

# 承 認 願

No. BX-8722

| 納入先                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 三星電子(株) DVS 殿 | 適用機種                   | 品名 TUNER, RF/TU/IF |                   |    |       |   |       |                        |   |                      |                |   |     |                |   |        |              |   |       |                |   |       |                  |   |    |               |   |      |               |   |      |               |   |    |              |   |     |                 |   |      |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|------------------------|--------------------|-------------------|----|-------|---|-------|------------------------|---|----------------------|----------------|---|-----|----------------|---|--------|--------------|---|-------|----------------|---|-------|------------------|---|----|---------------|---|------|---------------|---|------|---------------|---|----|--------------|---|-----|-----------------|---|------|
| 件 名                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 変更 承認願いの件     | 品 番                    | 貴社                 | AC40-00007A       |    |       |   |       |                        |   |                      |                |   |     |                |   |        |              |   |       |                |   |       |                  |   |    |               |   |      |               |   |      |               |   |    |              |   |     |                 |   |      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |               |                        | 弊社                 | VD025AP (VD065AS) |    |       |   |       |                        |   |                      |                |   |     |                |   |        |              |   |       |                |   |       |                  |   |    |               |   |      |               |   |      |               |   |    |              |   |     |                 |   |      |
| <p>要 点 TM BLOCK AC40-00007A [VD025AP (VD065AS)] において、<br/>下記のように変更しますので、ご承認下さるようお願い申し上げます。</p> <table style="width: 100%; border: none;"> <thead> <tr> <th style="text-align: center;">【変更前】</th> <th style="text-align: center;">→</th> <th style="text-align: center;">【変更後】</th> </tr> </thead> <tbody> <tr><td>1. Q101: BB1002BM (日立)</td><td>→</td><td>TSDF03030XR (VISHAY)</td></tr> <tr><td>2. C110: 3.5pF</td><td>→</td><td>2pF</td></tr> <tr><td>3. C118: 2.5pF</td><td>→</td><td>2200pF</td></tr> <tr><td>4. C170: 1pF</td><td>→</td><td>1.5pF</td></tr> <tr><td>5. C171: 1.5pF</td><td>→</td><td>2.5pF</td></tr> <tr><td>6. D102: MA2S357</td><td>→</td><td>削除</td></tr> <tr><td>7. R103: 39kΩ</td><td>→</td><td>27kΩ</td></tr> <tr><td>8. R108: 39kΩ</td><td>→</td><td>27kΩ</td></tr> <tr><td>9. R113: 33kΩ</td><td>→</td><td>削除</td></tr> <tr><td>10. R125: 0Ω</td><td>→</td><td>22Ω</td></tr> <tr><td>11. R164: 100kΩ</td><td>→</td><td>56kΩ</td></tr> </tbody> </table> |               |                        |                    |                   |    | 【変更前】 | → | 【変更後】 | 1. Q101: BB1002BM (日立) | → | TSDF03030XR (VISHAY) | 2. C110: 3.5pF | → | 2pF | 3. C118: 2.5pF | → | 2200pF | 4. C170: 1pF | → | 1.5pF | 5. C171: 1.5pF | → | 2.5pF | 6. D102: MA2S357 | → | 削除 | 7. R103: 39kΩ | → | 27kΩ | 8. R108: 39kΩ | → | 27kΩ | 9. R113: 33kΩ | → | 削除 | 10. R125: 0Ω | → | 22Ω | 11. R164: 100kΩ | → | 56kΩ |
| 【変更前】                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | →             | 【変更後】                  |                    |                   |    |       |   |       |                        |   |                      |                |   |     |                |   |        |              |   |       |                |   |       |                  |   |    |               |   |      |               |   |      |               |   |    |              |   |     |                 |   |      |
| 1. Q101: BB1002BM (日立)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | →             | TSDF03030XR (VISHAY)   |                    |                   |    |       |   |       |                        |   |                      |                |   |     |                |   |        |              |   |       |                |   |       |                  |   |    |               |   |      |               |   |      |               |   |    |              |   |     |                 |   |      |
| 2. C110: 3.5pF                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | →             | 2pF                    |                    |                   |    |       |   |       |                        |   |                      |                |   |     |                |   |        |              |   |       |                |   |       |                  |   |    |               |   |      |               |   |      |               |   |    |              |   |     |                 |   |      |
| 3. C118: 2.5pF                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | →             | 2200pF                 |                    |                   |    |       |   |       |                        |   |                      |                |   |     |                |   |        |              |   |       |                |   |       |                  |   |    |               |   |      |               |   |      |               |   |    |              |   |     |                 |   |      |
| 4. C170: 1pF                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | →             | 1.5pF                  |                    |                   |    |       |   |       |                        |   |                      |                |   |     |                |   |        |              |   |       |                |   |       |                  |   |    |               |   |      |               |   |      |               |   |    |              |   |     |                 |   |      |
| 5. C171: 1.5pF                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | →             | 2.5pF                  |                    |                   |    |       |   |       |                        |   |                      |                |   |     |                |   |        |              |   |       |                |   |       |                  |   |    |               |   |      |               |   |      |               |   |    |              |   |     |                 |   |      |
| 6. D102: MA2S357                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | →             | 削除                     |                    |                   |    |       |   |       |                        |   |                      |                |   |     |                |   |        |              |   |       |                |   |       |                  |   |    |               |   |      |               |   |      |               |   |    |              |   |     |                 |   |      |
| 7. R103: 39kΩ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | →             | 27kΩ                   |                    |                   |    |       |   |       |                        |   |                      |                |   |     |                |   |        |              |   |       |                |   |       |                  |   |    |               |   |      |               |   |      |               |   |    |              |   |     |                 |   |      |
| 8. R108: 39kΩ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | →             | 27kΩ                   |                    |                   |    |       |   |       |                        |   |                      |                |   |     |                |   |        |              |   |       |                |   |       |                  |   |    |               |   |      |               |   |      |               |   |    |              |   |     |                 |   |      |
| 9. R113: 33kΩ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | →             | 削除                     |                    |                   |    |       |   |       |                        |   |                      |                |   |     |                |   |        |              |   |       |                |   |       |                  |   |    |               |   |      |               |   |      |               |   |    |              |   |     |                 |   |      |
| 10. R125: 0Ω                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | →             | 22Ω                    |                    |                   |    |       |   |       |                        |   |                      |                |   |     |                |   |        |              |   |       |                |   |       |                  |   |    |               |   |      |               |   |      |               |   |    |              |   |     |                 |   |      |
| 11. R164: 100kΩ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | →             | 56kΩ                   |                    |                   |    |       |   |       |                        |   |                      |                |   |     |                |   |        |              |   |       |                |   |       |                  |   |    |               |   |      |               |   |      |               |   |    |              |   |     |                 |   |      |
| 理 由                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |               | 資 料                    |                    |                   |    |       |   |       |                        |   |                      |                |   |     |                |   |        |              |   |       |                |   |       |                  |   |    |               |   |      |               |   |      |               |   |    |              |   |     |                 |   |      |
| 1. FET入手難のため(1~11)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |               | 1. 承認願<br><br>2. 製品仕様書 |                    |                   |    |       |   |       |                        |   |                      |                |   |     |                |   |        |              |   |       |                |   |       |                  |   |    |               |   |      |               |   |      |               |   |    |              |   |     |                 |   |      |
| 承認印 (不承認の場合は理由をご記入の上御返却願います)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |               |                        |                    |                   |    |       |   |       |                        |   |                      |                |   |     |                |   |        |              |   |       |                |   |       |                  |   |    |               |   |      |               |   |      |               |   |    |              |   |     |                 |   |      |
| 備 考<br><br>・変更表示は、現行「H」のままです。<br>・INDONESIA生産品だけ適用です。<br>・弊社品番の末尾に“C”を付与して区分します。・・・[VD065ASC]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |               |                        |                    |                   |    |       |   |       |                        |   |                      |                |   |     |                |   |        |              |   |       |                |   |       |                  |   |    |               |   |      |               |   |      |               |   |    |              |   |     |                 |   |      |
| 作成年月日 2002年 4月 17日                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |               |                        | 承認                 | 検印                | 係  |       |   |       |                        |   |                      |                |   |     |                |   |        |              |   |       |                |   |       |                  |   |    |               |   |      |               |   |      |               |   |    |              |   |     |                 |   |      |
| 発行部署 三洋電波工業(株) 技術部                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |               |                        | 4/18<br>大平         | 4/18<br>青地        | 岡野 |       |   |       |                        |   |                      |                |   |     |                |   |        |              |   |       |                |   |       |                  |   |    |               |   |      |               |   |      |               |   |    |              |   |     |                 |   |      |

# SPECIFICATIONS

3 IN 1 MODULATOR, TUNER, IF BLOCK

MODEL AC40-00007A  
(115-V-D025AP)

SANYO TUNER INDUSTRIES CO., LTD.

