

Service Manual

Receiver

SA-150

QUARTZ Synthesizer
 FM/AM Stereo Receiver

Tentative

ARE
 86952

Color
 (S) ... Silver Type
 (K) ... Black Type



| Color | Area |
|---------|--|
| (S) (K) | [EX] ... Scandinavia and Switzerland |
| (S) (K) | [EH] ... Holland |
| (S) | [XA] ... Southeast Asia, Oceania, Africa, Middle Near East and Central South America |
| (S) (K) | [XL] ... Australia |
| (S) | [XM] ... Latin America |
| (S) | [Ei] ... Italy |

Please use this manual together with the service manual for Model No. SA-150[M], Order No. HAD84022715C1.

English

SPECIFICATIONS (DIN 45 500)

■ AMPLIFIER SECTION

1 kHz continuous power output
 both channels driven 2 × 27W (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 30 (8Ω)

Input sensitivity and impedance

PHONO 2.5 mV/47kΩ
 CD/VIDEO/AUX, TAPE/EXT 150 mV/18kΩ

PHONO maximum input voltage (1 kHz, RMS) 150 mV

S/N

rated power (8Ω)
 PHONO 70 dB (IHF, A: 71 dB)
 CD/VIDEO/AUX, TAPE/EXT 88 dB (IHF, A: 95 dB)

Frequency response

PHONO RIAA standard curve
 ±0.8 dB (30 Hz~15 kHz)

CD/VIDEO/AUX, TAPE/EXT 5 Hz~70 kHz (-3 dB)

Tone controls

BASS 50 Hz, +10 dB~ -10 dB
 TREBLE 20 kHz, +10 dB~ -10 dB

Loudness control (volume at -30 dB) 50 Hz, +9 dB

Output voltage

TAPE/EXT (REC OUT) 150 mV

Channel balance, CD/VIDEO/AUX 250 Hz~6,300 Hz ±1 dB
 Channel separation, CD/VIDEO/AUX 1 kHz 55 dB
 Headphones output level and impedance 380 mV/330Ω
 Load impedance 8Ω~16Ω

■ FM TUNER SECTION

Frequency range 87.50~108.00 MHz

Sensitivity

S/N 30 dB 1.9 μV (300Ω), 1.3 μV (75Ω)
 S/N 26 dB 1.7 μV (300Ω), 1.2 μV (75Ω)
 S/N 20 dB 1.5 μV (300Ω), 0.9 μV (75Ω)

IHF usable sensitivity 1.9 μV (IHF '58)

IHF 46 dB stereo quieting sensitivity 22 μV/75Ω

Total harmonic distortion

MONO 0.15%
 STEREO 0.3%

S/N

MONO 60 dB (77 dB, IHF)
 STEREO 58 dB (71 dB, IHF)

Frequency response 20 Hz~15 kHz, +1 dB~-2 dB

Alternate channel selectivity ±400 kHz, 65 dB

Capture ratio 1 dB

Image rejection at 98 MHz 50 dB

IF rejection at 98 MHz 75 dB

Spurious response rejection at 98 MHz 82 dB

AM suppression 50 dB

Stereo separation

1 kHz 40 dB
 10 kHz 30 dB

Carrier leak

19 kHz -33 dB (-35 dB, IHF)
 38 kHz -50 dB (-50 dB, IHF)

