# STEREO RECEIVER RX-550 

## SERVICE MANUAL



G model only


## IMPORTANT NOTICE

This manual has been provided for the use of authorized YAMAHA Retailers and their service personnel. It has been assumed that basic service procedures inherent to the industry, and more specifically YAMAHA Products, are already known and understood by the users, and have therefore not been restated.
WARNING: Failure to follow appropriate service and safety procedures when servicing this product may result in personal injury, destruction of expensive components, and failure of the product to perform as specified. For these reasons, we advise all YAMAHA product owners that any service required should be performed by an authorized YAMAHA Retailer or the appointed service representative.
IMPORTANT: The presentation or sale of this manual to any individual or firm does not constitute authorization, certification or recognition of any applicable technical capabilities, or establish a principle-agent relationship of any form.
The data provided is believed to be accurate and applicable to the unit(s) indicated on the cover. The reseach, engineering, and service departments of YAMAHA are continually striving to improve YAMAHA products. Modifications are, therefore, inevitable and specifications are subject to change without notice or obligation to retrofit. Should any discrepancy appear to exist, please contact the distributor's Service Division.
WARNING: Static discharges can destroy expensive components. Discharge any static electricity your body may have accumulated by grounding yourself to the ground buss in the unit (heavy gauge black wires connect to this buss).
IMPORTANT: Turn the unit OFF during disassembly and part replacement. Recheck all work before you apply power to the unit.

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## - TO SERVICE PERSONNEL

1. Critical Components Information.

Components having special characteristics are marked and must be replaced with parts having specifications equal to those originally installed.
2. Leakage Current Measurement (For 120V Models Only). When service has been completed, it is imperative to verify that all exposed conductive surfaces are properly insulated from supply circuits.

- Meter impedance should be equivalent to 1500 ohm shunted by $0.15 \mu \mathrm{~F}$.
- Leakage current must not exceed 0.5 mA .
- Be sure to test for leakage with the AC plug in both polarities.

- POLARIZATION (U, C models only)

This receiver product is equipped with a polarized alternat-ing-current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature.

## WARNING: CHEMICAL CONTENT NOTICE!

The solder used in the production of this product contains LEAD. In addition, other electrical/electronic and/or plastic (where applicable) components may also contain traces of chemicals found by the California Health and Welfare Agency (and possibly other entities) to cause cancer and/or birth defects or other reproductive harm.

## DO NOT PLACE SOLDER, ELECTRICAL/ELECTRONIC OR PLASTIC COMPONENTS IN YOUR MOUTH FOR ANY REASON WHATSOEVER!

Avoid prolonged, unprotected contact between solder and your skin! When soldering, do not inhale solder fumes or expose eyes to solder/flux vapor!

If you come in contact with solder or components located inside the enclosure of this product, wash your hands before handling food.

## REAR PANELS

## U model



## V C model



## V R model



V A model


- B model

- G model



## SPECIFICATIONS



## FM SECTION

Tuning Range
U, C, models 87.5 to 107.9 MHz
A, B, G, R models ..... 87.5 to 108.0 MHz
50dB Quieting Sensitivity (IHF, 75 $\Omega$ )Except Europe model
Mono $1.55 \mu \mathrm{~V}$ ( 15.1 dBf )
Stereo $.21 \mu \mathrm{~V}$ (37.7dBf)
Usable Sensitivity (75 $\Omega$ )
(30dB S/N Quieting, $1 \mathrm{kHz}, 100 \%$ mod.) Except G model $0.8 \mu \mathrm{~V}(9.3 \mathrm{dBf})$
DIN, Mono ( $\mathrm{S} / \mathrm{N} 26 \mathrm{~dB}$ ) G model ..... $0.9 \mu \mathrm{~V}$
DIN, Stereo ( $\mathrm{S} / \mathrm{N} 46 \mathrm{~dB}$ ) G model ..... $24 \mu \mathrm{~V}$
Image Response Ratio
Except G model ..... 45dB
G model ..... 75dB
IF Response Ratio Except G model ..... 80dB
G model ..... 75dB
Spurious Response Ratio ..... 70 dB
AM Suppression Ratio ..... 55 dB
Capture Ratio ..... 1.5 dB
Alternate Channel Selectivity Except G model ..... 85dB
Selectivity (two signals, 40 kHz Dev.) G model ..... 70dB
Signal-to-Noise Ratio (IHF) Mono/Stereo Except G model ..... 81/76dB
(DIN-weighted, 40 kHz Dev.) Mono/Stereo G model ..... 75/70dB
Harmonic Distortion ( 1 kHz )Mono/StereoExcept G model . . . . . . . . . . . . . . . . . . . . . . . . . . 0.1/0.2\%Mono/Stereo ( 40 kHz Dev.)-
G mode ..... $0.1 / 0.2 \%$
Frequency Response
20 Hz to 15 kHz ..... $.0 \pm 1.5 \mathrm{~dB}$
Stereo Separation ( 1 kHz )
Except G model ..... 50dB
G model ( 40 kHz Dev.) ..... 50dB
AM SECTION
Tuning Range
U, C, A models ..... 530 to $1,710 \mathrm{kHz}$
A, B, G, R models ..... 531 to $1,611 \mathrm{kHz}$
Usable Sensitivity ..... $100 \mu \mathrm{~V} / \mathrm{m}$
Selectivity ..... 32dB
Signal-to-Noise Ratio ..... 50dB
Image Response Ratio ..... 40dB
Spurious Response Ratio ..... 50dB
Harmonic Distortion ( 400 Hz ) ..... 0.3\%
AUDIO SECTION
Output Level/Impedance FM ( $30 \%$ mod., 1 kHz ) Except G model ..... $700 \mathrm{mV} / 2.9 \mathrm{k} \Omega$
G model ( 40 kHz Dev.) ..... 年V/3.3k $\Omega$
AM (30\% mod., 400Hz)
Except G model ..... $200 \mathrm{mV} / 2.9 \mathrm{k} \Omega$
G model ( 40 kHz Dev.) $150 \mathrm{mV} / 3.3 \mathrm{k} \Omega$

| - GENERAL |  |
| :---: | :---: |
| Power Supply |  |
| U, C models | . AC 120V, 60 Hz |
| A, B models | . AC $240 \mathrm{~V}, 50 \mathrm{~Hz}$ |
| G model | AC $230 \mathrm{~V}, 50 \mathrm{~Hz}$ |
| R model | AC 110/120/220/240V, $60 / 50 \mathrm{~Hz}$ |
| Power Consumption |  |
| U model | . 150W |
| C model | . . 310 W |
| G model | . .130W |
| A, B, R models | .170W |
| AC Outlets |  |
| Switched x 2 |  |
| U, R models . . . . . . . . . . . . . . . . . . . 200 W max. (Total) |  |
| $C$, G models | . .100W max. (Total) |
| Switched x 1 |  |
| A, B models . . . . . . . . . . . . . . . . . . . . . . . . 100 W max. |  |
| Dimensions ( $\mathrm{W} \times \mathrm{H} \times \mathrm{D}$ ) | $\begin{array}{r} \left(17-1 / 8^{\prime \prime} \times 5-7 / 8^{\prime \prime} \times 15-5 / 16^{\prime \prime}\right) \end{array}$ |
| Weight | . . 9 kg (19 lbs. $13 \mathrm{oz}$. ) |
| Accessories | .AM loop antenna $\times 1$ |
|  | Indoor FM antenna $\times 1$ |
|  | Remote Control Transmitter $\times 1$ |
|  | Battery (size "AA," R06) $\times 2$ |

