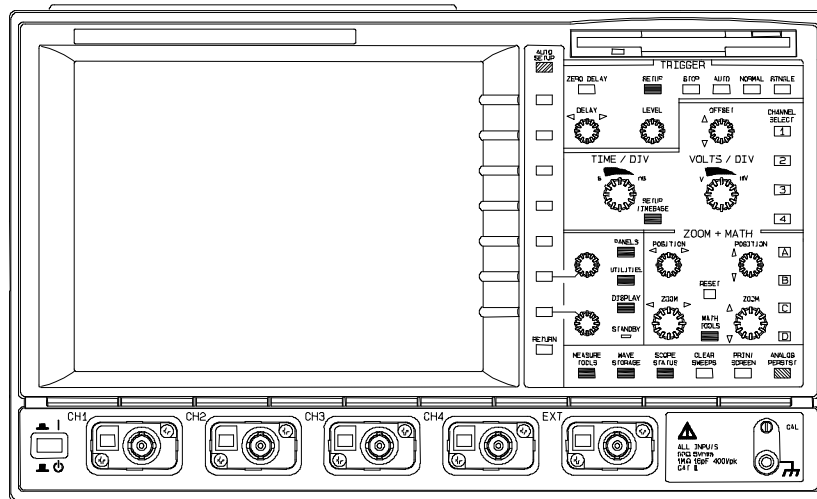




# LeCroy waverunner

## LT Series

### Service Manual



Version A- October 1999





## **LeCroy Corporate Headquarters**

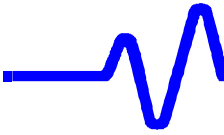
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Specifications subject to change.



**LeCroy**



## 1. Warranty and Product Support

It is recommended that you thoroughly inspect the contents of the oscilloscope packaging immediately upon receipt. Check all contents against the packing list/invoice copy shipped with the instrument. Unless LeCroy is notified promptly of any missing or damaged item, responsibility for its replacement cannot be accepted. Contact your nearest LeCroy Customer Service Center or national distributor immediately (see chapter 2 for *contact numbers*).

### 1.1 Warranty

LeCroy warrants its oscilloscope products for normal use and operation within specifications for a period of three years from the date of shipment. Calibration each year is recommended to ensure in-spec. performance. Spares, replacement parts and repairs are warranted for 90 days. The instrument's firmware has been thoroughly tested and is thought to be functional, but is supplied without warranty of any kind covering detailed performance. Products not made by LeCroy are covered solely by the warranty of the original equipment manufacturer.

Under the LeCroy warranty, LeCroy will repair or, at its option, replace any product returned within the warranty period to a LeCroy authorized service center. However, this will be done only if the product is determined after examination by LeCroy to be defective due to workmanship or materials, and not to have been caused by misuse, neglect or accident, or by abnormal conditions or operation.

### 1.2 Product Assistance

*Note: This warranty replaces all other warranties, expressed or implied, including but not limited to any implied warranty of merchantability, fitness, or adequacy for any particular purpose or use. LeCroy shall not be liable for any special, incidental, or consequential damages, whether in contract or otherwise. The client will be responsible for the transportation and insurance charges for the return of products to the service facility. LeCroy will return all products under warranty with transport prepaid.*

Help on installation, calibration, and the use of LeCroy equipment is available from the LeCroy Customer Service Center in your country.

### 1.3 Maintenance Agreements

LeCroy provides a variety of customer support services under Maintenance Agreements. Such agreements give extended warranty and allow clients to budget maintenance costs after the initial three-year warranty has expired. Other services such as installation, training, enhancements and on-site repairs are available through special supplemental support agreements.

### 1.4 Staying Up to Date

LeCroy is dedicated to offering state-of-the-art instruments, by continually refining and improving the performance of LeCroy products. Because of the speed with which physical modifications may be implemented, this manual and related documentation may not agree in every detail with the products they describe. For



example, there might be small discrepancies in the values of components affecting pulse shape, timing or offset, and — infrequently — minor logic changes. However, be assured the scope itself is in full order and incorporates the most up-to-date circuitry. LeCroy frequently updates firmware and software during servicing to improve scope performance, free of charge during warranty. You will be kept informed of such changes, through new or revised manuals and other publications.

**Nevertheless, you should retain this, the original manual, for future reference to your scope's unchanged hardware specifications.**

## 1.5 Service and Repair

Please return products requiring maintenance to the Customer Service Department in your country or to an authorized service facility. The customer is responsible for transportation charges to the factory, whereas all in-warranty products will be returned to you with transportation prepaid. Outside the warranty period, you will need to provide us with a purchase order number before we can repair your LeCroy product. You will be billed for parts and labor related to the repair work, and for shipping.

## 1.6 How to return a Product

Contact the nearest LeCroy Service Center or office to find out where to return the product. All returned products should be identified by model and serial number. You should describe the defect or failure, and provide your name and contact number. In the case of a product returned to the factory, a Return Authorization Number (RAN) should be used.

Return shipments should be made prepaid. We cannot accept COD (Cash On Delivery) or Collect Return shipments. We recommend air-freighting.

It is important that the RAN be clearly shown on the outside of the shipping package for prompt redirection to the appropriate LeCroy department.

## 1.7 What Comes with Your Scope

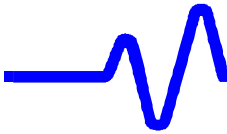
The following items are shipped together with the standard configuration of this oscilloscope:

- Front Scope Cover
- 10:1 10 M $\Omega$  PP006 Passive Probe — *one per channel*
- Two 250 V Fuses, AC Power Cord and Plug
- *Operator's Manual, Remote Control Manual, Hands-On Guide*
- Performance Certificate or Calibration Certificate, Declaration of Conformity

***Note: Wherever possible, please use the original shipping carton. If a substitute carton is used, it should be rigid and packed so that the product is surrounded by a minimum of four inches or 10 cm of shock-absorbent material.***

***minimum of four inches or 10 cm of shock-absorbent material.***





## **2. General Information**

### **2.1 Product Assistance**

Help on installation, calibration, and the use of LeCroy equipment is available from your local LeCroy office, or from LeCroy's

- Customer Care Center, 700 Chestnut Ridge Road, Chestnut Ridge, New York 10977-6499, U.S.A., tel. (914) 578-6020
- European Service Center, 2, rue du Pré-de-la-Fontaine, 1217 Meyrin 1, Geneva Switzerland, tel. (41) 22/719 21 11.
- LeCroy Japan Corporation, Sasazuka Center Bldg – 6<sup>th</sup> floor, 1-6, 2-Chome, Sasazuka, Shibuya-ku, Tokyo Japan 151-0073, tel. (81) 3 3376 9400

### **2.2 Installation for Safe and Efficient Operation**

#### **Operating Environment**

For safe operation of the instrument to its specifications, ensure that the operating environment is maintained within the following parameters:

Temperature ..... 5 to 40 °C (41 to 104 °F) rated.

Humidity..... Maximum relative humidity 80 % RH (non-condensing) for temperatures up to 31 °C decreasing linearly to 50 % relative humidity at 40 °C

Altitude..... < 2000 m (6560 ft)

The oscilloscope has been qualified to the following EN61010-1 category:

Installation (Overvoltage) Category ..... II

Protection Class..... I

Pollution Degree ..... 2



## Safety Symbols

Where the following symbols or indications appear on the instrument's front or rear panels, or elsewhere in this manual, they alert the user to an aspect of safety.



..... **CAUTION:** Refer to accompanying documents (for Safety-related information). *See elsewhere in this manual wherever the symbol is present.*



..... **CAUTION:** Risk of electric shock



..... **On (Supply)**



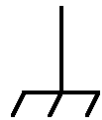
..... **Standby (Supply)**



..... **Earth (Ground) Terminal**



..... **Alternating Current Only**



..... **Chassis Terminal**



..... **Earth (Ground) Terminal on BNC Connectors**

**WARNING** ..... Denotes a hazard. If a **WARNING** is indicated on the instrument do not proceed until its conditions are understood and met.



**WARNING**

**Any use of this instrument in a manner not specified by the manufacturer may impair the instrument's safety protection.**

---

The oscilloscope has *not* been designed to make direct measurements on the human body. Users who connect a LeCroy oscilloscope directly to a person do so at their own risk. Use only indoors.

### **Power Requirements**

The oscilloscope operates from a 100 V to 240V AC power source at 50 Hz to 60 Hz.

No voltage selection is required, since the instrument automatically adapts to the line voltage present.

### **Fuses**

The power supply of the oscilloscope is protected against short-circuit and overload by means of two **6.3 A/250 V AC** "T"-rated fuses, located above the mains plug.

Disconnect the power cord before inspecting or replacing a fuse. Open the fuse box by inserting a small screwdriver under the plastic cover and prying it open. For continued fire protection at all line voltages, replace only with fuses of the specified type and rating (*see above*).

### **Ground**

The oscilloscope has been designed to operate from a single-phase power source, with one of the current-carrying conductors (neutral conductor) at ground (earth) potential. Maintain the ground line to avoid an electric shock.

None of the current-carrying conductors may exceed 250 V rms with respect to ground potential. The oscilloscope is provided with a three-wire electrical cord containing a three-terminal polarized plug for mains voltage and safety ground connection. The plug's ground terminal is connected directly to the frame of the unit. For adequate protection against electrical hazard, this plug must be inserted into a mating outlet containing a safety ground contact.

### **Cleaning and Maintenance**

Maintenance and repairs should be carried out exclusively by a LeCroy technician. Cleaning should be limited to the exterior of the instrument only, using a damp, soft cloth. Do not use chemicals or abrasive elements. Under no circumstances should moisture be allowed to penetrate the disk drive analyzer. To avoid electric shocks, disconnect the instrument from the power supply before cleaning.



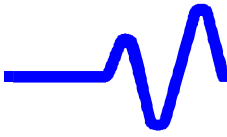
**CAUTION**

**Risk of electrical shock: No user-serviceable parts inside. Leave repair to qualified personnel.**



## **Power On**

Connect the oscilloscope to the power outlet and switch it on using the power On/Standby button, located near the left-hand corner of the instrument below the screen. After the instrument is switched on, auto-calibration is performed and a test of the disk drive analyzer's ADCs and memories is carried out. The full testing procedure takes approximately 10 seconds, after which time a display will appear on the screen.



## 3. Instrument Architecture Overview

### PROCESSORS

The Waverunner central processor (CPU), a PowerPC™ microprocessor, performs the oscilloscope's computations and controls its operation. A range of peripheral interfaces allow you to control remotely, store waveforms and other data, and make hard copies. A support processor constantly monitors the front-panel controls. Waverunner either transfers data to display memory for direct waveform display, or stores it to reference memories, for fast data-processing.

### ADCs

Each Waverunner channel has an eight-bit Analog-to-Digital Converter (ADC). The instrument's ADC architecture is designed to give excellent amplitude and phase correlation, maximum analog-to-digital conversion performance, large record lengths and superior time resolution.

### MEMORIES

Waverunner acquisition memories simplify signal acquisition by producing waveform records that allow detailed analysis over large time intervals. There are four memories for temporary storage, and four more for waveform zooming and processing.

### RIS

The Waverunner oscilloscope captures and stores repetitive signals at a maximum Random Interleaved Sampling (RIS) rate of 25 GS/s. This advanced digitizing technique enables measurement of repetitive signals with an effective sampling interval of 40 ps, and a measurement resolution of up to 5 ps.

### TRIGGER SYSTEM

You can control Waverunner triggering to a highly specialized degree in accordance with waveform characteristics and chosen trigger conditions. The trigger source can be any of the input channels, line (synchronized to scope's main input supply) or external. The coupling is selected from AC, LF REJECT, HF REJECT, HF, and DC; the slope from positive and negative. Waverunner SMART Trigger offers a wide range of sophisticated trigger modes matched to special trigger conditions and sets of conditions.

### AUTOMATIC CALIBRATION

Waverunner automatic calibration ensures an overall vertical accuracy of typically 1 % of full scale. Vertical gain and offset calibration, and horizontal (time) resolution take place each time you change the volts per division setting. Periodic and temperature-dependent auto-calibration ensures long-term stability at the current setting.



## **DISPLAY SYSTEM**

You control the display's interactive, user-friendly interface using push-buttons and knobs. Display as many as eight different waveforms at once on eight separate grids. The parameters controlling signal capture are simultaneously reported. The Waverunner display presents internal status and measurement results, as well as operational, measurement, and waveform-analysis menus.

The 8.4-inch color flat-panel TFT-LCD screen presents waveforms and data using advanced color management. Overlap-mixing and contrast-enhancement functions ensure that overlapping waveforms remain distinct at all times. Both pre-set and personal color schemes are available.

The Analog Persistence function offers display attributes of an analog instrument with all the advantages of digital technology. The Full Screen function expands waveform grids to fill the entire screen.

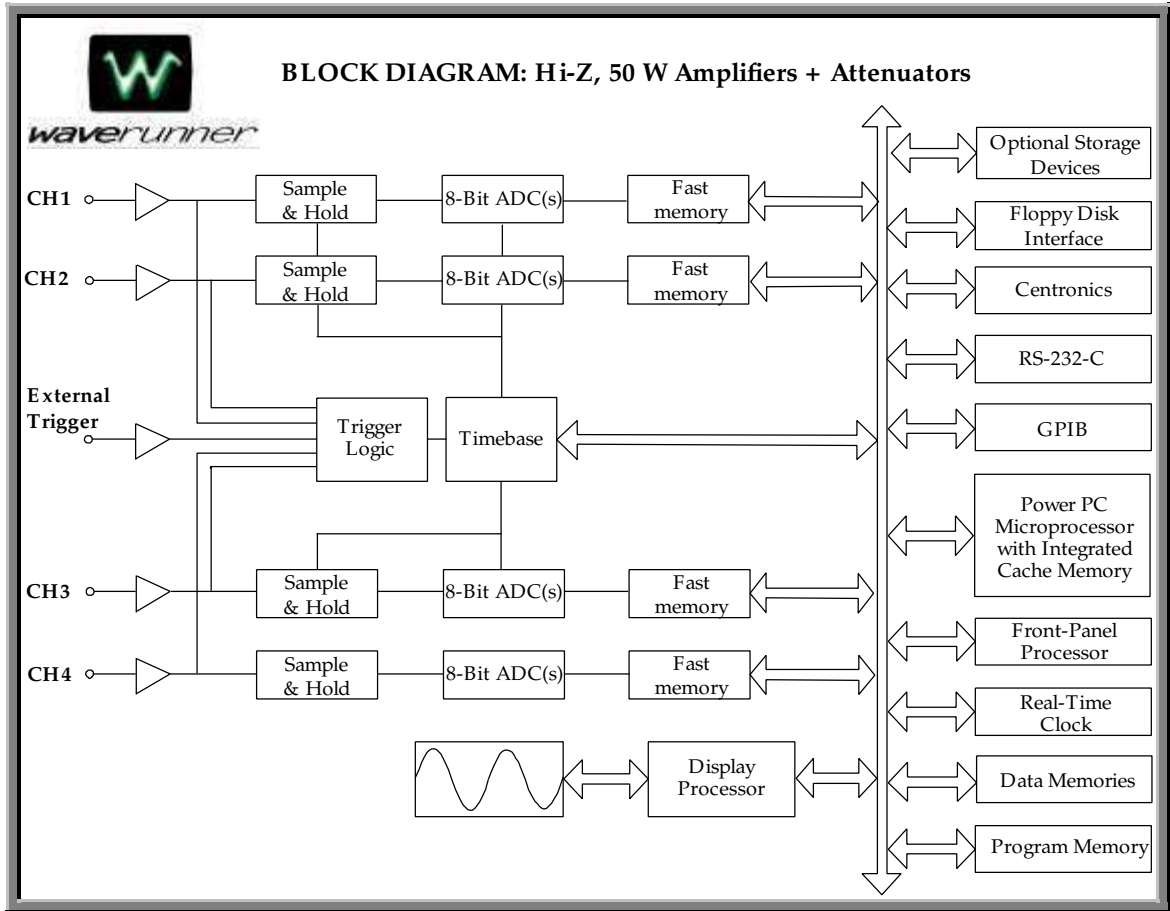
A hard copy of the screen can be easily produced by pressing the front-panel PRINT SCREEN button.

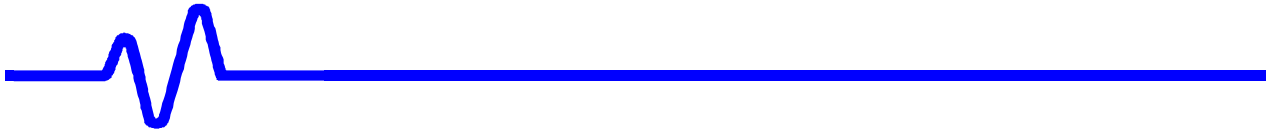
## **INTERFACE AND PANEL SETUPS**

Although Waverunner is a truly digital instrument, the front-panel layout and controls are similar to an analog oscilloscope's. Rapid response and instant representation of waveforms on the high-resolution screen add to this impression. Four front-panel setups can be stored internally and recalled either directly or by remote control, thus ensuring rapid front-panel configuration. When power is switched off, the current front-panel settings are automatically stored for subsequent recall at the next power-on.

## **REMOTE CONTROL**

Waverunner has also been designed for remote control operation in automated testing and computer-aided measurement applications. You control the entire measurement process — including cursor and pulse-parameter settings, dynamic modification of front-panel settings, and display organization — through the rear-panel industry-standard GPIB (IEEE-488) and standard RS-232-C ports. See this manual's Chapter 12, *Use Waverunner with PC*, and the *Remote Control Manual*.





# Specifications

## MODELS

**Waverunner LT342/322 Series:** Two channels

**Waverunner LT344 Series:** Four channels

## ACQUISITION SYSTEM

**Bandwidth (-3dB):** LT342/LT344/LT322:500 MHz;LT224:200 MHz @ 50 Ω and at probe tip with PP006

Bandwidth Limiter at 25 MHz and 200 MHz can be selected for each channel **LT224 is 25MHz.**

**Input Impedance:** 50 Ω ± 1.0 %; 1 MΩ ± 1.0 % // 16 pF typical

**Input Coupling:** 1 MΩ: AC, DC, GND; 50 Ω: DC, GND

**Max Input:** 50 Ω: 5 Vrms; 1 MΩ: 400 V max (peak AC <-5 kHz + DC)

**Single Shot Sampling Rate:** 500 MS/s

**Acquisition Memory:** LT342/LT344;250 000 points per channel; 1 M points per channel on L models**LT224/LT322; 100 000**

**Vertical Resolution:** 8 bits

**Sensitivity:** 2 mV–10 V/div

### Offset Range:

- 2 mV–99 mV/div: ± 1 V
- 100 mV–0.99 mV/div: ± 10 V
- 1 V–10 V/div: ± 100 V

ACQUISITION MODES			
MODE	TIME BASE SETTING	MAXIMUM RATE	DESCRIPTION
<b>Single Shot</b>			
LT342(L)/LT344(L)	10 ns to 1000 s/div	500 MS/s	One ADC per channel
LT224/LT322	20 ns to 1000 s/div	200 MS/s	
<b>Repetitive</b>			
LT342(L)/LT344(L)	1 ns to 5 μsec/div	25 GS/s	Random Interleaved Sampling (RIS)
LT224/LT322	1 ns to 10 μsec/div	10 GS/s	
<b>Sequence Mode</b>			



<b>LT342/LT344</b>	2–1000 segments	500 MS/s	Stores Multiple Events with time stamp in segmented acquisition memories
<b>LT224/LT322</b>	2–400 segments	200 MS/s	Stores Multiple Events with time stamp in segmented acquisition memories
<b>LT342L/LT344L</b>	2–4000 segments	500 MS/s	Stores Multiple Events with time stamp in segmented acquisition memories
<b>Roll Mode</b>	$\leq 500\,000$ pts: 500 ms–1000s/div $\geq 500\,000$ pts: 1 s–1000s/div	100 ks/s	Waveform slowly rolls across display when used with slow time bases.

### TIMEBASE SYSTEM

**Timebases:** Main and up to four zoom traces simultaneously

**Time/Div Range:** 1 ns/div to 1000 s/div

**Clock Accuracy:**  $\leq 10$  ppm

**Interpolator Resolution:** 5 ps

**External Clock:**  $\leq 500$  MHz, 50  $\Omega$ , or 1 M $\Omega$  impedance

### TRIGGERING SYSTEM

**Modes:** NORMAL, AUTO, SINGLE and STOP

**Sources:** Any input channel, External, EXT 10 or line; slope, level and coupling are unique to each source (except line trigger)

**Coupling Modes:** DC(DC to 250MHz/LT224; DC to 200MHz), AC(Approx.7.5Hz to 250MHz/LT224; Approx.7.5Hz to 200MHz), HF(to 500MHz/LT224 not have), HFREJ, LFREJ (reject frequency 50 kHz typical)

**Pre-Trigger Recording:** 0–100 % of horizontal time scale

**Post Trigger Delay:** 0–10 000 divisions

**Holdoff by Time or Events:** Up to 20 s or from 1 to 99 999 999 events

**Internal Trigger Range:**  $\pm 5$  div

**Maximum Trigger Frequency:** Up to 500 MHz with HF coupling

**External Trigger Input:**  $\pm 0.5$  V,  $\pm 5$  V with Ext 10; max input same as input channels

### SMART TRIGGER TYPES

**Signal or pulse width:** Triggers on glitches down to 2 ns(LT224 is 3ns). Pulse widths are selectable between  $< 2.5$  ns to 20 s.

**Signal interval:** Triggers on intervals selectable between 10 ns and 20 s.



**TV:** Triggers on line (up to 1500) and field 1 or 2 (odd or even) for PAL (SECAM), NTSC, or non-standard video.

**State/Edge qualified:** Triggers on any input source only if a given state (or transition) has occurred on another source. Delay between sources is selectable by time or number of events.

**Dropout:** Triggers if the input signal drops out for longer than a selected time out between 25 ns and 20 s.

### **AUTOSETUP**

Automatically sets timebase, trigger, and sensitivity to display a wide range of repetitive signals.

**Vertical Find:** Automatically sets sensitivity for the selected input signal

### **PROBES**

**Model PP006:** PP006 with auto-detect: 10:1, 10 M $\Omega$ ; one probe per channel

**Probe System:** ProBus Intelligent Probe System supports active, high-voltage, current, and differential probes, and differential amplifiers

### **COLOR WAVEFORM DISPLAY**

**Type:** Color 8.4-inch flat-panel TFT-LCD with VGA, 640 x 480 resolution

**Screen Saver:** Display blanks after 10 minutes

**Real Time Clock:** Date, hours, minutes, and seconds displayed with waveform

**Number of Traces:** Maximum eight on LT344/LT224 Series, six on LT342/LT322 Series; simultaneously display channel, zoom, memory, and math traces

**Grid Styles:** Single, Dual, Quad, Octal, XY, Single+XY, Dual+XY; Full Screen gives enlarged view of each style

**Waveform Display Styles:** Sample dots joined or dots only — regular or bold

### **ANALOG PERSISTENCE DISPLAY**

**Analog Persistence and Color Graded Persistence:** Variable saturation levels; stores each trace's persistence data in memory

**Trace Display:** Opaque or transparent overlap

### **ZOOM EXPANSION TRACES**

**Style:** Display up to four zoom traces

**Vertical Zoom:** Up to 5x expansion, 50x with averaging

**Horizontal Zoom:** Expand to 2 pts/div, magnify to 50 000x

**Autoscroll:** Automatically scan and display a captured signal

### **RAPID SIGNAL PROCESSING**

**Processor:** Power PC 603e™

LT342/LT322	LT344/LT224	LT342L	LT344L
2.1.1 16 Mbytes	2.1.2 16 Mbytes	2.1.3 32 Mbytes	2.1.4 32 Mbytes
64 MBYTE SYSTEM MEMORY OPTIONAL FOR ALL MODELS			

## INTERNAL WAVEFORM MEMORY

**Waveform:** M1, M2, M3, M4; memory length equal to acquisition memory

**Zoom and Math:** A, B, C, D; memory length equal to acquisition memory

Memories M1–4 and A–D store full-length waveforms with 16 bits/data point

## SETUP STORAGE

**For front panel and instrument status:** Four non-volatile memories and floppy drive are standard; hard drive and memory card are optional

## MATH TOOLS

Simultaneously perform up to four math processing functions; traces can be chained together to perform math on math. Standard functions: add, subtract, multiply, divide, negate, identity, summation, averaging to 1000 sweeps, ERES low-pass digital filters for 11-bit vertical resolution, FFT of 50 kpoint waveforms, Extrema for displaying envelope roof and floor, physical units, rescale (with units), sin x/x, resample (deskew).

## MEASURE TOOLS

### Cursor Measurements:

- **Relative Time:** Two arrow-style cursors measure time and voltage differences relative to each other with a resolution of  $\pm 0.05\%$  full scale.
- **Relative Amplitude (Voltage):** Two horizontal bars measure voltage differences at  $\pm 0.2\%$  fs resolution.
- **Absolute Time:** Cross-hair marker measures time relative to trigger and voltage with respect to ground.
- **Absolute Amplitude (Voltage):** A horizontal reference line cursor measures voltage with respect to ground.

**Automated Measurements:** Display any five parameters together with their average, high, low and standard deviations.

**Pass/Fail:** Test any five parameters against selectable thresholds. Limit testing is performed using masks created on the scope or on a PC. Setup a pass or fail condition to initiate actions such as hardcopy output, save waveform to memory, GPIB SRQ, or pulse out.

## EXTENDED MATH AND MEASUREMENTS OPTION

Adds math and advanced measurements for general-purpose applications. Math Tools is expanded to include all standard math plus integration, derivative, log and exponential (base e and base 10), square, square root, absolute value, plus data log when using the trend function.



## WAVEANALYZER OPTION

Adds math processing to include FFTs of 1 Mpoint waveforms, power spectrum density, spectrum averaging, waveform averaging to one million sweeps, continuous averaging, waveform histograms, and histogram parameters. Includes the Extended Math and Measurement option.

## SPECIAL APPLICATION SOLUTIONS

**Jitter and Timing Analysis (JTA):** Precision cycle-to-cycle timing measurements with enhanced accuracy, histograms on persistence traces, persistence to waveform tracing and full statistical analysis.

**PowerMeasure™:** A complete solution for the power conversion engineer. Includes timing deskew of voltage and current, and rescale to electrical units.

## INTERFACE

**Remote Control:** Full control via GPIB and RS-232-C

**Floppy Drive:** Internal, DOS-format, 3.5" high-density

**PC Card Slot:** Supports memory and hard drive cards

**External Monitor Port:** 15-pin D-Type VGA-compatible

**Centronics Port:** Parallel printer interface

**Internal graphics printer (optional):** 25 mm/s max, 112 mm paper width; provides hardcopy output in <10 seconds

## OUTPUTS

**Calibrator signal:** 500 Hz–1 MHz square wave, –1.0 to +1.0, test point, and ground lug on front panel

**Control signals:** Choice of trigger ready, trigger out, or Pass/Fail status; TTL levels into 1 M $\Omega$  at rear panel BNC (output resistance 300  $\Omega \pm 10\%$ )



## GENERAL

**Operating Conditions:** Temperature 5–40° C; humidity 80 % non-condensing at 40° C; altitude  $\leq 2000$  m

**Shock and Vibration:** Conforms to MIL-PRF-28800P; Class C

**Power Requirements:** 90–132 V AC and 180–250 V AC; 45–66 Hz; maximum power dissipation 150 VA–230 VA, depending on model

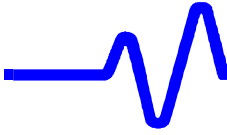
**Certifications:** CE, UL and cUL

**Dimensions (HWD):** 210 mm x 350 mm x 300 mm (8.3" x 13.8" x 11.8"); height excludes scope feet

**Weight:** 8 kg (18 lbs)

**Warranty and Calibration:** Three years; calibration recommended yearly





## 4. Theory of Operation

### 4.1 Processor Board

#### **MPC603e Processor**

The PowerPC603e on the processor board is a 4-bit RISC processor having 2x32Kbyte cache and features high speed processing and quick memory access.

The processor is designed to operate with an internal clock which is several times the external bus clock cycles and is used under the 32bit mode.

The board consists of two circuit-blocks:

- The 32bit block, that contains the main PowerPC processor, dynamic RAM modules, VGA interface, Super-I/O and main board interface.
- The 8bit block, which incorporates all peripherals and other interfaces for outer connections.

These two circuit-blocks are connected through MC68150 (dynamic bus sizer).

#### **Power Supply**

The board requires two power sources (Vcc and +12V). +12V source is used for OP-amp and small-peripheral operation.

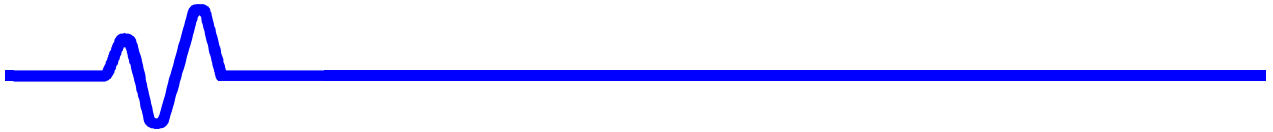
The processor requires 3.3V, and all other logic devices are operated by the +5V source. All of the signals are TTL compatible.

The processor allows +5V input signals and does not require logic level conversion. An OP-amp and MOSFET transistor consist of 3.3V power source. The reference voltage is taken through the voltage-resistor divider network across +5V power source.

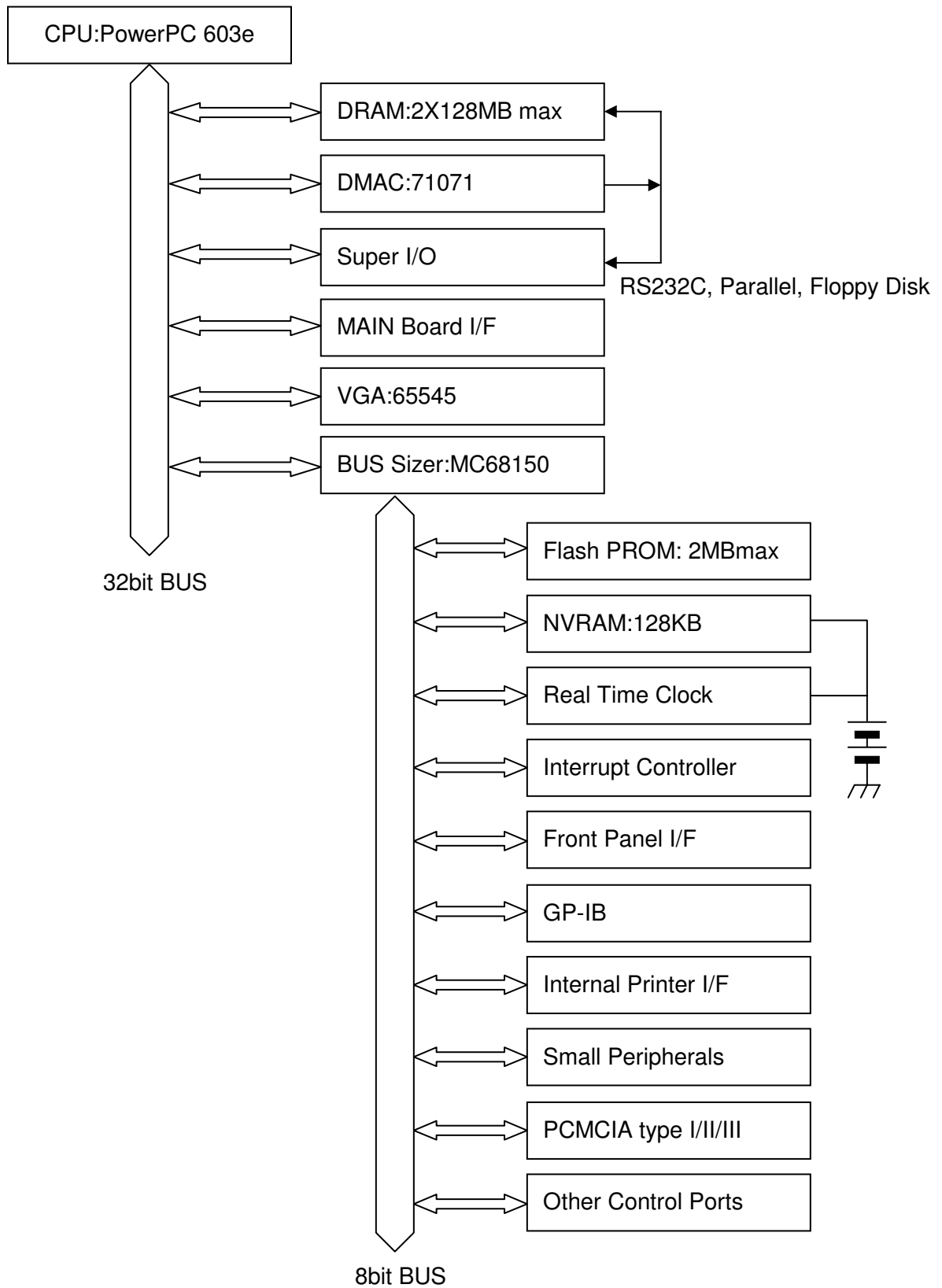
#### **32bit Peripherals**

There are six devices hooked on the processor's 32bit data bus:

- VGA video controller
- DRAM system
- bus sizer, an interface to 8bit circuit-block
- DMA controller
- Super-I/O
- MAIN board



### CPU's Block Diagram



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## **DRAM**

The DRAM circuit consists of one or two SIMM modules, constituting from 16MB to a maximum of 128 MB. The SIMM modules to be supported are only of EDO types. The DRAM control circuit is built with one piece each of CPLD and GAL, and several gate ICs.

The DRAMC (IC13) located on the main control circuit, generates all types of bus cycle timing(normal R/W, 2-beat/8-beat bursts of R/W), refresh cycles, and DMA cycles. It also generates signals for automatic increment of column-addresses to be used in burst transfer mode. Furthermore, the DRAMC has a register for setting one or two SIMMs and determining SIMM size (whether it is less than 32MB or more than 64MB), in order to adjust the memory mapping so as not to have gaps in memory mapping according with the memory capacity.

The CAS (IC14) distributes signals for column address selection to the CAS signal circuits of each SIMM chip. CAS is selected by the size of memory access (1, 2, 3, and 4 bytes), accessing start-address, and type of bus cycles (normal, burst, refresh and DMA).

Two multiplexers (IC9 and IC10) switch the address lines of odd and even addresses to be connected with the address lines of each SIMM. The other multiplexer (IC11) switches low order address bits, i.e., routing them either directly to the processor or to the low order address generated in DRAMC.

### **Normal Access Timing**

This is the simplest access possible: the processor puts an address onto the address bus and reads or writes the required data out of or to the DRAM which corresponds with the bus.

The bus width is 32bits, or 4bytes wide, and the CPU performs to read or write operations (of one through four bytes) which are chained in a bus cycle.

### **Burst Access Timing**

A burst access, on the 603e configured with 32bit device operation, performs either two or eight successive reads in DRAM (2-beat or 8-beat burst access). The idea is to put the beginning of an address onto the address bus and read/write data out of or to DRAM every clock cycle, without incrementing the address required by the processor (this is to be achieved by the external logic circuit). Using EDO-DRAM enables to read and write every 30ns of clocks similarly as with one or two SIMMs. The 8-beat access is indicated by an active "low" of NTBST signals and a 32bit access signal (SIZ2..0=011), and the 2-beat access is indicated by an active "high" of NTBST signals and an access size of 64 bits (SIZ2..0=100).

### **Refresh Timing**

The 32 KHz clock from the RTC chip is used to generate the timing to refresh DRAM. Without this clock, the DRAM would not be refreshed and all the data in it would be erased out. DRAMC detects the rising edge and the falling edge of this 32KHz clock. At the each edge, it generates the CAS before RAS refreshes the cycles.

The arbitration logics between other accesses (bus cycle with the processor and DMA cycle) and refresh cycles reside in the DRAMC.

### **DMA Timing**

The DMA access can be used for data transfer to and from floppy disks.



The data is transferred in between the I/O and DRAMs by simultaneously accessing the desired addresses in the Super I/O and DRAMs.

The addresses A0 to A25 (as well as lower addresses up to 64MB on the memory map) can be accessed through the DMA controller. Since the Super I/O is directly connected to its 8bit to 32bit bus without passing through the bus sizer, data transfer can be done only to and from memory areas in which addresses are divided by intervals of 4bytes each.

### **Memory Mapping**

When the main switch is on, the internal software automatically sets the system's memory size to the largest capacity available with the SIMM mounted (2 pieces of 128 MB SIMM size). It also checks whether all the addresses are perennial or not to prevent having "holes" in the address space. Through this operation, available memory capacity in the SIMM mounted is correctly judged and the capacity information is stored again into the DRAMC register. Thus, all the address spaces are assured for perennial address continuation.

### **VGA controller**

The VGA controller chip 65545(IC29) contains the logic circuits to decode its own addresses. It generates all the video signals (RGB, H/V, and all control lines to drive the flat panel), and controls its associated 1 MB video DRAM (to read, write and refresh).

The total of video DRAMs mounted are two pieces of 2MB (but 512KB each of the DRAM only are used).

All timings are extracted from the 16MHz bus clock; therefore, no external crystal or time-base is required. The horizontal and vertical synchronization signals are sent to the external video connector (a half pitch, D-SUB15 pin connector is used).

The 65545 chip can support several bus interfaces (PCI, ISA, VL, etc), the system employs it for VL-bus applications with the mode of 256-color palette operations. The controller has an 18bit color palette and can display 256 colors out of the available 260,000. However, the liquid crystal panel can only use 12-bit color data, and color display is limited to 256 out of 4,096 colors (the color data will be extended to 18bits in the future).

The power supply circuit for the liquid crystal panel has a MOSFET switch that turns the power for the LCD with the reset signal, since the LCD needs to minimize its start-up time.

### **Super-I/O**

This device controls RS-232Cs, floppy disks, and parallel port operations. The controller has its own time-base with a 24MHz crystal. RS-232C can be used by simply connecting the MAX232 buffer (IC31) to it. Since the Super I/O chip has a 16-byte buffer, high speed data transfer is easily carried out.

A 2HD disk drive can be directly connected to the system without any external components other than a piece of pull-up resistor; it can be operated in either interruption mode or DMA mode.

The parallel interface is also activated without other external components other than a piece of pull-up resistor, for the use of 2-way communication.

This IC chip has an IDE interface function in it, but this board does not support the function.



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## Bus Control

The DEC32 (IC17) performs decoding operations for the circuits (32bit circuit block) which are directly connected to the processor (except the DRAM). (The DRAMC performs decoding operations for the DRAMs).

The RW32 (IC76) generates the control signals of read/write for the devices associated with the DMA, and the byte enable signals (NBE0-3) for the VGA controller.

When the bus cycle starts, 603e must terminate the bus cycle by returning signals after acknowledging each of the data and addresses, from the outside. The ACK32 (IC19) is used to generate the acknowledgement signals.

The ARBT (IC18) has logics for arbitration between the DMA and processor accessing, and performs forced termination of the bus operation when the bus cycle can not be finished within a defined time.

The ACK8 (IC21) has logics for generation of the acknowledgement signals and read write strobe signals in the 8bit peripheral circuit block.

The DEC8 (IC22) has logics for decoding 8bit peripheral circuits, and a certain circuit involved in the address latch operation.

## Bus Sizer

The MPC603e processor does not support dynamic bus sizing, which is performed with the 68K processor family. Each 8bit of a 32bit bus is fixed or assigned with the lower addresses, or 0 through 3 bits. Therefore, if an 8bit device were directly connected to the bus, this device would be seen in 4byte steps each in the memory map area. To avoid this, the 8bit-bus peripheral unit shall be connected to the 32bit-bus through the bus sizer, MC68150 (IC15). The bus sizer divides one bus cycle for accessing 32 bit-bus of the processor into four cycles each of 8bit accessing cycle, and/or assigns 8bit-bus data to a corresponding 8bits within the 32bits.

## 8bit Peripherals

The following devices are listed as 8bit data bus units:

- PCMCIA Interface
- Flash PROM
- NVRAM
- RTC
- Interrupt Controller
- GPIB Interface
- Small-peripherals Interface
- Internal printer Interface
- Front-Panel I/F
- Other registers and ports

## PCMCIA, type I/II/III interface

This interface consists mainly of buffers for both data and address busses.

The CARD (IC71) generates the control signals both for memory card mode and I/O card mode.

The IC65 (D-F/F) holds control bits for the signals resetting the card, switching between the data area and the attribute area, and switching the card's modes. All bits in the register are reset to zero when the \_RESET signal goes to active low,



which means that their state is also guaranteed at power-up.

The IC66 and the IC67 invert the most significant address bits of the memory card whenever the SWAP jumper is plugged in, so that the first bytes are always allocated to “FFF00000”, regardless of the size of the memory card. This allows to boot directly from the PCMCIA memory card used.

### **Flash PROM**

Two pieces of the Intel's 29F008-compatible 1MB PROMs (IC45 and 46) are used to operate in the 8-bit bus mode. These ICs do not require any programming voltage to write.

From a hardware point of view, a flash PROM is regarded the same as an EPROM in read mode.

To erase or write to memory, commands are written into the data bus. Writing and erasing must be performed over monitoring the status-signals (RY/#BY) on the port (IC49).

The program may be seen to start from the Flash PROM. The Flash PROM is, however, not regarded as the program or its program area even when start-up (even when the screen appears) is completed, because the program must be processed in the DRAM after transferring the program content from the Flash PROM into the DRAM.

### **NVRAM**

This memory chip is powered from the VCCO in the RTC. When the main power is set to off, the required power for the NVRAM is fed through the lithium battery installed. When the power is set to on, it is powered from the VCC.

The #CS1 signals are also controlled through the RTC. When the main power is set to off, the RTC sets the chip select to the “high” level through a pull-up resistor to place the SRAM a power-down mode to prevent any accidental overwriting.

### **RTC**

The DS1689 real time clock has several functions:

- Keeping the time-of-day and current-date information while power is off.
- Generating 32KHz clock for DRAM refreshment.
- Giving 128Hz of periodic interrupt signals to force bus accessing from the processor and allowing periodic updating of the time display.
- Providing a unique ID that identifies the origination of scope ID.
- Feeding the power and the chip select signal to the NVRAM.

The chip generates timing clocks necessary for time keeping and driving all other circuits by connecting to 32.768KHz crystal. A few discrete components around it leave the chip powered, when the system is set to off, by the backup lithium battery while the rest of the board is not powered, and charge the battery when the power is on again.

Accesses from the processor are done through the circuit for the bus separation, for addresses and data are multiplexed.

The unique ID was already written in the RTC by the manufacturer, since every different value must be stored in each chip.

### **Interrupt Controller**

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In order to prioritize and control several interrupt sources, it is necessary to use an IC of uPD71059. It scans eight interrupt signals and sends a unique interrupt signal to the processor when an (unmasked) interrupt signal appears. Interrupt levels are assigned as follows:

level 0	(lowest priority) FDC
level 1	small peripherals
level 2	RS232C
level 3	GP-IB
level 4	PCMCIA(I/O card mode)
level 5	real time clock
level 6	the MAIN board
level 7	(highest priority) unused

The priority in the above can be changed by the software.

### **Small Peripheral Interface**

This 8-bit interface is intended to allow external expansion of the board in addition to the processor board.

The tri-state buffers drive the address and control lines, and bi-directional buffers drive data lines.

The address decoding is processed on each expanded peripheral board. Since the acknowledgement toward each access is also returned by the expanded board, there is no restriction to the amount of wait-states.

The bus clock runs at 16MHz, and a reset line reinitializes the boards as does in the CPU.

Four interrupt lines are also included in this interface, so that interrupt-driven boards can be used.

### **Front Panel**

The front panel is accessed by serial read/write signals passing through the IC47 and IC48.

The CPU board can be reset by resetting the 3 buttons on the front panel. This function becomes effective by setting a bit of IC52 for enabling.

Both LED and BEEP are activated by serial writing. LED and BEEP are initialized off by the resetting operation.



### **Reset Circuit**

The power supply is monitored by the IC4 chip. Whenever the Vcc goes below 4.5V (even for a very short time), a reset pulse, in which the width is determined by the C6's capacity, is generated.

Resetting 3 buttons on the front panel also causes to generate the reset pulse as did in the IC4 when the supply power voltage fell too low.

### **Bus Error Generation**

The 603e expects NTA and NAACK signals for the acknowledgement to the current bus cycle, and inserts wait states during the period NTA and NAACK are kept at "high" levels (any of external devices have not caused to lower the levels). As long as any of the devices does not return the acknowledgement, the bus is to be kept forever in this wait-condition. Then, an external circuit may be required to generate a bus-error signal to break the pending cycle after a given time-out.

The bus error is generated by pulling the NTEA pin of the CPU down to "low". This is the job done by the GAL (ARBT:IC18) which counts the number of wait-states that have already passed through the counter (IC25). An external 8bit counter (IC18) extends the count to 128 wait-cycles with the 8MHz clock ( $125\text{ns} \times 128 = 16\mu\text{s}$ ) before triggering the bus error. With this operation, the system can successfully force the terminate of the current cycle.

Some devices, such as the VGA video controller, have their own logic to generate bus error. Therefore, any access operation for such devices is not entirely related to this circuit.

### **GPIB Interface**

The NEC 7210-compatible device, NAT7210, is employed as the controller, and the TI's conventional drivers, 75160 and 75161, are also used as the receivers.

### **Internal Printer Interface**

Printer control is the same as for the normal Centronics interface. This circuit consists of buffers only.

### **Relation of I/O Structure to the associated GALs and CPLDs**

The following block-diagram describes the flow in the decoder and the relationships between the acknowledgement to be returned to the CPU and GALs/CPLDs. Three-line boxes are GALs and CPLDs, and one-line boxes indicate other ICs and function blocks.

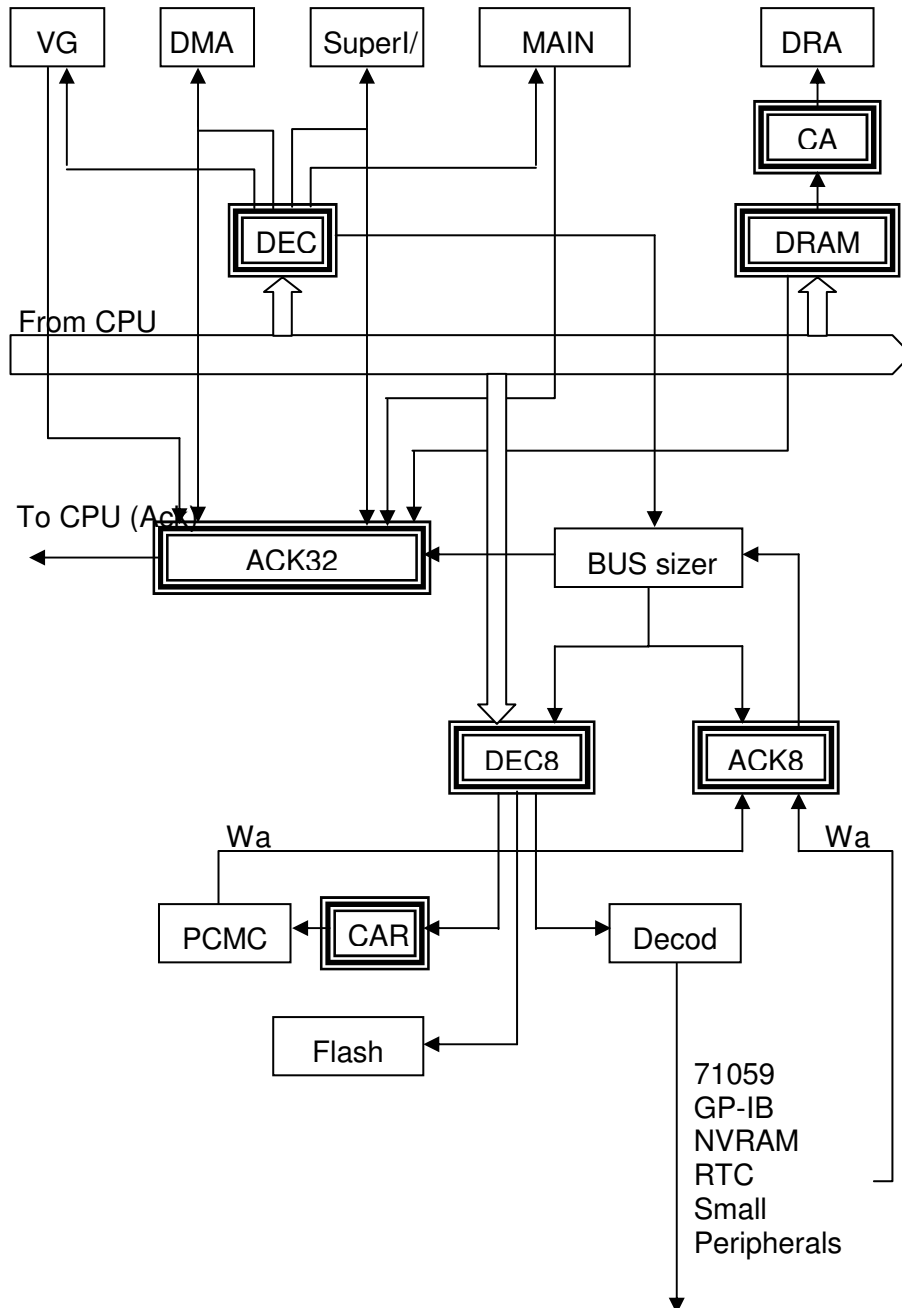
- DEC32 is the main decoder that performs the decoding operation for five devices. In this operation, however, decoding of the DRAM is excluded.
- DRAMC performs decoding of the DRAM and controls all access operations.
- CAS selects memory chips in the SIMMs according to sizes and addresses of DMA accessing.
- DEC8 is the main decoder in the 8bit-bus area, and does the decoding for three devices.
- CARD generates control signals to access PCMCIA.
- ACK32 generates ACK signals which inform the processor of the completion of bus cycle. The signals are made from the defined time after accessing each device or from the acknowledgement signal which is returned by each device.
- ACK8 informs the termination of the bus which completed within the defined time

after accessing 8bit devices. Regarding the PCMCIA and small peripherals, however, the termination can be delayed by giving an external wait signal.

The GALs which are not shown in this block-diagram are the ARBT and RW32.

- ARBT does the bus arbitration during the DMA's execution. It also generates a bus error when the bus cycle passes over the defined time.
- RW32 controls both the RW signals when the DMA is executed and the byte-enable signals for the VGA controller.

Block Diagram representing relations between I/O Decoding and Acknowledgement





## 4.2 Main Board

### Introduction

The main board is divided into the following sections:

- Front End
- A/D Converter & Memory
- Trigger
- Timebase
- DC Generator
- Calibrator & Internal Calibration signal
- Signal output
- Main Board Control

### 4.2.1 Front End

The front end processes an analog signal for ADC and trigger, consists of High impedance buffer, amplifier HFE428, and trigger comparator HTR420.

The main functions of the Front end without the amplifier HFE428 and HTR420 are:

- Four channels operation, calibration with Software control.
- Input protection (clamp + thermal detection) and coupling (AC, DC, 1M $\Omega$ , 50 $\Omega$ ).
- Attenuator by 10 & by 100.
- Offset control.
- Offset control of  $\pm 1V$  and CAL control of  $\pm 1.4V$ .
- Detection of 50 $\Omega$  over loading.
- Input of signal for calibration.

The main functions of HFE428 are:

Amplitude normalization for the ADC system : at the BNC the dynamic range is 16 mV to 80V FS (full scale) and the ADC/TRIG system input is 500 mV differential.

Fine adjustment of gain and variable control

Band width limiter of 25MHz, 200MHz

Main function of HFE420 are:

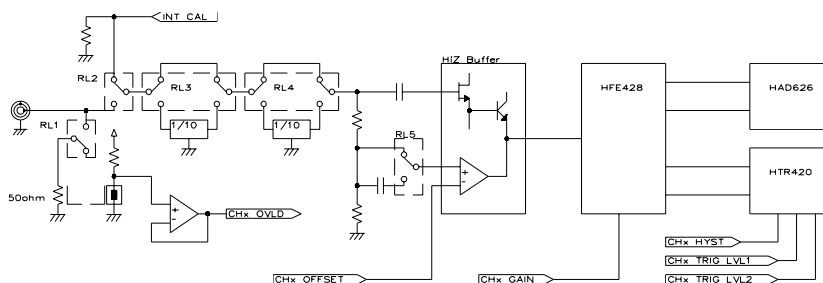
Generation of trigger signal (analog input and digital output) with comparator

Setting of trigger level (TRIG,VALIDATE)

Setting of trigger coupling (DC,AC,LFREJ,HFREJ,HF)

Setting of slope (+,-,WINDOW)

### Block diagram 1



## Control

### Relay control

The relay of the attenuator is set by selecting the input coupling and the gain as shown in the table below.

RL1, 2 and 5 are driven with +5V/0V, and RL3, 4 is driven with +5V/-5V.

### Input coupling

Control port	Relay	GND	1M,DC	1M,AC	50,DC
GND/*MES	RL2	H	L	L	L
1M/*50	RL1	H	H	H	L
AC/*DC	RL5	H	L	H	L
1/*10	RL3	H	X	X	X
1/*100	RL4	L	X	X	X

### Switch of attenuator

Control port	Relay	2mV-99mV	100mV-0.99V	1V-10V
1/*10	RL3	H	L	L
1/*100	RL4	H	H	L

## Divide gain

The gain ratio in each block and input range is a table below.

At the BNC the dynamic range is 16 mV to 80V FS (full scale) and the output is 500 mV differential (HAD626 input).

Block	Range V/div											
	2mV	5mV	10mV	20mV	50mV	100mV	200mV	500mV	1V	2V	5V	10V
ATT 1/*10	1	1	1	1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
ATT 1/*100	1	1	1	1	1	1	1	1	0.1	0.1	0.1	0.1
HFE428	31.25	12.5	6.25	3.125	1.25	6.25	3.125	1.25	6.25	3.125	1.25	0.625
Total(ratio)	31.25	12.5	6.25	3.125	1.25	0.625	0.3125	0.125	0.0625	0.03125	0.0125	0.00625

## Analog control voltage

Circuit name	signal level	Signal name
CHx OFFSET	+/-4V	Offset control signal
CHx GAIN	0 to +4V	HFE428 gain control signal
CHx TRIG LVL1	+/-4V	Trigger level control signal
CHx TRIG LVL2	+/-4V	Trigger level control signal for smart trigger/window
CHx HYST	0 to +4V	Trigger hysteresis control signal
INT CAL	0 to +600mV	Signal each CH commonness for calibration

## Over load detection

When the input impedance is set to 50 ohm, the over load is detected because of the protection of the terminating resistance.

Over load signal CHx OVLD is produced by detecting temperature of resistance, xR85 for the load and xR87 for ambient.

It is necessary to measure a standard value when there is no input signal in order to detect the over load accurately.

The over load is detected by monitoring the difference between this standard value and



CHX OVLD.

### Calibration

The front end executes the calibration of GAIN, BALANCE when the panel setups and the ambient temperature change, so guarantees the accuracy.

Block figure 2 shows the supply of the reference voltage INT CAL.

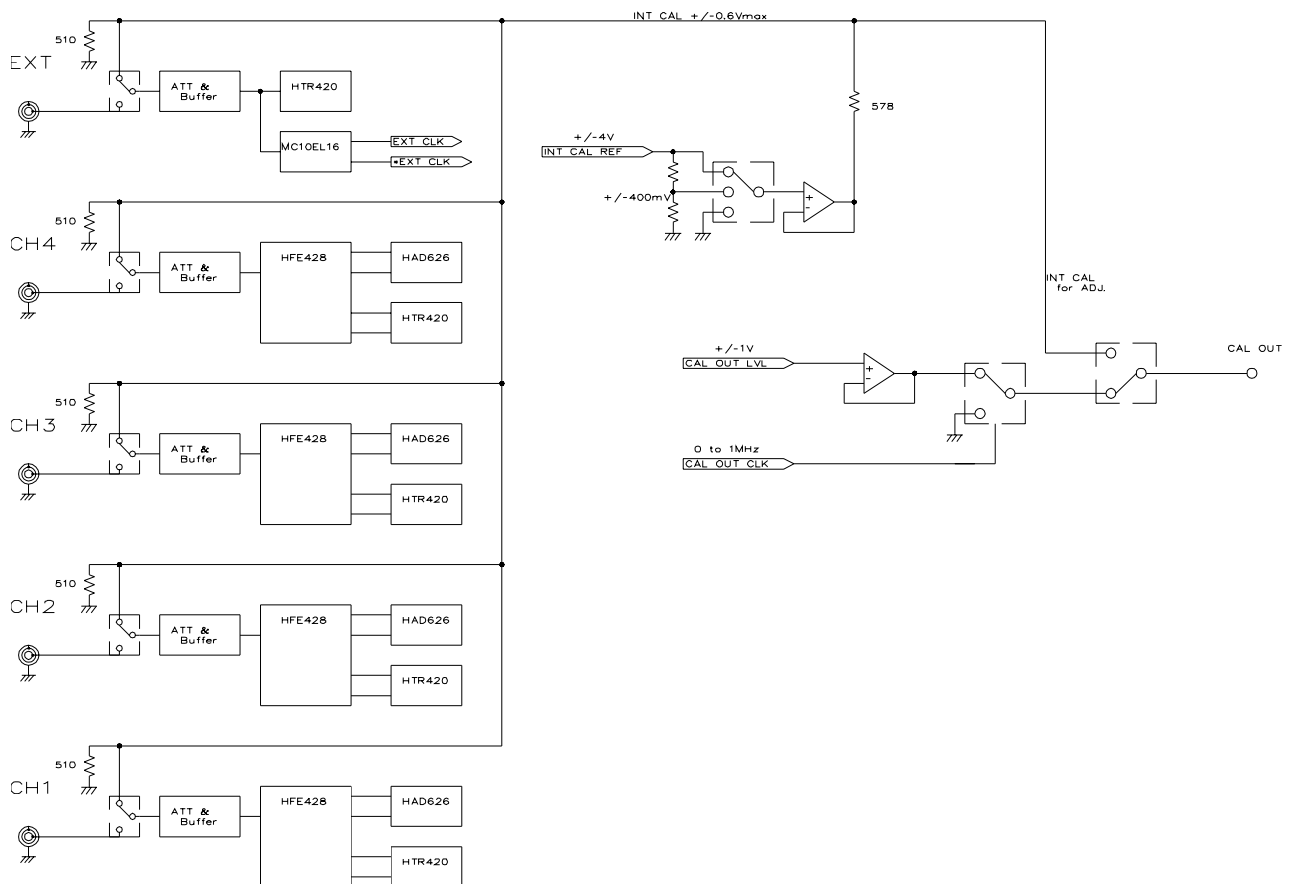
The calibration executes with INT CAL of standard DC voltage.

The INT CAL is all CH common signal and standard DC voltage of the maximum +/- 600mV.

The INT CAL is attenuated to 1/10 in +/-60mV or less.

The CAL OUT signal of DC-1MHz is independent with an internal calibration. The signal can be monitored with an external terminal by switching the internal calibration signal.

Block diagram 2





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## 4.2.2 A/D Converter & Memory

### Introduction

The analog to digital converter system does the signal conversion to 8bit, using the following circuits:

### **HAD626**

Chip on board MCM (Multi Chip Module).

Hybrid Acquisition Module containing both track & hold amplifier and 8bit ADC.

Differential signal input. (Nominal 500mVpp full scale.)

Differential ECL clock input. (up to 500M S/s.)

Differential ECL compatible data outputs and memory clock.

ECL compatible serial interface for internal ADC gain and offset control.

### **HMM436**

Chip on board MCM.

Hybrid Memory Module containing MAM424.

Maximum buffer length is up to maximum 1Mbytes per channel.

MAM424 (Monolithic Access Memory) captures 8bit data at maximum rate of 500Mbytes/s.

Internal memory consists of a 2Mbit SRAM. (up to 250kbytes per channel.)

HMM436 (LTXXX) : one MAM424 per channel.

HMM436L (LTXXXL): four MAM424's per channel.

Parallel interface for reading data and writing registers.



### **4.2.3 Trigger**

#### Introduction

The trigger system includes the following circuits:

#### **HTR420**

Chip on board MCM.

Hybrid TRigger module designed for a trigger conditioning in DSO.

Differential signal input. (Nominal 500mVpp full scale.)

Dual threshold inputs controlled by DC generator output.

Selectable filtering of input signal. (DC, AC, HF REJ, LF REJ)

Frequency divider by four. (HF)

Dual differential ECL outputs. (Trigger signal and qualifier signal)

Single ended analog output for TV trigger.

Serial interface for the internal settings.

#### **TV trigger**

This circuit is able to trigger on different TV line number standards.

TV trigger uses a commercial chip (LM1881).

LM1881 generates composite sync output, vertical sync output and odd/even output.

MST412(Edge qualified function) triggers on video signal using the outputs of LM1881.

#### **LINE trigger**

This circuit makes LINE trigger signal from AC line signal of Power Board.

Polarity of line trigger.

#### **MST412**

Trigger functions (Standard trigger, Hold off, Pulse width, Interval, State qualified, Edge qualified, Drop out) are made in Monolithic Smart Trigger.

Dual differential ECL inputs. (Trigger signal and qualifier signal)

Differential ECL clock input.

Differential ECL trigger output.

Parallel interface for writing registers.

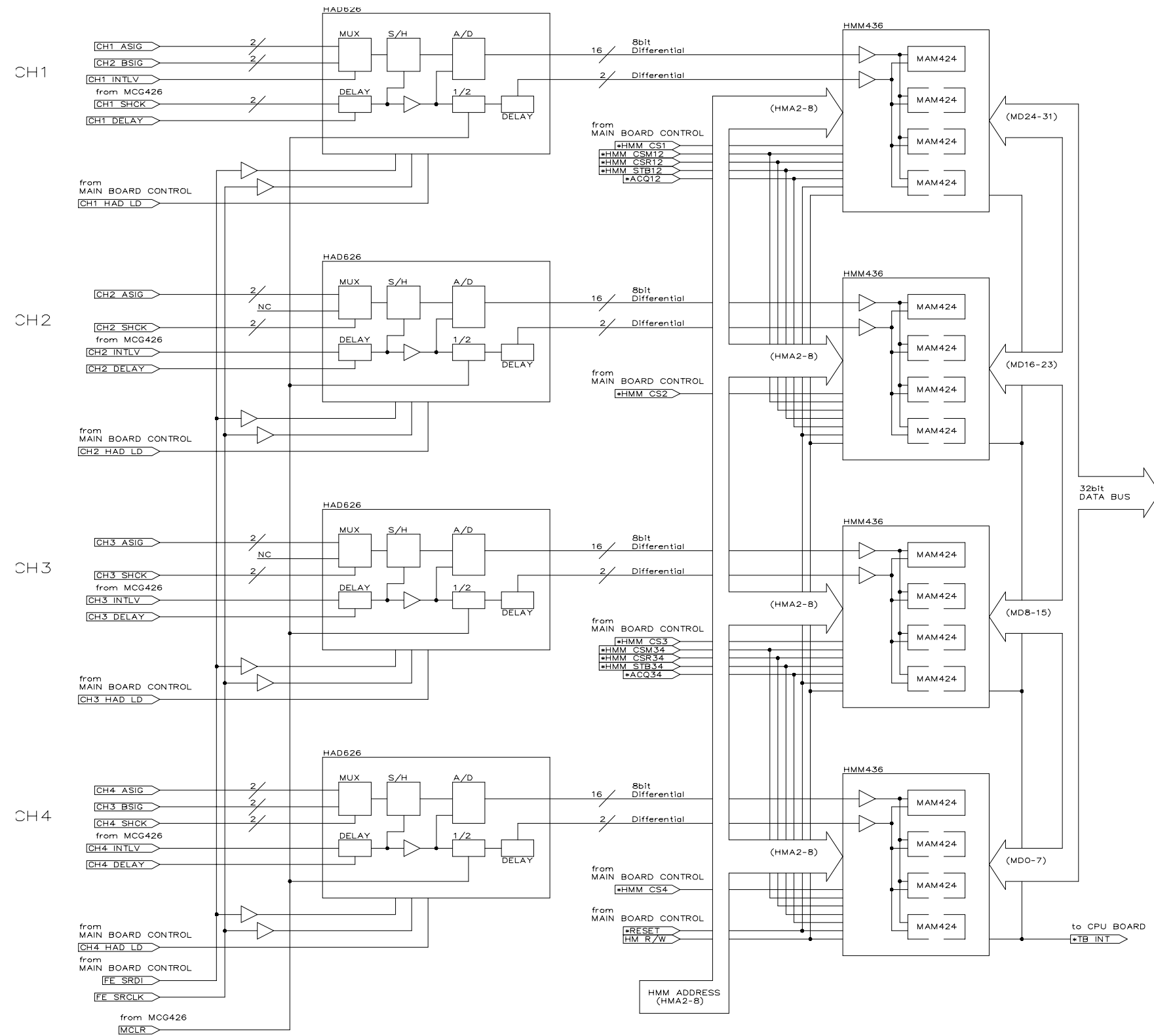
#### **400MHz OSC**

generates the 400MHz clock for MST412.

ECL single ended output.

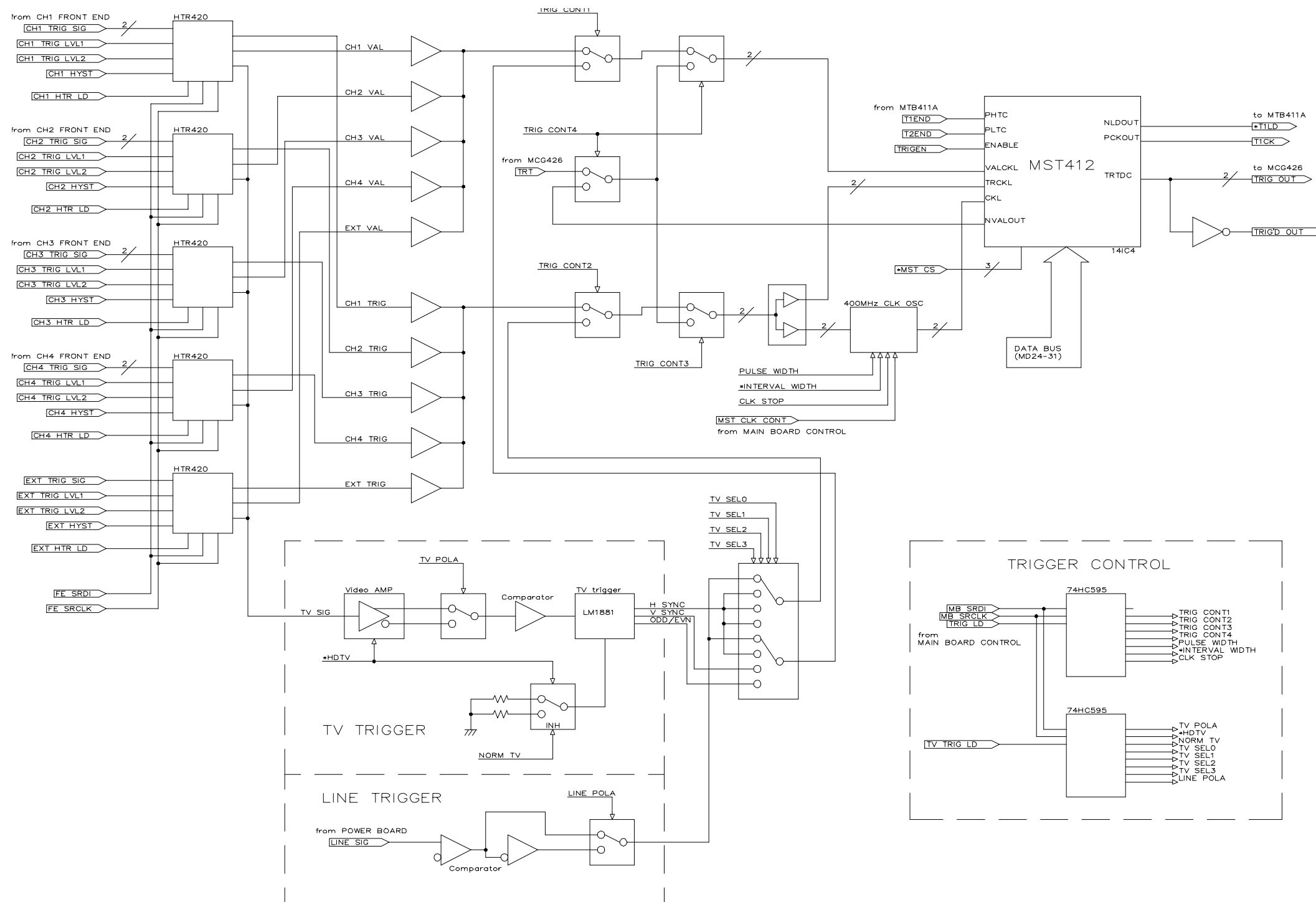
The clock frequency of oscillator is adjustable by analog signal from 8bit DAC.

The clock stops for Standard trigger, Hold off by events, TV trigger and LINE trigger.



A/D CONVERTER & MEMORY Block Diagram





TRIGGER Block Diagram



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## 4.2.4 Timebase

### Introduction

The timebase system includes the following three circuits:

#### **MTB411A**

Monolithic Time Base has five main sections:

TIMEBASE comprises five counters and associated logic circuitry for the timebase system.

TDC consists of two counters for interpolated and real computation.

TRIGGER is made up of two counters to be used by trigger circuitry.

FREQUENCY is made up of one counter to be used by the main oscillator circuitry.

DIVIDER consists of a bunch of dividers with multiplexer for probe calibration pulse.

Parallel interface for reading data and writing resistor.

#### **MCG426**

Monolithic Clock Generator.

generates sampling clock for sample & hold up to 500MHz (2GHz).

generates different clocks for MTB411A.

generates MCLR (Master CLeaR) to reset clock divider of HAD626.

generates RAMPST (RAMP STart) signal for Time to Digital Converter.

generates TRT (Test Real Time clock) signal to calibrate 400MHz clock for MST412.

implements divider and phase detector of a PLL to generate clock system at 2GHz.

Parallel interface for reading data and writing resistor.

#### **Time to Digital Converter**

measures the time (0 to 2ns) between the trigger and sampling clock using MTB411A.

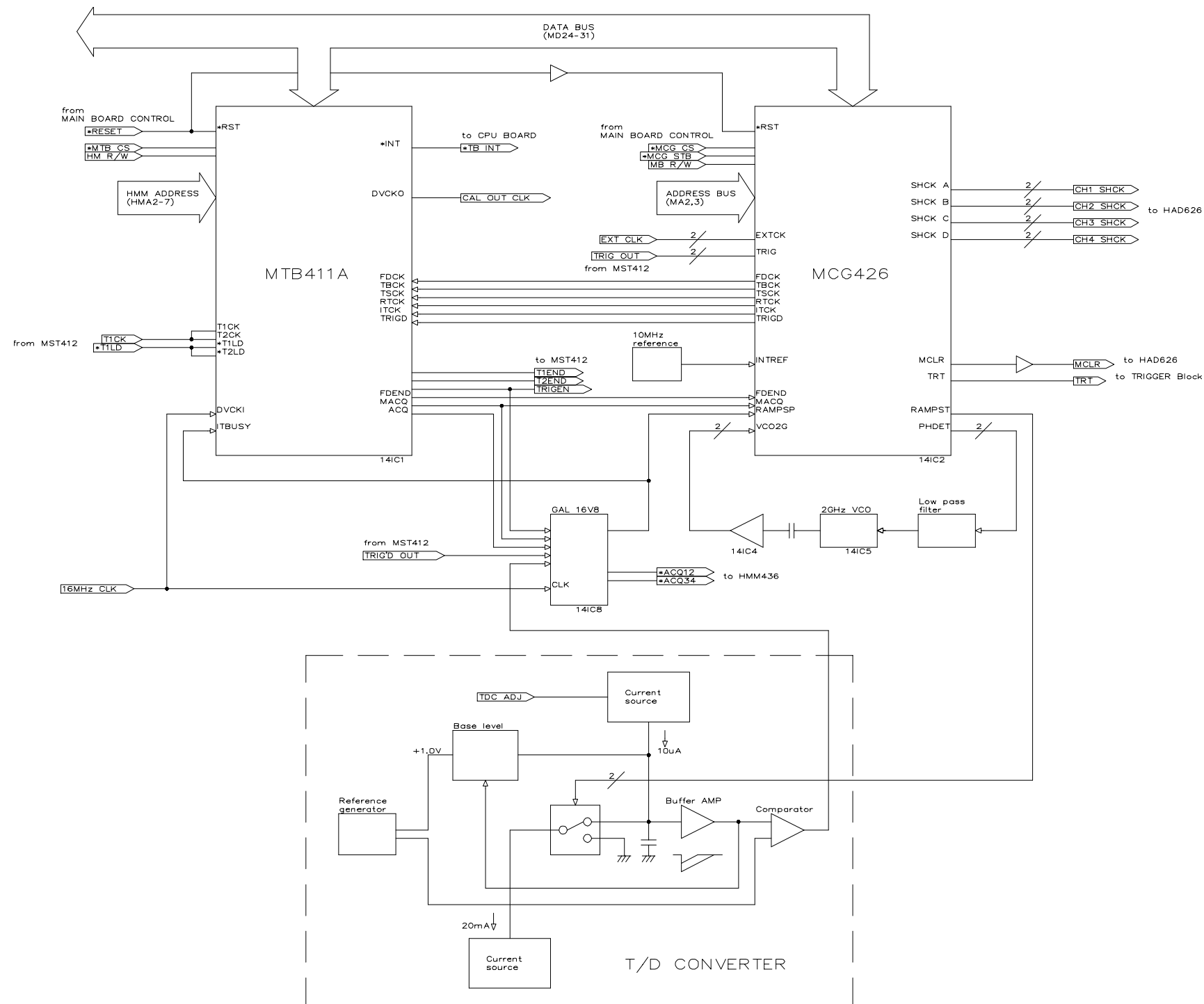
The circuit magnifies the time by nominal two thousand times.

The magnifying power is adjustable by analog signal from 8bit DAC.

The magnified time is counted by MTB411A using 100MHz clock.







TIMEBASE Block Diagram



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#### 4.2.5 DC Generator

##### Introduction

DC generator includes the following circuits:

##### **DC Generator**

generates analog signals to control Front End offset, HFE428 gain, HTR420 threshold levels and the other circuits.

8bit microprocessor controls DC generator system.

DC generator uses a commercial 16bit DAC (DAC712).

Nominal +/-400mV full scale.

Gain and offset of output are adjusted by analog signals from 8bit DAC.

##### **Analog to Digital Converter**

converts analog input signals into digital data.(to detect 50 ohm input overload and to determine probe type.)

The conversion system consists of 16bit DAC and comparator.

#### 4.2.6 Calibrator & Internal Calibration Signal

##### Introduction

generates the probe calibrator signal and internal calibration signal.

##### **Probe calibrator**

Continuous gain control using DC generator output, -1.0V to +1.0V.

Frequency control using MTB411A's divider, DC or 500Hz to 1MHz.

##### **Internal calibration signal**

Reference voltage signal for internal calibration.

High accuracy, low drift, low noise.

Nominal +/-600mV or +/-60mV output.

The block diagram is included by DC Generator block diagram.

#### 4.2.7 Signal Output

##### Introduction

This circuit generates TTL signal for the output of rear panel.

The output signal is selected from trigger ready signal, triggered signal and PASS/FAIL signal.

The block diagram is included by DC Generator block diagram.

#### 4.2.8 Main Board Control

##### Introduction

The Main Board Control includes the following circuits:

##### **Main Board ACK signal generator**

generates ACKnowledge signal for a communication between Main Board and CPU Board.

##### **HMM436 control**

generates special signals for access to HMM436.



generates clock signals for following components:  
MTB411A (16MHz)  
IIC BUS chip (8MHz)  
8bit microprocessor of DC Generator (4MHz)

#### **MCG426 control**

generates special signals for access to MCG426.  
generates \*ATTenuator ENable signal to protect 50ohm input during power-up.

#### **MST412 control**

generates special signals for writing commands to MST412.

#### **Serial I/F control**

generates the following serial interface signals.  
MB SRDI : serial data signal for components except Front End, HAD626 and HTR420.  
MB SRCLK : serial clock signal for components except Front End, HAD626 and HTR420.  
DCG SRCLK : serial clock signal for 8bit microprocessor of DC generator.  
FE SRDI : serial data signal for Front End, HAD626 and HTR420.  
FE SRCLK : serial clock signal for Front End, HAD626 and HTR420.  
XXXX LD : load signal for serial interface components.

#### **IIC-BUS control**

controls Pro-Bus system via serial IIC-bus.  
uses a commercial chip (PCF8584).  
PCF8584 serves as an interface between parallel bus and the serial IIC-bus.

#### **Thermometer**

measures temperature of Main Board.  
Acquired data are used to determine condition of internal calibration.

#### **EEPROM**

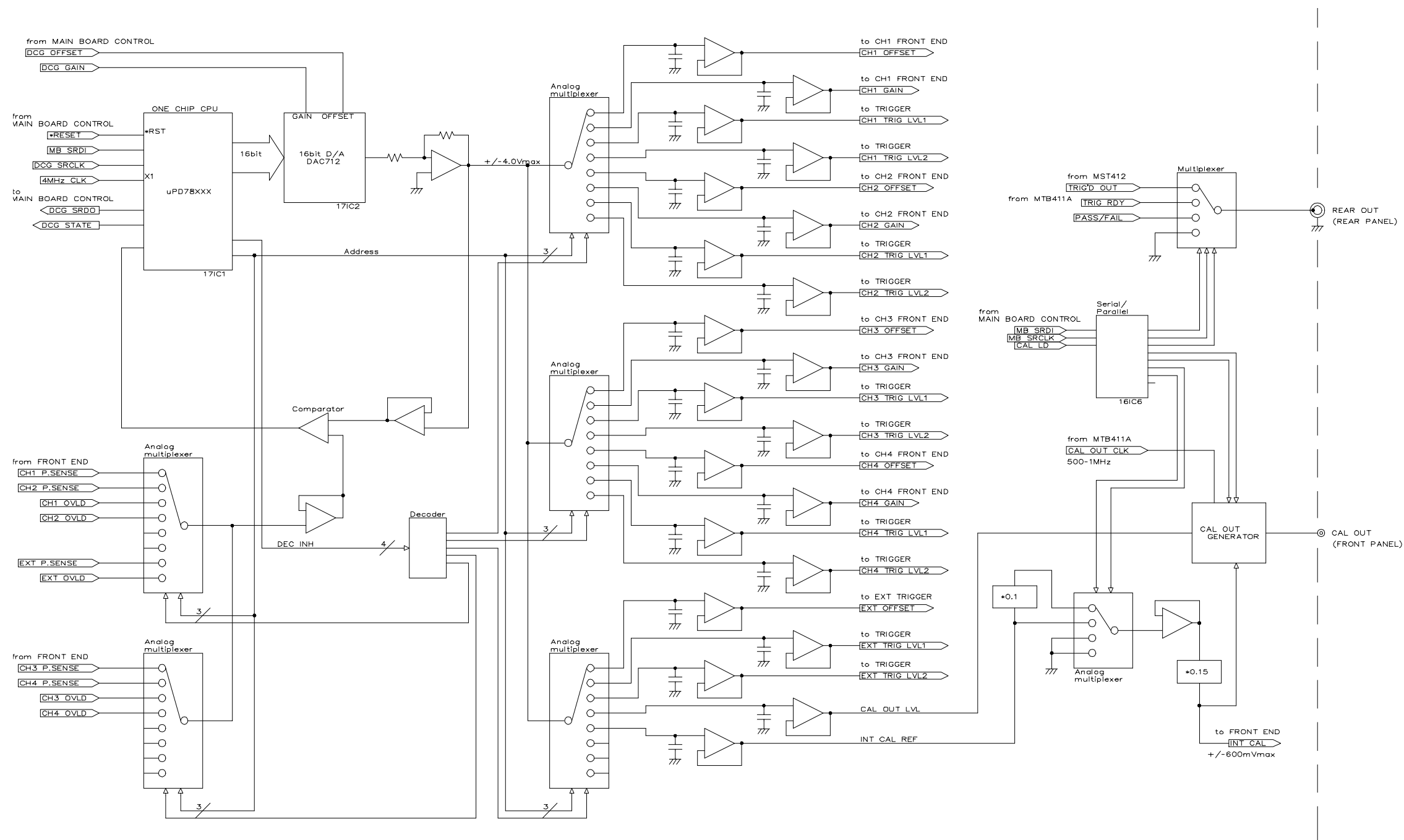
4kbit EEPROM.  
stores main board calibration data.

#### **8bit D/A Converter**

generates analog signal to control trigger hysteresis, TDC gain, clock frequency for MST412,  
and DAC adjustment of DC generator.  
uses a commercial chip (MB88346).  
MB88346 is 8bit 12channels DAC with output buffers.  
Analog signal outputs are 0 to +4.0V full scale.

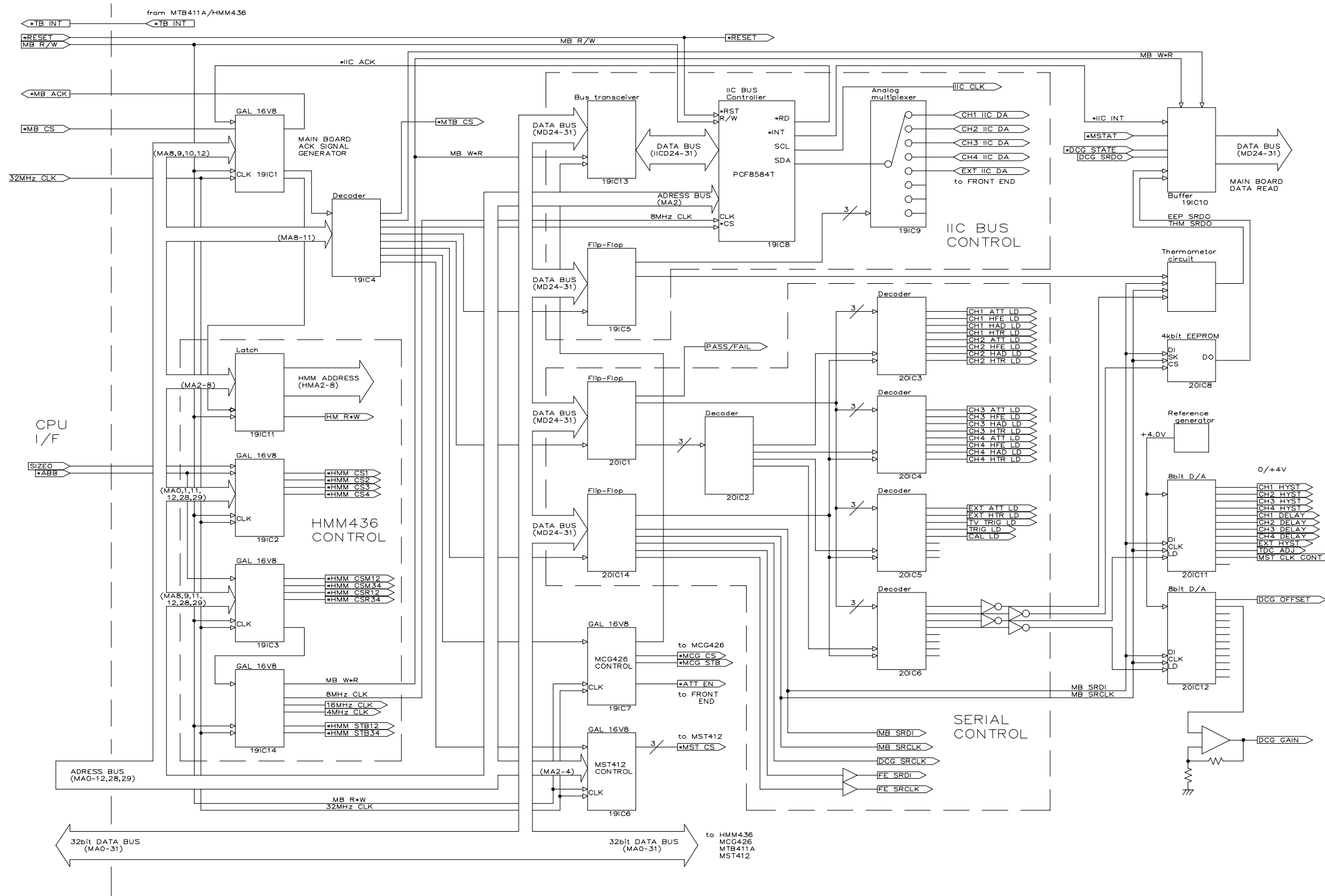
#### **Main Board Data Read**

reads Main Board data for a communication between Main Board and CPU Board.



DC GENERATOR Block Diagram





MAIN BOARD CONTROL Block Diagram





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### 4.3 OUTLINE OF WAVERUNNER POWER SUPPLY

Input voltages :Wide ranges of inputs, 90~132 V AC and 180~250 V AC (45~66 Hz) are allowed.

Output voltages: 9 different DC voltages available.

+5 V (DIG)  
+12 V (DIG)  
+12 V (FAN)  
+24 V (PRINTER)  
-4.5 V (DIG)  
+5 V (ANA)  
+12 V (ANA)  
- 5 V (ANA)  
-12 V (ANA)

This power unit consists of, roughly divided, five independent switching power supplies and two other circuits.

1. Input circuit (noise filters and rectifiers are included)
2. Harmonic-current correction power supply  
By employing a step-up converter system, the input current waveform is controlled to be similar to the waveform of input voltage. The control unit is a PFC unit made with IC1. The output voltage is regulated to +377 V DC.
3. Auxiliary power supply (to feed the power for the Harmonic-current control power supply in the above 2).  
Uses an RCC type converter, and outputs +20 V DC.
4. Main power supply-A  
Uses a flyback converter, and outputs -4.5 V DC (DIG),  $\pm 5$  V DC (ANA), and  $\pm 12$  V DC (ANA) respectively. The output of -4.5 V DC is regulated, but the other outputs are not regulated and may fluctuate a little in the voltages depending on the load conditions.
5. Main power supply-B  
Uses a flyback converter, and outputs are +5 V DC (DIG), +12 V DC (DIG), and +24 V DC (DIG), respectively. The outputs of +5 V DC and +12 V DC are regulated, but the output of +24 V DC may largely fluctuate according to the load conditions.
6. Auxiliary power supply (to feed the power for both Main power supplies- A and - B).  
Uses an RCC converter, and outputs are +22 V DC and +27 V DC.
7. Series regulator.  
Stabilizes the outputs of the main power source of  $\pm 5$  V DC (ANA),  $\pm 12$  V DC (ANA), and reduces the level of ripple noises.

The power switch is located on the secondary side (not the primary side) in order to switch-on and -off of the outputs at the secondary side; the whole control is made by switching on and off of the current control oscillator which is configured with the IC 2 and IC6. Although the power switch is placed to its off position, therefore, the power is being fed to all the components in the power supply units (stand-by mode), as long as the waverunner supply is connected to the AC outlet.

The above switching-on and -off function is actually made by shorting and opening of pins 6 and 7 of "CN3" in the power unit.

Since the design of this waverunner power supply is made based on the use of



forced air cooling with the fan-motors, operating the power supply for long hours by removing the upper and bottom covers would cause tripping of the overheat protection circuit because of a temperature rise in the unit, and result in the cease of power output.

The DC outputs are all guarded by the overload-current protection circuits; therefore, output short circuiting will not cause any damage to the equipment even it takes place. However, when the short-circuited state continues for long hours, the power output switch may cause open due to a possible temperature rise in several circuits, causing the excess-current protecting circuit to activate.

Releasing of the overheat protection circuit from its activated mode must not be made within the time less than five seconds by disconnecting the AC inlet plug out of the AC receptacle.

Do not touch any electric parts inside the power supplies during operation as the primary side of the power unit has many portions of over 500 Vrms of magnitudes to grounding.

#### **< Operation of the parts inside the Waverunner Power Supply >**

##### **# Circuit No. 1 / 7**

The fuse, F1, heat-breaks to shut down the input when an abnormal excess-current keeps running through the input circuit. Replacing of the fuse must be made after locating the problem area and fixing failure parts (including damages).

The coils, L2, L3, L4, and L5, and capacitors, C1, C2, C3, C4, C5, C6, C94, and C105, configure the circuits of noise filters to the AC power lines.

The resistor, R2, which contains a thermo-fuse, is to limit the in-rush current when it flows into the input circuit. In case an abnormal input current keeps flowing, even when the power switch(through switching operation) is placed to off, the thermo-fuse melts down and disconnects the input circuit.

When the switching power supplies operate normally, the TRIAC, D2, turns on to bypass the R2 current, to reduce R2's electric losses during the operation.

The diode, D4, is a bridge circuit and is used for direct full wave rectification of the AC input.

##### **# Circuit No. 2 / 7**

The IC1 in the PFC unit receives its operating power from the auxiliary power supply which consists of the transistor Q2 and transformer T1, etc; outputs the driving signals (Gate Signals) for the transistor Q1, and operates the Harmonic control power supply which consists of the choking coil L6, diode D5, capacitors C13, etc., to obtain the output of +377 V DC.

The variable resistor, R16, is to adjust the output voltage of +377 V DC in the Harmonic control power source.

---

### **#Circuit No. 3 / 7**

The variable resistor, R117, is to adjust the output voltage of -4.5 V DC.

### **# Circuit No. 4 / 7**

The outputs of  $\pm 5$  V DC (ANA) and  $\pm 12$  V DC (ANA) use the series regulator, consisting of the transistors Q10 to Q18 and IC9, which stabilizes the output voltage and reduces the ripple voltages. Also, the series regulator performs the remote sensing function (by using No. 2 to No. 5 pins of Connector CN3) in order to keep the voltage of the main-board on the load side constant.

The variable resistor, R152, is for controlling the DC output voltages of  $\pm 5$  V (ANA) and  $\pm 12$  V (ANA). The DC output voltages of  $\pm 5$  V (ANA) and  $\pm 12$  V (ANA) are the tracking outputs (voltages of 4 outputs vary with each other).

### **# Circuit No. 5 / 7**

The variable resistor, R73, is used to adjust the regulated output voltage of +5 V DC (DIG).

### **#Circuit No. 6 / 7**

The posistor, R 33, shows high resistance property when its temperature increases over  $90^{\circ}\text{C}$  (due to the temperature rises in Q10 or Q12), and stops IC2 and IC6 oscillations, causing disconnection of the voltage output circuits (through activation of the overheat protection circuit). Releasing of the overheat protection circuit from its activated mode must be made by confirming the heat-sink temperature of the protection circuit to be cooled under  $80^{\circ}\text{C}$ , by leaving the unit more than five seconds while the AC inlet plug out of the AC receptacle is disconnected.

The posistor, R160, becomes high resistance when its temperature increases over  $80^{\circ}\text{C}$  (due to the temperature rises in Q14 or Q16), and stops IC2 and IC6 oscillations, causing disconnection of the voltage output circuits (through activation of the overheat protection circuit). Releasing of the overheat protection circuit from its activated mode must be made by confirming the heat-sink temperature of the protection circuit to be cooled under  $70^{\circ}\text{C}$ , by leaving the unit more than five seconds while the AC inlet plug out of the AC receptacle is disconnected.

The posistor, R166, becomes high resistance when the temperature of R 166 increases over  $110^{\circ}\text{C}$  due to the temperature rise in Q1, and stops IC2 and IC6 oscillations which cause disconnection of the voltage output circuits (through activation of the overheat protection circuit). Releasing of the overheat protection circuit from its activated mode must be made by confirming the heat-sink temperature of the protection circuit to be cooled under  $100^{\circ}\text{C}$ , by leaving the unit more than five seconds while the AC inlet plug out of the AC receptacle is disconnected.

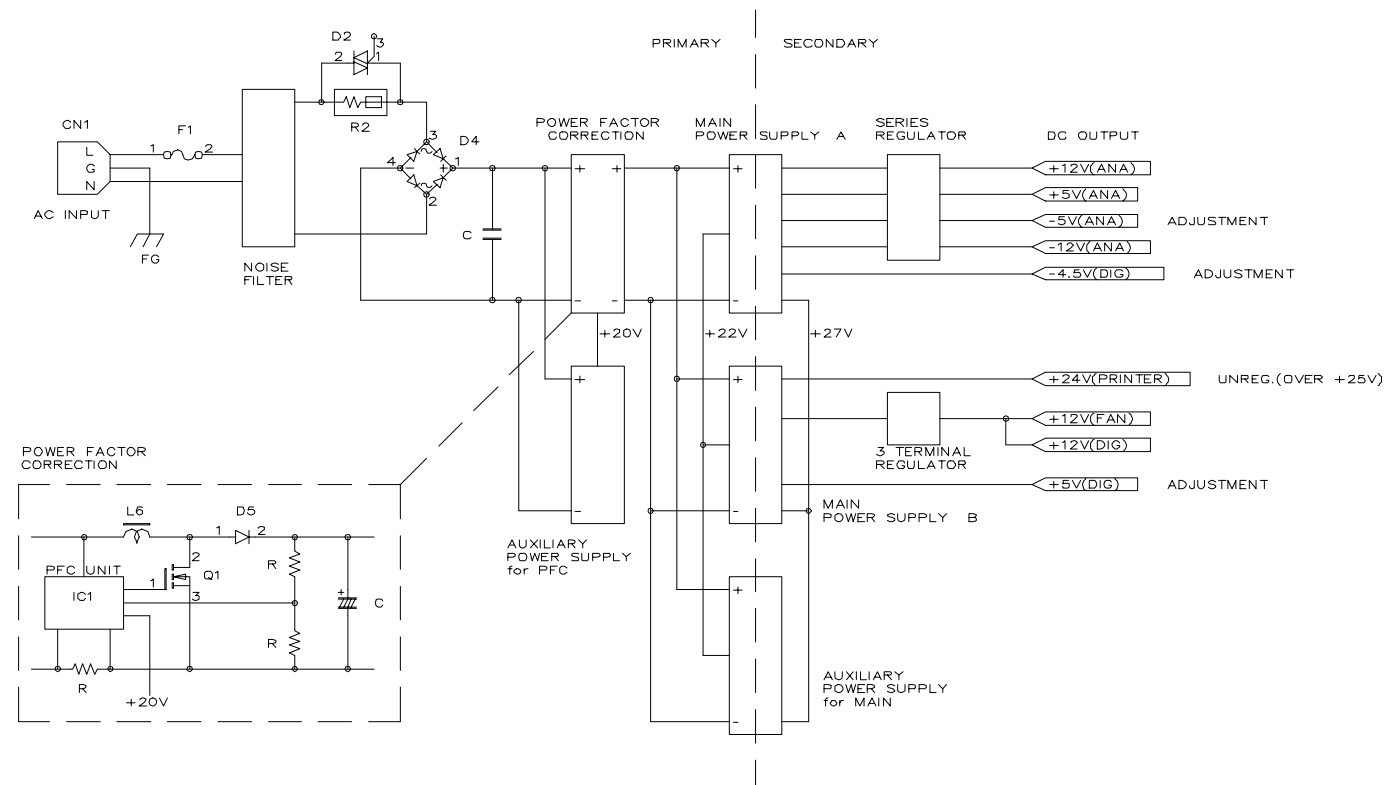
### **# Circuit No. 7 / 7**

The IC2 in the circuit of the switching power control ICs receives the power which is fed by the auxiliary power supply (circuit No.6/7) consisting of the transistor Q4 and the transformer T2, to output the driving signals (Gate signals) for the transistor Q6 (circuit No.5/7); and drives the Main power supply-A (circuit No.5/7) consisting of the

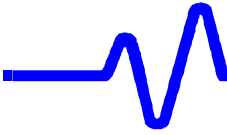


transformer T3 and others. The Main power supply-A generates the output voltages of +5 V DC (for DIG Circuit), +12 V DC (for DIG Circuit and Fan), and +24 V DC (for Printer), respectively.

The IC6 in the circuit of the switching power control ICs receives the power which is fed by the auxiliary power supply (circuit No.6/7) consisting of the transistor Q4 and the transformer T2, to output the driving signals (Gate signals) for the transistor Q8 (circuit No.3/7); and drives the Main power supply-B (circuit No.3/7) consisting of the transformer T4 and others. The Main power supply-B generates the output voltages of  $\pm 5$  V DC (for ANA circuit),  $\pm 12$  V DC (for ANA circuit), and -4.5V DC (for DIG circuit).



BLOCK DIAGRAM of FND POWER SUPPLY



# 5. Performance Verification

## 5.1 Introduction

This chapter contains procedures suitable for determining if the LT **Series** Digital Storage Oscilloscope performs correctly and as warranted. They check all the characteristics listed in subsection 5.1.1.

Because they require time and suitable test equipment, you may not need to perform all of these procedures, depending on what you want to accomplish.

In the absence of the computer automated calibration system based on LeCroy Calibration Software (LeCalsoft), this manual performance verification procedure can be followed to establish a traceable calibration.

It is the calibrating entities' responsibility to ensure that all laboratory standards used to perform this procedure are operating within their specifications and traceable to required standards if a traceable calibration certificate is to be issued for the LT **Series** Digital Storage Oscilloscope.

### 5.1.1 List of Tested Characteristics

This subsection lists the characteristics that are tested in terms of quantifiable performance limits.

- Input Impedance
- Leakage Current
- Noise
- DC Gain Accuracy
- Offset Accuracy
- Bandwidth
- Trigger Level
- Smart Trigger
- Time Base Accuracy
- Overshoot and Rise Time
- Overload

### 5.1.2 Calibration Cycle

The LT **Series** Digital Storage Oscilloscope requires periodic verification of performance. Under normal use ( 2,000 hours of use per year ) and environmental conditions, this instrument should be calibrated once a year.



## 5.2 Test Equipment Required

These procedures use external, traceable signal generators, DC precision power supply, step generator and digital multimeter, to directly check specifications.

Instrument	Specifications	Recommended
Signal Generator Radio Frequency	Frequency : .5 MHz to 2 GHz Frequency Accuracy : 1 PPM	HP8648B or equivalent
Signal Generator Audio Frequency	Frequency : 0 to 5 kHz Amplitude : 8 V peak to peak	LeCroy LW420 or HP33120A or equivalent
Voltage Generator DC Power Supply	Range of 0 to 20 V, in steps of no more than 15 mV	HP6633A or equivalent
Step Generator Fast Pulser	Rise time 350ps $\pm$ 100 ps Overshoot 3.5 % $\pm$ 1 %	LeCroy 4969A + PB049 or equivalent
Power Meter + Sensor	Accuracy $\pm$ 1 %	HP437B + 8482A or equivalent
Digital Multimeter Volt & Ohm	Voltmeter Accuracy : 0.1 % Ohmmeter Accuracy : 0.1 %	Keithley 2000 or equivalent
Adapter	50 $\Omega$ to 1M $\Omega$	LeCroy 4962-9
Coaxial Cable, 1 ns	50 $\Omega$ , BNC, length 20 cm,	LeCroy 480232001
Coaxial Cable, 5 ns	50 $\Omega$ , BNC, length 100 cm,	LeCroy 480020101
2 Attenuators, 20 dB	50 $\Omega$ , BNC, 1 % accuracy	LeCroy 402200402
Attenuator, 6 dB	50 $\Omega$ , BNC, 1 % accuracy	LeCroy 402600403
Terminator, 2 W	50 $\Omega$ , BNC, Feed-Through	LeCroy 402323001
T adapter	50 $\Omega$ , BNC T adapter	LeCroy 402222002

**Table 5-1 : Test Equipment**

### 5.2.1 Test Records

The last pages of this document contain LT **Series** test records in the format tables. Keep them as masters and use a photocopy for each calibration.

## 5.3 Turn On

If you are not familiar with operating the LT **Series**, read the operator's manual.

- Switch on the power using the power switch.
- Wait for about 20 minutes for the scope to reach a stable operating temperature, and verify

---

### 5.3.1 PNL Files

- Use PNL Files depend on the LT344,LT342,LT322,LT224.
- The LTxxx shows one of the LT344,LT342,LT322,LT224.

## 5.4 Input Impedance

The impedance values for 50Ω and 1MΩ couplings are measured with a high precision digital multimeter. The DMM is connected to the DSO in 4 wire configuration (input and sense), allowing for accurate measurements.

### Specifications & Test limits

DC 1.00 MΩ ±1 %  
AC 1.20 MΩ ±1 % (2mV/div to 99mV/div)  
1.00 MΩ ±1 % (100mV/div to 10V/div)  
DC 50Ω ±1 %

### 5.4.1 Channel Input Impedance

#### a. DC 1MΩ

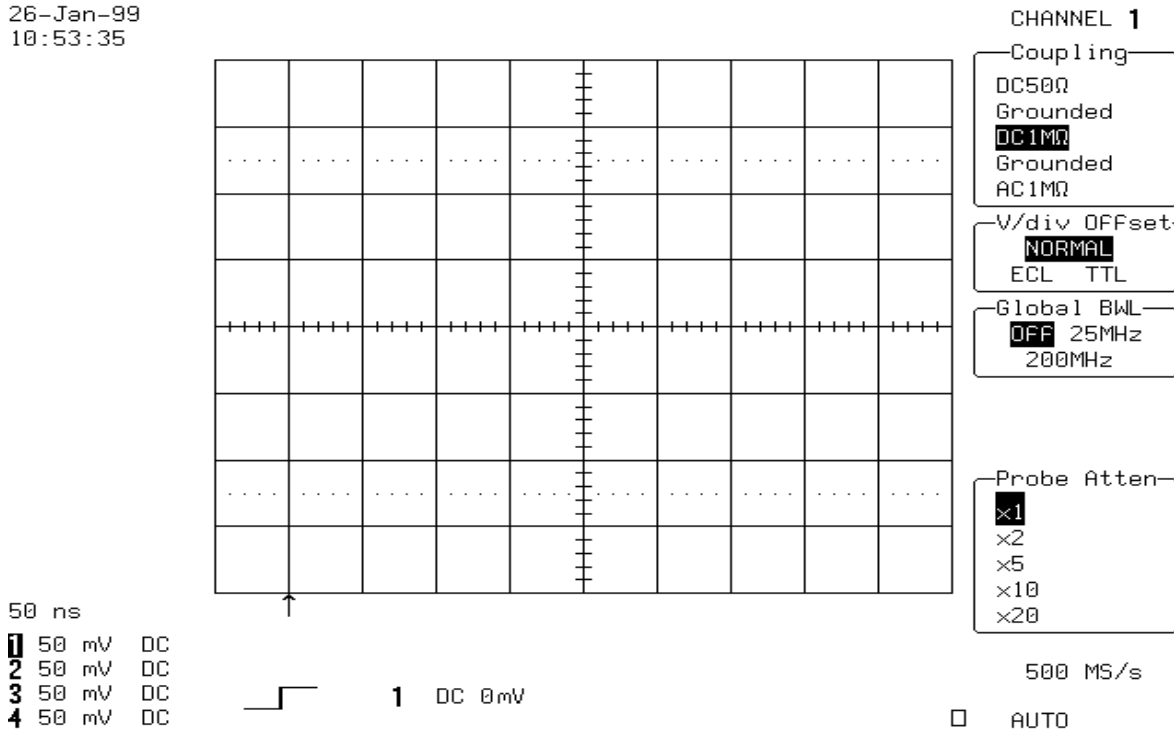
- Recall **LTxxxP001.PNL** or configure the DSO :

Panel Setups	:	<b>Recall FROM DEFAULT SETUP</b>
Channels Trace OFF	:	<b>Channel 1, Channel 2, Channel 3 &amp; Channel 4</b>
Input Coupling	:	<b>DC 1MΩ</b> on all 4 Channels
Input gain	:	<b>50 mV/div.</b> on all 4 Channels
Time base	:	<b>50 nsec/div.</b>
Trigger mode	:	<b>Auto</b>





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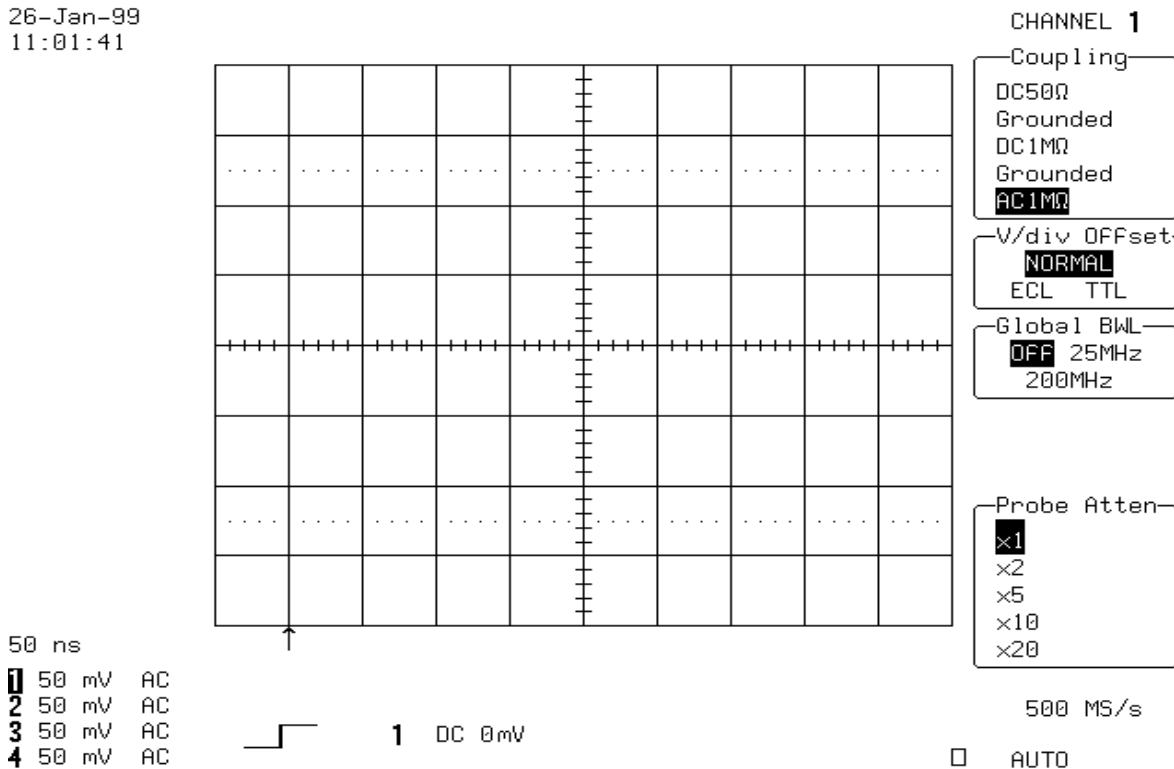
- Set the DMM with **Ohms and Ohms sense** to provide a 4 wire measurement.
- Connect it to Channel 1.
- Measure the **input impedance**. Record it in Table 2, and compare it to the limits.
- Repeat the above test for all input channels.
- Recall **LTxxxP002.PNL** or Set Input gain to **200 mV/div.** on all 4 Channels
- Repeat the test for all input channels.
- Record the measurements in Table 2, and compare the test results to the limits in the test record.

**b. AC 1MΩ**

- Recall **LTxxxP003.PNL** or configure the DSO as shown in 5.4.1.a, and for each Channel make the following change :

Input Coupling : **AC 1MΩ**

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- For all input channels measure the **input impedance**.
- Record the input impedance in Table 2, and compare it to the limits.
- Recall **LTxxxP004.PNL** or Set Input gain to **200 mV/div** on all 4 Channels.
- Repeat the test for all input channels.
- Record the measurements in Table 2, and compare the results to the limits in the test record.

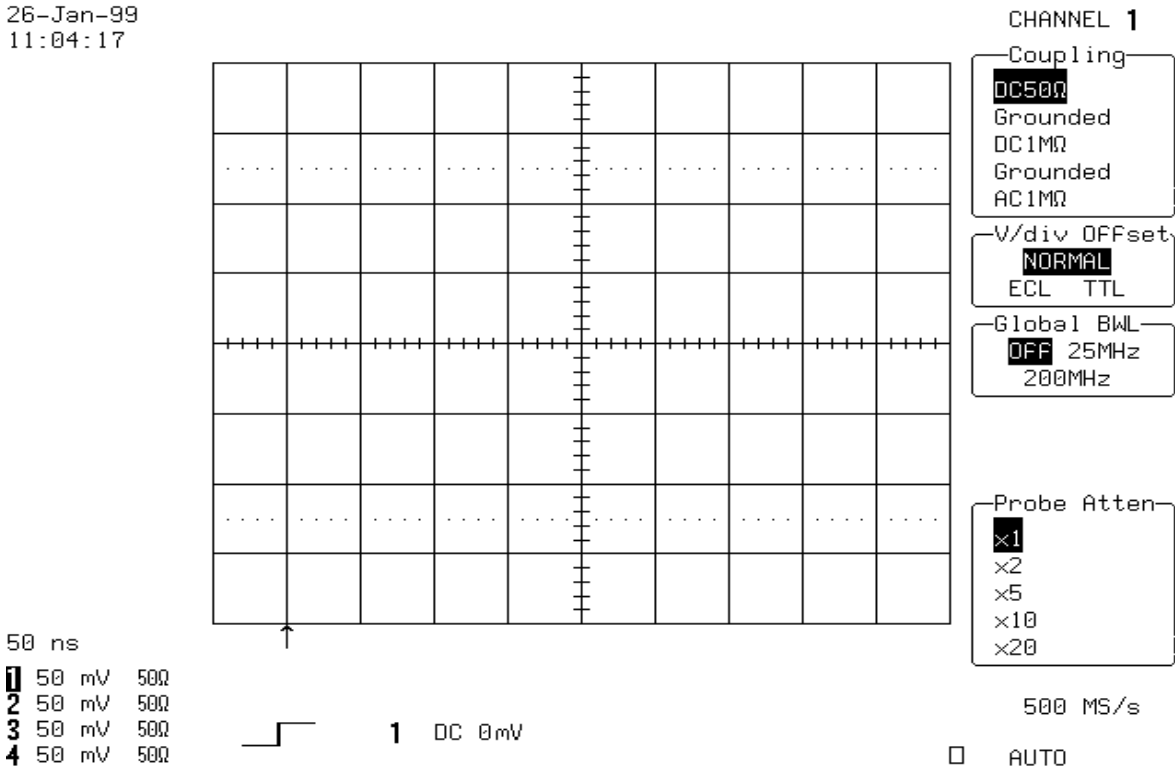
### c. DC 50Ω

- Recall **LTxxxP005.PNL** or configure the DSO as shown in 5.4.1.a, and for each Channel make the following change:

Input Coupling : **DC 50Ω**



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- For all input Channels, measure the input impedance.
- Record the **input impedance** in Table 2, and compare it to the limits.
- Recall **LTxxxP006.PNL** or set Input gain to **200 mV/div.** on all 4 Channels
- Repeat the test for all input channels. Record the measurements in Table 2, and compare the results to the limits in the test record.

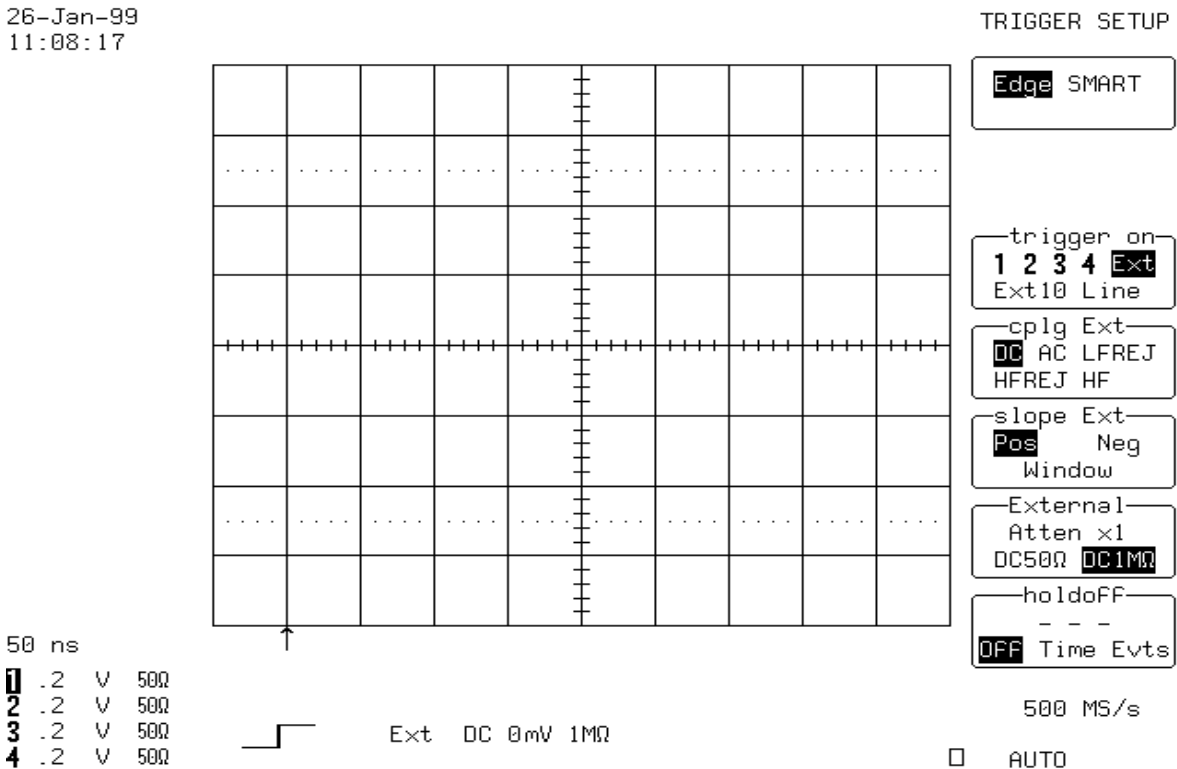
#### 5.4.2 External Trigger Input Impedance

##### a. DC 1MΩ

- Recall **LTxxxP007.PNL** or configure the DSO :

Trigger mode : **Auto**  
 Select Setup trigger  
 Trigger on : **EXT**  
 Cplg Ext : **DC**  
 External : **DC 1MΩ**  
 Time base : **50 nsec/div.**

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- Connect the DMM to External, and measure the **input impedance**.
- Record the input impedance in Table 2, and compare it to the limits.
- Recall **LTxxxP008.PNL** or set trigger to Ext/10
- Measure the **input impedance**.
- Record the test result in Table 2, and compare the result to the limits in the test record.

#### b. DC 50Ω

- Recall **LTxxxP009.PNL** or configure the DSO :

Select Setup trigger

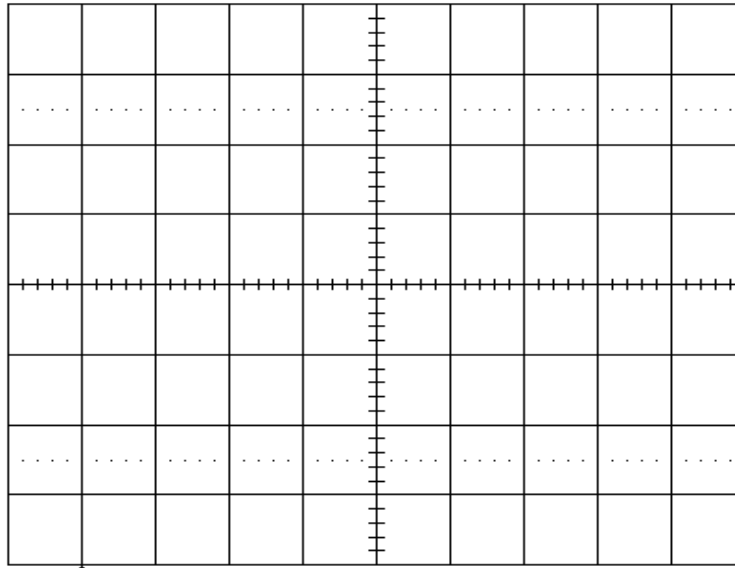
Trigger on : **EXT**

External : **DC 50Ω**



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TRIGGER SETUP



Edge SMART

-trigger on  
1 2 3 4 Ext  
Ext10 Line

cp1g Ext  
DC AC LFREJ  
HFREJ HF

slope Ext  
Pos Neg  
Window

External  
Atten x1  
DC500 DC1M0

holdoff  
- - -  
OFF Time Evts

50 ns

1 .2 V 500  
2 .2 V 500  
3 .2 V 500  
4 .2 V 500



Ext DC 0mV 500

500 MS/s

AUTO

- Connect the DMM to External, and measure the **input impedance**.
- Record the input impedance in Table 2, and compare the result to the limit in the test record.

## 5.5 Leakage Current

The leakage current is tested by measuring the voltage across the input channel.

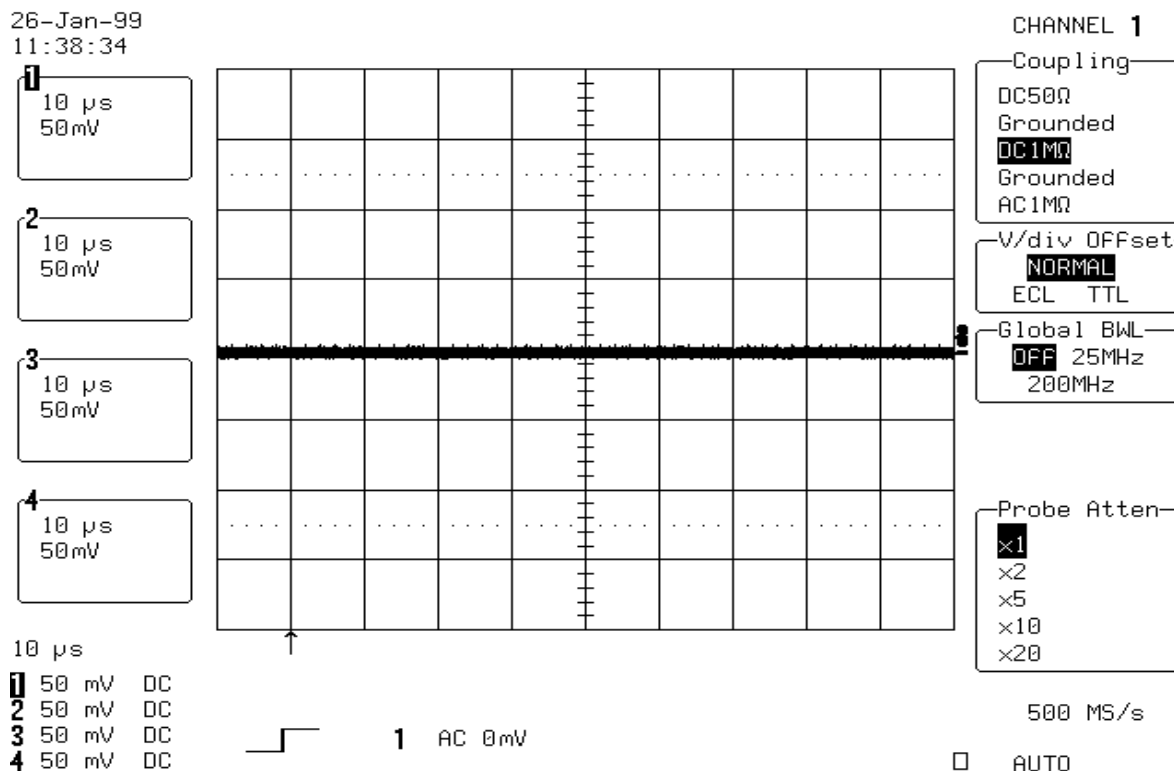
### Test limit

DC  $1\text{M}\Omega$  :  $\pm 1\text{ mV}$

### 5.5.1 Channel Leakage Current

- Recall **LTxxxP010.PNL** or configure the DSO :

Panel Setups : **Recall FROM DEFAULT SETUP**  
Channels Trace ON : **Channel 1, Channel 2, Channel 3 & Channel 4**  
Input Coupling : **DC  $1\text{M}\Omega$  on all 4 Channels**  
Input gain : **50 mV/div. on all 4 Channels**  
Trigger mode : **Auto**  
Time base : **10  $\mu\text{sec/div.}$**



- Set the DMM to measure Volts, and connect it to Channel 1.
- Measure the **voltage** and enter it in Table 3. Compare it to the limits.
- Repeat the test for all input channels.



## 5.5.2 External Trigger Leakage Current

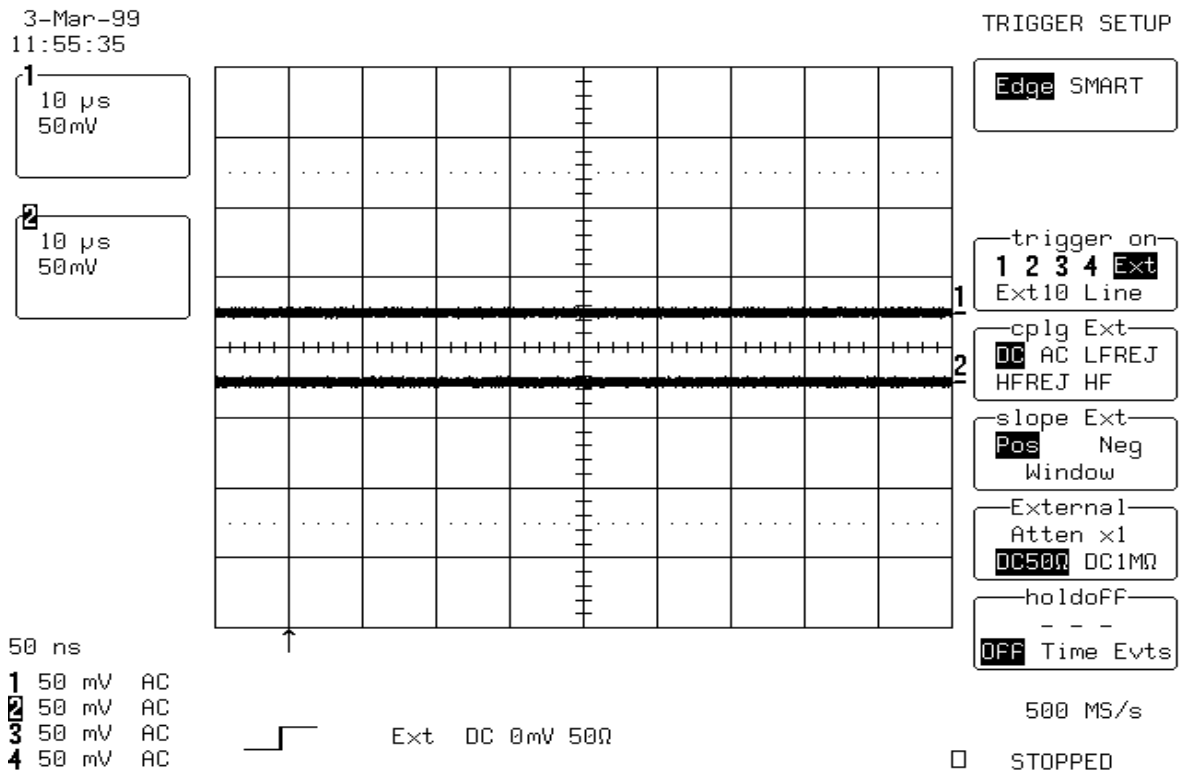
### a. DC 50Ω

- Recall **LTxxxP011.PNL** or configure the DSO as shown in 5.5.1 and make the following changes :

Select Setup trigger  
Set Trigger on : **EXT**

External : **DC 50Ω**

- Connect the DMM to External.
- Measure the **voltage** and enter it in Table 3. Compare it to the limits.



---

## 5.6 Noise

Noise tests with open inputs are executed on all channels for both 1M $\Omega$  and 50 $\Omega$  input impedance, with AC and DC input coupling, 0 mV offset, at a gain setting of 5mV/div., and different Time base settings.

The scope parameters functions are used to measure the RMS amplitude.

### 5.6.1 Rms Noise

#### Test limits

1 % of full scale or 0.4 mV rms at 5 mV/div.

#### Procedure

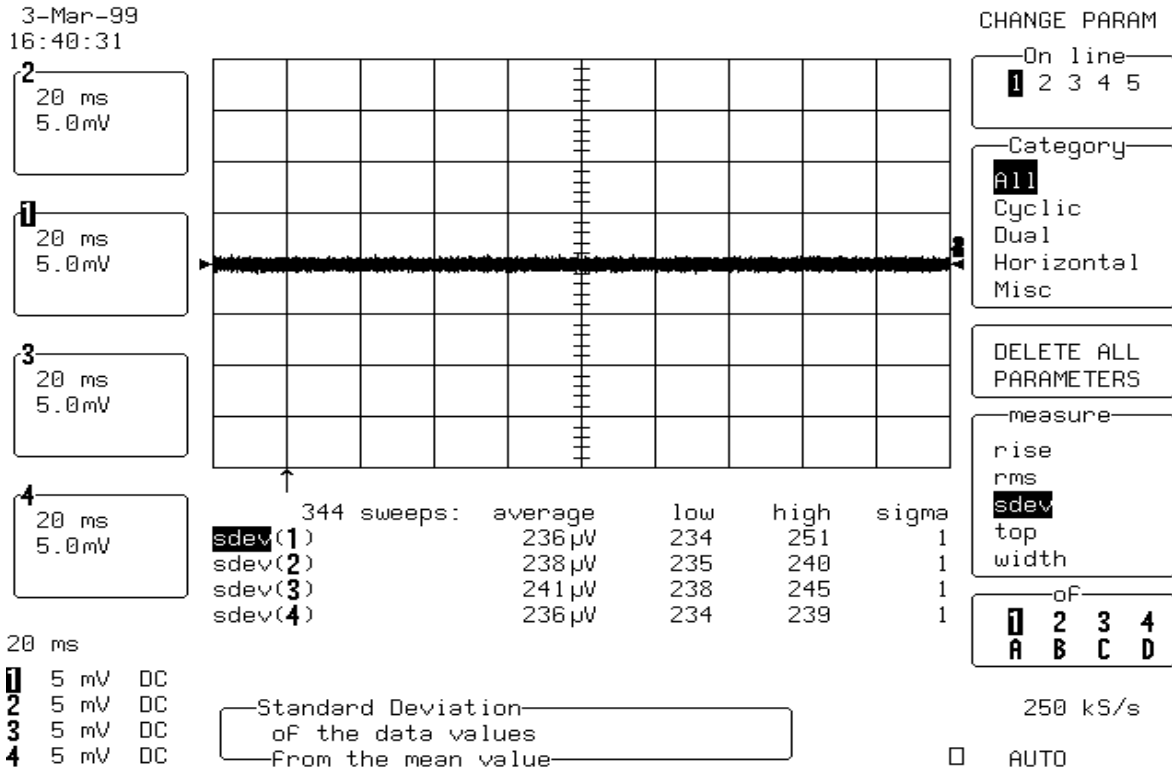
##### a. DC 1M $\Omega$

With no signal connected to the inputs

- Recall **LTxxxP012.PNL** or configure the DSO :

Panel Setups	:	<b>Recall FROM DEFAULT SETUP</b>
Channels Trace ON	:	<b>Channel 1, Channel 2, Channel 3 &amp; Channel 4</b>
Input Coupling	:	<b>DC 1M<math>\Omega</math> on all 4 Channels</b>
Input gain	:	<b>5 mV/div. on all 4 Channels</b>
Trigger setup	:	<b>Edge</b>
Trigger on	:	<b>1</b>
Coupling 1	:	<b>DC</b>
Trigger Mode	:	<b>Auto</b>
Time base	:	<b>20 msec/div.</b>
Channel use	:	<b>4</b>
Record up to	:	<b>50 k Samples</b>
Press	:	<b>MEASURE TOOLS</b>
Measure	:	<b>Parameters</b>
Mode	:	<b>Custom</b>
Statistics	:	<b>On</b>
Change parameters	:	
Category	:	<b>All</b>
On line 1	:	<b>Measure sdev of Ch1</b>
On line 2	:	<b>Measure sdev of Ch2</b>
On line 3	:	<b>Measure sdev of Ch3</b>
On line 4	:	<b>Measure sdev of Ch4</b>
On line 5	:	<b>no parameter selected for line 5</b>





- Press **Clear Sweeps**.
- Measure for at least **50 sweeps**, then press **Stop** to halt the acquisition.
- Record the four **high sdev** parameter values in Table 4, and compare the test results to the limits in the test record.
- Repeat the test for Time base : **1 msec/div.**, **50  $\mu$ sec/div.**, and **2  $\mu$ sec/div.**
- Record the measurements (high sdev of 1,2,3,4) in Table 4, and compare the results to the limits in the test record.