Channel balance (250 Hz~6,300 Hz) ±1.5 dB

Limiting point 1.2 μV

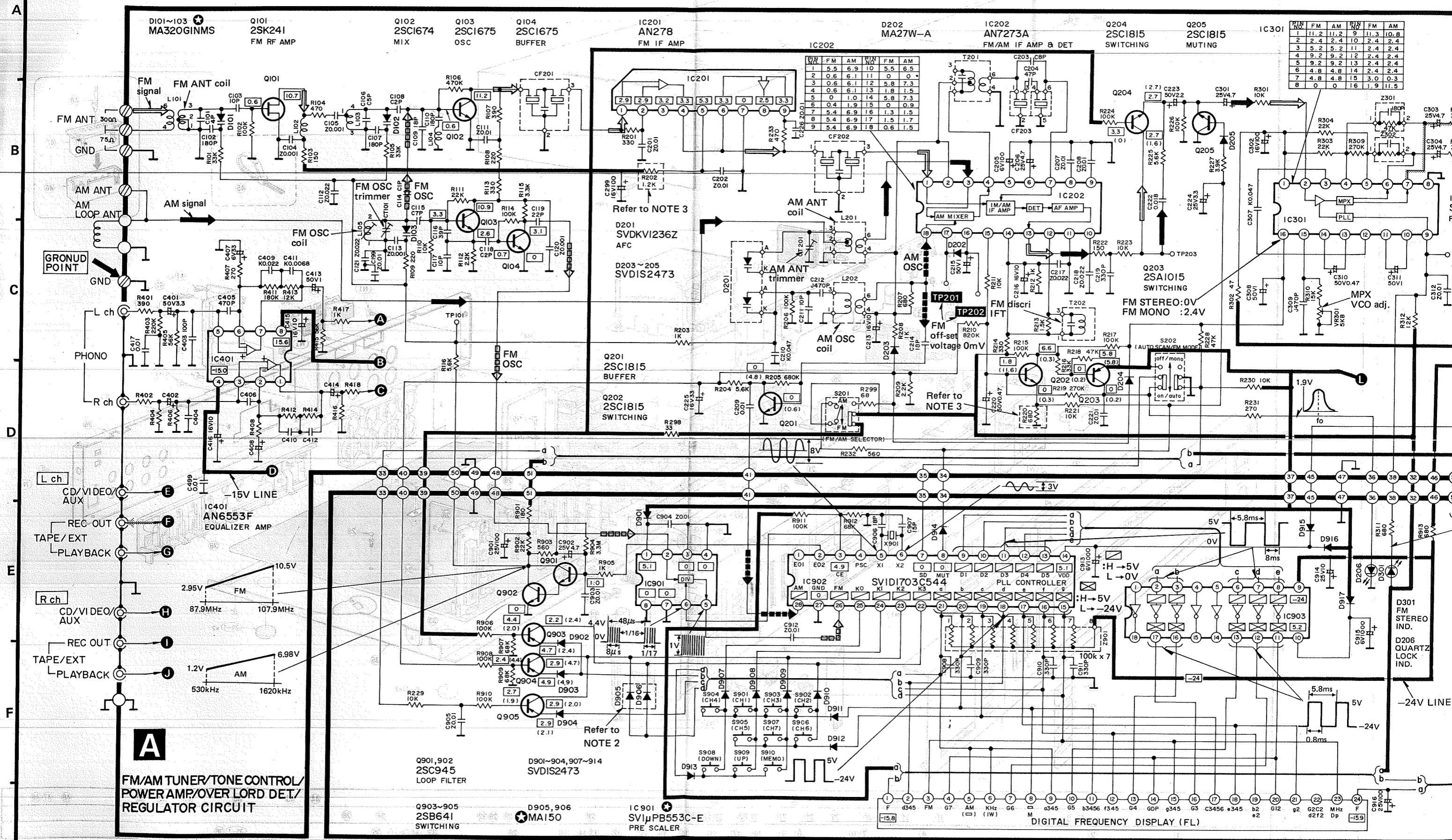
Bandwidth

IF amplifier 180 kHz
 FM demodulator 1000 kHz

Antenna terminals 300Ω (balanced)
 75Ω (unbalanced)

