ORDER NO. AD8807203C2

Service Manual

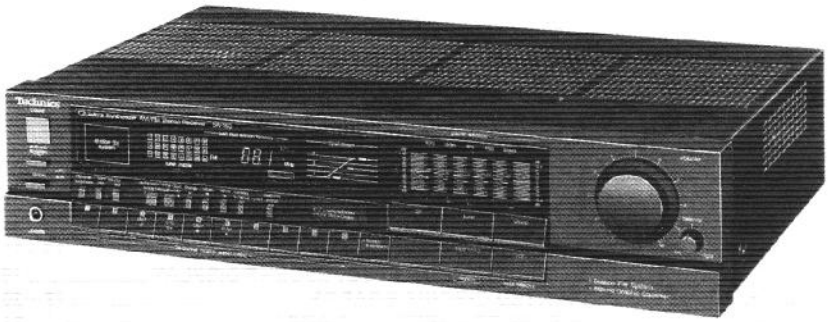
Receiver

QUARTZ Synthesizer AM/FM Stereo Receiver

SA-160

Color

(K)...Black Type



Area

Color	Area
(K)	(EX).....Continental Europe.
(K)	(EH).....Holland.
(K)	(XL).....Australia.
(K)	(EG).....F.R. Germany.

SPECIFICATIONS

(DIN 45 500)

■ AMPLIFIER SECTION

DIN power output 1 kHz continuous power output both channels driven	2 × 40 W (8Ω)
Total harmonic distortion half power at 1 kHz	0.07% (8Ω)
Intermodulation distortion rated power at 60 Hz: 7 kHz = 4: 1, SMPTE, 8Ω	0.5%
Power bandwidth both channels driven, −3 dB	10 Hz~40 kHz (8Ω)
Damping factor	20 (8Ω)
Input sensitivity and impedance	
PHONO	3 mV/47 kΩ
CD, VCR 1, TAPE/VCR 2	200 mV/22 kΩ
PHONO maximum input voltage (1 kHz, RMS)	150 mV
S/N	
rated power (8Ω)	
PHONO	68 dB (IHF, A: 71 dB)
CD, VCR 1, TAPE/VCR 2	70 dB (IHF, A: 85 dB)
Frequency response	
PHONO	RIAA standard curve ±0.8 dB (30 Hz~15 kHz)
CD, VCR 1, TAPE/VCR 2	10 Hz~70 kHz (±3 dB)
5 band graphic equalizer	80 Hz, −10 dB~+10 dB
	250 Hz, −10 dB~+10 dB
	1 kHz, −10 dB~+10 dB
	4 kHz, −10 dB~+10 dB
	12.5 kHz, −10 dB~+10 dB
Loudness control (volume at −30 dB)	50 Hz, +9 dB
Output voltage	
VCR 1, TAPE/VCR 2 REC OUT	200 mV
Channel balance, 250 Hz~6,300 Hz	±1 dB
Channel separation	55 dB
Headphones output level and impedance	380 mV/330Ω
Load impedance	
MAIN or REMOTE	4Ω~16Ω
MAIN and REMOTE	8Ω~16Ω

■ FM TUNER SECTION

Frequency range	87.50~108.00 MHz
Sensitivity	
S/N 30 dB	1.5μV (75Ω)
S/N 26 dB	1.3μV (75Ω)
S/N 20 dB	1.2μV (75Ω)
IHF usable sensitivity	1.5μV (IHF '58, 75Ω)
IHF 46 dB stereo quieting sensitivity	22μV/75Ω
Total harmonic distortion	
MONO	0.2%
STEREO	0.3%
S/N	
MONO	60 dB (75 dB, IHF)
STEREO	58 dB (71 dB, IHF)
Frequency response	20 Hz~15 kHz, +1 dB~−2 dB
Afternate channel selectivity	±400 kHz, 65 dB
Capture ratio	1.0 dB
Image rejection at 98 MHz	40 dB
IF rejection at 98 MHz	70 dB
Spurious response rejection at 98 MHz	70 dB
AM suppression	50 dB
Stereo separation	
1 kHz	40 dB
10 kHz	30 dB
Carrier leak	
19 kHz	−30 dB (−35 dB, IHF)
38 kHz	−45 dB (−50 dB, IHF)
Channel balance (250 Hz~6,300 Hz)	±1.5 dB
Limiting point	1.2μV
Bandwidth	
IF amplifier	180 kHz
FM demodulator	1000 kHz
Antenna terminals	75Ω (unbalanced)

Technics

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

■ SCHEMATIC DIAGRAM

(This schematic diagram may be modified at any time with the development of new technology)

Note 1:

- **S1～S10** : Preset tuning switches. [S1: 1, S2: 2, S3: 3, S4: 4, S5: 5, S6: 6, S7: 7, S8: 8, S9: 9, S10: 0]
- **S11** : Memory-scan/group-search switch.
- **S12** : FM mode select switch. (AUTO↔MONO)
- **S13, S14** : Band selectors. S13: FM, S14: AM
- **S16, S17** : Character-input/tuning switches. S16: down, S17: up
- **S18** : Change-mode selector.
- **S19** : Assort-mode selector.
- **S20** : Group select switch.
- **S21** : Memory switch.
- **S22** : Loudness switch.
- **S23～S27** : Input selector switches. [S23: phono, S24: tuner, S25: CD, S26: VCR1, S27: tape/VCR2]
- **S601-1, S601-2** : Speaker selectors. S601-1: main, S601-2: remote
- **S701** : Power switch in "**on**" position.
- Signal line
  - : B.P.F. signal
  - : FM OSC
  - : AM OSC
  - : Phono signal
  - : FM signal
  - : AM signal
  - : AF signal (Lch)
  - : Positive voltage lines
  - : Negative voltage lines
- Important safety notice: Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts. Indicated voltage values are standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on internal impedance of the DC circuit tester.
- All voltage values shown in circuitry are DC voltage in FM signal (Stereo signal) reception mode.

* Figures in ( ) Stand for DC-voltage in AM signal reception mode

* **Caution**!
IC and LSI are sensitive to static electricity.
Secondary trouble can be prevented by taking care during repair.
* Cover the parts boxes made of plastics with alminum foil.
* Ground the soldering iron.
* Put a conductive mat on the work table.
* Do not touch the legs of IC or LSI with the fingers directly.

