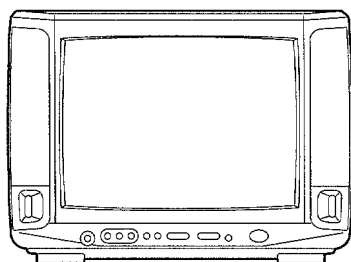




aiwa



TV-AR144 TV-AR204 TV-AR146



COLOR TELEVISION

- TYPE: RHB(144,204)
RHA(146)

SUPPLEMENT

- This Service Manual contains information about the difference between TV-AR144/204/146 (RHB,RHA) and TV-AR215 (RH). If requiring the other information, see Service Manual of TV-AR215 (RH), (S/M Code No. 09-981-227-7FP).

SPECIFICATIONS

Category	Color television	Speaker	TV-AR204: 120 x 55 mm (4 ³ / ₄ x 2 ¹ / ₄ in.) oval: 2
Color system	PAL-M/PAL-N/NTSC		25mm (1 in.) round: 2
Tuning system	Digital Synthesized PLL, 181 Channels		TV-AR144/146: 100 x 45 mm (4 x 1 ³ / ₁₆ in.) oval: 2
Channel Coverage	TV : 2 – 69 Cable (CATV) : 1 – 125 A-8, 2 – 13, A-5 – A-1, A – W, W+1 – W+84	Operating Voltage	25mm (1 in.) round: 2 TV-AR144/204: 110 – 240 V AC, 50/60 Hz TV-AR146: 110 – 220 V AC, 50/60 Hz
Antena Input (AERIAL)	75 ohms, unbalanced F-connector	Power Consumption	TV-AR204: 85 W TV-AR144/146: 80 W
Picture Tube	TV-AR204: 20" (48 cm) TV-AR144/146: 14" (33.5 cm)	Phone jack	Stereo-mini jack
Screen size	TV-AR204: 404(W) x 480(D) x 303(H) mm (16 x 19 x 12 in.) TV-AR144/146: 280(W) x 335(D) x 211(H) mm (11 ¹ / ₈ x 13 ¹ / ₄ x 8 ³ / ₈ in.)	Operating temperature	5°C – 40°C
Video Input/Output	1 Vp-p, 75 ohms	Operating humidity	35% – 80%
Audio Input	0.5 Vrms., 33 k ohms more	Dimensions	TV-AR204: 580(W) x 491(D) x 425(H) mm (22 ⁷ / ₈ x 19 ³ / ₈ x 16 ³ / ₄ in.) TV-AR144/146: 440(W) x 371(D) x 320(H) mm (17 ³ / ₈ x 14 ⁵ / ₈ x 12 ⁵ / ₈ in.)
Audio Output	0.5 Vrms., 2.2 k ohms less	Weight	TV-AR204: 20 kg (44 lbs.) TV-AR144/146: 10.5 kg (23.1 lbs)

• Design and specifications are subject to change without notice.

ELECTRICAL MAIN PARTS LIST

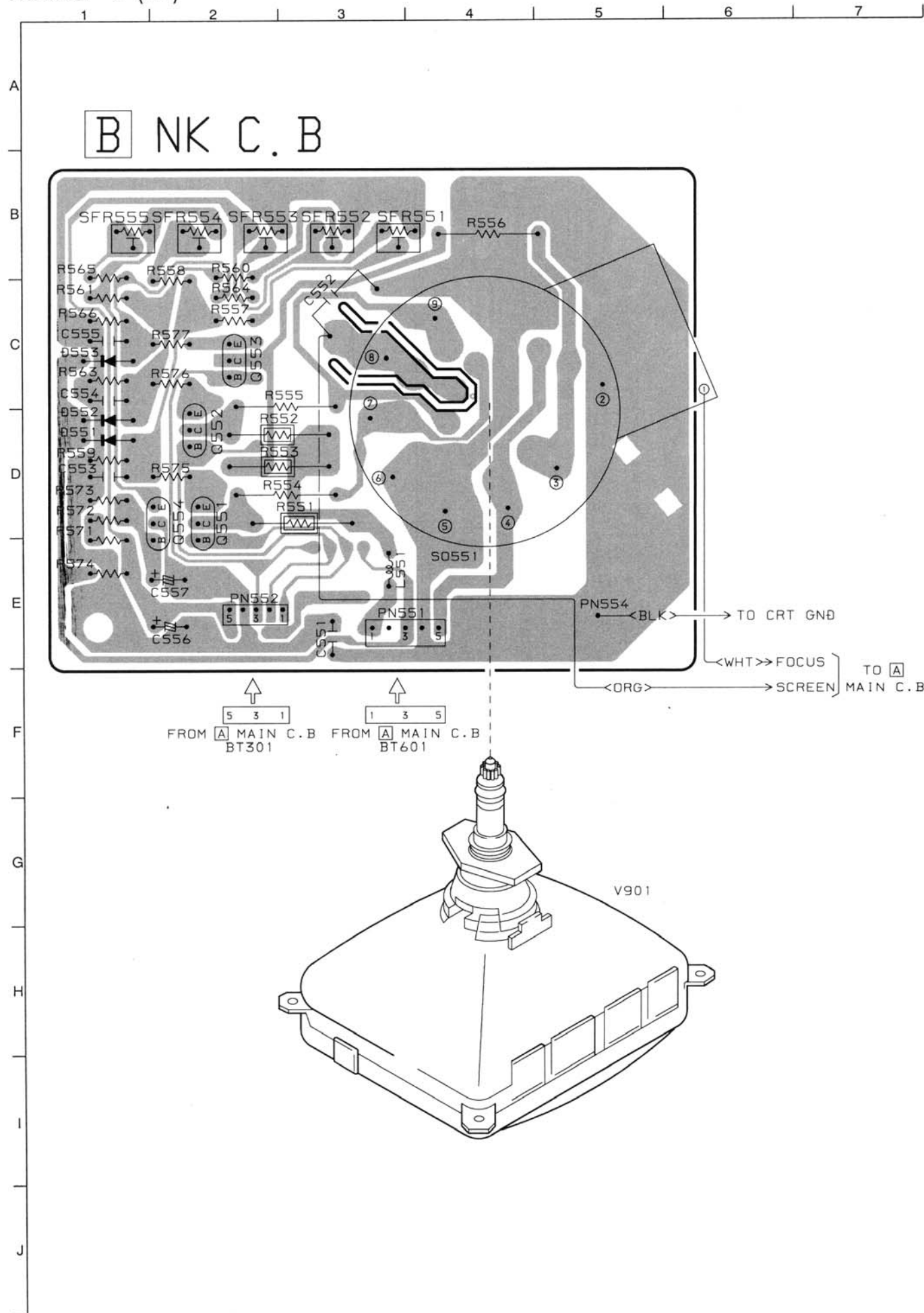
If can't understand for Description please kindly refer to "REFERENCE NAME LIST".