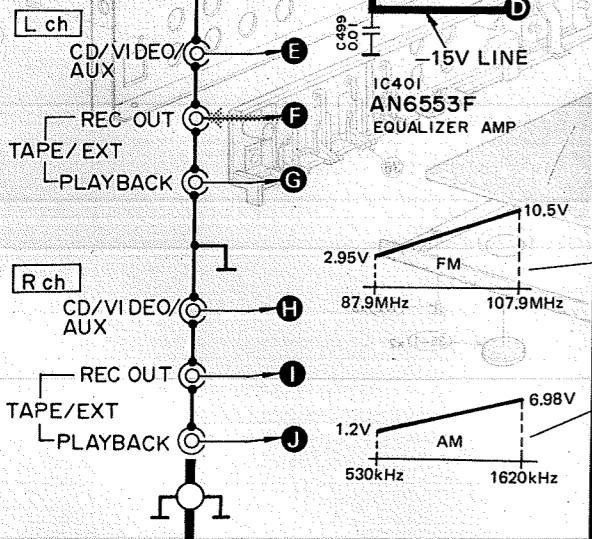
Technics

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



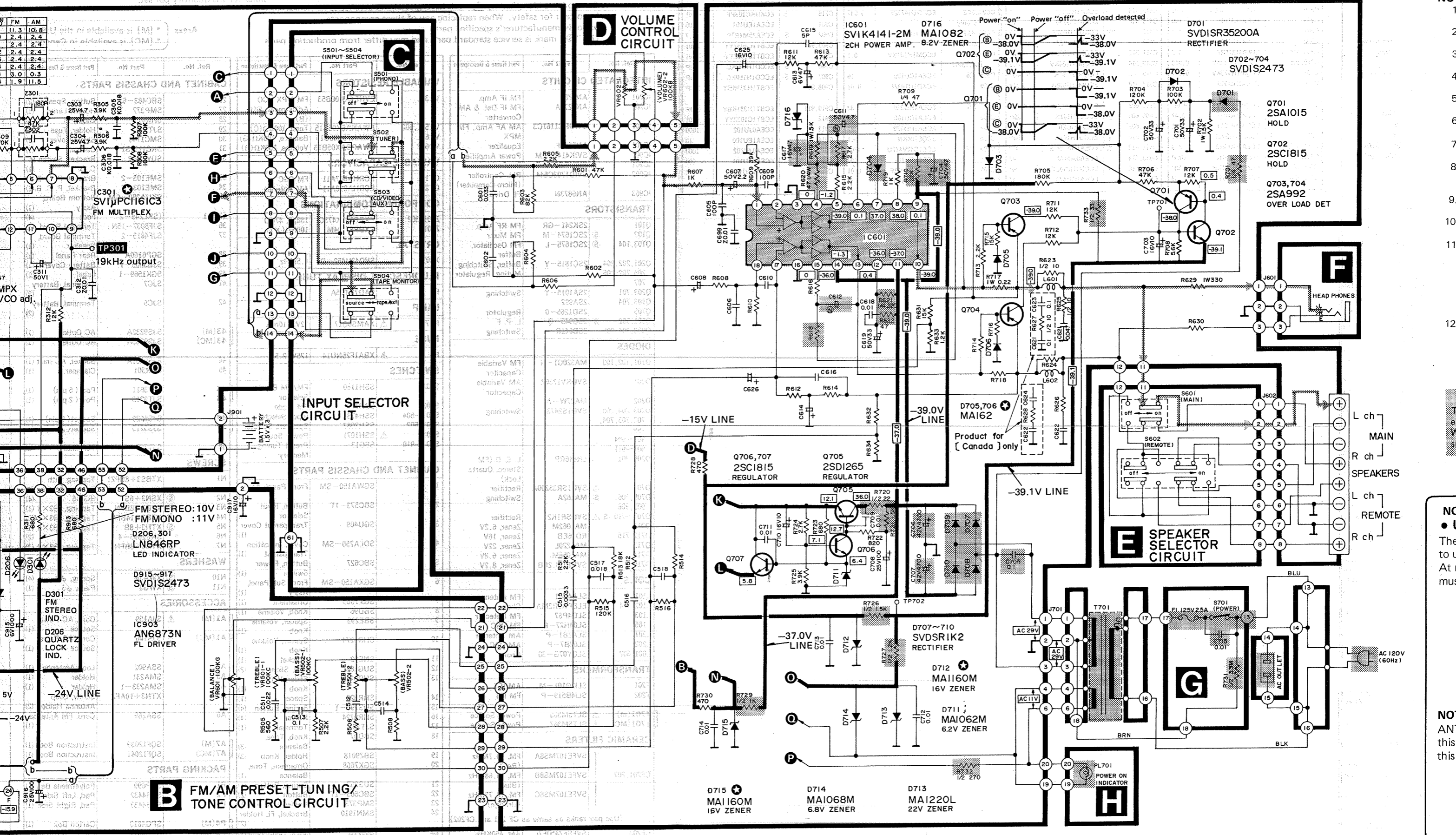
| | FM | AM | FM | FM | AM |
|---|------|------|----|------|------|
| 1 | 11.2 | 11.2 | 9 | 11.3 | 10.8 |
| 2 | 2.4 | 2.4 | 10 | 2.4 | 2.4 |
| 3 | 5.2 | 5.2 | 11 | 2.4 | 2.4 |
| 4 | 9.2 | 9.2 | 12 | 2.4 | 2.4 |
| 5 | 9.2 | 9.2 | 13 | 2.4 | 2.4 |
| 6 | 4.8 | 4.8 | 14 | 2.4 | 2.4 |
| 7 | 4.8 | 4.8 | 15 | 3.0 | 0.3 |
| 8 | 0 | 0 | 16 | 1.9 | 11.5 |

