MAURER

SONY®

HD DIGITAL FRAME RECORDER

# HDDF-500

**Digital HDVS**

OPERATION AND MAINTENANCE MANUAL

1st Edition (Revised 1)

Serial No. 10001 and Higher

**For the customers in the U.S.A.**

**WARNING**

This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instructions manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

The shielded interface cable recommended in this manual must be used with this equipment in order to comply with the limits for a computing device pursuant to Subpart J of Part 15 of FCC Rules.

**For the customers in Canada**

This apparatus complies with the Class A limits for radio noise emissions set out in Radio Interference Regulations.

**Pour les utilisateurs au Canada**

Cet appareil est conforme aux normes Classe A pour bruits radioélectriques, spécifiés dans le Règlement sur le brouillage radioélectrique.

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# 第1章　取り扱い操作

## 1-1. 概要

HDDF-500は、ソニーの高品位ビデオシステム（HDVS: High Definition Video System）のビデオ信号や、コンピューターで作成した画像データを最大32フレームまで半導体メモリーに記録する、デジタルフレームレコーダーです。HDVSカメラシステムで撮影した画像や、HDデジタルVTRの再生画像などのHDTV信号、コンピューターグラフィックス、アニメーションなどコンピューターで作成した画像データを記録し、スチルから±1倍速までの様々な速度でスロー再生することができます。HDVSビデオ信号の1カットずつの記録も可能になり、HDVSの広範囲な応用が可能になりました。

**ICを使った記録**

ビデオ信号の記録には、テープの代わりに大容量のダイナミックRAM（DRAM）を使っています。このため、従来のテープ記録に比べて処理スピードが早くなり、任意のシーンを任意の順番に記録、再生できるようになりました（スタントモーション）。

**最大32フレーム（64フィールド）の記録が可能**

2種類のフレームメモリー基板（HKDF-504: 4フレームメモリー基板、HKDF-508: 8フレームメモリー基板、共に別売り）を組み合わせ、メモリーサイズを決定できるようになっています。HDDF-500には一度に最小2枚、最大4枚の基板が装着できるため、組み合わせにより最小8フレーム（16フィールド）から、最大32フレーム（64フィールド）までの記録が可能になります。また記録、再生の単位をフィールドにするか、フレームにするかを選択することができます。

**帯域幅30MHzのG、B、R信号**

G、B、Rの各HDTV信号は、サンプリング周波数74.25MHz、8ビット量子化により、コンピューターグラフィックスや、HDVSのカメラシステムに共通の30MHzの帯域幅を得ています。これにより、より高画質の画像が得られます。

**VTRと同様の簡単な操作**

通常のHDVS VTRをコントロールするのと同じ操作で記録、再生を実行することができます。操作には、9ピンのリモート端子付きHDVS VTR上のコントロールパネル、VTRリモトコントローラーBKH-2501、オートマチックエディティングコントロールユニットBVE-900/9000などを使います。HDDF-500に記録した画像は、HDVS VTRに送ってテープに記録したり、編集機を使って、テープに記録されている画像と編集することもできます。

**デジタルビデオ入出力**

アナログビデオ入出力に加えて、デジタルの入出力端子を備え、画質劣化のない信号処理が可能になりました。またこの端子を利用して2台以上のHDDF-500を互いに接続することもできます。

**コンピューターとのインターフェース**

パラレルコンピューターインターフェースを搭載。Q-BUS*システム用のDRV11-WA*インターフェースまたはUNIBUS*システム用のDR11-W*インターフェースを持つコンピューターと接続し、コンピューターグラフィックスやアニメーション用画像データを本機に転送し、フレームごとに記録しておくことができます。またHDTV信号を簡単にコンピューターに転送することもできます。

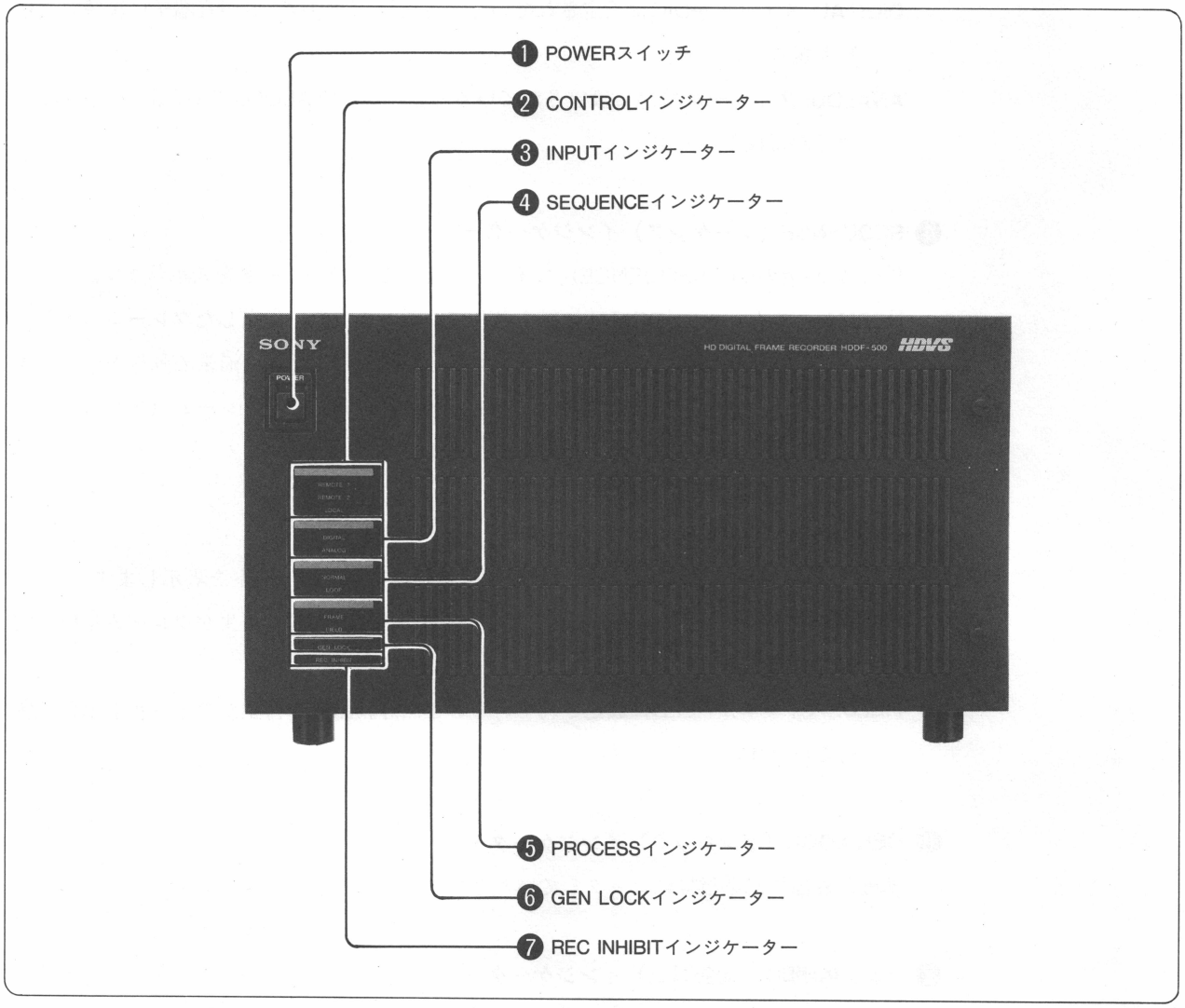
**エンドレス再生**

STOPコマンドを受け取るまで、記録した内容を繰り返し連続して再生することができます（ループモード）。

＊DRV11-WA、DR11-W、Q-BUS、UNIBUSは、DIGITAL EQUIPMENT社の商標です。

# 1-2. 各部の名称と働き

## 1-2-1. 前面




### ❶ POWER（電源）スイッチ

本機の電源をON/OFFします。

### ❷ CONTROL（コントロール）インジケーター

SY-149基板のS10（CONTROL）スイッチで選択したコントロールモードを表示します。

**REMOTE 1:** スイッチがREM 1に設定されているとき点灯。本機は後面のREMOTE 1端子に接続した機器でコントロールされます。

**REMOTE 2:** スイッチがREM 2に設定されているとき点灯。本機は後面のREMOTE 2端子に接続した機器でコントロールされます。

**LOCAL:** スイッチがLOCに設定されているとき点灯。本機の設定に従って動作します。

### ❸ INPUT（入力）インジケーター

SY-149基板のS8（INPUT SEL）スイッチで選択した入力信号を表示します。

**DIGITAL:** スイッチがDIGに設定されているとき点灯。DIGITAL INPUT端子に接続した信号が選択されます。

**ANALOG:** スイッチがANAに設定されているとき点灯。ANALOG INPUT端子に接続した信号が選択されます。

### ❹ SEQUENCE（シーケンス）インジケーター

SY-149基板のS4（SEQUENCE）スイッチで選択した動作モードを表示します。

**NORMAL:** スイッチがNORMALに設定されているとき点灯。指定したフレーム（またはフィールド）間の記録、再生を実行すると動作が停止する、通常の動作モードです。

**LOOP:** スイッチがLOOPに設定されているとき点灯。指定したフレーム（またはフィールド）間を繰り返し記録または再生します。

### ❺ PROCESS（プロセス）インジケーター

SY-149基板のS3（PROC）スイッチで選択されたプロセスモードを表示します。

**FRAME:** スイッチがFRAMEに設定されているとき点灯。記録、再生がフレーム単位で実行されます。

**FIELD:** スイッチがFIELDに設定されているとき点灯。記録、再生がフィールド単位で実行されます。

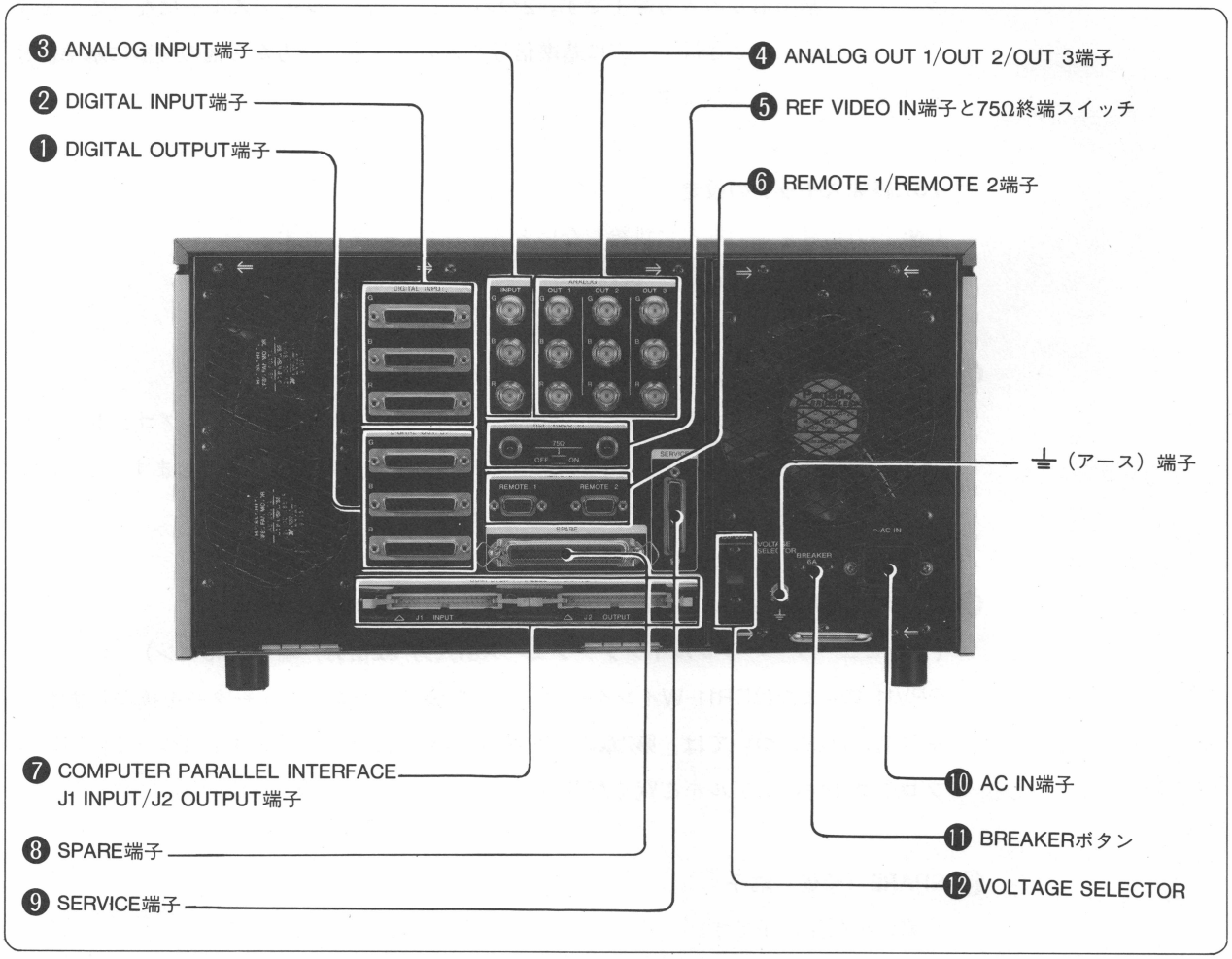
### ❻ GEN LOCK（ゲンロック）インジケーター

本機が外部の基準信号にロックしているときに点灯します。

### ❼ REC INHIBIT（記録禁止）インジケーター

SY-149基板のS5（REC INHI）スイッチがONになっているときに点灯します。このインジケーターが点灯しているときには、記録を実行することはできません。

## 1-2-2. 後面




**❶ DIGITAL OUTPUT（デジタル出力）端子**（D-SUB 25ピン）

G、B、Rデジタル信号の出力端子です。

**❷ DIGITAL INPUT（デジタル入力）端子**（D-SUB 25ピン）

G、B、Rデジタル信号の入力端子です。

**❸ ANALOG INPUT（アナログ入力）端子**（BNC型）

G、B、Rアナログ信号の入力端子です。

**❹ ANALOG OUT 1/OUT 2/OUT 3（アナログ出力1/出力2/出力3）端子**（BNC型）

G、B、Rアナログ信号を出力します。OUT 1、OUT 2、OUT 3端子からは、同じ信号を同時に出力します。

**❺ REF VIDEO IN（基準信号入力）端子（BNC型）と75Ω終端スイッチ**

システムの基準信号の入力端子です。2つの端子は内部でループスルーになっています。ブリッジ接続するときは、一方に基準信号を入力し、もう一方から他の機器に基準信号を供給することができます。

**75Ω終端スイッチの設定**

**ON:** 出力信号を他の機器に供給しないとき、75Ωで終端します。

**OFF:** 出力信号を他の機器に供給するとき（ブリッジ接続するとき）。

**❻ REMOTE（リモート）1/REMOTE（リモート）2端子**（D-SUB 9ピン）

VTRリモートコントローラーBKH-2501、オートマチックエディティングコントロールユニットBVE-900/9000など、9ピンのリモート端子付きの機器を接続します。この端子に接続した機器で、本機をコントロールします。

**❼ COMPUTER PARALLEL INTERFACE J1 INPUT/J2 OUTPUT**
**（コンピューターパラレルインターフェースJ1入力/J2出力）端子**（40ピン）

DRV11-WAまたはDR11-Wインターフェースを装備したコンピューターを接続します。信号名の詳細については、第2章の“2-7”の項を、また、プロトコルについては別冊のプロトコルマニュアルをご覧ください。

**❽ SPARE（予備）端子**

将来の拡張用端子です。

**❾ SERVICE（サービス用）端子**

サービス用の端子です。

**❿ AC IN（電源入力）端子**

付属の電源コードを使って、規定の電源電圧/容量の電源に接続します。

**⓫ BREAKER（ブレーカー）ボタン**

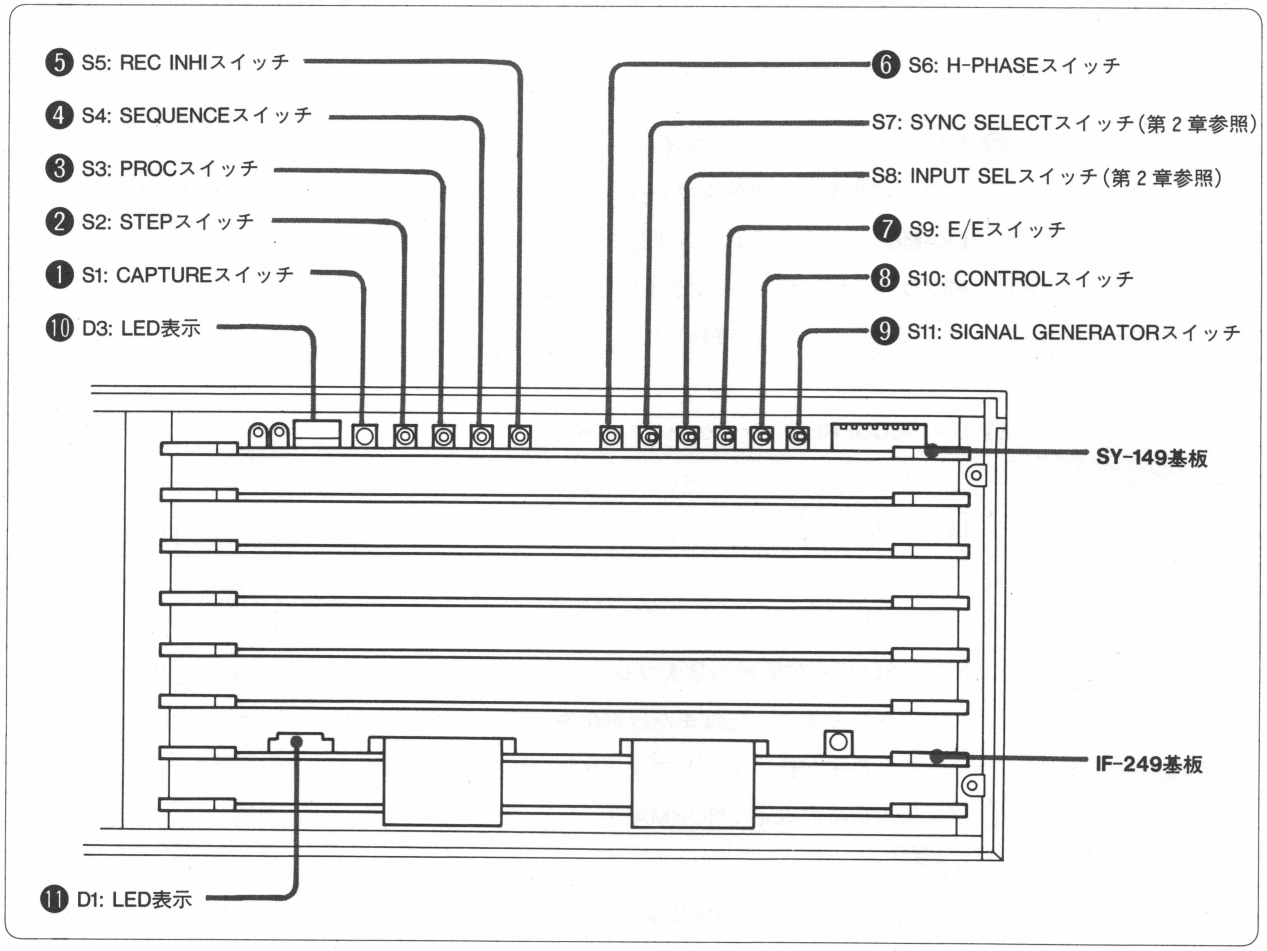
本機のブレーカーです。内部の基板に過剰電流が流れると、電源の供給が自動的に切れます。基板のチェックをし、このボタンを押し込んでから、電源を入れ直してください。

### ⓬ VOLTAGE SELECTOR（電圧切り換えスイッチ）

本機の動作電圧を切り換えます。ご使用になる地域の電源電圧に合わせて設定してください。設定を変更する場合は、カバーを外し、スイッチの設定を下表のように切り換えます。次に、選択した電圧値が表示されるように、カバーを取り付けます。

| 設定 | 電圧範囲 |
|---|---|
| 100～120 | AC90～132V |
| 220～240 | AC198～264V |

## 1-2-3. 内部基板




### ❶ S1: CAPTURE（キャプチャー）スイッチ

押すと、ANALOG INPUT端子またはDIGITAL INPUT端子に入力されている信号が、D3に表示されているフレーム（またはフィールド）に1フレーム（または1フィールド）ずつ記録されます。 どちらの端子の入力信号を記録するかは、S8(INPUT SEL)スイッチで選択します。

### ❷ S2: STEP（ステップ）スイッチ

現在表示されているフレーム（または、フィールド）の1フレーム（または1フィールド）前または後のフレーム（または、フィールド）を選択します。

＋：画面に表示されているフレーム（またはフィールド）が1フレーム（または、1フィールド）進み、D3に表示されているフレーム（またはフィールド）番号がひとつ増えます。

－：画面に表示されているフレーム（またはフィールド）が1フレーム（または、1フィールド）戻り、D3に表示されているフレーム（またはフィールド）番号がひとつ減ります。

**メモ**

- スイッチを押し続けると、連続してフレーム（またはフィールド）番号が変わります。
- S11（SIGNAL GENERATOR）スイッチがONになっているときは、押すたびに、内部信号発生器が発生するテスト信号を順番に切り換えます。詳細については、“2-8-6.”を参照してください。

### ❸ S3: PROC（プロセス）スイッチ

記録、再生をする単位をフレームにするか、フィールドにするか、選択します。

**FRAME:** データはフレーム単位で記録・再生されます。

**FIELD:** データはフィールド単位で記録・再生されます。

（工場出荷時の設定：FRAME）

### ❹ S4: SEQUENCE（シーケンス）スイッチ*

記録または再生のモードを選択します。

**LOOP:** 再生時は、指定したフレーム（またはフィールド）間を繰り返し再生し、記録時は、0から最大フレーム（またはフィールド）まで繰り返し記録します。（ループモード）

**NORMAL:** 現在位置から最大フレーム（またはフィールド）まで、またはSTOPボタンが押されるまで、記録または再生を実行します。記録が終了すると、動作は停止します。再生が終了するとブラックビデオ信号を出力します。

（工場出荷時の設定：NORMAL）

**メモ**

ループモード（スイッチがLOOPのとき）でのタイムコード表示は、ループ内のフレーム番号を示します。

ただし、VTRリモートコントローラーを接続している場合で、リモートコントローラーがタイマー表示(TIMER)モードの場合は、フレーム番号がループの範囲を越えて連続して増減します。リモートコントローラーのオート(AUTO)モードを使用してループモードのパラメーター(IN点、OUT点)を設定する場合は、リモートコントローラーのエディット機能は使用できません。

### ❺ S5: REC INHI（記録禁止）スイッチ*

**ON:** 記録を禁止します。

**OFF:** 記録が可能になります。

（工場出荷時の設定：OFF）

### ❻ S6: H-PHASE（水平位相）スイッチ*

入力基準信号に対してビデオ出力信号の水平同期位相を調整します。スイッチを押すたびに、信号は1クロック（13.5ns）水平に移動します。

**ADV:** 水平同期位相が進みます。

**DELAY:** 水平同期位相が遅れます。

**ご注意**

スイッチをADVまたはDELAYの方向に押し続けると、ビデオ出力信号は調整範囲の限界まで移動します。一度この状態になると、このときの状態が不揮発性メモリーに書き込まれ、同じ方向には再調整ができなくなります。スイッチを逆方向に押してください。

### ❼ S9: E/Eスイッチ

このスイッチで選択した入力信号を、直接、出力信号とすることができます。

**ON:** INPUT端子に接続した信号がそのまま出力されます。このとき、SY-149基板のD3には、“0EE”と現在表示されているフレーム（またはフィールド）番号が交互に表示されます。

**OFF:** メモリーに記録されているビデオ信号を出力します。D3には、現在表示されているフレーム（またはフィールド）番号が表示されます。

（工場出荷時の設定：ON）

---

＊ S4（SEQUENCE）、S5（REC INHI）、S6（H－PHASE）、S10（CONTROL）およびS11（SIGNAL GENERATOR）スイッチは、後面のREMOTE端子に接続されているコントローラーには関係なく働きます。

### ❽ S10: CONTROL（コントロール）スイッチ*

本機をコントロールするリモートコントローラーを選択します。

**REM 1:** REMOTE 1端子に接続した機器で本機はコントロールされます。

**LOC:** 本基板の設定が有効になり、本機は単独で動作します。

**REM 2:** REMOTE 2端子に接続した機器で本機はコントロールされます。

（工場出荷時の設定：LOC）

**メモ**

- REMOTE1端子またはREMOTE2端子にリモートコントローラーやエディティングコントロールユニットを接続した場合、D3に表示されるフレーム番号“000”が、タイムコードの“00:01:00:00”に対応します。
- このスイッチの設定に関係なく、本機は常にCOMPUTER PARALLEL INTERFACE端子に接続した機器でコントロールすることができます。

### ❾ S11: SIGNAL GENERATOR（信号発生器）スイッチ*

内蔵の信号発生器が発生する信号を選択します。

**ON:** 内蔵の信号発生器が動作し、S2 (STEP) スイッチで選択したテスト信号が出力されます。テスト信号は、S2 (STEP) スイッチを押すたびに次の順序で切り換わります。

┌→カラーバー→リニアリティ→パルス&バー→マルチバースト→10ステップ┐

**OFF:** SY-149基板のS9(E/E)スイッチがONのとき、S8 (INPUT SEL) スイッチで選択した信号を出力します。S9(E/E)スイッチがOFFのときは、メモリーに記録されている信号を出力します。

（工場出荷時の設定：OFF）

＊前ページの欄外を参照。

### ⑩ D3: LED表示

電源を入れると、診断機能が働きます。診断機能の動作中は“0F0”から“0F5”が表示されます。診断の結果が正常な場合は、現在のモードが下表のように表示され、異常がある場合は“0F0”から“0F5”のどれかが表示されて、システムの動作は停止します。詳細については“第4章　自己診断機能”を参照してください。

| 表示 | 内容 |
|---|---|
| NNN | 現在表示されているフレーム（またはフィールド）の番号。表示範囲はフレーム0～31（またはフィールド0～63）です。 |
| 0EE/NNN | 0EEは、本機がEEモードであることを示します。<br>0EEとNNNを交互に表示します。 |
| 0d0/NNN | 0d0は、本機がメモリー診断中であることを示します。<br>DP-104基板のS1スイッチを押すと、0d0とNNNを交互に表示します。 |
| 0d1/MMM | 内蔵の信号発生器が動作していることを示します。0d1と発生している信号を示すコード番号MMM(下記参照)を交互に表示。<br>000: カラーバー<br>001: リニアリティ<br>002: パルス&バー<br>003: マルチバースト<br>004: 10ステップ |
| 0F0<br>0F1<br>0F2<br>0F3<br>0F4<br>0F5 | CPU PROMまたはRAMのメモリーにエラーが発生。 |

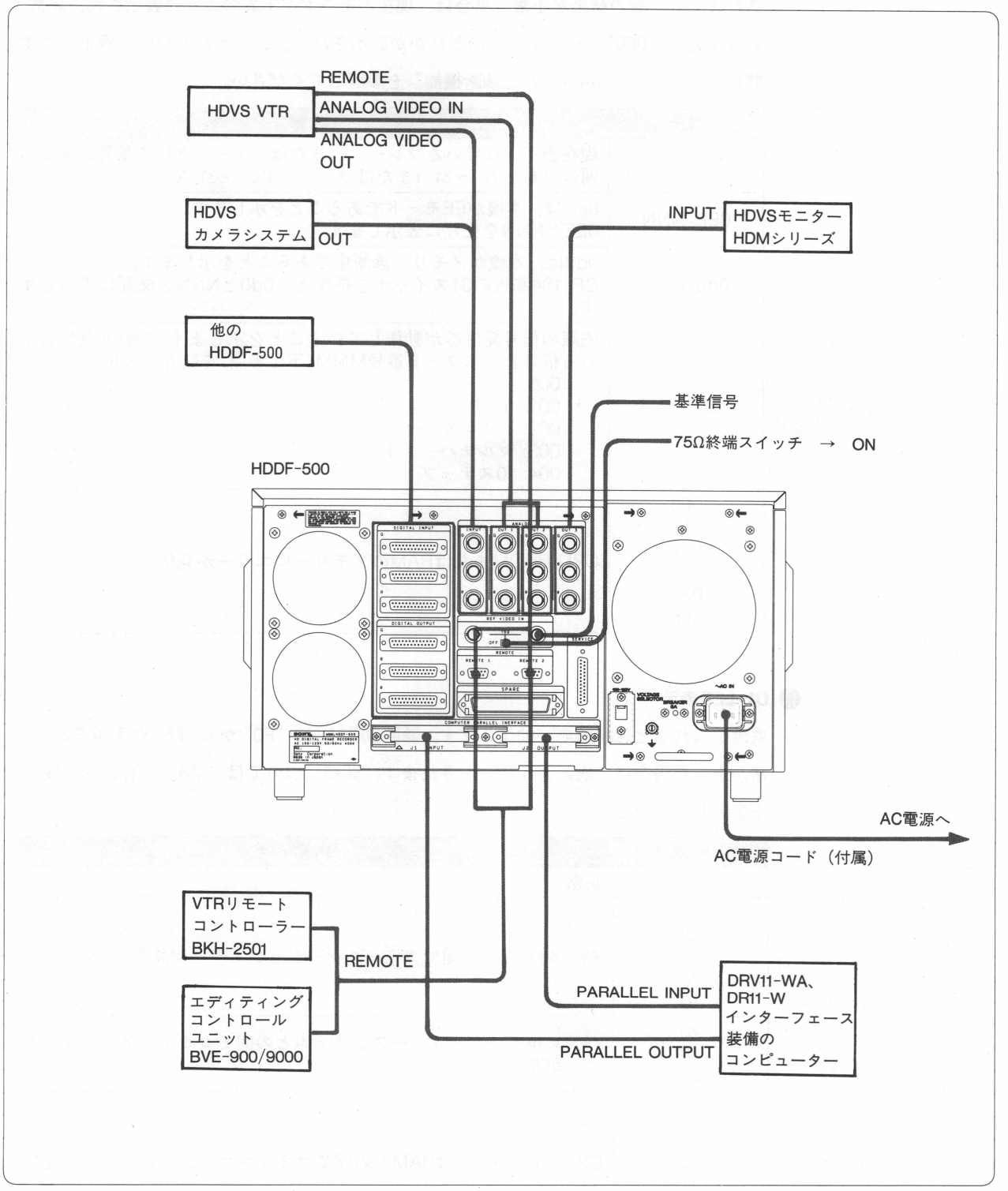
### ⑪ D1: LED表示

電源を入れると診断機能が動作します。診断動作中は、“F0”から“F5”が表示され、異常があった場合は、次のように表示されます。詳細については“第4章　自己診断機能”を参照してください。

| 表示 | 内容 |
|---|---|
| 00 | 正常 |
| 01<br>02<br>04<br>08<br>10 | SY-149基板との間でコミュニケーションエラーが発生。 |
| 20<br>40<br>80 | パラレルインターフェースシステムとの間でコミュニケーションエラーが発生。 |
| F0<br>F1<br>F2<br>F3<br>F4<br>F5 | CPU PROMまたはRAMとの間でコミュニケーションエラーが発生。 |
| FF | フレームメモリーが不良。 |

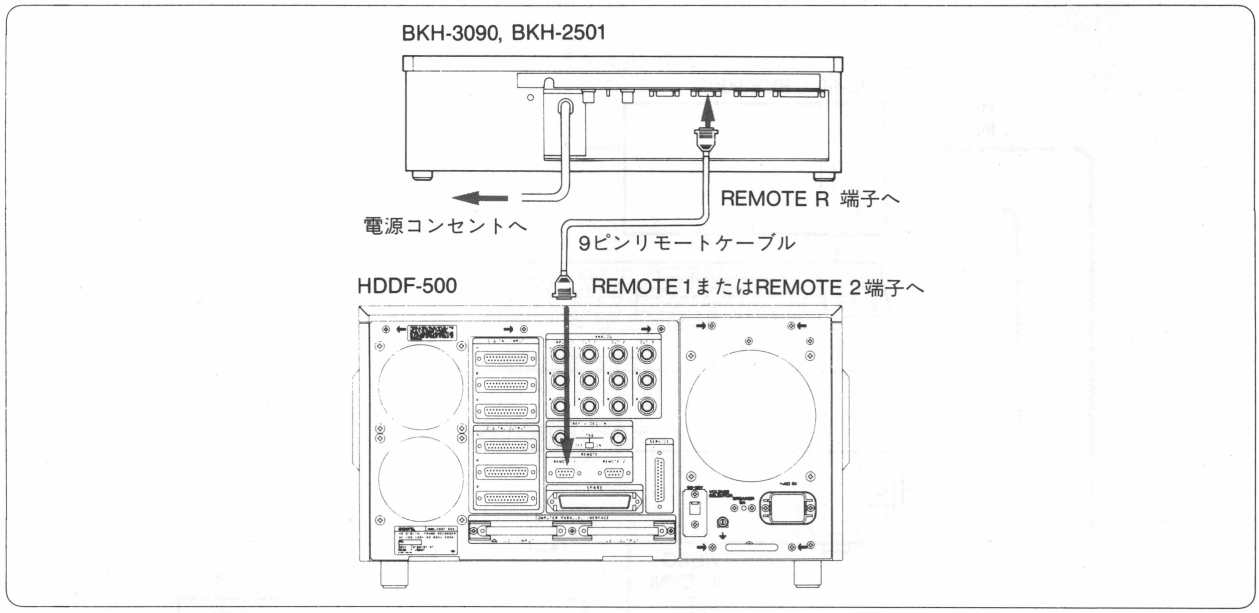
# 1-3. 接続

## 1-3-1. 接続図


REMOTE
HDVS VTR
ANALOG VIDEO IN
ANALOG VIDEO OUT
HDVS カメラシステム
OUT
INPUT
HDVSモニター HDMシリーズ
他の HDDF-500
基準信号
75Ω終端スイッチ → ON
HDDF-500
AC電源へ
AC電源コード（付属）
VTRリモートコントローラー BKH-2501
REMOTE
エディティングコントロールユニット BVE-900/9000
PARALLEL INPUT
PARALLEL OUTPUT
DRV11-WA、DR11-W インターフェース装備のコンピューター

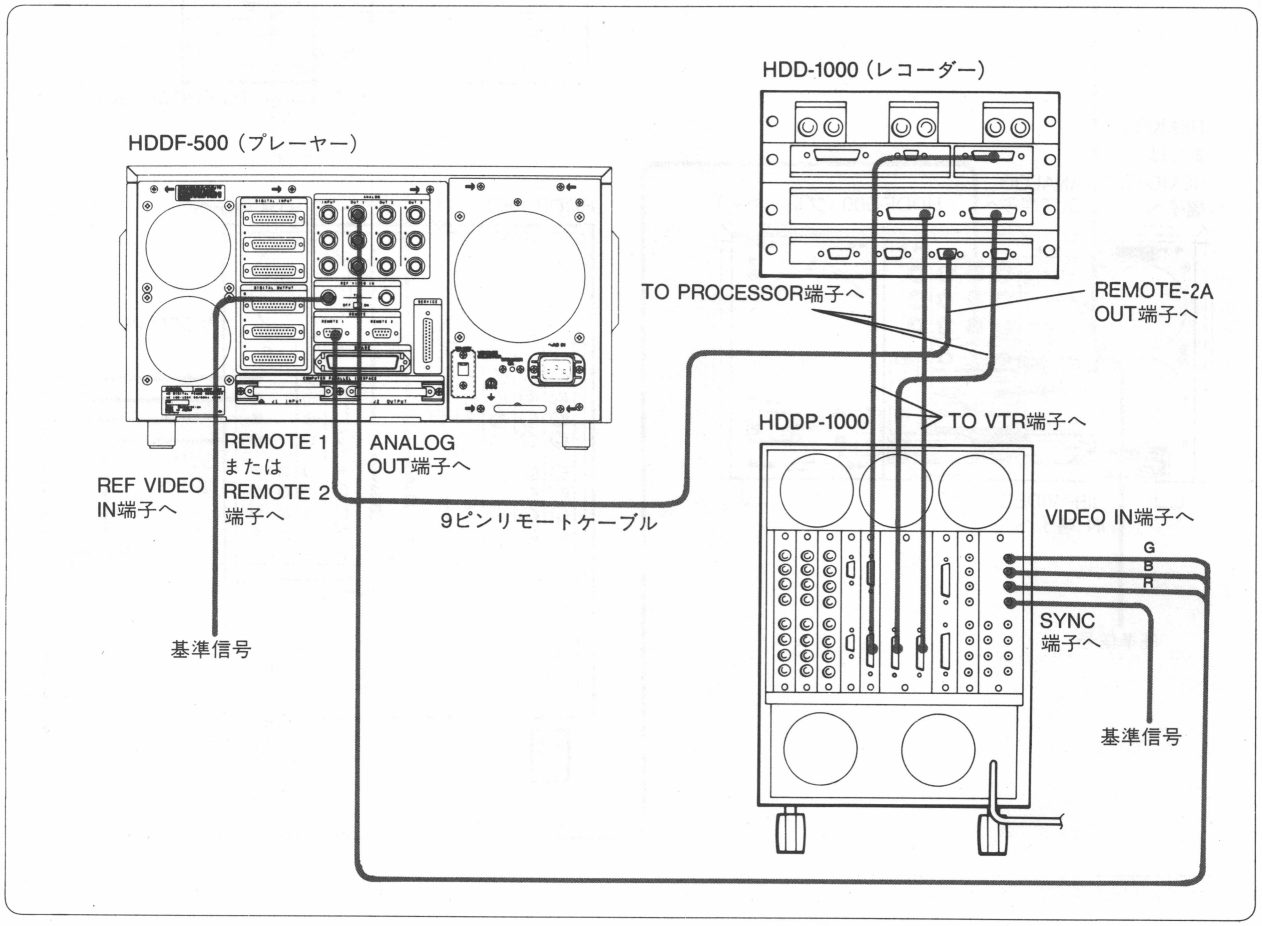
## 1-3-2. 接続例

### 1. リモートコントローラーとの接続



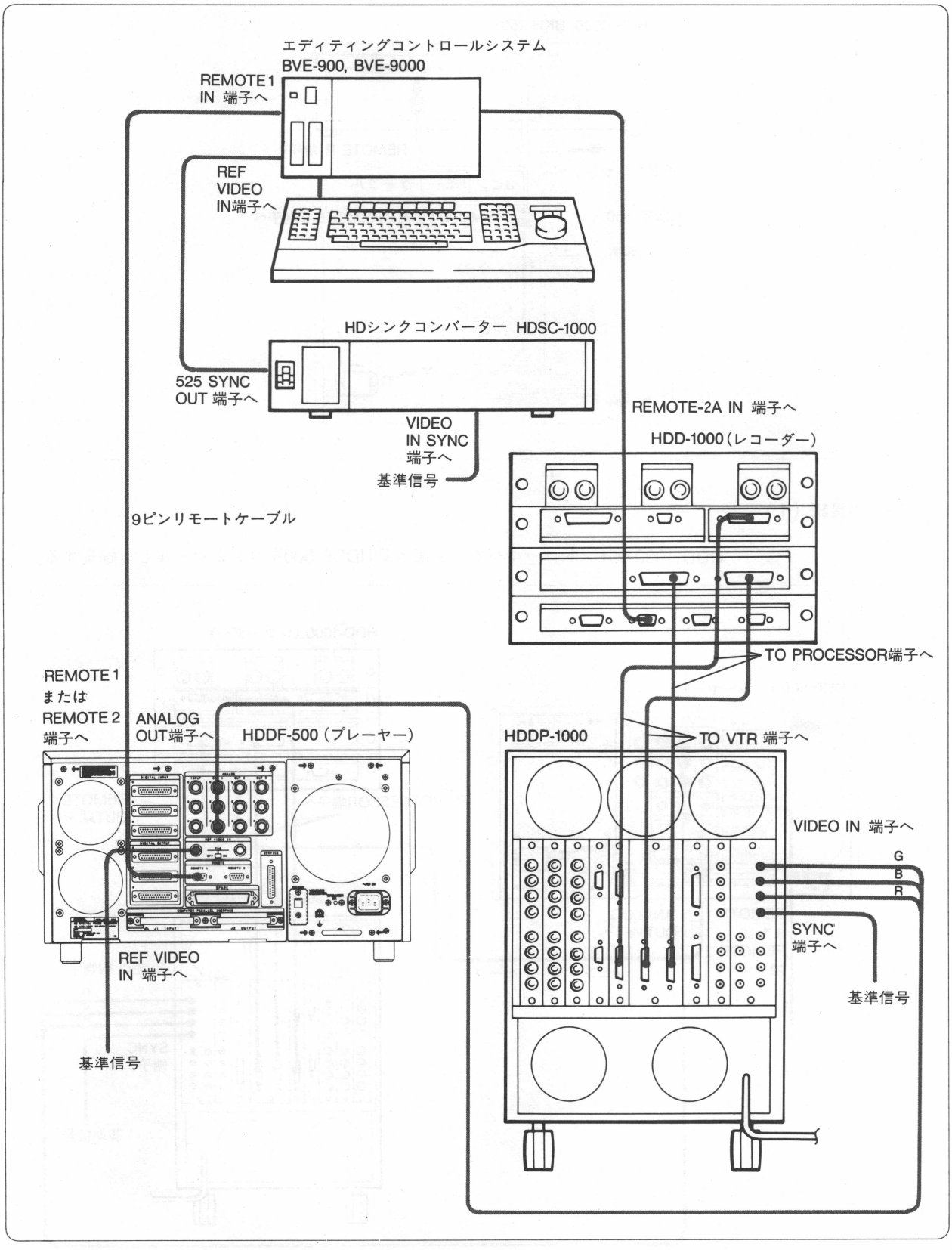

### 2. VTRとの接続（1）

HDD-1000のコントロールパネルを使ってHDDF-500をコントロールし、編集する。

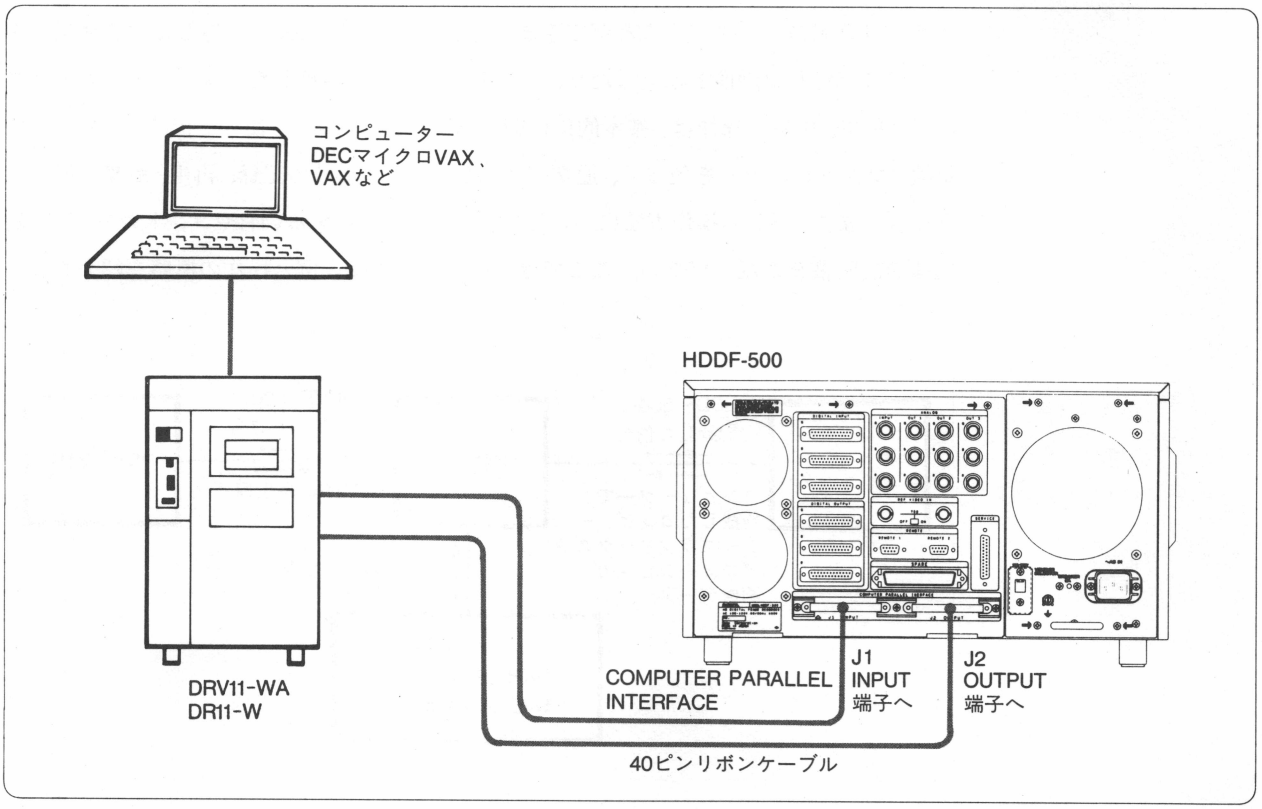


## 3. VTRとの接続（2）

編集機を使ってコントロールする。

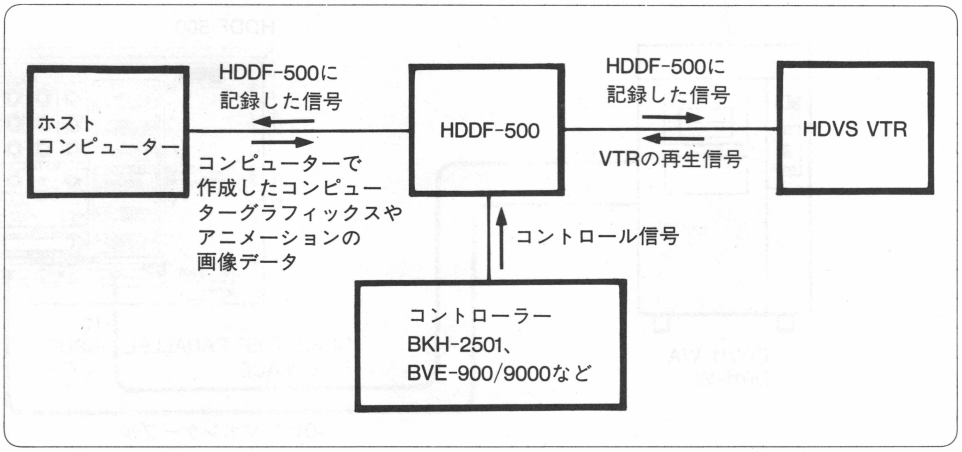


## 4．コンピューターとの接続



# 1-4. 操作

システムの電源を入れると、HDVS VTRで記録、再生するのと同様に、HDDF-500でビデオ信号を記録、再生することができます。また、HDDF-500に記録したビデオ信号を、テープに記録した画像と編集したり、コンピューターで処理したりすることもできます。記録、再生、編集の操作は、基本的には9ピンのリモート端子を使って接続したVTRや編集機、コントローラーを使って、通常のHDVSのビデオ信号の記録、再生、編集と同じように行います。詳しい操作方法については、コントロールするVTRやコントローラー、編集機の説明書をご覧ください。ここでは、いくつかの操作例と操作の概略を紹介します。




ご注意

- HDDF-500で記録できるフレーム(またはフィールド)数は、装着されている基板の種類と数によって決まります。お使いになる前に、装着されている基板を確認し、メモリーの容量をチェックされることをお勧めします。
- HDDF-500は、ビデオ信号の記録にICを使っているため、HDDF-500の電源を切ると記録していた内容は消えてしまいます。保存しておきたい内容は、電源を切る前にVTRを使ってテープに記録するか、コンピューターに転送し、ディスク等に保管しておいてください。
- HDDF-500は、9ピン端子に接続したコントローラーでHDVS VTRと同じように記録、再生をすることができますが、VAR MEMORY機能はありませんのでご注意ください。

**HDDF-500とコンピューターが正しく通信できないときは**

コンピューターと一時的に通信ができなくなったり、正しく動作しない場合は、操作をもう一度やり直してください。正しく動作します。

これは、コンピューターとのパラレルインターフェースを使った通信で、コンピューター側でノイズの影響を受けたために起こるものです。HDDF-500には影響はなく、メモリーの内容はそのまま保持されます。

**VTRリモートコントローラーBKH-2501使用時のHDDF-500の動作モード**

HDDF-500は、HDVS VTRと同様に記録、再生などの操作が可能ですが、BKH-2501を使用して操作を行った場合は、動作モード(および出力信号)が、次の表のようにVTRとは一部異なります。(これはHDDF-500にはCONFIヘッドがないためです)

| BKH-2501上のスイッチ設定 | | HDDF-500の動作モード | | | | | | |
|---|---|---|---|---|---|---|---|---|
| R/P MODE スイッチ | TAPE/EE スイッチ | STANDBY OFF | STANDBY ON | REC および EDIT REC | PLAY および 他の モード | PREVIEWモード時のレコーダーのIN点/OUT点間 | REC | |
| | | | | | | | STILL REC および STEP REC | SLOW REC |
| FIELD または FRM | TAPE | R/P | R/P | EE** | R/P | EE | EE | EE** |
| | TAPE/EE | EE | EE* | EE | R/P | EE | EE | EE |
| | INPUT | EE | EE* | EE | R/P | EE | EE | EE |
| CONFI HEAD | TAPE | R/P | R/P | EE** | R/P | EE | EE** | EE** |
| | TAPE/EE | EE | EE* | EE | R/P | EE | EE** | EE |
| | INPUT | EE | EE* | EE | R/P | EE | EE | EE |

## 1-4-1. 準備

SY-149基板のスイッチを次のように設定します。

S3 (PROC) スイッチ
　フレーム単位で記録するとき　→　FRAME
　フィールド単位で記録するとき→　FIELD
S4 (SEQUENCE) スイッチ　→　NORMAL
S5 (REC INHI) スイッチ　→　OFF
S7 (SYNC SELECT) スイッチ　→　AUTO
S8 (INPUT SEL) スイッチ　→　ANA
S10 (CONTROL) スイッチ
　REMOTE 1端子に接続した機器で本機をコントロールするとき　→　REM 1
　REMOTE 2端子に接続した機器で本機をコントロールするとき　→　REM 2

＊HDDF-500のSY-149基板上のS5 (REC INHI) スイッチがONの場合は、TAPEになります。

＊＊HDDF-500の動作モードがVTRと異なる部分です。

## 1-4-2. HDDF-500とHDVS VTR間の記録

例えば、HDVS VTRで記録した画像にコンピューターでタイトルを追加するような場合は、次のように操作します。

1 VTRからビデオ信号を、HDDF-500を介してコンピューターに転送します。
2 コンピューターでタイトルを作り、VTRから送られてきた信号に付加します。
3 タイトルを付加したビデオ信号を、パラレルインターフェースを介してコンピューターからHDDF-500に送り返し、HDDF-500に記録します。
4 HDDF-500に記録した信号を、編集機やコンピューターを使ってHDVS VTRに記録します。

## 1-4-3. コンピューターグラフィックスの記録

1 ホストコンピューターやイメージ処理システムを使ってコンピューターグラフィックスを作成します。
2 作成したコンピューターグラフィックスを、パラレルインターフェースを介してHDDF-500に送り、記録します。
3 HDDF-500で記録したコンピューターグラフィックスの画像を、編集機やコントローラーを使ってHDVS VTRに送り、記録します。

## 1-4-4. アニメーションの記録

1 S4（SEQUENCE）スイッチをLOOPにします。
2 ホストコンピューターを使って、アニメーションの画像を作成します。
3 作成したアニメーションの画像を、パラレルインターフェースを介してHDDF-500に送り、記録します。
4 HDDF-500で、ループモードで画像を再生します。
5 HDDF-500の再生信号をHDVS VTRに送り、記録します。

## 1-4-5. HDDF-500の単独操作

HDDF-500は他のコントローラーを使わずに、本機単独で記録することもできます。

1 SY-149基板のS10（CONTROL）スイッチをLOCにします。
2 S1（CAPTURE）スイッチを押します。
スイッチを押すたびに、D3に表示されているフレーム（またはフィールド）に、INPUT端子への入力信号を1フレーム（または 1フィールド）ずつ記録します。

# 1-5. 主な仕様

| | |
|---|---|
| 電源 | AC100～120V/220～240V±10%（切り換え可）、50/60Hz |
| 消費電力 | 400W |
| 動作温度 | 5°C～40°C |
| 保存温度 | －20°C～＋60°C |
| 湿度 | 10%～85%（結露状態は不可） |
| 重量 | 33kg |
| 外形寸法 | 424×241×555mm |
| PCBサイズ | 長さ：447mm |
| | 幅：292mm |
| 信号規格 | SMPTE 240M |
| | 1125本　60Hz |
| | 2：1インターレース |
| | 1035アクティブライン/フレーム |
| | 1920有効画素/ライン |
| サンプリング周波数 | 74.25MHz（G、B、R各チャンネルとも） |
| 量子化 | 8ビット |
| 記録容量 | 最大32フレーム（G、B、R各チャンネルとも） |
| 記録、ディスプレイ単位 | |
| | フィールドまたはフレーム（切り換え可） |
| メモリー容量 | 1920×1040（H×V）画素/フレーム（G、B、R各チャンネル毎） |
| インターフェース | DRV11-WA/DR11-W* |
| 転送レート | （ホストコンピューターシステムによる） |
| | DRV11-WA/DR11-W＝0.5Mバイト/秒（標準） |
| 同期 | 3値同期 |

＊DRV11-WAおよびDR11-WはDIGITAL EQUIPMENT社の商標です。

| | | |
|---|---|---|
| 周波数特性 | 0～27MHz ±0.5dB<br>27～30MHz +0.5dB −1.5dB | |
| Kファクター（HDTV2T～66ns HAD） | 1%以下 | |
| チルト（水平、垂直） | 1%以下 | |
| S/N | 56dB以上 | |
| チャンネル間遅延 | 3.5ns以下 | |
| 同期ジッター | 2ns以下 | |
| 付属品 | AC電源コード | ×1 |
| | 延長基板 | ×1 |
| | フラットケーブルアッセンブリー | ×2 |
| | ハーネス | ×3 |
| | テストデータシート | ×1 |
| | ラックアングルアッセンブリー | ×2 |
| | ねじ（+B4×14） | ×4 |
| | ねじ（+B5×16） | ×4 |
| | ワッシャー（W5） | ×4 |
| | スプリングワッシャー（SW5） | ×4 |
| | オペレーション　アンド　メンテナンスマニュアル | ×1 |

別売りアクセサリーと関連機器

HDフレームメモリー基板 HKDF-508（8フレーム用）
HKDF-504（4フレーム用）
リモートコントローラー BKH-3090（BVH-3000/3100用）
リモートコントローラー BKH-2501（BVH-2500用）
リモートコントロールパネルアダプター BKH-2017A

仕様および外観は改良のため予告なく変更することがありますがご了承ください。

# SECTION 1 OPERATION



## 1-1. Overview

The HDDF-500 is an HD (High Definition) digital frame recorder designed for recording up to 32 frames of still or motion images for the High Definition Video System (HDVS). Scene-by-scene recording, such as that used in animation, is possible when an HD VTR and a host computer or image processing system are used in combination.

**Storing Images in Silicon Memory**
Dynamic RAMs (DRAMs) with large memory capacity are used rather than magnetic tape for storing images on the HDDF-500. The use of DRAMs reduces access time and makes random frame access (stunt motion) possible.

**Capable of Storing up to 32 Frames or 64 Fields of HD Video Images**
Two types of optional frame memory boards, the HKDF-504 (a 4-frame memory board) and the HKDF-508 (an 8-frame memory board), are provided. A minimum of two boards, with a maximum of four boards, can be installed in the HDDF-500, allowing it to record images ranging from eight frames up to 32 frames (or 16 fields up to 64 fields). The ability to record either frame or field images can be selected.

**Equal Bandwidth of 30 MHz for G, B and R Signals**
The G, B and R HD video signals are processed with a sampling frequency of 74.25 MHz at 8-bit quantization. This results in a 30 MHz full-bandwidth system which is common to various computer graphics devices, graphic paint boxes, HD color cameras, etc., and actualizes a high-quality picture.

**Easy Control**
Recording and playback of images can be executed with the REC (RECORD) and PLAY buttons located on the control panels of equipment such as an HD VTR, a BKH-2501 VTR remote controller, or a BVE-900/9000 automatic editing control unit connected with a 9-pin serial interface. The operating method is almost the same as controlling an HD VTR. The images stored on the HDDF-500 can be transferred to a VTR for recording on tape. They can then be edited with pictures recorded on an HD VTR using the VTR and an editing control unit.

**Digital Interface**
The HDDF-500 is equipped with digital input and output connectors so that digital signals can be processed in the same way as analog signals. Using the digital input/output connectors allows multiple HDDF-500s to be connected to each other.

**Parallel Computer Interface**

The HDDF-500 is equipped with parallel computer interface connectors. When the computer has the DRV11-WA* interface for the Q-BUS* system or the DR11-W* interface for the UNIBUS* system, created images such as animations or computer-generated graphics can be transferred to the HDDF-500 for storage in memory. In addition, the data stored in the memory of the HDDF-500 can be transferred to the computer.

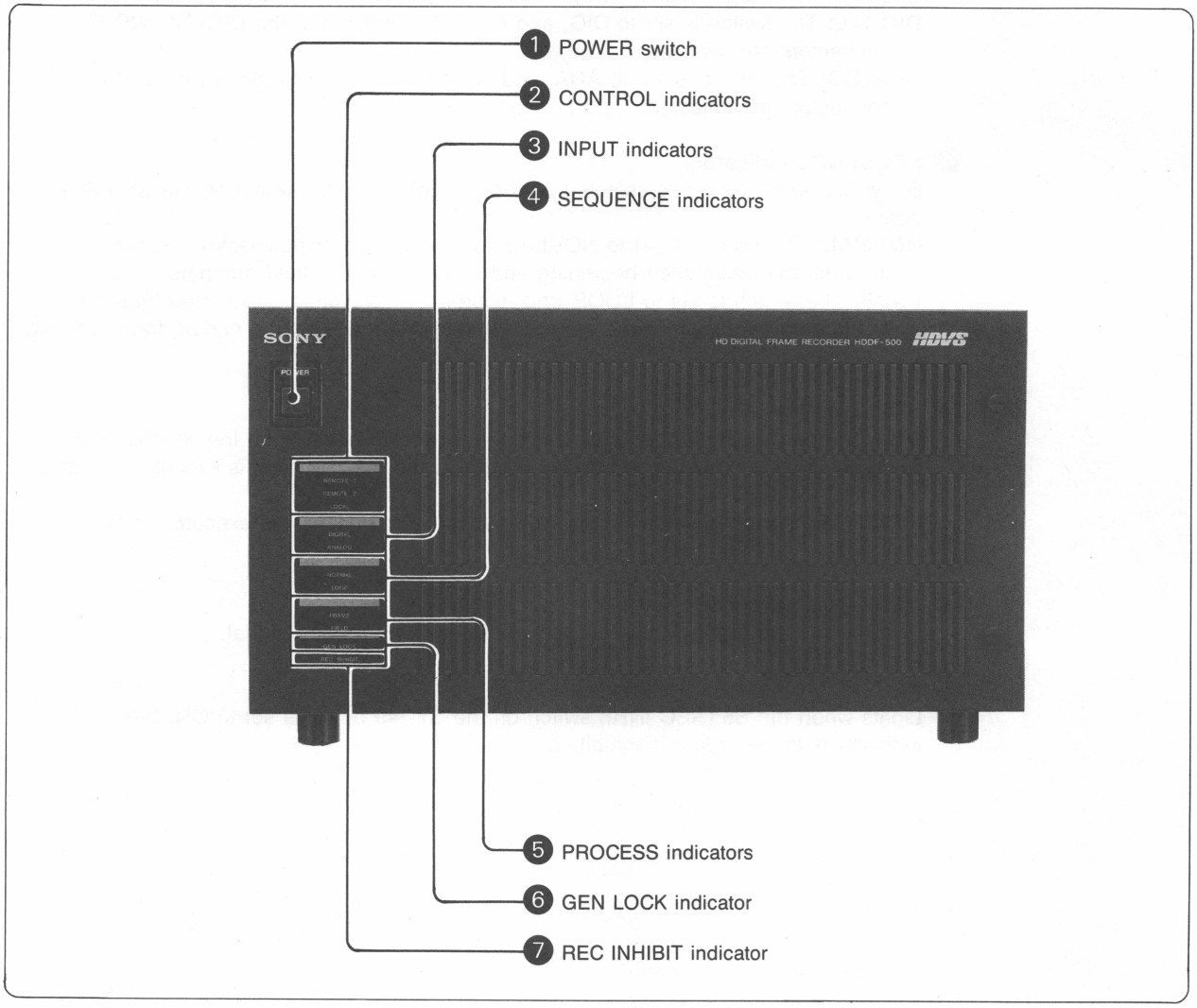
**Endless Playback**

Images stored in memory can be played back repeatedly until a STOP command is given (LOOP mode). This allows a series of images or scenes to be looped together in continuous playback mode for applications such as animation or simulation.

* DRV11-WA, DR11-W, Q-BUS, and UNIBUS are trademarks of the Digital Equipment Corporation.

# 1-2. Location and Function of Parts

## 1-2-1. Front Panel




**1 POWER switch**
Turns the HDDF-500 on and off.

**2 CONTROL indicators**
Show the control mode selected by the S10 (CONTROL) switch on the SY-149 board.
**REMOTE 1:** The switch is set to REM 1, and the unit is controlled by the equipment connected to the REMOTE 1 connector.
**REMOTE 2:** The switch is set to REM 2, and the unit is controlled by the equipment connected to the REMOTE 2 connector.
**LOCAL:** The switch is set to LOC, and the unit is controlled by local HDDF-500 system controls.

**❸ INPUT indicators**

Show the input signal selected by the S8 (INPUT SEL) switch on the SY-149 board.

**DIGITAL:** The switch is set to DIG, and signals connected to the DIGITAL INPUT connectors are selected.

**ANALOG:** The switch is set to ANA, and signals connected to the ANALOG INPUT connectors are selected.

**❹ SEQUENCE indicators**

Show the operation mode selected by the S4 (SEQUENCE) switch on the SY-149 board.

**NORMAL:** The switch is set to NORMAL, and recording or playback is executed between the designated beginning and ending frame or field numbers.

**LOOP:** The switch is set to LOOP, and recording or playback is repeated from the designated beginning frame or field number to the designated ending frame or field number.

**❺ PROCESS indicators**

Show the processing mode selected by the S3 (PROC) switch on the SY-149 board.

**FRAME:** The switch is set to FRAME, and recording or playback is executed in frame units.

**FIELD:** The switch is set to FIELD, and recording or playback is executed in field units.

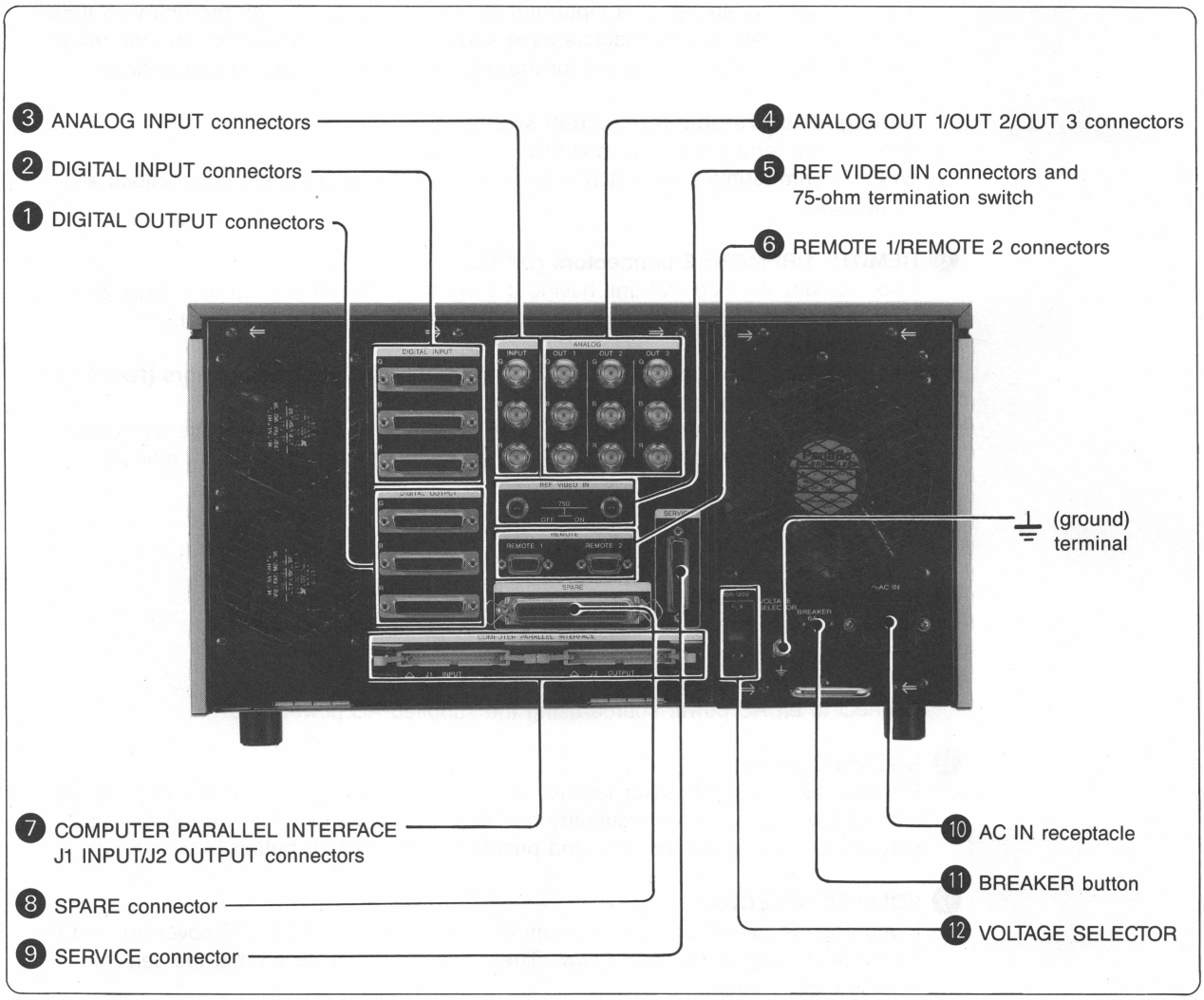
**❻ GEN LOCK indicator**

Lights when the unit is locked to an external synchronization signal.

**❼ REC (record) INHIBIT indicator**

Lights when the S5 (REC INHI) switch on the SY-149 board is set to ON. When this indicator is lit, recording is inhibited.

## 1-2-2. Rear Panel




**1 DIGITAL OUTPUT connectors (D-SUB 25-pin)**
Used to output digital G, B and R signals.

**2 DIGITAL INPUT connectors (D-SUB 25-pin)**
Used to input digital G, B and R signals.

**3 ANALOG INPUT connectors (BNC connectors)**
Used to input analog G, B and R signals.

**4 ANALOG OUT 1/OUT 2/OUT 3 (output 1/2/3) connectors (BNC connectors)**
Used to output analog G, B and R signals. The same signals are output from the OUT 1, OUT 2 and OUT 3 connectors simultaneously.

**5 REF VIDEO IN (reference video input) connectors and 75-ohm termination switch**
The reference video signal is input and optionally looped through the unit with these connectors. These two connectors have a loop-through configuration, so that one is used for the input and the other for the output to make a bridging connection.

**Setting of the 75-ohm termination switch**
**ON:** 75-ohm termination switch is ON.
**OFF:** 75-ohm termination switch is OFF, and loop-through system connections are possible.

**6 REMOTE 1/REMOTE 2 connectors (D-SUB 9-pin)**
Used to connect a control unit having a 9-pin serial interface such as a BKH-2501 VTR remote controller or a BVE-900/9000 automatic editing control unit.

**7 COMPUTER PARALLEL INTERFACE J1 INPUT/J2 OUTPUT connectors (two 40-pin ribbon cable connectors)**
Used to connect a computer having a DRV11-WA or a DR11-W interface. For details on signal names, refer to Section "2-7". For protocol, refer to the protocol manual.

**8 SPARE connector**
Not used.

**9 SERVICE connector**
No user-serviceable parts inside. For use by qualified personnel only.

**10 AC IN (input) receptacle**
Connect to an AC power source using the supplied AC power cord.

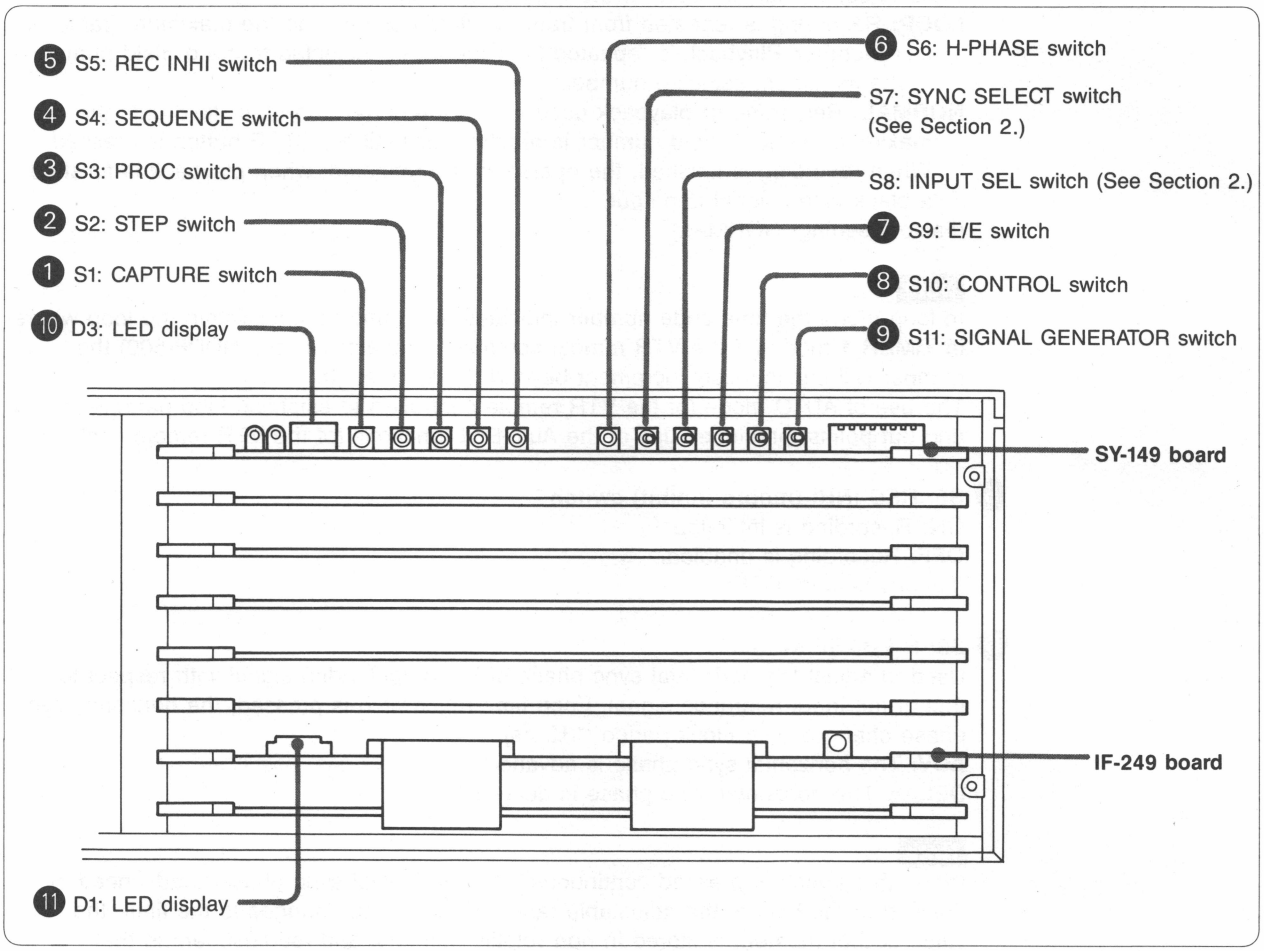
**11 BREAKER button**
Provided as a circuit breaker for this unit. The power supply is cut off when excessive current flows to the internal circuitry due to a fault condition. Turn the power supply on only after checking the circuitry and pushing in the breaker button.

**12 VOLTAGE SELECTOR**
If you change the voltage supply, remove the VOLTAGE SELECTOR cover and set the switch according to the chart below. Then, replace the cover so that the selected voltage can be seen.

| Setting | Line Voltage |
|---|---|
| 100 – 120 | 90 to 132 V AC, 50/60 Hz |
| 220 – 240 | 198 to 264 V AC, 50/60 Hz |

WARNING: Changing the voltage selector may require the use of a different line cord or attachment plug, or both. To reduce the risk of fire or electric shock, refer servicing to qualified service personnel.

## 1-2-3. Circuit Boards




**1 S1: CAPTURE switch**

Press to manually record signals input to the ANALOG INPUT connectors or the DIGITAL INPUT connectors frame-by-frame or field-by-field on the frame (or field) displayed on the D3. The signals to be recorded are selected from those input to the ANALOG INPUT connectors or DIGITAL INPUT connectors by the S8 (INPUT SEL) switch.

**2 S2: STEP switch**

The currently (displayed) frame or field is increased or decreased by 1, determined by the position of the S3 (PROC) switch as follows:

+ : The frame or field displayed on the monitor screen advances by one frame (or field), and the frame or field number displayed on the D3 is increased by one.

– : The frame or field displayed on the monitor screen goes back by one frame (or field), and the frame or field number displayed on the D3 is decreased by one.

**Notes**

- The frame or field number changes continuously while this switch is being pressed.
- When the S11 (SIGNAL GENERATOR) switch is set to ON, the kind of test signal generated by the built-in signal generator is changed each time the S2 (STEP) switch is pressed. For details, refer to Section "2-8-6."

**3 S3: PROC (processing) switch**

Used to select the unit for image recording and reproduction, frame-by-frame or field-by-field.

**FRAME:** Images are recorded and reproduced in frame units.

**FIELD:** Images are recorded and reproduced in field units.

(Factory setting: FRAME)

**❹ S4: SEQUENCE switch***

Used to select the RECORD or the PLAYBACK mode.

**LOOP:** Recording is repeated from frame or field number 0 to the maximum frame or field number. Playback is repeated from the lowest selected frame or field number to the maximum selected number.

**NORMAL:** Recording or playback occurs from the current frame or field until the maximum frame or field number is reached, or until the STOP button is pressed. When recording is finished, the operation is terminated; when playback is finished, a black video signal is output.

(Factory setting: NORMAL)

**Note**

In loop mode the time code number indicates the frame number within the loop where in TIMER 1 mode (of the VTR remote controller connected to the HDDF-500) the number will continuously increment beyond the loop length.

The use of AUTO mode (of the VTR remote controller) to establish loop parameters (in and out points) precludes use of the Auto-Edit functions (of the VTR remote controller).

**❺ S5: REC INHI (record inhibit) switch***

**ON:** Recording is inhibited.

**OFF:** Recording is enabled.

(Factory setting: OFF)

**❻ S6: H-PHASE switch***

Used to adjust the horizontal sync phase of the output video signal with respect to that of the input reference signal. Each time this switch is pressed, the horizontal sync phase changes by 1 clock period (13.5 ns).

**ADV:** The horizontal sync phase is advanced.

**DELAY:** The horizontal sync phase is delayed.

**Note**

When this switch is pressed continuously, the horizontal sync phase is advanced or delayed to the limit of the adjustable range. If the phase changes to the limit, the value at that moment is stored in non-volatile memory, and readjustment in that direction will be impossible.

**❼ S9: E/E switch**

Used to select the input signal that is directly output from the HDDF-500.

**ON:** The signal supplied to the INPUT connector is directed to the output. In this mode, "0EE" and the number of the displayed frame or field are shown alternately on D3 of the SY-149 board.

**OFF:** A video signal supplied from the memory is directed to the output. In this mode, the number of the displayed frame or field is shown on D3 of the SY-149 board.

(Factory setting: ON)

**❽ S10: CONTROL switch***

Used to select the unit for control of the HDDF-500.

**REM 1:** The unit connected to the REMOTE 1 connector on the connector panel is selected.

**LOC:** The settings on the SY-149 board become effective, and the unit functions with its local controls.

**REM 2:** The unit connected to REMOTE 2 on the connector panel is selected.

(Factory setting: LOC)

**Notes**

- When a remote controller or an editing control unit is connected to the REMOTE 1 or REMOTE 2 connector, the frame number "000" displayed on the D3 corresponds to the time code "00:01:00:00."
- The HDDF-500 can be controlled by the unit connected to the COMPUTER PARALLEL INTERFACE connectors independent of the setting of this switch.

**9 S11: SIGNAL GENERATOR switch***

Used to select whether a signal generated by the built-in signal generator is output.

**ON:** The built-in signal generator is activated, and the test signal selected by the S2 (STEP) switch is displayed. The test signal is repeatedly generated in the following order: COLOR BAR, LINEARITY, PULSE & BAR, MULTI-BURST, and 10 STEP.

**OFF:** When the S9 (E/E) switch is set to ON, the signal selected by the S8 (INPUT SEL) switch on the SY-149 board is output. When the S9 (E/E) switch is set to OFF, the signal recorded in the memory is output.

(Factory setting: OFF)

**10 D3: LED display**

When the power is turned on, the diagnostics function is activated. During diagnosis, one of "0F0" through "0F5" is displayed. When the result of the diagnosis is normal, the current status is displayed as shown below. When an abnormality is found, one of "0F0" through "0F5" is displayed, and the system stops operating. For details, refer to "Section 4. Self Diagnosis Function."

| Display | Contents |
|---|---|
| NNN | Indicates the frame or field number of the displayed picture. Frame number 0 through 31 (or field number 0 through 63) can be displayed. |
| 0EE/NNN | "0EE" indicates that the unit is in E-E mode. "0EE" and "NNN" are displayed alternately. |
| 0d0/NNN | "0d0" indicates that the unit is executing memory diagnosis. When S1 on the DP-104 board is pressed, "0d0" and "NNN" are displayed alternately. |
| 0d1/MMM | Indicates that the internal signal generator is operating. "0d1" and a code number shown below, indicating the signal being generated, are displayed alternately.<br>000: Color bars<br>001: Linearity<br>002: Pulse and bar<br>003: Multi-burst (3 to 30 MHz in 3 MHz steps)<br>004: 10 step |
| 0F0<br>0F1<br>0F2<br>0F3<br>0F4<br>0F5 | Error has occurred in CPU PROM or RAM. |

* Switches S4 (SEQUENCE), S5 (REC INHI), S6 (H-PHASE), S10 (CONTROL) and S11 (SIGNAL GENERATOR) are marked with an asterisk (*) to indicate that they function independently of the operation of the unit connected to the REMOTE connector.

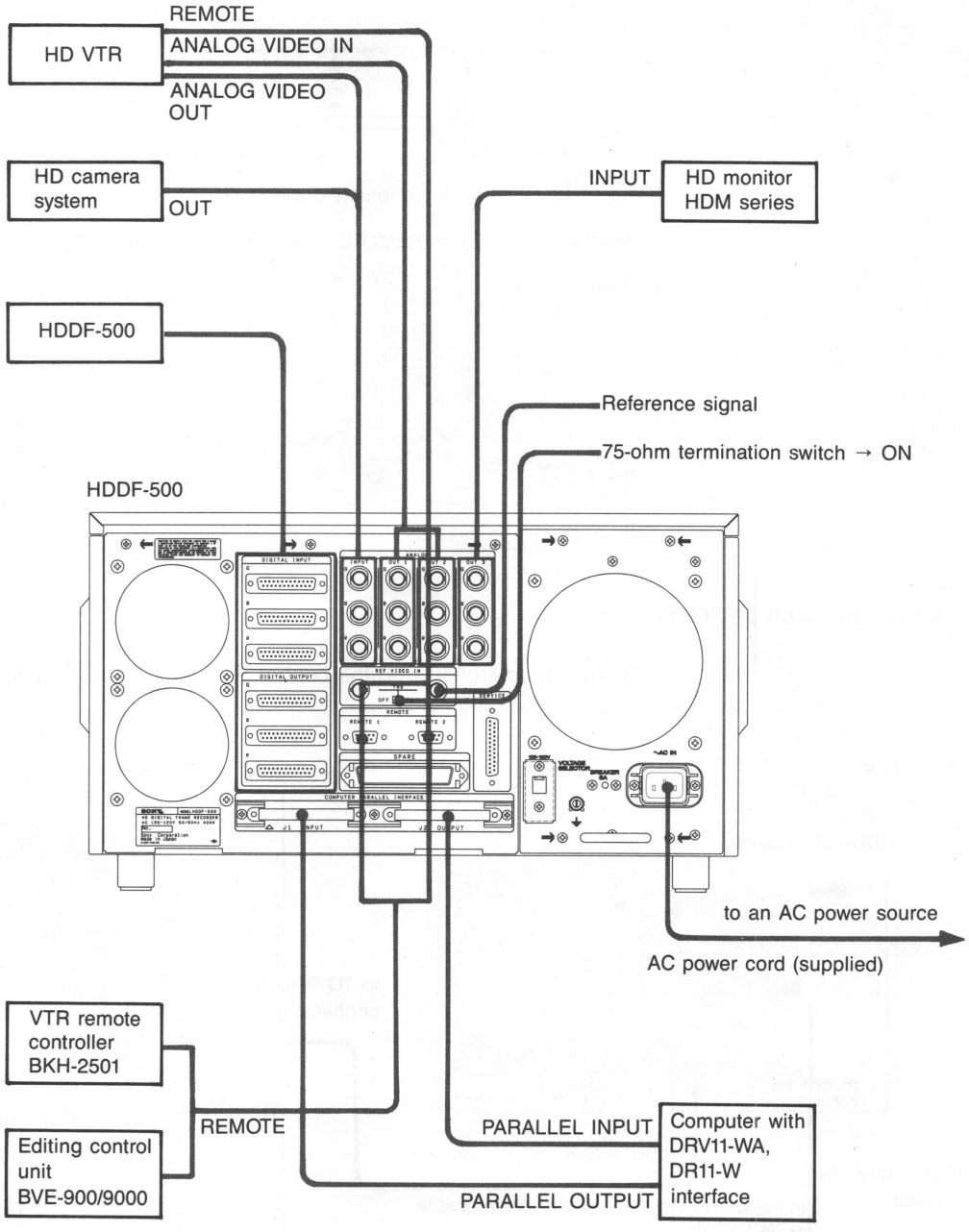
**⑪ D1: LED display**

When the power is turned on, the diagnostics function is activated. During diagnosis, one of "F0" through "F5" is displayed. When an abnormality is found, one of the following is displayed. For details, refer to "Section 4. Self Diagnosis Function."

| Display | Contents |
|---|---|
| 00 | Normal |
| 01<br>02<br>04<br>08<br>10 | Error occurred during communication with the SY-149 board. |
| 20<br>40<br>80 | Error occurred during communication with the parallel interface system. |
| F0<br>F1<br>F2<br>F3<br>F4<br>F5 | Error occurred in CPU memory PROM or RAM. |
| FF | Results of the memory diagnosis. |

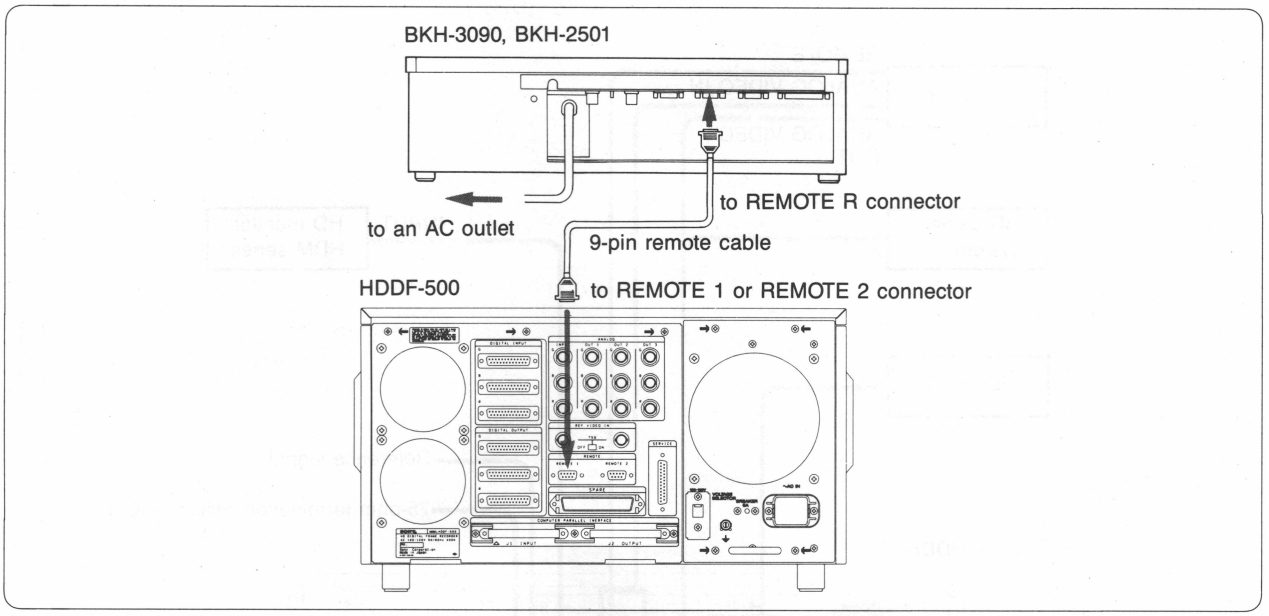
# 1-3. Connections

## 1-3-1. Connection Diagram



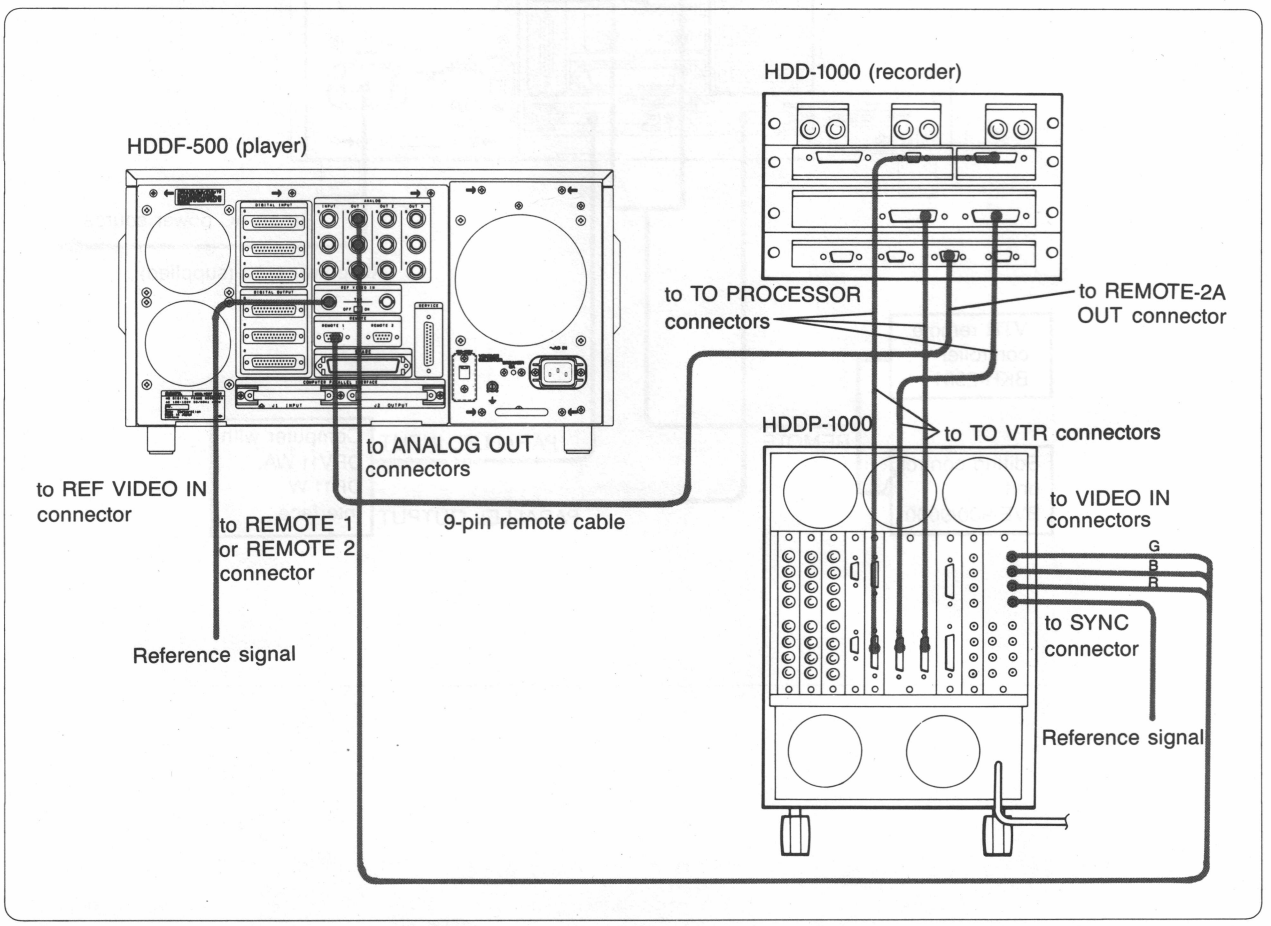
# 1-3-2. Connection Examples

## 1. Connection with a remote controller



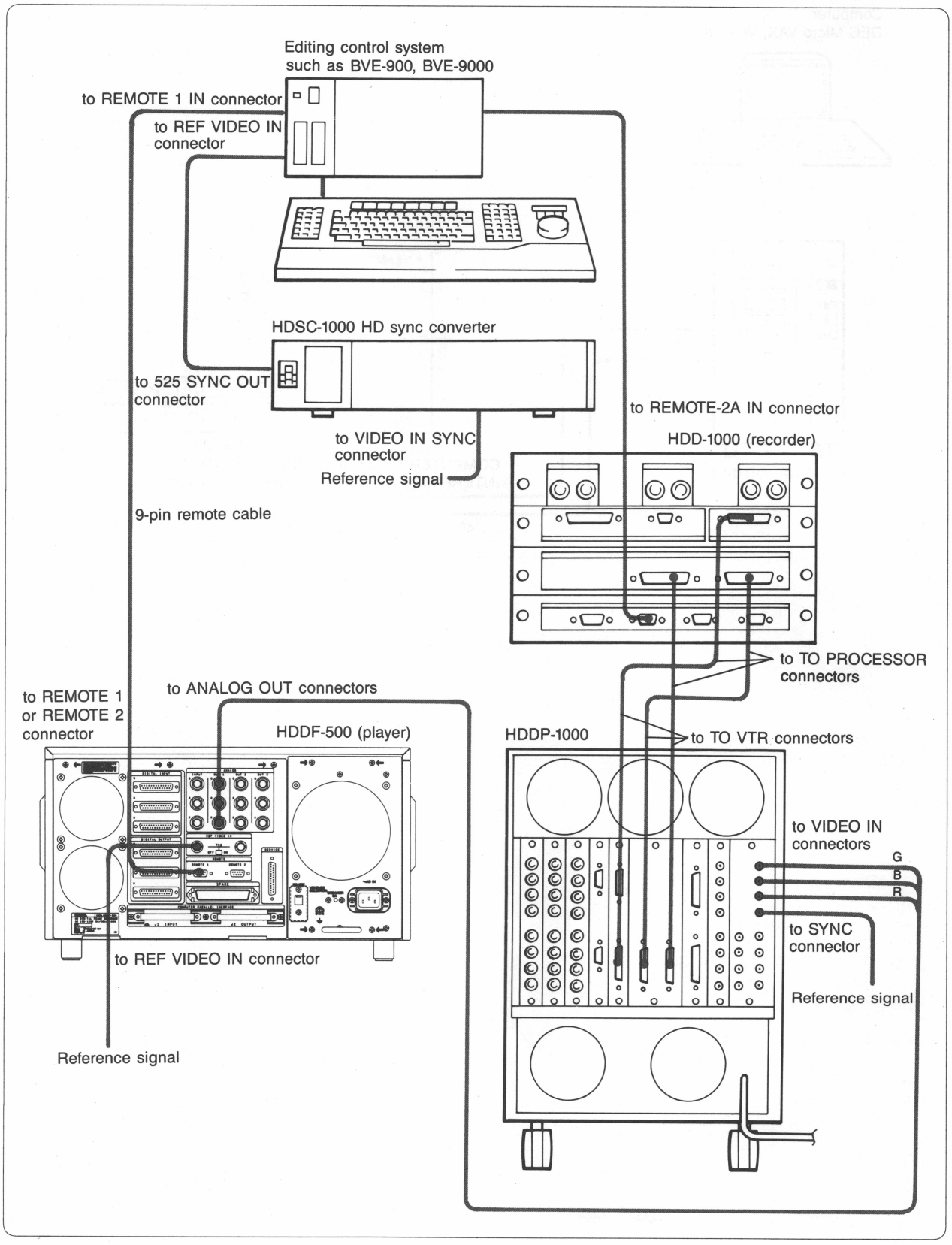

## 2. Connections with a VTR (1)

The HDDF-500 is controlled with the control panel on the HDD-1000.

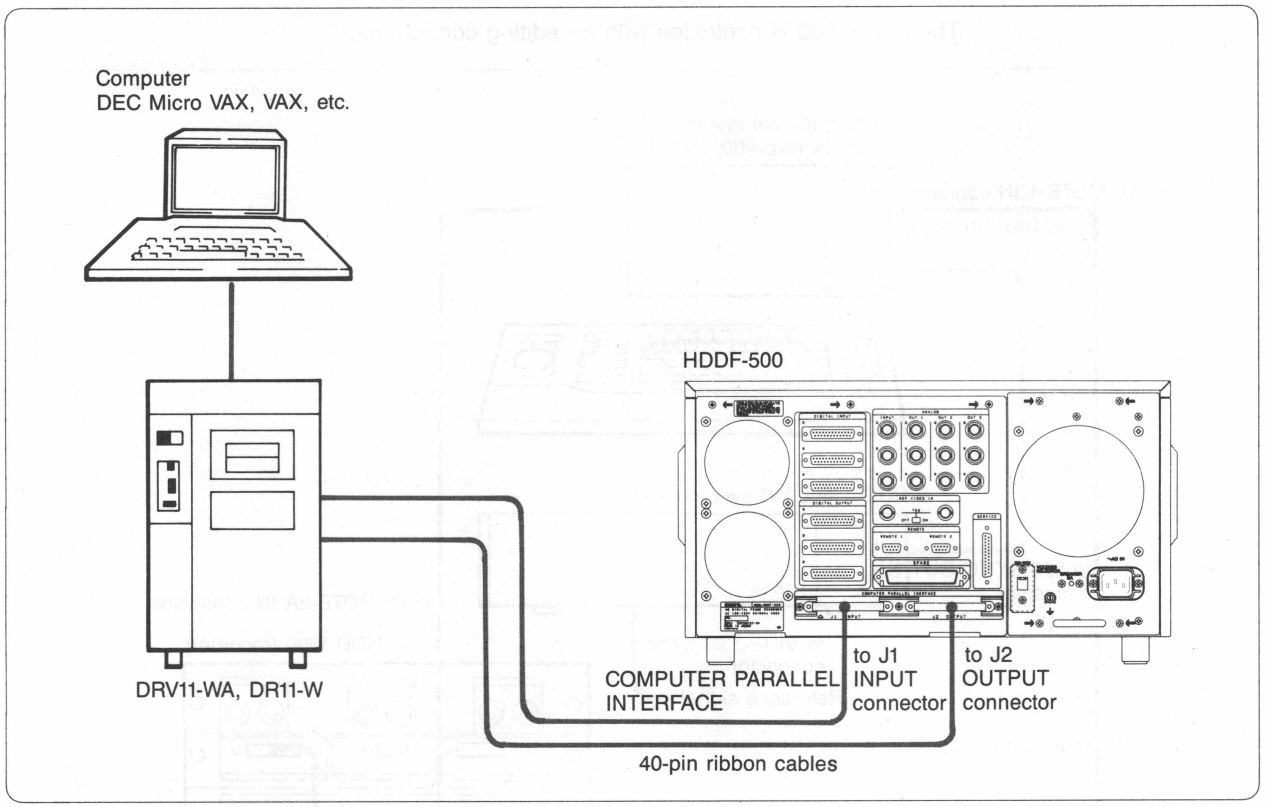


### 3. Connections with a VTR (2)

The HDDF-500 is controlled with an editing control unit.



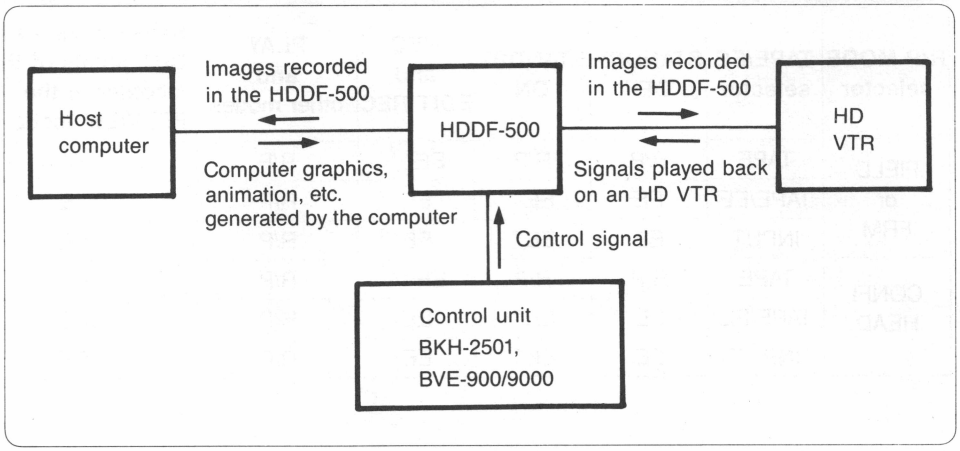
## 4. Connections with a computer



# 1-4. Operation



The HDDF-500 records and plays back images in a manner similar to that of an HD VTR. It is also possible to edit the images stored on the HDDF-500 or on an HD VTR. Operation of the HDDF-500 can be controlled by the equipment, such as an HD VTR, a BKH-2501 VTR remote controller, or a BVE-900/9000 automatic editing control unit, connected to the 9-pin REMOTE 1 or REMOTE 2 connector. The operating procedure is outlined below, and some examples of operation have been provided. For details regarding operation of the external control units, refer to the operation manuals furnished with those units.