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION	REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
IC				C20	87-018-123-080		CAP, CER 220P-50V
	87-JBC-629-010		IC,M37272M8-131SP	C21	87-016-624-080		CAP,E 10-16 SSL
	87-A90-297-010		RCR UNIT,SBX1981-52	C22	87-016-624-080		CAP,E 10-16 SSL
	87-A20-612-010		IC,AT93C46-10PI	C23	87-016-636-080		CAP,E 4.7-50 SSL
	87-A20-611-080		IC,M51943BSL-700A	C24	87-016-636-080		CAP,E 4.7-50 SSL
	87-A20-652-010		IC,SBX1837-01	C25	87-016-636-080		CAP,E 4.7-50 SSL
	87-A20-832-010		IC,LA7688	C26	87-018-209-080		CAP, CER 0.1-50V
	87-A20-364-010		IC,KIA7809PI	C27	87-018-131-080		CAP, CER 1000P-50V
	87-A20-833-010		IC,LC89950	C29	87-018-123-080		CAP, CER 220P-50V
	87-A20-734-010		IC,TDA2007A	C101	87-016-636-080		CAP,E 4.7-50 SSL
	87-002-577-010		IC,LA7953N	C102	87-018-134-080		CAPACITOR,TC-U 0.01-16
	87-001-647-010		IC,NJM78L12A	C103	87-016-575-080		CAP,E 220-16 SSL
	87-002-524-010		IC,LA7837	C105	87-016-637-080		CAP,E 10-50 SSL
	87-017-956-010		IC,BA7611AN	C106	87-018-134-080		CAPACITOR,TC-U 0.01-16
△	87-A20-980-010		IC,STR-S6707N	C107	87-A10-207-080		CAP,TCS 0.01-50KBUP050
	87-020-881-080		IC,NJM78L05A	C151	87-016-583-080		CAP,E 100-25 SSL
TRANSISTOR				C152	87-016-637-080		CAP,E 10-50 SSL
	87-A30-091-080		FET,2SJ460	C153	87-018-131-080		CAP, CER 1000P-50V
	89-111-755-080		TR,2SA1175F	C203	87-018-134-080		CAPACITOR,TC-U 0.01-16
	89-327-854-080		TR,2SC2785F	C204	87-018-134-080		CAPACITOR,TC-U 0.01-16
	89-337-794-580		TR,2SC3779 D/E	C205	87-018-134-080		CAPACITOR,TC-U 0.01-16
	87-A30-090-080		FET,2SK2541	C211	87-018-134-080		CAPACITOR,TC-U 0.01-16
	87-A30-121-080		TR,DTC323TS	C212	87-016-631-080		CAP,E 0.33-50 SSL
	87-A30-005-010		TR,2SC2688M/L	C213	87-016-633-080		CAP,E 1-50 SSL
	87-A30-066-080		TR,2SA1175FE	C214	87-018-131-080		CAP, CER 1000P-50V
	87-A30-050-010		TR,2SD2499	C217	87-016-633-080		CAP,E 1-50 SSL
	89-334-674-580		TR,2SC3467 D/E	C218	87-016-629-080		CAP,E 0.1-50 SSL
	87-A30-041-010		TR,SE115N	C219	87-018-128-080		CAP, CERA-SOL SS 560P
	87-A30-095-010		TR,2SD2333	C220	87-016-632-080		CAP,E 0.47-50 SSL
DIODE				C221	87-018-131-080		CAP, CER 1000P-50V
	87-070-345-080		DIODE,IN4148	C222	87-018-134-080		CAPACITOR,TC-U 0.01-16
	87-A40-464-080		ZENER,MTZJ3.6A	C223	87-016-574-080		CAP,E 100-16 SSL
	87-070-150-080		ZENER,MTZJ33D	C301	87-016-627-080		CAP,E 47-16 SSL
	87-070-136-080		ZENER,MTZJ5.1B	C302	87-018-134-080		CAPACITOR,TC-U 0.01-16
	87-070-274-080		DIODE,IN4003 SEM	C303	87-018-188-080		CAP,TC-U 16P-50SSL
	87-A40-286-080		DIODE,RGP10JE-5025	C304	87-018-188-080		CAP,TC-U 16P-50SSL
△	87-A40-004-080		ZENER,MTZJ16A	C305	87-018-188-080		CAP,TC-U 16P-50SSL
	87-017-654-060		DIODE,GBU6JL 6131	C308	87-016-632-080		CAP,E 0.47-50 SSL
	87-A40-450-090		DIODE,RU 1P	C311	87-018-134-080		CAPACITOR,TC-U 0.01-16
	87-A40-354-010		DIODE,UF3GL-6251	C312	87-016-637-080		CAP,E 10-50 SSL
△	87-A40-440-080		ZENER,MTZJ7.5A	C313	87-016-636-080		CAP,E 4.7-50 SSL
△	87-A90-965-010		VRIS,TNR15G471K	C314	87-018-131-080		CAP, CER 1000P-50V
MAIN C.B				C316	87-018-134-080		CAPACITOR,TC-U 0.01-16
BT301	87-JBC-625-010		CONN ASSY,5P V WHT TV-NK	C317	87-018-134-080		CAPACITOR,TC-U 0.01-16
BT403	87-JBC-624-010		CONN ASSY,9P V JK	C318	87-018-134-080		CAPACITOR,TC-U 0.01-16
BT601	87-JB2-690-010		CONN ASSY,5P V WHITE-RED TV-NK	C319	87-018-134-080		CAPACITOR,TC-U 0.01-16
C1	87-016-624-080		CAP,E 10-16 SSL	C320	87-018-130-080		CAP,TC-U 820P-50 B
C2	87-018-119-080		CAP, CER 100P-50V	C321	87-018-121-080		CAP, CER 150P-50V
C3	87-018-134-080		CAPACITOR,TC-U 0.01-16	C323	87-016-633-080		CAP,E 1-50 SSL
C4	87-016-633-080		CAP,E 1-50 SSL	C324	87-016-638-080		CAP,E 22-50 SSL
C5	87-016-583-080		CAP,E 100-25 SSL	C325	87-018-134-080		CAPACITOR,TC-U 0.01-16
C6	87-018-134-080		CAPACITOR,TC-U 0.01-16	C326	87-016-633-080		CAP,E 1-50 SSL
C9	87-018-128-080		CAP, CERA-SOL SS 560P	C327	87-016-633-080		CAP,E 1-50 SSL
C10	87-018-131-080		CAP, CER 1000P-50V	C328	87-016-633-080		CAP,E 1-50 SSL
C11	87-016-633-080		CAP,E 1-50 SSL	C329	87-016-578-080		CAP,E 1000-16 SSL
C12	87-018-209-080		CAP, CER 0.1-50V	C330	87-018-134-080		CAPACITOR,TC-U 0.01-16
C13	87-018-109-080		CAP, CER 22P-50V	C331	87-016-632-080		CAP,E 0.47-50 SSL
C14	87-018-109-080		CAP, CER 22P-50V	C332	87-018-134-080		CAPACITOR,TC-U 0.01-16
C15	87-018-109-080		CAP, CER 22P-50V	C333	87-016-636-080		CAP,E 4.7-50 SSL
C16	87-018-109-080		CAP, CER 22P-50V	C334	87-016-627-080		CAP,E 47-16 SSL
C17	87-018-109-080		CAP, CER 22P-50V	C335	87-018-134-080		CAPACITOR,TC-U 0.01-16
C18	87-018-109-080		CAP, CER 22P-50V	C336	87-018-134-080		CAPACITOR,TC-U 0.01-16
C19	87-018-131-080		CAP, CER 1000P-50V	C338	87-018-134-080		CAPACITOR,TC-U 0.01-16
				C401	87-016-586-080		CAP,E 470-25 SSL
				C403	87-016-586-080		CAP,E 470-25 SSL
				C405	87-016-586-080		CAP,E 470-25 SSL
				C406	87-016-621-080		CAP,E 220-10 SSL
				C407	87-016-621-080		CAP,E 220-10 SSL
				C408	87-016-627-080		CAP,E 47-16 SSL
				C412	87-016-633-080		CAP,E 1-50 SSL

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION	REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
C414	87-016-637-080		CAP,E 10-50 SSL	△ F801	87-035-458-010		FUSE,4A 250V T W/C
C417	87-016-633-080		CAP,E 1-50 M SSL	FB801	87-003-320-080		F-BEAD,FBR07HA121NB
C418	87-016-583-080		CAP,E 100-25 SSL	FB802	87-003-320-080		F-BEAD,FBR07HA121NB
C419	87-016-633-080		CAP,E 1-50 M SSL	FB803	87-003-320-080		F-BEAD,FBR07HA121NB
C422	87-016-634-080		CAP,E 2.2-50 SSL	FB804	87-003-320-080		F-BEAD,FBR07HA121NB
C423	87-016-587-090		CAP,E 1000-25 SSL	FB805	87-003-320-080		F-BEAD,FBR07HA121NB
C424	87-016-637-080		CAP,E 10-50 SSL	△ FC801	87-A90-160-080		FUSE CLAMP,FC 51F
C425	87-016-637-080		CAP,E 10-50 SSL	△ FC802	87-A90-160-080		FUSE CLAMP,FC 51F
C426	87-016-637-080		CAP,E 10-50 SSL	△ FR401	87-A00-340-090		RES,FUSE 56-1/4 W J
C428	87-016-574-080		CAP,E 100-16 M SSL	△ FR402	87-A00-369-090		RES,FUSE 3.3-1/2 W J
C501	87-016-622-080		CAP,E 470-10 SSL	△ FR403	87-029-158-060		RES,FUSE 1-1W J
C504	87-016-591-080		CAP,E 100-35 SSL	△ FR601	87-A00-063-060		RES,FUSE 2.2-1/2W J R-TYPE
C505	87-016-641-080		CAP,E 100-50 SSL	△ FR602	87-A00-052-060		RES,FUSE 3.9-1W<144,146>
C506	87-A10-367-080		CAP,CER 10P-500 J SL	△ FR602	87-A00-371-090		RES,FUSE 5.6-1W J R-TYPE<204>
C507	87-A10-402-080		CAP,M 0.22-100 J TF TYPE1	△ FR603	87-A00-300-090		RES,M/F 2.2-1W J RSF(S)
C508	87-016-634-080		CAP,E 2.2-50 SSL	△ FR604	87-A00-051-060		RES,FUSE 2.7-1W J R-TYPE
C509	87-016-587-090		CAP,E 1000-25 SSL	△ FR801	87-A00-081-090		RES,FUSE 1-1/2W
C511	87-018-123-080		CAP,CER 220P-50V	J401	87-009-216-010		JACK, DIA 3.5
C601	87-016-650-080		CAP,E 1-250 M SSL	J701	87-A60-322-110		JACK,PIN 3P Y-W-R W/SW
C603	87-A10-457-080		CAP,E 2.2-160 M SSL	J702	87-A60-324-110		JACK,PIN 6P Y-W-R W/SW
C604	87-016-597-080		CAP,E 22-160 SSL	L1	87-005-614-080		COIL 100UH LAV35 J
C605	87-012-399-010		CAP,CER 1500P-2K K BN DE	L2	87-005-614-080		COIL 100UH LAV35 J
C606	87-A10-624-090		CAP,M/P 6800P-1.25 K J<144,146>	L101	87-005-614-080		COIL 100UH LAV35 J
C606	87-A10-626-090		CAP,M/P 0.01-1250 J<204>	L102	87-005-608-080		COIL,33UH J LAV35
C607	87-010-974-080		CAP,CER 220P-500 B	L201	84-LB2-684-010		COIL,TRAP 47.25 SA
C609	87-016-583-080		CAP,E 100-25 SSL	L202	87-003-140-080		CH COIL 0.82UH
C610	87-016-594-090		CAP,E 1000-35 SSL	L203	87-JBN-686-010		COIL,VCO2 45.75MHZ 686
C611	87-010-976-080		CAP,CER 1000P-500 B	L205	87-003-282-080		COIL,12UH
C612	87-010-974-080		CAP,CER 220P-500 B	L603	87-A50-040-010		COIL,2.2MH
C616	87-A10-674-090		CAP,M/P 0.47-250 J	L801	87-A50-176-080		COIL,33UH-PJ87
C701	87-016-633-080		CAP,E 1-50 SSL	L802	87-A50-170-010		COIL,390UH RCH106
C702	87-016-637-080		CAP,E 10-50 SSL	L803	87-005-608-080		COIL,33UH J LAV35
C703	87-016-637-080		CAP,E 10-50 SSL	△ L805	87-JBF-625-110		DGC,14 15 OHM<144,146>
C705	87-016-637-080		CAP,E 10-50 SSL	△ L805	87-JBD-625-010		DGC,20 15 OHM<204>
C706	87-016-637-080		CAP,E 10-50 SSL	△ LF801	87-JB8-650-010		FLTR,LINE SS24H-K18055
C707	87-016-633-080		CAP,E 1-50 SSL	△ P801	87-A30-096-010		P-TR,TLP721F
C708	87-016-637-080		CAP,E 10-50 SSL	△ P802	87-A30-096-010		P-TR,TLP721F
C709	87-016-637-080		CAP,E 10-50 SSL	△ PR601	87-A90-757-080		PROTECTOR,0.75A 60V 491
C710	87-016-622-080		CAP,E 470-10 SSL	△ PR801	87-A90-090-080		PROTECTOR,1.5A 491SERIES 60V
C712	87-016-637-080		CAP,E 10-50 SSL	△ PR802	87-026-681-080		PROTECTOR,5.0A 491SERIES 60V
C714	87-016-637-080		CAP,E 10-50 SSL	△ PR803	87-A90-247-080		PROTECTOR,0.315A 60V 491
C715	87-016-633-080		CAP,E 1-50 SSL	R327	87-A00-161-090		RES,M/F 47-2W J RSF(S)
△ C716	87-016-634-080		CAP,E 2.2-50 SSL	R401	87-A00-150-090		RES,M/F 220-1W J RSF(S)
△ C801	87-A10-688-090		CAP,M/P 0.22-275 K (B81133)	R402	87-A00-150-090		RES,M/F 220-1W J RSF(S)
△ C802	87-A10-688-090		CAP,M/P 0.22-275 K (B81133)	R507	87-A00-214-090		RES,M/F 1.5-1W J RSF<144,146>
△ C803	87-012-370-010		CAP,CER 3300P-250NS	R507	87-A00-197-090		RES,M/F 1.2-1W J RSF(S)<204>
△ C804	87-012-370-010		CAP,CER 3300P-250NS	△ R515	87-A00-029-060		RES,FUSE 22-1/4W J R-TYPE<146>
△ C808	87-A10-646-090		CAP,E 220-400 SMH(25.4*40)	R603	87-A00-247-090		RES,M/F 100-3W J RSF
C809	87-016-584-080		CAP,E 220-25 SSL	R610	87-A00-225-090		RES,M/F 2.2K-5W J RSV5
C810	87-A10-728-080		CAP,E 680-10 M LXV	R611	87-A00-196-090		RES,M/F 0.47-1/2W J RSF(S)
C811	87-018-131-080		CAP, CER 1000P-50V	△ R804	87-A00-224-090		RES,SD 8.2M-1W J CE
C812	87-A10-645-010		CAP,M/P 0.01-1K J MMH	R805	87-A00-333-090		RES,M/F 100K-3W J RSS
C813	87-012-372-010		CAP,CER 1000P-2K	R806	87-A00-287-090		RES,CEM 0.33-5W K RGC5
C814	87-A10-832-010		CAP,CER 1000P-1K K R LONG	R807	87-A00-333-090		RES,M/F 100K-3W J RSS
C815	87-012-397-080		CAP,CER 1000P-2K BN	R808	87-A00-208-090		RES,M/F 22-1/2W J RSF(S)
C816	87-016-649-090		CAP,E 220-160 M SSL	R809	87-A00-332-090		RES,CEM 1-10W J RGC
C817	87-016-648-090		CAP,E 100-160 M SSL	R810	87-A00-332-090		RES,CEM 1-10W J RGC
C819	87-016-576-080		CAP,E 330-16 SSL	R812	87-A00-170-090		RES,M/F 82K-3W J RSF(S)
C821	87-016-588-090		CAP,E 2200-25 M SSL	R815	87-A00-199-090		RES,M/F 12K-3W J RSF(S)
C822	87-016-587-090		CAP,E 1000-25 SSL	R816	87-A00-223-090		RES,M/F 47K-2W J RSF(S)
C823	87-016-627-080		CAP,E 47-16 SSL	SF201	87-JBN-695-010		FLTR,SAW M1967M 45.75MHZ
C824	87-016-583-080		CAP,E 100-25 SSL	SFR151	87-024-432-080		SFR,4.7K RH063EC
C825	87-A10-469-080		CAP,CER 2200P-500 K B DD10	SFR201	87-A90-385-080		SFR,22K H DIA6 EVM
CF201	84-LB3-627-010		FLTR,SFSH 4.5MdB SIF	SFR301	87-024-433-080		SFR,10K RH063EC
CF202	84-LB3-626-010		FLTR,TPS4.5MB2	SFR302	87-024-433-080		SFR,10K RH063EC
CN401	87-049-469-010		CONN,4P V	SFR501	87-A90-385-080		SFR,22K H DIA6 EVM
CN601	87-099-675-010		CONN,5P V V	SP401	87-A90-669-010		SPKR,S0612 8OHM 8W<204>
△ CN801	87-099-454-010		CONN,2P TV-50 EYLET	SP401	86-LBT-621-010		SPKR,F 45 8OHM 5W<144,146>
CN802	87-099-674-010		CONN,2P VA V	SP402	87-A90-669-010		SPKR,S0612 8OHM 8W<204>
D1	87-070-110-010		LED,SLP-181B-51 RED	SP402	86-LBT-621-010		SPKR,F 45 8OHM 5W<144,146>

