marantz *Stereo* fm tuner

model 10B

Without question, the model 10B is the most advanced instrument of its kind today. MARANTZ engineers have successfully bypassed the inherent limitations of conventional circuits through the employment of bold new concepts and highly sophisticated electronic techniques. The performance of every stage, from input to multiplex section, shows the results of creative inventiveness in accomplishing significant improvement.

Now, with the introduction of the MARANTZ 10B, all requirements for real high fidelity performance have been met. It is now possible to hear FM reception which is equal in quality to the reproduction of tapes and discs through your own fine music system.

Performance properties of the 10B, in regard to quieting, stereo separation and distortion, are unprecedented. Its combination of high sensitivity, sharp selectivity, fast limiting action and reduced susceptibility to multipath effects, insures exceptional results in fringe areas. For the technically inclined person, an examination of the advanced features and performance specifications of the model 10B will reveal the extent of the new high standards established by this fine instrument.

GENERAL CIRCUIT DESCRIPTION

RF Section

The precision tuning capacitor has a "linear frequency" characteristic so that station calibrations appear evenly and accurately spaced along a 10" tuning dial. The RF stages are balanced-tuned throughout. An important feature is the radar-type, balanced-bridge diode mixer.

IF Section

The unique MARANTZ IF circuit is based on the development of an "18-pole" phase-linear filter. The ideal characteristics of the filter passband permit performance improvements which are unobtainable with conventional coupled circuits. Phase-linearity of the 220 kc passband eliminates a major source of high-frequency distortion and loss of separation. 108 db/octave cutoff slopes makes the Model 10B the most selective FM tuner in existence. Strong signals have no deteriorating effect on passband characteristics. IF alignment is permanent, being unaffected by tube changes or aging.

Limiters & Discriminator

There are 9 limiters in the Model 10B using matched pairs of silicon planar diodes. Each IF stage is self-limiting, preventing overload on strong signals, and eliminating the usual need for AGC circuits. Quieting on weak signals is close to the theoretical threshold, with ultimate quieting well in excess of 70 db. The discriminator circuit is extremely linear, ensuring low distortion through the subchannel range.

Multiplex

The highly sophisticated MARANTZ circuit permits the inclusion of phase correction to maintain proper phase/amplitude relationships. This allows the use of an extremely effective SCA rejection filter without the usual loss of separation at high frequencies. Separation is well in excess of 30 db to 15 kc. The output filter circuit provides very sharp attenuation of residual subchannel com-

ponents above the audio range, eliminating noise and interference from SCA. Precision-gapped ferrite cup-cores or precision toroidal coils are used for all filters. Automatic stereo switching and inter-channel muting are both accomplished by means of ingenious electronically triggered photo-electric circuits.

Multipath-Tuning Indicator

In March 1962 MARANTZ introduced the idea of using an oscilloscope tube as a multipath and tuning indicator in the early prototypes of the Model 10. As each station is tuned, its correct center position on the passband is clearly displayed. Simultaneously, the presence of multipath becomes visible, making it quite easy to readjust the antenna for best results.

A panel switch permits test display of the left and right FM channels, or external signals from tape recorders, discs, etc.

TECHNICAL SPECIFICATIONS

I.H.F. Sensitivity: 2 uv.

Quieting Slope: 2 uv, better than 40 db; 25 uv, better than 70 db.

6 IF stages, Each with 3-pole phase-linear bandpass filter. IF Bandwidth, 220 KC. Cutoff slopes, 108 db/octave.

Selectivity Curve: Adjacent carrier — 42 db; Alternate carrier, — 150 db.

9 dynamic symmetrical-aperature limiters, full limiting on noise.

Ultra-linear Discriminator: for low distortion through sub-channel range.

Balanced-bridge diode mixer.

Automatic stereo switching: photoelectronic, with indicator light and threshold adjustment.

Interstation Muting: photoelectronic, with defeat switch and threshold adjustment.

Total Spurious rejection: better than 100 db. Includes images, cross modulation, etc.

Volume Sensitivity: —10db maximum (reached @ 0.8 uv).