**Notes**

- The memory capacity depends upon the frame memory boards installed into the HDDF-500. Before operation, check the installed boards to confirm the memory capacity.
- When the power to the HDDF-500 is turned off, data stored in memory is lost. If you want to keep the images stored in memory, transfer and store them on the host computer, or transfer and record them on an HD VTR.
- Recording and playback on the HDDF-500 can be controlled by the controller connected to the 9-pin remote connector with the same method as the HD VTR being controlled, but the HDDF-500 has not the VAR MEMORY function.

**When the communication between the HDDF-500 and a computer cannot be done correctly**

If communication with the computer is temporarily interrupted or cannot be done correctly, execute the operation again. The correct communication should be possible.
This may occur when the computer is affected by noise during communication between the HDDF-500 and a computer using the parallel interface. The HDDF-500 is not affected, and the contents stored in the memory of the HDDF-500 are not damaged.

**Note**

High levels of electrostatic discharge to the interconnect cables between the computer and the HDDF-500 could temporarily interrupt communication and, as a result, could affect the operation of the HDDF-500.

**Operation mode of the HDDF-500 when it is controlled by the BKH-2501 VTR remote controller**

Though the HDDF-500 operates in much the same way as an HD VTR, its operation modes (and output signal) when controlled by the BKH-2501 VTR remote controller are different from those of the VTR since the HDDF-500 has no CONFI heads. Those differences are listed below.

| Switch setting on the BKH-2501 | | Operation mode of the HDDF-500 | | | | | | |
|---|---|---|---|---|---|---|---|---|
| R/P MODE selector | TAPE/EE selector | STANDBY OFF | STANDBY ON | REC and EDIT REC | PLAY and other modes | Between the IN and OUT points of the recorder in the PREVIEW mode | REC | |
| | | | | | | | STILL REC and STEP REC | SLOW REC |
| FIELD or FRM | TAPE | R/P | R/P | EE** | R/P | EE | EE | EE** |
| | TAPE/EE | EE | EE* | EE | R/P | EE | EE | EE |
| | INPUT | EE | EE* | EE | R/P | EE | EE | EE |
| CONFI HEAD | TAPE | R/P | R/P | EE** | R/P | EE | EE** | EE** |
| | TAPE/EE | EE | EE* | EE | R/P | EE | EE** | EE |
| | INPUT | EE | EE* | EE | R/P | EE | EE | EE |

## 1-4-1. Preparations

Set the switches on the SY-149 board inside the unit as follows:

S3: PROC switch
To record the picture in frame units → FRAME
To record the picture in field units → FIELD
S4: SEQUENCE switch → NORMAL
S5: REC INHI switch → OFF
S7: SYNC SELECT switch → AUTO
S8: INPUT SEL switch → ANA
S10: CONTROL switch
When an editor or a controller is connected to the REMOTE 1 connector → REM 1
When an editor or a controller is connected to the REMOTE 2 connector → REM 2

* When the S5 (REC INHI) switch on the SY-149 board in the HDDF-500 is set to ON, TAPE signal is output.

** The operation mode is different from that of the VTR.

## 1-4-2. Recording a Signal from an HD VTR to the HDDF-500 and Vice Versa

For example, to add titles to a video signal recorded on an HD VTR, proceed as follows:

1. Transfer a video signal from the HD VTR through the HDDF-500 to the host computer.
2. Generate titles using the computer and add them to the signals transferred from the VTR using customer-generated software.
3. Transfer the video signal to which titles have been added back to the HDDF-500 using the parallel interface.
4. Copy the signals from the HDDF-500 to the HD VTR using the editor or remote controller.

## 1-4-3. Recording Computer Graphics

1. Generate computer graphics on the host computer or other image processing system.
2. Transfer them to the HDDF-500 using the parallel interface.
3. Transfer them from the HDDF-500 to the HD VTR using the editor, remote controller or local control.

## 1-4-4. Recording Animations

1. Set the S4 (SEQUENCE) switch on the SY-149 board to LOOP.
2. Generate animation frames on the host computer.
3. Transfer them to the HDDF-500 using the parallel interface.
4. Start play in LOOP mode on the HDDF-500.
5. Transfer the playback signal to the HD VTR and record it.

## 1-4-5. Recording with the HDDF-500 Using Local Control

The HDDF-500 can record images using local control. To record an image without an editor or a controller, proceed as follows:

1. Set the S10 (CONTROL) switch on the SY-149 board to LOC.
2. Press the S1 (CAPTURE) switch.
   Each time the switch is pressed, one image of the currently selected input frame or field will be recorded in memory.

# 1-5. Specifications

| | |
|---|---|
| Power requirements | 100 to 120/220 to 240 V AC ±10% selectable, 50/60 Hz |
| Power consumption | 400 W max. |
| Operating temperature | 5°C to 40°C (41°F to 104°F) |
| Storage temperature | −20°C to +60°C (−4°F to +140°F) |
| Humidity | 10% to 85% (non-condensing) |
| Weight | 33 kg (73 lb) |
| Dimensions (w/h/d) | 424 × 241 × 555 mm<br>(16 3/4 × 9 1/2 × 22 in) |
| PCB size | Length: 447 mm (17 5/8 in)<br>Width: 292 mm (11 1/2 in) |
| Signal standard | SMPTE 240M<br>1125-line 60 Hz<br>2:1 interlace<br>1035 active lines per frame<br>1920 active pixels per line |
| Sampling rate | 74.25 MHz for each of the G, B, R channels |
| Quantization | 8 bits |
| Capture | 8 frames to 32 frames (G, B, R) |
| Record or display unit | Field or Frame (selectable) |
| Memory content | 1920 × 1040 (horizontal × vertical) pixels per frame (G, B, R) |
| Interface | DRV11-WA*/DR11-W* |
| Transfer rate | (Determined by the host computer system)<br>DRV11-WA/DR11-W = 0.5 MByte/sec. (typical) |
| Sync | Tri-level sync |
| Frequency response | 0 to 27 MHz ±0.5 dB<br>27 to 30 MHz $^{+0.5\ dB}_{-1.5\ dB}$ |
| K factor (HDTV 2T — 66 ns HAD) | Less than 1% |
| Tilt (horizontal & vertical) | Less than 1% |
| Signal-to-noise ratio | Greater than 56 dB |
| Delay between channels | Less than 3.5 ns |
| Sync jitter | Less than 2 ns |

* DRV11-WA and DR11-W are trademarks of the Digital Equipment Corporation.

Supplied accessories

AC power cord × 1
Extension board × 1
Flat cable assembly × 2
Harness × 3
Examination data sheet × 1
Rack mount bracket × 2
Screw (⊕ B4 × 14) × 4
Screw (⊕ B5 × 16) × 4
Washer (W5) × 4
Spring washer (SW5) × 4
Operation and maintenance manual × 1

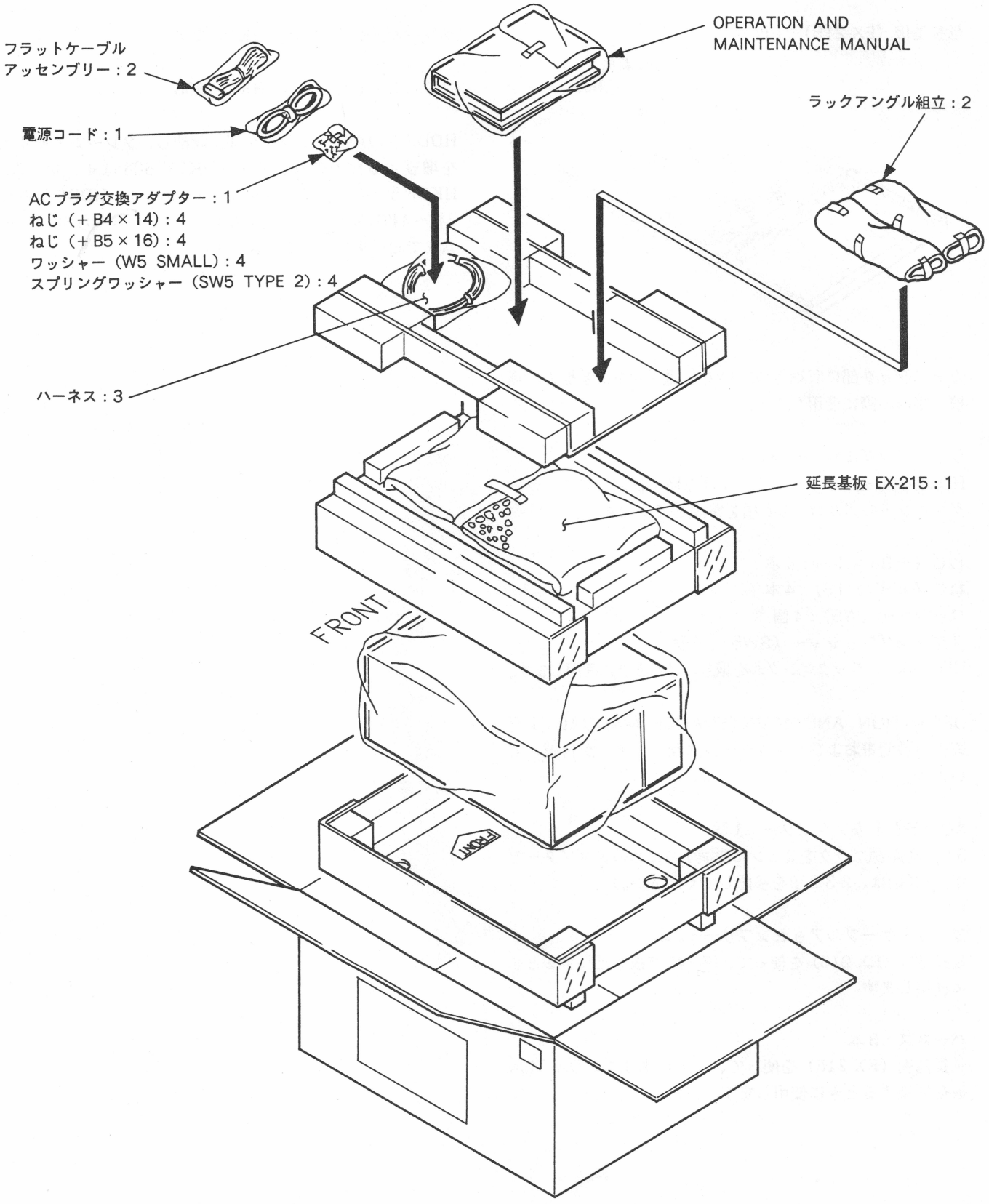
Optional accessories and equipment

HD frame memory board HKDF-508 (8 frames)
HKDF-504 (4 frames)
Remote controller BKH-3090 (for BVH-3000/3100)
Remote controller BKH-2501 (for BVH-2500)
Remote control panel adaptor box BKH-2017A

Design and specifications are subject to change without notice.

# 第2章
# 設　置

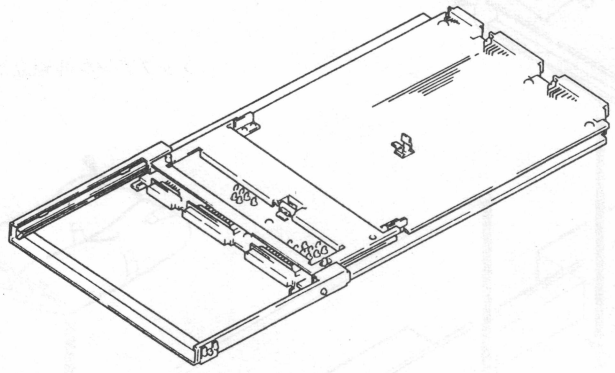
## 2-1. 開梱と再梱包



## 2-2. 付属品

### 2-2-1. 標準付属品

延長基板（EX-215）：1枚



カードラック部に収納されている主要プリント基板の、点検、修理の際に使用します。

ラックアングル組立：2個
HDDF-500をラックにマウントする時に使用します。ラックマウントの方法は、2-6項を参照してください。

ねじ（+ B4 × 14）：4本
ねじ（+ B5 × 16）：4本
ワッシャー（W5）：4個
スプリングワッシャー（SW5）：4個
HDDF-500にラックアングルを取り付けるときに使用します。

OPERATION AND MAINTENANCE MANUAL：1冊
取扱い説明書および、メンテナンスマニュアルが付属しています。

ACプラグ変換アダプター：1個
3ピンの電源プラグを2ピンに変換するためのアダプターです。（詳細は、2-3-2項を参照してください。）

フラットケーブルアッセンブリー：2本
延長基板（EX-215）を使って、IF-249基板を延長するときに使用します

ハーネス：3本
延長基板（EX-215）を使って、AD-45および、DA-34基板を延長するときに使用します。

### 2-2-2. 別売りアクセサリー

フレームメモリー基板　HKDF-504

フレームメモリー基板　HKDF-508

HDDF-500のカードラック部に収納し、フレームメモリーを増設するための基板です。HKDF-504は4フレーム、HKDF-508は8フレームメモリーできます。HDDF-500に2枚～4枚収納し、組み合せにより8フレームから32フレームまで記録することができます。

## 2-3. 電源

### 2-3-1. 電源の容量

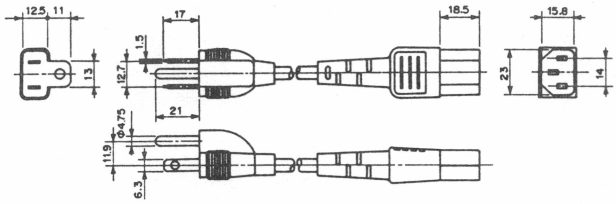
**電源電圧（電圧切換式）：** 100～120V／220～240V
**電源周波数：** 47～63Hz
**消費電力：** 400W

通常は上記の通りですが、電源投入時には最大10Aの入力および、その3～4倍の突入電流が流れます。

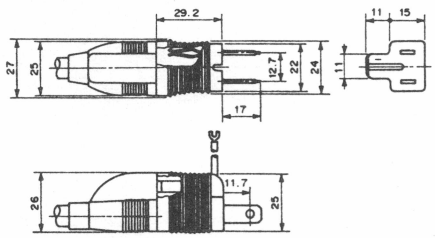
### 2-3-2. 電源コード

**長さ：** 約2.4m

**プラグ形状**



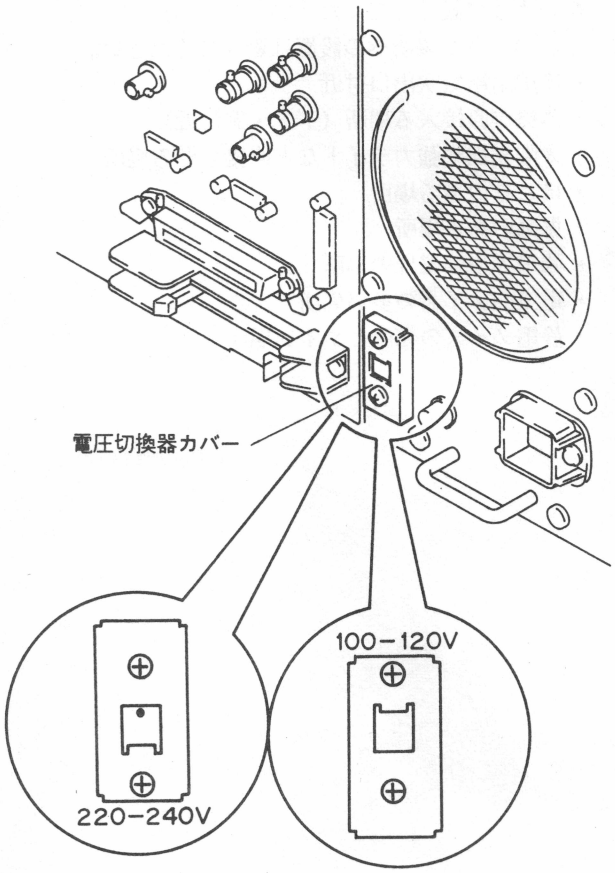

For J （AC変換アダプター接続状態）




### 2-3-3. 電圧切換器のセッティング

AC電圧を切り換える時には、図に示す、コネクターパネルの電圧切換器カバーを外し、スイッチを切り換えた後、選択された電圧値が表示される向きにカバーを取り付けて下さい。

〈後面図〉




### 2-3-4. 換気／放熱

HDDF-500では、3個のファンで空冷を行っています。前面および後面の排気部がふさがれたり、ファンが停止したりすると、電源が故障する恐れがあります。点検時などファンで空冷できない場合には、負荷を長時間かけないようにして下さい。

## 2-4. 設置環境

動作温度： ＋5～＋40℃
保存温度： －20～＋60℃
湿度： 10～85％

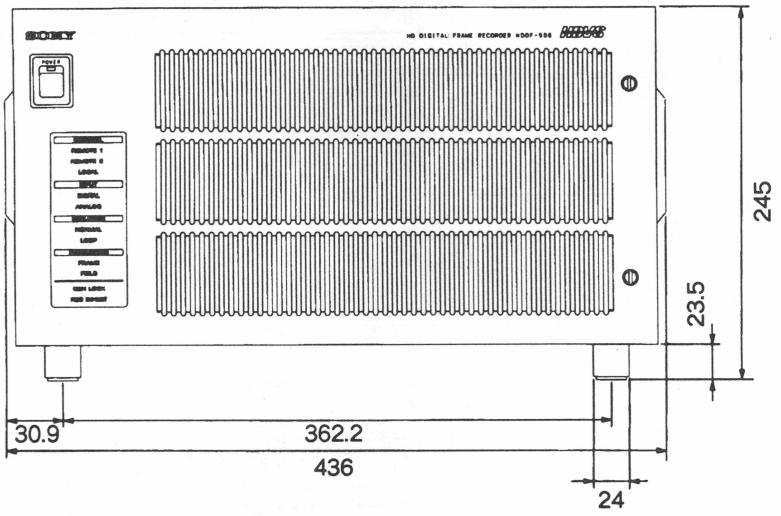
設置時の注意

1. HDDF-500は平坦なしっかりした土台の上に設置してください。
2. セット内の温度上昇を防止するために排気部をふさがないように設置してください。
3. 下記のような場所への設置は避けてください。
   - 冷房用冷気吹出口付近
   - 外気が直接入る場所（ドア・窓付近）
   - 太陽光線や強力ライトなど直接当たる場所
   - ほこりのある場所
   - 振動のある場所
   - 強電界や強磁界の場所
   - 電気的ノイズの多い場所
   - 静電ノイズの発生しやすい場所

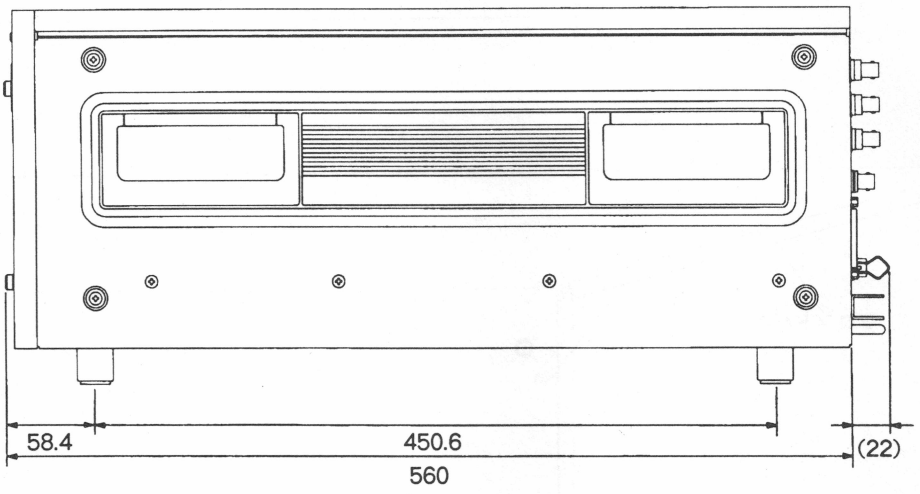
## 2-5. 設置スペース

外形寸法

〈正面図〉

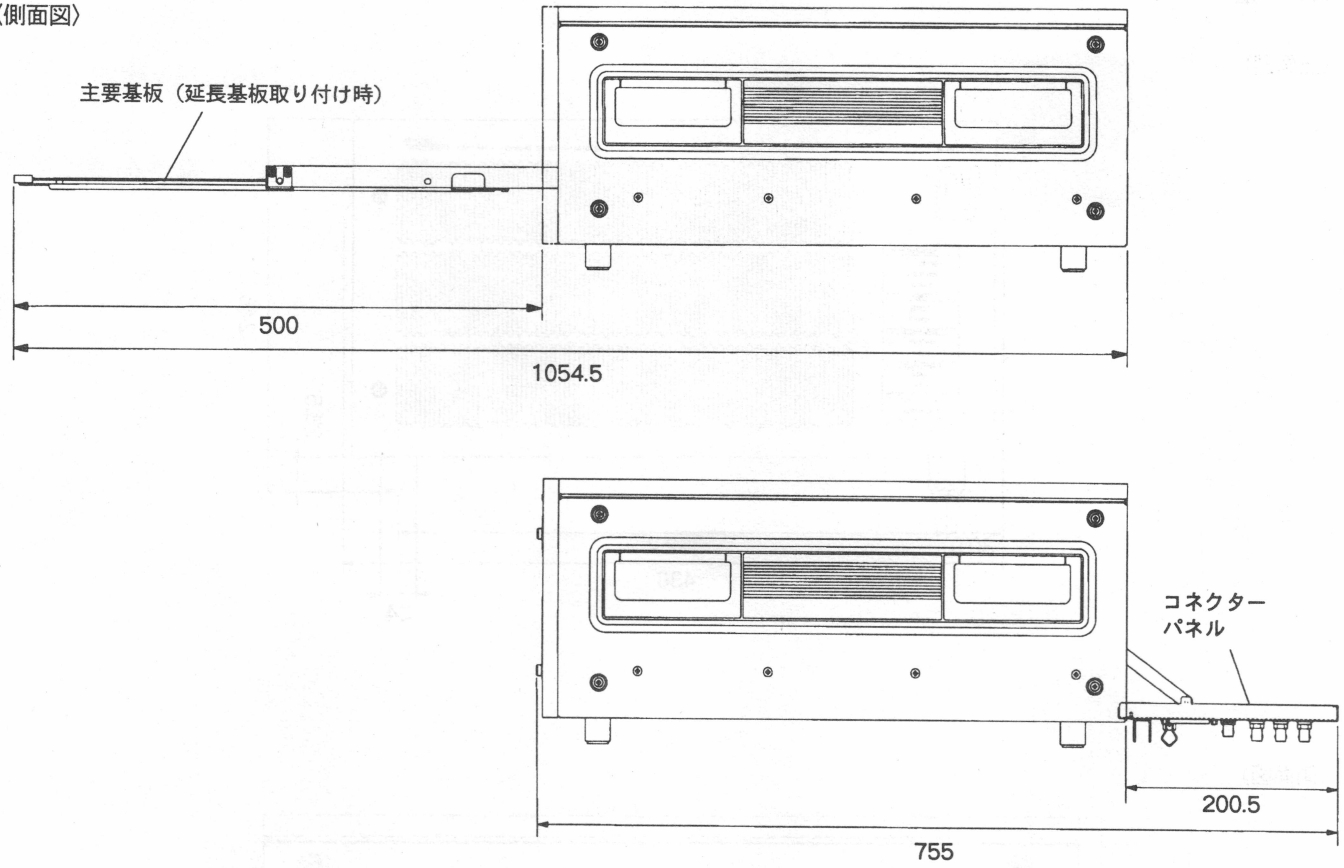



〈側面図〉

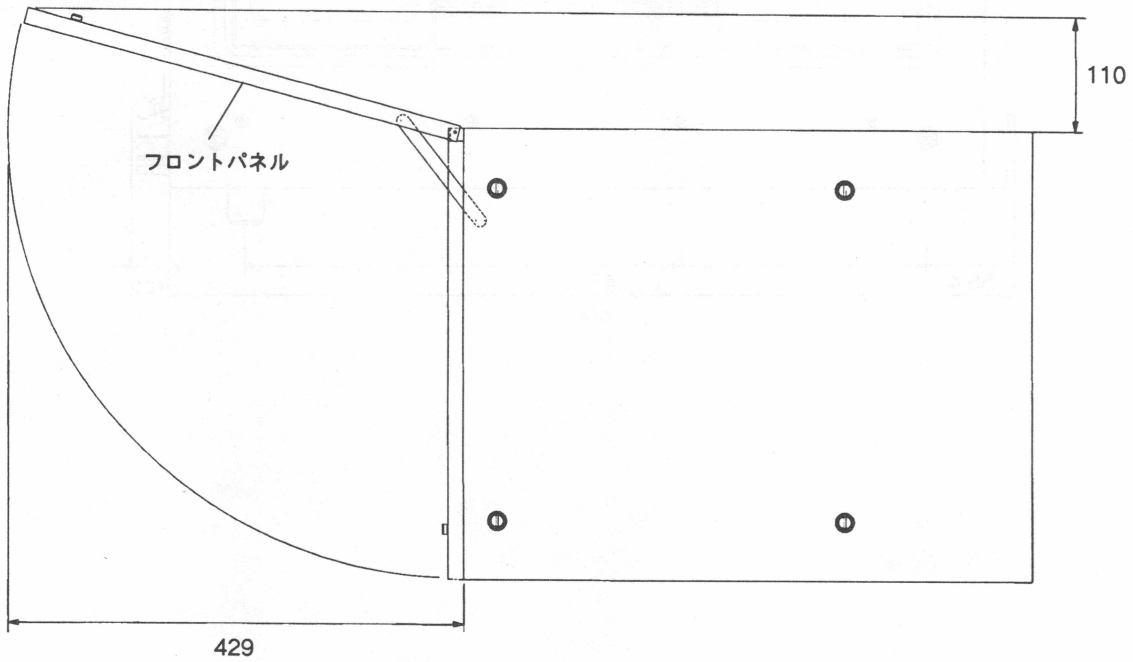


作業スペース

〈側面図〉




〈上面図〉

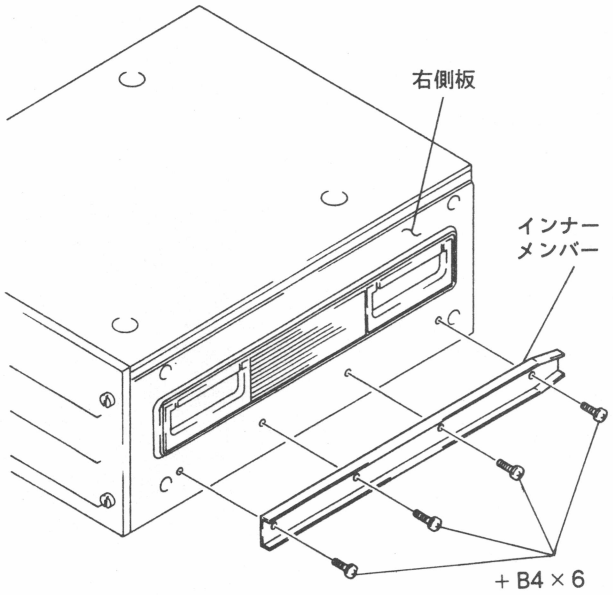


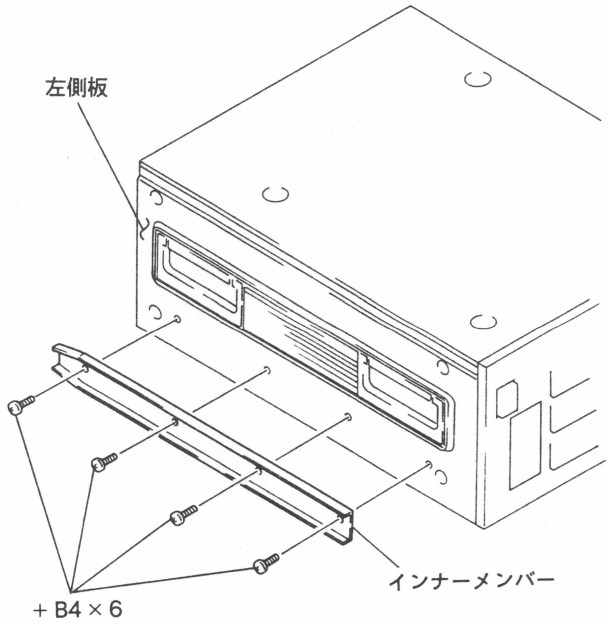
## 2-6. ラックマウント方法

HDDF-500は、19インチ標準ラックに組み込んで使用することができます。この時、下記レールを使用することを薦めます。

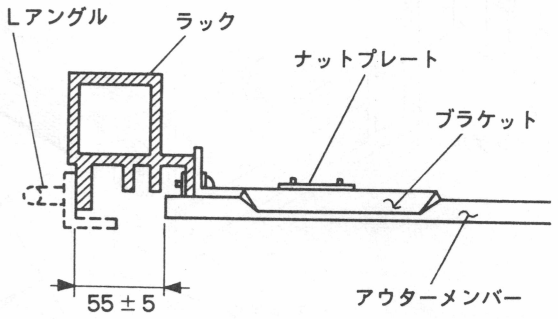
RACK-MOUNT SLIDES MODEL 305
SLIDE LENGTH 22 INCH

1. 外装の右側板および左側板の、図に示すネジとワッシャーを各々4本外します。(4個のワッシャーは、なくさないように保管してください。)
2. スライドレールのインナーメンバーを、外した4本のネジにて右側板および左側板に取り付けます。

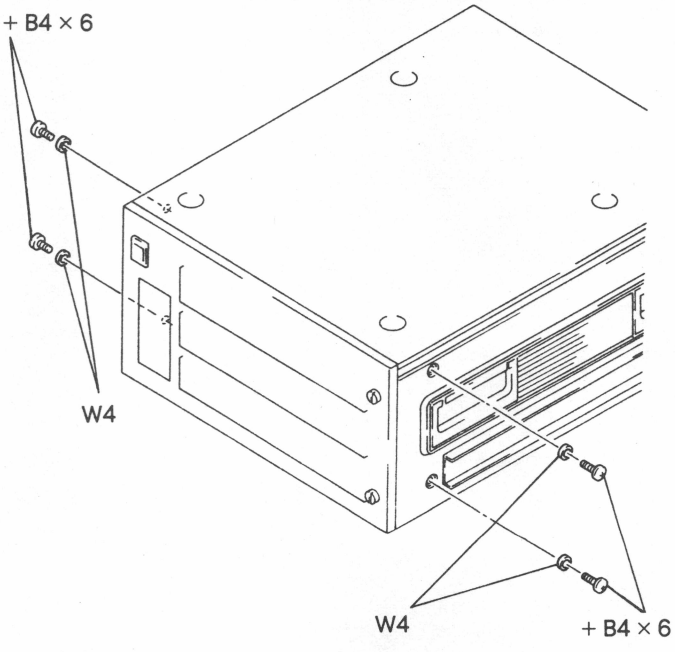


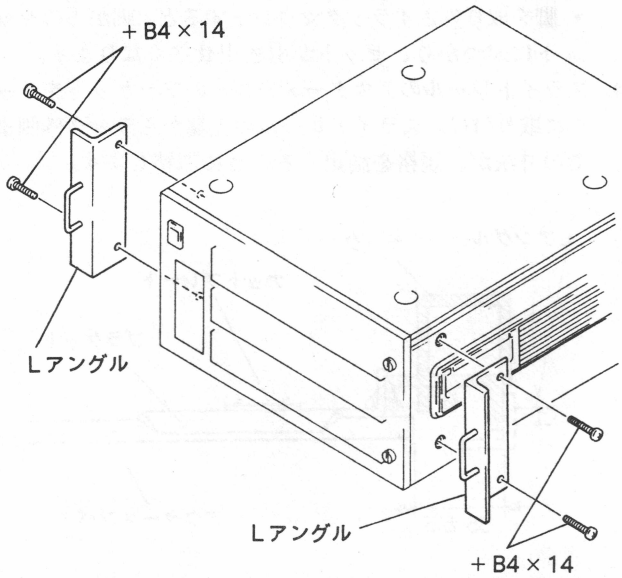

3. セット裏側の4個の脚を取り外します。
   - 脚を取り外さずラックマウントすると、脚が下のセットにぶつかり、セットが引き出せなくなります。
4. スライドレールのアウターメンバーのブラケットをラックに取り付け、スライドレールの先端からラック外側までの寸法が、規格を満足するように調整します。




5. 右側板および左側板の、図に示すネジとワッシャーを、各々2本外します。(4本のネジと4個のワッシャーは、なくさないように保管してください。)



6. Lアングルを、付属のLアングル専用の取り付けネジ（B4 × 14）にて、図のように取り付けます。




注意：右側板および左側板を取り付ける際は、決してLアングル用のネジ（B4 × 14）で取り付けないでください。両側板を取り付けるときは、必ず、手順（5）で外したネジ（B4 × 6）を使用してください。
Lアングル用のネジは、側板の取り付けネジより長いため、間違って取り付けると、セットに支障をきたします。

## 2-7. 入出力インターフェース

### 2-7-1. 適合コネクター／ケーブル

設置時、サービス時等において、コネクターパネル部の各種コネクターに、ケーブルを
接続する際には、その先端に、次に記すコネクターまたは
その同等品を使用してください。

| HDDF-500側コネクター | | 適合コネクター・ケーブル | |
|---|---|---|---|
| 使 用 先 | 名 称 | 名 称 | ソニー部品番号 |
| ANALOG INPUT<br>G, B, R | BNC × 3 | PLUG, BNC, MALE | 1-560-069-11 |
| ANALOG OUTPUT<br>G, B, R × 3 | BNC × 9 | PLUG, BNC, MALE | 1-560-069-11 |
| REF VIDEO<br>IN, OUT | BNC × 2 | PLUG, BNC, MALE | 1-560-069-11 |
| DIGITAL INPUT<br>G, B, R | D-sub, 25 pin, FEMALE | D-sub, 25 pin, MALE<br>VCD-2D／5D／10D | (注1) |
| DIGITAL OUTPUT<br>G, B, R | D-sub, 25 pin, FEMALE | D-sub, 25 pin, MALE<br>VCD-2D／5D／10D | (注1) |
| COMPUTER PARALLEL<br>INTERFACE INPUT／OUTPUT | Ribbon, 40 pin × 2, MALE | Ribbon, 40 pin × 2, FEMALE<br>FLAT CABLE ASSY | 1-575-153-11 |
| REMOTE<br>REMOTE1, 2 | D-sub, 9 pin, FEMALE | D-sub, 9 pin, MALE<br>RCC-5G／10G／30G | (注2) |
| SERVICE | D-sub, 25 pin, FEMALE | D-sub, 25 pin, MALE<br>CABLE ASSY | (注3) |

(注1) VCD-2D／5D／10Dケーブル
別売アクセサリーです。
長さは，VCD-2Dが2m、VCD-5Dが5m、VCD-10Dが10mです。

(注2) RCC-5G／10G／30Gケーブル
別売アクセサリーです。
長さは、RCC-5Gが5m、RCC-10Gが10m、RCC-30Gが30mです。

(注3) 通常のRS-232C用ケーブルです。

## 2-7-2. コネクター入／出力信号

(1) VIDEO

VIDEO IN （ANALOG）

G／B／R ; 1.0Vp-p ± 2dBコンポジット

入力インピーダンス ; 75 Ω

VIDEO OUT 1／2／3 （ANALOG）

（G／B／R）× 3 ; 0.7Vp-pノンコンポジットまたは、1.0Vp-pコンポジット

出力インピーダンス ; 75 Ω

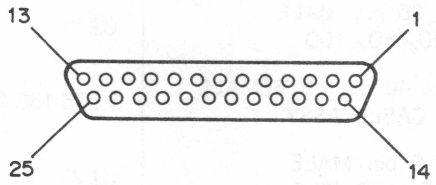
REF VIDOE IN

IN ; 1.0Vp-p ± 3dBコンポジットまたは、± 0.3Vp-p ± 3dBトリガーレベルシンク

入力インピーダンス ; 75 Ω

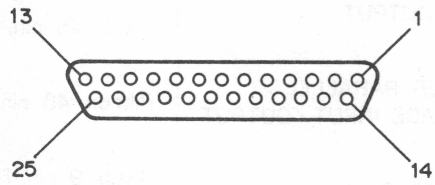
ハイインピーダンス（ループスルー）切り換え可能

(2) DIGITAL INPUT G、B、R




| Pin No. | 信 号 名 | 内 容 |
|---|---|---|
| 1 | CLOCK + | ECL レベル, 74.25MHz, 平衡, 100 Ω差動終端クロックの立ち上がりにて観測 |
| 2 | SYSTEM GROUND | |
| 3 | DATA 7 + (MSB) | ECL レベル, 正ロジック, 平衡, 100 Ω差動終端 |
| 4 | DATA 6 + | |
| 5 | DATA 5 + | |
| 6 | DATA 4 + | |
| 7 | DATA 3 + | |
| 8 | DATA 2 + | |
| 9 | DATA 1 + | |
| 10 | DATA 0 + | |
| 11 | UNUSED | 未使用 |
| 12 | UNUSED | |
| 13 | CHASSIS GROUND | |
| 14 | CLOCK − | |
| 15 | SYSTEM GROUND | |
| 16 | DATA 7 − | ECL レベル, 負ロジック, 平衡, 100 Ω差動終端 |
| 17 | DATA 6 − | |
| 18 | DATA 5 − | |
| 19 | DATA 4 − | |
| 20 | DATA 3 − | |
| 21 | DATA 2 − | |
| 22 | DATA 1 − | |
| 23 | DATA 0 − | |
| 24 | UNUSED | 未使用 |
| 25 | UNUSED | |

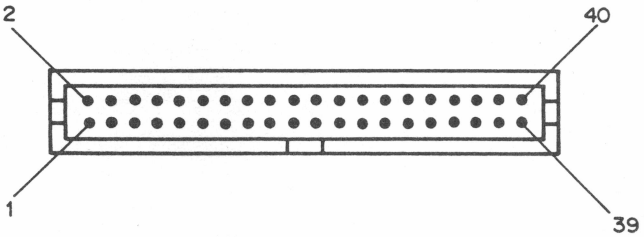
(3) DIGITAL OUTPUT R、G、B




| Pin No. | 信 号 名 | 内 容 |
|---|---|---|
| 1 | CLOCK + | ECL レベル, 74.25MHz, 平衡, ハイインピーダンス, 100 Ω差動終端クロックの立ち上がりにて観測 |
| 2 | SYSTEM GROUND | |
| 3 | DATA 7 + (MSB) | ECL レベル, 正ロジック, 平衡, ハイインピーダンス クロックの立ち上がりにて観測 |
| 4 | DATA 6 + | |
| 5 | DATA 5 + | |
| 6 | DATA 4 + | |
| 7 | DATA 3 + | |
| 8 | DATA 2 + | |
| 9 | DATA 1 + | |
| 10 | DATA 0 + | |
| 11 | UNUSED | 未使用 |
| 12 | UNUSED | |
| 13 | CHASSIS GROUND | |
| 14 | CLOCK − | |
| 15 | SYSTEM GROUND | |
| 16 | DATA 7 − | ECL レベル, 負ロジック, 平衡, 100 Ω差動終端 |
| 17 | DATA 6 − | |
| 18 | DATA 5 − | |
| 19 | DATA 4 − | |
| 20 | DATA 3 − | |
| 21 | DATA 2 − | |
| 22 | DATA 1 − | |
| 23 | DATA 0 − | |
| 24 | UNUSED | 未使用 |
| 25 | UNUSED | |

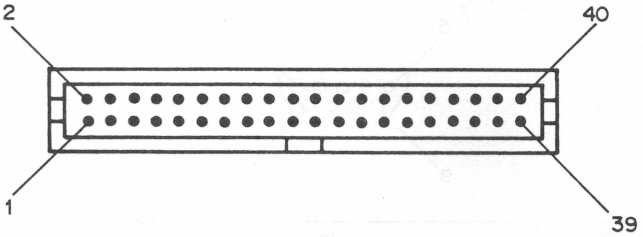
(4) COMPUTER PARALLEL INTERFACE (INPUT／OUTPUT)
信号名、およびパラレルルインターフェースのプロトコルは、
DEC社に準拠しています。

J1 (INPUT)




| Pin No. | 信 号 名 | 入出力方向 (＊1) |
|---|---|---|
| 1 | GND | G |
| 2 | CYCLE REQUEST | O |
| 3 | GND | G |
| 4 | INIT V2 | (I) |
| 5 | GND | G |
| 6 | READY | I |
| 7 | GND | G |
| 8 | WC INC EN | O |
| 9 | SIGNAL | O |
| 10 | STAT A | O |
| 11 | GND | G |
| 12 | INIT | (I) |
| 13 | GND | G |
| 14 | STAT B | O |
| 15 | GND | G |
| 16 | STAT C | O |
| 17 | GND | G |
| 18 | STAT C | O |
| 19 | GND | G |
| 20 | (＊2) | (I) |
| 21 | GND | G |
| 22 | GND | G |
| 23 | GND | G |
| 24 | GND | G |
| 25 | DI 7 | I |
| 26 | DI 8 | I |
| 27 | DI 6 | I |
| 28 | DI 9 | I |
| 29 | DI 5 | I |
| 30 | DI 10 | I |
| 31 | DI 4 | I |
| 32 | DI 11 | I |
| 33 | DI 3 | I |
| 34 | DI 12 | I |
| 35 | DI 2 | I |
| 36 | DI 13 | I |
| 37 | DI 1 | I |
| 38 | DI 14 | I |
| 39 | DI 0 | I |
| 40 | DI 15 | I |

J2 (OUTPUT)




| Pin No. | 信 号 名 | 入出力方向 (＊1) |
|---|---|---|
| 1 | GND | G |
| 2 | BUSY | I |
| 3 | GND | G |
| 4 | ATTN | O |
| 5 | GND | G |
| 6 | AOO | O |
| 7 | GND | G |
| 8 | BA INC | O |
| 9 | EN | I |
| 10 | FNCT 3 | I |
| 11 | FNCT 3 | G |
| 12 | GND | O |
| 13 | CO | G |
| 14 | GND | I |
| 15 | FNCT 2 | G |
| 16 | GND | O |
| 17 | C1 | G |
| 18 | GND | I |
| 19 | FNCT 1 | G |
| 20 | GND | (I) |
| 21 | (＊2) | G |
| 22 | GND | G |
| 23 | GND | G |
| 24 | GND | G |
| 25 | GND | O |
| 26 | DO 7 | O |
| 27 | DO 8 | O |
| 28 | DO 6 | O |
| 29 | DO 9 | O |
| 30 | DO 5 | O |
| 31 | DO 10 | O |
| 32 | DO 4 | O |
| 33 | DO 11 | O |
| 34 | DO 3 | O |
| 35 | DO 12 | O |
| 36 | DO 2 | O |
| 37 | DO 13 | O |
| 38 | DO 1 | O |
| 39 | DO 14 | O |
| 40 | DO 0 | O |

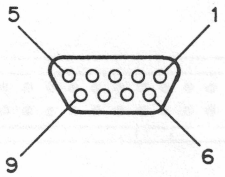
(＊1) SIGNAL DIRECTION

I : HOST → HDDF-500
O : HOST → HDDF-500、BUT IGNORED BY HDDF-500
(I) : HDDF-500 →HOST
G : GND

(＊2) connected to +5V through 4.7kΩ

(5) REMOTE (REMOTE 1 and REMOTE 2)

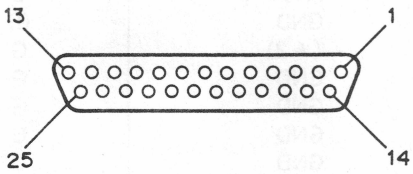
RS-422タイプインターフェースのコントロールデバイスを供給します。




| Pin No. | 信　号　名 |
|---|---|
| 1 | FRAME GROUND |
| 2 | TRANSMIT A |
| 3 | RECEIVE B |
| 4 | RECEIVE COMMON |
| 5 | SPARE |
| 6 | TRANSMIT COMMON |
| 7 | TRANSMIT B |
| 8 | RECEIVE A |
| 9 | FRAME GROUND |

(6) SERVICE

サービス用コネクターです。




| Pin No. | 信　号　名 |
|---|---|
| 1 | FRAME GROUND |
| 2 | RECEIVE |
| 3 | TRANSMIT |
| 4 | SIGNAL GROUND |

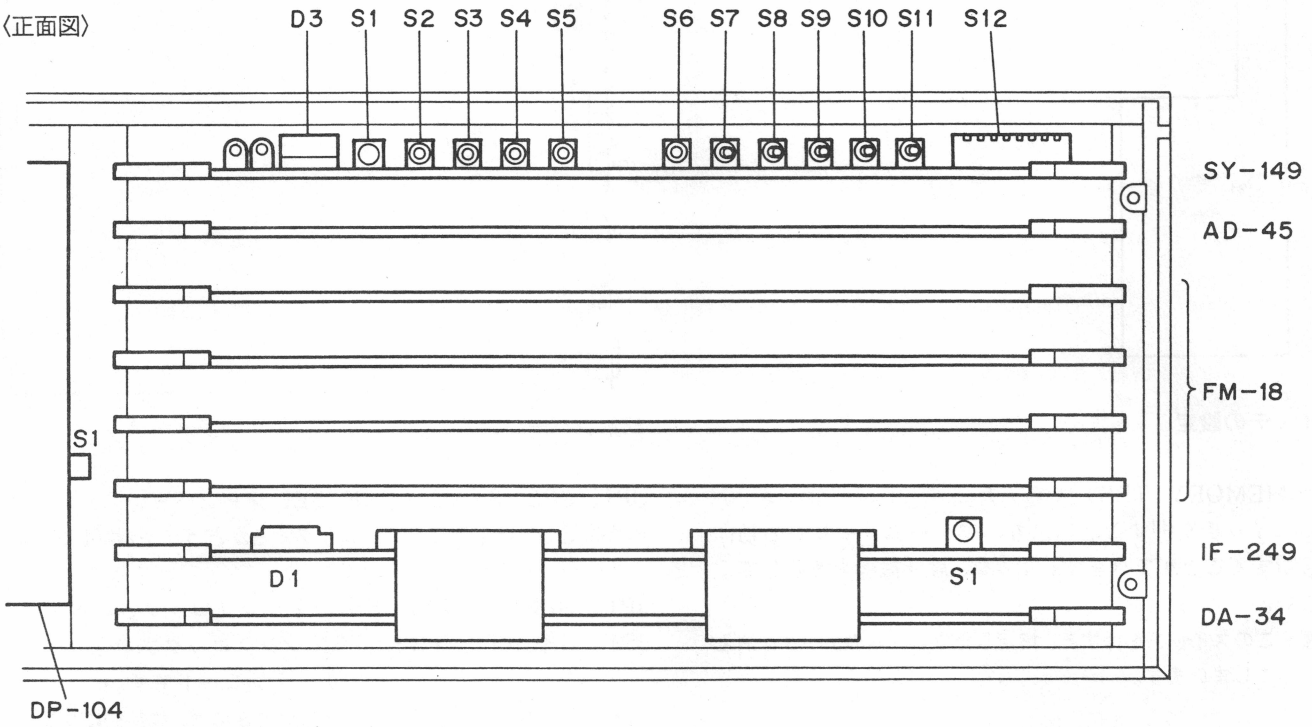
(7) SPARE

現在は未使用です。

## 2-8. スイッチ、ジャンパーの設定

### 2-8-1. スイッチ、ジャンパーの索引

〈正面図〉




DP-104基板

S1： MEMORY TESTスイッチ……2-14

SY-149基板

S1： CAPTUREスイッチ
S2： STEPスイッチ
S3： PROCスイッチ
S4： SEQUENCEスイッチ
S5： REC INHスイッチ
S6： H-PHASEスイッチ
S7： SYNC SELECTスイッチ……2-14
S8： INPUT SELスイッチ……2-15
S9： E／Eスイッチ
S10： CONTROLスイッチ
S11： SIGNAL GENERATORスイッチ……2-15
S12： MODE SELECTIONSスイッチ……2-15

JP1： SYNC LOCK SELジャンパー……2-14
JP2： SYNC LOCK SELジャンパー……2-14

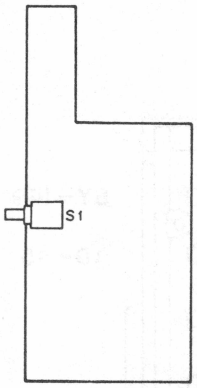
IF-249基板

S1： SYSTEM RESETスイッチ……2-16
S2： ID SETスイッチ……2-16

JP1： PARALLEL INTERFACE
COMPUTER SELジャンパー……2-16
JP2： PARALLEL INTERFACE
COMPUTER SELジャンパー……2-16

## 2-8-2. DP-104基板

〈部品面〉



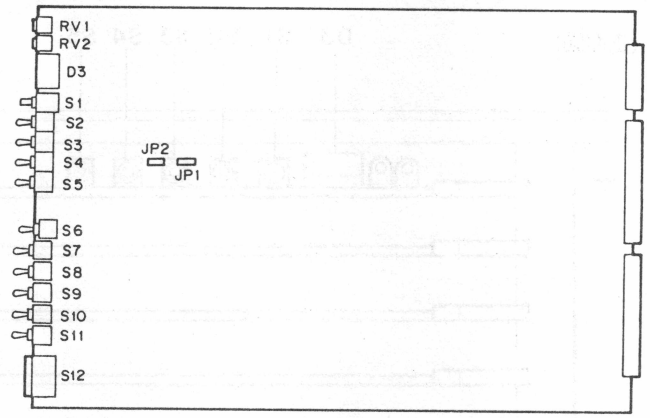

スイッチの設定

S1：MEMORY TESTスイッチ
このスイッチを押すことにより、フレームメモリーの動作を診断することができます。第4章、診断機能を参照してください。

**注意：このスイッチを押すと、指定したフレームのデータは消えてしまいます。**

## 2-8-3. SY-149基板

〈部品面〉




ジャンパーの設定

JP1、JP2：SYNC LOCK SELジャンパー
外部供給の基準信号にシンクロックするかどうかを選択します。

JP1：OPEN　JP2；SHORTシンクロックされます。
JP1：SHORT　JP2；OPENシンクロックされません。
（フリーランモードです。）

**注意：シンクロックの基準信号がないときには、強制的にフリーランモードになります。**

工場出荷時：JP1；OPEN JP2；SHORT

スイッチの設定

S1：CAPTUREスイッチ
S2：STEPスイッチ
S3：PROC（PROCESS）スイッチ
S4：SEQUENCEスイッチ
S5：REC INHIBITスイッチ
S6：H-PHASEスイッチ
第1章を参照してください。

S7：SYNC SELECTスイッチ
同期信号を選択します。

G：DIGITAL INPUTまたは、ANALOG INPUTのG chを同期信号とします。

AUTO：記録中は、DIGITAL INPUTまたは、ANALOG INPUTのG chを同期信号に自動選択します。再生中は、REFERENCE VIDEOを同期信号に自動選択します。

PREF：REFERENCE VIDEOを同期信号とします。
工場出荷時：AUTO

S8：INPUT（INPUT SELECT）スイッチ
入力ビデオ信号を選択します。

ANA：ANALOGビデオを入力します。

DIG：DIGITALビデオを入力します。

注意：• 入力ビデオ信号がデジタルのときは、SY-149基板のS7（SYNC SELECTスイッチ）は無効となり、同期信号はDIGITAL INPUTのG chとなります。
• このスイッチは、HDDF-500の9ピンコネクターに接続されているコントローラーに関係なく動作します。

工場出荷時：ANA

S9：E／Eスイッチ
S10：CONTROLスイッチ
第1章を参照してください。

S11：SIGNAL GENERATORスイッチ
信号発生器の選択をします。

ON： 内部信号発生器からのテスト信号が出力されます。SY-149基板のS2（STEPスイッチ）によって内部テスト信号が選択されます。テスト信号は、COLOR BAR、LINEARITY、PULSE & BAR、MULTIBURST、10 STEPSの順番です。

OFF： SY-149基板のS8（INPUT SELスイッチ）によって選択された信号またはメモリーに記録された信号が出力されます。

工場出荷時：OFF

S12：MODE SELECTIONSスイッチ
各種モードの設定を行います。

Bit-1：NON-COMPOSITE VIDEO

ON： ノンコンポジットビデオ（シンクなし）を出力します。

OFF： コンポジットビデオ（シンクあり）を出力します。

工場出荷時：OFF

Bit-2：未使用

Bit-3：SINGLE FRAME RECORD
(SYSTEM REACTION TO RECORD COMMAND)

ON： 1フレームのみ記録します。

OFF： STOPコマンドを受け取るまで、記録し続けます。

工場出荷時：OFF

注意：このスイッチは、REM 1またはREM 2に接続されているリモートコントローラーによって本機をリモートコントロールするときにのみ有効になります。

Bit-4：TAG FRAME
S9（E／Eスイッチ）がOFFのとき、

ON： メモリーの内容をそのまま出力しますが、ビデオ信号がないときはBLACK VIDEOにして出力します。

OFF： メモリーの内容の有無に関わらずそのまま出力します。

工場出荷時：OFF

Bit-5：Field Mode Editing

ON： BKH-3090を使用するときは、edit command delayを9 FIELDに設定します。

OFF： BVE-9000を使用するときは、edit command delayを8 FIELDに設定します。

Bit-6、7、8：ServiceコネクターBAUD RATE CODE
（各BAUD RATEに対応するスイッチの設定は下表にとおり）

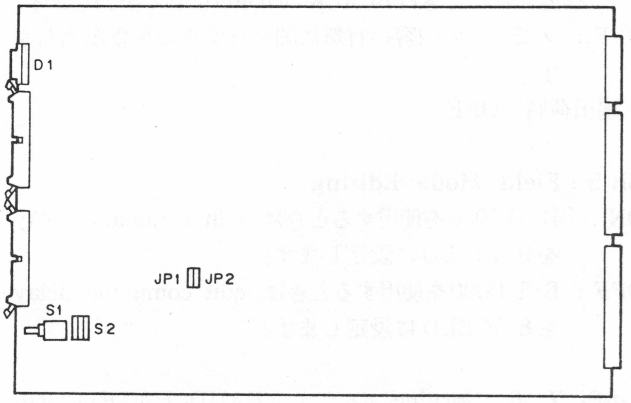
| S12-6 | S12-7 | S12-8 | Serviceコネクター BAUD RATE |
|---|---|---|---|
| OFF | OFF | OFF | 9600 BAUD |
| OFF | OFF | ON | 300 BAUD |
| OFF | ON | OFF | 600 BAUD |
| OFF | ON | ON | 1200 BAUD |
| ON | OFF | OFF | 2400 BAUD |
| ON | OFF | ON | 4800 BAUD |
| ON | ON | OFF | 9600 BAUD |
| ON | ON | ON | 19.2K BAUD |

工場出荷時：OFF OFF OFF（9600 BAUD）

注意：• ここで設定されたモードは、電源投入後または、DP-104基板のS1（MEMORY TESTスイッチ）を押して行われる診断機能の結果を表示したあと、読み出されます。
• 設定を変更した場合は、IF-249基板のS1を押して、必ずシステムのリセットを行ってください。

## 2-8-4. IF-249基板

〈部品面〉




ジャンパーの設定

JP1、JP2はCOMPUTER PARALLEL INTERFACEコネクターに接続する機器に応じて設定します。

JP1：SHORT（JP2；OPEN）
Digital Equipent Corporation（DEC）社のMICROVAX- 11、MICRO PDP、LSI-11のようなインターフェースDRV-11WA（Q-BUSシステム）と接続するときに使用します。

JP2：SHORT（JP1；OPEN）
DEC社のPDP-11、VAXのようなインターフェースDR-11W（UNIBUSシステム）と接続するときに使用します。

注意：Q-BUS、DEC、MICROVAX-11、MICRO PDP、LSI-11、DR-11W、PDP-11、VAXは、Digital Equipment社の登録商標です。

工場出荷時：JP1；SHORT（JP2；OPEN）

スイッチの設定

S1：SYSTEM RESETスイッチ
このスイッチを押すことにより、システムはリセットされます。ビデオメモリーの内容は失われます。

S2：ID SETスイッチ
SPAREコネクターと他のシステムを接続しインターフェースする際、本体のIDを設定するとき使用します。
工場出荷時：ON ON ON（7）
注意：現在は未使用です。

## 2-8-5. VOLTAGE SELECTORスイッチ

VOLTAGE SELECTORスイッチは、電源部の後方にあります。設定を変更するときは、VOLTAGE SELECTORのカバーを外し、下表にしたがって変更してください。

| POSITION | SETTING | VOLTAGE INPUT |
|---|---|---|
| UP | 100-120 | 90-132V AC 50／60Hz |
| DOWN | 220-240 | 198-264V AC 50／60Hz |

## 2-8-6. LEDの表示

HDDF-500には基板上に2つのLEDがあり、その表示は以下の通りです。

### SY-149基板、D3

電源を投入すると、まず診断機能が動作します。
診断機能の動作中は、“0F0”から“0F5”が表示されます。診断の結果、正常であれば“NNN”、“0EE／NNN”、および“0d1／MMM”などの現在のシステムモード表示に変わります。異常がある場合、“0F0”から“0F5”が表示され、システムは自動的に停止します。詳細は、第4章診断機能を参照してください。

| 表　示 | 内　容 |
|---|---|
| NNN | 現在画面に表示されているフレームまたは，フィールド番号を表示します。表示範囲は，フレーム0~31，フィールド0~63です。 |
| 0EE／NNN | EEモードであることを表します。“0EE”および，現在画面に表示されているフレームまたは，フィールドの番号を交互に表示します。 |
| 0d0／NNN<br>（注意） | メモリー診断状態であることを表します。DP-104基板のS1を押すと，“0d0”および，現在画面に表示されているフレームまたは，フィールドの番号を交互に表示します。 |
| 0d1／MMM | 内部信号発生器が動作していることを表します。<br>“0d1”および，各信号を表すコード（下記参照）を交互に表示します。<br>000；COLOR BARS<br>001；LINEARITY<br>002；PULSE & BAR<br>003；MULTIBURST<br>004；10 STEP |
| 0F0<br>0F1<br>0F2<br>0F3<br>0F4<br>0F5 | CPU PROM，およびRAMのメモリーにエラーがあります。第4章，診断機能を参照してください。 |

注意：メモリー診断の結果の良否にかかわらず、LEDの表示はメモリー診断前の状態に復帰します。メモリー診断が終了すると（“0d0”の表示が消えるとメモリー診断が終了したことを示します）、IF-249基板のD1に結果が表示されます。
“00”：エラーなし
“FF”：一部に異常があります。
詳細は、第4章診断機能を参照してください。

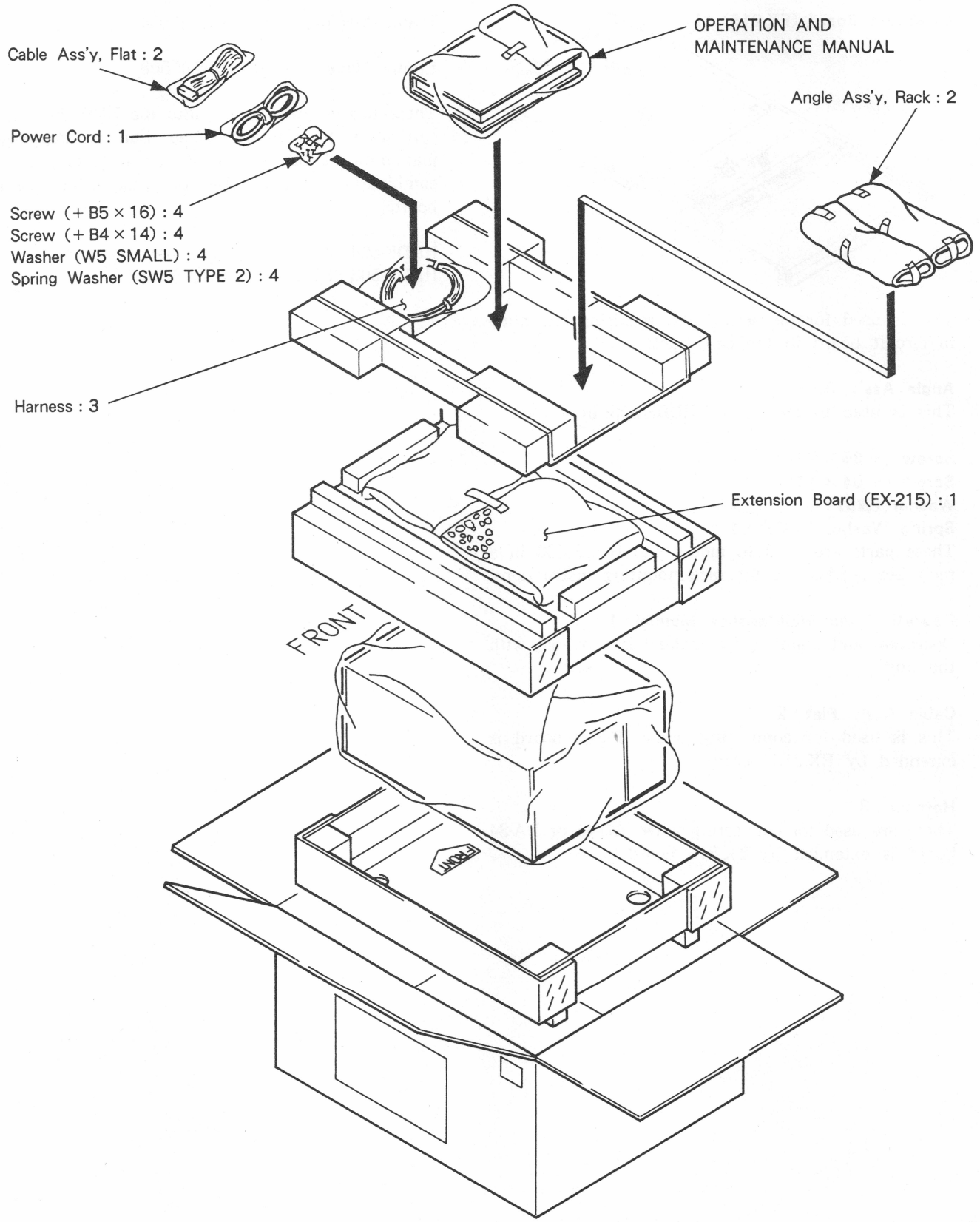
### IF-249基板、D1

電源を投入すると、まず診断機能が動作します。
診断機能の動作中は、“F0”から“F5”が表示されます。診断の結果は、次のように表示されます。詳細は、第4章診断機能を参照してください。

| 表　示 | 内　容 |
|---|---|
| 00 | 正常 |
| 01<br>02<br>04<br>08<br>10 | SY-149基板とのコミュニケーションにエラーがあります。第4章診断機能を参照してください。 |
| 20<br>40<br>80 | パラレルインターフェースシステムとのコミュニケーションにエラーがあります。第4章，診断機能を参照してください |
| F0<br>F1<br>F2<br>F3<br>F4<br>F5 | CPU PROM，およびRAMのメモリーにエラーがあります。第4章，診断機能を参照してください。 |
| FF | フレームメメモリーに不良があります。第4章，診断機能を参照してください。 |

# SECTION 2
# INSTALLATION

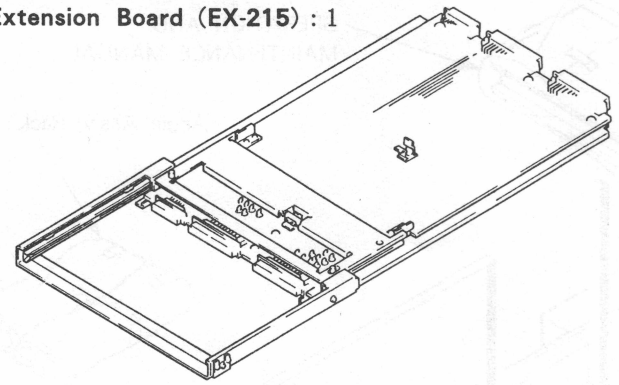
## 2-1. UNPACKING AND REPACKING



## 2-2. ACCESSORIES

### 2-2-1. Accessories Supplied

**Extension Board (EX-215)** : 1



This is used for inspecting and repairing the plug-in circuit board in the card rack.

**Angle Ass'y, Rack** : 2
This is used to mount the HDDF-500 in a rack.

**Screw (+ B5 × 16)** : 4
**Screw (+ B4 × 14)** : 4
**Washer (W5)** : 4
**Spring Washer (SW5)** : 4
These parts are used to mount the HDDF-500 in a rack. See section 2-6 for rack-mounting instructions.

**Operation and Maintenance Manual** : 1
Operation and maintenance manual is provided with the unit.

**Cable Ass'y, Flat** : 2
This is used for connecting when IF-249 board is extended by EX-215 board.

**Harness** : 3
These are used for connecting when AD-45 or DA-34 board is extended by EX-215 board.

### 2-2-2. Optional Accessories

Frame Memory Board, HKDF-504

Frame Memory Board, HKDF-508

These boards are inserted into the HDDF-500 in the card rack to memory frame. Can be captured a maximum of 32 frames of HD pictures with the combination of two types of these frame memory boards.

HKDF-504 : 4-frame memory board
HKDF-508 : 8-frame memory board

## 2-3. POWER REQUIREMENTS

### 2-3-1. Capacity of AC Power Source

**Power Line Voltage (switchable) :**
100~120V/220~240V
**Power Line Frequency :** 47~63 Hz
**Power Consumption :** 400W

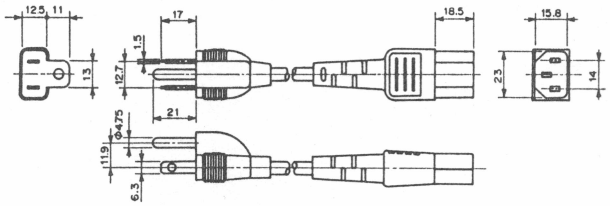
### 2-3-2. Power Cord

Length : (For UC) Approx. 2.4m

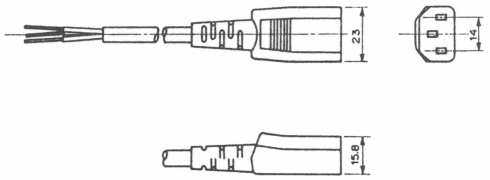
Length : (For EK) Approx. 2.5m

Plug configuration

For UC



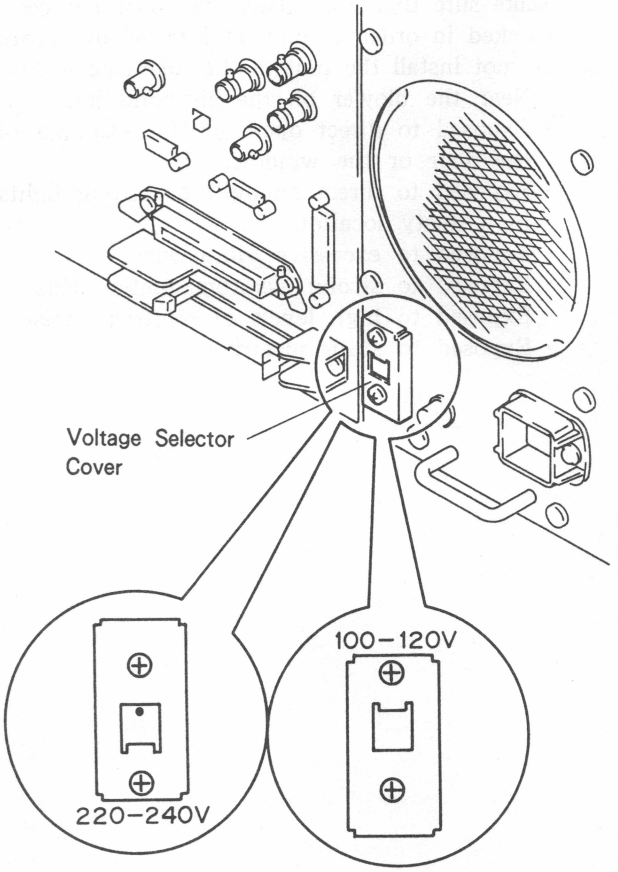

For EK




### 2-3-3. Voltage Selector Setting

To change the AC voltage setting, remove the voltage selector cover on the connector panel shown in the figure, select the voltage value, and then install the cover so that the selected voltage value may be seen.

< **REAR VIEW** >




### 2-3-4. Ventilation and Heat Sink

The three fans are for cooling the HDDF-500. If either the intake or the exhaust should become clogged or should the fans stop, damage may result to the power unit etc. The heat sinks in the Power Supply Assembly are rated on the assumption that cooling will be provided by the fan. Consequently, the unit should not be operated too long without fan cooling (such as when the unit is opened for checks, etc.).

## 2-4. INSTALLATION CONDITIONS

**Operating temperature :** + 5 ℃ to + 40 ℃
**Storage temperature :** − 20 ℃ to + 60 ℃
**Humidity :** 10 % to 85 %

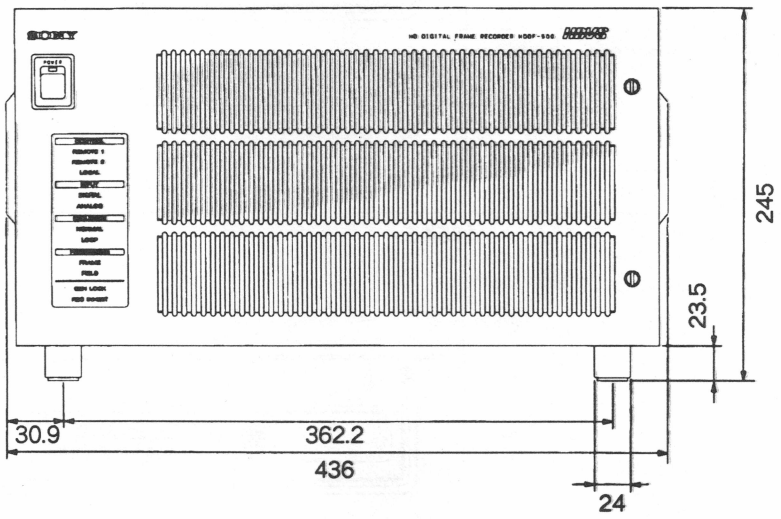
**Notes for installation**

1. Install the unit on a flat and stable base.
2. Make sure that the exhaust fan does not become blocked in order to prevent internal overheating.
3. Do not install the unit in the following locations.
   - Near the blower on the air conditioner.
   - Exposed to direct open air (for example, near the door or the window, etc.)
   - Exposed to direct sunlight or strong lights
   - In a dusty location
   - Exposed to excessive vibrations
   - Exposed to strong electromagnetic fields
   - Exposed to high levels of electrical noise
   - Exposed to static electricity

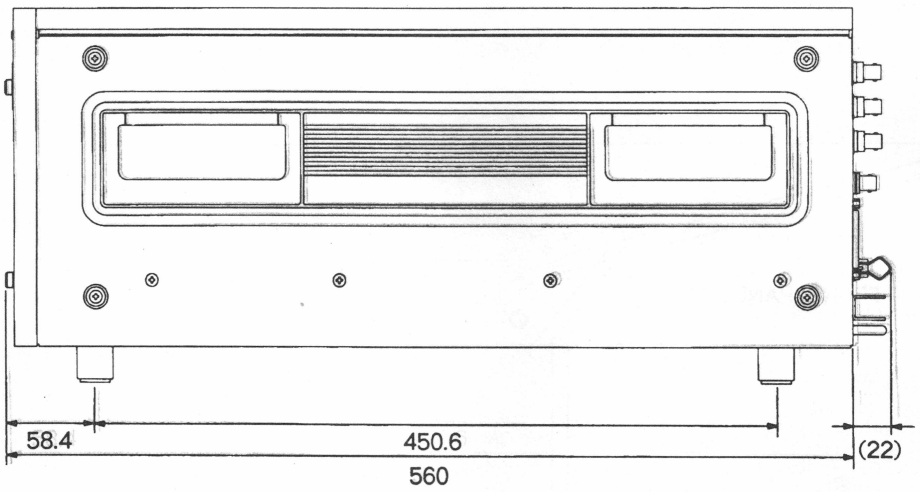
## 2-5. INSTALLATION SPACE

External Dimensions

**< FRONT VIEW >**

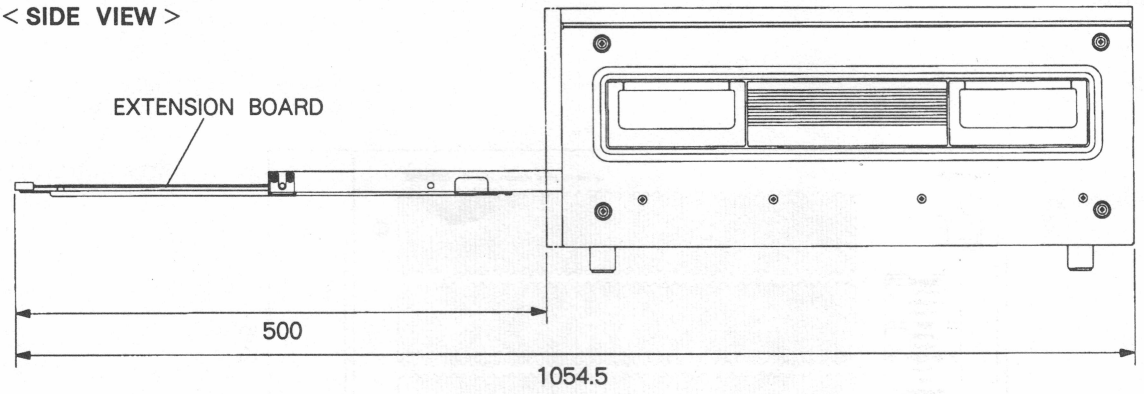


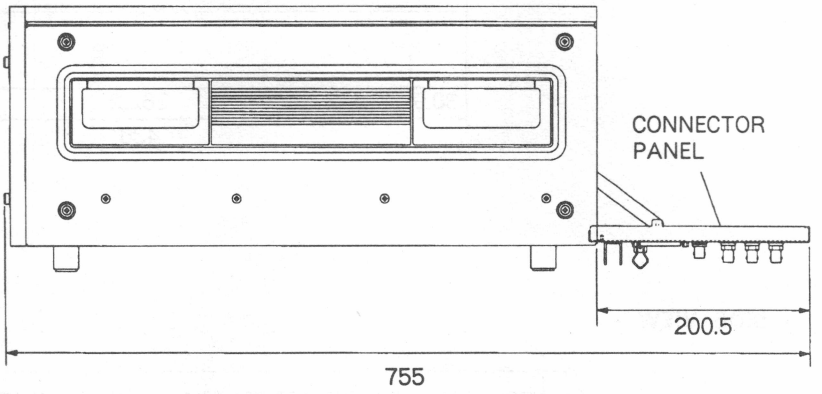

**< SIDE VIEW >**



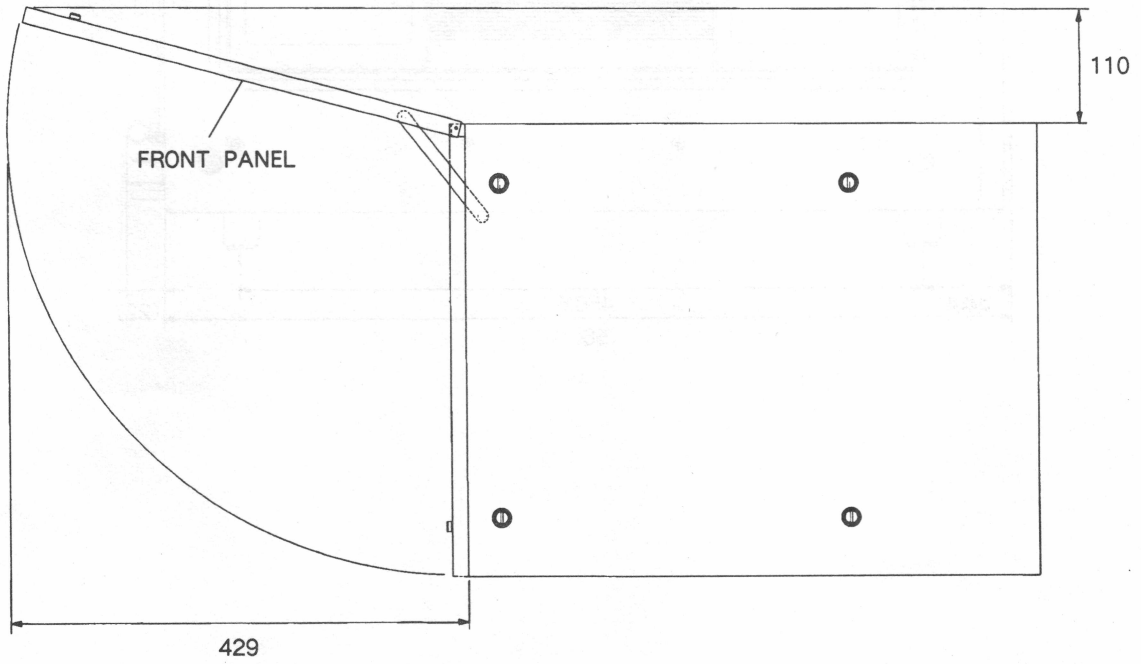
Working Space

**< SIDE VIEW >**




**< TOP VIEW >**

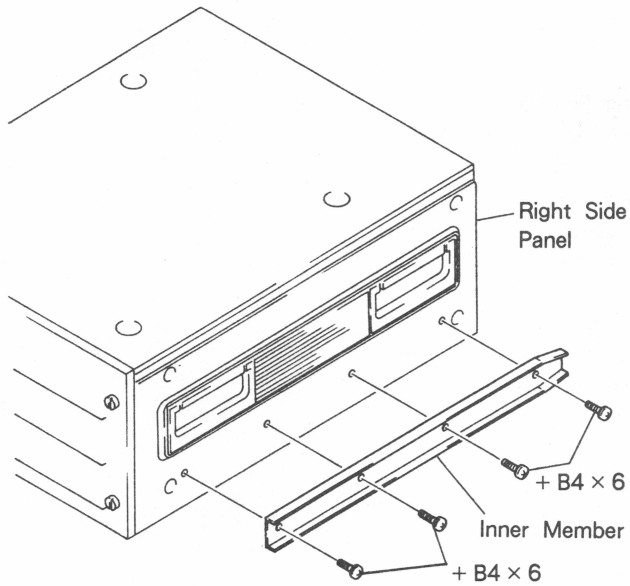


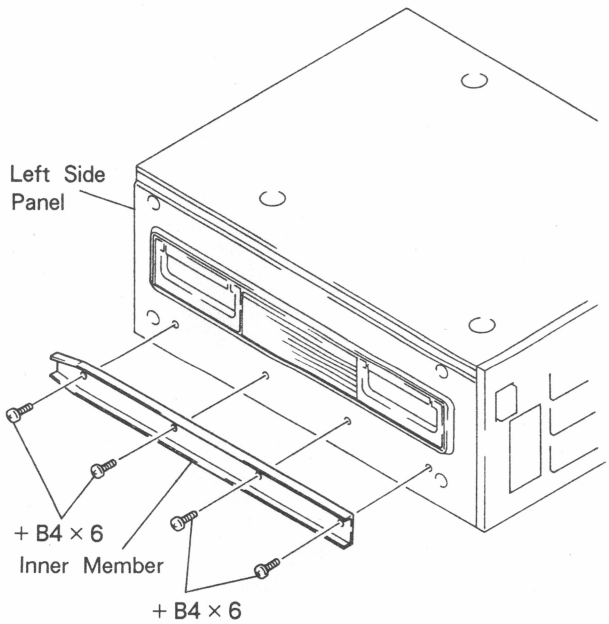
## 2-6. RACK MOUNTING

The unit can be mounted in the 19-inch standard rack. It is recommended that the following slide rails be used.

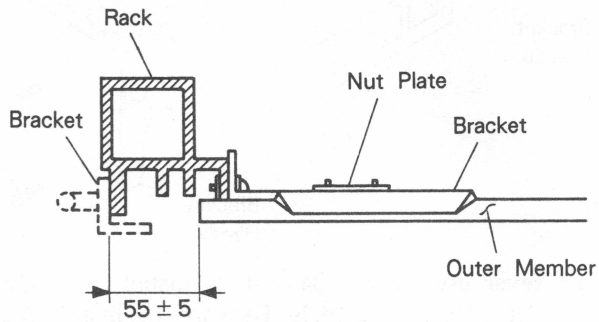
- RACK-MOUNT SLIDES MODEL 305
- SLIDE LENGTH 22 INCH

1. Remove the four fixing screws and four washers on the Right and Left Side Panels. (Be careful not to lose these four screws and four washers.)
2. Install the Inner Members of the slide rails to the Right and Left Side Panels with the screws removed in Step (1).

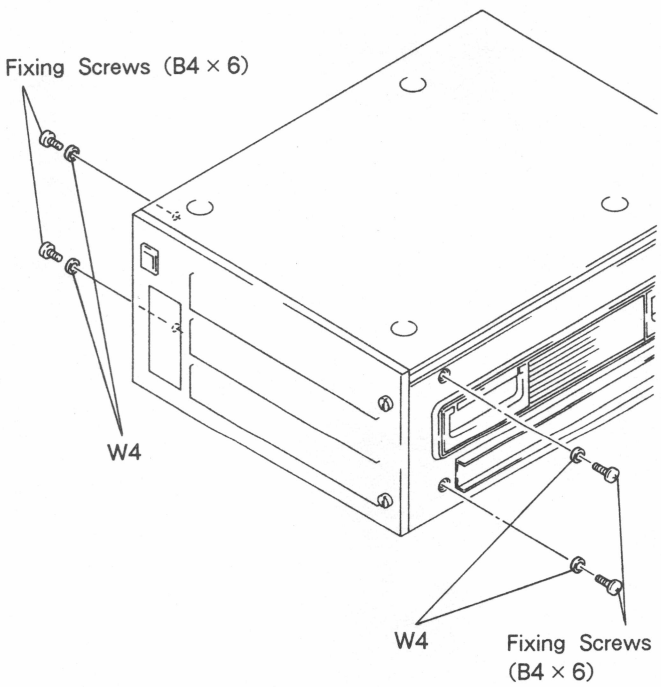


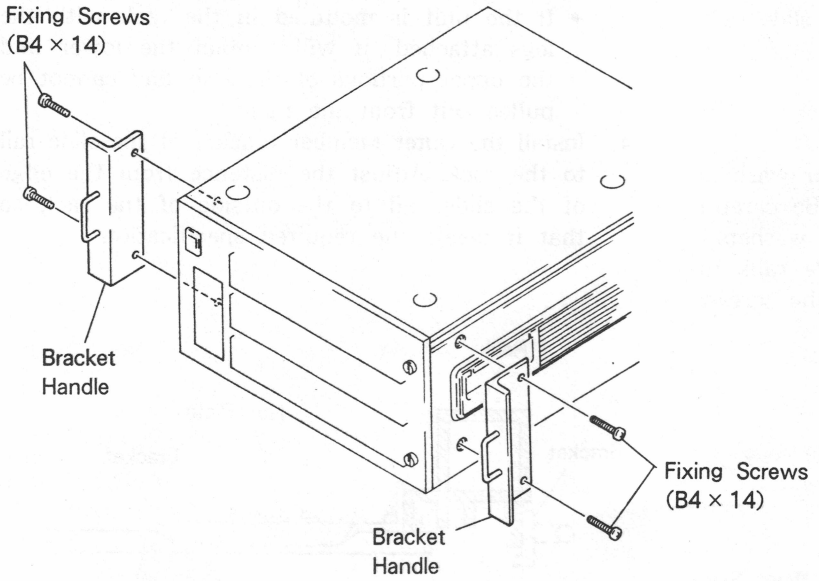

3. Remove the four legs on the Lower Panel.
   - If the unit is mounted in the rack with the legs attached ; it will contact the lower and the upper portions of the unit and cannot be pulled out from the rack.
4. Install the Outer Member bracket of the slide rail to the rack. Adjust the distance from the edge of the slide rail to the outside of the rack so that it meets the required specification.




5. Remove the two fixing screws and the two washers on the Right and Left Side Panels. (Be careful not to lose these four screws and four washers.)



6. Install the Handle Brackets with the supplied screws (B4 × 14) for these brackets.




**Note** : Never use screws (B4 × 14) to install the Right and Left Side Panels. Be sure to install the Right and Left Side Panels with the screws (B4 × 6) removed in Step (5). If the screws (B4 × 14) are used by mistake, they could cause trouble in the unit.

## 2-7. INPUT/OUTPUT INTERFACE

### 2-7-1. Matching Connectors and Cables

When external cables are connected to the various connectors on the connector panel during maintenance, the hardware listed below (or equivalents) must be used.

| HDDF-500 Connectors | | Matching Connectors/Cables | |
|---|---|---|---|
| Used for | Name | Name | Sony Part No. |
| ANALOG INPUT<br>G, B, R | BNC × 3 | PLUG, BNC, MALE | 1-560-069-11 |
| ANALOG OUTPUT<br>G, B, R × 3 | BNC × 9 | PLUG, BNC, MALE | 1-560-069-11 |
| REF VIDEO<br>IN, OUT | BNC × 2 | PLUG, BNC, MALE | 1-560-069-11 |
| DIGITAL INPUT<br>G, B, R | D-sub, 25 pin, FEMALE | D-sub, 25 pin, MALE<br>VCD-2D/5D/10D | **(Note 1)** |
| DIGITAL OUTPUT<br>G, B, R | D-sub, 25 pin, FEMALE | D-sub, 25 pin, MALE<br>VCD-2D/5D/10D | **(Note 1)** |
| COMPUTER PARALLEL<br>INTERFACE INPUT/OUTPUT | Ribbon, 40 pin × 2, MALE | Ribbon, 40 pin × 2, FEMALE<br>FLAT CABLE ASSY | 1-575-153-11 |
| REMOTE<br>REMOTE1, 2 | D-sub, 9 pin, FEMALE | D-sub, 9 pin, MALE<br>RCC-5G/10G/30G | **(Note 2)** |
| SERVICE | D-sub, 25 pin, FEMALE | D-sub, 25 pin, MALE<br>CABLE ASSY | **(Note 3)** |

**(Note 1)** VCD-2D/5D/10D cable
These are optional accessories.
The length of the cables are as follows
VCD-2D = 2m
VCD-5D = 5m
VCD-10D = 10m

**(Note 2)** RCC-5G/10G/30G Cable
These are optional accessories.
The length of the cables are as follows.
RCC-5G = 5m
RCC-10G = 10m
RCC-30G = 30m

**(Note 3)** RS-232C Cable

### 2-7-2. Input/Output Connector Signals

(1) VIDEO

VIDEO IN (ANALOG)

G/B/R ; 1.0 Vp-p ± 2 dB Composite

Input impedance ; 75 Ω

VIDEO OUT 1/2/3 (ANALOG)

(G/B/R) × 3 ; 0.7 Vp-p Non-composite or1.0 Vp-p Composite

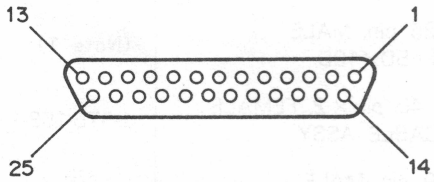
Output impedance ; 75 Ω

REF VIDEO IN

IN ; 1.0 Vp-p ± 3 dB Composite or ± 0.3 Vp-p ± 3 dB Trigger level sync

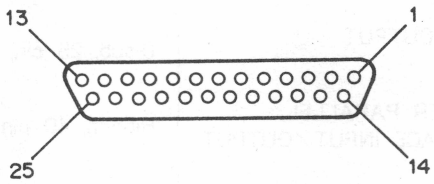
Input impedance ; Selectable, 75 Ω or high impedance for loop through to out.

(2) DIGITAL INPUT G, B, R




| Pin No. | SIGNAL | REMARKS |
|---|---|---|
| 1 | CLOCK + | ECL level, 74.25 MHz clock, balanced input. 100 Ω differential termination. Data is timed to positive clock edge. |
| 2 | SYSTEM GROUND | |
| 3 | DATA 7 + (MSB) | ECL level, positive logic, balanced data input. 100 Ω differential termination. |
| 4 | DATA 6 + | |
| 5 | DATA 5 + | |
| 6 | DATA 4 + | |
| 7 | DATA 3 + | |
| 8 | DATA 2 + | |
| 9 | DATA 1 + | |
| 10 | DATA 0 + | |
| 11 | UNUSED | All unused pins are open. |
| 12 | UNUSED | |
| 13 | CHASSIS GROUND | |
| 14 | CLOCK − | |
| 15 | SYSTEM GROUND | |
| 16 | DATA 7 − | ECL level, negative logic, balanced data input. 100 Ω differential termination. |
| 17 | DATA 6 − | |
| 18 | DATA 5 − | |
| 19 | DATA 4 − | |
| 20 | DATA 3 − | |
| 21 | DATA 2 − | |
| 22 | DATA 1 − | |
| 23 | DATA 0 − | |
| 24 | UNUSED | All unused pins are open. |
| 25 | UNUSED | |

(3) DIGITAL OUTPUT R, G, B

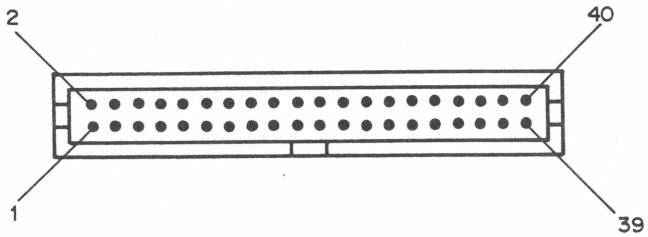



| Pin No. | SIGNAL | REMARKS |
|---|---|---|
| 1 | CLOCK + | ECL level, 74.25 MHz clock, balanced output. High impedance, 100 Ω differential termination. Data is timed to positive clock edge. |
| 2 | SYSTEM GROUND | |
| 3 | DATA 7 + (MSB) | ECL level, positive logic, balanced data output. High impedance data is timed to the positive clock edge. |
| 4 | DATA 6 + | |
| 5 | DATA 5 + | |
| 6 | DATA 4 + | |
| 7 | DATA 3 + | |
| 8 | DATA 2 + | |
| 9 | DATA 1 + | |
| 10 | DATA 0 + | |
| 11 | UNUSED | All unused pins are open. |
| 12 | UNUSED | |
| 13 | CHASSIS GROUND | |
| 14 | CLOCK − | |
| 15 | SYSTEM GROUND | |
| 16 | DATA 7 − | ECL level, negative logic, balanced data output. 100 Ω differential termination. |
| 17 | DATA 6 − | |
| 18 | DATA 5 − | |
| 19 | DATA 4 − | |
| 20 | DATA 3 − | |
| 21 | DATA 2 − | |
| 22 | DATA 1 − | |
| 23 | DATA 0 − | |
| 24 | UNUSED | All unused pins are open. |
| 25 | UNUSED | |

(4) COMPUTER PARALLEL INTERFACE (INPUT/OUTPUT)

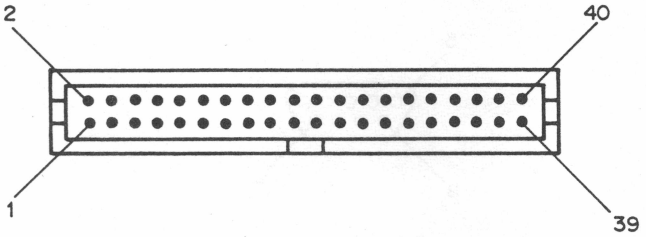
Signal names and protocol of parallel interface connectors should be obtained from applicable Digital Equipment Corporation documentation.

J1 INPUT




| Pin No. | SIGNAL | SIGAL DIR (*2) |
|---|---|---|
| 1 | GND | G |
| 2 | CYCLE REQUEST | O |
| 3 | GND | G |
| 4 | INIT V2 | (I) |
| 5 | GND | G |
| 6 | READY | I |
| 7 | GND | G |
| 8 | WC INC EN | O |
| 9 | SIGNAL | O |
| 10 | STAT A | O |
| 11 | GND | G |
| 12 | INIT | (I) |
| 13 | GND | G |
| 14 | STAT B | O |
| 15 | GND | G |
| 16 | STAT C | O |
| 17 | GND | G |
| 18 | STAT C | O |
| 19 | GND | G |
| 20 | (*2) | (I) |
| 21 | GND | G |
| 22 | GND | G |
| 23 | GND | G |
| 24 | GND | G |
| 25 | DI 7 | I |
| 26 | DI 8 | I |
| 27 | DI 6 | I |
| 28 | DI 9 | I |
| 29 | DI 5 | I |
| 30 | DI 10 | I |
| 31 | DI 4 | I |
| 32 | DI 11 | I |
| 33 | DI 3 | I |
| 34 | DI 12 | I |
| 35 | DI 2 | I |
| 36 | DI 13 | I |
| 37 | DI 1 | I |
| 38 | DI 14 | I |
| 39 | DI 0 | I |
| 40 | DI 15 | I |

J2 OUTPUT




| Pin No. | SINGL | SINGLA DIR (*1) |
|---|---|---|
| 1 | GND | G |
| 2 | BUSY | I |
| 3 | GND | G |
| 4 | ATTN | O |
| 5 | GND | G |
| 6 | AOO | O |
| 7 | GND | G |
| 8 | BA INC | O |
| 9 | EN | I |
| 10 | FNCT 3 | I |
| 11 | FNCT 3 | G |
| 12 | GND | O |
| 13 | CO | G |
| 14 | GND | I |
| 15 | FNCT 2 | G |
| 16 | GND | O |
| 17 | C1 | G |
| 18 | GND | I |
| 19 | FNCT 1 | G |
| 20 | GND | (I) |
| 21 | (*2) | G |
| 22 | GND | G |
| 23 | GND | G |
| 24 | GND | G |
| 25 | GND | O |
| 26 | DO 7 | O |
| 27 | DO 8 | O |
| 28 | DO 6 | O |
| 29 | DO 9 | O |
| 30 | DO 5 | O |
| 31 | DO 10 | O |
| 32 | DO 4 | O |
| 33 | DO 11 | O |
| 34 | DO 3 | O |
| 35 | DO 12 | O |
| 36 | DO 2 | O |
| 37 | DO 13 | O |
| 38 | DO 1 | O |
| 39 | DO 14 | O |
| 40 | DO 0 | O |

(*1) SIGNAL DIRECTION

I HOST →HDDF-500

(I) HOST →HDDF-500, BUT IGNORED BY HDDF-500

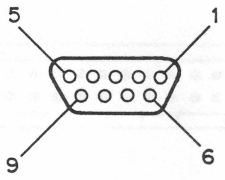
O HDDF-500 →HOST

G GND

(*2) connected to +5V through 4.7 kΩ

(5) REMOTE (REMOTE 1 and REMOTE 2)

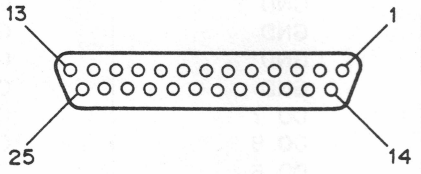
The remote connectors have been set up as controlled devices of an RS-422 type interface.




| Pin No. | SIGNAL |
|---|---|
| 1 | FRAME GROUND |
| 2 | TRANSMIT A |
| 3 | RECEIVE B |
| 4 | RECEIVE COMMON |
| 5 | SPARE |
| 6 | TRANSMIT COMMON |
| 7 | TRANSMIT B |
| 8 | RECEIVE A |
| 9 | FRAME GROUND |

(6) SERVICE

This connector is used for service




| Pin No. | SIGNAL |
|---|---|
| 1 | FRAME GROUND |
| 2 | RECEIVE |
| 3 | TRANSMIT |
| 4 | SIGNAL GROUND |

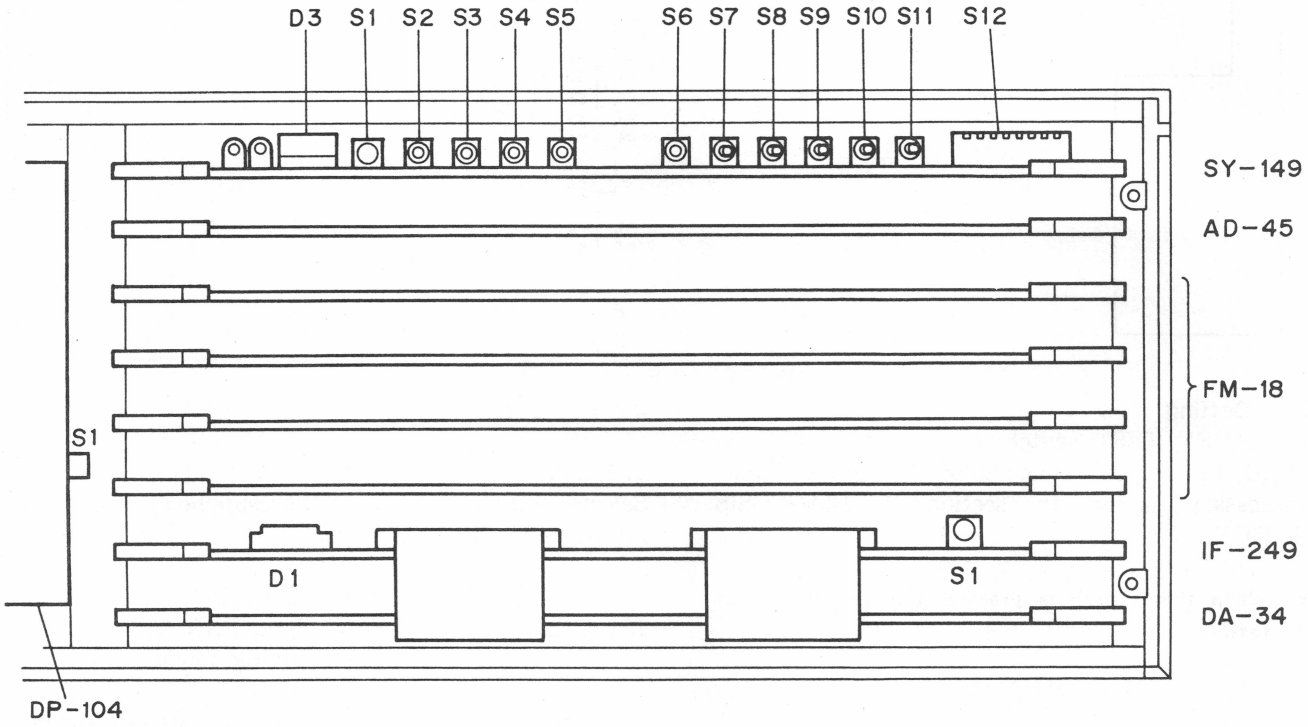
(7) SPARE

Not in used.

