

Service Manual

ORDER NO.
RRV2991

DVD RECORDER

DVR-510H-S

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

Model	Type	Power Requirement	Region No.	Serial No. Please confirm 3rd & 4th alphabetical letters.
DVR-510H-S	RAXU	AC110-127V/AC220-240V~	6	&&PG#####\$\$

● This service manual should be used together with the following manual(s):

Model	Order No.	Remarks
DVR-5100H-S/WYXU	RRV2861	

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SAFETY INFORMATION

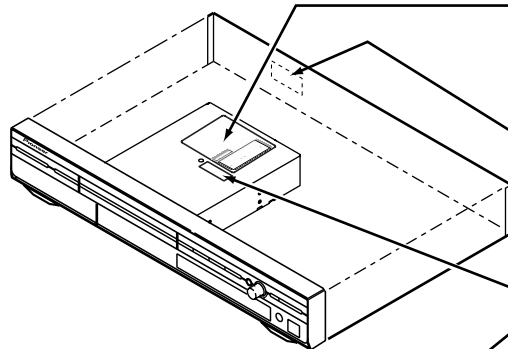
■ LABEL CHECK

WARNING!

DEVICE INCLUDES LASER DIODE WHICH EMITS INVISIBLE INFRARED RADIATION WHICH IS DANGEROUS TO EYES. THERE IS A WARNING SIGN ACCORDING TO PICTURE 1 INSIDE THE DEVICE CLOSE TO THE LASER DIODE.



LASER
Picture 1
Warning sign for
laser radiation



CAUTION CLASS 3B VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN, AVOID EXPOSURE TO THE BEAM.
VORSICHT! BEI UNTERBRECHUNG IST SICHTBARE UND UNSICHTBARE LASERSTRAHLUNG DER
KLASSE 3B IM GEBRAUCHSBEREICH VERHÄNDEN. AUSEN NACH DEM LASERSTRAHLUNGSSCHUTZ
ADVARSEL: KLASSE 3B SYMULIS US HSYNULUS LASERSTRÅLING NÅR DENNA DEL ÅR ÖPPNAD.
VARNING: KLASSE 3B SYMULIS US HSYNULUS LASERSTRÅLING NÅR DENNA DEL ÅR ÖPPNAD.
UNDOVYK ATT UTSÄTTA ÖGON FÖR STRÅLING.
VARO! : AVATTIASSA OLET ALTTIINA NÄKYYVÄLLE JA NÄKYYMÖRTÖMÄLLE LUOKAN 3B LASERISÄTELYLLE.
ÄLÄ KATSO SÄTEESSEN.
ATTENTION: RADIATIONS LASER VISIBLES ET INVISIBLES DE CLASSE 3B QUAND OUVERT.
ÉVITEZ TOUT EXPOSITION AU FAISCEAU.
PRECAUCIÓN: CUANDO SE ABRE HAY RADIACIÓN LASER DE CLASE 3B VISIBLE E INVISIBLE.
EVITE LA EXPOSICIÓN A LOS RAYOS LASER.

DRW2179-A

CLASS 1 LASER PRODUCT
LASER KLASSE 1

DRW2179

CLASS 1
LASER PRODUCT
1类激光产品

注意：若打开会发生可见和不可见的
辐射辐射，请勿受辐射。

VRW2130

VRW2130

IMPORTANT

THIS PIONEER APPARATUS CONTAINS LASER OF CLASS 1.
SERVICING OPERATION OF THE APPARATUS SHOULD BE DONE BY A SPECIALLY INSTRUCTED PERSON.

LASER DIODE CHARACTERISTICS

MAXIMUM OUTPUT POWER : 50 mw
WAVELENGTH : 658 nm

Additional Laser Caution

1. The ON/OFF(ON:low level,OFF:high level) status of the CLAMP signals for detecting the loading state are detected by the drive CPUs, and the design prevents laser diode oscillation when the CLAMP signal turns OFF.
In normal operation, if no disc is clamped, the laser diode oscillation is disabled.
However, the interlock does not always operate in the test mode.
2. When the cover is opened, close viewing of the objective lens with the naked eye will cause exposure to a Class 3A laser beam.

