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# STUDER 990

## Digitally controlled audio console Service Instructions



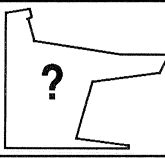
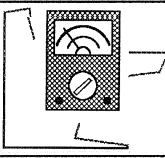
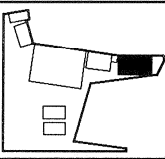
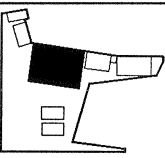
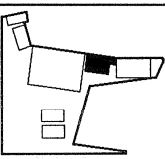
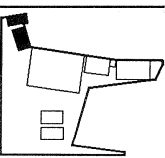
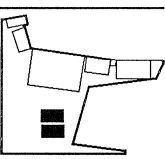
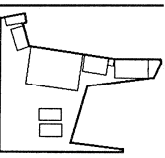
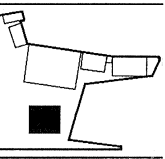
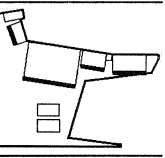
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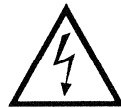




To reduce the risk of electric shock, do not remove covers (or back). No user-serviceable parts inside. Refer servicing to qualified service personnel.

Afin de prévenir un choc électrique, ne pas enlever les couvercles (où l'arrière) de l'appareil. Il ne se trouve à l'intérieur aucune pièce pouvant être réparée par l'utilisateur.

Um die Gefahr eines elektrischen Schlages zu vermeiden, entfernen Sie keine Abdeckungen (oder Rückwand). Überlassen Sie die Wartung und Reparatur dem qualifizierten Fachpersonal.



This symbol is intended to alert the user to presence of uninsulated "**dangerous voltage**" within the apparatus that may be of sufficient magnitude to constitute a risk of electric shock to a person.

Ce symbole indique à l'utilisateur qu'il existe à l'intérieur de l'appareil des "**tensions dangereuses**". Ces tensions élevées entraînent un risque de choc électrique en cas de contact.

Dieses Symbol deutet dem Anwender an, dass im Geräteinnern die Gefahr der Berührung von "**gefährlicher Spannung**" besteht. Die Größe der Spannung kann zu einem elektrischen Schlag führen.



This symbol is intended to alert the user to the presence of **important instructions** for operating and maintenance in the enclosed documentation.

Ce symbole indique à l'utilisateur que la documentation jointe contient d'**importantes instructions** concernant le fonctionnement et la maintenance.

Dieses Symbol deutet dem Anwender an, dass die beigelegte Dokumentation **wichtige Hinweise** für Betrieb und Wartung beinhaltet.

<b>CAUTION:</b>	Lithium Battery. Danger of explosion by incorrect handling. Replace by battery of the same make and type only.
<b>ATTENTION:</b>	Pile au lithium. Danger d'explosion en cas de manipulation incorrecte. Ne remplacer que par un modèle de même type.
<b>ACHTUNG:</b>	Explosionsgefahr bei unsachgemäßem Auswechseln der Lithiumbatterie. Nur durch den selben Typ ersetzen.
<b>ADVARSEL:</b>	Lithiumbatteri. Eksplosionsfare. Udskiftning må kun foretages af en sagkyndig af som beskrevet i servicemanualen (DK).

**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
  - or by 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 THE 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.

**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 bois)
  - Après une électrocution, consulter un médecin.

**ATTENTION!**

NE JAMAIS TOUCHER UNE PERSONNE QUI EST SOUS TENSION, SOUS PEINE DE SUBIR EGALEMENT UNE ELECTROCUTION.

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

**ERSTE HILFE**

(bei Stromunfällen)

1. Bei einem Stromunfall die betroffene Person so rasch wie möglich vom Strom trennen:
  - Durch Ausschalten des Gerätes
  - Ziehen oder Unterbrechen der Netzzuleitung
  - Betroffene Person mit isoliertem Material (Holz, Kunststoff) 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 vornehmen und Arzt verständigen.

## Installation, Betrieb und Entsorgung

Vor der Installation des Gerätes müssen die hier aufgeführten und auch die weiter in dieser Anleitung mit  $\triangle$  bezeichneten Hinweise gelesen und während der Installation und des Betriebes beachtet werden.

Das Gerät und sein Zubehör ist auf allfällige Transportschäden zu untersuchen.

Ein Gerät, das mechanische Beschädigung aufweist oder in welches Flüssigkeit oder Gegenstände eingedrungen sind, darf nicht ans Netz angeschlossen oder muss sofort durch Ziehen des Netzsteckers vom Netz getrennt werden. Das Öffnen und Instandsetzen des Gerätes darf nur vom Fachpersonal unter Einhaltung der geltenden Vorschriften durchgeführt werden.

Falls dem Gerät kein konfektioniertes Netzkabel beiliegt, muss dieses durch eine Fachperson unter Verwendung der mitgelieferten Kabel-Gerätesteckdose IEC320/C13 oder IEC320/C19 und unter Berücksichtigung der einschlägigen, im jeweiligen Lande geltenden Bestimmungen angefertigt werden; siehe Bild unten.

Vor Anschluss des Netzkabels an die Netzsteckdose muss überprüft werden, ob die Stromversorgungs- und Anschlusswerte des Gerätes (Netzspannung, Netzfrequenz) innerhalb der erlaubten Toleranzen liegen. Die im Gerät eingesetzten Sicherungen müssen den am Gerät angebrachten Angaben entsprechen.

Ein Gerät mit einem dreipoligen Gerätestecker (Gerät der Schutzklasse I) muss an eine dreipolige Netzsteckdose angeschlossen und somit das Gerätegehäuse mit dem Schutzleiter der Netzinstallation verbunden werden (Für Dänemark gelten Starkstrombestimmungen, Abschnitt 107).

## Installation, Operation, and Waste Disposal

Before you install the equipment, please read and adhere to the following recommendations and all sections of these instructions marked with  $\triangle$ .

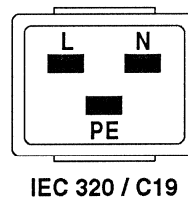
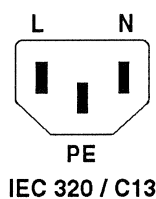
Check the equipment for any transport damage.

A unit that is mechanically damaged or which has been penetrated by liquids or foreign objects must not be connected to the AC power outlet or must be immediately disconnected by unplugging the power cable. Repairs must only be performed by trained personnel in accordance with the applicable regulations.

Should the equipment be delivered without a matching mains cable, the latter has to be prepared by a trained person using the attached female plug (IEC320/C13 or IEC320/C19) with respect to the applicable regulations in your country - see diagram below.

