Cassette Car Radio 22 DC 396/75

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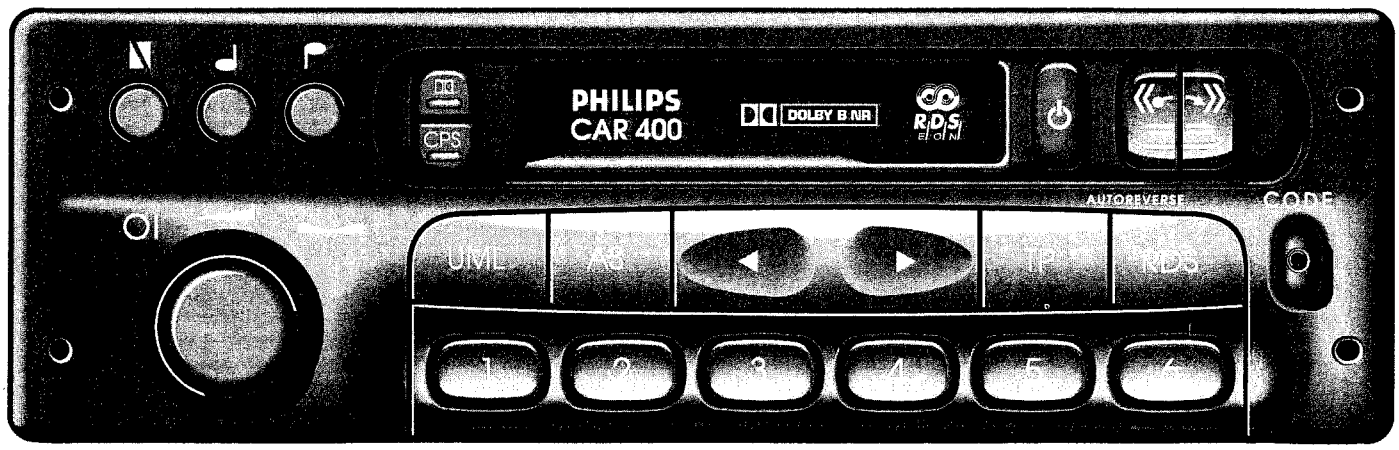
For repair instructions of the cassette deck see Service Manual LCA *2-4 (4822 725 23523)

Service Manual

12 V



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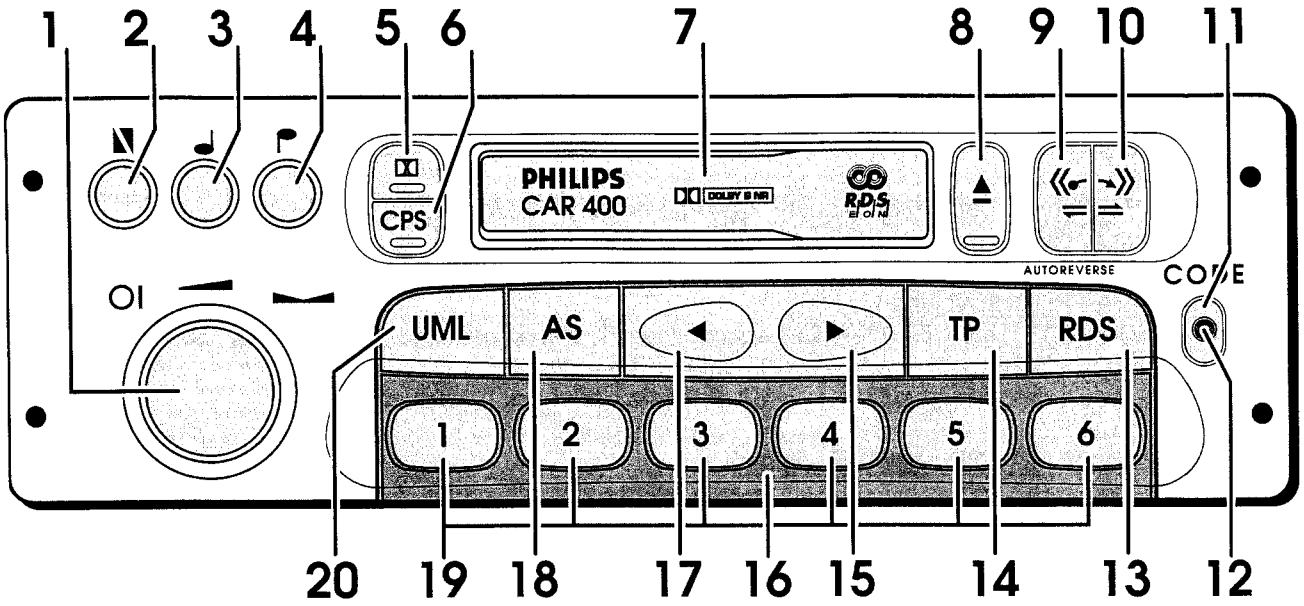


RADIO CONTROLS

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

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

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.

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

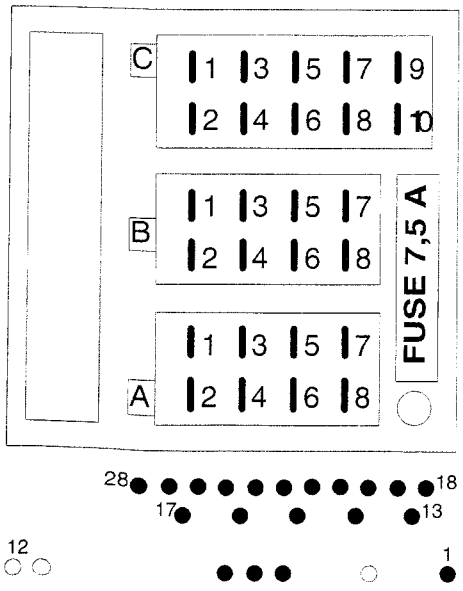
Wrong code	
Enter wrong code number 1st	SAFE (10 sec. waiting time) - 9 - - -
Enter wrong code number 2nd	SAFE (10 sec. waiting time) - 8 - - -
Enter wrong code number 3rd	SAFE (10 min. waiting time) - 7 - - -
Enter wrong code number 4th	SAFE (20 min. waiting time) - 6 - - -
Enter wrong code number 5th	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

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'