Harmonic distortion: less than ¼% @ 400 cps. Remains extremely low throughout **whole** frequency range.

AM rejection: at least 70 db @ 80% modulation with all signal levels.

Separation: better than 30 db from 20 cps to 15 kc, much greater in midrange.

Built-in Multipath/Tuning indicator, 3" oscilloscope tube.

Tuning gang : military type, silver plated, four balanced sections, ceramic spacers. Calibrated at 10 points.

Balanced 300 ohm input.

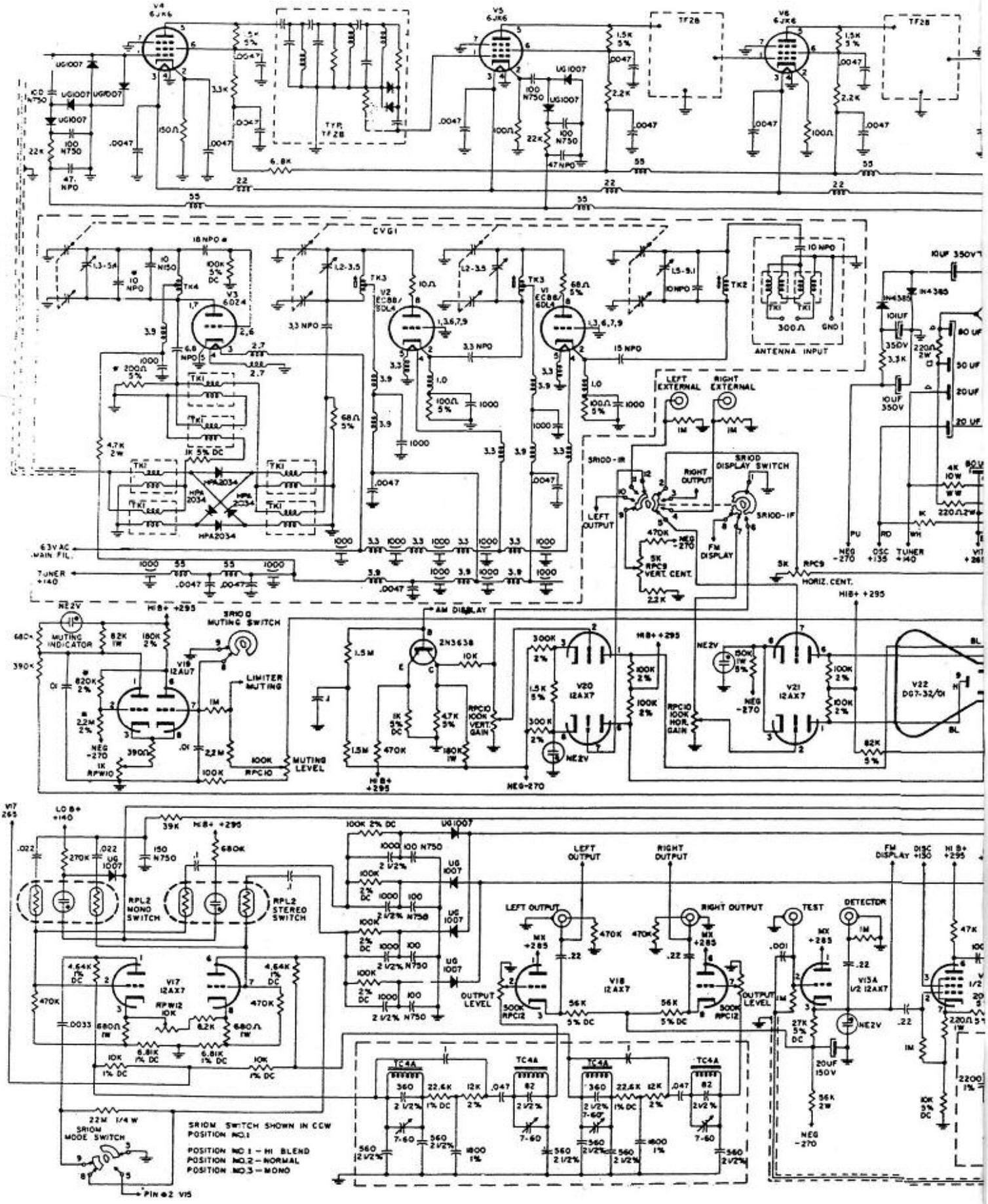
Dimensions: Front panel, 15⅜" x 5¾"; Chassis, 14⅜" W x 15" D (Except for depth, dimensions are identical to Model 7).

