CD AUTO CHANGER

C907

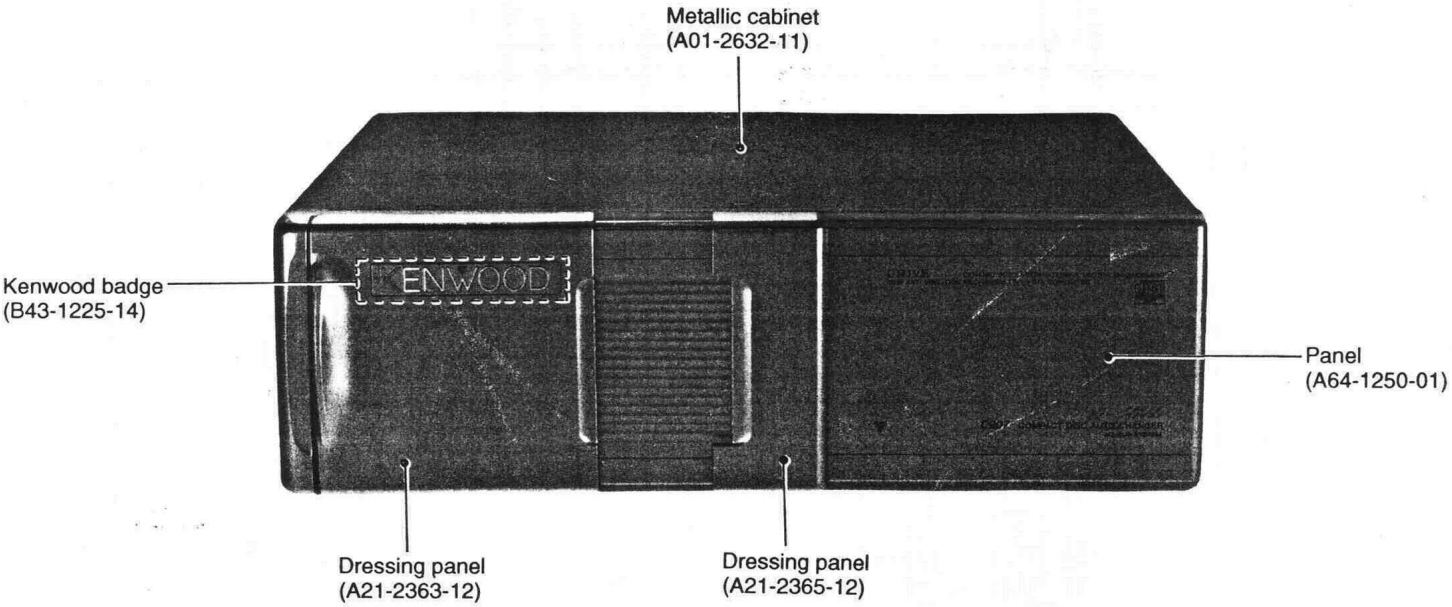
SERVICE MANUAL

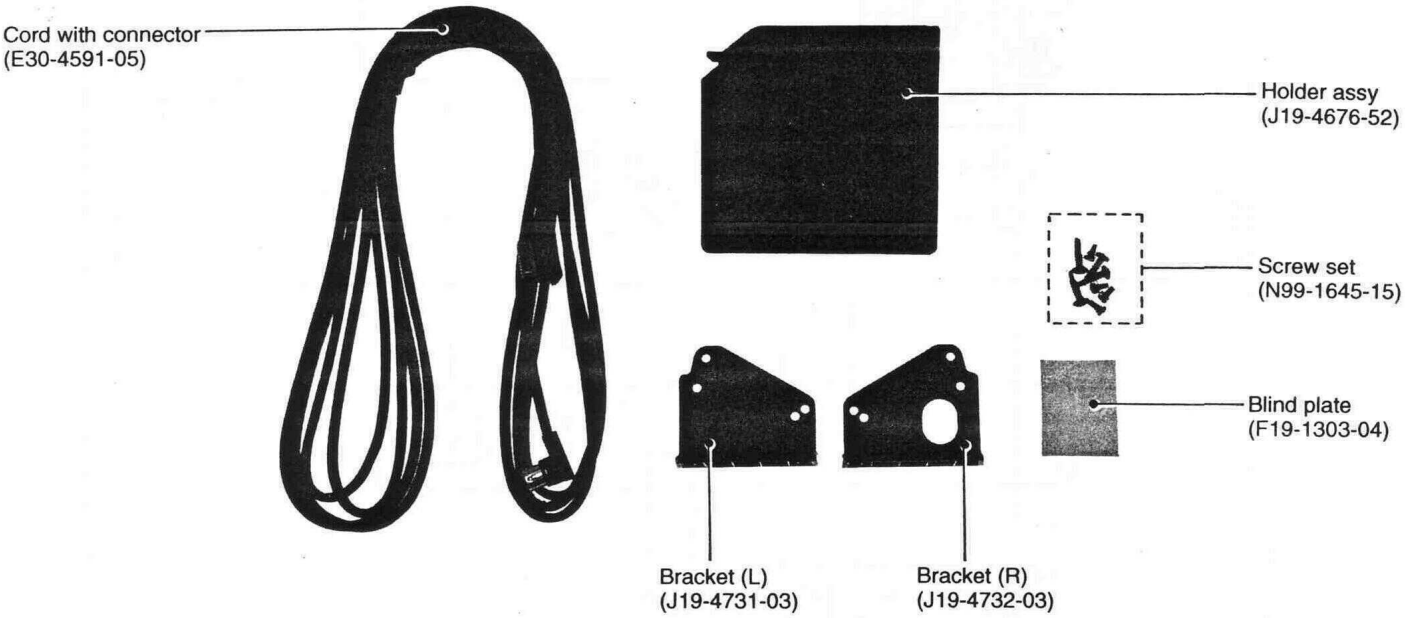
KENWOOD

B51-7342-00(S) 3023

When transporting this model, always attach CAUTION CARD and STEPPED SCREW (for transportation).
CAUTION CARD : B58-1275-04
STEPPED SCREW : N09-4186-25