1. CONTRAST OF MISCELLANEOUS PARTS

- NOTES:**
- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
 - The  mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
 - Screws adjacent to  mark on product are used for disassembly.
 - Reference Nos. indicate the pages and Nos. in the service manual for the base model.
 - For the applying amount of lubricants or glue, follow the instructions in this manual. (In the case of no amount instructions, apply as you think it appropriate.)
 - When ordering resistors, first convert resistance values into code form as shown in the following examples.
- Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).
- | | | | | | | | | | | |
|-------|---|----------------------|-------|-----|-------|---------|---|---|---|---|
| 560 Ω | → | 56 × 10 ¹ | → | 561 | | RD1/4PU |  |  |  | J |
| 47k Ω | → | 47 × 10 ³ | → | 473 | | RD1/4PU |  |  |  | J |
| 0.5 Ω | → | R50 | | | | RN2H |  |  |  | K |
| 1 Ω | → | 1R0 | | | | RS1P |  |  |  | K |
- Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).
- | | | | | | | | | | | | |
|---------|---|-----------------------|---|------|-------|---------|---|---|---|---|---|
| 5.62k Ω | → | 562 × 10 ¹ | → | 5621 | | RN1/4PC |  |  |  |  | F |
|---------|---|-----------------------|---|------|-------|---------|---|---|---|---|---|

■ CONTRAST TABLE

DVR-510H-S/RAXU and DVR-5100H-S/WYXU are constructed the same except for the following:

Ref. No.	Mark	Symbol and Description	Part No.		Remarks
			DVR-5100H-S/WYXU	DVR-510H-S/RAXU	
P11 - 2		PCB ASSEMBLIES			
P11 - 4		1..TUJB Assy	VWV1962	VWV2038	
P11 -58		1..MAIN Assy	VWV1955	VWV1973	
		1..SCRB Assy	VWV1958	Not used	
		PACKING			
P9- 1		Power Cable	ADG1154	ADG7079	
P9 - 4		Remote Control	VXX2889	VXX2890	
P9 - 7		Operating Instructions (English)	VRB1317	Not used	
P9 - 8		Operating Instructions (French)	VRE1102	Not used	
P9 - 9		Operating Instructions (German)	VRE1104	Not used	
P9 -10	NSP	Operating Instructions (Italian)	VRE1106	Not used	
P9 -11		Operating Instructions (Dutch)	VRE1108	Not used	
P9 -12		Operating Instructions (Spanish)	VRE1110	Not used	
P9 -13		Warranty Card	ARY7065	ARY7046	
P9 -20		Packing Case	VHG2424	VHG2538	
P9-21	NSP	Operating Instructions (Chinese)	Not used	VRE1116	
	NSP	HDD Caution	VRR1047	VRR1054	
	NSP	HDD Caution B	VRR1046	VRR1055	
		EXTERIOR SECTION			
P11 -32		Rear Panel	VNA2611	VNA2733	
P11 -48		Screw	AMZ30P060FMC	AMZ30P060FTC	
P11 -49		Screw	BBZ30P060FMC	BBZ30P060FTC	
P11 -50		Screw	BPZ30P080FZK	BPZ30P080FTC	
P11 -51		Screw	PPZ30P080FMC	PBZ30P080FTC	
P11 -55		NSP	Bonnet Label	VRW1995	VRW2131
P11 -59			Flexible Cable (35P)	VDA1982	Not used
P11 -60			Flexible Cable (15P)	VDA1983	Not used
P11 -61			Spacer 40	PNW2488	Not used
			Laser Caution Label CHK	Not used	VRW2130
	NSP	CCC S&E Label	Not used	VRW1945	
		FRONT PANEL SECTION			
P13- 7		FL Lens	VEC2380	VEC2353	
P13 - 8		Door Lens	VEC2377	VEC2379	
P13-10		FL Filter	VEC2354	Not used	
P13-10		Mirror Filter	Not used	VEC2347	
P13 -15		Front Panel Assy	VXA2617	VXA2615	
P13 -16		NSP	Front Panel	VNK5362	VNK5319
P13 -24			Screw	BPZ30P080FZK	BPZ30P080FTC
P13-25			DV Cover	VNK5355	VNK5365

● For PCB assemblies, Refer to "PCB PARTS LIST" and "3. SCHEMATIC DIAGRAM".