* Specifications subject to change Without notice.
$U$ $\qquad$ USA model
C
$\qquad$
A ........ Australian model
B ........ British model G ........European model R ........ General model


## DIMENSIONS



Units : mm (inch)

INTERNAL VIEW

(1) POWER TRANSFORMER
(2) MAIN CIRCUIT BOARD (2)
(3) MAIN CIRCUIT BOARD (1)
(4) TUNER CIRCUIT BOARD
(5) MAIN CIRCUIT BOARD (4)

6 FUNCTION CIRCUIT BOARD (2)
(7) 8 bit $\mu$-COM (IC305: M50747)

8 FUNCTION CIRCUIT BOARD (1)

## DISASSEMBLY PROCEDURES

(Remove parts in the order as numbered.)

## 1. Removal of Top Cover

Remove 7 screws ( (1) ) in Fig. 1.
2. Removal of Bottom Cover

Remove 20 screws ( (2) ) in Fig. 1.
3. Removal of Front Panel

Remove 3 screws ( (3) ) in Fig. 1.

CAUTION FOR SERVICING-USE ONLY COPPER COLORED SCREWS ( $3 \times 10$ ø8) FOR POINTS INDICATED BY ARROWS $(\Leftrightarrow)$.


Fig. 1

## ADJUSTMENT IN POWER AMPLIFIER SECTION

## IDLING CURRENT ADJUSTMENT

When replacing the power and drive transistors, adjust idling current. After the power has been turned on, age about 10 minutes in non loaded condition. Adjust VR101 (Lch) and VR102 (Rch) so that the voltage across the terminals of R135 (TP1 - TP2) and R136 (TP3 - TP4) come to $10 \mathrm{mV} \pm 4 \mathrm{mV}$ DC.

| Test points |  | Adjustment <br> point | Rating |
| :---: | :---: | :---: | :---: |
| Lch | Across the terminals <br> of R135 (TP1-TP2) | VR101 | $10 \mathrm{mV} \pm 4 \mathrm{mV} \mathrm{DC}$ |
| Rch | Across the terminals <br> of R136 (TP3-TP4) | VR102 | $10 \mathrm{mV} \pm 4 \mathrm{mV} \mathrm{DC}$ |



## - ADJUSTMENT IN TUNER SECTION

- Measuring Instruments

FM signal generator (FM SG)
Stereo signal generator (SSG)
AM signal generator (AM SG)
Distortion meter (DIST. M)
AC voltmeter (ACVM)
DC voltmeter (DCVM)
Oscilloscope
Low pass filter (YLF-15, fc=15kHz) Oscillator

Adjustment points

## Before Adjustment

1) For $\mathrm{dB}, 1 \mu \mathrm{~V}=0 \mathrm{~dB} \mu$ applies.

Example : $60 \mathrm{~dB} \mu=1 \mathrm{mV}$
2) $100 \%$ modulation means that the frequency deviation is 75 kHz (R, U, C, A, B)
3) For the $G$ model, Frequency Deviation is 40 kHz .
4) For the G, A models, install the Matching Transformer and connect FM SG.

## - Connection diagram (Measuring instruments)

1) Discriminator balance adjustment

2) Stereo distortion adjustment/separation adjustment

3) Monaural distortion adjustment


## 4) Sensitivity Verification



| Step | Adjustment item | Signal (ANT IN) | Reception frequency | Adjusted point | Test point | Rating |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | Rough adjustment of discriminator balance | FM ANT (75 ${ }^{2}$ ) <br> 98.1 MHz <br> $70 \mathrm{~dB} \mu$ <br> MONO 100 Hz <br> 100\% modulation | $\begin{aligned} & 98.1 \mathrm{MHz} \\ & { }^{(\mathrm{A}-4)} \end{aligned}$ | $\begin{aligned} & \mathrm{T} 1 \\ & \text { (IC side core) } \end{aligned}$ | Both ends of R25 | DC OV $\pm 100 \mathrm{mV}$ |
| 2 | Rough adjustment of monaural distortion | Same as Step 1. | $\begin{gathered} 98.1 \mathrm{MHz} \\ { }^{*}(\mathrm{~A}-4) \end{gathered}$ | T1 (Antenna side core) | REC OUT L, R | Minimize the distortion. |
| 3 | Fine adjustment of discriminator balance | Same as Step 1. | $\begin{gathered} 98.1 \mathrm{MHz} \\ { }^{*}(\mathrm{~A}-4) \end{gathered}$ | T1 (IC side core) | Both ends of R25 | DC OV $\pm 50 \mathrm{mV}$ |
| 4 | Fine adjustment of monaural distortion | Same as Step 1. | $\begin{gathered} 98.1 \mathrm{MHz} \\ { }^{(\mathrm{A}-4)} \end{gathered}$ | T1 (Antenna side core) | REC OUT L, R | Minimize the distortion (to 52 dB or less). |
| 5 | Verification of discriminator balance | Same as Step 1. | $\begin{gathered} 98.1 \mathrm{MHz} \\ { }^{*}(\mathrm{~A}-4) \\ \hline \end{gathered}$ | T1 (IC side core) | Both ends of R25 | DC OV $\pm 50 \mathrm{mV}$ |
| 6 | Stereo distortion | FM ANT (75 2 ) <br> 98.1MHz <br> 70dB $\mu$ <br> Stereo (L or R) 1kHz, <br> 100\% modulation | 98.1 MHz <br> * (A-4) <br> *Tuning <br> mode <br> should be AUTO. | Front end IFT | REC OUT L, R | Distortion should be minimized ( 40 dB or less) <br> * STEREO indicator should light. <br> * Note that over-turning IFT will reduce sensitivity. |
| 7 | Verification of monaural distortion | FM ANT (75 ${ }^{\text {( }}$ ) <br> 98.1 MHz <br> $70 \mathrm{~dB} \mu$ <br> MONO 1kHz, <br> 100\% modulation | $\begin{aligned} & 98.1 \mathrm{MHz} \\ & { }^{(\mathrm{A}-4)} \end{aligned}$ | , | REC OUT L, R | 48 dB or less |