Note2:

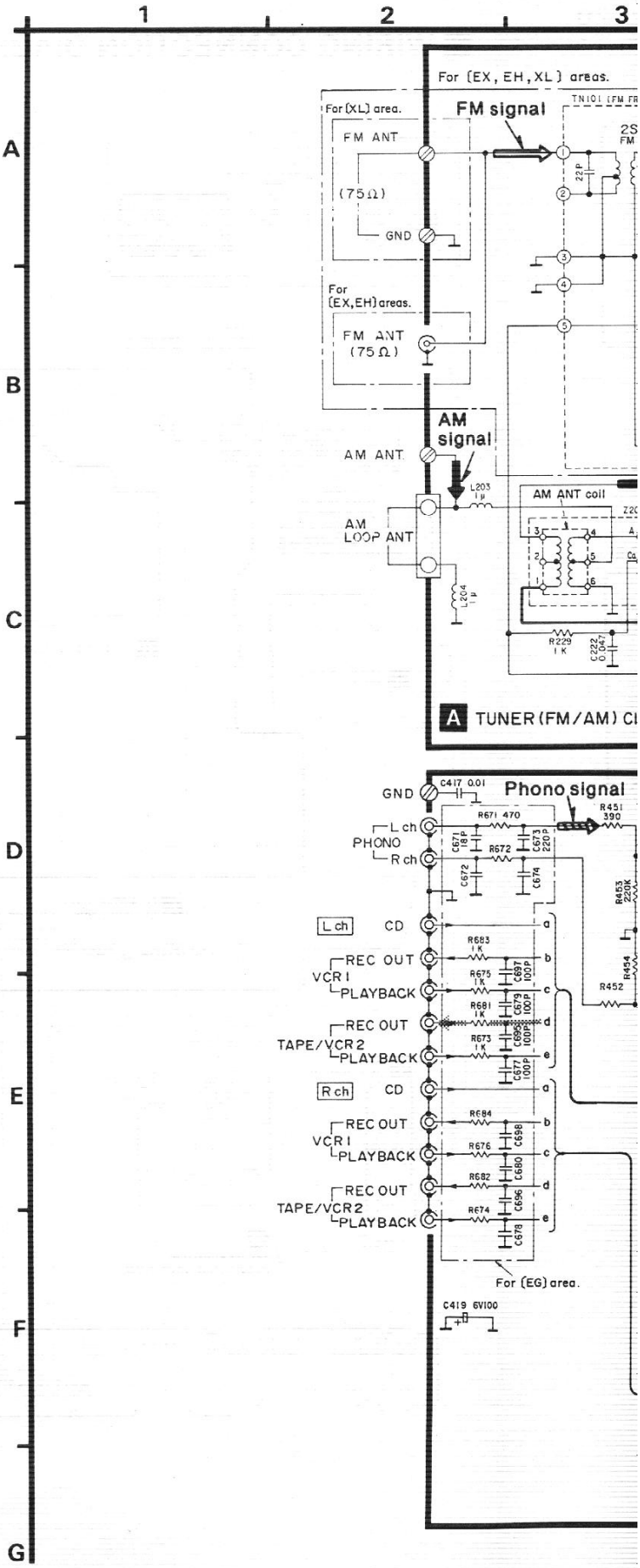
- **Use of ceramic filters in pairs**

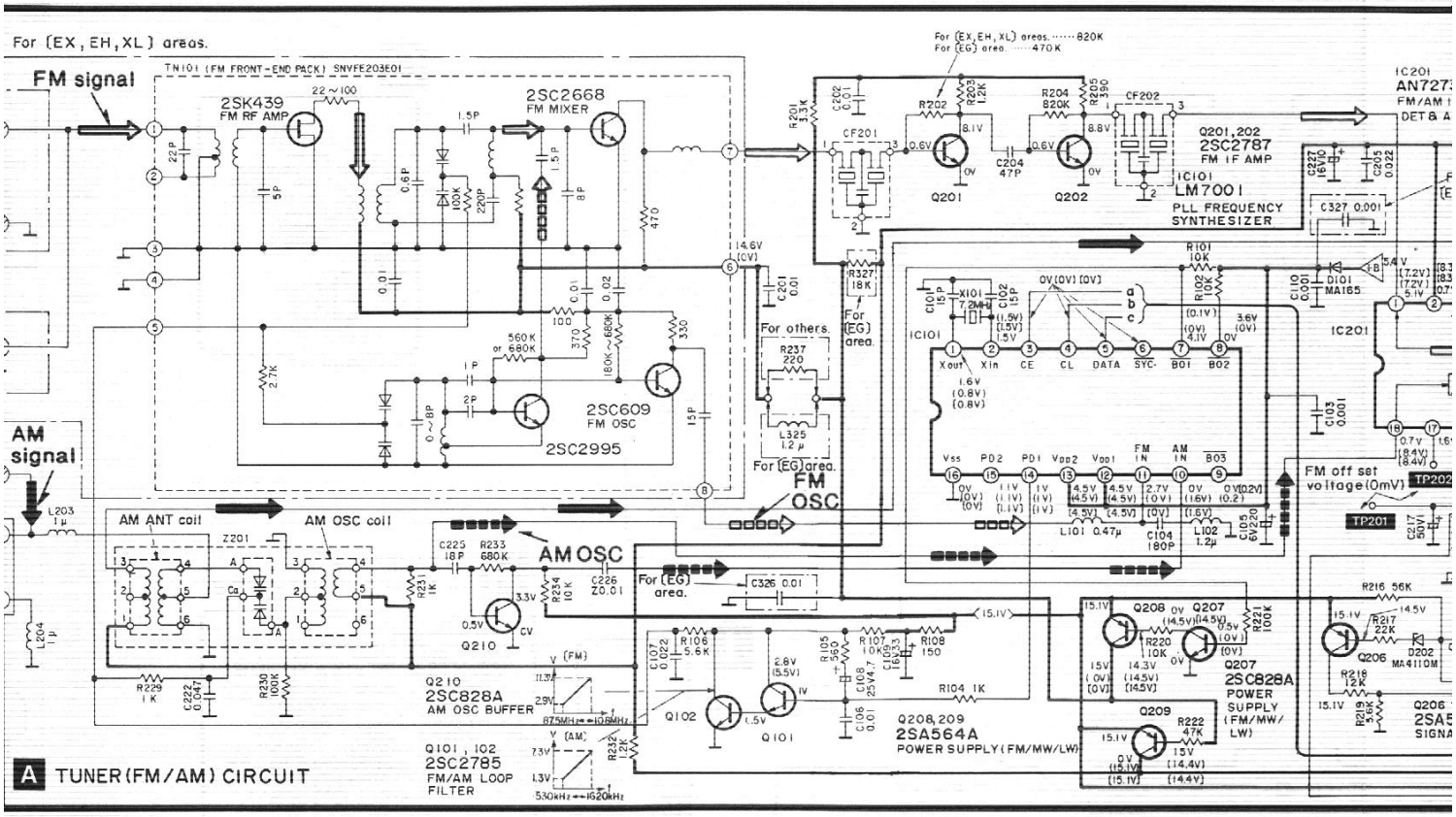
The ceramic filters (CF201, CF202) for FM-IF circuit are available in three ranks. For this circuit, be sure to use the ceramics of the same rank in a pair.
At repairing and replacement, pay close attention to the diodes (D914, D915) for use as different diodes must be used depending on each rank of the ceramic filters.