● CONTRAST OF PCB ASSEMBLIES

DF MAIN ASSY

VWV1973 and VWV1955 are constructed the same except for the following :

Mark	Symbol and Description	Part No.		Remarks
		VWV1955	VWV1973	
	R3251, R3269	RS1/16S2202F	RS1/16S2002F	

■ PCB PARTS LIST

Mark	No.	Description	Part No.
------	-----	-------------	----------

BF TUJB ASSY
SEMICONDUCTORS

	IC2551	BA05FP
	IC2251	BR24L32F-W
	IC3301	LA73030
	IC3501	LA73054
	IC2801	LC75342M
	IC4001	MSP3455G
	IC2581	NJM78M09FA
	IC2001	PD5984A8
	IC2541	PQ1K333M2ZP
	IC2521	PST3245
	IC2271	RS5C372A
	IC2003	TC74HCT7007AF
	IC2351	TC7WU04FU
	IC3903	TDA9818TS
	Q3002,Q3342,Q3344,Q3363,Q3371	2SA1576A
	Q3406,Q3408,Q3410,Q3452,Q3909	2SA1576A
	Q4001-Q4004	2SA1576A
	Q2640	2SB1238X
	Q2532,Q2621	2SC2411K
	Q2203,Q2351,Q2641,Q3001,Q3453	2SC4081
	Q3901,Q3904,Q3905,Q3908,Q3911	2SC4081
	Q3913,Q3915,Q3916	2SC4081
	Q3912,Q3920	2SC4082
	Q4005	2SD1664
	Q2202	2SD2114K
	Q2151,Q2201,Q2305,Q3559,Q3562	DTA124EUA
	Q3906	DTA124EUA
	Q2204,Q3451	DTC124EUA
	Q3362	HN1B04FU
	Q2306	HN1C01FU
	Q3554,Q3556	HN1C03FU
	Q2152	RN1901
	Q3004,Q3551,Q3561,Q3563	RN4903
	Q2531,Q3006,Q3099	UMF21N
	D2640	1SR154-400
	D2271	1SS352
	D2201,D3001,D3551,D3560,D4001	1SS355
	D3901,D3902	1SS356
	D3301-D3304	DA204K
	D2272	RB501V-40
	D3002	UDZS33B

Mark	No.	Description	Part No.
------	-----	-------------	----------

COILS AND FILTERS

	L3005	RADIAL INDUCTOR	ATH1109
	F3904	CERAMIC TRAP	BTf1121
	L3405,L3407,L3409		LAU100J
	L3341,L3343		LAU180J
	L3451		LAU2R2J
	L2301		LAU470J
	L3957		LCKAWR22J2520
	L3960		LCKAWR47J2520
	L2641,L3342,L3344		LCYA100J2520
	L3903,L3904,L3909,L3912		LCYA150J2520
	L3911		LCYA4R7J2520
	L3910		LCYA8R2J2520
	L3907,L3920		LCYAR68J2520
	L2642		LTA102J
	F3902	SAW FILTER	VTF1177
	F3901	SAW FILTER	VTF1178
	F3912	IF TRAP FILTER	VTF1180
	F3911	IF TRAP FILTER	VTF1181
	F3903	TRAP FILTER	VTF1183
	L2039,L2359,L3018,L3019	CHIP BEADS	VTL1081
	L3003,L3004,L3099,L3902		VTL1096
		CHIP BEADS	
	L4002	VCO COIL	VTL1164

CAPACITORS

	C3356,C3357	CCSRCH100D50
	C2118,C2119,C2545,C2546	CCSRCH101J50
	C2818-C2820,C3362,C3365	CCSRCH101J50
	C2141,C2142,C2822-C2825,C4016	CCSRCH102J50
	C4022,C4023,C4028	CCSRCH102J50
	C3932	CCSRCH121J50
	C3416,C3422,C3428,C3917	CCSRCH150J50
	C3345,C3352	CCSRCH180J50
	C3935	CCSRCH181J50
	C2357,C2358,C4029,C4030	CCSRCH220J50
	C2645	CCSRCH221J50
	C3343,C3350,C3417,C3423,C3429	CCSRCH270J50
	C3960	CCSRCH270J50
	C2301,C3020,C3021	CCSRCH330J50
	C2101,C2105,C2106,C2201,C3933	CCSRCH470J50
	C3553,C3560-C3562	CCSRCH471J50
	C2273	CCSRCH4R0C50
	C4017,C4019	CCSRCH560J50
	C2354	CCSRCH561J50
	C3905,C4018	CCSRCH5R0C50