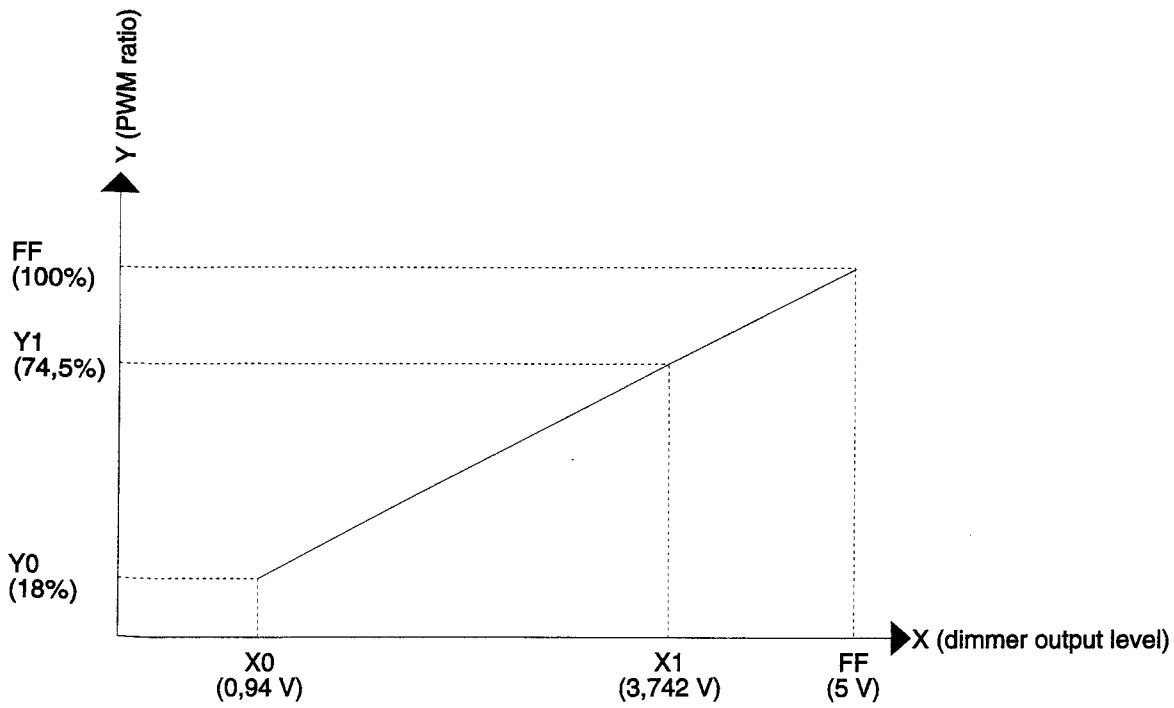
REPRESENTATION OF FIELDSTRENGHT

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



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.)

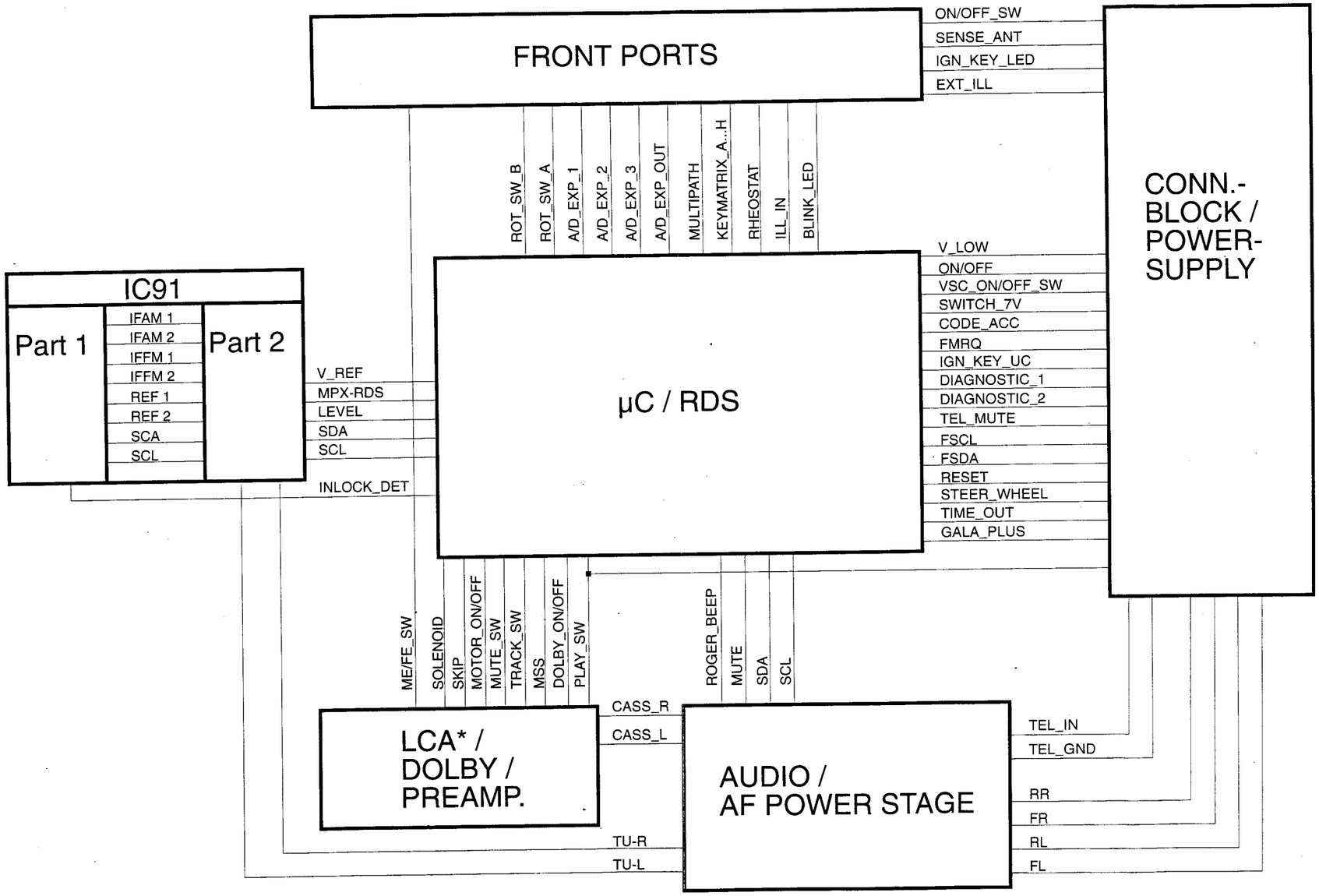
8-digit display	V■AMNIRP	V = Testmode AF VALUATED indication		
		A = Fieldstrenght	0-F	(F=good)
	CPS	M = Multipath	0-F	(0=good)
		N = Noise	0-F	(0=good)
		I = Neighbor channel disturbance	0-3	(0=good)
10-digit display	■■V■AMNIRP	R = RDS sync.state	0-F	(F=good)
		P = PI confidence level	0-F	(F=good)
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

