STUDER

DAD-16
Digital Preview Unit

OPERATING INSTRUCTIONS

AND

SERVICE MANUAL

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SICHERHEIT

Durch Entfernen von Gehäuseteilen, Abschirmungen etc. werden stromführende Teile freigelegt. Aus diesem Grunde müssen die folgenden Sicherheitsvorschriften unbedingt beachtet werden:

1. Eingriffe in ein Gerät
dürfen nur von Fachpersonal vorgenommen werden.

2. Vor Entfernen von Gehäuseteilen:
Gerät ausschalten und vom Netz trennen.

3. Bei geöffnetem Gerät:
- Netzteil- oder Motorkondensatoren mit einem passenden Widerstand entladen.
- Bauteile grosser Leistung, wie Leistungstransistoren und -widerstände sowie Magnetspulen und Wickelmotoren erst nach dem Abkühlen berühren.

4. Servicearbeiten bei geöffnetem, unter Spannung stehendem Gerät:
- Keine blanken Schaltungsteile berühren
- Isolierte Werkzeuge verwenden
- Metallene Halbleitergehäuse nicht berühren, da sie hohe Spannungen aufweisen können.

ERSTE HILFE (bei Stromunfällen)

1. Bei einem Stromunfall die betroffene Person raschmöglichst vom Strom
- Durch Ausschalten des Gerätes
- Ausziehen oder Unterbrechen der Netzzuleitung
- Betroffene Person mit isolierendem Material (Holz, Kunstoff) von der Gefahrenquelle wegstossen
- Nach einem Stromunfall sollte immer ein Arzt aufgesucht werden.

ACHTUNG
EINE UNTER SPANNUNG STEHENDE PERSON DARF NICHT BERÜHRT WERDEN, SIE KÖNNEN DABEI SELBST ELEKTRISIERT WERDEN!

2. Bei Bewusstlosigkeit des Verunfallten:
- Puls kontrollieren,
- bei ausgesetzter Atmung künstlich beatmen,
- Seitenlagerung des Verunfallten und Arzt verständigen.

SAFETY

There are no user serviceable components inside the equipment, live parts are laid open when removing protective covers and shieldings. It is essential therefore to ensure that the subsequent safety rules are strictly observed when performing service work or repairs.

1. Servicing of electronic equipment
must be performed by qualified personnel only.

2. Before removing covers:
Switch off the equipment and unplug the mains cable.

3. When the equipment is open:
- Discharge power supply- and motor capacitors through a suitable resistor.
- Components, that carry heavy electrical loads, such as power transistors and resistors as well as solenoid coils and motors should not be touched before a cooling off interval, as a precaution to avoid burns.

4. Servicing unprotected and operating equipment:
- Never touch bare wires or circuitry
- Use insulated tools only
- Never touch metal semiconductor cases because they may carry high voltages.

FIRST AID (in case of electric shock)

1. Separate the person as quickly as possible from the electric power source:
- by switching off the equipment,
- unplugging or disconnecting the mains cable,
- pushing the person away from the power source by using dry insulating material (such as wood or plastic).
- After having sustained an electric shock, always consult a doctor.

WARNING:
DO NOT TOUCH THE PERSON OR HIS CLOTHING BEFORE POWER IS TURNED OFF, OTHERWISE YOU STAND THE RISK OF SUSTAINING AN ELECTRIC SHOCK AS WELL!

2. If the person is unconscious
- Check the pulse,
- reanimate the person if respiration is poor,
- lay the body down and turn it to one side, call for a doctor immediately.

SÉCURITÉ

Si les couvercles de protection sont enlevés, les parties de l'appareil qui sont sous tension ne sont plus protégées. Il est donc d'une nécessitée absolue de suivre les instructions suivantes:

1. Les intervensions dans les appareils électriques
doivent être faites uniquement que par du personnel qualifié

2. Avant d'enlever les couvercles de protection:
Couper l'interrupteur principal et débrancher le câble secteur.

3. Après avoir enlevé les couvercles de protection:
- Les condensateurs de l'alimentation et des moteurs doivent être déchargés à l'aide d'une résistance appropriée.
- Il est prudent de laisser refroidir les composants de haute puissance, par ex.: transistors de puissance, résistances de puissances de même que des électro-aimants et les moteurs de bobinage.

4. S'il faut que l'appareil soit sous tension pendent les réglages internes:
- Ne jamais toucher les circuits non isolés
- Travailler seulement avec des outils isolés

PREMIERS SECOURS (en cas d'électrocution)

1. Si la personne est dans l'impossibilité de se libérer:
- Couper l'interrupteur principal
- Couper le courant
- Repousser la personne de l'appareil à l'aide d'un objet en matière non conductrice (matière plastique ou boîs)
- Après une électrocution, consulter un médecin.

ATTENTION
NE JAMAIS TOUCHER UNE PERSONNE QUI EST SOUS TENSION, SOUS PEINE DE SUBIR ÉGALEMENT UNE ÉLECTROCUTION!

2. En cas de perte de connaissance de la personne électrocutée:
- Controller le pouls
- Si nécessaire, pratiquer la respiration artificielle
- Mettre l'accidenté sur le coté latérale et consulter un médecin.

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Section 1

Introduction

INTRODUCTION

1.1 General Description

The DAD-16 Digital Audio Delay is designed for high quality transfer of analog or digital masters to disc lacquers and provides the delays necessary for all types of cutting lathes in use today. Its range of applications covers analog masters at normal or half speed, as well as digital masters of 14- or 16-bit format with 48, 44.1 kHz or any usual sampling frequency.

The DAD-16 allows level adjustment of the audio signals prior to analog-to-digital conversion, for optimal use of the A-to-D converter, as well as adjustment of the delayed audio signal.

It accepts analog audio levels as in use on professional mastering recorders and delivers balanced output signals. It can be used both for *normal* and *half speed* cutting. It features very high quality active filters with low ripple, very low nonlinearity and noise, and phase compensation. It also features State-of-the-Art balanced input and output stages.

The DAD-16 is fitted with the new Standard Interface for Digital Audio Interconnections (as agreed upon by the AES, EBU, STUDER, SONY and other manufacturers) as well as a number of *custom made* interfaces that cover most digital output formats of digital tape recorders in use today.

In case of digital masters with pre-emphasis the DAD-16 sets the correct de-emphasis (50.µs,.15.µs) *automatically* if the corresponding bit is provided in the digital input signal (e.g. Sony PCM 1610). If that information is not available, de-emphasis can be selected manually on the keyboard.

For easier operation in disc cutting rooms the DAD-16 is supplied with a remote control connector on the backplane that interfaces directly with a Neumann VMS 80 cutting lathe. When being used, it allows *automatic setting* of all the parameters determined by the cutting lathe (33 or 45 rpm, normal or half speed, 0.5, 0.6 or 1.0 revolution delay).

The DAD-16 is stand-alone, rack-mountable 19" unit.

1.2 Standard Versions

DAD-16 D (art. no. 65.086.1101)

The DAD-16 D is equipped with all the interfaces required for disc mastering with the most common PCM-recorders on the market today. It is pre-wired for the analog input that is available as an option.

DAD-16 AD (art. no. 65.086.1102)

The DAD-16 AD provides the same features as the model DAD-16 D. Additionally, the analog input allows operation for disc cutting from analog master recorders at normal and half speed.

1.3 Technical Specifications

1.3.1 Dimensions

	overall	mounting hole
width	483 mm	450 mm
height	267 mm	267 mm
depth	350 mm	310 mm

1.3.2 Power Supply

Supply voltage : 100, 120, 140, 200, 220, 240 Volts +5% to -10%
48 to 62 Hz, single phase.

Power consumption: 150 VA.

1.3.3
Audio Specifications

1.3.3.1
Digital Input / Analog Output

Dynamic Range		better than 90 dB
Signal to Noise Ratio		better than 87 dB
THD + Noise	10 Hz...20 kHz	better than 83 dB
	10 Hz...16 kHz	better than 86 dB
Crosstalk		better than 83 dB
Frequency Response	±0.2 dB	10 Hz...21 kHz
Bandwidth		21.5 kHz
Phase difference between Channels		
	10 Hz...16 kHz	better than ±3 deg.

1.3.3.2
Analog Input / Analog Output

Dynamic Range	normal, half speed		better than 90 dB
Signal to Noise Ratio	normal, half speed		better than 84 dB
THD + Noise	normal speed	10 Hz...16 kHz	better than 83 dB
	normal speed	10 Hz...20 kHz	better than 80 dB
	half speed	10 Hz...10 kHz	better than 80 dB
Crosstalk	normal speed	at 20 kHz	better than 80 dB
	half speed	at 10 kHz	better than 80 dB
Frequency Response	normal speed	±0.5 dB	10 Hz...18 kHz
		+0.5/-1.0 dB	10 Hz...20 kHz
	half speed	±0.3 dB	10 Hz...10 kHz
		+0.3/-0.5 dB	10 Hz...13 kHz
Bandwidth	normal speed		21.4 kHz
	half speed		13.5 kHz
Phase/Delay Response (frequency dependant)			
maximum delay fluctuation below 16 kHz (eq.)			±1.25 µs
phase error from linear response			less than 3 deg.
Phase difference between Channels			
	normal speed	10 Hz...16 kHz	better than ±3 deg.
	half speed	10 Hz...13 kHz	better than ±1 deg.
Input CMRR			
- with transformers		below 1 kHz	better than 80 dB
		above 1 kHz	better than 50 dB
- without transformers		below 1 kHz	better than 65 dB
		above 1 kHz	better than 50 dB
Ouput Impedance			
- with transformers		20 Hz...20 kHz	40 Ohm
- without transformers		20 Hz...20 kHz	50 Ohm
Input Impedance		20 Hz...20 kHz	10 kOhm
Input level range			0...+24 dBm
Output level range			0...+24 dBm

Section 2

Installation

INSTALLATION

2.1 Initial Inspection

The DAD-16 is delivered in special packing material which protects it from damage in transit. Care sould be exercised when unpacking the unit so that the surface of the equipment will not become marred.

Compare the contents with the packing slip to ensure that the equipment is complete. Save the original packing material since it provides the best protection for your DAD-16 for subsequent shipping.

Examine the complete content for possible transit damage. The forwarding company and the nearest Studer dealer should be notified immediately in the event of damage.

Caution!

When opening the unit at the front side by loosening the two top screws, DO NEVER let the front panel swing down, otherwise the hinges might get damaged and the front panel can fall down.

2.2 Place of installation

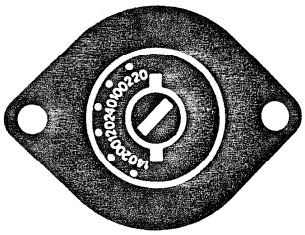
The DAD-16 should be installed in a well ventilated location that is as dust free as possible. The delay line specifications are guaranteed for ambient temperatures ranging from 10 to 35 centigrade. The relative humidity should range between 50 and 90%.

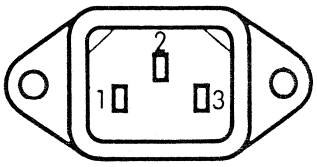
The DAD-16 must not be placed in close proximity to strong electromagnetic fields. General sources of such interference are: strong load fluctuations on adjacent power lines, high power transformers, elevator motors, as well as nearby radio and television transmitters.

Install the DAD-16 in a location where there is sufficient clearance around it so that the cooling air can circulate freely.

2.3
Installing the DAD-16

2.3.1
AC Power, Voltage Selector





1 Power
2 Protective earth
3 Power

Caution!

Before the DAD-16 is connected for the first time, verify that the setting of the voltage selector on the rear panel of the unit matches the local line voltage.

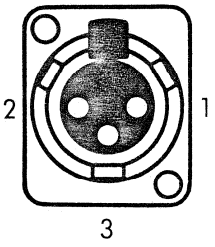
Before changing the voltage selector remove the power fuse. Check the rating of the fuse before you reinstall it.

Fuse rating:

100 ... 140 VAC: 3.15 A
200 ... 240 VAC: 1.60 A

2.3.2
Analog Line Input

The balanced inputs are terminated on XLR-type sockets conforming to the IEC recommendation 268-14.



1 Screen
2 A-line (hot)
3 B-line (cold)

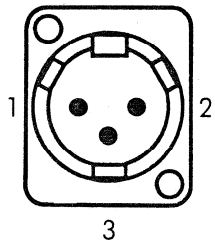
The A-line is hot if the DAD-16 is connected to an unbalanced source.

2.3.3
Analog Preview Output

The analog preview output is not provided with an own differential output amplifier but merely wired through from the differential input. Therefore it's only suited for high impedance inputs (as usually found in studios). The XLR connector's wiring configuration is identical to the ones of the delay line analog output.

2.3.4
Delay Line Analog Output

The balanced outputs are terminated on XLR-type sockets conforming to the IEC recommendation 268-14.



1 Screen
2 A-line (hot)
3 B-line (cold)

The A-line is hot if the DAD-16 is connected to an unbalanced load.

Notes:

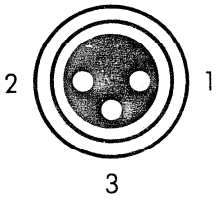
In case of transformerless output (see also section 7.5.1.4) the maximum output level is limited to +18 dBm.

At power down, the delay line analog output is either 0 Ohm shorted or connected to the analog input socket. Selection of these two modes is achieved through jumpers on the Connector Board (1.611.035.00).

2.3.5
Digital Inputs

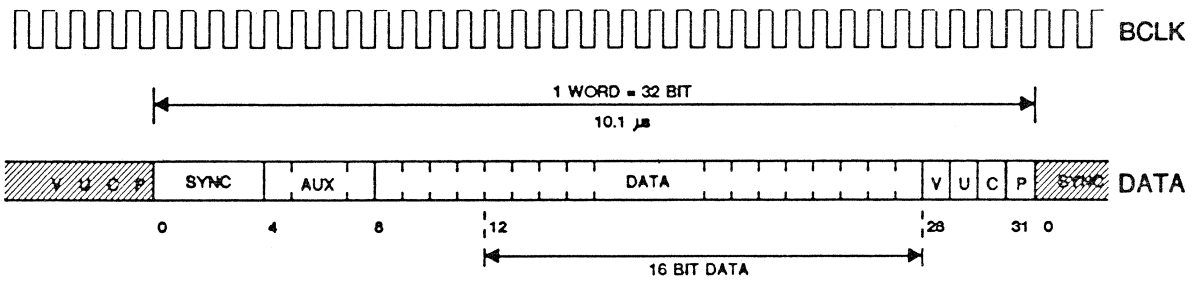
2.3.5.1
The AES/EBU Standard Interface Input

A conventional XLR-type connector is used for the digital input of the DAD-16 via the AES/EBU interface for both channels. No external synchronisation is required.



1 Screen
2 Non-Inverting Input
3 Inverting Input

The *AES/EBU* format:



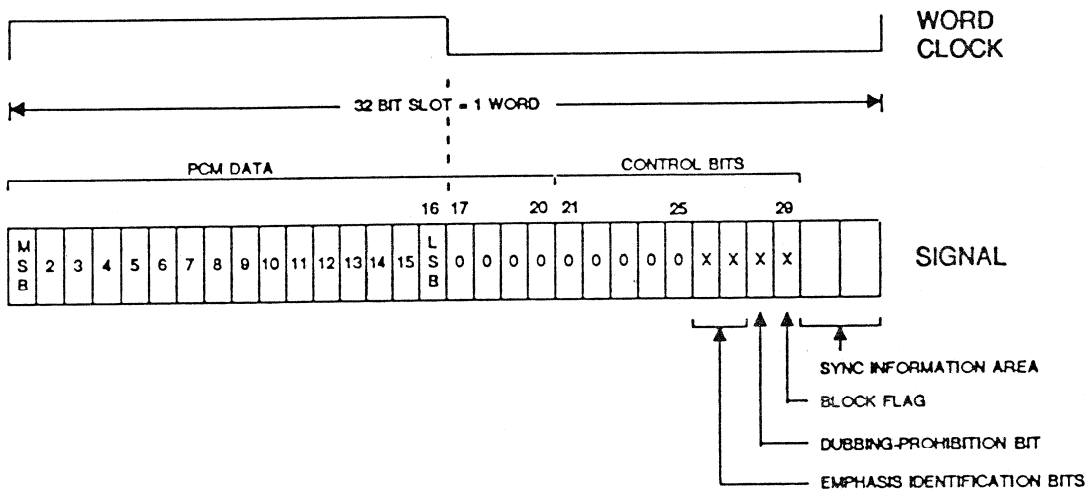
NOTE: V IS VALIDITY BIT
U IS USER'S DATA BIT
C IS CH. STATUS BIT
P IS PARITY BIT

Timing diagram

2.3.5.2
The Sony, JVC and 3M interface inputs

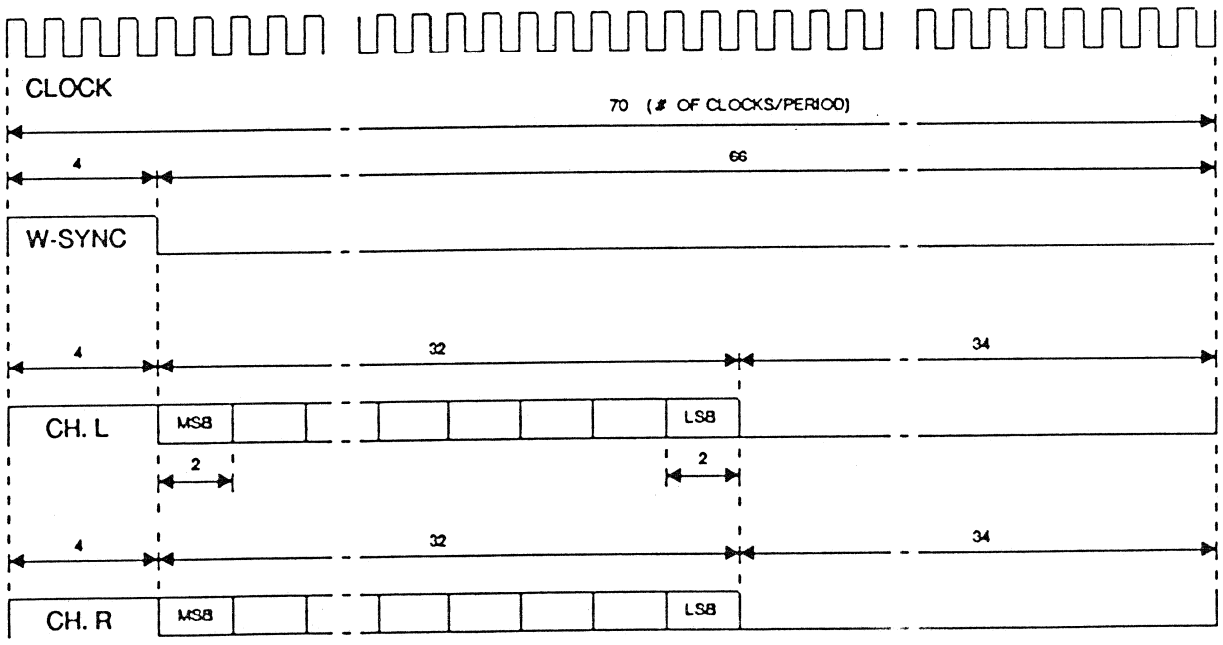
Interfacing the digitals outputs of tape recorders from one of the manufacturers mentioned above is achieved by connecting the *data* lines for both channels and the *wordclock* to the according BNC input connectors.

The *Sony* format:



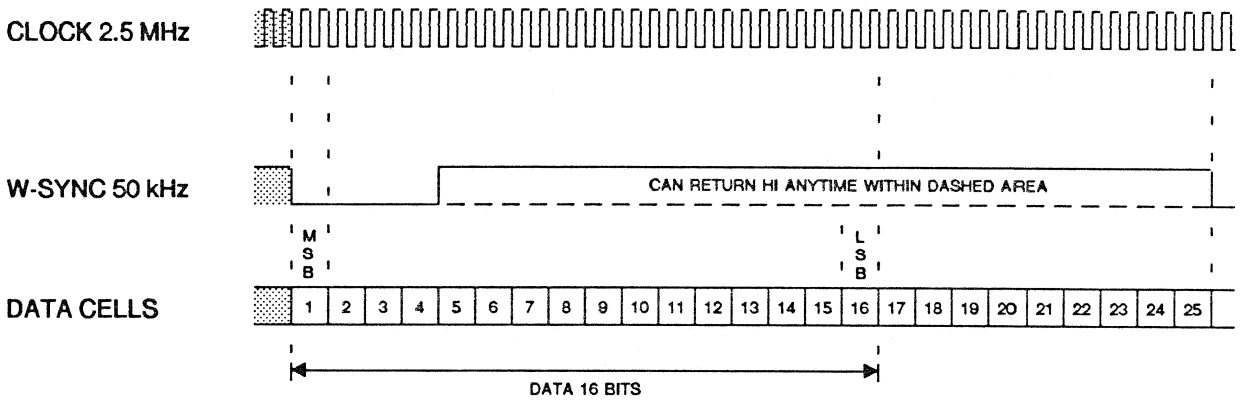
Timing diagram

The *JVC* format:



Timing diagram

The *3M* format:



Timing diagram

2.3.5.3
The Mitsubishi and Soundstream interface input

The digital outputs of Mitsubishi and Soundstream tape recorders can be connected to the DAD-16 via a 37-pole male D-type connector.

for Mitsubishi:

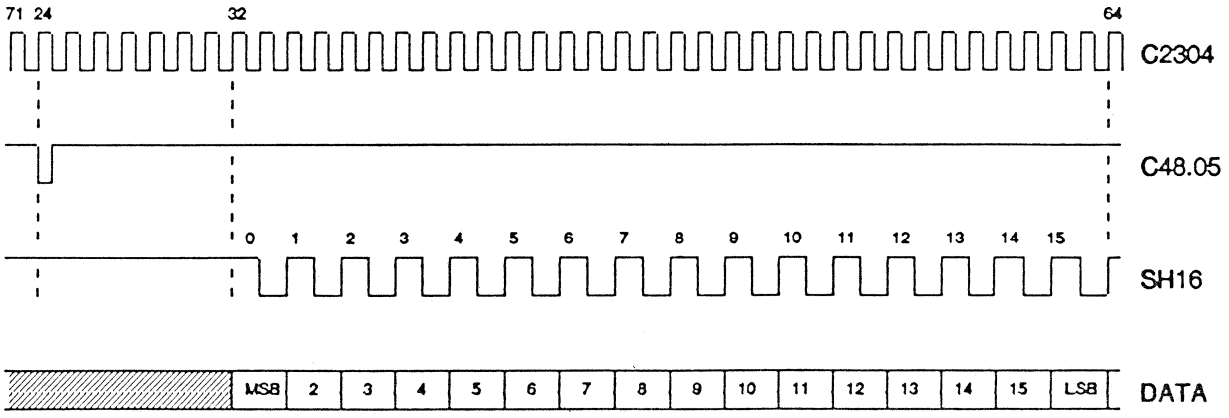
33	C48.05 positive	*Wordclock*
15	C48.05 return GND	
32	SH16 positive	*Bitclock*
14	SH16 return GND	
31	DATA L positive	*DATA CH 1*
13	DATA L return GND	
30	DATA R positive	*DATA CH 2*
12	DATA R return GND	

for Soundstream:

36	SOPLS	*Wordclock* +
18	SOPLS	*Wordclock* -
35	SI-1	*DATA-IN* 1 +
17	SI-1	*DATA-IN* 1 +
34	SI-2	*DATA-IN* 2 +
10	SI-2	*DATA-IN* 2 +
19	DTR MUX	*DATA DIRECTION*, low for output from the recorder.
37	GND	

Connections list

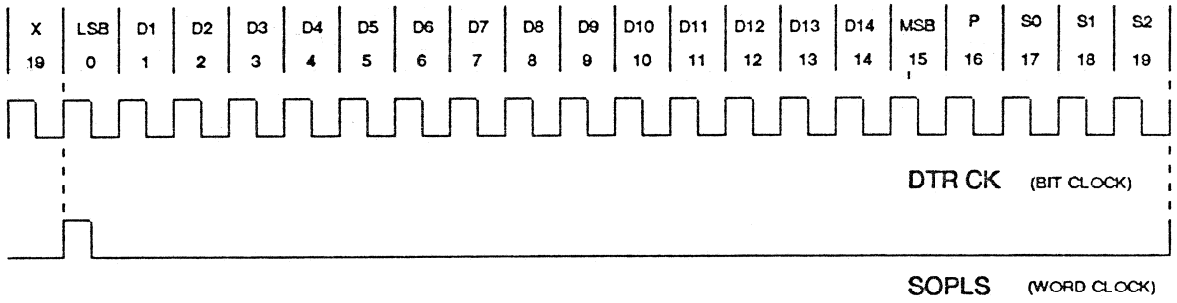
The *Mitsubishi* format:



NOTE: 1. DATA 2's COMPLEMENT
2. C2304: 20.736 MHz/9 (50% DUTY CYCLE)
3. MSB IS MOST SIGNIFICANT BIT

Timing diagram

The *Soundstream* format:



NOTES:
1. BIT 0 IS THE LEAST SIGNIFICANT BIT
2. BIT P IS THE PARITY BIT (EVEN PARITY)
3. BITS S0 - S2 ARE SYNCHRONISATION BITS AND ARE NOT INCLUDED IN PARITY COMPUTATION

Timing diagram

2.3.6
External Mute Input

Some digital tape recorders on the market today produce *clicks* at their digital outputs when they are in STOP mode. To prevent this from appearing on the disc-lacquer, the DAD-16 provides an external mute input that can be easily interfaced by the user so that as soon as the stop key on such a recorder is pressed, the digital interface in the DAD-16 mutes any incoming signals automatically.

For interfacing the external mute input refer to the schematic diagram section.

2.3.7
Remote Control Input

For easier operation in the cutting room, the DAD-16 can be remote controlled by the cutting lathe via a male 25-pole D-type socket. The remote control can be directly connected to the corresponding output of a Neumann VMS 80.

For interfacing cutting lathes other than Neumann VMS 80 please refer to the schematic diagram section.

25-pole Delta-type socket

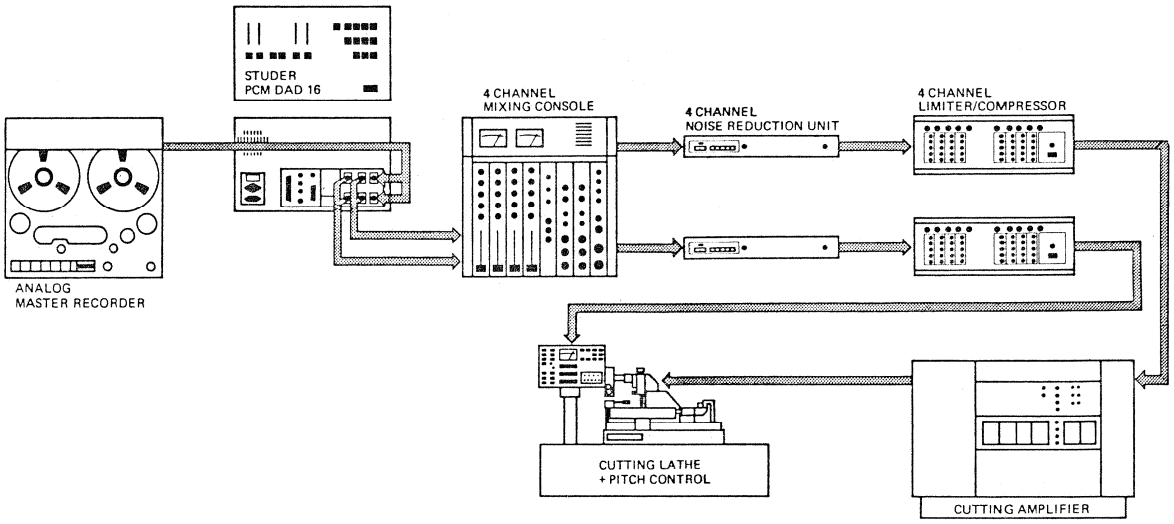
1	GND
2	GND
3	0.5
4	0.6
5	1.0
6	33 / I 45
7	HF / I FLL
8	I-Remote

BNC	Mute
"	Mute GND

2.4
Installation in the cutting room

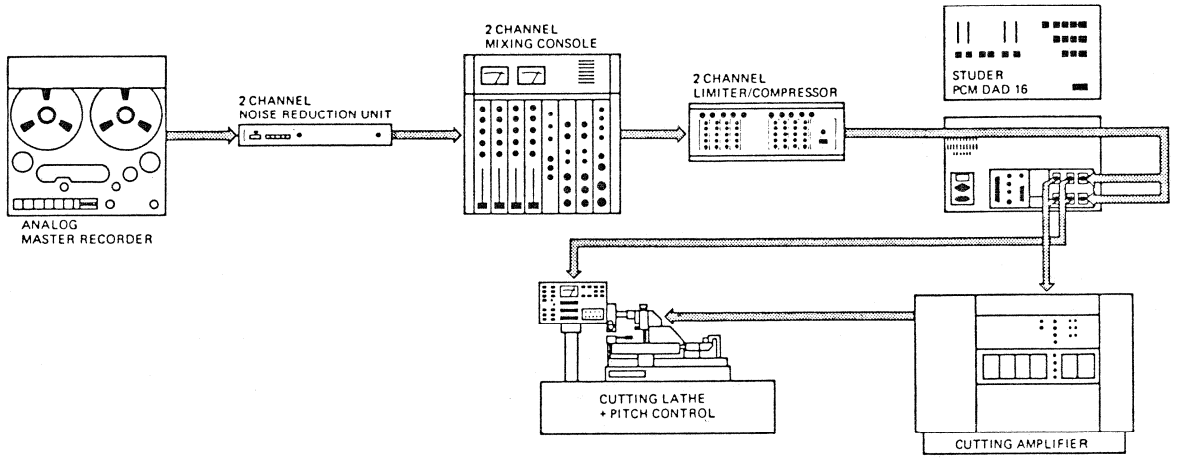
2.4.1
DAD-16 with analog master recorder

2.4.1.1
Configuration A



To set up the DAD-16 without any major changes in the cutting room installation, the preview unit is simply connected between the analog master recorder and the existing four-channel mixing console.

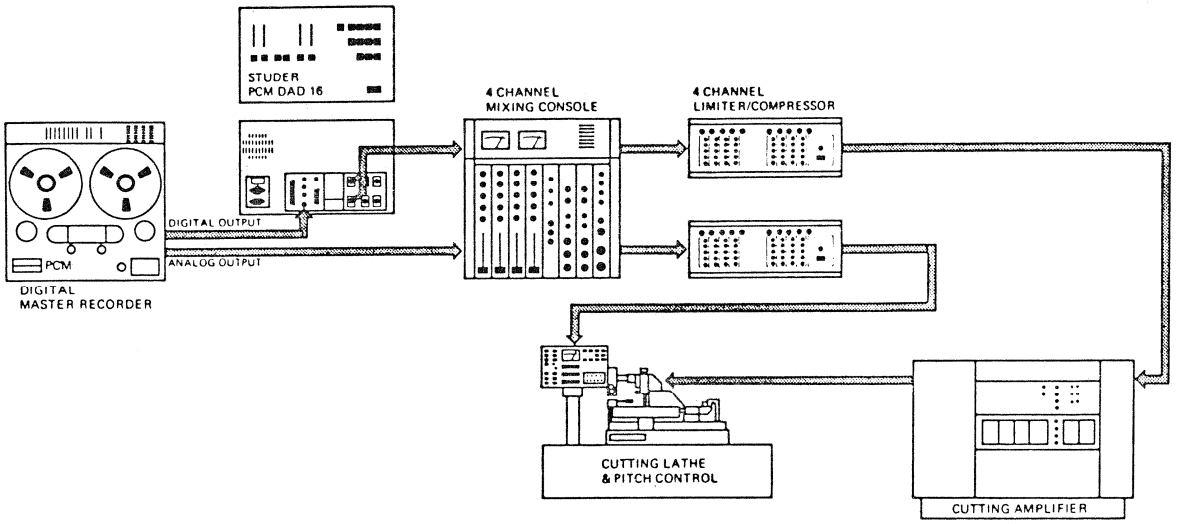
2.4.1.2
Configuration B



The advantages in using a DAD-16 in combination with an analog master recorder (Configuration B) compared to working with a conventional preview tape machine are:

- any piece of equipment can be the audio source for the cutting lathe,
- no special 4-channel mixing console is required,
- noise reduction units and compressor/limiters are required for only 2 rather than 4 channels,
- changing from 33 to 45 rpm and vice versa is achieved by pushbutton control on the DAD-16 or the Neumann lathe.

2.4.2
The DAD-16 with a digital master recorder



Since the DAD-16 does not provide an extra D-to-A converter for the preview signal, the analog output of the PCM-recorder has to be connected to the pitch control input of the cutting lathe. The four-channel mixing console and two pairs of noise reduction units and limiters are required as with an analog preview tape machine.

Section 3

Operating Instructions

OPERATING INSTRUCTIONS

3.1 Front Panel Controls

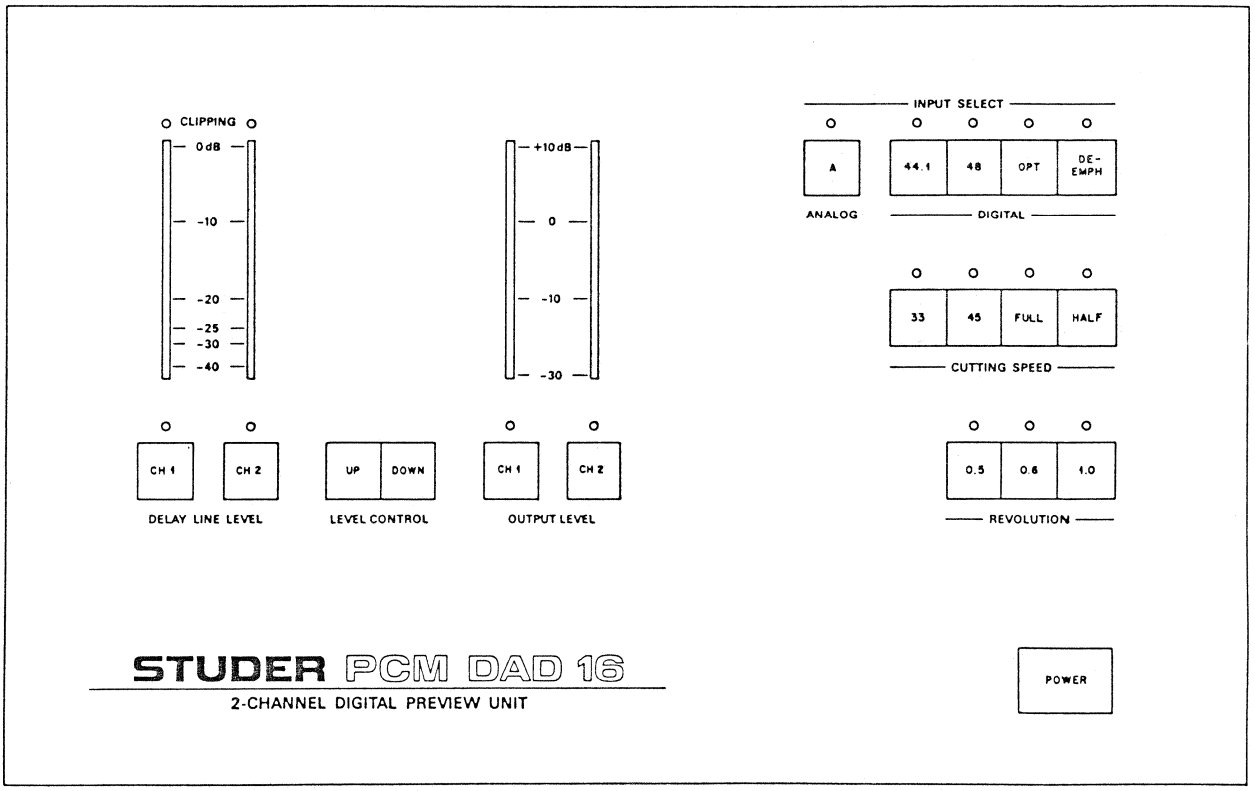


Fig. 3.1 Front Panel

All the parameters that need to be set by the user for the standard cutting configuration can be entered via the push-buttons on the front panel.

3.1.1
Power Switch

CAUTION!

Before switching on the DAD-16, check that the setting of the AC voltage selector on the back of the unit matches the local line voltage.

If the setting of the AC voltage selector is changed, also check the rating of the power fuse.

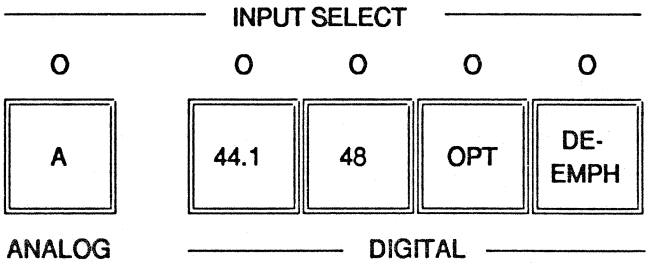
The previous operating status is automatically reestablished and indicated after the power is switched on.

Exceptions:

The channel select keys **[CH 1]**, **[CH 2]** and the de-emphasis key **[DE EMPH]** are always de-activated after power on.

3.1.2
Input Select

Input selection tells the DAD-16 wether to expect an analog input or a digital input with a given sampling frequency.



Analog

[A]:

If the DAD-16 is fitted with an Analog-to-Digital converter (model DAD-16.AD), this key selects the analog input (XLR connectors on the back of the unit) as the signal source for the digital delay line. When activated without an A-to-D converter (model DAD-16 D), the LED above the push-button starts flashing to indicate that the ADC is missing and that the unit cannot be operated in this mode.

Digital

[44.1], [48], [OPT]:

When operating with a digital recorder, the DAD-16 operates synchronously with the digital program source. The DAD-16 cannot dictate the sampling frequency of the equipment feeding it. The user has to select the same sampling frequency on the DAD-16 to adjust the correct length of the digital delay line. The DAD-16 offers the two standard sampling frequencies 44.100 kHz and 48.000 kHz plus one optional that is factory-preset at 44.056 kHz. Other optional frequencies can be selected by a jumper on the Control board (1.611.020.00) inside the unit (refer to section 7.6.1). The other available frequencies are: 50.000.kHz, 50.350.kHz and 50.400.kHz.

Other sampling frequencies than the ones listed above are an option which require an agreement with the Digital Audio Division of Studer.

After choosing the right sampling frequency, check the digital input selector (section 3.2.1) to ascertain that it is in the correct position required by the digital tape recorder connected to the DAD-16.

In case of a missing synchronisation signal (wordclock) the LED above the selected frequency key will be flashing.

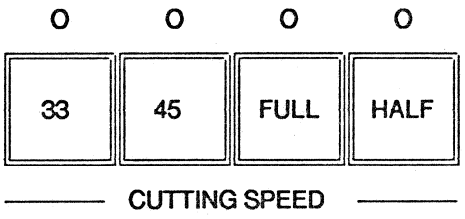
[DE-EMPH]:

Some PCM recorders in use today are equipped with pre-emphasis circuits to improve the signal-to-noise ratio of the recordings. The DAD-16 provides the de-emphasis circuitry that is necessary to equalize the frequency response of digital recordings taken with pre-emphasis when the digital input of the preview unit is used. The digital output format of Sony recorders contain a special information (emphasis flag) that tells other digital equipment whether pre-emphasis was used at the time of the recording or not. The de-emphasis inside the DAD-16 will turn on automatically when that flag is set. In this case, the de-emphasis cannot be switched off by the user. For all other formats or if the emphasis flag was lost during tape duplication, the de-emphasis can also be selected manually.

After power on, the default value is *emphasis off*.

3.1.3
Cutting Speed

Cutting speed selection indicates whether 33.33 or 45 rpm analog record lacquers are to be cut, and in half or full speed mastering.



[33], [45]:

The cutting speed is one of the parameters that determine the length of the digital delay line. Therefore 33.33 or 45 rpm must be selected.

[FULL]:

When working with normal speed analog mastering tapes, this key is to be pressed. Since digital recorders with half speed reproducing capability do not exist, **[FULL]** is always selected automatically when activating one of the digital input keys **[44.1]**, **[48]** or **[OPT]**.

[HALF]:

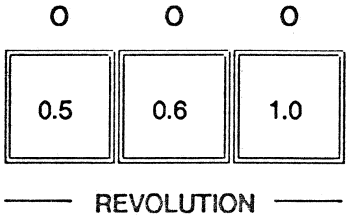
Disc cutting at half speed is possible with the DAD-16 in two ways:

1. Select **[HALF]**.
The delay time will be doubled and bandwidth reduced to 13 kHz (i.e. an effective bandwidth of 26 kHz at normal reproducing speed).

2. Select **[FULL]**.
If the cutting lathe requires a preview distance of 0.5 revolution doubling the delay time can also be achieved by selecting a preview distance of 1.0. In this mode, the equivalent bandwith of the DAD-16 at normal reproducing speed will be 42 kHz. This feature of *wide-band halfspeed mastering* does not extend to cutting lathes with 0.6 or 1.0 delay.

3.1.4
Revolution

Some cutting lathes require a time delay of one full revolution between the cutterhead and preview signal for their pitch control circuitry, while others work with a delay of either 0.6 or 0.5 revolution.

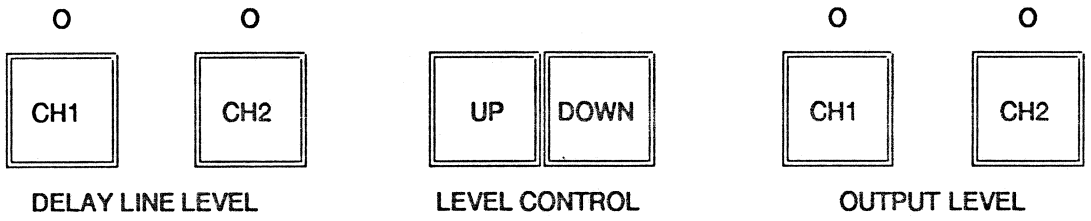


[0.5], [0.6], [1.0]:

The revolution delay of the cutting lathe determines also the length of the digital delay line. If in doubt, refer to the operating manual of the cutting lathe for the correct setting of this parameter.

3.1.5
Analog Level Control

Audio level adjustment is possible both at the A-to-D converter input and at the delayed output. For safety and ergonomics, it is not possible to adjust both levels at the same time. In both cases, levels can be adjusted for each channel individually. These level controls however, are not intended for calibrating the DAD-16, but to provide the possibility to adjust minor level changes without opening the unit. The gain of the input and output stages can be varied from -10 dB to 10 dB each (referred to calibration level). For control purposes, the gains of input and output stages of each channel can be displayed on the audio level bargraphs (for more information about level changing and calibration of the DAD-16 refer to section 6.4).



[CH 1], [CH 2]:

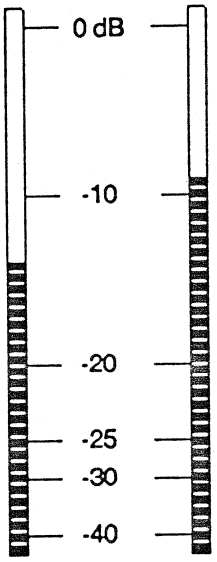
The channel select keys are toggle switches. The LED above the push-buttons is lit when the gain of the according channel can be varied.

If the CAL-switch on the Control Board (1.611.020.00) inside the DAD-16 is on the *gain display* position (see also sections 6.4.1 and 6.4.2), the channel select keys can be used to display the gain factors of the input and output stages of the preview unit. For this mode, one key has to be activated and the same or another one held down. The bargraphs will then display the gain factors instead of the audio level.

[UP], [DOWN]:

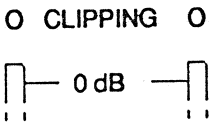
If one (or both) input or output channel is activated, the level can be varied in 0.25 dB steps by hitting the **[UP]** or **[DOWN]** key once. Keeping one of them depressed causes the gain variation to accelerate.

3.1.6
Bargraph Level Display



The bargraph level meters are very fast and accurate true peak meters with controlled decay. They are designed for calibration (section 6.4.1) and, at normal operation, to guarantee optimum use of the dynamic range of the A-to-D converter. This way the A-to-D also works as a high precision voltage meter. Since *every sample* is measured and the peak values stored and displayed, distortion-free operation of the A-to-D is always under control. The 0 dB mark means clipping level of the A-to-D converter.

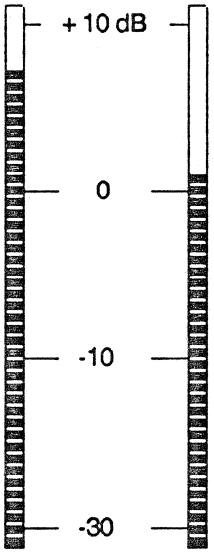
Clipping Level Display



The clipping level display helps to calibrate the analog input stage (section 6.4.1) and serves as an additional instrument for distortion-free use of the A-to-D converter.

The clipping LEDs as well as the delay line bargraphs are also active when using the digital inputs of the DAD-16.

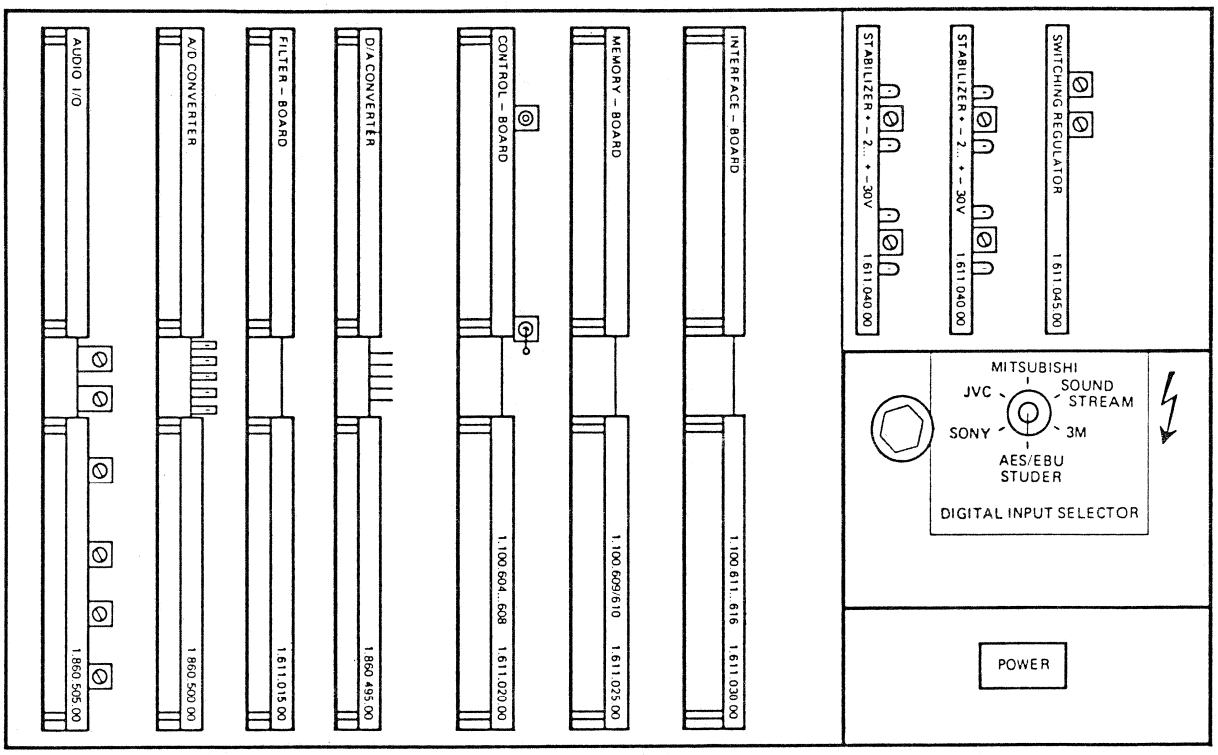
Output Level Bargraphs



The output bargraphs do not display the measured analog output signal. In order to use the same circuitry as for the input stage, the output signal of the digital delay line is measured and multiplied with the same factor as the analog signal in the level change section of the output stage.

The scaling is the same as for the input bargraphs but with an offset of +10 dB, to display output levels higher than 0 dB (if the gain of the analog output stage is higher than 0 dB).

3.2
Controls inside the DAD-16



Caution!

> When opening the unit at the front side by loosening the two top screws, DO NEVER let the front panel swing down, otherwise the hinges might get damaged and the front panel can fall down.

3.2.1
Digital Input Selector

The DAD-16 is fitted with interfaces for direct connection to digital tape recorders manufactured by Studer, Sony, JVC, 3M, Mitsubishi and Soundstream. To activate one of the custom interfaces the digital input selector (a) must be in the corresponding position.

3.2.2
Cal Switch

The 3-position switch on the controlboard (1.611.020.00) lets the user choose between two different bargraph display modes and provides also the calibration function.

Calibrate Position:

> The channel select keys on the front panel are locked and the audio level cannot be changed. The multiplying D-to-A converters are set to unity gain, i.e. in the middle of their 20 dB range of variation. This simplifies calibration. Additionally, the locked mode protects the gain of input and output stages from being changed on the front panel.

Normal Position:

> Input and output gain factor can be varied via the level change keys on the front panel.

Gain Display Position:

The *gain display* mode allows visual control of the gain factors of input and output stages of the DAD-16. If one of the channel select keys is active *and* held down, the bargraphs will display the gain instead of the audio level (see also sections 6.4.1 and 6.4.2).

3.2.3
Reset Key

The Reset key should be used only in case of power-up problems in the microprocessor circuitry for trouble-shooting purposes.

Section 4

Performance Test

PERFORMANCE TEST

This section contains performance test procedures, which can be used to verify that the DAD-16 meets the technical specifications listed in section 1.3.3. All tests can be performed without access to the back panel or components on the pc- and wire-wrap-boards.

4.1 Turn-On and Warm-Up

Before connecting AC power to the DAD-16, be certain the rear panel selector voltage switch is set to correspond to the voltage of the available power line and that the proper fuse is installed for the voltage selected. For verifying the specifications listed in section 1.3.3, the DAD-16 should be allowed to *warm-up* for at least 15 minutes.

4.2 Test Equipment Required

The test equipment required for the complete test and operation verification is listed in the beginning of each procedure.

4.3 Operational Verification

The abbreviated checks given in this chapter can be performed to give a high confidence that the DAD-16 is operating properly without executing the complete performance test. The operational verification should be useful for routine maintenance and after repair.

4.3.1 Equipment Required

Instrument	*Critical Specification*
Oscilloscope	100 MHz Bandwidth
Sinewave Generator	10 Hz ... 25 kHz
AC Voltmeter	30 V Range dB Scale, 0.1 dB
Digital Sinewave Generator	16 bit Resolution

4.3.2
Digital Input Frequency Response

Set the DAD-16 controls as follows:

Front Panel

POWER	on
INPUT SELECT	48
DE-EMPH	off
CUTTING SPEED	45
REVOLUTION	0.5

Inside the DAD-16

CAL-SWITCH	CAL
DIGITAL INPUT SELECTOR	on the position corresponding to the output format of the digital sinewave generator or of the PCM-recorder.

Connect the digital sinewave generator (or a PCM-recorder fed with the output of the analog sinewave generator) to the corresponding digital input connector on the rear panel of the DAD-16.

Connect the AC voltmeter to the Delay Output.

Sweep the test signal frequency from 10 Hz to 20 kHz.

Check if the frequency response does not show any major drops or peaks.

4.3.3
Analog Input Frequency Response

4.3.3.1
Normal Speed Operation

Set the DAD-16 controls as follows:

Front Panel

POWER	on
INPUT SELECT	A
CUTTING SPEED	45 FULL
REVOLUTION	0.5

Inside the DAD-16

CAL-SWITCH	CAL

Connect the analog sinewave generator to the analog input of the DAD-16.

Connect the AC voltmeter to the Delay Output.

Sweep the test signal frequency from 10 Hz to 20 kHz.

Check if the frequency response does not show any major drops or peaks.

4.3.3.2
Half Speed Operation

Repeat the procedure listed in section 4.3.3.1 with following changes:

Front Panel

CUTTING SPEED HALF

Sweep the test signal frequency from 10 Hz to 13 kHz.

4.3.4
Listening Test

This is probably the quickest and easiest test procedure for operational verification. Feed the DAD-16 with a musical signal and listen to the Delay Output signal through the studio monitor system. Any major failure inside the unit should be audible.

4.4
Verification of Technical Specifications

Since measurement values in the range of -90 dB are expected extreme care must be taken that no electrical interference will falsify the measurement results.

Equipment Required

Instrument	*Critical Specification*
Oscilloscope	100 MHz Bandwidth
Sinewave Generator	10 Hz ... 25 kHz 0.003% THD + Noise
AC Voltmeter	30 V Range dB Scale, 0.1 dB
Distorsion Measurement Equipment	- 90 dB Resolution [0.003%]
Digital Sinewave Generator	16 bit Resolution

4.4.1
Digital Input

Note:
To verify THD + Noise specifications of the digital input of the DAD-16 it is necessary to use a digital sinewave generator as the signal source. The combination of a PCM-recorder and an analog sinewave generator is not recommended.

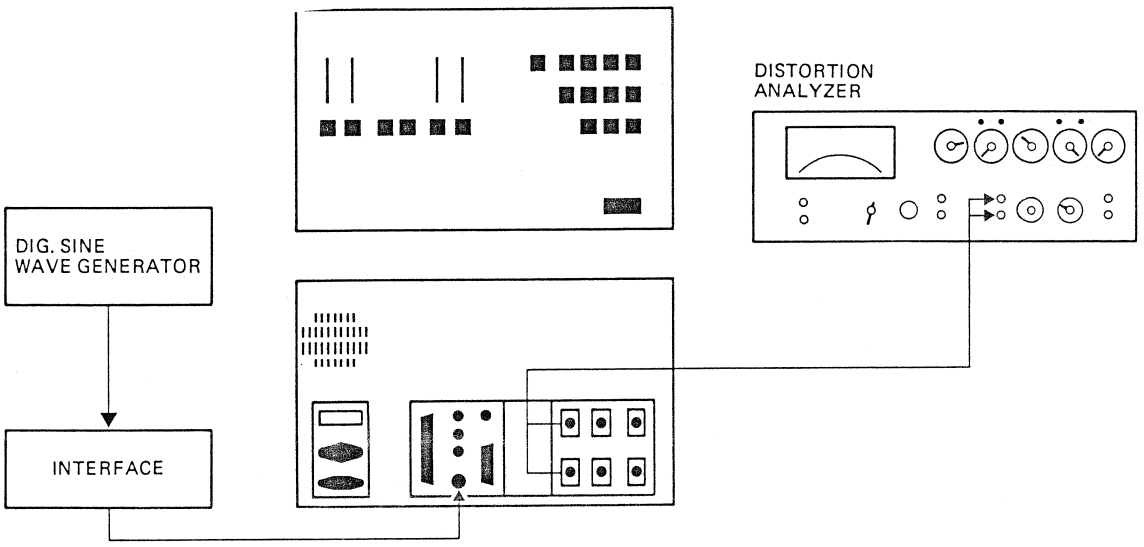


Fig. 4.1 Verification of Digital Input Specifications

Feed the digital input of the DAD-16 with a full magnitude signal for all measurements.

Set the DAD-16 controls as follows:

Front Panel

POWER	on
INPUT SELECT	48
DE-EMPH	off
CUTTING SPEED	45
REVOLUTION	0.5

Inside the DAD-16

CAL-SWITCH	CAL
DIGITAL INPUT SELECTOR	on the position corresponding to the output format of the digital sinewave generator.

Note:
For all the THD + Noise measurements use a 30 kHz lowpass filter to prevent high frequency components from influencing the results.

Verify the specified values for the digital input listed in section 1.3.3.1.

4.4.2
Analog Input

All the specifications of the DAD-16 with the analog input in use can be verified conventionally with high quality measuring equipment.

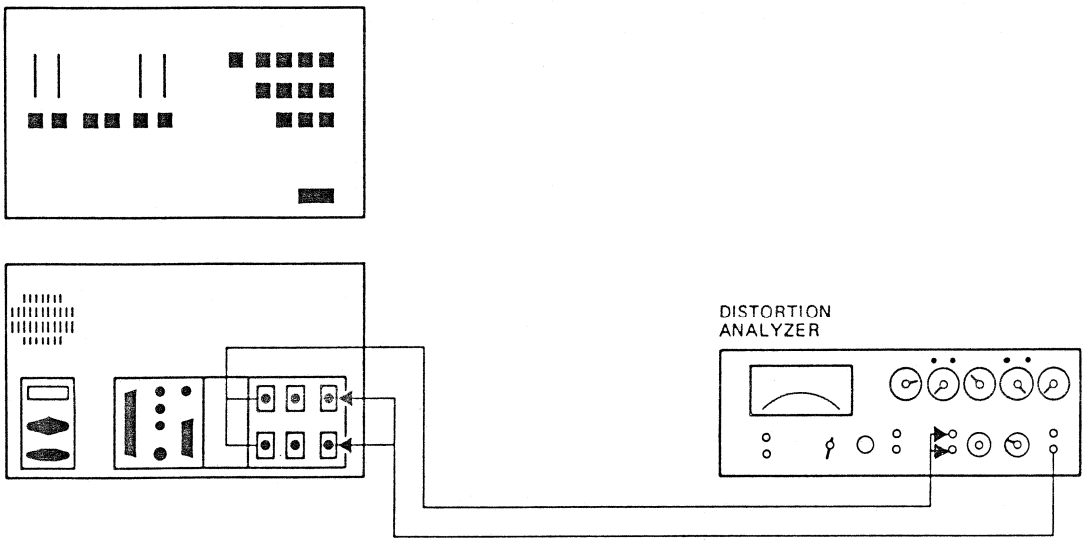


Fig 4.2 Verification of Analog Input Performance

Note:

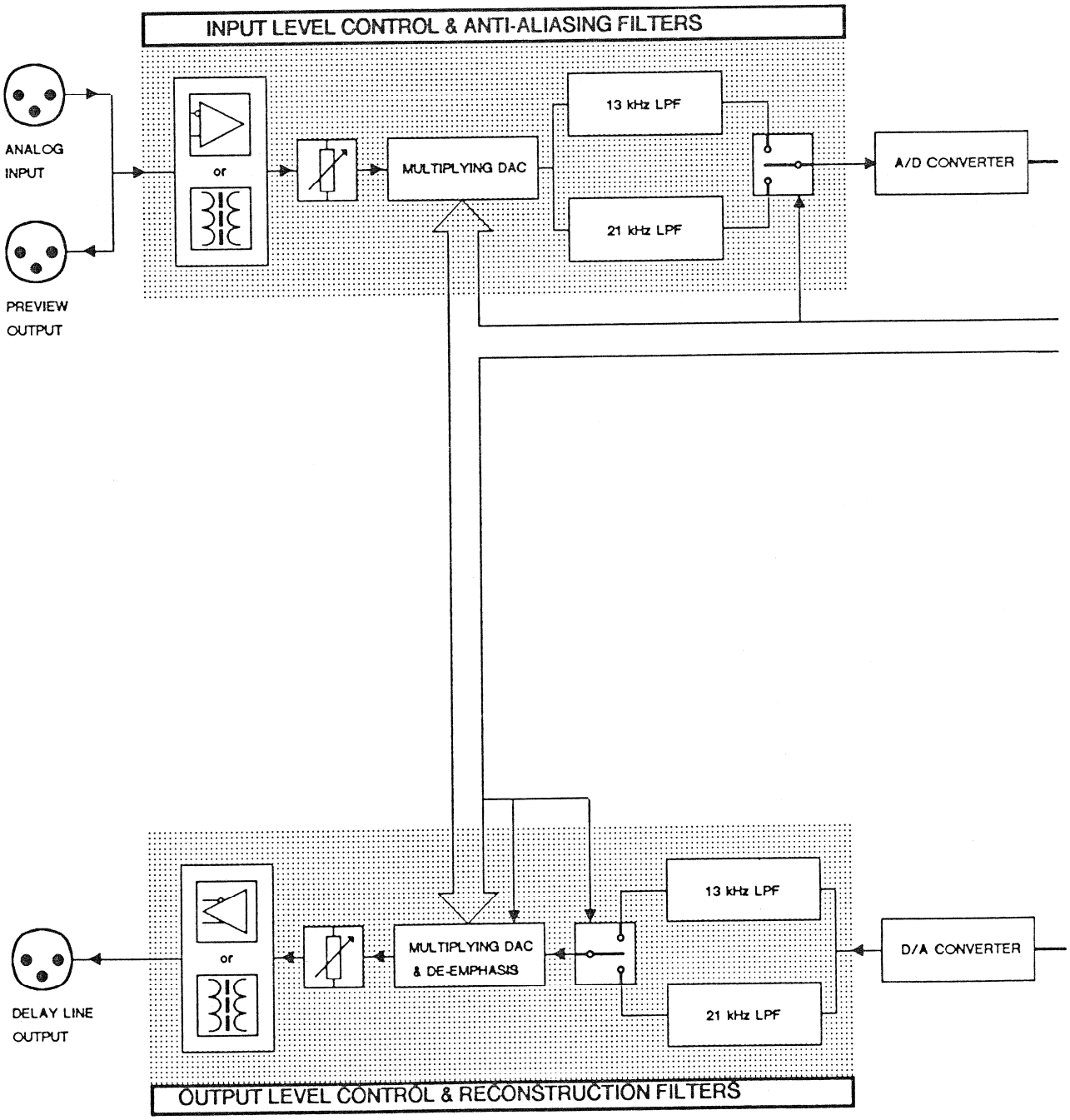
For all the THD + Noise measurements use a 30 kHz lowpass filter to prevent high frequency components from influencing the results.

Section 5

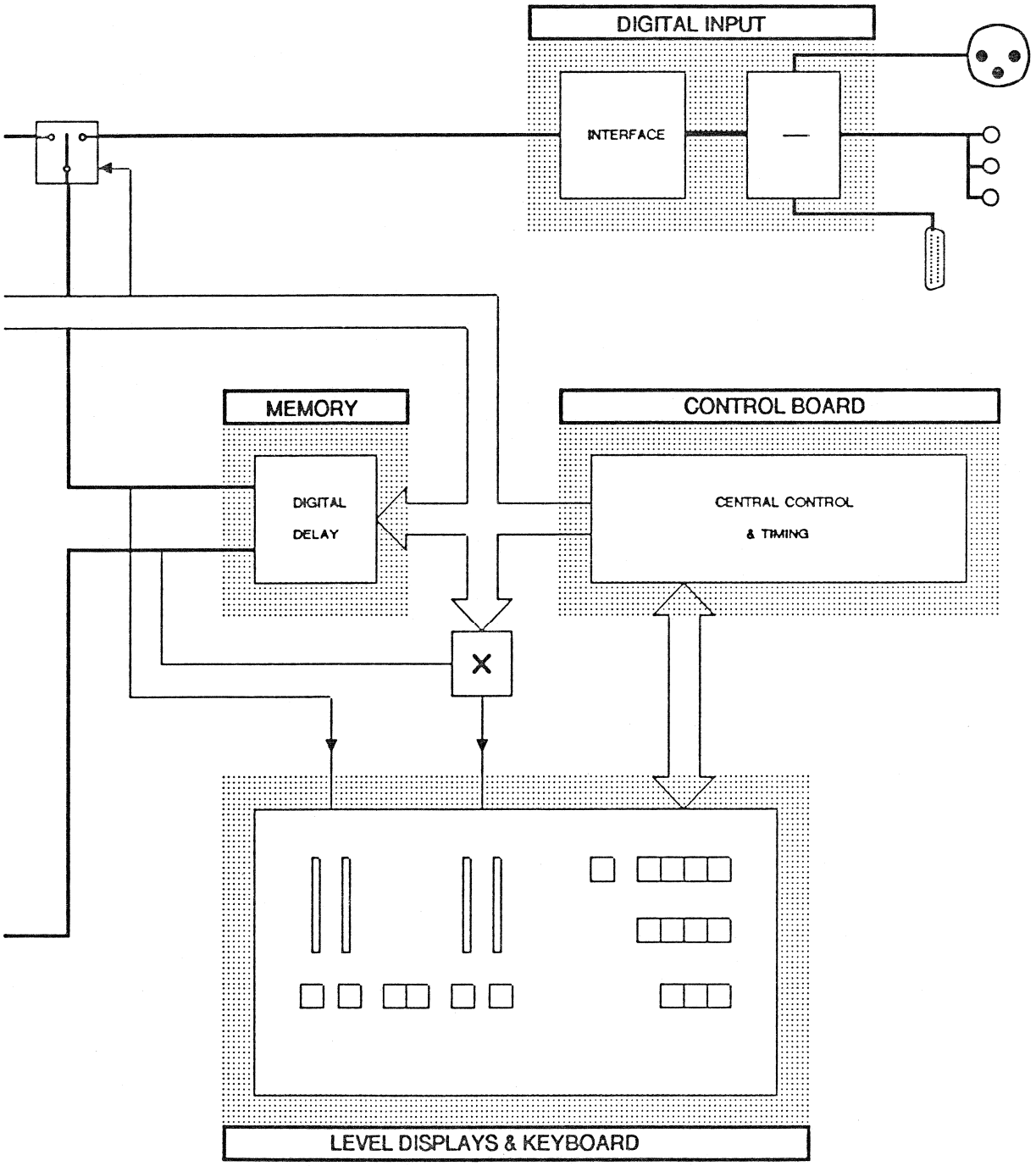
Theory of Operation

Fig 5.1
Block Diagram

Analog Section



Digital Section



THEORY OF OPERATION

Fig 5.1 shows a simplified block diagram of the DAD-16 Digital Preview Unit. The DAD-16 accepts analog signals as well as a number of different digital formats as input signals and provides the delays necessary for operating all types of cutting lathes in use today. It features ergonomic parameter entry and State-of-the-Art digital audio specifications.

5.1
Analog Input, Level Control and Anti-Aliasing Filters

5.1.1
Analog Input Stage

The analog input signal is translated into a reference-to-ground signal by the input balancing unit, which can be operated with transformers or electronically balanced amplifiers by soldering the appropriate jumpers. The input stage with transformers features active compensation and has extremely low noise and distortion. It is recommended whenever good common mode rejection is required. If common mode is not a problem, the transformerless input stage offers additional improvement in THD + Noise.

5.1.2
Level Control Circuit

The input level calibration is achieved by adjusting the *on-board* potentiometers. Additional level control is provided by high linearity multiplying Digital-to-Analog converters. These devices allow digitally controlled level adjustment of high quality analog signals. In case of the DAD-16, this is accomplished through the microprocessor on the Control Board (1.611.020.00).

Note:

The multiplying DACs should be used for minor level adjustments only. For calibration of the unit use the potentiometers on the Audio I/O Board (1.860.505.00).

5.1.3
Anti-Aliasing Filters

The anti-aliasing filters for normal and half speed disc cutting are 9th order low-pass filter with a bandwidth of 21 kHz and 13 kHz respectively. They prevent the Analog-to-Digital converter (ADC) to produce non-harmonic distortion in case of an input signal containing high frequency components. The filters are an active, phase-compensated FDNR-type design of low sensitivity to component tolerances. They (as all analog circuits in the DAD-16) require no adjustment.

Note: FDNR is a short form for Frequency Dependent Negative Resistor. FDNR designs make it possible to implement high quality analog filters with RC circuitry rather than coils, thus reducing distorsion.

5.2
Analog to Digital Conversion

The filtered input signal is sampled and converted to high quality digital audio. A novel circuit for track and hold is used. The sampling frequency in analog normal speed mastering is 48 kHz, the standard sampling frequency for professional PCM studio equipment.

In half speed mastering, the sampling frequency is 32 kHz (the equivalent of 64 kHz at normal speed) rather than 24 kHz, to provide smoother filtering and greater bandwidth.

5.3
Digital Input

In the case of a digital audio source (as a PCM recorder), the input signal is applied to the digital input connectors. The internal timing will be synchronised to the external wordclock, when one of the digital input push buttons is selected. If the wordclock is missing (e.g. the PCM-recorder is turned off) the LED above the selected key will flash. The DAD-16 is then synchronised to its internal reference frequency.
The digital input selector inside the DAD-16 (see section 3.2.1) activates the hardware corresponding to the position of the switch.

5.4
Memory

The digital signal from the A/D Converter (1.860.500.00) or the Interface Board (1.611.030.00) (depending on which is active) is written into a random access memory (RAM). The memory is fitted both with 16-bit parallel and differential serial inputs and outputs for each channel. Addressing of the 16-bit data words is achieved via a 17-bit address bus. The refresh-cycle of the 64K x 1 bit dynamic RAM chips is generated by on-board circuitry as well as the read and write commands. All the timing signals are identical for both channels but buffered and terminated separately, thus making trouble-shooting easier.

The standard memory size allows operation for all types of cutting lathes and mastering configurations (33.33, 45.00 rpm, normal or half speed).

5.5
Digital to Analog Conversion

The output of the Memory Board (1.611.025.00) is fed into the Digital-to-Analog Converter (1.860.495.00) where the digital data is transformed back into an analog signal. Digital-to-Analog conversion is achieved by a high linearity 14-bit monolithic DAC and extended by separate conversion of the two LSBs (least significant bits) through an 8-bit DAC and analog addition of the output currents of the two converters. The analog sum is re-sampled (deglitched) for reduced distortion in the filter stages. Thus, the quality of 16-bit Digital-to-Analog conversion is within approximately 3 dB of its theoretical value.

5.6
Reconstruction Filters and Output Level Control

5.6.1
Reconstruction Filters

The reconstruction filters are 13th order low-pass filters to prevent any high frequency components of the converted signal to appear at the output of the preview unit. The filters are also an active, phase-compensated, FDNR-type design similar to the anti-aliasing filters and feature worst-case THD + Noise compatible with 16-bit digital audio.

5.6.2
Output Level Control Circuit

After the reconstruction filters the gain of the output stage is adjusted by a multiplying Digital-to-Analog converter (for small variations of the required output level) and the output level potentiometers on the Audio I/O Board (1.860.505.00) for calibration purposes.

5.7
Differential (balanced) Output Stage

The output balancing unit allows operation with or without transformers by soldering the appropriate jumpers. As with the input stage the output transformer is compensated with active circuitry. Advanced design techniques have led to a transformer output stage that outperforms most transformerless output stages in use today. When operated without transformers, the output balancing unit has an audio quality compatible with 16-bit digital audio. When operated with transformers, the output stage shows very little degradation in specs.

The transformer stages, if required by the user's specific application, will introduce no measurable deterioration in signal quality under normal conditions.

Both types of output stages can be operated single ended (asymetrically) without any loss of dynamic range or signal quality.

5.8 Control Board

The circuitry of the Control Board (1.611.020.00) can be divided into four sections:

1. Providing the master clock reference frequency and synchronisation of the timing of the DAD-16 to that reference.
2. Generation of the adresses for the Memory Board (1.611.025.00) and the timing signals for the A/D Converter Board (1.860.500.00) , the D/A Converter Board (1.860.495.00) and the Interface Board (1.611.030.00).
3. Digital audio level meter circuitry and gain factor registers.
4. A 6803 processor that controls the following functions:
   - read-in from keyboard,
   - display of the machine status,
   - computation of the gain factors for the multiplying DACs,
   - storage of the parameters at power down.

The microprocessor clock is derived from the PLL output frequency. This means, that all digital circuits in the DAD-16 are operating synchronously and the parameter transfer from the microprocessor peripherals to the multipliers in the display section cannot interfere with the sampling frequency.

5.9 Level Display and Keyboard

For easy and comfortable handling, the front panel of the DAD-16 consists of a keyboard that offers ergonomic parameter entry and status display of the preview unit.

In order to guarantee distortion-free operation of the unit, level displays for both input and output are provided. The level display bargraphs are multiplexed by the Timing PROM on the Control Board (1.611.020.00).

The microprocessor reads the keyboard and debounces the toggle functions [CH1], [CH2] and [DE-EMPH]. The status LEDs above the pushbuttons are directly multiplexed under software control.

5.10 Power Supply

The Power Supply consists of a mains transformer (1.611.064.00), a switching regulator (1.611.045.00) for the +5 Volt digital circuits voltage and two linear stabilizer boards (1.611.040.00) for the analog circuits.

The input voltage of the mains transformer can be adjusted by the mains voltage selector on the rear side of the unit.

For the required ±15 Volt and ±24 Volt two identical boards are used. This means that the two pc-boards can be swapped for trouble-shooting.

The stabilizer boards and the switching regulator are protected against short-circuits.

Section 6

Service

SERVICE

6.1 Introduction

This section contains complete adjustment procedures and service information for the DAD-16 digital preview unit. After the DAD-16 has been adjusted according to the procedures given in the *calibration* section, it should meet the specifications listed in section 1.3.3.

Adjustment must be made when required, such as after installation of the unit or when components are replaced that may affect an adjustment.

6.2 Recommended Test Equipment

Instrument	Critical Specification	Use
Oscilloscope	100 MHz Bandwidth	P, A, T
Sinewave Generator	10 Hz ... 25 kHz 0.003% THD + N	P, A, T
DC Voltmeter	30 V Range 0.05 V Resolution	A, T
AC Voltmeter	30 V Range dB Scale, 0.1 dB	P, A, T
Distorsion Measurement Equipment	- 90 dB Resolution [0.003%]	P, A, T
Digital Sinewave Generator	16 bit Resolution	P, A, T
Logic Analyzer	8 bit data, 16 bit address trigger range	T

P: Performance checking A: Adjustment T: Test

6.3
Maintenance Hints for Service Personnel

6.3.1
Safety Considerations

Although this unit has been designed in accordance with international safety standards, this manual contains information, cautions and warnings which must be followed to ensure safe operation and to maintain the unit in safe operating condition. Service and adjustments should be performed by qualified service personnel only.