Before connecting the equipment to the AC power outlet, check that the local line voltage matches the equipment rating (voltage, frequency) within the admissible tolerance. The equipment fuses must be rated in accordance with the specifications on the equipment.

Equipment supplied with a 3-pole appliance inlet (equipment conforming to protection class I) must be connected to a 3-pole AC power outlet so that the equipment cabinet is connected to the protective earth conductor of the AC supply (for Denmark the Heavy Current Regulations, Section 107, are applicable).



Female plug (IEC320), view from contact side:

L .....	live; brown	National American Standard: black
N .....	neutral; blue	white
PE ...	protective earth; green and yellow	green

Connecteur femelle (IEC320), vue de la face aux contacts:

L.....	phase, brun	Standard National Américain: noir
N.....	neutre, bleu	blanc
PE.....	terre protective; vert et jaune	vert

Ansicht auf Steckkontakte der Kabel-Gerätesteckdose (IEC320):

L.....	Polleiter, braun	USA-Standard: schwarz
N.....	Neutralleiter, hellblau	weiss
PE.....	Schutzleiter, gelb/grün	grün

Bei der Installation des Gerätes muss **vermieden** werden, dass:

- das Gerät Regen, Feuchtigkeit, direkter Sonneneinstrahlung oder übermässiger Wärmestrahlung von Wärmequellen (Heizgeräte, Heizungen, Spotlampen) ausgesetzt wird
- die für den Betrieb des Gerätes benötigte Luftzirkulation beeinträchtigt und dadurch die zulässige maximale Lufttemperatur der Geräteumgebung überschritten wird (Wärmestau)
- die Belüftungsöffnungen des Gerätes blockiert oder abgedeckt werden.

Das Gerät und seine Verpackung darf nur sachgerecht entsorgt werden. Alle Teile des Gerätes, die gefährliche Stoffe (Quecksilber, Cadmium) enthalten, müssen als Sondermüll behandelt werden.

**Verbrauchte Batterien und Akkus müssen dem Hersteller zur Entsorgung zurückgegeben oder entsprechend den spezifischen Bestimmungen Ihres Landes fachgerecht entsorgt werden.**

## Wartung und Reparatur

Durch Entfernen von Gehäuseteilen, Abschirmungen etc. werden stromführende Teile freigelegt. Aus diesem Grund müssen u.a. die folgenden Grundsätze beachtet werden:

Eingriffe in das Gerät dürfen nur von Fachpersonal unter Einhaltung der geltenden Vorschriften vorgenommen werden.

Vor Entfernen von Gehäuseteilen muss das Gerät ausgeschaltet und vom Netz getrennt werden.

Bei geöffnetem, vom Netz getrenntem Gerät dürfen Teile mit gefährlichen Ladungen (z. B. Kondensatoren, Bildröhren) erst nach kontrollierter Entladung, heiße Bauteile (Leistungshalbleiter, Kühlkörper etc.) erst nach deren Abkühlen berührt werden.

**Bei Wartungsarbeiten am geöffneten, unter Netzspannung stehenden Gerät dürfen blanke Schaltungsteile und metallene Halbleitergehäuse weder direkt noch mit einem nichtisolierten Werkzeug berührt werden.**

Zusätzliche Gefahren bestehen bei unsachgemässer Handhabung besonderer Komponenten:

- **Explosionsgefahr** bei Lithiumzellen, Elektrolyt-Kondensatoren und Leistungshalbleitern
- **Implosionsgefahr** bei evakuierten Anzeigeeinheiten
- **Strahlungsgefahr** bei Lasereinheiten (nichtionisierend), Bildröhren (ionisierend)
- **Verätzungsgefahr** bei Anzeigeeinheiten (LCD) und Komponenten mit flüssigem Elektrolyt.

**Solche Komponenten dürfen nur von dafür ausgebildetem Fachpersonal unter Verwendung von vorgeschriebenen Schutzmitteln (u.a. Schutzbrille, Handschuhe) gehandhabt werden.**

The equipment installation **must satisfy** the following requirements:

- Protection against rain, humidity, direct solar irradiation or strong thermal radiation from heat sources (heaters, radiators, spotlights).
- Unobstructed air circulation so that the maximum air temperature in the equipment environment will not be exceeded (no heat accumulation).
- Ventilation louvers of the equipment must not be blocked or covered.

The equipment and its packing materials should ultimately be disposed off in accordance with the applicable regulations only. All parts of the equipment that contain hazardous substances (mercury, cadmium) must be treated as toxic waste.

**Weak batteries or exhausted rechargeable batteries must be returned to the manufacturer for competent disposal or must be disposed of in accordance with the environmental protection regulations applicable for your country.**

## Maintenance and Repair

The removal of housing parts, shields, etc. exposes energized parts. For this reason the following precautions should be observed:

Maintenance should only be performed by trained personnel in accordance with the applicable regulations. The equipment should be switched off and disconnected from the AC power outlet before any housing parts are removed.

Even after the equipment has been disconnected from the power, parts with hazardous charges (e.g. capacitors, picture tubes) should only be touched after they have been properly discharged. Hot components (power semiconductors, heat sinks, etc.) should only be touched after they have cooled off.

**If maintenance is performed on a unit that is opened and switched on, no uninsulated circuit components and metallic semiconductor housings should be touched neither with your bare hands nor with uninsulated tools.**

Certain components pose additional hazards:

- **Explosion hazard** from lithium batteries, electrolytic capacitors and power semiconductors
- **Implosion hazard** from evacuated display units
- **Radiation hazard** from laser units (non-ionizing), picture tubes (ionizing)
- **Caustic effect** of display units (LCD) and such components containing liquid electrolyte.

**Such components should only be handled by trained personnel who are properly protected (e.g. by goggles, gloves).**



**Für Wartung und Reparatur der sicherheitsrelevanten Teile des Gerätes darf nur Ersatzmaterial nach Herstellerspezifikation verwendet werden.**

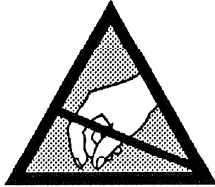
Das Gerät muss ordnungsgemäss und regelmässig gewartet und somit in sicherem Zustand erhalten werden. Bei ungenügender Wartung oder bei Änderungen der sicherheitsrelevanten Teile des Gerätes erlischt die entsprechende Produkthaftung des Herstellers.

**For maintenance work and repair on components that influence the equipment safety, only replacement material conforming to the manufacturer's specifications may be used.**

The equipment should be properly serviced in regular intervals and be maintained in safe operating condition. If the equipment is not properly maintained or if any modifications are made to components that influence safety, the manufacturer's product liability gets void.

## Elektrostatische Entladung (ESD) bei Wartung und Reparatur

## Electrostatic Discharge (ESD) during Maintenance and Repair



**ATTENTION:**

Observe precautions for handling devices sensitive to electrostatic discharge!