| Step | Adjustment item | Signal (ANT IN) | Reception frequency | Adjusted point | Test point | Rating |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 8 | Verification of sensitivity | FM ANT ( $75 \Omega$ ) 88.1 MHz 98.1 MHz 106.1 MHz | 88.1 MHz <br> * (A-6) <br> 98.1 MHz <br> * (A-4) <br> 106.1 MHz <br> * (A-7) |  | ANT (75s) | Set the tuning mode to MAN'L MONO. <br> $\mathrm{S} / \mathrm{N}$ should be 30 dB at each frequency of 88.1 MHz , 98.1 MHz , and 106.1 MHz . Check to ensure that the voltage at the ANT terminal is $3 \mathrm{~dB} \mu$ or less. |
| 9 | Separation | FM ANT ( $75 \Omega$ ) 98.1 MHz <br> $70 \mathrm{~dB} \mu$ <br> Stereo (L or R) <br> 1 kHz , <br> 100\% modulation | $\begin{aligned} & 98.1 \mathrm{MHz} \\ & \text { *(A-4) } \end{aligned}$ | VR2 | REC OUT L, R | With SSG output at L or R, the signal leakage level at the other channel should be minimized. <br> 36 dB or more |
| 10 | Signal meter | FM ANT (75 2 ) 98.1 MHz $45 \mathrm{~dB} \mu$ MONO 1kHz $30 \%$ modulation | $\begin{aligned} & 98.1 \mathrm{MHz} \\ & { }^{(\mathrm{A}-4)} \end{aligned}$ | VR1 |  | Adjust so that all signal meters light. |
|  |  | -10dB $\mu$ or less |  |  |  | Check to ensure that singal meters turn OFF. |
| 11 | Verification of auto tuning | FM ANT ( $75 \Omega$ ) 98.1 MHz <br> $23 \mathrm{~dB} \mu$ <br> Stereo (L or R) <br> 1 kHz , <br> $30 \%$ modulation | 98.1 MHz |  |  | - Automatic reception should be available when the tuning key is moved UP and DOWN. <br> - The stereo indicator should light. <br> - Voice muting should be applied during tuning. |

* : Execution of MAKER PRESET (Refer to TEST MODE on page 9.) will facilitate setting reception frequency for adjustment.


## AM Adjustment (This should be done after FM adjustment.)

- Connection Diagram (Measuring instruments)

1) Adjustment of sensitivity


| Step | Adjustment item | Signal (ANT IN) | Reception frequency | Adjusted point | Test point | Rating |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ${ }^{1}$ | Adjustment of sensitivity | AM ANT 630 kHz $50 \mathrm{~dB} \mu$ 400 Hz , 30\% modulation | $\begin{aligned} & 630 \mathrm{kHz} \\ & *(\mathrm{~B}-1) \end{aligned}$ | T2 | REC OUT | Wave detection output should be maximized. |
| 2 | Verification of sensitivity | AM ANT 630 kHz <br> 1080 kHz <br> 1440 kHz <br> $400 \mathrm{~Hz}, 30 \%$ <br> modulation | 630 kHz <br> * (B-1) <br> 1080 kHz <br> * (B-2) <br> 1440 kHz <br> * (B-3) |  | AM ANT | Distortion should be $10 \%$ or less at each frequency. <br> Check to ensure that the voltage at the ANT terminal is $54 \mathrm{~dB} \mu$ or less. |
| 3 | Verification of signal meter | AM ANT 1080 kHz $90 \mathrm{~dB} \mu$ | $\begin{gathered} 1080 \mathrm{kHz} \\ { }^{*}(\mathrm{~B}-2) \end{gathered}$ |  |  | All signal meters should light. |
|  |  | -10dB $\mu$ or less |  |  |  | All signal meters should turn OFF. |
| 4 | Verification of auto tuning | AM ANT $60 \mathrm{~dB} \mu$ |  |  |  | Auto reception should be available when the tuning key is moved UP and DOWN. |

## TEST MODE

CAUTION : Before setting to the TEST mode, write down the existing preset memory content of the Tuner in a table as shown below. (This is because setting to the TEST mode will cause the memory content to be as factory set, i.e., all the preset memory by the user will be erased.)


- How to start

Turn the POWER switch ON while pressing the PRESET STATION keys No.1, 2 and 3 simultaneously, and the unit After that, the DISPLAY for the display check. (ALL LIGHTS mode becomes effective immediately after starting.)

- Content of the TEST mode key

PRESET STATION "1" key: ALL LIGHTS ON mode PRESET STATION "2" key : LIGHTS OFF mode
PRESET STATION " 3 " key : 7 -segment (figure) display mode
PRESET STATION " 8 " key : The
PRODUCT mode when the TEST mode is cancelled.
?
Mode to display only 1 digit of 7 segnents
(Itherers remain OFF.)

- How to cancel

The normal operation is restored when the POWER switch is turned OFF or the PRESET STATION key No. 8 pressed. At the same time, the factory preset memory is also restored.

| Preset group | P1 | P2 | P3 | P4 | P5 | P6 | P7 | P8 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| A/C/E | 87.5 MHz | 90.1 MHz | 95.1 MHz | ${ }^{98.1} 1 \mathrm{MHz}$ | 108MHz | 88.1 MHz | 106.1 MHz | $\begin{gathered} 107, \mathrm{MHz} \\ (\mathrm{U}, \mathrm{C}) \\ (\mathrm{R}, \mathrm{~A}, \mathrm{BH}, \mathrm{G}) \\ \hline \end{gathered}$ |
| B/D | 630 kHz | 1080kHz | 1440 kHz |  | $\left.\left\lvert\, \begin{array}{c} 1710 \mathrm{KHz} \\ (1, \mathrm{C}) \\ (\mathrm{R}, 1 \mathrm{kHz} \\ (\mathrm{A}, \mathrm{~B}, \mathrm{G}) \end{array}\right.\right)$ | 900 kHz | 1350kHz | 1400 kHz $(\mathrm{U}, \mathrm{C})$ 1404 kHz $(\mathrm{R}, \mathrm{A}, \mathrm{B}, \mathrm{G})$ |

For all the above, AUTO TUNING and AUTO STEREO are selected as the TUNING mode.