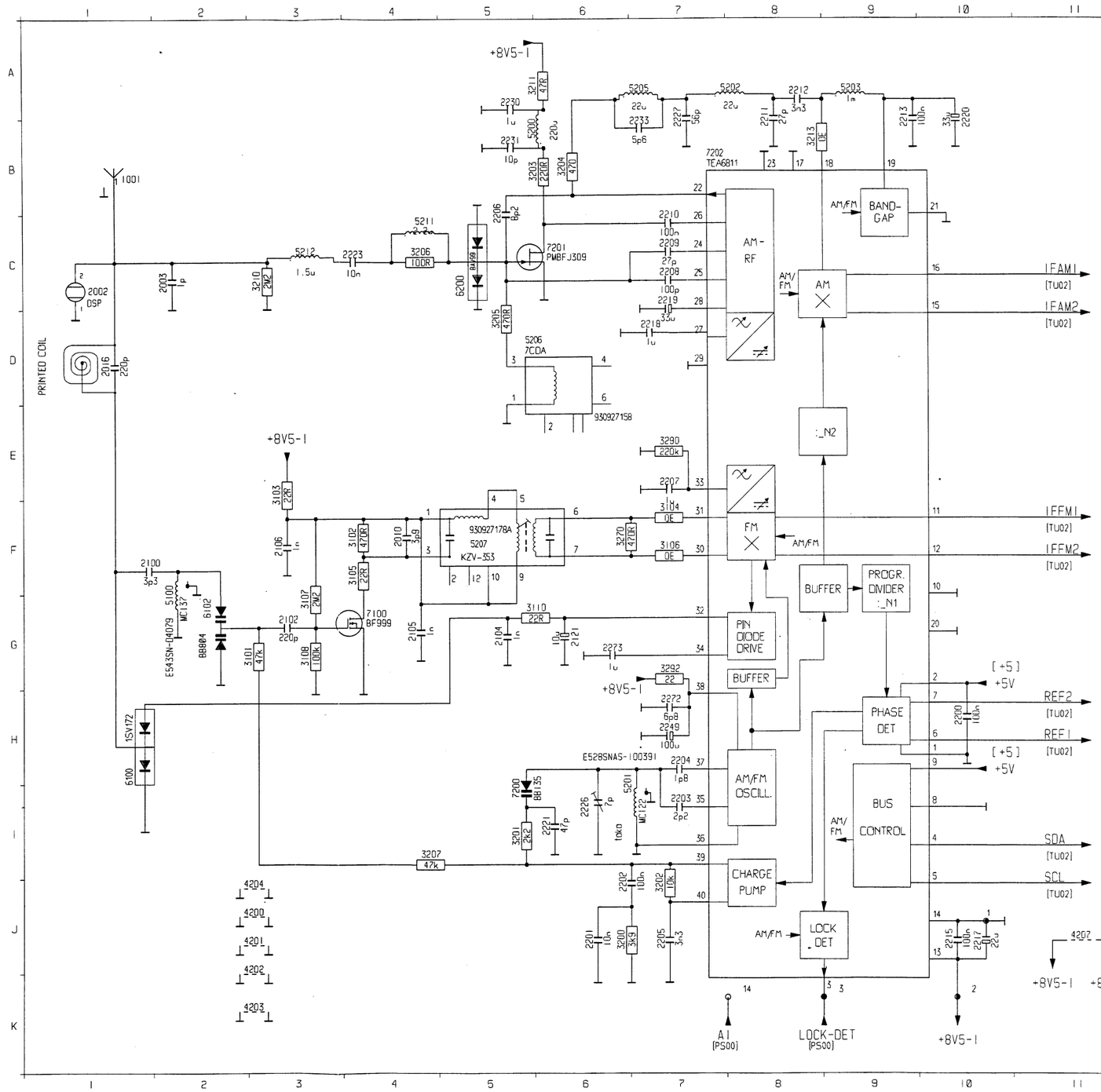
During testmodes AF Frequency, AF valuated, AF Current a next or previous AF can be selected with ◄ or ►

Switch set off to leave the testmode.