#### b. AC 1M $\Omega$

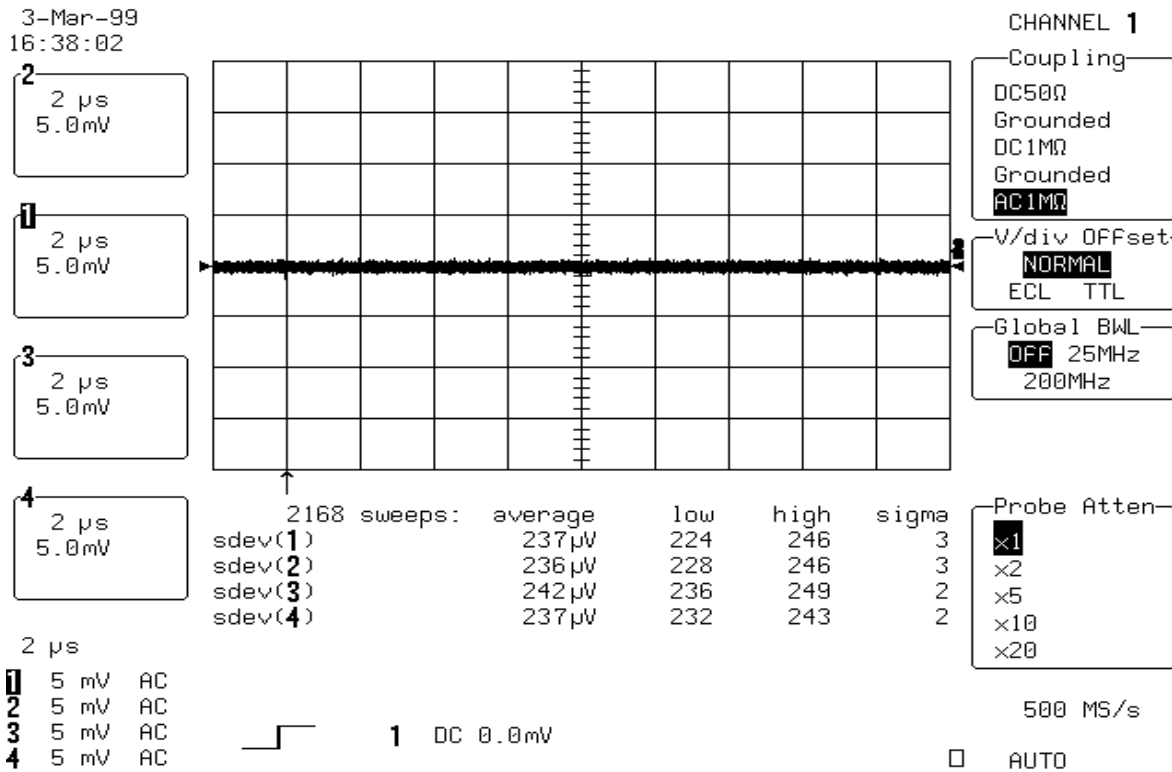
- Recall **LTxxxP013.PNL** or configure the DSO as shown in 5.6.1 and for each Channel make the following change :

Input Coupling : **AC 1M $\Omega$**  on all 4 Channels

Time base : **2  $\mu$ sec/div.**

- Press **Clear Sweeps**.
- Measure for at least **50 sweeps**, then press **Stop** to halt the acquisition.

- Record the four **high sdev** parameter values in Table 4, and compare the test results to the limits in the test record.



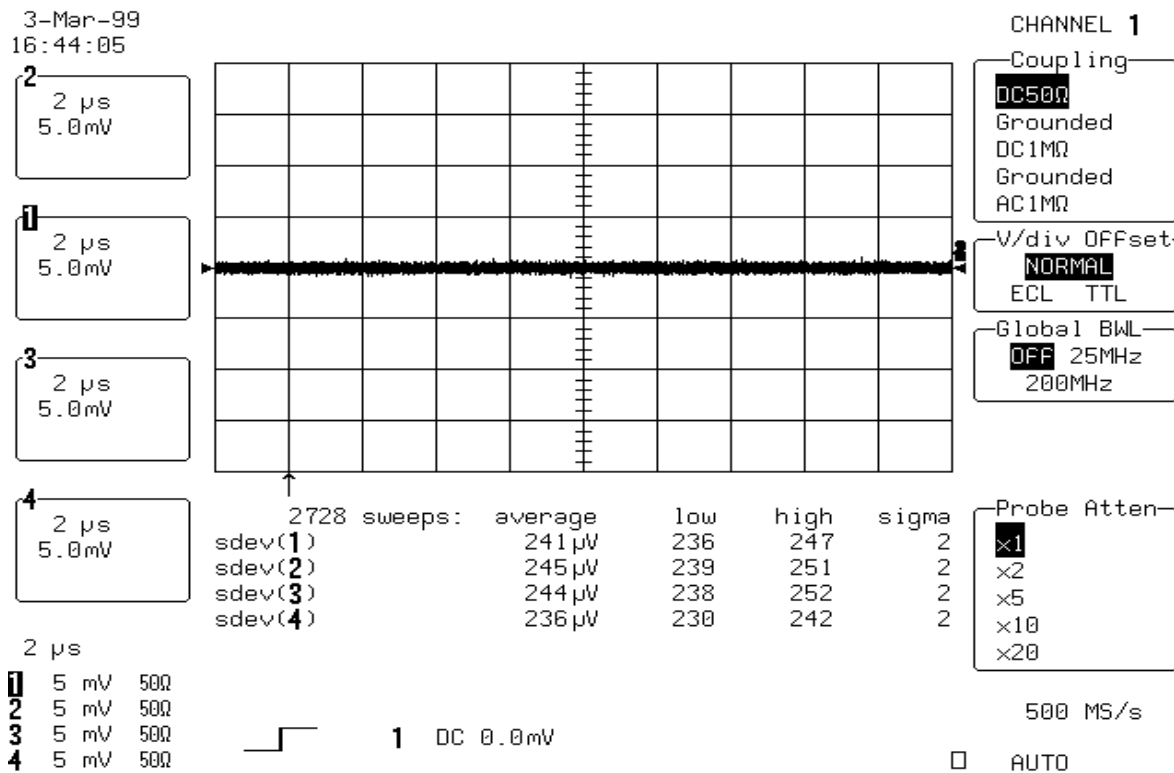


**c. DC 50Ω**

- Recall **LTxxxP014.PNL** or configure the DSO as shown in 5.6.1 and make the following changes :

Input Coupling : **DC 50Ω** on all 4 Channels  
 Time base : **2 μsec/div.**

- Press **Clear Sweeps**.



- Measure for at least **50 sweeps**, then press **Stop** to halt the acquisition.
- Record the four **high sdev** parameter values in Table 4, and compare the test results to the limits in the test record.
- Repeat the test for Time base : **20 μsec/div.**
- Record the measurements (high sdev of 1,2,3,4) in Table 4, and compare the results to the limits in the test record.

---

## 5.6.2 Erroneous Read / Write Test

### Test limit

±2.5 % of full scale at 50 mV/div.

### Procedure

#### a. Channel 1, Channel 2, Channel 3 and Channel 4

- For **LT Series** recall **LTxxxP015.PNL**,  
for **LT 34XL** recall **LT344 P016.PNL**.

Channels Trace ON **Channel 1, Channel 2, Channel 3 & Channel 4**  
Zoom+Math Trace ON **D**  
Input Coupling : **DC 50Ω** on all 4 Channels  
Global BWL ON : **25MHz**  
Input gain : **50 mV/div.** on all 4 Channels  
Offset : **Zero** on all 4 Channels  
Trigger on : **Line**  
Trigger mode : **Normal**  
Time base : **50 μsec/div** for **LT344, LT342, LT322 and LT224**  
**200us/div** for **LT344L and LT342L**

Select Setup timebase

Channel use : **4**  
Record up to : **100K samples** for **LT322 and LT224**  
**250K samples** for **LT344 and LT342**  
**1M samples** for **LT344L and LT342L**

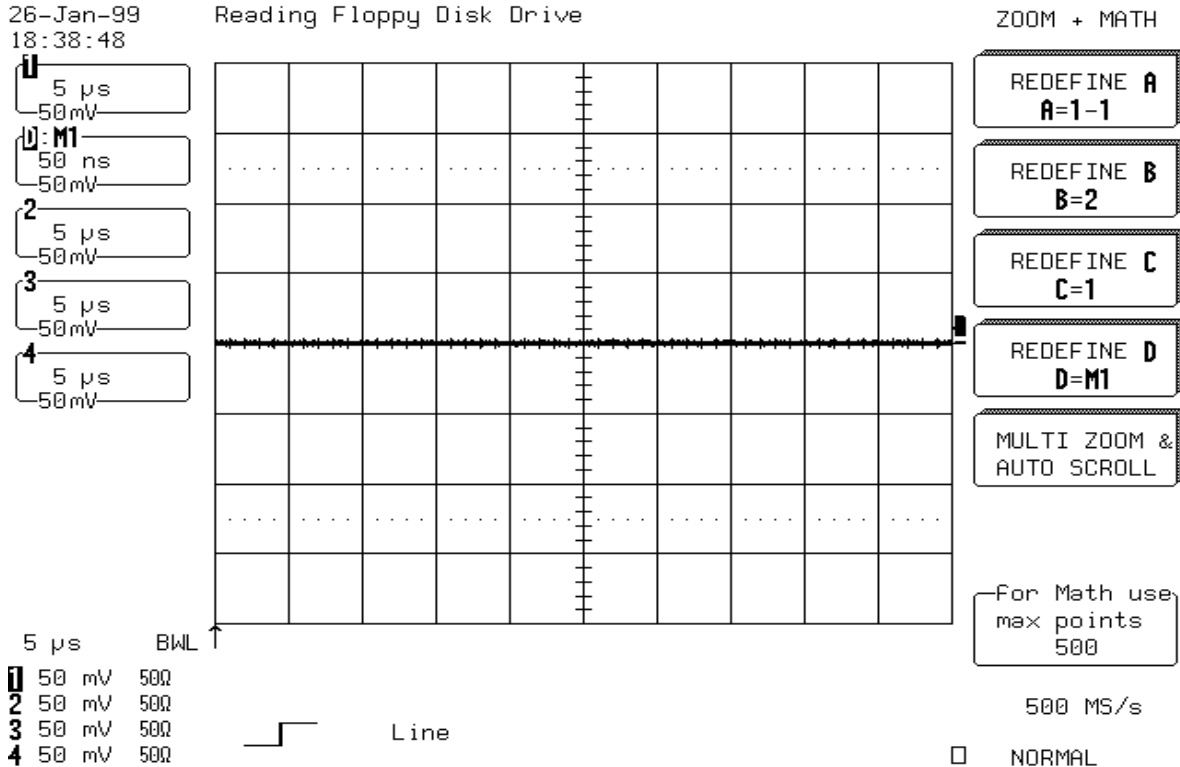
Select Math Setup

For Math : **Use at most 500 points**

Redefine A : **A=1-1**  
Use Math? : **Yes**  
Math Type : **Arithmetic**  
Difference : **1 minus 1**

Redefine B : **B=2**  
Use Math? : **No**  
Trace B is Zoom of **2**

Redefine D : **D=M1**  
Use Math? : **No**  
Trace D is Zoom of **M1**



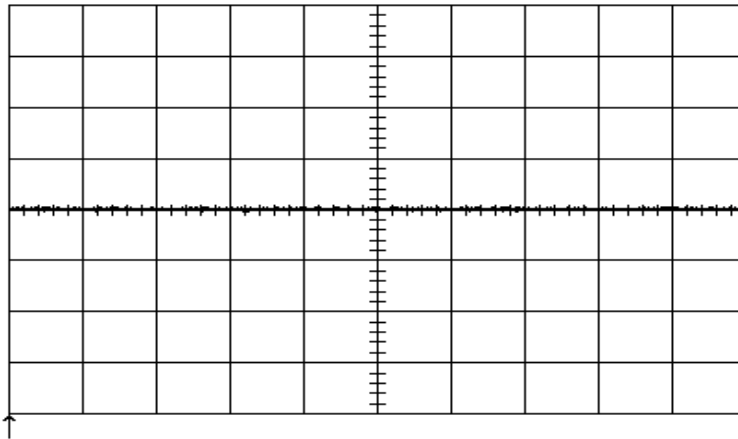
- Press **Reset Zoom+Math**
- Press **MEASURE TOOLS**

Measure	:	<b>Parameters</b>
Mode	:	<b>Pass</b>
Testing	:	<b>On</b>
Select	:	<b>Change Test Conditions</b>
On line	:	<b>Action</b>
If	:	<b>Fail</b>
Then	:	<b>Stop Yes</b>
		<b>Store No</b>
		<b>Dump No</b>
		<b>Beep Yes</b>
		<b>Pulse No</b>
On line 1	:	<b>Test on Mask</b>
		<b>True if all points of 1 are inside mask D</b>
On line 2	:	<b>Test on Mask</b>
		<b>True if all points of 2 are inside mask D</b>
On line 3	:	<b>Test on Mask</b>
		<b>True if all points of 3 are inside mask D</b>
On line 4	:	<b>Test on Mask</b>
		<b>True if all points of 4 are inside mask D</b>

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**D** mask has no valid data

- 1** 5  $\mu$ s  
50 mV
- 0: M1**  
50 ns  
50 mV
- 2** 5  $\mu$ s  
50 mV
- 3** 5  $\mu$ s  
50 mV
- 4** 5  $\mu$ s  
50 mV



0 passed of 0 sweeps Test Failed  
Pass if all points(1) inside mask(D) - - - F  
and all points(2) inside mask(D) - - - F  
and all points(3) inside mask(D) - - - F  
and all points(4) inside mask(D) - - - F

- 5  $\mu$ s BWL
- 1** 50 mV 50 $\Omega$
- 2** 50 mV 50 $\Omega$
- 3** 50 mV 50 $\Omega$
- 4** 50 mV 50 $\Omega$

IF FAIL: Stop, Beep

 Line

CHANGE TEST

On line  
1 2 3 4 5  
Action

DELETE ALL  
ACTIONS

IF  
Pass Fail

Then:  
Stop Yes  
Store No  
Dump No  
Beep Yes  
Pulse No

Stop  
No Yes

500 MS/s

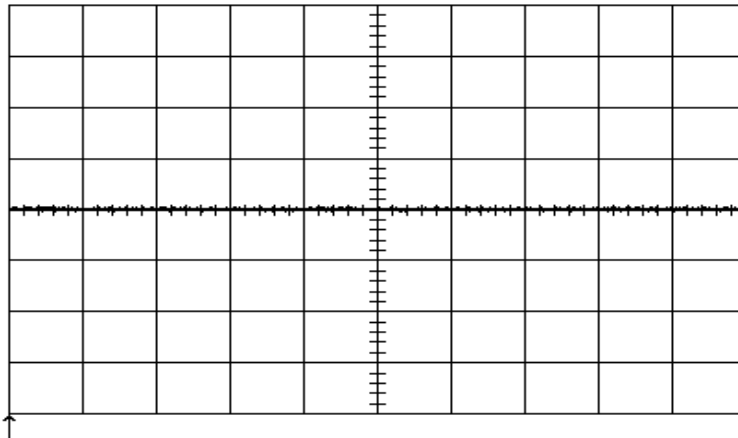
NORMAL



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D mask has no valid data

- 1 5  $\mu$ s  
50 mV
- 0: M1  
50 ns  
50 mV
- 2 5  $\mu$ s  
50 mV
- 3 5  $\mu$ s  
50 mV
- 4 5  $\mu$ s  
50 mV



0 passed of 0 sweeps Test Failed

Pass if all points(1) inside mask(D) - - - F  
 and all points(2) inside mask(D) - - - F  
 and all points(3) inside mask(D) - - - F  
 and all points(4) inside mask(D) - - - F

- 5  $\mu$ s BWL
- 1 50 mV 50 $\Omega$
  - 2 50 mV 50 $\Omega$
  - 3 50 mV 50 $\Omega$
  - 4 50 mV 50 $\Omega$

IF FAIL: Stop, Beep

 Line

CHANGE TEST

On line  
1 2 3 4 5  
Action

Test on  
Param Mask  
---(No Test)

MODIFY MASK

True if  
all points  
some points

of  
1 2 3 4  
A B C D

are  
inside  
outside

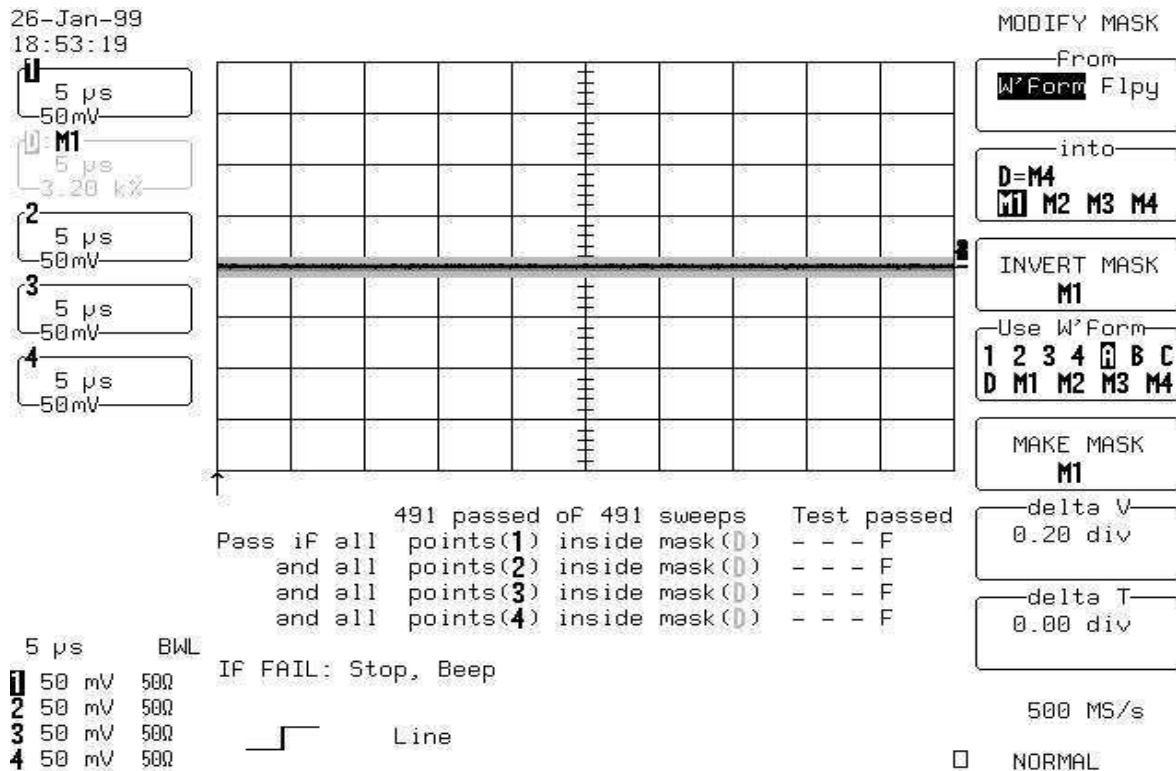
mask  
A B C D

500 MS/s

NORMAL

- Select Modify Mask

From : **W'form**  
 Into : **M1**  
 Use W'form : **A**  
 Delta V : **0.20 div**  
 Delta T : **0.00 div**



- To start the test, select **MEASURE TOOLS, Change Test Conditions, Modify Mask** and press **Make Mask M1**
- **After 1000 sweeps for LT322 and LT224, or 400 sweeps for LT344 and LT342, or after 100 sweeps for LT344L** check that the number of Passed equals the number of Sweeps on all 4 Channels.
- Record the test result in Table 5.





## 5.7 DC Accuracy

This test measures the DC Accuracy of the absolute voltage measurements at 0V offset setting.

It requires a DC source with a voltage range of 0 V to 20 V adjustable in steps of no more than 15 mV, and a calibrated DMM that can measure voltage to 0.1 %. Measurements are made using voltage values applied by the external voltage reference source, measured by the DMM, and in the oscilloscope using the parameters Std voltage.

For each known input voltage, the deviation is checked against the tolerance.

### Specification & Test limits

$$\pm(0.015 \times |V_m + V_{\text{offset}}| + 0.015 \times |V_{\text{offset}}| + 0.01 \times FS + 1\text{mV})$$

$V_m$  [volts] = voltage reading [volts]

$FS$  [volts] = 8[div] x sensitivity [volt/div]

$V_{\text{offset}}$  [volts] = setting offset voltage [volts]

### Procedure

- Recall **LTxxxP017.PNL** or configure the DSO:

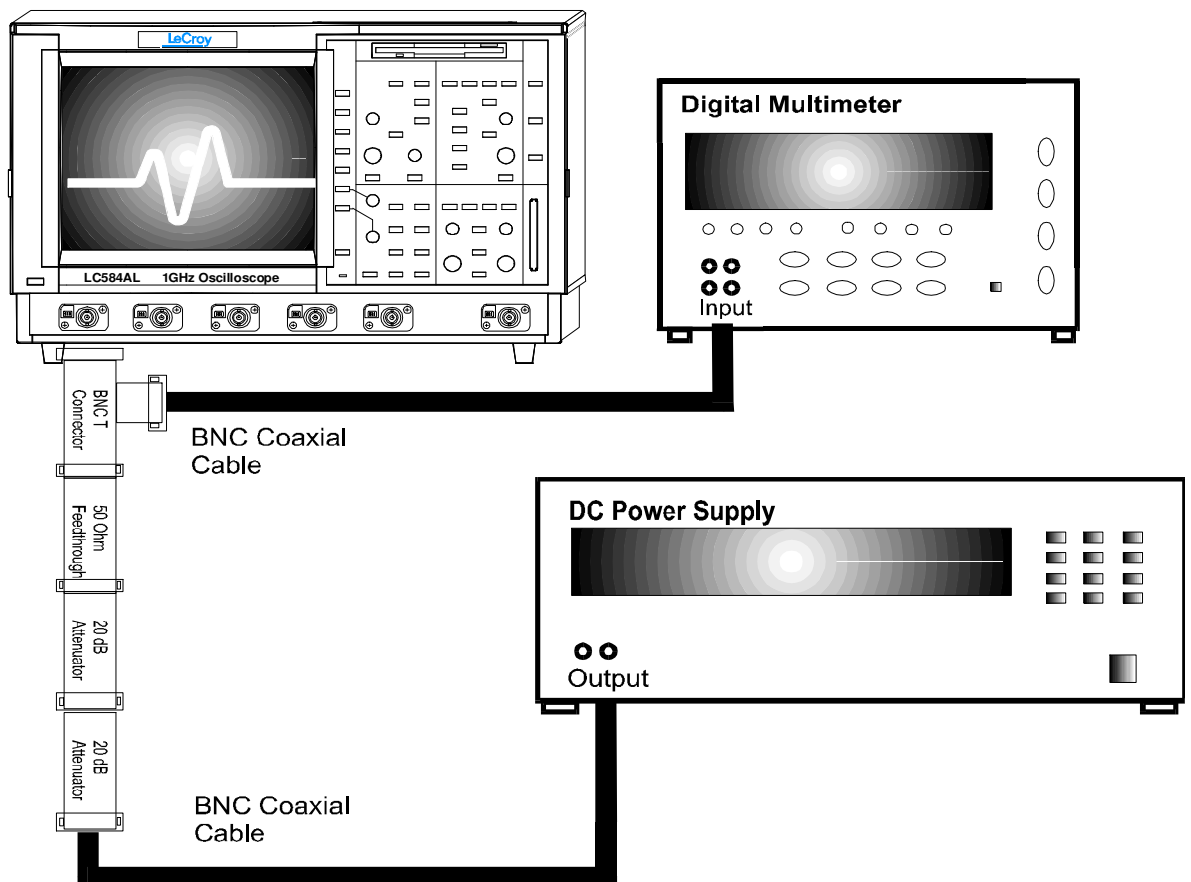
Panel Setups	:	<b>Recall FROM DEFAULT SETUP</b>
Channels Trace ON	:	<b>Channel 1, Channel 2, Channel 3 &amp; Channel 4</b>
Input Coupling	:	<b>DC 1M<math>\Omega</math></b> on all 4 Channels
Input offset	:	<b>0.0 mV</b> on all 4 Channels
Input gain	:	from <b>2mV/div to 1 V/div and 5V/div.</b> (see Table 6) on all 4 Ch
Trigger setup	:	<b>Edge</b>
Trigger on	:	<b>line</b>
Slope line	:	<b>Positive</b>
Mode	:	<b>Auto</b>
Time base	:	<b>2 msec/div.</b>
Channel use	:	<b>4</b>
Record up to	:	<b>25 k</b>
Channels Trace OFF	:	<b>Channel 1, Channel 2, Channel 3 &amp; Channel 4</b>
MATH TOOLS Trace ON	:	<b>A, B, C &amp; D</b>
Select Math Setup	:	
For Math	:	<b>Use at most 5000 points</b>
Redefine A, B, C, D	:	<b>Channel 1, Channel 2, Channel 3 &amp; Channel 4</b>
Use Math ?	:	<b>Yes</b>
Math Type	:	<b>Average</b>
Avg. Type	:	<b>Summed</b>
For	:	<b>100 sweeps</b>
MEASURE TOOLS	:	<b>Parameters</b>
Mode	:	<b>Custom</b>

Statistics : off

Change parameters

On line 1 : Measure mean of A  
On line 2 : Measure mean of B  
On line 3 : Measure mean of C  
On line 4 : Measure mean of D

- For the low sensitivities: **2 mV, 5 mV, 10 mV and 20 mV/div.**, connect the test equipment as shown in Figure 5-1.
- 



**Figure 5-1: DC 1MΩ Accuracy Equipment Setup for 2,5,10 and 20 mV/div.**

- For 100 mV/div, connect the test equipment as shown in Figure 5-2.
- For 5V/div no attenuator is required, connect the test equipment as shown in Figure 5-3.

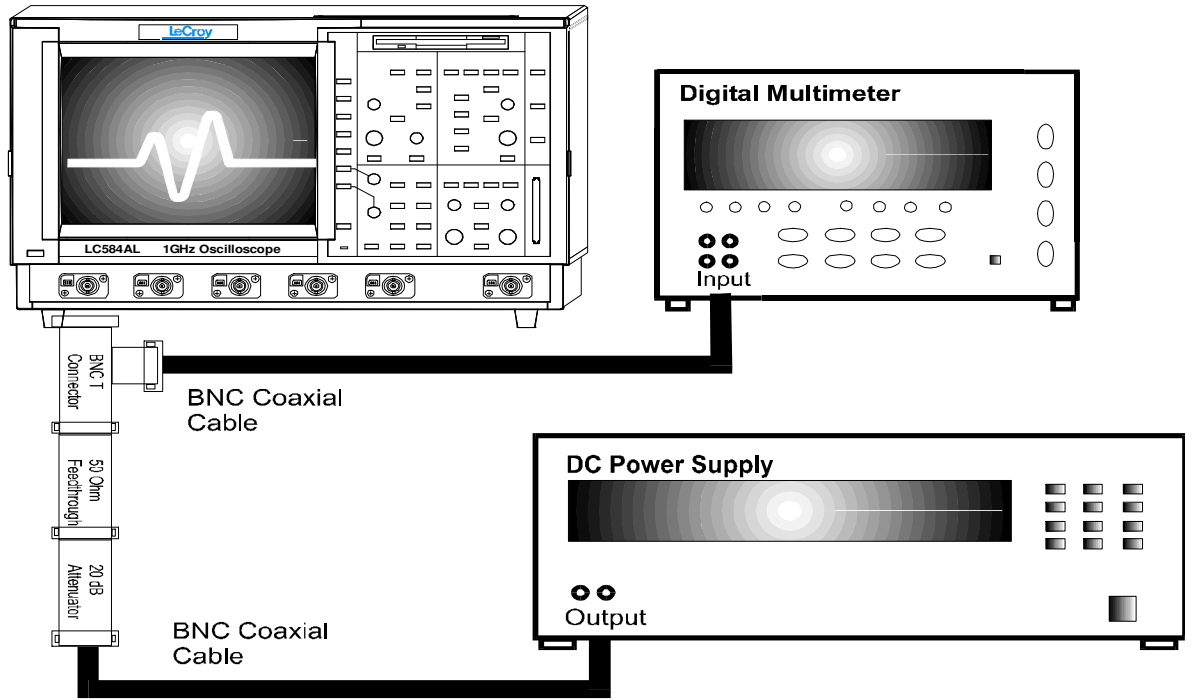


Figure 5-2 : DC 1M $\Omega$  Accuracy Equipment Setup for 100 mV/div

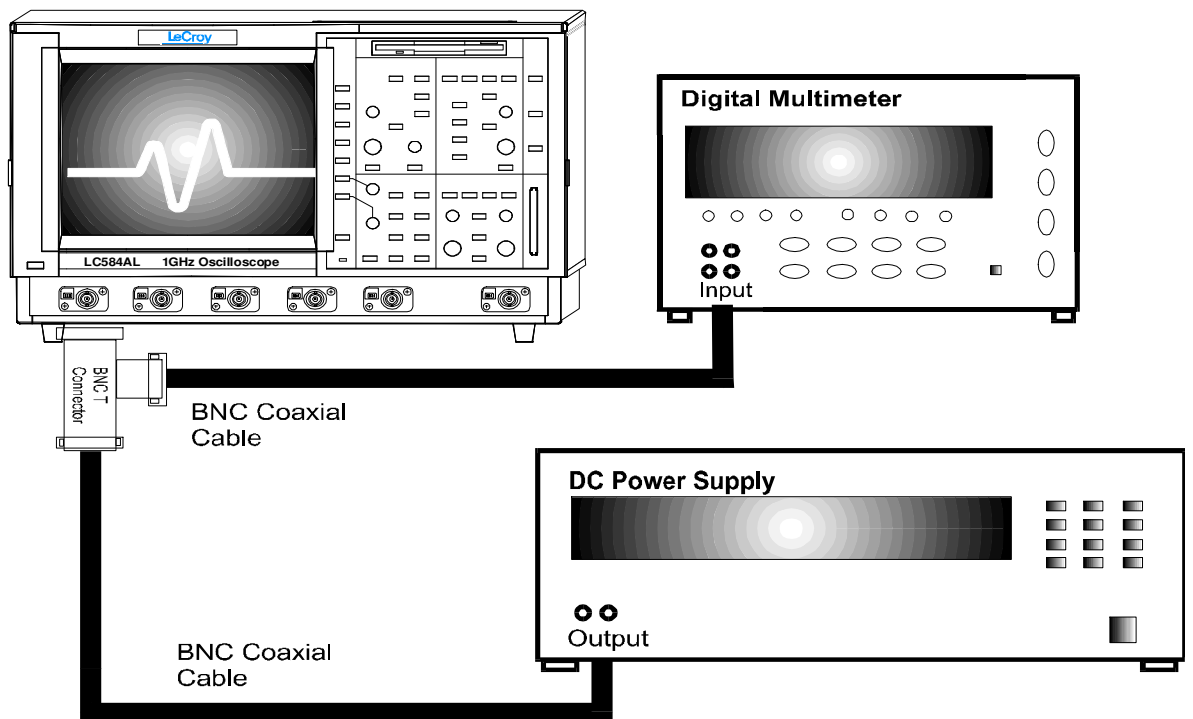
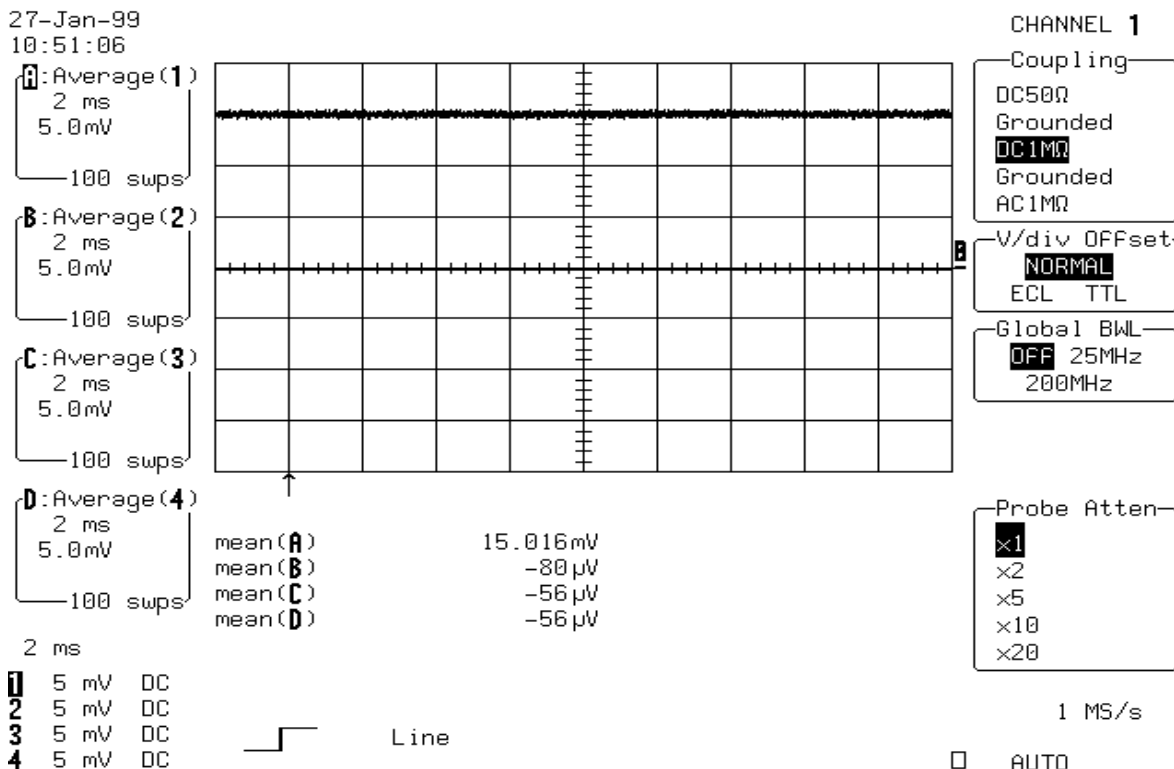


Figure 5-3 : DC 1M $\Omega$  Accuracy Equipment Setup for 5V/div.

- For each **DSO Volts/div**, set the output of the external **DC voltage reference source** as shown in Table 6, column PS output.
  - Connect the DMM and record the **voltage reading** in Table 6, column **DMM**.
  - Disconnect the DMM from the BNC T connector.
  - Press **Clear Sweeps**
  - After 100 sweeps, read off the **DSO mean parameter**, and record the measurement in Table 6, column **Mean**.
- For each DC voltage applied to the DSO input, repeat parts 1), 2), 3) and 4).
- Calculate the **Difference (  $\Delta$  )** by subtracting the **DMM voltage** reading from the **DSO mean** voltage reading. Record the test result in Table 6, and compare the **Difference (  $\Delta$  )** to the corresponding limit in the test record.
- Repeat step 5.7 Procedure for the other channels, substituting channel controls and input connector.





## 5.8 Offset Accuracy

The offset test is done at 5mV/div, with a signal of  $\pm 1$  Volt cancelled by an offset of the other polarity.

### Specifications

$$\pm (0.015 \times V_{\text{offset}} + 0.005 \times \text{FS} + 1\text{mV})$$

$$\text{FS [volts]} = 8[\text{div}] \times \text{sensitivity}[\text{volts/div}]$$

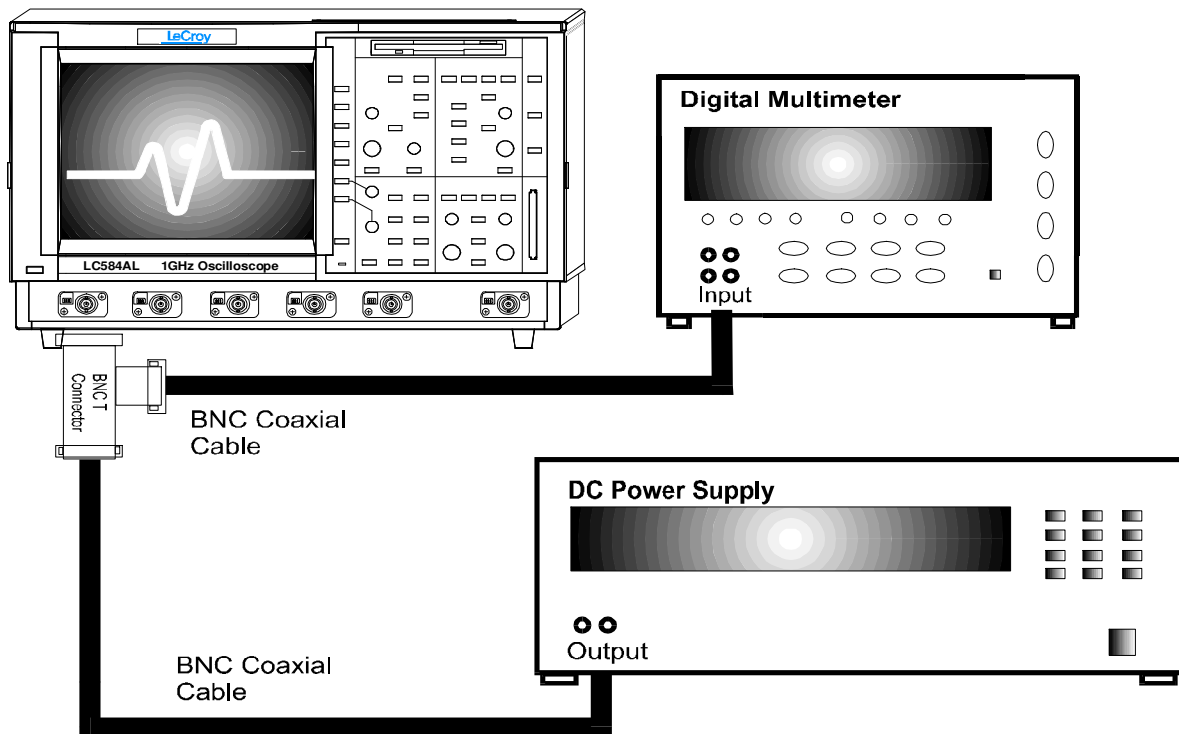
$$V_{\text{offset [volts]}} = \text{setting offset voltage}$$

### Procedure

- Recall **LTxxxP018.PNL** or configure the DSO:

Panel Setups	:	<b>Recall FROM DEFAULT SETUP</b>
Channels Trace ON	:	<b>Channel 1, Channel 2, Channel 3 &amp; Channel 4</b>
Input Coupling	:	<b>DC 1M<math>\Omega</math></b> on all 4 Channels
Input gain	:	<b>5mV/div</b> on all 4 Channels
Input offset	:	<b>+1 Volt</b> on all 4 Channels
Trigger setup	:	<b>Edge</b>
Trigger on	:	<b>1</b>
Coupling 1	:	<b>DC</b>
Mode	:	<b>Auto</b>
Time base	:	<b>2 msec/div.</b>
Channel use	:	<b>4</b>
Record up to	:	<b>25 k</b>
Channels Trace OFF	:	<b>Channel 1, Channel 2, Channel 3 &amp; Channel 4</b>
Zoom+Math Trace ON	:	<b>A, B, C &amp; D</b>
Select Math Setup	:	
For Math	:	<b>Use at most 5000 points</b>
Redefine A, B, C, D	:	<b>Channel 1, Channel 2, Channel 3 &amp; Channel 4</b>
Use Math ?	:	<b>Yes</b>
Math Type	:	<b>Average</b>
Avg. Type	:	<b>Summed</b>
For	:	<b>100 sweeps</b>
MEASURE TOOLS:	:	<b>Parameters</b>
Mode	:	<b>Custom</b>
Statistics	:	<b>off</b>

- Connect the test equipment as shown in Figure 5-4.

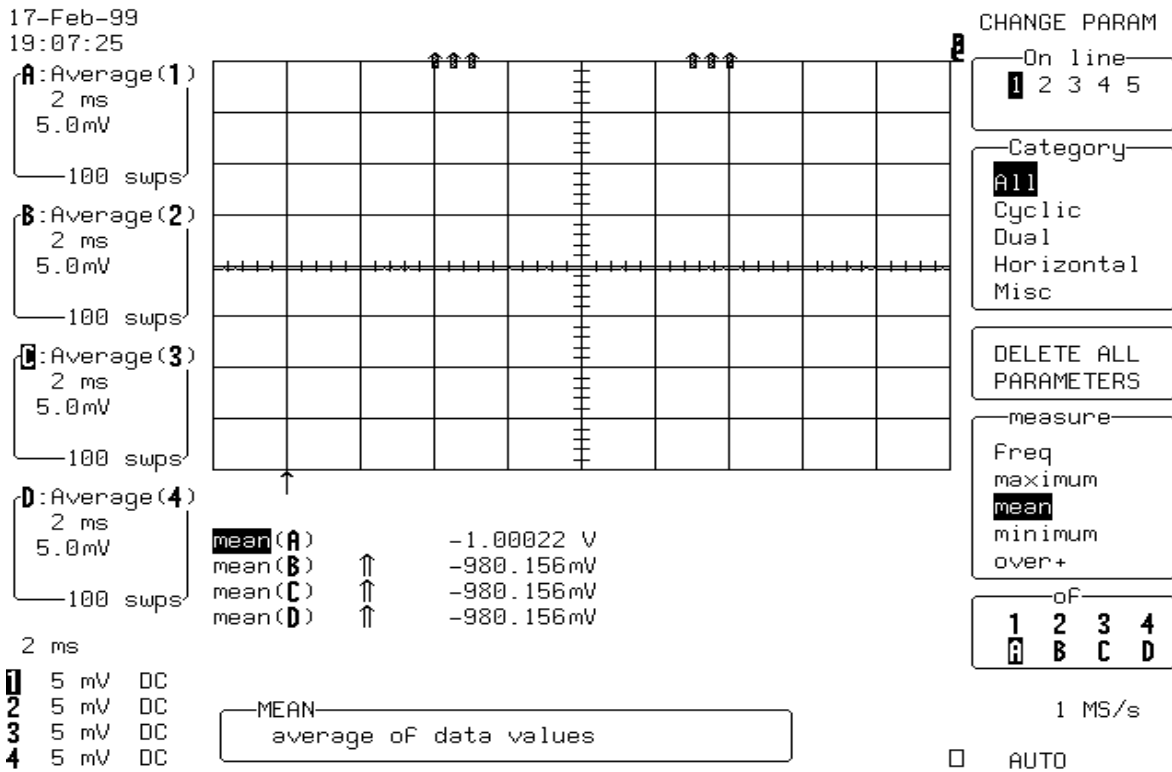


- Set the output of the external **DC voltage reference source** to **-1 Volt**.
  - 1) Verify that the displayed trace A : Average (1) is on the screen, near the center horizontal graticule line. If the trace is not visible, modify the **DC voltage reference source output** until the trace is within  $\pm 2$  divisions of center.
  - 2) Connect the DMM and record the **voltage reading** in Table 7, column **DMM**.
  - 3) Disconnect the DMM from the BNC T connector.
  - 4) Press **Clear Sweeps**
  - 5) After 100 sweeps, Read off the **DSO Mean parameter** voltage, and record the measurement in Table 7, column **Mean**.
- Repeat the test for the other channels, substituting channel controls and input connector. Record the measurements in Table 7.
- Repeat the test the other offset settings **-1V** and **0V**.  
Recall **LTxxxP019.PNL** for Input offset **-1V**.  
Recall **LTxxxP020.PNL** for Input offset **0V**.



Record the measurements in Table 7.

- Calculate the **Difference ( Δ )** by subtracting the **DMM voltage** reading from the **DSO mean** voltage reading.
- Record the test result in Table 7, and compare the **Difference ( Δ )** to the corresponding limit in the test record.



---

## 5.9 Bandwidth

The purpose of this test is to ensure that the entire system has a bandwidth of at least 500MHz or 200MHz. An external source is used as the reference to provide a signal where amplitude and frequency are well controlled. The amplitude of the generator as a function of frequency and power is calibrated using an HP8482A sensor on an HP437B power meter or equivalent.

### Specifications & Test limits

DC to 500MHz (10mV to 5V/div) for LT344/L, LT342/L, LT322  
DC to 200MHz (5mV to 10V/div) for LT224

### Procedure

- Recall **LTxxxP021.PNL** or configure the DSO

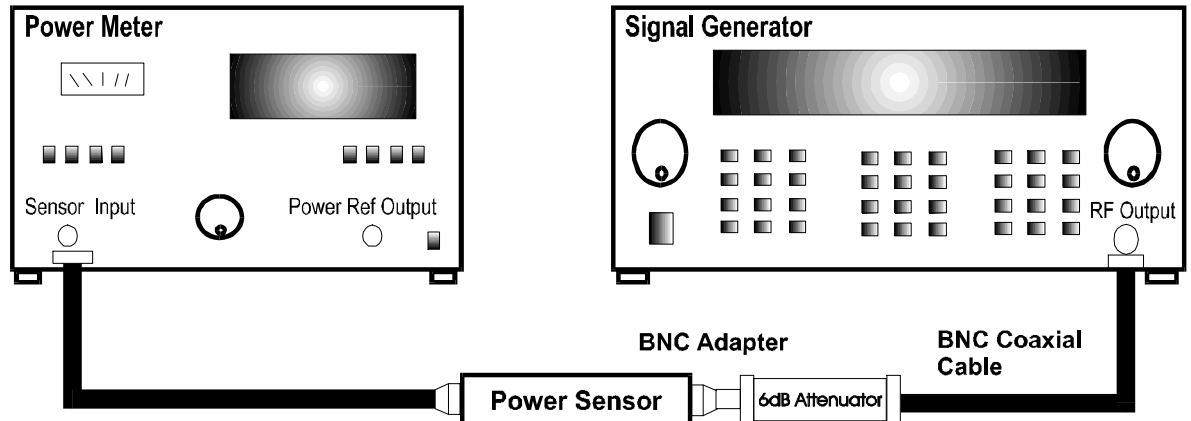
Panel Setups	:	<b>Recall FROM DEFAULT SETUP</b>
Channels Trace ON	:	<b>Channel 1, Channel 2, Channel 3 &amp; Channel 4</b>
Input Coupling	:	<b>DC 50Ω</b> on all 4 Channels
Input gain	:	<b>50 mV/div</b> on all 4 Channels
Input offset	:	<b>0 mV</b> on all 4 Channels
Trigger setup	:	<b>Edge</b>
Trigger on	:	<b>Line</b>
Slope line	:	<b>Pos</b>
Mode	:	<b>Auto</b>
Time base	:	<b>1 μsec/div.</b>
Channel use	:	<b>4</b>
Record up to	:	<b>25 k</b>
MEASURE TOOLS	:	<b>Parameters</b>
Mode	:	<b>Custom</b>
Statistics	:	<b>On</b>
Change parameters	:	
On line 1	:	<b>Sdev of 1</b>
On line 2	:	<b>Sdev of 2</b>
On line 3	:	<b>Sdev of 3</b>
On line 4	:	<b>Sdev of 4</b>

- Connect the HP8482A power sensor to the power meter.
- Zero and **calibrate** the HP8482A power sensor using the power meter **Power Ref output**.
- Connect a **BNC adapter** to the HP8482A power sensor.



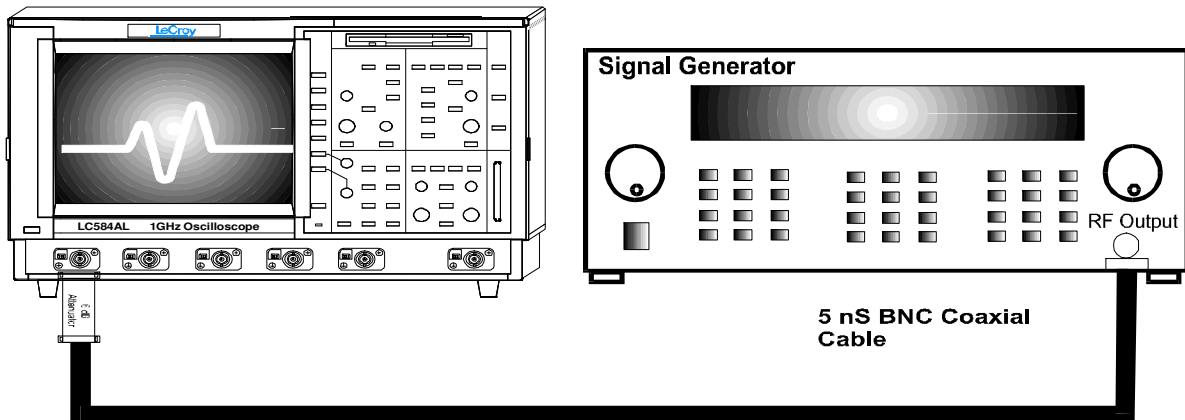


- Connect a 5ns 50Ω BNC cable to the **RF output** of the HP8648B generator and then through a 6dB attenuator and the necessary adapters to the power sensor.



**Figure 5-5 : Power Meter Equipment Setup**

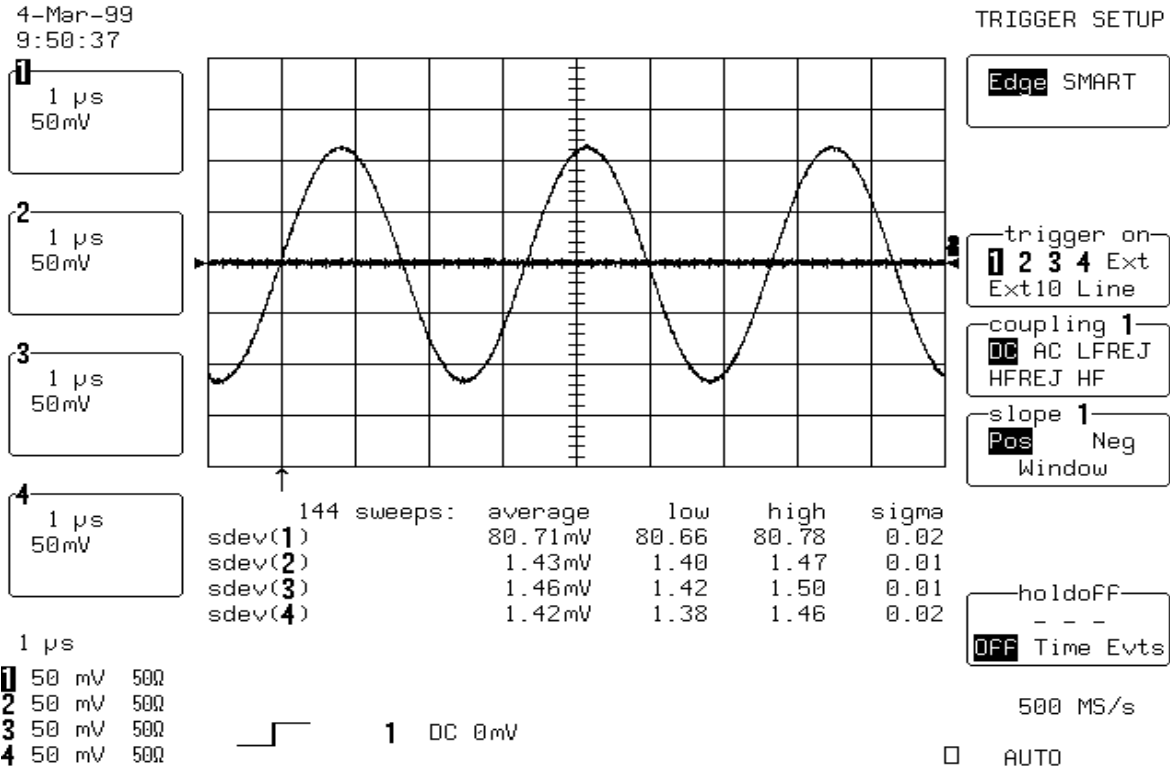
- Set the generator frequency to **300 kHz**
- Set the generator amplitude to measure **0.200 mW** on the power meter.
- Read the displayed **generator output amplitude**, and record it in the third column of Table 8.
  - Repeat the above measurement for 1.1 MHz, 10.1 MHz, 100.1 MHz, **200.1MHz**, 300.1 MHz & 500.1 MHz. Record the generator output amplitude readout in the third column of Table 8.
- Disconnect the **RF output** of the HP8648B generator from the HP8482A power sensor.
- Connect the **RF output** of the HP8648B generator through a 5ns 50 Ohm BNC cable and a 6 dB attenuator into Channel 1.
- Set the generator frequency to **300 kHz**.
- From the generator, apply the **recorded generator signal amplitude** to Channel 1.
- Press **Clear Sweeps**.



**Figure 5-6 : 50Ω Bandwidth Equipment Setup**

- Measure for at least 100 sweeps, record the average value of **sdev(1)** in Table 8
- Repeat the above 3 steps for Channel 2, Channel 3 & Channel 4 substituting channel controls and input connector. Record the measurements in Table 8.
- Repeat the above measurement for all channels for 1.1 MHz, 10.1 MHz, 100.1 MHz, **200.1MHz**, 300.1 MHz and 500.1 MHz and record the values in Table 8.
- Calculate the ratio to .3MHz for each frequency.  

$$\text{Ratio} = (\text{sdev of XXXMHz}) / (\text{sdev of 0.3MHz})$$
 and compare the results to the limits in the test record.



- Recall **LTxxxP022.PNL** or configure the DSO as shown in 5.9 and for each Channel make the following change :

Input gain : **100mV/div**

- Connect the test equipment as shown in Figure 5-5.
- Set the generator frequency to **300 kHz**
- Set the generator amplitude to measure **0.800 mW** on the power meter.
- Read the displayed **generator output amplitude**, and record it in the third column of Table 9.
- Repeat the above measurement for **1.1 MHz, 10.1 MHz, 100.1 MHz, 200.1MHz, 300.1 MHz & 500.1 MHz**. Record the generator output amplitude readout in the third column of Table 9.
- Disconnect the **RF output** of the HP8648B generator from the HP8482A power sensor.
- Connect the test equipment as shown in Figure 5-6.

- Set the generator frequency to **300 kHz**.
- From the generator, apply the **recorded generator signal amplitude** to Channel 1.
- Press **Clear Sweeps**.
- Measure for at least 100 sweeps, record the average value of **sdev(1)** in Table 9
- Repeat the above 3 steps for Channel 2, Channel 3 & Channel 4 substituting channel controls and input connector. Record the measurements in Table 9.
- Repeat the above measurement for all channels for 1.1 MHz, 10.1 MHz, 100.1 MHz, **200.1MHz**, 300.1 MHz and 500.1 MHz and record the values in

Table 9.

- Calculate the ratio to .3 MHz for each frequency.  

$$\text{Ratio} = (\text{sdev of XXXMHz}) / (\text{sdev of 0.3MHz})$$
 and compare the results to the limits in the test record.

#### b. DC 50Ω with Bandwidth Limiter On

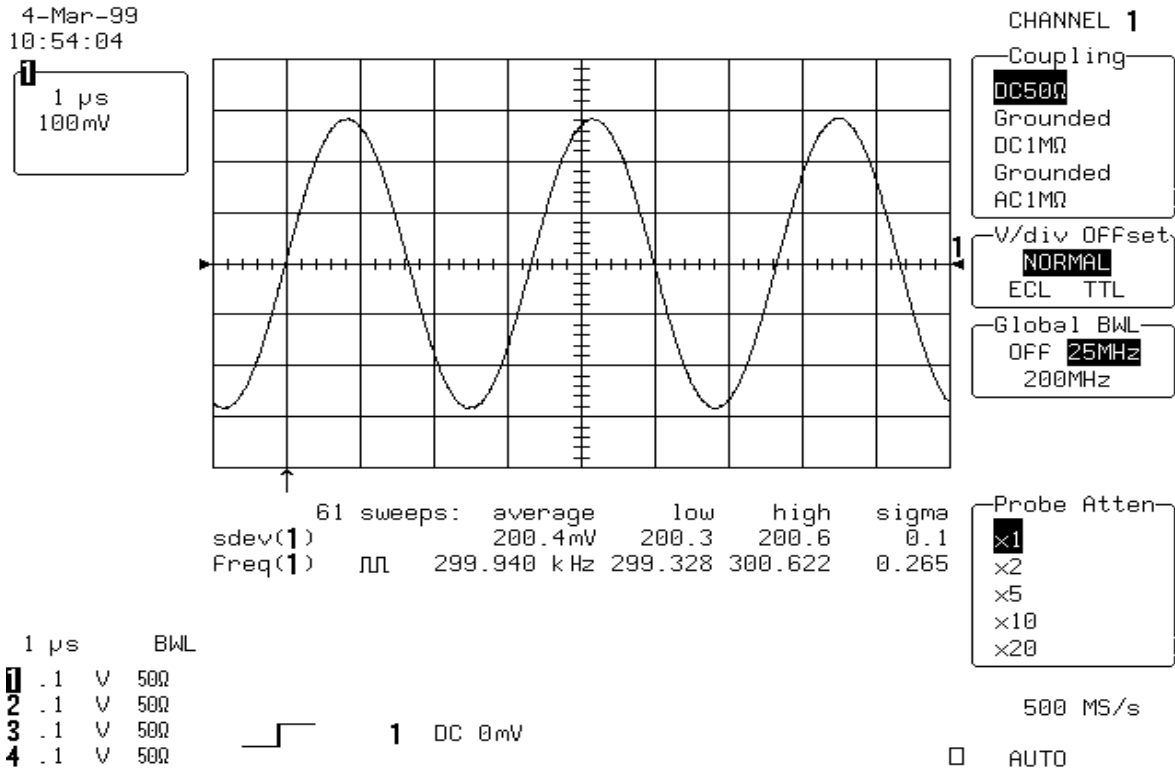
- Recall **LTxxxP023.PNL** or configure the DSO:

Panel Setups	:	<b>Recall FROM DEFAULT SETUP</b>
Channels Trace ON	:	<b>Channel 1</b>
Input Coupling	:	<b>DC 50Ω</b>
Global BWL	:	<b>25 MHz</b>
Input gain	:	<b>100 mV/div.</b>
Input offset	:	<b>0 mV</b>
Trigger setup	:	<b>Edge</b>
Trigger on	:	<b>1</b>
Slope line	:	<b>Pos</b>
Mode	:	<b>Auto</b>
Time base	:	<b>1 μsec/div.</b>
Channel use	:	<b>4</b>
Record up to	:	<b>25 k</b>
MEASURE TOOLS	:	<b>Parameters</b>
Mode	:	<b>Custom</b>
Statistics	:	<b>Off</b>
Change parameters	:	
On line 1	:	<b>Sdev of 1</b>
On line 2	:	<b>Freq of 1</b>

- Connect the test equipment as shown in Figure 5-6.

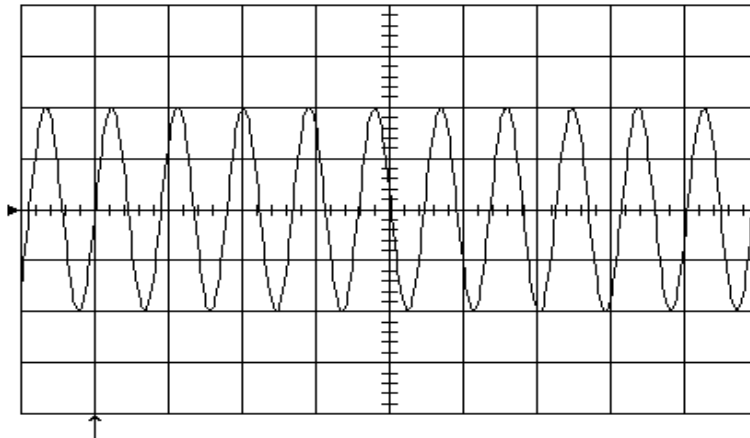


- Set the generator frequency to **300 kHz**.
- Adjust the generator signal amplitude to measure **sdev(1) = 200 mV**.
- Set Time base : **50 nsec/div**.
- Increase the generator frequency until **sdev(1) = 140 mV**. (typically 25 MHz)
- Press **Clear Sweeps**
- When **sdev(1) = 140 mV**, record Freq(1) in Table 10.
- Check that the frequency is within the limits specified in Table 10.



4-Mar-99  
10:43:43

1 50 ns  
100mV



CHANNEL 1  
Coupling  
**DC50Ω**  
Grounded  
DC1MΩ  
Grounded  
AC1MΩ  
V/div Offset  
**NORMAL**  
ECL TTL  
Global BWL  
OFF **25MHz**  
200MHz

42 sweeps: average low high sigma  
sdev(1) 140.3mV 140.0 140.5 0.1  
Freq(1)  $\mu$  22.3968 MHz 22.3074 22.5035 0.0344

Probe Atten  
**x1**  
x2  
x5  
x10  
x20

50 ns BWL

1 .1 V 50Ω  
2 .1 V 50Ω  
3 .1 V 50Ω  
4 .1 V 50Ω



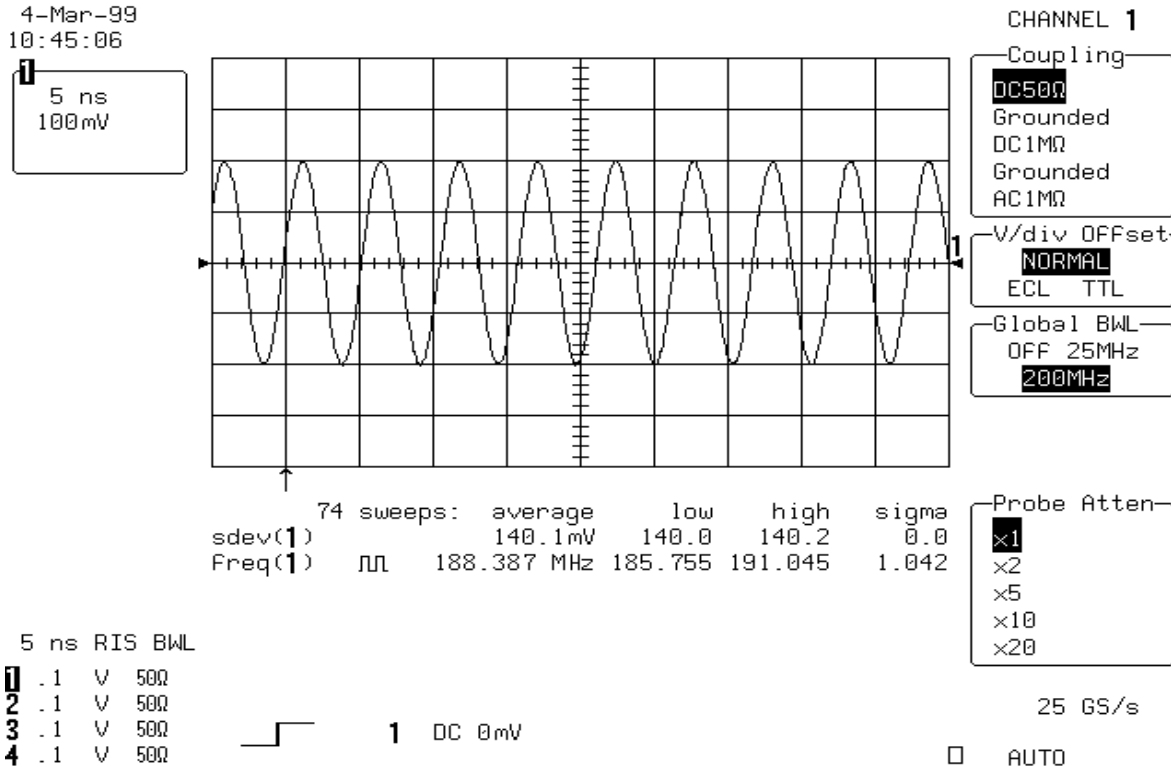
1 DC 0mV

500 MS/s

AUTO

The following test of BWL: 200MHz is not applied for LT224.

- Set Global BWL : **200 MHz**
- Set Timebase : **5 nsec/div.**
- Increase the generator frequency until **sdev(1) = 140 mV.** (typically 200 MHz)



- Press **Clear Sweeps**
- When **sdev(1) = 140 mV**, record **Freq(1)** in Table 10.
- Repeat the 25 MHz and 200 MHz Bandwidth limiter tests for the other channels, substituting channel controls and input connector.
- Recall **LTxxxP024.PNL** for Channel 2, **LTxxxP025.PNL** for Channel3 **LTxxxP026.PNL** for Channel 4, or configure the DSO as shown in 5.9.1 Procedure and make the necessary changes.
- Record the test results in Table 10, and compare the results to the limits.

---

## 5.10 Trigger Level

The trigger capabilities are tested for several cases of the standard edge trigger:

- Channel (internal), and External Trigger sources
- Three DC levels: -3, 0, +3 major screen divisions
- DC, HFREJ coupling
- Positive and negative slopes

### 5.10.1 Channel Trigger at 0 Division Threshold

#### a. DC Coupling

Recall **LTxxxP027.PNL** or configure the DSO:

Panel Setups : **Recall FROM DEFAULT SETUP**  
Channels Trace ON **Channel 1, Channel 2, Channel 3 & Channel 4**  
Input Coupling : **DC 50Ω** on all 4 Channels  
Input gain : **100 mV/div.** on all 4 Channels  
Input offset : **0 mV** on all 4 Channels (use show status to verify)

Trigger setup : **Edge**  
Trigger on : **1**  
Slope 1 : **Pos**  
Coupling : **DC**  
Mode : **Auto**  
Set Trigger level : **DC 0.0 mV**  
Pre-Trigger Delay : **50 %**

Time base : **0.1 msec/div.**  
Record up to : **50 k samples**

Channels Trace OFF **Channel 1, Channel 2, Channel 3 & Channel 4**

Zoom+Math Trace ON **A, B, C & D**

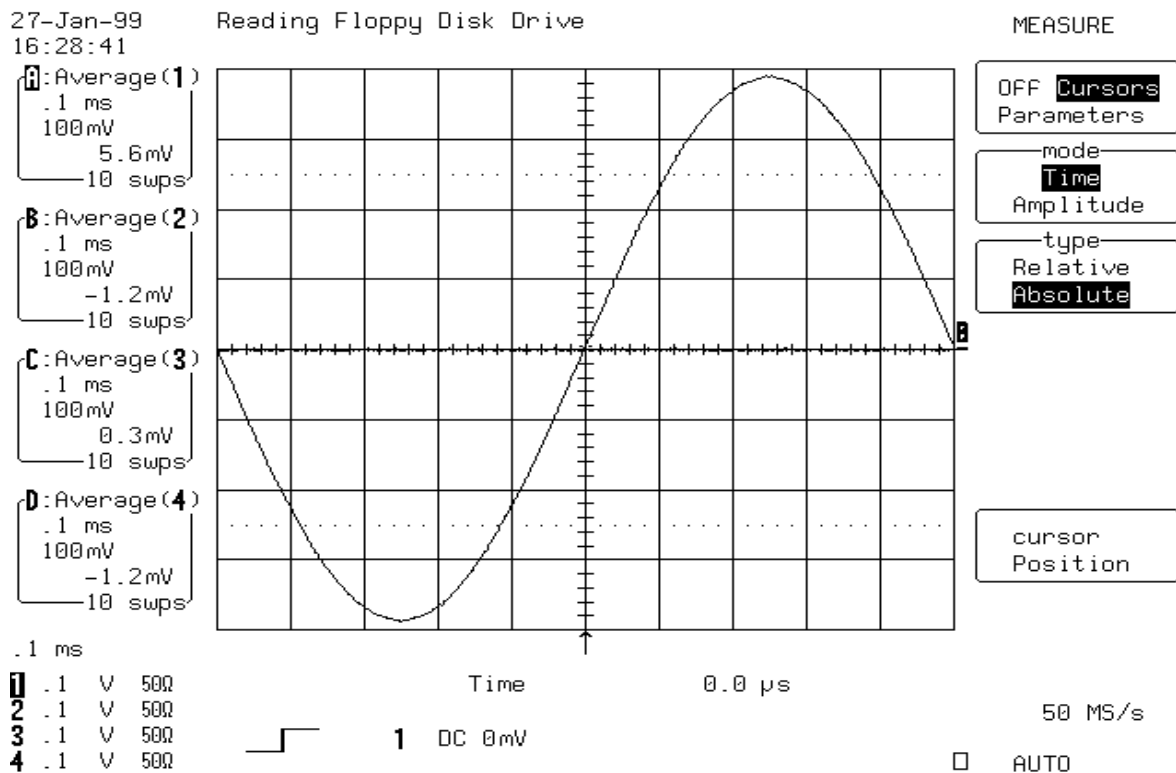
Select Math Setup

For Math : **Use at most 5000 points**  
Redefine A, B, C, D **Channel 1, Channel 2, Channel 3 & Channel 4**  
Use Math ? : **Yes**  
Math Type : **Average**  
Avg. Type : **Summed**  
For : **10 sweeps**



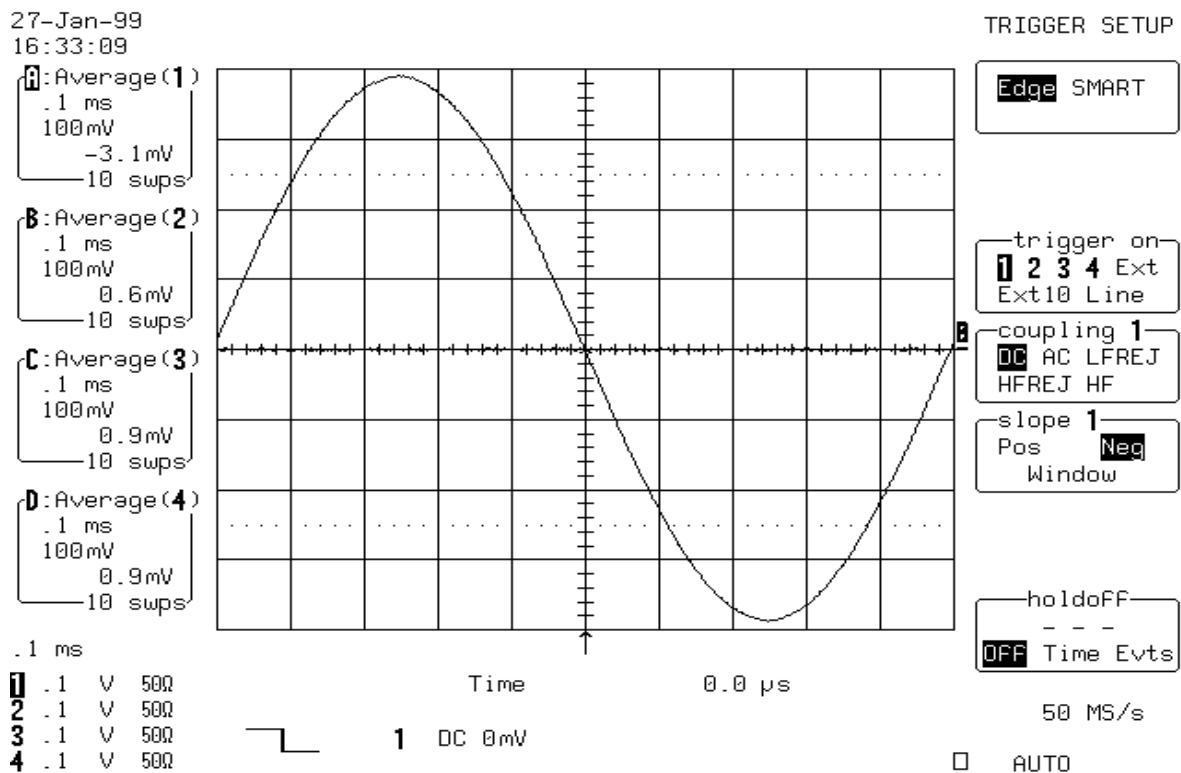


- Set the output of the LeCroy LW420 or equivalent audio frequency signal generator to **1 kHz**.
- Connect the output of the generator to Channel 1 through a 50 Ohm coaxial cable and adjust the sine wave output amplitude to get **8 divisions peak to peak**.
- Select MEASURE TOOLS : **Cursors, Time, Absolute**
- Use the "cursor position" knob, to move the **Time marker** at 0.0  $\mu$ s



- Press **Clear Sweeps**,
- Acquire 10 sweeps and record in Table 11 the **level** readout displayed below 100 mV in the icon **1**, at top left.
- Compare the test results to the corresponding limit in the test record.
- Set Trigger Slope 1 : **Neg**
- Acquire 10 sweeps and record in Table 11 the **level** readout displayed below

100 mV in the icon 1, at top left.



### b. HFREJ Coupling

- Set Coupling : **HFREJ**
- Acquire 10 sweeps and record in Table 12 the **level** readout displayed below 100 mV in the icon 1, at top left.
- Set Trigger Slope 1 : **Pos**
- Acquire 10 sweeps and record in Table 12 the **level** readout displayed below 100 mV in the icon 1, at top left.
- Repeat steps 5.10.1.a. and 5.10.1.b. for all input channels, substituting channel controls ( DC, HFREJ, Pos, Neg ) and input connector.  
Recall **LTxxxP028.PNL** for Channel 2, **LTxxxP029.PNL** for Channel 3, **LTxxxP030.PNL** for Channel 4, or select **Trigger** on the Channel under test.  
The **Trigger level** is displayed in either the icon 2, 3 or 4



- Record the measurements in Table 11 & 12 and compare the test results to the corresponding limits in the test record.

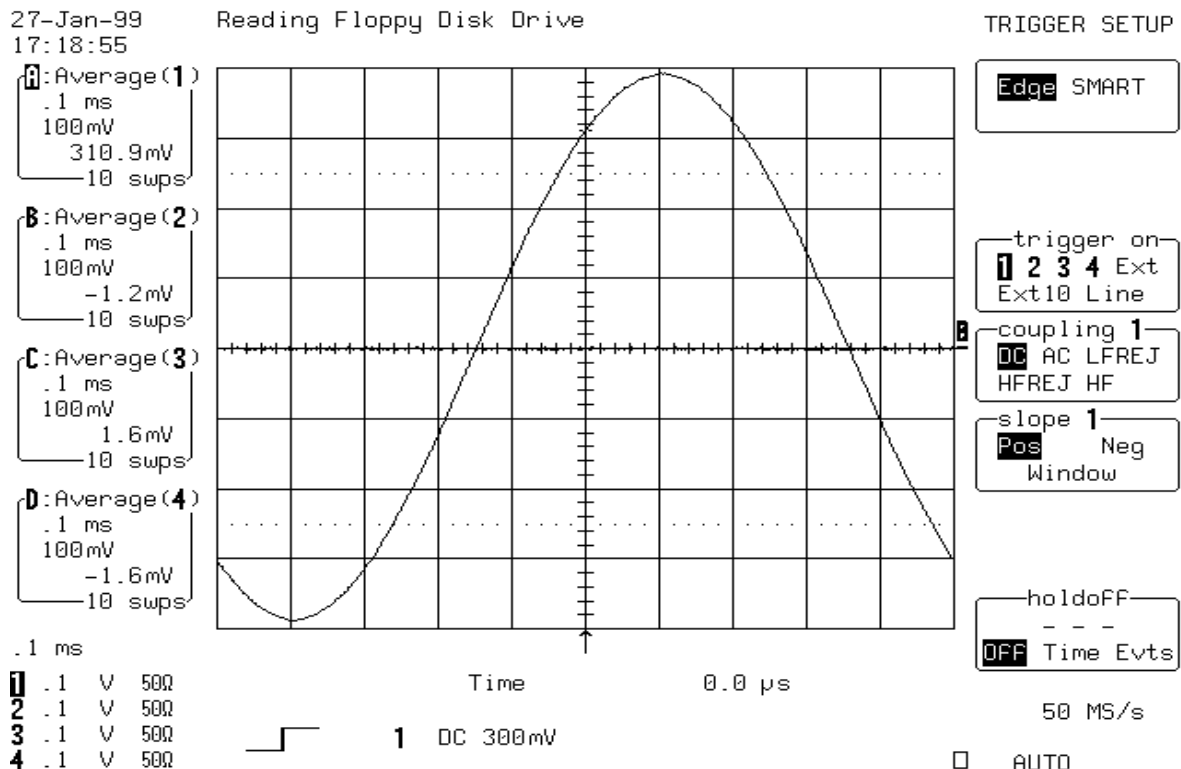
### 5.10.2 Channel Trigger at +3 Divisions Threshold

#### a. DC Coupling

- Recall **LTxxxP031.PNL** or configure the DSO as shown in 5.10.1.a and for each Channel make the following change :

Set Trigger level : **DC +300 mV**

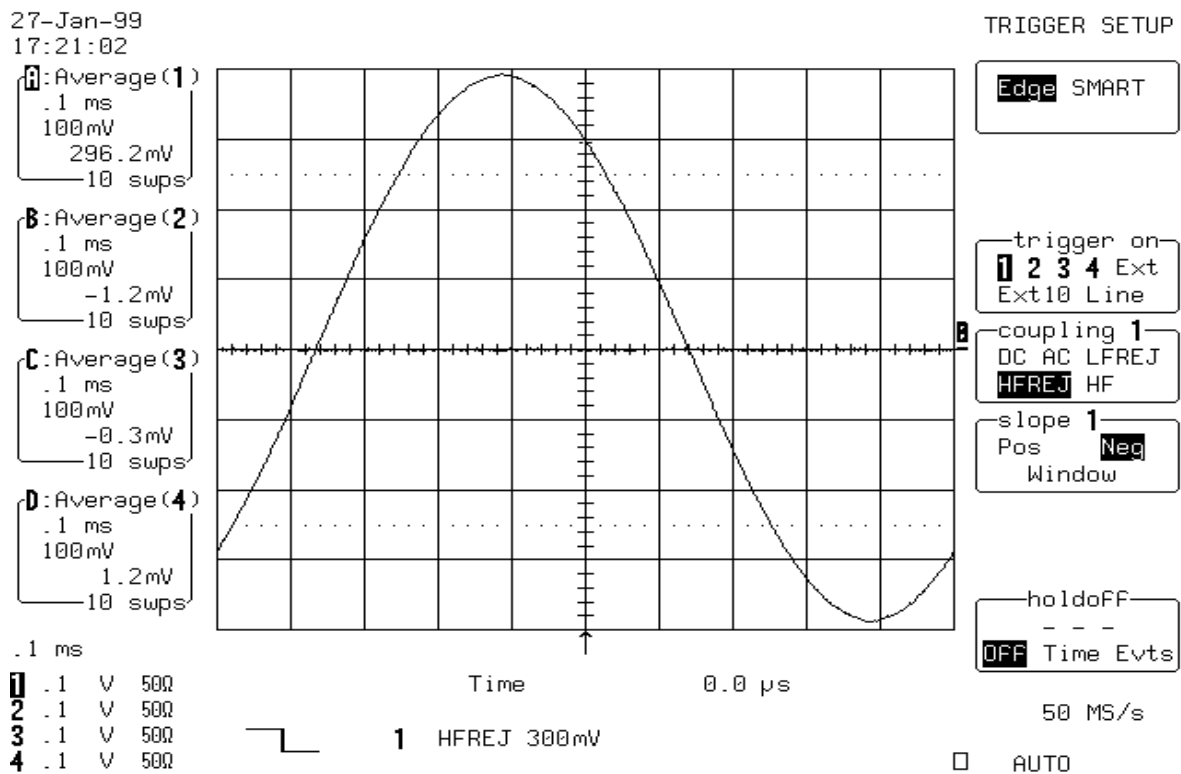
- Connect the output of the generator to Channel 1 through a 50 Ohm coaxial cable.
- Press **Clear Sweeps**,
- Acquire 10 sweeps and record in Table 11 the **level** readout displayed below 100 mV in the icon **1**, at top left.
- Compare the test results to the corresponding limit in the test record.



- Set Trigger Slope 1 : **Neg**
- Acquire 10 sweeps and record in Table 11 the **level** readout displayed below 100 mV in the icon **1**, at top left.

### b. HFREJ Coupling

- Set Coupling : **HFREJ**
- Acquire 10 sweeps and record in Table 12 the **level** readout displayed below 100 mV in the icon **1**, at top left.



- Set Trigger Slope 1 : **Pos**
- Acquire 10 sweeps and record in Table 12 the **level** readout displayed below 100 mV in the icon **1**, at top left.
- Repeat steps 5.10.2.a. and 5.10.2.b. for all input channels, substituting channel controls ( DC, HFREJ, Pos, Neg ) and input connector.  
Recall **LTxxxP032.PNL** for Channel 2, **LTxxxP033.PNL** for Channel 3, **LTxxxP034.PNL** for Channel 4, or select **Trigger on** the Channel under test.  
The **Trigger level** is displayed in either the icon **2**, **3** or **4**



- Record the measurements in Table 11 & 12 and compare the test results to the corresponding limits in the test record.

### 5.10.3 Channel Trigger at –3 Divisions Threshold

#### a. DC Coupling

- Recall **LTxxxP035.PNL** or configure the DSO as shown in 5.10.1.a and for each channel make the following change :

Set Trigger level : **DC –300 mV**

- Connect the output of the generator to Channel 1 through a 50 Ohm coaxial cable.
- Press **Clear Sweeps**,
- Acquire 10 sweeps and record in Table 11 the **level** readout displayed below 100 mV in the icon **1**, at top left.
- Compare the test results to the corresponding limit in the test record.

27-Jan-99  
17:31:17

**1**: Average (1)  
.1 ms  
100 mV  
-301.2 mV  
10 swps

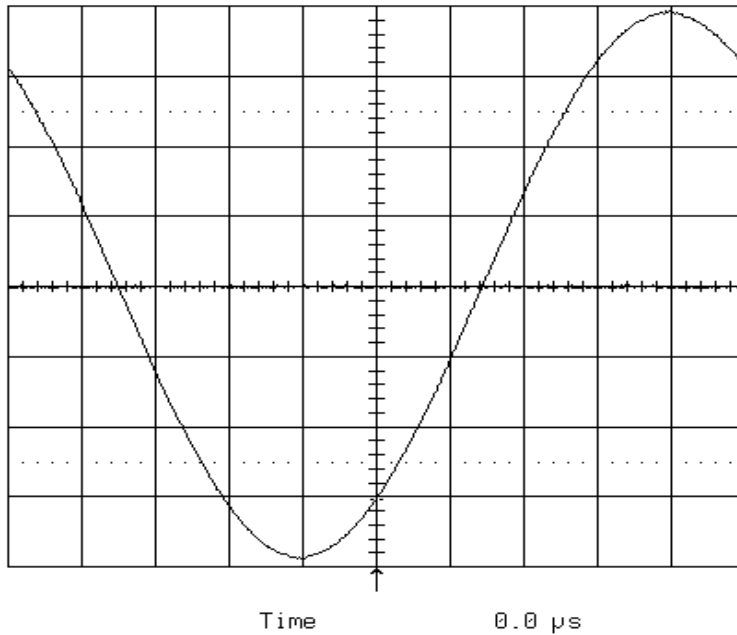
**2**: Average (2)  
.1 ms  
100 mV  
-1.2 mV  
10 swps

**3**: Average (3)  
.1 ms  
100 mV  
-1.9 mV  
10 swps

**4**: Average (4)  
.1 ms  
100 mV  
-0.6 mV  
10 swps

.1 ms

<b>1</b>	.1	V	50Ω
<b>2</b>	.1	V	50Ω
<b>3</b>	.1	V	50Ω
<b>4</b>	.1	V	50Ω



TRIGGER SETUP

Edge SMART

trigger on  
**1** 2 3 4 Ext  
Ext10 Line

coupling **1**  
**DC** AC LFREJ  
HFREJ HF

slope **1**  
**Pos** Neg  
Window

holdoff  
- - -  
**OFF** Time Evts

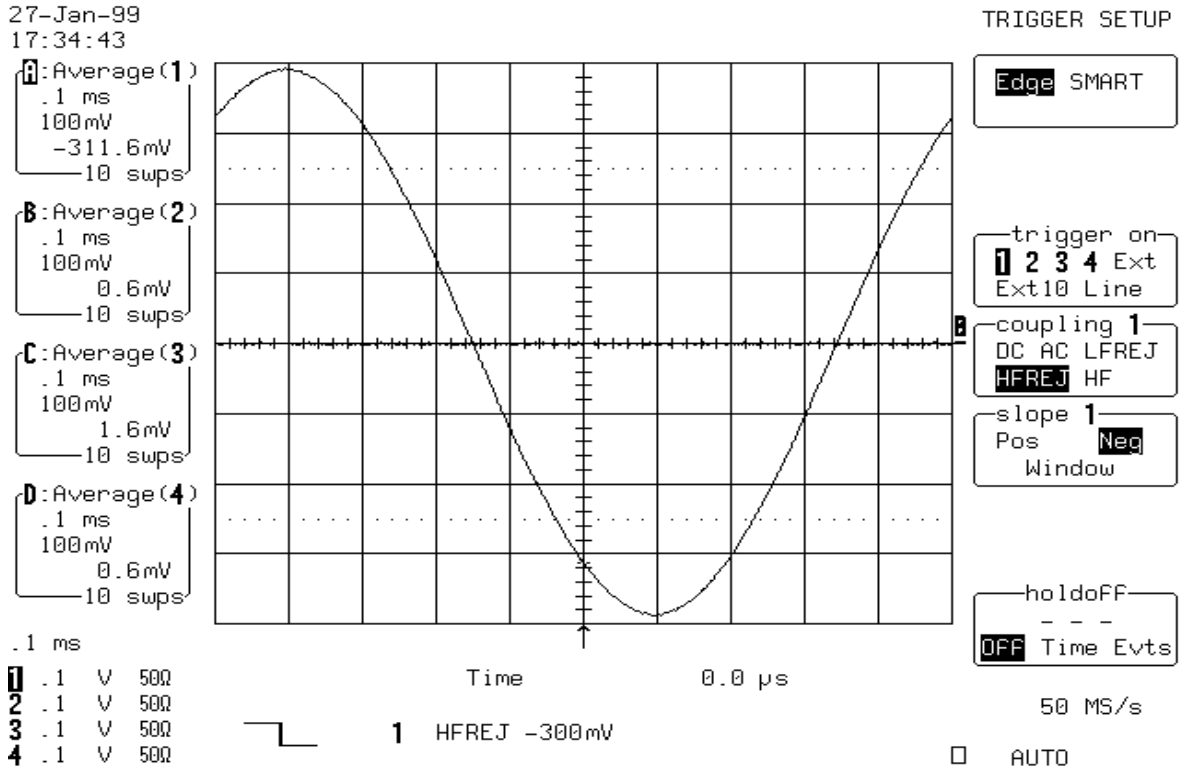
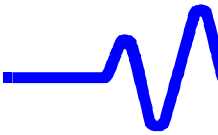
50 MS/s

AUTO

- Set Trigger Slope 1 : **Neg**
- Acquire 10 sweeps and record in Table 11 the **level** readout displayed below 100 mV in the icon **1**, at top left.

### b. HFREJ Coupling

- Set Coupling : **HFREJ**
- Acquire 10 sweeps and record in Table 12 the **level** readout displayed below 100 mV in the icon **1**, at top left.



- Set Trigger Slope 1 : **Pos**
- Acquire 10 sweeps and record in Table 12 the **level** readout displayed below 100 mV in the icon **1**, at top left.
- Repeat steps 5.10.3.a. and 5.10.3.b. for all input channels, substituting channel controls ( DC, HFREJ, Pos, Neg ) and input connector.  
Recall **LTxxxP036.PNL** for Channel 2, **LTxxxP037.PNL** for Channel 3, **LTxxxP038.PNL** for Channel 4, or select **Trigger on** the Channel under test.  
The **Trigger level** is displayed in either the icon **2, 3** or **4**
- Record the measurements in Table 11 & 12 and compare the test results to the corresponding limits in the test record.

#### 5.10.4 External Trigger at 0 Division Threshold

##### a. DC Coupling

- Recall **LTxxxP039.PNL** or configure the DSO :

---

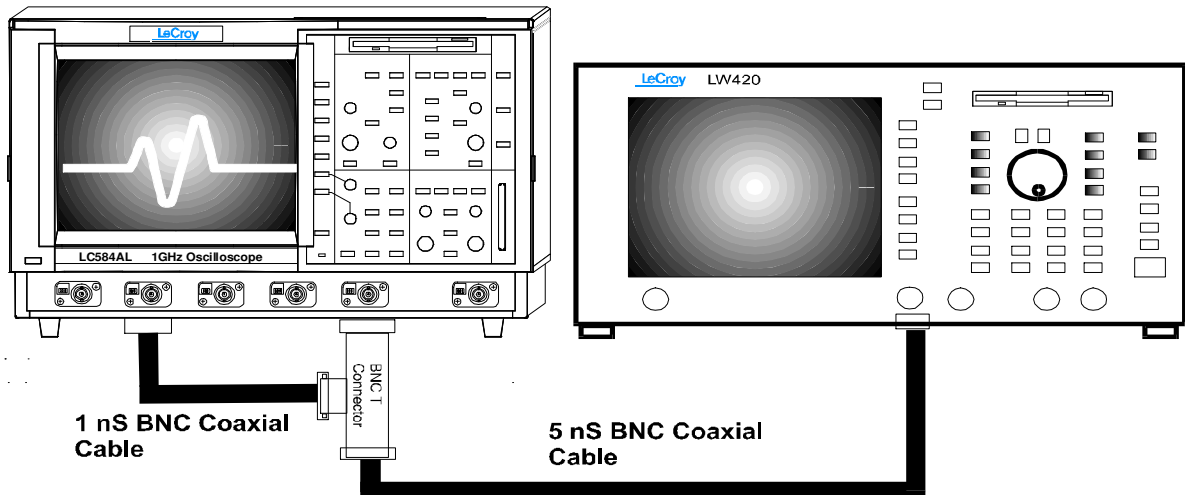
Panel Setups : **Recall FROM DEFAULT SETUP**  
Channel Trace ON **Channel 2**  
Input Coupling : **DC 50Ω**  
Input gain : **100 mV/div.**  
Input offset : **0 mV**

Trigger setup : **Edge**  
Trigger on : **Ext**  
Slope Ext : **Pos**  
Coupling Ext : **DC**  
Set Trigger level : **0.0 mV**  
External : **DC 1MΩ**  
Mode : **Auto**  
Pre-Trigger Delay : **50 %**  
Time base : **0.1 msec/div.**  
Record up to : **50 k samples**

Channel Trace OFF **Channel 2**  
Zoom+Math Trace ON **B**  
Select Math Setup  
For Math : **Use at most 5000 points**  
Redefine B : **Channel 2**  
Use Math ? : **Yes**  
Math Type : **Average**  
Avg. Type : **Summed**  
For : **10 sweeps**

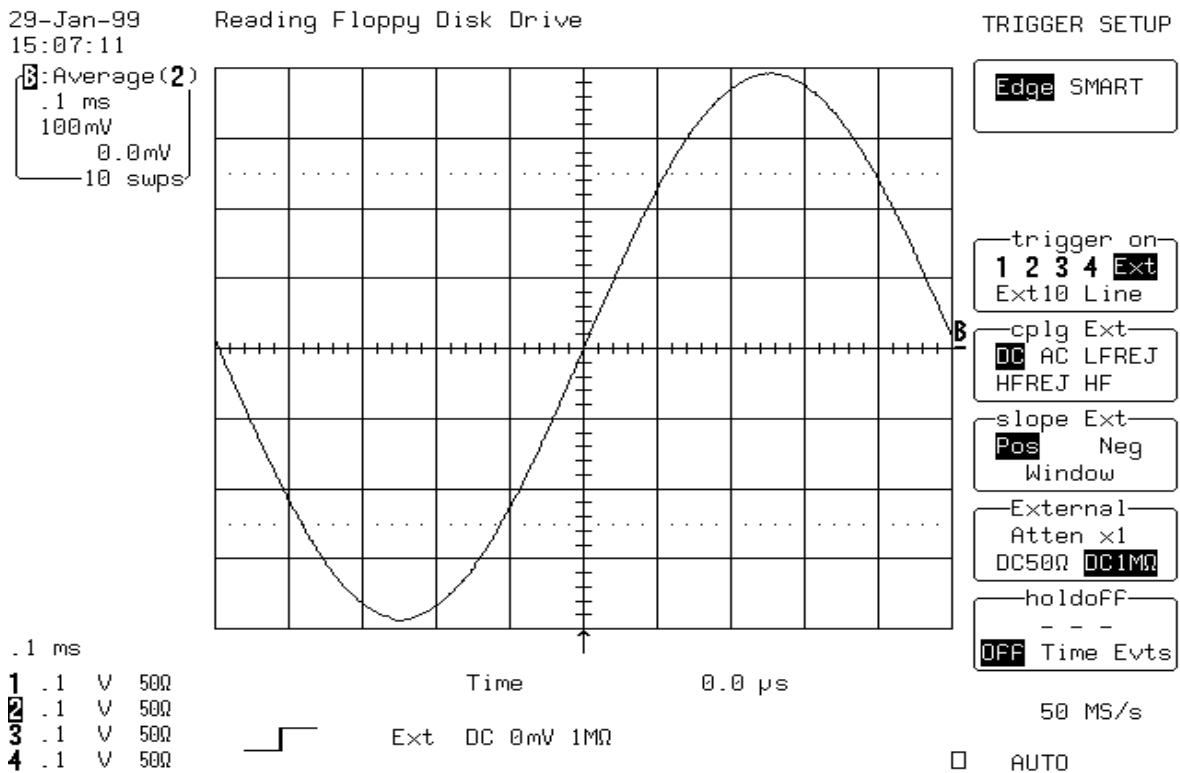
- Connect the test equipment as shown in Figure 5-7.
- Set the output of the LeCroy LW420 or equivalent audio frequency signal generator to **1 kHz**.
- Adjust the sine wave output amplitude to get **8 divisions peak to peak** .
- Select MEASURE TOOLS : **Cursors, Time, Absolute**
- Use the "cursor position" knob, to move the **Time marker** at 0.0 μs





**Figure 5-7 : External Trigger Equipment Setup**

- Press **Clear Sweeps**
- Acquire 10 sweeps and record in Table 13 the **level** readout displayed below 100 mV in the icon **2**, at top left.

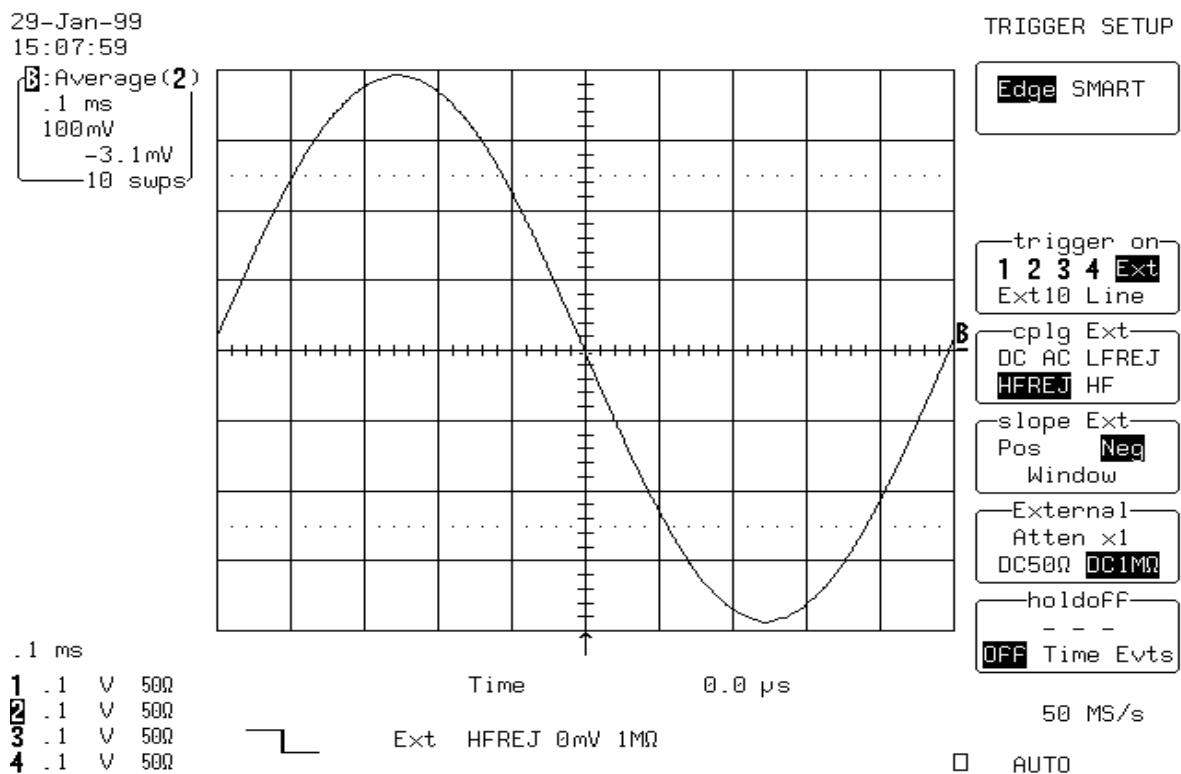


- Set Trigger Slope Ext : **Neg**

- Acquire 10 sweeps and record in Table 13 the **level** readout displayed below 100 mV in the icon **2**, at top left.
- Compare the test results to the corresponding limit in the test record.

### b. HFREJ Coupling

- Set Coupling Ext : **HFREJ**
- Acquire 10 sweeps and record in Table 13 the **level** readout displayed below 100 mV in the icon **2**, at top left.



- Set Trigger Slope Ext : **Pos**
- Acquire 10 sweeps and record in Table 13 the **level** readout displayed below 100 mV in the icon **2**, at top left.
- Compare the test results to the corresponding limit in the test record.



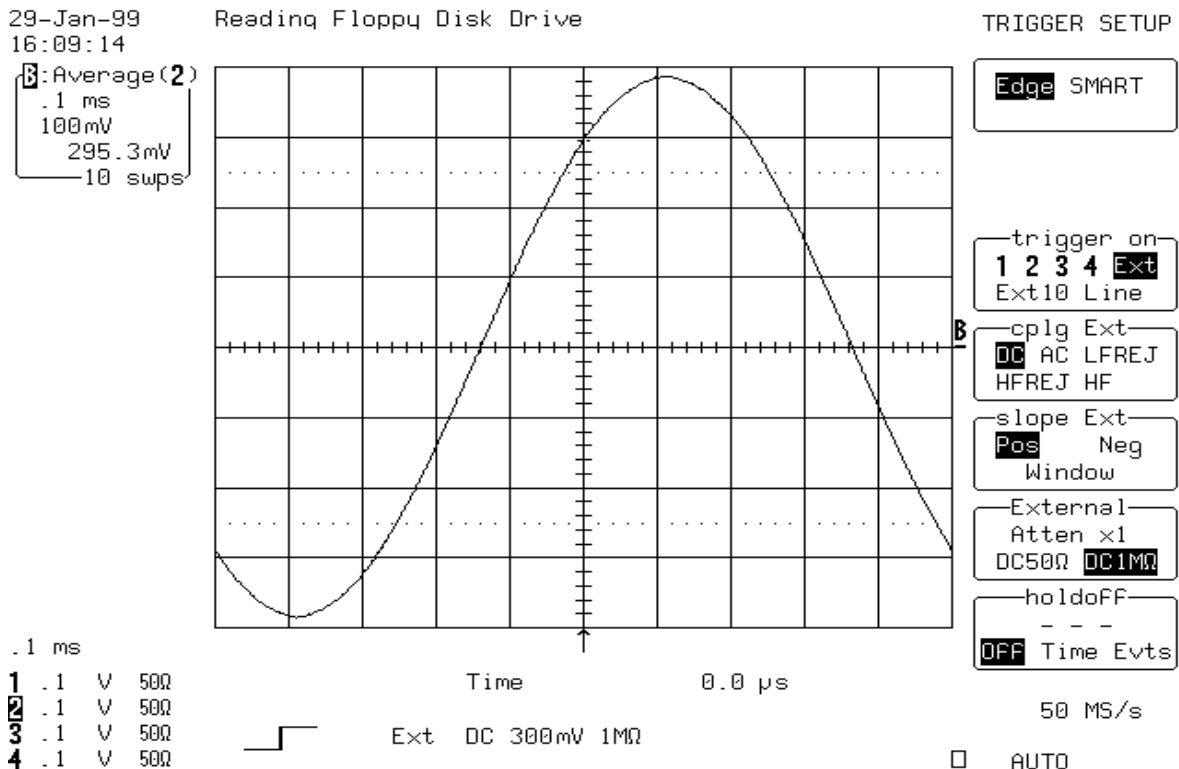
### 5.10.5 External Trigger at +3 Divisions Threshold

#### a. DC Coupling

- Recall **LTxxxP040.PNL** or configure the DSO as shown in 5.10.4.a and make the following change :

Set Ext Trigger level : **DC +300 mV**

- Connect the test equipment as shown in Figure 5-7.
- Press **Clear Sweeps**,
- Acquire 10 sweeps and record in Table 13 the **level** readout displayed below 100 mV in the icon **2**, at top left.
- Compare the test results to the corresponding limit in the test record.

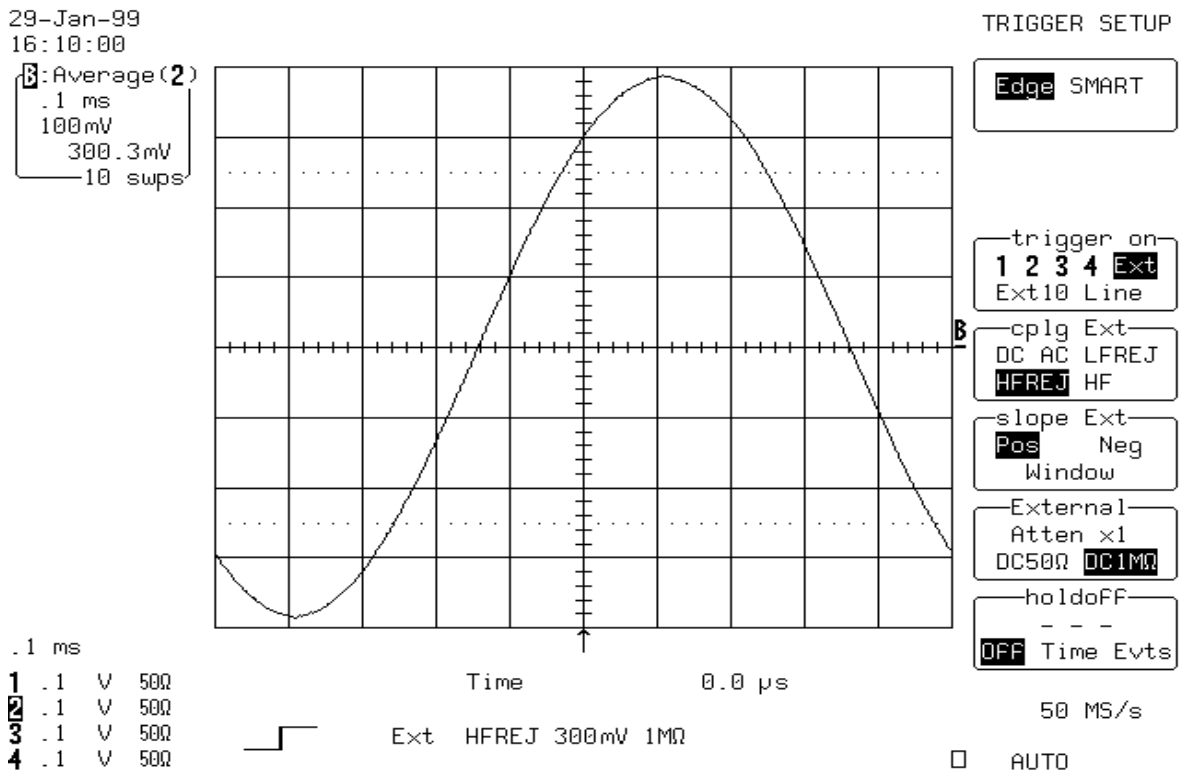


- Set Trigger Slope Ext : **Neg**

- Acquire 10 sweeps and record in Table 13 the **level** readout displayed below 100 mV in the icon **2**, at top left.

### b. HFREJ Coupling

- Set Ext Coupling : **HFREJ**
- Acquire 10 sweeps and record in Table 13 the **level** readout displayed below 100 mV in the icon **2**, at top left.



- Set Trigger Slope Ext : **Pos**
- Acquire 10 sweeps and record in Table 13 the **level** readout displayed below 100 mV in the icon **2**, at top left.



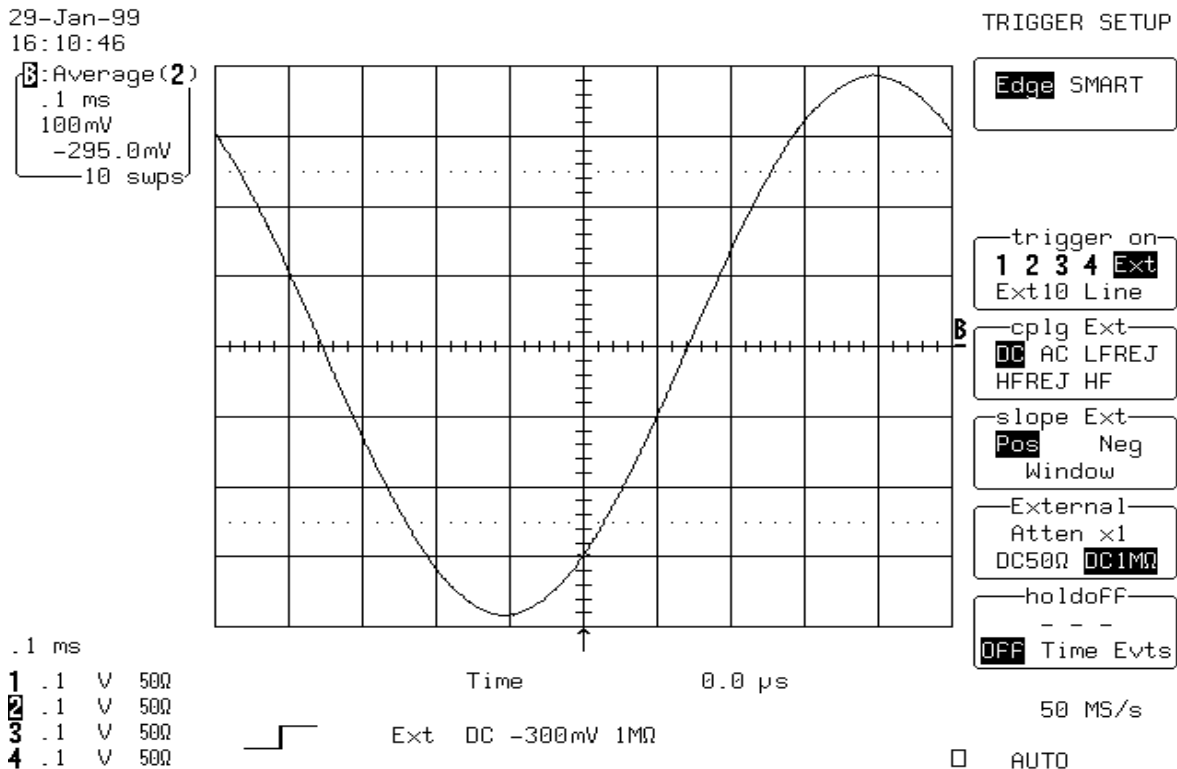
### 5.10.6 External Trigger at -3 Divisions Threshold

#### a. DC Coupling

- Recall **LTxxxP041.PNL** or configure the DSO as shown in 5.10.4.a and make the following change :

Set Ext Trigger level : **DC -300 mV**

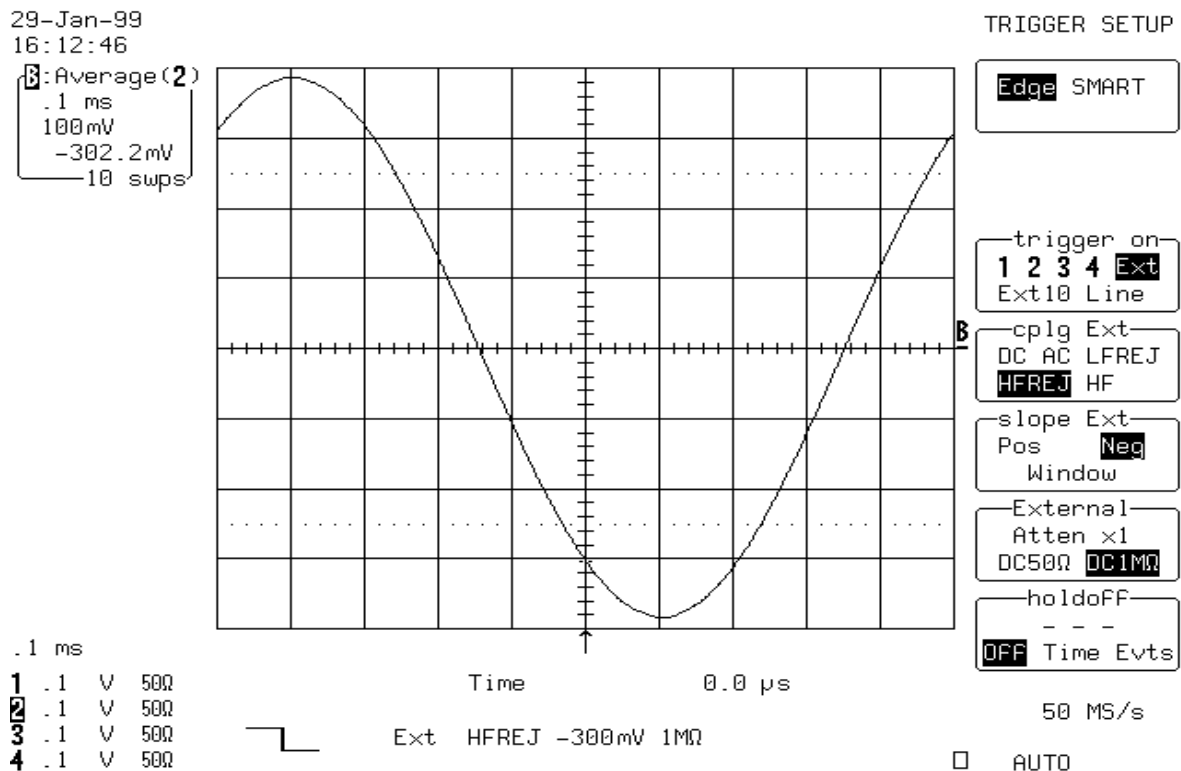
- Connect the test equipment as shown in Figure 5-7.
- Press **Clear Sweeps**.
- Acquire 10 sweeps and record in Table 13 the **level** readout displayed below 100 mV in the icon **2**, at top left.
- Compare the test results to the corresponding limit in the test record.



- Set Trigger Slope Ext : **Neg**
- Acquire 10 sweeps and record in Table 13 the **level** readout displayed below 100 mV in the icon **2**, at top left.

## b. HFREJ Coupling

- Set Ext Coupling : **HFREJ**
- Acquire 10 sweeps and record in Table 13 the **level** readout displayed below 100 mV in the icon **2**, at top left.
- Compare the test results to the corresponding limit in the test record.



- Set Trigger Slope Ext : **Pos**
- Acquire 10 sweeps and record in Table 13 the **level** readout displayed below 100 mV in the icon **2**, at top left.
- Compare the test results to the corresponding limit in the test record.



### 5.10.7 External/10 Trigger at 0 Division Threshold

#### a. DC Coupling

- Recall **LTxxxP042.PNL** or configure the DSO :

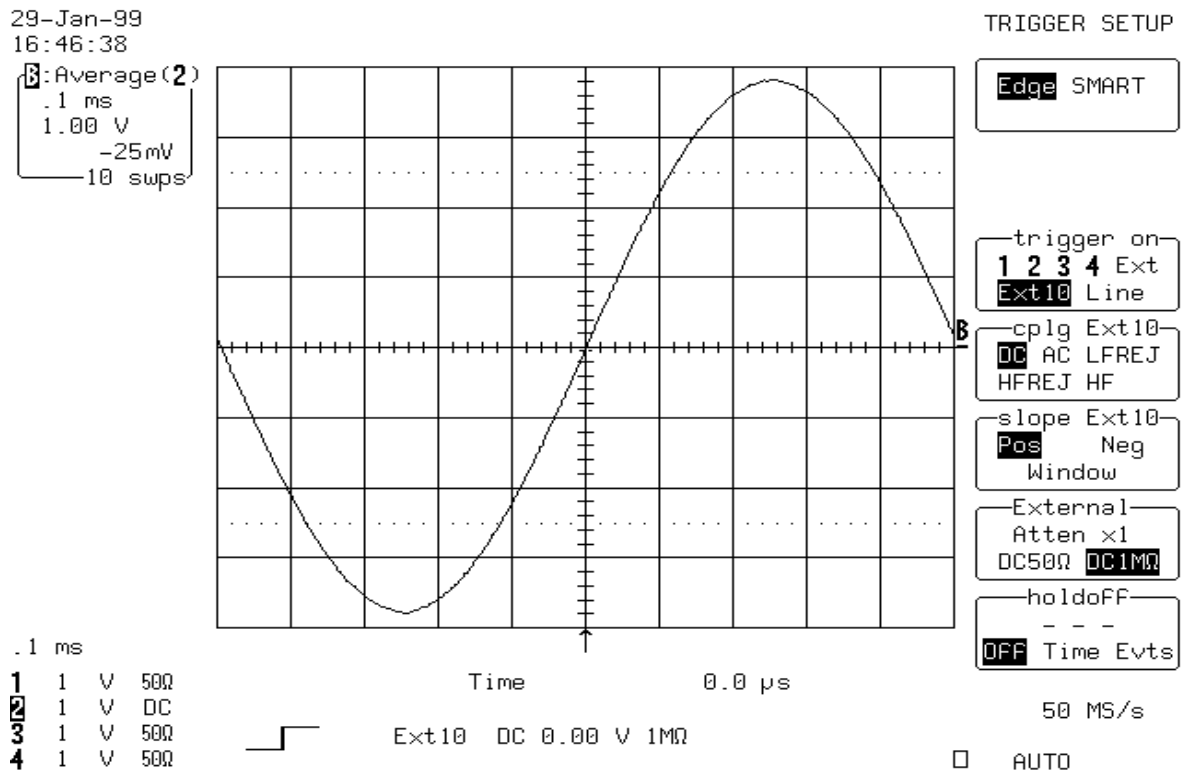
Panel Setups : **Recall FROM DEFAULT SETUP**  
Channel Trace ON **Channel 2**  
Input Coupling : **DC 1M $\Omega$**   
Input gain : **1V/div**  
Input offset : **0 mV**

Trigger setup : **Edge**  
Trigger on : **Ext/10**  
Slope Ext/10 : **Pos**  
Mode : **Auto**  
Coupling : **DC**  
Set Trigger level : **0.0 mV**  
External : **DC 1M $\Omega$**   
Pre-Trigger Delay : **50 %**  
Time base : **0.1 msec/div.**  
Record up to : **50 k samples**

Channel Trace OFF **Channel 2**  
Zoom+Math Trace ON **B**  
Select Math Setup  
For Math : **Use at most 5000 points**  
Redefine B : **Channel 2**  
Use Math ? : **Yes**  
Math Type : **Average**  
Avg. Type : **Summed**  
For : **10 sweeps**

- Connect the test equipment as shown in Figure 5-7.
- Set the output of the LeCroy LW420 or equivalent audio frequency signal generator to **1 kHz**.
- Adjust the sine wave output amplitude to get **8 divisions peak to peak** .
- Select MEASURE TOOLS : **Cursors, Time, Absolute**
- Use the "cursor position" knob, to move the **Time marker** at 0.0  $\mu$ s

- Press **Clear Sweeps**
- Acquire 10 sweeps and record in Table 13 the **level** readout displayed below 100 mV in the icon **2**, at top left.



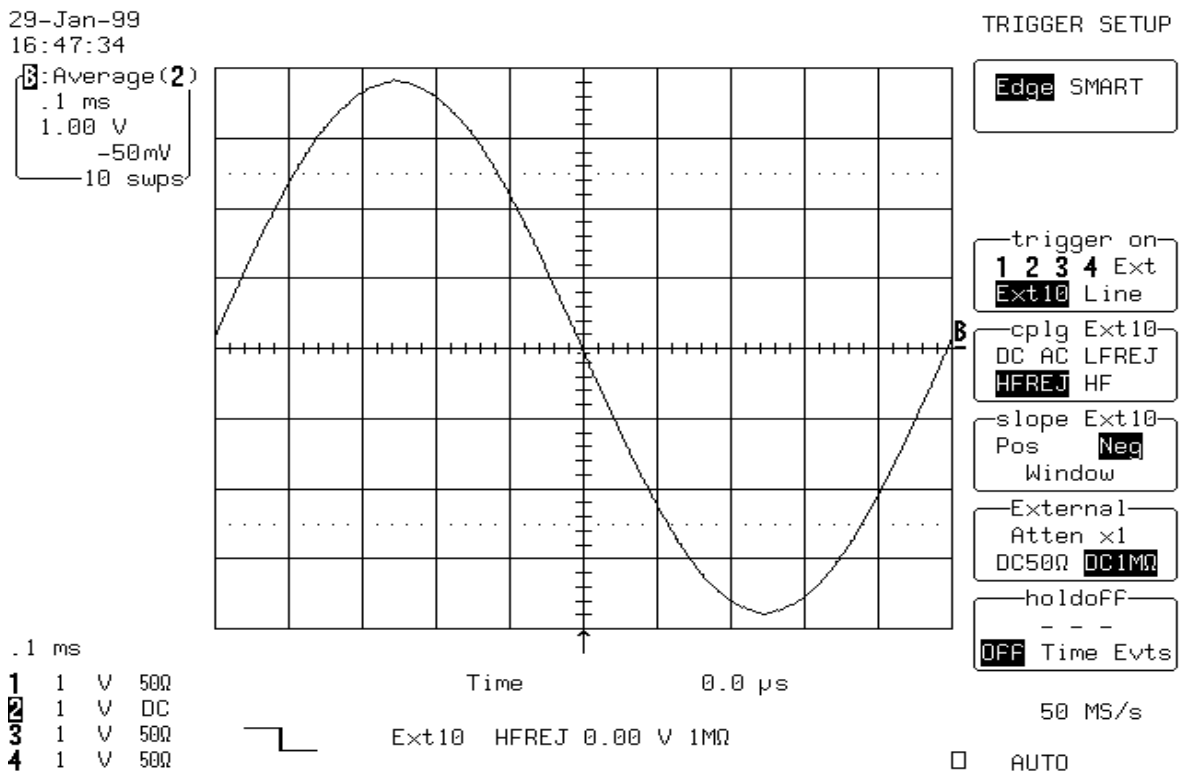
- Set Trigger Slope Ext/10 : **Neg**
- Acquire 10 sweeps and record in Table 13 the **level** readout displayed below 100 mV in the icon **2**, at top left.
- Compare the test results to the corresponding limit in the test record.





### b. HFREJ Coupling

- Set Coupling Ext/10 : **HFREJ**
- Acquire 10 sweeps and record in Table 13 the **level** readout displayed below 100 mV in the icon **2**, at top left.



- Set Trigger Slope Ext/10 : **Pos**
- Acquire 10 sweeps and record in Table 13 the **level** readout displayed below 100 mV in the icon **2**, at top left.
- Compare the test results to the corresponding limit in the test record.

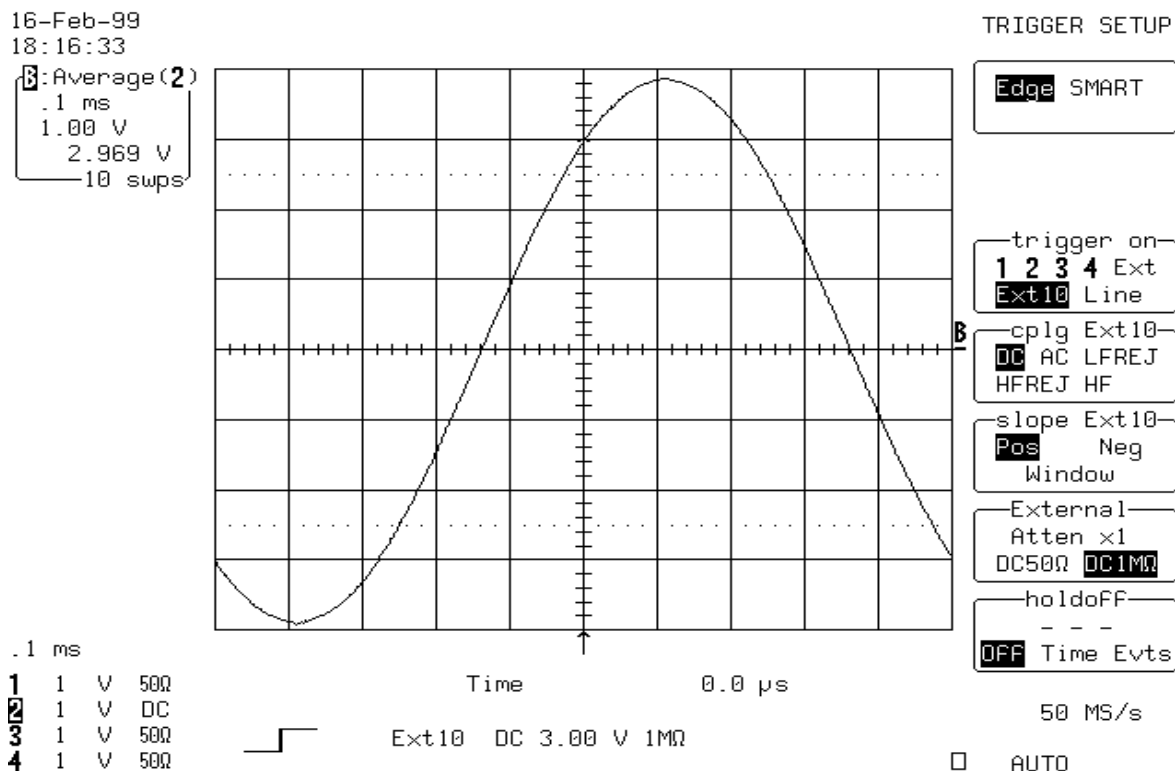
## 5.10.8 External/10 Trigger at +3 Divisions Threshold

### a. DC Coupling

- Recall **LTxxxP043.PNL** or configure the DSO as shown in 5.10.7.a and make the following change :

Set Ext/10 Trigger level : **DC +3 V**

- Connect the test equipment as shown in Figure 5-7.
- Press **Clear Sweeps**,
- Acquire 10 sweeps and record in Table 13 the **level** readout displayed below 100 mV in the icon **2**, at top left.
- Compare the test results to the corresponding limit in the test record.



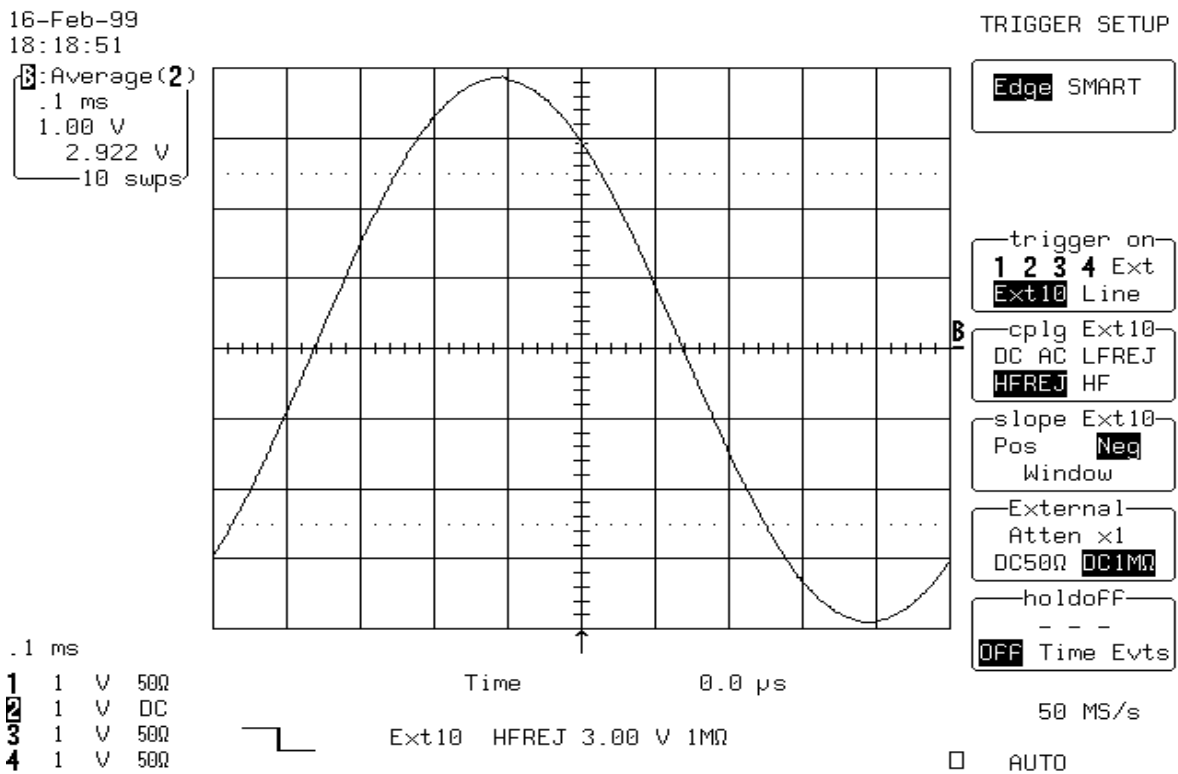
- Set Trigger Slope Ext/10 : **Neg**



- Acquire 10 sweeps and record in Table 13 the **level** readout displayed below 100 mV in the icon **2**, at top left.

### b. HFREJ Coupling

- Set Ext/10 Coupling: **HFREJ**
- Acquire 10 sweeps and record in Table 13 the **level** readout displayed below 100 mV in the icon **2**, at top left.



- Set Trigger Slope Ext/10 : **Pos**
- Acquire 10 sweeps and record in Table 13 the **level** readout displayed below 100 mV in the icon **2**, at top left.

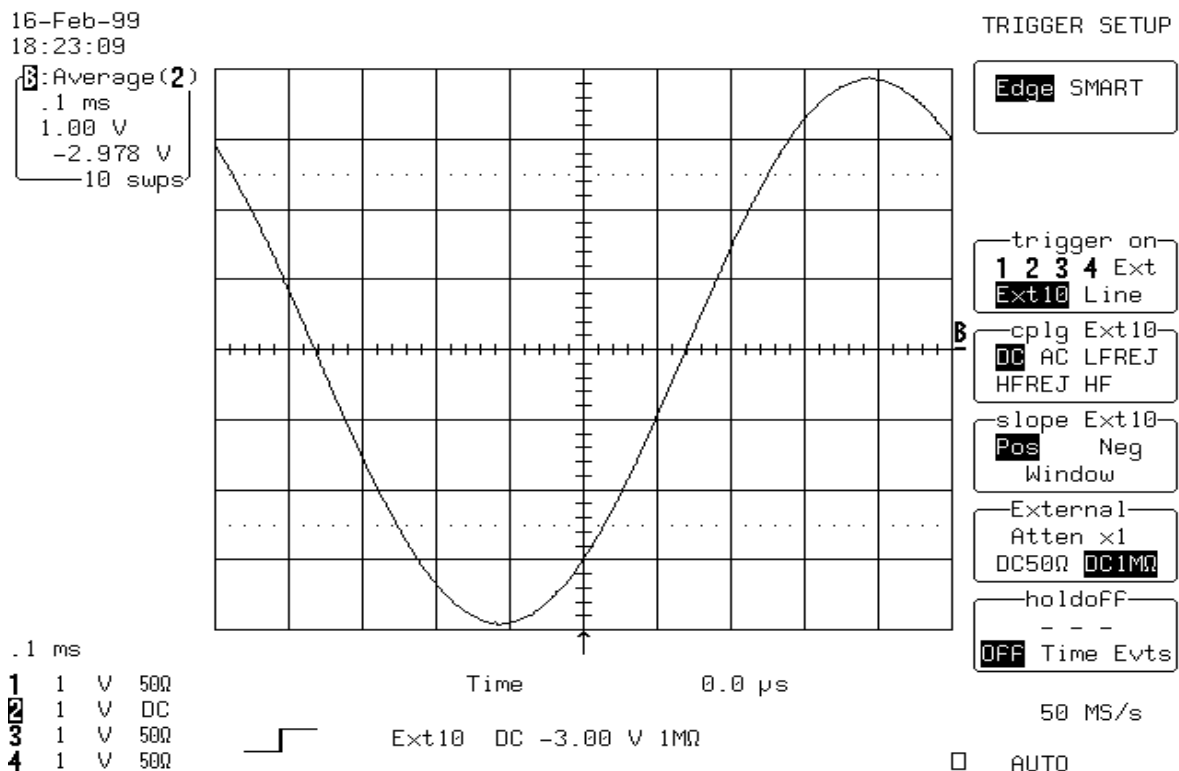
## 5.10.9 External/10 Trigger at -3 Divisions Threshold

### a. DC Coupling

- Recall **LTxxxP044.PNL** or configure the DSO as shown in 5.10.7.a and make the following change :

Set Ext/10 Trigger level : **DC -3 V**

- Connect the test equipment as shown in Figure 5-7.
- Press **Clear Sweeps**.
- Acquire 10 sweeps and record in Table 13 the **level** readout displayed below 100 mV in the icon **2**, at top left.
- Compare the test results to the corresponding limit in the test record.

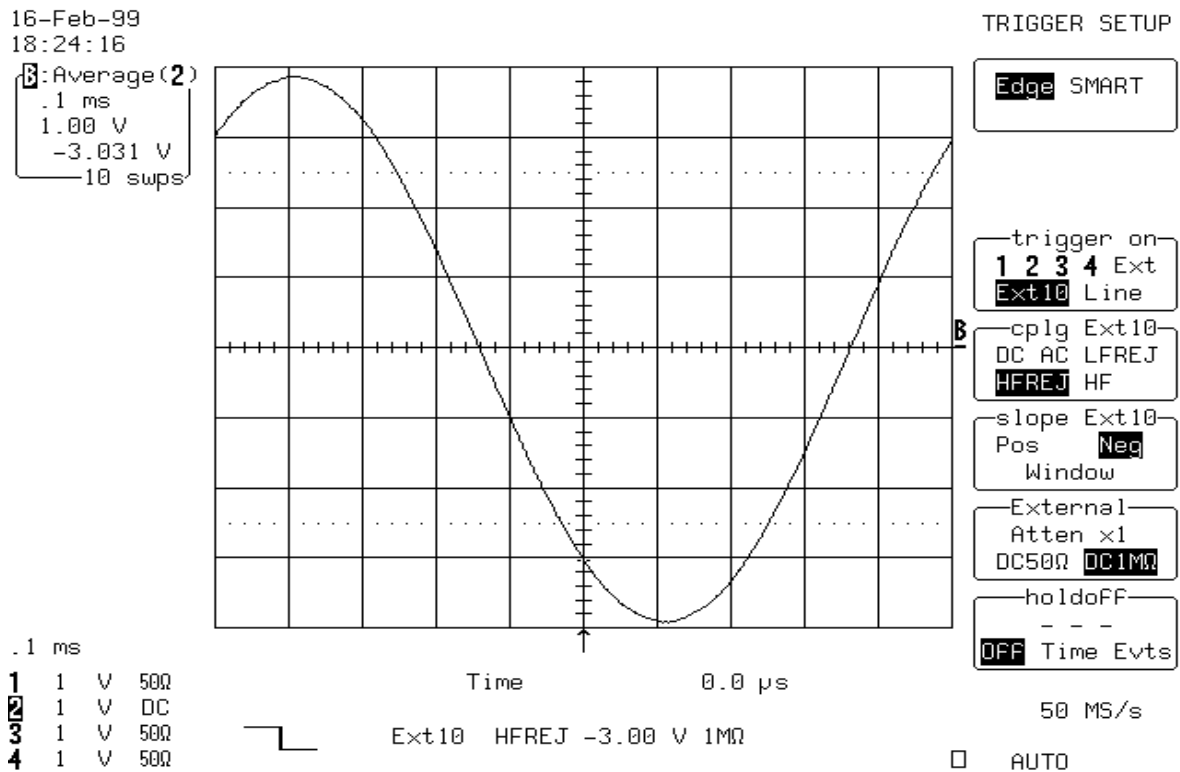


- Set Trigger Slope Ext/10 : **Neg**
- Acquire 10 sweeps and record in Table 13 the **level** readout displayed below 100 mV in the icon **2**, at top left.