A
 FM/AM TUNER/TONE CONTROL/
 POWER AMP/OVER LORD DET./
 REGULATOR CIRCUIT



REPLACEMENT PARTS LIST

Series connection method is employed for the main and remote speaker connections of this set. Therefore, if both speaker changeover switches (main and remote) are turned "on" with the speaker unit connected only to main or remote speaker terminal, then no output signal will be delivered from the speaker unit.



| Q | FM | AM |
|----|-----|------|
| 1 | 1.3 | 10.8 |
| 2 | 2.4 | 2.4 |
| 3 | 2.4 | 2.4 |
| 4 | 2.4 | 2.4 |
| 5 | 2.4 | 2.4 |
| 6 | 2.4 | 2.4 |
| 7 | 2.4 | 2.4 |
| 8 | 2.4 | 2.4 |
| 9 | 2.4 | 2.4 |
| 10 | 2.4 | 2.4 |
| 11 | 2.4 | 2.4 |
| 12 | 2.4 | 2.4 |
| 13 | 2.4 | 2.4 |
| 14 | 2.4 | 2.4 |
| 15 | 2.4 | 2.4 |
| 16 | 2.4 | 2.4 |
| 17 | 2.4 | 2.4 |
| 18 | 2.4 | 2.4 |
| 19 | 2.4 | 2.4 |
| 20 | 2.4 | 2.4 |
| 21 | 2.4 | 2.4 |
| 22 | 2.4 | 2.4 |
| 23 | 2.4 | 2.4 |
| 24 | 2.4 | 2.4 |
| 25 | 2.4 | 2.4 |
| 26 | 2.4 | 2.4 |
| 27 | 2.4 | 2.4 |
| 28 | 2.4 | 2.4 |
| 29 | 2.4 | 2.4 |
| 30 | 2.4 | 2.4 |

(This s...
 • The ing wh...
 NOTE
 1.
 2.
 3.
 4.
 5.
 6.
 7.
 8.
 9.
 10.
 11.
 12.
 The elec Whi sha...
 NOT
 • Us...
 The c...
 to use...
 At re...
 must l...
 NOTE
 AN72...
 this ur...
 this po...

Service Manual

Receiver

SA-150

QUARTZ Synthesizer
 FM/AM Stereo Receiver

Tentative

ARE
 86952

| | |
|-------------|-------------|
| Color | |
| (S) | Silver Type |
| (K) | Black Type |



| Color | Area |
|---------|--|
| (S) (K) | [EX] . . . Scandinavia and Switzerland |
| (S) (K) | [EH] . . . Holland |
| (S) | [XA] . . . Southeast Asia, Oceania, Africa, Middle Near East and Central South America |
| (S) (K) | [XL] . . . Australia |
| (S) | [XM] . . . Latin America |
| (S) | [Ei] Italy |

Please use this manual together with the service manual for Model No. SA-150[M], Order No. HAD84022715C1.