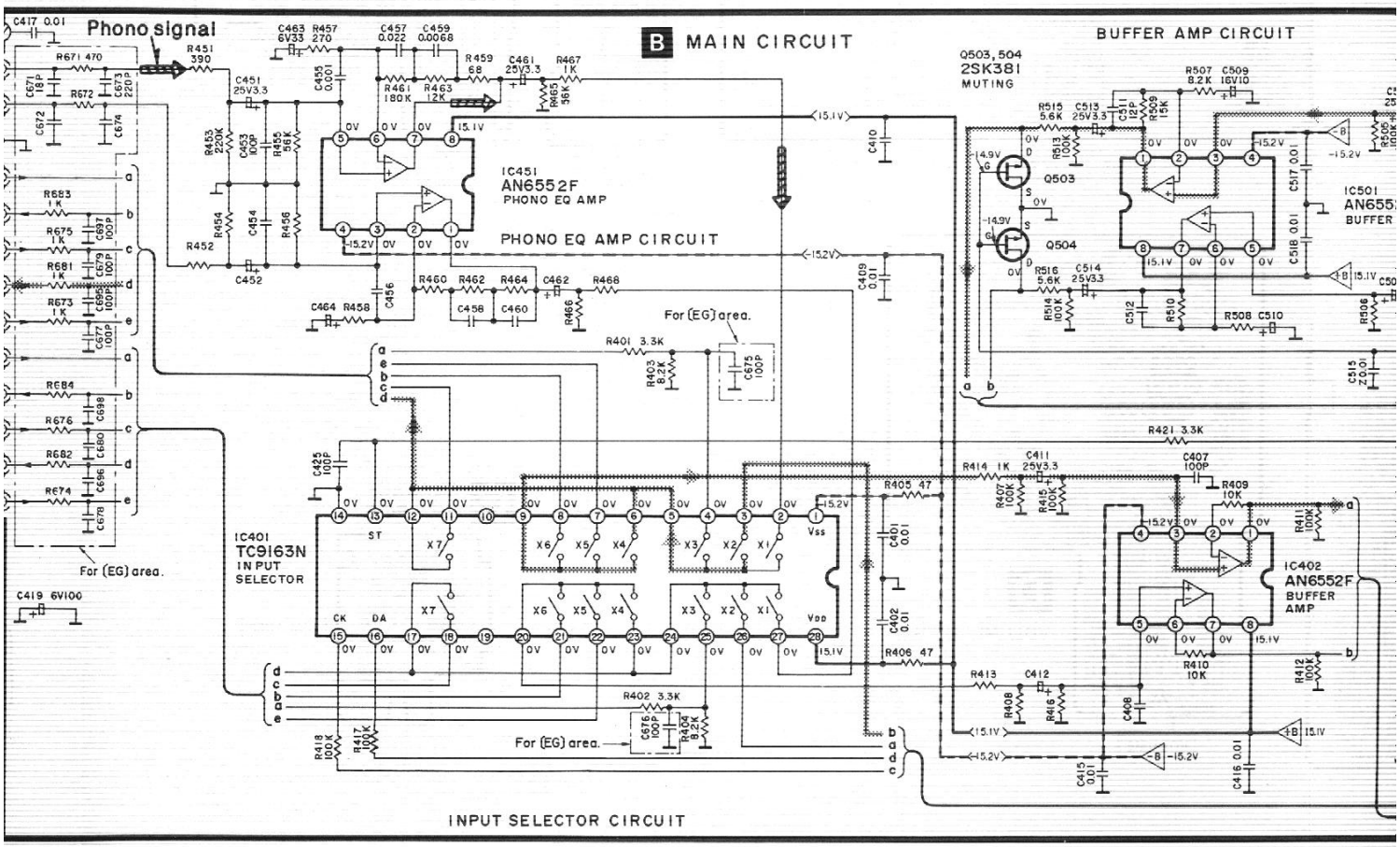
Color marking (Red, Black or White)

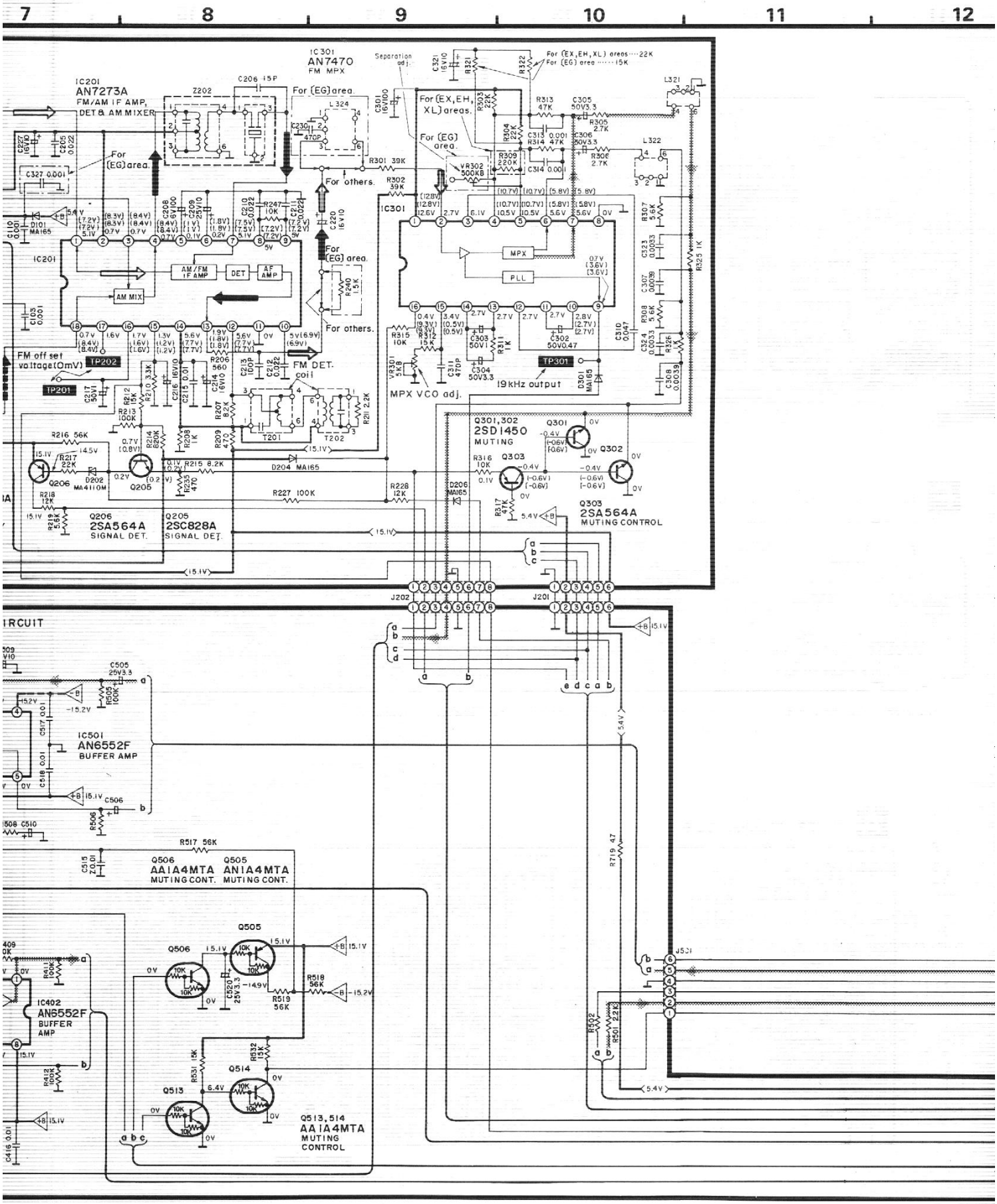
RANK (Color)	D914	D915	CENTER FREQUENCY
Black	○	×	10.65MHz
Red	×	×	10.70MHz
White	×	○	10.75MHz