**ATTENTION:**

Respecter les précautions d'usage concernant la manipulation de composants sensibles à l'électricité statique!

**ACHTUNG:**

Vorsichtsmassnahmen bei Handhabung elektrostatisch entladungsgefährdeter Bauelemente beachten!

Viele ICs und andere Halbleiter sind empfindlich gegen elektrostatische Entladung (ESD). Unfachgerechte Behandlung von Baugruppen mit solchen Komponenten bei Wartung und Reparatur kann deren Lebensdauer drastisch vermindern.

Bei der Handhabung der ESD-empfindlichen Komponenten sind u.a. folgende Regeln zu beachten:

- ESD-empfindliche Komponenten dürfen ausschliesslich in dafür bestimmten und bezeichneten Verpackungen gelagert und transportiert werden.
- Unverpackte, ESD-empfindliche Komponenten dürfen nur in den dafür eingerichteten Schutzzonen (EPA, z.B. Gebiet für Feldservice, Reparatur- oder Serviceplatz) gehandhabt und nur von Personen berührt werden, die durch ein Handgelenkband mit Serienwiderstand mit dem Massepotential des Reparatur- oder Serviceplatzes verbunden sind. Das gewartete oder reparierte Gerät wie auch Werkzeuge, Hilfsmittel, EPA-taugliche (elektrisch halbleitende) Arbeits-, Ablage- und Bodenmatten müssen ebenfalls mit diesem Potential verbunden sein.
- Die Anschlüsse der ESD-empfindlichen Komponenten dürfen unkontrolliert weder mit elektrostatisch aufladbaren (Gefahr von Spannungsdurchschlag), noch mit metallischen Oberflächen (Schockentladungsgefahr) in Berührung kommen.
- Um undefinierte transiente Beanspruchung der Komponenten und deren eventuelle Beschädigung durch unerlaubte Spannung oder Ausgleichsströme zu vermeiden, dürfen elektrische Verbindungen nur am abgeschalteten Gerät und nach dem Abbau allfälliger Kondensatorladungen hergestellt oder getrennt werden.

Many ICs and semiconductors are sensitive to electrostatic discharge (ESD). The life of components containing such elements can be drastically reduced by improper handling during maintenance and repair work.

Please observe the following rules when handling ESD sensitive components:

- ESD sensitive components should only be stored and transported in the packing material specifically provided for this purpose.
- Unpacked ESD sensitive components should only be handled in ESD protected areas (EPA, e.g. area for field service, repair or service bench) and only be touched by persons who wear a wristlet that is connected to the ground potential of the repair or service bench by a series resistor. The equipment to be repaired or serviced and all tools, aids, as well as electrically semiconducting work, storage and floor mats should also be connected to this ground potential.
- The terminals of ESD sensitive components must not come in uncontrolled contact with electrostatically chargeable (voltage puncture) or metallic surfaces (discharge shock hazard).
- To prevent undefined transient stress of the components and possible damage due to inadmissible voltages or compensation currents, electrical connections should only be established or separated when the equipment is switched off and after any capacitor charges have decayed.

**SMD-Bauelemente**

Der Austausch von SMD-Bauelementen ist ausschliesslich geübten Fachleuten vorbehalten. Für verwüstete Platinen können keine Ersatzansprüche geltend gemacht werden. Beispiele für korrekte und falsche SMD-Lötverbindungen in der Abbildung weiter unten.

Bei Studer werden keine handelsüblichen SMD-Teile bewirtschaftet. Für Reparaturen sind die notwendigen Bauteile lokal zu beschaffen. Die Spezifikationen aller Komponenten finden Sie in den Positionslisten im Schemateil.

Spezialkomponenten sind in der Positionsliste mit einer Artikelnummer versehen und können bei Studer unter dieser Nummer bezogen werden.

**SMD Components**

SMDs should only be replaced by skilled specialists. No warranty claims will be accepted for circuit boards that have been ruined. Proper and improper SMD soldering joints are depicted below.

Studer does not keep any commercially available SMDs in stock. For repairs the corresponding devices should be purchased locally. The specifications of all components can be found in the parts lists in the diagram section.

Special components having a part number in the parts list can be ordered from Studer by specifying this number.

<p><b>Demontage/Dismounting</b></p>	
<p><b>Montage/Mounting</b></p>	<p><b>Beispiele/Examples</b></p>

## Störstrahlung und Störfestigkeit

Das Gerät entspricht den Schutzanforderungen auf dem Gebiet der elektromagnetischen Phänomene, die u.a. in den Richtlinien 89/336/EWG und FCC, Part 15, aufgeführt sind :

1. Die vom Gerät erzeugten elektromagnetischen Ausstrahlungen sind soweit begrenzt, dass ein bestimmungsgemässer Betrieb anderer Geräte und Systeme möglich ist.
2. Das Gerät weist eine angemessene Festigkeit gegen elektromagnetische Störungen auf, so dass sein bestimmungsgemässer Betrieb möglich ist.

Das Gerät wurde getestet und erfüllt die Bedingungen der im Kapitel "Technische Daten" aufgeführten EMV-Standards. Die Limiten dieser Standards gewährleisten mit einer angemessenen Wahrscheinlichkeit sowohl einen Schutz der Umgebung wie auch entsprechende Störfestigkeit des Gerätes. Eine absolute Garantie, dass keine unerlaubte elektromagnetische Beeinträchtigung während des Gerätebetriebes entsteht, ist jedoch nicht gegeben.

Um die Wahrscheinlichkeit solcher Beeinträchtigung weitgehend auszuschliessen, sind u.a. folgende Massnahmen zu beachten:

- Installieren Sie das Gerät gemäss den Angaben in der Bedienungsanleitung, und verwenden Sie das mitgelieferte Zubehör.
- Verwenden Sie im System und in der Umgebung, in denen das Gerät eingesetzt ist, nur Komponenten (Anlagen, Geräte), die ihrerseits die Anforderungen der obenerwähnten Standards erfüllen.
- Sehen Sie ein Erdungskonzept des Systems vor, das sowohl die Sicherheitsanforderungen (die Erdung der Geräte gemäss Schutzklasse I mit einem Schutzleiter muss gewährleistet sein), wie auch die EMV-Belange berücksichtigt. Bei der Entscheidung zwischen stern- oder flächenförmiger bzw. kombinierter Erdung sind Vor- und Nachteile gegeneinander abzuwägen.
- Benutzen Sie abgeschirmte Kabel für die Verbindungen, für welche eine Abschirmung vorgesehen ist. Achten Sie auf einwandfreie, grossflächige, korrosionsbeständige Verbindung der Abschirmung zum entsprechenden Steckeranschluss bzw. zum Steckergehäuse. Beachten Sie, dass eine nur an einem Ende angeschlossene Kabelabschirmung als Sende- bzw. Empfangsantenne wirken kann (z.B. bei wirksamer Kabellänge von 5 m oberhalb von 10 MHz), und dass die Flanken der digitalen Kommunikationssignale hochfrequente Aussendungen verursachen (z.B. LS- oder HC-Logik bis 30 MHz).
- Vermeiden Sie Bildung von Stromschleifen oder vermindern Sie deren unerwünschte Auswirkung, indem Sie deren Fläche möglichst klein halten und den darin fliessenden Strom durch Einfügen einer Impedanz (z.B. Gleichtakt-drossel) reduzieren.

