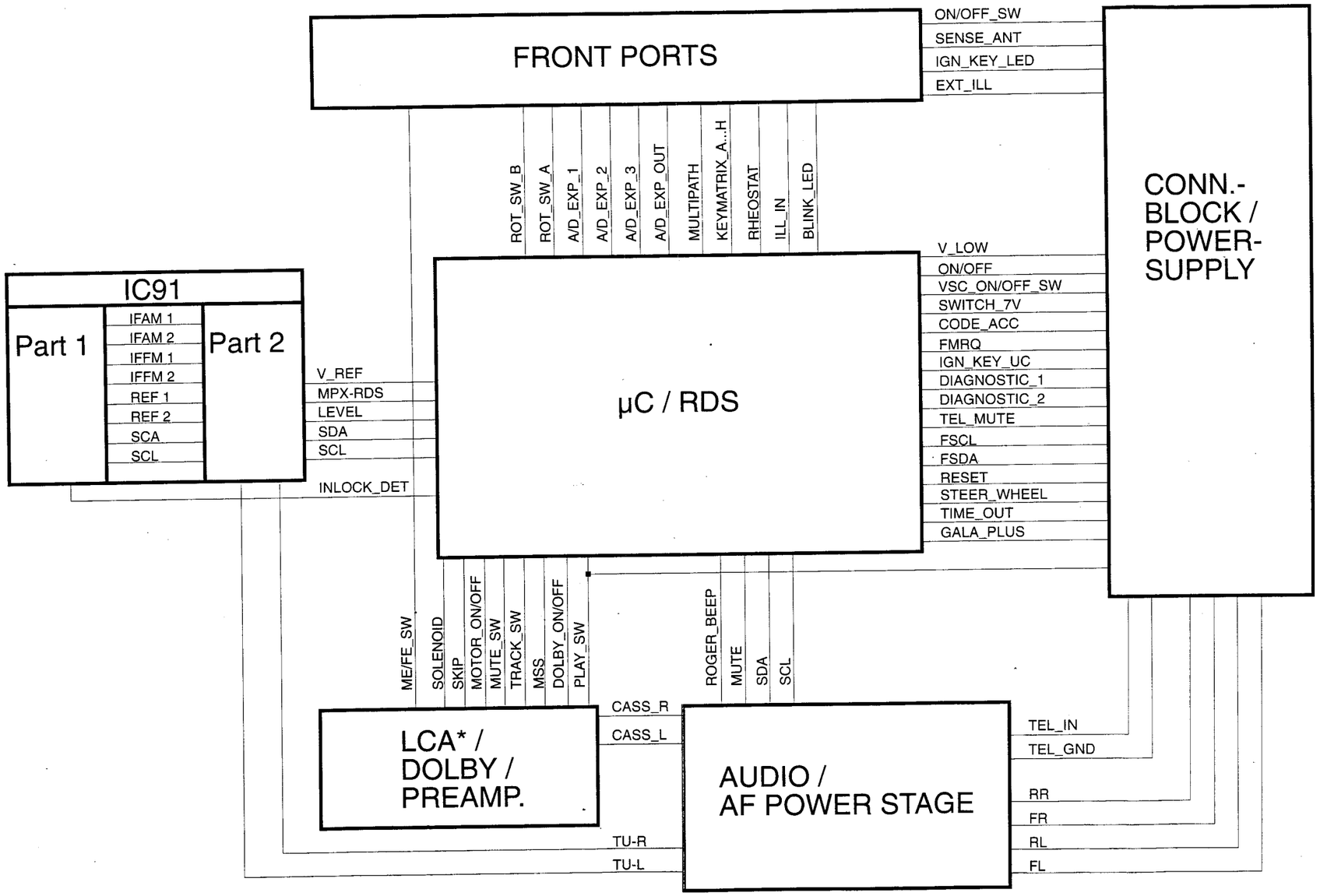

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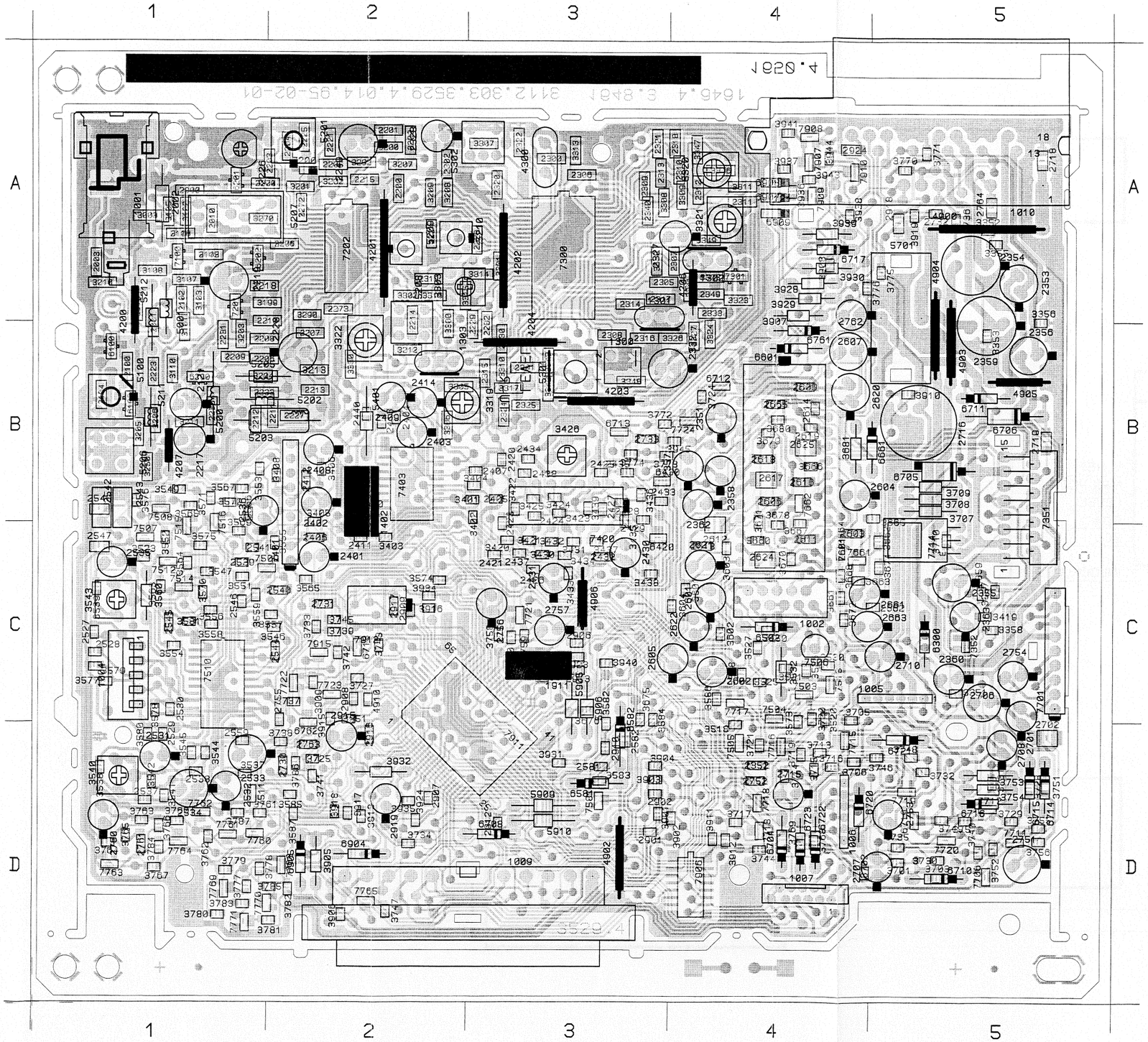

1001 A 1	2306 A 3	2437 C 3	2751 D 5	3308 A 3
1002 C 4	2307 A 4	2438 B 3	2752 D 4	3309 A 4
1004 C 1	2308 B 3	2440 B 2	2753 D 5	3310 B 3
1005 C 5	2309 A 3	2527 C 1	2754 C 5	3311 A 4
1006 D 4	2310 A 4	2528 C 1	2755 C 2	3313 A 3
1007 D 4	2311 A 4	2529 D 1	2756 C 3	3314 A 3
1009 D 3	2312 A 4	2530 C 1	2757 C 3	3315 A 2
1010 A 5	2313 A 3	2531 D 1	2760 D 1	3316 A 2
1300 B 3	2314 A 3	2532 D 1	2761 D 1	3317 B 3
1301 A 3	2315 B 3	2533 D 1	2762 A 4	3318 A 3
1302 A 4	2316 B 3	2534 D 1	2763 D 2	3319 B 2
1303 B 2	2317 A 3	2535 C 1	2764 A 5	3320 A 4
1402 B 2	2318 A 4	2536 B 1	2901 D 3	3321 A 4
1911 C 3	2319 A 2	2537 D 1	2902 D 3	3322 B 2
2000 A 1	2320 A 3	2538 D 1	2906 C 3	3323 A 4
2001 A 1	2321 A 3	2539 C 1	2907 D 2	3324 B 4
2002 A 1	2322 A 3	2540 C 2	2908 C 2	3325 A 4
2003 A 1	2324 B 3	2541 C 1	2909 C 2	3326 B 4
2010 A 1	2325 B 3	2542 B 1	2910 D 3	3327 B 4
2016 A 1	2327 A 4	2543 B 1	2912 D 3	3330 B 2
2100 B 1	2328 A 2	2544 C 2	2913 C 3	3341 A 4
2102 A 1	2330 B 3	2545 C 1	2914 C 3	3342 B 3
2104 B 1	2332 B 3	2546 C 1	2915 D 2	3343 B 3
2105 A 1	2333 A 4	2547 C 1	2916 D 2	3346 A 4
2106 A 1	2340 A 3	2548 B 1	2917 C 2	3347 A 4
2121 B 1	2349 A 4	2559 D 1	2918 A 5	3348 B 3
2200 A 2	2351 B 4	2581 D 3	2919 D 2	3349 A 4
2201 A 2	2352 D 4	2582 D 3	2923 C 3	3351 C 5
2202 A 2	2353 A 5	2601 C 4	2924 A 4	3352 A 5
2203 A 2	2354 A 5	2602 C 4	3003 A 1	3353 B 5
2204 A 2	2355 C 5	2603 C 4	3101 B 1	3355 A 5
2205 A 2	2356 B 5	2604 B 4	3102 A 1	3356 A 5
2206 B 1	2357 B 4	2605 C 4	3103 A 1	3357 C 5
2207 B 2	2358 B 4	2606 B 4	3104 A 1	3358 C 5
2208 B 1	2359 B 5	2607 B 4	3105 A 1	3359 C 5
2209 B 1	2360 C 5	2609 B 4	3106 A 2	3401 B 3
2210 A 1	2362 B 4	2611 C 4	3107 A 1	3402 B 3
2211 B 2	2363 C 5	2612 C 4	3108 A 1	3403 C 2
2212 B 1	2401 C 2	2613 C 4	3110 B 1	3404 B 3
2213 B 2	2402 B 2	2614 B 4	3112 A 1	3405 B 2
2214 A 2	2403 B 2	2616 B 4	3113 A 1	3406 B 2
2215 A 2	2404 B 2	2617 B 4	3199 A 1	3408 B 2
2217 B 1	2405 B 3	2618 B 4	3200 A 2	3419 C 5
2218 A 1	2406 C 2	2619 B 4	3201 A 2	3420 C 3
2219 A 1	2407 B 3	2620 B 4	3202 A 2	3421 C 3
2220 B 2	2408 B 2	2621 C 4	3203 B 1	3422 B 3
2221 A 2	2409 B 2	2622 C 4	3204 B 1	3423 B 3
2223 B 1	2410 B 2	2624 C 4	3205 B 1	3424 B 3
2224 A 2	2411 C 2	2625 B 4	3206 B 1	3425 B 3
2225 A 2	2412 B 2	2661 C 4	3207 A 2	3426 B 3
2226 A 1	2413 B 2	2662 C 5	3208 A 2	3430 C 3
2227 B 2	2414 B 2	2663 C 4	3209 A 2	3431 C 3
2228 A 3	2420 B 3	2665 B 4	3210 A 1	3432 C 3
2229 B 3	2421 C 3	2701 C 5	3211 B 1	3433 C 3
2230 B 1	2423 B 3	2702 D 5	3212 B 2	3434 C 3
2231 B 1	2424 B 3	2706 C 5	3213 B 2	3435 B 3
2232 B 3	2425 B 3	2707 D 5	3250 B 1	3436 B 3
2233 B 1	2426 C 3	2708 D 5	3270 A 1	3437 C 3
2249 A 2	2427 B 3	2710 C 5	3290 A 2	3438 C 3
2270 A 1	2428 B 3	2715 D 4	3292 A 2	3439 B 3
2271 A 2	2429 B 3	2716 B 5	3300 B 2	3518 D 4
2272 A 2	2430 C 3	2718 A 5	3301 A 3	3520 C 4
2273 A 2	2431 C 3	2719 B 5	3302 A 2	3523 C 1
2300 A 3	2432 C 3	2730 D 2	3303 A 2	3525 C 4
2301 B 3	2433 B 3	2731 C 2	3305 B 2	3527 C 4
2302 A 2	2434 B 3	2732 A 5	3306 B 2	3530 C 4
2305 A 3	2435 B 3	2733 B 3	3307 A 3	3531 C 4