## b. HFREJ Coupling

- Set Ext/10 Coupling: **HFREJ**
- Acquire 10 sweeps and record in Table 13 the **level** readout displayed below 100 mV in the icon **2**, at top left.
- Compare the test results to the corresponding limit in the test record.



- Set Trigger Slope Ext/10 : **Pos**
- Acquire 10 sweeps and record in Table 13 the **level** readout displayed below 100 mV in the icon **2**, at top left.
- Compare the test results to the corresponding limit in the test record.

---

## 5.11 Smart Trigger

### 5.11.1 Trigger on Pulse Width 10 nsec

#### a. Pulse Width < 10 nsec

- Recall **LTxxxP045.PNL** or configure the DSO
  - Panel Setups : **Recall FROM DEFAULT SETUP**
  - Channels trace ON **Channel 1**
  - Input coupling : **DC 50Ω**
  - Input gain : **.5 V/div.**
  - Input offset : **0 mV**
  - Trigger setup : **Smart**
  - Setup Smart Trigger **Glitch**
  - Trigger on : **1**
  - At the end of : **Neg.**
  - Width < 10 nsec : **On**
  - Width > 10 nsec : **Off**
  - Trigger mode : **Norm**
  - Time base : **5 nsec/div.**
- Connect the **RF output** of the HP8648B generator through a 5ns 50 Ohm BNC coaxial cable into Channel 1.
- Set the generator frequency to **100 MHz**. Adjust the generator output amplitude to get **5 divisions peak to peak** .
- Check that the scope Triggers. Record the test result in Table 14.
- Set Width < 10 nsec **Off** and Width > 10 nsec **ON**
- Check that the scope **doesn't trigger** : slow trigger and no flashes in box next to normal. Record the test result in Table 14.

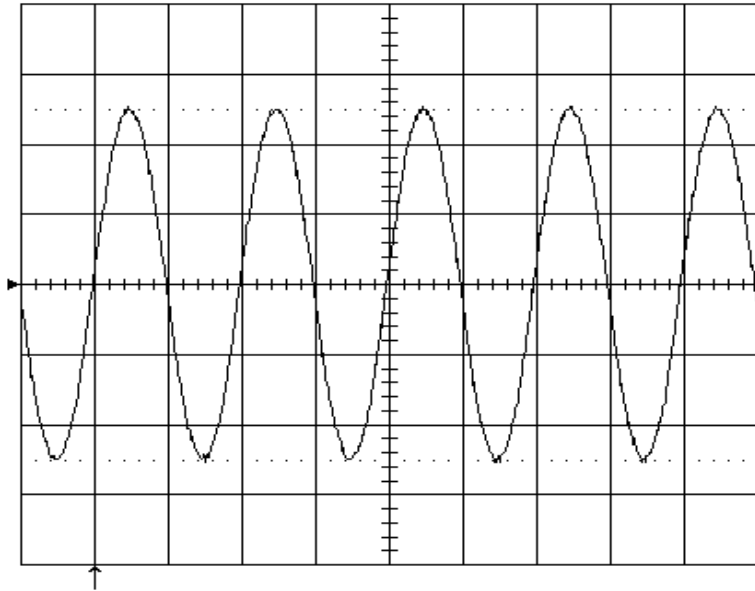
#### b. Pulse Width > 10 nsec

- Set the generator frequency to **40 MHz**.
- Set Width < 10 nsec **Off** and Width > 10 nsec **ON**
- Check that the scope Triggers. Record the test result in Table 14.
- Set Width < 10 nsec **On** and Width > 10 nsec **Off**
- Check that the scope **doesn't trigger** : slow trigger and no flashes in box. Record the test result in Table 14.



4-Mar-99  
13:41:46

1 5 ns  
0.50 V



5 ns RIS

- 1 .5 V 500
- 2 50 mV AC
- 3 50 mV AC
- 4 50 mV AC



1 DC 0.00 V  
pw ≤ 10.0 ns

TRIGGER SETUP

Edge **SMART**  
(Glitch)

SETUP SMART  
TRIGGER

trigger on  
1 2 3 4 Ext  
Ext10

coupling 1  
**DC** AC  
LFREJ HFREJ

at end of  
**Neg** Pos  
pulse

width ≤  
10.0 ns  
OFF **On**

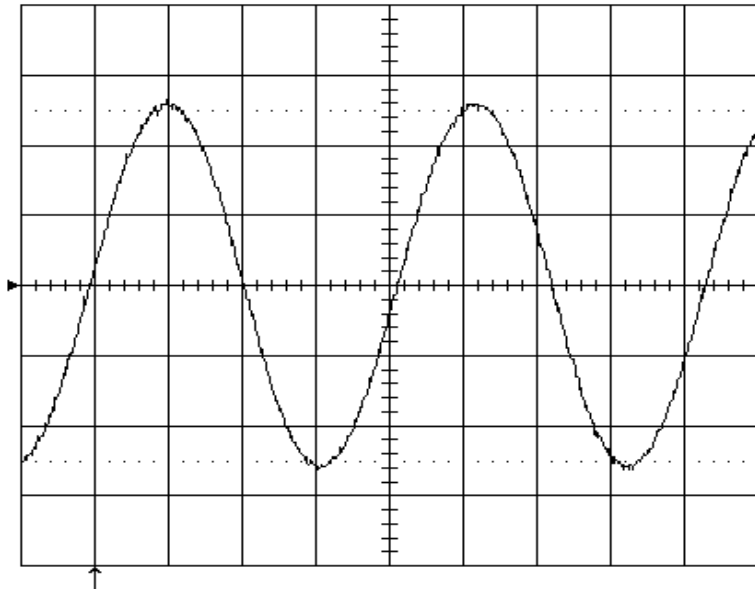
width ≥  
- - -  
**OFF** On

25 GS/s

NORMAL

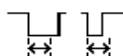
16-Feb-99  
19:22:09

1 5 ns  
0.50 V



5 ns RIS

- 1 .5 V 500
- 2 50 mV AC
- 3 50 mV AC
- 4 50 mV AC



1 DC 0.00 V  
10.0 ns ≤ pw

TRIGGER SETUP

Edge **SMART**  
(Glitch)

SETUP SMART  
TRIGGER

trigger on  
1 2 3 4 Ext  
Ext10

coupling 1  
**DC** AC  
LFREJ HFREJ

at end of  
**Neg** Pos  
pulse

width ≤  
- - -  
**OFF** On

width ≥  
10.0 ns  
OFF **On**

25 GS/s

NORMAL

---

## 5.11.2 Trigger on Pulse Width 100 nsec

### a. Pulse Width < 100 nsec

- Recall **LTxxxP046.PNL** or configure the DSO as shown in 5.11.1.a and make the following changes :
  - Width < 100 nsec : **On**
  - Width > 100 nsec : **Off**
  - Time base : **20 nsec/div.**
- Set the generator frequency to **10 MHz**.
- Check that the scope Triggers. Record the test result in Table 14.
- Set Width < 100 nsec **Off** and Width > 100 nsec **ON**
- Check that the scope **doesn't trigger** : slow trigger and no flashes in box next to normal. Record the test result in Table 14.

### b. Pulse Width > 100 nsec

- Set the generator frequency to **4 MHz**.
- Time base : **50 nsec/div.**
- Set Width < 100 nsec **Off** and Width > 100 nsec **ON**
- Check that the scope Triggers. Record the test result in Table 14.
- Set Width < 100 nsec **On** and Width > 100 nsec **Off**
- Check that the scope **doesn't trigger** : slow trigger and no flashes in box. Record the test result in Table 14.





## 5.12 Time Base Accuracy

An external sine wave generator of **0.1 MHz** with a frequency accuracy better than 1 PPM is used.

### Specifications & Test limit

Clock: accuracy:  $\leq \pm 0.001\%$  or  $\leq \pm 10$  PPM

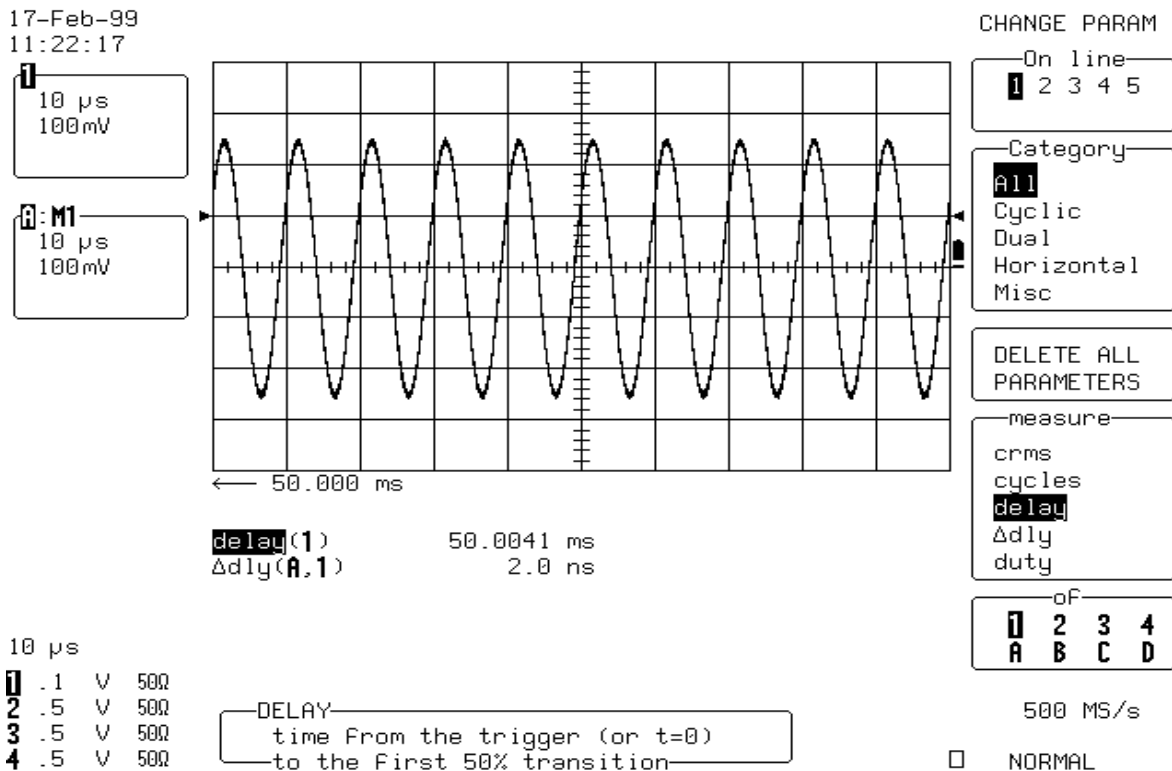
### Procedure

- Recall **LTxxxP047.PNL** or configure the DSO

Panel Setups	:	<b>Recall FROM DEFAULT SETUP</b>
Channels trace ON	:	<b>Channel 1</b>
Input coupling	:	<b>DC 50<math>\Omega</math></b>
Input gain	:	<b>.1 V/div.</b>
Input offset	:	<b>0 mV</b>
Trigger setup	:	<b>Edge</b>
Trigger on	:	<b>1</b>
Coupling 1	:	<b>DC</b>
Slope 1	:	<b>Pos</b>
Level 1	:	<b>100 mV</b>
Trigger mode	:	<b>Norm</b>
Delay	:	<b>0 %</b>
Time base	:	<b>10 <math>\mu</math>sec/div.</b>
Channel use	:	<b>4</b>
Record up to	:	<b>50 k</b>

- Connect the **RF output** of the HP8648B generator through a 5ns 50 Ohm BNC coaxial cable into Channel 1.
- Set the generator frequency to **0.1 MHz**.
- Adjust the generator output amplitude to get **5 divisions peak to peak**.
- Store Channel 1 in Memory 1
- Recall **LTxxxP048.PNL** or make the following change :
- Set Post-trigger delay to **50.00 msec**
- Recall Memory **1 to A**
- Press : **MEASURE TOOLS**

- Measure : **Parameters**
- Mode : **Custom**
- Statistics : **Off**
  
- Change parameters
  
- On line 1 : **Delay of 1**
- On line 2 : **Delay of A**
  
- Check that the displayed Channel 1 trace is **aligned** with the sine wave from memory 1.
  
- This allows the accuracy of the time base clock to be checked **5000 periods** after the trigger point. A difference of  $\pm 0.5 \mu\text{sec}$  corresponds to  $\pm 10 \text{ PPM}$ .



- Calculate the Difference  $\{[\text{delay}(A) - \text{delay}(1)] + 50 \text{ msec}\}$ .
- Record the test result in Table 15, and compare it to the limit in the test record.



### 5.13 Overshoot and Rise time (10 % - 90 %)

#### Test limit

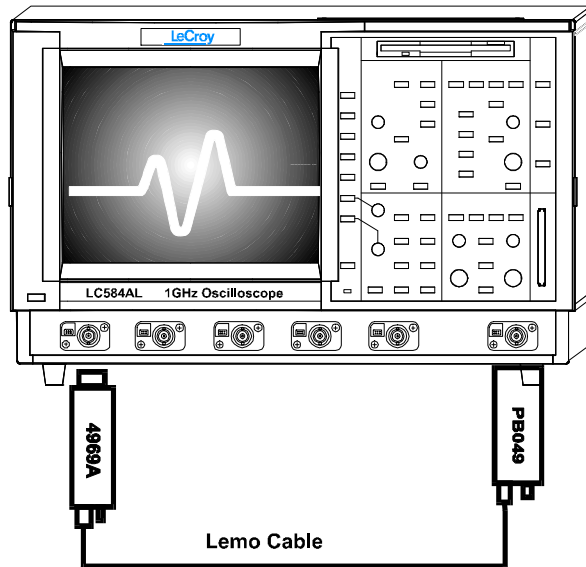
Overshoot < 12%, rise time < 0.80 ns      LT344/L, LT342/L, LT322  
Overshoot < 10%, rise time < 1.9 ns    LT224

#### Procedure

- Recall **LTxxxP049.PNL** or configure the DSO

Panel Setups	:	<b>Recall FROM DEFAULT SETUP</b>
Channels trace ON	:	<b>Channel 1</b>
Input coupling	:	<b>DC 50Ω</b> on all 4 Channels
Input gain	:	<b>0.1 V/div.</b> on all 4 Channels
Input offset	:	<b>-250 mV</b> on all 4 Channels
Trigger setup	:	<b>Edge</b>
Trigger on	:	<b>1</b>
Coupling 1	:	<b>DC</b>
Slope 1	:	<b>Pos</b>
Level 1	:	<b>250 mV</b>
Trigger mode	:	<b>Norm</b>
Delay	:	<b>30 % Pre-Trigger</b>
Time base	:	<b>1 nsec/div.</b>
Channel use	:	<b>4</b>
Record up to	:	<b>50 k</b>
Turn on trace	:	<b>A</b>
Select Math Setup	:	
For Math	:	<b>Use at most 1000 points</b>
Use Math ?	:	<b>Yes</b>
Math Type	:	<b>Average</b>
Avg Type	:	<b>Summed</b>
Of	:	<b>Channel 1</b>
Sweeps	:	<b>100</b>
Turn off trace	:	<b>Channel 1</b>
MEASURE TOOLS	:	<b>Parameters</b>
Mode	:	<b>Custom</b>
Statistics	:	<b>Off</b>
Change Parameters	:	
On displayed trace	:	<b>A</b>
On line 1	:	
Measure	:	<b>Over + of A</b>
On line 2	:	
Measure	:	<b>Rise of A</b>

- Connect the fast pulse generator 4969A and PB049 power adapter, or equivalent as shown in Figure 5-8.
- Set the 4969A frequency to **1 kHz**



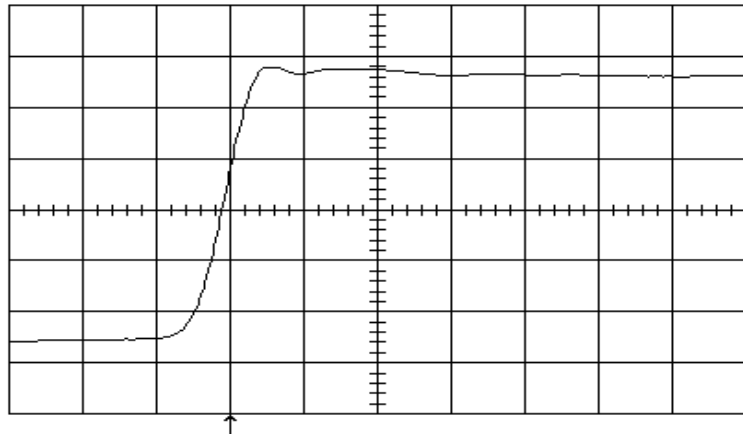
**Figure 5-8: 50  $\Omega$  Overshoot & Rise time Equipment Setup**

- Press **Clear Sweep**
- After 100 sweeps record **over+(A)** and **rise(A)** measurements in Table 16.
- Repeat the DC 50 $\Omega$  Overshoot and Rise time test for the other channels, substituting channel controls and input connector.
- Recall **LTxxxP050.PNL** for Channel 2, **LTxxxP051.PNL** for Channel3 **LTxxxP052.PNL** for Channel 4, or configure the DSO as shown in 5.13 Procedure and make the necessary changes.
- Record the test results in Table 16, and compare the results to the limits.



17-Feb-99  
11:55:55

**1**: Average(1)  
1 ns  
100mV  
100 swps



**over+(A)** 3.45 %  
**rise(A)** 719 ps

1 ns RIS

- 1** .1 V 50Ω
- 2** .1 V 50Ω
- 3** .1 V 50Ω
- 4** .1 V 50Ω

OVERshoot positive  
Following a rising edge, ratio in %  
of max-top to top-base

CHANGE PARAM

On line  
**1** 2 3 4 5

Category  
**All**  
Cyclic  
Dual  
Horizontal  
Misc

DELETE ALL  
PARAMETERS

measure  
mean  
minimum  
**over+**  
over-  
period

of  
**1** **2** **3** **4**  
**A** **B** **C** **D**

25 GS/s

AUTO

---

## 5.14 Overload

### Test limit

1 Watt into 50Ω : Overload Trip < 30 seconds

#### a. Channel Overload Trip

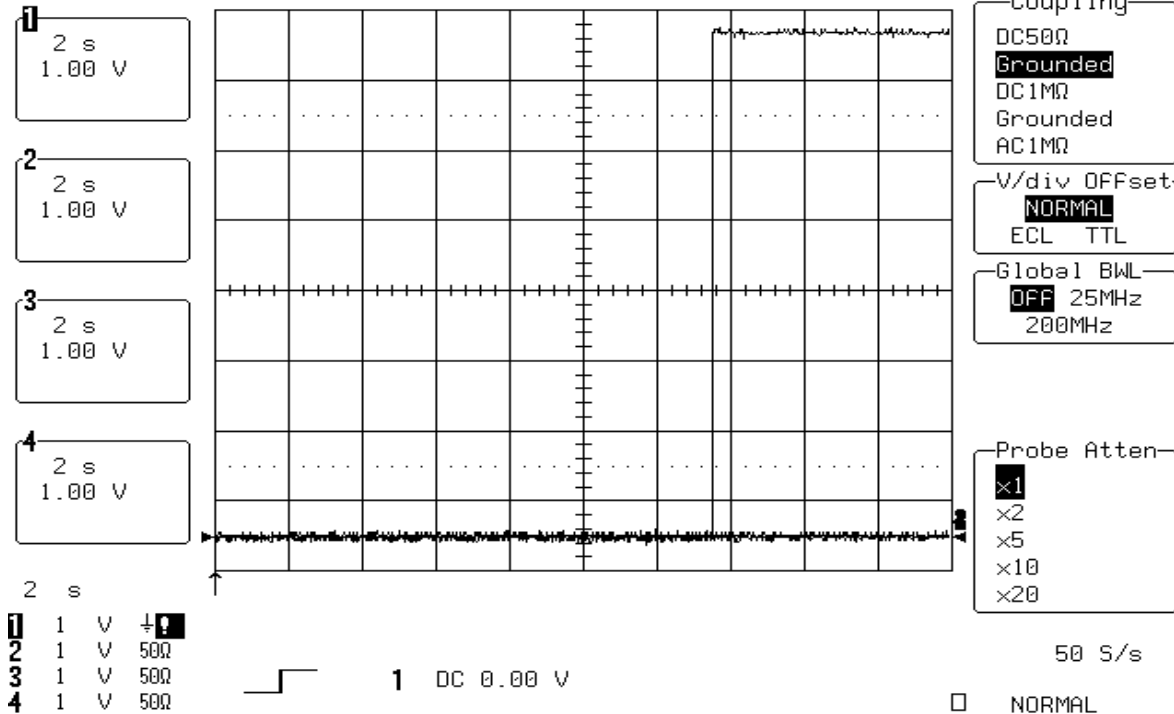
- Recall **LTxxxP053.PNL** or configure the DSO

Panel Setups	:	<b>Recall FROM DEFAULT SETUP</b>
Channels Trace ON	:	<b>Channel 1, Channel 2, Channel 3 &amp; Channel 4</b>
Input coupling	:	<b>DC 50Ω</b> on all 4 Channels
Input gain	:	<b>1 V/div.</b> on all 4 Channels
Input offset	:	<b>-3.5 V</b> on all 4 Channels
Trigger setup	:	<b>Edge</b>
Trigger on	:	<b>1</b>
Coupling 1	:	<b>DC</b>
Slope 1	:	<b>Pos</b>
Level 1	:	<b>0 V</b>
Trigger mode	:	<b>Norm</b>
Delay	:	<b>zero</b>
Time base	:	<b>2 sec/div.</b>
Channel use	:	<b>4</b>
Record up to	:	<b>1000 samples</b>

- Set the output of the external **DC voltage source** to **+7.07 Volt** corresponding to 1 Watt into 50Ω.
- Connect the **DC voltage reference source** through a BNC cable into Channel1.
- When the channel **overload trips** press **Stop** to halt the acquisition.
- **Measure** on the screen the **overload trip time** and record it in Table 17.
- Repeat the above tests for Channel 2, Channel 3 and Channel 4 substituting the input connector.
- Record the test results in Table 17, and compare the results to the limits.
- For all Channel **clear the overload** by selecting DC 50Ω in the Coupling menu.
- Set Time base : **5 sec/div.**



22-Feb-99  
10:54:02



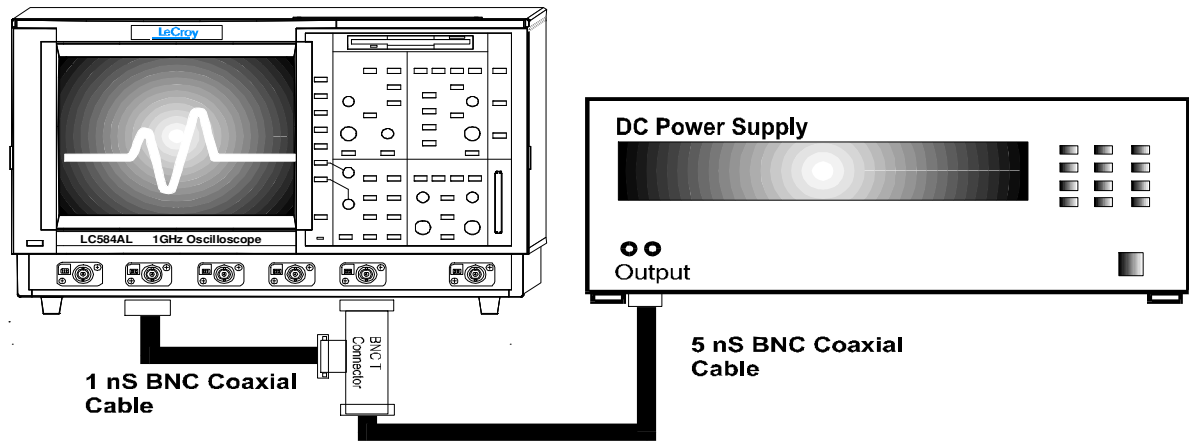
- Set the output of the external **DC voltage source** to **+5.00 Volt** corresponding to 0.5 Watt into 50Ω.
- For all channels check that the overload doesn't trip for at least **60** seconds. Record the test result in Table 17.

## b. External Overload Trip

- Recall **LTxxxP054.PNL**, or configure the DSO as shown in 5.14.a and make the following changes.

Channel Trace ON : **Channel 2**  
Input coupling : **DC 1M $\Omega$**   
Trigger on : **Ext**  
Slope Ext : **Pos.**  
External : **DC 50 $\Omega$**   
Mode : **Norm**  
Set Trigger level : **DC 0.0 mV**

- Connect the test equipment as shown in Figure 5-10.
- Set the output of the external **DC voltage source** to **+7.07 Volt**



**Figure 5-10 : External Overload Equipment Setup**

- When the External **overload trips** press **Stop** to halt the acquisition.
- Measure** on the screen the **overload trip time** and record it in Table 17.
- Press **clear overload** in the trigger setup menu.



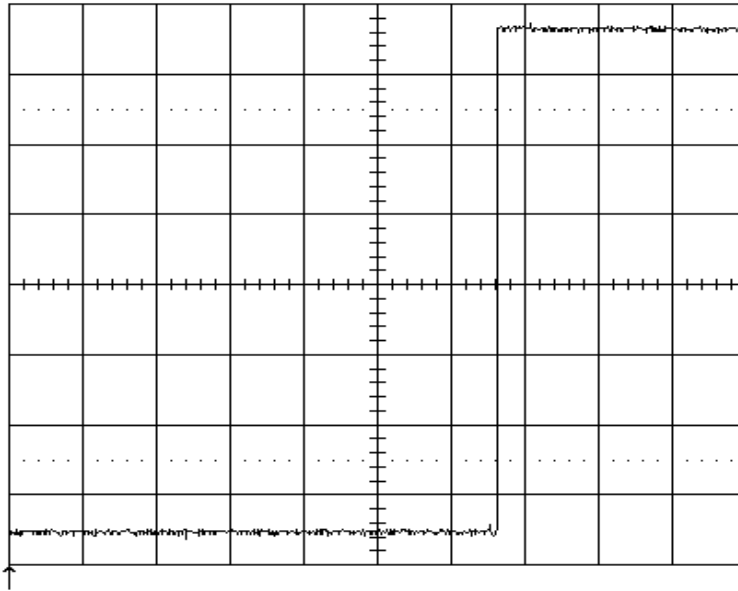


22-Feb-99  
11:06:36

Acquisition slowly starting

TRIGGER SETUP

2  
2 s  
1.00 V



Edge SMART

-trigger on  
1 2 3 4 Ext  
Ext10 Line

cp1g Ext  
DC AC LFREJ  
HFREJ HF

slope Ext  
Pos Neg  
Window

CLEAR  
OVERLOAD

holdoff  
- - -  
OFF Time Evts

2 s

1 1 V 50Ω  
2 1 V DC  
3 1 V 50Ω  
4 1 V 50Ω

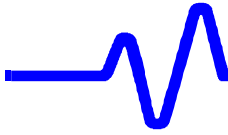


Ext DC 0mV OVL

50 S/s

NORMAL

- Set Time base : **5 sec/div.**
- Set the output of the external **DC voltage source** to **+5.00 Volt**
- Check that the External overload doesn't trip for at least 60 seconds. Record the test result in Table 17.



### LeCroy Digital Storage Oscilloscope

#### Performance Certificate

LT Series Manual Performance Test Procedure Version B - September 1999

Model \_\_\_\_\_ Serial Number \_\_\_\_\_ Customer \_\_\_\_\_

Software Version \_\_\_\_\_

Inspection Date \_\_\_\_\_ Next Due \_\_\_\_\_

Temperature \_\_\_\_\_ Humidity \_\_\_\_\_%

Tested By \_\_\_\_\_ Report Number \_\_\_\_\_

Place of Inspection \_\_\_\_\_

Condition found \_\_\_\_\_ Condition Left \_\_\_\_\_

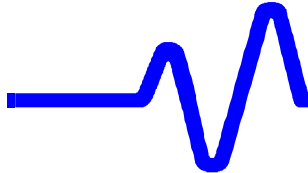
Approved By \_\_\_\_\_

#### Test Equipment Used

Instrument	Model	S/N	Cal Due Date
Signal Generator Radio Frequency	_____	_____	_____
Signal Generator Audio Frequency	_____	_____	_____
Voltage Generator DC Power Supply	_____	_____	_____
Step Generator Fast Pulser	_____	_____	_____
Digital Multimeter Voltmeter, Ohmmeter	_____	_____	_____

Traceable to \_\_\_\_\_

Table 1: LT Series Test Report

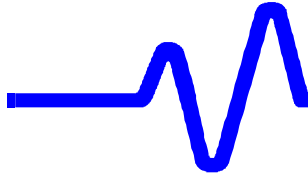


Coupling	Volts/div.	Measured Channel 1 Impedance $\Omega, M\Omega$	Measured Channel 2 Impedance $\Omega, M\Omega$	Measured Channel 3 Impedance $\Omega, M\Omega$	Measured Channel 4 Impedance $\Omega, M\Omega$	Measured External Impedance $\Omega, M\Omega$	Measured External/10 Impedance $\Omega, M\Omega$	Lower Limit $\Omega, M\Omega$	Upper Limit $\Omega, M\Omega$
DC 1M $\Omega$	50 mV/div							0.99 M $\Omega$	1.01 M $\Omega$
DC 1M $\Omega$	200 mV/div					N/A	N/A	0.99 M $\Omega$	1.01 M $\Omega$
AC 1M $\Omega$	50 mV/div					N/A	N/A	1.188 M $\Omega$	1.212 M $\Omega$
AC 1M $\Omega$	200 mV/div					N/A	N/A	1.188 M $\Omega$	1.212 M $\Omega$
DC 50 $\Omega$	50 mV/div						N/A	49.5 $\Omega$	50.5 $\Omega$
DC 50 $\Omega$	200 mV/div					N/A	N/A	49.5 $\Omega$	50.5 $\Omega$

Table 2: Impedance Test Record

Coupling	Volts/div.	Measured Channel 1 Leakage mV	Measured Channel 2 Leakage mV	Measured Channel 3 Leakage mV	Measured Channel 4 Leakage mV	Measured External Leakage mV	Lower Limit mV	Upper Limit mV
DC 1M $\Omega$	50 mV/div						-1	+1
DC 1M $\Omega$	200 mV/div						-1	+1

Table 3: Leakage Voltage Test Record

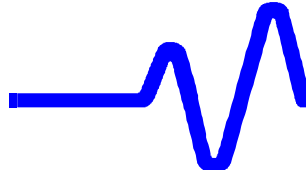


Coupling	Time/Div.	Measured sdev Channel 1 mV	Measured sdev Channel 2 mV	Measured sdev Channel 3 mV	Measured sdev Channel 4 mV	Limits mV
DC 1MΩ	20 ms					0.4
DC 1MΩ	1 ms					0.4
DC 1MΩ	50 μs					0.4
DC 1MΩ	2 μs					0.4
AC 1MΩ	2 μs					0.4
DC 50Ω	2 μs					0.4
DC 50Ω	20 μs					0.4

Table 4: RMS Noise Test Record

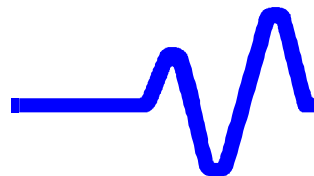
	LT322, LT224	LT344/342	LT344L/342L	Test Passed
Channel 1	1000 events	400 events	400 events	
Channel 2	1000 events	400 events	400 events	
Channel 3	1000 events	400 events	400 events	
Channel 4	1000 events	400 events	100 events	

Table 5: Erroneous Read / Write Test



Volts /div	Attenuator	P S Out Put	Measured Channel 1 V & mV			Measured Channel 2 V & mV			Measured Channel 3 V & mV			Measured Channel 4 V & mV			Limits
			DMM 1	Mean (A)	Δ 1 Mean-DMM	DMM 2	Mean (B)	Δ 2 Mean-DMM	DMM 3	Mean (C)	Δ 3 Mean-DMM	DMM 4	Mean (D)	Δ 4 Mean-DMM	
2 mV	X 100	+0.6 V													±1.25mV
		-0.6V													±1.25mV
5 mV	X 100	+1.5 V													±1.625 mV
		-1.5V													±1.625 mV
10 mV	X 100	+3.0 V													±2.25 mV
		-3.0V													±2.25 mV
20 mV	X 100	+6.0 V													±2.5 mV
		-6.0V													±2.5 mV
50 mV	X 10	+1.5V													±7.25mV
		-1.5V													±7.25mV
0.1 V	X 10	+3.0 V													±13.5mV
		-3.0V													±13.5mV
1 V	X 1	+3.0 V													±126mV
		-3.0V													±126mV
5 V	X 1	+15V													±0.626V
		-15V													±0.626V

Table 6: DC Accuracy Test Record

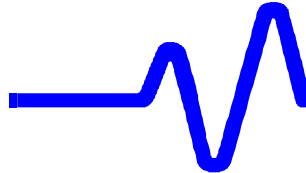


## LT Series Test Record

Volt /div.	Coupling DC	DSO offset	P S output	Measured Channel 1 V & mV			Measured Channel 2 V & mV			Measured Channel 3 V & mV			Measured Channel 4 V & mV			Limits  mV
				DMM 1	Mean (A)	Δ 1 Mean-DMM	DMM 2	Mean (B)	Δ 2 Mean-DMM	DMM 3	Mean (C)	Δ 3 Mean-DMM	DMM 4	Mean (D)	Δ 4 Mean-DMM	
5mV	1 MΩ	+1 V	-1 V													±16.2
5mV	1 MΩ	-1 V	+1 V													±16.2
5mV	1MΩ	0V	0V													±1.2

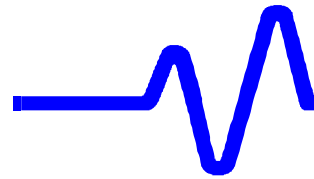
**Table 7: Offset Test Record**

LT344/L, 342/L, 322												
Frequency	Measured Power	Generator Amplitude	Measured Channel 1		Measured Channel 2		Measured Channel 3		Measured Channel 4		Lower Limit	Upper Limit
MHz	mW	mV	Sdev(1) mV	Ratio(1) to 0.3	Sdev(2) mV	Ratio(2) to 0.3	Sdev(3) mV	Ratio(3) to 0.3	Sdev(4) mV	Ratio(4) to 0.3		
0.300	0.200			N/A		N/A		N/A		N/A	N/A	N/A
1.1	0.200										0.92	1.08
10.1	0.200										0.92	1.08
100.1	0.200										0.86	1.14
200.1	0.200										0.7	N/A
300.1	0.200										0.80	1.20
500.1	0.200										0.70	N/A



LT224												
Frequency	Measured Power	Generator Amplitude	Measured Channel 1		Measured Channel 2		Measured Channel 3		Measured Channel 4		Lower Limit	Upper Limit
MHz	mW	mV	Sdev(1) mV	Ratio(1) to 0.3	Sdev(2) mV	Ratio(2) to 0.3	Sdev(3) mV	Ratio(3) to 0.3	Sdev(4) mV	Ratio(4) to 0.3		
0.300	0.200			N/A		N/A		N/A		N/A	N/A	N/A
1.1	0.200										0.92	1.08
10.1	0.200										0.92	1.08
100.1	0.200										0.80	1.20
200.1	0.200										0.70	N/A

Table 8: DC 50Ω, 50 mV/div. Bandwidth Test Record



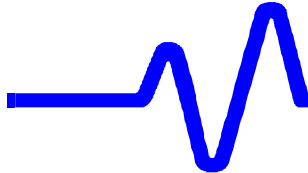
## LT Series Test Record

LT344/L, LT342/L,LT322												
Frequency	Measured Power	Generator Amplitude	Measured Channel 1		Measured Channel 2		Measured Channel 3		Measured Channel 4		Lower Limit	Upper Limit
MHz	mW	mV	Sdev(1) mV	Ratio(1) to 0.3	Sdev(2) mV	Ratio(2) to 0.3	Sdev(3) mV	Ratio(3) to 0.3	Sdev(4) mV	Ratio(4) to 0.3		
0.300	0.800			N/A		N/A		N/A		N/A	N/A	N/A
1.1	0.800										0.92	1.08
10.1	0.800										0.92	1.08
100.1	0.800										0.86	1.14
300.1	0.800										0.80	1.20
500.1	0.800										0.70	N/A

LT224												
Frequency	Measured Power	Generator Amplitude	Measured Channel 1		Measured Channel 2		Measured Channel 3		Measured Channel 4		Lower Limit	Upper Limit
MHz	mW	mV	Sdev(1) mV	Ratio(1) to 0.3	Sdev(2) mV	Ratio(2) to 0.3	Sdev(3) mV	Ratio(3) to 0.3	Sdev(4) mV	Ratio(4) to 0.3		
0.300	0.800			N/A		N/A		N/A		N/A	N/A	N/A
1.1	0.800										0.92	1.08
10.1	0.800										0.92	1.08
100.1	0.800										0.80	1.20
200.1	0.800										0.70	N/A

**Table 9: DC 50Ω, 100 mV/div. Bandwidth Test Record**

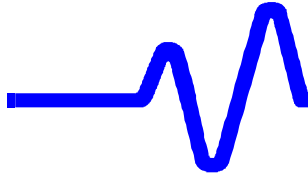




LT344/L, LT342/L, LT322											
Global BWL	Amplitude at 300 kHz	Measured Channel 1		Measured Channel 2		Measured Channel 3		Measured Channel 4		Lower Limit	Upper Limit
MHz	Sdev mV	Sdev(1) mV	Freq(1) MHz	Sdev(2) mV	Freq(2) MHz	Sdev(3) mV	Freq(3) MHz	Sdev(4) mV	Freq(4) MHz	MHz	MHz
25	200	140		140		140		140		10	37
200	200	140		140		140		140		110	290

LT224											
Global BWL	Amplitude at 300 kHz	Measured Channel 1		Measured Channel 2		Measured Channel 3		Measured Channel 4		Lower Limit	Upper Limit
MHz	Sdev mV	Sdev(1) mV	Freq(1) MHz	Sdev(2) mV	Freq(2) MHz	Sdev(3) mV	Freq(3) MHz	Sdev(4) mV	Freq(4) MHz	MHz	MHz
25	200	140		140		140		140		10	37
200	200	140		140		140		140		N/A	N/A

Table 10: DC 50Ω, Bandwidth Limiter Test Record

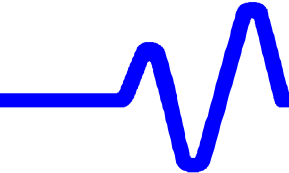


Trigger Level	Trigger Slope	Channel 1	Channel 2	Channel 3	Channel 4	Lower Limit	Upper Limit
		Measured DC Trigger Level (1)	Measured DC Trigger Level (2)	Measured DC Trigger Level (3)	Measured DC Trigger Level (4)		
mV		mV	mV	mV	mV	mV	mV
0	Pos					-30	+30
0	Neg					-30	+30
+300	Pos					+270	+330
+300	Neg					+270	+330
-300	Pos					-270	-330
-300	Neg					-270	-330

Table 11: Channel DC Trigger Test Record

Trigger Level	Trigger Slope	Channel 1	Channel 2	Channel 3	Channel 4	Lower Limit	Upper Limit
		Measured HFREJ Trigger Level (1)	Measured HFREJ Trigger Level (2)	Measured HFREJ Trigger Level (3)	Measured HFREJ Trigger Level (4)		
mV		mV	mV	mV	MV	mV	mV
0	Pos					-50	+50
0	Neg					-50	+ 50
+300	Pos					+250	+350
+300	Neg					+250	+350
-300	Pos					-250	-350
-300	Neg					-250	-350

Table 12: Channel HFREJ Trigger Test Record

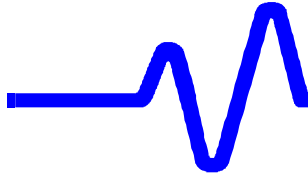


Trigger Slope	External Trigger Level	External DC	External HFREJ	External Limits		External/10 Trigger Level	External/10 DC	External/10 HFREJ	External/10 Limits	
				Lower	Upper				Lower	Upper
	mV	Measured DC Trigger Level (Ext) mV	Measured HFREJ Trigger Level (Ext) mV	MV	mV	V	Measured DC Trigger Level (Ext10) V	Measured HFREJ Trigger Level (Ext10) V	V	V
Pos	0			-50	+50	0			-0.5	+0.5
Neg	0			-50	+50	0			-0.5	+0.5
Pos	+300			+250	+350	+3			+2.5	+3.5
Neg	+300			+250	+350	+3			+2.5	+3.5
Pos	-300			-250	-350	-3			-2.5	-3.5
Neg	-300			-250	-350	-3			-2.5	-3.5

Table 13: External & Ext/10 DC and HFREJ Trigger Test Record

Smart Trigger Pulse Width ns	Generator Frequency MHz	Width	Width	Triggered	Pass
		<	>		
< 10	100	On	Off	Yes	
< 10	100	Off	On	No	
> 10	40	Off	On	Yes	
> 10	40	On	Off	No	
< 100	10	On	Off	Yes	
< 100	10	Off	On	No	
> 100	4	Off	On	Yes	
> 100	4	On	Off	No	

Table 14: Smart Trigger Test Record

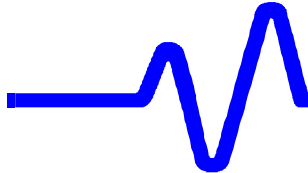


Generator Frequency MHz	Post Trigger Delay Msec	Delay (A ) ns	Delay (1) msec	Difference delay(A) –delay(1)+5msec	Lower Limit μsec	Upper Limit μsec
1.00000	5.00000				-0.5	+0.5

Table 15: Time Base Test Record

Coupling	Measured Channel 1 Over+(A) %	Measured Channel 2 Over+(B) %	Measured Channel 3 Over+(C) %	Measured Channel 4 Over+%(D) %	Overshoot Limit (%)	
					LT344/L, 342/L, 322	LT224
DC 50Ω					0 to +12	0 to +10
Measured Channel 1 Rise(A) ns	Measured Channel 2 Rise(B) ns	Measured Channel 3 Rise(C) ns	Measured Channel 4 Rise(D) ns	Rise time Limit ns		
				LT344/L, 342L, 322	LT224	
				0.8	1.9	

Table 16: Rise Time and Overshoot Test Record



DC Reference Source Volt	Measured Channel 1 Overload Trip sec	Measured Channel 2 Overload Trip sec	Measured Channel 3 Overload Trip sec	Measured Channel 4 Overload Trip sec	Measured External Overload Trip sec	Overload Trip Limit sec
7.07						< 30
5.00						> 60

Table 17: Overload Trip Test Record


## 6. Maintenance

### 6.1 Introduction


This section contains information necessary to maintain, calibrate and troubleshoot the LeCroy waverunner digital storage oscilloscopes.

#### 6.1.1 Safety Precautions



The  symbol used in this manual indicates dangers that could result in personal injury.



The  symbol used in this manual identify conditions or practices that could damage the instrument.



The following servicing instructions are for use by qualified personnel only. Do not perform any servicing other than contained in service instructions. Refer to procedures prior to performing any service.



Exercise extreme safety when testing high energy power circuits. Always turn the power OFF, disconnect the power cord, discharge the cathode ray tube and all capacitors before disassembling the instrument.

#### 6.1.2 Antistatic Precautions



Any static charge that builds on your person or clothing may be sufficient to destroy CMOS components, integrated circuits, Gate array's.....etc.

In order to avoid possible damage, the usual precautions against static electricity are required.

- Handle the boards in antistatic boxes or containers with foam specially designed to prevent static build-up.
- Ground yourself with a suitable wrist strap.
- Disassemble the instrument at a properly grounded work station equipped with antistatic mat.
- When handling the boards, do not touch the pins.
- Stock the boards in antistatic bags.



## 6.2 Software Update Procedure

### 6.2.1 Upgrading Firmware

LeCroy Corporation has a policy of continually improving and upgrading its products.

The LT Series instrument is equipped with flash Prom on processor board. The software is updated to the latest version using either the floppy disk drive or the memory card interface.

After any software change, reboot the scope or perform a general reset of the instrument by simultaneously depressing the F2 button, the F5 menu button and the CH1 button.

#### a. Performing the Update from Floppy

- Format a single high density 1.44Mb floppy in the scope ( not in the PC )
- Create a directory LECROY\_P in the root directory of the disk
- Copy the file VXFOUND.FLA, into the directory created above.
- Label this disk “ Firmware Update Disk “
- Cycle power to the scope with no floppy inserted.
- When the scope boots enter the “Show Status“ , “System“ menu to verify that version 08.1.1 or later is currently running.
- Insert the Firmware Update Disk into the scope’s floppy drive.
- Select “Utilities“, “Special Modes“, “Firmware Update“, “Update from Floppy“ .
- Press twice “Update Flash“.
- Wait for two minutes until displaying “FLASH UPDATE SUCCESSFUL”on the DSO.
- When the operation is complete remove the floppy and reboot the scope.
- When the scope boots enter the “Show Status“, “System “ menu to verify that the new version is currently running.

#### Warning:

**Reprogramming the Flash memory is a procedure to be perform with care.**

**Any loss of power during the update process could cause the scope to require Factory service.**

**Note that once software has update it is not possible to revert to the previous software version.**

#### b. Performing the Update from Card

- Format a 2Mb SRAM memory card
- Create a directory LECROY\_P in the root directory of the card
- Copy the file VXFOUND.FLA, into the directory created above.

- 
- Cycle power to the scope with no floppy or card inserted.
  - When the scope boots enter the "Show Status" , "System" menu to verify that version 8.1.1 or later is running.
  - Insert the Card created above into the PCMCIA Slot.
  - Select "Utilities", "Special Modes", "Firmware Update", "Update from Card" .
  - Press twice "Update Flash".
  - Wait for two minutes until displaying "FLASH UPDATE SUCCESSFUL"on the DSO.
  - When the operation is complete remove the card and reboot the scope.
  - When the scope boots enter the "Show Status", "System " menu to verify that the new version is currently running.

## 6.2.2 Software Options

The following software options are available:

- EMM            Extended Math & Measurement
- WAVA         Wave Analysis
- MC01         PCMCIA Memory Card
- JTA            Jitter and Timing Analysis

### 6.2.2.1 Changing Software Option Key

#### a. Scope ID, Scope Serial Number

The scope ID and scope s/n: are used to request a Software Option Key

- Enter the scope's Software Options menu (located under the **STATUS, SYSTEM** menu ).
- Note the **SCOPEID**, i.e: C63B9B-A5 and **Scope s/n**: LT34400156 that are found on that menu.

#### b. Entering Option Key in the DSO

- Enter the scope's Software Options menu ( **STATUS, SYSTEM** menu ).
- Enter the **ADD OPTION KEY** menu on the DSO
- Enter the new option key using the dymo-editor, i.e: **C4B5-F4A9-4464-E7ED**
- Click on **ENTER THIS OPTION KEY** to add the key
- Reboot the scope and verify that the options added correctly.

Then check in the system summary, by using the show status button on the front panel, the scope serial number.





## 6.3 Equipment and Spare Parts Recommended for Service

### 6.3.1 Test Equipment Required

See Table 5-1 in section 5.2.

### 6.3.2 LT Series Spare Parts

Parts Number	Assembly	Adjustments or Confirmations	Performance Tests
213025610	CPU Board without DRAM	6.5.1	None
213025605	Main Board for LT344/344L without HMM436's	6.5.2	None
213025650	Main Board for LT342/342L without HMM436's	6.5.2	None
213025648	Main Board for LT322 without HMM436's	6.5.2	None
213025670	Main Board for LT224 without HMM436's	6.5.2	None
213025678	Front Cover(4CH)for LT344/224	None	None
213025679	Front Cover(2CH) for LT342/322	None	None
213025680	8.4"Color TFT LCD Display Assy	None	None
213025615	Power Board	6.5.3	None
DMB020691	Floppy Disc Drive	None	None
213025681	Printer Assy	None	None

The other parts are not on the above list because the probability of failure is very low.

See [chapter 7](#) and [8](#) for mechanical and electrical replaceable parts.

## 6.4 Board Exchange Procedure

### 6.4.1 Processor Board Exchange Procedure

The serial number of the LT Series oscilloscope is loaded in the real time clock memory which is battery backed up. If it becomes necessary to replace the processor board, the serial number must be loaded in the memory of the new board by using LeCroy program " LeCalsoft " under GPIB remote control.

To run " LeCalsoft " type SKP.exe, in the main menu type S, and follow the instructions, use five digits to enter the serial number ( i.e. 10281).

Then check in the system summary, by using the show status button on the front panel, the scope serial number.

---

## 6.4.2 Main Board Exchange Procedure

After Main Board is exchanged, adjust as the following method.

- Assemble the lower cover and upper cover.
- Plug in the power cord and turn on the LT Series.
- Wait for fifteen minutes.
- Enter the internal menus by pressing menu soft-keys 3 & 4, then release soft-key 3, then release soft-key 4, then press soft-key 5.
- Select **“Maintenance”**, **“Board Test Results”**, **“Adjust”**.
- Press **“Measure Board Items”**, and wait till **“Succeeded”** is displayed.
- Press **“Measure Overload”**, and wait till **“Measure Complete”** is displayed.
- Press **“Save Result to EEPROM”** two times.

Note ; Do not press the other menu keys, or some calibration data of Main Board may be lost.

This section does not include the other manual adjustments of Main Board, and does not contain any instructions or descriptions about Main Board calibration. Main Board adjustments required complex test set-up and calibration Software. For information on the availability of the tester and software, contact your nearest LeCroy service centre.

## 6.4.3 Power Board Exchange Procedure

After Power Board is exchanged, confirm the voltage as the following procedure.

- Remove the upper cover and the lower cover. (see 7.G)
- Turn the scope upside down.
- Turn on the power, set the scope to **Auto Trigger** and **500MS/s**.
- Confirm the following voltage on solder side of Main Board within ten minutes.

+12V analog	(Min = +11.76V, Max = +12.24V)	21C11
+5V analog	(Min = +4.925, Max = +5.075V)	21C21
-5V analog	(Min = -4.975V, Max = -5.05V)	21C71
-12V analog	(Min = -11.76V, Max = -12.24V)	21C61
+5V digital	(Min = +4.85V, Max = +5.15V)	21C41
-4.5V digital	(Min = -4.365V, Max = -4.635V)	21C91

Note ; Do not turn the potentiometers on Power Board.

Do not keep the condition that the lower cover is removed, or the heat sinks will become hot and the condition may damage some components on Main Board.

This section does not include the other manual adjustments of Power Board, and does not contain any instructions or descriptions about Power Board calibration. Power Board adjustments required complex test set-up.



For information on the availability of the tester, contact your nearest LeCroy service centre.

## 6.5 Troubleshooting and Flow Charts

### 6.5.1 Introduction



The troubleshooting information contained in this section is intended for use by qualified personnel having a basic understanding of electronics (analog and digital). In order to simplify servicing and minimise downtime, the following list of possible symptoms, likely causes, and troubleshooting steps have been prepared. The first step in troubleshooting is to check for obvious items like blown fuses. The power supply is the next item to check before proceeding to more detailed troubleshooting, since noise or low power supply voltages can cause a variety of digital and analog problems.

### 6.5.2 Line Fuses Replacement

The power supply of the oscilloscope is protected against short circuits and overload by means of two T6.3A / 250 V fuses located above the main plugs.



Turn off the power and disconnect the line cord from the instrument  
Disconnect the instrument from other equipment.

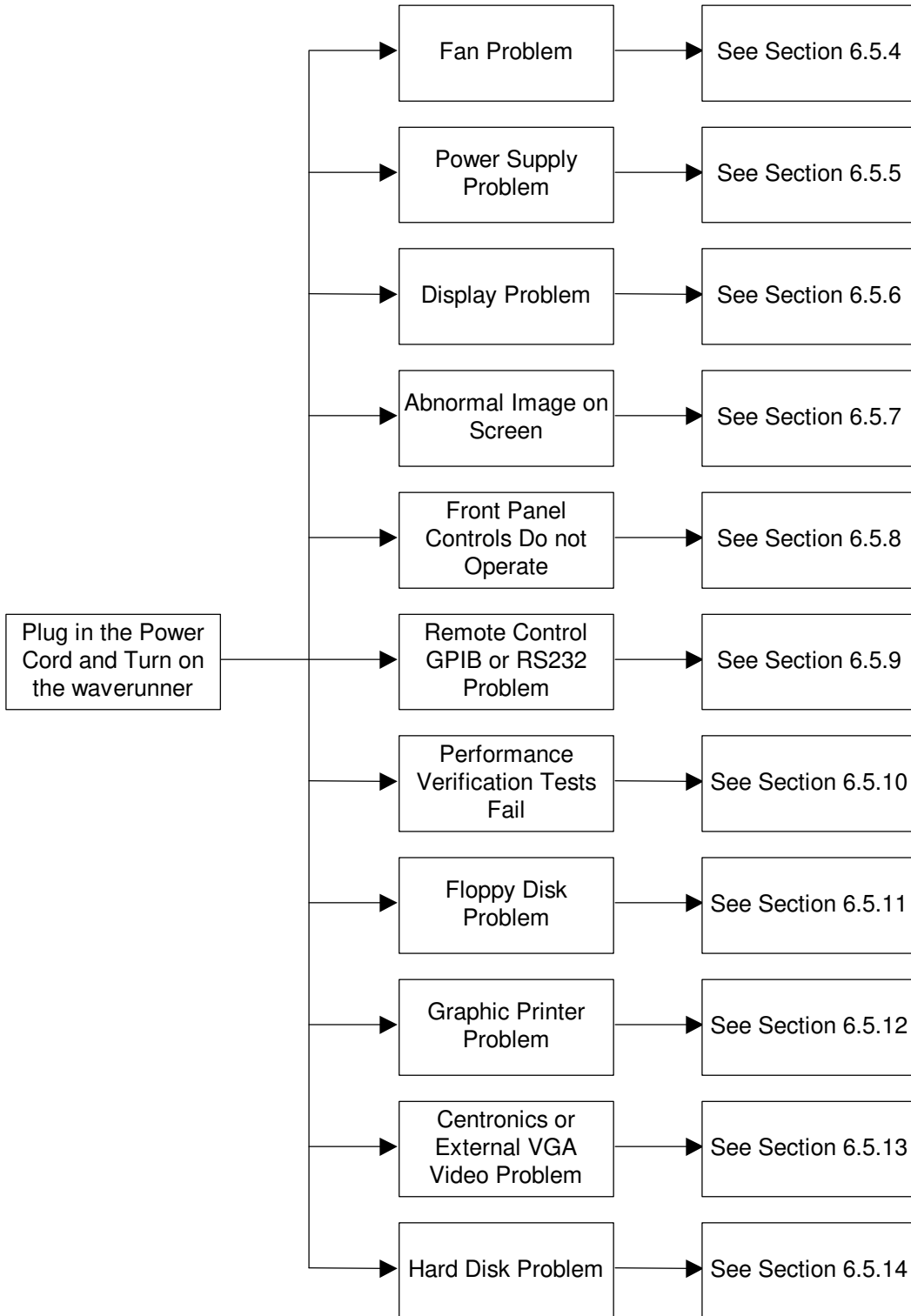
To replace line fuses, proceed as follow:

- Open the fuse box by inserting a small flat screwdriver under the plastic cover and remove the fuse carrier from the holder
- Remove the fuse and replace it with the proper type: T6.3 A / 250 V, LeCroy part number: **433 162 630**

### 6.5.3 Initial Troubleshooting Chart

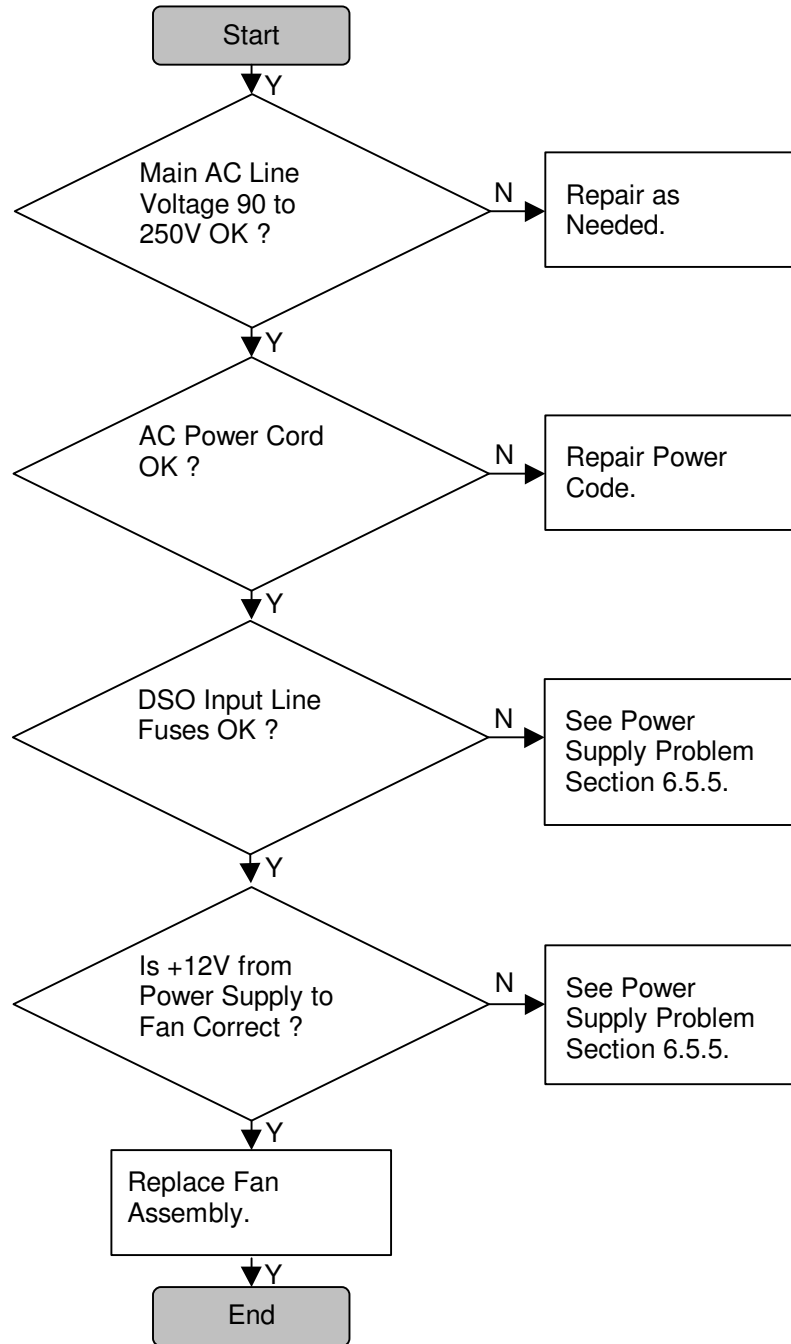
Most procedures in this section will allow troubleshooting down to the **BOARD LEVEL**.

Defective circuit boards will be repaired or exchanged by the regional LeCroy service office or the local representative (see section 2.2).

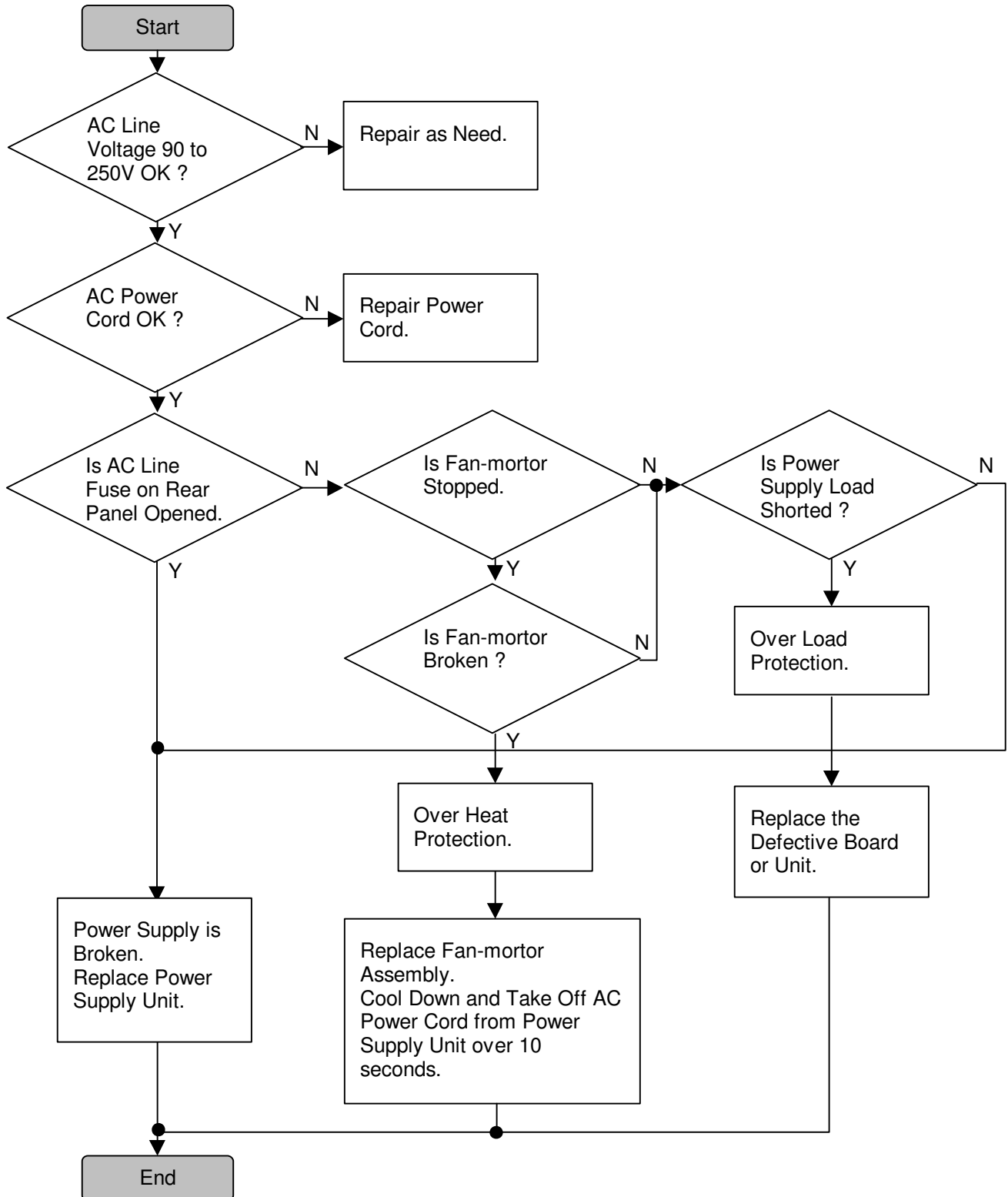




### 6.5.4 Fan Problem

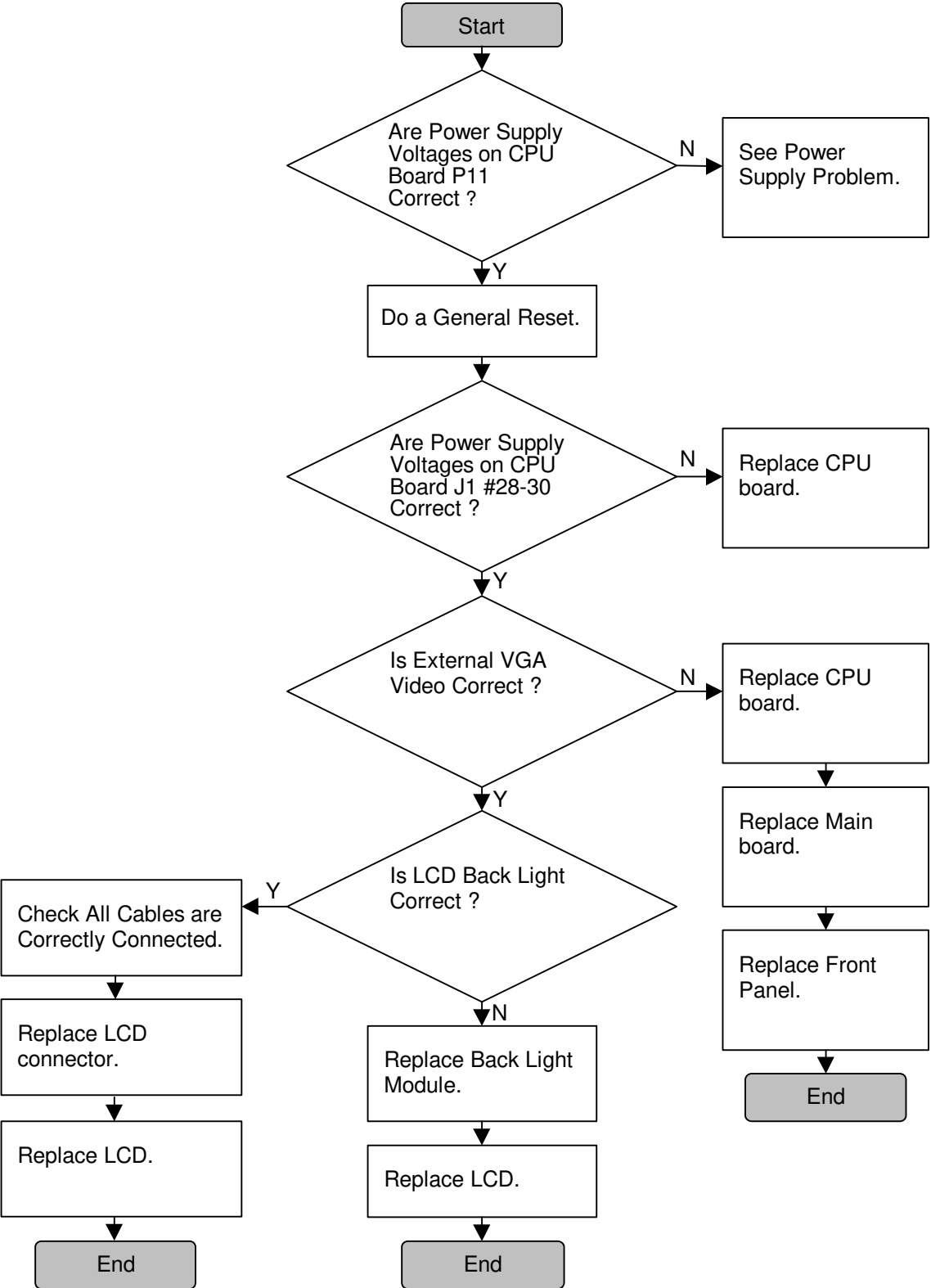


### 6.5.5 Power Supply Voltage Problem

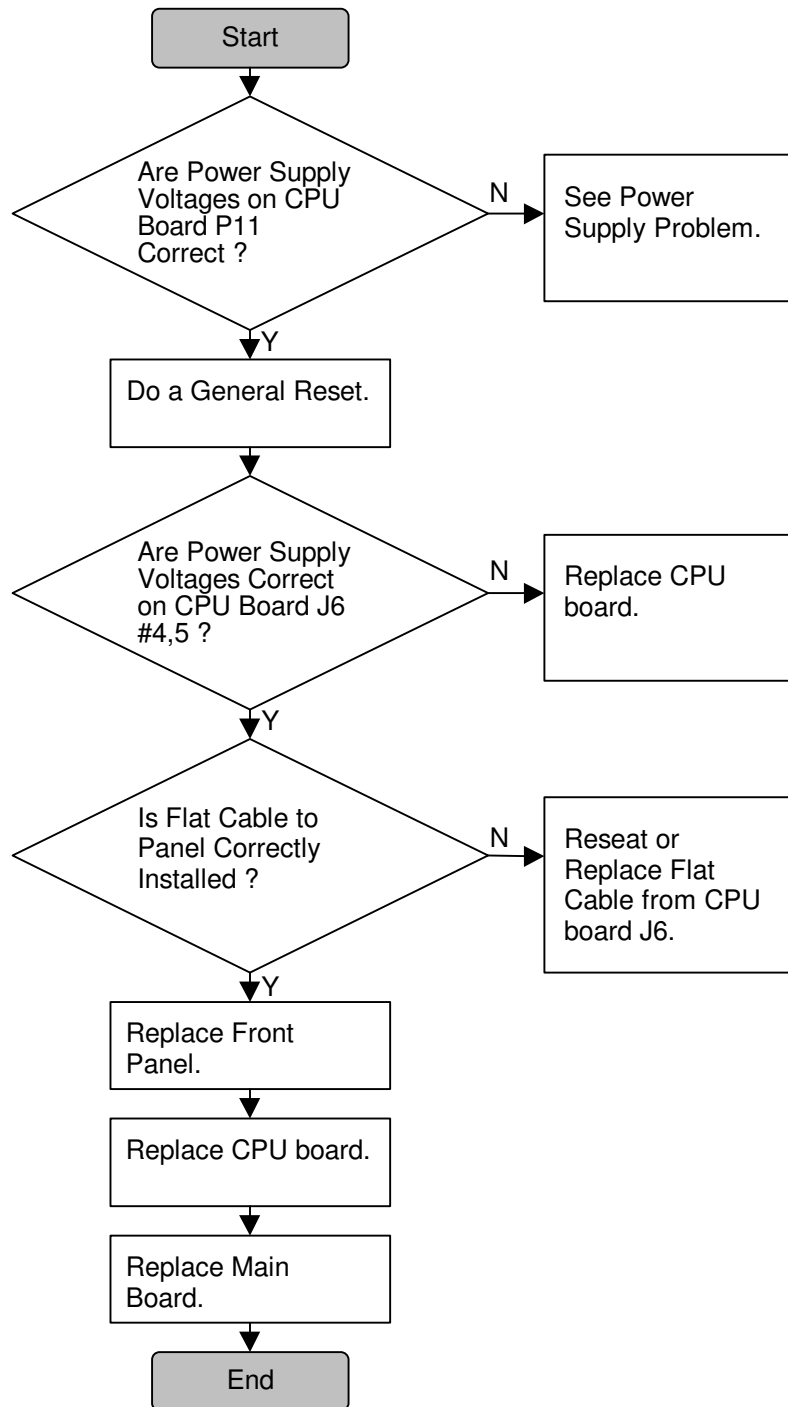




### 6.5.6 Display Problem



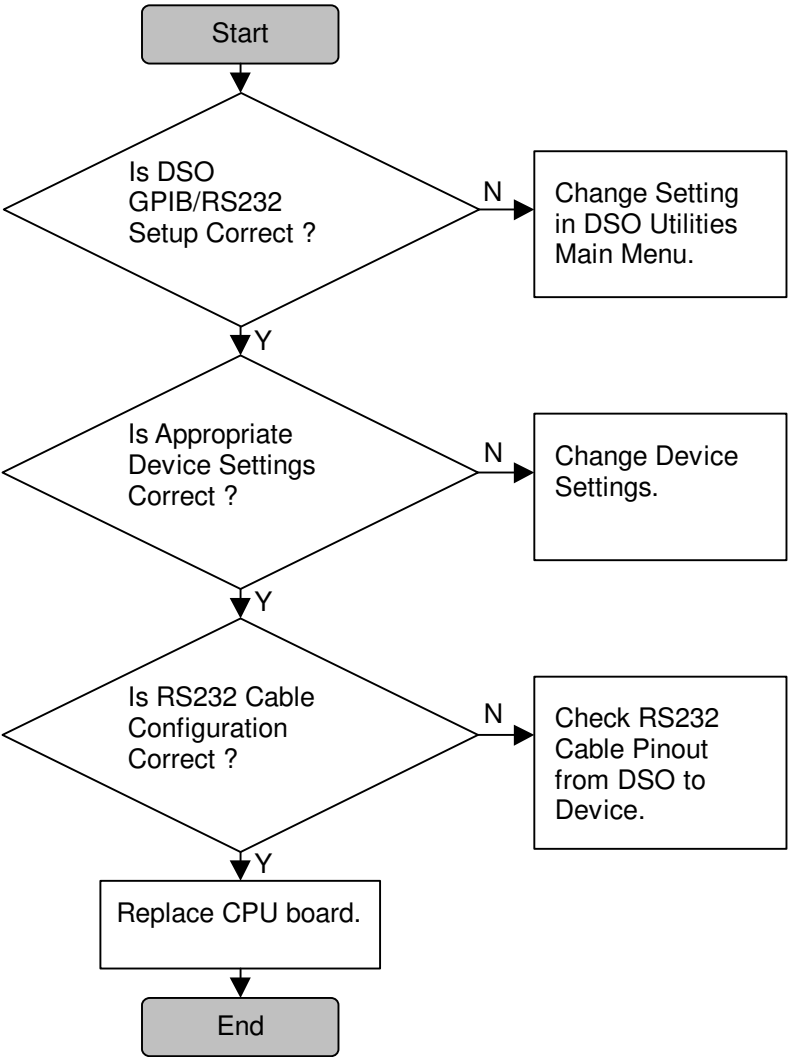
### 6.5.7 Front Panel Controls Do not Operate





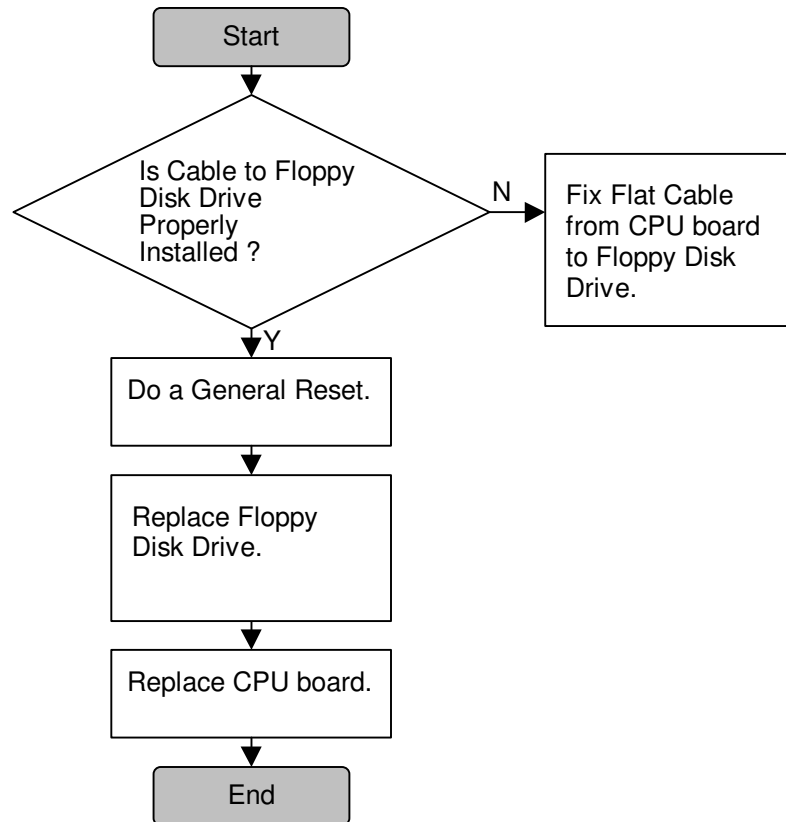


### 6.5.8 Remote Control GPIB or RS232 Problem



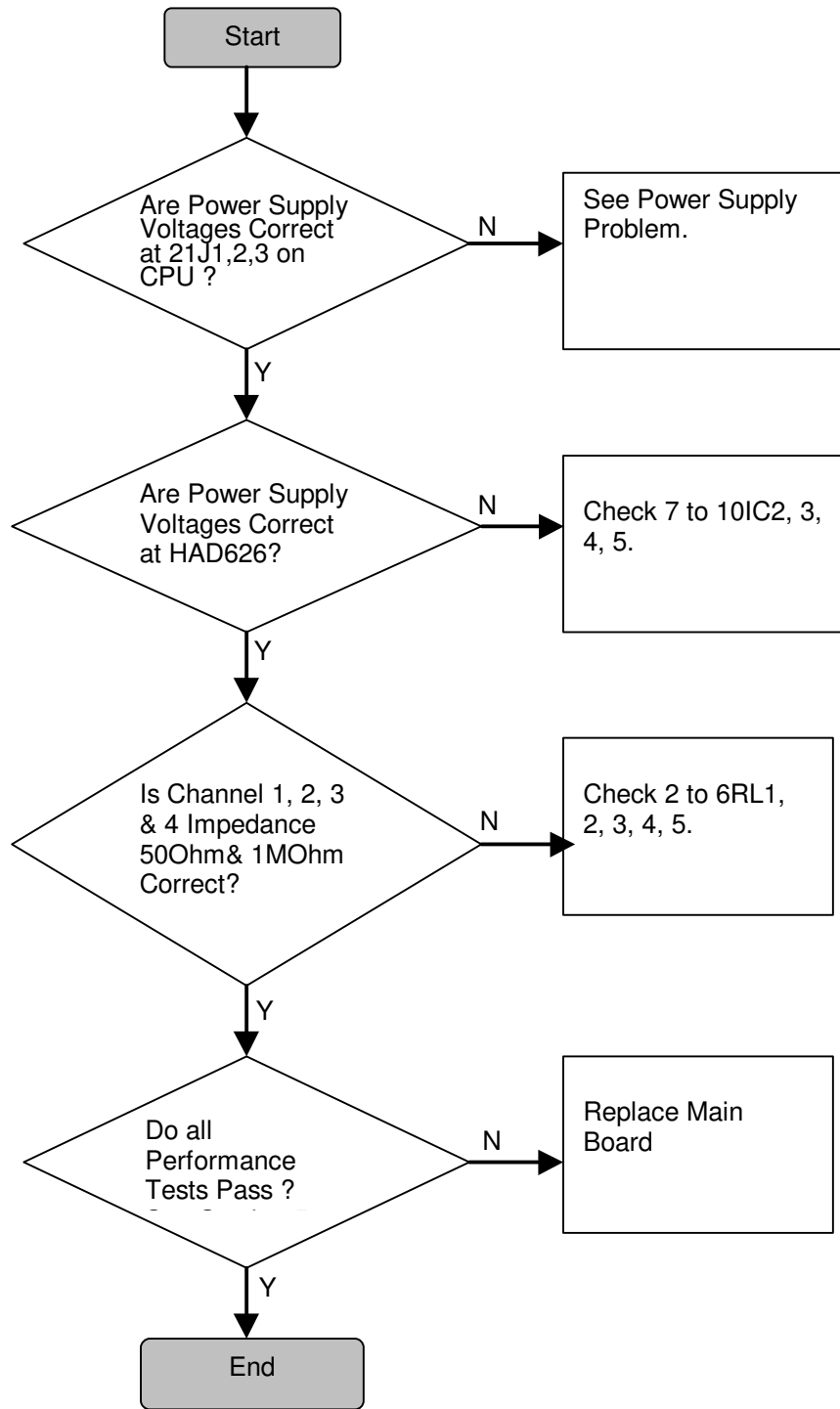
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### 6.5.9 Floppy Disk Drive Problem

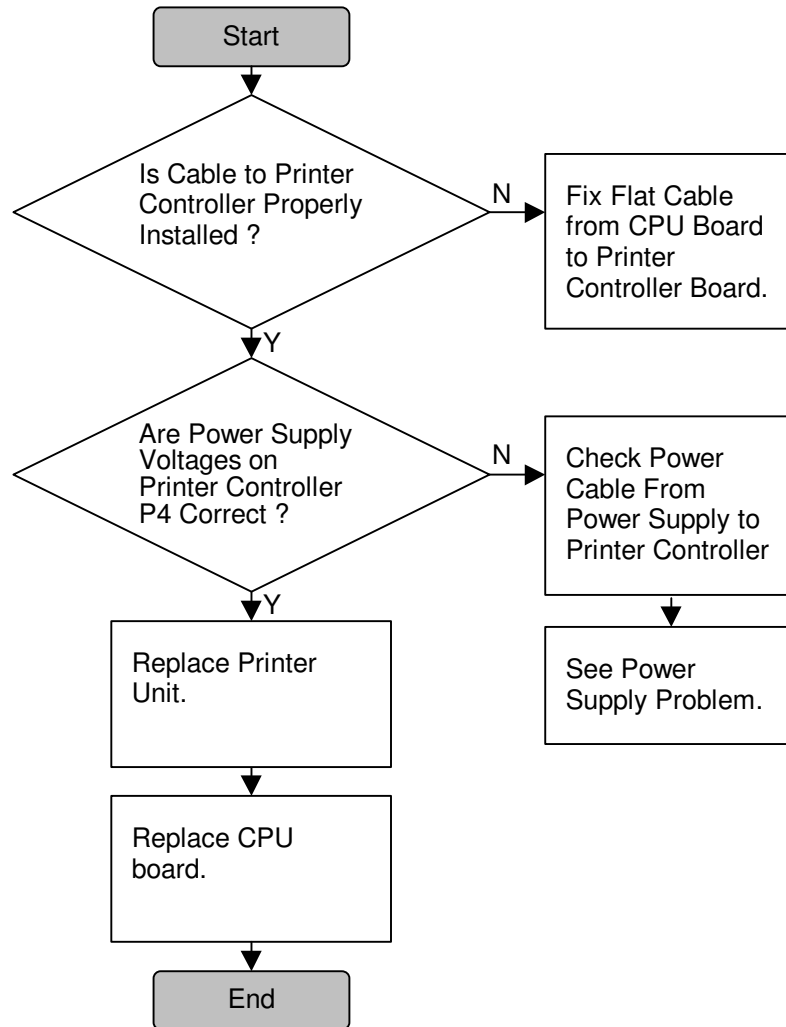




### 6.5.10 Performance Verification Fails

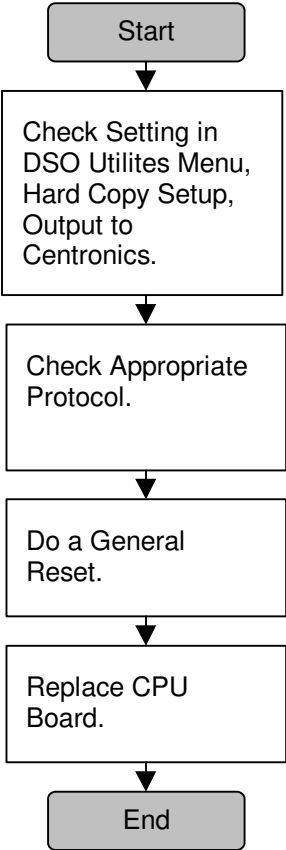


### 6.5.11 Graphic Printer Problem



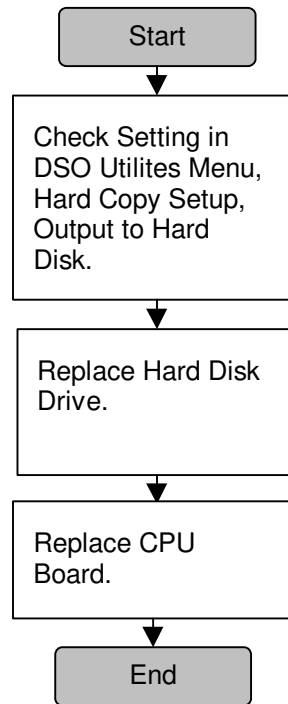


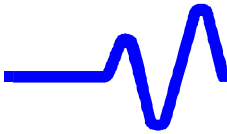
### 6.5.12 Centronics Problem



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### 6.5.13 Hard Disk Drive Problem



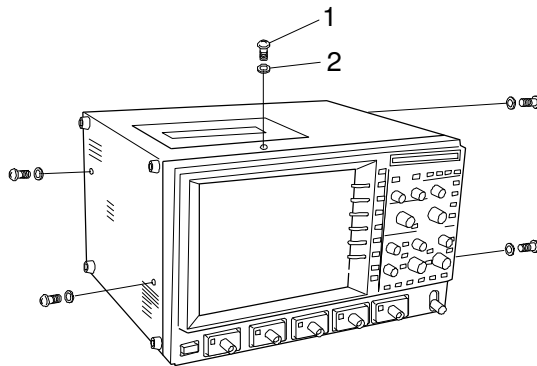


## 7. Mechanical Parts & Removal

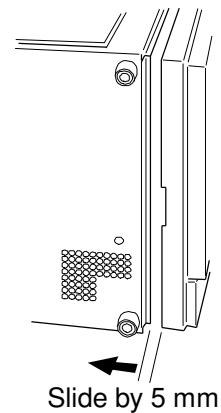
### A. Removal of the Upper Cover Assembly (with printer)

- A1, A2 : Remove the nine M3 x 6 screws with nylon washer (one on the top/each two on the right and left sides/four on the rear).
- A3 : In the case of a unit with a built-in printer (option), open the printer cover and depress the locking latch.
- A4 : Slide the upper cover rearward by approx. 5 mm. It is firm.
- A5 : Remove the upper cover by opening and lifting the lower portion of the cover.

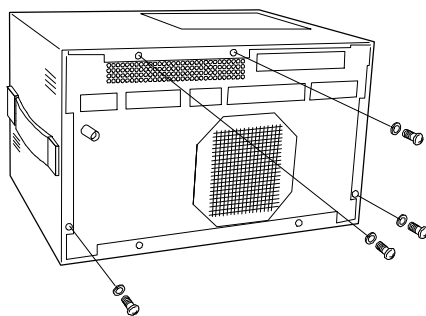
[A1]



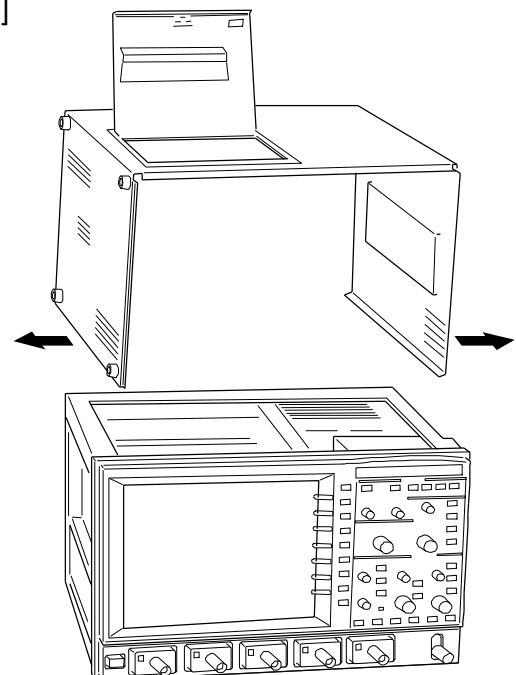
[A4]



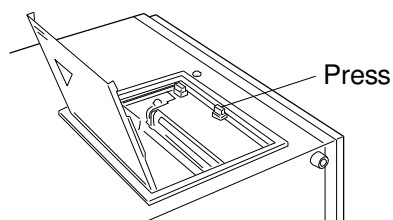
[A2]



[A5]

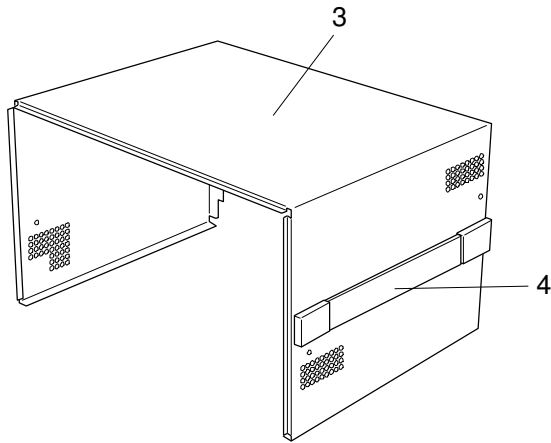


[A3]

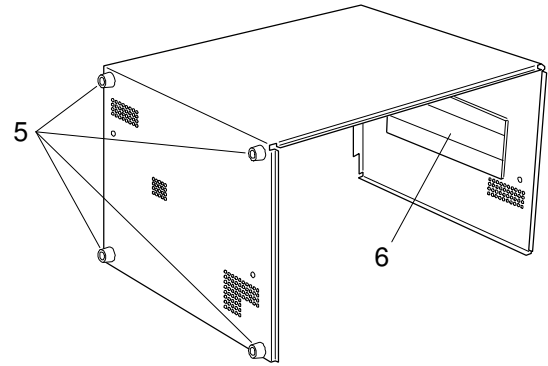




[A6]



[A7]

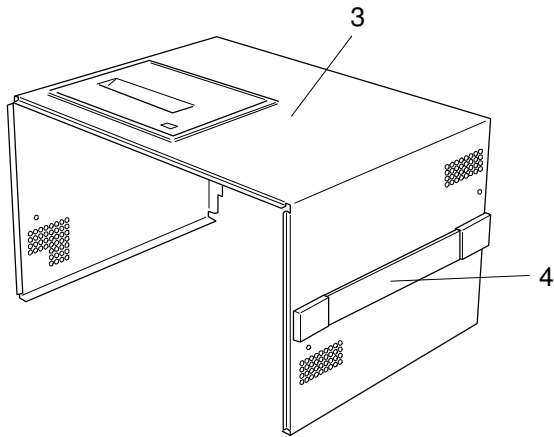


Upper Cover Replaceable Parts

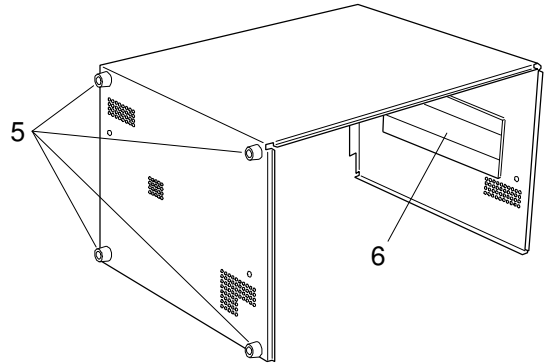
Item	IWATSU Part Number	Quantity	Description
1	MKB130062	9.0	Screw M3x6
2	MPW930000	9.0	Washer W-3, nylon
3	KBA787311	1.0	STD TOP COVER LE
4	MTH000791	1.0	Handle THA-238-L260 UL-I
5	MGA000721	4.0	Side Foot 5475 UL-I
6	KPL142611	3.0	Cushion
3, 4, 5, 6	21302-5676	1.0	LT UPPER COVER ASSY



[A8]



[A9]



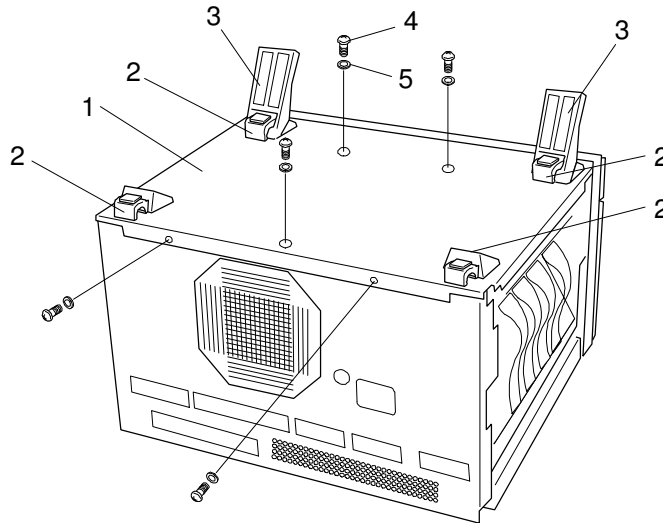
Upper Cover (with a built-in printer) Replaceable Parts

Item	IWATSU Part Number	Quantity	Description
1	MKB130062	5.0	Screw M3x6
2	MPW930000	5.0	Washer W-3, nylon
3	KBA786321	1.0	TOP COVERL E
4	MTH000791	1.0	Handle THA-238-L260 UL-I
5	MGA000721	4.0	Side Foot 5475 UL-I
6	KPL142611	3.0	Cushion
7	KCM141411	1.0	PRINTER COVER FRAME UL-I
8	KCM141311	1.0	PRINTER COVER UL-I
3, 4, 5, 6, 7, 8	21302-5677	1.0	LT UPPER COVER(GP02) ASSY



## B. Removal of the Bottom Cover Assembly

- Remove the upper cover.
- Remove the five M3 x 6 screws (with nylon washer, 3 on the bottom/2 on the rear).



Bottom Cover Replaceable Parts

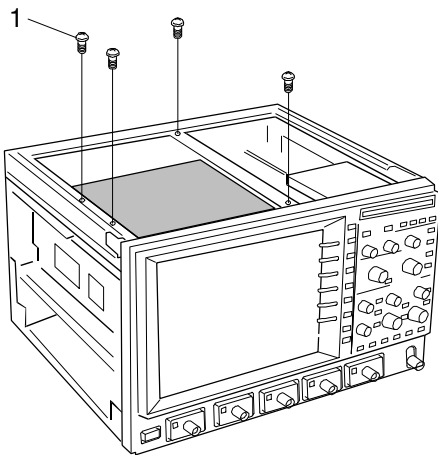
Item	IWATSU Part Number	Quantity	Description
1	KBA786921	1.0	BOTTOM COVER LE
2	KAS137811	4.0	BOTTOM FOOT ASSY
3	KCM131421	2.0	Rotor for the tilt stand
4	MKB130062	5.0	Screw M3x6
5	MPW930000	5.0	Washer W-3, nylon

### C. Removal of the Printer Assembly

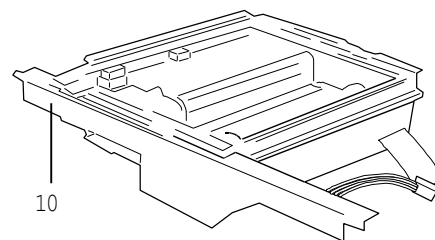
Remove the upper cover.

- C1 : Remove the four M3 x 6 screws (2 on the TOP FRAME L/2 on the center frame).
- C2 : Remove the CPU J7/FFC cable.
- C2 : Remove the POWER BOARD CN6/power 3P cable.

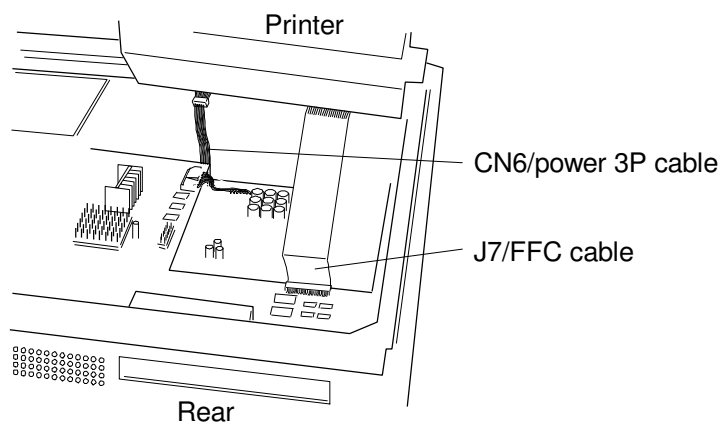
[C1]



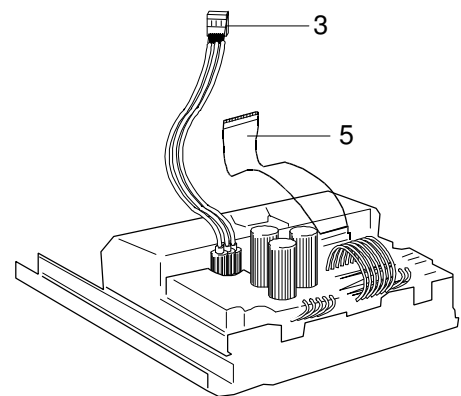
[C3]



[C2] View as the rear side of the printer unit lifted



[C4]





#### Printer Parts

Item	IWATSU Part Number	Quantity	Description
1	MKB130062	4.0	Screw KB(+)3X6S(NIP)
2	DZB992361	1.0	PRINTER FTP-642MCL001
3	KHB189311	1.0	PRINTER POWER CABLE UL-I
4	KHB189611	1.0	PRINTER HEAD CABLE UL-I
5	AHB202811	1.0	FFC-26P-L140-P1/CPU
6	KCM141211	1.0	PRINTER CASE UL-I
7	MFA001471	1.0	TL-304-1
8	KBA785511	1.0	PRINTER BASE UNIT
9	MSQ901661	3.0	Screw TT2(+)3X8S
10	KBA786211	1.0	CENTER FRAME
11	MKB130062	2.0	Screw KB(+)3X6S(NIP)
12	MSQ903531	3.0	Screw S-tight KB(+)2.5X6S
13	MKB130062	4.0	Screw KB(+)3X6S(NIP)
14	MHK000961	1.0	BAND CV-70/YJ-80
15	KCM142121	1.0	TKM KEYTOP B- GR UL-I
2 to 15	21302-5681	1.0	LT PRINTER UNIT(GP02) See Fig [C3, C4]

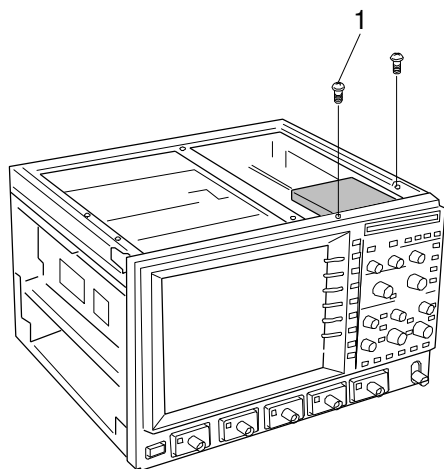
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## D. Removal of the Floppy Assembly

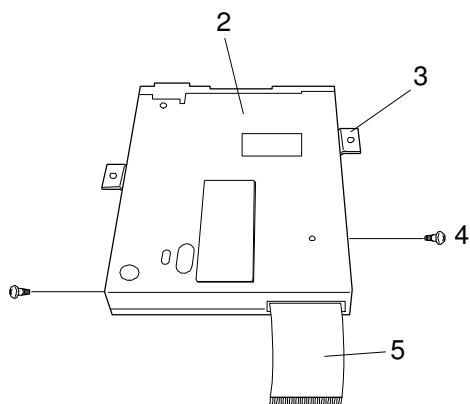
Remove the upper and bottom covers.

- D1 : Remove the CPU BOARD J2/FFC cable from the CPU.
- D1 : Remove two M3 x 6 screws on the TOP FRAME R and FRONT FRAME A.

[D1]



[D2]



### Floppy Replaceable Parts

Item	IWATSU Part Number	Quantity	Description
1	MKB130062	2.0	Screw M3x6
2	DMB020691	1.0	FD DRIVE WIDE-00B See Fig [D2]
3	KBA785211	1.0	FDD SUPPORT PLATE
4	MSQ903521	2.0	Screw M2.5x4



## E. Removal of the CPU Board

Remove the upper and bottom covers.

Remove the printer and floppy.

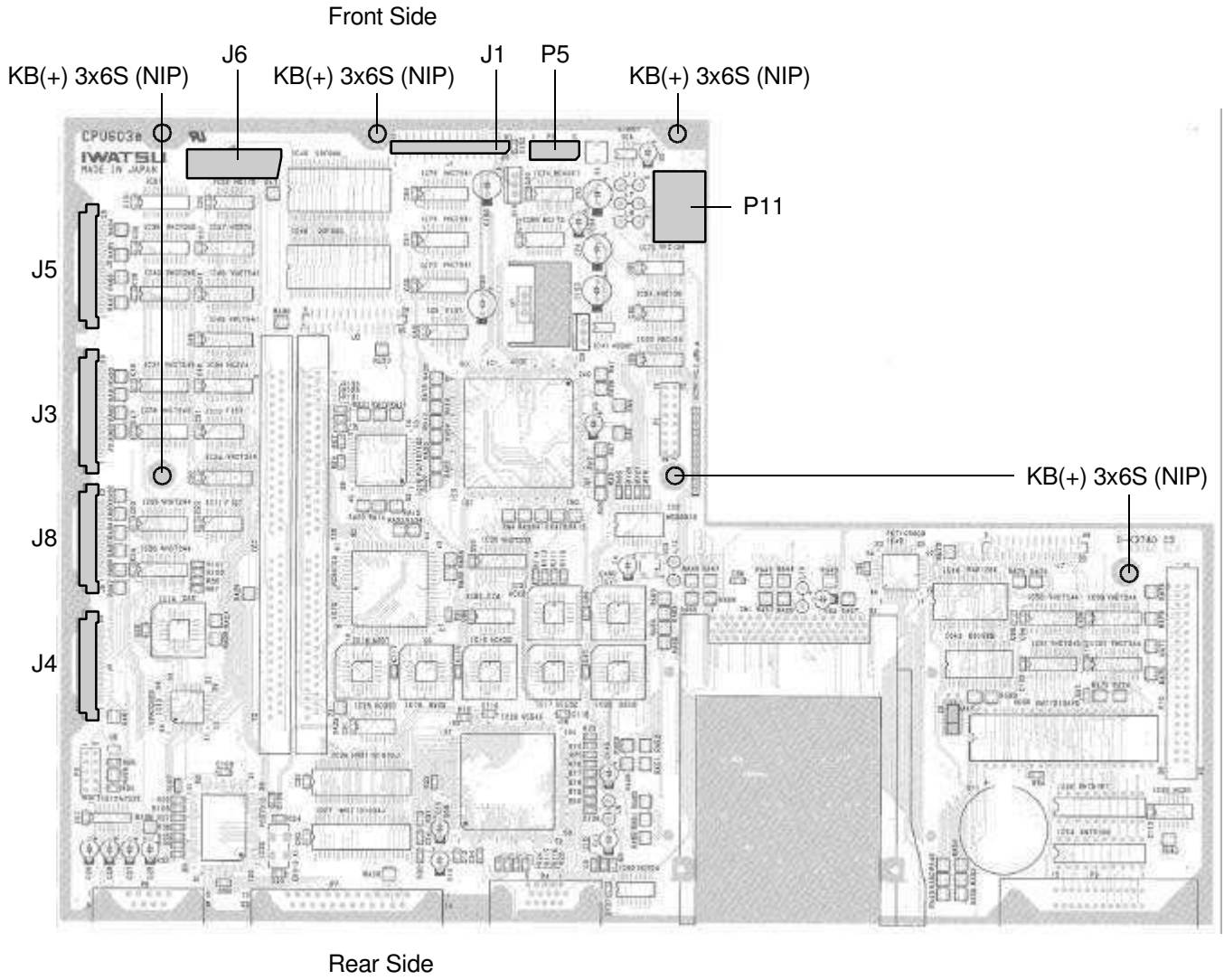
Remove the four M3 x 6 screws from the right and left frame.

[Note] Remove the cables on the CPU Board and next the screws on it.

- E1 : Remove the four FFC cables on the CPU Board (J3/26pin, J4/22pin, J5/26pin, J8/22pin).
- E1 : Remove the two FFC cables on the CPU Board (J1/30pin, J6/22pin).
- E1 : Remove the P5 power connector on the CPU Board (to LCD).
- E1 : Remove the P11 power connector on the CPU Board (to POWER).
- E2 : Remove the four M3 x 6 screws (4 on the rear, fastening between connectors and between the rear panel and CPU).  
Remove the eight M3x6 screws on the TOP FRAME L and R.
- E3 : Remove the six M3 x 6 screws on the CPU Board and remove the processor board by sliding it toward the front side.

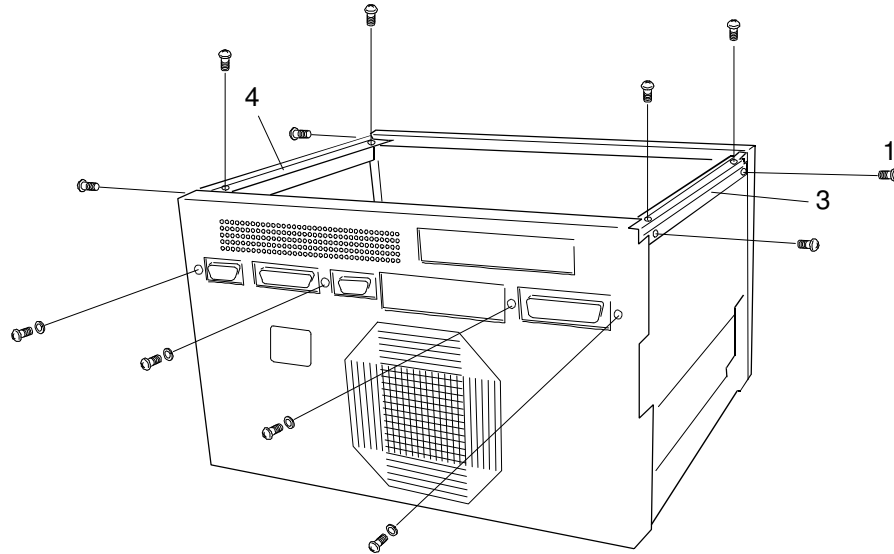
Caution : Batteries are mounted, so care should be taken to prevent short-circuiting.

[E1]

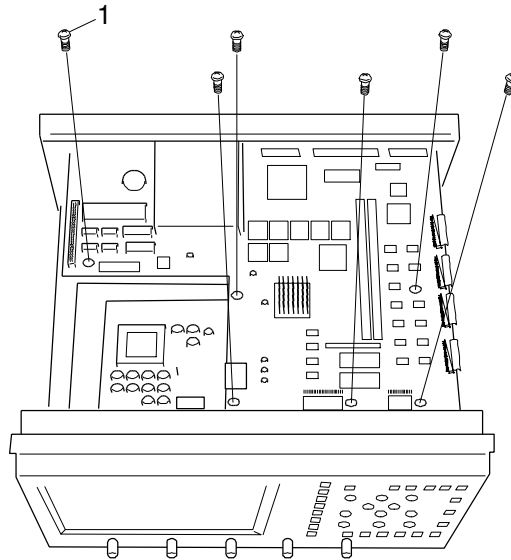




[E2]



[E3]



CPU Board Replaceable Parts

Item	IWATSU Part Number	Quantity	Description
1	MKB130062	18.0	Screw M3x6
2	21302-5610	1.0	CPU BOARD ASSY
3	KBA784421	1.0	TOP FRAME L
4	KBA784511	1.0	TOP FRAME R



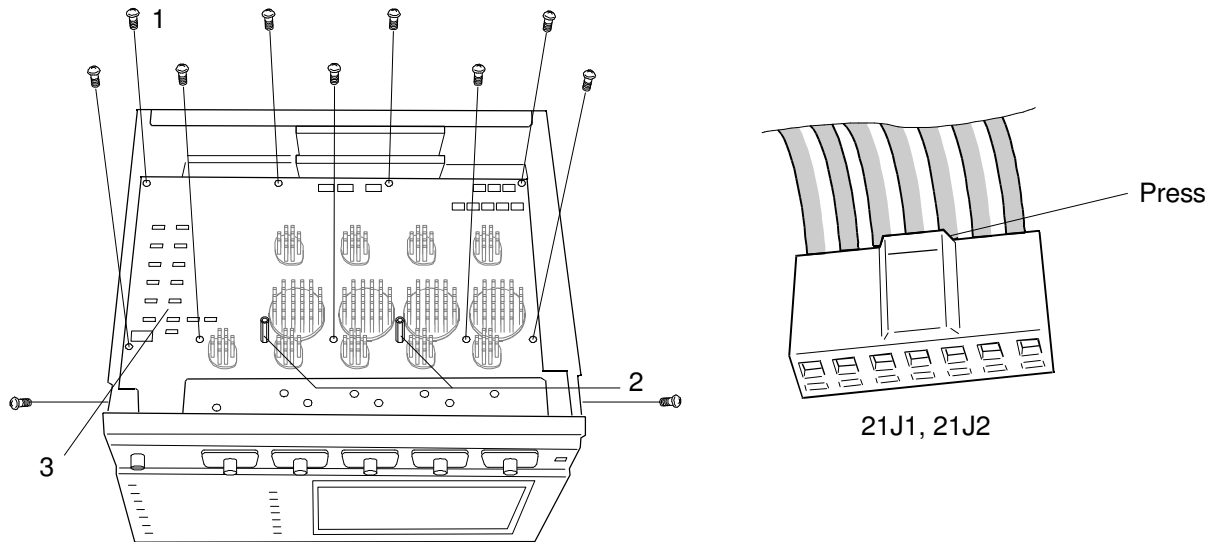
## F. Removal of the Main Board

Remove the upper and bottom covers.

[Note] Remove the cables on the Main Board and next the screws on it.

- F1 a/b : Remove the four FFC cables (20J1/26pin, 20J4/22pin, 20J2/26pin, 20J3/22pin).).
- F1 a/b : Remove the Signal out connector (16J2).
- F1 a/b : Remove the 7P power connectors (21J1, 21J2, 21J3) while pressing the stopper of 21J1 and 21J2.
- F1 a/b : Remove the two support PNC20 from the main board.
- F1 a/b : Remove the nine M3 x 6 screws (on the Main Board).
- Remove the main board by lifting its rear side slightly and sliding it rearward.

[F1a]

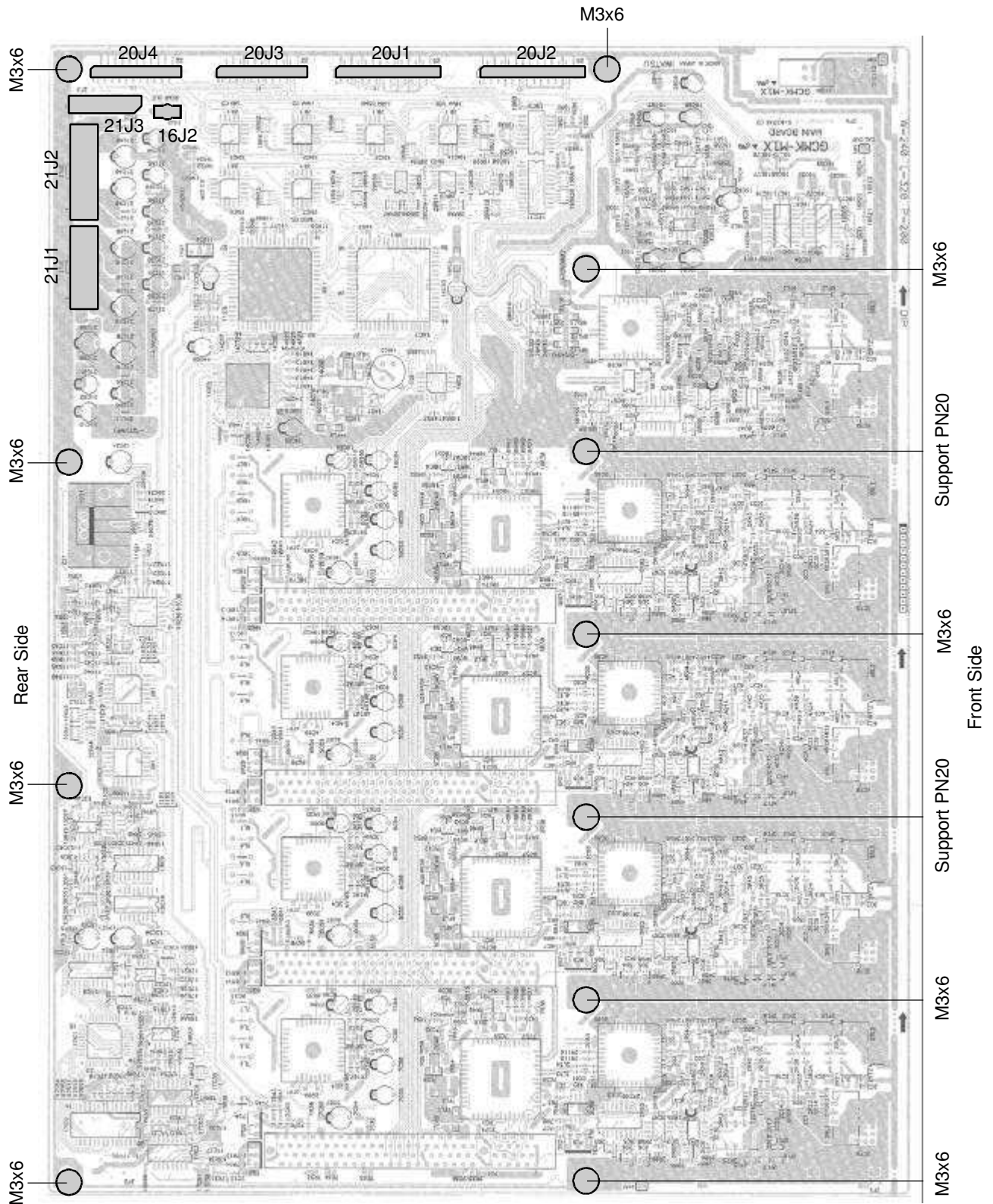


### Main Board Replaceable Parts

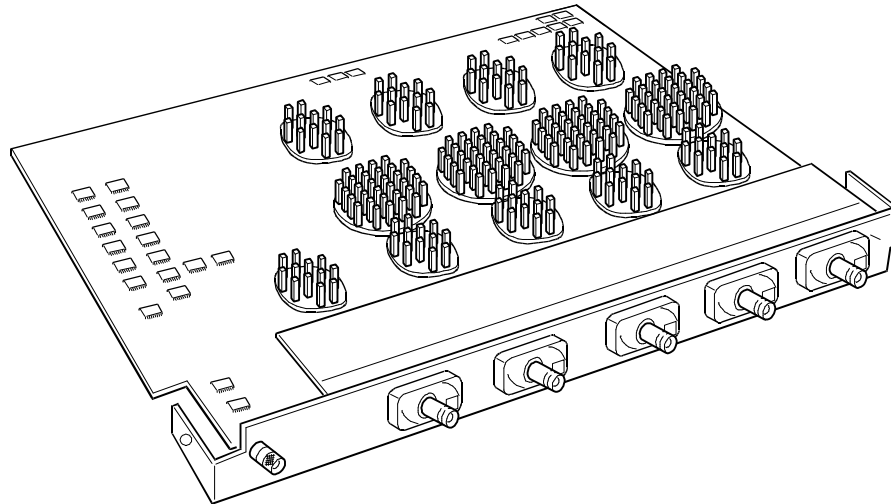
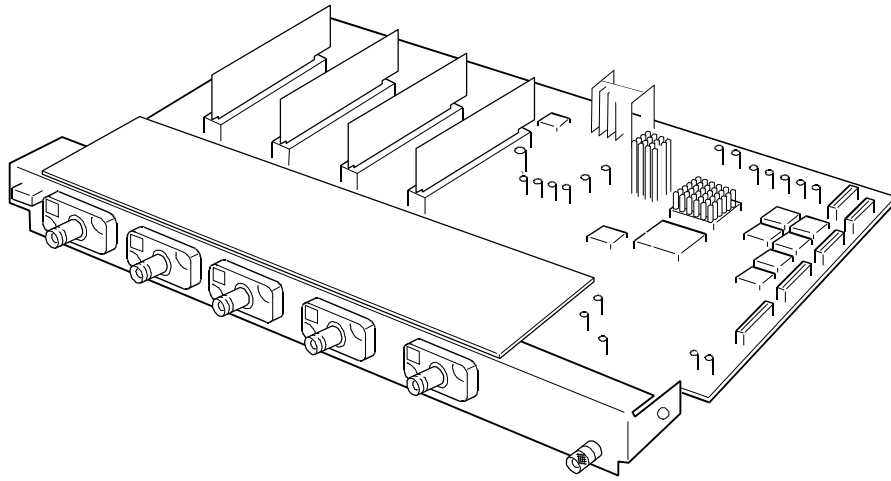
Item	Part Number	Quantity	Description
1	MKB130062	11.0	Screw M3x6
2	MZT902191	2.0	Metallic support PNC20
3	213025605	1.0	MAIN BOARD ASSY See Fig [F2]
	213025650	1.0	LT344/344L
	213025648	1.0	LT342/342L
	213025670	1.0	LT322 LT224

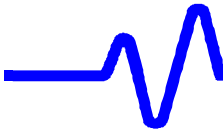


[F1b]



[F2]





## G. Removal of the Power Supply Assembly

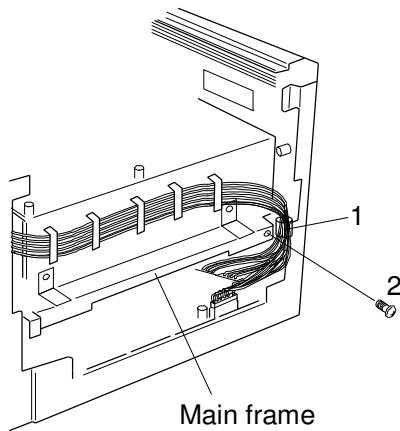
Remove the upper and bottom covers.

Remove the processor assembly.

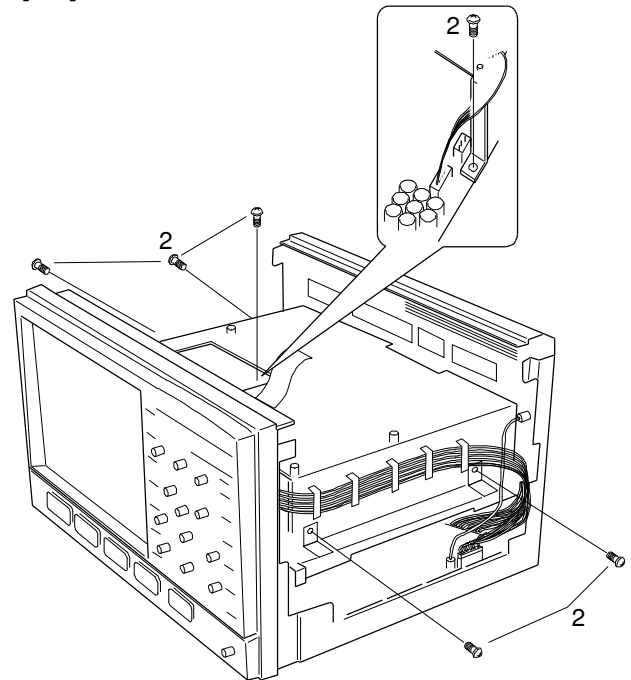
Remove the main assembly.

- G1 : Remove the Harnessing belt on the main frame.
- G2 : Remove the connector (CN7) on the Power board from the fan.
- G2, G3 : Remove the seven M3 x 8 screws (2 on the rear inlet/4 on either side/1 on the top).

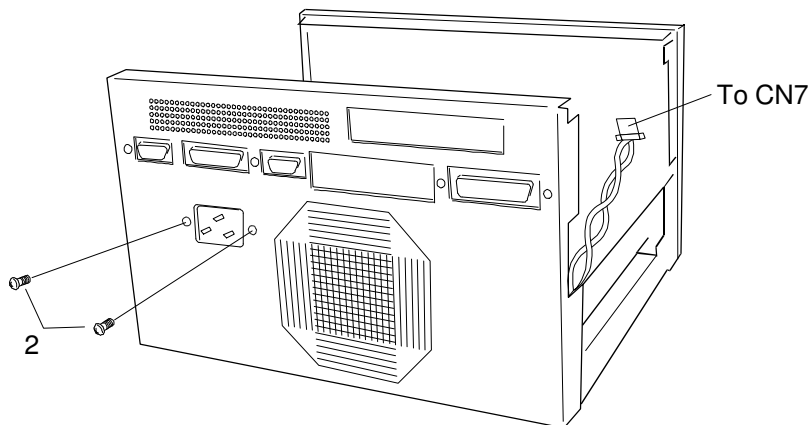
[G1]



[G3]



[G2]



### Power Board Replaceable Parts

Item	IWATSU Part Number	Quantity	Description
1	MHK001541	1.0	Harnessing belt SL-9N
2	MKB130082	8.0	Screw M3x8
3	21302-5615	1.0	Power Board ASSY

---

## H. Removal of the Front Panel Assembly

Remove the upper and bottom covers.

Remove the processor assembly.

Remove the main assembly.

Remove the power supply assembly.

- H1 : Remove the two M3x6 screws that secure the front panel assembly and the main frame.
- H1 : Remove the three M3 x 6 screws on the each side frames R and L.
- H2 : Inverter plate: Remove the two M3 x 6 screws.
- H2 : Inverter board: Remove the two tap tight M2 x 6 screws.
- H2 : Remove the eight a screws that secure the BEZEL and FRONT FRAM A/B.

LCD Assembly : H3, H4, H5

- H3 : Remove the four LCD mounting screws.
- H4 : Remove the connection board between LCD and KEY BOARD while holding the connectors.

FRONT PANEL ASSY : Remove the knobs.

- H6 : Remove the nine screws that secure BEZEL and KEY BOARD.

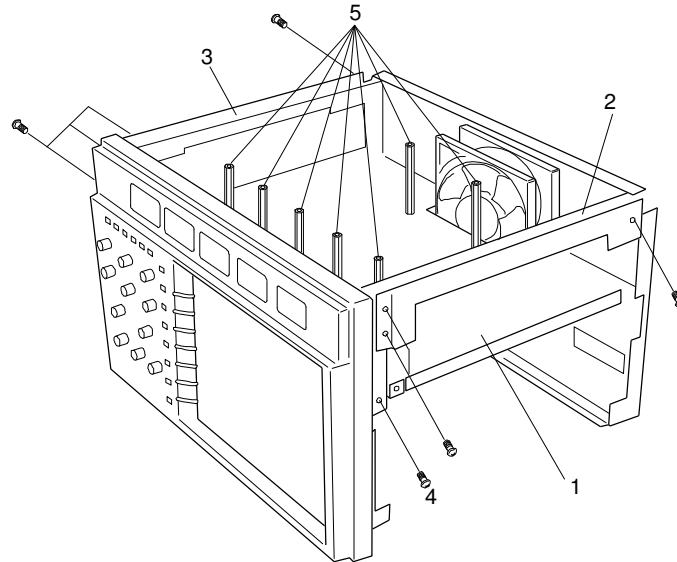
Caution : knob12 UL-1(4)TIME/DIV, VOLTS/DIV, ZOOMx2

knob09 UL-1(7)

How to insert knobs : Match the straight portions.



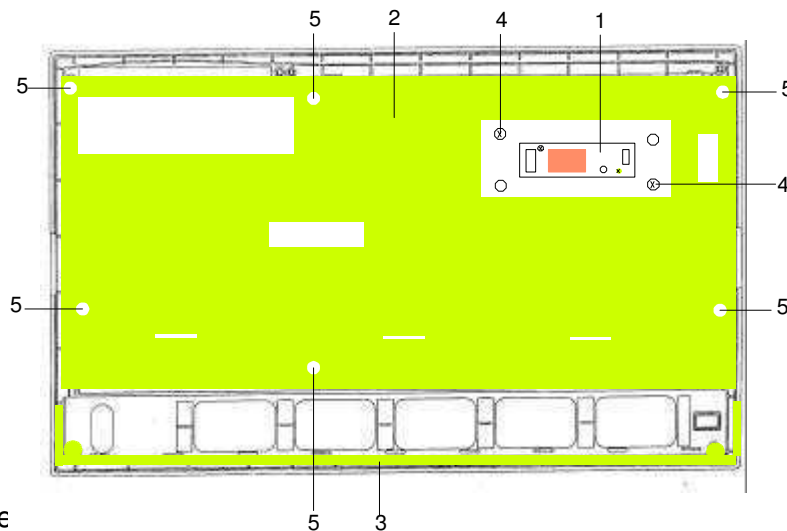
[H1]



H1 Replaceable Parts

Item	IWATSU Part Number	Quantity	Description
1	KBA784011	1.0	MAIN FRAME
2	KBA784911	1.0	SIDE FRAME L
3	KBA785011	1.0	SIDE FRAME R
4	MKD130061	4.0	Screw M3x6
5	MZT903161	7.0	Metallic support PSC60

[H2]

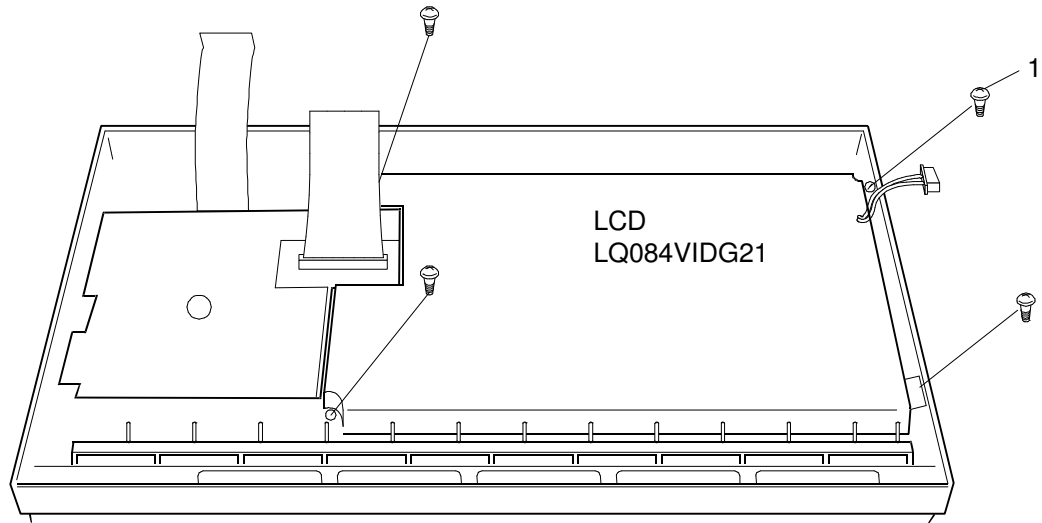


H2 Replaceable

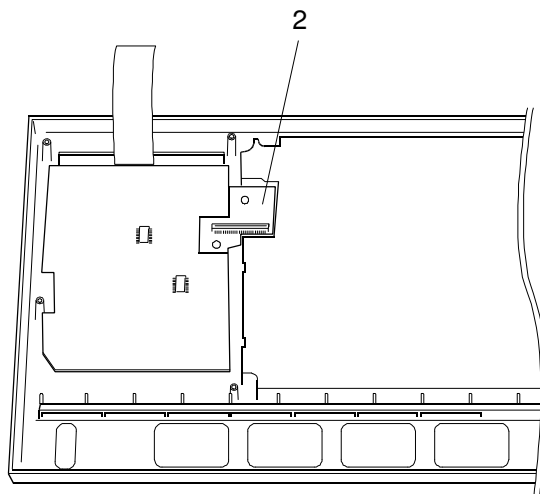
Item	IWATSU Part Number	Quantity	Description
1	KPL143211	1.0	INVERTER PLATE UL-1
2	KBA784121	1.0	FRONT FRAME A
3	KBA784211	1.0	FRONT FRAME B
4	MKB130062	2.0	Screw M3x6
5	MSQ901661	8.0	Screw TT2(+)-3x8S

## LCD Assembly

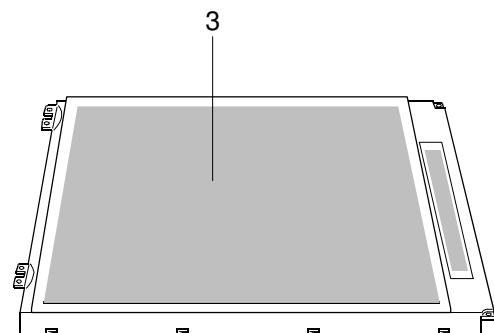
[H3]



[H4]



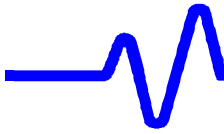
[H5]



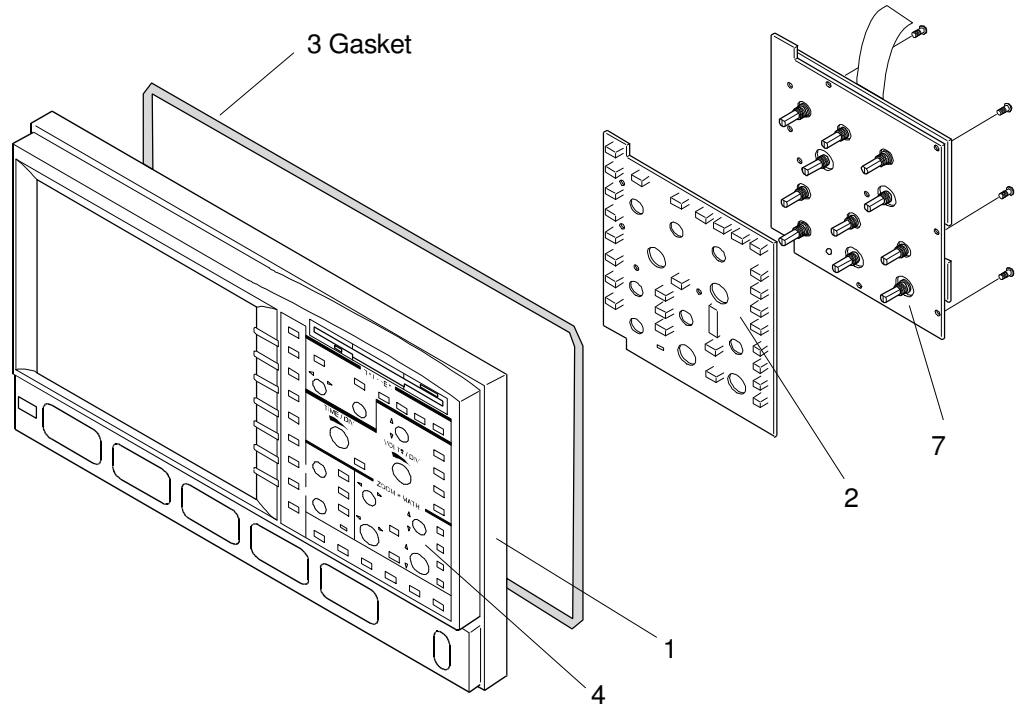
### H3 to H5 Replaceable Parts

Item	IWATSU Part Number	Quantity	Description
1	MSQ903511	4.0	Screw PKB 2.5x8S
2	21302-5615	1.0	LCD CONNECTOR BOARD UL-M
3	21302-5680	1.0	LT LCD UNIT See Fig [H5]

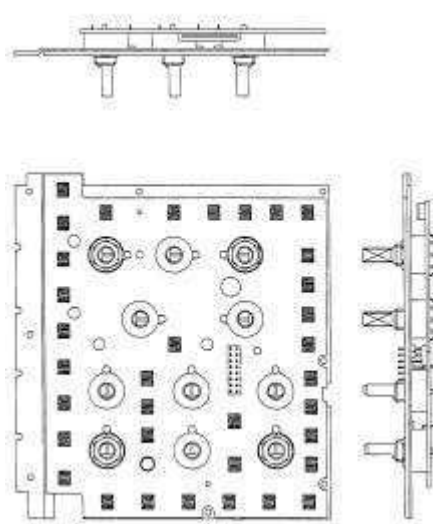




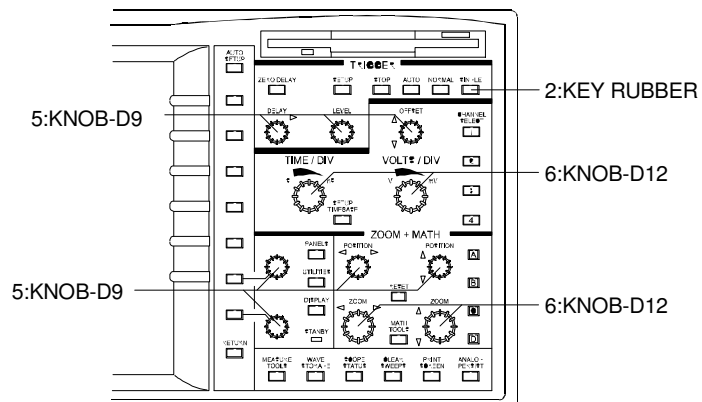
FRONT PANEL ASSY  
[H6]



[H7]



[H8]





LT344/224 FRONT PANEL ASSY

Item	IWATSU Part Number	Quantity	Description
1	KCM140911	1.0	BEZEL FND14 UL-1
2	KGM029711	1.0	FND14 KEY PUBBER UL-I
3	MZT007871	1.0	GASKET UC-3E0564 UL-I
4	KPA219011	1.0	LT344 CONTROL PANEL UL-I
5	KCM141021	7.0	KNOBE-D9 UL-I
6	KCM141121	4.0	KNOBE-D12 UL-I
7	xxxxxxxx	1.0	PANEL & KEY BOARD See Fig [H7]
1 to 7	21302-5678	1.0	LTxx4 FRONT PANEL(4CH) See Fig [H6]

LT342/322 FRONT PANEL ASSY

Item	IWATSU Part Number	Quantity	Description
1	KCM143211	1.0	BEZEL FND12 UL-1
2	KGM029711	1.0	FND14 KEY PUBBER UL-I
3	MZT007871	1.0	GASKET UC-3E0564 UL-I
4	KPA219111	1.0	LT342 CONTROL PANEL UL-I
5	KCM141021	7.0	KNOBE-D9 UL-I
6	KCM141121	4.0	KNOBE-D12 UL-I
7	xxxxxxxx	1.0	PANEL & KEY BOARD See Fig [H7]
1 to 7	21302-5679	1.0	LTxx2 FRONT PANEL(2CH) See Fig [H6]



## I. Removal of the Rear Panel Assembly

Remove the upper and bottom covers.