TUNER ENGINEERING SECTION

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| APPROVED               | CHECKED                  | WRITTEN                |
|------------------------|--------------------------|------------------------|
| Sep 9 '99<br>H. Kohira | Sep. 9. '99<br>H. Kohira | Sep. 9, '99<br>G. Yano |

# 変更経歴書 History of Revise

P-2/

| MK                                                                                                                                                                                                | Date      | Spec. No. | Subject (Outline)                                             | Reason                  | Rev. P                                         | Indi | Receipt<br>受領年月日<br>Rec't No<br>受領番号 | Schedule<br>納入予定日<br>Delive'd<br>納入日 | OP |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|-----------|---------------------------------------------------------------|-------------------------|------------------------------------------------|------|--------------------------------------|--------------------------------------|----|
| 記号                                                                                                                                                                                                | 年 月 日     | 仕様書 No.   | 件名 (変更内容)                                                     | 変更理由                    | 変更頁                                            | 変更表示 |                                      |                                      | 担当 |
| /                                                                                                                                                                                                 | '99.10.18 | BX-3518   | APPROVAL PETITION<br>新規受領願                                    |                         | /                                              | NON  | '99.11.1                             |                                      | 青地 |
| A                                                                                                                                                                                                 | '99.12.3  | BX-3529   | C156: 47pF 追加                                                 | 上隣接CH妨害改善のため            | P13                                            | A    |                                      | '99.11.~                             | 青地 |
| A                                                                                                                                                                                                 | '99.12.3  | BX-3529   | C306: 1μF 追加                                                  | 音声歪率改善のため               | P13                                            | B    |                                      | '99.12.~                             | 青地 |
| B                                                                                                                                                                                                 | '00.1.21  | BX-3542   | R329: 2.2kΩ → 0Ω                                              | 音声出力Level増大のため          | P13                                            | C    |                                      | '00.2.E                              | 青地 |
| C                                                                                                                                                                                                 | '00.2.15  | BX-3546   | R331: 3.3kΩ → 削除<br>R318: なし → 220Ω                           | SIF出力Level増大のため         | P13                                            | D    | '00.3.15                             | '00.3.M                              | 青地 |
| D                                                                                                                                                                                                 | '00.6.29  | BX-3578   | PWB: CEM-3 → FR-1<br>ANT: 形状と鍍金 変更                            | 材料費低減のため                | P12.13                                         | E    |                                      | '00.8.M                              | 青地 |
| E                                                                                                                                                                                                 | '00.10.5  | BX-3592   | SAW Filter 変更<br>EPCOS製 → 三洋製<br>(VD025AP) (VD025AK)          | EPCOS製が入手難のため           | P1<br>P2-1<br>P13-1                            | E    |                                      | '00.9.E                              | 青地 |
| F                                                                                                                                                                                                 | '00.10.18 | BX-3606   | MOP IC 変更<br>SONY製 → TI製<br>(VD025AK) (VD065AP)               | SONY製が入手難のため            | P1<br>P2-1<br>P13-2                            | F    |                                      | '00.10.E                             | 青地 |
| G                                                                                                                                                                                                 | '00.12.21 | BX-3617   | C182: 100pF → 220pF<br>R160: 33kΩ → 10kΩ                      | 局部共振のF飛び改善のため           | P13-2                                          | G    |                                      | '00.12.18<br>'00.12.19               | 青地 |
| A                                                                                                                                                                                                 | '01.4.23  | BX-3639   | C34: 2.2nF → 1μF or 2.2nF<br>LABEL: SJC製のみ印刷<br>(P12-1 参照)    | 他機種と共通化のため<br>作業効率向上のため | P1<br>P12-1<br>P13-2                           | G    |                                      | '01.4.E                              | 青地 |
| I                                                                                                                                                                                                 | '01.9.25  | BX-3660   | FETをU/V 1chip化<br>Xtal Filter 削除<br>隣接CH Trap 削除              | COST対応と生産性向上のため         | P1<br>P2-1<br>P12-2<br>P12-3<br>P13-3<br>P13-4 | H    |                                      | '01.11.M                             | 青地 |
| "                                                                                                                                                                                                 | "         | "         | Frame 変更<br>(VD065AP) → (VD065AQ) 中国<br>(VD065AS) 邦配          |                         |                                                |      |                                      |                                      | "  |
| A                                                                                                                                                                                                 | '02.1.10  | BX-3693   | R209: 18kΩ → 22kΩ<br>C316: 470pF → 削除<br>LABEL印刷の"SAMSUNG"を削除 | C14ch受信対策のため<br>合理化のため  | P2-1<br>P13-3<br>P13-4                         | H    |                                      | '02.1.E                              | 青地 |
| K                                                                                                                                                                                                 | '02.4.17  |           | FET: 日立製 → VISHAY製<br>(INDONESIAのみ適用)<br>(VD065ASC)           | 入手難のため                  | P1<br>P2-1<br>P13-5                            | H    |                                      | '02.5.B                              | 青地 |
| <div> <div>Product Name<br/>品 名<br/>3 IN 1 MODULATOR, TUNER, IF BLOCK</div> <div>Code<br/>品番</div> <div>Customer<br/>ユーザ<br/>Our Co.<br/>弊 社</div> <div>AC40-00007A<br/>115-V-D025AP</div> </div> |           |           |                                                               |                         |                                                |      |                                      |                                      |    |

## 機種名構成表 Constituent of TM Block Code

| Code<br>品番                        |                  | Specifications<br>仕様                                                                         |                                               |                        |                                     | Label<br>ラベル表示                                                                                                                                                                  |
|-----------------------------------|------------------|----------------------------------------------------------------------------------------------|-----------------------------------------------|------------------------|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Customer<br>ユーザ                   | Our Co.<br>弊社    | Name<br>呼称                                                                                   | PWB<br>プリント基板                                 | SAW Filter<br>SAW フィルタ | MOP IC<br>MOP IC                    |                                                                                                                                                                                 |
| AC40-<br>00007A                   | 115-V-<br>D025AP | VD025AP                                                                                      | CEM-3<br>FR-1                                 | M1867M<br>(EPCOS)      | CXA3250AN<br>(SONY)                 |  <b>MADE IN CHINA</b><br><b>AC40-00007A</b><br><b>VD025AP</b><br><b>LOT</b>                  |
|                                   |                  | VD025AK                                                                                      | FR-1                                          | TSF5232P<br>(SANYO)    | CXA3250AN<br>(SONY)                 |  <b>MADE IN CHINA</b><br><b>AC40-00007A</b><br><b>VD025AP</b><br><b>(VD025AK)</b>            |
|                                   |                  |  VD065AP    | FR-1                                          | TSF5232P<br>(SANYO)    | SN761672A<br>(TEXAS<br>INSTRUMENTS) |  <b>MADE IN CHINA</b><br><b>AC40-00007A</b><br><b>VD025AP</b><br><b>(VD065AP)</b>            |
|                                   |                  |  VD065AQ   | FR-1                                          | TSF5232P<br>(SANYO)    | SN761672A<br>(TEXAS<br>INSTRUMENTS) | <del>SAMSUNG</del> <br>AC40-00007A<br>VD025AP (VD065AQ)<br>MADE IN CHINA<br>LOT F○○○○□      |
|                                   |                  |  VD065AS  | FR-1                                          | M1867M<br>(EPCOS)      | SN761672A<br>(TEXAS<br>INSTRUMENTS) | <del>SAMSUNG</del> <br>AC40-00007A<br>VD025AP (VD065AS)<br>MADE IN INDONESIA<br>LOT J○○○○□ |
|                                   |                  |  VD065ASC | FR-1<br><br>RF FET:<br>SDF03030XR<br>(VISHAY) | M1867M<br>(EPCOS)      | SN761672A<br>(TEXAS<br>INSTRUMENTS) | AC40-00007A<br>VD025AP (VD065ASC)<br>MADE IN INDONESIA<br>LOT J○○○○□                                                                                                            |
|                                   |                  |                                                                                              |                                               |                        |                                     |                                                                                                                                                                                 |
| Product Name<br>品 名               |                  | Code<br>品番                                                                                   |                                               | Customer<br>ユーザ        | AC40-00007A                         |                                                                                                                                                                                 |
| 3 IN 1 MODULATOR, TUNER, IF BLOCK |                  |                                                                                              |                                               | Our Co.<br>弊 社         | 115-V-D025AP                        |                                                                                                                                                                                 |

## 1. GENERAL

### 1-1 Summary

This unit has RF modulator, tuner and VIF circuits in a case.