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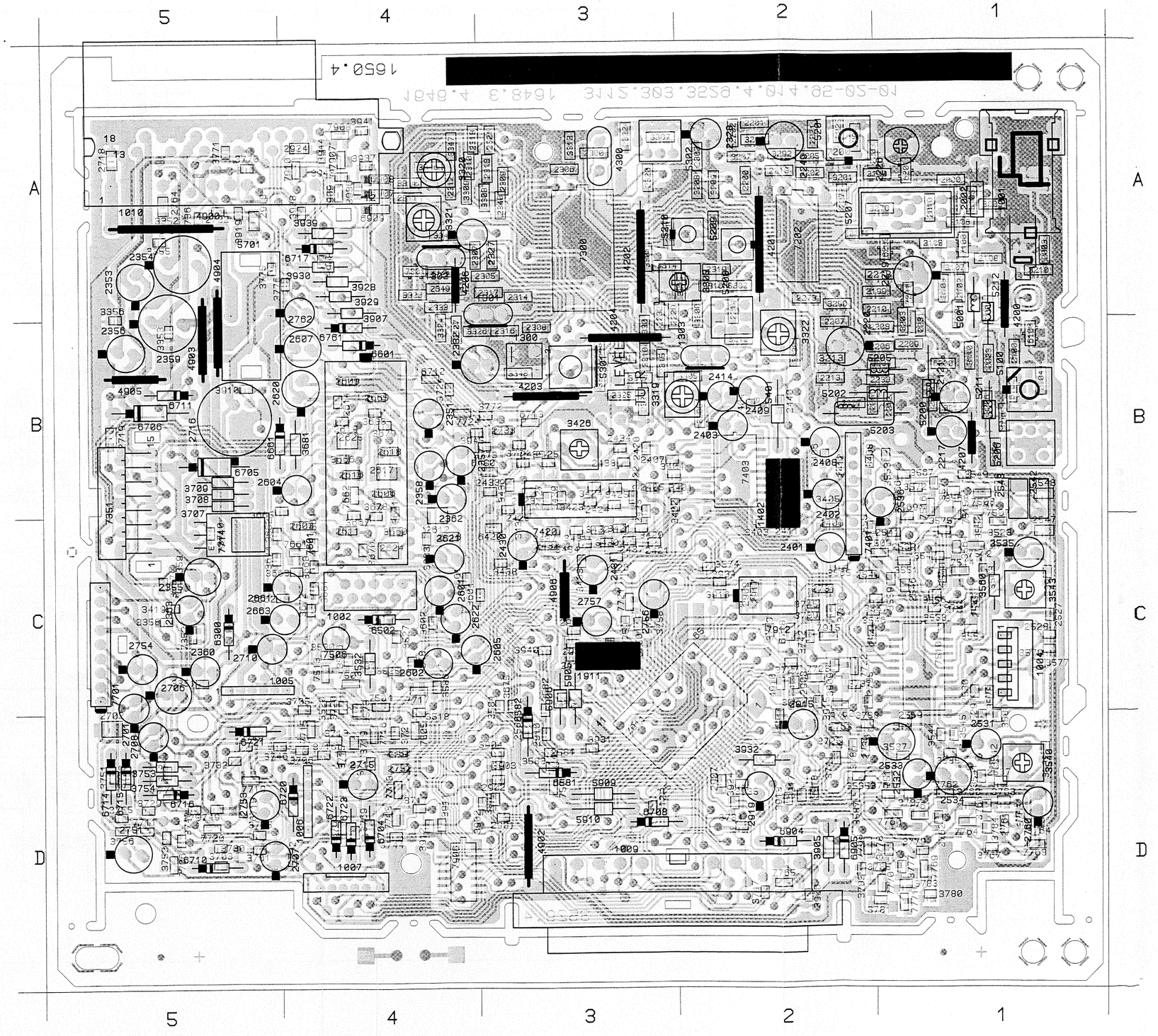
3532 C 4	3674 C 5	3768 D 4	4903 B 5	7201 A 1
3536 C 4	3675 C 3	3769 D 4	4904 B 5	7202 A 2
3537 D 1	3676 C 3	3770 A 5	4905 B 5	7300 A 3
3538 D 1	3678 C 4	3771 A 5	4906 C 3	7301 A 4
3539 C 1	3679 B 4	3772 B 3	4910 C 2	7351 B 5
3540 D 1	3680 B 4	3773 B 3	5001 A 1	7352 C 5
3541 D 1	3681 B 4	3774 B 3	5100 B 1	7401 B 2
3542 D 1	3701 D 5	3775 A 5	5200 B 1	7403 B 2
3543 C 1	3702 D 4	3776 A 4	5201 A 2	7420 B 3
3544 D 1	3703 D 5	3777 D 1	5202 B 1	7503 C 4
3545 D 1	3705 C 4	3778 D 1	5203 B 2	7504 C 4
3546 C 2	3706 D 4	3779 D 1	5205 B 1	7505 D 4
3547 C 1	3707 B 5	3780 D 1	5206 B 1	7506 C 4
3548 C 4	3708 B 5	3781 D 2	5207 A 1	7507 C 1
3549 B 1	3709 B 5	3782 D 2	5208 B 2	7508 B 1
3550 C 4	3710 C 5	3783 D 1	5209 A 2	7509 C 1
3551 C 1	3713 D 4	3784 D 1	5210 A 2	7510 C 1
3552 C 1	3714 D 4	3785 D 2	5211 B 1	7511 D 1
3553 B 1	3715 D 4	3786 D 2	5212 A 1	7512 C 1
3554 C 1	3716 D 4	3787 D 1	5301 B 3	7513 C 4
3555 C 2	3717 D 4	3901 D 3	5302 A 3	7514 C 1
3556 C 1	3719 D 4	3902 D 4	5401 B 2	7515 C 1
3557 C 2	3720 C 4	3903 D 3	5701 A 5	7516 B 1
3558 C 1	3721 D 4	3904 D 3	5905 C 3	7581 D 3
3559 C 1	3724 B 4	3905 D 2	5906 C 3	7601 B 4
3560 C 1	3725 D 2	3906 D 2	5909 D 3	7661 C 4
3563 C 1	3727 C 2	3907 A 4	5910 D 3	7662 B 4
3564 C 1	3728 D 5	3908 A 4	6100 B 1	7701 C 5
3565 C 2	3729 D 5	3909 C 2	6102 B 1	7706 D 5
3566 B 1	3730 D 5	3910 B 5	6200 B 1	7711 D 5
3567 B 1	3731 D 5	3911 D 4	6201 A 1	7712 D 5
3568 B 1	3732 D 5	3912 D 4	6202 A 1	7713 D 4
3569 C 1	3733 C 2	3913 D 2	6300 C 5	7714 C 5
3570 C 1	3734 D 2	3915 C 2	6420 C 3	7715 D 4
3571 B 1	3735 D 5	3916 C 2	6430 B 3	7716 D 4
3572 B 1	3736 A 5	3917 D 2	6502 C 4	7717 C 4
3573 C 4	3737 C 2	3918 D 2	6581 D 3	7718 D 4
3574 C 2	3738 D 2	3919 A 5	6582 D 3	7719 D 5
3575 C 1	3739 C 2	3924 D 2	6601 B 4	7720 D 5
3576 B 1	3740 D 5	3928 A 4	6661 B 5	7721 C 3
3577 C 1	3741 D 2	3929 A 4	6704 D 4	7722 C 2
3578 C 1	3742 C 2	3930 A 4	6705 B 5	7723 C 2
3579 C 1	3743 C 2	3931 D 3	6706 B 5	7724 B 4
3580 D 1	3744 D 4	3932 D 2	6708 D 3	7760 D 1
3581 C 1	3745 C 2	3934 C 2	6710 D 5	7761 D 1
3582 D 3	3746 D 5	3935 D 2	6711 B 5	7762 D 1
3583 D 3	3747 D 2	3936 A 4	6712 B 4	7763 D 1
3584 C 3	3748 D 5	3937 A 4	6713 B 3	7764 D 1
3585 D 2	3749 D 5	3938 A 4	6714 D 5	7765 D 2
3586 C 4	3750 C 3	3939 A 4	6715 D 5	7768 D 2
3587 D 2	3751 D 5	3940 C 3	6716 D 5	7769 D 1
3601 C 4	3752 D 5	3941 A 4	6717 A 4	7770 D 1
3602 C 4	3753 D 5	3943 A 4	6718 C 2	7771 D 1
3603 C 4	3754 D 5	3944 A 4	6719 D 5	7906 D 4
3604 C 4	3755 D 5	3945 B 4	6720 D 4	7907 A 4
3660 C 4	3756 D 5	3951 C 2	6721 D 5	7908 A 4
3661 C 4	3757 D 5	3958 C 3	6722 D 4	7909 A 4
3662 C 5	3758 C 3	4200 A 1	6723 D 4	7910 A 4
3663 C 4	3759 C 3	4201 A 2	6761 B 4	7911 D 2
3664 C 4	3760 D 1	4202 A 3	6762 C 2	7912 C 2
3665 B 5	3761 D 1	4203 B 3	6904 D 2	7915 C 2
3666 B 4	3762 D 1	4204 B 3	6905 D 2	
3667 B 4	3763 D 1	4206 A 4	6907 A 4	
3668 C 4	3764 D 1	4207 B 1	6908 A 4	
3670 C 4	3765 D 1	4300 A 3	6909 A 4	
3671 B 4	3766 D 1	4900 A 5	7100 A 1	
3672 C 4	3767 D 1	4902 D 3	7200 A 2	



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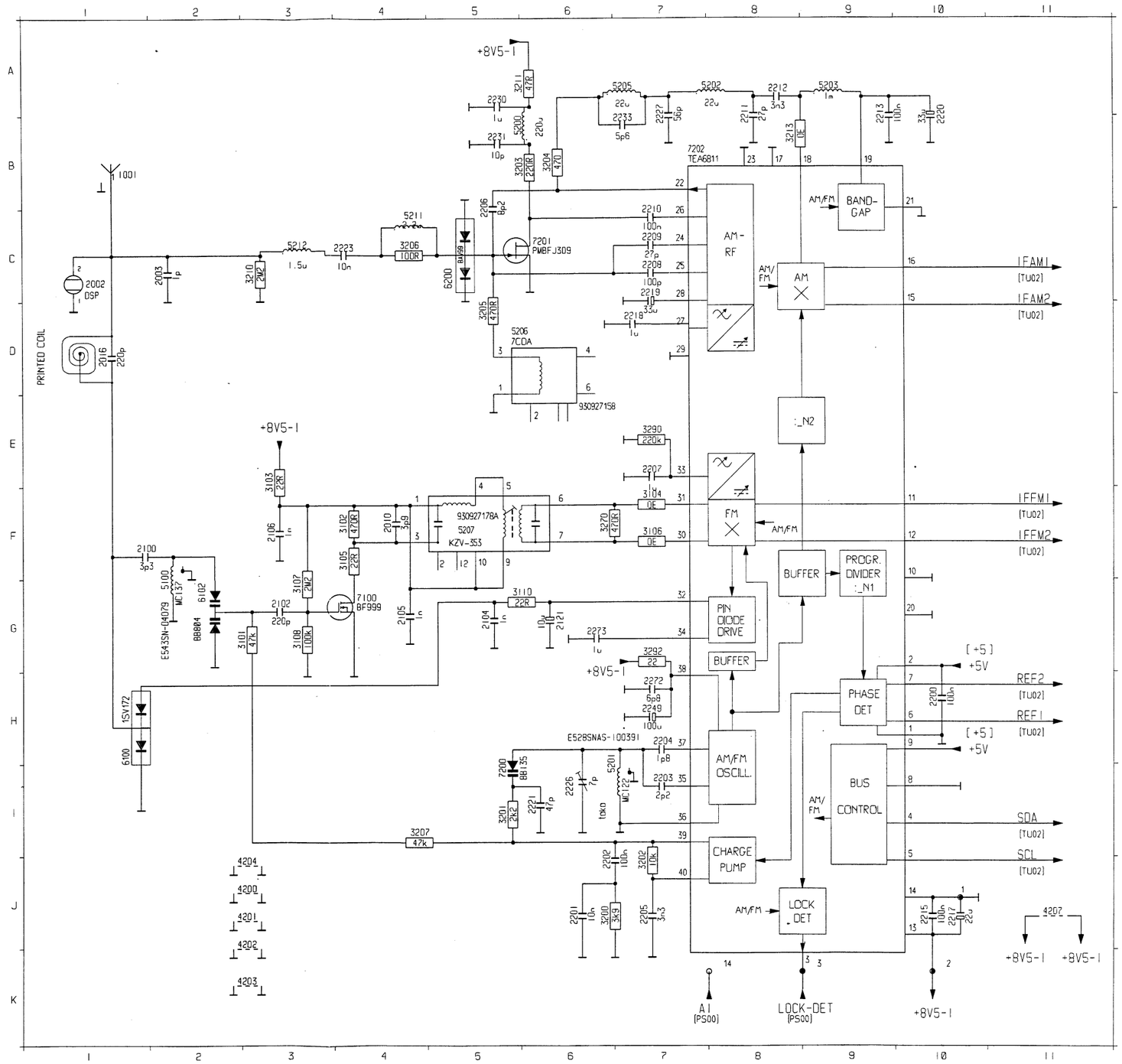
Pos.7100 BF999
D: 7,7 V
G: 0,3 V
S: GND
Pos.7201 PMBFJ309
D: 4,1 V
G: 0 V
S: GND
Pos.7202 TEA6811
1: GND
2: 4,9 V
3: 4,9 V
4: 4,9 V (SDA)
5: 4,9 V (SCL)
6: 4,7 V
7: 4,6 V
8: GND
9: 4,9 V
10: GND
11: 8,4 V
12: 8,4 V
13: 8,4 V
14: GND
15: 8,3 V
16: 8,3 V
17: GND
18: 0 V / 2,8 V (AM)
19: 0 V / 2,8 V (AM)
20, 21: GND
22: 0 V / 2,8 V (AM)
23: GND
24: 0 V / 2,8 V (AM)
25: 0 V / 2,8 V (AM)
26: 0 V / 0,7 V (AM)
27: 0 V / 3,2 V (AM)
28: 0 V / 1,5 V (AM)
29: GND
30: 3,0 V
31: 3,0 V
32: 0 V
33: 4,3 V / 7,6 V (AM)
34: 4,0 V / 7,8 V (AM)
35: 2,6 V
36: GND
37: 6,0 V
38: 8,3 V
39, 40: Varicap voltage

IC 91 Part I



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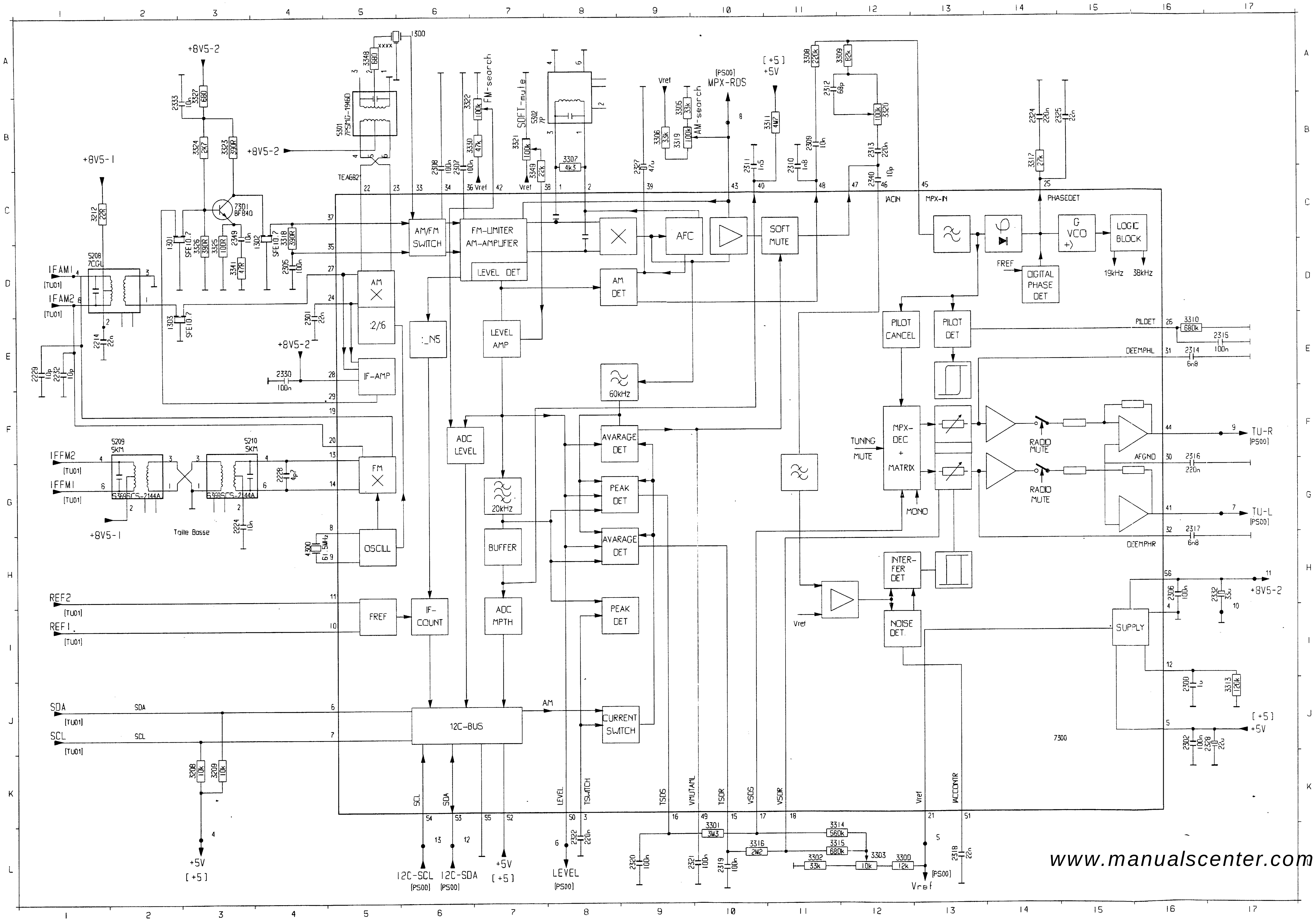
IC 91 Part II



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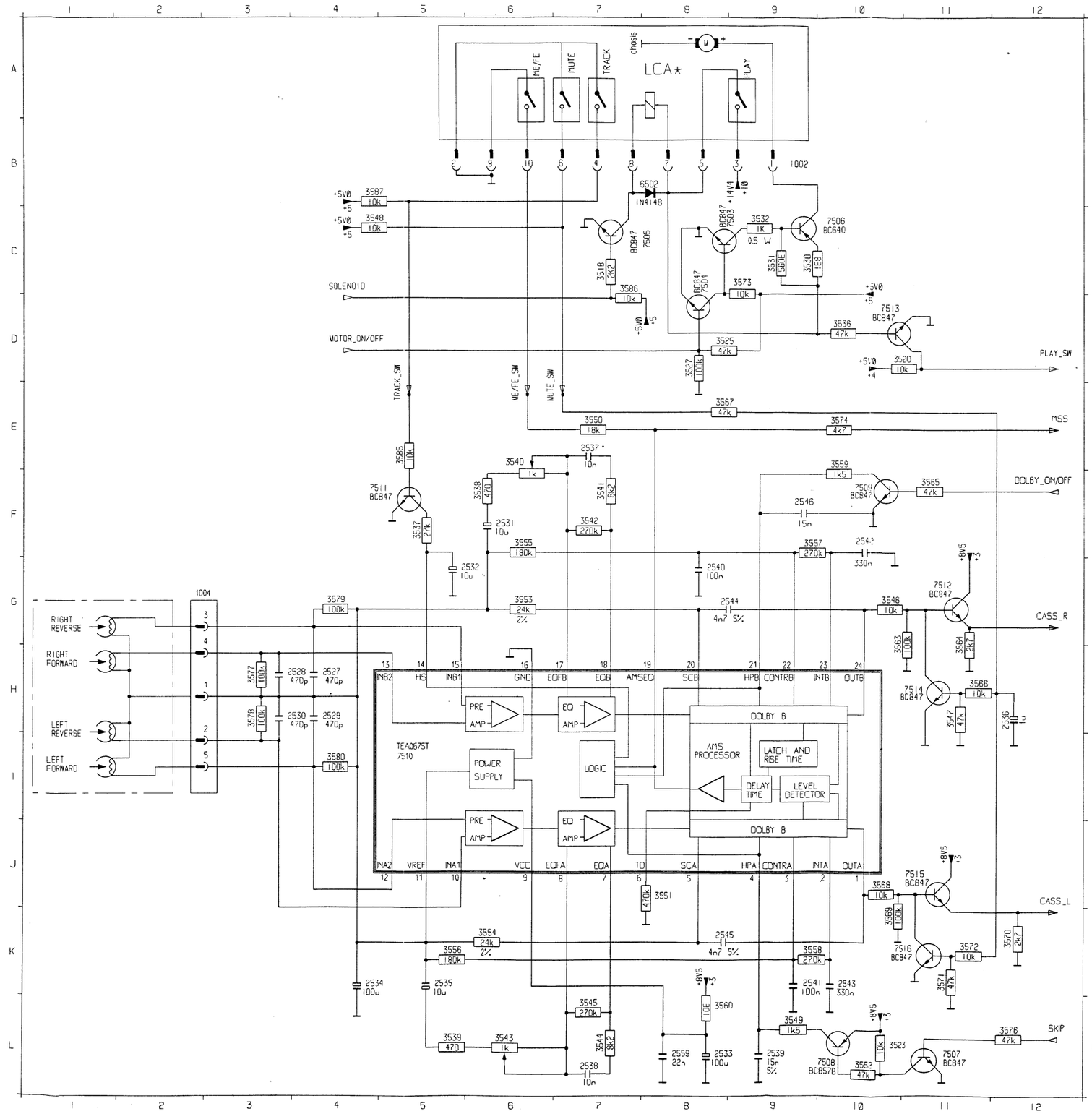
1300	A 6
1301	C 2
1302	C 4
1303	E 2
2214	E 1
2224	G 3
2228	G 4
2229	E 1
2232	E 1
2300	J16
2301	E 4
2302	J16
2305	D 4
2306	H16
2307	B 6
2308	B 6
2309	B11
2310	B11
2311	B10
2312	A11
2313	B12
2314	E16
2315	E17
2316	G16
2317	H16
2318	L13
2319	L10
2320	L 9
2321	L 9
2322	L 8
2324	B14
2325	B15
2327	B 9
2328	J17
2330	E 4
2332	H17
2333	B 2
2340	C12
2349	C 3
3208	K 3
3209	K 3
3212	C 1
3300	L12
3301	L10
3302	L11
3303	L12
3305	B 9
3306	B 9
3307	B 8
3308	A11
3309	A12
3310	E16
3311	B11
3313	J17
3314	L11
3315	L11
3316	L10
3317	B14
3318	C 4
3319	B 9
3320	B12
3321	B 7
3322	B 6
3323	B 3
3324	B 3
3325	D 3
3326	D 3
3327	A 3
3330	B 7
3341	D 3
3348	A 5
3349	C 7
4300	H 4
5208	D 1
5209	F 2
5210	F 4
5301	B 5
5302	B 7
7300	J14
7301	C 3