Service jig	Parts No.
* For initial position setting	W05-0635-00



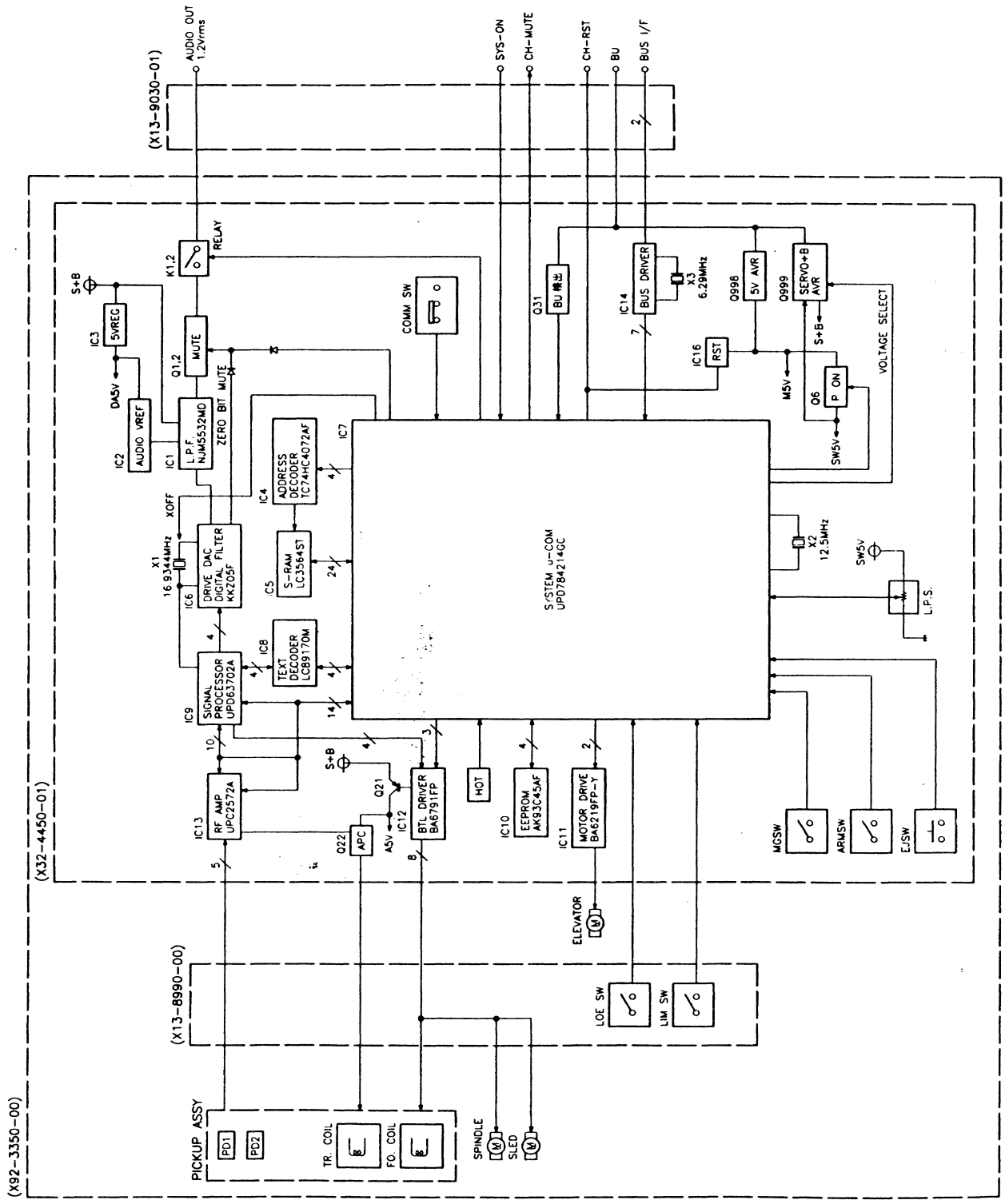


The MECHANISM OPERATION DESCRIPTION is the same as model KDC-C710.
Please refer to the service manual for model KDC-C710 (B51-7104-00).

C907

CONTENTS

BLOCK DIAGRAM



COMPONENTS DESCRIPTION

● CD PLAYER UNIT(X32-4450-01)

Component	Component Name	Application/Function	Operation/Condition/Compatibility
IC1	NJM5532MD	D/A converter output active filter	Differential amplifier
IC2	NJM5532MD	Voltage follower	Audio reference power regulator
IC3	TA78L05F	3-pin regulator	Supplies 5V to the DSP and 5v to the active filter
IC4	TC74HC4072AF	General-purpose logic	RAM-CS
IC5	LC3564ST-70	Text data memory	Data from the text decoder is stored in the memory via the μ-com
IC6	KKZ05F	Drive IC	Drive system; OSC,DAC
IC7	UPD784214G013	System μ-com	
IC8	LC89170M	Text decoder	Decode sub-code data
IC9	UPD63702A	Digital servo data processor	Digital servo data processor, 8fs over-sampling filter, digital loop filter
IC10	AK93C45AF	EEPROM	Storage of the data on the initial position of the mechanism deck up-down operation
IC11	BA6219BFP-Y	Motor drive	Drives the mechanism deck up-down motor
IC12	BA6791FP	Motor drive	Drives the Focusing/Tracking actuators, sled motor and spindle motor
IC13	UPC2572A	RF amp & error amp	RF amplifier, Focusing/Tracking error amplifier, APC circuit, reference amplifier, mirror circuit, defect circuit, RF OK circuit, EFM comparator and vibration detector circuit
IC14	UPD7204BGT	IE-BUS driver	BUS Drive
IC16	PST9137NR	μ-com RESET	
Q1 , 2	2SD2114K	Audio muting	Muting is turned ON when IC7 A.MUTE = "L"
Q3	DTA124EK	Q1 driver	
Q4	DTA124EK	Q2 driver	
Q5	DTA124EK	Q1, Q2 driver	
Q8	DTC124EK	Clock ON/OFF	Clock is turned OFF when the IC7 XOFF terminal outputs "H"
Q9	DTC124EK	CH-RST SW	The system μ-com is reset when CH-RST is "H"
Q10	DTC124EK	SYS-ON SW	"ON" when power and ACC is ON
Q11	DTA143EK	SERVO +B AVR BIAS SW	
Q12	DTC124EK	Q17 driver	ON while P-ON is ON
Q13	DTC124EK	SERVO +B Ref SW	ON while IC7 pin92 is "H"
Q14	DTC124EK	SERVO +B Ref SW	ON during disc loading or ejection
Q15	2SC2412K	Q999 driver	ON while P-ON is ON
Q16	2SA1362(Y)	P-ON +5V SW	IC7 pin99 "L" 中 ON
Q17	2SC2412K	μ-com 5V drive	P-ANT is output when the base of Q17 goes "H"
Q20	2SC2412K	TD signal driver	ON while IC13 pin33 is "H"
Q21	2SB1188	CD system +5V Reg	External transistor for built-in regulator of IC12
Q22	2SA1362(Y)	LD VCC	ON while APC of IC13 is ON
Q24	DTA143EK	Relay SW	ON during own source
Q25	DTC144EK	Q24 driver	ON while IC7 pin34 is "H"
Q28	DTA143EK	CH-MUTE SW	ON while IC7 pin44 is "L"
Q30	DTC124EK	IC15 internal SW	ON during disc loading or ejection
Q31	DTC124EK	BU power down detection	
Q998	2SB1565(E,F)	BU +5V AVR	
Q999	2SB1565(E,F)	SERVO +B AVR	