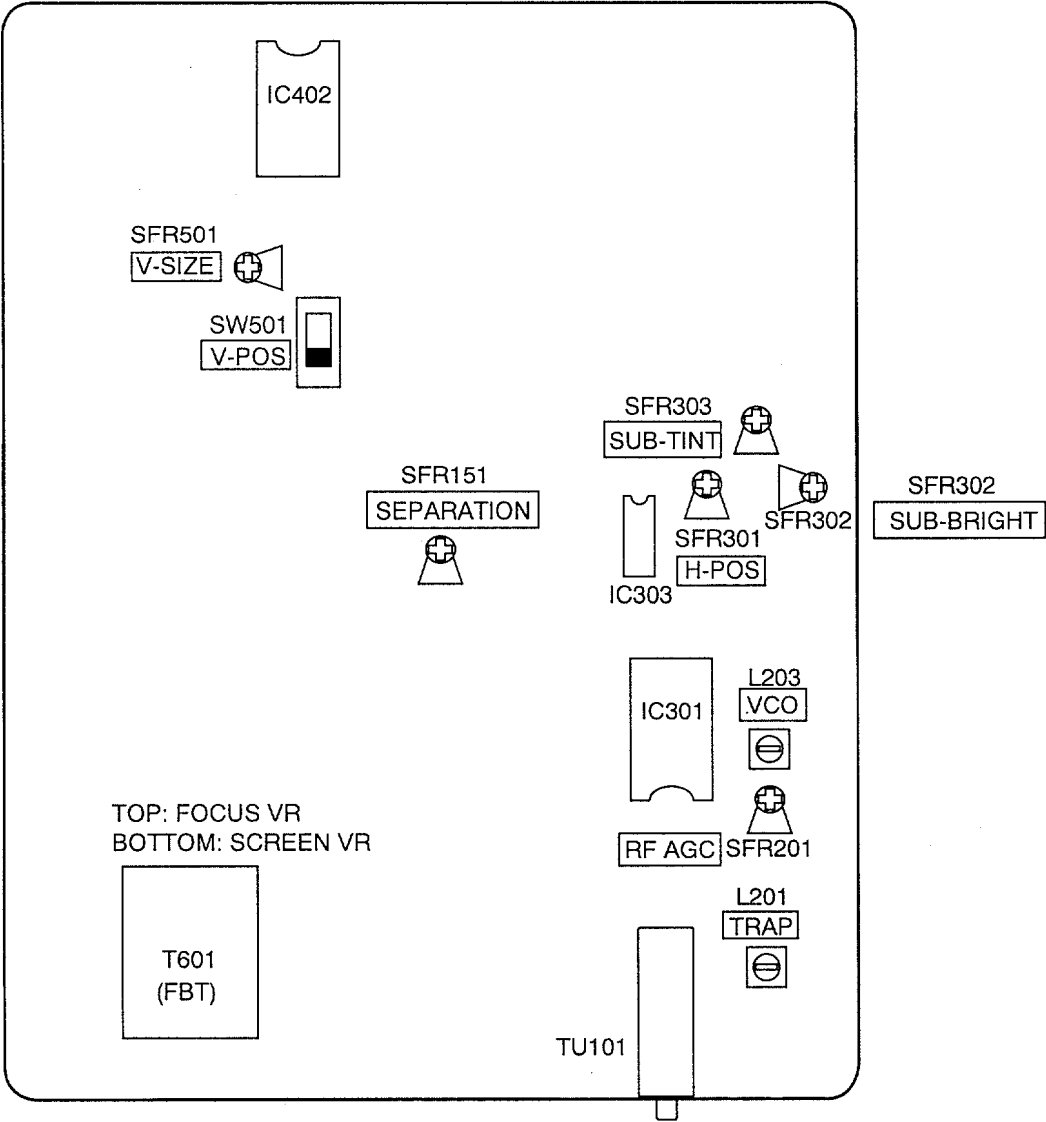
REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
SP403	86-CT4-626-010		SPKR,T 100OHM
SP404	86-CT4-626-010		SPKR,T 100OHM
SW2	87-036-267-080		SW,TACT SKHVBK
SW3	87-036-267-080		SW,TACT SKHVBK
SW4	87-036-267-080		SW,TACT SKHVBK
SW5	87-036-267-080		SW,TACT SKHVBK
SW6	87-036-267-080		SW,TACT SKHVBK
SW7	87-036-267-080		SW,TACT SKHVBK
SW501	87-A90-567-010		SW,LVR 4-1-3 EVQRAAL10
SW801	87-A90-364-010		SW,PUSH SDDLBI-C-D-2
△ T601	84-LB3-607-010		FBT,FTK-14B011<144,146>
△ T601	84-LB2-606-010		FBT,HFL1530G<204>
T602	84-LB3-651-010		TRANS,HD MS-101N<144,146>
T602	85-JT2-653-010		PT,HDT-TV141-2<204>
△ T801	87-JBC-627-010		PT,SWT 7JB
△ TH801	87-A90-830-010		POS-THMS,PTH451C463BF9R0Q270
TU101	87-A90-660-010		TU UNIT, BTP-AB455
X1	87-030-212-080		CERA LOCK CST8.0M
X301	87-A70-109-010		VIB,CER 500KHZ CSB500F55
X302	87-A70-113-080		VIB,XTAL 3.58205625MHZ HC-49/U
X303	87-A70-114-080		VIB,XTAL 3.57561149MHZ HC-49/U
X304	87-A70-053-080		VIB,XTAL 3.58MHZ
NK C.B			
△ C551	87-010-976-080		CAP,CER 1000P-500 B
△ C552	87-A10-825-010		CAP,CER 0.01-2K 2E
C553	87-018-122-080		CAP 180P-50 B
C554	87-018-122-080		CAP 180P-50 B
C555	87-018-123-080		CAP, CER 220P-50V
C556	87-016-624-080		CAP,E 10-16 SSL
C557	87-016-624-080		CAP,E 10-16 SSL
L551	87-005-444-080		COIL 100UH,K
PN551	87-009-195-010		CONN,5P B5BEH
PN552	87-009-033-010		CONNECTOR,5P
△ R551	87-A00-165-090		RES,M/F 15K-2W J RSF(S)
△ R552	87-A00-165-090		RES,M/F 15K-2W J RSF(S)
△ R553	87-A00-165-090		RES,M/F 15K-2W J RSF(S)
SFR551	87-024-522-080		SFR 4.7K DIA6V NTP
SFR552	87-024-522-080		SFR 4.7K DIA6V NTP
SFR553	87-024-522-080		SFR 4.7K DIA6V NTP
SFR554	87-024-520-080		SFR,1K DIA6 V NTP
SFR555	87-024-520-080		SFR,1K DIA6 V NTP
△ S0551	86-LBU-670-010		SOCKET,CRT 9P CVT3326 1603
△ V901	87-JBT-625-010		CRT,A34JFQ91X08(VW)<144>
△ V901	87-JBD-605-010		CRT,A48JAN44X04(W)<204>
△ V901	87-JBT-628-010		CRT,A34JFQ91X07(VW)<146>