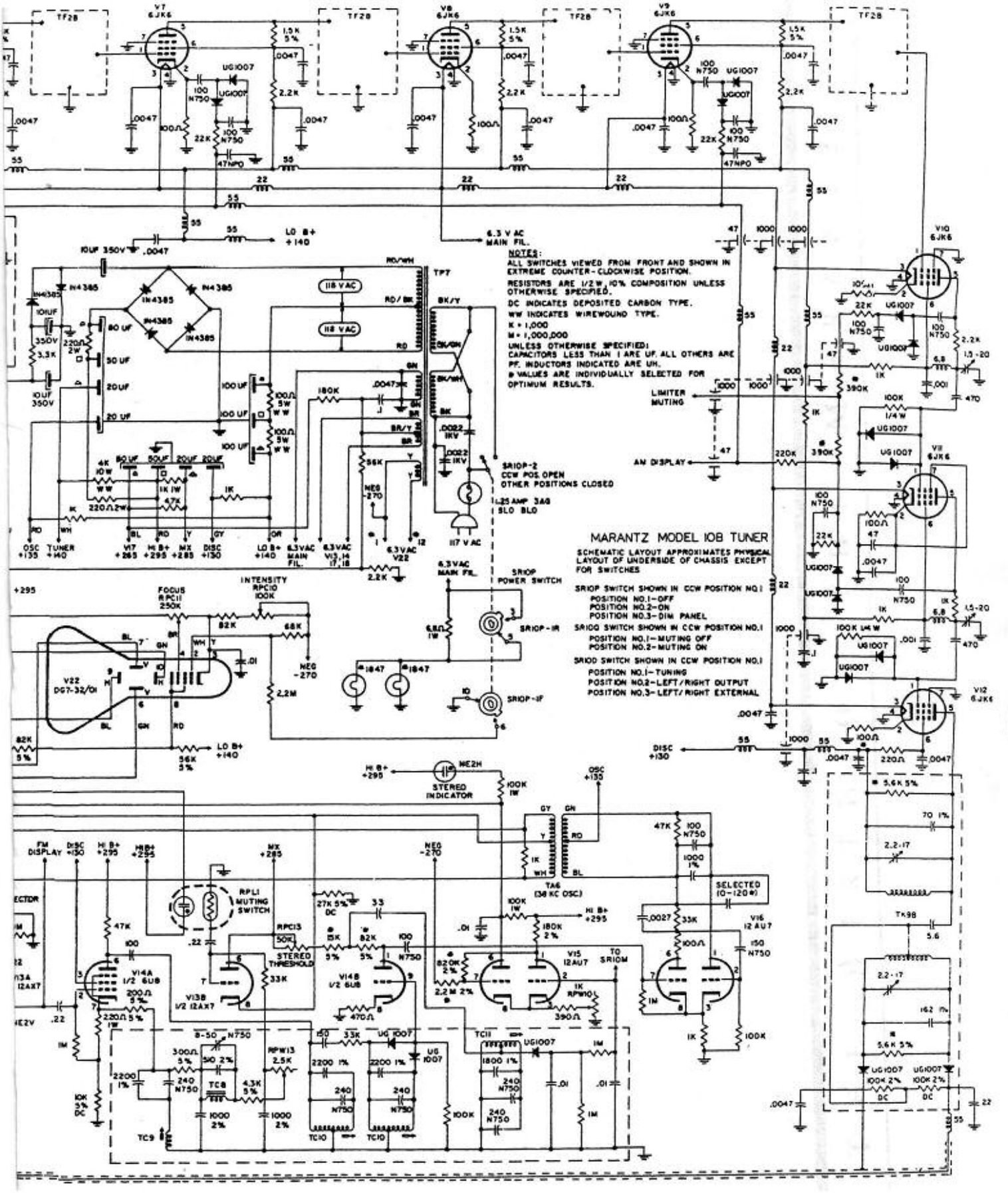
Panel Finish: Gold anodized, to match Model 7.