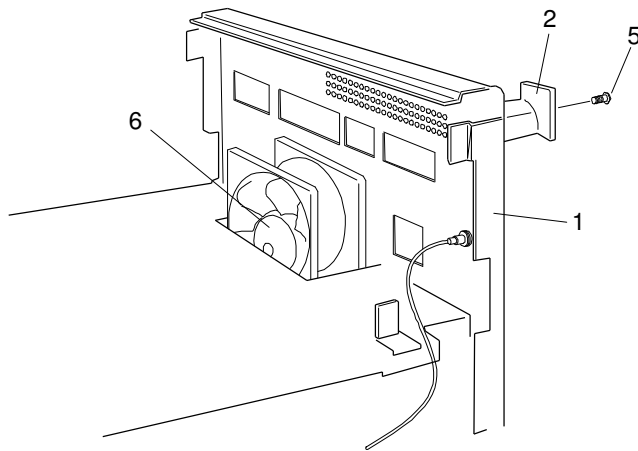
Remove the processor assembly.

Remove the main assembly.

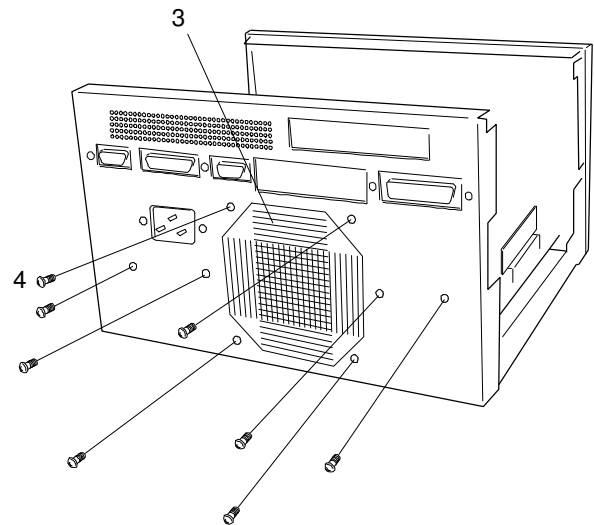
Remove the power supply assembly.

- I1 : Remove the rear panel assembly and four M3 x 6 screws from the main frame.
- I2 : Remove four fan motor fastening M3 x 6 screws.

[I1]



[I2]



### Rear Panel Replaceable Parts

Item	IWATSU Part Number	Quantity	Description
1	KBA785111	1.0	REAR FRAME
2	KCM138221	4.0	Cord rack 78 UL-I
3	KSN091911	1.0	WIRE NET(MESH #5)
4	MKB130062	8.0	Screw M3x6
5	MSM140101	4.0	Screw SM1-4X10
6	DMT620701	1.0	FAN 109R1212M114

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**Assembly Note :**

- **Fan** : Check the fan cable direction. Note the air flow, the fan extracts air from the unit and expels it.
- **Feet** : Check that the lower feet and rear cord rack are aligned and properly tightened before re-assembly.
- **Floppy** : Adjust the floppy position to obtain the front face tangential to face of the front panel. Check that the door is moving freely and shuts correctly. Insert a floppy and eject it to check the mechanism.
- **Front Panel** : Check that knobs rotate freely, are the right size and in the right place. Do not forget the gasket, see Fig [H6].
- **Main Board** :The main card must be parallel and tacked against the bend of the lower cover. Being careful not to bend the board or damage components underneath.
- **Processor** : Check that the memory card insertion guide is correctly inserted in the front panel.
- **Printer** : If the graphic printer is used, before closing don't forget to plug input cable to the option and the driver cable to the processor card.



## 8. Schematics, Layouts, Parts List

### 8.1 Schematics, Layouts

**This chapter contains the schematics, layouts and parts list of the following subassemblies:**

LT344/L Main Board

LT342/322 Main Board

LT224 Main Board

CPU Board

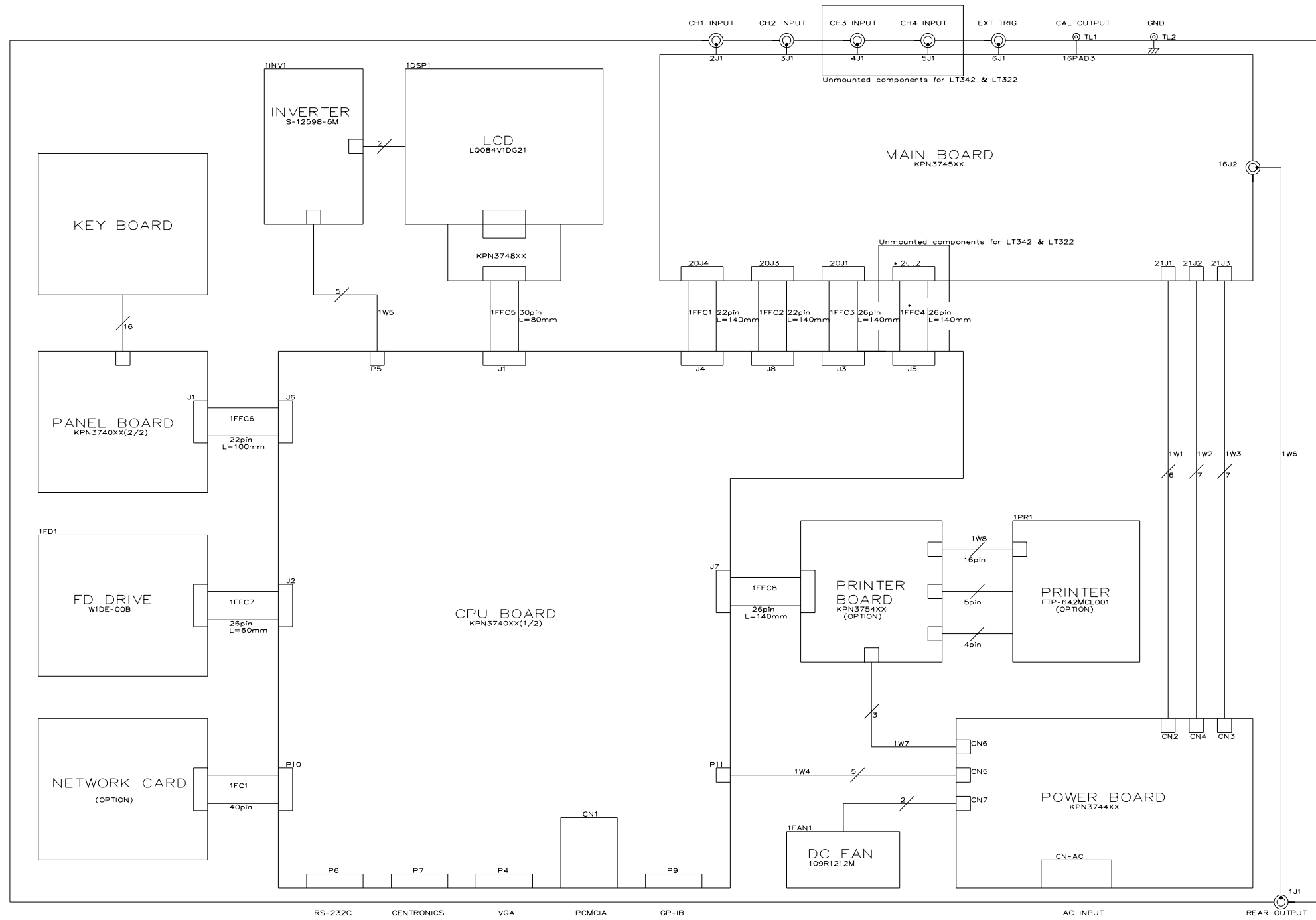
Printer

Power Supply

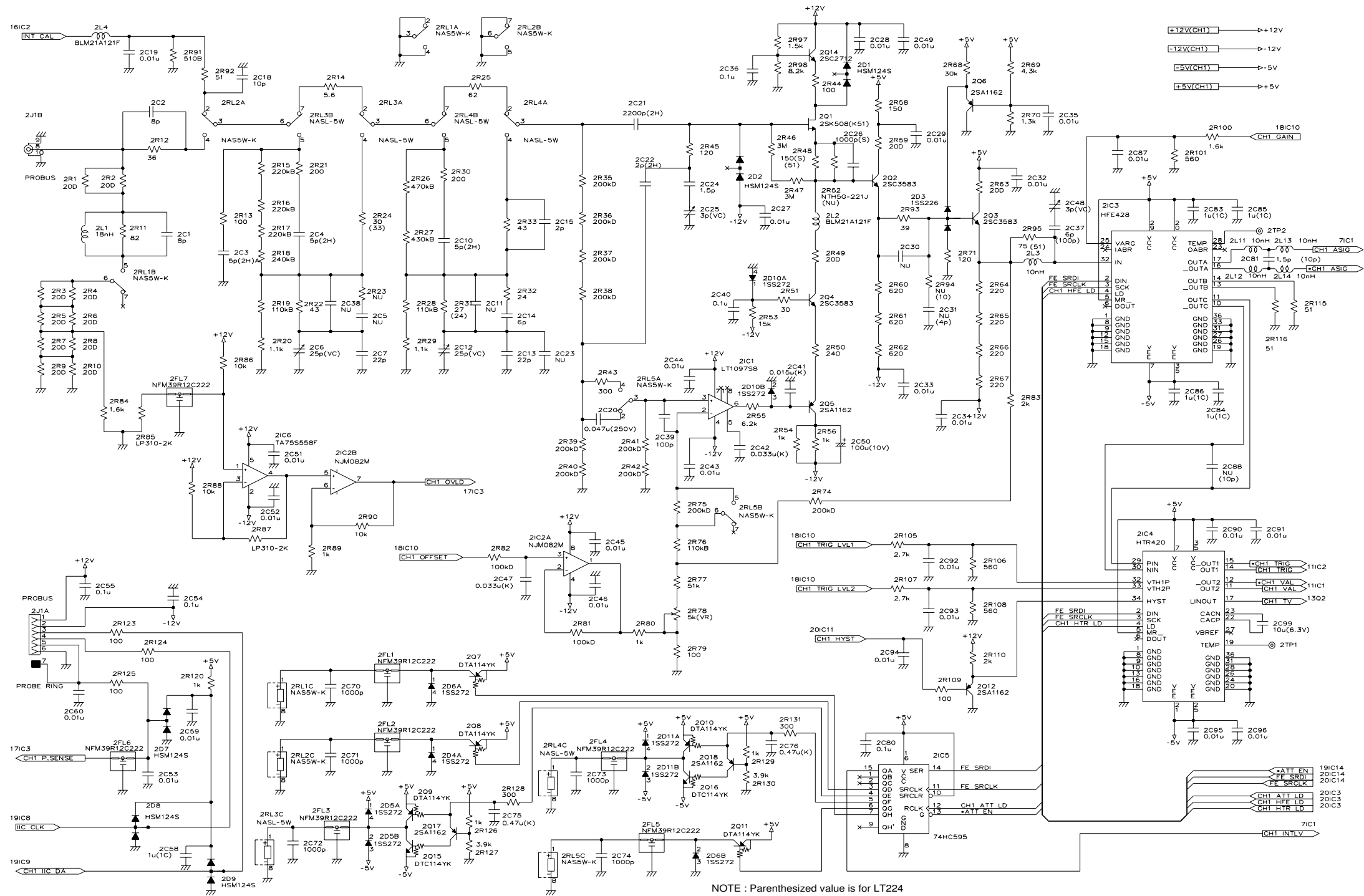
Panel Board

LCD Connector





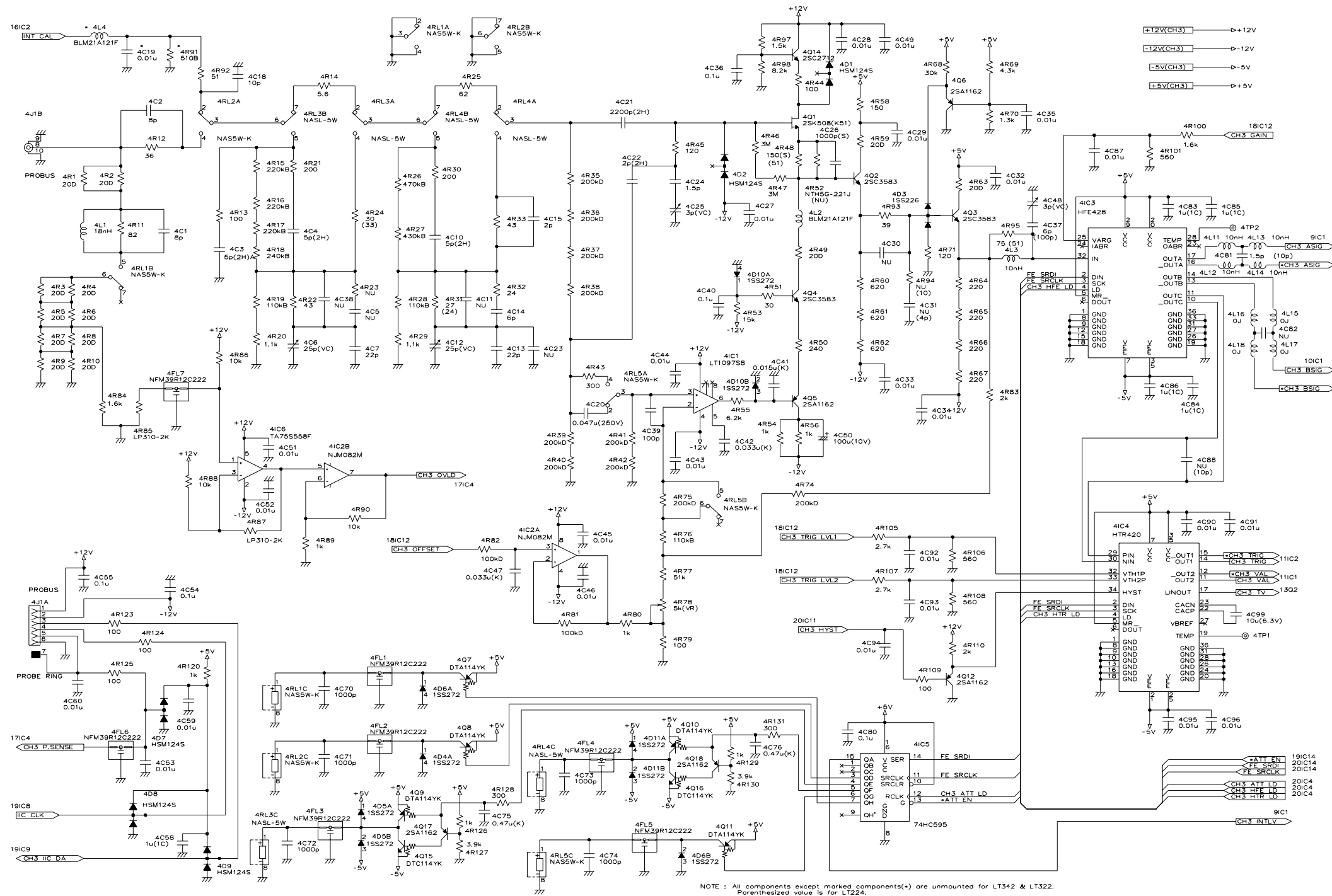
OVER ALL (1)



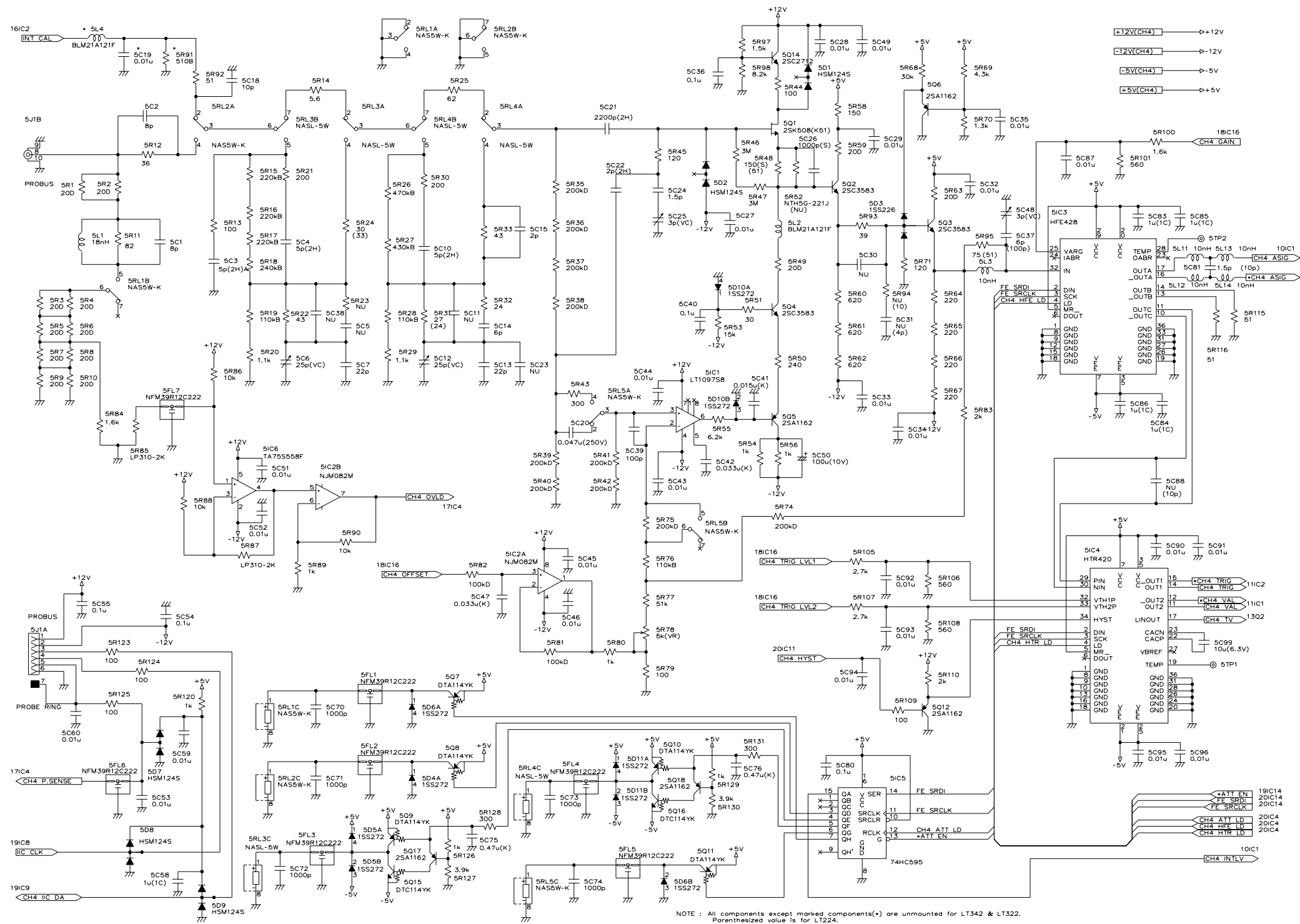
CH1 FRONT END (2)





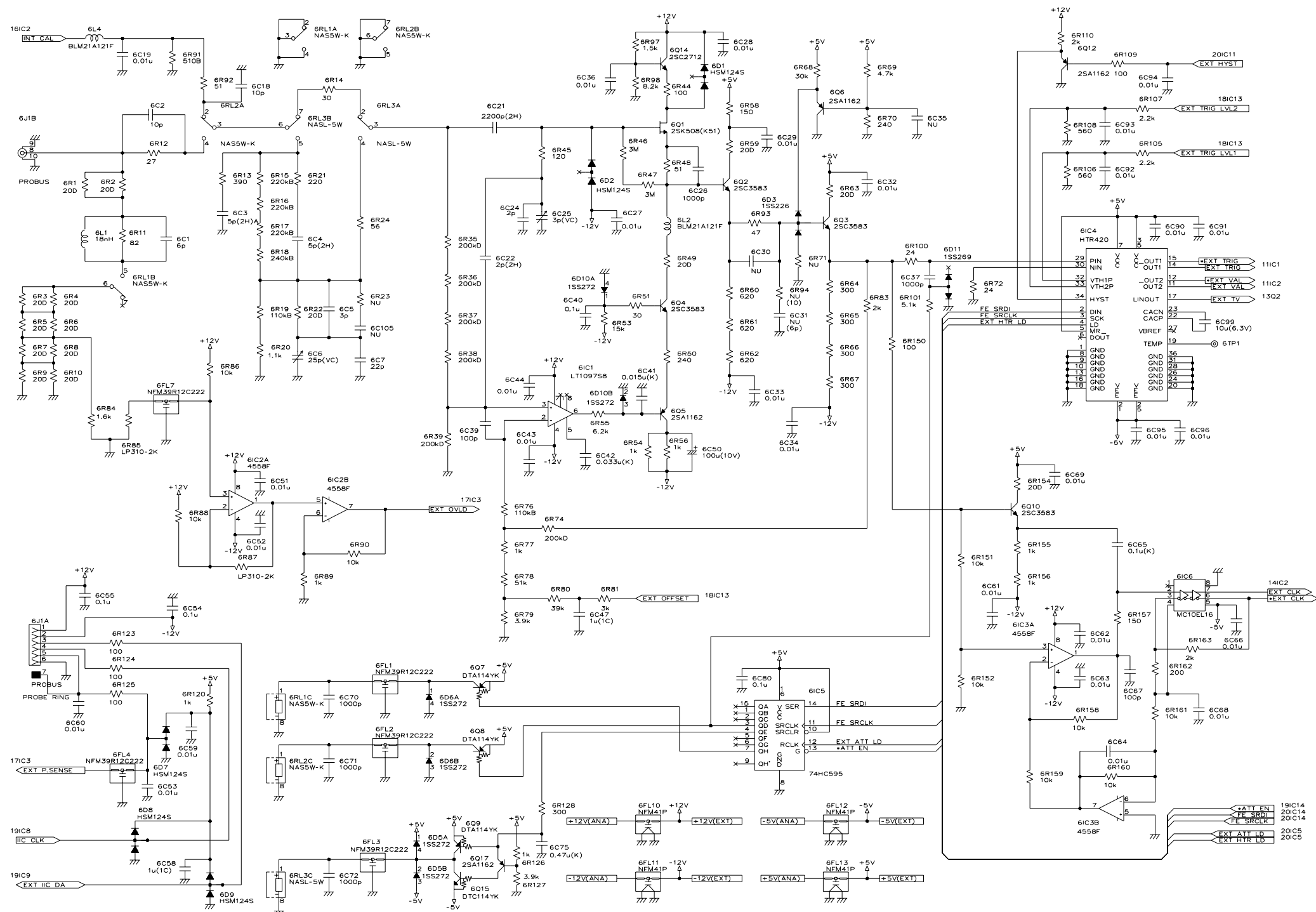


CH3 FRONT END (4)



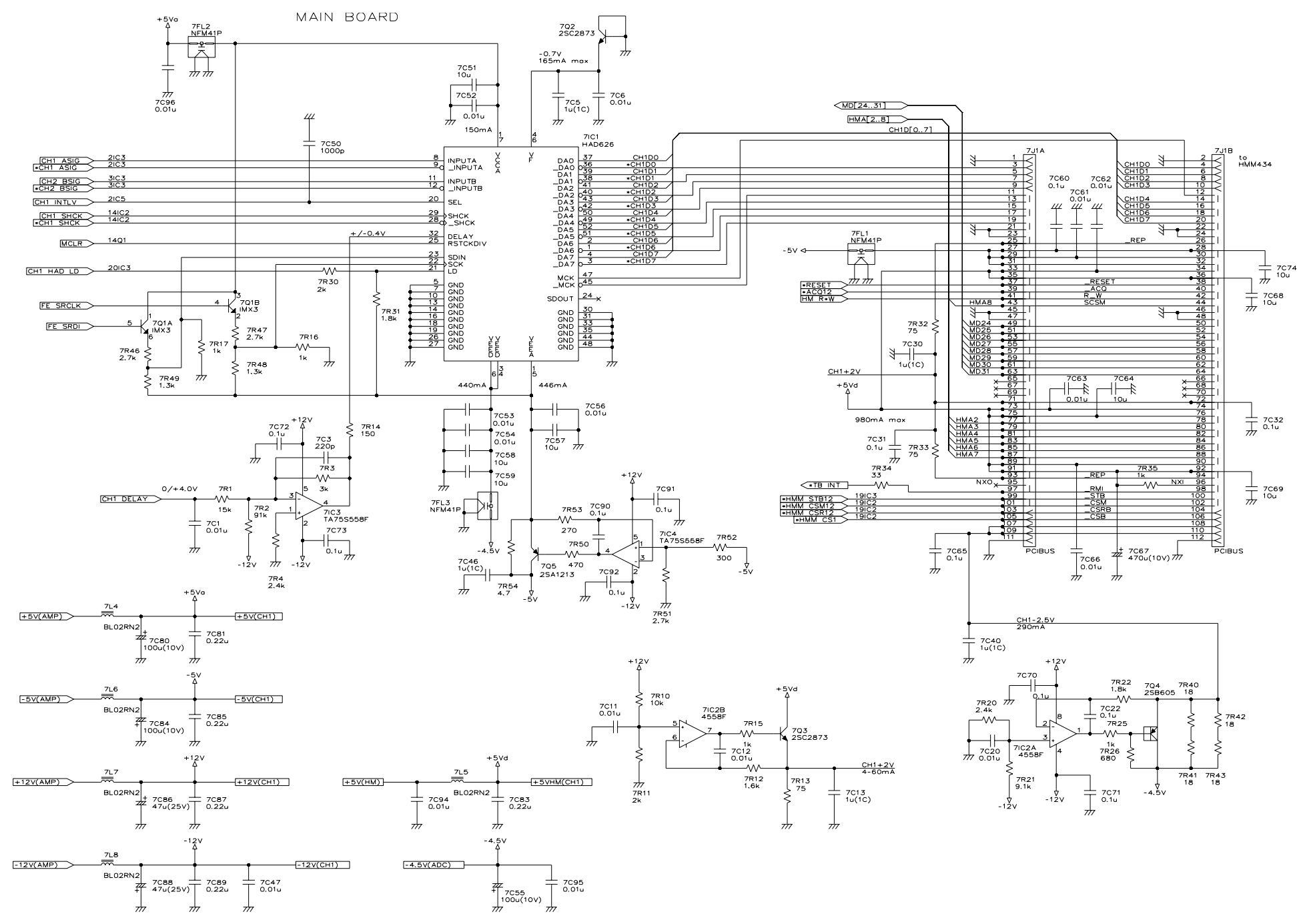
NOTE : All components except marked components(\*) are unmounted for LT342 & LT322. Parenthesized value is for LT224.

CH4 FRONT END (5)

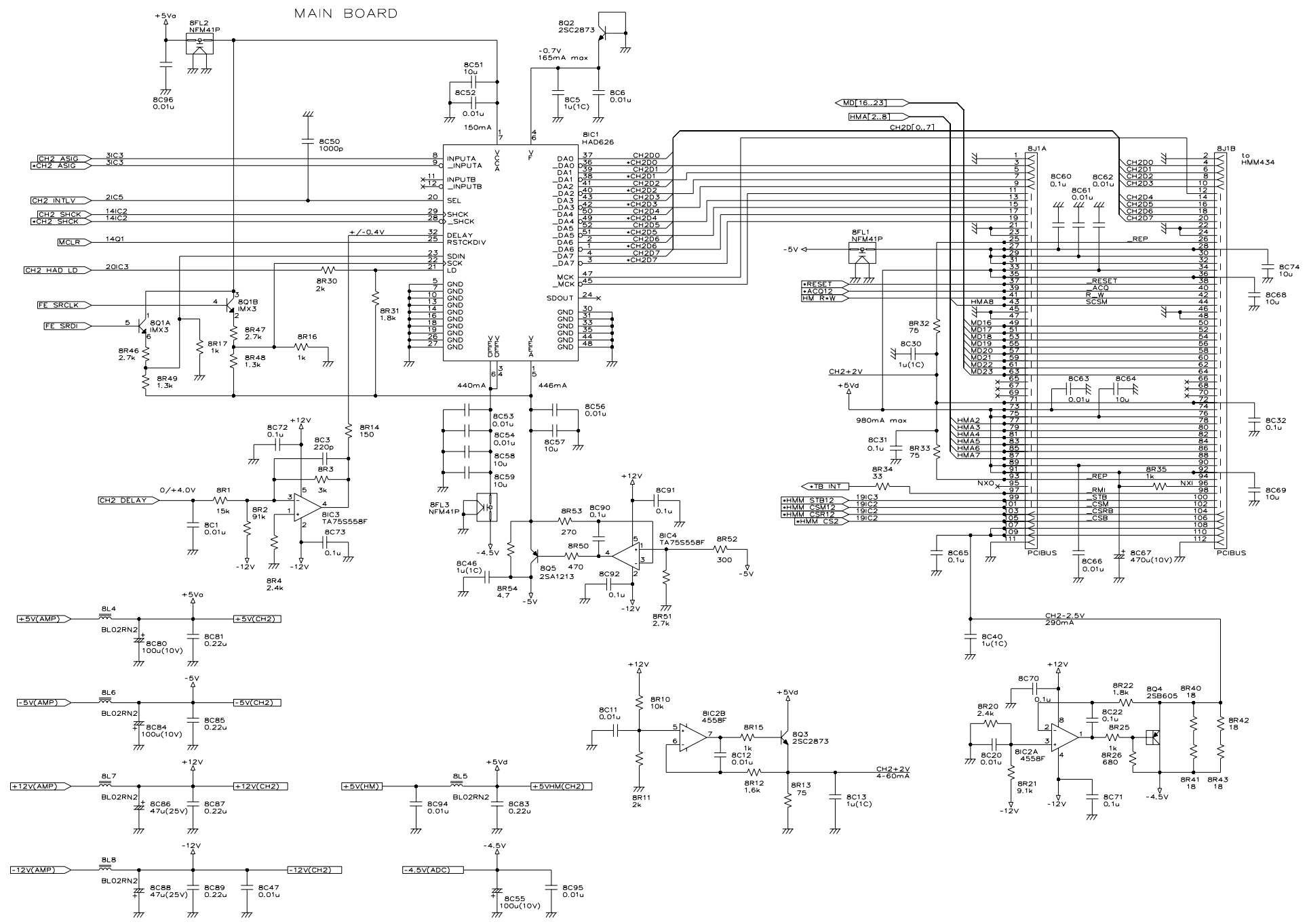


NOTE : Parenthesized value is applied to LT224.

EXT TRIGGER (6)

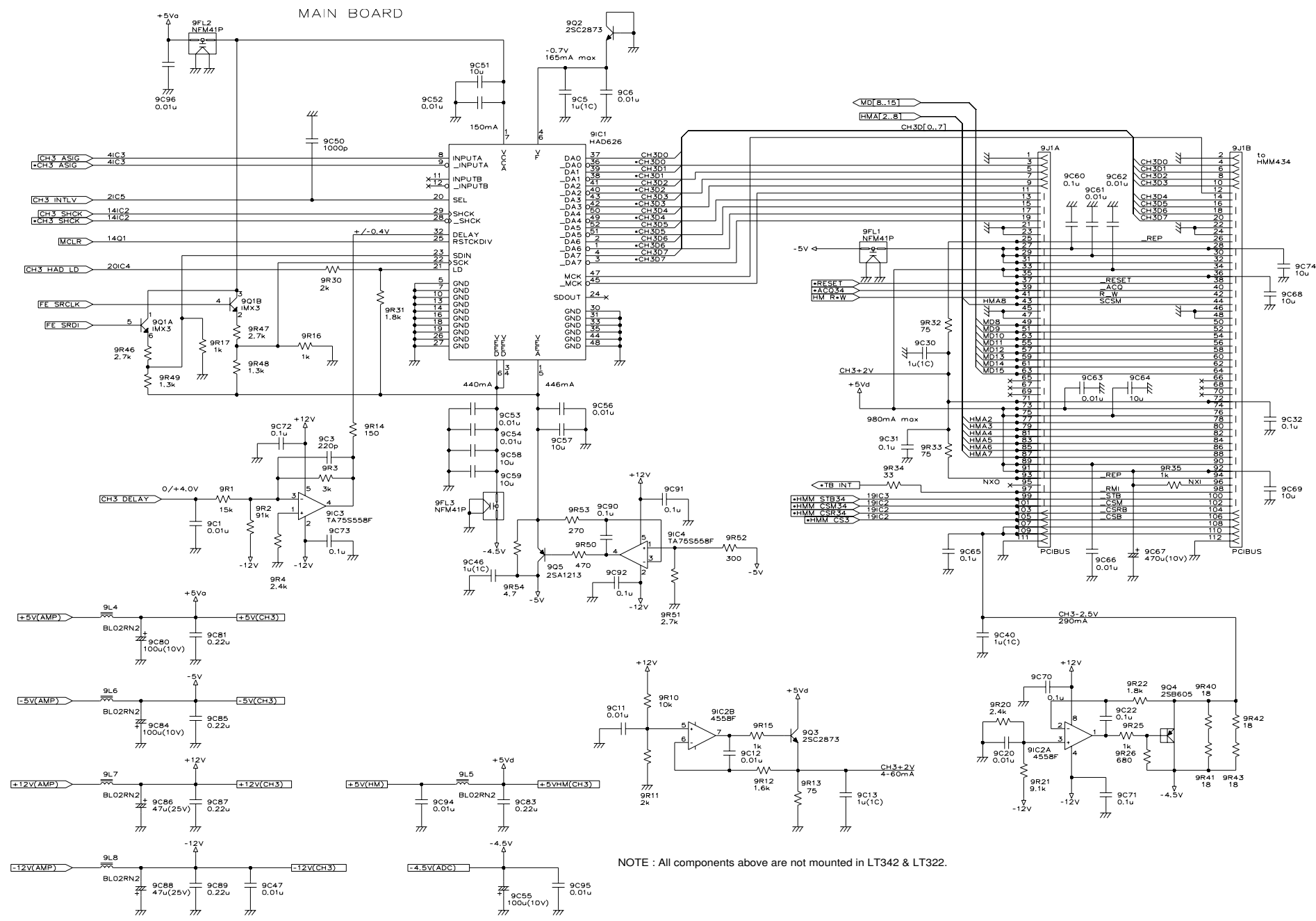


CH1 A/D CNVT (7)



CH2 A/D CNVT (8)

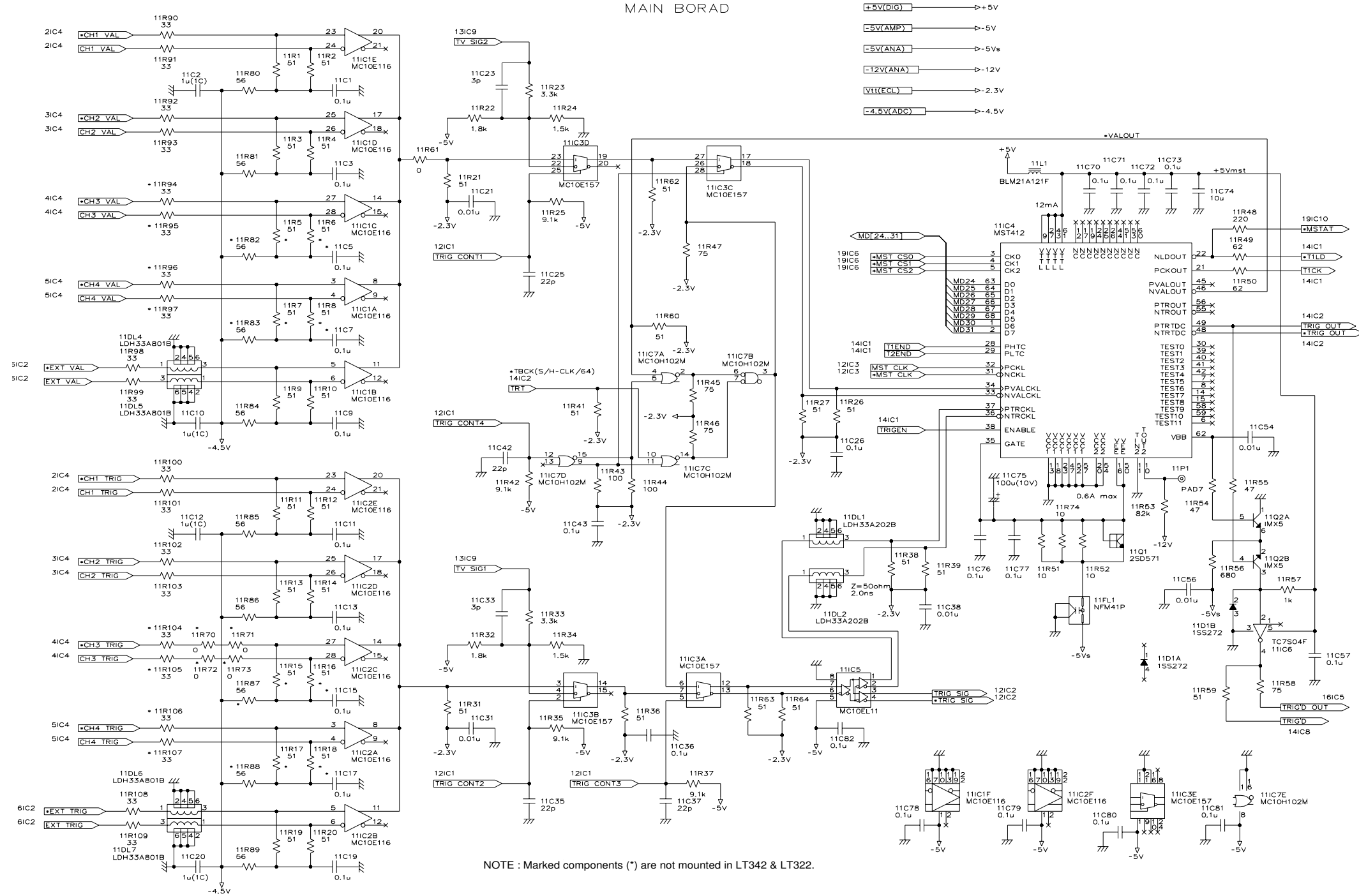




NOTE : All components above are not mounted in LT342 & LT322.

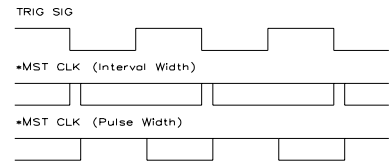
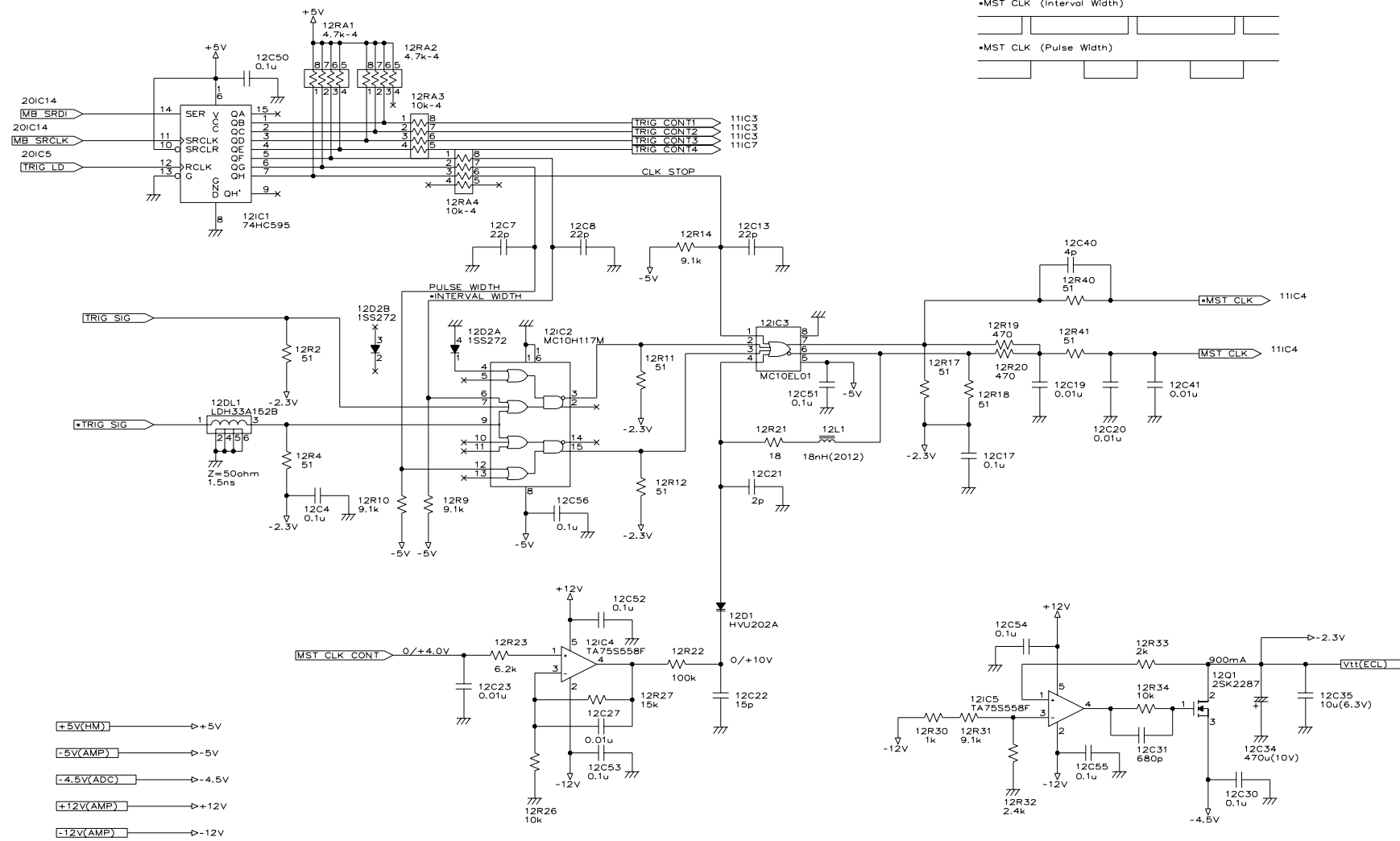
CH4 A/D CNVT (10)





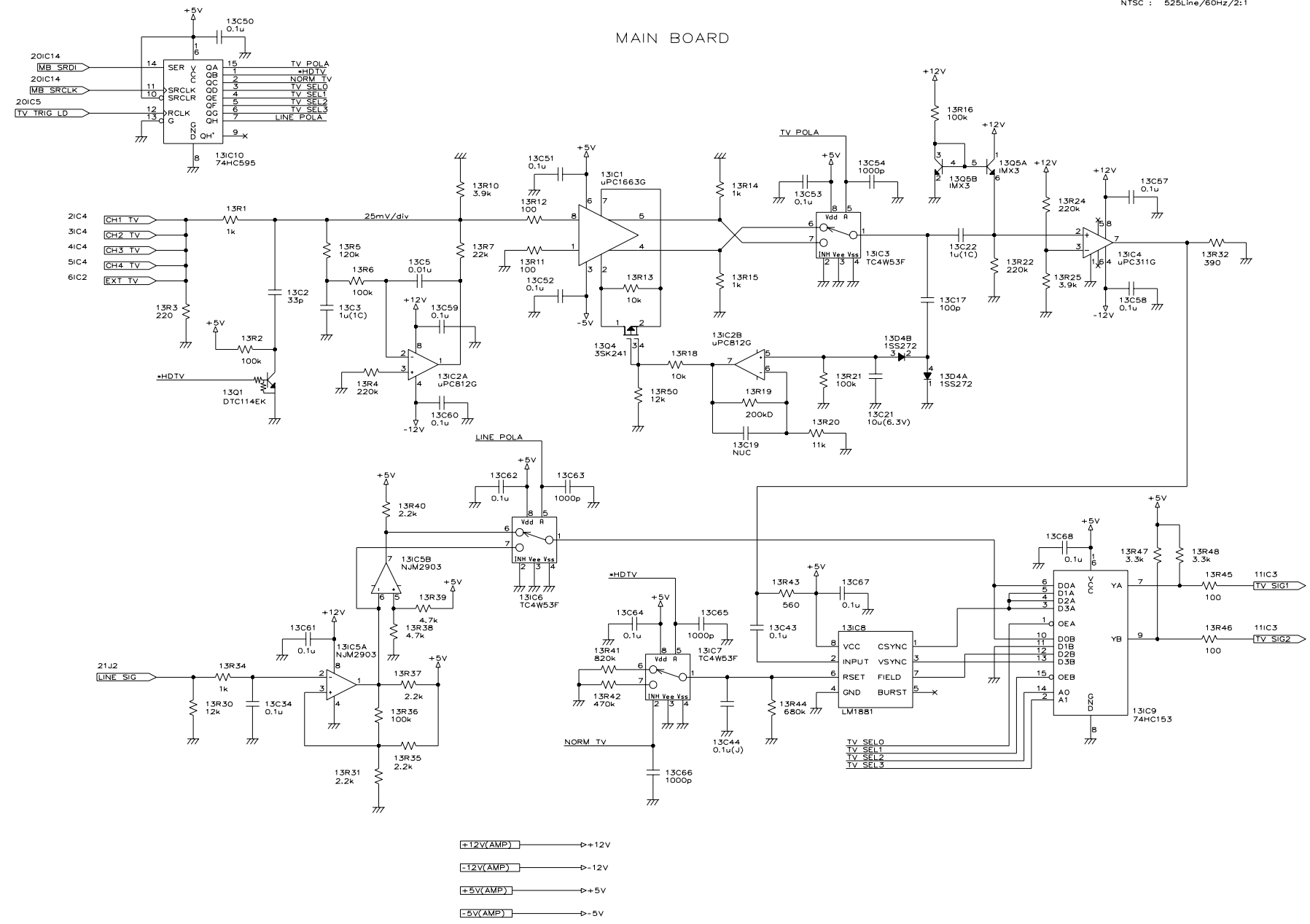


MAIN BOARD



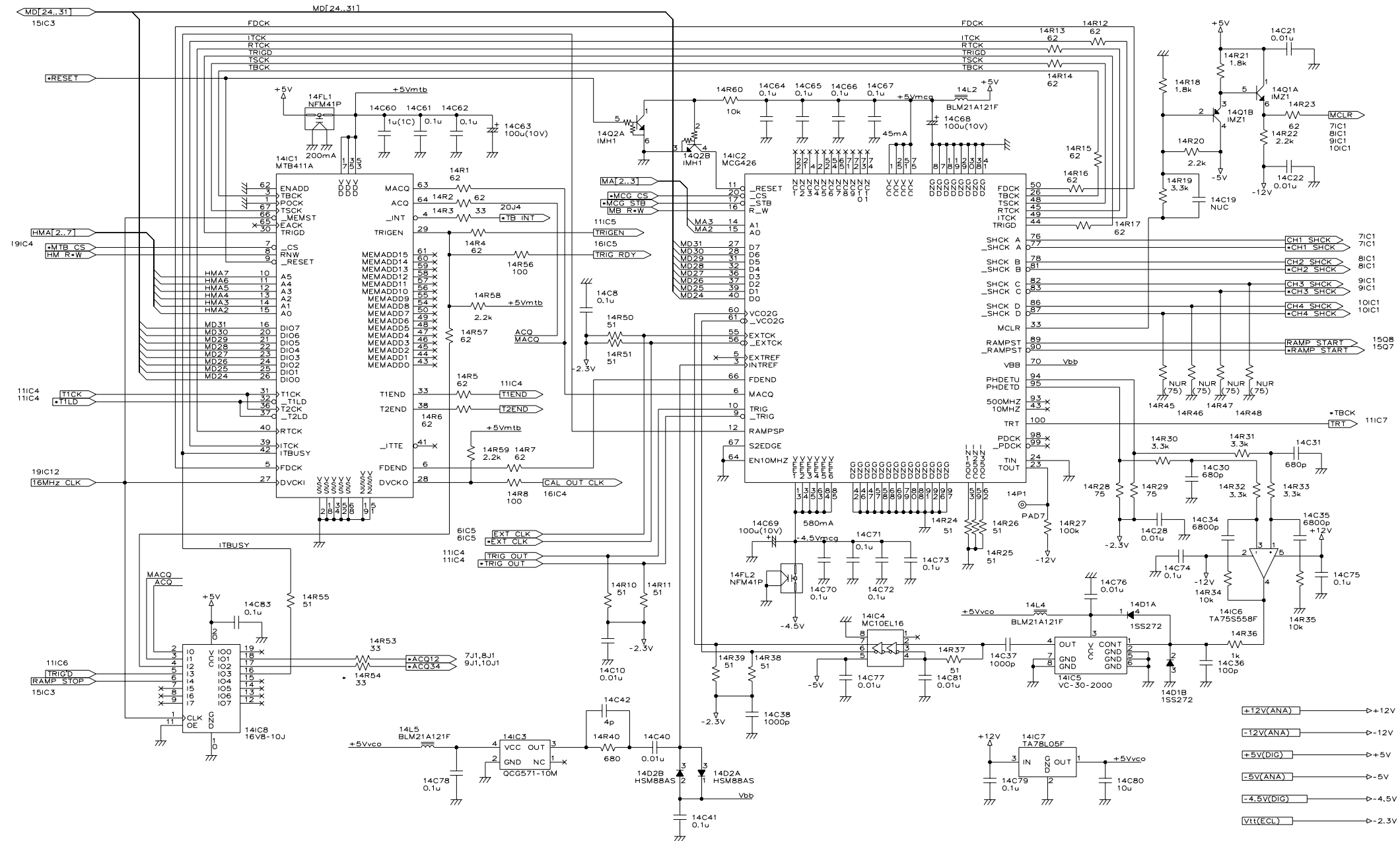
400MHZ OSC (12)

PAL/SECAM : 625Line/60Hz/2:1  
 NTSC : 525Line/60Hz/2:1



TV SYNC SEP (13)

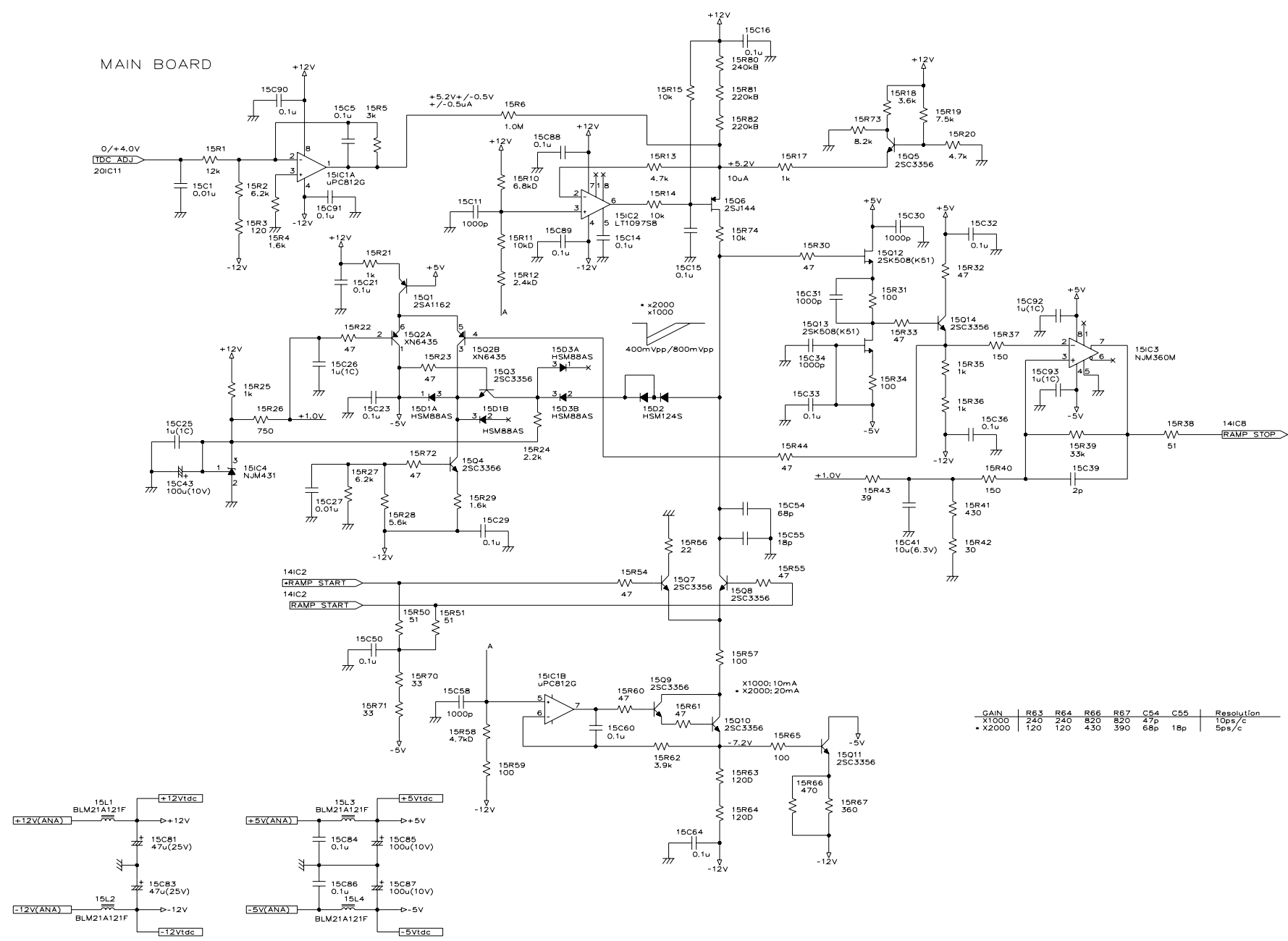
MAIN BOARD



NOTE : Parenthesized value is applied to LT342 & LT322.  
Marked components (\*) are not mounted in LT342 & LT322.

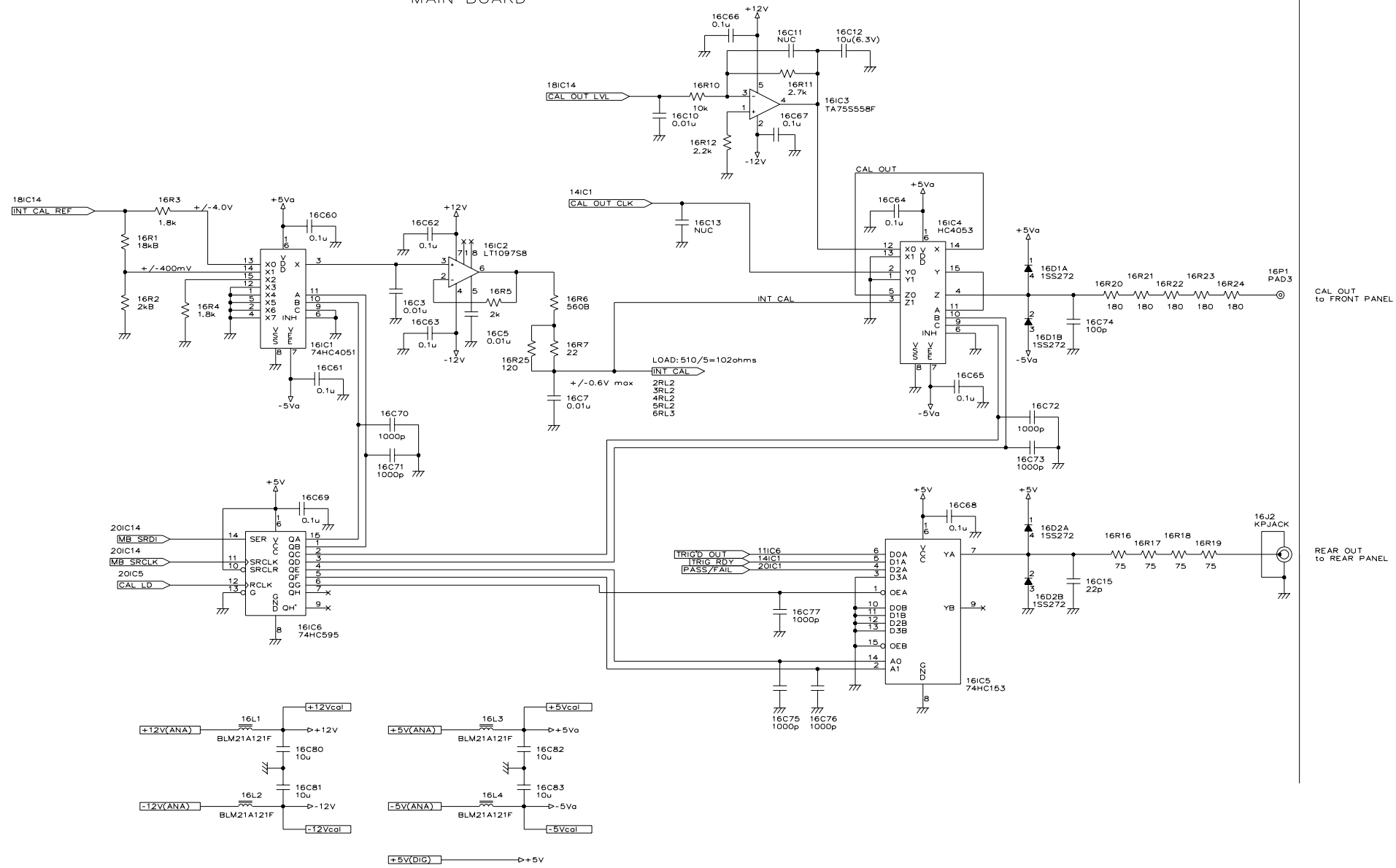
TIME BASE (14)

MAIN BOARD

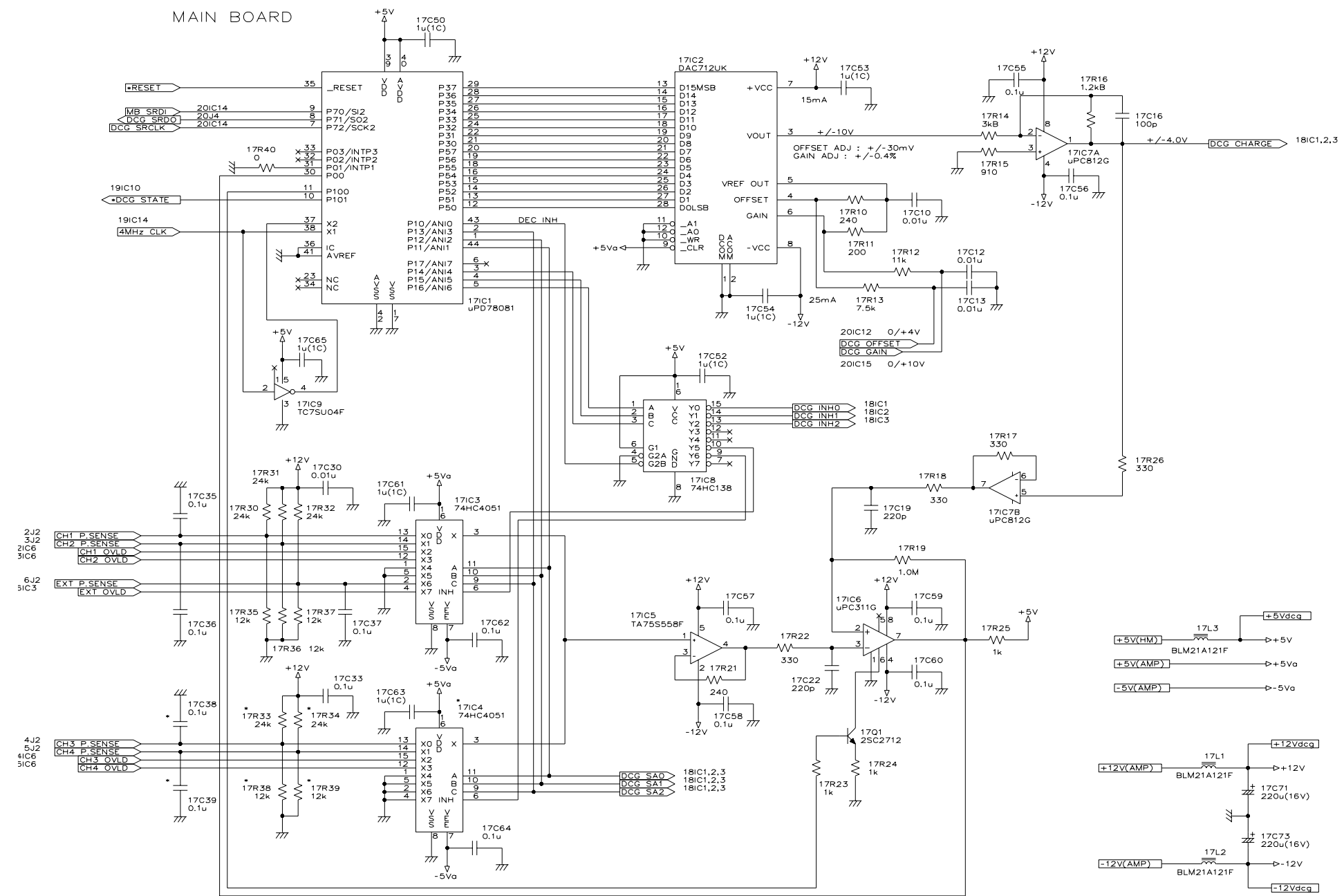


T/D CNVT (15)

MAIN BOARD

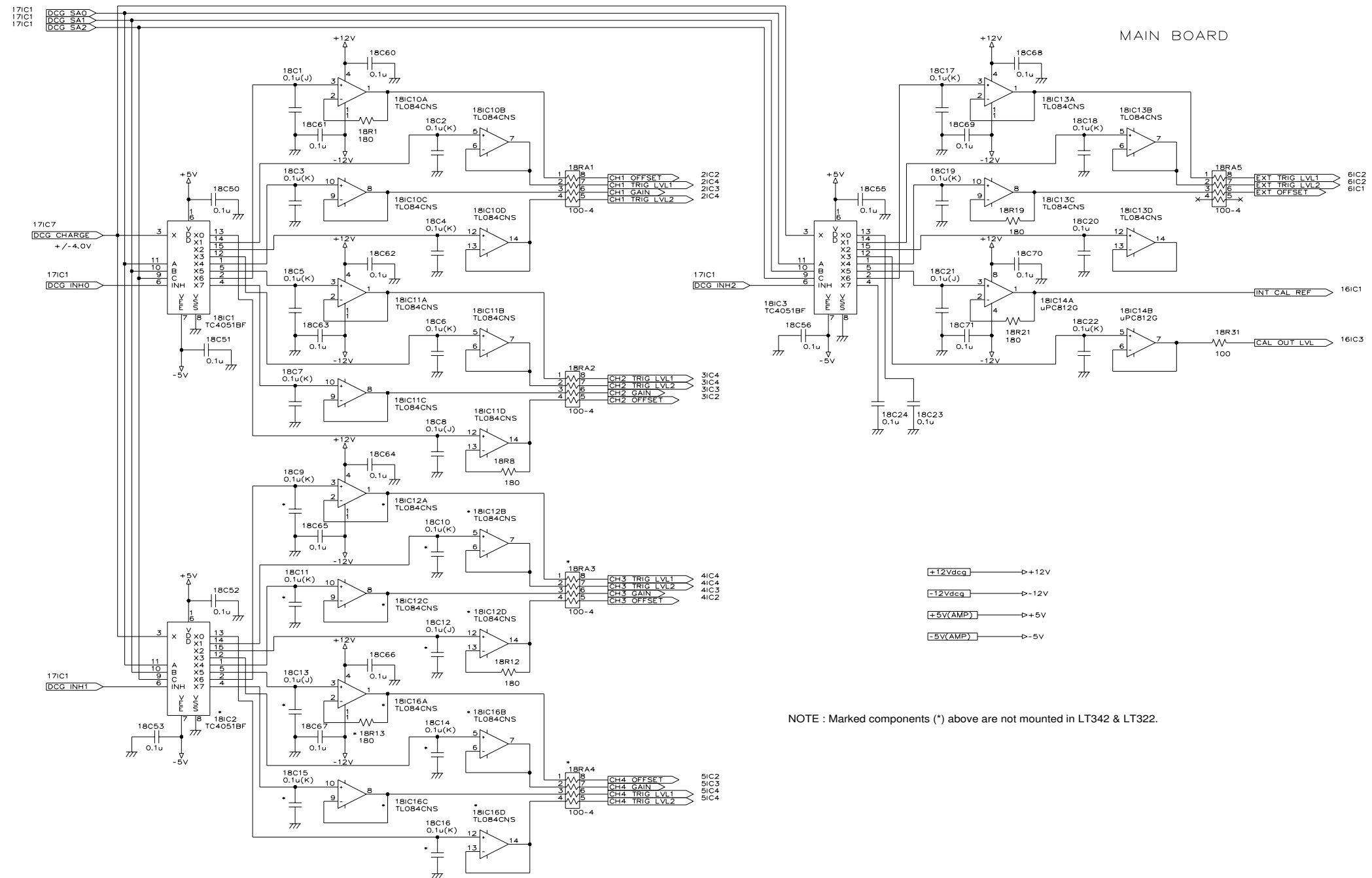


CAL SIGNAL (16)

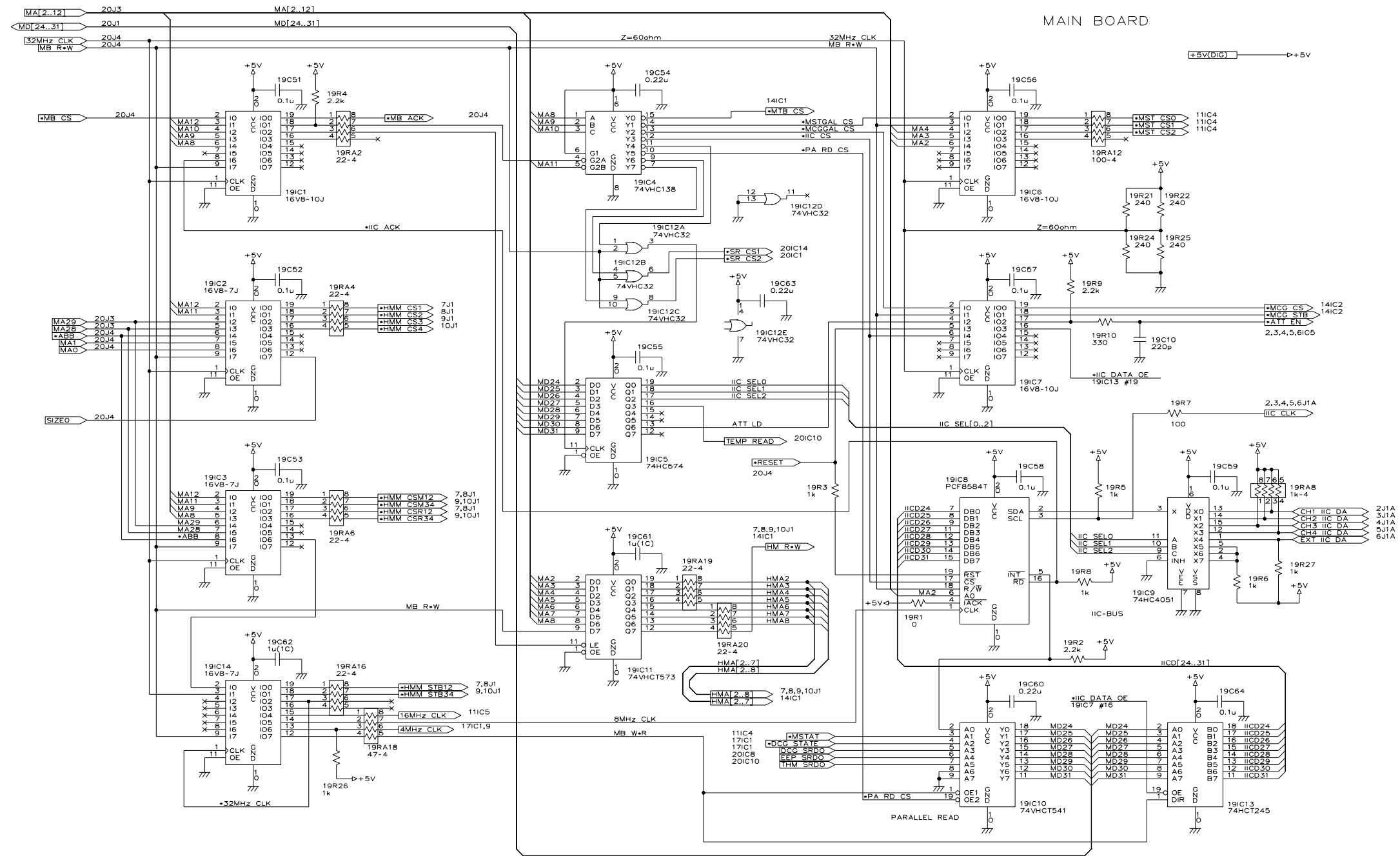


NOTE : Marked components (\*) are not mounted in LT342 & LT322.

DC GEN 1/2 (17)

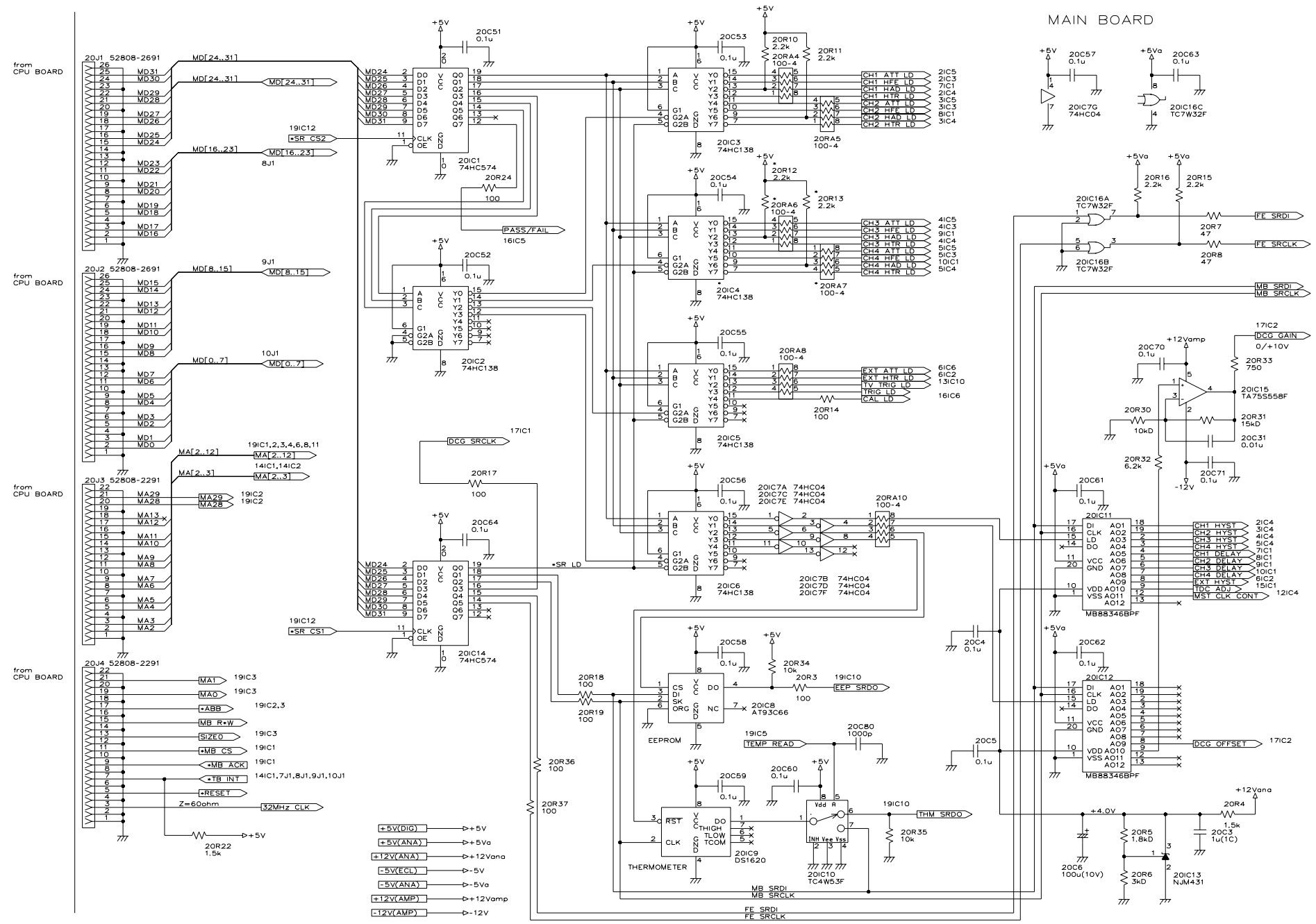


DC GENE 2/2 (18)

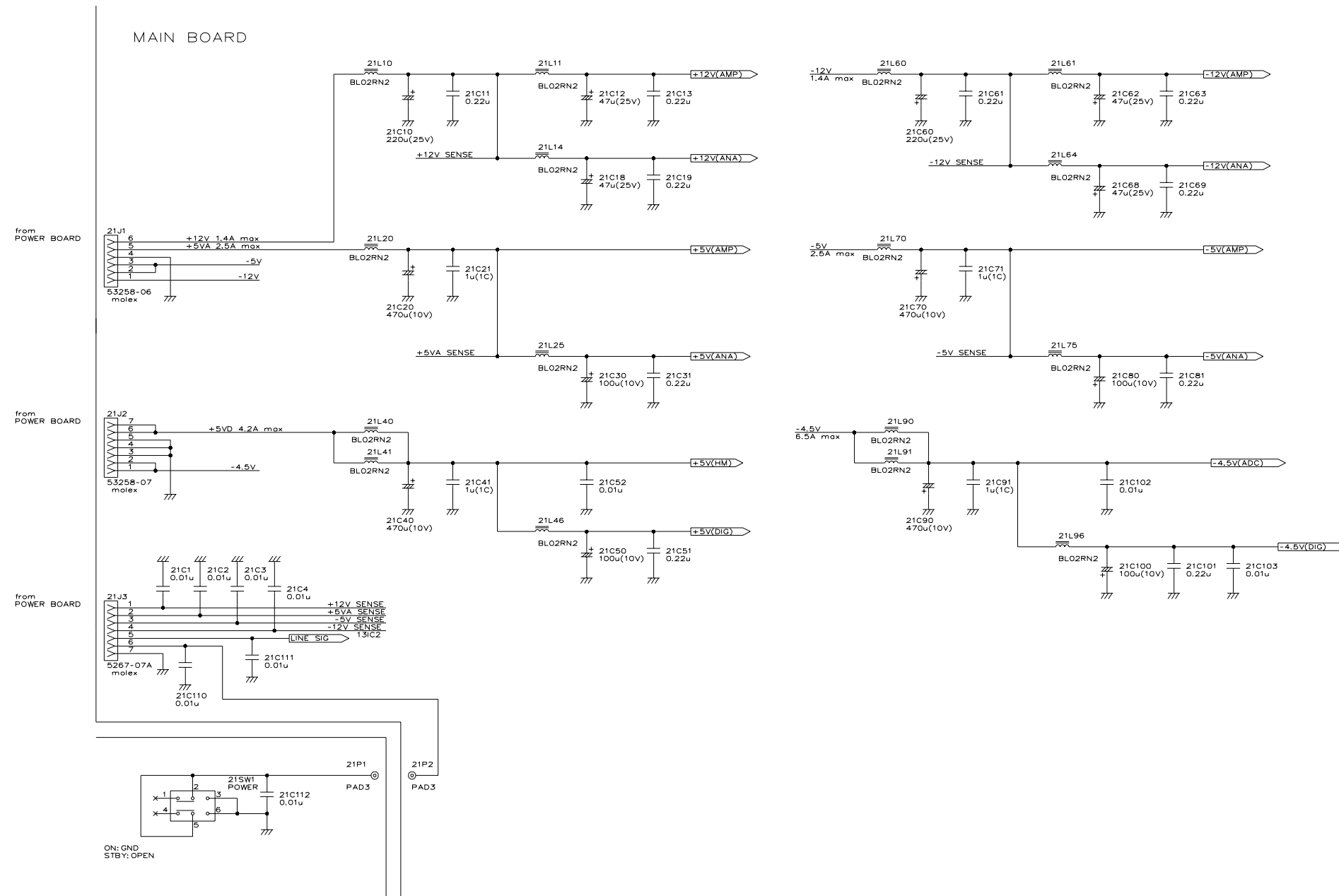


MAIN CONT 1/2 (19)

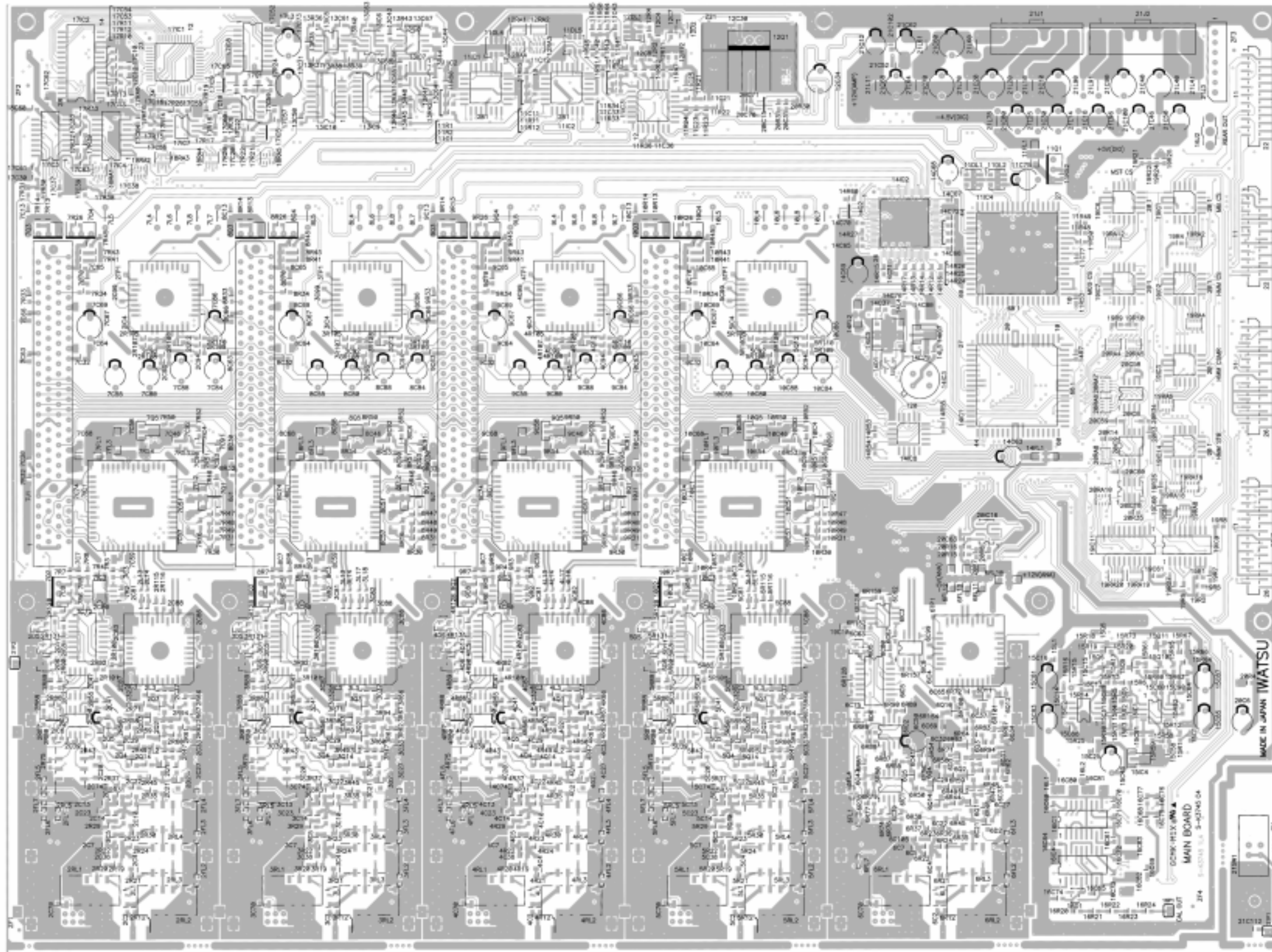




NOTE : Marked components (\*) are not mounted in LT342 & LT322.

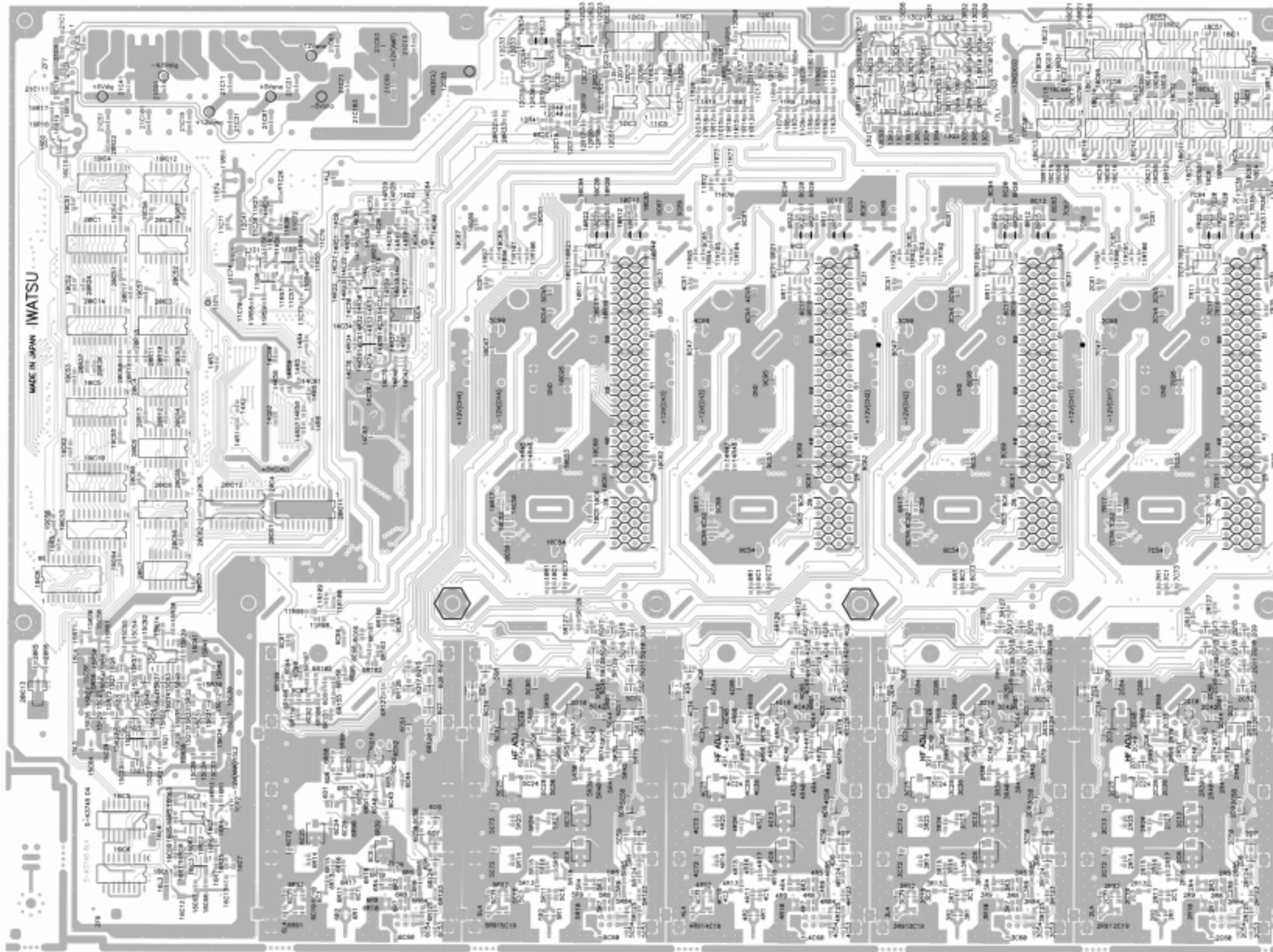


POWER CONNECTOR (21)

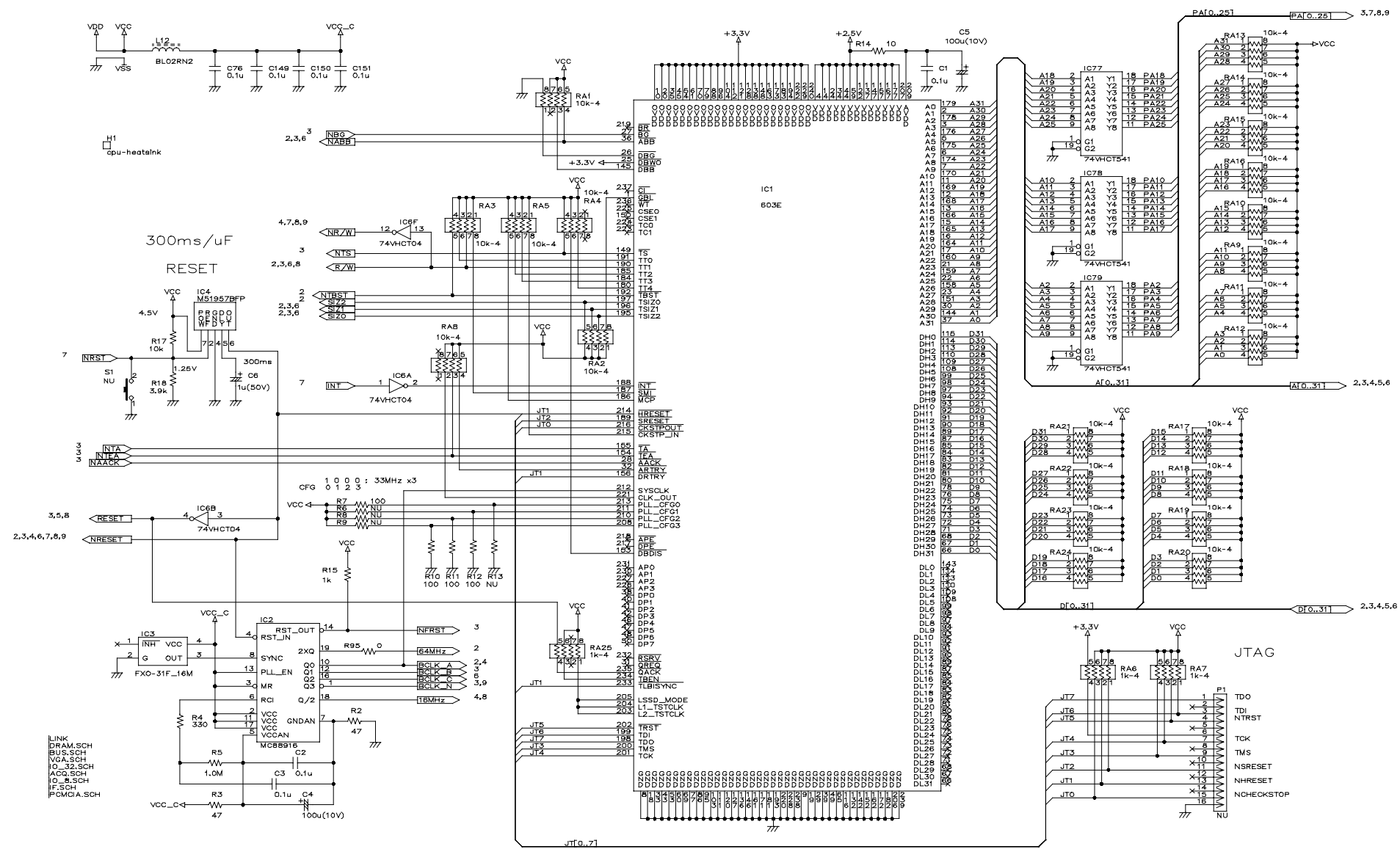


MAIN BOARD (1/2)

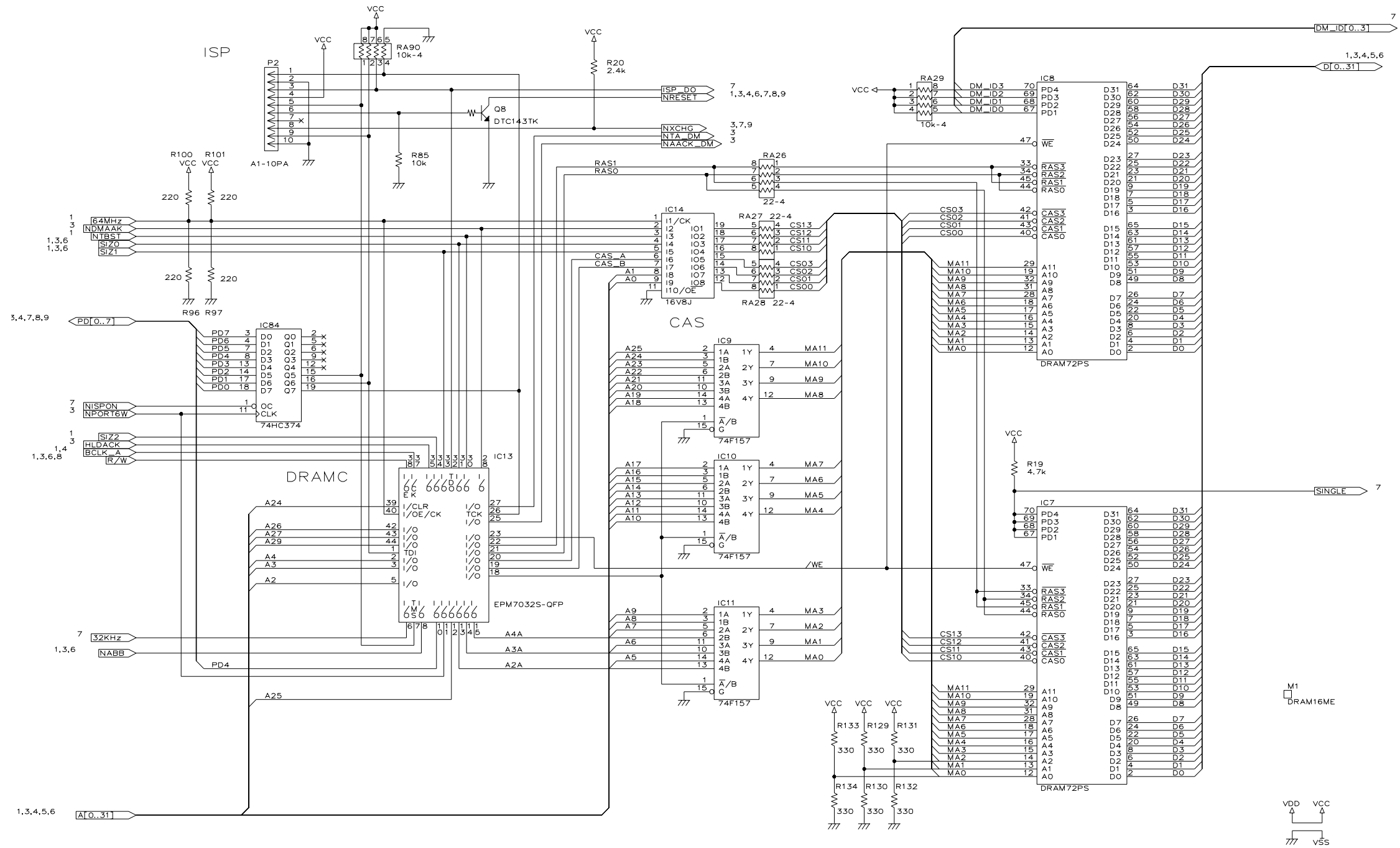




MAIN BOARD (2/2)

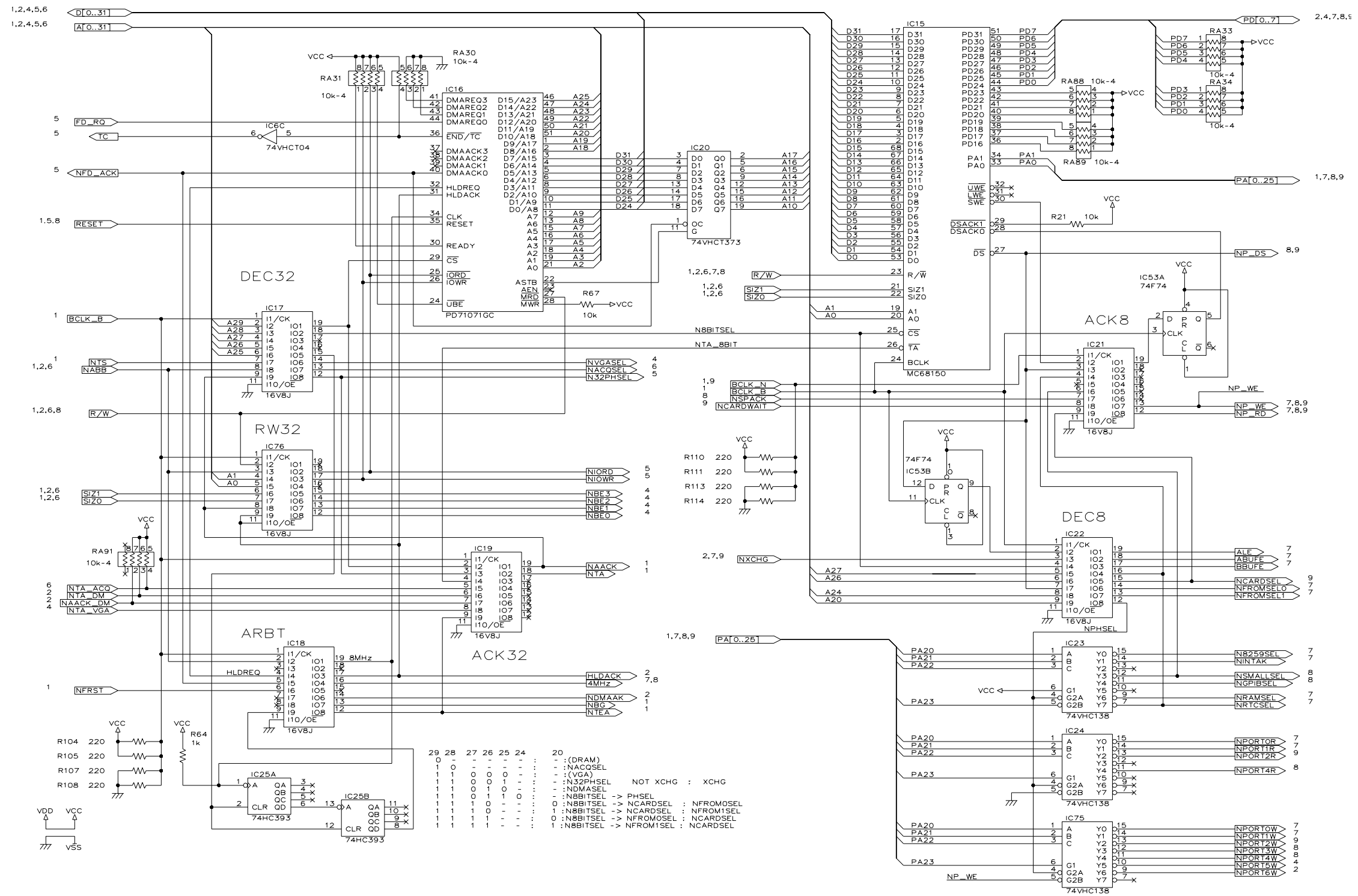


CPU (31)

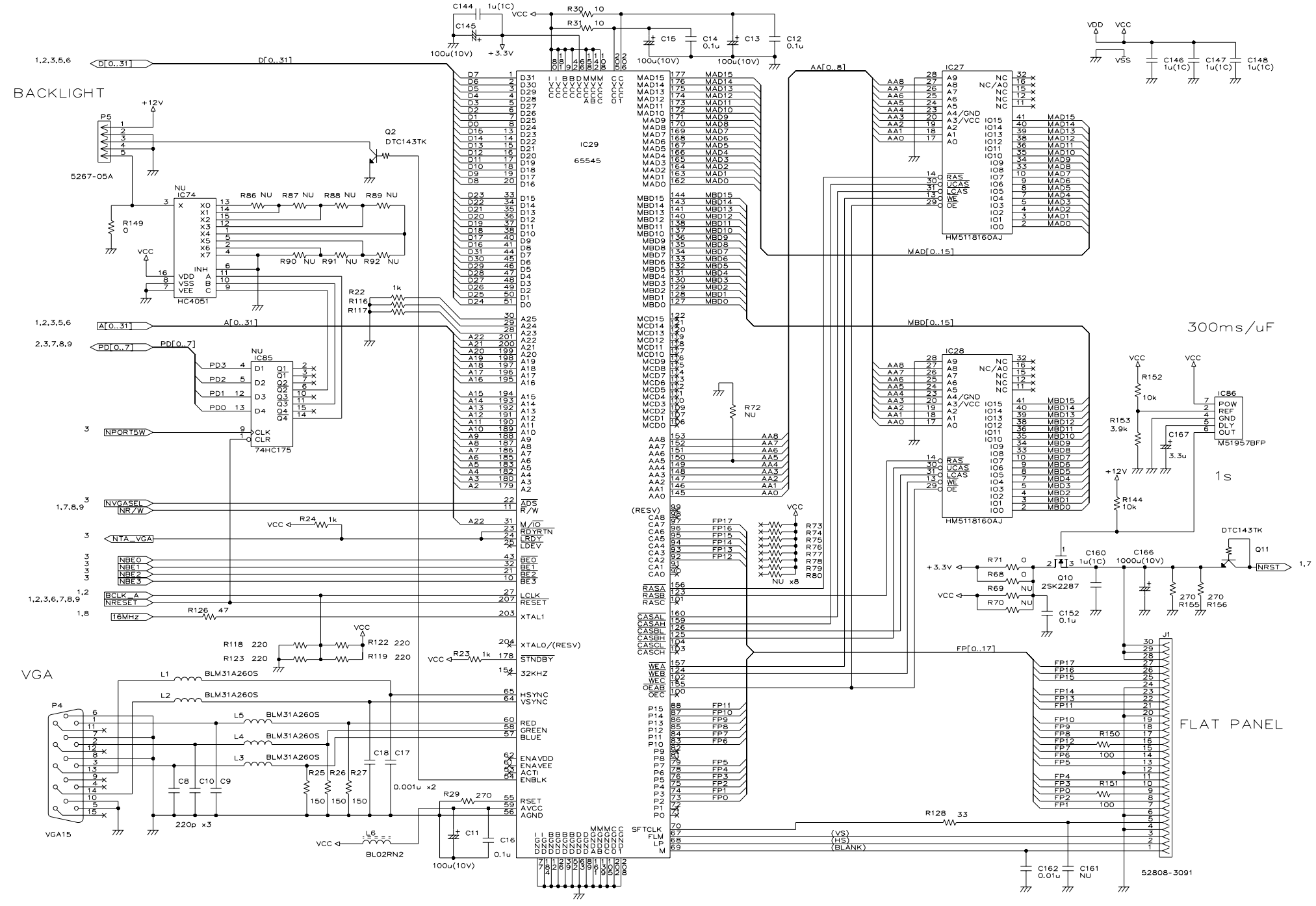


DRAM (32)



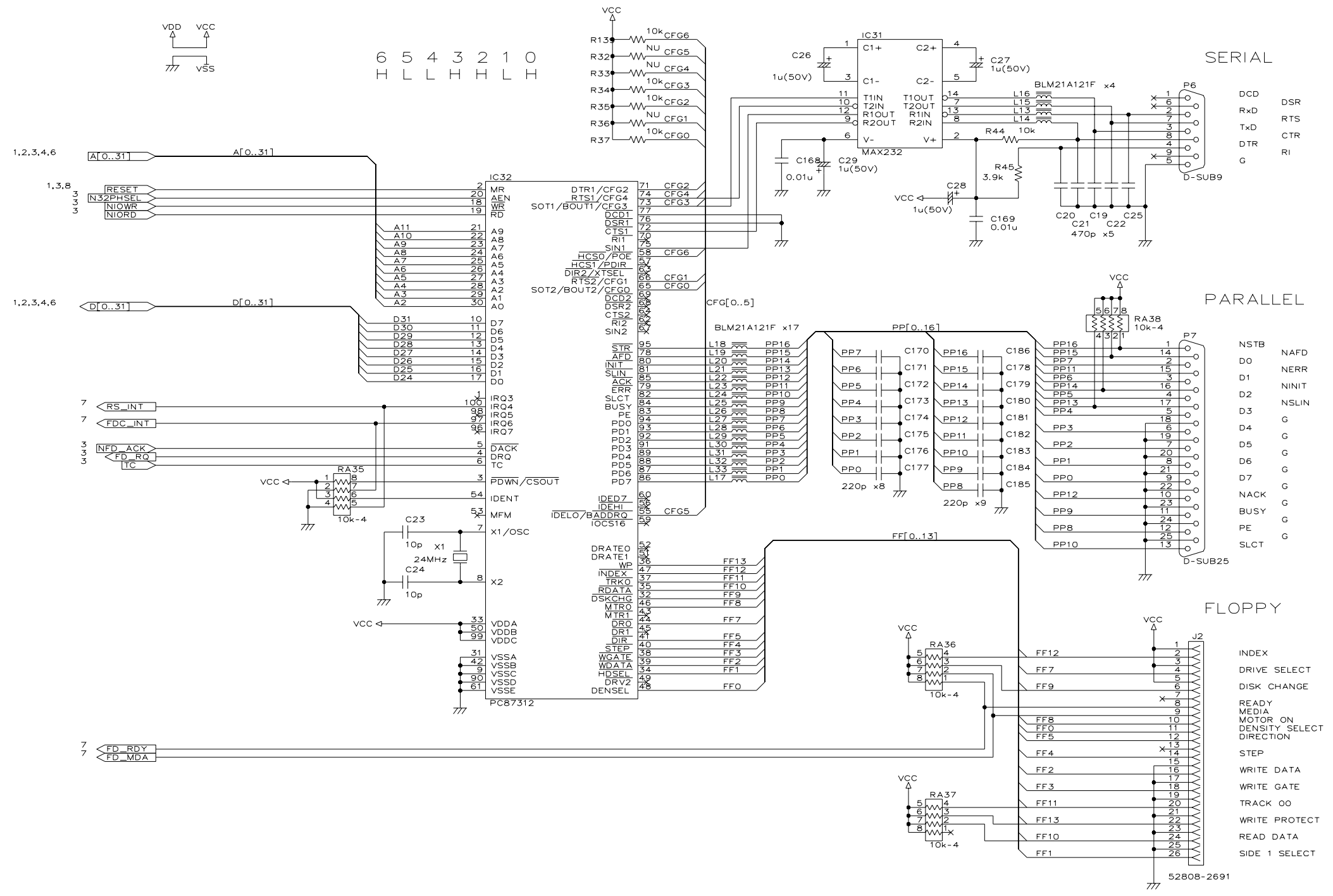


BUS CONTROL (33)

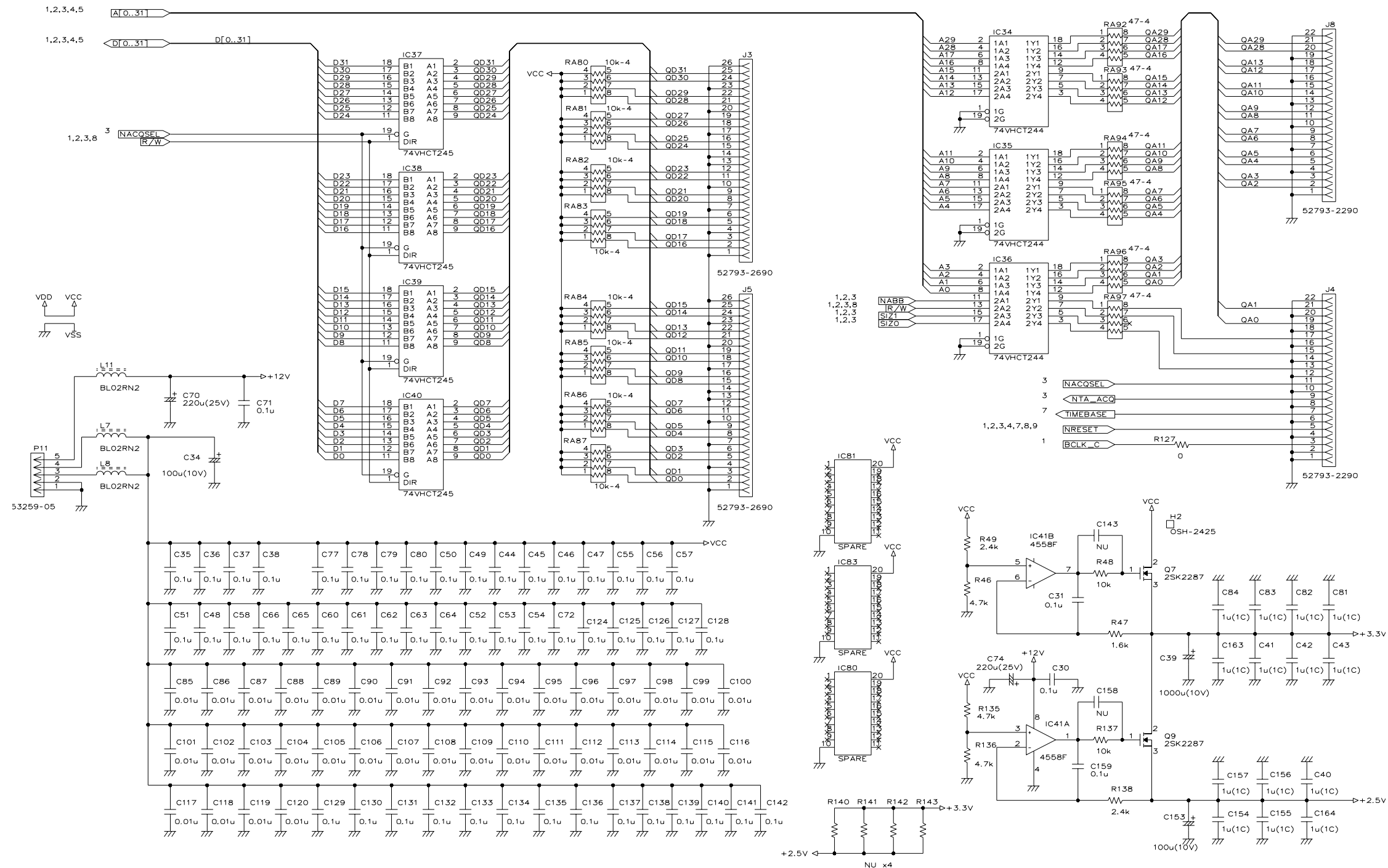


VGA CONTROL (34)

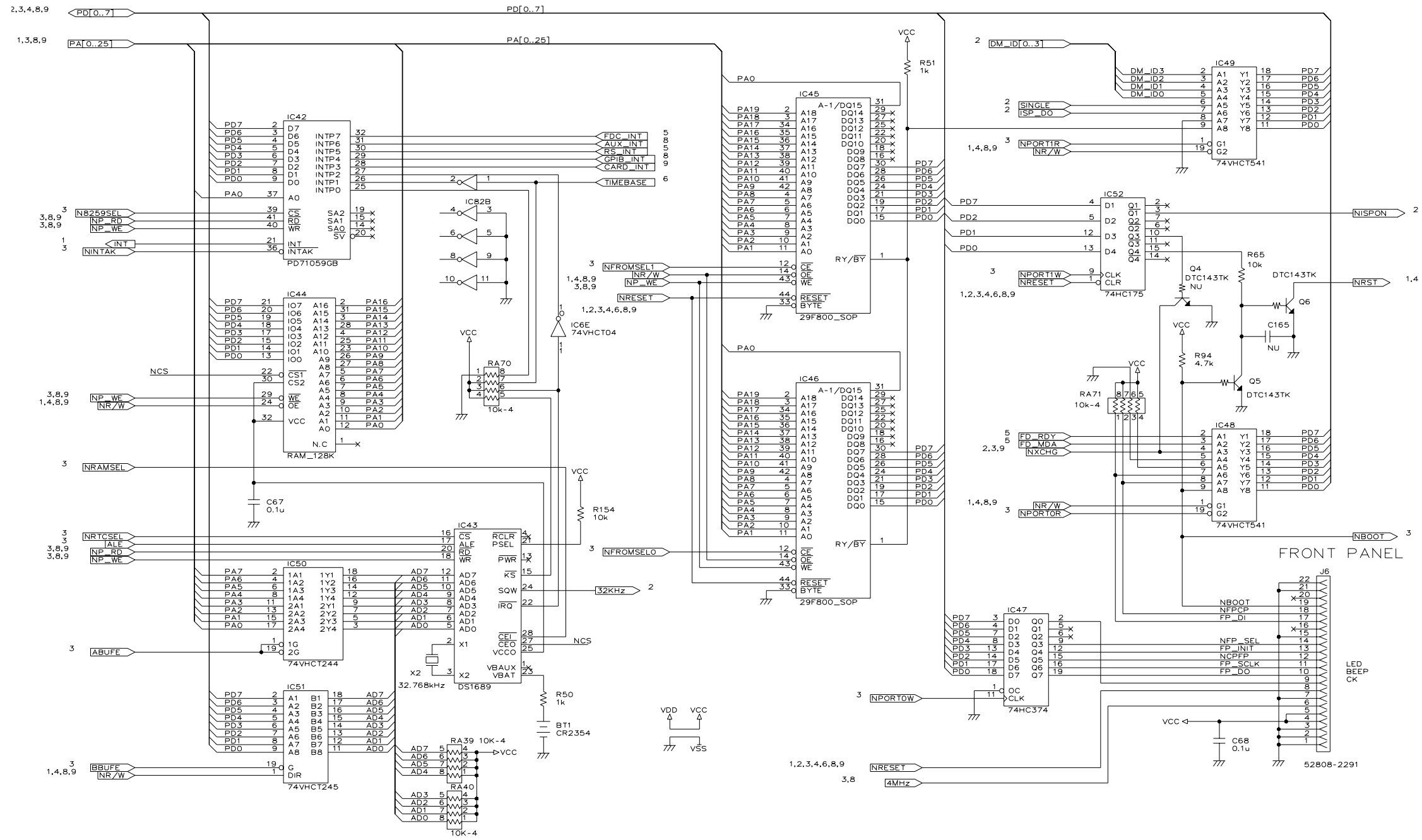




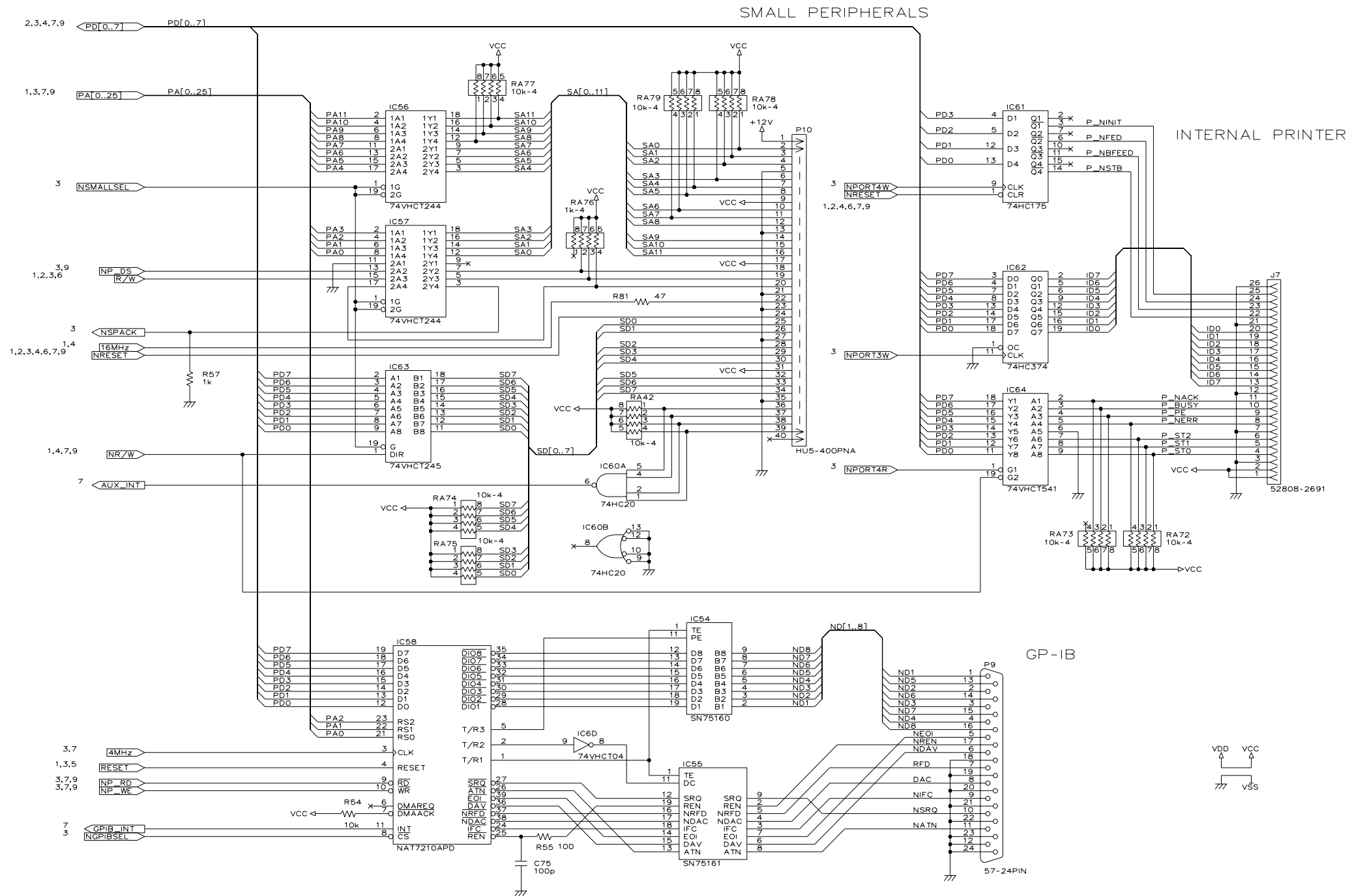
IO ACQ BOARD



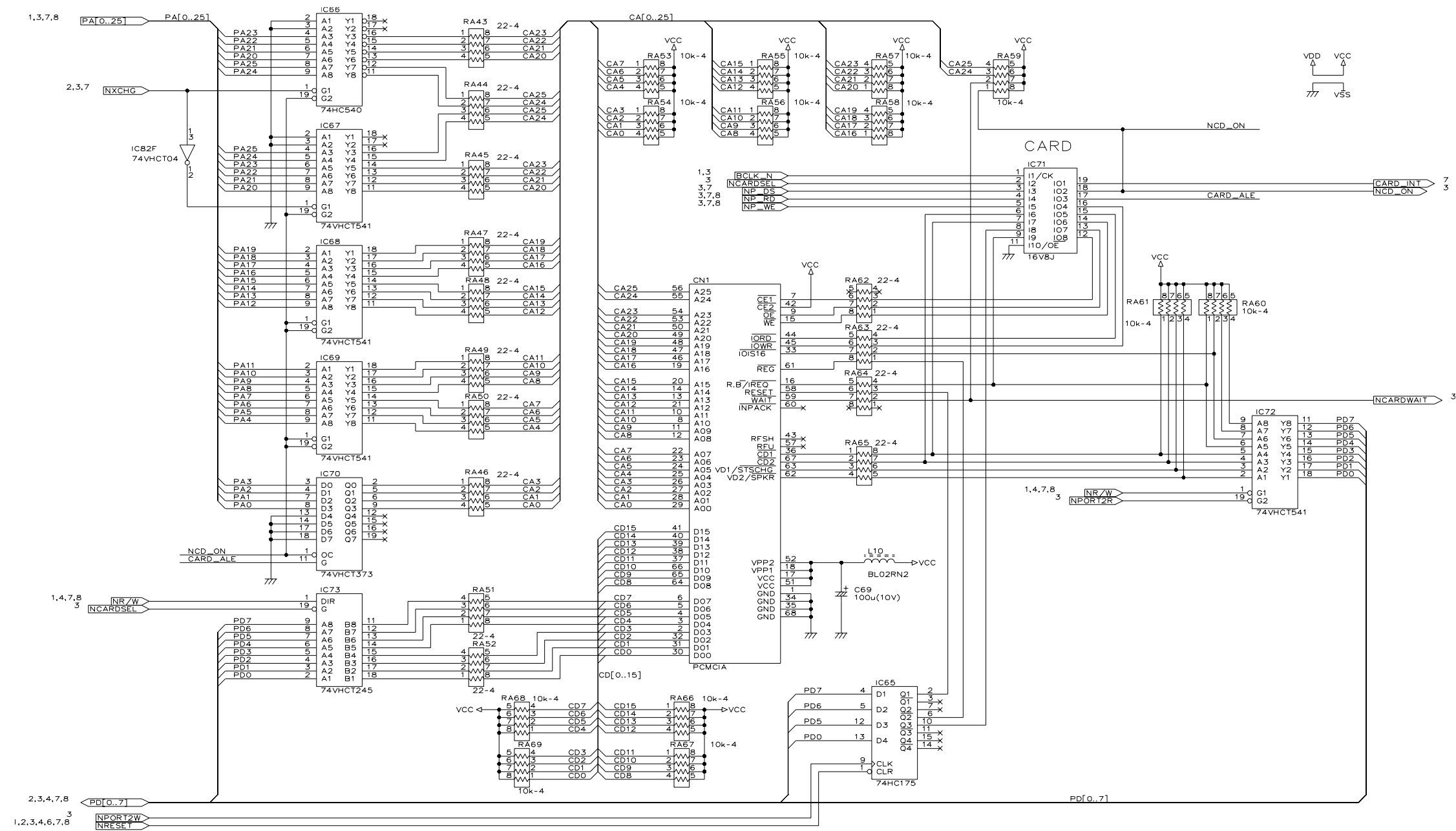
MAIN BOARD I/F (36)



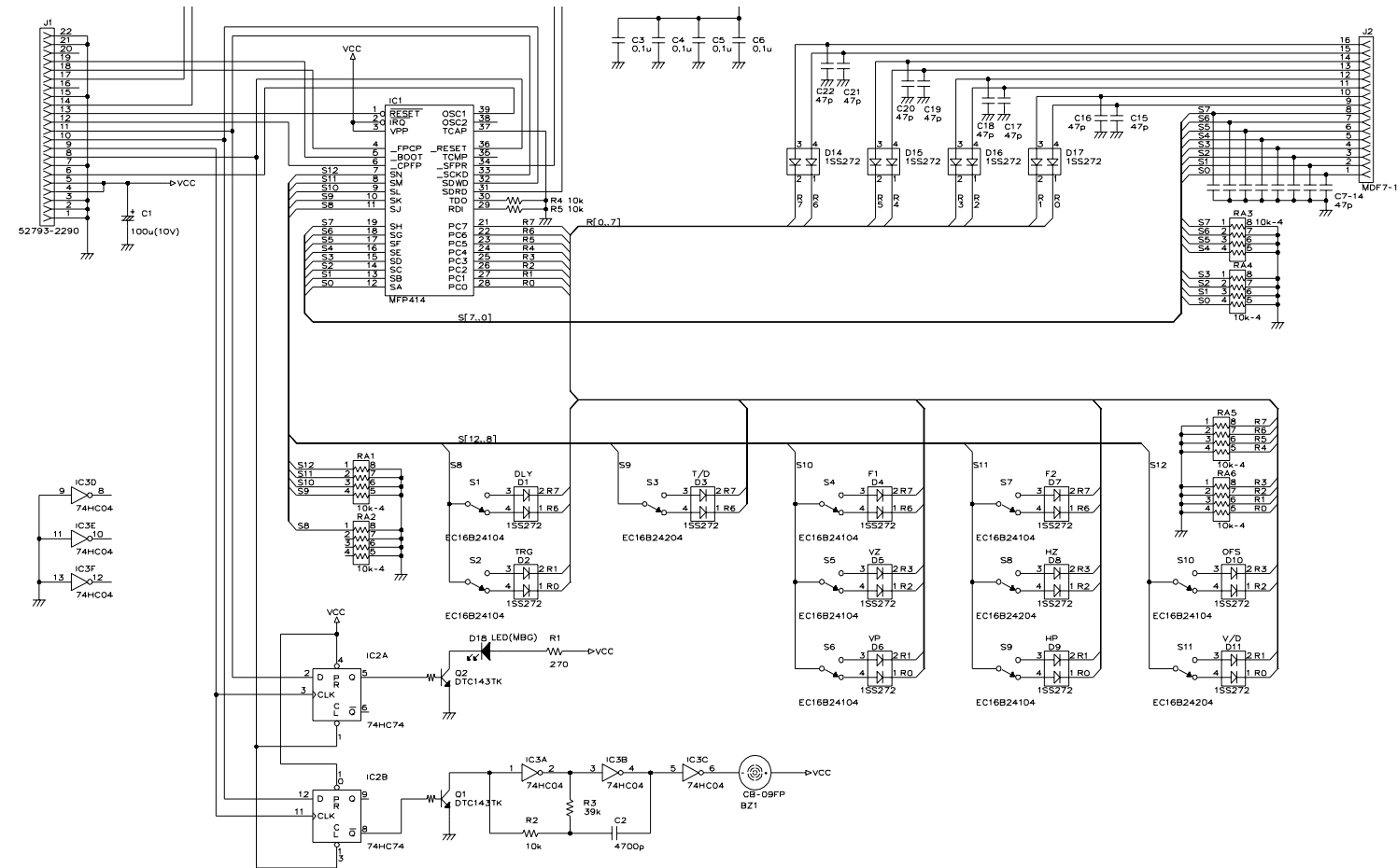
8BIT I/O (37)



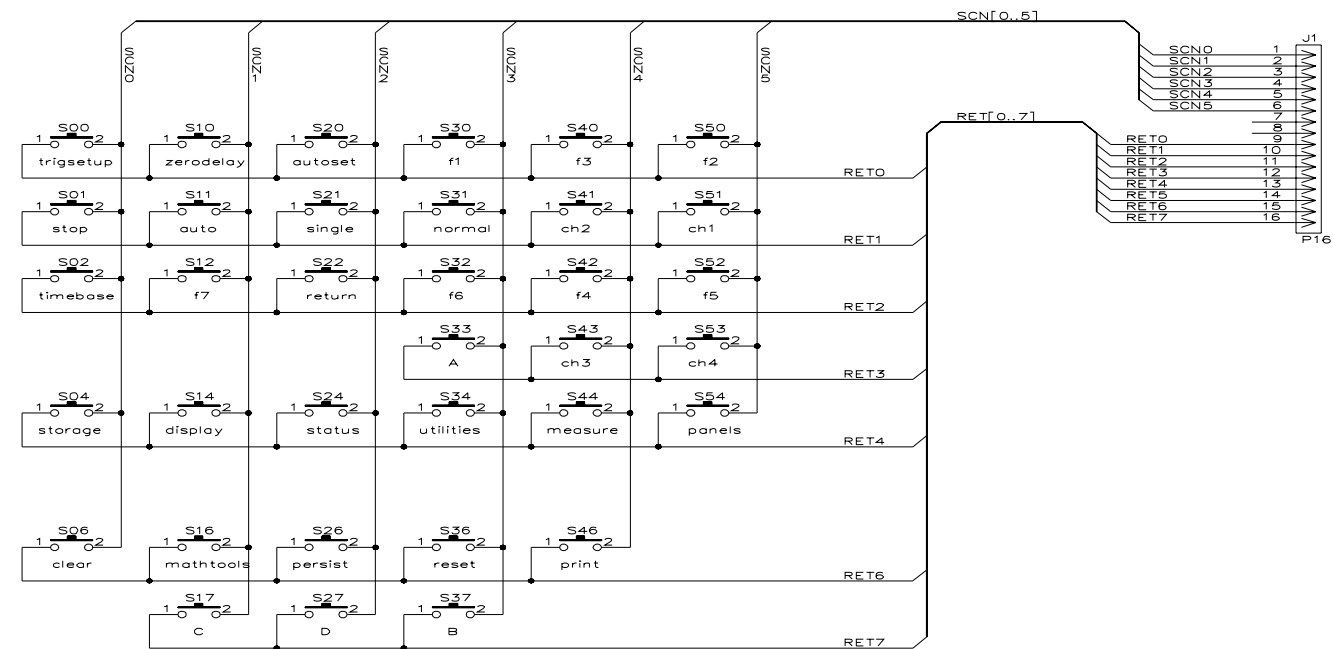
EXTERNAL I/F (38)



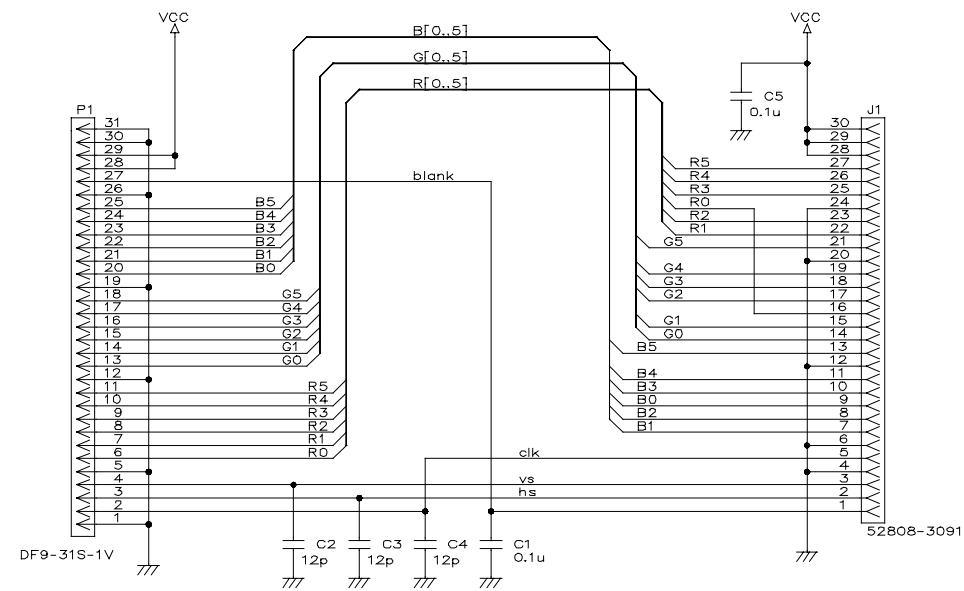
PCMCIA (39)