Caution!

When opening the unit at the front side by loosening the two top screws, DO NEVER let the front panel swing down, otherwise the hinges might get damaged and the front panel can fall down.

Any adjustment, maintenance and repair of the opened unit while any power or voltage is applied should be avoided as much as possible and, when inevitable, should be carried out only by a skilled person who is aware of the hazard involved.

Warning:

Any interruption of the protective grounding conductor (inside or outside the unit) or disconnection of the protective earth terminal is likely to make the instrument dangerous. Intentional interruption of the protective grounding conductor is strictly prohibited.

It is possible for capacitors inside the unit to still be charged even if the unit has been disconnected from its power source.

Be certain that only fuses with the required current rating and of the specified type are used for replacement. The use of repaired fuses and the short-circuiting of fuse holders must be avoided. Whenever it is likely that this protection has been impaired, the DAD-16 must be made inoperative and be secured against any unintended operation.

6.3.2
Abbreviations

A	:	assembly
ANT	:	antenna
B	:	bulb
BA	:	battery, accumulator
BR	:	optocoupler (bulb ==> LDR)
C	:	capacitor
D	:	diode, DIAC
DL	:	LED
DLQ	:	optocoupler (LED ==> phototransistor)
DLR	:	optocoupler (LED ==> LDR)
DLZ	:	LED array, 7-segment display
DP	:	photodiode
DZ	:	rectifier
E	:	electronic part
EF	:	headphones
F	:	fuse
FL	:	filter
H	:	head (sound-, erase-)
HC	:	hybrid circuit (thick/thin film)
HE	:	hall element
IC	:	integrated circuit (IC)
J	:	jack (female)
JS	:	jumper
K	:	relais, contactor
L	:	inductor
LS	:	loudspeaker
M	:	motor
ME	:	meter
MIC	:	microphone
MP	:	mechanical part
P	:	plug (male)
PU	:	pick up
Q	:	transistor, FET, thyristor, TRIAC
QP	:	phototransistor
QPZ	:	phototransistor array
R	:	resistor
RP	:	light depending resistor (LDR)
RT	:	temperature sensitive resistor
RZ	:	resistor array
S	:	switch
T	:	transformer
TL	:	delay line
TP	:	test point
W	:	wire, stranded wire
X	:	socket, holder
XB	:	lamp socket
XF	:	fuse holder
XIC	:	IC-socket
Y	:	quartz, piezoelectric element
Z	:	network, array

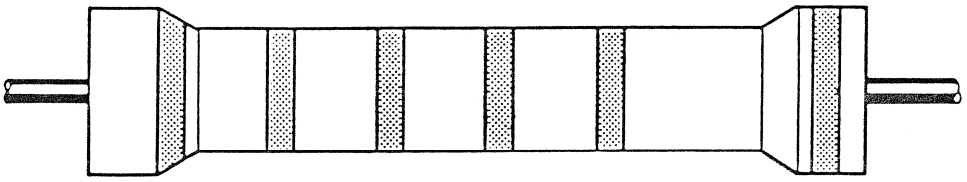
6.3.3
Powers of 10

Name	Abbreviation	Value
Tera-	T	10**12
Giga-	G	10**9
Mega-	M	10**6
Kilo-	k	10**3
Milli-	m	10**-3
Micro-	μ	10**-6
Nano-	n (mμ)	10**-9
Pico-	p (μμ)	10**-12
femto-	f	10**-15

frequently used in the United States

6.3.4
Codes letters and colors

Resistors



Colour	Digit	Multiplier	Tolerance	Temp.-coefficient
gold	-	0.01	5 %	-
silver	-	0.1	10 %	-
black	0	1	-	-
brown	1	10	1 %	100 * 10 ** -6 / K
red	2	100	2 %	50 * 10 ** -6 / K ##
orange	3	1 k	-	15 * 10 ** -6 / K
yellow	4	10 k	-	25 * 10 ** -6 / K
green	5	100 k	0.5 %	-
blue	6	1 M	0.25 %	-
violet	7	10 M	0.1 %	-
grey	8	-	-	-
white	9	-	-	-

either no mark for temperature coefficient, or red.

Capacitors

The tolerance category is sometimes specified by a letter after the rated capacitance.

D = 0.5 %
F = 1 %
G = 2 %
J = 5 %
K = 10 %
M = 20 %

Inductors, transformers

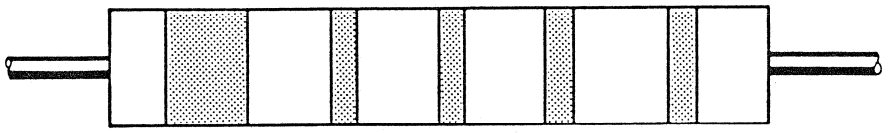
- Molded RF coils

A wide silver-colored ring and 4 thin, differently colored rings identify molded RF coils. The wide silver ring indicates the start of the counting direction. The second, third, and fourth ring indicate the inductivity in micro Henry (µH), where two of the rings represent the numeric value, the third one either a multiplier or the decimal point. In the latter case it has a golden color. The fifth ring identifies the tolerance in percent (plus/minus).

Examples:

Colour	Digit	Multiplier	Tolerance
black	0	1	-
brown	1	10	1 %
red	2	100	2 %
orange	3	10**3	-
yellow	4	10**4	-
green	5	10**5	0.5 %
blue	6	10**6	-
violet	7	10**7	-
grey	8	10**8	-
white	9	10**9	-
gold	-	-	5 %
silver	-	-	10 %
no	-	-	20 %

Examples:



- Inductors, transformers on ferrite cores

Inductors and transformers on ferrite cores are marked with three colored dots (for color code refer to the table in the section Resistors, two left-hand columns). These dots represent the last three digits of the STUDER standard number, the large dot identifies the start. The first digits of the standard number (1.022.---) are always the same.

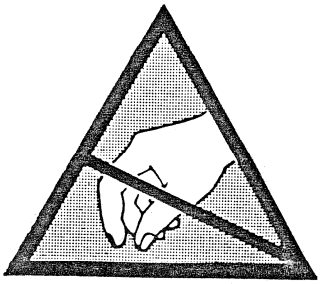
E.g.: Driver transformer, 150 kHz
Standard number: 1.022.211
Color code: red (large colored dot), brown, brown

Terminal 1 of the winding form is usually identified by a lobe; if not the winding form features a yellow dot near the terminal No. 1.

6.3.5
Handling MOS Components

MOS components are extremely sensitive to static charges. Please observe therefore the following regulations:

Components sensitive to static charges are stored and shipped in protective packages. On these packages you find the subsequent symbol.



Avoid any contact of connector pins with foam packages and -foils made of styropor or similar chargeable material.

Don't touch the connector pins when your wrist is not grounded with a conducting wristlet.

Use a grounded conducting mat when working with sensitive components.

Never plug or unplug PCBs containing sensitive components when the unit is switched on.

6.4
Calibration

This section is very important for the best possible performance of the DAD-16 and should be read and considered before cutting the first lacquers. In order to guarantee optimum use of the D-to-A's dynamic range and distortion-free operation of the DAD-16, calibration of the preview unit should be executed as described in the following paragraphs.

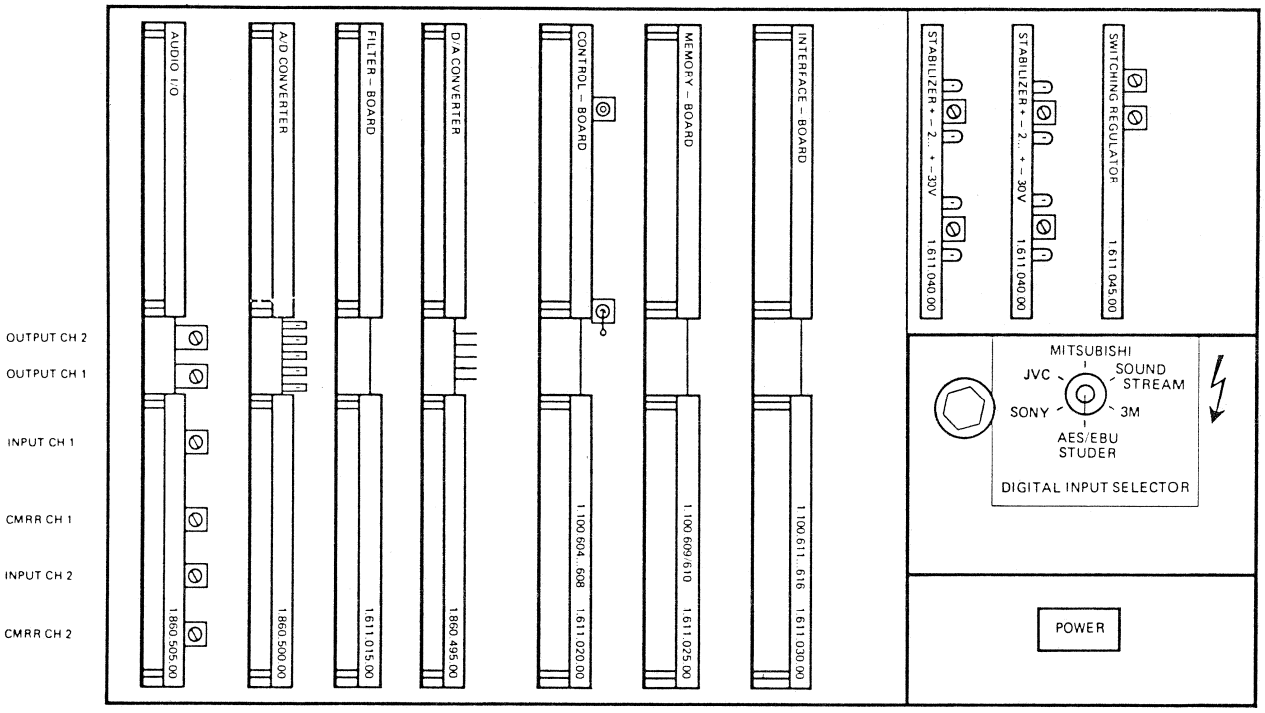


Fig.6.3.a. Input sensitivity and output level potentiometers.

Important:

For all adjustments via potentiometers, set the Cal Switch onto position *calibrate*.

6.4.1
Calibration of Input Sensitivity

Open the Preview unit by loosening the two screws at the top of the front panel. Don't let the front panel swing down, otherwise the hinges might get damaged.

Set the Cal Switch on the Control Board (1.611.020.00) on position *calibrate*.

Feed the DAD-16 with a test signal (preferrably 1 kHz sinewave) at the required clipping level (clipping level = operating level + headroom).

Adjust the input sensitivity by turning the input level potentiometer on the Audio..I/O..Board (1.860.505.00) until the bargraph display reaches the 0 dB mark, but the *clipping*-LED does not flash. The DAD-16 input stage is now calibrated within 0.5 dB of the required clipping level.

6.4.2
Calibration of Analog Outputs

Calibration of the analog output stage can be accomplished in a number of ways:

By using the calibrated input stage as reference.

By connecting a PCM recorder to the digital input of the DAD-16 and feeding a test signal into the recorder's analog input.

By using the digital sinewave generator.

6.4.2.1
Calibration of Analog Outputs via Analog Input

Calibrate input as described in section 6.3.1 and keep feeding the unit with the test signal.

Connect the AC Voltmeter equipped with a dB-scale to the delayed output of the DAD-16.

Adjust the output gain potentiometers on the Audio I/O Board (1.860.505.00) to the required output level.

Important:
The output level display will not change when the gain is varied on the Audio.I/O.Board (1.860.505.00).

6.4.2.2
Calibration of Analog Outputs via Digital Input (model DAD-16 D)

Connect the digital sinewave generator, equipped with an interface delivering an output signal according to one of the input formats supported by the DAD-16, to the Digital Input connector.

If the digital sinewave generator is not available, use the digital output of a PCM-recorder that can be connected directly to the digital input of the DAD-16.

Check the digital input selector if it is in the correct position.

The Cal Switch must be on *calibrate*.

De-emphasis must be off.

Set the digital sinewave generator to full magnitude at 1 kHz.

In case of using a PCM recorder (instead of a digital sinewave generator), feed its analog input with a test signal (preferrably 1 kHz sinewave) at clipping level.

Adjust maximum output level as described in section 6.3.2.

6.4.3
Power Supply Adjustments

The power supply provides the 5 different stabilised voltages for all the electronic circuits of the DAD-16. It consists of two identicals linear stabilizers (1.611.040.00) and one switching regulator (1.611.045.00).

The stabilized voltages are:

+5 Volt / 6 A:	for all the digital circuits.
+24 Volt / 1.5 A, -24 Volt / 1.5 A:	for the differential amplifier of the analog output (-24 Volt is also used for the D-to-A converter).
+15 Volt / 1.5 A, -15 Volt / 1.5 A:	for all the other analog circuits.

All these voltages are factory-set and should not require re-adjustment. In case of replacement of one or more boards (digital or analog) of the DAD-16, the voltages should be checked and adjusted if necessary.

All the voltages should be within 5% of their nominal value.

6.4.3.1
Adjustment of Linear Stabilizers

This procedure relates to both the ±15 Volt and the ±24 Volt Stabilizer Board (1.611.040.00).

Connect the DC Voltmeter to testpoints **A** (ground) and **B** (positive voltage). Adjust the voltage via the potentiometer between the testpoints. The negative supply voltage can be measured between testpoints **C** (ground) and **D** (negative voltage). Adjustment of the negative voltage is done through the potentiometer between the testpoints.

Note:
Since the pc-boards of the two linear stabilizers (1.611.040.00) are identical they can be swapped for test purposes. The voltage range is programmed on the backpanel, so no damage can occur if both boards have been pulled out of the unit and re-inserted in the wrong slot. Then, however, the correct voltage setting is not guaranteed. Therefore it is important to check the voltages after having both stabilizer boards removed and re-inserted.

6.4.3.2
Adjustment of the Switching Regulator

The switching regulator (1.611.045.00) provides two potentiometers to adjust the current limit and the voltage. Current limiting should always be on the maximum setting while the voltage must be adjusted to +5 Volt (±5%) measured on one of the digital boards.

Connect the DC Voltmeter to the ground-testpoint on one of the wire-wrapped boards (there are four ground-testpoints) and to the positive terminal of the 470 µF close to the card connector. The +5 Volt is adjustable through the lower of the two potentiometers.

6.5
Trouble-shooting Information

If the DAD-16 ceases to function normally, follow the test procedures described in the next paragraphs. If this fails to restore normal operation, please contact the nearest Studer office or local representation.

Trouble-shooting for the DAD-16 is performed by selectively isolating and verifying the proper operation of the various circuit sections.

Notes:

Before connecting probes and measurement equipment to the inside of the DAD-16 check all the fuses on the different boards.

If only one channel seems to be dammaged, compare the individual signals of the two channels. This may accelerate trouble-shooting.

To remove the rear cover of the unit, loosen the 2 screws in the center of the side planes of the DAD-16. After pulling off the rear cover for about 2 inches, disconnect the fan plug.

Caution!

When opening the unit at the front side by loosening the two top screws, DO NEVER let the front panel swing down, otherwise the hinges might get damaged and the front panel can fall down.

6.5.1
Power Supply

To verify the proper operation of the DAD-16 power supply, measure the five DC voltages on the test points described in section 6.3.3. Make sure that all five are within 5% of the nominal ratings, readjust if necessary.

6.5.2
Front Panel

To verify the proper operation of the front panel, press one key after the other and check the according status-LED.

If the keyboard works perfectly and the status is displayed correctly, the microprocessor program is executed as required.

If one of the LEDs does not light, but the function of the corresponding switch is performed properly, replace the LED. In case of an irregularly displayed status, check the microprocessor circuitry on the Control Board (1.611.020.00).

If one of the bargraph LEDs is out of order, replace the *10 in line* LED array. If one of the bargraphs does not light at all, check the discrete Darlington driver on the Front Panel pc-board (1.611.010.00).

6.5.3
Balanced Input Stage

Apply the calibration test signal (1 kHz sinewave) to the analog input of the DAD-16 and measure the level at the OUT FIL 2 pin location on the Analog I/O Board (1.860.505.00). If it is not present, use the test signal to trace it back through the previous stage.

6.5.4
Input Gain Control

After the input stage, the signal path leads to the multiplying D-to-A converters on the Filter Board (1.611.015.00) for the digitally controlled input gain. Check the presence of the test signal before and after the multiplying D-to-A converter.

6.5.5
Anti-Aliasing Filters

The Schematic Diagrams Section provides a level diagram (7.5.1.12 and 7.5.3.3 for normal and half speed filters respectively) to check the different filter stages. In case of a measured value out of the indicated tolerances, replace the operational amplifier of the corresponding filter stage.

6.5.6
Full/Half Speed Relay

Selection of the anti-aliasing filter (21 kHz or 13.5 kHz bandwidth for normal or half speed respectively) is accomplished by relays on the Filter Board (1.611.015.00). To verify proper operation of the relays, select half speed mode on the front panel. The relays should then be activated for both input and output half speed filters.

6.5.7
Analog to Digital Converter

To verify proper operation of the Analog-to-Digital converter, check the presence of the test signal at the analog input pin location on the A/D Converter Board (1.860.500.00). Connect the external trigger input of the oscilloscope to the WSync testpoint, one input probe (A) to the BCLK testpoint and the other one (B) to the DATA testpoint. The timing signals should be identical to the timing diagram provided in the Schematic Diagrams section (Control Board (1.611.020.00)).

If one of the timing signals is not present, check the Timing PROM on the Control Board (1.611.020.00).

Data from the A-to-D converter is transmitted serially (differential) to the Memory Board (1.611.025.00).

6.5.8
Digital Inputs

Connect the digital sinewave generator (1 kHz, full magnitude) or the digital output of a PCM recorder to the digital input of the DAD-16. Ensure that the position of the digital input selector corresponds to the digital output format of the equipment feeding the preview unit.

If the Bargraph Level Dislay (see section 3.1.6) does not indicate the presence of an input signal, check if the Digital Input Select (see section 3.1.2) on the front panel is activated.

Ensure that the PLL circuit on the Control Board (1.611.020.00) synchronises to the external *wordclock* and the PLL output frequency is transmitted back to the Interface Board (1.611.030.00). The on-board timing signals are derived from that frequency. A timing diagram with the content of the Timing PROM on the Interface Board (1.611.030.00) is provided in the schematic diagram section.

The timing diagrams of the various input formats are provided in Section 2.

All the serial data is converted to a 16 bit parallel format and conducted to the parallel input of the Memory Board (1.611.025.00).

Note:

The jumper JSJ 306 determines the signal delay of IC 307. If any components in the AES/EBU interface are replaced, this delay should be checked and if necessary corrected by changing the jumper's position. The signal delay must be between 120 ns and 180 ns.

6.5.9
Memory Board

The audio data from the Analog-to-Digital converter is transmitted serially to the balanced input of the memory, while the interface output is connected to the 16-bit parallel input register. The local timing is derived from the 3 MHz clock (local system clock) and the WCLK signal for synchronisation.

Check the presence of the following signals and compare the timing to the diagram shown in the schematic section:

Signal Name	*Waveform or Format*	*Source*
3 MHz	square wave	Control Board
WCLK	see timing diagram	Control Board
AD-LATCH	square wave f = fs	Control Board
ADR-00...16	square wave	Control Board
DI-00...15	parallel	Interface Board
DATA	serial	A/D Board

If the signals listed above are correct, check the locally generated timing signals and compare them with the timing diagrams (see section 7.6.2.10 of the Memory Board (1.611.025.00)).

If only one channel needs to be repaired, compare the timing signals of the two channels. They are derived from the same Timing PROM but buffered separately. In case of a short-circuit of the RAM-control signals, only one channel should be affected.

When both channels don't operate properly but all the control signals seem to be in order, replace the Memory Board (1.611.025.00).

6.5.10 Digital-to-Analog Converter

The 16-bit digital audio is transformed from the two's complement code into offset binary, the required format for the monolithic 14-bit Digital-to-Analog converter. The two LSBs are converted separately by an 8-bit DAC. The analog output current of the DAC section is the analog sum of the two output currents of the two converters.

Check if the required timing and data signals are present (see also timing diagrams in section 7.6.1.7).

6.5.11 Reconstruction Filters

The 13th order reconstruction filters smooth the quantised analog signal and reject the high frequency components. In case of deteriorated THD + Noise figures or frequency response, check the levels of the different filter stages and compare the levels with those indicated in the Level Diagrams in section 7.5.4.3 for normal speed and in section 7.5.3.3 for half speed reconstruction filters.

6.5.12 Output Amplifier

The filtered signal is then weighted with the gainfactor in the multiplying Digital-to-Analog converters of the output stage and amplified according to the position of the output level potentiometers. Trouble-shooting in this section, as well as in the output amplifier, can be done with conventional methods.

6.5.13 Connector Board

The Connector Board (1.611.035.00) contains the XLR sockets for analog input and output and the mute relay. By setting the jumpers onto positions C-A and D-B, an additional relay will connect the analog input to the delay output when the unit is turned off. The jumpers are factory-set to position C-D. In this mode, the output socket is shorted.

6.5.14 Control Board

The Control Board (1.611.020.00) generates the timing signals for the digital circuitry on all the boards in the DAD-16 controlling the digital data or analog signal path. The static signals as MUTE, FULL/IHF, etc, are controlled by the microprocessor, while the signals that appear in the timing diagram are generated by hardware control (Timing PROM).

If the whole unit is dead but the power supply is operating correctly, check the PLL-board and the reference oscillator (IC 712). If the microprocessor circuitry does not operate properly, check the Reset Circuit. The CS-signal at the RAM 403 should be pulsed after pressing the reset key.

For testing the microprocessor peripherals, connect the logic analyser to the data bus and trigger it to different adresses listed in the adress table in section 7.6.1.8.

The signal names in the schematics describe directly the function of the according input or output (e.g. FULL/IHF means: FULL = High, HALF = Low).

For checking the timing signals compare them with the timing diagram provided in section 7.6.1.7.

Section 7

Schematic Diagrams and Connection Lists

7.1
Wiring

It is impractical to design wiring diagrams for equipment containing extensive electronic circuitry. The cluttered diagrams could lead to misinterpretations. We have, therefore, opted for the more reliable computer-generated wiring lists which give complete data on all the interconnections within the entire electronics.

7.1.1
Explanation of the LOCATION PIN LIST

This list is sorted according to the element numbers. If the element number or the element name is known, further information can be extracted from this list. All the elements are back panel connectors.

If the signal name is known, the SIGNAL WIRE LIST should be consulted (see section 7.1.2).

7.1.2
Explanation of the SIGNAL WIRE LIST

This list is arranged in sequence by signal names. Further data can be extracted from this list when the signal name is known. If the element number or the element name is known, the LOCATION PIN LIST should be consulted (see section 7.1.1).

7.2
Signal Names

All signals carry acronyms composed of various abbreviations so that their functions can easily be recognized.

7.3

Location Pin List, Location Summary

7.3.1
Analog

```
STUDER - WIRING

TITLE:   DIGITAL PREVIEW UNIT DAD 16                INDEX: 2     DATE OF ORIGIN:  3/12/01
                                                                 DATE OF PROC.:  84/01/03

OPTIONS IN EFFECT:  LOCLIS, SIGLIS, WIRGEN, WIRLIS,              TOTAL GROUPS:            1
                    RECIDT, WIRALL                               TOTAL ELEMENTS:          6
                                                                 TOTAL PINS:            576
                                                                 TOTAL UNUSED PINS:     521
                                                                 MULTIPLE PINS:           0
SIGNALS: TOTAL:      40
         USED:       15                                          GROUP NODE             = *
         UNUSED:     25                                          INTER GROUP NODE       = #
                                                                 DIRECT WIRE TO #       = <
                                                                 WIRING NOT COMPUTED    = @
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* S T U D E R * L O C A T I O N P I N L I S T * 84/01/03 * 08:55 * P A G E *
****

DIGITAL PREVIEW UNIT DAD 16 3/12/01

GR: 01 0184
BACKPANEL

EL: 01 J 01 AUDIO-I/O 3*32

TYPE	PT	LV	SIG.NAME	COLOR	F	X	Y
W	01A	3a					
W	01B	3a					
W	01C	3a					
W	02A	3					
W	02B	3					
W	02C	3					
W	03A	3	OUT-CH2-				
W	03B	3					
W	03C	3	OUT-CH2+				
W	04A	3					
W	04B	3	02SCREEN				
W	04C	3					
W	05A	3					
W	05B	3					
W	05C	3					
W	06A	3					
W	06B	3					
W	06C	3					
W	07A	3					
W	07B	3					
W	07C	3					
W	08A	3					
W	08B	3					
W	08C	3					
W	09A	3					
W	09B	3					
W	09C	3					
W	10A	3					
W	10B	3					
W	10C	3					
W	11A	3					
W	11B	3					
W	11C	3					
W	12A	3					
W	12B	3					
W	12C	3					
W	13A	3					
W	13B	3					
W	13C	3					
W	14A	3					
W	14B	3					
W	14C	3					
W	15A	3					
W	15B	3					
W	15C	3					
W	16A	3					
W	16B	3	O-MDAC12				
W	16C	3					
W	17A	3					
W	17B	3					
W	17C	3					

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GR: 01 (CONTINUATION)
BACKPANEL

EL: 01 (CONTINUATION)

TYPE	PT	LV	SIG.NAME	COLOR	F	X	Y
W	18A	3					
W	18B	3					
W	18C	3					
W	19A	3	SCREEN03				
W	19B	3					
W	19C	3	O-FIL1-1				
W	20A	3					
W	20B	3					
W	20C	3					
W	21A	3					
W	21B	3					
W	21C	3					
W	22A	3					
W	22B	3					
W	22C	3					
W	23A	3	SCREEN00				
W	23B	3					
W	23C	3	O-FIL2-1				
W	24A	3					
W	24B	3					
W	24C	3					
W	25A	3					
W	25B	3					
W	25C	3					
W	26A	3					
W	26B	3	O-MDAC11				
W	26C	3					
W	27A	3					
W	27B	3					
W	27C	3					
W	28A	3					
W	28B	3	I1SCREEN				
W	28C	3					
W	29A	3	IN-CH1+				
W	29B	3					
W	29C	3	IN-CH1-				
W	30A	3					
W	30B	3					
W	30C	3					
W	31A	3					
W	31B	3					
W	31C	3	O-MDAC22				
W	32A	3a					
W	32B	3a					
W	32C	3a					

GR: 01 (CONTINUATION)
BACKPANEL

EL: 02 J 02 AUDIO-I/O 3*32

TYPE	PT	LV	SIG.NAME	COLOR	F	X	Y
W	01A	3a					
W	01B	3a					
W	01C	3a					
W	02A	3					
W	02B	3	I2SCREEN				
W	02C	3					
W	03A	3	IN-CH2+				
W	03B	3					
W	03C	3	IN-CH2-				
W	04A	3					
W	04B	3					
W	04C	3					
W	05A	3	SCREEN10				
W	05B	3					
W	05C	3	O-FIL1-2				
W	06A	3					
W	06B	3					
W	06C	3					
W	07A	3					
W	07B	3					
W	07C	3					
W	08A	3					
W	08B	3					
W	08C	3					
W	09A	3					
W	09B	3					
W	09C	3	O-MDAC21				
W	10A	3a					
W	10B	3					
W	10C	3					
W	11A	3	SCREEN07				
W	11B	3					
W	11C	3	O-FIL2-2				
W	12A	3					
W	12B	3					
W	12C	3					
W	13A	3					
W	13B	3					
W	13C	3					
W	14A	3					
W	14B	3					
W	14C	3					
W	15A	3					
W	15B	3					
W	15C	3					
W	16A	3					
W	16B	3					
W	16C	3					
W	17A	3					
W	17B	3					
W	17C	3					

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*   S T U D E R   *          L O C A T I O N     P I N     L I S T          *   84/01/03 * 08:55      *   P A G E         *
*****************************************************************************************************************************
DIGITAL PREVIEW UNIT DAD 16                                                                          3/12/01
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GR: 01 (CONTINUATION)
BACKPANEL

EL: 02 (CONTINUATION)

TYPE	PT	LV	SIG.NAME	COLOR	F	X	Y
W	18A	3					
W	18B	3					
W	18C	3					
W	19A	3					
W	19B	3					
W	19C	3					
W	20A	3					
W	20B	3					
W	20C	3					
W	21A	3					
W	21B	3					
W	21C	3					
W	22A	3					
W	22B	3					
W	22C	3					
W	23A	3					
W	23B	3					
W	23C	3					
W	24A	3					
W	24B	3					
W	24C	3					
W	25A	3					
W	25B	3					
W	25C	3					
W	26A	3					
W	26B	3					
W	26C	3					
W	27A	3					
W	27B	3					
W	27C	3					
W	28A	3					
W	28B	3					
W	28C	3					
W	29A	3					
W	29B	3					
W	29C	3	01SCREEN				
W	30A	3					
W	30B	3					
W	30C	3					
W	31A	3	OUT-CH1+				
W	31B	3					
W	31C	3	OUT-CH1-				
W	32A	3a					
W	32B	3a					
W	32C	3a					

GR: 01 (CONTINUATION)
BACKPANEL

EL: 04 J 02 A/D-CONVERTER 3*32

TYPE	PT	LV	SIG.NAME	COLOR	F	X	Y
W	01A	3a					
W	01B	3					
W	01C	3a					
W	02A	3					
W	02B	3					
W	02C	3					
W	03A	3					
W	03B	3					
W	03C	3					
W	04A	3					
W	04B	3					
W	04C	3					
W	05A	3					
W	05B	3					
W	05C	3					
W	06A	3					
W	06B	3					
W	06C	3					
W	07A	3					
W	07B	3					
W	07C	3					
W	08A	3					
W	08B	3	AD-IN-1				
W	08C	3					
W	09A	3					
W	09B	3					
W	09C	3					
W	10A	3					
W	10B	3					
W	10C	3					
W	11A	3					
W	11B	3					
W	11C	3					
W	12A	3					
W	12B	3					
W	12C	3					
W	13A	3					
W	13B	3					
W	13C	3					
W	14A	3					
W	14B	3					
W	14C	3					
W	15A	3					
W	15B	3					
W	15C	3					
W	16A	3					
W	16B	3					
W	16C	3					
W	17A	3					
W	17B	3					
W	17C	3					

GP: 01 (CONTINUATION)
BACKPANEL

EL: 04 (CONTINUATION)

TYPE	PT	LV	SIG.NAME	COLOR	F	X	Y
W	18A	3					
W	18B	3					
W	18C	3					
W	19A	3					
W	19B	3					
W	19C	3					
W	20A	3					
W	20B	3					
W	20C	3					
W	21A	3					
W	21B	3					
W	21C	3					
W	22A	3					
W	22B	3					
W	22C	3					
W	23A	3					
W	23B	3					
W	23C	3					
W	24A	3					
W	24B	3					
W	24C	3					
W	25A	3					
W	25B	3					
W	25C	3					
W	26A	3					
W	26B	3	AD-IN-2				
W	26C	3					
W	27A	3					
W	27B	3					
W	27C	3					
W	28A	3					
W	28B	3					
W	28C	3					
W	29A	3					
W	29B	3					
W	29C	3					
W	30A	3					
W	30B	3					
W	30C	3					
W	31A	3					
W	31B	3					
W	31C	3					
W	32A	3a					
W	32B	3a					
W	32C	3a					

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*********************************************************************************************************
*  S T U D E R  *     L O C A T I O N   P I N   L I S T     *  84/01/03 * 08:55     *  P A G E          *
*********************************************************************************************************
DIGITAL PREVIEW UNIT DAD 16                                                3/12/01
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GR: 01 (CONTINUATION)
BACKPANEL
****

EL: 05 J 01 FILTERBOARD 3*32

TYPE	PT	LV	SIG.NAME	COLOR	F	X	Y
W	01A	3a					
W	01B	3a					
W	01C	3a					
W	02A	3					
W	02B	3	O-MDAC11				
W	02C	3					
W	03A	3	SCREEN02				
W	03B	3					
W	03C	3					
W	04A	3					
W	04B	3	O-FIL2-1				
W	04C	3					
W	05A	3					
W	05B	3					
W	05C	3					
W	06A	3					
W	06B	3					
W	06C	3					
W	07A	3					
W	07B	3					
W	07C	3					
W	08A	3					
W	08B	3					
W	08C	3					
W	09A	3					
W	09B	3					
W	09C	3					
W	10A	3					
W	10B	3					
W	10C	3					
W	11A	3					
W	11B	3					
W	11C	3					
W	12A	3					
W	12B	3					
W	12C	3					
W	13A	3					
W	13B	3					
W	13C	3					
W	14A	3					
W	14B	3	O-FIL1-1				
W	14C	3					
W	15A	3					
W	15B	3					
W	15C	3					
W	16A	3					
W	16B	3	AD-IN-1				
W	16C	3					
W	17A	3					
W	17B	3					
W	17C	3	SCREEN00				

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GR: 01 (CONTINUATION)
BACKPANEL
****

EL: 05 (CONTINUATION)

TYPE	PT	LV	SIG.NAME	COLOR	F	X	Y
W	18A	3					
W	18B	3	O-FIL2-2				
W	18C	3					
W	19A	3					
W	19B	3					
W	19C	3					
W	20A	3					
W	20B	3	O-FIL1-2				
W	20C	3					
W	21A	3	SCREEN09				
W	21B	3					
W	21C	3	SCREEN08				
W	22A	3					
W	22B	3	O-MDAC12				
W	22C	3					
W	23A	3					
W	23B	3					
W	23C	3	AD-IN-2				
W	24A	3					
W	24B	3					
W	24C	3					
W	25A	3					
W	25B	3					
W	25C	3a					
W	26A	3					
W	26B	3					
W	26C	3a					
W	27A	3					
W	27B	3					
W	27C	3					
W	28A	3					
W	28B	3					
W	28C	3					
W	29A	3					
W	29B	3					
W	29C	3					
W	30A	3					
W	30B	3					
W	30C	3					
W	31A	3					
W	31B	3					
W	31C	3					
W	32A	3a					
W	32B	3a					
W	32C	3a					

GR: 01 (CONTINUATION)
BACKPANEL
****

EL: 06 J 02 FILTERBOARD 3*32

TYPE	PT	LV	SIG.NAME	COLOR	F	X	Y
W	01A	3a					
W	01B	3a					
W	01C	3a					
W	02A	3					
W	02B	3	O-MDAC21				
W	02C	3					
W	03A	3					
W	03B	3					
W	03C	3					
W	04A	3					
W	04B	3	DA-1				
W	04C	3					
W	05A	3					
W	05B	3					
W	05C	3					
W	06A	3					
W	06B	3	O-MDAC22				
W	06C	3					
W	07A	3					
W	07B	3					
W	07C	3	SCREEN12				
W	08A	3					
W	08B	3	DA-2				
W	08C	3					
W	09A	3					
W	09B	3					
W	09C	3					
W	10A	3					
W	10B	3					
W	10C	3					
W	11A	3					
W	11B	3					
W	11C	3					
W	12A	3					
W	12B	3	DA-U-1				
W	12C	3					
W	13A	3					
W	13B	3					
W	13C	3					
W	14A	3					
W	14B	3					
W	14C	3					
W	15A	3					
W	15B	3					
W	15C	3					
W	16A	3					
W	16B	3					
W	16C	3					
W	17A	3					
W	17B	3					
W	17C	3	SCREEN01				

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*****************************************************************************************************************
*  S T U D E R  *     L O C A T I O N   P I N   L I S T     *   84/01/03 * 08:55     *  P A G E              *
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DIGITAL PREVIEW UNIT DAD 16 3/12/91

GR: 01 (CONTINUATION)
BACKPANEL

EL: 06 (CONTINUATION)

TYPE	PT	LV	SIG.NAME	COLOR	F	X	Y
W	18A	3					
W	18B	3					
W	18C	3					
W	19A	3					
W	19B	3					
W	19C	3					
W	20A	3					
W	20B	3					
W	20C	3					
W	21A	3					
W	21B	3					
W	21C	3					
W	22A	3					
W	22B	3					
W	22C	3					
W	23A	3					
W	23B	3					
W	23C	3					
W	24A	3					
W	24B	3	DA-U-2				
W	24C	3					
W	25A	3					
W	25B	3					
W	25C	3					
W	26A	3					
W	26B	3					
W	26C	3					
W	27A	3					
W	27B	3					
W	27C	3					
W	28A	3					
W	28B	3					
W	28C	3					
W	29A	3					
W	29B	3					
W	29C	3					
W	30A	3					
W	30B	3					
W	30C	3					
W	31A	3					
W	31B	3					
W	31C	3					
W	32A	3a					
W	32B	3a					
W	32C	3a					

GR: 01 (CONTINUATION)
BACKPANEL

EL: 07 J 02 D/A-CONVERT. 3*32

TYPE	PT	LV	SIG.NAME	COLOR	F	X	Y
W	01A	3a					
W	01B	3a					
W	01C	3a					
W	02A	3					
W	02B	3	DA-U-1				
W	02C	3					
W	03A	3	SCREEN04				
W	03B	3					
W	03C	3	SCREEN05				
W	04A	3					
W	04B	3	DA-U-2				
W	04C	3					
W	05A	3	SCREEN11				
W	05B	3					
W	05C	3					
W	06A	3					
W	06B	3					
W	06C	3					
W	07A	3					
W	07B	3					
W	07C	3					
W	08A	3					
W	08B	3	DA-1				
W	08C	3					
W	09A	3					
W	09B	3					
W	09C	3	SCREEN06				
W	10A	3					
W	10B	3					
W	10C	3					
W	11A	3					
W	11B	3					
W	11C	3					
W	12A	3					
W	12B	3					
W	12C	3					
W	13A	3					
W	13B	3					
W	13C	3					
W	14A	3					
W	14B	3					
W	14C	3					
W	15A	3					
W	15B	3					
W	15C	3					
W	16A	3					
W	16B	3					
W	16C	3					
W	17A	3					
W	17B	3					
W	17C	3					

GR: 01 (CONTINUATION)
BACKPANEL

EL: 07 (CONTINUATION)

TYPE	PT	LV	SIG.NAME	COLOR	F	X	Y
W	18A	3					
W	18B	3					
W	18C	3					
W	19A	3					
W	19B	3					
W	19C	3					
W	20A	3					
W	20B	3					
W	20C	3					
W	21A	3					
W	21B	3					
W	21C	3					
W	22A	3					
W	22B	3					
W	22C	3					
W	23A	3					
W	23B	3					
W	23C	3					
W	24A	3					
W	24B	3					
W	24C	3					
W	25A	3					
W	25B	3					
W	25C	3					
W	26A	3					
W	26B	3	DA-2				
W	26C	3					
W	27A	3					
W	27B	3					
W	27C	3	SCREEN13				
W	28A	3					
W	28B	3					
W	28C	3					
W	29A	3					
W	29B	3					
W	29C	3					
W	30A	3					
W	30B	3					
W	30C	3					
W	31A	3					
W	31B	3					
W	31C	3					
W	32A	3a					
W	32B	3a					
W	32C	3a					

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********************************************************************************************************
*  S T U D E R  *       L O C A T I O N     S U M M A R Y          *   84/01/03 * 08:55      *  P A G E          *
********************************************************************************************************
DIGITAL PREVIEW UNIT DAD 16                                                        3/12/01

 GR  USED     UNUSED  TOTAL   COD.  ELE-
 #    PINS     PINS    PINS   KEYS  MNTS  DESCRIPTION OF GROUP                          PART # OF GR
 --  ------   ------  ------  ----  ----  ----------------------------------------     ------------
 01      55      521     576     0     6  BACKPANEL
 --  ------   ------  ------  ----  ----  ----------------------------------------     ------------
TOT.     55      521     576     0     6    DISTRIBUTED IN  1 GROUPS
     ======   ======  ======  ====  ====
```

TITLE: DIGITAL PREVIEW UNIT DAD 16 — 1.611.001.00 — INDEX: 2

DATE OF ORIGIN: 83/12/01
DATE OF PROC.: 83/12/02

OPTIONS IN EFFECT: LOCLIS, SIGLIS, WIRGEN, RECIDT, WIRALL

TOTAL GROUPS:	1
TOTAL ELEMENTS:	9
TOTAL PINS:	864
TOTAL UNUSED PINS:	560
MULTIPLE PINS:	0

SIGNALS:

TOTAL:	140
USED:	135
UNUSED:	5

GROUP NODE	= *
INTER GROUP NODE	= #
DIRECT WIRE TO #	= <
WIRING NOT COMPUTED	= a

DIAGNOSTICS GENERATED: N O N E

DIGITAL PREVIEW UNIT DAD 16 1.611.001.00 83/12/01

GR: 01 1.611.050.00 W0184
BACKPANEL

EL: 01 J 01 INTERFACE 3*32

TYPE	PT	LV	SIG.NAME	COLOR	F	X	Y
W	01A	3@	GND				
W	01B	3@					
W	01C	3@					
W	02A	3					
W	02B	3					
W	02C	3					
W	03A	3					
W	03B	3					
W	03C	3					
W	04A	3					
W	04B	3					
W	04C	3					
W	05A	3					
W	05B	3					
W	05C	3					
W	06A	3					
W	06B	3					
W	06C	3					
W	07A	3					
W	07B	3					
W	07C	3	KEY-7				
W	08A	3					
W	08B	3					
W	08C	3	KEY-6				
W	09A	3					
W	09B	3					
W	09C	3	KEY-5				
W	10A	3					
W	10B	3					
W	10C	3	KEY-4				
W	11A	3					
W	11B	3					
W	11C	3	KEY-3				
W	12A	3					
W	12B	3					
W	12C	3	KEY-2				
W	13A	3					
W	13B	3					
W	13C	3	KEY-1				
W	14A	3					
W	14B	3					
W	14C	3	KEY-0				
W	15A	3					
W	15B	3					
W	15C	3					
W	16A	3					
W	16B	3					
W	16C	3					
W	17A	3					
W	17B	3					
W	17C	3					

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GR: 01 (CONTINUATION)
BACKPANEL

EL: 01 (CONTINUATION)

TYPE	PT	LV	SIG.NAME	COLOR	F	X	Y
W	18A	3					
W	18B	3					
W	18C	3					
W	19A	3					
W	19B	3					
W	19C	3					
W	20A	3	REF-EXT+				
W	20B	3					
W	20C	3	REF-EXT-				
W	21A	3					
W	21B	3	A-00				
W	21C	3	A-01				
W	22A	3	EMPHASIS				
W	22B	3	DIG/ANA				
W	22C	3					
W	23A	3	256*FS+				
W	23B	3					
W	23C	3	256*FS-				
W	24A	3					
W	24B	3					
W	24C	3					
W	25A	3					
W	25B	3	RESET				
W	25C	3					
W	26A	3					
W	26B	3	INTERRPT				
W	26C	3					
W	27A	3					
W	27B	3					
W	27C	3					
W	28A	3					
W	28B	3					
W	28C	3					
W	29A	3					
W	29B	3					
W	29C	3					
W	30A	3					
W	30B	3					
W	30C	3					
W	31A	3					
W	31B	3					
W	31C	3					
W	32A	3@					
W	32B	3@					
W	32C	3@					

GR: 01 (CONTINUATION)
BACKPANEL

EL: 02 J 02 INTERFACE 3*32

TYPE	PT	LV	SIG.NAME	COLOR	F	X	Y
W	01A	3@	+0V				
W	01B	3@					
W	01C	3@					
W	02A	3	DI-08/1				
W	02B	3	DI-00/1				
W	02C	3					
W	03A	3	DI-09/1				
W	03B	3	DI-01/1				
W	03C	3					
W	04A	3	DI-10/1				
W	04B	3	DI-02/1				
W	04C	3					
W	05A	3	DI-11/1				
W	05B	3	DI-03/1				
W	05C	3					
W	06A	3	DI-12/1				
W	06B	3	DI-04/1				
W	06C	3					
W	07A	3	DI-13/1				
W	07B	3	DI-05/1				
W	07C	3					
W	08A	3	DI-14/1				
W	08B	3	DI-06/1				
W	08C	3					
W	09A	3	DI-15/1				
W	09B	3	DI-07/1				
W	09C	3					
W	10A	3@					
W	10B	3					
W	10C	3					
W	11A	3					
W	11B	3					
W	11C	3					
W	12A	3					
W	12B	3					
W	12C	3					
W	13A	3					
W	13B	3					
W	13C	3					
W	14A	3					
W	14B	3					
W	14C	3					
W	15A	3					
W	15B	3					
W	15C	3					
W	16A	3					
W	16B	3					
W	16C	3					
W	17A	3					
W	17B	3					
W	17C	3					

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DIGITAL PREVIEW UNIT DAD 16 1.611.001.00 83/12/01

GR: 01 (CONTINUATION)
BACKPANEL

EL: 02 (CONTINUATION)

TYPE	PT	LV	SIG.NAME	COLOR	F	X	Y
W	18A	3					
W	18B	3					
W	18C	3					
W	19A	3					
W	19B	3					
W	19C	3					
W	20A	3					
W	20B	3					
W	20C	3					
W	21A	3					
W	21B	3					
W	21C	3					
W	22A	3					
W	22B	3					
W	22C	3					
W	23A	3					
W	23B	3					
W	23C	3					
W	24A	3	DI-08/2				
W	24B	3	DI-00/2				
W	24C	3					
W	25A	3	DI-09/2				
W	25B	3	DI-01/2				
W	25C	3					
W	26A	3	DI-10/2				
W	26B	3	DI-02/2				
W	26C	3					
W	27A	3	DI-11/2				
W	27B	3	DI-03/2				
W	27C	3					
W	28A	3	DI-12/2				
W	28B	3	DI-04/2				
W	28C	3					
W	29A	3	DI-13/2				
W	29B	3	DI-05/2				
W	29C	3					
W	30A	3	DI-14/2				
W	30B	3	DI-06/2				
W	30C	3					
W	31A	3	DI-15/2				
W	31B	3	DI-07/2				
W	31C	3					
W	32A	3a					
W	32B	3a					
W	32C	3a					

GR: 01 (CONTINUATION)
BACKPANEL

EL: 03 J 01 MEMORYBOARD 3*32

TYPE	PT	LV	SIG.NAME	COLOR	F	X	Y
W	01A	3a	GND				
W	01B	3a					
W	01C	3a					
W	02A	3	D-IN-1/1				
W	02B	3	ADR-00				
W	02C	3	D-IN-1/2				
W	03A	3	D-IN-2/1				
W	03B	3	ADR-01				
W	03C	3	D-IN-2/2				
W	04A	3	D-IN-3/1				
W	04B	3	ADR-02				
W	04C	3	D-IN-3/2				
W	05A	3	D-IN-4/1				
W	05B	3	ADR-03				
W	05C	3	D-IN-4/2				
W	06A	3	D-IN-5/1				
W	06B	3	ADR-04				
W	06C	3	D-IN-5/2				
W	07A	3	D-IN-6/1				
W	07B	3	ADR-05				
W	07C	3	D-IN-6/2				
W	08A	3	D-IN-7/1				
W	08B	3	ADR-06				
W	08C	3	D-IN-7/2				
W	09A	3	D-IN-8/1				
W	09B	3	ADR-07				
W	09C	3	D-IN-8/2				
W	10A	3	AD-LATCH				
W	10B	3	ADR-08				
W	10C	3					
W	11A	3					
W	11B	3	ADR-09				
W	11C	3					
W	12A	3					
W	12B	3	ADR-10				
W	12C	3					
W	13A	3					
W	13B	3	ADR-11				
W	13C	3					
W	14A	3					
W	14B	3	ADR-12				
W	14C	3					
W	15A	3					
W	15B	3	ADR-13				
W	15C	3					
W	16A	3					
W	16B	3	ADR-14				
W	16C	3					
W	17A	3					
W	17B	3	ADR-15				
W	17C	3					

GR: 01 (CONTINUATION)
BACKPANEL

EL: 03 (CONTINUATION)

TYPE	PT	LV	SIG.NAME	COLOR	F	X	Y
W	18A	3					
W	18B	3	ADR-16				
W	18C	3					
W	19A	3	WSYNC-				
W	19B	3					
W	19C	3	WSYNC+				
W	20A	3	WSYNC+				
W	20B	3	DIG/ANA				
W	20C	3	WSYNC-				
W	21A	3	3MHZ+				
W	21B	3	ICLR				
W	21C	3	3MHZ-				
W	22A	3	MODE-0				
W	22B	3	MODE-0				
W	22C	3	MODE-0				
W	23A	3	WSYNC+				
W	23B	3					
W	23C	3	WSYNC-				
W	24A	3	BCLKAD-				
W	24B	3					
W	24C	3	BCLKAD+				
W	25A	3	BCLKI-				
W	25B	3					
W	25C	3	BCLKI+				
W	26A	3	DATAO1+				
W	26B	3					
W	26C	3	DATAO1-				
W	27A	3	DATAI1+				
W	27B	3					
W	27C	3	DATAI1-				
W	28A	3	DATAO2+				
W	28B	3					
W	28C	3	DATAO2-				
W	29A	3	DATAI2+				
W	29B	3					
W	29C	3	DATAI2-				
W	30A	3					
W	30B	3					
W	30C	3					
W	31A	3					
W	31B	3					
W	31C	3					
W	32A	3a					
W	32B	3a					
W	32C	3a					

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*****************************************************************************************************************
*  S T U D E R  *      L O C A T I O N     P I N     L I S T      *   83/12/02 * 16:00     *  P A G E            *
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DIGITAL PREVIEW UNIT DAD 16                                  1.611.001.00          83/12/01
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GR: 01 (CONTINUATION)
BACKPANEL

EL: 04 J 02 MEMORYBOARD 3*32

TYPE	PT	LV	SIG.NAME	COLOR	F	X	Y
W	01A	3a					
W	01B	3	GND				
W	01C	3a					
W	02A	3	DI-08/1				
W	02B	3	DI-00/1				
W	02C	3	DO-08/1				
W	03A	3	DI-09/1				
W	03B	3	DI-01/1				
W	03C	3	DO-09/1				
W	04A	3	DI-10/1				
W	04B	3	DI-02/1				
W	04C	3	DO-10/1				
W	05A	3	DI-11/1				
W	05B	3	DI-03/1				
W	05C	3	DO-11/1				
W	06A	3	DI-12/1				
W	06B	3	DI-04/1				
W	06C	3	DO-12/1				
W	07A	3	DI-13/1				
W	07B	3	DI-05/1				
W	07C	3	DO-13/1				
W	08A	3	DI-14/1				
W	08B	3	DI-06/1				
W	08C	3	DO-14/1				
W	09A	3	DI-15/1				
W	09B	3	DI-07/1				
W	09C	3	DO-15/1				
W	10A	3					
W	10B	3					
W	10C	3					
W	11A	3					
W	11B	3					
W	11C	3					
W	12A	3					
W	12B	3					
W	12C	3					
W	13A	3					
W	13B	3					
W	13C	3					
W	14A	3					
W	14B	3					
W	14C	3					
W	15A	3					
W	15B	3					
W	15C	3					
W	16A	3					
W	16B	3					
W	16C	3					
W	17A	3					
W	17B	3					
W	17C	3					

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GR: 01 (CONTINUATION)
BACKPANEL

EL: 04 (CONTINUATION)

TYPE	PT	LV	SIG.NAME	COLOR	F	X	Y
W	18A	3					
W	18B	3					
W	18C	3					
W	19A	3					
W	19B	3	GND				
W	19C	3					
W	20A	3					
W	20B	3					
W	20C	3					
W	21A	3					
W	21B	3					
W	21C	3					
W	22A	3					
W	22B	3					
W	22C	3					
W	23A	3					
W	23B	3					
W	23C	3					
W	24A	3	DI-08/2				
W	24B	3	DI-00/2				
W	24C	3	DO-08/2				
W	25A	3	DI-09/2				
W	25B	3	DI-01/2				
W	25C	3	DO-09/2				
W	26A	3	DI-10/2				
W	26B	3	DI-02/2				
W	26C	3	DO-10/2				
W	27A	3	DI-11/2				
W	27B	3	DI-03/2				
W	27C	3	DO-11/2				
W	28A	3	DI-12/2				
W	28B	3	DI-04/2				
W	28C	3	DO-12/2				
W	29A	3	DI-13/2				
W	29B	3	DI-05/2				
W	29C	3	DO-13/2				
W	30A	3	DI-14/2				
W	30B	3	DI-06/2				
W	30C	3	DC-14/2				
W	31A	3	DI-15/2				
W	31B	3	DI-07/2				
W	31C	3	DO-15/2				
W	32A	3a					
W	32B	3a					
W	32C	3a					

GR: 01 (CONTINUATION)
BACKPANEL

EL: 05 J 01 CONTROLBOARD 3*32

TYPE	PT	LV	SIG.NAME	COLOR	F	X	Y
W	01A	3a	GND				
W	01B	3a					
W	01C	3a					
W	02A	3	ADR-00				
W	02B	3	+0V-MUTE				
W	02C	3					
W	03A	3	ADR-01				
W	03B	3					
W	03C	3					
W	04A	3	ADR-02				
W	04B	3	+5V-MUTE				
W	04C	3					
W	05A	3	ADR-03				
W	05B	3					
W	05C	3					
W	06A	3	ADR-04				
W	06B	3					
W	06C	3					
W	07A	3	ADR-05				
W	07B	3					
W	07C	3	KEY-7				
W	08A	3	ADR-06				
W	08B	3					
W	08C	3	KEY-6				
W	09A	3	ADR-07				
W	09B	3					
W	09C	3	KEY-5				
W	10A	3	ADR-08				
W	10B	3					
W	10C	3	KEY-4				
W	11A	3	ADR-09				
W	11B	3					
W	11C	3	KEY-3				
W	12A	3	ADR-10				
W	12B	3					
W	12C	3	KEY-2				
W	13A	3	ADR-11				
W	13B	3					
W	13C	3	KEY-1				
W	14A	3	ADR-12				
W	14B	3					
W	14C	3	KEY-0				
W	15A	3	ADR-13				
W	15B	3					
W	15C	3					
W	16A	3	ADR-14				
W	16B	3					
W	16C	3					
W	17A	3	ADR-15				
W	17B	3					
W	17C	3					

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*  S T U D E R  *      L O C A T I O N    P I N    L I S T      *  83/12/02 * 16:00    *  P A G E  *
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DIGITAL PREVIEW UNIT DAD 16 1.611.001.00 83/12/01

GR: 01 (CONTINUATION)
BACKPANEL

EL: 05 (CONTINUATION)

TYPE	PT	LV	SIG.NAME	COLOR	F	X	Y
W	18A	3	ADR-16				
W	18B	3					
W	18C	3					
W	19A	3	DAC-0				
W	19B	3					
W	19C	3					
W	20A	3	DAC-1				
W	20B	3	A-00				
W	20C	3	A-01				
W	21A	3	DAC-2				
W	21B	3	AD-LATCH				
W	21C	3	SET-EMPH				
W	22A	3	DAC-3				
W	22B	3	DIG/ANA				
W	22C	3	EMPHASIS				
W	23A	3	DAC-4				
W	23B	3	FULL/HLF				
W	23C	3	256*FS-				
W	24A	3	DAC-5				
W	24B	3	IMUTE				
W	24C	3	256*FS+				
W	25A	3	DAC-6				
W	25B	3	RESET				
W	25C	3a	SW-SYNC				
W	26A	3	DAC-7				
W	26B	3	INTERRPT				
W	26C	3a	IAD-IN				
W	27A	3	WSYNC+				
W	27B	3	IDAC-1				
W	27C	3	WSYNC-				
W	28A	3	BCLKAD+				
W	28B	3	IDAC-2				
W	28C	3	BCLKAD-				
W	29A	3	BCLKI+				
W	29B	3	IDAC-3				
W	29C	3	BCLKI-				
W	30A	3	3MHZ+				
W	30B	3	IDAC-4				
W	30C	3	3MHZ-				
W	31A	3					
W	31B	3					
W	31C	3					
W	32A	3a					
W	32B	3a					
W	32C	3a					

GR: 01 (CONTINUATION)
BACKPANEL

EL: 06 J 02 CONTROLBOARD 3*32

TYPE	PT	LV	SIG.NAME	COLOR	F	X	Y
W	01A	3a					
W	01B	3a					
W	01C	3a					
W	02A	3	D-IN-1/1				
W	02B	3					
W	02C	3	DO-08/1				
W	03A	3	D-IN-2/1				
W	03B	3					
W	03C	3	DO-09/1				
W	04A	3	D-IN-3/1				
W	04B	3					
W	04C	3	DO-10/1				
W	05A	3	D-IN-4/1				
W	05B	3					
W	05C	3	DO-11/1				
W	06A	3	D-IN-5/1				
W	06B	3					
W	06C	3	DO-12/1				
W	07A	3	D-IN-6/1				
W	07B	3					
W	07C	3	DO-13/1				
W	08A	3	D-IN-7/1				
W	08B	3					
W	08C	3	DO-14/1				
W	09A	3	D-IN-8/1				
W	09B	3					
W	09C	3	DO-15/1				
W	10A	3					
W	10B	3					
W	10C	3					
W	11A	3					
W	11B	3					
W	11C	3					
W	12A	3					
W	12B	3					
W	12C	3					
W	13A	3					
W	13B	3					
W	13C	3					
W	14A	3					
W	14B	3					
W	14C	3					
W	15A	3					
W	15B	3					
W	15C	3					
W	16A	3					
W	16B	3					
W	16C	3					
W	17A	3					
W	17B	3					
W	17C	3					

GR: 01 (CONTINUATION)
BACKPANEL

EL: 06 (CONTINUATION)

TYPE	PT	LV	SIG.NAME	COLOR	F	X	Y
W	18A	3					
W	18B	3					
W	18C	3					
W	19A	3					
W	19B	3					
W	19C	3					
W	20A	3	REF-EXT+				
W	20B	3					
W	20C	3	REF-EXT-				
W	21A	3					
W	21B	3					
W	21C	3					
W	22A	3					
W	22B	3					
W	22C	3					
W	23A	3					
W	23B	3					
W	23C	3					
W	24A	3	D-IN-1/2				
W	24B	3					
W	24C	3	DO-08/2				
W	25A	3	D-IN-2/2				
W	25B	3					
W	25C	3	DO-09/2				
W	26A	3	D-IN-3/2				
W	26B	3					
W	26C	3	DO-10/2				
W	27A	3	D-IN-4/2				
W	27B	3					
W	27C	3	DO-11/2				
W	28A	3	D-IN-5/2				
W	28B	3					
W	28C	3	DO-12/2				
W	29A	3	D-IN-6/2				
W	29B	3					
W	29C	3	DO-13/2				
W	30A	3	D-IN-7/2				
W	30B	3					
W	30C	3	DO-14/2				
W	31A	3	D-IN-8/2				
W	31B	3					
W	31C	3	DO-15/2				
W	32A	3a					
W	32B	3a					
W	32C	3a					

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*  S T U D E R  *       L O C A T I O N   P I N   L I S T      *   83/12/02 * 16:00    *  P A G E   *
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DIGITAL PREVIEW UNIT DAD 16                                 1.611.001.00          83/12/01
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GR: 01 (CONTINUATION)
BACKPANEL
****

EL: 07 J 01 D/A-CONVERT. 3*32

TYPE	PT	LV	SIG.NAME	COLOR	F	X	Y
W	01A	3a	GND				
W	01B	3a					
W	01C	3a					
W	02A	3					
W	02B	3					
W	02C	3					
W	03A	3					
W	03B	3					
W	03C	3					
W	04A	3					
W	04B	3					
W	04C	3					
W	05A	3					
W	05B	3					
W	05C	3					
W	06A	3					
W	06B	3					
W	06C	3					
W	07A	3					
W	07B	3					
W	07C	3					
W	08A	3					
W	08B	3					
W	08C	3					
W	09A	3					
W	09B	3					
W	09C	3					
W	10A	3					
W	10B	3					
W	10C	3					
W	11A	3					
W	11B	3					
W	11C	3					
W	12A	3					
W	12B	3					
W	12C	3					
W	13A	3					
W	13B	3					
W	13C	3					
W	14A	3					
W	14B	3					
W	14C	3					
W	15A	3					
W	15B	3					
W	15C	3					
W	16A	3					
W	16B	3					
W	16C	3					
W	17A	3					
W	17B	3					
W	17C	3					

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GR: 01 (CONTINUATION)
BACKPANEL
****

EL: 07 (CONTINUATION)

TYPE	PT	LV	SIG.NAME	COLOR	F	X	Y
W	18A	3					
W	18B	3					
W	18C	3					
W	19A	3					
W	19B	3					
W	19C	3					
W	20A	3					
W	20B	3					
W	20C	3					
W	21A	3					
W	21B	3					
W	21C	3					
W	22A	3					
W	22B	3					
W	22C	3					
W	23A	3	WSYNC+				
W	23B	3					
W	23C	3	WSYNC-				
W	24A	3					
W	24B	3					
W	24C	3					
W	25A	3	BCLKAD+				
W	25B	3					
W	25C	3	BCLKAD-				
W	26A	3					
W	26B	3					
W	26C	3					
W	27A	3	DATA02+				
W	27B	3					
W	27C	3	DATA02-				
W	28A	3					
W	28B	3					
W	28C	3					
W	29A	3	DATA01+				
W	29B	3					
W	29C	3	DATA01-				
W	30A	3					
W	30B	3					
W	30C	3					
W	31A	3					
W	31B	3					
W	31C	3					
W	32A	3a					
W	32B	3a					
W	32C	3a					

GR: 01 (CONTINUATION)
BACKPANEL
****

EL: 08 J 01 FILTERBOARD 3*32

TYPE	PT	LV	SIG.NAME	COLOR	F	X	Y
W	01A	3a	GND				
W	01B	3a					
W	01C	3a					
W	02A	3					
W	02B	3					
W	02C	3					
W	03A	3					
W	03B	3					
W	03C	3					
W	04A	3					
W	04B	3					
W	04C	3					
W	05A	3					
W	05B	3					
W	05C	3					
W	06A	3					
W	06B	3	IDAC-1				
W	06C	3					
W	07A	3					
W	07B	3					
W	07C	3	DAC-0				
W	08A	3					
W	08B	3	DAC-1				
W	08C	3					
W	09A	3	DAC-2				
W	09B	3					
W	09C	3	DAC-7				
W	10A	3					
W	10B	3	DAC-6				
W	10C	3					
W	11A	3	DAC-5				
W	11B	3					
W	11C	3	DAC-4				
W	12A	3					
W	12B	3	DAC-3				
W	12C	3					
W	13A	3					
W	13B	3					
W	13C	3					
W	14A	3					
W	14B	3					
W	14C	3					
W	15A	3					
W	15B	3					
W	15C	3					
W	16A	3					
W	16B	3					
W	16C	3					
W	17A	3					
W	17B	3					
W	17C	3					

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*  S T U D E R  *      L O C A T I O N   P I N   L I S T     *  83/12/02 * 16:00     *  P A G E         *
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DIGITAL PREVIEW UNIT DAD 16   1.611.001.00   83/12/01

GR: 01 (CONTINUATION)
BACKPANEL

EL: 08 (CONTINUATION)

TYPE	PT	LV	SIG.NAME	COLOR	F	X	Y
W	18A	3					
W	18B	3					
W	18C	3					
W	19A	3					
W	19B	3					
W	19C	3					
W	20A	3					
W	20B	3					
W	20C	3					
W	21A	3					
W	21B	3					
W	21C	3					
W	22A	3					
W	22B	3					
W	22C	3					
W	23A	3	SET-EMPH				
W	23B	3					
W	23C	3					
W	24A	3					
W	24B	3	DAC-2				
W	24C	3	+5V-MUTE				
W	25A	3	DAC-3				
W	25B	3	+0V-MUTE				
W	25C	3	DAC-1				
W	26A	3	IMUTE				
W	26B	3	DAC-4				
W	26C	3					
W	27A	3	DAC-0				
W	27B	3					
W	27C	3	DAC-5				
W	28A	3					
W	28B	3	IDAC-2				
W	28C	3					
W	29A	3	DAC-6				
W	29B	3					
W	29C	3	DAC-7				
W	30A	3					
W	30B	3	IDAC-4				
W	30C	3					
W	31A	3	IDAC-3				
W	31B	3					
W	31C	3	FULL/HLF				
W	32A	3a					
W	32B	3a					
W	32C	3a					

GR: 01 (CONTINUATION)
BACKPANEL

EL: 09 J 01 A/D-CONVERT. 3*32

TYPE	PT	LV	SIG.NAME	COLOR	F	X	Y
W	01A	3a	GND				
W	01B	3	IAD-ON				
W	01C	3a					
W	02A	3					
W	02B	3					
W	02C	3					
W	03A	3					
W	03B	3					
W	03C	3					
W	04A	3					
W	04B	3					
W	04C	3					
W	05A	3					
W	05B	3					
W	05C	3					
W	06A	3					
W	06B	3					
W	06C	3					
W	07A	3					
W	07B	3					
W	07C	3					
W	08A	3					
W	08B	3					
W	08C	3					
W	09A	3					
W	09B	3					
W	09C	3					
W	10A	3					
W	10B	3					
W	10C	3					
W	11A	3					
W	11B	3					
W	11C	3					
W	12A	3					
W	12B	3					
W	12C	3					
W	13A	3					
W	13B	3					
W	13C	3					
W	14A	3					
W	14B	3					
W	14C	3					
W	15A	3					
W	15B	3					
W	15C	3					
W	16A	3					
W	16B	3					
W	16C	3					
W	17A	3					
W	17B	3					
W	17C	3					

GR: 01 (CONTINUATION)
BACKPANEL

EL: 09 (CONTINUATION)

TYPE	PT	LV	SIG.NAME	COLOR	F	X	Y
W	18A	3					
W	18B	3					
W	18C	3					
W	19A	3					
W	19B	3					
W	19C	3					
W	20A	3					
W	20B	3					
W	20C	3					
W	21A	3					
W	21B	3					
W	21C	3					
W	22A	3					
W	22B	3	DIG/ANA				
W	22C	3					
W	23A	3	WSYNC+				
W	23B	3					
W	23C	3	WSYNC-				
W	24A	3					
W	24B	3					
W	24C	3					
W	25A	3	BCLKAD+				
W	25B	3					
W	25C	3	BCLKAD-				
W	26A	3					
W	26B	3					
W	26C	3					
W	27A	3	DATAI2-				
W	27B	3					
W	27C	3	DATAI2+				
W	28A	3					
W	28B	3					
W	28C	3					
W	29A	3	DATAI1-				
W	29B	3					
W	29C	3	DATAI1+				
W	30A	3					
W	30B	3					
W	30C	3					
W	31A	3					
W	31B	3					
W	31C	3					
W	32A	3a					
W	32B	3a					
W	32C	3a					

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*   S T U D E R   *      L O C A T I O N    S U M M A R Y          *    83/12/02 * 16:00      *   P A G E          *
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DIGITAL PREVIEW UNIT DAD 16                                  1.611.001.00            83/12/01
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GR #	USED PINS	UNUSED PINS	TOTAL PINS	COD. KEYS	ELE-MNTS	DESCRIPTION OF GROUP	PART # OF GR
01	304	560	864	0	9	BACKPANEL	1.611.050.00
TOT.	304	560	864	0	9	DISTRIBUTED IN 1 GROUPS	

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*  S T U D E R  *  S I G N A L  W I R E  L I S T          *  84/01/03 * 08:55    *  P A G E          *
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DIGITAL PREVIEW UNIT DAD 16                                                          3/12/01

SIG.NAME  COLOR TYPE GR EL PT  S DESCRIPTION OF ELEMENT
--------  ----- ---- -- -- --- - ------------------------------
AD-IN-1         W    01 04 08B  J   02  A/D-CONVERTER  3*32
                W    01 05 16B  J   01  FILTERBOARD  3*32

AD-IN-2         W    01 04 26B  J   02  A/D-CONVERTER  3*32
                W    01 05 23C  J   01  FILTERBOARD  3*32

DA-U-1          W    01 06 12B  J   02  FILTERBOARD  3*32
                W    01 07 02B  J   02  D/A-CONVERT.  3*32

DA-U-2          W    01 06 24B  J   02  FILTERBOARD  3*32
                W    01 07 04B  J   02  D/A-CONVERT.  3*32

DA-1            W    01 06 04B  J   02  FILTERBOARD  3*32
                W    01 07 08B  J   02  D/A-CONVERT.  3*32

DA-2            W    01 06 08B  J   02  FILTERBOARD  3*32
                W    01 07 26B  J   02  D/A-CONVERT.  3*32

IN-CH1+         W    01 01 29A  J   01  AUDIO-I/O    3*32

IN-CH1-         W    01 01 29C  J   01  AUDIO-I/O    3*32

IN-CH2+         W    01 02 03A  J   02  AUDIO-I/O    3*32

IN-CH2-         W    01 02 03C  J   02  AUDIO-I/O    3*32

I1SCREEN        W    01 01 28B  J   01  AUDIO-I/O    3*32

I2SCREEN        W    01 02 02B  J   02  AUDIO-I/O    3*32

O-FIL1-1        W    01 01 19C  J   01  AUDIO-I/O    3*32
                W    01 05 14B  J   01  FILTERBOARD  3*32

O-FIL1-2        W    01 02 05C  J   02  AUDIO-I/O    3*32
                W    01 05 20B  J   01  FILTERBOARD  3*32

O-FIL2-1        W    01 01 23C  J   01  AUDIO-I/O    3*32
                W    01 05 04B  J   01  FILTERBOARD  3*32

O-FIL2-2        W    01 02 11C  J   02  AUDIO-I/O    3*32
                W    01 05 18B  J   01  FILTERBOARD  3*32

O-MDAC11        W    01 01 26B  J   01  AUDIO-I/O    3*32
                W    01 05 02B  J   01  FILTERBOARD  3*32

O-MDAC12        W    01 01 16B  J   01  AUDIO-I/O    3*32
                W    01 05 22B  J   01  FILTERBOARD  3*32

O-MDAC21        W    01 02 09C  J   02  AUDIO-I/O    3*32
                W    01 06 02B  J   02  FILTERBOARD  3*32

O-MDAC22        W    01 01 31C  J   01  AUDIO-I/O    3*32
                W    01 06 06B  J   02  FILTERBOARD  3*32

OUT-CH1+        W    01 02 31A  J   02  AUDIO-I/O    3*32

SIG.NAME  COLOR TYPE GR EL PT  S DESCRIPTION OF ELEMENT
--------  ----- ---- -- -- --- - ------------------------------
OUT-CH1-        W    01 02 31C  J   02  AUDIO-I/O    3*32

OUT-CH2+        W    01 01 03C  J   01  AUDIO-I/O    3*32

OUT-CH2-        W    01 01 03A  J   01  AUDIO-I/O    3*32

O1SCREEN        W    01 02 29C  J   02  AUDIO-I/O    3*32

O2SCREEN        W    01 01 04B  J   01  AUDIO-I/O    3*32

SCREEN00        W    01 01 23A  J   01  AUDIO-I/O    3*32
                W    01 05 17C  J   01  FILTERBOARD  3*32

SCREEN01        W    01 06 17C  J   02  FILTERBOARD  3*32

SCREEN02        W    01 05 03A  J   01  FILTERBOARD  3*32

SCREEN03        W    01 01 19A  J   01  AUDIO-I/O    3*32

SCREEN04        W    01 07 03A  J   02  D/A-CONVERT.  3*32

SCREEN05        W    01 07 03C  J   02  D/A-CONVERT.  3*32

SCREEN06        W    01 07 09C  J   02  D/A-CONVERT.  3*32

SCREEN07        W    01 02 11A  J   02  AUDIO-I/O    3*32

SCREEN08        W    01 05 21C  J   01  FILTERBOARD  3*32

SCREEN09        W    01 05 21A  J   01  FILTERBOARD  3*32

SCREEN10        W    01 02 05A  J   02  AUDIO-I/O    3*32

SCREEN11        W    01 07 05A  J   02  D/A-CONVERT.  3*32

SCREEN12        W    01 06 07C  J   02  FILTERBOARD  3*32

SCREEN13        W    01 07 27C  J   02  D/A-CONVERT.  3*32
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DIGITAL PREVIEW UNIT DAD 16 1.611.001.00 83/12/01