English

SPECIFICATIONS (DIN 45 500)

■ AMPLIFIER SECTION

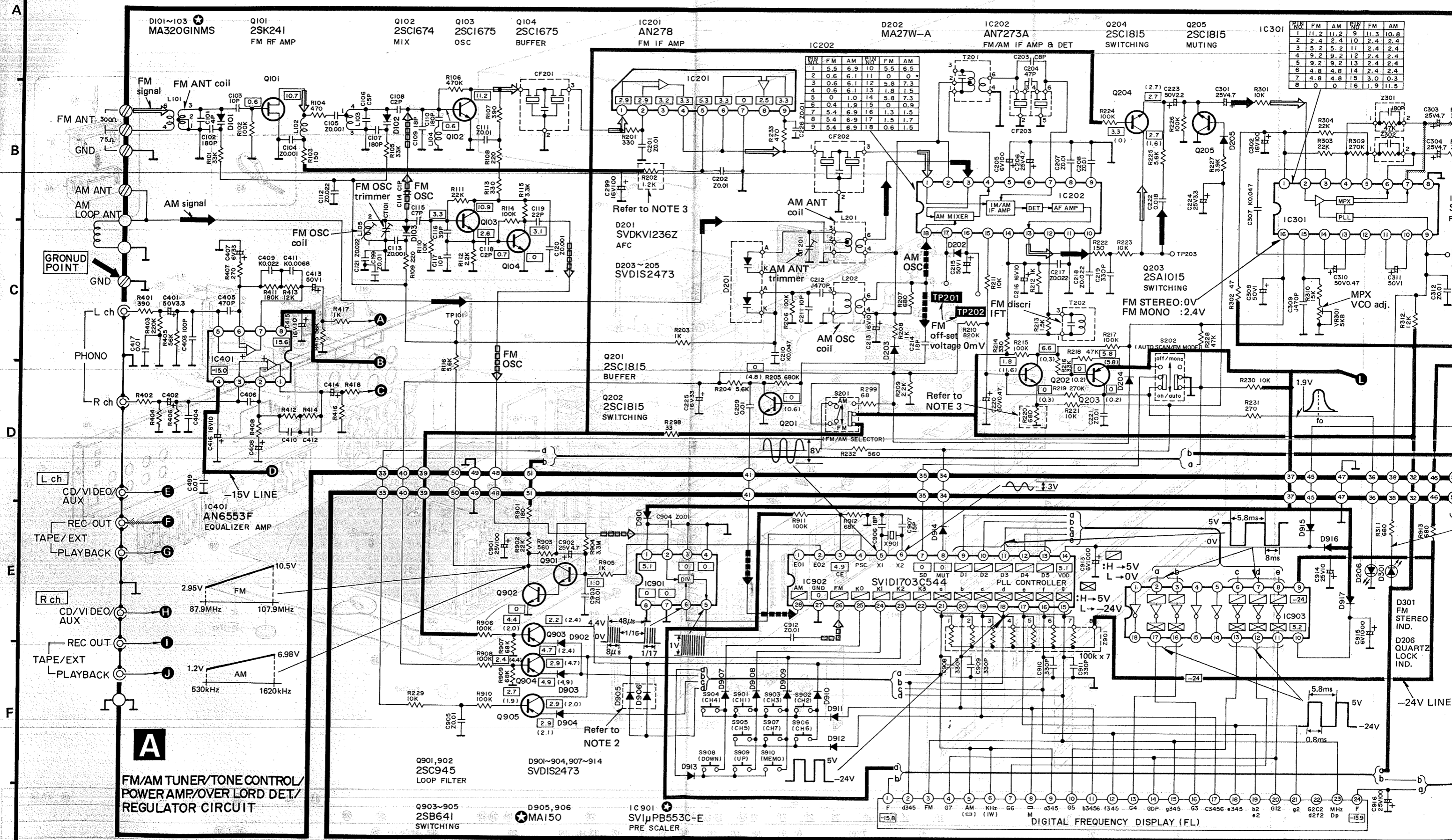
| | |
|---|---|
| 1 kHz continuous power output | |
| both channels driven | 2 × 27W (8Ω) |
| Total harmonic distortion | |
| half power at 1 kHz | 0.07% (8Ω) |
| Intermodulation distortion | |
| rated power at 60 Hz: 7 kHz=4:1, SMPTE, 8Ω | 0.5% |
| Power bandwidth | |
| both channels driven, -3 dB | 10 Hz~40 kHz (8Ω) |
| Damping factor | 30 (8Ω) |
| Input sensitivity and impedance | |
| PHONO | 2.5 mV/47kΩ |
| CD/VIDEO/AUX, TAPE/EXT | 150 mV/18kΩ |
| PHONO maximum input voltage (1 kHz, RMS) | 150 mV |
| S/N | |
| rated power (8Ω) | |
| PHONO | 70 dB (IHF, A: 71 dB) |
| CD/VIDEO/AUX, TAPE/EXT | 88 dB (IHF, A: 95 dB) |
| Frequency response | |
| PHONO | RIAA standard curve ±0.8 dB (30 Hz~15 kHz) |
| CD/VIDEO/AUX, TAPE/EXT | 5 Hz~70 kHz (-3 dB) |
| Tone controls | |
| BASS | 50 Hz, +10 dB~ -10 dB |
| TREBLE | 20 kHz, +10 dB~ -10 dB |
| Loudness control (volume at -30 dB) | 50 Hz, +9 dB |
| Output voltage | |
| TAPE/EXT (REC OUT) | 150 mV |
| Channel balance, CD/VIDEO/AUX 250 Hz~6,300 Hz | ±1 dB |
| Channel separation, CD/VIDEO/AUX 1 kHz | 55 dB |
| Headphones output level and impedance | 380 mV/330Ω |
| Load impedance | 8Ω~16Ω |