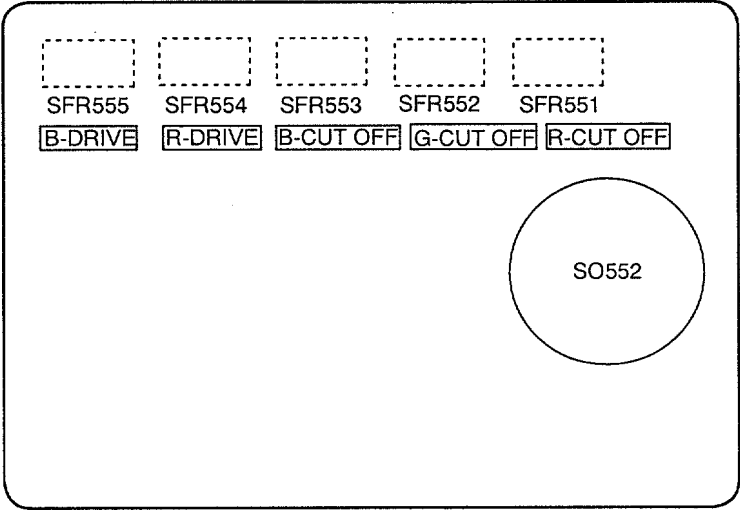
ADJUSTMENT

A MAIN C.B



MAIN Circuit board (Component side)

B NK C.B

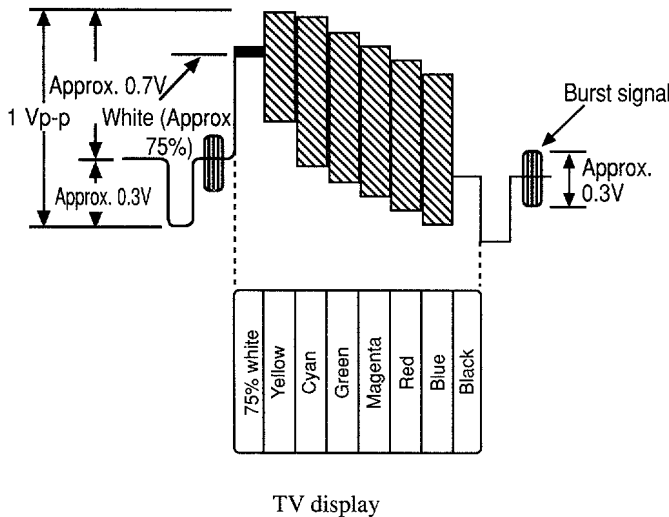


NK Circuit board (Solder side)

SET-UP FOR ADJUSTMENT

Because the video signal output from a pattern generator is used as the adjustment signal input during adjustment, the video signal output from the pattern generator must conform with the specifications. Measure the output waveform across $75\ \Omega$ load. Confirm that the synchronizing signal has an amplitude of about 0.3 V, the video signal portion has an amplitude of about 0.7 V and the burst signal has an amplitude of about 0.3 V with flat envelope. Confirm that ratio of the burst signal amplitude and the red signal amplitude is 0.30 : 0.66. If the output signal does not conform with the specifications, calibrate the pattern generator. (Refer to pattern generator operation manual.) Use the LEADER: LCG 404 for the pattern generator.

Color bar signal of a pattern generator



Precautions before starting adjustment

Satisfy the following setting conditions before starting adjustment.

- Allow warm-up of 20 minutes or longer. (Do not turn off during warm-up.)
- Set all picture quality controls of users' setting to initial set-up, unless otherwise specified.
- Picture quality reset
 1. Select "Picture" on the screen menu and press enter button.
 2. Select "Normal" and press enter button.
 3. Select "Reset" and press enter button.
- Set the pattern generator's output level at 1.0Vp-p (across $75\ \Omega$ load).

1. CRT ADJUSTMENT

1-1. Precautions

- (1) Receive the white raster signal, and then perform edging for at least 20 minutes.
- (2) Demagnetize the area surrounding the CRT with a degausser before making adjustments.
- (3) Set the picture quality for each mode to the factory setting.
- (4) Position the front screen facing to the east as much as possible.

1-2 Purpose

- (1) Beam landing adjustment (purity magnet)

Set the left/right balance of beam landing. If there is a discrepancy in this adjustment, a color irregularity will occur. After completion of the landing adjustment, it is necessary to perform a convergence adjustment.

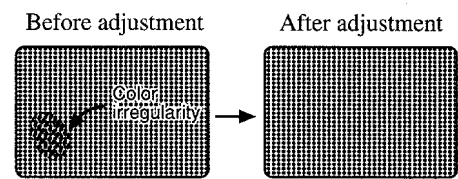
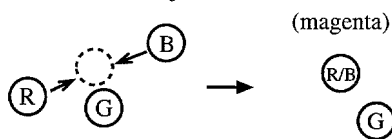


Fig. 1-1

(2) Beam convergence adjustment (4-pole magnet)

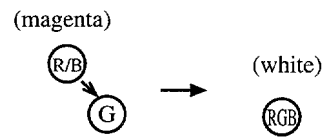
Align the R beam with the B beam. The G beam does not move with this adjustment.



Align the R beam with the B beam
Fig. 1-2

(3) Beam convergence adjustment (6-pole magnet)

With a 4-pole magnet align the G beam with the already aligned R/B beam.



Align the G beam with the R/B beam
Fig. 1-3

(4) The composition of each magnet is as appears in Fig. 1-4.

In making adjustments, rotate the lock ring clockwise (looking from the CRT's back screen) and disengage. Be careful not to loose the lock ring too much. If the magnet assembly has become shifted during adjustments, secure it to the position in Fig. 1-4.

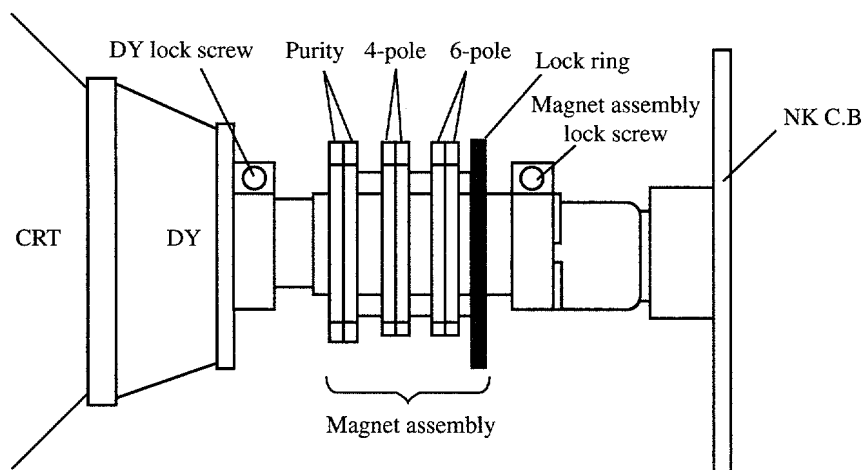


Fig 1-4

1-3. Beam Landing Adjustment

- (1) Receive the green raster signal through the pattern generator.
- (2) Loosen the magnet lock screw, and shift the magnet assembly backward (toward the neck).
- (3) Loosen the DY lock screw, and shift the DY deflecting yoke backward (toward the neck).
- (4) After opening the two purity magnets to the same angle, adjust the color width of the bands on both sides of the screen so that they are of equal width. (refer to Fig. 1-5 (a)).

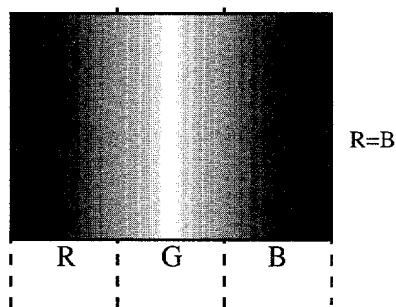


Fig 1-5 (a)

As shown in Fig. 1-5 (b), the purity magnet functions in relation to the electron beam.

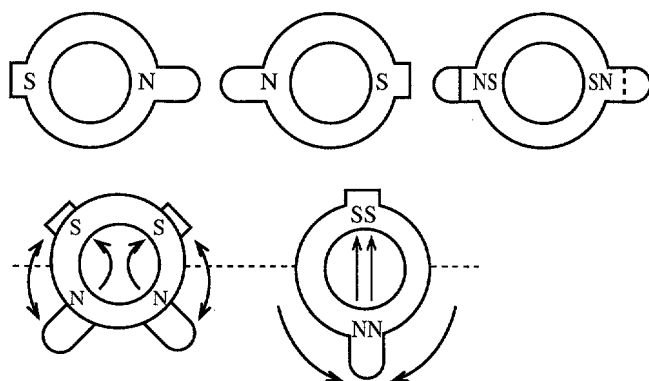


Fig 1-5 (b)

- (5) Gradually shift the deflecting yoke toward the front (toward the CRT funnel). Stop movement at the point when the screen has become completely green.
- (6) Also, verify the respective monochromatics of red and blue.
- (7) While looking at the screen, adjust the tilt of the deflecting yoke and tighten the DY lock screw.
- (8) Shift the magnet assembly to the front (toward the CRT funnel), stop movement before the adjustment position and then tighten the magnet lock screw.
At this time, be careful not to shift the position of the purity magnet.

