AV-21JT5EU AV-21JT5EBU
AV-14JT5EU AV-14JT5EBU

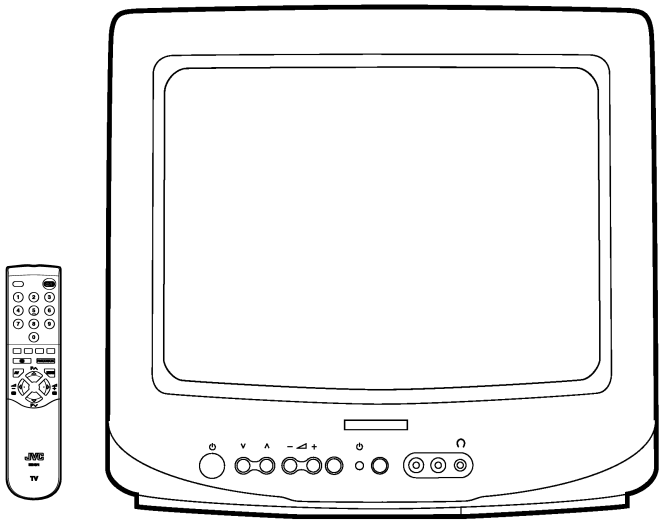
JVC

REVISED

SERVICE MANUAL

COLOUR TELEVISION

AV-21JT5EU / AV-21JT5EBU
AV-14JT5EU / AV-14JT5EBU



Please throw it out the service manual for AV-14JT5EU/EBU&AV-21JT5EU/EBU issued in May 2000, and use this service manual (No.51721 Oct. 2000).

CONTENTS

No.51721
Oct 2000

SPECIFICATIONS

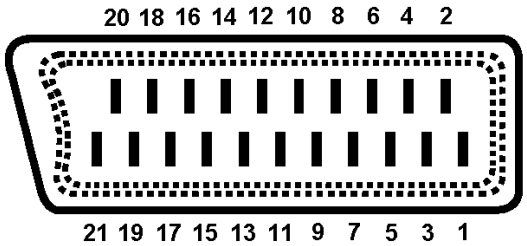
Item	Content	
	AV-21JT5EU / AV-21JT5EBU	**AV-14JT5EU / AV-14JT5EBU**
TV RF SYSTEM	B/G, I, D/K & L/L'	
COLOUR STANDARD	PAL / SECAM / NTSC (AV only)	
POWER INPUT	AC 230V, 50Hz	
POWER CONSUMPTION	73W(max) / 53W (Avg.)	57W(max) / 37W (Avg.)
TELETEXT SYSTEM	FLOF (Fastext) / TOP / WST (standard system)	
SOUND OUTPUT / SPEAKER	3W / 8Ω (×1)	
PICTURE TUBE SIZE	VISIBLE AREA 51cm (measured diagonally)	VISIBLE AREA 34cm (measured diagonally)
ANTENNA INPUT	75Ω Unbalanced	
INPUT / OUTPUT	FRONT : RCA JACK (VIDEO / AUDIO) REAR : 21-PIN EURO CONNECTOR (SCART) (VIDEO / AUDIO / RGB / S. VHS) Input terminals in front and rear side are common	
INTERMEDIATE FREQUENCIES	PIF : 38.9MHz (B/G, D/K, I, L) , 33.9MHz (L') SIF : 33.4MHz (PAL / SECAM – B/G) 32.9MHz (PAL / SECAM – I / I) 32.4MHz (PAL / SECAM – D/K, SECAM – L) 40.4MHz (SECAM – L')	
	SOUND SUBCARRIER : 5.5MHz (PAL / SECAM – B/G) 6.0MHz (PAL / SECAM – I / I) 6.5MHz (PAL / SECAM – D/K, SECAM – L) 6.5MHz (SECAM – L')	
	COLOUR SUBCARRIER : 4.43MHz (PAL) 4.250MHz, 4.406MHz (SECAM)	
REMOTE CONTROL	48B00RMC71 [Batt, AAA (R03)]	
DIMENSIONS (W × H × D)	516mm × 467mm × 476mm	366mm × 338mm × 385mm
MASS	19.5kg	9kg

Design & specifications are subject to change without notice.