SIG.NAME	COLOR	TYPE	GR	EL	PT	S	DESCRIPTION OF ELEMENT			
+0V		W	01	02	01A	@ J	02	INTERFACE	3*32	
+0V-MUTE		W	01	05	02B	J	01	CONTROLBOARD	3*32	
		W	01	08	25B	J	01	FILTERBOARD	3*32	
+5V-MUTE		W	01	05	04B	J	01	CONTROLBOARD	3*32	
		W	01	08	24C	J	01	FILTERBOARD	3*32	
A-00		W	01	01	21B	J	01	INTERFACE	3*32	
		W	01	05	20B	J	01	CONTROLBOARD	3*32	
A-01		W	01	01	21C	J	01	INTERFACE	3*32	
		W	01	05	20C	J	01	CONTROLBOARD	3*32	
AD-LATCH		W	01	03	10A	J	01	MEMORYBOARD	3*32	
		W	01	05	21B	J	01	CONTROLBOARD	3*32	
ADR-00		W	01	03	02B	J	01	MEMORYBOARD	3*32	
		W	01	05	02A	J	01	CONTROLBOARD	3*32	
ADR-01		W	01	03	03B	J	01	MEMORYBOARD	3*32	
		W	01	05	03A	J	01	CONTROLBOARD	3*32	
ADR-02		W	01	03	04B	J	01	MEMORYBOARD	3*32	
		W	01	05	04A	J	01	CONTROLBOARD	3*32	
ADR-03		W	01	03	05B	J	01	MEMORYBOARD	3*32	
		W	01	05	05A	J	01	CONTROLBOARD	3*32	
ADR-04		W	01	03	06B	J	01	MEMORYBOARD	3*32	
		W	01	05	06A	J	01	CONTROLBOARD	3*32	
ADR-05		W	01	03	07B	J	01	MEMORYBOARD	3*32	
		W	01	05	07A	J	01	CONTROLBOARD	3*32	
ADR-06		W	01	03	08B	J	01	MEMORYBOARD	3*32	
		W	01	05	08A	J	01	CONTROLBOARD	3*32	
ADR-07		W	01	03	09B	J	01	MEMORYBOARD	3*32	
		W	01	05	09A	J	01	CONTROLBOARD	3*32	
ADR-08		W	01	03	10B	J	01	MEMORYBOARD	3*32	
		W	01	05	10A	J	01	CONTROLBOARD	3*32	
ADR-09		W	01	03	11B	J	01	MEMORYBOARD	3*32	
		W	01	05	11A	J	01	CONTROLBOARD	3*32	
ADR-10		W	01	03	12B	J	01	MEMORYBOARD	3*32	
		W	01	05	12A	J	01	CONTROLBOARD	3*32	
ADR-11		W	01	03	13B	J	01	MEMORYBOARD	3*32	
		W	01	05	13A	J	01	CONTROLBOARD	3*32	
ADR-12		W	01	03	14B	J	01	MEMORYBOARD	3*32	
		W	01	05	14A	J	01	CONTROLBOARD	3*32	
ADR-13		W	01	03	15B	J	01	MEMORYBOARD	3*32	
		W	01	05	15A	J	01	CONTROLBOARD	3*32	
ADR-14		W	01	03	16B	J	01	MEMORYBOARD	3*32	
		W	01	05	16A	J	01	CONTROLBOARD	3*32	
ADR-15		W	01	03	17B	J	01	MEMORYBOARD	3*32	
		W	01	05	17A	J	01	CONTROLBOARD	3*32	
ADR-16		W	01	03	18B	J	01	MEMORYBOARD	3*32	
		W	01	05	18A	J	01	CONTROLBOARD	3*32	
BCLKAD+		W	01	03	24C	J	01	MEMORYBOARD	3*32	
		W	01	05	28A	J	01	CONTROLBOARD	3*32	
		W	01	07	25A	J	01	D/A-CONVERT.	3*32	
		W	01	09	25A	J	01	A/D-CONVERT.	3*32	
BCLKAD-		W	01	03	24A	J	01	MEMORYBOARD	3*32	
		W	01	05	28C	J	01	CONTROLBOARD	3*32	
		W	01	07	25C	J	01	D/A-CONVERT.	3*32	
		W	01	09	25C	J	01	A/D-CONVERT.	3*32	
BCLKI+		W	01	03	25C	J	01	MEMORYBOARD	3*32	
		W	01	05	29A	J	01	CONTROLBOARD	3*32	
BCLKI-		W	01	03	25A	J	01	MEMORYBOARD	3*32	
		W	01	05	29C	J	01	CONTROLBOARD	3*32	
D-IN-1/1		W	01	03	02A	J	01	MEMORYBOARD	3*32	
		W	01	06	02A	J	02	CONTROLBOARD	3*32	
D-IN-1/2		W	01	03	02C	J	01	MEMORYBOARD	3*32	
		W	01	06	24A	J	02	CONTROLBOARD	3*32	
D-IN-2/1		W	01	03	03A	J	01	MEMORYBOARD	3*32	
		W	01	06	03A	J	02	CONTROLBOARD	3*32	
D-IN-2/2		W	01	03	03C	J	01	MEMORYBOARD	3*32	
		W	01	06	25A	J	02	CONTROLBOARD	3*32	
D-IN-3/1		W	01	03	04A	J	01	MEMORYBOARD	3*32	
		W	01	06	04A	J	02	CONTROLBOARD	3*32	
D-IN-3/2		W	01	03	04C	J	01	MEMORYBOARD	3*32	
		W	01	06	26A	J	02	CONTROLBOARD	3*32	
D-IN-4/1		W	01	03	05A	J	01	MEMORYBOARD	3*32	
		W	01	06	05A	J	02	CONTROLBOARD	3*32	
D-IN-4/2		W	01	03	05C	J	01	MEMORYBOARD	3*32	
		W	01	06	27A	J	02	CONTROLBOARD	3*32	
D-IN-5/1		W	01	03	06A	J	01	MEMORYBOARD	3*32	
		W	01	06	06A	J	02	CONTROLBOARD	3*32	
D-IN-5/2		W	01	03	06C	J	01	MEMORYBOARD	3*32	

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7.4.2 Digital Signal Wire List

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*****************************************************************************************************************************
*  S T U D E R  *   S I G N A L   W I R E   L I S T          *  83/12/02 * 16:00     *  P A G E                          *
*****************************************************************************************************************************
DIGITAL PREVIEW UNIT DAD 16                                  1.611.001.00          83/12/01

SIG.NAME COLOR TYPE GR EL PT  S DESCRIPTION OF ELEMENT
-------- ----- ---- -- -- --- - --------------------------------
(CONT.)         W    01 06 28A  J    02  CONTROLBOARD 3*32

D-IN-6/1        W    01 03 07A  J    01  MEMORYBOARD  3*32
                W    01 06 07A  J    02  CONTROLBOARD 3*32

D-IN-6/2        W    01 03 07C  J    01  MEMORYBOARD  3*32
                W    01 06 29A  J    02  CONTROLBOARD 3*32

D-IN-7/1        W    01 03 08A  J    01  MEMORYBOARD  3*32
                W    01 06 08A  J    02  CONTROLBOARD 3*32

D-IN-7/2        W    01 03 08C  J    01  MEMORYBOARD  3*32
                W    01 06 30A  J    02  CONTROLBOARD 3*32

D-IN-8/1        W    01 03 09A  J    01  MEMORYBOARD  3*32
                W    01 06 09A  J    02  CONTROLBOARD 3*32

D-IN-8/2        W    01 03 09C  J    01  MEMORYBOARD  3*32
                W    01 06 31A  J    02  CONTROLBOARD 3*32

DAC-0           W    01 05 19A  J    01  CONTROLBOARD 3*32
                W    01 08 07C  J    01  FILTERBOARD  3*32
                W    01 08 27A  J    01  FILTERBOARD  3*32

DAC-1           W    01 05 20A  J    01  CONTROLBOARD 3*32
                W    01 08 08B  J    01  FILTERBOARD  3*32
                W    01 08 25C  J    01  FILTERBOARD  3*32

DAC-2           W    01 05 21A  J    01  CONTROLBOARD 3*32
                W    01 08 09A  J    01  FILTERBOARD  3*32
                W    01 08 24B  J    01  FILTERBOARD  3*32

DAC-3           W    01 05 22A  J    01  CONTROLBOARD 3*32
                W    01 08 12B  J    01  FILTERBOARD  3*32
                W    01 08 25A  J    01  FILTERBOARD  3*32

DAC-4           W    01 05 23A  J    01  CONTROLBOARD 3*32
                W    01 08 11C  J    01  FILTERBOARD  3*32
                W    01 08 26B  J    01  FILTERBOARD  3*32

DAC-5           W    01 05 24A  J    01  CONTROLBOARD 3*32
                W    01 08 11A  J    01  FILTERBOARD  3*32
                W    01 08 27C  J    01  FILTERBOARD  3*32

DAC-6           W    01 05 25A  J    01  CONTROLBOARD 3*32
                W    01 08 10B  J    01  FILTERBOARD  3*32
                W    01 08 29A  J    01  FILTERBOARD  3*32

DAC-7           W    01 05 26A  J    01  CONTROLBOARD 3*32
                W    01 08 09C  J    01  FILTERBOARD  3*32
                W    01 08 29C  J    01  FILTERBOARD  3*32

DATAI1+         W    01 03 27A  J    01  MEMORYBOARD  3*32
                W    01 09 29C  J    01  A/D-CONVERT. 3*32

DATAI1-         W    01 03 27C  J    01  MEMORYBOARD  3*32

SIG.NAME COLOR TYPE GR EL PT  S DESCRIPTION OF ELEMENT
-------- ----- ---- -- -- --- - --------------------------------
(CONT.)         W    01 09 29A  J    01  A/D-CONVERT. 3*32

DATAI2+         W    01 03 29A  J    01  MEMORYBOARD  3*32
                W    01 09 27C  J    01  A/D-CONVERT. 3*32

DATAI2-         W    01 03 29C  J    01  MEMORYBOARD  3*32
                W    01 09 27A  J    01  A/D-CONVERT. 3*32

DATA01+         W    01 03 26A  J    01  MEMORYBOARD  3*32
                W    01 07 29A  J    01  D/A-CONVERT. 3*32

DATA01-         W    01 03 26C  J    01  MEMORYBOARD  3*32
                W    01 07 29C  J    01  D/A-CONVERT. 3*32

DATA02+         W    01 03 28A  J    01  MEMORYBOARD  3*32
                W    01 07 27A  J    01  D/A-CONVERT. 3*32

DATA02-         W    01 03 28C  J    01  MEMORYBOARD  3*32
                W    01 07 27C  J    01  D/A-CONVERT. 3*32

DI-00/1         W    01 02 02B  J    02  INTERFACE    3*32
                W    01 04 02B  J    02  MEMORYBOARD  3*32

DI-00/2         W    01 02 24B  J    02  INTERFACE    3*32
                W    01 04 24B  J    02  MEMORYBOARD  3*32

DI-01/1         W    01 02 03B  J    02  INTERFACE    3*32
                W    01 04 03B  J    02  MEMORYBOARD  3*32

DI-01/2         W    01 02 25B  J    02  INTERFACE    3*32
                W    01 04 25B  J    02  MEMORYBOARD  3*32

DI-02/1         W    01 02 04B  J    02  INTERFACE    3*32
                W    01 04 04B  J    02  MEMORYBOARD  3*32

DI-02/2         W    01 02 26B  J    02  INTERFACE    3*32
                W    01 04 26B  J    02  MEMORYBOARD  3*32

DI-03/1         W    01 02 05B  J    02  INTERFACE    3*32
                W    01 04 05B  J    02  MEMORYBOARD  3*32

DI-03/2         W    01 02 27B  J    02  INTERFACE    3*32
                W    01 04 27B  J    02  MEMORYBOARD  3*32

DI-04/1         W    01 02 06B  J    02  INTERFACE    3*32
                W    01 04 06B  J    02  MEMORYBOARD  3*32

DI-04/2         W    01 02 28B  J    02  INTERFACE    3*32
                W    01 04 28B  J    02  MEMORYBOARD  3*32

DI-05/1         W    01 02 07B  J    02  INTERFACE    3*32
                W    01 04 07B  J    02  MEMORYBOARD  3*32

DI-05/2         W    01 02 29B  J    02  INTERFACE    3*32
                W    01 04 29B  J    02  MEMORYBOARD  3*32

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SIG.NAME	COLOR	TYPE	GR	EL	PT	S	DESCRIPTION OF ELEMENT	
DI-06/1		W	01	02	08B	J	02 INTERFACE	3*32
		W	01	04	08B	J	02 MEMORYBOARD	3*32
DI-06/2		W	01	02	30B	J	02 INTERFACE	3*32
		W	01	04	30B	J	02 MEMORYBOARD	3*32
DI-07/1		W	01	02	09B	J	02 INTERFACE	3*32
		W	01	04	09B	J	02 MEMORYBOARD	3*32
DI-07/2		W	01	02	31B	J	02 INTERFACE	3*32
		W	01	04	31B	J	02 MEMORYBOARD	3*32
DI-08/1		W	01	02	02A	J	02 INTERFACE	3*32
		W	01	04	02A	J	02 MEMORYBOARD	3*32
DI-08/2		W	01	02	24A	J	02 INTERFACE	3*32
		W	01	04	24A	J	02 MEMORYBOARD	3*32
DI-09/1		W	01	02	03A	J	02 INTERFACE	3*32
		W	01	04	03A	J	02 MEMORYBOARD	3*32
DI-09/2		W	01	02	25A	J	02 INTERFACE	3*32
		W	01	04	25A	J	02 MEMORYBOARD	3*32
DI-10/1		W	01	02	04A	J	02 INTERFACE	3*32
		W	01	04	04A	J	02 MEMORYBOARD	3*32
DI-10/2		W	01	02	26A	J	02 INTERFACE	3*32
		W	01	04	26A	J	02 MEMORYBOARD	3*32
DI-11/1		W	01	02	05A	J	02 INTERFACE	3*32
		W	01	04	05A	J	02 MEMORYBOARD	3*32
DI-11/2		W	01	02	27A	J	02 INTERFACE	3*32
		W	01	04	27A	J	02 MEMORYBOARD	3*32
DI-12/1		W	01	02	06A	J	02 INTERFACE	3*32
		W	01	04	06A	J	02 MEMORYBOARD	3*32
DI-12/2		W	01	02	28A	J	02 INTERFACE	3*32
		W	01	04	28A	J	02 MEMORYBOARD	3*32
DI-13/1		W	01	02	07A	J	02 INTERFACE	3*32
		W	01	04	07A	J	02 MEMORYBOARD	3*32
DI-13/2		W	01	02	29A	J	02 INTERFACE	3*32
		W	01	04	29A	J	02 MEMORYBOARD	3*32
DI-14/1		W	01	02	08A	J	02 INTERFACE	3*32
		W	01	04	08A	J	02 MEMORYBOARD	3*32
DI-14/2		W	01	02	30A	J	02 INTERFACE	3*32
		W	01	04	30A	J	02 MEMORYBOARD	3*32
DI-15/1		W	01	02	09A	J	02 INTERFACE	3*32
		W	01	04	09A	J	02 MEMORYBOARD	3*32
DI-15/2		W	01	02	31A	J	02 INTERFACE	3*32
		W	01	04	31A	J	02 MEMORYBOARD	3*32
DIG/ANA		W	01	01	22B	J	01 INTERFACE	3*32
		W	01	03	20B	J	01 MEMORYBOARD	3*32
		W	01	05	22B	J	01 CONTROLBOARD	3*32
		W	01	09	22B	J	01 A/D-CONVERT.	3*32
DO-08/1		W	01	04	02C	J	02 MEMORYBOARD	3*32
		W	01	06	02C	J	02 CONTROLBOARD	3*32
DO-08/2		W	01	04	24C	J	02 MEMORYBOARD	3*32
		W	01	06	24C	J	02 CONTROLBOARD	3*32
DO-09/1		W	01	04	03C	J	02 MEMORYBOARD	3*32
		W	01	06	03C	J	02 CONTROLBOARD	3*32
DO-09/2		W	01	04	25C	J	02 MEMORYBOARD	3*32
		W	01	06	25C	J	02 CONTROLBOARD	3*32
DO-10/1		W	01	04	04C	J	02 MEMORYBOARD	3*32
		W	01	06	04C	J	02 CONTROLBOARD	3*32
DO-10/2		W	01	04	26C	J	02 MEMORYBOARD	3*32
		W	01	06	26C	J	02 CONTROLBOARD	3*32
DO-11/1		W	01	04	05C	J	02 MEMORYBOARD	3*32
		W	01	06	05C	J	02 CONTROLBOARD	3*32
DO-11/2		W	01	04	27C	J	02 MEMORYBOARD	3*32
		W	01	06	27C	J	02 CONTROLBOARD	3*32
DO-12/1		W	01	04	06C	J	02 MEMORYBOARD	3*32
		W	01	06	06C	J	02 CONTROLBOARD	3*32
DO-12/2		W	01	04	28C	J	02 MEMORYBOARD	3*32
		W	01	06	28C	J	02 CONTROLBOARD	3*32
DO-13/1		W	01	04	07C	J	02 MEMORYBOARD	3*32
		W	01	06	07C	J	02 CONTROLBOARD	3*32
DO-13/2		W	01	04	29C	J	02 MEMORYBOARD	3*32
		W	01	06	29C	J	02 CONTROLBOARD	3*32
DO-14/1		W	01	04	08C	J	02 MEMORYBOARD	3*32
		W	01	06	08C	J	02 CONTROLBOARD	3*32
DO-14/2		W	01	04	30C	J	02 MEMORYBOARD	3*32
		W	01	06	30C	J	02 CONTROLBOARD	3*32
DO-15/1		W	01	04	09C	J	02 MEMORYBOARD	3*32
		W	01	06	09C	J	02 CONTROLBOARD	3*32
DO-15/2		W	01	04	31C	J	02 MEMORYBOARD	3*32
		W	01	06	31C	J	02 CONTROLBOARD	3*32

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SIG.NAME	COLOR	TYPE	GR	EL	PT	S	DESCRIPTION OF ELEMENT		
EMPHASIS		W	01	01	22A	J	01	INTERFACE	3*32
		W	01	05	22C	J	01	CONTROLBOARD	3*32
FULL/HLF		W	01	05	23B	J	01	CONTROLBOARD	3*32
		W	01	08	31C	J	01	FILTERBOARD	3*32
GND		W	01	01	01A @	J	01	INTERFACE	3*32
		W	01	03	01A @	J	01	MEMORYBOARD	3*32
		W	01	04	01B	J	02	MEMORYBOARD	3*32
		W	01	04	19B	J	02	MEMORYBOARD	3*32
		W	01	05	01A @	J	01	CONTROLBOARD	3*32
		W	01	07	01A @	J	01	D/A-CONVERT.	3*32
		W	01	08	01A @	J	01	FILTERBOARD	3*32
		W	01	09	01A @	J	01	A/D-CONVERT.	3*32
IAD-IN		W	01	05	26C @	J	01	CONTROLBOARD	3*32
IAD-ON		W	01	09	01B	J	01	A/D-CONVERT.	3*32
ICLR		W	01	03	21B	J	01	MEMORYBOARD	3*32
IDAC-1		W	01	05	27B	J	01	CONTROLBOARD	3*32
		W	01	08	06B	J	01	FILTERBOARD	3*32
IDAC-2		W	01	05	28B	J	01	CONTROLBOARD	3*32
		W	01	08	28B	J	01	FILTERBOARD	3*32
IDAC-3		W	01	05	29B	J	01	CONTROLBOARD	3*32
		W	01	08	31A	J	01	FILTERBOARD	3*32
IDAC-4		W	01	05	30B	J	01	CONTROLBOARD	3*32
		W	01	08	30B	J	01	FILTERBOARD	3*32
IMUTE		W	01	05	24B	J	01	CONTROLBOARD	3*32
		W	01	08	26A	J	01	FILTERBOARD	3*32
INTERRPT		W	01	01	26B	J	01	INTERFACE	3*32
		W	01	05	26B	J	01	CONTROLBOARD	3*32
KEY-0		W	01	01	14C	J	01	INTERFACE	3*32
		W	01	05	14C	J	01	CONTROLBOARD	3*32
KEY-1		W	01	01	13C	J	01	INTERFACE	3*32
		W	01	05	13C	J	01	CONTROLBOARD	3*32
KEY-2		W	01	01	12C	J	01	INTERFACE	3*32
		W	01	05	12C	J	01	CONTROLBOARD	3*32
KEY-3		W	01	01	11C	J	01	INTERFACE	3*32
		W	01	05	11C	J	01	CONTROLBOARD	3*32
KEY-4		W	01	01	10C	J	01	INTERFACE	3*32
		W	01	05	10C	J	01	CONTROLBOARD	3*32
KEY-5		W	01	01	09C	J	01	INTERFACE	3*32
		W	01	05	09C	J	01	CONTROLBOARD	3*32
KEY-6		W	01	01	08C	J	01	INTERFACE	3*32
		W	01	05	08C	J	01	CONTROLBOARD	3*32
KEY-7		W	01	01	07C	J	01	INTERFACE	3*32
		W	01	05	07C	J	01	CONTROLBOARD	3*32
MODE-0		W	01	03	22A	J	01	MEMORYBOARD	3*32
		W	01	03	22B	J	01	MEMORYBOARD	3*32
		W	01	03	22C	J	01	MEMORYBOARD	3*32
REF-EXT+		W	01	01	20A	J	01	INTERFACE	3*32
		W	01	06	20A	J	02	CONTROLBOARD	3*32
REF-EXT-		W	01	01	20C	J	01	INTERFACE	3*32
		W	01	06	20C	J	02	CONTROLBOARD	3*32
RESET		W	01	01	25B	J	01	INTERFACE	3*32
		W	01	05	25B	J	01	CONTROLBOARD	3*32
SET-EMPH		W	01	05	21C	J	01	CONTROLBOARD	3*32
		W	01	08	23A	J	01	FILTERBOARD	3*32
SW-SYNC		W	01	05	25C @	J	01	CONTROLBOARD	3*32
WSYNC+		W	01	03	19C	J	01	MEMORYBOARD	3*32
		W	01	03	20A	J	01	MEMORYBOARD	3*32
		W	01	03	23A	J	01	MEMORYBOARD	3*32
		W	01	05	27A	J	01	CONTROLBOARD	3*32
		W	01	07	23A	J	01	D/A-CONVERT.	3*32
		W	01	09	23A	J	01	A/D-CONVERT.	3*32
WSYNC-		W	01	03	19A	J	01	MEMORYBOARD	3*32
		W	01	03	20C	J	01	MEMORYBOARD	3*32
		W	01	03	23C	J	01	MEMORYBOARD	3*32
		W	01	05	27C	J	01	CONTROLBOARD	3*32
		W	01	07	23C	J	01	D/A-CONVERT.	3*32
		W	01	09	23C	J	01	A/D-CONVERT.	3*32
256*FS+		W	01	01	23A	J	01	INTERFACE	3*32
		W	01	05	24C	J	01	CONTROLBOARD	3*32
256*FS-		W	01	01	23C	J	01	INTERFACE	3*32
		W	01	05	23C	J	01	CONTROLBOARD	3*32
3MHZ+		W	01	03	21A	J	01	MEMORYBOARD	3*32
		W	01	05	30A	J	01	CONTROLBOARD	3*32
3MHZ-		W	01	03	21C	J	01	MEMORYBOARD	3*32
		W	01	05	30C	J	01	CONTROLBOARD	3*32

7.5
Analog Boards

7.5.1
Audio I/O Board

7.5.1.1
Basic Version

In the basic version of the Audio I/O Board, the input stage is transformer coupled (TCO) and the output stage (differential line driver) is balanced, floating and without transformer (NOT).

7.5.1.2
Conversion of the Input Section

The Audio I/O Board contains all elements necessary for an input with or without transformer. In case of transformerless input note levels of the Block Diagram (see section 7.5.1.9)

7.5.1.3
Conversion of the Output Section

Conversion kit 1.860.507.00 contains additional components for output stages with transformer.

7.5.1.4
Version without output transformer (NOT)

CH1:

Replace R12, R15 by the single resistor R12 (see section 7.1.5.14 *Parts lists* for its value) and R19, R21 by the single resistor R19 (see section 7.1.5.14 *Parts lists* for its value). Insert R12 and R19 horizontally. Use the holes indicated on the drawing *component layout* (see section 7.1.5.13).

Insert the correct values for R48 and R50.

Remove the capacitors C22 and C23.

Select the appropriate jumper positions as indicated in section 7.5.1.7.

Repeat this procedure for CH2.

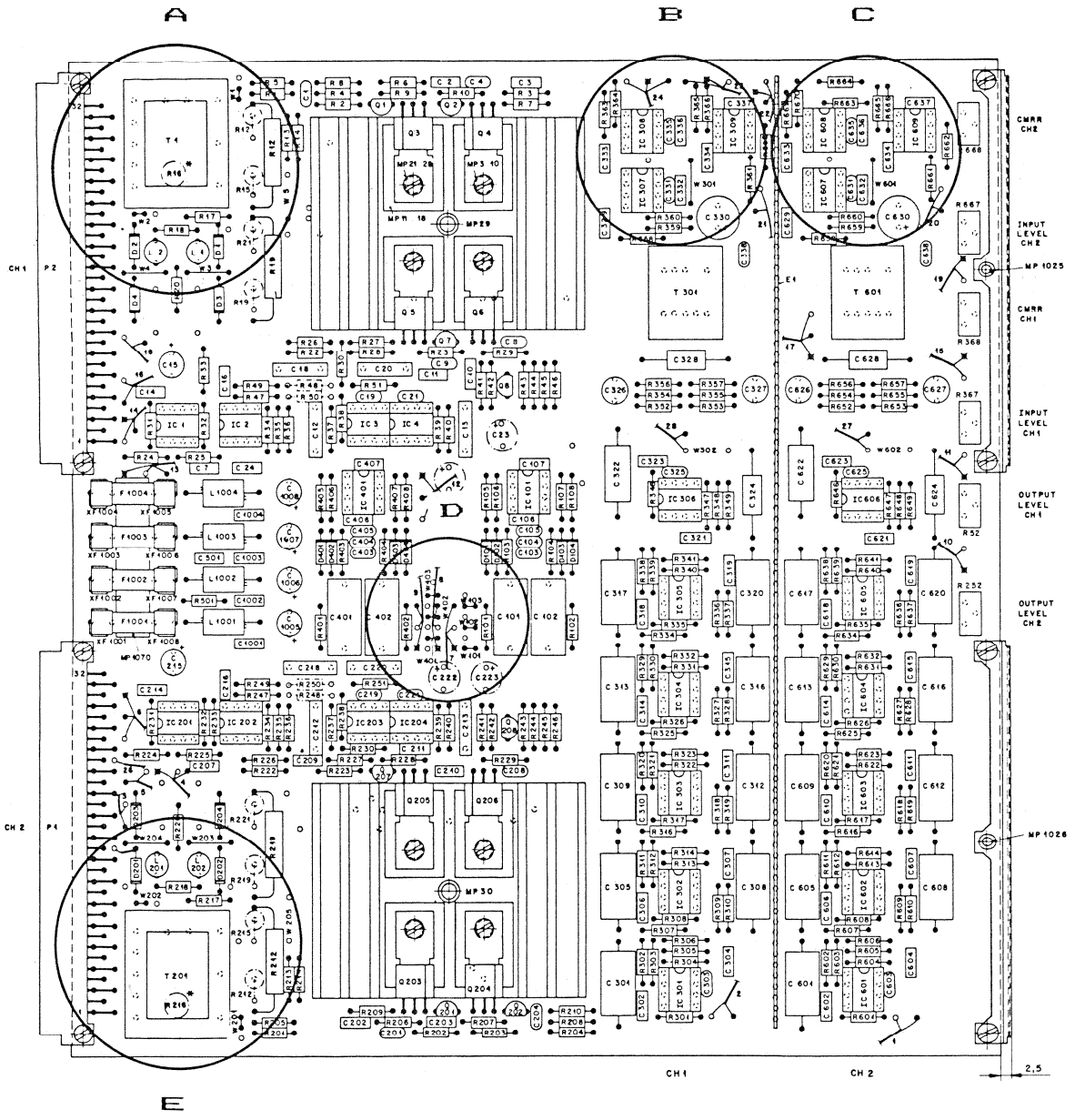
7.5.1.5
Version with output transformer (TCO)

See the description in section 7.1.5.13 *component layout*.

7.5.1.6
Unsymmetrical Output (SED)

Can be obtained by shorting the low side of the one output side to ground (jumper 205). It is advisable to remove at least partially components of unused side.

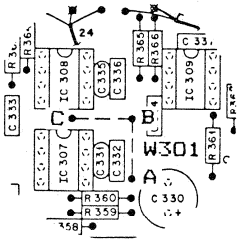
7.5.1.7
Jumper Selection



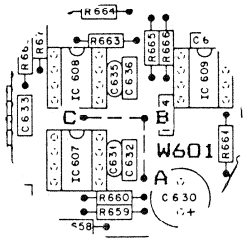
WIRES WITH INSULATING-TUBE

W3, W4, W203, W204, W301, W601

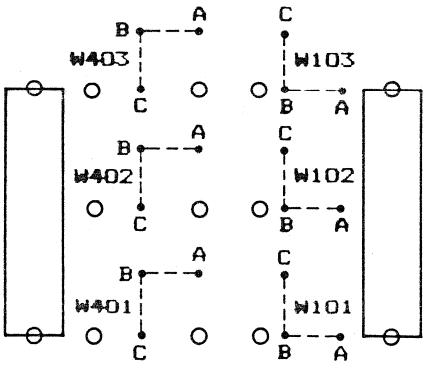
B = INPUT CH1



C = INPUT CH2



D = INPUT CH1+CH2



INPUT SECTION, SEE B, C, D

JUMPER	VERSION	
	TCO	NOT
W101	A-B	B-C
W102	A-B	B-C
W103	A-B	B-C
W301	A-B	B-C
W302	N.I.	N.I.
W401	A-B	B-C
W402	A-B	B-C
W403	A-B	B-C
W601	A-B	B-C
W602	N.I.	N.I.

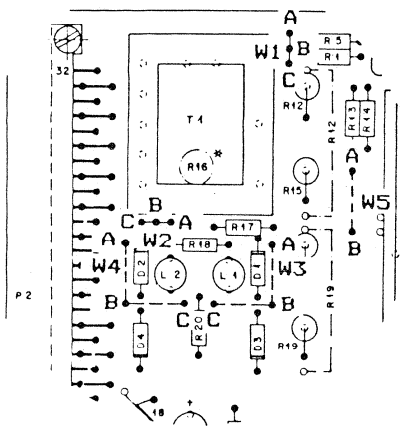
N.I. = NOT INSERTED

DRIVER SECTION, SEE A, E

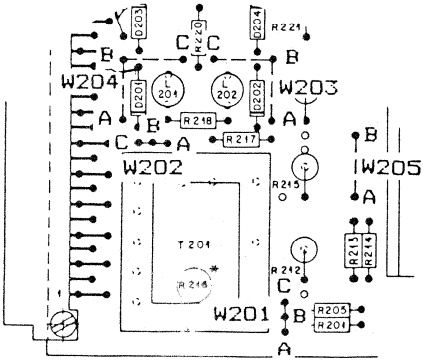
JUMPER	VERSION		
	TCO	NOT	ASY
W1	A-B	B-C	B-C
W2	A-B	B-C	B-C
W3	A-B	B-C	B-C
W4	A-B	B-C	B-C
W5	N.I.	N.I.	A-B
W201	A-B	B-C	B-C
W202	A-B	B-C	B-C
W203	A-B	B-C	B-C
W204	A-B	B-C	B-C
W205	N.I.	N.I.	A-B

N.I = NOT INSERTED

A =DRIVER CH1



E = DRIVER CH2



AUDIO I/O BOARD

CONNECTOR P1

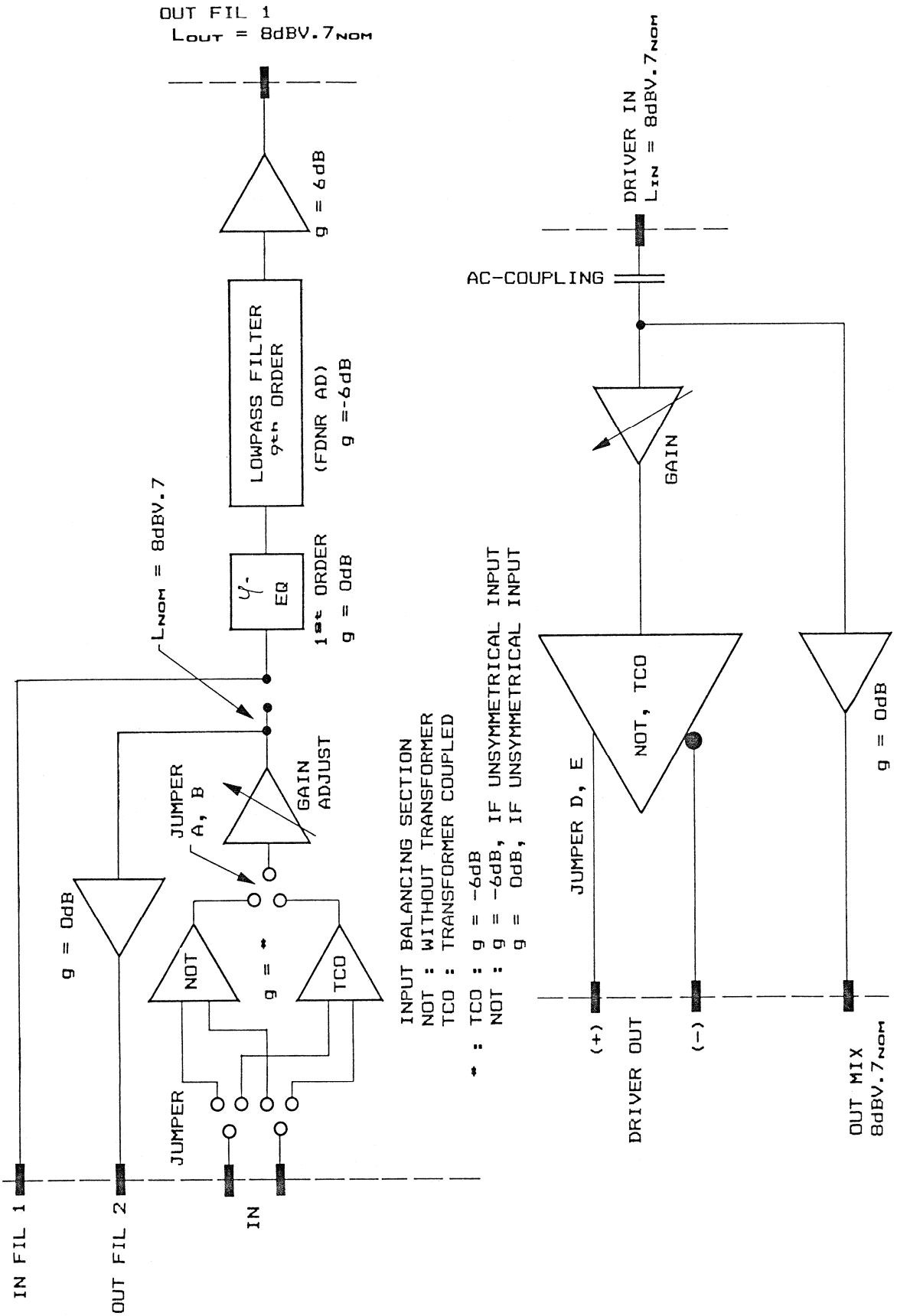
Pin	Signal Name	Pin	Signal Name	Pin	Signal Name
1a	NC	1b	NC	1c	NC
2a	NC	2b	DRIVER MID CH2	2c	NC
3a	DRIVER OUT (-) CH2	3b	NC	3c	DRIVER OUT (+) CH2
4a	NC	4b	GND	4c	NC
5a	NC	5b	NC	5c	NC
6a	NC	6b	NC	6c	NC
7a	NC	7b	NC	7c	NC
8a	NC	8b	NC	8c	NC
9a	GND	9b	NC	9c	GND
10a	NC	10b	-24V	10c	NC
11a	GND	11b	NC	11c	GND
12a	NC	12b	MIX GND	12c	NC
13a	GND	13b	NC	13c	OUT MIX CH2
14a	NC	14b	GND	14c	NC
15a	GND	15b	NC	15c	GND
16a	NC	16b	IN FIL1 CH1	16c	NC
17a	GND	17b	NC	17c	GND
18a	NC	18b	FIL1 GND	18c	NC
19a	GND	19b	NC	19c	OUT FIL1 CH1
20a	NC	20b	+24V	20c	NC
21a	GND	21b	NC	21c	GND
22a	NC	22b	FIL2 GND	22c	NC
23a	GND	23b	NC	23c	OUT FIL1 CH1
24a	NC	24b	GND	24c	NC
25a	GND	25b	NC	25c	GND
26a	NC	26b	IN FIL1 CH2	26c	NC
27a	GND	27b	NC	27c	GND
28a	NC	28b	IN GND CH1	28c	NC
29a	IN (+) CH1	29b	NC	29c	IN (-) CH1
30a	NC	30b	DRIVER IN GND	30c	NC
31a	GND	31b	NC	31c	DRIVER IN CH2
32a	NC	32b	NC	32c	NC

AUDIO I/O BOARD

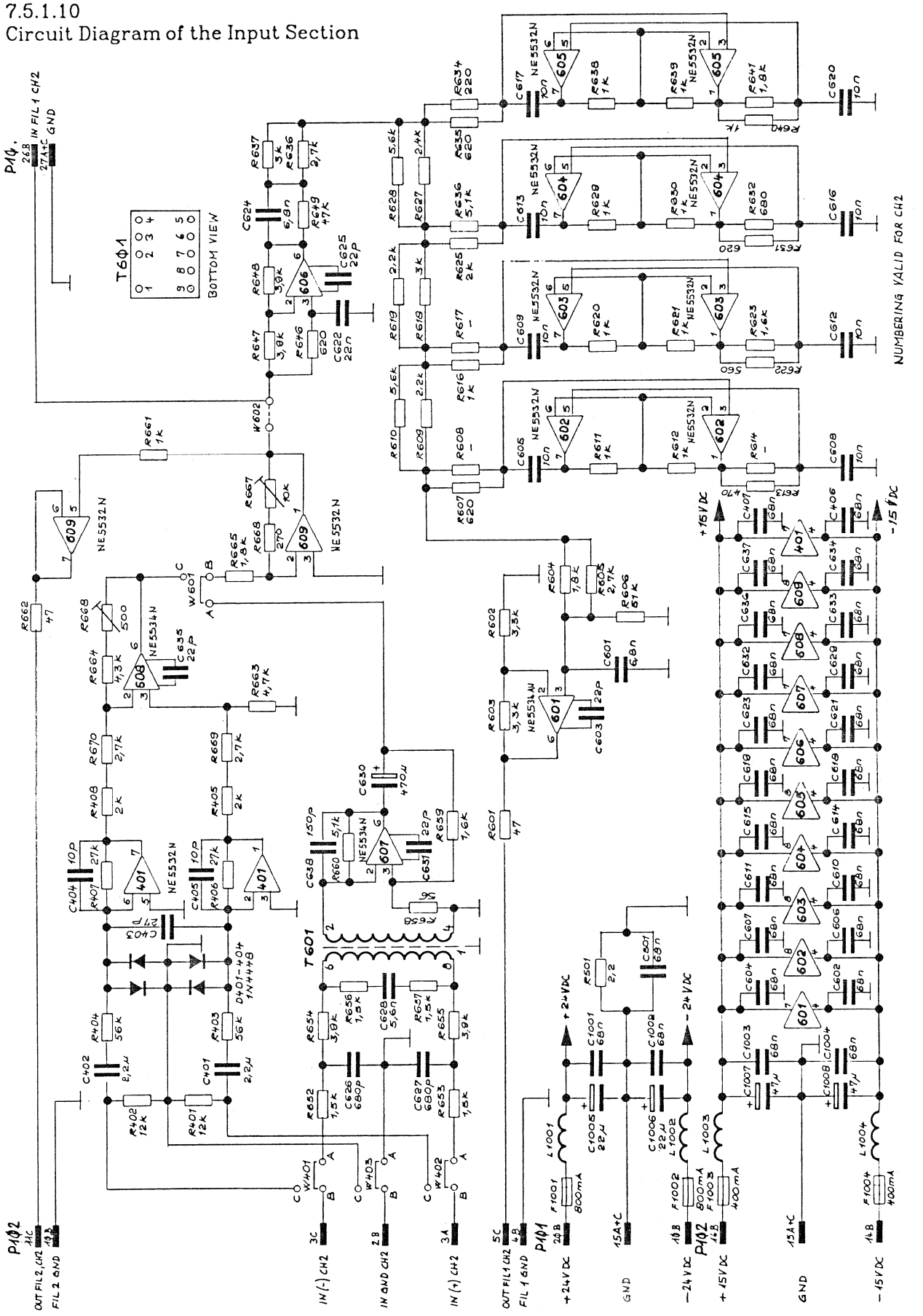
CONNECTOR P2

Pin	Signal Name	Pin	Signal Name	Pin	Signal Name
1a	NC	1b	NC	1c	NC
2a	NC	2b	IN GND CH2	2c	NC
3a	IN (+) CH2	3b	NC	3c	IN (-) CH2
4a	NC	4b	FIL1 GND	4c	NC
5a	GND	5b	NC	5c	OUT FIL1 CH2
6a	NC	6b	GND	6c	NC
7a	GND	7b	NC	7c	GND
8a	NC	8b	DRIVER IN GND	8c	NC
9a	GND	9b	NC	9c	DRIVER IN CH1
10a	NC	10b	FIL2 GND	10c	NC
11a	GND	11b	NC	11c	OUT FIL2 CH2
12a	NC	12b	NC	12c	NC
13a	GND	13b	NC	13c	GND
14a	NC	14b	-15V	14c	NC
15a	GND	15b	NC	15c	GND
16a	NC	16b	+15V	16c	NC
17a	GND	17b	NC	17c	OUT MIX CH1
18a	NC	18b	MIX GND	18c	NC
19a	NC	19b	NC	19c	NC
20a	NC	20b	NC	20c	NC
21a	GND	21b	NC	21c	GND
22a	GND	22b	NC	22c	GND
23a	GND	23b	NC	23c	GND
24a	GND	24b	NC	24c	GND
25a	GND	25b	NC	25c	GND
26a	GND	26b	NC	26c	GND
27a	GND	27b	NC	27c	GND
28a	GND	28b	NC	28c	GND
29a	GND	29b	NC	29c	GND
30a	NC	30b	DRIVER MID	30c	NC
31a	DRIVER OUT (+) CH1	31b	NC	31c	DRIVER OUT (-) CH1
32a	NC	32b	NC	32c	NC

7.5.1.9
Block Diagram

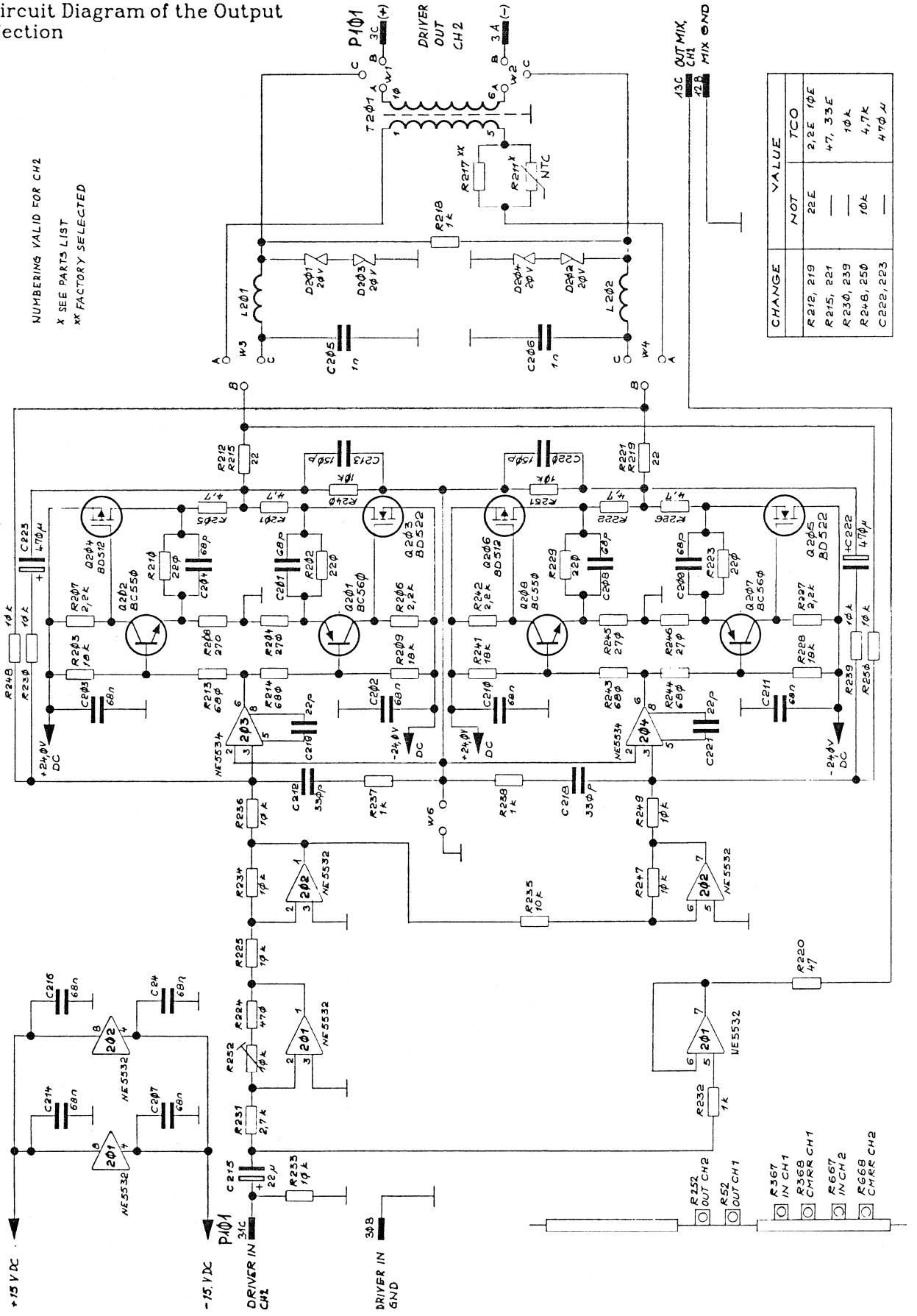


7.5.1.10
Circuit Diagram of the Input Section

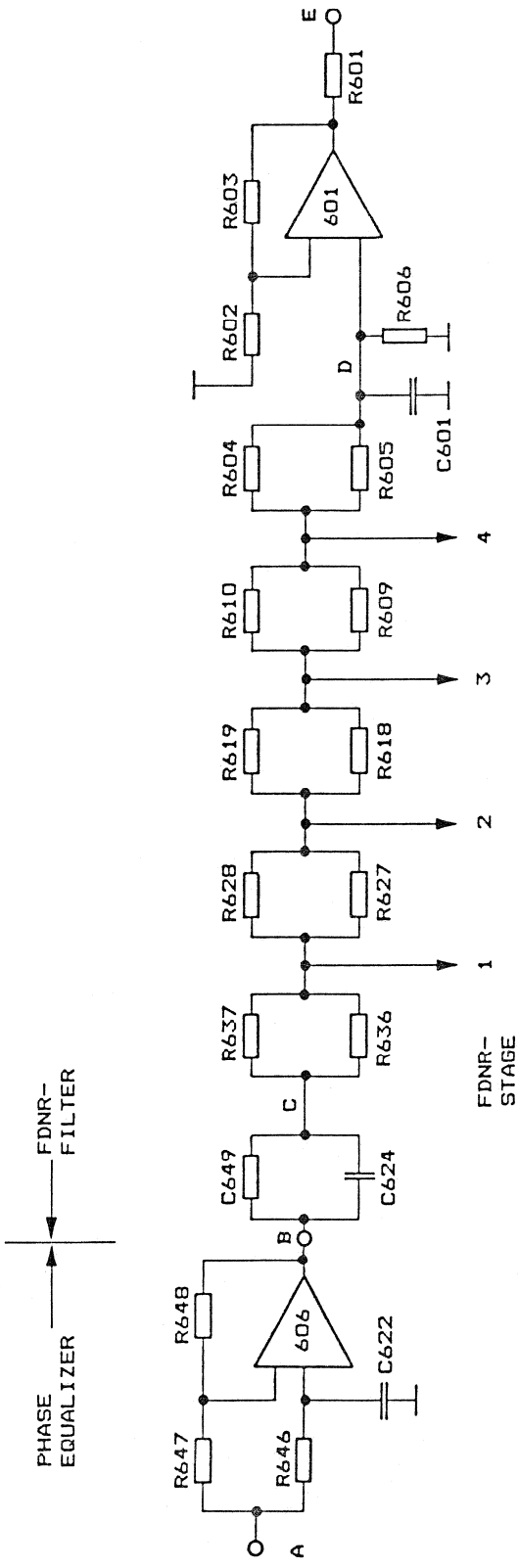


	AUDIO I/O			
STUDER	CIRCUIT/INPUT SECTION		1.860.505	PAGE OF

7.5.1.11
Circuit Diagram of the Output Section



7.5.1.12
Level Diagram of the Filter Section



RELATIVE LEVEL (dB) / TOLERANCE (dB)

A	B	C	1	2	3	4	D	E	FREQUENCY
+0,3/0,3	+0,3/0,3	-6,7/0,5	-7,0/0,4	-7,2/0,4	-7,4/0,4	-7,7/0,4	-7,9/0,5	0/0,5	110Hz
+0,3/0,3	+0,3/0,3	-6,6/1,5	-2,8/0,5	-5,6/0,5	-5,7/0,5	-3,5/0,5	-6,0/0,5	+0,1/0,5	19kHz

0dB ≙ 8dBV.7 (dBV : SUBTRACT 2,22dB)

7.5.1.13
Component Layout

SCREENED CABLES

PT.-NO.	FROM POS.	TO POS.	CH-No.	SIGNAL-NAME
1	6	7	1	INPUT
2	15	23	1	R 367
2	19	24	1	R 368
3	8	17	2	IN T601
4	9	14	2	INPUT
5	12	22	2	IC 401-408
6	4	10	2	R 252
6	11	13	1	R 52
7	2	3	1	OUT FIL 1
8	18	20	2	OUT FIL 2
9	5	21	1	OUT FIL 2
10	1	16	2	OUT FIL 1
11	25	27	2	IN FIL 1
12	26	28	1	IN FIL 1

THE BASIC VERSION OF THIS BOARD - TRANSFORMER COUPLED INPUT / BALANCED, FLOATING, TRANSFORMERLESS OUTPUT (NOT) - IS SHOWN BY COMPONENTS DRAWN WITH SOLID LINES. ALL JUMPER POSITIONS ARE SHOWN FOR THIS VERSION.
W302, 602 NOT INSERTED.
COMPONENTS CONTAINED IN CONVERSION KIT 1.860.507.00 ARE INDICATED BY DASHED LINES.

VERSION WITH OUTPUT TRANSFORMER (TCO)

CH 1 :

- REPLACE R12 BY R12, R15 (VALUES:SEE PARTS LIST)
  AND R19 BY R19, R21 (VALUES:SEE PARTS LIST).
  INSERT RESISTORS VERTICALLY.
- CHANGE R48, R50 FROM 47 TO 10R.
- INSERT C22, C23.
- SELECT APPROPRIATE JUMPER POSITIONS FOR
  W1, W2, W3, W4.
- REPEAT PROCEDURE FOR CH2.

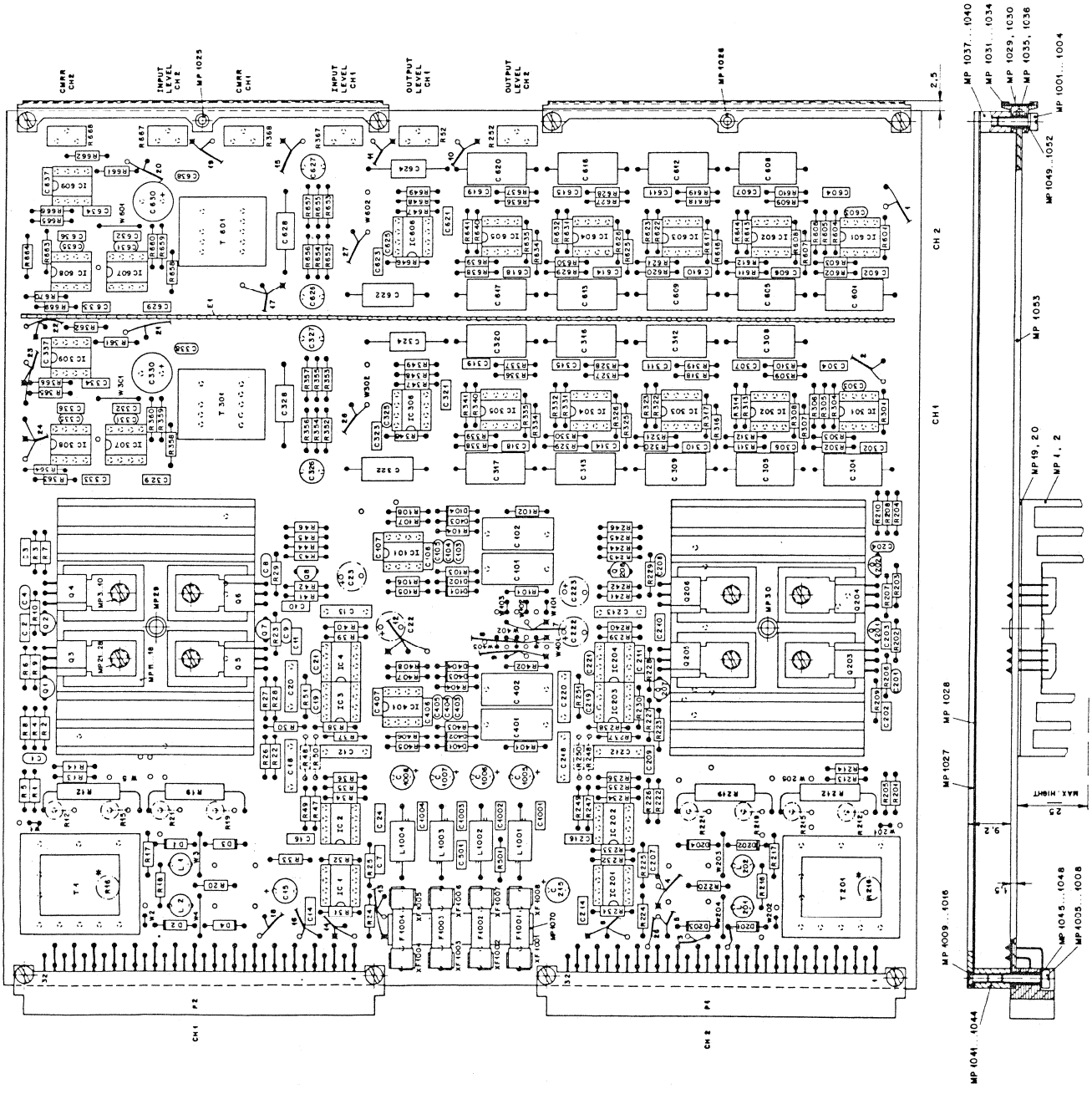
SCREENED LP-CABLES : O WHT
● BLU
● SCREEN

* MIC-RESISTOR, VALUE: SEE PARTS LIST.

CARD CONNECTORS P1, P2:
ACCORDING TO DIN STANDARD 41612, STYLE C, 48 CONTACTS,
OR VG 95324, IEC 130-14, MIL-C-55301/131-134, BS 9525/F004.

BOARD SIZE : 233.4 x 219 mm.

RACK SPACE : 36 mm MIN., RECOMMENDED : 10 mm.



IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	C..0001	59.34.4680	68 p	10%, 50V, CER	
	C..0002	59.99.0205	68 n	20%, 50V, CER	
	C..0003	59.99.0205	68 n	20%, 50V, CER	
	C..0004	59.34.4680	68 p	10%, 50V, CER	
(00)	C..0005	59.11.6102	1 n	5%, 300V, FILM	
(01)	C..0005				
(00)	C..0006	59.11.6102	1 n	5%, 300V, FILM	
(01)	C..0006				
	C..0007	59.99.0205	68 n	20%, 50V, CER	
	C..0008	59.34.4680	68 p	10%, 50V, CER	
	C..0009	59.34.4680	68 p	10%, 50V, CER	
	C..0010	59.99.0205	68 n	20%, 50V, CER	
	C..0011	59.99.0205	68 n	20%, 50V, CER	
	C..0012	59.11.6331	330p	5%, 100V, FILM	
	C..0013	59.11.6151	150p	5%, 300V, FILM	
	C..0014	59.99.0205	68 n	20%, 50V, CER	
	C..0015	59.22.6220	22 u	20%, 20V, ELECTROLYTIC	
	C..0016	59.99.0205	68 n	20%, 50V, CER	
	C..0018	59.11.6331	330p	5%, 100V, FILM	
	C..0019	59.34.2220	22 p	10%, 100V, CER	
	C..0020	59.11.6151	150p	5%, 300V, FILM	
	C..0021	59.34.2220	22 p	10%, 100V, CER	
	C..0024	59.99.0205	68 n	20%, 50V, CER	
	C..0101	59.05.1225	2.2u	10%, 50V, FILM, MATCHED WITH C 102	
	C..0102	59.05.1225	2.2u	10%, 50V, FILM, MATCHED WITH C 101	
	C..0103	59.34.2270	27 p	10%, 100V, CER	
	C..0104	59.34.1100	10 p	10%, 100V, CER	
	C..0105	59.34.1100	10 p	10%, 100V, CER	
	C..0106	59.99.0205	68 n	20%, 50V, CER	
	C..0107	59.99.0205	68 n	20%, 50V, CER	
	C..0201	59.34.4680	68 p	10%, 50V, CER	
	C..0202	59.99.0205	68 n	20%, 50V, CER	
	C..0203	59.99.0205	68 n	20%, 50V, CER	
	C..0204	59.34.4680	68 p	10%, 50V, CER	
(00)	C..0205	59.11.6102	1 n	5%, 300V, FILM	
(01)	C..0205				
(00)	C..0206	59.11.6102	1 n	5%, 300V, FILM	

IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
(01)	C..0206				
	C..0207	59.99.0205	68 n	20%, 50V, CER	
	C..0208	59.34.4680	68 p	10%, 50V, CER	
	C..0209	59.34.4680	68 p	10%, 50V, CER	
	C..0210	59.99.0205	68 n	20%, 50V, CER	
	C..0211	59.99.0205	68 n	20%, 50V, CER	
	C..0212	59.11.6331	330p	5%, 100V, FILM	
	C..0213	59.11.6151	150p	5%, 300V, FILM	
	C..0214	59.99.0205	68 n	20%, 50V, CER	
	C..0215	59.22.6220	22 u	20%, 20V, ELECTROLYTIC	
	C..0216	59.99.0205	68 n	20%, 50V, CER	
	C..0218	59.11.6331	330p	5%, 100V, FILM	
	C..0219	59.34.2220	22 p	10%, 100V, CER	
	C..0220	59.11.6151	150p	5%, 300V, FILM	
	C..0221	59.34.2220	22 p	10%, 100V, CER	
	C..0301	59.12.7682	6.8n	1%, 50V, FILM	
	C..0302	59.99.0205	68 n	20%, 50V, CER	
	C..0303	59.34.2220	22 p	10%, 100V, CER	
	C..0304	59.99.0205	68 n	20%, 50V, CER	
	C..0305	59.12.7103	10 n	1%, 50V, FILM	
	C..0306	59.99.0205	68 n	20%, 50V, CER	
	C..0307	59.99.0205	68 n	20%, 50V, CER	
	C..0308	59.12.7103	10 n	1%, 50V, FILM	
	C..0309	59.12.7103	10 n	1%, 50V, FILM	
	C..0310	59.99.0205	68 n	20%, 50V, CER	
	C..0311	59.99.0205	68 n	20%, 50V, CER	
	C..0312	59.12.7103	10 n	1%, 50V, FILM	
	C..0313	59.12.7103	10 n	1%, 50V, FILM	
	C..0314	59.99.0205	68 n	20%, 50V, CER	
	C..0315	59.99.0205	68 n	20%, 50V, CER	
	C..0316	59.12.7103	10 n	1%, 50V, FILM	
	C..0317	59.12.7103	10 n	1%, 50V, FILM	
	C..0318	59.99.0205	68 n	20%, 50V, CER	
	C..0319	59.99.0205	68 n	20%, 50V, CER	
	C..0320	59.12.7103	10 n	1%, 50V, FILM	
	C..0321	59.99.0205	68 n	20%, 50V, CER	
	C..0322	59.08.7223	22 n	2.5%, 50V, FILM	

IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	C..0323	59.99.0205	68 n	20%, 50V, CER	
	C..0324	59.12.7682	6.8n	1%, 50V, FILM	
	C..0325	59.34.2220	22 p	10%, 100V, CER	
	C..0326	59.05.1681	680p	1%, 100V, FILM	
	C..0327	59.05.1681	680p	1%, 100V, FILM	
	C..0328	59.12.7562	5.6n	2%, 100V, FILM	
	C..0329	59.99.0205	68 n	20%, 50V, CER	
	C..0330	59.22.4471	470u	20%, 15V, ELECTROLYTIC	
	C..0331	59.34.2220	22 p	10%, 100V, CER	
	C..0332	59.99.0205	68 n	20%, 50V, CER	
	C..0333	59.99.0205	68 n	20%, 50V, CER	
	C..0334	59.99.0205	68 n	20%, 50V, CER	
	C..0335	59.34.2220	22 p	10%, 100V, CER	
	C..0336	59.99.0205	68 n	20%, 50V, CER	
	C..0337	59.99.0205	68 n	20%, 50V, CER	
	C..0338	59.34.2151	150p	10%, 100V, CER	
	C..0401	59.05.1225	2.2u	10%, 50V, FILM, MATCHED WITH C 402	
	C..0402	59.05.1225	2.2u	10%, 50V, FILM, MATCHED WITH C 401	
	C..0403	59.34.2270	27 p	10%, 100V, CER	
	C..0404	59.34.1100	10 p	10%, 100V, CER	
	C..0405	59.34.1100	10 p	10%, 100V, CER	
	C..0406	59.99.0205	68 n	20%, 50V, CER	
	C..0407	59.99.0205	68 n	20%, 50V, CER	
	C..0501	59.99.0205	68 n	20%, 50V, CER	
	C..0601	59.12.7682	6.8n	1%, 50V, FILM	
	C..0602	59.99.0205	68 n	20%, 50V, CER	
	C..0603	59.34.2220	22 p	10%, 100V, CER	
	C..0604	59.99.0205	68 n	20%, 50V, CER	
	C..0605	59.12.7103	10 n	1%, 50V, FILM	
	C..0606	59.99.0205	68 n	20%, 50V, CER	
	C..0607	59.99.0205	68 n	20%, 50V, CER	
	C..0608	59.12.7103	10 n	1%, 50V, FILM	
	C..0609	59.12.7103	10 n	1%, 50V, FILM	
	C..0610	59.99.0205	68 n	20%, 50V, CER	
	C..0611	59.99.0205	68 n	20%, 50V, CER	
	C..0612	59.12.7103	10 n	1%, 50V, FILM	
	C..0613	59.12.7103	10 n	1%, 50V, FILM	

IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	C..0614	59.99.0205	68 n	20%, 50V, CER	
	C..0615	59.99.0205	68 n	20%, 50V, CER	
	C..0616	59.12.7103	10 n	1%, 50V, FILM	
	C..0617	59.12.7103	10 n	1%, 50V, FILM	
	C..0618	59.99.0205	68 n	20%, 50V, CER	
	C..0619	59.99.0205	68 n	20%, 50V, CER	
	C..0620	59.12.7103	10 n	1%, 50V, FILM	
	C..0621	59.99.0205	68 n	20%, 50V, CER	
	C..0622	59.08.7223	22 n	2.5%, 50V, FILM	
	C..0623	59.99.0205	68 n	20%, 50V, CER	
	C..0624	59.12.7682	6.8n	1%, 50V, FILM	
	C..0625	59.34.2220	22 p	10%, 100V, CER	
	C..0626	59.05.1681	680p	1%, 100V, FILM	
	C..0627	59.05.1681	680p	1%, 100V, FILM	
	C..0628	59.12.7562	5.6n	2%, 100V, FILM	
	C..0629	59.99.0205	68 n	20%, 50V, CER	
	C..0630	59.22.4471	470u	20%, 15V, ELECTROLYTIC	
	C..0631	59.34.2220	22 p	10%, 100V, CER	
	C..0632	59.99.0205	68 n	20%, 50V, CER	
	C..0633	59.99.0205	68 n	20%, 50V, CER	
	C..0634	59.99.0205	68 n	20%, 50V, CER	
	C..0635	59.34.2220	22 p	10%, 100V, CER	
	C..0636	59.99.0205	68 n	20%, 50V, CER	
	C..0637	59.99.0205	68 n	20%, 50V, CER	
	C..0638	59.34.2151	150p	10%, 100V, CER	
	C..1001	59.99.0205	68 n	50%, 30V, CER	ANY
	C..1002	59.99.0205	68 n	50%, 30V, CER	ANY
	C..1003	59.99.0205	68 n	50%, 30V, CER	ANY
	C..1004	59.99.0205	68 n	50%, 30V, CER	ANY
	C..1005	59.22.6220	22 u	20%, 30V, ELECTROLYTIC	ANY
	C..1006	59.22.6220	22 u	20%, 30V, ELECTROLYTIC	ANY
	C..1007	59.22.5470	47 u	20%, 25V, ELECTROLYTIC	ANY
	C..1008	59.22.5470	47 u	20%, 25V, ELECTROLYTIC	ANY
	D..0001	50.04.1109	20 V	5%, 0.40W , ZENER DIODE	
	D..0002	50.04.1109	20 V	5%, 0.40W , ZENER DIODE	
	D..0003	50.04.1109	20 V	5%, 0.40W , ZENER DIODE	

IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	D..0004	50.04.1109	20 V	5%, 0.40W , ZENER DIODE	
	D..0101	50.04.0125	1N 4448	SI, GENERAL PURPOSE	
	D..0102	50.04.0125	1N 4448	SI, GENERAL PURPOSE	
	D..0103	50.04.0125	1N 4448	SI, GENERAL PURPOSE	
	D..0104	50.04.0125	1N 4448	SI, GENERAL PURPOSE	
	D..0201	50.04.1109	20 V	5%, 0.40W , ZENER DIODE	
	D..0202	50.04.1109	20 V	5%, 0.40W , ZENER DIODE	
	D..0203	50.04.1109	20 V	5%, 0.40W , ZENER DIODE	
	D..0204	50.04.1109	20 V	5%, 0.40W , ZENER DIODE	
	D..0401	50.04.0125	1N 4448	SI, GENERAL PURPOSE	
	D..0402	50.04.0125	1N 4448	SI, GENERAL PURPOSE	
	D..0403	50.04.0125	1N 4448	SI, GENERAL PURPOSE	
	D..0404	50.04.0125	1N 4448	SI, GENERAL PURPOSE	
	E..0001	1.860.505.05		BUSBAR	St
	F..1001	51.01.0116		FUSE, 800mAT/250V, 5 * 20mm	ANY
	F..1002	51.01.0116		FUSE, 800mAT/250V, 5 * 20mm	ANY
	F..1003	51.01.0113		FUSE, 400mAT/250V, 5 * 20mm	ANY
	F..1004	51.01.0113		FUSE, 400mAT/250V, 5 * 20mm	ANY
	IC.0001	50.09.0105	NE5532 N	****EQUIVALENT TYPES FOR NE 5532 &	
	IC.0002	50.09.0105	NE5532 N	NE 5534 MANUFACTURED BY SIGNETICS	
	IC.0003	50.05.0243	NE5534 N	ALSO AVAILABLE FROM EXAR, RAYTHEON	
	IC.0004	50.05.0243	NE5534 N	& TEXAS INSTRUMENTS****	
	IC.0101	50.09.0105	NE5532 N		
	IC.0201	50.09.0105	NE5532 N	****NE 55XXAN: LOW NOISE TYPE****	
	IC.0202	50.09.0105	NE5532 N		
	IC.0203	50.05.0243	NE5534 N		
	IC.0204	50.05.0243	NE5534 N		
	IC.0301	50.05.0244	NE5534AN		
	IC.0302	50.09.0105	NE5532 N		
	IC.0303	50.09.0105	NE5532 N		
	IC.0304	50.09.0105	NE5532 N		
	IC.0305	50.09.0105	NE5532 N		
	IC.0306	50.05.0243	NE5534 N		
	IC.0307	50.05.0244	NE5534AN		

IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	IC.0308	50.05.0243	NE5534 N		
	IC.0309	50.09.0105	NE5532 N		
	IC.0401	50.09.0105	NE5532 N		
	IC.0601	50.05.0244	NE5534AN		
	IC.0602	50.09.0105	NE5532 N		
	IC.0603	50.09.0105	NE5532 N		
	IC.0604	50.09.0105	NE5532 N		
	IC.0605	50.09.0105	NE5532 N		
	IC.0606	50.05.0243	NE5534 N		
	IC.0607	50.05.0244	NE5534AN		
	IC.0608	50.05.0243	NE5534 N		
	IC.0609	50.09.0105	NE5532 N		
	L..0001	62.01.0134	6.8uHy	INDUCTOR	KA
	L..0002	62.01.0134	6.8uHy	INDUCTOR	KA
	L..0201	62.01.0134	6.8uHy	INDUCTOR	KA
	L..0202	62.01.0134	6.8uHy	INDUCTOR	KA
	L..1001	62.01.0115		WIDE-BAND HF-CHOKE	Ph
	L..1002	62.01.0115		WIDE-BAND HF-CHOKE	Ph
	L..1003	62.01.0115		WIDE-BAND HF-CHOKE	Ph
	L..1004	62.01.0115		WIDE-BAND HF-CHOKE	Ph
	MP.0001	1.860.505.04		HEATSINK	St
	MP.0002	1.860.505.04		HEATSINK	St
	MP.0003	50.20.0407		INSULATING BUSH	
	MP.0004	50.20.0407		INSULATING BUSH	
	MP.0005	50.20.0407		INSULATING BUSH	
	MP.0006	50.20.0407		INSULATING BUSH	
	MP.0007	50.20.0407		INSULATING BUSH	
	MP.0008	50.20.0407		INSULATING BUSH	
	MP.0009	50.20.0407		INSULATING BUSH	
	MP.0010	50.20.0407		INSULATING BUSH	
	MP.0011	50.20.0305		INSULATOR, GREASED	St
	MP.0012	50.20.0305		INSULATOR, GREASED	St
	MP.0013	50.20.0305		INSULATOR, GREASED	St
	MP.0014	50.20.0305		INSULATOR, GREASED	St
	MP.0015	50.20.0305		INSULATOR, GREASED	St

IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	MP.0016	50.20.0305		INSULATOR, GREASED	St
	MP.0017	50.20.0305		INSULATOR, GREASED	St
	MP.0018	50.20.0305		INSULATOR, GREASED	St
	MP.0019	1.860.505.03		EPOXY-INSULATOR HEATS./PCB	St
	MP.0020	1.860.505.03		EPOXY-INSULATOR HEATS./PCB	St
	MP.0021	21.01.0278		SCREW, CYLIN.-HEAD, M2.5 * 5	ANY
	MP.0022	21.01.0278		SCREW, CYLIN.-HEAD, M2.5 * 5	ANY
	MP.0023	21.01.0278		SCREW, CYLIN.-HEAD, M2.5 * 5	ANY
	MP.0024	21.01.0278		SCREW, CYLIN.-HEAD, M2.5 * 5	ANY
	MP.0025	21.01.0278		SCREW, CYLIN.-HEAD, M2.5 * 5	ANY
	MP.0026	21.01.0278		SCREW, CYLIN.-HEAD, M2.5 * 5	ANY
	MP.0027	21.01.0278		SCREW, CYLIN.-HEAD, M2.5 * 5	ANY
	MP.0028	21.01.0278		SCREW, CYLIN.-HEAD, M2.5 * 5	ANY
	MP.0029	28.21.1410		TUBULAR RIVET, 3.1*8	ANY
	MP.0030	28.21.1410		TUBULAR RIVET, 3.1*8	ANY
	MP.0031	35.03.0109		TY-RAP, PLASTIC	ANY
	MP.0032	35.03.0109		TY-RAP, PLASTIC	ANY
	MP.0033	35.03.0109		TY-RAP, PLASTIC	ANY
	MP.0034	35.03.0109		TY-RAP, PLASTIC	ANY
	MP.0035	35.03.0109		TY-RAP, PLASTIC	ANY
	MP.0036	35.03.0109		TY-RAP, PLASTIC	ANY
	MP.0037	35.03.0109		TY-RAP, PLASTIC	ANY
	MP.0038	35.03.0109		TY-RAP, PLASTIC	ANY
	MP.0039	35.03.0109		TY-RAP, PLASTIC	ANY
	MP.1001	21.01.0280		SCREW, CYLIN.-HEAD, M2.5 * 8	ANY
	MP.1002	21.01.0280		SCREW, CYLIN.-HEAD, M2.5 * 8	ANY
	MP.1003	21.01.0280		SCREW, CYLIN.-HEAD, M2.5 * 8	ANY
	MP.1004	21.01.0280		SCREW, CYLIN.-HEAD, M2.5 * 8	ANY
(00)	MP.1005	21.01.0281		SCREW, CYLIN.-HEAD, M2.5 * 10	ANY
(01)	MP.1005	21.01.0282		SCREW, CYLIN.-HEAD, M2.5 * 12	ANY
(00)	MP.1006	21.01.0281		SCREW, CYLIN.-HEAD, M2.5 * 10	ANY
(01)	MP.1006	21.01.0282		SCREW, CYLIN.-HEAD, M2.5 * 12	ANY
(00)	MP.1007	21.01.0281		SCREW, CYLIN.-HEAD, M2.5 * 10	ANY
(01)	MP.1007	21.01.0282		SCREW, CYLIN.-HEAD, M2.5 * 12	ANY
(00)	MP.1008	21.01.0281		SCREW, CYLIN.-HEAD, M2.5 * 10	ANY
(01)	MP.1008	21.01.0282		SCREW, CYLIN.-HEAD, M2.5 * 12	ANY
	MP.1009	21.01.2278		SCREW, COUNTERSUNK HEAD, M2.5 * 5	ANY

IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	MP.1010	21.01.2278		SCREW, COUNTERSUNK HEAD, M2.5 * 5	ANY
	MP.1011	21.01.2278		SCREW, COUNTERSUNK HEAD, M2.5 * 5	ANY
	MP.1012	21.01.2278		SCREW, COUNTERSUNK HEAD, M2.5 * 5	ANY
	MP.1013	21.01.2278		SCREW, COUNTERSUNK HEAD, M2.5 * 5	ANY
	MP.1014	21.01.2278		SCREW, COUNTERSUNK HEAD, M2.5 * 5	ANY
	MP.1015	21.01.2278		SCREW, COUNTERSUNK HEAD, M2.5 * 5	ANY
	MP.1016	21.01.2278		SCREW, COUNTERSUNK HEAD, M2.5 * 5	ANY
(01)	MP.1017	1.860.505.06		ID-STRIP BELOW FUSES	St
	MP.1025	28.21.1380		TUBULAR RIVET, D2.25* 6.5mm	ANY
	MP.1026	28.21.1380		TUBULAR RIVET, D2.25* 6.5mm	ANY
	MP.1027	1.010.101.49		SHEET METAL PLATE, 233*216mm	St
	MP.1028	1.010.100.49		INSULATOR, 233* 219, HGW	St
	MP.1029	1.860.505.01		NUMBER-PLATE	St
	MP.1030	1.860.505.02		NAME-PLATE	St
	MP.1031	1.010.006.33		MARKING HANDLE	St
	MP.1032	1.010.006.33		MARKING HANDLE	St
	MP.1033	1.010.006.33		MARKING HANDLE	St
	MP.1034	1.010.006.33		MARKING HANDLE	St
	MP.1035	1.010.096.49		TRANSPARENT COVER	St
	MP.1036	1.010.096.49		TRANSPARENT COVER	St
	MP.1037	1.010.057.27		STAND-OFF, M2.5*7.5	ANY
	MP.1038	1.010.057.27		STAND-OFF, M2.5*7.5	ANY
	MP.1039	1.010.057.27		STAND-OFF, M2.5*7.5	ANY
	MP.1040	1.010.057.27		STAND-OFF, M2.5*7.5	ANY
	MP.1041	1.010.058.27		STAND-OFF, M2.5*9	ANY
	MP.1042	1.010.058.27		STAND-OFF, M2.5*9	ANY
	MP.1043	1.010.058.27		STAND-OFF, M2.5*9	ANY
	MP.1044	1.010.058.27		STAND-OFF, M2.5*9	ANY
	MP.1045	24.16.1025		LOCK WASHER	ANY
	MP.1046	24.16.1025		LOCK WASHER	ANY
	MP.1047	24.16.1025		LOCK WASHER	ANY
	MP.1048	24.16.1025		LOCK WASHER	ANY
	MP.1049	24.16.1025		LOCK WASHER	ANY
	MP.1050	24.16.1025		LOCK WASHER	ANY
	MP.1051	24.16.1025		LOCK WASHER	ANY
	MP.1052	24.16.1025		LOCK WASHER	ANY
	MP.1053	1.860.505.11		PCB	St

IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	P..0001	54.01.0368		CARD CONNECTOR, 3*16 EURO SOLDERING	ANY
	P..0002	54.01.0368		CARD CONNECTOR, 3*16 EURO SOLDERING	ANY
	Q..0001	50.03.0496	BC 560	PNP, GENERAL PURPOSE	
	Q..0002	50.03.0497	BC 550	NPN, GENERAL PURPOSE	
	Q..0003	50.03.1501	BD 522	VMOS NPN	ITT
	Q..0004	50.03.1551	BD 512	VMOS PNP	ITT
	Q..0005	50.03.1501	BD 522	VMOS NPN	ITT
	Q..0006	50.03.1551	BD 512	VMOS PNP	ITT
	Q..0007	50.03.0496	BC 560	PNP, GENERAL PURPOSE	
	Q..0008	50.03.0497	BC 550	NPN, GENERAL PURPOSE	
	Q..0201	50.03.0496	BC 560	PNP, GENERAL PURPOSE	
	Q..0202	50.03.0497	BC 550	NPN, GENERAL PURPOSE	
	Q..0203	50.03.1501	BD 522	VMOS NPN	ITT
	Q..0204	50.03.1551	BD 512	VMOS PNP	ITT
	Q..0205	50.03.1501	BD 522	VMOS NPN	ITT
	Q..0206	50.03.1551	BD 512	VMOS PNP	ITT
	Q..0207	50.03.0496	BC 560	PNP, GENERAL PURPOSE	
	Q..0208	50.03.0497	BC 550	NPN, GENERAL PURPOSE	
	R..0001	57.11.3479	4.7	**** ALL RESISTORS 1%, >=.25W, METAL FILM **	
	R..0002	57.11.3221	220	**** UNLESS OTHERWISE NOTED **********	
	R..0003	57.11.3183	18 k		
	R..0004	57.11.3271	270		
	R..0005	57.11.3479	4.7		
	R..0006	57.11.3222	2.2k		
	R..0007	57.11.3222	2.2k		
	R..0008	57.11.3271	270		
	R..0009	57.11.3183	18 k		
	R..0010	57.11.3221	220		
	R..0012	57.56.5220	22	10%, 4W	
	R..0013	57.11.3681	680		
	R..0014	57.11.3681	680		
	R..0017			FACTORY SELECTED	
	R..0018	57.11.4102	1 k	10%	
	R..0019	57.56.5220	22	10%, 4W	
	R..0020	57.11.4470	47	10%	

IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	R..0022	57.11.3479	4.7		
	R..0023	57.11.3221	220		
	R..0024	57.11.3471	470	5%	
	R..0025	57.11.3103	10 k		
	R..0026	57.11.3479	4.7		
	R..0027	57.11.3222	2.2k		
	R..0028	57.11.3183	18 k		
	R..0029	57.11.3221	220		
	R..0030	57.11.3103	10 k		
	R..0031	57.11.3272	2.7k	5%	
	R..0032	57.11.4102	1 k	5%	
	R..0033	57.11.3103	10 k	5%	
	R..0034	57.11.3103	10 k		
	R..0035	57.11.3103	10 k		
	R..0036	57.11.3103	10 k		
	R..0037	57.11.3102	1 k		
	R..0038	57.11.3102	1 k		
	R..0039	57.11.3103	10 k		
	R..0040	57.11.3103	10 k		
	R..0041	57.11.3183	18 k		
	R..0042	57.11.3222	2.2k		
	R..0043	57.11.3681	680		
	R..0044	57.11.3681	680		
	R..0045	57.11.3271	270		
	R..0046	57.11.3271	270		
	R..0047	57.11.3103	10 k		
	R..0048	57.11.3103	10 k		
	R..0049	57.11.3103	10 k		
	R..0050	57.11.3103	10 k		
	R..0051	57.11.3103	10 k		
	R..0052	58.01.9103	10 k	10%, .5W, POTENTIOMETER	
	R..0101	57.11.4123	12 k	5%	
	R..0102	57.11.4123	12 k	5%	
	R..0103	57.11.3563	56 k	2%	
	R..0104	57.11.3563	56 k	2%	
	R..0105	57.11.3472	4.7k	2%	
	R..0106	57.11.3273	27 k	2%	

IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	R..0107	57.11.3273	27 k	2%	
	R..0108	57.11.3472	4.7k	2%	
	R..0201	57.11.3479	4.7		
	R..0202	57.11.3221	220		
	R..0203	57.11.3183	18 k		
	R..0204	57.11.3271	270		
	R..0205	57.11.3479	4.7		
	R..0206	57.11.3222	2.2k		
	R..0207	57.11.3222	2.2k		
	R..0208	57.11.3271	270		
	R..0209	57.11.3183	18 k		
	R..0210	57.11.3221	220		
	R..0212	57.56.5220	22	10%, 4W	
	R..0213	57.11.3681	680		
	R..0214	57.11.3681	680		
	R..0217			FACTORY SELECTED	
	R..0218	57.11.4102	1 k	10%	
	R..0219	57.56.5220	22	10%, 4W	
	R..0220	57.11.4470	47	10%	
	R..0222	57.11.3479	4.7		
	R..0223	57.11.3221	220		
	R..0224	57.11.3471	470	5%	
	R..0225	57.11.3103	10 k		
	R..0226	57.11.3479	4.7		
	R..0227	57.11.3222	2.2k		
	R..0228	57.11.3183	18 k		
	R..0229	57.11.3221	220		
	R..0230	57.11.3103	10 k		
	R..0231	57.11.3272	2.7k	5%	
	R..0232	57.11.4102	1 k	5%	
	R..0233	57.11.3103	10 k	5%	
	R..0234	57.11.3103	10 k		
	R..0235	57.11.3103	10 k		
	R..0236	57.11.3103	10 k		
	R..0237	57.11.3102	1 k		
	R..0238	57.11.3102	1 k		
	R..0239	57.11.3103	10 k		

IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	R..0240	57.11.3103	10 k		
	R..0241	57.11.3183	18 k		
	R..0242	57.11.3222	2.2k		
	R..0243	57.11.3681	680		
	R..0244	57.11.3681	680		
	R..0245	57.11.3271	270		
	R..0246	57.11.3271	270		
	R..0247	57.11.3103	10 k		
	R..0248	57.11.3103	10 k		
	R..0249	57.11.3103	10 k		
	R..0250	57.11.3103	10 k		
	R..0251	57.11.3103	10 k		
	R..0252	58.01.9103	10 k	10%, .5W, POTENTIOMETER	
	R..0301	57.11.4470	47	10%	
	R..0302	57.11.3332	3.3k	2%	
	R..0303	57.11.3332	3.3k	2%	
	R..0304	57.11.3182	1.8k		
	R..0305	57.11.3272	2.7k		
	R..0306	57.11.3513	51 k		
	R..0307	57.11.3621	620		
	R..0309	57.11.3222	2.2k		
	R..0310	57.11.3562	5.6k		
	R..0311	57.11.3102	1 k		
	R..0312	57.11.3102	1 k		
	R..0313	57.11.3471	470		
	R..0316	57.11.3102	1 k		
	R..0318	57.11.3302	3 k		
	R..0319	57.11.3222	2.2k		
	R..0320	57.11.3102	1 k		
	R..0321	57.11.3102	1 k		
	R..0322	57.11.3561	560		
	R..0323	57.11.3162	1.6k		
	R..0325	57.11.3202	2 k		
	R..0326	57.11.3512	5.1k		
	R..0327	57.11.3242	2.4k		
	R..0328	57.11.3562	5.6k		
	R..0329	57.11.3102	1 k		

IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	R..0330	57.11.3102	1 k		
	R..0331	57.11.3621	620		
	R..0332	57.11.3681	680		
	R..0334	57.11.3221	220		
	R..0335	57.11.3621	620		
	R..0336	57.11.3272	2.7k		
	R..0337	57.11.3302	3 k		
	R..0338	57.11.3102	1 k		
	R..0339	57.11.3102	1 k		
	R..0340	57.11.3102	1 k		
	R..0341	57.11.3182	1.8k		
	R..0346	57.11.3621	620		
	R..0347	57.11.3392	3.9k		
	R..0348	57.11.3392	3.9k		
	R..0349	57.11.3473	47 k		
	R..0352	57.11.3152	1.5k	2%	
	R..0353	57.11.3152	1.5k	2%	
	R..0354	57.11.3392	3.9k	2%	
	R..0355	57.11.3392	3.9k	2%	
	R..0356	57.11.3152	1.5k	2%	
	R..0357	57.11.3152	1.5k	2%	
	R..0358	57.11.3560	56		
	R..0359	57.11.3162	1.6k		
	R..0360	57.11.3512	5.1k		
	R..0361	57.11.4102	1 k	10%	
	R..0362	57.11.4470	47	10%	
	R..0363	57.11.3472	4.7k	2%	
	R..0364	57.11.3432	4.3k	2%	
	R..0365	57.11.3182	1.8k	2%	
	R..0366	57.11.3271	270	2%	
	R..0367	58.01.9103	10 k	10%, .5W, POTENTIOMETER	
	R..0368	58.01.9501	500	10%, .5W, POTENTIOMETER	
	R..0401	57.11.4123	12 k	5%	
	R..0402	57.11.4123	12 k	5%	
	R..0403	57.11.3563	56 k	2%	
	R..0404	57.11.3563	56 k	2%	
	R..0405	57.11.3202	2 k	2%	

IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	R..0406	57.11.3273	27 k	2%	
	R..0407	57.11.3273	27 k	2%	
	R..0408	57.11.3202	2 k	2%	
	R..0501	57.11.4229	2.2	10%	
	R..0601	57.11.4470	47	10%	
	R..0602	57.11.3332	3.3k	2%	
	R..0603	57.11.3332	3.3k	2%	
	R..0604	57.11.3182	1.8k		
	R..0605	57.11.3272	2.7k		
	R..0606	57.11.3513	51 k		
	R..0607	57.11.3621	620		
	R..0609	57.11.3222	2.2k		
	R..0610	57.11.3562	5.6k		
	R..0611	57.11.3102	1 k		
	R..0612	57.11.3102	1 k		
	R..0613	57.11.3471	470		
	R..0616	57.11.3102	1 k		
	R..0618	57.11.3302	3 k		
	R..0619	57.11.3222	2.2k		
	R..0620	57.11.3102	1 k		
	R..0621	57.11.3102	1 k		
	R..0622	57.11.3561	560		
	R..0623	57.11.3162	1.6k		
	R..0625	57.11.3202	2 k		
	R..0626	57.11.3512	5.1k		
	R..0627	57.11.3242	2.4k		
	R..0628	57.11.3562	5.6k		
	R..0629	57.11.3102	1 k		
	R..0630	57.11.3102	1 k		
	R..0631	57.11.3621	620		
	R..0632	57.11.3681	680		
	R..0634	57.11.3221	220		
	R..0635	57.11.3621	620		
	R..0636	57.11.3272	2.7k		
	R..0637	57.11.3302	3 k		
	R..0638	57.11.3102	1 k		
	R..0639	57.11.3102	1 k		

IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	R..0640	57.11.3102	1 k		
	R..0641	57.11.3182	1.8k		
	R..0646	57.11.3621	620		
	R..0647	57.11.3392	3.9k		
	R..0648	57.11.3392	3.9k		
	R..0649	57.11.3473	47 k		
	R..0652	57.11.3152	1.5k	2%	
	R..0653	57.11.3152	1.5k	2%	
	R..0654	57.11.3392	3.9k	2%	
	R..0655	57.11.3392	3.9k	2%	
	R..0656	57.11.3152	1.5k	2%	
	R..0657	57.11.3152	1.5k	2%	
	R..0658	57.11.3560	56		
	R..0659	57.11.3162	1.6k		
	R..0660	57.11.3512	5.1k		
	R..0661	57.11.4102	1 k	10%	
	R..0662	57.11.4470	47	10%	
	R..0663	57.11.3472	4.7k	2%	
	R..0664	57.11.3432	4.3k	2%	
	R..0665	57.11.3182	1.8k	2%	
	R..0666	57.11.3271	270	2%	
	R..0667	58.01.9103	10 k	10%, .5W, POTENTIOMETER	
	R..0668	58.01.9501	500	10%, .5W, POTENTIOMETER	
	R..0669	57.11.3272	2.7k		
	R..0670	57.11.3272	2.7k		
	T..0001	1.022.356.00		OUTPUT TRANSFORMER ASSY 1:1	St
	T..0201	1.022.356.00		OUTPUT TRANSFORMER ASSY 1:1	St
	T..0301	1.022.419.00		INPUT TRANSFORMER 1:1	St
	T..0601	1.022.419.00		INPUT TRANSFORMER 1:1	St
	W..0001	64.01.0108		UNCOVERED WIRE, D=0,8	
	W..0002	64.01.0108		UNCOVERED WIRE, D=0,8	
	W..0003	64.01.0108		UNCOVERED WIRE, D=0,8	
	W..0004	64.01.0108		UNCOVERED WIRE, D=0,8	
	W..0005	64.01.0108		UNCOVERED WIRE, D=0,8	
	W..0006	65.03.0158		INSULATING-TUBE , D1.27/1.73, L=9	

IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	W..0007	65.03.0158		INSULATING-TUBE , D1.27/1.73, L=9	
	W..0008	1.360.505.94		CABLE-LIST WITH 12 LF-CABLES	
	W..0101	64.01.0108		UNCOVERED WIRE, D=0,8	
	W..0102	64.01.0108		UNCOVERED WIRE, D=0,8	
	W..0103	64.01.0108		UNCOVERED WIRE, D=0,8	
	W..0201	64.01.0108		UNCOVERED WIRE, D=0,8	
	W..0202	64.01.0108		UNCOVERED WIRE, D=0,8	
	W..0203	64.01.0108		UNCOVERED WIRE, D=0,8	
	W..0204	64.01.0108		UNCOVERED WIRE, D=0,8	
	W..0205	64.01.0108		UNCOVERED WIRE, D=0,8	
	W..0206	65.03.0158		INSULATING-TUBE , D1.27/1.73, L=9	
	W..0207	65.03.0158		INSULATING-TUBE , D1.27/1.73, L=9	
	W..0301	64.01.0108		UNCOVERED WIRE, D=0,8	
	W..0303	65.03.0158		INSULATING-TUBE , D1.27/1.73, L=9	
	W..0401	64.01.0108		UNCOVERED WIRE, D=0,8	
	W..0402	64.01.0108		UNCOVERED WIRE, D=0,8	
	W..0403	64.01.0108		UNCOVERED WIRE, D=0,8	
	W..0601	64.01.0108		UNCOVERED WIRE, D=0,8	
	W..0603	65.03.0158		INSULATING-TUBE , D1.27/1.73, L=9	
	XF.1001	53.03.0142		CLAMP, 5*20	ANY
	XF.1002	53.03.0142		CLAMP, 5*20	ANY
	XF.1003	53.03.0142		CLAMP, 5*20	ANY
	XF.1004	53.03.0142		CLAMP, 5*20	ANY
	XF.1005	53.03.0142		CLAMP, 5*20	ANY
	XF.1006	53.03.0142		CLAMP, 5*20	ANY
	XF.1007	53.03.0142		CLAMP, 5*20	ANY
	XF.1008	53.03.0142		CLAMP, 5*20	ANY
	XIC0001	53.03.0166		XIC DIL 8-POL	
	XIC0002	53.03.0166		XIC DIL 8-POL	
	XIC0003	53.03.0166		XIC DIL 8-POL	
	XIC0004	53.03.0166		XIC DIL 8-POL	
	XIC0005	53.03.0166		XIC DIL 8-POL	
	XIC0006	53.03.0166		XIC DIL 8-POL	
	XIC0007	53.03.0166		XIC DIL 8-POL	
	XIC0008	53.03.0166		XIC DIL 8-POL	

IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	XIC0009	53.03.0166		XIC DIL 8-POL	
	XIC0010	53.03.0166		XIC DIL 8-POL	
	XIC0011	53.03.0166		XIC DIL 8-POL	
	XIC0012	53.03.0166		XIC DIL 8-POL	
	XIC0013	53.03.0166		XIC DIL 8-POL	
	XIC0014	53.03.0166		XIC DIL 8-POL	
	XIC0015	53.03.0166		XIC DIL 8-POL	
	XIC0016	53.03.0166		XIC DIL 8-POL	
	XIC0017	53.03.0166		XIC DIL 8-POL	
	XIC0018	53.03.0166		XIC DIL 8-POL	
	XIC0019	53.03.0166		XIC DIL 8-POL	
	XIC0020	53.03.0166		XIC DIL 8-POL	
	XIC0021	53.03.0166		XIC DIL 8-POL	
	XIC0022	53.03.0166		XIC DIL 8-POL	
	XIC0023	53.03.0166		XIC DIL 8-POL	
	XIC0024	53.03.0166		XIC DIL 8-POL	
	XIC0025	53.03.0166		XIC DIL 8-POL	
	XIC0026	53.03.0166		XIC DIL 8-POL	
	XIC0027	53.03.0166		XIC DIL 8-POL	
	XIC0028	53.03.0166		XIC DIL 8-POL	

REMARKS: (01) DEL C5, 6, 205, 206 (PURELY CAPACITIVE LOADS).
CHANGE OF MP 1005...1008 (12mm).
ADDITION OF MP 1017 (ID STRIP BELOW FUSES).

MANUFACTURERS:
ITT = INTERMETALL (IN EUROPE) / Ph = PHILIPS / St = STUDER /
KA = KASCHKE

ABBREVIATIONS:
CER = CERAMIC / FILM = FILM TYPE / XF = CLAMP FOR FUSES /
XIC = IC SOCKET

ORIG 83/05/26 (01) 83/08/18

ADC BOARD

CONNECTOR P1

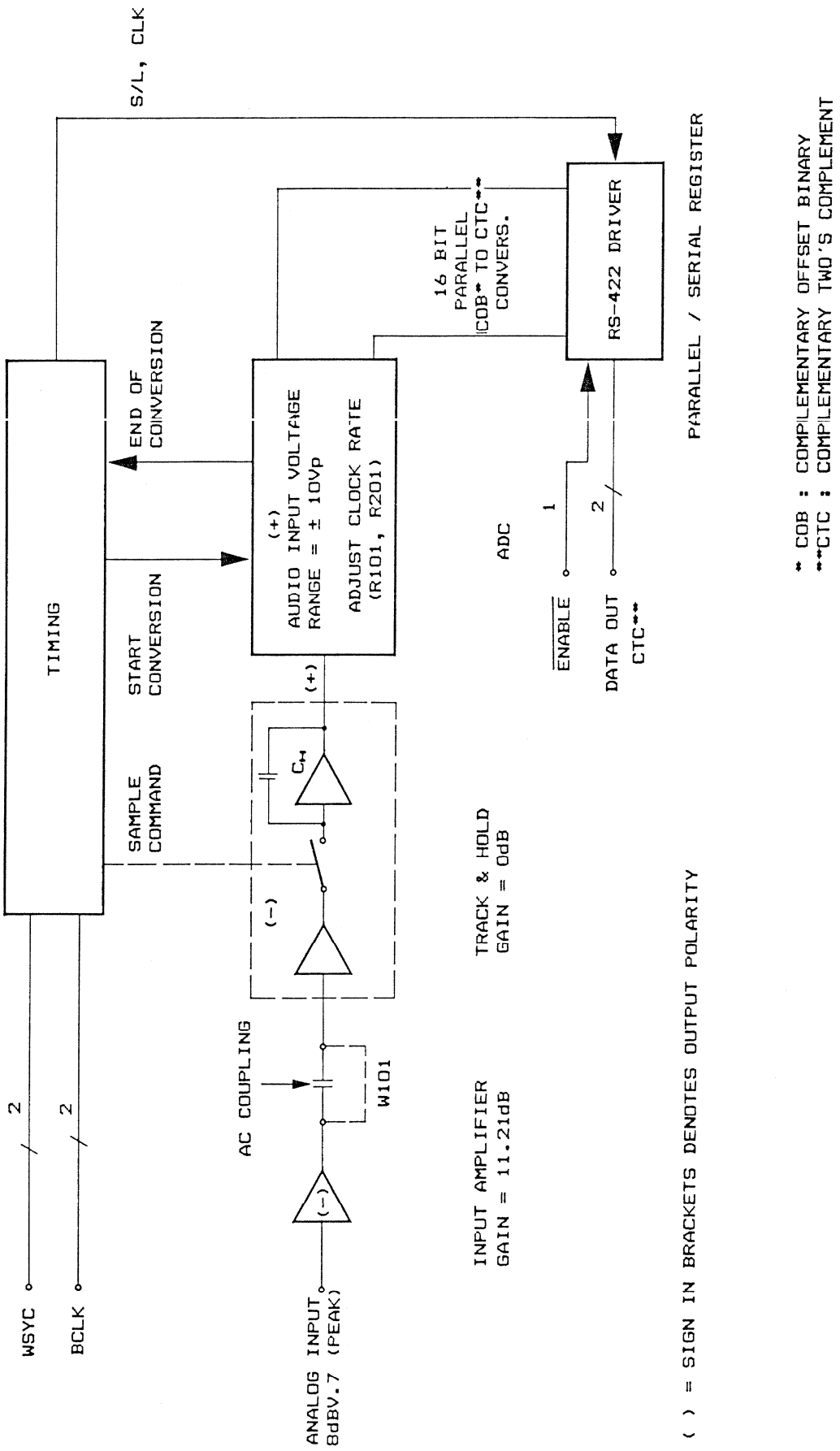
Pin	Signal Name	Pin	Signal Name	Pin	Signal Name
1a	DGND	1b	NC	1c	DGND
2a	NC	2b	NC	2c	NC
3a	NC	3b	NC	3c	NC
4a	NC	4b	NC	4c	NC
5a	NC	5b	NC	5c	NC
6a	NC	6b	NC	6c	NC
7a	NC	7b	NC	7c	NC
8a	NC	8b	NC	8c	NC
9a	NC	9b	NC	9c	NC
10a	NC	10b	NC	10c	NC
11a	NC	11b	NC	11c	NC
12a	NC	12b	NC	12c	NC
13a	NC	13b	NC	13c	NC
14a	NC	14b	NC	14c	NC
15a	NC	15b	NC	15c	NC
16a	NC	16b	NC	16c	NC
17a	NC	17b	NC	17c	NC
18a	NC	18b	NC	18c	NC
19a	NC	19b	NC	19c	NC
20a	NC	20b	NC	20c	NC
21a	NC	21b	NC	21c	NC
22a	NC	22b	IENABLE	22c	NC
23a	WSYC	23b	NC	23c	CWSYC
24a	NC	24b	NC	24c	NC
25a	BCLK	25b	NC	25c	CBCLK
26a	NC	26b	NC	26c	NC
27a	DATA CH2	27b	NC	27c	CDATA CH2
28a	NC	28b	NC	28c	NC
29a	DATA CH1	29b	NC	29c	CDATA CH1
30a	NC	30b	NC	30c	NC
31a	NC	31b	NC	31c	NC
32a	NC	32b	+5V	32c	NC

ADC BOARD

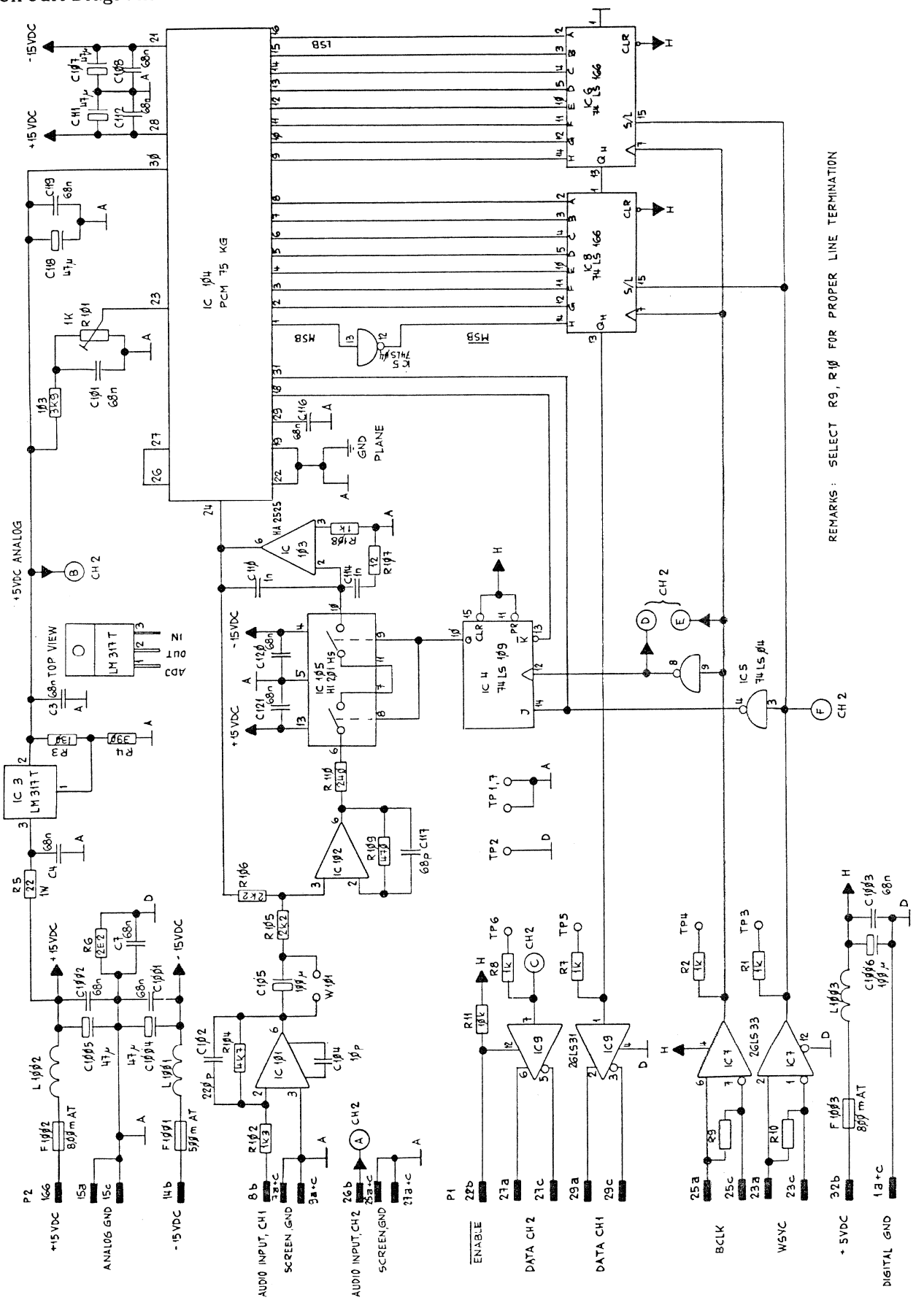
CONNECTOR P2

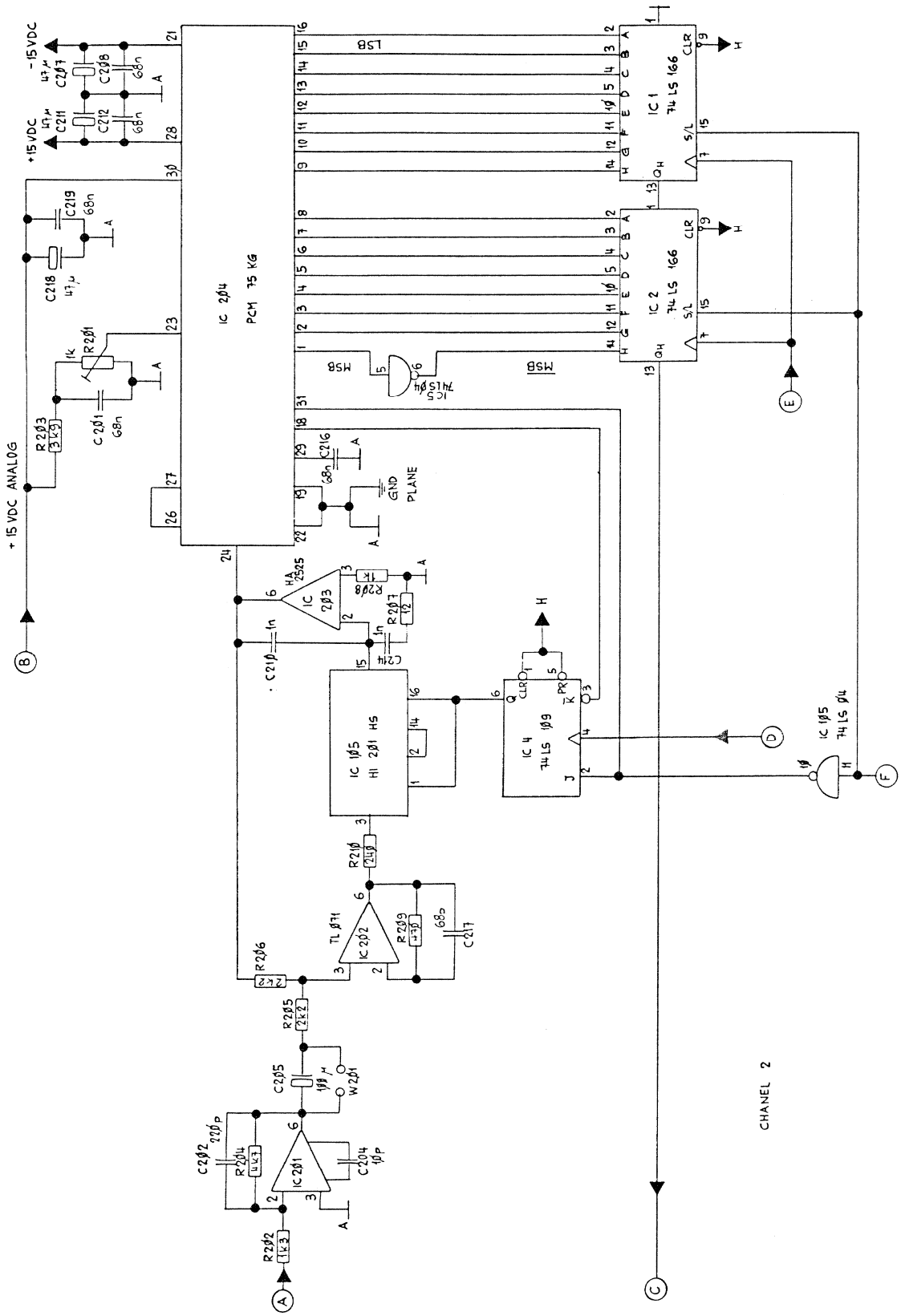
Pin	Signal Name	Pin	Signal Name	Pin	Signal Name
1a	NC	1b	NC	1c	NC
2a	NC	2b	NC	2c	NC
3a	NC	3b	NC	3c	NC
4a	NC	4b	NC	4c	NC
5a	NC	5b	NC	5c	NC
6a	NC	6b	NC	6c	NC
7a	SCREEN GND	7b	NC	7c	SCREEN GND
8a	NC	8b	AUDIO INPUT CH1	8c	NC
9a	SCREEN GND	9b	NC	9c	SCREEN GND
10a	NC	10b	NC	10c	NC
11a	NC	11b	NC	11c	NC
12a	NC	12b	NC	12c	NC
13a	NC	13b	NC	13c	NC
14a	NC	14b	−15V	14c	NC
15a	ANAGND	15b	NC	15c	ANAGND
16a	NC	16b	+15V	16c	NC
17a	NC	17b	NC	17c	NC
18a	NC	18b	NC	18c	NC
19a	NC	19b	NC	19c	NC
20a	NC	20b	NC	20c	NC
21a	NC	21b	NC	21c	NC
22a	NC	22b	NC	22c	NC
23a	NC	23b	NC	23c	NC
24a	NC	24b	NC	24c	NC
25a	SCREEN GND	25b	NC	25c	SCREEN GND
26a	NC	26b	AUDIO INPUT CH2	26c	NC
27a	SCREEN GND	27b	NC	27c	SCREEN GND
28a	NC	28b	NC	28c	NC
29a	NC	29b	NC	29c	NC
30a	NC	30b	NC	30c	NC
31a	NC	31b	NC	31c	NC
32a	NC	32b	NC	32c	NC

7.5.2.2
Block Diagram and Levels

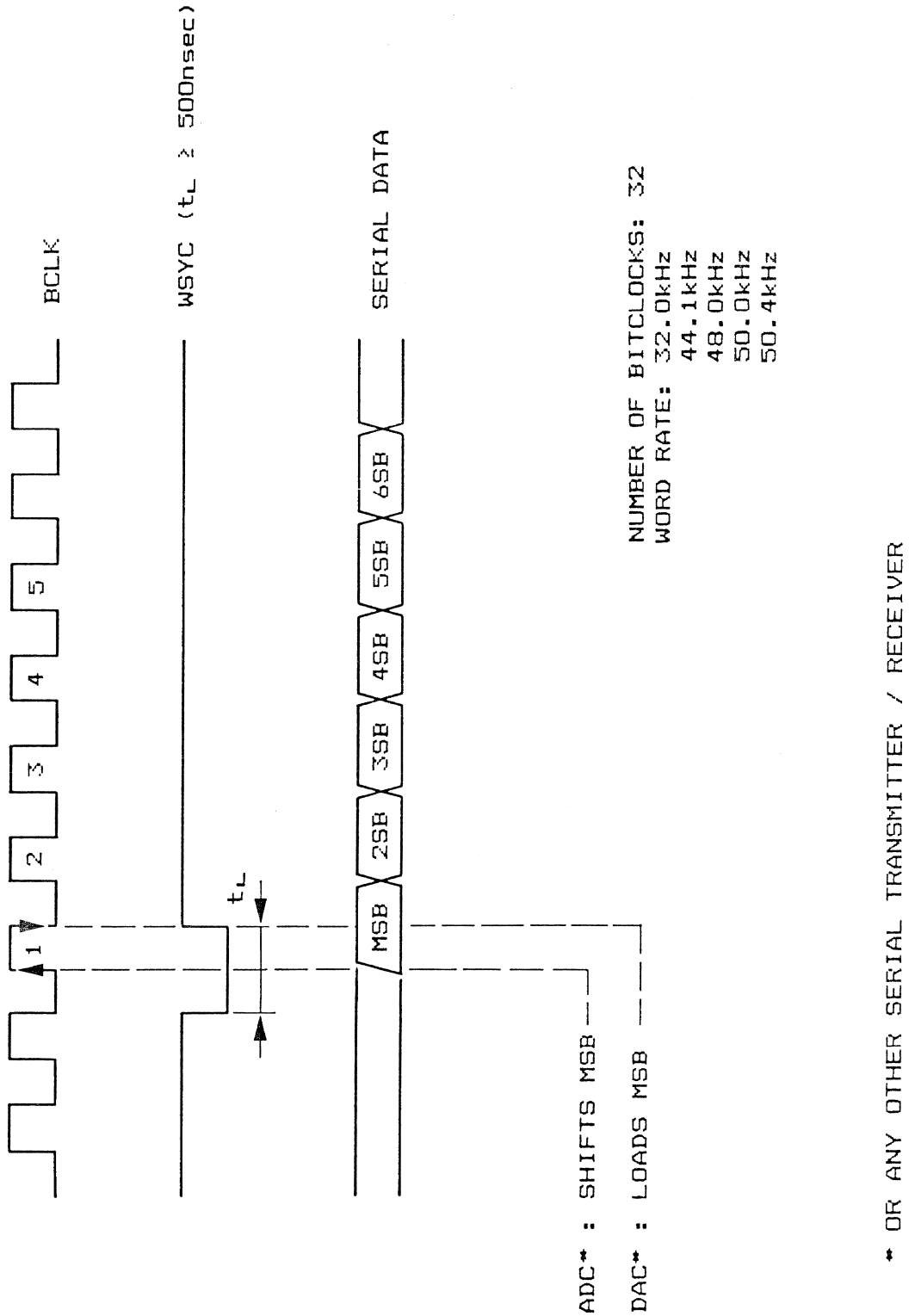


7.5.2.3
Circuit Diagram

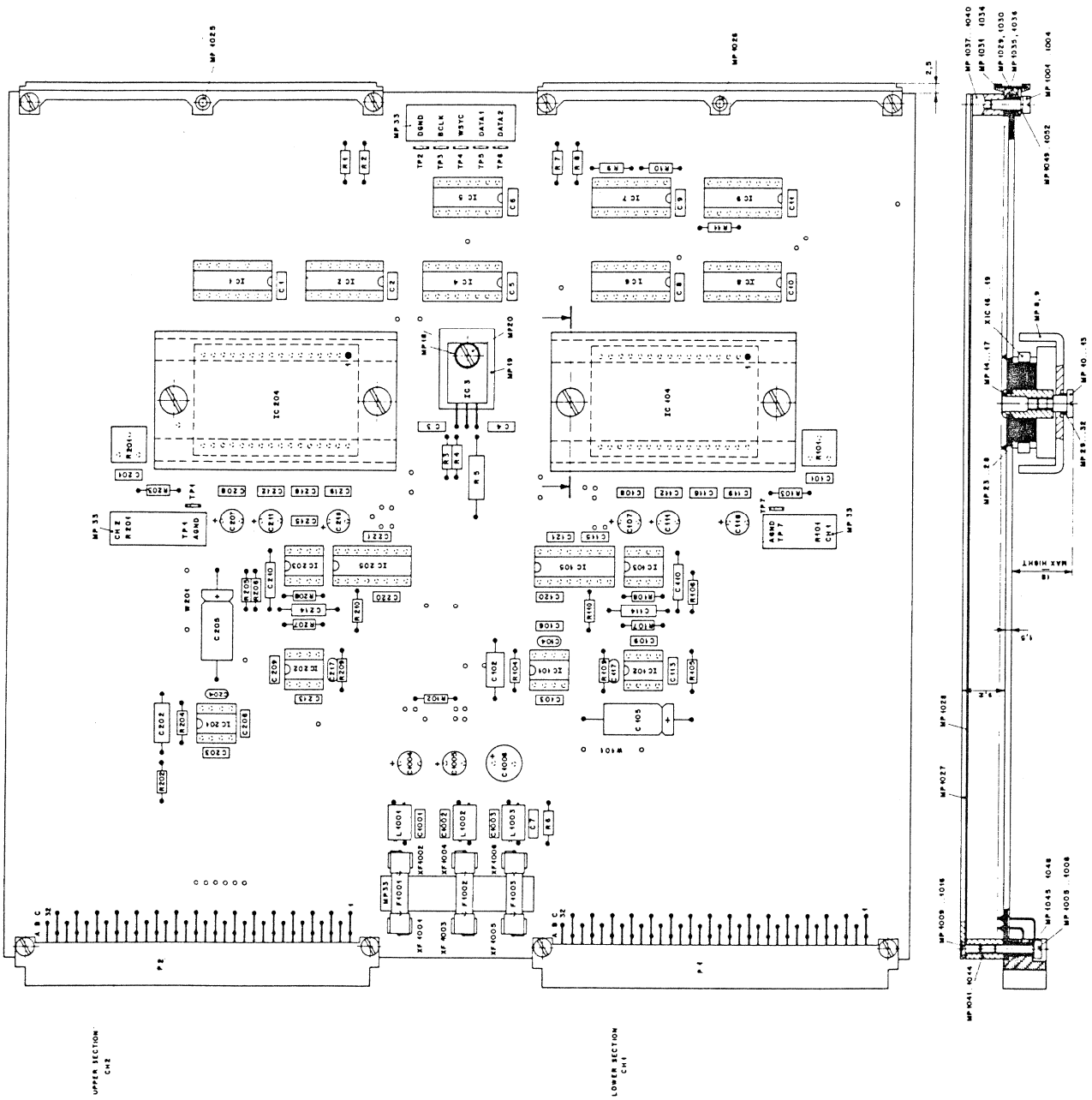



-15VDC
+15VDC
C207 47µ
C208 68n
C211 47µ
C212 68n
C219 68n
C218 47µ
R201 1K
C201 68n
R203 3K3
+15 VDC ANALOG
IC 204 PCM 75 KG
LSB
MSB
IC 1 74 LS 166
IC 2 74 LS 166
CLR
S/L
IC 105 74 LS 04
C216 68n
GND PLANE
IC 203 HA 2425
R208 1K
R207 12
C210 1n
C214 1n
IC 105 HI 201 HS
IC 4 74 LS 109
R210 249
IC 202 TL 071
R209 49R9
C217 68p
R206 2K2
R205 2K2
C205 1µ
W201
C202 10p
R204 1K43
IC 201
C204 10p
R202 1K3
CHANEL 2
A
B
C
D
E
F
H

7.5.2.4
Standard Converter Timing



7.5.2.5
Component Layout



INC.	PCS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	C..0001	59.99.0205	68 n	30%, 40V, CER	ANY
	C..0002	59.99.0205	68 n	30%, 40V, CER	ANY
	C..0003	59.99.0205	68 n	30%, 40V, CER	ANY
	C..0004	59.99.0205	68 n	30%, 40V, CER	ANY
	C..0005	59.99.0205	68 n	30%, 40V, CER	ANY
	C..0006	59.99.0205	68 n	30%, 40V, CER	ANY
	C..0007	59.99.0205	68 n	30%, 40V, CER	ANY
	C..0008	59.99.0205	68 n	30%, 40V, CER	ANY
	C..0009	59.99.0205	68 n	30%, 40V, CER	ANY
	C..0010	59.99.0205	68 n	30%, 40V, CER	ANY
	C..0011	59.99.0205	68 n	30%, 40V, CER	ANY
	C..0101	59.99.0205	68 n	30%, 40V, CER	ANY
	C..0102	59.04.8221	220p	5%, 50V, FILM TYPE	ANY
	C..0103	59.99.0205	68 n	30%, 40V, CER	ANY
	C..0104	59.34.1100	10 p	20%, 30V, CER	ANY
	C..0105	59.25.5101	100u	30%, 40V, ELECTROLYTIC	ANY
	C..0106	59.99.0205	68 n	30%, 40V, CER	ANY
	C..0107	59.22.5470	47 u	30%, 20V, ELECTROLYTIC	ANY
	C..0108	59.99.0205	68 n	30%, 40V, CER	ANY
	C..0109	59.99.0205	68 n	30%, 40V, CER	ANY
	C..0110	59.12.9102	1 n	1%, 40V, FILM TYPE	ANY
	C..0111	59.22.5470	47 u	30%, 20V, ELECTROLYTIC	ANY
	C..0112	59.99.0205	68 n	30%, 40V, CER	ANY
	C..0113	59.99.0205	68 n	30%, 40V, CER	ANY
	C..0114	59.12.9102	1 n	1%, 40V, FILM TYPE	ANY
	C..0115	59.99.0205	68 n	30%, 40V, CER	ANY
	C..0116	59.99.0205	68 n	30%, 30V, CER	ANY
	C..0117	59.34.4680	68 p	20%, 30V, CER	ANY
	C..0118	59.22.5470	47 u	30%, 20V, ELECTROLYTIC	ANY
	C..0119	59.99.0205	68 n	30%, 30V, CER	ANY
	C..0120	59.99.0205	68 n	30%, 40V, CER	ANY
	C..0121	59.99.0205	68 n	30%, 40V, CER	ANY
	C..0201	59.99.0205	68 n	30%, 40V, CER	ANY
	C..0202	59.04.8221	220p	5%, 50V, FILM TYPE	ANY
	C..0203	59.99.0205	68 n	30%, 40V, CER	ANY
	C..0204	59.34.1100	10 p	20%, 30V, CER	ANY
	C..0205	59.25.5101	100u	30%, 40V, ELECTROLYTIC	ANY

IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	C..0206	59.99.0205	68 n	30%, 40V, CER	ANY
	C..0207	59.22.5470	47 u	30%, 20V, ELECTROLYTIC	ANY
	C..0208	59.99.0205	68 n	30%, 40V, CER	ANY
	C..0209	59.99.0205	68 n	30%, 40V, CER	ANY
	C..0210	59.12.9102	1 n	1%, 40V, FILM TYPE	ANY
	C..0211	59.22.5470	47 u	30%, 20V, ELECTROLYTIC	ANY
	C..0212	59.99.0205	68 n	30%, 40V, CER	ANY
	C..0213	59.99.0205	68 n	30%, 40V, CER	ANY
	C..0214	59.12.9102	1 n	1%, 40V, FILM TYPE	ANY
	C..0215	59.99.0205	68 n	30%, 40V, CER	ANY
	C..0216	59.99.0205	68 n	30%, 30V, CER	ANY
	C..0217	59.34.4680	68 p	20%, 30V, CER	ANY
	C..0218	59.22.5470	47 u	30%, 20V, ELECTROLYTIC	ANY
	C..0219	59.99.0205	68 n	30%, 30V, CER	ANY
	C..0220	59.99.0205	68 n	30%, 40V, CER	ANY
	C..0221	59.99.0205	68 n	30%, 40V, CER	ANY
	C..1001	59.99.0205	68 n	50%, 30V, CER	ANY
	C..1002	59.99.0205	68 n	50%, 30V, CER	ANY
	C..1003	59.99.0205	68 n	50%, 30V, CER	ANY
	C..1004	59.22.5470	47 u	20%, 25V, ELECTROLYTIC	ANY
	C..1005	59.22.5470	47 u	20%, 25V, ELECTROLYTIC	ANY
	C..1006	59.22.4101	100u	20%, 10V, ELECTROLYTIC	ANY
	F..1001	51.01.0114		FUSE, 500mAT/250V, 5*20mm	ANY
	F..1002	51.01.0116		FUSE, 800mAT/250V, 5*20mm	ANY
	F..1003	51.01.0116		FUSE, 800mAT/250V, 5*20mm	ANY
	IC.0001	50.06.0166		SN 74 LS 166 N	
	IC.0002	50.06.0166		SN 74 LS 166 N	
	IC.0003	50.10.0104		LM 317T, VOLTAGE REGULATOR	ANY
	IC.0004	50.06.0109		SN 74 LS 109 N	
	IC.0005	50.06.0004		SN 74 LS 04 N	
	IC.0006	50.06.0166		SN 74 LS 166 N	
	IC.0007	50.15.0109		AM 26 LS 33 PC	AMD
	IC.0008	50.06.0166		SN 74 LS 166 N	
	IC.0009	50.15.0108		AM 26 LS 31 PC	AMD
	IC.0101	50.05.0244		NE 5534AN	*

IND.	PCS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	IC.C1C2	50.09.0103		TL 071ACP	**
	IC.C103	50.09.0109		HA1-2525-5	Ha
	IC.C1C4	50.15.0112		PCM 75 KG, ADC	BB
	IC.C105	50.17.0101		HI1-201HS-5, ANALOG SWITCH	HA
	IC.C2C1	50.C5.0244		NE 5534AN	*
	IC.C202	50.09.0103		TL 071ACP	**
	IC.C203	50.09.0109		HA1-2525-5	Ha
	IC.C2C4	50.15.0112		PCM 75 KG, ADC	BB
	IC.C205	50.17.0101		HI1-201HS-5, ANALOG SWITCH	HA
	L..1001	62.01.0115		WIDE-BAND HF-CHOKE	Ph
	L..1002	62.01.0115		WIDE-BAND HF-CHOKE	Ph
	L..1003	62.01.0115		WIDE-BAND HF-CHOKE	Ph
	MP.0008	1.010.076.50		HEATSINK	St
	MP.0009	1.010.076.50		HEATSINK	St
	MP.0010	1.010.019.21		SPECIAL SCREW, M3*8.5	St
	MP.0011	1.010.019.21		SPECIAL SCREW, M3*8.5	St
	MP.0012	1.010.019.21		SPECIAL SCREW, M3*8.5	St
	MP.0013	1.010.019.21		SPECIAL SCREW, M3*8.5	St
	MP.0014	1.010.021.22		RIVETING NUT, M3*10.5	St
	MP.0015	1.010.021.22		RIVETING NUT, M3*10.5	St
	MP.0016	1.010.021.22		RIVETING NUT, M3*10.5	St
	MP.0017	1.010.021.22		RIVETING NUT, M3*10.5	St
	MP.0018	50.20.0406		INSULATING BUSH, TO-220	ANY
	MP.0019	50.20.0313		INSULATOR, GREASED	ANY
	MP.0020	21.01.0355		SCREW, M3*8	ANY
	MP.0021	22.01.8030		NUT, M3	ANY
	MP.0022	24.16.1030		LOCK WASHER, M3	ANY
	MP.0023	1.860.500.03		SPACER	St
	MP.0024	1.860.500.03		SPACER	St
	MP.0025	1.860.500.03		SPACER	St
	MP.0026	1.860.500.03		SPACER	St
	MP.0027	1.860.500.03		SPACER	St
	MP.0028	1.860.500.03		SPACER	St
	MP.0029	1.020.715.08		SPRING	St
	MP.0030	1.020.715.08		SPRING	St

IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	MP.0031	1.020.715.08		SPRING	St
	MP.0032	1.020.715.08		SPRING	St
	MP.0033	1.860.500.04		SET OF ID STRIPS	St
	MP.1001	21.01.0280		SCREW, CYLIN.-HEAD, M2.5*8	ANY
	MP.1002	21.01.0280		SCREW, CYLIN.-HEAD, M2.5*8	ANY
	MP.1003	21.01.0280		SCREW, CYLIN.-HEAD, M2.5*8	ANY
	MP.1004	21.01.0280		SCREW, CYLIN.-HEAD, M2.5*8	ANY
	MP.1005	21.01.0282		SCREW, CYLIN.-HEAD, M2.5*12	ANY
	MP.1006	21.01.0282		SCREW, CYLIN.-HEAD, M2.5*12	ANY
	MP.1007	21.01.0282		SCREW, CYLIN.-HEAD, M2.5*12	ANY
	MP.1008	21.01.0282		SCREW, CYLIN.-HEAD, M2.5*12	ANY
	MP.1009	21.01.2278		SCREW, COUNTERSUNK HEAD, M2.5*5	ANY
	MP.1010	21.01.2278		SCREW, COUNTERSUNK HEAD, M2.5*5	ANY
	MP.1011	21.01.2278		SCREW, COUNTERSUNK HEAD, M2.5*5	ANY
	MP.1012	21.01.2278		SCREW, COUNTERSUNK HEAD, M2.5*5	ANY
	MP.1013	21.01.2278		SCREW, COUNTERSUNK HEAD, M2.5*5	ANY
	MP.1014	21.01.2278		SCREW, COUNTERSUNK HEAD, M2.5*5	ANY
	MP.1015	21.01.2278		SCREW, COUNTERSUNK HEAD, M2.5*5	ANY
	MP.1016	21.01.2278		SCREW, COUNTERSUNK HEAD, M2.5*5	ANY
	MP.1025	28.21.1380		TUBULAR RIVET, D2.25*6.5	ANY
	MP.1026	28.21.1380		TUBULAR RIVET, D2.25*6.5	ANY
	MP.1027	1.010.101.49		SHEET METAL PLATE, 233*216	St
	MP.1028	1.010.100.49		INSULATOR, 233*219, HGW	St
	MP.1029	1.860.500.01		NUMBER-PLATE	St
	MP.1030	1.860.500.02		NAME-PLATE	St
	MP.1031	1.010.006.33		MARKING HANDLE	St
	MP.1032	1.010.006.33		MARKING HANDLE	St
	MP.1033	1.010.006.33		MARKING HANDLE	St
	MP.1034	1.010.006.33		MARKING HANDLE	St
	MP.1035	1.010.096.49		TRANSPARENT COVER	St
	MP.1036	1.010.096.49		TRANSPARENT COVER	St
	MP.1037	1.010.057.27		STAND-OFF, M2.5*7.5	ANY
	MP.1038	1.010.057.27		STAND-OFF, M2.5*7.5	ANY
	MP.1039	1.010.057.27		STAND-OFF, M2.5*7.5	ANY
	MP.1040	1.010.057.27		STAND-OFF, M2.5*7.5	ANY
	MP.1041	1.010.058.27		STAND-OFF, M2.5*9	ANY
	MP.1042	1.010.058.27		STAND-OFF, M2.5*9	ANY

IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	MP.1043	1.010.058.27		STAND-OFF, M2.5*9	ANY
	MP.1044	1.010.058.27		STAND-OFF, M2.5*9	ANY
	MP.1045	24.16.1025		LOCK WASHER	ANY
	MP.1046	24.16.1025		LOCK WASHER	ANY
	MP.1047	24.16.1025		LOCK WASHER	ANY
	MP.1048	24.16.1025		LOCK WASHER	ANY
	MP.1049	24.16.1025		LOCK WASHER	ANY
	MP.1050	24.16.1025		LOCK WASHER	ANY
	MP.1051	24.16.1025		LOCK WASHER	ANY
	MP.1052	24.16.1025		LOCK WASHER	ANY
	MP.1053	1.860.500.11		PCB	St
	P..0001	54.01.0368		CARD CONNECTOR, 3*16 EURO SOLDERING	ANY
	P..0002	54.01.0368		CARD CONNECTOR, 3*16 EURO SOLDERING	ANY
	R..0001	57.11.4102	1 k	**** ALL RESISTORS 1%, >=.25W, METAL FILM *	
	R..0002	57.11.4102	1 k	**** UNLESS OTHERWISE NOTED **********	
	R..0003	57.11.3131	130	2%	
	R..0004	57.11.3391	390	2%	
	R..0005	57.13.4220	22	2%, 1W	
	R..0006	57.11.4229	2.2	5%	
	R..0007	57.11.4102	1 k		
	R..0008	57.11.4102	1 k		
	R..0009				
	R..0010				
	R..0011	57.11.4103	10 k	20%	
	R..0101	58.01.8102	1 k	POTENTIOMETER	
	R..0102	57.11.3132	1.3k		
	R..0103	57.11.4392	3.9k	10%	
	R..0104	57.11.3472	4.7k		
	R..0105	57.11.3222	2.2k		
	R..0106	57.11.3222	2.2k		
	R..0107	57.11.3120	12		
	R..0108	57.11.3102	1 k		
	R..0109	57.11.3471	470		
	R..0110	57.11.3241	240		
	R..0201	58.01.8102	1 k	POTENTIOMETER	

IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	R..0202	57.11.3132	1.3k		
	R..0203	57.11.4392	3.9k	10%	
	R..0204	57.11.3472	4.7k		
	R..0205	57.11.3222	2.2k		
	R..0206	57.11.3222	2.2k		
	R..0207	57.11.3120	12		
	R..0208	57.11.3102	1 k		
	R..0209	57.11.3471	470		
	R..0210	57.11.3241	240		
	TP.0001	54.02.0320		TEST POINT	ANY
	TP.0002	54.02.0320		TEST POINT	ANY
	TP.0003	54.02.0320		TEST POINT	ANY
	TP.0004	54.02.0320		TEST POINT	ANY
	TP.0005	54.02.0320		TEST POINT	ANY
	TP.0006	54.02.0320		TEST POINT	ANY
	TP.0007	54.02.0320		TEST POINT	ANY
	XF.1001	53.03.0142		CLAMP, 5*20	ANY
	XF.1002	53.03.0142		CLAMP, 5*20	ANY
	XF.1003	53.03.0142		CLAMP, 5*20	ANY
	XF.1004	53.03.0142		CLAMP, 5*20	ANY
	XF.1005	53.03.0142		CLAMP, 5*20	ANY
	XF.1006	53.03.0142		CLAMP, 5*20	ANY
	XIC0001	53.03.0166		XIC DIL 8-POL	ANY
	XIC0002	53.03.0166		XIC DIL 8-POL	ANY
	XIC0003	53.03.0166		XIC DIL 8-POL	ANY
	XIC0004	53.03.0166		XIC DIL 8-POL	ANY
	XIC0005	53.03.0166		XIC DIL 8-POL	ANY
	XIC0006	53.03.0166		XIC DIL 8-POL	ANY
	XIC0007	53.03.0167		XIC DIL 14-POL	ANY
	XIC0008	53.03.0167		XIC DIL 14-POL	ANY
	XIC0009	53.03.0168		XIC DIL 16-POL	ANY
	XIC0010	53.03.0168		XIC DIL 16-POL	ANY
	XIC0011	53.03.0168		XIC DIL 16-POL	ANY
	XIC0012	53.03.0168		XIC DIL 16-POL	ANY

IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	XIC0013	53.03.0168		XIC DIL 16-POL	ANY
	XIC0014	53.03.0168		XIC DIL 16-POL	ANY
	XIC0015	53.03.0168		XIC DIL 16-POL	ANY
	XIC0016	53.03.0217		XIC SINGLE IN-LINE 16-POL	ANY
	XIC0017	53.03.0217		XIC SINGLE IN-LINE 16-POL	ANY
	XIC0018	53.03.0217		XIC SINGLE IN-LINE 16-POL	ANY
	XIC0019	53.03.0217		XIC SINGLE IN-LINE 16-POL	ANY

MANUFACTURERS:
AMD = ADVANCED MICRO DEVICES / BB = BURR-BROWN /
Ha = HARRIS / St = STUDER / * = EQUIVALENT TYPES FOR NE 5534AN (LOW NOISE TYPE) MANUFACTURED BY SIGNETICS ALSO AVAILABLE FROM EXAR, RAYTHEON & TEXAS INSTRUMENTS / ** MAY BE REPLACED BY TL071CP OR ACP OR, WITH SLIGHTLY INFERIOR RESULTS (THD+N) BY LM 318N.

ABBREVIATIONS:
FILM : METAL FILM CAPACITOR
CER : CERAMIC
XIC : IC SOCKET

REMARKS:
SELECT R9, R10 FOR PROPER LINE TERMINATION.

ORIG 83/06/13

FILTER BOARD

CONNECTOR P1

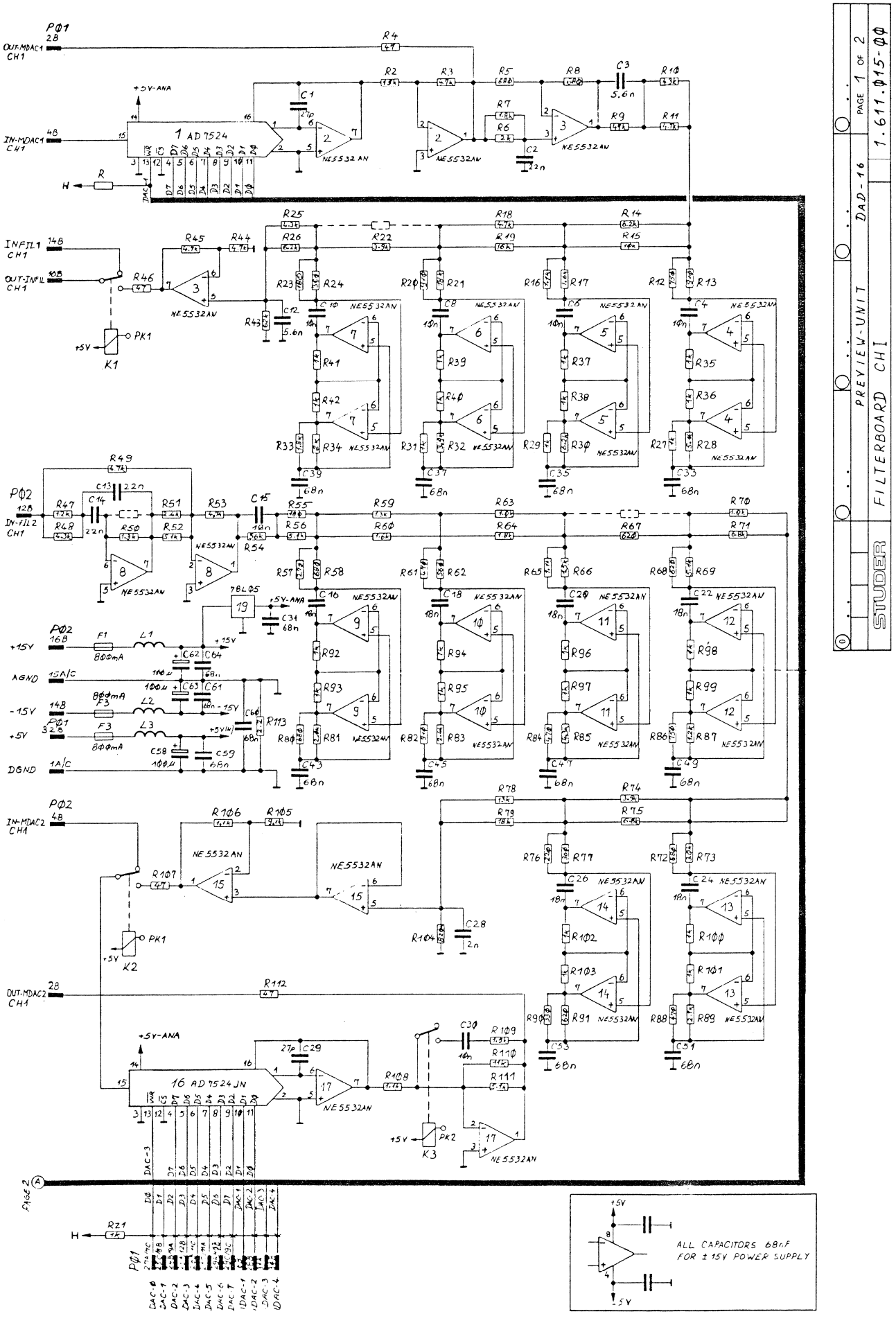
Pin	Signal Name	Pin	Signal Name	Pin	Signal Name
1a	DGND	1b	NC	1c	DGND
2a	NC	2b	OUT MDAC1 CH1	2c	NC
3a	NC	3b	NC	3c	NC
4a	NC	4b	IN MDAC1 CH1	4c	NC
5a	NC	5b	NC	5c	NC
6a	NC	6b	IDAC-1	6c	NC
7a	NC	7b	NC	7c	DAC-Ø
8a	NC	8b	DAC-1	8c	NC
9a	DAC-2	9b	NC	9c	H DAC-7
10a	NC	10b	DAC-6	10c	NC
11a	DAC-5	11b	NC	11c	DAC-4
12a	NC	12b	DAC-3	12c	NC
13a	NC	13b	NC	13c	NC
14a	NC	14b	INFIL1 CH1	14c	NC
15a	NC	15b	NC	15c	NC
16a	NC	16b	OUT INFIL CH1	16c	NC
17a	NC	17b	NC	17c	NC
18a	NC	18b	IN MDAC1 CH2	18c	NC
19a	NC	19b	NC	19c	NC
20a	NC	20b	INFIL1 CH2	20c	NC
21a	NC	21b	NC	21c	NC
22a	NC	22b	OUT MDAC1 CH2	22c	UC
23a	SET EMPH	23b	NC	23c	OUT INFIL CH2
24a	NC	24b	DAC-2	24c	≥
25a	DAC-3	25b	≥	25c	DAC-1
26a	≥	26b	DAC-4	26c	NC
27a	DAC-Ø	27b	NC	27c	DAC-5
28a	NC	28b	IDAC-2	28c	NC
29a	DAC-6	29b	NC	29c	DAC-7
30a	NC	30b	IDAC-4	30c	NC
31a	IDAC-3	31b	NC	31c	FULL/HALF
32a	NC	32b	+5V	32c	NC

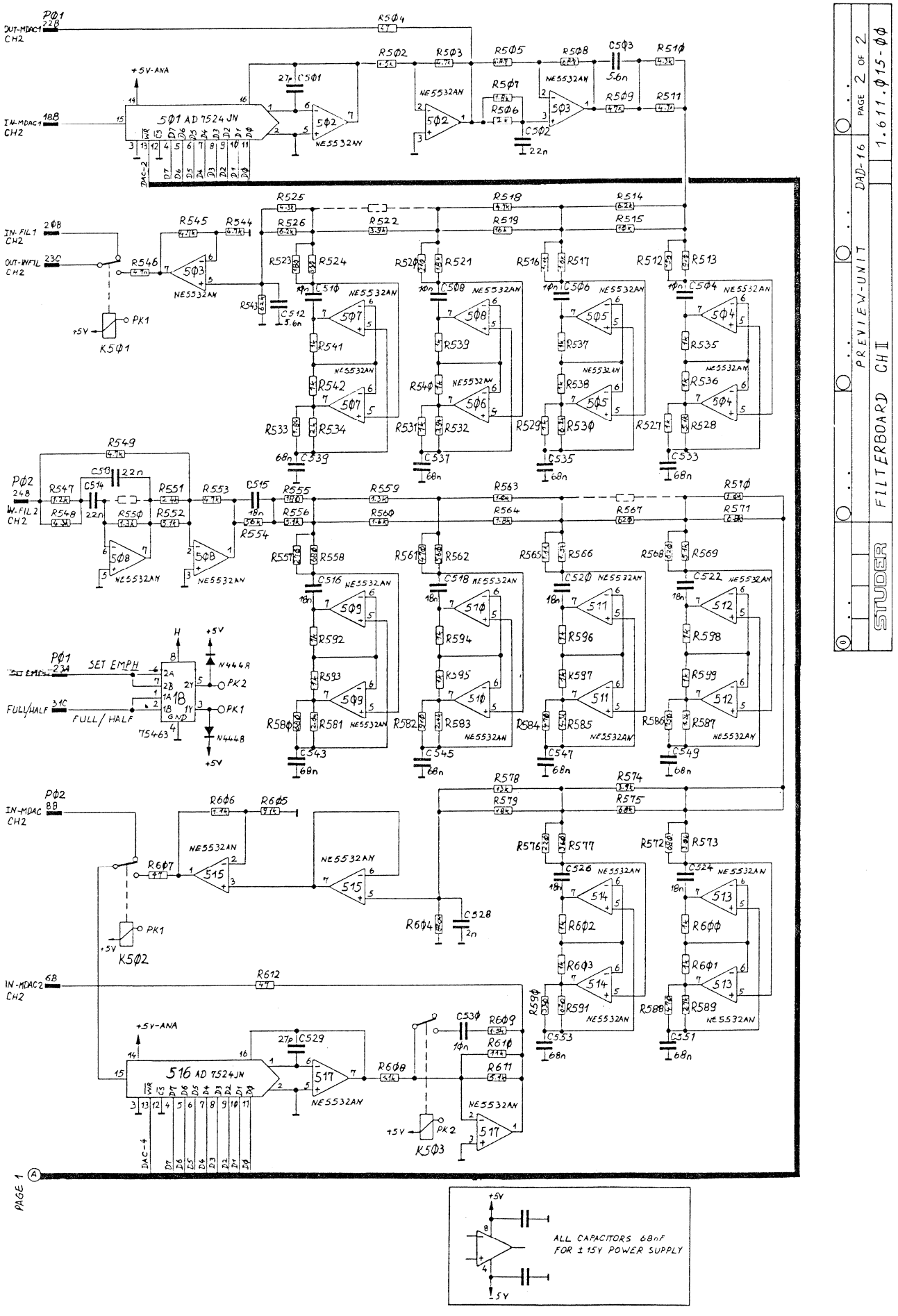
FILTER BOARD

CONNECTOR P2

Pin	Signal Name	Pin	Signal Name	Pin	Signal Name
1a	NC	1b	NC	1c	NC
2a	NC	2b	OUT MDAC2 CH2	2c	NC
3a	NC	3b	NC	3c	NC
4a	NC	4b	IN MDAC2 CH2	4c	NC
5a	NC	5b	NC	5c	NC
6a	NC	6b	OUT MDAC2 CH2	6c	NC
7a	NC	7b	NC	7c	NC
8a	NC	8b	IN MDAC2 CH2	8c	NC
9a	NC	9b	NC	9c	NC
10a	NC	10b	NC	10c	NC
11a	NC	11b	NC	11c	NC
12a	NC	12b	IN FIL2 CH1	12c	NC
13a	NC	13b	NC	13c	NC
14a	NC	14b	-15V	14c	NC
15a	ANAGND	15b	NC	15c	ANAGND
16a	NC	16b	+15V	16c	NC
17a	NC	17b	NC	17c	NC
18a	NC	18b	NC	18c	NC
19a	NC	19b	NC	19c	NC
20a	NC	20b	NC	20c	NC
21a	NC	21b	NC	21c	NC
22a	NC	22b	NC	22c	NC
23a	NC	23b	NC	23c	NC
24a	NC	24b	IN FIL2 CH2	24c	NC
25a	NC	25b	NC	25c	NC
26a	NC	26b	NC	26c	NC
27a	NC	27b	NC	27c	NC
28a	NC	28b	NC	28c	NC
29a	NC	29b	NC	29c	NC
30a	NC	30b	NC	30c	NC
31a	NC	31b	NC	31c	NC
32a	NC	32b	NC	32c	NC