Pos.7300 TEA6821
1: 4,0 V / 1,2 V (AM)
2: 4,0 V / 1,2 V (AM)
3: 5,2 V / 0 V (AM)
4: GND
5: 4,9 V
6: 4,9 V (SDA)
7: 4,9 V (SCL)
8: 3,9 V (61,5 MHZ)
9: 3,9 V (61,5 MHZ)
10: 4,7 V
11: 4,6 V
12: 4,3 V
13: 2,3 V
14: 2,3 V
15: 5,5 V / 2,8 V (AM)
16: 5,4 V / 2,7 V (AM)
17: 3,8 V / 3,5 V (AM)
18: 3,9 V / 3,4 V (AM)
19: 8,3 V
20: 8,3 V
21: 5,0 V
22: 8,4 V
23: 8,4 V
24: 2,9 V
25: 4,4 V / 3,0 V (AM)
26: 3,7 V / 0 V (NO STEREO)
27: 2,9 V (10,7 MHZ)
28: 8,4 V
29: 6,1 V (10,7 MHZ)
30: 3,4 V
31: 2,3 V
32: 2,3 V
33: 0,8 V / 2,7 V (AM) - 450 KHZ
34: 1,0 V / 2,7 V (AM)
35: 2,7 V / 0,8 V (AM)
36: 2,7 V
37: 2,7 V / 0,8 V (AM) - 10,7 MHZ
38: 2,4 V
39: 3,2 V / 1,5 V (AM)
40: 1,2 V
41: 3,5 V
42: 1,7 V
43: 3,0 V / 2,0 V (AM)
44: 3,5 V
45: 2,9 V
46: 0 V
47: 3,1 V / 0 V (AM)
48: 4,7 V / 3,2 V (AM)
49: 1...6 V (LEVEL DEP.)
50: 3...6 V (LEVEL DEP.)
51: 3,7...6 V (LEVEL DEP.) / 0,5 V (AM)
52: 4,9 V
53: 4,9 V (SDA)
54: 4,9 V (SCL)
55: GND
56: 8,4 V

Pos.7301 BF840
B: 0,8 V (10,7 MHZ)
C: 5,8 V (10,7 MHZ)
E: 0,1 V

PCS 80 488

LCA / DOLBY



1002 B 9
1004 G 2
2527 H 4
2528 H 4
2529 H 4
2530 H 4
2531 F 6
2532 G 6
2533 L 8
2534 K 4
2535 K 5
2536 H12
2537 E 7
2538 L 7
2539 L 9
2540 G 8
2541 K 9
2542 F10
2543 K10
2544 G 9
2545 K 8
2546 F 9
2559 L 8
3518 C 7
3520 D10
3523 L10
3525 D 8
3527 D 8
3530 C 9
3531 C 9
3532 C 8
3536 D10
3537 F 5
3538 F 6
3539 L 5
3540 E 6
3541 F 7
3542 F 7
3543 L 6
3544 L 7
3545 L 7
3546 G10
3547 H11
3548 C 4
3549 L 9
3550 E 7
3551 J 8
3552 L10
3553 G 6
3554 K 6
3555 F 6
3556 K 5
3557 F 9
3558 K 9
3559 E10
3560 L 8
3563 G10
3564 G11
3565 F11
3566 H11
3567 E 8
3568 J10
3569 K10
3570 K12
3571 K11
3572 K11
3573 C 9
3574 E10
3576 L12
3577 H 3
3578 H 3
3579 G 4
3580 I 4
3585 E 5
3586 C 7
3587 B 4
6502 B 8
7503 C 8
7504 C 8
7505 C 7
7506 C10
7507 L11
7508 L10
7509 F10
7510 I 5
7511 F 4
7512 G11
7513 D10
7514 H11
7515 J11
7516 K11

Pos.7503 BC847
B: 0 V / 0,7 V (CASS.MODE)
C: 0 V / 14,0 V (CASS.STANDBY)
E: GND
Pos.7504 BC847
B: 0,7 V / 0 V (CASS.MODE)
C: 0 V / 0,8 V (CASS.MODE)
E: GND
Pos.7505 BC847
B: 0 V / 0,8 V (CASS.MODE)
C: 14,0 V / 0,3 V (CASS.MODE)
E: GND
Pos.7506 BC640
B: 14,0 V / 0 V (CASS.EJECT)
C: 0 V / 14,0 V (CASS.MODE)
E: 14,0 V / 0 V (CASS.EJECT)
Pos.7507 BC847
B: 0 V
C: 8,4 V
E: GND
Pos.7508 BC857B
B: 8,4 V
C: 4,0 V
E: 8,4 V
Pos.7509 BC847
B: 0,6 V / 0 V (DOLBY ON)
C: 0 V / 4,0 V (DOLBY ON)
E: GND
Pos.7510 TEA0675T/V1
1: 4,0 V
2: 3,8 V
3: 3,9 V
4: 4,0 V
5: 4,0 V
6: 6,3 V
7: 4,0 V
8: 4,0 V
9: 8,2 V
10: 4,0 V
11: 4,0 V
12: 4,0 V
13: 4,0 V
14: 2,5 V / 6,3 V (CASS.MODE)
15: 4,0 V
16: GND
17: 4,0 V
18: 4,0 V
19: 4,5 V (LOW WHEN MSS PAUSE DET.)
20: 4,0 V
21: 0,5 V / 4,0 V (DOLBY ON)
22: 4,0 V
23: 3,8 V
24: 4,0 V
Pos.7511 BC847
B: 0,0 V (CASS.NOR) / 0,7 V (CASS.REV)
C: 6,0 V (CASS.NOR) / 0 V (CASS.REV)
E: GND
Pos.7512 BC847
B: 0 V / 3,6 V (CASS.MODE)
C: 8,4 V
E: 0 V / 3,0 V (CASS.MODE)
Pos.7513 BC847
B: 0,7 V / 0 V (CASS.EJECT)
C: 0 V / 5,0 V (CASS.EJECT)
E: GND
Pos.7514 BC847
B: 0,6 V / 0 V (CASS.MODE)
C: 0 V / 3,6 V (CASS.MODE)
E: GND
Pos.7515 BC847
B: 0 V / 3,6 V (CASS.MODE)
C: 8,4 V
E: 0 V / 3,0 V (CASS.MODE)
Pos.7516 BC847
B: 0,6 V / 0 V (CASS.MODE)
C: 0 V / 3,6 V (CASS.MODE)
E: GND

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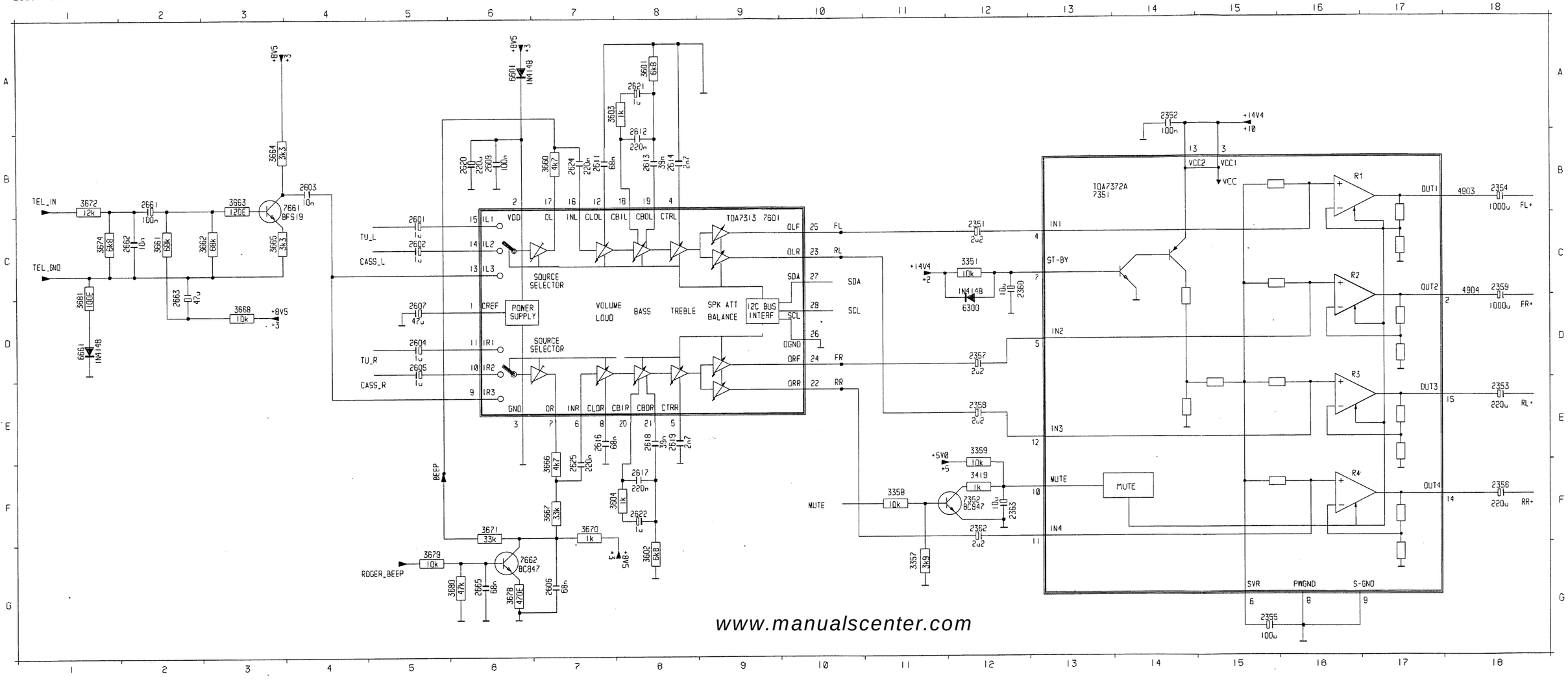
AUDIO / AF

2351	C12	2356	F18	2362	F12	2604	D 5	2611	B 7	2617	F 8	2622	F 8	2663	C 2	3359	E12	3604	F 7
2352	A14	2357	D12	2363	F12	2605	D 5	2612	B 8	2618	E 8	2624	B 7	2665	G 6	3419	F12	3660	B 7
2353	E18	2358	E12	2601	C 5	2606	G 7	2613	B 8	2619	E 8	2625	F 7	3351	C12	3601	A 8	3661	C 2
2354	B18	2359	C18	2602	C 5	2607	D 5	2614	B 8	2620	B 6	2661	B 2	3357	G11	3602	G 8	3662	C 3
2355	G15	2360	C12	2603	B 4	2609	B 6	2616	E 7	2621	A 8	2662	C 2	3358	F11	3603	A 7	3663	B 3

3664	B 3	3670	F 7	3679	G 5	6300	D12	7601	C 9										
3665	C 3	3671	F 6	3680	G 6	6601	A 6	7661	B 3										
3666	F 7	3672	B 1	3681	C 1	6661	D 1	7662	G 6										
3667	F 7	3674	C 1	4903	B18	7351	B13												
3668	D 3	3678	G 6	4904	D18	7352	F12												



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Pos.7351 TDA7372A
1, 2: 7,2 V
3: 14,0 V
4, 5: 1,5 V
6: 8,0 V
7: 13,6 V
8, 9: GND
10: 4,9 V
11, 12: 1,5 V
13: 14,0 V
14, 15: 7,2 V

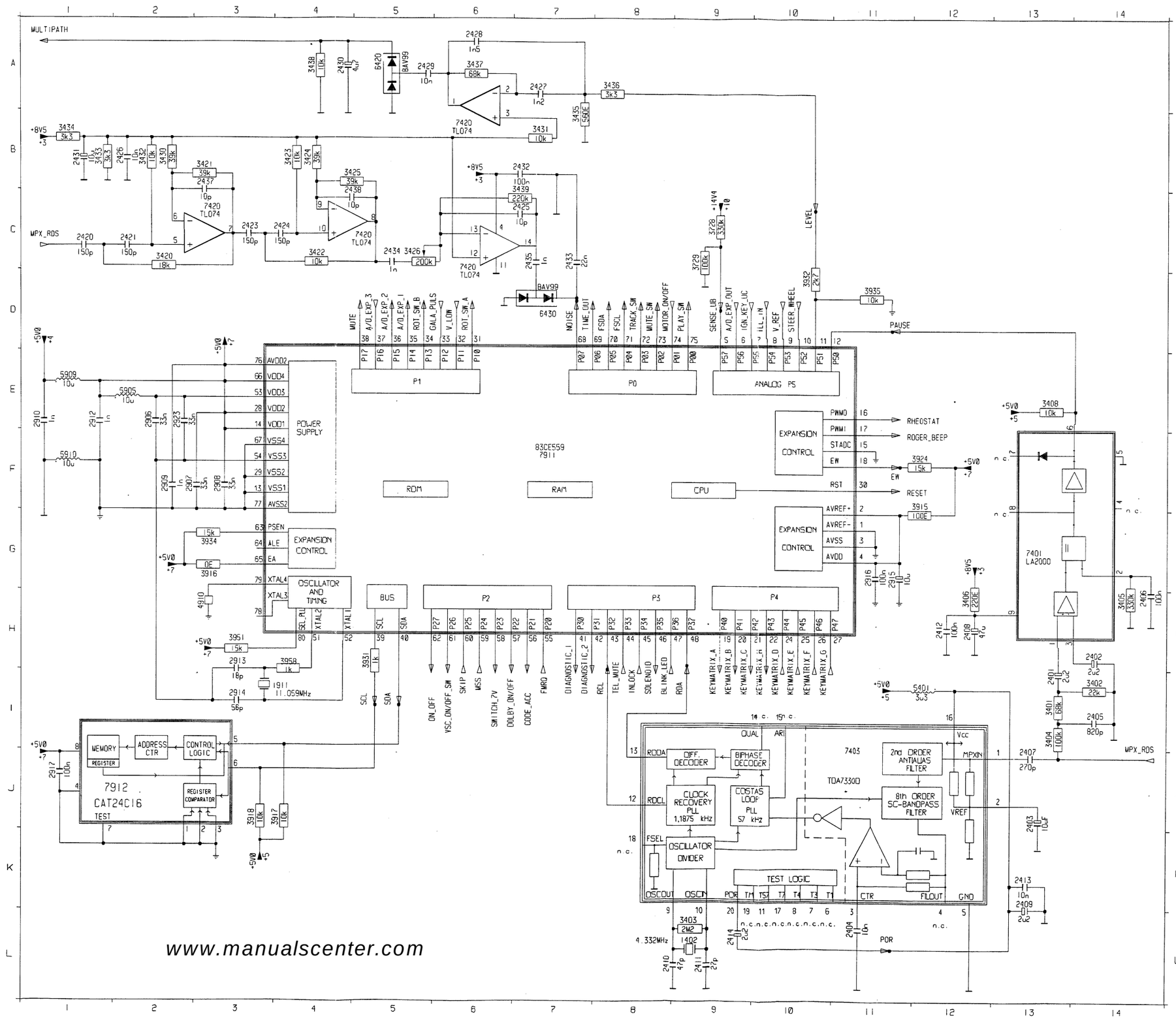
Pos.7352 BC847
B: 0 V
C: 4,9 V
E: GND

Pos.7601 TDA7313
1: 3,9 V
2: 7,7 V
3: GND
4 - 25: 3,9 V
26: GND
27: 4,9 V (SDA)
28: 4,9 V (SCL)