Shipping Weight: 38 lbs.

$650

Higher in West


V4 6JK6
V5 6JK6
V6 6JK6
TF28
TYP. TF28
CVG1
V3 6024
V2 ECC88/6DL4
V1 ECC88/6DL4
ANTENNA INPUT
300Ω
GND
LEFT EXTERNAL
RIGHT EXTERNAL
SR100-IR
SR100-IF
SR100 DISPLAY SWITCH
RIGHT OUTPUT
LEFT OUTPUT
FM DISPLAY
470K NEG -270
5K RPC9 VERT. CENT.
5K HORIZ. CENT.
63V AC MAIN FIL.
TUNER +140
HI B+ +295
AM DISPLAY
SR100 MUTING SWITCH
MUTING INDICATOR
LIMITER MUTING
MUTING LEVEL
RPC10
2N3638
V19 12AU7
V20 12AX7
V21 12AX7
V22 DG7-32/01
RPC10 100K VERT. GAIN
RPC10 100K HOR. GAIN
NE2V
LO B+ +140
RPL2 MONO SWITCH
RPL2 STEREO SWITCH
V17 12AX7
RPW12 10K
OUTPUT LEVEL
V18 12AX7
V15A 1/2 12AX7
TEST
DETECTOR
SR100 MODE SWITCH
SR100 SWITCH SHOWN IN CCW POSITION NO.1
POSITION NO.1 – HI BLEND
POSITION NO.2 – NORMAL
POSITION NO.3 – MONO
PIN #2 V15


MARANTZ MODEL 10B TUNER
SCHEMATIC LAYOUT APPROXIMATES PHYSICAL LAYOUT OF UNDERSIDE OF CHASSIS EXCEPT FOR SWITCHES
NOTES:
ALL SWITCHES VIEWED FROM FRONT AND SHOWN IN EXTREME COUNTER-CLOCKWISE POSITION.
RESISTORS ARE 1/2 W ,10% COMPOSITION UNLESS OTHERWISE SPECIFIED.
DC INDICATES DEPOSITED CARBON TYPE.
WW INDICATES WIREWOUND TYPE.
K = 1,000
M = 1,000,000
UNLESS OTHERWISE SPECIFIED: CAPACITORS LESS THAN 1 ARE UF. ALL OTHERS ARE PF. INDUCTORS INDICATED ARE UH.
* VALUES ARE INDIVIDUALLY SELECTED FOR OPTIMUM RESULTS.
SRIOP SWITCH SHOWN IN CCW POSITION NO.1
POSITION NO.1-OFF
POSITION NO.2-ON
POSITION NO.3-DIM PANEL
SRIOQ SWITCH SHOWN IN CCW POSITION NO.1
POSITION NO.1-MUTING OFF
POSITION NO.2-MUTING ON
SRIOD SWITCH SHOWN IN CCW POSITION NO.1
POSITION NO.1-TUNING
POSITION NO.2-LEFT/RIGHT OUTPUT
POSITION NO.3-LEFT/RIGHT EXTERNAL
SRIOP-2 CCW POS. OPEN OTHER POSITIONS CLOSED
SRIOP POWER SWITCH
SRIOP-1R
SRIOP-1F
STEREO INDICATOR
STEREO THRESHOLD
MUTING SWITCH
SELECTED (0-120*)
TO SRIOM
LIMITER MUTING
AM DISPLAY
FM DISPLAY
INTENSITY RPC10 100K
FOCUS RPC11 250K
V22 DG7-32/01
TA6 (38 KC OSC)
LO B+ +140
HI B+ +295
6.3 V AC MAIN FIL.
117 V AC
OSC +135
TUNER +140
DISC +130
MX +285
NEG -270