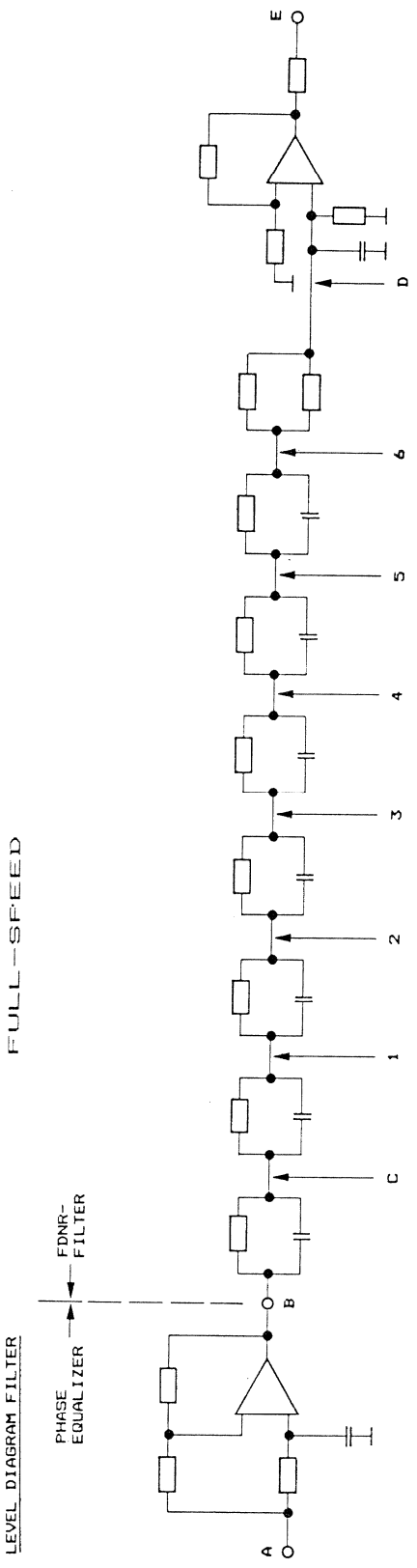
7.5.3.2
Circuit Diagram




PØ1
OUT-MDAC1 CH2
22B
+5V-ANA
IN-MDAC1 CH2
18B
5Ø1 AD 7524 JN
5Ø2
NE5532AN
27p C5Ø1
R5Ø4
R5Ø2
R5Ø3
R5Ø5
R5Ø8
C5Ø3
5.6n
R51Ø
R5Ø7
R5Ø6
C5Ø2
22n
5Ø3
R5Ø9
R511
IN-FIL1 CH2
2ØB
OUT-WFIL CH2
23C
R545
R544
R546
R525
R526
R522
R518
R519
R514
R515
R523
R524
R520
R521
R516
R517
R512
R513
C51Ø
C5Ø8
C5Ø6
C5Ø4
R541
R542
R539
R537
R538
R535
R536
R54Ø
R531
R532
R529
R53Ø
R527
R528
R533
R534
C512
5.6n
C539
C537
C535
C533
68n
PK1
+5V
K5Ø1
R549
PØ2
24B
W-FIL2 CH2
C513
22n
C514
22n
R547
R548
R55Ø
R551
R552
R553
C515
18n
R554
R555
R556
R557
R558
R559
R56Ø
R563
R564
R567
R571
R561
R562
R565
R566
R568
R569
C516
C518
C52Ø
C522
5Ø9
51Ø
511
512
R592
R594
R596
R598
R593
R595
R597
R599
R58Ø
R581
R582
R583
R584
R585
R586
R587
C543
C545
C547
C549
PØ1
23A
SET EMPH
FULL/HALF
31C
FULL/ HALF
75463
N4448
PK2
PK1
H
+5V
R578
R574
R579
R575
R576
R577
R572
R573
C526
C524
514
513
R6Ø2
R6Ø3
R6ØØ
R6Ø1
R59Ø
R591
R588
R589
C533
C531
PØ2
8B
IN-MDAC CH2
R6Ø6
R6Ø5
R6Ø7
515
R6Ø4
C528
2n
K5Ø2
IN-MDAC2 CH2
6B
R612
+5V-ANA
516 AD 7524JN
517
27p C529
R6Ø8
C53Ø
R6Ø9
R61Ø
R611
K5Ø3
PAGE 1
ALL CAPACITORS 68nF
FOR ± 15V POWER SUPPLY
+5V
-5V
STUDER
FILTERBOARD CH II
PREVIEW-UNIT
DAD-16
1.611.Ø15-ØØ
PAGE 2 OF 2

7.5.3.3
Filter Level Diagrams

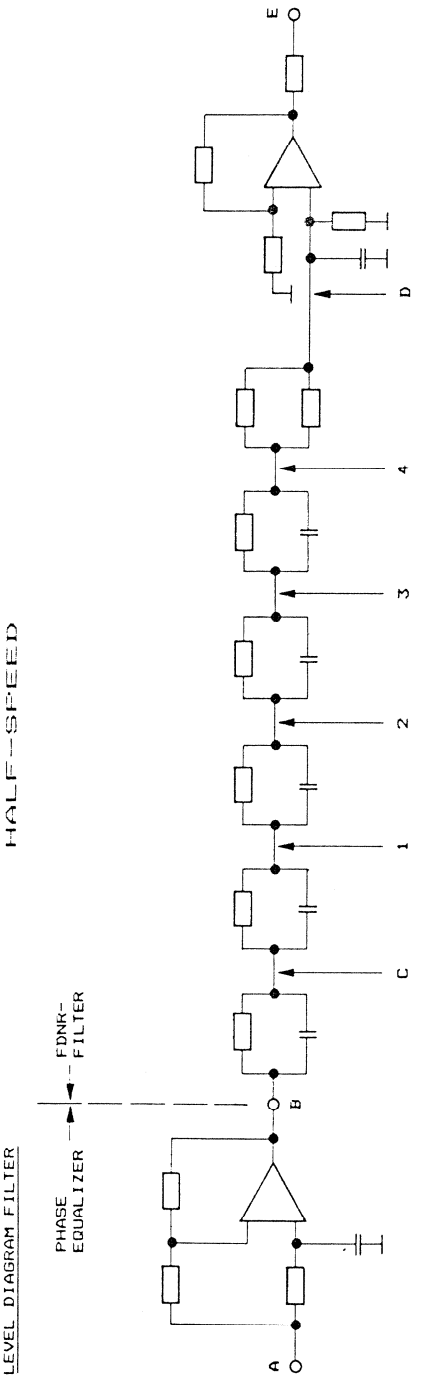
FULL-SPEED



RELATIVE LEVEL (dB) / TOLERANCE (dB)

A	B	C	1	2	3	4	5	6	D	E	FREQUENCY
0/0.3	0/0.3	-2.4/0.5	-2.4/0.4	-2.4/0.4	-2.5/0.4	-2.5/0.4	-2.6/0.5	-2.7/0.5	-3.2/0.5	0/0.5	200Hz
0/0.3	-0.1/0.3	-8.6/1.5	-6.1/0.5	-2.0/0.5	-5.0/0.5	-14.0/0.5	-2.5/0.5	-3.2/0.5	-0.1/0.5	0/0.5	10kHz

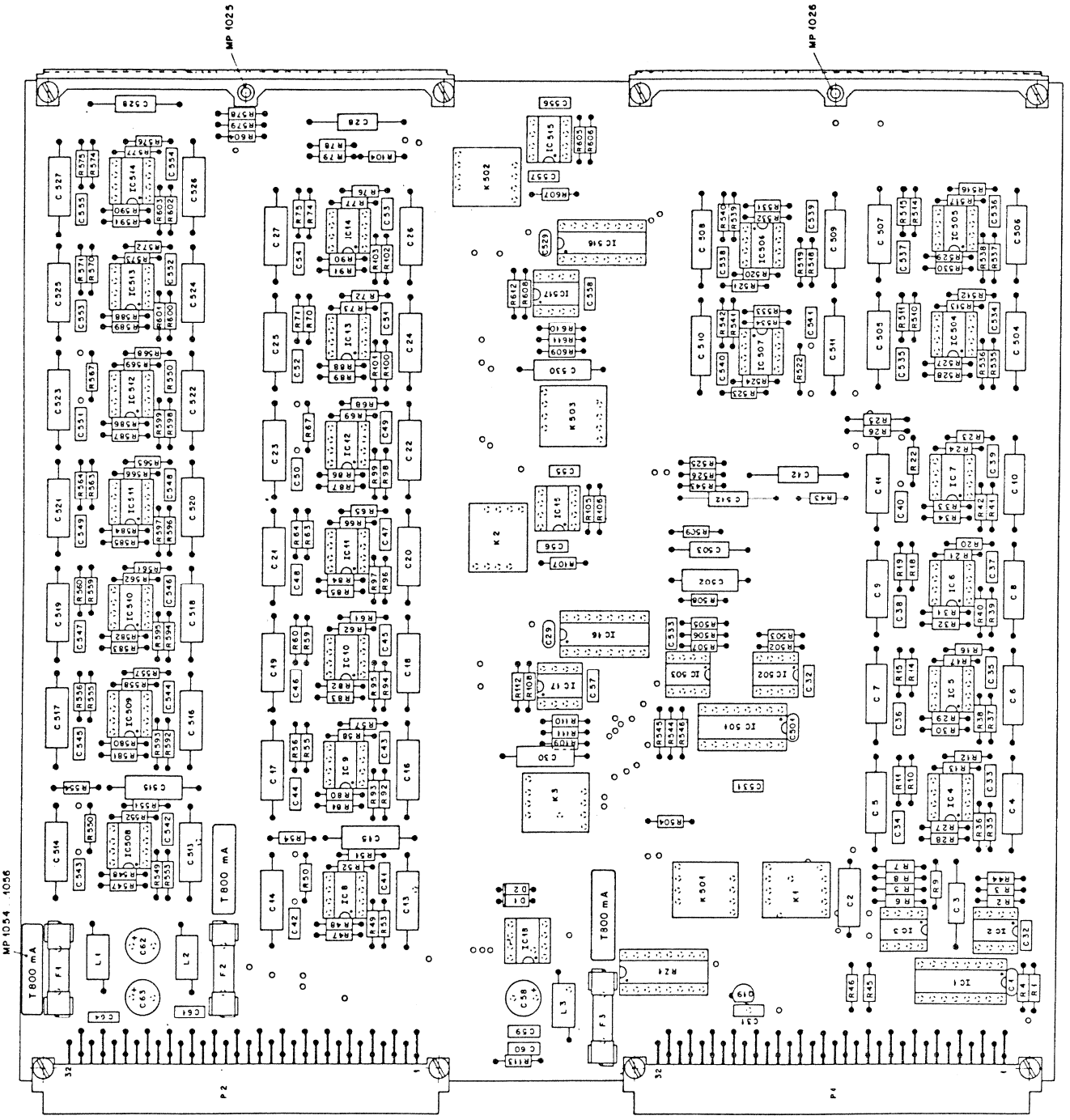
HALF-SPEED



RELATIVE LEVEL (dB) / TOLERANCE (dB)

A	B	C	1	2	3	4	D	E	FREQUENCY
0/0.3	-0.13/0.3	-6.3/0.5	-6.6/0.4	-7.1/0.4	-7.5/0.4	-8.1/0.4	-8.5/0.5	-0.2/0.5	200Hz
0/0.3	-0.13/0.3	-7.5/1.5	-5.7/0.5	-4.9/0.5	-6.6/0.5	-4.2/0.5	-0.7/0.5	-0.4/0.5	10kHz

7.5.3.4
Component Layout



IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	C..0001	59.34.2270	27 p	10%, 10V, CER	
	C..0002	59.12.7223	22 n	1%, 40V, FILM	
	C..0003	59.12.7562	5.6 n	1%, 40V, FILM	
	C..0004	59.12.7103	10 n	1%, 40V, FILM	
	C..0005	59.12.7103	10 n	1%, 40V, FILM	
	C..0006	59.12.7103	10 n	1%, 40V, FILM	
	C..0007	59.12.7103	10 n	1%, 40V, FILM	
	C..0008	59.12.7103	10 n	1%, 40V, FILM	
	C..0009	59.12.7103	10 n	1%, 40V, FILM	
	C..0010	59.12.7103	10 n	1%, 40V, FILM	
	C..0011	59.12.7103	10 n	1%, 40V, FILM	
	C..0012	59.12.7562	5.6 n	1%, 40V, FILM	
	C..0013	59.12.7223	22 n	1%, 40V, FILM	
	C..0014	59.12.7223	22 n	1%, 40V, FILM	
	C..0015	59.12.7183	18 n	1%, 40V, FILM	
	C..0016	59.12.7183	18 n	1%, 40V, FILM	
	C..0017	59.12.7183	18 n	1%, 40V, FILM	
	C..0018	59.12.7183	18 n	1%, 40V, FILM	
	C..0019	59.12.7183	18 n	1%, 40V, FILM	
	C..0020	59.12.7183	18 n	1%, 40V, FILM	
	C..0021	59.12.7183	18 n	1%, 40V, FILM	
	C..0022	59.12.7183	18 n	1%, 40V, FILM	
	C..0023	59.12.7183	18 n	1%, 40V, FILM	
	C..0024	59.12.7183	18 n	1%, 40V, FILM	
	C..0025	59.12.7183	18 n	1%, 40V, FILM	
	C..0026	59.12.7183	18 n	1%, 40V, FILM	
	C..0027	59.12.7183	18 n	1%, 40V, FILM	
	C..0028	59.12.7202	2 n	1%, 40V, FILM	
	C..0029	59.34.2270	27 p	10%, 10V, CER	
	C..0030	59.12.7103	10 n	1%, 63V , PS	
	C..0031	59.99.0205	68 n	-50%, 30V, CER	
	C..0032	59.99.0205	68 n	-50%, 30V, CER	
	C..0033	59.99.0205	68 n	-50%, 30V, CER	
	C..0034	59.99.0205	68 n	-50%, 30V, CER	
	C..0035	59.99.0205	68 n	-50%, 30V, CER	
	C..0036	59.99.0205	68 n	-50%, 30V, CER	
	C..0037	59.99.0205	68 n	-50%, 30V, CER	

IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	C..0038	59.99.0205	68 n	-50%, 30V, CER	
	C..0039	59.99.0205	68 n	-50%, 30V, CER	
	C..0040	59.99.0205	68 n	-50%, 30V, CER	
	C..0041	59.99.0205	68 n	-50%, 30V, CER	
	C..0042	59.99.0205	68 n	-50%, 30V, CER	
	C..0043	59.99.0205	68 n	-50%, 30V, CER	
	C..0044	59.99.0205	68 n	-50%, 30V, CER	
	C..0045	59.99.0205	68 n	-50%, 30V, CER	
	C..0046	59.99.0205	68 n	-50%, 30V, CER	
	C..0047	59.99.0205	68 n	-50%, 30V, CER	
	C..0048	59.99.0205	68 n	-50%, 30V, CER	
	C..0049	59.99.0205	68 n	-50%, 30V, CER	
	C..0050	59.99.0205	68 n	-50%, 30V, CER	
	C..0051	59.99.0205	68 n	-50%, 30V, CER	
	C..0052	59.99.0205	68 n	-50%, 30V, CER	
	C..0053	59.99.0205	68 n	-50%, 30V, CER	
	C..0054	59.99.0205	68 n	-50%, 30V, CER	
	C..0055	59.99.0205	68 n	-50%, 30V, CER	
	C..0056	59.99.0205	68 n	-50%, 30V, CER	
	C..0057	59.99.0205	68 n	-50%, 30V, CER	
	C..0058	59.22.5101	100 u	-20%, 25V , ELECTROLYTIC	ANY
	C..0059	59.99.0205	68 n	-50%, 30V, CER	ANY
	C..0060	59.99.0205	68 n	-50%, 30V, CER	ANY
	C..0061	59.99.0205	68 n	-50%, 30V, CER	ANY
	C..0062	59.22.5101	100 u	-20%, 10V , ELECTROLYTIC	ANY
	C..0063	59.22.5101	100 u	-20%, 25V , ELECTROLYTIC	ANY
	C..0064	59.99.0205	68 n	-50% 30V, CER	
	C..0501	59.34.2270	27 p	10%, 10V, CER	
	C..0502	59.12.7223	22 n	1%, 40V, FILM	
	C..0503	59.12.7562	5.6 n	1%, 40V, FILM	
	C..0504	59.12.7103	10 n	1%, 40V, FILM	
	C..0505	59.12.7103	10 n	1%, 40V, FILM	
	C..0506	59.12.7103	10 n	1%, 40V, FILM	
	C..0507	59.12.7103	10 n	1%, 40V, FILM	
	C..0508	59.12.7103	10 n	1%, 40V, FILM	
	C..0509	59.12.7103	10 n	1%, 40V, FILM	
	C..0510	59.12.7103	10 n	1%, 40V, FILM	

IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	C..0511	59.12.7103	10 n	1%, 40V, FILM	
	C..0512	59.12.7562	5.6 n	1%, 40V, FILM	
	C..0513	59.12.7223	22 n	1%, 40V, FILM	
	C..0514	59.12.7223	22 n	1%, 40V, FILM	
	C..0515	59.12.7183	18 n	1%, 40V, FILM	
	C..0516	59.12.7183	18 n	1%, 40V, FILM	
	C..0517	59.12.7183	18 n	1%, 40V, FILM	
	C..0518	59.12.7183	18 n	1%, 40V, FILM	
	C..0519	59.12.7183	18 n	1%, 40V, FILM	
	C..0520	59.12.7183	18 n	1%, 40V, FILM	
	C..0521	59.12.7183	18 n	1%, 40V, FILM	
	C..0522	59.12.7183	18 n	1%, 40V, FILM	
	C..0523	59.12.7183	18 n	1%, 40V, FILM	
	C..0524	59.12.7183	18 n	1%, 40V, FILM	
	C..0525	59.12.7183	18 n	1%, 40V, FILM	
	C..0526	59.12.7183	18 n	1%, 40V, FILM	
	C..0527	59.12.7183	18 n	1%, 40V, FILM	
	C..0528	59.12.7202	2 n	1%, 40V, FILM	
	C..0529	59.34.2270	27 p	10%, 10V, CER	
	C..0530	59.12.7103	10 n	1%, 63V , PS	
	C..0531	59.99.0205	68 n	-50%, 30V, CER	
	C..0532	59.99.0205	68 n	-50%, 30V, CER	
	C..0533	59.99.0205	68 n	-50%, 30V, CER	
	C..0534	59.99.0205	68 n	-50%, 30V, CER	
	C..0535	59.99.0205	68 n	-50%, 30V, CER	
	C..0536	59.99.0205	68 n	-50%, 30V, CER	
	C..0537	59.99.0205	68 n	-50%, 30V, CER	
	C..0538	59.99.0205	68 n	-50%, 30V, CER	
	C..0539	59.99.0205	68 n	-50%, 30V, CER	
	C..0540	59.99.0205	68 n	-50%, 30V, CER	
	C..0541	59.99.0205	68 n	-50%, 30V, CER	
	C..0542	59.99.0205	68 n	-50%, 30V, CER	
	C..0543	59.99.0205	68 n	-50%, 30V, CER	
	C..0544	59.99.0205	68 n	-50%, 30V, CER	
	C..0545	59.99.0205	68 n	-50%, 30V, CER	
	C..0546	59.99.0205	68 n	-50%, 30V, CER	
	C..0547	59.99.0205	68 n	-50%, 30V, CER	

IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	C..0548	59.99.0205	68 n	-50%, 30V, CER	
	C..0549	59.99.0205	68 n	-50%, 30V, CER	
	C..0550	59.99.0205	68 n	-50%, 30V, CER	
	C..0551	59.99.0205	68 n	-50%, 30V, CER	
	C..0552	59.99.0205	68 n	-50%, 30V, CER	
	C..0553	59.99.0205	68 n	-50%, 30V, CER	
	C..0554	59.99.0205	68 n	-50%, 30V, CER	
	C..0555	59.99.0205	68 n	-50%, 30V, CER	
	C..0556	59.99.0205	68 n	-50%, 30V, CER	
	C..0557	59.99.0205	68 n	-50%, 30V, CER	
	C..0558	59.99.0205	68 n	-50%, 30V, CER	
	D..0001	50.04.0125	1N 4448	GENERAL PURPOSE	
	D..0002	50.04.0125	1N 4448	GENERAL PURPOSE	
	F..0001	51.01.0116		FUSE, T800 /250V, 5 * 20MM	ANY
	F..0002	51.01.0116		FUSE, T800 /250V, 5 * 20MM	ANY
	F..0003	51.01.0116		FUSE, T800 /250V, 5 * 20MM	ANY
	IC.0001	50.07.0002	AD7524JN	,DAC	
	IC.0002	50.09.0105	NE5532AN	XR5532AN ,OPAMP	
	IC.0003	50.09.0106	NE5532AN	XR5532AN ,OPAMP	
	IC.0004	50.09.0106	NE5532AN	XR5532AN ,OPAMP	
	IC.0005	50.09.0106	NE5532AN	XR5532AN ,OPAMP	
	IC.0006	50.09.0106	NE5532AN	XR5532AN ,OPAMP	
	IC.0007	50.09.0106	NE5532AN	XR5532AN ,OPAMP	
	IC.0008	50.09.0106	NE5532AN	XR5532AN ,OPAMP	
	IC.0009	50.09.0106	NE5532AN	XR5532AN ,OPAMP	
	IC.0010	50.09.0106	NE5532AN	XR5532AN ,OPAMP	
	IC.0011	50.09.0106	NE5532AN	XR5532AN ,OPAMP	
	IC.0012	50.09.0106	NE5532AN	XR5532AN ,OPAMP	
	IC.0013	50.09.0106	NE5532AN	XR5532AN ,OPAMP	
	IC.0014	50.09.0106	NE5532AN	XR5532AN ,OPAMP	
	IC.0015	50.09.0106	NE5532AN	XR5532AN ,OPAMP	
	IC.0016	50.07.0002	AD7524JN	,DAC	
	IC.0017	50.09.0106	NE5532AN	XR5532AN ,OPAMP	
	IC.0018	50.05.0203	SN 75463	,DRIVER	

IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	IC.0019	50.10.0107	78 L 05	,STAB	
	IC.0501	50.07.0002	AD7524JN	,DAC	
	IC.0502	50.09.0106	NE5532AN	XR5532AN ,OPAMP	
	IC.0503	50.09.0106	NE5532AN	XR5532AN ,OPAMP	
	IC.0504	50.09.0106	NE5532AN	XR5532AN ,OPAMP	
	IC.0505	50.09.0106	NE5532AN	XR5532AN ,OPAMP	
	IC.0506	50.09.0106	NE5532AN	XR5532AN ,OPAMP	
	IC.0507	50.09.0106	NE5532AN	XR5532AN ,OPAMP	
	IC.0508	50.09.0106	NE5532AN	XR5532AN ,OPAMP	
	IC.0509	50.09.0106	NE5532AN	XR5532AN ,OPAMP	
	IC.0510	50.09.0106	NE5532AN	XR5532AN ,OPAMP	
	IC.0511	50.09.0106	NE5532AN	XR5532AN ,OPAMP	
	IC.0512	50.09.0106	NE5532AN	XR5532AN ,OPAMP	
	IC.0513	50.09.0106	NE5532AN	XR5532AN ,OPAMP	
	IC.0514	50.09.0106	NE5532AN	XR5532AN ,OPAMP	
	IC.0515	50.09.0106	NE5532AN	XR5532AN ,OPAMP	
	IC.0516	50.07.0002	AD7524JN	,DAC	
	IC.0517	50.09.0106	NE5532AN	XR5532AN ,OPAMP	
	K..0001	56.04.0170	5V DPDT		
	K..0002	56.04.0170	5V DPDT		
	K..0003	56.04.0170	5V DPDT		
	K..0501	56.04.0170	5V DPDT		
	K..0502	56.04.0170	5V DPDT		
	K..0503	56.04.0170	5V DPDT		
	L..0001	62.01.0115		WIDE-BAND HF-CHOKE	PH
	L..0002	62.01.0115		WIDE-BAND HF-CHOKE	PH
	L..0003	62.01.0115		WIDE-BAND HF-CHOKE	PH
	MP.1001	21.01.0280		SCREW, CYLIN.-HEAD, M2.5 * 8	ANY
	MP.1002	21.01.0280		SCREW, CYLIN.-HEAD, M2.5 * 8	ANY
	MP.1003	21.01.0280		SCREW, CYLIN.-HEAD, M2.5 * 8	ANY
	MP.1004	21.01.0280		SCREW, CYLIN.-HEAD, M2.5 * 8	ANY
	MP.1005	21.01.0281		SCREW, CYLIN.-HEAD, M2.5 * 10	ANY
	MP.1006	21.01.0281		SCREW, CYLIN.-HEAD, M2.5 * 10	ANY
	MP.1007	21.01.0281		SCREW, CYLIN.-HEAD, M2.5 * 10	ANY

IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	MP.1008	21.01.0281		SCREW, CYLIN.-HEAD, M2.5 * 10	ANY
	MP.1009	21.01.2278		SCREW, COUNTERSUNK HEAD, M2.5 * 5	ANY
	MP.1010	21.01.2278		SCREW, COUNTERSUNK HEAD, M2.5 * 5	ANY
	MP.1011	21.01.2278		SCREW, COUNTERSUNK HEAD, M2.5 * 5	ANY
	MP.1012	21.01.2278		SCREW, COUNTERSUNK HEAD, M2.5 * 5	ANY
	MP.1013	21.01.2278		SCREW, COUNTERSUNK HEAD, M2.5 * 5	ANY
	MP.1014	21.01.2278		SCREW, COUNTERSUNK HEAD, M2.5 * 5	ANY
	MP.1015	21.01.2278		SCREW, COUNTERSUNK HEAD, M2.5 * 5	ANY
	MP.1016	21.01.2278		SCREW, COUNTERSUNK HEAD, M2.5 * 5	ANY
	MP.1017	1.010.057.27		STAND-OFF, M2.5*7.5	ANY
	MP.1018	1.010.057.27		STAND-OFF, M2.5*7.5	ANY
	MP.1019	1.010.057.27		STAND-OFF, M2.5*7.5	ANY
	MP.1020	1.010.057.27		STAND-OFF, M2.5*7.5	ANY
	MP.1021	1.010.058.27		STAND-OFF, M2.5*9	ANY
	MP.1022	1.010.058.27		STAND-OFF, M2.5*9	ANY
	MP.1023	1.010.058.27		STAND-OFF, M2.5*9	ANY
	MP.1024	1.010.058.27		STAND-OFF, M2.5*9	ANY
	MP.1025	28.21.1380		TUBULAR RIVET, D2.25* 6.5MM	ANY
	MP.1026	28.21.1380		TUBULAR RIVET, D2.25* 6.5MM	ANY
	MP.1027	1.010.101.49		SHEET METAL PLATE, 233*216MM	ST
	MP.1028	1.010.100.49		INSULATOR, 233* 219, HGW	ST
	MP.1029	1.611.015.01		NUMBER-PLATE	ST
	MP.1030	1.611.015.02		NAME-PLATE	ST
	MP.1031	1.010.006.33		MARKING HANDLE	ST
	MP.1032	1.010.006.33		MARKING HANDLE	ST
	MP.1033	1.010.006.33		MARKING HANDLE	ST
	MP.1034	1.010.006.33		MARKING HANDLE	ST
	MP.1035	1.010.096.49		TRANSPARENT COVER	ST
	MP.1036	1.010.096.49		TRANSPARENT COVER	ST
	MP.1037	1.611.015.11		PCB	ST
	MP.1038	24.16.1025		LOCK WASHER	ANY
	MP.1039	24.16.1025		LOCK WASHER	ANY
	MP.1040	24.16.1025		LOCK WASHER	ANY
	MP.1041	24.16.1025		LOCK WASHER	ANY
	MP.1042	24.16.1025		LOCK WASHER	ANY
	MP.1043	24.16.1025		LOCK WASHER	ANY
	MP.1044	24.16.1025		LOCK WASHER	ANY

IND.	POS.NO.	PART NO.	VALUE		SPECIFICATIONS / EQUIVALENT	MANUF.
	MP.1045	24.16.1025			LOCK WASHER	ANY
	P..0001	54.01.0368			CARD CONNECTOR, 3*16 EURO SOLDERING	ANY
	P..0002	54.01.0368			CARD CONNECTOR, 3*16 EURO SOLDERING	ANY
	R..0001	57.11.3102	1	k	1%, MF	
	R..0002	57.11.3152	1.5	k	1%, MF	
	R..0003	57.11.3472	4.7	k	1%, MF	
	R..0004	57.11.3470	47		1%, MF	
	R..0005	57.11.3681	680		1%, MF	
	R..0006	57.11.3202	2	k	1%, MF	
	R..0007	57.11.3182	1.8	k	1%, MF	
	R..0008	57.11.3681	680		1%, MF	
	R..0009	57.11.3473	47	k	1%, MF	
	R..0010	57.11.3432	4.3	k	1%, MF	
	R..0011	57.11.3472	4.7	k	1%, MF	
	R..0012	57.11.3751	750		1%, MF	
	R..0013	57.11.3911	910		1%, MF	
	R..0014	57.11.3622	6.2	k	1%, MF	
	R..0015	57.11.3103	10	k	1%, MF	
	R..0016	57.11.3112	1.1	k	1%, MF	
	R..0017	57.11.3162	1.6	k	1%, MF	
	R..0018	57.11.3472	4.7	k	1%, MF	
	R..0019	57.11.3163	16	k	1%, MF	
	R..0020	57.11.3911	910		1%, MF	
	R..0021	57.11.3183	18	k	1%, MF	
	R..0022	57.11.3392	3.9	k	1%, MF	
	R..0023	57.11.3181	180		1%, MF	
	R..0024	57.11.3301	300		1%, MF	
	R..0025	57.11.3432	4.3	k	1%, MF	
	R..0026	57.11.3622	6.2	k	1%, MF	
	R..0027	57.11.3102	1	k	1%, MF	
	R..0028	57.11.3512	5.1	k	1%, MF	
	R..0029	57.11.3102	1	k	1%, MF	
	R..0030	57.11.3622	6.2	k	1%, MF	
	R..0031	57.11.3102	1	k	1%, MF	
	R..0032	57.11.3392	3.9	k	1%, MF	

IND.	POS.NO.	PART NO.	VALUE		SPECIFICATIONS / EQUIVALENT	MANUF.
	R..0033	57.11.3182	1.8	k	1%, MF	
	R..0034	57.11.3202	2	k	1%, MF	
	R..0035	57.11.3102	1	k	1%, MF	
	R..0036	57.11.3102	1	k	1%, MF	
	R..0037	57.11.3102	1	k	1%, MF	
	R..0038	57.11.3102	1	k	1%, MF	
	R..0039	57.11.3102	1	k	1%, MF	
	R..0040	57.11.3102	1	k	1%, MF	
	R..0041	57.11.3102	1	k	1%, MF	
	R..0042	57.11.3102	1	k	1%, MF	
	R..0043	57.11.3623	62	k	1%, MF	
	R..0044	57.11.3472	4.7	k	1%, MF	
	R..0045	57.11.3472	4.7	k	1%, MF	
	R..0046	57.11.3470	47		1%, MF	
	R..0047	57.11.3122	1.2	k	1%, MF	
	R..0048	57.11.3432	4.3	k	1%, MF	
	R..0049	57.11.3472	4.7	k	1%, MF	
	R..0050	57.11.3132	1.3	k	1%, MF	
	R..0051	57.11.3242	2.4	k	1%, MF	
	R..0052	57.11.3512	5.1	k	1%, MF	
	R..0053	57.11.3472	4.7	k	1%, MF	
	R..0054	57.11.3563	56	k	1%, MF	
	R..0055	57.11.3181	180		1%, MF	
	R..0056	57.11.3521	5.1	k	1%, MF	
	R..0057	57.11.3271	270		1%, MF	
	R..0058	57.11.3681	680		1%, MF	
	R..0059	57.11.3132	1.3	k	1%, MF	
	R..0060	57.11.3162	1.6	k	1%, MF	
	R..0061	57.11.3471	470		1%, MF	
	R..0062	57.11.3561	560		1%, MF	
	R..0063	57.11.3102	1.0	k	1%, MF	
	R..0064	57.11.3182	1.8	k	1%, MF	
	R..0065	57.11.3112	1.1	k	1%, MF	
	R..0066	57.11.3152	1.5	k	1%, MF	
	R..0067	57.11.3621	620		1%, MF	
	R..0068	57.11.3621	620		1%, MF	
	R..0069	57.11.3512	5.1	k	1%, MF	

IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	R..0070	57.11.3102	1.0 k	1%, MF	
	R..0071	57.11.3682	6.8 k	1%, MF	
	R..0072	57.11.3681	680	1%, MF	
	R..0073	57.11.3302	3.0 k	1%, MF	
	R..0074	57.11.3392	3.9 k	1%, MF	
	R..0075	57.11.3682	6.8 k	1%, MF	
	R..0076	57.11.3221	220	1%, MF	
	R..0077	57.11.3361	360	1%, MF	
	R..0078	57.11.3133	13 k	1%, MF	
	R..0079	57.11.3183	18 k	1%, MF	
	R..0080	57.11.3681	680	1%, MF	
	R..0081	57.11.3202	2.0 k	1%, MF	
	R..0082	57.11.3911	910	1%, MF	
	R..0083	57.11.3242	2.4 k	1%, MF	
	R..0084	57.11.3471	470	1%, MF	
	R..0085	57.11.3432	4.3 k	1%, MF	
	R..0086	57.11.3751	750	1%, MF	
	R..0087	57.11.3122	1.2 k	1%, MF	
	R..0088	57.11.3471	470	1%, MF	
	R..0089	57.11.3272	2.7 k	1%, MF	
	R..0090	57.11.3331	330	1%, MF	
	R..0091	57.11.3621	620	1%, MF	
	R..0092	57.11.3102	1 k	1%, MF	
	R..0093	57.11.3102	1 k	1%, MF	
	R..0094	57.11.3102	1 k	1%, MF	
	R..0095	57.11.3102	1 k	1%, MF	
	R..0096	57.11.3102	1 k	1%, MF	
	R..0097	57.11.3102	1 k	1%, MF	
	R..0098	57.11.3102	1 k	1%, MF	
	R..0099	57.11.3102	1 k	1%, MF	
	R..0100	57.11.3102	1 k	1%, MF	
	R..0101	57.11.3102	1 k	1%, MF	
	R..0102	57.11.3102	1 k	1%, MF	
	R..0103	57.11.3102	1 k	1%, MF	
	R..0104	57.11.3824	820 k	1%, MF	
	R..0105	57.11.3912	9.1 k	1%, MF	
	R..0106	57.11.3112	1.1 k	1%, MF	

IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	R..0107	57.11.3470	47	1%, MF	
	R..0108	57.11.3112	1.1 k	1%, MF	
	R..0109	57.11.3152	1.5 k	1%, MF	
	R..0110	57.11.3113	11 k	1%, MF	
	R..0111	57.11.3512	5.1 k	1%, MF	
	R..0112	57.11.3470	47	1%, MF	
	R..0113	57.11.4229	2.2	2% MF	
	R..0502	57.11.3152	1.5 k	1%, MF	
	R..0503	57.11.3472	4.7 k	1%, MF	
	R..0504	57.11.3470	47	1%, MF	
	R..0505	57.11.3681	680	1%, MF	
	R..0506	57.11.3202	2 k	1%, MF	
	R..0507	57.11.3182	1.8 k	1%, MF	
	R..0508	57.11.3681	680	1%, MF	
	R..0509	57.11.3473	47 k	1%, MF	
	R..0510	57.11.3432	4.3 k	1%, MF	
	R..0511	57.11.3472	4.7 k	1%, MF	
	R..0512	57.11.3751	750	1%, MF	
	R..0513	57.11.3911	910	1%, MF	
	R..0514	57.11.3622	6.2 k	1%, MF	
	R..0515	57.11.3103	10 k	1%, MF	
	R..0516	57.11.3112	1.1 k	1%, MF	
	R..0517	57.11.3162	1.6 k	1%, MF	
	R..0518	57.11.3472	4.7 k	1%, MF	
	R..0519	57.11.3163	16 k	1%, MF	
	R..0520	57.11.3911	910	1%, MF	
	R..0521	57.11.3183	18 k	1%, MF	
	R..0522	57.11.3392	3.9 k	1%, MF	
	R..0523	57.11.3181	180	1%, MF	
	R..0524	57.11.3301	300	1%, MF	
	R..0525	57.11.3432	4.3 k	1%, MF	
	R..0526	57.11.3622	6.2 k	1%, MF	
	R..0527	57.11.3102	1 k	1%, MF	
	R..0528	57.11.3512	5.1 k	1%, MF	
	R..0529	57.11.3102	1 k	1%, MF	
	R..0530	57.11.3622	6.2 k	1%, MF	
	R..0531	57.11.3102	1 k	1%, MF	

IND.	POS.NO.	PART NO.	VALUE		SPECIFICATIONS / EQUIVALENT	MANUF.
	R..0532	57.11.3392	3.9	k	1%, MF	
	R..0533	57.11.3182	1.8	k	1%, MF	
	R..0534	57.11.3202	2	k	1%, MF	
	R..0535	57.11.3102	1	k	1%, MF	
	R..0536	57.11.3102	1	k	1%, MF	
	R..0537	57.11.3102	1	k	1%, MF	
	R..0538	57.11.3102	1	k	1%, MF	
	R..0539	57.11.3102	1	k	1%, MF	
	R..0540	57.11.3102	1	k	1%, MF	
	R..0541	57.11.3102	1	k	1%, MF	
	R..0542	57.11.3102	1	k	1%, MF	
	R..0543	57.11.3623	62	k	1%, MF	
	R..0544	57.11.3472	4.7	k	1%, MF	
	R..0545	57.11.3472	4.7	k	1%, MF	
	R..0546	57.11.3470	47		1%, MF	
	R..0547	57.11.3122	1.2	k	1%, MF	
	R..0548	57.11.3432	4.3	k	1%, MF	
	R..0549	57.11.3472	4.7	k	1%, MF	
	R..0550	57.11.3132	1.3	k	1%, MF	
	R..0551	57.11.3242	2.4	k	1%, MF	
	R..0552	57.11.3512	5.1	k	1%, MF	
	R..0553	57.11.3472	4.7	k	1%, MF	
	R..0554	57.11.3563	56	k	1%, MF	
	R..0555	57.11.3181	180		1%, MF	
	R..0556	57.11.3512	5.1	k	1%, MF	
	R..0557	57.11.3271	270		1%, MF	
	R..0558	57.11.3681	680		1%, MF	
	R..0559	57.11.3132	1.3	k	1%, MF	
	R..0560	57.11.3162	1.6	k	1%, MF	
	R..0561	57.11.3471	470		1%, MF	
	R..0562	57.11.3561	560		1%, MF	
	R..0563	57.11.3102	1.0	k	1%, MF	
	R..0564	57.11.3182	1.8	k	1%, MF	
	R..0565	57.11.3112	1.1	k	1%, MF	
	R..0566	57.11.3152	1.5	k	1%, MF	
	R..0567	57.11.3621	620		1%, MF	
	R..0568	57.11.3621	620		1%, MF	

IND.	POS.NO.	PART NO.	VALUE		SPECIFICATIONS / EQUIVALENT	MANUF.
	R..0569	57.11.3512	5.1	k	1%, MF	
	R..0570	57.11.3102	1.0	k	1%, MF	
	R..0571	57.11.3682	6.8	k	1%, MF	
	R..0572	57.11.3681	680		1%, MF	
	R..0573	57.11.3302	3.0	k	1%, MF	
	R..0574	57.11.3392	3,9	k	1%, MF	
	R..0575	57.11.3682	6.8	k	1%, MF	
	R..0576	57.11.3221	220		1%, MF	
	R..0577	57.11.3361	360		1%, MF	
	R..0578	57.11.3133	13	k	1%, MF	
	R..0579	57.11.3183	18	k	1%, MF	
	R..0580	57.11.3681	680		1%, MF	
	R..0581	57.11.3202	2.0	k	1%, MF	
	R..0582	57.11.3911	910		1%, MF	
	R..0583	57.11.3242	2.4	k	1%, MF	
	R..0584	57.11.3471	470		1%, MF	
	R..0585	57.11.3432	4.3	k	1%, MF	
	R..0586	57.11.3751	750		1%, MF	
	R..0587	57.11.3122	1.2	k	1%, MF	
	R..0588	57.11.3471	470		1%, MF	
	R..0589	57.11.3272	2.7	k	1%, MF	
	R..0590	57.11.3331	330		1%, MF	
	R..0591	57.11.3621	620		1%, MF	
	R..0592	57.11.3102	1	k	1%, MF	
	R..0593	57.11.3102	1	k	1%, MF	
	R..0594	57.11.3102	1	k	1%, MF	
	R..0595	57.11.3102	1	k	1%, MF	
	R..0596	57.11.3102	1	k	1%, MF	
	R..0597	57.11.3102	1	k	1%, MF	
	R..0598	57.11.3102	1	k	1%, MF	
	R..0599	57.11.3102	1	k	1%, MF	
	R..0600	57.11.3102	1	k	1%, MF	
	R..0601	57.11.3102	1	k	1%, MF	
	R..0602	57.11.3102	1	k	1%, MF	
	R..0603	57.11.3102	1	k	1%, MF	
	R..0604	57.11.3824	820	k	1%, MF	
	R..0605	57.11.3912	9.1	k	1%, MF	

IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	R..0606	57.11.3112	1.1 k	1%, MF	
	R..0607	57.11.3470	47	1%, MF	
	R..0608	57.11.3112	1.1 k	1%, MF	
	R..0609	57.11.3152	1.5 k	1%, MF	
	R..0610	57.11.3113	11 k	1%, MF	
	R..0611	57.11.3512	5.1 k	1%, MF	
	R..0612	57.11.3470	47	1%, MF	
	RZ.0001	57.85.3102	15*1 k	2%	
	XF.1001	53.03.0142		CLAMP, 5*20	ANY
	XF.1002	53.03.0142		CLAMP, 5*20	ANY
	XF.1003	53.03.0142		CLAMP, 5*20	ANY
	XF.1004	53.03.0142		CLAMP, 5*20	ANY
	XF.1005	53.03.0142		CLAMP, 5*20	ANY
	XF.1006	53.03.0142		CLAMP, 5*20	ANY
	XIC0001	53.03.0166		XIC DIL 8-POL	
	XIC0002	53.03.0166		XIC DIL 8-POL	
	XIC0003	53.03.0166		XIC DIL 8-POL	
	XIC0004	53.03.0166		XIC DIL 8-POL	
	XIC0005	53.03.0166		XIC DIL 8-POL	
	XIC0006	53.03.0166		XIC DIL 8-POL	
	XIC0007	53.03.0166		XIC DIL 8-POL	
	XIC0008	53.03.0166		XIC DIL 8-POL	
	XIC0009	53.03.0166		XIC DIL 8-POL	
	XIC0010	53.03.0166		XIC DIL 8-POL	
	XIC0011	53.03.0166		XIC DIL 8-POL	
	XIC0012	53.03.0166		XIC DIL 8-POL	
	XIC0013	53.03.0166		XIC DIL 8-POL	
	XIC0014	53.03.0166		XIC DIL 8-POL	
	XIC0015	53.03.0166		XIC DIL 8-POL	
	XIC0016	53.03.0166		XIC DIL 8-POL	
	XIC0017	53.03.0166		XIC DIL 8-POL	
	XIC0018	53.03.0166		XIC DIL 8-POL	
	XIC0019	53.03.0166		XIC DIL 8-POL	
	XIC0020	53.03.0166		XIC DIL 8-POL	

IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	XIC0021	53.03.0166		XIC DIL 8-POL	
	XIC0022	53.03.0166		XIC DIL 8-POL	
	XIC0023	53.03.0166		XIC DIL 8-POL	
	XIC0024	53.03.0166		XIC DIL 8-POL	
	XIC0025	53.03.0166		XIC DIL 8-POL	
	XIC0026	53.03.0166		XIC DIL 8-POL	
	XIC0027	53.03.0166		XIC DIL 8-POL	
	XIC0028	53.03.0166		XIC DIL 8-POL	
	XIC0029	53.03.0166		XIC DIL 8-POL	
	XIC0030	53.03.0166		XIC DIL 8-POL	
	XIC0031	53.03.0166		XIC DIL 8-POL	
	XIC0032	53.03.0168		XIC DIL 16-POL	
	XIC0033	53.03.0168		XIC DIL 16-POL	
	XIC0034	53.03.0168		XIC DIL 16-POL	
	XIC0035	53.03.0168		XIC DIL 16-POL	
	XIC0036	53.03.0168		XIC DIL 16-POL	

DAC BOARD

CONNECTOR P1

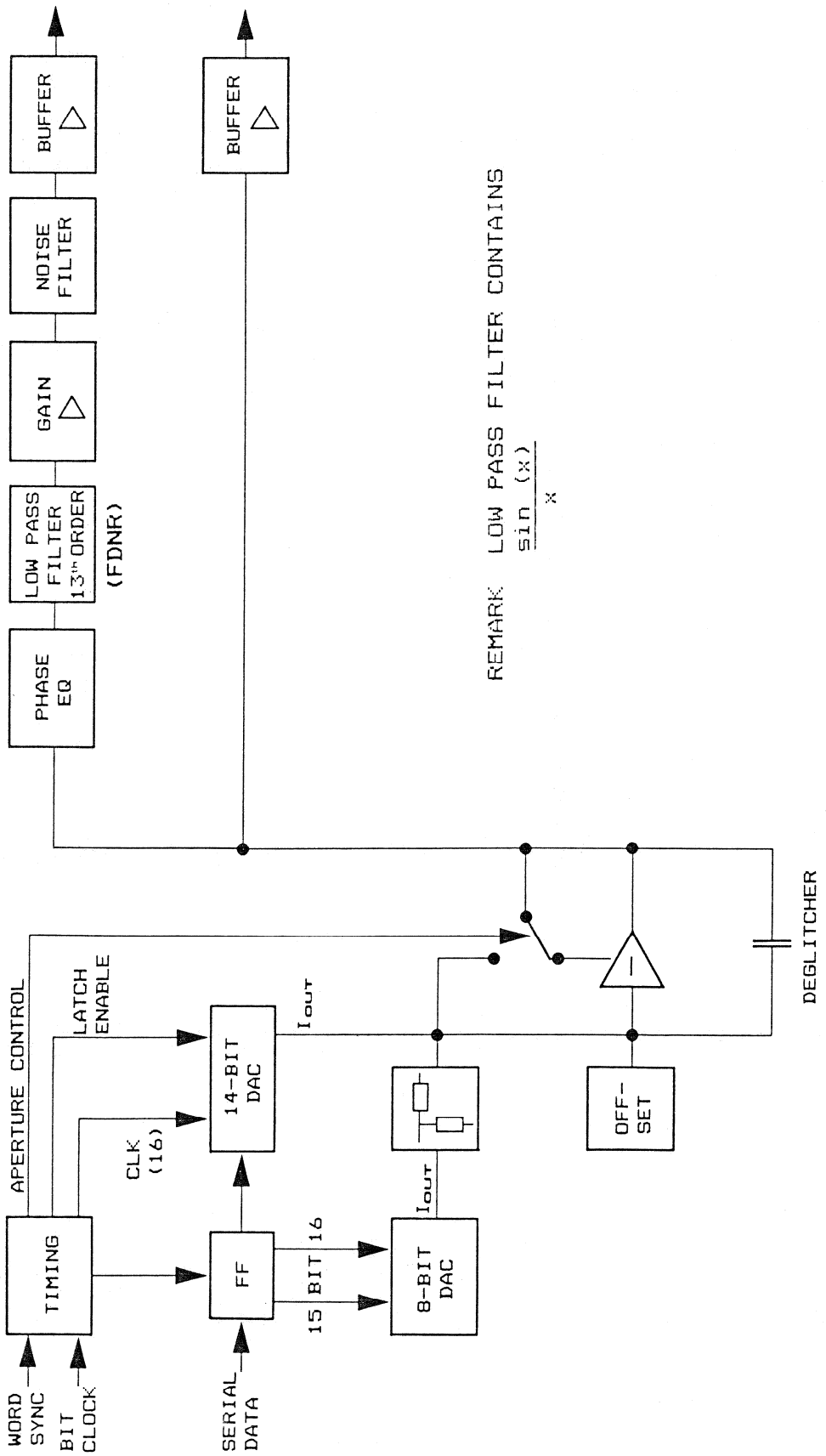
Pin	Signal Name	Pin	Signal Name	Pin	Signal Name
1a	DGND	1b	NC	1c	DGND
2a	NC	2b	NC	2c	NC
3a	NC	3b	NC	3c	NC
4a	NC	4b	NC	4c	NC
5a	NC	5b	NC	5c	NC
6a	NC	6b	NC	6c	NC
7a	NC	7b	NC	7c	NC
8a	NC	8b	NC	8c	NC
9a	NC	9b	NC	9c	NC
10a	NC	10b	NC	10c	NC
11a	NC	11b	NC	11c	NC
12a	NC	12b	NC	12c	NC
13a	NC	13b	NC	13c	NC
14a	NC	14b	NC	14c	NC
15a	NC	15b	NC	15c	NC
16a	NC	16b	NC	16c	NC
17a	NC	17b	NC	17c	NC
18a	NC	18b	NC	18c	NC
19a	NC	19b	NC	19c	NC
20a	NC	20b	NC	20c	NC
21a	NC	21b	NC	21c	NC
22a	NC	22b	NC	22c	NC
23a	WSYC	23b	NC	23c	CWSYC
24a	NC	24b	NC	24c	NC
25a	BCLK	25b	NC	25c	CBCLK
26a	NC	26b	NC	26c	NC
27a	DATA CH2	27b	NC	27c	CDATA CH2
28a	NC	28b	NC	28c	NC
29a	DATA CH1	29b	NC	29c	CDATA CH1
30a	NC	30b	NC	30c	NC
31a	NC	31b	NC	31c	NC
32a	NC	32b	+5V	32c	NC

DAC BOARD

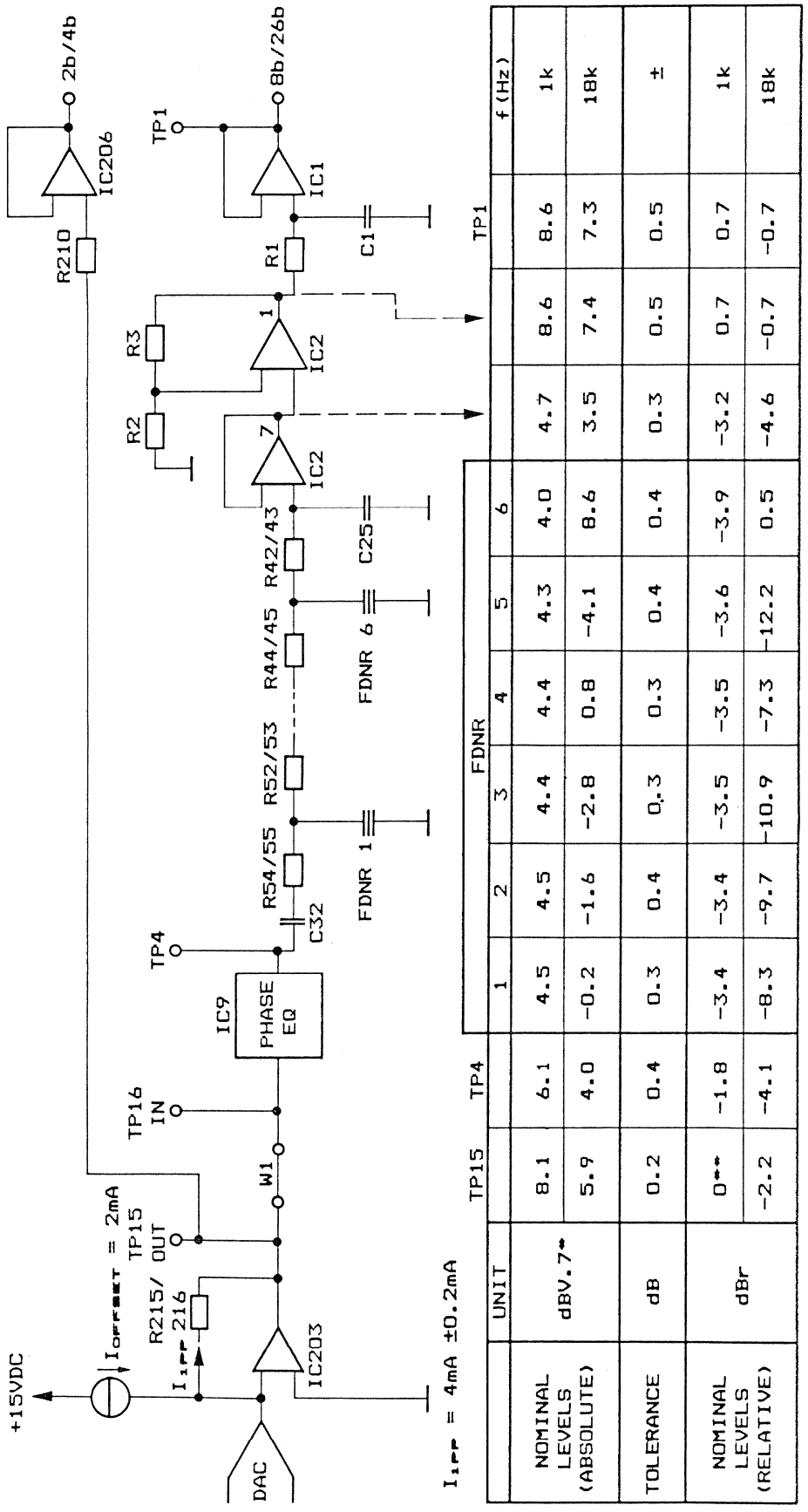
CONNECTOR P2

Pin	Signal Name	Pin	Signal Name	Pin	Signal Name
1a	NC	1b	NC	1c	NC
2a	NC	2b	AUDIO OUTPUT CH1 UNFILTERED	2c	NC
3a	SCREEN	3b	NC	3c	SCREEN
4a	NC	4b	AUDIO OUTPUT CH2 UNFILTERED	4c	NC
5a	SCREEN	5b	NC	5c	SCREEN
6a	NC	6b	NC	6c	NC
7a	SCREEN	7b	NC	7c	SCREEN
8a	NC	8b	AUDIO OUTPUT CH1 FILTERED	8c	NC
9a	SCREEN	9b	NC	9c	SCREEN
10a	"NC	10b	-24V	10c	NC
11a	NC	11b	NC	11c	NC
12a	NC	12b	NC	12c	NC
13a	NC	13b	NC	13c	NC
14a	NC	14b	-15V	14c	NC
15a	ANAGND	15b	NC	15c	ANAGND
16a	NC	16b	+15V	16c	NC
17a	NC	17b	NC	17c	NC
18a	NC	18b	NC	18c	NC
19a	NC	19b	NC	19c	NC
20a	NC	20b	NC	20c	NC
21a	NC	21b	NC	21c	NC
22a	NC	22b	NC	22c	NC
23a	NC	23b	NC	23c	NC
24a	NC	24b	NC	24c	NC
25a	SCREEN	25b	NC	25c	SCREEN
26a	NC	26b	AUDIO OUTPUT CH2 FILTERED	26c	NC
27a	SCREEN	27b	NC	27c	SCREEN
28a	NC	28b	NC	28c	NC
29a	NC	29b	NC	29c	NC
30a	NC	30b	NC	30c	NC
31a	NC	31b	NC	31c	NC
32a	NC	32b	NC	32c	NC

7.5.4.2
Block Diagram



7.5.4.3
Level Diagram

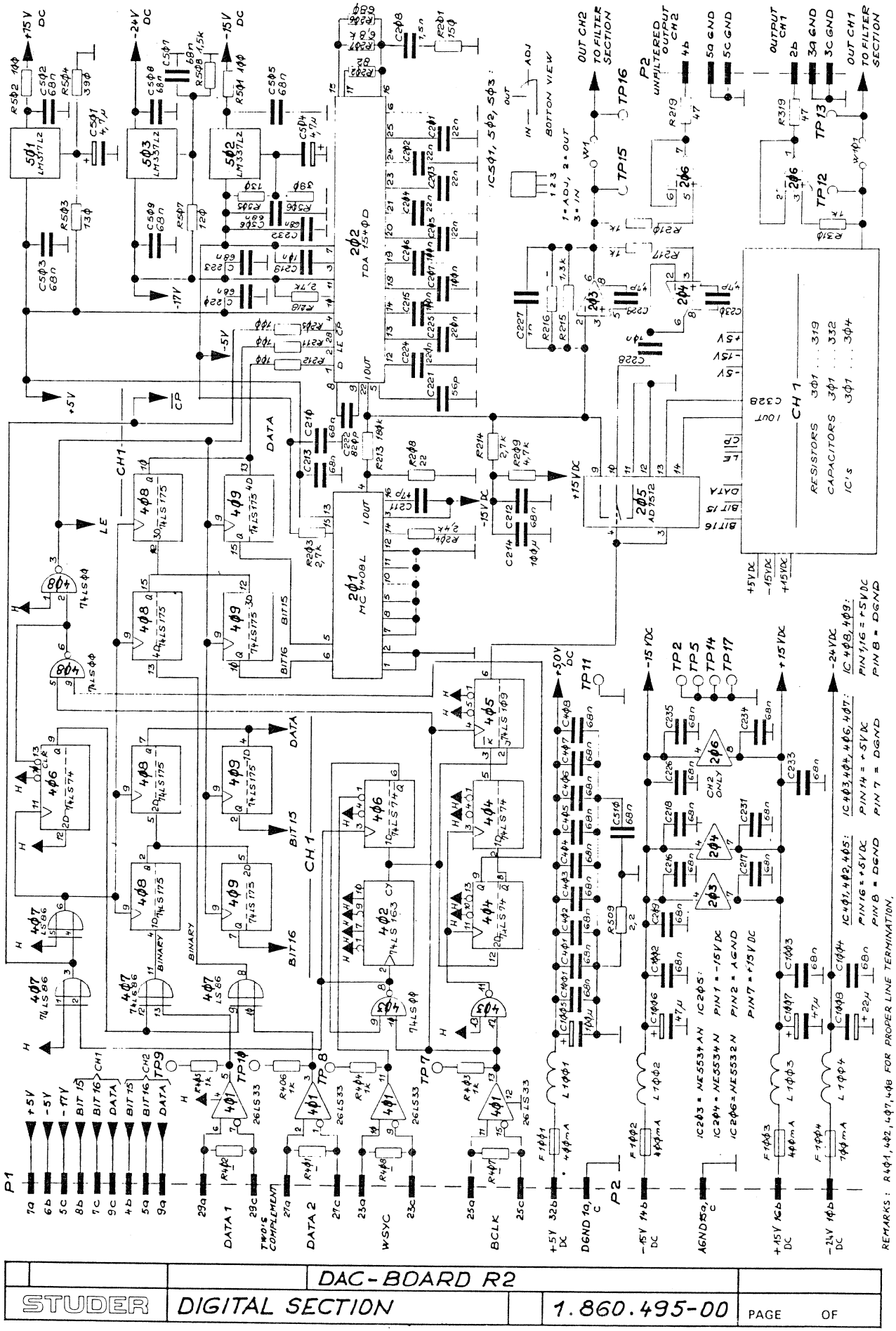


	UNIT	TP15	TP4	TP1	FDNR 1	FDNR 2	FDNR 3	FDNR 4	FDNR 5	FDNR 6	TP1	f (Hz)
NOMINAL LEVELS (ABSOLUTE)	dBV.7*	8.1	6.1	4.5	4.5	4.4	4.4	4.4	4.3	4.0	8.6	1k
		5.9	4.0	-0.2	-1.6	-2.8	0.3	0.8	-4.1	8.6	7.3	18k
TOLERANCE	dB	0.2	0.4	0.3	0.4	0.3	0.3	0.3	0.4	0.4	0.5	±
NOMINAL LEVELS (RELATIVE)	dBr	0**	-1.8	-3.4	-3.4	-3.5	-3.5	-3.5	-3.6	-3.9	0.7	1k
		-2.2	-4.1	-8.3	-9.7	-10.9	-7.3	-7.3	-12.2	0.5	-0.7	18k

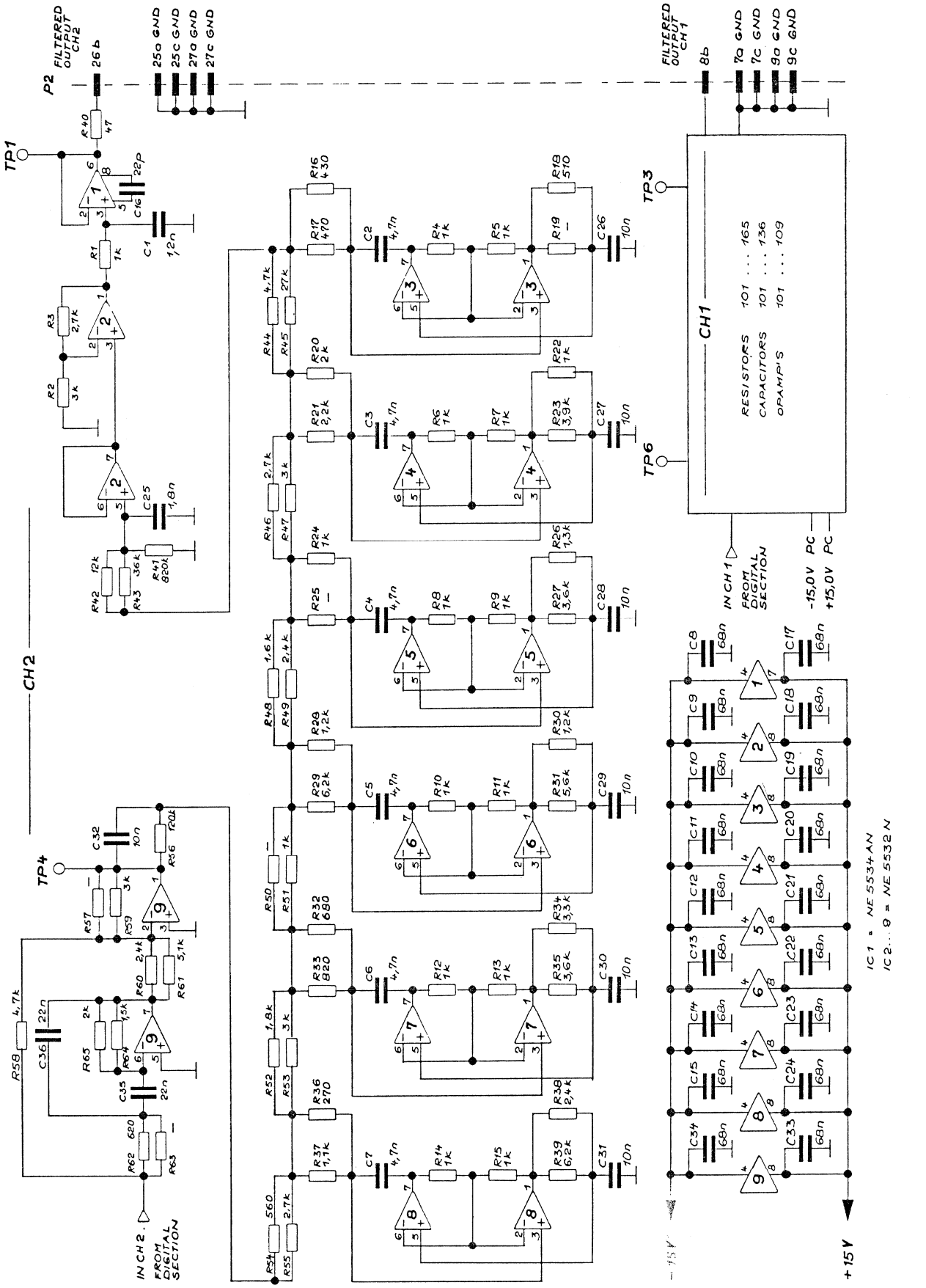
* dBV.7 : ABSOLUTE VOLTAGE LEVEL RE 0.7746V
** REFERENCE

NUMBERING VALID FOR CH2

7.5.4.4
Circuit Diagram of the Digital Section

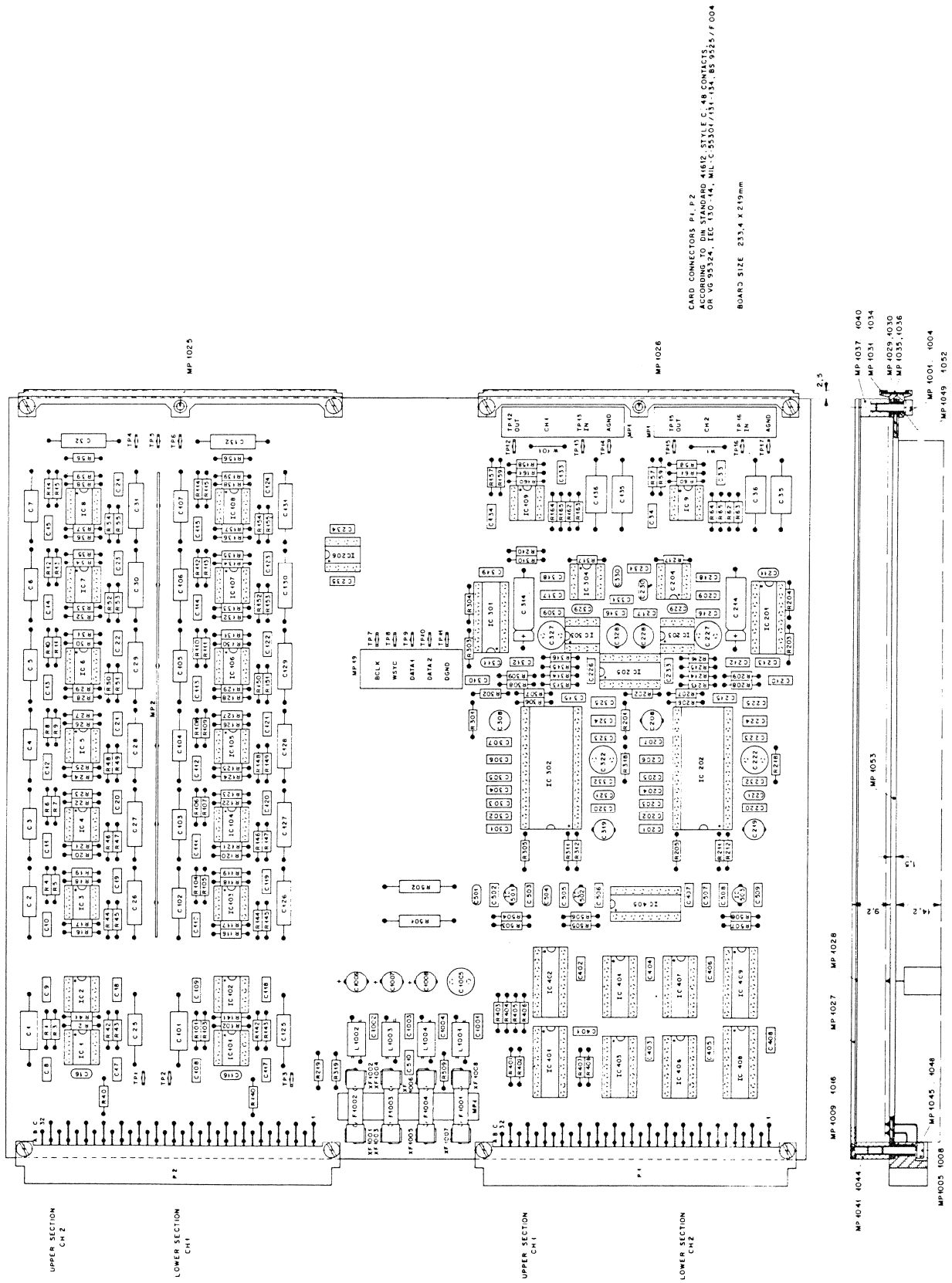


7.5.4.5
Circuit Diagram of the Filter Section



228210		DAC BOARD		
STUDER	FILTER SECTION		1.860.495-00	PAGE OF

7.5.4.6
Component Layout



IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	C..0001	59.12.7122	1.2n	1%, 50V , FILM	
	C..0002	59.12.7472	4.7n	1%, 50V , FILM	
	C..0003	59.12.7472	4.7n	1%, 50V , FILM	
	C..0004	59.12.7472	4.7n	1%, 50V , FILM	
	C..0005	59.12.7472	4.7n	1%, 50V , FILM	
	C..0006	59.12.7472	4.7n	1%, 50V , FILM	
	C..0007	59.12.7472	4.7n	1%, 50V , FILM	
	C..0008	59.99.0205	68 n	20%, 50V , CER	
	C..0009	59.99.0205	68 n	20%, 50V , CER	
	C..0010	59.99.0205	68 n	20%, 50V , CER	
	C..0011	59.99.0205	68 n	20%, 50V , CER	
	C..0012	59.99.0205	68 n	20%, 50V , CER	
	C..0013	59.99.0205	68 n	20%, 50V , CER	
	C..0014	59.99.0205	68 n	20%, 50V , CER	
	C..0015	59.99.0205	68 n	20%, 50V , CER	
	C..0016	59.34.2220	22 p	10%, 50V , CER	
	C..0017	59.99.0205	68 n	20%, 50V , CER	
	C..0018	59.99.0205	68 n	20%, 50V , CER	
	C..0019	59.99.0205	68 n	20%, 50V , CER	
	C..0020	59.99.0205	68 n	20%, 50V , CER	
	C..0021	59.99.0205	68 n	20%, 50V , CER	
	C..0022	59.99.0205	68 n	20%, 50V , CER	
	C..0023	59.99.0205	68 n	20%, 50V , CER	
	C..0024	59.99.0205	68 n	20%, 50V , CER	
	C..0025	59.12.7182	1.8n	1%, 50V , FILM	
	C..0026	59.12.7103	10 n	1%, 50V , FILM	
	C..0027	59.12.7103	10 n	1%, 50V , FILM	
	C..0028	59.12.7103	10 n	1%, 50V , FILM	
	C..0029	59.12.7103	10 n	1%, 50V , FILM	
	C..0030	59.12.7103	10 n	1%, 50V , FILM	
	C..0031	59.12.7103	10 n	1%, 50V , FILM	
	C..0032	59.12.7103	10 n	1%, 50V , FILM	
	C..0033	59.99.0205	68 n	20%, 50V , CER	
	C..0034	59.99.0205	68 n	20%, 50V , CER	
	C..0035	59.08.7223	22 n	2.5%, 50V , FILM	
	C..0036	59.08.7223	22 n	2.5%, 50V , FILM	
	C..0101	59.12.7122	1.2n	1%, 50V , FILM	

IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	C..0102	59.12.7472	4.7n	1%, 50V , FILM	
	C..0103	59.12.7472	4.7n	1%, 50V , FILM	
	C..0104	59.12.7472	4.7n	1%, 50V , FILM	
	C..0105	59.12.7472	4.7n	1%, 50V , FILM	
	C..0106	59.12.7472	4.7n	1%, 50V , FILM	
	C..0107	59.12.7472	4.7n	1%, 50V , FILM	
	C..0108	59.99.0205	68 n	20%, 50V , CER	
	C..0109	59.99.0205	68 n	20%, 50V , CER	
	C..0110	59.99.0205	68 n	20%, 50V , CER	
	C..0111	59.99.0205	68 n	20%, 50V , CER	
	C..0112	59.99.0205	68 n	20%, 50V , CER	
	C..0113	59.99.0205	68 n	20%, 50V , CER	
	C..0114	59.99.0205	68 n	20%, 50V , CER	
	C..0115	59.99.0205	68 n	20%, 50V , CER	
	C..0116	59.34.2220	22 p	10%, 50V , CER	
	C..0117	59.99.0205	68 n	20%, 50V , CER	
	C..0118	59.99.0205	68 n	20%, 50V , CER	
	C..0119	59.99.0205	68 n	20%, 50V , CER	
	C..0120	59.99.0205	68 n	20%, 50V , CER	
	C..0121	59.99.0205	68 n	20%, 50V , CER	
	C..0122	59.99.0205	68 n	20%, 50V , CER	
	C..0123	59.99.0205	68 n	20%, 50V , CER	
	C..0124	59.99.0205	68 n	20%, 50V , CER	
	C..0125	59.12.7182	1.8n	1%, 50V , FILM	
	C..0126	59.12.7103	10 n	1%, 50V , FILM	
	C..0127	59.12.7103	10 n	1%, 50V , FILM	
	C..0128	59.12.7103	10 n	1%, 50V , FILM	
	C..0129	59.12.7103	10 n	1%, 50V , FILM	
	C..0130	59.12.7103	10 n	1%, 50V , FILM	
	C..0131	59.12.7103	10 n	1%, 50V , FILM	
	C..0132	59.12.7103	10 n	1%, 50V , FILM	
	C..0133	59.99.0205	68 n	20%, 50V , CER	
	C..0134	59.99.0205	68 n	20%, 50V , CER	
	C..0135	59.08.7223	22 n	2.5%, 50V , FILM	
	C..0136	59.08.7223	22 n	2.5%, 50V , FILM	
	C..0201	59.06.0223	22 n	20%, 20V , GENERAL PURPOSE	
	C..0202	59.06.0223	22 n	20%, 20V , GENERAL PURPOSE	

IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	C..0203	59.06.0223	22 n	20%, 20V , GENERAL PURPOSE	
	C..0204	59.06.0223	22 n	20%, 20V , GENERAL PURPOSE	
	C..0205	59.06.0223	22 n	20%, 20V , GENERAL PURPOSE	
	C..0206	59.06.0104	100n	20%, 20V , GENERAL PURPOSE	
	C..0207	59.06.0104	100n	20%, 20V , GENERAL PURPOSE	
	C..0208	59.05.2152	1.5n	5%, 50V , FILM	
	C..0209	59.99.0205	68 n	20%, 50V , CER	
	C..0210	59.99.0205	68 n	20%, 50V , CER	
	C..0211	59.34.2470	47 p	5%, 50V , CER	
	C..0212	59.99.0205	68 n	20%, 50V , CER	
	C..0213	59.99.0205	68 n	20%, 50V , CER	
	C..0214	59.25.4101	100u	20%, 10V , ELECTROLYTIC	
	C..0215	59.06.0104	100n	20%, 20V , GENERAL PURPOSE	
	C..0216	59.99.0205	68 n	20%, 50V , CER	
	C..0217	59.99.0205	68 n	20%, 50V , CER	
	C..0218	59.99.0205	68 n	20%, 50V , CER	
	C..0219	59.05.2103	10 n	5%, 50V , FILM	
	C..0220	59.99.0205	68 n	20%, 50V , CER	
	C..0221	59.34.4560	56 p	5%, 50V , CER	
	C..0222	59.04.7821	820p	5%, 50V , FILM	
	C..0223	59.99.0205	68 n	20%, 50V , CER	
	C..0224	59.06.0224	220n	20%, 20V , GENERAL PURPOSE	
	C..0225	59.06.0224	220n	20%, 20V , GENERAL PURPOSE	
	C..0226	59.99.0205	68 n	20%, 50V , CER	
	C..0227	59.05.2102	1 n	5%, 50V , FILM	
	C..0228	59.05.2103	10 n	5%, 50V , FILM	
	C..0229	59.34.0479	4.7p	5%, 50V , CER	
	C..0230	59.34.0479	4.7p	5%, 50V , CER	
	C..0231	59.99.0205	68 n	20%, 50V , CER	
	C..0232	59.99.0205	68 n	20%, 50V , CER	
	C..0233	59.99.0205	68 n	20%, 50V , CER	
	C..0234	59.99.0205	68 n	20%, 50V , CER	
	C..0235	59.99.0205	68 n	20%, 50V , CER	
	C..0301	59.06.0223	22 n	20%, 20V , GENERAL PURPOSE	
	C..0302	59.06.0223	22 n	20%, 20V , GENERAL PURPOSE	
	C..0303	59.06.0223	22 n	20%, 20V , GENERAL PURPOSE	
	C..0304	59.06.0223	22 n	20%, 20V , GENERAL PURPOSE	

IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	C..0305	59.06.0223	22 n	20%, 20V , GENERAL PURPOSE	
	C..0306	59.06.0104	100n	20%, 20V , GENERAL PURPOSE	
	C..0307	59.06.0104	100n	20%, 20V , GENERAL PURPOSE	
	C..0308	59.05.2152	1.5n	5%, 50V , FILM	
	C..0309	59.99.0205	68 n	20%, 50V , CER	
	C..0310	59.99.0205	68 n	20%, 50V , CER	
	C..0311	59.34.2470	47 p	5%, 50V , CER	
	C..0312	59.99.0205	68 n	20%, 50V , CER	
	C..0313	59.99.0205	68 n	20%, 50V , CER	
	C..0314	59.25.4101	100u	20%, 10V , ELECTROLYTIC	
	C..0315	59.06.0104	100n	20%, 20V , GENERAL PURPOSE	
	C..0316	59.99.0205	68 n	20%, 50V , CER	
	C..0317	59.99.0205	68 n	20%, 50V , CER	
	C..0318	59.99.0205	68 n	20%, 50V , CER	
	C..0319	59.05.2103	10 n	5%, 50V , FILM	
	C..0320	59.99.0205	68 n	20%, 50V , CER	
	C..0321	59.34.4560	56 p	5%, 50V , CER	
	C..0322	59.04.7821	820p	5%, 50V , FILM	
	C..0323	59.99.0205	68 n	20%, 50V , CER	
	C..0324	59.06.0224	220n	20%, 20V , GENERAL PURPOSE	
	C..0325	59.06.0224	220n	20%, 20V , GENERAL PURPOSE	
	C..0327	59.05.2102	1 n	5%, 50V , FILM	
	C..0328	59.05.2103	10 n	5%, 50V , FILM	
	C..0329	59.34.1100	10 p	5%, 50V , CER	
	C..0330	59.34.0479	4.7p	5%, 50V , CER	
	C..0331	59.99.0205	68 n	20%, 50V , CER	
	C..0332	59.99.0205	68 n	20%, 50V , CER	
	C..0401	59.99.0205	68 n	20%, 50V , CER	
	C..0402	59.99.0205	68 n	20%, 50V , CER	
	C..0403	59.99.0205	68 n	20%, 50V , CER	
	C..0404	59.99.0205	68 n	20%, 50V , CER	
	C..0405	59.99.0205	68 n	20%, 50V , CER	
	C..0406	59.99.0205	68 n	20%, 50V , CER	
	C..0407	59.99.0205	68 n	20%, 50V , CER	
	C..0408	59.99.0205	68 n	20%, 50V , CER	
	C..0501	59.26.5479	4.7u	20%, 25V , ELECTROLYTIC	
	C..0502	59.99.0205	68 n	20%, 50V , CER	

IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	C..0503	59.99.0205	68 n	20%, 50V , CER	
	C..0504	59.20.5479	4.7u	20%, 25V, ELECTROLYTIC	
	C..0505	59.99.0205	68 n	20%, 50V , CER	
	C..0506	59.99.0205	68 n	20%, 50V , CER	
	C..0508	59.99.0205	68 n	20%, 50V , CER	
	C..0509	59.99.0205	68 n	20%, 50V , CER	
	C..0510	59.99.0205	68 n	20%, 50V , CER	
	C..1001	59.99.0205	68 n	-50%, 30V , CER	ANY
	C..1002	59.99.0205	68 n	-50%, 30V , CER	ANY
	C..1003	59.99.0205	68 n	-50%, 30V , CER	ANY
	C..1004	59.99.0205	68 n	-50%, 30V , CER	ANY
	C..1005	59.22.4101	100u	-20%, 10V , ELECTROLYTIC	ANY
	C..1006	59.22.5470	47 u	-20%, 25V , ELECTROLYTIC	ANY
	C..1007	59.22.5470	47 u	-20%, 25V , ELECTROLYTIC	ANY
	C..1008	59.22.6220	22 u	-20%, 30V , ELECTROLYTIC	ANY
	F..1001	51.01.0113		FUSE, 400mA , SLOW BLOW , 5 * 20mm	ANY
(00)	F..1002	51.01.0110		FUSE, 200mA , SLOW BLOW , 5 * 20mm	ANY
(01)	F..1002	51.01.0113		FUSE, 400mA , SLOW BLOW , 5 * 20mm	ANY
(00)	F..1003	51.01.0110		FUSE, 200mA , SLOW BLOW , 5 * 20mm	ANY
(01)	F..1003	51.01.0113		FUSE, 400mA , SLOW BLOW , 5 * 20mm	ANY
	F..1004	51.01.0107		FUSE, 100mA , SLOW BLOW , 5 * 20mm	ANY
	IC.0001	50.05.0244	NE5534AN	EQUIVALENT TYPES FOR NE 5532 &	
	IC.0002	50.09.0105	NE5532 N	NE 5534 MANUFACTURED BY SIGNETICS	
	IC.0003	50.09.0105	NE5532 N	ALSO AVAILABLE FROM EXAR, RAYTHEON	
	IC.0004	50.09.0105	NE5532 N	& TEXAS INSTRUMENTS.	
	IC.0005	50.09.0105	NE5532 N		
	IC.0006	50.09.0105	NE5532 N	NE 55XXAN: LOW NOISE TYPE.	
	IC.0007	50.09.0105	NE5532 N		
	IC.0008	50.09.0105	NE5532 N		
	IC.0009	50.09.0105	NE5532 N		
	IC.0101	50.05.0244	NE5534AN		
	IC.0102	50.09.0105	NE5532 N		
	IC.0103	50.09.0105	NE5532 N		
	IC.0104	50.09.0105	NE5532 N		
	IC.0105	50.09.0105	NE5532 N		

IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	IC.0106	50.09.0105	NE5532 N		
	IC.0107	50.09.0105	NE5532 N		
	IC.0108	50.09.0105	NE5532 N		
	IC.0109	50.09.0105	NE5532 N		
	IC.0201	50.99.0123	MC1408 L8	DAC 8 BIT	Mot
	IC.0202	50.16.0109	TDA 1540D	DAC 14 BIT SELECTED	Ph
	IC.0203	50.05.0244	NE5534AN		
	IC.0204	50.05.0243	NE5534 N		
	IC.0205	50.07.0031	AD7512DIKN	SWITCH DPDT	ADI
	IC.0206	50.09.0105	NE5532 N		
	IC.0301	50.99.0123	MC1408 L8	DAC 8 BIT	Mot
	IC.0302	50.16.0109	TDA 1540D	DAC 14 BIT SELECTED	Ph
	IC.0303	50.05.0244	NE5534AN		
	IC.0304	50.05.0243	NE5534 N		
	IC.0401	50.15.0109	AM26LS33PC	EIA RS 422 LINE RECEIVER	AMD
	IC.0402	50.06.0163		SN 74 LS 163 AN TTL	
	IC.0403	50.06.0000		SN 74 LS 00 N TTL	
	IC.0404	50.06.0074		SN 74 LS 74 N TTL	
	IC.0405	50.06.0109		SN 74 LS 109 N TTL	
	IC.0406	50.06.0074		SN 74 LS 74 N TTL	
	IC.0407	50.06.0086		SN 74 LS 86 N TTL	
	IC.0408	50.06.0175		SN 74 LS 175 N TTL	
	IC.0409	50.06.0175		SN 74 LS 175 N TTL	
	IC.0501	50.10.0108	LM 317 LZ	VOLTAGE REGULATOR, VAR.	NS
	IC.0502	50.10.0109	LM 337 LZ	VOLTAGE REGULATOR, VAR.	NS
	IC.0503	50.10.0109	LM 337 LZ	VOLTAGE REGULATOR, VAR.	NS
	L..1001	62.01.0115		WIDE-BAND HF-CHOKE	Ph
	L..1002	62.01.0115		WIDE-BAND HF-CHOKE	Ph
	L..1003	62.01.0115		WIDE-BAND HF-CHOKE	Ph
	L..1004	62.01.0115		WIDE-BAND HF-CHOKE	Ph
	MP.0001	1.860.495.04		SET OF ID STRIPS	St
	MP.0002	1.860.495.03		SCREENING BAR	St
	MP.1001	21.01.0280		SCREW, CYLIN.-HEAD, M2.5 * 8	ANY
	MP.1002	21.01.0280		SCREW, CYLIN.-HEAD, M2.5 * 8	ANY
	MP.1003	21.01.0280		SCREW, CYLIN.-HEAD, M2.5 * 8	ANY

IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	MP.1004	21.01.0280		SCREW, CYLIN.-HEAD, M2.5 * 8	ANY
	MP.1005	21.01.0281		SCREW, CYLIN.-HEAD, M2.5 * 10	ANY
	MP.1006	21.01.0281		SCREW, CYLIN.-HEAD, M2.5 * 10	ANY
	MP.1007	21.01.0281		SCREW, CYLIN.-HEAD, M2.5 * 10	ANY
	MP.1008	21.01.0281		SCREW, CYLIN.-HEAD, M2.5 * 10	ANY
	MP.1009	21.01.2278		SCREW, COUNTERSUNK HEAD, M2.5 * 5	ANY
	MP.1010	21.01.2278		SCREW, COUNTERSUNK HEAD, M2.5 * 5	ANY
	MP.1011	21.01.2278		SCREW, COUNTERSUNK HEAD, M2.5 * 5	ANY
	MP.1012	21.01.2278		SCREW, COUNTERSUNK HEAD, M2.5 * 5	ANY
	MP.1013	21.01.2278		SCREW, COUNTERSUNK HEAD, M2.5 * 5	ANY
	MP.1014	21.01.2278		SCREW, COUNTERSUNK HEAD, M2.5 * 5	ANY
	MP.1015	21.01.2278		SCREW, COUNTERSUNK HEAD, M2.5 * 5	ANY
	MP.1016	21.01.2278		SCREW, COUNTERSUNK HEAD, M2.5 * 5	ANY
	MP.1025	28.21.1380		TUBULAR RIVET, D2.25 * 6.5mm	ANY
	MP.1026	28.21.1380		TUBULAR RIVET, D2.25 * 6.5mm	ANY
	MP.1027	1.010.101.49		SHEET METAL PLATE, 233*216mm	St
	MP.1028	1.010.100.49		INSULATOR, 233* 219, HGW	St
	MP.1029	1.860.495.01		NUMBER-PLATE	St
	MP.1030	1.860.495.02		NAME-PLATE	St
	MP.1031	1.010.006.33		MARKING HANDLE	St
	MP.1032	1.010.006.33		MARKING HANDLE	St
	MP.1033	1.010.006.33		MARKING HANDLE	St
	MP.1034	1.010.006.33		MARKING HANDLE	St
	MP.1035	1.010.096.49		TRANSPARENT COVER	St
	MP.1036	1.010.096.49		TRANSPARENT COVER	St
	MP.1037	1.010.057.27		STAND-OFF, M2.5*7.5	ANY
	MP.1038	1.010.057.27		STAND-OFF, M2.5*7.5	ANY
	MP.1039	1.010.057.27		STAND-OFF, M2.5*7.5	ANY
	MP.1040	1.010.057.27		STAND-OFF, M2.5*7.5	ANY
	MP.1041	1.010.058.27		STAND-OFF, M2.5*9	ANY
	MP.1042	1.010.058.27		STAND-OFF, M2.5*9	ANY
	MP.1043	1.010.058.27		STAND-OFF, M2.5*9	ANY
	MP.1044	1.010.058.27		STAND-OFF, M2.5*9	ANY
	MP.1045	24.16.1025		LOCK WASHER	ANY
	MP.1046	24.16.1025		LOCK WASHER	ANY
	MP.1047	24.16.1025		LOCK WASHER	ANY
	MP.1048	24.16.1025		LOCK WASHER	ANY

IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	MP.1049	24.16.1025		LOCK WASHER	ANY
	MP.1050	24.16.1025		LOCK WASHER	ANY
	MP.1051	24.16.1025		LOCK WASHER	ANY
	MP.1052	24.16.1025		LOCK WASHER	ANY
	MP.1053	1.860.495.11		PCB	St
	P..0001	54.01.0368		CARD CONNECTOR, 3*16 EURO SOLDERING	ANY
	P..0002	54.01.0368		CARD CONNECTOR, 3*16 EURO SOLDERING	ANY
	R..0001	57.11.3102	1 k	**** ALL RESISTORS 1%,>=.25W, METAL FILM **	
	R..0002	57.11.3302	3 k	**** UNLESS OTHERWISE NOTED **********	
	R..0003	57.11.3272	2.7k		
	R..0004	57.11.3102	1 k	2%	
	R..0005	57.11.3102	1 k	2%	
	R..0006	57.11.3102	1 k	2%	
	R..0007	57.11.3102	1 k	2%	
	R..0008	57.11.3102	1 k	2%	
	R..0009	57.11.3102	1 k	2%	
	R..0010	57.11.3102	1 k	2%	
	R..0011	57.11.3102	1 k	2%	
	R..0012	57.11.3102	1 k	2%	
	R..0013	57.11.3102	1 k	2%	
	R..0014	57.11.3102	1 k	2%	
	R..0015	57.11.3102	1 k	2%	
	R..0016	57.11.3431	430		
	R..0017	57.11.3471	470		
	R..0018	57.11.3511	510		
	R..0020	57.11.3202	2 k		
	R..0021	57.11.3222	2.2k		
	R..0022	57.11.3102	1 k		
	R..0023	57.11.3392	3.9k		
	R..0024	57.11.3102	1 k		
	R..0026	57.11.3132	1.3k		
	R..0027	57.11.3362	3.6k		
	R..0028	57.11.3122	1.2k		
	R..0029	57.11.3622	6.2k		
	R..0030	57.11.3122	1.2k		

IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	R..0031	57.11.3562	5.6k		
	R..0032	57.11.3681	680		
	R..0033	57.11.3821	820		
	R..0034	57.11.3332	3.3k		
	R..0035	57.11.3362	3.6k		
	R..0036	57.11.3271	270		
	R..0037	57.11.3112	1.1k		
	R..0038	57.11.3242	2.4k		
	R..0039	57.11.3622	6.2k		
	R..0040	57.11.4470	47	10%, GENERAL PURPOSE	
	R..0041	57.11.3824	820k	2%	
	R..0042	57.11.3123	12 k		
	R..0043	57.11.3363	36 k		
	R..0044	57.11.3472	4.7k		
	R..0045	57.11.3273	27 k		
	R..0046	57.11.3272	2.7k		
	R..0047	57.11.3302	3 k		
	R..0048	57.11.3162	1.6k		
	R..0049	57.11.3242	2.4k		
	R..0051	57.11.3102	1 k		
	R..0052	57.11.3182	1.8k		
	R..0053	57.11.3302	3 k		
	R..0054	57.11.3561	560		
	R..0055	57.11.3272	2.7k		
	R..0056	57.11.3124	120k	2%	
	R..0058	57.11.3472	4.7k		
	R..0059	57.11.3302	3 k		
	R..0060	57.11.3242	2.4k		
	R..0061	57.11.3512	5.1k		
	R..0062	57.11.3621	620		
	R..0064	57.11.3152	1.5k		
	R..0065	57.11.3202	2 k		
	R..0101	57.11.3102	1 k		
	R..0102	57.11.3302	3 k		
	R..0103	57.11.3272	2.7k		
	R..0104	57.11.3102	1 k	2%	
	R..0105	57.11.3102	1 k	2%	

IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	R..0106	57.11.3102	1 k	2%	
	R..0107	57.11.3102	1 k	2%	
	R..0108	57.11.3102	1 k	2%	
	R..0109	57.11.3102	1 k	2%	
	R..0110	57.11.3102	1 k	2%	
	R..0111	57.11.3102	1 k	2%	
	R..0112	57.11.3102	1 k	2%	
	R..0113	57.11.3102	1 k	2%	
	R..0114	57.11.3102	1 k	2%	
	R..0115	57.11.3102	1 k	2%	
	R..0116	57.11.3431	430		
	R..0117	57.11.3471	470		
	R..0118	57.11.3511	510		
	R..0120	57.11.3202	2 k		
	R..0121	57.11.3222	2.2k		
	R..0122	57.11.3102	1 k		
	R..0123	57.11.3392	3.9k		
	R..0124	57.11.3102	1 k		
	R..0126	57.11.3132	1.3k		
	R..0127	57.11.3362	3.6k		
	R..0128	57.11.3122	1.2k		
	R..0129	57.11.3622	6.2k		
	R..0130	57.11.3122	1.2k		
	R..0131	57.11.3562	5.6k		
	R..0132	57.11.3681	680		
	R..0133	57.11.3821	820		
	R..0134	57.11.3332	3.3k		
	R..0135	57.11.3362	3.6k		
	R..0136	57.11.3271	270		
	R..0137	57.11.3112	1.1k		
	R..0138	57.11.3242	2.4k		
	R..0139	57.11.3622	6.2k		
	R..0140	57.11.4470	47	10%, GENERAL PURPOSE	
	R..0141	57.11.3824	820k	2%	
	R..0142	57.11.3123	12 k		
	R..0143	57.11.3363	36 k		
	R..0144	57.11.3472	4.7k		

IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	R..0145	57.11.3273	27 k		
	R..0146	57.11.3272	2.7k		
	R..0147	57.11.3302	3 k		
	R..0148	57.11.3162	1.6k		
	R..0149	57.11.3242	2.4k		
	R..0151	57.11.3102	1 k		
	R..0152	57.11.3182	1.8k		
	R..0153	57.11.3302	3 k		
	R..0154	57.11.3561	560		
	R..0155	57.11.3272	2.7k		
	R..0156	57.11.3124	120k	2%	
	R..0158	57.11.3472	4.7k		
	R..0159	57.11.3302	3 k		
	R..0160	57.11.3242	2.4k		
	R..0161	57.11.3512	5.1k		
	R..0162	57.11.3621	620		
	R..0164	57.11.3152	1.5k		
	R..0165	57.11.3202	2 k		
	R..0201	57.11.3151	150	10%, GENERAL PURPOSE	
	R..0202	57.11.3820	82	5%	
	R..0203	57.11.3272	2.7k	5%	
	R..0204	57.11.3242	2.4k		
	R..0205	57.11.4101	100	10%, GENERAL PURPOSE	
	R..0206	57.11.3681	680	5%	
	R..0207	57.11.3682	6.8k	5%	
	R..0208	57.11.3220	22	2%	
	R..0209	57.11.3472	4.7k	2%	
	R..0210	57.11.3102	1 k		
	R..0211	57.11.4101	100	10%, GENERAL PURPOSE	
	R..0212	57.11.4101	100	10%, GENERAL PURPOSE	
	R..0213	57.11.3184	180k	2%	
	R..0214	57.11.3272	2.7k		
	R..0215	57.11.3132	1.3k		
	R..0217	57.11.3102	1 k	2%	
	R..0218	57.11.3272	2.7k	5%	
	R..0219	57.11.4470	47	10%, GENERAL PURPOSE	
	R..0301	57.11.3151	150	10%, GENERAL PURPOSE	

IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	R..0302	57.11.3820	82	5%	
	R..0303	57.11.3272	2.7k	5%	
	R..0304	57.11.3242	2.4k		
	R..0305	57.11.4101	100	10%, GENERAL PURPOSE	
	R..0306	57.11.3681	680	5%	
	R..0307	57.11.3682	6.8k	5%	
	R..0308	57.11.3220	22	2%	
	R..0309	57.11.3472	4.7k	2%	
	R..0310	57.11.3102	1 k		
	R..0311	57.11.4101	100	10%, GENERAL PURPOSE	
	R..0312	57.11.4101	100	10%, GENERAL PURPOSE	
	R..0313	57.11.3184	180k	2%	
	R..0314	57.11.3272	2.7k		
	R..0315	57.11.3132	1.3k		
	R..0317	57.11.3102	1 k	2%	
	R..0318	57.11.3272	2.7k	5%	
	R..0319	57.11.4470	47	10%, GENERAL PURPOSE	
	R..0401				
	R..0402				
	R..0403	57.11.4102	1 k	10%, GENERAL PURPOSE	
	R..0404	57.11.4102	1 k	10%, GENERAL PURPOSE	
	R..0405	57.11.4102	1 k	10%, GENERAL PURPOSE	
	R..0406	57.11.4102	1 k	10%, GENERAL PURPOSE	
	R..0407				
	R..0408				
	R..0501	57.13.4101	100	10%, .5W, GENERAL PURPOSE	
	R..0502	57.13.4101	100	10%, .5W, GENERAL PURPOSE	
	R..0503	57.11.3131	130		
	R..0504	57.11.3391	390		
	R..0505	57.11.3131	130		
	R..0506	57.11.3391	390		
	R..0507	57.11.3121	120		
	R..0508	57.11.3152	1.5k		
	R..0509	57.11.4229	2.2	10%, GENERAL PURPOSE	
	TP.0001	54.02.0320		TEST POINT	St
	TP.0002	54.02.0320		TEST POINT	St

IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	TP.0003	54.02.0320		TEST POINT	St
	TP.0004	54.02.0320		TEST POINT	St
	TP.0005	54.02.0320		TEST POINT	St
	TP.0006	54.02.0320		TEST POINT	St
	TP.0007	54.02.0320		TEST POINT	St
	TP.0008	54.02.0320		TEST POINT	St
	TP.0009	54.02.0320		TEST POINT	St
	TP.0010	54.02.0320		TEST POINT	St
	TP.0011	54.02.0320		TEST POINT	St
	TP.0012	54.02.0320		TEST POINT	St
	TP.0013	54.02.0320		TEST POINT	St
	TP.0014	54.02.0320		TEST POINT	St
	TP.0015	54.02.0320		TEST POINT	St
	TP.0016	54.02.0320		TEST POINT	St
	TP.0017	54.02.0320		TEST POINT	St
	W..0001	64.01.0108		UNCOVERED WIRE, D=0,8	
	W..0101	64.01.0108		UNCOVERED WIRE, D=0,8	
	XF.1001	53.03.0142		CLAMP, 5*20	ANY
	XF.1002	53.03.0142		CLAMP, 5*20	ANY
	XF.1003	53.03.0142		CLAMP, 5*20	ANY
	XF.1004	53.03.0142		CLAMP, 5*20	ANY
	XF.1005	53.03.0142		CLAMP, 5*20	ANY
	XF.1006	53.03.0142		CLAMP, 5*20	ANY
	XF.1007	53.03.0142		CLAMP, 5*20	ANY
	XF.1008	53.03.0142		CLAMP, 5*20	ANY
	XIC0001	53.03.0166		DIL 8-POL	ANY
	XIC0002	53.03.0166		DIL 8-POL	ANY
	XIC0003	53.03.0166		DIL 8-POL	ANY
	XIC0004	53.03.0166		DIL 8-POL	ANY
	XIC0005	53.03.0166		DIL 8-POL	ANY
	XIC0006	53.03.0166		DIL 8-POL	ANY
	XIC0007	53.03.0166		DIL 8-POL	ANY
	XIC0008	53.03.0166		DIL 8-POL	ANY
	XIC0009	53.03.0166		DIL 8-POL	ANY

IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	XIC0010	53.03.0166		DIL 8-POL	ANY
	XIC0011	53.03.0166		DIL 8-POL	ANY
	XIC0012	53.03.0166		DIL 8-POL	ANY
	XIC0013	53.03.0166		DIL 8-POL	ANY
	XIC0014	53.03.0166		DIL 8-POL	ANY
	XIC0015	53.03.0166		DIL 8-POL	ANY
	XIC0016	53.03.0166		DIL 8-POL	ANY
	XIC0017	53.03.0166		DIL 8-POL	ANY
	XIC0018	53.03.0166		DIL 8-POL	ANY
	XIC0019	53.03.0166		DIL 8-POL	ANY
	XIC0020	53.03.0166		DIL 8-POL	ANY
	XIC0021	53.03.0166		DIL 8-POL	ANY
	XIC0022	53.03.0166		DIL 8-POL	ANY
	XIC0023	53.03.0166		DIL 8-POL	ANY
	XIC0024	53.03.0167		DIL 14-POL	ANY
	XIC0025	53.03.0167		DIL 14-POL	ANY
	XIC0026	53.03.0167		DIL 14-POL	ANY
	XIC0027	53.03.0167		DIL 14-POL	ANY
	XIC0028	53.03.0167		DIL 14-POL	ANY
	XIC0029	53.03.0168		DIL 16-POL	ANY
	XIC0030	53.03.0168		DIL 16-POL	ANY
	XIC0031	53.03.0168		DIL 16-POL	ANY
	XIC0032	53.03.0168		DIL 16-POL	ANY
	XIC0033	53.03.0168		DIL 16-POL	ANY
	XIC0034	53.03.0168		DIL 16-POL	ANY
	XIC0035	53.03.0168		DIL 16-POL	ANY
	XIC0036	53.03.0173		DIL 28-POL	ANY
	XIC0037	53.03.0173		DIL 28-POL	ANY

IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.

REMARKS: (01) F 1002, 1003 CHANGED TO 400mA (ERROR IN ORIGINAL SCHEMATIC).

MANUFACTURERS:
ADI = ANALOG DEVICES / AMD = ADVANCED MICRO DEVICES / Mot = MOTOROLA
NS = NATIONAL SEMICONDUCTORS / Ph = PHILIPS / St = STUDER

ABBREVIATIONS:
FILM : METAL FILM CAPACITOR
CER : CERAMIC
XIC : IC SOCKET

REMARKS:
SELECT R 401, R 402, R 407, R 408 FOR PROPER LINE TERMINATION.

CONTROL BOARD

CONNECTOR P1

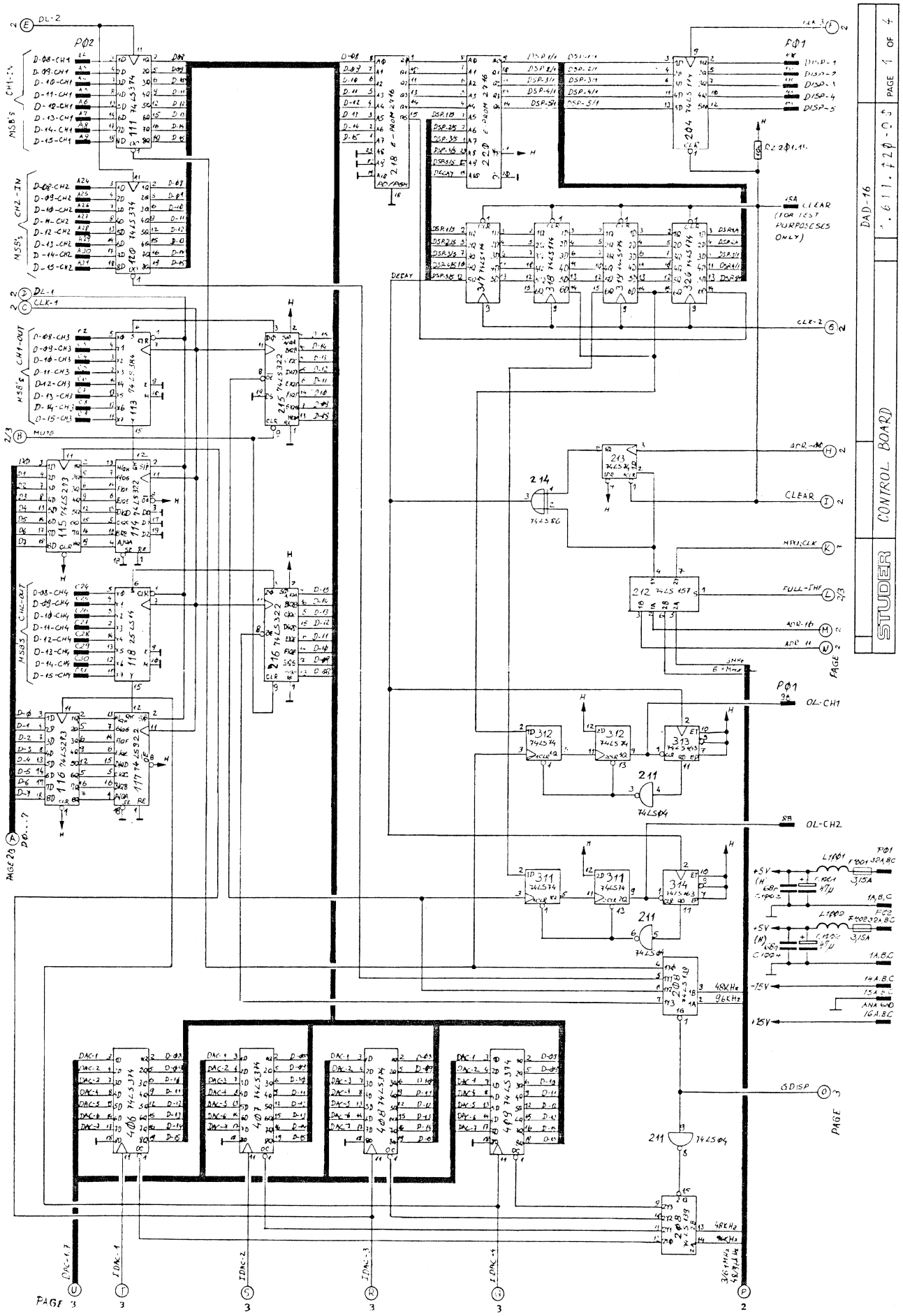
Pin	Signal Name	Pin	Signal Name	Pin	Signal Name
1a	GND	1b	GND-1	1c	GND-2
2a	ADR-00	2b	GND-1	2c	GND-2
3a	ADR-01	3b	+5V	3c	BARG-01
4a	ADR-02	4b	+5V	4c	BARG-02
5a	ADR-03	5b	+5V	5c	BARG-03
6a	ADR-04	6b	+5V	6c	BARG-04
7a	ADR-05	7b	+5V	7c	KEY-7
8a	ADR-06	8b	OL-CH2	8c	KEY-6
9a	ADR-07	9b	OL-CH1	9c	KEY-5
10a	ADR-08	10b	LED-C2	10c	KEY-4
11a	ADR-09	11b	LED-R4	11c	KEY-3
12a	ADR-10	12b	LED-R3	12c	KEY-2
13a	ADR-11	13b	LED-R2	13c	KEY-1
14a	ADR-12	14b	LED-R1	14c	KEY-0
15a	ADR-13	15b	LED-R8	15c	DISP-5
16a	ADR-14	16b	LED-R5	16c	DISP-4
17a	ADR-15	17b	LED-C1	17c	DISP-3
18a	ADR-16	18b	LED-R6	18c	DISP-2
19a	DAC-0	19b	LED-R7	19c	DISP-1
20a	DAC-1	20b	A-00	20c	A-01
21a	DAC-2	21b	AD-LATCH	21c	SET-EMPH
22a	DAC-3	22b	DIGI/ANA	22c	EMPHASIS
23a	DAC-4	23b	FULL/IHF	23c	256*FS-
24a	DAC-5	24b	MUTE	24c	256*FS+
25a	DAC-6	25b	RESET	25c	SW-SYNC
26a	DAC-7	26b	INTERRPT	26c	IAD-IN
27a	WSYNC+	27b	IDAC-1	27c	WSYNC-
28a	BCLKAD+	28b	IDAC-2	28c	BCLKAD-
29a	BCLKAD+	29b	IDAC-3	29c	BCLKDA+
30a	3MHz	30b	IDAC-4	30c	3MHz
31a	NC	31b	NC	31c	NC
32a	+5V	32b	+5V	32c	+5V

CONTROL BOARD

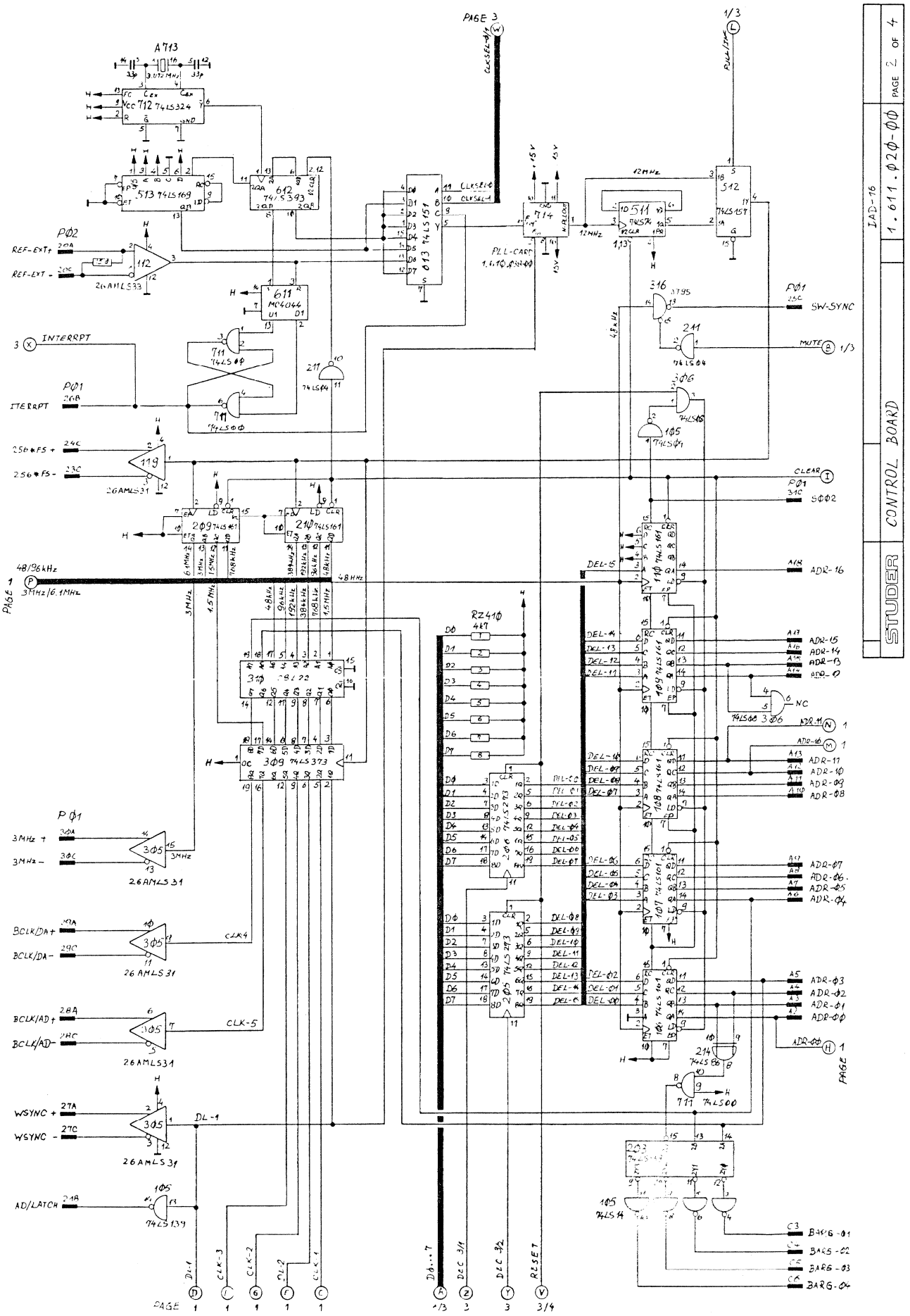
CONNECTOR P2

Pin	Signal Name	Pin	Signal Name	Pin	Signal Name
1a	GND	1b	GND	1c	GND
2a	D-Ø8-CH1	2b	NC	2c	D-Ø8-CH3
3a	D-Ø9-CH1	3b	NC	3c	D-Ø9-CH3
4a	D-1Ø-CH1	4b	NC	4c	D-1Ø-CH3
5a	D-11-CH1	5b	NC	5c	D-11-CH3
6a	D-12-CH1	6b	NC	6c	D-12-CH3
7a	D-13-CH1	7b	NC	7c	D-13-CH3
8a	D-14-CH1	8b	NC	8c	D-14-CH3
9a	D-15-CH1	9b	NC	9c	D-15-CH3
10a	NC	10b	NC	10c	NC
11a	NC	11b	NC	11c	NC
12a	NC	12b	NC	12c	NC
13a	NC	13b	NC	13c	NC
14a	-15V	14b	-15V	14c	-15V
15a	+0V-	15b	+0V-	15c	+0V-
16a	+15V	16b	+15V	16c	+15V
17a	NC	17b	NC	17c	NC
18a	CLEAR	18b	NC	18c	NC
19a	NC	19b	NC	19c	NC
20a	REF-EXT+	20b	NC	20c	REF-EXT-
21a	NC	21b	NC	21c	NC
22a	NC	22b	NC	22c	NC
23a	NC	23b	NC	23c	NC
24a	D-Ø8-CH2	24b	NC	24c	D-Ø8-CH4
25a	D-Ø9-CH2	25b	NC	25c	D-Ø9-CH4
26a	D-1Ø-CH2	26b	NC	26c	D-1Ø-CH4
27a	D-11-CH2	27b	NC	27c	D-11-CH4
28a	D-12-CH2	28b	NC	28c	D-12-CH4
29a	D-13-CH2	29b	NC	29c	D-13-CH4
30a	D-14-CH2	30b	NC	30c	D-14-CH4
31a	D-15-CH2	31b	LSB-8CH2	31c	D-15-CH4
32a	+5V	32b	+5V	32c	+5V

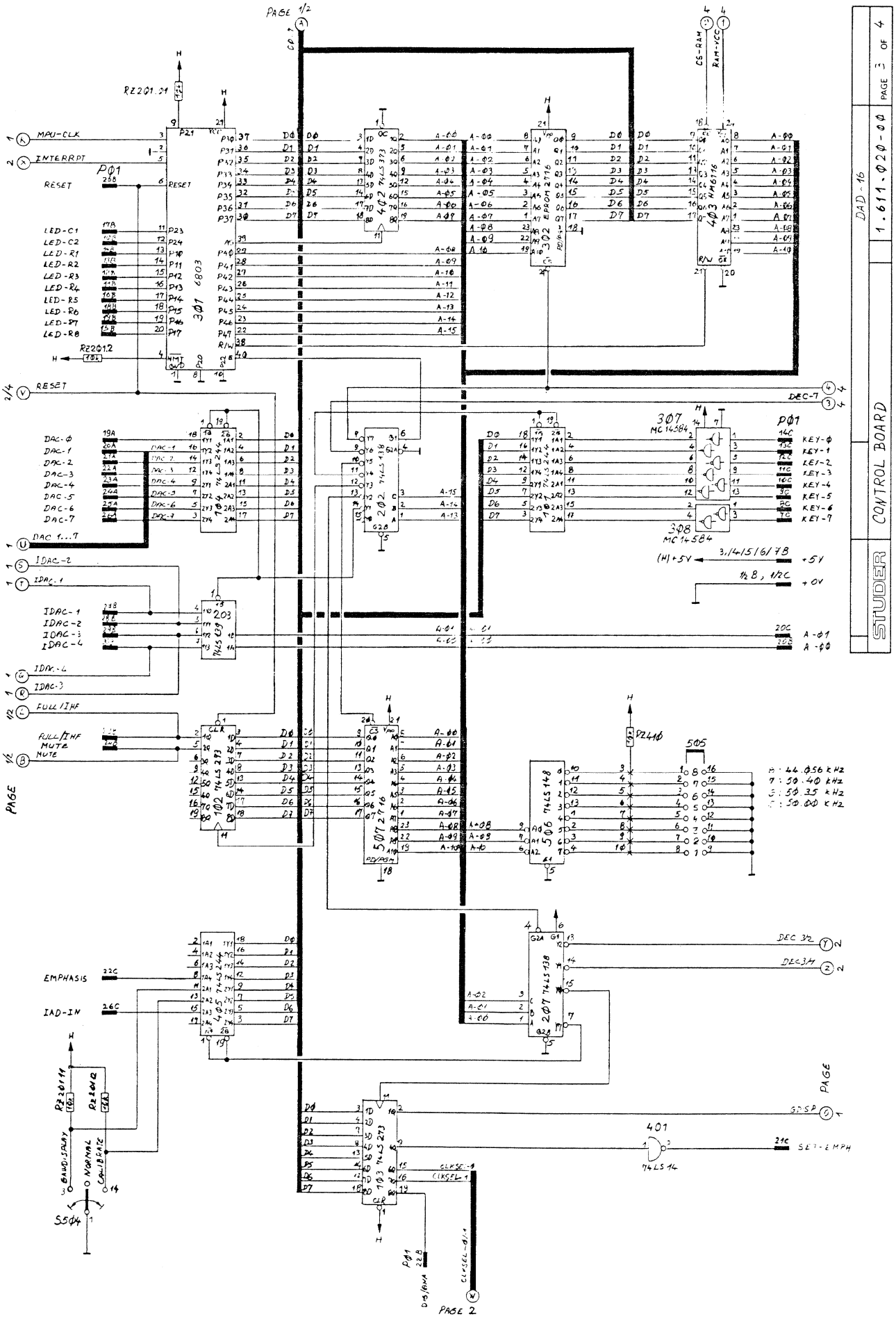
7.6.1.2
Circuit Diagram of the Level Meter section



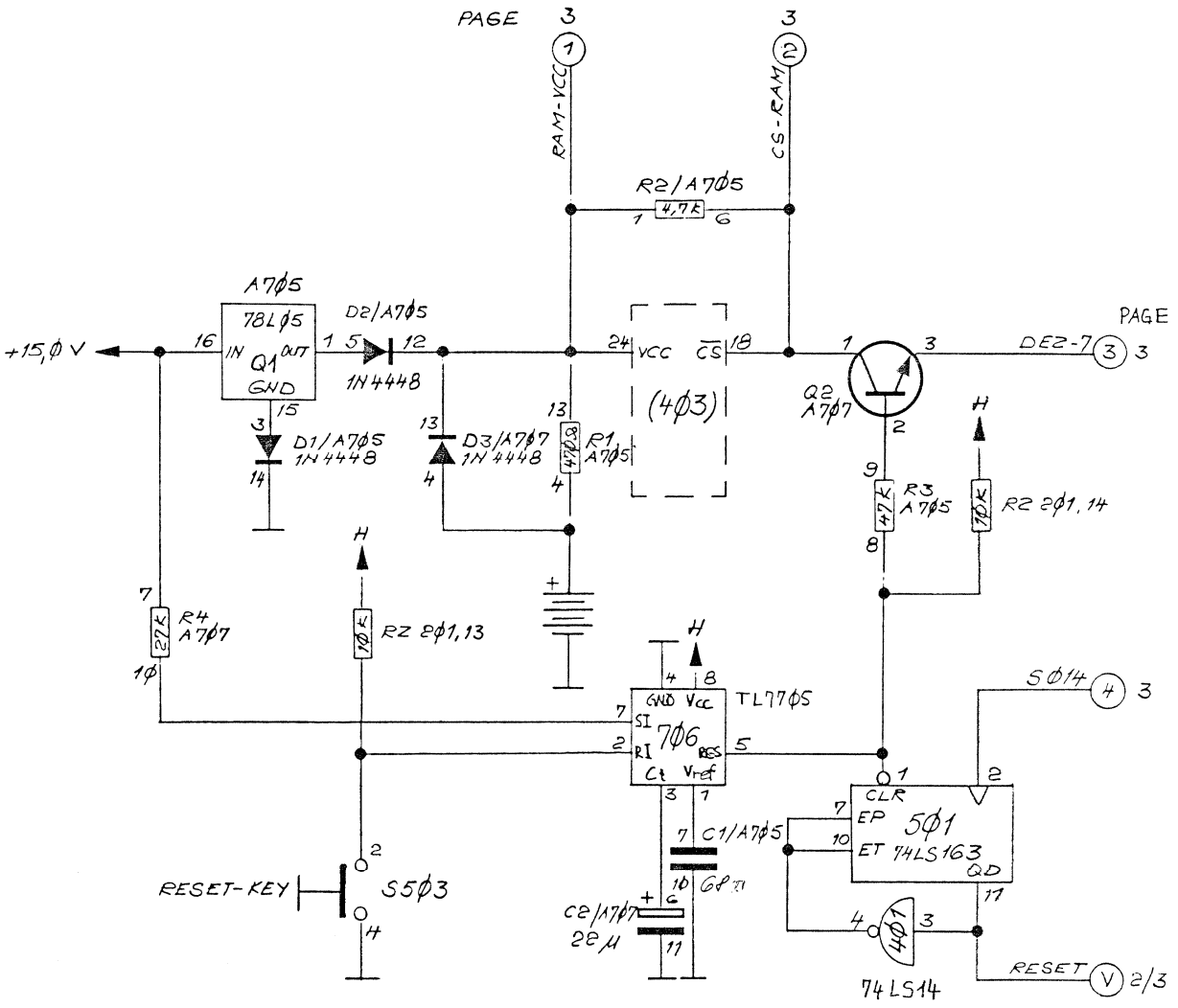
7.6.1.3
Circuit Diagram of the Timing Signal Generator

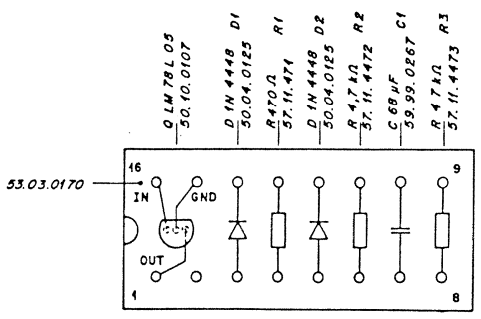


7.6.1.4
Circuit Diagram of the Microprocessor section

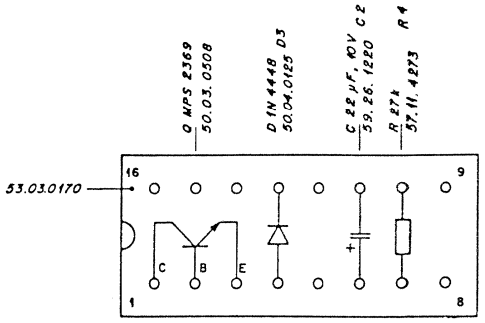


7.6.1.5
Circuit Diagram of the Reset Circuit





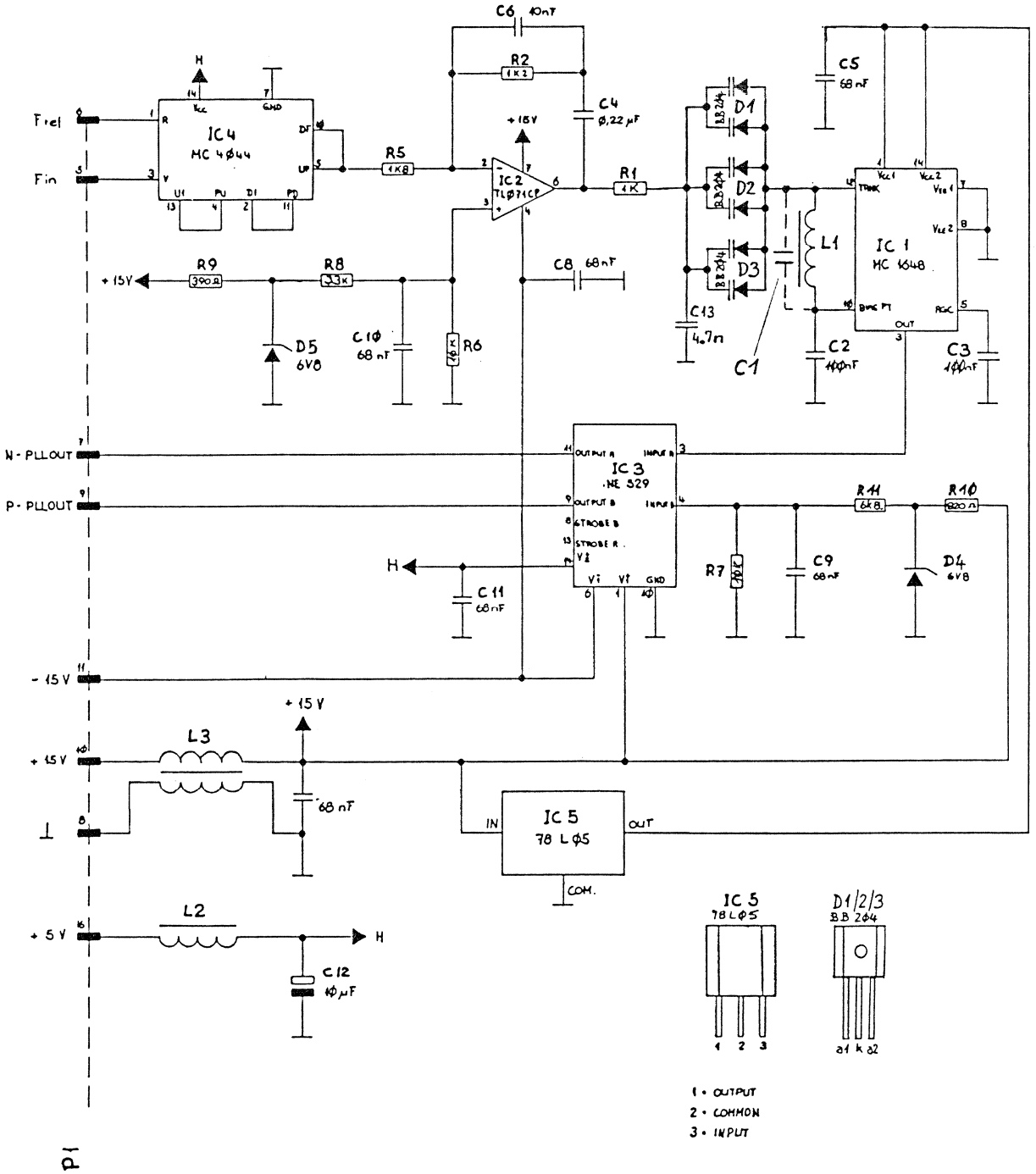
A7Ø5



A7Ø7

		RESET MICROPROCESSOR DAD-16		
STUDER	CONTROL BOARD		1.611.Ø2Ø-ØØ	PAGE 4 OF 4

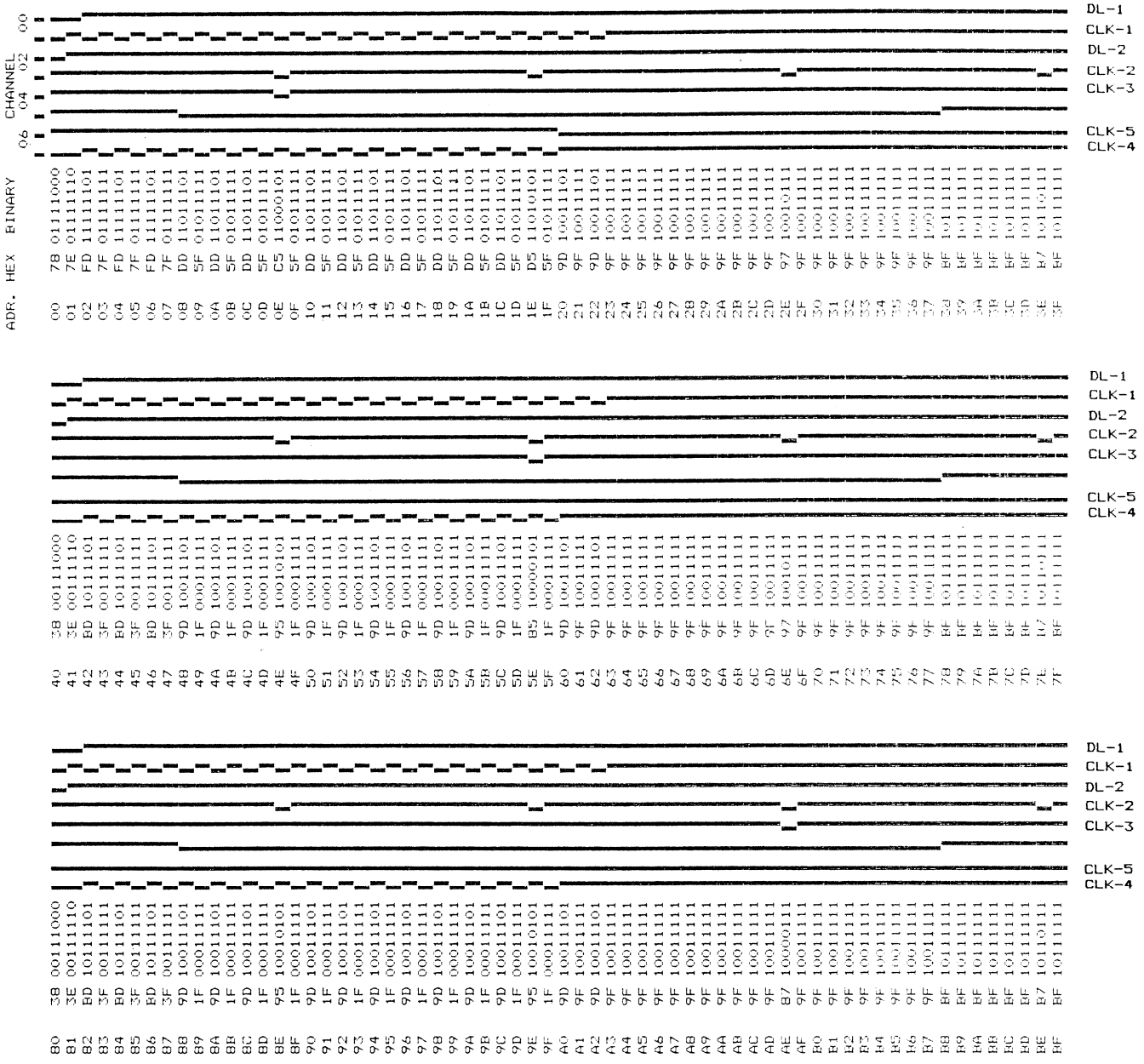
7.6.1.6
Circuit Diagram of the PLL pc-board



REMARKS: NOT CAPACITOR C1 (68pF) !
NEW PARTNUMBER 1.611.038-00

		DAD-16		
STUDER	PLL-CARD		1.610.038-00	PAGE 1 OF 1

7.6.1.7
Timing Diagram



7.6.1.8
Address Table

2000_H start address of multiplying DAC's

4000_H external port containing signals for clkselect, SET-EMPHASIS to relay and digital/analog

4001_H external port containing lower byte of start-address of delaycounter

4002_H external port containing upper byte of start-address of delaycounter

4007_H emphasis read-in from interface-board: IDAC-in, ICAL, GAINDISPLAY

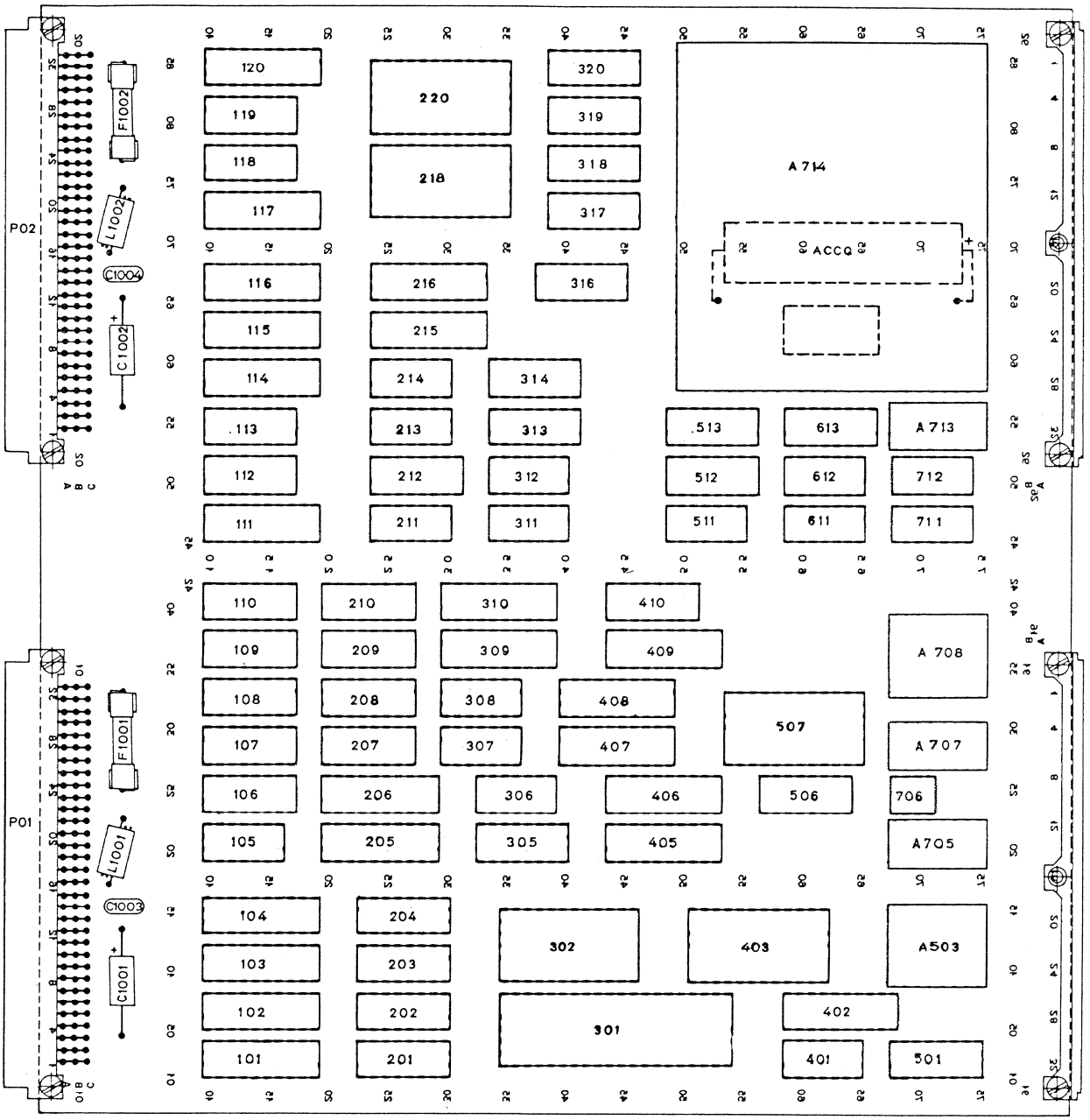
6000_H external port containing mute line and full/half-speed signal

8000_H...$9FFF_H$ address of keyboard

$A000_H$ startaddress of delay-length table in external ROM

$C000_H$...$C7FF_H$ address of CMOS-RAM (IC 403)

7.6.1.9
Component Layout



IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT		MANUF.
	A..0705	1.099.250.00		ASSEMBLY 1		
	A..0707	1.099.251.00		ASSEMBLY 2		
	A..0713	1.099.255.00		ASS.QUARZ 3.072 MHZ		
	A..0714	1.611.038.00		PLL		
	C..1001	59.25.3470	47u	-20%, 10V, ELECTROLYTIC		ANY
	C..1002	59.99.0205	68n	-20%, 30V, CERAMIC		ANY
	C..1003	59.99.0205	68n	-20%, 30V, CERAMIC		ANY
	C..1004	59.25.3470	47u	-20%, 10V, ELECTROLYTIC		ANY
	C..1005	59.99.0267	68n	-20%, 20V, METAL-FOIL	QUANTITY:	ANY
	F..1001	51.01.0122		FUSE, T3.15/250V, 5*20mm		ANY
	F..1002	51.01.0122		FUSE, T3.15/250V, 5*20mm		ANY
	IC.0101	50.06.0240		74LS240		
	IC.0102	50.06.0273		74LS273		
	IC.0103	50.06.0273		74LS273		
	IC.0104	50.06.0244		74LS244		
	IC.0105	50.06.0014		74LS14		
	IC.0106	50.06.0161		74LS161		
	IC.0107	50.06.0161		74LS161		
	IC.0108	50.06.0161		74LS161		
	IC.0109	50.06.0161		74LS161		
	IC.0110	50.06.0161		74LS161		
	IC.0111	50.06.0374		74LS374		
	IC.0112	50.15.0109		26AMLS33		
	IC.0113	50.06.0384		74LS384		
	IC.0114	50.06.0322		74LS322		
	IC.0115	50.06.0273		74LS273		
	IC.0116	50.06.0273		74LS273		
	IC.0117	50.06.0322		74LS322		
	IC.0118	50.06.0384		74LS384		
	IC.0119	50.15.0103		26AMLS31		
	IC.0120	50.06.0374		74LS374		
	IC.0202	50.06.0138		74LS138		
	IC.0203	50.06.0139		74LS139		
	IC.0204	50.06.0174		74LS174		

IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	IC.0205	50.06.0273		74LS273	
	IC.0206	50.06.0273		74LS273	
	IC.0207	50.06.0138		74LS138	
	IC.0208	50.06.0139		74LS139	
	IC.0209	50.06.0161		74LS161	
	IC.0210	50.06.0161		74LS161	
	IC.0211	50.06.0004		74LS04	
	IC.0212	50.06.0157		74LS157	
	IC.0213	50.06.0074		74LS74	
	IC.0214	50.06.0086		74LS86	
	IC.0215	50.06.0322		74LS322	
	IC.0216	50.06.0322		74LS322	
	IC.0218	1.100.604.00		EPROM 2716	
	IC.0220	1.100.605.00		EPROM 2716	
	IC.0301	50.15.0107		6803	
	IC.0302	1.100.607.00		EPROM 2716	
	IC.0305	50.15.0108		26AMLS31	
	IC.0306	50.06.0008		74LS08	
	IC.0307	50.07.0014		MC14584	
	IC.0308	50.07.0014		MC14584	
	IC.0309	50.06.0273		74LS273	
	IC.0310	1.100.606.00		28L22	
	IC.0311	50.06.0074		74LS74	
	IC.0312	50.06.0074		74LS74	
	IC.0313	50.06.0163		74LS163	
	IC.0314	50.06.0163		74LS163	
	IC.0316	50.05.0216		8T95	
	IC.0317	50.06.0174		74LS174	
	IC.0318	50.06.0174		74LS174	
	IC.0319	50.06.0174		74LS174	
	IC.0320	50.06.0174		74LS174	
	IC.0401	50.06.0014		74LS14	
	IC.0402	50.06.0373		74LS373	
	IC.0403	50.14.0107		HM6116	
	IC.0405	50.06.0244		74LS244	
	IC.0406	50.06.0374		74LS374	
	IC.0407	50.06.0374		74LS374	

IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	IC.0408	50.06.0374		74LS374	
	IC.0409	50.06.0374		74LS374	
	IC.0501	50.06.0163		74LS163	
	IC.0505	54.01.0022		JUMPERS	
	IC.0506	50.06.0148		74LS148	
	IC.0507	1.100.608.00		EPROM 2716	
	IC.0511	50.06.0074		74LS74	
	IC.0512	50.06.0157		74LS157	
	IC.0513	50.06.0169		74LS169	
	IC.0611	50.05.0149		MC4044	
	IC.0612	50.06.0393		74LS393	
	IC.0613	50.06.0151		74LS151	
	IC.0706	50.11.0122		TL 7705	
	IC.0711	50.06.0000		74LS00	
	IC.0712	50.06.0324		74LS324	
	J..0715	89.01.0272		ACCU	
	L..1001	62.01.0115		WIDE-BAND HF-CHOKE	Ph
	L..1002	62.01.0115		WIDE-BAND HF-CHOKE	Ph
	MP.1001	1.010.100.49		INSULATOR, 233*219mm, HGW	St
	MP.1002	1.010.101.49		SHEET METAL PLATE, 233*216mm	St
	MP.1003	1.010.030.49		EUROCARD, DOUBLE SIZE, 2*CU .3/.6" WRAP	St
	MP.1004	1.010.096.49		TRANSPARENT COVER	St
	MP.1005	1.010.096.49		TRANSPARENT COVER	St
	MP.1006	1.010.128.49		POSITIONING PLATE FOR WRAP PINS	St
	MP.1007	1.010.128.49		POSITIONING PLATE FOR WRAP PINS	St
	MP.1008	1.010.006.33		MARKING HANDLE	St
	MP.1009	1.010.006.33		MARKING HANDLE	St
	MP.1010	1.010.006.33		MARKING HANDLE	St
	MP.1011	1.010.006.33		MARKING HANDLE	St
	MP.1012	21.01.0280		SCREW, CYLIN. HEAD, M2.5*8	ANY
	MP.1013	21.01.0280		SCREW, CYLIN. HEAD, M2.5*8	ANY
	MP.1014	21.01.0280		SCREW, CYLIN. HEAD, M2.5*8	ANY
	MP.1015	21.01.0280		SCREW, CYLIN. HEAD, M2.5*8	ANY
	MP.1016	21.01.0282		SCREW, CYLIN. HEAD, M2.5*12	ANY

IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	MP.1017	21.01.0282		SCREW, CYLIN. HEAD, M2.5*12	ANY
	MP.1018	21.01.0282		SCREW, CYLIN. HEAD, M2.5*12	ANY
	MP.1019	21.01.0282		SCREW, CYLIN. HEAD, M2.5*12	ANY
	MP.1020	21.01.2278		SCREW, COUNTERSUNK HEAD, M2.5*5	ANY
	MP.1021	21.01.2278		SCREW, COUNTERSUNK HEAD, M2.5*5	ANY
	MP.1022	21.01.2278		SCREW, COUNTERSUNK HEAD, M2.5*5	ANY
	MP.1023	21.01.2278		SCREW, COUNTERSUNK HEAD, M2.5*5	ANY
	MP.1024	21.01.2278		SCREW, COUNTERSUNK HEAD, M2.5*5	ANY
	MP.1025	21.01.2278		SCREW, COUNTERSUNK HEAD, M2.5*5	ANY
	MP.1026	21.01.2278		SCREW, COUNTERSUNK HEAD, M2.5*5	ANY
	MP.1027	21.01.2278		SCREW, COUNTERSUNK HEAD, M2.5*5	ANY
	MP.1028	28.21.1380		TUBULAR RIVET, D2.25*6.5mm	ANY
	MP.1029	28.21.1380		TUBULAR RIVET, D2.25*6.5mm	ANY
	MP.1030	1.010.028.54	*	CONTACT PIN, WRAP-L= 8 MM QUANTITY:	ST
	MP.1031	1.010.029.54	*	DUMMY PIN, WRAP-L= 8 MM QUANTITY:	280ST
	MP.1032	1.010.070.27		STAND-OFF, M2.5*15 mm	ANY
	MP.1033	1.010.070.27		STAND-OFF, M2.5*15 mm	ANY
	MP.1034	1.010.070.27		STAND-OFF, M2.5*15 mm	ANY
	MP.1035	1.010.070.27		STAND-OFF, M2.5*15 mm	ANY
	MP.1036	1.010.071.27		STAND-OFF, M2.5*16 mm	ANY
	MP.1037	1.010.071.27		STAND-OFF, M2.5*16 mm	ANY
	MP.1038	1.010.071.27		STAND-OFF, M2.5*16 mm	ANY
	MP.1039	1.010.071.27		STAND-OFF, M2.5*16 mm	ANY
	MP.1040	1.611.020.01		NUMBER-PLATE	ST
	MP.1041	1.611.020.02		NAME-PLATE	ST
	MP.1042		*	PCB	ST
	P..0001	54.01.0354		CARD CONNECTOR, 3*32 EURO WRAP	ANY
	P..0002	54.01.0354		CARD CONNECTOR, 3*32 EURO WRAP	ANY
	R..0001	57.11.4151		RESISTOR 150 OHM	
	RZ.0201	57.85.3103		RZ 15*10K	
	RZ.0410	57.85.3472		15*4K7 OHM RZ410	
	S..0503	1.099.252.00		RESET KEY	
	S..0504	1.099.203.00		CAL-SWITCH	

IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT		MANUF.
	TP.1001	29.21.6002		TEST-POINT		ANY
	TP.1002	29.21.6002		TEST-POINT		ANY
	TP.1003	29.21.6002		TEST-POINT		ANY
	TP.1004	29.21.6002		TEST-POINT		ANY
	W..1001	64.01.0106		UNCOVERED WIRE, D=0.6		ANY
	W..1002	64.01.0106		UNCOVERED WIRE, D=0.6		ANY
	W..1003	64.01.0106		UNCOVERED WIRE, D=0.6		ANY
	W..1004	64.01.0106		UNCOVERED WIRE, D=0.6		ANY
	W..1005	64.01.0106		UNCOVERED WIRE, D=0.6		ANY
	W..1006	64.01.0106		UNCOVERED WIRE, D=0.6		ANY
	W..1007	64.01.0106		UNCOVERED WIRE, D=0.6		ANY
	W..1008	64.01.0106		UNCOVERED WIRE, D=0.6		ANY
	W..1009	64.01.0106		UNCOVERED WIRE, D=0.6		ANY
	W..1010	64.01.0106		UNCOVERED WIRE, D=0.6		ANY
	W..1011	64.01.0106		UNCOVERED WIRE, D=0.6		ANY
	W..1012	64.01.0345		WIRE, WRAP TYPE, D=0.255,	LENGTH=	ANY
	XF.1001	53.03.0142		CLAMP, 5*20		ANY
	XF.1002	53.03.0142		CLAMP, 5*20		ANY
	XF.1003	53.03.0142		CLAMP, 5*20		ANY
	XF.1004	53.03.0142		CLAMP, 5*20		ANY

MEMORY BOARD

CONNECTOR P1

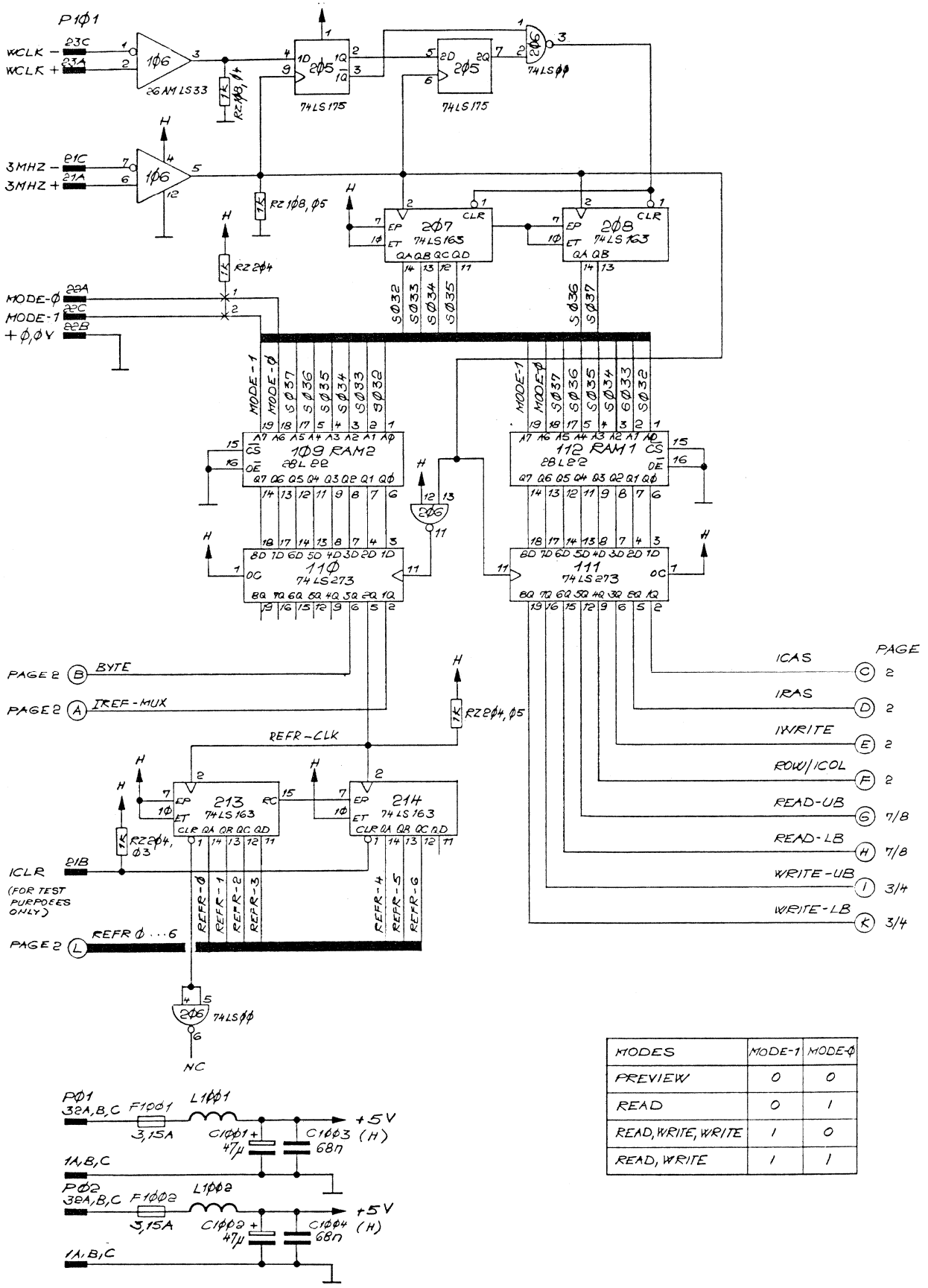
Pin	Signal Name	Pin	Signal Name	Pin	Signal Name
1a	GND	1b	GND	1c	GND
2a	D-IN1/1*	2b	ADR-00	2c	D-IN1/2*
3a	D-IN2/1*	3b	ADR-01	3c	D-IN2/2*
4a	D-IN3/1*	4b	ADR-02	4c	D-IN3/2*
5a	D-IN4/1*	5b	ADR-03	5c	D-IN4/2*
6a	D-IN5/1*	6b	ADR-04	6c	D-IN5/2*
7a	D-IN6/1*	7b	ADR-05	7c	D-IN6/2*
8a	D-IN7/1*	8b	ADR-06	8c	D-IN7/2*
9a	D-IN8/1*	9b	ADR-07	9c	D-IN8/2*
10a	AD-LATCH	10b	ADR-08	10c	NC
11a	NC	11b	ADR-09	11c	NC
12a	NC	12b	ADR-10	12c	NC
13a	NC	13b	ADR-11	13c	NC
14a	NC	14b	ADR-12	14c	NC
15a	NC	15b	ADR-13	15c	NC
16a	NC	16b	ADR-14	16c	NC
17a	NC	17b	ADR-15	17c	NC
18a	NC	18b	ADR-16	18c	NC
19a	W-LATCH+	19b	NC	19c	W-LATCH-
20a	W-LOAD+	20b	PAR/ISER	20c	W-LOAD-
21a	3MHz+	21b	ICLR	21c	3MHz-
22a	MODE-0	22b	+0V-	22c	MODE-1
23a	WCLK+	23b	NC	23c	WCLK-
24a	BCLK0+	24b	NC	24c	BCLK0+
25a	BCLKI+	25b	NC	25c	BCLKI-
26a	DATA01+	26b	NC	26c	DATA01-
27a	DATAI1+	27b	NC	27c	DATAI1-
28a	DATA02+	28b	NC	28c	DATA02-
29a	DATAI2+	29b	NC	29c	DATAI2
30a	NC	30b	NC	30c	NC
31a	NC	31b	NC	31c	NC
32a	+5V	32b	+5V	32c	+5V