## - BLOCK DIAGRAM




RX－550

## －PRINTED CIRCUIT BOARD（Foil side）

| Note）文字面 ：Component side | TUNER C．B（1） |
| :--- | :--- |
|  | Except G model |



MAIN C．B（ 4 ）
FROM ：MAIN（3）$\rightarrow$ MII<br>\！
MAIN C．B（5）


TO：MAIN（4）
FROM ：FUNCTION（2）


A

## - PRINTED CIRCUIT BOARD (Foil side)




RX－550

## －PRINTED CIRCUIT BOARD（Foil side）

## Note）文字面：Component sid

FUNCTION C．B（3）

－U，C models
MAIN C．B（ 2 ）


## - PRINTED CIRCUIT BOARD (Foil side)



MAIN C. B (2)


- INTERCONNECT WIRING DIAGRAM



## DISPLAY DATA

## - V501: LCD8159B1JP



| No. | COM1 | COM2 |
| :---: | :---: | :---: |
| 1 | - | COM |
| 2 | COM | - |
| 3 | PRESET | 1 d |
| 4 | 1 ef | 1 g |
| 5 | 1 a | 1 ij |
| 6 | 1 bc | 1 h |
| 7 | MEMORY | 2 d |
| 8 | 2 f | 2 e |
| 9 | 2 a | 2 g |
| 10 | 2 b | 2 c |


| No. | COM1 | COM2 |
| :---: | :---: | :---: |
| 11 | 3 bc | 4 d |
| 12 | 4 f | 4 e |
| 13 | 4 a | 4 g |
| 14 | 4 b | 4 c |
| 15 | AUTO | 5 d |
| 16 | 5 f | 5 e |
| 17 | 5 a | 5 g |
| 18 | 5 b | 5 c |
| 19 | FM, DP | 6 d |
| 20 | 6 f | 6 e |


| No. | COM1 | COM2 |
| :---: | :---: | :---: |
| 21 | 6 a | 6 g |
| 22 | 6 b | 6 c |
| 23 | AM | 7 d |
| 24 | 7 f | 7 e |
| 25 | 7 a | 7 g |
| 26 | 7 b | 7 c |
| 27 | SLEEP | STEREO |
| 28 | 1 l | - |
| 29 | M1, M2 | - |
| 30 | M3 | - |


| No. | COM1 | COM2 |
| :---: | :---: | :---: |
| 31 | M4 | - |
| 32 | M5 | - |
| 33 | M6 | - |
| 34 | M7 | - |
| 35 | M8 | - |
| 36 | M9 | - |
| 37 | M10 | - |
| 38 | M11 | - |
| 33 | M12 | - |
| 40 | M13 | - |

1): $\begin{array}{lllll}0 & 40 & 60 & 80 & 100\end{array}$

## IC DATA

IC305 : M50747
8bit $\mu$-COM


Tuner Market Select (Table A)

| A1 (34) | A2 (33) | Market |
| :---: | :---: | :---: |
| 0 | 0 | J |
| 1 | 0 | $A, B, G$ |
| 0 | 1 | U, C |
| 1 | 1 | R |



| Pin No. | Pin name | Function Name | 1/0 | Description |
| :---: | :---: | :---: | :---: | :---: |
| 1 | Vac | Vcc | - | +5V |
| 2 | P67 | STBY | 0 | LED for Stand By |
| 3 | P66 |  | 0 | N.C. |
| 4 | P65 |  | 0 | $\int$ N.C. |
| 5 | P64 | VRLED | 0 | LED for Volume, ON/OFF (N.C.) |
| 6 | P63 | D3 | 0 | KEY DIGIT |
| 7 | P62 | D2 | 0 |  |
| 8 | P61 | D1 | 0 |  |
| 9 | P60 | D0 | 0 |  |
| 10 | P47 | K3 | 1 | KEY IN |
| 11 | P46 | K2 | 1 |  |
| 12 | P45 | K1 | 1 |  |
| 13 | P44 | K0 | 1 |  |
| 14 | P43 | PSW | 1 | POWER SW |
| 15 | P42 |  | 110 | ) N.C. |
| 16 | P41 |  | $1 / 0$ |  |
| 17 | P40 |  | 110 |  |
| 18 | P37/İRDY |  | 0 |  |
| 19 | P36/CLK | CL | 0 | LC7583, Clock |
| 20 | P35/TXD | DATA | 0 | LC7583, Data |
| 21 | P34/RXD |  | $1 / 0$ | N.C. |
| 22 | P33/CNTR | CE | 0 | LC7583, Chip enable |
| 23 | P32/INT2 | INH | 0 | LC7583, Drive OFF |
| 24 | P31 | Area | 0 | INITIAL High |
| 25 | P30 | CLK | 0 | LC7583, External Clock |
| 26 | INT1 | REM | 1 | Remote Control Input |
| 27 | CNVSS | CN Vss | - | GND |
| 28 | RESET | $\overline{\text { RES }}$ | 1 | Reset |
| 29 | XIN | XIN | - | ) Clock ( 8 MHz ) |
| 30 | X OUT | X OUT | - |  |
| 31 | $\phi$ |  | 0 | N.C. |
| 32 | Vss | Vss | - | GND |
| 33 | P57 | A2 | 1 | ) Tuner Market Select (Table A) |
| 34 | P56 | A1 | 1 |  |
| 35 | P55 | ST | 1 | Stereo |
| 36 | P54 | STSIG | 1 | Stop Signal (Station Detector) |
| 37 | P53 | STOUT | 1 | IF Count OK signal |
| 38 | P52 |  | 1 | N.C. |
| 39 | P51 | REM | 1 | Remote Control Input |
| 40 | P50 | PODN | 1 | Power Down Detect |
| 41 | P17 | STRQ | 0 | IF Count Request |
| 42 | P16 | CE | 0 | LM7000, Chip enable |
| 43 | P15 | CL | 0 | LM7000, Clock |
| 44 | P14 | DA | 0 | LM7000, Data |
| 45 | P13 | $\overline{\text { MONO }}$ | 0 | Monoural |
| 46 | P12 | TMUTE | 0 | Tuner Mute |
| 47 | P11 | V2 | 0 | $\begin{array}{\|ll} \hline) \text { Video Select (Not Use) } & \begin{array}{l} \text { V2: VCR } \\ \text { V1:LD } \end{array} \\ \hline \end{array}$ |
| 48 | P10 | V1 | 0 |  |
| 49 | P07 | POW | 0 | Main Relay ON |
| 50 | P06 | PLO | 0 | Player RS Control |
| 51 | P05 | MUTE | 0 | Muting |
| 52 | P04 | AMUT | 0 | N.C. (Audio Mute, -20 dB ) |
| 53 | P03 | VLDN | 0 | ) Volume Control UOWN |
| 54 | P02 | VLUP | 0 |  |
| 55 | P01 | ISL | 0 | $\begin{array}{\|c\|l\|} \hline) \text { Input Selector Control } & \begin{array}{l} \text { Turn Left } \\ \text { Turn Right } \end{array} \\ \hline \end{array}$ |
| 56 | P00 | ISR | 0 |  |
| 57 | P27 | CAM | 1 | Input Selector, Timing |
| 58 | P26 | S1 | 1 | IInput Selector, Position Detect |
| 59 | P25 | S2 | 1 |  |
| 60 | P24 | S3 | 1 |  |
| 61 | P23 | S4 | 1 |  |
| 62 | P22 | S5 | 1 |  |
| 63 | P21 | S6 | 1 |  |
| 64 | P20 | S7 | 1 |  |

## FRONT END PACK

## - Except G model



- G model only

- SCHEMATIC DIAGRAM (TUNER \& LCD)


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| NOTICE |  |
| :---: | :---: |
| (J).... | Japanese model |
| (U).... | U.S.A model |
| (C) $\cdots$. | Canadian model |
| ( $A$ ) $\ldots .$. A | Australian model |
| (G).... E | European model |
| (B) $\cdots$. ${ }^{\text {a }}$ | British model |
| (R).... | General model |
| ).... | RP model |







Point (1): $\mathrm{x} \mathbb{N}$




1C1: LA1266



IC3:



## IC3:



IC501: LC7583


* All voltage are measured with a $10 \mathrm{M} 2 / \mathrm{N}$ DC electric volt
- meter. Components having special characteristics are marked $\triangle$ Components having special characteristics are marked $\triangle$
and must be replaced with parts having specifications equal to those originally installed. to those originally installed.
Schematic diagram is subject to change without notice.