■21-pin Euro connector (SCART socket)

Pin No.	Signal Designation	Matching Value
1	Audio Out (linked with 3)	0.5V(rms), Imp<1kΩ (RF 60% MOD)
2	Audio In (linked with 6)	0.5V(rms), Imp>10kΩ
3	Audio Out (linked with 1)	0.5V(rms), Imp<1kΩ (RF 60% MOD)
4	Audio Earth	
5	Blue Earth	
6	Audio In (linked with 2)	0.5V(rms), Imp>10kΩ
7	Blue In	0.7V(p-p) ±3dB, Imp75Ω
8	Slow (Function) Switching	TV : 0-2V, PERI : 9.5-12V, Imp>10kΩ
9	Green Earth	
10	NC	
11	Green In	0.7V(p-p) ±3dB, Imp75Ω
12	NC	
13	Red Earth	
14	NC	
15	Red In, C In	0.7V(p-p) ±3dB, Imp75Ω
16	Rapid (Blanking) switching	Logic 0:0-0.4V, Logic 1:1-3V, Imp 75Ω
17	Video Earth	
18	Rapid Blanking Earth	
19	Video Out	1V(p-p) ±3dB, Imp75Ω
20	Video In , Y In	1V(p-p) ±3dB, Imp75Ω
21	Common Earth	

[Pin assignment]



SAFETY PRECAUTIONS

1. The design of this product contains special hardware, many circuits and components specially for safety purposes. For continued protection, no changes should be made to the original design unless authorized in writing by the manufacturer. Replacement parts must be identical to those used in the original circuits. Service should be performed by qualified personnel only.

2. Alterations of the design or circuitry of the products should not be made. Any design alterations or additions will void the manufacturer's warranty and will further relieve the manufacturer of responsibility for personal injury or property damage resulting therefrom.

3. Many electrical and mechanical parts in the products have special safety-related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in the parts list of Service manual. **Electrical components having such features are identified by shading on the schematics and by (⚠) on the parts list in Service manual.** The use of a substitute replacement which does not have the same safety characteristics as the recommended replacement part shown in the parts list of Service manual may cause shock, fire, or other hazards.

4. **Don't short between the LIVE side ground and ISOLATED (NEUTRAL) side ground or EARTH side ground when repairing.**
   Some model's power circuit is partly different in the GND. The difference of the GND is shown by the LIVE : (⊥) side GND, the ISOLATED(NEUTRAL) : (⏚) side GND and EARTH : (⏚) side GND. Don't short between the LIVE side GND and ISOLATED(NEUTRAL) side GND or EARTH side GND and never measure with a measuring apparatus (oscilloscope etc.) the LIVE side GND and ISOLATED(NEUTRAL) side GND or EARTH side GND at the same time.
   If above note will not be kept, a fuse or any parts will be broken.

5. If any repair has been made to the chassis, it is recommended that the +B setting should be checked or adjusted (See +B ADJUSTMENT).

6. The high voltage applied to the picture tube must conform with that specified in Service manual. Excessive high voltage can cause an increase in X-Ray emission, arcing and possible component damage, therefore operation under excessive high voltage conditions should be kept to a minimum, or should be prevented. If severe arcing occurs, remove the AC power immediately and determine the cause by visual inspection (incorrect installation, cracked or melted high voltage harness, poor soldering, etc.). To maintain the proper minimum level of soft X-Ray emission, components in the high voltage circuitry including the picture tube must be the exact replacements or alternatives approved by the manufacturer of the complete product.