### 1-2 Receiving channels and system

USA 181 channels

|               |              |
|---------------|--------------|
| System        | NTSC-M       |
| VHF Low Band  | 2 ~ B CH     |
| VHF High Band | C ~ W+11 CH  |
| UHF Band      | W+12 ~ 69 CH |

### 1-3 Modulator output channels

|            |      |
|------------|------|
| CH SW Open | 3 CH |
| CH SW GND  | 4 CH |

### 1-4 Input , output impedance

|                      |                        |
|----------------------|------------------------|
| ANT input impedance  | 75 $\Omega$ unbalanced |
| ANT output impedance | 75 $\Omega$ unbalanced |

### 1-5 Permissible maximum voltage

|                 |         |
|-----------------|---------|
| +B, MB, CONTROL | + 5.5 V |
| BT              | +31.0 V |

### 1-6 Normal voltage

|                 |                 |
|-----------------|-----------------|
| +B, MB, CONTROL | + 5 V $\pm$ 5 % |
| BT              | +30 V $\pm$ 5 % |

### 1-7 Voltage for guaranteeing electrical specification

|                 |                   |
|-----------------|-------------------|
| +B, MB, CONTROL | + 5 V $\pm$ 0.1 V |
| BT              | +30 V $\pm$ 0.1 V |

### 1-8 Temperature

|                       |                         |
|-----------------------|-------------------------|
| Operating temperature | - 5 to +60 $^{\circ}$ C |
| Storage temperature   | -20 to +70 $^{\circ}$ C |

### 1-9 Humidity

|                    |               |
|--------------------|---------------|
| Operating humidity | 35 to 80 % RH |
| Storage humidity   | 10 to 90 % RH |

### 1-10 Intermediate frequencies

|                 |           |
|-----------------|-----------|
| Picture carrier | 45.75 MHz |
| Sound carrier   | 41.25 MHz |

1-11 Current consumption

|         | TYP         | MAX         |
|---------|-------------|-------------|
| +B      | 150 mA      | 200 mA      |
| MB      | 35 mA       | 50 mA       |
| CONTROL | 350 $\mu$ A | 700 $\mu$ A |
| BT      | 2.0 mA      | 5.0 mA      |

1-12 Terminals

| Number | Terminal  | Function                   |
|--------|-----------|----------------------------|
| 1      | AUDIO IN  | MOD AUDIO INPUT            |
| 2      | CH. SW    | CHANNEL SWITCH (OPEN/GND)  |
| 3      | MB        | MOD. +B (+5V)              |
| 4      | CONTROL   | MOD OUTPUT ON/OFF (+5V/0V) |
| 5      | VIDEO IN  | MOD VIDEO INPUT            |
| 6      |           |                            |
| 7      | N. C.     | (RF AGC TP)                |
| 8      | N. C      | - - -                      |
| 9      | N. C.     | - - -                      |
| 10     | CLOCK     | CLOCK SIGNAL INPUT         |
| 11     | DATA      | DATA SIGNAL INPUT          |
| 12     |           |                            |
| 13     | +B        | +B (+5V)                   |
| 14     | X' TAL    | 3. 58 MHz INPUT            |
| 15     | BT        | TUNING(+31V)               |
| 16     | N. C.     | (TU-TP)                    |
| 17     | IF OUT    | IF OUTPUT                  |
| 18     | AUDIO OUT | AUDIO OUTPUT               |
| 19     | SIF OUT   | SIF OUTPUT                 |
| 20     | AFT       | AFT OUTPUT                 |
| 21     | VIDEO OUT | VIDEO OUTPUT               |
| 22     |           |                            |

(RF MODULATOR SECTION)

2. RF MODULATOR OUTPUT CHARACTERISTICS

|     | ITEMS                               | SPECIFICATION |        |       |                     | MEASUREMENT TERMS                                                                                                                                         |
|-----|-------------------------------------|---------------|--------|-------|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
|     |                                     | MIN           | TYP    | MAX   | UNIT                |                                                                                                                                                           |
| 2-1 | V. S. W. R.                         |               | 2      | 3     |                     | ANT out (MOD. ON) 60 ~ 72 MHz                                                                                                                             |
| 2-2 | Picture carrier frequency           | - 50          | fp     | 50    | KHz                 |                                                                                                                                                           |
| 2-3 | Sound carrier frequency             | -0.007        | fp+4.5 | 0.007 | MHz                 |                                                                                                                                                           |
| 2-4 | Picture level                       | 63.5          | 66.5   | 69.5  | dB $\mu$<br>(close) |                                                                                                                                                           |
| 2-5 | P/S ratio                           | 19            | 16     | 13    | dB                  | 0 ~ (fp-4.6) MHz,<br>(fp+7.4) ~ 1000 MHz<br>fp ~ (fp+4.5) MHz<br>Video in : None<br>Video in : 3.58 MHz, 0.4 Vp-p<br>Measure the level of<br>fp + 920 KHz |
| 2-6 | Spurious level without<br>pass band |               |        | 36    | dB $\mu$<br>(close) |                                                                                                                                                           |
| 2-7 | Spurious level within<br>pass band  |               |        | -65   | dB                  |                                                                                                                                                           |
| 2-8 | 920 KHz beat                        |               | -65    | -55   | dB                  |                                                                                                                                                           |

3. RF MODULATOR VIDEO CHARACTERISTICS

|     | ITEMS                              | SPECIFICATION |      |     |            | MEASUREMENT TERMS                                                                     |
|-----|------------------------------------|---------------|------|-----|------------|---------------------------------------------------------------------------------------|
|     |                                    | MIN           | TYP  | MAX | UNIT       |                                                                                       |
| 3-1 | Video in impedance                 | 0.7           | 1.0  | 1.3 | K $\Omega$ | 0 ~ 4.2 MHz (unbalance)<br>Video in : 1 Vp-p<br>S/(V+S)<br>0.5 ~ 4.2 MHz (1 MHz base) |
| 3-2 | Video modulation                   | 71            | 78   | 85  | %          |                                                                                       |
| 3-3 | Sync ratio                         | 26.5          | 28.5 | 30  | %          |                                                                                       |
| 3-4 | Video frequency<br>characteristics | -3            | -1   | 2   | dB         |                                                                                       |
| 3-5 | DG                                 |               | 1    | 7   | %          | Video in : 1 Vp-p,<br>stair step chroma 20 IRE                                        |
| 3-6 | DP                                 |               | 1    | 7   | deg        |                                                                                       |
| 3-7 | Video S/N ratio                    | 45            | 48   |     | dB         |                                                                                       |
| 3-8 | Maximum modulation                 | 88            | 94   | 99  | %          |                                                                                       |

#### 4. RF MODULATOR AUDIO CHARACTERISTICS

|     | ITEMS                           | SPECIFICATION |      |     |            | MEASUREMENT TERMS                                               |
|-----|---------------------------------|---------------|------|-----|------------|-----------------------------------------------------------------|
|     |                                 | MIN           | TYP  | MAX | UNIT       |                                                                 |
| 4-1 | Audio in impedance              | 10            |      |     | K $\Omega$ | 50 Hz ~ 10 KHz (unbalance)                                      |
| 4-2 | Modulation                      | 80            | 100  | 120 | %          | Audio in : -3.8 dBs, 1 KHz<br>( $\pm 25$ KHz deviation : 100 %) |
| 4-3 | Audio frequency characteristics | -3            | -0.5 | 3   | dB         | 50 Hz ~ 10 KHz (1 KHz base)                                     |
| 4-4 | Distortion                      |               | 0.3  | 1   | %          | Audio in : -3.8 dBs, 1 KHz                                      |
| 4-5 | Audio S/N ratio                 | 45            | 50   |     | dB         | Audio in : -3.8 dBs, 1 KHz<br>Video in : 1 Vp-p, color bar      |

#### 5. SW CIRCUITS CHARACTERISTICS

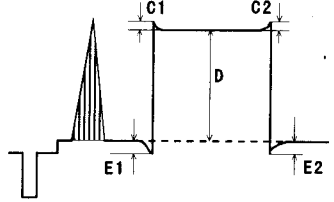
|     | ITEMS                           | SPECIFICATION |     |     |                     | MEASUREMENT TERMS                           |
|-----|---------------------------------|---------------|-----|-----|---------------------|---------------------------------------------|
|     |                                 | MIN           | TYP | MAX | UNIT                |                                             |
| 5-1 | V. S. W. R.                     |               |     | 3   |                     | ANT out<br>(MOD. OFF) 54 ~ 810 MHz          |
| 5-2 | Insertion loss                  |               |     | 6   | dB                  | ANT in - ANT out<br>(MOD. OFF) 54 ~ 810 MHz |
| 5-3 | Separation                      | 60            | 65  |     | dB                  | ANT in - ANT out<br>(MOD. ON) 60 ~ 72 MHz   |
| 5-4 | ANT in terminal leakage voltage |               | 0   | 9.5 | dB $\mu$<br>(close) |                                             |