MICROCOMPUTER'S DESCRIPTION

System μ-com : UPD784214013 (X32-4450-01 : IC7)

Pin No.	Pin Name	I/O	Function	Description	Processing Operation
1	P120/RTP0	O	LDON	Pick Up laser ON	H : ON
2	P121/RTP1	O	TBCO	Tracking filter coefficient switching signal output	
3	P122/RTP2	I	TBCI	Tracking filter coefficient switching signal input	
4	P123/RTP3	I	RFOK	Focus ON status signal input	H : Focus ON
5	P124/RTP4	O	XOFF	Servo IC oscillation stop control	H : Stop oscillation
6	P125/RTP5	O	RST	Servo IC reset terminal	L : Reset
7	P126/RTP6	O	SA0	Servo IC communication address setting	
8	P127/RTP7	O	SSTB	Servo IC communication strobe	
9	VDD		VDD	Positive power voltage connection terminal	
10	X2		X2	Oscillator connection terminal 2	
11	X1	I	X1	Oscillator connection terminal 1	
12	VSS		VSS	Connected to GND potential	
13	XT2		XT2	Sub-clock connection terminal 2	
14	XT1	I	XT1	Sub-clock connection terminal 1	
15	RESET	I	RESET	Reset	
16	P00/INTP0	I	SBSY	Sub-code Q read timing detection terminal	
17	P01/INTP1	I	MGSW	Magazine switch	H : Magazine IN
18	P02/INTP2	I	EJSW	Eject switch	H : Switch ON
19	P03/INTP3	I	BREQH	Communication request signal from head unit	
20	P04/INTP4	I	DQSY	Text data read permission signal input	
21	P05/INTP5	I	SYS-ON	SYS-ON	L : ON
22	P06/INTP6	I	BUDET	B.U power detection terminal	H : BU OFF
23	AVDD		AVDD	A/D converter analog power terminal	
24	AVREF0	I	AVREF0	A/D converter reference voltage input	
25	P10/ANI0	I	HOT	Hot temperature detection	
26	P11/ANI1	I	LPS	MD deck up/down position detection	
27	P12/ANI2	I	LOESW	Loading completion switch	L : Loading END
28	P13/ANI3	I	LIMSW	Limit switch	L : Pickup at innermost position
29 - 32	P14/ANI4 - P17/ANI7	I	TEST0 - 3	For test mode	H : ON
33	AVSS		AVSS	A/D converter reference GND terminal	
34	P130/ANO0	O	AUDIO	AUDIO relay cont. out	H : Audio ON
35	P131/ANO1	O	AMUTE	Audio mute	L : Mute ON
36	AVREF1		AVREF1	A/D converter reference power terminal	
37	P70/RxD2/SI2	I	SDI	Servo IC communication serial data input	
38	P71/TxD2/SO2	O	SDO	Servo IC communication serial data output	
39	P72/ASCK2/SCK2	O	SCK	Servo IC communication serial clock output	
40	P20/RxD1/SI1	I	BDIC	Bus serial input	
41	P21/TxD1/SO1	O	BDCOM	Bus serial output	
42	P22/ASCK1/SCK1	O	BCLK	Bus serial clock	
43	P23/PCL	O	BC/D	Bus command data switch	
44	P24/BUZ	O	CHMUTE	Audio muting output to H/U	L : Mute ON
45	P25/SI0/SDA0	I	TXTDATA	Text data input	
46	P26/SO0	O		(Not used)	

MICROCOMPUTER'S DESCRIPTION

Pin No.	Pin Name	I/O	Function	Description	Processing Operation
47	P27/SCK0/SCL0	O	TXTCLK	Text clock output	
48 - 55	P80/A0 - P87/A7	O	A0 - A7	Address setting output to S-RAM	
56 - 63	P40/AD0 - P47/AD7	I/O	D0 - D7	Data input/output with S-RAM	
64 - 71	P50/A8 - P57/A15	O	A8 - A15	Address setting output to S-RAM	
72	VSS		VSS	GND connection terminal	
73	P60/A16	O	A16	S-RAM enable control terminal	
74	P61/A17	O	A17	S-RAM enable control terminal	
75	P62/A18	O	DG-CON	Digital out control	H : Digital out ON
76	P63/A19	I	ELVADJ	MD deck elevation position adjustment mode	L : Adjustment mode
77	P64/RD	O	RD	Read control output to S-RAM	
78	P65/WR	O	WR	Write control output to S-RAM	
79	P66/WAIT	I	WAIT	Wait insertion during access with S-RAM	
80	P67/ASTB	O	ASTB	Address strobe	
81	VDD		VDD	Positive power voltage connection terminal	
82	P100/TI5/TO5	I	RAMTEST	RAM check mode for use in production process	H : Check
83	P101/TI6/TO6	O	RAMOK	RAM check for use in production process	H : OK
84	P102/TI7/TO7	O	SP/LO+	Spindle/Loading control terminal +	
85	P103/TI8/TO8	O	SP/LO-	Spindle/Loading control terminal -	
86	P30/TO0	O	ELV+	MD elevation control terminal +	
87	P31/TO1	O	ELV-	MD elevation control terminal -	
88	P32/TO2	I	EDI	EPROM data input	
89	P33/TI1	O	EDO	EEPROM data output	
90	P34/TI2	O	ECLK	EEPROM clock output	
91	P35/TI00	O	ECS	EEPROM chip select output	
92	P36/TI01	O	8V/7V	Mechanism operation drive IC power voltage control	H : 7.5V
93	P37	I	NOSW	BUS number SW	H : CH1 L : CH2
94	TEST/VPP	I	TEST/VPP	Flash ROM program mode	
95	P90	O	BCS	BUS CHIP SELECT	
96	P91	O	BRST	BUS reset	
97	P92	I	SLGU	Sled gain UP SW	H : Normal L : Gain up
98	P93	I	A/R	AUDIO/ROM destination identification	H : Audio L : ROM
99	P94	O	PON	PON output	L : SW5V ON
100	P95	I	ARMSW	Arm switch	H : Draw out disk

● TEST MODE

1. How to enter

While holding the magazine EJECT switch, reset the unit and keep on holding the EJECT switch for more second to enter the E-88

(NOTE) In the E-88 mode, the initial position detection operation at the time of reset start is not performed.

2. Manual operation functions

The E-88 display appears when the H/U is set to the changer mode. In this condition, the changer mechanism can be operated manually using the Track search UP/DOWN and Disc search UP/DOWN keys.