Mark	No.	Description	Part No.
	C3344,C3351,C3451,C3936 C3901,C4021 C3341,C3347 C2353,C2801-C2803,C2806 C2810-C2817,C3001,C3364,C4007	CCSRCH680J50 CCSRCH6R0D50 CCSRCH8R0D50 CEAT100M50 CEAT100M50	
	C4012 C2111,C2254,C2533,C2534,C2544 C2553,C2622,C2623,C2626,C3083 C3301,C3310,C3349,C3403,C3504 C3518,C4011,C4013,C4032,C4033	CEAT100M50 CEAT101M10 CEAT101M10 CEAT101M10 CEAT101M10	
	C2582,C2584,C2642,C2804,C2807 C3555,C3928,C4002,C4004 C3013,C3507,C3511,C3515 C3533 C3201	CEAT101M16 CEAT101M16 CEAT102M6R3 CEAT221M16 CEAT330M25	
	C4009 C3552,C3554 C2640 C3010,C3516,C3517,C3904 C3911,C3912	CEAT3R3M50 CEAT220M25 CEAT471M16 CEAT471M6R3 CKSQYB225K10	
	C3918,C3920,C3921,C3923,C3925 C2104,C2355,C2805,C2821,C3317 C3902,C3906,C3907,C3930,C4010 C4024 C2102,C2103,C3302,C3303	CKSRYB102K50 CKSRYB103K50 CKSRYB103K50 CKSRYB103K50 CKSRYB104K16	
	C3305-C3308,C3311,C3314-C3316 C3505,C3508,C3510,C3512,C3513 C3909 C3012,C3023,C3908,C3916 C3924	CKSRYB104K16 CKSRYB104K16 CKSRYB104K16 CKSRYB222K50 CKSRYB224K10	
	C4015,C4027 C2112,C2202,C2204,C2251 C2302,C2303,C2351,C2352,C2356 C2521,C2522,C2531,C2532,C2535 C2541-C2543,C2551,C2552,C2581	CKSRYB472K50 CKSRYF104Z25 CKSRYF104Z25 CKSRYF104Z25 CKSRYF104Z25	
	C2583,C2621,C2624,C2625,C2641 C2643,C2808,C2809,C3017,C3084 C3304,C3312,C3313,C3346,C3353 C3419,C3425,C3431,C3503,C3506 C3514,C3519-C3521,C3551,C3903	CKSRYF104Z25 CKSRYF104Z25 CKSRYF104Z25 CKSRYF104Z25 CKSRYF104Z25	
	C3910,C3929,C3931,C3934,C4001 C4003,C4006,C4008,C4014,C4020 C4026,C4031,C4034 C3005 C2110,C2113-C2115,C2152,C2154	CKSRYF104Z25 CKSRYF104Z25 CKSRYF104Z25 CKSRYF104Z50 CKSRYF105Z10	

RESISTORS

R4001,R4004 R4009 R3098 R3346,R3349,R3352,R3356,R3428 R3438,R3443	RS1/10S0R0J RS1/10S100J RS1/10S150J RS1/16S5600F RS1/16S5600F
R2802,R2805,R2806,R2815 R2817,R2818,R3303-R3305,R3451 R3555,R3558,R3562,R3568,R3569 R3571,R3587,R3589,R3591 VR3901 (10K Ω)	RS1/16S75R0F RS1/16S75R0F RS1/16S75R0F RS1/16S75R0F VCP1156
Other Resistors	RS1/16S###J

Mark	No.	Description	Part No.
OTHERS			
	CN2006,CN2009	CONNECTOR POST	B2B-PH-K
	CN3003	2P TOP POST	B2P-SHF-1AA
	CN2003	CONNECTOR	B8B-PH-K
	CN2005	CONNECTOR 19P	HLEM19S-1
	CN2007	FFC CONNECTOR 9P	HLEM9S-1
	JA3081	OPT. LINK OUT 8MB/S	JFJ1001
	JA2201	JACK	RKN1004
	CN2004	KR CONNECTOR	S13B-PH-K
	CN2001	CONNECTOR POST 8P PCB BINDER	S8B-EH VEF1040
	BT2271	LITHIUM BATTERY(CR2032)	VEM1033
	JA3582	JACK	VKB1165
	JA2832	JACK	VKB1183
	JA3551	JACK	VKB1184
	CN2008	21P CONNECTOR	VKN1252
	CN3001	32P CONNECTOR	VKN1263
	CN3002	15P CONNECTOR	VKN1275
	2007	SCREW PLATE	VNE1948
	KN2001-KN2003	WRAPPING TERMINAL	VNF1084
	X2271	CRYSTAL RESONATOR (32KHz)	VSS1143
	X2351	CRYSTAL RESONATOR (14.433619MHz)	VSS1176
	X2001	CERAMIC RESONATOR (10MHz)	VSS1188
	X4001	CERAMIC RESONATOR (18.432MHz)	VSS1189
	U 3001	TV TUNER PACK	VXF1023