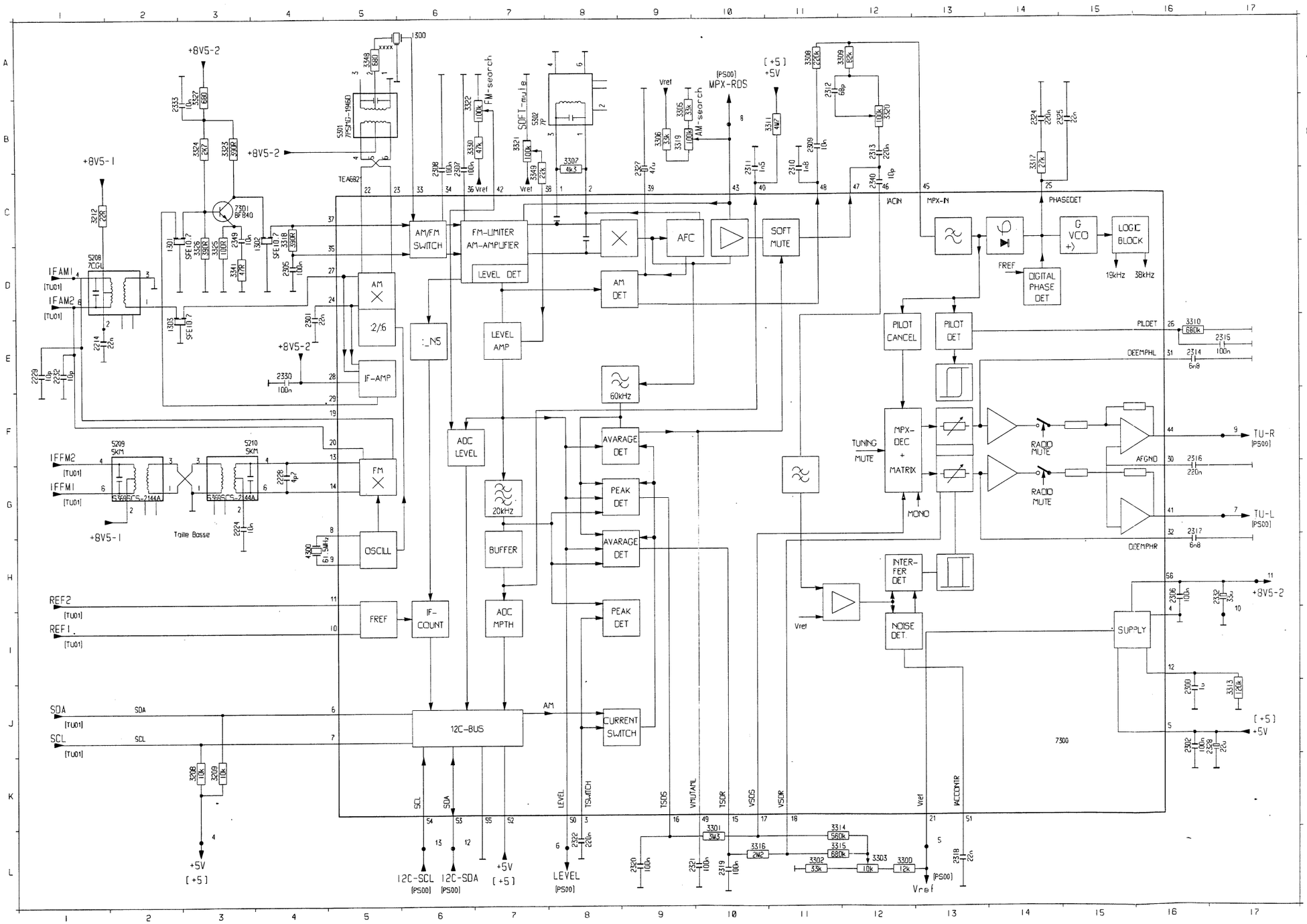

FRONT PORTS
ON/OFF_SW
SENSE_ANT
IGN_KEY_LED
EXT_ILL
ROT_SW_B
ROT_SW_A
A/D_EXP_1
A/D_EXP_2
A/D_EXP_3
A/D_EXP_OUT
MULTIPATH
KEYMATRIX_A...H
RHEOSTAT
ILL_IN
BLINK_LED
CONN.-
BLOCK /
POWER-
SUPPLY
IC91
Part 1
IFAM 1
IFAM 2
IFFM 1
IFFM 2
REF 1
REF 2
SCA
SCL
Part 2
V_REF
MPX-RDS
LEVEL
SDA
SCL
INLOCK_DET
µC / RDS
V_LOW
ON/OFF
VSC_ON/OFF_SW
SWITCH_7V
CODE_ACC
FMRQ
IGN_KEY_UC
DIAGNOSTIC_1
DIAGNOSTIC_2
TEL_MUTE
FSCL
FSDA
RESET
STEER_WHEEL
TIME_OUT
GALA_PLUS
ME/FE_SW
SOLENOID
SKIP
MOTOR_ON/OFF
MUTE_SW
TRACK_SW
MSS
DOLBY_ON/OFF
PLAY_SW
ROGER_BEEP
MUTE
SDA
SCL
CASS_R
CASS_L
LCA* /
DOLBY /
PREAMP.
AUDIO /
AF POWER STAGE
TEL_IN
TEL_GND
RR
FR
RL
FL
TU-R
TU-L