PANEL BOARD (40)



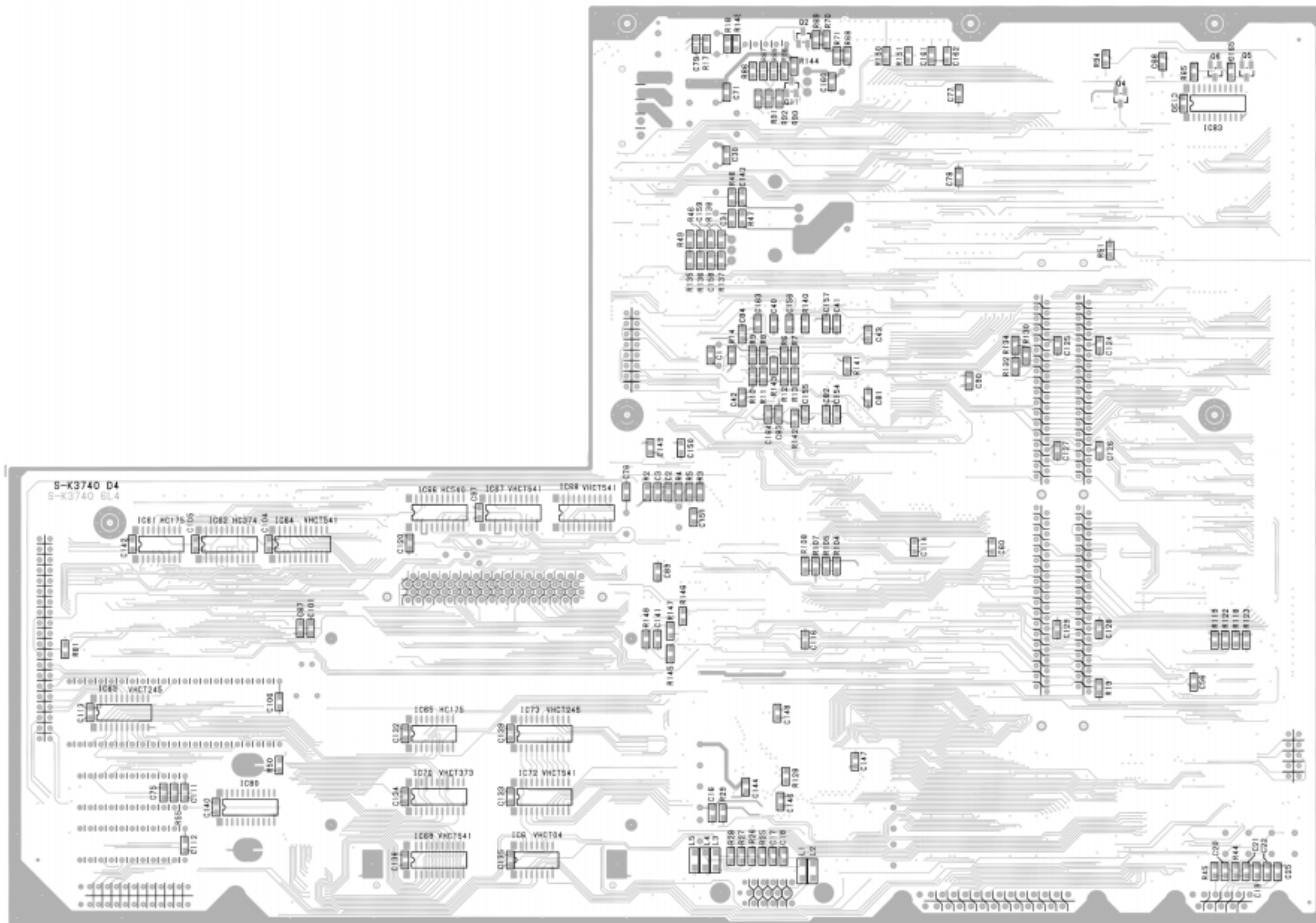
KEY BOARD (41)



LCD CONNECTOR (42)

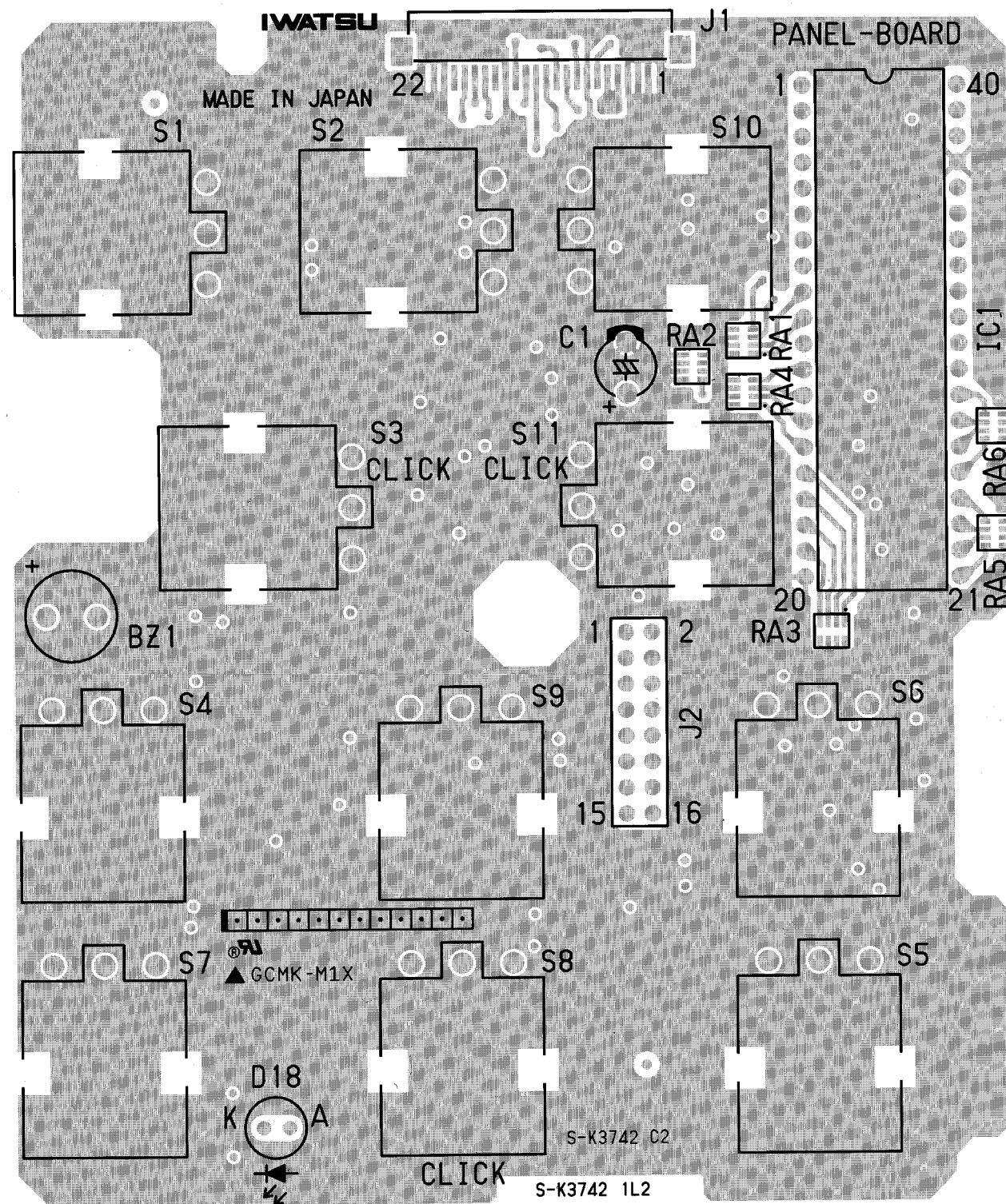






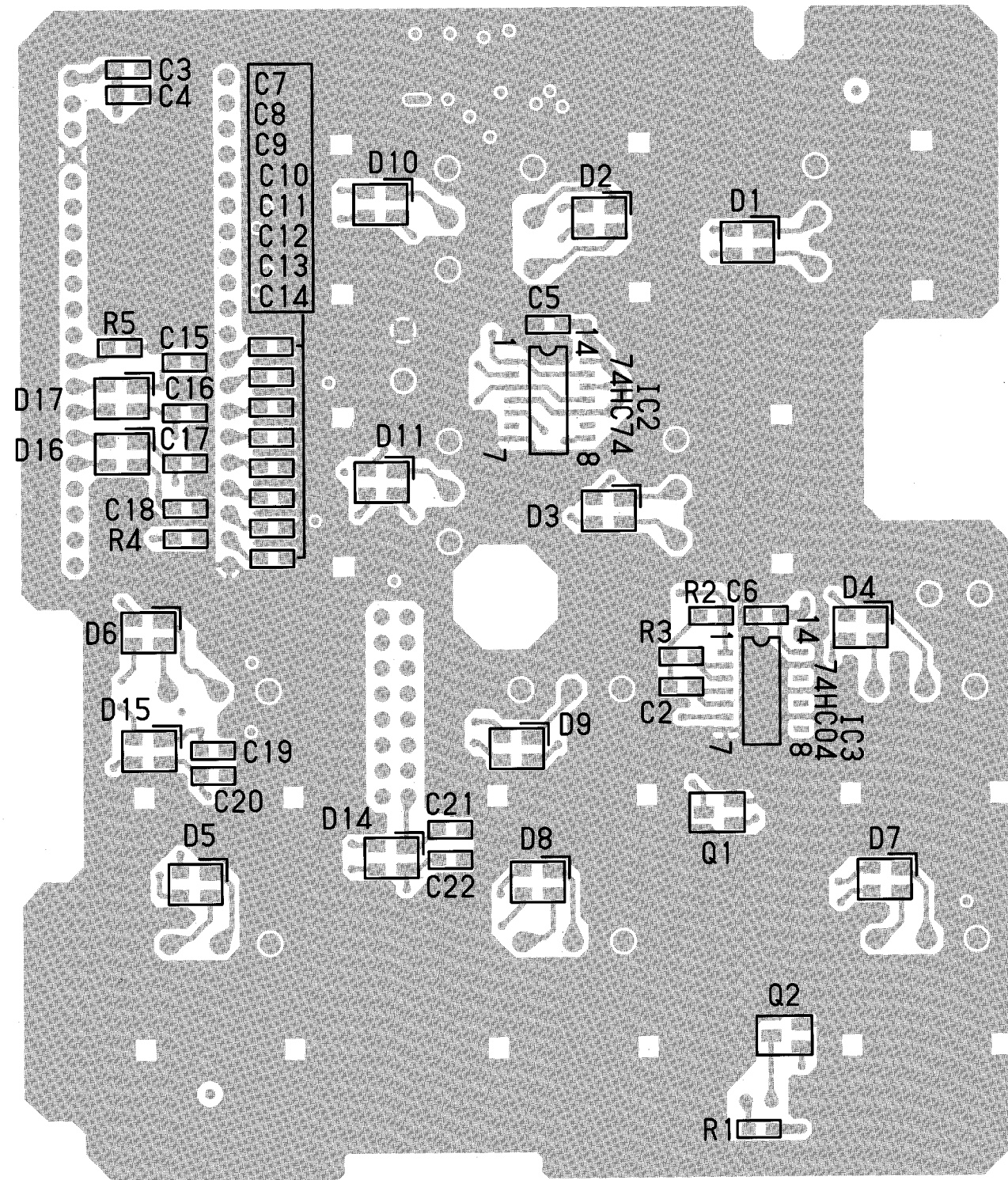
CPU BOARD (2/2)





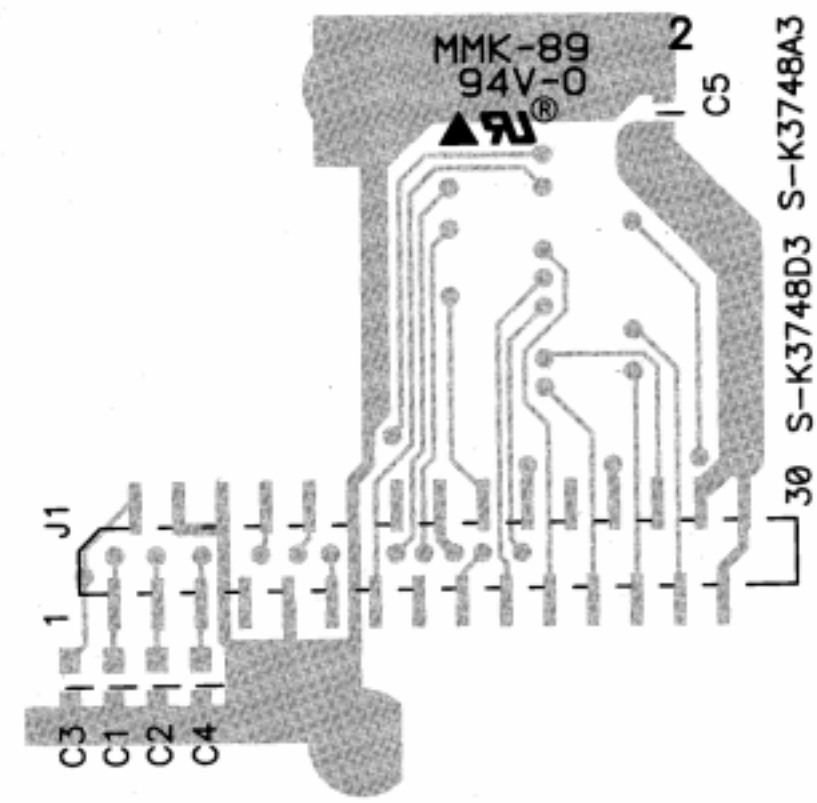
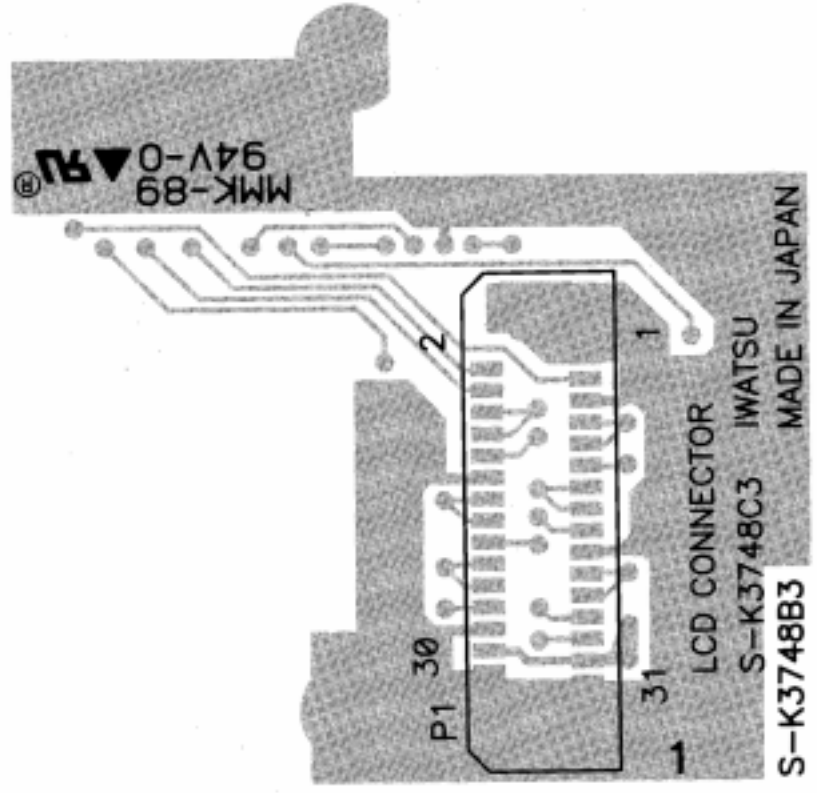
PANEL BOARD (1/2)



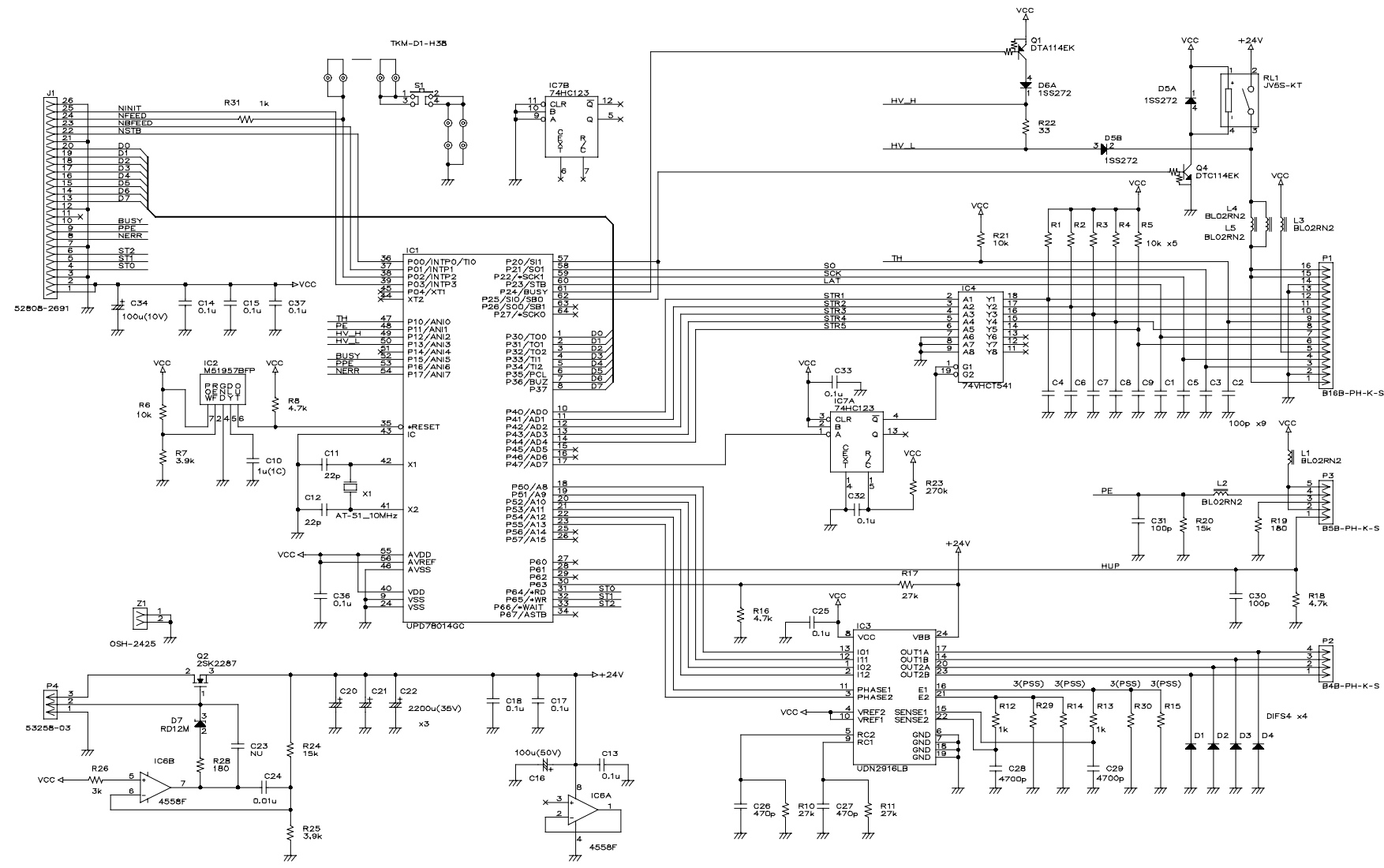


PANEL BOARD (2/2)





LCD CONNECTOR

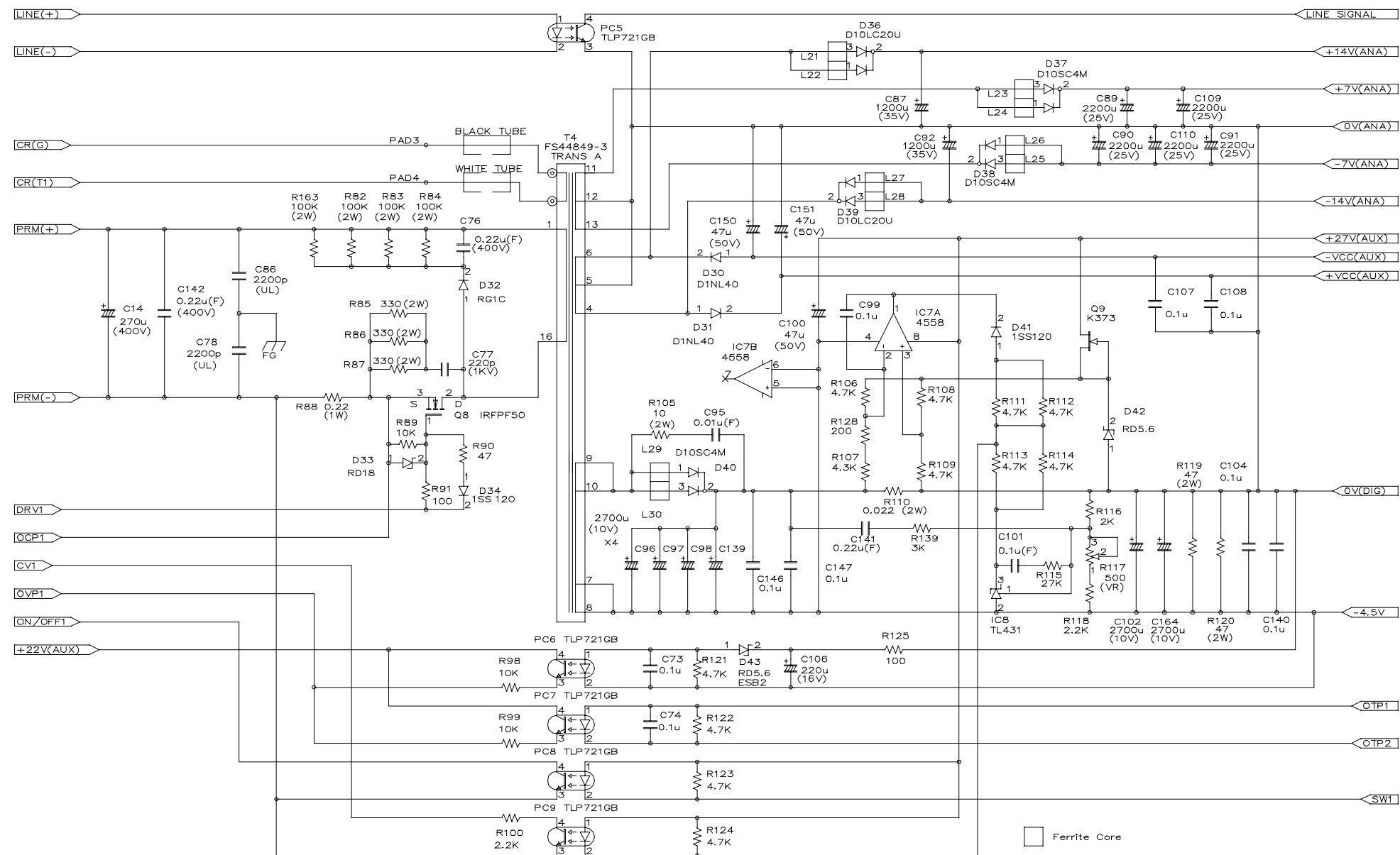


PRINTER (43)

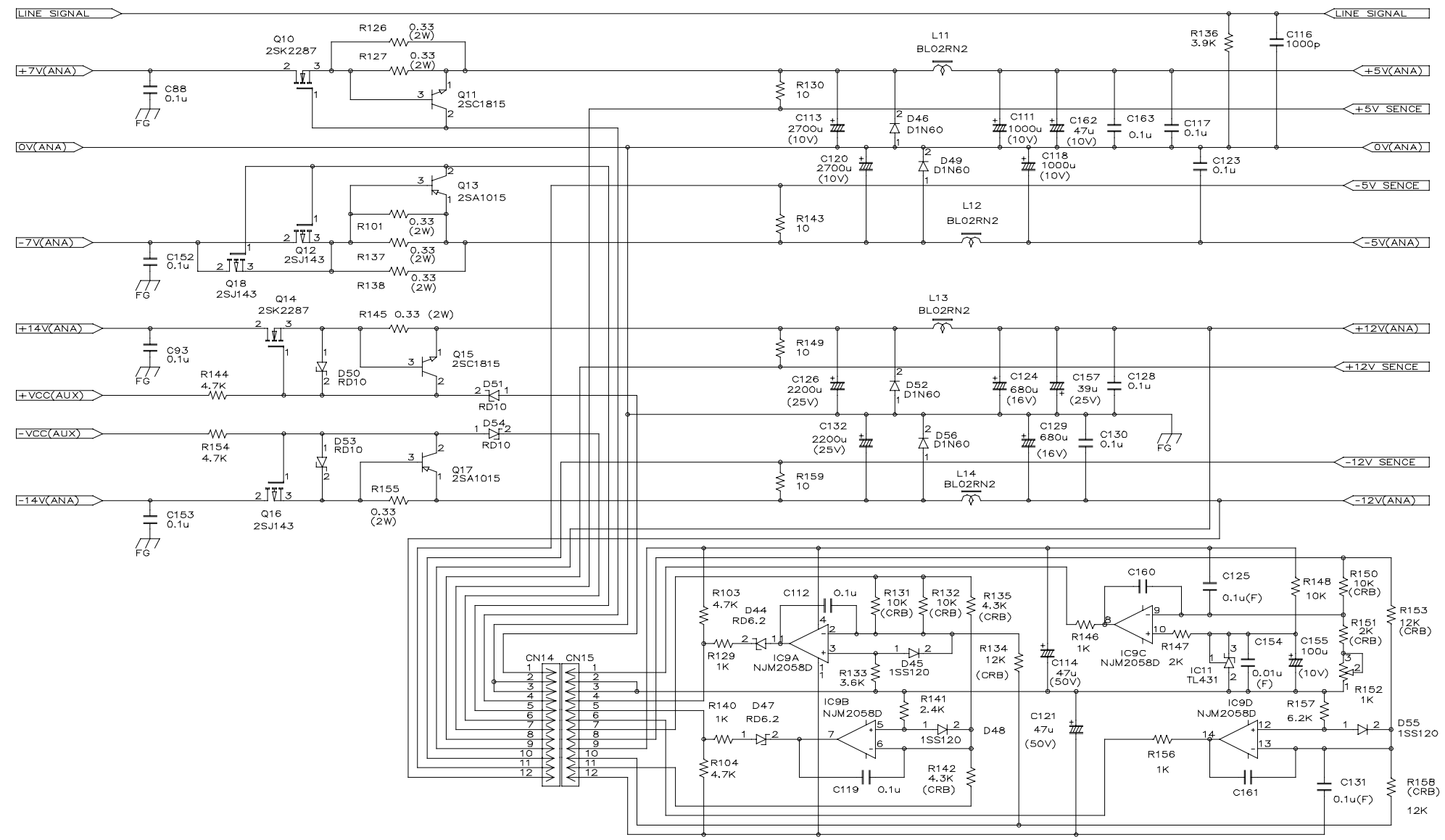




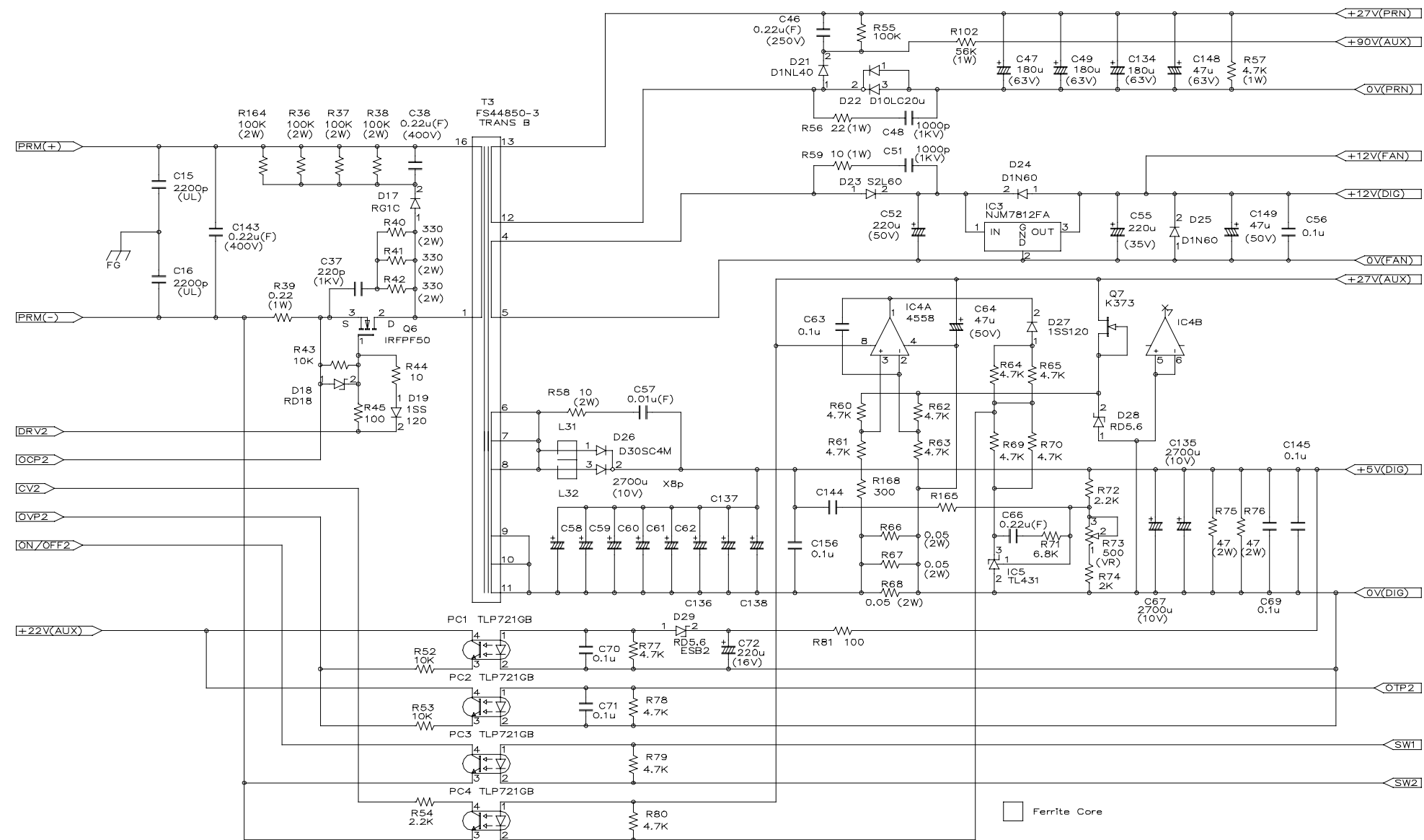




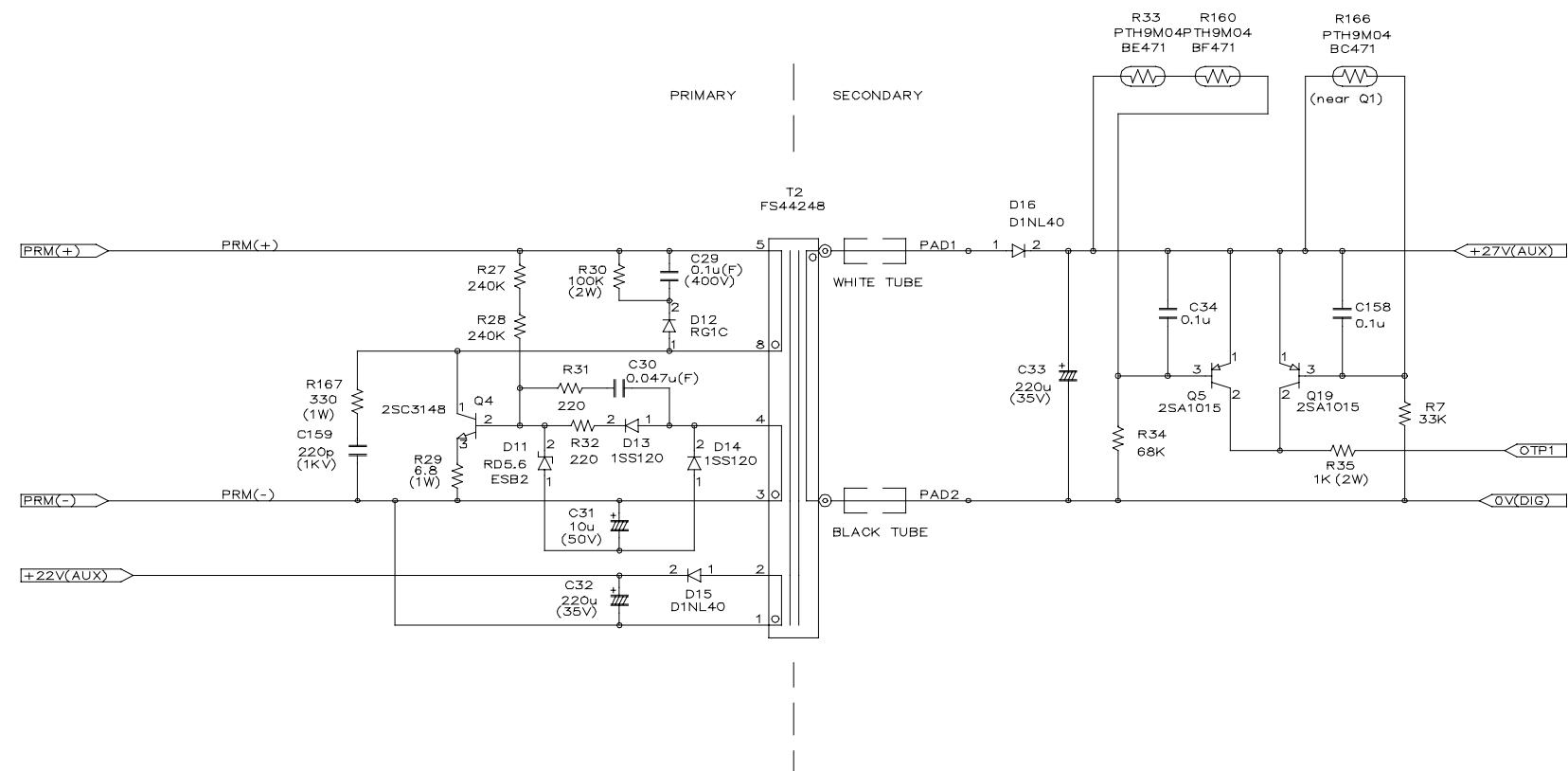
POWER SUPPLY (50) 3/7



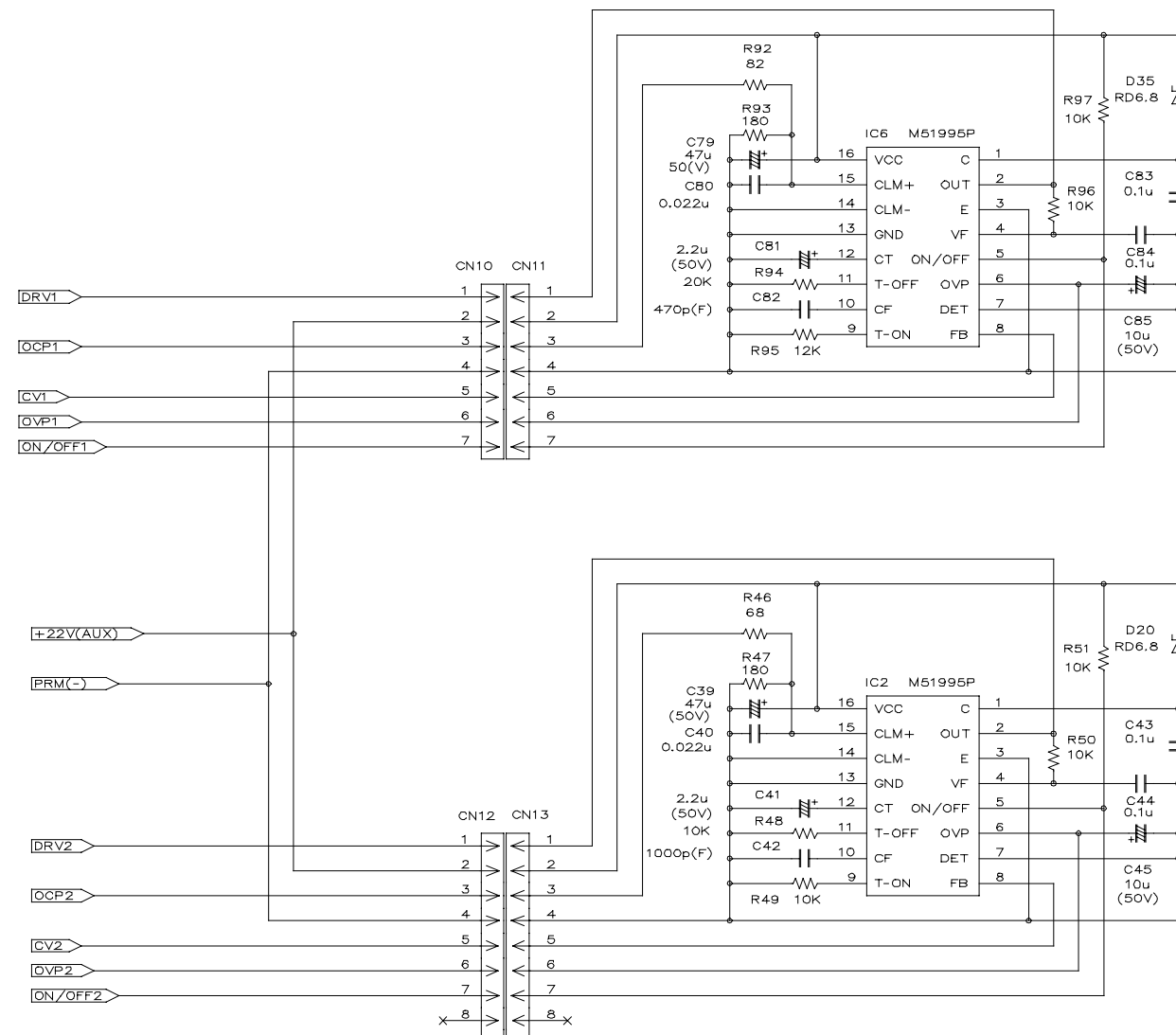
POWER SUPPLY (50) 4/7



POWER SUPPLY (50) 5/7

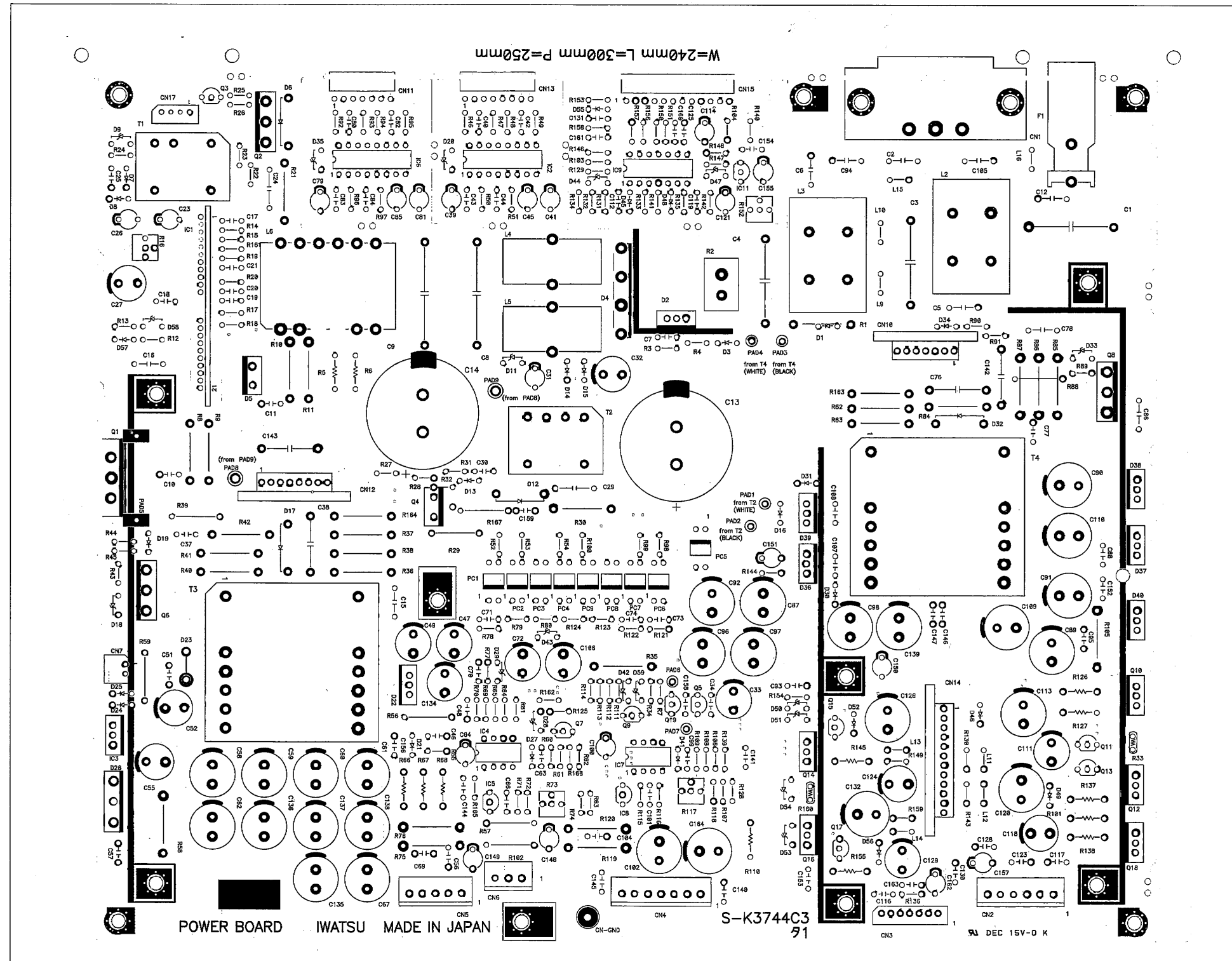


POWER SUPPLY (50) 6/7



POWER SUPPLY (50) 7/7

RD



POWER BOARD



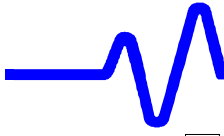
**CH1 FRONT END** 2

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
2C1, 2C2	DCC816471	C2012CH 1H 080D A TD84N
2C3, 2C4	DCC850101	GRM42-6CH 050C500PT TE0804N
2C6	DCV819091	TZBX4 Z250BA110 TE1208R
2C7	DCC816521	C2012CH 1H 220J A TD84N
2C10	DCC850101	GRM42-6CH 050C500PT TE0804N
2C12	DCV819091	TZBX4 Z250BA110 TE1208R
2C13	DCC816521	C2012CH 1H 220J A TD84N
2C14	DCC816451	C2012CH 1H 060D A TD84N
2C15	DCC816381	C2012CH 1H 020C A TD84N
2C18	DCC816491	C2012CH 1H 100D A TD84N
2C19	DCC810511	C2012F 1H 103Z A TD84N
2C20	DCC840041	GHM1530B 473K250 TE0804N
2C21	DCC850011	GRM42-6 W5R 222K500 TE0804N
2C22	DCC850091	GRM42-6CH 020C500PT TE0804N
2C24	DCC816371	C2012CH 1H 1R5C A TD84N
2C25	DCV819051	TZBX4 Z030BA110 TE1208R
2C26	DCC811731	C1608B 1H 102K A TD0804N
2C27 to 2C29	DCC810511	C2012F 1H 103Z A TD84N
2C32 to 2C35	DCC810511	C2012F 1H 103Z A TD84N
2C36	DCC810571	C2012F 1H 104Z A TD0804N
2C37	DCC816451	C2012CH 1H 060D A TD84N
2C39	DCC816601	C2012CH 1H 101J A TD84N
2C40	DCC810571	C2012F 1H 104Z A TD0804N
2C41	DCC810981	C2012B 1H 153K A TD84N
2C42	DCC811161	C2012B 1H 333K A TD84N
2C43 to 2C46	DCC810511	C2012F 1H 103Z A TD84N
2C47	DCC811161	C2012B 1H 333K A TD84N
2C48	DCV819051	TZBX4 Z030BA110 TE1208R
2C49	DCC810511	C2012F 1H 103Z A TD84N
2C50	DCE919141	SRA 10VB-100 TC04R
2C51 to 2C53	DCC810511	C2012F 1H 103Z A TD84N
2C54, 2C55	DCC810571	C2012F 1H 104Z A TD0804N
2C58	DCC820021	C2012F 1C 105Z A TD84N
2C59, 2C60	DCC810511	C2012F 1H 103Z A TD84N
2C70 to 2C74	DCC816801	C2012CH 1H 102J A TD84N
2C75, 2C76	DCC820251	C2012B 1C 474K A TD0804N
2C80	DCC810571	C2012F 1H 104Z A TD0804N
2C81	DCC816371	C2012CH 1H 1R5C A TD84N
2C83 to 2C86	DCC820021	C2012F 1C 105Z A TD84N
2C87	DCC810511	C2012F 1H 103Z A TD84N
2C90 to 2C96	DCC810511	C2012F 1H 103Z A TD84N
2C99	DCC819091	GRM42-6B 106K6.3PT TE0804N
2D1, 2D2	DDD810461	HSM 124S-JTL TE0804L
2D3	DDD810081	1SS 226 (TE85L) TE0804L
2D4 to 2D6	DDD810241	1SS 272 TE0804R
2D7 to 2D9	DDD810461	HSM 124S-JTL TE0804L
2D10, 2D11	DDD810241	1SS 272 TE0804R
2FL1 to 2FL7	DCL870041	NFM39R12C222T1 TE0804N
2IC1	DIC614811	LT 1097S8-T2 TE1208B
2IC2	DIC619191	NJM 082M(TE3) TE1208L
2IC3	DIC614891	HFE428 1GHZ FRONT END
2IC4	DIC631231	HTR420 TRIGGER COMPARATOR

**CH1 FRONT END** 2

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
2IC5	DIC483321	74HC595F/AF TE1612B
2IC6	DIC619271	TA 75S558F (TE85L) TE0804L
2J1A	DCN126091	7093XXP01 PROBUS CONNECTOR
2J1B	DCN045681	CONNECTOR BNC-BR-PC-1
2L1	DCL810831	HK1608 18NJ-T TD0804N
2L2	DCL811011	BLM21A121FPT TD0804N
2L3	DCL810811	HK1608 10NJ-T TD0804N
2L4	DCL811011	BLM21A121FPT TD0804N
2L11 to 2L14	DCL810811	HK1608 10NJ-T TD0804N
2Q1	DTR860161	2SK 508 K51 TE0804L
2Q2 to 2Q4	DTR830521	2SC 3583-T1B TE0804L
2Q5, 2Q6	DTR810041	2SA 1162Y TE85L
2Q7 to 2Q11	DTR890471	DTA114YK/RN2407 TE0804L
2Q12	DTR810041	2SA 1162Y TE85L
2Q14	DTR838661	2SC 2712LG TE85L
2Q15, 2Q16	DTR890581	DTC114YK/RN1407 TE0804L
2Q17, 2Q18	DTR810041	2SA 1162Y TE85L
2R1 to 2R10	DRZ820971	RN73G 2A 20Ω D TD0804N
2R11	DRZ833071	RK73H 2A 82Ω F TD0804N
2R12	DRZ833561	RK73H 2A 36Ω F TD0804N
2R13	DRZ832011	RK73H 2A 100Ω F TD0804N
2R14	DRZ831611	MCR10J 5R6E TD0804N
2R15 to 2R17	DRZ828721	RR1220P-224-B TD0804N
2R18	DRZ828731	RR1220P-244-B TD0804N
2R19	DRZ828711	RR1220P-114-B TD0804N
2R20	DRZ832261	RK73H 2A 1.1KΩ F TD0804N
2R21	DRZ832081	RK73H 2A 200Ω F TD0804N
2R22	DRZ833581	RK73H 2A 43Ω F TD0804N
2R24	DRZ830861	MCR10J 300E TD0804N
2R25	DRZ833041	RK73H 2A 62Ω F TD0804N
2R26	DRZ828751	RR1220P-474-B TD0804N
2R27	DRZ828741	RR1220P-434-B TD0804N
2R28	DRZ828711	RR1220P-114-B TD0804N
2R29	DRZ832261	RK73H 2A 1.1KΩ F TD0804N
2R30	DRZ832081	RK73H 2A 200Ω F TD0804N
2R31	DRZ833531	RK73H 2A 27Ω F TD0804N
2R32	DRZ831121	MCR10J 240E TD0804N
2R33	DRZ833581	RK73H 2A 43Ω F TD0804N
2R35 to 2R42	DRZ828761	RR1220P-204-D TD0804N
2R43	DRZ832121	RK73H 2A 300Ω F TD0804N
2R44	DRZ832011	RK73H 2A 100Ω F TD0804N
2R45	DRZ832031	RK73H 2A 120Ω F TD0804N
2R46, 2R47	DRZ831431	MCR10J 335E TD0804N
2R48	DRZ821291	RK73K 1J 150Ω J TD0804N
2R49	DRZ820971	RN73G 2A 20Ω D TD0804N
2R50	DRZ832101	RK73H 2A 240Ω F TD0804N
2R51	DRZ830861	MCR10J 300E TD0804N
2R52	DDD089381	NTH5G20P35A221J07TE TE0804N
2R53	DRZ832531	RK73H 2A 15KΩ F TD0804N
2R54	DRZ832251	RK73H 2A 1.0KΩ F TD0804N
2R55	DRZ832441	RK73H 2A 6.2KΩ F TD0804N
2R56	DRZ832251	RK73H 2A 1.0KΩ F TD0804N





CH1 FRONT END 2

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
2R58	DRZ832051	RK73H 2A 150ΩF TD0804N
2R59	DRZ820971	RN73G 2A 20ΩD TD0804N
2R60 to 2R62	DRZ832201	RK73H 2A 620ΩF TD0804N
2R63	DRZ820971	RN73G 2A 20ΩD TD0804N
2R64 to 2R67	DRZ832091	RK73H 2A 220ΩF TD0804N
2R68	DRZ832601	RK73H 2A 30KΩF TD0804N
2R69	DRZ832401	RK73H 2A 4.3KΩF TD0804N
2R70	DRZ832281	RK73H 2A 1.3KΩF TD0804N
2R71	DRZ832031	RK73H 2A 120ΩF TD0804N
2R74, 2R75	DRZ828761	RR1220P-204-D TD0804N
2R76	DRZ828711	RR1220P-114-B TD0804N
2R77	DRZ832661	RK73H 2A 51KΩF TD0804N
2R78	DRV810251	G4AT/ST-4TA 5KΩ TE1208L
2R79	DRZ832011	RK73H 2A 100ΩF TD0804N
2R80	DRZ832251	RK73H 2A 1.0KΩF TD0804N
2R81, 2R82	DRZ820861	RN73F 2A 100KΩD TD0804N
2R83	DRZ832321	RK73H 2A 2.0KΩF TD0804N
2R84	DRZ832301	RK73H 2A 1.6KΩF TD0804N
2R85	DDD074121	LP310 1F 202F 302 TE0804N
2R86	DRZ832491	RK73H 2A 10KΩF TD0804N
2R87	DDD074121	LP310 1F 202F 302 TE0804N
2R88	DRZ832491	RK73H 2A 10KΩF TD0804N
2R89	DRZ832251	RK73H 2A 1.0KΩF TD0804N
2R90	DRZ832491	RK73H 2A 10KΩF TD0804N
2R91	DRZ828571	RN73F 2A 510ΩB TD0804N
2R92	DRZ833021	RK73H 2A 51ΩF TD0804N
2R93	DRZ833551	RK73H 2A 33ΩF TD0804N
2R95	DRZ833061	RK73H 2A 75ΩF TD0804N
2R97	DRZ832291	RK73H 2A 1.5KΩF TD0804N
2R98	DRZ832471	RK73H 2A 8.2KΩF TD0804N
2R100	DRZ832301	RK73H 2A 1.6KΩF TD0804N
2R101	DRZ832191	RK73H 2A 560ΩF TD0804N
2R105	DRZ832351	RK73H 2A 2.7KΩF TD0804N
2R106	DRZ832191	RK73H 2A 560ΩF TD0804N
2R107	DRZ832351	RK73H 2A 2.7KΩF TD0804N
2R108	DRZ832191	RK73H 2A 560ΩF TD0804N
2R109	DRZ832011	RK73H 2A 100ΩF TD0804N
2R110	DRZ832321	RK73H 2A 2.0KΩF TD0804N
2R115, 2R116	DRZ833021	RK73H 2A 51ΩF TD0804N
2R120	DRZ832251	RK73H 2A 1.0KΩF TD0804N
2R123 to 2R125	DRZ832011	RK73H 2A 100ΩF TD0804N
2R126	DRZ832251	RK73H 2A 1.0KΩF TD0804N
2R127	DRZ832391	RK73H 2A 3.9KΩF TD0804N
2R128	DRZ832121	RK73H 2A 300ΩF TD0804N
2R129	DRZ832251	RK73H 2A 1.0KΩF TD0804N
2R130	DRZ832391	RK73H 2A 3.9KΩF TD0804N
2R131	DRZ832121	RK73H 2A 300ΩF TD0804N
2RL1, 2RL2	DKD028511	NAS-5W-K-TN-B05 TE2416B
2RL3, 2RL4	DKD030381	NASL-5W-K-TN TE2416B
2RL5	DKD028511	NAS-5W-K-TN-B05 TE2416B

CH2 FRONT END 3

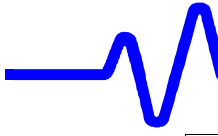
CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
3C1, 3C2	DCC816471	C2012CH 1H 080D A TD84N
3C3, 3C4	DCC850101	GRM42-6CH 050C500PT TE0804N
3C6	DCV819091	TZBX4 Z250BA110 TE1208R
3C7	DCC816521	C2012CH 1H 220J A TD84N
3C10	DCC850101	GRM42-6CH 050C500PT TE0804N
3C12	DCV819091	TZBX4 Z250BA110 TE1208R
3C13	DCC816521	C2012CH 1H 220J A TD84N
3C14	DCC816451	C2012CH 1H 060D A TD84N
3C15	DCC816381	C2012CH 1H 020C A TD84N
3C18	DCC816491	C2012CH 1H 100D A TD84N
3C19	DCC810511	C2012F 1H 103Z A TD84N
3C20	DCC840041	GHM1530B 473K250 TE0804N
3C21	DCC850011	GRM42-6 W5R 222K500 TE0804N
3C22	DCC850091	GRM42-6CH 020C500PT TE0804N
3C24	DCC816371	C2012CH 1H 1R5C A TD84N
3C25	DCV819051	TZBX4 Z030BA110 TE1208R
3C26	DCC811731	C1608B 1H 102K A TD0804N
3C27 to 3C29	DCC810511	C2012F 1H 103Z A TD84N
3C32 to 3C35	DCC810511	C2012F 1H 103Z A TD84N
3C36	DCC810571	C2012F 1H 104Z A TD0804N
3C37	DCC816451	C2012CH 1H 060D A TD84N
3C39	DCC816601	C2012CH 1H 101J A TD84N
3C40	DCC810571	C2012F 1H 104Z A TD0804N
3C41	DCC810981	C2012B 1H 153K A TD84N
3C42	DCC811161	C2012B 1H 333K A TD84N
3C43 to 3C46	DCC810511	C2012F 1H 103Z A TD84N
3C47	DCC811161	C2012B 1H 333K A TD84N
3C48	DCV819051	TZBX4 Z030BA110 TE1208R
3C49	DCC810511	C2012F 1H 103Z A TD84N
3C50	DCE919141	SRA 10VB-100 TC04R
3C51 to 3C53	DCC810511	C2012F 1H 103Z A TD84N
3C54, 3C55	DCC810571	C2012F 1H 104Z A TD0804N
3C58	DCC820021	C2012F 1C 105Z A TD84N
3C59, 3C60	DCC810511	C2012F 1H 103Z A TD84N
3C70 to 3C74	DCC816801	C2012CH 1H 102J A TD84N
3C75, 3C76	DCC820251	C2012B 1C 474K A TD0804N
3C80	DCC810571	C2012F 1H 104Z A TD0804N
3C81	DCC816371	C2012CH 1H 1R5C A TD84N
3C83 to 3C86	DCC820021	C2012F 1C 105Z A TD84N
3C87	DCC810511	C2012F 1H 103Z A TD84N
3C90 to 3C96	DCC810511	C2012F 1H 103Z A TD84N
3C99	DCC819091	GRM42-6B 106K6.3PT TE0804N
3D1, 3D2	DDD810461	HSM 124S-JTL TE0804L
3D3	DDD810081	1SS 226 (TE85L) TE0804L
3D4 to 3D6	DDD810241	1SS 272 TE0804R
3D7 to 3D9	DDD810461	HSM 124S-JTL TE0804L
3D10, 3D11	DDD810241	1SS 272 TE0804R
3FL1 to 3FL7	DCL870041	NFM39R12C222T1 TE0804N
3IC1	DIC614811	LT 1097S8-T2 TE1208B
3IC2	DIC619191	NJM 082M(TE3) TE1208L
3IC3	DIC614891	HFE428 1GHZ FRONT END
3IC4	DIC631231	HTR420 TRIGGER COMPARATOR
3IC5	DIC483321	74HC595F/AF TE1612B

**CH2 FRONT END 3**

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
3IC6	DIC619271	TA 75S558F (TE85L) TE0804L
3J1A	DCN126091	7093XXP01 PROBUS CONNECTOR
3J1B	DCN045681	CONNECTOR BNC-BR-PC-1
3L1	DCL810831	HK1608 18NJ-T TD0804N
3L2	DCL811011	BLM21A121FPT TD0804N
3L3	DCL810811	HK1608 10NJ-T TD0804N
3L4	DCL811011	BLM21A121FPT TD0804N
3L11 to 3L14	DCL810811	HK1608 10NJ-T TD0804N
3L15 to 3L18	DRZ831801	MCR03 EZH J000E TD0804N
3Q1	DTR860161	2SK 508 K51 TE0804L
3Q2 to 3Q4	DTR830521	2SC 3583-T1B TE0804L
3Q5, 3Q6	DTR810041	2SA 1162Y TE85L
3Q7 to 3Q11	DTR890471	DTA114YK/RN2407 TE0804L
3Q12	DTR810041	2SA 1162Y TE85L
3Q14	DTR838661	2SC 2712LG TE85L
3Q15, 3Q16	DTR890581	DTC114YK/RN1407 TE0804L
3Q17, 3Q18	DTR810041	2SA 1162Y TE85L
3R1 to 3R10	DRZ820971	RN73G 2A 20ΩD TD0804N
3R11	DRZ833071	RK73H 2A 82ΩF TD0804N
3R12	DRZ833561	RK73H 2A 36ΩF TD0804N
3R13	DRZ832011	RK73H 2A 100ΩF TD0804N
3R15 to 3R17	DRZ828721	RR1220P-224-B TD0804N
3R18	DRZ828731	RR1220P-244-B TD0804N
3R19	DRZ828711	RR1220P-114-B TD0804N
3R20	DRZ832261	RK73H 2A 1.1KΩF TD0804N
3R21	DRZ832081	RK73H 2A 200ΩF TD0804N
3R22	DRZ833581	RK73H 2A 43ΩF TD0804N
3R24	DRZ830861	MCR10J 300E TD0804N
3R25	DRZ833041	RK73H 2A 62ΩF TD0804N
3R26	DRZ828751	RR1220P-474-B TD0804N
3R27	DRZ828741	RR1220P-434-B TD0804N
3R28	DRZ828711	RR1220P-114-B TD0804N
3R29	DRZ832261	RK73H 2A 1.1KΩF TD0804N
3R30	DRZ832081	RK73H 2A 200ΩF TD0804N
3R31	DRZ833531	RK73H 2A 27ΩF TD0804N
3R32	DRZ831121	MCR10J 240E TD0804N
3R33	DRZ833581	RK73H 2A 43ΩF TD0804N
3R35 to 3R42	DRZ828761	RR1220P-204-D TD0804N
3R43	DRZ832121	RK73H 2A 300ΩF TD0804N
3R44	DRZ832011	RK73H 2A 100ΩF TD0804N
3R45	DRZ832031	RK73H 2A 120ΩF TD0804N
3R46, 3R47	DRZ831431	MCR10J 335E TD0804N
3R48	DRZ821291	RK73K 1J 150ΩJ TD0804N
3R49	DRZ820971	RN73G 2A 20ΩD TD0804N
3R50	DRZ832101	RK73H 2A 240ΩF TD0804N
3R51	DRZ830861	MCR10J 300E TD0804N
3R52	DDD089381	NTH5G20P35A221J07TE TE0804N
3R53	DRZ832531	RK73H 2A 15KΩF TD0804N
3R54	DRZ832251	RK73H 2A 1.0KΩF TD0804N
3R55	DRZ832441	RK73H 2A 6.2KΩF TD0804N
3R56	DRZ832251	RK73H 2A 1.0KΩF TD0804N
3R58	DRZ832051	RK73H 2A 150ΩF TD0804N

**CH2 FRONT END 3**

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
3R59	DRZ820971	RN73G 2A 20ΩD TD0804N
3R60 to 3R62	DRZ832201	RK73H 2A 620ΩF TD0804N
3R63	DRZ820971	RN73G 2A 20ΩD TD0804N
3R64 to 3R67	DRZ832091	RK73H 2A 220ΩF TD0804N
3R68	DRZ832601	RK73H 2A 30KΩF TD0804N
3R69	DRZ832401	RK73H 2A 4.3KΩF TD0804N
3R70	DRZ832281	RK73H 2A 1.3KΩF TD0804N
3R71	DRZ832031	RK73H 2A 120ΩF TD0804N
3R74, 3R75	DRZ828761	RR1220P-204-D TD0804N
3R76	DRZ828711	RR1220P-114-B TD0804N
3R77	DRZ832661	RK73H 2A 51KΩF TD0804N
3R78	DRV810251	G4AT/ST-4TA 5KΩ TE1208L
3R79	DRZ832011	RK73H 2A 100ΩF TD0804N
3R80	DRZ832251	RK73H 2A 1.0KΩF TD0804N
3R81, 3R82	DRZ820861	RN73F 2A 100KΩD TD0804N
3R83	DRZ832321	RK73H 2A 2.0KΩF TD0804N
3R84	DRZ832301	RK73H 2A 1.6KΩF TD0804N
3R85	DDD074121	LP310 1F 202F 302 TE0804N
3R86	DRZ832491	RK73H 2A 10KΩF TD0804N
3R87	DDD074121	LP310 1F 202F 302 TE0804N
3R88	DRZ832491	RK73H 2A 10KΩF TD0804N
3R89	DRZ832251	RK73H 2A 1.0KΩF TD0804N
3R90	DRZ832491	RK73H 2A 10KΩF TD0804N
3R91	DRZ828571	RN73F 2A 510ΩB TD0804N
3R92	DRZ833021	RK73H 2A 51ΩF TD0804N
3R93	DRZ833551	RK73H 2A 33ΩF TD0804N
3R95	DRZ833061	RK73H 2A 75ΩF TD0804N
3R97	DRZ832291	RK73H 2A 1.5KΩF TD0804N
3R98	DRZ832471	RK73H 2A 8.2KΩF TD0804N
3R100	DRZ832301	RK73H 2A 1.6KΩF TD0804N
3R101	DRZ832191	RK73H 2A 560ΩF TD0804N
3R105	DRZ832351	RK73H 2A 2.7KΩF TD0804N
3R106	DRZ832191	RK73H 2A 560ΩF TD0804N
3R107	DRZ832351	RK73H 2A 2.7KΩF TD0804N
3R108	DRZ832191	RK73H 2A 560ΩF TD0804N
3R109	DRZ832011	RK73H 2A 100ΩF TD0804N
3R110	DRZ832321	RK73H 2A 2.0KΩF TD0804N
3R120	DRZ832251	RK73H 2A 1.0KΩF TD0804N
3R123 to 3R125	DRZ832011	RK73H 2A 100ΩF TD0804N
3R126	DRZ832251	RK73H 2A 1.0KΩF TD0804N
3R127	DRZ832391	RK73H 2A 3.9KΩF TD0804N
3R128	DRZ832121	RK73H 2A 300ΩF TD0804N
3R129	DRZ832251	RK73H 2A 1.0KΩF TD0804N
3R130	DRZ832391	RK73H 2A 3.9KΩF TD0804N
3R131	DRZ832121	RK73H 2A 300ΩF TD0804N
3RL1, 3RL2	DKD028511	NAS-5W-K-TN-B05 TE2416B
3RL3, 3RL4	DKD030381	NASL-5W-K-TN TE2416B
3RL5	DKD028511	NAS-5W-K-TN-B05 TE2416B

**CH3 FRONT END 4**

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
4C1, 4C2	DCC816471	C2012CH 1H 080D A TD84N
4C3, 4C4	DCC850101	GRM42-6CH 050C500PT TE0804N
4C6	DCV819091	TZBX4 Z250BA110 TE1208R
4C7	DCC816521	C2012CH 1H 220J A TD84N
4C10	DCC850101	GRM42-6CH 050C500PT TE0804N
4C12	DCV819091	TZBX4 Z250BA110 TE1208R
4C13	DCC816521	C2012CH 1H 220J A TD84N
4C14	DCC816451	C2012CH 1H 060D A TD84N
4C15	DCC816381	C2012CH 1H 020C A TD84N
4C18	DCC816491	C2012CH 1H 100D A TD84N
4C19	DCC810511	C2012F 1H 103Z A TD84N
4C20	DCC840041	GHM1530B 473K250 TE0804N
4C21	DCC850011	GRM42-6 W5R 222K500 TE0804N
4C22	DCC850091	GRM42-6CH 020C500PT TE0804N
4C24	DCC816371	C2012CH 1H 1R5C A TD84N
4C25	DCV819051	TZBX4 Z030BA110 TE1208R
4C26	DCC811731	C1608B 1H 102K A TD0804N
4C27 to 4C29	DCC810511	C2012F 1H 103Z A TD84N
4C32 to 4C35	DCC810511	C2012F 1H 103Z A TD84N
4C36	DCC810571	C2012F 1H 104Z A TD0804N
4C37	DCC816451	C2012CH 1H 060D A TD84N
4C39	DCC816601	C2012CH 1H 101J A TD84N
4C40	DCC810571	C2012F 1H 104Z A TD0804N
4C41	DCC810981	C2012B 1H 153K A TD84N
4C42	DCC811161	C2012B 1H 333K A TD84N
4C43 to 4C46	DCC810511	C2012F 1H 103Z A TD84N
4C47	DCC811161	C2012B 1H 333K A TD84N
4C48	DCV819051	TZBX4 Z030BA110 TE1208R
4C49	DCC810511	C2012F 1H 103Z A TD84N
4C50	DCE919141	SRA 10VB-100 TC04R
4C51 to 4C53	DCC810511	C2012F 1H 103Z A TD84N
4C54, 4C55	DCC810571	C2012F 1H 104Z A TD0804N
4C58	DCC820021	C2012F 1C 105Z A TD84N
4C59, 4C60	DCC810511	C2012F 1H 103Z A TD84N
4C70 to 4C74	DCC816801	C2012CH 1H 102J A TD84N
4C75, 4C76	DCC820251	C2012B 1C 474K A TD0804N
4C80	DCC810571	C2012F 1H 104Z A TD0804N
4C81	DCC816371	C2012CH 1H 1R5C A TD84N
4C83 to 4C86	DCC820021	C2012F 1C 105Z A TD84N
4C87	DCC810511	C2012F 1H 103Z A TD84N
4C90 to 4C96	DCC810511	C2012F 1H 103Z A TD84N
4C99	DCC819091	GRM42-6B 106K6.3PT TE0804N
4D1, 4D2	DDD810461	HSM 124S-JTL TE0804L
4D3	DDD810081	1SS 226 (TE85L) TE0804L
4D4 to 4D6	DDD810241	1SS 272 TE0804R
4D7 to 4D9	DDD810461	HSM 124S-JTL TE0804L
4D10, 4D11	DDD810241	1SS 272 TE0804R
4FL1 to 4FL7	DCL870041	NFM39R12C222T1 TE0804N
4IC1	DIC614811	LT 1097S8-T2 TE1208B
4IC2	DIC619191	NJM 082M(TE3) TE1208L
4IC3	DIC614891	HFE428 1GHZ FRONT END
4IC4	DIC631231	HTR420 TRIGGER COMPARATOR
4IC5	DIC483321	74HC595F/AF TE1612B

**CH3 FRONT END 4**

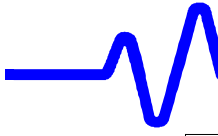
CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
4IC6	DIC619271	TA 75S558F (TE85L) TE0804L
4J1A	DCN126091	7093XXP01 PROBUS CONNECTOR
4J1B	DCN045681	CONNECTOR BNC-BR-PC-1
4L1	DCL810831	HK1608 18NJ-T TD0804N
4L2	DCL811011	BLM21A121FPT TD0804N
4L3	DCL810811	HK1608 10NJ-T TD0804N
4L4	DCL811011	BLM21A121FPT TD0804N
4L11 to 4L14	DCL810811	HK1608 10NJ-T TD0804N
4L15 to 4L18	DRZ831801	MCR03 EZH J000E TD0804N
4Q1	DTR860161	2SK 508 K51 TE0804L
4Q2 to 4Q4	DTR830521	2SC 3583-T1B TE0804L
4Q5, 4Q6	DTR810041	2SA 1162Y TE85L
4Q7 to 4Q11	DTR890471	DTA114YK/RN2407 TE0804L
4Q12	DTR810041	2SA 1162Y TE85L
4Q14	DTR838661	2SC 2712LG TE85L
4Q15, 4Q16	DTR890581	DTC114YK/RN1407 TE0804L
4Q17, 4Q18	DTR810041	2SA 1162Y TE85L
4R1 to 4R10	DRZ820971	RN73G 2A 20ΩD TD0804N
4R11	DRZ833071	RK73H 2A 82ΩF TD0804N
4R12	DRZ833561	RK73H 2A 36ΩF TD0804N
4R13	DRZ832011	RK73H 2A 100ΩF TD0804N
4R14	DRZ831611	MCR10J 5R6E TD0804N
4R15 to 4R17	DRZ828721	RR1220P-224-B TD0804N
4R18	DRZ828731	RR1220P-244-B TD0804N
4R19	DRZ828711	RR1220P-114-B TD0804N
4R20	DRZ832261	RK73H 2A 1.1KΩF TD0804N
4R21	DRZ832081	RK73H 2A 200ΩF TD0804N
4R22	DRZ833581	RK73H 2A 43ΩF TD0804N
4R24	DRZ830861	MCR10J 300E TD0804N
4R25	DRZ833041	RK73H 2A 62ΩF TD0804N
4R26	DRZ828751	RR1220P-474-B TD0804N
4R27	DRZ828741	RR1220P-434-B TD0804N
4R28	DRZ828711	RR1220P-114-B TD0804N
4R29	DRZ832261	RK73H 2A 1.1KΩF TD0804N
4R30	DRZ832081	RK73H 2A 200ΩF TD0804N
4R31	DRZ833531	RK73H 2A 27ΩF TD0804N
4R32	DRZ831121	MCR10J 240E TD0804N
4R33	DRZ833581	RK73H 2A 43ΩF TD0804N
4R35 to 4R42	DRZ828761	RR1220P-204-D TD0804N
4R43	DRZ832121	RK73H 2A 300ΩF TD0804N
4R44	DRZ832011	RK73H 2A 100ΩF TD0804N
4R45	DRZ832031	RK73H 2A 120ΩF TD0804N
4R46, 4R47	DRZ831431	MCR10J 335E TD0804N
4R48	DRZ821291	RK73K 1J 150ΩJ TD0804N
4R49	DRZ820971	RN73G 2A 20ΩD TD0804N
4R50	DRZ832101	RK73H 2A 240ΩF TD0804N
4R51	DRZ830861	MCR10J 300E TD0804N
4R52	DDD089381	NTH5G20P35A221J07TE TE0804N
4R53	DRZ832531	RK73H 2A 15KΩF TD0804N
4R54	DRZ832251	RK73H 2A 1.0KΩF TD0804N
4R55	DRZ832441	RK73H 2A 6.2KΩF TD0804N
4R56	DRZ832251	RK73H 2A 1.0KΩF TD0804N
4R58	DRZ832051	RK73H 2A 150ΩF TD0804N

**CH3 FRONT END** 4

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
4R59	DRZ820971	RN73G 2A 20ΩD TD0804N
4R60 to 4R62	DRZ832201	RK73H 2A 620ΩF TD0804N
4R63	DRZ820971	RN73G 2A 20ΩD TD0804N
4R64 to 4R67	DRZ832091	RK73H 2A 220ΩF TD0804N
4R68	DRZ832601	RK73H 2A 30KΩF TD0804N
4R69	DRZ832401	RK73H 2A 4.3KΩF TD0804N
4R70	DRZ832281	RK73H 2A 1.3KΩF TD0804N
4R71	DRZ832031	RK73H 2A 120ΩF TD0804N
4R74, 4R75	DRZ828761	RR1220P-204-D TD0804N
4R76	DRZ828711	RR1220P-114-B TD0804N
4R77	DRZ832661	RK73H 2A 51KΩF TD0804N
4R78	DRV810251	G4AT/ST-4TA 5KΩ TE1208L
4R79	DRZ832011	RK73H 2A 100ΩF TD0804N
4R80	DRZ832251	RK73H 2A 1.0KΩF TD0804N
4R81, 4R82	DRZ820861	RN73F 2A 100KΩD TD0804N
4R83	DRZ832321	RK73H 2A 2.0KΩF TD0804N
4R84	DRZ832301	RK73H 2A 1.6KΩF TD0804N
4R85	DDD074121	LP310 1F 202F 302 TE0804N
4R86	DRZ832491	RK73H 2A 10KΩF TD0804N
4R87	DDD074121	LP310 1F 202F 302 TE0804N
4R88	DRZ832491	RK73H 2A 10KΩF TD0804N
4R89	DRZ832251	RK73H 2A 1.0KΩF TD0804N
4R90	DRZ832491	RK73H 2A 10KΩF TD0804N
4R91	DRZ828571	RN73F 2A 510ΩB TD0804N
4R92	DRZ833021	RK73H 2A 51ΩF TD0804N
4R93	DRZ833551	RK73H 2A 33ΩF TD0804N
4R95	DRZ833061	RK73H 2A 75ΩF TD0804N
4R97	DRZ832291	RK73H 2A 1.5KΩF TD0804N
4R98	DRZ832471	RK73H 2A 8.2KΩF TD0804N
4R100	DRZ832301	RK73H 2A 1.6KΩF TD0804N
4R101	DRZ832191	RK73H 2A 560ΩF TD0804N
4R105	DRZ832351	RK73H 2A 2.7KΩF TD0804N
4R106	DRZ832191	RK73H 2A 560ΩF TD0804N
4R107	DRZ832351	RK73H 2A 2.7KΩF TD0804N
4R108	DRZ832191	RK73H 2A 560ΩF TD0804N
4R109	DRZ832011	RK73H 2A 100ΩF TD0804N
4R110	DRZ832321	RK73H 2A 2.0KΩF TD0804N
4R120	DRZ832251	RK73H 2A 1.0KΩF TD0804N
4R123 to 4R125	DRZ832011	RK73H 2A 100ΩF TD0804N
4R126	DRZ832251	RK73H 2A 1.0KΩF TD0804N
4R127	DRZ832391	RK73H 2A 3.9KΩF TD0804N
4R128	DRZ832121	RK73H 2A 300ΩF TD0804N
4R129	DRZ832251	RK73H 2A 1.0KΩF TD0804N
4R130	DRZ832391	RK73H 2A 3.9KΩF TD0804N
4R131	DRZ832121	RK73H 2A 300ΩF TD0804N
4RL1, 4RL2	DKD028511	NAS-5W-K-TN-B05 TE2416B
4RL3, 4RL4	DKD030381	NASL-5W-K-TN TE2416B
4RL5	DKD028511	NAS-5W-K-TN-B05 TE2416B

**CH4 FRONT END** 5

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
5C1, 5C2	DCC816471	C2012CH 1H 080D A TD84N
5C3, 5C4	DCC850101	GRM42-6CH 050C500PT TE0804N
5C6	DCV819091	TZBX4 Z250BA110 TE1208R
5C7	DCC816521	C2012CH 1H 220J A TD84N
5C10	DCC850101	GRM42-6CH 050C500PT TE0804N
5C12	DCV819091	TZBX4 Z250BA110 TE1208R
5C13	DCC816521	C2012CH 1H 220J A TD84N
5C14	DCC816451	C2012CH 1H 060D A TD84N
5C15	DCC816381	C2012CH 1H 020C A TD84N
5C18	DCC816491	C2012CH 1H 100D A TD84N
5C19	DCC810511	C2012F 1H 103Z A TD84N
5C20	DCC840041	GHM1530B 473K250 TE0804N
5C21	DCC850011	GRM42-6 W5R 222K500 TE0804N
5C22	DCC850091	GRM42-6CH 020C500PT TE0804N
5C24	DCC816371	C2012CH 1H 1R5C A TD84N
5C25	DCV819051	TZBX4 Z030BA110 TE1208R
5C26	DCC811731	C1608B 1H 102K A TD0804N
5C27 to 5C29	DCC810511	C2012F 1H 103Z A TD84N
5C32 to 5C35	DCC810511	C2012F 1H 103Z A TD84N
5C36	DCC810571	C2012F 1H 104Z A TD0804N
5C37	DCC816451	C2012CH 1H 060D A TD84N
5C39	DCC816601	C2012CH 1H 101J A TD84N
5C40	DCC810571	C2012F 1H 104Z A TD0804N
5C41	DCC810981	C2012B 1H 153K A TD84N
5C42	DCC811161	C2012B 1H 333K A TD84N
5C43 to 5C46	DCC810511	C2012F 1H 103Z A TD84N
5C47	DCC811161	C2012B 1H 333K A TD84N
5C48	DCV819051	TZBX4 Z030BA110 TE1208R
5C49	DCC810511	C2012F 1H 103Z A TD84N
5C50	DCE919141	SRA 10VB-100 TC04R
5C51 to 5C53	DCC810511	C2012F 1H 103Z A TD84N
5C54, 5C55	DCC810571	C2012F 1H 104Z A TD0804N
5C58	DCC820021	C2012F 1C 105Z A TD84N
5C59, 5C60	DCC810511	C2012F 1H 103Z A TD84N
5C70 to 5C74	DCC816801	C2012CH 1H 102J A TD84N
5C75, 5C76	DCC820251	C2012B 1C 474K A TD0804N
5C80	DCC810571	C2012F 1H 104Z A TD0804N
5C81	DCC816371	C2012CH 1H 1R5C A TD84N
5C83 to 5C86	DCC820021	C2012F 1C 105Z A TD84N
5C87	DCC810511	C2012F 1H 103Z A TD84N
5C90 to 5C96	DCC810511	C2012F 1H 103Z A TD84N
5C99	DCC819091	GRM42-6B 106K6.3PT TE0804N
5D1, 5D2	DDD810461	HSM 124S-JTL TE0804L
5D3	DDD810081	1SS 226 (TE85L) TE0804L
5D4 to 5D6	DDD810241	1SS 272 TE0804R
5D7 to 5D9	DDD810461	HSM 124S-JTL TE0804L
5D10, 5D11	DDD810241	1SS 272 TE0804R
5FL1 to 5FL7	DCL870041	NFM39R12C222T1 TE0804N
5IC1	DIC614811	LT 1097S8-T2 TE1208B
5IC2	DIC619191	NJM 082M(TE3) TE1208L
5IC3	DIC614891	HFE428 1GHZ FRONT END
5IC4	DIC631231	HTR420 TRIGGER COMPARATOR



## CH4 FRONT END 5

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
5IC5	DIC483321	74HC595F/AF TE1612B
5IC6	DIC619271	TA 75S558F (TE85L) TE0804L
5J1A	DCN126091	7093XXP01 PROBUS CONNECTOR
5J1B	DCN045681	CONNECTOR BNC-BR-PC-1
5L1	DCL810831	HK1608 18NJ-T TD0804N
5L2	DCL811011	BLM21A121FPT TD0804N
5L3	DCL810811	HK1608 10NJ-T TD0804N
5L4	DCL811011	BLM21A121FPT TD0804N
5L11 to 5L14	DCL810811	HK1608 10NJ-T TD0804N
5Q1	DTR860161	2SK 508 K51 TE0804L
5Q2 to 5Q4	DTR830521	2SC 3583-T1B TE0804L
5Q5, 5Q6	DTR810041	2SA 1162Y TE85L
5Q7 to 5Q11	DTR890471	DTA114YK/RN2407 TE0804L
5Q12	DTR810041	2SA 1162Y TE85L
5Q14	DTR838661	2SC 2712LG TE85L
5Q15, 5Q16	DTR890581	DTC114YK/RN1407 TE0804L
5Q17, 5Q18	DTR810041	2SA 1162Y TE85L
5R1 to 5R10	DRZ820971	RN73G 2A 20ΩD TD0804N
5R11	DRZ833071	RK73H 2A 82ΩF TD0804N
5R12	DRZ833561	RK73H 2A 36ΩF TD0804N
5R13	DRZ832011	RK73H 2A 100ΩF TD0804N
5R14	DRZ831611	MCR10J 5R6E TD0804N
5R15 to 5R17	DRZ828721	RR1220P-224-B TD0804N
5R18	DRZ828731	RR1220P-244-B TD0804N
5R19	DRZ828711	RR1220P-114-B TD0804N
5R20	DRZ832261	RK73H 2A 1.1KΩF TD0804N
5R21	DRZ832081	RK73H 2A 200ΩF TD0804N
5R22	DRZ833581	RK73H 2A 43ΩF TD0804N
5R24	DRZ830861	MCR10J 300E TD0804N
5R25	DRZ833041	RK73H 2A 62ΩF TD0804N
5R26	DRZ828751	RR1220P-474-B TD0804N
5R27	DRZ828741	RR1220P-434-B TD0804N
5R28	DRZ828711	RR1220P-114-B TD0804N
5R29	DRZ832261	RK73H 2A 1.1KΩF TD0804N
5R30	DRZ832081	RK73H 2A 200ΩF TD0804N
5R31	DRZ833531	RK73H 2A 27ΩF TD0804N
5R32	DRZ831121	MCR10J 240E TD0804N
5R33	DRZ833581	RK73H 2A 43ΩF TD0804N
5R35 to 5R42	DRZ828761	RR1220P-204-D TD0804N
5R43	DRZ832121	RK73H 2A 300ΩF TD0804N
5R44	DRZ832011	RK73H 2A 100ΩF TD0804N
5R45	DRZ832031	RK73H 2A 120ΩF TD0804N
5R46, 5R47	DRZ831431	MCR10J 335E TD0804N
5R48	DRZ821291	RK73K 1J 150ΩJ TD0804N
5R49	DRZ820971	RN73G 2A 20ΩD TD0804N
5R50	DRZ832101	RK73H 2A 240ΩF TD0804N
5R51	DRZ830861	MCR10J 300E TD0804N
5R52	DDD089381	NTH5G20P35A221J07TE TE0804N
5R53	DRZ832531	RK73H 2A 15KΩF TD0804N
5R54	DRZ832251	RK73H 2A 1.0KΩF TD0804N
5R55	DRZ832441	RK73H 2A 6.2KΩF TD0804N
5R56	DRZ832251	RK73H 2A 1.0KΩF TD0804N
5R58	DRZ832051	RK73H 2A 150ΩF TD0804N

## CH4 FRONT END 5

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
5R59	DRZ820971	RN73G 2A 20ΩD TD0804N
5R60 to 5R62	DRZ832201	RK73H 2A 620ΩF TD0804N
5R63	DRZ820971	RN73G 2A 20ΩD TD0804N
5R64 to 5R67	DRZ832091	RK73H 2A 220ΩF TD0804N
5R68	DRZ832601	RK73H 2A 30KΩF TD0804N
5R69	DRZ832401	RK73H 2A 4.3KΩF TD0804N
5R70	DRZ832281	RK73H 2A 1.3KΩF TD0804N
5R71	DRZ832031	RK73H 2A 120ΩF TD0804N
5R74, 5R75	DRZ828761	RR1220P-204-D TD0804N
5R76	DRZ828711	RR1220P-114-B TD0804N
5R77	DRZ832661	RK73H 2A 51KΩF TD0804N
5R78	DRV810251	G4AT/ST-4TA 5KΩ TE1208L
5R79	DRZ832011	RK73H 2A 100ΩF TD0804N
5R80	DRZ832251	RK73H 2A 1.0KΩF TD0804N
5R81, 5R82	DRZ820861	RN73F 2A 100KΩD TD0804N
5R83	DRZ832321	RK73H 2A 2.0KΩF TD0804N
5R84	DRZ832301	RK73H 2A 1.6KΩF TD0804N
5R85	DDD074121	LP310 1F 202F 302 TE0804N
5R86	DRZ832491	RK73H 2A 10KΩF TD0804N
5R87	DDD074121	LP310 1F 202F 302 TE0804N
5R88	DRZ832491	RK73H 2A 10KΩF TD0804N
5R89	DRZ832251	RK73H 2A 1.0KΩF TD0804N
5R90	DRZ832491	RK73H 2A 10KΩF TD0804N
5R91	DRZ828571	RN73F 2A 510ΩB TD0804N
5R92	DRZ833021	RK73H 2A 51ΩF TD0804N
5R93	DRZ833551	RK73H 2A 33ΩF TD0804N
5R95	DRZ833061	RK73H 2A 75ΩF TD0804N
5R97	DRZ832291	RK73H 2A 1.5KΩF TD0804N
5R98	DRZ832471	RK73H 2A 8.2KΩF TD0804N
5R100	DRZ832301	RK73H 2A 1.6KΩF TD0804N
5R101	DRZ832191	RK73H 2A 560ΩF TD0804N
5R105	DRZ832351	RK73H 2A 2.7KΩF TD0804N
5R106	DRZ832191	RK73H 2A 560ΩF TD0804N
5R107	DRZ832351	RK73H 2A 2.7KΩF TD0804N
5R108	DRZ832191	RK73H 2A 560ΩF TD0804N
5R109	DRZ832011	RK73H 2A 100ΩF TD0804N
5R110	DRZ832321	RK73H 2A 2.0KΩF TD0804N
5R115, 5R116	DRZ833021	RK73H 2A 51ΩF TD0804N
5R120	DRZ832251	RK73H 2A 1.0KΩF TD0804N
5R123 to 5R125	DRZ832011	RK73H 2A 100ΩF TD0804N
5R126	DRZ832251	RK73H 2A 1.0KΩF TD0804N
5R127	DRZ832391	RK73H 2A 3.9KΩF TD0804N
5R128	DRZ832121	RK73H 2A 300ΩF TD0804N
5R129	DRZ832251	RK73H 2A 1.0KΩF TD0804N
5R130	DRZ832391	RK73H 2A 3.9KΩF TD0804N
5R131	DRZ832121	RK73H 2A 300ΩF TD0804N
5RL1, 5RL2	DKD028511	NAS-5W-K-TN-B05 TE2416B
5RL3, 5RL4	DKD030381	NASL-5W-K-TN TE2416B
5RL5	DKD028511	NAS-5W-K-TN-B05 TE2416B

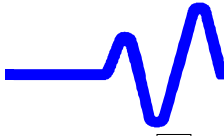


**EXT TRIGGER** [6]

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
6C1	DCC816451	C2012CH 1H 060D A TD84N
6C2	DCC816491	C2012CH 1H 100D A TD84N
6C3, 6C4	DCC850101	GRM42-6CH 050C500PT TE0804N
6C5	DCC816401	C2012CH 1H 030C A TD84N
6C6	DCV819091	TZBX4 Z250BA110 TE1208R
6C7	DCC816531	C2012CH 1H 270J A TD84N
6C18	DCC816491	C2012CH 1H 100D A TD84N
6C19	DCC810511	C2012F 1H 103Z A TD84N
6C21	DCC850011	GRM42-6 W5R 222K500 TE0804N
6C22	DCC850091	GRM42-6CH 020C500PT TE0804N
6C24	DCC816381	C2012CH 1H 020C A TD84N
6C25	DCV819051	TZBX4 Z030BA110 TE1208R
6C26	DCC816801	C2012CH 1H 102J A TD84N
6C27 to 6C29	DCC810511	C2012F 1H 103Z A TD84N
6C32 to 6C34	DCC810511	C2012F 1H 103Z A TD84N
6C36	DCC810511	C2012F 1H 103Z A TD84N
6C37	DCC816801	C2012CH 1H 102J A TD84N
6C39	DCC816601	C2012CH 1H 101J A TD84N
6C40	DCC810571	C2012F 1H 104Z A TD0804N
6C41	DCC810981	C2012B 1H 153K A TD84N
6C42	DCC811161	C2012B 1H 333K A TD84N
6C43, 6C44	DCC810511	C2012F 1H 103Z A TD84N
6C47	DCC820021	C2012F 1C 105Z A TD84N
6C50	DCE919141	SRA 10VB-100 TC04R
6C51 to 6C53	DCC810511	C2012F 1H 103Z A TD84N
6C54, 6C55	DCC810571	C2012F 1H 104Z A TD0804N
6C58	DCC820021	C2012F 1C 105Z A TD84N
6C59 to 6C64	DCC810511	C2012F 1H 103Z A TD84N
6C65	DCC811111	C2012B 1E 104K A TD84N
6C66	DCC810511	C2012F 1H 103Z A TD84N
6C67	DCC816601	C2012CH 1H 101J A TD84N
6C68, 6C69	DCC810511	C2012F 1H 103Z A TD84N
6C70 to 6C72	DCC816801	C2012CH 1H 102J A TD84N
6C75	DCC820251	C2012B 1C 474K A TD0804N
6C80	DCC810571	C2012F 1H 104Z A TD0804N
6C90 to 6C96	DCC810511	C2012F 1H 103Z A TD84N
6C99	DCC819091	GRM42-6B 106K6.3PT TE0804N
6D1,6D2	DDD810461	HSM 124S-JTL TE0804L
6D3	DDD810081	1SS 226 (TE85L) TE0804L
6D5, 6D6	DDD810241	1SS 272 TE0804R
6D7 to 6D9	DDD810461	HSM 124S-JTL TE0804L
6D10	DDD810241	1SS 272 TE0804R
6D11	DDD810131	1SS 269 TE0804L
6FL1 to 6FL4	DCL870041	NFM39R12C222T1 TE0804N
6FL7	DCL870041	NFM39R12C222T1 TE0804N
6FL10 to 6FL13	DCL870021	NFM41P11C204 TE1204N
6IC1	DIC614811	LT 1097S8-T2 TE1208B
6IC2, 6IC3	DIC619101	NJM 4558M(TE3) TE1208L
6IC4	DIC631231	HTR420 TRIGGER COMPARATOR
6IC5	DIC483321	74HC595F/AF TE1612B
6IC6	DIC322631	MC 10EL16D
6J1A	DCN126091	7093XXP01 PROBUS CONNECTOR

**EXT TRIGGER** [6]

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
6J1B	DCN045681	CONNECTOR BNC-BR-PC-1
6L1	DCL810831	HK1608 18NJ-T TD0804N
6L2, 6L4	DCL811011	BLM21A121FPT TD0804N
6Q1	DTR860161	2SK 508 K51 TE0804L
6Q2 to 6Q4	DTR830521	2SC 3583-T1B TE0804L
6Q5, 6Q6	DTR810041	2SA 1162Y TE85L
6Q7 to 6Q9	DTR890471	DTA114YK/RN2407 TE0804L
6Q10	DTR830521	2SC 3583-T1B TE0804L
6Q12	DTR810041	2SA 1162Y TE85L
6Q14	DTR838661	2SC 2712LG TE85L
6Q15	DTR890581	DTC114YK/RN1407 TE0804L
6Q17	DTR810041	2SA 1162Y TE85L
6R1 to 6R10	DRZ820971	RN73G 2A 20ΩD TD0804N
6R11	DRZ833071	RK73H 2A 82ΩF TD0804N
6R12	DRZ833531	RK73H 2A 27ΩF TD0804N
6R13	DRZ832151	RK73H 2A 390ΩF TD0804N
6R14	DRZ830861	MCR10J 300E TD0804N
6R15 to 6R17	DRZ828721	RR1220P-224-B TD0804N
6R18	DRZ828731	RR1220P-244-B TD0804N
6R19	DRZ828711	RR1220P-114-B TD0804N
6R20	DRZ832261	RK73H 2A 1.1KΩF TD0804N
6R21	DRZ832091	RK73H 2A 220ΩF TD0804N
6R22	DRZ820971	RN73G 2A 20ΩD TD0804N
6R24	DRZ833031	RK73H 2A 56ΩF TD0804N
6R35 to 6R39	DRZ828761	RR1220P-204-D TD0804N
6R44	DRZ832011	RK73H 2A 100ΩF TD0804N
6R45	DRZ832051	RK73H 2A 150ΩF TD0804N
6R46, 6R47	DRZ831431	MCR10J 335E TD0804N
6R48	DRZ833021	RK73H 2A 51ΩF TD0804N
6R49	DRZ820971	RN73G 2A 20ΩD TD0804N
6R50	DRZ832101	RK73H 2A 240ΩF TD0804N
6R51	DRZ830861	MCR10J 300E TD0804N
6R53	DRZ832531	RK73H 2A 15KΩF TD0804N
6R54	DRZ832251	RK73H 2A 1.0KΩF TD0804N
6R55	DRZ832441	RK73H 2A 6.2KΩF TD0804N
6R56	DRZ832251	RK73H 2A 1.0KΩF TD0804N
6R58	DRZ832051	RK73H 2A 150ΩF TD0804N
6R59	DRZ820971	RN73G 2A 20ΩD TD0804N
6R60 to 6R62	DRZ832201	RK73H 2A 620ΩF TD0804N
6R63	DRZ820971	RN73G 2A 20ΩD TD0804N
6R64 to 6R67	DRZ832101	RK73H 2A 240ΩF TD0804N
6R68	DRZ832601	RK73H 2A 30KΩF TD0804N
6R69	DRZ832411	RK73H 2A 4.7KΩF TD0804N
6R70	DRZ832101	RK73H 2A 240ΩF TD0804N
6R72	DRZ831121	MCR10J 240E TD0804N
6R74	DRZ828761	RR1220P-204-D TD0804N
6R76	DRZ828711	RR1220P-114-B TD0804N
6R77	DRZ832251	RK73H 2A 1.0KΩF TD0804N
6R78	DRZ832661	RK73H 2A 51KΩF TD0804N
6R79	DRZ832391	RK73H 2A 3.9KΩF TD0804N
6R80	DRZ832631	RK73H 2A 39KΩF TD0804N
6R81	DRZ832361	RK73H 2A 3.0KΩF TD0804N



**EXT TRIGGER** [6]

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
6R83	DRZ832321	RK73H 2A 2.0KΩ F TD0804N
6R84	DRZ832301	RK73H 2A 1.6KΩ F TD0804N
6R85	DDD074121	LP310 1F 202F 302 TE0804N
6R86	DRZ832491	RK73H 2A 10KΩ F TD0804N
6R87	DDD074121	LP310 1F 202F 302 TE0804N
6R88	DRZ832491	RK73H 2A 10KΩ F TD0804N
6R89	DRZ832251	RK73H 2A 1.0KΩ F TD0804N
6R90	DRZ832491	RK73H 2A 10KΩ F TD0804N
6R91	DRZ828571	RN73F 2A 510Ω B TD0804N
6R92	DRZ833021	RK73H 2A 51Ω F TD0804N
6R93	DRZ833011	RK73H 2A 47Ω F TD0804N
6R97	DRZ832291	RK73H 2A 1.5KΩ F TD0804N
6R98	DRZ832471	RK73H 2A 8.2KΩ F TD0804N
6R100	DRZ831121	MCR10J 240E TD0804N
6R101	DRZ832421	RK73H 2A 5.1KΩ F TD0804N
6R105	DRZ832331	RK73H 2A 2.2KΩ F TD0804N
6R106	DRZ832191	RK73H 2A 560Ω F TD0804N
6R107	DRZ832331	RK73H 2A 2.2KΩ F TD0804N
6R108	DRZ832191	RK73H 2A 560Ω F TD0804N
6R109	DRZ832011	RK73H 2A 100Ω F TD0804N
6R110	DRZ832321	RK73H 2A 2.0KΩ F TD0804N
6R120	DRZ832251	RK73H 2A 1.0KΩ F TD0804N
6R123 to 6R125	DRZ832011	RK73H 2A 100Ω F TD0804N
6R126	DRZ832251	RK73H 2A 1.0KΩ F TD0804N
6R127	DRZ832391	RK73H 2A 3.9KΩ F TD0804N
6R128	DRZ832121	RK73H 2A 300Ω F TD0804N
6R150	DRZ832011	RK73H 2A 100Ω F TD0804N
6R151, 6R152	DRZ832491	RK73H 2A 10KΩ F TD0804N
6R154	DRZ820971	RN73G 2A 20Ω D TD0804N
6R155, 6R156	DRZ832251	RK73H 2A 1.0KΩ F TD0804N
6R157	DRZ832051	RK73H 2A 150Ω F TD0804N
6R158 to 6R161	DRZ832491	RK73H 2A 10KΩ F TD0804N
6R162	DRZ832081	RK73H 2A 200Ω F TD0804N
6R163	DRZ832321	RK73H 2A 2.0KΩ F TD0804N
6RL1, 6RL2	DKD028511	NAS-5W-K-TN-B05 TE2416B
6RL3	DKD030381	NASL-5W-K-TN TE2416B

**CH1 A/D CNVT** [7]

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
7C1	DCC810511	C2012F 1H 103Z A TD84N
7C3	DCC816641	C2012CH 1H 221J A TD84N
7C5	DCC820021	C2012F 1C 105Z A TD84N
7C6, 7C11, 7C12	DCC810511	C2012F 1H 103Z A TD84N
7C13	DCC820021	C2012F 1C 105Z A TD84N
7C20	DCC810511	C2012F 1H 103Z A TD84N
7C22	DCC810571	C2012F 1H 104Z A TD0804N
7C30	DCC820021	C2012F 1C 105Z A TD84N
7C31, 7C32	DCC810571	C2012F 1H 104Z A TD0804N
7C40, 7C46	DCC820021	C2012F 1C 105Z A TD84N
7C47	DCC810511	C2012F 1H 103Z A TD84N
7C50	DCC816801	C2012CH 1H 102J A TD84N
7C51	DCC820121	EMK325F 106ZH-T TE0804N
7C52 to 7C54	DCC810511	C2012F 1H 103Z A TD84N
7C55	DCE219051	SME-CE04W 1A 101M TC04R
7C56	DCC810511	C2012F 1H 103Z A TD84N
7C57 to 7C59	DCC820121	EMK325F 106ZH-T TE0804N
7C60	DCC810571	C2012F 1H 104Z A TD0804N
7C61 to 7C63	DCC810511	C2012F 1H 103Z A TD84N
7C64	DCC820121	EMK325F 106ZH-T TE0804N
7C65	DCC810571	C2012F 1H 104Z A TD0804N
7C66	DCC810511	C2012F 1H 103Z A TD84N
7C67	DCE219151	SME-CE04W 1A 471M TC04R
7C68, 7C69	DCC820121	EMK325F 106ZH-T TE0804N
7C70 to 7C73	DCC810571	C2012F 1H 104Z A TD0804N
7C74	DCC820121	EMK325F 106ZH-T TE0804N
7C80	DCE219051	SME-CE04W 1A 101M TC04R
7C81, 7C83	DCC820031	C2012F 1C 224Z A TD84N
7C84	DCE219051	SME-CE04W 1A 101M TC04R
7C85	DCC820031	C2012F 1C 224Z A TD84N
7C86	DCE229201	SME-CE04W 1E 470M TC04R
7C87	DCC820031	C2012F 1C 224Z A TD84N
7C88	DCE229201	SME-CE04W 1E 470M TC04R
7C89	DCC820031	C2012F 1C 224Z A TD84N
7C90 to 7C92	DCC810571	C2012F 1H 104Z A TD0804N
7C94, 7C95	DCC810511	C2012F 1H 103Z A TD84N
7C96	DCC810571	C2012F 1H 104Z A TD0804N
7FL1 to 7FL3	DCL870021	NFM41P11C204 TE1204N
7IC1	DIC642371	HAD626 500MS/S ADC
7IC2	DIC619101	NJM 4558M(TE3) TE1208L
7IC3, 7IC4	DIC619271	TA 75S558F (TE85L) TE0804L
7J1	DCN126131	89177-5600
7L4 to 7L8	DCL119361	BL02RN2-R62 TD04N
7Q1	DTR890841	IMX3 TE0804R
7Q2, 7Q3	DTR830481	2SC 2873-Y TE1208L
7Q4	DTR129011	2SB 605K/L TRB
7Q5	DTR810161	2SA 1213-Y TE12L
7R1	DRZ832531	RK73H 2A 15KΩ F TD0804N
7R2	DRZ832721	RK73H 2A 91KΩ F TD0804N
7R3	DRZ832361	RK73H 2A 3.0KΩ F TD0804N
7R4	DRZ832341	RK73H 2A 2.4KΩ F TD0804N
7R10	DRZ832491	RK73H 2A 10KΩ F TD0804N
7R11	DRZ832321	RK73H 2A 2.0KΩ F TD0804N

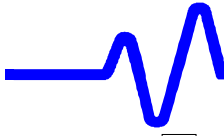
**CH1 A/D CNVT** 7

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
7R12	DRZ832301	RK73H 2A 1.6KΩ F TD0804N
7R13	DRZ833061	RK73H 2A 75Ω F TD0804N
7R14	DRZ832051	RK73H 2A 150Ω F TD0804N
7R15 to 7R17	DRZ832251	RK73H 2A 1.0KΩ F TD0804N
7R20	DRZ832341	RK73H 2A 2.4KΩ F TD0804N
7R21	DRZ832481	RK73H 2A 9.1KΩ F TD0804N
7R22	DRZ832311	RK73H 2A 1.8KΩ F TD0804N
7R25	DRZ832251	RK73H 2A 1.0KΩ F TD0804N
7R26	DRZ832211	RK73H 2A 680Ω F TD0804N
7R30	DRZ832321	RK73H 2A 2.0KΩ F TD0804N
7R31	DRZ832311	RK73H 2A 1.8KΩ F TD0804N
7R32, 7R33	DRZ833061	RK73H 2A 75Ω F TD0804N
7R34	DRZ833551	RK73H 2A 33Ω F TD0804N
7R35	DRZ832251	RK73H 2A 1.0KΩ F TD0804N
7R40 to 7R43	DRZ833491	RK73H 2A 18Ω F TD0804N
7R46, 7R47	DRZ832351	RK73H 2A 2.7KΩ F TD0804N
7R48, 7R49	DRZ832281	RK73H 2A 1.3KΩ F TD0804N
7R50	DRZ832171	RK73H 2A 470Ω F TD0804N
7R51	DRZ832351	RK73H 2A 2.7KΩ F TD0804N
7R52	DRZ832121	RK73H 2A 300Ω F TD0804N
7R53	DRZ832111	RK73H 2A 270Ω F TD0804N
7R54	DRZ831591	MCR10J 4R7E TD0804N

**CH2 A/D CNVT** 8

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
8C1	DCC810511	C2012F 1H 103Z A TD84N
8C3	DCC816641	C2012CH 1H 221J A TD84N
8C5	DCC820021	C2012F 1C 105Z A TD84N
8C6, 8C11, 8C12	DCC810511	C2012F 1H 103Z A TD84N
8C13	DCC820021	C2012F 1C 105Z A TD84N
8C20	DCC810511	C2012F 1H 103Z A TD84N
8C22	DCC810571	C2012F 1H 104Z A TD0804N
8C30	DCC820021	C2012F 1C 105Z A TD84N
8C31, 8C32	DCC810571	C2012F 1H 104Z A TD0804N
8C40, 8C46	DCC820021	C2012F 1C 105Z A TD84N
8C47	DCC810511	C2012F 1H 103Z A TD84N
8C50	DCC816801	C2012CH 1H 102J A TD84N
8C51	DCC820121	EMK325F 106ZH-T TE0804N
8C52 to 8C54	DCC810511	C2012F 1H 103Z A TD84N
8C55	DCE219051	SME-CE04W 1A 101M TC04R
8C56	DCC810511	C2012F 1H 103Z A TD84N
8C57 to 8C59	DCC820121	EMK325F 106ZH-T TE0804N
8C60	DCC810571	C2012F 1H 104Z A TD0804N
8C61 to 8C63	DCC810511	C2012F 1H 103Z A TD84N
8C64	DCC820121	EMK325F 106ZH-T TE0804N
8C65	DCC810571	C2012F 1H 104Z A TD0804N
8C66	DCC810511	C2012F 1H 103Z A TD84N
8C67	DCE219151	SME-CE04W 1A 471M TC04R
8C68, 8C69	DCC820121	EMK325F 106ZH-T TE0804N
8C70 to 8C73	DCC810571	C2012F 1H 104Z A TD0804N
8C74	DCC820121	EMK325F 106ZH-T TE0804N
8C80	DCE219051	SME-CE04W 1A 101M TC04R
8C81, 8C83	DCC820031	C2012F 1C 224Z A TD84N
8C84	DCE219051	SME-CE04W 1A 101M TC04R
8C85	DCC820031	C2012F 1C 224Z A TD84N
8C86	DCE229201	SME-CE04W 1E 470M TC04R
8C87	DCC820031	C2012F 1C 224Z A TD84N
8C88	DCE229201	SME-CE04W 1E 470M TC04R
8C89	DCC820031	C2012F 1C 224Z A TD84N
8C90 to 8C92	DCC810571	C2012F 1H 104Z A TD0804N
8C94, 8C95	DCC810511	C2012F 1H 103Z A TD84N
8C96	DCC810571	C2012F 1H 104Z A TD0804N
8FL1 to 8FL3	DCL870021	NFM41P11C204 TE1204N
8IC1	DIC642371	HAD626 500MS/S ADC
8IC2	DIC619101	NJM 4558M(TE3) TE1208L
8IC3, 8IC4	DIC619271	TA 75S558F (TE85L) TE0804L
8J1	DCN126131	89177-5600
8L4 to 8L8	DCL119361	BL02RN2-R62 TD04N
8Q1	DTR890841	IMX3 TE0804R
8Q2, 8Q3	DTR830481	2SC 2873-Y TE1208L
8Q4	DTR129011	2SB 605K/L TRB
8Q5	DTR810161	2SA 1213-Y TE12L
8R1	DRZ832531	RK73H 2A 15KΩ F TD0804N
8R2	DRZ832721	RK73H 2A 91KΩ F TD0804N
8R3	DRZ832361	RK73H 2A 3.0KΩ F TD0804N
8R4	DRZ832341	RK73H 2A 2.4KΩ F TD0804N
8R10	DRZ832491	RK73H 2A 10KΩ F TD0804N





## CH2 A/D CNVT 8

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
8R11	DRZ832321	RK73H 2A 2.0KΩ F TD0804N
8R12	DRZ832301	RK73H 2A 1.6KΩ F TD0804N
8R13	DRZ833061	RK73H 2A 75Ω F TD0804N
8R14	DRZ832051	RK73H 2A 150Ω F TD0804N
8R15 to 8R17	DRZ832251	RK73H 2A 1.0KΩ F TD0804N
8R20	DRZ832341	RK73H 2A 2.4KΩ F TD0804N
8R21	DRZ832481	RK73H 2A 9.1KΩ F TD0804N
8R22	DRZ832311	RK73H 2A 1.8KΩ F TD0804N
8R25	DRZ832251	RK73H 2A 1.0KΩ F TD0804N
8R26	DRZ832211	RK73H 2A 680Ω F TD0804N
8R30	DRZ832321	RK73H 2A 2.0KΩ F TD0804N
8R31	DRZ832311	RK73H 2A 1.8KΩ F TD0804N
8R32, 8R33	DRZ833061	RK73H 2A 75Ω F TD0804N
8R34	DRZ833551	RK73H 2A 33Ω F TD0804N
8R35	DRZ832251	RK73H 2A 1.0KΩ F TD0804N
8R40 to 8R43	DRZ833491	RK73H 2A 18Ω F TD0804N
8R46, 8R47	DRZ832351	RK73H 2A 2.7KΩ F TD0804N
8R48, 8R49	DRZ832281	RK73H 2A 1.3KΩ F TD0804N
8R50	DRZ832171	RK73H 2A 470Ω F TD0804N
8R51	DRZ832351	RK73H 2A 2.7KΩ F TD0804N
8R52	DRZ832121	RK73H 2A 300Ω F TD0804N
8R53	DRZ832111	RK73H 2A 270Ω F TD0804N
8R54	DRZ831591	MCR10J 4R7E TD0804N

## CH3 A/D CNVT 9

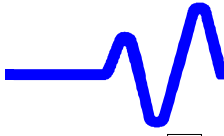
CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
9C1	DCC810511	C2012F 1H 103Z A TD84N
9C3	DCC816641	C2012CH 1H 221J A TD84N
9C5	DCC820021	C2012F 1C 105Z A TD84N
9C6, 9C11, 9C12	DCC810511	C2012F 1H 103Z A TD84N
9C13	DCC820021	C2012F 1C 105Z A TD84N
9C20	DCC810511	C2012F 1H 103Z A TD84N
9C22	DCC810571	C2012F 1H 104Z A TD0804N
9C30	DCC820021	C2012F 1C 105Z A TD84N
9C31, 9C32	DCC810571	C2012F 1H 104Z A TD0804N
9C40, 9C46	DCC820021	C2012F 1C 105Z A TD84N
9C47	DCC810511	C2012F 1H 103Z A TD84N
9C50	DCC816801	C2012CH 1H 102J A TD84N
9C51	DCC820121	EMK325F 106ZH-T TE0804N
9C52 to 9C54	DCC810511	C2012F 1H 103Z A TD84N
9C55	DCE219051	SME-CE04W 1A 101M TC04R
9C56	DCC810511	C2012F 1H 103Z A TD84N
9C57 to 9C59	DCC820121	EMK325F 106ZH-T TE0804N
9C60	DCC810571	C2012F 1H 104Z A TD0804N
9C61 to 9C63	DCC810511	C2012F 1H 103Z A TD84N
9C64	DCC820121	EMK325F 106ZH-T TE0804N
9C65	DCC810571	C2012F 1H 104Z A TD0804N
9C66	DCC810511	C2012F 1H 103Z A TD84N
9C67	DCE219151	SME-CE04W 1A 471M TC04R
9C68, 9C69	DCC820121	EMK325F 106ZH-T TE0804N
9C70 to 9C73	DCC810571	C2012F 1H 104Z A TD0804N
9C74	DCC820121	EMK325F 106ZH-T TE0804N
9C80	DCE219051	SME-CE04W 1A 101M TC04R
9C81, 9C83	DCC820031	C2012F 1C 224Z A TD84N
9C84	DCE219051	SME-CE04W 1A 101M TC04R
9C85	DCC820031	C2012F 1C 224Z A TD84N
9C86	DCE229201	SME-CE04W 1E 470M TC04R
9C87	DCC820031	C2012F 1C 224Z A TD84N
9C88	DCE229201	SME-CE04W 1E 470M TC04R
9C89	DCC820031	C2012F 1C 224Z A TD84N
9C90 to 9C92	DCC810571	C2012F 1H 104Z A TD0804N
9C94, 9C95	DCC810511	C2012F 1H 103Z A TD84N
9C96	DCC810571	C2012F 1H 104Z A TD0804N
9FL1 to 9FL3	DCL870021	NFM41P11C204 TE1204N
9IC1	DIC642371	HAD626 500MS/S ADC
9IC2	DIC619101	NJM 4558M(TE3) TE1208L
9IC3, 9IC4	DIC619271	TA 75S558F (TE85L) TE0804L
9J1	DCN126131	89177-5600
9L4 to 9L8	DCL119361	BL02RN2-R62 TD04N
9Q1	DTR890841	IMX3 TE0804R
9Q2, 9Q3	DTR830481	2SC 2873-Y TE1208L
9Q4	DTR129011	2SB 605K/L TRB
9Q5	DTR810161	2SA 1213-Y TE12L
9R1	DRZ832531	RK73H 2A 15KΩ F TD0804N
9R2	DRZ832721	RK73H 2A 91KΩ F TD0804N
9R3	DRZ832361	RK73H 2A 3.0KΩ F TD0804N
9R4	DRZ832341	RK73H 2A 2.4KΩ F TD0804N
9R10	DRZ832491	RK73H 2A 10KΩ F TD0804N
9R11	DRZ832321	RK73H 2A 2.0KΩ F TD0804N

**CH3 A/D CNVT 9**

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
9R12	DRZ832301	RK73H 2A 1.6KΩ F TD0804N
9R13	DRZ833061	RK73H 2A 75Ω F TD0804N
9R14	DRZ832051	RK73H 2A 150Ω F TD0804N
9R15 to 9R17	DRZ832251	RK73H 2A 1.0KΩ F TD0804N
9R20	DRZ832341	RK73H 2A 2.4KΩ F TD0804N
9R21	DRZ832481	RK73H 2A 9.1KΩ F TD0804N
9R22	DRZ832311	RK73H 2A 1.8KΩ F TD0804N
9R25	DRZ832251	RK73H 2A 1.0KΩ F TD0804N
9R26	DRZ832211	RK73H 2A 680Ω F TD0804N
9R30	DRZ832321	RK73H 2A 2.0KΩ F TD0804N
9R31	DRZ832311	RK73H 2A 1.8KΩ F TD0804N
9R32, 9R33	DRZ833061	RK73H 2A 75Ω F TD0804N
9R34	DRZ833551	RK73H 2A 33Ω F TD0804N
9R35	DRZ832251	RK73H 2A 1.0KΩ F TD0804N
9R40 to 9R43	DRZ833491	RK73H 2A 18Ω F TD0804N
9R46, 9R47	DRZ832351	RK73H 2A 2.7KΩ F TD0804N
9R48, 9R49	DRZ832281	RK73H 2A 1.3KΩ F TD0804N
9R50	DRZ832171	RK73H 2A 470Ω F TD0804N
9R51	DRZ832351	RK73H 2A 2.7KΩ F TD0804N
9R52	DRZ832121	RK73H 2A 300Ω F TD0804N
9R53	DRZ832111	RK73H 2A 270Ω F TD0804N
9R54	DRZ831591	MCR10J 4R7E TD0804N

**CH4 A/D CNVT 10**

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
10C1	DCC810511	C2012F 1H 103Z A TD84N
10C3	DCC816641	C2012CH 1H 221J A TD84N
10C5	DCC820021	C2012F 1C 105Z A TD84N
10C6, 10C11	DCC810511	C2012F 1H 103Z A TD84N
10C12	DCC810511	C2012F 1H 103Z A TD84N
10C13	DCC820021	C2012F 1C 105Z A TD84N
10C20	DCC810511	C2012F 1H 103Z A TD84N
10C22	DCC810571	C2012F 1H 104Z A TD0804N
10C30	DCC820021	C2012F 1C 105Z A TD84N
10C31, 10C32	DCC810571	C2012F 1H 104Z A TD0804N
10C40, 10C46	DCC820021	C2012F 1C 105Z A TD84N
10C47	DCC810511	C2012F 1H 103Z A TD84N
10C50	DCC816801	C2012CH 1H 102J A TD84N
10C51	DCC820121	EMK325F 106ZH-T TE0804N
10C52 to 10C54	DCC810511	C2012F 1H 103Z A TD84N
10C55	DCE219051	SME-CE04W 1A 101M TC04R
10C56	DCC810511	C2012F 1H 103Z A TD84N
10C57 to 10C59	DCC820121	EMK325F 106ZH-T TE0804N
10C60	DCC810571	C2012F 1H 104Z A TD0804N
10C61 to 10C63	DCC810511	C2012F 1H 103Z A TD84N
10C64	DCC820121	EMK325F 106ZH-T TE0804N
10C65	DCC810571	C2012F 1H 104Z A TD0804N
10C66	DCC810511	C2012F 1H 103Z A TD84N
10C67	DCE219151	SME-CE04W 1A 471M TC04R
10C68, 10C69	DCC820121	EMK325F 106ZH-T TE0804N
10C70 to 10C73	DCC810571	C2012F 1H 104Z A TD0804N
10C74	DCC820121	EMK325F 106ZH-T TE0804N
10C80	DCE219051	SME-CE04W 1A 101M TC04R
10C81, 10C83	DCC820031	C2012F 1C 224Z A TD84N
10C84	DCE219051	SME-CE04W 1A 101M TC04R
10C85	DCC820031	C2012F 1C 224Z A TD84N
10C86	DCE229201	SME-CE04W 1E 470M TC04R
10C87	DCC820031	C2012F 1C 224Z A TD84N
10C88	DCE229201	SME-CE04W 1E 470M TC04R
10C89	DCC820031	C2012F 1C 224Z A TD84N
10C90 to 10C92	DCC810571	C2012F 1H 104Z A TD0804N
10C94, 10C95	DCC810511	C2012F 1H 103Z A TD84N
10C96	DCC810571	C2012F 1H 104Z A TD0804N
10FL1 to 10FL3	DCL870021	NFM41P11C204 TE1204N
10IC1	DIC642371	HAD626 500MS/S ADC
10IC2	DIC619101	NJM 4558M(TE3) TE1208L
10IC3, 10IC4	DIC619271	TA 75S558F (TE85L) TE0804L
10J1	DCN126131	89177-5600
10L4 to 10L8	DCL119361	BL02RN2-R62 TD04N
10Q1	DTR890841	IMX3 TE0804R
10Q2, 10Q3	DTR830481	2SC 2873-Y TE1208L
10Q4	DTR129011	2SB 605K/L TRB
10Q5	DTR810161	2SA 1213-Y TE12L
10R1	DRZ832531	RK73H 2A 15KΩ F TD0804N
10R2	DRZ832721	RK73H 2A 91KΩ F TD0804N
10R3	DRZ832361	RK73H 2A 3.0KΩ F TD0804N
10R4	DRZ832341	RK73H 2A 2.4KΩ F TD0804N



**CH4 A/D CNVT** 10

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
10R10	DRZ832491	RK73H 2A 10KΩF TD0804N
10R11	DRZ832321	RK73H 2A 2.0KΩF TD0804N
10R12	DRZ832301	RK73H 2A 1.6KΩF TD0804N
10R13	DRZ833061	RK73H 2A 75ΩF TD0804N
10R14	DRZ832051	RK73H 2A 150ΩF TD0804N
10R15 to 10R17	DRZ832251	RK73H 2A 1.0KΩF TD0804N
10R20	DRZ832341	RK73H 2A 2.4KΩF TD0804N
10R21	DRZ832481	RK73H 2A 9.1KΩF TD0804N
10R22	DRZ832311	RK73H 2A 1.8KΩF TD0804N
10R25	DRZ832251	RK73H 2A 1.0KΩF TD0804N
10R26	DRZ832211	RK73H 2A 680ΩF TD0804N
10R30	DRZ832321	RK73H 2A 2.0KΩF TD0804N
10R31	DRZ832311	RK73H 2A 1.8KΩF TD0804N
10R32, 10R33	DRZ833061	RK73H 2A 75ΩF TD0804N
10R34	DRZ833551	RK73H 2A 33ΩF TD0804N
10R35	DRZ832251	RK73H 2A 1.0KΩF TD0804N
10R40 to 10R43	DRZ833491	RK73H 2A 18ΩF TD0804N
10R46, 10R47	DRZ832351	RK73H 2A 2.7KΩF TD0804N
10R48, 10R49	DRZ832281	RK73H 2A 1.3KΩF TD0804N
10R50	DRZ832171	RK73H 2A 470ΩF TD0804N
10R51	DRZ832351	RK73H 2A 2.7KΩF TD0804N
10R52	DRZ832121	RK73H 2A 300ΩF TD0804N
10R53	DRZ832111	RK73H 2A 270ΩF TD0804N
10R54	DRZ831591	MCR10J 4R7E TD0804N

**TRIG SELECTOR** 11

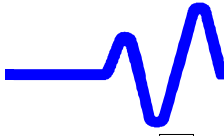
CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
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11C2	DCC820021	C2012F 1C 105Z A TD84N
11C3, 11C5	DCC810571	C2012F 1H 104Z A TD0804N
11C7, 11C9	DCC810571	C2012F 1H 104Z A TD0804N
11C10	DCC820021	C2012F 1C 105Z A TD84N
11C11	DCC810571	C2012F 1H 104Z A TD0804N
11C12	DCC820021	C2012F 1C 105Z A TD84N
11C13, 11C15	DCC810571	C2012F 1H 104Z A TD0804N
11C17, 11C19	DCC810571	C2012F 1H 104Z A TD0804N
11C20	DCC820021	C2012F 1C 105Z A TD84N
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11C23	DCC816401	C2012CH 1H 030C A TD84N
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11C26	DCC810571	C2012F 1H 104Z A TD0804N
11C31	DCC810511	C2012F 1H 103Z A TD84N
11C33	DCC816401	C2012CH 1H 030C A TD84N
11C35	DCC816521	C2012CH 1H 220J A TD84N
11C36	DCC810571	C2012F 1H 104Z A TD0804N
11C37	DCC816521	C2012CH 1H 220J A TD84N
11C38	DCC810511	C2012F 1H 103Z A TD84N
11C42	DCC816521	C2012CH 1H 220J A TD84N
11C43	DCC810571	C2012F 1H 104Z A TD0804N
11C54, 11C56	DCC810511	C2012F 1H 103Z A TD84N
11C57	DCC810571	C2012F 1H 104Z A TD0804N
11C70 to 11C73	DCC810571	C2012F 1H 104Z A TD0804N
11C74	DCC820121	EMK325F 106ZH-T TE0804N
11C75	DCE219051	SME-CE04W 1A 101M TC04R
11C76 to 11C82	DCC810571	C2012F 1H 104Z A TD0804N
11D1	DDD810241	1SS 272 TE0804R
11DL1, 11DL2	DZB999061	LDH33A202B TE1208B
11DL4 to 11DL7	DZB999071	LDH33A801B TE1208B
11FL1	DCL870021	NFM41P11C204 TE1204N
11IC1, 11IC2	DIC322671	MC 10E116FN/SY 10E116JC
11IC3	DIC322931	MC 10E157FN
11IC4	DIC891061	MST412 SMART TRIGGER IC
11IC5	DIC322831	MC 10EL11D
11IC6	DIC499821	TC7S04F/SC7S04F TE0804L
11IC7	DIC322721	MC 10H102M
11L1	DCL811011	BLM21A121FPT TD0804N
11Q1	DTR149011	2SD 571K/L TRB
11Q2	DTR890761	IMX5 TE0804R
11R1 to 11R21	DRZ833021	RK73H 2A 51ΩF TD0804N
11R22	DRZ832311	RK73H 2A 1.8KΩF TD0804N
11R23	DRZ832371	RK73H 2A 3.3KΩF TD0804N
11R24	DRZ832291	RK73H 2A 1.5KΩF TD0804N
11R25	DRZ832481	RK73H 2A 9.1KΩF TD0804N
11R26, 11R27	DRZ833021	RK73H 2A 51ΩF TD0804N
11R31	DRZ833021	RK73H 2A 51ΩF TD0804N
11R32	DRZ832311	RK73H 2A 1.8KΩF TD0804N
11R33	DRZ832371	RK73H 2A 3.3KΩF TD0804N
11R34	DRZ832291	RK73H 2A 1.5KΩF TD0804N
11R35	DRZ832481	RK73H 2A 9.1KΩF TD0804N
11R36	DRZ833021	RK73H 2A 51ΩF TD0804N

**TRIG SELECTOR 11**

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
11R37	DRZ832481	RK73H 2A 9.1KΩ F TD0804N
11R38 to 11R41	DRZ833021	RK73H 2A 51Ω F TD0804N
11R42	DRZ832481	RK73H 2A 9.1KΩ F TD0804N
11R43, 11R44	DRZ832011	RK73H 2A 100Ω F TD0804N
11R45 to 11R47	DRZ833061	RK73H 2A 75Ω F TD0804N
11R48	DRZ832091	RK73H 2A 220Ω F TD0804N
11R49, 11R50	DRZ833041	RK73H 2A 62Ω F TD0804N
11R51, 11R52	DRZ833441	RK73H 2A 10Ω F TD0804N
11R53	DRZ832711	RK73H 2A 82KΩ F TD0804N
11R54, 11R55	DRZ833011	RK73H 2A 47Ω F TD0804N
11R56	DRZ832211	RK73H 2A 680Ω F TD0804N
11R57	DRZ832251	RK73H 2A 1.0KΩ F TD0804N
11R58	DRZ833061	RK73H 2A 75Ω F TD0804N
11R59, 11R60	DRZ833021	RK73H 2A 51Ω F TD0804N
11R61	DRZ831501	MCR10 000E TD0804N
11R62 to 11R64	DRZ833021	RK73H 2A 51Ω F TD0804N
11R70 to 11R73	DRZ831501	MCR10 000E TD0804N
11R74	DRZ833441	RK73H 2A 10Ω F TD0804N
11R80 to 11R89	DRZ833031	RK73H 2A 56Ω F TD0804N
11R90 to 11R109	DRZ833551	RK73H 2A 33Ω F TD0804N

**400MHZ OSC 12**

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
12C4	DCC810571	C2012F 1H 104Z A TD0804N
12C7, 12C8	DCC816521	C2012CH 1H 220J A TD84N
12C13	DCC816521	C2012CH 1H 220J A TD84N
12C17	DCC810571	C2012F 1H 104Z A TD0804N
12C19, 12C20	DCC810511	C2012F 1H 103Z A TD84N
12C21	DCC816381	C2012CH 1H 020C A TD84N
12C22	DCC815891	C2012CH 1H 150J A TD84N
12C23, 12C27	DCC810511	C2012F 1H 103Z A TD84N
12C31	DCC815841	C2012SL 1H 681J A TD84N
12C34	DCE219151	SME-CE04W 1A 471M TC04R
12C35	DCC819091	GRM42-6B 106K6.3PT TE0804N
12C40	DCC816421	C2012CH 1H 040C A TD84N
12C41	DCC810511	C2012F 1H 103Z A TD84N
12C50 to 12C56	DCC810571	C2012F 1H 104Z A TD0804N
12D1	DDD810401	HVU 202A3 TE0804R
12D2	DDD810241	1SS 272 TE0804R
12DL1	DZB999051	LDH33A152B TE1208B
12IC1	DIC483321	74HC595F/AF TE1612B
12IC2	DIC322921	MC 10H117M
12IC3	DIC322601	MC 10EL01
12IC4, 12IC5	DIC619271	TA 75S558F (TE85L) TE0804L
12L1	DCL811031	HK2125 18NJ-T TE0804N
12Q1	DTR215791	2SK 2287
12R2, 12R4	DRZ833021	RK73H 2A 51Ω F TD0804N
12R9, 12R10	DRZ832481	RK73H 2A 9.1KΩ F TD0804N
12R11, 12R12	DRZ833021	RK73H 2A 51Ω F TD0804N
12R14	DRZ832481	RK73H 2A 9.1KΩ F TD0804N
12R17, 12R18	DRZ833021	RK73H 2A 51Ω F TD0804N
12R19, 12R20	DRZ832171	RK73H 2A 470Ω F TD0804N
12R21	DRZ833481	RK73H 2A 15Ω F TD0804N
12R22	DRZ832731	RK73H 2A 100KΩ F TD0804N
12R23	DRZ832441	RK73H 2A 6.2KΩ F TD0804N
12R26	DRZ832491	RK73H 2A 10KΩ F TD0804N
12R27	DRZ832531	RK73H 2A 15KΩ F TD0804N
12R30	DRZ832251	RK73H 2A 1.0KΩ F TD0804N
12R31	DRZ832481	RK73H 2A 9.1KΩ F TD0804N
12R32	DRZ832341	RK73H 2A 2.4KΩ F TD0804N
12R33	DRZ832321	RK73H 2A 2.0KΩ F TD0804N
12R34	DRZ832491	RK73H 2A 10KΩ F TD0804N
12R40, 12R41	DRZ833021	RK73H 2A 51Ω F TD0804N
12RA1, 12RA2	DFB810131	RAC16 4D 472J A TD0804M
12RA3, 12RA4	DFB810051	RAC16 4D 103J A TD0804M
12Z21	MHN001311	HEATSINK OSH-2425-SPL