An oreme


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| BOTTOM | 3 OF 4 | 4 OF 4 |





PIN CONNECTION DIAGRAM OF TRANSISTORS, DIODES AND ICS.

29



All voltage are measured with a $10 M 2 / V D C$ electric volt Components having special characteristics are marked $\triangle \Delta$
and must be replaced with parts having specifications equal
to those originaly installed to those originally installed
Schematic diagram is subject to change without notice.

- SChEMATIC DIAGRAM (FUNCTION)


The previous page is reprinted in exploded form over the following 4 pages

| TOP | 1 OF 4 | 2 OF 4 |
| :--- | :--- | :--- |
| BOTTOM | 3 OF 4 | 4 OF 4 |





(2)


Point (3): D3 to Do
(Pin 6 to of 9 (C305)



Point(4): $\overline{\text { RES }}$


[^0]PARTS LIST Components having special characteristics are marked $\triangle$ and must be replaced with parts having specifications equal to those originally installed．
－Carbon resistors（ $1 / 6 \mathrm{~W}$ or $1 / 4 \mathrm{~W}$ ）are not included in the ELECTRICAL PARTS
ELECTRICAL PARTS List．For the parts No．of the carbon resistors，refer to P． 42.

| $\begin{aligned} & \text { Ref. } \\ & \text { noo. } \end{aligned}$ | PaRT Mo． | Description |  | 部 品 名 | Remarks | Markets | 二ット |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Vks20700 WK520900 UK520800 Uk520500 | FIRCTIOH CIRCIIT Board functror circuit board finction clrcuit board FuMctiol circuit board |  |  |  |  |  |
|  | FA153820 | mylar film cap | 8200pF 50V | マイラーコン | C345， 346 |  |  |
|  | $\begin{array}{\|l\|} \hline \text { FA153910 } \\ \text { FA154560 } \\ \text { FA154680 } \\ \text { FA154330 } \\ \text { FA155390 } \end{array}$ | hylar film cap mylar film cap hylar film cap hylar film cap hylar film cap | 9100 pF 50 V <br> 0.056 uF 50 V <br> 0.088 uF 50 V <br> 0.33 F 50 V <br> 0.39 uF 50 V | $\begin{aligned} & \text { マイラーコン } \\ & \text { マイラーコン } \\ & \text { マイラーコン } \\ & \text { マイラーコン } \\ & \text { マイラーコン } \end{aligned}$ | $C 311,312$ C347，348 C341，342 C309，310 C343，344 |  |  |
|  | $\begin{array}{\|l\|} \hline \text { VK398700 } \\ \text { FG212100 } \\ \text { FG212220 } \end{array}$ | multilayer hylar film cap cerahic cap CERAMIC CAP | 0.1 uF 50 V <br> 100 pF 50 V <br> 220 pF 50 V | \| 積層マイラーコン | C384， 385 C333， 334 C303，304，331，332，323， $317-320,324,327,328$. 335,336 |  |  |
|  | $\begin{array}{l\|} \hline \text { FG212220 } \\ \text { FG212100 } \\ \text { FG212220 } \\ \text { FG213680 } \\ \text { FG214100 } \end{array}$ | Ceramic cap <br> CERAMIC CAP <br> Ceramic cap <br> ceramic cap <br> CERAMIC CAP | 220 pF 50 V <br> 100 pF 50 V <br> 220 pF 50 V <br> 6800 pF 50 V <br> 0.01 uF 50 V | $\begin{aligned} & \text { セラコン } \\ & \text { セラコン } \\ & \text { セラコン } \\ & \text { セラコン } \\ & \text { セラコン } \end{aligned}$ | $\mathrm{C} 301,302$ $\mathrm{C} 321,322,325,326$ $\mathrm{C} 321,322,325,326$ $\mathrm{C} 353,354$ $\mathrm{C} 368,372,373,381$ | $\begin{array}{\|l\|} \hline G \\ U, C, R, A, B \\ G \end{array}$ |  |
|  | $\begin{array}{\|l\|} \hline \text { VF611200 } \\ \text { vG286300 } \\ \text { VG287200 } \\ \text { VG287600 } \end{array}$ | multilayer ceramic cap <br> electrolytic cap <br> electrolytic cap <br> electrolytic cap | 0.1 uF 50 V <br> 220 uF 6.3 V <br> 10 uF 16 V <br>   <br> 100 uF 16 V | $\begin{array}{\|l} \hline \text { 積層セラコン } \\ \text { rミコン } \\ \text { ヶミコン } \\ \text { ヶミコン } \end{array}$ | C3378，379 <br> C307， 308 <br> C374， $382,339,340,369$, <br> 370 <br> C371，337， 338 |  |  |
|  | $\begin{array}{\|l\|} \hline \text { VG287800 } \\ \text { VG288800 } \\ \text { vG290100 } \\ \text { VG290300 } \\ \text { VG290500 } \\ \hline \end{array}$ | electrolytic cap electrolytic cap electrolytic cap electrolytic cap electrolytic cap | $330 u F$ $16 V$ <br> 100 uF 25 V <br> 0.22 uF 50 V <br> 0.47 uF 50 V <br> 1 uF 50 V | $\begin{aligned} & \text { ケミコン } \\ & \text { rミコン } \\ & r ミ コ ン ~ \\ & r ミ コ ン ~ \\ & \text { rミコン } \end{aligned}$ | $C 375,388,303$ $C 315,316,355,356$ $C 349,350$ $C 329,330,386,383$ $C 305,306,351,352,377$ |  |  |
|  | VG290600 <br> UK166100 <br> VB170100 <br> vB056900 <br> HV453220 | flectrolytic cap <br> electrolytic cap <br> electrolytic cap <br> COIL <br> flame proof carbon resistor | 2.2 uF 50 V <br> 1 uF 50 V <br> 4.7 mF 5.5 V <br> 220 uH  <br> $2.2 \Omega$ $1 / 4 \mathrm{~W}$ | $\begin{aligned} & \text { ケミコン } \\ & \text { BPヶミコン } \\ & \text { ハッックアッブケミコン } \\ & \text { コイル } \\ & \text { 不橪化カーボン抵抗 } \\ & \hline \end{aligned}$ | $\begin{aligned} & \mathrm{C} 313,314 \\ & \text { C380 } \\ & \mathrm{C} 376 \\ & \mathrm{~L} 301,302 \\ & \mathrm{R} 400 \end{aligned}$ | G |  |
|  | HV454100 <br> H4455100 <br> HV455470 <br> XA956A00 <br> XB247A00 | flame proof carbon resistor flame proof carbon resistor flame proof carbon resistor IC IC | $10 \Omega$ $1 / 4 W$ <br> $100 \Omega$ $1 / 4 \mathrm{~W}$ <br> $470 \Omega$ $1 / 4 \mathrm{~W}$ <br> NJM2088S  <br> uPC 1570 HA  | 不橪化カーホン抵抗不橪化カーホン抵抗不橪化力ーホン抵抗 IC 1 C | R402，403 R319，320 R371，372 IC301 IC302 |  |  |
|  | XF 494 A 00 <br> $\mathrm{IG065510}$ <br> $\mathrm{XI804C00}$ <br> $\mathrm{VF926500}$ <br> VK 475200 | IC <br> IC <br> IC <br> light detecting module ROTARY SHITCH | LB1641 <br> H．JM78L05A 5V <br> M50747－xXX <br> GP1U501X <br> SRBA | $\begin{array}{\|l} \hline \text { I C } \\ \text { I C } \\ \text { I C } \\ \text { リモコン受光ユニット } \\ \text { ロータリーSW } \end{array}$ | IC303，304 IC307 IC305 II301 S4318 |  |  |
|  | VJ786400 <br> KA906380 <br> UK． 45500 <br> LB202260 <br> LB401030 | ROTARY SUITCH <br> PUSH SWITCH <br> PUSH SUITCH <br> Pin JaCk <br> PIN JACK | SRRZS4  <br> SPUI21  <br>   <br> $4 P$ T5857－A | $\begin{aligned} & \text { ロータリーSW } \\ & \text { ブッシュSW } \\ & \text { プッシュSW } \\ & \text { ピンシャック } \\ & \text { ビンジャック } \end{aligned}$ | SU316 <br> SW301－315 <br> SU317 <br> PJ301 <br> PJ302，304 |  |  |