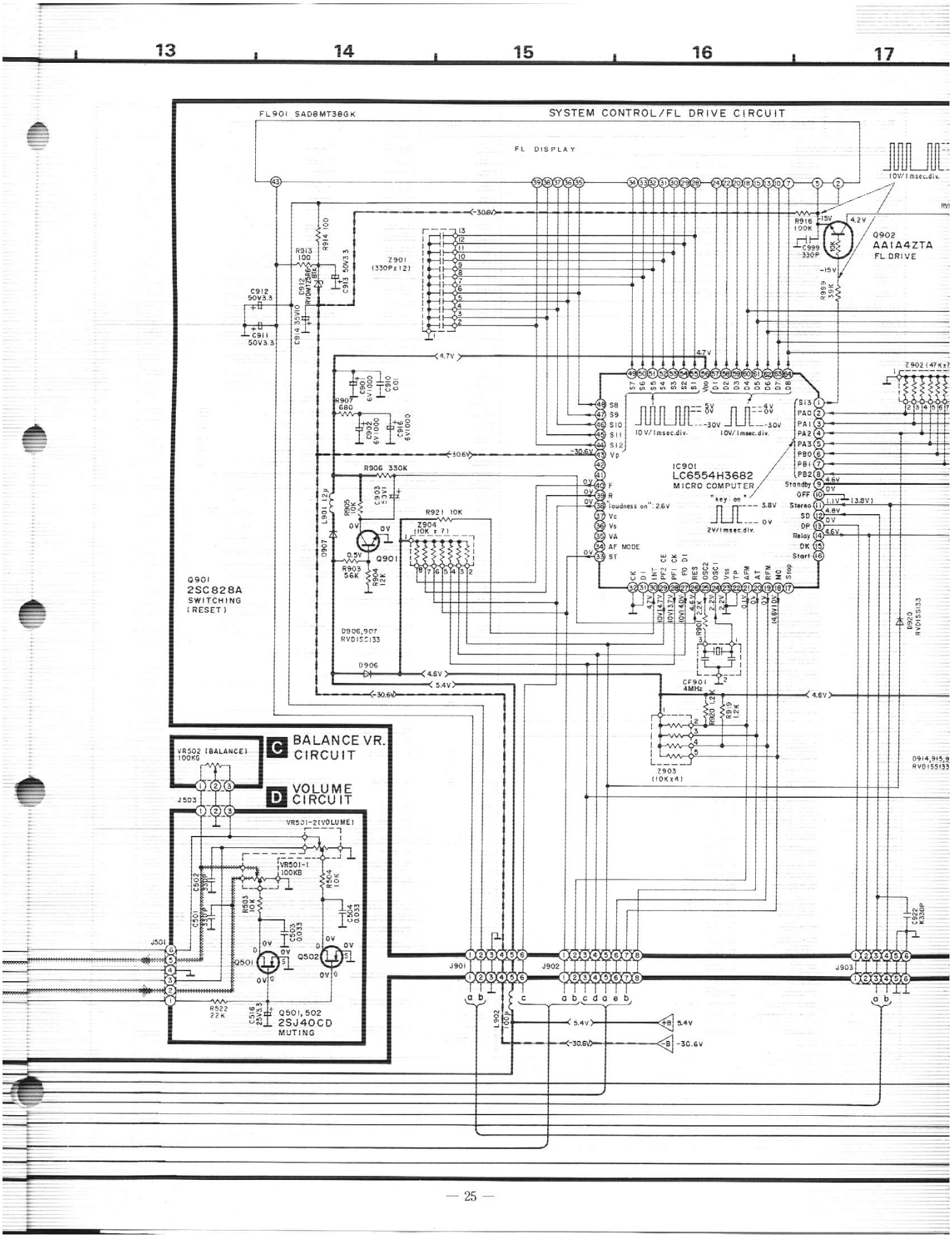
Note: ○ mark: Diode is used.
× mark: Diode is not used.