## Electromagnetic Compatibility

The equipment conforms to the protection requirements relevant to electromagnetic phenomena that are listed in the guidelines 89/336/EC and FCC, part 15.

1. The electromagnetic interference generated by the equipment is limited in such a way that other equipment and systems can be operated normally.
2. The equipment is adequately protected against electromagnetic interference so that it can operate correctly.

The equipment has been tested and conforms to the EMC standards applicable to residential, commercial and light industry, as listed in the section "Technical Data". The limits of these standards reasonably ensure protection of the environment and corresponding noise immunity of the equipment. However, it is not absolutely warranted that the equipment will not be adversely affected by electromagnetic interference during operation.

To minimize the probability of electromagnetic interference as far as possible, the following recommendations should be followed:

- Install the equipment in accordance with the operating instructions. Use the supplied accessories.
- In the system and in the vicinity where the equipment is installed, use only components (systems, equipment) that also fulfill the above EMC standards.
- Use a system grounding concept that satisfies the safety requirements (protection class I equipment must be connected with a protective ground conductor) that also takes into consideration the EMC requirements. When deciding between radial, surface or combined grounding, the advantages and disadvantages should be carefully evaluated in each case.
- Use shielded cables where shielding is specified. The connection of the shield to the corresponding connector terminal or housing should have a large surface and be corrosion-proof. Please note that a cable shield connected only single-ended can act as a transmitting or receiving antenna (e.g. with an effective cable length of 5 m, the frequency is above 10 MHz) and that the edges of the digital communication signals cause high-frequency radiation (e.g. LS or HC logic up to 30 MHz).
- Avoid current loops or reduce their adverse effects by keeping the loop surface as small as possible, and reduce the noise current flowing through the loop by inserting an additional impedance (e.g. common-mode rejection choke).



**Class A Equipment - FCC Notice**

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

**Caution:**

**Any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment. Also refer to relevant information in this manual.**

**CE-Konformitätserklärung**

Wir,

Studer Professional Audio AG,  
CH-8105 Regensdorf,

erklären in eigener Verantwortung, dass das in dieser Anleitung beschriebene Produkt

- 990, Mischpult,

auf das sich diese Erklärung bezieht, entsprechend den Bestimmungen der EU-Richtlinien und deren Ergänzungen


- Elektromagnetische Verträglichkeit (EMV):  
89/336/EWG + 92/31/EWG + 93/68/EWG
- Niederspannung:  
73/23/EWG, 93/68/EWG

mit den Normen und normativen Dokumenten übereinstimmt, die in den Kapiteln "Technische Daten" (Sicherheits- und EMV-Standards) dieser Anleitung aufgeführt sind.

Regensdorf, 16. Juni 1995



B. Hochstrasser, Geschäftsleiter



P. Fiala, Leiter QS

**CE Declaration of Conformity**

We,

Studer Professional Audio AG,  
CH-8105 Regensdorf,

declare under our sole responsibility that the product described in this manual

- 990, Mixing Console,

to which this declaration relates, according to following regulations of EU directives and amendments

- Electromagnetic Compatibility (EMC):  
89/336/EEC + 92/31/EEC + 93/68/EEC
- Low Voltage (LVD):  
73/23/EEC + 93/68/EEC

is in conformity with the standards or other normative documents which are listed in the sections "Technical Data" (security and EMC standards) in this manual.

Regensdorf, June 16, 1995



B. Hochstrasser, Managing Director



P. Fiala, Manager QA

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<b>Stereo Input Unit MCH</b>	<b>1.990.235.00</b>	<b>4</b>
<b>Stereo Input Unit Universal 'B'</b>	<b>1.990.240.00</b>	<b>4</b>
<b>Stereo Input Unit Universal MCH</b>	<b>1.990.230.00</b>	<b>4</b>
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# 1 General

## 1.1 Important information

- The mixing console should only be aligned after the machine has attained normal operating temperature.
- For measuring the levels on the line outputs the later must be loaded with  $\geq 10k\Omega$ .
- Perform the steps in the specified sequence. Many steps are prerequisite for the subsequent alignments.
- When you install the modules, firmly tighten all the fixing screws. Solid ground connection and the specified EMC values are only achievable if the modules are correctly fastened.

## 1.2 Level definition

**Level specifications:**

The nominal levels specified in dBu are based on a fixed voltage value as the reference variable:

<b>0 dBu <math>\cong</math> 0,775 V<sub>eff</sub></b>
---

**Nominal level in dBu:**

<b>Nominal level = Level at full amplitude</b>
--

The nominal level corresponds to the level at full amplitude. The terms nominal level, studio level and line level are used as synonyms. The nominal level is used as the 0dB value for all relative level specifications.

**Output level:**

<b>0 dB PPM</b>	<b>=</b>	<b>Nominal level</b>
<b>0 VU</b>	<b>=</b>	<b>Nominal level minus 6 dB*</b>

\* 6dB correspond to an expanded value for the VU instrument lead.

**PPM consoles**

As quasi peak value instruments the peak program meters indicate the sine voltage as an RMS value. A signal with nominal value results in an indication of 0dB.

**VU consoles**

For a continuous tone VU instruments indicate a value that is too high by the magnitude of the lead. For a 0VU reading the level of the test signal must be reduced by the amount of the lead.  
 VU consoles are frequently set to a nominal value of +10dBu, that is, with a 6dB lead of the VU meter a level of +4dBu is indicated at 0VU.

## 1.3 Measuring instruments

The voltmeter and the function generator must be equipped with balanced signal connections.

**Note:** If no measuring instrument with balanced connections is available, unbalanced inputs should be connected via a signal transformer.