＊New Parts（新規部品）



| Ref． | PART Mo． | Description |  |  | 部 品 名 | Remarks | Harkets | \％ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | VG440400 <br> VG44040 <br> VG42600 <br> LB201880 <br> BB070000 | zener diode <br> Zener dIode <br> Zener diode <br> FUSE HOLDER PIN <br> matal，ground | MTZJ13A <br> HTZJ13A <br> MTZJ24C <br> PC－FH1 |  | $\begin{aligned} & \text { ツェナーダイオード } \\ & \text { ッェナーダイオード } \\ & \text { ッェナーダイオード } \\ & \text { ヒュースホルダビ } \\ & \text { アース金具 } \end{aligned}$ | $\begin{aligned} & \mathrm{D} 108,109 \\ & \mathrm{D} 124 \\ & \mathrm{D} 114,115,126 \end{aligned}$ | R |  |
|  | $\begin{array}{\|l\|} \hline \text { VB966900 } \\ \text { BB071360 } \end{array}$ | PIN terhinal．sCREM | $\begin{array}{\|l\|} \hline \text { IHSA-6024 } \\ 8.3 \times 13 \\ \hline \end{array}$ |  | $\begin{aligned} & \text { スタィルビン } \\ & \text { ネジ蝡子 } \end{aligned}$ |  |  |  |
|  | YK519700 <br> KK519800 <br> UK519600 <br> VK520000 <br> VK519000$\|$ | tuner ctrciit board TUNER CIRCUIT bOARD tuner circuit buard tuier crrcuit board tuner circuit board |  |  |  |  | $\begin{aligned} & \mathrm{R} \\ & \mathrm{~A} \\ & \mathrm{~A} \\ & \mathrm{U}, \mathrm{C} \\ & \mathrm{C} \\ & \mathrm{~B} \\ & \mathrm{~B} \end{aligned}$ |  |
|  | FA153100 | hylar fila cap | 1000 oF 50 V <br> 2700 pF 50 V <br> 3900 pF 50 V <br> 0.047 FF 50 V <br> 0.1 uF 50 V |  | マイフーコン | C45，48 |  |  |
|  | FA153270 | hylar flla cap |  |  | マイラーコン | C41，43 |  |  |
|  | Fal53390 | hylar filh cap |  |  | マイラーコン | C46，47 |  |  |
|  | FA154470 | hylar filh cap |  |  | マイラーコン | c34 |  |  |
|  | FA155100 | hylar flum cap |  |  | マイラーコン | C18 |  |  |
|  | UT452470 | Polypropylene fllh cap | 470 PF 100 V <br> 390 FF 100 V <br> 680 FF 100 V <br> 33 FF 50 V <br> 47 pF 50 V |  | PPコン | C36，37 | A，B |  |
|  | UT452390 | PoLYPROPYLEEE FLLM CAP |  |  | PPコン | c36，37 | ${ }^{\text {a }}$ |  |
|  | UT452680 | Polypropylene fluk cap |  |  | PPコン | ［36，37 | U．C |  |
|  | v $\ 761200$ | cernaic cap |  |  | セラコン | c19，28 |  |  |
|  | VF466700 | CERAHIC CAP |  |  | 円筛セラコン | C16 |  |  |
|  | VF468800 | CERAMIC Cap | 1700 FF $50 V$ <br> 470 FF 50 V <br> 1000 pF 50 V <br> 0.01 uF 16 V <br> 0.022 uF 25 V <br> 0  |  | 円筬セラコン | c21 | U，C，R，A，B |  |
|  | VF466900 | cernic cap |  |  | 内筒セラコン | c38 |  |  |
|  | vF467000 | cerahic cap |  |  | 円筒セラコン | C11，14，15 |  |  |
|  | VF467300 | ceramic cap |  |  | 円筒セラコン | c5，8－10，23，27 |  |  |
|  | vG280100 | cerahic Cap |  |  | 円筒セラコン | c2 |  |  |
|  | VJ599000 | cerahic cap | $0.047 u F$ 16 V <br> 10 uF 16 V |  | や筬セラコン | C3． 49 |  |  |
|  | V1842200 | electrolytic cap |  |  | ヶミコン | $\mathrm{C} 4,12,13,20,26,31,39$, 42 |  |  |
|  | v1842600 | electrolytic cap | $\begin{aligned} & 100 \mathrm{uF} \\ & 330 \mathrm{uF} \end{aligned}$ | 164 | ケミコン | c6， 17 |  |  |
|  | v1842800 | Electrolytic cap |  | 16 V | ヶミコン | C1 |  |  |
|  | V1848800 | Electrolytic CAP | $\begin{aligned} & 0.47 \mathrm{uF} \\ & 1 \mathrm{uF} \\ & 2.2 \mathrm{uF} \\ & 3.3 \mathrm{uF} \\ & 4.7 \mathrm{uF} \end{aligned}$ | 50 O | ケミコン | C32 |  |  |
|  | vi844900 | electrolytic cap |  | 50 V | ヶミコン | C7，29，30，33，40，44 |  |  |
|  | V1845000 | electrolytic cap |  | 50 V | ケミコン | c22 |  |  |
|  | v1845100 | Electrolytic cap |  | 500 | ヶミコン | C25 |  |  |
|  | v1845200 | electrolytic cap |  | 50 V | ヶミコン | c24 |  |  |
|  | UK166220 | Electrolytic cap | 2.24 F 50V |  | BPrァミコン | ${ }^{\text {c35 }}$ |  |  |
|  | GE901850 | COLL，HMUCTOR | 39 mH |  | 固定インダクター | L4，5 |  |  |
|  | $v 1546100$ | cail | 220 H |  | 固定コイル | L1－3 |  |  |
|  | GE100470 | an coil | ${ }^{450 \mathrm{KHz}}$ |  | AM IFTコイメ | T2 |  |  |
|  | GE220530 | Filter | 114 KHz |  | LCフィルター | 13 | G |  |
|  | VC218600 | COIL，FM Detect | 10.7 HHz |  | F M 㭲波コイル | 11 |  |  |
|  | 16158100 | IC | LA3401 |  | I C | IC3 |  |  |
|  | X8760900 | IC | La1266 |  | 1 C | 1 Cl |  |  |
|  | x8818800 | IC | L47000\％ |  | I C | IC2 |  |  |
|  | VF541200 | SLIDE SUITCH | SSSF11 |  | ステイドSW | SU1 | R |  |