Pos.7661 BFS19
B: 4,0 V
C: 5,7 V
E: 3,4 V

Pos.7662 BC847
B: 0 V (HIGH WHEN BEEP)
C: 8,2 V (LOW HEN BEEP)
E: 0 V

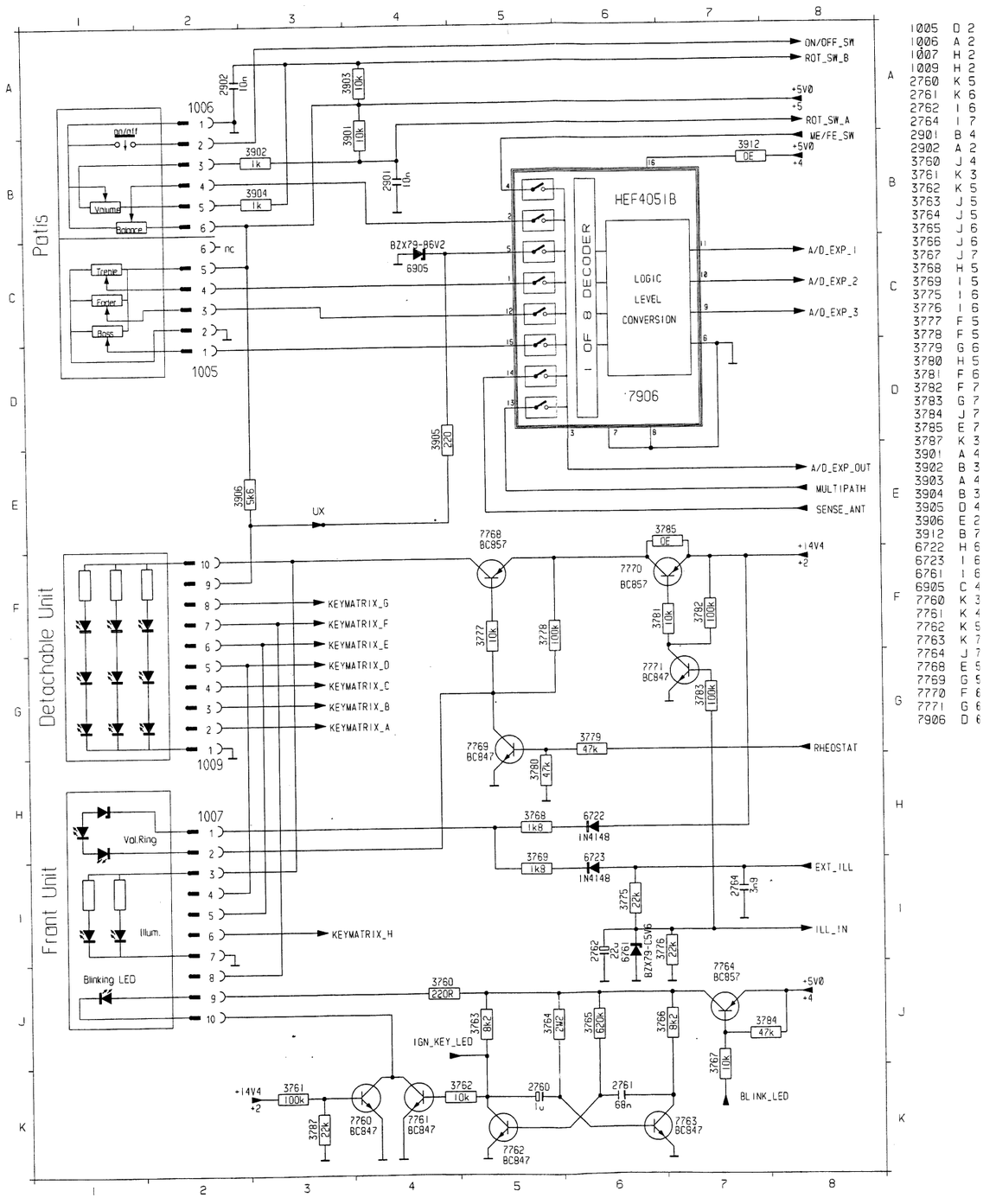
uC / RDS / Noise / Multipath



1402	L 9	7912	J 1
1911	I 4		
2401	I 3		
2402	H 4		
2403	J 3		
2404	L 1		
2405	I 4		
2406	H 4		
2407	J 3		
2408	H 2		
2409	K 3		
2410	L 8		
2411	L 9		
2412	H 2		
2413	K 3		
2414	L 9		
2420	C 1		
2421	C 2		
2423	C 3		
2424	C 4		
2425	C 7		
2426	B 2		
2427	A 7		
2428	A 6		
2429	A 5		
2430	A 4		
2431	B 1		
2432	B 7		
2433	C 7		
2434	C 5		
2435	C 7		
2437	B 3		
2438	C 4		
2906	E 2		
2907	F 2		
2908	F 3		
2909	F 2		
2910	E 1		
2912	E 1		
2913	H 3		
2914	I 3		
2915	G 1		
2916	G 1		
2917	J 1		
2923	E 2		
3401	I 3		
3402	I 4		
3403	L 9		
3404	I 3		
3405	H 4		
3406	H 2		
3409	E 3		
3420	C 2		
3421	B 3		
3422	C 4		
3423	B 4		
3424	B 4		
3425	B 4		
3426	C 5		
3430	B 2		
3431	B 7		
3432	B 2		
3433	B 1		
3434	B 1		
3435	B 7		
3436	A 8		
3437	A 6		
3438	A 4		
3439	C 7		
3729	C 9		
3915	F 12		
3916	G 3		
3917	J 4		
3918	J 3		
3924	F 12		
3931	H 5		
3932	D 10		
3934	G 3		
3935	D 11		
3951	H 3		
3958	H 4		
4910	H 3		
5401	I 12		
5905	E 2		
5909	E 1		
5910	F 1		
6420	A 5		
6430	D 7		
7401	G 13		
7403	J 11		
7420	B 6		
7420	C 3		
7420	C 5		
7420	C 6		
7911	F 7		

Pos.6420 BAV99
1: 0 V
2: GND
3: 0 V
Pos.6430 BAV99
1: 0 V
2: GND
3: 0 V
Pos.7401 LA2000
1: 2,0 V
2: 7,3 V / 0 V (AM)
3: 2,0 V
4: NC
5: GND
6: 4,9 V
7, 8: NC
9: 7,5 V
Pos.7403 TDA7330BD
1, 2: 2,2 V
3: 1,5 V
4: NC
5: GND
6 - 8: NC
9: 2,4 V (4,3 MHZ)
10: 2,2 V (4,3 MHZ)
11: NC
12: 2,5 V (RCL)
13: ca.2 V (RDA)
14, 15: NC
16: 4,9 V
17 - 19: NC
20: 0 V
Pos.7420 TL074
1 - 3: 4,2 V
4: 8,4 V
5 - 10: 4,2 V
11: GND
12 - 14: 4,2 V
Pos.7911 P83CE559EFB/006
1: GND
2: 4,9 V
3: GND
4: 4,9 V
5: 3,2 V
6: 2,3 V
7: 2,9 V
8: 0 V / 5,0 V (EXT.ILL.ON)
9: 3,9 V
10: 4,7 V (WITHOUT STEERING WHEEL CONTROLS) (SEE ALSO STEERING WHEEL INPUT TABLE)
11: 2,5...5,0 V (LEVEL DEP.)
12: 4,9 V
13: GND
14: 4,9 V
15: GND
16: 0 V / 5,0 V (WITHOUT DETACH UNIT)
17: 0 V / HIGH WHEN BEEP
18 - 22: 4,9 V
23: NC
24 - 27: 4,9 V
28: 4,9 V
29: GND
30: 0 V
31: 4,9 V / 0,5 V (DEPENDS ON VOL.POTI POSITION)
32: 4,9 V
33: 0 V
34: 4,9 V / 0,5 V (DEPENDS ON VOL.POTI POSITION)
35 - 37: DATA LINE - NO VOLTAGE MEASUREABLE
38: 0 V
39: 4,9 V (SCL)
40: 4,9 V (SDA)
41: 4,9 V
42: 3,6 V
43: 2,5 V
44: 4,9 V / 0,2 V (PHONE)
45: 4,9 V
46: 0 V / 1,9 V (CASS.MODE)
47: 4,9 V / 0 V (BLINK LED)
48: ca.2 V (RDA)
49, 50: NC
51: 2,5 V (11 MHZ)
52: 2,0 V (11 MHZ)
53: 4,9 V
54: 0 V
55: 4,7 V (DISPLAY MRQ)
56: 4,9 V
57: 4,2 V / 0 V (DOLBY ON)
58: 0 V / 4,3 V (SET OFF)
59: 4,8 V / LOW WHEN MSS PAUSE DETECTION
60: 0 V / HIGH WHEN MSS PAUSE DETECTION
61: 4,9 V / LOW WHEN PUSHING ON/OFF SWITCH
62: 0 V / 4,3 V (SET OFF)
63: 4,9 V
64: NC
65: 4,9 V
66: 4,9 V
67: GND
68: 0 V
69: 4,0 V
70: 4,9 V (DISPLAY SDA)
71: 4,8 V (DISPLAY SCL)
72: 0 V (NOR) / 2,8 (REV)
73: 4,2 V (RADIO) / 0 V (CASS.MODE)
74: 0,6 V (RADIO) / 0 V (CASS.MODE)
75: 0 V / 5,0 V (CASS.EJECT)
76: 4,9 V
77: GND
78: NC
79: GND
80: 4,9 V SENSITIVE MEASURING POINT !
Pos.7912 CAT24C16
1 - 4: GND
5: 4,9 V (SDA)
6: 4,9 V (SCL)
7: GND
8: 5,0 V

ALL MEASUREMENTS WITH CODE ACTIVATED
Pos.7760 BC847
B: 0,6 V / 0 V (SET OFF)
C: 0 V / 3,6 V (SET OFF)
E: GND
Pos.7761 BC847
B: 0 V / BLINK LED (SET OFF)
C: 0 V / 3,6 V (SET OFF)
E: GND
Pos.7762 BC847
B: 0 V / BLINK LED (SET OFF)
C: 0 V / BLINK LED (SET OFF)
E: GND
Pos.7763 BC847
B: 0 V / BLINK LED (SET OFF)
C: 0 V / ca.4,8 V (SET OFF)
E: GND
Pos.7764 BC857
B: 5,0 V / 4,3 V (SET OFF)
C: 0 V / 5,0 V (SET OFF)
E: 5,0 V
Pos.7768 BC857
B: 14,0 V / 0 V (SET OFF)
C: 0 V / 0,5 V (SET OFF)
E: 14,0 V / 0,5 V (SET OFF)
Pos.7769 BC847
B: 0 V / 0,6 V (SET OFF)
C: 14,0 V / 0 V (SET OFF)
E: GND
Pos.7770 BC857
B: 14,0 V / 0,5 V (SET OFF)
C: 14,0 V / 0,5 V (SET OFF)
E: 14,0 V / 0,5 V (SET OFF)
Pos.7771 BC847
B: 0 V / 0,6 V (EXT.ILL.ON)
C: 14,0 V / 0 V (EXT.ILL.ON)
E: GND
Pos.7906 HEF4051BT
1: 0 V - 5 V (DEPENDS ON TREBLE POTI POSITION)
2: 0 V - 5 V (DEPENDS ON BALANCE POTI POSITION)
3: 2,5 V
4: 4,7 V / 0 V (FE-CASS.IN)
5: 0,2 - 4,0 V (DEPENDS ON RESISTORS IN DETACH UNIT)
6 - 8: GND
9 - 11: DATA LINE - NO VOLTAGE MEASURABLE
12: 0 V - 5 V (DEPENDS ON FADER POTI POSITION)
13: 0 V - 1 V (MULTIPATH DEP.)
14: 3,1 V
15: 0 V - 5 V (DEPENDS ON BASS POTI POSITION)
16: 5,0 V



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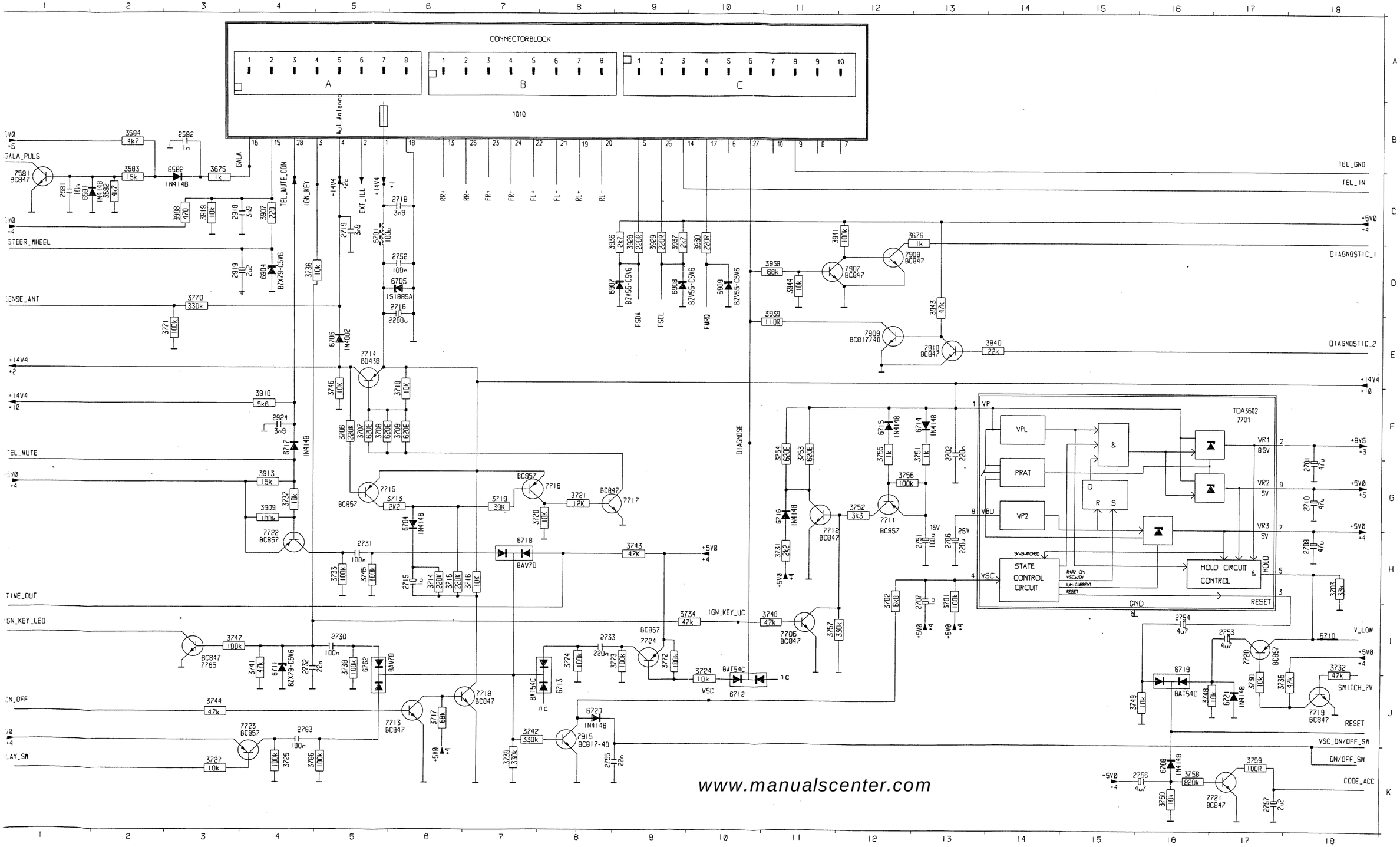
Connectorblock / power supply

10	B 7	2715	H 6	2752	D 6	2924	F 4	3706	F 5	3717	J 6	3732	I18	3741	I 4	3750	K16	3759	K17	3909	G 4	3938	D11	6704	G 6	6715	F12	6907	D 8	7714	E 5	7723	J 4
31	C 1	2716	D 6	2753	I17	3582	C 2	3707	F 5	3719	G 7	3733	H 5	3742	J 7	3751	F13	3770	D 3	3910	F 4	3939	E11	6705	D 6	6716	G11	6908	D 9	7715	G 5	7724	I 9
32	B 3	2718	C 6	2754	I16	3583	C 2	3708	F 5	3720	G 7	3734	I10	3743	H 9	3752	G12	3771	E 3	3913	G 4	3940	E14	6706	E 5	6717	F 4	6909	D10	7716	G 8	7765	I 3
01	G18	2719	C 5	2755	K 8	3584	B 2	3709	F 6	3721	G 8	3735	J17	3744	J 3	3753	F11	3772	I 9	3919	C 3	3941	C11	6708	K16	6718	H 7	7581	C 1	7717	G 9	7907	D12
02	F13	2730	I 5	2756	K16	3675	C 3	3710	F 6	3724	J10	3736	D 4	3745	H 5	3754	F11	3773	I 9	3928	C 9	3943	D13	6710	I18	6719	I16	7701	F17	7718	J 7	7908	D12
06	H13	2731	H 5	2757	K17	3676	C13	3713	G 6	3725	K 4	3737	G 4	3746	F 5	3755	F12	3774	I 8	3929	C 9	3944	D11	6711	I 4	6720	J 8	7706	I11	7719	J18	7909	E12
07	H13	2732	I 4	2763	J 4	3701	H13	3714	H 6	3727	K 3	3738	I 5	3747	I 3	3756	G12	3786	K 4	3930	C10	5701	C 5	6712	J10	6721	J17	7711	G12	7720	I17	7910	E13
08	H18	2733	I 8	2918	C 3	3702	H12	3715	H 6	3730	J17	3739	K 7	3748	J16	3757	I11	3907	C 4	3936	C 8	6581	C 1	6713	J 8	6762	I 5	7712	H12	7721	K16	7915	J 8
10	G18	2751	H13	2919	D 3	3703	H18	3716	H 7	3731	H11	3740	I11	3749	J15	3758	K16	3908	C 3	3937	C 9	6582	C 3	6714	F13	6904	D 4	7713	J 5	7722	H 4		