#### 6. RF MODULATOR THERMAL STABILITY CHARACTERISTICS

|     | ITEMS                     | SPECIFICATION |     |     |      | MEASUREMENT TERMS                              |
|-----|---------------------------|---------------|-----|-----|------|------------------------------------------------|
|     |                           | MIN           | TYP | MAX | UNIT |                                                |
| 6-1 | Video modulation          | -10           |     | 10  | %    | 0 ~ 60 $^{\circ}$ C (25 $^{\circ}$ C standard) |
| 6-2 | Sound modulation          | -10           |     | 10  | %    |                                                |
| 6-3 | Picture carrier frequency | -80           |     | 80  | KHz  |                                                |
| 6-4 | Sound carrier frequency   | -12           |     | 12  | KHz  |                                                |
| 6-5 | Video output level        | -2            |     | 2   | dB   |                                                |
| 6-6 | P/S ratio                 | -2.5          |     | 2.5 | dB   |                                                |

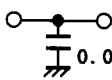
( I F   S E C T I O N )

7. IF OUT CHARACTERISTICS

|      | ITEMS                              |                                       | SPECIFICATION      |              |               |                     | MEASUREMENT TERMS                                                                                                                                                                                                                                                      |
|------|------------------------------------|---------------------------------------|--------------------|--------------|---------------|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|      |                                    |                                       | MIN                | TYP          | MAX           | UNIT                |                                                                                                                                                                                                                                                                        |
| 7-1  | Sensitivity                        | VHF<br>CATV, UHF                      |                    | 34<br>34     | 38<br>38      | dB $\mu$<br>(close) | B. P. F (100 KHz ~ 4.2 MHz)<br>Except sync. and chroma<br>signal S/N=20 dB<br>Note : In case of item 1, 2, 5,<br>6, 7, 8 and 9, the following<br>additional circuit is to be<br>connected between video out<br>terminal and the measuring<br>instrument.<br>See Fig. 1 |
| 7-2  | Video S/N ratio                    | VHF<br>CATV, UHF                      | 45<br>45           | 47<br>46     |               | dB                  |                                                                                                                                                                                                                                                                        |
| 7-3  | Maximum input                      | VHF<br>CATV, UHF                      | 100<br>90          |              |               | dB $\mu$<br>(open)  |                                                                                                                                                                                                                                                                        |
| 7-4  | Video output level                 |                                       | 0.8                | 1            | 1.2           | Vp-p                |                                                                                                                                                                                                                                                                        |
| 7-5  | Sync ratio                         |                                       | 26                 | 29           | 32            | %                   | Sync ratio 28.57 % standard<br>burst ratio 28.57 % standard                                                                                                                                                                                                            |
| 7-6  | burst ratio                        |                                       | 16                 | 25           | 36            | %                   |                                                                                                                                                                                                                                                                        |
| 7-7  | Video frequency<br>characteristics | 0.5 ~ 1 MHz<br>1 ~ 2 MHz<br>2 ~ 3 MHz | -1.5<br>-2<br>-3.5 | 0<br>0<br>-1 | 1.5<br>3<br>3 | dB                  | JIS C-6101 (500 KHz standard)                                                                                                                                                                                                                                          |
| 7-8  | DP                                 |                                       |                    |              | 8             | deg                 |                                                                                                                                                                                                                                                                        |
| 7-9  | DG                                 |                                       |                    |              | 8             | %                   | As the above.                                                                                                                                                                                                                                                          |
| 7-10 | C/L delay                          |                                       | -150               | 0            | 150           | nsec                | Group delay 0.5 MHz versus<br>3.58 $\pm$ 0.5 MHz                                                                                                                                                                                                                       |
| 7-11 | AGC flatness                       |                                       | -1                 | 0            | 1             | dB                  | Sensitivity level to<br>maximum input level                                                                                                                                                                                                                            |
| 7-12 | Bar pulse response                 |                                       |                    | 5            | 13            | %                   | C1/D<br>C2/D<br>E1/D<br>E2/D<br>                                                                                                                                                  |

※ ANT in input level    79 dB  $\mu$  (75 $\Omega$  OPEN) except 7-1, 7-3, 7-11, P/S=10 dB

# 8. IF AUDIO OUT CHARACTERISTICS

|     | ITEMS                                             | SPECIFICATION |          |           |                    | MEASUREMENT TERMS                                                                                                                             |
|-----|---------------------------------------------------|---------------|----------|-----------|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
|     |                                                   | MIN           | TYP      | MAX       | UNIT               |                                                                                                                                               |
| 8-1 | Audio output level                                | 100           | 140      | 173       | mVrms              | 400 Hz 30 % MOD.<br>47 K $\Omega$ load under the black burst.                                                                                 |
| 8-2 | Audio frequency characteristics<br>20 Hz ~ 12 KHz | -3            | 0        | +3        | dB                 | 400 Hz 30 % MOD.<br>Under the black burst.<br> 0.033 $\mu$ |
| 8-3 | Audio distortion                                  |               | 0.5      | 2         | %                  | 1 KHz 100 % MOD.<br>Under the black burst.                                                                                                    |
| 8-4 | Audio S/N                                         | 48            | 52       |           | dB                 | Black burst, 1 KHz, 30 % MOD.<br>H. P. F: 400 Hz                                                                                              |
| 8-5 | Audio sensitivity<br>VHF<br>CATV, UHF             |               | 30<br>30 | 36<br>40  | dB $\mu$           | S/N 30 dB                                                                                                                                     |
| 8-6 | Buzz<br>Color bar<br>Sweep                        |               | 10<br>50 | 50<br>100 | mVp-p              | Split color bar signal P/S<br>10 dB Video sweep 0.5 ~ 4 MHz<br>(Audio non MOD.)                                                               |
| 8-7 | SIF output level                                  | 88            | 94       | 100       | dB $\mu$<br>(open) | US 11 CH, 79 dB $\mu$ (open), P/S<br>10 dB Audio non MOD.,<br>Use FET probe.                                                                  |

# 9. AFT CHARACTERISTICS

|     | ITEMS                                | SPECIFICATION |     |     |      | MEASUREMENT TERMS                 |
|-----|--------------------------------------|---------------|-----|-----|------|-----------------------------------|
|     |                                      | MIN           | TYP | MAX | UNIT |                                   |
| 9-1 | AFT center frequency                 | 2.0           | 3.0 | 4.0 | V    | 10 steps staircase at<br>US 12 CH |
| 9-2 | AFT output voltage<br>MIN V<br>MAX V | 4.0           |     | 1.0 | V    |                                   |

※ ANT is input level 66 dB $\mu$  (75  $\Omega$  open) except 8-5. P/S=-7 dB

# 1 0 . IF THERMAL CHARACTERISTICS

|      | ITEMS              | SPECIFICATION |     |     |      | MEASUREMENT TERMS                                                                                                                    |
|------|--------------------|---------------|-----|-----|------|--------------------------------------------------------------------------------------------------------------------------------------|
|      |                    | MIN           | TYP | MAX | UNIT |                                                                                                                                      |
| 10-1 | Video output level | -10           |     | 10  | %    | Difference between the measurement value in the standard condition and the value measured in the temperature range of -5 °C to 60 °C |
| 10-2 | Burst ratio        | -10           |     | 10  | %    |                                                                                                                                      |
| 10-3 | Sync ratio         | -10           |     | 10  | %    |                                                                                                                                      |
| 10-4 | Video S/N          | -3            |     | 3   | dB   |                                                                                                                                      |
| 10-5 | Video sensitivity  | -4            |     | 4   | dB   |                                                                                                                                      |
| 10-6 | Audio output level | -2            |     | 2   | dB   |                                                                                                                                      |
| 10-7 | Audio S/N          | -3            |     | 3   | dB   |                                                                                                                                      |
| 10-8 | Audio sensitivity  | -4            |     | 4   | dB   |                                                                                                                                      |
| 10-9 | AFT center voltage | -2            |     | 2   | V    |                                                                                                                                      |