2. MODEL TYPE SETTING

• The Setup is Necessary When :

- When the MAIN Assy is replaced
- When the TUJB Assy is replaced
- When the MAIN Assy and TUJB Assy are replaced

• How to Setup the Model

- After power on, the following screen is displayed on TV monitor.
Press " 42 " by using the remote control unit for service(GGF1381).

[Recorder 's Model Setting]
Input the number by using the remote for Service.

> --

Input No.	Model
[41 : DVR-310-S]	
[42 : DVR-510H-S]	

- After 1), the following screen is displayed on TV monitor.
Press " 096 " by using the remote control unit for service.

[Recorder 's Type Setting]
Input the number by using the remote for Service.

> --- (Type -- , Region No. -)

Input No.	Type
[09 : RA <China>]	

The setting completes when OSD is disappeared.

- Unplug the power cable.
- Reset the recorder to all its factory settings.
 - Make sure that the recorder is on.
 - Press and hold [STOP] and press [STANDBY/ON] key on the front panel.
The recorder turns off with all settings reset.
- Enter the Service Mode and then confirm the Model Name " DVR-510H-S/RA ".
 - Make sure that the recorder is on.
 - Press [ESC] then [DISP] keys by using the remote control unit for Service.

DVR-510H-S/ RA

SYSCON	: 4.**	
	ComRev	: 1.*** \$
	FirmRev	: 1.*** \$
	AppRev	: 1.*** \$
TUFLCON	: 4.** F	OK
DRIVE	: DVD-RW DVR-106	OK
	1.04	
	CBT0900720WL	OK
H D D	: Maxtor XXXXXXXX	80
DEVICE	: PRISM=ES 2.0	
REGION	: 6	
C	: *****	

- Escape the Service Mode. Press [ESC].
- Download the latest firmware.
At last, the download is necessary to update the firmware of each ASSY.

Notes :

- After the setting completes, you can NOT CLEAR the setting data.
Make sure the pressing number.
- " NG " is appeared on TV when unsuitable number is pressed.
In such a case, please unplug the power cable and plug it again. Then restart the model setting.