- ✱ As there is occurrence of convergence distortion after completing the landing adjustments, be certain to carry out convergence adjustments.
- ✱ If the color irregularity in the screen's corner section are not improved, correct them with the landing magnet. After using the landing magnet, be sure to demagnetize the CRT with degausser and verify that there is no occurrence of color irregularity. (refer to Fig. 1-6)

Landing magnet: 81-JTI-710-010
(two-sided adhesive tape) : 80-XVI-218-010 Cushion

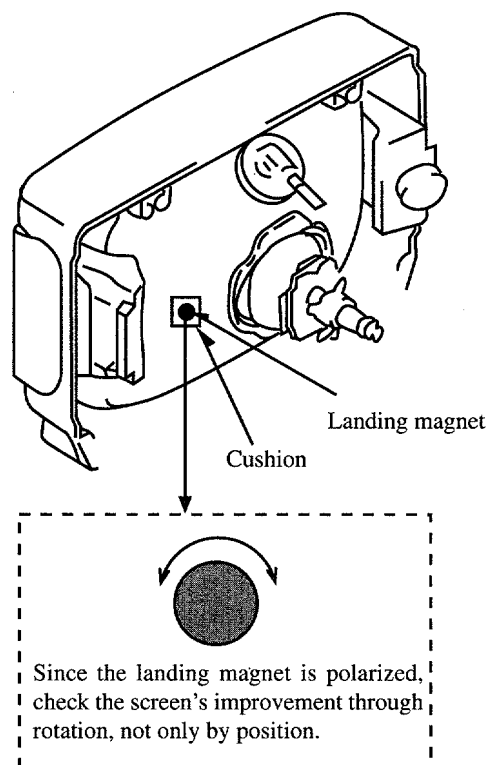


Fig 1-6

1-4. Beam Center Convergence Adjustment

Make adjustments on the convergence with 4-pole and 6-pole magnets. Operate each magnet in relation to the electron beam as shown in Figs. 1-7 and 1-8. When performing this adjustment, verify whether there is distortion in the focus adjustment. If necessary, carry out adjustments again.

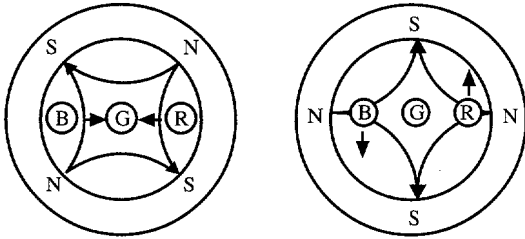


Fig 1-7

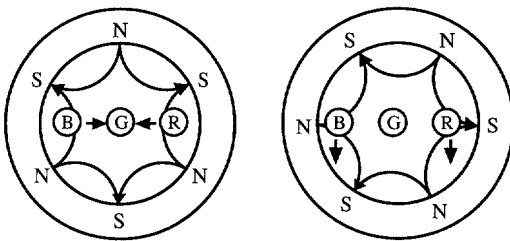


Fig 1-8

In Fig. 1-7, two 4-pole magnets are stacked together so as to be of the same polarity. Move the B and R beams to their respective direction, by rotating the two 4-pole magnets together. By adjusting the opening of the two magnets, it is possible to adjust the amount of the beam's movement.

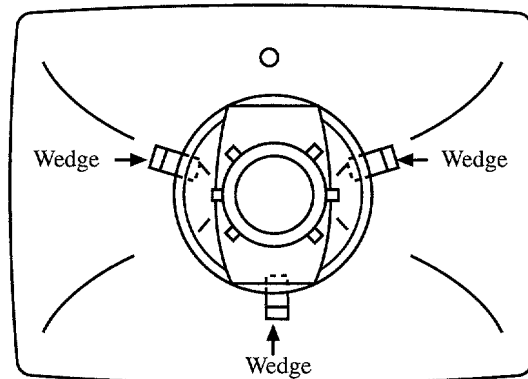
In Fig. 1-8, the two 6-pole magnets are stacked together so as to be of the same polarity. Move the B and R beams to their respective direction, by rotating the two 6-pole magnets together. By adjusting the opening of the two magnets, it is possible to adjust the amount of the beam's movement.

- (1) Receive the dot pattern signal through the pattern generator.
- (2) Pay attention to the center of the screen, and perform adjustments with two 4-pole magnets so that the R beam and the B beam perfectly align and become a magenta color. (refer to Fig. 1-2)
- (3) In the same way, pay attention to the screen, and perform adjustments with a 6-pole magnet so that the magenta beam and the G beam align and become a white dot. (refer to Fig. 1-3)
- (4) After adjustments are completed, secure all magnets with the lock link. (Refer to Fig. 1-4)

1-5. The Surrounding Convergence Adjustment

Make this adjustment after completion of adjustment 1-4.

- (1) Shake the deflecting yoke up, down, right and left, and adjust any discrepancies in the screen's surroundings.
- (2) Insert wedges in three locations in the gap between the deflecting yoke and the surface of the CRT funnel in order to secure the deflecting yoke. (refer to Fig. 1-9)



Position of wedge

Fig. 1-9

2. ELECTRICAL ADJUSTMENT

2-1. White Balance Adjustment (NK C.B.)

- (1) Receive a NTSC raster signal (white).
 - (2) Set the customer picture controls "bright" and "contrast" to minimum.
 - (3) Set the CUT OFF SFR (SFR551, SFR552, SFR553) and DRIVE SFR (SFR554, SFR555) to their mechanical centers.
 - (4) Leaves the CUT OFF SFR of the color which is brightest on the screen as it is and use other two CUT OFF SFR to adjust the white balance.
 - (5) Set the customer picture controls "brightness" and "contrast" to maximum.
 - (6) Turn SFR554 (R DRIVE) fully counterclockwise so the whole screen becomes red.
 - (7) Turn SFR554 (R DRIVE) gradually clockwise and stop it where red disappears from the screen.
 - (8) Turn SFR555 (B DRIVE) fully counterclockwise so the whole screen becomes blue.
 - (9) Turn SFR555 (B DRIVE) gradually clockwise and stop it where blue disappears from the screen.
 - (10) Repeat steps (2)-(4) and (5)-(9) until the white balance has been adjusted completely.
 - (11) Return the customer picture controls to their original positions.
 - (12) Receive a staircase signal (color bar with chroma off) and check that there is no unnatural color at any bands.
- * Perform 2-3 Sub-bright adjustment after completing the white balance adjustment.

2-2. Screen Adjustment

- (1) Short the IC501 Pin2 and Pin5 (or 11) and set the screen in single horizontal line.
- (2) Set the TV to the external input mode (no input).
- (3) Connect an oscilloscope to TP SCREEN (on the NK C.B. near the C552 capacitor).
- (4) Adjust SFR302 (Sub-bright) so the voltage at TP SCREEN is $170 \pm 5\text{VDC}$. (See Figure 2-1)
- (5) Adjust the SCREEN VR (FBT) so that a horizontal line begins to appear at the center of the screen.
- (6) Release the short-circuit point.

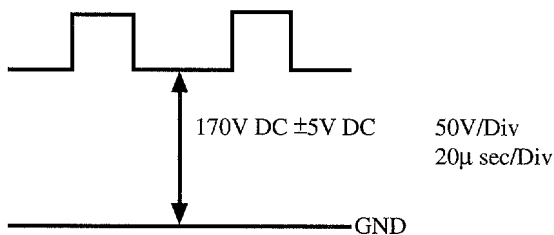


Fig 2-1

- * Be sure to perform the next sub-bright adjustment after completing this adjustment.

2-3. Sub-bright Adjustment

- (1) Receive a PAL staircase signal (color bar with chroma off).
- (2) Adjust SFR302 so the band next to the right end start to light. (See Figure 2-2)

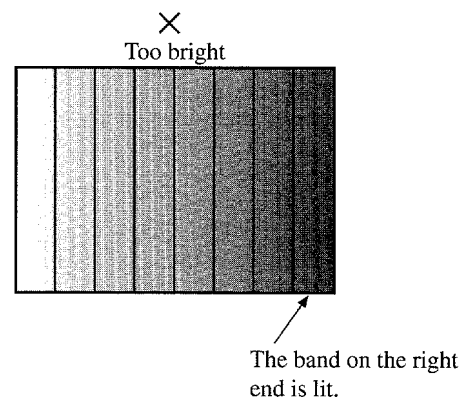
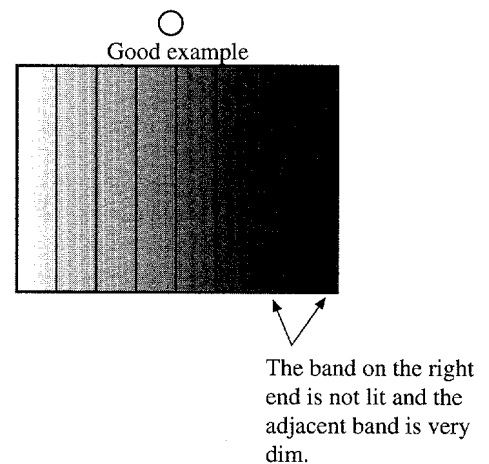
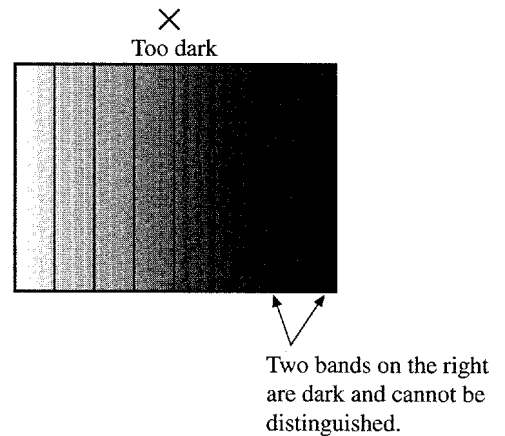


Fig 2-2

2-4. Focus Adjustment

- (1) Receive a NTSC dot pattern signal.
- (2) Adjust the FOCUS SFR (FBT) so the focus of the dots is optimum.