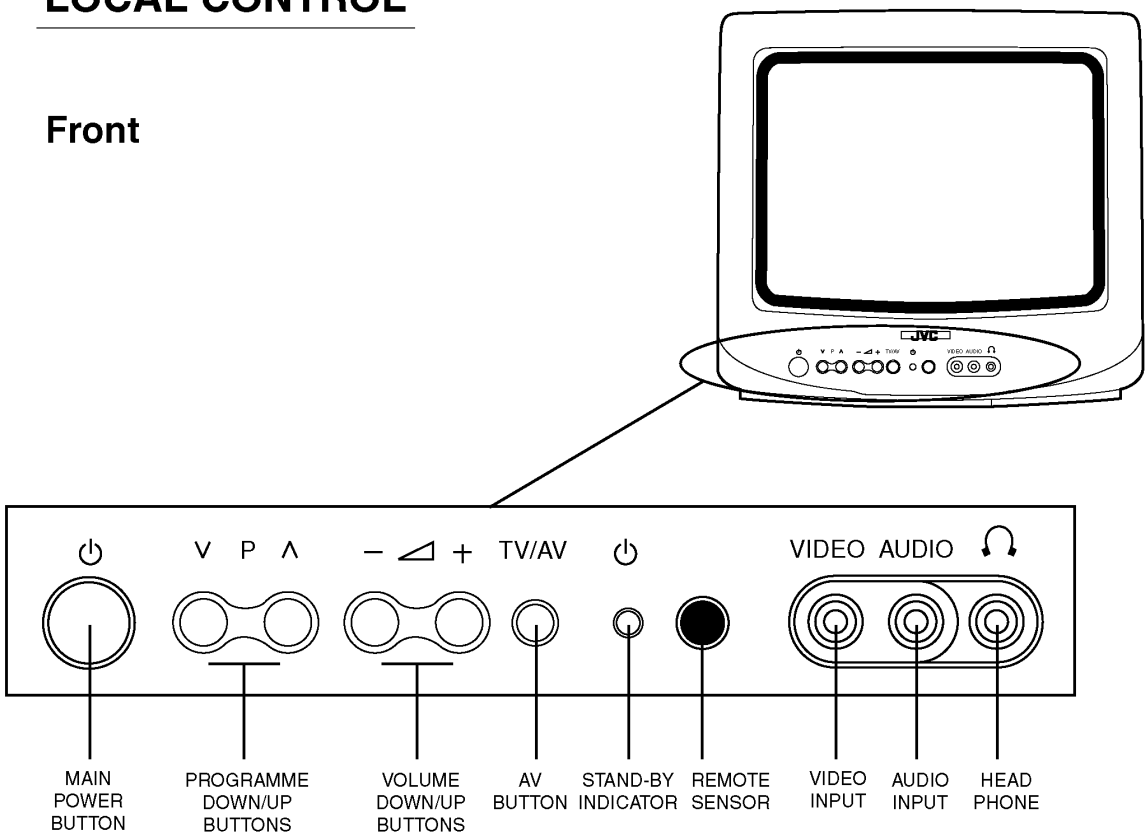
7. Do not check high voltage by drawing an arc. Use a high voltage meter or a high voltage probe with a VTVM. Discharge the picture tube before attempting meter connection, by connecting a clip lead to the ground frame and connecting the other end of the lead through a 10k Ω 2W resistor to the anode button.

8. When service is required, observe the original lead dress. Extra precaution should be given to assure correct lead dress in the high voltage circuit area. Where a short circuit has occurred, those components that indicate evidence of overheating should be replaced. Always use the manufacturer's replacement components.