1



2



3



4



A



B



C



D



E



F



1



2



3



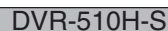
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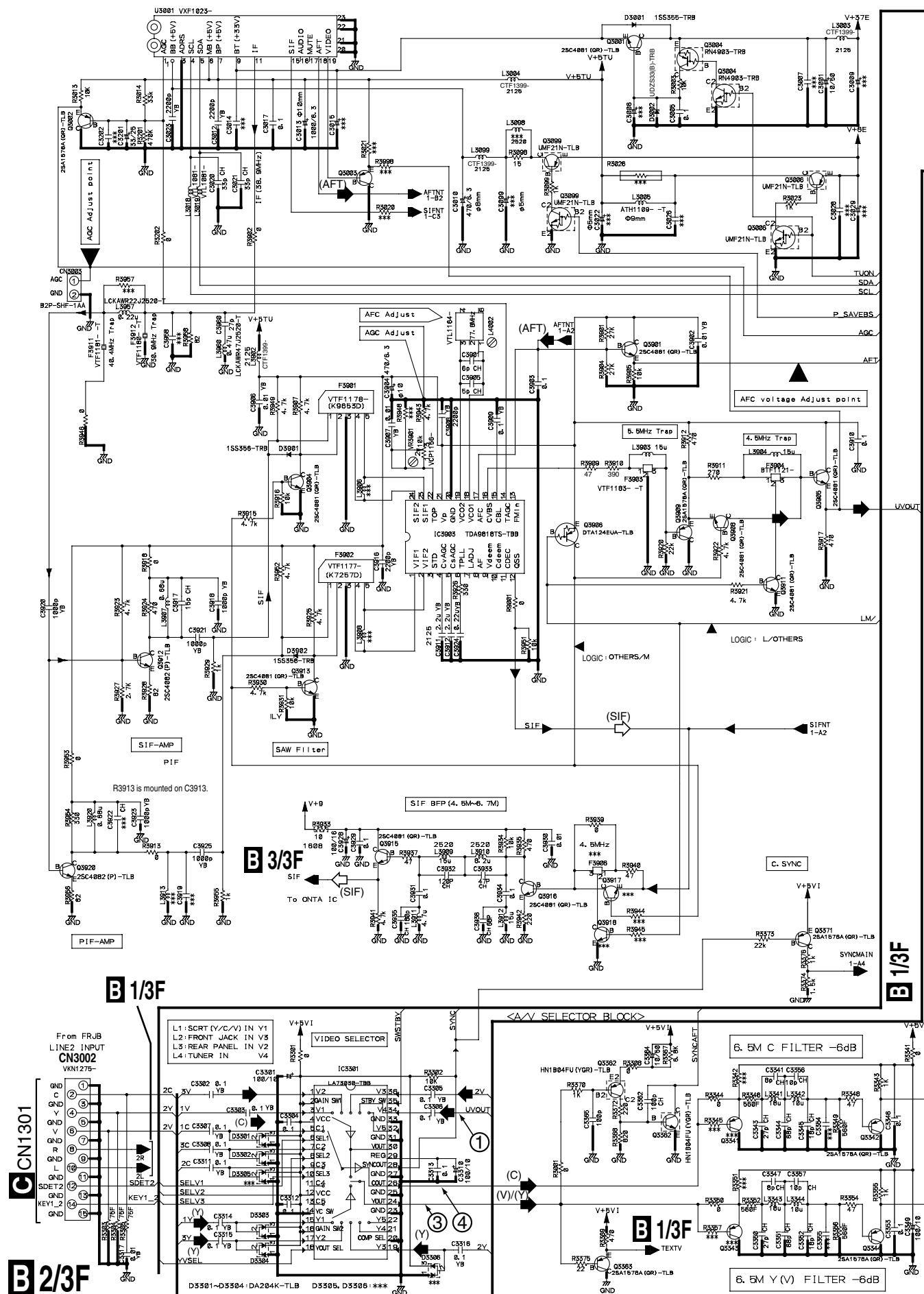
DVR-510H-S

7

- A
- B
- C
- D
- E
- F

B 1/3F

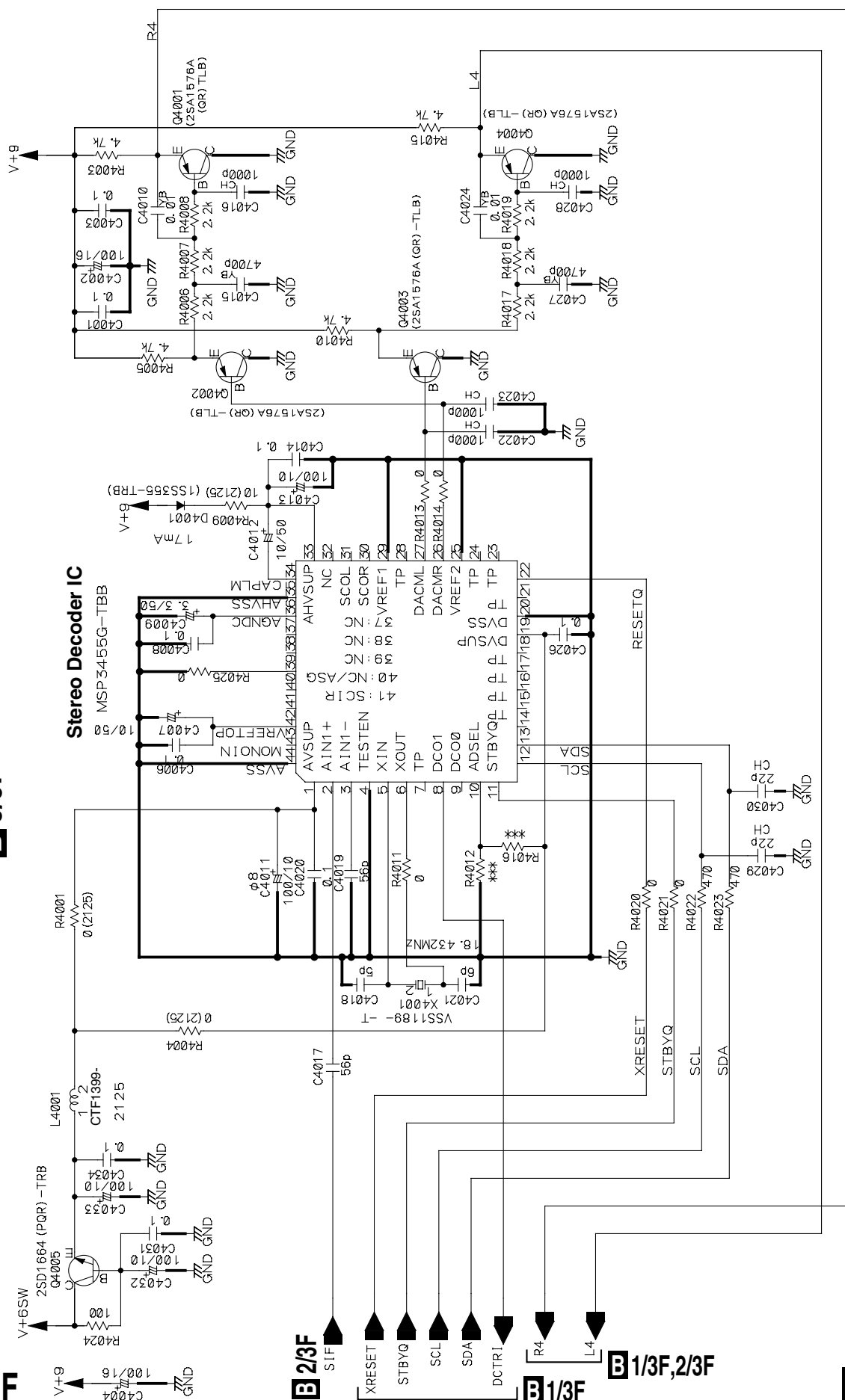
3.2 TUJB ASSY(2/3)