MEMORY BOARD

CONNECTOR P2

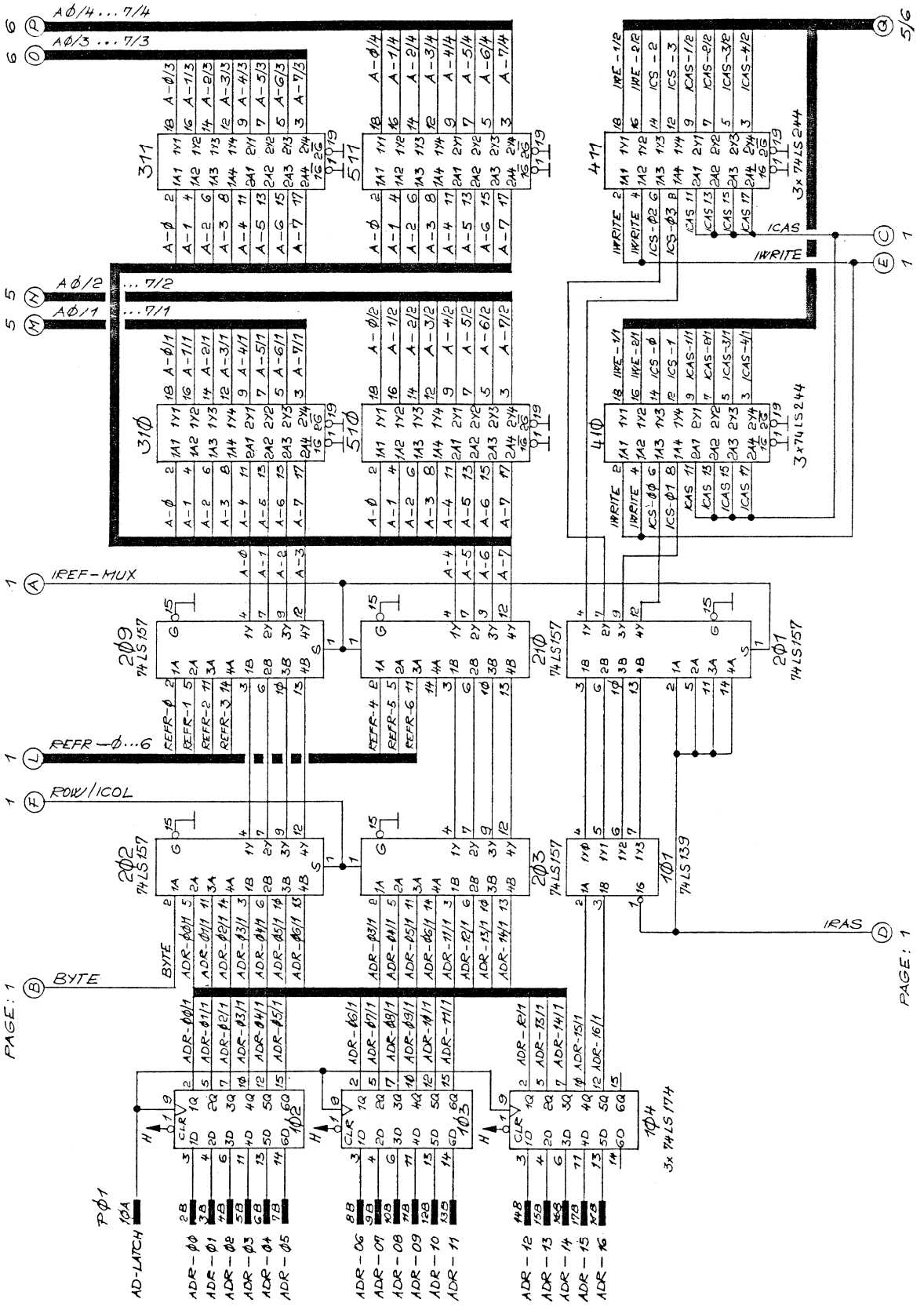
Pin	Signal Name	Pin	Signal Name	Pin	Signal Name
1a	GND	1b	GND	1c	GND
2a	DI-08-1*	2b	DI-00-1*	2c	DO-08/1*
3a	DI-09-1*	3b	DI-01-1*	3c	DO-09/1*
4a	DI-10-1*	4b	DI-02-1*	4c	DO-10/1*
5a	DI-11-1*	5b	DI-03-1*	5c	DO-11/1*
6a	DI-12-1*	6b	DI-04-1*	6c	DO-12/1*
7a	DI-13-1*	7b	DI-05-1*	7c	DO-13/1*
8a	DI-14-1*	8b	DI-06-1*	8c	DO-14/1*
9a	DI-15-1*	9b	DI-07-1*	9c	DO-15/1*
10a	-24V	10b	-24V	10c	-24V
11a	DO-00/1*	11b	DO-01/1*	11c	DO-02/1*
12a	-5V	12b	-5V	12c	-5V
13a	DO-04/1*	13b	DO-03/1*	13c	DO-05/1*
14a	-15V	14b	-15V	14c	-15V
15a	ANA-GND	15b	ANA-GND	15c	ANA-GND
16a	+15V	16b	+15V	16c	+15V
17a	NC	17b	DO-06/1*	17c	DO-07/1*
18a	NC	18b	NC	18c	NC
19a	+0V-	19b	IPAR-OUT	19c	+0V-
20a	+24V	20b	+24V	20c	+24V
21a	NC	21b	DO-01/2*	21c	DO-00/2*
22a	DO-04/2*	22b	DO-03/2*	22c	DO-02/2*
23a	DO-07/2*	23b	DO-06/2*	23c	DO-05/2*
24a	DI-08-2*	24b	DI-00-2*	24c	DO-08/2*
25a	DI-09-2*	25b	DI-01-2*	25c	DO-09/2*
26a	DI-10-2*	26b	DI-02-2*	26c	DO-10/2*
27a	DI-11-2*	27b	DI-03-2*	27c	DO-11/2*
28a	DI-12-2*	28b	DI-04-2*	28c	DO-12/2*
29a	DI-13-2*	29b	DI-05-2*	29c	DO-13/2*
30a	DI-14-2*	30b	DI-06-2*	30c	DO-14/2*
31a	DI-15-2*	31b	DI-07-2*	31c	DO-15/2*
32a	+5V	32b	+5V	32c	+5V

7.6.2.2
Circuit Diagram of the Timing Signal Generator



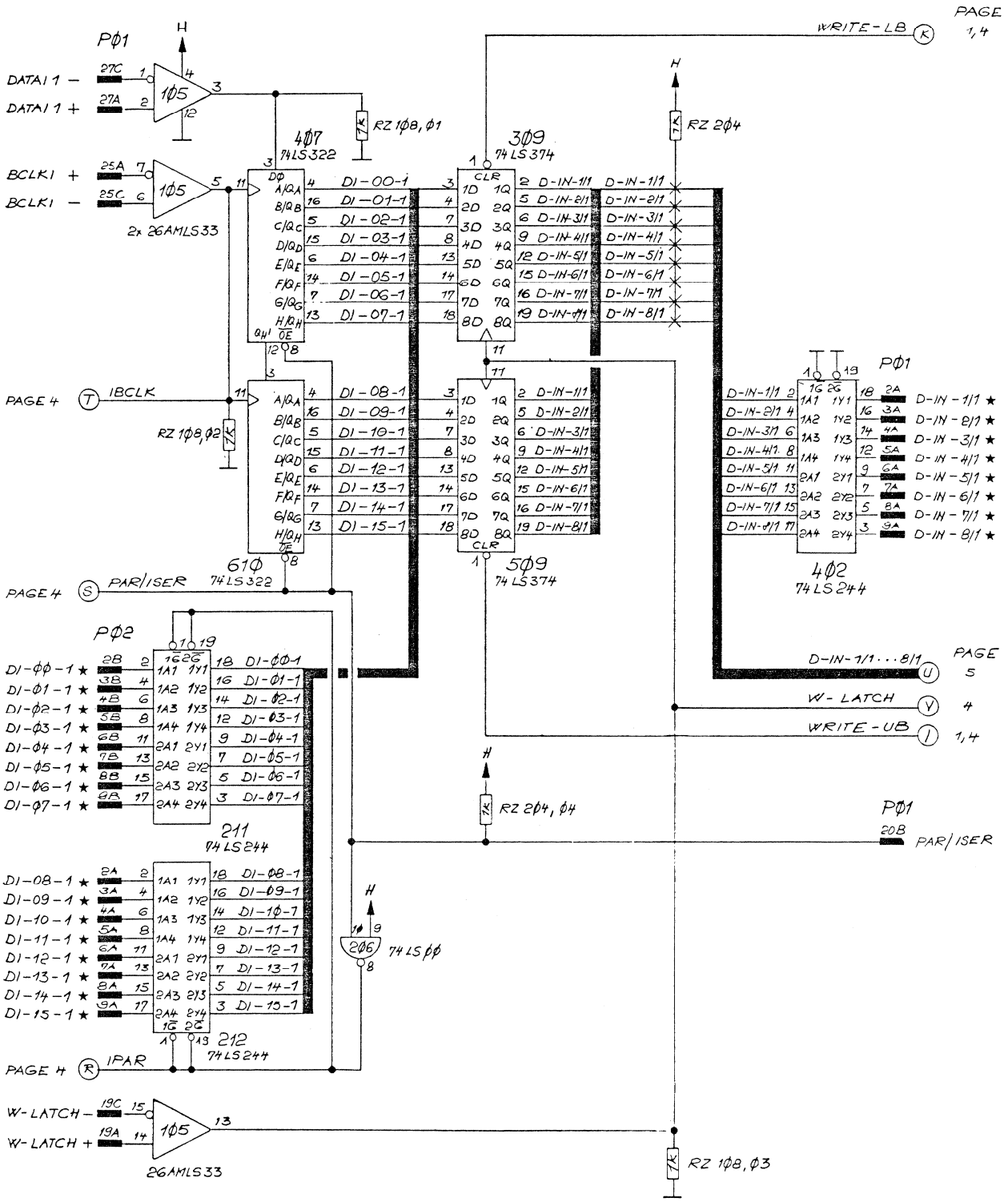
MODES	MODE-1	MODE-Ø
PREVIEW	0	0
READ	0	1
READ, WRITE, WRITE	1	0
READ, WRITE	1	1

7.6.2.3
Circuit Diagram of the Address Multiplexer

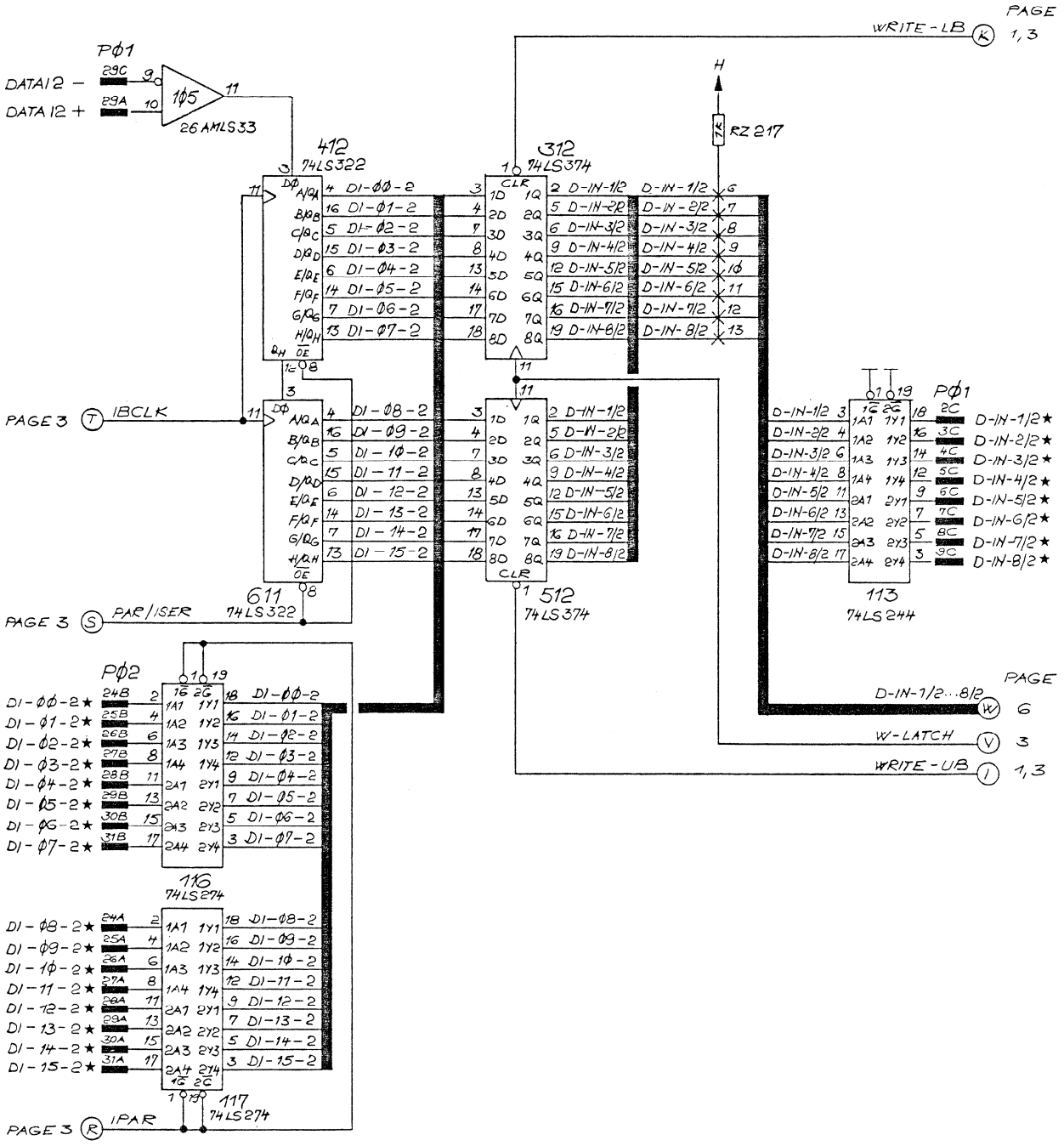


	ADDRESSMUX DAD-16			
STUDER	MEMORY BOARD (PREVIEW-UNIT)		1.611.025-00	PAGE 2 OF 8

7.6.2.4
Circuit Diagram of the Data Input CH 1

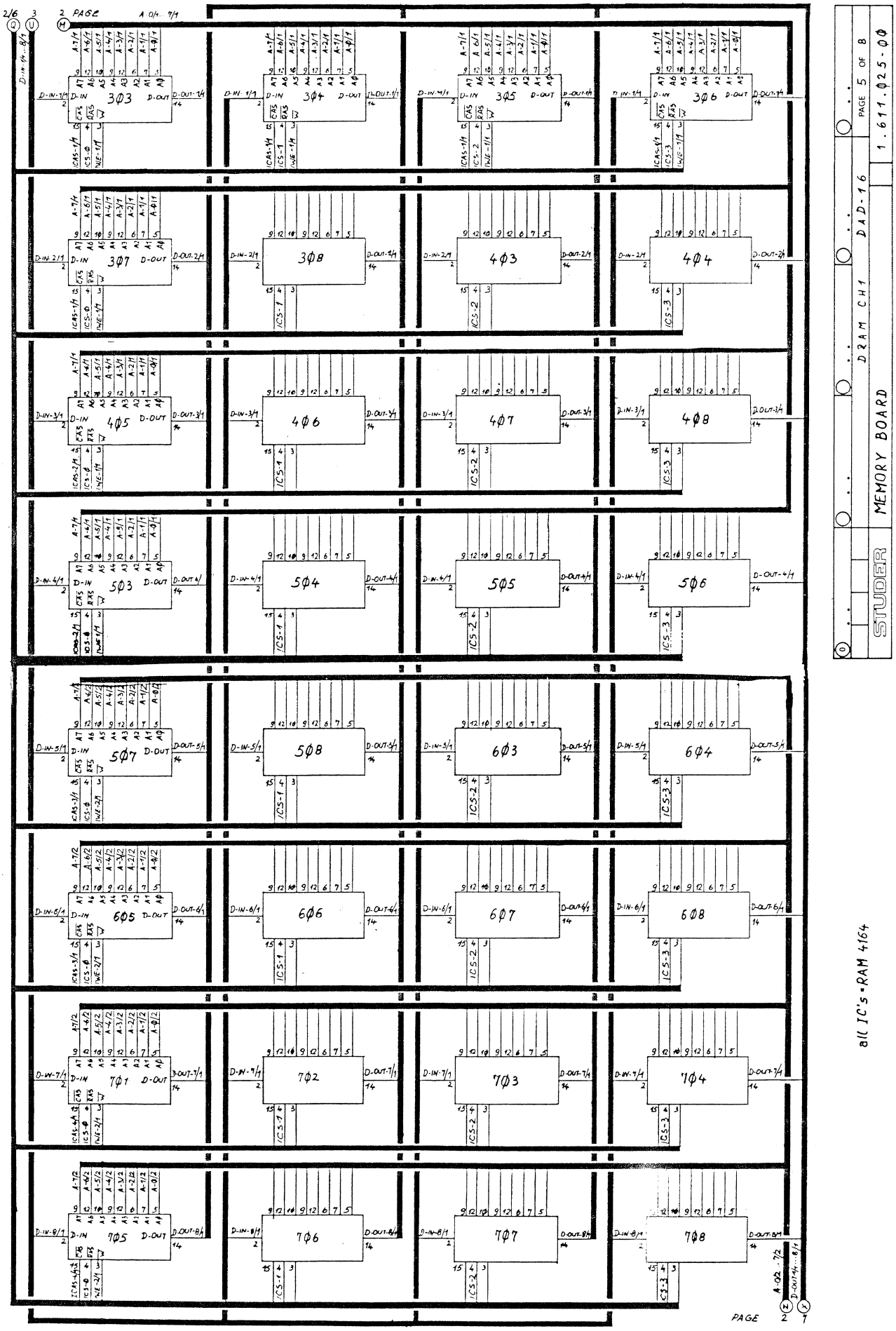


7.6.2.5
Circuit Diagram of the Data Input CH 2

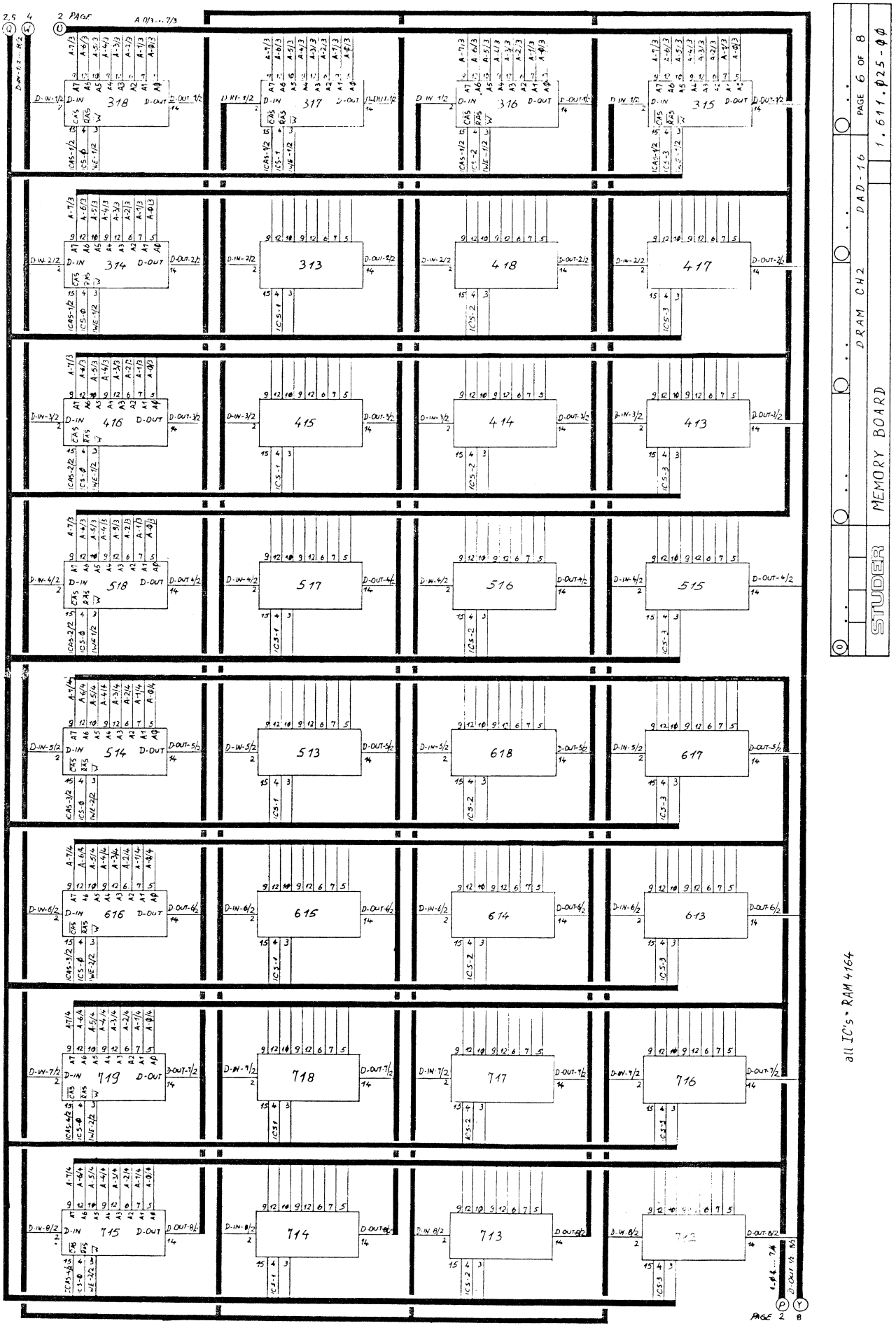


		DATA INPUT CH2	DAD-16	
STUDER	MEMORY BOARD (PREVIEW-UNIT)		1.611.ϕ25-ϕϕ	PAGE 4 OF 8

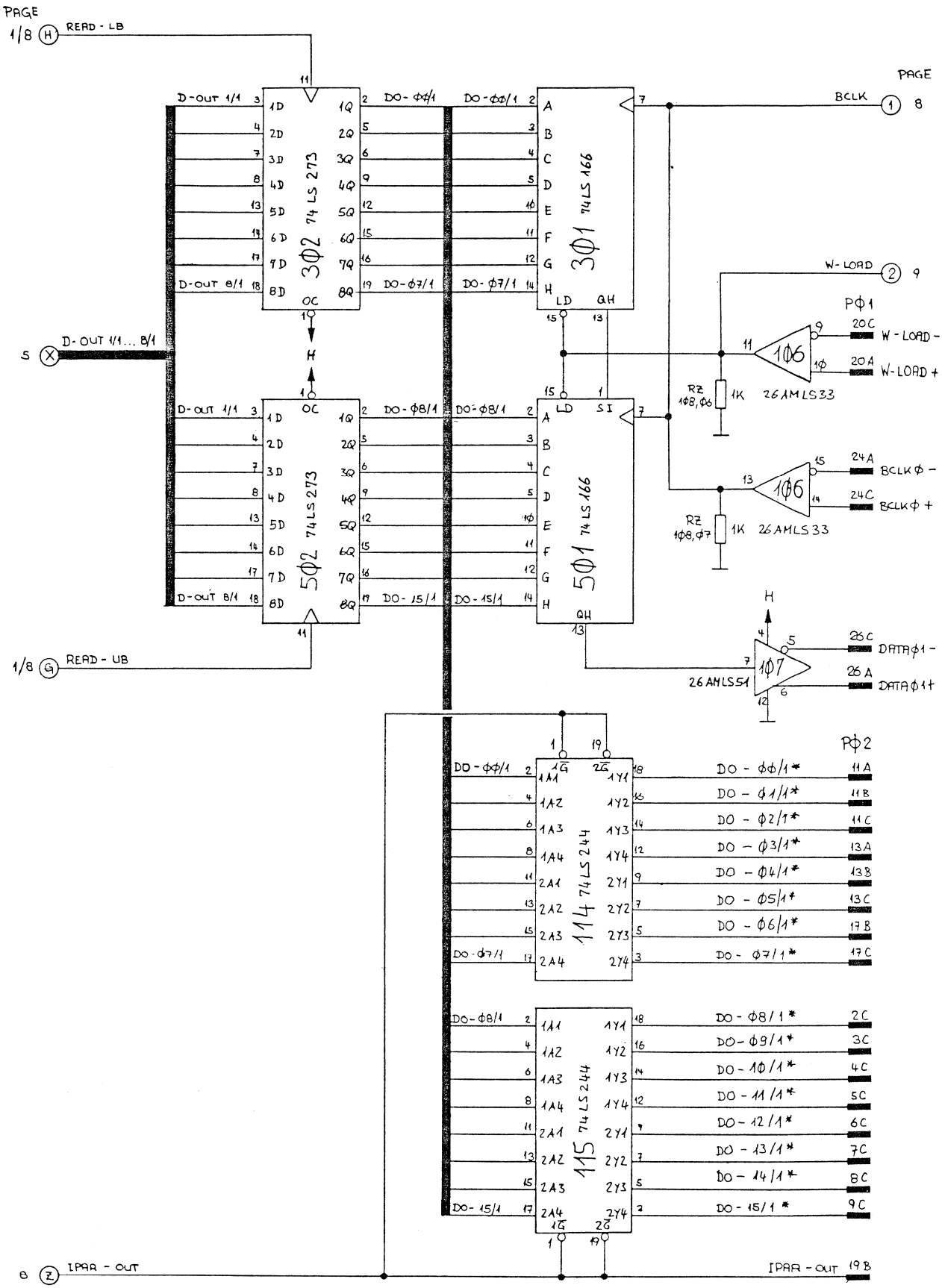
7.6.2.6
Circuit Diagram of the DRAM CH 1 section



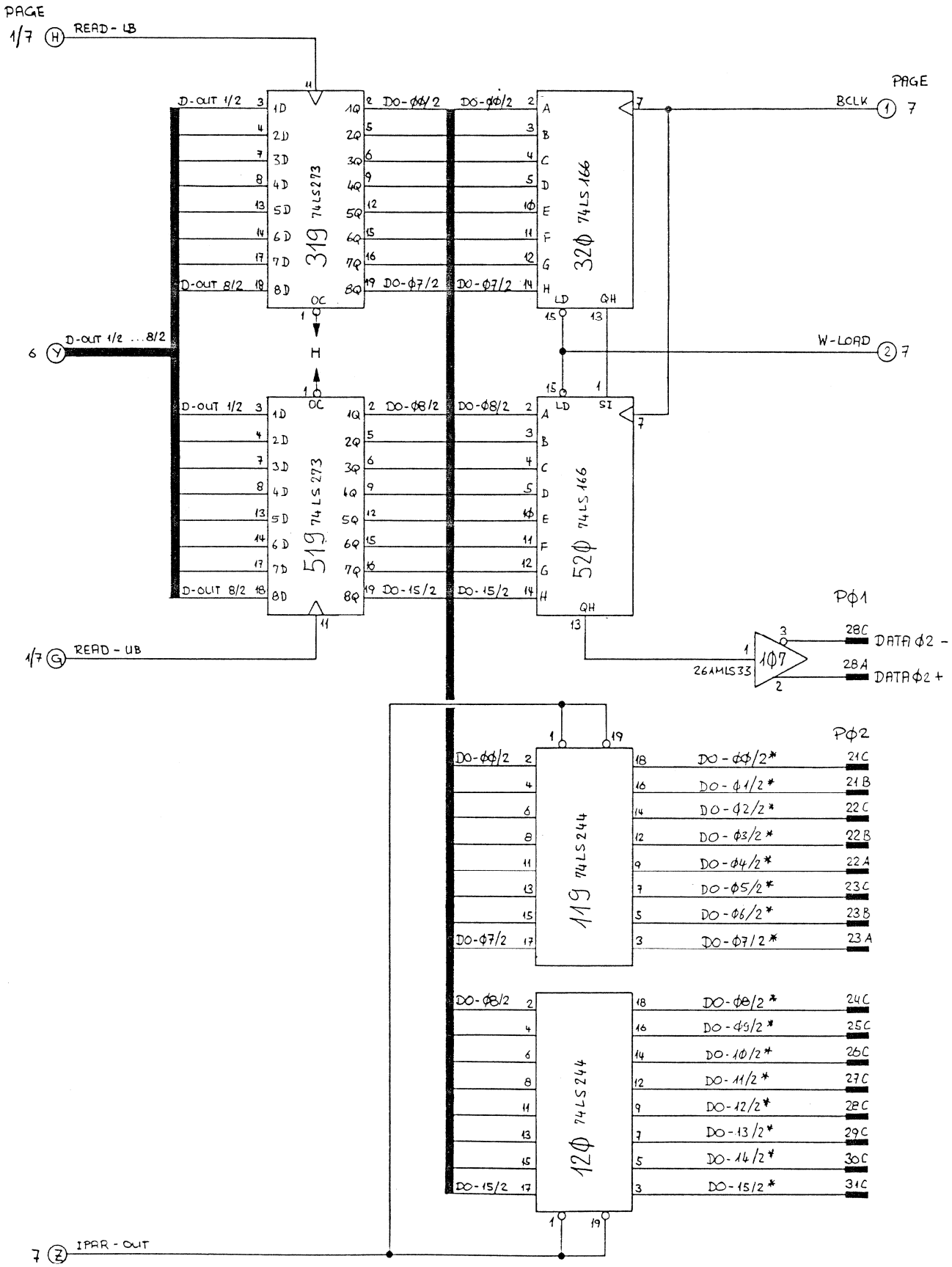
7.6.2.7
Circuit Diagram of the DRAM CH 2 section



7.6.2.8
Circuit Diagram of the Data Output CH 1

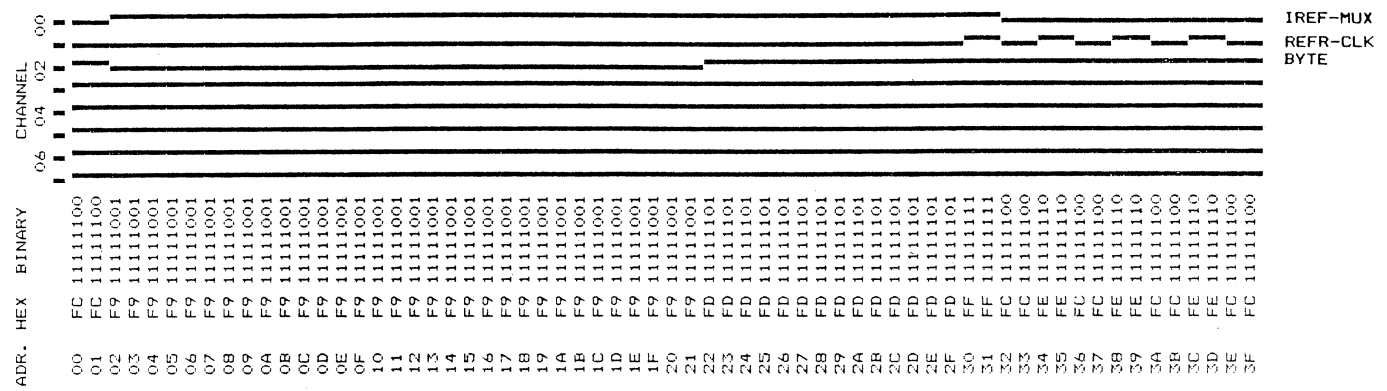


7.6.2.9
Circuit Diagram of the Data Output CH 2

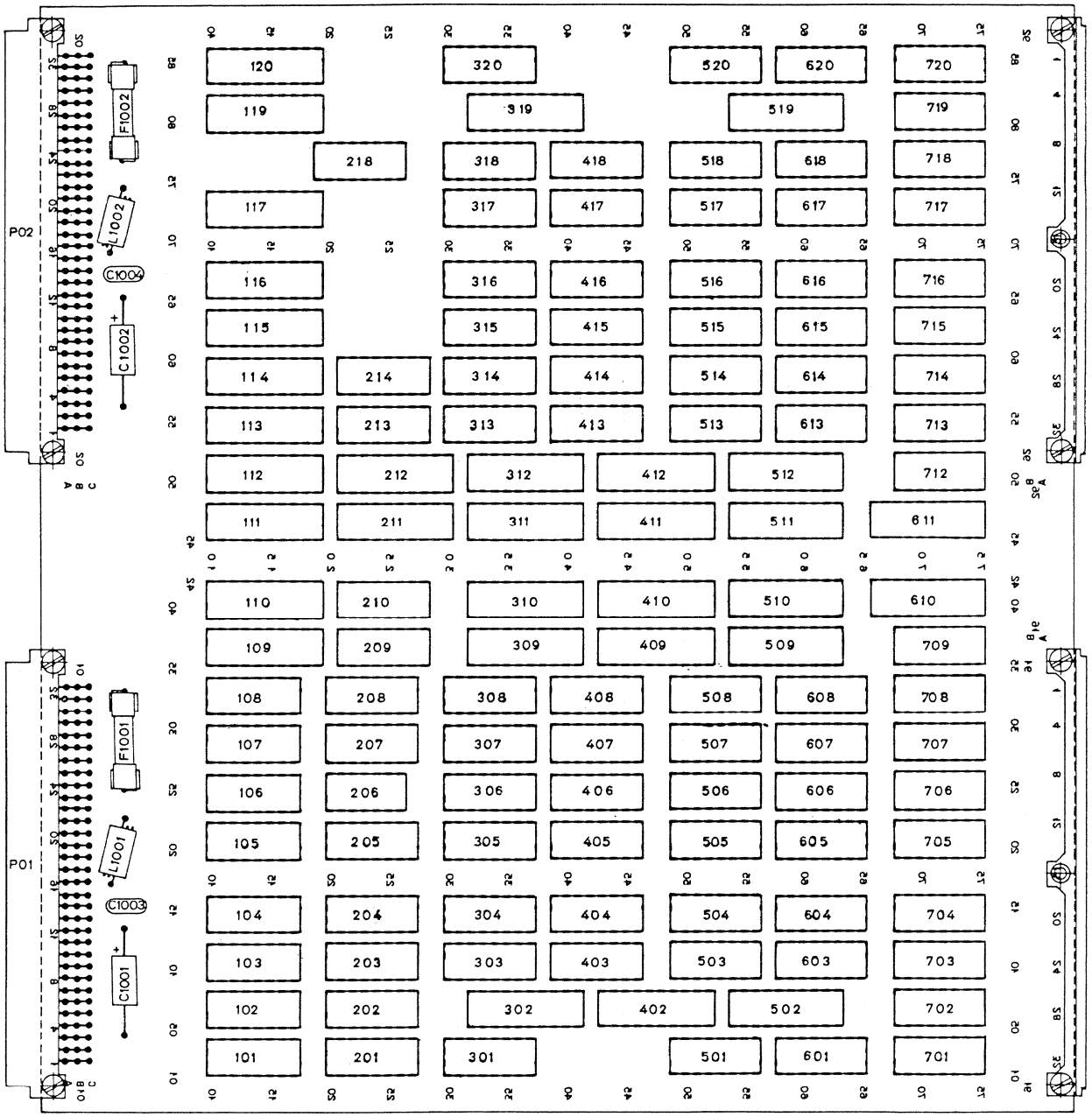


		DATA - OUTPUT CH2	DAD 16	
STUDER	MEMORYBOARD (PREVIEW-UNIT)		1.611.Ø25 - ØØ	PAGE 8 OF 8

7.6.2.10
Timing Diagrams



7.6.2.11
Component Layout



IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT		MANUF.
	C..1001	59.25.3470	47u	-20%, 10V, ELECTROLYTIC		ANY
	C..1002	59.99.0205	68n	-20%, 30V, CERAMIC		ANY
	C..1003	59.99.0205	68n	-20%, 30V, CERAMIC		ANY
	C..1004	59.25.3470	47u	-20%, 10V, ELECTROLYTIC		ANY
	C..1005	59.99.0267	68n	-20%, 20V, METAL-FOIL	QUANTITY:	ANY
	F..1001	51.01.0122		FUSE, T3.15/250V, 5*20mm		ANY
	F..1002	51.01.0122		FUSE, T3.15/250V, 5*20mm		ANY
	IC.0101	50.06.0139		74LS139		
	IC.0102	50.06.0174		74LS174		
	IC.0103	50.06.0174		74LS174		
	IC.0104	50.06.0174		74LS174		
	IC.0105	50.15.0109		26AMLS33		
	IC.0106	50.15.0109		26AMLS33		
	IC.0107	50.15.0108		26AMLS31		
	IC.0109	50.14.0114		28L22		
	IC.0110	50.06.0273		74LS273		
	IC.0111	50.06.0273		74LS273		
	IC.0112	50.14.0114		28L22		
	IC.0113	50.06.0244		74LS244		
	IC.0114	50.06.0244		74LS244		
	IC.0115	50.06.0244		74LS244		
	IC.0116	50.06.0244		74LS244		
	IC.0117	50.06.0244		74LS244		
	IC.0119	50.06.0244		74LS244		
	IC.0120	50.06.0244		74LS244		
	IC.0201	50.06.0157		74LS157		
	IC.0202	50.06.0157		74LS157		
	IC.0203	50.06.0157		74LS157		
	IC.0205	50.06.0175		74LS175		
	IC.0206	50.06.0000		74LS00		
	IC.0207	50.06.0163		74LS163		
	IC.0208	50.06.0163		74LS163		
	IC.0209	50.06.0157		74LS157		
	IC.0210	50.06.0157		74LS157		
	IC.0211	50.06.0244		74LS244		

IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	IC.0212	50.06.0244		74LS244	
	IC.0213	50.06.0163		74LS163	
	IC.0214	50.06.0163		74LS163	
	IC.0301	50.06.0166		74LS166	
	IC.0302	50.06.0273		74LS273	
	IC.0303	50.14.0122		RAM 4164	
	IC.0304	50.14.0122		RAM 4164	
	IC.0305	50.14.0122		RAM 4164	
	IC.0306	50.14.0122		RAM 4164	
	IC.0307	50.14.0122		RAM 4164	
	IC.0308	50.14.0122		RAM 4164	
	IC.0309	50.06.0374		74LS374	
	IC.0310	50.06.0244		74LS244	
	IC.0311	50.06.0244		74LS244	
	IC.0312	50.06.0374		74LS374	
	IC.0313	50.14.0122		RAM 4164	
	IC.0314	50.14.0122		RAM 4164	
	IC.0315	50.14.0122		RAM 4164	
	IC.0316	50.14.0122		RAM 4164	
	IC.0317	50.14.0122		RAM 4164	
	IC.0318	50.14.0122		RAM 4164	
	IC.0319	50.06.0273		74LS273	
	IC.0320	50.06.0166		74LS166	
	IC.0402	50.06.0244		74LS244	
	IC.0403	50.14.0122		RAM 4164	
	IC.0404	50.14.0122		RAM 4164	
	IC.0405	50.14.0122		RAM 4164	
	IC.0406	50.14.0122		RAM 4164	
	IC.0407	50.14.0122		RAM 4164	
	IC.0408	50.14.0122		RAM 4164	
	IC.0409	50.06.0322		74LS322	
	IC.0410	50.06.0244		74LS244	
	IC.0411	50.06.0244		74LS244	
	IC.0412	50.06.0322		74LS322	
	IC.0413	50.14.0122		RAM 4164	
	IC.0414	50.14.0122		RAM 4164	
	IC.0415	50.14.0122		RAM 4164	

IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	IC.0416	50.14.0122		RAM 4164	
	IC.0417	50.14.0122		RAM 4164	
	IC.0418	50.14.0122		RAM 4164	
	IC.0501	50.06.0166		74LS166	
	IC.0502	50.06.0273		74LS273	
	IC.0503	50.14.0122		RAM 4164	
	IC.0504	50.14.0122		RAM 4164	
	IC.0505	50.14.0122		RAM 4164	
	IC.0506	50.14.0122		RAM 4164	
	IC.0507	50.14.0122		RAM 4164	
	IC.0508	50.14.0122		RAM 4164	
	IC.0509	50.06.0374		74LS374	
	IC.0510	50.06.0244		74LS244	
	IC.0511	50.06.0244		74LS244	
	IC.0512	50.06.0374		74LS374	
	IC.0513	50.14.0122		RAM 4164	
	IC.0514	50.14.0122		RAM 4164	
	IC.0515	50.14.0122		RAM 4164	
	IC.0516	50.14.0122		RAM 4164	
	IC.0517	50.14.0122		RAM 4164	
	IC.0518	50.14.0122		RAM 4164	
	IC.0519	50.06.0273		74LS273	
	IC.0520	50.06.0166		74LS166	
	IC.0603	50.14.0122		RAM 4164	
	IC.0604	50.14.0122		RAM 4164	
	IC.0605	50.14.0122		RAM 4164	
	IC.0606	50.14.0122		RAM 4164	
	IC.0607	50.14.0122		RAM 4164	
	IC.0608	50.14.0122		RAM 4164	
	IC.0610	50.06.0322		74LS322	
	IC.0611	50.06.0322		74LS322	
	IC.0613	50.14.0122		RAM 4164	
	IC.0614	50.14.0122		RAM 4164	
	IC.0615	50.14.0122		RAM 4164	
	IC.0616	50.14.0122		RAM 4164	
	IC.0617	50.14.0122		RAM 4164	
	IC.0618	50.14.0122		RAM 4164	

IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	IC.0701	50.14.0122		RAM 4164	
	IC.0702	50.14.0122		RAM 4164	
	IC.0703	50.14.0122		RAM 4164	
	IC.0704	50.14.0122		RAM 4164	
	IC.0705	50.14.0122		RAM 4164	
	IC.0706	50.14.0122		RAM 4164	
	IC.0707	50.14.0122		RAM 4164	
	IC.0708	50.14.0122		RAM 4164	
	IC.0712	50.14.0122		RAM 4164	
	IC.0713	50.14.0122		RAM 4164	
	IC.0714	50.14.0122		RAM 4164	
	IC.0715	50.14.0122		RAM 4164	
	IC.0716	50.14.0122		RAM 4164	
	IC.0717	50.14.0122		RAM 4164	
	IC.0718	50.14.0122		RAM 4164	
	IC.0719	50.14.0122		RAM 4164	
	L..1001	62.01.0115		WIDE-BAND HF-CHOKE	Ph
	L..1002	62.01.0115		WIDE-BAND HF-CHOKE	Ph
	MP.1001	1.010.100.49		INSULATOR, 233*219mm, HGW	St
	MP.1002	1.010.101.49		SHEET METAL PLATE, 233*216mm	St
	MP.1003	1.010.039.49		EUROCARD, DOUBLE SIZE, 2*CU .3/.6" WRAP	St
	MP.1004	1.010.096.49		TRANSPARENT COVER	St
	MP.1005	1.010.096.49		TRANSPARENT COVER	St
	MP.1006	1.010.128.49		POSITIONING PLATE FOR WRAP PINS	St
	MP.1007	1.010.128.49		POSITIONING PLATE FOR WRAP PINS	St
	MP.1008	1.010.006.33		MARKING HANDLE	St
	MP.1009	1.010.006.33		MARKING HANDLE	St
	MP.1010	1.010.006.33		MARKING HANDLE	St
	MP.1011	1.010.006.33		MARKING HANDLE	St
	MP.1012	21.01.0280		SCREW, CYLIN. HEAD, M2.5*8	ANY
	MP.1013	21.01.0280		SCREW, CYLIN. HEAD, M2.5*8	ANY
	MP.1014	21.01.0280		SCREW, CYLIN. HEAD, M2.5*8	ANY
	MP.1015	21.01.0280		SCREW, CYLIN. HEAD, M2.5*8	ANY
	MP.1016	21.01.0282		SCREW, CYLIN. HEAD, M2.5*12	ANY
	MP.1017	21.01.0282		SCREW, CYLIN. HEAD, M2.5*12	ANY

IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	MP.1018	21.01.0282		SCREW, CYLIN. HEAD, M2.5*12	ANY
	MP.1019	21.01.0282		SCREW, CYLIN. HEAD, M2.5*12	ANY
	MP.1020	21.01.2278		SCREW, COUNTERSUNK HEAD, M2.5*5	ANY
	MP.1021	21.01.2278		SCREW, COUNTERSUNK HEAD, M2.5*5	ANY
	MP.1022	21.01.2278		SCREW, COUNTERSUNK HEAD, M2.5*5	ANY
	MP.1023	21.01.2278		SCREW, COUNTERSUNK HEAD, M2.5*5	ANY
	MP.1024	21.01.2278		SCREW, COUNTERSUNK HEAD, M2.5*5	ANY
	MP.1025	21.01.2278		SCREW, COUNTERSUNK HEAD, M2.5*5	ANY
	MP.1026	21.01.2278		SCREW, COUNTERSUNK HEAD, M2.5*5	ANY
	MP.1027	21.01.2278		SCREW, COUNTERSUNK HEAD, M2.5*5	ANY
	MP.1028	28.21.1380		TUBULAR RIVET, D2.25*6.5mm	ANY
	MP.1029	28.21.1380		TUBULAR RIVET, D2.25*6.5mm	ANY
	MP.1030	1.010.028.54		CONTACT PIN, WRAP-L= 8 mm QUANTITY:	St
	MP.1031	1.010.029.54		DUMMY PIN, WRAP-L= 8 mm QUANTITY:	230St
	MP.1032	1.010.070.27		STAND-OFF, M2.5*15 mm	ANY
	MP.1033	1.010.070.27		STAND-OFF, M2.5*15 mm	ANY
	MP.1034	1.010.070.27		STAND-OFF, M2.5*15 mm	ANY
	MP.1035	1.010.070.27		STAND-OFF, M2.5*15 mm	ANY
	MP.1036	1.010.071.27		STAND-OFF, M2.5*16 mm	ANY
	MP.1037	1.010.071.27		STAND-OFF, M2.5*16 mm	ANY
	MP.1038	1.010.071.27		STAND-OFF, M2.5*16 mm	ANY
	MP.1039	1.010.071.27		STAND-OFF, M2.5*16 mm	ANY
	MP.1040	1.611.025.01		NUMBER-PLATE	ST
	MP.1041	1.611.025.02		NAME-PLATE	ST
	P..0001	54.01.0354		CARD CONNECTOR, 3*32 EURO WRAP	ANY
	P..0002	54.01.0354		CARD CONNECTOR, 3*32 EURO WRAP	ANY
	RZ.0108	57.85.3332		RZ 15*3,3KOHM	
	RZ.0204	57.85.3332		RZ 15*3,3KOHM	
	RZ.0217	57.85.3332		RZ 15*3,3KOHM	
	RZ.0601	57.85.3332		RZ 15*3,3KOHM	
	RZ.0620	57.85.3332		RZ 15*3,3KOHM	
	RZ.0709	57.85.3332		RZ 15*3,3KOHM	
	RZ.0720	57.85.3332		RZ 15*3,3KOHM	
	TP.1001	29.21.6002		TEST-POINT	ANY

IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT		MANUF.
	TP.1002	29.21.6002		TEST-POINT		ANY
	TP.1003	29.21.6002		TEST-POINT		ANY
	TP.1004	29.21.6002		TEST-POINT		ANY
	W..1001	64.01.0106		UNCOVERED WIRE, D=0.6		ANY
	W..1002	64.01.0106		UNCOVERED WIRE, D=0.6		ANY
	W..1003	64.01.0106		UNCOVERED WIRE, D=0.6		ANY
	W..1004	64.01.0106		UNCOVERED WIRE, D=0.6		ANY
	W..1005	64.01.0106		UNCOVERED WIRE, D=0.6		ANY
	W..1006	64.01.0106		UNCOVERED WIRE, D=0.6		ANY
	W..1007	64.01.0106		UNCOVERED WIRE, D=0.6		ANY
	W..1008	64.01.0106		UNCOVERED WIRE, D=0.6		ANY
	W..1009	64.01.0106		UNCOVERED WIRE, D=0.6		ANY
	W..1010	64.01.0106		UNCOVERED WIRE, D=0.6		ANY
	W..1011	64.01.0106		UNCOVERED WIRE, D=0.6		ANY
	W..1012	64.01.0345		WIRE, WRAP TYPE, D=0.255,	LENGTH=	ANY
	XF.1001	53.03.0142		CLAMP, 5*20		ANY
	XF.1002	53.03.0142		CLAMP, 5*20		ANY
	XF.1003	53.03.0142		CLAMP, 5*20		ANY
	XF.1004	53.03.0142		CLAMP, 5*20		ANY

INTERFACE BOARD

CONNECTOR P1

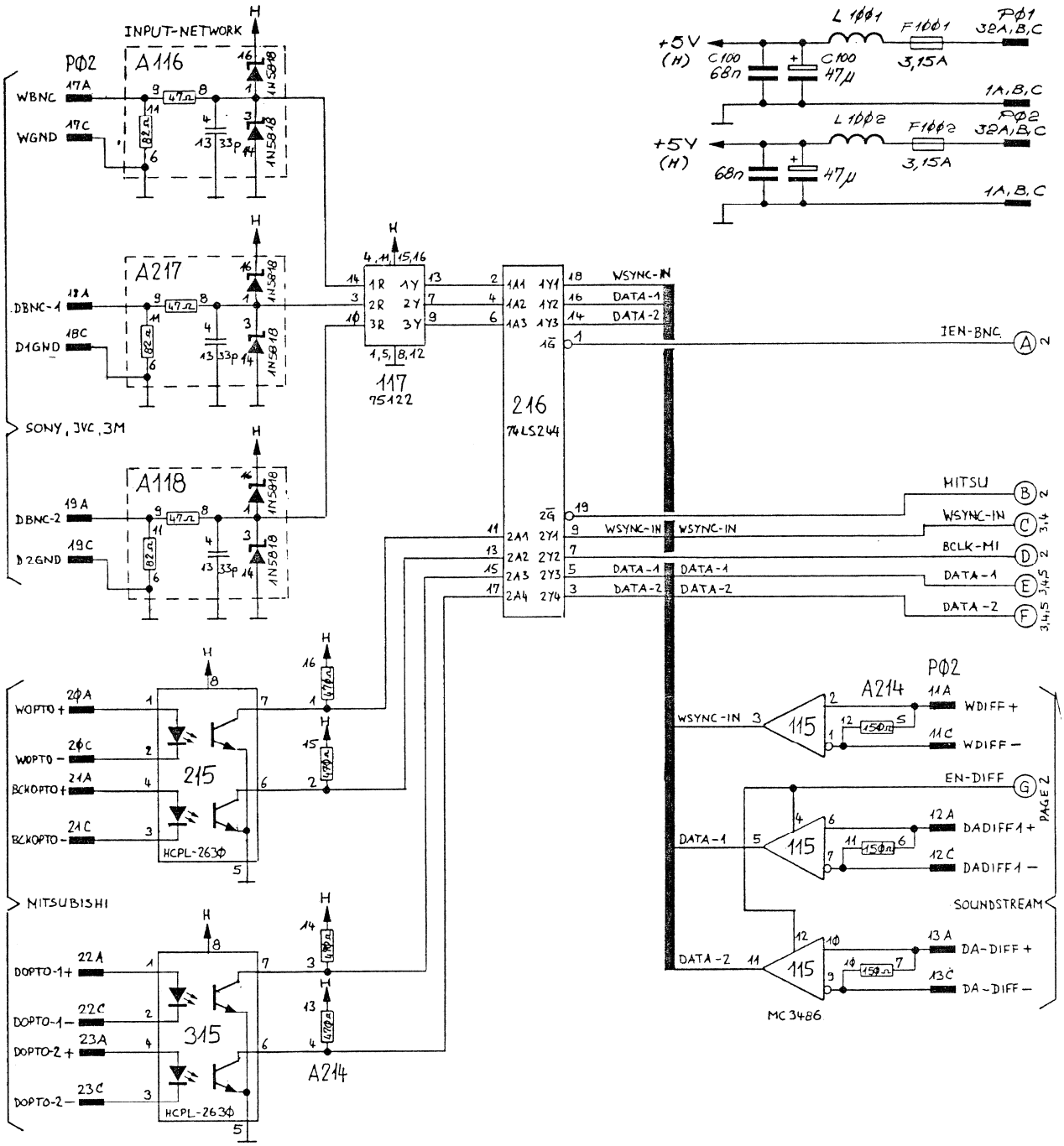
Pin	Signal Name	Pin	Signal Name	Pin	Signal Name
1a	GND	1b	GND	1c	GND
2a	NC	2b	NC	2c	NC
3a	NC	3b	CLEAR	3c	NC
4a	NC	4b	NC	4c	NC
5a	NC	5b	NC	5c	NC
6a	NC	6b	NC	6c	NC
7a	NC	7b	NC	7c	KEY-7
8a	NC	8b	NC	8c	KEY-6
9a	NC	9b	NC	9c	KEY-5
10a	NC	10b	NC	10c	NC
11a	NC	11b	NC	11c	KEY-3
12a	NC	12b	NC	12c	KEY-2
13a	NC	13b	NC	13c	KEY-1
14a	NC	14b	NC	14c	KEY-0
15a	NC	15b	NC	15c	NC
16a	NC	16b	NC	16c	NC
17a	NC	17b	NC	17c	NC
18a	EXT-MUTE+	18b	NC	18c	EXTMUTER
19a	NC	19b	NC	19c	NC
20a	REF-EXT+	20b	NC	20c	REF-EXT-
21a	NC	21b	A-00	21c	A-01
22a	EMPHASIS	22b	DIG/ANA	22c	NC
23a	256*FS+	23b	NC	23c	256*FS-
24a	NC	24b	NC	24c	NC
25a	NC	25b	RESET	25c	NC
26a	NC	26b	INTERRPT	26c	NC
27a	NC	27b	NC	27c	NC
28a	NC	28b	IREMOTE	28c	NC
29a	0.5	29b	0.6	29c	1.0
30a	33/145	30b	+0V-	30c	HF/IFILL
31a	NC	31b	NC	31c	NC
32a	+5V	32b	+5V	32c	+5V

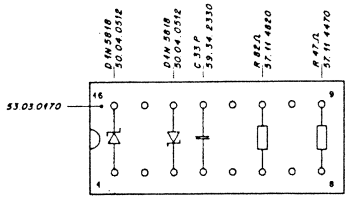
INTERFACE BOARD

CONNECTOR P2

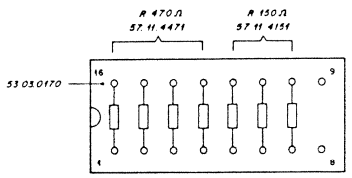
Pin	Signal Name	Pin	Signal Name	Pin	Signal Name
1a	GND	1b	GND	1c	GND
2a	D-08-1	2b	D-00-1	2c	NC
3a	D-09-1	3b	D-01-1	3c	NC
4a	D-10-1	4b	D-02-1	4c	NC
5a	D-11-1	5b	D-03-1	5c	NC
6a	D-12-1	6b	D-04-1	6c	NC
7a	D-13-1	7b	D-05-1	7c	NC
8a	D-14-1	8b	D-06-1	8c	NC
9a	D-15-1	9b	D-07-1	9c	NC
10a	XLR+	10b	GND-XLR	10c	XLR-
11a	WDIFF+	11b	JVC	11c	WDIFF-
12a	DADIFF1+	12b	MITSU	12c	DADIFF1-
13a	DA-DIFF+	13b	SOUNDSTR	13c	DA-DIFF-
14a	-15V	14b	-15V	14c	-15V
15a	+0V-	15b	+0V-	15c	+0V-
16a	+15V	16b	+15V	16c	+15V
17a	WBNC	17b	3M	17c	+0V- 28
18a	DBNC-1	18b	SONY	18c	+0V- 19
19a	DBNC-2	19b	STUDER	19c	+0V- 29
20a	WOPTO+	20b	NC	20c	WOPTO-
21a	BCKOPTO+	21b	NC	21c	BCKOPTO-
22a	DOPTO-1+	22b	NC	22c	DOPTO-1-
23a	DOPTO-2+	23b	NC	23c	DOPTO-2-
24a	D-08-2	24b	D-00-2	24c	NC
25a	D-09-2	25b	D-01-2	25c	NC
26a	D-10-2	26b	D-02-2	26c	NC
27a	D-11-2	27b	D-03-2	27c	NC
28a	D-12-2	28b	D-04-2	28c	NC
29a	D-13-2	29b	D-05-2	29c	NC
30a	D-14-2	30b	D-06-2	30c	NC
31a	D-15-2	31b	D-07-2	31c	NC
32a	+5V	32b	+5V	32c	+5V

7.6.3.2
Circuit Diagram of the Input section





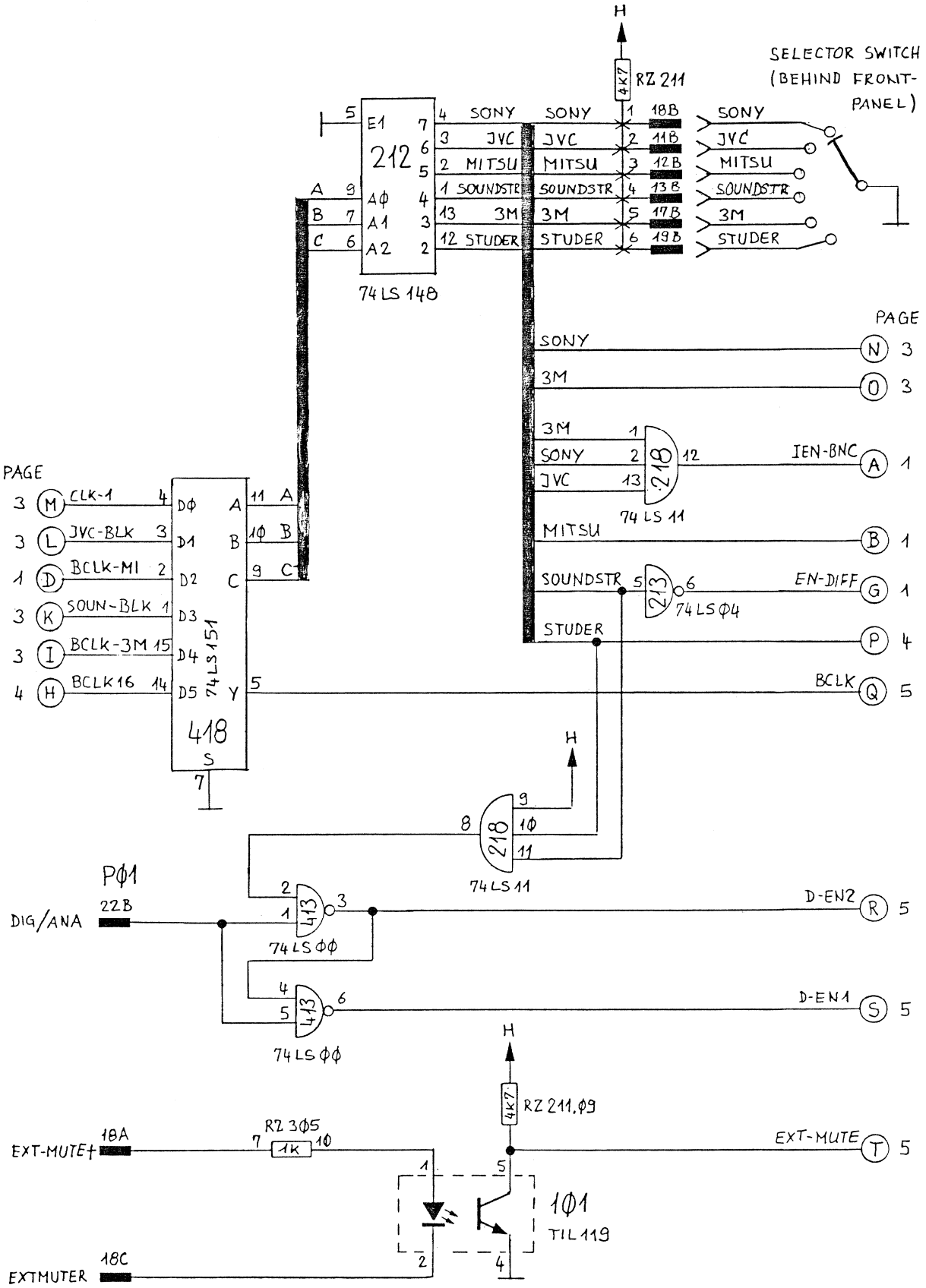
A 116, 118, 217



A 214

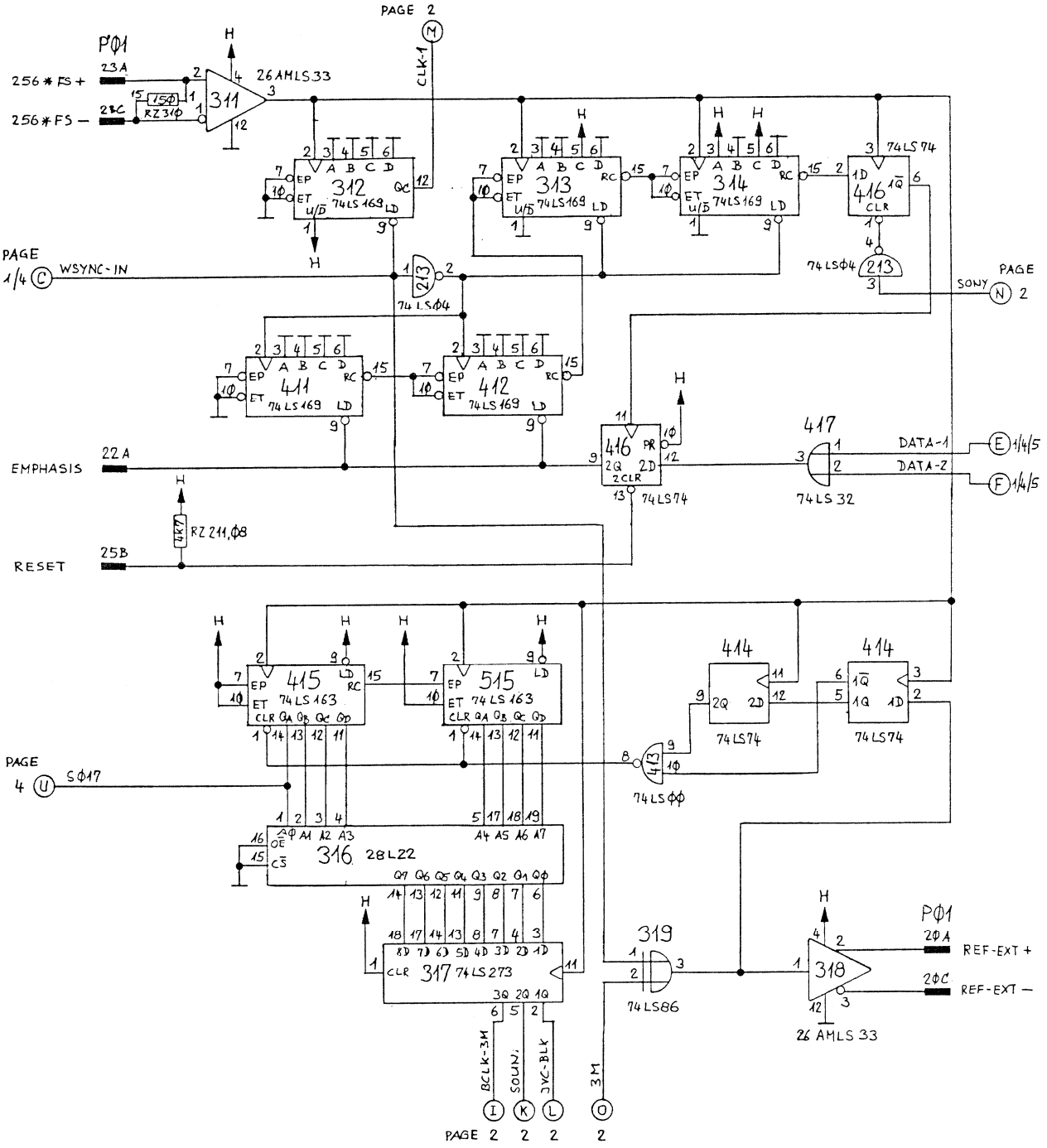
		INPUT SECTION	DAD-16	
STUDER	INTERFACE BOARD		1.611.Ø3Ø-ØØ	PAGE 1 OF 6

7.6.3.3
Circuit Diagram of the Input Selector

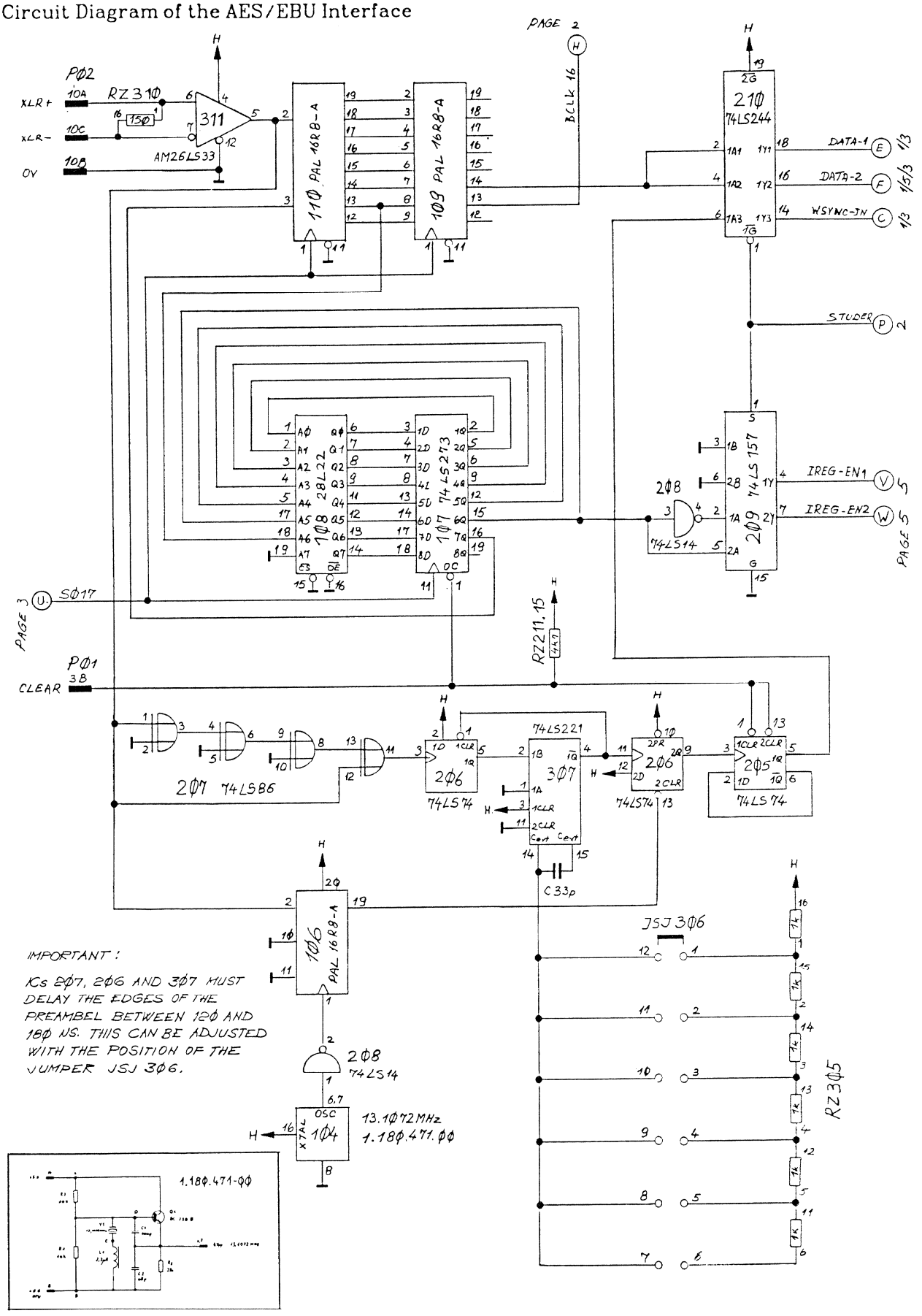


		SELECTOR	DAD-16		
STUDER	INTERFACE BOARD		1.611.030-00	PAGE 2 OF 6	

7.6.3.4
Circuit Diagram of the Timing Signal Generator

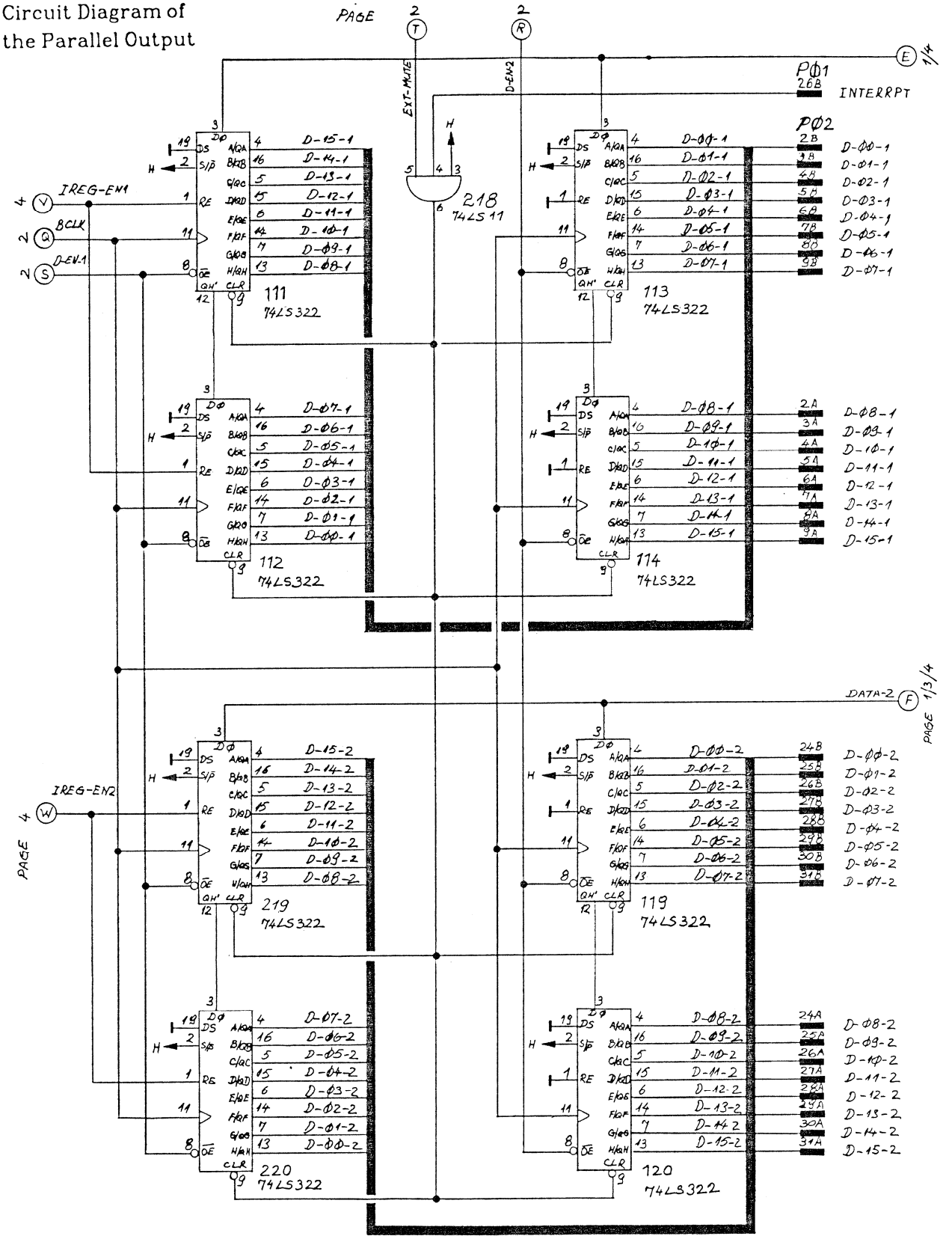


7.6.3.5
Circuit Diagram of the AES/EBU Interface



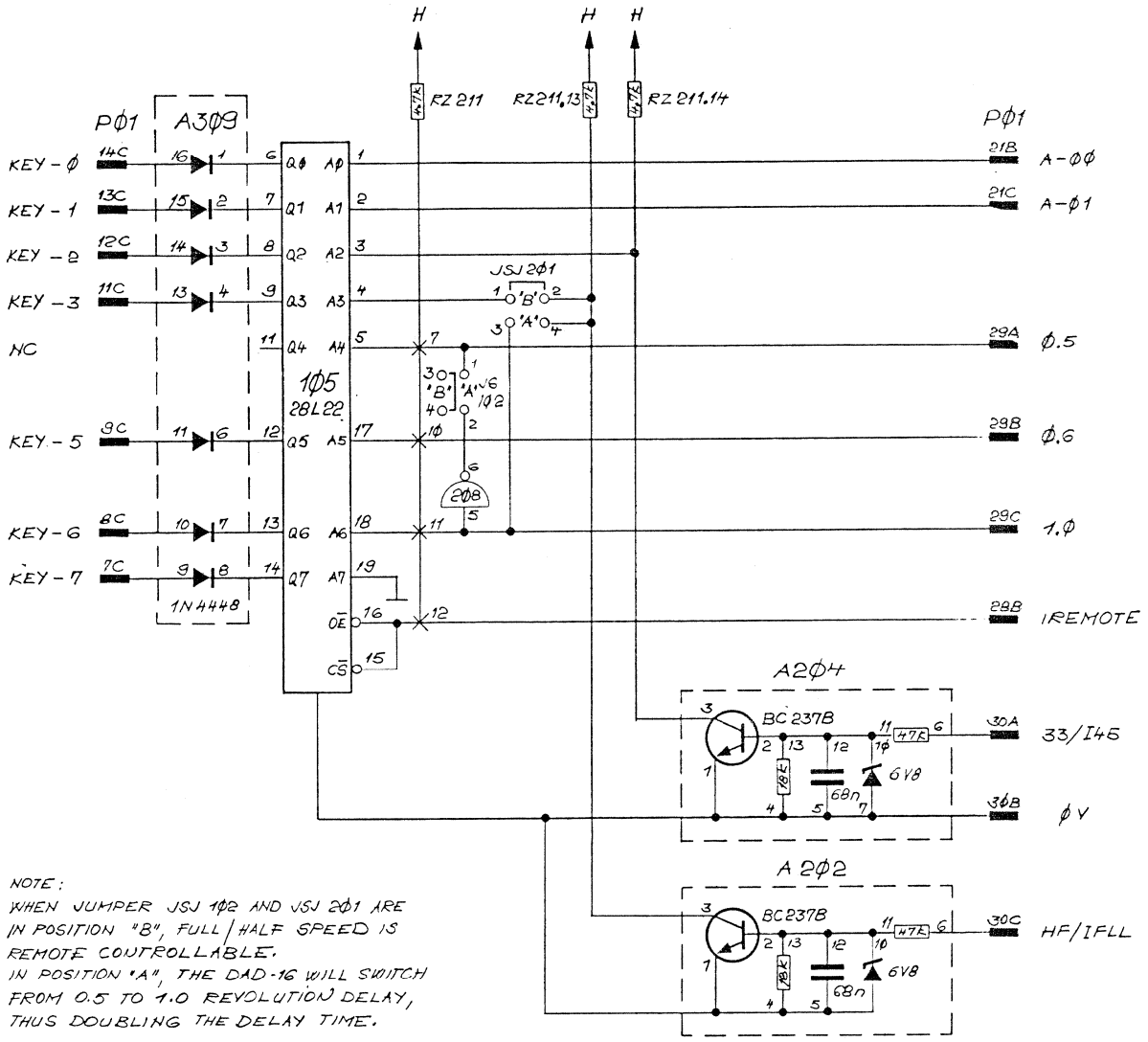
		AES/EBU-STUDER INTERFACE DAD-16		
STUDER	INTERFACE BOARD		1.611.030-00	PAGE 4 OF 6