2-5. Horizontal Position Adjustment

- (1) Input the following signals.
Monoscope signal of the test tape TTV-06T (connect video)
- (2) As is shown in Fig. 2-3, make adjustments with SFR301 so that the scales on both sides of the screen are the same.

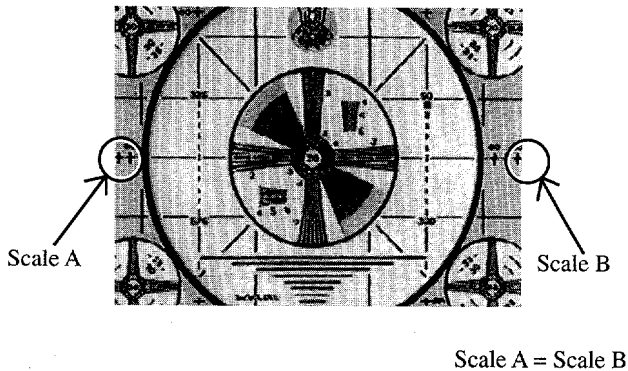


Fig 2-3

(Simple Adjustment Method)

- (1) Using LEADER LCG-404, input the cross hatch signal.
- (2) As is shown in Fig. 2-4 (b), make adjustments with SFR501 so that the number of vertical squares is 13.

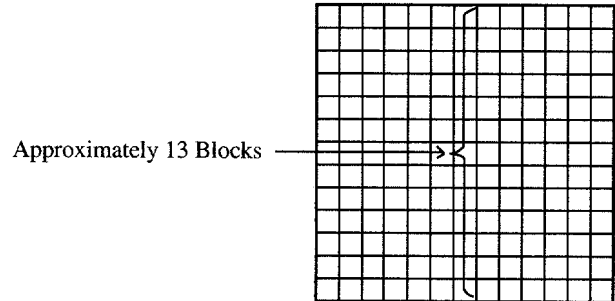


Fig. 2-4 (b)

2-6. Vertical Size Adjustment

- (1) Input the monoscopic signal of the test tape TTV-06T. (connect video)
 - (2) Make adjustments with SFR501 so that the upper and lower scales on the monoscope screen have the numerical values that appear below. (refer to Fig. 2-4 (a))
- * SW501 is used only for initial setting in the factory. Make sure that the selector of SW501 is positioned at B (center) before adjusting.

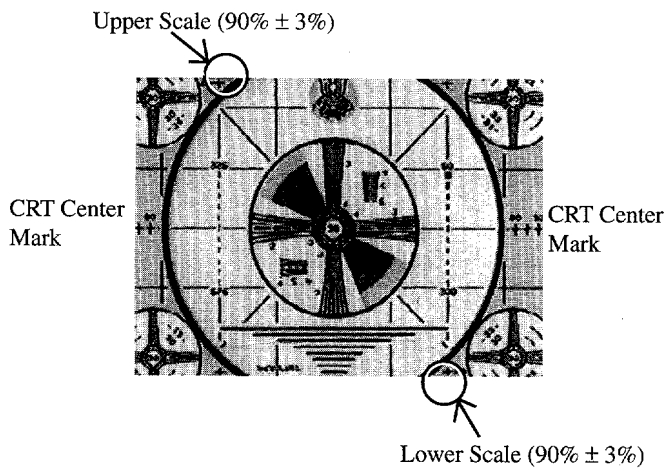


Fig 2-4 (a)

2-7. Sub-tint Adjustment

- (1) Receive an NTSC 3.58 MHz color bar signal.
- (2) Connect an oscilloscope to Q553 Collector (on the NK C.B.).
- (3) Adjust SFR303 so the bottom edges of the waveform fall on one line. (See figure 2-5)

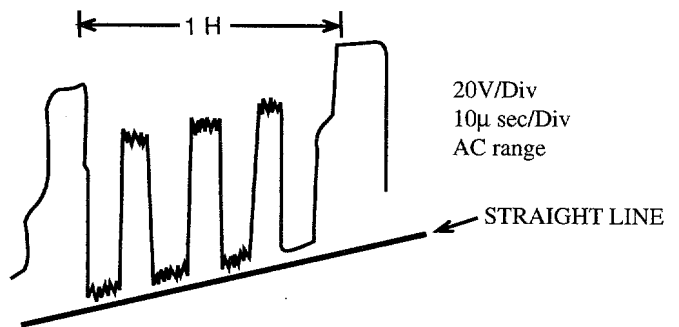


Fig. 2-5

3. TUNER ADJUSTMENT

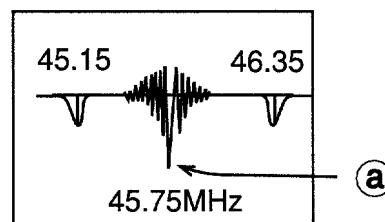
3-1. AGC Adjustment

- (1) Receive a NTSC RF signal under the following conditions.
Input level: 56 dBμ
Modulation percentage: 87.5%
Received channel : US TV 9ch (fp = 187.25MHz)
- (2) Adjust SFR201 so the voltage at the TU101 Pin1 (TP15) is $6.0V \pm 0.3VDC$.

(Simple Adjustment Method)

- (1) Using the LEADER LCG-401 (65dBμ), receive the color bar signal on channel 2.
- (2) With SFR201, make adjustments so that the voltage of TU101 pin1 becomes 3.6VDC.
- (3) Receive a television broadcast, and verify that the screen is clear.

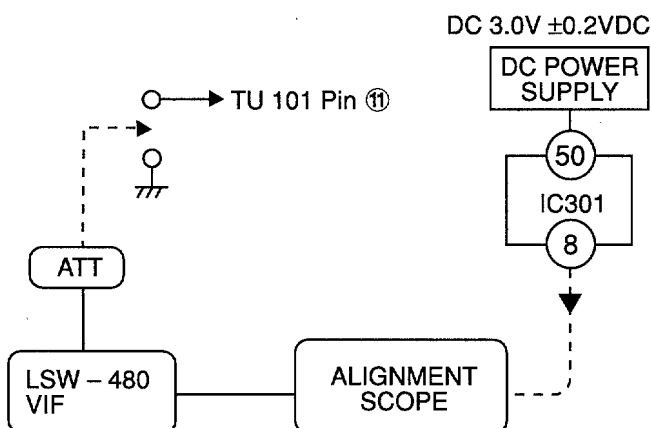
- (3) Using a DC power supply, add $DC3.0V \pm DC0.2V$ of voltage to the IC301 Pin50.
- (4) Make adjustments with L203 so that the waveform's center section (Ⓐ section in the figure below) of the ALIGNMENT SCOPE becomes $45.75 \text{ MHz} \pm 50 \text{ kHz}$.



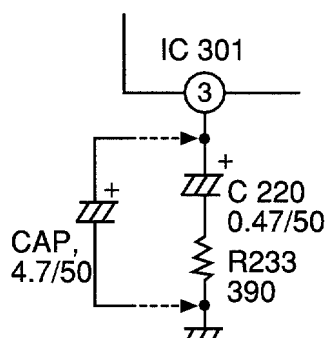
3-2. VCO Adjustment

(Rough Adjustment)

- (1) Make connections as they appear below.



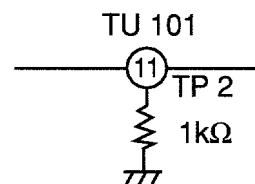
- (2) Connect between Pin3 and GND of IC301 with capacitor.



- (5) Remove the capacitor.

3-3. AFT Adjustment

- (1) Connect the resistance of 1 kΩ between the TU101 Pin11 and the GND.



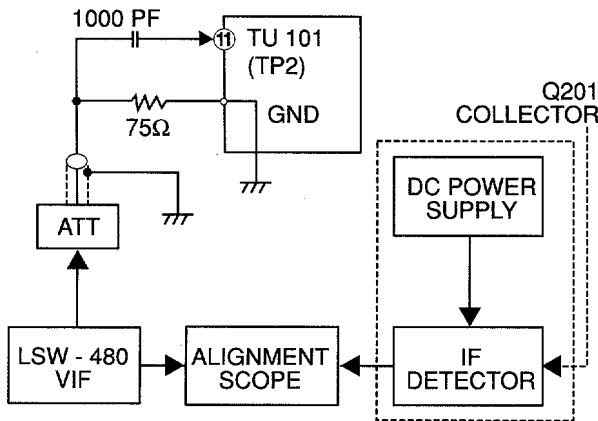
- (2) Input the following signal conditions to the TU101 Pin11.
(AM/FM SSG)
CARRIER 45.75 MHz
LEVEL 100 dBμ
MOD OFF
- (3) Make adjustments with L203 so that the voltage of the IC301 Pin7 is $DC5.0V \pm DC0.2V$ on the OSCILLOSCOPE.
- (4) Remove resistance (1 kΩ).

(Simple Adjustment Method)

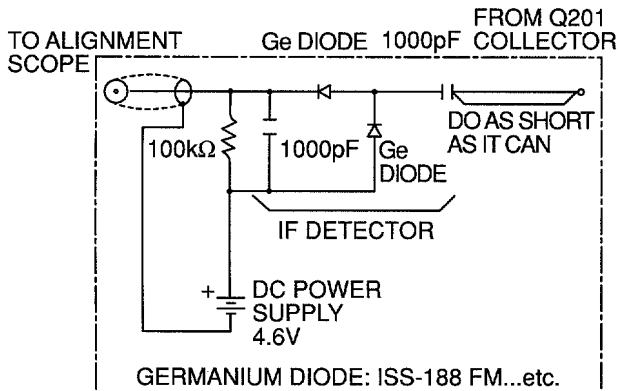
- (1) Using the pattern generator LCG-401, receive the signal for channel 2.
- (2) Adjust L203 so that the voltage at IC301 Pin7 becomes 5.0VDC on the OSCILLOSCOPE.
- (3) Receive each television broadcasts and verify that the picture is clear.