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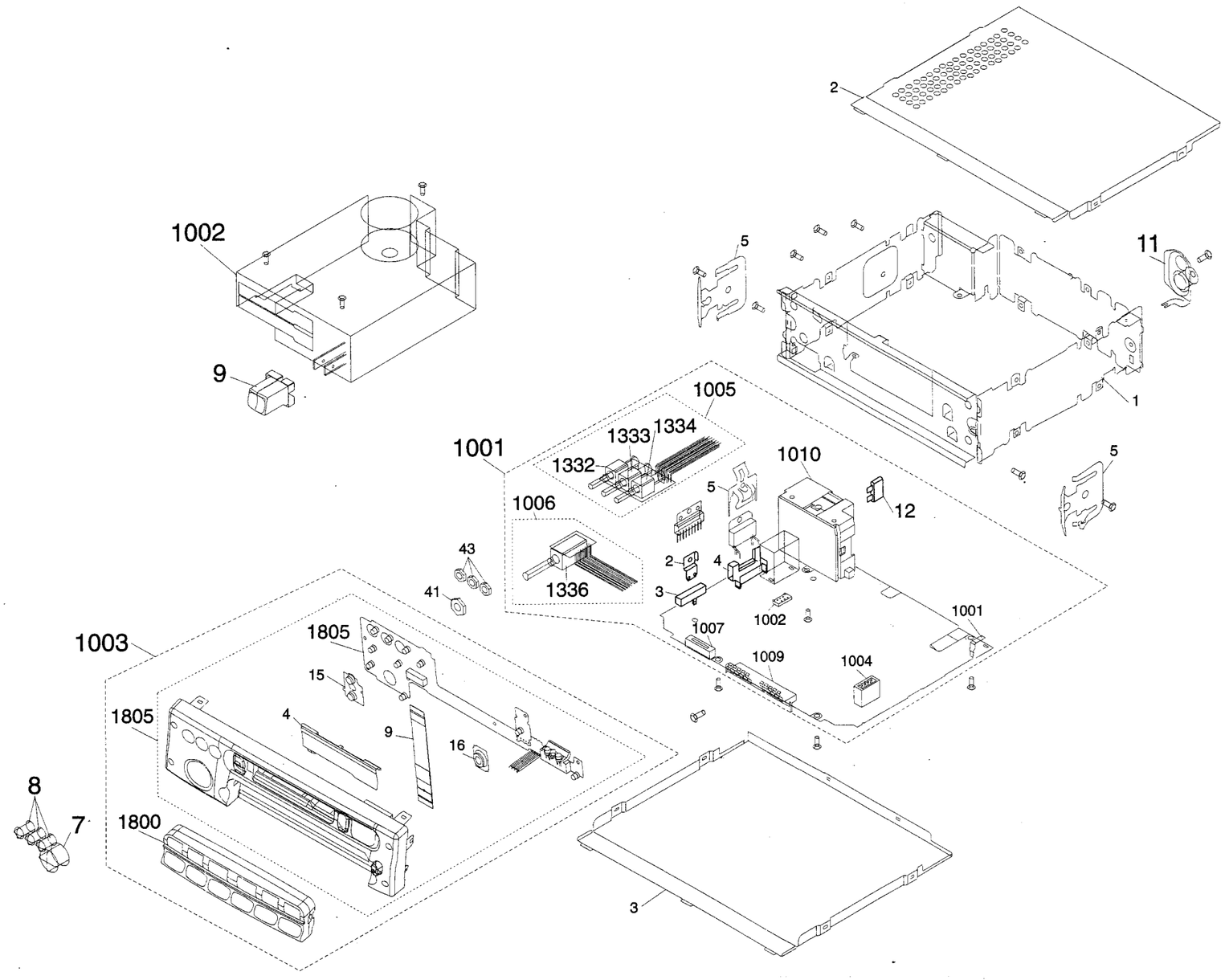
Pos.6712 BAT54C
1: NC
2: 3,7 V
3: 3,6 V
Pos.6713 BAT54C
1: 0 V
2: NC
3: 3,6 V
Pos.6718 BAV70
1: 0 V
2: 4,0 V
3: 3,6 V
Pos.6719 BAT54C
1: 0 V
2: 0 V
3: 0 V
Pos.6762 BAV70
1: 0 V
2: 0 V
3: 3,6 V
Pos.7581 BC847
B: 0,6 V
C: 0 V
E: GND
Pos.7701 TDA3602
1: 14,0 V
2: 8,5 V
3: 4,9 V
4: 0,4 V
5: 4,9 V
6: GND
7: 5,0 V
8: 14,0 V
9: 4,9 V
Pos.7706 BC847
B: 0,6 V
C: 0 V
E: GND
Pos.7711 BC857
B: 13,7 V
C: 0 V
E: 14,0 V
Pos.7712 BC847
B: 0 V
C: 14,0 V
E: GND
Pos.7713 BC847
B: 0 V / 0,6 V (SET OFF)
C: 0,6 V / 0 V (SET OFF)
E: GND
Pos.7714 BD438
B: 13,5 V
C: 14,0 V
E: 14,0 V
Pos.7715 BC857
B: 13,8 V
C: 10,0
E: 14,0 V
Pos.7716 BC857
B: 13,5 V
C: 14,0 V
E: 14,0 V

Pos.7717 BC847
B: 0,9 V
C: 0,2 V
E: GND
Pos.7718 BC847
B: 0,6 V
C: 0 V / 14,0 V (SET OFF)
E: GND
Pos.7719 BC847
B: 0 V / 0,6 V (SET OFF)
C: 5,0 V / 0 V (SET OFF)
E: GND
Pos.7720 BC857
B: 5,0 V / 0 V (SET OFF)
C: 3,5->0 V / 0,5 V (SET OFF)
E: 5,0 V / 0,5 V (SET OFF)
Pos.7721 BC847
B: 0 V
C: 5,0 V
E: GND
Pos.7722 BC857
B: 5,0 V / 4,3 V (PHONE)
C: 0 V / 5,0 V (PHONE)
E: 5,0 V
Pos.7723 BC857
B: 5,0 V / 4,3 V (CASS.IN)
C: 0 V / 5,0 V (CASS.IN)
E: 5,0 V
Pos.7724 BC857
B: 4,4 V
C: 5,0 V
E: 5,0 V
Pos.7765 BC847
B: HIGH / LOW (BLINK LED)
C: HIGH / LOW (BLINK LED)
E: GND
Pos.7907 BC847
B: 0,6 V
C: 0 V
E: GND
Pos.7908 BC847
B: 0 V
C: 5,0 V
E: GND
Pos.7909 BC817-40
B: 0 V
C: 3,6 V
E: GND
Pos.7910 BC847
B: 0,7 V
C: 0 V
E: GND
Pos.7915 BC817-40
B: 0,6 V
C: 0 V
E: GND

Exploded view



5	4822 492 71046	MOUNTING SPRING
7	4822 413 31857	KNOB VOLUME
8	4822 413 31664	KNOB FADER, BASS, TREBLE
9	4822 410 63788	BUTTON ASSY FOR CASS.
11	4822 267 31697	AERIAL SOCKET
1001-1005-1332	4822 100 11752	POTM. FADER
1001-1005-1333	4822 100 11752	POTM.BASS
1001-1005-1334	4822 100 11752	POTM.TREBLE
1001-1006-1336	4822 100 12255	POTM.VOLUME
1001-1010	4822 290 81707	CONN.BLOCK ASSY
1001-1010-12	4822 071 27502	FUSE 7,5 A
1002	4822 691 10438	TAPE DECK LCA*2-4
1003-1800	4822 459 50945	UNIT DETACH.ASSY
1003-1805	4822 459 50946	ORN.PLATE ASSY

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ELLANEOUS

4822	242	82063	CERAM FILTER	450 KHZ	
4822	242	72195	CRYSTAL	4.332 MHZ AT51	
4822	242	81646	CRYSTAL	11.059 MHZ	
4822	252	60125	SPARK GAP	DSP-201M-A21F	
4822	242	81698	CRYSTAL	AF9192C-A (61,5MHZ)	

CITORS

5322	122	32447	CAP.CERAMIC	1PF 5%	50V
5322	122	31944	CAP.CERAMIC	3,9PF 5%	50V
4822	122	33575	CAP.CHIP	220PF 5%NPO	50V
5322	122	32286	CAP.CHIP	3,3PF 5%NP0	50V
4822	122	33575	CAP.CHIP	220PF 5%NPO	50V
4822	122	33178	CAP.CHIP	1NF 20% X7R	50V
4822	124	41017	CAP.ELECTROLYT.	10UF	16V
4822	122	33496	CAP.CHIP	100NF10%X7R	63V
4822	122	33177	CAP.CHIP	10NF 20% X7R	50V
4822	122	33496	CAP.CHIP	100NF10%X7R	63V
5322	122	33063	CAP.CHIP	2,2PF 5%NP0	50V
5322	126	10343	CAP.CERAMIC	1,8PF 5%NP0	63V
4822	122	33585	CAP.CHIP	3,3NF10%	
5322	122	33244	CAP.CERAMIC	8,2PF 5%NPO	50V
5322	122	32531	CAP.CHIP	100PF 5%NP0	50V
5322	122	31946	CAP.CHIP	27PF 5%NP0	63V
4822	122	33496	CAP.CHIP	100NF10%X7R	63V
5322	122	31946	CAP.CHIP	27PF 5%NP0	63V
4822	122	33585	CAP.CHIP	3,3NF10%	
4822	122	33496	CAP.CHIP	100NF10%X7R	63V
5322	122	32654	CAP.CHIP	22NF10%X7R	63V
4822	122	33496	CAP.CHIP	100NF10%X7R	63V
4822	124	23279	CAP.ELECTROLYT.	22UF20%	16V
4822	124	23281	CAP.ELECTROLYT.	33UF20%	16V
4822	124	23281	CAP.ELECTROLYT.	33UF20%	16V
5322	122	32452	CAP.CERAMIC	47PF 5%NP0	63V
4822	122	33177	CAP.CHIP	10NF 20% X7R	50V
4822	122	33177	CAP.CHIP	10NF 20% X7R	50V
4822	125	60217	CAP.VARIABLE	3P-11P N450	100V
5322	122	32661	CAP.CHIP	56PF 5%	50V
5322	122	32287	CAP.CHIP	4,7PF 5%NP0	50V
5322	122	32448	CAP.CERAMIC	10PF 5%	50V
5322	122	32967	CAP.CERAMIC	5,6PF10%NP0	63V
4822	124	23318	CAP.ELECTROLYT.	100UF	16V
4822	126	11179	CAP.CHIP	6,8PF 5%	
5322	122	32654	CAP.CHIP	22NF10%X7R	63V
4822	122	33496	CAP.CHIP	100NF10%X7R	63V
4822	126	13196	CAP.CHIP	100NF10% X7R	25V
4822	122	33496	CAP.CHIP	100NF10%X7R	63V
4822	122	33177	CAP.CHIP	10NF 20% X7R	50V
4822	122	33219	CAP.CHIP	1,8NF10%X7R	50V
5322	122	31865	CAP.CHIP	1,5NF10%X7R	63V
4822	122	33514	CAP.CHIP	68PF 5%NP0	50V
4822	126	13057	CAP.CHIP	220NF10% X7R	25V
5322	122	31866	CAP.CHIP	6,8NF10%X7R	63V
4822	122	33496	CAP.CHIP	100NF10%X7R	63V
4822	126	13057	CAP.CHIP	220NF10% X7R	25V
5322	122	31866	CAP.CHIP	6,8NF10%X7R	63V
5322	122	32654	CAP.CHIP	22NF10%X7R	63V
4822	122	33496	CAP.CHIP	100NF10%X7R	63V
4822	122	33496	CAP.CHIP	100NF10%X7R	63V
4822	126	13196	CAP.CHIP	100NF10% X7R	25V
4822	126	13057	CAP.CHIP	220NF10% X7R	25V
4822	126	13057	CAP.CHIP	220NF10% X7R	25V
5322	122	32654	CAP.CHIP	22NF10%X7R	63V
4822	124	22646	CAP.ELECTROLYT.	47UF20%	16V
5322	124	41431	CAP.ELECTROLYT.	22UF20%	35V
4822	122	33496	CAP.CHIP	100NF10%X7R	63V
4822	124	23281	CAP.ELECTROLYT.	33UF20%	16V
4822	122	33177	CAP.CHIP	10NF 20% X7R	50V
5322	122	32448	CAP.CERAMIC	10PF 5%	50V
4822	122	33177	CAP.CHIP	10NF 20% X7R	50V
4822	124	23504	CAP.ELECTROLYT.	2.2UF20%	50V
4822	122	33496	CAP.CHIP	100NF10%X7R	63V
4822	124	80836	CAP.ELECTROLYT.	220UF20%	10V
4822	124	23318	CAP.ELECTROLYT.	100UF	16V
4822	124	80836	CAP.ELECTROLYT.	220UF20%	10V
4822	124	23504	CAP.ELECTROLYT.	2.2UF20%	50V
4822	124	23504	CAP.ELECTROLYT.	2.2UF20%	50V
4822	124	41017	CAP.ELECTROLYT.	10UF	16V
4822	124	23504	CAP.ELECTROLYT.	2.2UF20%	50V
4822	124	41017	CAP.ELECTROLYT.	10UF	16V
4822	124	23504	CAP.ELECTROLYT.	2.2UF20%	50V
4822	124	23504	CAP.ELECTROLYT.	2.2UF20%	50V
4822	124	41017	CAP.ELECTROLYT.	10UF	16V
2404	4822	122	33177	CAP.CHIP	10NF 20% X7R	50V
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2405	4822	122	33218	CAP.CHIP	820PF 10% X7R	50V
2406	4822	122	33496	CAP.CHIP	100NF10%X7R	63V
2407	4822	122	33216	CAP.CHIP	270PF 5%NP0	50V
2408	4822	124	22646	CAP.ELECTROLYT.	47UF20%	16V
2409	4822	124	23504	CAP.ELECTROLYT.	2.2UF20%	50V
2410	5322	122	32452	CAP.CERAMIC	47PF 5%NP0	63V
2411	5322	122	31946	CAP.CHIP	27PF 5%NP0	63V
2412	4822	122	33496	CAP.CHIP	100NF10%X7R	63V
2413	4822	122	33177	CAP.CHIP	10NF 20% X7R	50V
2414	4822	124	23504	CAP.ELECTROLYT.	2.2UF20%	50V
2420...						
2424	5322	122	33538	CAP.CHIP	150PF 2%NP0	63V
2425	5322	122	32448	CAP.CERAMIC	10PF 5%	50V
2426	4822	122	33177	CAP.CHIP	10NF 20% X7R	50V
2427	4822	122	32614	CAP.CERAMIC	1.2NF 10% X7R	50V
2428	5322	122	31865	CAP.CHIP	1,5NF10%X7R	63V
2429	4822	122	33177	CAP.CHIP	10NF 20% X7R	50V
2430	4822	124	80765	CAP.ELECTROLYT.	4.7UF20%	35V
2431	4822	124	41017	CAP.ELECTROLYT.	10UF	16V
2432	4822	122	33496	CAP.CHIP	100NF10%X7R	63V
2433	5322	122	32654	CAP.CHIP	22NF10%X7R	63V
2434	4822	122	33178	CAP.CHIP	1NF 20% X7R	50V
2435	4822	122	33178	CAP.CHIP	1NF 20% X7R	50V
2437	5322	122	32448	CAP.CERAMIC	10PF 5%	50V
2438	5322	122	32448	CAP.CERAMIC	10PF 5%	50V
2527...						
2530	5322	122	32268	CAP.CHIP	470PF 10%	50V
2531	4822	124	41017	CAP.ELECTROLYT.	10UF	16V
2532	4822	124	41017	CAP.ELECTROLYT.	10UF	16V
2533	4822	124	80453	CAP.ELECTROLYT.	100UF20%	10V
2534	4822	124	80453	CAP.ELECTROLYT.	100UF20%	10V
2535	4822	124	41017	CAP.ELECTROLYT.	10UF	16V
2536	4822	124	23282	CAP.ELECTROLYT.	1UF20%	50V
2537	4822	122	33177	CAP.CHIP	10NF 20% X7R	50V
2538	4822	122	33177	CAP.CHIP	10NF 20% X7R	50V
2539	4822	126	13188	CAP.CHIP	15NF 5% X7R	63V
2540	4822	122	33496	CAP.CHIP	100NF10%X7R	63V
2541	4822	126	13196	CAP.CHIP	100NF10% X7R	25V
2542	5322	121	42661	CAP.FOIL	330NF 5%	63V
2543	5322	121	42661	CAP.FOIL	330NF 5%	63V
2544	5322	126	10223	CAP.CHIP	4,7NF10%X7R	63V
2545	5322	126	10223	CAP.CHIP	4,7NF10%X7R	63V
2546	4822	126	13188	CAP.CHIP	15NF 5% X7R	63V
2559	5322	122	32654	CAP.CHIP	22NF10%X7R	63V
2581	4822	122	33177	CAP.CHIP	10NF 20% X7R	50V
2582	5322	122	31647	CAP.CHIP	1NF10%X7R	63V
2601	4822	124	23282	CAP.ELECTROLYT.	1UF20%	50V
2602	4822	124	23282	CAP.ELECTROLYT.	1UF20%	50V
2603	4822	122	33177	CAP.CHIP	10NF 20% X7R	50V
2604	4822	124	23282	CAP.ELECTROLYT.	1UF20%	50V
2605	4822	124	23282	CAP.ELECTROLYT.	1UF20%	50V
2606	4822	122	32891	CAP.CERAMIC	68NF10%X7R	63V
2607	4822	124	23256	CAP.ELECTROLYT.	47UF	16V
2609	4822	122	33496	CAP.CHIP	100NF10%X7R	63V
2611	4822	122	32891	CAP.CERAMIC	68NF10%X7R	63V
2612	4822	122	32916	CAP.CHIP	220NF10%X7R	63V
2613	4822	122	33608	CAP.CHIP	39NF10%X7R	63V
2614	4822	122	32627	CAP.CERAMIC	2.7NF10%X7R	50V
2616	4822	122	32891	CAP.CERAMIC	68NF10%X7R	63V
2617	4822	122	32916	CAP.CHIP	220NF10%X7R	63V
2618	4822	122	33608	CAP.CHIP	39NF10%X7R	63V
2619	4822	122	32627	CAP.CERAMIC	2.7NF10%X7R	50V
2620	4822	124	80836	CAP.ELECTROLYT.	220UF20%	10V
2621	4822	124	23282	CAP.ELECTROLYT.	1UF20%	50V
2622	4822	124	23282	CAP.ELECTROLYT.	1UF20%	50V
2624	4822	122	32916	CAP.CHIP	220NF10%X7R	63V
2625	4822	122	32916	CAP.CHIP	220NF10%X7R	63V
2662	4822	122	33177	CAP.CHIP	10NF 20% X7R	50V
2663	4822	124	40433	CAP.ELECTROLYT.	47UF20%	25V
2665	4822	122	32891	CAP.CERAMIC	68NF10%X7R	63V
2701	4822	124	40433	CAP.ELECTROLYT.	47UF20%	25V
2702	4822	122	32916	CAP.CHIP	220NF10%X7R	63V
2706	4822	124	41097	CAP.ELECTROLYT.	220UF 20%	16V
2707	4822	124	23282	CAP.ELECTROLYT.	1UF20%	50V
2708	4822	124	40433	CAP.ELECTROLYT.	47UF20%	25V
2710	4822	124	40433	CAP.ELECTROLYT.	47UF20%	25V
2715	4822	124	23282	CAP.ELECTROLYT.	1UF20%	50V
2718	4822	122	32566	CAP.CHIP	3,9NF10%X7R	63V
2719	4822	122	32566	CAP.CHIP	3,9NF10%X7R	63V
2730	4822	122	33496	CAP.CHIP	100NF10%X7R	63V
2731	4822	122	33496	CAP.CHIP	100NF10%X7R	63V
2732	5322	122	32654	CAP.CHIP	22NF10%X7R	63V
2733	4822	126	13057	CAP.CHIP	220NF10% X7R	25V
2751	4822	124	23318	CAP.ELECTROLYT.	100UF	16V
2752	4822	122	33496	CAP.CHIP	100NF10%X7R	63V
2753	4822	124	23401	CAP.ELECTROLYT.	4.7UF20%	25V
2754	4822	124	23401	CAP.ELECTROLYT.	4.7UF20%	25V
2755	5322	122	32654	CAP.CHIP	22NF10%X7R	63V
2756	4822	124	80765	CAP.ELECTROLYT.	4.7UF20%	35V
2757	4822	124	23504	CAP.ELECTROLYT.	2.2UF20%	50V
2760	4822	124	23282	CAP.ELECTROLYT.	1UF20%	50V
2761	4822	122	32891	CAP.CERAMIC	68NF10%X7R	63V
2762	5322	124	41431	CAP.ELECTROLYT.	22UF20%	35V
2763	4822	122	33496	CAP.CHIP	100NF10%X7R	63V
2764	4822	122	32566	CAP.CHIP	3,9NF10%X7R	63V
2901	4822	122	33177	CAP.CHIP	10NF 20% X7R	50V
2902	4822	122	33177	CAP.CHIP	10NF 20% X7R	50V
2906...						
2908	4822	122	33342	CAP.CHIP	33NF10%X7R	63V
2909...						
2912	4822	122	33178	CAP.CHIP	1NF 20% X7R	50V
2913	5322	122	32965	CAP.CERAMIC	18PF 5%NPO	50V
2914	5322	122	32661	CAP.CHIP	56PF 5%	50V
2915	4822	124	41017	CAP.ELECTROLYT.	10UF	16V
2916	4822	122	33496	CAP.CHIP	100NF10%X7R	63V
2917	4822	122	33496	CAP.CHIP	100NF10%X7R	63V
2918	4822	122	32566	CAP.CHIP	3,9NF10%X7R	63V
2919	4822	124	23504	CAP.ELECTROLYT.	2.2UF20%	50V
2923	4822	122	33342	CAP.CHIP	33NF10%X7R	63V
2924	4822	122	32566	CAP.CHIP	3,9NF10%X7R	63V