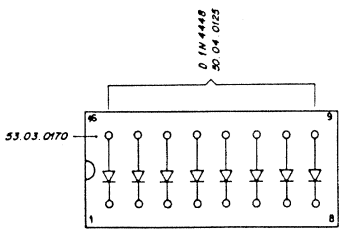
7.6.3.6
Circuit Diagram of
the Parallel Output



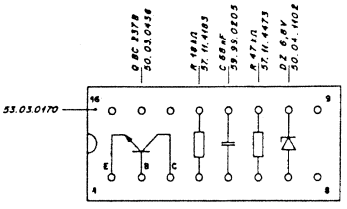
		PARALLEL OUTPUT DAD-16		
STUDER	INTERFACE BOARD		1.611.030-	PAGE 5 OF 6

7.6.3.7
Circuit Diagram of the Remote Control Input





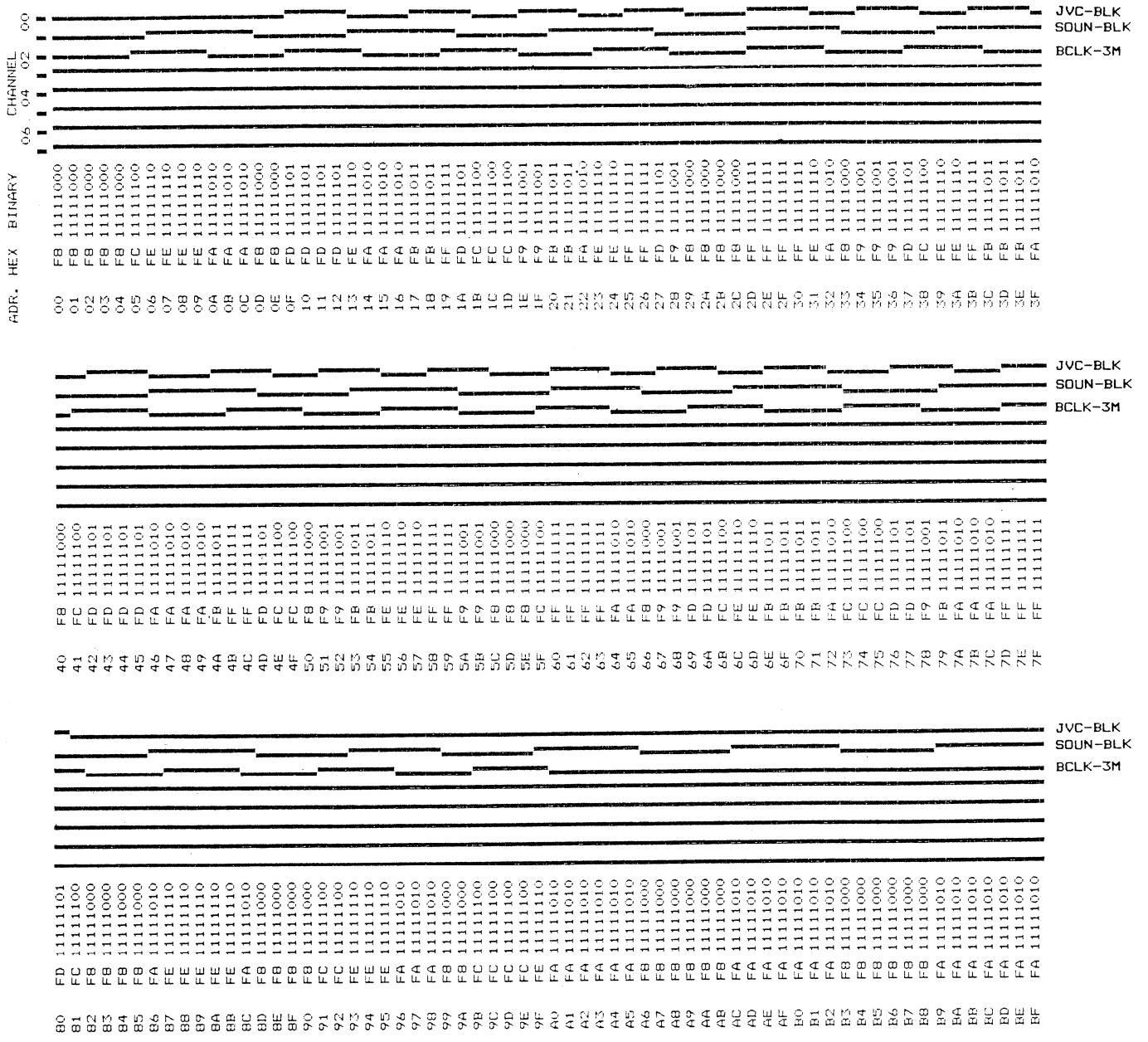
A309



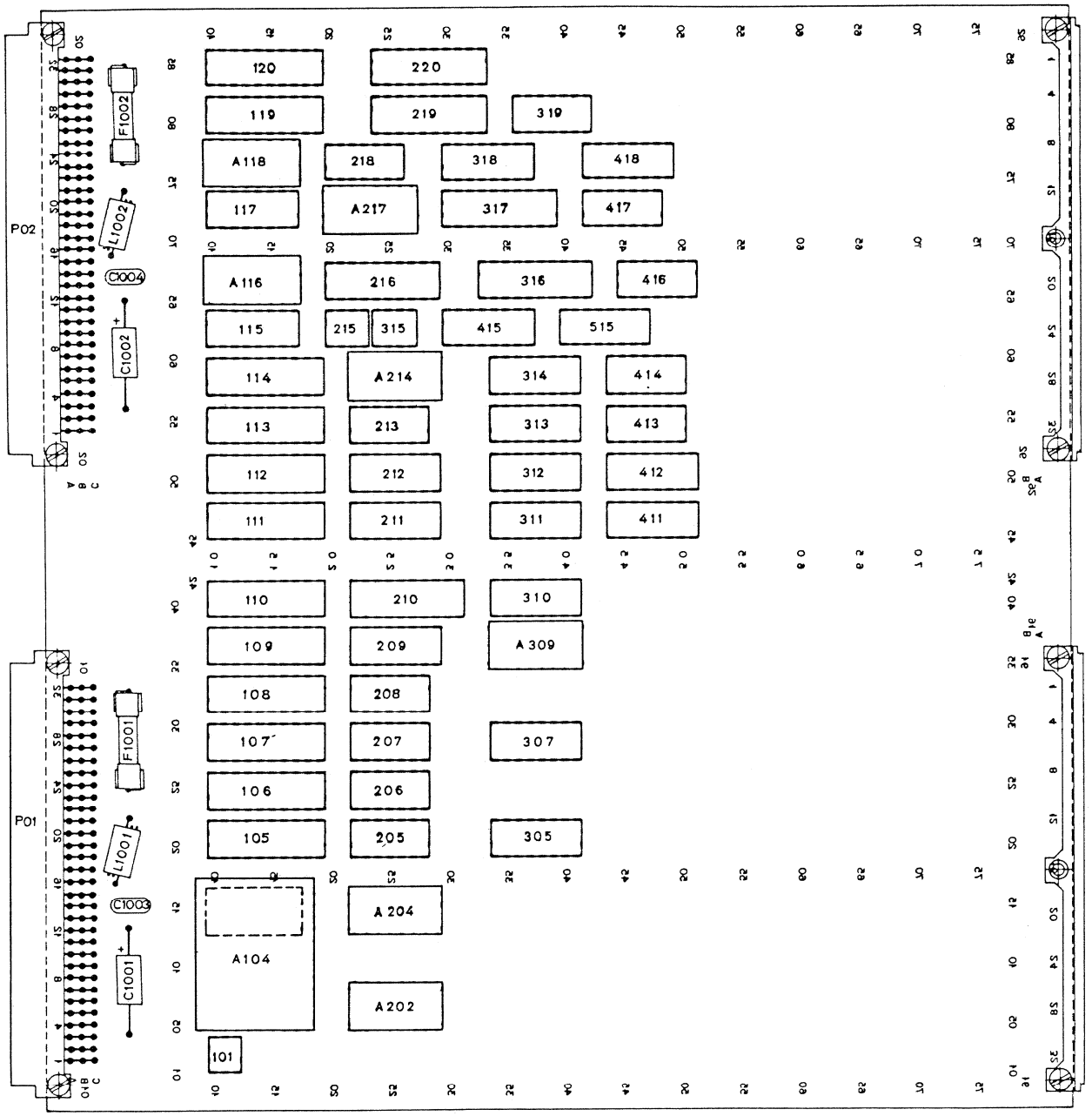
A204/202

		REMOTE CONTROL	DAD-16	
STUDER	INTERFACE BOARD		1.611.030-00	PAGE 6 OF 6

7.6.3.8
Timing Diagrams



7.6.3.9
Component Layout



IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	A..0116	1.099.253.00		ASS 1	
	A..0118	1.099.253.00		ASS 3	
	A..0202	1.099.256.00		ASSEMBLY R/C/D/T A202	
	A..0204	1.099.256.00		ASSEMBLY R/C/D/T A204	
	A..0214	1.099.254.00		ASS 4	
	A..0217	1.099.253.00		ASS 2	
	A..0309	1.099.257.00		ASSEMBLY A309	
	C..0308	59.32.1330		C 33PF	
	C..1001	59.25.3470		47U -20%, 10V, ELECTROLYTIC	ANY
	C..1002	59.99.0205		68N -20%, 30V, CERAMIC	ANY
	C..1003	59.99.0205		68N -20%, 30V, CERAMIC	ANY
	C..1004	59.25.3470		47U -20%, 10V, ELECTROLYTIC	ANY
	C..1005	59.99.0257		68N -20%, 20V, METAL-FOIL QUANTITY:	ANY
	F..1001	51.01.0122		FUSE, T3.15/250V, 5*20mm	ANY
	F..1002	51.01.0122		FUSE, T3.15/250V, 5*20mm	ANY
	IC.0101	50.99.0129		TIL119	
	IC.0104	1.180.471.00		XTAL OSC 13.1072MHZ	
	IC.0105	50.14.0114		28L22	
	IC.0106	50.18.0002		PAL 16R8-A	
	IC.0107	50.06.0273		74LS273	
	IC.0108	50.14.0114		28L22	
	IC.0109	50.18.0002		PAL 16R8-A	
	IC.0110	50.18.0002		PAL 16R8-A	
	IC.0111	50.06.0322		74LS322	
	IC.0112	50.06.0322		74LS322	
	IC.0113	50.06.0322		74LS322	
	IC.0114	50.06.0322		74LS322	
	IC.0115	50.15.0104		MC3486	
	IC.0117	50.15.0111		75122	
	IC.0119	50.06.0322		74LS322	
	IC.0120	50.06.0322		74LS322	
	IC.0205	50.06.0074		74LS74	
	IC.0206	50.06.0074		74LS74	
	IC.0207	50.06.0086		74LS86	

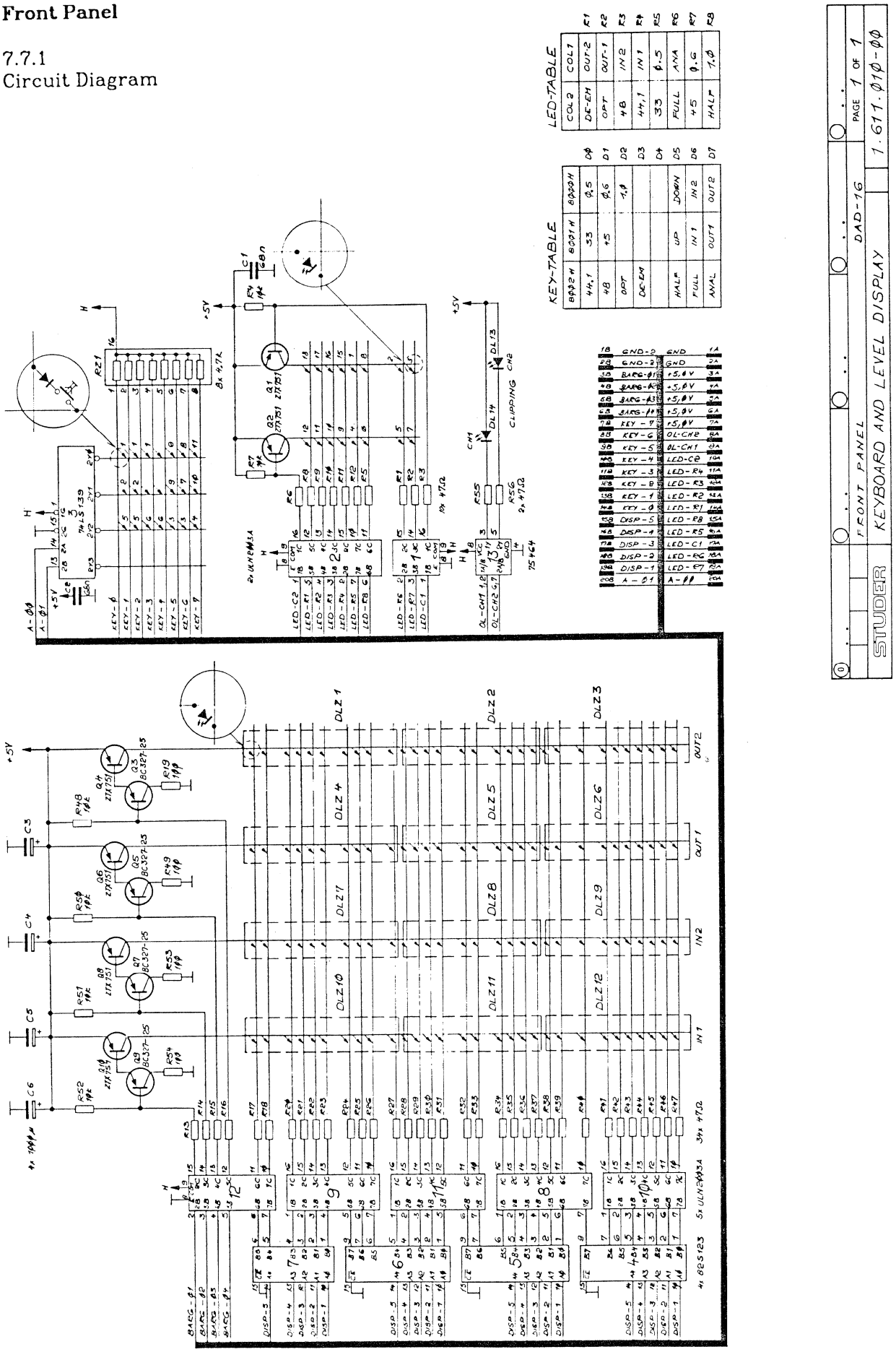
IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	IC.0208	50.06.0014		74LS14	
	IC.0209	50.06.0157		74LS157	
	IC.0210	50.06.0244		74LS244	
	IC.0212	50.06.0148		74LS148	
	IC.0213	50.06.0004		74LS04	
	IC.0215	50.04.2147		HCPL-2630	
	IC.0216	50.06.0244		74LS244	
	IC.0218	50.06.0011		74LS11	
	IC.0219	50.06.0322		74LS322	
	IC.0220	50.06.0322		74LS322	
	IC.0307	50.06.0221		74LS221	
	IC.0311	50.15.0109		26AMLS33	
	IC.0312	50.06.0169		74LS169	
	IC.0313	50.06.0169		74LS169	
	IC.0314	50.06.0169		74LS169	
	IC.0315	50.04.2147		HCPL-2630	
	IC.0316	50.14.0114		28L22	
	IC.0317	50.06.0273		74LS273	
	IC.0318	50.15.0109		26AMLS33	
	IC.0319	50.06.0086		74LS86	
	IC.0411	50.06.0169		74LS169	
	IC.0412	50.06.0169		74LS169	
	IC.0413	50.06.0000		74LS00	
	IC.0414	50.06.0074		74LS74	
	IC.0415	50.06.0163		74LS163	
	IC.0416	50.06.0074		74LS74	
	IC.0417	50.06.0032		74LS32	
	IC.0418	50.06.0151		74LS151	
	IC.0515	50.06.0153		74LS153	
	W..0102			JUMPER 2	
	W..0201			JUMPER 2	
	W..0306			JUMPER ARRAY	
	W..0201			JUMPER 2	
	L..1001	62.01.0115		WIDE-BAND HF-CHOKE	Ph
	L..1002	62.01.0115		WIDE-BAND HF-CHOKE	Ph

IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	MP.1001	1.010.100.49		INSULATOR, 233*219mm, HGW	St
	MP.1002	1.010.101.49		SHEET METAL PLATE, 233*216mm	St
	MP.1003	1.010.030.49		EUROCARD, DOUBLE SIZE, 2*CU .3/.6" WRAP	St
	MP.1004	1.010.096.49		TRANSPARENT COVER	St
	MP.1005	1.010.096.49		TRANSPARENT COVER	St
	MP.1006	1.010.128.49		POSITIONING PLATE FOR WRAP PINS	St
	MP.1007	1.010.128.49		POSITIONING PLATE FOR WRAP PINS	St
	MP.1008	1.010.006.33		MARKING HANDLE	St
	MP.1009	1.010.006.33		MARKING HANDLE	St
	MP.1010	1.010.006.33		MARKING HANDLE	St
	MP.1011	1.010.006.33		MARKING HANDLE	St
	MP.1012	21.01.0280		SCREW, CYLIN. HEAD, M2.5*8	ANY
	MP.1013	21.01.0280		SCREW, CYLIN. HEAD, M2.5*8	ANY
	MP.1014	21.01.0280		SCREW, CYLIN. HEAD, M2.5*8	ANY
	MP.1015	21.01.0280		SCREW, CYLIN. HEAD, M2.5*8	ANY
	MP.1016	21.01.0282		SCREW, CYLIN. HEAD, M2.5*12	ANY
	MP.1017	21.01.0282		SCREW, CYLIN. HEAD, M2.5*12	ANY
	MP.1018	21.01.0282		SCREW, CYLIN. HEAD, M2.5*12	ANY
	MP.1019	21.01.0282		SCREW, CYLIN. HEAD, M2.5*12	ANY
	MP.1020	21.01.2278		SCREW, COUNTERSUNK HEAD, M2.5*5	ANY
	MP.1021	21.01.2278		SCREW, COUNTERSUNK HEAD, M2.5*5	ANY
	MP.1022	21.01.2278		SCREW, COUNTERSUNK HEAD, M2.5*5	ANY
	MP.1023	21.01.2278		SCREW, COUNTERSUNK HEAD, M2.5*5	ANY
	MP.1024	21.01.2278		SCREW, COUNTERSUNK HEAD, M2.5*5	ANY
	MP.1025	21.01.2278		SCREW, COUNTERSUNK HEAD, M2.5*5	ANY
	MP.1026	21.01.2278		SCREW, COUNTERSUNK HEAD, M2.5*5	ANY
	MP.1027	21.01.2278		SCREW, COUNTERSUNK HEAD, M2.5*5	ANY
	MP.1028	28.21.1380		TUBULAR RIVET, D2.25*6.5mm	ANY
	MP.1029	28.21.1380		TUBULAR RIVET, D2.25*6.5mm	ANY
	MP.1030	1.010.026.54		CONTACT PIN, WRAP-L= 8 mm QUANTITY:	St
	MP.1031	1.010.029.54		DUMMY PIN, WRAP-L= 8 mm QUANTITY:	280St
	MP.1032	1.010.070.27		STAND-OFF, M2.5*15 mm	ANY
	MP.1033	1.010.070.27		STAND-OFF, M2.5*15 mm	ANY
	MP.1034	1.010.070.27		STAND-OFF, M2.5*15 mm	ANY
	MP.1035	1.010.070.27		STAND-OFF, M2.5*15 mm	ANY
	MP.1036	1.010.071.27		STAND-OFF, M2.5*16 mm	ANY
	MP.1037	1.010.071.27		STAND-OFF, M2.5*16 mm	ANY

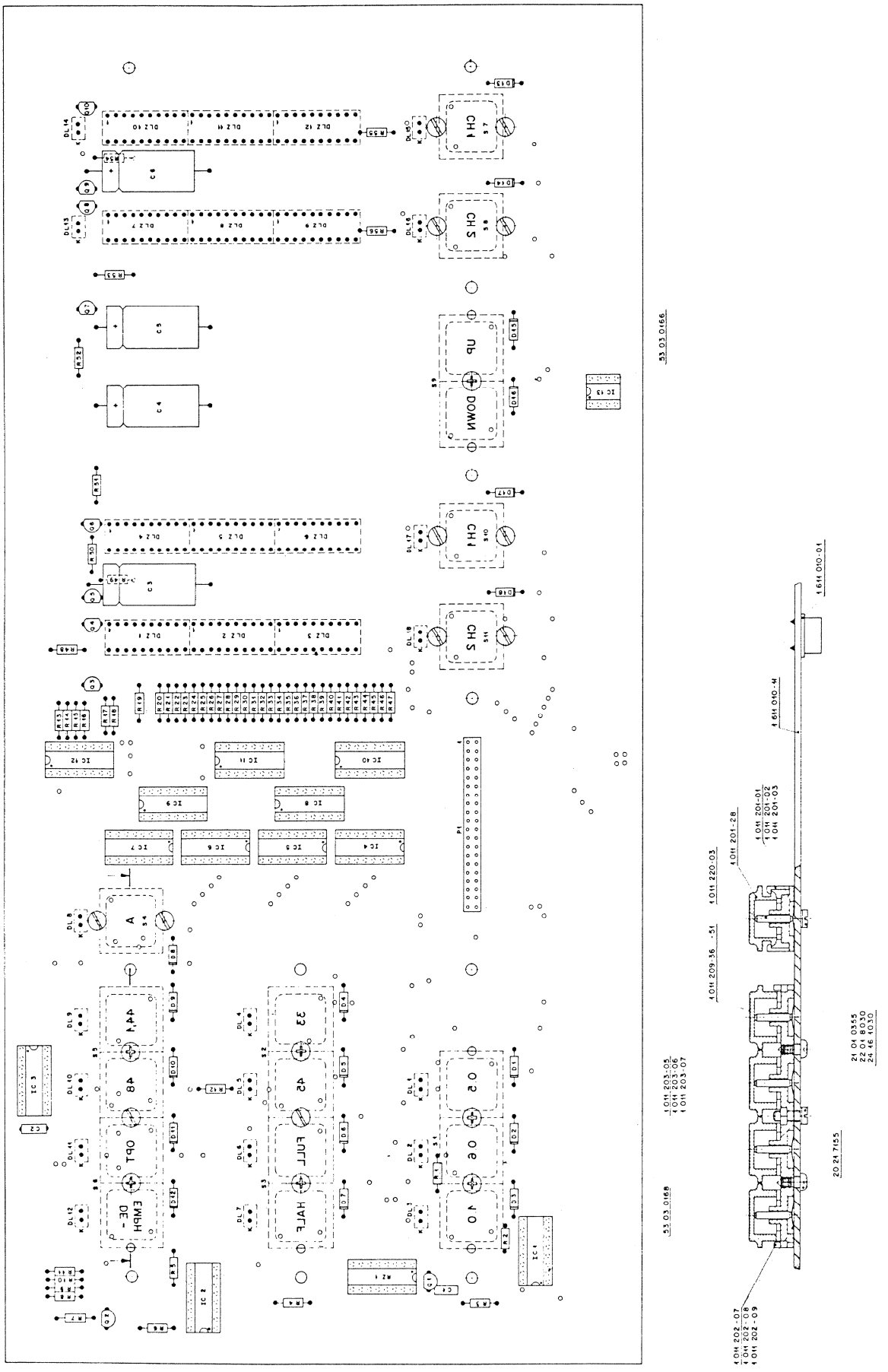
IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	MP.1038	1.010.071.27		STAND-OFF, M2.5*16 mm	ANY
	MP.1039	1.010.071.27		STAND-OFF, M2.5*16 mm	ANY
	MP.1040	1.611.030.01		NUMBER-PLATE	ST
	MP.1041	1.611.030.02		NAME-PLATE	ST
	P..0001	54.01.0354		CARD CONNECTOR, 3*32 EURO WRAP	ANY
	P..0002	54.01.0354		CARD CONNECTOR, 3*32 EURO WRAP	ANY
	RZ.0211	57.38.3472		15*4K7 OHM RZ1	
	RZ.0305	57.38.3102		8*1KO OHM RZ2	
	RZ.0310	57.38.3151		8*150 OHM RZ3	
	TP.1001	29.21.6002		TEST-POINT	ANY
	TP.1002	29.21.6002		TEST-POINT	ANY
	TP.1003	29.21.6002		TEST-POINT	ANY
	TP.1004	29.21.6002		TEST-POINT	ANY
	W..1001	64.01.0106		UNCOVERED WIRE, D=0.6	ANY
	W..1002	64.01.0106		UNCOVERED WIRE, D=0.6	ANY
	W..1003	64.01.0106		UNCOVERED WIRE, D=0.6	ANY
	W..1004	64.01.0106		UNCOVERED WIRE, D=0.6	ANY
	W..1005	64.01.0106		UNCOVERED WIRE, D=0.6	ANY
	W..1006	64.01.0106		UNCOVERED WIRE, D=0.6	ANY
	W..1007	64.01.0106		UNCOVERED WIRE, D=0.6	ANY
	W..1008	64.01.0106		UNCOVERED WIRE, D=0.6	ANY
	W..1009	64.01.0106		UNCOVERED WIRE, D=0.6	ANY
	W..1010	64.01.0106		UNCOVERED WIRE, D=0.6	ANY
	W..1011	64.01.0106		UNCOVERED WIRE, D=0.6	ANY
	W..1012	64.01.0345		WIRE, WRAP TYPE, D=0.255, LENGTH=	ANY
	XF.1001	53.03.0142		CLAMP, 5*20	ANY
	XF.1002	53.03.0142		CLAMP, 5*20	ANY
	XF.1003	53.03.0142		CLAMP, 5*20	ANY
	XF.1004	53.03.0142		CLAMP, 5*20	ANY

7.7
Front Panel

7.7.1
Circuit Diagram



7.7.2
Component Layout



IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	C..0001	59.99.0205	68 n	-20%, 63V , KER	
	C..0002	59.99.0205	68 n	-20%, 63V , KER	
	C..0003	59.25.3102	1.0 m	-20%, 16V , EL	
	C..0004	59.25.3102	1.0 m	-20%, 16V , EL	
	C..0005	59.25.3102	1.0 m	-20%, 16V , EL	
	C..0006	59.25.3102	1.0 m	-20%, 16V , EL	
	D..0001	50.04.0125	1N 4448		SI
	D..0002	50.04.0125	1N 4448		SI
	D..0003	50.04.0125	1N 4448		SI
	D..0004	50.04.0125	1N 4448		SI
	D..0005	50.04.0125	1N 4448		SI
	D..0006	50.04.0125	1N 4448		SI
	D..0007	50.04.0125	1N 4448		SI
	D..0008	50.04.0125	1N 4448		SI
	D..0009	50.04.0125	1N 4448		SI
	D..0010	50.04.0125	1N 4448		SI
	D..0011	50.04.0125	1N 4448		SI
	D..0012	50.04.0125	1N 4448		SI
	D..0013	50.04.0125	1N 4448		SI
	D..0014	50.04.0125	1N 4448		SI
	D..0015	50.04.0125	1N 4448		SI
	D..0016	50.04.0125	1N 4448		SI
	D..0017	50.04.0125	1N 4448		SI
	D..0018	50.04.0125	1N 4448		SI
	DL.0001	50.04.2146	MV 54124	GN,6.35X3.8X8.73	
	DL.0002	50.04.2146	MV 54124	GN,6.35X3.8X8.73	
	DL.0003	50.04.2146	MV 54124	GN,6.35X3.8X8.73	
	DL.0004	50.04.2146	MV 54124	GN,6.35X3.8X8.73	
	DL.0005	50.04.2146	MV 54124	GN,6.35X3.8X8.73	
	DL.0006	50.04.2146	MV 54124	GN,6.35X3.8X8.73	
	DL.0007	50.04.2146	MV 54124	GN,6.35X3.8X8.73	
	DL.0008	50.04.2146	MV 54124	GN,6.35X3.8X8.73	
	DL.0009	50.04.2146	MV 54124	GN,6.35X3.8X8.73	
	DL.0010	50.04.2146	MV 54124	GN,6.35X3.8X8.73	
	DL.0011	50.04.2146	MV 54124	GN,6.35X3.8X8.73	

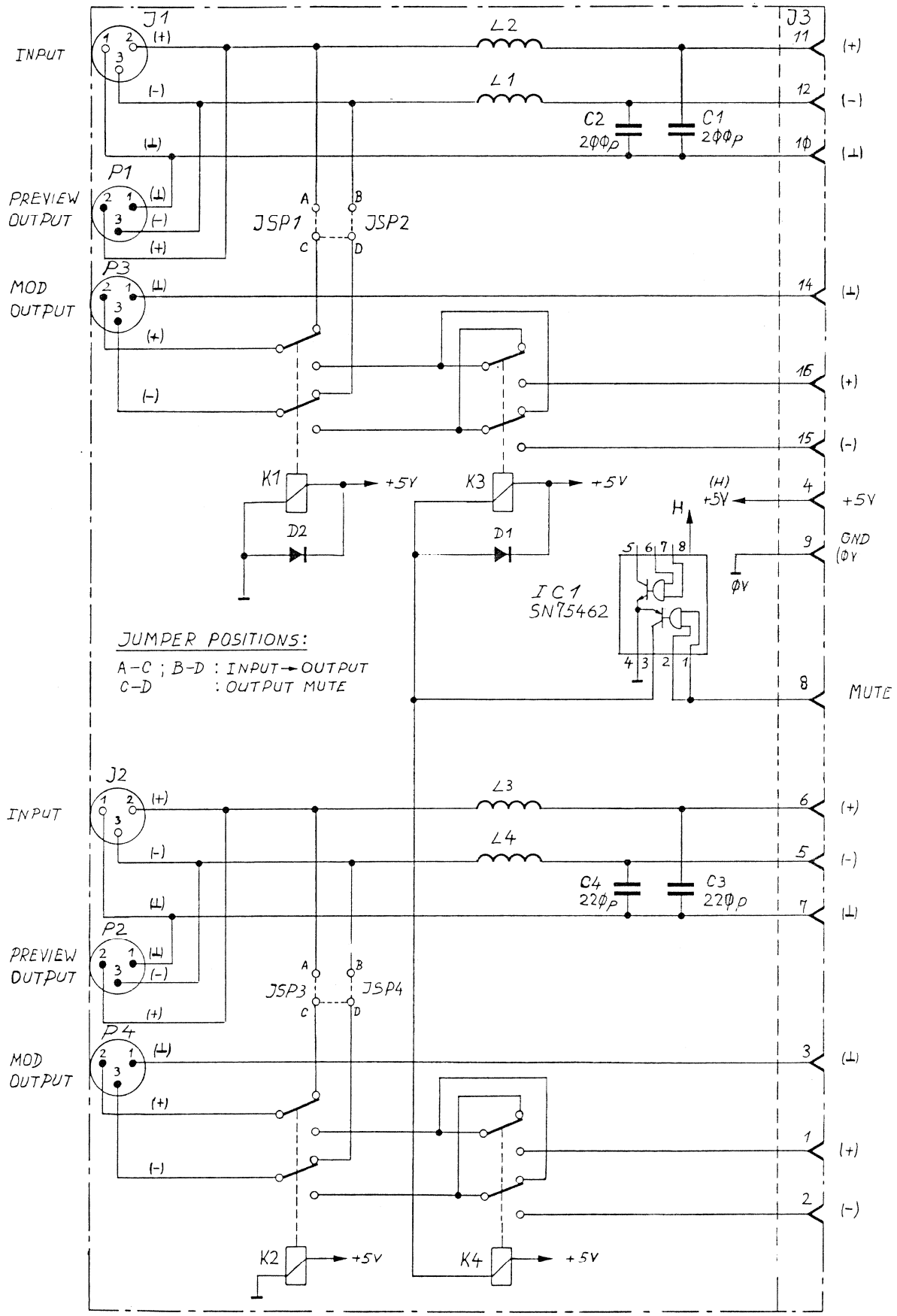
IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	DL.0012	50.04.2146	MV 54124	GN,6.35X3.8X8.73	
	DL.0013	50.04.2119		DL MV 57124 : 2-4 MCD / 20 MA	
	DL.0014	50.04.2119		DL MV 57124 : 2-4 MCD / 20 MA	
	DL.0015	50.04.2146	MV 54124	GN,6.35X3.8X8.73	
	DL.0016	50.04.2146	MV 54124	GN,6.35X3.8X8.73	
	DL.0017	50.04.2146	MV 54124	GN,6.35X3.8X8.73	
	DL.0018	50.04.2146	MV 54124	GN,6.35X3.8X8.73	
	DLZ0001	50.04.2134		BAR-GRAPH DISPLAY, 10*D RT	
	DLZ0002	50.04.2134		BAR-GRAPH DISPLAY, 10*D RT	
	DLZ0003	50.04.2134		BAR-GRAPH DISPLAY, 10*D RT	
	DLZ0004	50.04.2134		BAR-GRAPH DISPLAY, 10*D RT	
	DLZ0005	50.04.2134		BAR-GRAPH DISPLAY, 10*D RT	
	DLZ0006	50.04.2134		BAR-GRAPH DISPLAY, 10*D RT	
	DLZ0007	50.04.2134		BAR-GRAPH DISPLAY, 10*D RT	
	DLZ0008	50.04.2134		BAR-GRAPH DISPLAY, 10*D RT	
	DLZ0009	50.04.2134		BAR-GRAPH DISPLAY, 10*D RT	
	DLZ0010	50.04.2134		BAR-GRAPH DISPLAY, 10*D RT	
	DLZ0011	50.04.2134		BAR-GRAPH DISPLAY, 10*D RT	
	DLZ0012	50.04.2134		BAR-GRAPH DISPLAY, 10*D RT	
	IC.0001	50.05.0284		ULN 2003 A,	
	IC.0002	50.05.0284		ULN 2003 A,	
	IC.0003	50.06.0139		SN 74 LS 139 N TTL	
	IC.0004	50.05.0206		N 82 S 123 N, MMI 631-1 J,	
	IC.0005	50.05.0206		N 82 S 123 N, MMI 631-1 J,	
	IC.0006	50.05.0206		N 82 S 123 N, MMI 631-1 J,	
	IC.0007	50.05.0206		N 82 S 123 N, MMI 631-1 J,	
	IC.0008	50.05.0284		ULN 2003 A,	
	IC.0009	50.05.0284		ULN 2003 A,	
	IC.0010	50.05.0284		ULN 2003 A,	
	IC.0011	50.05.0284		ULN 2003 A,	
	IC.0012	50.05.0284		ULN 2003 A,	
	IC.0013	50.05.0204	SN 75464P	DS 3614 N, DRIV	
	P..0001	54.01.0676	LEISTE	2*20,RM2.54,GERADE	

IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	Q..0001	50.03.0352	ZTX 751 S		
	Q..0002	50.03.0352	ZTX 751 S		
	Q..0003	50.03.0351	BC 327-25		
	Q..0004	50.03.0352	ZTX 751 S		
	Q..0005	50.03.0351	BC 327-25		
	Q..0006	50.03.0352	ZTX 751 S		
	Q..0007	50.03.0351	BC 327-25		
	Q..0008	50.03.0352	ZTX 751 S		
	Q..0009	50.03.0351	BC 327-25		
	Q..0010	50.03.0352	ZTX 751 S		
	R..0001	57.11.4470	47	2%, 0207 , MF	
	R..0002	57.11.4470	47	2%, 0207 , MF	
	R..0003	57.11.4470	47	2%, 0207 , MF	
	R..0004	57.11.4103	10 k	2%, 0207 , MF	
	R..0005	57.11.4470	47	2%, 0207 , MF	
	R..0006	57.11.4470	47	2%, 0207 , MF	
	R..0007	57.11.4103	10 k	2%, 0207 , MF	
	R..0008	57.11.4470	47	2%, 0207 , MF	
	R..0009	57.11.4470	47	2%, 0207 , MF	
	R..0010	57.11.4470	47	2%, 0207 , MF	
	R..0011	57.11.4470	47	2%, 0207 , MF	
	R..0012	57.11.4470	47	2%, 0207 , MF	
	R..0013	57.11.4470	47	2%, 0207 , MF	
	R..0014	57.11.4470	47	2%, 0207 , MF	
	R..0015	57.11.4470	47	2%, 0207 , MF	
	R..0016	57.11.4470	47	2%, 0207 , MF	
	R..0017	57.11.4470	47	2%, 0207 , MF	
	R..0018	57.11.4470	47	2%, 0207 , MF	
	R..0019	57.11.4101	100	2%, 0207 , MF	
	R..0020	57.11.4470	47	2%, 0207 , MF	
	R..0021	57.11.4470	47	2%, 0207 , MF	
	R..0022	57.11.4470	47	2%, 0207 , MF	
	R..0023	57.11.4470	47	2%, 0207 , MF	
	R..0024	57.11.4470	47	2%, 0207 , MF	
	R..0025	57.11.4470	47	2%, 0207 , MF	
	R..0026	57.11.4470	47	2%, 0207 , MF	

IND.	POS.NO.	PART NO.	VALUE		SPECIFICATIONS / EQUIVALENT	MANUF.
	R..0027	57.11.4470	47		2%, 0207 , MF	
	R..0028	57.11.4470	47		2%, 0207 , MF	
	R..0029	57.11.4470	47		2%, 0207 , MF	
	R..0030	57.11.4470	47		2%, 0207 , MF	
	R..0031	57.11.4470	47		2%, 0207 , MF	
	R..0032	57.11.4470	47		2%, 0207 , MF	
	R..0033	57.11.4470	47		2%, 0207 , MF	
	R..0034	57.11.4470	47		2%, 0207 , MF	
	R..0035	57.11.4470	47		2%, 0207 , MF	
	R..0036	57.11.4470	47		2%, 0207 , MF	
	R..0037	57.11.4470	47		2%, 0207 , MF	
	R..0038	57.11.4470	47		2%, 0207 , MF	
	R..0039	57.11.4470	47		2%, 0207 , MF	
	R..0040	57.11.4470	47		2%, 0207 , MF	
	R..0041	57.11.4470	47		2%, 0207 , MF	
	R..0042	57.11.4470	47		2%, 0207 , MF	
	R..0043	57.11.4470	47		2%, 0207 , MF	
	R..0044	57.11.4470	47		2%, 0207 , MF	
	R..0045	57.11.4470	47		2%, 0207 , MF	
	R..0046	57.11.4470	47		2%, 0207 , MF	
	R..0047	57.11.4470	47		2%, 0207 , MF	
	R..0048	57.11.4103	10	k	2%, 0207 , MF	
	R..0049	57.11.4101	100		2%, 0207 , MF	
	R..0050	57.11.4103	10	k	2%, 0207 , MF	
	R..0051	57.11.4103	10	k	2%, 0207 , MF	
	R..0052	57.11.4103	10	k	2%, 0207 , MF	
	R..0053	57.11.4101	100		2%, 0207 , MF	
	R..0054	57.11.4101	100		2%, 0207 , MF	
	R..0055	57.11.4470	47		2%, 0207 , MF	
	R..0056	57.11.4470	47		2%, 0207 , MF	

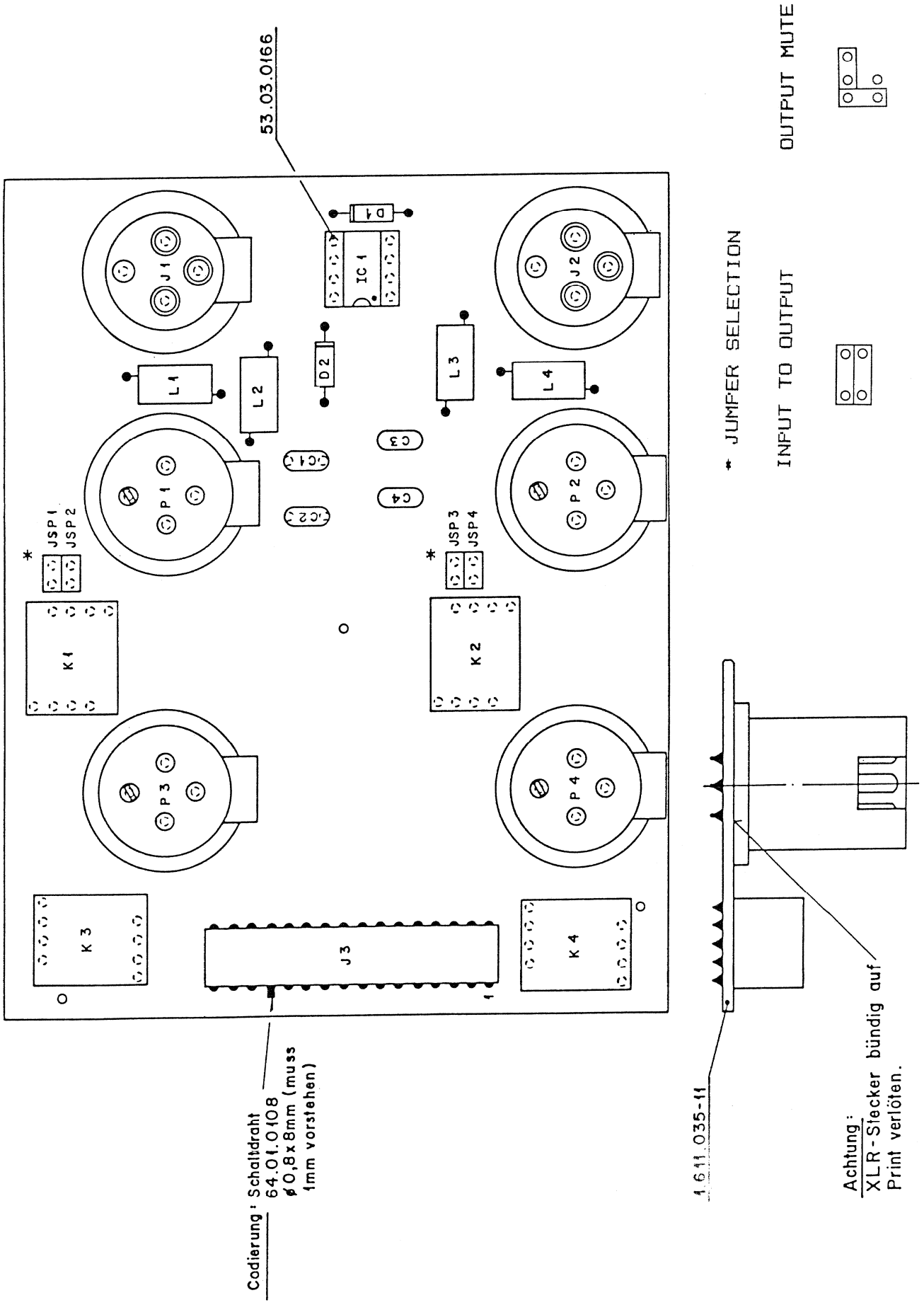
7.8
Connector Board

7.8.1
Circuit Diagram



		DAD-16		
STUDER	STECKERPRINT		1.611.Φ35-ΦΦ	PAGE 1 OF 1

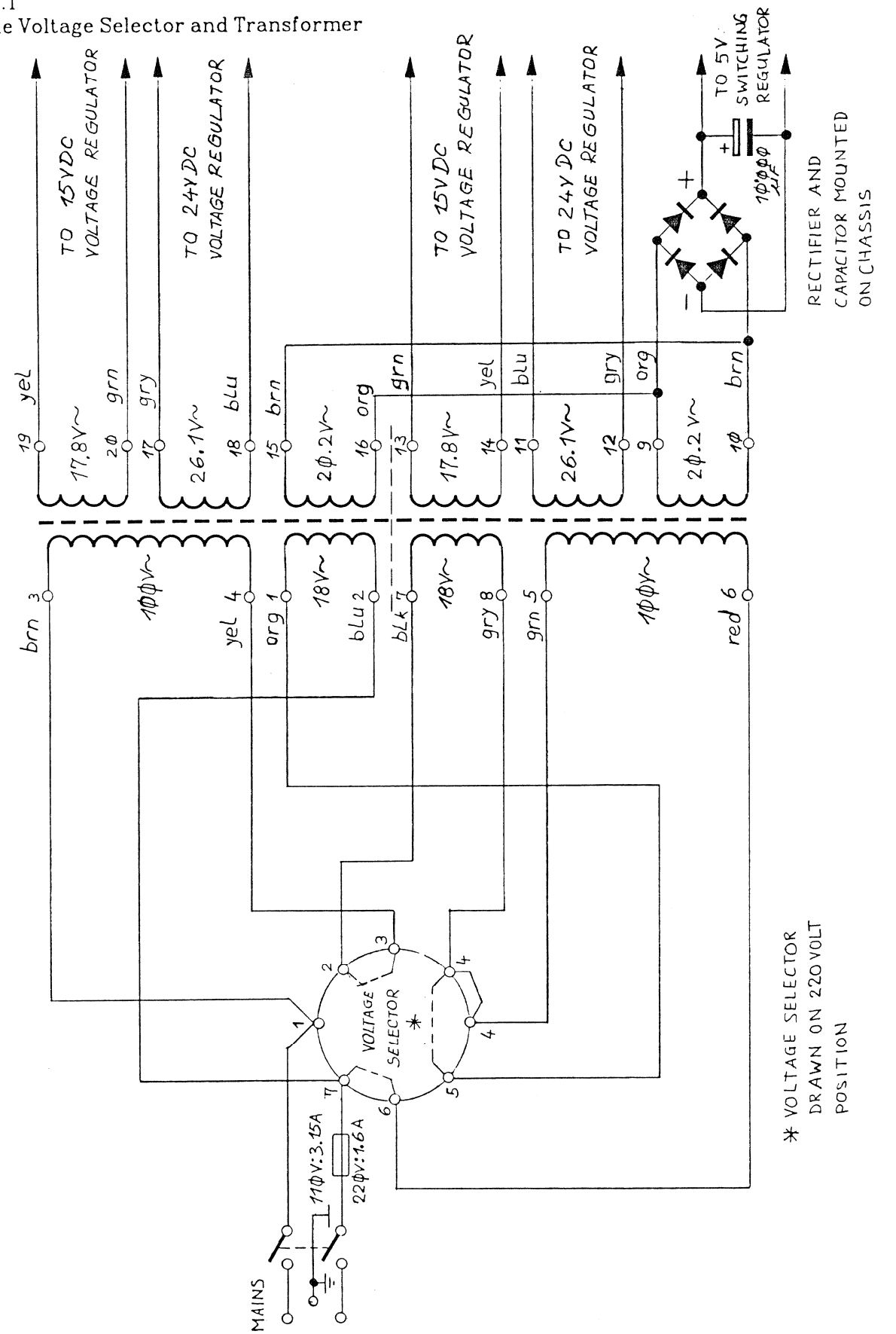
7.8.2
Component Layout



IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	C..0001	59.34.4221	220p	10%, GENERAL PURPOSE	
	C..0002	59.34.4221	220p	10%, GENERAL PURPOSE	
	C..0003	59.34.4221	220p	10%, GENERAL PURPOSE	
	C..0004	59.34.4221	220p	10%, GENERAL PURPOSE	
	D..0001	50.04.0125	1N 4448	DIODE, GENERAL PURPOSE	
	D..0002	50.04.0125	1N 4448	DIODE, GENERAL PURPOSE	
	IC.0001	50.05.0227		SN 75 462 P	
	J..0001	54.21.2002		XLR, 3-POLE,	
	J..0002	54.21.2002		XLR, 3-POLE,	
	J..0003	54.01.0311		CONNECTOR, 16-POL	
	K..0001	56.04.0170	5V,DPDT		
	K..0002	56.04.0170	5V,DPDT		
	K..0003	56.04.0170	5V,DPDT		
	K..0004	56.04.0170	5V,DPDT		
	L..0001	62.01.0115		WIDE-BAND HF-CHOKE	
	L..0002	62.01.0115		WIDE-BAND HF-CHOKE	
	L..0003	62.01.0115		WIDE-BAND HF-CHOKE	
	L..0004	62.01.0115		WIDE-BAND HF-CHOKE	
	MP.0001	1.611.035.11		PCB	
	P..0001	54.21.2001		XLR, 3-POLE,	
	P..0002	54.21.2001		XLR, 3-POLE,	
	P..0003	54.21.2001		XLR, 3-POLE,	
	P..0004	54.21.2001		XLR, 3-POLE,	
	P..0005	54.11.0126	JUMPERPIN	.63*.63, H= 11.3	
	P..0006	54.11.0126	JUMPERPIN	.63*.63, H= 11.3	
	P..0007	54.11.0126	JUMPERPIN	.63*.63, H= 11.3	
	P..0008	54.11.0126	JUMPERPIN	.63*.63, H= 11.3	
	P..0009	54.11.0126	JUMPERPIN	.63*.63, H= 11.3	
	P..0010	54.11.0126	JUMPERPIN	.63*.63, H= 11.3	
	P..0011	54.11.0126	JUMPERPIN	.63*.63, H= 11.3	
	P..0012	54.11.0126	JUMPERPIN	.63*.63, H= 11.3	
	W..0001	54.11.0128		JUMPER 2 * .63	
	W..0002	54.11.0128		JUMPER 2 * .63	
	W..0003	54.11.0128		JUMPER 2 * .63	
	W..0004	54.11.0128		JUMPER 2 * .63	
	XIC0001	53.03.0166		DIL 8-POL	

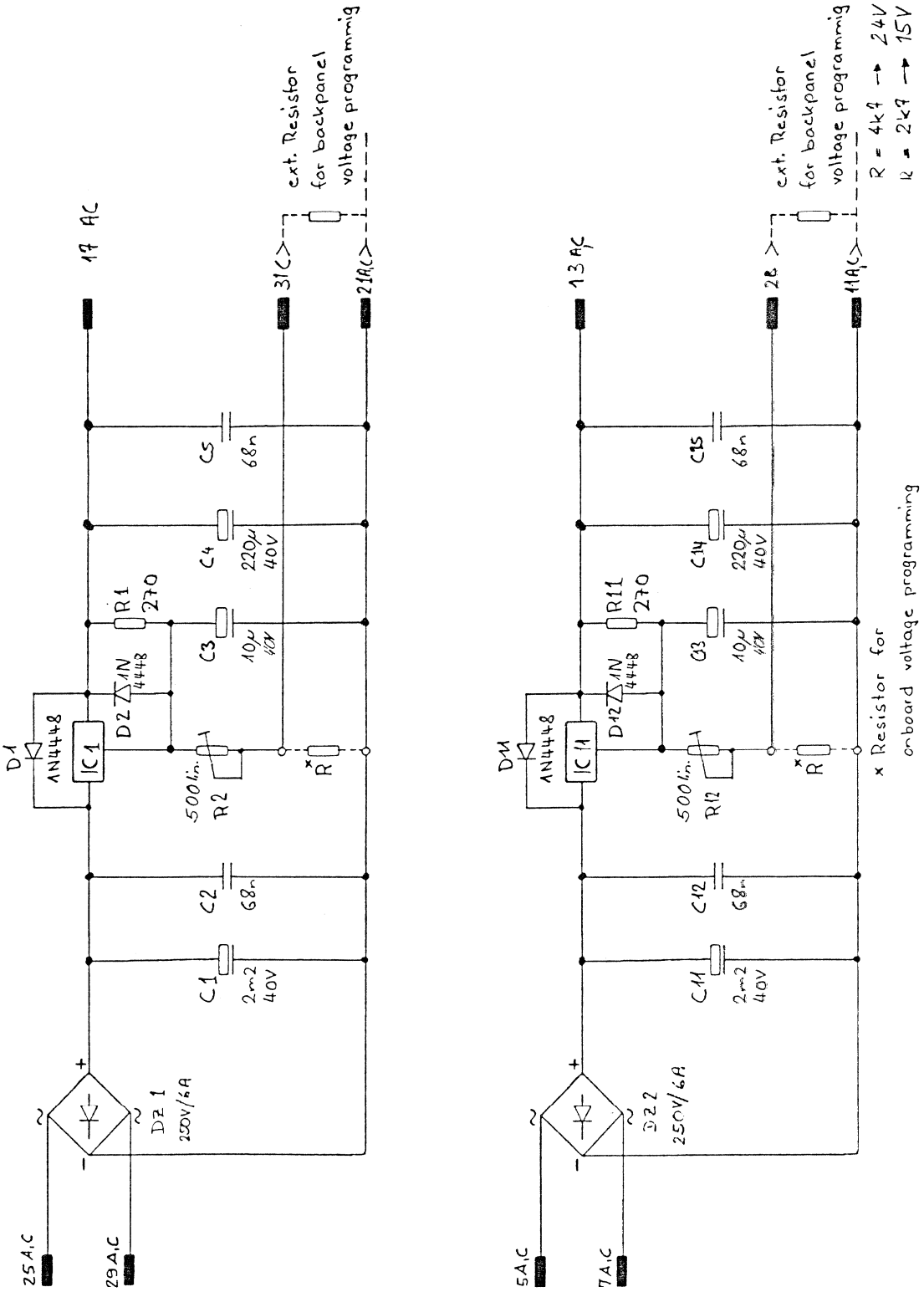
7.9
Power Supply

7.9.1
Line Voltage Selector and Transformer



		PREVIEW UNIT DAD-16		
STUDER	VOLTAGE SELECTOR/TRANSFORMER		1.611.060.00	PAGE 1 OF 1

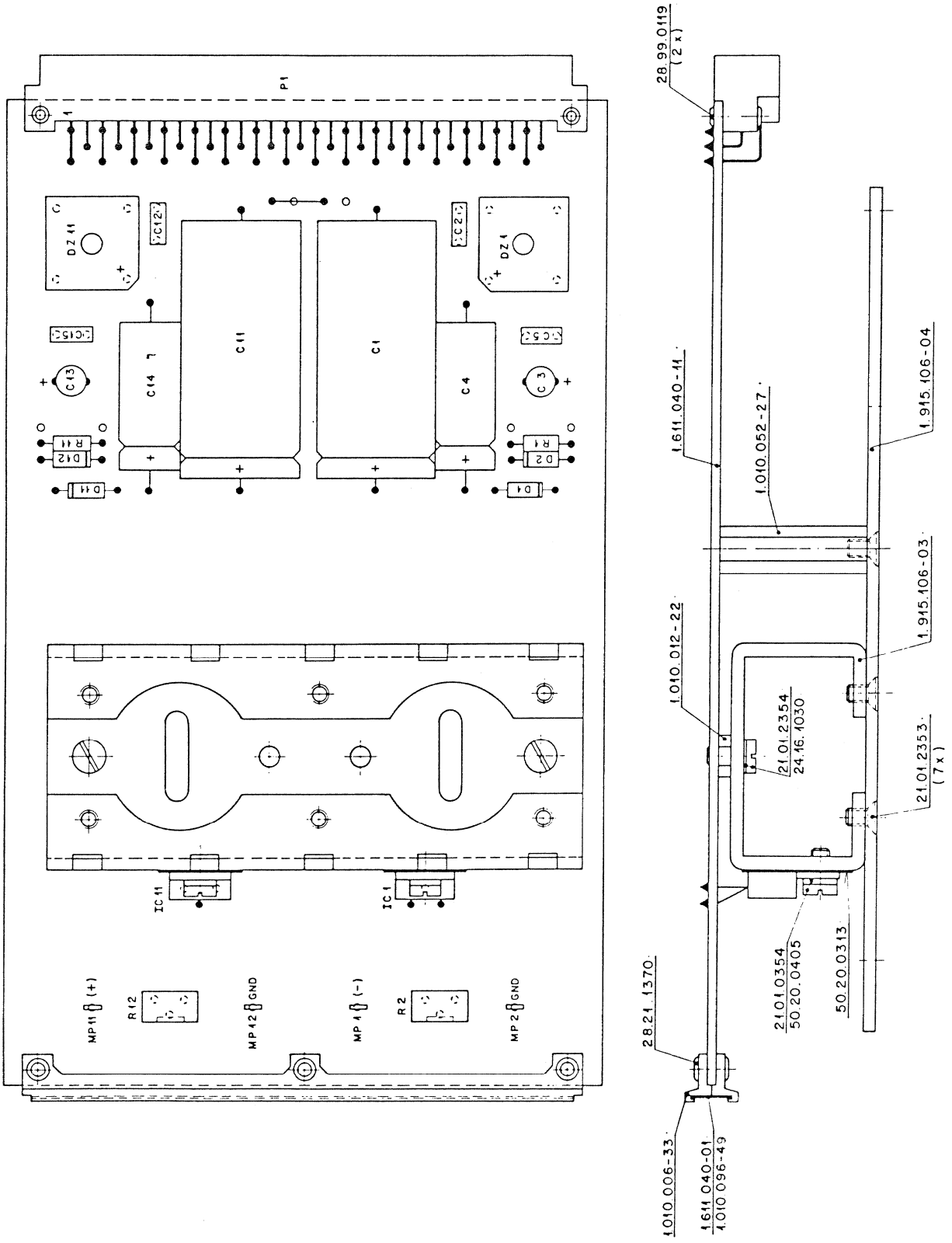
7.9.2
Circuit Diagram of the Linear Voltage Stabilizer



	9. NOV. 82			
STUDER	Stabilizer ±2V... ±30V		1.611.040.00	PAGE 1 OF 1

7.9.3
Component Layout

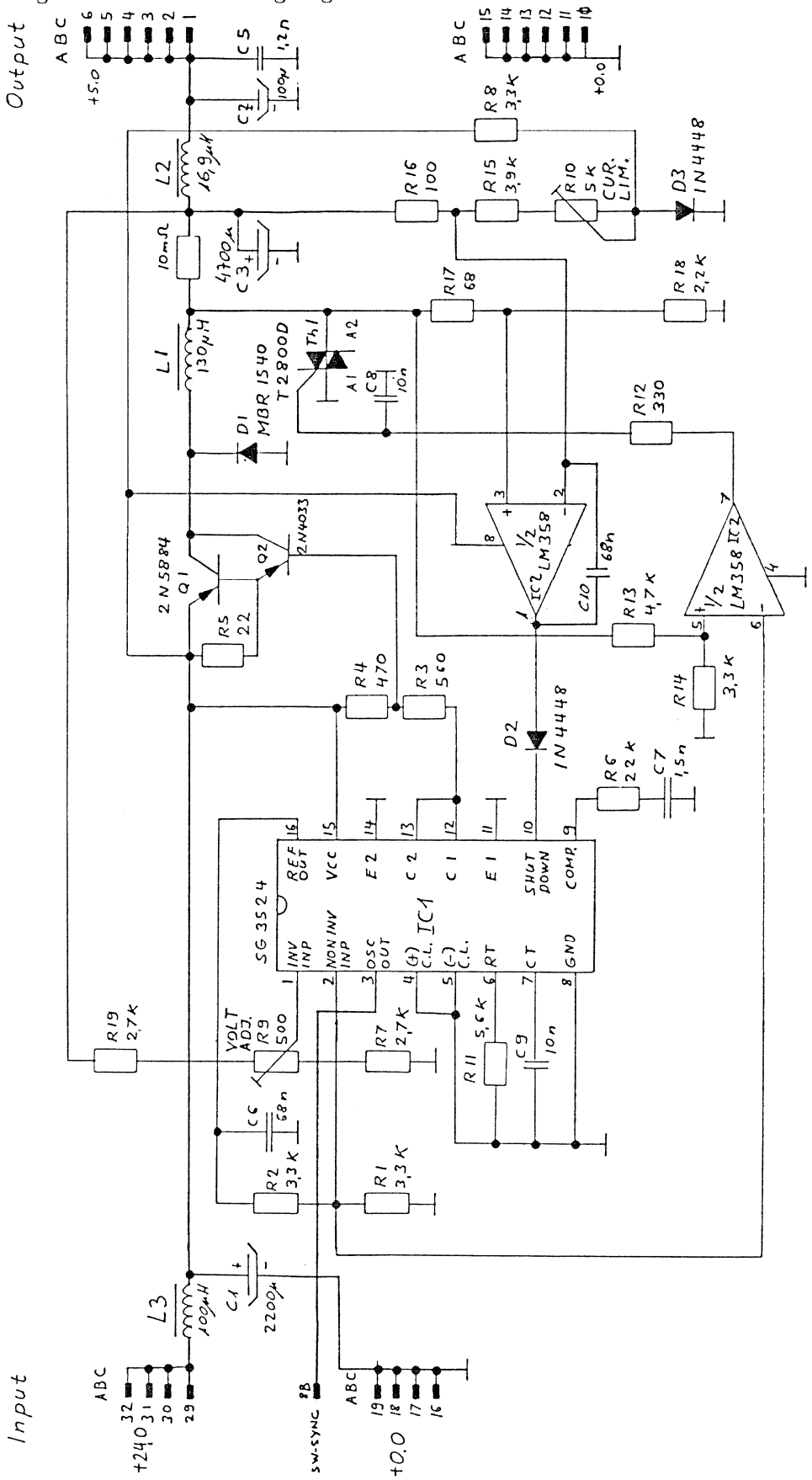
STABILIZER +-2V...+-30V 1.611.040-00



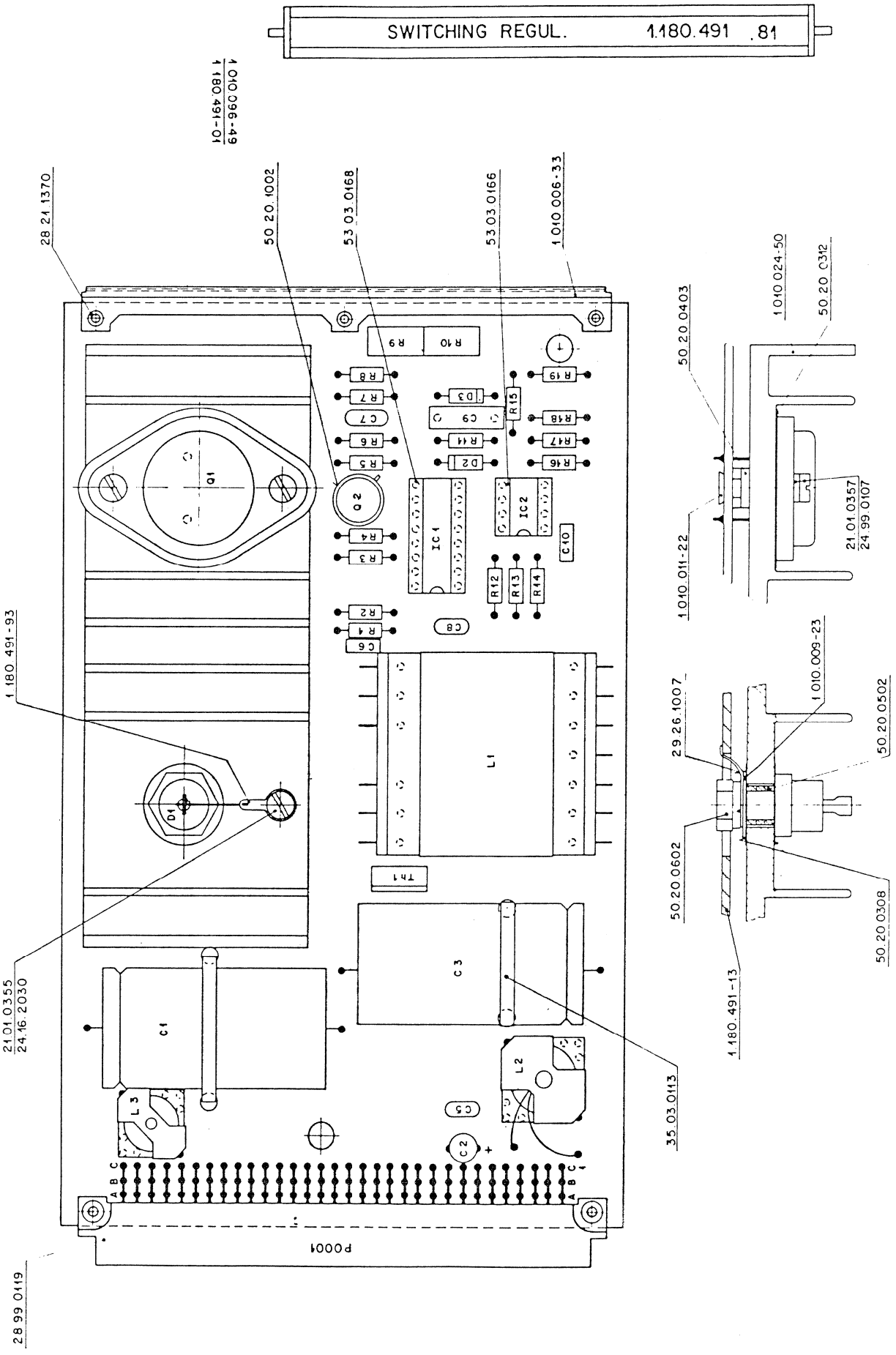
IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	C..0001	59.25.5222	2.2 m	-20%, 40V , EL	
	C..0002	59.99.0205	68 n	-20%, 63V , CER	
	C..0003	59.22.6100	10 u	-10%, 35V , EL	
	C..0004	59.25.5221	220 u	-10%, 40V , EL	
	C..0005	59.99.0205	68 n	-20%, 63V , CER	
	C..0011	59.25.5222	2.2 m	-20%, 40V , EL	
	C..0012	59.99.0205	68 n	-20%, 63V , CER	
	C..0013	59.22.6100	10 u	-10%, 35V , EL	
	C..0014	59.25.5221	220 u	-10%, 40V , EL	
	C..0015	59.99.0205	68 n	-20%, 63V , CER	
	D..0001	50.04.0125	1N 4448	SI	
	D..0002	50.04.0125	1N 4448	SI	
	D..0011	50.04.0125	1N 4448	SI	
	D..0012	50.04.0125	1N 4448	SI	
	DZ.0001	70.01.0227		280V / 6 A SI	
	DZ.0011	70.01.0227		280V / 6 A SI	
	IC.0001	50.10.0104	LM 317	+1.2-37 V ,V-REG	
	IC.0011	50.10.0104	LM 317	+1.2-37 V ,V-REG	
	MP.0001	29.21.6002		TESTPOINT	
	MP.0002	29.21.6002		TESTPOINT	
	MP.0003	1.915.106.03		HEATSINK	
	MP.0011	29.21.6002		TESTPOINT	
	MP.0012	29.21.6002		TESTPOINT	
	P..0001	54.01.0368		CONNECTORSTRIP 3 * 16 EURO WRAP	
	R..0001	57.11.4271	270	2%, 0207 , MF	
	R..0002	58.01.9501	500	10% .5 W , PMG	
	R..0011	57.11.4271	270	2%, 0207 , MF	
	R..0012	58.01.9501	500	10% .5 W , PMG	

7.9.5

Circuit Diagram of the Switching Regulator



7.9.6
Component Layout



IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	C..0001	59.25.5222	2.2 m	-20%, 40V , EL	
	C..0002	59.25.5222	100 U	-20%, 10V , TA	
	C..0003	59.25.3472	4.7 m	-20%, 16V , EL	
	C..0005	59.32.1122	1.2 N	10%, 400V , CER	
	C..0006	59.99.0205	68 n	-50%, 30V , CER	
	C..0007	59.32.1152	1.5 n	10%, 400V , CER	
	C..0008	59.32.3103	10 n	40V , CER	
	C..0009	59.12.4103	10 N	5%, 250V ,	
	C..0010	59.99.0205	68 n	-50%, 30V , CER	
	D..0001	50.04.0511	1N 5828	MBR 1540	
	D..0002	50.04.0125	1N 4448		
	D..0003	50.04.0125	1N 4448		
	IC.0001	50.05.0279	SG 3524 B	N	
	IC.0002	50.05.0286	LM 358		
	L..0001	1.022.199.00	130 UH	6A	
	L..0002	1.022.202.00	16,9 UH	6A	
	L..0003	1.022.201.00	100 UH	1,6A	
	P..0001	54.01.0358		3 * 32 EUERO PRINT	
(00)	Q..0001	50.03.0348	2N 5884	PNP	
	Q..0001	50.99.0106	T2800	400V, 8A , TRIAC	
	Q..0002	50.03.0313	2N 5322	PNP	
	R..0001	57.11.4332	3.3 k	2%, 0207 , MF	
	R..0002	57.11.4332	3.3 k	2%, 0207 , MF	
	R..0003	57.11.4561	560	2%, 0207 , MF	
	R..0004	57.11.4471	470	2%, 0207 , MF	
	R..0005	57.11.4220	22	2%, 0207 , MF	
	R..0006	57.11.4223	22 k	2%, 0207 , MF	
	R..0007	57.11.4272	2.7 k	2%, 0207 , MF	
	R..0008	57.11.4332	3.3 k	2%, 0207 , MF	
	R..0009	58.01.7501	500	10%, .5 W , PMG	
	R..0010	58.01.7502	5 K	10%, .5 W , PMG	

IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	R..0011	57.11.4562	5.6 k	2%, 0207 , MF	
	R..0012	57.11.4331	330	2%, 0207 , MF	
	R..0013	57.11.4472	4.7 k	2%, 0207 , MF	
	R..0014	57.11.4332	3.3 k	2%, 0207 , MF	
	R..0015	57.11.4392	3.9 k	2%, 0207 , MF	
	R..0016	57.11.4101	100	2%, 0207 , MF	
	R..0017	57.11.4680	68	2%, 0207 , MF	
	R..0018	57.11.4222	2.2 k	2%, 0207 , MF	
	R..0019	57.11.4272	2.7 k	2%, 0207 , MF	