3-4. TRAP Adjustment

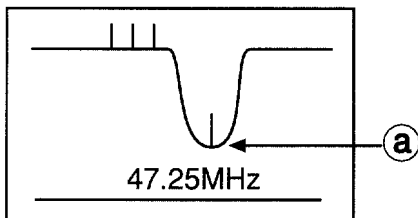
- (1) Make connections as shown in figure below.



<IF DETECTOR>

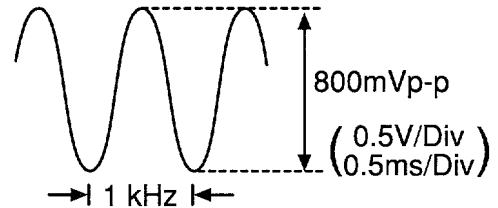


- (2) Adjust L201 so that center section (a) section in the figure below) of the ALIGNMENT SCOPE waveform becomes 47.25 MHz \pm 50 kHz.



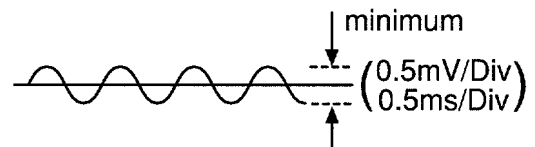
3-5. SEPARATION Adjustment

- (1) Receive a signal under the following conditions.
VHS US TV 9ch ($f_p = 187.25$ MHz)
Level : 70 dB μ
Modulation percentage : Monoscope 87.5%
Sound : 1 kHz mono 100 % (± 25 kHz, DEV)
- (2) Adjust SFR151 so that the waveform at the IC151, pin 12 becomes 800 mVp-p.



(Simple Adjustment Method)

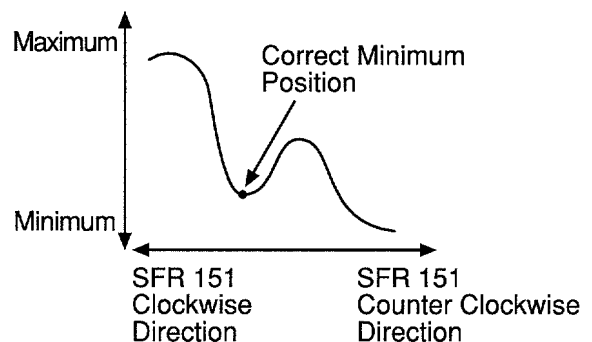
- (1) Connect the separator meter to antenna input terminal under the following conditions:-
Sound function : Stereo
Mode : Stereo 300 Hz or 400 Hz 100 %
Output : Lch signal
US 10ch ($f_p = 193.25$ MHz)
- (2) Receive the 9 channel.
- (3) Set the volume level to 10.
- (4) Adjust SFR151 so that the waveform at the Rch out (IC151, pin 4) becomes minimum.



Note:

- (1) Make sure that indicator shows STEREO mode.
- (2) Amplitude of waveform becomes minimum step by step while turning the SFR151 to counterclockwise direction. Make the amplitude of waveform to correct minimum position as figure shown below by SFR151.

Amplitude of Waveform



1. How To Activate / Release Service Mode

<JIG remote control unit>

JIG remote control unit to operate the service mode should be used with the remote control unit for RC-8VT02 (87-JBN-954-010).

Test mode is activated by pressing TEST key (Hidden Key under the label). (Refer to Fig.1).

When the Test Mode is activated, below menu (refer to Fig.2) will be appeared and turn on and off at one second interval.

❖ Jig Remote Controller

- (1) Remove label of jig remote controller.
- (2) Cut label of two hidden keys (Finish and Test) into button size.
- (3) Place two timer buttons on the two hidden keys.
- (4) Place label back after above steps.

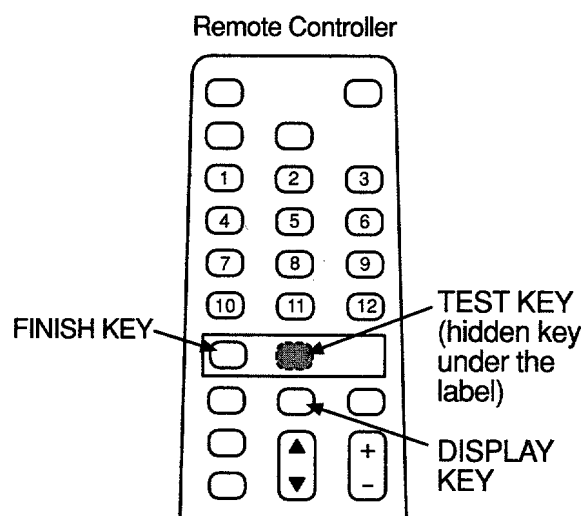


Fig. 1

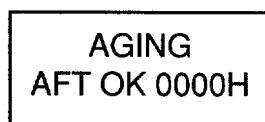


Fig. 2

Test mode is released by pressing TEST KEY again.

2. Content of Service Mode.

Test mode have the following functions.

- ① Function for releasing Auto Power OFF.
- ② Display AFT S curb status.
- ③ Display the product Hours of CRT ON.

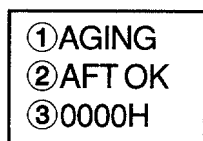


Fig. 3

- ① Release the function of Auto Power OFF.
It releases the function of Auto Power OFF when no input occurs.

It is used for warming up (Aging) of CRT Adjustment.

- ② Display of AFT S curb.
It displays OK, UP, DN in the status of AFT S curb.
(Observe the Voltage of IC301 Pin47)

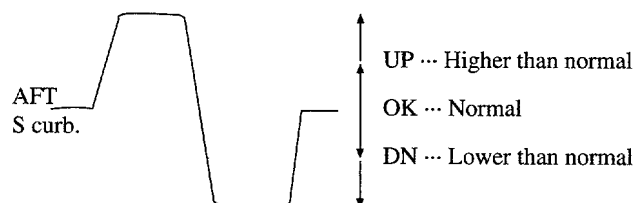


Fig. 4

- ③ Display the product hours of CRT ON.
It product hours of CRT ON at one hour interval count up by (HEX).

Display is 4 digits in HEX.

The product hours is connected to the decimal scale number from the displayed number.

(Example) Display "1 2 3 4"

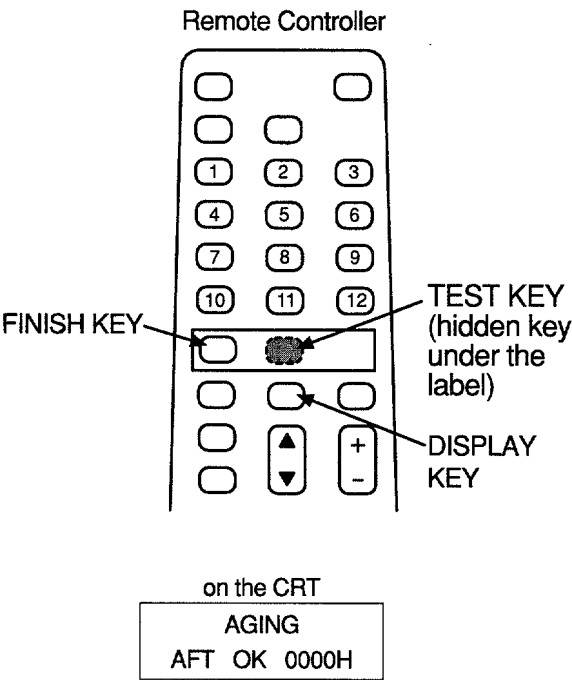
$$1 \times 16^3 + 2 \times 16^2 + 3 \times 16^1 + 4 \times 16^0 = 4660 \text{ Hours}$$

- ❖ When it exceeds 7FFF H (32768 hours), it will reflect to 0000 H again.

Precautions to replace EEPROM

When replacing the EEPROM (IC3, AT93C46-10PI), be certain to follow the sequence appearing below to carry out initialization.

- 1. Press “ TEST ” key (hidden key) on the remote control unit to activate the Service Mode. (Refer to Fig. 1)
 - Check the Display "AGING MODE".
- 2. Press “ DISPLAY ” key on the remote control unit and verify that the screen is the same as in Fig. 2.
 - Check the Display "SERVICE MODE".
- 3. Press “ CHANNEL ▼▲ ” key and move the cursor.
- 4. Press “VOLUME + –” key, and display data appears as in Fig. 2.
- 5. With conditions as they are in step 4, press the “DISPLAY” key and then press the “FINISH key (hidden key)”. (refer to Fig. 1)
 - When press the Display key, be change the Display to "AGING MODE".
 - When press the Finish key, be change the Display to "INITIALIZE".
- 6. Following the display of “INITIALIZE” on the CRT for a few seconds, the power will automatically go off.



When press the "TEST" key, Display data appears as above.