## TV SYNC SEP 13

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
13C2	DCC816541	C2012CH 1H 330J A TD84N
13C3	DCC820261	C2012F 1C 225Z A TE0804N
13C5	DCC810511	C2012F 1H 103Z A TD84N
13C17	DCC816601	C2012CH 1H 101J A TD84N
13C21	DCC819091	GRM42-6B 106K6.3PT TE0804N
13C22	DCC820021	C2012F 1C 105Z A TD84N
13C34, 13C43	DCC810571	C2012F 1H 104Z A TD0804N
13C44	DCF810121	ECHU 1C 104J TE0804N
13C50 to 13C53	DCC810571	C2012F 1H 104Z A TD0804N
13C54	DCC816801	C2012CH 1H 102J A TD84N
13C57 to 13C62	DCC810571	C2012F 1H 104Z A TD0804N
13C63	DCC816801	C2012CH 1H 102J A TD84N
13C64	DCC810571	C2012F 1H 104Z A TD0804N
13C65, 13C66	DCC816801	C2012CH 1H 102J A TD84N
13C67, 13C68	DCC810571	C2012F 1H 104Z A TD0804N
13D4	DDD810241	1SS 272 TE0804R
13IC1	DIC623501	$\mu$ PC 1663G-E1 TE1208F
13IC2	DIC614411	$\mu$ PC 812G2-E1 TE1208F
13IC3	DIC889161	TC 4W53F(TE12L) TE1208R
13IC4	DIC639041	$\mu$ PC 311G2-E1 TE1208F
13IC5	DIC639031	NJM 2903M(TE3) TE1208L
13IC6, 13IC7	DIC889161	TC 4W53F(TE12L) TE1208R
13IC8	DIC699531	LM 1881M TE1208B
13IC9	DIC448531	MC 74HC153F/AF
13IC10	DIC483321	74HC595F/AF TE1612B
13Q1	DTR890551	DTC114EK/RN1402 TE0804L
13Q4	DTR870031	3SK 241 TE0804L
13Q5	DTR890841	IMX3 TE0804R
13R1	DRZ832251	RK73H 2A 1.0K $\Omega$ F TD0804N
13R2	DRZ832731	RK73H 2A 100K $\Omega$ F TD0804N
13R3	DRZ832091	RK73H 2A 220 $\Omega$ F TD0804N
13R4	DRZ832811	RK73H 2A 220K $\Omega$ F TD0804N
13R5	DRZ832751	RK73H 2A 120K $\Omega$ F TD0804N
13R6	DRZ832731	RK73H 2A 100K $\Omega$ F TD0804N
13R7	DRZ832571	RK73H 2A 22K $\Omega$ F TD0804N
13R10	DRZ832391	RK73H 2A 3.9K $\Omega$ F TD0804N
13R11, 13R12	DRZ832091	RK73H 2A 220 $\Omega$ F TD0804N
13R13	DRZ832491	RK73H 2A 10K $\Omega$ F TD0804N
13R14, 13R15	DRZ832251	RK73H 2A 1.0K $\Omega$ F TD0804N
13R16	DRZ832731	RK73H 2A 100K $\Omega$ F TD0804N
13R18	DRZ832491	RK73H 2A 10K $\Omega$ F TD0804N
13R19	DRZ828761	RR1220P-204-D TD0804N
13R20	DRZ832501	RK73H 2A 11K $\Omega$ F TD0804N
13R21	DRZ832731	RK73H 2A 100K $\Omega$ F TD0804N
13R22, 13R24	DRZ832811	RK73H 2A 220K $\Omega$ F TD0804N
13R25	DRZ832391	RK73H 2A 3.9K $\Omega$ F TD0804N
13R30	DRZ832511	RK73H 2A 12K $\Omega$ F TD0804N
13R31	DRZ832331	RK73H 2A 2.2K $\Omega$ F TD0804N
13R32	DRZ832151	RK73H 2A 390 $\Omega$ F TD0804N
13R34	DRZ832251	RK73H 2A 1.0K $\Omega$ F TD0804N
13R35	DRZ832331	RK73H 2A 2.2K $\Omega$ F TD0804N
13R36	DRZ832731	RK73H 2A 100K $\Omega$ F TD0804N
13R37	DRZ832331	RK73H 2A 2.2K $\Omega$ F TD0804N

## TV SYNC SEP 13

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
13R38, 13R39	DRZ832411	RK73H 2A 4.7K $\Omega$ F TD0804N
13R40	DRZ832331	RK73H 2A 2.2K $\Omega$ F TD0804N
13R41	DRZ832951	RK73H 2A 820K $\Omega$ F TD0804N
13R42	DRZ832891	RK73H 2A 470K $\Omega$ F TD0804N
13R43	DRZ832191	RK73H 2A 560 $\Omega$ F TD0804N
13R44	DRZ832931	RK73H 2A 680K $\Omega$ F TD0804N
13R45, 13R46	DRZ832011	RK73H 2A 100 $\Omega$ F TD0804N
13R47, 13R48	DRZ832371	RK73H 2A 3.3K $\Omega$ F TD0804N
13R50	DRZ832511	RK73H 2A 12K $\Omega$ F TD0804N

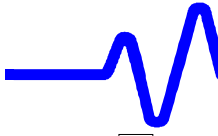
**TIME BASE** 14

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
14C8	DCC810571	C2012F 1H 104Z A TD0804N
14C10, 14C21	DCC810511	C2012F 1H 103Z A TD84N
14C22, 14C28	DCC810511	C2012F 1H 103Z A TD84N
14C30, 14C31	DCC815841	C2012SL 1H 681J A TD84N
14C34, 14C35	DCC810941	C2012B 1H 682K A TD84N
14C36	DCC816601	C2012CH 1H 101J A TD84N
14C37, 14C38	DCC816801	C2012CH 1H 102J A TD84N
14C40	DCC810511	C2012F 1H 103Z A TD84N
14C41	DCC810571	C2012F 1H 104Z A TD0804N
14C42	DCC816421	C2012CH 1H 040C A TD84N
14C60	DCC820021	C2012F 1C 105Z A TD84N
14C61, 14C62	DCC810571	C2012F 1H 104Z A TD0804N
14C63	DCE219051	SME-CE04W 1A 101M TC04R
14C64 to 14C67	DCC810571	C2012F 1H 104Z A TD0804N
14C68, 14C69	DCE219051	SME-CE04W 1A 101M TC04R
14C70 to 14C75	DCC810571	C2012F 1H 104Z A TD0804N
14C76, 14C77	DCC810511	C2012F 1H 103Z A TD84N
14C78, 14C79	DCC810571	C2012F 1H 104Z A TD0804N
14C80	DCC820121	EMK325F 106ZH-T TE0804N
14C81	DCC810511	C2012F 1H 103Z A TD84N
14C83	DCC810571	C2012F 1H 104Z A TD0804N
14D1	DDD810241	1SS 272 TE0804R
14D2	DDD810261	HSM 88AS TL
14FL1, 14FL2	DCL870021	NFM41P11C204 TE1204N
14IC1	DIC891041	MTB411A TIMEBASE IC
14IC2	DIC891031	MCG426 CLOCK GENERATOR
14IC3	DHF060191	QCG571ABN-10.0000
14IC4	DIC322631	MC 10EL16D
14IC5	DHF060181	VC-5R0A30-2000 TE1608B
14IC6	DIC619271	TA 75S558F (TE85L) TE0804L
14IC7	DIC659791	TA 78L05F (TE12L) TE1208L
14IC8	DIC471841	PALCE16V8H-10JC/4 K0315ACQ
14L2, 14L4, 14L5	DCL811011	BLM21A121FPT TD0804N
14Q1	DTR890861	IMZ1 TE0804R
14Q2	DTR890851	IMH1 TE0804N
14R1, 14R2	DRZ833041	RK73H 2A 62Ω F TD0804N
14R3	DRZ833551	RK73H 2A 33Ω F TD0804N
14R4 to 14R7	DRZ833041	RK73H 2A 62Ω F TD0804N
14R8	DRZ832011	RK73H 2A 100Ω F TD0804N
14R10, 14R11	DRZ833021	RK73H 2A 51Ω F TD0804N
14R12 to 14R17	DRZ833041	RK73H 2A 62Ω F TD0804N
14R18	DRZ832311	RK73H 2A 1.8KΩ F TD0804N
14R19	DRZ832371	RK73H 2A 3.3KΩ F TD0804N
14R20	DRZ832331	RK73H 2A 2.2KΩ F TD0804N
14R21	DRZ832311	RK73H 2A 1.8KΩ F TD0804N
14R22	DRZ832331	RK73H 2A 2.2KΩ F TD0804N
14R23	DRZ833041	RK73H 2A 62Ω F TD0804N
14R24 to 14R26	DRZ833021	RK73H 2A 51Ω F TD0804N
14R27	DRZ832731	RK73H 2A 100KΩ F TD0804N
14R28, 14R29	DRZ833061	RK73H 2A 75Ω F TD0804N
14R30 to 14R33	DRZ832371	RK73H 2A 3.3KΩ F TD0804N
14R34, 14R35	DRZ832491	RK73H 2A 10KΩ F TD0804N

**TIME BASE** 14

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
14R36	DRZ832251	RK73H 2A 1.0KΩ F TD0804N
14R37 to 14R39	DRZ833021	RK73H 2A 51Ω F TD0804N
14R40	DRZ832211	RK73H 2A 680Ω F TD0804N
14R50, 14R51	DRZ833021	RK73H 2A 51Ω F TD0804N
14R53, 14R54	DRZ833551	RK73H 2A 33Ω F TD0804N
14R55	DRZ833021	RK73H 2A 51Ω F TD0804N
14R56	DRZ832011	RK73H 2A 100Ω F TD0804N
14R57	DRZ833041	RK73H 2A 62Ω F TD0804N
14R58, 14R59	DRZ832331	RK73H 2A 2.2KΩ F TD0804N
14R60	DRZ832491	RK73H 2A 10KΩ F TD0804N





## T/D CNVT 15

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
15C1	DCC810511	C2012F 1H 103Z A TD84N
15C5	DCC810571	C2012F 1H 104Z A TD0804N
15C11	DCC816801	C2012CH 1H 102J A TD84N
15C14 to 15C16	DCC810571	C2012F 1H 104Z A TD0804N
15C21, 15C23	DCC810571	C2012F 1H 104Z A TD0804N
15C25	DCC810571	C2012F 1H 104Z A TD0804N
15C26	DCC820021	C2012F 1C 105Z A TD84N
15C27	DCC810511	C2012F 1H 103Z A TD84N
15C29	DCC810571	C2012F 1H 104Z A TD0804N
15C30, 15C31	DCC816801	C2012CH 1H 102J A TD84N
15C32, 15C33	DCC810571	C2012F 1H 104Z A TD0804N
15C34	DCC816801	C2012CH 1H 102J A TD84N
15C36	DCC810571	C2012F 1H 104Z A TD0804N
15C39	DCC816381	C2012CH 1H 020C A TD84N
15C41	DCC819091	GRM42-6B 106K6.3PT TE0804N
15C43	DCE219051	SME-CE04W 1A 101M TC04R
15C50	DCC810571	C2012F 1H 104Z A TD0804N
15C54	DCC816581	C2012CH 1H 680J A TD84N
15C55	DCC816511	C2012CH 1H 180J A TD84N
15C58	DCC816801	C2012CH 1H 102J A TD84N
15C60, 15C64	DCC810571	C2012F 1H 104Z A TD0804N
15C81, 15C83	DCE229201	SME-CE04W 1E 470M TC04R
15C84	DCC810571	C2012F 1H 104Z A TD0804N
15C85	DCE219051	SME-CE04W 1A 101M TC04R
15C86	DCC810571	C2012F 1H 104Z A TD0804N
15C87	DCE219051	SME-CE04W 1A 101M TC04R
15C88 to 15C91	DCC810571	C2012F 1H 104Z A TD0804N
15C92, 15C93	DCC820021	C2012F 1C 105Z A TD84N
15D1	DDD810261	HSM 88AS TL
15D2	DDD810461	HSM 124S-JTL TE0804L
15D3	DDD810261	HSM 88AS TL
15IC1	DIC614411	$\mu$ PC 812G2-E1 TE1208F
15IC2	DIC614811	LT 1097S8-T2 TE1208B
15IC3	DIC639161	NJM 360M(TE3) TE1208L
15IC4	DIC659371	NJM 431U-TE1 (JRC)
15L1 to 15L4	DCL811011	BLM21A121FPT TD0804N
15Q1	DTR810041	2SA 1162Y TE85L
15Q2	DTR898711	XN 6435 TE0804R
15Q3 to 15Q5	DTR830071	2SC 3356-T1B
15Q6	DTR229091	2SJ 144-GR(TE85L) TE0804L
15Q7 to 15Q11	DTR830071	2SC 3356-T1B
15Q12, 15Q13	DTR860161	2SK 508 K51 TE0804L
15Q14	DTR830071	2SC 3356-T1B
15R1	DRZ832511	RK73H 2A 12K $\Omega$ F TD0804N
15R2	DRZ832441	RK73H 2A 6.2K $\Omega$ F TD0804N
15R3	DRZ832031	RK73H 2A 120 $\Omega$ F TD0804N
15R4	DRZ832301	RK73H 2A 1.6K $\Omega$ F TD0804N
15R5	DRZ832361	RK73H 2A 3.0K $\Omega$ F TD0804N
15R6	DRZ832971	RK73H 2A 1.0M $\Omega$ F TD0804N
15R10	DRZ820581	RN73F 2A 6.8K $\Omega$ D TD0804N
15R11	DRZ820621	RN73F 2A 10K $\Omega$ D TD0804N
15R12	DRZ820871	RN73F 2A 2.4K $\Omega$ D TD0804N
15R13	DRZ832411	RK73H 2A 4.7K $\Omega$ F TD0804N

## T/D CNVT 15

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
15R14, 15R15	DRZ832491	RK73H 2A 10K $\Omega$ F TD0804N
15R17	DRZ832251	RK73H 2A 1.0K $\Omega$ F TD0804N
15R18	DRZ832381	RK73H 2A 3.6K $\Omega$ F TD0804N
15R19	DRZ832461	RK73H 2A 7.5K $\Omega$ F TD0804N
15R20	DRZ832411	RK73H 2A 4.7K $\Omega$ F TD0804N
15R21	DRZ832251	RK73H 2A 1.0K $\Omega$ F TD0804N
15R22, 15R23	DRZ833011	RK73H 2A 47 $\Omega$ F TD0804N
15R24	DRZ832331	RK73H 2A 2.2K $\Omega$ F TD0804N
15R25	DRZ832251	RK73H 2A 1.0K $\Omega$ F TD0804N
15R26	DRZ832221	RK73H 2A 750 $\Omega$ F TD0804N
15R27	DRZ832441	RK73H 2A 6.2K $\Omega$ F TD0804N
15R28	DRZ832431	RK73H 2A 5.6K $\Omega$ F TD0804N
15R29	DRZ832301	RK73H 2A 1.6K $\Omega$ F TD0804N
15R30	DRZ833011	RK73H 2A 47 $\Omega$ F TD0804N
15R31	DRZ832011	RK73H 2A 100 $\Omega$ F TD0804N
15R32, 15R33	DRZ833011	RK73H 2A 47 $\Omega$ F TD0804N
15R34	DRZ832011	RK73H 2A 100 $\Omega$ F TD0804N
15R35, 15R36	DRZ832251	RK73H 2A 1.0K $\Omega$ F TD0804N
15R37	DRZ832051	RK73H 2A 150 $\Omega$ F TD0804N
15R38	DRZ833021	RK73H 2A 51 $\Omega$ F TD0804N
15R39	DRZ832611	RK73H 2A 33K $\Omega$ F TD0804N
15R40	DRZ832051	RK73H 2A 150 $\Omega$ F TD0804N
15R41	DRZ832161	RK73H 2A 430 $\Omega$ F TD0804N
15R42	DRZ820011	RN73G 2A 30 $\Omega$ D TD0804N
15R43	DRZ833571	RK73H 2A 39 $\Omega$ F TD0804N
15R44	DRZ833011	RK73H 2A 47 $\Omega$ F TD0804N
15R50, 15R51	DRZ833021	RK73H 2A 51 $\Omega$ F TD0804N
15R54, 15R55	DRZ833011	RK73H 2A 47 $\Omega$ F TD0804N
15R56	DRZ833511	RK73H 2A 22 $\Omega$ F TD0804N
15R57	DRZ832011	RK73H 2A 100 $\Omega$ F TD0804N
15R58	DRZ820541	RN73F 2A 4.7K $\Omega$ D TD0804N
15R59	DRZ832011	RK73H 2A 100 $\Omega$ F TD0804N
15R60, 15R61	DRZ833011	RK73H 2A 47 $\Omega$ F TD0804N
15R62	DRZ832391	RK73H 2A 3.9K $\Omega$ F TD0804N
15R63, 15R64	DRZ820161	RN73F 2A 120 $\Omega$ D TD0804N
15R65	DRZ832011	RK73H 2A 100 $\Omega$ F TD0804N
15R66	DRZ832171	RK73H 2A 470 $\Omega$ F TD0804N
15R67	DRZ832141	RK73H 2A 360 $\Omega$ F TD0804N
15R70, 15R71	DRZ833551	RK73H 2A 33 $\Omega$ F TD0804N
15R72	DRZ833011	RK73H 2A 47 $\Omega$ F TD0804N
15R73	DRZ832471	RK73H 2A 8.2K $\Omega$ F TD0804N
15R74	DRZ832491	RK73H 2A 10K $\Omega$ F TD0804N
15R80, 15R81	DRZ828721	RR1220P-224-B TD0804N
15R82	DRZ828731	RR1220P-244-B TD0804N

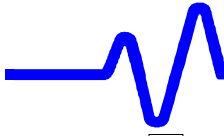
**CAL SIGNAL** 16

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
16C3, 16C5	DCC810511	C2012F 1H 103Z A TD84N
16C7, 16C10	DCC810511	C2012F 1H 103Z A TD84N
16C12	DCC819091	GRM42-6B 106K6.3PT TE0804N
16C15	DCC816521	C2012CH 1H 220J A TD84N
16C60 to 16C69	DCC810571	C2012F 1H 104Z A TD0804N
16C70 to 16C73	DCC816801	C2012CH 1H 102J A TD84N
16C74	DCC816601	C2012CH 1H 101J A TD84N
16C75 to 16C77	DCC816801	C2012CH 1H 102J A TD84N
16C80 to 16C83	DCC820121	EMK325F 106ZH-T TE0804N
16D1, 16D2	DDD810241	1SS 272 TE0804R
16IC1	DIC483031	74HC4051F TE1612B
16IC2	DIC614811	LT 1097S8-T2 TE1208B
16IC3	DIC619271	TA 75S558F (TE85L) TE0804L
16IC4	DIC499441	74HC4053F/AF TE1612B
16IC5	DIC448531	MC 74HC153F/AF
16IC6	DIC483321	74HC595F/AF TE1612B
16J2	KHB095411	SMALL PIN JACK
16L1 to 16L4	DCL811011	BLM21A121FPT TD0804N
16R1	DRZ828541	RN73F 2A 18KΩB TD0804N
16R2	DRZ828551	RN73F 2A 2KΩB TD0804N
16R3, 16R4	DRZ832311	RK73H 2A 1.8KΩF TD0804N
16R5	DRZ832321	RK73H 2A 2.0KΩF TD0804N
16R6	DRZ828581	RN73F 2A 560ΩB TD0804N
16R7	DRZ833511	RK73H 2A 22ΩF TD0804N
16R10	DRZ832491	RK73H 2A 10KΩF TD0804N
16R11	DRZ832351	RK73H 2A 2.7KΩF TD0804N
16R12	DRZ832331	RK73H 2A 2.2KΩF TD0804N
16R16 to 16R19	DRZ833061	RK73H 2A 75ΩF TD0804N
16R20 to 16R24	DRZ832071	RK73H 2A 180ΩF TD0804N
16R25	DRZ832031	RK73H 2A 120ΩF TD0804N

**DC GENE 1/2** 17

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
17C10, 17C12	DCC810511	C2012F 1H 103Z A TD84N
17C13	DCC810511	C2012F 1H 103Z A TD84N
17C16	DCC816601	C2012CH 1H 101J A TD84N
17C19, 17C22	DCC816641	C2012CH 1H 221J A TD84N
17C30	DCC810511	C2012F 1H 103Z A TD84N
17C33	DCC810571	C2012F 1H 104Z A TD0804N
17C35 to 17C39	DCC810571	C2012F 1H 104Z A TD0804N
17C50	DCC820021	C2012F 1C 105Z A TD84N
17C52 to 17C54	DCC820021	C2012F 1C 105Z A TD84N
17C55	DCC810571	C2012F 1H 104Z A TD0804N
17C56 to 17C60	DCC810571	C2012F 1H 104Z A TD0804N
17C61	DCC820021	C2012F 1C 105Z A TD84N
17C62	DCC810571	C2012F 1H 104Z A TD0804N
17C63	DCC820021	C2012F 1C 105Z A TD84N
17C64	DCC810571	C2012F 1H 104Z A TD0804N
17C65	DCC820021	C2012F 1C 105Z A TD84N
17C71, 17C73	DCE929471	SXE 16VB-220 TC04R
17IC1	DIC528501	μ PD 78081GB-A67-3BS-MTX
17IC2	DIC645151	DAC 712UK
17IC3, 17IC4	DIC483031	74HC4051F TE1612B
17IC5	DIC619271	TA 75S558F (TE85L) TE0804L
17IC6	DIC639041	μ PC 311G2-E1 TE1208F
17IC7	DIC614411	μ PC 812G2-E1 TE1208F
17IC8	DIC499381	74HC138F/AF TE1612B
17IC9	DIC889101	TC 7SU04F TE0804L
17L1 to 17L3	DCL811011	BLM21A121FPT TD0804N
17Q1	DTR838661	2SC 2712LG TE85L
17R10	DRZ832101	RK73H 2A 240ΩF TD0804N
17R11	DRZ832081	RK73H 2A 200ΩF TD0804N
17R12	DRZ832501	RK73H 2A 11KΩF TD0804N
17R13	DRZ832461	RK73H 2A 7.5KΩF TD0804N
17R14	DRZ828561	RN73F 2A 3KΩB TD0804N
17R15	DRZ832241	RK73H 2A 910ΩF TD0804N
17R16	DRZ828531	RN73F 2A 1.2KΩB TD0804N
17R17, 17R18	DRZ832131	RK73H 2A 330ΩF TD0804N
17R19	DRZ832971	RK73H 2A 1.0MΩF TD0804N
17R21	DRZ832101	RK73H 2A 240ΩF TD0804N
17R22	DRZ832131	RK73H 2A 330ΩF TD0804N
17R23 to 17R25	DRZ832251	RK73H 2A 1.0KΩF TD0804N
17R26	DRZ832131	RK73H 2A 330ΩF TD0804N
17R30 to 17R34	DRZ832581	RK73H 2A 24KΩF TD0804N
17R35 to 17R39	DRZ832511	RK73H 2A 12KΩF TD0804N
17R40	DRZ831501	MCR10 000E TD0804N



**DC GENE 2/2** 18

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
18C1	DCF810121	ECHU 1C 104J TE0804N
18C2 to 18C7	DCC811111	C2012B 1E 104K A TD84N
18C8	DCF810121	ECHU 1C 104J TE0804N
18C9 to 18C11	DCC811111	C2012B 1E 104K A TD84N
18C12, 18C13	DCF810121	ECHU 1C 104J TE0804N
18C14 to 18C19	DCC811111	C2012B 1E 104K A TD84N
18C20	DCC810571	C2012F 1H 104Z A TD0804N
18C21	DCF810121	ECHU 1C 104J TE0804N
18C22	DCC811111	C2012B 1E 104K A TD84N
18C23, 18C24	DCC810571	C2012F 1H 104Z A TD0804N
18C50 to 18C53	DCC810571	C2012F 1H 104Z A TD0804N
18C55, 18C56	DCC810571	C2012F 1H 104Z A TD0804N
18C60 to 18C71	DCC810571	C2012F 1H 104Z A TD0804N
18IC1 to 18IC3	DIC483021	TC 4051BF (EL) TE1612B
18IC10 to 18IC13	DIC614761	TL 084CNS
18IC14	DIC614411	$\mu$ PC 812G2-E1 TE1208F
18IC16	DIC614761	TL 084CNS
18R1, 18R8	DRZ832071	RK73H 2A 180 $\Omega$ F TD0804N
18R12, 18R13	DRZ832071	RK73H 2A 180 $\Omega$ F TD0804N
18R19, 18R21	DRZ832071	RK73H 2A 180 $\Omega$ F TD0804N
18R31	DRZ832011	RK73H 2A 100 $\Omega$ F TD0804N
18RA1 to 18RA5	DFB810111	RAC16 4D 101J A TD0804M

**MAIN CONT 1/2** 19

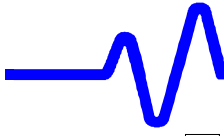
CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
19C10	DCC816641	C2012CH 1H 221J A TD84N
19C51 to 19C53	DCC810571	C2012F 1H 104Z A TD0804N
19C54	DCC820031	C2012F 1C 224Z A TD84N
19C55 to 19C59	DCC810571	C2012F 1H 104Z A TD0804N
19C60	DCC820031	C2012F 1C 224Z A TD84N
19C61, 19C62	DCC820021	C2012F 1C 105Z A TD84N
19C63	DCC820031	C2012F 1C 224Z A TD84N
19C64	DCC810571	C2012F 1H 104Z A TD0804N
19IC1	DIC471852	PALCE16V8H-10JC/4 K0327MBC
19IC2	DIC471881	PALCE16V8H-7JC/5 K0319HCS
19IC3	DIC471891	PALCE16V8H-7JC/5 K0320HMR
19IC4	DIC484011	74VHC138F EL TE1612B
19IC5	DIC449631	MC 74HC574F/AF
19IC6	DIC471871	PALCE16V8H-10JC/4 K0318MST
19IC7	DIC471861	PALCE16V8H-10JC/4 K0317MCG
19IC8	DIC645141	PCF 8584T TE2412B
19IC9	DIC483031	74HC4051F TE1612B
19IC10	DIC484491	74VHCT541AF EL TE2412B
19IC11	DIC471631	74VHCT573AF
19IC12	DIC484531	74VHC32F EL TE1612B
19IC13	DIC495111	74HCT245AF TE2412B
19IC14	DIC471901	PALCE16V8H-7JC/5 K0321HMS
19R1	DRZ831501	MCR10 000E TD0804N
19R2	DRZ832331	RK73H 2A 2.2K $\Omega$ F TD0804N
19R3	DRZ832251	RK73H 2A 1.0K $\Omega$ F TD0804N
19R4	DRZ832331	RK73H 2A 2.2K $\Omega$ F TD0804N
19R5, 19R6	DRZ832251	RK73H 2A 1.0K $\Omega$ F TD0804N
19R7	DRZ832011	RK73H 2A 100 $\Omega$ F TD0804N
19R8	DRZ832251	RK73H 2A 1.0K $\Omega$ F TD0804N
19R9	DRZ832331	RK73H 2A 2.2K $\Omega$ F TD0804N
19R10	DRZ832131	RK73H 2A 330 $\Omega$ F TD0804N
19R21, 19R22	DRZ832101	RK73H 2A 240 $\Omega$ F TD0804N
19R24, 19R25	DRZ832101	RK73H 2A 240 $\Omega$ F TD0804N
19R26, 19R27	DRZ832251	RK73H 2A 1.0K $\Omega$ F TD0804N
19RA2, 19RA4	DFB810041	RAC16 4D 220J A TD0804M
19RA6	DFB810041	RAC16 4D 220J A TD0804M
19RA8	DFB810081	RAC16 4D 102J A TD0804M
19RA12	DFB810111	RAC16 4D 101J A TD0804M
19RA16	DFB810041	RAC16 4D 220J A TD0804M
19RA18	DFB810121	RAC16 4D 470J A TD0804M
19RA19, 19RA20	DFB810041	RAC16 4D 220J A TD0804M

**MAIN CONT 2/2** 20

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
20C3	DCC810511	C2012F 1H 103Z A TD84N
20C4, 20C5	DCC810571	C2012F 1H 104Z A TD0804N
20C6	DCE219051	SME-CE04W 1A 101M TC04R
20C31	DCC810511	C2012F 1H 103Z A TD84N
20C51 to 20C64	DCC810571	C2012F 1H 104Z A TD0804N
20C70, 20C71	DCC810571	C2012F 1H 104Z A TD0804N
20C80	DCC816801	C2012CH 1H 102J A TD84N
20IC1	DIC449631	MC 74HC574F/AF
20IC2 to 20IC6	DIC499381	74HC138F/AF TE1612B
20IC7	DIC499321	74HC04F/AF TE1612B
20IC8	DIC529201	AT93C66-10SC JEDEC TE1208B
20IC9	DIC470461	DS 1620S TE1612B
20IC10	DIC889161	TC 4W53F(TE12L) TE1208R
20IC11, 20IC12	DIC642201	MB88346BPF-G-BND-EF TE2412F
20IC13	DIC659371	NJM 431U-TE1 (JRC)
20IC14	DIC449631	MC 74HC574F/AF
20IC15	DIC619271	TA 75S558F (TE85L) TE0804L
20IC16	DIC889131	TC 7W32F(TE12L) TE1208R
20J1, 20J2	DCN129381	52808-2691 TE4412B
20J3, 20J4	DCN129391	52808-2291 TE4412B
20R3	DRZ832011	RK73H 2A 100ΩF TD0804N
20R4	DRZ832291	RK73H 2A 1.5KΩD TD0804N
20R5	DRZ820441	RN73F 2A 1.8KΩD TD0804N
20R6	DRZ820491	RN73F 2A 3KΩD TD0804N
20R7, 20R8	DRZ833011	RK73H 2A 47ΩF TD0804N
20R10 to 20R13	DRZ832331	RK73H 2A 2.2KΩF TD0804N
20R14	DRZ832011	RK73H 2A 100ΩF TD0804N
20R15, 20R16	DRZ832331	RK73H 2A 2.2KΩF TD0804N
20R17 to 20R19	DRZ832011	RK73H 2A 100ΩF TD0804N
20R22	DRZ832291	RK73H 2A 1.5KΩF TD0804N
20R24	DRZ832011	RK73H 2A 100ΩF TD0804N
20R30	DRZ820621	RN73F 2A 10KΩD TD0804N
20R31	DRZ820661	RN73F 2A 15KΩD TD0804N
20R32	DRZ832441	RK73H 2A 6.2KΩF TD0804N
20R33	DRZ832221	RK73H 2A 750ΩF TD0804N
20R34, 20R35	DRZ832491	RK73H 2A 10KΩF TD0804N
20R36, 20R37	DRZ832011	RK73H 2A 100ΩF TD0804N
20RA4 to 20RA8	DFB810111	RAC16 4D 101J A TD0804M
20RA10	DFB810111	RAC16 4D 101J A TD0804M

**POWER CONNECTOR** 21

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
21C1 to 21C4	DCC810511	C2012F 1H 103Z A TD84N
21C10	DCE229221	SME-CE04W 1E 221M TC04R
21C11	DCC820031	C2012F 1C 224Z A TD84N
21C12	DCE229201	SME-CE04W 1E 470M TC04R
21C13	DCC820031	C2012F 1C 224Z A TD84N
21C18	DCE229201	SME-CE04W 1E 470M TC04R
21C19	DCC820031	C2012F 1C 224Z A TD84N
21C20	DCE219151	SME-CE04W 1A 471M TC04R
21C21	DCC820021	C2012F 1C 105Z A TD84N
21C30	DCE219051	SME-CE04W 1A 101M TC04R
21C31	DCC820031	C2012F 1C 224Z A TD84N
21C40	DCE219151	SME-CE04W 1A 471M TC04R
21C41	DCC820021	C2012F 1C 105Z A TD84N
21C50	DCE219051	SME-CE04W 1A 101M TC04R
21C51	DCC820031	C2012F 1C 224Z A TD84N
21C52	DCC810511	C2012F 1H 103Z A TD84N
21C60	DCE229221	SME-CE04W 1E 221M TC04R
21C61	DCC820031	C2012F 1C 224Z A TD84N
21C62	DCE229201	SME-CE04W 1E 470M TC04R
21C63	DCC820031	C2012F 1C 224Z A TD84N
21C68	DCE229201	SME-CE04W 1E 470M TC04R
21C69	DCC820031	C2012F 1C 224Z A TD84N
21C70	DCE219151	SME-CE04W 1A 471M TC04R
21C71	DCC820021	C2012F 1C 105Z A TD84N
21C80	DCE219051	SME-CE04W 1A 101M TC04R
21C81	DCC820031	C2012F 1C 224Z A TD84N
21C90	DCE219151	SME-CE04W 1A 471M TC04R
21C91	DCC820021	C2012F 1C 105Z A TD84N
21C100	DCE219051	SME-CE04W 1A 101M TC04R
21C101	DCC820031	C2012F 1C 224Z A TD84N
21C102, 21C103	DCC810511	C2012F 1H 103Z A TD84N
21C110 to 21C112	DCC810511	C2012F 1H 103Z A TD84N
21J1	DCN126021	CONNECTOR 53258-0610
21J2	DCN126081	CONNECTOR 53258-0710
21J3	DCN990911	CONNECTOR 5267-07A
21L10, 21L11	DCL119361	BL02RN2-R62 TD04N
21L14, 21L20	DCL119361	BL02RN2-R62 TD04N
21L25, 21L40	DCL119361	BL02RN2-R62 TD04N
21L41, 21L46	DCL119361	BL02RN2-R62 TD04N
21L60, 21L61	DCL119361	BL02RN2-R62 TD04N
21L64, 21L70	DCL119361	BL02RN2-R62 TD04N
21L75, 21L90	DCL119361	BL02RN2-R62 TD04N
21L91, 21L96	DCL119361	BL02RN2-R62 TD04N
21SW1	DSW017001	SPUP19



CH1 FRONT END 2

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
2C1, 2C2	DCC816471	C2012CH 1H 080D A TD84N
2C3, 2C4	DCC850101	GRM42-6CH 050C500PT TE0804N
2C6	DCV819091	TZBX4 Z250BA110 TE1208R
2C7	DCC816521	C2012CH 1H 220J A TD84N
2C10	DCC850101	GRM42-6CH 050C500PT TE0804N
2C12	DCV819091	TZBX4 Z250BA110 TE1208R
2C13	DCC816521	C2012CH 1H 220J A TD84N
2C14	DCC816451	C2012CH 1H 060D A TD84N
2C15	DCC816381	C2012CH 1H 020C A TD84N
2C18	DCC816491	C2012CH 1H 100D A TD84N
2C19	DCC810511	C2012F 1H 103Z A TD84N
2C20	DCC840041	GHM1530B 473K250 TE0804N
2C21	DCC850011	GRM42-6 W5R 222K500 TE0804N
2C22	DCC850091	GRM42-6CH 020C500PT TE0804N
2C24	DCC816371	C2012CH 1H 1R5C A TD84N
2C25	DCV819051	TZBX4 Z030BA110 TE1208R
2C26	DCC811731	C1608B 1H 102K A TD0804N
2C27 to 2C29	DCC810511	C2012F 1H 103Z A TD84N
2C32 to 2C35	DCC810511	C2012F 1H 103Z A TD84N
2C36	DCC810571	C2012F 1H 104Z A TD0804N
2C37	DCC816451	C2012CH 1H 060D A TD84N
2C39	DCC816601	C2012CH 1H 101J A TD84N
2C40	DCC810571	C2012F 1H 104Z A TD0804N
2C41	DCC810981	C2012B 1H 153K A TD84N
2C42	DCC811161	C2012B 1H 333K A TD84N
2C43 to 2C46	DCC810511	C2012F 1H 103Z A TD84N
2C47	DCC811161	C2012B 1H 333K A TD84N
2C48	DCV819051	TZBX4 Z030BA110 TE1208R
2C49	DCC810511	C2012F 1H 103Z A TD84N
2C50	DCE919141	SRA 10VB-100 TC04R
2C51 to 2C53	DCC810511	C2012F 1H 103Z A TD84N
2C54, 2C55	DCC810571	C2012F 1H 104Z A TD0804N
2C58	DCC820021	C2012F 1C 105Z A TD84N
2C59, 2C60	DCC810511	C2012F 1H 103Z A TD84N
2C70 to 2C74	DCC816801	C2012CH 1H 102J A TD84N
2C75, 2C76	DCC820251	C2012B 1C 474K A TD0804N
2C80	DCC810571	C2012F 1H 104Z A TD0804N
2C81	DCC816371	C2012CH 1H 1R5C A TD84N
2C83 to 2C86	DCC820021	C2012F 1C 105Z A TD84N
2C87	DCC810511	C2012F 1H 103Z A TD84N
2C90 to 2C96	DCC810511	C2012F 1H 103Z A TD84N
2C99	DCC819091	GRM42-6B 106K6.3PT TE0804N
2D1, 2D2	DDD810461	HSM 124S-JTL TE0804L
2D3	DDD810081	1SS 226 (TE85L) TE0804L
2D4 to 2D6	DDD810241	1SS 272 TE0804R
2D7 to 2D9	DDD810461	HSM 124S-JTL TE0804L
2D10, 2D11	DDD810241	1SS 272 TE0804R
2FL1 to 2FL7	DCL870041	NFM39R12C222T1 TE0804N
2IC1	DIC614811	LT 1097S8-T2 TE1208B
2IC2	DIC619191	NJM 082M(TE3) TE1208L
2IC3	DIC614891	HFE428 1GHZ FRONT END
2IC4	DIC631231	HTR420 TRIGGER COMPARATOR
2IC5	DIC483321	74HC595F/AF TE1612B

CH1 FRONT END 2

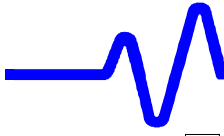
CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
2IC6	DIC619271	TA 75S558F (TE85L) TE0804L
2J1A	DCN126091	7093XXP01 PROBUS CONNECTOR
2J1B	DCN045681	CONNECTOR BNC-BR-PC-1
2L1	DCL810831	HK1608 18NJ-T TD0804N
2L2	DCL811011	BLM21A121FPT TD0804N
2L3	DCL810811	HK1608 10NJ-T TD0804N
2L4	DCL811011	BLM21A121FPT TD0804N
2L11 to 2L14	DCL810811	HK1608 10NJ-T TD0804N
2Q1	DTR860161	2SK 508 K51 TE0804L
2Q2 to 2Q4	DTR830521	2SC 3583-T1B TE0804L
2Q5, 2Q6	DTR810041	2SA 1162Y TE85L
2Q7 to 2Q11	DTR890471	DTA114YK/RN2407 TE0804L
2Q12	DTR810041	2SA 1162Y TE85L
2Q14	DTR838661	2SC 2712LG TE85L
2Q15, 2Q16	DTR890581	DTC114YK/RN1407 TE0804L
2Q17, 2Q18	DTR810041	2SA 1162Y TE85L
2R1 to 2R10	DRZ820971	RN73G 2A 20Ω D TD0804N
2R11	DRZ833071	RK73H 2A 82Ω F TD0804N
2R12	DRZ833561	RK73H 2A 36Ω F TD0804N
2R13	DRZ832011	RK73H 2A 100Ω F TD0804N
2R14	DRZ831611	MCR10J 5R6E TD0804N
2R15 to 2R17	DRZ828721	RR1220P-224-B TD0804N
2R18	DRZ828731	RR1220P-244-B TD0804N
2R19	DRZ828711	RR1220P-114-B TD0804N
2R20	DRZ832261	RK73H 2A 1.1KΩ F TD0804N
2R21	DRZ832081	RK73H 2A 200Ω F TD0804N
2R22	DRZ833581	RK73H 2A 43Ω F TD0804N
2R24	DRZ830861	MCR10J 300E TD0804N
2R25	DRZ833041	RK73H 2A 62Ω F TD0804N
2R26	DRZ828751	RR1220P-474-B TD0804N
2R27	DRZ828741	RR1220P-434-B TD0804N
2R28	DRZ828711	RR1220P-114-B TD0804N
2R29	DRZ832261	RK73H 2A 1.1KΩ F TD0804N
2R30	DRZ832081	RK73H 2A 200Ω F TD0804N
2R31	DRZ833531	RK73H 2A 27Ω F TD0804N
2R32	DRZ831121	MCR10J 240E TD0804N
2R33	DRZ833581	RK73H 2A 43Ω F TD0804N
2R35 to 2R42	DRZ828761	RR1220P-204-D TD0804N
2R43	DRZ832121	RK73H 2A 300Ω F TD0804N
2R44	DRZ832011	RK73H 2A 100Ω F TD0804N
2R45	DRZ832031	RK73H 2A 120Ω F TD0804N
2R46, 2R47	DRZ831431	MCR10J 335E TD0804N
2R48	DRZ821291	RK73K 1J 150Ω J TD0804N
2R49	DRZ820971	RN73G 2A 20Ω D TD0804N
2R50	DRZ832101	RK73H 2A 240Ω F TD0804N
2R51	DRZ830861	MCR10J 300E TD0804N
2R52	DDD089381	NTH5G20P35A221J07TE TE0804N
2R53	DRZ832531	RK73H 2A 15KΩ F TD0804N
2R54	DRZ832251	RK73H 2A 1.0KΩ F TD0804N
2R55	DRZ832441	RK73H 2A 6.2KΩ F TD0804N
2R56	DRZ832251	RK73H 2A 1.0KΩ F TD0804N
2R58	DRZ832051	RK73H 2A 150Ω F TD0804N
2R59	DRZ820971	RN73G 2A 20Ω D TD0804N

**CH1 FRONT END** 2

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
2R60 to 2R62	DRZ832201	RK73H 2A 620ΩF TD0804N
2R63	DRZ820971	RN73G 2A 20ΩD TD0804N
2R64 to 2R67	DRZ832091	RK73H 2A 220ΩF TD0804N
2R68	DRZ832601	RK73H 2A 30KΩF TD0804N
2R69	DRZ832401	RK73H 2A 4.3KΩF TD0804N
2R70	DRZ832281	RK73H 2A 1.3KΩF TD0804N
2R71	DRZ832031	RK73H 2A 120ΩF TD0804N
2R74, 2R75	DRZ828761	RR1220P-204-D TD0804N
2R76	DRZ828711	RR1220P-114-B TD0804N
2R77	DRZ832661	RK73H 2A 51KΩF TD0804N
2R78	DRV810251	G4AT/ST-4TA 5KΩ TE1208L
2R79	DRZ832011	RK73H 2A 100ΩF TD0804N
2R80	DRZ832251	RK73H 2A 1.0KΩF TD0804N
2R81, 2R82	DRZ820861	RN73F 2A 100KΩD TD0804N
2R83	DRZ832321	RK73H 2A 2.0KΩF TD0804N
2R84	DRZ832301	RK73H 2A 1.6KΩF TD0804N
2R85	DDD074121	LP310 1F 202F 302 TE0804N
2R86	DRZ832491	RK73H 2A 10KΩF TD0804N
2R87	DDD074121	LP310 1F 202F 302 TE0804N
2R88	DRZ832491	RK73H 2A 10KΩF TD0804N
2R89	DRZ832251	RK73H 2A 1.0KΩF TD0804N
2R90	DRZ832491	RK73H 2A 10KΩF TD0804N
2R91	DRZ828571	RN73F 2A 510ΩB TD0804N
2R92	DRZ833021	RK73H 2A 51ΩF TD0804N
2R93	DRZ833551	RK73H 2A 33ΩF TD0804N
2R95	DRZ833061	RK73H 2A 75ΩF TD0804N
2R97	DRZ832291	RK73H 2A 1.5KΩF TD0804N
2R98	DRZ832471	RK73H 2A 8.2KΩF TD0804N
2R100	DRZ832301	RK73H 2A 1.6KΩF TD0804N
2R101	DRZ832191	RK73H 2A 560ΩF TD0804N
2R105	DRZ832351	RK73H 2A 2.7KΩF TD0804N
2R106	DRZ832191	RK73H 2A 560ΩF TD0804N
2R107	DRZ832351	RK73H 2A 2.7KΩF TD0804N
2R108	DRZ832191	RK73H 2A 560ΩF TD0804N
2R109	DRZ832011	RK73H 2A 100ΩF TD0804N
2R110	DRZ832321	RK73H 2A 2.0KΩF TD0804N
2R115, 2R116	DRZ833021	RK73H 2A 51ΩF TD0804N
2R120	DRZ832251	RK73H 2A 1.0KΩF TD0804N
2R123 to 2R125	DRZ832011	RK73H 2A 100ΩF TD0804N
2R126	DRZ832251	RK73H 2A 1.0KΩF TD0804N
2R127	DRZ832391	RK73H 2A 3.9KΩF TD0804N
2R128	DRZ832121	RK73H 2A 300ΩF TD0804N
2R129	DRZ832251	RK73H 2A 1.0KΩF TD0804N
2R130	DRZ832391	RK73H 2A 3.9KΩF TD0804N
2R131	DRZ832121	RK73H 2A 300ΩF TD0804N
2RL1, 2RL2	DKD028511	NAS-5W-K-TN-B05 TE2416B
2RL3, 2RL4	DKD030381	NASL-5W-K-TN TE2416B
2RL5	DKD028511	NAS-5W-K-TN-B05 TE2416B

**CH2 FRONT END** 3

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
3C1, 3C2	DCC816471	C2012CH 1H 080D A TD84N
3C3, 3C4	DCC850101	GRM42-6CH 050C500PT TE0804N
3C6	DCV819091	TZBX4 Z250BA110 TE1208R
3C7	DCC816521	C2012CH 1H 220J A TD84N
3C10	DCC850101	GRM42-6CH 050C500PT TE0804N
3C12	DCV819091	TZBX4 Z250BA110 TE1208R
3C13	DCC816521	C2012CH 1H 220J A TD84N
3C14	DCC816451	C2012CH 1H 060D A TD84N
3C15	DCC816381	C2012CH 1H 020C A TD84N
3C18	DCC816491	C2012CH 1H 100D A TD84N
3C19	DCC810511	C2012F 1H 103Z A TD84N
3C20	DCC840041	GHM1530B 473K250 TE0804N
3C21	DCC850011	GRM42-6 W5R 222K500 TE0804N
3C22	DCC850091	GRM42-6CH 020C500PT TE0804N
3C24	DCC816371	C2012CH 1H 1R5C A TD84N
3C25	DCV819051	TZBX4 Z030BA110 TE1208R
3C26	DCC811731	C1608B 1H 102K A TD0804N
3C27 to 3C29	DCC810511	C2012F 1H 103Z A TD84N
3C32 to 3C35	DCC810511	C2012F 1H 103Z A TD84N
3C36	DCC810571	C2012F 1H 104Z A TD0804N
3C37	DCC816451	C2012CH 1H 060D A TD84N
3C39	DCC816601	C2012CH 1H 101J A TD84N
3C40	DCC810571	C2012F 1H 104Z A TD0804N
3C41	DCC810981	C2012B 1H 153K A TD84N
3C42	DCC811161	C2012B 1H 333K A TD84N
3C43 to 3C46	DCC810511	C2012F 1H 103Z A TD84N
3C47	DCC811161	C2012B 1H 333K A TD84N
3C48	DCV819051	TZBX4 Z030BA110 TE1208R
3C49	DCC810511	C2012F 1H 103Z A TD84N
3C50	DCE919141	SRA 10VB-100 TC04R
3C51 to 3C53	DCC810511	C2012F 1H 103Z A TD84N
3C54, 3C55	DCC810571	C2012F 1H 104Z A TD0804N
3C58	DCC820021	C2012F 1C 105Z A TD84N
3C59, 3C60	DCC810511	C2012F 1H 103Z A TD84N
3C70 to 3C74	DCC816801	C2012CH 1H 102J A TD84N
3C75, 3C76	DCC820251	C2012B 1C 474K A TD0804N
3C80	DCC810571	C2012F 1H 104Z A TD0804N
3C81	DCC816371	C2012CH 1H 1R5C A TD84N
3C83 to 3C86	DCC820021	C2012F 1C 105Z A TD84N
3C87	DCC810511	C2012F 1H 103Z A TD84N
3C90 to 3C96	DCC810511	C2012F 1H 103Z A TD84N
3C99	DCC819091	GRM42-6B 106K6.3PT TE0804N
3D1, 3D2	DDD810461	HSM 124S-JTL TE0804L
3D3	DDD810081	1SS 226 (TE85L) TE0804L
3D4 to 3D6	DDD810241	1SS 272 TE0804R
3D7 to 3D9	DDD810461	HSM 124S-JTL TE0804L
3D10, 3D11	DDD810241	1SS 272 TE0804R
3FL1 to 3FL7	DCL870041	NFM39R12C222T1 TE0804N
3IC1	DIC614811	LT 1097S8-T2 TE1208B
3IC2	DIC619191	NJM 082M(TE3) TE1208L
3IC3	DIC614891	HFE428 1GHZ FRONT END
3IC4	DIC631231	HTR420 TRIGGER COMPARATOR



CH2 FRONT END 3

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
3IC5	DIC483321	74HC595F/AF TE1612B
3IC6	DIC619271	TA 75S558F (TE85L) TE0804L
3J1A	DCN126091	7093XXP01 PROBUS CONNECTOR
3J1B	DCN045681	CONNECTOR BNC-BR-PC-1
3L1	DCL810831	HK1608 18NJ-T TD0804N
3L2	DCL811011	BLM21A121FPT TD0804N
3L3	DCL810811	HK1608 10NJ-T TD0804N
3L4	DCL811011	BLM21A121FPT TD0804N
3L11 to 3L14	DCL810811	HK1608 10NJ-T TD0804N
3L15 to 3L18	DRZ831801	MCR03 EZH J000E TD0804N
3Q1	DTR860161	2SK 508 K51 TE0804L
3Q2 to 3Q4	DTR830521	2SC 3583-T1B TE0804L
3Q5, 3Q6	DTR810041	2SA 1162Y TE85L
3Q7 to 3Q11	DTR890471	DTA114YK/RN2407 TE0804L
3Q12	DTR810041	2SA 1162Y TE85L
3Q14	DTR838661	2SC 2712LG TE85L
3Q15, 3Q16	DTR890581	DTC114YK/RN1407 TE0804L
3Q17, 3Q18	DTR810041	2SA 1162Y TE85L
3R1 to 3R10	DRZ820971	RN73G 2A 20ΩD TD0804N
3R11	DRZ833071	RK73H 2A 82ΩF TD0804N
3R12	DRZ833561	RK73H 2A 36ΩF TD0804N
3R13	DRZ832011	RK73H 2A 100ΩF TD0804N
3R15 to 3R17	DRZ828721	RR1220P-224-B TD0804N
3R18	DRZ828731	RR1220P-244-B TD0804N
3R19	DRZ828711	RR1220P-114-B TD0804N
3R20	DRZ832261	RK73H 2A 1.1KΩF TD0804N
3R21	DRZ832081	RK73H 2A 200ΩF TD0804N
3R22	DRZ833581	RK73H 2A 43ΩF TD0804N
3R24	DRZ830861	MCR10J 300E TD0804N
3R25	DRZ833041	RK73H 2A 62ΩF TD0804N
3R26	DRZ828751	RR1220P-474-B TD0804N
3R27	DRZ828741	RR1220P-434-B TD0804N
3R28	DRZ828711	RR1220P-114-B TD0804N
3R29	DRZ832261	RK73H 2A 1.1KΩF TD0804N
3R30	DRZ832081	RK73H 2A 200ΩF TD0804N
3R31	DRZ833531	RK73H 2A 27ΩF TD0804N
3R32	DRZ831121	MCR10J 240E TD0804N
3R33	DRZ833581	RK73H 2A 43ΩF TD0804N
3R35 to 3R42	DRZ828761	RR1220P-204-D TD0804N
3R43	DRZ832121	RK73H 2A 300ΩF TD0804N
3R44	DRZ832011	RK73H 2A 100ΩF TD0804N
3R45	DRZ832031	RK73H 2A 120ΩF TD0804N
3R46, 3R47	DRZ831431	MCR10J 335E TD0804N
3R48	DRZ821291	RK73K 1J 150ΩJ TD0804N
3R49	DRZ820971	RN73G 2A 20ΩD TD0804N
3R50	DRZ832101	RK73H 2A 240ΩF TD0804N
3R51	DRZ830861	MCR10J 300E TD0804N
3R52	DDD089381	NTH5G20P35A221J07TE TE0804N
3R53	DRZ832531	RK73H 2A 15KΩF TD0804N
3R54	DRZ832251	RK73H 2A 1.0KΩF TD0804N
3R55	DRZ832441	RK73H 2A 6.2KΩF TD0804N
3R56	DRZ832251	RK73H 2A 1.0KΩF TD0804N
3R58	DRZ832051	RK73H 2A 150ΩF TD0804N

CH2 FRONT END 3

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
3R59	DRZ820971	RN73G 2A 20ΩD TD0804N
3R60 to 3R62	DRZ832201	RK73H 2A 620ΩF TD0804N
3R63	DRZ820971	RN73G 2A 20ΩD TD0804N
3R64 to 3R67	DRZ832091	RK73H 2A 220ΩF TD0804N
3R68	DRZ832601	RK73H 2A 30KΩF TD0804N
3R69	DRZ832401	RK73H 2A 4.3KΩF TD0804N
3R70	DRZ832281	RK73H 2A 1.3KΩF TD0804N
3R71	DRZ832031	RK73H 2A 120ΩF TD0804N
3R74, 3R75	DRZ828761	RR1220P-204-D TD0804N
3R76	DRZ828711	RR1220P-114-B TD0804N
3R77	DRZ832661	RK73H 2A 51KΩF TD0804N
3R78	DRV810251	G4AT/ST-4TA 5KΩ TE1208L
3R79	DRZ832011	RK73H 2A 100ΩF TD0804N
3R80	DRZ832251	RK73H 2A 1.0KΩF TD0804N
3R81, 3R82	DRZ820861	RN73F 2A 100KΩD TD0804N
3R83	DRZ832321	RK73H 2A 2.0KΩF TD0804N
3R84	DRZ832301	RK73H 2A 1.6KΩF TD0804N
3R85	DDD074121	LP310 1F 202F 302 TE0804N
3R86	DRZ832491	RK73H 2A 10KΩF TD0804N
3R87	DDD074121	LP310 1F 202F 302 TE0804N
3R88	DRZ832491	RK73H 2A 10KΩF TD0804N
3R89	DRZ832251	RK73H 2A 1.0KΩF TD0804N
3R90	DRZ832491	RK73H 2A 10KΩF TD0804N
3R91	DRZ828571	RN73F 2A 510ΩB TD0804N
3R92	DRZ833021	RK73H 2A 51ΩF TD0804N
3R93	DRZ833551	RK73H 2A 33ΩF TD0804N
3R95	DRZ833061	RK73H 2A 75ΩF TD0804N
3R97	DRZ832291	RK73H 2A 1.5KΩF TD0804N
3R98	DRZ832471	RK73H 2A 8.2KΩF TD0804N
3R100	DRZ832301	RK73H 2A 1.6KΩF TD0804N
3R101	DRZ832191	RK73H 2A 560ΩF TD0804N
3R105	DRZ832351	RK73H 2A 2.7KΩF TD0804N
3R106	DRZ832191	RK73H 2A 560ΩF TD0804N
3R107	DRZ832351	RK73H 2A 2.7KΩF TD0804N
3R108	DRZ832191	RK73H 2A 560ΩF TD0804N
3R109	DRZ832011	RK73H 2A 100ΩF TD0804N
3R110	DRZ832321	RK73H 2A 2.0KΩF TD0804N
3R120	DRZ832251	RK73H 2A 1.0KΩF TD0804N
3R123 to 3R125	DRZ832011	RK73H 2A 100ΩF TD0804N
3R126	DRZ832251	RK73H 2A 1.0KΩF TD0804N
3R127	DRZ832391	RK73H 2A 3.9KΩF TD0804N
3R128	DRZ832121	RK73H 2A 300ΩF TD0804N
3R129	DRZ832251	RK73H 2A 1.0KΩF TD0804N
3R130	DRZ832391	RK73H 2A 3.9KΩF TD0804N
3R131	DRZ832121	RK73H 2A 300ΩF TD0804N
3RL1, 3RL2	DKD028511	NAS-5W-K-TN-B05 TE2416B
3RL3, 3RL4	DKD030381	NASL-5W-K-TN TE2416B
3RL5	DKD028511	NAS-5W-K-TN-B05 TE2416B

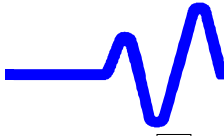


**EXT TRIGGER** 6

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
6C1	DCC816451	C2012CH 1H 060D A TD84N
6C2	DCC816491	C2012CH 1H 100D A TD84N
6C3, 6C4	DCC850101	GRM42-6CH 050C500PT TE0804N
6C5	DCC816401	C2012CH 1H 030C A TD84N
6C6	DCV819091	TZBX4 Z250BA110 TE1208R
6C7	DCC816531	C2012CH 1H 270J A TD84N
6C18	DCC816491	C2012CH 1H 100D A TD84N
6C19	DCC810511	C2012F 1H 103Z A TD84N
6C21	DCC850011	GRM42-6 W5R 222K500 TE0804N
6C22	DCC850091	GRM42-6CH 020C500PT TE0804N
6C24	DCC816381	C2012CH 1H 020C A TD84N
6C25	DCV819051	TZBX4 Z030BA110 TE1208R
6C26	DCC816801	C2012CH 1H 102J A TD84N
6C27 to 6C29	DCC810511	C2012F 1H 103Z A TD84N
6C32 to 6C34	DCC810511	C2012F 1H 103Z A TD84N
6C36	DCC810511	C2012F 1H 103Z A TD84N
6C37	DCC816801	C2012CH 1H 102J A TD84N
6C39	DCC816601	C2012CH 1H 101J A TD84N
6C40	DCC810571	C2012F 1H 104Z A TD0804N
6C41	DCC810981	C2012B 1H 153K A TD84N
6C42	DCC811161	C2012B 1H 333K A TD84N
6C43, 6C44	DCC810511	C2012F 1H 103Z A TD84N
6C47	DCC820021	C2012F 1C 105Z A TD84N
6C50	DCE919141	SRA 10VB-100 TC04R
6C51 to 6C53	DCC810511	C2012F 1H 103Z A TD84N
6C54, 6C55	DCC810571	C2012F 1H 104Z A TD0804N
6C58	DCC820021	C2012F 1C 105Z A TD84N
6C59 to 6C64	DCC810511	C2012F 1H 103Z A TD84N
6C65	DCC811111	C2012B 1E 104K A TD84N
6C66	DCC810511	C2012F 1H 103Z A TD84N
6C67	DCC816601	C2012CH 1H 101J A TD84N
6C68, 6C69	DCC810511	C2012F 1H 103Z A TD84N
6C70 to 6C72	DCC816801	C2012CH 1H 102J A TD84N
6C75	DCC820251	C2012B 1C 474K A TD0804N
6C80	DCC810571	C2012F 1H 104Z A TD0804N
6C90 to 6C96	DCC810511	C2012F 1H 103Z A TD84N
6C99	DCC819091	GRM42-6B 106K6.3PT TE0804N
6D1,6D2	DDD810461	HSM 124S-JTL TE0804L
6D3	DDD810081	1SS 226 (TE85L) TE0804L
6D5, 6D6	DDD810241	1SS 272 TE0804R
6D7 to 6D9	DDD810461	HSM 124S-JTL TE0804L
6D10	DDD810241	1SS 272 TE0804R
6D11	DDD810131	1SS 269 TE0804L
6FL1 to 6FL4	DCL870041	NFM39R12C222T1 TE0804N
6FL7	DCL870041	NFM39R12C222T1 TE0804N
6FL10 to 6FL13	DCL870021	NFM41P11C204 TE1204N
6IC1	DIC614811	LT 1097S8-T2 TE1208B
6IC2, 6IC3	DIC619101	NJM 4558M(TE3) TE1208L
6IC4	DIC631231	HTR420 TRIGGER COMPARATOR
6IC5	DIC483321	74HC595F/AF TE1612B
6IC6	DIC322631	MC 10EL16D
6J1A	DCN126091	7093XXP01 PROBUS CONNECTOR

**EXT TRIGGER** 6

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
6J1B	DCN045681	CONNECTOR BNC-BR-PC-1
6L1	DCL810831	HK1608 18NJ-T TD0804N
6L2, 6L4	DCL811011	BLM21A121FPT TD0804N
6Q1	DTR860161	2SK 508 K51 TE0804L
6Q2 to 6Q4	DTR830521	2SC 3583-T1B TE0804L
6Q5, 6Q6	DTR810041	2SA 1162Y TE85L
6Q7 to 6Q9	DTR890471	DTA114YK/RN2407 TE0804L
6Q10	DTR830521	2SC 3583-T1B TE0804L
6Q12	DTR810041	2SA 1162Y TE85L
6Q14	DTR838661	2SC 2712LG TE85L
6Q15	DTR890581	DTC114YK/RN1407 TE0804L
6Q17	DTR810041	2SA 1162Y TE85L
6R1 to 6R10	DRZ820971	RN73G 2A 20Ω D TD0804N
6R11	DRZ833071	RK73H 2A 82Ω F TD0804N
6R12	DRZ833531	RK73H 2A 27Ω F TD0804N
6R13	DRZ832151	RK73H 2A 390Ω F TD0804N
6R14	DRZ830861	MCR10J 300E TD0804N
6R15 to 6R17	DRZ828721	RR1220P-224-B TD0804N
6R18	DRZ828731	RR1220P-244-B TD0804N
6R19	DRZ828711	RR1220P-114-B TD0804N
6R20	DRZ832261	RK73H 2A 1.1KΩ F TD0804N
6R21	DRZ832091	RK73H 2A 220Ω F TD0804N
6R22	DRZ820971	RN73G 2A 20Ω D TD0804N
6R24	DRZ833031	RK73H 2A 56Ω F TD0804N
6R35 to 6R39	DRZ828761	RR1220P-204-D TD0804N
6R44	DRZ832011	RK73H 2A 100Ω F TD0804N
6R45	DRZ832051	RK73H 2A 150Ω F TD0804N
6R46, 6R47	DRZ831431	MCR10J 335E TD0804N
6R48	DRZ833021	RK73H 2A 51Ω F TD0804N
6R49	DRZ820971	RN73G 2A 20Ω D TD0804N
6R50	DRZ832101	RK73H 2A 240Ω F TD0804N
6R51	DRZ830861	MCR10J 300E TD0804N
6R53	DRZ832531	RK73H 2A 15KΩ F TD0804N
6R54	DRZ832251	RK73H 2A 1.0KΩ F TD0804N
6R55	DRZ832441	RK73H 2A 6.2KΩ F TD0804N
6R56	DRZ832251	RK73H 2A 1.0KΩ F TD0804N
6R58	DRZ832051	RK73H 2A 150Ω F TD0804N
6R59	DRZ820971	RN73G 2A 20Ω D TD0804N
6R60 to 6R62	DRZ832201	RK73H 2A 620Ω F TD0804N
6R63	DRZ820971	RN73G 2A 20Ω D TD0804N
6R64 to 6R67	DRZ832101	RK73H 2A 240Ω F TD0804N
6R68	DRZ832601	RK73H 2A 30KΩ F TD0804N
6R69	DRZ832411	RK73H 2A 4.7KΩ F TD0804N
6R70	DRZ832101	RK73H 2A 240Ω F TD0804N
6R72	DRZ831121	MCR10J 240E TD0804N
6R74	DRZ828761	RR1220P-204-D TD0804N
6R76	DRZ828711	RR1220P-114-B TD0804N
6R77	DRZ832251	RK73H 2A 1.0KΩ F TD0804N
6R78	DRZ832661	RK73H 2A 51KΩ F TD0804N
6R79	DRZ832391	RK73H 2A 3.9KΩ F TD0804N
6R80	DRZ832631	RK73H 2A 39KΩ F TD0804N
6R81	DRZ832361	RK73H 2A 3.0KΩ F TD0804N



**EXT TRIGGER** [6]

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
6R83	DRZ832321	RK73H 2A 2.0KΩF TD0804N
6R84	DRZ832301	RK73H 2A 1.6KΩF TD0804N
6R85	DDD074121	LP310 1F 202F 302 TE0804N
6R86	DRZ832491	RK73H 2A 10KΩF TD0804N
6R87	DDD074121	LP310 1F 202F 302 TE0804N
6R88	DRZ832491	RK73H 2A 10KΩF TD0804N
6R89	DRZ832251	RK73H 2A 1.0KΩF TD0804N
6R90	DRZ832491	RK73H 2A 10KΩF TD0804N
6R91	DRZ828571	RN73F 2A 510ΩB TD0804N
6R92	DRZ833021	RK73H 2A 51ΩF TD0804N
6R93	DRZ833011	RK73H 2A 47ΩF TD0804N
6R97	DRZ832291	RK73H 2A 1.5KΩF TD0804N
6R98	DRZ832471	RK73H 2A 8.2KΩF TD0804N
6R100	DRZ831121	MCR10J 240E TD0804N
6R101	DRZ832421	RK73H 2A 5.1KΩF TD0804N
6R105	DRZ832331	RK73H 2A 2.2KΩF TD0804N
6R106	DRZ832191	RK73H 2A 560ΩF TD0804N
6R107	DRZ832331	RK73H 2A 2.2KΩF TD0804N
6R108	DRZ832191	RK73H 2A 560ΩF TD0804N
6R109	DRZ832011	RK73H 2A 100ΩF TD0804N
6R110	DRZ832321	RK73H 2A 2.0KΩF TD0804N
6R120	DRZ832251	RK73H 2A 1.0KΩF TD0804N
6R123 to 6R125	DRZ832011	RK73H 2A 100ΩF TD0804N
6R126	DRZ832251	RK73H 2A 1.0KΩF TD0804N
6R127	DRZ832391	RK73H 2A 3.9KΩF TD0804N
6R128	DRZ832121	RK73H 2A 300ΩF TD0804N
6R150	DRZ832011	RK73H 2A 100ΩF TD0804N
6R151, 6R152	DRZ832491	RK73H 2A 10KΩF TD0804N
6R154	DRZ820971	RN73G 2A 20ΩD TD0804N
6R155, 6R156	DRZ832251	RK73H 2A 1.0KΩF TD0804N
6R157	DRZ832051	RK73H 2A 150ΩF TD0804N
6R158 to 6R161	DRZ832491	RK73H 2A 10KΩF TD0804N
6R162	DRZ832081	RK73H 2A 200ΩF TD0804N
6R163	DRZ832321	RK73H 2A 2.0KΩF TD0804N
6RL1, 6RL2	DKD028511	NAS-5W-K-TN-B05 TE2416B
6RL3	DKD030381	NASL-5W-K-TN TE2416B

**CH1 A/D CNVT** [7]

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
7C1	DCC810511	C2012F 1H 103Z A TD84N
7C3	DCC816641	C2012CH 1H 221J A TD84N
7C5	DCC820021	C2012F 1C 105Z A TD84N
7C6, 7C11, 7C12	DCC810511	C2012F 1H 103Z A TD84N
7C13	DCC820021	C2012F 1C 105Z A TD84N
7C20	DCC810511	C2012F 1H 103Z A TD84N
7C22	DCC810571	C2012F 1H 104Z A TD0804N
7C30	DCC820021	C2012F 1C 105Z A TD84N
7C31, 7C32	DCC810571	C2012F 1H 104Z A TD0804N
7C40, 7C46	DCC820021	C2012F 1C 105Z A TD84N
7C47	DCC810511	C2012F 1H 103Z A TD84N
7C50	DCC816801	C2012CH 1H 102J A TD84N
7C51	DCC820121	EMK325F 106ZH-T TE0804N
7C52 to 7C54	DCC810511	C2012F 1H 103Z A TD84N
7C55	DCE219051	SME-CE04W 1A 101M TC04R
7C56	DCC810511	C2012F 1H 103Z A TD84N
7C57 to 7C59	DCC820121	EMK325F 106ZH-T TE0804N
7C60	DCC810571	C2012F 1H 104Z A TD0804N
7C61 to 7C63	DCC810511	C2012F 1H 103Z A TD84N
7C64	DCC820121	EMK325F 106ZH-T TE0804N
7C65	DCC810571	C2012F 1H 104Z A TD0804N
7C66	DCC810511	C2012F 1H 103Z A TD84N
7C67	DCE219151	SME-CE04W 1A 471M TC04R
7C68, 7C69	DCC820121	EMK325F 106ZH-T TE0804N
7C70 to 7C73	DCC810571	C2012F 1H 104Z A TD0804N
7C74	DCC820121	EMK325F 106ZH-T TE0804N
7C80	DCE219051	SME-CE04W 1A 101M TC04R
7C81, 7C83	DCC820031	C2012F 1C 224Z A TD84N
7C84	DCE219051	SME-CE04W 1A 101M TC04R
7C85	DCC820031	C2012F 1C 224Z A TD84N
7C86	DCE229201	SME-CE04W 1E 470M TC04R
7C87	DCC820031	C2012F 1C 224Z A TD84N
7C88	DCE229201	SME-CE04W 1E 470M TC04R
7C89	DCC820031	C2012F 1C 224Z A TD84N
7C90 to 7C92	DCC810571	C2012F 1H 104Z A TD0804N
7C94, 7C95	DCC810511	C2012F 1H 103Z A TD84N
7C96	DCC810571	C2012F 1H 104Z A TD0804N
7FL1 to 7FL3	DCL870021	NFM41P11C204 TE1204N
7IC1	DIC642371	HAD626 500MS/S ADC
7IC2	DIC619101	NJM 4558M(TE3) TE1208L
7IC3, 7IC4	DIC619271	TA 75S558F (TE85L) TE0804L
7J1	DCN126131	89177-5600
7L4 to 7L8	DCL119361	BL02RN2-R62 TD04N
7Q1	DTR890841	IMX3 TE0804R
7Q2, 7Q3	DTR830481	2SC 2873-Y TE1208L
7Q4	DTR129011	2SB 605K/L TRB
7Q5	DTR810161	2SA 1213-Y TE12L
7R1	DRZ832531	RK73H 2A 15KΩF TD0804N
7R2	DRZ832721	RK73H 2A 91KΩF TD0804N
7R3	DRZ832361	RK73H 2A 3.0KΩF TD0804N
7R4	DRZ832341	RK73H 2A 2.4KΩF TD0804N
7R10	DRZ832491	RK73H 2A 10KΩF TD0804N
7R11	DRZ832321	RK73H 2A 2.0KΩF TD0804N

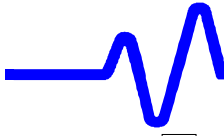
**CH1 A/D CNVT** 7

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
7R12	DRZ832301	RK73H 2A 1.6KΩ F TD0804N
7R13	DRZ833061	RK73H 2A 75Ω F TD0804N
7R14	DRZ832051	RK73H 2A 150Ω F TD0804N
7R15 to 7R17	DRZ832251	RK73H 2A 1.0KΩ F TD0804N
7R20	DRZ832341	RK73H 2A 2.4KΩ F TD0804N
7R21	DRZ832481	RK73H 2A 9.1KΩ F TD0804N
7R22	DRZ832311	RK73H 2A 1.8KΩ F TD0804N
7R25	DRZ832251	RK73H 2A 1.0KΩ F TD0804N
7R26	DRZ832211	RK73H 2A 680Ω F TD0804N
7R30	DRZ832321	RK73H 2A 2.0KΩ F TD0804N
7R31	DRZ832311	RK73H 2A 1.8KΩ F TD0804N
7R32, 7R33	DRZ833061	RK73H 2A 75Ω F TD0804N
7R34	DRZ833551	RK73H 2A 33Ω F TD0804N
7R35	DRZ832251	RK73H 2A 1.0KΩ F TD0804N
7R40 to 7R43	DRZ833491	RK73H 2A 18Ω F TD0804N
7R46, 7R47	DRZ832351	RK73H 2A 2.7KΩ F TD0804N
7R48, 7R49	DRZ832281	RK73H 2A 1.3KΩ F TD0804N
7R50	DRZ832171	RK73H 2A 470Ω F TD0804N
7R51	DRZ832351	RK73H 2A 2.7KΩ F TD0804N
7R52	DRZ832121	RK73H 2A 300Ω F TD0804N
7R53	DRZ832111	RK73H 2A 270Ω F TD0804N
7R54	DRZ831591	MCR10J 4R7E TD0804N

**CH2 A/D CNVT** 8

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
8C1	DCC810511	C2012F 1H 103Z A TD84N
8C3	DCC816641	C2012CH 1H 221J A TD84N
8C5	DCC820021	C2012F 1C 105Z A TD84N
8C6, 8C11, 8C12	DCC810511	C2012F 1H 103Z A TD84N
8C13	DCC820021	C2012F 1C 105Z A TD84N
8C20	DCC810511	C2012F 1H 103Z A TD84N
8C22	DCC810571	C2012F 1H 104Z A TD0804N
8C30	DCC820021	C2012F 1C 105Z A TD84N
8C31, 8C32	DCC810571	C2012F 1H 104Z A TD0804N
8C40, 8C46	DCC820021	C2012F 1C 105Z A TD84N
8C47	DCC810511	C2012F 1H 103Z A TD84N
8C50	DCC816801	C2012CH 1H 102J A TD84N
8C51	DCC820121	EMK325F 106ZH-T TE0804N
8C52 to 8C54	DCC810511	C2012F 1H 103Z A TD84N
8C55	DCE219051	SME-CE04W 1A 101M TC04R
8C56	DCC810511	C2012F 1H 103Z A TD84N
8C57 to 8C59	DCC820121	EMK325F 106ZH-T TE0804N
8C60	DCC810571	C2012F 1H 104Z A TD0804N
8C61 to 8C63	DCC810511	C2012F 1H 103Z A TD84N
8C64	DCC820121	EMK325F 106ZH-T TE0804N
8C65	DCC810571	C2012F 1H 104Z A TD0804N
8C66	DCC810511	C2012F 1H 103Z A TD84N
8C67	DCE219151	SME-CE04W 1A 471M TC04R
8C68, 8C69	DCC820121	EMK325F 106ZH-T TE0804N
8C70 to 8C73	DCC810571	C2012F 1H 104Z A TD0804N
8C74	DCC820121	EMK325F 106ZH-T TE0804N
8C80	DCE219051	SME-CE04W 1A 101M TC04R
8C81, 8C83	DCC820031	C2012F 1C 224Z A TD84N
8C84	DCE219051	SME-CE04W 1A 101M TC04R
8C85	DCC820031	C2012F 1C 224Z A TD84N
8C86	DCE229201	SME-CE04W 1E 470M TC04R
8C87	DCC820031	C2012F 1C 224Z A TD84N
8C88	DCE229201	SME-CE04W 1E 470M TC04R
8C89	DCC820031	C2012F 1C 224Z A TD84N
8C90 to 8C92	DCC810571	C2012F 1H 104Z A TD0804N
8C94, 8C95	DCC810511	C2012F 1H 103Z A TD84N
8C96	DCC810571	C2012F 1H 104Z A TD0804N
8FL1 to 8FL3	DCL870021	NFM41P11C204 TE1204N
8IC1	DIC642371	HAD626 500MS/S ADC
8IC2	DIC619101	NJM 4558M(TE3) TE1208L
8IC3, 8IC4	DIC619271	TA 75S558F (TE85L) TE0804L
8J1	DCN126131	89177-5600
8L4 to 8L8	DCL119361	BL02RN2-R62 TD04N
8Q1	DTR890841	IMX3 TE0804R
8Q2, 8Q3	DTR830481	2SC 2873-Y TE1208L
8Q4	DTR129011	2SB 605K/L TRB
8Q5	DTR810161	2SA 1213-Y TE12L
8R1	DRZ832531	RK73H 2A 15KΩ F TD0804N
8R2	DRZ832721	RK73H 2A 91KΩ F TD0804N
8R3	DRZ832361	RK73H 2A 3.0KΩ F TD0804N
8R4	DRZ832341	RK73H 2A 2.4KΩ F TD0804N
8R10	DRZ832491	RK73H 2A 10KΩ F TD0804N





**CH2 A/D CNVT** 8

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
8R11	DRZ832321	RK73H 2A 2.0KΩ F TD0804N
8R12	DRZ832301	RK73H 2A 1.6KΩ F TD0804N
8R13	DRZ833061	RK73H 2A 75Ω F TD0804N
8R14	DRZ832051	RK73H 2A 150Ω F TD0804N
8R15 to 8R17	DRZ832251	RK73H 2A 1.0KΩ F TD0804N
8R20	DRZ832341	RK73H 2A 2.4KΩ F TD0804N
8R21	DRZ832481	RK73H 2A 9.1KΩ F TD0804N
8R22	DRZ832311	RK73H 2A 1.8KΩ F TD0804N
8R25	DRZ832251	RK73H 2A 1.0KΩ F TD0804N
8R26	DRZ832211	RK73H 2A 680Ω F TD0804N
8R30	DRZ832321	RK73H 2A 2.0KΩ F TD0804N
8R31	DRZ832311	RK73H 2A 1.8KΩ F TD0804N
8R32, 8R33	DRZ833061	RK73H 2A 75Ω F TD0804N
8R34	DRZ833551	RK73H 2A 33Ω F TD0804N
8R35	DRZ832251	RK73H 2A 1.0KΩ F TD0804N
8R40 to 8R43	DRZ833491	RK73H 2A 18Ω F TD0804N
8R46, 8R47	DRZ832351	RK73H 2A 2.7KΩ F TD0804N
8R48, 8R49	DRZ832281	RK73H 2A 1.3KΩ F TD0804N
8R50	DRZ832171	RK73H 2A 470Ω F TD0804N
8R51	DRZ832351	RK73H 2A 2.7KΩ F TD0804N
8R52	DRZ832121	RK73H 2A 300Ω F TD0804N
8R53	DRZ832111	RK73H 2A 270Ω F TD0804N
8R54	DRZ831591	MCR10J 4R7E TD0804N

**TRIG SELECTOR** 11

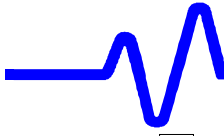
CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
11C1	DCC810571	C2012F 1H 104Z A TD0804N
11C2	DCC820021	C2012F 1C 105Z A TD84N
11C3, 11C9	DCC810571	C2012F 1H 104Z A TD0804N
11C10	DCC820021	C2012F 1C 105Z A TD84N
11C11	DCC810571	C2012F 1H 104Z A TD0804N
11C12	DCC820021	C2012F 1C 105Z A TD84N
11C13, 11C19	DCC810571	C2012F 1H 104Z A TD0804N
11C20	DCC820021	C2012F 1C 105Z A TD84N
11C21	DCC810511	C2012F 1H 103Z A TD84N
11C23	DCC816401	C2012CH 1H 030C A TD84N
11C25	DCC816521	C2012CH 1H 220J A TD84N
11C26	DCC810571	C2012F 1H 104Z A TD0804N
11C31	DCC810511	C2012F 1H 103Z A TD84N
11C33	DCC816401	C2012CH 1H 030C A TD84N
11C35	DCC816521	C2012CH 1H 220J A TD84N
11C36	DCC810571	C2012F 1H 104Z A TD0804N
11C37	DCC816521	C2012CH 1H 220J A TD84N
11C38	DCC810511	C2012F 1H 103Z A TD84N
11C42	DCC816521	C2012CH 1H 220J A TD84N
11C43	DCC810571	C2012F 1H 104Z A TD0804N
11C54, 11C56	DCC810511	C2012F 1H 103Z A TD84N
11C57	DCC810571	C2012F 1H 104Z A TD0804N
11C70 to 11C73	DCC810571	C2012F 1H 104Z A TD0804N
11C74	DCC820121	EMK325F 106ZH-T TE0804N
11C75	DCE219051	SME-CE04W 1A 101M TC04R
11C76 to 11C82	DCC810571	C2012F 1H 104Z A TD0804N
11D1	DDD810241	1SS 272 TE0804R
11DL1, 11DL2	DZB999061	LDH33A202B TE1208B
11DL4 to 11DL7	DZB999071	LDH33A801B TE1208B
11FL1	DCL870021	NFM41P11C204 TE1204N
11IC1, 11IC2	DIC322671	MC 10E116FN/SY 10E116JC
11IC3	DIC322931	MC 10E157FN
11IC4	DIC891061	MST412 SMART TRIGGER IC
11IC5	DIC322831	MC 10EL11D
11IC6	DIC499821	TC7S04F/SC7S04F TE0804L
11IC7	DIC322721	MC 10H102M
11L1	DCL811011	BLM21A121FPT TD0804N
11Q1	DTR149011	2SD 571K/L TRB
11Q2	DTR890761	IMX5 TE0804R
11R1 to 11R4	DRZ833021	RK73H 2A 51Ω F TD0804N
11R9	DRZ833021	RK73H 2A 51Ω F TD0804N
11R10 to 11R14	DRZ833021	RK73H 2A 51Ω F TD0804N
11R19 to 11R21	DRZ833021	RK73H 2A 51Ω F TD0804N
11R22	DRZ832311	RK73H 2A 1.8KΩ F TD0804N
11R23	DRZ832371	RK73H 2A 3.3KΩ F TD0804N
11R24	DRZ832291	RK73H 2A 1.5KΩ F TD0804N
11R25	DRZ832481	RK73H 2A 9.1KΩ F TD0804N
11R26, 11R27	DRZ833021	RK73H 2A 51Ω F TD0804N
11R31	DRZ833021	RK73H 2A 51Ω F TD0804N
11R32	DRZ832311	RK73H 2A 1.8KΩ F TD0804N
11R33	DRZ832371	RK73H 2A 3.3KΩ F TD0804N
11R34	DRZ832291	RK73H 2A 1.5KΩ F TD0804N
11R35	DRZ832481	RK73H 2A 9.1KΩ F TD0804N

**TRIG SELECTOR 11**

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
11R36	DRZ833021	RK73H 2A 51 Ω F TD0804N
11R37	DRZ832481	RK73H 2A 9.1K Ω F TD0804N
11R38, 11R39	DRZ833021	RK73H 2A 51 Ω F TD0804N
11R41	DRZ833021	RK73H 2A 51 Ω F TD0804N
11R42	DRZ832481	RK73H 2A 9.1K Ω F TD0804N
11R43, 11R44	DRZ832011	RK73H 2A 100 Ω F TD0804N
11R45 to 11R47	DRZ833061	RK73H 2A 75 Ω F TD0804N
11R48	DRZ832091	RK73H 2A 220 Ω F TD0804N
11R49, 11R50	DRZ833041	RK73H 2A 62 Ω F TD0804N
11R51, 11R52	DRZ833441	RK73H 2A 10 Ω F TD0804N
11R53	DRZ832711	RK73H 2A 82K Ω F TD0804N
11R54, 11R55	DRZ833011	RK73H 2A 47 Ω F TD0804N
11R56	DRZ832211	RK73H 2A 680 Ω F TD0804N
11R57	DRZ832251	RK73H 2A 1.0K Ω F TD0804N
11R58	DRZ833061	RK73H 2A 75 Ω F TD0804N
11R59, 11R60	DRZ833021	RK73H 2A 51 Ω F TD0804N
11R61	DRZ831501	MCR10 000E TD0804N
11R62 to 11R64	DRZ833021	RK73H 2A 51 Ω F TD0804N
11R74	DRZ833441	RK73H 2A 10 Ω F TD0804N
11R80, 11R81	DRZ833031	RK73H 2A 56 Ω F TD0804N
11R84 to 11R86	DRZ833031	RK73H 2A 56 Ω F TD0804N
11R89	DRZ833031	RK73H 2A 56 Ω F TD0804N
11R90 to 11R93	DRZ833551	RK73H 2A 33 Ω F TD0804N
11R98 to 11R103	DRZ833551	RK73H 2A 33 Ω F TD0804N
11R108, 11R109	DRZ833551	RK73H 2A 33 Ω F TD0804N

**400MHZ OSC 12**

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
12C4	DCC810571	C2012F 1H 104Z A TD0804N
12C7, 12C8, 12C13	DCC816521	C2012CH 1H 220J A TD84N
12C17	DCC810571	C2012F 1H 104Z A TD0804N
12C19, 12C20	DCC810511	C2012F 1H 103Z A TD84N
12C21	DCC816381	C2012CH 1H 020C A TD84N
12C22	DCC815891	C2012CH 1H 150J A TD84N
12C23, 12C27	DCC810511	C2012F 1H 103Z A TD84N
12C31	DCC815841	C2012SL 1H 681J A TD84N
12C34	DCE219151	SME-CE04W 1A 471M TC04R
12C35	DCC819091	GRM42-6B 106K6.3PT TE0804N
12C40	DCC816421	C2012CH 1H 040C A TD84N
12C41	DCC810511	C2012F 1H 103Z A TD84N
12C50 to 12C56	DCC810571	C2012F 1H 104Z A TD0804N
12D1	DDD810401	HVU 202A3 TE0804R
12D2	DDD810241	1SS 272 TE0804R
12DL1	DZB999051	LDH33A152B TE1208B
12IC1	DIC483321	74HC595F/AF TE1612B
12IC2	DIC322921	MC 10H117M
12IC3	DIC322601	MC 10EL01
12IC4, 12IC5	DIC619271	TA 75S558F (TE85L) TE0804L
12L1	DCL811031	HK2125 18NJ-T TE0804N
12Q1	DTR215791	2SK 2287
12R2, 12R4	DRZ833021	RK73H 2A 51 Ω F TD0804N
12R9, 12R10	DRZ832481	RK73H 2A 9.1K Ω F TD0804N
12R11, 12R12	DRZ833021	RK73H 2A 51 Ω F TD0804N
12R14	DRZ832481	RK73H 2A 9.1K Ω F TD0804N
12R17, 12R18	DRZ833021	RK73H 2A 51 Ω F TD0804N
12R19, 12R20	DRZ832171	RK73H 2A 470 Ω F TD0804N
12R21	DRZ833481	RK73H 2A 15 Ω F TD0804N
12R22	DRZ832731	RK73H 2A 100K Ω F TD0804N
12R23	DRZ832441	RK73H 2A 6.2K Ω F TD0804N
12R26	DRZ832491	RK73H 2A 10K Ω F TD0804N
12R27	DRZ832531	RK73H 2A 15K Ω F TD0804N
12R30	DRZ832251	RK73H 2A 1.0K Ω F TD0804N
12R31	DRZ832481	RK73H 2A 9.1K Ω F TD0804N
12R32	DRZ832341	RK73H 2A 2.4K Ω F TD0804N
12R33	DRZ832321	RK73H 2A 2.0K Ω F TD0804N
12R34	DRZ832491	RK73H 2A 10K Ω F TD0804N
12R40, 12R41	DRZ833021	RK73H 2A 51 Ω F TD0804N
12RA1, 12RA2	DFB810131	RAC16 4D 472J A TD0804M
12RA3, 12RA4	DFB810051	RAC16 4D 103J A TD0804M
12Z21	MHN001311	HEATSINK OSH-2425-SPL



## TV SYNC SEP 13

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
13C2	DCC816541	C2012CH 1H 330J A TD84N
13C3	DCC820261	C2012F 1C 225Z A TE0804N
13C5	DCC810511	C2012F 1H 103Z A TD84N
13C17	DCC816601	C2012CH 1H 101J A TD84N
13C21	DCC819091	GRM42-6B 106K6.3PT TE0804N
13C22	DCC820021	C2012F 1C 105Z A TD84N
13C34, 13C43	DCC810571	C2012F 1H 104Z A TD0804N
13C44	DCF810121	ECHU 1C 104J TE0804N
13C50 to 13C53	DCC810571	C2012F 1H 104Z A TD0804N
13C54	DCC816801	C2012CH 1H 102J A TD84N
13C57 to 13C62	DCC810571	C2012F 1H 104Z A TD0804N
13C63	DCC816801	C2012CH 1H 102J A TD84N
13C64	DCC810571	C2012F 1H 104Z A TD0804N
13C65, 13C66	DCC816801	C2012CH 1H 102J A TD84N
13C67, 13C68	DCC810571	C2012F 1H 104Z A TD0804N
13D4	DDD810241	1SS 272 TE0804R
13IC1	DIC623501	$\mu$ PC 1663G-E1 TE1208F
13IC2	DIC614411	$\mu$ PC 812G2-E1 TE1208F
13IC3	DIC889161	TC 4W53F(TE12L) TE1208R
13IC4	DIC639041	$\mu$ PC 311G2-E1 TE1208F
13IC5	DIC639031	NJM 2903M(TE3) TE1208L
13IC6, 13IC7	DIC889161	TC 4W53F(TE12L) TE1208R
13IC8	DIC699531	LM 1881M TE1208B
13IC9	DIC448531	MC 74HC153F/AF
13IC10	DIC483321	74HC595F/AF TE1612B
13Q1	DTR890551	DTC114EK/RN1402 TE0804L
13Q4	DTR870031	3SK 241 TE0804L
13Q5	DTR890841	IMX3 TE0804R
13R1	DRZ832251	RK73H 2A 1.0K $\Omega$ F TD0804N
13R2	DRZ832731	RK73H 2A 100K $\Omega$ F TD0804N
13R3	DRZ832091	RK73H 2A 220 $\Omega$ F TD0804N
13R4	DRZ832811	RK73H 2A 220K $\Omega$ F TD0804N
13R5	DRZ832751	RK73H 2A 120K $\Omega$ F TD0804N
13R6	DRZ832731	RK73H 2A 100K $\Omega$ F TD0804N
13R7	DRZ832571	RK73H 2A 22K $\Omega$ F TD0804N
13R10	DRZ832391	RK73H 2A 3.9K $\Omega$ F TD0804N
13R11, 13R12	DRZ832091	RK73H 2A 220 $\Omega$ F TD0804N
13R13	DRZ832491	RK73H 2A 10K $\Omega$ F TD0804N
13R14, 13R15	DRZ832251	RK73H 2A 1.0K $\Omega$ F TD0804N
13R16	DRZ832731	RK73H 2A 100K $\Omega$ F TD0804N
13R18	DRZ832491	RK73H 2A 10K $\Omega$ F TD0804N
13R19	DRZ828761	RR1220P-204-D TD0804N
13R20	DRZ832501	RK73H 2A 11K $\Omega$ F TD0804N
13R21	DRZ832731	RK73H 2A 100K $\Omega$ F TD0804N
13R22, 13R24	DRZ832811	RK73H 2A 220K $\Omega$ F TD0804N
13R25	DRZ832391	RK73H 2A 3.9K $\Omega$ F TD0804N
13R30	DRZ832511	RK73H 2A 12K $\Omega$ F TD0804N
13R31	DRZ832331	RK73H 2A 2.2K $\Omega$ F TD0804N
13R32	DRZ832151	RK73H 2A 390 $\Omega$ F TD0804N
13R34	DRZ832251	RK73H 2A 1.0K $\Omega$ F TD0804N
13R35	DRZ832331	RK73H 2A 2.2K $\Omega$ F TD0804N
13R36	DRZ832731	RK73H 2A 100K $\Omega$ F TD0804N
13R37	DRZ832331	RK73H 2A 2.2K $\Omega$ F TD0804N

## TV SYNC SEP 13

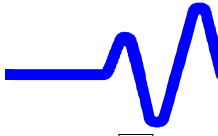
CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
13R38, 13R39	DRZ832411	RK73H 2A 4.7K $\Omega$ F TD0804N
13R40	DRZ832331	RK73H 2A 2.2K $\Omega$ F TD0804N
13R41	DRZ832951	RK73H 2A 820K $\Omega$ F TD0804N
13R42	DRZ832891	RK73H 2A 470K $\Omega$ F TD0804N
13R43	DRZ832191	RK73H 2A 560 $\Omega$ F TD0804N
13R44	DRZ832931	RK73H 2A 680K $\Omega$ F TD0804N
13R45, 13R46	DRZ832011	RK73H 2A 100 $\Omega$ F TD0804N
13R47, 13R48	DRZ832371	RK73H 2A 3.3K $\Omega$ F TD0804N
13R50	DRZ832511	RK73H 2A 12K $\Omega$ F TD0804N

**TIME BASE** 14

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
14C8	DCC810571	C2012F 1H 104Z A TD0804N
14C10, 14C21	DCC810511	C2012F 1H 103Z A TD84N
14C22, 14C28	DCC810511	C2012F 1H 103Z A TD84N
14C30, 14C31	DCC815841	C2012SL 1H 681J A TD84N
14C34, 14C35	DCC810941	C2012B 1H 682K A TD84N
14C36	DCC816601	C2012CH 1H 101J A TD84N
14C37, 14C38	DCC816801	C2012CH 1H 102J A TD84N
14C40	DCC810511	C2012F 1H 103Z A TD84N
14C41	DCC810571	C2012F 1H 104Z A TD0804N
14C42	DCC816421	C2012CH 1H 040C A TD84N
14C60	DCC820021	C2012F 1C 105Z A TD84N
14C61, 14C62	DCC810571	C2012F 1H 104Z A TD0804N
14C63	DCE219051	SME-CE04W 1A 101M TC04R
14C64 to 14C67	DCC810571	C2012F 1H 104Z A TD0804N
14C68, 14C69	DCE219051	SME-CE04W 1A 101M TC04R
14C70 to 14C75	DCC810571	C2012F 1H 104Z A TD0804N
14C76, 14C77	DCC810511	C2012F 1H 103Z A TD84N
14C78, 14C79	DCC810571	C2012F 1H 104Z A TD0804N
14C80	DCC820121	EMK325F 106ZH-T TE0804N
14C81	DCC810511	C2012F 1H 103Z A TD84N
14C83	DCC810571	C2012F 1H 104Z A TD0804N
14D1	DDD810241	1SS 272 TE0804R
14D2	DDD810261	HSM 88AS TL
14FL1, 14FL2	DCL870021	NFM41P11C204 TE1204N
14IC1	DIC891041	MTB411A TIMEBASE IC
14IC2	DIC891031	MCG426 CLOCK GENERATOR
14IC3	DHF060191	QCG571ABN-10.0000
14IC4	DIC322631	MC 10EL16D
14IC5	DHF060181	VC-5R0A30-2000 TE1608B
14IC6	DIC619271	TA 75S558F (TE85L) TE0804L
14IC7	DIC659791	TA 78L05F (TE12L) TE1208L
14IC8	DIC471841	PALCE16V8H-10JC/4 K0315ACQ
14L2, 14L4, 14L5	DCL811011	BLM21A121FPT TD0804N
14Q1	DTR890861	IMZ1 TE0804R
14Q2	DTR890851	IMH1 TE0804N
14R1, 14R2	DRZ833041	RK73H 2A 62Ω F TD0804N
14R3	DRZ833551	RK73H 2A 33Ω F TD0804N
14R4 to 14R7	DRZ833041	RK73H 2A 62Ω F TD0804N
14R8	DRZ832011	RK73H 2A 100Ω F TD0804N
14R10, 14R11	DRZ833021	RK73H 2A 51Ω F TD0804N
14R12 to 14R17	DRZ833041	RK73H 2A 62Ω F TD0804N
14R18	DRZ832311	RK73H 2A 1.8KΩ F TD0804N
14R19	DRZ832371	RK73H 2A 3.3KΩ F TD0804N
14R20	DRZ832331	RK73H 2A 2.2KΩ F TD0804N
14R21	DRZ832311	RK73H 2A 1.8KΩ F TD0804N
14R22	DRZ832331	RK73H 2A 2.2KΩ F TD0804N
14R23	DRZ833041	RK73H 2A 62Ω F TD0804N
14R24 to 14R26	DRZ833021	RK73H 2A 51Ω F TD0804N
14R27	DRZ832731	RK73H 2A 100KΩ F TD0804N
14R28, 14R29	DRZ833061	RK73H 2A 75Ω F TD0804N
14R30 to 14R33	DRZ832371	RK73H 2A 3.3KΩ F TD0804N
14R34, 14R35	DRZ832491	RK73H 2A 10KΩ F TD0804N

**TIME BASE** 14

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
14R36	DRZ832251	RK73H 2A 1.0KΩ F TD0804N
14R37 to 14R39	DRZ833021	RK73H 2A 51Ω F TD0804N
14R40	DRZ832211	RK73H 2A 680Ω F TD0804N
14R45 to 14R48	DRZ833061	RK73H 2A 75Ω F TD0804N
14R50, 14R51	DRZ833021	RK73H 2A 51Ω F TD0804N
14R53	DRZ833551	RK73H 2A 33Ω F TD0804N
14R55	DRZ833021	RK73H 2A 51Ω F TD0804N
14R56	DRZ832011	RK73H 2A 100Ω F TD0804N
14R57	DRZ833041	RK73H 2A 62Ω F TD0804N
14R58, 14R59	DRZ832331	RK73H 2A 2.2KΩ F TD0804N
14R60	DRZ832491	RK73H 2A 10KΩ F TD0804N



## T/D CNVT 15

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
15C1	DCC810511	C2012F 1H 103Z A TD84N
15C5	DCC810571	C2012F 1H 104Z A TD0804N
15C11	DCC816801	C2012CH 1H 102J A TD84N
15C14 to 15C16	DCC810571	C2012F 1H 104Z A TD0804N
15C21, 15C23	DCC810571	C2012F 1H 104Z A TD0804N
15C25	DCC810571	C2012F 1H 104Z A TD0804N
15C26	DCC820021	C2012F 1C 105Z A TD84N
15C27	DCC810511	C2012F 1H 103Z A TD84N
15C29	DCC810571	C2012F 1H 104Z A TD0804N
15C30, 15C31	DCC816801	C2012CH 1H 102J A TD84N
15C32, 15C33	DCC810571	C2012F 1H 104Z A TD0804N
15C34	DCC816801	C2012CH 1H 102J A TD84N
15C36	DCC810571	C2012F 1H 104Z A TD0804N
15C39	DCC816381	C2012CH 1H 020C A TD84N
15C41	DCC819091	GRM42-6B 106K6.3PT TE0804N
15C43	DCE219051	SME-CE04W 1A 101M TC04R
15C50	DCC810571	C2012F 1H 104Z A TD0804N
15C54	DCC816581	C2012CH 1H 680J A TD84N
15C55	DCC816511	C2012CH 1H 180J A TD84N
15C58	DCC816801	C2012CH 1H 102J A TD84N
15C60, 15C64	DCC810571	C2012F 1H 104Z A TD0804N
15C81, 15C83	DCE229201	SME-CE04W 1E 470M TC04R
15C84	DCC810571	C2012F 1H 104Z A TD0804N
15C85	DCE219051	SME-CE04W 1A 101M TC04R
15C86	DCC810571	C2012F 1H 104Z A TD0804N
15C87	DCE219051	SME-CE04W 1A 101M TC04R
15C88 to 15C91	DCC810571	C2012F 1H 104Z A TD0804N
15C92, 15C93	DCC820021	C2012F 1C 105Z A TD84N
15D1	DDD810261	HSM 88AS TL
15D2	DDD810461	HSM 124S-JTL TE0804L
15D3	DDD810261	HSM 88AS TL
15IC1	DIC614411	$\mu$ PC 812G2-E1 TE1208F
15IC2	DIC614811	LT 1097S8-T2 TE1208B
15IC3	DIC639161	NJM 360M(TE3) TE1208L
15IC4	DIC659371	NJM 431U-TE1 (JRC)
15L1 to 15L4	DCL811011	BLM21A121FPT TD0804N
15Q1	DTR810041	2SA 1162Y TE85L
15Q2	DTR898711	XN 6435 TE0804R
15Q3 to 15Q5	DTR830071	2SC 3356-T1B
15Q6	DTR229091	2SJ 144-GR(TE85L) TE0804L
15Q7 to 15Q11	DTR830071	2SC 3356-T1B
15Q12, 15Q13	DTR860161	2SK 508 K51 TE0804L
15Q14	DTR830071	2SC 3356-T1B
15R1	DRZ832511	RK73H 2A 12K $\Omega$ F TD0804N
15R2	DRZ832441	RK73H 2A 6.2K $\Omega$ F TD0804N
15R3	DRZ832031	RK73H 2A 120 $\Omega$ F TD0804N
15R4	DRZ832301	RK73H 2A 1.6K $\Omega$ F TD0804N
15R5	DRZ832361	RK73H 2A 3.0K $\Omega$ F TD0804N
15R6	DRZ832971	RK73H 2A 1.0M $\Omega$ F TD0804N
15R10	DRZ820581	RN73F 2A 6.8K $\Omega$ D TD0804N
15R11	DRZ820621	RN73F 2A 10K $\Omega$ D TD0804N
15R12	DRZ820871	RN73F 2A 2.4K $\Omega$ D TD0804N
15R13	DRZ832411	RK73H 2A 4.7K $\Omega$ F TD0804N

## T/D CNVT 15

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
15R14, 15R15	DRZ832491	RK73H 2A 10K $\Omega$ F TD0804N
15R17	DRZ832251	RK73H 2A 1.0K $\Omega$ F TD0804N
15R18	DRZ832381	RK73H 2A 3.6K $\Omega$ F TD0804N
15R19	DRZ832461	RK73H 2A 7.5K $\Omega$ F TD0804N
15R20	DRZ832411	RK73H 2A 4.7K $\Omega$ F TD0804N
15R21	DRZ832251	RK73H 2A 1.0K $\Omega$ F TD0804N
15R22, 15R23	DRZ833011	RK73H 2A 47 $\Omega$ F TD0804N
15R24	DRZ832331	RK73H 2A 2.2K $\Omega$ F TD0804N
15R25	DRZ832251	RK73H 2A 1.0K $\Omega$ F TD0804N
15R26	DRZ832221	RK73H 2A 750 $\Omega$ F TD0804N
15R27	DRZ832441	RK73H 2A 6.2K $\Omega$ F TD0804N
15R28	DRZ832431	RK73H 2A 5.6K $\Omega$ F TD0804N
15R29	DRZ832301	RK73H 2A 1.6K $\Omega$ F TD0804N
15R30	DRZ833011	RK73H 2A 47 $\Omega$ F TD0804N
15R31	DRZ832011	RK73H 2A 100 $\Omega$ F TD0804N
15R32, 15R33	DRZ833011	RK73H 2A 47 $\Omega$ F TD0804N
15R34	DRZ832011	RK73H 2A 100 $\Omega$ F TD0804N
15R35, 15R36	DRZ832251	RK73H 2A 1.0K $\Omega$ F TD0804N
15R37	DRZ832051	RK73H 2A 150 $\Omega$ F TD0804N
15R38	DRZ833021	RK73H 2A 51 $\Omega$ F TD0804N
15R39	DRZ832611	RK73H 2A 33K $\Omega$ F TD0804N
15R40	DRZ832051	RK73H 2A 150 $\Omega$ F TD0804N
15R41	DRZ832161	RK73H 2A 430 $\Omega$ F TD0804N
15R42	DRZ820011	RN73G 2A 30 $\Omega$ D TD0804N
15R43	DRZ833571	RK73H 2A 39 $\Omega$ F TD0804N
15R44	DRZ833011	RK73H 2A 47 $\Omega$ F TD0804N
15R50, 15R51	DRZ833021	RK73H 2A 51 $\Omega$ F TD0804N
15R54, 15R55	DRZ833011	RK73H 2A 47 $\Omega$ F TD0804N
15R56	DRZ833511	RK73H 2A 22 $\Omega$ F TD0804N
15R57	DRZ832011	RK73H 2A 100 $\Omega$ F TD0804N
15R58	DRZ820541	RN73F 2A 4.7K $\Omega$ D TD0804N
15R59	DRZ832011	RK73H 2A 100 $\Omega$ F TD0804N
15R60, 15R61	DRZ833011	RK73H 2A 47 $\Omega$ F TD0804N
15R62	DRZ832391	RK73H 2A 3.9K $\Omega$ F TD0804N
15R63, 15R64	DRZ820161	RN73F 2A 120 $\Omega$ D TD0804N
15R65	DRZ832011	RK73H 2A 100 $\Omega$ F TD0804N
15R66	DRZ832171	RK73H 2A 470 $\Omega$ F TD0804N
15R67	DRZ832141	RK73H 2A 360 $\Omega$ F TD0804N
15R70, 15R71	DRZ833551	RK73H 2A 33 $\Omega$ F TD0804N
15R72	DRZ833011	RK73H 2A 47 $\Omega$ F TD0804N
15R73	DRZ832471	RK73H 2A 8.2K $\Omega$ F TD0804N
15R74	DRZ832491	RK73H 2A 10K $\Omega$ F TD0804N
15R80, 15R81	DRZ828721	RR1220P-224-B TD0804N
15R82	DRZ828731	RR1220P-244-B TD0804N

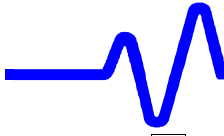
**CAL SIGNAL** 16

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
16C3, 16C5	DCC810511	C2012F 1H 103Z A TD84N
16C7, 16C10	DCC810511	C2012F 1H 103Z A TD84N
16C12	DCC819091	GRM42-6B 106K6.3PT TE0804N
16C15	DCC816521	C2012CH 1H 220J A TD84N
16C60 to 16C69	DCC810571	C2012F 1H 104Z A TD0804N
16C70 to 16C73	DCC816801	C2012CH 1H 102J A TD84N
16C74	DCC816601	C2012CH 1H 101J A TD84N
16C75 to 16C77	DCC816801	C2012CH 1H 102J A TD84N
16C80 to 16C83	DCC820121	EMK325F 106ZH-T TE0804N
16D1, 16D2	DDD810241	1SS 272 TE0804R
16IC1	DIC483031	74HC4051F TE1612B
16IC2	DIC614811	LT 1097S8-T2 TE1208B
16IC3	DIC619271	TA 75S558F (TE85L) TE0804L
16IC4	DIC499441	74HC4053F/AF TE1612B
16IC5	DIC448531	MC 74HC153F/AF
16IC6	DIC483321	74HC595F/AF TE1612B
16J2	KHB095411	SMALL PIN JACK
16L1 to 16L4	DCL811011	BLM21A121FPT TD0804N
16R1	DRZ828541	RN73F 2A 18KΩB TD0804N
16R2	DRZ828551	RN73F 2A 2KΩB TD0804N
16R3, 16R4	DRZ832311	RK73H 2A 1.8KΩF TD0804N
16R5	DRZ832321	RK73H 2A 2.0KΩF TD0804N
16R6	DRZ828581	RN73F 2A 560ΩB TD0804N
16R7	DRZ833511	RK73H 2A 22ΩF TD0804N
16R10	DRZ832491	RK73H 2A 10KΩF TD0804N
16R11, 16R12	DRZ832351	RK73H 2A 2.7KΩF TD0804N
16R16 to 16R19	DRZ833061	RK73H 2A 75ΩF TD0804N
16R20 to 16R24	DRZ832071	RK73H 2A 180ΩF TD0804N
16R25	DRZ832031	RK73H 2A 120ΩF TD0804N

**DC GENE 1/2** 17

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
17C10, 17C12	DCC810511	C2012F 1H 103Z A TD84N
17C13	DCC810511	C2012F 1H 103Z A TD84N
17C16	DCC816601	C2012CH 1H 101J A TD84N
17C19, 17C22	DCC816641	C2012CH 1H 221J A TD84N
17C30	DCC810511	C2012F 1H 103Z A TD84N
17C33	DCC810571	C2012F 1H 104Z A TD0804N
17C35 to 17C37	DCC810571	C2012F 1H 104Z A TD0804N
17C50	DCC820021	C2012F 1C 105Z A TD84N
17C52 to 17C54	DCC820021	C2012F 1C 105Z A TD84N
17C55 to 17C60	DCC810571	C2012F 1H 104Z A TD0804N
17C61	DCC820021	C2012F 1C 105Z A TD84N
17C62	DCC810571	C2012F 1H 104Z A TD0804N
17C63	DCC820021	C2012F 1C 105Z A TD84N
17C64	DCC810571	C2012F 1H 104Z A TD0804N
17C65	DCC820021	C2012F 1C 105Z A TD84N
17C71, 17C73	DCE929471	SXE 16VB-220 TC04R
17IC1	DIC528501	μ PD 78081GB-A67-3BS-MTX
17IC2	DIC645151	DAC 712UK
17IC3	DIC483031	74HC4051F TE1612B
17IC5	DIC619271	TA 75S558F (TE85L) TE0804L
17IC6	DIC639041	μ PC 311G2-E1 TE1208F
17IC7	DIC614411	μ PC 812G2-E1 TE1208F
17IC8	DIC499381	74HC138F/AF TE1612B
17IC9	DIC889101	TC 7SU04F TE0804L
17L1 to 17L3	DCL811011	BLM21A121FPT TD0804N
17Q1	DTR838661	2SC 2712LG TE85L
17R10	DRZ832101	RK73H 2A 240ΩF TD0804N
17R11	DRZ832081	RK73H 2A 200ΩF TD0804N
17R12	DRZ832501	RK73H 2A 11KΩF TD0804N
17R13	DRZ832461	RK73H 2A 7.5KΩF TD0804N
17R14	DRZ828561	RN73F 2A 3KΩB TD0804N
17R15	DRZ832241	RK73H 2A 910ΩF TD0804N
17R16	DRZ828531	RN73F 2A 1.2KΩB TD0804N
17R17, 17R18	DRZ832131	RK73H 2A 330ΩF TD0804N
17R19	DRZ832971	RK73H 2A 1.0MΩF TD0804N
17R21	DRZ832101	RK73H 2A 240ΩF TD0804N
17R22	DRZ832131	RK73H 2A 330ΩF TD0804N
17R23 to 17R25	DRZ832251	RK73H 2A 1.0KΩF TD0804N
17R26	DRZ832131	RK73H 2A 330ΩF TD0804N
17R30 to 17R32	DRZ832581	RK73H 2A 24KΩF TD0804N
17R35 to 17R37	DRZ832511	RK73H 2A 12KΩF TD0804N
17R40	DRZ831501	MCR10 000E TD0804N





**DC GENE 2/2** 18

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
18C1	DCF810121	ECHU 1C 104J TE0804N
18C2 to 18C7	DCC811111	C2012B 1E 104K A TD84N
18C8	DCF810121	ECHU 1C 104J TE0804N
18C17 to 18C19	DCC811111	C2012B 1E 104K A TD84N
18C20	DCC810571	C2012F 1H 104Z A TD0804N
18C21	DCF810121	ECHU 1C 104J TE0804N
18C22	DCC811111	C2012B 1E 104K A TD84N
18C23,18C24	DCC810571	C2012F 1H 104Z A TD0804N
18C50 to 18C53	DCC810571	C2012F 1H 104Z A TD0804N
18C55,18C56	DCC810571	C2012F 1H 104Z A TD0804N
18C60 to 18C71	DCC810571	C2012F 1H 104Z A TD0804N
18IC1, 18IC3	DIC483021	TC 4051BF (EL) TE1612B
18IC10 to 18IC13	DIC614761	TL 084CNS
18IC14	DIC614411	$\mu$ PC 812G2-E1 TE1208F
18R1, 18R8	DRZ832071	RK73H 2A 180 $\Omega$ F TD0804N
18R12, 18R13	DRZ832071	RK73H 2A 180 $\Omega$ F TD0804N
18R19, 18R21	DRZ832071	RK73H 2A 180 $\Omega$ F TD0804N
18R31	DRZ832011	RK73H 2A 100 $\Omega$ F TD0804N
18RA1, 18RA2	DFB810111	RAC16 4D 101J A TD0804M
18RA5	DFB810111	RAC16 4D 101J A TD0804M

**MAIN CONT 1/2** 19

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
19C10	DCC816641	C2012CH 1H 221J A TD84N
19C51 to 19C53	DCC810571	C2012F 1H 104Z A TD0804N
19C54	DCC820031	C2012F 1C 224Z A TD84N
19C55 to 19C59	DCC810571	C2012F 1H 104Z A TD0804N
19C60	DCC820031	C2012F 1C 224Z A TD84N
19C61, 19C62	DCC820021	C2012F 1C 105Z A TD84N
19C63	DCC820031	C2012F 1C 224Z A TD84N
19C64	DCC810571	C2012F 1H 104Z A TD0804N
19IC1	DIC471852	PALCE16V8H-10JC/4 K0327MBC
19IC2	DIC471881	PALCE16V8H-7JC/5 K0319HCS
19IC3	DIC471891	PALCE16V8H-7JC/5 K0320HMR
19IC4	DIC484011	74VHC138F EL TE1612B
19IC5	DIC449631	MC 74HC574F/AF
19IC6	DIC471871	PALCE16V8H-10JC/4 K0318MST
19IC7	DIC471861	PALCE16V8H-10JC/4 K0317MCG
19IC8	DIC645141	PCF 8584T TE2412B
19IC9	DIC483031	74HC4051F TE1612B
19IC10	DIC484491	74VHCT541AF EL TE2412B
19IC11	DIC471631	74VHCT573AF
19IC12	DIC484531	74VHC32F EL TE1612B
19IC13	DIC495111	74HCT245AF TE2412B
19IC14	DIC471901	PALCE16V8H-7JC/5 K0321HMS
19R1	DRZ831501	MCR10 000E TD0804N
19R2	DRZ832331	RK73H 2A 2.2K $\Omega$ F TD0804N
19R3	DRZ832251	RK73H 2A 1.0K $\Omega$ F TD0804N
19R4	DRZ832331	RK73H 2A 2.2K $\Omega$ F TD0804N
19R5, 19R6	DRZ832251	RK73H 2A 1.0K $\Omega$ F TD0804N
19R7	DRZ832011	RK73H 2A 100 $\Omega$ F TD0804N
19R8	DRZ832251	RK73H 2A 1.0K $\Omega$ F TD0804N
19R9	DRZ832331	RK73H 2A 2.2K $\Omega$ F TD0804N
19R10	DRZ832131	RK73H 2A 330 $\Omega$ F TD0804N
19R21, 19R22	DRZ832101	RK73H 2A 240 $\Omega$ F TD0804N
19R24, 19R25	DRZ832101	RK73H 2A 240 $\Omega$ F TD0804N
19R26, 19R27	DRZ832251	RK73H 2A 1.0K $\Omega$ F TD0804N
19RA2, 19RA4	DFB810041	RAC16 4D 220J A TD0804M
19RA6	DFB810041	RAC16 4D 220J A TD0804M
19RA8	DFB810081	RAC16 4D 102J A TD0804M
19RA12	DFB810111	RAC16 4D 101J A TD0804M
19RA16	DFB810041	RAC16 4D 220J A TD0804M
19RA18	DFB810121	RAC16 4D 470J A TD0804M
19RA19, 19RA20	DFB810041	RAC16 4D 220J A TD0804M

**MAIN CONT 2/2** 20

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
20C3	DCC810511	C2012F 1H 103Z A TD84N
20C4, 20C5	DCC810571	C2012F 1H 104Z A TD0804N
20C6	DCE219051	SME-CE04W 1A 101M TC04R
20C31	DCC810511	C2012F 1H 103Z A TD84N
20C51 to 20C64	DCC810571	C2012F 1H 104Z A TD0804N
20C70, 20C71	DCC810571	C2012F 1H 104Z A TD0804N
20C80	DCC816801	C2012CH 1H 102J A TD84N
20IC1	DIC449631	MC 74HC574F/AF
20IC2, 20IC3	DIC499381	74HC138F/AF TE1612B
20IC5, 20IC6	DIC499381	74HC138F/AF TE1612B
20IC7	DIC499321	74HC04F/AF TE1612B
20IC8	DIC529201	AT93C66-10SC JEDEC TE1208B
20IC9	DIC470461	DS 1620S TE1612B
20IC10	DIC889161	TC 4W53F(TE12L) TE1208R
20IC11, 20IC12	DIC642201	MB88346BPF-G-BND-EF TE2412F
20IC13	DIC659371	NJM 431U-TE1 (JRC)
20IC14	DIC449631	MC 74HC574F/AF
20IC15	DIC619271	TA 75S558F (TE85L) TE0804L
20IC16	DIC889131	TC 7W32F(TE12L) TE1208R
20J1, 20J3, 20J4	DCN129381	52808-2691 TE4412B
20R3	DRZ832011	RK73H 2A 100ΩF TD0804N
20R4	DRZ832291	RK73H 2A 1.5KΩF TD0804N
20R5	DRZ820441	RN73F 2A 1.8KΩD TD0804N
20R6	DRZ820491	RN73F 2A 3KΩD TD0804N
20R7, 20R8	DRZ833011	RK73H 2A 47ΩF TD0804N
20R10, 20R11	DRZ832331	RK73H 2A 2.2KΩF TD0804N
20R14	DRZ832011	RK73H 2A 100ΩF TD0804N
20R15, 20R16	DRZ832331	RK73H 2A 2.2KΩF TD0804N
20R17 to 20R19	DRZ832011	RK73H 2A 100ΩF TD0804N
20R22	DRZ832291	RK73H 2A 1.5KΩF TD0804N
20R24	DRZ832011	RK73H 2A 100ΩF TD0804N
20R30	DRZ820621	RN73F 2A 10KΩD TD0804N
20R31	DRZ820661	RN73F 2A 15KΩD TD0804N
20R32	DRZ832441	RK73H 2A 6.2KΩF TD0804N
20R33	DRZ832221	RK73H 2A 750ΩF TD0804N
20R34, 20R35	DRZ832491	RK73H 2A 10KΩF TD0804N
20R36, 20R37	DRZ832011	RK73H 2A 100ΩF TD0804N
20RA4, 20RA5	DFB810111	RAC16 4D 101J A TD0804M
20RA8, 20RA10	DFB810111	RAC16 4D 101J A TD0804M

**POWER CONNECTOR** 21

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
21C1 to 21C4	DCC810511	C2012F 1H 103Z A TD84N
21C10	DCE229221	SME-CE04W 1E 221M TC04R
21C11	DCC820031	C2012F 1C 224Z A TD84N
21C12	DCE229201	SME-CE04W 1E 470M TC04R
21C13	DCC820031	C2012F 1C 224Z A TD84N
21C18	DCE229201	SME-CE04W 1E 470M TC04R
21C19	DCC820031	C2012F 1C 224Z A TD84N
21C20	DCE219151	SME-CE04W 1A 471M TC04R
21C21	DCC820021	C2012F 1C 105Z A TD84N
21C30	DCE219051	SME-CE04W 1A 101M TC04R
21C31	DCC820031	C2012F 1C 224Z A TD84N
21C40	DCE219151	SME-CE04W 1A 471M TC04R
21C41	DCC820021	C2012F 1C 105Z A TD84N
21C50	DCE219051	SME-CE04W 1A 101M TC04R
21C51	DCC820031	C2012F 1C 224Z A TD84N
21C52	DCC810511	C2012F 1H 103Z A TD84N
21C60	DCE229221	SME-CE04W 1E 221M TC04R
21C61	DCC820031	C2012F 1C 224Z A TD84N
21C62	DCE229201	SME-CE04W 1E 470M TC04R
21C63	DCC820031	C2012F 1C 224Z A TD84N
21C68	DCE229201	SME-CE04W 1E 470M TC04R
21C69	DCC820031	C2012F 1C 224Z A TD84N
21C70	DCE219151	SME-CE04W 1A 471M TC04R
21C71	DCC820021	C2012F 1C 105Z A TD84N
21C80	DCE219051	SME-CE04W 1A 101M TC04R
21C81	DCC820031	C2012F 1C 224Z A TD84N
21C90	DCE219151	SME-CE04W 1A 471M TC04R
21C91	DCC820021	C2012F 1C 105Z A TD84N
21C100	DCE219051	SME-CE04W 1A 101M TC04R
21C101	DCC820031	C2012F 1C 224Z A TD84N
21C102, 21C103	DCC810511	C2012F 1H 103Z A TD84N
21C110 to 21C112	DCC810511	C2012F 1H 103Z A TD84N
21J1	DCN126021	CONNECTOR 53258-0610
21J2	DCN126081	CONNECTOR 53258-0710
21J3	DCN990911	CONNECTOR 5267-07A
21L10, 21L11	DCL119361	BL02RN2-R62 TD04N
21L14, 21L20	DCL119361	BL02RN2-R62 TD04N
21L25, 21L40	DCL119361	BL02RN2-R62 TD04N
21L41, 21L46	DCL119361	BL02RN2-R62 TD04N
21L60, 21L61	DCL119361	BL02RN2-R62 TD04N
21L64, 21L70	DCL119361	BL02RN2-R62 TD04N
21L75, 21L90	DCL119361	BL02RN2-R62 TD04N
21L91, 21L96	DCL119361	BL02RN2-R62 TD04N
21SW1	DSW017001	SPUP19





## CH1 FRONT END 2

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
2C1, 2C2	DCC816471	C2012CH 1H 080D A TD84N
2C3, 2C4	DCC850101	GRM42-6CH 050C500PT TE0804N
2C6	DCV819091	TZBX4 Z250BA110 TE1208R
2C7	DCC816521	C2012CH 1H 220J A TD84N
2C10	DCC850101	GRM42-6CH 050C500PT TE0804N
2C12	DCV819091	TZBX4 Z250BA110 TE1208R
2C13	DCC816521	C2012CH 1H 220J A TD84N
2C14	DCC816451	C2012CH 1H 060D A TD84N
2C15	DCC816381	C2012CH 1H 020C A TD84N
2C18	DCC816491	C2012CH 1H 100D A TD84N
2C19	DCC810511	C2012F 1H 103Z A TD84N
2C20	DCC840041	GHM1530B 473K250 TE0804N
2C21	DCC850011	GRM42-6 W5R 222K500 TE0804N
2C22	DCC850091	GRM42-6CH 020C500PT TE0804N
2C24	DCC816371	C2012CH 1H 1R5C A TD84N
2C25	DCV819051	TZBX4 Z030BA110 TE1208R
2C26	DCC811731	C1608B 1H 102K A TD0804N
2C27 to 2C29	DCC810511	C2012F 1H 103Z A TD84N
2C31	DCC816421	C2012CH 1H 040C A TD84N
2C32 to 2C35	DCC810511	C2012F 1H 103Z A TD84N
2C36	DCC810571	C2012F 1H 104Z A TD0804N
2C37, 2C39	DCC816601	C2012CH 1H 101J A TD84N
2C40	DCC810571	C2012F 1H 104Z A TD0804N
2C41	DCC810981	C2012B 1H 153K A TD84N
2C42	DCC811161	C2012B 1H 333K A TD84N
2C43 to 2C46	DCC810511	C2012F 1H 103Z A TD84N
2C47	DCC811161	C2012B 1H 333K A TD84N
2C48	DCV819051	TZBX4 Z030BA110 TE1208R
2C49	DCC810511	C2012F 1H 103Z A TD84N
2C50	DCE919141	SRA 10VB-100 TC04R
2C51 to 2C53	DCC810511	C2012F 1H 103Z A TD84N
2C54, 2C55	DCC810571	C2012F 1H 104Z A TD0804N
2C58	DCC820021	C2012F 1C 105Z A TD84N
2C59, 2C60	DCC810511	C2012F 1H 103Z A TD84N
2C70 to 2C74	DCC816801	C2012CH 1H 102J A TD84N
2C75, 2C76	DCC820251	C2012B 1C 474K A TD0804N
2C80	DCC810571	C2012F 1H 104Z A TD0804N
2C81	DCC816491	C2012CH 1H 100D A TD84N
2C83 to 2C86	DCC820021	C2012F 1C 105Z A TD84N
2C87	DCC810511	C2012F 1H 103Z A TD84N
2C88	DCC816491	C2012CH 1H 100D A TD84N
2C90 to 2C96	DCC810511	C2012F 1H 103Z A TD84N
2C99	DCC819091	GRM42-6B 106K6.3PT TE0804N
2D1, 2D2	DDD810461	HSM 124S-JTL TE0804L
2D3	DDD810081	1SS 226 (TE85L) TE0804L
2D4 to 2D6	DDD810241	1SS 272 TE0804R
2D7 to 2D9	DDD810461	HSM 124S-JTL TE0804L
2D10, 2D11	DDD810241	1SS 272 TE0804R
2FL1 to 2FL7	DCL870041	NFM39R12C222T1 TE0804N
2IC1	DIC614811	LT 1097S8-T2 TE1208B
2IC2	DIC619191	NJM 082M(TE3) TE1208L
2IC3	DIC614891	HFE428 1GHZ FRONT END
2IC4	DIC631231	HTR420 TRIGGER COMPARATOR

## CH1 FRONT END 2

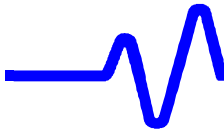
CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
2IC5	DIC483321	74HC595F/AF TE1612B
2IC6	DIC619271	TA 75S558F (TE85L) TE0804L
2J1A	DCN126091	7093XXP01 PROBUS CONNECTOR
2J1B	DCN045681	CONNECTOR BNC-BR-PC-1
2L1	DCL810831	HK1608 18NJ-T TD0804N
2L2	DCL811011	BLM21A121FPT TD0804N
2L3	DCL810811	HK1608 10NJ-T TD0804N
2L4	DCL811011	BLM21A121FPT TD0804N
2L11 to 2L14	DCL810811	HK1608 10NJ-T TD0804N
2Q1	DTR860161	2SK 508 K51 TE0804L
2Q2 to 2Q4	DTR830521	2SC 3583-T1B TE0804L
2Q5, 2Q6	DTR810041	2SA 1162Y TE85L
2Q7 to 2Q9	DTR890471	DTA114YK/RN2407 TE0804L
2Q10, 2Q11	DTR890471	DTA114YK/RN2407 TE0804L
2Q12	DTR810041	2SA 1162Y TE85L
2Q14	DTR838661	2SC 2712LG TE85L
2Q15, 2Q16	DTR890581	DTC114YK/RN1407 TE0804L
2Q17, 2Q18	DTR810041	2SA 1162Y TE85L
2R1, 2R2 to 2R10	DRZ820971	RN73G 2A 20Ω D TD0804N
2R11	DRZ833071	RK73H 2A 82Ω F TD0804N
2R12	DRZ833561	RK73H 2A 36Ω F TD0804N
2R13	DRZ832011	RK73H 2A 100Ω F TD0804N
2R14	DRZ831611	MCR10J 5R6E TD0804N
2R15 to 2R17	DRZ828721	RR1220P-224-B TD0804N
2R18	DRZ828731	RR1220P-244-B TD0804N
2R19	DRZ828711	RR1220P-114-B TD0804N
2R20	DRZ832261	RK73H 2A 1.1KΩ F TD0804N
2R21	DRZ832081	RK73H 2A 200Ω F TD0804N
2R22	DRZ833581	RK73H 2A 43Ω F TD0804N
2R24	DRZ833551	RK73H 2A 33Ω F TD0804N
2R25	DRZ833041	RK73H 2A 62Ω F TD0804N
2R26	DRZ828751	RR1220P-474-B TD0804N
2R27	DRZ828741	RR1220P-434-B TD0804N
2R28	DRZ828711	RR1220P-114-B TD0804N
2R29	DRZ832261	RK73H 2A 1.1KΩ F TD0804N
2R30	DRZ832081	RK73H 2A 200Ω F TD0804N
2R31, 2R32	DRZ831121	MCR10J 240E TD0804N
2R33	DRZ833581	RK73H 2A 43Ω F TD0804N
2R35 to 2R42	DRZ828761	RR1220P-204-D TD0804N
2R43	DRZ832121	RK73H 2A 300Ω F TD0804N
2R44	DRZ832011	RK73H 2A 100Ω F TD0804N
2R45	DRZ832031	RK73H 2A 120Ω F TD0804N
2R46, 2R47	DRZ831431	MCR10J 335E TD0804N
2R48	DRZ828621	RK73H 1J 51Ω F TD0804N
2R49	DRZ820971	RN73G 2A 20Ω D TD0804N
2R50	DRZ832101	RK73H 2A 240Ω F TD0804N
2R51	DRZ830861	MCR10J 300E TD0804N
2R53	DRZ832531	RK73H 2A 15KΩ F TD0804N
2R54	DRZ832251	RK73H 2A 1.0KΩ F TD0804N
2R55	DRZ832441	RK73H 2A 6.2KΩ F TD0804N
2R56	DRZ832251	RK73H 2A 1.0KΩ F TD0804N
2R58	DRZ832051	RK73H 2A 150Ω F TD0804N
2R59	DRZ820971	RN73G 2A 20Ω D TD0804N

**CH1 FRONT END** 2

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
2R60 to 2R62	DRZ832201	RK73H 2A 620 Ω F TD0804N
2R63	DRZ820971	RN73G 2A 20 Ω D TD0804N
2R64 to 2R67	DRZ832091	RK73H 2A 220 Ω F TD0804N
2R68	DRZ832601	RK73H 2A 30K Ω F TD0804N
2R69	DRZ832401	RK73H 2A 4.3K Ω F TD0804N
2R70	DRZ832281	RK73H 2A 1.3K Ω F TD0804N
2R71	DRZ832031	RK73H 2A 120 Ω F TD0804N
2R74, 2R75	DRZ828761	RR1220P-204-D TD0804N
2R76	DRZ828711	RR1220P-114-B TD0804N
2R77	DRZ832661	RK73H 2A 51K Ω F TD0804N
2R78	DRV810251	G4AT/ST-4TA 5K Ω TE1208L
2R79	DRZ832011	RK73H 2A 100 Ω F TD0804N
2R80	DRZ832251	RK73H 2A 1.0K Ω F TD0804N
2R81, 2R82	DRZ820861	RN73F 2A 100K Ω D TD0804N
2R83	DRZ832321	RK73H 2A 2.0K Ω F TD0804N
2R84	DRZ832301	RK73H 2A 1.6K Ω F TD0804N
2R85	DDD074121	LP310 1F 202F 302 TE0804N
2R86	DRZ832491	RK73H 2A 10K Ω F TD0804N
2R87	DDD074121	LP310 1F 202F 302 TE0804N
2R88	DRZ832491	RK73H 2A 10K Ω F TD0804N
2R89	DRZ832251	RK73H 2A 1.0K Ω F TD0804N
2R90	DRZ832491	RK73H 2A 10K Ω F TD0804N
2R91	DRZ828571	RN73F 2A 510 Ω B TD0804N
2R92	DRZ833021	RK73H 2A 51 Ω F TD0804N
2R93	DRZ833571	RK73H 2A 39 Ω F TD0804N
2R94	DRZ833441	RK73H 2A 10 Ω F TD0804N
2R95	DRZ833021	RK73H 2A 51 Ω F TD0804N
2R97	DRZ832291	RK73H 2A 1.5K Ω F TD0804N
2R98	DRZ832471	RK73H 2A 8.2K Ω F TD0804N
2R100	DRZ832301	RK73H 2A 1.6K Ω F TD0804N
2R101	DRZ832191	RK73H 2A 560 Ω F TD0804N
2R105	DRZ832351	RK73H 2A 2.7K Ω F TD0804N
2R106	DRZ832191	RK73H 2A 560 Ω F TD0804N
2R107	DRZ832351	RK73H 2A 2.7K Ω F TD0804N
2R108	DRZ832191	RK73H 2A 560 Ω F TD0804N
2R109	DRZ832011	RK73H 2A 100 Ω F TD0804N
2R110	DRZ832321	RK73H 2A 2.0K Ω F TD0804N
2R115, 2R116	DRZ833021	RK73H 2A 51 Ω F TD0804N
2R120	DRZ832251	RK73H 2A 1.0K Ω F TD0804N
2R123 to 2R125	DRZ832011	RK73H 2A 100 Ω F TD0804N
2R126	DRZ832251	RK73H 2A 1.0K Ω F TD0804N
2R127	DRZ832391	RK73H 2A 3.9K Ω F TD0804N
2R128	DRZ832121	RK73H 2A 300 Ω F TD0804N
2R129	DRZ832251	RK73H 2A 1.0K Ω F TD0804N
2R130	DRZ832391	RK73H 2A 3.9K Ω F TD0804N
2R131	DRZ832121	RK73H 2A 300 Ω F TD0804N
2RL1, 2RL2	DKD028511	NAS-5W-K-TN-B05 TE2416B
2RL3, 2RL4	DKD030381	NASL-5W-K-TN TE2416B
2RL5	DKD028511	NAS-5W-K-TN-B05 TE2416B