## －EXPLODED VIEW



NECHANICAL PARTS Note ）$\varnothing$ ：Diameter

| Rer． | PART NO． | Description |  | 部 品 名 | Remarks | Markets | \％， |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 01 | VK543500 | Panel ulit |  | パネルコニット | BL | U，C，，，A，B |  |
| 01 | VK543600 | Panel unit |  | パネルコニット | BL |  |  |
| a1 | vk543700 | Panel unit |  | バネルコニット | T | U，C，R，A，B |  |
| 01 | VK543800 | Panel ulit |  | パネルコニット | T |  |  |
| 01－1 | v883880 | windou |  | ウインドゥ |  |  |  |
| 01－2 | V1897700 | LENS |  | レンス |  |  |  |
| 01－3 | vk863200 | dapler | 6／55 | タッパー |  |  |  |
| 02 | IX620970 | transistor | 2SA1491 0，P，Y | トランジスタ |  |  |  |
| 03 | 14620980 | Transistor | $2 \mathrm{SC3855} 0, \mathrm{P}, \mathrm{Y}$ | トランシスタ |  |  |  |
| 04 | VK232400 | RADIATOR ASS＇y |  | ラジェータASSY |  |  |  |
| 05 | VK195900 | SHEET | $19 \times 24$ | シート |  |  |  |
| o6 | VK538000 | mail circuit board |  | メインシート |  | A，B |  |
| o6 | vK537900 | main circuit board |  | メインシート |  | R |  |
| 06 | NK537700 | main circuit board |  | メインシート |  | v |  |
| 06 | vK538100 | mail circuit board |  | メインシート |  | a |  |
| 06 | VK537800 | MAIL CIRCUIT Board |  | メインシート |  | c |  |
| 07 | VK520800 | Function circuit board |  | ファンクションシート |  | A，B |  |
| 07 | VK520700 | Function circuit board |  | ファンクションシート |  | R |  |
| 07 | VK520900 | function circuit board |  | ファンクションシート |  | G |  |
| 07 | VK520600 | Function circuit board |  | ファンクションシート |  | u，c |  |
| 08 | VK519800 | TUNER CIICCUIIT Board |  | チューナシート |  | A |  |
| 08 | VK519700 | tuier Circuit bokrd |  | ティーナシート |  | R |  |
| 08 | VK519900 | tuner circuit board |  | チューナシート |  | B |  |
| 08 | VK519600 | Tuner CIrcuit board |  | テューナシート |  | リ， |  |
| 08 | VK520000 | tuner circuit baard |  | ティーナシート |  | g |  |
| 09 | VK520100 | LCD CIRCUIT Board |  | LCDシート |  |  |  |
| 10 | x1641800 | Pouer trahsforner |  | 電源トランス |  | c |  |
| 10 | X1840n00 | pouer transporher |  | 電源トランス |  | v |  |
| 10 | xi644n00 | power transforher |  | 電源トランス |  | ${ }^{\text {i }}$ |  |
| 10 | $\times 1643000$ | poier transforher |  | 電源トランス |  | A，B |  |
| 10 | $\times 1642400$ | Pouer transforher |  | 電源トランス |  | R |  |
| 11 | vE229900 | Pouer cord ass＇Y |  | パワーコードASSY |  | R |  |
| 11 | vE042900 | Pouler cord ass＇y |  | パワーコートASSY |  | A |  |
| 11 | vK815600 | Pouver Cord ass＇y |  | パワーコートASSY |  | в |  |
| 11 | vE043400 | Pouler Cord ass Y |  | パワーコードASSY |  | a |  |
| 11 | H6002220 | Povier Cord | 10 A | 電源コート |  | O．C |  |
| 12 | vc626100 | ac outlet | S2－7399 | 電源コネクタ |  |  |  |
| 12 | vJ775000 | ac outlet |  | へCアウトレット |  |  |  |
| 13 | C8620190 | CORD STOPPER | CH－22B | コードストッパー |  | R，A，b，G |  |
| 13 | CB62020 | Cord stoprer | $\mathrm{CH}-22 \mathrm{C}$ | コートストッパー |  | U， C |  |
| 14 | vk233300 | Chassis |  | シャーシ アートベース |  |  |  |
| 15 | vk236100 | SUB Chassis |  | サブシャーシ（T） | T |  |  |
| 15 | vk235000 | SUB Chassis |  | サブシャーシ（B） | BL |  |  |
| 16 | vK443600 | botton cover |  | ホトムカバー |  |  |  |
| 17 | vk234000 | frame Side |  | フレームサイト |  |  |  |
| 18 | vk231300 | Rear panel |  | リヤバネル U |  | U |  |
| 18 | vk231400 | rear panel |  | リヤバネル C |  | c |  |
| 18 | vk231500 | rear panel |  | リヤバネル R |  | R |  |
| 18 | vk231500 | rear pahel |  | リヤバネル A |  | A |  |
| 18 | पk231700 | rear paiel |  | リヤバネル B |  | B |  |
| ＊Ne | arts（新竦 | 規部品） |  |  |  | ：Japan |  |