## (TUNER SECTION)

### 1 1 . TUNER CHARACTERISTICS

#### 11-1 Tuning voltage range

VHF 0.5 ~ 30 V  
UHF 0.5 ~ 30 V

Frequency synthesizer minimum voltage 0.5 V

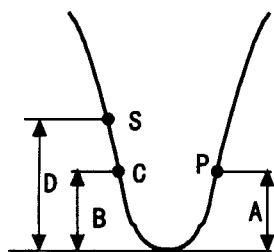
#### 11-2 Power gain

VHF MIN 25 dB  
UHF MIN 24 dB

#### 11-3 Noise figure

VHF 14 dB MAX  
CATV, UHF 14 dB MAX

11-4 IF response (ANT-IF)



+B 5 V at 11 CH  
A : 0 ~ 3 dB  
B : 0 ~ 6 dB  
D : 2 ~ 8 dB

11-5 Power gain deviation between channels

VHF

12 dB MAX, TYP 6 dB

UHF

14 dB MAX, TYP 6 dB

11-6 AGC gain reduction

VHF

40 dB MIN

UHF

35 dB MIN

11-7 Image rejection ratio

CH 2 ~ 13

60(50) dB MIN

CH J ~ W+11

50(40) dB MIN

CH W+12 ~ 69

50(40) dB MIN

( ) ; AGC Range 0 ~ -30 dB

11-8 IF rejection ratio

CH 2 ~ B

50(45) dB MIN

CH C ~ W+11

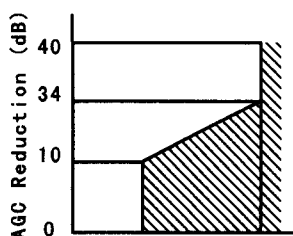
60(50) dB MIN

CH W+12 ~ 69

70(40) dB MIN

( ) ; AGC Range 0 ~ -30 dB

11-9 1% cross modulation



VHF A : 5 mV

B : 70 mV

CATV A : 3 mV

B : 70 mV

UHF A : 5 mV

B : 50 mV

11-10 FM rejection ratio

CH 7 ~ 13

60 dB MIN

CH 5

40 dB MIN (\*1)

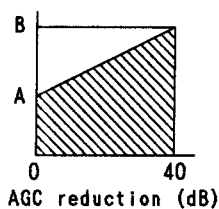
\*1. Des : 5 CH (77.25 MHz) 60 dB $\mu$  75 $\Omega$  open

Und : 89.1 MHz

s/i = 30 dB

Rej = s/i + (-D/U)

11-11 Input signal level at 10 % distortion



|                |            |
|----------------|------------|
| VHF            | A : 3 mV   |
| (75Ω open rms) | B : 300 mV |
| UHF            | A : 3 mV   |
| (50Ω open rms) | B : 300 mV |

11-12 VHF, UHF rejection ratio

|     |           |
|-----|-----------|
| VHF | 70 dB MIN |
| UHF | 50 dB MIN |

11-13 1/2 IF harmonic rejection ratio

|     |           |
|-----|-----------|
| UHF | 45 dB MIN |
|-----|-----------|

11-14 Inter modulation

|     |           |
|-----|-----------|
| VHF | 50 dB MIN |
|-----|-----------|

11-15 Drift of oscillation frequency

By  $\pm 1\%$  change of +B voltage

|     |                   |
|-----|-------------------|
| VHF | $\pm 250$ KHz MAX |
| UHF | $\pm 250$ KHz MAX |

By  $\pm 25^\circ\text{C}$  change from  $25^\circ\text{C}$

|              |                    |
|--------------|--------------------|
| CH 2 ~ 13    | $\pm 1000$ KHz MAX |
| CH J ~ W+11  | $\pm 4000$ KHz MAX |
| CH W+12 ~ 69 | $\pm 4000$ KHz MAX |

11-16 Local oscillator voltage on the aerial input terminals

|                 |                     |
|-----------------|---------------------|
| 300 MHz MAX     | 34 dB $\mu$ V MAX   |
| 300 ~ 1000 MHz  | 50 dB $\mu$ V MAX   |
| 1000 ~ 1694 MHz | 51.7 dB $\mu$ V MAX |

12 Country origin

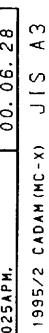
SANYO Tuner Industries Co., LTD.

CHINA

SANYO Jaya Components Indonesia

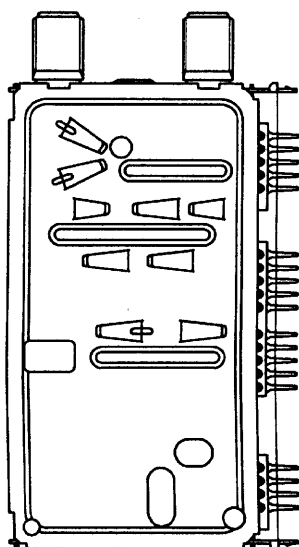
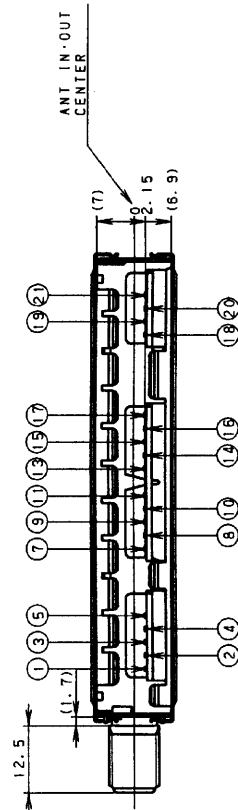
## S LAYOUT

NOTE: DO NOT SCALE



| TERMINALS LAYOUT |
|------------------|
|------------------|

NOTE: DO NOT SCALE



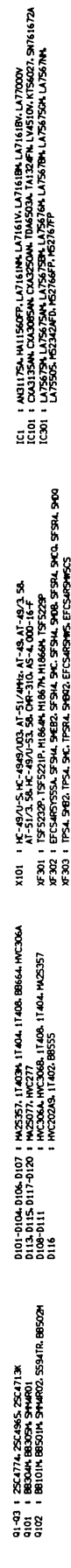
| TERMINALS LAYOUT |                    |
|------------------|--------------------|
| 1                | AUDIO IN           |
| 2                | CH. SV             |
| 3                | MB                 |
| 4                | CONTROL            |
| 5                | VIDEO IN           |
| 6                |                    |
| 7                | N. C (RF AGC - TP) |
| 8                | N. C               |
| 9                | N. C               |
| 10               | CLOCK              |
| 11               | DATA               |
| 12               |                    |
| 13               | +B                 |
| 14               | X' TAL             |
| 15               | BT                 |
| 16               | N. C (TU-TP)       |
| 17               | IF OUT             |
| 18               | AUDIO OUT          |
| 19               | SIF OUT            |
| 20               | AFT OUT            |
| 21               | VIDEO OUT          |
| 22               |                    |

|                         |
|-------------------------|
| APR-23 01               |
| APPROVED<br>J. AUCHI    |
| SERIALIZED 01           |
| CHECKED<br>H. YOSHIMURA |
| 01.04.23                |
| CHECKED<br>T. MORADA    |
| 01.04.23                |
| DESIGNED<br>A. AOCHI    |
| 01.04.23                |
| DRAWN<br>M. YOSHIMURA   |