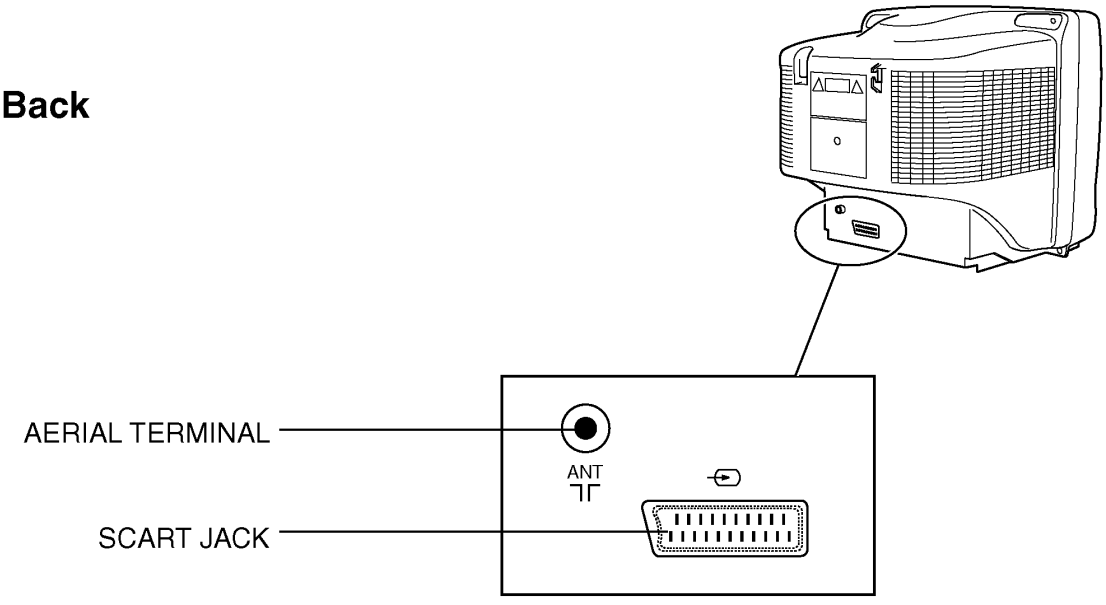
FUNCTIONS

LOCAL CONTROL

Front



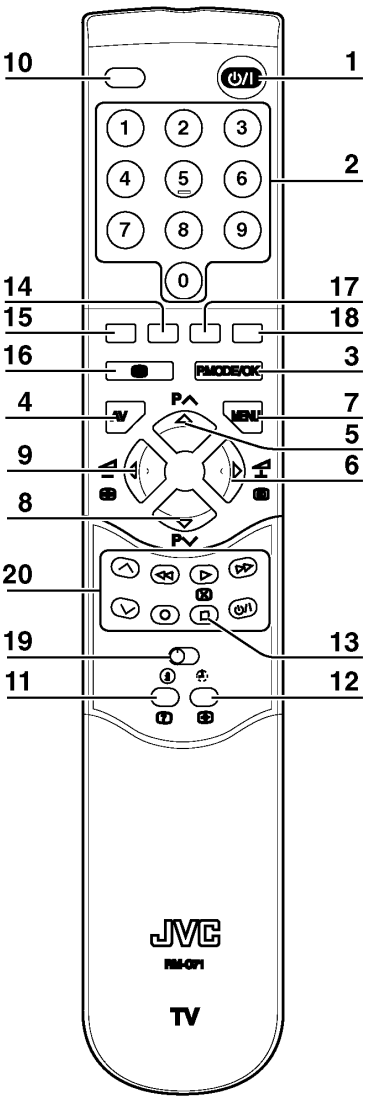
Back



REMOTE CONTROL

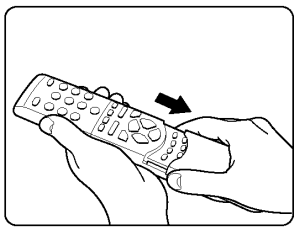
TV mode

1 POWER
2 NUMBER 0-9
3 P. MODE/OK
4 AV
5 (PR/CURSOR) UP
6 VOLUME UP (CURSOR RIGHT)
7 MENU
8 (PR/CURSOR) DOWN
9 VOLUME DOWN (CURSOR LEFT)
10 MUTING
11 RECALL
12 SLEEP
13 Not used
14 MOVE
15 SKIP
16 TV/TEXT
17 DELETE
18 MODE
19 VCR/ ▤ /DVD switch
20 VCR/DVD Control buttons



TELETEXT mode

1 POWER
2 NUMBER 0-9
3 INDEX
4 Not used
5 PAGE UP
6 SUBPAGE
7 MENU
8 PAGE DOWN
9 HOLD
10 MUTE
11 REVEAL
12 SIZE
13 CANCEL
14 GREEN KEY
15 RED KEY
16 TV/TEXT
17 YELLOW KEY
18 CYAN KEY
19 VCR/ ▤ /DVD switch
20 Not used