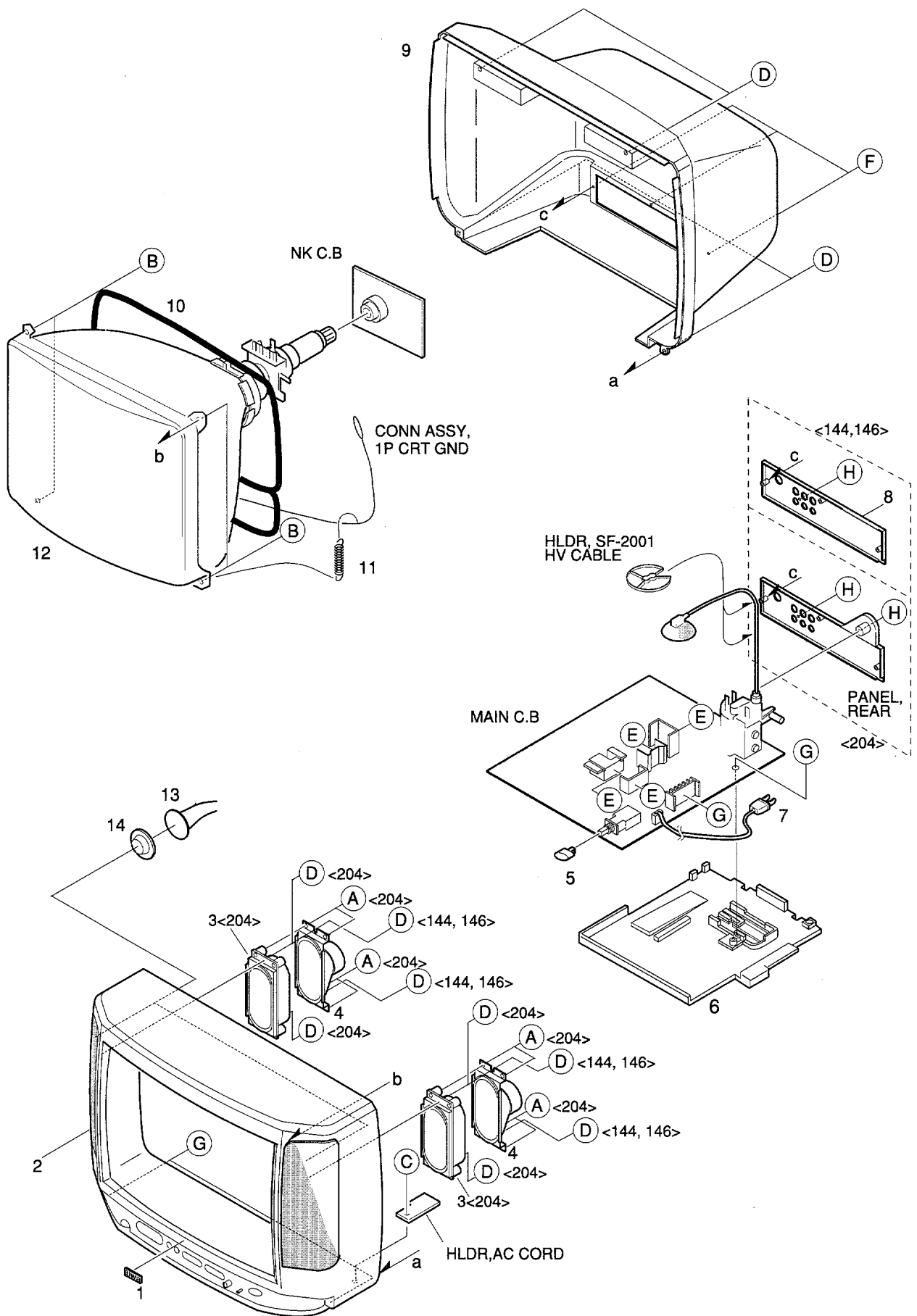
Fig. 1

P	0	1	2	3	L	1	2	1	2	3	4	5	6	7	8	9	A
0	0	0	0			1	0	0	0	1	0	0	0	0	0	0	0

Fig. 2








If the numbers in the Hidden box are not same as shown in the fig. 2, the set are not in the normal setting condition. Set the numbers as shown in the fig. 2

MECHANICAL EXPLODED VIEW 1/1



MECHANICAL PARTS LIST 1 / 1

If can't understand for Description please kindly refer to "REFERENCE NAME LIST".

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION	REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
1	87-054-087-010		BADGE,AIWA 40 ABS GLD<144,146>		12	87-JBT-625-010	CRT,A34JFQ91X08(VW)<144>
1	87-054-086-010		BADGE,AIWA 52.5<204>		12	87-JBT-628-010	CRT,A34JFQ91X07(VW)<146>
2	87-JBP-009-010		CABI,FR ASSY AR204 ML<204>		12	87-JBD-605-010	CRT,A48JAN44X04(W)<204>
2	87-JBT-011-010		CABI,FR ASSY AR144<144>		13	86-CT4-626-010	SPKR,T 100 OHM
2	87-JBT-001-010		CABI,FR ASSY AR146<146>		14	86-CT6-020-010	CAP, SPKR
3	87-JB8-211-010		BOX,SPEAKER L-R2<204>		A	87-078-070-010	BVIT3B+4-12<204>
4	86-LBT-621-010		SPKR,F 45 8OHM 5W<144,146>		B	87-078-203-110	S-SCREW,W+5-25<144,146>
4	87-A90-669-010		SPKR,S0612 8OHM 8W<204>		B	86-LBB-206-010	S-SCREW,ASSY TV5-40 W20<204>
5	86-LB6-009-010		KEY,POWER<144,146>		C	87-067-758-010	BVT2+3-12 W/O SLOT
5	86-LBB-009-210		KEY,POWER<204>		D	87-067-844-010	BVT2+4-16 BLK
	6	86-LBT-210-010	HLDR,FBT 2		E	87-067-579-010	TAPPING SCREW, BVT2+3-8
	7	86-LB7-694-010	AC CORD SET,KE2 BLK<144,204>		F	87-B10-071-010	BVT2+3-16 W/O SLOT B<204>
	7	87-A80-104-010	AC CORD ASSY,RHA BLK<146>		F	87-067-690-010	BVIT3B+3-12 BLK<144,146>
	8	86-LB6-010-110	PANEL,REAR<144,146>		G	87-067-680-010	BVIT3+3-10
	9	86-LB6-005-510	CABI,REAR<144>		H	87-067-761-010	TAPPING SCREW, BVT2+3-10
	9	86-LB6-019-010	CABI,REAR EX<146>				
	9	86-LB3-010-010	CABI,REAR EX<204>				
	10	87-JBF-625-110	DGC,14 15 OHM<144,146>				
	10	87-JBD-625-010	DGC,20 15 OHM<204>				
	11	84-LB3-205-010	SPR-E,EARTH				

ACCESSORIES / PACKAGE LIST

If can't understand for Description please kindly refer to "REFERENCE NAME LIST".

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
1	87-JBP-901-010	IB, RH (ESP)	<144, 204>
1	87-JBN-902-010	IB, RHA (ES)	<146>
2	87-JBP-953-010	RC UNIT, RC-8VT03	<144, 204>
2	87-JBN-954-010	RC UNIT, RC-8VT02	<146>

REFERENCE NAME LIST

ELECTRICAL SECTION

DESCRIPTION	REFERENCE NAME
ANT	ANTENNAS
C-	CHIP
C-CAP	CAP, CHIP
C-CAP TN	CAP, CHIP TANTALUM
C-COIL	COIL, CHIP
C-DI	DIODE, CHIP
C-DIODE	DIODE, CHIP
C-FET	FET, CHIP
C-FOTR	FILTER, CHIP
C-JACK	JACK, CHIP
C-LED	LED, CHIP
C-RES	RES, CHIP
C-SFR	SFR, CHIP
C-SLIDE SW	SLIDE SWITCH, CHIP
C-SW	SWITCH, CHIP
C-TR	TRANSISTOR, CHIP
C-VR	VOLUME, CHIP
C-ZENER	ZENER, CHIP
CAP, CER	CAP, CERA-SOL
CAP, E	CAP, ELECT
CAP, M/F	CAP, FILM
CAP, TC	CAP, CERA-SOL
CAP, TC-U	CAP, CERA-SOL SS
CAP, TN	CAP, TANTALUM
CERA FIL	FILTER, CERAMIC
CF	FILTER, CERAMIC
DL	DELAY LINE
E/CAP	CAP, ELECT
FILT	FILTER
FLTR	FILTER
FUSE RES	RES, FUSE
MOT	MOTOR
P-DIODE	PHOTO DIODE
P-SNSR	PHOTO SENSER
P-TR	PHOTO TRANSISTOR
POLY VARI	VARIABLE CAPACITOR
PPCAP	CAP, PP
PT	POWER TRANSFORMER
PTR, RES	PTR, MELF
RC	REMOTE CONTROLLER
RES NF	RES, NON-FLAMMABLE
RESO	RESONATOR
SHLD	SHIELD
SOL	SOLENOID
SPKR	SPEAKER
SW, LVR	SWITCH, LEVER
SW, RTRY	SWITCH, ROTARY
SW, SL	SWITCH, SLIDE
TC CAP	CAP, CERA-SOL
THMS	THERMISTOR
TR	TRANSISTOR
TRIMER	CAP, TRIMMER
TUN-CAP	VARIABLE CAPACITOR
VIB, CER	RESONATOR, CERAMIC
VIB, XTAL	RESONATOR, CRYSTAL
VR	VOLUME
ZENER	DIODE, ZENER

MECHANICAL SECTION

DESCRIPTION	REFERENCE NAME
ADHESHIVE	SHEET ADHESHIVE
AZ	AZIMUTH
BAR-ANT	BAR-ANTENNA
BAT	BATTERY
BATT	BATTERY
BRG	BEARING
BTN	BUTTON
CAB	CABINET
CASS	CASSETTE
CHAS	CHASSIS
CLR	COLLAR
CONT	CONTROL
CRSR	CURSOR
CU	CUSHION
CUSH	CUSHION
DIR	DIRECTION
DUBB	DUBBING
FL	FRONT LOADING
FLY-WHL	FLYWHEEL
FR	FRONT
FUN	FUNCTION
G-CU	G-CUSHION
HDL	HANDOL
HIMERON	CLOTH
HINGE, BAT	HINGE, BATTERY
HLDR	HOLDER
HT-SINK	HEAT SINK
IB	INSTRUCTION BOOKLET
IDLE	IDLER
IND, L-R	INDICATOR, L-R
KEY, CONT	KEY, CONTROL
KEY, PRGM	KEY, PROGRAM
KNOB, SL	KNOB, SLIDE
LBL	LABEL
LID, BATT	LID, BATTERY
LID, CASS	LID, CASSETTE
LVR	LEVER
P-SP	P-SPRING
PANEL, CONT	PANEL, CONTROL
PANEL, FR	PANEL, FRONT
PRGM	PROGRAM
PULLY, LOAD MO	PULLY, LOAD MOTOR
RBN	RIBBON
S-	SPECIAL
SEG	SEGMENT
SH	SHEET
SHLD-SH	SHIELD-SHEET
SL	SLIDE
SP	SPRING
SP-SCREW	SPECIAL-SCREW
SPACER, BAT	SPACER, BATTERY
SPR	SPRING
SPR-P	P-SPRING
SPR-PC-PUSH	P-SPRING, C-PUSH
T-SP	T-SPRING
TERM	TERMINAL
TRIG	TRIGGER
TUN	TUNING
VOL	VOLUME
W	WASHER
WHL	WHEEL
WORM-WHL	WORM-WHEEL

サービス技術ニュース	
番号	連絡内容
G- -	
G- -	
G- -	

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