RESISTORS

3101	4822	051	20473	RES.CHIP	47K00	5%	0,1W
3102	4822	051	20471	RES.CHIP	470R00	5%	0,1W
3103	4822	051	20229	RES.CHIP	22R00	5%	0,1W
3104	4822	051	20008	RES.CHIP	0R00 JUMP. (0805)		
3105	4822	051	20229	RES.CHIP	22R00	5%	0,1W
3106	4822	051	20008	RES.CHIP	0R00 JUMP. (0805)		
3107	4822	051	20225	RES.CHIP	2M20	5%	0,1W
3108	4822	051	20104	RES.CHIP	100K00	5%	0,1W
3110	4822	051	20229	RES.CHIP	22R00	5%	0,1W
3201	4822	051	20222	RES.CHIP	2K20	5%	0,1W
3203	4822	051	20221	RES.CHIP	220R00	5%	0,1W
3204	4822	051	20471	RES.CHIP	470R00	5%	0,1W
3205	4822	051	20471	RES.CHIP	470R00	5%	0,1W
3206	4822	051	20101	RES.CHIP	100R00	5%	0,1W
3207	4822	051	20473	RES.CHIP	47K00	5%	0,1W
3210	4822	051	20225	RES.CHIP	2M20	5%	0,1W
3211	4822	051	20479	RES.CHIP	47R00	5%	0,1W
3212	4822	051	20229	RES.CHIP	22R00	5%	0,1W
3213	4822	051	20008	RES.CHIP	0R00 JUMP. (0805)		
3270	4822	051	20471	RES.CHIP	470R00	5%	0,1W
3290	4822	051	20224	RES.CHIP	220K00	5%	0,1W
3292	4822	051	20229	RES.CHIP	22R00	5%	0,1W
3300	4822	051	20123	RES.CHIP	12K00	5%	0,1W
3301	4822	051	20335	RES.CHIP	3M30	5%	0,1W
3302	4822	051	20333	RES.CHIP	33K00	5%	0,1W
3303	4822	100	20166	POTM.CARB.TRACK	10K 30%LIN		0,1W
3305	4822	051	20333	RES.CHIP	33K00	5%	0,1W
3306	4822	051	20333	RES.CHIP	33K00	5%	0,1W
3307	4822	051	20432	RES.CHIP	4K30	5%	0,1W
3308	4822	051	20224	RES.CHIP	220K00	5%	0,1W
3309	4822	117	11149	RES.METAL FILM	82K	1%	0,1W
3310	4822	051	20684	RES.CHIP	680K00	5%	0,1W
3311	4822	051	20475	RES.CHIP	4M70	5%	0,1W
3313	4822	051	20124	RES.CHIP	120K00	5%	0,1W
3314	4822	051	20564	RES.CHIP	560K00	5%	0,1W
3315	4822	051	20684	RES.CHIP	680K00	5%	0,1W
3316	4822	051	20225	RES.CHIP	2M20	5%	0,1W
3317	4822	051	20273	RES.CHIP	27K00	5%	0,1W
3318	4822	051	20391	RES.CHIP	390R00	5%	0,1W
3319...							
3322	4822	100	11163	POTM.TRIMMER	100K 30%LIN		0,1W
3323	4822	051	20391	RES.CHIP	390R00	5%	0,1W
3325	4822	051	20101	RES.CHIP	100R00	5%	0,1W
3326	4822	051	20391	RES.CHIP	390R00	5%	0,1W
3327	4822	051	20681	RES.CHIP	680R00	5%	0,1W
3330	4822	051	20473	RES.CHIP	47K00	5%	0,1W
3341	4822	051	20479	RES.CHIP	47R00	5%	0,1W
3348	4822	051	20681	RES.CHIP	680R00	5%	0,1W
3349	4822	051	20223	RES.CHIP	22K00	5%	0,1W
3401	4822	051	20683	RES.CHIP	68K00	5%	0,1W
3402	4822	051	20223	RES.CHIP	22K00	5%	0,1W
3403	4822	051	20225	RES.CHIP	2M20	5%	0,1W
3404	4822	051	20104	RES.CHIP	100K00	5%	0,1W
3405	4822	051	20334	RES.CHIP	330K00	5%	0,1W
3406	4822	051	20221	RES.CHIP	220R00	5%	0,1W
3419	4822	051	20102	RES.CHIP	1K00	5%	0,1W
3420	4822	051	20183	RES.CHIP	18K00	5%	0,1W
3426	4822	100	12071	POTM.	EVNDXAA03B25		
3433	4822	051	20332	RES.CHIP	3K30	5%	0,1W
3434	4822	051	20332	RES.CHIP	3K30	5%	0,1W
3435	4822	051	20561	RES.CHIP	560R00	5%	0,1W
3436	4822	051	20332	RES.CHIP	3K30	5%	0,1W
3437	4822	051	20683	RES.CHIP	68K00	5%	0,1W
3439	4822	051	20224	RES.CHIP	220K00	5%	0,1W
3518	4822	051	20222	RES.CHIP	2K20	5%	0,1W
3525	4822	051	20473	RES.CHIP	47K00	5%	0,1W
3527	4822	051	20104	RES.CHIP	100K00	5%	0,1W
3531	4822	051	20561	RES.CHIP	560R00	5%	0,1W
3532	4822	116	83863	RES.METAL FILM	1K	5%	0,5W
3536	4822	051	20473	RES.CHIP	47K00	5%	0,1W
3537	4822	051	20273	RES.CHIP	27K00	5%	0,1W
3538	4822	051	20471	RES.CHIP	470R00	5%	0,1W
3539	4822	051	20471	RES.CHIP	470R00	5%	0,1W
3540	4822	100	11681	MODULE	1K	30%	0,1W
3541	4822	051	20822	RES.CHIP	8K20	5%	0,1W
3542	4822	051	20274	RES.CHIP	270K00	5%	0,1W
3543	4822	100	11681	MODULE	1K	30%	0,1W
3544	4822	051	20822	RES.CHIP	8K20	5%	0,1W
3545	4822	051	20274	RES.CHIP	270K00	5%	0,1W
3547	4822	051	20473	RES.CHIP	47K00	5%	0,1W
3549	4822	117	11139	RES.METAL FILM	1K5	1%	0,1W
3550	4822	051	20183	RES.CHIP	18K00	5%	0,1W
3551	4822	051	20474	RES.CHIP	470K00	5%	0,1W
3552	4822	051	20473	RES.CHIP	47K00	5%	0,1W
3553	4822	117	10507	RES.CHIP	24K	1%	0,1W
3554	4822	117	10507	RES.CHIP	24K	1%	0,1W
3555	4822	051	20184	RES.CHIP	180K00	5%	0,1W
3556	4822	051	20184	RES.CHIP	180K00	5%	0,1W
3557	4822	051	20274	RES.CHIP	270K00	5%	0,1W
3558	4822	051	20274	RES.CHIP	270K00	5%	0,1W
3559	4822	117	11139	RES.METAL FILM	1K5	1%	0,1W
3560	4822	116	52176	RES.METAL FILM	10E	5%	0,5W
3563	4822	051	20104	RES.CHIP	100K00	5%	0,1W
3565	4822	051	20473	RES.CHIP	47K00	5%	0,1W
3567	4822	051	20473	RES.CHIP	47K00	5%	0,1W
3569	4822	051	20104	RES.CHIP	100K00	5%	0,1W
3571	4822	051	20473	RES.CHIP	47K00	5%	0,1W
3574	4822	051	20472	RES.CHIP	4K70	5%	0,1W
3576	4822	051	20473	RES.CHIP	47K00	5%	0,1W
3577...							
3580	4822	051	20104	RES.CHIP	100K00	5%	0,1W
3582	4822	051	20472	RES.CHIP	4K70	5%	0,1W
3583	4822	051	20153	RES.CHIP	15K00	5%	0,1W
3584	4822	051	20472	RES.CHIP	4K70	5%	0,1W
3601	4822	051	20682	RES.CHIP	6K80	5%	0,1W
3602	4822	051	20682	RES.CHIP	6K80	5%	0,1W
3603	4822	051	20102	RES.CHIP	1K00	5%	0,1W
3604	4822	051	20102	RES.CHIP	1K00	5%	0,1W
3660	4822	051	20472	RES.CHIP	4K70	5%	0,1W
3661	4822	051	20683	RES.CHIP	68K00	5%	0,1W
3662	4822	051	20683	RES.CHIP	68K00	5%	0,1W
3663	4822	051	20121	RES.CHIP	120R00	5%	0,1W
3664	4822	051	20332	RES.CHIP	3K30	5%	0,1W
3665	4822	051	20332	RES.CHIP	3K30	5%	0,1W
3666	4822	051	20472	RES.CHIP	4K70	5%	0,1W
3667	4822	051	20333	RES.CHIP	33K00	5%	0,1W
3670	4822	051	20102	RES.CHIP	1K00	5%	0,1W
3671	4822	051	20333	RES.CHIP	33K00	5%	0,1W
3672	4822	051	20123	RES.CHIP	12K00	5%	0,1W
3674	4822	051	20682	RES.CHIP	6K80	5%	0,1W
3675	4822	051	20102	RES.CHIP	1K00	5%	0,1W
3676	4822	051	20102	RES.CHIP	1K00	5%	0,1W
3678	4822	051	20471	RES.CHIP	470R00	5%	0,1W
3680	4822	051	20473	RES.CHIP	47K00	5%	0,1W
3681	4822	116	52175	RES.METAL FILM	100E	5%	0,5W
3701	4822	051	20104	RES.CHIP	100K00	5%	0,1W
3702	4822	051	20682	RES.CHIP	6K80	5%	0,1W
3703	4822	051	20333	RES.CHIP	33K00	5%	0,1W
3706	4822	051	20224	RES.CHIP	220K00	5%	0,1W
3707...							
3709	4822	116	52227	RES.METAL FILM	620E	5%	0,5W
3713	4822	051	20222	RES.CHIP	2K20	5%	0,1W
3714	4822	051	20224	RES.CHIP	220K00	5%	0,1W
3715	4822	051	20224	RES.CHIP	220K00	5%	0,1W
3717	4822	051	20683	RES.CHIP	68K00	5%	0,1W
3721	4822	051	20123	RES.CHIP	12K00	5%	0,1W
3725	4822	051	20104	RES.CHIP	100K00	5%	0,1W
3728	4822	051	20334	RES.CHIP	330K00	5%	0,1W
3729	4822	051	20104	RES.CHIP	100K00	5%	0,1W
3731	4822	051	20222	RES.CHIP	2K20	5%	0,1W
3732	4822	051	20473	RES.CHIP	47K00	5%	0,1W
3733	4822	051	20104	RES.CHIP	100K00	5%	0,1W
3734	4822	051	20473	RES.CHIP	47K00	5%	0,1W

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3735	4822 051 20473	RES.CHIP	47K00	5%	0,1W		
3738	4822 051 20104	RES.CHIP	100K00	5%	0,1W		
3739	4822 051 20334	RES.CHIP	330K00	5%	0,1W		
3740	4822 051 20473	RES.CHIP	47K00	5%	0,1W		
3741	4822 051 20473	RES.CHIP	47K00	5%	0,1W		
3742	4822 051 20334	RES.CHIP	330K00	5%	0,1W		
3743	4822 051 20473	RES.CHIP	47K00	5%	0,1W		
3744	4822 051 20473	RES.CHIP	47K00	5%	0,1W		
3745	4822 051 20104	RES.CHIP	100K00	5%	0,1W		
3747	4822 051 20104	RES.CHIP	100K00	5%	0,1W		
3751	4822 051 20102	RES.CHIP	1K00	5%	0,1W		
3752	4822 051 20332	RES.CHIP	3K30	5%	0,1W		
3753	4822 116 52227	RES.METAL FILM	620E	5%	0,5W		
3754	4822 116 52227	RES.METAL FILM	620E	5%	0,5W		
3755	4822 051 20102	RES.CHIP	1K00	5%	0,1W		
3756	4822 051 20104	RES.CHIP	100K00	5%	0,1W		
3757	4822 051 20334	RES.CHIP	330K00	5%	0,1W		
3758	4822 051 20824	RES.CHIP	820K00	5%	0,1W		
3759	4822 051 20101	RES.CHIP	100R00	5%	0,1W		
3760	4822 051 20221	RES.CHIP	220R00	5%	0,1W		
3761	4822 051 20104	RES.CHIP	100K00	5%	0,1W		
3763	4822 051 20822	RES.CHIP	8K20	5%	0,1W		
3764	4822 051 20225	RES.CHIP	2M20	5%	0,1W		
3766	4822 051 20822	RES.CHIP	8K20	5%	0,1W		
3768	4822 051 20182	RES.CHIP	1K80	5%	0,1W		
3769	4822 051 20182	RES.CHIP	1K80	5%	0,1W		
3770	4822 051 20334	RES.CHIP	330K00	5%	0,1W		
3771...							
3774	4822 051 20104	RES.CHIP	100K00	5%	0,1W		
3775	4822 051 20223	RES.CHIP	22K00	5%	0,1W		
3776	4822 051 20223	RES.CHIP	22K00	5%	0,1W		
3778	4822 051 20104	RES.CHIP	100K00	5%	0,1W		
3779	4822 051 20473	RES.CHIP	47K00	5%	0,1W		
3780	4822 051 20473	RES.CHIP	47K00	5%	0,1W		
3782	4822 051 20104	RES.CHIP	100K00	5%	0,1W		
3783	4822 051 20104	RES.CHIP	100K00	5%	0,1W		
3784	4822 051 20473	RES.CHIP	47K00	5%	0,1W		
3785	4822 051 20008	RES.CHIP	0R00 JUMP. (0805)				
3786	4822 051 20104	RES.CHIP	100K00	5%	0,1W		
3787	4822 051 20223	RES.CHIP	22K00	5%	0,1W		
3902	4822 051 20102	RES.CHIP	1K00	5%	0,1W		
3904	4822 051 20102	RES.CHIP	1K00	5%	0,1W		
3905	4822 116 83872	RES.METAL FILM	220R	5%	0,5W		
3907	4822 116 83872	RES.METAL FILM	220R	5%	0,5W		
3908	4822 051 20471	RES.CHIP	470R00	5%	0,1W		
3909	4822 051 20104	RES.CHIP	100K00	5%	0,1W		
3912	4822 051 20008	RES.CHIP	0R00 JUMP. (0805)				
3913	4822 051 20153	RES.CHIP	15K00	5%	0,1W		
3915	4822 051 20101	RES.CHIP	100R00	5%	0,1W		
3916	4822 051 20008	RES.CHIP	0R00 JUMP. (0805)				
3924	4822 051 20153	RES.CHIP	15K00	5%	0,1W		
3928...							
3930	4822 116 83872	RES.METAL FILM	220R	5%	0,5W		
3931	4822 051 20102	RES.CHIP	1K00	5%	0,1W		
3932	4822 116 52263	RES.METAL FILM	2K7	5%	0,5W		
3934	4822 051 20153	RES.CHIP	15K00	5%	0,1W		
3938	4822 051 20683	RES.CHIP	68K00	5%	0,1W		
3940	4822 051 20223	RES.CHIP	22K00	5%	0,1W		
3941	4822 051 20104	RES.CHIP	100K00	5%	0,1W		
3943	4822 051 20473	RES.CHIP	47K00	5%	0,1W		
3951	4822 051 20153	RES.CHIP	15K00	5%	0,1W		
3958	4822 051 20102	RES.CHIP	1K00	5%	0,1W		
4910	4822 051 20008	RES.CHIP	0R00 JUMP. (0805)				