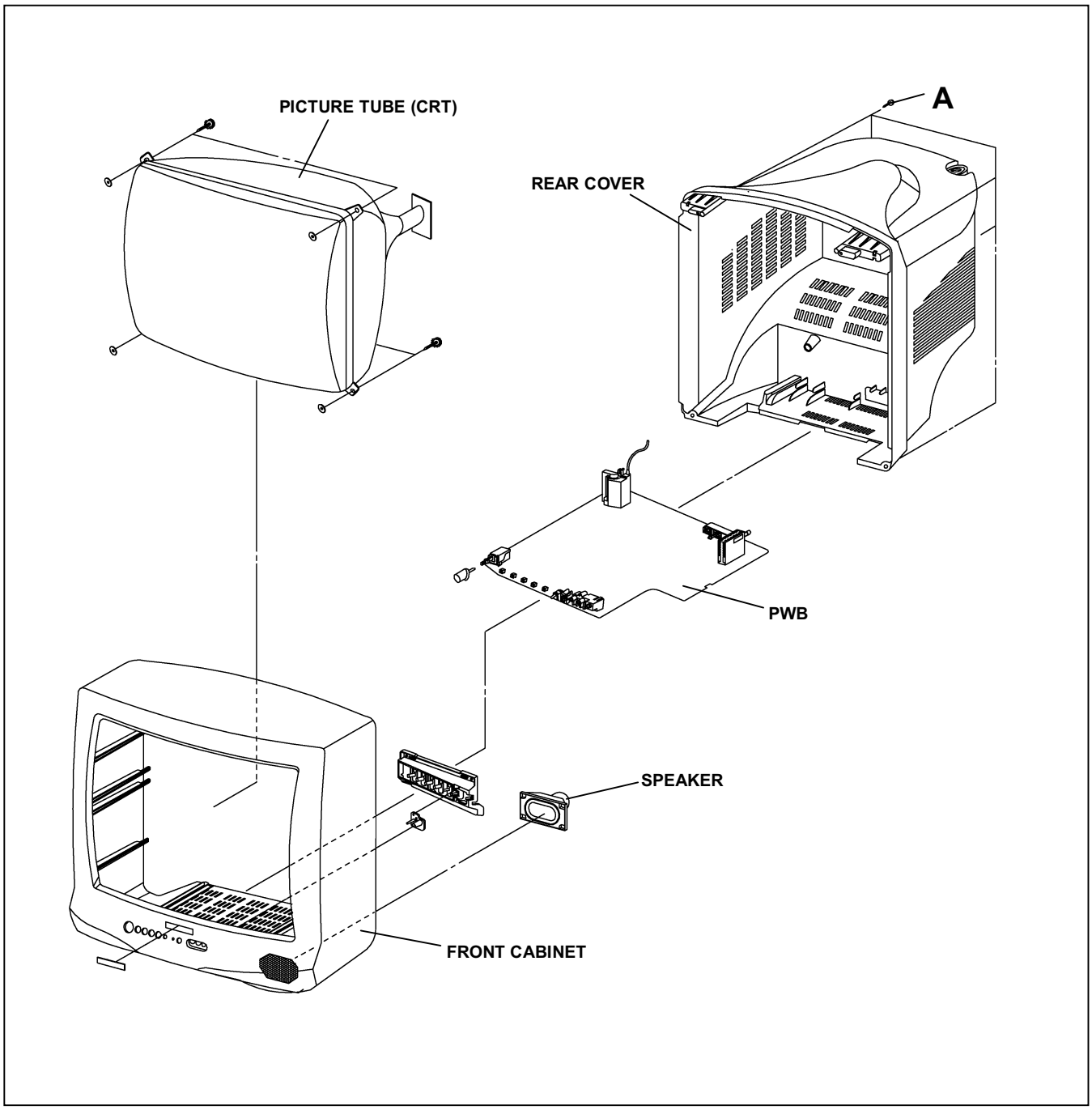
SPECIFIC SERVICE INSTRUCTIONS

DISASSEMBLY PROCEDURE

Note : Before starting work, disconnect the power plug from the outlet.

HOW TO REMOVE THE REAR COVER

1. Remove the 5 screws marked A.
2. Remove the rear cover backward.



MEMORY IC REPLACEMENT

Important: After replacing the memory IC (I702), set the remote controller code.
If the remote controller code is not set to JVC, the set will not operate with a JVC remote controller.

REMOTE CONTROL CODE SETTING (use the PTU94023Bjig remote control unit.)

1.At first, set up Jig remote control unit.
Please refer to the following SETUP OF REMOTE CONTROL UNIT (PTU94023B) AND TRANSFER OF CONTROL CODE.

2.Replace the memory IC.

3.Turn on the power switch. (TV set not remote control Unit.) then, the TV goes to STAND BY.

4.Enter the CUSTOM CODE **[14]** & DATA CODE **[15]** by the Jig remote control unit.
Then, enter the 'Transfer' key (TV will power on.)

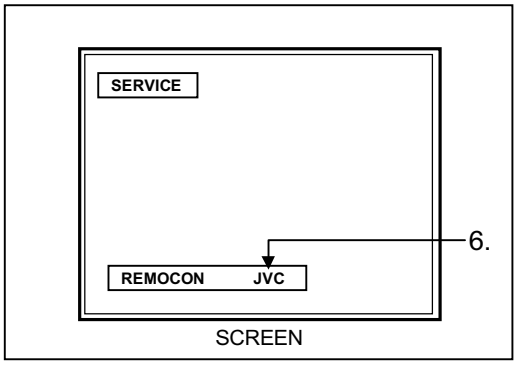


Fig. A

5. Enter the CUSTOM CODE **[14]** & DATA CODE **[74]** .
Then, enter the 'Transfer' key for entering the service mode.
When entering the service mode, **"SERVICE"** or **"SVC v1"** will appear upper left corner.(Fig A / Fig.B)

6. Enter the CUSTOM CODE **[14]** & DATA CODE **[22]** then, enter the 'Transfer' key.
"REMOCON" menu (lower right corner) changes from DW to JVC.
So that the remote control code will be set JVC.