**CH2 FRONT END** 3

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
3C1, 3C2	DCC816471	C2012CH 1H 080D A TD84N
3C3, 3C4	DCC850101	GRM42-6CH 050C500PT TE0804N
3C6	DCV819091	TZBX4 Z250BA110 TE1208R
3C7	DCC816521	C2012CH 1H 220J A TD84N
3C10	DCC850101	GRM42-6CH 050C500PT TE0804N
3C12	DCV819091	TZBX4 Z250BA110 TE1208R
3C13	DCC816521	C2012CH 1H 220J A TD84N
3C14	DCC816451	C2012CH 1H 060D A TD84N
3C15	DCC816381	C2012CH 1H 020C A TD84N
3C18	DCC816491	C2012CH 1H 100D A TD84N
3C19	DCC810511	C2012F 1H 103Z A TD84N
3C20	DCC840041	GHM1530B 473K250 TE0804N
3C21	DCC850011	GRM42-6 W5R 222K500 TE0804N
3C22	DCC850091	GRM42-6CH 020C500PT TE0804N
3C24	DCC816371	C2012CH 1H 1R5C A TD84N
3C25	DCV819051	TZBX4 Z030BA110 TE1208R
3C26	DCC811731	C1608B 1H 102K A TD0804N
3C27 to 3C29	DCC810511	C2012F 1H 103Z A TD84N
3C31	DCC816421	C2012CH 1H 040C A TD84N
3C32 to 3C35	DCC810511	C2012F 1H 103Z A TD84N
3C36	DCC810571	C2012F 1H 104Z A TD0804N
3C37, 3C39	DCC816601	C2012CH 1H 101J A TD84N
3C40	DCC810571	C2012F 1H 104Z A TD0804N
3C41	DCC810981	C2012B 1H 153K A TD84N
3C42	DCC811161	C2012B 1H 333K A TD84N
3C43 to 3C46	DCC810511	C2012F 1H 103Z A TD84N
3C47	DCC811161	C2012B 1H 333K A TD84N
3C48	DCV819051	TZBX4 Z030BA110 TE1208R
3C49	DCC810511	C2012F 1H 103Z A TD84N
3C50	DCE919141	SRA 10VB-100 TC04R
3C51 to 3C53	DCC810511	C2012F 1H 103Z A TD84N
3C54, 3C55	DCC810571	C2012F 1H 104Z A TD0804N
3C58	DCC820021	C2012F 1C 105Z A TD84N
3C59, 3C60	DCC810511	C2012F 1H 103Z A TD84N
3C70 to 3C74	DCC816801	C2012CH 1H 102J A TD84N
3C75, 3C76	DCC820251	C2012B 1C 474K A TD0804N
3C80	DCC810571	C2012F 1H 104Z A TD0804N
3C81	DCC816491	C2012CH 1H 100D A TD84N
3C83 to 3C86	DCC820021	C2012F 1C 105Z A TD84N
3C87	DCC810511	C2012F 1H 103Z A TD84N
3C88	DCC816491	C2012CH 1H 100D A TD84N
3C90 to 3C96	DCC810511	C2012F 1H 103Z A TD84N
3C99	DCC819091	GRM42-6B 106K6.3PT TE0804N
3D1, 3D2	DDD810461	HSM 124S-JTL TE0804L
3D3	DDD810081	1SS 226 (TE85L) TE0804L
3D4 to 3D6	DDD810241	1SS 272 TE0804R
3D7 to 3D9	DDD810461	HSM 124S-JTL TE0804L
3D10, 3D11	DDD810241	1SS 272 TE0804R
3FL1 to 3FL7	DCL870041	NFM39R12C222T1 TE0804N
3IC1	DIC614811	LT 1097S8-T2 TE1208B
3IC2	DIC619191	NJM 082M(TE3) TE1208L
3IC3	DIC614891	HFE428 1GHZ FRONT END

CH2 FRONT END **3**

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
3IC4	DIC631231	HTR420 TRIGGER COMPARATOR
3IC5	DIC483321	74HC595F/AF TE1612B
3IC6	DIC619271	TA 75S558F (TE85L) TE0804L
3J1A	DCN126091	7093XXP01 PROBUS CONNECTOR
3J1B	DCN045681	CONNECTOR BNC-BR-PC-1
3L1	DCL810831	HK1608 18NJ-T TD0804N
3L2	DCL811011	BLM21A121FPT TD0804N
3L3	DCL810811	HK1608 10NJ-T TD0804N
3L4	DCL811011	BLM21A121FPT TD0804N
3L11 to 3L14	DCL810811	HK1608 10NJ-T TD0804N
3L15 to 3L18	DRZ831801	MCR03 EZH J000E TD0804N
3Q1	DTR860161	2SK 508 K51 TE0804L
3Q2 to 3Q4	DTR830521	2SC 3583-T1B TE0804L
3Q5, 3Q6	DTR810041	2SA 1162Y TE85L
3Q7 to 3Q11	DTR890471	DTA114YK/RN2407 TE0804L
3Q12	DTR810041	2SA 1162Y TE85L
3Q14	DTR838661	2SC 2712LG TE85L
3Q15, 3Q16	DTR890581	DTC114YK/RN1407 TE0804L
3Q17, 3Q18	DTR810041	2SA 1162Y TE85L
3R1 to 3R10	DRZ820971	RN73G 2A 20ΩD TD0804N
3R11	DRZ833071	RK73H 2A 82ΩF TD0804N
3R12	DRZ833561	RK73H 2A 36ΩF TD0804N
3R13	DRZ832011	RK73H 2A 100ΩF TD0804N
3R14	DRZ831611	MCR10J 5R6E TD0804N
3R15 to 3R17	DRZ828721	RR1220P-224-B TD0804N
3R18	DRZ828731	RR1220P-244-B TD0804N
3R19	DRZ828711	RR1220P-114-B TD0804N
3R20	DRZ832261	RK73H 2A 1.1KΩF TD0804N
3R21	DRZ832081	RK73H 2A 200ΩF TD0804N
3R22	DRZ833581	RK73H 2A 43ΩF TD0804N
3R24	DRZ833551	RK73H 2A 33ΩF TD0804N
3R25	DRZ833041	RK73H 2A 62ΩF TD0804N
3R26	DRZ828751	RR1220P-474-B TD0804N
3R27	DRZ828741	RR1220P-434-B TD0804N
3R28	DRZ828711	RR1220P-114-B TD0804N
3R29	DRZ832261	RK73H 2A 1.1KΩF TD0804N
3R30	DRZ832081	RK73H 2A 200ΩF TD0804N
3R31, 3R32	DRZ831121	MCR10J 240E TD0804N
3R33	DRZ833581	RK73H 2A 43ΩF TD0804N
3R35 to 3R42	DRZ828761	RR1220P-204-D TD0804N
3R43	DRZ832121	RK73H 2A 300ΩF TD0804N
3R44	DRZ832011	RK73H 2A 100ΩF TD0804N
3R45	DRZ832031	RK73H 2A 120ΩF TD0804N
3R46, 3R47	DRZ831431	MCR10J 335E TD0804N
3R48	DRZ828621	RK73H 1J 51ΩF TD0804N
3R49	DRZ820971	RN73G 2A 20ΩD TD0804N
3R50	DRZ832101	RK73H 2A 240ΩF TD0804N
3R51	DRZ830861	MCR10J 300E TD0804N
3R53	DRZ832531	RK73H 2A 15KΩF TD0804N
3R54	DRZ832251	RK73H 2A 1.0KΩF TD0804N
3R55	DRZ832441	RK73H 2A 6.2KΩF TD0804N
3R56	DRZ832251	RK73H 2A 1.0KΩF TD0804N
3R58	DRZ832051	RK73H 2A 150ΩF TD0804N

CH2 FRONT END **3**

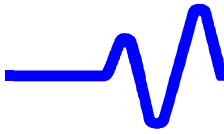
CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
3R59	DRZ820971	RN73G 2A 20ΩD TD0804N
3R60 to 3R62	DRZ832201	RK73H 2A 620ΩF TD0804N
3R63	DRZ820971	RN73G 2A 20ΩD TD0804N
3R64 to 3R67	DRZ832091	RK73H 2A 220ΩF TD0804N
3R68	DRZ832601	RK73H 2A 30KΩF TD0804N
3R69	DRZ832401	RK73H 2A 4.3KΩF TD0804N
3R70	DRZ832281	RK73H 2A 1.3KΩF TD0804N
3R71	DRZ832031	RK73H 2A 120ΩF TD0804N
3R74, 3R75	DRZ828761	RR1220P-204-D TD0804N
3R76	DRZ828711	RR1220P-114-B TD0804N
3R77	DRZ832661	RK73H 2A 51KΩF TD0804N
3R78	DRV810251	G4AT/ST-4TA 5KΩ TE1208L
3R79	DRZ832011	RK73H 2A 100ΩF TD0804N
3R80	DRZ832251	RK73H 2A 1.0KΩF TD0804N
3R81, 3R82	DRZ820861	RN73F 2A 100KΩD TD0804N
3R83	DRZ832321	RK73H 2A 2.0KΩF TD0804N
3R84	DRZ832301	RK73H 2A 1.6KΩF TD0804N
3R85	DDD074121	LP310 1F 202F 302 TE0804N
3R86	DRZ832491	RK73H 2A 10KΩF TD0804N
3R87	DDD074121	LP310 1F 202F 302 TE0804N
3R88	DRZ832491	RK73H 2A 10KΩF TD0804N
3R89	DRZ832251	RK73H 2A 1.0KΩF TD0804N
3R90	DRZ832491	RK73H 2A 10KΩF TD0804N
3R91	DRZ828571	RN73F 2A 510ΩB TD0804N
3R92	DRZ833021	RK73H 2A 51ΩF TD0804N
3R93	DRZ833571	RK73H 2A 39ΩF TD0804N
3R94	DRZ833441	RK73H 2A 10ΩF TD0804N
3R95	DRZ833021	RK73H 2A 51ΩF TD0804N
3R97	DRZ832291	RK73H 2A 1.5KΩF TD0804N
3R98	DRZ832471	RK73H 2A 8.2KΩF TD0804N
3R100	DRZ832301	RK73H 2A 1.6KΩF TD0804N
3R101	DRZ832191	RK73H 2A 560ΩF TD0804N
3R105	DRZ832351	RK73H 2A 2.7KΩF TD0804N
3R106	DRZ832191	RK73H 2A 560ΩF TD0804N
3R107	DRZ832351	RK73H 2A 2.7KΩF TD0804N
3R108	DRZ832191	RK73H 2A 560ΩF TD0804N
3R109	DRZ832011	RK73H 2A 100ΩF TD0804N
3R110	DRZ832321	RK73H 2A 2.0KΩF TD0804N
3R120	DRZ832251	RK73H 2A 1.0KΩF TD0804N
3R123 to 3R125	DRZ832011	RK73H 2A 100ΩF TD0804N
3R126	DRZ832251	RK73H 2A 1.0KΩF TD0804N
3R127	DRZ832391	RK73H 2A 3.9KΩF TD0804N
3R128	DRZ832121	RK73H 2A 300ΩF TD0804N
3R129	DRZ832251	RK73H 2A 1.0KΩF TD0804N
3R130	DRZ832391	RK73H 2A 3.9KΩF TD0804N
3R131	DRZ832121	RK73H 2A 300ΩF TD0804N
3RL1, 3RL2	DKD028511	NAS-5W-K-TN-B05 TE2416B
3RL3, 3RL4	DKD030381	NASL-5W-K-TN TE2416B
3RL5	DKD028511	NAS-5W-K-TN-B05 TE2416B

CH3 FRONT END 4

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
4C1, 4C2	DCC816471	C2012CH 1H 080D A TD84N
4C3, 4C4	DCC850101	GRM42-6CH 050C500PT TE0804N
4C6	DCV819091	TZBX4 Z250BA110 TE1208R
4C7	DCC816521	C2012CH 1H 220J A TD84N
4C10	DCC850101	GRM42-6CH 050C500PT TE0804N
4C12	DCV819091	TZBX4 Z250BA110 TE1208R
4C13	DCC816521	C2012CH 1H 220J A TD84N
4C14	DCC816451	C2012CH 1H 060D A TD84N
4C15	DCC816381	C2012CH 1H 020C A TD84N
4C18	DCC816491	C2012CH 1H 100D A TD84N
4C19	DCC810511	C2012F 1H 103Z A TD84N
4C20	DCC840041	GHM1530B 473K250 TE0804N
4C21	DCC850011	GRM42-6 W5R 222K500 TE0804N
4C22	DCC850091	GRM42-6CH 020C500PT TE0804N
4C24	DCC816371	C2012CH 1H 1R5C A TD84N
4C25	DCV819051	TZBX4 Z030BA110 TE1208R
4C26	DCC811731	C1608B 1H 102K A TD0804N
4C27 to 4C29	DCC810511	C2012F 1H 103Z A TD84N
4C31	DCC816421	C2012CH 1H 040C A TD84N
4C32 to 4C35	DCC810511	C2012F 1H 103Z A TD84N
4C36	DCC810571	C2012F 1H 104Z A TD0804N
4C37, 4C39	DCC816601	C2012CH 1H 101J A TD84N
4C40	DCC810571	C2012F 1H 104Z A TD0804N
4C41	DCC810981	C2012B 1H 153K A TD84N
4C42	DCC811161	C2012B 1H 333K A TD84N
4C43 to 4C46	DCC810511	C2012F 1H 103Z A TD84N
4C47	DCC811161	C2012B 1H 333K A TD84N
4C48	DCV819051	TZBX4 Z030BA110 TE1208R
4C49	DCC810511	C2012F 1H 103Z A TD84N
4C50	DCE919141	SRA 10VB-100 TC04R
4C51 to 4C53	DCC810511	C2012F 1H 103Z A TD84N
4C54, 4C55	DCC810571	C2012F 1H 104Z A TD0804N
4C58	DCC820021	C2012F 1C 105Z A TD84N
4C59, 4C60	DCC810511	C2012F 1H 103Z A TD84N
4C70 to 4C74	DCC816801	C2012CH 1H 102J A TD84N
4C75, 4C76	DCC820251	C2012B 1C 474K A TD0804N
4C80	DCC810571	C2012F 1H 104Z A TD0804N
4C81	DCC816491	C2012CH 1H 100D A TD84N
4C83 to 4C86	DCC820021	C2012F 1C 105Z A TD84N
4C87	DCC810511	C2012F 1H 103Z A TD84N
4C88	DCC816491	C2012CH 1H 100D A TD84N
4C90 to 4C96	DCC810511	C2012F 1H 103Z A TD84N
4C99	DCC819091	GRM42-6B 106K6.3PT TE0804N
4D1, 4D2	DDD810461	HSM 124S-JTL TE0804L
4D3	DDD810081	1SS 226 (TE85L) TE0804L
4D4 to 4D6	DDD810241	1SS 272 TE0804R
4D7 to 4D9	DDD810461	HSM 124S-JTL TE0804L
4D10, 4D11	DDD810241	1SS 272 TE0804R
4FL1 to 4FL7	DCL870041	NFM39R12C222T1 TE0804N
4IC1	DIC614811	LT 1097S8-T2 TE1208B
4IC2	DIC619191	NJM 082M(TE3) TE1208L
4IC3	DIC614891	HFE428 1GHZ FRONT END

CH3 FRONT END 4

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
4IC4	DIC631231	HTR420 TRIGGER COMPARATOR
4IC5	DIC483321	74HC595F/AF TE1612B
4IC6	DIC619271	TA 75S558F (TE85L) TE0804L
4J1A	DCN126091	7093XXP01 PROBUS CONNECTOR
4J1B	DCN045681	CONNECTOR BNC-BF-PC-1
4L1	DCL810831	HK1608 18NJ-T TD0804N
4L2	DCL811011	BLM21A121FPT TD0804N
4L3	DCL810811	HK1608 10NJ-T TD0804N
4L4	DCL811011	BLM21A121FPT TD0804N
4L11 to 4L14	DCL810811	HK1608 10NJ-T TD0804N
4L15 to 4L18	DRZ831801	MCR03 EZH J000E TD0804N
4Q1	DTR860161	2SK 508 K51 TE0804L
4Q2 to 4Q4	DTR830521	2SC 3583-T1B TE0804L
4Q5, 4Q6	DTR810041	2SA 1162Y TE85L
4Q7 to 4Q11	DTR890471	DTA114YK/RN2407 TE0804L
4Q12	DTR810041	2SA 1162Y TE85L
4Q14	DTR838661	2SC 2712LG TE85L
4Q15, 4Q16	DTR890581	DTC114YK/RN1407 TE0804L
4Q17, 4Q18	DTR810041	2SA 1162Y TE85L
4R1 to 4R10	DRZ820971	RN73G 2A 20Ω D TD0804N
4R11	DRZ833071	RK73H 2A 82Ω F TD0804N
4R12	DRZ833561	RK73H 2A 36Ω F TD0804N
4R13	DRZ832011	RK73H 2A 100Ω F TD0804N
4R14	DRZ831611	MCR10J 5R6E TD0804N
4R15 to 4R17	DRZ828721	RR1220P-224-B TD0804N
4R18	DRZ828731	RR1220P-244-B TD0804N
4R19	DRZ828711	RR1220P-114-B TD0804N
4R20	DRZ832261	RK73H 2A 1.1KΩ F TD0804N
4R21	DRZ832081	RK73H 2A 200Ω F TD0804N
4R22	DRZ833581	RK73H 2A 43Ω F TD0804N
4R24	DRZ833551	RK73H 2A 33Ω F TD0804N
4R25	DRZ833041	RK73H 2A 62Ω F TD0804N
4R26	DRZ828751	RR1220P-474-B TD0804N
4R27	DRZ828741	RR1220P-434-B TD0804N
4R28	DRZ828711	RR1220P-114-B TD0804N
4R29	DRZ832261	RK73H 2A 1.1KΩ F TD0804N
4R30	DRZ832081	RK73H 2A 200Ω F TD0804N
4R31, 4R32	DRZ831121	MCR10J 240E TD0804N
4R33	DRZ833581	RK73H 2A 43Ω F TD0804N
4R35 to 4R42	DRZ828761	RR1220P-204-D TD0804N
4R43	DRZ832121	RK73H 2A 300Ω F TD0804N
4R44	DRZ832011	RK73H 2A 100Ω F TD0804N
4R45	DRZ832031	RK73H 2A 120Ω F TD0804N
4R46, 4R47	DRZ831431	MCR10J 335E TD0804N
4R48	DRZ828621	RK73H 1J 51Ω F TD0804N
4R49	DRZ820971	RN73G 2A 20Ω D TD0804N
4R50	DRZ832101	RK73H 2A 240Ω F TD0804N
4R51	DRZ830861	MCR10J 300E TD0804N
4R53	DRZ832531	RK73H 2A 15KΩ F TD0804N
4R54	DRZ832251	RK73H 2A 1.0KΩ F TD0804N
4R55	DRZ832441	RK73H 2A 6.2KΩ F TD0804N
4R56	DRZ832251	RK73H 2A 1.0KΩ F TD0804N



## CH3 FRONT END 4

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
4R58	DRZ832051	RK73H 2A 150ΩF TD0804N
4R59	DRZ820971	RN73G 2A 20ΩD TD0804N
4R60 to 4R62	DRZ832201	RK73H 2A 620ΩF TD0804N
4R63	DRZ820971	RN73G 2A 20ΩD TD0804N
4R64 to 4R67	DRZ832091	RK73H 2A 220ΩF TD0804N
4R68	DRZ832601	RK73H 2A 30KΩF TD0804N
4R69	DRZ832401	RK73H 2A 4.3KΩF TD0804N
4R70	DRZ832281	RK73H 2A 1.3KΩF TD0804N
4R71	DRZ832031	RK73H 2A 120ΩF TD0804N
4R74, 4R75	DRZ828761	RR1220P-204-D TD0804N
4R76	DRZ828711	RR1220P-114-B TD0804N
4R77	DRZ832661	RK73H 2A 51KΩF TD0804N
4R78	DRV810251	G4AT/ST-4TA 5KΩ TE1208L
4R79	DRZ832011	RK73H 2A 100ΩF TD0804N
4R80	DRZ832251	RK73H 2A 1.0KΩF TD0804N
4R81, 4R82	DRZ820861	RN73F 2A 100KΩD TD0804N
4R83	DRZ832321	RK73H 2A 2.0KΩF TD0804N
4R84	DRZ832301	RK73H 2A 1.6KΩF TD0804N
4R85	DDD074121	LP310 1F 202F 302 TE0804N
4R86	DRZ832491	RK73H 2A 10KΩF TD0804N
4R87	DDD074121	LP310 1F 202F 302 TE0804N
4R88	DRZ832491	RK73H 2A 10KΩF TD0804N
4R89	DRZ832251	RK73H 2A 1.0KΩF TD0804N
4R90	DRZ832491	RK73H 2A 10KΩF TD0804N
4R91	DRZ828571	RN73F 2A 510ΩB TD0804N
4R92	DRZ833021	RK73H 2A 51ΩF TD0804N
4R93	DRZ833571	RK73H 2A 39ΩF TD0804N
4R94	DRZ833441	RK73H 2A 10ΩF TD0804N
4R95	DRZ833021	RK73H 2A 51ΩF TD0804N
4R97	DRZ832291	RK73H 2A 1.5KΩF TD0804N
4R98	DRZ832471	RK73H 2A 8.2KΩF TD0804N
4R100	DRZ832301	RK73H 2A 1.6KΩF TD0804N
4R101	DRZ832191	RK73H 2A 560ΩF TD0804N
4R105	DRZ832351	RK73H 2A 2.7KΩF TD0804N
4R106	DRZ832191	RK73H 2A 560ΩF TD0804N
4R107	DRZ832351	RK73H 2A 2.7KΩF TD0804N
4R108	DRZ832191	RK73H 2A 560ΩF TD0804N
4R109	DRZ832011	RK73H 2A 100ΩF TD0804N
4R110	DRZ832321	RK73H 2A 2.0KΩF TD0804N
4R120	DRZ832251	RK73H 2A 1.0KΩF TD0804N
4R123 to 4R125	DRZ832011	RK73H 2A 100ΩF TD0804N
4R126	DRZ832251	RK73H 2A 1.0KΩF TD0804N
4R127	DRZ832391	RK73H 2A 3.9KΩF TD0804N
4R128	DRZ832121	RK73H 2A 300ΩF TD0804N
4R129	DRZ832251	RK73H 2A 1.0KΩF TD0804N
4R130	DRZ832391	RK73H 2A 3.9KΩF TD0804N
4R131	DRZ832121	RK73H 2A 300ΩF TD0804N
4RL1, 4RL2	DKD028511	NAS-5W-K-TN-B05 TE2416B
4RL3, 4RL4	DKD030381	NASL-5W-K-TN TE2416B
4RL5	DKD028511	NAS-5W-K-TN-B05 TE2416B

## CH4 FRONT END 5

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
5C1, 5C2	DCC816471	C2012CH 1H 080D A TD84N
5C3, 5C4	DCC850101	GRM42-6CH 050C500PT TE0804N
5C6	DCV819091	TZBX4 Z250BA110 TE1208R
5C7	DCC816521	C2012CH 1H 220J A TD84N
5C10	DCC850101	GRM42-6CH 050C500PT TE0804N
5C12	DCV819091	TZBX4 Z250BA110 TE1208R
5C13	DCC816521	C2012CH 1H 220J A TD84N
5C14	DCC816451	C2012CH 1H 060D A TD84N
5C15	DCC816381	C2012CH 1H 020C A TD84N
5C18	DCC816491	C2012CH 1H 100D A TD84N
5C19	DCC810511	C2012F 1H 103Z A TD84N
5C20	DCC840041	GHM1530B 473K250 TE0804N
5C21	DCC850011	GRM42-6 W5R 222K500 TE0804N
5C22	DCC850091	GRM42-6CH 020C500PT TE0804N
5C24	DCC816371	C2012CH 1H 1R5C A TD84N
5C25	DCV819051	TZBX4 Z030BA110 TE1208R
5C26	DCC811731	C1608B 1H 102K A TD0804N
5C27 to 5C29	DCC810511	C2012F 1H 103Z A TD84N
5C31	DCC816421	C2012CH 1H 040C A TD84N
5C32 to 5C35	DCC810511	C2012F 1H 103Z A TD84N
5C36	DCC810571	C2012F 1H 104Z A TD0804N
5C37, 5C39	DCC816601	C2012CH 1H 101J A TD84N
5C40	DCC810571	C2012F 1H 104Z A TD0804N
5C41	DCC810981	C2012B 1H 153K A TD84N
5C42	DCC811161	C2012B 1H 333K A TD84N
5C43 to 5C46	DCC810511	C2012F 1H 103Z A TD84N
5C47	DCC811161	C2012B 1H 333K A TD84N
5C48	DCV819051	TZBX4 Z030BA110 TE1208R
5C49	DCC810511	C2012F 1H 103Z A TD84N
5C50	DCE919141	SRA 10VB-100 TC04R
5C51 to 5C53	DCC810511	C2012F 1H 103Z A TD84N
5C54, 5C55	DCC810571	C2012F 1H 104Z A TD0804N
5C58	DCC820021	C2012F 1C 105Z A TD84N
5C59, 5C60	DCC810511	C2012F 1H 103Z A TD84N
5C70 to 5C74	DCC816801	C2012CH 1H 102J A TD84N
5C75, 5C76	DCC820251	C2012B 1C 474K A TD0804N
5C80	DCC810571	C2012F 1H 104Z A TD0804N
5C81	DCC816491	C2012CH 1H 100D A TD84N
5C83 to 5C86	DCC820021	C2012F 1C 105Z A TD84N
5C87	DCC810511	C2012F 1H 103Z A TD84N
5C88	DCC816491	C2012CH 1H 100D A TD84N
5C90 to 5C96	DCC810511	C2012F 1H 103Z A TD84N
5C99	DCC819091	GRM42-6B 106K6.3PT TE0804N
5D1, 5D2	DDD810461	HSM 124S-JTL TE0804L
5D3	DDD810081	1SS 226 (TE85L) TE0804L
5D4 to 5D6	DDD810241	1SS 272 TE0804R
5D7 to 5D9	DDD810461	HSM 124S-JTL TE0804L
5D10, 5D11	DDD810241	1SS 272 TE0804R
5FL1 to 5FL7	DCL870041	NFM39R12C222T1 TE0804N
5IC1	DIC614811	LT 1097S8-T2 TE1208B
5IC2	DIC619191	NJM 082M(TE3) TE1208L
5IC3	DIC614891	HFE428 1GHZ FRONT END
5IC4	DIC631231	HTR420 TRIGGER COMPARATOR



**CH4 FRONT END** 5

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
5IC5	DIC483321	74HC595F/AF TE1612B
5IC6	DIC619271	TA 75S558F (TE85L) TE0804L
5J1A	DCN126091	7093XXP01 PROBUS CONNECTOR
5J1B	DCN045681	CONNECTOR BNC-BR-PC-1
5L1	DCL810831	HK1608 18NJ-T TD0804N
5L2	DCL811011	BLM21A121FPT TD0804N
5L3	DCL810811	HK1608 10NJ-T TD0804N
5L4	DCL811011	BLM21A121FPT TD0804N
5L11 to 5L14	DCL810811	HK1608 10NJ-T TD0804N
5Q1	DTR860161	2SK 508 K51 TE0804L
5Q2 to 5Q4	DTR830521	2SC 3583-T1B TE0804L
5Q5, 5Q6	DTR810041	2SA 1162Y TE85L
5Q7 to 5Q11	DTR890471	DTA114YK/RN2407 TE0804L
5Q12	DTR810041	2SA 1162Y TE85L
5Q14	DTR838661	2SC 2712LG TE85L
5Q15, 5Q16	DTR890581	DTC114YK/RN1407 TE0804L
5Q17, 5Q18	DTR810041	2SA 1162Y TE85L
5R1 to 5R10	DRZ820971	RN73G 2A 20ΩD TD0804N
5R11	DRZ833071	RK73H 2A 82ΩF TD0804N
5R12	DRZ833561	RK73H 2A 36ΩF TD0804N
5R13	DRZ832011	RK73H 2A 100ΩF TD0804N
5R14	DRZ831611	MCR10J 5R6E TD0804N
5R15 to 5R17	DRZ828721	RR1220P-224-B TD0804N
5R18	DRZ828731	RR1220P-244-B TD0804N
5R19	DRZ828711	RR1220P-114-B TD0804N
5R20	DRZ832261	RK73H 2A 1.1KΩF TD0804N
5R21	DRZ832081	RK73H 2A 200ΩF TD0804N
5R22	DRZ833581	RK73H 2A 43ΩF TD0804N
5R24	DRZ833551	RK73H 2A 33ΩF TD0804N
5R25	DRZ833041	RK73H 2A 62ΩF TD0804N
5R26	DRZ828751	RR1220P-474-B TD0804N
5R27	DRZ828741	RR1220P-434-B TD0804N
5R28	DRZ828711	RR1220P-114-B TD0804N
5R29	DRZ832261	RK73H 2A 1.1KΩF TD0804N
5R30	DRZ832081	RK73H 2A 200ΩF TD0804N
5R31, 5R32	DRZ831121	MCR10J 240E TD0804N
5R33	DRZ833581	RK73H 2A 43ΩF TD0804N
5R35 to 5R42	DRZ828761	RR1220P-204-D TD0804N
5R43	DRZ832121	RK73H 2A 300ΩF TD0804N
5R44	DRZ832011	RK73H 2A 100ΩF TD0804N
5R45	DRZ832031	RK73H 2A 120ΩF TD0804N
5R46, 5R47	DRZ831431	MCR10J 335E TD0804N
5R48	DRZ828621	RK73H 1J 51ΩF TD0804N
5R49	DRZ820971	RN73G 2A 20ΩD TD0804N
5R50	DRZ832101	RK73H 2A 240ΩF TD0804N
5R51	DRZ830861	MCR10J 300E TD0804N
5R53	DRZ832531	RK73H 2A 15KΩF TD0804N
5R54	DRZ832251	RK73H 2A 1.0KΩF TD0804N
5R55	DRZ832441	RK73H 2A 6.2KΩF TD0804N
5R56	DRZ832251	RK73H 2A 1.0KΩF TD0804N
5R58	DRZ832051	RK73H 2A 150ΩF TD0804N
5R59	DRZ820971	RN73G 2A 20ΩD TD0804N

**CH4 FRONT END** 5

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
5R60 to 5R62	DRZ832201	RK73H 2A 620ΩF TD0804N
5R63	DRZ820971	RN73G 2A 20ΩD TD0804N
5R64 to 5R67	DRZ832091	RK73H 2A 220ΩF TD0804N
5R68	DRZ832601	RK73H 2A 30KΩF TD0804N
5R69	DRZ832401	RK73H 2A 4.3KΩF TD0804N
5R70	DRZ832281	RK73H 2A 1.3KΩF TD0804N
5R71	DRZ832031	RK73H 2A 120ΩF TD0804N
5R74, 5R75	DRZ828761	RR1220P-204-D TD0804N
5R76	DRZ828711	RR1220P-114-B TD0804N
5R77	DRZ832661	RK73H 2A 51KΩF TD0804N
5R78	DRV810251	G4AT/ST-4TA 5KΩ TE1208L
5R79	DRZ832011	RK73H 2A 100ΩF TD0804N
5R80	DRZ832251	RK73H 2A 1.0KΩF TD0804N
5R81, 5R82	DRZ820861	RN73F 2A 100KΩD TD0804N
5R83	DRZ832321	RK73H 2A 2.0KΩF TD0804N
5R84	DRZ832301	RK73H 2A 1.6KΩF TD0804N
5R85	DDD074121	LP310 1F 202F 302 TE0804N
5R86	DRZ832491	RK73H 2A 10KΩF TD0804N
5R87	DDD074121	LP310 1F 202F 302 TE0804N
5R88	DRZ832491	RK73H 2A 10KΩF TD0804N
5R89	DRZ832251	RK73H 2A 1.0KΩF TD0804N
5R90	DRZ832491	RK73H 2A 10KΩF TD0804N
5R91	DRZ828571	RN73F 2A 510ΩB TD0804N
5R92	DRZ833021	RK73H 2A 51ΩF TD0804N
5R93	DRZ833571	RK73H 2A 39ΩF TD0804N
5R94	DRZ833441	RK73H 2A 10ΩF TD0804N
5R95	DRZ833021	RK73H 2A 51ΩF TD0804N
5R97	DRZ832291	RK73H 2A 1.5KΩF TD0804N
5R98	DRZ832471	RK73H 2A 8.2KΩF TD0804N
5R100	DRZ832301	RK73H 2A 1.6KΩF TD0804N
5R101	DRZ832191	RK73H 2A 560ΩF TD0804N
5R105	DRZ832351	RK73H 2A 2.7KΩF TD0804N
5R106	DRZ832191	RK73H 2A 560ΩF TD0804N
5R107	DRZ832351	RK73H 2A 2.7KΩF TD0804N
5R108	DRZ832191	RK73H 2A 560ΩF TD0804N
5R109	DRZ832011	RK73H 2A 100ΩF TD0804N
5R110	DRZ832321	RK73H 2A 2.0KΩF TD0804N
5R115, 5R116	DRZ833021	RK73H 2A 51ΩF TD0804N
5R120	DRZ832251	RK73H 2A 1.0KΩF TD0804N
5R123 to 5R125	DRZ832011	RK73H 2A 100ΩF TD0804N
5R126	DRZ832251	RK73H 2A 1.0KΩF TD0804N
5R127	DRZ832391	RK73H 2A 3.9KΩF TD0804N
5R128	DRZ832121	RK73H 2A 300ΩF TD0804N
5R129	DRZ832251	RK73H 2A 1.0KΩF TD0804N
5R130	DRZ832391	RK73H 2A 3.9KΩF TD0804N
5R131	DRZ832121	RK73H 2A 300ΩF TD0804N
5RL1, 5RL2	DKD028511	NAS-5W-K-TN-B05 TE2416B
5RL3, 5RL4	DKD030381	NASL-5W-K-TN TE2416B
5RL5	DKD028511	NAS-5W-K-TN-B05 TE2416B



## EXT TRIGGER 6

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
6C1	DCC816451	C2012CH 1H 060D A TD84N
6C2	DCC816491	C2012CH 1H 100D A TD84N
6C3, 6C4	DCC850101	GRM42-6CH 050C500PT TE0804N
6C5	DCC816401	C2012CH 1H 030C A TD84N
6C6	DCV819091	TZBX4 Z250BA110 TE1208R
6C7	DCC816531	C2012CH 1H 270J A TD84N
6C19	DCC810511	C2012F 1H 103Z A TD84N
6C18	DCC816491	C2012CH 1H 100D A TD84N
6C21	DCC850011	GRM42-6 W5R 222K500 TE0804N
6C22	DCC850091	GRM42-6CH 020C500PT TE0804N
6C24	DCC816381	C2012CH 1H 020C A TD84N
6C25	DCV819051	TZBX4 Z030BA110 TE1208R
6C26	DCC816801	C2012CH 1H 102J A TD84N
6C27 to 6C29	DCC810511	C2012F 1H 103Z A TD84N
6C31	DCC816451	C2012CH 1H 060D A TD84N
6C32 to 6C34	DCC810511	C2012F 1H 103Z A TD84N
6C36	DCC810511	C2012F 1H 103Z A TD84N
6C37	DCC816801	C2012CH 1H 102J A TD84N
6C39	DCC816601	C2012CH 1H 101J A TD84N
6C40	DCC810571	C2012F 1H 104Z A TD0804N
6C41	DCC810981	C2012B 1H 153K A TD84N
6C42	DCC811161	C2012B 1H 333K A TD84N
6C43, 6C44	DCC810511	C2012F 1H 103Z A TD84N
6C47	DCC820021	C2012F 1C 105Z A TD84N
6C50	DCE919141	SRA 10VB-100 TC04R
6C51 to 6C53	DCC810511	C2012F 1H 103Z A TD84N
6C54, 6C55	DCC810571	C2012F 1H 104Z A TD0804N
6C58	DCC820021	C2012F 1C 105Z A TD84N
6C59 to 6C64	DCC810511	C2012F 1H 103Z A TD84N
6C65	DCC811111	C2012B 1E 104K A TD84N
6C66	DCC810511	C2012F 1H 103Z A TD84N
6C67	DCC816601	C2012CH 1H 101J A TD84N
6C68, 6C69	DCC810511	C2012F 1H 103Z A TD84N
6C70 to 6C72	DCC816801	C2012CH 1H 102J A TD84N
6C75	DCC820251	C2012B 1C 474K A TD0804N
6C80	DCC810571	C2012F 1H 104Z A TD0804N
6C90 to 6C96	DCC810511	C2012F 1H 103Z A TD84N
6C99	DCC819091	GRM42-6B 106K6.3PT TE0804N
6D1, 6D2	DDD810461	HSM 124S-JTL TE0804L
6D3	DDD810081	1SS 226 (TE85L) TE0804L
6D5, 6D6	DDD810241	1SS 272 TE0804R
6D7 to 6D9	DDD810461	HSM 124S-JTL TE0804L
6D10	DDD810241	1SS 272 TE0804R
6D11	DDD810131	1SS 269 TE0804L
6FL1 to 6FL4	DCL870041	NFM39R12C222T1 TE0804N
6FL7	DCL870041	NFM39R12C222T1 TE0804N
6FL10 to 6FL13	DCL870021	NFM41P11C204 TE1204N
6IC1	DIC614811	LT 1097S8-T2 TE1208B
6IC2, 6IC3	DIC619101	NJM 4558M(TE3) TE1208L
6IC4	DIC631231	HTR420 TRIGGER COMPARATOR
6IC5	DIC483321	74HC595F/AF TE1612B
6IC6	DIC322631	MC 10EL16D
6J1A	DCN126091	7093XXP01 PROBUS CONNECTOR

## EXT TRIGGER 6

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
6J1B	DCN045681	CONNECTOR BNC-BR-PC-1
6L1	DCL810831	HK1608 18NJ-T TD0804N
6L2, 6L4	DCL811011	BLM21A121FPT TD0804N
6Q1	DTR860161	2SK 508 K51 TE0804L
6Q2 to 6Q4	DTR830521	2SC 3583-T1B TE0804L
6Q5, 6Q6	DTR810041	2SA 1162Y TE85L
6Q7 to 6Q9	DTR890471	DTA114YK/RN2407 TE0804L
6Q10	DTR830521	2SC 3583-T1B TE0804L
6Q12	DTR810041	2SA 1162Y TE85L
6Q14	DTR838661	2SC 2712LG TE85L
6Q15	DTR890581	DTC114YK/RN1407 TE0804L
6Q17	DTR810041	2SA 1162Y TE85L
6R1 to 6R10	DRZ820971	RN73G 2A 20Ω D TD0804N
6R11	DRZ833071	RK73H 2A 82Ω F TD0804N
6R12	DRZ833531	RK73H 2A 27Ω F TD0804N
6R13	DRZ832151	RK73H 2A 390Ω F TD0804N
6R14	DRZ830861	MCR10J 300E TD0804N
6R15 to 6R17	DRZ828721	RR1220P-224-B TD0804N
6R18	DRZ828731	RR1220P-244-B TD0804N
6R19	DRZ828711	RR1220P-114-B TD0804N
6R20	DRZ832261	RK73H 2A 1.1KΩ F TD0804N
6R21	DRZ832091	RK73H 2A 220Ω F TD0804N
6R22	DRZ820971	RN73G 2A 20Ω D TD0804N
6R24	DRZ833031	RK73H 2A 56Ω F TD0804N
6R35 to 6R39	DRZ828761	RR1220P-204-D TD0804N
6R44	DRZ832011	RK73H 2A 100Ω F TD0804N
6R45	DRZ832051	RK73H 2A 150Ω F TD0804N
6R46, 6R47	DRZ831431	MCR10J 335E TD0804N
6R48	DRZ833021	RK73H 2A 51Ω F TD0804N
6R49	DRZ820971	RN73G 2A 20Ω D TD0804N
6R50	DRZ832101	RK73H 2A 240Ω F TD0804N
6R51	DRZ830861	MCR10J 300E TD0804N
6R53	DRZ832531	RK73H 2A 15KΩ F TD0804N
6R54	DRZ832251	RK73H 2A 1.0KΩ F TD0804N
6R55	DRZ832441	RK73H 2A 6.2KΩ F TD0804N
6R56	DRZ832251	RK73H 2A 1.0KΩ F TD0804N
6R58	DRZ832051	RK73H 2A 150Ω F TD0804N
6R59	DRZ820971	RN73G 2A 20Ω D TD0804N
6R60 to 6R62	DRZ832201	RK73H 2A 620Ω F TD0804N
6R63	DRZ820971	RN73G 2A 20Ω D TD0804N
6R64 to 6R67	DRZ832101	RK73H 2A 240Ω F TD0804N
6R68	DRZ832601	RK73H 2A 30KΩ F TD0804N
6R69	DRZ832411	RK73H 2A 4.7KΩ F TD0804N
6R70	DRZ832101	RK73H 2A 240Ω F TD0804N
6R72	DRZ831121	MCR10J 240E TD0804N
6R74	DRZ828761	RR1220P-204-D TD0804N
6R76	DRZ828711	RR1220P-114-B TD0804N
6R77	DRZ832251	RK73H 2A 1.0KΩ F TD0804N
6R78	DRZ832661	RK73H 2A 51KΩ F TD0804N
6R79	DRZ832391	RK73H 2A 3.9KΩ F TD0804N
6R80	DRZ832631	RK73H 2A 39KΩ F TD0804N
6R81	DRZ832361	RK73H 2A 3.0KΩ F TD0804N
6R83	DRZ832321	RK73H 2A 2.0KΩ F TD0804N

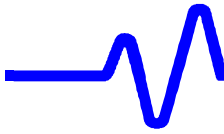
**EXT TRIGGER** 6

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
6R84	DRZ832301	RK73H 2A 1.6KΩF TD0804N
6R85	DDD074121	LP310 1F 202F 302 TE0804N
6R86	DRZ832491	RK73H 2A 10KΩF TD0804N
6R87	DDD074121	LP310 1F 202F 302 TE0804N
6R88	DRZ832491	RK73H 2A 10KΩF TD0804N
6R89	DRZ832251	RK73H 2A 1.0KΩF TD0804N
6R90	DRZ832491	RK73H 2A 10KΩF TD0804N
6R91	DRZ828571	RN73F 2A 510ΩB TD0804N
6R92	DRZ833021	RK73H 2A 51ΩF TD0804N
6R93	DRZ833011	RK73H 2A 47ΩF TD0804N
6R94	DRZ833441	RK73H 2A 10ΩF TD0804N
6R97	DRZ832291	RK73H 2A 1.5KΩF TD0804N
6R98	DRZ832471	RK73H 2A 8.2KΩF TD0804N
6R100	DRZ831121	MCR10J 240E TD0804N
6R101	DRZ832421	RK73H 2A 5.1KΩF TD0804N
6R105	DRZ832331	RK73H 2A 2.2KΩF TD0804N
6R106	DRZ832191	RK73H 2A 560ΩF TD0804N
6R107	DRZ832331	RK73H 2A 2.2KΩF TD0804N
6R108	DRZ832191	RK73H 2A 560ΩF TD0804N
6R109	DRZ832011	RK73H 2A 100ΩF TD0804N
6R110	DRZ832321	RK73H 2A 2.0KΩF TD0804N
6R120	DRZ832251	RK73H 2A 1.0KΩF TD0804N
6R123 to 6R125	DRZ832011	RK73H 2A 100ΩF TD0804N
6R126	DRZ832251	RK73H 2A 1.0KΩF TD0804N
6R127	DRZ832391	RK73H 2A 3.9KΩF TD0804N
6R128	DRZ832121	RK73H 2A 300ΩF TD0804N
6R150	DRZ832011	RK73H 2A 100ΩF TD0804N
6R151, 6R152	DRZ832491	RK73H 2A 10KΩF TD0804N
6R154	DRZ820971	RN73G 2A 20ΩD TD0804N
6R155, 6R156	DRZ832251	RK73H 2A 1.0KΩF TD0804N
6R157	DRZ832051	RK73H 2A 150ΩF TD0804N
6R158 to 6R161	DRZ832491	RK73H 2A 10KΩF TD0804N
6R162	DRZ832081	RK73H 2A 200ΩF TD0804N
6R163	DRZ832321	RK73H 2A 2.0KΩF TD0804N
6RL1, 6RL2	DKD028511	NAS-5W-K-TN-B05 TE2416B
6RL3	DKD030381	NASL-5W-K-TN TE2416B

**CH1 A/D CNVT** 7

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
7C1	DCC810511	C2012F 1H 103Z A TD84N
7C3	DCC816641	C2012CH 1H 221J A TD84N
7C5	DCC820021	C2012F 1C 105Z A TD84N
7C6, 7C11, 7C12	DCC810511	C2012F 1H 103Z A TD84N
7C13	DCC820021	C2012F 1C 105Z A TD84N
7C20	DCC810511	C2012F 1H 103Z A TD84N
7C22	DCC810571	C2012F 1H 104Z A TD0804N
7C30	DCC820021	C2012F 1C 105Z A TD84N
7C31, 7C32	DCC810571	C2012F 1H 104Z A TD0804N
7C40, 7C46	DCC820021	C2012F 1C 105Z A TD84N
7C47	DCC810511	C2012F 1H 103Z A TD84N
7C50	DCC816801	C2012CH 1H 102J A TD84N
7C51	DCC820121	EMK325F 106ZH-T TE0804N
7C52 to 7C54	DCC810511	C2012F 1H 103Z A TD84N
7C55	DCE219051	SME-CE04W 1A 101M TC04R
7C56	DCC810511	C2012F 1H 103Z A TD84N
7C57 to 7C59	DCC820121	EMK325F 106ZH-T TE0804N
7C60	DCC810571	C2012F 1H 104Z A TD0804N
7C61 to 7C63	DCC810511	C2012F 1H 103Z A TD84N
7C64	DCC820121	EMK325F 106ZH-T TE0804N
7C65	DCC810571	C2012F 1H 104Z A TD0804N
7C66	DCC810511	C2012F 1H 103Z A TD84N
7C67	DCE219151	SME-CE04W 1A 471M TC04R
7C68, 7C69	DCC820121	EMK325F 106ZH-T TE0804N
7C70 to 7C73	DCC810571	C2012F 1H 104Z A TD0804N
7C74	DCC820121	EMK325F 106ZH-T TE0804N
7C80	DCE219051	SME-CE04W 1A 101M TC04R
7C81, 7C83	DCC820031	C2012F 1C 224Z A TD84N
7C84	DCE219051	SME-CE04W 1A 101M TC04R
7C85	DCC820031	C2012F 1C 224Z A TD84N
7C86	DCE229201	SME-CE04W 1E 470M TC04R
7C87	DCC820031	C2012F 1C 224Z A TD84N
7C88	DCE229201	SME-CE04W 1E 470M TC04R
7C89	DCC820031	C2012F 1C 224Z A TD84N
7C90 to 7C92	DCC810571	C2012F 1H 104Z A TD0804N
7C94, 7C95	DCC810511	C2012F 1H 103Z A TD84N
7C96	DCC810571	C2012F 1H 104Z A TD0804N
7FL1 to 7FL3	DCL870021	NFM41P11C204 TE1204N
7IC1	DIC642371	HAD626 500MS/S ADC
7IC2	DIC619101	NJM 4558M(TE3) TE1208L
7IC3, 7IC4	DIC619271	TA 75S558F (TE85L) TE0804L
7J1	DCN126131	89177-5600
7L4 to 7L8	DCL119361	BL02RN2-R62 TD04N
7Q1	DTR890841	IMX3 TE0804R
7Q2, 7Q3	DTR830481	2SC 2873-Y TE1208L
7Q4	DTR129011	2SB 605K/L TRB
7Q5	DTR810161	2SA 1213-Y TE12L
7R1	DRZ832531	RK73H 2A 15KΩF TD0804N
7R2	DRZ832721	RK73H 2A 91KΩF TD0804N
7R3	DRZ832361	RK73H 2A 3.0KΩF TD0804N
7R4	DRZ832341	RK73H 2A 2.4KΩF TD0804N
7R10	DRZ832491	RK73H 2A 10KΩF TD0804N





## CH1 A/D CNVT 7

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
7R11	DRZ832321	RK73H 2A 2.0KΩ F TD0804N
7R12	DRZ832301	RK73H 2A 1.6KΩ F TD0804N
7R13	DRZ833061	RK73H 2A 75Ω F TD0804N
7R14	DRZ832051	RK73H 2A 150Ω F TD0804N
7R15 to 7R17	DRZ832251	RK73H 2A 1.0KΩ F TD0804N
7R20	DRZ832341	RK73H 2A 2.4KΩ F TD0804N
7R21	DRZ832481	RK73H 2A 9.1KΩ F TD0804N
7R22	DRZ832311	RK73H 2A 1.8KΩ F TD0804N
7R25	DRZ832251	RK73H 2A 1.0KΩ F TD0804N
7R26	DRZ832211	RK73H 2A 680Ω F TD0804N
7R30	DRZ832321	RK73H 2A 2.0KΩ F TD0804N
7R31	DRZ832311	RK73H 2A 1.8KΩ F TD0804N
7R32, 7R33	DRZ833061	RK73H 2A 75Ω F TD0804N
7R34	DRZ833551	RK73H 2A 33Ω F TD0804N
7R35	DRZ832251	RK73H 2A 1.0KΩ F TD0804N
7R40 to 7R43	DRZ833491	RK73H 2A 18Ω F TD0804N
7R46, 7R47	DRZ832351	RK73H 2A 2.7KΩ F TD0804N
7R48, 7R49	DRZ832281	RK73H 2A 1.3KΩ F TD0804N
7R50	DRZ832171	RK73H 2A 470Ω F TD0804N
7R51	DRZ832351	RK73H 2A 2.7KΩ F TD0804N
7R52	DRZ832121	RK73H 2A 300Ω F TD0804N
7R53	DRZ832111	RK73H 2A 270Ω F TD0804N
7R54	DRZ831591	MCR10J 4R7E TD0804N

## CH2 A/D CNVT 8

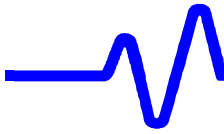
CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
8C1	DCC810511	C2012F 1H 103Z A TD84N
8C3	DCC816641	C2012CH 1H 221J A TD84N
8C5	DCC820021	C2012F 1C 105Z A TD84N
8C6, 8C11, 8C12	DCC810511	C2012F 1H 103Z A TD84N
8C13	DCC820021	C2012F 1C 105Z A TD84N
8C20	DCC810511	C2012F 1H 103Z A TD84N
8C22	DCC810571	C2012F 1H 104Z A TD0804N
8C30	DCC820021	C2012F 1C 105Z A TD84N
8C31, 8C32	DCC810571	C2012F 1H 104Z A TD0804N
8C40, 8C46	DCC820021	C2012F 1C 105Z A TD84N
8C47	DCC810511	C2012F 1H 103Z A TD84N
8C50	DCC816801	C2012CH 1H 102J A TD84N
8C51	DCC820121	EMK325F 106ZH-T TE0804N
8C52 to 8C54	DCC810511	C2012F 1H 103Z A TD84N
8C55	DCE219051	SME-CE04W 1A 101M TC04R
8C56	DCC810511	C2012F 1H 103Z A TD84N
8C57 to 8C59	DCC820121	EMK325F 106ZH-T TE0804N
8C60	DCC810571	C2012F 1H 104Z A TD0804N
8C61 to 8C63	DCC810511	C2012F 1H 103Z A TD84N
8C64	DCC820121	EMK325F 106ZH-T TE0804N
8C65	DCC810571	C2012F 1H 104Z A TD0804N
8C66	DCC810511	C2012F 1H 103Z A TD84N
8C67	DCE219151	SME-CE04W 1A 471M TC04R
8C68, 8C69	DCC820121	EMK325F 106ZH-T TE0804N
8C70 to 8C73	DCC810571	C2012F 1H 104Z A TD0804N
8C74	DCC820121	EMK325F 106ZH-T TE0804N
8C80	DCE219051	SME-CE04W 1A 101M TC04R
8C81, 8C83	DCC820031	C2012F 1C 224Z A TD84N
8C84	DCE219051	SME-CE04W 1A 101M TC04R
8C85	DCC820031	C2012F 1C 224Z A TD84N
8C86	DCE229201	SME-CE04W 1E 470M TC04R
8C87	DCC820031	C2012F 1C 224Z A TD84N
8C88	DCE229201	SME-CE04W 1E 470M TC04R
8C89	DCC820031	C2012F 1C 224Z A TD84N
8C90 to 8C92	DCC810571	C2012F 1H 104Z A TD0804N
8C94, 8C95	DCC810511	C2012F 1H 103Z A TD84N
8C96	DCC810571	C2012F 1H 104Z A TD0804N
8FL1 to 8FL3	DCL870021	NFM41P11C204 TE1204N
8IC1	DIC642371	HAD626 500MS/S ADC
8IC2	DIC619101	NJM 4558M(TE3) TE1208L
8IC3, 8IC4	DIC619271	TA 75S558F (TE85L) TE0804L
8J1	DCN126131	89177-5600
8L4 to 8L8	DCL119361	BL02RN2-R62 TD04N
8Q1	DTR890841	IMX3 TE0804R
8Q2, 8Q3	DTR830481	2SC 2873-Y TE1208L
8Q4	DTR129011	2SB 605K/L TRB
8Q5	DTR810161	2SA 1213-Y TE12L
8R1	DRZ832531	RK73H 2A 15KΩ F TD0804N
8R2	DRZ832721	RK73H 2A 91KΩ F TD0804N
8R3	DRZ832361	RK73H 2A 3.0KΩ F TD0804N
8R4	DRZ832341	RK73H 2A 2.4KΩ F TD0804N
8R10	DRZ832491	RK73H 2A 10KΩ F TD0804N
8R11	DRZ832321	RK73H 2A 2.0KΩ F TD0804N

**CH2 A/D CNVT 8**

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
8R12	DRZ832301	RK73H 2A 1.6KΩ F TD0804N
8R13	DRZ833061	RK73H 2A 75Ω F TD0804N
8R14	DRZ832051	RK73H 2A 150Ω F TD0804N
8R15 to 8R17	DRZ832251	RK73H 2A 1.0KΩ F TD0804N
8R20	DRZ832341	RK73H 2A 2.4KΩ F TD0804N
8R21	DRZ832481	RK73H 2A 9.1KΩ F TD0804N
8R22	DRZ832311	RK73H 2A 1.8KΩ F TD0804N
8R25	DRZ832251	RK73H 2A 1.0KΩ F TD0804N
8R26	DRZ832211	RK73H 2A 680Ω F TD0804N
8R30	DRZ832321	RK73H 2A 2.0KΩ F TD0804N
8R31	DRZ832311	RK73H 2A 1.8KΩ F TD0804N
8R32, 8R33	DRZ833061	RK73H 2A 75Ω F TD0804N
8R34	DRZ833551	RK73H 2A 33Ω F TD0804N
8R35	DRZ832251	RK73H 2A 1.0KΩ F TD0804N
8R40 to 8R43	DRZ833491	RK73H 2A 18Ω F TD0804N
8R46, 8R47	DRZ832351	RK73H 2A 2.7KΩ F TD0804N
8R48, 8R49	DRZ832281	RK73H 2A 1.3KΩ F TD0804N
8R50	DRZ832171	RK73H 2A 470Ω F TD0804N
8R51	DRZ832351	RK73H 2A 2.7KΩ F TD0804N
8R52	DRZ832121	RK73H 2A 300Ω F TD0804N
8R53	DRZ832111	RK73H 2A 270Ω F TD0804N
8R54	DRZ831591	MCR10J 4R7E TD0804N

**CH3 A/D CNVT 9**

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
9C1	DCC810511	C2012F 1H 103Z A TD84N
9C3	DCC816641	C2012CH 1H 221J A TD84N
9C5	DCC820021	C2012F 1C 105Z A TD84N
9C6, 9C11, 9C12	DCC810511	C2012F 1H 103Z A TD84N
9C13	DCC820021	C2012F 1C 105Z A TD84N
9C20	DCC810511	C2012F 1H 103Z A TD84N
9C22	DCC810571	C2012F 1H 104Z A TD0804N
9C30	DCC820021	C2012F 1C 105Z A TD84N
9C31, 9C32	DCC810571	C2012F 1H 104Z A TD0804N
9C40, 9C46	DCC820021	C2012F 1C 105Z A TD84N
9C47	DCC810511	C2012F 1H 103Z A TD84N
9C50	DCC816801	C2012CH 1H 102J A TD84N
9C51	DCC820121	EMK325F 106ZH-T TE0804N
9C52 to 9C54	DCC810511	C2012F 1H 103Z A TD84N
9C55	DCE219051	SME-CE04W 1A 101M TC04R
9C56	DCC810511	C2012F 1H 103Z A TD84N
9C57 to 9C59	DCC820121	EMK325F 106ZH-T TE0804N
9C60	DCC810571	C2012F 1H 104Z A TD0804N
9C61 to 9C63	DCC810511	C2012F 1H 103Z A TD84N
9C64	DCC820121	EMK325F 106ZH-T TE0804N
9C65	DCC810571	C2012F 1H 104Z A TD0804N
9C66	DCC810511	C2012F 1H 103Z A TD84N
9C67	DCE219151	SME-CE04W 1A 471M TC04R
9C68, 9C69	DCC820121	EMK325F 106ZH-T TE0804N
9C70 to 9C73	DCC810571	C2012F 1H 104Z A TD0804N
9C74	DCC820121	EMK325F 106ZH-T TE0804N
9C80	DCE219051	SME-CE04W 1A 101M TC04R
9C81, 9C83	DCC820031	C2012F 1C 224Z A TD84N
9C84	DCE219051	SME-CE04W 1A 101M TC04R
9C85	DCC820031	C2012F 1C 224Z A TD84N
9C86	DCE229201	SME-CE04W 1E 470M TC04R
9C87	DCC820031	C2012F 1C 224Z A TD84N
9C88	DCE229201	SME-CE04W 1E 470M TC04R
9C89	DCC820031	C2012F 1C 224Z A TD84N
9C90 to 9C92	DCC810571	C2012F 1H 104Z A TD0804N
9C94, 9C95	DCC810511	C2012F 1H 103Z A TD84N
9C96	DCC810571	C2012F 1H 104Z A TD0804N
9FL1 to 9FL3	DCL870021	NFM41P11C204 TE1204N
9IC1	DIC642371	HAD626 500MS/S ADC
9IC2	DIC619101	NJM 4558M(TE3) TE1208L
9IC3, 9IC4	DIC619271	TA 75S558F (TE85L) TE0804L
9J1	DCN126131	89177-5600
9L4 to 9L8	DCL119361	BL02RN2-R62 TD04N
9Q1	DTR890841	IMX3 TE0804R
9Q2, 9Q3	DTR830481	2SC 2873-Y TE1208L
9Q4	DTR129011	2SB 605K/L TRB
9Q5	DTR810161	2SA 1213-Y TE12L
9R1	DRZ832531	RK73H 2A 15KΩ F TD0804N
9R2	DRZ832721	RK73H 2A 91KΩ F TD0804N
9R3	DRZ832361	RK73H 2A 3.0KΩ F TD0804N
9R4	DRZ832341	RK73H 2A 2.4KΩ F TD0804N
9R10	DRZ832491	RK73H 2A 10KΩ F TD0804N



## CH3 A/D CNVT 9

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
9R11	DRZ832321	RK73H 2A 2.0KΩ F TD0804N
9R12	DRZ832301	RK73H 2A 1.6KΩ F TD0804N
9R13	DRZ833061	RK73H 2A 75Ω F TD0804N
9R14	DRZ832051	RK73H 2A 150Ω F TD0804N
9R15 to 9R17	DRZ832251	RK73H 2A 1.0KΩ F TD0804N
9R20	DRZ832341	RK73H 2A 2.4KΩ F TD0804N
9R21	DRZ832481	RK73H 2A 9.1KΩ F TD0804N
9R22	DRZ832311	RK73H 2A 1.8KΩ F TD0804N
9R25	DRZ832251	RK73H 2A 1.0KΩ F TD0804N
9R26	DRZ832211	RK73H 2A 680Ω F TD0804N
9R30	DRZ832321	RK73H 2A 2.0KΩ F TD0804N
9R31	DRZ832311	RK73H 2A 1.8KΩ F TD0804N
9R32, 9R33	DRZ833061	RK73H 2A 75Ω F TD0804N
9R34	DRZ833551	RK73H 2A 33Ω F TD0804N
9R35	DRZ832251	RK73H 2A 1.0KΩ F TD0804N
9R40 to 9R43	DRZ833491	RK73H 2A 18Ω F TD0804N
9R46, 9R47	DRZ832351	RK73H 2A 2.7KΩ F TD0804N
9R48, 9R49	DRZ832281	RK73H 2A 1.3KΩ F TD0804N
9R50	DRZ832171	RK73H 2A 470Ω F TD0804N
9R51	DRZ832351	RK73H 2A 2.7KΩ F TD0804N
9R52	DRZ832121	RK73H 2A 300Ω F TD0804N
9R53	DRZ832111	RK73H 2A 270Ω F TD0804N
9R54	DRZ831591	MCR10J 4R7E TD0804N

## CH4 A/D CNVT 10

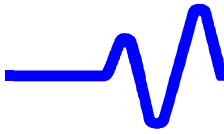
CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
10C1	DCC810511	C2012F 1H 103Z A TD84N
10C3	DCC816641	C2012CH 1H 221J A TD84N
10C5	DCC820021	C2012F 1C 105Z A TD84N
10C6, 10C11, 10C12	DCC810511	C2012F 1H 103Z A TD84N
10C13	DCC820021	C2012F 1C 105Z A TD84N
10C20	DCC810511	C2012F 1H 103Z A TD84N
10C22	DCC810571	C2012F 1H 104Z A TD0804N
10C30	DCC820021	C2012F 1C 105Z A TD84N
10C31, 10C32	DCC810571	C2012F 1H 104Z A TD0804N
10C40, 10C46	DCC820021	C2012F 1C 105Z A TD84N
10C47	DCC810511	C2012F 1H 103Z A TD84N
10C50	DCC816801	C2012CH 1H 102J A TD84N
10C51	DCC820121	EMK325F 106ZH-T TE0804N
10C52 to 10C54	DCC810511	C2012F 1H 103Z A TD84N
10C55	DCE219051	SME-CE04W 1A 101M TC04R
10C56	DCC810511	C2012F 1H 103Z A TD84N
10C57 to 10C59	DCC820121	EMK325F 106ZH-T TE0804N
10C60	DCC810571	C2012F 1H 104Z A TD0804N
10C61 to 10C63	DCC810511	C2012F 1H 103Z A TD84N
10C64	DCC820121	EMK325F 106ZH-T TE0804N
10C65	DCC810571	C2012F 1H 104Z A TD0804N
10C66	DCC810511	C2012F 1H 103Z A TD84N
10C67	DCE219151	SME-CE04W 1A 471M TC04R
10C68, 10C69	DCC820121	EMK325F 106ZH-T TE0804N
10C70 to 10C73	DCC810571	C2012F 1H 104Z A TD0804N
10C74	DCC820121	EMK325F 106ZH-T TE0804N
10C80	DCE219051	SME-CE04W 1A 101M TC04R
10C81, 10C83	DCC820031	C2012F 1C 224Z A TD84N
10C84	DCE219051	SME-CE04W 1A 101M TC04R
10C85	DCC820031	C2012F 1C 224Z A TD84N
10C86	DCE229201	SME-CE04W 1E 470M TC04R
10C87	DCC820031	C2012F 1C 224Z A TD84N
10C88	DCE229201	SME-CE04W 1E 470M TC04R
10C89	DCC820031	C2012F 1C 224Z A TD84N
10C90 to 10C92	DCC810571	C2012F 1H 104Z A TD0804N
10C94, 10C95	DCC810511	C2012F 1H 103Z A TD84N
10C96	DCC810571	C2012F 1H 104Z A TD0804N
10FL1 to 10FL3	DCL870021	NFM41P11C204 TE1204N
10IC1	DIC642371	HAD626 500MS/S ADC
10IC2	DIC619101	NJM 4558M(TE3) TE1208L
10IC3, 10IC4	DIC619271	TA 75S558F (TE85L) TE0804L
10J1	DCN126131	89177-5600
10L4 to 10L8	DCL119361	BL02RN2-R62 TD04N
10Q1	DTR890841	IMX3 TE0804R
10Q2, 10Q3	DTR830481	2SC 2873-Y TE1208L
10Q4	DTR129011	2SB 605K/L TRB
10Q5	DTR810161	2SA 1213-Y TE12L
10R1	DRZ832531	RK73H 2A 15KΩ F TD0804N
10R2	DRZ832721	RK73H 2A 91KΩ F TD0804N
10R3	DRZ832361	RK73H 2A 3.0KΩ F TD0804N
10R4	DRZ832341	RK73H 2A 2.4KΩ F TD0804N
10R10	DRZ832491	RK73H 2A 10KΩ F TD0804N
10R11	DRZ832321	RK73H 2A 2.0KΩ F TD0804N

**CH4 A/D CNVT** 10

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
10R12	DRZ832301	RK73H 2A 1.6KΩ F TD0804N
10R13	DRZ833061	RK73H 2A 75Ω F TD0804N
10R14	DRZ832051	RK73H 2A 150Ω F TD0804N
10R15 to 10R17	DRZ832251	RK73H 2A 1.0KΩ F TD0804N
10R20	DRZ832341	RK73H 2A 2.4KΩ F TD0804N
10R21	DRZ832481	RK73H 2A 9.1KΩ F TD0804N
10R22	DRZ832311	RK73H 2A 1.8KΩ F TD0804N
10R25	DRZ832251	RK73H 2A 1.0KΩ F TD0804N
10R26	DRZ832211	RK73H 2A 680Ω F TD0804N
10R30	DRZ832321	RK73H 2A 2.0KΩ F TD0804N
10R31	DRZ832311	RK73H 2A 1.8KΩ F TD0804N
10R32, 10R33	DRZ833061	RK73H 2A 75Ω F TD0804N
10R34	DRZ833551	RK73H 2A 33Ω F TD0804N
10R35	DRZ832251	RK73H 2A 1.0KΩ F TD0804N
10R40 to 10R43	DRZ833491	RK73H 2A 18Ω F TD0804N
10R46, 10R47	DRZ832351	RK73H 2A 2.7KΩ F TD0804N
10R48, 10R49	DRZ832281	RK73H 2A 1.3KΩ F TD0804N
10R50	DRZ832171	RK73H 2A 470Ω F TD0804N
10R51	DRZ832351	RK73H 2A 2.7KΩ F TD0804N
10R52	DRZ832121	RK73H 2A 300Ω F TD0804N
10R53	DRZ832111	RK73H 2A 270Ω F TD0804N
10R54	DRZ831591	MCR10J 4R7E TD0804N

**TRIG SELECTOR** 11

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
11C1	DCC810571	C2012F 1H 104Z A TD0804N
11C2	DCC820021	C2012F 1C 105Z A TD84N
11C3, 11C5	DCC810571	C2012F 1H 104Z A TD0804N
11C7, 11C9	DCC810571	C2012F 1H 104Z A TD0804N
11C10	DCC820021	C2012F 1C 105Z A TD84N
11C11	DCC810571	C2012F 1H 104Z A TD0804N
11C12	DCC820021	C2012F 1C 105Z A TD84N
11C13, 11C15	DCC810571	C2012F 1H 104Z A TD0804N
11C17, 11C19	DCC810571	C2012F 1H 104Z A TD0804N
11C20	DCC820021	C2012F 1C 105Z A TD84N
11C21	DCC810511	C2012F 1H 103Z A TD84N
11C23	DCC816401	C2012CH 1H 030C A TD84N
11C25	DCC816521	C2012CH 1H 220J A TD84N
11C26	DCC810571	C2012F 1H 104Z A TD0804N
11C31	DCC810511	C2012F 1H 103Z A TD84N
11C33	DCC816401	C2012CH 1H 030C A TD84N
11C35	DCC816521	C2012CH 1H 220J A TD84N
11C36	DCC810571	C2012F 1H 104Z A TD0804N
11C37	DCC816521	C2012CH 1H 220J A TD84N
11C38	DCC810511	C2012F 1H 103Z A TD84N
11C42	DCC816521	C2012CH 1H 220J A TD84N
11C43	DCC810571	C2012F 1H 104Z A TD0804N
11C54, 11C56	DCC810511	C2012F 1H 103Z A TD84N
11C57	DCC810571	C2012F 1H 104Z A TD0804N
11C70 to 11C73	DCC810571	C2012F 1H 104Z A TD0804N
11C74	DCC820121	EMK325F 106ZH-T TE0804N
11C75	DCE219051	SME-CE04W 1A 101M TC04R
11C76 to 11C82	DCC810571	C2012F 1H 104Z A TD0804N
11D1	DDD810241	1SS 272 TE0804R
11DL1, 11DL2	DZB999061	LDH33A202B TE1208B
11DL4 to 11DL7	DZB999071	LDH33A801B TE1208B
11FL1	DCL870021	NFM41P11C204 TE1204N
11IC1, 11IC2	DIC322671	MC 10E116FN/SY 10E116JC
11IC3	DIC322931	MC 10E157FN
11IC4	DIC891061	MST412 SMART TRIGGER IC
11IC5	DIC322831	MC 10EL11D
11IC6	DIC499821	TC7S04F/SC7S04F TE0804L
11IC7	DIC322721	MC 10H102M
11L1	DCL811011	BLM21A121FPT TD0804N
11Q1	DTR149011	2SD 571K/L TRB
11Q2	DTR890761	IMX5 TE0804R
11R1 to 11R21	DRZ833021	RK73H 2A 51Ω F TD0804N
11R22	DRZ832311	RK73H 2A 1.8KΩ F TD0804N
11R23	DRZ832371	RK73H 2A 3.3KΩ F TD0804N
11R24	DRZ832291	RK73H 2A 1.5KΩ F TD0804N
11R25	DRZ832481	RK73H 2A 9.1KΩ F TD0804N
11R26, 11R27	DRZ833021	RK73H 2A 51Ω F TD0804N
11R31	DRZ833021	RK73H 2A 51Ω F TD0804N
11R32	DRZ832311	RK73H 2A 1.8KΩ F TD0804N
11R33	DRZ832371	RK73H 2A 3.3KΩ F TD0804N
11R34	DRZ832291	RK73H 2A 1.5KΩ F TD0804N
11R35	DRZ832481	RK73H 2A 9.1KΩ F TD0804N

**TRIG SELECTOR** 11

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
11R36	DRZ833021	RK73H 2A 51Ω F TD0804N
11R37	DRZ832481	RK73H 2A 9.1KΩ F TD0804N
11R38 to 11R41	DRZ833021	RK73H 2A 51Ω F TD0804N
11R42	DRZ832481	RK73H 2A 9.1KΩ F TD0804N
11R43, 11R44	DRZ832011	RK73H 2A 100Ω F TD0804N
11R45 to 11R47	DRZ833061	RK73H 2A 75Ω F TD0804N
11R48	DRZ832091	RK73H 2A 220Ω F TD0804N
11R49, 11R50	DRZ833041	RK73H 2A 62Ω F TD0804N
11R51, 11R52	DRZ833441	RK73H 2A 10Ω F TD0804N
11R53	DRZ832711	RK73H 2A 82KΩ F TD0804N
11R54, 11R55	DRZ833011	RK73H 2A 47Ω F TD0804N
11R56	DRZ832211	RK73H 2A 680Ω F TD0804N
11R57	DRZ832251	RK73H 2A 1.0KΩ F TD0804N
11R58	DRZ833061	RK73H 2A 75Ω F TD0804N
11R59, 11R60	DRZ833021	RK73H 2A 51Ω F TD0804N
11R61	DRZ831501	MCR10 000E TD0804N
11R62 to 11R64	DRZ833021	RK73H 2A 51Ω F TD0804N
11R70 to 11R73	DRZ831501	MCR10 000E TD0804N
11R74	DRZ833441	RK73H 2A 10Ω F TD0804N
11R80 to 11R89	DRZ833031	RK73H 2A 56Ω F TD0804N
11R90 to 11R109	DRZ833551	RK73H 2A 33Ω F TD0804N

**400MHZ OSC** 12

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
12C4	DCC810571	C2012F 1H 104Z A TD0804N
12C7, 12C8	DCC816521	C2012CH 1H 220J A TD84N
12C13	DCC816521	C2012CH 1H 220J A TD84N
12C17	DCC810571	C2012F 1H 104Z A TD0804N
12C19, 12C20	DCC810511	C2012F 1H 103Z A TD84N
12C21	DCC816381	C2012CH 1H 020C A TD84N
12C22	DCC815891	C2012CH 1H 150J A TD84N
12C23, 12C27	DCC810511	C2012F 1H 103Z A TD84N
12C31	DCC815841	C2012SL 1H 681J A TD84N
12C34	DCE219151	SME-CE04W 1A 471M TC04R
12C35	DCC819091	GRM42-6B 106K6.3PT TE0804N
12C40	DCC816421	C2012CH 1H 040C A TD84N
12C41	DCC810511	C2012F 1H 103Z A TD84N
12C50 to 12C56	DCC810571	C2012F 1H 104Z A TD0804N
12D1	DDD810401	HVU 202A3 TE0804R
12D2	DDD810241	1SS 272 TE0804R
12DL1	DZB999051	LDH33A152B TE1208B
12IC1	DIC483321	74HC595F/AF TE1612B
12IC2	DIC322921	MC 10H117M
12IC3	DIC322601	MC 10EL01
12IC4, 12IC5	DIC619271	TA 75S558F (TE85L) TE0804L
12L1	DCL811031	HK2125 18NJ-T TE0804N
12Q1	DTR215791	2SK 2287
12R2, 12R4	DRZ833021	RK73H 2A 51Ω F TD0804N
12R9, 12R10	DRZ832481	RK73H 2A 9.1KΩ F TD0804N
12R11, 12R12	DRZ833021	RK73H 2A 51Ω F TD0804N
12R14	DRZ832481	RK73H 2A 9.1KΩ F TD0804N
12R17, 12R18	DRZ833021	RK73H 2A 51Ω F TD0804N
12R19, 12R20	DRZ832171	RK73H 2A 470Ω F TD0804N
12R21	DRZ833481	RK73H 2A 15Ω F TD0804N
12R22	DRZ832731	RK73H 2A 100KΩ F TD0804N
12R23	DRZ832441	RK73H 2A 6.2KΩ F TD0804N
12R26	DRZ832491	RK73H 2A 10KΩ F TD0804N
12R27	DRZ832531	RK73H 2A 15KΩ F TD0804N
12R30	DRZ832251	RK73H 2A 1.0KΩ F TD0804N
12R31	DRZ832481	RK73H 2A 9.1KΩ F TD0804N
12R32	DRZ832341	RK73H 2A 2.4KΩ F TD0804N
12R33	DRZ832321	RK73H 2A 2.0KΩ F TD0804N
12R34	DRZ832491	RK73H 2A 10KΩ F TD0804N
12R40, 12R41	DRZ833021	RK73H 2A 51Ω F TD0804N
12RA1, 12RA2	DFB810131	RAC16 4D 472J A TD0804M
12RA3, 12RA4	DFB810051	RAC16 4D 103J A TD0804M
12Z21	MHN001311	HEATSINK OSH-2425-SPL

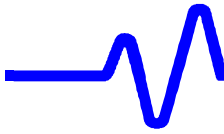
TV SYNC SEP 13

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
13C2	DCC816541	C2012CH 1H 330J A TD84N
13C3	DCC820261	C2012F 1C 225Z A TE0804N
13C5	DCC810511	C2012F 1H 103Z A TD84N
13C17	DCC816601	C2012CH 1H 101J A TD84N
13C21	DCC819091	GRM42-6B 106K6.3PT TE0804N
13C22	DCC820021	C2012F 1C 105Z A TD84N
13C34, 13C43	DCC810571	C2012F 1H 104Z A TD0804N
13C44	DCF810121	ECHU 1C 104J TE0804N
13C50 to 13C53	DCC810571	C2012F 1H 104Z A TD0804N
13C54	DCC816801	C2012CH 1H 102J A TD84N
13C57 to 13C62	DCC810571	C2012F 1H 104Z A TD0804N
13C63	DCC816801	C2012CH 1H 102J A TD84N
13C64	DCC810571	C2012F 1H 104Z A TD0804N
13C65, 13C66	DCC816801	C2012CH 1H 102J A TD84N
13C67, 13C68	DCC810571	C2012F 1H 104Z A TD0804N
13D4	DDD810241	1SS 272 TE0804R
13IC1	DIC623501	$\mu$ PC 1663G-E1 TE1208F
13IC2	DIC614411	$\mu$ PC 812G2-E1 TE1208F
13IC3	DIC889161	TC 4W53F(TE12L) TE1208R
13IC4	DIC639041	$\mu$ PC 311G2-E1 TE1208F
13IC5	DIC639031	NJM 2903M(TE3) TE1208L
13IC6, 13IC7	DIC889161	TC 4W53F(TE12L) TE1208R
13IC8	DIC699531	LM 1881M TE1208B
13IC9	DIC448531	MC 74HC153F/AF
13IC10	DIC483321	74HC595F/AF TE1612B
13Q1	DTR890551	DTC114EK/RN1402 TE0804L
13Q4	DTR870031	3SK 241 TE0804L
13Q5	DTR890841	IMX3 TE0804R
13R1	DRZ832251	RK73H 2A 1.0K $\Omega$ F TD0804N
13R2	DRZ832731	RK73H 2A 100K $\Omega$ F TD0804N
13R3	DRZ832091	RK73H 2A 220 $\Omega$ F TD0804N
13R4	DRZ832811	RK73H 2A 220K $\Omega$ F TD0804N
13R5	DRZ832751	RK73H 2A 120K $\Omega$ F TD0804N
13R6	DRZ832731	RK73H 2A 100K $\Omega$ F TD0804N
13R7	DRZ832571	RK73H 2A 22K $\Omega$ F TD0804N
13R10	DRZ832391	RK73H 2A 3.9K $\Omega$ F TD0804N
13R11, 13R12	DRZ832091	RK73H 2A 220 $\Omega$ F TD0804N
13R13	DRZ832491	RK73H 2A 10K $\Omega$ F TD0804N
13R14, 13R15	DRZ832251	RK73H 2A 1.0K $\Omega$ F TD0804N
13R16	DRZ832731	RK73H 2A 100K $\Omega$ F TD0804N
13R18	DRZ832491	RK73H 2A 10K $\Omega$ F TD0804N
13R19	DRZ828761	RR1220P-204-D TD0804N
13R20	DRZ832501	RK73H 2A 11K $\Omega$ F TD0804N
13R21	DRZ832731	RK73H 2A 100K $\Omega$ F TD0804N
13R22, 13R24	DRZ832811	RK73H 2A 220K $\Omega$ F TD0804N
13R25	DRZ832391	RK73H 2A 3.9K $\Omega$ F TD0804N
13R30	DRZ832511	RK73H 2A 12K $\Omega$ F TD0804N
13R31	DRZ832331	RK73H 2A 2.2K $\Omega$ F TD0804N
13R32	DRZ832151	RK73H 2A 390 $\Omega$ F TD0804N
13R34	DRZ832251	RK73H 2A 1.0K $\Omega$ F TD0804N
13R35	DRZ832331	RK73H 2A 2.2K $\Omega$ F TD0804N
13R36	DRZ832731	RK73H 2A 100K $\Omega$ F TD0804N

TV SYNC SEP 13

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
13R37	DRZ832331	RK73H 2A 2.2K $\Omega$ F TD0804N
13R38, 13R39	DRZ832411	RK73H 2A 4.7K $\Omega$ F TD0804N
13R40	DRZ832331	RK73H 2A 2.2K $\Omega$ F TD0804N
13R41	DRZ832951	RK73H 2A 820K $\Omega$ F TD0804N
13R42	DRZ832891	RK73H 2A 470K $\Omega$ F TD0804N
13R43	DRZ832191	RK73H 2A 560 $\Omega$ F TD0804N
13R44	DRZ832931	RK73H 2A 680K $\Omega$ F TD0804N
13R45, 13R46	DRZ832011	RK73H 2A 100 $\Omega$ F TD0804N
13R47, 13R48	DRZ832371	RK73H 2A 3.3K $\Omega$ F TD0804N
13R50	DRZ832511	RK73H 2A 12K $\Omega$ F TD0804N





## TIME BASE 14

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
14C8	DCC810571	C2012F 1H 104Z A TD0804N
14C10, 14C21	DCC810511	C2012F 1H 103Z A TD84N
14C22, 14C28	DCC810511	C2012F 1H 103Z A TD84N
14C30, 14C31	DCC815841	C2012SL 1H 681J A TD84N
14C34, 14C35	DCC810941	C2012B 1H 682K A TD84N
14C36	DCC816601	C2012CH 1H 101J A TD84N
14C37, 14C38	DCC816801	C2012CH 1H 102J A TD84N
14C40	DCC810511	C2012F 1H 103Z A TD84N
14C41	DCC810571	C2012F 1H 104Z A TD0804N
14C42	DCC816421	C2012CH 1H 040C A TD84N
14C60	DCC820021	C2012F 1C 105Z A TD84N
14C61, 14C62	DCC810571	C2012F 1H 104Z A TD0804N
14C63	DCE219051	SME-CE04W 1A 101M TC04R
14C64 to 14C67	DCC810571	C2012F 1H 104Z A TD0804N
14C68, 14C69	DCE219051	SME-CE04W 1A 101M TC04R
14C70 to 14C75	DCC810571	C2012F 1H 104Z A TD0804N
14C76, 14C77	DCC810511	C2012F 1H 103Z A TD84N
14C78, 14C79	DCC810571	C2012F 1H 104Z A TD0804N
14C80	DCC820121	EMK325F 106ZH-T TE0804N
14C81	DCC810511	C2012F 1H 103Z A TD84N
14C83	DCC810571	C2012F 1H 104Z A TD0804N
14D1	DDD810241	1SS 272 TE0804R
14D2	DDD810261	HSM 88AS TL
14FL1, 14FL2	DCL870021	NFM41P11C204 TE1204N
14IC1	DIC891041	MTB411A TIMEBASE IC
14IC2	DIC891031	MCG426 CLOCK GENERATOR
14IC3	DHF060191	QCG571ABN-10.0000
14IC4	DIC322631	MC 10EL16D
14IC5	DHF060181	VC-5R0A30-2000 TE1608B
14IC6	DIC619271	TA 75S558F (TE85L) TE0804L
14IC7	DIC659791	TA 78L05F (TE12L) TE1208L
14IC8	DIC471841	PALCE16V8H-10JC/4 K0315ACQ
14L2, 14L4, 14L5	DCL811011	BLM21A121FPT TD0804N
14Q1	DTR890861	IMZ1 TE0804R
14Q2	DTR890851	IMH1 TE0804N
14R1, 14R2	DRZ833041	RK73H 2A 62Ω F TD0804N
14R3	DRZ833551	RK73H 2A 33Ω F TD0804N
14R4 to 14R7	DRZ833041	RK73H 2A 62Ω F TD0804N
14R8	DRZ832011	RK73H 2A 100Ω F TD0804N
14R10, 14R11	DRZ833021	RK73H 2A 51Ω F TD0804N
14R12 to 14R17	DRZ833041	RK73H 2A 62Ω F TD0804N
14R18	DRZ832311	RK73H 2A 1.8KΩ F TD0804N
14R19	DRZ832371	RK73H 2A 3.3KΩ F TD0804N
14R20	DRZ832331	RK73H 2A 2.2KΩ F TD0804N
14R21	DRZ832311	RK73H 2A 1.8KΩ F TD0804N
14R22	DRZ832331	RK73H 2A 2.2KΩ F TD0804N
14R23	DRZ833041	RK73H 2A 62Ω F TD0804N
14R24 to 14R26	DRZ833021	RK73H 2A 51Ω F TD0804N
14R27	DRZ832731	RK73H 2A 100KΩ F TD0804N
14R28, 14R29	DRZ833061	RK73H 2A 75Ω F TD0804N
14R30 to 14R33	DRZ832371	RK73H 2A 3.3KΩ F TD0804N
14R34, 14R35	DRZ832491	RK73H 2A 10KΩ F TD0804N
14R36	DRZ832251	RK73H 2A 1.0KΩ F TD0804N

## TIME BASE 14

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
14R37 to 14R39	DRZ833021	RK73H 2A 51Ω F TD0804N
14R40	DRZ832211	RK73H 2A 680Ω F TD0804N
14R50, 14R51	DRZ833021	RK73H 2A 51Ω F TD0804N
14R53, 14R54	DRZ833551	RK73H 2A 33Ω F TD0804N
14R55	DRZ833021	RK73H 2A 51Ω F TD0804N
14R56	DRZ832011	RK73H 2A 100Ω F TD0804N
14R57	DRZ833041	RK73H 2A 62Ω F TD0804N
14R58, 14R59	DRZ832331	RK73H 2A 2.2KΩ F TD0804N
14R60	DRZ832491	RK73H 2A 10KΩ F TD0804N

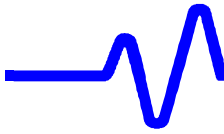
T/D CNVT 15

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
15C1	DCC810511	C2012F 1H 103Z A TD84N
15C5	DCC810571	C2012F 1H 104Z A TD0804N
15C11	DCC816801	C2012CH 1H 102J A TD84N
15C14 to 15C16	DCC810571	C2012F 1H 104Z A TD0804N
15C21, 15C23	DCC810571	C2012F 1H 104Z A TD0804N
15C25	DCC810571	C2012F 1H 104Z A TD0804N
15C26	DCC820021	C2012F 1C 105Z A TD84N
15C27	DCC810511	C2012F 1H 103Z A TD84N
15C29	DCC810571	C2012F 1H 104Z A TD0804N
15C30, 15C31	DCC816801	C2012CH 1H 102J A TD84N
15C32, 15C33	DCC810571	C2012F 1H 104Z A TD0804N
15C34	DCC816801	C2012CH 1H 102J A TD84N
15C36	DCC810571	C2012F 1H 104Z A TD0804N
15C39	DCC816381	C2012CH 1H 020C A TD84N
15C41	DCC819091	GRM42-6B 106K6.3PT TE0804N
15C43	DCE219051	SME-CE04W 1A 101M TC04R
15C50	DCC810571	C2012F 1H 104Z A TD0804N
15C54	DCC816581	C2012CH 1H 680J A TD84N
15C55	DCC816511	C2012CH 1H 180J A TD84N
15C58	DCC816801	C2012CH 1H 102J A TD84N
15C60, 15C64	DCC810571	C2012F 1H 104Z A TD0804N
15C81, 15C83	DCE229201	SME-CE04W 1E 470M TC04R
15C84	DCC810571	C2012F 1H 104Z A TD0804N
15C85	DCE219051	SME-CE04W 1A 101M TC04R
15C86	DCC810571	C2012F 1H 104Z A TD0804N
15C87	DCE219051	SME-CE04W 1A 101M TC04R
15C88 to 15C91	DCC810571	C2012F 1H 104Z A TD0804N
15C92, 15C93	DCC820021	C2012F 1C 105Z A TD84N
15D1	DDD810261	HSM 88AS TL
15D2	DDD810461	HSM 124S-JTL TE0804L
15D3	DDD810261	HSM 88AS TL
15IC1	DIC614411	μ PC 812G2-E1 TE1208F
15IC2	DIC614811	LT 1097S8-T2 TE1208B
15IC3	DIC639161	NJM 360M(TE3) TE1208L
15IC4	DIC659371	NJM 431U-TE1 (JRC)
15L1 to 15L4	DCL811011	BLM21A121FPT TD0804N
15Q1	DTR810041	2SA 1162Y TE85L
15Q2	DTR898711	XN 6435 TE0804R
15Q3 to 15Q5	DTR830071	2SC 3356-T1B
15Q6	DTR229091	2SJ 144-GR(TE85L) TE0804L
15Q7 to 15Q11	DTR830071	2SC 3356-T1B
15Q12, 15Q13	DTR860161	2SK 508 K51 TE0804L
15Q14	DTR830071	2SC 3356-T1B
15R1	DRZ832511	RK73H 2A 12KΩ F TD0804N
15R2	DRZ832441	RK73H 2A 6.2KΩ F TD0804N
15R3	DRZ832031	RK73H 2A 120Ω F TD0804N
15R4	DRZ832301	RK73H 2A 1.6KΩ F TD0804N
15R5	DRZ832361	RK73H 2A 3.0KΩ F TD0804N
15R6	DRZ832971	RK73H 2A 1.0MΩ F TD0804N
15R10	DRZ820581	RN73F 2A 6.8KΩ D TD0804N
15R11	DRZ820621	RN73F 2A 10KΩ D TD0804N
15R12	DRZ820871	RN73F 2A 2.4KΩ D TD0804N

T/D CNVT 15

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
15R13	DRZ832411	RK73H 2A 4.7KΩ F TD0804N
15R14, 15R15	DRZ832491	RK73H 2A 10KΩ F TD0804N
15R17	DRZ832251	RK73H 2A 1.0KΩ F TD0804N
15R18	DRZ832381	RK73H 2A 3.6KΩ F TD0804N
15R19	DRZ832461	RK73H 2A 7.5KΩ F TD0804N
15R20	DRZ832411	RK73H 2A 4.7KΩ F TD0804N
15R21	DRZ832251	RK73H 2A 1.0KΩ F TD0804N
15R22, 15R23	DRZ833011	RK73H 2A 47Ω F TD0804N
15R24	DRZ832331	RK73H 2A 2.2KΩ F TD0804N
15R25	DRZ832251	RK73H 2A 1.0KΩ F TD0804N
15R26	DRZ832221	RK73H 2A 750Ω F TD0804N
15R27	DRZ832441	RK73H 2A 6.2KΩ F TD0804N
15R28	DRZ832431	RK73H 2A 5.6KΩ F TD0804N
15R29	DRZ832301	RK73H 2A 1.6KΩ F TD0804N
15R30	DRZ833011	RK73H 2A 47Ω F TD0804N
15R31	DRZ832011	RK73H 2A 100Ω F TD0804N
15R32, 15R33	DRZ833011	RK73H 2A 47Ω F TD0804N
15R34	DRZ832011	RK73H 2A 100Ω F TD0804N
15R35, 15R36	DRZ832251	RK73H 2A 1.0KΩ F TD0804N
15R37	DRZ832051	RK73H 2A 150Ω F TD0804N
15R38	DRZ833021	RK73H 2A 51Ω F TD0804N
15R39	DRZ832611	RK73H 2A 33KΩ F TD0804N
15R40	DRZ832051	RK73H 2A 150Ω F TD0804N
15R41	DRZ832161	RK73H 2A 430Ω F TD0804N
15R42	DRZ820011	RN73G 2A 30Ω D TD0804N
15R43	DRZ833571	RK73H 2A 39Ω F TD0804N
15R44	DRZ833011	RK73H 2A 47Ω F TD0804N
15R50, 15R51	DRZ833021	RK73H 2A 51Ω F TD0804N
15R54, 15R55	DRZ833011	RK73H 2A 47Ω F TD0804N
15R56	DRZ833511	RK73H 2A 22Ω F TD0804N
15R57	DRZ832011	RK73H 2A 100Ω F TD0804N
15R58	DRZ820541	RN73F 2A 4.7KΩ D TD0804N
15R59	DRZ832011	RK73H 2A 100Ω F TD0804N
15R60, 15R61	DRZ833011	RK73H 2A 47Ω F TD0804N
15R62	DRZ832391	RK73H 2A 3.9KΩ F TD0804N
15R63, 15R64	DRZ820161	RN73F 2A 120Ω D TD0804N
15R65	DRZ832011	RK73H 2A 100Ω F TD0804N
15R66	DRZ832171	RK73H 2A 470Ω F TD0804N
15R67	DRZ832141	RK73H 2A 360Ω F TD0804N
15R70, 15R71	DRZ833551	RK73H 2A 33Ω F TD0804N
15R72	DRZ833011	RK73H 2A 47Ω F TD0804N
15R73	DRZ832471	RK73H 2A 8.2KΩ F TD0804N
15R74	DRZ832491	RK73H 2A 10KΩ F TD0804N
15R80, 15R81	DRZ828721	RR1220P-224-B TD0804N
15R82	DRZ828731	RR1220P-244-B TD0804N





## CAL SIGNAL 16

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
16C3, 16C5	DCC810511	C2012F 1H 103Z A TD84N
16C7, 16C10	DCC810511	C2012F 1H 103Z A TD84N
16C12	DCC819091	GRM42-6B 106K6.3PT TE0804N
16C15	DCC816521	C2012CH 1H 220J A TD84N
16C60 to 16C69	DCC810571	C2012F 1H 104Z A TD0804N
16C70 to 16C73	DCC816801	C2012CH 1H 102J A TD84N
16C74	DCC816601	C2012CH 1H 101J A TD84N
16C75 to 16C77	DCC816801	C2012CH 1H 102J A TD84N
16C80 to 16C83	DCC820121	EMK325F 106ZH-T TE0804N
16D1, 16D2	DDD810241	1SS 272 TE0804R
16IC1	DIC483031	74HC4051F TE1612B
16IC2	DIC614811	LT 1097S8-T2 TE1208B
16IC3	DIC619271	TA 75S558F (TE85L) TE0804L
16IC4	DIC499441	74HC4053F/AF TE1612B
16IC5	DIC448531	MC 74HC153F/AF
16IC6	DIC483321	74HC595F/AF TE1612B
16J2	KHB095411	SMALL PIN JACK
16L1 to 16L4	DCL811011	BLM21A121FPT TD0804N
16R1	DRZ828541	RN73F 2A 18KΩB TD0804N
16R2	DRZ828551	RN73F 2A 2KΩB TD0804N
16R3, 16R4	DRZ832311	RK73H 2A 1.8KΩF TD0804N
16R5	DRZ832321	RK73H 2A 2.0KΩF TD0804N
16R6	DRZ828581	RN73F 2A 560ΩB TD0804N
16R7	DRZ833511	RK73H 2A 22ΩF TD0804N
16R10	DRZ832491	RK73H 2A 10KΩF TD0804N
16R11	DRZ832351	RK73H 2A 2.7KΩF TD0804N
16R12	DRZ832331	RK73H 2A 2.2KΩF TD0804N
16R16 to 16R19	DRZ833061	RK73H 2A 75ΩF TD0804N
16R20 to 16R24	DRZ832071	RK73H 2A 180ΩF TD0804N
16R25	DRZ832031	RK73H 2A 120ΩF TD0804N

## DC GENE 1/2 17

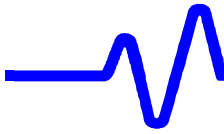
CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
17C10, 17C12, 17C13	DCC810511	C2012F 1H 103Z A TD84N
17C16	DCC816601	C2012CH 1H 101J A TD84N
17C19, 17C22	DCC816641	C2012CH 1H 221J A TD84N
17C30	DCC810511	C2012F 1H 103Z A TD84N
17C33	DCC810571	C2012F 1H 104Z A TD0804N
17C35 to 17C39	DCC810571	C2012F 1H 104Z A TD0804N
17C50	DCC820021	C2012F 1C 105Z A TD84N
17C52 to 17C54	DCC820021	C2012F 1C 105Z A TD84N
17C55	DCC810571	C2012F 1H 104Z A TD0804N
17C56 to 17C60	DCC810571	C2012F 1H 104Z A TD0804N
17C61	DCC820021	C2012F 1C 105Z A TD84N
17C62	DCC810571	C2012F 1H 104Z A TD0804N
17C63	DCC820021	C2012F 1C 105Z A TD84N
17C64	DCC810571	C2012F 1H 104Z A TD0804N
17C65	DCC820021	C2012F 1C 105Z A TD84N
17C71, 17C73	DCE929471	SXE 16VB-220 TC04R
17IC1	DIC528501	μ PD 78081GB-A67-3BS-MTX
17IC2	DIC645151	DAC 712UK
17IC3, 17IC4	DIC483031	74HC4051F TE1612B
17IC5	DIC619271	TA 75S558F (TE85L) TE0804L
17IC6	DIC639041	μ PC 311G2-E1 TE1208F
17IC7	DIC614411	μ PC 812G2-E1 TE1208F
17IC8	DIC499381	74HC138F/AF TE1612B
17IC9	DIC889101	TC 7SU04F TE0804L
17L1 to 17L3	DCL811011	BLM21A121FPT TD0804N
17Q1	DTR838661	2SC 2712LG TE85L
17R10	DRZ832101	RK73H 2A 240ΩF TD0804N
17R11	DRZ832081	RK73H 2A 200ΩF TD0804N
17R12	DRZ832501	RK73H 2A 11KΩF TD0804N
17R13	DRZ832461	RK73H 2A 7.5KΩF TD0804N
17R14	DRZ828561	RN73F 2A 3KΩB TD0804N
17R15	DRZ832241	RK73H 2A 910ΩF TD0804N
17R16	DRZ828531	RN73F 2A 1.2KΩB TD0804N
17R17, 17R18	DRZ832131	RK73H 2A 330ΩF TD0804N
17R19	DRZ832971	RK73H 2A 1.0MΩF TD0804N
17R21	DRZ832101	RK73H 2A 240ΩF TD0804N
17R22	DRZ832131	RK73H 2A 330ΩF TD0804N
17R23 to 17R25	DRZ832251	RK73H 2A 1.0KΩF TD0804N
17R26	DRZ832131	RK73H 2A 330ΩF TD0804N
17R30 to 17R34	DRZ832581	RK73H 2A 24KΩF TD0804N
17R35 to 17R39	DRZ832511	RK73H 2A 12KΩF TD0804N
17R40	DRZ831501	MCR10 000E TD0804N

**DC GENE 2/2** 18

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
18C1	DCF810121	ECHU 1C 104J TE0804N
18C2 to 18C7	DCC811111	C2012B 1E 104K A TD84N
18C8	DCF810121	ECHU 1C 104J TE0804N
18C9 to 18C11	DCC811111	C2012B 1E 104K A TD84N
18C12, 18C13	DCF810121	ECHU 1C 104J TE0804N
18C14 to 18C19	DCC811111	C2012B 1E 104K A TD84N
18C20	DCC810571	C2012F 1H 104Z A TD0804N
18C21	DCF810121	ECHU 1C 104J TE0804N
18C22	DCC811111	C2012B 1E 104K A TD84N
18C23, 18C24	DCC810571	C2012F 1H 104Z A TD0804N
18C50 to 18C53	DCC810571	C2012F 1H 104Z A TD0804N
18C55, 18C56	DCC810571	C2012F 1H 104Z A TD0804N
18C60 to 18C71	DCC810571	C2012F 1H 104Z A TD0804N
18IC1 to 18IC3	DIC483021	TC 4051BF (EL) TE1612B
18IC10 to 18IC13	DIC614761	TL 084CNS
18IC14	DIC614411	$\mu$ PC 812G2-E1 TE1208F
18IC16	DIC614761	TL 084CNS
18R1, 18R8	DRZ832071	RK73H 2A 180 $\Omega$ F TD0804N
18R12, 18R13	DRZ832071	RK73H 2A 180 $\Omega$ F TD0804N
18R19, 18R21	DRZ832071	RK73H 2A 180 $\Omega$ F TD0804N
18R31	DRZ832011	RK73H 2A 100 $\Omega$ F TD0804N
18RA1 to 18RA5	DFB810111	RAC16 4D 101J A TD0804M

**MAIN CONT 1/2** 19

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
19C10	DCC816641	C2012CH 1H 221J A TD84N
19C51 to 19C53	DCC810571	C2012F 1H 104Z A TD0804N
19C54	DCC820031	C2012F 1C 224Z A TD84N
19C55 to 19C59	DCC810571	C2012F 1H 104Z A TD0804N
19C60	DCC820031	C2012F 1C 224Z A TD84N
19C61, 19C62	DCC820021	C2012F 1C 105Z A TD84N
19C63	DCC820031	C2012F 1C 224Z A TD84N
19C64	DCC810571	C2012F 1H 104Z A TD0804N
19IC1	DIC471852	PALCE16V8H-10JC/4 K0327MBC
19IC2	DIC471881	PALCE16V8H-7JC/5 K0319HCS
19IC3	DIC471891	PALCE16V8H-7JC/5 K0320HMR
19IC4	DIC484011	74VHC138F EL TE1612B
19IC5	DIC449631	MC 74HC574F/AF
19IC6	DIC471871	PALCE16V8H-10JC/4 K0318MST
19IC7	DIC471861	PALCE16V8H-10JC/4 K0317MCG
19IC8	DIC645141	PCF 8584T TE2412B
19IC9	DIC483031	74HC4051F TE1612B
19IC10	DIC484491	74VHCT541AF EL TE2412B
19IC11	DIC471631	74VHCT573AF
19IC12	DIC484531	74VHC32F EL TE1612B
19IC13	DIC495111	74HCT245AF TE2412B
19IC14	DIC471901	PALCE16V8H-7JC/5 K0321HMS
19R1	DRZ831501	MCR10 000E TD0804N
19R2	DRZ832331	RK73H 2A 2.2K $\Omega$ F TD0804N
19R3	DRZ832251	RK73H 2A 1.0K $\Omega$ F TD0804N
19R4	DRZ832331	RK73H 2A 2.2K $\Omega$ F TD0804N
19R5, 19R6	DRZ832251	RK73H 2A 1.0K $\Omega$ F TD0804N
19R7	DRZ832011	RK73H 2A 100 $\Omega$ F TD0804N
19R8	DRZ832251	RK73H 2A 1.0K $\Omega$ F TD0804N
19R9	DRZ832331	RK73H 2A 2.2K $\Omega$ F TD0804N
19R10	DRZ832131	RK73H 2A 330 $\Omega$ F TD0804N
19R21, 19R22	DRZ832101	RK73H 2A 240 $\Omega$ F TD0804N
19R24, 19R25	DRZ832101	RK73H 2A 240 $\Omega$ F TD0804N
19R26, 19R27	DRZ832251	RK73H 2A 1.0K $\Omega$ F TD0804N
19RA2, 19RA4	DFB810041	RAC16 4D 220J A TD0804M
19RA6	DFB810041	RAC16 4D 220J A TD0804M
19RA8	DFB810081	RAC16 4D 102J A TD0804M
19RA12	DFB810111	RAC16 4D 101J A TD0804M
19RA16	DFB810041	RAC16 4D 220J A TD0804M
19RA18	DFB810121	RAC16 4D 470J A TD0804M
19RA19, 19RA20	DFB810041	RAC16 4D 220J A TD0804M



## MAIN CONT 2/2 20

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
20C3	DCC810511	C2012F 1H 103Z A TD84N
20C4, 20C5	DCC810571	C2012F 1H 104Z A TD0804N
20C6	DCE219051	SME-CE04W 1A 101M TC04R
20C31	DCC810511	C2012F 1H 103Z A TD84N
20C51 to 20C64	DCC810571	C2012F 1H 104Z A TD0804N
20C70, 20C71	DCC810571	C2012F 1H 104Z A TD0804N
20C80	DCC816801	C2012CH 1H 102J A TD84N
20IC1	DIC449631	MC 74HC574F/AF
20IC2 to 20IC6	DIC499381	74HC138F/AF TE1612B
20IC7	DIC499321	74HC04F/AF TE1612B
20IC8	DIC529201	AT93C66-10SC JEDEC TE1208B
20IC9	DIC470461	DS 1620S TE1612B
20IC10	DIC889161	TC 4W53F(TE12L) TE1208R
20IC11, 20IC12	DIC642201	MB88346BPF-G-BND-EF TE2412F
20IC13	DIC659371	NJM 431U-TE1 (JRC)
20IC14	DIC449631	MC 74HC574F/AF
20IC15	DIC619271	TA 75S558F (TE85L) TE0804L
20IC16	DIC889131	TC 7W32F(TE12L) TE1208R
20J1, 20J2	DCN129381	52808-2691 TE4412B
20J3, 20J4	DCN129391	52808-2291 TE4412B
20R3	DRZ832011	RK73H 2A 100ΩF TD0804N
20R4	DRZ832291	RK73H 2A 1.5KΩF TD0804N
20R5	DRZ820441	RN73F 2A 1.8KΩD TD0804N
20R6	DRZ820491	RN73F 2A 3KΩD TD0804N
20R7, 20R8	DRZ833011	RK73H 2A 47ΩF TD0804N
20R10 to 20R13	DRZ832331	RK73H 2A 2.2KΩF TD0804N
20R14	DRZ832011	RK73H 2A 100ΩF TD0804N
20R15, 20R16	DRZ832331	RK73H 2A 2.2KΩF TD0804N
20R17 to 20R19	DRZ832011	RK73H 2A 100ΩF TD0804N
20R22	DRZ832291	RK73H 2A 1.5KΩF TD0804N
20R24	DRZ832011	RK73H 2A 100ΩF TD0804N
20R30	DRZ820621	RN73F 2A 10KΩD TD0804N
20R31	DRZ820661	RN73F 2A 15KΩD TD0804N
20R32	DRZ832441	RK73H 2A 6.2KΩF TD0804N
20R33	DRZ832221	RK73H 2A 750ΩF TD0804N
20R34, 20R35	DRZ832491	RK73H 2A 10KΩF TD0804N
20R36, 20R37	DRZ832011	RK73H 2A 100ΩF TD0804N
20RA4 to 20RA8	DFB810111	RAC16 4D 101J A TD0804M
20RA10	DFB810111	RAC16 4D 101J A TD0804M

## POWER CONNECTOR 21

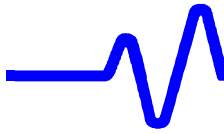
CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
21C1 to 21C4	DCC810511	C2012F 1H 103Z A TD84N
21C10	DCE229221	SME-CE04W 1E 221M TC04R
21C11	DCC820031	C2012F 1C 224Z A TD84N
21C12	DCE229201	SME-CE04W 1E 470M TC04R
21C13	DCC820031	C2012F 1C 224Z A TD84N
21C18	DCE229201	SME-CE04W 1E 470M TC04R
21C19	DCC820031	C2012F 1C 224Z A TD84N
21C20	DCE219151	SME-CE04W 1A 471M TC04R
21C21	DCC820021	C2012F 1C 105Z A TD84N
21C30	DCE219051	SME-CE04W 1A 101M TC04R
21C31	DCC820031	C2012F 1C 224Z A TD84N
21C40	DCE219151	SME-CE04W 1A 471M TC04R
21C41	DCC820021	C2012F 1C 105Z A TD84N
21C50	DCE219051	SME-CE04W 1A 101M TC04R
21C51	DCC820031	C2012F 1C 224Z A TD84N
21C52	DCC810511	C2012F 1H 103Z A TD84N
21C60	DCE229221	SME-CE04W 1E 221M TC04R
21C61	DCC820031	C2012F 1C 224Z A TD84N
21C62	DCE229201	SME-CE04W 1E 470M TC04R
21C63	DCC820031	C2012F 1C 224Z A TD84N
21C68	DCE229201	SME-CE04W 1E 470M TC04R
21C69	DCC820031	C2012F 1C 224Z A TD84N
21C70	DCE219151	SME-CE04W 1A 471M TC04R
21C71	DCC820021	C2012F 1C 105Z A TD84N
21C80	DCE219051	SME-CE04W 1A 101M TC04R
21C81	DCC820031	C2012F 1C 224Z A TD84N
21C90	DCE219151	SME-CE04W 1A 471M TC04R
21C91	DCC820021	C2012F 1C 105Z A TD84N
21C100	DCE219051	SME-CE04W 1A 101M TC04R
21C101	DCC820031	C2012F 1C 224Z A TD84N
21C102, 21C103	DCC810511	C2012F 1H 103Z A TD84N
21C110 to 21C112	DCC810511	C2012F 1H 103Z A TD84N
21J1	DCN126021	CONNECTOR 53258-0610
21J2	DCN126081	CONNECTOR 53258-0710
21J3	DCN990911	CONNECTOR 5267-07A
21L10, 21L11	DCL119361	BL02RN2-R62 TD04N
21L14, 21L20	DCL119361	BL02RN2-R62 TD04N
21L25, 21L40	DCL119361	BL02RN2-R62 TD04N
21L41, 21L46	DCL119361	BL02RN2-R62 TD04N
21L60, 21L61	DCL119361	BL02RN2-R62 TD04N
21L64, 21L70	DCL119361	BL02RN2-R62 TD04N
21L75, 21L90	DCL119361	BL02RN2-R62 TD04N
21L91, 21L96	DCL119361	BL02RN2-R62 TD04N
21SW1	DSW017001	SPUP19

**CPU 31**

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
31C1 to 31C3	DCC810571	C2012F 1H 104Z A TD0804N
31C4, 31C5	DCE219051	SME-CE04W 1A 101M TC04R
31C6, 31C76	DCC810571	C2012F 1H 104Z A TD0804N
31C149 to 31C151	DCC810571	C2012F 1H 104Z A TD0804N
31C187	DCC820021	C2012F 1C 105Z A TD84N
31IC1	DIC560411	XPC 603PFE166LC
31IC2	DIC484991	MC 88916DW80R2 TE2412B
31IC3	DHF060141	FXO-31FH 16.000MHZ TE1608B
31IC4	DIC699231	M51957BFP TE1208F
31IC6	DIC471621	74VHCT04AF
31IC77 to 31IC79	DIC484491	74VHCT541AF EL TE2412B
31L12	DCL119361	BL02RN2-R62 TD04N
31R2, 31R3	DRZ833011	RK73H 2A 47 Ω F TD0804N
31R4	DRZ832131	RK73H 2A 330 Ω F TD0804N
31R5	DRZ832971	RK73H 2A 1.0M Ω F TD0804N
31R7 to 31R9	DRZ832011	RK73H 2A 100 Ω F TD0804N
31R12	DRZ832011	RK73H 2A 100 Ω F TD0804N
31R14	DRZ833441	RK73H 2A 10 Ω F TD0804N
31R15	DRZ832251	RK73H 2A 1.0K Ω F TD0804N
31R17	DRZ832491	RK73H 2A 10K Ω F TD0804N
31R18	DRZ832391	RK73H 2A 3.9K Ω F TD0804N
31R95	DRZ831501	MCR10 000E TD0804N
31RA1 to 31RA5	DFB810051	RAC16 4D 103J A TD0804M
31RA6, 31RA7	DFB810081	RAC16 4D 102J A TD0804M
31RA8 to 31RA24	DFB810051	RAC16 4D 103J A TD0804M
31RA25	DFB810081	RAC16 4D 102J A TD0804M

**DRAM 32**

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
32IC7, 32IC8	DCN997011	SIMM 52706-7220
32IC9 to 32IC11	DIC199381	74F157AF
32IC13	DIC471641	EPM 7032STC44-10 (K0323DRM)
32IC14	DIC471831	PALCE16V8H-10JC/4 K0314CAS
32IC84	DIC483711	74HC374F/AF TE2412B
32P2	DCN125971	CONNECTOR A1-10PA-2.54DSA
32Q8	DTR890521	DTC143TK/RN1410 TE0804L
32R19	DRZ832411	RK73H 2A 4.7K Ω F TD0804N
32R20	DRZ832341	RK73H 2A 2.4K Ω F TD0804N
32R85	DRZ832491	RK73H 2A 10K Ω F TD0804N
32R96, 32R97	DRZ832091	RK73H 2A 220 Ω F TD0804N
32R100, 32R101	DRZ832091	RK73H 2A 220 Ω F TD0804N
32R129 to 32R134	DRZ832131	RK73H 2A 330 Ω F TD0804N
32RA26 to 32RA28	DFB810041	RAC16 4D 220J A TD0804M
32RA29, 32RA90	DFB810051	RAC16 4D 103J A TD0804M



**BUS CONTROL** 33

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
33IC15	DIC560361	MC 68150FN33
33IC16	DIC556321	μ PD 71071GC-3B6 (NEC)
33IC17	DIC471781	PALCE16V8H-10JC/4 K0309D32
33IC18	DIC471931	PALCE16V8H-10JC/4 K0322ABT
33IC19	DIC471761	PALCE16V8H-10JC/4 K0307A32
33IC20	DIC484481	74VHCT373F EL TE2412B
33IC21	DIC471772	PALCE16V8H-10JC/4 K0329A9
33IC22	DIC472013	PALCE16V8H-10JC/4 K0328D8
33IC23, 33IC24	DIC484011	74VHC138F EL TE1612B
33IC25	DIC483091	74HC393F/AF TE1612B
33IC53	DIC199301	74F74F
33IC75	DIC484011	74VHC138F EL TE1612B
33IC76	DIC471811	PALCE16V8H-10JC/4 K0312IRW
33R21	DRZ832491	RK73H 2A 10KΩF TD0804N
33R64	DRZ832251	RK73H 2A 1.0KΩF TD0804N
33R67	DRZ832491	RK73H 2A 10KΩF TD0804N
33R104, 33R105	DRZ832091	RK73H 2A 220ΩF TD0804N
33R107, 33R108	DRZ832091	RK73H 2A 220ΩF TD0804N
33R110, 33R111	DRZ832091	RK73H 2A 220ΩF TD0804N
33R113, 33R114	DRZ832091	RK73H 2A 220ΩF TD0804N
33RA30, 33RA31	DFB810051	RAC16 4D 103J A TD0804M
33RA33, 33RA34	DFB810051	RAC16 4D 103J A TD0804M
33RA88, 33RA89	DFB810051	RAC16 4D 103J A TD0804M
33RA91	DFB810051	RAC16 4D 103J A TD0804M

**VGA CONTROL** 34

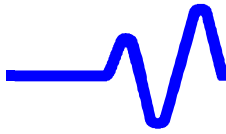
CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
34C8 to 34C10	DCC816641	C2012CH 1H 221J A TD84N
34C11	DCE219051	SME-CE04W 1A 101M TC04R
34C12	DCC810571	C2012F 1H 104Z A TD0804N
34C13	DCE219051	SME-CE04W 1A 101M TC04R
34C14	DCC810571	C2012F 1H 104Z A TD0804N
34C15	DCE219051	SME-CE04W 1A 101M TC04R
34C16	DCC810571	C2012F 1H 104Z A TD0804N
34C17, 34C18	DCC816801	C2012CH 1H 102J A TD84N
34C144	DCC820021	C2012F 1C 105Z A TD84N
34C145	DCE219051	SME-CE04W 1A 101M TC04R
34C146 to 34C148	DCC820021	C2012F 1C 105Z A TD84N
34C152	DCC810571	C2012F 1H 104Z A TD0804N
34C160	DCC820021	C2012F 1C 105Z A TD84N
34C162	DCC810511	C2012F 1H 103Z A TD84N
34C166	DCE916011	LXV 10VB-1000M J20MC
34C167	DCE949181	SRA 50VB-3.3 TC04R
34IC27, 34IC28	DIC518551	DRAM 1MX16(M70)F TE4416B
34IC29	DIC471751	F65545B2-5
34IC86	DIC699231	M51957BFP TE1208F
34J1	DCN129501	52808-3091 TE5612B
34L1 to 34L5	DCL810711	BLM31A260SPT TE0804N
34L6	DCL119361	BL02RN2-R62 TD04N
34P4	DCN026621	CONNECTOR 17HE-R13150-73HC1
34P5	DCN994241	CONNECTOR 5267-05A
34Q2	DTR890521	DTC143TK/RN1410 TE0804L
34Q10	DTR215791	2SK 2287
34Q11	DTR890521	DTC143TK/RN1410 TE0804L
34R22 to 34R24	DRZ832251	RK73H 2A 1.0KΩF TD0804N
34R25 to 34R27	DRZ832051	RK73H 2A 150ΩF TD0804N
34R29	DRZ832111	RK73H 2A 270ΩF TD0804N
34R30, 34R31	DRZ833441	RK73H 2A 10ΩF TD0804N
34R68, 34R71	DRZ831501	MCR10 000E TD0804N
34R116, 34R117	DRZ832251	RK73H 2A 1.0KΩF TD0804N
34R118, 34R119	DRZ832091	RK73H 2A 220ΩF TD0804N
34R122, 34R123	DRZ832091	RK73H 2A 220ΩF TD0804N
34R126	DRZ833011	RK73H 2A 47ΩF TD0804N
34R128	DRZ833551	RK73H 2A 33ΩF TD0804N
34R144	DRZ832491	RK73H 2A 10KΩF TD0804N
34R149	DRZ831501	MCR10 000E TD0804N
34R150, 34R151	DRZ832011	RK73H 2A 100ΩF TD0804N
34R152	DRZ832491	RK73H 2A 10KΩF TD0804N
34R153	DRZ832391	RK73H 2A 3.9KΩF TD0804N
34R155, 34R156	DRZ832111	RK73H 2A 270ΩF TD0804N

**32BIT I/O 35**

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
35C19 to 35C22	DCC816761	C2012CH 1H 471J A TD84N
35C23, 35C24	DCC816491	C2012CH 1H 100D A TD84N
35C25	DCC816761	C2012CH 1H 471J A TD84N
35C26 to 35C29	DCE949081	SRA 50VB-1 TC04R
35C168, 35C169	DCC810511	C2012F 1H 103Z A TD84N
35C170 to 35C186	DCC816521	C2012CH 1H 220J A TD84N
35IC31	DIC484981	DS 14C232CM TE1608B
35IC32	DIC560341	PC 87312VF
35J2	DCN129381	52808-2691 TE4412B
35L13 to 35L33	DCL811011	BLM21A121FPT TD0804N
35P6	DCN126051	CONNECTOR 17LE-23090-27(D4CH)
35P7	DCN126041	CONNECTOR 17LE-13250-27(D4CH)
35R34, 35R35	DRZ832491	RK73H 2A 10KΩF TD0804N
35R37, 35R44	DRZ832491	RK73H 2A 10KΩF TD0804N
35R45	DRZ832391	RK73H 2A 3.9KΩF TD0804N
35R139	DRZ832491	RK73H 2A 10KΩF TD0804N
35RA35 to 35RA38	DFB810051	RAC16 4D 103J A TD0804M
35X1	DHF060131	CP12A 24MHZ TE2412M

**MAIN BOARD I/F 36**

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
36C30, 36C31	DCC810571	C2012F 1H 104Z A TD0804N
36C34	DCE219051	SME-CE04W 1A 101M TC04R
36C35 to 36C38	DCC810571	C2012F 1H 104Z A TD0804N
36C39	DCE916011	LXV 10VB-1000M J20MC
36C40 to 36C43	DCC820021	C2012F 1C 105Z A TD84N
36C44 to 36C58	DCC810571	C2012F 1H 104Z A TD0804N
36C60 to 36C66	DCC810571	C2012F 1H 104Z A TD0804N
36C70	DCE229221	SME-CE04W 1E 221M TC04R
36C71, 36C72	DCC810571	C2012F 1H 104Z A TD0804N
36C74	DCE229221	SME-CE04W 1E 221M TC04R
36C77 to 36C80	DCC810571	C2012F 1H 104Z A TD0804N
36C81 to 36C84	DCC820021	C2012F 1C 105Z A TD84N
36C85 to 36C120	DCC810511	C2012F 1H 103Z A TD84N
36C124 to 36C142	DCC810571	C2012F 1H 104Z A TD0804N
36C153	DCE219051	SME-CE04W 1A 101M TC04R
36C154 to 36C157	DCC820021	C2012F 1C 105Z A TD84N
36C159	DCC810571	C2012F 1H 104Z A TD0804N
36C163, 36C164	DCC820021	C2012F 1C 105Z A TD84N
36IC34 to 36IC36	DIC484691	TC 74VHCT244AF (EL) TE2412B
36IC37 to 36IC40	DIC484681	TC 74VHCT245AF (EL) TE2412B
36IC41	DIC619101	NJM 4558M(TE3) TE1208L
36J3	DCN125031	52793-2690 TE4412B
36J4	DCN125021	52793-2290 TE4412B
36J5	DCN125031	52793-2690 TE4412B
36J8	DCN125021	52793-2290 TE4412B
36L7, 36L8	DCL119361	BL02RN2-R62 TD04N
36L11	DCL119361	BL02RN2-R62 TD04N
36P11	DCN126111	CONNECTOR 53259-0510
36Q7, 36Q9	DTR215791	2SK 2287
36R46	DRZ832411	RK73H 2A 4.7KΩF TD0804N
36R47	DRZ832301	RK73H 2A 1.6KΩF TD0804N
36R48	DRZ832491	RK73H 2A 10KΩF TD0804N
36R49	DRZ832341	RK73H 2A 2.4KΩF TD0804N
36R127	DRZ831501	MCR10 000E TD0804N
36R135, 36R136	DRZ832411	RK73H 2A 4.7KΩF TD0804N
36R137	DRZ832491	RK73H 2A 10KΩF TD0804N
36R138	DRZ832341	RK73H 2A 2.4KΩF TD0804N
36RA80 to 36RA87	DFB810051	RAC16 4D 103J A TD0804M
36RA92 to 36RA97	DFB810121	RAC16 4D 470J A TD0804M

**8BIT I/O** 37

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
37BT1	DES011201	CR2354-1HF
37C67, 37C68	DCC810571	C2012F 1H 104Z A TD0804N
37IC42	DIC557111	$\mu$ PD 71059GB-10-3B4 (NEC)
37IC43	DIC471911	DS 1689S
37IC44	DIC519381	SRAM 128KX8(70)LLF TE3216B
37IC45, 37IC46	DIC528491	MBM 29F800BA-90PF
37IC47	DIC483711	74HC374F/AF TE2412B
37IC48, 37IC49	DIC484491	74VHCT541AF EL TE2412B
37IC50	DIC484691	TC 74VHCT244AF (EL) TE2412B
37IC51	DIC484681	TC 74VHCT245AF (EL) TE2412B
37IC52	DIC499921	74HC175F/AF TE1612B
37IC82	DIC471621	74VHCT04AF
37J6	DCN129391	52808-2291 TE4412B
37Q5, 37Q6	DTR890521	DTC143TK/RN1410 TE0804L
37R50, 37R51	DRZ832251	RK73H 2A 1.0K $\Omega$ F TD0804N
37R65	DRZ832491	RK73H 2A 10K $\Omega$ F TD0804N
37R94	DRZ832411	RK73H 2A 4.7K $\Omega$ F TD0804N
37R154	DRZ832491	RK73H 2A 10K $\Omega$ F TD0804N
37RA39, 37RA40	DFB810051	RAC16 4D 103J A TD0804M
37RA70, 37RA71	DFB810051	RAC16 4D 103J A TD0804M
37X2	DHF012081	MX-38T 32.768KHZ(15PPM)

**EXTERNAL I/F** 38

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
38C75	DCC816601	C2012CH 1H 101J A TD84N
38IC54	DIC196181	SN 75160AN/BN
38IC55	DIC196191	SN 75161AN/BN
38IC56, 38IC57	DIC484691	TC 74VHCT244AF (EL) TE2412B
38IC58	DIC557841	NAT 7210APD
38IC60	DIC483171	74HC20F/AF TE1612B
38IC61	DIC499921	74HC175F/AF TE1612B
38IC62	DIC483711	74HC374F/AF TE2412B
38IC63	DIC484681	TC 74VHCT245AF (EL) TE2412B
38IC64	DIC484491	74VHCT541AF EL TE2412B
38J7	DCN129381	52808-2691 TE4412B
38P9	DCN026611	CONNECTOR 57LE-20240-7700D35-19
38P10	DCN126031	CONNECTOR HU5-400PNA-S53T
38R54	DRZ832491	RK73H 2A 10K $\Omega$ F TD0804N
38R55	DRZ832011	RK73H 2A 100 $\Omega$ F TD0804N
38R57	DRZ832251	RK73H 2A 1.0K $\Omega$ F TD0804N
38R81	DRZ833011	RK73H 2A 47 $\Omega$ F TD0804N
38RA42	DFB810051	RAC16 4D 103J A TD0804M
38RA72 to 38RA75	DFB810051	RAC16 4D 103J A TD0804M
38RA76	DFB810081	RAC16 4D 102J A TD0804M
38RA77 to 38RA79	DFB810051	RAC16 4D 103J A TD0804M



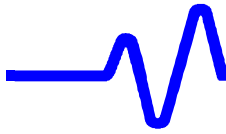
PRINTER 43

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
43C1 to 43C9	DCC816601	C2012CH 1H 101J A TD84N
43C10	DCC820021	C2012F 1C 105Z A TD84N
43C11, 43C12	DCC816521	C2012CH 1H 220J A TD84N
43C13 to 43C15	DCC810571	C2012F 1E 104Z A TD84N
43C16	DCE249391	SME-CE04W 1H 101M TC04R
43C17, 43C18	DCC810571	C2012F 1E 104Z A TD84N
43C20 to 43C22	DCE935371	LXV 35VB-2200M M30
43C24	DCC810511	C2012F 1H 103Z A TD84N
43C25	DCC810571	C2012F 1E 104Z A TD84N
43C26, 43C27	DCC816761	C2012CH 1H 471J A TD84N
43C28, 43C29	DCC810921	C2012B 1H 472K A TD84N
43C30, 43C31	DCC816601	C2012CH 1H 101J A TD84N
43C32, 43C33	DCC810571	C2012F 1E 104Z A TD84N
43C34	DCE219051	SME-CE04W 1A 101M TC04R
43C36, 43C37	DCC810571	C2012F 1E 104Z A TD84N
43D1 to 43D4	DDD820031	D1FS4 TE1204R
43D5, 43D6	DDD810241	1SS 272 TE0804R
43D7	DDD830181	RD12M-T1B B/MA3120 TE0804L
43IC1	DIC554551	μPD 78P014GC-AB8 (NEC)
43IC2	DIC699231	M51957BFP TE1208F
43IC3	DIC992271	UDN 2916LB
43IC4	DIC484491	74VHCT541AF EL TE2412B
43IC6	DIC619101	NJM 4558M (TE3) TE1208L
43IC7	DIC495721	74HC123AF TE1612B
43J1	DCN129381	52808-2691 TE4412B
43L1 to 43L5	DCL119361	BL02RN2-R62 TD04N
43P1	DCN995081	B16B-PH-K-S
43P2	DCN994271	B4B-PH-K-S
43P3	DCN995251	B5B-PH-K-S
43P4	DCN125991	CONNECTOR 53258-0310
43P4	DCN125991	CONNECTOR 53258-0310
43Q1	DTR890431	DTA114EK/RN2402 TE0804L
43Q2	DTR215791	2SK 2287
43Q4	DTR890551	DTC114EK/RN1402 TE0804L
43R1 to 43R6	DRZ832491	RK73H 2A 10KΩF TD0804N
43R7	DRZ832391	RK73H 2A 3.9KΩF TD0804N
43R8	DRZ832411	RK73H 2A 4.7KΩF TD0804N
43R10, 43R11	DRZ832591	RK73H 2A 27KΩF TD0804N
43R12, 43R13	DRZ832251	RK73H 2A 1.0KΩF TD0804N
43R14, 43R15	DRD137031	PSS1/4S 3.0ΩJ TA21N
43R16	DRZ832411	RK73H 2A 4.7KΩF TD0804N
43R17	DRZ832591	RK73H 2A 27KΩF TD0804N
43R18	DRZ832411	RK73H 2A 4.7KΩF TD0804N
43R19	DRZ832071	RK73H 2A 180ΩF TD0804N
43R20	DRZ832531	RK73H 2A 15KΩF TD0804N
43R21	DRZ832491	RK73H 2A 10KΩF TD0804N
43R22	DRZ833551	RK73H 2A 33ΩF TD0804N
43R23	DRZ832831	RK73H 2A 270KΩF TD0804N
43R24	DRZ832531	RK73H 2A 15KΩF TD0804N
43R25	DRZ832391	RK73H 2A 3.9KΩF TD0804N
43R26	DRZ832361	RK73H 2A 3.0KΩF TD0804N
43R28	DRZ832071	RK73H 2A 180ΩF TD0804N

PRINTER 43

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
43R29, 43R30	DRD137031	PSS1/4S 3.0ΩJ TA21N
43R31	DRZ832251	RK73H 2A 1.0KΩF TD0804N
43RL1	DKD016271	JV-5S-KT
43S1	DSW017502	SWITCH TKM-D1-H38
43X1	DHF013521	AT-51 10.00MHZ