3.3 TUJB ASSY(3/3)

B 3/3F TUJB ASSY (VWV2038)



B 3/3F

B 2/3F

B 1/3F

B 1/3F, 2/3F

B 3/3F

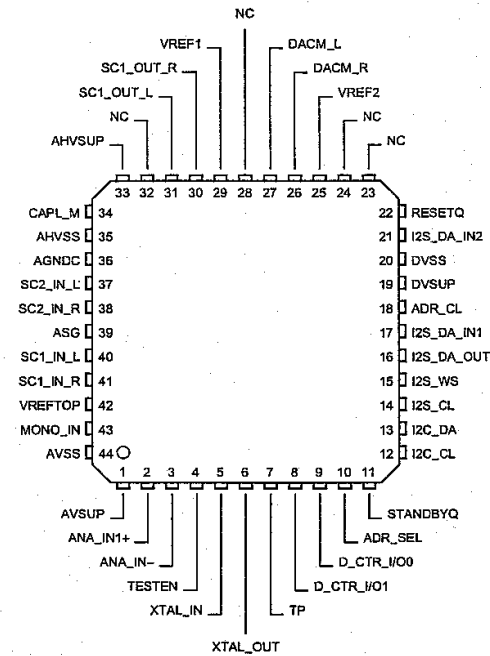
4. IC

■ MSP3455G (TUJB ASSY : IC4001)