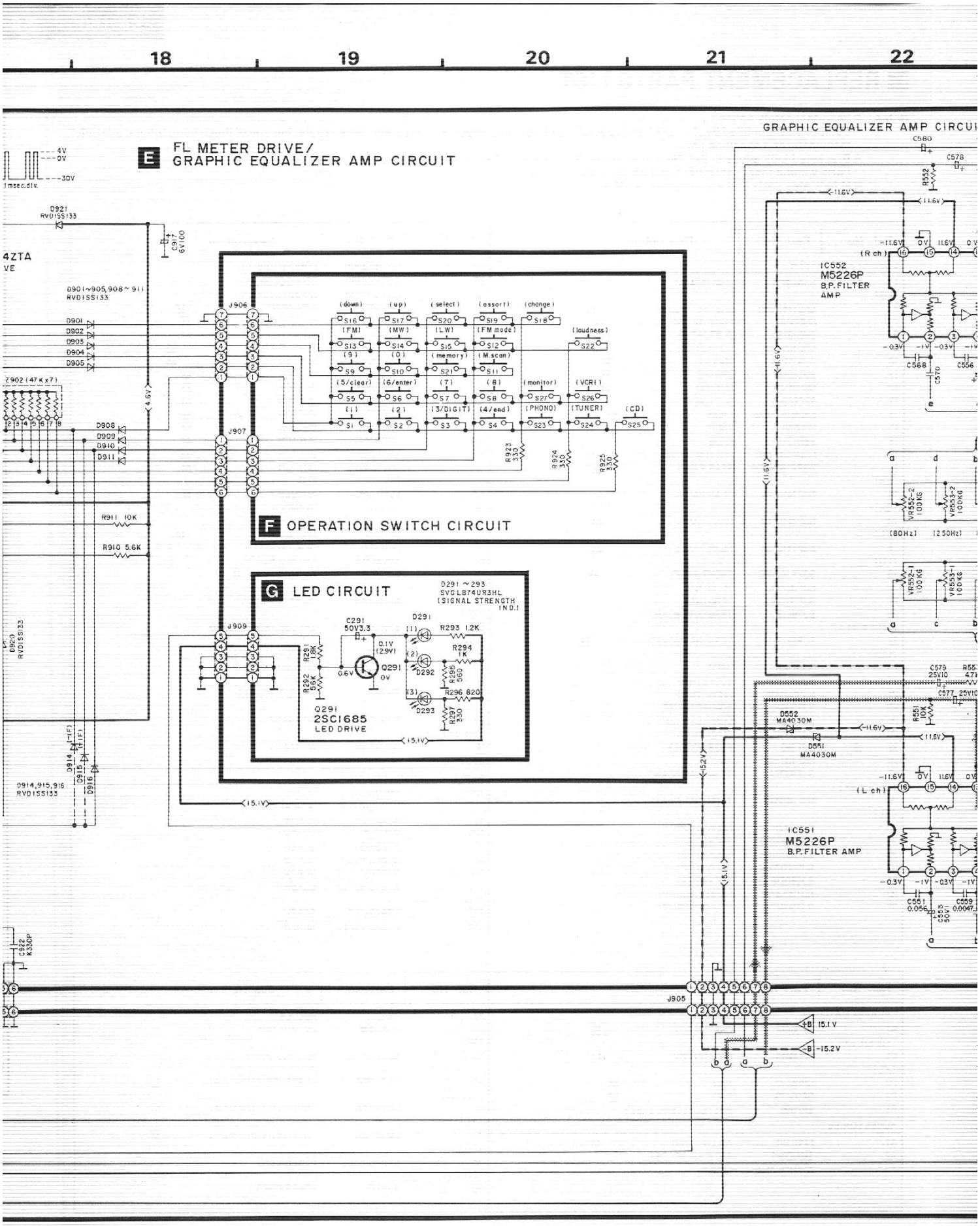


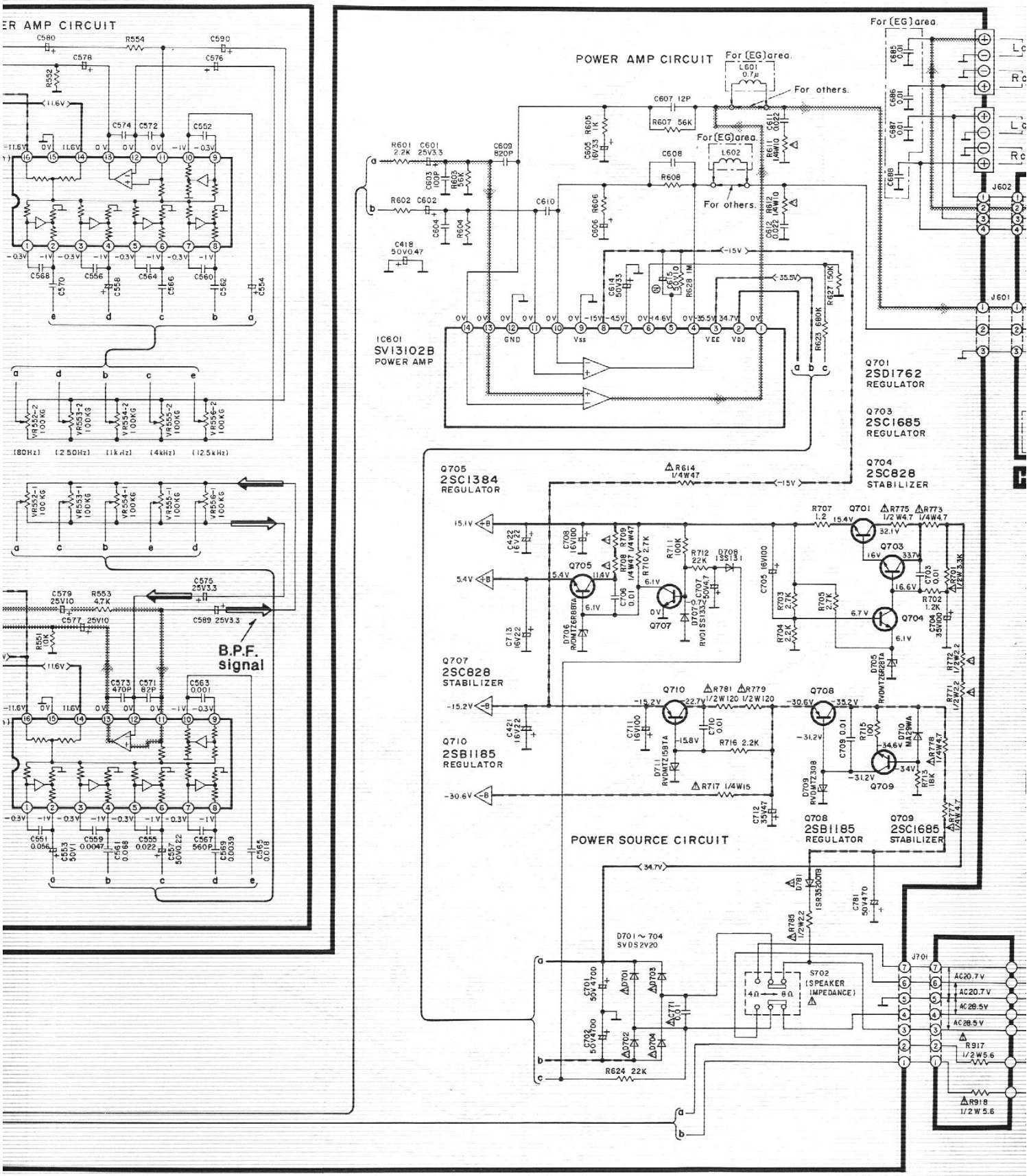


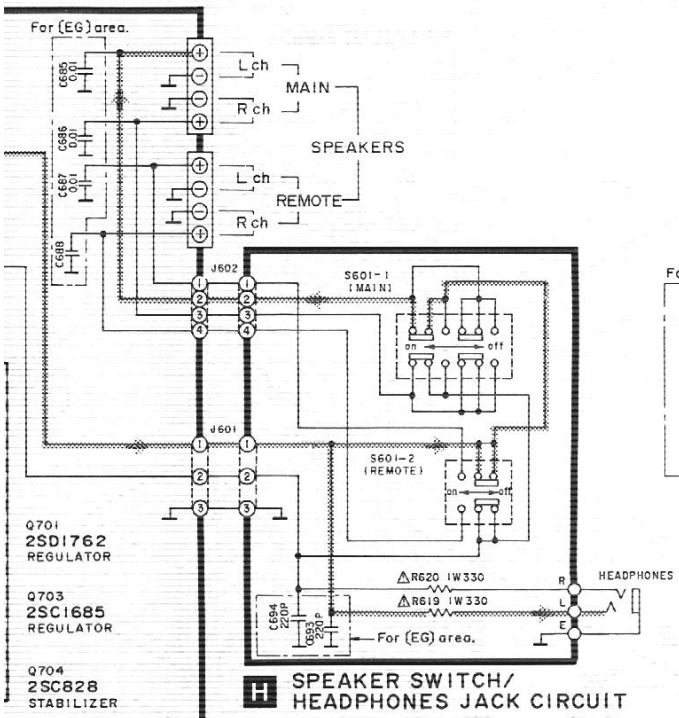