NOTE: If the "REMOCON" menu sets DW or AIWA, the TV will set the other codes.
So, it must set "JVC".

7.Enter the CUSTOM CODE **[14]** & DATA CODE **[22]** then enter the 'Transfer' key. (TV power will shut off.)

JVC remote control unit will work when finish all above procedures.
*When shuts off TV on AIWA status, TV will never work on JVC mode. In this case, it must be exchange the memory IC again.

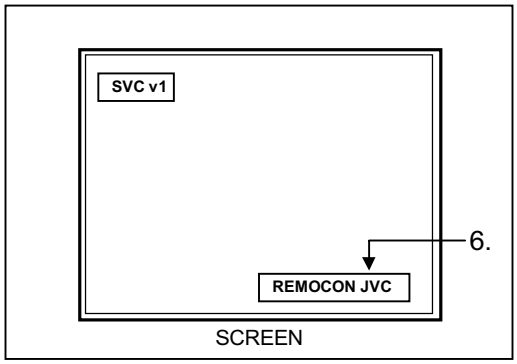


Fig. B

SETUP OF JIG REMOTE CONTROL UNIT (PTU94023B) AND TRANSFER OF CONTROL CODE

1.Remove the battery cover.

2.Set the battery while simultaneously pressing the <4,5 and 6>keys together.
When "43-00" appears on in the display window, setup is complete.

3.Enter the custom code.
For selecting a custom code to input, use the <+/-> key.

4.Enter the data code.
For selecting a data code to input, use the <+/-> key or directly input a data code with <0> to <F> keys.

5.Press the transfer key to transfer the data.

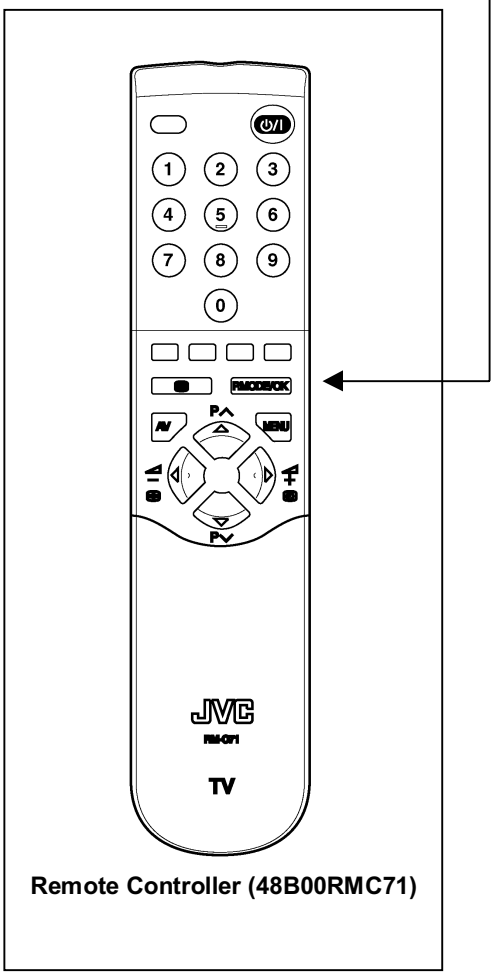
SERVICE ADJUSTMENTS

BEFORE ADJUSTMENT AND MAINTENANCE

1. Don't short any two soldering points or connect any component while TV set is power on.
2. Withdraw power plug before maintenance.
3. In order to ensure safety all components replaced should be identical. (For further details, refer to the component name and component No. in PARTS LIST.)
4. Must be warm up the set for 30 minutes or more and degauss CRT thoroughly with demagnetizer coil before adjustment.

EQUIPMENT FOR ADJUSTMENT

1. Pattern Generator
2. Digital volt meter
3. Oscilloscope
4. Demagnetizer
5. Remote controller (48B00RMC71)



Remote Controller (48B00RMC71)

BASIC OPERATION OF SERVICE MENU

How to ENTER and EXIT from SERVICE MODE

1. Press the MUTING KEY and RECALL KEY of the REMOTE CONTOROL UNIT at the same time to display the service MENU screen shown Fig. C.
2. When exiting from the SERVICE MODE, turn the power switch off.