COILS

5100	4822 157 71077	COIL	E528DNAS-100079
5200	4822 157 63315	COIL	220UH
5201	4822 157 71059	COIL	VAR. 100MHZ
5202	4822 157 52983	COIL	22UH 10%
5203	4822 157 53473	COIL	1000UH
5205	4822 157 52983	COIL	22UH 10%
5206	4822 157 71057	COIL	VAR. 47000UH
5207	4822 157 71058	COIL	VARIABLE
5208	4822 156 21722	COIL	VAR. 10,7MHZ
5209	4822 157 71055	COIL	VAR. 72,2MHZ
5210	4822 157 71055	COIL	VAR. 72,2MHZ
5211	4822 156 21721	COIL	2,2UH
5212	4822 156 21719	COIL	1,5UH
5301	4822 156 21724	COIL	VAR. 450KHZ
5302	4822 156 21741	COIL	ADJ. 10,7MHZ
5401	4822 157 53575	COIL	3,3UH
5701	4822 157 70935	COIL	FILTER ASSY 100UH
5905...			
5910	4822 152 20677	COIL	10MUH

DIODES

6100	4822 130 81711	DIODE,CHIP	1SV172
6102	4822 130 83904	DIODE	BB804-E6327
6200	5322 130 34337	DIODE,CHIP	BAV99
6300	4822 130 30621	DIODE	1N4148
6420	5322 130 34337	DIODE,CHIP	BAV99
6430	5322 130 34337	DIODE,CHIP	BAV99
6502...			
6704	4822 130 30621	DIODE	1N4148
6705	4822 130 80751	DIODE	1S1885 A
6706	4822 130 81196	RECTIFIER	S5566B
6708	4822 130 30621	DIODE	1N4148
6711	4822 130 34173	DIODE,REFERENCE	BZX79-C5V6
6712	4822 130 82594	DIODE,CHIP	BAT54C
6713	4822 130 82594	DIODE,CHIP	BAT54C
6714...			
6717	4822 130 30621	DIODE	1N4148
6718	5322 130 34331	DIODE,CHIP	BAV70
6719	4822 130 82594	DIODE,CHIP	BAT54C
6720...			
6723	4822 130 30621	DIODE	1N4148
6761	4822 130 34173	DIODE,REFERENCE	BZX79-C5V6
6762	5322 130 34331	DIODE,CHIP	BAV70
6904	4822 130 34173	DIODE,REFERENCE	BZX79-C5V6
6905	4822 130 34167	DIODE,REFERENCE	BZX79-B6V2
6907...			
6909	4822 130 80954	DIODE,REFERENCE	BZV55-C5V6

TRANSISTORS AND IC's

7100	4822 130 63545	TRANSISTOR,FET	BF999
7200	4822 130 83614	DIODE	BB135
7201	4822 130 63534	TRANSISTOR,FET	PMBFJ309
7202	4822 209 33168	INTEGR.CIRCUIT	TEA6811V/C2/R1
7300	4822 209 33167	INTEGR.CIRCUIT	TEA6821T/V2
7301	4822 130 60887	TRANSISTOR,CHIP	BF840
7351	4822 209 90303	INTEGR.CIRCUIT	TDA7372A
7352	4822 130 42705	TRANSISTOR,CHIP	BC847
7401	4822 209 83159	INTEGR.CIRCUIT	LA2000
7403	4822 209 90304	INTEGR.CIRCUIT	TDA7330BD
7420	4822 209 32742	INTEGR.CIRCUIT	TL074IN
7503...			
7507	4822 130 42705	TRANSISTOR,CHIP	BC847
7508	5322 130 60508	TRANSISTOR,CHIP	BC857B
7509	4822 130 42705	TRANSISTOR,CHIP	BC847
7510	4822 209 32744	INTEGR.CIRCUIT	TEA0675T/V1
7511...			
7581	4822 130 42705	TRANSISTOR,CHIP	BC847
7601	4822 209 32995	INTEGR.CIRCUIT	TDA7313/
7661	4822 130 42353	TRANSISTOR	BFS19
7662	4822 130 42705	TRANSISTOR,CHIP	BC847
7701	4822 209 33029	INTEGR.CIRCUIT	TDA3602/N3
7706	4822 130 42705	TRANSISTOR,CHIP	BC847
7711	4822 130 61233	TRANSISTOR,CHIP	BC857
7712	4822 130 42705	TRANSISTOR,CHIP	BC847
7713	4822 130 42705	TRANSISTOR,CHIP	BC847
7714	4822 130 40995	TRANSISTOR	BD438
7715	4822 130 61233	TRANSISTOR,CHIP	BC857
7716	4822 130 61233	TRANSISTOR,CHIP	BC857
7717...			
7719	4822 130 42705	TRANSISTOR,CHIP	BC847
7720	4822 130 61233	TRANSISTOR,CHIP	BC857
7721	4822 130 42705	TRANSISTOR,CHIP	BC847
7722...			
7724	4822 130 61233	TRANSISTOR,CHIP	BC857
7760...			
7763	4822 130 42705	TRANSISTOR,CHIP	BC847
7764	4822 130 61233	TRANSISTOR,CHIP	BC857
7765	4822 130 42705	TRANSISTOR,CHIP	BC847
7768	4822 130 61233	TRANSISTOR,CHIP	BC857
7769	4822 130 42705	TRANSISTOR,CHIP	BC847
7770	4822 130 61233	TRANSISTOR,CHIP	BC857
7771	4822 130 42705	TRANSISTOR,CHIP	BC847
7906	5322 209 11446	INTEGR.CIRCUIT	HEF4051BT
7907	4822 130 42705	TRANSISTOR,CHIP	BC847
7908	4822 130 42705	TRANSISTOR,CHIP	BC847
7909	4822 130 42615	TRANSISTOR,CHIP	BC817-40
7910	4822 130 42705	TRANSISTOR,CHIP	BC847
7911	4822 209 90305	MICROPROCESSO	P83CE 5 59EFB/010 RC2
7912	5322 209 12323	INTEGR.CIRCUIT	CAT24C16PI
7915	4822 130 42615	TRANSISTOR,CHIP	BC817-40

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Service
Service
Service

Service Manual

12 V

TECHNICAL DATA

Operating voltage	: 9 - 16V (nom. 13.2V)
Tape speed	: 4.76cm/sec ± 0.5%
Wow & flutter	: ≤ 0.35% RMS (+10 - +45°C)
Crosstalk (track 2-3)	: < -40dB
Fast wind time	: ≤ 115secs (C-60)
Number of tracks	: 2x2
Channel separation (Tracks 1-2/3-4)	: > 35dB

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PCS 81 011

PHILIPS

GENERAL

The LCA2.4 has the following features:

- Dolby
- "Key-Off" standby
- Automatic Music sensor System
- Metal / Ferro tape selector switch

MAINTENANCE

The cassette mechanism requires periodic cleaning, as well as periodic lubrication of the principal points.

1. Cleaning with alcohol or spirit

- Playback head (pos.332).
- Pressure rollers & capstans (pos.17, 57 and 58).
- Belt (pos.207) & pulley (pos.39).

To clean head, pressure roller and capstan, it is also possible to use drop-in cassette SBC114 (4822 389 20035).

2. Lubrication

Refer to the 'Lubrication Overview' on page 5.

ADJUSTMENTS AND CHECKS

Equipment required:
- Universal test cassette SBC419 (4822 397 30069)
- Universal test cassette SBC420 (4822 397 30071)
- Friction test cassette 811/CTM (4822 395 30054)
- Spring scale 50-500g (4822 395 80028)
- Puller for clutch (4822 395 60039)
- Wow & flutter meter
- AC millivoltmeters
- Spring scale 50-500 g

1. Pressure roller pressure

The pressure on the capstans should be 210 - 370 grammes (2.1 - 3.7N).
This pressure is measured as follows (NOR and REV):

- Select Play mode.
- Push the pressure roller back at the shown point by means of the spring scale.
- At the point where pressure roller and capstan just disengage the spring scale should be read.
- If the pressure is incorrect, replace spring 19.

2. Friction clutch (Reel assy)

- Insert friction test cassette 811/CTM (NOR and REV).
- Play take-up torque should be 35 - 75g/cm.
- Fast wind torque should be 40 - 150g/cm.
- If the torque is not correct, replace reel assy.

3. Wow & flutter/tape speed (Fig. G)

This check is carried out on a complete car radio; proceed as follows:
- Connect the wow & flutter meter to the LS outputs.
- Insert test cassette SBC419 (or SBC420) and play the 3150Hz signal.
- The wow & flutter value should be ≤ 0.35%.
- Tape speed should be 4.76cm/sec. ± 0.5%.
- The tape speed can be adjusted with screw "S".

In case of an excessive wow & flutter value, check following parts for correct functioning:
- motor 320
- pressure (pinch) rollers 17
- belt 207
- friction clutches (reel assy's)
- flywheels 57 and 58
- pulley 39

4. Azimuth (Figs. G, H)

This check is carried out on a complete car radio; proceed as follows:
- Apply a 4Ω load to both loudspeaker outputs.
- Connect an AC millivoltmeter across both loudspeaker outputs.
- Play the 10kHz signal of test cassette SBC419 or SBC420.
- Adjust screw 'A' for the average of the max. output voltages.
- The maximum allowed difference between both channels is 4 dB.
- Switch over to 'reverse play'.
- If the value measured differs from the previously measured value, bearing 49 in the front flywheel ("reverse") should be displaced.

5. Flywheels 57, 58

Refer to Fig. J.

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BELT 207, FLY WHEELS 57 & 58, COG WHEEL ASSY 12,33

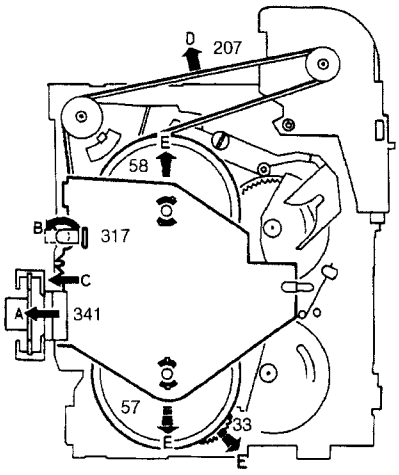

Fig. A

PRESSURE ROLLER 17, HEAD 332

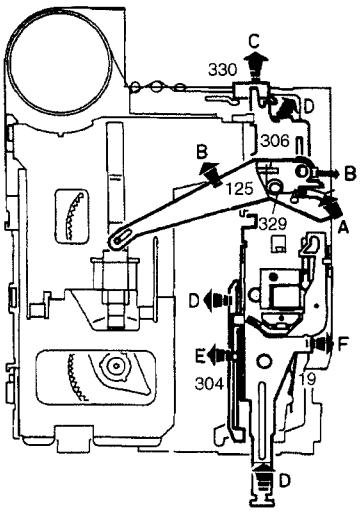

Fig. B

HEAD BRACKET 298

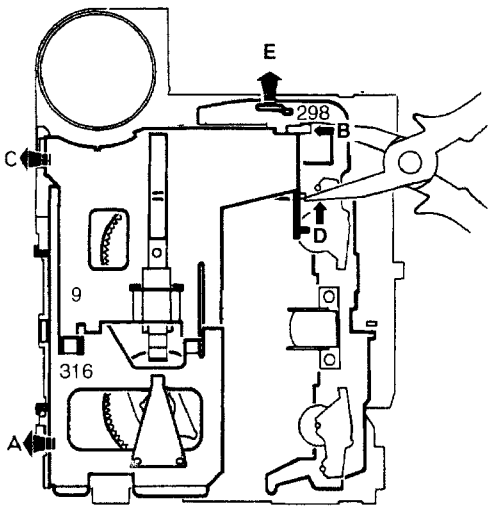

Fig. C

CLUTCH 6

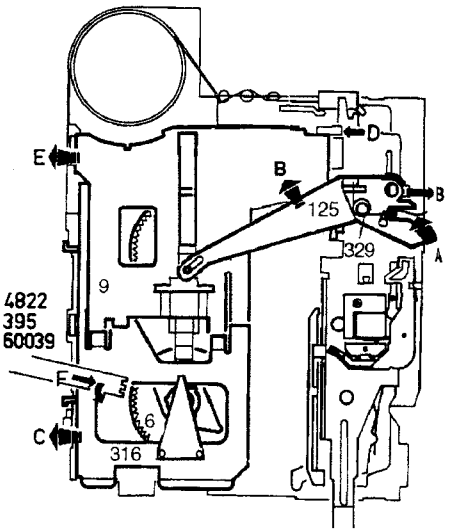

Fig. D

COG WHEELS 30, 31, 34

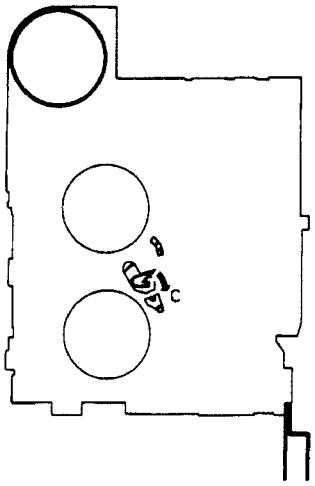

Fig. E

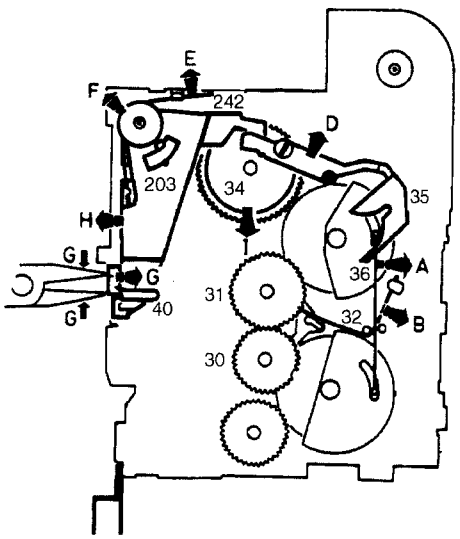

Fig. F

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DISASSEMBLY INSTRUCTIONS

Notes:
In a few places parts are locked by synthetic bosses.
To be able to dismantle these parts, the bosses have to be bent, displaced etc.
Gearwheels 33 and 34 and pressure rollers 17 are attached to the spindles by means of a snap connection.
These parts can be disassembled carefully with a screwdriver.
If gearwheel 33 (or 34) has to be replaced, the corresponding bracket 12 (or 13) should ALSO be replaced.

Belt 207, Fly wheels 57 & 58, Cog wheel assy 12 & 33
See figure A.

Pressure roller 17, Head assy 332
See figure B.

Head bracket 298
See figure C.

Clutch 6
See figure D.

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Cog wheels 30, 31, 34
See figure E.

Reel base assy
See figure F.