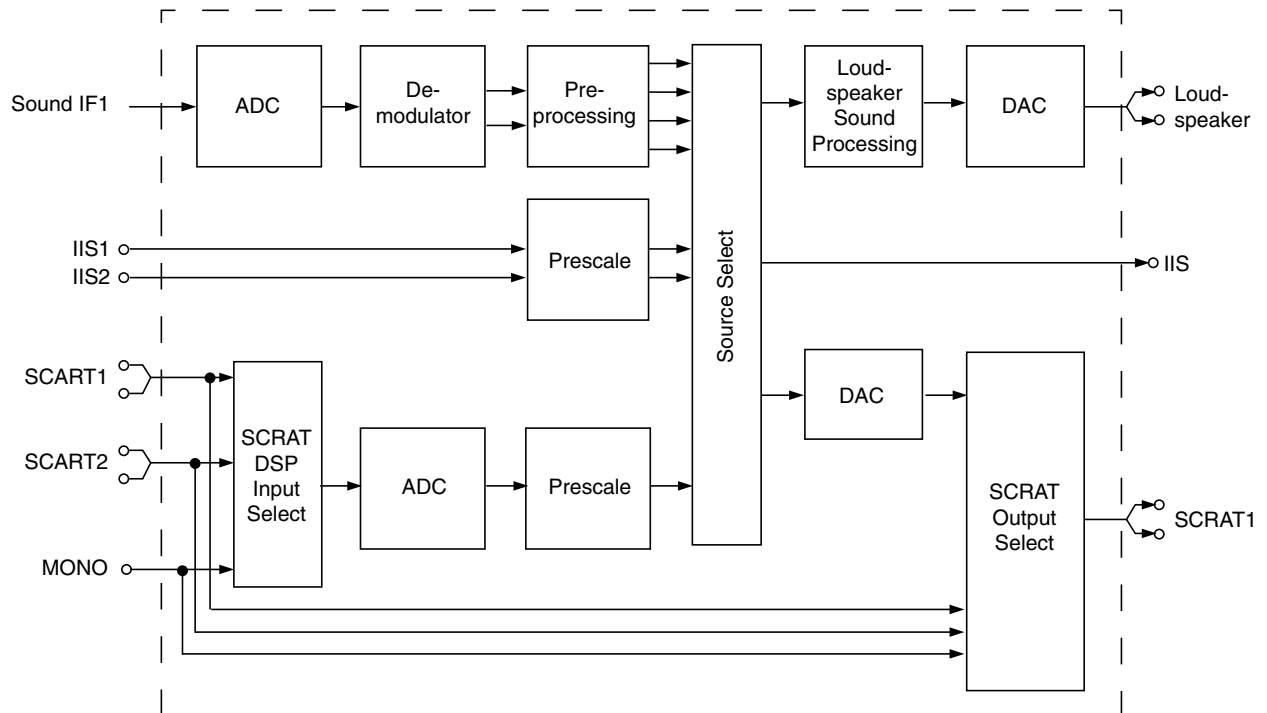
• Stereo Decoder IC

• The information shown in this section is basic information and may not correspond exactly to that shown in the schematic diagrams.

• Pin Layout



• Block Diagram



● Pin Function

Pin No. PMQFP 44-pin	Pin Name	Type	Connection (it not used)	Description
1	AVSUP		X	Analog power supply
2	ANA_IN1+	IN	LV	IF input1
3	ANA_IN-	IN	LV	IF common
4	TESTEN	IN	X	Test pin
5	XTAL_IN	IN	X	Crystal oscillator
6	XTAL_OUT	OUT	X	Crystal oscillator
7	TP		LV	Test pin
8	D_CTR_I/O_1	IN/OUT	X	D_CTR_I/O_1
9	D_CTR_I/O_0	IN/OUT	X	D_CTR_I/O_0
10	ADR_SEL	IN	X	I2C Bus address select
11	STANDBYQ	IN	X	Standby(low-active)
12	I2C_CL	IN/OUT	X	IIC clock
13	I2C_DA	IN/OUT	X	IIC data
14	I2S_CL		LV	IIS clock
15	I2S_WS		LV	IIS word strobe
16	I2S_DA_OUT		LV	IIS data output
17	I2S_DA_IN1		LV	IIS1 data input
18	ADR_CL		LV	ADR clock
19	DVSUP		X	Digital power supply+5V
20	DVSS		X	Digital ground
21	I2S_DA_IN2		LV	IIS-data input
22	RESETQ	IN	X	Power-on-reset
23	NC		LV	Not connected
24	NC		LV	Not connected
25	VREF2		X	Reference ground 2 high-voltage part
26	DACM_R	OUT	LV	Loudspeaker out, right
27	DACM_L	OUT	LV	Loudspeaker out, left
28	NC		LV	Not connected
29	VREF1		X	Reference ground 1 high-voltage part
30	SC1_OUT_R	OUT	LV	SCRAT 1 output, right
31	SC1_OUT_L	OUT	LV	SCRAT 1 output, left
32	NC		LV	Not connected
33	AHVSUP		X	Analog power supply + 8.0 V
34	CAPL_M		X	Volume capacitor MAIN
35	AHVSS		X	Analog ground
36	AGNDC		X	Analog reference voltage high-volt-age part
37	SC2_IN_L		LV	SCRAT 2 input, left
38	SC2_IN_R		LV	SCRAT 2 input, right
39	ASG		LV	Analog Shield Ground
40	SC1_IN_L	IN	LV	SCRAT 1 input, left
41	SC1_IN_R	IN	LV	SCRAT 1 input, right
42	VREFTOP		X	Reference voltage IF A/D converter
43	MONO_IN	IN	LV	Mono input
44	AVSS		X	Analog ground