∗ There are two types of service mode displays.

How to set SERVICE MODE

1. Select the setting item you want to change with the P.(▲)/ P.(▼) key on the REMOTE CONTROL UNIT. (The item you selected will be indicated by YELLOW on the display.)
2. When changing the set values, use the ◀ -/▶ +KEY on the REMOTE CONTROL UNIT.
3. When the setting has been completed, turn the power switch off.
   (The changed set values are stored in memory.)

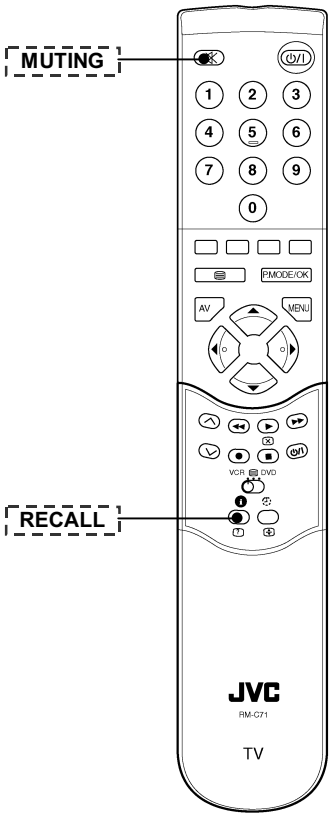


Fig. B

SERVICE MENU screen selection

- Press the P.(▲) / P.(▼) key ····· select menu item.
  (The letters of the selected items are displayed in yellow)
- Press the ◀ - / ▶ + key ····· setting the value item.

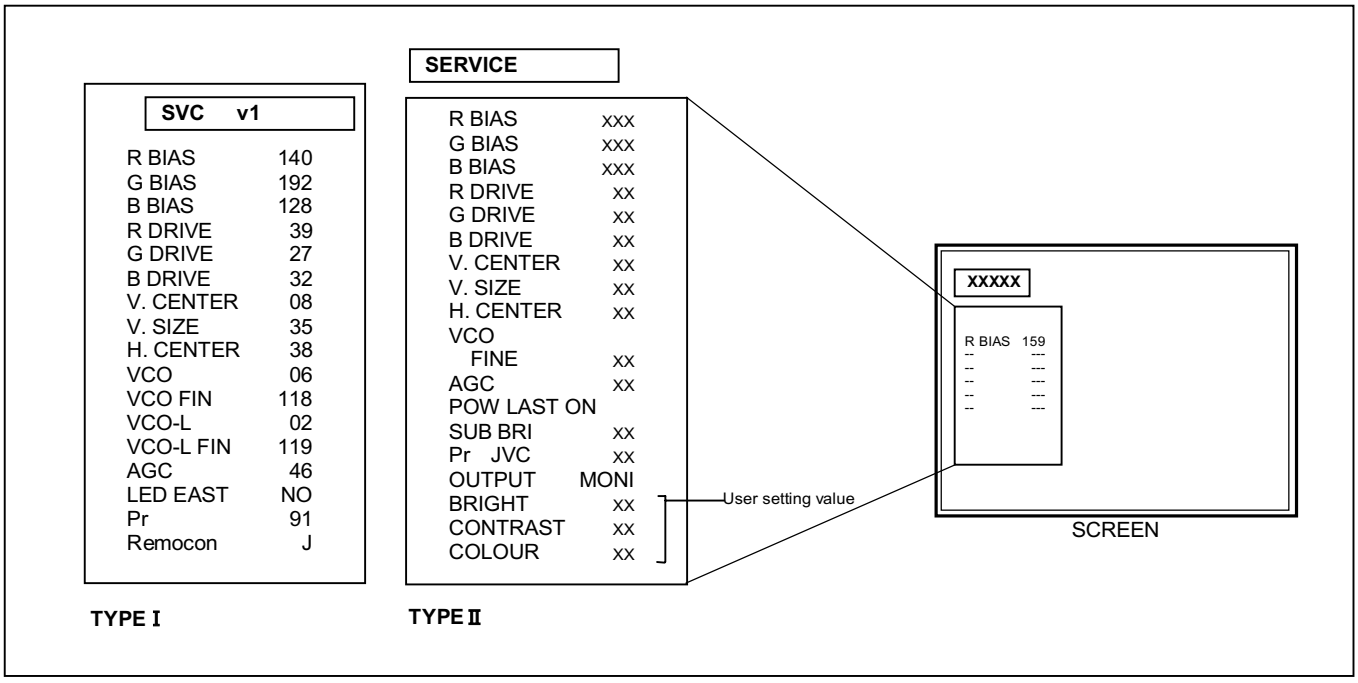


Fig.C (SERVICE MODE)

ADJUSTMENTS

+B VOLTAGE CHECK

1. Receive a standard colour bar signal.
2. Connect digital volt meter between + B1 Line circuit and GND.
3. Confirm that voltage is DC 133V ± 2.0V.