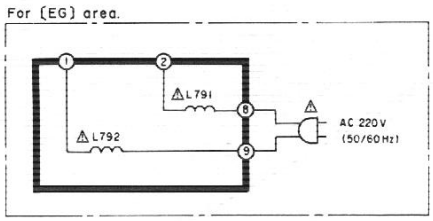


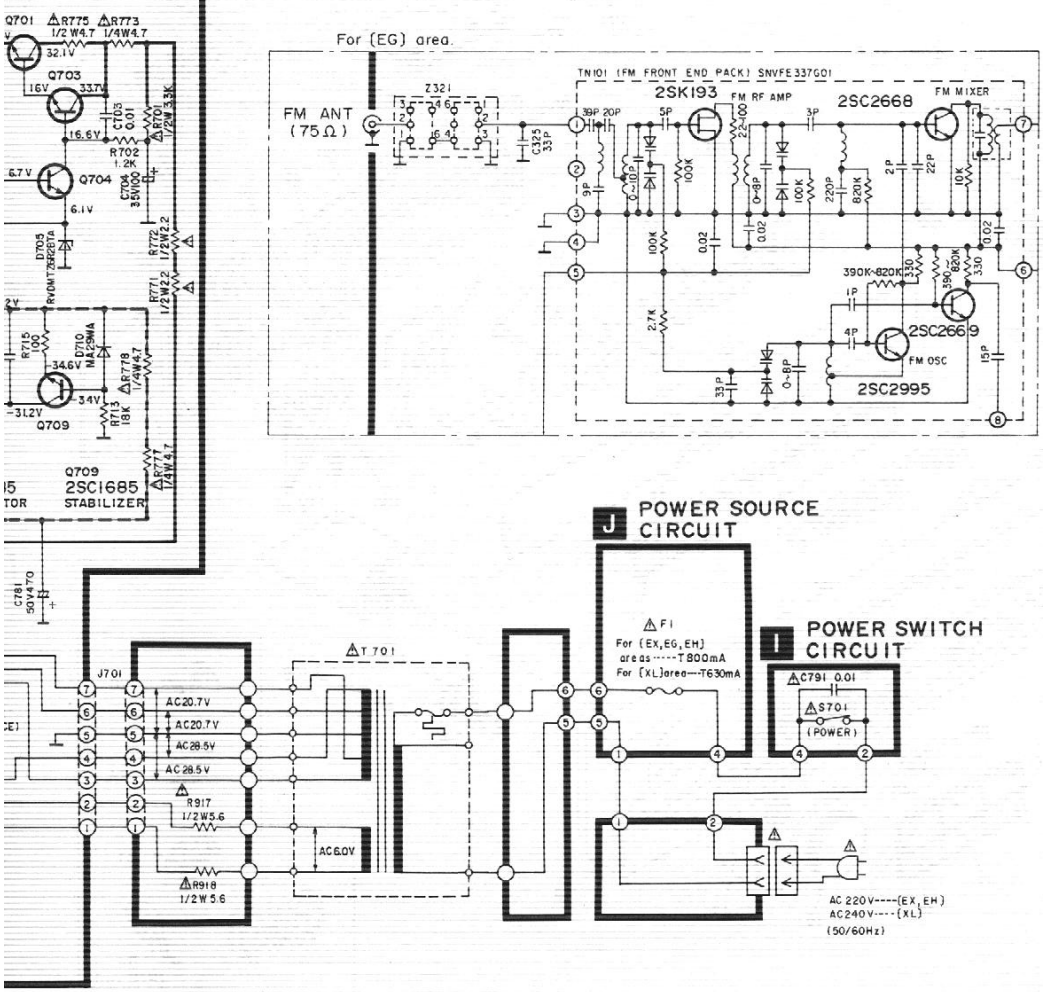






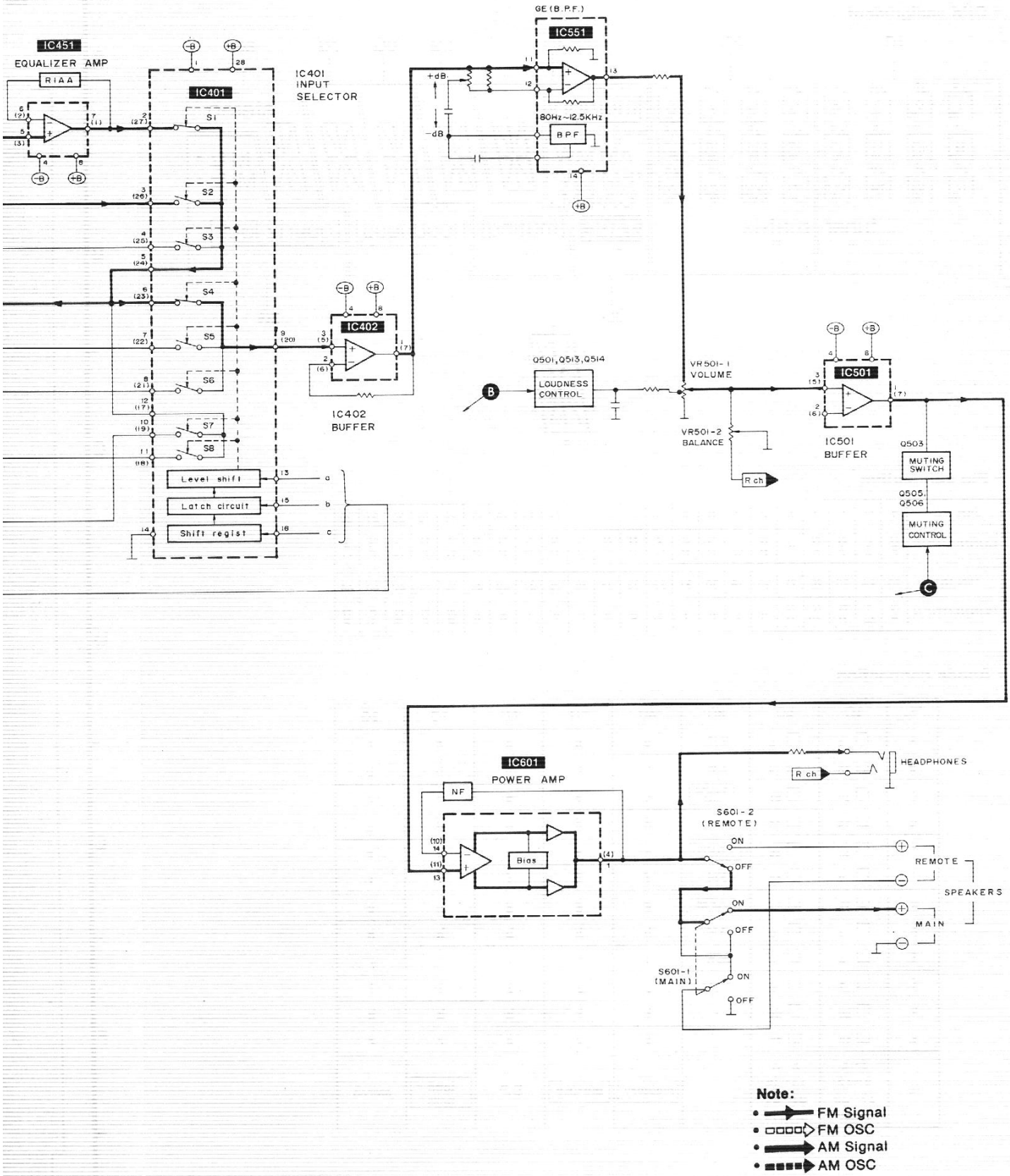
H SPEAKER SWITCH/ HEADPHONES JACK CIRCUIT