Track search UP key :

Operates the Spindle/Loading motor in the direction for pulling the disc tray into the mechanism deck

Track search DOWN key :

Operates the Spindle/Loading motor in the direction for returning the disc tray into the magazine

Disc search UP key :

Operates the ELV motor in the direction for moving the mechanism deck upward

Disc search DOWN key :

Operates the ELV motor in the direction for moving the mechanism deck downward

● POSITION ADJUSTMENT

1. LPS initial position adjustment procedure

Connect the changer to the H/U. While holding the magazine [EJECT] key of the changer, press the [RESET] key of the H/U and, in about 1 second, release the magazine [EJECT] key. Press the [CD] key of the H/U to enter the E-88 mode. Move the mechanism deck to around the 1st stage by pressing the [DISC−] or [DISC+] key. Insert the adjustment tool into the tool hole on the changer mechanism. Then press the [DISC+] key to move the mechanism deck until the mechanism's slider hits the adjustment tool. When the motor locks (stops) press the [REPEAT] key of the H/U.

When the [REPEAT] key is pressed, the mechanism moves automatically to the 1st stage and the initial position adjustment completes. (The data is written in the EEPROM at this time)

3. Position adjustment funcion

This function writes the mechanism position adjustment values in the EEPROM in the E-88 mode

[Adjustment procedure]

- With the mechanism in the magazine ejection condition, move the mechanism manually up and down to set the mechanism to the reference position
- Pressing the REP key of the H/U starts the judgment of the mechanism position, and the distinction whether the changer is a 6-disc or 10-disc changer.

  If the mechanism position is extremely deviated from the reference position, the processing is aborted immediately
- The offset from the reference position is calculated and the 6/10 data and offset values are written in the EEPROM
- Data is read from the EEPROM to judge whether it has been written normally.

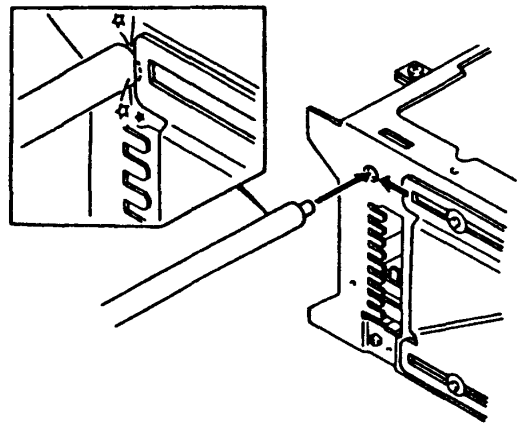
  When it is judged that the write operation has completed normally, the mechanism deck moves to the magazine ejection standby position.

  When it is judged that the write operation was abnormal, the mechanism performs no operation.