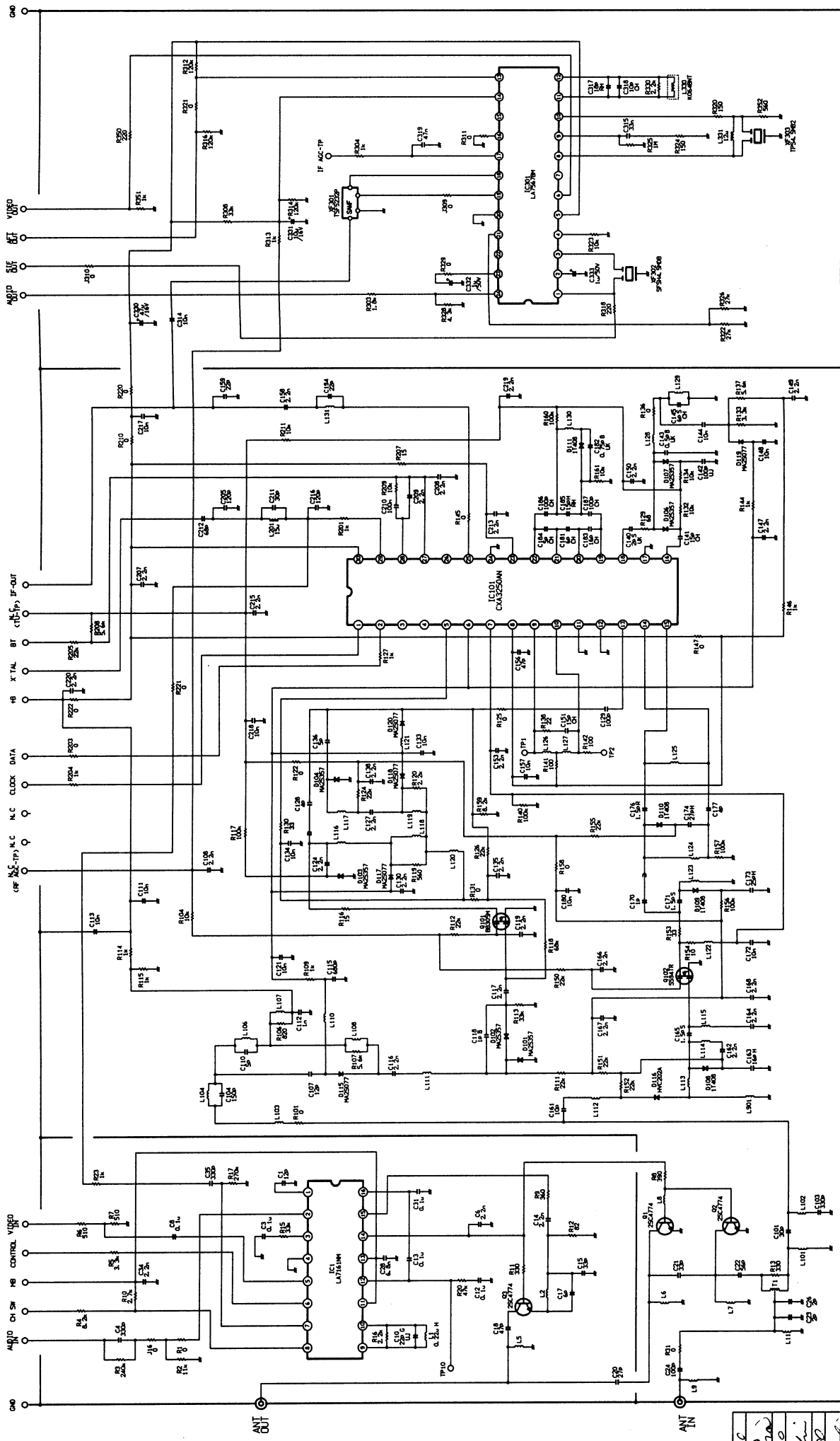
[illegible]







|                                        |  |                |               |                 |      |
|----------------------------------------|--|----------------|---------------|-----------------|------|
| SANYO SANYO Tuner Industries Co., Ltd. |  | ORIGINAL MODEL | PART NAME     | PART CODE       | SUBS |
| B.VD25APM1                             |  | AC40-00007A    | TUNER RF/TU/F | (115VD025APM-1) |      |
| DRAW. ID                               |  |                |               | REVISION        |      |
| 2000.06.28                             |  |                |               | DATE            |      |
| Y. ABE                                 |  |                |               | CHK             |      |
| DRAWN                                  |  |                |               |                 |      |
| 2000.06.28                             |  |                |               |                 |      |



|          |                   |
|----------|-------------------|
| REVISED  | 1998.12.03        |
| DESIGNED | T. M. H. M. A. A. |
| DRAWN    | Y. ABE            |
| CHKD     | Y. ABE            |
| DATE     | 2000.10.05        |
| DRW. ID  | B-V0025AKM        |

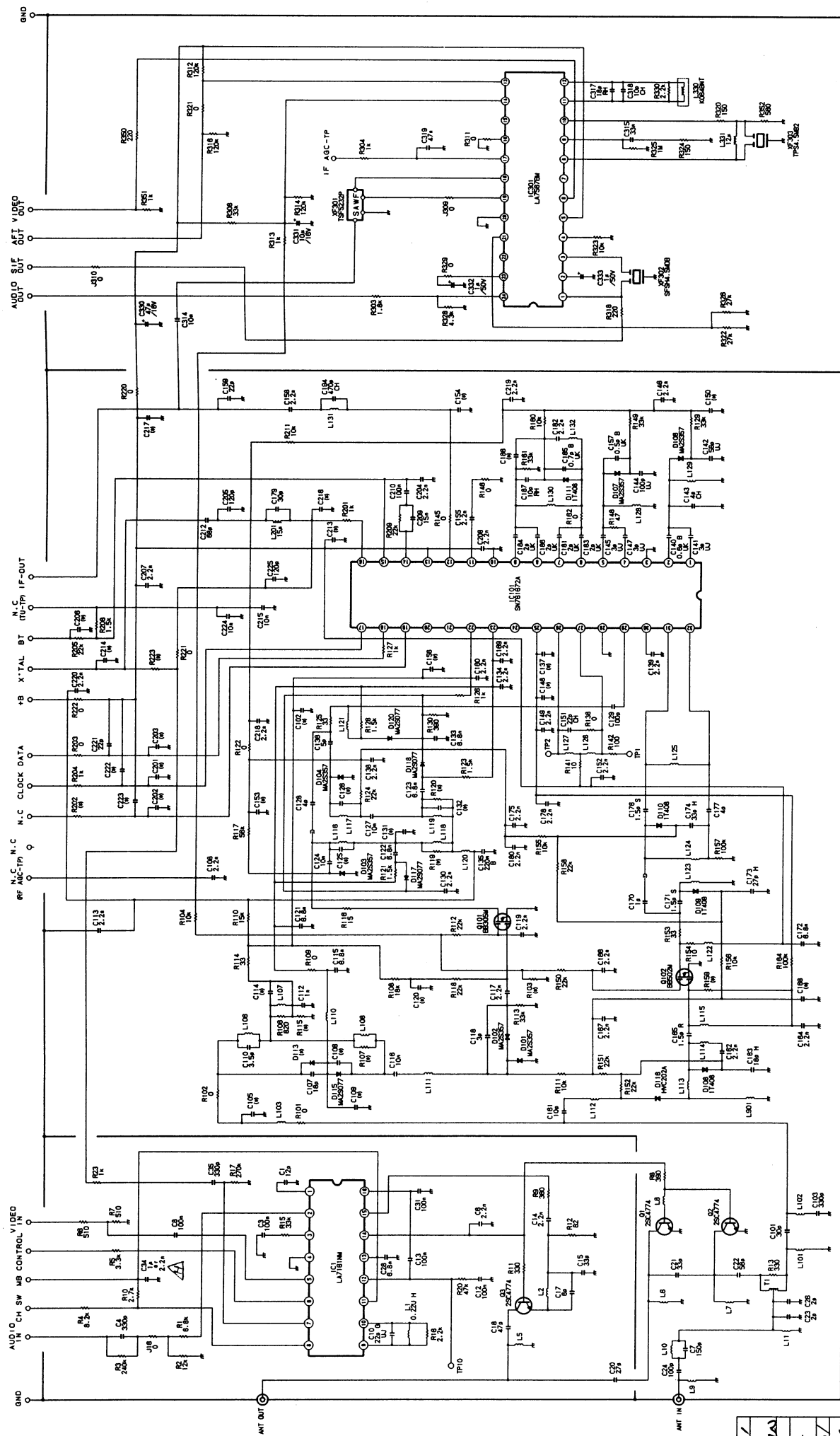
**SANYO** SANYO Tuner Industries Co., Ltd.

ORIGINAL MODEL  
AC40-00007A

PART NAME  
TUNER RF/TU/IF

PART CODE  
VD025AP (VD025AK)

| REV | DATE       | REVISION | SUBREV |
|-----|------------|----------|--------|
| 1   | 2000.10.05 | 本局 追加    |        |



|                   |          |          |             |       |  |
|-------------------|----------|----------|-------------|-------|--|
| △                 |          |          |             |       |  |
| HA                | '04.4.23 |          | c34 changed |       |  |
| WKK               | DATE     | REVISION | PART CODE   | SUBSE |  |
| VD025AP (VD065AP) |          |          |             |       |  |