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

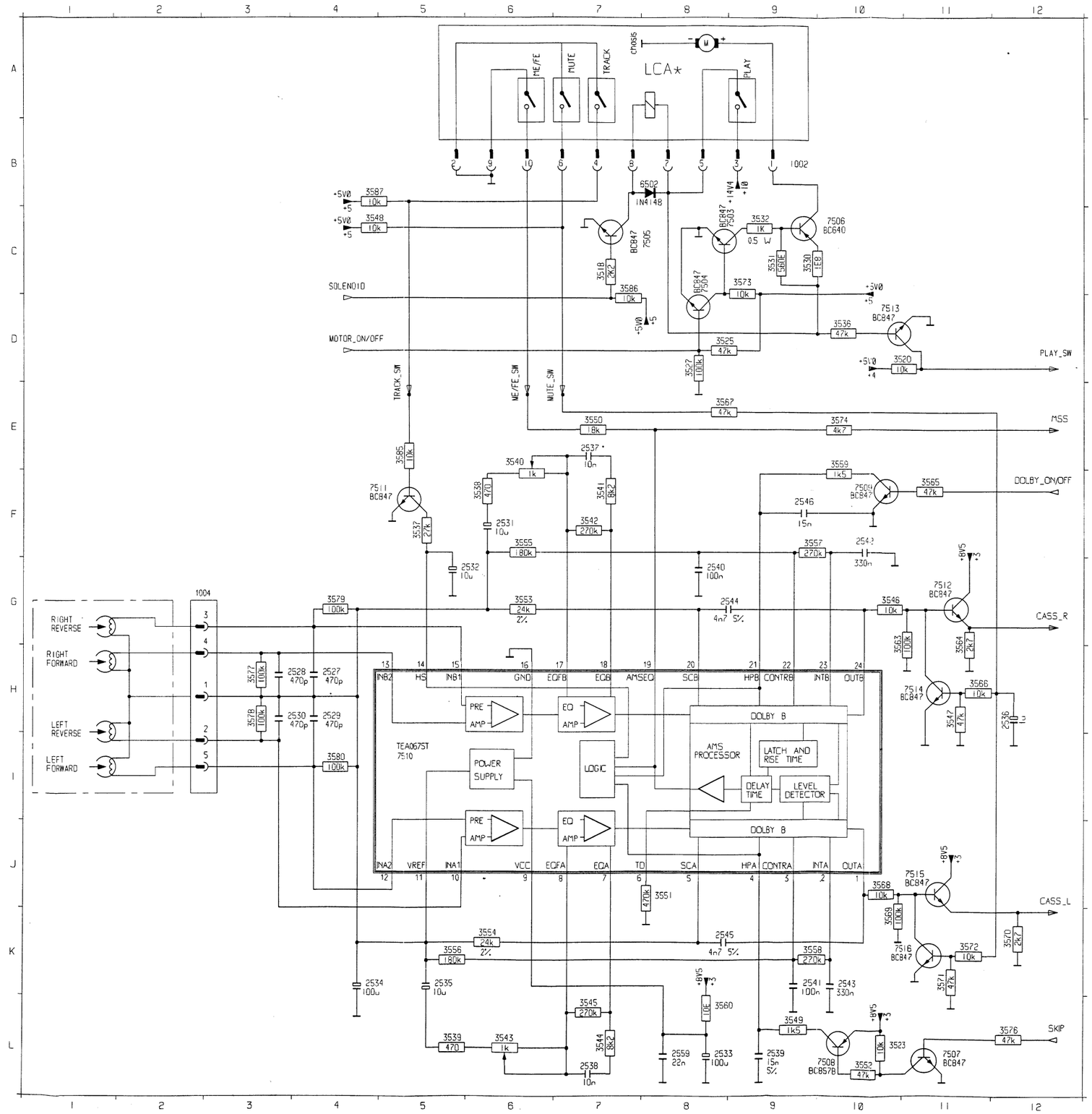


IC 91 Part II



Pos.7300 TEA6821	8: 3,9 V (61,5 MHZ)	16: 5,4 V / 2,7 V (AM)	24: 2,9 V	32: 2,3 V	40: 1,2 V	48: 4,7 V / 3,2 V (AM)	55: GND
1: 4,0 V / 1,2 V (AM)	9: 3,9 V (61,5 MHZ)	17: 3,8 V / 3,5 V (AM)	25: 4,4 V / 3,0 V (AM)	33: 0,8 V / 2,7 V (AM) - 450 KHZ	41: 3,5 V	49: 1...6 V (LEVEL DEP.)	56: 8,4 V
2: 4,0 V / 1,2 V (AM)	10: 4,7 V	18: 3,9 V / 3,4 V (AM)	26: 3,7 V / 0 V (NO STEREO)	34: 1,0 V / 2,7 V (AM)	42: 1,7 V	50: 3...6 V (LEVEL DEP.)	**Pos.7301 BF840**
3: 5,2 V / 0 V (AM)	11: 4,6 V	19: 8,3 V	27: 2,9 V (10,7 MHZ)	35: 2,7 V / 0,8 V (AM)	43: 3,0 V / 2,0 V (AM)	51: 3,7...6 V (LEVEL DEP.) / 0,5 V (AM)	B: 0,8 V (10,7 MHZ)
4: GND	12: 4,3 V	20: 8,3 V	28: 8,4 V	36: 2,7 V	44: 3,5 V	52: 4,9 V	C: 5,8 V (10,7 MHZ)
5: 4,9 V	13: 2,3 V	21: 5,0 V	29: 6,1 V (10,7 MHZ)	37: 2,7 V / 0,8 V (AM) - 10,7 MHZ	45: 2,9 V	53: 4,9 V (SDA)	E: 0,1 V
6: 4,9 V (SDA)	14: 2,3 V	22: 8,4 V	30: 3,4 V	38: 2,4 V	46: 0 V	54: 4,9 V (SCL)	
7: 4,9 V (SCL)	15: 5,5 V / 2,8 V (AM)	23: 8,4 V	31: 2,3 V	39: 3,2 V / 1,5 V (AM)	47: 3,1 V / 0 V (AM)		

LCA / DOLBY



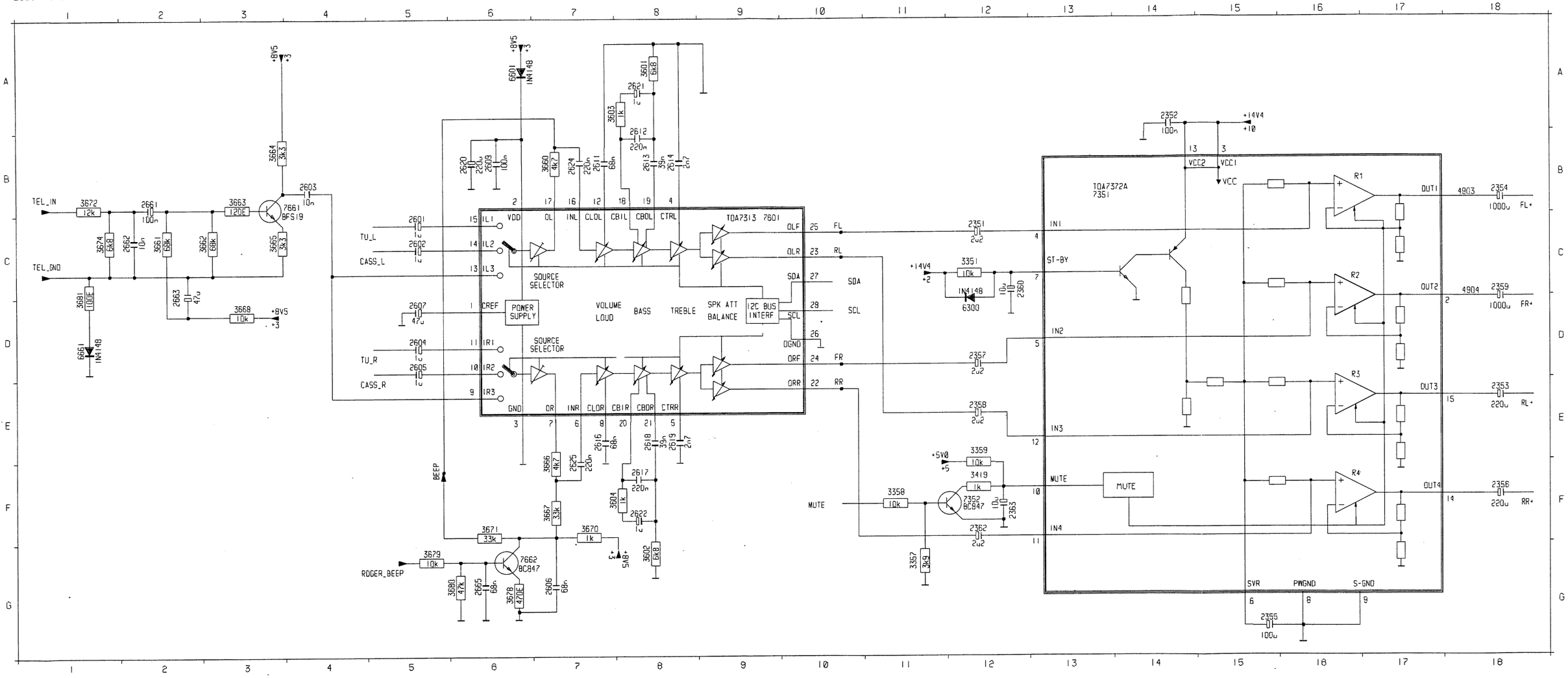
	1002	B 9
	1004	G 2
	2527	H 4
	2528	H 4
A	2529	H 4
	2530	H 4
	2531	F 6
	2532	G 6
	2533	L 8
	2534	K 4
	2535	K 5
	2536	H12
B	2537	E 7
	2538	L 7
	2539	L 9
	2540	G 8
	2541	K 9
	2542	F10
	2543	K10
	2544	G 9
C	2545	K 8
	2546	F 9
	2559	L 8
	3518	C 7
	3520	D10
	3523	L10
	3525	D 8
	3527	D 8
D	3530	C 9
	3531	C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