## Voltage level ↔ Decibel

$\frac{U1}{U2}$	$\mu V$	$dBu$			$\frac{U1}{U2}$	$\mu V$	$dBu$		
	mV					mV			
	V	$dBu$	$dBu$	$dBu$		V	$dBu$	$dBu$	$dBu$
1	<b>0,775</b>	±0	-60	-120	31,6	<b>24,5</b>	+30	-30	-90
1,12	<b>0,87</b>	+1	-59	-119	35,5	<b>27,5</b>	+31	-29	-89
1,26	<b>0,98</b>	+2	-58	-118	39,8	<b>30,8</b>	+32	-28	-88
1,41	<b>1,09</b>	+3	-57	-117	44,7	<b>34,6</b>	+33	-27	-87
1,59	<b>1,23</b>	+4	-56	-116	50,1	<b>38,8</b>	+34	-26	-86
1,78	<b>1,38</b>	+5	-55	-115	56,2	<b>43,6</b>	+35	-25	-85
2,00	<b>1,55</b>	+6	-54	-114	63,1	<b>48,9</b>	+36	-24	-84
2,24	<b>1,73</b>	+7	-53	-113	70,8	<b>54,8</b>	+37	-23	-83
2,51	<b>1,95</b>	+8	-52	-112	79,4	<b>61,5</b>	+38	-22	-82
2,82	<b>2,18</b>	+9	-51	-111	89,1	<b>69,0</b>	+39	-21	-81
3,16	<b>2,45</b>	+10	-50	-110	100	<b>77,5</b>	+40	-20	-80
3,55	<b>2,75</b>	+11	-49	-109	112	<b>86,9</b>	+41	-19	-79
3,98	<b>3,08</b>	+12	-48	-108	126	<b>97,5</b>	+42	-18	-78
4,47	<b>3,46</b>	+13	-47	-107	141	<b>109,4</b>	+43	-17	-77
5,01	<b>3,88</b>	+14	-46	-106	159	<b>122,8</b>	+44	-16	-76
5,62	<b>4,36</b>	+15	-45	-105	178	<b>137,7</b>	+45	-15	-75
6,31	<b>4,89</b>	+16	-44	-104	200	<b>154,5</b>	+46	-14	-74
7,08	<b>5,48</b>	+17	-43	-103	224	<b>173,4</b>	+47	-13	-73
7,94	<b>6,15</b>	+18	-42	-102	251	<b>194,6</b>	+48	-12	-72
8,91	<b>6,90</b>	+19	-41	-101	282	<b>218,3</b>	+49	-11	-71
10,0	<b>7,75</b>	+20	-40	-100	316	<b>244,9</b>	+50	-10	-70
11,2	<b>8,69</b>	+21	-39	-99	355	<b>274,8</b>	+51	-9	-69
12,6	<b>9,75</b>	+22	-38	-98	398	<b>308,4</b>	+52	-8	-68
14,1	<b>10,9</b>	+23	-37	-97	447	<b>346,0</b>	+53	-7	-67
15,8	<b>12,3</b>	+24	-36	-96	501	<b>388,2</b>	+54	-6	-66
17,8	<b>13,8</b>	+25	-35	-95	562	<b>435,6</b>	+55	-5	-65
20,0	<b>15,5</b>	+26	-34	-94	631	<b>488,7</b>	+56	-4	-64
22,4	<b>17,3</b>	+27	-33	-93	708	<b>548,4</b>	+57	-3	-63
25,1	<b>19,5</b>	+28	-32	-92	794	<b>615,3</b>	+58	-2	-62
28,2	<b>21,8</b>	+29	-31	-91	891	<b>690,4</b>	+59	-1	-61
31,6	<b>24,5</b>	+30	-30	-90	1000	<b>774,6</b>	+60	±0	-60

## 2 Alignment of the 990 power supply system

This alignment instruction applies to all power supply types:

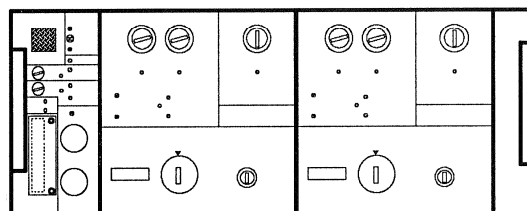
■ Dual power	Supply/master	1.918.420
■ Single power	Supply/master	1.918.421
■ Dual power	Supply/slave	1.918.422
■ Single power	Supply/slave	1.918.423

**IMPORTANT:** The settings for the main and standby power supply (change-over) are identical, except that the voltages of the standby power supply must be set lower by 0.2V.

- Required measuring instruments:**
- Digital multimeter Ri ≥ 1MΩ
  - Diagnostic board 1.918.080

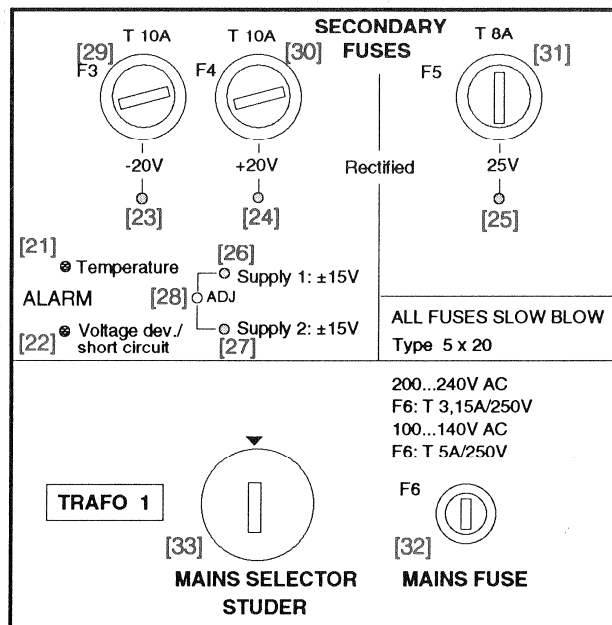
### 2.1 Dual power supply / MASTER

1.918.420



#### 2.1.1 ±15V I/II transformer block 1 (left)

- Switch on the power supply
- Connect the diagnostic board to the large connector labeled 'Diagnostics'
- Measure the +15V (L1) on the diagnostic board  
0V: pin 20 / +15V: pin 28
- With trimmer **ADJ** [28] adjust the left-hand transformer block to **+15.6V**.



The corresponding voltages -15V of L1 or ±15V of L2 are automatically set by the tracking, that is, for each transformer block the adjustment of only one voltage is required.