## 2-8. SWITCH AND JUMPER SETTING

### 2-8-1. Index of Switches and Jumpers

< FRONT VIEW >




**DP-104 Board**

**S1** : MEMORY TEST switch ..... 2-14

**SY-149 Board**

**S1** : CAPTURE switch
**S2** : STEP switch
**S3** : PROC switch
**S4** : SEQUENCE switch
**S5** : REC INH switch
**S6** : H-PHASE switch
**S7** : SYNC switch ..... 2-14
**S8** : INPUT switch ..... 2-14
**S9** : E/E switch
**S10** : CONTROL switch
**S11** : SIG GEN switch ..... 2-15
**S12** : MODE SELECTIONS switch ..... 2-15

**JP1** : SYNC LOCK SEL jumper ..... 2-14
**JP2** : SYNC LOCK SEL jumper ..... 2-14

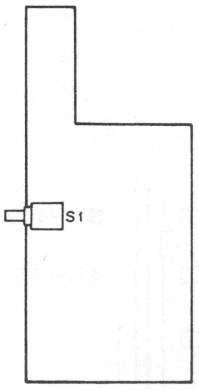
**IF-249 Board**

**S1** : SYSTEM RESET switch ..... 2-16
**S2** : ID SET switch ..... 2-16

**JP1** : PARALLEL INTERFACE COMPUTER SEL jumper ..... 2-16
**JP2** : PARALLEL INTERFACE COMPUTER SEL jumper ..... 2-16

### 2-8-2. DP-104 Board

< Component Side >



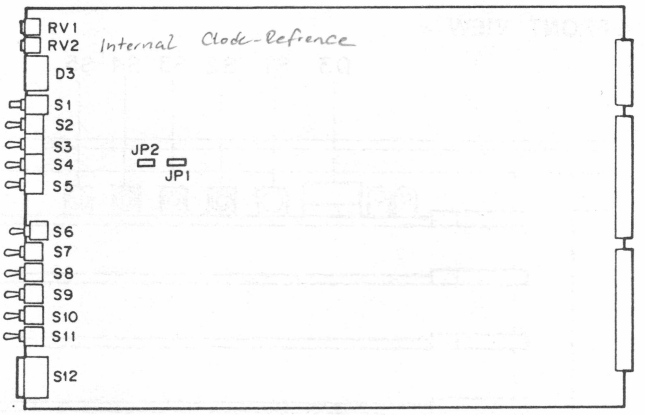

**Switch Setting**

**S1** : MEMORY TEST switch
Press S1 to test the memory of the active frame. If necessary, refer to section 4 DIAGNOSIS FUNCTION.

**Note : When this switch is pressed, the stored data is lost.**

### 2-8-3. SY-149 Board

< Component Side >




**Jumper Setting**

**JP1, JP2** : SYNC LOCK SELECT jumper
Selects whether or not the supplied sync lock reference signal is enabled.

JP1 : OPEN JP2 ; SHORT Sync lock is enabled.
JP1 ; SHORT JP2 ; OPEN Sync lock is disabled. (Free running mode)

**Note : When the sync lock reference signal is absent, the unit goes into the free running mode.**
Factory setting : JP1 ; OPEN JP2 ; SHORT

**Switch Setting**

**S1** : CAPTURE switch
**S2** : STEP switch
**S3** : PROC (process mode select) switch
**S4** : SEQUENCE switch
**S5** : REC INH (record inhibit) switch
**S6** : H-PHASE (horizontal phase adjust) switch
Refer to section 1.

**S7** : SYNC SELECT switch
Selects the sync lock reference signal.

**G** : Sync from green digital or analog input video is used for sync lock reference.

**AUTO** : Sync from green digital or analog input is used for sync lock reference during record, and sync from reference video is used during playback.

**REF** : Sync from reference video is used for sync lock reference.
Factory setting : AUTO

**S8:** INPUT SEL (input select) switch
Selectes the input video signal.

**ANA:** Analog video input is selected.

**DIG:** Digital video input is selected.

**Note** • **When digital video input is selected, S7 (sync select switch) on the SY-149 board is disabled. Sync from green digital input video is used for sync lock reference.**
• **This switch is always active regardless of the controller that is connected with REMOTE (9 pin) connector.**

Factory setting : ANA

**S9:** E/E switch
**S10:** CONTROL switch
Refer to section 1.

**S11:** SIG GEN (signal generator) switch
Selects the signal generator.
ON : The internal signal generator supplies a test signal. The S2 (STEP switch) on the SY-149 board selects the active internal test signal. The internal test signals are COLOR BARS, LINEARITY, PULSE & BAR, MULTIBURST, 10 STEP.
OFF : The signal that is selected with the S8 (INPUT SEL switch) on the SY-149 board or a storage signal is supplied. (either analog or digital input).
Factory setting : OFF

**S12:** MODE SELECTION
Switch S12 is used to set the mode. The switch status is read during power on and during manual reset diagnositics

**Bit-1:** NON-COMPOSITE VIDEO
ON : Non-composite video (without sync) output
OFF : Composite video (with sync) output
Factory setting : OFF

**Bit-2:** RESERVED Loop throught - oder Wiederholung

**Bit-3:** SINGLE FRAME RECORD ( SYSTEM REACTION TO RECORD COMMAND)
ON : Records a single frame.
OFF : Continuously records until stop command received.
Factory setting : OFF

**Note:** • **This switch is enabled when the unit is controlled by the unit connected to the REMOTE 1 or REMOTE 2 connector.**

**Bit-4:** TAG FRAME
When the S9 (E/E switch) on the SY-149 board is set to OFF.
ON : Contents of memory output, or black video output if no video stored in memory.
OFF : Video output from memory regardless of its contents.
Factory setting : OFF

**Bit-5:** Field Mode Editing
ON : When use BKH-3090, set edit command delay to 9 FIELD.
OFF : When use BVE-9000, set edit command delay to 8 FIELD.

**Bit-6, 7, 8:** Service connector BAUD RATE CODE (see switch combinations below)

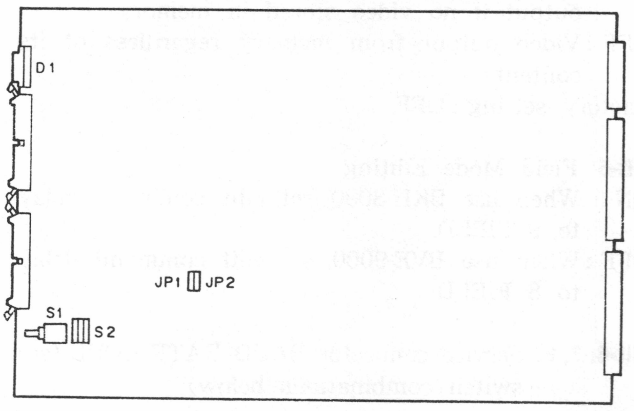
| S12-6 | S12-7 | S12-8 | Service connector BAUD RATE |
|---|---|---|---|
| OFF | OFF | OFF | 9600 BAUD |
| OFF | OFF | ON | 300 BAUD |
| OFF | ON | OFF | 600 BAUD |
| OFF | ON | ON | 1200 BAUD |
| ON | OFF | OFF | 2400 BAUD |
| ON | OFF | ON | 4800 BAUD |
| ON | ON | OFF | 9600 BAUD |
| ON | ON | ON | 19.2K BAUD |

Factory setting : OFF OFF OFF (9600 BAUD)

**Note:** • **The status mode is read after displaying the results of the diagnostics are displayed.**
• **If the S12 setting is changed, the system must be reset by power off or by pressing S1(SYSTEM RESET switch)on the IF-249 board before the new S12 setting becomes active.**

### 2-8-4. IF-249 Board

**<Component Side>**




**Jumper settings**

**JP1, JP2:** PARALLEL INTERFACE COMPUTER SEL jumper
Applicable only when interfacing to a system connected to the COMPUTER PARALLEL INTERFACE connectors, J1 INPUT and J2 OUTPUT. The jumpers are set according to the bus structure of the system being interfaced to.

**JP1:** Short JP1 with Q-BUS * system such as Digital Equipment Corporation (DEC *) MICROVAX-11 *, MICRO-PDP *, or LSI-11 *. JP2 is open. (DR11-WA *)

**JP2:** Short JP2 with UNIBUS system such as DEC PDP-11 *, or VAX. JP1 is open. (DR11-W)

**Note: DRV11, Q-BUS, DEC, MICROVAX-11, MICRO PDP, LSI-11, DR11-WA, PDP-11 and VAX are trademarks of the Digital Equipment Corporation.**

Factory setting : JP1 ; SHORT
(JP2 ; OPEN)

**Switch settings**

**S1:** SYSTEM RESET switch
Press S1 to reinitialize the system.
Information stored in video memory may be lost.

**S2:** ID SET switch
This switch is used to set the ID of the HDDF-500 and is applicable only when interfacing to a system connected to the SPARE connector.
Factory setting : ON ON ON (7)
**Note:** Not in used S3 = MSb

### 2-8-5. Voltage Selector Switch Setting

The Voltage selector switch is located at the rear of the power supply assembly. To change the setting, first remove the cover of the voltage selector, set the switch to the desired position according to the chart below, then replace the cover with the white arrow pointing to the setting selected

| POSITION | SETTING | VOLTAGE INPUT |
|---|---|---|
| UP | 100-120 | 90-132V AC 50/60 Hz |
| DOWN | 220-240 | 198-264V AC 50/60 Hz |

### 2-8-6. LED Displays

The HDDF-500 has two LEDs on the circuit board with indication is as follows.

**SY-149 Board**

When the system power is turned on, the diagnosis function is activated.
D3 indicates "0F0" through "0F5" during testing. If no errors are detected, D3 will display the active mode. If an error is detected, D3 indicates "0F0" through "0F5", and the system will immediately come to a halt. Refer to section 4 DIAGNOSIS FUNCTION.

| CODE | DESCRIPTION |
|---|---|
| NNN | "NNN" represents the active frame or field number. The range is frame 0 through 31 or field 0 through 63. |
| 0EE/NNN | "0EE" indicates that the set is in E/E mode. D3 alternates between "0EE and "NNN" which is the active frame or field number. |
| 0d0/NNN | "0d0" indicates that the set is in the video memory test mode. D3 alternates between "0d0" and "NNN" which represents the number of the frame being tested. |
| 0d1/MMM | The internal signal generator is active. D3 alternates between "0d1" and "MMM" which represents the video pattern (see below).<br>000 : COLOR BARS<br>001 : LINEARITY<br>002 : PULSE & BAR<br>003 : MULTIBURST<br>004 : 10 STEP |
| 0F0<br>0F1<br>0F2<br>0F3<br>0F4<br>0F5 | CPU PROM, CPU RAM memory error. Refer to the section 4 DIAGNOSIS FUNCTION. |

**Note : D3 reverts to its pre-test status regardless of whether the memory test has passed or failed. When the test has been completed (as indicated by the disappearance of the "0d0" indication), the result of the test is displayed on D1 on the IF-249 board as "00" for pass (no errors) or "FF" for failure. Refer to section 4 DIAGNOSIS FUNCTION.**

**IF-249 Board**

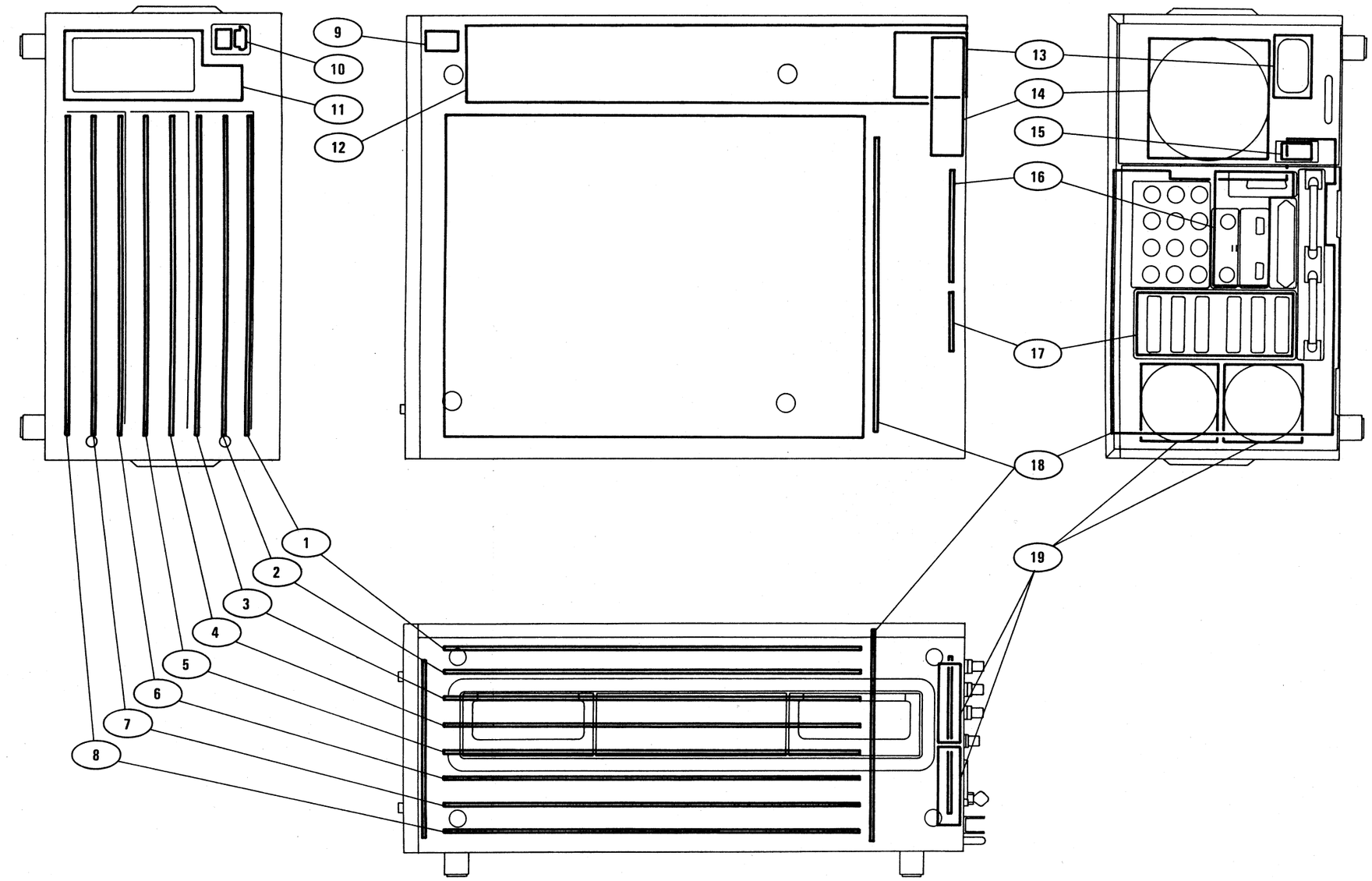
When the system power is turned on, the diagnosis function is activated.
D1 indicates F0 through F5 during active the diagnosis function.
The results of the test are indicated as follows. Refer to section 4 DIAGNOSIS FUNCTION.

| CODE | DESCRIPTION |
|---|---|
| 00 | No error |
| 01<br>02<br>04<br>08<br>10 | Communication error (with SY-149 board). Refer to section 4 DIAGNOSIS FUNCTION |
| 20<br>40<br>80 | External communication error (with PARALLEL INTERFACE system). Refer to section 4 DIAGNOSIS FUNCTION. |
| F0<br>F1<br>F2<br>F3<br>F4<br>F5 | CPU PROM, CPU RAM error. Refer to section 4 DIAGNOSIS FUNCTION. |
| FF | The video memory test results. Refer to section 4 DIAGNOSIS FUNCTION. |

# 第３章
# サービスインフォメーション

## 3-1. 主要部品配置図

1. SY-149 ; CONTROL BOARD
2. AD-45 ; INPUT PROCESSOR BOARD
   DL-38 ; DIGITAL CLOCK DELAY
   DL-39 ; ANALOG CLOCK DELAY
3. FM-18 ; MEMORY BOARD
4. FM-18 ; MEMORY BOARD
5. FM-18 ; MEMORY BOARD
6. FM-18 ; MEMORY BOARD
7. IF-249 ; INTERFACE BOARD
8. DA-34 ; POST PROCESSOR BOARD
   DL-37 ; DIGITAL CLOCK PHASE DELAY
   DL-40 ; ANALOG CLOCK PHASE DELAY
9. AC POWER SWITCH
10. PE-18 ; POWER LAMP
11. DP-104 ; DISPLAY PANEL BOARD
12. PS-043B ; SWITCHING REGULATOR
13. AC INLET
14. MOTOR、FAN
15. VOLTAGE SELECTOR
16. RP-42 ; REAR PANEL BOARD
17. CN-410 ; CONNECTOR PANEL BOARD
18. MB-253 ; MOTHER BOARD
19. MOTOR、FAN

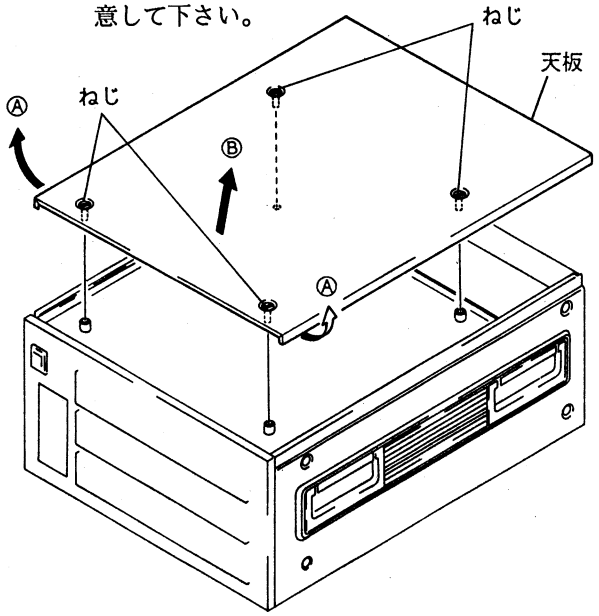


## 3-2. 外装の取り外し

天板の外し方

1. ドライバーでねじ（4本）を充分に緩めます。
   注意：このねじは、ねじ脱落防止機構によりねじ単体では取り外せません。

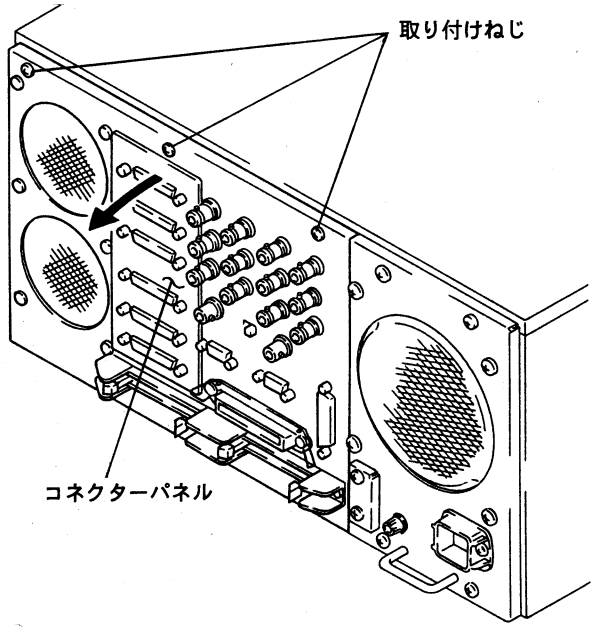
2. 天板の前方、矢印Ａ部を持ち、矢印Ｂ方向に持ち上げます。
   注意：ねじが本体に引っかかることがありますので注意して下さい。




リアパネル（コネクターパネル）の開け方

取り付けねじを充分に緩めてから開けます。

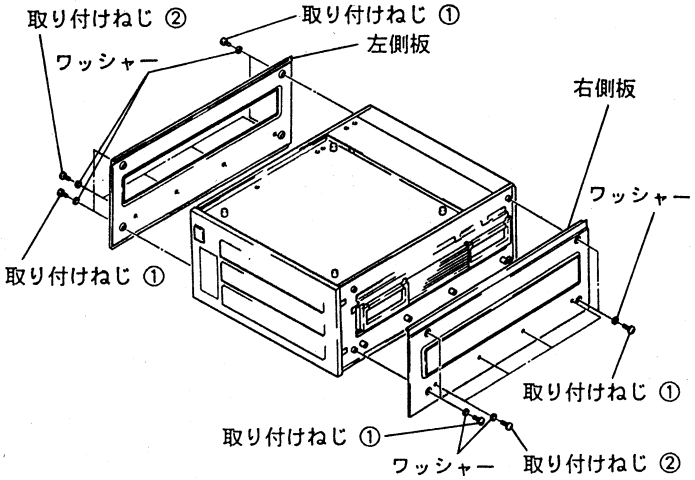
注意：このねじは、ねじ脱落防止機構によりねじ単体では取り外せません。




側板の外し方

リアパネルを開き、天板を外した後、各側板の取り付けねじ①（4本）、取り付けねじ②（4本）、ワッシャー（8個）を外します。

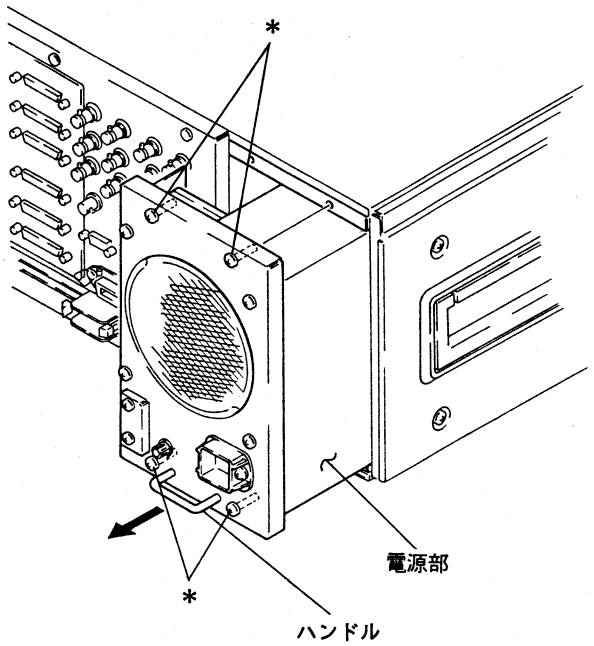
注意：取り付けねじ②（4本）は、ラックレール取り付けの際にレール取り付けねじとして使用します。



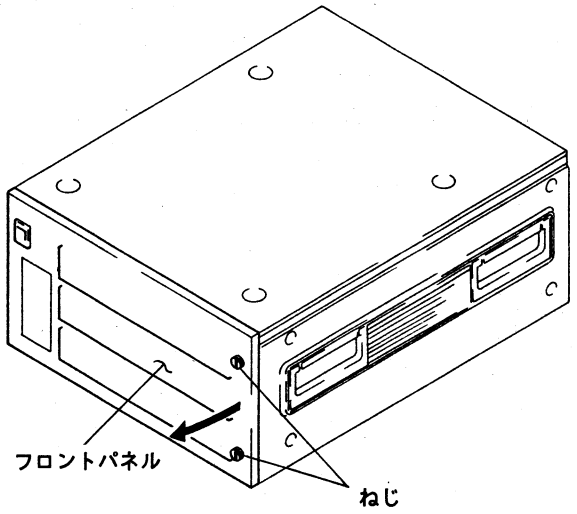

電源部の取り出し方

＊印のねじ（4本）を充分に緩め、ハンドルを持ち矢印の方向へ引き出します。

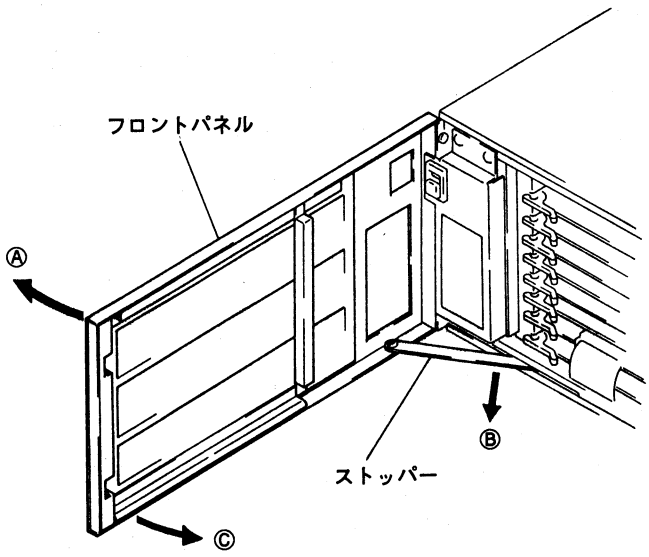
注意：このねじは、ねじ脱落防止機構によりねじ単体では取り外せません。



フロントパネルの開け方
ねじ（2本）を充分に緩め、フロントパネルを開けます。
注意：このねじは、ねじ脱落防止機構によりねじ単体では取り外せません。



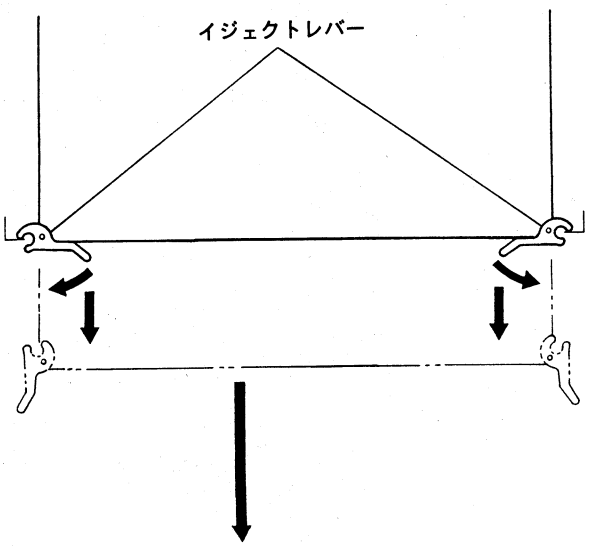

フロントパネルの閉め方
矢印A方向に引っ張りながら、ストッパーを矢印B方向に戻し、矢印C方向に閉めます。



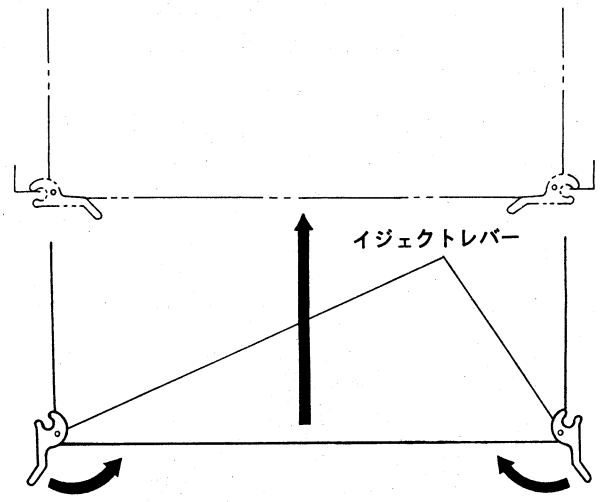

## 3-3. プラグイン基板の引き抜き／挿入

電源スイッチをOFFにしてから2秒以上待ってからプラグイン基板を抜き挿ししてください。

引き抜き
基板をコネクタから引き抜く際は、イジェクトレバーを矢印方向に起こして引き抜いてください。最初に基板の他の部分を引っ張ってはいけません。




挿入
イジェクトレバーを図のように起こしてから基板を挿入してください。



## 3-4. 補修用部品注意事項

### 3-4-1. 補修用部品注意事項

(1) 安全重要部品
回路図、分解図、電気部品表中、⚠印付きの部品は安全性を維持するために重要な部品です。したがってこれらの部品を交換するときに必ず指定の部品と交換してください。

(2) 部品の共通化
ソニーから供給される部品はセットに実装されているものと異なることがあります。これは部品の共通化、改良等によるものです。
分解図や電気部品表には現時点での共通化された部品が記載されています。

(3) 部品の変更
部品の変更に関する情報は第E章「CHANGED PARTS」を参照してください。

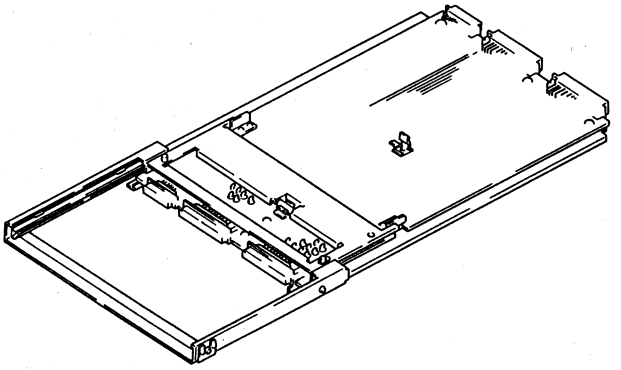
(4) 部品の在庫
部品表のSP (Supply code) 欄にoで示される部品は交換頻度が低いので在庫していないことがあり、納期が遅れることがあります。

(5) コンデンサー、インダクター、抵抗の単位
回路図、分解図、電気部品表中、特に明記したものを除き、下記の単位は省略されています。
コンデンサー : μF
インダクター : μH
抵抗 : Ω

## 3-5. 治工具・測定器

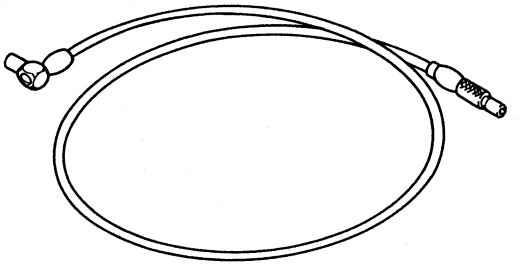
HDDF-500を点検、修理するときに必要な治工具および測定器を紹介します。

延長基板EX-215
ソニー部品番号 A-6252-200-A



HDDF-500のカードラック部に収納されているプラグイン基板の点検、修理の際に使用します。HDDF-500に1枚付属しています。

**延長同軸ケーブル**
ソニー部品番号1-942-822-11
HDDF-500のAD-45、DA-34基板を点検、修理の際に延長ケーブルとして使用します。
なお、ケーブルは3本必要になります。
HDDF-500に3本付属しています。



## 3-6. 電源部の注意事項

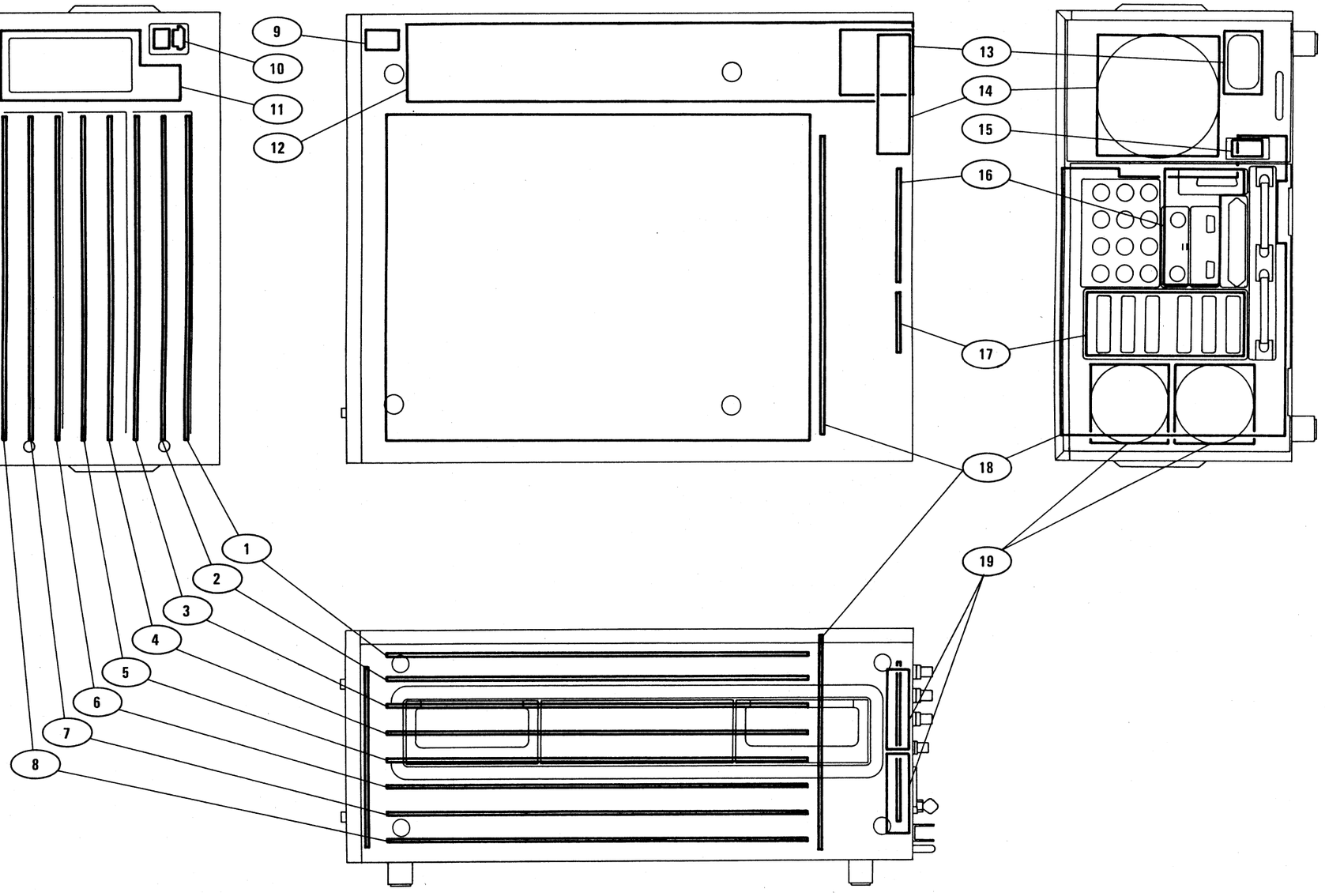
### 3-6-1. 一次側回路／感電注意

電源ユニットの各基板に一次側の部分があり、感電には十分注意してください。一次側は、電源スイッチをOFFにしても充電された電荷が残っているので気をつけて下さい。急激に放電させることは危険です。

# SECTION 3
# SERVICE INFORMATION

## 3-1. MAIN COMPONENTS LOCATIONS

1. SY-149 ; CONTROL BOARD
2. AD-45 ; INPUT PROCESSOR BOARD
   DL-38 ; DIGITAL CLOCK DELAY
   DL-39 ; ANALOG CLOCK DELAY
3. FM-18 ; MEMORY BOARD
4. FM-18 ; MEMORY BOARD
5. FM-18 ; MEMORY BOARD
6. FM-18 ; MEMORY BOARD
7. IF-249 ; INTERFACE BOARD
8. DA-34 ; POST PROCESSOR BOARD
   DL-37 ; DIGITAL CLOCK PHASE DELAY
   DL-40 ; ANALOG CLOCK PHASE DELAY
9. AC POWER SWITCH
10. PE-18 ; POWER LAMP
11. DP-104 ; DISPLAY PANEL BOARD
12. PS-043B ; SWITCHING REGULATOR
13. AC INLET
14. MOTOR, FAN
15. VOLTAGE SELECTOR
16. RP-42 ; REAR PANEL BOARD
17. CN-410 ; CONNECTOR PANEL BOARD
18. MB-253 ; MOTHER BOARD
19. MOTOR, FAN

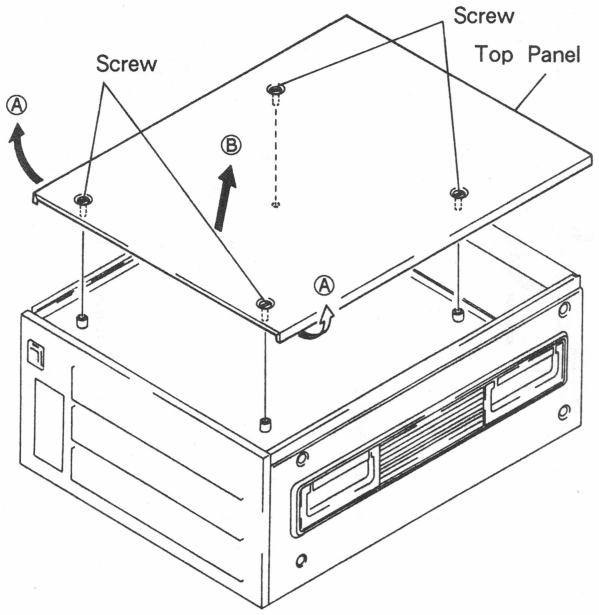


## 3-2. CABINET REMOVAL

**Top panel removal**

1. Loosen the four screws with the screwdriver.
   **Note** : The screws have a captive-type design which makes it impossible for them to fall inside the unit.

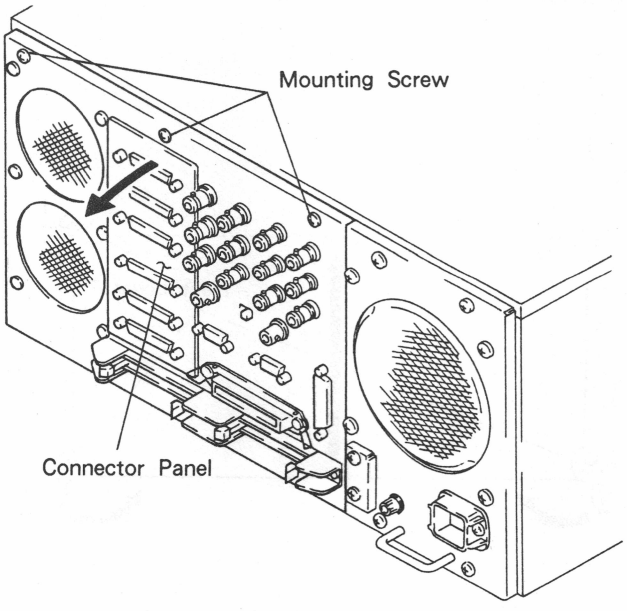
2. Bring up the top panel in the direction of arrow B by holding the portion shown by arrow A (front of the top panel).
   **Note** : The screws might be hooked on the unit, so be careful bringing.




**Rear panel (connector panel) opening**

Loosen the fixing screws, and open the rear panel.

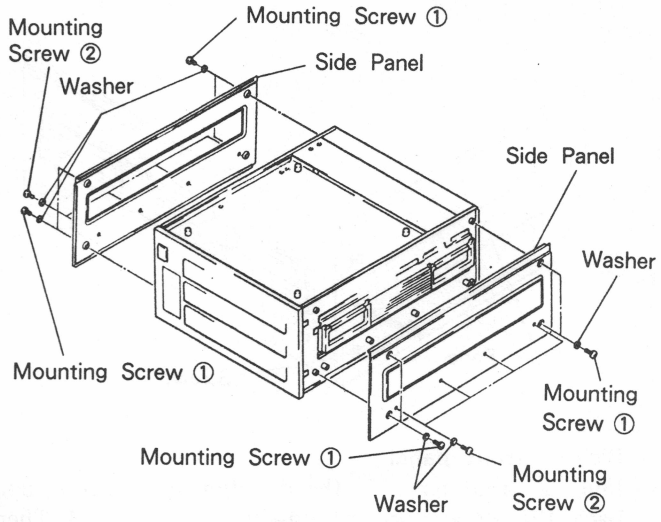
**Note** : The screws have a captive-type design which makes it impossible for them to fall inside the unit.




**Side panel removal**

Open the rear panel, and remove the top panel. Then, remove the eight fixing screws ①, the eight fixing screws ② (four on each side) and 16 washers (eight on each side).

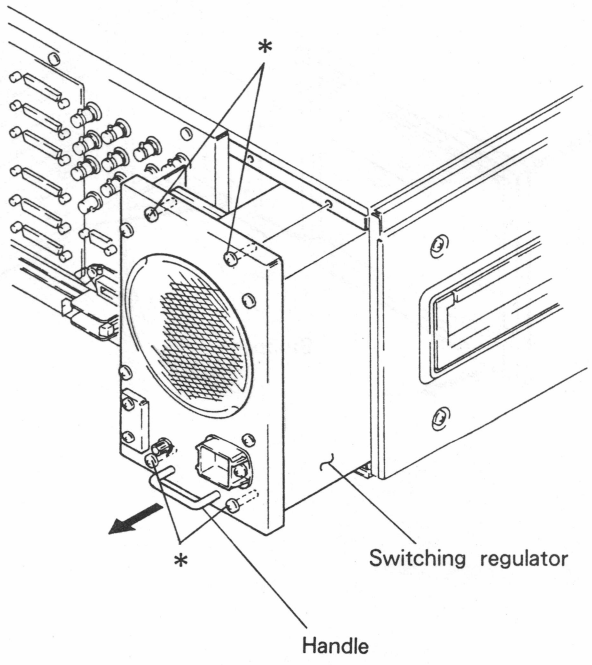
**Note** : The fixing screws ② are used for installing the rackrails.




**Switching regulator removal**

Loosen the four * marked screws, and pull the handle in the direction of arrow.

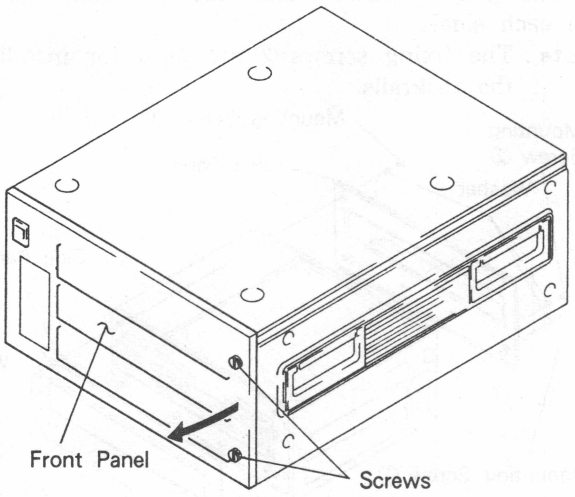
**Note** : The screws have a captive-type design which makes it impossible for them to fall inside the unit.



**Opening front panel**

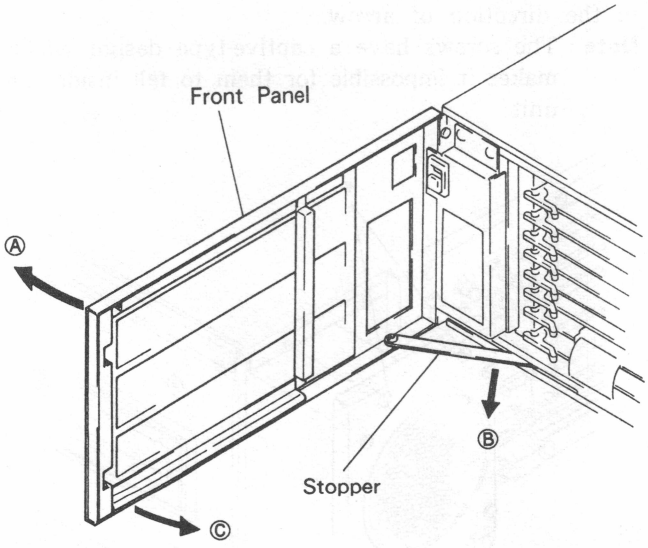
Loosen the two screws, and open the front panel.

**Note :** The screws have a captive-type design which makes it impossible for them to fall inside the unit.




**Closing front panel**

Pull the front panel in the direction of arrow A, and back the stopper in the direction of arrow B. Then close the front panel in the direction of arrow C.

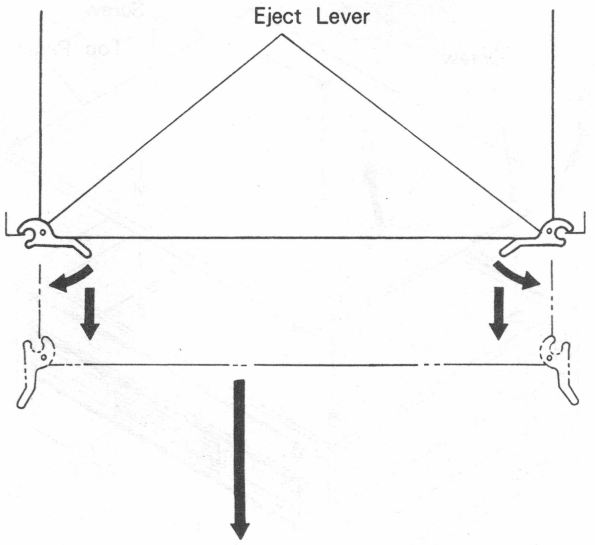



## 3-3. PLUG-IN BOARDS REMOVAL/ INSERTION

Wait at least 2 seconds after having switched off the power before removing or inserting any of the plug-in boards.

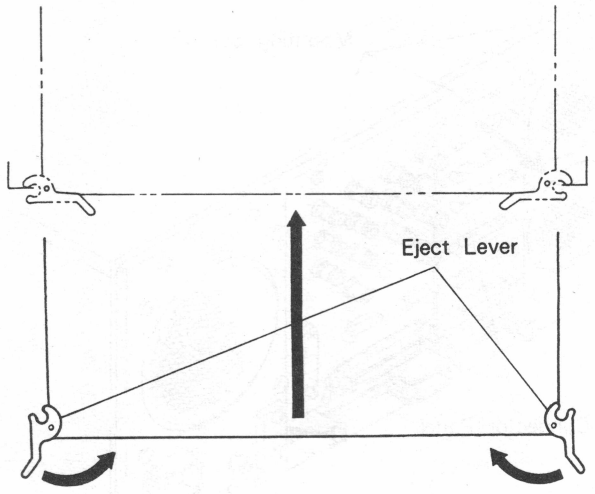
**Plug-in boards removal**

Pull up the eject levers on the boards in the direction of the arrow to disconnect the plug-in boards from the connectors on the mother board. Then, pull out the boards.




**Plug-in boards insertion**

Insert the boards after pulling up the eject levers. Then, firmly press the eject levers in the direction of the arrow to connect the plug-in board to the connectors on the mother board.



## 3-4. NOTES ON REPAIR PARTS

### 3-4-1. Notes on Repair Parts

**(1) Safety Related Components Warning**

Components marked with ⚠ on the schematic diagrams, exploded views and electrical spare parts list are critical to safe operation. Replace these components with Sony parts whose part numbers appear in this manual or in service bulletins and service manual supplements published by Sony.

**(2) Standardization of Parts**

Repair Parts supplied from Sony Parts Center may not be always identical with the parts which actually in use due to "accommodating the improved parts and/or engineering changes" or "standardization of genuine parts".

This manual's exploded views and electrical spare parts list are indicating the part numbers of "the standardized genuine parts at present".

**(3) Change of Parts**

Regarding engineering parts changes, refer to Section E. "CHANGED PARTS".

**(4) Stock of Parts**

Parts marked with "o" SP (Supply Code) column of the spare parts list are not normally required for routine service work. Orders for parts marked with "o" will be processed, but allow for additional delivery time.

**(5) Units for Capacitors, Inductors and Resistors**

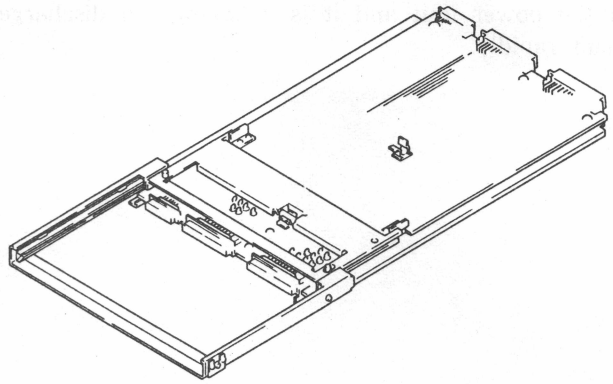
The following units are assumed in schematic diagrams, electrical parts list and exploded views unless otherwise specified.

Capacitors : μF
Inductors : μH
Resistors : Ω

## 3-5. MAINTENANCE TOOLS/FIXTURES

The test fixtures and the tools for checking and repairing the HDDF-500 are shown below.

Extension Board EX-215
Sony Parts No. A-6252-200-A



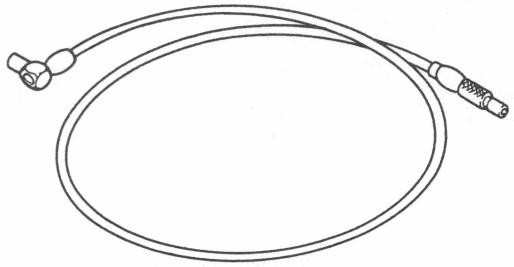
EX-215 board is used when checking or repairing the plug-in circuit board in the card rack. The HDDF-500 has one piece of EX-215 board as an accessory.

**Coaxial Cable**

Sony Part No. 1-942-822-11

This cable is used as extension cable when checking or repairing the AD-45 and DA-34 boards of the HDDF-500.

Three cable are necessary and three cables are supplied with HDDF-500.



## 3-6. POWER SUPPLY BLOCK PRECAUTION

### 3-6-1. Primary Circuit & Electric Shock

Since the power supply is mainly on the primary side, it is important to beware of electric shock. Note that even after the power switch is turned off, a high voltage remains in the electrolytic capacitors in the power unit and it is dangerous to discharge them rapidly.

# 第４章
# 自己診断機能

HDDF-500は、自己診断機能を備えています。何らかのエラーを検出した場合、そのエラーコードはSY-149基板のD3、およびIF-249基板のD1に表示されます。

## 4-1. CPU PROM, CPU RAMメモリーエラー（SY-149基板）

電源投入後、SY-149基板上のCPU PROM、およびCPU RAMのメモリーをチェックします。
S1／IF-249基板を押してシステムリセットすることにより、任意に診断することができます。

| 表 示 | 内 容 |
|---|---|
| 0F0 | CPU PROMの下位８ビットのチェックサムエラーです。 |
| 0F1 | CPU PROMの上位８ビットのチェックサムエラーです。 |
| 0F2 | CPU RAMのエラーです。 |
| 0F3 | CPU RAMのアドレスエラーです。 |
| 0F4 | SY-149基板内のEPROMのバージョンが異なります。 |
| 0F5 | SY-149基板とIF-249基板間でのEPROMのバージョンが異なります。 |

エラーを検出すると、ただちにシステムは停止します。またエラーコードは、D3にそのまま表示されます。正常な場合の表示は、2-8-6. LEDの表示を参照して下さい。

## 4-2. CPU PROM, CPU RAMメモリーエラー（IF-249基板）

電源投入後、IF-249基板上のCPU PROM、およびCPU RAMのメモリーをチェックします。
S1／IF-249基板を押してシステムリセットすることにより、任意に診断することができます。

| 表 示 | 内 容 |
|---|---|
| 00 | エラーは検出されません。正常です。 |
| F0 | CPU PROMの下位８ビットのチェックサムエラーです。 |
| F1 | CPU PROMの上位８ビットのチェックサムエラーです。 |
| F2 | CPU RAMのエラーです。 |
| F3 | CPU RAMのアドレスエラーです。 |
| F4 | IF-249基板内のEPROMのバージョンが異なります。 |
| F5 | IF-249基板とSY-149基板間でのEPROMのバージョンが異なります。 |

エラーを検出すると、動作は停止します。またエラーコードは、D1にそのまま表示します。

## 4-3. メモリーテスト

S1／DP-104基板を押すことにより、指定したフレームのメモリーの動作確認をすることができます。診断結果をD1／IF-249基板に表示します。

| 表 示 | 内 容 |
|---|---|
| 00 | メモリーの動作は正常です。 |
| FF | メモリーの動作に、一部異常があります。 |

## 4-4. コミュニケーションエラー

コミュニケーションエラーを検出すると、動作は停止して以下のエラーコードをD1／IF-249基板に表示します。

SY-149基板とのコミュニケーションエラー

| 表 示 | 内 容 |
|---|---|
| 00 | エラーは検出されません。正常です。 |
| 01 | DMA Interrupt |
| 02 | Check sùm エラーです。 |
| 04 | Communications エラーです。 |
| 08 | Spare |
| 10 | Transmit control エラーです。 |

パラレルインターフェースシステムとのコミュニケーションエラー

| 表 示 | 内 容 |
|---|---|
| 00 | エラーは検出されません。正常です。 |
| 02 | Check Sum エラーです。 |
| 20 | Command エラーです。 |
| 40 | DMA エラーです。 |
| 80 | Control エラーです。 |

# SECTION 4
# DIAGNOSIS FUNCTION

HDDF-500 has a self diagnosis function that is indicated on D3/SY-149 board or D1/IF-249 board when an error is detected.

## 4-1. CPU PROM, CPU RAM MEMORY ERROR (SY-149 board)

The CPU PROM and CPU RAM memory (on SY-149 board) are checked during power on and system reset diagnostics (Pressing S1/IF-249 board).

| CODE | DESCRIPTION |
|---|---|
| 0F0 | CHECKSUM ERROR (LSB ROM) |
| 0F1 | CHECKSUM ERROR (MSB ROM) |
| 0F2 | RAM ERROR |
| 0F3 | RAM ADDRESS ERROR |
| 0F4 | MISMATCHED ROM SET ON A CIRCUIT BOARD |
| 0F5 | MISMATCHED ROM SET BETWEEN SY AND IF BOARDS |

If an error is detected, the system will immediately come to halt with D3 retaining whatever was indicated. If no errors are detected, the HDDF-500 will go to Frame Store operation with D3 indicating the active mode (determined by 2-8-6. LED indicator).

## 4-2. CPU PROM, CPU RAM MEMORY ERROR (IF-249 board)

The CPU PROM memory and CPU RAM memory (on IF-249 board) are checked during power on and manual reset diagnostics (Pressing S1/IF-249 board).

| CODE | DESCRIPTION |
|---|---|
| 00 | NO ERROR |
| F0 | CHECKSUM ERROR (LSB ROM) |
| F1 | CHECKSUM ERROR (MSB ROM) |
| F2 | RAM ERROR |
| F3 | RAM ADDRESS ERROR |
| F4 | MISMATCHED ROM SET ON A CIRCUIT BOARD |
| F5 | MISMATCHED ROM SET BETWEEN SY AND IF BOARDS |

If an error is detected, the system will stop. D1 will retain whatever was indicated when the error was detected.

## 4-3. MEMORY TEST

A frame of video memory may be tested by pushing S1/DP-104. The test result will be indicated by D1/IF-249.

| CODE | DESCRIPTION |
|---|---|
| 00 | The memory test is passed. |
| FF | The memory test is failed. |

## 4-4. COMMUNICATION ERRORS

IF-249 board communications errors will be displayed on D1 as the sum (in hex) of the applicable errors listed below. Note that if communications errors occurs, the system will come to a halt and corrective action will be required.

INTERNAL COMMUNICATIONS ERRORS
(with SY-149 board)

| CODE | DESCRIPTION |
|---|---|
| 00 | NO ERROR |
| 01 | DMA INTERRUPT |
| 02 | CHECK SUM ERROR |
| 04 | COMMUNICATIONS ERROR |
| 08 | SPARE |
| 10 | TRANSMIT CONTROL ERROR |

EXTERNAL COMMUNICATION ERROR
(with COMPUTER PARALLEL INTERFACE system)

| CODE | DESCRIPTION |
|---|---|
| 00 | NO ERROR |
| 02 | CHECK SUM ERROR |
| 20 | COMMAND ERROR |
| 40 | DMA ERROR |
| 80 | CONTROL ERROR |

# 第6章
# 調整のための一般情報

## 6-1. 調整部品索引

AD-45基板 SECTION

CV1 …… 8-6
CV2 …… 8-6
CV3 …… 8-6
DL1 …… 8-7
DL2 …… 8-7
DL3 …… 8-7
DL4 …… 8-3
RV1 …… 8-5
RV2 …… 8-5
RV3 …… 8-5
RV4 …… 8-5
RV5 …… 8-5
RV6 …… 8-5
RV7 …… 8-5
RV8 …… 8-5
RV9 …… 8-5

DA-34基板

CV1 …… 9-3
CV2 …… 9-3
CV3 …… 9-3
DL1 …… 9-4
DL2 …… 9-4
DL3 …… 9-4
DL4 …… 9-5
RV1 …… 9-3
RV2 …… 9-3
RV3 …… 9-3

SY-149基板

RV1 …… 8-4
RV2 …… 10-1
S6 …… 8-4

## 6-2. 使用機器、治工具

1. オシロスコープ
   周波数特性：300MHz以上
   （TEKTRONIX 2465または相当品）
2. 周波数カウンタ
3. デジタル電圧計
4. HDアナログ信号発生器
5. HDデジタル信号発生器
6. 延長基板 EX-215
   ソニー部品番号 A-6252-200-A
7. 延長ケーブル ADA-EXT
   ソニー部品番号 1-942-822-11

# SECTION 6
# GENERAL INFORMATION FOR ALIGNMENT

## 6-1. INDEX OF ADJUSTMENT COMPONENTS

**AD-45 board** **SECTION**


CV1 ..... 8-6
CV2 ..... 8-6
CV3 ..... 8-6
DL1 ..... 8-7
DL2 ..... 8-7
DL3 ..... 8-7
DL4 ..... 8-3
RV1 ..... 8-5
RV2 ..... 8-5
RV3 ..... 8-5
RV4 ..... 8-5
RV5 ..... 8-5
RV6 ..... 8-5
RV7 ..... 8-5
RV8 ..... 8-5
RV9 ..... 8-5


**DA-34 board**


CV1 ..... 9-3
CV2 ..... 9-3
CV3 ..... 9-3
DL1 ..... 9-4
DL2 ..... 9-4
DL3 ..... 9-4
DL4 ..... 9-5
RV1 ..... 9-3
RV2 ..... 9-3
RV3 ..... 9-3


**SY-149 board**


RV1 ..... 8-4
RV2 ..... 10-1
S6 ..... 8-4


## 6-2. EQUIPMENT AND TOOLS

1. Oscilloscope
   Frequency response :
   300 MHz or more (Tektronix 2465 or equivalent)
2. Frequency Counter
3. Digital Voltmeter
4. HD analog Signal Generator
5. HD digital Signal Generator
6. Extension Board EX-215
   Sony Part No. A-6252-200-A
7. Extension Cable ADA-EXT
   Sony Part No. 1-942-822-11

# 第7章
# 電源調整

## 7-1. 調整前の準備

(1) 準備

1. 天板を取り外します。(3-2項参照)
2. IF-249基板を延長基板で延長します。
3. 電源をONにします。

## 7-2. ＋5V／－5V／＋12V／－12V／－2V調整

| 調整項目 | 測定点 | 規　格 | 調　整 |
|---|---|---|---|
| ＋5V | ＋5V端子／延長基板 | ＋5V ± 100mV | ◐RV1／Switching Regulator |
| －5V | －5V端子／延長基板 | －5.2V ± 100mV | ◐RV2／Switching Regulator |
| ＋12V | ＋12V端子／延長基板 | ＋12V ± 50mV | ◐RV3／Switching Regulator |
| －12V | －12V端子／延長基板 | －12V ± 50mV | ◐RV4／Switching Regulator |
| －2V | －2V端子／延長基板 | －2V ± 50mV | ◐RV5／Switching Regulator |

＊ 調整後、電源をOFFにして、延長基板を外しIF-249基板を元に戻します。8-4項と9-3項が規格と満足することを確認、調整してください。

# SECTION 7
# POWER SUPPLY ALIGNMENT

## 7-1. ADJUSTMENT PREPARATIONS

**(1) Preparation**

1. Remove upper lid (See section 3-2.).
2. Extend the IF-249 board with extension board.
3. Turn ON the power.

## 7-2. +5V/ – 5V/+12V/ – 12V/ – 2V

| Adj. Item | Measuring Point | Specification | Adjustment Component |
|---|---|---|---|
| + 5V | + 5V Pin/Extender | + 5V ± 100 mV | ⊘RV1/Switching Regulator |
| – 5V | – 5V Pin/Extender | – 5.2V ± 100 mV | ⊘RV2/Switching Regulator |
| + 12V | + 12V Pin/Extender | + 12V ± 50 mV | ⊘RV3/Switching Regulator |
| – 12V | – 12V Pin/Extender | – 12V ± 50 mV | ⊘RV4/Switching Regulator |
| – 2V | – 2V Pin/Extender | – 2V ± 50 mV | ⊘RV5/Switching Regulator |

After the adjustment, turn OFF the power, remove extension board and restore the IF-249 board.
Adjust section 8-4 and 9-3 whether satisfy the specifications.

# 第8章
# 入力系調整

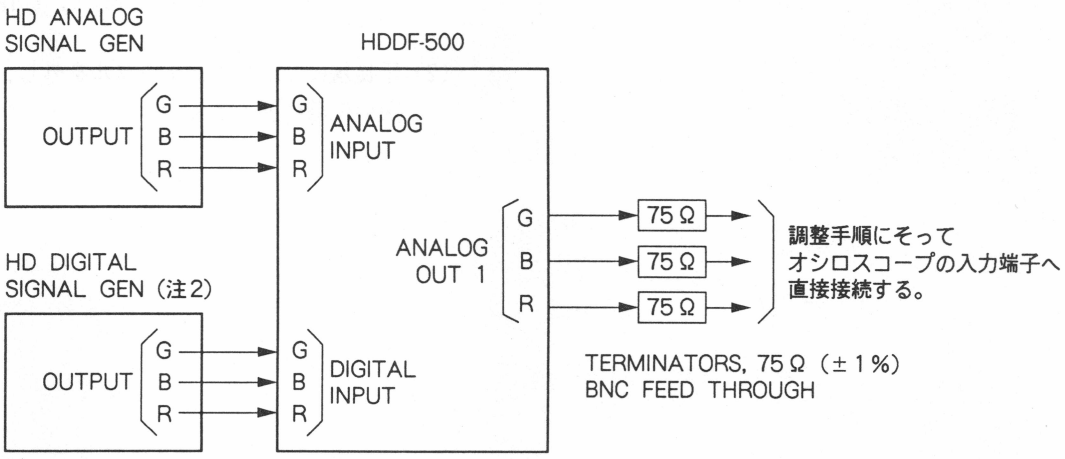
## 8-1. 調整順序（AD-45基板交換時）

＊9-3. 再生系レベルおよび周波数特性調整（確認）
↓
8-2. 調整前の準備
↓
8-3. デジタル入力クロック位相調整
↓
8-4. 記録系レベル調整
↓
8-5. 記録系周波数特性調整
↓
＊9-4. 再生系位相差確認
↓
8-6. 記録系位相差調整

＊ 入力系はHDDF-500の出力を観測して調整しますので、9-3項と9-4項が規格を満足することを確認／調整してください。
＊ RV1／SY-149は機能しておりません。どの位置に設定されていても良いです。

## 8-2. 調整前の準備

### (1) 機器の接続




注意1：各信号ケーブル（例えばANALOG INのG、B、R）の長さは、±1cmで揃えてあります。最短のケーブルで接続することで、位相差が保たれます。

注意2：HD デジタル信号発生器が用意できない場合は、被調整機のDIGITAL OUTPUT G, B, RとDIGITAL INPUT G, B, Rを直接、接続してください。
Switch setting：S11（SIG GEN）(L-15)：ON

(2) スイッチ／ジャンパの設定

SY-149基板の各スイッチ／ジャンパを下記のように設定する。

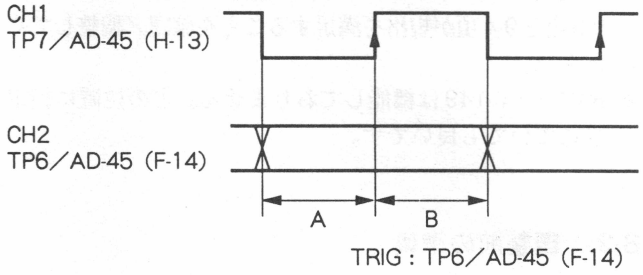
S7 (SYNC SEL) (L-11) : GREEN
S8 (INPUT SEL) (L-12) : ANALOG
S9 (E／E) (L-13) : ON
S10 (CONTROL) (L-14) : LOCAL
S11 (SIG GEN) (L-15) : OFF
S12-1 (NON-COMPOSITE VIDEO OUT) (L-16) : OFF
JP1 : OPEN
JP2 : SHORT

## 8-3. デジタル入力クロック位相調整

注意：DL4を調整する前に、9-5項のデジタル出力クロック位相調整を必ず確認してください。また9-5項の調整を行った場合は、本項を必ず調整／確認してください。

**機器の接続：** 8-2項参照
(HDアナログ信号発生器は不要)
**スイッチの設定：** 8-2項参照
**入力信号：** マルチバースト信号
**測定器：** オシロスコープ
(2 each 10 : 1スコーププローブ)
HDデジタル信号発生器

(1) AD-45基板を延長基板で延長し、3本の延長ケーブルをAD-45基板のCN4、CN5、CN6とそれらが接続されていた箇所に接続する。




A = B ± 1.5nsec
●DL4／AD-45 (G-16)

(2) 延長基板および延長ケーブルを外し、AD-45基板を所定の位置に挿入する。

## 8-4. 記録系レベル調整

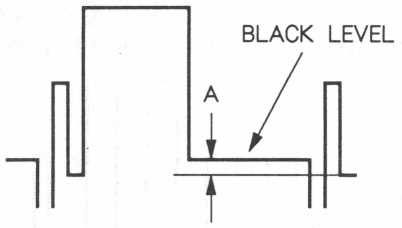
- この調整を行う前に、9-3項の再生系レベル調整が規格を満足することを確認／調整してください。

機器の接続：　8-2項参照
　　（HDデジタル信号発生器は不要）
スイッチの設定：　8-2項および本文参照
入力信号：　カラーバー信号
測定器：　オシロスコープ
　　デジタル電圧計
　　HDアナログ信号発生器

(1) デジタル電圧計にて下記TPの電圧を測定する。
G：TP9／AD-45（L-5）
B：TP12／AD-45（L-14）
R：TP15／AD-45（L-23）

規格：－2.00 ± 0.02Vdc
G：◐RV2／AD-45（T-5）
B：◐RV5／AD-45（T-13）
R：◐RV8／AD-45（T-24）

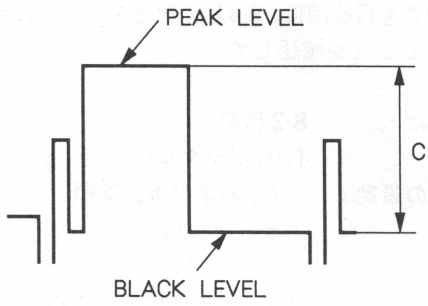
(2) ANALOG OUT 1 G（B、R）／コネクタパネル（75Ωで終端）




TRIG：REF OUT／HD SIGNAL GENERATOR

A = 0 ± 5mV
G：◐RV3／AD-45（T-7）
B：◐RV6／AD-45（T-16）
R：◐RV9／AD-45（T-25）

(3) ANALOG OUT 1 G（B、R）／コネクタパネル（75Ωで終端）




TRIG：REF OUT／HD SIGNAL GENERATOR

C = 700 ± 7mV
G：◐RV1／AD-45（L-6）
B：◐RV4／AD-45（L-14）
R：◐RV7／AD-45（L-24）

## 8-5. 記録系周波数特性調整

- この調整を行う前に、9-3項の再生系周波数特性調整が規格を満足することを確認してください。

機器の接続：　8-2項参照
　　（HDデジタル信号発生器は不要）
スイッチの設定：　8-2項および本文参照
入力信号：　マルチバースト信号
測定器：　オシロスコープ
　　HDアナログ信号発生器

(1) ANALOG OUT 1 G（B、R）／コネクタパネル（75Ωで終端）

0～27MHz：0 ± 4％（0とはフラットを意味する）
30MHz：$^{+0}_{-9}$ ％

（周波数特性は測定方法に関係します。第1バースト（3MHz）の振幅を100％基準としてください。）

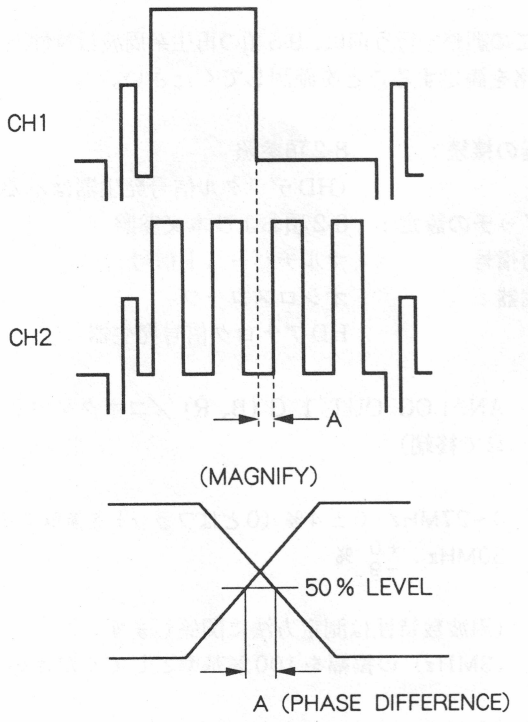
TRIG：REF OUT／HDアナログ信号発生器
G：◐CV1／AD-45（T-7）
B：◐CV2／AD-45（T-16）
R：◐CV3／AD-45（T-25）

## 8-6. 記録系位相差調整

- この調整を行う前に、9-4項の再生系位相差調整が規格を満足することを確認してください。

機器の接続：　8-2項参照
　　（HDデジタル信号発生器は不要）
スイッチの設定：　8-2項および本文参照
入力信号：　カラーバー信号
測定器：　オシロスコープ
　　HDアナログ信号発生器

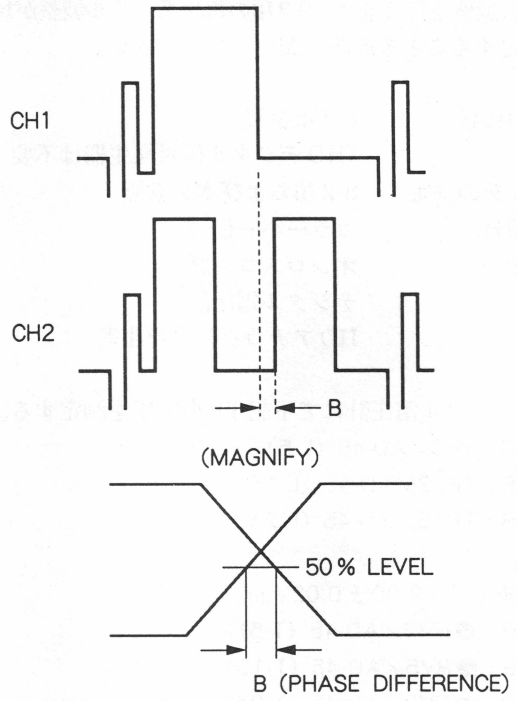
(1) コネクタパネルのANALOG OUT 1のG、B、Rの各々の出力を75Ω終端抵抗を介してオシロスコープに入力する。
(2) オシロスコープを下記のように接続し、各々の位相差を測定する。
CH1：ANALOG OUT 1 G（75Ωで終端）
CH2：ANALOG OUT 1 B（75Ωで終端）




TRIG：REF OUT／HD SIGNAL GENERATOR

Aの位相差を測定し、値をメモする。

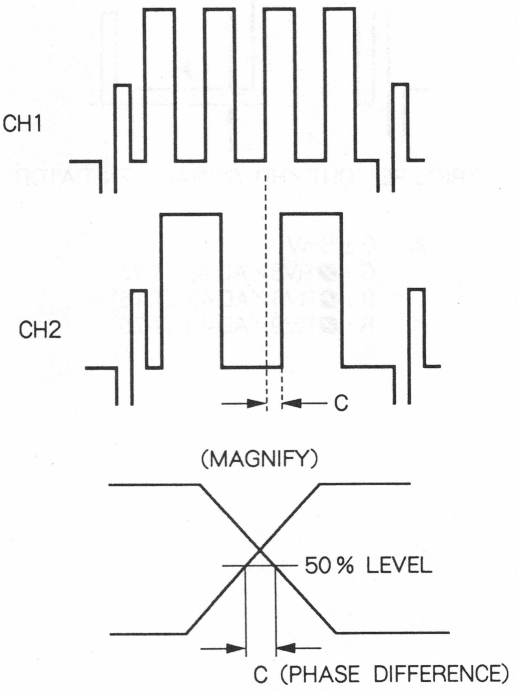
CH1：ANALOG OUT 1 G（75Ωで終端）
CH2：ANALOG OUT 1 R（75Ωで終端）




TRIG：REF OUT／HD SIGNAL GENERATOR

Bの位相差を測定し、値をメモする。

CH1：ANALOG OUT 1 B（75Ωで終端）
CH2：ANALOG OUT 1 R（75Ωで終端）




TRIG：REF OUT／HD SIGNAL GENERATOR

Cの位相差を測定し、値をメモする。

A、B、Cの位相差が下記の規格を満足することを確認する。
**規格：3nsec以下**

規格を満足するときは、手順（7）以降を行う。
A、B、Cの位相差が1つでも規格外のときは手順（4）以降を行う。

(3) DL1（E-7）、DL2（F-7）、DL3（G-6）／AD-45を左方向一杯に動かす（遅延量を最小にする）。
(4) 手順（3）を行い、最も遅れているチャンネル（B、GまたはR）を見つける。
(5) オシロスコープのCH1を手順（5）で見つけた、最も遅れたチャンネルのANALOG OUT 1コネクタに接続する。

- ここでは例として、Gチャンネルが最も遅れていたとして記す。
  CH1：ANALOG OUT 1 G（75Ωで終端）
  CH2：ANALOG OUT 1 B（75Ωで終端）
  位相差が規格を満足するようにBチャンネル用のディレイラインDL2／AD-45（F-7）で調整する。（1nsec以下）

  CH1：ANALOG OUT 1 G（75Ωで終端）
  CH2：ANALOG OUT 1 R（75Ωで終端）
  位相差が規格を満足するようにRチャンネル用のディレイラインDL3／AD-45（G-6）で調整する。（1nsec以下）

(6) 延長基板および延長ケーブルを外し、AD-45基板を所定の位置に挿入する。

# SECTION 8
# INPUT SYSTEM ALIGNMENT

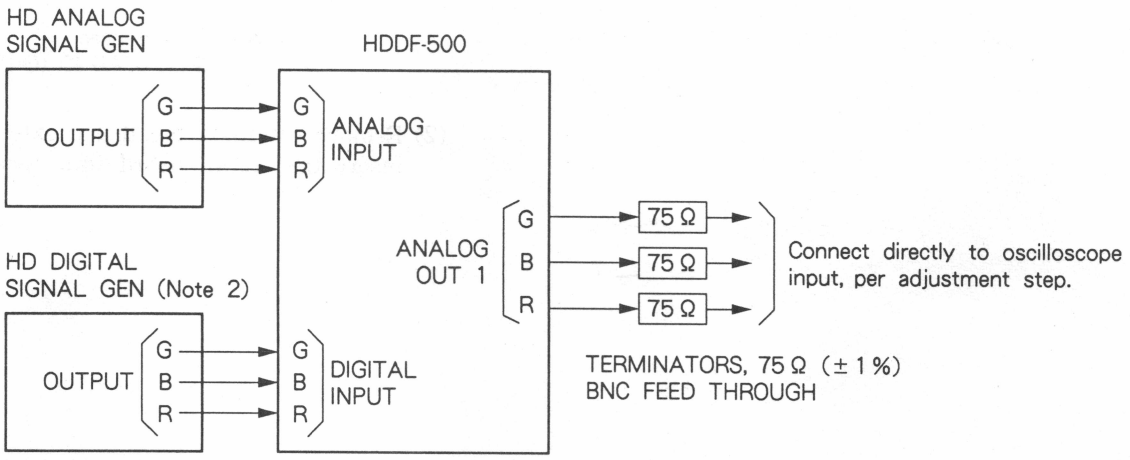
## 8-1. ADJUSTMENT SEQUENCE (AD-45 BOARD REPLACEMENT)

*9-3. PB System Level and Frequency Response Adj. (Check)
↓
8-2. Adjustment Preparations
↓
8-3. Digital Input Clock Phase Adj.
↓
8-4. Recording System Level Adj.
↓
8-5. Recording System Frequency Response Adj.
↓
*9-4. PB System Phase Difference Check
↓
8-6. Recording System Phase Difference Adj.

* Since the input system will be performed while monitoring the output of the HDDF-500, check and adjust sections 9-3 and 9-4 whether satisfy the specifications.
* RV1 on SY-149 board has no function, so any position setting is acceptable.

## 8-2. ADJUSTMENT PROCEDURE

### (1) Connection




**Note 1** : The lengths of the signal cables in a group (e.g. ANALOG IN G, B, R) should be matched in length (± 1 cm). This will keep the phase difference due to cabling to a minimum.

**Note 2:** When a HD digital signal generator is not used, connect DIGITAL OUTPUT G, B, R connector with phase DIGITAL INPUT G, B, R connector directry. Switch setting : S11 (SIG GEN) (L-15) : ON

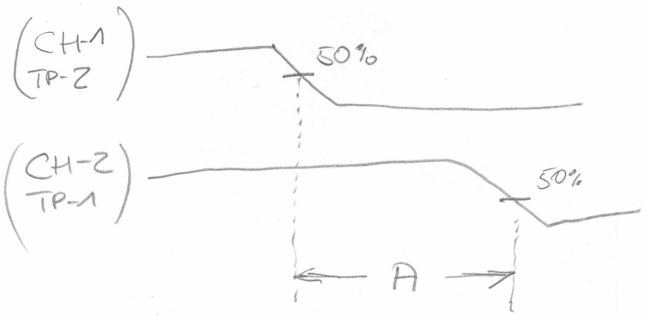
**(2) Switch/jumper settings**

Set switches and jumpers on the SY-149 board as follows :

S7 (SYNC SEL) (L-11) : GREEN
S8 (INPUT SEL) (L-12) : ANALOG
S9 (E/E) (L-13) : ON
S10 (CONTROL) (L-14) : LOCAL
S11 (SIG GEN) (L-15) : OFF
S12-1 (NON-COMPOSITE VIDEO OUT) (L-16) : OFF
JP1 : OPEN
JP2 : SHORT

Clock Phase Adj.

CH 1 : TP 2/SY-149 (INPUT H)
CH 2 : TP1/ 〃 (Regen H)



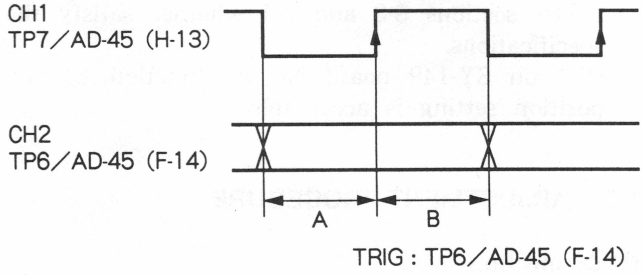

A = 60 ± 1 nsec
RV 1/SY-146 (41)

## 8-3. DIGITAL INPUT CLOCK PHASE ADJUSTMENT

**Note:** Before adjusting DL4, be sure to confirm section 9-5. Digital Output Clock Phase Adjustment. When adjusting section 9-5, adjust and confirm section 8-3.

**Connection:** See section 8-2.
(HD analog signal gen. is not necessary.)
**Switch settings:** See section 8-2.
**Input signal:** Multiburst signal
**Equipment:** Oscilloscope
(2 each 10 : 1 Scope Probes)
HD digital signal gen.

(1) Extend the AD-45 board with extension board and connect three extension cables between CN4, CN5 and CN6 on the AD-45 board and the positions where they were connected.




TRIG : TP6/AD-45 (F-14)

A = B ± 1.5 nsec
◐DL4/AD-45 (G-16)

(2) Remove extension board and extension cables and insert the AD-45 board into specified position.

## 8-4. RECORDING SYSTEM LEVEL ADJUSTMENT

- Before performing this adjustment, be sure to check and adjust section 9-3. PB System Level Adjustment whether satisfy the specifications.

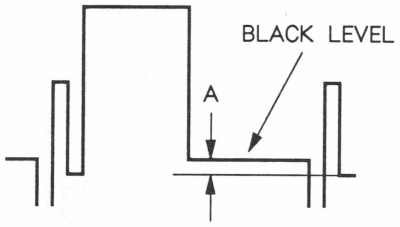
**Connection:** See section 8-2.
(HD digital signal gen.is not necessary.)
**Switch settings:** See section 8-2 and text.
**Input signal:** Color bar signal
**Equipment:** Oscilloscope
Digital Voltmeter
HD analog signal gen.

(1) Use digital voltmeter and measure the test point and GND.

G : TP9/AD-45 (L-5)
B : TP12/AD-45 (L-14)
R : TP15/AD-45 (L-23)

Spec : − 2.00 ± 0.02V
G : ◉RV2/AD-45 (T-5) GAIN
B : ◉RV5/AD-45 (T-13)
R : ◉RV8/AD-45 (T-24)

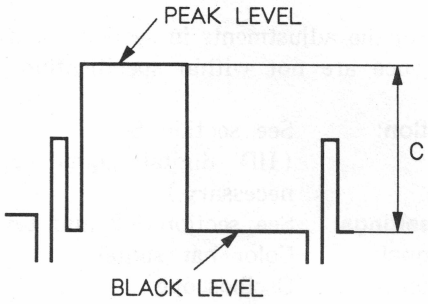
(2) ANALOG OUT 1 G (B, R) /Connector Panel (Terminate with 75 Ω)




TRIG : REF OUT/HD SIGNAL GENERATOR

A = 0 ± 5 mV
G : ◉RV3/AD-45 (T-7) BLACK LEVEL
B : ◉RV6/AD-45 (T-16)
R : ◉RV9/AD-45 (T-25)

(3) ANALOG OUT 1 G (B, R) /Connector Panel (Terminate with 75 Ω)




TRIG : REF OUT/HD SIGNAL GENERATOR

C = 700 ± 7 mV
G : ◉RV1/AD-45 (L-6)
B : ◉RV4/AD-45 (L-14)
R : ◉RV7/AD-45 (L-24)

## 8-5. RECORDING SYSTEM FREQUENCY RESPONSE ADJUSTMENT

- Before performing this adjustment, be sure to check section 9-3. PB System Frequency Adjustment whether satisfy the specifications.

**Connection:** See section 8-2.
(HD digital signal gen.is not necessary.)
**Switch settings:** See section 8-2 and text.
**Input signal:** Multiburst signal
**Equipment:** Oscilloscope
HD analog signal gen.

(1) ANALOG OUT 1 G (B, R) /Connector Panel (Terminate with 75 Ω)

0~ 27 MHz : 0 ± 4 % (0 means flat)
30 MHz : $^{+0}_{-9}$ %

(Frequency response is a relative measurement. Use the amplitude of the first burst (3 MHz) as the 100 % reference.)

TRIG : REF OUT/HD Signal Generator

G : ◉CV1/AD-45 (T-7)
B : ◉CV2/AD-45 (T-16)
R : ◉CV3/AD-45 (T-25)

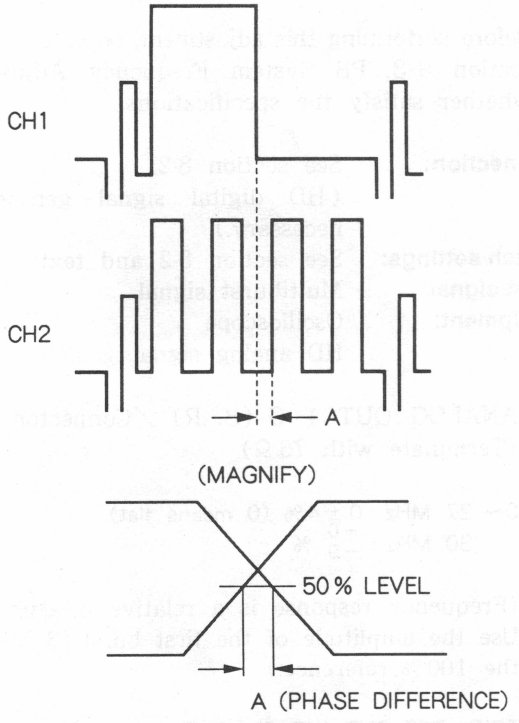
## 8-6. RECORDING SYSTEM PHASE DIFFERENCE ADJUSTMENT

- Perform the adjustments in section 9-4 if the phase difference are not within specifications.

**Connection:** See section 8-2.
(HD digital signal gen. is not necessary.)
**Switch settings:** See section 8-2 and text.
**Input signal:** Color bar signal
**Equipment:** Oscilloscope
HD analog signal gen.

(1) Connect oscilloscope to ANALOG OUT 1 G, B and R output connectors on the connector panel via 75 Ω terminator.
(2) Connect oscilloscope as follows and measure respective phase difference.

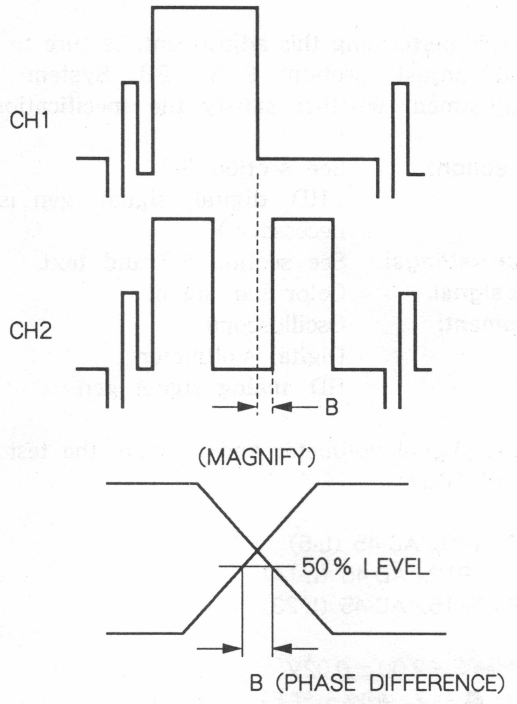
CH1 : ANALOG OUT 1 G (Terminate with 75 Ω)
CH2 : ANALOG OUT 1 B (Terminate with 75 Ω)




TRIG : REF OUT/HD SIGNAL GENERATOR

Measure phase difference A and note value down.

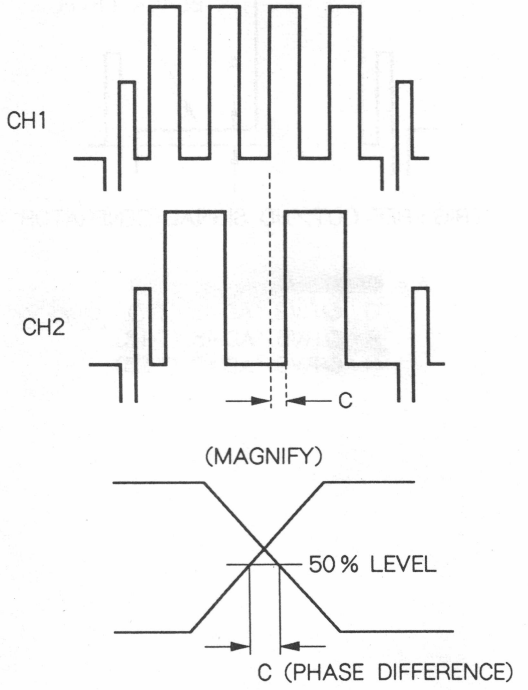
CH1 : ANALOG OUT 1 G (Terminate with 75 Ω)
CH2 : ANALOG OUT 1 R (Terminate with 75 Ω)




TRIG : REF OUT/HD SIGNAL GENERATOR

Measure phase difference B and note value down.

CH1 : ANALOG OUT 1 B (Terminate with 75 Ω)
CH2 : ANALOG OUT 1 R (Terminate with 75 Ω)




TRIG : REF OUT/HD SIGNAL GENERATOR

Measure phase difference C and note value down.

Confirm that the phase differences A, B and C are all conform to specification.

Spec. : Less than 3 nsec

If the all the phase differences conforms to the specifications, go to step (7).
If not, continue with step (4).

(3) Move DL1 (E-7), DL2 (F-7), DL3 (G-6) /AD-45 to left-end (minimum delay).
(4) Find the most delayed channel (B, G or R) by performing step (3).
(5) Connect CH1 of oscilloscope to ANALOG OUT 1 connector of most delayed channel found in step (5).

- Hereafter, assume that G is most delayed channel, as an example.
  CH1 : ANALOG OUT 1 G (Terminate with 75Ω)
  CH2 : ANALOG OUT 1 B (Terminate with 75Ω)
  Adjust delay line DL2/AD-45 (F-7) of channel B for zero phase difference (less than 1 nsec.).

  CH1 : ANALOG OUT 1 G (Terminate with 75Ω)
  CH2 : ANALOG OUT 1 R (Terminate with 75Ω)
  Adjust delay line DL3/AD-45 (G-6) of channel R for zero phase difference (less than 1 nsec.).

(6) Remove extension board and extension cables and insert the AD-45 board into specified position.

# 第9章
# 出力系調整

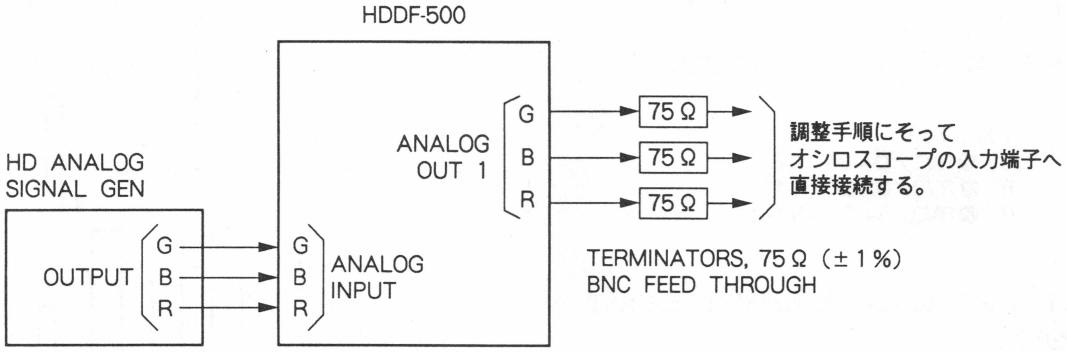
## 9-1. 調整順序（DA-34基板交換時）

9-2. 調整前の準備
↓
＊9-3. 再生系レベルおよび周波数特性調整
↓
＊9-4. 再生系位相差調整
↓
＊9-5. デジタル出力クロック位相調整

＊ これらの調整を行った後は、8-4項、8-5項および8-6項が規格を満足することを確認／調整してください。

## 9-2. 調整前の準備

### (1) 機器の接続




### (2) スイッチの設定

SY-149基板の各スイッチを下記のように設定する。
S7 (SYNC SEL) (L-11) : GREEN
S8 (INPUT SEL) (L-12) : ANALOG
S9 (E／E) (L-13) : ON
S10 (CONTROL) (L-14) : LOCAL
S11 (SIG GEN) (L-15) : ON
S12-1 (COMPOSITE VIDEO OUT) (L-16) : OFF

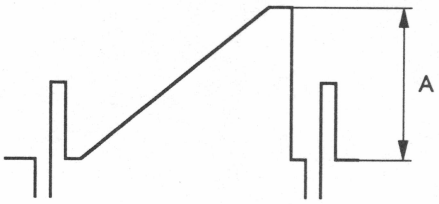
### (3) セットアップ

DA-34基板を延長基板で延長し、3本の延長ケーブルをDA-34基板のCN3、CN6、CN9とそれらが接続されていた箇所に接続する。

## 9-3. 再生系レベルおよび周波数特性調整

機器の接続： 9-2項参照
（HDデジタル信号発生器は不要）
スイッチの設定： 9-2項および本文参照
入力信号： 任意
測定器： オシロスコープ
HDアナログ信号発生器

(1) S2（FRAME SEL）／SY-149（L-5）で内部RAMP信号を選択する。
(2) ANALOG OUT 1 G（B、R）／コネクタパネル（75Ωで終端）




TRIG：REF OUT／HD SIGNAL GENERATOR

A＝ 700±5mV
G：◐RV1／DA-34（N-8）
B：◐RV2／DA-34（N-12）
R：◐RV3／DA-34（N-16）

(3) S2（STEP）／SY-149（L-5）で内部MULTIBURST信号を選択する。

(4) ANALOG OUT 1 G（B、R）／コネクタパネル（75Ωで終端）

0～27MHz：0±2.3％（0とはフラットを意味する）
30MHz：$^{+0}_{-6}$ ％

（周波数特性は測定方法に関係しています。第1バースト（3MHz）の振幅を100％基準としてください。）

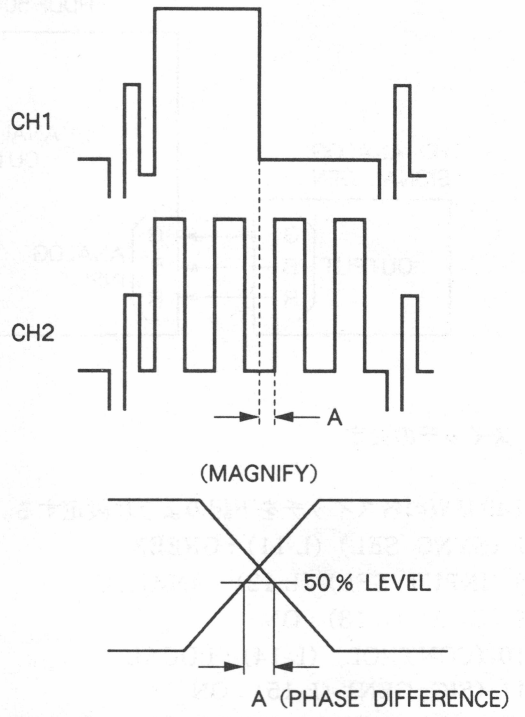
TRIG：REF OUT／HDアナログ信号発生器
G：◐CV1／DA-34（N-7）
B：◐CV2／DA-34（N-11）
R：◐CV3／DA-34（N-15）

## 9-4. 再生系位相差確認

機器の接続： 9-2項参照
（HDデジタル信号発生器は不要）
スイッチの設定： 9-2項および本文参照
入力信号： 任意
測定器： オシロスコープ
HDアナログ信号発生器

(1) S2（FRAME SEL）／SY-149（L-5）で内部COLOR BARS信号を選択する。
(2) コネクタパネルのANALOG OUT 1のG、B、Rの各々の出力を75Ω終端抵抗で終端する。
(3) オシロスコープを下記のように接続し、各々の位相差を測定する。

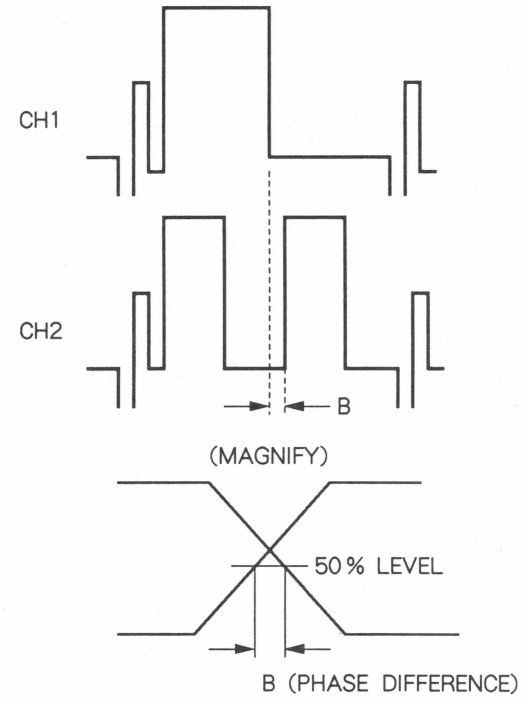
CH1：ANALOG OUT 1 G（75Ωで終端）
CH2：ANALOG OUT 1 B（75Ωで終端）




TRIG：REF OUT／HD SIGNAL GENERATOR

Aの位相差を測定し、値をメモする。

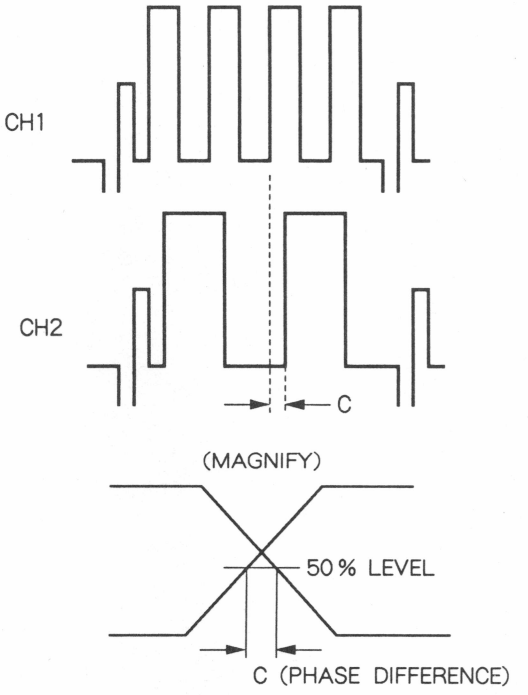
CH1 : ANALOG OUT 1 G (75Ωで終端)
CH2 : ANALOG OUT 1 R (75Ωで終端)




TRIG : REF OUT/HD SIGNAL GENERATOR

Bの位相差を測定し、値をメモする。

CH1 : ANALOG OUT 1 B (75Ωで終端)
CH2 : ANALOG OUT 1 R (75Ωで終端)




TRIG : REF OUT/HD SIGNAL GENERATOR

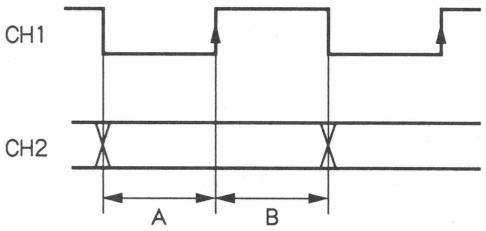
Cの位相差を測定し、値をメモする。

A、B、Cの位相差が下記の規格を満足することを確認する。
規格：0 ± 3nsec

## 9-5. デジタル出力クロック位相調整

機器の接続： 9-2項参照
スイッチの設定： 9-2項および本文参照
入力信号： 任意
測定器： オシロスコープ

(1) S9 (E-E) /SY-149 (L-13) をOFFにセットする。
(2) S2 (FRAME SEL) /SY-149 (L-5) で内部MULTIBURST信号を選択する。
(3) CH1 : TP1/DA-34 (A-7)
CH2 : TP2/DA-34 (A-7)




TRIG : TP2/AD-34 (A-7)

A = B ± 1.5nsec
⊘DL4/DA-34 (A-10)

(4) 延長基板および延長ケーブルを外し、DA-34基板を所定の位置に挿入する。

# SECTION 9
# OUTPUT SYSTEM ALIGNMENT

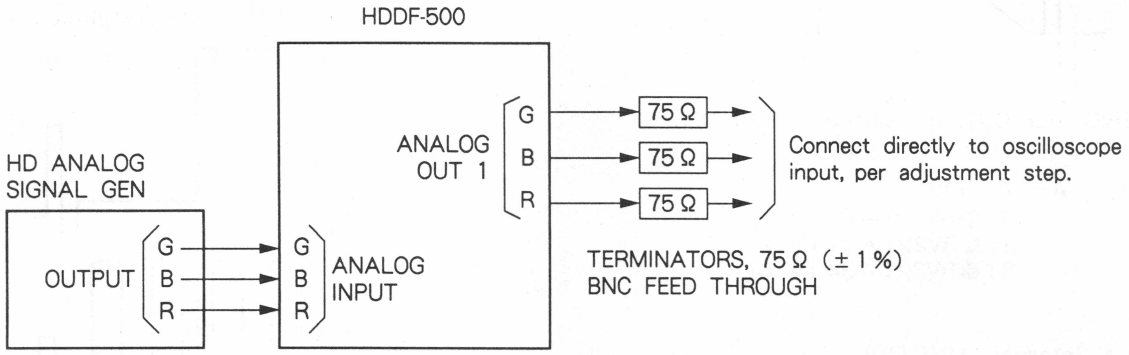
## 9-1. ADJUSTMENT SEQUENCE (DA-34 BOARD REPLACEMENT)

9-2. Adjustment Preparations
↓
*9-3. PB Level and Frequency Response Adj.
↓
*9-4. PB Phase Difference Adj.
↓
*9-5. Digital Output Clock Phase Adj.