■ FM TUNER SECTION

| | |
|---------------------------------------|-------------------------------------|
| Frequency range | 87.50~108.00 MHz |
| Sensitivity | |
| S/N 30 dB | 1.9 μV (300Ω), 1.3 μV (75Ω) |
| S/N 26 dB | 1.7 μV (300Ω), 1.2 μV (75Ω) |
| S/N 20 dB | 1.5 μV (300Ω), 0.9 μV (75Ω) |
| IHF usable sensitivity | 1.9 μV (IHF '58) |
| IHF 46 dB stereo quieting sensitivity | 22 μV/75Ω |
| Total harmonic distortion | |
| MONO | 0.15% |
| STEREO | 0.3% |
| S/N | |
| MONO | 60 dB (77 dB, IHF) |
| STEREO | 58 dB (71 dB, IHF) |
| Frequency response | 20 Hz~15 kHz, +1 dB~-2 dB |
| Alternate channel selectivity | ±400 kHz, 65 dB |
| Capture ratio | 1 dB |
| Image rejection at 98 MHz | 50 dB |
| IF rejection at 98 MHz | 75 dB |
| Spurious response rejection at 98 MHz | 82 dB |
| AM suppression | 50 dB |
| Stereo separation | |
| 1 kHz | 40 dB |
| 10 kHz | 30 dB |
| Carrier leak | |
| 19 kHz | -33 dB (-35 dB, IHF) |
| 38 kHz | -50 dB (-50 dB, IHF) |
| Channel balance (250 Hz~6,300 Hz) | ±1.5 dB |
| Limiting point | 1.2 μV |
| Bandwidth | |
| IF amplifier | 180 kHz |
| FM demodulator | 1000 kHz |
| Antenna terminals | 300Ω (balanced) 75Ω (unbalanced) |