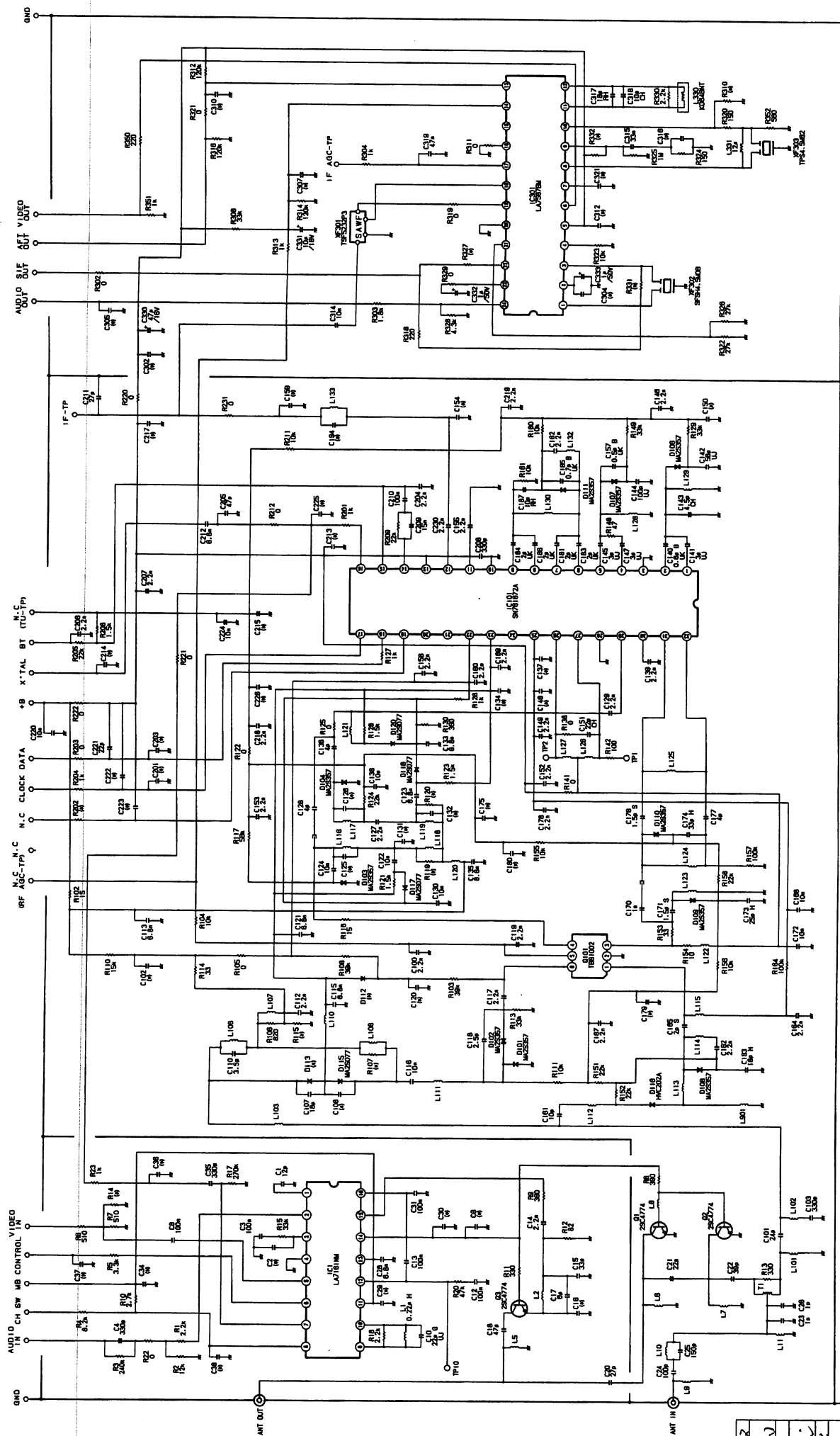
PART NAME  
TUNER RF/TU/IF

ORIGINAL MODEL  
AC40-00007A

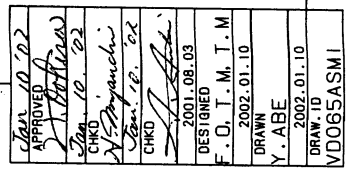
**SANYO** SANYO Tuner Industries Co., Ltd.

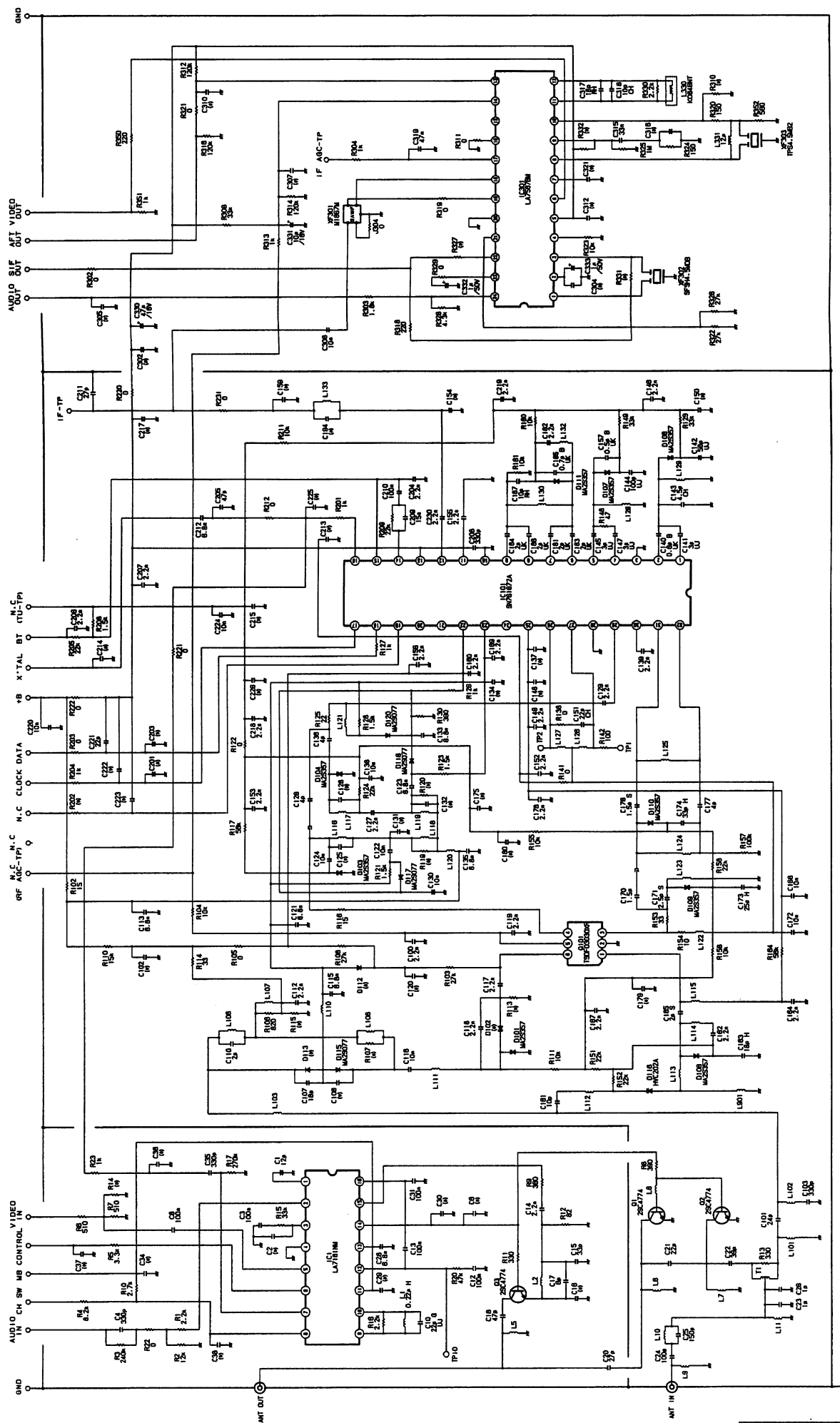
DRAW. ID  
FMVD065A (PM)

|               |            |                    |
|---------------|------------|--------------------|
| APR 23 '01    | APPROVED   | <i>[Signature]</i> |
| CHKD          | 2000.07.03 | <i>[Signature]</i> |
| DESIGNED      | 2001.04.23 | Y. ABE             |
| DRAWN         | 2001.04.23 | DRAW. 10           |
| FMVD065A (PM) |            |                    |



|                   |          |                     |      |            |          |                |       |            |        |            |          |          |
|-------------------|----------|---------------------|------|------------|----------|----------------|-------|------------|--------|------------|----------|----------|
| <i>Jan 10 '02</i> | APPROVED | <i>W. Miyaguchi</i> | CHKD | 2001.08.03 | DESIGNED | F.O. I.M. T.M. | DRAWN | 2002.01.10 | Y. ABE | 2002.01.10 | DRWG. ID | V0065AQM |
|-------------------|----------|---------------------|------|------------|----------|----------------|-------|------------|--------|------------|----------|----------|





|            |                    |  |
|------------|--------------------|--|
| APR 18 '02 | APPROVED           |  |
|            | <i>[Signature]</i> |  |
|            | CHKO               |  |
| APR 17 '02 | CHKO               |  |
|            | <i>[Signature]</i> |  |
| 2002.03.28 | DESIGNED           |  |
|            | F.O. T. M. T. M    |  |
| 2002.04.17 | DRAWN              |  |
|            | Y. ABE             |  |
| 2002.04.17 | DRAWN, 10          |  |
|            | WD065ASMCI         |  |