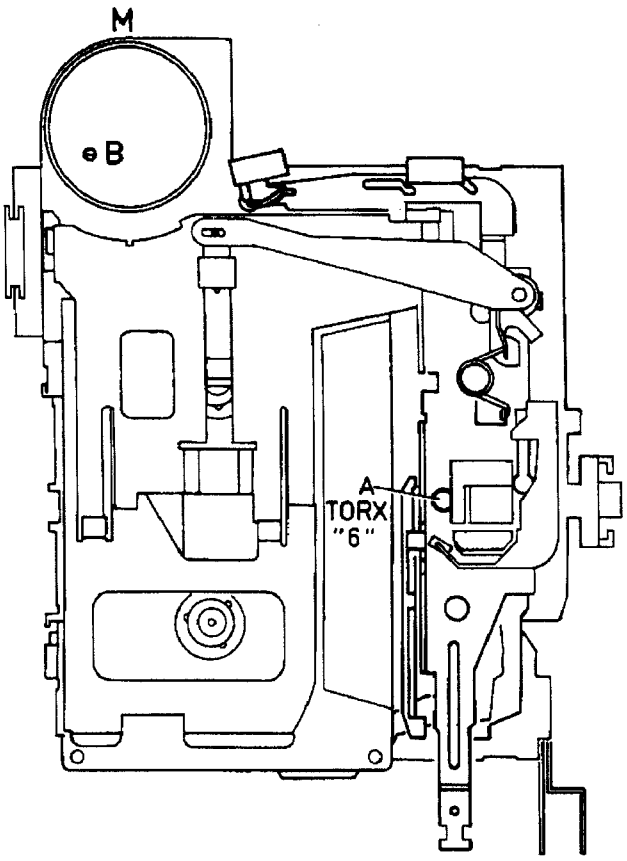

Fig. G

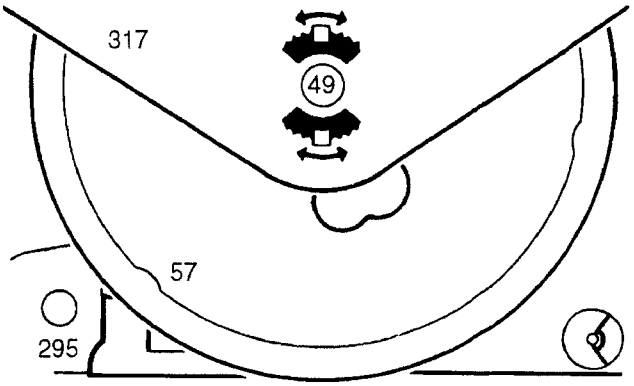

Fig. H

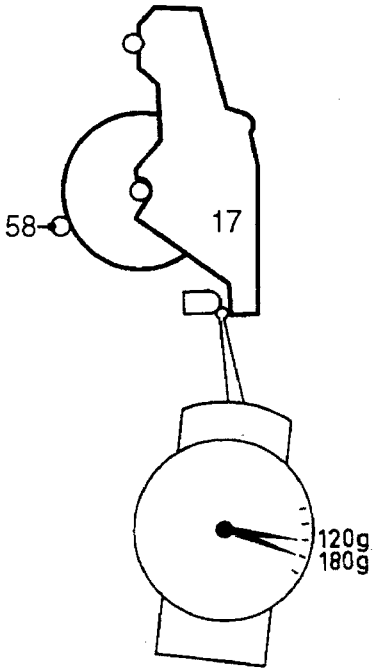

Fig. I

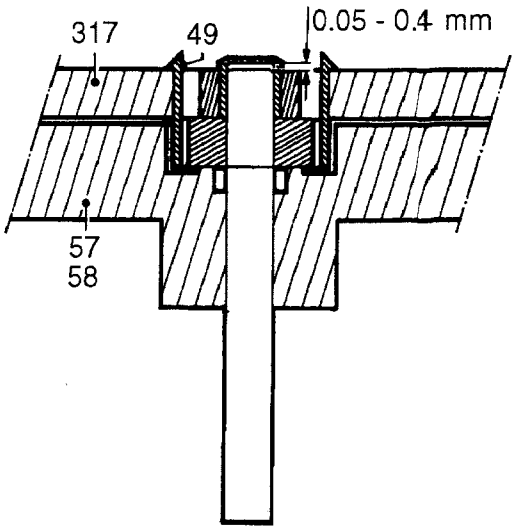

Fig. J

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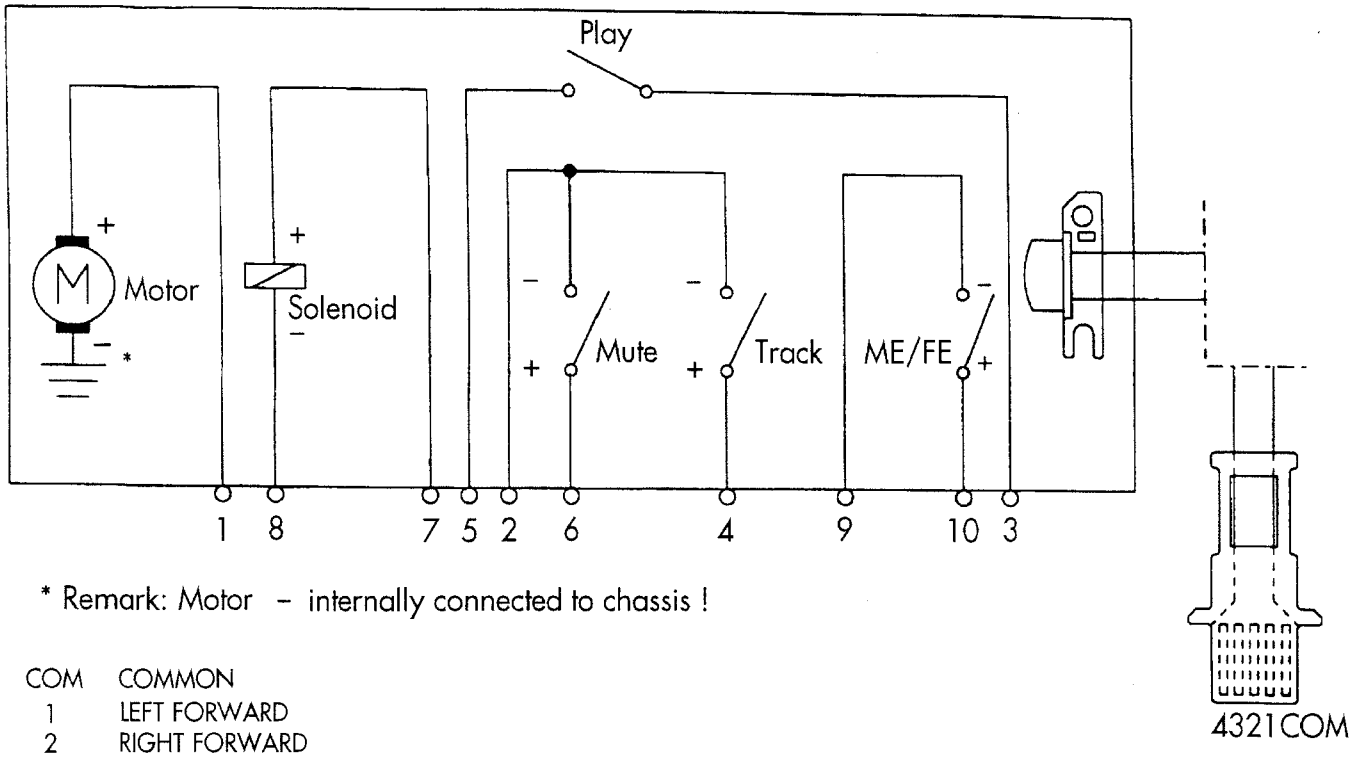
CONNECTIONS



* Remark: Motor – internally connected to chassis !

COM	COMMON
1	LEFT FORWARD
2	RIGHT FORWARD
3	RIGHT REVERSE
4	LEFT REVERSE

Fig. K

Fig. N

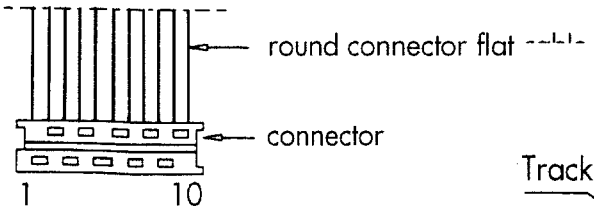


Fig. L

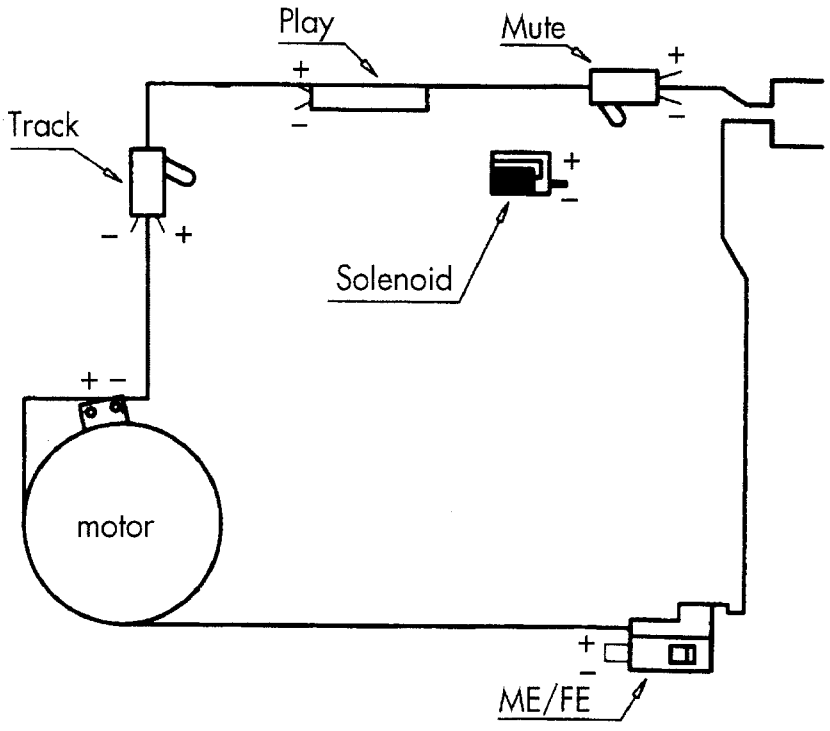


Fig. M

wire	colour	function
1	red	Motor+
2	brown	COMMON
3	orange	+14V
4	yellow	Track SW
5	green	Play SW
6	blue	Mute SW
7	violet	+ Solenoid
8	grey	– Solenoid
9	white	– ME/FE
10	black	+ ME/FE

Fig. O

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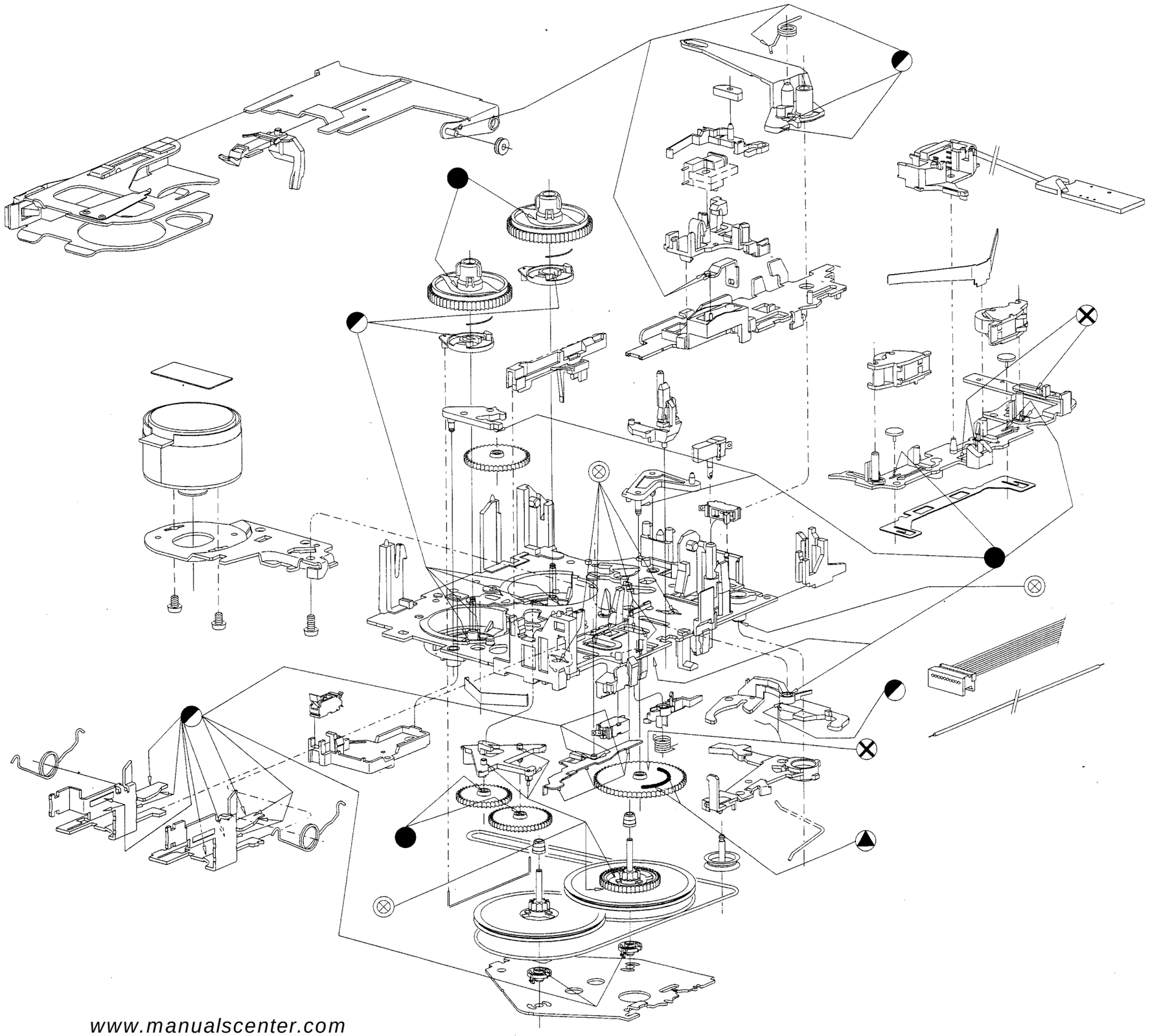
LUBRICATION OVERVIEW



- Contact Oel PDP 65
- Grease Topas L30
- Grease SM 30 TF
- Grease Gleitmo 585 K
- Grease 4

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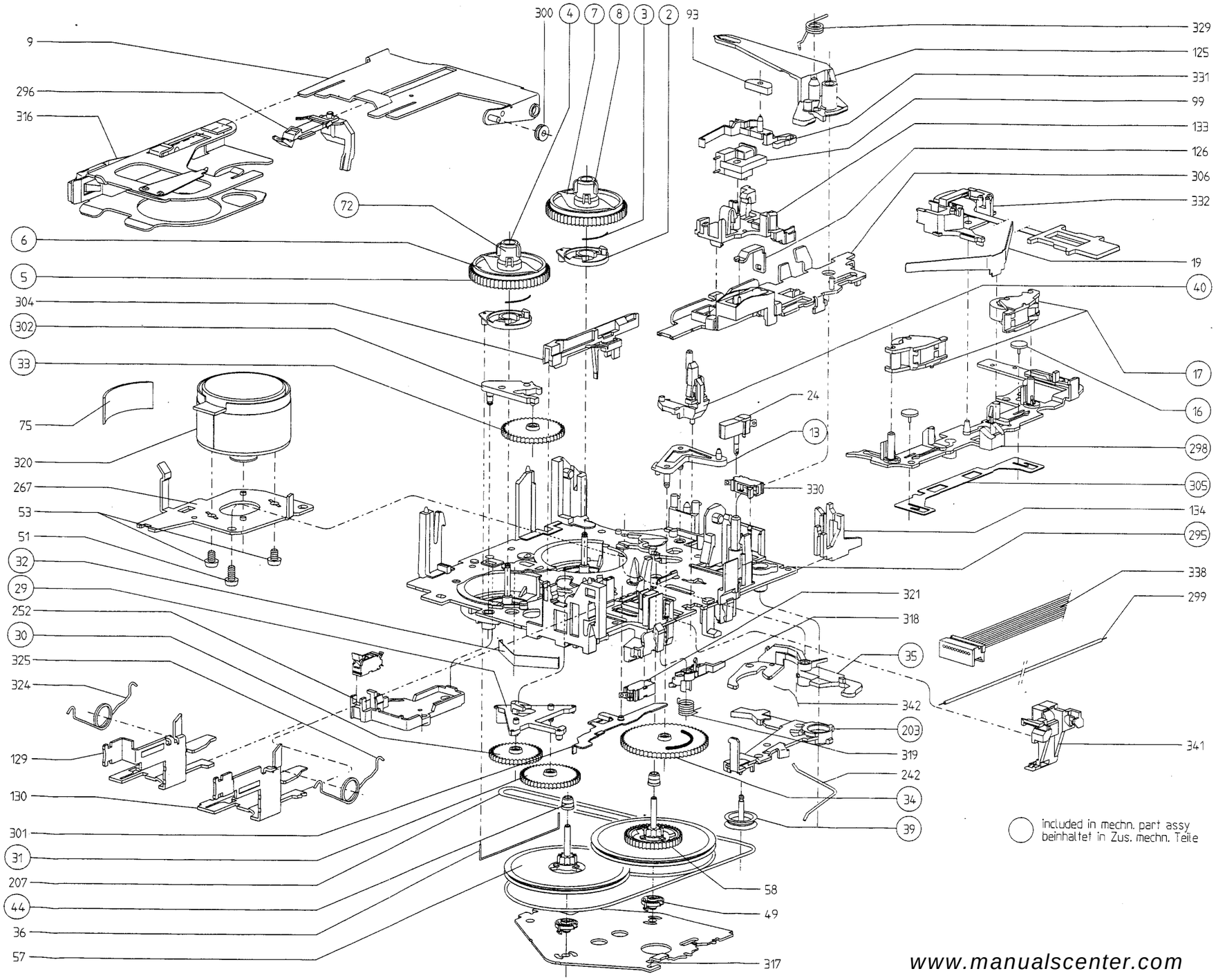
EXPLODED VIEW



PARTS LISTS

2/3	4822 466 70527	Disc assy
4/5/6/7/8	4822 466 70526	Coupling felt assy white
4/5/6/7/72	4822 528 10898	Coupling felt assy black
9	4822 466 81479	Cassette lift
16	4822 528 80983	Fixation
17	4822 403 40157	Pressure roller assy
24	4822 276 13081	Play switch
29/30/31	4822 522 20327	Gear assy
32	4822 492 71468	Leaf spring
35	4822 403 52031	Gear arm
36	4822 492 90076	Lever
39	4822 528 81144	Pulley
40	4822 403 10225	Holder
44	4822 520 30406	Bush bearing
49	4822 520 30407	Excentric
53	4822 502 12548	Special screw
54/207	4822 358 30405	Driving belt
58	4822 528 81517	Fly wheel assy
93	4822 281 60165	Anchor plate
99	4822 281 50113	Solenoid magnet
125	4822 403 71287	Lever eject
126	4822 403 71286	Lever blocking
133	4822 466 83076	Plate solenoid II
203	4822 404 21169	Arm
296	4822 256 92317	Holder cassette
298	4822 403 71282	Head support bracket
304	4822 462 30632	Band conductor
306	4822 403 71283	Push button rod
318	4822 403 71284	Latch
319	4822 492 42774	Spring latch
320	4822 361 21764	Motor MSI-5 CCW
321	4822 276 13617	Switch mute
330	4822 276 13616	Switch track
331	4822 403 71285	Lever solenoid
332	4822 249 30227	Magnetic head
	4822 691 10438	Deck LCA2.4 complete

Lubrication greases/oils

4822 390 10107	Isoflex PDP 65, 30ML
4822 390 20128	Isoflex TOPAS L 30
4822 390 20116	Grease 004, 100G CAN
4822 390 20128	Isoflex TOPAS L 30

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