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												



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

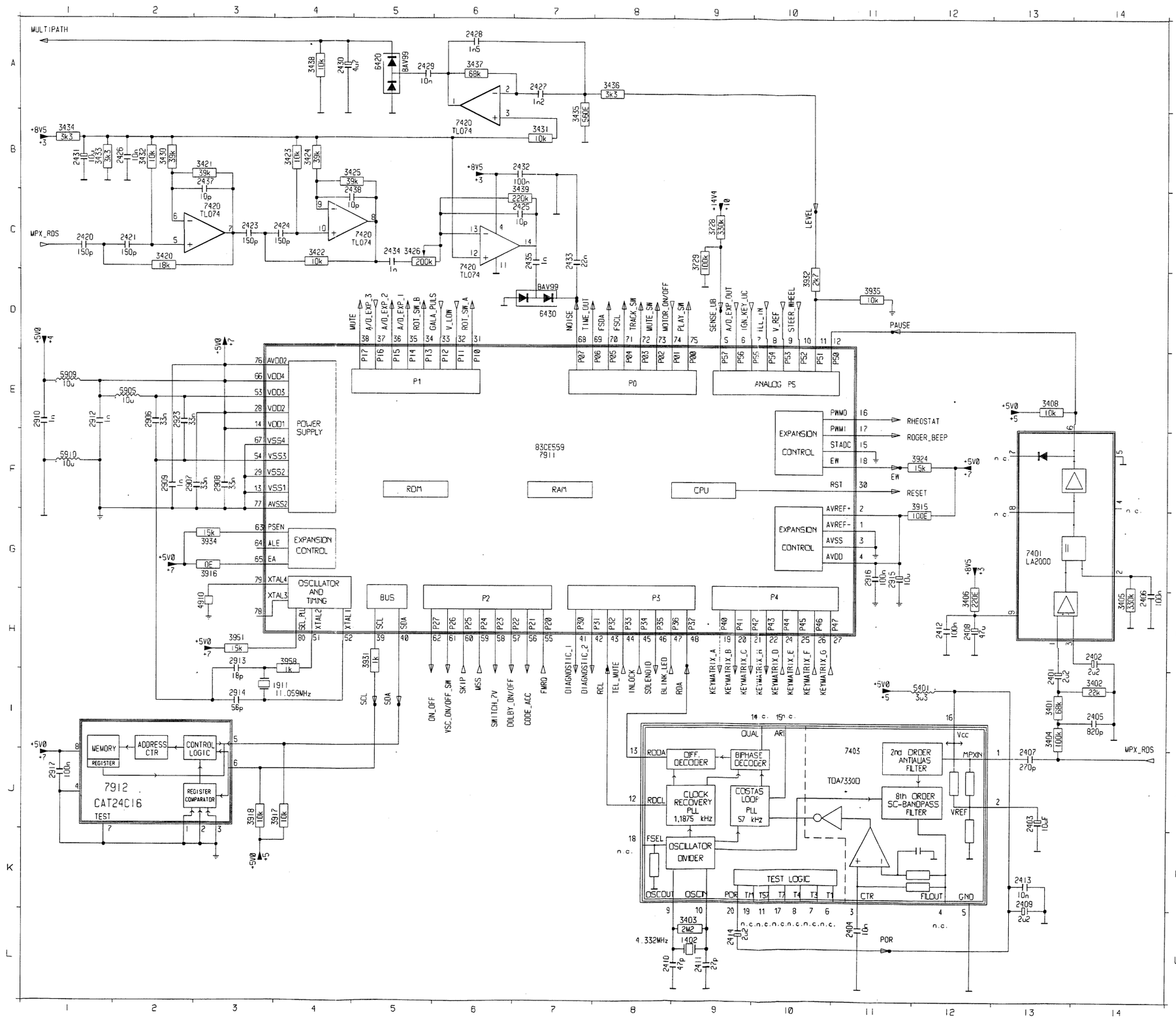
Pos.7352 BC847
B: 0 V
C: 4,9 V
E: GND

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

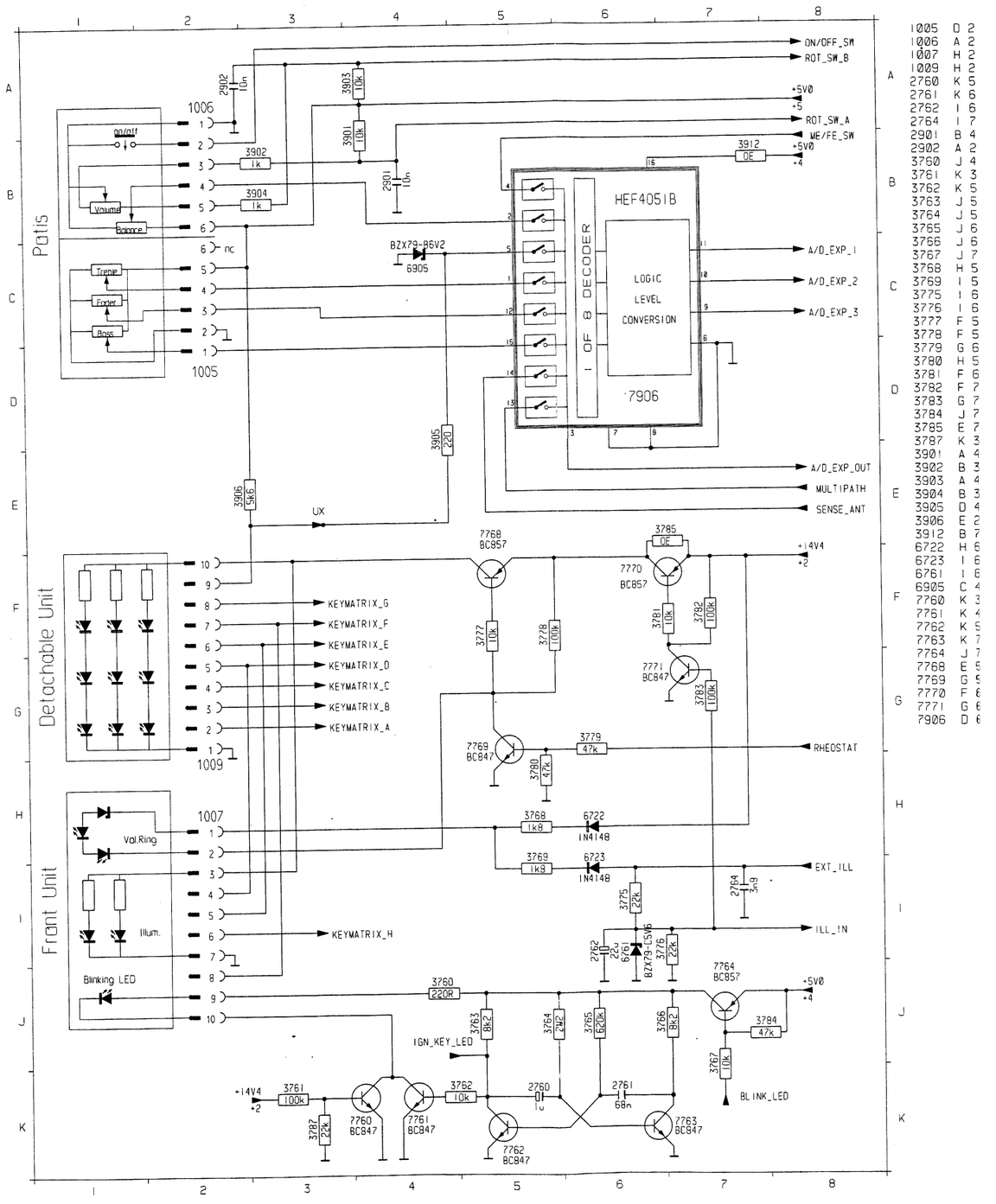
uC / RDS / Noise / Multipath



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		