## USA CHANNEL FREQUENCY TABLE (181CH)

P14

P I F = 45.75 MHz

C I F = 42.17 MHz

S I F = 41.25 MHz

UNIT: MHz

| BAND        | CHANNEL | P CARRIER | S CARRIER | LOCAL |
|-------------|---------|-----------|-----------|-------|
| VHF<br>Low  | 2       | 55.25     | 59.75     | 101   |
|             | 3       | 61.25     | 65.75     | 107   |
|             | 4       | 67.25     | 71.75     | 113   |
|             | 5       | 77.25     | 81.75     | 123   |
|             | 6       | 83.25     | 87.75     | 129   |
|             | A-6     | 85.25     | 89.75     | 131   |
|             | A-5     | 91.25     | 95.75     | 137   |
|             | A-4     | 97.25     | 101.75    | 143   |
|             | A-3     | 103.25    | 107.75    | 149   |
|             | A-2     | 109.25    | 113.75    | 155   |
|             | A-1     | 115.25    | 119.75    | 161   |
|             | A       | 121.25    | 125.75    | 167   |
|             | B       | 127.25    | 131.75    | 173   |
|             | C       | 133.25    | 137.75    | 179   |
| VHF<br>High | D       | 139.25    | 143.75    | 185   |
|             | E       | 145.25    | 149.75    | 191   |
|             | F       | 151.25    | 155.75    | 197   |
|             | G       | 157.25    | 161.75    | 203   |
|             | H       | 163.25    | 167.75    | 209   |
|             | I       | 169.25    | 173.75    | 215   |
|             | 7       | 175.25    | 179.75    | 221   |
|             | 8       | 181.25    | 185.75    | 227   |
|             | 9       | 187.25    | 191.75    | 233   |
|             | 10      | 193.25    | 197.75    | 239   |
|             | 11      | 199.25    | 203.75    | 245   |
|             | 12      | 205.25    | 209.75    | 251   |
|             | 13      | 211.25    | 215.75    | 257   |
|             | J       | 217.25    | 221.75    | 263   |
|             | K       | 223.25    | 227.75    | 269   |
|             | L       | 229.25    | 233.75    | 275   |
|             | M       | 235.25    | 239.75    | 281   |
|             | N       | 241.25    | 245.75    | 287   |
|             | O       | 247.25    | 251.75    | 293   |
|             | P       | 253.25    | 257.75    | 299   |
|             | Q       | 259.25    | 263.75    | 305   |
|             | R       | 265.25    | 269.75    | 311   |
|             | S       | 271.25    | 275.75    | 317   |
|             | T       | 277.25    | 281.75    | 323   |
|             | U       | 283.25    | 287.75    | 329   |
|             | V       | 289.25    | 293.75    | 335   |
|             | W       | 295.25    | 299.75    | 341   |
|             | W+1     | 301.25    | 305.75    | 347   |
|             | W+2     | 307.25    | 311.75    | 353   |
|             | W+3     | 313.25    | 317.75    | 359   |
|             | W+4     | 319.25    | 323.75    | 365   |
|             | W+5     | 325.25    | 329.75    | 371   |
|             | W+6     | 331.25    | 335.75    | 377   |
|             | W+7     | 337.25    | 341.75    | 383   |
|             | W+8     | 343.25    | 347.75    | 389   |
|             | W+9     | 349.25    | 353.75    | 395   |
|             | W+10    | 355.25    | 359.75    | 401   |

| BAND | CHANNEL | P CARRIER | S CARRIER | LOCAL |
|------|---------|-----------|-----------|-------|
| UHF  | W+11    | 361.25    | 365.75    | 407   |
|      | W+12    | 367.25    | 371.75    | 413   |
|      | W+13    | 373.25    | 377.75    | 419   |
|      | W+14    | 379.25    | 383.75    | 425   |
|      | W+15    | 385.25    | 389.75    | 431   |
|      | W+16    | 391.25    | 395.75    | 437   |
|      | W+17    | 397.25    | 401.75    | 443   |
|      | W+18    | 403.25    | 407.75    | 449   |
|      | W+19    | 409.25    | 413.75    | 455   |
|      | W+20    | 415.25    | 419.75    | 461   |
|      | W+21    | 421.25    | 425.75    | 467   |
|      | W+22    | 427.25    | 431.75    | 473   |
|      | W+23    | 433.25    | 437.75    | 479   |
|      | W+24    | 439.25    | 443.75    | 485   |
|      | W+25    | 445.25    | 449.75    | 491   |
|      | W+26    | 451.25    | 455.75    | 497   |
|      | W+27    | 457.25    | 461.75    | 503   |
|      | W+28    | 463.25    | 467.75    | 509   |
|      | W+29    | 469.25    | 473.75    | 515   |
|      | 14      | 471.25    | 475.75    | 517   |
|      | 15      | 477.25    | 481.75    | 523   |
|      | 16      | 483.25    | 487.75    | 529   |
|      | 17      | 489.25    | 493.75    | 535   |
|      | 18      | 495.25    | 499.75    | 541   |
|      | 19      | 501.25    | 505.75    | 547   |
|      | 20      | 507.25    | 511.75    | 553   |
|      | 21      | 513.25    | 517.75    | 559   |
|      | 22      | 519.25    | 523.75    | 565   |
|      | 23      | 525.25    | 529.75    | 571   |
|      | 24      | 531.25    | 535.75    | 577   |
|      | 25      | 537.25    | 541.75    | 583   |
|      | 26      | 543.25    | 547.75    | 589   |
|      | 27      | 549.25    | 553.75    | 595   |
|      | 28      | 555.25    | 559.75    | 601   |
|      | 29      | 561.25    | 565.75    | 607   |
|      | 30      | 567.25    | 571.75    | 613   |
|      | 31      | 573.25    | 577.75    | 619   |
|      | 32      | 579.25    | 583.75    | 625   |
|      | 33      | 585.25    | 589.75    | 631   |
|      | 34      | 591.25    | 595.75    | 637   |
|      | 35      | 597.25    | 601.75    | 643   |
|      | 36      | 603.25    | 607.75    | 649   |
|      | 37      | 609.25    | 613.75    | 655   |
|      | 38      | 615.25    | 619.75    | 661   |
|      | 39      | 621.25    | 625.75    | 667   |
|      | 40      | 627.25    | 631.75    | 673   |
|      | 41      | 633.25    | 637.75    | 679   |
|      | 42      | 639.25    | 643.75    | 685   |
|      | 43      | 645.25    | 649.75    | 691   |
|      | 44      | 651.25    | 655.75    | 697   |
|      | 45      | 657.25    | 661.75    | 703   |

USA CHANNEL FREQUENCY TABLE (181CH) P15

P I F = 45.75 MHz  
 C I F = 42.17 MHz  
 S I F = 41.25 MHz

UNIT: MHz

| BAND | CHANNEL | P CARRIER | S CARRIER | LOCAL |
|------|---------|-----------|-----------|-------|
| UHF  | 46      | 663.25    | 667.75    | 709   |
|      | 47      | 669.25    | 673.75    | 715   |
|      | 48      | 675.25    | 679.75    | 721   |
|      | 49      | 681.25    | 685.75    | 727   |
|      | 50      | 687.25    | 691.75    | 733   |
|      | 51      | 693.25    | 697.75    | 739   |
|      | 52      | 699.25    | 703.75    | 745   |
|      | 53      | 705.25    | 709.75    | 751   |
|      | 54      | 711.25    | 715.75    | 757   |
|      | 55      | 717.25    | 721.75    | 763   |
|      | 56      | 723.25    | 727.75    | 769   |
|      | 57      | 729.25    | 733.75    | 775   |
|      | 58      | 735.25    | 739.75    | 781   |
|      | 59      | 741.25    | 745.75    | 787   |
|      | 60      | 747.25    | 751.75    | 793   |
|      | 61      | 753.25    | 757.75    | 799   |
|      | 62      | 759.25    | 763.75    | 805   |
|      | 63      | 765.25    | 769.75    | 811   |
|      | 64      | 771.25    | 775.75    | 817   |
|      | 65      | 777.25    | 781.75    | 823   |
|      | 66      | 783.25    | 787.75    | 829   |
|      | 67      | 789.25    | 793.75    | 835   |
|      | 68      | 795.25    | 799.75    | 841   |
|      | 69      | 801.25    | 805.75    | 847   |