## Parts List for Carbon Resistors

| Value | 1/4W Type Part No. | 1/6W Type Part No. | Value | 1/4W Type Part No. | 1/6W Type Part No. |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 1.0 ת | HJ353100 | HF853100 | $12 \mathrm{~K} \Omega$ | HJ35 7120 | HF857120 |
| 1.8 ת | HJ353180 | * | $15 \mathrm{~K} \Omega$ | HJ35 7150 | HF857150 |
| $2.2 \Omega$ | HJ35 3220 | HF853220 | $18 \mathrm{~K} \Omega$ | HJ35 7180 | HF857180 |
| 3.3 ת | HJ353330 | HF853330 | $22 \mathrm{~K} \Omega$ | HJ35 7220 | HF857220 |
| 4.7 ת | HJ35 3470 | HF853470 | $27 \mathrm{~K} \Omega$ | HJ35 7270 | HF857270 |
| $5.6 \Omega$ | HJ35 3560 | HF853560 | $33 \mathrm{~K} \Omega$ | HJ35 7330 | HF857330 |
| $10 \Omega$ | HJ35 4100 | HF854100 | $39 \mathrm{~K} \Omega$ | HJ35 7390 | HF857390 |
| $15 \Omega$ | HJ35 4150 | HF854150 | $47 \mathrm{~K} \Omega$ | HJ35 7470 | HF85 7470 |
| $22 \Omega$ | HJ35 4220 | HF854220 | $56 \mathrm{~K} \Omega$ | H 3357560 | HF857560 |
| $27 \Omega$ | HJ35 4270 | HF854270 | $68 \mathrm{~K} \Omega$ | HJ35 7680 | HF857680 |
| $33 \Omega$ | H.335 4330 | HF854330 | $82 \mathrm{~K} \Omega$ | HJ35 7820 | HF857820 |
| $39 \Omega$ | HJ35 4390 | HF854390 | $91 \mathrm{~K} \Omega$ | HJ35 7910 | HF857910 |
| $47 \Omega$ | HJ35 4470 | HF854470 | $100 \mathrm{~K} \Omega$ | HJ35 8100 | HF858100 |
| $56 \Omega$ | HJ35 4560 | HF854560 | $120 \mathrm{~K} \Omega$ | HJ35 8120 | HF858120 |
| $68 \Omega$ | HJ35.4680 | HF854680 | $150 \mathrm{~K} \Omega$ | HJ35 8150 | HF858150 |
| $82 \Omega$ | HJ35 4820 | HF854820 | $180 \mathrm{~K} \Omega$ | HJ35 8180 | HF858180 |
| $100 \Omega$ | HJ355100 | HF855100 | $220 \mathrm{~K} \Omega$ | HJ35 8220 | HF858220 |
| $110 \Omega$ | HJ355110 | HF855110 | $270 \mathrm{~K} \Omega$ | HJ35 8270 | HF858270 |
| $120 \Omega$ | HJ355120 | HF855120 | $330 \mathrm{~K} \Omega$ | HJ35 8330 | HF858330 |
| $150 \Omega$ | HJ355150 | HF855150 | $390 \mathrm{~K} \Omega$ | HJ35 8390 | HF858390 |
| $160 \Omega$ | HJ355160 | * | $470 \mathrm{~K} \Omega$ | HJ35 8470 | HF858470 |
| $180 \Omega$ | HJ355180 | HF855180 | $560 \mathrm{~K} \Omega$ | HJ35 8560 | HF858560 |
| $220 \Omega$ | HJ355220 | HF855220 | $680 \mathrm{~K} \Omega$ | HJ35 8680 | HF858680 |
| $270 \Omega$ | HJ355270 | HF855270 | $820 \mathrm{~K} \Omega$ | HJ35 8820 | HF858820 |
| $330 \Omega$ | HJ355330 | HF855330 | $1.0 \mathrm{M} \Omega$ | HJ35 9100 | HF859100 |
| 390 ת | HJ355390 | HF855390 | $1.2 \mathrm{M} \Omega$ | HJ359120 | * |
| $470 \Omega$ | HJ355470 | HF855470 | $1.5 \mathrm{M} \Omega$ | HJ359150 | HF859150 |
| 510 ת | * | HF855510 | $1.8 \mathrm{M} \Omega$ | HJ35 9180 | HF859180 |
| 560 ת | HJ355560 | HF855560 | $2.2 \mathrm{M} \Omega$ | HJ35 9220 | HF859220 |
| $680 \Omega$ | HJ35 5680 | HF855680 | $3.3 \mathrm{M} \Omega$ | HJ35 9330 | HF859330 |
| $820 \Omega$ | HJ35 5820 | HF855820 | $3.9 \mathrm{M} \Omega$ | HJ35 9390 | * |
| 910 ת | HJ35 5910 | HF855910 | $4.7 \mathrm{M} \Omega$ | HJ35 9470 | HF859470 |
| $1.0 \mathrm{~K} \Omega$ | HJ35 6100 | HF856100 |  |  |  |
| $1.2 \mathrm{~K} \Omega$ | HJ35 6120 | HF856120 |  |  |  |
| $1.5 \mathrm{~K} \Omega$ | HJ35 6150 | HF856150 |  |  |  |
| $1.8 \mathrm{~K} \Omega$ | HJ35 6180 | HF856180 |  |  |  |
| $2.0 \mathrm{~K} \Omega$ | HJ35 6200 | HF856200 |  |  |  |
| $2.2 \mathrm{~K} \Omega$ | HJ35 6220 | HF856220 |  |  |  |
| $2.4 \mathrm{~K} \Omega$ | HJ35 6240 | HF856240 |  |  |  |
| $2.7 \mathrm{~K} \Omega$ | HJ35 6270 | HF856270 |  | 1/4W Type | 1/6W Type |
| $3.0 \mathrm{~K} \Omega$ | HJ35 6300 | HF856300 |  | $\mathrm{H} 335 \bigcirc \bigcirc \bigcirc \bigcirc$ | HF85OOOO |
| $3.3 \mathrm{~K} \Omega$ | HJ35 6330 | HF856330 |  |  |  |
| $3.6 \mathrm{~K} \Omega$ | HJ35 6360 | HF856360 |  |  |  |
| $3.9 \mathrm{~K} \Omega$ | HJ35 6390 | HF856390 |  | 111 $=$ | D |
| $4.7 \mathrm{~K} \Omega$ | HJ35 6470 | HF856470 |  |  |  |
| $5.1 \mathrm{~K} \Omega$ | HJ35 6510 | HF856510 |  |  |  |
| $5.6 \mathrm{~K} \Omega$ | HJ35 6560 | HF856560 |  |  |  |
| $6.8 \mathrm{~K} \Omega$ | HJ35 6680 | HF856680 |  |  |  |
| 8.2 K $\Omega$ | HJ35 6820 | HF856820 |  |  |  |
| $9.1 \mathrm{~K} \Omega$ | HJ35 6910 | HF856910 |  |  |  |
| $10 \mathrm{~K} \Omega$ | HJ35 7100 | HF857100 |  |  |  |


[^0]:    * All volta
    meter.

    Components having special characteristics are marked $\triangle$
    and must be replaced with parts having specifications equal
    to those originally installed.
    Schematic diagram is subject to change without notice.