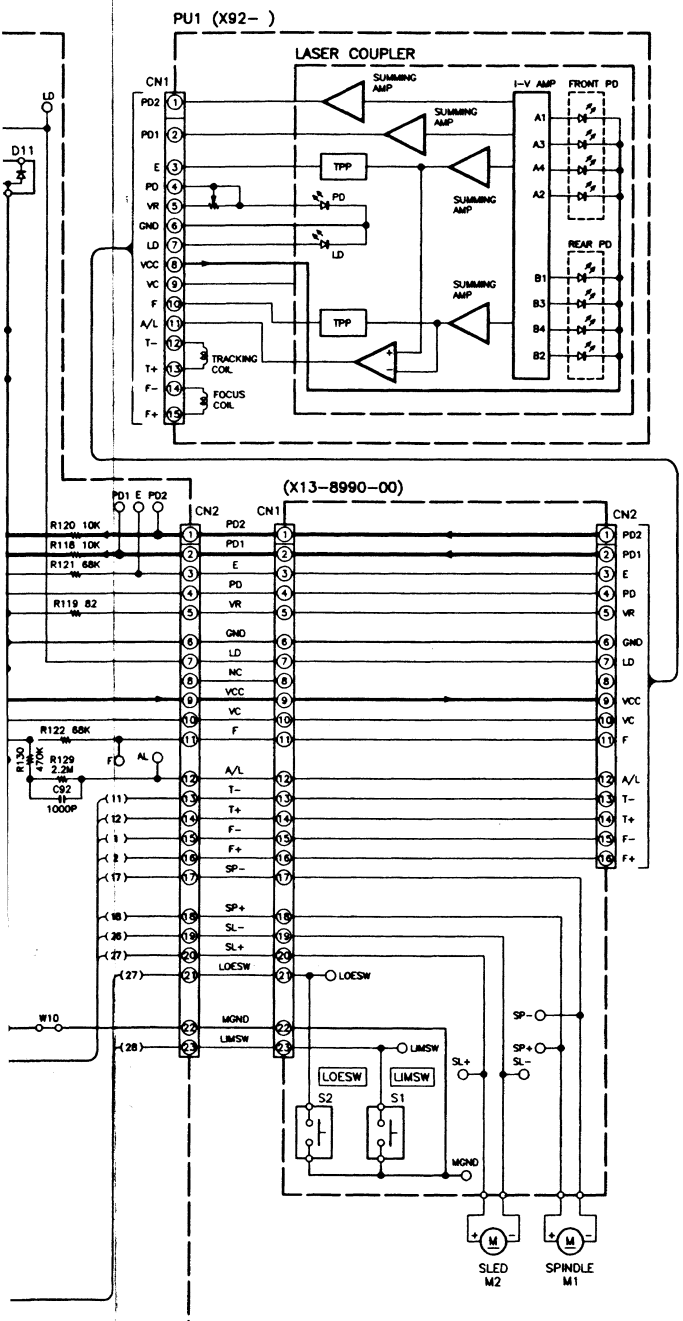
(NOTE) Mechanism reference position

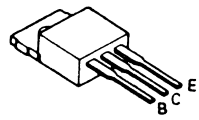
6 disc mechanism : 3rd stage

10 disc mechanism : 6th stage

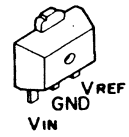


ADJUSTMENT TOOL : W05-0635-00

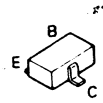




2SB1565

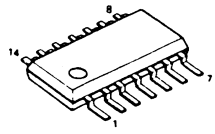


TA78L05F

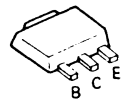


DTA124EK
DTA143EK
DTC124EK
DTC144EK
2SA1362
2SC2412K
2SD2114K

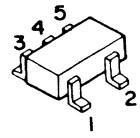
DA204K



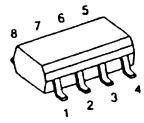
LC89170M



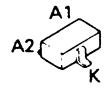
2SB1188



PST9137NR



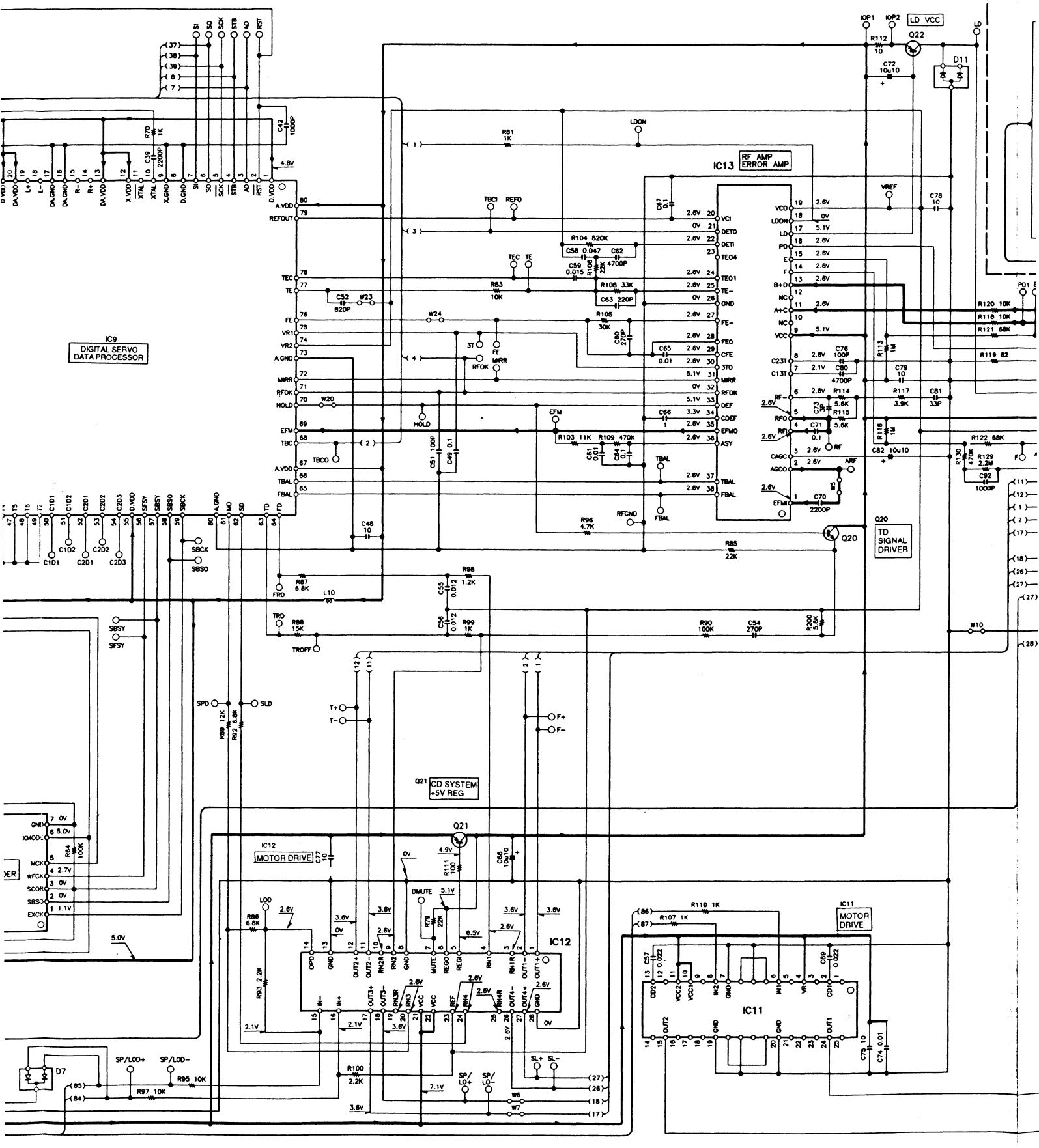
NJM5532MD



DAN202K

CAUTION: For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list). ⚠ indicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

DC voltages are as measured with a high impedance voltmeter. Values may vary slightly due to variations between individual instruments or/and units.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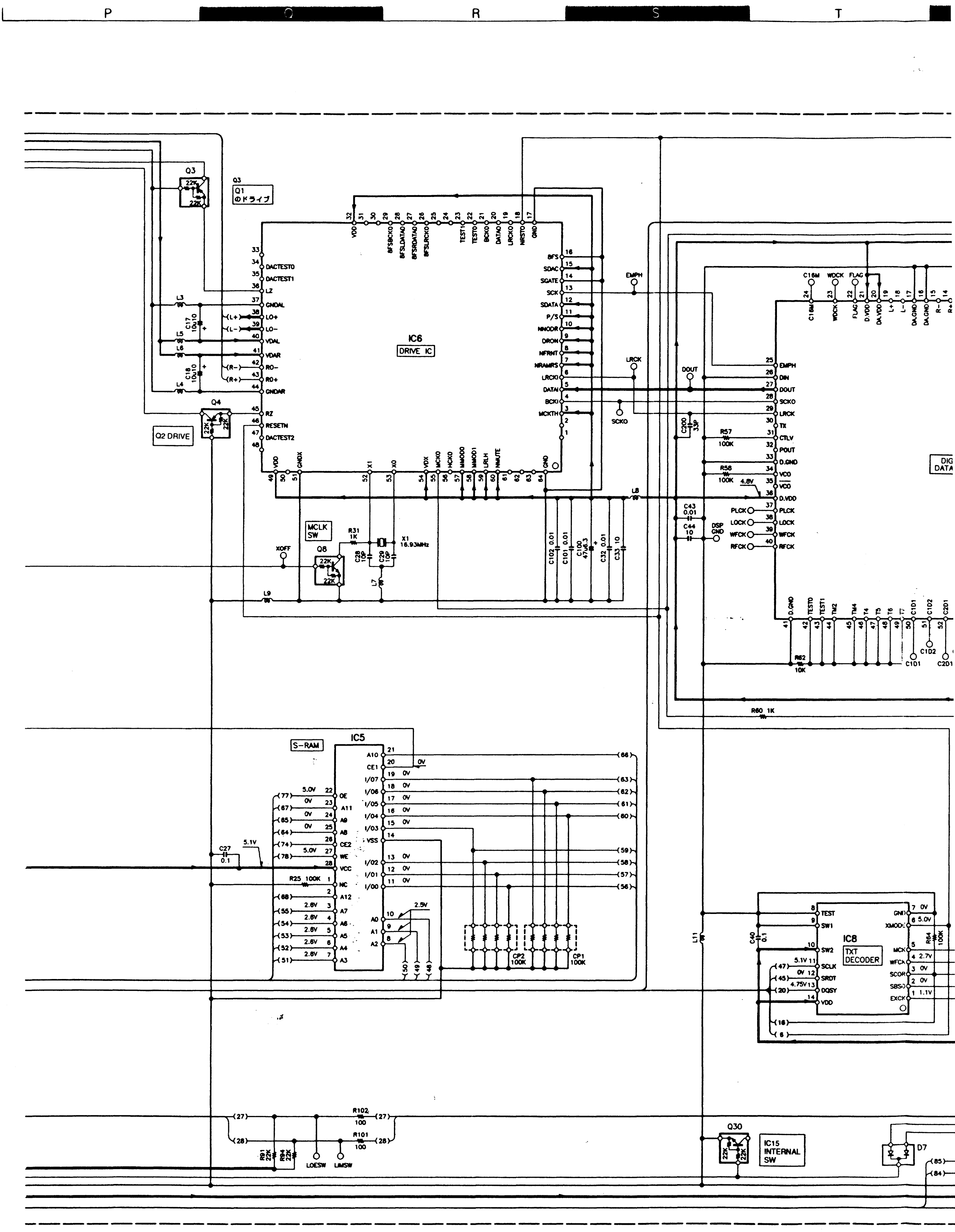
DIGITAL SERVO
DATA PROCESSOR
IC13
RF AMP
ERROR AMP
Q20
TD
SIGNAL
DRIVER
Q21
CD SYSTEM
+5V REG
IC12
MOTOR DRIVE
IC11
MOTOR
DRIVE
LD VCC
Q22
D11
D7
SP/LOD+
SP/LOD-