**Check:** Check the remaining voltages (-15V I; ±15V II):

-15V L1 0V: pin 20 / -15V: pin 26  
 +15V L2 0V: pin 20 / +15V: pin 24  
 -15V L2 0V: pin 20 / -15V: pin 22

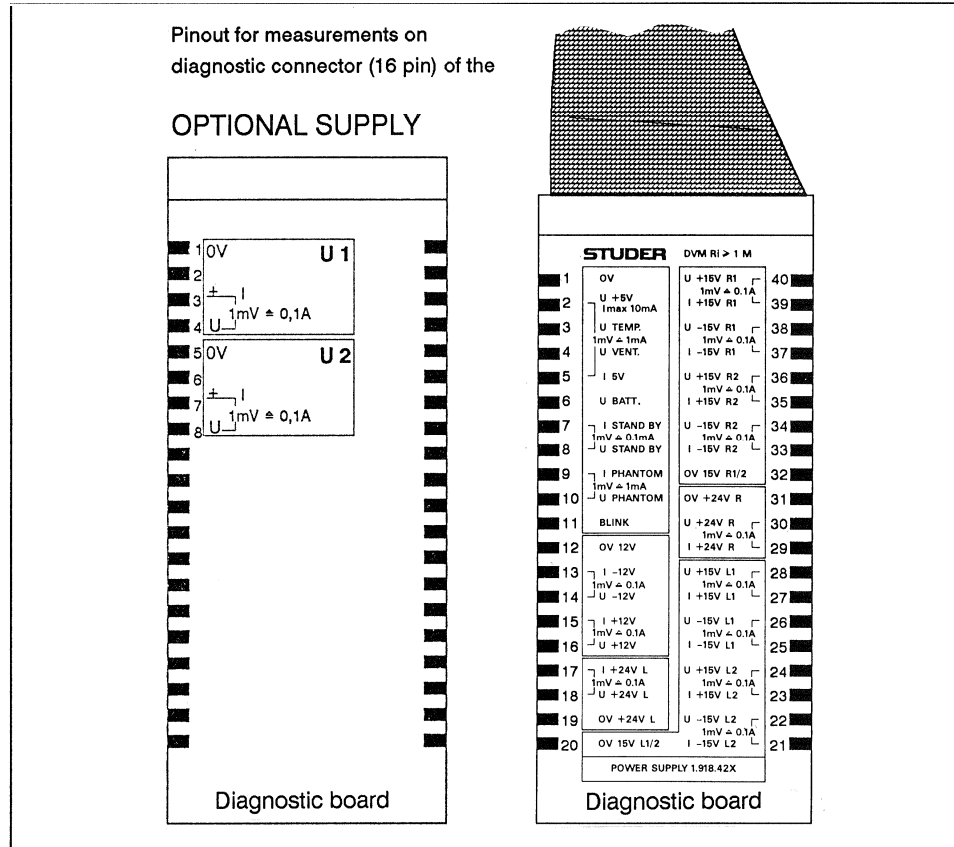


Fig. 1 Diagnostic board 1.918.080.00

### 2.1.2 ±15V I/II transformer block 2 (right)

Both transformer blocks are identical. All voltages of both units can be measured on the diagnostic board.

- Measure the +15V (R1) on the diagnostic board.  
0V: pin 32 / +15V: pin 40
- With trimmer ADJ [28] adjust the right-hand transformer block to +15.6V.

**Check:** Check the remaining voltages (-15V I; ±15V II):

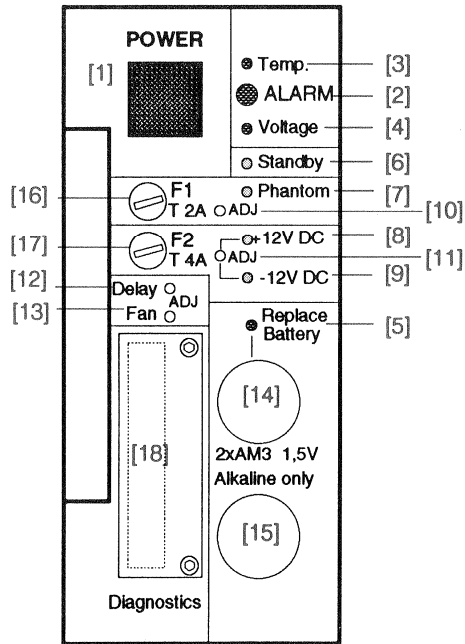
-15V R1 0V: pin 32 / -15V: pin 38  
 +15V R2 0V: pin 32 / +15V: pin 36  
 -15V R2 0V: pin 32 / -15V: pin 34



2.1.3 ±12V supply

- Measure the +12V on the diagnostic board.  
0V: pin 12 / +12V: pin 16
- With trimmer **ADJ** [11] adjust the standby/phantom unit to +12.2V.

Standby / Phantom



**Check:** Check the -12V on pin 14.

2.1.4 Phantom supply

The phantom supply is specified by the customer and is either +12V, +24V or +48V. For this purpose the soldering straps on the transformer 1.910.503 can be changed as shown in Fig. 2. In addition the setting of jumper J7 must be changed on the Phantom/S.B./±12V board 1.918.088 (see Fig. 3).

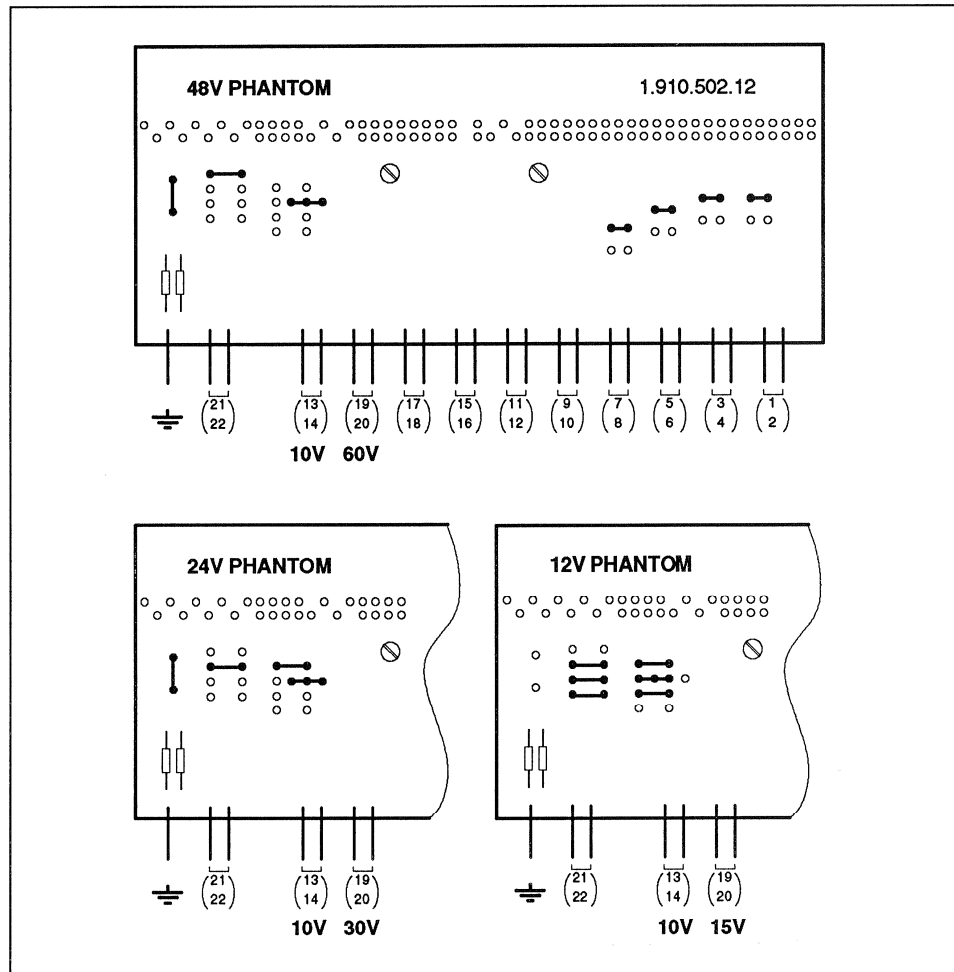


Fig. 2 The phantom supply can be set with soldering straps on the transformer board.