* After adjustments, be sure to check and adjust sections 8-4, 8-5 and 8-6 whether satisfy the specifications.

## 9-2. ADJUSTMENT PREPARATIONS

### (1) Connection




### (2) Switch settings

Set switches on the SY-149 board as follows :
S7 (SYNC SEL) (L-11) : GREEN
S8 (INPUT SEL) (L-12) : ANALOG
S9 (E/E) (L-13) : ON
S10 (CONTROL) (L-14) : LOCAL
S11 (SIG GEN) (L-15) : ON
S12-1 (COMPOSITE VIDEO OUT) (L-16) : OFF

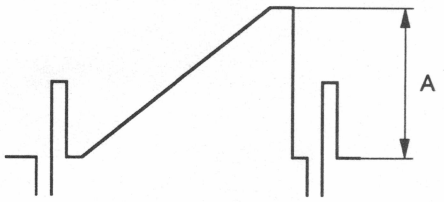
### (3) Setup

Extend the DA-34 board with extension board and connect three extension cables between CN3, CN6 and CN9 on the DA-34 board and the positions where they were connected.

## 9-3. PB SYSTEM LEVEL AND FREQUENCY RESPONSE ADJUSTMENT

**Connection :** See section 9-2.
(HD digital signal gen.is not necessary.)
**Switch settings :** See section 9-2 and text.
**Input signal :** Any signal
**Equipment :** Oscilloscope
HD analog signal gen.

(1) Select internal RAMP signal with S2 (FRAME SEL) /SY-149 (L-5).
(2) ANALOG OUT 1 G (B, R) /Connector Panel (Terminate with 75 Ω)




TRIG : REF OUT/HD SIGNAL GENERATOR

A = 700 ± 5 mV
G : ◉RV1/DA-34 (N-8)
B : ◉RV2/DA-34 (N-12)
R : ◉RV3/DA-34 (N-16)

(3) Select internal MULTIBURST signal with S2 (STEP) /SY-149 (L-5).
(4) ANALOG OUT 1 G (B, R) /Connector Panel (Terminate with 75 Ω)

0~ 27 MHz : 0 ± 2.3 % (0 means flat.)
30 MHz : $^{+0}_{-6}$ %

(Frequency response is a relative measurement. Use the amplitude of the first burst (3 MHz) as the 100 % reference.)

TRIG : REF OUT/HD Signal Generator

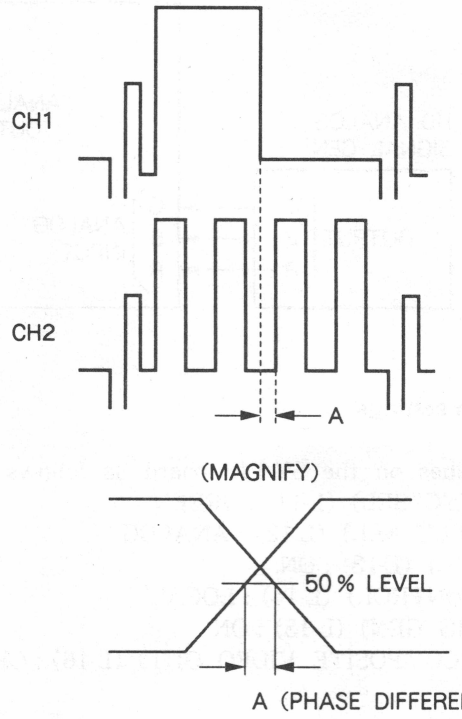
G : ◉CV1/DA-34 (N-7)
B : ◉CV2/DA-34 (N-11)
R : ◉CV3/DA-34 (N-15)

## 9-4. PB SYSTEM PHASE DIFFERENCE CHECK

**Connection :** See section 9-2.
(HD digital signal gen. is not necessary.)
**Switch settings :** See section 9-2 and text.
**Input signal :** Any signal
**Equipment :** Oscilloscope
HD analog signal gen.

(1) Select internal COLOR BARS with S2 (FRAME SEL) /SY-149 (1-5).
(2) Terminate the ANALOG OUT 1 G, B and R output connectors with 75 Ω terminator.
(3) Connect oscilloscope as follows and measure respective phase difference.

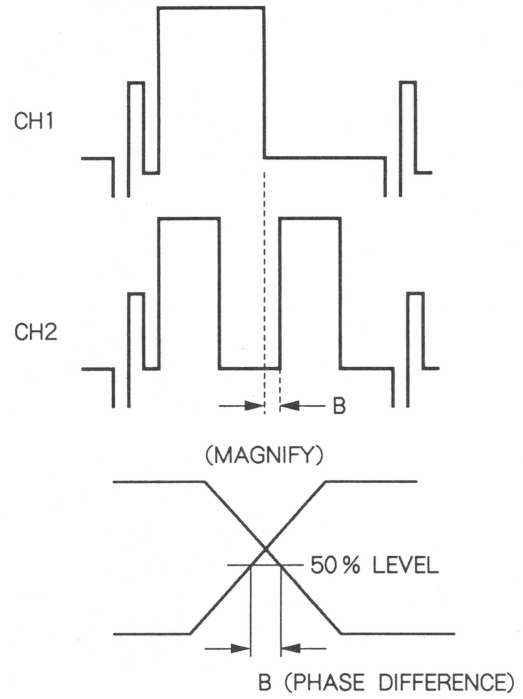
CH1 : ANALOG OUT 1 G (Terminate with 75 Ω)
CH2 : ANALOG OUT 1 B (Terminate with 75 Ω)




TRIG : REF OUT/HD SIGNAL GENERATOR

Measure phase difference A and note value down.

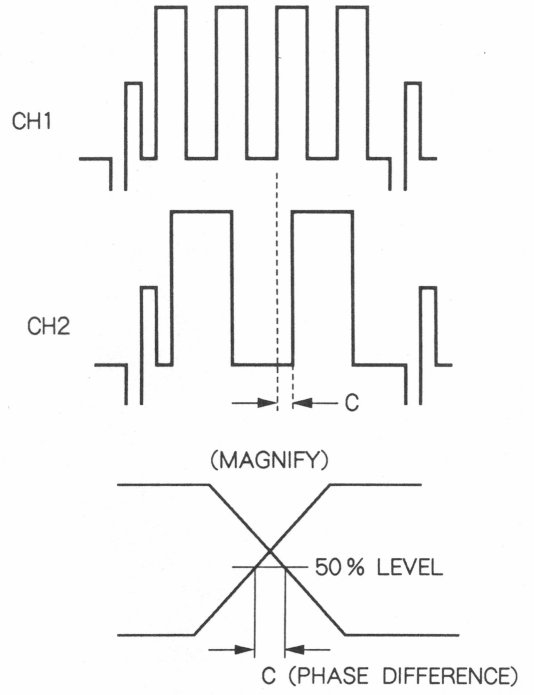
CH1 : ANALOG OUT 1 G (Terminate with 75 Ω)
CH2 : ANALOG OUT 1 R (Terminate with 75 Ω)




TRIG : REF OUT/HD SIGNAL GENERATOR

Measure phase difference B and note value down.

CH1 : ANALOG OUT 1 B (Terminate with 75 Ω)
CH2 : ANALOG OUT 1 R (Terminate with 75 Ω)




TRIG : REF OUT/HD SIGNAL GENERATOR

Measure phase difference C and note value down.

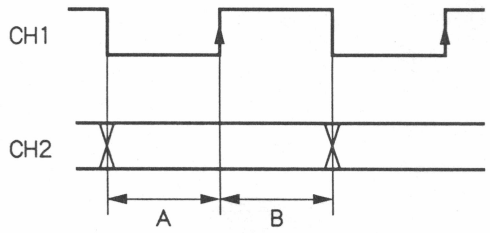
Check phase differences A, B and C whether satisfy the following specifications.

Spec. : 0 ± 3 nsec

## 9-5. DIGITAL OUTPUT CLOCK PHASE ADJUSTMENT

**Connection:** See section 9-2.
**Switch settings:** See section 9-2 and text.
**Input signal:** Any signal
**Equipment:** Oscilloscope

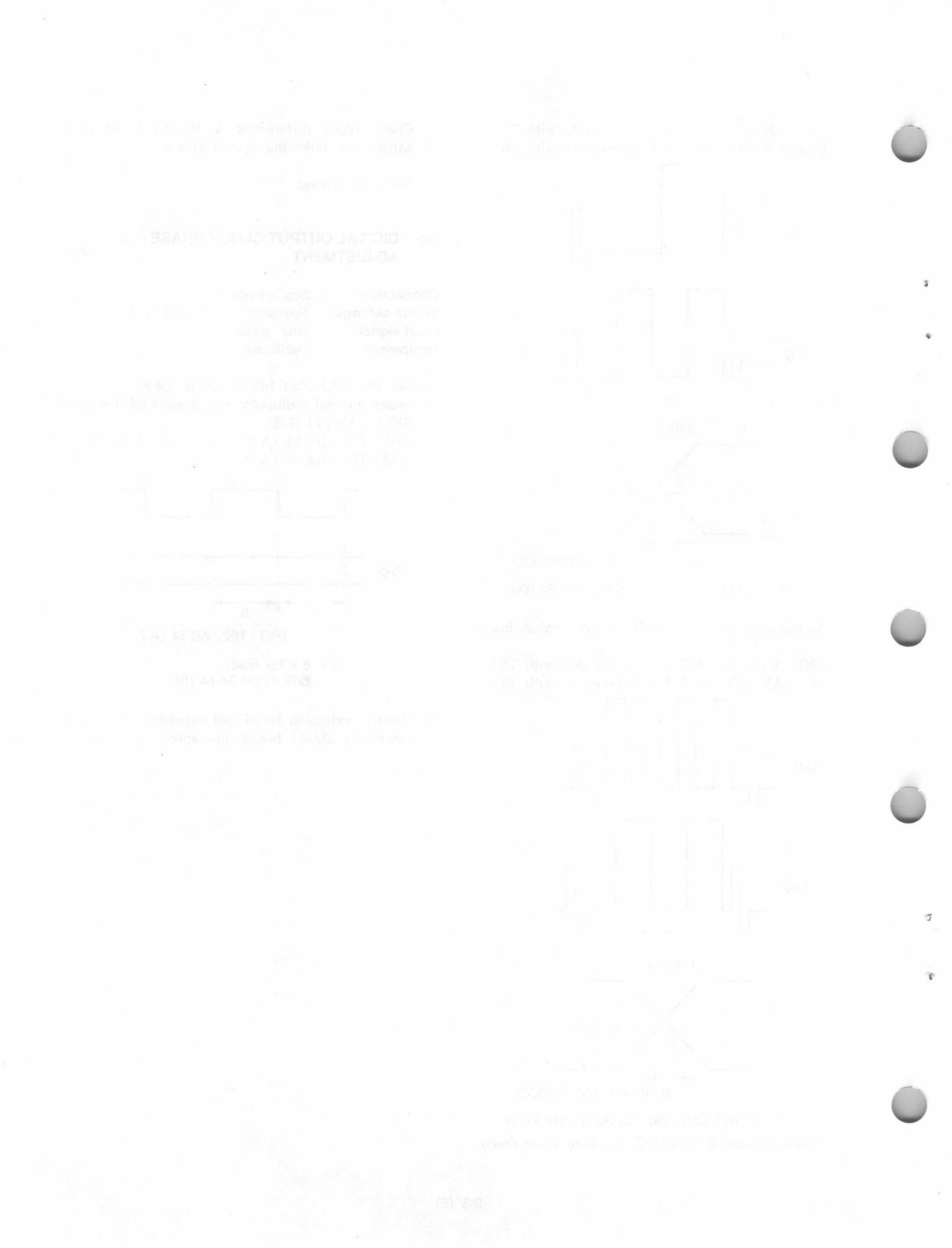
(1) Set S9 (E-E) /SY-149 (L-13) to OFF.
(2) Select internal multiburst signal with S2 (FRAME SEL) /SY-149 (L-5).
(3) CH1 : TP1/DA-34 (A-7)
CH2 : TP2/DA-34 (A-7)




TRIG : TP2/AD-34 (A-7)

A = B ± 1.5 nsec
● DL4/DA-34 (A-10)

(4) Remove extension board and extension cables and insert the DA-34 board into specified position.



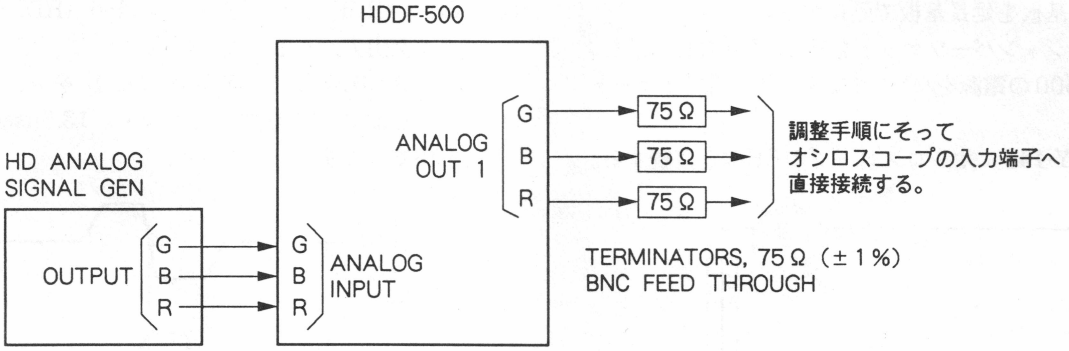
# 第10章
# 制御系調整

## 10-1. 調整順序（SY-149基板交換時）

10-2. 調整前の準備
↓
10-3. VCXO周波数調整
↓
10-4. SYNC位相調整

## 10-2. 調整前の準備

### (1) 機器の接続




### (2) スイッチの設定

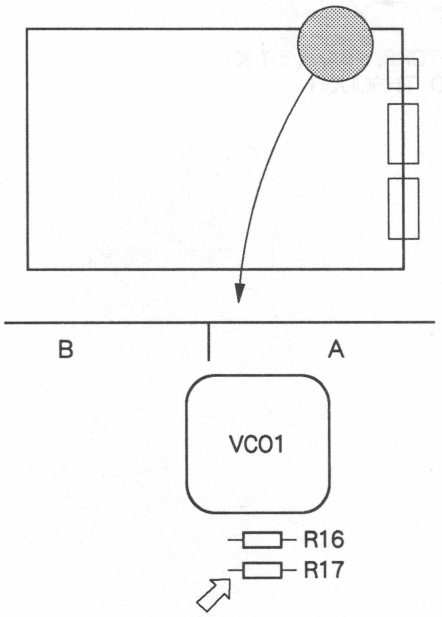
SY-149基板の各スイッチを下記のように設定する。
S7 (SYNC SEL) (L-11) : GREEN
S8 (INPUT SEL) (L-12) : ANALOG
S9 (E/E) (L-13) : ON
S10 (CONTROL) (L-14) : LOCAL
S11 (SIG GEN) (L-15) : ON
S12-1 (COMPOSITE VIDEO OUT) (L-16) : OFF

## 10-3. VCXO周波数調整

- この調整は電源をON状態にし、約10分経過後に行ってください。

機器の接続：　電源のみ供給
スイッチの設定：　任意
入力信号：　無入力
測定器：　オシロスコープ
周波数カウンタ
（オシロスコープのCH2 OUT端子に周波数カウンタを接続する）

(1) SY-149基板を延長基板で延長する。
(2) JP2からジャンパーソケットを外し、JP1に差し込む。
(3) HDDF-500の電源をONにし、約10分間プリヒートする。
(4) R17／SY-149にオシロスコープのCH-2を接続する。



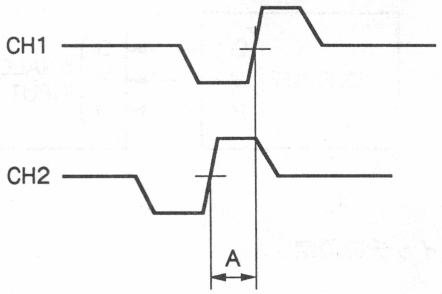

74,250,000 ± 100Hz
◐RV2／SY-149（L-1）

(5) ジャンパーソケットをJP1からJP2へ戻す。
(6) 延長基板を外し、SY-149基板を元の位置へ挿入する。

## 10-4. SYNC位相調整

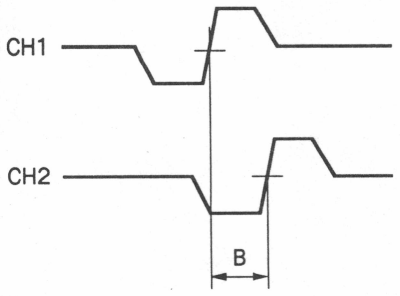
機器の接続：　10-2項参照
スイッチの設定：　10-2項参照
入力信号：　任意
測定器：　オシロスコープ
HDアナログ信号発生器

(1) オシロスコープを下記のように接続する。
CH-1：ANALOG OUT 1 G／コネクターパネル（75Ωで終端）
CH-2：REF OUT／HDアナログ信号発生器（75Ωで終端）
(2) CH-2（REF信号）に対して、CH-1（HDDF-500のアナログ出力）を進めたい場合
S6（H-PHASE）／SY-149（L-10）をADVANCE側に押します。1回押すことにより、13.5nsec進めることができます。




A（MAX.）：約700nsec

(3) CH-2（REF信号）に対して、CH-1（HDDF-500のアナログ出力）を遅らせたい場合
S6（H-PHASE）／SY-149（L-10）をDELAY側に押します。1回押すことにより、13.5nsec遅らせることができます。




B（MAX.）：約2.4 μsec

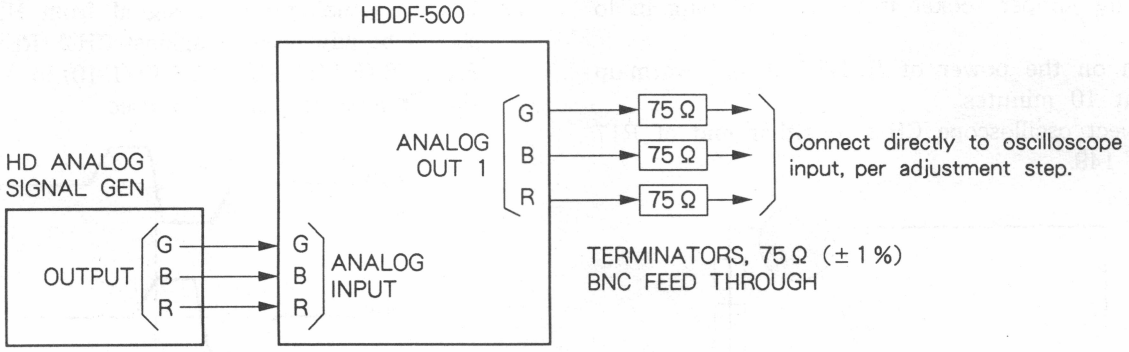
# SECTION 10
# CONTROL SYSTEM ALIGNMENT

## 10-1. ADJUSTMENT SEQUENCE (SY-149 BOARD REPLACEMENT)

10-2. ADJUST PREPARATIONS
↓
10-3. VCXO FREQUENCY ADJUSTMENT
↓
10-4. SYNC PHASE ADJUSTMENT

## 10-2. ADJUSTMENT PREPARATIONS

### (1) Connection




### (2) Switch settings

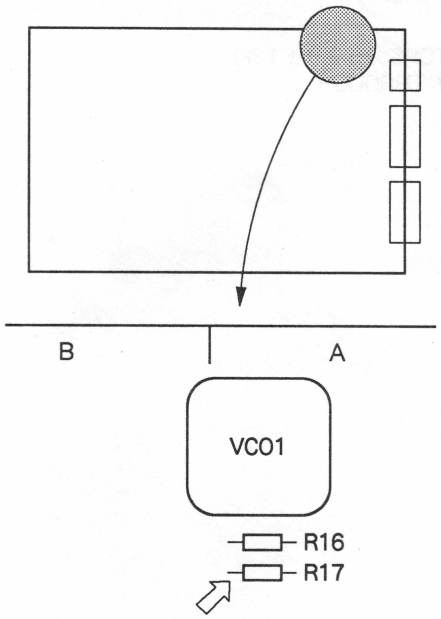
Set switches on the SY-149 board as follows :
S7 (SYNC SEL) (L-11) : GREEN
S8 (INPUT SEL) (L-12) : ANALOG
S9 (E/E) (L-13) : ON
S10 (CONTROL) (L-14) : LOCAL
S11 (SIG GEN) (L-15) : ON
S12-1 (COMPOSITE VIDEO OUT) (L-16) : OFF

## 10-3. VCXO FREQUENCY ADJUSTMENT

- This adjustment should be carried out about 10 minutes after the power is turned on.

**Connection :** Supply power only.
**Switch settings :** Don't care.
**Input signal :** No signal
**Equipment :** Oscilloscope
Frequency counter
(Connect frequency counter to CH2 OUT connector of oscilloscope.)

(1) Extend the SY-149 board with extension board.
(2) Unplug jumper socket from JP2 and plug in to JP1.
(3) Turn on the power of HDDF-500 and warm-up about 10 minutes.
(4) Connect oscilloscope CH-2 to either end of R17 /SY-149.




74,250,000 ± 100 Hz
● RV2/SY-149 (L-1)

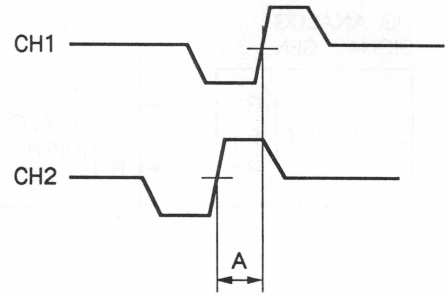
(4) Unplug jumper socket from JP1 and plug in to JP2.
(5) Remove extension board and insert the SY-149 board into specified position.

## 10-4. SYNC PHASE ADJUSTMENT

**Connection :** See section 10-2.
**Switch settings :** See section 10-2.
**Input signal :** Any signal
**Equipment :** Oscilloscope
HD analog signal gen.

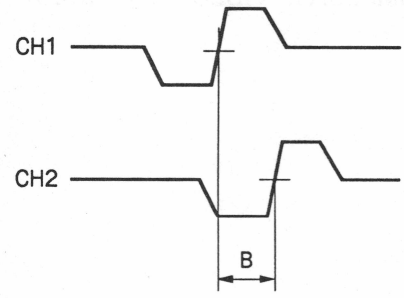
(1) Connect oscilloscope as follws.
CH1 : ANALOG OUT 1 G/Connector panel.
(Terminated at 75 Ω)
CH2 : REF OUT /HD Analog signal gen.
(Terminated at 75 Ω)

(2) If CH-1 (Analog output signal from HDDF-500) should be advanced as against CH-2 (REF signal). Press S6 (H-PHASE) /SY-149 (L-10) to ADVANCE side. It advances by 13.5 nsec.




A (MAX.) : approx. 700 nsec

(3) If CH-1 (Analog output signal from HDDF-500) should be delayed as against CH-2 (REF signal). Press S6 (H-PHASE) /SY-149 (L-10) to DELAY side. It delays by 13.5 nsec.

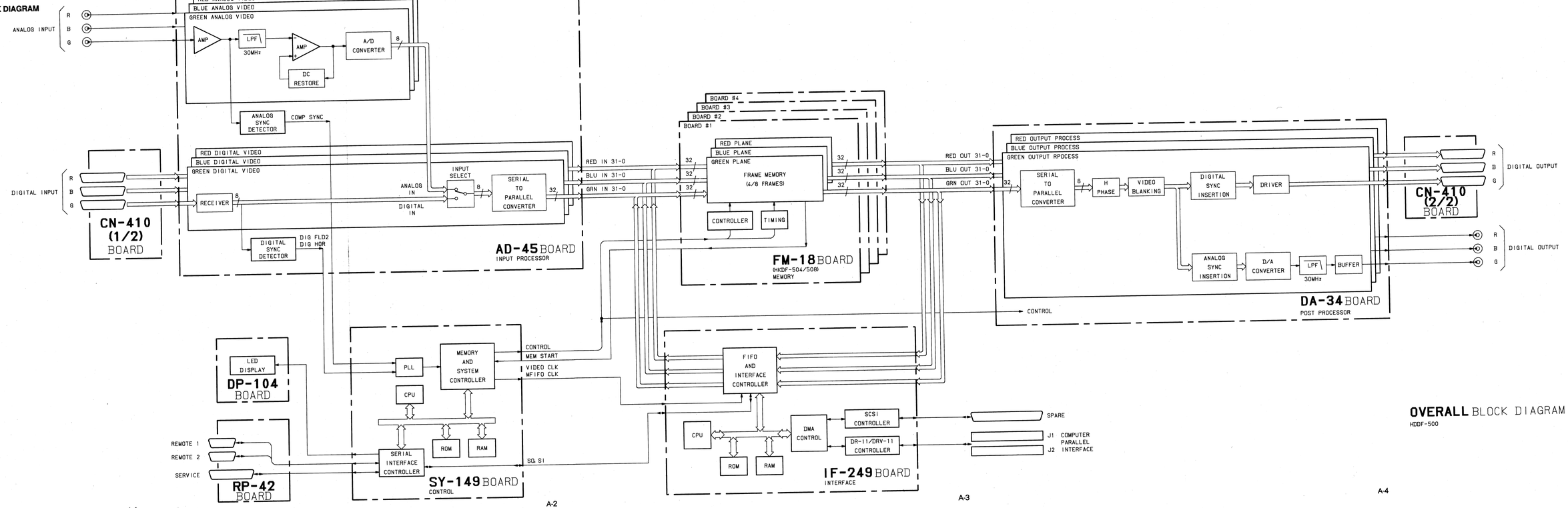



B (MAX.) : approx. 2.4 µsec

BLOCK DIAGRAM **OVERALL** **OVERALL** BLOCK DIAGRAM

## SECTION A
## BLOCK DIAGRAM

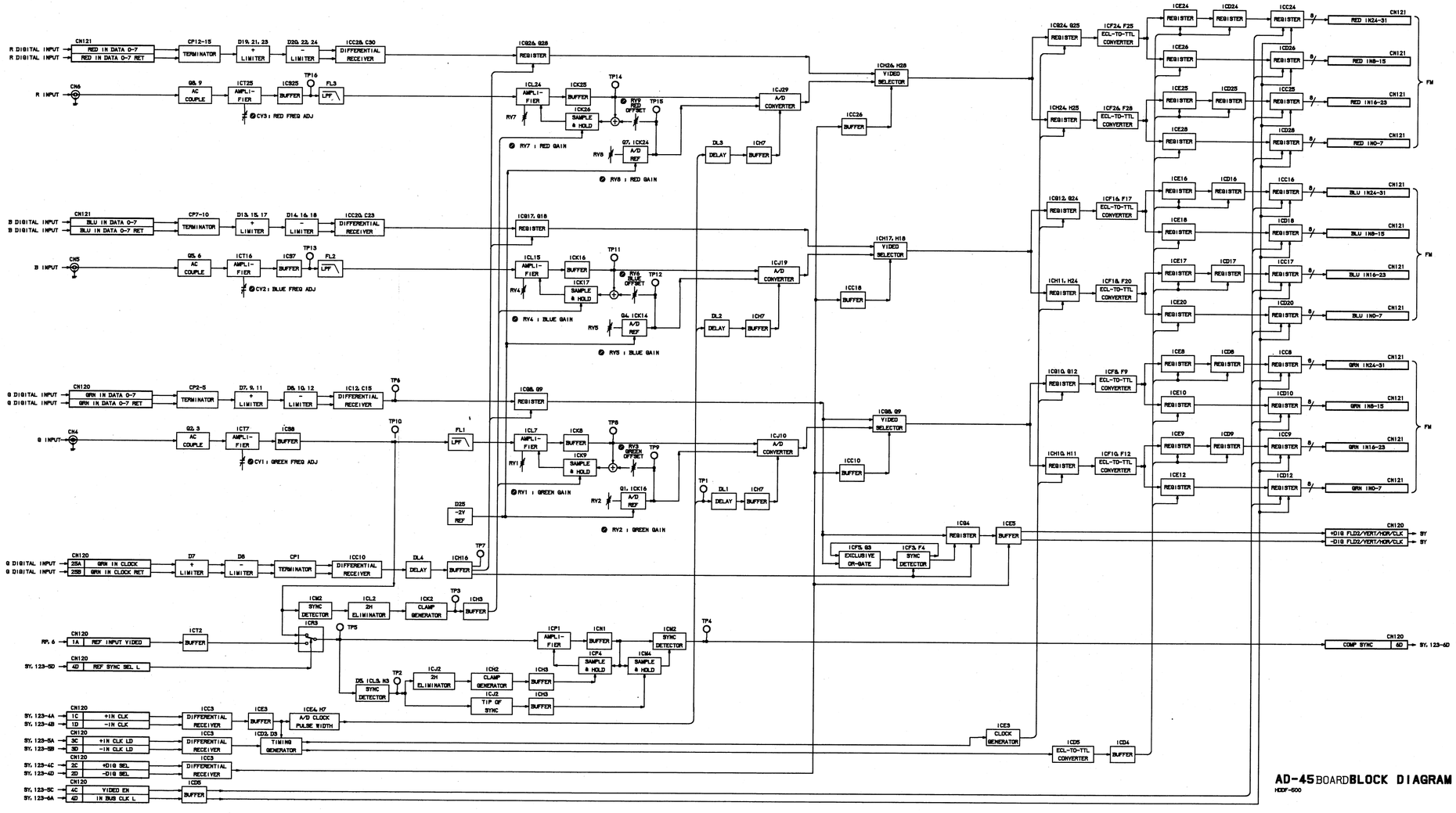
### OVERALL BLOCK DIAGRAM




**OVERALL** BLOCK DIAGRAM
HDDF-500

**AD-45 BOARD**

Input Processor Board

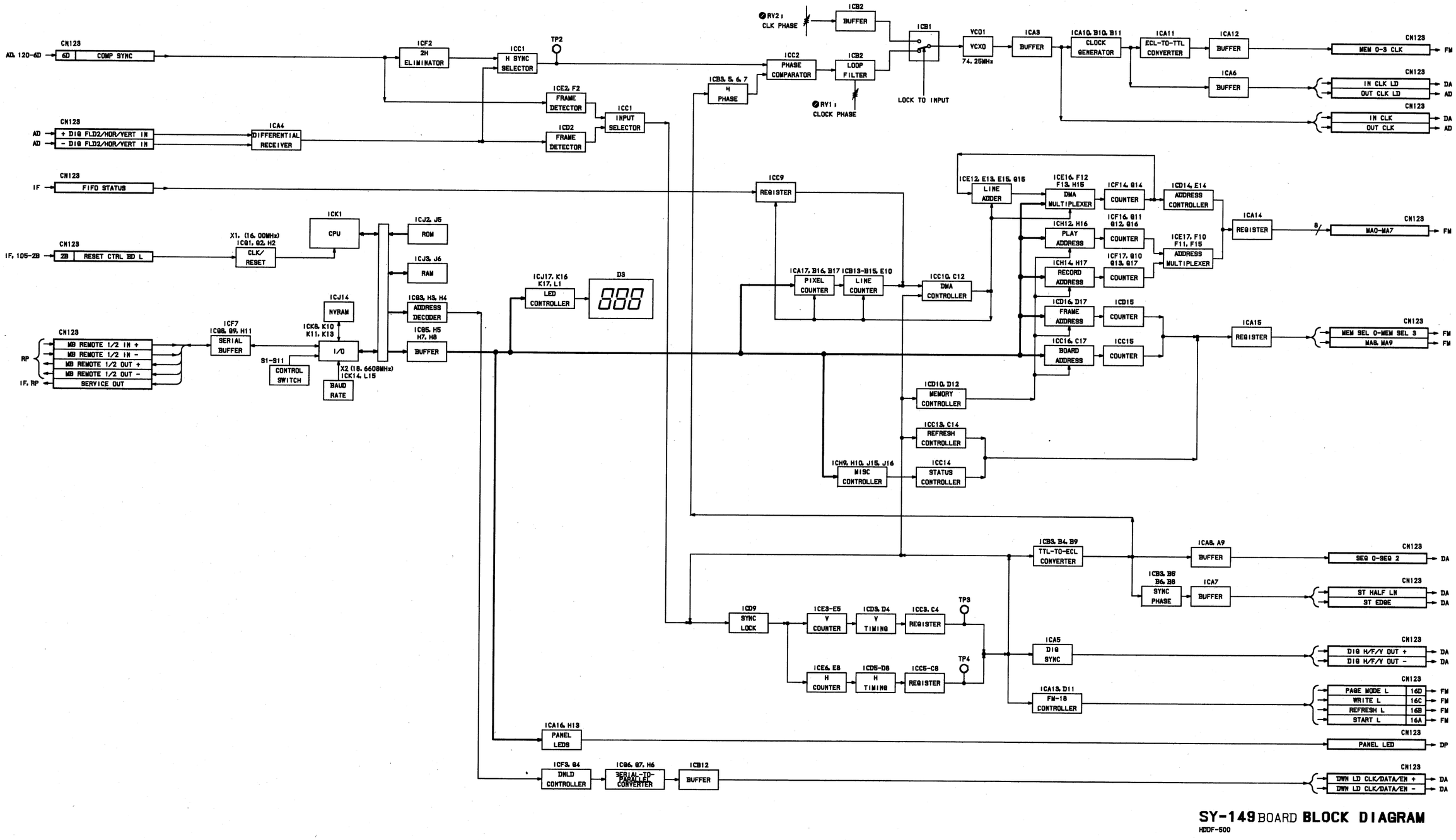



**AD-45 BOARD BLOCK DIAGRAM**

HDDF-600

## SY-149 BOARD

Control Board

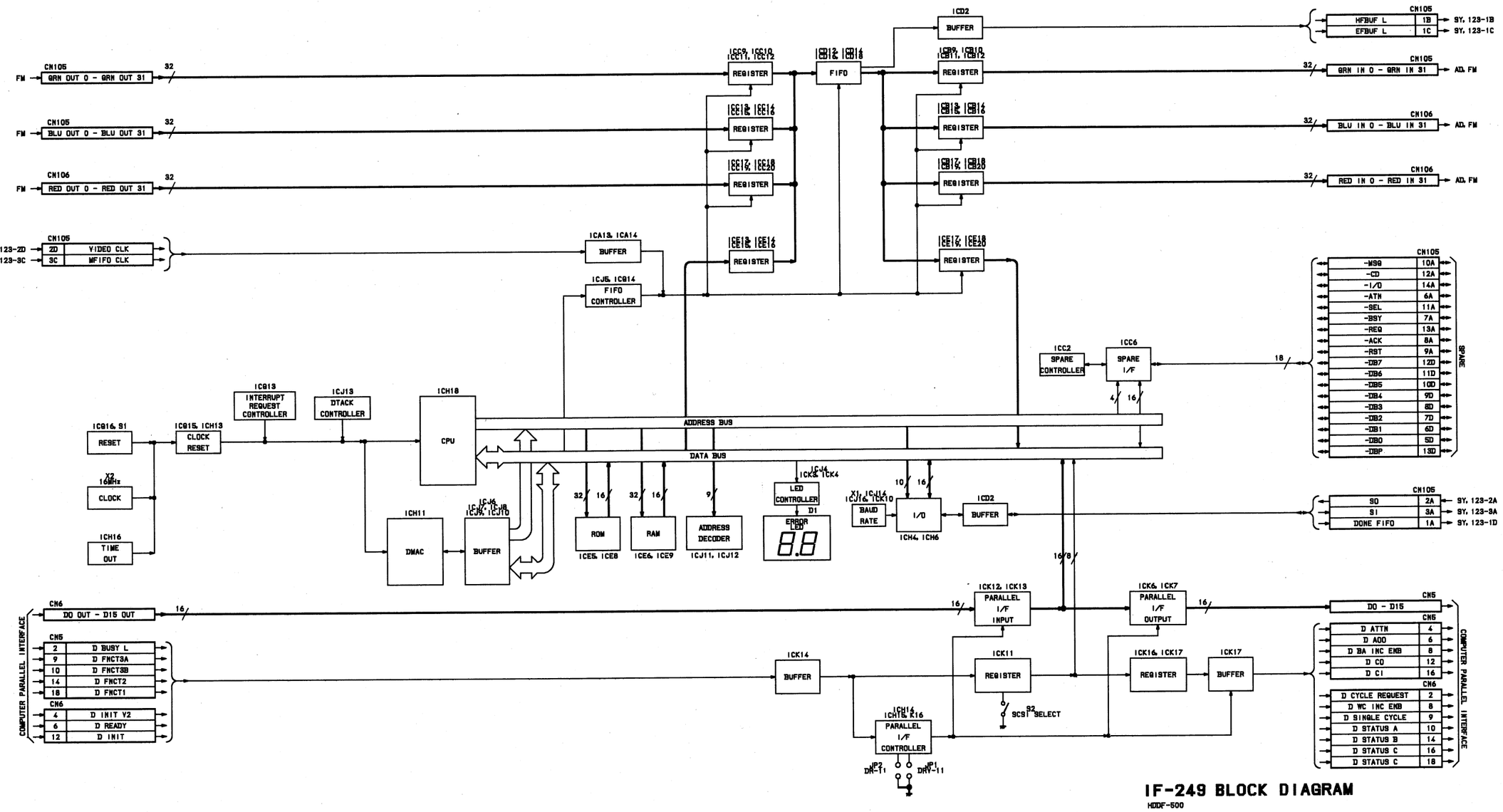



**SY-149** BOARD **BLOCK DIAGRAM**

HDDF-500

## **IF-249** BOARD

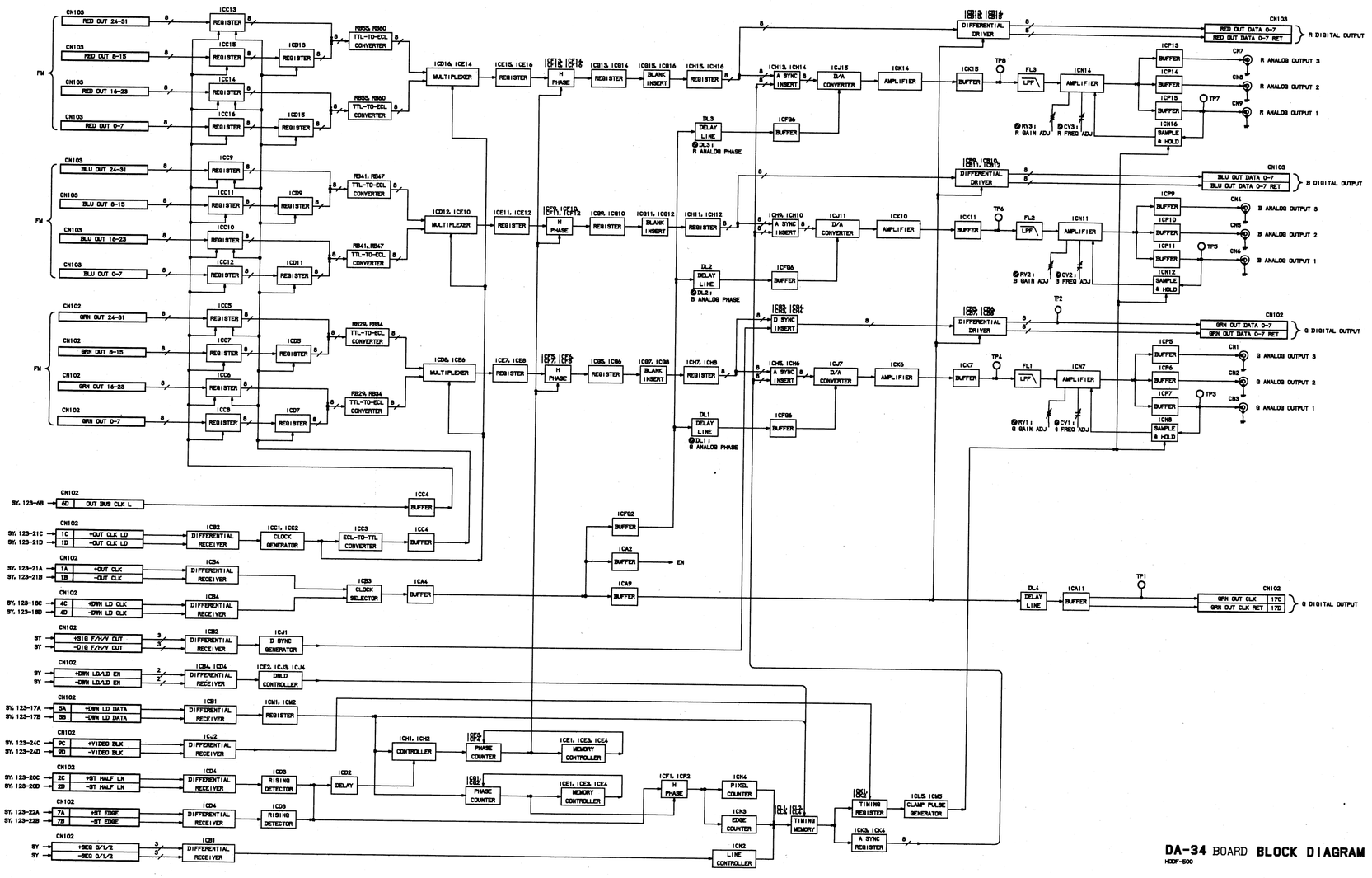
Interface Board




**IF-249 BLOCK DIAGRAM**

HDDF-500

**DA-34 BOARD**
Post Processor Board




**DA-34** BOARD **BLOCK DIAGRAM**
HDDF-500

# SECTION B
# SCHEMATIC DIAGRAM


| Board | Function | Page |
|---|---|---|
| AD-45 | Input Processor Board | B-2 |
| CN-410 | Connector Panel Board | B-161 |
| DA-34 | Post Processor Board | B-80 |
| DP-104 | Display Panel Board | B-161 |
| IF-249 | Interface Board | B-56 |
| MB-253 | Mother Board | B-125 |
| PE-18 | Power Lamp | B-161 |
| PS-043B | Switching Regulator | B-121 |
| RP-42 | Rear Panel Board | B-161 |
| SY-149 | Control Board | B-24 |

## AD-45 BOARD(1-629-296-11)

**HDDF-500**

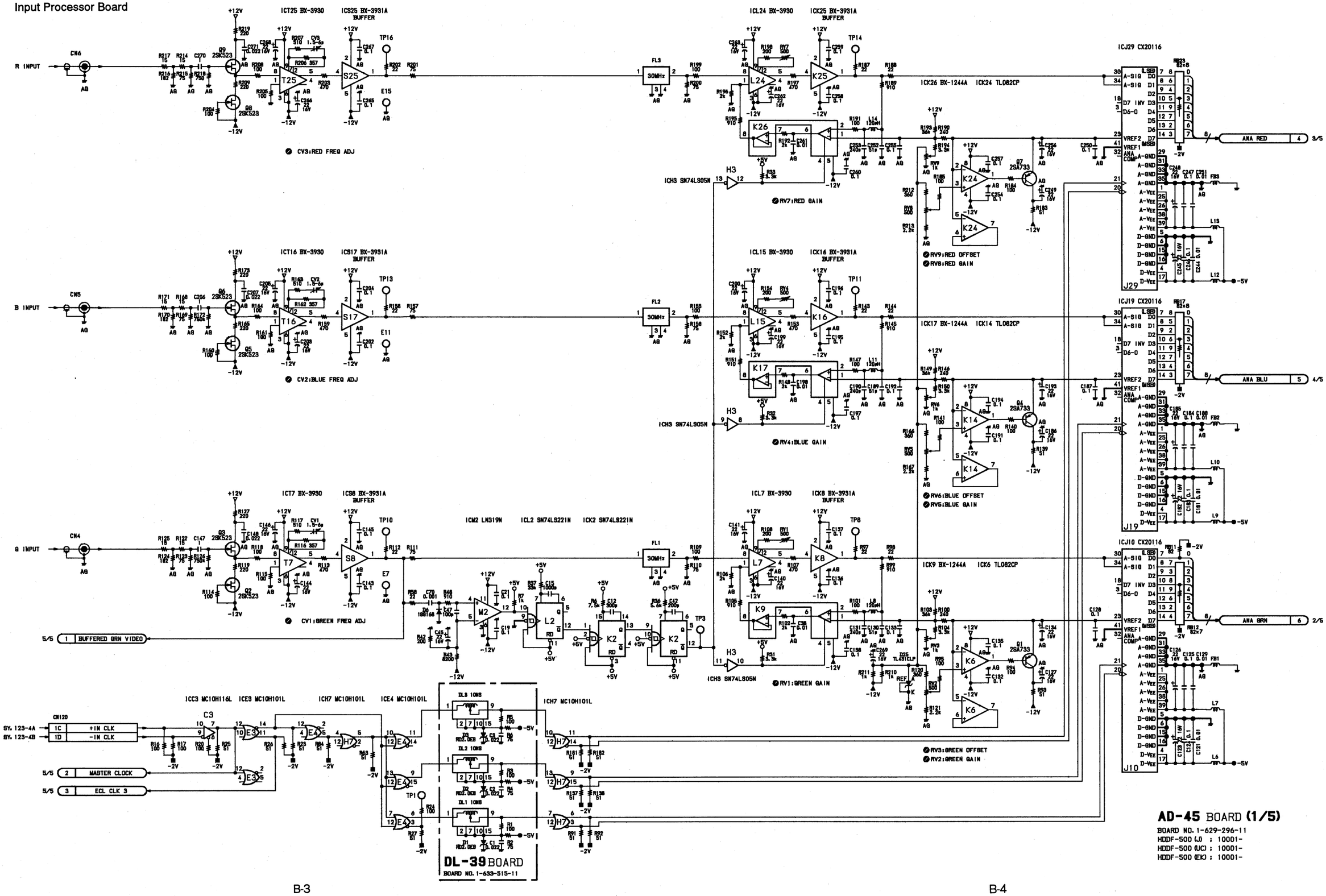
Part's address on the mounted circuit board is as follows.

| | | | |
|---|---|---|---|
| CN4 | T8 | FL1 | R7 |
| CN5 | T17 | FL2 | R16 |
| CN6 | T26 | FL3 | R25 |
| CN119 | A3 | | |
| CN120 | A9 | Q1 | K6 |
| CN121 | A24 | Q2 | T9 |
| | | Q3 | T9 |
| CV1 | T7 | Q4 | K14 |
| CV2 | T16 | Q5 | T18 |
| CV3 | T25 | Q6 | T18 |
| | | Q7 | K24 |
| DL1 | E7 | Q8 | T28 |
| DL2 | F7 | Q9 | T27 |
| DL3 | G6 | | |
| DL4 | G16 | RV1 | L6 |
| | | RV2 | T5 |
| D1 | B5 | RV3 | T7 |
| D2 | C5 | RV4 | L14 |
| D3 | C5 | RV5 | T13 |
| D4 | C5 | RV6 | T16 |
| D5 | L4 | RV7 | L24 |
| D6 | N3 | RV8 | T24 |
| D7 | A11 | RV9 | T25 |
| D8 | A12 | | |
| D9 | A13 | TP1 | E2 |
| D10 | A14 | TP2 | J1 |
| D11 | A15 | TP3 | K3 |
| D12 | A16 | TP4 | L2 |
| D13 | A19 | TP5 | P5 |
| D14 | A20 | TP6 | F14 |
| D15 | A21 | TP7 | H13 |
| D16 | A22 | TP8 | K7 |
| D17 | A23 | TP9 | L5 |
| D18 | A24 | TP10 | S9 |
| D19 | A26 | TP11 | K16 |
| D20 | A27 | TP12 | L14 |
| D21 | A28 | TP13 | S18 |
| D22 | A29 | TP14 | K25 |
| D23 | A30 | TP15 | L23 |
| D24 | A31 | TP16 | S27 |
| D25 | T24 | | |

| | |
|---|---|
| E1 | B6 |
| E2 | K4 |
| E3 | P5 |
| E4 | S2 |
| E5 | H7 |
| E6 | K6 |
| E7 | S10 |
| E8 | D14 |
| E9 | H16 |
| E10 | K15 |
| E11 | S20 |
| E12 | D12 |
| E13 | H25 |
| E14 | K24 |
| E15 | S30 |

## AD-45 BOARD (1/5)

Input Processor Board




**AD-45 BOARD (1/5)**

BOARD NO. 1-629-296-11

HDDF-500 (J) : 10001-

HDDF-500 (UC) : 10001-

HDDF-500 (EK) : 10001-

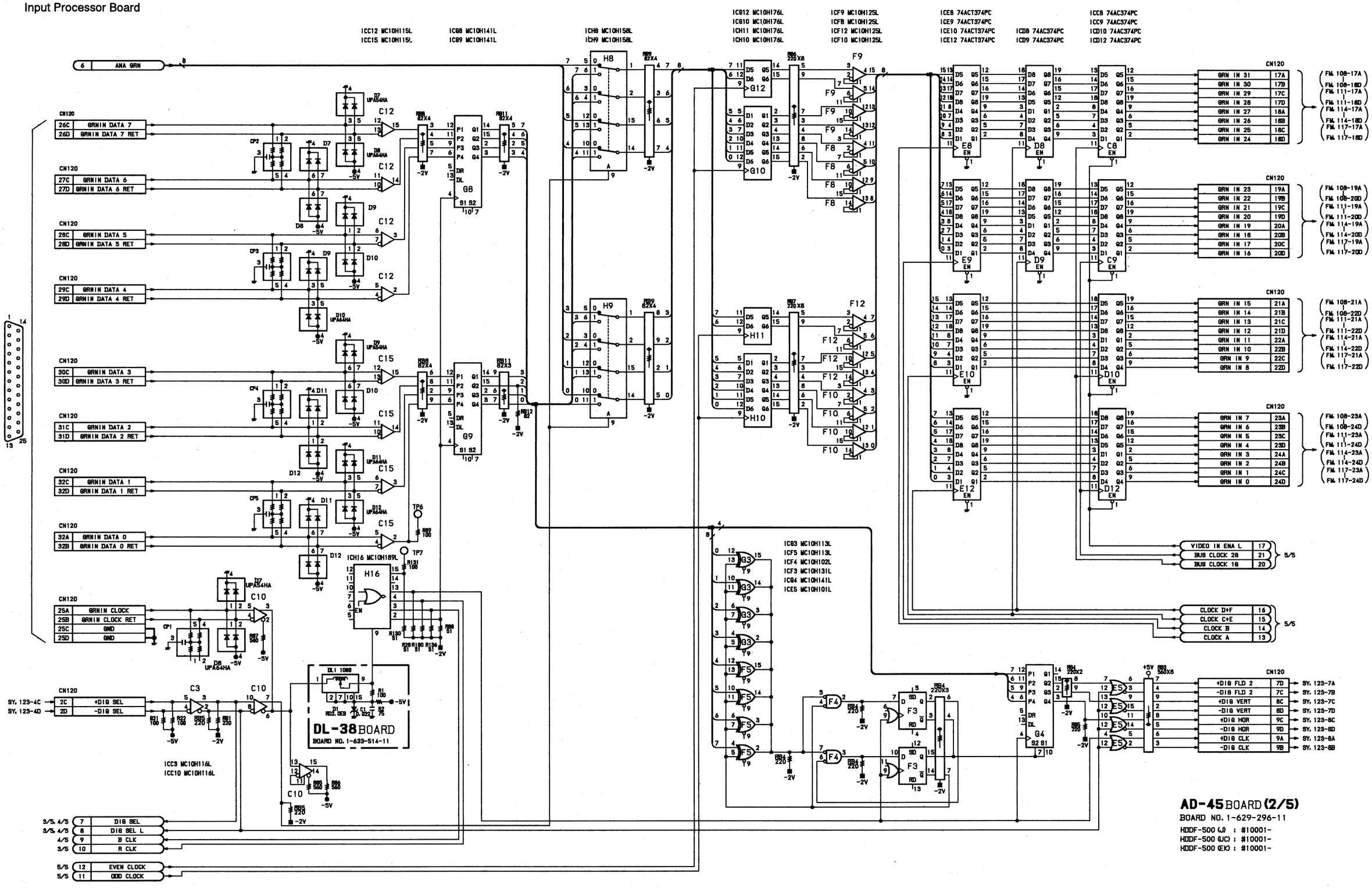
B-3 B-4

A B C D E F G H

1 2 3 4 5

## AD-45 BOARD (2/5)

Input Processor Board

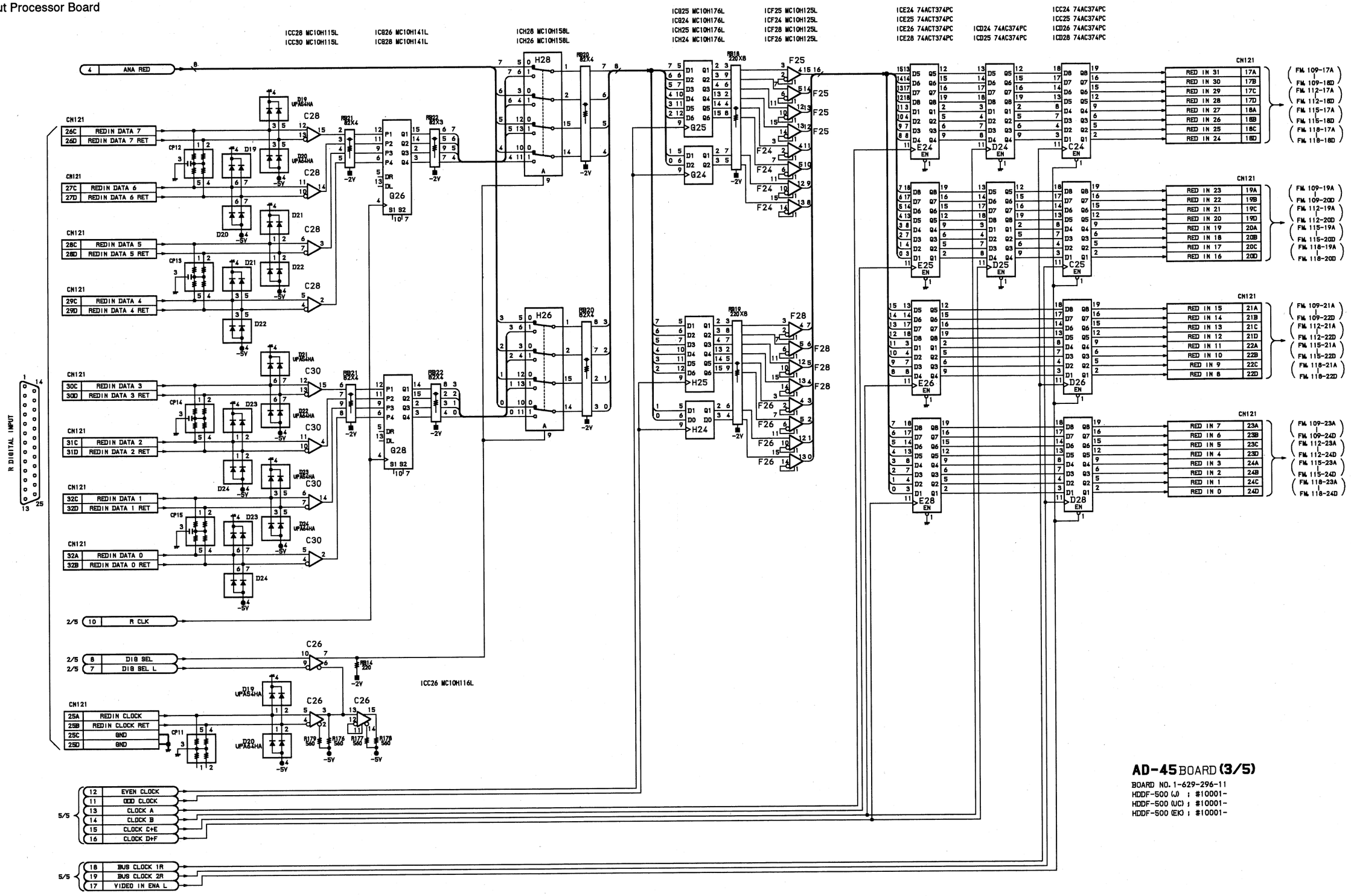



B-7 B-8

A B C D E F G H

## AD-45 BOARD (3/5)

Input Processor Board



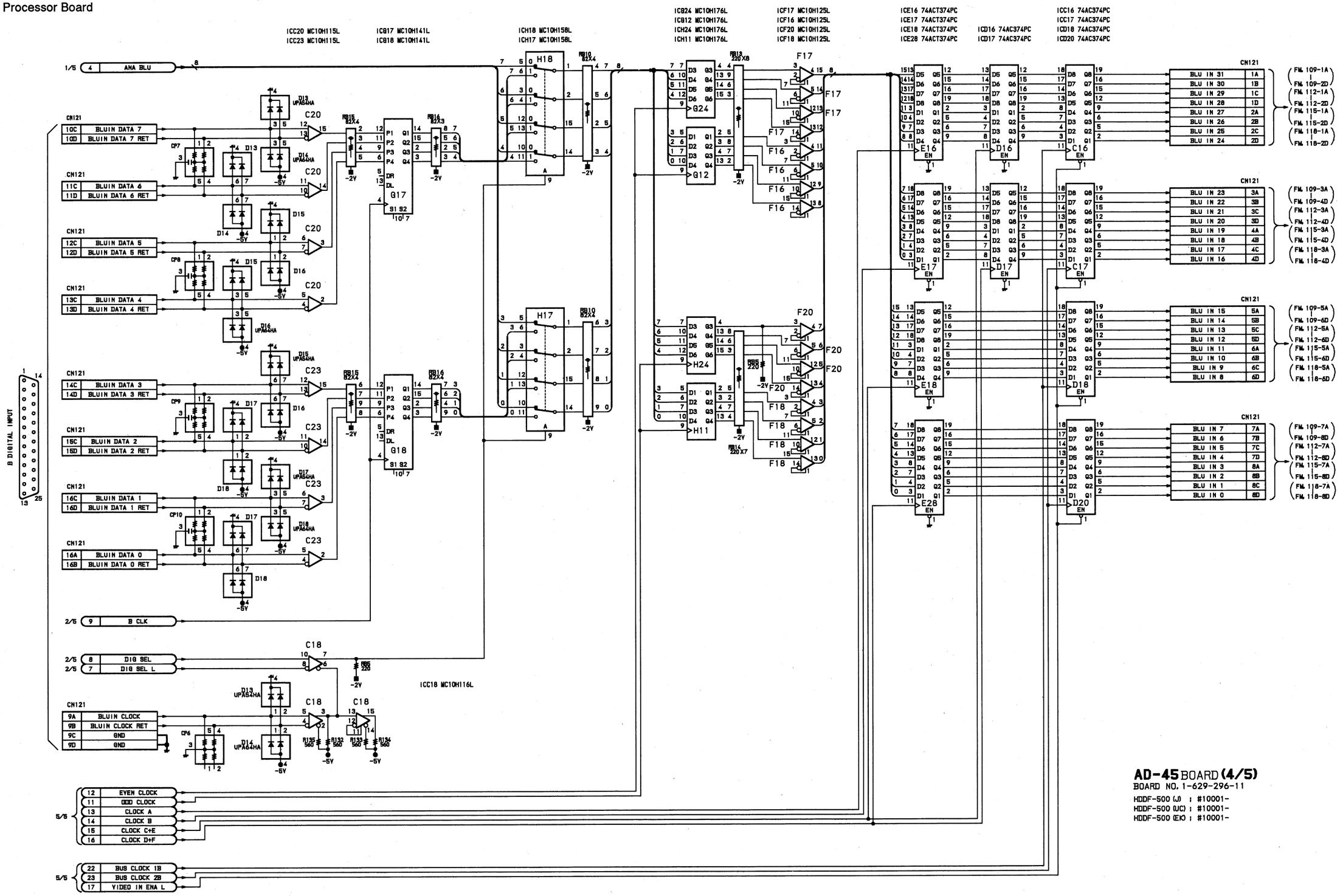

### AD-45 BOARD (3/5)

BOARD NO. 1-629-296-11
HDDF-500 (J) : #10001-
HDDF-500 (UC) : #10001-
HDDF-500 (EK) : #10001-

B-11 B-12

## AD-45 BOARD (4/5)

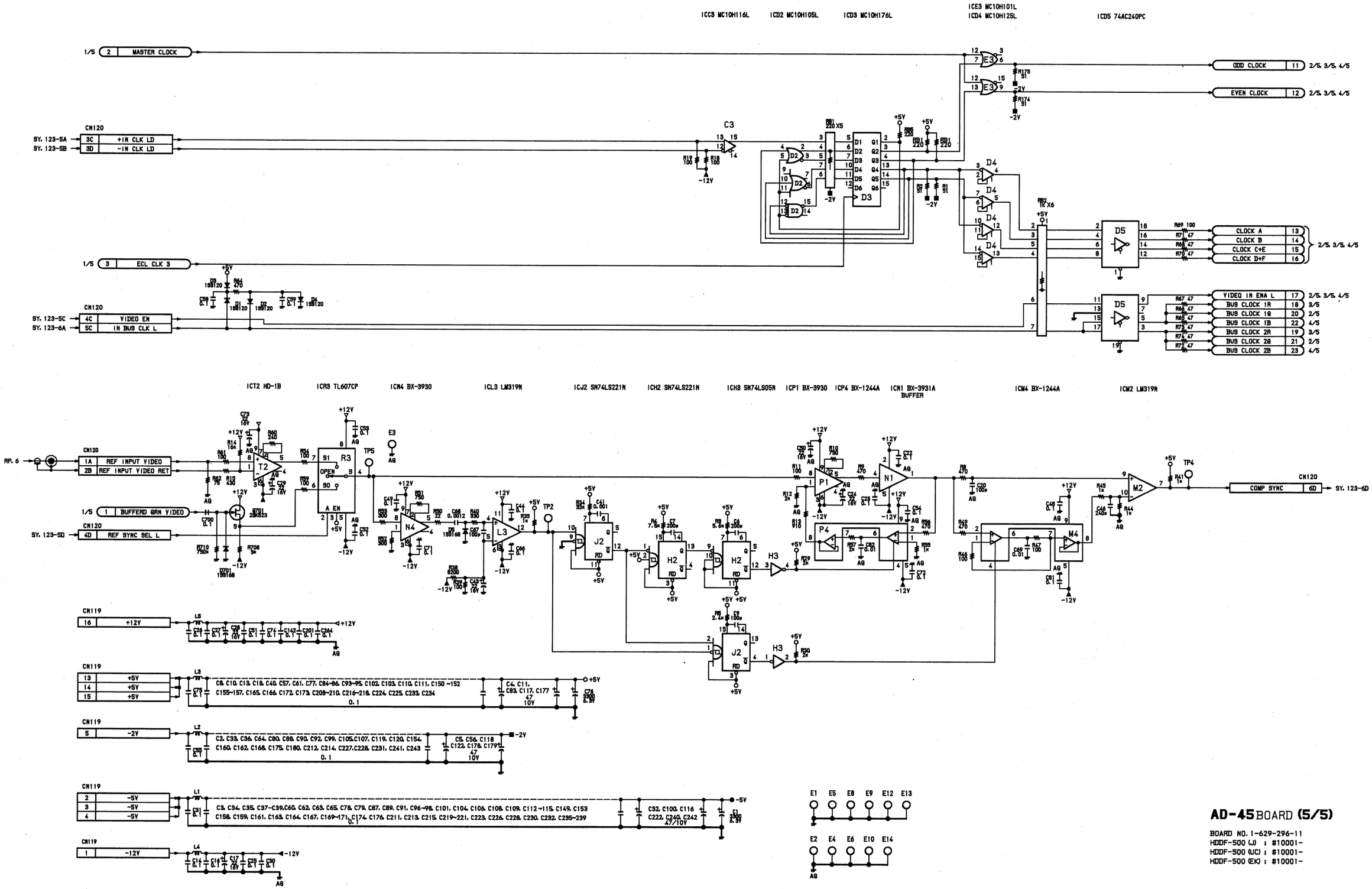
Input Processor Board




**AD-45** BOARD **(4/5)**
BOARD NO. 1-629-296-11
HDDF-500 (J) : #10001-
HDDF-500 (UC) : #10001-
HDDF-500 (EK) : #10001-

## AD-45 BOARD (5/5)

Input Processor Board



## SY-149 BOARD(1-629-297-11)

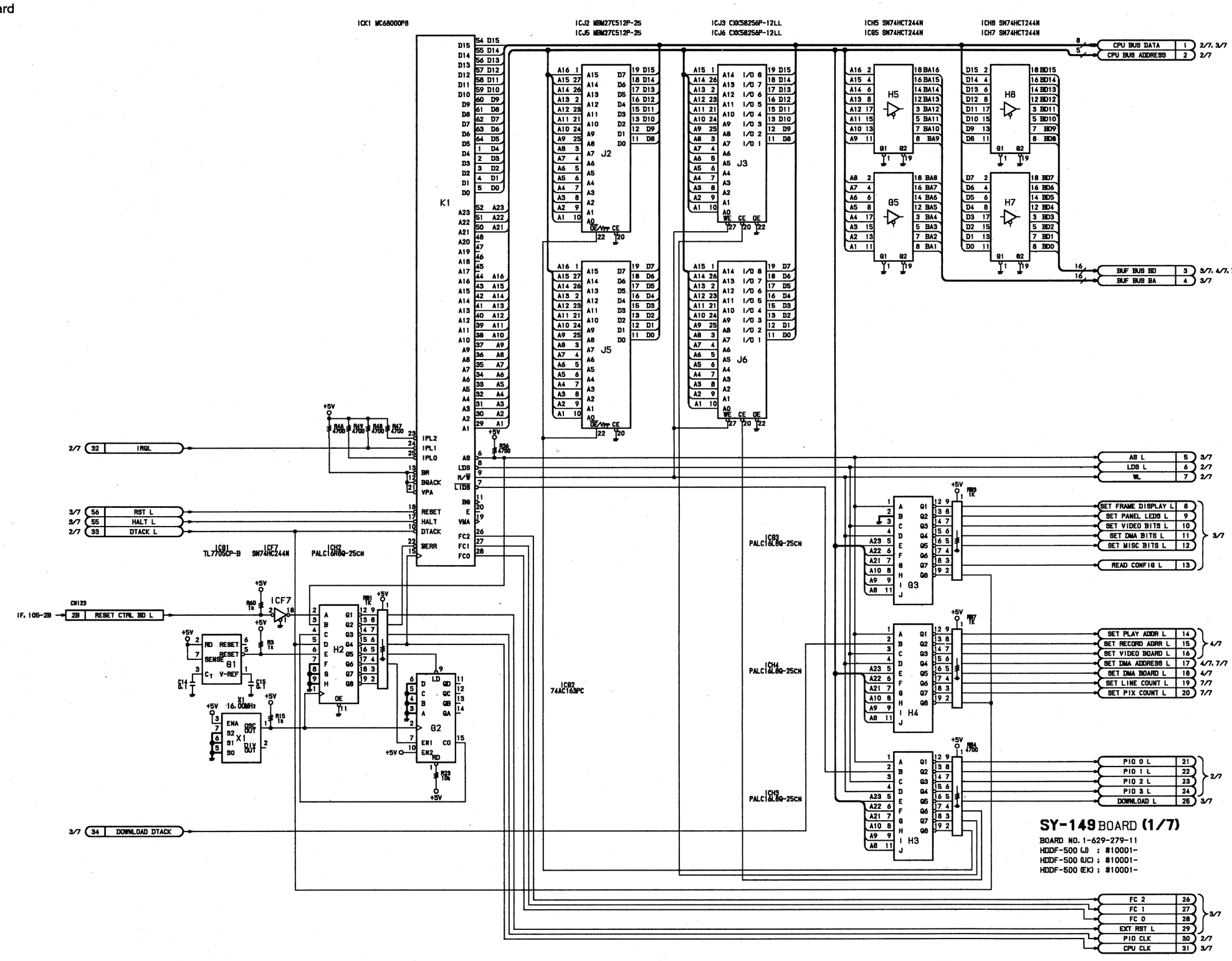
**HDDF-500**

Part's address on the mounted circuit board is as follows.

| | |
|---|---|
| CN122 | A2 |
| CN123 | A8 |
| CN124 | A14 |
| | |
| D1 | B1 |
| D2 | B1 |
| D3 | L2 |
| | |
| E1 | E2 |
| E2 | F5 |
| E3 | L5 |
| E4 | B6 |
| E5 | A6 |
| E6 | H6 |
| E7 | E9 |
| E8 | L9 |
| E9 | K14 |
| E10 | A15 |
| E11 | E15 |
| E12 | H17 |
| | |
| JP1 | J7 |
| JP2 | J7 |
| | |
| Q1 | L3 |
| Q2 | L3 |
| Q3 | L4 |
| | |
| RV1 | L1 |
| RV2 | L1 |
| | |
| S1 | L5 |
| S2 | L5 |
| S3 | L6 |
| S4 | L7 |
| S5 | L8 |
| S6 | L10 |
| S7 | L11 |
| S8 | L12 |
| S9 | L13 |
| S10 | L14 |
| S11 | L15 |
| S12 | L16 |
| | |
| TP1 | L1 |
| TP2 | L1 |
| TP3 | L5 |
| TP4 | L6 |
| | |
| VCO1 | B1 |
| | |
| X1 | G1 |
| X2 | L14 |

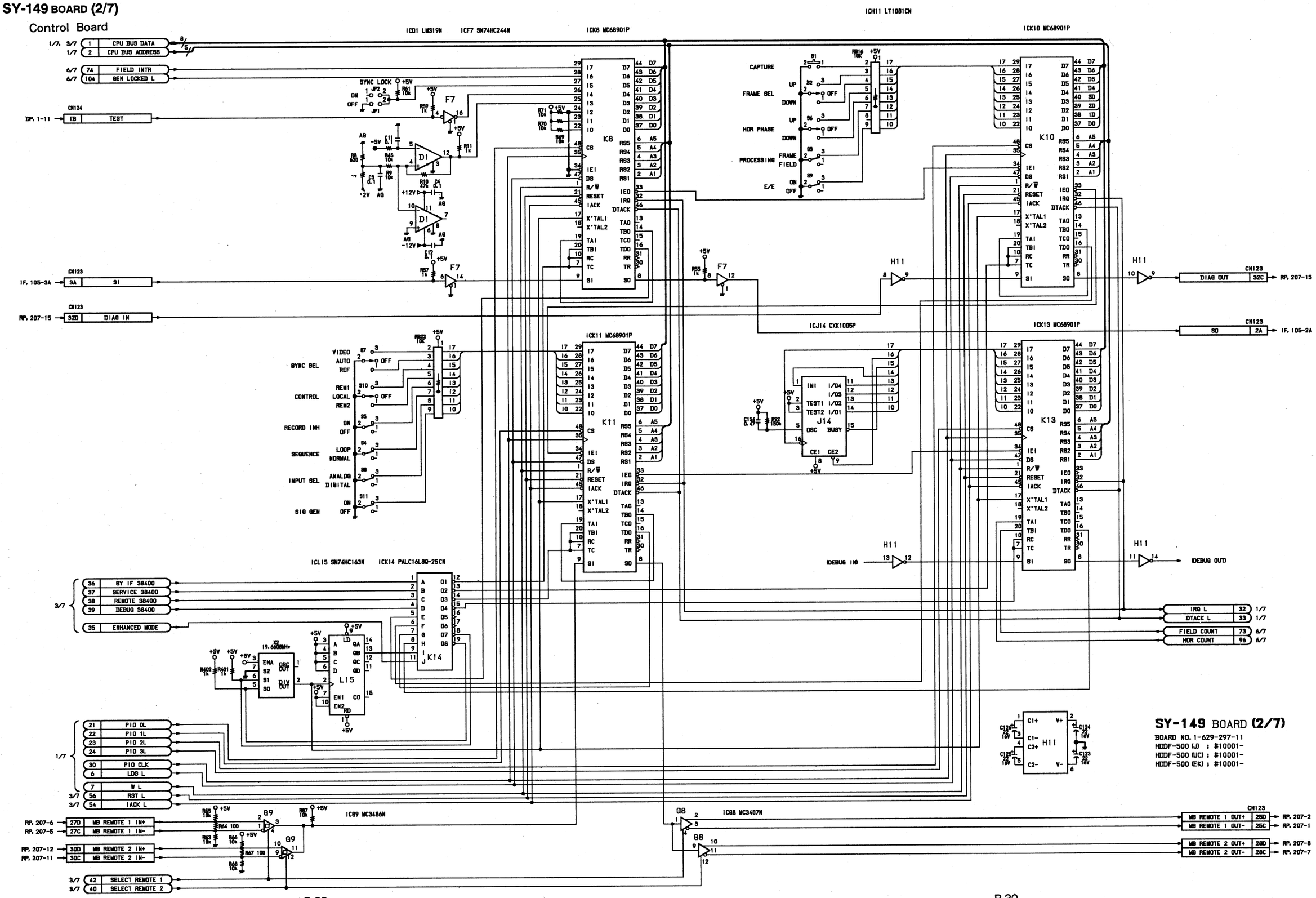
## SY-149 BOARD (1/7)

Control Board



## SY-149 BOARD (2/7)

Control Board

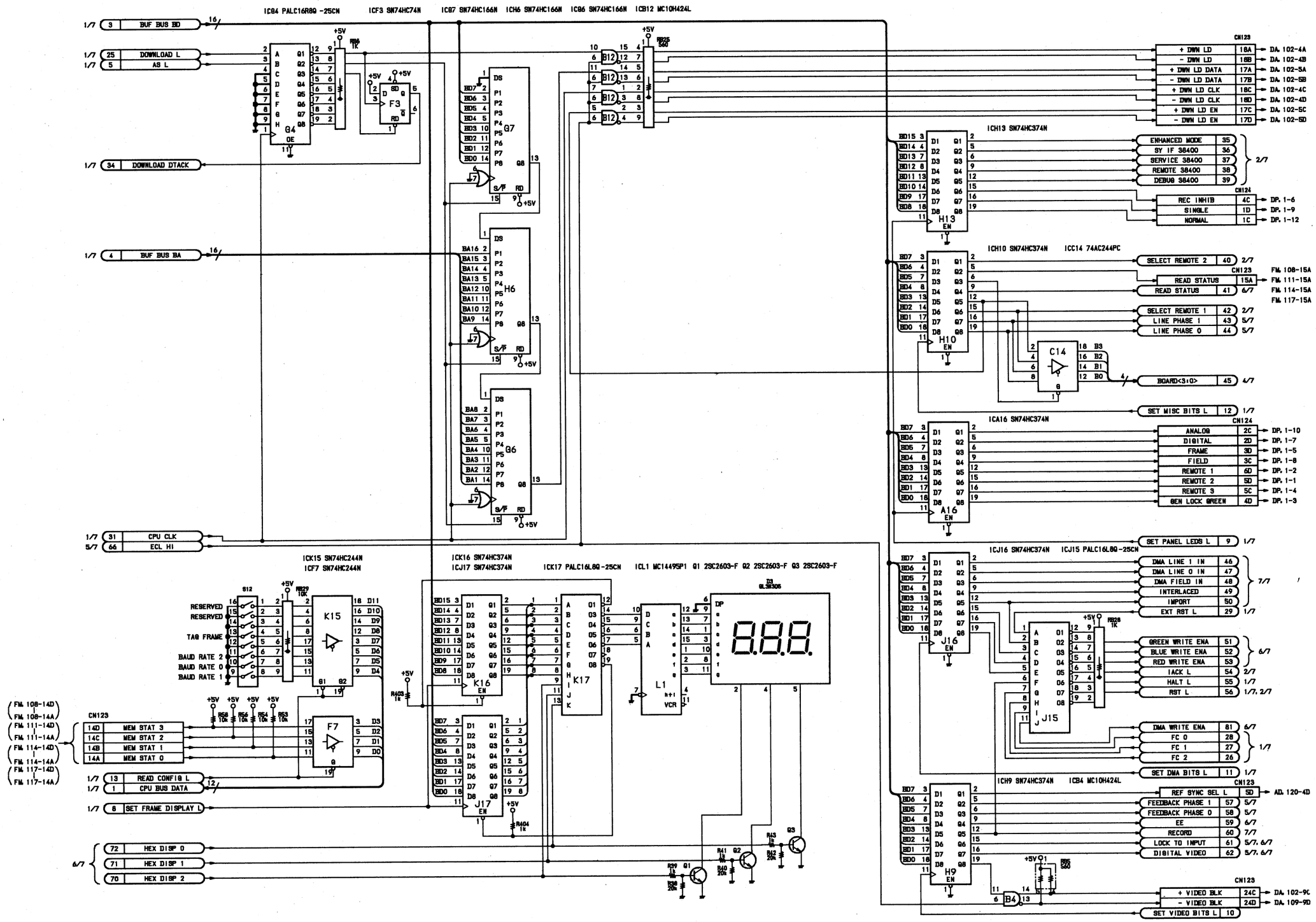



**SY-149** BOARD **(2/7)**

BOARD NO. 1-629-297-11
HDDF-500 (J) : #10001-
HDDF-500 (UC) : #10001-
HDDF-500 (EK) : #10001-

## SY-149 BOARD (3/7)

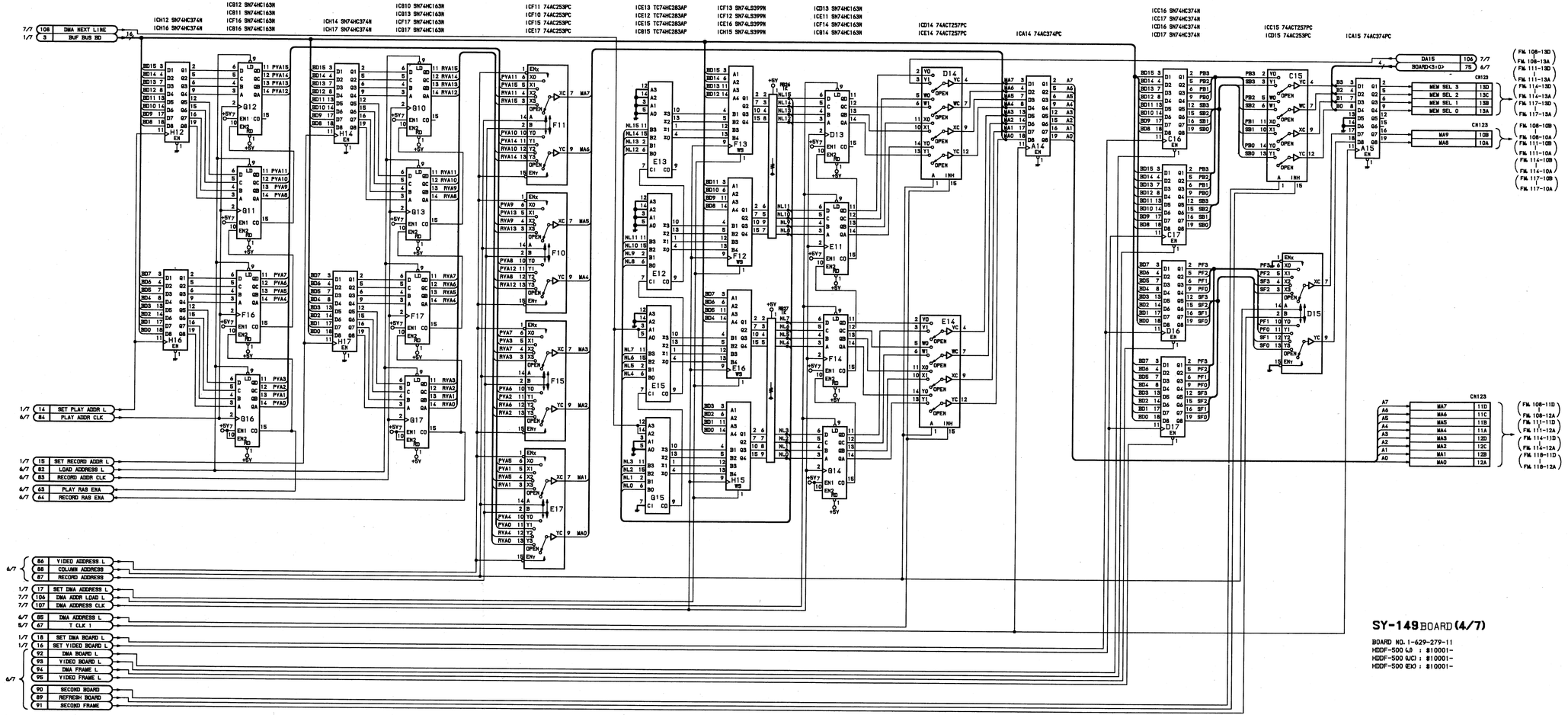
Control Board




**SY-149** BOARD **(3/7)**

BOARD NO. 1-629-279-11
HDDF-500 (J) : #10001-
HDDF-500 (JC) : #10001-
HDDF-500 (EK) : #10001-

**SY-149** BOARD (4/7)
Control Board



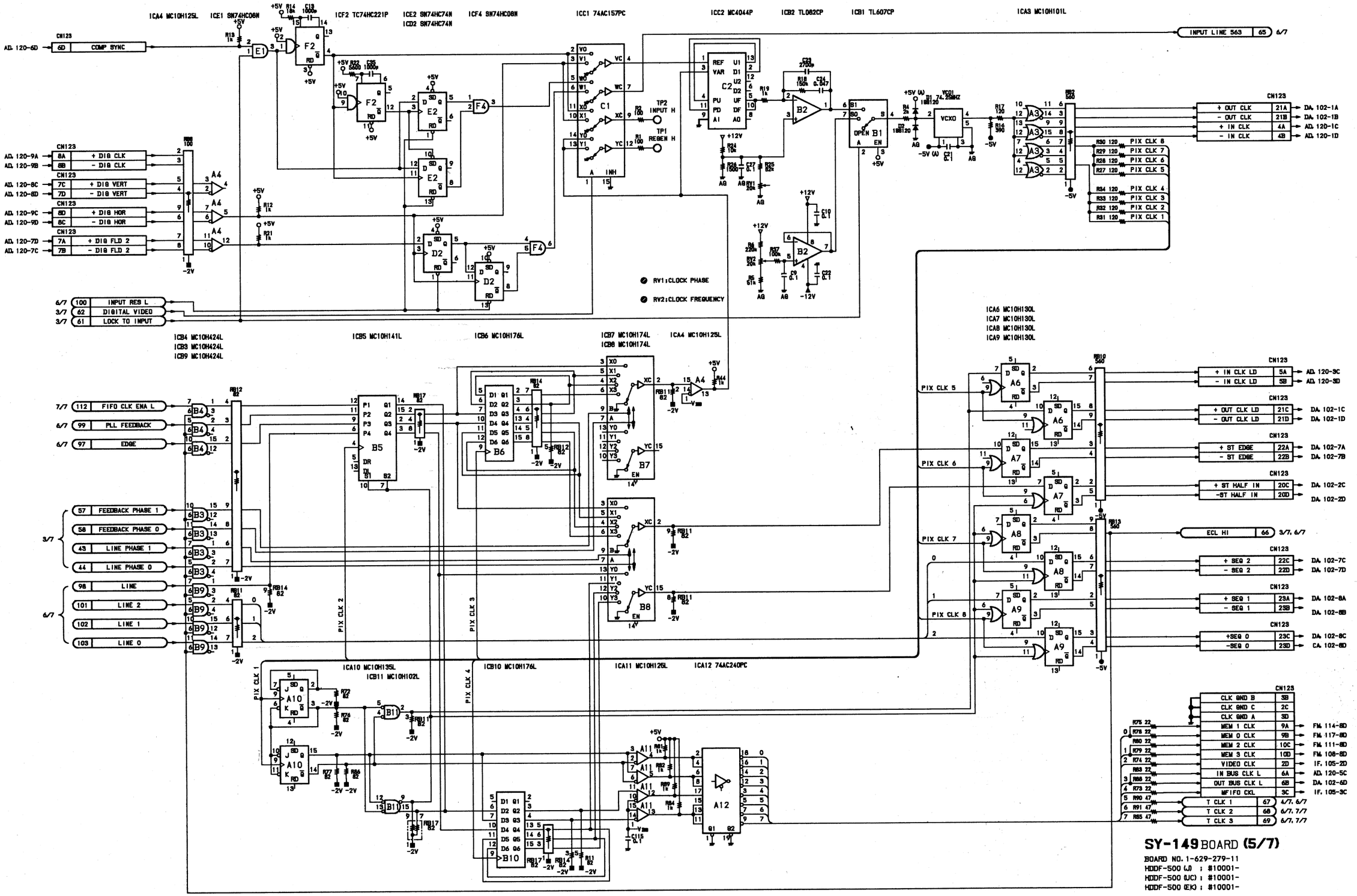

B-37 B-38 B-39

A B C D E F G H I J K L

1 2 3 4 5

## SY-149 BOARD (5/7)

Control Board

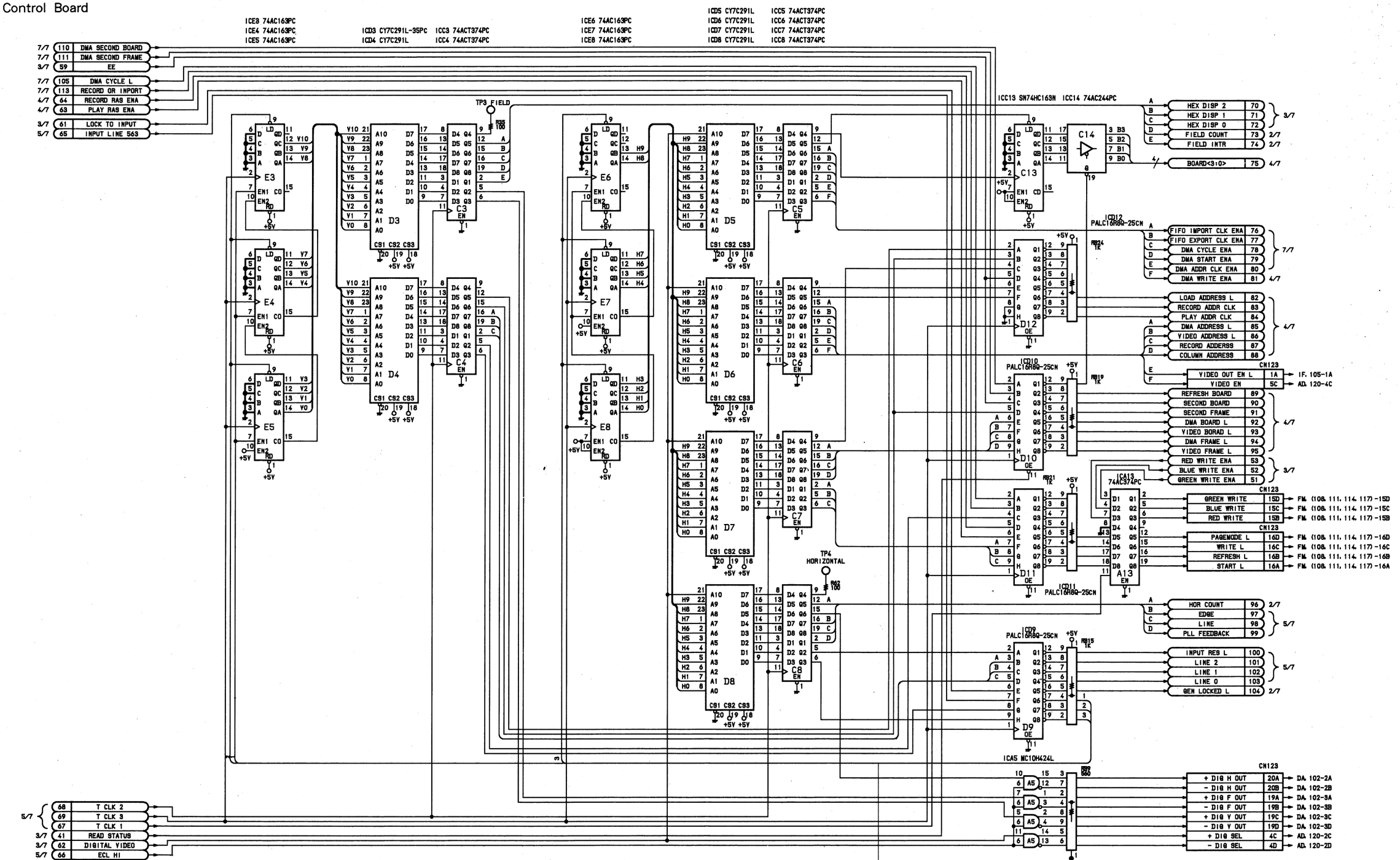



**SY-149 BOARD (5/7)**

BOARD NO. 1-629-279-11
HDDF-500 (J) ; #10001-
HDDF-500 (UC) ; #10001-
HDDF-500 (EK) ; #10001-

## SY-149 BOARD (6/7)

Control Board

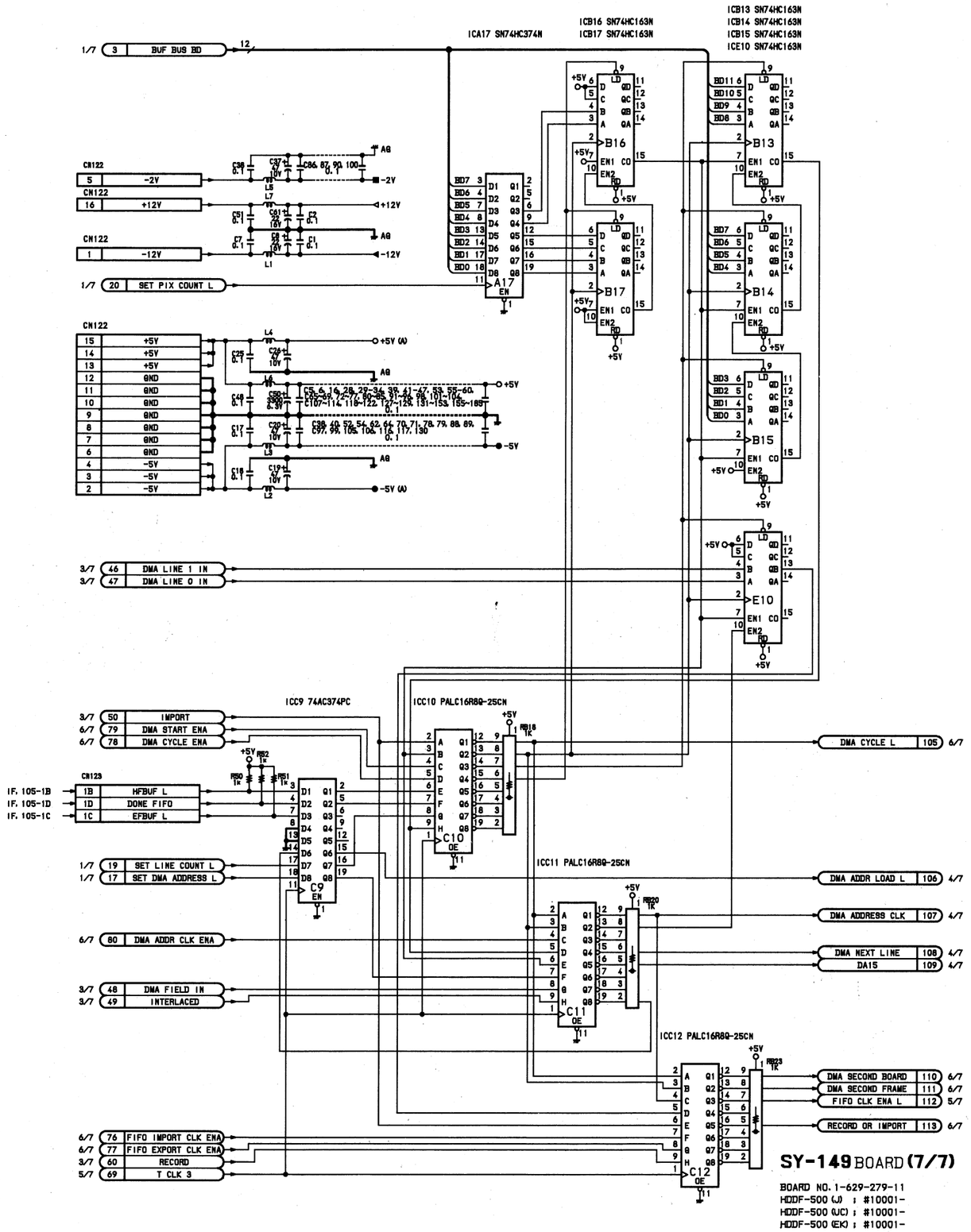



**SY-149** BOARD **(6/7)**

BOARD NO. 1-629-279-11
HDDF-500 (J) ; #10001-
HDDF-500 (JC) ; #10001-
HDDF-500 (EK) ; #10001-

## SY-149 BOARD (7/7)

Control Board



## IF-249 BOARD(1-629-299-11)

**HDDF-500**

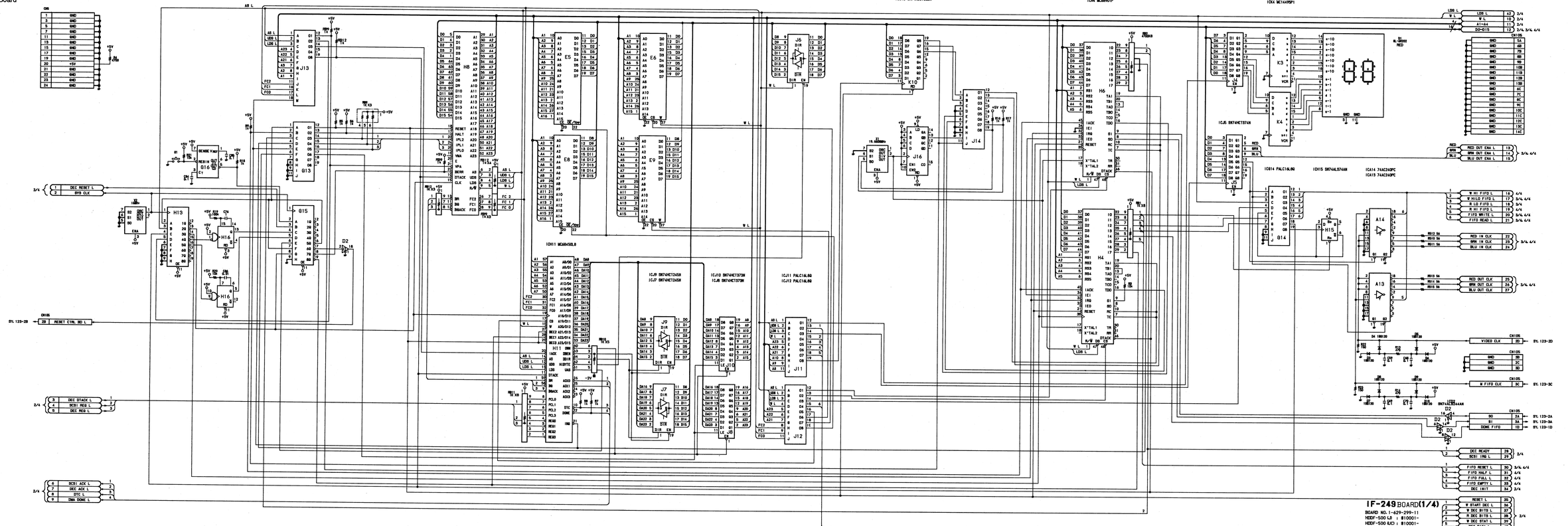
Part's address on the mounted circuit board is as follows.

| | |
|---|---|
| CN5 | K6 |
| CN6 | K14 |
| CN104 | A3 |
| CN105 | A9 |
| CN106 | A17 |
| | |
| D1 | K2 |
| D2 | A6 |
| D3 | A15 |
| D4 | A15 |
| D5 | A15 |
| D6 | A15 |
| D7 | A15 |
| D8 | A15 |
| D9 | A15 |
| D10 | A15 |
| | |
| E1 | B1 |
| E2 | H7 |
| E3 | A8 |
| E4 | E10 |
| E5 | B15 |
| E6 | H17 |
| | |
| F1 | A5 |
| | |
| JP1 | G15 |
| JP2 | G15 |
| | |
| S1 | K18 |
| S2 | K18 |
| | |
| X1 | J15 |
| X2 | G16 |

CARD RACK **IF-249 (1/4)** | **IF-249 (1/4)** CARD RACK

CARD RACK **IF-249 (1/4)** | **IF-249 (1/4)** CARD RACK

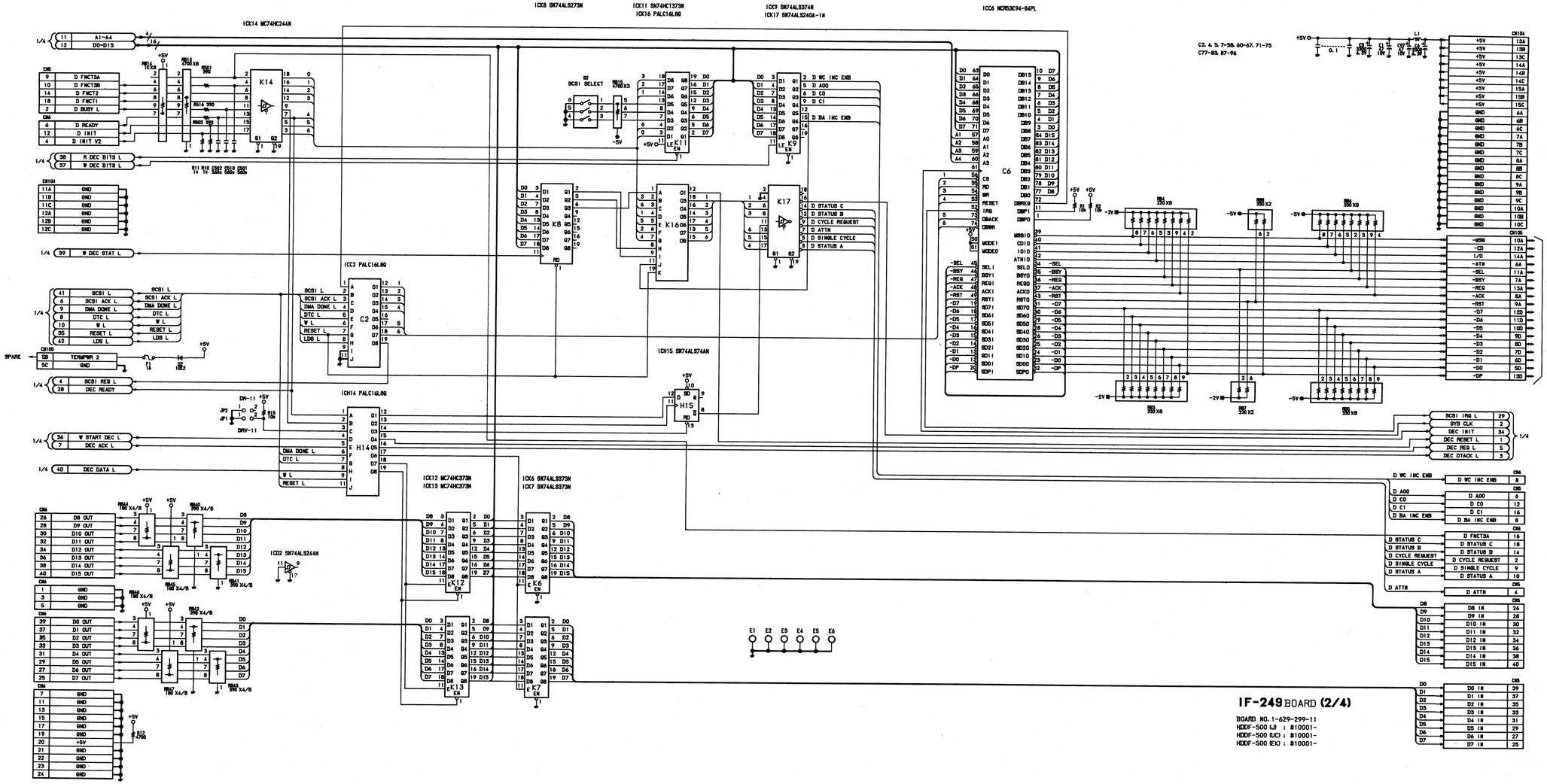
**IF-249 BOARD (1/4)**
Interface Board




B-57 B-58 B-59 B-60

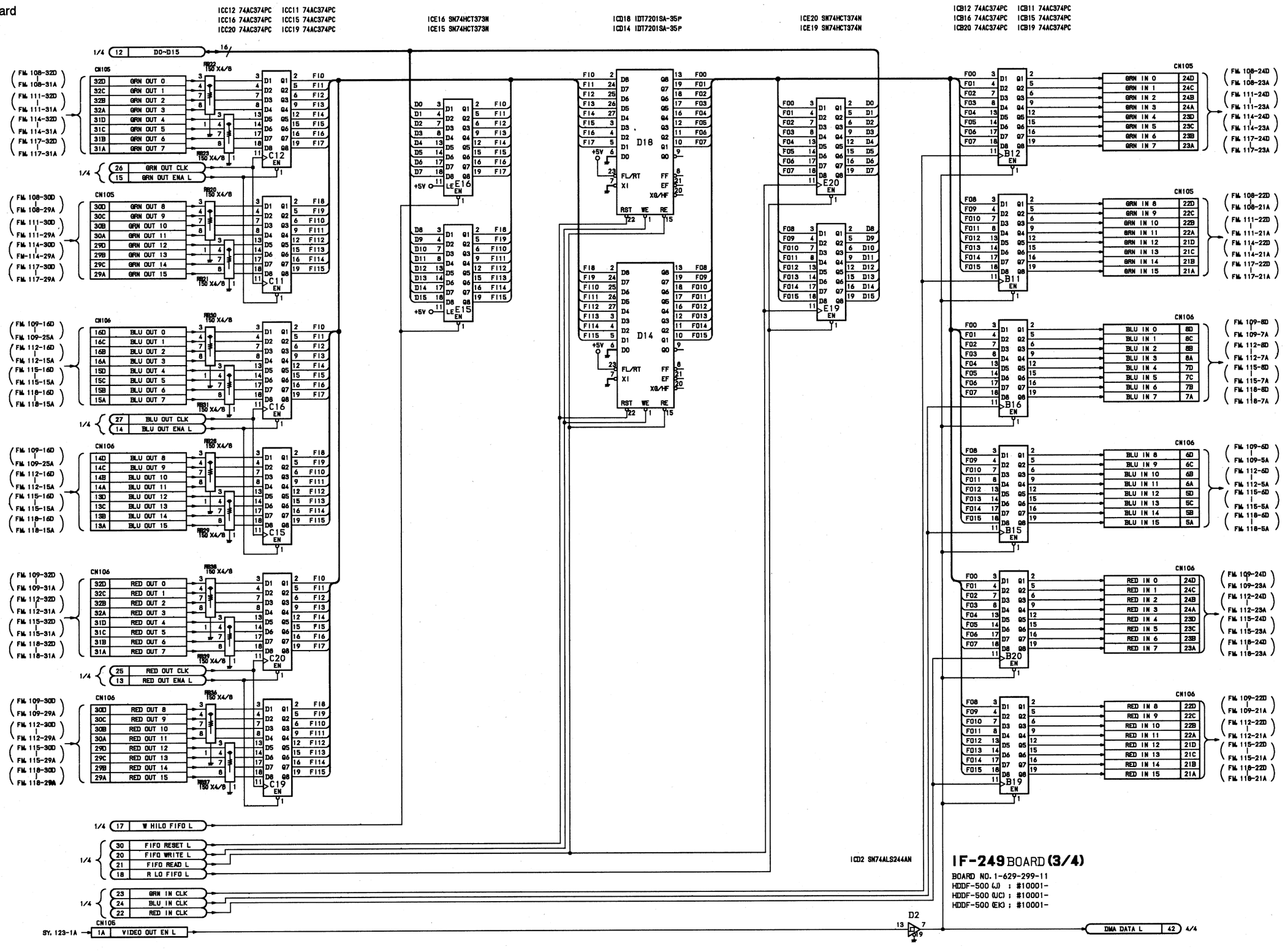
A B C D E F G H I J K L M N O P

**IF-249 BOARD (2/4)**
Interface Board



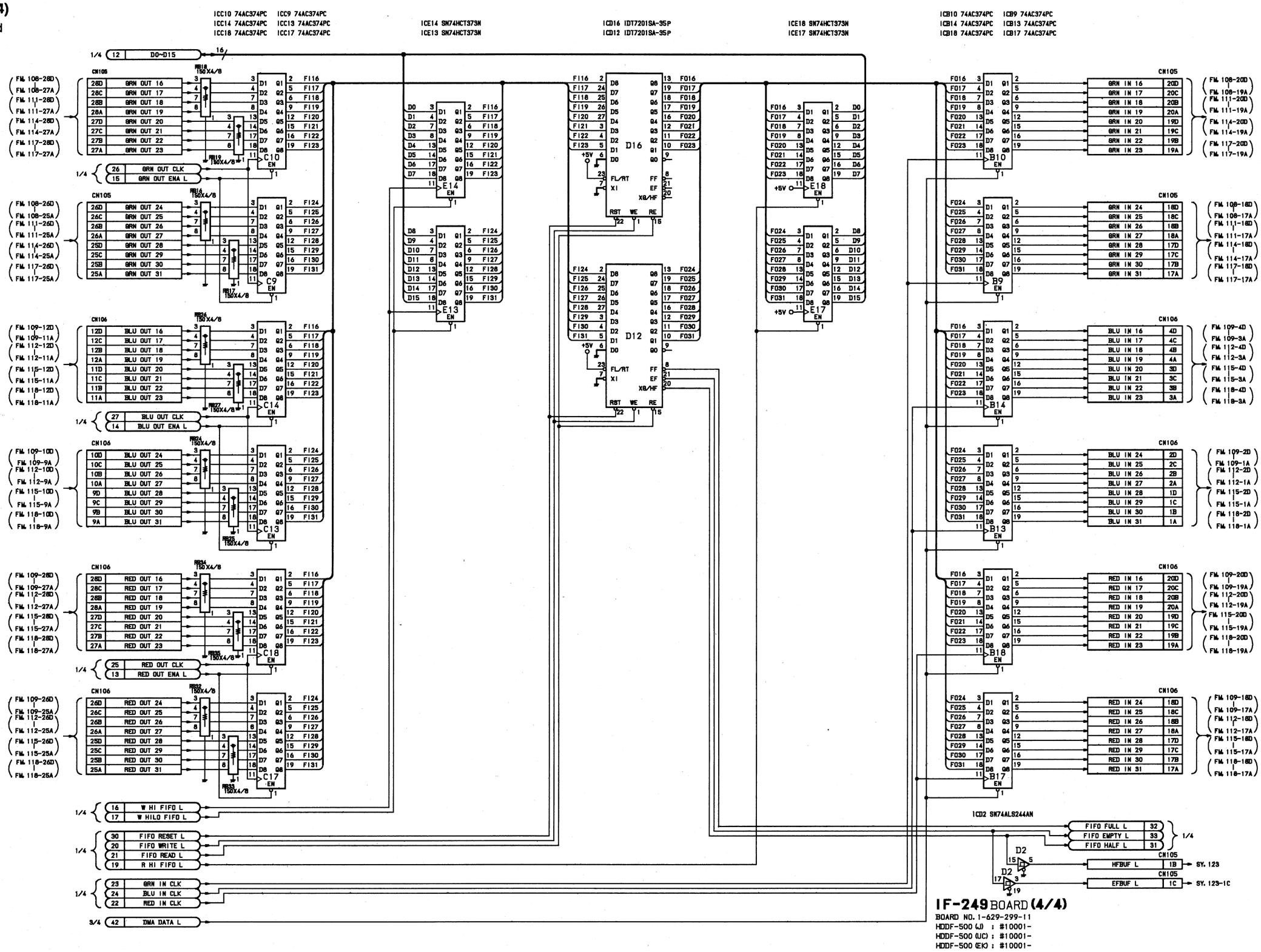
## IF-249 BOARD (3/4)

Interface Board



## IF-249 BOARD (4/4)

Interface Board




**IF-249 BOARD (4/4)**

BOARD NO. 1-629-299-11

HDDF-500 (J) : #10001-

HDDF-500 (JC) : #10001-

HDDF-500 (EK) : #10001-

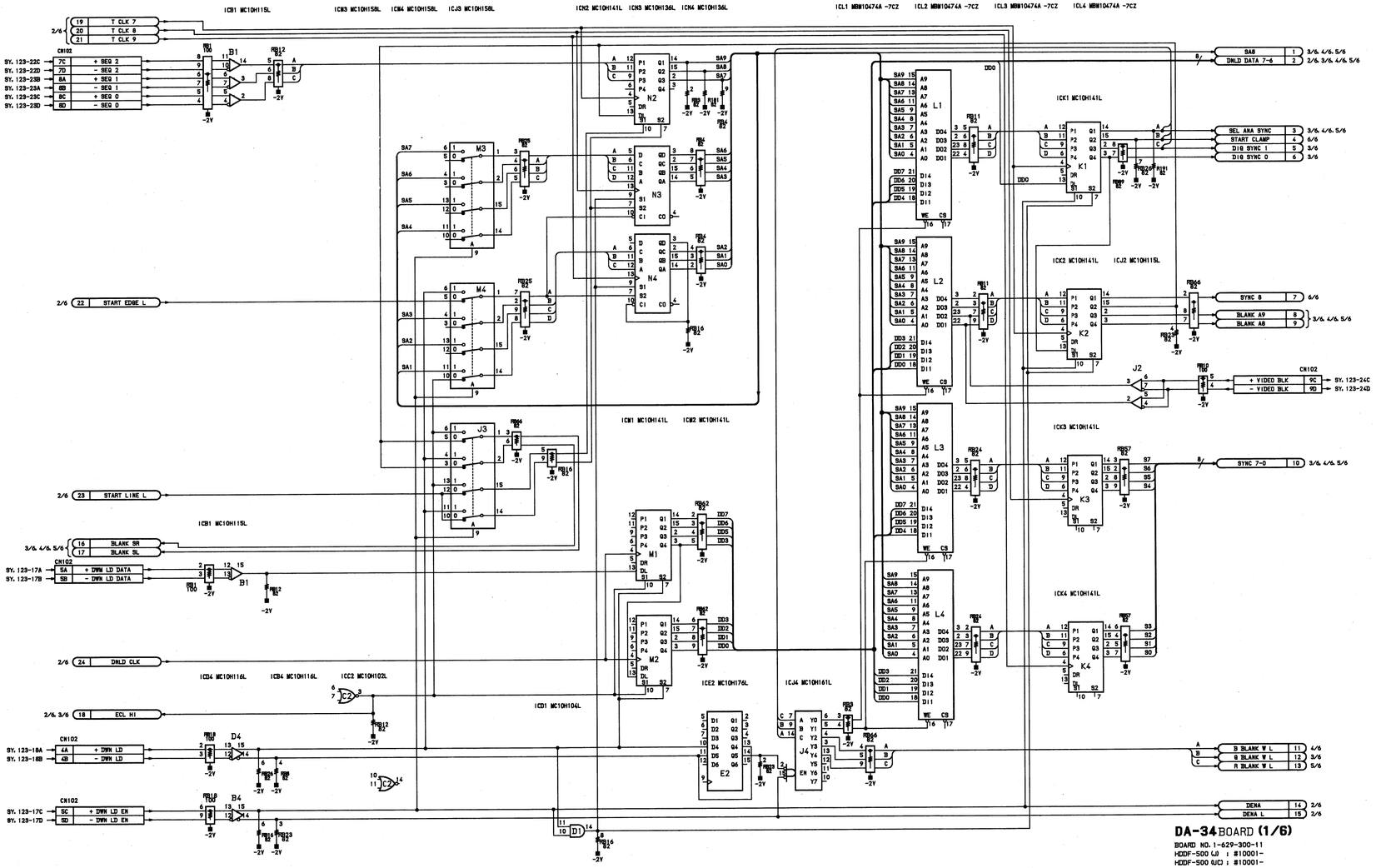
## DA-34 BOARD(1-629-300-11)

**HDDF-500**

Part's address on the mounted circuit board is as follows.