P
Q
R
S
T
Q3
Q1 のドライブ
IC6
DRIVE IC
VDD
BFSBCKO
BFSLDATAO
BFSRDATAO
BFSLRCKO
TESTI
TESTO
BCKO
DATAO
LRCKO
NRSTO
GND
DACTESTO
DACTEST1
LZ
GNDAL
LO+
LO−
VDAL
VDAR
RO−
RO+
GNDAR
RZ
RESETN
DACTEST2
BFS
SDAC
SGATE
SCK
SDATA
P/S
NMODR
DRON
NFRNT
NRAMRS
LRCKI
DATAI
BCKI
MCKTH
GNDX
X1
XO
VDX
MCKO
HCKO
MMOD0
MMOD1
LRLH
NMUTE
L3
L4
L5
L6
C17 10u10
C18 10u10
Q4
Q2 DRIVE
MCLK SW
Q8
XOFF
R31 1K
X1 16.93MHz
C28 10P
C29 10P
L7
L9
L8
C102 0.01
C101 0.01
C100 47u6.3
C32 0.01
C33 10
EMPH
LRCK
DOUT
SCKO
C200 33P
R57 100K
R58 100K
4.8V
C43 0.01
C44 10
DSP GND
PLCK
LOCK
WFCK
RFCK
C16M
WDCK
FLAG
D.VDD
DA.VDD
L+
L−
DA.GND
R−
DIN
TX
CTLV
POUT
D.GND
VCO
TEST0
TEST1
TM2
TM4
T4
T5
T6
T7
C1D1
C1D2
C2D1
R62 10K
R60 1K
DIG DATA
IC5
S-RAM
A10
CE1
I/O7
I/O6
I/O5
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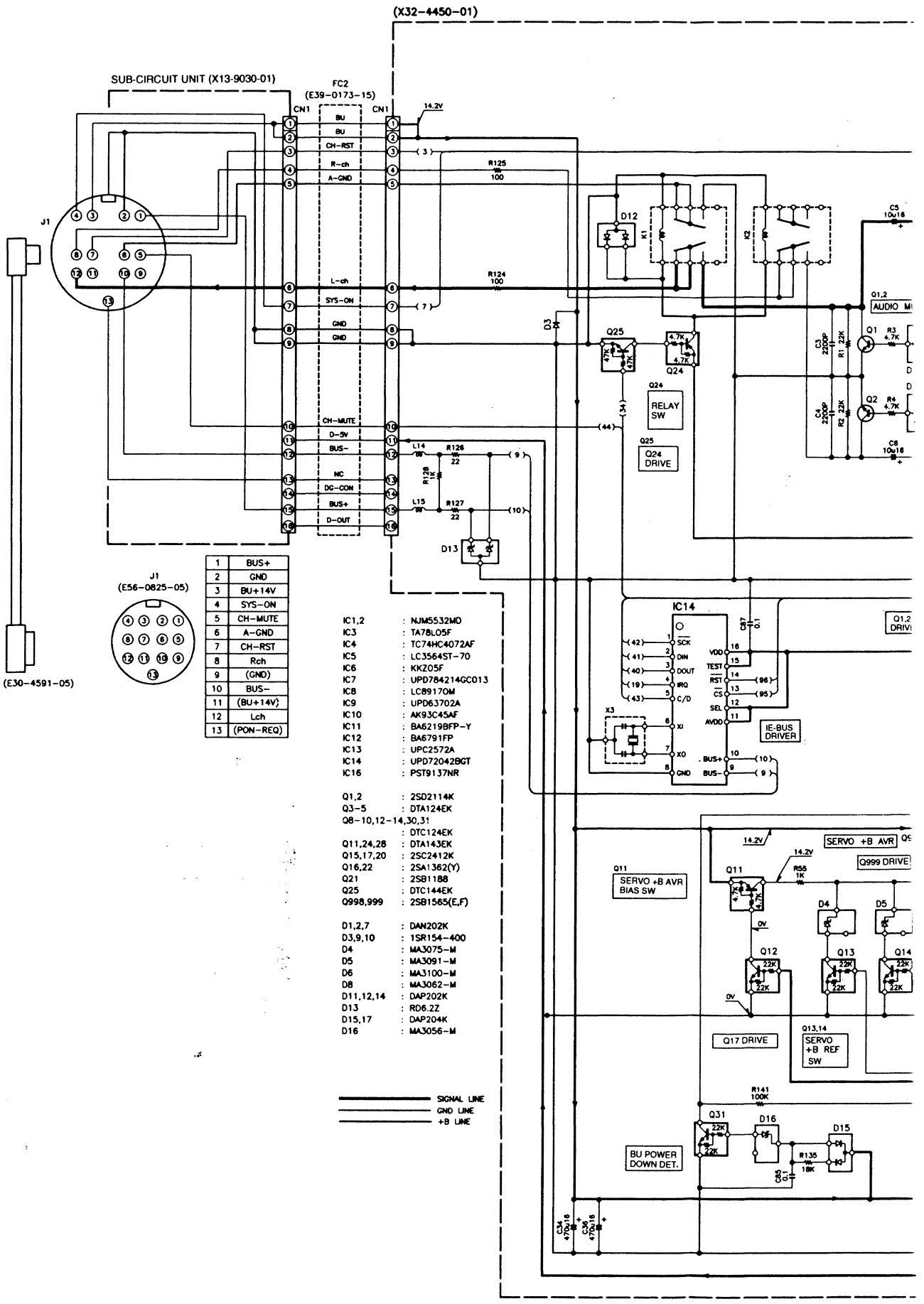
I/O3
VSS
I/O2
I/O1
I/O0
OE
A11
A9
A8
CE2
WE
VCC
NC
A12
A7
A6
A5
A4
A3
A0
A1
A2
C27 0.1
5.1V
R25 100K
CP2 100K
CP1 100K
IC8
TXT DECODER
TEST
SW1
SW2
SCLK
SRDT
DQSY
VDD
GND
XMODE
MCK
WFCK
SCOR
SBSO
EXCK
C40 0.1
R64 100K
L11
R102 100
R101 100
R91 22K
R94 22K
LOESW
LIMSW
Q30
IC15 INTERNAL SW
D7