**Note:** If you change the phantom voltage also the phantom resistors on the Connection board 1.992.160 of the input units must be adapted. The resistors are located somewhat concealed next to connectors P9 (top connector for input units). On mono units two resistors must be changed per channel. For stereo universal units four resistors must be changed.

Phantom supply	R1...R8 R11...R18	Tolerance
48V	6,8kΩ	0,1%
24V	4,3kΩ	0,1%
12V	680Ω	0,1%

- Alignment**
- Measure the phantom voltage on the diagnostic board.  
0V: pin 1 / UPHANTOM: Pin 10
  - With trimmer ADJ [10] on the standby/phantom unit align the supply voltage to +12.2V or +24.2V or +48.2V.

2.1.5 Fan adjustment

The fan operates at two speeds. If the temperature threshold is exceeded it switches automatically to the maximum speed. Below this temperature it is possible to define with a jumper whether the fan should turn at maximum speed, reduced speed, or not at all.

Jumper setting

On the circuit board 1.918.088 (Phantom standby / ±12V board) and 1.918.089 (Feed Through board) jumpers **J6** define the behavior of the fan below the switching threshold  $T_{vent}$ .

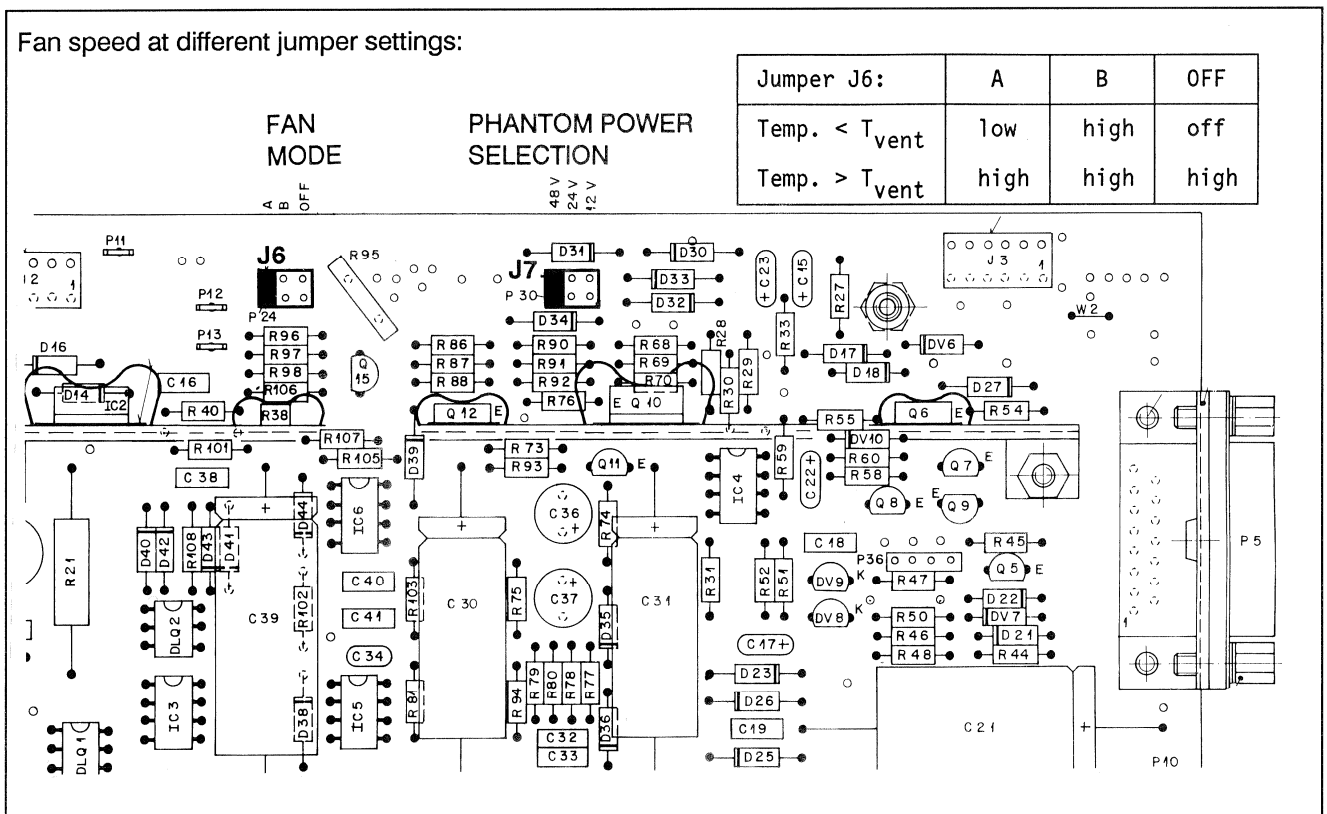


Fig. 3 Phantom/Standby/±12V Board 1.918.088 and Feed Through Board 1.918.089: Jumper settings for ventilator and phantom supply.

Factory setting

**J6** (fan mode) in position A  
**J7** (phantom power) as specified by customer

Switching temperature  $T_{vent}$

The temperature above which the fan runs at full speed can be set with trimmer FAN [13]:

- Connect the diagnostic board (1.918.080) to the DIAGNOSTICS [18] connector.  $U_{temp}$  and  $U_{vent}$  correlate with the temperature as follows:

The voltage  $U_{vent}$  represents the highest value of the different temperature sensors: Transformer 1; transformer 2; heat sink 1; heat sink 2; heat sink standby/phantom.

- Measure  $U_{vent}$  and set the switching temperature with trimmer FAN [13]. The fan is switched to full speed as soon as  $U_{temp}$  exceeds  $U_{vent}$ .
- Repeat this adjustment for all power supplies (slave and optional units).