**POWER SUPPLY 50**

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
50C1	DCF161711	ECQ-U2A 224MT
50C2	DCC140221	DE1307-1 E 472M-KH
50C3, 50C4	DCF161711	ECQ-U2A 224MT
50C5, 50C6	DCC140211	DE1007-1 E 222M-KH
50C7	DCC139251	UP050F 104Z TA21N
50C8	DCF165521	MM-3 2G 225K
50C9	DCC239051	USD05SL 101J TC04N
50C9	DCF165521	MM-3 2G 225K
50C10, 50C11	DCC169081	DE0705-979R 221K 1K TD04N
50C12	DCC140221	DE1307-1 E 472M-KH
50C13, 50C14	DCE985261	KMH400VNSN 270M30D
50C15, 50C16	DCC140211	DE1007-1 E 222M-KH
50C17	DCF122171	MMTS 1H 224J TD04N
50C18	DCF122211	MMTS 1H 474J TD04N
50C19	DCC239051	USD05SL 101J TC04N
50C20	DCF121601	MF-3S 1H 102J TC04N
50C21	DCC239051	USD05SL 101J TC04N
50C23	DCE949771	KME 50VB-2R2 (M) TC04R
50C24	DCF168451	ECQ-E4 104KF
50C25	DCF121681	MF-3S 1H 472J TC04N
50C26	DCE949751	KME 50VB-10 (M) TC04R
50C27	DCE939341	SXE 35VB-220 TC04R
50C29	DCF168451	ECQ-E4 104KF
50C30	DCF121801	MF-3S 1H 473J TC04N
50C31	DCE949751	KME 50VB-10 (M) TC04R
50C32, 50C33	DCE939341	SXE 35VB-220 TC04R
50C34	DCC139251	UP050F 104Z TA21N
50C37	DCC169081	DE0705-979R 221K 1K TD04N
50C38	DCF168461	ECQ-E4 224KF
50C39	DCE948141	LXZ 50VB-47M F11 TC04R
50C40	DCF121761	MF-3S 1H 223J TC04N
50C41	DCE949771	KME 50VB-2R2 (M) TC04R
50C42	DCF121601	MF-3S 1H 102J TC04N
50C43, 50C44	DCC139251	UP050F 104Z TA21N
50C45	DCE949751	KME 50VB-10 (M) TC04R
50C46	DCF169181	ECQ-E2 224KF3 TC04N
50C47	DCE945701	LXV 63VB-180M J30MC
50C48	DCC169021	DE0605-979 B 102K 1K TC04N
50C49	DCE945701	LXV 63VB-180M J30MC
50C51	DCC169021	DE0605-979 B 102K 1K TC04N
50C52	DCE945731	LXV 50VB-220M J25MC
50C55	DCE939341	SXE 35VB-220 TC04R
50C56	DCC139251	UP050F 104Z TA21N
50C57	DCF121721	MF-3S 1H 103J TC04N
50C58 to 50C62	DCE916021	LXV 10VB-2700M K30MC
50C63	DCC139251	UP050F 104Z TA21N
50C64	DCE948141	LXZ 50VB-47M F11 TC04R
50C66	DCF122171	MMTS 1H 224J TD04N
50C67	DCE916021	LXV 10VB-2700M K30MC
50C69 to 50C71	DCC139251	UP050F 104Z TA21N
50C72	DCE929471	SXE 16VB-220 TC04R
50C73, 50C74	DCC139251	UP050F 104Z TA21N

**POWER SUPPLY 50**

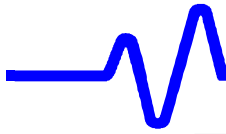
CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
50C76	DCF168461	ECQ-E4 224KF
50C77	DCC169081	DE0705-979R 221K 1K TD04N
50C78	DCC140211	DE1007-1 E 222M-KH
50C79	DCE948141	LXZ 50VB-47M F11 TC04R
50C80	DCF121761	MF-3S 1H 223J TC04N
50C81	DCE949771	KME 50VB-2R2 (M) TC04R
50C82	DCF121561	MF-3S 1H 471K TC04N
50C83, 50C84	DCC139251	UP050F 104Z TA21N
50C85	DCE949751	KME 50VB-10 (M) TC04R
50C86	DCC140211	DE1007-1 E 222M-KH
50C87	DCE935351	LXV 35VB-1200M K35MC
50C88	DCC139251	UP050F 104Z TA21N
50C89 to 50C91	DCE926401	LXV 25VB-2200M K40MC
50C92	DCE935351	LXV 35VB-1200M K35MC
50C93	DCC139251	UP050F 104Z TA21N
50C94	DCC140221	DE1307-1 E 472M-KH
50C95	DCF121721	MF-3S 1H 103J TC04N
50C96 to 50C98	DCE916021	LXV 10VB-2700M K30MC
50C99	DCC139251	UP050F 104Z TA21N
50C100	DCE948141	LXZ 50VB-47M F11 TC04R
50C101	DCF121841	MF-3S 1H 104J TC04N
50C102	DCE916021	LXV 10VB-2700M K30MC
50C104	DCC139251	UP050F 104Z TA21N
50C105	DCC140221	DE1307-1 E 472M-KH
50C106	DCE929471	SXE 16VB-220 TC04R
50C107, 50C108	DCC139251	UP050F 104Z TA21N
50C109, 50C110	DCE926401	LXV 25VB-2200M K40MC
50C111	DCE916011	LXV 10VB-1000M J20MC
50C112	DCC139251	UP050F 104Z TA21N
50C113	DCE916021	LXV 10VB-2700M K30MC
50C114	DCE948141	LXZ 50VB-47M F11 TC04R
50C116	DCC139391	UP050B 102K TA21N
50C117	DCC139251	UP050F 104Z TA21N
50C118	DCE916011	LXV 10VB-1000M J20MC
50C119	DCC139251	UP050F 104Z TA21N
50C120	DCE916021	LXV 10VB-2700M K30MC
50C121	DCE948141	LXZ 50VB-47M F11 TC04R
50C123	DCC139251	UP050F 104Z TA21N
50C124	DCE921351	SXE 16VB-680 (10X20)
50C125	DCF121841	MF-3S 1H 104J TC04N
50C126	DCE926401	LXV 25VB-2200M K40MC
50C128	DCC139251	UP050F 104Z TA21N
50C129	DCE921351	SXE 16VB-680 (10X20)
50C130	DCC139251	UP050F 104Z TA21N
50C131	DCF121841	MF-3S 1H 104J TC04N
50C132	DCE926401	LXV 25VB-2200M K40MC
50C134	DCE945701	LXV 63VB-180M J30MC
50C135 to 50C139	DCE916021	LXV 10VB-2700M K30MC
50C140	DCC139251	UP050F 104Z TA21N
50C141	DCF122171	MMTS 1H 224J TD04N
50C142, 50C143	DCF168461	ECQ-E4 224KF
50C145 to 50C147	DCC139251	UP050F 104Z TA21N

## POWER SUPPLY 50

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
50C148	DCE948111	LXV 63VB-47M H12 TC04R
50C149	DCE948141	LXZ 50VB-47M F11 TC04R
50C150, 50C151	DCE948141	LXZ 50VB-47M F11 TC04R
50C152, 50C153	DCC139251	UP050F 104Z TA21N
50C154	DCF121721	MF-3S 1H 103J TC04N
50C155	DCE919661	KME 10VB-100 (M) TC04R
50C156	DCC139251	UP050F 104Z TA21N
50C157	DCE948141	LXZ 50VB-47M F11 TC04R
50C158	DCC139251	UP050F 104Z TA21N
50C159	DCC169081	DE0705-979R 221K 1K TD04N
50C162	DCE948141	LXZ 50VB-47M F11 TC04R
50C163	DCC139251	UP050F 104Z TA21N
50C164	DCE916021	LXV 10VB-2700M K30MC
50CN1	DCN013161	INLET AP-320 (V) BLACK
50CN2	DCN126021	CONNECTOR 53258-0610
50CN3	DCN990911	CONNECTOR 5267-07A
50CN4	DCN126081	CONNECTOR 53258-0710
50CN5	DCN126011	CONNECTOR 53258-0510
50CN6	DCN125991	CONNECTOR 53258-0310
50CN7	DCN990821	CONNECTOR 5268-02A
50CN11	DCN996921	MB7P-90
50CN13	DCN996791	MB8P-90
50CN15	DCN996931	MB12P-90
50CN17	DCN990891	CONNECTOR 5267-04A
50CNCN	DCN990871	CONNECTOR 5267-02A
50CNCN	KHB185411	TERMINAL L95 UL-I
50CNCN	KHB188811	JUMPER CABLE A UL-I
50D1	DDD029231	D1N60 TA21R
50D2	DDD040841	AC16FSM
50D3	DDD019071	1SS 120 TA21R
50D4	DDD029511	D10XB60
50D5	DDD022351	D8L60
50D6	DDD021481	RG1C
50D7, 50D8	DDD029471	D1NL40 TA21R
50D9	DDD038841	RD20ESB/HZS20NB TA21R
50D11	DDD038391	RD5.6ESB2 TA21R
50D12	DDD021481	RG1C
50D13, 50D14	DDD019071	1SS 120 TA21R
50D15, 50D16	DDD029471	D1NL40 TA21R
50D17	DDD021481	RG1C
50D18	DDD038831	RD18ESB/HZS18NB TA21R
50D19	DDD019071	1SS 120 TA21R
50D20	DDD038731	RD6.8ESB/HZS6.8NB TA21R
50D21	DDD029471	D1NL40 TA21R
50D22	DDD022321	D10LC20U
50D23	DDD024011	S2L60
50D24, 50D25	DDD029231	D1N60 TA21R
50D26	DDD024071	D30SC4M
50D27	DDD019071	1SS 120 TA21R
50D28, 50D29	DDD038391	RD5.6ESB2 TA21R
50D30, 50D31	DDD029471	D1NL40 TA21R
50D32	DDD021481	RG1C

## POWER SUPPLY 50

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
50D33	DDD038831	RD18ESB/HZS18NB TA21R
50D34	DDD019071	1SS 120 TA21R
50D35	DDD038731	RD6.8ESB/HZS6.8NB TA21R
50D36	DDD022321	D10LC20U
50D37, 50D38	DDD023911	D10SC4M
50D39	DDD022321	D10LC20U
50D40	DDD023911	D10SC4M
50D41	DDD019071	1SS 120 TA21R
50D42, 50D43	DDD038391	RD5.6ESB2 TA21R
50D44	DDD038721	RD6.2ESB/HZS6.2NB TA21R
50D45	DDD019071	1SS 120 TA21R
50D46	DDD029231	D1N60 TA21R
50D47	DDD038721	RD6.2ESB/HZS6.2NB TA21R
50D48	DDD019071	1SS 120 TA21R
50D49	DDD029231	D1N60 TA21R
50D50, 50D51	DDD038771	RD10ESB/HZS10NB TA21R
50D52	DDD029231	D1N60 TA21R
50D53, 50D54	DDD038771	RD10ESB/HZS10NB TA21R
50D55	DDD019071	1SS 120 TA21R
50D56	DDD029231	D1N60 TA21R
50D57	DDD029471	D1NL40 TA21R
50D58	DDD038831	RD18ESB/HZS18NB TA21R
50D59	DDD038641	RD3.0ESB/HZS3.0NB TA21R
50F1	DSK065861	FUSE-HOLDER MF 561A UL-M
50FUSEFUSE	DFU016651	FUSE ET 6.3A 250V
50IC2	DIC653611	M 51995AP
50IC3	DIC652721	NJM 7812FA (JRC)
50IC4	DIC613771	4558
50IC5	DIC659551	TL 431CLP-R/-Z TE04F
50IC6	DIC653611	M 51995AP
50IC7	DIC613771	4558
50IC8	DIC659551	TL 431CLP-R/-Z TE04F
50IC9	DIC613721	NJM 2058D (JRC)
50IC11	DIC659551	TL 431CLP-R/-Z TE04F
50L2, 50L3	DCL170231	COIL ET2835-042
50L4, 50L5	DCL111131	COIL SN-12-500
50L6	DCL113871	PFC COIL FS44855 UL-I
50L9	DCL119361	BL02RN2-R62 TD04N
50L17	DCL321111	FERRITE BEAD HF70BB3.5X5X1.3
50L33	DCL119721	COIL SBC1-220-132
50PC1	DFB031571	TLP721F (D4-GR,M)
50Q1	DTR215821	2SK 2198
50Q2	DTR215751	2SK 2482
50Q3	DTR139011	2SC 1815GR TPER1
50Q4	DTR137511	2SC 3148
50Q5	DTR119011	2SA 1015Y TPER1
50Q6	DTR215841	IRFPF50
50Q7	DTR219051	2SK 373-GR TPE2
50Q8	DTR215841	IRFPF50
50Q9	DTR219051	2SK 373-GR TPE2
50Q10	DTR215791	2SK 2287
50Q11	DTR139011	2SC 1815GR TPER1



## POWER SUPPLY 50

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
50Q12	DTR225011	2SJ 143
50Q13	DTR119011	2SA 1015Y TPER1
50Q14	DTR215791	2SK 2287
50Q15	DTR139011	2SC 1815GR TPER1
50Q16	DTR225011	2SJ 143
50Q17	DTR119011	2SA 1015Y TPER1
50Q18	DTR225011	2SJ 143
50Q19	DTR119011	2SA 1015Y TPER1
50R1	DRS331261	RSS2 68KΩJ L15
50R2	DRZ010181	A53K-10ΩJ
50R3	DRE137881	EF1/4S 1.0KΩF TA21N
50R4	DRE137491	EF1/4S 24ΩF TA21N
50R5, 50R6	DRE960191	BPR 26 0.1ΩK
50R7	DRE138241	EF1/4S 33KΩF TA21N
50R8 to 50R11	DRS331051	RSS2 820ΩJ L15
50R12	DRE138121	EF1/4S 10KΩF TA21N
50R13	DRZ019261	RF16S 47ΩJ TA21N
50R14	DRE138471	EF1/4S 300KΩF TA21N
50R15	DRE138141	EF1/4S 12KΩF TA21N
50R16	DRV419231	GF06UT2/CT-6TV00 50KΩ (T)
50R17, 50R18	DRE138491	EF1/4S 360KΩF TA21N
50R19	DRE137921	EF1/4S 1.5KΩF TA21N
50R20	DRE137971	EF1/4S 2.4KΩF TA21N
50R21	DRS331271	RSS2 100KΩJ L15
50R22, 50R53	DRE138451	EF1/4S 240KΩF TA21N
50R24	DRE137881	EF1/4S 1.0KΩF TA21N
50R25	DRE137641	EF1/4S 100ΩF TA21N
50R26	DRE137401	EF1/4S 10ΩF TA21N
50R27, 50R28	DRE138451	EF1/4S 240KΩF TA21N
50R29	DRS320191	RSS1 6.8ΩJ TA21N
50R30	DRS331271	RSS2 100KΩJ L15
50R31, 50R32	DRE137721	EF1/4S 220ΩF TA21N
50R33	DDD089281	PTH9M04 BE471TS2F333
50R34	DRE138321	EF1/4S 68KΩF TA21N
50R35	DRS331191	RSS2 1.0KΩJ L15
50R36 to 50R38	DRS331271	RSS2 100KΩJ L15
50R39	DRS320011	RSS1 0.22ΩJ TA21N
50R40 to 50R42	DRS331121	RSS2 330ΩJ L15
50R43	DRE138121	EF1/4S 10KΩF TA21N
50R44	DRZ019281	RF16S 10ΩJ TA21N
50R45	DRZ019291	RF16S 100ΩJ TA21N
50R46	DRE137601	EF1/4S 68ΩF TA21N
50R47	DRE137701	EF1/4S 180ΩF TA21N
50R48 to 50R53	DRE138121	EF1/4S 10KΩF TA21N
50R54	DRE137961	EF1/4S 2.2KΩF TA21N
50R55	DRE138361	EF1/4S 100KΩF TA21N
50R56	DRS320251	RSS1 22ΩJ TA21N
50R57	DRS320531	RSS1 4.7KΩJ TA21N
50R58	DRS331071	RSS2 10ΩJ L15
50R59	DRS320211	RSS1 10ΩJ TA21N
50R60 to 50R65	DRE138041	EF1/4S 4.7KΩF TA21N
50R66 to 50R68	DRE960141	BPR 26 0.05ΩK
50R69, 50R70	DRE138041	EF1/4S 4.7KΩF TA21N
50R71	DRE138081	EF1/4S 6.8KΩF TA21N

## POWER SUPPLY 50

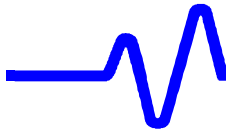
CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
50R72	DRE137961	EF1/4S 2.2KΩF TA21N
50R73	DRV419171	GF06UT2/CT-6TV00 500Ω (T)
50R74	DRE137951	EF1/4S 2.0KΩF TA21N
50R75, 50R76	DRS331101	RSS2 47ΩJ L15
50R77 to 50R80	DRE138041	EF1/4S 4.7KΩF TA21N
50R81	DRE137641	EF1/4S 100ΩF TA21N
50R82 to 50R84	DRS331271	RSS2 100KΩJ L15
50R85 to 50R87	DRS331121	RSS2 330ΩJ L15
50R88	DRS320011	RSS1 0.22ΩJ TA21N
50R89	DRE138121	EF1/4S 10KΩF TA21N
50R90	DRZ019261	RF16S 47ΩJ TA21N
50R91	DRZ019291	RF16S 100ΩJ TA21N
50R92	DRE137621	EF1/4S 82ΩF TA21N
50R93	DRE137701	EF1/4S 180ΩF TA21N
50R94	DRE138191	EF1/4S 20KΩF TA21N
50R95	DRE138141	EF1/4S 12KΩF TA21N
50R96 to 50R99	DRE138121	EF1/4S 10KΩF TA21N
50R100	DRE137961	EF1/4S 2.2KΩF TA21N
50R101	DRE960151	BPR 26 0.33ΩK
50R102	DRS320661	RSS1 56KΩJ TA21N
50R103, 50R104	DRE138041	EF1/4S 4.7KΩF TA21N
50R105	DRS331071	RSS2 10ΩJ L15
50R106	DRE138041	EF1/4S 4.7KΩF TA21N
50R107	DRE138031	EF1/4S 4.3KΩF TA21N
50R108, 50R109	DRE138041	EF1/4S 4.7KΩF TA21N
50R110	DRE990211	BPR28 0.022ΩK
50R111 to 50R114	DRE138041	EF1/4S 4.7KΩF TA21N
50R115	DRE138221	EF1/4S 27KΩF TA21N
50R116	DRE137951	EF1/4S 2.0KΩF TA21N
50R117	DRV419171	GF06UT2/CT-6TV00 500Ω (T)
50R118	DRE137961	EF1/4S 2.2KΩF TA21N
50R119, 50R120	DRS331101	RSS2 47ΩJ L15
50R121 to 50R124	DRE138041	EF1/4S 4.7KΩF TA21N
50R125	DRE137641	EF1/4S 100ΩF TA21N
50R126, 50R127	DRE960151	BPR 26 0.33ΩK
50R128	DRE137711	EF1/4S 200ΩF TA21N
50R129	DRE137881	EF1/4S 1.0KΩF TA21N
50R130	DRE137401	EF1/4S 10ΩF TA21N
50R131, 50R132	DRE997221	CRB20 10KΩ DY T-29E TA21N
50R133	DRE138011	EF1/4S 3.6KΩF TA21N
50R134	DRE997241	CRB20 12KΩDY T-29E TA21N
50R135	DRE997251	CRB20 4.7KΩDY T-29E TA21N
50R136	DRE138021	EF1/4S 3.9KΩF TA21N
50R137, 50R138	DRE960151	BPR 26 0.33ΩK
50R139	DRE137991	EF1/4S 3.0KΩF TA21N
50R140	DRE137881	EF1/4S 1.0KΩF TA21N
50R141	DRE137971	EF1/4S 2.4KΩF TA21N
50R142	DRE997251	CRB20 4.7KΩDY T-29E TA21N
50R143	DRE137401	EF1/4S 10ΩF TA21N
50R144	DRE138041	EF1/4S 4.7KΩF TA21N
50R145	DRE960151	BPR 26 0.33ΩK
50R146	DRE137881	EF1/4S 1.0KΩF TA21N

## POWER SUPPLY 50

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
50R147	DRE137951	EF1/4S 2.0KΩF TA21N
50R148	DRE138121	EF1/4S 10KΩF TA21N
50R149	DRE137401	EF1/4S 10ΩF TA21N
50R150	DRE997221	CRB20 10KΩ DY T-29E TA21N
50R151	DRE997211	CRB20 2KΩDY T-29E TA21N
50R152	DRV419341	GF06VT2/CT-6TH00 1KΩTE04B
50R153	DRE997241	CRB20 12KΩDY T-29E TA21N
50R154	DRE138041	EF1/4S 4.7KΩF TA21N
50R155	DRE960151	BPR 26 0.33ΩK
50R156	DRE137881	EF1/4S 1.0KΩF TA21N
50R157	DRE138071	EF1/4S 6.2KΩF TA21N
50R158	DRE997241	CRB20 12KΩDY T-29E TA21N
50R159	DRE137401	EF1/4S 10ΩF TA21N
50R160	DDD081051	PTH9M04 BF471TS2F333
50R161	DRE138171	EF1/4S 16KΩF TA21N
50R162	DRE138041	EF1/4S 4.7KΩF TA21N
50R163, 50R164	DRS331271	RSS2 100KΩJ L15
50R165	DRE137921	EF1/4S 1.5KΩF TA21N
50R166	DDD089361	PTH9M04 BC471TS2F333
50R167	DRS320391	RSS1 330ΩJ TA21N
50R168	DRE137751	EF1/4S 300ΩF TA21N
50T1	DCL241352	TRANS FS44633-21 UL-I
50T2	DCL214111	TRANS (EX) FS44248
50T3	DCL215361	TRANS B FS44850-3 UL-I
50T4	DCL215351	TRANS A FS44849-3 UL-I

## PFC UNIT 51

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
51C2	DCF121601	MF-3S 1H 102J TC04N
51C3	DCF122131	MMTS 1H 104J TD04N
51CN1	DCN116241	CONNECTOR A4B-11PA-2DS (01)
51CN2	DCN116231	CONNECTOR A4B-10PA-2DS (01)
51IC1	DIC891021	UC 3854N
51R5	DRE138201	EF1/4S 22KΩF TA21N
51R6	DRE138151	EF1/4S 13KΩF TA21N
51R7	DRE138201	EF1/4S 22KΩF TA21N
51R8	DRE138351	EF1/4S 91KΩF TA21N
51R9	DRE138601	EF1/4S 1.0MΩF TA21N
51R10	DRE138571	EF1/4S 750KΩF TA21N
51R11	DRE138441	EF1/4S 220KΩF TA21N
51R12	DRE138121	EF1/4S 10KΩF TA21N
51R13	DRE137961	EF1/4S 2.2KΩF TA21N
51R14	DRE137901	EF1/4S 1.2KΩF TA21N
51R15	DRE138171	EF1/4S 16KΩF TA21N



**PCMCIA** 39

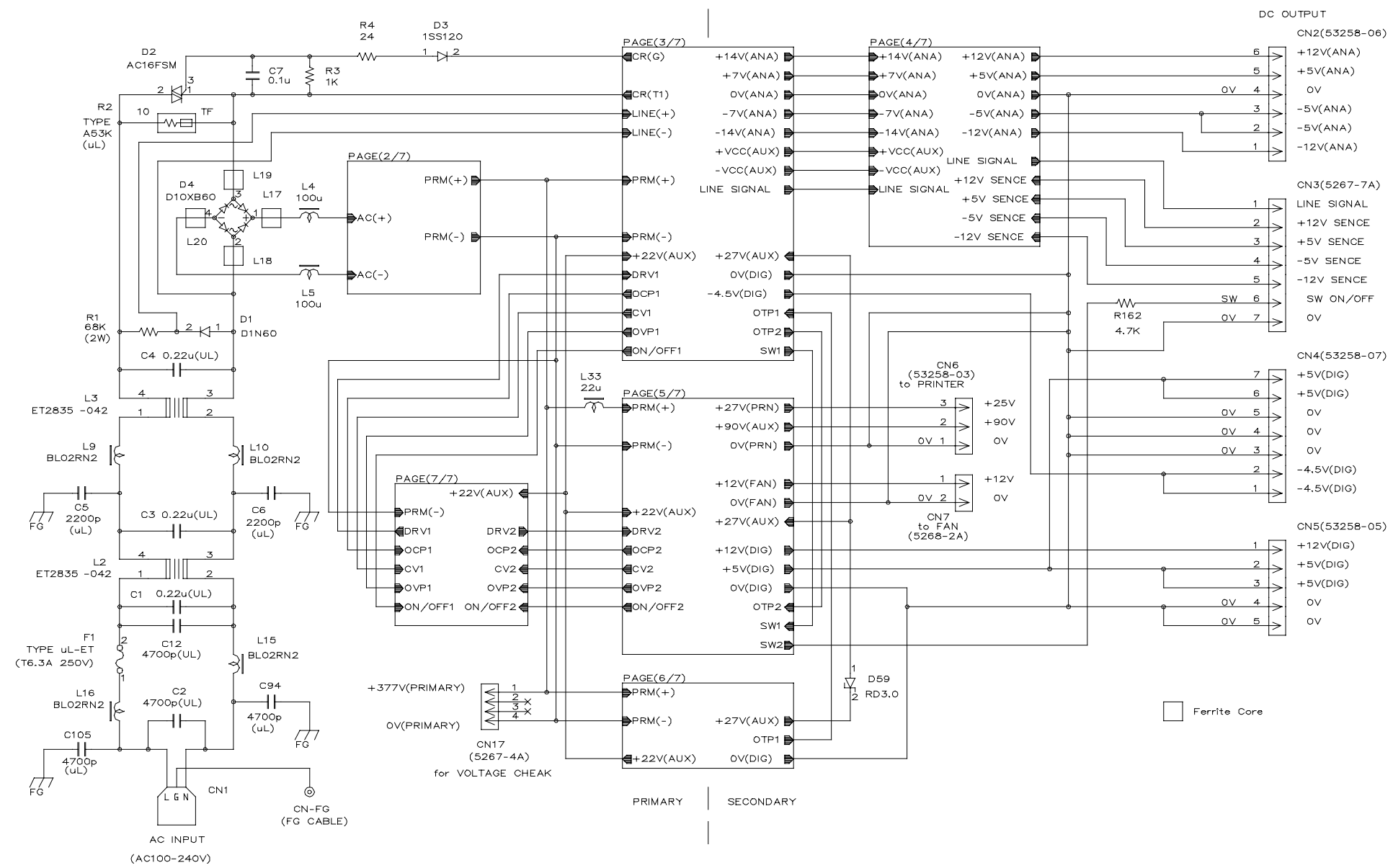
CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
39C69	DCE219051	SME-CE04W 1A 101M TC04R
39CN1	DCN126121	PCT-ST1-R-TF(KFA391429-A)
39IC65	DIC499921	74HC175F/AF TE1612B
39IC66	DIC499771	74HC540F TE2412B
39IC67 to 39IC69	DIC484491	74VHCT541AF EL TE2412B
39IC70	DIC484481	74VHCT373F EL TE2412B
39IC71	DIC471821	PALCE16V8H-10JC/4 K0313CRD
39IC72	DIC484491	74VHCT541AF EL TE2412B
39IC73	DIC484681	TC 74VHCT245AF (EL) TE2412B
39L10	DCL119361	BL02RN2-R62 TD04N
39RA43 to 39RA52	DFB810041	RAC16 4D 220J A TD0804M
39RA53 to 39RA61	DFB810051	RAC16 4D 103J A TD0804M
39RA62 to 39RA65	DFB810041	RAC16 4D 220J A TD0804M
39RA66 to 39RA69	DFB810051	RAC16 4D 103J A TD0804M

**PANEL BOARD** 40

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
40BZ1	DSB040911	CB-09FP
40C1	DCE219051	SME-CE04W 1A 101M TC04R
40C2	DCC810921	C2012B 1H 472K A TD84N
40C3 to 40C6	DCC810571	C2012F 1E 104Z A TD84N
40C7 to 40C22	DCC816561	C2012CH 1H 470J A TD84N
40D1 to 40D11	DDD810241	1SS 272 TE0804R
40D14 to 40D17	DDD810241	1SS 272 TE0804R
40D18	DDD074141	MBG5064X
40IC1	DIC891051	MFP414 FRONT PANEL IC
40IC2	DIC499371	74HC74F/AF TE1612B
40IC3	DIC499321	74HC04F/AF TE1612B
40J1	DCN125021	52793-2290 TE4412B
40J2	DCN126101	MDF7-16DP-2.54DSA (01)
40Q1, 40Q2	DTR890521	DTC143TK/RN1410 TE0804L
40R1	DRZ832051	RK73H 2A 150ΩF TD0804N
40R2	DRZ832491	RK73H 2A 10KΩF TD0804N
40R3	DRZ832631	RK73H 2A 39KΩF TD0804N
40R4, 40R5	DRZ832491	RK73H 2A 10KΩF TD0804N
40RA1 to 40RA6	DFB810051	RAC16 4D 103J A TD0804M
40S1, 40S2	DME990401	ROTARY ENCODER EC16B241040B
40S3	DME990411	ROTARY ENCODER EC16B242040A
40S4 to 40S7	DME990401	ROTARY ENCODER EC16B241040B
40S8	DME990411	ROTARY ENCODER EC16B242040A
40S9, 40S10	DME990401	ROTARY ENCODER EC16B241040B
40S11	DME990411	ROTARY ENCODER EC16B242040A

**LCD CONNECTOR** 42

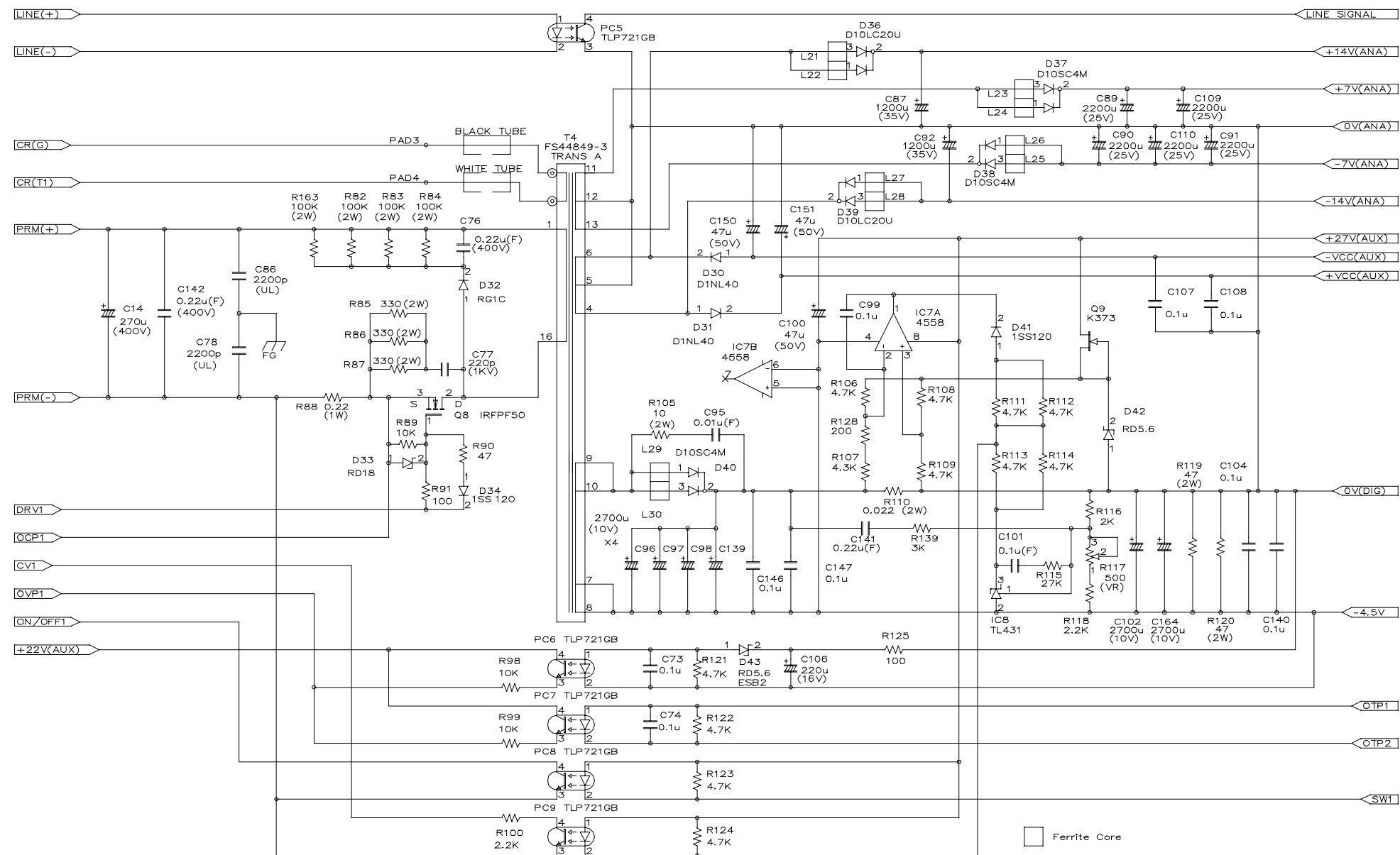
CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
42C1	DCC810571	C2012F 1E 104Z A TD84N
42C2 to 42C4	DCC816501	C2012CH 1H 120J A TD84N
42C5	DCC810571	C2012F 1E 104Z A TD84N
42J1	DCN129501	52808-3091 TE5612B
42P1	DCN129571	DF9B-31S-1V (22) TE3212B



POWER SUPPLY (50) 1/7

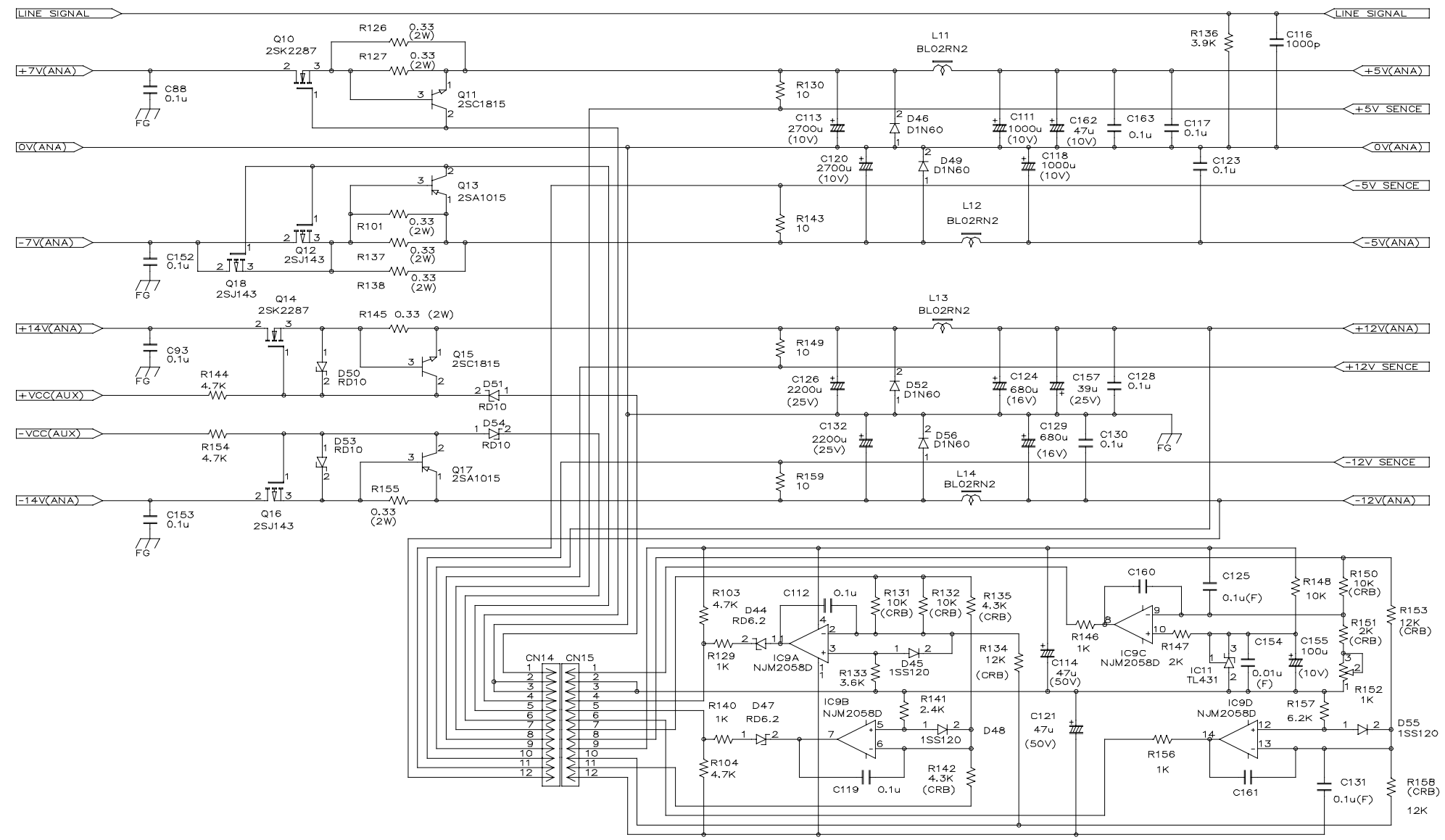




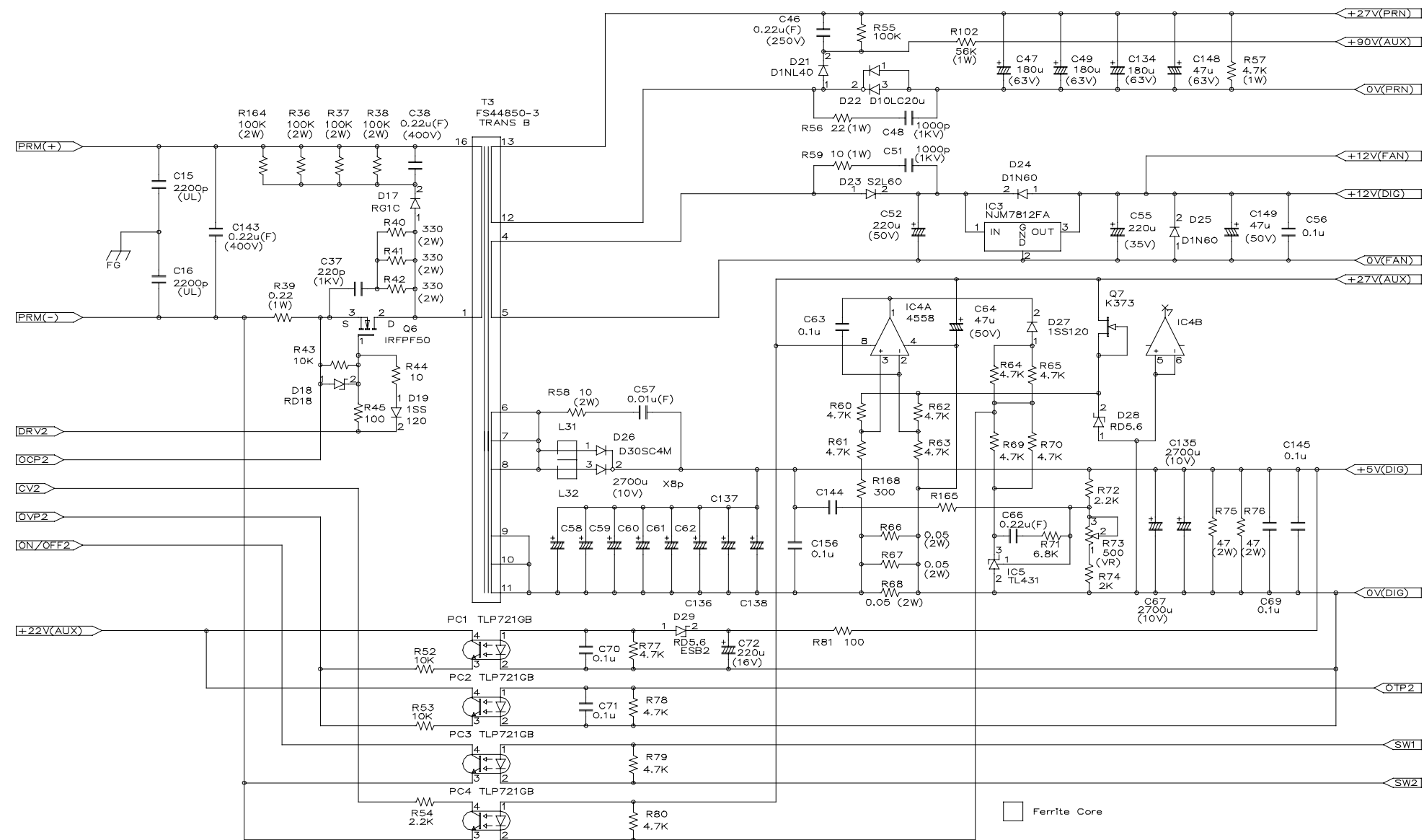


POWER SUPPLY (50) 3/7

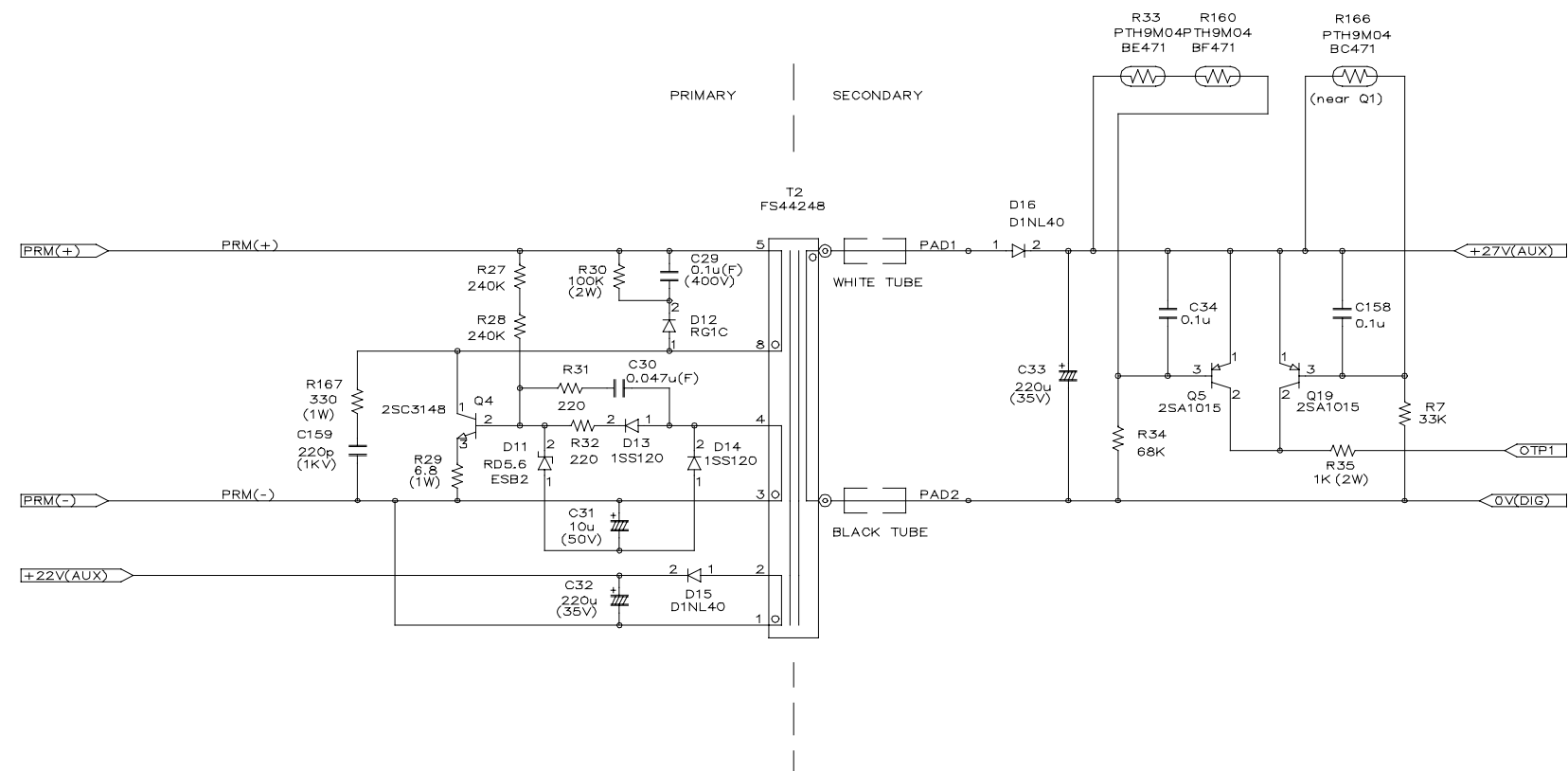




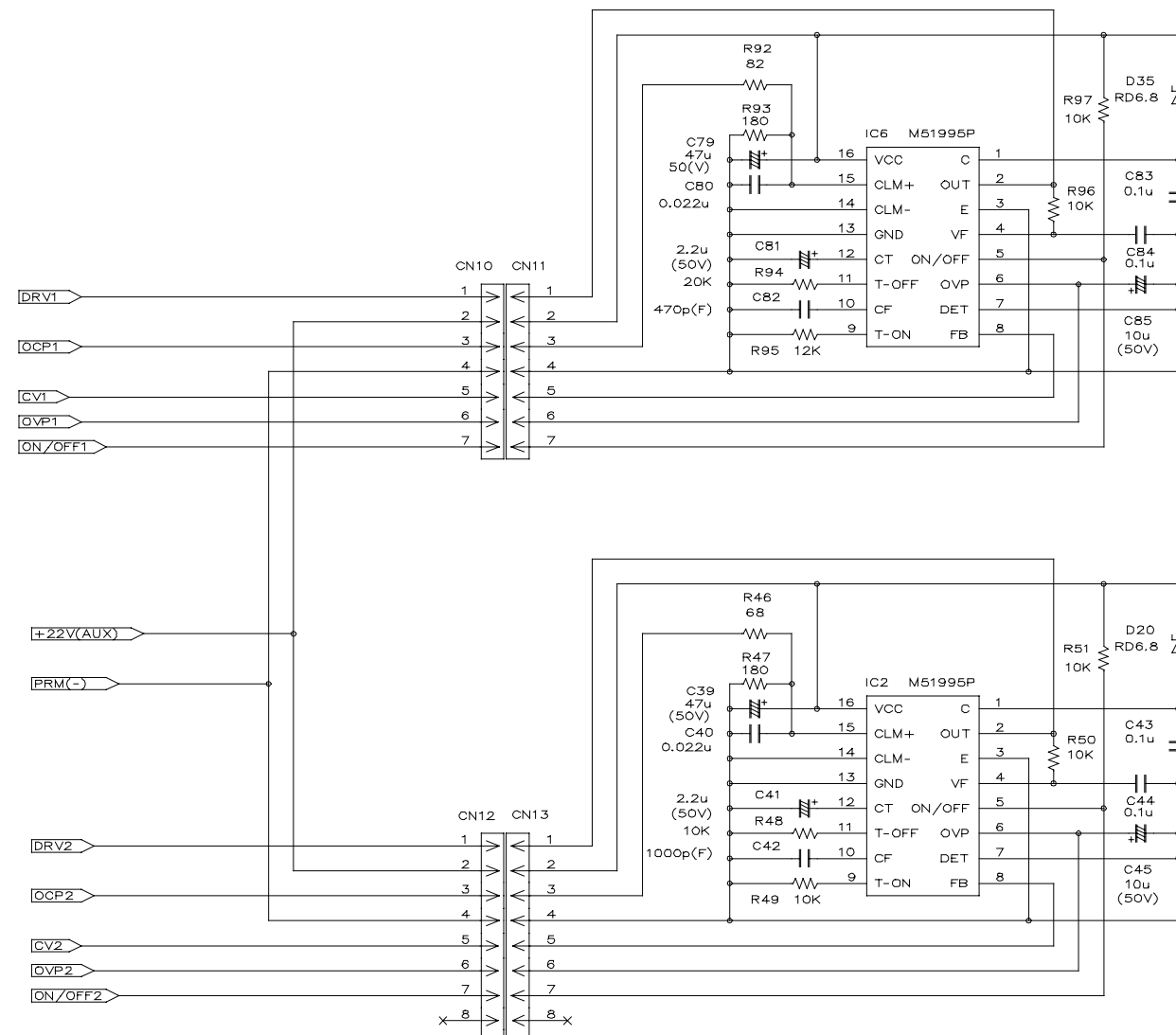
POWER SUPPLY (50) 4/7



POWER SUPPLY (50) 5/7

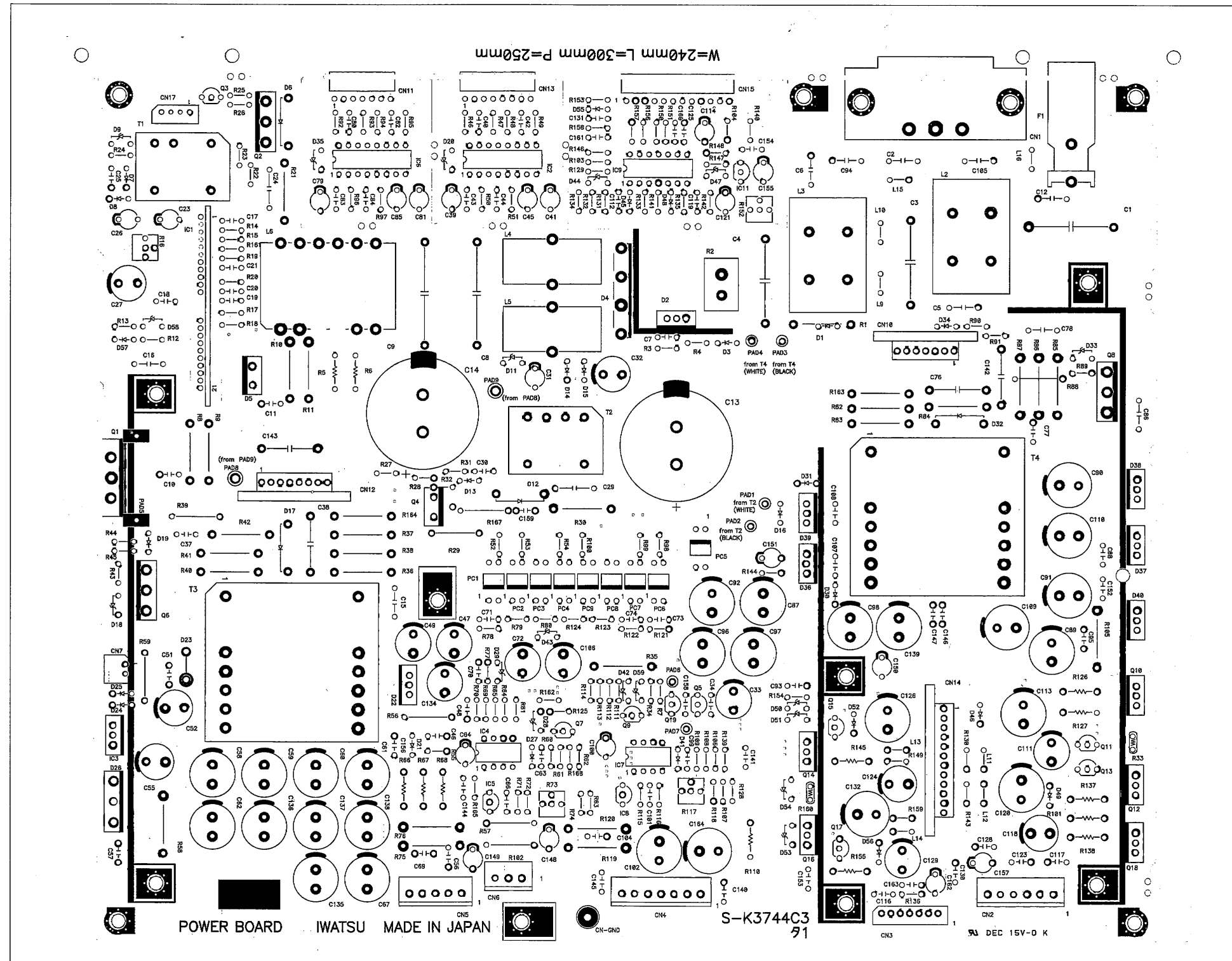


POWER SUPPLY (50) 6/7



POWER SUPPLY (50) 7/7

RD



POWER BOARD

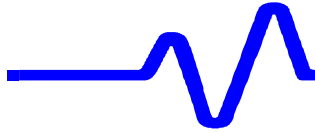
## Appendix A: Replaceable Parts

To order parts, contact your local LeCroy service office. A list of the service centers is given in section 2 of this manual. For boards, you can either order a new board or an exchange board. Exchange assemblies are factory repaired, inspected, tested and calibrated. If you order an exchange card, you must return the defective part.

This section applies to the following model : LT342

### Mechanical Parts

Part Number	Code No.	Description	Manufacturer	Cage Code
BNC RECEPTACLE	DCN040801	BNC RECEPTACLE	DAISYO-DENKI	S5180
DC-AC INVERTER S-12598-5M	DES040271	DC-AC INVERTER S-12598-5M	IWATSU	S5180
E-KBA784011	KBA784011	TOP COVER	IWATSU	S5180
E-KBA785111	KBA785111	REAR FRAME	IWATSU	S5180
E-KBA785421	KBA786921	BOTTOM COVER LE	IWATSU	S5180
E-KBA787211	KBA787311	STD TOP COVER LE	IWATSU	S5180
E-KCM142011	KCM142011	PANEL COVER	IWATSU	S5180
E-KCM143211	KCM143211	BEZEL FND12 UL-I	IWATSU	S5180
FAN MOTOR 109R1212M114	DMT620701	FAN MOTOR 109R1212M114	SANYO DENKI	S4915
G-KBA784121	KBA784121	FRONT FRAME A	IWATSU	S5180
G-KBA784211	KBA784211	FRONT FRAME B	IWATSU	S5180
G-KCM131421	KCM131421	TILT STAND	IWATSU	S5180
G-KGM029711	KGM029711	FND14 KEY RUBBER UL-I	IWATSU	S5180
G-KPA219111	KPA219111	LT342 CONTROL PANEL UL-I	IWATSU	S5180
I-MSQ901781	MSQ901781	SCREW PT KB(+) 2X6S	IWATSU	S5180
K-KBA784421	KBA784421	TOP FRAME L	IWATSU	S5180
K-KBA784511	KBA784511	TOP FRAME R	IWATSU	S5180



## Mechanical Parts (con't)

Part Number	Code No.	Description	Manufacturer	Cage Code
K-KBA784911	KBA784911	SIDE FRAME L	IWATSU	S5180
K-KBA785011	KBA785011	SIDE FRAME R	IWATSU	S5180
K-KBA785211	KBA785211	FDD SUPPORT PLATE	IWATSU	S5180
K-KCM124211	KCM138221	CORD HOOK 78 UL-I	IWATSU	S5180
K-KCM131511	KCM131511	TILT STAND BASE	IWATSU	S5180
K-KCM141021	KCM141021	KNOB-D9 UL-I	IWATSU	S5180
K-KCM141121	KCM141121	KNOB-D12 UL-I	IWATSU	S5180
K-KPA219211	KPA219211	LT34X COMBI PANEL UL-I	IWATSU	S5180
LQ084V1DG21	DFB991551	LQ084V1DG21	SHARP	S5180
P-AHB100111	AHB101311	CO-AXIAL CABLE 75VV-0200-6	IWATSU	S5180
P-AHB230011	AHB202711	FFC-22P-L140-P1	IWATSU	S5180
P-AHB230011	AHB202711	FFC-22P-L140-P1	IWATSU	S5180
P-AHB230011	AHB202811	FFC-26P-L140-P1	IWATSU	S5180
P-AHB230011	AHB202411	FFC-30P-L080-P1	IWATSU	S5180
P-AHB230011	AHB202511	FFC-22P-L100-P1	IWATSU	S5180
P-AHB230011	AHB202611	FFC-26P-L060-P1	IWATSU	S5180
P-KBA783911	KBA783911	OPTION PANEL	IWATSU	S5180
P-KGM028011	KGM028011	RUBBER FOOT	IWATSU	S5180
P-KHB189011	KHB189011	MAIN POWER 1 CABLE UL-I	IWATSU	S5180
P-KHB189111	KHB189111	MAIN POWER 2 CABLE UL-I	IWATSU	S5180
P-KHB189211	KHB189211	CPU POWER CABLE UL-I	IWATSU	S5180
P-KHB189411	KHB189411	MAIN SENSE CABLE UL-I	IWATSU	S5180
P-KHB189511	KHB189511	BACKLIGHT CABLE UL-I	IWATSU	S5180
P-KPL142611	KPL142611	ROT-COIL CUSHION	IWATSU	S5180
P-KPL143011	KPL143011	LCD FILTER (8.5INCH)	IWATSU	S5180
P-KPL143211	KPL143211	INVERTER PLATE UL-I	IWATSU	S5180
P-KSN091911	KSN091911	WIRE NET (MESH #5)	IWATSU	S5180

## Mechanical Parts (cont')

Part Number	Code No.	Description	Manufacturer	Cage Code
P-MKB130062	MKB130062	SCREW KB(+)3X6S(NIP)	IWATSU	S5180
P-MKB130062	MKB130082	SCREW KB(+)3X8S(NIP)	IWATSU	S5180
P-MKP120041	MKD130061	SCREW KD(+)3X6S	IWATSU	S5180
P-MSM126061	MSM140101	SCREW SM1-4X10	IWATSU	S5180
P-MSQ903511	MSQ903511	SCREW PT KB(+)2.5X8S	IWATSU	S5180
P-MSQ903521	MSQ903521	SCREW ST KB(+)2.5X4S	IWATSU	S5180
P-MTP126061	MSQ901661	SCREW PT KT(+)3X8S	IWATSU	S5180
S-528623002	528623002	NOISE SHIELD 43SM24	IWATSU	S5180
S-KHB185511	KHB185511	UL/CSA POWER CORD UL-L	IWATSU	S5180
S-MGA000721	MGA000721	SIDE FOOT 5475 UL-I	IWATSU	S5180
S-MHK001351	MHK001351	CORD STRAP CS-1	IWATSU	S5180
S-MHK001471	MHK001541	HARNESING BELT SL-9N	IWATSU	S5180
S-MTH000791	MTH000791	HANDLE THA-238-L260 UL-I	IWATSU	S5180
S-MWW920000	MPW930000	NYLON WASHER M3	IWATSU	S5180
S-MZT007871	MZT007871	SOFT GASKET UC-3E0564 UL-I	IWATSU	S5180
S-MZT901531	MZT901531	PCB SUPPORT KGPS-8R/FCB-8	IWATSU	S5180
S-MZT902261	MZT902191	METALLIC SUPPORT PNC20	IWATSU	S5180
S-MZT902471	MZT902491	CARD GUIDE V0-160	IWATSU	S5180
S-MZT903081	MZT903161	METAL SUPPORT PSC60	IWATSU	S5180
W1DE-00B	DMB020691	FD DRIVE W1DE-00B	CITIZEN	037Y4



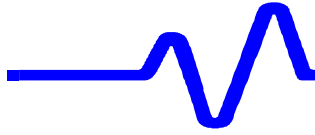


## LT342 Main Board

Part Number	Code No.	Description	Manufacturer	Cage Code
12CX 22X22-2.0PIN	MHN001301	HEAT SINK(MST412)	THERMAL COMPONENT	S5180
1SS 226	DDD810081	DIODE SERIES	TOSHIBA	S4901
1SS 269	DDD810131	DIODE COMMON ANODE	TOSHIBA	S4901
1SS 272	DDD810241	DIODE PAIR	TOSHIBA	S4901
2SA 1162Y	DTR810041	TRANSISTOR PNP	TOSHIBA	S4901
2SA 1213-Y	DTR810161	TRANSISTOR PNP	TOSHIBA	S4901
2SB 605K/L	DTR129011	TRANSISTOR PNP POWER	NEC	0CMK7
2SC 2712LG	DTR838661	TRANSISTOR NPN	TOSHIBA	S4901
2SC 2873-Y	DTR830481	TRANSISTOR NPN	TOSHIBA	S4901
2SC 3356	DTR830071	TRANSISTOR NPN RF	NEC	0CMK7
2SC 3583	DTR830521	TRANSISTOR NPN RF	NEC	0CMK7
2SD 571K/L	DTR149011	TRANSISTOR NPN POWER	NEC	0CMK7
2SJ 144-GR	DTR229091	TRANSISTOR JUNCTION-FET	TOSHIBA	S4901
2SK 2287	DTR215791	POWER MOSFET N-CHANNEL	SHINDENGEN	S5405
2SK 508 K51	DTR860161	TRANSISTOR JUNCTION-FET	NEC	0CMK7
3SK 241	DTR870031	TRANSISTOR GaAs MES-FET	MATSUSHITA	S5441
5267-07A	DCN990911	CONNECTOR 7pin STRAIGHT	MOLEX	S5406
52808-2291	DCN129391	FFC CONNECTOR 22PIN STRAIGHT	MOLEX	S5406
52808-2691	DCN129381	FFC CONNECTOR 26PIN STRAIGHT	MOLEX	S5406
53258-0610	DCN126021	CONNECTOR 6pin STRAIGHT	MOLEX	S5406
53258-0710	DCN126081	CONNECTOR 7pin STRAIGHT	MOLEX	S5406
571ABN-10.0000	DHF060191	CRYSTAL 10MHz	SEIKO PRECISION	0BDG7
709360371 HEAT SINK(MCG426)	MHN001281	HEAT SINK(MCG426)	LECROY	55716

## LT342 Main Board (con't)

Part Number	Code No.	Description	Manufacturer	Cage Code
7093XXP01 PROBUS CONNECTOR	DCN126091	CONNECTOR 6PIN (PROBUS)	LECROY	55716
7093XXP41 PROBE HOLDER	MZT007841	7093XXP41 PROBE HOLDER	LECROY	55716
7093XXP91 RING CONTACT	MZT007851	7093XXP91 RING CONTACT	LECROY	55716
74 VHC 138 SJ	DIC484011	IC 3 TO 8 DECODER	TOSHIBA	S4901
74 VHCT 541 ASJ	DIC484491	IC OCTAL BUS BUFFER	TOSHIBA	S4901
74HC04F	DIC499321	IC HEX INVERTER	HITACHI	S4997
74HC138F	DIC499381	IC 1 OF 8 DECODER	HITACHI	S4997
74HC153F	DIC448531	IC DUAL 4-INPUT MULTIPLEXER	HITACHI	S4997
74HC4051F	DIC483031	IC 8-INPUT ANALOG MULTIPLEXER	TOSHIBA	S4901
74HC4053F	DIC499441	IC DUAL 4-INPUT ANALOG MULTIPLEXER	TOSHIBA	S4901
74HC574F	DIC449631	IC OUAL 4-INPUT MULTIPLEXER	HITACHI	S4997
74HC595F	DIC483321	IC 8-BIT SHIFT REGISTER	HITACHI	S4997
74HCT245AF	DIC495111	IC OCTAL BUS TRANSCEIVER	TOSHIBA	S4901
74VHC32F	DIC484531	IC 2-INPUT QUAD OR GATE	TOSHIBA	S4901
74VHCT573AF	DIC471631	IC OUAL 4-INPUT MULTIPLEXER	TOSHIBA	S4901
89177-5600	DCN126131	EDGE CARD CONNECTOR	MOLEX	S5406
AT93C66-10SC	DIC529201	IC 4KBIT EEPROM	ATMEL	1FN41
BL02RN2-R62	DCL119361	BEAD(FERRITE LEAD)	MURATA	OBCD9
BLM21A121FPT	DCL811011	BEAD(FERRITE CHIP)	MURATA	OBCD9
BNC-BR-PC-1	DCN045681	BNC CONNECTOR	DDK	0XNG8
CAL TERMINAL	KAS135111	CAL TERMINAL	IWATSU	S5180



## LT342 Main Board (con't)

Part Number	Code No.	Description	Manufacturer	Cage Code
DAC 712UK	DIC645151	IC 16BIT D/A CONVERTER	BB	S5180
DS 1620S	DIC470461	IC DIGITAL THERMOMETER	DALLAS	U7723
DTA114YK	DTR890471	TRANSISTOR PNP WITH RESISTOR	ROHM	0UST1
DTC114EK	DTR890551	TRANSISTOR NPN WITH RESISTOR	ROHM	0UST1
ECHU 1C 104J	DCF810121	CAP FILM 0.1uF	MATSUSHITA	S5441
EMK325F 106ZH-T	DCC820121	CAP CERA CHIP 10uF	TAIYOYUDEN	S5180
G4AT B502	DRV810251	TORIMMER POTENTIOMETER	TOCOS	O33B2
GHM 1530B 473K 250 PT	DCC840041	CAP CERA CHIP 0.047uF 250V	MURATA	OBCD9
G-KBA782831	KBA782831	MAIN BOARD PANEL 4CH	IWATSU	S5180
GND TERMINAL	KAS094511	GND TERMINAL	IWATSU	S5180
GRM 39 B 102K 50 PT	DCC811731	CAP CERA CHIP 1000pF	MURATA	OBCD9
GRM 40 B 104K 25 PT	DCC811111	CAP CERA CHIP 0.1uF	MURATA	OBCD9
GRM 40 B 153K 50 PT	DCC810981	CAP CERA CHIP 0.015uF	MURATA	OBCD9
GRM 40 B 333K 50 PT	DCC811161	CAP CERA CHIP 0.033uF	MURATA	OBCD9
GRM 40 B 682K 50 PT	DCC810941	CAP CERA CHIP 6800pF	MURATA	OBCD9
GRM 40 CH 020C 50 PT	DCC816381	CAP CERA CHIP 2pF	MURATA	OBCD9
GRM 40 CH 030C 50 PT	DCC816401	CAP CERA CHIP 3pF	MURATA	OBCD9
GRM 40 CH 040C 50 PT	DCC816421	CAP CERA CHIP 4pF	MURATA	OBCD9
GRM 40 CH 060C 50 PT	DCC816451	CAP CERA CHIP 6pF	MURATA	OBCD9
GRM 40 CH 080C 50 PT	DCC816471	CAP CERA CHIP 8pF	MURATA	OBCD9
GRM 40 CH 100C 50 PT	DCC816491	CAP CERA CHIP 10pF	MURATA	OBCD9
GRM 40 CH 101J 50 PT	DCC816601	CAP CERA CHIP 100pF	MURATA	OBCD9
GRM 40 CH 102J 50 PT	DCC816801	CAP CERA CHIP 1000pF	MURATA	OBCD9
GRM 40 CH 150J 50 PT	DCC815891	CAP CERA CHIP 15pF	MURATA	OBCD9
GRM 40 CH 180J 50 PT	DCC816511	CAP CERA CHIP 18pF	MURATA	OBCD9

## LT342 Main Board (con't)

Part Number	Code No.	Description	Manufacturer	Cage Code
GRM 40 CH 1R5C 50 PT	DCC816371	CAP CERA CHIP 1.5pF	MURATA	OBCD9
GRM 40 CH 220J 50 PT	DCC816521	CAP CERA CHIP 22pF	MURATA	OBCD9
GRM 40 CH 221J 50 PT	DCC816641	CAP CERA CHIP 220pF	MURATA	OBCD9
GRM 40 CH 270J 50 PT	DCC816531	CAP CERA CHIP 27pF	MURATA	OBCD9
GRM 40 CH 330J 50 PT	DCC816541	CAP CERA CHIP 33pF	MURATA	OBCD9
GRM 40 CH 680J 50 PT	DCC816581	CAP CERA CHIP 68pF	MURATA	OBCD9
GRM 40 F 103Z 50 PT	DCC810511	CAP CERA CHIP 0.01uF	MURATA	OBCD9
GRM 40 F 103Z 50 PT	DCC810571	CAP CERA CHIP 0.1uF	MURATA	OBCD9
GRM 40 F 105Z 16 PT	DCC820021	CAP CERA CHIP 1uF	MURATA	OBCD9
GRM 40 F 224Z 16 PT	DCC820031	CAP CERA CHIP 0.22uF	MURATA	OBCD9
GRM 40 F 225Z 16 PT	DCC820261	CAP CERA CHIP 2.2uF	MURATA	OBCD9
GRM 40 F 474K 16 PT	DCC820251	CAP CERA CHIP 0.47uF	MURATA	OBCD9
GRM 40 SL 681J 50 PT	DCC815841	CAP CERA CHIP 680pF	MURATA	OBCD9
GRM 42-6 CH 020C 500 PT	DCC850091	CAP CERA CHIP 2pF 500V	MURATA	OBCD9
GRM 42-6 CH 050C 500 PT	DCC850101	CAP CERA CHIP 5pF 500V	MURATA	OBCD9
GRM 42-6 W5R 222K 500 PT	DCC850011	CAP CERA CHIP 2200pF 500V	MURATA	OBCD9
GRM 42-6B 106K 6.3 PT	DCC819091	CAP CERA CHIP 10uF	MURATA	OBCD9
HAD626	DIC642371	IC 500MS/S ADC	LECROY	55716
HFE428	DIC614891	IC 1GHZ FRONT END	LECROY	55716
HK1608 10NJ	DCL810811	CHIP INDUCTOR 10nH	TAIYOYUDEN	S5180
HK1608 18NJ	DCL810831	CHIP INDUCTOR 18nH	TAIYOYUDEN	S5180
HK2125 18NJ	DCL811031	CHIP INDUCTOR 18nH	TAIYOYUDEN	S5180
HSM 124S	DDD810461	DIODE SERIES	HITACHI	S4997
HSM 88AS	DDD810261	DIODE SERIES SCHOTTKY	HITACHI	S4997
HTR420	DIC631231	IC TRIGGER COMPARATOR	LECROY	55716
HVU 202A3	DDD810401	TRIMMER CAPACITOR DIODE	HITACHI	S4997
IMH1	DTR890851	TRANSISTOR NPN PAIR	ROHM	0UST1

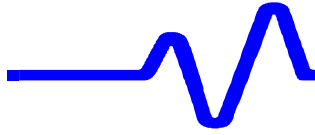


## LT342 Main Board (con't)

Part Number	Code No.	Description	Manufacturer	Cage Code
IMX3	DTR890841	TRANSISTOR NPN PAIR	ROHM	0UST1
IMX5	DTR890761	TRANSISTOR NPN PAIR	ROHM	0UST1
IMZ1	DTR890861	TRANSISTOR NPN/PNP PAIR	ROHM	0UST1
K-KBA782611	KBA782611	ATT SHIELD PLATE C	IWATSU	S5180
K-KBA782721	KBA782721	ATT SHIELD PLATE D	IWATSU	S5180
K-KBA787011	KBA787011	M-BOARD GUIDE PLATE	IWATSU	S5180
K-KCM141911	KCM141911	PS KEY TOP H1 UL-I	IWATSU	S5180
K-KDA033011	KDA033011	HEAT SINK HAD	IWATSU	S5180
K-KDA033111	KDA033111	HEAT SINK HFE	IWATSU	S5180
K-KRA231311	KRA231611	LT342 MAIN/U BAR CODE LABEL	IWATSU	S5180
KOGATA-PIN-JACK	KHB095411	SMALL COAX CONNECTOR	DAISYO-DENKI	S5180
K-TRA522211	TRA522211	BAR CODE LABEL(2)	IWATSU	S5180
LDH33A152B	DZB999051	DELAY LINE 1.5ns	MURATA	OBCD9
LDH33A202B	DZB999061	DELAY LINE 2ns	MURATA	OBCD9
LDH33A801B	DZB999071	DELAY LINE 0.8ns	MURATA	OBCD9
LM 1881M TE1208B	DIC699531	IC TV SYNC SEPARATOR	NS	S5180
LP310 1F 202F 302	DDD074121	THERMO SENSOR	TAMA ELECTRIC	0XN17
LT 1097S8	DIC614811	IC LOW NOISE OPAMP	LINEAR TECHNOLOGY	64155
MAIN BOARD UL-M	KPN374551	MAIN BOARD UL-M	CMK	S5180
MB88346BPF	DIC642201	IC 12BIT D/A CONVERTER	FUJITSU	61271
MC 10E116FN	DIC322671	IC TRIPLE LINE RECEIVER	MOTOROLA	OCJC4
MC 10E157FN	DIC322931	IC QUAD 2:1 MULTIPLEXER	MOTOROLA	OCJC4
MC 10EL01	DIC322601	IC 4-INPUT 0R/N0R	MOTOROLA	OCJC4
MC 10EL11D	DIC322831	IC 1:2 Differential Fanout Buffer	MOTOROLA	OCJC4
MC 10EL16D	DIC322631	IC LINE RECEIVER	MOTOROLA	OCJC4

## LT342 Main Board (con't)

Part Number	Code No.	Description	Manufacturer	Cage Code
MC 10H102M	DIC322721	IC QUAD 2-INPUT NOR	MOTOROLA	OCJC4
MC 10H117M	DIC322921	IC DUAL OR-AND/OR-AND-INVERT GATE	MOTOROLA	OCJC4
MCG426	DIC891031	IC CLOCK GENERATOR	LECROY	55716
MCR 03 EZH J 000E	DRZ831801	CHIP JUMPER	ROHM	0UST1
MCR 10 EZH J 000E	DRZ831501	CHIP JUMPER	ROHM	0UST1
MCR 10 EZH J 240E	DRZ831121	RES CHIP 5% 24 OHM	ROHM	0UST1
MCR 10 EZH J 300E	DRZ830861	RES CHIP 5% 30 OHM	ROHM	0UST1
MCR 10 EZH J 335E	DRZ831431	RES CHIP 5% 3M	ROHM	0UST1
MCR 10 EZH J 4R7E	DRZ831591	RES CHIP 5% 4.7 OHM	ROHM	0UST1
MCR 10 EZH J 5R6E	DRZ831611	RES CHIP 5% 5.6 OHM	ROHM	0UST1
MCR03J 151E	DRZ821291	RES CHIP 5% 150 OHM	ROHM	0UST1
MST412	DIC891061	IC SMART TRIGGER IC	LECROY	55716
MTB411A	DIC891041	IC TIMEBASE IC	LECROY	55716
NAS-5W-K-TN-B05	DKD028511	DPDT RELAY	FUJITSU-TAKAMISAWA	1HHT1
NASL-5W-K-TN	DKD030381	DPDT LATCHING RELAY	FUJITSU-TAKAMISAWA	1HHT1
NFM39R12C222	DCL870041	LINE FILTER	MURATA	OBCD9
NFM41P11C204	DCL870021	LINE FILTER	MURATA	OBCD9
NJM 082M	DIC619191	IC DUAL FET INPUT OPAMP	NJK	S5180
NJM 2903M	DIC639031	IC DUAL COMPARATOR	NJK	S5180
NJM 360M	DIC639161	IC COMPARATOR	NJK	S5180
NJM 431U	DIC659371	IC VOLTAGE REGULATOR	NJK	S5180
NJM 4558M	DIC619101	IC DUAL OPAMP	NJK	S5180
NTH5G20P35A221J07TE	DDD089381	THERMISTOR 220 OHM	MURATA	OBCD9
OSH-2425-SPL	MHN001311	HEAT SINK(2SK591)	RYOSAN	SB253
PCF 8584T	DIC645141	IC I2C BUS CONTROLLER	PHILIPS	0MAC1
P-KBA782241	KBA782241	ATT SHIELD PLATE A	IWATSU	S5180



## LT342 Main Board (con't)

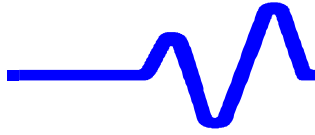
Part Number	Code No.	Description	Manufacturer	Cage Code
P-KBA782311	KBA782311	HEAT SINK CLAMP	IWATSU	S5180
P-KBA782521	KBA782521	ATT SHIELD PLATE B	IWATSU	S5180
P-KSR010411	KSR010411	GROUND SPRING	IWATSU	S5180
P-MKB130062	MKB130082	KB(+)3X8S(NIP)	IWATSU	S5180
P-MSQ903521	MSQ903531	SCREW KB(+)2.5X6S	IWATSU	S5180
RAC16 4D 101J A	DFB810111	RES NETWORK 100 OHM x4	KAMAYA	S4553
RAC16 4D 102J A	DFB810081	RES NETWORK 1k x4	KAMAYA	S4553
RAC16 4D 103J A	DFB810051	RES NETWORK 10k x4	KAMAYA	S4553
RAC16 4D 220J A	DFB810041	RES NETWORK 22 OHM x4	KAMAYA	S4553
RAC16 4D 470J A	DFB810121	RES NETWORK 47 OHM x4	KAMAYA	S4553
RAC16 4D 472J A	DFB810131	RES NETWORK 4.7k x4	KAMAYA	S4553
RMC 1/10 K 100 F TP	DRZ833441	RES CHIP 1% 10 OHM	KAMAYA	S4553
RMC 1/10 K 101 F TP	DRZ832011	RES CHIP 1% 100 OHM	KAMAYA	S4553
RMC 1/10 K 101 F TP	DRZ832251	RES CHIP 1% 1k	KAMAYA	S4553
RMC 1/10 K 103 F TP	DRZ832491	RES CHIP 1% 10k	KAMAYA	S4553
RMC 1/10 K 104 F TP	DRZ832731	RES CHIP 1% 100k	KAMAYA	S4553
RMC 1/10 K 105 F TP	DRZ832971	RES CHIP 1% 1M	KAMAYA	S4553
RMC 1/10 K 112 F TP	DRZ832261	RES CHIP 1% 1.1k	KAMAYA	S4553
RMC 1/10 K 113 F TP	DRZ832501	RES CHIP 1% 11k	KAMAYA	S4553
RMC 1/10 K 121 F TP	DRZ832031	RES CHIP 1% 120 OHM	KAMAYA	S4553
RMC 1/10 K 123 F TP	DRZ832511	RES CHIP 1% 12k	KAMAYA	S4553
RMC 1/10 K 123 F TP	DRZ832751	RES CHIP 1% 120k	KAMAYA	S4553
RMC 1/10 K 132 F TP	DRZ832281	RES CHIP 1% 1.3k	KAMAYA	S4553
RMC 1/10 K 150 F TP	DRZ833481	RES CHIP 1% 15 OHM	KAMAYA	S4553
RMC 1/10 K 151 F TP	DRZ832051	RES CHIP 1% 150 OHM	KAMAYA	S4553
RMC 1/10 K 152 F TP	DRZ832291	RES CHIP 1% 1.5k	KAMAYA	S4553
RMC 1/10 K 153 F TP	DRZ832531	RES CHIP 1% 15k	KAMAYA	S4553

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**LT342 Main Board (con't)**

Part Number	Code No.	Description	Manufacturer	Cage Code
RMC 1/10 K 162 F TP	DRZ832301	RES CHIP 1% 1.6k	KAMAYA	S4553
RMC 1/10 K 180 F TP	DRZ833491	RES CHIP 1% 18 OHM	KAMAYA	S4553
RMC 1/10 K 181 F TP	DRZ832071	RES CHIP 1% 180 OHM	KAMAYA	S4553
RMC 1/10 K 182 F TP	DRZ832311	RES CHIP 1% 1.8k	KAMAYA	S4553
RMC 1/10 K 201 F TP	DRZ832081	RES CHIP 1% 200 OHM	KAMAYA	S4553
RMC 1/10 K 202 F TP	DRZ832321	RES CHIP 1% 2k	KAMAYA	S4553
RMC 1/10 K 220 F TP	DRZ833511	RES CHIP 1% 22 OHM	KAMAYA	S4553
RMC 1/10 K 221 F TP	DRZ832091	RES CHIP 1% 220 OHM	KAMAYA	S4553
RMC 1/10 K 222 F TP	DRZ832331	RES CHIP 1% 2.2k	KAMAYA	S4553
RMC 1/10 K 223 F TP	DRZ832571	RES CHIP 1% 22k	KAMAYA	S4553
RMC 1/10 K 223 F TP	DRZ832811	RES CHIP 1% 220k	KAMAYA	S4553
RMC 1/10 K 241 F TP	DRZ832101	RES CHIP 1% 240 OHM	KAMAYA	S4553
RMC 1/10 K 242 F TP	DRZ832341	RES CHIP 1% 2.4k	KAMAYA	S4553
RMC 1/10 K 243 F TP	DRZ832581	RES CHIP 1% 24k	KAMAYA	S4553
RMC 1/10 K 270 F TP	DRZ833531	RES CHIP 1% 27 OHM	KAMAYA	S4553
RMC 1/10 K 271 F TP	DRZ832111	RES CHIP 1% 270 OHM	KAMAYA	S4553
RMC 1/10 K 272 F TP	DRZ832351	RES CHIP 1% 2.7k	KAMAYA	S4553
RMC 1/10 K 301 F TP	DRZ832121	RES CHIP 1% 300 OHM	KAMAYA	S4553
RMC 1/10 K 302 F TP	DRZ832361	RES CHIP 1% 3k	KAMAYA	S4553
RMC 1/10 K 303 F TP	DRZ832601	RES CHIP 1% 30k	KAMAYA	S4553
RMC 1/10 K 330 F TP	DRZ833551	RES CHIP 1% 33 OHM	KAMAYA	S4553
RMC 1/10 K 331 F TP	DRZ832131	RES CHIP 1% 330 OHM	KAMAYA	S4553
RMC 1/10 K 332 F TP	DRZ832371	RES CHIP 1% 3.3k	KAMAYA	S4553
RMC 1/10 K 333 F TP	DRZ832611	RES CHIP 1% 33k	KAMAYA	S4553
RMC 1/10 K 360 F TP	DRZ833561	RES CHIP 1% 36 OHM	KAMAYA	S4553
RMC 1/10 K 361 F TP	DRZ832141	RES CHIP 1% 360 OHM	KAMAYA	S4553
RMC 1/10 K 362 F TP	DRZ832381	RES CHIP 1% 3.6k	KAMAYA	S4553



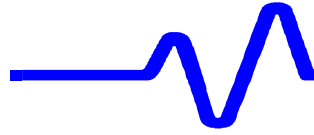


## LT342 Main Board (con't)

Part Number	Code No.	Description	Manufacturer	Cage Code
RMC 1/10 K 390 F TP	DRZ833571	RES CHIP 1% 39 OHM	KAMAYA	S4553
RMC 1/10 K 391 F TP	DRZ832151	RES CHIP 1% 390 OHM	KAMAYA	S4553
RMC 1/10 K 392 F TP	DRZ832391	RES CHIP 1% 3.9k	KAMAYA	S4553
RMC 1/10 K 393 F TP	DRZ832631	RES CHIP 1% 39k	KAMAYA	S4553
RMC 1/10 K 430 F TP	DRZ833581	RES CHIP 1% 43 OHM	KAMAYA	S4553
RMC 1/10 K 431 F TP	DRZ832161	RES CHIP 1% 430 OHM	KAMAYA	S4553
RMC 1/10 K 432 F TP	DRZ832401	RES CHIP 1% 4.3k	KAMAYA	S4553
RMC 1/10 K 470 F TP	DRZ833011	RES CHIP 1% 47 OHM	KAMAYA	S4553
RMC 1/10 K 471 F TP	DRZ832171	RES CHIP 1% 470 OHM	KAMAYA	S4553
RMC 1/10 K 472 F TP	DRZ832411	RES CHIP 1% 4.7k	KAMAYA	S4553
RMC 1/10 K 473 F TP	DRZ832891	RES CHIP 1% 470k	KAMAYA	S4553
RMC 1/10 K 510 F TP	DRZ833021	RES CHIP 1% 51 OHM	KAMAYA	S4553
RMC 1/10 K 512 F TP	DRZ832421	RES CHIP 1% 5.1k	KAMAYA	S4553
RMC 1/10 K 513 F TP	DRZ832661	RES CHIP 1% 51k	KAMAYA	S4553
RMC 1/10 K 560 F TP	DRZ833031	RES CHIP 1% 56 OHM	KAMAYA	S4553
RMC 1/10 K 561 F TP	DRZ832191	RES CHIP 1% 560 OHM	KAMAYA	S4553
RMC 1/10 K 562 F TP	DRZ832431	RES CHIP 1% 5.6k	KAMAYA	S4553
RMC 1/10 K 620 F TP	DRZ833041	RES CHIP 1% 62 OHM	KAMAYA	S4553
RMC 1/10 K 621 F TP	DRZ832201	RES CHIP 1% 620 OHM	KAMAYA	S4553
RMC 1/10 K 622 F TP	DRZ832441	RES CHIP 1% 6.2k	KAMAYA	S4553
RMC 1/10 K 681 F TP	DRZ832211	RES CHIP 1% 680 OHM	KAMAYA	S4553
RMC 1/10 K 684 F TP	DRZ832931	RES CHIP 1% 680k	KAMAYA	S4553
RMC 1/10 K 750 F TP	DRZ833061	RES CHIP 1% 75 OHM	KAMAYA	S4553
RMC 1/10 K 751 F TP	DRZ832221	RES CHIP 1% 750 OHM	KAMAYA	S4553
RMC 1/10 K 752 F TP	DRZ832461	RES CHIP 1% 7.5k	KAMAYA	S4553
RMC 1/10 K 820 F TP	DRZ833071	RES CHIP 1% 82 OHM	KAMAYA	S4553
RMC 1/10 K 822 F TP	DRZ832471	RES CHIP 1% 8.2k	KAMAYA	S4553

## LT342 Main Board (con't)

Part Number	Code No.	Description	Manufacturer	Cage Code
RMC 1/10 K 823 F TP	DRZ832711	RES CHIP 1% 82k	KAMAYA	S4553
RMC 1/10 K 824 F TP	DRZ832951	RES CHIP 1% 820k	KAMAYA	S4553
RMC 1/10 K 911 F TP	DRZ832241	RES CHIP 1% 910 OHM	KAMAYA	S4553
RMC 1/10 K 912 F TP	DRZ832481	RES CHIP 1% 9.1k	KAMAYA	S4553
RMC 1/10 K 913 F TP	DRZ832721	RES CHIP 1% 91k	KAMAYA	S4553
RR1220P-103-D	DRZ820621	RES CHIP 0.5% 10k	SUSUMU	S5180
RR1220P-104-D	DRZ820861	RES CHIP 0.5% 100k	SUSUMU	S5180
RR1220P-114-B	DRZ828711	RES CHIP 0.1% 110K	SUSUMU	S5180
RR1220P-121-D	DRZ820161	RES CHIP 0.5% 120 OHM	SUSUMU	S5180
RR1220P-122-B	DRZ828531	RES CHIP 0.1% 1.2K	SUSUMU	S5180
RR1220P-153-D	DRZ820661	RES CHIP 0.5% 15k	SUSUMU	S5180
RR1220P-182-D	DRZ820441	RES CHIP 0.5% 1.8k	SUSUMU	S5180
RR1220P-183-B	DRZ828541	RES CHIP 0.1% 18K	SUSUMU	S5180
RR1220P-200-D	DRZ820971	RES CHIP 0.5% 20 OHM	SUSUMU	S5180
RR1220P-202-B	DRZ828551	RES CHIP 0.1% 2K	SUSUMU	S5180
RR1220P-204-D	DRZ828761	RES CHIP 0.5% 200K	SUSUMU	S5180
RR1220P-224-B	DRZ828721	RES CHIP 0.1% 220K	SUSUMU	S5180
RR1220P-242-D	DRZ820871	RES CHIP 0.5% 2.4k	SUSUMU	S5180
RR1220P-244-B	DRZ828731	RES CHIP 0.1% 240K	SUSUMU	S5180
RR1220P-300-D	DRZ820011	RES CHIP 0.5% 30 OHM	SUSUMU	S5180
RR1220P-302-B	DRZ828561	RES CHIP 0.1% 3K	SUSUMU	S5180
RR1220P-302-D	DRZ820491	RES CHIP 0.5% 3k	SUSUMU	S5180
RR1220P-434-B	DRZ828741	RES CHIP 0.1% 430K	SUSUMU	S5180
RR1220P-472-D	DRZ820541	RES CHIP 0.5% 4.7k	SUSUMU	S5180
RR1220P-474-B	DRZ828751	RES CHIP 0.1% 470K	SUSUMU	S5180
RR1220P-511-B	DRZ828571	RES CHIP 0.1% 510 OHM	SUSUMU	S5180
RR1220P-561-B	DRZ828581	RES CHIP 0.1% 560 OHM	SUSUMU	S5180



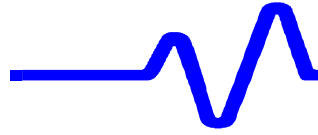
## LT342 Main Board (con't)

Part Number	Code No.	Description	Manufacturer	Cage Code
RR1220P-682-D	DRZ820581	RES CHIP 0.5% 6.8k	SUSUMU	S5180
SCREW M2.5X6BLK	MSQ903501	SCREW M2.5X6BLK	LECROY	55716
S-DIC471841	DIC471841	PROGRAMMED GAL K0315ACQ	IWATSU	S5180
S-DIC471852	DIC471852	PROGRAMMED GAL K0327MBC	IWATSU	S5180
S-DIC471861	DIC471861	PROGRAMMED GAL K0317MCG	IWATSU	S5180
S-DIC471871	DIC471871	PROGRAMMED GAL K0318MST	IWATSU	S5180
S-DIC471881	DIC471881	PROGRAMMED GAL K0319HCS	IWATSU	S5180
S-DIC471891	DIC471891	PROGRAMMED GAL K0320HMR	IWATSU	S5180
S-DIC471901	DIC471901	PROGRAMMED GAL K0321HMS	IWATSU	S5180
S-DIC528501	DIC528501	IC DCG CONTROLLER(uPD78081)	IWATSU	S5180
SME 10VB 100M	DCE219051	CAP CHEMICAL 100uF 10V	Nippon Chemi-con	S4217
SME 10VB 470M	DCE219151	CAP CHEMICAL 470uF 10V	Nippon Chemi-con	S4217
SME 25VB 220M	DCE229221	CAP CHEMICAL 220uF 25V	Nippon Chemi-con	S4217
SME 25VB 47M	DCE229201	CAP CHEMICAL 47uF 25V	Nippon Chemi-con	S4217
SPUP19	DSW017001	PUSH SWITCH	ALPS	7J054
SRA 10VB 100M	DCE919141	CAP CHEMICAL 100uF 10V	Nippon Chemi-con	S4217
SXE 16VB 220M	DCE929471	CAP CHEMICAL 220uF 16V	Nippon Chemi-con	S4217
TA 75S558F	DIC619271	IC OPAMP	TOSHIBA	S4901

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**LT342 Main Board (con't)**

Part Number	Code No.	Description	Manufacturer	Cage Code
TA 78L05F	DIC659791	IC VOLTAGE REGULATOR	TOSHIBA	S4901
TC 4051BF	DIC483021	IC 8-INPUT ANALOG MULTIPLEXER	TOSHIBA	S4901
TC 4W53F	DIC889161	IC ANALOG MULTIPLEXER	TOSHIBA	S4901
TC 7SU04F	DIC889101	IC INVERTER	TOSHIBA	S4901
TC 7W32F	DIC889131	IC OR	TOSHIBA	S4901
TC7S04F	DIC499821	IC INVERTER	TOSHIBA	S4901
TL 084CNS	DIC614761	IC QUAD FET INPUT OPAMP	TI	OBBO6
TZBX4 Z030BA110	DCV819051	TRIMMER CAPACITOR 3pF	MURATA	OBCD9
TZBX4 Z250BA110	DCV819091	TRIMMER CAPACITOR 25pF	MURATA	OBCD9
uPC 1663G	DIC623501	IC VIDEO AMP	NEC	0CMK7
uPC 311G2	DIC639041	IC COMPARATOR	NEC	0CMK7
uPC 812G2	DIC614411	IC DUAL FET INPUT OPAMP	NEC	0CMK7
VC-5R0A30-2000 TE1608B	DHF060181	VCO 2000MHz	TOWA ELECTRON	9Y042
XN 6435	DTR898711	TRANSISTOR PNP PAIR	MATSUSHITA	S5441



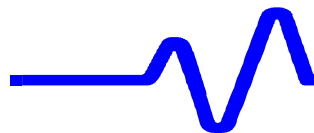
## CPU

Part Number	Code No.	Description	Manufacturer	Cage Code
10EX 29.5X29.5-1.5PIN	MHN001291	Heatsink (29.5mmx29.5mm)	THERMAL COMPONENT	S5180
17HE-R13150-73HC1	DCN026621	VGA connector (15pin)	DDK	0XNG8
17LE-13250-27(D4CH)	DCN126041	D-SUB 25pin connector	DDK	0XNG8
17LE-23090-27(D4CH)	DCN126051	D-SUB 9 pin connector	DDK	0XNG8
2SK 2287	DTR215791	POWER MOSFET N-channel	SHINDENGEN	S5405
5267-05A	DCN994241	Connector 5pin straight	Molex	S5406
52706-7220	DCN997011	SIMM socket 72pin	Molex	S5406
52793-2290	DCN125021	FFC connector 22pin right angle	Molex	S5406
52793-2690	DCN125031	FFC connector 26pin right angle	Molex	S5406
52808-2291	DCN129391	FFC connector 22pin straight	Molex	S5406
52808-2691	DCN129381	FFC connector 26pin straight	Molex	S5406
52808-3091	DCN129501	FFC connector 30pin straight	Molex	S5406
53259-0510	DCN126111	Connector 5pin right angle	Molex	S5406
57LE-20240-7700D35-19	DCN026611	GP-IB connector	DDK	0XNG8
74 VHC 138 SJ	DIC484011	IC 3 to 8 line decoders	TOSHIBA	S4901
74 VHCT 373 SJ	DIC484481	IC Octal D-Latch	TOSHIBA	S4901
74 VHCT 541 ASJ	DIC484491	IC Octal D-F/F	TOSHIBA	S4901
A1-10PA-2.54DSA	DCN125971	Header pin 2x5	HRS	40927
BL02RN2-R62	DCL119361	Line filter	MURATA	OBCD9
BLM21A121FPT	DCL811011	CHIP inductor	MURATA	OBCD9
BLM31A260SPT	DCL810711	CHIP inductor	MURATA	OBCD9
CE SEM 1A 101 A	DCE219051	CAP CHEMICAL 100uF 10V	Nippon Chemi-con	S4217
CE SEM 1E 221 A	DCE229221	CAP CHEMICAL 220uF 25V	Nippon Chemi-con	S4217
CE SSM 1A 100 A	DCE949081	CAP CHEMICAL 1uF 50V	Nippon Chemi-con	S4217
CE SSM 1A 330 A	DCE949181	CAP CHEMICAL 3.3uF 50V	Nippon Chemi-con	S4217
CP12A 24MHZ	DHF060131	Cristal 24MHz SMD	NDK	5W664

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**CPU (con't)**

Part Number	Code No.	Description	Manufacturer	Cage Code
CR2354-1HF	DES011201	Lithium Battery Cell (500mAh)	Panasonic	0YKR3
DS 14C232CM	DIC484981	IC EIA-232 Dual DRV/RCV	NS	S5180
DS 1689S	DIC471911	IC RTC	DALLAS	U7723
DTC143TK	DTR890521	Transistor NPN with register	ROHM	0UST1
F65545B2-5	DIC471751	IC Flat panel/VGA controller	CHIPS	4V872
FXO-31FH 16.000MHZ	DHF060141	Cristal oscillator 16MHz SMD	KINSEKI	S5180
GRM 40 CH 101J 50 PT	DCC816601	CAP CERA CHIP 100pF	MURATA	OBCD9
GRM 40 CH 220J 50 PT	DCC816521	CAP CERA CHIP 22pF	MURATA	OBCD9
GRM 40 CH 221J 50 PT	DCC816641	CAP CERA CHIP 220pF	MURATA	OBCD9
GRM 40 CH 471J 50 PT	DCC816761	CAP CERA CHIP 470pF	MURATA	OBCD9
GRM 40 CH 100D 50 PT	DCC816491	CAP CERA CHIP 10pF	MURATA	OBCD9
GRM 40 CH 102J 50 PT	DCC816801	CAP CERA CHIP 1000pF	MURATA	OBCD9
GRM 40 CH 103Z 50 PT	DCC810511	CAP CERA CHIP .01uF	MURATA	OBCD9
GRM 40 CH 104Z 50 PT	DCC810571	CAP CERA CHIP .1uF	MURATA	OBCD9
GRM 40 CH 105Z 50 PT	DCC820021	CAP CERA CHIP 1uF	MURATA	OBCD9
HU5-400PNA-S53T	DCN126031	Header pin 2x20	DDK	0XNG8
K-KBA783531	KBA783531	CPU BOARD PANEL	IWATSU	S5180
K-KRA231311	KRA231311	LT34X CPU/U Bar code label	IWATSU	S5180
K-TRA522211	TRA522211	Bar code Label(2)	IWATSU	S5180
LP621024DX-70LL	DIC519381	IC SRAM 128k x8	UMC	6E786
LXV 10VB-1000M J20MC	DCE916011	CAP CHEMICAL 1000uF 10V	Nippon Chemi-con	S4217
M5118160D-60J	DIC518551	IC DRAM 1M x16	OKI	S5180
M51957BFP	DIC699231	IC Reset generator	Mitubishi	S5180
MBM 29F800BA-90PF	DIC528491	IC Flash ROM 8Mbit	Fujitsu	61271
MC 68150FN33	DIC560361	IC Dynamic bus sizer	Motorola	OCJC4
MC 88916DW80R2	DIC484991	IC Clock generator	Motorola	OCJC4



## CPU (con't)

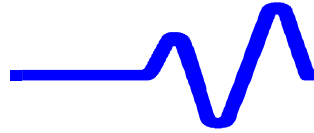
Part Number	Code No.	Description	Manufacturer	Cage Code
MC74F157AM	DIC199381	IC Quad 2 to 1 line data selectors	Motorola	OCJC4
MC74F74M	DIC199301	IC Dual D-F/F	Motorola	OCJC4
MCR 10 EZH J 000 E	DRZ831501	Chip Jumper 0 OHM	ROHM	0UST1
MX-38T 32.768KHZ	DHF012081	Cristal 32.768KHz	NDK	5W664
NAT 7210APD	DIC557841	IC GP-IB controller	NI	64667
NJM 4558M	DIC619101	IC OP-amp	NJK	S5180
OSH-2425-SPL	MHN001311	Heatsink OSH-2425	RYOSAN	SB253
PC 87312VF	DIC560341	IC Super I/O	NS	S5180
PCT-ST1-R-TF(KFA391429-A)	DCN126121	PCMCIA socket connector	OTAX	S7633
P-KBA783711	KBA783711	CARD PROTECTION PLATE	IWATSU	S5180
P-MKB130062	MKB130082	Screw KB(+) $3 \times 8$ S(NIP)	IWATSU	S5180
P-MKP120041	MKP120081	Screw KP(+) $2 \times 8$ S	IWATSU	S5180
P-MWW120001	MWW120001	Clip Plate W-2S	IWATSU	S5180
RAC16 4D 102J A	DFB810081	RES NETWORK 1k x4	KAMAYA	S4553
RAC16 4D 103J A	DFB810051	RES NETWORK 10k x4	KAMAYA	S4553
RAC16 4D 220J A	DFB810041	RES NETWORK 22 OHM x4	KAMAYA	S4553
RAC16 4D 470J A	DFB810121	RES NETWORK 47 OHM x4	KAMAYA	S4553
RMC 1/10 K 100 F TP	DRZ833441	RES CHIP 1% 10 OHM	KAMAYA	S4553
RMC 1/10 K 100 F TP	DRZ832011	RES CHIP 1% 100 OHM	KAMAYA	S4553
RMC 1/10 K 1000 F TP	DRZ832251	RES CHIP 1% 1.0K OHM	KAMAYA	S4553
RMC 1/10 K 10K F TP	DRZ832491	RES CHIP 1% 10K OHM	KAMAYA	S4553
RMC 1/10 K 10000 F TP	DRZ832971	RES CHIP 1% 1.0M OHM	KAMAYA	S4553
RMC 1/10 K 150 F TP	DRZ832051	RES CHIP 1% 150 OHM	KAMAYA	S4553
RMC 1/10 K 1600 F TP	DRZ832301	RES CHIP 1% 1.6K OHM	KAMAYA	S4553
RMC 1/10 K 220 F TP	DRZ832091	RES CHIP 1% 220 OHM	KAMAYA	S4553
RMC 1/10 K 2400 F TP	DRZ832341	RES CHIP 1% 2.4K OHM	KAMAYA	S4553

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**CPU (con't)**

Part Number	Code No.	Description	Manufacturer	Cage Code
RMC 1/10 K 27□ F TP	DRZ832111	RES CHIP 1% 270 OHM	KAMAYA	S4553
RMC 1/10 K 330 F TP	DRZ833551	RES CHIP 1% 33 OHM	KAMAYA	S4553
RMC 1/10 K 33□ F TP	DRZ832131	RES CHIP 1% 330 OHM	KAMAYA	S4553
RMC 1/10 K 3□□ F TP	DRZ832391	RES CHIP 1% 3.9K OHM	KAMAYA	S4553
RMC 1/10 K 47□ F TP	DRZ833011	RES CHIP 1% 47 OHM	KAMAYA	S4553
RMC 1/10 K 4□□ F TP	DRZ832411	RES CHIP 1% 4.7K OHM	KAMAYA	S4553
S-DIC471641	DIC471641	PROGRAMMED PLD K0323DRM	IWATSU	S5180
S-DIC471761	DIC471761	PROGRAMMED GAL K0307A32	IWATSU	S5180
S-DIC471772	DIC471772	PROGRAMMED GAL K0329A8	IWATSU	S5180
S-DIC471781	DIC471781	PROGRAMMED GAL K0309D32	IWATSU	S5180
S-DIC471811	DIC471811	PROGRAMMED GAL K0312IRW	IWATSU	S5180
S-DIC471821	DIC471821	PROGRAMMED GAL K0313CRD	IWATSU	S5180
S-DIC471831	DIC471831	PROGRAMMED GAL K0314CAS	IWATSU	S5180
S-DIC471931	DIC471931	PROGRAMMED GAL K0322ABT	IWATSU	S5180
S-DIC472013	DIC472013	PROGRAMMED GAL K0328D8	IWATSU	S5180
SN 74HC 175 NS	DIC499921	IC Quad D-F/F	TI	OBBO6
SN 74HC 20 NS	DIC483171	IC Dual 4-input NOR	TI	OBBO6
SN 74HC 374 NS	DIC483711	IC Octal D-F/F	TI	OBBO6
SN 74HC 393 NS□	DIC483091	IC Dual 4-bit binary counters	TI	OBBO6
SN 74HC 540 NS	DIC499771	IC Octal Bus Buffers	TI	OBBO6
SN 75160BN	DIC196181	IC GPIB Driver/Receiver	TI	OBBO6
SN 75161BN	DIC196191	IC GPIB Driver/Receiver	TI	OBBO6





## CPU (con't)

Part Number	Code No.	Description	Manufacturer	Cage Code
TC74VHCT04AF	DIC471621	IC Hex Inverter	TOSHIBA	S4901
TC74VHCT244AF	DIC484691	IC Octal Bus Buffers	TOSHIBA	S4901
TC74VHCT245AF	DIC484681	IC Octal Bus Transceivers	TOSHIBA	S4901
uPD 71059GB-10-3B4	DIC557111	IC interrupt controller	NEC	0CMK7
uPD 71071GC-3B6	DIC556321	IC DMA controller	NEC	0CMK7
XPC 603PFE166LC	DIC560411	IC PowerPC CPU 166MHz	Motorola	OCJC4
S-DIC519441	DIC519441	SIMM Memory Module 16Mbyte	IWATSU	S5180
S-DIC519451	DIC519451	SIMM Memory Module 32Mbyte	IWATSU	S5180
S-KPN375551	KPN375551	PWB CPU & PANEL BOARD	IWATSU	S5180

## Panel Board

Part Number	Code No.	Description	Manufacturer	Cage Code
1SS 272	DDD810241	Dual Diode	TOSHIBA	S4901
1SS 319	DDD818661	Dual Diode (schottky)	TOSHIBA	S4901
52793-2290	DCN125021	FFC connector 22pin right angle	Molex	S5406
CB-09FP	DSB040911	Buzzer	CITIZEN	037Y4
CE SEM 1A 101 A	DCE219051	CAP CHEMICAL 100uF 10V	Nippon Chemi-con	S4217
DTC143TK	DTR890521	Transistor NPN with register	ROHM	0UST1
EC16B241040B	DME990401	Rotary encoder	ALPS	7J054
EC16B242040A	DME990411	Rotary encoder with click	ALPS	7J054
GRM 40 CH 104Z 50 PT	DCC810571	CAP CERA CHIP .1uF	MURATA	OBCD9
GRM 40 CH 470J 50 PT	DCC816561	CAP CERA CHIP 47pF	MURATA	OBCD9
GRM 40 CH 472K 50 PT	DCC810921	CAP CERA CHIP 4700pF	MURATA	OBCD9
K-KBA784321	KBA784321	KEY-UNIT PLATE	IWATSU	S5180
MBG5064X	DDD074141	LED (Green)	STANLAY	S5180

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## Panel Board (con't)

Part Number	Code No.	Description	Manufacturer	Cage Code
MDF7-16DP-2.54DSA(01)	DCN126101	Header pin 2x8	HIROSE	S5403
RAC16 4D 103J A	DFB810051	Quad resistor 10K OHM	KAMAYA	S4553
RAC16 4D 203J A	DFB810091	Quad resistor 20K OHM	KAMAYA	S4553
RMC 1/10 K 103 F TP	DRZ832491	RES CHIP 1% 10K OHM	KAMAYA	S4553
RMC 1/10 K 151 F TP	DRZ832051	RES CHIP 1% 150 OHM	KAMAYA	S4553
RMC 1/10 K 393 F TP	DRZ832631	RES CHIP 1% 39K OHM	KAMAYA	S4553
S-DIC891051	DIC891051	IC FRONT PANEL control (MFP414)	Lecroy	55716
SN 74HC 04 NS	DIC499321	IC Hex Inverter	TI	OBBO6
SN 74HC 74 NS	DIC499371	IC Dual D-F/F	TI	OBBO6

## Printer

Part Number	Code No.	Description	Manufacturer	Cage Code
2SK 2287	DTR215791	POWER MOSFET N-channel	SHINDENGEN	S5405
52808-2691	DCN129381	FFC connector 26pin straight	Molex	S5406
53258-0310	DCN125991	Connector 3pin straight	Molex	S5406
74 VHC 541 ASJ	DIC484491	IC Octal D-F/F	TOSHIBA	S4901
AT-51 10.00MHZ	DHF013521	Cristal 10MHz	NDK	5W664
B16B-PH-K-S	DCN995081	Connector 16pin straight	JST	S5835
B4B-PH-K-S	DCN994271	Connector 4pin straight	JST	S5835
B5B-PH-K-S	DCN995251	Connector 5pin straight	JST	S5835
BL02RN2-R62	DCL119361	Line filter	MURATA	OBOD9
CE SEM 1A 101 A	DCE219051	CAP CHEMICAL 100uF 10V	Nippon Chemi-con	S4217
CE SEM 1H 101 A	DCE249391	CAP CHEMICAL 100uF 50V	Nippon Chemi-con	S4217
D1FS4	DDD820031	Diode (schottky)	SHINDENGEN	S5405



## Printer (con't)

Part Number	Code No.	Description	Manufacturer	Cage Code
DTA114EK	DTR890431	Transistor PNP with register	ROHM	0UST1
DTC114EK	DTR890551	Transistor NPN with register	ROHM	0UST1
FTP-642MCL001	DZB992361	Printer mechanism	Fujitsu	61271
GRM 40 CH 101J 50 PT	DCC816601	CAP CERA CHIP 100pF	MURATA	OBCD9
GRM 40 CH 103Z 50 PT	DCC810511	CAP CERA CHIP .01uF	MURATA	OBCD9
GRM 40 CH 104Z 50 PT	DCC810571	CAP CERA CHIP .1uF	MURATA	OBCD9
GRM 40 CH 105Z 50 PT	DCC820021	CAP CERA CHIP 1.0uF	MURATA	OBCD9
GRM 40 CH 220J 50 PT	DCC816521	CAP CERA CHIP 22pF	MURATA	OBCD9
GRM 40 CH 471J 50 PT	DCC816761	CAP CERA CHIP 470pF	MURATA	OBCD9
GRM 40 CH 472K 50 PT	DCC810921	CAP CERA CHIP 4700pF	MURATA	OBCD9
ISS 272	DDD810241	Dual Diode	TOSHIBA	S4901
JV-5S-KT	DKD016271	Power Relay (5V, 1circuit)	Fujitsu	61271
LXV 35VB-2200M M30	DCE935371	CAP CHEMICAL 2200uF 35V	Nippon Chemi-con	S4217
M51957BFP	DIC699231	IC Reset generator	Mitubishi	S5180
NJM 4558M	DIC619101	IC OP-amp	NJK	S5180
OSH-2425-SPL	MHN001311	Heatsink OSH-2425	RYOSAN	SB253
P-AHB230011	AHB202811	flexible flat cable 26pin-140mm	IWATSU	S5180
P-KBA787121	KBA787121	SWITCH SUPPORT	IWATSU	S5180
P-KHB189311	KHB189311	Cable PRINTER POWER	IWATSU	S5180
P-KHB189611	KHB189611	Cable PRINTER HEAD	IWATSU	S5180
P-TRB122711	TRB122711	HB-208( ) QFP BLANK LABEL	IWATSU	S5180
RD12M-T1B B	DDD830181	Diode (zener 12V)	NEC	0CMK7
RMC 1/10 K 103 F TP	DRZ832251	RES CHIP 1% 1.0k OHM	KAMAYA	S4553
RMC 1/10 K 103 F TP	DRZ832491	RES CHIP 1% 10k OHM	KAMAYA	S4553
RMC 1/10 K 153 F TP	DRZ832531	RES CHIP 1% 15k OHM	KAMAYA	S4553
RMC 1/10 K 181 F TP	DRZ832071	RES CHIP 1% 180 OHM	KAMAYA	S4553
RMC 1/10 K 273 F TP	DRZ832591	RES CHIP 1% 27k OHM	KAMAYA	S4553

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## Printer (con't)

Part Number	Code No.	Description	Manufacturer	Cage Code
RMC 1/10 K 274 F TP	DRZ832831	RES CHIP 1% 270k OHM	KAMAYA	S4553
RMC 1/10 K 302 F TP	DRZ832361	RES CHIP 1% 3.0k OHM	KAMAYA	S4553
RMC 1/10 K 330 F TP	DRZ833551	RES CHIP 1% 33 OHM	KAMAYA	S4553
RMC 1/10 K 392 F TP	DRZ832391	RES CHIP 1% 3.9k OHM	KAMAYA	S4553
RMC 1/10 K 472 F TP	DRZ832411	RES CHIP 1% 4.7k OHM	KAMAYA	S4553
S-KPN375431	KPN375431	PWB PRN-CTRL BOARDUL-M	IWATSU	S5180
SN 74HC 123 NS□	DIC495721	IC dual monostable multivibrator	TI	OBBO6
SR 25N 3 J	DRD137031	RES 1/4W 5% 3 OHM	TAIYOSHA	S5336
TKM-D1-H38	DSW017502	Push Switch	MATSUKYU	S5408
UDN 2916LB	DIC992271	IC STEPPING MOTOR DRIVER	SANKEN	S3385
uPD 78P014GC-AB8	DIC554551	IC maicro controller	NEC	0CMK7

## Power Supply

Part Number	Code No.	Description	Manufacturer	Cage Code
1SS 120	DDD019071	DIODE	HITACHI	S4997
2SA 1015Y	DTR119011	TRANSISTOR PNP TO-92	TOSHIBA	S4901
2SC 1815GR	DTR139011	TRANSISTOR NPN TO-92	TOSHIBA	S4901
2SC 3148	DTR137511	TRANSISTOR NPN TO-220	TOSHIBA	S4901
2SJ 143	DTR225011	MOS-FET P-CH TO-220	NEC	0CMK7
2SK 2198	DTR215821	MOS-FET N-CH TO-3P	SHINDENGEN	S5405
2SK 2287	DTR215791	MOS-FET N-CH TO-220	SHINDENGEN	S5405
2SK 2482	DTR215751	MOS-FET N-CH TO-3P	NEC	0CMK7
2SK 373GR	DTR219051	J-FET TO-92	TOSHIBA	S4901
5267-02A	DCN990871	CONN 02 PIN	MOLEX	S5406
5267-04A	DCN990891	CONN 04 PIN	MOLEX	S5406

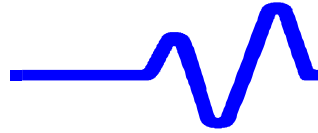


## Power Supply (con't)

Part Number	Code No.	Description	Manufacturer	Cage Code
5267-07A	DCN990911	CONN 07 PIN	MOLEX	S5406
5268-02A	DCN990821	CONN 02 PIN	MOLEX	S5406
53258-0310	DCN125991	CONN 03 PIN	MOLEX	S5406
53258-0510	DCN126011	CONN 05 PIN	MOLEX	S5406
53258-0610	DCN126021	CONN 06 PIN	MOLEX	S5406
53258-0710	DCN126081	CONN 07 PIN	MOLEX	S5406
A4B-10PA-2DS(01)	DCN116231	CONN BD 10PIN	HIROSE	S5403
A4B-11PA-2DS(01)	DCN116241	CONN BD 11PIN	HIROSE	S5403
A53K-100J	DRZ010181	THERMAL FUSE RES 10 OHMS	UCHIHASHI	S5180
AC16FSM	DDD040841	TRYATCK	NEC	0CMK7
AF1/4S 24 F	DRE137491	RES 1% 24 OHMS	TAMA	0XN17
AF1/4S 68 F	DRE137601	RES 1% 68 OHMS	TAMA	0XN17
AF1/4S 82 F	DRE137621	RES 1% 82 OHMS	TAMA	0XN17
AF1/4S 100 F	DRE137641	RES 1% 100 OHMS	TAMA	0XN17
AF1/4S 10K F	DRE138121	RES 1% 10K OHMS	TAMA	0XN17
AF1/4S 10K F	DRE138121	RES 1% 10K OHMS	TAMA	0XN17
AF1/4S 12K F	DRE138141	RES 1% 12K OHMS	TAMA	0XN17
AF1/4S 16K F	DRE138171	RES 1% 16K OHMS	TAMA	0XN17
AF1/4S 180 F	DRE137701	RES 1% 180 OHMS	TAMA	0XN17
AF1/4S 200 F	DRE137711	RES 1% 200 OHMS	TAMA	0XN17
AF1/4S 20K F	DRE138191	RES 1% 20K OHMS	TAMA	0XN17
AF1/4S 220 F	DRE137721	RES 1% 220 OHMS	TAMA	0XN17
AF1/4S 27K F	DRE138221	RES 1% 27K OHMS	TAMA	0XN17
AF1/4S 300 F	DRE137751	RES 1% 300 OHMS	TAMA	0XN17
AF1/4S 33K F	DRE138241	RES 1% 33K OHMS	TAMA	0XN17
AF1/4S 68K F	DRE138321	RES 1% 68K OHMS	TAMA	0XN17

## Power Supply (con't)

Part Number	Code No.	Description	Manufacturer	Cage Code
AF1/4S 1.0K F	DRE137881	RES 1% 1.0K OHMS	TAMA	0XN17
AF1/4S 1.0M□□	DRE138601	RES 1% 1.0M OHMS	TAMA	0XN17
AF1/4S 1.2K□□	DRE137901	RES 1% 1.2K OHMS	TAMA	0XN17
AF1/4S 1.5K F	DRE137921	RES 1% 1.5K OHMS	TAMA	0XN17
AF1/4S 100K F	DRE138361	RES 1% 100K OHMS	TAMA	0XN17
AF1/4S 10K□□	DRE138121	RES 1% 10K OHMS	TAMA	0XN17
AF1/4S 13K□□	DRE138151	RES 1% 13K OHMS	TAMA	0XN17
AF1/4S 16K□□	DRE138171	RES 1% 16K OHMS	TAMA	0XN17
AF1/4S 2.0K F	DRE137951	RES 1% 2.0K OHMS	TAMA	0XN17
AF1/4S 2.2K F	DRE137961	RES 1% 2.2K OHMS	TAMA	0XN17
AF1/4S 2.2K□□	DRE137961	RES 1% 2.2K OHMS	TAMA	0XN17
AF1/4S 2.4K F	DRE137971	RES 1% 2.4K OHMS	TAMA	0XN17
AF1/4S 220K□□	DRE138441	RES 1% 220K OHMS	TAMA	0XN17
AF1/4S 22K□□	DRE138201	RES 1% 22K OHMS	TAMA	0XN17
AF1/4S 240K F	DRE138451	RES 1% 240K OHMS	TAMA	0XN17
AF1/4S 3.0K F	DRE137991	RES 1% 3.0K OHMS	TAMA	0XN17
AF1/4S 3.6K F	DRE138011	RES 1% 3.6K OHMS	TAMA	0XN17
AF1/4S 3.9K F	DRE138021	RES 1% 3.9K OHMS	TAMA	0XN17
AF1/4S 300K F	DRE138471	RES 1% 300K OHMS	TAMA	0XN17
AF1/4S 360K F	DRE138491	RES 1% 360K OHMS	TAMA	0XN17
AF1/4S 360K F	DRE138491	RES 1% 360K OHMS	TAMA	0XN17
AF1/4S 4.3K F	DRE138031	RES 1% 4.3K OHMS	TAMA	0XN17
AF1/4S 4.7K F	DRE138041	RES 1% 4.7K OHMS	TAMA	0XN17
AF1/4S 5.1K F	DRE138051	RES 1% 5.1K OHMS	TAMA	0XN17
AF1/4S 6.2K F	DRE138071	RES 1% 6.2K OHMS	TAMA	0XN17
AF1/4S 6.8K F	DRE138081	RES 1% 6.8K OHMS	TAMA	0XN17
AF1/4S 750K□□	DRE138571	RES 1% 750K OHMS	TAMA	0XN17



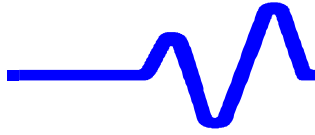
## Power Supply (con't)

Part Number	Code No.	Description	Manufacturer	Cage Code
AF1/4S 91K□□	DRE138351	RES 1% 91K OHMS	TAMA	0XN17
AF1/4S10 F	DRE137401	RES 1% 10 OHMS	TAMA	0XN17
AP-320(V) BLACK	DCN013161	AC INLET 3PIN	YDK	S5180
BL02RN2-R62	DCL119361	INDUCTOR	TOKIN	0B3G8
BPR 26 0.1 K	DRE960191	RES 10% 2W 0.1 OHMS	KOA	59124
BPR 26 0.05 K	DRE960141	RES 10% 2W 0.05 OHMS	KOA	59124
BPR 26 0.33 K	DRE960151	RES 10% 2W 0.33 OHMS	KOA	59124
BPR 28 0.022 K	DRE990211	RES 10% 2W 0.022 OHMS	KOA	59124
CABLE L95 UL-I	KHB185411	GND CABLE 95MM YELLOW/GREEN	IWATSU	S5180
CRB20 2KDY	DRE997211	RES 0.5% 2K OHMS	TAMA	0XN17
CRB20 10KDY	DRE997221	RES 0.5% 10K OHMS	TAMA	0XN17
CRB20 12KDY	DRE997241	RES 0.5% 12K OHMS	TAMA	0XN17
CRB20 4.7KDY	DRE997251	RES 0.5% 4.7K OHMS	TAMA	0XN17
D10LC20U	DDD022321	DIODE LOW LOSS	SHINDENGEN	S5405
D10SC4M	DDD023911	DIODE SCHOTTKY	SHINDENGEN	S5405
D10XB60	DDD029511	DIODE BRIDGE	SHINDENGEN	S5405
D1N60	DDD029231	DIODE	SHINDENGEN	S5405
D1NL40	DDD029471	DIODE LOW LOSS	SHINDENGEN	S5405
D30SC4M	DDD024071	DIODE SCHOTTKY	SHINDENGEN	S5405
D8L60	DDD022351	DIODE LOW LOSS	SHINDENGEN	S5405
DE0605B 102K 1K	DCC169021	CAP CERA 1000PF 1KV	MURATA	OBCD9
DE0705R 221K 1K	DCC169081	CAP CERA 220PF 1KV	MURATA	OBCD9
DE1007-1 E 222M-KH	DCC140211	CAP CERA 2200PF UL	MURATA	OBCD9
DE1307-1 E 472M-KH	DCC140221	CAP CERA 4700PF UL	MURATA	OBCD9
ECQ-E2 224K	DCF169181	CAP FILM 10% 0.22UF	MATSUSHITA	S5441
ECQ-E4 104K	DCF168451	CAP FILM 10% 0.1UF	MATSUSHITA	S5441

## Power Supply (con't)

Part Number	Code No.	Description	Manufacturer	Cage Code
ECQ-E4 224K	DCF168461	CAP FILM 10% 0.22UF	MATSUSHITA	S5441
ECQ-U2A 224MT	DCF161711	CAP FILM 20% 0.22UF UL	MATSUSHITA	S5441
EDGING CE-106	MBU000131	EDGING		COMMERCIAL
ET2835-042	DCL170231	INDUCTOR 8MH X2	TOKIN	0B3G8
FET CLAMP	KBA783411	FET CLAMP	IWATSU	S5180
FS44248	DCL214111	TRANSFORMER	COSUMO POWER	S5180
FS44633-21 UL-I	DCL241352	TRANSFORMER	AXIS	2J929
FS44849-3 UL-I	DCL215351	TRANSFORMER	COSUMO POWER	S5180
FS44850-3 UL-I	DCL215361	TRANSFORMER	COSUMO POWER	S5180
FS44855 UL-I	DCL113871	INDUCTOR 500UH	COSUMO POWER	S5180
GF06UT2 500	DRV419171	V-RES 500 OHMS	TOCOS	O33B2
GF06UT2 50K	DRV419231	V-RES 50K OHMS	TOCOS	O33B2
GF06VT2 1K	DRV419341	V-RES 1K OHMS	TOCOS	O33B2
HF70BB3.5X5X1.3	DCL321111	CORE 3.5X5X1.3	TDK	S5180
INLET PLATE	KBA774411	INLET PLATE	IWATSU	S5180
IRFPF50	DTR215841	MOS-FET N-CH TO-3P	IR	81483
JUMPER CABLE A UL-I	KHB188811	JUMPER CABLE A	IWATSU	S5180
JUMPER CABLE B UL-I	KHB188911	JUMPER CABLE B	IWATSU	S5180
KB(+ )3X8S(NIP)	MKB130082	SCREW 3X8		COMMERCIAL
KME 10VB-100M	DCE919661	CAP CHEMICAL 10V100uF	Nippon Chemi-con	S4217
KME 50VB-10M	DCE949751	CAP CHEMICAL 50V10uF	Nippon Chemi-con	S4217
KME 50VB-2R2M	DCE949771	CAP CHEMICAL 50V2.2uF	Nippon Chemi-con	S4217
KMH400VNSN 270M 30D	DCE985261	CAP CHEMICAL 400V270uF	Nippon Chemi-con	S4217
LXV 10VB-1000M J20MC	DCE916011	CAP CHEMICAL10V1000uF	Nippon Chemi-con	S4217
LXV 10VB-2700M K30MC	DCE916021	CAP CHEMICAL 10V2700uF	Nippon Chemi-con	S4217



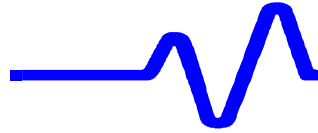


## Power Supply (con't)

Part Number	Code No.	Description	Manufacturer	Cage Code
LXV 25VB-2200M K40MC	DCE926401	CAP CHEMICAL 25V2200uF	Nippon Chemi-con	S4217
LXV 35VB-1200M K35MC	DCE935351	CAP CHEMICAL 35V1200uF	Nippon Chemi-con	S4217
LXV 50VB-220M J25MC	DCE945731	CAP CHEMICAL 50V220CuF	Nippon Chemi-con	S4217
LXV 63VB-180M J30MC	DCE945701	CAP CHEMICAL 63V180uF	Nippon Chemi-con	S4217
LXV 63VB-47M H12	DCE948111	CAP CHEMICAL 63V47uF	Nippon Chemi-con	S4217
LXZ 50VB-47M F11	DCE948141	CAP CHEMICAL 50V47uF	Nippon Chemi-con	S4217
M 51995AP	DIC653611	IC SWITCHING CONTROL	MITSUBISHI	S5180
MB12P-90	DCN996931	CONN 12 PIN	JST	S5835
MB7P-90	DCN996921	CONN 7 PIN	JST	S5835
MB8P-90	DCN996791	CONN 8 PIN	JST	S5835
MF-3S 1H 102J	DCF121601	CAP FILM 5% 1000PF	TOWA	9Y042
MF-3S 1H 102J	DCF121601	CAP FILM 5% 1000PF	TOWA	9Y042
MF-3S 1H 103J	DCF121721	CAP FILM 5% 10000PF	TOWA	9Y042
MF-3S 1H 104J	DCF121841	CAP FILM 5% 0.1UF	TOWA	9Y042
MF-3S 1H 223J	DCF121761	CAP FILM 5% 22000PF	TOWA	9Y042
MF-3S 1H 471K	DCF121561	CAP FILM 10% 470PF	TOWA	9Y042
MF-3S 1H 472J	DCF121681	CAP FILM 5% 4700PF	TOWA	9Y042
MF-3S 1H 473J	DCF121801	CAP FILM 5% 47000PF	TOWA	9Y042
MF561A	DSK065861	FUSE HOLDER	EST	S5180
MM-3 2G 225K	DCF165521	CAP FILM 10% 2.2UF	TOWA	9Y042
MMT 1H 105J	DCF122451	CAP FILM 5% 1UF	NISSEI	S4783
MMT 1H 224J	DCF122171	CAP FILM 5% 0.22UF	NISSEI	S4783
MMT 1H 474J	DCF122211	CAP FILM 5% 0.47UF	NISSEI	S4783
MMTS 1H 104J	DCF122131	CAP FILM 5% 0.1UF	NISSEI	S4783
NJM 2058D	DIC613721	IC QUAD OP AMP	JRC	0JK55
NJM 4558D	DIC613771	IC DUAL OP AMP	JRC	0JK55
NJM 7812FA	DIC652721	IC LINER REG	JRC	0JK55

## Power Supply (con't)

Part Number	Code No.	Description	Manufacturer	Cage Code
PFC BOARD UL-M	KPN370031	PRINT CIRCUIT BOARD	CMK	S5180
POWER BOARD UL-M	KPN374431	PRINT CIRCUIT BOARD	DAISHO	S5180
POWER FRAME	KBA783811	POWER FRAME	IWATSU	S5180
POWER HS PLATE A	KBA783021	POWER HS PLATE A	IWATSU	S5180
POWER HS PLATE B	KBA783131	POWER HS PLATE B	IWATSU	S5180
POWER HS PLATE C	KBA783221	POWER HS PLATE C	IWATSU	S5180
POWER HS PLATE D	KBA783311	POWER HS PLATE D	IWATSU	S5180
PSS1/2S 4.7M□□	DRD148521	RES 5% 4.7M OHMS	KOA	59124
PTH9M04 BC471TS2F333	DDD089361	POSISTOR	MURATA	OBCD9
PTH9M04 BE471TS2F333	DDD089281	POSISTOR	MURATA	OBCD9
PTH9M04 BF471TS2F333	DDD081051	POSISTOR	MURATA	OBCD9
RD10ESB	DDD038771	DIODE ZENER	NEC	0CMK7
RD18ESB	DDD038831	DIODE ZENER	NEC	0CMK7
RD20ESB	DDD038841	DIODE ZENER	NEC	0CMK7
RD3.0ESB	DDD038641	DIODE ZENER	NEC	0CMK7
RD5.6ESB2	DDD038391	DIODE ZENER	NEC	0CMK7
RD6.2ESB	DDD038721	DIODE ZENER	NEC	0CMK7
RD6.8ESB	DDD038731	DIODE ZENER	NEC	0CMK7
RF16S 10 F	DRZ019281	RES 1% 10 OHMS	TAMA	0XN17
RF16S 47	DRZ019261	RES 1% 47 OHMS	TAMA	0XN17
RF16S 100 F	DRZ019291	RES 1% 100 OHMS	KOA	59124
RG1C	DDD021481	DIODE	SHINDENGEN	S5405
RSS1 10 J	DRS320211	RES 5% 1W 10 OHMS	KOA	59124
RSS1 22 J	DRS320251	RES 5% 1W 22 OHMS	KOA	59124
RSS1 330 J	DRS320391	RES 5% 1W 330 OHMS	KOA	59124
RSS1 56K J	DRS320661	RES 5% 1W 56K OHMS	KOA	59124
RSS1 6.8 J	DRS320191	RES 5% 1W 6.8 OHMS	KOA	59124



## Power Supply (con't)

Part Number	Code No.	Description	Manufacturer	Cage Code
RSS1 0.22 J	DRS320011	RES 5% 1W 0.22 OHMS	KOA	59124
RSS1 4.7K J	DRS320531	RES 5% 1W 4.7K OHMS	KOA	59124
RSS2 10 J	DRS331071	RES 5% 2W 10 OHMS	KOA	59124
RSS2 47 J	DRS331101	RES 5% 2W 47 OHMS	KOA	59124
RSS2 330 J	DRS331121	RES 5% 2W 330 OHMS	KOA	59124
RSS2 68K J	DRS331261	RES 5% 2W 68K OHMS	KOA	59124
RSS2 820 J	DRS331051	RES 5% 2W 820 OHMS	KOA	59124
RSS2 1.0K J	DRS331191	RES 5% 2W 1.0K OHMS	KOA	59124
RSS2 100K J	DRS331271	RES 5% 2W 100K OHMS	KOA	59124
S2L60	DDD024011	DIODE LOW LOSS	SHINDENGEN	S5405
SBC1-220-132	DCL119721	INDUCTOR 22UH	TOKIN	0B3G8
SERCON 30T-13.5-30L	MZT005181	SERCON TUBE	FUJIPOLY	49555
SERCON 45T-17-35L	MZT005191	SERCON TUBE	FUJIPOLY	49555
SM4-3X10	MSM430101	SCREW 3X10		COMMERCIAL
SM4-3X6	MSM430061	SCREW 3X6		COMMERCIAL
SM4-4X8	MSM440081	SCREW 4X8		COMMERCIAL
SM5-3X16	MSM530161	SCREW 3X16		COMMERCIAL
SN-12-500	DCL111131	INDUCTOR 100UH	TOKIN	0B3G8
SXE 16VB-220M	DCE929471	CAP CHEMICAL 16V220uF	Nippon Chemi-con	S4217
SXE 16VB-680M	DCE921351	CAP CHEMICAL 16V680uF	Nippon Chemi-con	S4217
SXE 35VB-220M	DCE939341	CAP CHEMICAL 35V220uF	Nippon Chemi-con	S4217
TL 431CLP	DIC659551	IC ADJ SHUNT REG	TEXAS	OZC40
TLP721F(D4-GR,M)	DFB031571	OPT CUPPLER	TOSHIBA	S4901
TR CLAMP W	KBA672121	TR CLAMP W	IWATSU	S5180
TR SEALED PLATE	KBA774311	TR SEALED PLATE	IWATSU	S5180
UC 3854N	DIC891021	IC PFC CONTROL	UNITRODE	48726
UL-ET 6.3A	DFU016651	FUSE T6.3A 250V	SOC	S5180