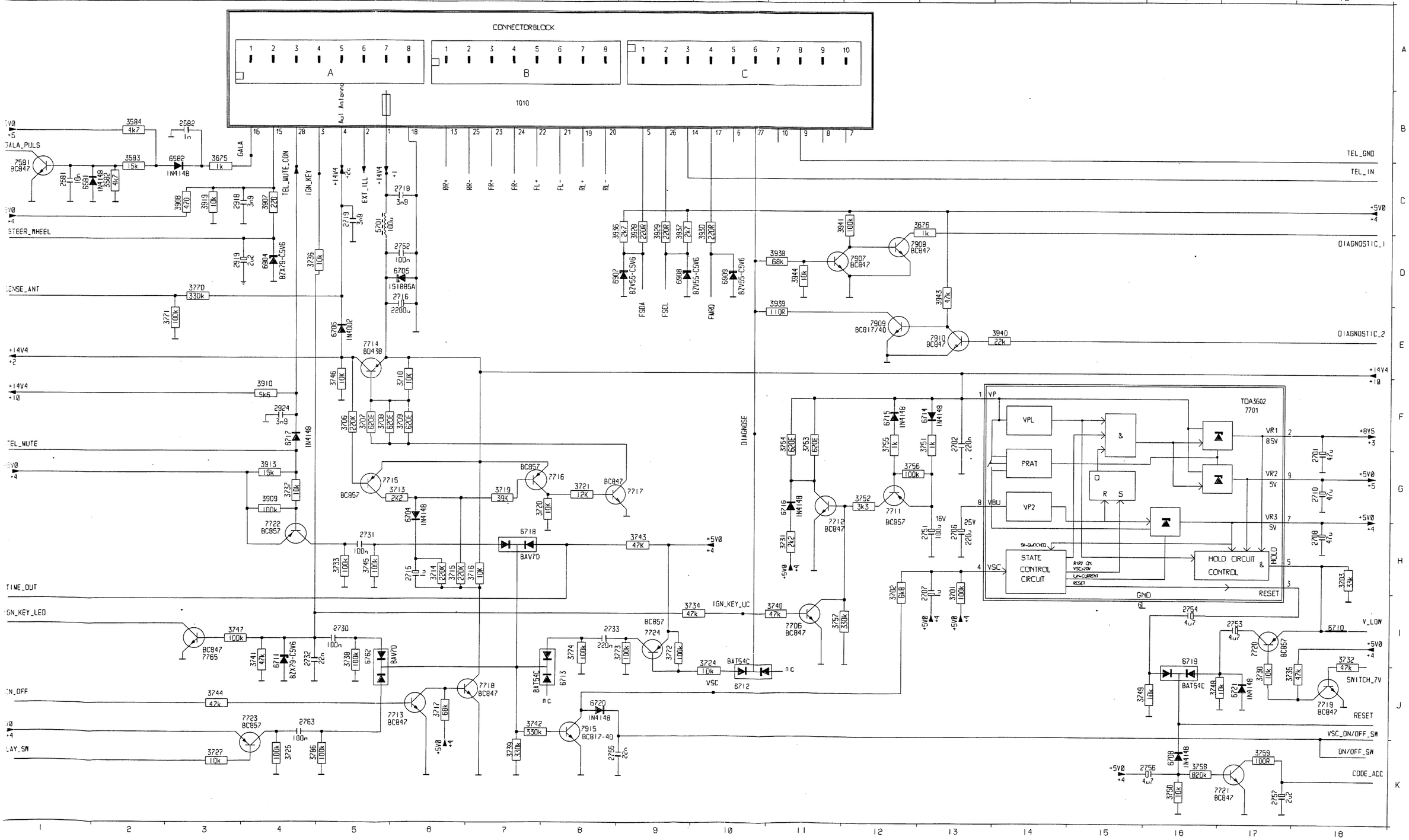
Pos.6420 BAV99
1: 0 V
2: GND
3: 0 V
Pos.6430 BAV99
1: 0 V
2: GND
3: 0 V
Pos.7401 LA2000
1: 2,0 V
2: 7,3 V / 0 V (AM)
3: 2,0 V
4: NC
5: GND
6: 4,9 V
7, 8: NC
9: 7,5 V
Pos.7403 TDA7330BD
1, 2: 2,2 V
3: 1,5 V
4: NC
5: GND
6 - 8: NC
9: 2,4 V (4,3 MHZ)
10: 2,2 V (4,3 MHZ)
11: NC
12: 2,5 V (RCL)
13: ca.2 V (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