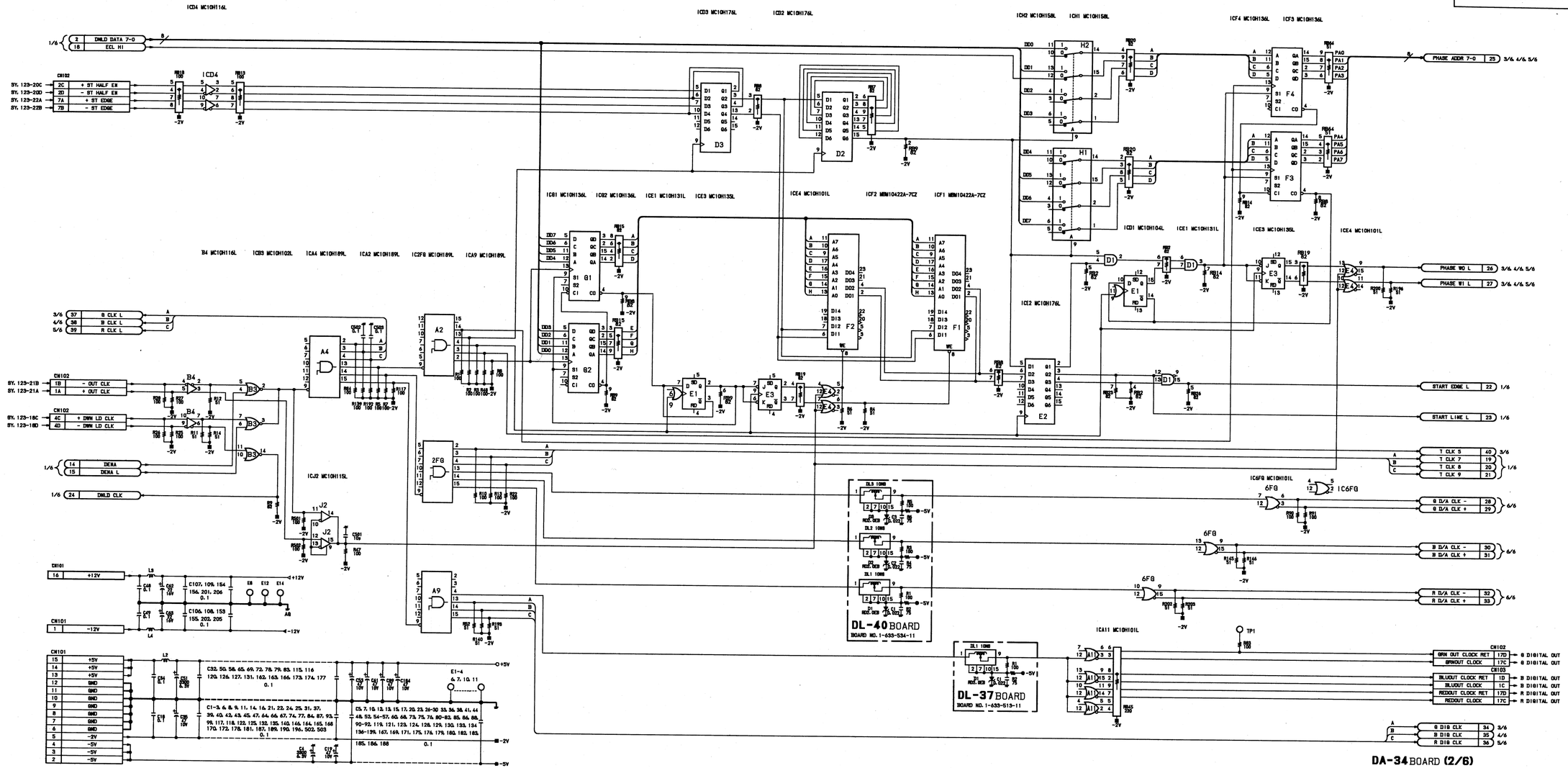
| | |
|---|---|
| CN1 | P5 |
| CN2 | P6 |
| CN3 | P6 |
| CN4 | P9 |
| CN5 | P10 |
| CN6 | P10 |
| CN7 | P13 |
| CN8 | P14 |
| CN9 | P14 |
| CN101 | A1 |
| CN102 | A8 |
| CN103 | A13 |
| CV1 | N7 |
| CV2 | N11 |
| CV3 | N15 |
| DL1 | G3 |
| DL2 | G4 |
| DL3 | G5 |
| DL4 | A10 |
| D1 | A6 |
| D2 | A6 |
| D3 | A6 |
| D4 | A6 |
| E1 | E4 |
| E2 | A5 |
| E3 | G5 |
| E4 | K4 |
| E5 | P5 |
| E6 | C8 |
| E7 | F8 |
| E8 | K8 |
| E9 | P8 |
| E10 | C12 |
| E11 | F12 |
| E12 | K12 |
| E13 | P12 |
| E14 | K16 |
| FL1 | K8 |
| FL2 | K12 |
| FL3 | K16 |
| RV1 | N8 |
| RV2 | N12 |
| RV3 | N16 |
| TP1 | A7 |
| TP2 | A7 |
| TP3 | P7 |
| TP4 | K8 |
| TP5 | P11 |
| TP6 | K12 |
| TP7 | P15 |
| TP8 | K16 |

**DA-34 BOARD (1/6)**
Post Processor Board



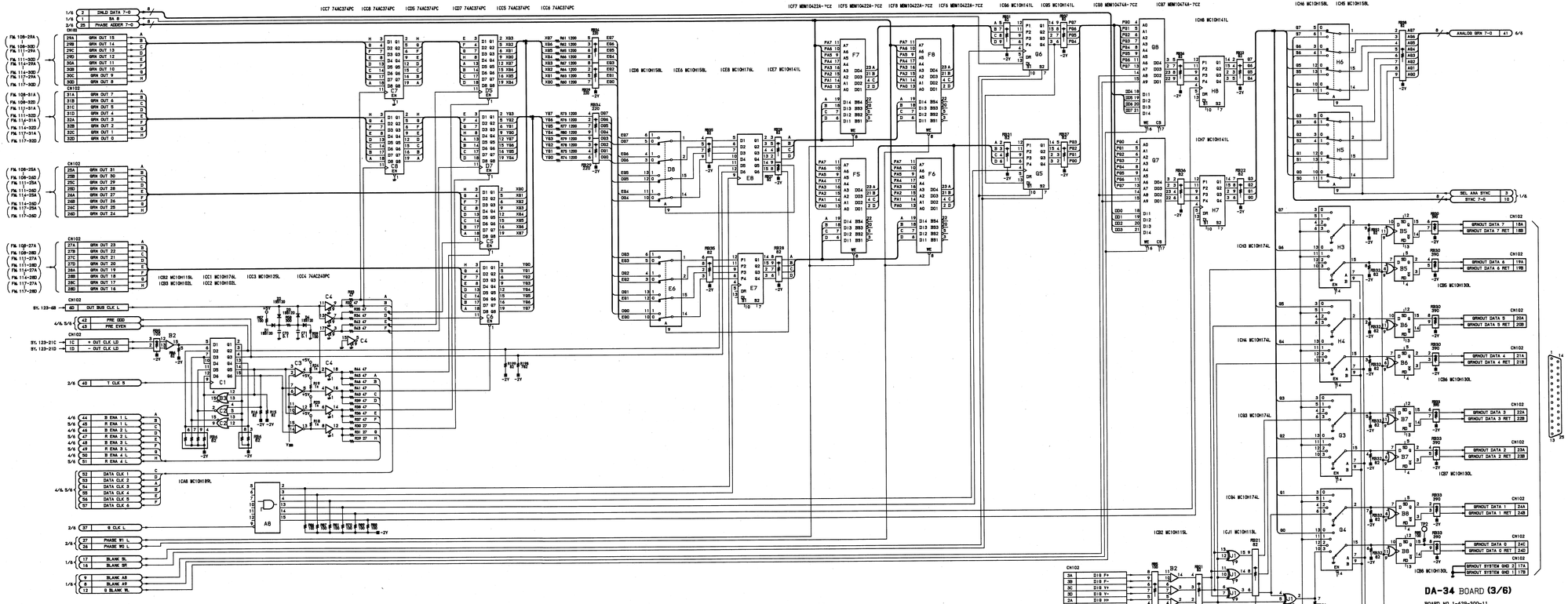

B-81 B-82 B-83

**DA-34 BOARD (2/6)**
Post Processor Board




**DA-34 BOARD (2/6)**
BOARD NO. 1-629-300-11
MODF-500 (J) : #10001-
MODF-500 (US) : #10001-
MODF-500 (EX) : #10001-

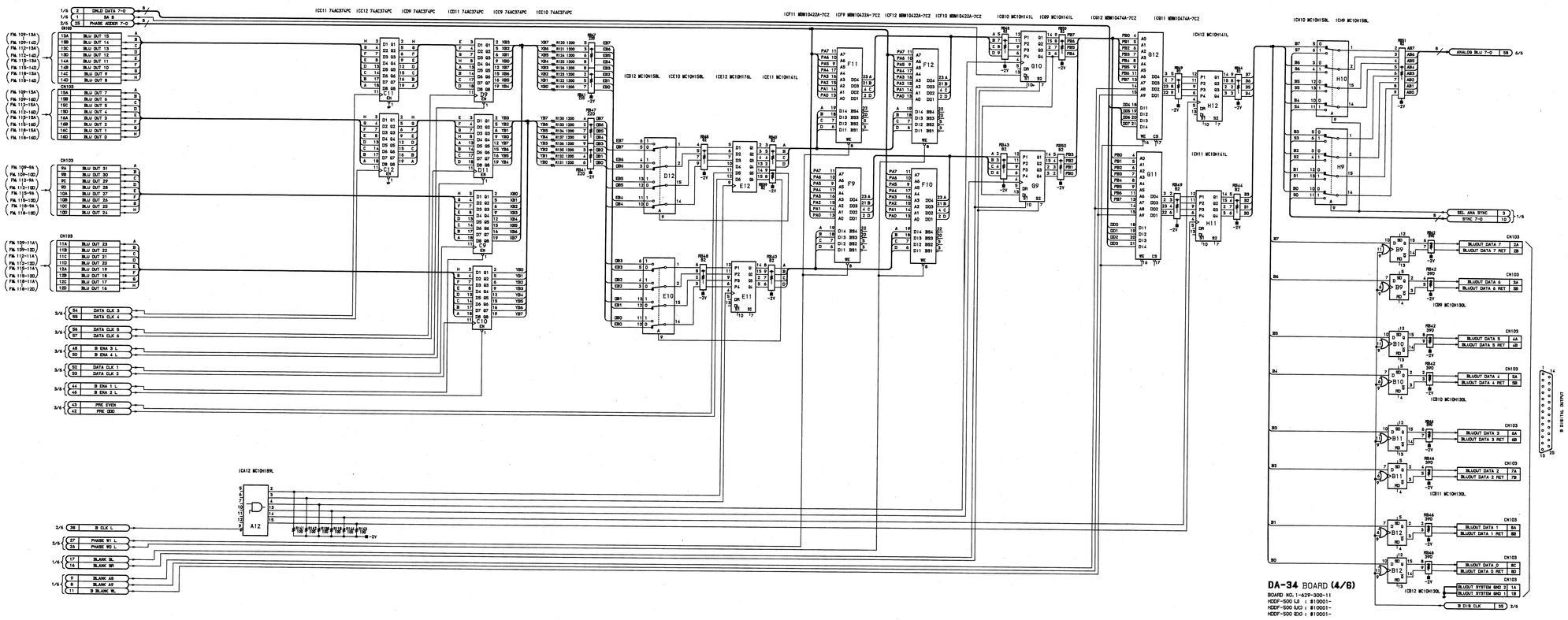
**DA-34 BOARD (3/6)**
Post Processor Board



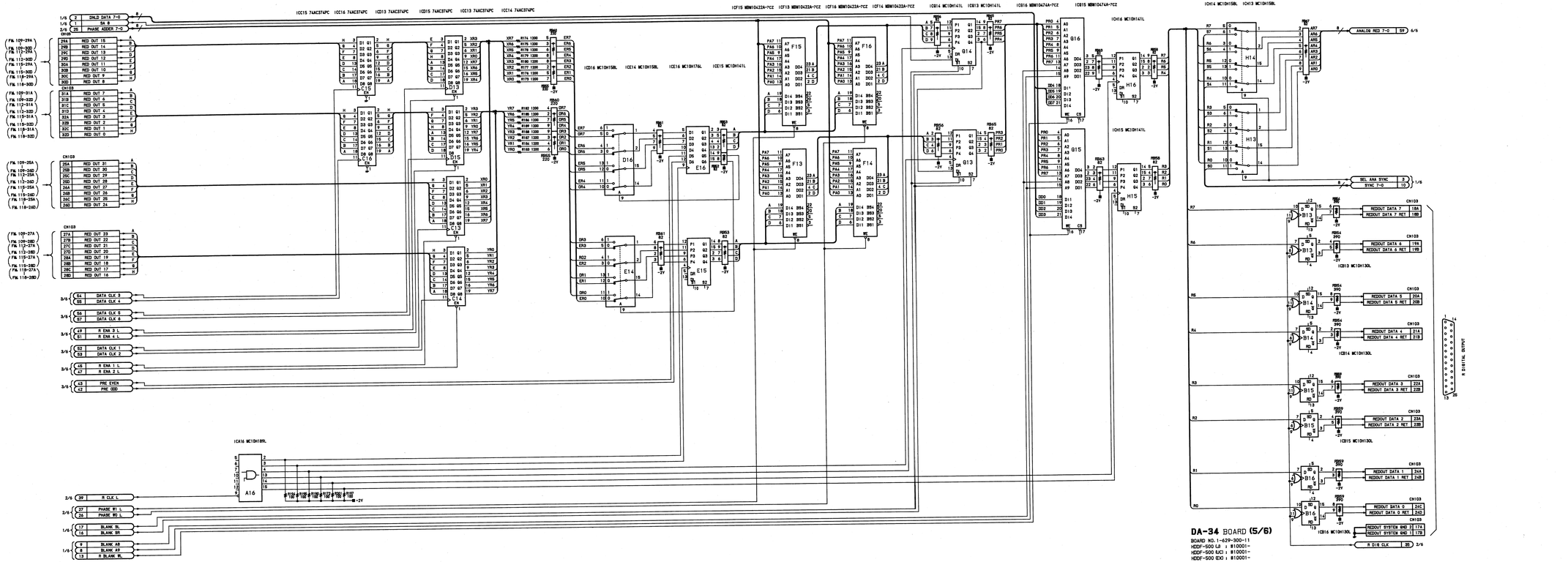
CARD RACK **DA-34 (4/6)** **DA-34 (4/6)** CARD RACK

**DA-34 BOARD (4/6)**

Post Processor Board



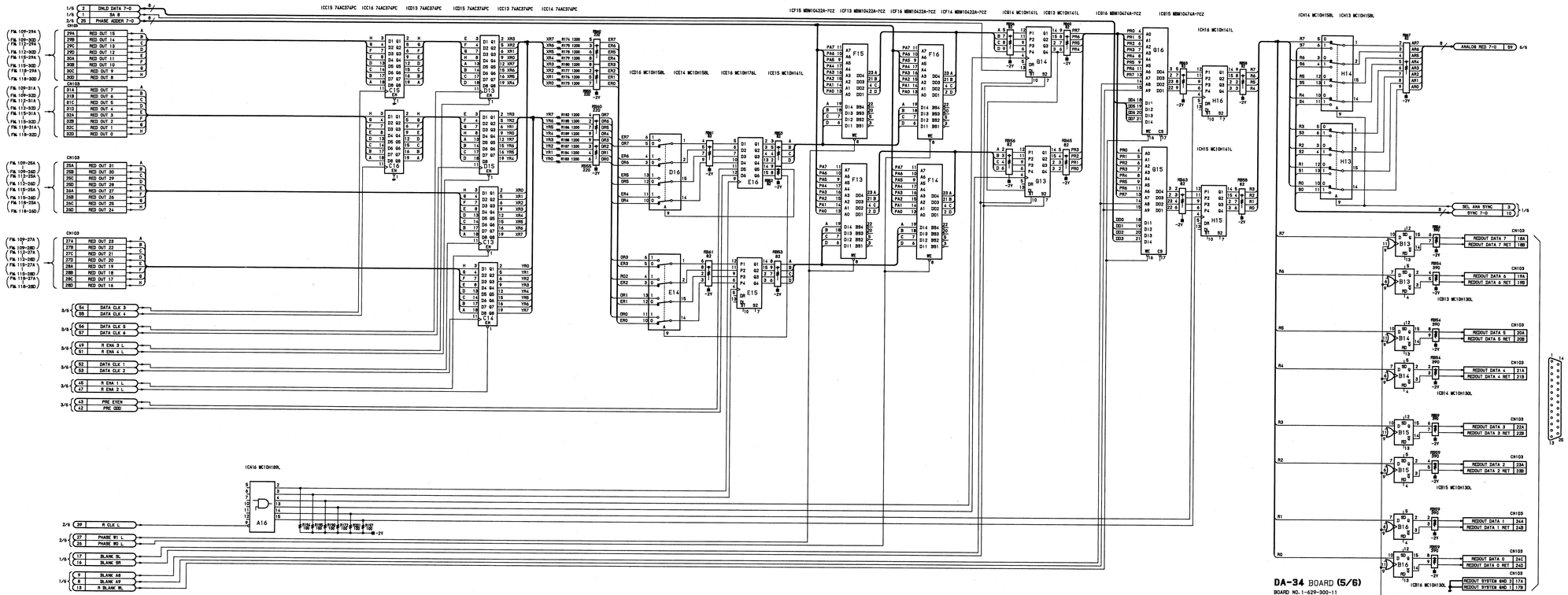
**DA-34 BOARD (5/6)**
Post Processor Board



CARD RACK **DA-34 (5/6)** **DA-34 (5/6)** CARD RACK

**DA-34 BOARD (5/6)**

Post Processor Board



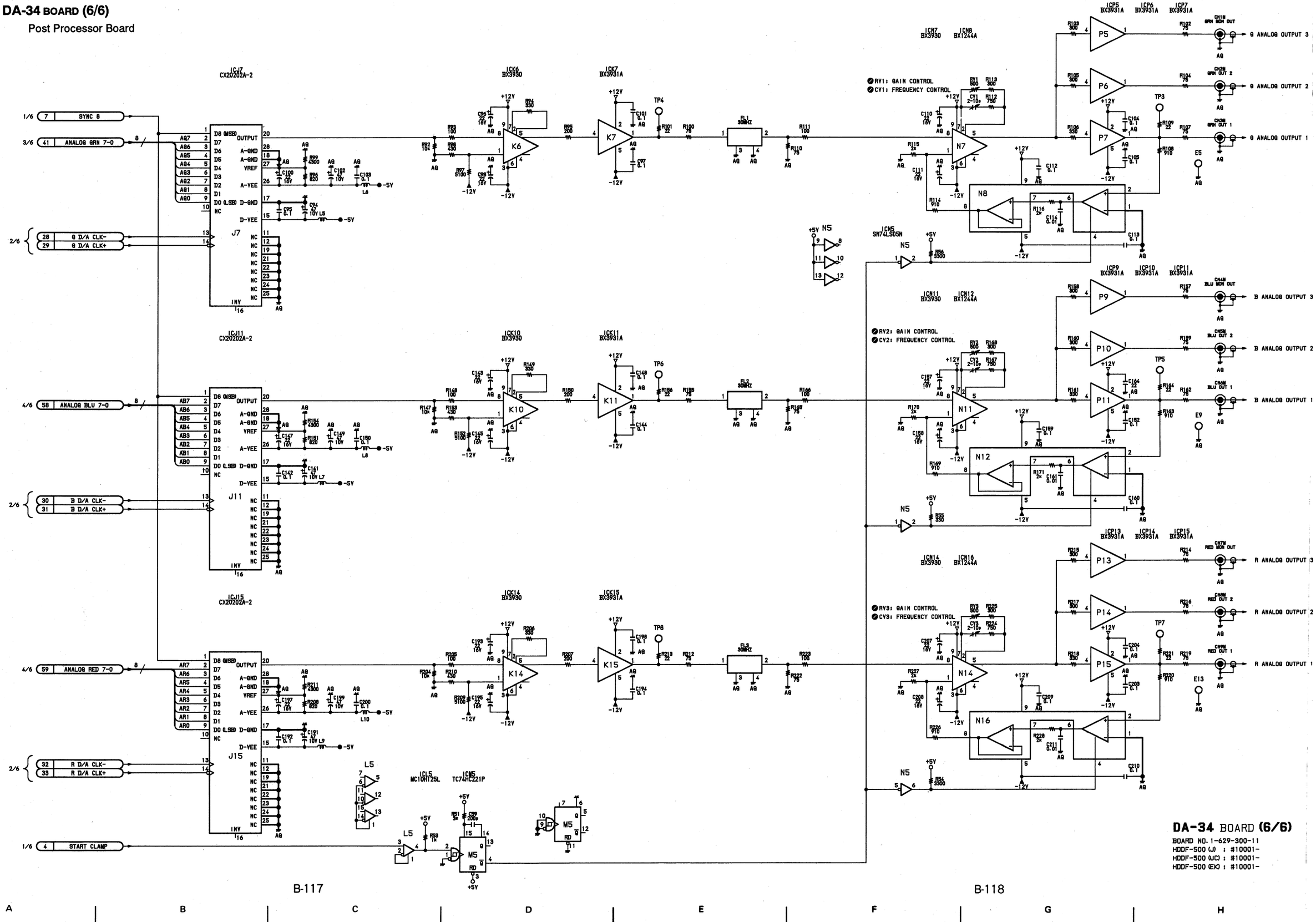

B-109 B-110 B-111 B-112

A B C D E F G H I J K L M N O P

1 2 3 4 5

## DA-34 BOARD (6/6)

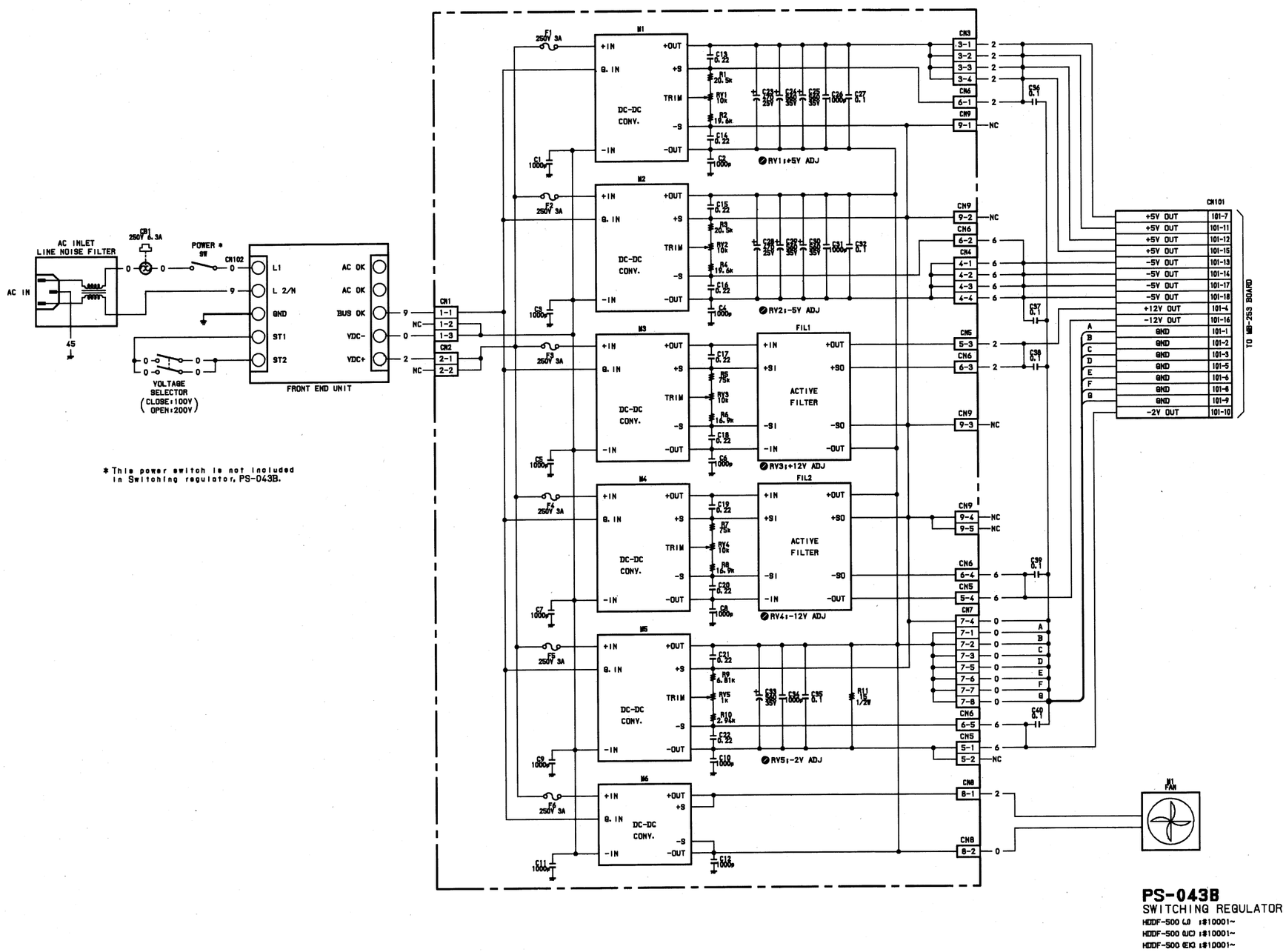
Post Processor Board




B-117 B-118

## PS-043B

Switching Regulator




**PS-043B**
SWITCHING REGULATOR
HDDF-500 (J) :#10001~
HDDF-500 (JC) :#10001~
HDDF-500 (EK) :#10001~

MOTHER BOARD **MB-253 (1/5)**

# MB-253 BOARD (1/5)

Signal Table (1/2)

## 8 DA-34

CN103

| | A | B | C | D |
|---|---|---|---|---|
| 32 | RED OUT 3 | RED OUT 2 | RED OUT 1 | RED OUT 0 |
| 31 | RED OUT 7 | RED OUT 6 | RED OUT 5 | RED OUT 4 |
| 30 | RED OUT 11 | RED OUT 10 | RED OUT 9 | RED OUT 8 |
| 29 | RED OUT 15 | RED OUT 14 | RED OUT 13 | RED OUT 12 |
| 28 | RED OUT 19 | RED OUT 18 | RED OUT 17 | RED OUT 16 |
| 27 | RED OUT 23 | RED OUT 22 | RED OUT 21 | RED OUT 20 |
| 26 | RED OUT 27 | RED OUT 26 | RED OUT 25 | RED OUT 24 |
| 25 | RED OUT 31 | RED OUT 30 | RED OUT 29 | RED OUT 28 |
| 24 | RED OUT DATA 1 | RED OUT DATA 1 RET | RED OUT DATA 0 | RED OUT DATA 0 RET |
| 23 | RED OUT DATA 2 | RED OUT DATA 2 RET | | |
| 22 | RED OUT DATA 3 | RED OUT DATA 3 RET | | |
| 21 | RED OUT DATA 4 | RED OUT DATA 4 RET | | |
| 20 | RED OUT DATA 5 | RED OUT DATA 5 RET | | |
| 19 | RED OUT DATA 6 | RED OUT DATA 6 RET | | |
| 18 | RED OUT DATA 7 | RED OUT DATA 7 RET | | |
| 17 | RED OUT SYSTEM GND 2 | RED OUT SYSTEM GND 1 | RED OUT CLOCK | RED OUT CLOCK RET |
| 16 | BLU OUT 3 | BLU OUT 2 | BLU OUT 1 | BLU OUT 0 |
| 15 | BLU OUT 7 | BLU OUT 6 | BLU OUT 5 | BLU OUT 4 |
| 14 | BLU OUT 11 | BLU OUT 10 | BLU OUT 9 | BLU OUT 8 |
| 13 | BLU OUT 15 | BLU OUT 14 | BLU OUT 13 | BLU OUT 12 |
| 12 | BLU OUT 19 | BLU OUT 18 | BLU OUT 17 | BLU OUT 16 |
| 11 | BLU OUT 23 | BLU OUT 22 | BLU OUT 21 | BLU OUT 20 |
| 10 | BLU OUT 27 | BLU OUT 26 | BLU OUT 25 | BLU OUT 24 |
| 9 | BLU OUT 31 | BLU OUT 30 | BLU OUT 29 | BLU OUT 28 |
| 8 | BLU OUT DATA 1 | BLU OUT DATA 1 RET | BLU OUT DATA 0 | BLU OUT DATA 0 RET |
| 7 | BLU OUT DATA 2 | BLU OUT DATA 2 RET | | |
| 6 | BLU OUT DATA 3 | BLU OUT DATA 3 RET | | |
| 5 | BLU OUT DATA 4 | BLU OUT DATA 4 RET | | |
| 4 | BLU OUT DATA 5 | BLU OUT DATA 5 RET | | |
| 3 | BLU OUT DATA 6 | BLU OUT DATA 6 RET | | |
| 2 | BLU OUT DATA 7 | BLU OUT DATA 7 RET | | |
| 1 | BLU OUT SYSTEM GND 2 | BLU OUT SYSTEM GND 1 | BLU OUT CLOCK | BLU OUT CLOCK RET |

R DIGITAL OUTPUT

CN128 ICN-410 BOARD

| | | | |
|---|---|---|---|
| 20 | RED OUT DATA 0 RET | RED OUT DATA 0 | 19 |
| 18 | RED OUT DATA 1 RET | RED OUT DATA 1 | 17 |
| 16 | RED OUT DATA 2 RET | RED OUT DATA 2 | 15 |
| 14 | RED OUT DATA 3 RET | RED OUT DATA 3 | 13 |
| 12 | RED OUT DATA 4 RET | RED OUT DATA 4 | 11 |
| 10 | RED OUT DATA 5 RET | RED OUT DATA 5 | 9 |
| 8 | RED OUT DATA 6 RET | RED OUT DATA 6 | 7 |
| 6 | RED OUT DATA 7 RET | RED OUT DATA 7 | 5 |
| 4 | RED OUT SYSTEM GND 1 | RED OUT SYSTEM GND 2 | 3 |
| 2 | RED OUT CLOCK RET | RED OUT CLOCK | 1 |

B DIGITAL OUTPUT

CN127 ICN-410 BOARD

| | | | |
|---|---|---|---|
| 20 | BLU OUT DATA 0 RET | BLU OUT DATA 0 | 19 |
| 18 | BLU OUT DATA 1 RET | BLU OUT DATA 1 | 17 |
| 16 | BLU OUT DATA 2 RET | BLU OUT DATA 2 | 15 |
| 14 | BLU OUT DATA 3 RET | BLU OUT DATA 3 | 13 |
| 12 | BLU OUT DATA 4 RET | BLU OUT DATA 4 | 11 |
| 10 | BLU OUT DATA 5 RET | BLU OUT DATA 5 | 9 |
| 8 | BLU OUT DATA 6 RET | BLU OUT DATA 6 | 7 |
| 6 | BLU OUT DATA 7 RET | BLU OUT DATA 7 | 5 |
| 4 | BLU OUT SYSTEM GND 1 | BLU OUT SYSTEM GND 2 | 3 |
| 2 | BLU OUT CLOCK RET | BLU OUT CLOCK | 1 |

CN102

| | A | B | C | D |
|---|---|---|---|---|
| 32 | GRN OUT 3 | GRN OUT 2 | GRN OUT 1 | GRN OUT 0 |
| 31 | GRN OUT 7 | GRN OUT 6 | GRN OUT 5 | GRN OUT 4 |
| 30 | GRN OUT 11 | GRN OUT 10 | GRN OUT 9 | GRN OUT 8 |
| 29 | GRN OUT 15 | GRN OUT 14 | GRN OUT 13 | GRN OUT 12 |
| 28 | GRN OUT 19 | GRN OUT 18 | GRN OUT 17 | GRN OUT 16 |
| 27 | GRN OUT 23 | GRN OUT 22 | GRN OUT 21 | GRN OUT 20 |
| 26 | GRN OUT 27 | GRN OUT 26 | GRN OUT 25 | GRN OUT 24 |
| 25 | GRN OUT 31 | GRN OUT 30 | GRN OUT 29 | GRN OUT 28 |
| 24 | GRN OUT DATA 1 | GRN OUT DATA 1 RET | GRN OUT DATA 0 | GRN OUT DATA 0 RET |
| 23 | GRN OUT DATA 2 | GRN OUT DATA 2 RET | | |
| 22 | GRN OUT DATA 3 | GRN OUT DATA 3 RET | | |
| 21 | GRN OUT DATA 4 | GRN OUT DATA 4 RET | | |
| 20 | GRN OUT DATA 5 | GRN OUT DATA 5 RET | | |
| 19 | GRN OUT DATA 6 | GRN OUT DATA 6 RET | | |
| 18 | GRN OUT DATA 7 | GRN OUT DATA 7 RET | | |
| 17 | GRN OUT SYSTEM GND 2 | GRN OUT SYSTEM GND 1 | GRN OUT CLOCK | GRN OUT CLOCK RET |
| 16 | | | | |
| 15 | | | | |
| 14 | | | | |
| 13 | | | | |
| 12 | | | | |
| 11 | | | | |
| 10 | | | | |
| 9 | OUTPUT + SPARE 2 | OUTPUT - SPARE 2 | +VIDEO BLK | -VIDEO BLK |
| 8 | +SEQ 1 | -SEQ 1 | +SEQ 0 | -SEQ 0 |
| 7 | +ST EDGE | -ST EDGE | +SEQ 2 | -SEQ 2 |
| 6 | OUTPUT - SPARE 1 | OUTPUT + SPARE 1 | | OUT BUS CLK L |
| 5 | +DWN LD DATA | -DWN LD DATA | +DWN LD EN | -DWN LD EN |
| 4 | +DWN LD | -DWN LD | +DWN LD CLK | +DWN LD CLK |
| 3 | +D1B F OUT | -D1B F OUT | -D1B V OUT | -D1B V OUT |
| 2 | +D1B H OUT | -D1B H OUT | +ST HALF LN | -ST HALF LN |
| 1 | +OUT CLK | -OUT CLK | +OUT CLK LD | -OUT CLK LD |

G DIGITAL OUTPUT

CN126 ICN-410 BOARD

| | | | |
|---|---|---|---|
| 20 | GRN OUT DATA 0 RET | GRN OUT DATA 0 | 19 |
| 18 | GRN OUT DATA 1 RET | GRN OUT DATA 1 | 17 |
| 16 | GRN OUT DATA 2 RET | GRN OUT DATA 2 | 15 |
| 14 | GRN OUT DATA 3 RET | GRN OUT DATA 3 | 13 |
| 12 | GRN OUT DATA 4 RET | GRN OUT DATA 4 | 11 |
| 10 | GRN OUT DATA 5 RET | GRN OUT DATA 5 | 9 |
| 8 | GRN OUT DATA 6 RET | GRN OUT DATA 6 | 7 |
| 6 | GRN OUT DATA 7 RET | GRN OUT DATA 7 | 5 |
| 4 | GRN OUT SYSTEM GND 1 | GRN OUT SYSTEM GND 2 | 3 |
| 2 | GRN OUT CLOCK RET | GRN OUT CLOCK | 1 |

CN101

| | A | B | C |
|---|---|---|---|
| 16 | +12V | +12V | +12V |
| 15 | +5V | +5V | +5V |
| 14 | +5V | +5V | +5V |
| 13 | +5V | +5V | +5V |
| 12 | GND | GND | GND |
| 11 | GND | GND | GND |
| 10 | GND | GND | GND |
| 9 | GND | GND | GND |
| 8 | GND | GND | GND |
| 7 | GND | GND | GND |
| 6 | GND | GND | GND |
| 5 | -2V | -2V | -2V |
| 4 | -5V | -5V | -5V |
| 3 | -5V | -5V | -5V |
| 2 | -5V | -5V | -5V |
| 1 | -12V | -12V | -12V |

## 7 IF-249

CN106

| | A | B | C | D |
|---|---|---|---|---|
| 32 | RED OUT 3 | RED OUT 2 | RED OUT 1 | RED OUT 0 |
| 31 | RED OUT 7 | RED OUT 6 | RED OUT 5 | RED OUT 4 |
| 30 | RED OUT 11 | RED OUT 10 | RED OUT 9 | RED OUT 8 |
| 29 | RED OUT 15 | RED OUT 14 | RED OUT 13 | RED OUT 12 |
| 28 | RED OUT 19 | RED OUT 18 | RED OUT 17 | RED OUT 16 |
| 27 | RED OUT 23 | RED OUT 22 | RED OUT 21 | RED OUT 20 |
| 26 | RED OUT 27 | RED OUT 26 | RED OUT 25 | RED OUT 24 |
| 25 | RED OUT 31 | RED OUT 30 | RED OUT 29 | RED OUT 28 |
| 24 | RED IN 3 | RED IN 2 | RED IN 1 | RED IN 0 |
| 23 | RED IN 7 | RED IN 6 | RED IN 5 | RED IN 4 |
| 22 | RED IN 11 | RED IN 10 | RED IN 9 | RED IN 8 |
| 21 | RED IN 15 | RED IN 14 | RED IN 13 | RED IN 12 |
| 20 | RED IN 19 | RED IN 18 | RED IN 17 | RED IN 16 |
| 19 | RED IN 23 | RED IN 22 | RED IN 21 | RED IN 20 |
| 18 | RED IN 27 | RED IN 26 | RED IN 25 | RED IN 24 |
| 17 | RED IN 31 | RED IN 30 | RED IN 29 | RED IN 28 |
| 16 | BLU OUT 3 | BLU OUT 2 | BLU OUT 1 | BLU OUT 0 |
| 15 | BLU OUT 7 | BLU OUT 6 | BLU OUT 5 | BLU OUT 4 |
| 14 | BLU OUT 11 | BLU OUT 10 | BLU OUT 9 | BLU OUT 8 |
| 13 | BLU OUT 15 | BLU OUT 14 | BLU OUT 13 | BLU OUT 12 |
| 12 | BLU OUT 19 | BLU OUT 18 | BLU OUT 17 | BLU OUT 16 |
| 11 | BLU OUT 23 | BLU OUT 22 | BLU OUT 21 | BLU OUT 20 |
| 10 | BLU OUT 27 | BLU OUT 26 | BLU OUT 25 | BLU OUT 24 |
| 9 | BLU OUT 31 | BLU OUT 30 | BLU OUT 29 | BLU OUT 28 |
| 8 | BLU IN 3 | BLU IN 2 | BLU IN 1 | BLU IN 0 |
| 7 | BLU IN 7 | BLU IN 6 | BLU IN 5 | BLU IN 4 |
| 6 | BLU IN 11 | BLU IN 10 | BLU IN 9 | BLU IN 8 |
| 5 | BLU IN 15 | BLU IN 14 | BLU IN 13 | BLU IN 12 |
| 4 | BLU IN 19 | BLU IN 18 | BLU IN 17 | BLU IN 16 |
| 3 | BLU IN 23 | BLU IN 22 | BLU IN 21 | BLU IN 20 |
| 2 | BLU IN 27 | BLU IN 26 | BLU IN 25 | BLU IN 24 |
| 1 | BLU IN 31 | BLU IN 30 | BLU IN 29 | BLU IN 28 |

CN105

| | A | B | C | D |
|---|---|---|---|---|
| 32 | GRN OUT 3 | GRN OUT 2 | GRN OUT 1 | GRN OUT 0 |
| 31 | GRN OUT 7 | GRN OUT 6 | GRN OUT 5 | GRN OUT 4 |
| 30 | GRN OUT 11 | GRN OUT 10 | GRN OUT 9 | GRN OUT 8 |
| 29 | GRN OUT 15 | GRN OUT 14 | GRN OUT 13 | GRN OUT 12 |
| 28 | GRN OUT 19 | GRN OUT 18 | GRN OUT 17 | GRN OUT 16 |
| 27 | GRN OUT 23 | GRN OUT 22 | GRN OUT 21 | GRN OUT 20 |
| 26 | GRN OUT 27 | GRN OUT 26 | GRN OUT 25 | GRN OUT 24 |
| 25 | GRN OUT 31 | GRN OUT 30 | GRN OUT 29 | GRN OUT 28 |
| 24 | GRN IN 3 | GRN IN 2 | GRN IN 1 | GRN IN 0 |
| 23 | GRN IN 7 | GRN IN 6 | GRN IN 5 | GRN IN 4 |
| 22 | GRN IN 11 | GRN IN 10 | GRN IN 9 | GRN IN 8 |
| 21 | GRN IN 15 | GRN IN 14 | GRN IN 13 | GRN IN 12 |
| 20 | GRN IN 19 | GRN IN 18 | GRN IN 17 | GRN IN 16 |
| 19 | GRN IN 23 | GRN IN 22 | GRN IN 21 | GRN IN 20 |
| 18 | GRN IN 27 | GRN IN 26 | GRN IN 25 | GRN IN 24 |
| 17 | GRN IN 31 | GRN IN 30 | GRN IN 29 | GRN IN 28 |
| 16 | START L | REFRESH L | NC1 | |
| 15 | | | | |
| 14 | -I/O | | GND | NC0 |
| 13 | -REQ | GND | GND | -DBP |
| 12 | -C/D | GND | GND | -DB7 |
| 11 | -SEL | GND | GND | -DB6 |
| 10 | -MSG | GND | GND | -DB5 |
| 9 | -RST | GND | GND | -DB4 |
| 8 | -ACK | GND | GND | -DB3 |
| 7 | -BSY | GND | GND | -DB2 |
| 6 | -ATN | GND | GND | -DB1 |
| 5 | GND | TERMPWR2 | SHIELD GND | -DB0 |
| 4 | | | | |
| 3 | SI | CLK GND B | MFIFO CLK | CLK GND A |
| 2 | SO | RESET CTRL BD L | CLK GND C | VIDEO CLK |
| 1 | VIDEO OUT EN L | HFBUF L | EFBUF L | DONE FIFO |

SPARE

CB129

| | | | |
|---|---|---|---|
| 26 | GND | -I/O | 25 |
| 24 | GND | -REQ | 23 |
| 22 | GND | -C/D | 21 |
| 20 | GND | -SEL | 19 |
| 18 | GND | -MSG | 17 |
| 16 | GND | -RST | 15 |
| 14 | GND | -ACK | 13 |
| 12 | GND | -BSY | 11 |
| 10 | GND | GND | 9 |
| 8 | GND | -ATN | 7 |
| 6 | GND | GND | 5 |
| 4 | GND | GND | 3 |
| 2 | GND | TERMPWR2 | 1 |

SPARE

CB130

| | | | |
|---|---|---|---|
| 26 | NC1 | NC0 | 25 |
| 24 | GND | GND | 23 |
| 22 | GND | GND | 21 |
| 20 | GND | GND | 19 |
| 18 | -DBP | GND | 17 |
| 16 | -DB7 | GND | 15 |
| 14 | -DB6 | GND | 13 |
| 12 | -DB5 | GND | 11 |
| 10 | -DB4 | GND | 9 |
| 8 | -DB3 | GND | 7 |
| 6 | -DB2 | GND | 5 |
| 4 | -DB1 | GND | 3 |
| 2 | -DB0 | SHIELD GND | 1 |

CN104

| | A | B | C |
|---|---|---|---|
| 16 | +12V | +12V | +12V |
| 15 | +5V | +5V | +5V |
| 14 | +5V | +5V | +5V |
| 13 | +5V | +5V | +5V |
| 12 | GND | GND | GND |
| 11 | GND | GND | GND |
| 10 | GND | GND | GND |
| 9 | GND | GND | GND |
| 8 | GND | GND | GND |
| 7 | GND | GND | GND |
| 6 | GND | GND | GND |
| 5 | -2V | -2V | -2V |
| 4 | -5V | -5V | -5V |
| 3 | -5V | -5V | -5V |
| 2 | -5V | -5V | -5V |
| 1 | -12V | -12V | -12V |

POWER SUPPLY

CB125

| | | | | | | |
|---|---|---|---|---|---|---|
| GND | +12V | A5+ | A5- | A5- | A5- | A2- |
| 1 | 4 | 7 | 10 | 13 | 16 | |
| GND | GND | GND | A5+ | A5- | A5+ | A5+ |
| 2 | 5 | 8 | 11 | 14 | 17 | |
| GND | GND | GND | A5+ | A5+ | A5+ | A5+ |
| 3 | 6 | 9 | 12 | 15 | 18 | |

## 6 FM-18

CN109

| | A | B | C | D |
|---|---|---|---|---|
| 32 | RED OUT 3 | RED OUT 2 | RED OUT 1 | RED OUT 0 |
| 31 | RED OUT 7 | RED OUT 6 | RED OUT 5 | RED OUT 4 |
| 30 | RED OUT 11 | RED OUT 10 | RED OUT 9 | RED OUT 8 |
| 29 | RED OUT 15 | RED OUT 14 | RED OUT 13 | RED OUT 12 |
| 28 | RED OUT 19 | RED OUT 18 | RED OUT 17 | RED OUT 16 |
| 27 | RED OUT 23 | RED OUT 22 | RED OUT 21 | RED OUT 20 |
| 26 | RED OUT 27 | RED OUT 26 | RED OUT 25 | RED OUT 24 |
| 25 | RED OUT 31 | RED OUT 30 | RED OUT 29 | RED OUT 28 |
| 24 | RED IN 3 | RED IN 2 | RED IN 1 | RED IN 0 |
| 23 | RED IN 7 | RED IN 6 | RED IN 5 | RED IN 4 |
| 22 | RED IN 11 | RED IN 10 | RED IN 9 | RED IN 8 |
| 21 | RED IN 15 | RED IN 14 | RED IN 13 | RED IN 12 |
| 20 | RED IN 19 | RED IN 18 | RED IN 17 | RED IN 16 |
| 19 | RED IN 23 | RED IN 22 | RED IN 21 | RED IN 20 |
| 18 | RED IN 27 | RED IN 26 | RED IN 25 | RED IN 24 |
| 17 | RED IN 31 | RED IN 30 | RED IN 29 | RED IN 28 |
| 16 | BLU OUT 3 | BLU OUT 2 | BLU OUT 1 | BLU OUT 0 |
| 15 | BLU OUT 7 | BLU OUT 6 | BLU OUT 5 | BLU OUT 4 |
| 14 | BLU OUT 11 | BLU OUT 10 | BLU OUT 9 | BLU OUT 8 |
| 13 | BLU OUT 15 | BLU OUT 14 | BLU OUT 13 | BLU OUT 12 |
| 12 | BLU OUT 19 | BLU OUT 18 | BLU OUT 17 | BLU OUT 16 |
| 11 | BLU OUT 23 | BLU OUT 22 | BLU OUT 21 | BLU OUT 20 |
| 10 | BLU OUT 27 | BLU OUT 26 | BLU OUT 25 | BLU OUT 24 |
| 9 | BLU OUT 31 | BLU OUT 30 | BLU OUT 29 | BLU OUT 28 |
| 8 | BLU IN 3 | BLU IN 2 | BLU IN 1 | BLU IN 0 |
| 7 | BLU IN 7 | BLU IN 6 | BLU IN 5 | BLU IN 4 |
| 6 | BLU IN 11 | BLU IN 10 | BLU IN 9 | BLU IN 8 |
| 5 | BLU IN 15 | BLU IN 14 | BLU IN 13 | BLU IN 12 |
| 4 | BLU IN 19 | BLU IN 18 | BLU IN 17 | BLU IN 16 |
| 3 | BLU IN 23 | BLU IN 22 | BLU IN 21 | BLU IN 20 |
| 2 | BLU IN 27 | BLU IN 26 | BLU IN 25 | BLU IN 24 |
| 1 | BLU IN 31 | BLU IN 30 | BLU IN 29 | BLU IN 28 |

CN106

| | A | B | C | D |
|---|---|---|---|---|
| 32 | GRN OUT 3 | GRN OUT 2 | GRN OUT 1 | GRN OUT 0 |
| 31 | GRN OUT 7 | GRN OUT 6 | GRN OUT 5 | GRN OUT 4 |
| 30 | GRN OUT 11 | GRN OUT 10 | GRN OUT 9 | GRN OUT 8 |
| 29 | GRN OUT 15 | GRN OUT 14 | GRN OUT 13 | GRN OUT 12 |
| 28 | GRN OUT 19 | GRN OUT 18 | GRN OUT 17 | GRN OUT 16 |
| 27 | GRN OUT 23 | GRN OUT 22 | GRN OUT 21 | GRN OUT 20 |
| 26 | GRN OUT 27 | GRN OUT 26 | GRN OUT 25 | GRN OUT 24 |
| 25 | GRN OUT 31 | GRN OUT 30 | GRN OUT 29 | GRN OUT 28 |
| 24 | GRN IN 3 | GRN IN 2 | GRN IN 1 | GRN IN 0 |
| 23 | GRN IN 7 | GRN IN 6 | GRN IN 5 | GRN IN 4 |
| 22 | GRN IN 11 | GRN IN 10 | GRN IN 9 | GRN IN 8 |
| 21 | GRN IN 15 | GRN IN 14 | GRN IN 13 | GRN IN 12 |
| 20 | GRN IN 19 | GRN IN 18 | GRN IN 17 | GRN IN 16 |
| 19 | GRN IN 23 | GRN IN 22 | GRN IN 21 | GRN IN 20 |
| 18 | GRN IN 27 | GRN IN 26 | GRN IN 25 | GRN IN 24 |
| 17 | GRN IN 31 | GRN IN 30 | GRN IN 29 | GRN IN 28 |
| 16 | START L | REFRESH L | WRITE L | PAGE MODE L |
| 15 | HEAD STATUS | RED EN | GRN EN | BLU EN |
| 14 | MEM START 0 | MEM START 1 | MEM START 2 | MEM START 3 |
| 13 | MEM SEL 0 | MEM SEL 1 | MEM SEL 2 | MEM SEL 3 |
| 12 | MA0 | MA1 | MA2 | MA3 |
| 11 | MA4 | MA5 | MA6 | MA7 |
| 10 | MA8 | MA9 | | |
| 9 | | | | |
| 8 | | | | MEM 3 CLK |
| 7 | | | | |
| 6 | | | | |
| 5 | | | | |
| 4 | | | | |
| 3 | | | | |
| 2 | | | | |
| 1 | | GND | | |

CN107

| | A | B | C |
|---|---|---|---|
| 16 | +12V | +12V | +12V |
| 15 | +5V | +5V | +5V |
| 14 | +5V | +5V | +5V |
| 13 | +5V | +5V | +5V |
| 12 | GND | GND | GND |
| 11 | GND | GND | GND |
| 10 | GND | GND | GND |
| 9 | GND | GND | GND |
| 8 | GND | GND | GND |
| 7 | GND | GND | GND |
| 6 | GND | GND | GND |
| 5 | -2V | -2V | -2V |
| 4 | -5V | -5V | -5V |
| 3 | -5V | -5V | -5V |
| 2 | -5V | -5V | -5V |
| 1 | -12V | -12V | -12V |

## 5 FM-18

CN112

| | A | B | C | D |
|---|---|---|---|---|
| 32 | RED OUT 3 | RED OUT 2 | RED OUT 1 | RED OUT 0 |
| 31 | RED OUT 7 | RED OUT 6 | RED OUT 5 | RED OUT 4 |
| 30 | RED OUT 11 | RED OUT 10 | RED OUT 9 | RED OUT 8 |
| 29 | RED OUT 15 | RED OUT 14 | RED OUT 13 | RED OUT 12 |
| 28 | RED OUT 19 | RED OUT 18 | RED OUT 17 | RED OUT 16 |
| 27 | RED OUT 23 | RED OUT 22 | RED OUT 21 | RED OUT 20 |
| 26 | RED OUT 27 | RED OUT 26 | RED OUT 25 | RED OUT 24 |
| 25 | RED OUT 31 | RED OUT 30 | RED OUT 29 | RED OUT 28 |
| 24 | RED IN 3 | RED IN 2 | RED IN 1 | RED IN 0 |
| 23 | RED IN 7 | RED IN 6 | RED IN 5 | RED IN 4 |
| 22 | RED IN 11 | RED IN 10 | RED IN 9 | RED IN 8 |
| 21 | RED IN 15 | RED IN 14 | RED IN 13 | RED IN 12 |
| 20 | RED IN 19 | RED IN 18 | RED IN 17 | RED IN 16 |
| 19 | RED IN 23 | RED IN 22 | RED IN 21 | RED IN 20 |
| 18 | RED IN 27 | RED IN 26 | RED IN 25 | RED IN 24 |
| 17 | RED IN 31 | RED IN 30 | RED IN 29 | RED IN 28 |
| 16 | BLU OUT 3 | BLU OUT 2 | BLU OUT 1 | BLU OUT 0 |
| 15 | BLU OUT 7 | BLU OUT 6 | BLU OUT 5 | BLU OUT 4 |
| 14 | BLU OUT 11 | BLU OUT 10 | BLU OUT 9 | BLU OUT 8 |
| 13 | BLU OUT 15 | BLU OUT 14 | BLU OUT 13 | BLU OUT 12 |
| 12 | BLU OUT 19 | BLU OUT 18 | BLU OUT 17 | BLU OUT 16 |
| 11 | BLU OUT 23 | BLU OUT 22 | BLU OUT 21 | BLU OUT 20 |
| 10 | BLU OUT 27 | BLU OUT 26 | BLU OUT 25 | BLU OUT 24 |
| 9 | BLU OUT 31 | BLU OUT 30 | BLU OUT 29 | BLU OUT 28 |
| 8 | BLU IN 3 | BLU IN 2 | BLU IN 1 | BLU IN 0 |
| 7 | BLU IN 7 | BLU IN 6 | BLU IN 5 | BLU IN 4 |
| 6 | BLU IN 11 | BLU IN 10 | BLU IN 9 | BLU IN 8 |
| 5 | BLU IN 15 | BLU IN 14 | BLU IN 13 | BLU IN 12 |
| 4 | BLU IN 19 | BLU IN 18 | BLU IN 17 | BLU IN 16 |
| 3 | BLU IN 23 | BLU IN 22 | BLU IN 21 | BLU IN 20 |
| 2 | BLU IN 27 | BLU IN 26 | BLU IN 25 | BLU IN 24 |
| 1 | BLU IN 31 | BLU IN 30 | BLU IN 29 | BLU IN 28 |

CN111

| | A | B | C | D |
|---|---|---|---|---|
| 32 | GRN OUT 3 | GRN OUT 2 | GRN OUT 1 | GRN OUT 0 |
| 31 | GRN OUT 7 | GRN OUT 6 | GRN OUT 5 | GRN OUT 4 |
| 30 | GRN OUT 11 | GRN OUT 10 | GRN OUT 9 | GRN OUT 8 |
| 29 | GRN OUT 15 | GRN OUT 14 | GRN OUT 13 | GRN OUT 12 |
| 28 | GRN OUT 19 | GRN OUT 18 | GRN OUT 17 | GRN OUT 16 |
| 27 | GRN OUT 23 | GRN OUT 22 | GRN OUT 21 | GRN OUT 20 |
| 26 | GRN OUT 27 | GRN OUT 26 | GRN OUT 25 | GRN OUT 24 |
| 25 | GRN OUT 31 | GRN OUT 30 | GRN OUT 29 | GRN OUT 28 |
| 24 | GRN IN 3 | GRN IN 2 | GRN IN 1 | GRN IN 0 |
| 23 | GRN IN 7 | GRN IN 6 | GRN IN 5 | GRN IN 4 |
| 22 | GRN IN 11 | GRN IN 10 | GRN IN 9 | GRN IN 8 |
| 21 | GRN IN 15 | GRN IN 14 | GRN IN 13 | GRN IN 12 |
| 20 | GRN IN 19 | GRN IN 18 | GRN IN 17 | GRN IN 16 |
| 19 | GRN IN 23 | GRN IN 22 | GRN IN 21 | GRN IN 20 |
| 18 | GRN IN 27 | GRN IN 26 | GRN IN 25 | GRN IN 24 |
| 17 | GRN IN 31 | GRN IN 30 | GRN IN 29 | GRN IN 28 |
| 16 | START L | REFRESH L | WRITE L | PAGE MODE L |
| 15 | READ STATUS | RED EN | GRN EN | BLU EN |
| 14 | MEM START 0 | MEM START 1 | MEM START 2 | MEM START 3 |
| 13 | MEM SEL 0 | MEM SEL 1 | MEM SEL 2 | MEM SEL 3 |
| 12 | MA0 | MA1 | MA2 | MA3 |
| 11 | MA4 | MA5 | MA6 | MA7 |
| 10 | MA8 | MA9 | | |
| 9 | | | | |
| 8 | | | | MEM 2 CLK |
| 7 | | | | |
| 6 | | | | |
| 5 | | | | |
| 4 | | | | |
| 3 | | | | |
| 2 | | | | |
| 1 | GND | | GND | |

CN110

| | A | B | C |
|---|---|---|---|
| 16 | +12V | +12V | +12V |
| 15 | +5V | +5V | +5V |
| 14 | +5V | +5V | +5V |
| 13 | +5V | +5V | +5V |
| 12 | GND | GND | GND |
| 11 | GND | GND | GND |
| 10 | GND | GND | GND |
| 9 | GND | GND | GND |
| 8 | GND | GND | GND |
| 7 | GND | GND | GND |
| 6 | GND | GND | GND |
| 5 | -2V | -2V | -2V |
| 4 | -5V | -5V | -5V |
| 3 | -5V | -5V | -5V |
| 2 | -5V | -5V | -5V |
| 1 | -12V | -12V | -12V |

**MB-253 BOARD (1/2)**
SIGNAL TABLE
BOARD NO. 1-629-302-11
HDDF-500 (J) :#10001-
HDDF-500 (CE) :#10001-
HDDF-500 (EK) :#10001-

**MB-253 BOARD (2/5)**
Signal Table (2/2)

## 4 FM-18

CN115

| | A | B | C | D |
|---|---|---|---|---|
| 32 | RED OUT 3 | RED OUT 2 | RED OUT 1 | RED OUT 0 |
| 31 | RED OUT 7 | RED OUT 6 | RED OUT 5 | RED OUT 4 |
| 30 | RED OUT 11 | RED OUT 10 | RED OUT 9 | RED OUT 8 |
| 29 | RED OUT 15 | RED OUT 14 | RED OUT 13 | RED OUT 12 |
| 28 | RED OUT 19 | RED OUT 18 | RED OUT 17 | RED OUT 16 |
| 27 | RED OUT 23 | RED OUT 22 | RED OUT 21 | RED OUT 20 |
| 26 | RED OUT 27 | RED OUT 26 | RED OUT 25 | RED OUT 24 |
| 25 | RED OUT 31 | RED OUT 30 | RED OUT 29 | RED OUT 28 |
| 24 | RED IN 3 | RED IN 2 | RED IN 1 | RED IN 0 |
| 23 | RED IN 7 | RED IN 6 | RED IN 5 | RED IN 4 |
| 22 | RED IN 11 | RED IN 10 | RED IN 9 | RED IN 8 |
| 21 | RED IN 15 | RED IN 14 | RED IN 13 | RED IN 12 |
| 20 | RED IN 19 | RED IN 18 | RED IN 17 | RED IN 16 |
| 19 | RED IN 23 | RED IN 22 | RED IN 21 | RED IN 20 |
| 18 | RED IN 27 | RED IN 26 | RED IN 25 | RED IN 24 |
| 17 | RED IN 31 | RED IN 30 | RED IN 29 | RED IN 28 |
| 16 | BLU OUT 3 | BLU OUT 2 | BLU OUT 1 | BLU OUT 0 |
| 15 | BLU OUT 7 | BLU OUT 6 | BLU OUT 5 | BLU OUT 4 |
| 14 | BLU OUT 11 | BLU OUT 10 | BLU OUT 9 | BLU OUT 8 |
| 13 | BLU OUT 15 | BLU OUT 14 | BLU OUT 13 | BLU OUT 12 |
| 12 | BLU OUT 19 | BLU OUT 18 | BLU OUT 17 | BLU OUT 16 |
| 11 | BLU OUT 23 | BLU OUT 22 | BLU OUT 21 | BLU OUT 20 |
| 10 | BLU OUT 27 | BLU OUT 26 | BLU OUT 25 | BLU OUT 24 |
| 9 | BLU OUT 31 | BLU OUT 30 | BLU OUT 29 | BLU OUT 28 |
| 8 | BLU IN 3 | BLU IN 2 | BLU IN 1 | BLU IN 0 |
| 7 | BLU IN 7 | BLU IN 6 | BLU IN 5 | BLU IN 4 |
| 6 | BLU IN 11 | BLU IN 10 | BLU IN 9 | BLU IN 8 |
| 5 | BLU IN 15 | BLU IN 14 | BLU IN 13 | BLU IN 12 |
| 4 | BLU IN 19 | BLU IN 18 | BLU IN 17 | BLU IN 16 |
| 3 | BLU IN 23 | BLU IN 22 | BLU IN 21 | BLU IN 20 |
| 2 | BLU IN 27 | BLU IN 26 | BLU IN 25 | BLU IN 24 |
| 1 | BLU IN 31 | BLU IN 30 | BLU IN 29 | BLU IN 28 |

CN114

| | A | B | C | D |
|---|---|---|---|---|
| 32 | GRN OUT 3 | GRN OUT 2 | GRN OUT 1 | GRN OUT 0 |
| 31 | GRN OUT 7 | GRN OUT 6 | GRN OUT 5 | GRN OUT 4 |
| 30 | GRN OUT 11 | GRN OUT 10 | GRN OUT 9 | GRN OUT 8 |
| 29 | GRN OUT 15 | GRN OUT 14 | GRN OUT 13 | GRN OUT 12 |
| 28 | GRN OUT 19 | GRN OUT 18 | GRN OUT 17 | GRN OUT 16 |
| 27 | GRN OUT 23 | GRN OUT 22 | GRN OUT 21 | GRN OUT 20 |
| 26 | GRN OUT 27 | GRN OUT 26 | GRB OUT 25 | GRN OUT 24 |
| 25 | GRN OUT 31 | GRN OUT 30 | GRN OUT 29 | GRN OUT 28 |
| 24 | GRN IN 3 | GRN IN 2 | GRN IN 1 | GRN IN 0 |
| 23 | GRN IN 7 | GRN IN 6 | GRN IN 5 | GRN IN 4 |
| 22 | GRN IN 11 | GRN IN 10 | GRN IN 9 | GRN IN 8 |
| 21 | GRN IN 15 | GRN IN 14 | GRN IN 13 | GRN IN 12 |
| 20 | GRN IN 19 | GRN IN 18 | GRN IN 17 | GRN IN 16 |
| 19 | GRN IN 23 | GRN IN 22 | GRN IN 21 | GRN IN 20 |
| 18 | GRN IN 27 | GRN IN 26 | GRN IN 25 | GRN IN 24 |
| 17 | GRN IN 31 | GRN IN 30 | GRN IN 29 | GRN IN 28 |
| 16 | START L | REFRESH L | WRITE L | PAGE MODE L |
| 15 | READ STATUS | RED EN | GRN EN | BLU EN |
| 14 | MEM START 0 | MEM START 1 | MEM START 2 | MEM START 3 |
| 13 | MEM SEL 0 | MEM SEL 1 | MEM SEL 2 | MEM SEL 3 |
| 12 | MA0 | MA1 | MA2 | MA3 |
| 11 | MA4 | MA5 | MA6 | MA7 |
| 10 | MA8 | MA9 | | |
| 9 | | | | |
| 8 | | | | MEM 1 CLK |
| 7 | | | | |
| 6 | | | | |
| 5 | | | | |
| 4 | | | | |
| 3 | | | | |
| 2 | | | | |
| 1 | | GND | GND | |

CN113

| | A | B | C |
|---|---|---|---|
| 16 | +12V | +12V | +12V |
| 15 | +5V | +5V | +5V |
| 14 | +5V | +5V | +5V |
| 13 | +5V | +5V | +5V |
| 12 | GND | GND | GND |
| 11 | GND | GND | GND |
| 10 | GND | GND | GND |
| 9 | GND | GND | GND |
| 8 | GND | GND | GND |
| 7 | GND | GND | GND |
| 6 | GND | GND | GND |
| 5 | -2V | -2V | -2V |
| 4 | -5V | -5V | -5V |
| 3 | -5V | -5V | -5V |
| 2 | -5V | -5V | -5V |
| 1 | -12V | -12V | -12V |

## 3 FM-18

CN118

| | A | B | C | D |
|---|---|---|---|---|
| 32 | RED OUT 3 | RED OUT 2 | RED OUT 1 | RED OUT 0 |
| 31 | RED OUT 7 | RED OUT 6 | RED OUT 5 | RED OUT 4 |
| 30 | RED OUT 11 | RED OUT 10 | RED OUT 9 | RED OUT 8 |
| 29 | RED OUT 15 | RED OUT 14 | RED OUT 13 | RED OUT 12 |
| 28 | RED OUT 19 | RED OUT 18 | RED OUT 17 | RED OUT 16 |
| 27 | RED OUT 23 | RED OUT 22 | RED OUT 21 | RED OUT 20 |
| 26 | RED OUT 27 | RED OUT 26 | RED OUT 25 | RED OUT 24 |
| 25 | RED OUT 31 | RED OUT 30 | RED OUT 29 | RED OUT 28 |
| 24 | RED IN 3 | RED IN 2 | RED IN 1 | RED IN 0 |
| 23 | RED IN 7 | RED IN 6 | RED IN 5 | RED IN 4 |
| 22 | RED IN 11 | RED IN 10 | RED IN 9 | RED IN 8 |
| 21 | RED IN 15 | RED IN 14 | RED IN 13 | RED IN 12 |
| 20 | RED IN 19 | RED IN 18 | RED IN 17 | RED IN 16 |
| 19 | RED IN 23 | RED IN 22 | RED IN 21 | RED IN 20 |
| 18 | RED IN 27 | RED IN 26 | RED IN 25 | RED IN 24 |
| 17 | RED IN 31 | RED IN 30 | RED IN 29 | RED IN 28 |
| 16 | BLU OUT 3 | BLU OUT 2 | BLU OUT 1 | BLU OUT 0 |
| 15 | BLU OUT 7 | BLU OUT 6 | BLU OUT 5 | BLU OUT 4 |
| 14 | BLU OUT 11 | BLU OUT 10 | BLU OUT 9 | BLU OUT 8 |
| 13 | BLU OUT 15 | BLU OUT 14 | BLU OUT 13 | BLU OUT 12 |
| 12 | BLU OUT 19 | BLU OUT 18 | BLU OUT 17 | BLU OUT 16 |
| 11 | BLU OUT 23 | BLU OUT 22 | BLU OUT 21 | BLU OUT 20 |
| 10 | BLU OUT 27 | BLU OUT 26 | BLU OUT 25 | BLU OUT 24 |
| 9 | BLU OUT 31 | BLU OUT 30 | BLU OUT 29 | BLU OUT 28 |
| 8 | BLU IN 3 | BLU IN 2 | BLU IN 1 | BLU IN 0 |
| 7 | BLU IN 7 | BLU IN 6 | BLU IN 5 | BLU IN 4 |
| 6 | BLU IN 11 | BLU IN 10 | BLU IN 9 | BLU IN 8 |
| 5 | BLU IN 15 | BLU IN 14 | BLU IN 13 | BLU IN 12 |
| 4 | BLU IN 19 | BLU IN 18 | BLU IN 17 | BLU IN 16 |
| 3 | BLU IN 23 | BLU IN 22 | BLU IN 21 | BLU IN 20 |
| 2 | BLU IN 27 | BLU IN 26 | BLU IN 25 | BLU IN 24 |
| 1 | BLU IN 31 | BLU IN 30 | BLU IN 29 | BLU IN 28 |

CN117

| | A | B | C | D |
|---|---|---|---|---|
| 32 | GRN OUT 3 | GRN OUT 2 | GRN OUT 1 | GRN OUT 0 |
| 31 | GRN OUT 7 | GRN OUT 6 | GRN OUT 5 | GRN OUT 4 |
| 30 | GRN OUT 11 | GRN OUT 10 | GRN OUT 9 | GRN OUT 8 |
| 29 | GRN OUT 15 | GRN OUT 14 | GRN OUT 13 | GRN OUT 12 |
| 28 | GRN OUT 19 | GRN OUT 18 | GRN OUT 17 | GRN OUT 16 |
| 27 | GRN OUT 23 | GRN OUT 22 | GRN OUT 21 | GRN OUT 20 |
| 26 | GRN OUT 27 | GRN OUT 26 | GRB OUT 25 | GRN OUT 24 |
| 25 | GRN OUT 31 | GRN OUT 30 | GRN OUT 29 | GRN OUT 28 |
| 24 | GRN IN 3 | GRN IN 2 | GRN IN 1 | GRN IN 0 |
| 23 | GRN IN 7 | GRN IN 6 | GRN IN 5 | GRN IN 4 |
| 22 | GRN IN 11 | GRN IN 10 | GRN IN 9 | GRN IN 8 |
| 21 | GRN IN 15 | GRN IN 14 | GRN IN 13 | GRN IN 12 |
| 20 | GRN IN 19 | GRN IN 18 | GRN IN 17 | GRN IN 16 |
| 19 | GRN IN 23 | GRN IN 22 | GRN IN 21 | GRN IN 20 |
| 18 | GRN IN 27 | GRN IN 26 | GRN IN 25 | GRN IN 24 |
| 17 | GRN IN 31 | GRN IN 30 | GRN IN 29 | GRN IN 28 |
| 16 | START L | REFRESH L | WRITE L | PAGE MODE L |
| 15 | READ STATUS | RED EN | GRN EN | BLU EN |
| 14 | MEM START 0 | MEM START 1 | MEM START 2 | MEM START 3 |
| 13 | MEM SEL 0 | MEM SEL 1 | MEM SEL 2 | MEM SEL 3 |
| 12 | MA0 | MA1 | MA2 | MA3 |
| 11 | MA4 | MA5 | MA6 | MA7 |
| 10 | MA8 | MA9 | | |
| 9 | | | | |
| 8 | | | | MEM 0 CLK |
| 7 | | | | |
| 6 | | | | |
| 5 | | | | |
| 4 | | | | |
| 3 | | | | |
| 2 | | | | |
| 1 | GND | GND | GND | |

CN116

| | A | B | C |
|---|---|---|---|
| 16 | +12V | +12V | +12V |
| 15 | +5V | +5V | +5V |
| 14 | +5V | +5V | +5V |
| 13 | +5V | +5V | +5V |
| 12 | GND | GND | GND |
| 11 | GND | GND | GND |
| 10 | GND | GND | GND |
| 9 | GND | GND | GND |
| 8 | GND | GND | GND |
| 7 | GND | GND | GND |
| 6 | GND | GND | GND |
| 5 | -2V | -2V | -2V |
| 4 | -5V | -5V | -5V |
| 3 | -5V | -5V | -5V |
| 2 | -5V | -5V | -5V |
| 1 | -12V | -12V | -12V |

## 2 AD-45

CN121

| | A | B | C | D |
|---|---|---|---|---|
| 32 | RED IN DATA 0 | RED IN DATA 0 RET | RED IN DATA 1 | RED IN DATA 1 RET |
| 31 | | | RED IN DATA 2 | RED IN DATA 2 RET |
| 30 | | | RED IN DATA 3 | RED IN DATA 3 RET |
| 29 | | | RED IN DATA 4 | RED IN DATA 4 RET |
| 28 | | | RED IN DATA 5 | RED IN DATA 5 RET |
| 27 | | | RED IN DATA 6 | RED IN DATA 6 RET |
| 26 | | | RED IN DATA 7 | RED IN DATA 7 RET |
| 25 | RED IN CLK | RED IN CLOCK RET | RED IN SYSTEM GND 2 | RED IN SYSTEM GND 1 |
| 24 | RED IN 3 | RED IN 2 | RED IN 1 | RED IN 0 |
| 23 | RED IN 7 | RED IN 6 | RED IN 5 | RED IN 4 |
| 22 | RED IN 11 | RED IN 10 | RED IN 9 | RED IN 8 |
| 21 | RED IN 15 | RED IN 14 | RED IN 13 | RED IN 12 |
| 20 | RED IN 19 | RED IN 18 | RED IN 17 | RED IN 16 |
| 19 | RED IN 23 | RED IN 22 | RED IN 21 | RED IN 20 |
| 18 | RED IN 27 | RED IN 24 | RED IN 25 | RED IN 24 |
| 17 | RED IN 31 | RED IN 30 | RED IN 29 | RED IN 28 |
| 16 | BLU IN DATA 0 | BLU IN DATA 0 RET | BLU IN DATA 1 | BLU IN DATA 1 RET |
| 15 | | | BLU IN DATA 2 | BLU IN DATA 2 RET |
| 14 | | | BLU IN DATA 3 | BLU IN DATA 3 RET |
| 13 | | | BLU IN DATA 4 | BLU IN DATA 4 RET |
| 12 | | | BLU IN DATA 5 | BLU IN DATA 5 RET |
| 11 | | | BLU IN DATA 6 | BLU IN DATA 6 RET |
| 10 | | | BLU IN DATA 7 | BLU IN DATA 7 RET |
| 9 | BLU IN CLOCK | BLU IN CLOCK RET | BLU IN SYSTEM GND 2 | BLU IN SYSTEM GND 1 |
| 8 | BLU IN 3 | BLU IN 2 | BLU IN 1 | BLU IN 0 |
| 7 | BLU IN 7 | BLU IN 6 | BLU IN 5 | BLU IN 4 |
| 6 | BLU IN 11 | BLU IN 10 | BLU IN 9 | BLU IN 8 |
| 5 | BLU IN 15 | BLU IN 14 | BLU IN 13 | BLU IN 12 |
| 4 | BLU IN 19 | BLU IN 18 | BLU IN 17 | BLU IN 16 |
| 3 | BLU IN 23 | BLU IN 22 | BLU IN 21 | BLU IN 20 |
| 2 | BLU IN 27 | BLU IN 26 | BLU IN 25 | BLU IN 24 |
| 1 | BLU IN 31 | BLU IN 30 | BLU IN 29 | BLU IN 28 |

CN120

| | A | B | C | D |
|---|---|---|---|---|
| 32 | GRN IN DATA 0 | GRN IN DATA 0 RET | GRN IN DATA 1 | GRN IN DATA 1 RET |
| 31 | | | GRN IN DATA 2 | GRN IN DATA 2 RET |
| 30 | | | GRN IN DATA 3 | GRN IN DATA 3 RET |
| 29 | | | GRN IN DATA 4 | GRN IN DATA 4 RET |
| 28 | | | GRN IN DATA 5 | GRN IN DATA 5 RET |
| 27 | | | GRN IN DATA 6 | GRN IN DATA 6 RET |
| 26 | | | GRN IN DATA 7 | GRN IN DATA 7 RET |
| 25 | GRN IN CLOCK | GRN IN CLOCK RET | GRN IN SYSTEM GND 2 | GRN IN SYSTEM GND 1 |
| 24 | GRN IN 3 | GRN IN 2 | GRN IN 1 | GRN IN 0 |
| 23 | GRN IN 7 | GRN IN 6 | GRN IN 5 | GRN IN 4 |
| 22 | GRN IN 11 | GRN IN 10 | GRN IN 9 | GRN IN 8 |
| 21 | GRN IN 15 | GRN IN 14 | GRN IN 13 | GRN IN 12 |
| 20 | GRN IN 19 | GRN IN 18 | GRN IN 17 | GRN IN 16 |
| 19 | GRN IN 23 | GRN IN 22 | GRN IN 21 | GRN IN 20 |
| 18 | GRN IN 27 | GRN IN 26 | GRN IN 25 | GRN IN 24 |
| 17 | GRN IN 31 | GRN IN 30 | GRN IN 29 | GRN IN 28 |
| 16 | | | | |
| 15 | | | | |
| 14 | | | | |
| 13 | | | | |
| 12 | | | | |
| 11 | | | | |
| 10 | | | | |
| 9 | +DIG CLK | -DIG CLK | +DIG HDR | -DIG HDR |
| 8 | | | +DIG VERT | -DIG VERT |
| 7 | | | -DIG FLD 2 | +DIG FLD 2 |
| 6 | | | INPUT SPARE 1 | COMP SYNC |
| 5 | | | IN BUS CLK L | |
| 4 | | | VIDEO EN | REF SYNC SEL L |
| 3 | | | +IN CLK LD | -IN CLK LD |
| 2 | | REF INPUT VIDEO RET | +DIG SEL | -DIG SEL |
| 1 | REF INPUT VIDEO | | +IN CLK | -IN CLK |

CN119

| | A | B | C |
|---|---|---|---|
| 16 | +12V | +12V | +12V |
| 15 | +5V | +5V | +5V |
| 14 | +5V | +5V | +5V |
| 13 | +5V | +5V | +5V |
| 12 | GND | GND | GND |
| 11 | GND | GND | GND |
| 10 | GND | GND | GND |
| 9 | GND | GND | GND |
| 8 | GND | GND | GND |
| 7 | GND | GND | GND |
| 6 | GND | GND | GND |
| 5 | -2V | -2V | -2V |
| 4 | -5V | -5V | -5V |
| 3 | -5V | -5V | -5V |
| 2 | -5V | -5V | -5V |
| 1 | -12V | -12V | -12V |

R DIGITAL INPUT
CN135 ICN-410 BOARD

| | | | |
|---|---|---|---|
| 20 | RED IN DATA 0 RET | RED IN DATA 0 | 19 |
| 18 | RED IN DATA 1 RET | RED IN DATA 1 | 17 |
| 16 | RED IN DATA 2 RET | RED IN DATA 2 | 15 |
| 14 | RED IN DATA 3 RET | RED IN DATA 3 | 13 |
| 12 | RED IN DATA 4 RET | RED IN DATA 4 | 11 |
| 10 | RED IN DATA 5 RET | RED IN DATA 5 | 9 |
| 8 | RED IN DATA 6 RET | RED IN DATA 6 | 7 |
| 6 | RED IN DATA 7 RET | RED IN DATA 7 | 5 |
| 4 | RED IN SYSTEM GND 1 | RED IN SYSTEM GND 2 | 3 |
| 2 | RED IN CLOCK RET | RED IN CLOCK | 1 |

B DIGITAL INPUT
CN134 ICN-410 BOARD

| | | | |
|---|---|---|---|
| 20 | BLU IN DATA 0 RET | BLU IN DATA 0 | 19 |
| 18 | BLU IN DATA 1 RET | BLU IN DATA 1 | 17 |
| 16 | BLU IN DATA 2 RET | BLU IN DATA 2 | 15 |
| 14 | BLU IN DATA 3 RET | BLU IN DATA 3 | 13 |
| 12 | BLU IN DATA 4 RET | BLU IN DATA 4 | 11 |
| 10 | BLU IN DATA 5 RET | BLU IN DATA 5 | 9 |
| 8 | BLU IN DATA 6 RET | BLU IN DATA 6 | 7 |
| 6 | BLU IN DATA 7 RET | BLU IN DATA 7 | 5 |
| 4 | BLU IN SYSTEM GND 1 | BLU IN SYSTEM GND 2 | 3 |
| 2 | BLU IN CLOCK RET | BLU IN CLOCK | 1 |

G DIGITAL INPUT
CN133 ICN-410 BOARD

| | | | |
|---|---|---|---|
| 20 | GRN IN DATA 0 RET | GRN IN DATA 0 | 19 |
| 18 | GRN IN DATA 1 RET | GRN IN DATA 1 | 17 |
| 16 | GRN IN DATA 2 RET | GRN IN DATA 2 | 15 |
| 14 | GRN IN DATA 3 RET | GRN IN DATA 3 | 13 |
| 12 | GRN IN DATA 4 RET | GRN IN DATA 4 | 11 |
| 10 | GRN IN DATA 5 RET | GRN IN DATA 5 | 9 |
| 8 | GRN IN DATA 6 RET | GRN IN DATA 6 | 7 |
| 6 | GRN IN DATA 7 RET | GRN IN DATA 7 | 5 |
| 4 | GRN IN SYSTEM GND 1 | GRN IN SYSTEM GND 2 | 3 |
| 2 | GRN IN CLOCK RET | GRN IN CLOCK | 1 |

CN131
(TO RP-42 BOARD)
ⓞ REF INPUT VIDEO

CN132
(TO DP-104 BOARD)

| | | | |
|---|---|---|---|
| 19 | SPARE 1 | REMOTE 2 | 1 |
| 17 | +12V | GEN LOCK GREEN | 3 |
| 15 | - | FRAME | 5 |
| 13 | GND | SIGNAL | 7 |
| 11 | TEST | FIELD | 9 |
| 9 | NORMAL | VIDEO | 11 |
| 7 | ANALOG | REC INHIB | 13 |
| 5 | DIGITAL | REMOTE 3 | 15 |
| 3 | SINGLE | REMOTE 1 | 17 |
| 1 | SPARE 2 | | 19 |

## 1 SY-149

CN124

| | A | B | C | D |
|---|---|---|---|---|
| 32 | | | | |
| 31 | | | | |
| 30 | | | | |
| 29 | | | | |
| 28 | | | | |
| 27 | | | | |
| 26 | | | | |
| 25 | | | | |
| 24 | | | | |
| 23 | | | | |
| 22 | | | | |
| 21 | | | | |
| 20 | | | | |
| 19 | | | | |
| 18 | | | | |
| 17 | | | | |
| 16 | | | | |
| 15 | | | | |
| 14 | | | | |
| 13 | | | | |
| 12 | | | | |
| 11 | | | | |
| 10 | | | | |
| 9 | | | | |
| 8 | | | | |
| 7 | | | | |
| 6 | | | | REMOTE 1 |
| 5 | | | REMOTE 3 | REMOTE 2 |
| 4 | | | REC INHIB | GEN LOCK GREEN |
| 3 | | | FIELD | FRAME |
| 2 | | | ANALOG | DIGITAL |
| 1 | | TEST | NORMAL | SINGLE |

CN123

| | A | B | C | D |
|---|---|---|---|---|
| 32 | | | DIAG OUT | DIAG IN |
| 31 | | | | GND 5 |
| 30 | | | MB REMOTE 2 IN- | MB REMOTE 2 IN+ |
| 29 | | | GND 4 | GND 3 |
| 28 | | | MB REMOTE 2 OUT- | MB REMOTE 2 OUT+ |
| 27 | | | MB REMOTE 1 IN- | MB REMOTE 1 IN+ |
| 26 | | | GND 2 | GND 1 |
| 25 | | | MB REMOTE 2 OUT- | MB REMOTE 1 OUT+ |
| 24 | OUTPUT + SPARE 2 | OUTPUT - SPARE 2 | +VIDEO BLK | -VIDEO BLK |
| 23 | +SEG 1 | -SEG 1 | +SEG 0 | -SEG 0 |
| 22 | +ST EDGE | -ST EDGE | +SEG 2 | -SEG 2 |
| 21 | +OUT CLK | -OUT CLK | +OUT CLK LD | -OUT CLK LD |
| 20 | +DIG H OUT | -DIG H OUT | +ST HALF LN | -ST HALF LN |
| 19 | +DIG F OUT | -DIG F OUT | +DIG V OUT | -DIG V OUT |
| 18 | +DWN LD | -DWN LD | +DWN LD CLK | +DWN LD CLK |
| 17 | +DWN LD DATA | -DWN LD DATA | +DWN LD EN | -DWN LD EN |
| 16 | START L | REFRESH L | WRITE L | PAGE MODE L |
| 15 | READ STATUS | RED EN | GRN EN | BLU EN |
| 14 | MEM START 0 | MEM START 1 | MEM START 2 | MEM START 3 |
| 13 | MEM SEL 0 | MEM SEL 1 | MEM SEL 2 | MEM SEL 3 |
| 12 | MA0 | MA1 | MA2 | MA3 |
| 11 | MA4 | MA5 | MA6 | MA7 |
| 10 | MA8 | MA9 | MEM 3 CLK | MEM 2 CLK |
| 9 | MEM 1 CLK | MEM 0 CLK | OUTPUT + SPARE 1 | OUTPUT - SPARE 1 |
| 8 | +DIG CLK | -DIG CLK | +DIG HDR | -DIG HDR |
| 7 | +DIG FLD 2 | -DIG FLD 2 | +DIG VERT | -DIG VERT |
| 6 | IN BUS CLK L | OUT BUS CLK L | | COMP SYNC |
| 5 | +IN CLK LD | -IN CLK LD | VIDEO EN | REF SYNC SEL L |
| 4 | +IN CLK | -IN CLK | +DIG SEL | -DIG SEL |
| 3 | SI | MF I/FD CLK | MF I/FD CLK | CLK GND A |
| 2 | SO | RESET CTRL BD L | CLK GND C | VIDEO CLK |
| 1 | VIDEO OUT EN L | HF BUF L | EFBUF L | DONE FIFO |

CN122

| | A | B | C |
|---|---|---|---|
| 16 | +12V | +12V | +12V |
| 15 | +5V | +5V | +5V |
| 14 | +5V | +5V | +5V |
| 13 | +5V | +5V | +5V |
| 12 | GND | GND | GND |
| 11 | GND | GND | GND |
| 10 | GND | GND | GND |
| 9 | GND | GND | GND |
| 8 | GND | GND | GND |
| 7 | GND | GND | GND |
| 6 | GND | GND | GND |
| 5 | -2V | -2V | -2V |
| 4 | -5V | -5V | -5V |
| 3 | -5V | -5V | -5V |
| 2 | -5V | -5V | -5V |
| 1 | -12V | -12V | -12V |