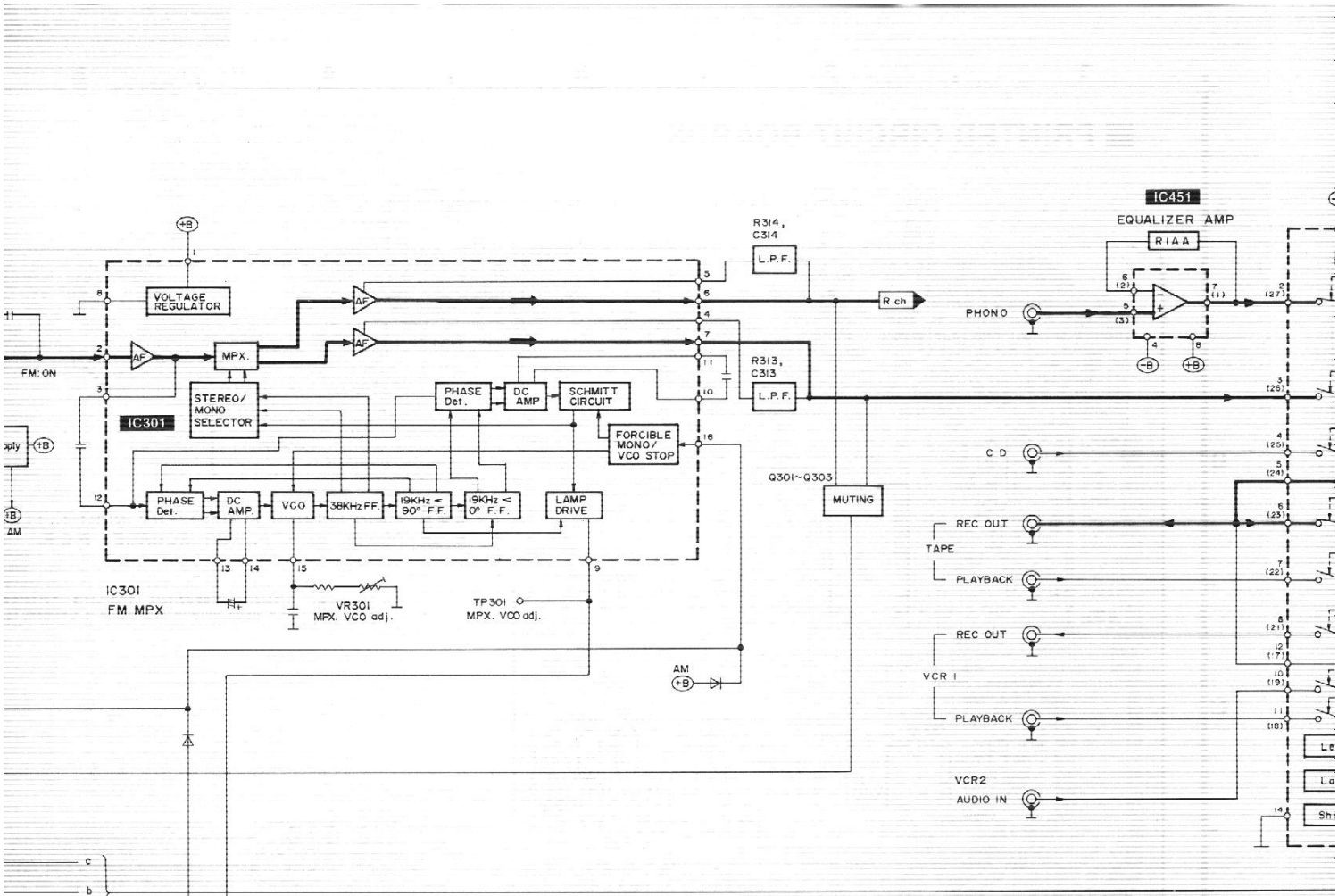


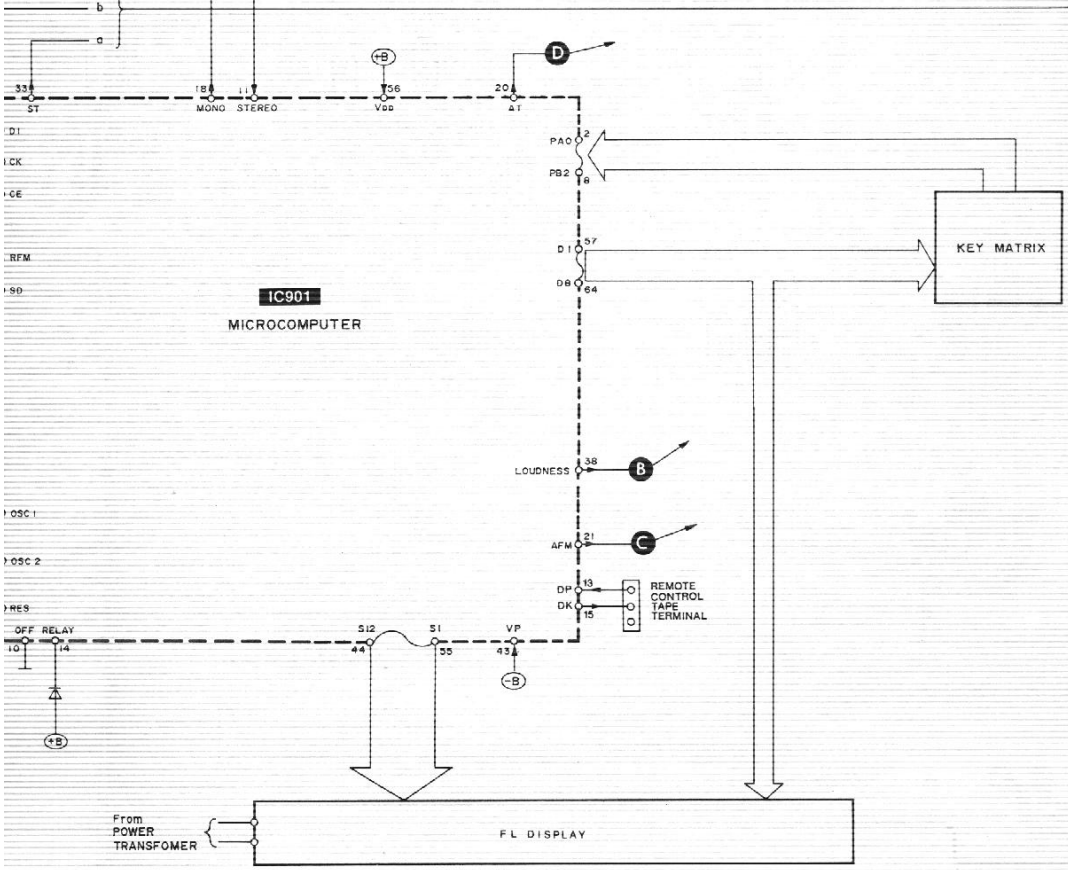


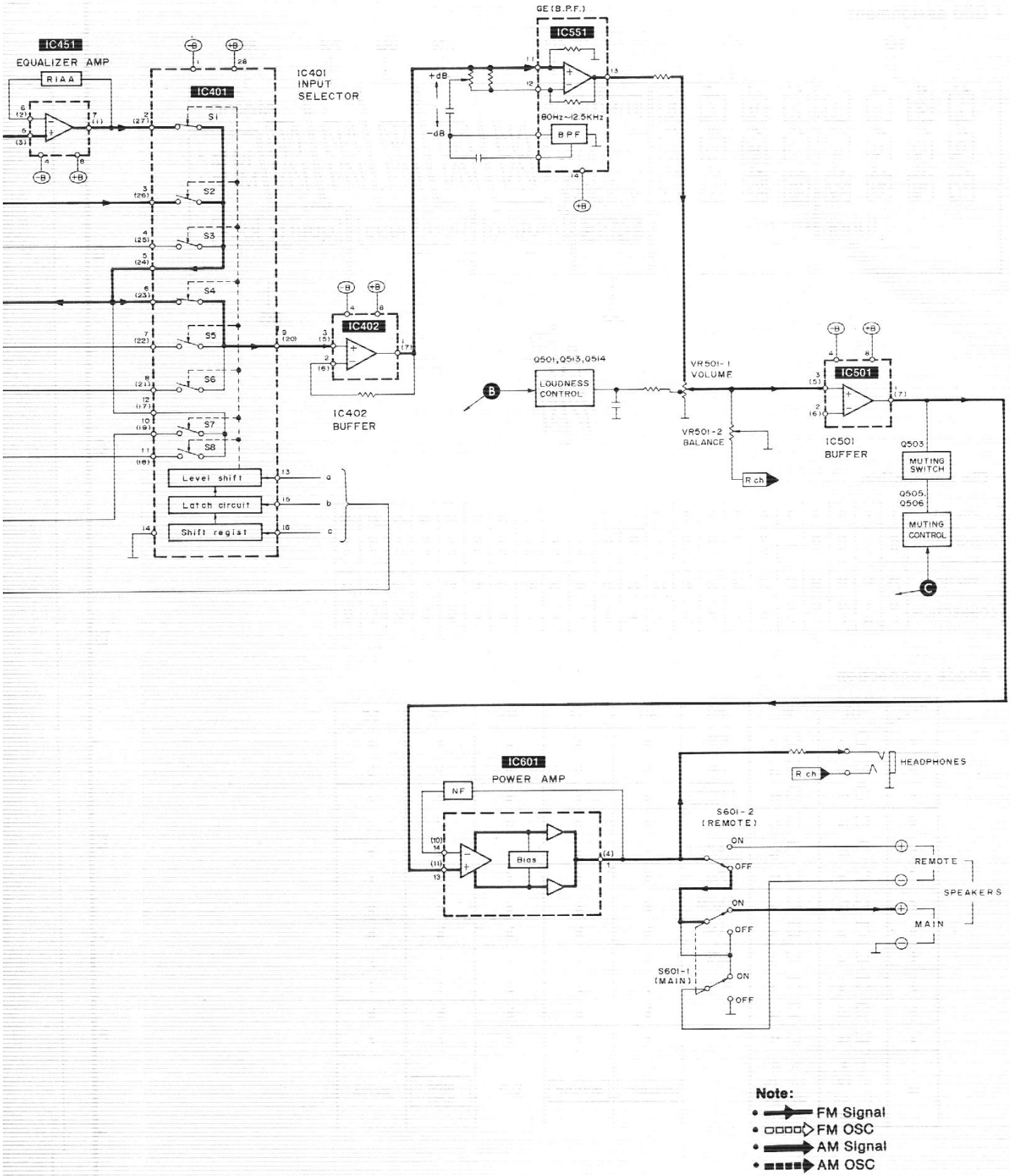
J POWER SOURCE CIRCUIT

I POWER SWITCH CIRCUIT









Note:

- FM Signal
- FM OSC
- AM Signal
- AM OSC