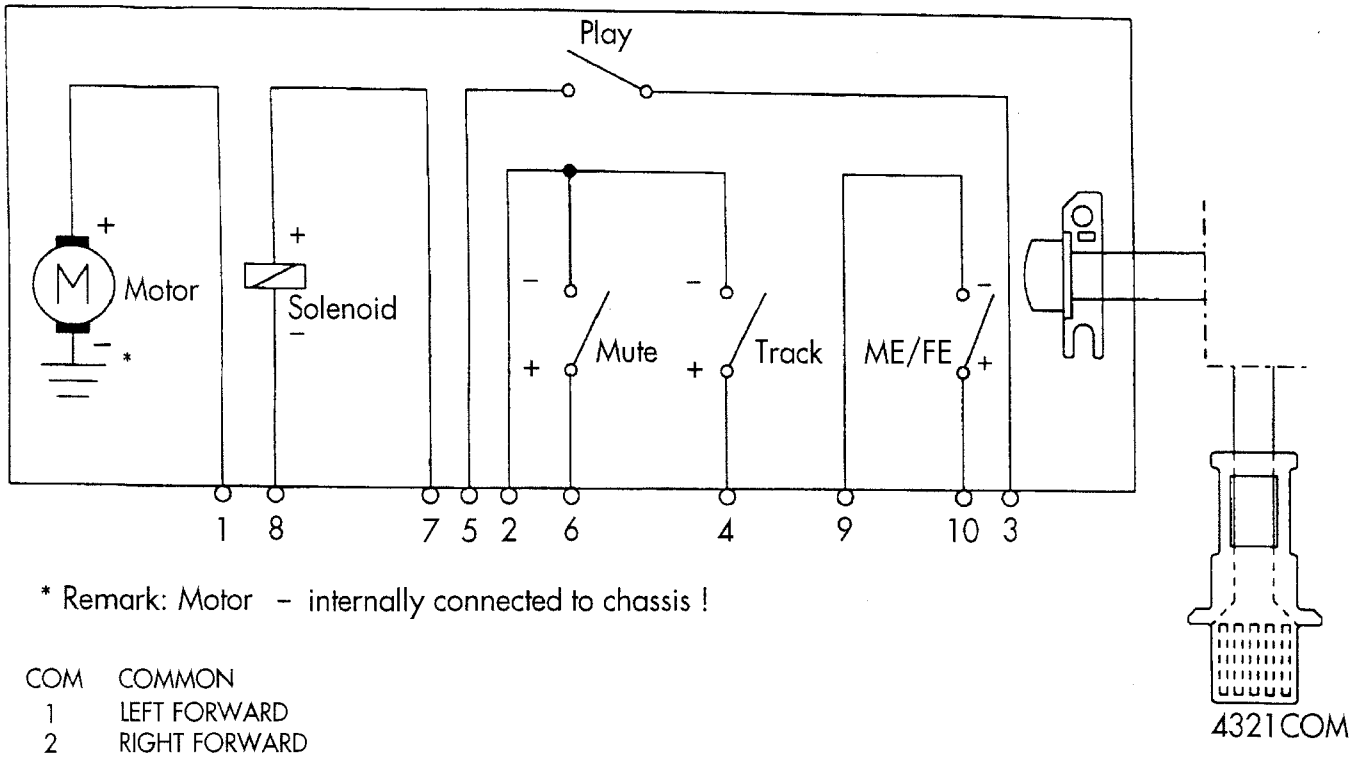


Connectorblock / power supply

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		



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

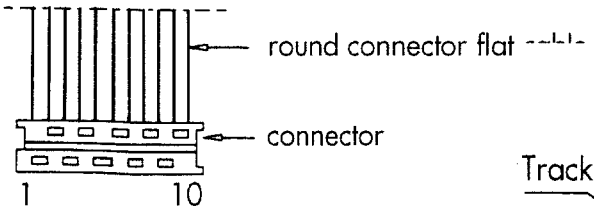


Fig. L

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

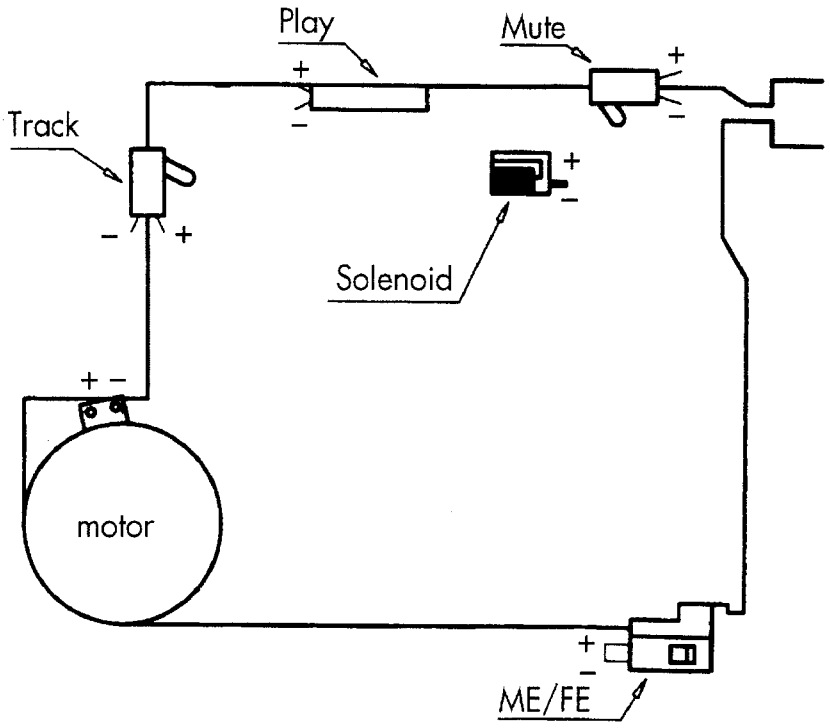


Fig. M