Technics

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



| FM | AM | FM | AM |
|----|------|------|----|
| 1 | 11.2 | 11.2 | 9 |
| 2 | 2.4 | 2.4 | 10 |
| 3 | 5.2 | 5.2 | 11 |
| 4 | 9.2 | 9.2 | 12 |
| 5 | 9.2 | 9.2 | 13 |
| 6 | 4.8 | 4.8 | 14 |
| 7 | 4.8 | 4.8 | 15 |
| 8 | 0 | 0 | 16 |

| FM | AM | FM | AM |
|----|-----|-----|----|
| 1 | 5.5 | 6.9 | 10 |
| 2 | 0.6 | 6.1 | 11 |
| 3 | 0.6 | 6.1 | 12 |
| 4 | 0.6 | 6.1 | 13 |
| 5 | 0 | 1.0 | 14 |
| 6 | 0.4 | 1.9 | 15 |
| 7 | 5.4 | 6.9 | 16 |
| 8 | 5.4 | 6.9 | 17 |
| 9 | 5.4 | 6.9 | 18 |

| FM | AM | FM | AM |
|----|-----|-----|----|
| 1 | 5.5 | 6.9 | 10 |
| 2 | 0.6 | 6.1 | 11 |
| 3 | 0.6 | 6.1 | 12 |
| 4 | 0.6 | 6.1 | 13 |
| 5 | 0 | 1.0 | 14 |
| 6 | 0.4 | 1.9 | 15 |
| 7 | 5.4 | 6.9 | 16 |
| 8 | 5.4 | 6.9 | 17 |
| 9 | 5.4 | 6.9 | 18 |

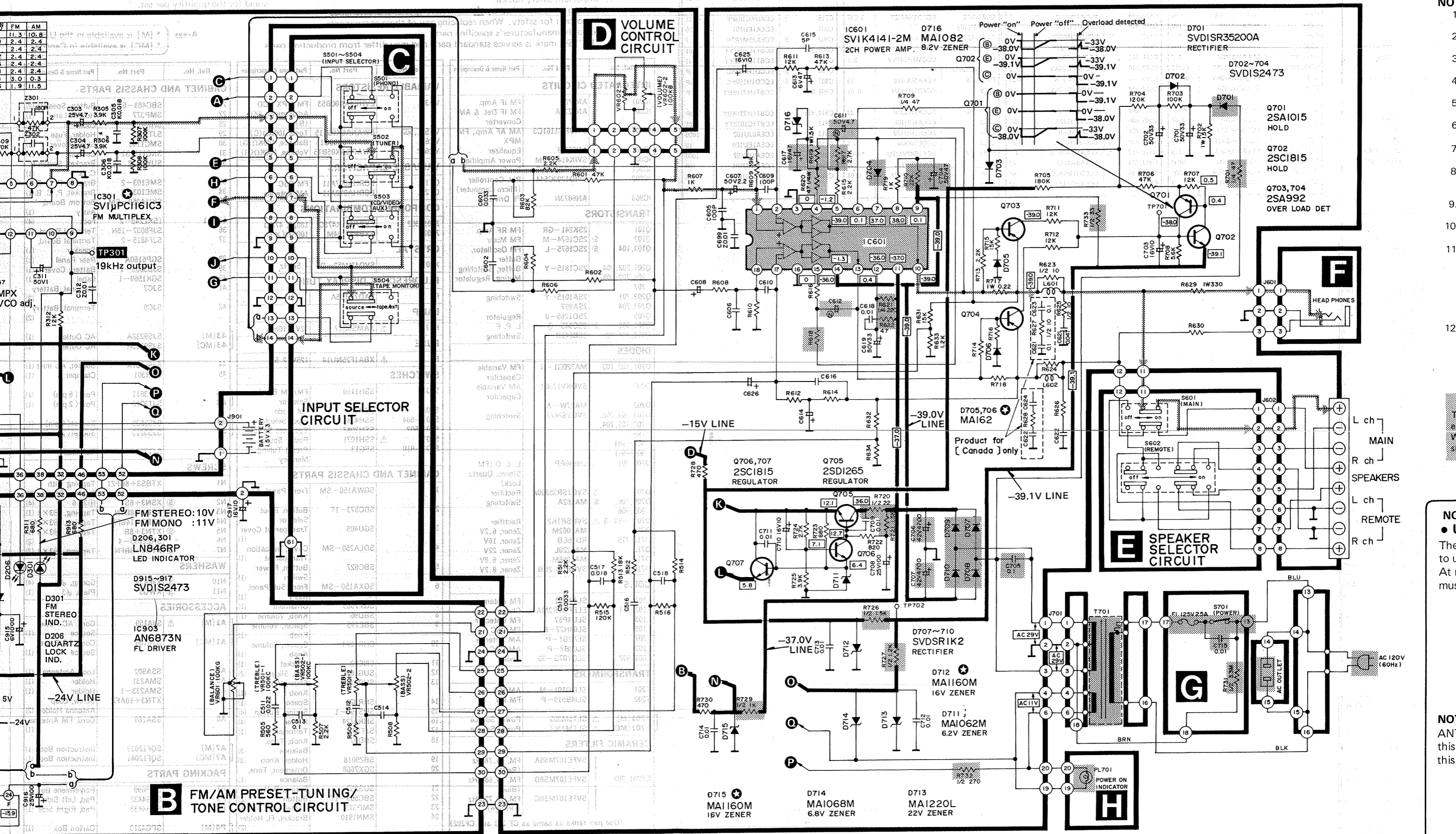
| FM | AM | FM | AM |
|----|-----|-----|----|
| 1 | 5.5 | 6.9 | 10 |
| 2 | 0.6 | 6.1 | 11 |
| 3 | 0.6 | 6.1 | 12 |
| 4 | 0.6 | 6.1 | 13 |
| 5 | 0 | 1.0 | 14 |
| 6 | 0.4 | 1.9 | 15 |
| 7 | 5.4 | 6.9 | 16 |
| 8 | 5.4 | 6.9 | 17 |
| 9 | 5.4 | 6.9 | 18 |