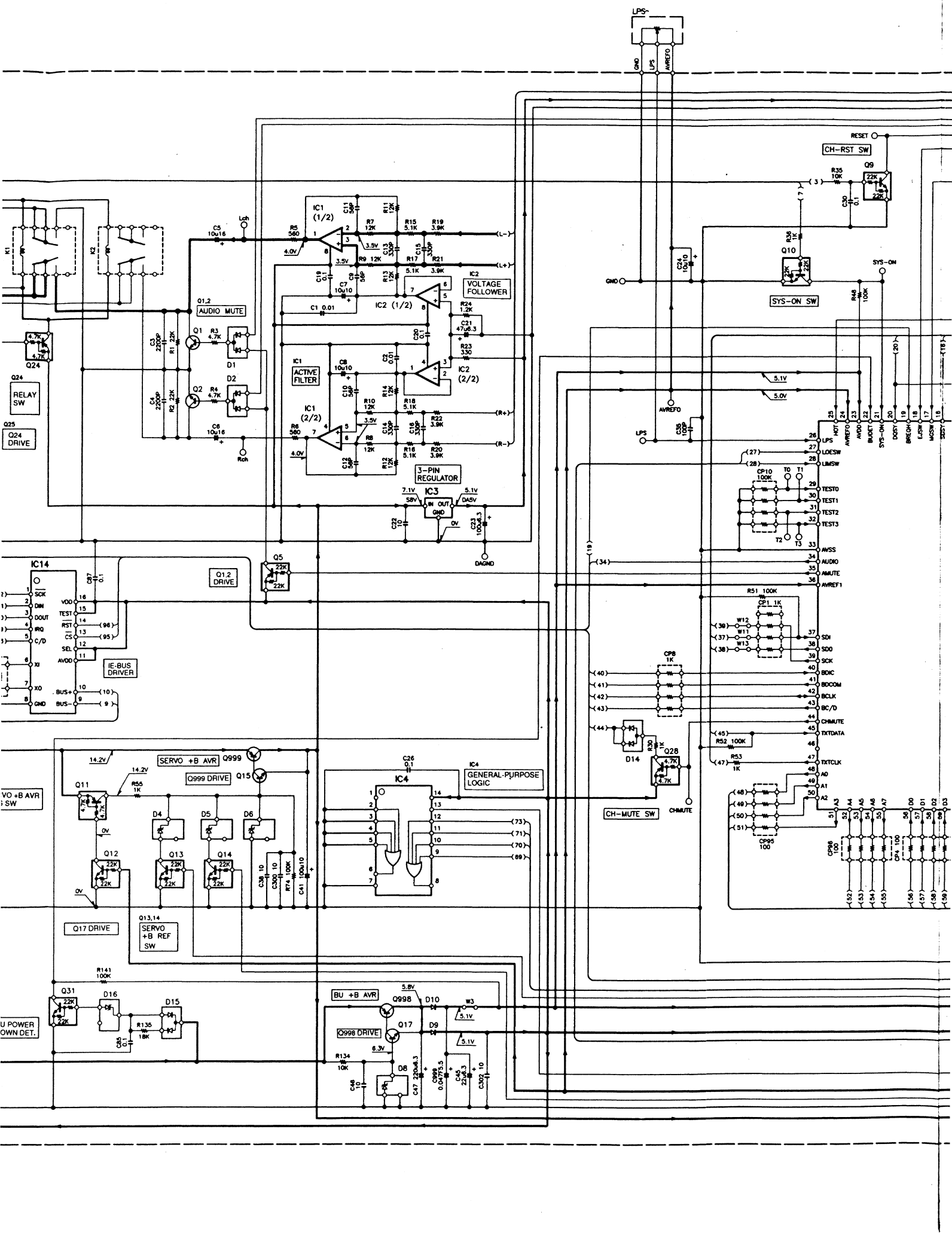


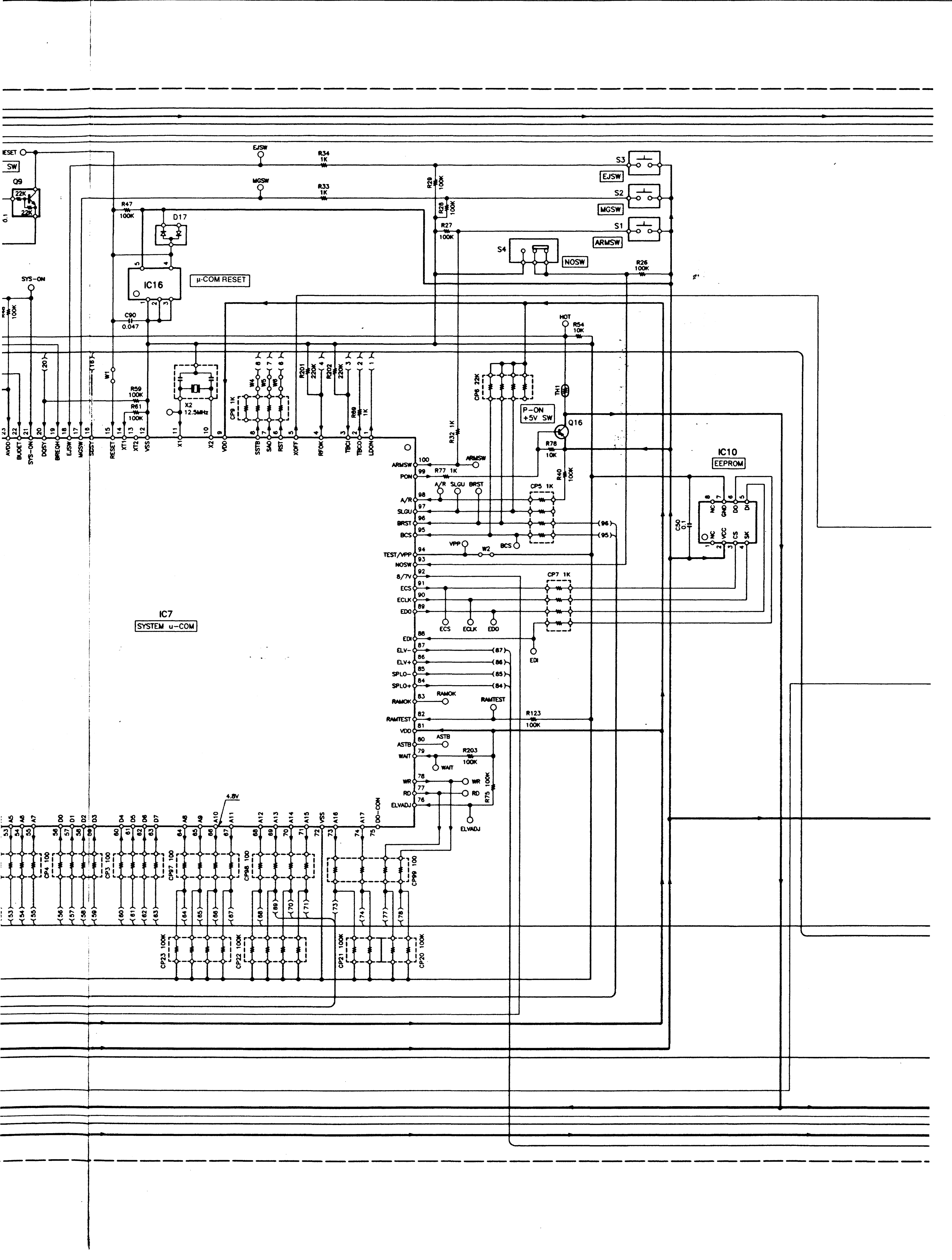
1	BUS+
2	GND
3	BU+14V
4	SYS-ON
5	CH-MUTE
6	A-GND
7	CH-RST
8	Rch
9	(GND)
10	BUS-
11	(BU+14V)
12	Lch
13	(PON-REQ)

IC1,2 : NJM5532MD
IC3 : TA78L05F
IC4 : TC74HC4072AF
IC5 : LC3564ST-70
IC6 : KKZ05F
IC7 : UPD784214GC013
IC8 : LC89170M
IC9 : UPD63702A
IC10 : AK93C45AF
IC11 : BA6219BFP-Y
IC12 : BA6791FP
IC13 : UPC2572A
IC14 : UPD72042BGT
IC16 : PST9137NR

Q1,2 : 2SD2114K
Q3-5 : DTA124EK
Q8-10,12-14,30,31 : DTC124EK
Q11,24,28 : DTA143EK
Q15,17,20 : 2SC2412K
Q16,22 : 2SA1362(Y)
Q21 : 2SB1188
Q25 : DTC144EK
Q998,999 : 2SB1565(E,F)

D1,2,7 : DAN202K
D3,9,10 : 1SR154-400
D4 : MA3075-M
D5 : MA3091-M
D6 : MA3100-M
D8 : MA3062-M
D11,12,14 : DAP202K
D13 : RD6.2Z
D15,17 : DAP204K
D16 : MA3056-M


LPS
GND
LPS
AVREFO
RESET
CH-RST SW
Q9
Q10
SYS-ON
SYS-ON SW
IC1 (1/2)
IC2 (1/2)
IC1 (2/2)
IC2 (2/2)
VOLTAGE FOLLOWER
ACTIVE FILTER
3-PIN REGULATOR
IC3
Q1,2 AUDIO MUTE
Q24 RELAY SW
Q25 Q24 DRIVE
Q1,2 DRIVE
IE-BUS DRIVER
IC14
SERVO +B AVR
Q999 DRIVE
SERVO +B REF SW
Q17 DRIVE
IC4 GENERAL-PURPOSE LOGIC
BU +B AVR
Q998 DRIVE
CH-MUTE SW
CHMUTE
DAGND
Lch
Rch
5.1V
5.0V
7.1V
5.8V
14.2V
4.0V
3.5V
0V
6.3V


IC7
SYSTEM u-COM
IC16
μ-COM RESET
IC10
EEPROM
S3
EJSW
S2
MGSW
S1
ARMSW
S4
NOSW
Q9
D17
Q16
P-ON