CN137
(TO RP-42 BOARD)

| | B | A |
|---|---|---|
| 8 | DIAG IN | DIAG OUT |
| 7 | GND 5 | |
| 6 | MB REMOTE2 IN+ | MB REMOTE2 IN- |
| 5 | GND 4 | GND 3 |
| 4 | MB REMOTE2 OUT+ | MB REMOTE2 OUT- |
| 3 | MB REMOTE1 IN+ | MB REMOTE1 IN- |
| 2 | GND 1 | GND 2 |
| 1 | MB REMOTE 1 OUT+ | MB REMOTE1 OUT- |

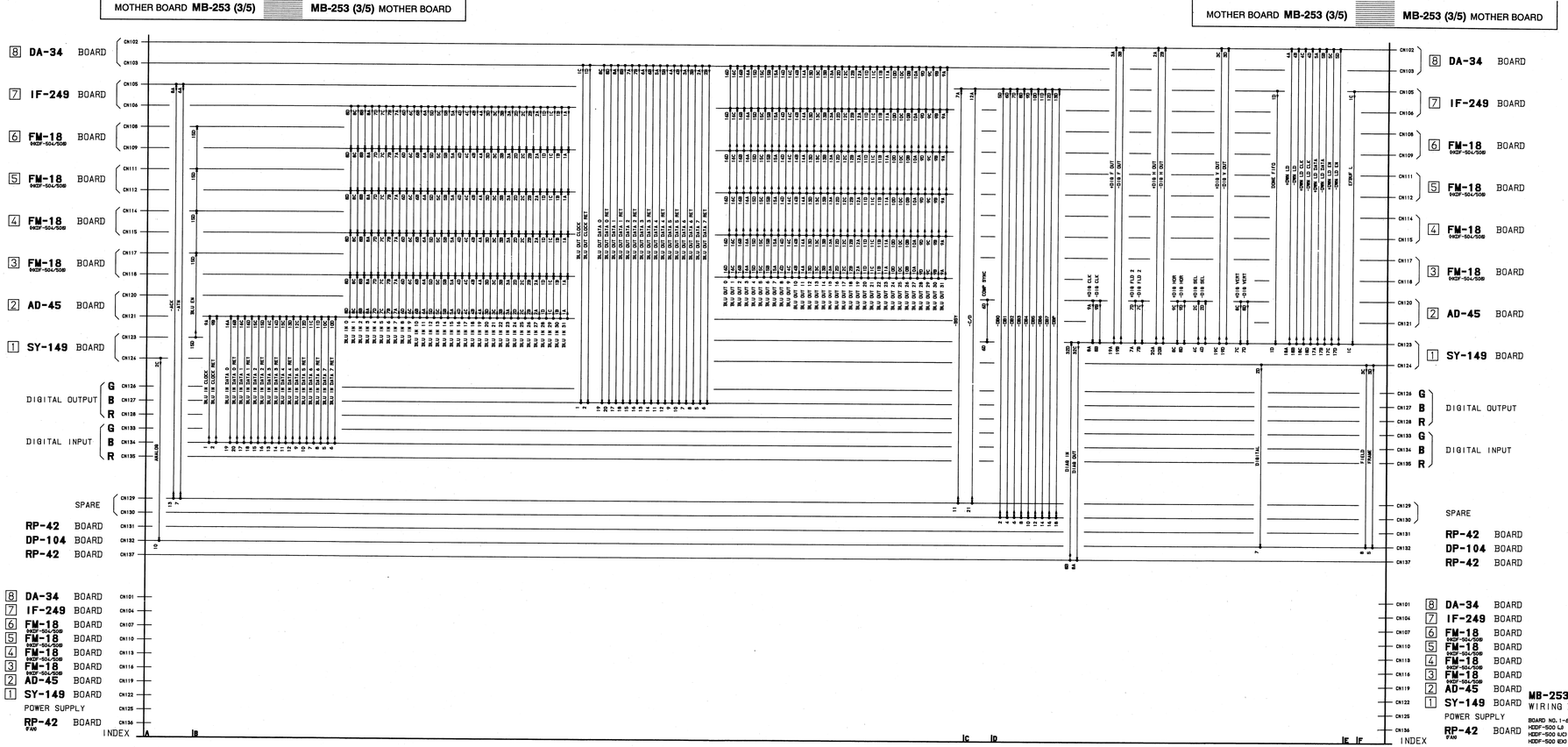
CN136
(TO RP-42 BOARD)

| | |
|---|---|
| 6 | GND |
| 5 | +12V |
| 4 | GND |
| 3 | -12V |
| 2 | GND |
| 1 | -12V |

**MB-253 BOARD (2/2)**
SIGNAL TABLE

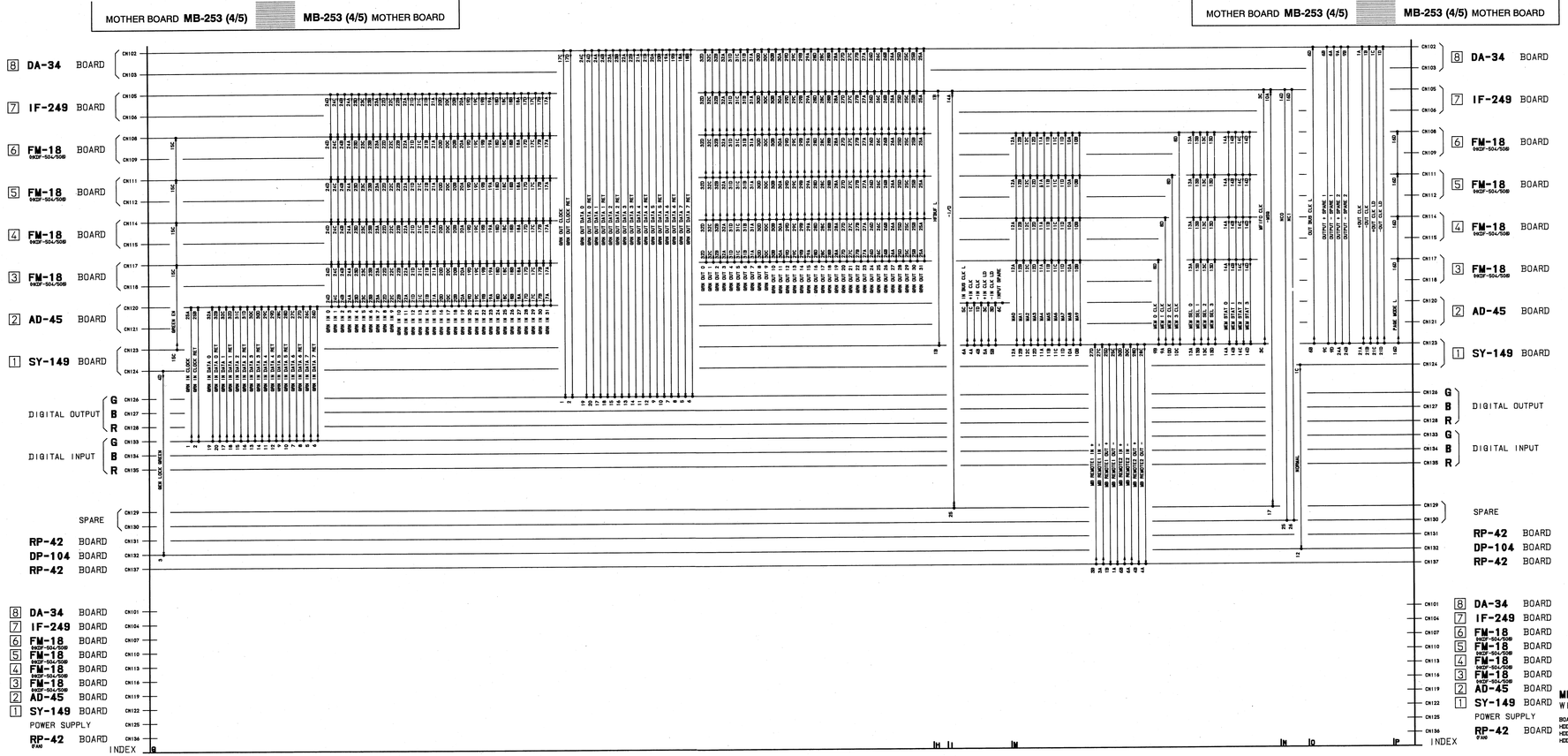
BOARD NO. 1-629-302-11
HDDF-500 (J) :#10001-
HDDF-500 (UC) :#10001-
HDDF-500 (EK) :#10001-

**MB-253 BOARD (3/5)**
Wiring Diagram (1/3)




B-137 B-138 B-139 B-140

**MB-253 BOARD (4/5)**
Wiring Diagram (2/3)




**MB-253 BOARD (2/3)**
WIRING DIAGRAM

BOARD NO. 1-629-302-11
HDDF-500 LJ : #10001-
HDDF-500 UJC : #10001-
HDDF-500 EJC : #10001-

**MB-253 BOARD (5/5)**
Wiring Diagram (3/3)

MOTHER BOARD **MB-253 (5/5)** | **MB-253 (5/5)** MOTHER BOARD

8 **DA-34** BOARD
7 **IF-249** BOARD
6 **FM-18** 9KDF-504/508 BOARD
5 **FM-18** 9KDF-504/508 BOARD
4 **FM-18** 9KDF-504/508 BOARD
3 **FM-18** 9KDF-504/508 BOARD
2 **AD-45** BOARD
1 **SY-149** BOARD
DIGITAL OUTPUT G B R
DIGITAL INPUT G B R
SPARE
**RP-42** BOARD
**DP-104** BOARD
**RP-42** BOARD
8 **DA-34** BOARD
7 **IF-249** BOARD
6 **FM-18** 9KDF-504/508 BOARD
5 **FM-18** 9KDF-504/508 BOARD
4 **FM-18** 9KDF-504/508 BOARD
3 **FM-18** 9KDF-504/508 BOARD
2 **AD-45** BOARD
1 **SY-149** BOARD
POWER SUPPLY
**RP-42** BOARD
INDEX

MOTHER BOARD **MB-253 (5/5)** | **MB-253 (5/5)** MOTHER BOARD

8 **DA-34** BOARD
7 **IF-249** BOARD
6 **FM-18** 9KDF-504/508 BOARD
5 **FM-18** 9KDF-504/508 BOARD
4 **FM-18** 9KDF-504/508 BOARD
3 **FM-18** 9KDF-504/508 BOARD
2 **AD-45** BOARD
1 **SY-149** BOARD
DIGITAL OUTPUT G B R
DIGITAL INPUT G B R
SPARE
**RP-42** BOARD
**DP-104** BOARD
**RP-42** BOARD
8 **DA-34** BOARD
7 **IF-249** BOARD
6 **FM-18** 9KDF-504/508 BOARD
5 **FM-18** 9KDF-504/508 BOARD
4 **FM-18** 9KDF-504/508 BOARD
3 **FM-18** 9KDF-504/508 BOARD
2 **AD-45** BOARD
1 **SY-149** BOARD
POWER SUPPLY
**RP-42** BOARD
INDEX

**MB-253 BOARD (3/3)**
WIRING DIAGRAM

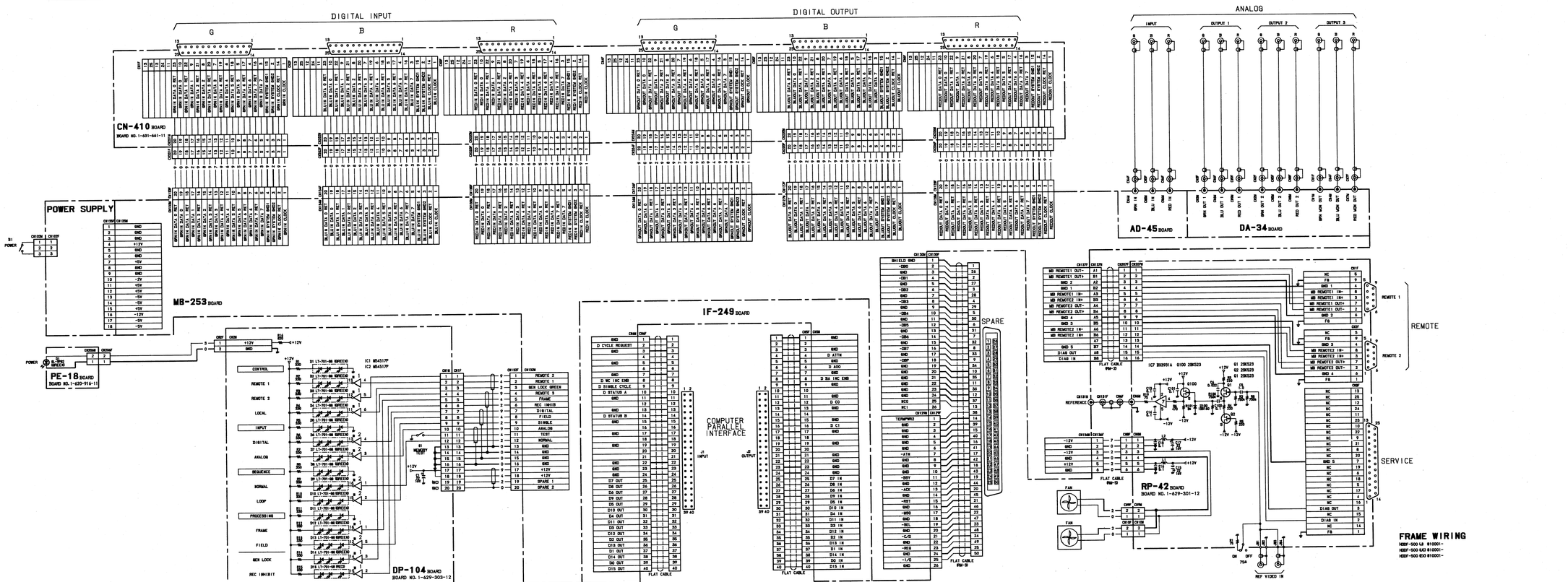
BOARD NO. 1-629-302-11
9KDF-500 L/S : #10001-
9KDF-500 9JK1 : #10001-
9KDF-500 9DK1 : #10001-

B-153 B-154 B-155 B-156

CN-410, DP-104, PE-18, RP-42 **FRAME WIRING** **FRAME WIRING** CN-410, DP-104, PE-18, RP-42

## FRAME WIRING

**CN-410** ; Connector Panel Board
**DP-104** ; Display Panel Board
**PE-18** ; Power Lamp
**RP-42** ; Rear Panel Board

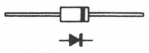


# SECTION C
# SEMICONDUCTOR PIN ASSIGNMENTS

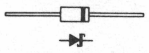
この章の図の中には互換性のないダイオード，トランジスタ，ICが併記されていることがあります。部品を交換するときには必ず部品表を参照してください。
等価回路はICメーカーのData Bookに従いました。

The chart in this section may sometimes show diodes, transistors, and ICs that are not interchangeable. When replacing a component, be sure to refer to the parts list. The circuit diagram of each IC is obtained from the IC data book published by the manufacturer.


| TYPE | PAGE |
|---|---|
| 10E-2 | C-2 |
| 1SS106 | C-2 |
| 1SS119 | C-2 |
| 1SS120 | C-2 |
| 2SA1175 | C-2 |
| 2SA733 | C-2 |
| 2SK523 | C-2 |
| 74AC157PC | C-3 |
| 74AC163PC | C-3 |
| 74AC240PC | C-3 |
| 74AC244PC | C-3 |
| 74AC253PC | C-4 |
| 74AC374PC | C-4 |
| 74ACT257PC | C-4 |
| 74ACT374PC | C-4 |
| BX1244A | C-4 |
| BX3930 | C-4 |
| BX3931A | C-4 |
| CX20116 | C-5 |
| CX20202A-2 | C-5 |
| CXK1005P | C-6 |
| CXK58256P-12LL | C-6 |
| CXK58257P-12LL | C-7 |
| CY7C291L-35PC | C-7 |
| GL-6R202 | C-2 |
| HD-1B | C-8 |
| IDT7201SA-35P | C-8 |
| LD-701GG | C-2 |
| LD-701UR | C-2 |
| LM319N | C-8 |
| LT1033CK | C-8 |
| LT1081CN | C-8 |
| M54517P | C-8 |
| MBM10422A-7 | C-9 |
| MBM10474A-7 | C-9 |
| MBM27C256A-25 | C-10 |
| MC10H101L | C-10 |
| MC10H102L | C-10 |
| MC10H104L | C-10 |
| MC10H105L | C-10 |
| MC10H113L | C-10 |
| MC10H115L | C-11 |
| MC10H116L | C-11 |
| MC10H125L | C-11 |
| MC10H130L | C-11 |
| MC10H131L | C-11 |
| MC10H135L | C-11 |
| MC10H136L | C-11 |
| MC10H141L | C-12 |
| MC10H158L | C-12 |
| MC10H161L | C-12 |
| MC10H174L | C-12 |
| MC10H176L | C-12 |
| MC10H188L | C-12 |
| MC10H424L | C-13 |
| MC14495P1 | C-13 |
| MC3486N | C-13 |
| MC3487 | C-13 |
| MC4044P | C-13 |
| MC68000P8 | C-14 |
| MC68901P | C-14 |
| MC74HCT245N | C-15 |
| MC74HCT374N | C-4 |
| NCR53C94-84PL | C-15 |
| SN74ALS163BN | C-16 |
| SN74ALS240AN | C-16 |
| SN74ALS244AN | C-16 |
| SN74ALS244BN | C-16 |
| SN74ALS273N | C-16 |
| SN74ALS374N | C-17 |
| SN74ALS74AN | C-17 |
| SN74HC08N | C-17 |
| SN74HC163N | C-3 |
| SN74HC166N | C-17 |
| SN74HC244N | C-3 |
| SN74HC374N | C-4 |
| SN74HC74N | C-17 |
| SN74HCT244N | C-3 |
| SN74HCT245N | C-15 |
| SN74HCT373N | C-17 |
| SN74HCT374N | C-4 |
| SN74LS05N | C-18 |
| SN74LS123N | C-18 |
| SN74LS221N | C-18 |
| SN74LS399N | C-18 |
| TC74HC08P | C-17 |
| TC74HC163P | C-3 |
| TC74HC166P | C-17 |
| TC74HC221P | C-18 |
| TC74HC244P | C-3 |
| TC74HC283AP | C-18 |
| TC74HC374P | C-4 |
| TC74HCT244P | C-3 |
| TL082CP | C-19 |
| TL431CLP | C-19 |
| TL607CP | C-19 |
| TL7705ACP | C-19 |
| TL7705CP | C-19 |
| TL7705CP-B | C-19 |
| uPA54HA | C-19 |
| uPA64HA | C-19 |

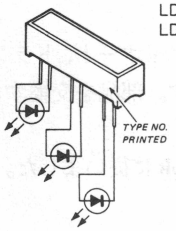


10E-2
1SS119
1SS120

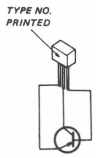


1SS106

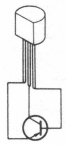
GL-6R202 ; RED



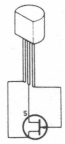

LD-701GG ; GREEN
LD-701UR ; RED




2SA1175



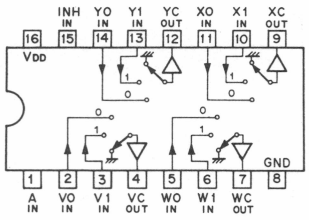
2SA733

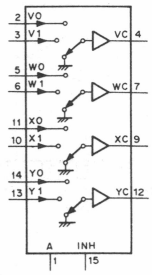


2SK523

74AC157PC (FSC) ($V_{DD}$ = + 2 to + 6V)

C-MOS QUAD 2-LINE-TO-1-LINE DATA SELECTOR/MULTIPLEXER
– TOP VIEW –

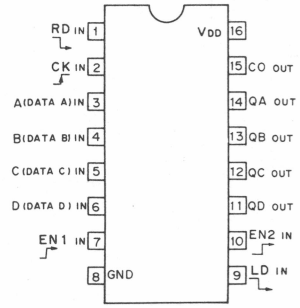


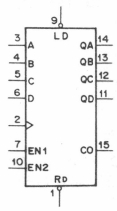




| | CONT. IN | | ON CHANNEL |
|---|---|---|---|
| | INH | A | |
| 0;LOW LEVEL | 0 | 0 | 0 |
| 1;HIGH LEVEL | 0 | 1 | 1 |
| X;DON'T CARE | 1 | X | GND |

74AC163PC (FSC) ($V_{DD}$ = + 2 to + 6V)
SN74HC163N (TI) ($V_{DD}$ = + 2 to + 6V)
TC74HC163P (TOSHIBA) ($V_{DD}$ = + 2 to + 6V)

C-MOS PRESETTABLE SYNCHRONOUS 4-BIT BINARY COUNTER
– TOP VIEW –

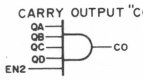



MODE SELECTION

| CONTROL INPUTS | | | | MODE |
|---|---|---|---|---|
| RD | LD | EN1 | EN2 | |
| 0 | X | X | X | RESET (SYNCHRONOUS) |
| 1 | 0 | X | X | PRESET (SYNCHRONOUS) |
| 1 | 1 | 0 | X | NO COUNT |
| 1 | 1 | X | 0 | NO COUNT |
| 1 | 1 | 1 | 1 | COUNT |

CARRY OUTPUT "CO"



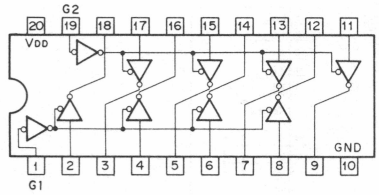

CO IS HIGH WHEN EN2 INPUT IS HIGH AND COUNT IS "15".

COUNT SEQUENCE

| COUNT | OUTPUTS | | | |
|---|---|---|---|---|
| | QD | QC | QB | QA |
| 0 | 0 | 0 | 0 | 0 |
| 1 | 0 | 0 | 0 | 1 |
| 2 | 0 | 0 | 1 | 0 |
| 3 | 0 | 0 | 1 | 1 |
| 4 | 0 | 1 | 0 | 0 |
| 5 | 0 | 1 | 0 | 1 |
| 6 | 0 | 1 | 1 | 0 |
| 7 | 0 | 1 | 1 | 1 |
| 8 | 1 | 0 | 0 | 0 |
| 9 | 1 | 0 | 0 | 1 |
| 10 | 1 | 0 | 1 | 0 |
| 11 | 1 | 0 | 1 | 1 |
| 12 | 1 | 1 | 0 | 0 |
| 13 | 1 | 1 | 0 | 1 |
| 14 | 1 | 1 | 1 | 0 |
| 15 | 1 | 1 | 1 | 1 |

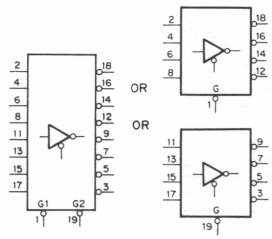
74AC240PC (FSC) ($V_{DD}$ = + 2 to + 6V)

C-MOS 3-STATE INVERTER/LINE DRIVER
– TOP VIEW –



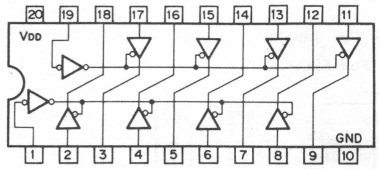
| G | A | Y |
|---|---|---|
| 0 | 0 | 1 |
| 0 | 1 | 0 |
| 1 | X | HI-Z |

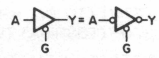
0;LOW LEVEL
1;HIGH LEVEL
X;DON'T CARE
HI-Z;HIGH IMPEDANCE




74AC244PC (FSC)
SN74HC244N (TI)
SN74HCT244N (TI)
TC74HC244P (TOSHIBA)
TC74HCT244P (TOSHIBA)

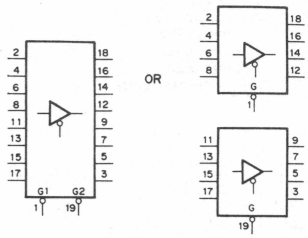
C-MOS BUS BUFFER WITH 3-STATE OUTPUTS
– TOP VIEW –




| G | A | Y |
|---|---|---|
| 0 | 0 | 0 |
| 0 | 1 | 1 |
| 1 | X | HI-Z |

0;LOW LEVEL
1;HIGH LEVEL
X;DON'T CARE
HI-Z;HIGH IMPEDANCE

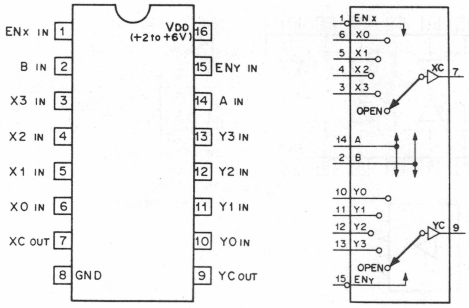



NOTE :

| TYPE | $V_{DD}$ |
|---|---|
| AC<br>HC<br>40H | +2 to +6V |
| ACT<br>HCT | +5V |

74AC253PC (FSC)

C-MOS 4-LINE-TO-1-LINE DATA SELECTOR/MULTIPLEXER
– TOP VIEW –

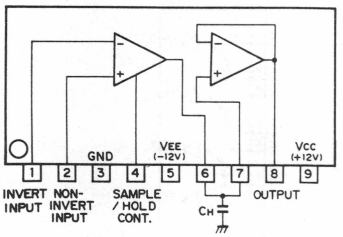



| CONTROL IN | | | ON CHANNEL |
|---|---|---|---|
| EN | B | A | |
| 0 | 0 | 0 | 0 |
| 0 | 0 | 1 | 1 |
| 0 | 1 | 0 | 2 |
| 0 | 1 | 1 | 3 |
| 1 | X | X | OPEN |

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

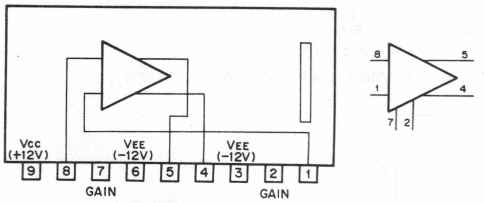
BX1244A (SONY)

SAMPLE AND HOLD.
– PRINTED SIDE VIEW –



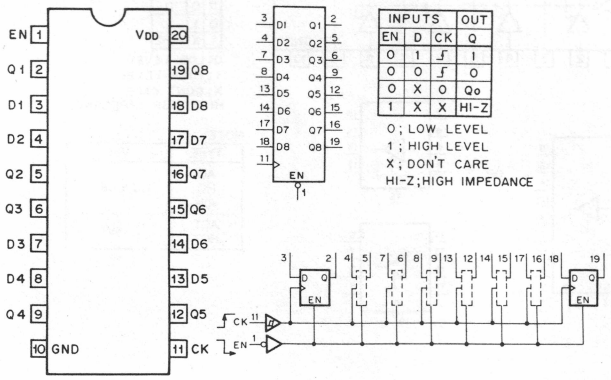

BX3930 (SONY)

HYBRID VIDEO WIDEBAND DIFFERENTIAL AMPLIFIER
– IMPRINTED SIDE –




74AC374PC (FSC) ($V_{DD}$ = + 2 to + 6V)
74ACT374PC (FSC) ($V_{DD}$ = + 5V)
MC74HCT374N (MOTOROLA) ($V_{DD}$ = + 5V)
SN74HC374N (TI) ($V_{DD}$ = + 2 to + 6V)
SN74HCT374N (TI) ($V_{DD}$ = + 5V)
TC74HC374P (TOSHIBA) ($V_{DD}$ = + 2 to + 6V)

C-MOS 3-STATE OCTAL D-TYPE FLIP-FLOP
– TOP VIEW –

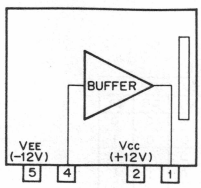



| INPUTS | | | OUT |
|---|---|---|---|
| EN | D | CK | Q |
| 0 | 1 | ↑ | 1 |
| 0 | 0 | ↑ | 0 |
| 0 | X | 0 | Qo |
| 1 | X | X | HI-Z |

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE
HI-Z ; HIGH IMPEDANCE

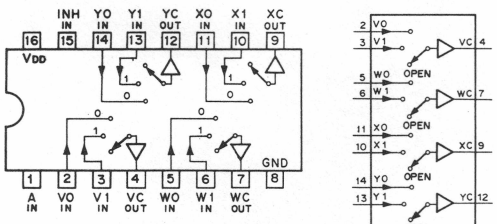
BX3931A (SONY)

HYBRID VIDEO WIDEBAND
BUFFER AMPLIFIER
– IMPRINTED SIDE –




74ACT257PC (FSC) ($V_{DD}$ = + 5V)

C-MOS 2-LINE-TO-1-LINE DATA SELECTOR/MULTIPLEXER
– TOP VIEW –



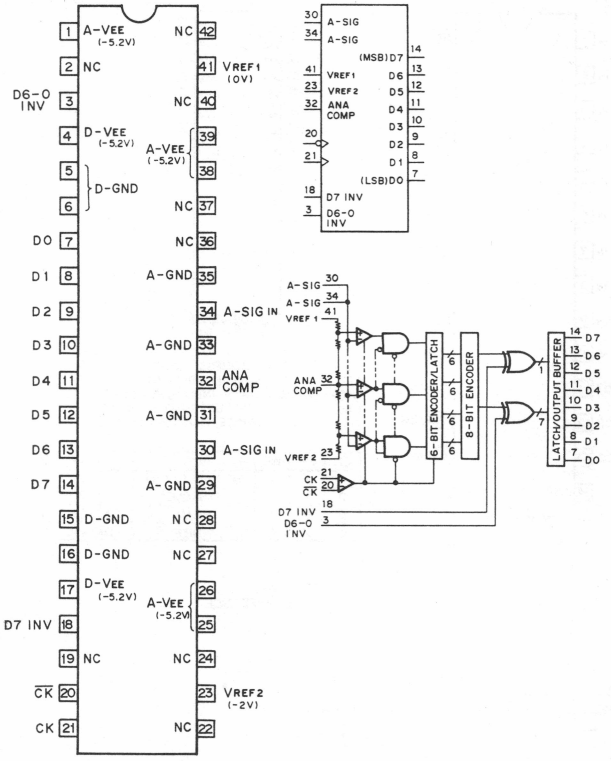

| CONT. IN | | ON CHANNEL |
|---|---|---|
| INH | A | |
| 0 | 0 | 0 |
| 0 | 1 | 1 |
| 1 | X | OPEN |

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

CX20116 (SONY)

8-BIT A/D CONVERTER

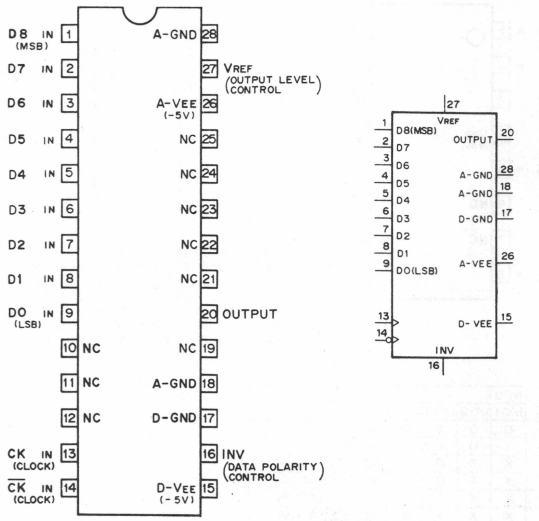
– TOP VIEW –

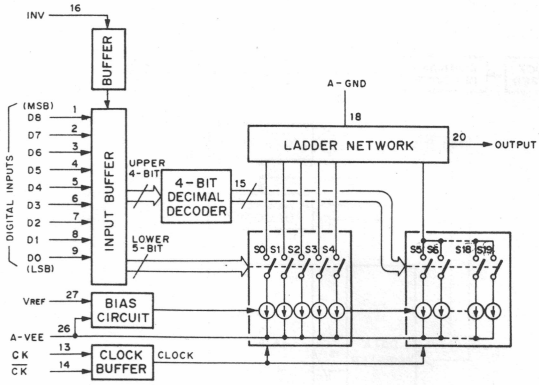



CX20202A-2 (SONY)

ECL 9-BIT D/A CONVERTER

– TOP VIEW –




INV SELECTION

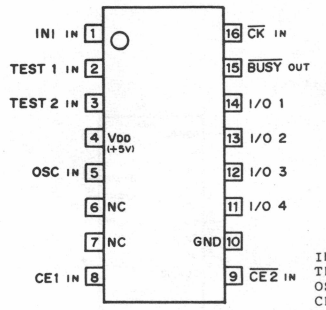
| DATA INPUTS | | | | | | | | | OUTPUT | |
|---|---|---|---|---|---|---|---|---|---|---|
| D8 | D7 | D6 | D5 | D4 | D3 | D2 | D1 | D0 | INV "0" | INV "1" |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | Vo(OS) | Vo(OS)-1.000V |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | Vo(OS)-0.002V | Vo(OS)-0.998V |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | Vo(OS)-0.004V | Vo(OS)-0.996V |
| ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ |
| 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Vo(OS)-0.500V | Vo(OS)-0.502V |
| 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | Vo(OS)-0.502V | Vo(OS)-0.500V |
| 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | Vo(OS)-0.504V | Vo(OS)-0.498V |
| ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Vo(OS)-1.000V | Vo(OS) |

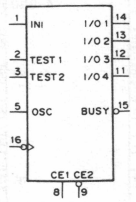
1 ; ECL HIGH LEVEL (= -0.89V)
0 ; ECL LOW LEVEL (= -1.75V)
Vo(OS); ZERO OFFSET

CXK1005P (SONY)

MNOS 512-BIT (32x16) $E^2$PROM

– TOP VIEW –




INI: INITIALIZE INPUT
TEST1, TEST2: CONNECTED TO VDD
OSC: OSCILLATOR INPUT
CE1, CE2: CHIP ENABLE INPUT
I/O1-I/O4: ADDRESS/DATA INPUTS/OUTPUTS
BUSY: BUSY SIGNAL OUTPUT
CK: PROCESSOR CLOCK INPUT

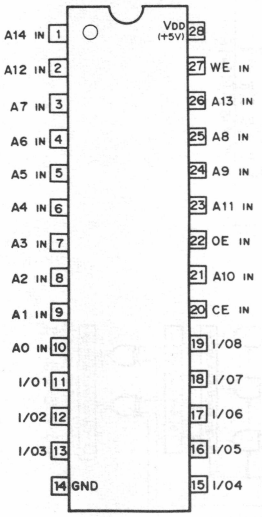
| INPUT | | | | | | | FUNCTION |
|---|---|---|---|---|---|---|---|
| INI | CE | $\overline{CE}$ | I/O1 | I/O2 | I/O3 | I/O4 | |
| 0 | 1 | 0 | 0 | 0 | 1 | 0 | READ |
| 0 | 1 | 0 | 1 | 0 | 1 | 0 | WRITE |
| 0 | 1 | 0 | X | X | 0 | 0 | NO OPERATION |
| 0 | 1 | 0 | X | X | 0 | 1 | NO OPERATION |
| 0 | 1 | 0 | X | X | 1 | 1 | NO OPERATION |
| 0 | 0 | 0 | X | X | X | X | NO OPERATION |
| 0 | 0 | 1 | X | X | X | X | NO OPERATION |
| 0 | 1 | 1 | X | X | X | X | NO OPERATION |
| 1 | X | X | X | X | X | X | NO OPERATION |

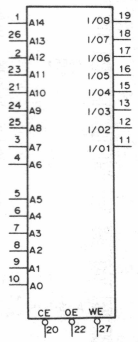
1: HIGH LEVEL
0: LOW LEVEL
X: DON'T CARE

CXK58256P-12LL (SONY) (ACCESS TIME = 120nS)

C-MOS 256K(32768WORDx8)-BIT STATIC RAM

– TOP VIEW –

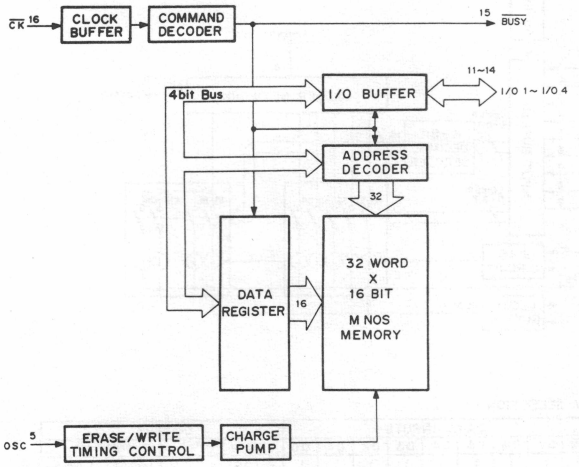


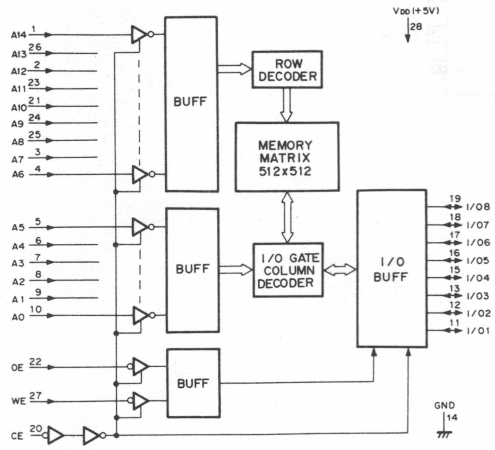




A0 – A14 : ADDRESS INPUTS
CE : CHIP ENABLE INPUT
I/O1 – I/O8 : DATA INPUTS/OUTPUTS
OE : OUTPUT ENABLE INPUT
WE : WRITE ENABLE INPUT

| CE | OE | WE | MODE | I/O1-8 |
|---|---|---|---|---|
| 1 | X | X | NOT SELECTED | HI-Z |
| 0 | 1 | 1 | DISABLE | HI-Z |
| 0 | 0 | 1 | READ | DATA OUT |
| 0 | X | 0 | WRITE | DATA IN |

0 : LOW LEVEL
1 : HIGH LEVEL
X : DON'T CARE
HI-Z : HIGH IMPEDANCE

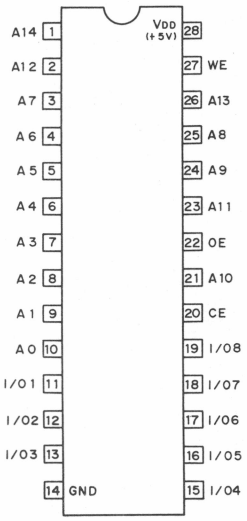


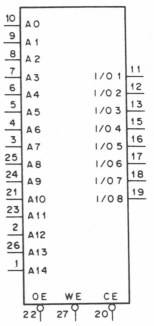



CXK58257P-12LL (SONY) (ACCESS TIME = 120nS)

C-MOS 256K(32768x8)-BIT STATIC RAM

– TOP VIEW –

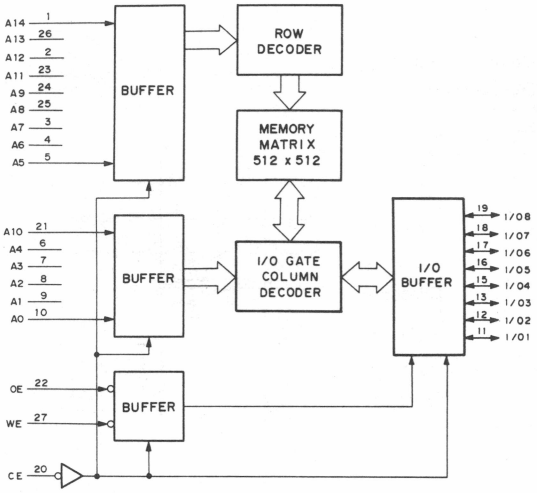



A0 – A14 : ADDRESS INPUTS
CE : CHIP ENABLE INPUT
I/O1 – I/O8 : DATA INPUTS/OUTPUTS
OE : OUTPUT ENABLE INPUT
WE : WRITE ENABLE INPUT

| CE | OE | WE | MODE | I/O TERMINAL |
|---|---|---|---|---|
| 1 | × | × | NOT SELECT | HIGH IMPEDANCE |
| 0 | 1 | 1 | OUTPUT DISABLE | HIGH IMPEDANCE |
| 0 | 0 | 1 | READ | OUTPUT DATA |
| 0 | × | 0 | WRITE | INPUT DATA |

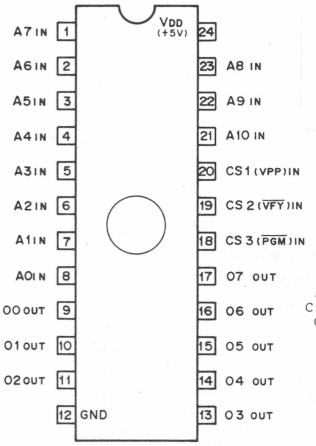
0 ; LOW LEVEL
1 ; HIGH LEVEL
×; DON'T CARE

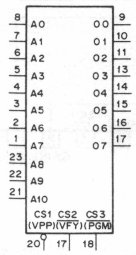



CY7C291L-35PC (CYPRESS) (ACCESS TIME = 35nS)

C-MOS 16K(2048x8)-BIT EPROM

– TOP VIEW –



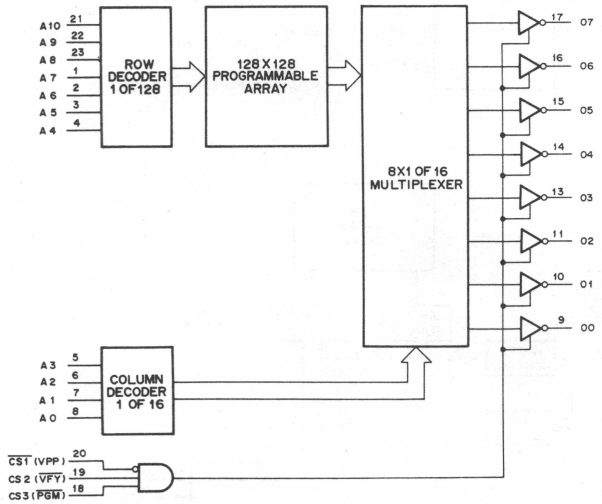




A0-A10; ADDRESS INPUT
CS1-CS3; CHIP SELECT
O0-O10; DATA OUTPUT

MODE SELECTION

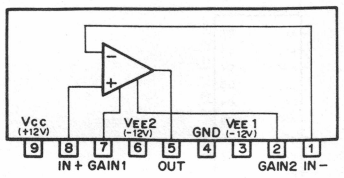
| CS1 | CS2 | CS3 | OUTPUTS | MODE |
|---|---|---|---|---|
| 0 | 1 | 1 | DATA OUT | READ |
| 1 | X | X | HI-Z | OUTPUT DISABLE |
| X | 0 | X | HI-Z | OUTPUT DISABLE |
| X | X | 0 | HI-Z | OUTPUT DISABLE |
| VPP | 1 | 0 | DATA IN | PROGRAM |
| VPP | 0 | 1 | DATA OUT | PROGRAM VERIFY |
| VPP | 1 | 1 | HI-Z | PROGRAM INHIBIT |
| VPP | 1 | 0 | DATA IN | INTELLIGENT PROGRAM |
| 0 | 0 | VPP | ONES | BLANK CHECK ONES |
| 0 | 1 | VPP | ZEROS | BLANK CHECK ZEROS |

0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE
(NOT TO EXCEED VDD +5%)
HI-Z; HIGH IMPEDANCE
VPP; PROGRAMING VOLTAGE
(+13V to +14V)



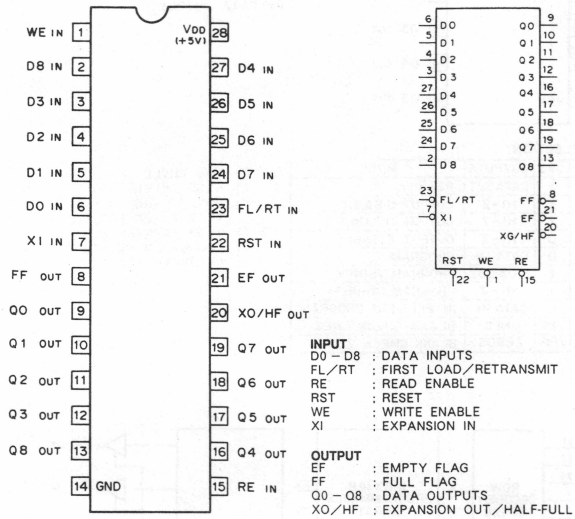
HD-1B (SOSHIN)

VIDEO AMPLIFIER
– PRINTED SIDE VIEW –




IDT7201SA-35P (INTEGRATED DEVICE TECHNOLOGY)

C-MOS FIFO 512x9-BIT DUAL PORT MEMORY
– TOP VIEW –

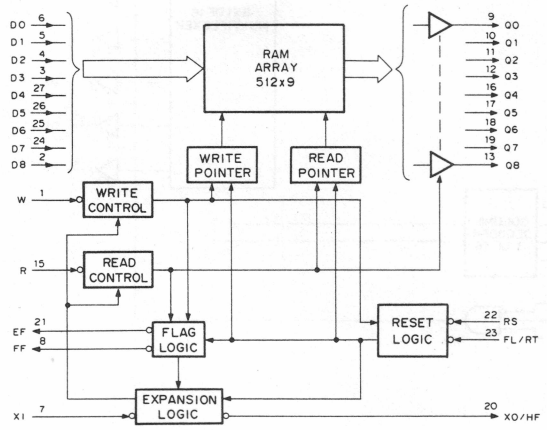



**INPUT**

| | |
|---|---|
| D0 – D8 | : DATA INPUTS |
| FL/RT | : FIRST LOAD/RETRANSMIT |
| RE | : READ ENABLE |
| RST | : RESET |
| WE | : WRITE ENABLE |
| XI | : EXPANSION IN |

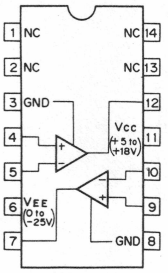
**OUTPUT**

| | |
|---|---|
| EF | : EMPTY FLAG |
| FF | : FULL FLAG |
| Q0 – Q8 | : DATA OUTPUTS |
| XO/HF | : EXPANSION OUT/HALF-FULL FLAG |



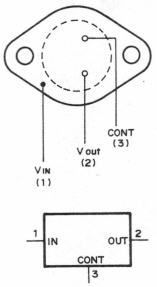

LM319N (NS)

DUAL VOLTAGE COMPARATOR
– TOP VIEW –



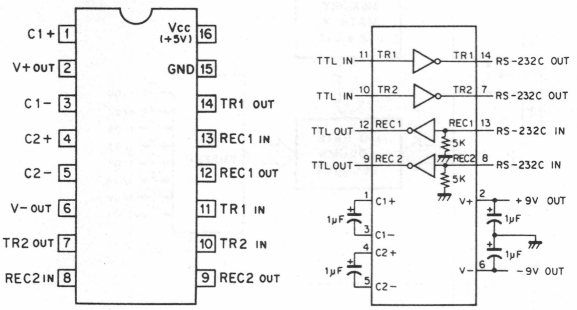

LT1033CK (LINEAR TECHNOLOGY)

NEGATIVE ADJUSTABLE REGULATOR (3A)
– BOTTOM VIEW –



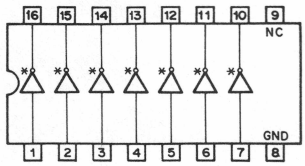

LT1081CN (LINEAR TECHNOLOGY)

RS-232 DRIVER/RECEIVER
– TOP VIEW –




M54517P (MITSUBISHI)

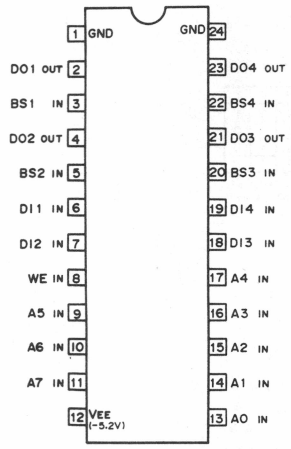
INVERTER WITH OPEN-COLLECTOR
(DARLINGTON-CONNECTED TRANSISTOR ARRAY)
– TOP VIEW –

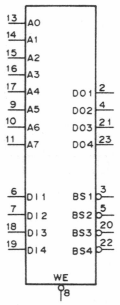


MBM10422A-7 (FUJITSU)

ECL 1K(256x4)-BIT BIPOLAR RAM

– TOP VIEW –

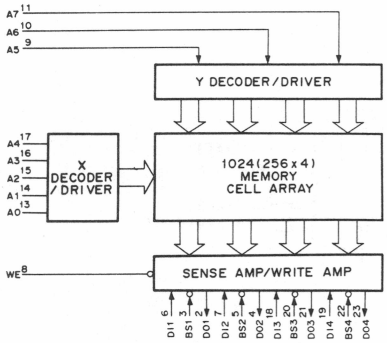



| INPUTS | | | MODE |
|---|---|---|---|
| BS | WE | DI | |
| 1 | X | X | NO SELECTION |
| 0 | 0 | 0 | WRITE "0" |
| 0 | 0 | 1 | WRITE "1" |
| 0 | 1 | X | READ |

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

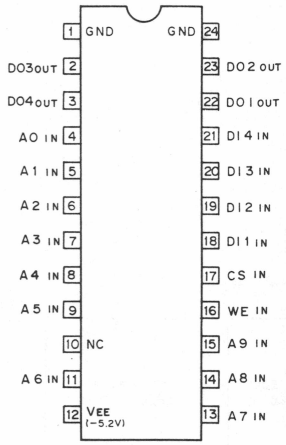
A0 – A7 : ADDRESS INPUTS
BS1 – BS4 : BLOCK SELECT INPUTS
DI1 – DI4 : DATA INPUTS
DO1 – DO4 : DATA OUTPUTS
WE : WRITE ENABLE

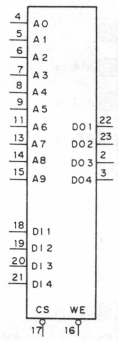



MBM10474A-7 (FUJITSU)

ECL 4K(1024x4)-BIT BIPOLAR RAM

– TOP VIEW –

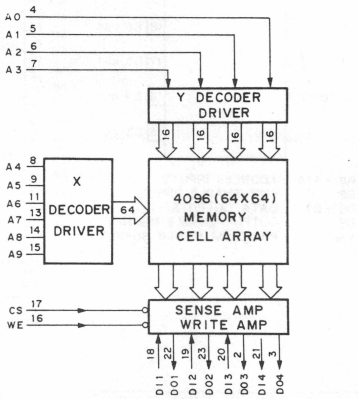



| INPUTS | | MODE |
|---|---|---|
| CS | WE | |
| 0 | 0 | WRITE |
| 0 | 1 | READ |
| 1 | X | INHIBIT |

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

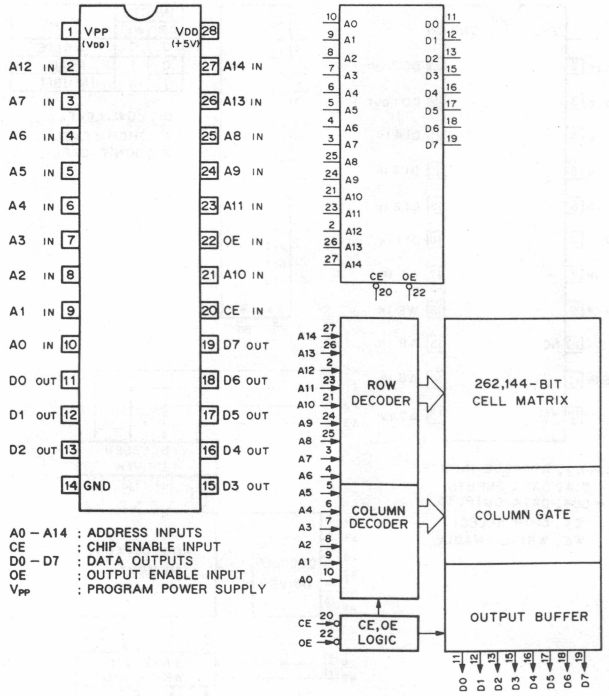
A0 – A9; ADDRESS INPUTS
DI1 – DI4; DATA INPUTS
DO1 – DO4; DATA OUTPUTS
CS; CHIP SELECT
WE; WRITE ENABLE



MBM27C256A-25 (FUJITSU) (ACCESS TIME = 250nS)

C-MOS 256K(32Kx8)-BIT UV ERASABLE PROM WITH 3-STATE OUTPUTS

– TOP VIEW –




A0 – A14 : ADDRESS INPUTS
CE : CHIP ENABLE INPUT
D0 – D7 : DATA OUTPUTS
OE : OUTPUT ENABLE INPUT
$V_{PP}$ : PROGRAM POWER SUPPLY

| An | CE | OE | VDD | Vpp | Dn | FUNCTION |
|---|---|---|---|---|---|---|
| An | 0 | 0 | +5V | +5V | DOUT | READ |
| An | 0 | 1 | +5V | +5V | HI-Z | OUTPUT DISABLE |
| X | 1 | X | +5V | +5V | HI-Z | STANDBY |
| An | 0 | 1 | +6V | +12.5V | DIN | PGM |
| An | 1 | 0 | +6V | +12.5V | DOUT | PGM VERIFY(1) |
| An | 0 | 0 | +6V | +12.5V | DOUT | PGM VERIFY(2) |
| X | 1 | 1 | +6V | +12.5V | HI-Z | PGM INH |
| A0 | 0 | 0 | +5V | +5V | DEVICE CODE | ELECTRONIC SIGNATURE* |

0:LOW LEVEL
1:HIGH LEVEL
X:DON'T CARE
HI-Z:HIGH IMPEDANCE

*SEE FOLLOWING DESCRIPTION.

ELECTRONIC SIGNATURE FOR P ROM WRITER

ADDRESS SETTINGS IN READ MODE

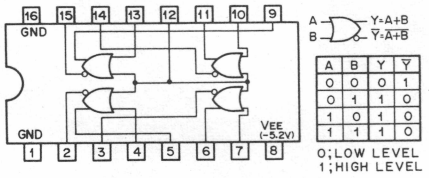
| A1 – A8 | A9 | A10 – A13 | A14, Vpp |
|---|---|---|---|
| 0 | 12V | 0 | 1 |

| | CODE DATA | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | A0 | D7 | D6 | D5 | D4 | D3 | D2 | D1 | DO | |
| MAKER CODE | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 04H |
| DEVICE CODE | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 62H |

MC10H101L (MOTOROLA)

ECL 2-INPUT OR/NOR GATE

– TOP VIEW –



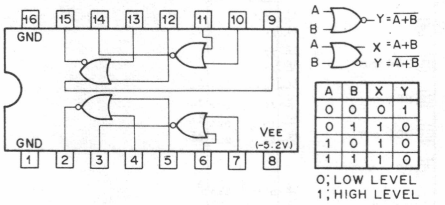

| A | B | Y | $\overline{Y}$ |
|---|---|---|---|
| 0 | 0 | 0 | 1 |
| 0 | 1 | 1 | 0 |
| 1 | 0 | 1 | 0 |
| 1 | 1 | 1 | 0 |

0;LOW LEVEL
1;HIGH LEVEL

MC10H102L (MOTOROLA)

ECL 2-INPUT NOR GATE

– TOP VIEW –



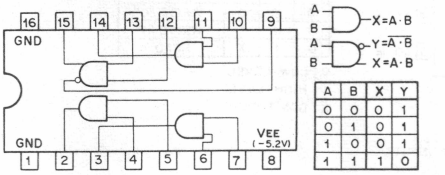

| A | B | X | Y |
|---|---|---|---|
| 0 | 0 | 0 | 1 |
| 0 | 1 | 1 | 0 |
| 1 | 0 | 1 | 0 |
| 1 | 1 | 1 | 0 |

0; LOW LEVEL
1; HIGH LEVEL

MC10H104L (MOTOROLA)

ECL 2-INPUT AND GATE

– TOP VIEW –



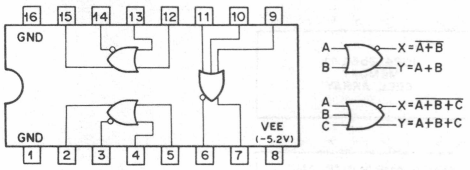

| A | B | X | Y |
|---|---|---|---|
| 0 | 0 | 0 | 1 |
| 0 | 1 | 0 | 1 |
| 1 | 0 | 0 | 1 |
| 1 | 1 | 1 | 0 |

0 ; LOW LEVEL
1 ; HIGH LEVEL

MC10H105L (MOTOROLA)

ECL 2-3-2-INPUT OR/NOR GATE

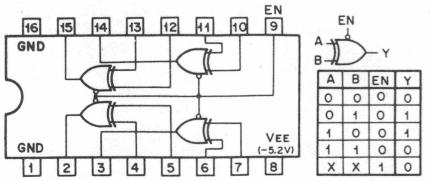
– TOP VIEW –




MC10H113L (MOTOROLA)

ECL EXCLUSIVE OR GATE

– TOP VIEW –

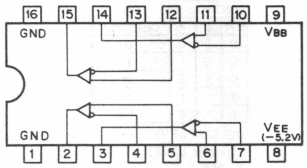



| A | B | EN | Y |
|---|---|---|---|
| 0 | 0 | 0 | 0 |
| 0 | 1 | 0 | 1 |
| 1 | 0 | 0 | 1 |
| 1 | 1 | 0 | 0 |
| X | X | 1 | 0 |

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

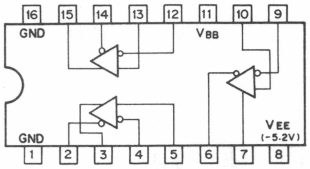
MC10H115L (MOTOROLA)

ECL LINE RECEIVER
– TOP VIEW –



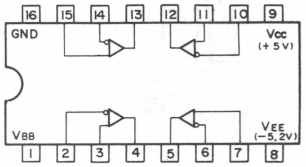

MC10H116L (MOTOROLA)

ECL DIFFERENTIAL OR/NOR LINE RECEIVER
– TOP VIEW –



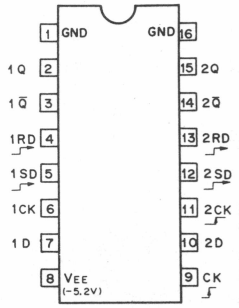

MC10H125L (MOTOROLA)

ECL ECL-TO-TTL TRANSLATOR
– TOP VIEW –




MC10H130L (MOTOROLA)
MC10H131L (MOTOROLA)

ECL D-TYPE FLIP FLOP
– TOP VIEW –

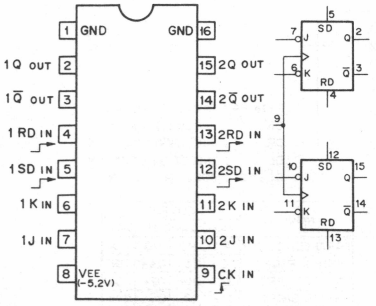



| INPUTS | | | | OUTPUTS | |
|---|---|---|---|---|---|
| SD | RD | CK | D | Qn+1 | Q̄n+1 |
| 1 | 0 | X | X | 1 | 0 |
| 0 | 1 | X | X | 0 | 1 |
| 1 | 1 | X | X | ND | ND |
| 0 | 0 | ↓ | 1 | 1 | 0 |
| 0 | 0 | ↓ | 0 | 0 | 1 |
| 0 | 0 | 0 | X | Qn | Q̄n |

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE
ND ; NOT DEFINED

MC10H135L (MOTOROLA)

ECL J-K FLIP-FLOP
– TOP VIEW –

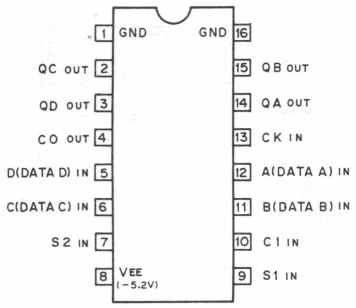


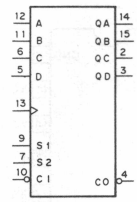

| INPUTS | | | | | OUTPUTS | |
|---|---|---|---|---|---|---|
| SD | RD | J | K | CK | Qn+1 | Q̄n+1 |
| 1 | 0 | X | X | X | 1 | 0 |
| 0 | 1 | X | X | X | 0 | 1 |
| 1 | 1 | X | X | X | ND | ND |
| 0 | 0 | 0 | 0 | ↓ | Q̄n | Qn |
| 0 | 0 | 1 | 0 | ↓ | 0 | 1 |
| 0 | 0 | 0 | 1 | ↓ | 1 | 0 |
| 0 | 0 | 1 | 1 | ↓ | Qn | Q̄n |

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE
ND ; NOT DEFINED

MC10H136L (MOTOROLA)

ECL PROGRAMMABLE SYNCHRONOUS 4-BIT
BINARY UP/DOWN COUNTER
– TOP VIEW –




MODE SELECTION

| INPUTS | | | MODE |
|---|---|---|---|
| S1 | S2 | C1 | |
| 0 | 0 | X | PRESET (LOAD) |
| 0 | 1 | 0 | COUNT UP |
| 1 | 0 | 0 | COUNT DOWN |
| 1 | 1 | X | COUNT HOLD |
| X | X | 1 | COUNT DISABLE |

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

COUNT SEQUENCE

| COUNT | OUTPUTS | | | |
|---|---|---|---|---|
| | QD | QC | QB | QA |
| 0 | 0 | 0 | 0 | 0 |
| 1 | 0 | 0 | 0 | 1 |
| 2 | 0 | 0 | 1 | 0 |
| 3 | 0 | 0 | 1 | 1 |
| 4 | 0 | 1 | 0 | 0 |
| 5 | 0 | 1 | 0 | 1 |
| 6 | 0 | 1 | 1 | 0 |
| 7 | 0 | 1 | 1 | 1 |
| 8 | 1 | 0 | 0 | 0 |
| 9 | 1 | 0 | 0 | 1 |
| 10 | 1 | 0 | 1 | 0 |
| 11 | 1 | 0 | 1 | 1 |
| 12 | 1 | 1 | 0 | 0 |
| 13 | 1 | 1 | 0 | 1 |
| 14 | 1 | 1 | 1 | 0 |
| 15 | 1 | 1 | 1 | 1 |

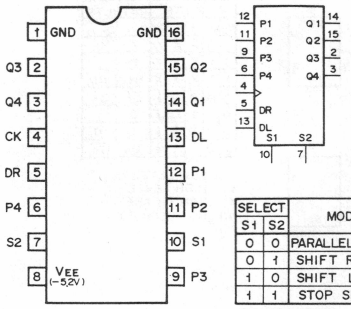
CO GOES LOW WHEN COUNT GOES "15" AT UP-COUNT OR WHEN COUNT GOES "0" AT DOWN COUNT OR WHEN THE COUNTER IS BEING PRESET.

CI INPUT ALLOWS SEVERAL DEVICES TO BE CASCADED IN A FULLY SYNCHRONOUS MULTISTAGE COUNTER.

MC10H141L (MOTOROLA)

ECL 4-BIT SHIFT REGISTER

– TOP VIEW –




P1 to P4 ; PARALLEL DATA IN
CK ; CLOCK (⨍) IN
DR ; DIRECTION RIGHT IN
DL ; DIRECTION LEFT IN
S1, S2 ; MODE SELECT IN

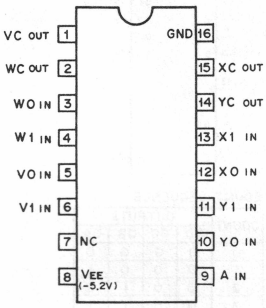
| SELECT | | MODE | OUTPUT | | | |
|---|---|---|---|---|---|---|
| S1 | S2 | | $Q1_{n+1}$ | $Q2_{n+1}$ | $Q3_{n+1}$ | $Q4_{n+1}$ |
| 0 | 0 | PARALLEL ENTRY | P1 | P2 | P3 | P4 |
| 0 | 1 | SHIFT RIGHT | $Q2_n$ | $Q3_n$ | $Q4_n$ | DR |
| 1 | 0 | SHIFT LEFT | DL | $Q1_n$ | $Q2_n$ | $Q3_n$ |
| 1 | 1 | STOP SHIFT | $Q1_n$ | $Q2_n$ | $Q3_n$ | $Q4_n$ |

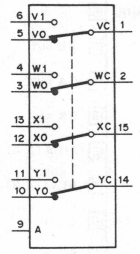
0 ; LOW LEVEL
1 ; HIGH LEVEL

MC10H158L (MOTOROLA)

ECL 2-INPUT MULTIPLEXER

– TOP VIEW –



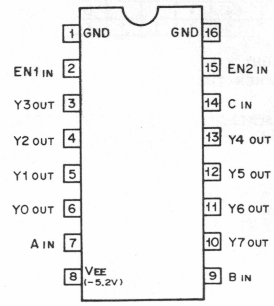

| A(CONT) | ON CHANNEL |
|---|---|
| 0 | VO,WO,XO,YO |
| 1 | V1,W1,X1,Y1 |

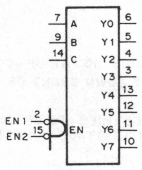
0 ; LOW LEVEL
1 ; HIGH LEVEL

MC10H161L (MOTOROLA)

ECL 3-TO-8LINE DECODER/DEMULTIPLEXER

– TOP VIEW –




| INPUTS | | | | OUTPUTS | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| EN | C | B | A | Y7 | Y6 | Y5 | Y4 | Y3 | Y2 | Y1 | Y0 |
| 1 | X | X | X | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 |
| 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 |
| 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 |
| 0 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 |
| 0 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 |
| 0 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 |
| 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

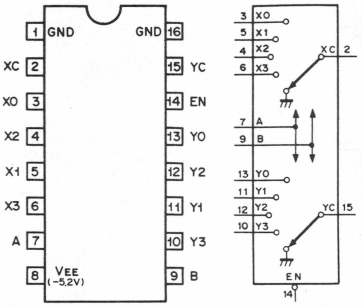
$EN = \overline{EN1} \cdot \overline{EN2}$

0 : LOW LEVEL
1 : HIGH LEVEL
X : DON'T CARE

MC10H174L (MOTOROLA)

ECL 4-TO-1 MULTIPLEXER

– TOP VIEW –



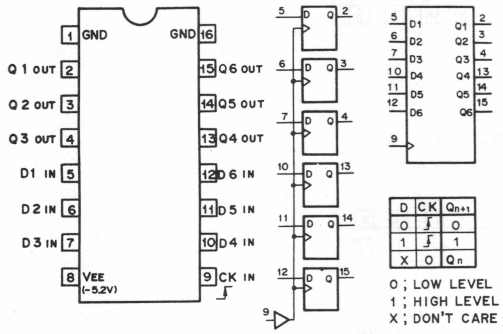

| CONTROL IN | | | ON |
|---|---|---|---|
| EN | B | A | CHANNEL |
| 0 | 0 | 0 | 0 |
| 0 | 0 | 1 | 1 |
| 0 | 1 | 0 | 2 |
| 0 | 1 | 1 | 3 |
| 1 | X | X | GND |

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

MC10H176L (MOTOROLA)

ECL HEX D-TYPE FLIP-FLOP

– TOP VIEW –



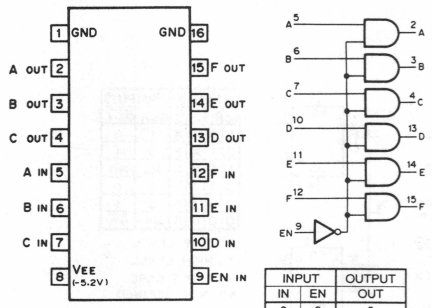

| D | CK | $Q_{n+1}$ |
|---|---|---|
| 0 | ⨍ | 0 |
| 1 | ⨍ | 1 |
| X | 0 | $Q_n$ |

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

MC10H188L (MOTOROLA)

ECL HEX BUFFER WITH ENABLE

– TOP VIEW –

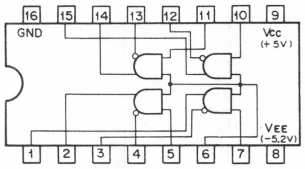



| INPUT | | OUTPUT |
|---|---|---|
| IN | EN | OUT |
| 0 | 0 | 0 |
| 0 | 1 | 1 |
| 1 | 0 | 0 |
| 1 | 1 | 0 |

0 : LOW LEVEL
1 : HIGH LEVEL

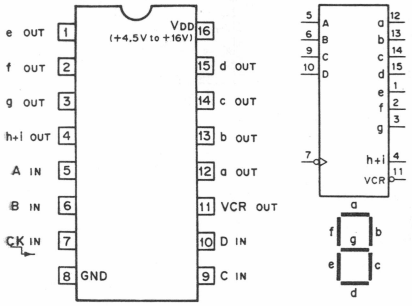
MC10H424L (MOTOROLA)

ECL TTL-TO-ECL TRANSLATOR
– TOP VIEW –




MC14495P1 (MOTOROLA)

C-MOS BCD-TO-SEVEN-SEGMENT 4-BIT LATCH/DECODER DRIVER
– TOP VIEW –

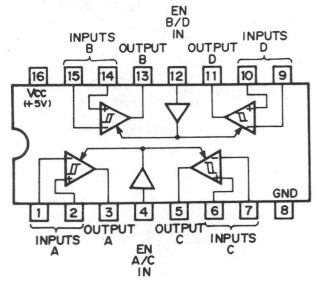



| INPUTS | | | | | OUTPUTS | | | | | | | | | DISPLAY |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CK | D | C | B | A | a | b | c | d | e | f | g | h+i | VCR | |
| 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | Z | 0 |
| 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | Z | 1 |
| 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | Z | 2 |
| 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | Z | 3 |
| 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | Z | 4 |
| 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | Z | 5 |
| 0 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | Z | 6 |
| 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | Z | 7 |
| 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | Z | 8 |
| 0 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | Z | 9 |
| 0 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | Z | A |
| 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | Z | b |
| 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | Z | C |
| 0 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | Z | d |
| 0 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | Z | E |
| 0 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | F |
| ⎍ | X | X | X | X | X | X | X | X | X | X | X | X | Z/O | DATA LATCH |
| 1 | X | X | X | X | X | X | X | X | X | X | X | X | Z/O | DATA HOLD |

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE
Z ; HIGH IMPEDANCE

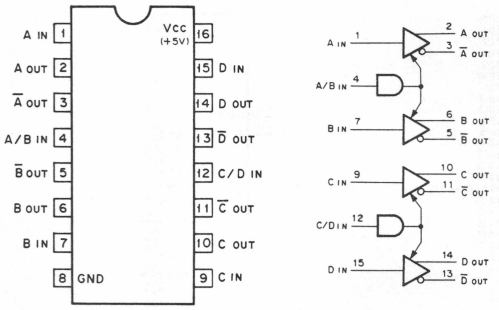
MC3486N (TI)

RS-422/423 LINE RECEIVER WITH 3-STATE OUTPUTS
– TOP VIEW –




MC3487 (MOTOROLA)

QUAD RS-422 DRIVER
– TOP VIEW –

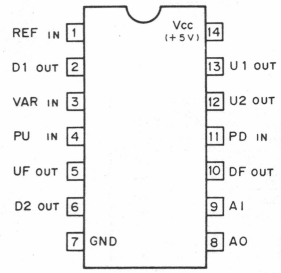


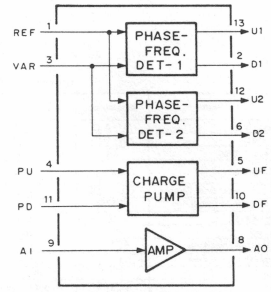

| A, B, C, D IN | A/B, C/D IN | A, B, C, D OUT | Ā, B̄, C̄, D̄ OUT |
|---|---|---|---|
| 0 | 0 | 0 | 1 |
| 1 | 0 | 1 | 0 |
| X | 1 | HI-Z | HI-Z |

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE
HI-Z ; HIGH IMPEDANCE

MC4044P (MOTOROLA)

PHASE-FREQUENCY DETECTOR
– TOP VIEW –




REF ; REFERENCE IN
VAR ; VARIABLE IN
U1 ; UP OUT 1
D1 ; DOWN OUT 1
U2 ; UP OUT 2
D2 ; DOWN OUT 2
PU ; CHARGE PUMP UP IN
PD ; CHARGE PUMP DOWN IN
UF ; CHARGE PUMP UP OUT
DF ; CHARGE PUMP DOWN OUT
AI ; FILTER AMP IN
AO ; FILTER AMP OUT

PHASE FREQ. DET-1
FALLING EDGE SENSING TYPE

| INPUTS | OUTPUTS | |
|---|---|---|
| | U1 | D1 |
| $f_V = f_R$ | 1 | 1 |
| $\phi_V = \phi_R$ | | |
| $f_V < f_R$ | 0 | 1 |
| $\phi_V$ lags $\phi_R$ | | |
| $f_V > f_R$ | 1 | 0 |
| $\phi_V$ leads $\phi_R$ | | |

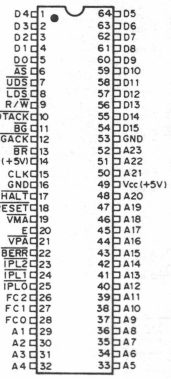
PHASE FREQ.DET-2
FOR 50% DUTY CYCLES

| INPUTS | | OUTPUTS | |
|---|---|---|---|
| REF | VAR | U2 | D2 |
| 0 | 0 | 1 | 1 |
| 0 | 1 | 1 | 1 |
| 1 | 0 | 0 | 1 |
| 1 | 1 | 1 | 0 |

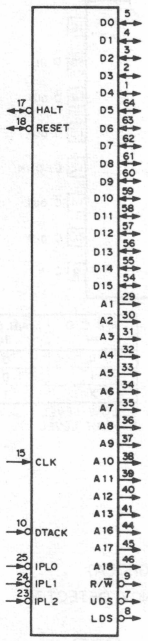
0 ; LOW LEVEL
1 ; HIGH LEVEL

MC68000P8 (MOTOROLA)

H-MOS 16-BIT MICROPROCESSOR
– TOP VIEW –




A1 – A23 ; ADDRESS
D0 – D15 ; DATA
R/W ; READ/WRITE
UDS ; UPPER DATA STROBE
LDS ; LOWER DATA STROBE
CLK ; CLOCK
DTACK ; DATA TRANSFER ACKNOWLEDGE
IPL0 – IPL2 ; INTERRUPT CONTROL



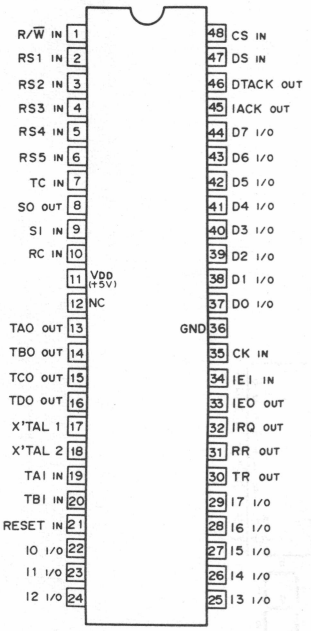

Signal Summary

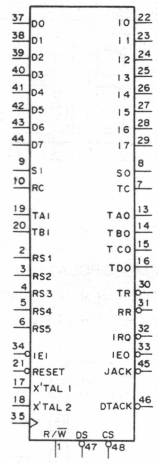
| Signal Name | Mnemonic | Input/Output | Active State | Hi-Z | |
|---|---|---|---|---|---|
| | | | | On HALT | On BGACK |
| Address Bus | A1-A23 | Output | High | Yes | Yes |
| Data Bus | D0-D15 | Inout Output | High | Yes | Yes |
| Address Strobe | AS | Output | Low | No | Yes |
| Read/Write | R/W | Output | Read-High Write-Low | No | Yes |
| Upper and Lower Data Strobes | UDS·LDS | Output | Low | No | Yes |
| Data Transfer Acknowledge | DTACK | Input | Low | No | No |
| Bus Request | BR | Input | Low | No | No |
| Bus Grant | BG | Output | Low | No | No |
| Bus Grant Acknowledge | BGACK | Input | Low | No | No |
| Interrupt Pricrrty Level | IPL0,IPL1,IPL2 | Input | Low | No | No |
| Bus Error | BERR | Input | Low | No | No |
| Reset | RESET | Input/Output | Low | No | No |
| Halt | HALT | Input/Output | Low | No | No |
| Enable | E | Output | High | No | No |
| Valid Memory Address | VMA | Output | Low | No | Yes |
| Valid Peripheral Address | VPA | Input | Low | No | No |
| Function Code Output | FC0,FC1,FC2 | Output | High | No | Yes |
| Clock | CLK | Input | High | No | No |
| Power Input | Vcc | Input | – | – | – |
| Ground | GND | Input | – | – | – |

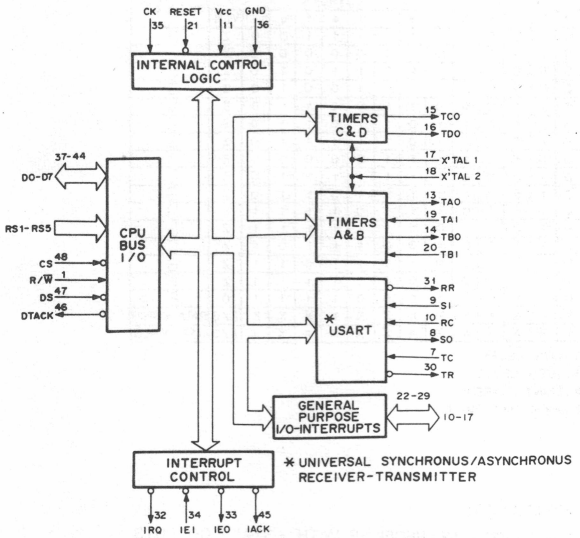
NOTES
1. Open drain
2. Function codes are pieced in high-impedance state during HALT for R9M ,T6E and BF4 mask sets

MC68901P (MOTOROLA)

N-MOS MULTI-FUNCTION PERIPHERAL
– TOP VIEW –



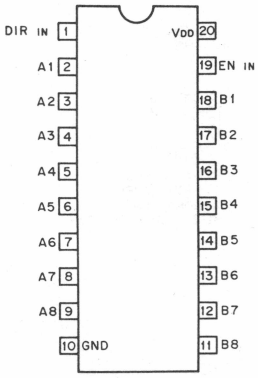



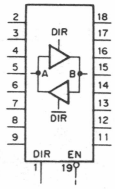




| | | | |
|---|---|---|---|
| CS | ; CHIP SELECT INPUT | RESET | ; RESET INPUT |
| D0 – D7 | ; DATA BUS I/O | RR | ; RECEIVER READY OUTPUT |
| DS | ; DATA STROBE INPUT | RS1 – RS5 | ; REGISTER SELECT BUS INPUT |
| DTACK | ; DATA TRANSFER ACKNOWLEDGE OUTPUT | R/W | ; READ/WRITE INPUT |
| | | SI | ; SERIAL INPUT |
| I0 – I7 | ; GENERAL PURPOSE I/O | SO | ; SERIAL OUTPUT |
| IACK | ; INTERRUPT ACKNOWLEDGE OUTPUT | TAI, TBI | ; TIMER INPUTS |
| | | TAO, TBO, TCO, TDO | ; TIMER OUTPUTS |
| IEI | ; INTERRUPT ENABLE INPUT | TC | ; TRANSMITTER CLOCK INPUT |
| IEO | ; INTERRUPT ENABLE OUTPUT | TR | ; TRANSMITTER READY OUTPUT |
| IRQ | ; INTERRUPT REQUEST OUTPUT | | |
| RC | ; RECEIVER CLOCK INPUT | | |

MC74HCT245N (MOTOROLA) ($V_{DD}$ = + 5V)
SN74HCT245N (TI) ($V_{DD}$ = + 5V)

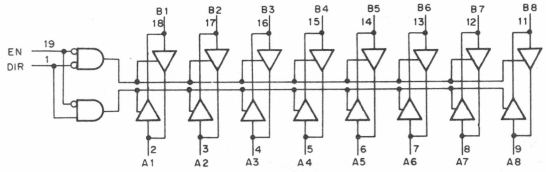
C-MOS BILATERAL BUS TRANSCEIVERS WITH 3-STATE OUTPUTS
– TOP VIEW –

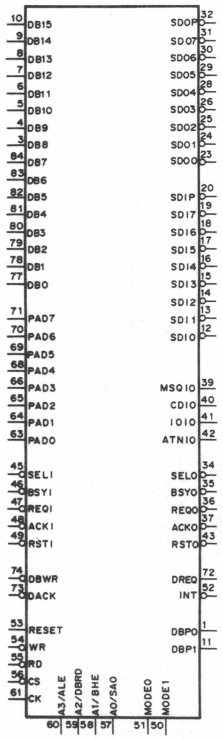



| EN | DIR | OPERATION |
|---|---|---|
| 0 | 0 | B to A |
| 0 | 1 | A to B |
| 1 | X | HI – Z |

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE
HI-Z ; HIGH IMPEDANCE



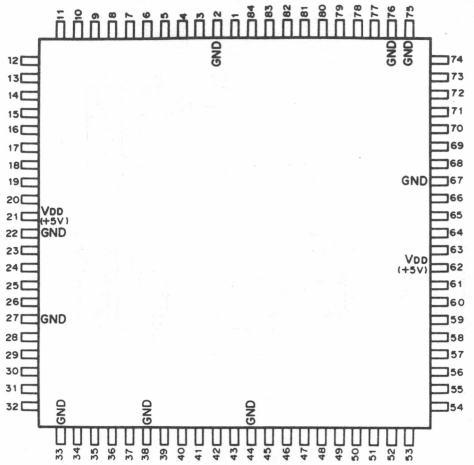

**INPUT**
A0 – A3 : REGISTER ADDRESS
ACKI, BSYI, REQI, RSTI, SELI
: SCSI CONTROL
ALE : REGISTER ADDRESS
BHE, DBRD, SAO
: CONTROL BYTE DMA TRANSFERS
CK : CLOCK
CS : CHIP SELECT
DACK : DMA ACKNOWLEDGE
DBWR : DMA WRITE STROBE
MODE0, MODE1
: BUSES CONFIGULATION
RESET : CHIP RESET
RD : PROCESSOR READ STROBE
WR : PROCESSOR WRITE STROBE

**OUTPUT**
ACKO, BSYO, REQO, RSTO, SELO
: SCSI CONTROL
DREO : DMA REQUEST
INT : INTERRUPT
SDO0 – SDO7, SDOP
: SCSI DATA OUTPUT BUS

**INPUT/OUTPUT**
ATNIO, CDIO, IOIO, MSGIO
: SCSI CONTROL
DB0 – DB15
: DATA BUS
DBP0 : ODD PARITY FOR DB0 – DB7
DBP1 : ODD PARITY FOR DB8 – DB15
PAD0 – PAD7
: MULTIPLEXED ADDRESS AND DATA BUS
SDI0 – SDI17, SDIP
: SCSI DATA I/O BUS

NCR53C94-84PL (NCR) FLAT PACKAGE

C-MOS SMALL COMPUTER SYSTEM INTERFACE (SCSI)
– TOP VIEW –




($V_{DD}$ = + 5V)

| PIN NO. | I/O | SYMBOL | PIN NO. | I/O | SYMBOL | PIN NO. | I/O | SYMBOL | PIN NO. | I/O | SYMBOL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | I/O | DBPO | 22 | – | GND | 43 | O | RSTO | 64 | I/O | PAD1 |
| 2 | – | GND | 23 | O | SDO0 | 44 | – | GND | 65 | I/O | PAD2 |
| 3 | I/O | DB8 | 24 | O | SDO1 | 45 | I | SELI | 66 | I/O | PAD3 |
| 4 | I/O | DB9 | 25 | O | SDO2 | 46 | I | BSYI | 67 | – | GND |
| 5 | I/O | DB10 | 26 | O | SDO3 | 47 | I | REQI | 68 | I/O | PAD4 |
| 6 | I/O | DB11 | 27 | – | GND | 48 | I | ACKI | 69 | I/O | PAD5 |
| 7 | I/O | DB12 | 28 | O | SDO4 | 49 | I | RSTI | 70 | I/O | PAD6 |
| 8 | I/O | DB13 | 29 | O | SDO5 | 50 | I | MODE1 | 71 | I/O | PAD7 |
| 9 | I/O | DB14 | 30 | O | SDO6 | 51 | I | MODE0 | 72 | O | DREQ |
| 10 | I/O | DB15 | 31 | O | SDO7 | 52 | O | INT | 73 | I | DACK |
| 11 | I/O | DBP1 | 32 | O | SDOP | 53 | I | RESET | 74 | I | DBWR |
| 12 | I/O | SDI0 | 33 | – | GND | 54 | I | WR | 75 | – | GND |
| 13 | I/O | SDI1 | 34 | O | SELO | 55 | I | RD | 76 | – | GND |
| 14 | I/O | SDI2 | 35 | O | BSYO | 56 | I | CS | 77 | I/O | DB0 |
| 15 | I/O | SDI3 | 36 | O | REQO | 57 | I | A0/SAO | 78 | I/O | DB1 |
| 16 | I/O | SDI4 | 37 | O | ACKO | 58 | I | A1/BHE | 79 | I/O | DB2 |
| 17 | I/O | SDI5 | 38 | – | GND | 59 | I | A2/DBRD | 80 | I/O | DB3 |
| 18 | I/O | SDI6 | 39 | I/O | MSGIO | 60 | I | A3/ALE | 81 | I/O | DB4 |
| 19 | I/O | SDI7 | 40 | I/O | CDIO | 61 | I | CK | 82 | I/O | DB5 |
| 20 | I/O | SDIP | 41 | I/O | IOIO | 62 | – | $V_{DD}$ | 83 | I/O | DB6 |
| 21 | – | $V_{DD}$ | 42 | I/O | ATNIO | 63 | I/O | PAD0 | 84 | I/O | DB7 |

BUSES CONFIGURATION

| MODE1 | MODE0 | REGISTER ADDRESS | REGISTER DATA | DMA WIDTH | CONFIGURATION |
|---|---|---|---|---|---|
| 0 | 0 | A3 – A0 | DB | 8 | SINGLE BUS, 8-BIT DMA |
| 0 | 1 | A3 – A0 | DB | 16 | SINGLE BUS, 16-BIT DMA |
| 1 | 0 | PAD | PAD | 16 | SPLIT BUS W/BYTE CONTROL |
| 1 | 1 | A3 – A0 | PAD | 16 | SPLIT BUS, 16-BIT DMA |

0 ; LOW LEVEL PAD ; 8-BIT MICROPROCESSOR BUS
1 ; HIGH LEVEL DB ; 18-BIT DMA BUS

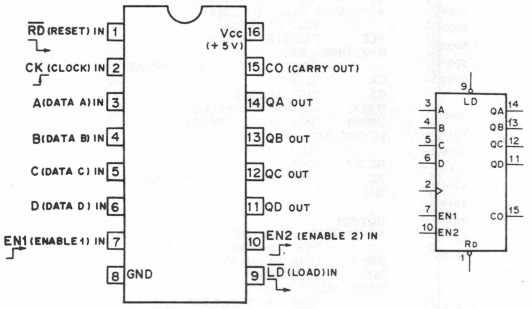
BYTES TRANSFERRED

| BHE | SAO | BYTES TRANSFERRED |
|---|---|---|
| 0 | 0 | DBP0/DB7 – DB0 |
| 0 | 1 | NONE |
| 1 | 0 | DBP1/DB15 – DB8, DBP0/DB7 – DB0 |
| 1 | 1 | DBP1/DB15 – DB8 |

0 ; LOW LEVEL
1 ; HIGH LEVEL

SN74ALS163BN (TI)

TTL PRESETTABLE SYNCHRONOUS 4-BIT BINARY COUNTER
– TOP VIEW –







MODE SELECTION

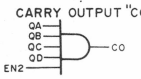
| CONTROL INPUTS | | | | MODE |
|---|---|---|---|---|
| $\overline{RD}$ | LD | EN1 | EN2 | |
| 0 | X | X | X | RESET (SYNCHRONOUS) |
| 1 | 0 | X | X | PRESET (SYNCHRONOUS) |
| 1 | 1 | 0 | X | NO COUNT |
| 1 | 1 | X | 0 | NO COUNT |
| 1 | 1 | 1 | 1 | COUNT |

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

COUNT SEQUENCE

| COUNT | OUTPUTS | | | |
|---|---|---|---|---|
| | QD | QC | QB | QA |
| 0 | 0 | 0 | 0 | 0 |
| 1 | 0 | 0 | 0 | 1 |
| 2 | 0 | 0 | 1 | 0 |
| 3 | 0 | 0 | 1 | 1 |
| 4 | 0 | 1 | 0 | 0 |
| 5 | 0 | 1 | 0 | 1 |
| 6 | 0 | 1 | 1 | 0 |
| 7 | 0 | 1 | 1 | 1 |
| 8 | 1 | 0 | 0 | 0 |
| 9 | 1 | 0 | 0 | 1 |
| 10 | 1 | 0 | 1 | 0 |
| 11 | 1 | 0 | 1 | 1 |
| 12 | 1 | 1 | 0 | 0 |
| 13 | 1 | 1 | 0 | 1 |
| 14 | 1 | 1 | 1 | 0 |
| 15 | 1 | 1 | 1 | 1 |

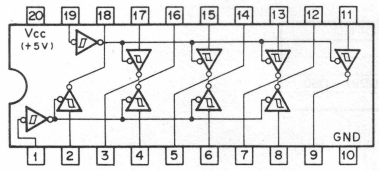
CARRY OUTPUT "CO"




CO IS HIGH WHEN EN2 INPUT IS HIGH AND COUNT IS "15".

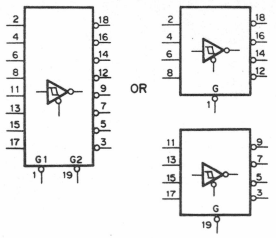
SN74ALS240AN (TI)

TTL 3-STATE SCHMITT TRIGGER INVERTER/LINE DRIVER
– TOP VIEW –



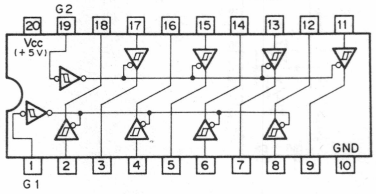
| G | A | Y |
|---|---|---|
| 0 | 0 | 1 |
| 0 | 1 | 0 |
| 1 | X | HI-Z |

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE
HI-Z ; HIGH IMPEDANCE



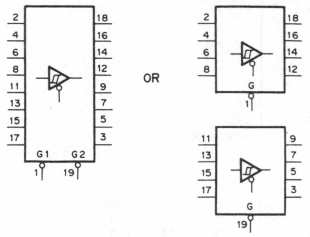

SN74ALS244AN (TI)
SN74ALS244BN (TI)

TTL 3-STATE SCHMITT TRIGGER BUFFER/DRIVER
– TOP VIEW –



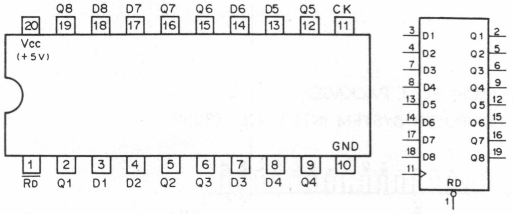
| G | A | Y |
|---|---|---|
| 0 | 0 | 0 |
| 0 | 1 | 1 |
| 1 | X | HI-Z |

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE
HI-Z ; HIGH IMPEDANCE




SN74ALS273N (TI)

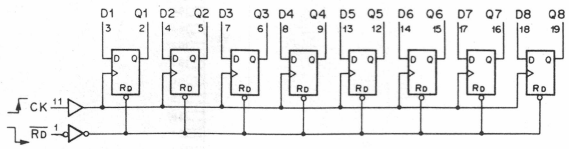
TTL D-TYPE FLIP-FLOP WITH DIRECT RESET
– TOP VIEW –




EACH FLIP-FLOP

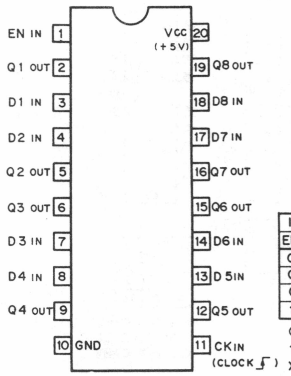
| INPUTS | | | OUT |
|---|---|---|---|
| $\overline{RD}$ | CK | D | Q |
| 0 | X | X | 0 |
| 1 | ↓ | 0 | 0 |
| 1 | ↓ | 1 | 1 |
| 1 | 0 | X | Q0 |

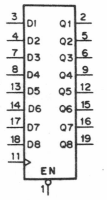
0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE



SN74ALS374N (TI)

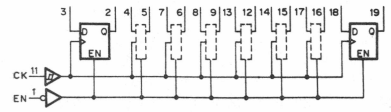
TTL 3-STATE OUTPUTS OCTAL D-TYPE FLIP-FLOP
– TOP VIEW –



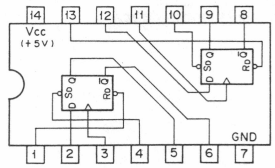

| INPUTS | | | OUT |
|---|---|---|---|
| EN | D | CK | Q |
| 0 | 1 | ↑ | 1 |
| 0 | 0 | ↑ | 0 |
| 0 | X | 0 | Qo |
| 1 | X | X | HI-Z |

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE
HI-Z ; HIGH IMPEDANCE




SN74ALS74AN (TI)

TTL D-TYPE FLIP FLOP WITH DIRECT SET/RESET
– TOP VIEW –

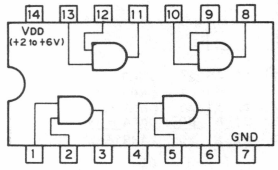


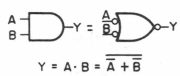

| INPUTS | | | | OUTPUTS | |
|---|---|---|---|---|---|
| $\overline{So}$ | $\overline{Ro}$ | CK | D | Qn+1 | $\overline{Qn+1}$ |
| 0 | 1 | X | X | 1 | 0 |
| 1 | 0 | X | X | 0 | 1 |
| 0 | 0 | X | X | 1* | 1* |
| 1 | 1 | ↑ | 1 | 1 | 0 |
| 1 | 1 | ↑ | 0 | 0 | 1 |
| 1 | 1 | 0 | X | Qn | $\overline{Qn}$ |

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE
1*; NONSTABLE

SN74HC08N (TI)
TC74HC08P (TOSHIBA)

C-MOS QUAD 2-INPUT AND GATE
– TOP VIEW –



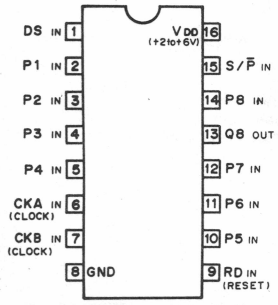



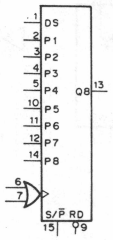

| A | B | Y |
|---|---|---|
| 0 | 0 | 0 |
| 0 | 1 | 0 |
| 1 | 0 | 0 |
| 1 | 1 | 1 |

0 ; LOW LEVEL
1 ; HIGH LEVEL

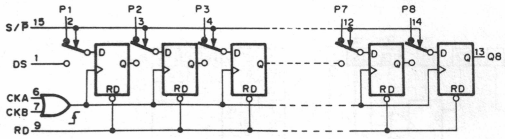
SN74HC166N (TI)
TC74HC166P (TOSHIBA)

C-MOS 8-BIT SHIFT REGISTER
– TOP VIEW –




DS : DATA SERIAL INPUT
PI – P8 : DATA PARALLEL INPUT
CK : CLOCK



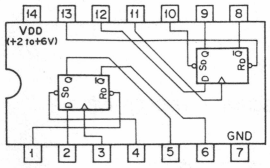

| CKA | CKB | CK |
|---|---|---|
| 0 | 0 | 0 |
| X | 1 | 1 |
| 1 | X | 1 |
| 1 | ↓ | 1 |
| ↓ | 1 | 1 |
| 0 | ↓ | ↓ |
| ↓ | 0 | ↓ |

| INPUT | | | | | OUTPUT |
|---|---|---|---|---|---|
| RD | S/$\overline{P}$ | CK | DS | P1-P8 | Q8 |
| 0 | X | X | X | X | 0 |
| 1 | X | 0 | X | X | Q8o |
| 1 | 0 | ↓ | X | 1-8 | 8 |
| 1 | 1 | ↓ | 1 | X | Q7n |
| 1 | 1 | ↓ | 0 | X | Q7n |
| 1 | X | ↓ | X | X | Q8o |

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

SN74HC74N (TI)

C-MOS D-TYPE FLIP FLOP WITH DIRECT SET/RESET
– TOP VIEW –

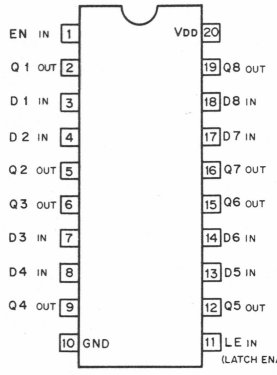


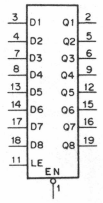

| INPUTS | | | | OUTPUTS | |
|---|---|---|---|---|---|
| $\overline{So}$ | $\overline{Ro}$ | CK | D | Qn+1 | $\overline{Qn+1}$ |
| 0 | 1 | X | X | 1 | 0 |
| 1 | 0 | X | X | 0 | 1 |
| 0 | 0 | X | X | 1 | 1 |
| 1 | 1 | ↑ | 1 | 1 | 0 |
| 1 | 1 | ↑ | 0 | 0 | 1 |
| 1 | 1 | 0 | X | Qn | $\overline{Qn}$ |

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

SN74HCT373N (TI) ($V_{DD}$ = + 5V)

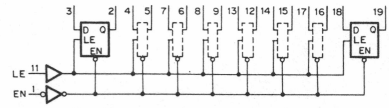
C-MOS 3-STATE OUTPUTS OCTAL LATCHES
– TOP VIEW –



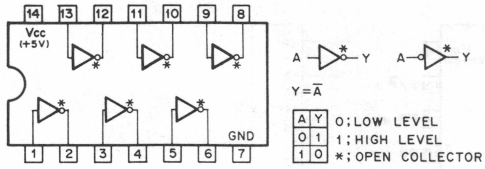

| INPUTS | | | OUT |
|---|---|---|---|
| EN | D | LE | Q |
| 0 | 1 | 1 | 1 |
| 0 | 0 | 1 | 0 |
| 0 | X | 0 | Qo |
| 1 | X | X | HI-Z |

HI-Z ; HIGH IMPEDANCE
0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE



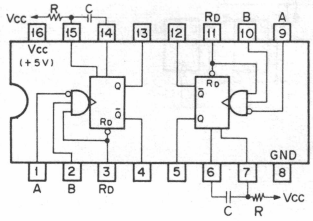
SN74LS05N (TI)

TTL INVERTER WITH OPEN-COLLECTOR
– TOP VIEW –




SN74LS123N (TI)

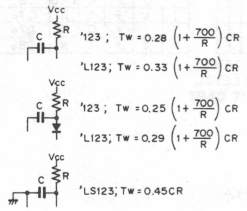
TTL RETRIGGERABLE MONOSTABLE MULTIVIBRATOR WITH DIRECT RESET
– TOP VIEW –




| INPUTS | | | OUTPUTS | |
|---|---|---|---|---|
| $\overline{R_D}$ | A | B | Q | $\overline{Q}$ |
| 0 | X | X | 0 | 1 |
| X | 1 | X | 0 | 1 |
| X | X | 0 | 0 | 1 |
| 1 | 0 | ↑ | ⎍ | ⎍ |
| 1 | ↓ | 1 | ⎍ | ⎍ |
| ↑ | 0 | 1 | ⎍ | ⎍ |

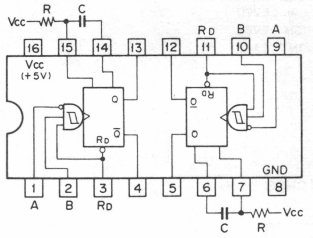
0;LOW LEVEL
1;HIGH LEVEL
X;DON'T CARE

OUTPUT PULSE WIDTH




SN74LS221N (TI)

TTL MONOSTABLE MULTIVIBRATOR WITH SCHMITT TRIGGER INPUT
– TOP VIEW –



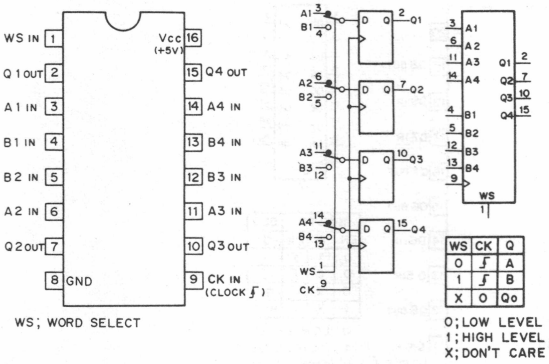

| INPUTS | | | OUTPUTS | |
|---|---|---|---|---|
| $\overline{R_D}$ | A | B | Q | $\overline{Q}$ |
| 0 | X | X | 0 | 1 |
| X | 1 | X | 0 | 1 |
| X | X | 0 | 0 | 1 |
| 1 | 0 | ↑ | ⎍ | ⎍ |
| 1 | ↓ | 1 | ⎍ | ⎍ |
| ↑ | 0 | 1 | ⎍ | ⎍ |

0;LOW LEVEL
1;HIGH LEVEL
X;DON'T CARE

OUTPUT PULSE WIDTH = 0.7CR

SN74LS399N (TI)

TTL QUAD 2-INPUT MULTIPLEXER WITH STORAGE
– TOP VIEW –

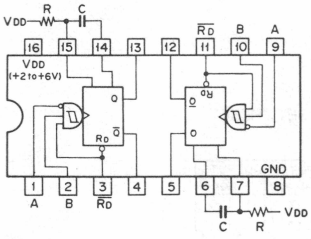



| WS | CK | Q |
|---|---|---|
| 0 | ⎍ | A |
| 1 | ⎍ | B |
| X | 0 | $Q_0$ |

0;LOW LEVEL
1;HIGH LEVEL
X;DON'T CARE

TC74HC221P (TOSHIBA)

C-MOS MONOSTABLE MULTIVIBRATOR WITH SCHMITT TRIGGER INPUT
– TOP VIEW –



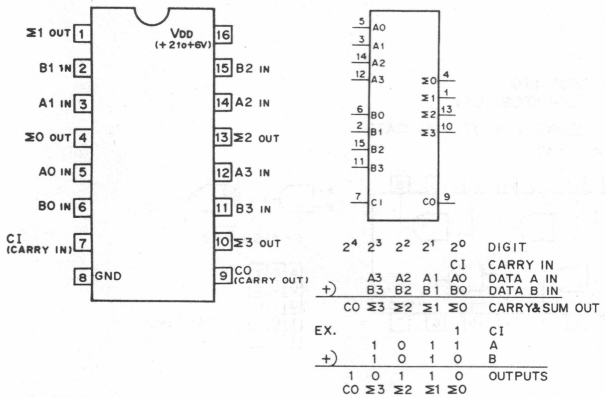

| INPUTS | | | OUTPUTS | |
|---|---|---|---|---|
| $\overline{R_D}$ | A | B | Q | $\overline{Q}$ |
| 0 | X | X | 0 | 1 |
| X | 1 | X | 0 | 1 |
| X | X | 0 | 0 | 1 |
| 1 | 0 | ↑ | ⎍ | ⎍ |
| 1 | ↓ | 1 | ⎍ | ⎍ |
| ↑ | 0 | 1 | ⎍ | ⎍ |

0;LOW LEVEL
1;HIGH LEVEL
X;DON'T CARE

OUTPUT PULSE WIDTH = 0.7CR

TC74HC283AP (TOSHIBA)

C-MOS 4-BIT BINARY FULL ADDER
– TOP VIEW –




$2^4$ $2^3$ $2^2$ $2^1$ $2^0$ DIGIT

CI CARRY IN

A3 A2 A1 A0 DATA A IN

+) B3 B2 B1 B0 DATA B IN

CO Σ3 Σ2 Σ1 Σ0 CARRY & SUM OUT

EX.