WHITE BALANCE & SCREEN ADJUSTMENT

NOTE : TV preset with [R BIAS],[G BIAS] and [B BIAS] equal to 128.
TV preset with [R DRIVE],[G DRIVE] and [B DRIVE] equal to 32.
Set the TV to "NORMAL Ⅰ" mode. (PICTURE MODE)

■ LOW LIGHT & SCREEN

1. Input the 10-step gray scale signal. (10% Black)
2. Enter the SERVICE MODE.
3. Turn the SCREEN VR (on FBT) gradually, to where the 2nd gray bar (10% Black) faintly visible.
4. Adjust [R BIAS] and [G BIAS] not to the colours on the gray bar.

■ HIGH LIGHT

5. Adjust the [R DRIVE] and [G DRIVE] to set the colour temperature given below.

FOCUS

1. Receive a crosshatch signal.
2. Adjust the Focus knob of the FBT for the clearest picture.

VERTICAL CENTER

1. Enter the service mode.
2. Receive a crosshatch signal.
3. Select the V-CENTER, to display the picture only on the upper half of the screen. (Fig. 1)
4. Adjust ◁/◁ keys to where the bottom edge of the upper half picture is at the center of the CRT.

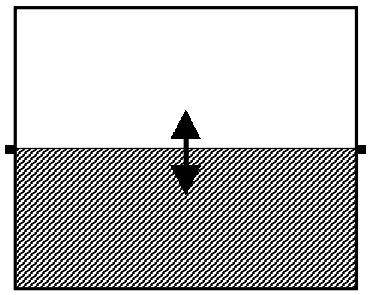


Fig. 1

VERTICAL SIZE (UPPER SIDE)

* Confirm Vertical Center has been adjusted.

1. Set the TV to "NORMAL (Ⅰ or Ⅱ) mode.
2. Enter the Service mode.
3. Receive a circle pattern signal (or a signal having top and bottom symmetrical).
4. Select the V-SIZE to change the size of the top and bottom halves of the picture. (Fig. 2)
5. Press the ◁/◁ keys to adjust the size of only the bottom half of the picture. (With overall picture taken as 100 %, adjust for overseen to display about 90 % of the picture.)

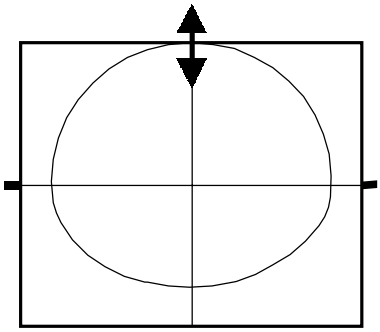


Fig. 2

VERTICAL SIZE (LOWER SIDE)

* Confirm Vertical Center and Vertical Size have been adjusted.

1. Enter the service mode.
2. Receive a crosshatch signal (or a signal having top and bottom symmetrical).
3. Select the V-SLOPE to change the size of the bottom half of the picture. (Fig. 3)
4. Press the ◁/◁ keys to adjust the vertical size of only the bottom half of the picture.
   (With overall picture taken as 100 %, adjust for overseen to display about 90 % of the picture.)

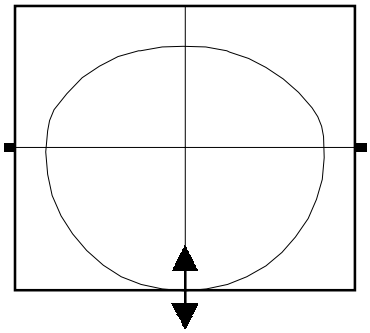


Fig. 3

HORIZONTAL CENTER

1. Enter the service mode.
2. Receive a crosshatch signal (or a signal having left and right symmetrical).
3. Select the H-CENTER to shift the overall picture left and right.
4. Adjust the ◁/◁ keys to align the picture center with the CRT center.