+5V SW
X2
12.5MHz
R34 1K
R33 1K
R29 100K
R28 100K
R27 100K
R26 100K
R47 100K
R54 10K
R59 100K
R61 100K
R201 220K
R202 220K
R69 1K
R32 1K
R77 1K
R78 10K
R40 100K
R123 100K
R203 100K
R75 100K
C90 0.047
C50 0.1
CP5 1K
CP6 22K
CP7 1K
CP9 1K
CP4 100
CP3 100
CP97 100
CP98 100
CP99 100
CP23 100K
CP22 100K
CP21 100K
CP20 100K
RESET
SYS-ON
EJSW
MGSW
HOT
TH1
ARMSW
PON
A/R
SLGU
BRST
BCS
TEST/VPP
VPP
W2
NOSW
8/7V
ECS
ECLK
EDO
EDI
ELV-
ELV+
SPLO-
SPLO+
RAMOK
RAMTEST
VDD
ASTB
WAIT
WR
RD
ELVADJ
DO-CON
4.8V
AVDD
BUDET
SYS-ON
DQSY
BREQH
EJSW
MGSW
SQSY
RESET
XT1
XT2
VSS
X1
X2
VDD
SSTB
SAO
RST
XOFT
RFOK
TBCI
TBCO
LDON
NC
GND
DO
DI
VCC
CS
SK

C907

SPECIFICATIONS

Specifications subject to change without notice.

CD section

Laser Diode	GaAlAs (l=780 mm)
Digital Filter (D/A)	8 Times Over Sampling
D/A Converter	1 Bit
Spindle Speed	500 ~ 200 rpm (CLV)
Wow & Flutter	Below Measurable Limit
Frequency Response	5 Hz ~ 20 kHz (±1 dB)
Total Harmonic Distortion	0.005 % (1 kHz)
S/N Ratio (dB)	100 dB
Dynamic Range	96 dB
Channel Separation	96 dB

General

Operating Voltage	14.4V (11 ~ 16V allowable)
Current Consumption	0.8 A at rated power
Installation Size (W x H x D)	250 x 80 x 173 mm (9-13/16 x 3-1/8 x 2-7/8 in.)
Weight	2.0 kg

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