1 CI

1 0 1 1 A

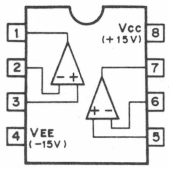
+) 1 0 1 0 B

1 0 1 1 0 OUTPUTS

CO Σ3 Σ2 Σ1 Σ0

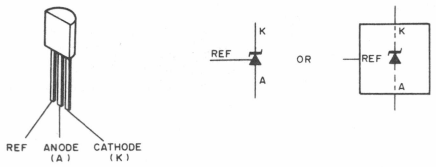
TL082CP (TI)

OPERATIONAL AMPLIFIER
(J FET-INPUT)
– TOP VIEW –



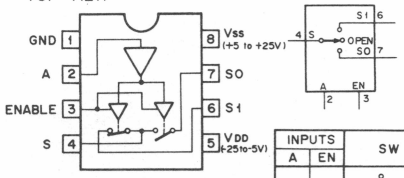

TL431CLP (TI)

ADJUSTABLE PRECISION SHUNT REGULATOR




TL607CP (TI)

P-MOS ANALOG SWITCH
– TOP VIEW –

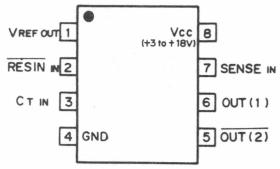


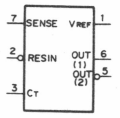

| INPUTS A | INPUTS EN | SW |
|---|---|---|
| X | 0 | OPEN |
| 0 | 1 | |
| 1 | 1 | |

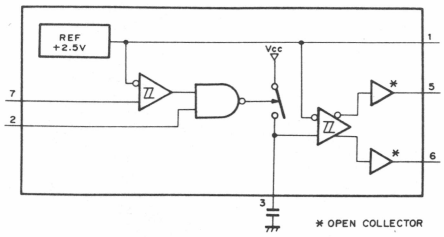
0;LOW LEVEL
1;HIGH LEVEL
X;DON'T CARE

TL7705ACP (TI)
TL7705CP (TI)

POWER VOLTAGE SUPERVISOR
– TOP VIEW –

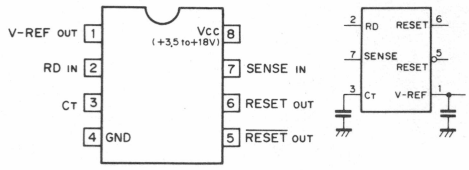


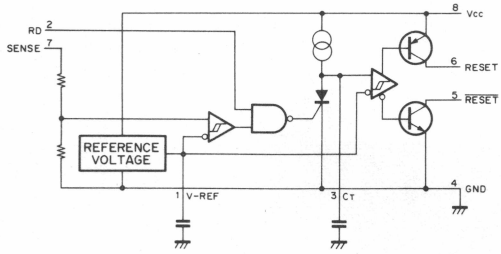




TL7705CP-B (TI)

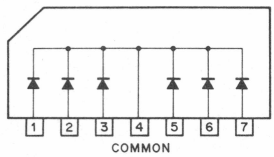
POWER VOLTAGE SUPERVISOR
– TOP VIEW –



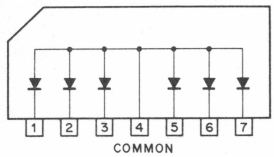

uPA54HA (NEC)

DIODE ARRAY
– SIDE VIEW –




uPA64HA (NEC)

DIODE ARRAY
– SIDE VIEW –



# SECTION D
# REPLACEABLE PARTS AND OPTIONAL FIXTURE

## 補修用部品注意事項

(1) 安全重要部品

回路図、分解図、電気部品表中、⚠印の部品は安全性を維持するために重要な部品です。従ってこれらの部品を交換するときには必ず指定の部品と交換して下さい。

(2) 部品の共通化
ソニーから供給される部品セットに実装されているものと異なることがあります。これは部品の共通化、改良等によるものです。
分解図や電気部品表には現時点での共通化された部品が記載されています。

(3) 部品の変更
部品の変更に関する情報は第E章「CHANGED PARTS」を参照して下さい。

(4) 部品の在庫
部品表のSP (Supply code) 欄にoで示される部品は交換頻度が低い部品ですので在庫していないことがあり、納期が長くなることがあります。

(5) コンデンサー、インダクター、抵抗の単位
回路図、分解図、電気部品表中、特に明記したものを除き、下記の単位は省略されています。
コンデンサー : μF
インダクター : μH
抵抗 : Ω

## Notes on Repair Parts

**(1) Safety Related Components Warning**

Components marked with ⚠ on the schematic diagrams, exploded views and electrical spare parts list are critical to safe operation. Replace these components with Sony parts whose part numbers appear in this manual or in service bulletins and service manual supplements published by Sony.

**(2) Standardization of Parts**
Repair parts supplied from sony Parts Center may not be always identical with the parts which actually in use due to "accommodating the improved parts and/or engineering changes" or "standardization of genuine parts".
This manual's exploded views and electrical spare parts list are indicating the part numbers of "the standardized genuine parts at present".

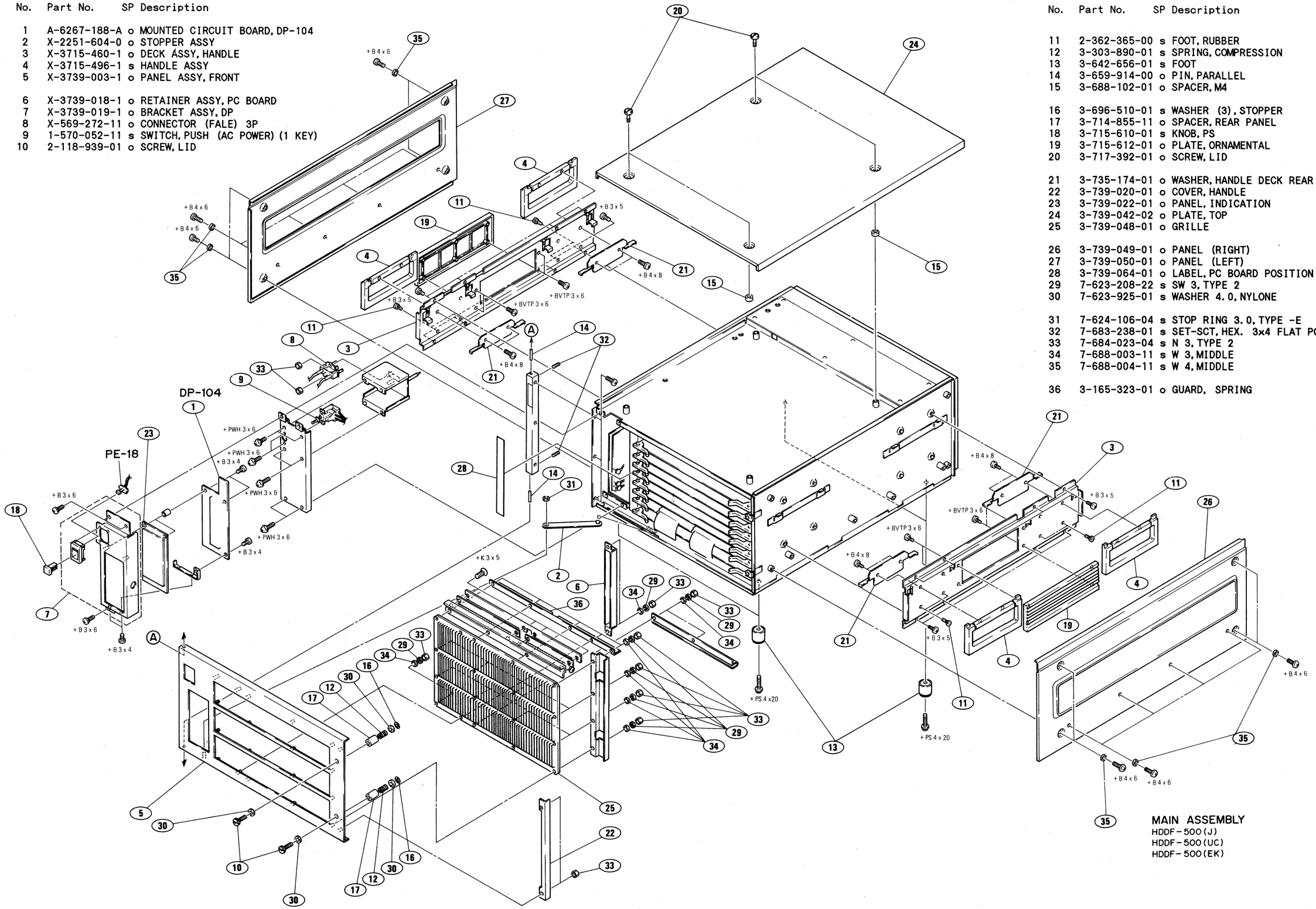
**(3) Change of Parts**
Regarding engineering parts changes, refer to Section E. "CHANGED PARTS".

**(4) Stock of Parts**
Parts marked with "o" SP (Supply Code) column of the spare parts list are not normally required for routine service work. Orders for parts marked with "o" will be processed, but allow for additional delivery time.

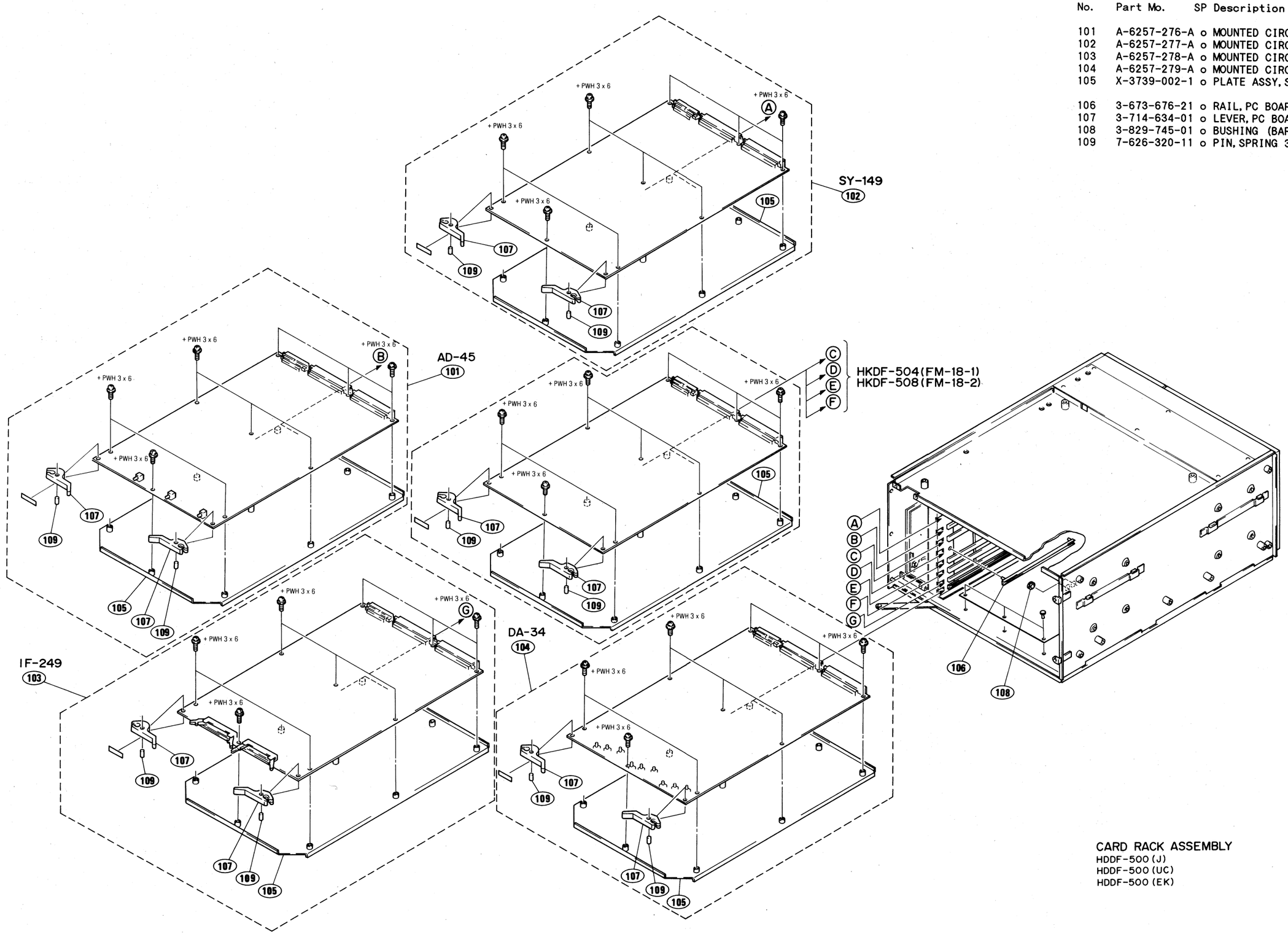
**(5) Units for Capacitors, Inductors and Resistors**
The following units are assumed in schematic diagrams, electrical parts list and exploded views unless otherwise specified.
Capacitors : μF
Inductors : μH
Resistors : Ω

MAIN ASSEMBLY, HDDF-500

| No. | Part No. | SP | Description |
|---|---|---|---|
| 1 | A-6267-188-A | o | MOUNTED CIRCUIT BOARD, DP-104 |
| 2 | X-2251-604-0 | o | STOPPER ASSY |
| 3 | X-3715-460-1 | o | DECK ASSY, HANDLE |
| 4 | X-3715-496-1 | s | HANDLE ASSY |
| 5 | X-3739-003-1 | o | PANEL ASSY, FRONT |
| 6 | X-3739-018-1 | o | RETAINER ASSY, PC BOARD |
| 7 | X-3739-019-1 | o | BRACKET ASSY, DP |
| 8 | X-569-272-11 | o | CONNECTOR (FALE) 3P |
| 9 | 1-570-052-11 | s | SWITCH, PUSH (AC POWER) (1 KEY) |
| 10 | 2-118-939-01 | o | SCREW, LID |
| 11 | 2-362-365-00 | s | FOOT, RUBBER |
| 12 | 3-303-890-01 | s | SPRING, COMPRESSION |
| 13 | 3-642-656-01 | s | FOOT |
| 14 | 3-659-914-00 | o | PIN, PARALLEL |
| 15 | 3-688-102-01 | o | SPACER, M4 |
| 16 | 3-696-510-01 | s | WASHER (3), STOPPER |
| 17 | 3-714-855-11 | o | SPACER, REAR PANEL |
| 18 | 3-715-610-01 | s | KNOB, PS |
| 19 | 3-715-612-01 | o | PLATE, ORNAMENTAL |
| 20 | 3-717-392-01 | o | SCREW, LID |
| 21 | 3-735-174-01 | o | WASHER, HANDLE DECK REAR BOARD D |
| 22 | 3-739-020-01 | o | COVER, HANDLE |
| 23 | 3-739-022-01 | o | PANEL, INDICATION |
| 24 | 3-739-042-02 | o | PLATE, TOP |
| 25 | 3-739-048-01 | o | GRILLE |
| 26 | 3-739-049-01 | o | PANEL (RIGHT) |
| 27 | 3-739-050-01 | o | PANEL (LEFT) |
| 28 | 3-739-064-01 | o | LABEL, PC BOARD POSITION |
| 29 | 7-623-208-22 | s | SW 3, TYPE 2 |
| 30 | 7-623-925-01 | s | WASHER 4.0, NYLONE |
| 31 | 7-624-106-04 | s | STOP RING 3.0, TYPE -E |
| 32 | 7-683-238-01 | s | SET-SCT, HEX. 3x4 FLAT POINT |
| 33 | 7-684-023-04 | s | N 3, TYPE 2 |
| 34 | 7-688-003-11 | s | W 3, MIDDLE |
| 35 | 7-688-004-11 | s | W 4, MIDDLE |
| 36 | 3-165-323-01 | o | GUARD, SPRING |




MAIN ASSEMBLY
HDDF-500(J)
HDDF-500(UC)
HDDF-500(EK)



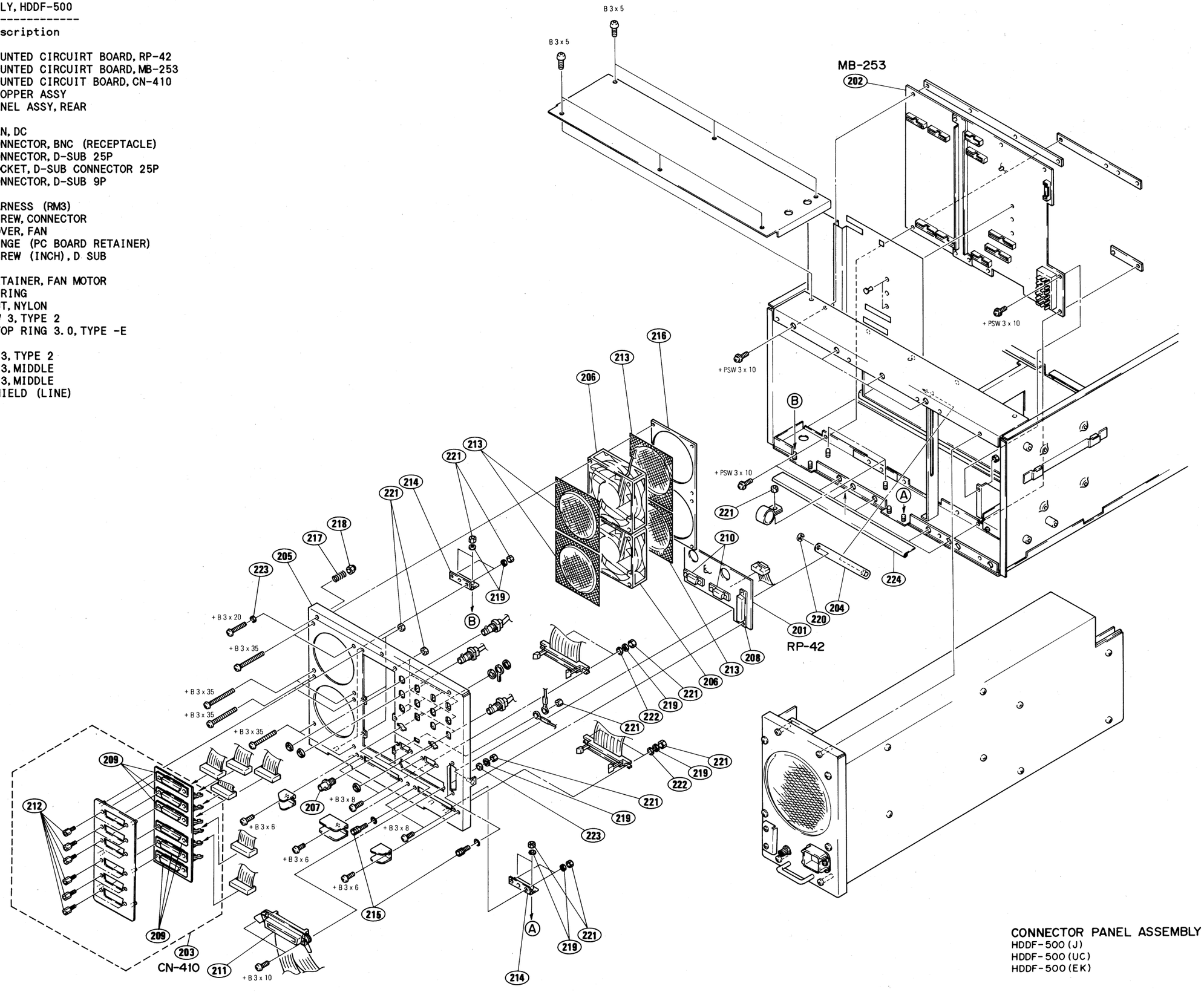

CARD RACK ASSEMBLY, HDDF-500

| No. | Part No. | SP | Description |
|---|---|---|---|
| 101 | A-6257-276-A | o | MOUNTED CIRCUIT BOARD, AD-45 |
| 102 | A-6257-277-A | o | MOUNTED CIRCUIT BOARD, SY-149 |
| 103 | A-6257-278-A | o | MOUNTED CIRCUIT BOARD, IF-249 |
| 104 | A-6257-279-A | o | MOUNTED CIRCUIT BOARD, DA-34 |
| 105 | X-3739-002-1 | o | PLATE ASSY, SHIELD |
| 106 | 3-673-676-21 | o | RAIL, PC BOARD GUIDE |
| 107 | 3-714-634-01 | o | LEVER, PC BOARD |
| 108 | 3-829-745-01 | o | BUSHING (BAR ANTENNA) |
| 109 | 7-626-320-11 | o | PIN, SPRING 3x8 |

CARD RACK ASSEMBLY
HDDF-500 (J)
HDDF-500 (UC)
HDDF-500 (EK)

CONNECTOR PANEL ASSEMBLY, HDDF-500

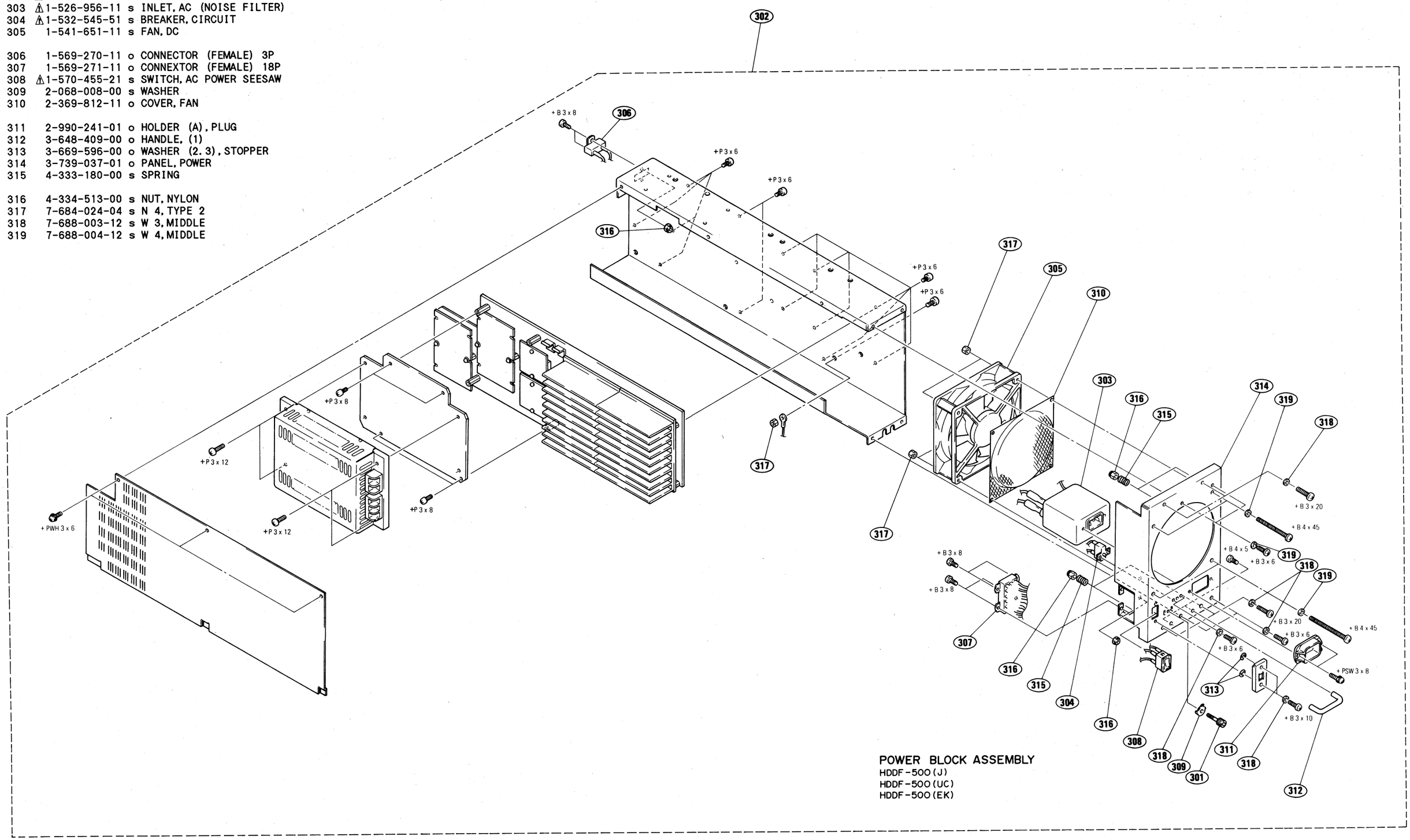
| No. | Part No. | SP | Description |
|---|---|---|---|
| 201 | A-6257-275-A | o | MOUNTED CIRCUIRT BOARD, RP-42 |
| 202 | A-6265-123-A | o | MOUNTED CIRCUIRT BOARD, MB-253 |
| 203 | A-6268-366-A | o | MOUNTED CIRCUIT BOARD, CN-410 |
| 204 | X-2251-604-0 | o | STOPPER ASSY |
| 205 | X-3739-013-1 | o | PANEL ASSY, REAR |
| 206 | 1-541-327-61 | s | FAN, DC |
| 207 | 1-561-781-11 | s | CONNECTOR, BNC (RECEPTACLE) |
| 208 | 1-563-228-11 | s | CONNECTOR, D-SUB 25P |
| 209 | 1-563-891-21 | s | SOCKET, D-SUB CONNECTOR 25P |
| 210 | 1-565-942-11 | s | CONNECTOR, D-SUB 9P |
| 211 | 1-944-251-11 | o | HARNESS (RM3) |
| 212 | 2-133-531-01 | o | SCREW, CONNECTOR |
| 213 | 2-252-609-00 | o | COVER, FAN |
| 214 | 2-357-023-01 | o | HINGE (PC BOARD RETAINER) |
| 215 | 3-694-981-01 | o | SCREW (INCH), D SUB |
| 216 | 3-739-071-01 | o | RETAINER, FAN MOTOR |
| 217 | 4-333-180-00 | s | SPRING |
| 218 | 4-334-513-00 | s | NUT, NYLON |
| 219 | 7-623-208-22 | s | SW 3, TYPE 2 |
| 220 | 7-624-106-04 | s | STOP RING 3.0, TYPE -E |
| 221 | 7-684-023-04 | s | N 3, TYPE 2 |
| 222 | 7-688-003-11 | s | W 3, MIDDLE |
| 223 | 7-688-003-12 | s | W 3, MIDDLE |
| 224 | 3-165-322-01 | o | SHIELD (LINE) |




CONNECTOR PANEL ASSEMBLY
HDDF-500 (J)
HDDF-500 (UC)
HDDF-500 (EK)

POWER BLOCK ASSEMBLY, HDDF-500

| No. | Part No. | SP | Description |
|---|---|---|---|
| 301 | X-2068-004-0 | s | TERMINAL ASSY |
| 302 | ⚠1-413-525-11 | o | SWITCHING REGULATOR (PS-043B) |
| 303 | ⚠1-526-956-11 | s | INLET, AC (NOISE FILTER) |
| 304 | ⚠1-532-545-51 | s | BREAKER, CIRCUIT |
| 305 | 1-541-651-11 | s | FAN, DC |
| 306 | 1-569-270-11 | o | CONNECTOR (FEMALE) 3P |
| 307 | 1-569-271-11 | o | CONNEXTOR (FEMALE) 18P |
| 308 | ⚠1-570-455-21 | s | SWITCH, AC POWER SEESAW |
| 309 | 2-068-008-00 | s | WASHER |
| 310 | 2-369-812-11 | o | COVER, FAN |
| 311 | 2-990-241-01 | o | HOLDER (A), PLUG |
| 312 | 3-648-409-00 | o | HANDLE, (1) |
| 313 | 3-669-596-00 | o | WASHER (2.3), STOPPER |
| 314 | 3-739-037-01 | o | PANEL, POWER |
| 315 | 4-333-180-00 | s | SPRING |
| 316 | 4-334-513-00 | s | NUT, NYLON |
| 317 | 7-684-024-04 | s | N 4, TYPE 2 |
| 318 | 7-688-003-12 | s | W 3, MIDDLE |
| 319 | 7-688-004-12 | s | W 4, MIDDLE |




POWER BLOCK ASSEMBLY
HDDF-500 (J)
HDDF-500 (UC)
HDDF-500 (EK)

## AD-45 BOARD

| Ref. No. or Q'ty | Part No. | SP | Description |
|---|---|---|---|
| 1pc | A-6257-276-A | o | MOUNTED CIRCUIT BOARD, AD-45 |
| This board includes DL-38 and DL-39 boards. See "DL-38 BOARD" and "DL-39 BOARD" for details of it. | | | |
| 3pcs | 1-526-663-00 | o | SOCKET, IC (DP) 42P |
| 2pcs | 1-566-492-11 | o | PIN, SOCKET 20P |
| 1pc | 1-633-514-11 | o | PRINTED CIRCUIT BOARD, DL-38 |
| 1pc | 1-633-515-11 | o | PRINTED CIRCUIT BOARD, DL-39 |
| 2pcs | 3-714-634-01 | o | LEVER, PC BOARD |
| 6pcs | 7-622-207-05 | s | N 2.6, TYPE 2 |
| 2pcs | 7-626-320-11 | o | PIN, SPRING 3X8 |
| 6pcs | 7-628-254-30 | s | SCREW +PS 2.6X10 |
| 9pcs | 7-682-903-01 | s | SCREW +PWH 3X5 |
| C1 | 1-124-621-11 | s | ELECT 3300uF 20% 6.3 |
| C2 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C3 | 1-161-890-11 | s | CERAMIC 0.022uF 50V |
| C4 | 1-124-566-11 | s | ELECT 120uF 20% 6.3V |
| C5 | 1-124-566-11 | s | ELECT 120uF 20% 6.3V |
| C6 | 1-162-717-11 | s | CERAMIC 200PF 1% 50V |
| C7 | 1-162-717-11 | s | CERAMIC 200PF 1% 50V |
| C8 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C9 | 1-162-710-11 | s | CERAMIC 100PF 1% 50V |
| C10 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C11 | 1-124-566-11 | s | ELECT 120uF 20% 6.3V |
| C12 | 1-164-124-11 | s | CERAMIC 300PF 5% 50V |
| C13 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C14 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C15 | 1-162-765-11 | s | CERAMIC 0.001uF 5% 50V |
| C16 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C17 | 1-124-569-11 | s | ELECT 56uF 10% 16V |
| C18 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C19 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C20 | 1-162-710-11 | s | CERAMIC 100PF 1% 50V |
| C21 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C22 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C23 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C24 | 1-124-569-11 | s | ELECT 56uF 10% 16V |
| C25 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C26 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C27 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C28 | 1-124-569-11 | s | ELECT 56uF 10% 16V |
| C29 | 1-124-569-11 | s | ELECT 56uF 10% 16V |
| C30 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C31 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C32 | 1-124-566-11 | s | ELECT 120uF 20% 6.3V |
| C33 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C34 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C35 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C36 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C37 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C38 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C39 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C40 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C41 | 1-162-765-11 | s | CERAMIC 0.001uF 5% 50V |
| C42 | 1-162-717-11 | s | CERAMIC 200PF 1% 50V |
| C43 | 1-124-569-11 | s | ELECT 56uF 10% 16V |
| C44 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C45 | 1-124-569-11 | s | ELECT 56uF 10% 16V |
| C46 | 1-164-123-11 | s | CERAMIC 240PF 5% 50V |



| Ref. No. or Q'ty | Part No. | SP | Description |
|---|---|---|---|
| C47 | 1-162-710-11 | s | CERAMIC 100PF 1% 50V |
| C48 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C49 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C50 | 1-124-569-11 | s | ELECT 56uF 10% 16V |
| C51 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C52 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C53 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C54 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C55 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C56 | 1-124-566-11 | s | ELECT 120uF 20% 6.3V |
| C57 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C58 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C59 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C60 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C61 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C62 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C63 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C64 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C65 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C66 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C67 | 1-162-710-11 | s | CERAMIC 100PF 1% 50V |
| C68 | 1-130-472-00 | s | MYLAR 0.0012uF 5% 50V |
| C69 | 1-136-153-00 | s | FILM 0.01uF 5% 50V |
| C70 | 1-130-471-00 | s | MYLAR 0.001uF 5% 50V |
| C71 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C72 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C73 | 1-124-569-11 | s | ELECT 56uF 10% 16V |
| C74 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C75 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C76 | 1-124-621-11 | s | ELECT 3300uF 20% 6.3 |
| C77 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C78 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C79 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C80 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C81 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C82 | 1-136-153-00 | s | FILM 0.01uF 5% 50V |
| C83 | 1-124-566-11 | s | ELECT 120uF 20% 6.3V |
| C84 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C85 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C86 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C87 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C88 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C89 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C90 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C91 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C92 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C93 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C94 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C95 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C96 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C97 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C98 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C99 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C100 | 1-124-566-11 | s | ELECT 120uF 20% 6.3V |
| C101 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C102 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C103 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C104 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C105 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |

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| Ref. No. or Q'ty | Part No. | SP | Description |
|---|---|---|---|
| C106 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C107 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C108 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C109 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C110 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C111 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C112 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C113 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C114 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C115 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C116 | 1-124-566-11 | s | ELECT 120uF 20% 6.3V |
| C117 | 1-124-566-11 | s | ELECT 120uF 20% 6.3V |
| C118 | 1-124-566-11 | s | ELECT 120uF 20% 6.3V |
| C119 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C120 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C121 | 1-136-153-00 | s | FILM 0.01uF 5% 50V |
| C122 | 1-124-566-11 | s | ELECT 120uF 20% 6.3V |
| C123 | 1-124-569-11 | s | ELECT 56uF 10% 16V |
| C124 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C125 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C126 | 1-124-569-11 | s | ELECT 56uF 10% 16V |
| C127 | 1-124-569-11 | s | ELECT 56uF 10% 16V |
| C128 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C129 | 1-136-153-00 | s | FILM 0.01uF 5% 50V |
| C130 | 1-162-872-11 | s | CERAMIC 51PF 5% 50V |
| C131 | 1-164-123-11 | s | CERAMIC 240PF 5% 50V |
| C132 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C133 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C134 | 1-124-569-11 | s | ELECT 56uF 10% 16V |
| C135 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C136 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C137 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C138 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C139 | 1-136-153-00 | s | FILM 0.01uF 5% 50V |
| C140 | 1-124-569-11 | s | ELECT 56uF 10% 16V |
| C141 | 1-124-569-11 | s | ELECT 56uF 10% 16V |
| C142 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C143 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C144 | 1-124-569-11 | s | ELECT 56uF 10% 16V |
| C145 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C146 | 1-124-569-11 | s | ELECT 56uF 10% 16V |
| C147 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C148 | 1-162-666-11 | s | CERAMIC 0.027uF 10% 50V |
| C149 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C150 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C151 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C152 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C153 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C154 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C155 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C156 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C157 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C158 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C159 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C160 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C161 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C162 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C163 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C164 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |

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| Ref. No. or Q'ty | Part No. | SP | Description |
|---|---|---|---|
| C165 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C166 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C167 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C168 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C169 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C170 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C171 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C172 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C173 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C174 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C175 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C176 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C177 | 1-124-566-11 | s | ELECT 120uF 20% 6.3V |
| C178 | 1-124-566-11 | s | ELECT 120uF 20% 6.3V |
| C179 | 1-124-566-11 | s | ELECT 120uF 20% 6.3V |
| C180 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C181 | 1-136-153-00 | s | FILM 0.01uF 5% 50V |
| C182 | 1-124-569-11 | s | ELECT 56uF 10% 16V |
| C183 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C184 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C185 | 1-131-367-00 | s | TANTALUM 22uF 10% 20V |
| C186 | 1-124-569-11 | s | ELECT 56uF 10% 16V |
| C187 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C188 | 1-136-153-00 | s | FILM 0.01uF 5% 50V |
| C189 | 1-162-872-11 | s | CERAMIC 51PF 5% 50V |
| C190 | 1-164-123-11 | s | CERAMIC 240PF 5% 50V |
| C191 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C192 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C193 | 1-124-569-11 | s | ELECT 56uF 10% 16V |
| C194 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C195 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C196 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C197 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C198 | 1-136-153-00 | s | FILM 0.01uF 5% 50V |
| C199 | 1-124-569-11 | s | ELECT 56uF 10% 16V |
| C200 | 1-124-569-11 | s | ELECT 56uF 10% 16V |
| C201 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C202 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C203 | 1-124-569-11 | s | ELECT 56uF 10% 16V |
| C204 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C205 | 1-124-569-11 | s | ELECT 56uF 10% 16V |
| C206 | 1-162-181-11 | s | CERAMIC 1uF 50V |
| C207 | 1-162-666-11 | s | CERAMIC 0.027uF 10% 50V |
| C208 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C209 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C210 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C211 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C212 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C213 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C214 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C215 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C216 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C217 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C218 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C219 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C220 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C221 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C222 | 1-124-566-11 | s | ELECT 120uF 20% 6.3V |
| C223 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |

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| Ref. No. or Q'ty | Part No. | SP | Description |
|---|---|---|---|
| C224 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C225 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C226 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C227 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C228 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C229 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C230 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C231 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C232 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C233 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C234 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C235 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C236 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C237 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C238 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C239 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C240 | 1-124-566-11 | s | ELECT 120uF 20% 6.3V |
| C241 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C242 | 1-124-566-11 | s | ELECT 120uF 20% 6.3V |
| C243 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C244 | 1-136-153-00 | s | FILM 0.01uF 5% 50V |
| C245 | 1-124-569-11 | s | ELECT 56uF 10% 16V |
| C246 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C247 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C248 | 1-124-569-11 | s | ELECT 56uF 10% 16V |
| C249 | 1-124-569-11 | s | ELECT 56uF 10% 16V |
| C250 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C251 | 1-136-153-00 | s | FILM 0.01uF 5% 50V |
| C252 | 1-162-872-11 | s | CERAMIC 51PF 5% 50V |
| C253 | 1-164-123-11 | s | CERAMIC 240PF 5% 50V |
| C254 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C255 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C256 | 1-124-569-11 | s | ELECT 56uF 10% 16V |
| C257 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C258 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C259 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C260 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C261 | 1-136-153-00 | s | FILM 0.01uF 5% 50V |
| C262 | 1-124-569-11 | s | ELECT 56uF 10% 16V |
| C263 | 1-124-569-11 | s | ELECT 56uF 10% 16V |
| C264 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C265 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C266 | 1-124-569-11 | s | ELECT 56uF 10% 16V |
| C267 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C268 | 1-124-569-11 | s | ELECT 56uF 10% 16V |
| C269 | 1-124-569-11 | s | ELECT 56uF 10% 16V |
| C270 | 1-161-900-11 | s | CERAMIC 1uF 50V |
| C271 | 1-162-666-11 | s | CERAMIC 0.027uF 10% 50V |
| C700 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| CN4 | 1-561-310-00 | s | CONNECTOR, COAXIAL, MALE |
| CN5 | 1-561-310-00 | s | CONNECTOR, COAXIAL, MALE |
| CN6 | 1-561-310-00 | s | CONNECTOR, COAXIAL, MALE |
| CN119 | 1-506-746-11 | s | CONNECTOR, DIN 48P, MALE |
| CN120 | 1-565-207-21 | s | CONNECTOR, DIN 128P, MALE |
| CN121 | 1-565-207-21 | s | CONNECTOR, DIN 128P, MALE |
| CP1 | 1-231-455-00 | s | ENCAPSULATED COMPONENTS, CR |
| CP2 | 1-231-455-00 | s | ENCAPSULATED COMPONENTS, CR |
| CP3 | 1-231-455-00 | s | ENCAPSULATED COMPONENTS, CR |

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| Ref. No. or Q'ty | Part No. | SP | Description |
|---|---|---|---|
| CP4 | 1-231-455-00 | s | ENCAPSULATED COMPONENTS, CR |
| CP5 | 1-231-455-00 | s | ENCAPSULATED COMPONENTS, CR |
| CP6 | 1-231-455-00 | s | ENCAPSULATED COMPONENTS, CR |
| CP7 | 1-231-455-00 | s | ENCAPSULATED COMPONENTS, CR |
| CP8 | 1-231-455-00 | s | ENCAPSULATED COMPONENTS, CR |
| CP9 | 1-231-455-00 | s | ENCAPSULATED COMPONENTS, CR |
| CP10 | 1-231-455-00 | s | ENCAPSULATED COMPONENTS, CR |
| CP11 | 1-231-455-00 | s | ENCAPSULATED COMPONENTS, CR |
| CP12 | 1-231-455-00 | s | ENCAPSULATED COMPONENTS, CR |
| CP13 | 1-231-455-00 | s | ENCAPSULATED COMPONENTS, CR |
| CP14 | 1-231-455-00 | s | ENCAPSULATED COMPONENTS, CR |
| CP15 | 1-231-455-00 | s | ENCAPSULATED COMPONENTS, CR |
| CV1 | 1-141-299-11 | s | CAP, TRIMMER 6PF |
| CV2 | 1-141-299-11 | s | CAP, TRIMMER 6PF |
| CV3 | 1-141-299-11 | s | CAP, TRIMMER 6PF |
| D1 | 8-719-911-19 | s | DIODE 1SS119 |
| D2 | 8-719-911-19 | s | DIODE 1SS119 |
| D3 | 8-719-911-19 | s | DIODE 1SS119 |
| D4 | 8-719-911-19 | s | DIODE 1SS119 |
| D5 | 8-719-903-27 | s | DIODE 1SS168 |
| D6 | 8-719-903-27 | s | DIODE 1SS168 |
| D7 | 8-759-107-45 | s | IC UPA54HA |
| D8 | 8-759-107-46 | s | IC UPA64HA |
| D9 | 8-759-107-45 | s | IC UPA54HA |
| D10 | 8-759-107-46 | s | IC UPA64HA |
| D11 | 8-759-107-45 | s | IC UPA54HA |
| D12 | 8-759-107-46 | s | IC UPA64HA |
| D13 | 8-759-107-45 | s | IC UPA54HA |
| D14 | 8-759-107-46 | s | IC UPA64HA |
| D15 | 8-759-107-45 | s | IC UPA54HA |
| D16 | 8-759-107-46 | s | IC UPA64HA |
| D17 | 8-759-107-45 | s | IC UPA54HA |
| D18 | 8-759-107-46 | s | IC UPA64HA |
| D19 | 8-759-107-45 | s | IC UPA54HA |
| D20 | 8-759-107-46 | s | IC UPA64HA |
| D21 | 8-759-107-45 | s | IC UPA54HA |
| D22 | 8-759-107-46 | s | IC UPA64HA |
| D23 | 8-759-107-45 | s | IC UPA54HA |
| D24 | 8-759-107-46 | s | IC UPA64HA |
| D25 | 8-759-908-15 | s | IC TL431CLP |
| D701 | 8-719-903-27 | s | DIODE 1SS168 |
| FB1 | 1-535-178-00 | s | BEAD, FERRITE |
| FB2 | 1-535-178-00 | s | BEAD, FERRITE |
| FB3 | 1-535-178-00 | s | BEAD, FERRITE |
| FL1 | 1-236-235-12 | s | FILTER, LOW PASS |
| FL2 | 1-236-235-12 | s | FILTER, LOW PASS |
| FL3 | 1-236-235-12 | s | FILTER, LOW PASS |
| ICC3 | 8-759-002-72 | s | IC MC10H116L |
| ICC8 | 8-759-978-10 | s | IC 74AC374PC |
| ICC9 | 8-759-978-10 | s | IC 74AC374PC |
| ICC10 | 8-759-002-72 | s | IC MC10H116L |
| ICC12 | 8-759-002-71 | s | IC MC10H115L |
| ICC15 | 8-759-002-71 | s | IC MC10H115L |
| ICC16 | 8-759-978-10 | s | IC 74AC374PC |
| ICC17 | 8-759-978-10 | s | IC 74AC374PC |
| ICC18 | 8-759-002-72 | s | IC MC10H116L |
| ICC20 | 8-759-002-71 | s | IC MC10H115L |

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| Ref. No. or Q'ty | Part No. | SP | Description |
|---|---|---|---|
| ICC23 | 8-759-002-71 | s | IC MC10H115L |
| ICC24 | 8-759-978-10 | s | IC 74AC374PC |
| ICC25 | 8-759-978-10 | s | IC 74AC374PC |
| ICC26 | 8-759-002-72 | s | IC MC10H116L |
| ICC28 | 8-759-002-71 | s | IC MC10H115L |
| ICC30 | 8-759-002-71 | s | IC MC10H115L |
| ICD2 | 8-759-002-66 | s | IC MC10H105L |
| ICD3 | 8-759-002-99 | s | IC MC10H176L |
| ICD4 | 8-759-002-78 | s | IC MC10H125L |
| ICD5 | 8-759-980-97 | s | IC 74AC240PC |
| ICD8 | 8-759-978-10 | s | IC 74AC374PC |
| ICD9 | 8-759-978-10 | s | IC 74AC374PC |
| ICD10 | 8-759-978-10 | s | IC 74AC374PC |
| ICD12 | 8-759-978-10 | s | IC 74AC374PC |
| ICD16 | 8-759-978-10 | s | IC 74AC374PC |
| ICD17 | 8-759-978-10 | s | IC 74AC374PC |
| ICD18 | 8-759-978-10 | s | IC 74AC374PC |
| ICD20 | 8-759-978-10 | s | IC 74AC374PC |
| ICD24 | 8-759-978-10 | s | IC 74AC374PC |
| ICD25 | 8-759-978-10 | s | IC 74AC374PC |
| ICD26 | 8-759-978-10 | s | IC 74AC374PC |
| ICD28 | 8-759-978-10 | s | IC 74AC374PC |
| ICE3 | 8-759-002-62 | s | IC MC10H101L |
| ICE4 | 8-759-002-62 | s | IC MC10H101L |
| ICE5 | 8-759-002-62 | s | IC MC10H101L |
| ICE8 | 8-759-947-10 | s | IC 74ACT374PC |
| ICE9 | 8-759-947-10 | s | IC 74ACT374PC |
| ICE10 | 8-759-947-10 | s | IC 74ACT374PC |
| ICE12 | 8-759-947-10 | s | IC 74ACT374PC |
| ICE16 | 8-759-947-10 | s | IC 74ACT374PC |
| ICE17 | 8-759-947-10 | s | IC 74ACT374PC |
| ICE18 | 8-759-947-10 | s | IC 74ACT374PC |
| ICE20 | 8-759-947-10 | s | IC 74ACT374PC |
| ICE24 | 8-759-947-10 | s | IC 74ACT374PC |
| ICE25 | 8-759-947-10 | s | IC 74ACT374PC |
| ICE26 | 8-759-947-10 | s | IC 74ACT374PC |
| ICE28 | 8-759-947-10 | s | IC 74ACT374PC |
| ICF3 | 8-759-002-80 | s | IC MC10H131L |
| ICF4 | 8-759-002-63 | s | IC MC10H102L |
| ICF5 | 8-759-002-70 | s | IC MC10H113L |
| ICF8 | 8-759-002-78 | s | IC MC10H125L |
| ICF9 | 8-759-002-78 | s | IC MC10H125L |
| ICF10 | 8-759-002-78 | s | IC MC10H125L |
| ICF12 | 8-759-002-78 | s | IC MC10H125L |
| ICF16 | 8-759-002-78 | s | IC MC10H125L |
| ICF17 | 8-759-002-78 | s | IC MC10H125L |
| ICF18 | 8-759-002-78 | s | IC MC10H125L |
| ICF20 | 8-759-002-78 | s | IC MC10H125L |
| ICF24 | 8-759-002-78 | s | IC MC10H125L |
| ICF25 | 8-759-002-78 | s | IC MC10H125L |
| ICF26 | 8-759-002-78 | s | IC MC10H125L |
| ICF28 | 8-759-002-78 | s | IC MC10H125L |
| ICG3 | 8-759-002-70 | s | IC MC10H113L |
| ICG4 | 8-759-002-83 | s | IC MC10H141L |
| ICG8 | 8-759-002-83 | s | IC MC10H141L |
| ICG9 | 8-759-002-83 | s | IC MC10H141L |
| ICG10 | 8-759-002-99 | s | IC MC10H176L |

(AD-45 BOARD)

| Ref. No. or Q'ty | Part No. | SP | Description |
|---|---|---|---|
| ICG12 | 8-759-002-99 | s | IC MC10H176L |
| ICG17 | 8-759-002-83 | s | IC MC10H141L |
| ICG18 | 8-759-002-83 | s | IC MC10H141L |
| ICG24 | 8-759-002-99 | s | IC MC10H176L |
| ICG25 | 8-759-002-99 | s | IC MC10H176L |
| ICG26 | 8-759-002-83 | s | IC MC10H141L |
| ICG28 | 8-759-002-83 | s | IC MC10H141L |
| ICH2 | 8-759-902-21 | s | IC SN74LS221N |
| ICH3 | 8-759-900-05 | s | IC SN74LS05N |
| ICH7 | 8-759-002-62 | s | IC MC10H101L |
| ICH8 | 8-759-002-86 | s | IC MC10H158L |
| ICH9 | 8-759-002-86 | s | IC MC10H158L |
| ICH10 | 8-759-002-99 | s | IC MC10H176L |
| ICH11 | 8-759-002-99 | s | IC MC10H176L |
| ICH16 | 8-759-003-05 | s | IC MC10H189L |
| ICH17 | 8-759-002-86 | s | IC MC10H158L |
| ICH18 | 8-759-002-86 | s | IC MC10H158L |
| ICH24 | 8-759-002-99 | s | IC MC10H176L |
| ICH25 | 8-759-002-99 | s | IC MC10H176L |
| ICH26 | 8-759-002-86 | s | IC MC10H158L |
| ICH28 | 8-759-002-86 | s | IC MC10H158L |
| ICJ2 | 8-759-902-21 | s | IC SN74LS221N |
| ICJ10 | 8-752-011-60 | s | IC CX20116 |
| ICJ19 | 8-752-011-60 | s | IC CX20116 |
| ICJ29 | 8-752-011-60 | s | IC CX20116 |
| ICK2 | 8-759-902-21 | s | IC SN74LS221N |
| ICK6 | 8-759-990-82 | s | IC TL082CP |
| ICK8 | 8-743-931-10 | s | IC BX3931A |
| ICK9 | 8-741-124-41 | s | IC BX1244A |
| ICK14 | 8-759-990-82 | s | IC TL082CP |
| ICK16 | 8-743-931-10 | s | IC BX3931A |
| ICK17 | 8-741-124-41 | s | IC BX1244A |
| ICK24 | 8-759-990-82 | s | IC TL082CP |
| ICK25 | 8-743-931-10 | s | IC BX3931A |
| ICK26 | 8-741-124-41 | s | IC BX1244A |
| ICL2 | 8-759-902-21 | s | IC SN74LS221N |
| ICL3 | 8-759-903-19 | s | LM319N |
| ICL7 | 8-743-930-00 | s | IC BX-3930 |
| ICL15 | 8-743-930-00 | s | IC BX-3930 |
| ICL24 | 8-743-930-00 | s | IC BX-3930 |
| ICM2 | 8-759-903-19 | s | LM319N |
| ICM4 | 8-741-124-41 | s | IC BX1244A |
| ICN1 | 8-743-931-10 | s | IC BX3931A |
| ICN4 | 8-743-930-00 | s | IC BX-3930 |
| ICP1 | 8-743-930-00 | s | IC BX-3930 |
| ICP4 | 8-741-124-41 | s | IC BX1244A |
| ICR3 | 8-759-906-07 | s | IC TL607CP |
| ICS8 | 8-743-931-10 | s | IC BX3931A |
| ICS17 | 8-743-931-10 | s | IC BX3931A |
| ICS25 | 8-743-931-10 | s | IC BX3931A |
| ICT2 | 8-749-900-76 | s | IC HD-1B |
| ICT7 | 8-743-930-00 | s | IC BX-3930 |
| ICT16 | 8-743-930-00 | s | IC BX-3930 |
| ICT25 | 8-743-930-00 | s | IC BX-3930 |
| L1 | 1-421-370-00 | s | COIL, CHOKE |

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| Ref. No. or Q'ty | Part No. | SP | Description |
|---|---|---|---|
| L2 | 1-421-370-00 | s | COIL, CHOKE |
| L3 | 1-421-370-00 | s | COIL, CHOKE |
| L4 | 1-421-370-00 | s | COIL, CHOKE |
| L5 | 1-421-370-00 | s | COIL, CHOKE |
| L6 | 1-421-370-00 | s | COIL, CHOKE |
| L7 | 1-421-370-00 | s | COIL, CHOKE |
| L8 | 1-408-422-00 | s | INDUCTOR 120uH |
| L9 | 1-421-370-00 | s | COIL, CHOKE |
| L10 | 1-421-370-00 | s | COIL, CHOKE |
| L11 | 1-408-422-00 | s | INDUCTOR 120uH |
| L12 | 1-421-370-00 | s | COIL, CHOKE |
| L13 | 1-421-370-00 | s | COIL, CHOKE |
| L14 | 1-408-422-00 | s | INDUCTOR 120uH |
| Q1 | 8-729-119-76 | s | TRANSISTOR 2SA1115P |
| Q2 | 8-729-105-72 | s | TRANSISTOR 2SK523-L1 |
| Q3 | 8-729-105-72 | s | TRANSISTOR 2SK523-L1 |
| Q4 | 8-729-119-76 | s | TRANSISTOR 2SA1115P |
| Q5 | 8-729-105-72 | s | TRANSISTOR 2SK523-L1 |
| Q6 | 8-729-105-72 | s | TRANSISTOR 2SK523-L1 |
| Q7 | 8-729-119-76 | s | TRANSISTOR 2SA1115P |
| Q8 | 8-729-105-72 | s | TRANSISTOR 2SK523-L1 |
| Q9 | 8-729-105-72 | s | TRANSISTOR 2SK523-L1 |
| Q701 | 8-729-105-71 | s | TRANSISTOR 2SK523-K2 |
| R1 | 1-247-100-00 | s | CARBON 51 5% 1/4W |
| R2 | 1-247-100-00 | s | CARBON 51 5% 1/4W |
| R3 | 1-215-439-00 | s | METAL 5.6K 1% 1/6W |
| R4 | 1-215-442-00 | s | METAL 7.5K 1% 1/6W |
| R5 | 1-215-430-00 | s | METAL 2.4K 1% 1/6W |
| R6 | 1-215-437-00 | s | METAL 4.7K 1% 1/6W |
| R7 | 1-247-713-11 | s | CARBON 1K 5% 1/4W |
| R8 | 1-247-708-11 | s | CARBON 470 5% 1/4W |
| R9 | 1-247-708-11 | s | CARBON 470 5% 1/4W |
| R10 | 1-247-128-00 | s | CARBON 750 5% 1/4W |
| R11 | 1-247-700-11 | s | CARBON 100 5% 1/4W |
| R12 | 1-247-138-00 | s | CARBON 2K 5% 1/4W |
| R13 | 1-247-130-00 | s | CARBON 910 5% 1/4W |
| R14 | 1-214-759-00 | s | METAL 16K 1% 1/4W |
| R15 | 1-247-122-00 | s | CARBON 430 5% 1/4W |
| R16 | 1-247-700-11 | s | CARBON 100 5% 1/4W |
| R17 | 1-247-700-11 | s | CARBON 100 5% 1/4W |
| R18 | 1-247-700-11 | s | CARBON 100 5% 1/4W |
| R19 | 1-247-700-11 | s | CARBON 100 5% 1/4W |
| R20 | 1-247-700-11 | s | CARBON 100 5% 1/4W |
| R21 | 1-247-700-11 | s | CARBON 100 5% 1/4W |
| R22 | 1-247-700-11 | s | CARBON 100 5% 1/4W |
| R23 | 1-247-100-00 | s | CARBON 51 5% 1/4W |
| R24 | 1-247-700-11 | s | CARBON 100 5% 1/4W |
| R25 | 1-247-100-00 | s | CARBON 51 5% 1/4W |
| R26 | 1-247-100-00 | s | CARBON 51 5% 1/4W |
| R27 | 1-247-100-00 | s | CARBON 51 5% 1/4W |
| R28 | 1-247-100-00 | s | CARBON 51 5% 1/4W |
| R29 | 1-214-736-00 | s | METAL 2K 1% 1/4W |
| R30 | 1-214-736-00 | s | METAL 2K 1% 1/4W |
| R31 | 1-247-719-11 | s | CARBON 3.3K 5% 1/4W |
| R32 | 1-247-719-11 | s | CARBON 3.3K 5% 1/4W |
| R33 | 1-247-719-11 | s | CARBON 3.3K 5% 1/4W |
| R34 | 1-247-726-11 | s | CARBON 33K 5% 1/4W |
| R35 | 1-247-713-11 | s | CARBON 1K 5% 1/4W |

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| Ref. No. or Q'ty | Part No. | SP | Description |
|---|---|---|---|
| R36 | 1-215-439-00 | s | METAL 5.6K 1% 1/6W |
| R37 | 1-247-726-11 | s | CARBON 33K 5% 1/4W |
| R38 | 1-215-443-00 | s | METAL 8.2K 1% 1/6W |
| R39 | 1-215-397-00 | s | METAL 100 1% 1/6W |
| R40 | 1-214-717-00 | s | METAL 330 1% 1/4W |
| R41 | 1-247-713-11 | s | CARBON 1K 5% 1/4W |
| R42 | 1-215-404-00 | s | METAL 200 1% 1/6W |
| R43 | 1-215-443-00 | s | METAL 8.2K 1% 1/6W |
| R44 | 1-247-713-11 | s | CARBON 1K 5% 1/4W |
| R45 | 1-247-713-11 | s | CARBON 1K 5% 1/4W |
| R46 | 1-247-700-11 | s | CARBON 100 5% 1/4W |
| R47 | 1-247-700-11 | s | CARBON 100 5% 1/4W |
| R48 | 1-247-130-00 | s | CARBON 910 5% 1/4W |
| R49 | 1-247-708-11 | s | CARBON 470 5% 1/4W |
| R50 | 1-249-397-11 | s | CARBON 22 5% 1/4W |
| R51 | 1-215-418-00 | s | METAL 750 1% 1/6W |
| R52 | 1-247-818-11 | s | CARBON 300 5% 1/4W |
| R53 | 1-247-818-11 | s | CARBON 300 5% 1/4W |
| R54 | 1-247-700-11 | s | CARBON 100 5% 1/4W |
| R55 | 1-247-713-11 | s | CARBON 1K 5% 1/4W |
| R56 | 1-247-708-11 | s | CARBON 470 5% 1/4W |
| R57 | 1-247-138-00 | s | CARBON 2K 5% 1/4W |
| R58 | 1-247-692-11 | s | CARBON 22 5% 1/4W |
| R59 | 1-215-385-00 | s | METAL 33 1% 1/6W |
| R60 | 1-215-406-00 | s | METAL 240 1% 1/6W |
| R61 | 1-247-700-11 | s | CARBON 100 5% 1/4W |
| R62 | 1-215-394-00 | s | METAL 75 1% 1/6W |
| R63 | 1-247-100-00 | s | CARBON 51 5% 1/4W |
| R64 | 1-247-708-11 | s | CARBON 470 5% 1/4W |
| R65 | 1-247-696-11 | s | CARBON 47 5% 1/4W |
| R66 | 1-247-696-11 | s | CARBON 47 5% 1/4W |
| R67 | 1-247-696-11 | s | CARBON 47 5% 1/4W |
| R68 | 1-247-696-11 | s | CARBON 47 5% 1/4W |
| R69 | 1-247-700-11 | s | CARBON 100 5% 1/4W |
| R70 | 1-247-696-11 | s | CARBON 47 5% 1/4W |
| R71 | 1-247-696-11 | s | CARBON 47 5% 1/4W |
| R72 | 1-247-696-11 | s | CARBON 47 5% 1/4W |
| R73 | 1-247-696-11 | s | CARBON 47 5% 1/4W |
| R74 | 1-247-696-11 | s | CARBON 47 5% 1/4W |
| R84 | 1-247-100-00 | s | CARBON 51 5% 1/4W |
| R85 | 1-247-710-11 | s | CARBON 560 5% 1/4W |
| R86 | 1-247-710-11 | s | CARBON 560 5% 1/4W |
| R87 | 1-247-710-11 | s | CARBON 560 5% 1/4W |
| R88 | 1-247-100-00 | s | CARBON 51 5% 1/4W |
| R89 | 1-247-700-11 | s | CARBON 100 5% 1/4W |
| R91 | 1-247-100-00 | s | CARBON 51 5% 1/4W |
| R92 | 1-247-100-00 | s | CARBON 51 5% 1/4W |
| R93 | 1-247-776-00 | s | CARBON 5.1 5% 1/4W |
| R94 | 1-249-405-11 | s | CARBON 100 5% 1/4W |
| R95 | 1-249-405-11 | s | CARBON 100 5% 1/4W |
| R96 | 1-247-804-11 | s | CARBON 75 5% 1/4W |
| R97 | 1-249-397-11 | s | CARBON 22 5% 1/4W |
| R98 | 1-249-397-11 | s | CARBON 22 5% 1/4W |
| R99 | 1-247-830-11 | s | CARBON 910 5% 1/4W |
| R100 | 1-247-816-11 | s | CARBON 240 5% 1/4W |
| R101 | 1-249-405-11 | s | CARBON 100 5% 1/4W |
| R102 | 1-247-838-00 | s | CARBON 2K 5% 1/4W |
| R103 | 1-215-458-00 | s | METAL 36K 1% 1/6W |
| R104 | 1-215-433-00 | s | METAL 3.3K 1% 1/6W |

(AD-45 BOARD)

| Ref. No. or Q'ty | Part No. | SP | Description |
|---|---|---|---|
| R105 | 1-247-830-11 | s | CARBON 910 5% 1/4W |
| R106 | 1-247-838-00 | s | CARBON 2K 5% 1/4W |
| R107 | 1-249-413-11 | s | CARBON 470 5% 1/4W |
| R108 | 1-247-814-11 | s | CARBON 200 5% 1/4W |
| R109 | 1-249-405-11 | s | CARBON 100 5% 1/4W |
| R110 | 1-215-394-00 | s | METAL 75 1% 1/6W |
| R111 | 1-215-394-00 | s | METAL 75 1% 1/6W |
| R113 | 1-249-413-11 | s | CARBON 470 5% 1/4W |
| R114 | 1-249-405-11 | s | CARBON 100 5% 1/4W |
| R115 | 1-249-405-11 | s | CARBON 100 5% 1/4W |
| R116 | 1-215-410-00 | s | METAL 360 1% 1/6W |
| R117 | 1-249-442-11 | s | CARBON 510 5% 1/4W |
| R118 | 1-249-405-11 | s | CARBON 100 5% 1/4W |
| R119 | 1-249-409-11 | s | CARBON 220 5% 1/4W |
| R120 | 1-215-410-00 | s | METAL 360 1% 1/6W |
| R121 | 1-215-429-00 | s | METAL 2.2K 1% 1/6W |
| R122 | 1-215-377-00 | s | METAL 15 1% 1/6W |
| R123 | 1-215-394-00 | s | METAL 75 1% 1/6W |
| R124 | 1-215-403-00 | s | METAL 180 1% 1/6W |
| R125 | 1-215-377-00 | s | METAL 15 1% 1/6W |
| R126 | 1-247-900-11 | s | CARBON 750K 5% 1/4W |
| R127 | 1-249-409-11 | s | CARBON 220 5% 1/4W |
| R130 | 1-247-100-00 | s | CARBON 51 5% 1/4W |
| R131 | 1-247-700-11 | s | CARBON 100 5% 1/4W |
| R132 | 1-247-710-11 | s | CARBON 560 5% 1/4W |
| R133 | 1-247-710-11 | s | CARBON 560 5% 1/4W |
| R134 | 1-247-710-11 | s | CARBON 560 5% 1/4W |
| R135 | 1-247-710-11 | s | CARBON 560 5% 1/4W |
| R136 | 1-247-100-00 | s | CARBON 51 5% 1/4W |
| R137 | 1-247-100-00 | s | CARBON 51 5% 1/4W |
| R138 | 1-247-100-00 | s | CARBON 51 5% 1/4W |
| R139 | 1-247-776-00 | s | CARBON 5.1 5% 1/4W |
| R140 | 1-249-405-11 | s | CARBON 100 5% 1/4W |
| R141 | 1-249-405-11 | s | CARBON 100 5% 1/4W |
| R142 | 1-247-804-11 | s | CARBON 75 5% 1/4W |
| R143 | 1-249-397-11 | s | CARBON 22 5% 1/4W |
| R144 | 1-249-397-11 | s | CARBON 22 5% 1/4W |
| R145 | 1-247-830-11 | s | CARBON 910 5% 1/4W |
| R146 | 1-247-816-11 | s | CARBON 240 5% 1/4W |
| R147 | 1-249-405-11 | s | CARBON 100 5% 1/4W |
| R148 | 1-247-838-00 | s | CARBON 2K 5% 1/4W |
| R149 | 1-215-458-00 | s | METAL 36K 1% 1/6W |
| R150 | 1-249-423-11 | s | CARBON 3.3K 5% 1/4W |
| R151 | 1-247-830-11 | s | CARBON 910 5% 1/4W |
| R152 | 1-247-838-00 | s | CARBON 2K 5% 1/4W |
| R153 | 1-249-413-11 | s | CARBON 470 5% 1/4W |
| R154 | 1-247-814-11 | s | CARBON 200 5% 1/4W |
| R155 | 1-249-405-11 | s | CARBON 100 5% 1/4W |
| R156 | 1-215-394-00 | s | METAL 75 1% 1/6W |
| R157 | 1-215-394-00 | s | METAL 75 1% 1/6W |
| R159 | 1-249-413-11 | s | CARBON 470 5% 1/4W |
| R160 | 1-249-405-11 | s | CARBON 100 5% 1/4W |
| R161 | 1-249-405-11 | s | CARBON 100 5% 1/4W |
| R162 | 1-215-410-00 | s | METAL 360 1% 1/6W |
| R163 | 1-249-442-11 | s | CARBON 510 5% 1/4W |
| R164 | 1-249-405-11 | s | CARBON 100 5% 1/4W |
| R165 | 1-249-409-11 | s | CARBON 220 5% 1/4W |
| R166 | 1-215-410-00 | s | METAL 360 1% 1/6W |
| R167 | 1-215-429-00 | s | METAL 2.2K 1% 1/6W |

(AD-45 BOARD)

| Ref. No. or Q'ty | Part No. | SP | Description |
|---|---|---|---|
| R168 | 1-215-377-00 | s | METAL 15 1% 1/6W |
| R169 | 1-215-394-00 | s | METAL 75 1% 1/6W |
| R170 | 1-215-403-00 | s | METAL 180 1% 1/6W |
| R171 | 1-215-377-00 | s | METAL 15 1% 1/6W |
| R172 | 1-247-900-11 | s | CARBON 750K 5% 1/4W |
| R173 | 1-249-409-11 | s | CARBON 220 5% 1/4W |
| R174 | 1-247-100-00 | s | CARBON 51 5% 1/4W |
| R175 | 1-247-100-00 | s | CARBON 51 5% 1/4W |
| R176 | 1-247-710-11 | s | CARBON 560 5% 1/4W |
| R177 | 1-247-710-11 | s | CARBON 560 5% 1/4W |
| R178 | 1-247-710-11 | s | CARBON 560 5% 1/4W |
| R179 | 1-247-710-11 | s | CARBON 560 5% 1/4W |
| R180 | 1-247-100-00 | s | CARBON 51 5% 1/4W |
| R181 | 1-247-100-00 | s | CARBON 51 5% 1/4W |
| R182 | 1-247-100-00 | s | CARBON 51 5% 1/4W |
| R183 | 1-247-776-00 | s | CARBON 5.1 5% 1/4W |
| R184 | 1-249-405-11 | s | CARBON 100 5% 1/4W |
| R185 | 1-249-405-11 | s | CARBON 100 5% 1/4W |
| R186 | 1-247-804-11 | s | CARBON 75 5% 1/4W |
| R187 | 1-249-397-11 | s | CARBON 22 5% 1/4W |
| R188 | 1-249-397-11 | s | CARBON 22 5% 1/4W |
| R189 | 1-247-830-11 | s | CARBON 910 5% 1/4W |
| R190 | 1-247-816-11 | s | CARBON 240 5% 1/4W |
| R191 | 1-249-405-11 | s | CARBON 100 5% 1/4W |
| R192 | 1-247-838-00 | s | CARBON 2K 5% 1/4W |
| R193 | 1-215-458-00 | s | METAL 36K 1% 1/6W |
| R194 | 1-249-423-11 | s | CARBON 3.3K 5% 1/4W |
| R195 | 1-247-830-11 | s | CARBON 910 5% 1/4W |
| R196 | 1-247-838-00 | s | CARBON 2K 5% 1/4W |
| R197 | 1-249-413-11 | s | CARBON 470 5% 1/4W |
| R198 | 1-215-404-00 | s | METAL 200 1% 1/6W |
| R199 | 1-249-405-11 | s | CARBON 100 5% 1/4W |
| R200 | 1-215-394-00 | s | METAL 75 1% 1/6W |
| R201 | 1-215-394-00 | s | METAL 75 1% 1/6W |
| R203 | 1-249-413-11 | s | CARBON 470 5% 1/4W |
| R204 | 1-249-405-11 | s | CARBON 100 5% 1/4W |
| R205 | 1-249-405-11 | s | CARBON 100 5% 1/4W |
| R206 | 1-215-410-00 | s | METAL 360 1% 1/6W |
| R207 | 1-249-442-11 | s | CARBON 510 5% 1/4W |
| R208 | 1-249-405-11 | s | CARBON 100 5% 1/4W |
| R209 | 1-249-409-11 | s | CARBON 220 5% 1/4W |
| R210 | 1-249-417-11 | s | CARBON 1K 5% 1/4W |
| R211 | 1-249-417-11 | s | CARBON 1K 5% 1/4W |
| R212 | 1-215-410-00 | s | METAL 360 1% 1/6W |
| R213 | 1-215-429-00 | s | METAL 2.2K 1% 1/6W |
| R214 | 1-215-377-00 | s | METAL 15 1% 1/6W |
| R215 | 1-215-394-00 | s | METAL 75 1% 1/6W |
| R216 | 1-215-403-00 | s | METAL 180 1% 1/6W |
| R217 | 1-215-377-00 | s | METAL 15 1% 1/6W |
| R218 | 1-247-900-11 | s | CARBON 750K 5% 1/4W |
| R219 | 1-249-409-11 | s | CARBON 220 5% 1/4W |
| R708 | 1-215-432-00 | s | METAL 3K 1% 1/6W |
| R710 | 1-215-490-00 | s | METAL 750K 1% 1/6W |
| RB1 | 1-235-127-00 | s | RESISTOR BLOCK 220x8 |
| RB2 | 1-231-405-00 | s | RESISTOR BLOCK 1K |
| RB3 | 1-231-403-00 | s | RESISTOR BLOCK 560 |
| RB4 | 1-235-127-00 | s | RESISTOR BLOCK 220x8 |
| RB5 | 1-235-127-00 | s | RESISTOR BLOCK 220x8 |

(AD-45 BOARD)

| Ref. No. or Q'ty | Part No. | SP | Description |
|---|---|---|---|
| RB6 | 1-235-127-00 | s | RESISTOR BLOCK 220x8 |
| RB7 | 1-235-127-00 | s | RESISTOR BLOCK 220x8 |
| RB8 | 1-236-556-11 | s | RESISTOR BLOCK 82 |
| RB9 | 1-236-556-11 | s | RESISTOR BLOCK 82 |
| RB10 | 1-236-556-11 | s | RESISTOR BLOCK 82 |
| RB11 | 1-236-556-11 | s | RESISTOR BLOCK 82 |
| RB12 | 1-236-556-11 | s | RESISTOR BLOCK 82 |
| RB13 | 1-235-127-00 | s | RESISTOR BLOCK 220x8 |
| RB14 | 1-235-127-00 | s | RESISTOR BLOCK 220x8 |
| RB15 | 1-236-556-11 | s | RESISTOR BLOCK 82 |
| RB16 | 1-236-556-11 | s | RESISTOR BLOCK 82 |
| RB17 | 1-236-556-11 | s | RESISTOR BLOCK 82 |
| RB18 | 1-235-127-00 | s | RESISTOR BLOCK 220x8 |
| RB19 | 1-235-127-00 | s | RESISTOR BLOCK 220x8 |
| RB20 | 1-236-556-11 | s | RESISTOR BLOCK 82 |
| RB21 | 1-236-556-11 | s | RESISTOR BLOCK 82 |
| RB22 | 1-236-556-11 | s | RESISTOR BLOCK 82 |
| RB23 | 1-236-556-11 | s | RESISTOR BLOCK 82 |
| RV1 | 1-230-746-11 | s | RES, ADJ METAL 500 |
| RV2 | 1-230-746-21 | s | RES, ADJ METAL 500 |
| RV3 | 1-230-747-11 | s | RES, ADJ METAL 1K |
| RV4 | 1-230-746-11 | s | RES, ADJ METAL 500 |
| RV5 | 1-230-746-21 | s | RES, ADJ METAL 500 |
| RV6 | 1-230-747-11 | s | RES, ADJ METAL 1K |
| RV7 | 1-230-746-11 | s | RES, ADJ METAL 500 |
| RV8 | 1-230-746-21 | s | RES, ADJ METAL 500 |
| RV9 | 1-230-747-11 | s | RES, ADJ METAL 1K |

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CN-410 BOARD

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| Ref. No. or Q'ty | Part No. | SP | Description |
|---|---|---|---|
| 1pc | A-6268-366-A | o | MOUNTED CIRCUIT BOARD, CN-410 |
| 12pcs | 2-133-531-01 | o | SCREW, CONNECTOR |
| CN1 | 1-563-891-21 | s | CONNECTOR, D-SUB 25P, FEMALE |
| CN2 | 1-563-891-21 | s | CONNECTOR, D-SUB 25P, FEMALE |
| CN3 | 1-563-891-21 | s | CONNECTOR, D-SUB 25P, FEMALE |
| CN4 | 1-563-891-21 | s | CONNECTOR, D-SUB 25P, FEMALE |
| CN5 | 1-563-891-21 | s | CONNECTOR, D-SUB 25P, FEMALE |
| CN6 | 1-563-891-21 | s | CONNECTOR, D-SUB 25P, FEMALE |
| CN201 | 1-560-726-00 | o | CONNECTOR, PS 20P, MALE |
| CN202 | 1-560-726-00 | o | CONNECTOR, PS 20P, MALE |
| CN203 | 1-560-726-00 | o | CONNECTOR, PS 20P, MALE |
| CN204 | 1-560-726-00 | o | CONNECTOR, PS 20P, MALE |
| CN205 | 1-560-726-00 | o | CONNECTOR, PS 20P, MALE |
| CN206 | 1-560-726-00 | o | CONNECTOR, PS 20P, MALE |

## DA-34 BOARD

| Ref. No. or Q'ty | Part No. | SP | Description |
|---|---|---|---|
| 1pc | A-6257-279-A | o | MOUNTED CIRCUIT BOARD, DA-34 |
| This board includes DL-37 and DL-40 boards. | | | |
| See "DL-37 BOARD" and "DL-40 BOARD" for detailes of it. | | | |
| 2pcs | 1-566-492-11 | o | PIN, SOCKET 20P |
| 1pc | 1-633-513-11 | o | PRINTED CIRCUIT BOARD, DL-37 |
| 1pc | 1-633-534-11 | o | PRINTED CIRCUIT BOARD, DL-40 |
| 2pcs | 3-714-634-01 | o | LEVER, PC BOARD |
| 6pcs | 7-622-207-05 | s | N 2.6, TYPE 2 |
| 2pcs | 7-626-320-11 | o | PIN, SPRING 3X8 |
| 6pcs | 7-628-254-30 | s | SCREW +PS 2.6X10 |
| 9pcs | 7-682-903-01 | s | SCREW +PWH 3X5 |
| C1 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C2 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C3 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C4 | 1-124-621-11 | s | ELECT 3300uF 20% 6.3 |
| C5 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C6 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C7 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C8 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C9 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C10 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C11 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C12 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C13 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C14 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C15 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C16 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C17 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C18 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C19 | 1-124-566-11 | s | ELECT 120uF 20% 6.3V |
| C20 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C21 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C22 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C23 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C24 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C25 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C26 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C27 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C28 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C29 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C30 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C31 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C32 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C33 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C34 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C35 | 1-124-566-11 | s | ELECT 120uF 20% 6.3V |
| C36 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C37 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C38 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C39 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C40 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C41 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C42 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C43 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C44 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C45 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C46 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C47 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |

## (DA-34 BOARD)

| Ref. No. or Q'ty | Part No. | SP | Description |
|---|---|---|---|
| C48 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C49 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C50 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C51 | 1-124-621-11 | s | ELECT 3300uF 20% 6.3 |
| C52 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C53 | 1-124-566-11 | s | ELECT 120uF 20% 6.3V |
| C54 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C55 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C56 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C57 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C58 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C59 | 1-162-718-11 | s | CERAMIC 220PF 1% 50V |
| C60 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C61 | 1-124-566-11 | s | ELECT 120uF 20% 6.3V |
| C62 | 1-124-569-11 | s | ELECT 56uF 10% 16V |
| C63 | 1-124-569-11 | s | ELECT 56uF 10% 16V |
| C64 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C65 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C66 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C67 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C68 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C69 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C70 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C71 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C72 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C73 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C74 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C75 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C76 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C77 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C78 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C79 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C80 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C81 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C82 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C83 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C84 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C85 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C86 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C87 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C88 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C89 | 1-124-566-11 | s | ELECT 120uF 20% 6.3V |
| C90 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C91 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C92 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C93 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C94 | 1-124-566-11 | s | ELECT 120uF 20% 6.3V |
| C95 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C96 | 1-124-569-11 | s | ELECT 56uF 10% 16V |
| C97 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C98 | 1-124-569-11 | s | ELECT 56uF 10% 16V |
| C99 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C100 | 1-131-367-00 | s | TANTALUM 22uF 10% 20V |
| C101 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C102 | 1-124-566-11 | s | ELECT 120uF 20% 6.3V |
| C103 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C104 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C105 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C106 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |

(DA-34 BOARD)

| Ref. No. or Q'ty | Part No. | SP | Description |
|---|---|---|---|
| C107 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C108 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C109 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C110 | 1-124-569-11 | s | ELECT 56uF 10% 16V |
| C111 | 1-124-569-11 | s | ELECT 56uF 10% 16V |
| C112 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C113 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C114 | 1-161-473-00 | s | CERAMIC 0.01uF 10% 50V |
| C115 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C116 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C117 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C118 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C119 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C120 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C121 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C122 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C123 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C124 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C125 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C126 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C127 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C128 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C129 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C130 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C131 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C132 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C133 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C134 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C135 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C136 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C137 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C138 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C139 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C140 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C141 | 1-124-566-11 | s | ELECT 120uF 20% 6.3V |
| C142 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C143 | 1-124-569-11 | s | ELECT 56uF 10% 16V |
| C144 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C145 | 1-124-569-11 | s | ELECT 56uF 10% 16V |
| C146 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C147 | 1-124-569-11 | s | ELECT 56uF 10% 16V |
| C148 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C149 | 1-124-566-11 | s | ELECT 120uF 20% 6.3V |
| C150 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C151 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C152 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C153 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C154 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C155 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C156 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C157 | 1-124-569-11 | s | ELECT 56uF 10% 16V |
| C158 | 1-124-569-11 | s | ELECT 56uF 10% 16V |
| C159 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C160 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C161 | 1-161-473-00 | s | CERAMIC 0.01uF 10% 50V |
| C162 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C163 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C164 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C165 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |

(DA-34 BOARD)

| Ref. No. or Q'ty | Part No. | SP | Description |
|---|---|---|---|
| C166 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C167 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C168 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C169 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C170 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C171 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C172 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C173 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C174 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C175 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C176 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C177 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C178 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C179 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C180 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C181 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C182 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C183 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C184 | 1-124-566-11 | s | ELECT 120uF 20% 6.3V |
| C185 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C186 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C187 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C188 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C189 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C190 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C191 | 1-124-566-11 | s | ELECT 120uF 20% 6.3V |
| C192 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C193 | 1-124-569-11 | s | ELECT 56uF 10% 16V |
| C194 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C195 | 1-124-569-11 | s | ELECT 56uF 10% 16V |
| C196 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C197 | 1-124-569-11 | s | ELECT 56uF 10% 16V |
| C198 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C199 | 1-124-566-11 | s | ELECT 120uF 20% 6.3V |
| C200 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C201 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C202 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C203 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C204 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C205 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C206 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C207 | 1-124-569-11 | s | ELECT 56uF 10% 16V |
| C208 | 1-124-569-11 | s | ELECT 56uF 10% 16V |
| C209 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C210 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C211 | 1-161-473-00 | s | CERAMIC 0.01uF 10% 50V |
| C501 | 1-162-667-11 | s | CERAMIC 10PF 5% 50V |
| C502 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C503 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| CN1 | 1-561-365-00 | s | CONNECTOR, COAXIAL, MALE |
| CN2 | 1-561-365-00 | s | CONNECTOR, COAXIAL, MALE |
| CN3 | 1-561-365-00 | s | CONNECTOR, COAXIAL, MALE |
| CN4 | 1-561-365-00 | s | CONNECTOR, COAXIAL, MALE |
| CN5 | 1-561-365-00 | s | CONNECTOR, COAXIAL, MALE |
| CN6 | 1-561-365-00 | s | CONNECTOR, COAXIAL, MALE |
| CN7 | 1-561-365-00 | s | CONNECTOR, COAXIAL, MALE |
| CN8 | 1-561-365-00 | s | CONNECTOR, COAXIAL, MALE |
| CN9 | 1-561-365-00 | s | CONNECTOR, COAXIAL, MALE |
| CN101 | 1-506-746-11 | s | CONNECTOR, DIN 48P, MALE |

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| Ref. No. or Q'ty | Part No. | SP | Description |
|---|---|---|---|
| CN102 | 1-565-207-21 | s | CONNECTOR, DIN 128P, MALE |
| CN103 | 1-565-207-21 | s | CONNECTOR, DIN 128P, MALE |
| CV1 | 1-141-298-11 | s | CAP, TRIMMER 10PF |
| CV2 | 1-141-298-11 | s | CAP, TRIMMER 10PF |
| CV3 | 1-141-298-11 | s | CAP, TRIMMER 10PF |
| D1 | 8-719-912-20 | s | DIODE 1SS120 |
| D2 | 8-719-912-20 | s | DIODE 1SS120 |
| D3 | 8-719-912-20 | s | DIODE 1SS120 |
| D4 | 8-719-912-20 | s | DIODE 1SS120 |
| FL1 | 1-236-234-12 | s | FILTER, LOW PASS |
| FL2 | 1-236-234-12 | s | FILTER, LOW PASS |
| FL3 | 1-236-234-12 | s | FILTER, LOW PASS |
| IC2FG | 8-759-003-05 | s | IC MC10H189L |
| IC6FG | 8-759-002-62 | s | IC MC10H101L |
| ICA2 | 8-759-003-05 | s | IC MC10H189L |
| ICA4 | 8-759-003-05 | s | IC MC10H189L |
| ICA8 | 8-759-003-05 | s | IC MC10H189L |
| ICA9 | 8-759-003-05 | s | IC MC10H189L |
| ICA11 | 8-759-002-62 | s | IC MC10H101L |
| ICA12 | 8-759-003-05 | s | IC MC10H189L |
| ICA16 | 8-759-003-05 | s | IC MC10H189L |
| ICB1 | 8-759-002-71 | s | IC MC10H115L |
| ICB2 | 8-759-002-71 | s | IC MC10H115L |
| ICB3 | 8-759-002-63 | s | IC MC10H102L |
| ICB4 | 8-759-002-72 | s | IC MC10H116L |
| ICB5 | 8-759-002-79 | s | IC MC10H130L |
| ICB6 | 8-759-002-79 | s | IC MC10H130L |
| ICB7 | 8-759-002-79 | s | IC MC10H130L |
| ICB8 | 8-759-002-79 | s | IC MC10H130L |
| ICB9 | 8-759-002-79 | s | IC MC10H130L |
| ICB10 | 8-759-002-79 | s | IC MC10H130L |
| ICB11 | 8-759-002-79 | s | IC MC10H130L |
| ICB12 | 8-759-002-79 | s | IC MC10H130L |
| ICB13 | 8-759-002-79 | s | IC MC10H130L |
| ICB14 | 8-759-002-79 | s | IC MC10H130L |
| ICB15 | 8-759-002-79 | s | IC MC10H130L |
| ICB16 | 8-759-002-79 | s | IC MC10H130L |
| ICC1 | 8-759-002-99 | s | IC MC10H176L |
| ICC2 | 8-759-002-63 | s | IC MC10H102L |
| ICC3 | 8-759-002-78 | s | IC MC10H125L |
| ICC4 | 8-759-980-97 | s | IC 74AC240PC |
| ICC5 | 8-759-978-10 | s | IC 74AC374PC |
| ICC6 | 8-759-978-10 | s | IC 74AC374PC |
| ICC7 | 8-759-978-10 | s | IC 74AC374PC |
| ICC8 | 8-759-978-10 | s | IC 74AC374PC |
| ICC9 | 8-759-978-10 | s | IC 74AC374PC |
| ICC10 | 8-759-978-10 | s | IC 74AC374PC |
| ICC11 | 8-759-978-10 | s | IC 74AC374PC |
| ICC12 | 8-759-978-10 | s | IC 74AC374PC |
| ICC13 | 8-759-978-10 | s | IC 74AC374PC |
| ICC14 | 8-759-978-10 | s | IC 74AC374PC |
| ICC15 | 8-759-978-10 | s | IC 74AC374PC |
| ICC16 | 8-759-978-10 | s | IC 74AC374PC |
| ICD1 | 8-759-002-65 | s | IC MC10H104L |
| ICD2 | 8-759-002-99 | s | IC MC10H176L |

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| Ref. No. or Q'ty | Part No. | SP | Description |
|---|---|---|---|
| ICD3 | 8-759-002-99 | s | IC MC10H176L |
| ICD4 | 8-759-002-72 | s | IC MC10H116L |
| ICD5 | 8-759-978-10 | s | IC 74AC374PC |
| ICD7 | 8-759-978-10 | s | IC 74AC374PC |
| ICD8 | 8-759-002-86 | s | IC MC10H158L |
| ICD9 | 8-759-978-10 | s | IC 74AC374PC |
| ICD11 | 8-759-978-10 | s | IC 74AC374PC |
| ICD12 | 8-759-002-86 | s | IC MC10H158L |
| ICD13 | 8-759-978-10 | s | IC 74AC374PC |
| ICD15 | 8-759-978-10 | s | IC 74AC374PC |
| ICD16 | 8-759-002-86 | s | IC MC10H158L |
| ICE1 | 8-759-002-80 | s | IC MC10H131L |
| ICE2 | 8-759-002-99 | s | IC MC10H176L |
| ICE3 | 8-759-002-81 | s | IC MC10H135L |
| ICE4 | 8-759-002-62 | s | IC MC10H101L |
| ICE6 | 8-759-002-86 | s | IC MC10H158L |
| ICE7 | 8-759-002-83 | s | IC MC10H141L |
| ICE8 | 8-759-002-99 | s | IC MC10H176L |
| ICE10 | 8-759-002-86 | s | IC MC10H158L |
| ICE11 | 8-759-002-83 | s | IC MC10H141L |
| ICE12 | 8-759-002-99 | s | IC MC10H176L |
| ICE14 | 8-759-002-86 | s | IC MC10H158L |
| ICE15 | 8-759-002-83 | s | IC MC10H141L |
| ICE16 | 8-759-002-99 | s | IC MC10H176L |
| ICF1 | 8-759-991-49 | s | IC MBM10422A-7CZ |
| ICF2 | 8-759-991-49 | s | IC MBM10422A-7CZ |
| ICF3 | 8-759-002-82 | s | IC MC10H136L |
| ICF4 | 8-759-002-82 | s | IC MC10H136L |
| ICF5 | 8-759-991-49 | s | IC MBM10422A-7CZ |
| ICF6 | 8-759-991-49 | s | IC MBM10422A-7CZ |
| ICF7 | 8-759-991-49 | s | IC MBM10422A-7CZ |
| ICF8 | 8-759-991-49 | s | IC MBM10422A-7CZ |
| ICF9 | 8-759-991-49 | s | IC MBM10422A-7CZ |
| ICF10 | 8-759-991-49 | s | IC MBM10422A-7CZ |
| ICF11 | 8-759-991-49 | s | IC MBM10422A-7CZ |
| ICF12 | 8-759-991-49 | s | IC MBM10422A-7CZ |
| ICF13 | 8-759-991-49 | s | IC MBM10422A-7CZ |
| ICF14 | 8-759-991-49 | s | IC MBM10422A-7CZ |
| ICF15 | 8-759-991-49 | s | IC MBM10422A-7CZ |
| ICF16 | 8-759-991-49 | s | IC MBM10422A-7CZ |
| ICG1 | 8-759-002-82 | s | IC MC10H136L |
| ICG2 | 8-759-002-82 | s | IC MC10H136L |
| ICG3 | 8-759-002-97 | s | IC MC10H174L |
| ICG4 | 8-759-002-97 | s | IC MC10H174L |
| ICG5 | 8-759-002-83 | s | IC MC10H141L |
| ICG6 | 8-759-002-83 | s | IC MC10H141L |
| ICG7 | 8-759-991-47 | s | IC MBM10474A-7CZ |
| ICG8 | 8-759-991-47 | s | IC MBM10474A-7CZ |
| ICG9 | 8-759-002-83 | s | IC MC10H141L |
| ICG10 | 8-759-002-83 | s | IC MC10H141L |
| ICG11 | 8-759-991-47 | s | IC MBM10474A-7CZ |
| ICG12 | 8-759-991-47 | s | IC MBM10474A-7CZ |
| ICG13 | 8-759-002-83 | s | IC MC10H141L |
| ICG14 | 8-759-002-83 | s | IC MC10H141L |
| ICG15 | 8-759-991-47 | s | IC MBM10474A-7CZ |
| ICG16 | 8-759-991-47 | s | IC MBM10474A-7CZ |

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| Ref. No. or Q'ty | Part No. | SP | Description |
|---|---|---|---|
| ICH1 | 8-759-002-86 | s | IC MC10H158L |
| ICH2 | 8-759-002-86 | s | IC MC10H158L |
| ICH3 | 8-759-002-97 | s | IC MC10H174L |
| ICH4 | 8-759-002-97 | s | IC MC10H174L |
| ICH5 | 8-759-002-86 | s | IC MC10H158L |
| ICH6 | 8-759-002-86 | s | IC MC10H158L |
| ICH7 | 8-759-002-83 | s | IC MC10H141L |
| ICH8 | 8-759-002-83 | s | IC MC10H141L |
| ICH9 | 8-759-002-86 | s | IC MC10H158L |
| ICH10 | 8-759-002-86 | s | IC MC10H158L |
| ICH11 | 8-759-002-83 | s | IC MC10H141L |
| ICH12 | 8-759-002-83 | s | IC MC10H141L |
| ICH13 | 8-759-002-86 | s | IC MC10H158L |
| ICH14 | 8-759-002-86 | s | IC MC10H158L |
| ICH15 | 8-759-002-83 | s | IC MC10H141L |
| ICH16 | 8-759-002-83 | s | IC MC10H141L |
| ICJ1 | 8-759-002-70 | s | IC MC10H113L |
| ICJ2 | 8-759-002-71 | s | IC MC10H115L |
| ICJ3 | 8-759-002-86 | s | IC MC10H158L |
| ICJ4 | 8-759-002-89 | s | IC MC10H161L |
| ICJ7 | 8-752-020-22 | s | IC CX20202A-2 |
| ICJ11 | 8-752-020-22 | s | IC CX20202A-2 |
| ICJ15 | 8-752-020-22 | s | IC CX20202A-2 |
| ICK1 | 8-759-002-83 | s | IC MC10H141L |
| ICK2 | 8-759-002-83 | s | IC MC10H141L |
| ICK3 | 8-759-002-83 | s | IC MC10H141L |
| ICK4 | 8-759-002-83 | s | IC MC10H141L |
| ICK6 | 8-743-930-00 | s | IC BX-3930 |
| ICK7 | 8-743-931-10 | s | IC BX3931A |
| ICK10 | 8-743-930-00 | s | IC BX-3930 |
| ICK11 | 8-743-931-10 | s | IC BX3931A |
| ICK14 | 8-743-930-00 | s | IC BX-3930 |
| ICK15 | 8-743-931-10 | s | IC BX3931A |
| ICL1 | 8-759-991-47 | s | IC MBM10474A-7CZ |
| ICL2 | 8-759-991-47 | s | IC MBM10474A-7CZ |
| ICL3 | 8-759-991-47 | s | IC MBM10474A-7CZ |
| ICL4 | 8-759-991-47 | s | IC MBM10474A-7CZ |
| ICL5 | 8-759-002-78 | s | IC MC10H125L |
| ICM1 | 8-759-002-83 | s | IC MC10H141L |
| ICM2 | 8-759-002-83 | s | IC MC10H141L |
| ICM3 | 8-759-002-86 | s | IC MC10H158L |
| ICM4 | 8-759-002-86 | s | IC MC10H158L |
| ICM5 | 8-759-239-59 | s | IC TC74HC221AP |
| ICN2 | 8-759-002-83 | s | IC MC10H141L |
| ICN3 | 8-759-002-82 | s | IC MC10H136L |
| ICN4 | 8-759-002-82 | s | IC MC10H136L |
| ICN5 | 8-759-900-05 | s | IC SN74LS05N |
| ICN7 | 8-743-930-00 | s | IC BX-3930 |
| ICN8 | 8-741-124-41 | s | IC BX1244A |
| ICN11 | 8-743-930-00 | s | IC BX-3930 |
| ICN12 | 8-741-124-41 | s | IC BX1244A |
| ICN14 | 8-743-930-00 | s | IC BX-3930 |
| ICN16 | 8-741-124-41 | s | IC BX1244A |
| ICP5 | 8-743-931-10 | s | IC BX3931A |
| ICP6 | 8-743-931-10 | s | IC BX3931A |
| ICP7 | 8-743-931-10 | s | IC BX3931A |
| ICP9 | 8-743-931-10 | s | IC BX3931A |
| ICP10 | 8-743-931-10 | s | IC BX3931A |