FM/AM TUNER/TONE CONTROL/POWER AMP/OVER LOAD DET./REGULATOR CIRCUIT

DIGITAL FREQUENCY DISPLAY (FL)

REPLACEMENT PARTS LIST

Series connection method is employed for the main and remote speaker connections of this set. Therefore, if both speaker changeover switches (main and remote) are turned "on" with the speaker unit connected only to main or remote speaker terminal, then no output signal will be delivered from the speaker unit.



| Q | FM | AM |
|----|-----|------|
| 1 | 1.3 | 10.8 |
| 2 | 2.4 | 2.4 |
| 3 | 2.4 | 2.4 |
| 4 | 2.4 | 2.4 |
| 5 | 2.4 | 2.4 |
| 6 | 2.4 | 2.4 |
| 7 | 2.4 | 2.4 |
| 8 | 2.4 | 2.4 |
| 9 | 0.3 | 0.3 |
| 10 | 1.1 | 1.1 |

IC301 SV1μPCI16IC3 FM MULTIPLEX
TP301 19kHz output
MPX VCO adj.

FM STEREO: 10V
FM MONO: 11V
D206, 301 LN846RP LED INDICATOR
D915~917 SVDIS2473

D301 FM STEREO IND. IND.
D206 QUARTZ LOCK IND.
IC903 AN6873N FL DRIVER

B FM/AM PRESET-TUNING/TONE CONTROL CIRCUIT

D VOLUME CONTROL CIRCUIT

C INPUT SELECTOR CIRCUIT

E SPEAKER SELECTOR CIRCUIT

G SVD5RIK2 RECTIFIER
D712 MA1160M 16V ZENER
D711 MA1062M 6.2V ZENER

H PL701 POWER ON INDICATOR

(This s...
• The ing wh...
NOTE
1.
2.
3.
4.
5.
6.
7.
8.
9.
10.
11.
12.
The elec Whi sha...
NOT
• Us
The c to use At rep must l...
NOTE
AN72 this ur this po...