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| Ref. No. or Q'ty | Part No. | SP | Description |
|---|---|---|---|
| ICP11 | 8-743-931-10 | s | IC BX3931A |
| ICP13 | 8-743-931-10 | s | IC BX3931A |
| ICP14 | 8-743-931-10 | s | IC BX3931A |
| ICP15 | 8-743-931-10 | s | IC BX3931A |
| L2 | 1-421-370-00 | s | COIL, CHOKE |
| L3 | 1-421-370-00 | s | COIL, CHOKE |
| L4 | 1-421-370-00 | s | COIL, CHOKE |
| L5 | 1-421-370-00 | s | COIL, CHOKE |
| L6 | 1-421-370-00 | s | COIL, CHOKE |
| L7 | 1-421-370-00 | s | COIL, CHOKE |
| L8 | 1-421-370-00 | s | COIL, CHOKE |
| L9 | 1-421-370-00 | s | COIL, CHOKE |
| L10 | 1-421-370-00 | s | COIL, CHOKE |
| R1 | 1-249-405-11 | s | CARBON 100 5% 1/4W |
| R2 | 1-249-405-11 | s | CARBON 100 5% 1/4W |
| R3 | 1-249-405-11 | s | CARBON 100 5% 1/4W |
| R4 | 1-247-100-00 | s | CARBON 51 5% 1/4W |
| R5 | 1-249-405-11 | s | CARBON 100 5% 1/4W |
| R6 | 1-247-100-00 | s | CARBON 51 5% 1/4W |
| R7 | 1-249-405-11 | s | CARBON 100 5% 1/4W |
| R8 | 1-249-405-11 | s | CARBON 100 5% 1/4W |
| R9 | 1-249-404-00 | s | CARBON 82 5% 1/4W |
| R10 | 1-249-405-11 | s | CARBON 100 5% 1/4W |
| R11 | 1-247-800-11 | s | CARBON 51 5% 1/4W |
| R12 | 1-247-800-11 | s | CARBON 51 5% 1/4W |
| R13 | 1-249-405-11 | s | CARBON 100 5% 1/4W |
| R14 | 1-247-800-11 | s | CARBON 51 5% 1/4W |
| R15 | 1-249-404-00 | s | CARBON 82 5% 1/4W |
| R16 | 1-247-699-11 | s | CARBON 82 5% 1/4W |
| R18 | 1-247-713-11 | s | CARBON 1K 5% 1/4W |
| R19 | 1-247-713-11 | s | CARBON 1K 5% 1/4W |
| R22 | 1-249-405-11 | s | CARBON 100 5% 1/4W |
| R23 | 1-247-713-11 | s | CARBON 1K 5% 1/4W |
| R24 | 1-247-713-11 | s | CARBON 1K 5% 1/4W |
| R25 | 1-247-700-11 | s | CARBON 100 5% 1/4W |
| R26 | 1-247-700-11 | s | CARBON 100 5% 1/4W |
| R27 | 1-247-700-11 | s | CARBON 100 5% 1/4W |
| R28 | 1-247-700-11 | s | CARBON 100 5% 1/4W |
| R29 | 1-247-693-11 | s | CARBON 27 5% 1/4W |
| R30 | 1-247-693-11 | s | CARBON 27 5% 1/4W |
| R31 | 1-247-693-11 | s | CARBON 27 5% 1/4W |
| R32 | 1-247-696-11 | s | CARBON 47 5% 1/4W |
| R33 | 1-247-696-11 | s | CARBON 47 5% 1/4W |
| R34 | 1-247-696-11 | s | CARBON 47 5% 1/4W |
| R35 | 1-247-696-11 | s | CARBON 47 5% 1/4W |
| R36 | 1-247-696-11 | s | CARBON 47 5% 1/4W |
| R37 | 1-247-696-11 | s | CARBON 47 5% 1/4W |
| R38 | 1-247-696-11 | s | CARBON 47 5% 1/4W |
| R39 | 1-247-696-11 | s | CARBON 47 5% 1/4W |
| R40 | 1-247-696-11 | s | CARBON 47 5% 1/4W |
| R41 | 1-247-696-11 | s | CARBON 47 5% 1/4W |
| R42 | 1-247-696-11 | s | CARBON 47 5% 1/4W |
| R43 | 1-247-696-11 | s | CARBON 47 5% 1/4W |
| R44 | 1-247-696-11 | s | CARBON 47 5% 1/4W |
| R45 | 1-247-696-11 | s | CARBON 47 5% 1/4W |
| R46 | 1-247-696-11 | s | CARBON 47 5% 1/4W |
| R47 | 1-249-405-11 | s | CARBON 100 5% 1/4W |
| R48 | 1-249-405-11 | s | CARBON 100 5% 1/4W |

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| Ref. No. or Q'ty | Part No. | SP | Description |
|---|---|---|---|
| R51 | 1-215-432-00 | s | METAL 3K 1% 1/6W |
| R52 | 1-247-800-11 | s | CARBON 51 5% 1/4W |
| R53 | 1-247-713-11 | s | CARBON 1K 5% 1/4W |
| R54 | 1-247-719-11 | s | CARBON 3.3K 5% 1/4W |
| R55 | 1-247-719-11 | s | CARBON 3.3K 5% 1/4W |
| R56 | 1-247-719-11 | s | CARBON 3.3K 5% 1/4W |
| R57 | 1-249-405-11 | s | CARBON 100 5% 1/4W |
| R58 | 1-247-818-11 | s | CARBON 300 5% 1/4W |
| R59 | 1-249-405-11 | s | CARBON 100 5% 1/4W |
| R60 | 1-249-418-11 | s | CARBON 1.2K 5% 1/4W |
| R61 | 1-249-418-11 | s | CARBON 1.2K 5% 1/4W |
| R62 | 1-249-418-11 | s | CARBON 1.2K 5% 1/4W |
| R63 | 1-249-418-11 | s | CARBON 1.2K 5% 1/4W |
| R64 | 1-249-418-11 | s | CARBON 1.2K 5% 1/4W |
| R65 | 1-249-418-11 | s | CARBON 1.2K 5% 1/4W |
| R66 | 1-249-418-11 | s | CARBON 1.2K 5% 1/4W |
| R67 | 1-249-418-11 | s | CARBON 1.2K 5% 1/4W |
| R70 | 1-249-405-11 | s | CARBON 100 5% 1/4W |
| R73 | 1-249-418-11 | s | CARBON 1.2K 5% 1/4W |
| R74 | 1-249-418-11 | s | CARBON 1.2K 5% 1/4W |
| R75 | 1-249-418-11 | s | CARBON 1.2K 5% 1/4W |
| R76 | 1-249-418-11 | s | CARBON 1.2K 5% 1/4W |
| R77 | 1-249-418-11 | s | CARBON 1.2K 5% 1/4W |
| R78 | 1-249-418-11 | s | CARBON 1.2K 5% 1/4W |
| R79 | 1-249-418-11 | s | CARBON 1.2K 5% 1/4W |
| R80 | 1-249-418-11 | s | CARBON 1.2K 5% 1/4W |
| R81 | 1-249-405-11 | s | CARBON 100 5% 1/4W |
| R83 | 1-249-405-11 | s | CARBON 100 5% 1/4W |
| R84 | 1-249-405-11 | s | CARBON 100 5% 1/4W |
| R85 | 1-249-405-11 | s | CARBON 100 5% 1/4W |
| R86 | 1-249-405-11 | s | CARBON 100 5% 1/4W |
| R87 | 1-249-405-11 | s | CARBON 100 5% 1/4W |
| R88 | 1-249-405-11 | s | CARBON 100 5% 1/4W |
| R89 | 1-249-405-11 | s | CARBON 100 5% 1/4W |
| R90 | 1-247-700-11 | s | CARBON 100 5% 1/4W |
| R91 | 1-247-700-11 | s | CARBON 100 5% 1/4W |
| R92 | 1-249-429-11 | s | CARBON 10K 5% 1/4W |
| R93 | 1-249-405-11 | s | CARBON 100 5% 1/4W |
| R94 | 1-215-409-00 | s | METAL 330 1% 1/6W |
| R95 | 1-215-404-00 | s | METAL 200 1% 1/6W |
| R96 | 1-215-419-00 | s | METAL 820 1% 1/6W |
| R97 | 1-215-438-00 | s | METAL 5.1K 1% 1/6W |
| R98 | 1-215-412-00 | s | METAL 430 1% 1/6W |
| R99 | 1-215-436-00 | s | METAL 4.3K 1% 1/6W |
| R100 | 1-215-394-00 | s | METAL 75 1% 1/6W |
| R101 | 1-249-397-11 | s | CARBON 22 5% 1/4W |
| R102 | 1-215-394-00 | s | METAL 75 1% 1/6W |
| R103 | 1-247-818-11 | s | CARBON 300 5% 1/4W |
| R104 | 1-215-394-00 | s | METAL 75 1% 1/6W |
| R105 | 1-247-818-11 | s | CARBON 300 5% 1/4W |
| R106 | 1-249-411-11 | s | CARBON 330 5% 1/4W |
| R107 | 1-215-394-00 | s | METAL 75 1% 1/6W |
| R108 | 1-247-830-11 | s | CARBON 910 5% 1/4W |
| R109 | 1-249-397-11 | s | CARBON 22 5% 1/4W |
| R110 | 1-215-394-00 | s | METAL 75 1% 1/6W |
| R111 | 1-249-405-11 | s | CARBON 100 5% 1/4W |
| R112 | 1-247-828-11 | s | CARBON 750 5% 1/4W |
| R113 | 1-215-408-00 | s | METAL 300 1% 1/6W |
| R114 | 1-247-830-11 | s | CARBON 910 5% 1/4W |

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| Ref. No. or Q'ty | Part No. | SP | Description |
|---|---|---|---|
| R115 | 1-247-838-00 | s | CARBON 2K 5% 1/4W |
| R116 | 1-247-838-00 | s | CARBON 2K 5% 1/4W |
| R117 | 1-249-405-11 | s | CARBON 100 5% 1/4W |
| R118 | 1-249-405-11 | s | CARBON 100 5% 1/4W |
| R119 | 1-249-418-11 | s | CARBON 1.2K 5% 1/4W |
| R120 | 1-249-418-11 | s | CARBON 1.2K 5% 1/4W |
| R121 | 1-249-418-11 | s | CARBON 1.2K 5% 1/4W |
| R122 | 1-249-418-11 | s | CARBON 1.2K 5% 1/4W |
| R123 | 1-249-418-11 | s | CARBON 1.2K 5% 1/4W |
| R124 | 1-249-418-11 | s | CARBON 1.2K 5% 1/4W |
| R125 | 1-249-418-11 | s | CARBON 1.2K 5% 1/4W |
| R126 | 1-249-418-11 | s | CARBON 1.2K 5% 1/4W |
| R130 | 1-249-418-11 | s | CARBON 1.2K 5% 1/4W |
| R131 | 1-249-418-11 | s | CARBON 1.2K 5% 1/4W |
| R132 | 1-249-418-11 | s | CARBON 1.2K 5% 1/4W |
| R133 | 1-249-418-11 | s | CARBON 1.2K 5% 1/4W |
| R134 | 1-249-418-11 | s | CARBON 1.2K 5% 1/4W |
| R135 | 1-249-418-11 | s | CARBON 1.2K 5% 1/4W |
| R136 | 1-249-418-11 | s | CARBON 1.2K 5% 1/4W |
| R137 | 1-249-418-11 | s | CARBON 1.2K 5% 1/4W |
| R138 | 1-249-405-11 | s | CARBON 100 5% 1/4W |
| R139 | 1-249-405-11 | s | CARBON 100 5% 1/4W |
| R140 | 1-247-800-11 | s | CARBON 51 5% 1/4W |
| R141 | 1-249-405-11 | s | CARBON 100 5% 1/4W |
| R142 | 1-249-405-11 | s | CARBON 100 5% 1/4W |
| R143 | 1-249-405-11 | s | CARBON 100 5% 1/4W |
| R144 | 1-249-405-11 | s | CARBON 100 5% 1/4W |
| R145 | 1-247-100-00 | s | CARBON 51 5% 1/4W |
| R146 | 1-247-100-00 | s | CARBON 51 5% 1/4W |
| R147 | 1-249-429-11 | s | CARBON 10K 5% 1/4W |
| R148 | 1-249-405-11 | s | CARBON 100 5% 1/4W |
| R149 | 1-215-409-00 | s | METAL 330 1% 1/6W |
| R150 | 1-215-404-00 | s | METAL 200 1% 1/6W |
| R151 | 1-215-419-00 | s | METAL 820 1% 1/6W |
| R152 | 1-215-438-00 | s | METAL 5.1K 1% 1/6W |
| R153 | 1-215-412-00 | s | METAL 430 1% 1/6W |
| R154 | 1-215-436-00 | s | METAL 4.3K 1% 1/6W |
| R155 | 1-215-394-00 | s | METAL 75 1% 1/6W |
| R156 | 1-249-397-11 | s | CARBON 22 5% 1/4W |
| R157 | 1-215-394-00 | s | METAL 75 1% 1/6W |
| R158 | 1-247-818-11 | s | CARBON 300 5% 1/4W |
| R159 | 1-215-394-00 | s | METAL 75 1% 1/6W |
| R160 | 1-247-818-11 | s | CARBON 300 5% 1/4W |
| R161 | 1-249-411-11 | s | CARBON 330 5% 1/4W |
| R162 | 1-215-394-00 | s | METAL 75 1% 1/6W |
| R163 | 1-247-830-11 | s | CARBON 910 5% 1/4W |
| R164 | 1-249-397-11 | s | CARBON 22 5% 1/4W |
| R165 | 1-215-394-00 | s | METAL 75 1% 1/6W |
| R166 | 1-249-405-11 | s | CARBON 100 5% 1/4W |
| R167 | 1-247-828-11 | s | CARBON 750 5% 1/4W |
| R168 | 1-215-408-00 | s | METAL 300 1% 1/6W |
| R169 | 1-247-830-11 | s | CARBON 910 5% 1/4W |
| R170 | 1-247-838-00 | s | CARBON 2K 5% 1/4W |
| R171 | 1-247-838-00 | s | CARBON 2K 5% 1/4W |
| R172 | 1-249-405-11 | s | CARBON 100 5% 1/4W |
| R173 | 1-249-418-11 | s | CARBON 1.2K 5% 1/4W |
| R174 | 1-249-418-11 | s | CARBON 1.2K 5% 1/4W |
| R175 | 1-249-418-11 | s | CARBON 1.2K 5% 1/4W |
| R176 | 1-249-418-11 | s | CARBON 1.2K 5% 1/4W |

(DA-34 BOARD)

| Ref. No. or Q'ty | Part No. | SP | Description |
|---|---|---|---|
| R177 | 1-249-418-11 | s | CARBON 1.2K 5% 1/4W |
| R178 | 1-249-418-11 | s | CARBON 1.2K 5% 1/4W |
| R179 | 1-249-418-11 | s | CARBON 1.2K 5% 1/4W |
| R180 | 1-249-418-11 | s | CARBON 1.2K 5% 1/4W |
| R181 | 1-247-699-11 | s | CARBON 82 5% 1/4W |
| R182 | 1-249-418-11 | s | CARBON 1.2K 5% 1/4W |
| R183 | 1-249-418-11 | s | CARBON 1.2K 5% 1/4W |
| R184 | 1-249-418-11 | s | CARBON 1.2K 5% 1/4W |
| R185 | 1-249-418-11 | s | CARBON 1.2K 5% 1/4W |
| R186 | 1-249-418-11 | s | CARBON 1.2K 5% 1/4W |
| R187 | 1-249-418-11 | s | CARBON 1.2K 5% 1/4W |
| R188 | 1-249-418-11 | s | CARBON 1.2K 5% 1/4W |
| R189 | 1-249-418-11 | s | CARBON 1.2K 5% 1/4W |
| R190 | 1-249-405-11 | s | CARBON 100 5% 1/4W |
| R191 | 1-247-699-11 | s | CARBON 82 5% 1/4W |
| R192 | 1-249-405-11 | s | CARBON 100 5% 1/4W |
| R193 | 1-247-800-11 | s | CARBON 51 5% 1/4W |
| R194 | 1-249-405-11 | s | CARBON 100 5% 1/4W |
| R195 | 1-249-405-11 | s | CARBON 100 5% 1/4W |
| R196 | 1-247-100-00 | s | CARBON 51 5% 1/4W |
| R197 | 1-249-405-11 | s | CARBON 100 5% 1/4W |
| R198 | 1-247-699-11 | s | CARBON 82 5% 1/4W |
| R199 | 1-247-699-11 | s | CARBON 82 5% 1/4W |
| R200 | 1-247-100-00 | s | CARBON 51 5% 1/4W |
| R201 | 1-249-405-11 | s | CARBON 100 5% 1/4W |
| R202 | 1-247-100-00 | s | CARBON 51 5% 1/4W |
| R203 | 1-247-100-00 | s | CARBON 51 5% 1/4W |
| R204 | 1-249-429-11 | s | CARBON 10K 5% 1/4W |
| R205 | 1-249-405-11 | s | CARBON 100 5% 1/4W |
| R206 | 1-215-409-00 | s | METAL 330 1% 1/6W |
| R207 | 1-215-404-00 | s | METAL 200 1% 1/6W |
| R208 | 1-215-419-00 | s | METAL 820 1% 1/6W |
| R209 | 1-215-438-00 | s | METAL 5.1K 1% 1/6W |
| R210 | 1-215-412-00 | s | METAL 430 1% 1/6W |
| R211 | 1-215-436-00 | s | METAL 4.3K 1% 1/6W |
| R212 | 1-215-394-00 | s | METAL 75 1% 1/6W |
| R213 | 1-249-397-11 | s | CARBON 22 5% 1/4W |
| R214 | 1-215-394-00 | s | METAL 75 1% 1/6W |
| R215 | 1-247-818-11 | s | CARBON 300 5% 1/4W |
| R216 | 1-215-394-00 | s | METAL 75 1% 1/6W |
| R217 | 1-247-818-11 | s | CARBON 300 5% 1/4W |
| R218 | 1-249-411-11 | s | CARBON 330 5% 1/4W |
| R219 | 1-215-394-00 | s | METAL 75 1% 1/6W |
| R220 | 1-247-830-11 | s | CARBON 910 5% 1/4W |
| R221 | 1-249-397-11 | s | CARBON 22 5% 1/4W |
| R222 | 1-215-394-00 | s | METAL 75 1% 1/6W |
| R223 | 1-249-405-11 | s | CARBON 100 5% 1/4W |
| R224 | 1-247-828-11 | s | CARBON 750 5% 1/4W |
| R225 | 1-215-408-00 | s | METAL 300 1% 1/6W |
| R226 | 1-247-830-11 | s | CARBON 910 5% 1/4W |
| R227 | 1-247-838-00 | s | CARBON 2K 5% 1/4W |
| R228 | 1-247-838-00 | s | CARBON 2K 5% 1/4W |
| R501 | 1-249-405-11 | s | CARBON 100 5% 1/4W |
| R502 | 1-249-405-11 | s | CARBON 100 5% 1/4W |
| RB1 | 1-235-972-11 | s | RESISTOR BLOCK 100 |
| RB2 | 1-236-556-11 | s | RESISTOR BLOCK 82 |
| RB3 | 1-236-556-11 | s | RESISTOR BLOCK 82 |
| RB4 | 1-236-556-11 | s | RESISTOR BLOCK 82 |
| RB5 | 1-235-972-11 | s | RESISTOR BLOCK 100 |

(DA-34 BOARD)

| Ref. No. or Q'ty | Part No. | SP | Description |
|---|---|---|---|
| RB6 | 1-236-556-11 | s | RESISTOR BLOCK 82 |
| RB7 | 1-236-556-11 | s | RESISTOR BLOCK 82 |
| RB8 | 1-236-556-11 | s | RESISTOR BLOCK 82 |
| RB9 | 1-236-556-11 | s | RESISTOR BLOCK 82 |
| RB10 | 1-235-972-11 | s | RESISTOR BLOCK 100 |
| RB11 | 1-236-556-11 | s | RESISTOR BLOCK 82 |
| RB12 | 1-236-556-11 | s | RESISTOR BLOCK 82 |
| RB13 | 1-236-556-11 | s | RESISTOR BLOCK 82 |
| RB14 | 1-236-556-11 | s | RESISTOR BLOCK 82 |
| RB15 | 1-236-556-11 | s | RESISTOR BLOCK 82 |
| RB16 | 1-236-556-11 | s | RESISTOR BLOCK 82 |
| RB18 | 1-235-972-11 | s | RESISTOR BLOCK 100 |
| RB19 | 1-236-556-11 | s | RESISTOR BLOCK 82 |
| RB20 | 1-236-556-11 | s | RESISTOR BLOCK 82 |
| RB21 | 1-236-556-11 | s | RESISTOR BLOCK 82 |
| RB22 | 1-236-556-11 | s | RESISTOR BLOCK 82 |
| RB23 | 1-236-556-11 | s | RESISTOR BLOCK 82 |
| RB24 | 1-236-556-11 | s | RESISTOR BLOCK 82 |
| RB25 | 1-236-556-11 | s | RESISTOR BLOCK 82 |
| RB26 | 1-236-556-11 | s | RESISTOR BLOCK 82 |
| RB27 | 1-236-556-11 | s | RESISTOR BLOCK 82 |
| RB28 | 1-236-556-11 | s | RESISTOR BLOCK 82 |
| RB29 | 1-235-127-00 | s | RESISTOR BLOCK 220x8 |
| RB30 | 1-231-400-00 | s | RESISTOR BLOCK 390x8 |
| RB31 | 1-236-556-11 | s | RESISTOR BLOCK 82 |
| RB32 | 1-236-556-11 | s | RESISTOR BLOCK 82 |
| RB33 | 1-231-400-00 | s | RESISTOR BLOCK 390x8 |
| RB34 | 1-235-127-00 | s | RESISTOR BLOCK 220x8 |
| RB35 | 1-236-556-11 | s | RESISTOR BLOCK 82 |
| RB36 | 1-236-556-11 | s | RESISTOR BLOCK 82 |
| RB37 | 1-236-556-11 | s | RESISTOR BLOCK 82 |
| RB38 | 1-236-556-11 | s | RESISTOR BLOCK 82 |
| RB39 | 1-236-556-11 | s | RESISTOR BLOCK 82 |
| RB40 | 1-236-556-11 | s | RESISTOR BLOCK 82 |
| RB41 | 1-235-127-00 | s | RESISTOR BLOCK 220x8 |
| RB42 | 1-231-400-00 | s | RESISTOR BLOCK 390x8 |
| RB43 | 1-236-556-11 | s | RESISTOR BLOCK 82 |
| RB44 | 1-236-556-11 | s | RESISTOR BLOCK 82 |
| RB45 | 1-235-127-00 | s | RESISTOR BLOCK 220x8 |
| RB46 | 1-231-400-00 | s | RESISTOR BLOCK 390x8 |
| RB47 | 1-235-127-00 | s | RESISTOR BLOCK 220x8 |
| RB48 | 1-236-556-11 | s | RESISTOR BLOCK 82 |
| RB49 | 1-236-556-11 | s | RESISTOR BLOCK 82 |
| RB50 | 1-236-556-11 | s | RESISTOR BLOCK 82 |
| RB51 | 1-236-556-11 | s | RESISTOR BLOCK 82 |
| RB52 | 1-236-556-11 | s | RESISTOR BLOCK 82 |
| RB53 | 1-236-556-11 | s | RESISTOR BLOCK 82 |
| RB54 | 1-231-400-00 | s | RESISTOR BLOCK 390x8 |
| RB55 | 1-235-127-00 | s | RESISTOR BLOCK 220x8 |
| RB56 | 1-236-556-11 | s | RESISTOR BLOCK 82 |
| RB57 | 1-236-556-11 | s | RESISTOR BLOCK 82 |
| RB58 | 1-236-556-11 | s | RESISTOR BLOCK 82 |
| RB59 | 1-231-400-00 | s | RESISTOR BLOCK 390x8 |
| RB60 | 1-235-127-00 | s | RESISTOR BLOCK 220x8 |
| RB61 | 1-236-556-11 | s | RESISTOR BLOCK 82 |
| RB62 | 1-236-556-11 | s | RESISTOR BLOCK 82 |
| RB63 | 1-236-556-11 | s | RESISTOR BLOCK 82 |
| RB64 | 1-236-762-11 | s | RESISTOR BLOCK,47Kx8 |
| RB65 | 1-236-556-11 | s | RESISTOR BLOCK 82 |

(DA-34 BOARD)

| Ref. No. or Q'ty | Part No. | SP | Description |
|---|---|---|---|
| RB66 | 1-236-556-11 | s | RESISTOR BLOCK 82 |
| RB67 | 1-236-556-11 | s | RESISTOR BLOCK 82 |
| RV1 | 1-230-746-21 | s | RES, ADJ METAL 500 |
| RV2 | 1-230-746-21 | s | RES, ADJ METAL 500 |
| RV3 | 1-230-746-21 | s | RES, ADJ METAL 500 |

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DL-37 BOARD
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| Ref. No. or Q'ty | Part No. | SP | Description |
|---|---|---|---|
| This board is included in DA-34 board. | | | |
| C1 | 1-161-890-11 | s | CERAMIC 0.022uF 50V |
| D1 | 8-719-109-51 | s | DIODE RD2.0ES-B2 |
| DL1 | 1-415-393-11 | s | DELAY LINE, VAR 10nS |
| R1 | 1-215-397-00 | s | METAL 100 1% 1/6W |
| R2 | 1-215-394-00 | s | METAL 75 1% 1/6W |

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DL-38 BOARD
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| Ref. No. or Q'ty | Part No. | SP | Description |
|---|---|---|---|
| This board is included in AD-45 board. | | | |
| C1 | 1-161-890-11 | s | CERAMIC 0.022uF 50V |
| D1 | 8-719-109-51 | s | DIODE RD2.0ES-B2 |
| DL1 | 1-415-393-11 | s | DELAY LINE, VAR 10nS |
| R1 | 1-215-397-00 | s | METAL 100 1% 1/6W |
| R2 | 1-215-394-00 | s | METAL 75 1% 1/6W |

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DL-39 BOARD
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| Ref. No. or Q'ty | Part No. | SP | Description |
|---|---|---|---|
| This board is included in AD-45 board. | | | |
| C1 | 1-161-890-11 | s | CERAMIC 0.022uF 50V |
| C2 | 1-161-890-11 | s | CERAMIC 0.022uF 50V |
| C3 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| D1 | 8-719-109-51 | s | DIODE RD2.0ES-B2 |
| D2 | 8-719-109-51 | s | DIODE RD2.0ES-B2 |
| D3 | 8-719-109-51 | s | DIODE RD2.0ES-B2 |
| DL1 | 1-415-393-11 | s | DELAY LINE, VAR 10nS |
| DL2 | 1-415-393-11 | s | DELAY LINE, VAR 10nS |
| DL3 | 1-415-393-11 | s | DELAY LINE, VAR 10nS |
| R1 | 1-215-397-00 | s | METAL 100 1% 1/6W |
| R2 | 1-215-394-00 | s | METAL 75 1% 1/6W |
| R3 | 1-215-397-00 | s | METAL 100 1% 1/6W |
| R4 | 1-215-394-00 | s | METAL 75 1% 1/6W |
| R5 | 1-215-397-00 | s | METAL 100 1% 1/6W |
| R6 | 1-215-394-00 | s | METAL 75 1% 1/6W |

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DL-40 BOARD
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| Ref. No. or Q'ty | Part No. | SP | Description |
|---|---|---|---|
| This board is included in DA-34 board. | | | |
| C1 | 1-161-890-11 | s | CERAMIC 0.022uF 50V |
| C2 | 1-161-890-11 | s | CERAMIC 0.022uF 50V |
| C3 | 1-161-890-11 | s | CERAMIC 0.022uF 50V |
| D1 | 8-719-109-51 | s | DIODE RD2.0ES-B2 |
| D2 | 8-719-109-51 | s | DIODE RD2.0ES-B2 |
| D3 | 8-719-109-51 | s | DIODE RD2.0ES-B2 |
| DL1 | 1-415-393-11 | s | DELAY LINE, VAR 10nS |
| DL2 | 1-415-393-11 | s | DELAY LINE, VAR 10nS |
| DL3 | 1-415-393-11 | s | DELAY LINE, VAR 10nS |
| R1 | 1-215-397-00 | s | METAL 100 1% 1/6W |
| R2 | 1-215-394-00 | s | METAL 75 1% 1/6W |
| R3 | 1-215-397-00 | s | METAL 100 1% 1/6W |
| R4 | 1-215-394-00 | s | METAL 75 1% 1/6W |
| R5 | 1-215-397-00 | s | METAL 100 1% 1/6W |
| R6 | 1-215-394-00 | s | METAL 75 1% 1/6W |

## DP-104 BOARD

| Ref. No. or Q'ty | Part No. | SP | Description |
|---|---|---|---|
| 1pc | A-6267-188-A | o | MOUNTED CIRCUIT BOARD, DP-104 |
| C1 | 1-124-569-11 | s | ELECT 56uF 10% 16V |
| CN1 | 1-506-625-11 | o | CONNECTOR, PS 20P, MALE |
| CN2 | 1-506-467-11 | s | CONNECTOR, 2P, MALE |
| D1 | 8-719-907-43 | s | DIODE LD-701GG, GRN |
| D2 | 8-719-907-43 | s | DIODE LD-701GG, GRN |
| D3 | 8-719-907-43 | s | DIODE LD-701GG, GRN |
| D4 | 8-719-907-43 | s | DIODE LD-701GG, GRN |
| D5 | 8-719-907-43 | s | DIODE LD-701GG, GRN |
| D6 | 8-719-907-43 | s | DIODE LD-701GG, GRN |
| D7 | 8-719-907-43 | s | DIODE LD-701GG, GRN |
| D8 | 8-719-907-43 | s | DIODE LD-701GG, GRN |
| D9 | 8-719-907-43 | s | DIODE LD-701GG, GRN |
| D10 | 8-719-907-43 | s | DIODE LD-701GG, GRN |
| D11 | 8-719-907-43 | s | DIODE LD-701GG, GRN |
| D12 | 8-719-907-43 | s | DIODE LD-701GG, GRN |
| D13 | 8-719-907-43 | s | DIODE LD-701GG, GRN |
| D14 | 8-719-907-43 | s | DIODE LD-701GG, GRN |
| D15 | 8-719-908-43 | s | DIODE LD-701UR, RED |
| IC1 | 8-759-645-17 | s | IC M54517P |
| IC2 | 8-759-645-17 | s | IC M54517P |
| R1 | 1-247-706-11 | s | CARBON 330 5% 1/4W |
| R2 | 1-247-706-11 | s | CARBON 330 5% 1/4W |
| R3 | 1-247-706-11 | s | CARBON 330 5% 1/4W |
| R4 | 1-247-706-11 | s | CARBON 330 5% 1/4W |
| R5 | 1-247-706-11 | s | CARBON 330 5% 1/4W |
| R6 | 1-247-706-11 | s | CARBON 330 5% 1/4W |
| R7 | 1-247-706-11 | s | CARBON 330 5% 1/4W |
| R8 | 1-247-706-11 | s | CARBON 330 5% 1/4W |
| R9 | 1-247-706-11 | s | CARBON 330 5% 1/4W |
| R10 | 1-247-706-11 | s | CARBON 330 5% 1/4W |
| R11 | 1-247-706-11 | s | CARBON 330 5% 1/4W |
| R12 | 1-247-706-11 | s | CARBON 330 5% 1/4W |
| R13 | 1-247-706-11 | s | CARBON 330 5% 1/4W |
| R14 | 1-247-706-11 | s | CARBON 330 5% 1/4W |
| R15 | 1-247-706-11 | s | CARBON 330 5% 1/4W |
| R16 | 1-247-712-11 | s | CARBON 820 5% 1/4W |
| S1 | ⚠ 1-572-063-11 | s | SWITCH, PUSH |

## EX-215 BOARD

| Ref. No. or Q'ty | Part No. | SP | Description |
|---|---|---|---|
| 12pcs | 7-621-259-65 | s | SCREW +P 2.6X10 |
| 12pcs | 7-622-207-05 | s | N 2.6, TYPE 2 |
| 22pcs | 7-682-948-01 | s | SCREW +PSW 3X8 |
| CN1 | 1-506-746-11 | s | CONNECTOR, DIN 48P, MALE |
| CN2 | 1-565-207-21 | s | CONNECTOR, DIN 128P, MALE |
| CN3 | 1-565-207-21 | s | CONNECTOR, DIN 128P, MALE |
| CN4 | 1-563-339-11 | o | CONNECTOR, DIN 48P, FEMALE |
| CN5 | 1-565-205-12 | s | CONNECTOR, DIN 128P, FEMALE |
| CN6 | 1-565-205-12 | s | CONNECTOR, DIN 128P, FEMALE |

## IF-249 BOARD

| Ref. No. or Q'ty | Part No. | SP | Description |
|---|---|---|---|
| 1pc | A-6257-278-A | o | MOUNTED CIRCUIT BOARD, IF-249 |
| 2pcs | 3-714-634-01 | o | LEVER, PC BOARD |
| 6pcs | 7-622-207-05 | s | N 2.6, TYPE 2 |
| 2pcs | 7-626-320-11 | o | PIN, SPRING 3X8 |
| 6pcs | 7-628-254-30 | s | SCREW +PS 2.6X10 |
| 9pcs | 7-682-903-01 | s | SCREW +PWH 3X5 |
| C1 | 1-124-566-11 | s | ELECT 120uF 20% 6.3V |
| C2 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C3 | 1-124-621-11 | s | ELECT 3300uF 20% 6.3 |
| C4 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C5 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C6 | 1-124-621-11 | s | ELECT 3300uF 20% 6.3 |
| C7 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C8 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C9 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C10 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C11 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C12 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C13 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C14 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C15 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C16 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C17 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C18 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C19 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C20 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C21 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C22 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C23 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C24 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C25 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C26 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C27 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C28 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C29 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C30 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C31 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C32 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C33 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C34 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C35 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C36 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C37 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C38 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C39 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C40 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C41 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C42 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C43 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C44 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C45 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C46 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C47 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C48 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C49 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C50 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C51 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C52 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |

## (IF-249 BOARD)

| Ref. No. or Q'ty | Part No. | SP | Description |
|---|---|---|---|
| C53 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C54 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C55 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C56 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C57 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C58 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C59 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C60 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C61 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C62 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C63 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C64 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C65 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C66 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C67 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C68 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C69 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C70 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C71 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C72 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C73 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C74 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C75 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C76 | 1-136-177-00 | s | FILM 1uF 5% 50V |
| C77 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C78 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C79 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C80 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C81 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C82 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C83 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C84 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C85 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C86 | 1-161-473-00 | s | CERAMIC 0.01uF 10% 50V |
| C87 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C88 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C89 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C90 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C91 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C92 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C93 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C94 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C95 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C96 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C97 | 1-124-566-11 | s | ELECT 120uF 20% 6.3V |
| C501 | 1-162-728-11 | s | CERAMIC 560PF 1% 50V |
| C502 | 1-162-728-11 | s | CERAMIC 560PF 1% 50V |
| C510 | 1-162-728-11 | s | CERAMIC 560PF 1% 50V |
| CN5 | 1-560-871-00 | s | CONNECTOR, PS 40P, MALE |
| CN6 | 1-560-871-00 | s | CONNECTOR, PS 40P, MALE |
| CN104 | 1-506-746-11 | s | CONNECTOR, DIN 48P, MALE |
| CN105 | 1-565-207-21 | s | CONNECTOR, DIN 128P, MALE |
| CN106 | 1-565-207-21 | s | CONNECTOR, DIN 128P, MALE |
| D1 | 8-719-901-68 | s | LED GL-6R202, RED |
| D2 | 8-719-200-02 | s | DIODE 10E2 |
| D3 | 8-719-912-20 | s | DIODE 1SS120 |
| D4 | 8-719-912-20 | s | DIODE 1SS120 |
| D5 | 8-719-912-20 | s | DIODE 1SS120 |

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| Ref. No. or Q'ty | Part No. | SP | Description |
|---|---|---|---|
| D6 | 8-719-912-20 | s | DIODE 1SS120 |
| D7 | 8-719-912-20 | s | DIODE 1SS120 |
| D8 | 8-719-912-20 | s | DIODE 1SS120 |
| D9 | 8-719-912-20 | s | DIODE 1SS120 |
| D10 | 8-719-912-20 | s | DIODE 1SS120 |
| F1 | 1-532-637-00 | s | LINK, IC 1.0A |
| ICA13 | 8-759-980-97 | s | IC 74AC240PC |
| ICA14 | 8-759-980-97 | s | IC 74AC240PC |
| ICB9 | 8-759-947-10 | s | IC 74ACT374PC |
| ICB10 | 8-759-947-10 | s | IC 74ACT374PC |
| ICB11 | 8-759-947-10 | s | IC 74ACT374PC |
| ICB12 | 8-759-947-10 | s | IC 74ACT374PC |
| ICB13 | 8-759-947-10 | s | IC 74ACT374PC |
| ICB14 | 8-759-947-10 | s | IC 74ACT374PC |
| ICB15 | 8-759-947-10 | s | IC 74ACT374PC |
| ICB16 | 8-759-947-10 | s | IC 74ACT374PC |
| ICB17 | 8-759-947-10 | s | IC 74ACT374PC |
| ICB18 | 8-759-947-10 | s | IC 74ACT374PC |
| ICB19 | 8-759-947-10 | s | IC 74ACT374PC |
| ICB20 | 8-759-947-10 | s | IC 74ACT374PC |
| ICC2 | --PENDING--- | s | IC PALCE16V8Q-IF-C2-1 |
| ICC6 | 8-759-989-86 | s | IC NCR53C94-84PL |
| ICC9 | 8-759-978-10 | s | IC 74AC374PC |
| ICC10 | 8-759-978-10 | s | IC 74AC374PC |
| ICC11 | 8-759-978-10 | s | IC 74AC374PC |
| ICC12 | 8-759-978-10 | s | IC 74AC374PC |
| ICC13 | 8-759-978-10 | s | IC 74AC374PC |
| ICC14 | 8-759-978-10 | s | IC 74AC374PC |
| ICC15 | 8-759-978-10 | s | IC 74AC374PC |
| ICC16 | 8-759-978-10 | s | IC 74AC374PC |
| ICC17 | 8-759-978-10 | s | IC 74AC374PC |
| ICC18 | 8-759-978-10 | s | IC 74AC374PC |
| ICC19 | 8-759-978-10 | s | IC 74AC374PC |
| ICC20 | 8-759-978-10 | s | IC 74AC374PC |
| ICD2 | 8-759-989-55 | s | IC SN74ALS244AN |
| ICD12 | 8-759-991-13 | s | IC IDT7201SA-35P |
| ICD14 | 8-759-991-13 | s | IC IDT7201SA-35P |
| ICD16 | 8-759-991-13 | s | IC IDT7201SA-35P |
| ICD18 | 8-759-991-13 | s | IC IDT7201SA-35P |
| ICE5 | --PENDING--- | s | IC MBM27C512-IF-E5-01 |
| ICE6 | 8-752-325-32 | s | IC CXK58256P-12LL |
| ICE8 | --PENDING--- | s | IC MBM27C512-IF-E8-01 |
| ICE9 | 8-752-325-32 | s | IC CXK58256P-12LL |
| ICE13 | 8-759-916-97 | s | IC SN74HCT374N |
| ICE14 | 8-759-916-97 | s | IC SN74HCT374N |
| ICE15 | 8-759-916-95 | s | IC SN74HCT373N |
| ICE16 | 8-759-916-95 | s | IC SN74HCT373N |
| ICE17 | 8-759-916-95 | s | IC SN74HCT373N |
| ICE18 | 8-759-916-95 | s | IC SN74HCT373N |
| ICE19 | 8-759-916-97 | s | IC SN74HCT374N |
| ICE20 | 8-759-916-97 | s | IC SN74HCT374N |
| ICG13 | --PENDING--- | s | IC PALCE16V8Q-IF-G13-1 |
| ICG14 | --PENDING--- | s | IC PALCE16V8Q-IF-G14-1 |
| ICG15 | --PENDING--- | s | IC PALCE16V8Q-IF-G15-1 |
| ICG16 | 8-759-908-35 | s | IC TL7705CP-B |
| ICH4 | 8-759-031-81 | s | IC MC68901P |

(IF-249 BOARD)

| Ref. No. or Q'ty | Part No. | SP | Description |
|---|---|---|---|
| ICH6 | 8-759-031-81 | s | IC MC68901P |
| ICH8 | 8-759-007-35 | s | IC MC68000P8 |
| ICH11 | 8-759-031-82 | s | IC MC68450L8 |
| ICH13 | --PENDING--- | s | IC PALCE16V8Q-IF-H13-1 |
| ICH14 | --PENDING--- | s | IC PALCE16V8Q-IF-H14-1 |
| ICH15 | 8-759-900-69 | s | IC SN74ALS74AN |
| ICH16 | 8-759-901-23 | s | IC SN74LS123N |
| ICJ4 | 8-759-916-97 | s | IC SN74HCT374N |
| ICJ5 | 8-759-916-97 | s | IC SN74HCT374N |
| ICJ6 | 8-759-004-70 | s | IC SN74HCT245N |
| ICJ7 | 8-759-004-70 | s | IC SN74HCT245N |
| ICJ8 | 8-759-916-95 | s | IC SN74HCT373N |
| ICJ9 | 8-759-004-70 | s | IC SN74HCT245N |
| ICJ10 | 8-759-916-95 | s | IC SN74HCT373N |
| ICJ11 | --PENDING--- | s | IC PALCE16V8Q-IF-J11-1 |
| ICJ12 | --PENDING--- | s | IC PALCE16V8Q-IF-J12-1 |
| ICJ13 | --PENDING--- | s | IC PALCE16V8Q-IF-J13-1 |
| ICJ14 | --PENDING--- | s | IC PALCE16V8Q-IF-J14-1 |
| ICJ16 | 8-759-946-36 | s | IC SN74ALS163BN |
| ICK3 | 8-759-044-95 | s | IC MC14495P |
| ICK4 | 8-759-044-95 | s | IC MC14495P |
| ICK6 | 8-759-936-63 | s | IC SN74ALS373N |
| ICK7 | 8-759-936-63 | s | IC SN74ALS373N |
| ICK8 | 8-759-936-60 | s | IC SN74ALS273N |
| ICK9 | 8-759-913-63 | s | IC SN74ALS374N |
| ICK10 | 8-759-936-60 | s | IC SN74ALS273N |
| ICK11 | 8-759-916-95 | s | IC SN74HCT373N |
| ICK12 | 8-759-916-94 | s | IC SN74HC373N |
| ICK13 | 8-759-916-94 | s | IC SN74HC373N |
| ICK14 | 8-759-916-71 | s | IC SN74HC244N |
| ICK16 | --PENDING--- | s | IC PALCE16V8Q-IF-K16-1 |
| ICK17 | 8-759-912-13 | s | IC SN74ALS240A-1N |
| JP1 | 1-566-388-11 | s | CONNECTOR, 8P, MALE |
| JP2 | 1-566-388-11 | s | CONNECTOR, 8P, MALE |
| JS1 | 1-565-413-11 | o | PLUG, SHORTING |
| L1 | 1-421-370-00 | s | COIL, CHOKE |
| R1 | 1-247-725-11 | s | CARBON 10K 5% 1/4W |
| R2 | 1-247-725-11 | s | CARBON 10K 5% 1/4W |
| R3 | 1-247-725-11 | s | CARBON 10K 5% 1/4W |
| R4 | 1-247-721-11 | s | CARBON 4.7K 5% 1/4W |
| R5 | 1-247-713-11 | s | CARBON 1K 5% 1/4W |
| R6 | 1-247-713-11 | s | CARBON 1K 5% 1/4W |
| R7 | 1-247-713-11 | s | CARBON 1K 5% 1/4W |
| R8 | 1-247-713-11 | s | CARBON 1K 5% 1/4W |
| R9 | 1-247-713-11 | s | CARBON 1K 5% 1/4W |
| R10 | 1-247-713-11 | s | CARBON 1K 5% 1/4W |
| R11 | 1-247-713-11 | s | CARBON 1K 5% 1/4W |
| R12 | 1-247-721-11 | s | CARBON 4.7K 5% 1/4W |
| R13 | 1-247-708-11 | s | CARBON 470 5% 1/4W |
| R14 | 1-247-708-11 | s | CARBON 470 5% 1/4W |
| R15 | 1-247-725-11 | s | CARBON 10K 5% 1/4W |
| R16 | 1-247-713-11 | s | CARBON 1K 5% 1/4W |
| R17 | 1-247-713-11 | s | CARBON 1K 5% 1/4W |
| R18 | 1-247-713-11 | s | CARBON 1K 5% 1/4W |
| R19 | 1-249-469-11 | s | CARBON 100K 5% 1/4W |
| R20 | 1-247-725-11 | s | CARBON 10K 5% 1/4W |

(IF-249 BOARD)

| Ref. No. or Q'ty | Part No. | SP | Description |
|---|---|---|---|
| R21 | 1-247-725-11 | s | CARBON 10K 5% 1/4W |
| R22 | 1-215-401-11 | s | METAL 150 1% 1/6W |
| R23 | 1-215-401-11 | s | METAL 150 1% 1/6W |
| R501 | 1-215-411-00 | s | METAL 390 1% 1/6W |
| R502 | 1-215-411-00 | s | METAL 390 1% 1/6W |
| R510 | 1-215-391-00 | s | METAL 56 1% 1/6W |
| R511 | 1-215-391-00 | s | METAL 56 1% 1/6W |
| R512 | 1-215-391-00 | s | METAL 56 1% 1/6W |
| R513 | 1-215-391-00 | s | METAL 56 1% 1/6W |
| R514 | 1-215-391-00 | s | METAL 56 1% 1/6W |
| R515 | 1-215-391-00 | s | METAL 56 1% 1/6W |
| R516 | 1-215-411-00 | s | METAL 390 1% 1/6W |
| RB1 | 1-231-405-00 | s | RESISTOR BLOCK 1K |
| RB2 | 1-231-385-00 | s | RESISTOR BLOCK 4.7Kx8 |
| RB3 | 1-235-127-00 | s | RESISTOR BLOCK 220x8 |
| RB4 | 1-235-127-00 | s | RESISTOR BLOCK 220x8 |
| RB5 | 1-231-399-00 | s | RESISTOR BLOCK 330x8 |
| RB6 | 1-231-399-00 | s | RESISTOR BLOCK 330x8 |
| RB7 | 1-235-127-00 | s | RESISTOR BLOCK 220x8 |
| RB8 | 1-231-399-00 | s | RESISTOR BLOCK 330x8 |
| RB9 | 1-231-405-00 | s | RESISTOR BLOCK 1K |
| RB10 | 1-231-405-00 | s | RESISTOR BLOCK 1K |
| RB11 | 1-231-405-00 | s | RESISTOR BLOCK 1K |
| RB12 | 1-231-405-00 | s | RESISTOR BLOCK 1K |
| RB13 | 1-231-385-00 | s | RESISTOR BLOCK 4.7Kx8 |
| RB14 | 1-231-405-00 | s | RESISTOR BLOCK 1K |
| RB15 | 1-231-385-00 | s | RESISTOR BLOCK 4.7Kx8 |
| RB16 | 1-231-397-00 | s | RESISTOR BLOCK 150 |
| RB17 | 1-231-397-00 | s | RESISTOR BLOCK 150 |
| RB18 | 1-231-397-00 | s | RESISTOR BLOCK 150 |
| RB19 | 1-231-397-00 | s | RESISTOR BLOCK 150 |
| RB20 | 1-231-397-00 | s | RESISTOR BLOCK 150 |
| RB21 | 1-231-397-00 | s | RESISTOR BLOCK 150 |
| RB22 | 1-231-397-00 | s | RESISTOR BLOCK 150 |
| RB23 | 1-231-397-00 | s | RESISTOR BLOCK 150 |
| RB24 | 1-231-397-00 | s | RESISTOR BLOCK 150 |
| RB25 | 1-231-397-00 | s | RESISTOR BLOCK 150 |
| RB26 | 1-231-397-00 | s | RESISTOR BLOCK 150 |
| RB27 | 1-231-397-00 | s | RESISTOR BLOCK 150 |
| RB28 | 1-231-397-00 | s | RESISTOR BLOCK 150 |
| RB29 | 1-231-397-00 | s | RESISTOR BLOCK 150 |
| RB30 | 1-231-397-00 | s | RESISTOR BLOCK 150 |
| RB31 | 1-231-397-00 | s | RESISTOR BLOCK 150 |
| RB32 | 1-231-397-00 | s | RESISTOR BLOCK 150 |
| RB33 | 1-231-397-00 | s | RESISTOR BLOCK 150 |
| RB34 | 1-231-397-00 | s | RESISTOR BLOCK 150 |
| RB35 | 1-231-397-00 | s | RESISTOR BLOCK 150 |
| RB36 | 1-231-397-00 | s | RESISTOR BLOCK 150 |
| RB37 | 1-231-397-00 | s | RESISTOR BLOCK 150 |
| RB38 | 1-231-397-00 | s | RESISTOR BLOCK 150 |
| RB39 | 1-231-397-00 | s | RESISTOR BLOCK 150 |
| RB40 | 1-231-400-00 | s | RESISTOR BLOCK 390x8 |
| RB41 | 1-231-400-00 | s | RESISTOR BLOCK 390x8 |
| RB42 | 1-231-400-00 | s | RESISTOR BLOCK 390x8 |
| RB43 | 1-231-400-00 | s | RESISTOR BLOCK 390x8 |
| RB44 | 1-235-066-00 | s | RESISTOR BLOCK 180 |
| RB45 | 1-235-066-00 | s | RESISTOR BLOCK 180 |
| RB46 | 1-235-066-00 | s | RESISTOR BLOCK 180 |

(IF-249 BOARD)

| Ref. No. or Q'ty | Part No. | SP | Description |
|---|---|---|---|
| RB47 | 1-235-066-00 | s | RESISTOR BLOCK 180 |
| S1 | 1-572-063-11 | s | SWITCH, PUSH |
| S2 | 1-570-619-11 | s | SWITCH, DIP 3-CKT |
| X1 | 1-577-541-11 | s | CRYSTAL, 82.64220000MHz |
| X2 | 1-577-382-11 | s | CRYSTAL, 16.00000000MHz |

## MB-253 BOARD

| Ref. No. or Q'ty | Part No. | SP | Description |
|---|---|---|---|
| 1pc | A-6265-123-A | o | MOUNTED CIRCUIT BOARD, MB-253 |
| 3pcs | 7-682-903-11 | s | SCREW +PWH 3X6 |
| C1 | 1-124-569-11 | s | ELECT 56uF 10% 16V |
| C2 | 1-124-577-11 | s | ELECT 82uF 10% 10V |
| C3 | 1-124-577-11 | s | ELECT 82uF 10% 10V |
| C4 | 1-124-577-11 | s | ELECT 82uF 10% 10V |
| C5 | 1-124-569-11 | s | ELECT 56uF 10% 16V |
| C6 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C7 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C8 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C9 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C10 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C11 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C12 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C13 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C14 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C15 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| CN101 | 1-563-335-11 | s | CONNECTOR, DIN 48P, FEMALE |
| CN102 | 1-565-206-11 | s | CONNECTOR, DIN 128P, FEMALE |
| CN103 | 1-565-206-11 | s | CONNECTOR, DIN 128P, FEMALE |
| CN104 | 1-563-335-11 | s | CONNECTOR, DIN 48P, FEMALE |
| CN105 | 1-565-206-11 | s | CONNECTOR, DIN 128P, FEMALE |
| CN106 | 1-565-206-11 | s | CONNECTOR, DIN 128P, FEMALE |
| CN107 | 1-563-335-11 | s | CONNECTOR, DIN 48P, FEMALE |
| CN108 | 1-565-206-11 | o | CONNECTOR, DIN 128P, FEMALE |
| CN109 | 1-565-206-11 | o | CONNECTOR, DIN 128P, FEMALE |
| CN110 | 1-563-335-11 | s | CONNECTOR, DIN 48P, FEMALE |
| CN111 | 1-565-206-11 | o | CONNECTOR, DIN 128P, FEMALE |
| CN112 | 1-565-206-11 | o | CONNECTOR, DIN 128P, FEMALE |
| CN113 | 1-563-335-11 | s | CONNECTOR, DIN 48P, FEMALE |
| CN114 | 1-565-206-11 | o | CONNECTOR, DIN 128P, FEMALE |
| CN115 | 1-565-206-11 | o | CONNECTOR, DIN 128P, FEMALE |
| CN116 | 1-563-335-11 | s | CONNECTOR, DIN 48P, FEMALE |
| CN117 | 1-565-206-11 | o | CONNECTOR, DIN 128P, FEMALE |
| CN118 | 1-565-206-11 | o | CONNECTOR, DIN 128P, FEMALE |
| CN119 | 1-563-335-11 | s | CONNECTOR, DIN 48P, FEMALE |
| CN120 | 1-565-206-11 | o | CONNECTOR, DIN 128P, FEMALE |
| CN121 | 1-565-206-11 | o | CONNECTOR, DIN 128P, FEMALE |
| CN122 | 1-563-335-11 | s | CONNECTOR, DIN 48P, FEMALE |
| CN123 | 1-565-206-11 | o | CONNECTOR, DIN 128P, FEMALE |
| CN124 | 1-565-206-11 | o | CONNECTOR, DIN 128P, FEMALE |
| CN125 | 1-569-273-11 | o | CONNECTOR, 18P, MALE |
| CN126 | 1-565-691-11 | o | CONNECTOR, PS 20P, MALE |
| CN127 | 1-565-691-11 | o | CONNECTOR, PS 20P, MALE |
| CN128 | 1-565-691-11 | o | CONNECTOR, PS 20P, MALE |
| CN129 | 1-568-002-11 | o | CONNECTOR, PS 26P, MALE |
| CN130 | 1-568-002-11 | o | CONNECTOR, PS 26P, MALE |
| CN131 | 1-561-365-00 | s | CONNECTOR, COAXIAL, MALE |
| CN132 | 1-506-639-11 | o | CONNECTOR, PS 20P, MALE |
| CN133 | 1-565-691-11 | o | CONNECTOR, PS 20P, MALE |
| CN134 | 1-565-691-11 | o | CONNECTOR, PS 20P, MALE |
| CN135 | 1-565-691-11 | o | CONNECTOR, PS 20P, MALE |
| CN136 | 1-560-303-00 | o | CONNECTOR, IL 6P, MALE |
| CN137 | 1-506-683-11 | o | CONNECTOR, PS 16P, MALE |

## PE-18 BOARD

| Ref. No. or Q'ty | Part No. | SP | Description |
|---|---|---|---|
| 1pc | 1-620-916-11 | o | PRINTED CIRCUIT BOARD, PE-18 |
| CN206 | 1-506-481-11 | o | CONNECTOR, 2P, MALE |
| D1 | 8-719-955-32 | s | LED PG5531KX, GRN |

## RP-42 BOARD

| Ref. No. or Q'ty | Part No. | SP | Description |
|---|---|---|---|
| 1pc | A-6257-275-A | o | MOUNTED CIRCUIT BOARD, RP-42 |
| C5 | 1-161-900-11 | s | CERAMIC 1uF 50V |
| C6 | 1-162-798-11 | s | CERAMIC 0.022uF 10% 50V |
| C13 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C14 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C15 | 1-124-596-11 | s | ELECT 27uF 20% 16V |
| C16 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C17 | 1-124-596-11 | s | ELECT 27uF 20% 16V |
| C18 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C100 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C101 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| CN1 | 1-565-942-11 | s | CONNECTOR, D-SUB 9P, FEMALE |
| CN2 | 1-565-942-11 | s | CONNECTOR, D-SUB 9P, FEMALE |
| CN3 | 1-563-228-11 | s | CONNECTOR, D-SUB 25P, FEMALE |
| CN6 | 1-561-365-00 | s | CONNECTOR, COAXIAL, MALE |
| CN8 | 1-560-303-00 | o | CONNECTOR, IL 6P, MALE |
| CN9 | 1-560-299-00 | o | CONNECTOR, IL 2P, MALE |
| CN10 | 1-560-299-00 | o | CONNECTOR, IL 2P, MALE |
| CN207 | 1-560-725-00 | o | CONNECTOR, PS 16P, MALE |
| D100 | 8-719-903-27 | s | DIODE 1SS168 |
| IC7 | 8-743-931-10 | s | IC BX3931A |
| L1 | 1-421-370-00 | s | COIL, CHOKE |
| L2 | 1-421-370-00 | s | COIL, CHOKE |
| Q1 | 8-729-105-71 | s | TRANSISTOR 2SK523-K2 |
| Q2 | 8-729-105-71 | s | TRANSISTOR 2SK523-K2 |
| Q100 | 8-729-105-71 | s | TRANSISTOR 2SK523-K2 |
| R2 | 1-215-490-00 | s | METAL 750K 1% 1/6W |
| R3 | 1-215-405-00 | s | METAL 220 1% 1/6W |
| R5 | 1-215-405-00 | s | METAL 220 1% 1/6W |
| R6 | 1-215-413-00 | s | METAL 470 1% 1/6W |
| R8 | 1-215-490-00 | s | METAL 750K 1% 1/6W |
| R19 | 1-215-394-00 | s | METAL 75 1% 1/6W |
| R22 | 1-215-394-00 | s | METAL 75 1% 1/6W |
| R100 | 1-215-490-00 | s | METAL 750K 1% 1/6W |
| R101 | 1-215-432-00 | s | METAL 3K 1% 1/6W |
| SW1 | 1-554-377-00 | s | SWITCH, SLIDE |

## SWREG BOARD

| Ref. No. or Q'ty | Part No. | SP | Description |
|---|---|---|---|
| 1pc | ⚠ 1-413-525-11 | o | REGULATOR, SWITCHING (PS-043B) |
| 1pc | ⚠ 1-526-956-11 | s | INLET WITH FILTER, AC 3P, MALE |
| 1pc | 9-997-149-01 | s | FRONT END UNIT |
| C36 | 1-162-621-11 | s | CERAMIC 0.1uF |
| C37 | 1-162-621-11 | s | CERAMIC 0.1uF |
| C38 | 1-162-621-11 | s | CERAMIC 0.1uF |
| C39 | 1-162-621-11 | s | CERAMIC 0.1uF |
| C40 | 1-162-621-11 | s | CERAMIC 0.1uF |
| CB1 | ⚠ 1-532-545-51 | s | BREAKER, CIRCUIT 6.3A, 250V |
| CN101 | 1-569-271-11 | o | CONNECTOR, 18P, FEMALE |
| CN102 | 1-569-270-11 | o | CONNECTOR, 3P, FEMALE |
| M1 | 1-541-651-11 | s | MOTOR, DC FAN |
| S1 | ⚠ 1-570-455-21 | s | SWITCH, ROCKER (AC POWER) |
| Switching regulator 1-413-525-11 (PS-043B) includes the | | | |
| 1pc | 9-997-150-01 | s | THERMAL PAD |
| C1 | 1-161-741-11 | s | CERAMIC 1000PF |
| C2 | 1-161-741-11 | s | CERAMIC 1000PF |
| C3 | 1-161-741-11 | s | CERAMIC 1000PF |
| C4 | 1-161-741-11 | s | CERAMIC 1000PF |
| C5 | 1-161-741-11 | s | CERAMIC 1000PF |
| C6 | 1-161-741-11 | s | CERAMIC 1000PF |
| C7 | 1-161-741-11 | s | CERAMIC 1000PF |
| C8 | 1-161-741-11 | s | CERAMIC 1000PF |
| C9 | 1-161-741-11 | s | CERAMIC 1000PF |
| C10 | 1-161-741-11 | s | CERAMIC 1000PF |
| C11 | 1-161-741-11 | s | CERAMIC 1000PF |
| C12 | 1-161-741-11 | s | CERAMIC 1000PF |
| C13 | 9-997-138-01 | s | CERAMIC 0.22uF 50V |
| C14 | 9-997-138-01 | s | CERAMIC 0.22uF 50V |
| C15 | 9-997-138-01 | s | CERAMIC 0.22uF 50V |
| C16 | 9-997-138-01 | s | CERAMIC 0.22uF 50V |
| C17 | 9-997-138-01 | s | CERAMIC 0.22uF 50V |
| C18 | 9-997-138-01 | s | CERAMIC 0.22uF 50V |
| C19 | 9-997-138-01 | s | CERAMIC 0.22uF 50V |
| C20 | 9-997-138-01 | s | CERAMIC 0.22uF 50V |
| C21 | 9-997-138-01 | s | CERAMIC 0.22uF 50V |
| C22 | 9-997-138-01 | s | CERAMIC 0.22uF 50V |
| C23 | 1-126-140-11 | s | ELECT 470uF 25V |
| C24 | 9-997-139-01 | s | ELECT 560uF 35V |
| C25 | 9-997-139-01 | s | ELECT 560uF 35V |
| C26 | 1-162-318-11 | s | CERAMIC 1000PF |
| C27 | 1-162-321-11 | s | CERAMIC 0.1uF 50V |
| C28 | 1-126-140-11 | s | ELECT 470uF 25V |
| C29 | 9-997-139-01 | s | ELECT 560uF 35V |
| C30 | 9-997-139-01 | s | ELECT 560uF 35V |
| C31 | 1-162-318-11 | s | CERAMIC 1000PF |
| C32 | 1-162-321-11 | s | CERAMIC 0.1uF 50V |
| C33 | 9-997-139-01 | s | ELECT 560uF 35V |
| C34 | 1-162-318-11 | s | CERAMIC 1000PF |
| C35 | 1-162-321-11 | s | CERAMIC 0.1uF 50V |
| CN1 | 1-564-104-00 | o | PIN, CONNECTOR 3P |
| | 1-562-211-11 | o | HOUSING, CONNECTOR 3P |
| | 1-502-210-11 | o | CONTACT |
| CN2 | 1-564-320-00 | o | PIN, CONNECTOR 2P |
| | 1-562-352-11 | o | HOUSING,CONNECTOR 2P |

(SWREG BOARD)

| Ref. No. or Q'ty | Part No. | SP | Description |
|---|---|---|---|
| | 1-562-210-11 | o | CONTACT |
| CN3 | 9-997-137-01 | o | POST WITH BASE |
| | 9-997-151-01 | o | HOUSING XLP-04V |
| CN4 | 9-997-137-01 | o | POST WITH BASE |
| | 9-997-151-01 | o | HOUSING XLP-04V |
| CN5 | 9-997-137-01 | o | POST WITH BASE |
| | 9-997-151-01 | o | HOUSING XLP-04V |
| CN6 | 9-997-136-01 | o | POST WITH BASE |
| | 9-997-151-01 | o | HOUSING XHP-5 |
| | 1-564-322-11 | o | CONTACT |
| CN7 | 1-565-193-11 | | POST WITH BASE |
| | 9-997-151-01 | o | HOUSING XLP-08V |
| CN8 | 1-564-320-00 | o | PIN, CONNECTOR 2P |
| | 1-562-352-11 | o | HOUSING, CONNECTOR 2P |
| | 1-562-210-11 | o | CONTACT |
| F1 | ⚠ 9-997-135-01 | s | FUSE, 250V, 3A |
| F2 | ⚠ 9-997-135-01 | s | FUSE, 250V, 3A |
| F3 | ⚠ 9-997-135-01 | s | FUSE, 250V, 3A |
| F4 | ⚠ 9-997-135-01 | s | FUSE, 250V, 3A |
| F5 | ⚠ 9-997-135-01 | s | FUSE, 250V, 3A |
| F6 | ⚠ 9-997-135-01 | s | FUSE, 250V, 3A |
| FIL1 | 9-997-134-01 | s | FILTER, ACTIVE |
| FIL2 | 9-997-134-01 | s | FILTER, ACTIVE |
| M1 | ⚠ 9-997-130-01 | s | DC-DC CONVERTER |
| M2 | ⚠ 9-997-130-01 | s | DC-DC CONVERTER |
| M3 | ⚠ 9-997-131-01 | s | DC-DC CONVERTER |
| M4 | ⚠ 9-997-131-01 | s | DC-DC CONVERTER |
| M5 | ⚠ 9-997-132-01 | s | DC-DC CONVERTER |
| M6 | ⚠ 9-997-133-01 | s | DC-DC CONVERTER |
| R1 | 9-997-143-01 | s | METAL 20.5K 1% 1/4W |
| R2 | 9-997-144-01 | s | METAL 19.6K 1% 1/4W |
| R3 | 9-997-143-01 | s | METAL 20.5K 1% 1/4W |
| R4 | 9-997-144-01 | s | METAL 19.6K 1% 1/4W |
| R5 | 9-997-145-01 | s | METAL 75K 1% 1/4W |
| R6 | 9-997-146-01 | s | METAL 16.9K 1% 1/4W |
| R7 | 9-997-145-01 | s | METAL 75K 1% 1/4W |
| R8 | 9-997-146-01 | s | METAL 16.9K 1% 1/4W |
| R9 | 9-997-147-01 | s | METAL 6.81K 1% 1/4W |
| R10 | 9-997-148-01 | s | METAL 2.94K 1% 1/4W |
| R11 | 1-215-857-11 | s | METAL 15 1/2W |
| RV1 | 9-997-140-01 | s | RES, 10K |
| RV2 | 9-997-140-01 | s | RES, 10K |
| RV3 | 9-997-141-01 | s | RES, 10K |
| RV4 | 9-997-141-01 | s | RES, 10K |
| RV5 | 9-997-142-01 | s | RES, 1K |

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SY-149 BOARD

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| Ref. No. or Q'ty | Part No. | SP | Description |
|---|---|---|---|
| 1pc | A-6257-277-A | o | MOUNTED CIRCUIT BOARD, SY-149 |
| 1pc | 1-563-521-11 | o | CONNECTOR, 20P, FEMALE |
| 2pcs | 3-714-634-01 | o | LEVER, PC BOARD |
| 6pcs | 7-622-207-05 | s | N 2.6, TYPE 2 |
| 2pcs | 7-626-320-11 | o | PIN, SPRING 3X8 |
| 6pcs | 7-628-254-30 | s | SCREW +PS 2.6X10 |
| 9pcs | 7-682-903-01 | s | SCREW +PWH 3X5 |
| C1 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C2 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C3 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C4 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C5 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C6 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C7 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C8 | 1-124-569-11 | s | ELECT 56uF 10% 16V |
| C9 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C10 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C11 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C12 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C13 | 1-162-765-11 | s | CERAMIC 0.001uF 5% 50V |
| C14 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C15 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C16 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C17 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C18 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C19 | 1-124-566-11 | s | ELECT 120uF 20% 6.3V |
| C20 | 1-124-566-11 | s | ELECT 120uF 20% 6.3V |
| C21 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C22 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C23 | 1-130-476-00 | s | MYLAR 0.0027uF 5% 50V |
| C24 | 1-162-802-11 | s | CERAMIC 0.047uF 10% 50V |
| C25 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C26 | 1-124-566-11 | s | ELECT 120uF 20% 6.3V |
| C27 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C28 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C29 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C30 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C31 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C32 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C33 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C34 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C35 | 1-162-765-11 | s | CERAMIC 0.001uF 5% 50V |
| C36 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C37 | 1-124-566-11 | s | ELECT 120uF 20% 6.3V |
| C38 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C39 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C40 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C41 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C42 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C43 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C44 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C45 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C46 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C47 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C48 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C50 | 1-124-621-11 | s | ELECT 3300uF 20% 6.3 |
| C51 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C52 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |

(SY-149 BOARD)

| Ref. No. or Q'ty | Part No. | SP | Description |
|---|---|---|---|
| C53 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C54 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C55 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C56 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C57 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C58 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C59 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C60 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C61 | 1-124-569-11 | s | ELECT 56uF 10% 16V |
| C62 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C63 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C64 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C65 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C66 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C67 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C68 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C69 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C70 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C71 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C72 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C73 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C74 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C75 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C76 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C77 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C78 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C79 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C80 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C81 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C82 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C83 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C84 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C85 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C86 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C87 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C88 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C89 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C90 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C91 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C92 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C93 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C94 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C95 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C96 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C97 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C98 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C99 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C100 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C101 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C102 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C103 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C104 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C105 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C106 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C107 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C108 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C109 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C110 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C111 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |

(SY-149 BOARD)

| Ref. No. or Q'ty | Part No. | SP | Description |
|---|---|---|---|
| C112 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C113 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C114 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C115 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C116 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C117 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C118 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C119 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C120 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C121 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C122 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C123 | 1-124-569-11 | s | ELECT 56uF 10% 16V |
| C124 | 1-124-569-11 | s | ELECT 56uF 10% 16V |
| C125 | 1-124-569-11 | s | ELECT 56uF 10% 16V |
| C126 | 1-124-569-11 | s | ELECT 56uF 10% 16V |
| C127 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C128 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C129 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C130 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C131 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C132 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C133 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C134 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C135 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C136 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C137 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C138 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C139 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C140 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C141 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C142 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C143 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C144 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C145 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C146 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C147 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C148 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C149 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C150 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C151 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C152 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C153 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C154 | 1-161-898-11 | s | CERAMIC 0.47uF 50V |
| C155 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C156 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C157 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C158 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C159 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C160 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C161 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C162 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C163 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C164 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C165 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C166 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C167 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C168 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C169 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C170 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |

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| Ref. No. or Q'ty | Part No. | SP | Description |
|---|---|---|---|
| C171 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C172 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C173 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C174 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C175 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C176 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C177 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C178 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C179 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C180 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C181 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C182 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C183 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C184 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| C185 | 1-162-806-11 | s | CERAMIC 0.1uF 10% 50V |
| CN122 | 1-506-746-11 | s | CONNECTOR, DIN 48P, MALE |
| CN123 | 1-565-207-21 | s | CONNECTOR, DIN 128P, MALE |
| CN124 | 1-565-207-21 | s | CONNECTOR, DIN 128P, MALE |
| D1 | 8-719-912-20 | s | DIODE 1SS120 |
| D2 | 8-719-912-20 | s | DIODE 1SS120 |
| D3 | 8-719-980-91 | s | DIODE GL3N305 |
| ICA3 | 8-759-002-62 | s | IC MC10H101L |
| ICA4 | 8-759-002-78 | s | IC MC10H125L |
| ICA5 | 8-759-003-13 | s | IC MC10H424L |
| ICA6 | 8-759-002-79 | s | IC MC10H130L |
| ICA7 | 8-759-002-79 | s | IC MC10H130L |
| ICA8 | 8-759-002-79 | s | IC MC10H130L |
| ICA9 | 8-759-002-79 | s | IC MC10H130L |
| ICA10 | 8-759-002-81 | s | IC MC10H135L |
| ICA11 | 8-759-002-78 | s | IC MC10H125L |
| ICA12 | 8-759-980-97 | s | IC 74AC240PC |
| ICA13 | 8-759-978-10 | s | IC 74AC374PC |
| ICA14 | 8-759-978-10 | s | IC 74AC374PC |
| ICA15 | 8-759-978-10 | s | IC 74AC374PC |
| ICA16 | 8-759-916-96 | s | IC SN74HC374N |
| ICA17 | 8-759-916-96 | s | IC SN74HC374N |
| ICB1 | 8-759-906-07 | s | IC TL607CP |
| ICB2 | 8-759-990-82 | s | IC TL082CP |
| ICB3 | 8-759-003-13 | s | IC MC10H424L |
| ICB4 | 8-759-003-13 | s | IC MC10H424L |
| ICB5 | 8-759-002-83 | s | IC MC10H141L |
| ICB6 | 8-759-002-99 | s | IC MC10H176L |
| ICB7 | 8-759-002-97 | s | IC MC10H174L |
| ICB8 | 8-759-002-97 | s | IC MC10H174L |
| ICB9 | 8-759-003-13 | s | IC MC10H424L |
| ICB10 | 8-759-002-99 | s | IC MC10H176L |
| ICB11 | 8-759-002-63 | s | IC MC10H102L |
| ICB12 | 8-759-003-13 | s | IC MC10H424L |
| ICB13 | 8-759-921-21 | s | IC SN74HC163N |
| ICB14 | 8-759-921-21 | s | IC SN74HC163N |
| ICB15 | 8-759-921-21 | s | IC SN74HC163N |
| ICB16 | 8-759-921-21 | s | IC SN74HC163N |
| ICB17 | 8-759-921-21 | s | IC SN74HC163N |
| ICC1 | 8-759-980-07 | s | IC 74AC157PC |
| ICC2 | 8-759-040-44 | s | IC MC4044P |
| ICC3 | 8-759-947-10 | s | IC 74ACT374PC |
| ICC4 | 8-759-947-10 | s | IC 74ACT374PC |
| ICC5 | 8-759-947-10 | s | IC 74ACT374PC |

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| Ref. No. or Q'ty | Part No. | SP | Description |
|---|---|---|---|
| ICC6 | 8-759-947-10 | s | IC 74ACT374PC |
| ICC7 | 8-759-947-10 | s | IC 74ACT374PC |
| ICC8 | 8-759-947-10 | s | IC 74ACT374PC |
| ICC9 | 8-759-978-10 | s | IC 74AC374PC |
| ICC10 | --PENDING--- | s | IC PALCE16V8Q-SY-C10-1 |
| ICC11 | --PEMDING--- | s | IC PALCE16V8Q-SY-C11-1 |
| ICC12 | --PENDING--- | s | IC PALCE16V8Q-SY-C12-1 |
| ICC13 | 8-759-921-21 | s | IC SN74HC163N |
| ICC14 | 8-759-980-98 | s | IC 74AC244PC |
| ICC15 | 8-759-981-02 | s | IC 74ACT257PC |
| ICC16 | 8-759-916-96 | s | IC SN74HC374N |
| ICC17 | 8-759-916-96 | s | IC SN74HC374N |
| ICD1 | 8-759-903-19 | s | LM319N |
| ICD2 | 8-759-916-29 | s | IC SN74HC74N |
| ICD3 | --PENDING--- | s | IC CY7C291L-SY-D3-1 |
| ICD4 | --PENDING--- | s | IC CY7C291L-SY-D4-1 |
| ICD5 | --PENDING--- | s | IC CY7C291L-SY-D5-1 |
| ICD6 | --PENDING--- | s | IC CY7C291L-SY-D6-1 |
| ICD7 | --PENDING--- | s | IC CY7C291L-SY-D7-1 |
| ICD8 | --PENDING--- | s | IC CY7C291L-SY-D8-1 |
| ICD9 | --PENDING--- | s | IC PALCE16V8Q-SY-D9-1 |
| ICD10 | --PENDING--- | s | IC PALCE16V8Q-SY-D10-1 |
| ICD11 | --PENDING--- | s | IC PALCE16V8Q-SY-D11-1 |
| ICD12 | --PENDING--- | s | IC PALCE16V8Q-SY-D12-1 |
| ICD13 | 8-759-921-21 | s | IC SN74HC163N |
| ICD14 | 8-759-981-02 | s | IC 74ACT257PC |
| ICD15 | 8-759-991-04 | s | IC 74AC253PC |
| ICD16 | 8-759-916-96 | s | IC SN74HC374N |
| ICD17 | 8-759-916-96 | s | IC SN74HC374N |
| ICE1 | 8-759-803-70 | s | IC SN74HC08N |
| ICE2 | 8-759-916-29 | s | IC SN74HC74N |
| ICE3 | 8-759-980-08 | s | IC 74AC163PC |
| ICE4 | 8-759-980-08 | s | IC 74AC163PC |
| ICE5 | 8-759-980-08 | s | IC 74AC163PC |
| ICE6 | 8-759-980-08 | s | IC 74AC163PC |
| ICE7 | 8-759-980-08 | s | IC 74AC163PC |
| ICE8 | 8-759-980-08 | s | IC 74AC163PC |
| ICE10 | 8-759-921-21 | s | IC SN74HC163N |
| ICE11 | 8-759-921-21 | s | IC SN74HC163N |
| ICE12 | 8-759-233-05 | s | IC TC74HC283AP |
| ICE13 | 8-759-233-05 | s | IC TC74HC283AP |
| ICE14 | 8-759-981-02 | s | IC 74ACT257PC |
| ICE15 | 8-759-233-05 | s | IC TC74HC283AP |
| ICE16 | 8-759-903-99 | s | IC SN74LS399N |
| ICE17 | 8-759-991-04 | s | IC 74AC253PC |
| ICF2 | 8-759-239-59 | s | IC TC74HC221AP |
| ICF3 | 8-759-916-29 | s | IC SN74HC74N |
| ICF4 | 8-759-803-70 | s | IC SN74HC08N |
| ICF7 | 8-759-916-71 | s | IC SN74HC244N |
| ICF10 | 8-759-991-04 | s | IC 74AC253PC |
| ICF11 | 8-759-991-04 | s | IC 74AC253PC |
| ICF12 | 8-759-903-99 | s | IC SN74LS399N |
| ICF13 | 8-759-903-99 | s | IC SN74LS399N |
| ICF14 | 8-759-921-21 | s | IC SN74HC163N |
| ICF15 | 8-759-991-04 | s | IC 74AC253PC |
| ICF16 | 8-759-921-21 | s | IC SN74HC163N |
| ICF17 | 8-759-921-21 | s | IC SN74HC163N |

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| Ref. No. or Q'ty | Part No. | SP | Description |
|---|---|---|---|
| ICG1 | 8-759-939-36 | s | IC TL7705ACP |
| ICG2 | 8-759-980-08 | s | IC 74AC163PC |
| ICG3 | --PENDING--- | s | IC PALCE16V8Q-SY-G3-1 |
| ICG4 | --PENDING--- | s | IC PALCE16V8Q-SY-G4-1 |
| ICG5 | 8-759-902-44 | s | IC SN74LS244N |
| ICG6 | 8-759-916-53 | s | IC SN74HC166N |
| ICG7 | 8-759-916-53 | s | IC SN74HC166N |
| ICG8 | 8-759-937-96 | s | IC MC3487N |
| ICG9 | 8-759-937-97 | s | IC MC3486N |
| ICG10 | 8-759-921-21 | s | IC SN74HC163N |
| ICG11 | 8-759-921-21 | s | IC SN74HC163N |
| ICG12 | 8-759-921-21 | s | IC SN74HC163N |
| ICG13 | 8-759-921-21 | s | IC SN74HC163N |
| ICG14 | 8-759-921-21 | s | IC SN74HC163N |
| ICG15 | 8-759-233-05 | s | IC TC74HC283AP |
| ICG16 | 8-759-921-21 | s | IC SN74HC163N |
| ICG17 | 8-759-921-21 | s | IC SN74HC163N |
| ICH2 | --PENDING--- | s | IC PALCE16V8Q-SY-H2-1 |
| ICH3 | --PENDING--- | s | IC PALCE16V8Q-SY-H3-1 |
| ICH4 | --PENDING--- | s | IC PALCE16V8Q-SY-H4-1 |
| ICH5 | 8-759-902-44 | s | IC SN74LS244N |
| ICH6 | 8-759-916-53 | s | IC SN74HC166N |
| ICH7 | 8-759-902-44 | s | IC SN74LS244N |
| ICH8 | 8-759-902-44 | s | IC SN74LS244N |
| ICH9 | 8-759-916-96 | s | IC SN74HC374N |
| ICH10 | 8-759-916-96 | s | IC SN74HC374N |
| ICH11 | 8-759-981-26 | s | IC LT1081CN |
| ICH12 | 8-759-916-96 | s | IC SN74HC374N |
| ICH13 | 8-759-916-96 | s | IC SN74HC374N |
| ICH14 | 8-759-916-96 | s | IC SN74HC374N |
| ICH15 | 8-759-903-99 | s | IC SN74LS399N |
| ICH16 | 8-759-916-96 | s | IC SN74HC374N |
| ICH17 | 8-759-916-96 | s | IC SN74HC374N |
| ICJ2 | --PENDING--- | s | IC MBM27C512-SY-J2-1 |
| ICJ3 | 8-752-325-32 | s | IC CXK58256P-12LL |
| ICJ5 | --PENDING--- | s | IC MBM27C512-SY-J5-1 |
| ICJ6 | 8-752-325-32 | s | IC CXK58256P-12LL |
| ICJ14 | 8-752-321-18 | s | IC CXK1005P |
| ICJ15 | --PENDING--- | s | IC PALCE16V8Q-SY-J15-1 |
| ICJ16 | 8-759-916-96 | s | IC SN74HC374N |
| ICJ17 | 8-759-916-96 | s | IC SN74HC374N |
| ICK1 | 8-759-007-35 | s | IC MC68000P8 |
| ICK8 | 8-759-031-81 | s | IC MC68901P |
| ICK10 | 8-759-031-81 | s | IC MC68901P |
| ICK11 | 8-759-031-81 | s | IC MC68901P |
| ICK13 | 8-759-031-81 | s | IC MC68901P |
| ICK14 | --PENDING--- | s | IC PALCE16V8Q-SY-K14-1 |
| ICK15 | 8-759-916-71 | s | IC SN74HC244N |
| ICK16 | 8-759-916-96 | s | IC SN74HC374N |
| ICK17 | --PENDING--- | s | IC PALCE16V8Q-SY-K17-1 |
| ICL1 | 8-759-044-95 | s | IC MC14495P |
| ICL15 | 8-759-921-21 | s | IC SN74HC163N |
| JP1 | 1-566-388-11 | s | CONNECTOR, 8P, MALE |
| JP2 | 1-566-388-11 | s | CONNECTOR, 8P, MALE |
| JS2 | 1-565-413-11 | o | PLUG, SHORTING |

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| Ref. No. or Q'ty | Part No. | SP | Description |
|---|---|---|---|
| L1 | 1-421-370-00 | s | COIL, CHOKE |
| L2 | 1-421-370-00 | s | COIL, CHOKE |
| L3 | 1-421-370-00 | s | COIL, CHOKE |
| L4 | 1-421-370-00 | s | COIL, CHOKE |
| L5 | 1-421-370-00 | s | COIL, CHOKE |
| L6 | 1-421-370-00 | s | COIL, CHOKE |
| L7 | 1-421-370-00 | s | COIL, CHOKE |
| Q1 | 8-729-119-78 | s | TRANSISTOR 2SC2785-HFE |
| Q2 | 8-729-119-78 | s | TRANSISTOR 2SC2785-HFE |
| Q3 | 8-729-119-78 | s | TRANSISTOR 2SC2785-HFE |
| R1 | 1-247-700-11 | s | CARBON 100 5% 1/4W |
| R2 | 1-247-700-11 | s | CARBON 100 5% 1/4W |
| R3 | 1-247-713-11 | s | CARBON 1K 5% 1/4W |
| R4 | 1-215-428-00 | s | METAL 2K 1% 1/6W |
| R5 | 1-215-462-00 | s | METAL 51K 1% 1/6W |
| R6 | 1-215-477-00 | s | METAL 220K 1% 1/6W |
| R7 | 1-247-713-11 | s | CARBON 1K 5% 1/4W |
| R8 | 1-247-126-00 | s | CARBON 620 5% 1/4W |
| R9 | 1-247-725-11 | s | CARBON 10K 5% 1/4W |
| R10 | 1-249-465-11 | s | CARBON 47K 5% 1/4W |
| R11 | 1-247-713-11 | s | CARBON 1K 5% 1/4W |
| R12 | 1-247-713-11 | s | CARBON 1K 5% 1/4W |
| R13 | 1-247-713-11 | s | CARBON 1K 5% 1/4W |
| R14 | 1-249-461-11 | s | CARBON 18K 5% 1/4W |
| R15 | 1-247-713-11 | s | CARBON 1K 5% 1/4W |
| R16 | 1-247-707-11 | s | CARBON 390 5% 1/4W |
| R17 | 1-247-701-11 | s | CARBON 120 5% 1/4W |
| R18 | 1-215-473-00 | s | METAL 150K 1% 1/6W |
| R19 | 1-215-421-00 | s | METAL 1K 1% 1/6W |
| R21 | 1-247-713-11 | s | CARBON 1K 5% 1/4W |
| R22 | 1-247-722-11 | s | CARBON 5.6K 5% 1/4W |
| R23 | 1-247-725-11 | s | CARBON 10K 5% 1/4W |
| R24 | 1-215-445-00 | s | METAL 10K 1% 1/6W |
| R25 | 1-215-467-00 | s | METAL 82K 1% 1/6W |
| R26 | 1-215-425-00 | s | METAL 1.5K 1% 1/6W |
| R27 | 1-247-701-11 | s | CARBON 120 5% 1/4W |
| R28 | 1-247-701-11 | s | CARBON 120 5% 1/4W |
| R29 | 1-247-701-11 | s | CARBON 120 5% 1/4W |
| R30 | 1-247-701-11 | s | CARBON 120 5% 1/4W |
| R31 | 1-247-701-11 | s | CARBON 120 5% 1/4W |
| R32 | 1-247-701-11 | s | CARBON 120 5% 1/4W |
| R33 | 1-247-701-11 | s | CARBON 120 5% 1/4W |
| R34 | 1-247-701-11 | s | CARBON 120 5% 1/4W |
| R35 | 1-247-700-11 | s | CARBON 100 5% 1/4W |
| R36 | 1-247-721-11 | s | CARBON 4.7K 5% 1/4W |
| R37 | 1-249-469-11 | s | CARBON 100K 5% 1/4W |
| R38 | 1-247-162-00 | s | CARBON 20K 5% 1/4W |
| R39 | 1-247-713-11 | s | CARBON 1K 5% 1/4W |
| R40 | 1-247-162-00 | s | CARBON 20K 5% 1/4W |
| R41 | 1-247-713-11 | s | CARBON 1K 5% 1/4W |
| R42 | 1-247-162-00 | s | CARBON 20K 5% 1/4W |
| R43 | 1-247-713-11 | s | CARBON 1K 5% 1/4W |
| R44 | 1-247-713-11 | s | CARBON 1K 5% 1/4W |
| R45 | 1-247-725-11 | s | CARBON 10K 5% 1/4W |
| R46 | 1-247-721-11 | s | CARBON 4.7K 5% 1/4W |
| R47 | 1-247-721-11 | s | CARBON 4.7K 5% 1/4W |
| R48 | 1-247-721-11 | s | CARBON 4.7K 5% 1/4W |

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| Ref. No. or Q'ty | Part No. | SP | Description |
|---|---|---|---|
| R49 | 1-247-721-11 | s | CARBON 4.7K 5% 1/4W |
| R50 | 1-247-713-11 | s | CARBON 1K 5% 1/4W |
| R51 | 1-247-713-11 | s | CARBON 1K 5% 1/4W |
| R52 | 1-247-713-11 | s | CARBON 1K 5% 1/4W |
| R53 | 1-247-725-11 | s | CARBON 10K 5% 1/4W |
| R54 | 1-247-725-11 | s | CARBON 10K 5% 1/4W |
| R55 | 1-247-713-11 | s | CARBON 1K 5% 1/4W |
| R56 | 1-247-725-11 | s | CARBON 10K 5% 1/4W |
| R57 | 1-247-713-11 | s | CARBON 1K 5% 1/4W |
| R58 | 1-247-725-11 | s | CARBON 10K 5% 1/4W |
| R59 | 1-247-713-11 | s | CARBON 1K 5% 1/4W |
| R60 | 1-247-713-11 | s | CARBON 1K 5% 1/4W |
| R61 | 1-247-725-11 | s | CARBON 10K 5% 1/4W |
| R62 | 1-247-700-11 | s | CARBON 100 5% 1/4W |
| R63 | 1-247-725-11 | s | CARBON 10K 5% 1/4W |
| R64 | 1-247-700-11 | s | CARBON 100 5% 1/4W |
| R65 | 1-247-725-11 | s | CARBON 10K 5% 1/4W |
| R66 | 1-247-725-11 | s | CARBON 10K 5% 1/4W |
| R67 | 1-247-700-11 | s | CARBON 100 5% 1/4W |
| R68 | 1-247-725-11 | s | CARBON 10K 5% 1/4W |
| R69 | 1-247-725-11 | s | CARBON 10K 5% 1/4W |
| R70 | 1-247-725-11 | s | CARBON 10K 5% 1/4W |
| R71 | 1-247-725-11 | s | CARBON 10K 5% 1/4W |
| R72 | 1-247-699-11 | s | CARBON 82 5% 1/4W |
| R73 | 1-247-692-11 | s | CARBON 22 5% 1/4W |
| R74 | 1-247-692-11 | s | CARBON 22 5% 1/4W |
| R75 | 1-247-692-11 | s | CARBON 22 5% 1/4W |
| R76 | 1-247-699-11 | s | CARBON 82 5% 1/4W |
| R77 | 1-247-699-11 | s | CARBON 82 5% 1/4W |
| R78 | 1-247-692-11 | s | CARBON 22 5% 1/4W |
| R79 | 1-247-692-11 | s | CARBON 22 5% 1/4W |
| R80 | 1-247-692-11 | s | CARBON 22 5% 1/4W |
| R81 | 1-247-713-11 | s | CARBON 1K 5% 1/4W |
| R82 | 1-247-713-11 | s | CARBON 1K 5% 1/4W |
| R83 | 1-247-692-11 | s | CARBON 22 5% 1/4W |
| R84 | 1-247-713-11 | s | CARBON 1K 5% 1/4W |
| R85 | 1-247-696-11 | s | CARBON 47 5% 1/4W |
| R86 | 1-247-699-11 | s | CARBON 82 5% 1/4W |
| R87 | 1-247-725-11 | s | CARBON 10K 5% 1/4W |
| R88 | 1-247-692-11 | s | CARBON 22 5% 1/4W |
| R89 | 1-247-713-11 | s | CARBON 1K 5% 1/4W |
| R90 | 1-247-696-11 | s | CARBON 47 5% 1/4W |
| R91 | 1-247-696-11 | s | CARBON 47 5% 1/4W |
| R92 | 1-247-883-00 | s | CARBON 150K 5% 1/4W |
| R401 | 1-249-417-11 | s | CARBON 1K 5% 1/4W |
| R402 | 1-249-417-11 | s | CARBON 1K 5% 1/4W |
| R403 | 1-249-417-11 | s | CARBON 1K 5% 1/4W |
| R404 | 1-249-417-11 | s | CARBON 1K 5% 1/4W |
| RB1 | 1-231-405-00 | s | RESISTOR BLOCK 1K |
| RB2 | 1-231-403-00 | s | RESISTOR BLOCK 560 |
| RB3 | 1-231-405-00 | s | RESISTOR BLOCK 1K |
| RB4 | 1-231-385-00 | s | RESISTOR BLOCK 4.7Kx8 |
| RB5 | 1-231-403-00 | s | RESISTOR BLOCK 560 |
| RB6 | 1-231-405-00 | s | RESISTOR BLOCK 1K |
| RB7 | 1-231-405-00 | s | RESISTOR BLOCK 1K |
| RB8 | 1-235-972-11 | s | RESISTOR BLOCK 100 |
| RB9 | 1-231-403-00 | s | RESISTOR BLOCK 560 |
| RB10 | 1-231-403-00 | s | RESISTOR BLOCK 560 |

(SY-149 BOARD)

| Ref. No. or Q'ty | Part No. | SP | Description |
|---|---|---|---|
| RB11 | 1-236-556-11 | s | RESISTOR BLOCK 82 |
| RB12 | 1-236-556-11 | s | RESISTOR BLOCK 82 |
| RB13 | 1-231-403-00 | s | RESISTOR BLOCK 560 |
| RB14 | 1-236-556-11 | s | RESISTOR BLOCK 82 |
| RB15 | 1-231-405-00 | s | RESISTOR BLOCK 1K |
| RB16 | 1-231-410-00 | s | RESISTOR BLOCK 10Kx8 |
| RB17 | 1-236-556-11 | s | RESISTOR BLOCK 82 |
| RB18 | 1-231-405-00 | s | RESISTOR BLOCK 1K |
| RB19 | 1-231-405-00 | s | RESISTOR BLOCK 1K |
| RB20 | 1-231-405-00 | s | RESISTOR BLOCK 1K |
| RB21 | 1-231-405-00 | s | RESISTOR BLOCK 1K |
| RB22 | 1-231-410-00 | s | RESISTOR BLOCK 10Kx8 |
| RB23 | 1-231-405-00 | s | RESISTOR BLOCK 1K |
| RB24 | 1-231-405-00 | s | RESISTOR BLOCK 1K |
| RB25 | 1-231-403-00 | s | RESISTOR BLOCK 560 |
| RB26 | 1-231-405-00 | s | RESISTOR BLOCK 1K |
| RB27 | 1-231-405-00 | s | RESISTOR BLOCK 1K |
| RB28 | 1-231-405-00 | s | RESISTOR BLOCK 1K |
| RB29 | 1-231-410-00 | s | RESISTOR BLOCK 10Kx8 |
| RV1 | 1-230-751-21 | s | RES, ADJ METAL 20K |
| RV2 | 1-230-751-21 | s | RES, ADJ METAL 20K |
| S1 | 1-572-063-11 | s | SWITCH, PUSH |
| S2 | 1-572-062-11 | s | SWITCH, TOGGLE |
| S3 | 1-572-060-11 | s | SWITCH, TOGGLE |
| S4 | 1-572-060-11 | s | SWITCH, TOGGLE |
| S5 | 1-572-060-11 | s | SWITCH, TOGGLE |
| S6 | 1-572-062-11 | s | SWITCH, TOGGLE |
| S7 | 1-572-061-11 | s | SWITCH, TOGGLE |
| S8 | 1-572-060-11 | s | SWITCH, TOGGLE |
| S9 | 1-572-060-11 | s | SWITCH, TOGGLE |
| S10 | 1-572-061-11 | s | SWITCH, TOGGLE |
| S11 | 1-572-060-11 | s | SWITCH, TOGGLE |
| S12 | 1-571-094-11 | s | SWITCH, DIP 8-CKT |
| VCO1 | 1-577-136-11 | s | CRYSTAL 74.25000000MHz |
| X1 | 1-577-382-11 | s | CRYSTAL, 16.00000000MHz |
| X2 | 1-577-541-11 | s | CRYSTAL, 82.64220000MHz |

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FRAME
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Ref. No.
or Q'ty Part No. SP Description

1pc ⚠ 1-413-525-11 o REGULATOR, SWITCHING (PS-043B)

CN1F (to the DP-104 board)
1-563-124-11 o HOUSING, PS 20P
1-563-115-11 o CONNECTOR, PS
CN1F (ANALOG OUTPUT3 G)
1-575-150-11 s CABLE, COAXIAL
CN2F (to the DP-104 board)
1-562-147-11 o HOUSING, 2P
1-563-088-11 o TERMINAL, SOLDERLESS
CN2F (ANALOG OUTPUT2 G)
1-575-150-11 s CABLE, COAXIAL
CN3F (ANALOG OUTPUT1 G)
1-575-150-11 s CABLE, COAXIAL

CN4F (ANALOG OUTPUT3 B)
1-575-150-11 s CABLE, COAXIAL
CN4F (ANALOG INPUT G)
1-575-150-11 s CABLE, COAXIAL
CN5F (ANALOG OUTPUT2 B)
1-575-150-11 s CABLE, COAXIAL
CN5F (ANALOG INPUT B)
1-575-150-11 s CABLE, COAXIAL
CN5F (COMPUTER PARALLEL INTERFACE J2)
1-575-153-11 s CABLE, FLAT

CN6F (ANALOG OUTPUT1 B)
1-575-150-11 s CABLE, COAXIAL
CN6F (ANALOG INPUT R)
1-575-150-11 s CABLE, COAXIAL
CN6F (to the RP-42 board)
1-561-781-11 s CONNECTOR, BNC, FEMALE
CN6F (COMPUTER PARALLEL INTERFACE J1)
1-575-153-11 s CABLE, FLAT
CN7F (ANALOG OUTPUT3 R)
1-575-150-11 s CABLE, COAXIAL

CN8F (ANALOG OUTPUT2 R)
1-575-150-11 s CABLE, COAXIAL
CN8F (to the RP-42 board)
1-509-987-00 o HOUSING, IL 6P
1-509-298-11 o CONTACT, IL, FEMALE
CN9F (ANALOG OUTPUT1 R)
1-575-150-11 s CABLE, COAXIAL
CN9F (to the RP-42 board)
1-561-781-11 s CONNECTOR, IL 2P
CN10F (to the RP-42 board)
1-561-781-11 s CONNECTOR, IL 2P

CN102M (to the power supply)
1-569-272-11 o CONNECTOR, 3P, MALE
CN129F (SPARE)
1-944-251-11 o HARNESS, RM3

CN130F (SPARE)
1-944-251-11 o HARNESS, RM3
CN131F (to the MB-253 baord)
1-561-781-11 s CONNECTOR, BNC, FEMALE
CN132F (to the MB-253 board)
1-563-124-11 o HOUSING, PS 20P
1-563-115-11 o CONNECTOR, PS
CN136F (to the MB-253 board)
1-509-987-00 o HOUSING, IL 6P
1-509-298-11 o CONTACT, IL, FEMALE
CN206F (to the PE-18 board)
1-562-147-11 o HOUSING, 2P
1-563-088-11 o TERMINAL, SOLDERLESS

(FRAME)

Ref. No.
or Q'ty Part No. SP Description

S1 ⚠ 1-570-052-11 s SWITCH, PUSH

M1 1-541-327-61 s MOTOR, DC FAN
M2 1-541-436-21 s MOTOR, DC FAN

## PACKING MATERIALS & SUPPLIED ACCESSORIES

| Ref. No. or Q'ty | Part No. | SP | Description |
|---|---|---|---|
| 2pcs | A-6252-199-A | o | ANGLE (5U) ASSY, RACK |
| 1pc | A-6252-200-A | s | EX-215 ASSY |
| ⚠ 1pc | 1-551-812-11 | s | CORD, POWER(FOR J) |
| ⚠ 1pc | 1-557-377-11 | s | CORD, POWER(FOR UC) |
| ⚠ 1pc | 1-556-760-11 | s | CORD, POWER(FOR EK) |
| 2pcs | 1-575-153-11 | s | CABLE, FLAT |
| 3pcs | 1-942-822-11 | s | HARNESS, ADA-EXT |
| 2pcs | 3-646-065-00 | o | HOLDER |
| 4pcs | 3-673-676-11 | o | RAIL, PC BOARD GUIDE |
| 4pcs | 7-623-212-22 | s | SW 5,TYPE 2 |
| 12pcs | 7-624-106-04 | s | STOP RING 3.0, TYPE -E |
| 2pcs | 7-682-275-09 | s | SCREW +K 5X10 |
| 4pcs | 7-682-564-04 | s | SCREW +B 4X14 |
| 4pcs | 7-682-578-09 | s | SCREW +B 5X16 |
| 4pcs | 7-688-005-02 | s | W 5, SMALL |

HDDF-500 (J/UC/EK)
3-739-053-02

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