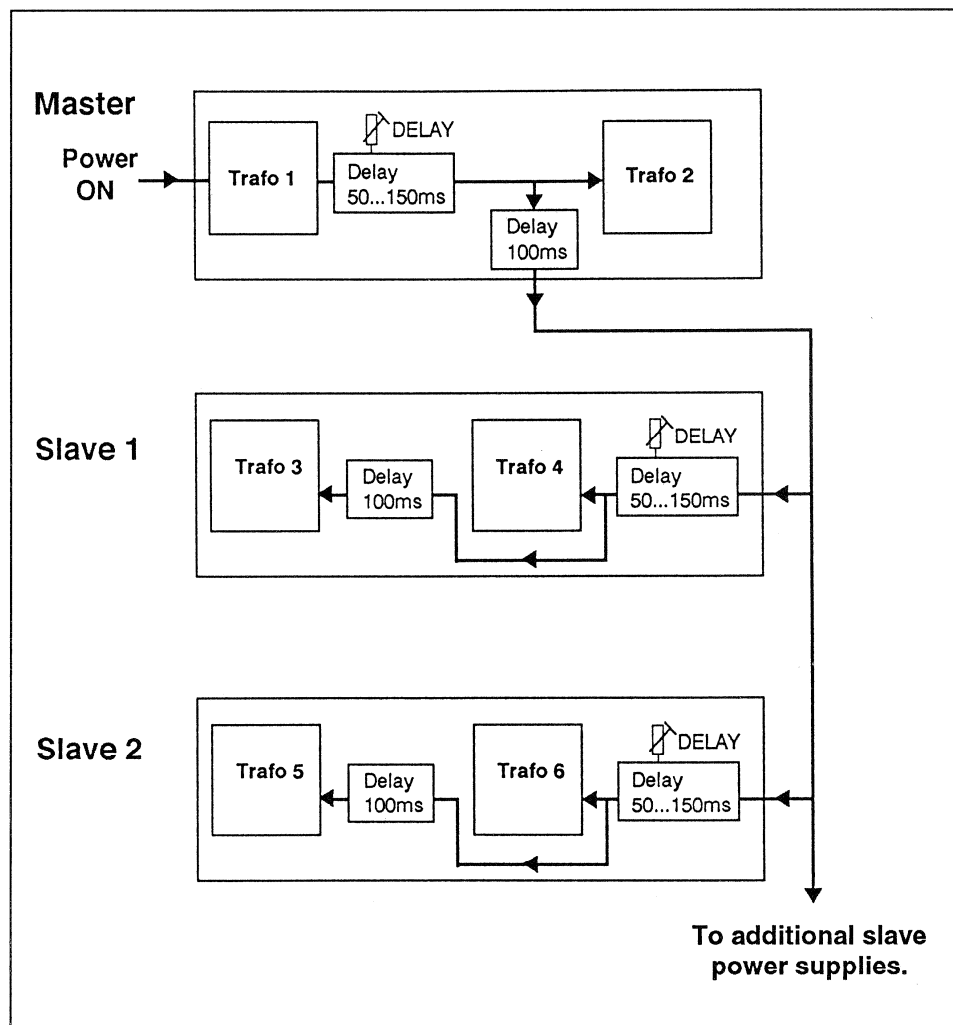
Factory setting:  $3.5V \cong 120^{\circ}C$ .

### 2.1.6 Delayed switch-on

In a system with more than one power supply the power-on delay prevents an overload when the mixing console is switched on. Between two transformers within the same housing the switch-on is delayed by approx. 100ms. For transmitting the power-on pulse to the equipment input a variable delay element (DELAY [12]) is available. The exact conditions are illustrated in Fig. 4.

As secondary protection the inrush current is limited by NTC elements.

- The delay times can be set by ear. The power-on clicks of the individual transformers should be heard as a regular salvo.
- Perform this adjustment on all power supplies.



**Fig. 4** Power-on delay sequence: The variable DELAY time can be adjusted with trimmer [12] in the equipment front. On slave power supplies the left-hand front plate is blank, but the FAN and DELAY trimmers are arranged in the same position as on master power supplies.

2.1.7 Optional supply AUX

As an option an additional unit that supplies two voltages can be installed in each power supply.

**OPTION 1** In this version 2 x  $\pm 42V$  are additionally supplied which are needed, for example, for the Studer power amplifier Euroboard 1.915.440/441.

These voltages are not stabilized. Trimmers [43] and [44] do not exist.

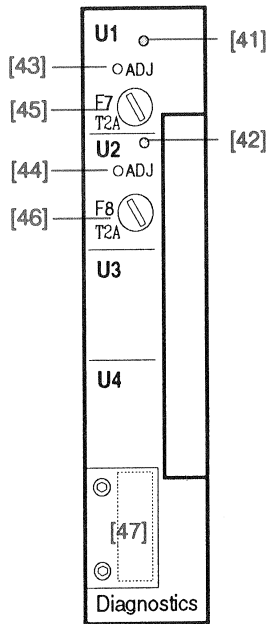
**OPTION 2** This option can supply U1 and U2 voltages in any combination of  $\pm 5V$ ,  $\pm 6V$ ,  $\pm 12V$  or  $\pm 24V$ . If this option is installed the generated voltages are defined in the documentation hat belongs to the specific console.

For measuring the Option 2 voltages connect the diagnostic board to the 16-pin 'Diagnostics' connector [47]:

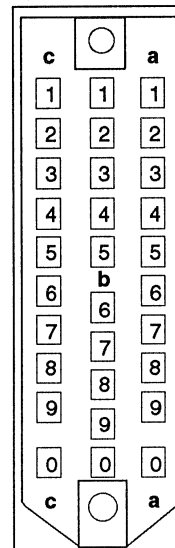
**U<sub>out 1</sub>** 0V: pin 1 / U1: pin 4 adjustable with trimmer [43]

**U<sub>out 2</sub>** 0V: pin 5 / U2: pin 8 adjustable with trimmer [41]

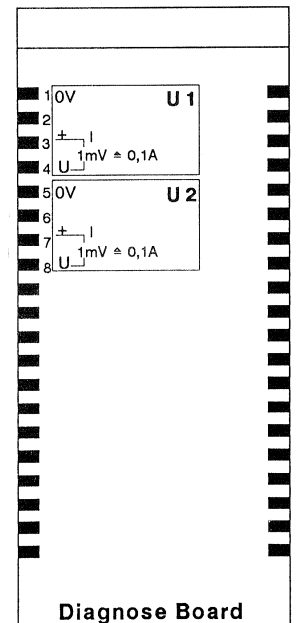
Supply cable 'Slave/Aux' 1.925.12x



Ader Nr.	Signal	Kontakt
1	+Usw	0 c
2	-Usw	0 a
3	+15V I	9 c
4	-15V I	8 c
5	-15V II	7 c
6	+15V II	6 c
7	0V Audio	5 c
8	-Ures 1/ 0V	4 c
9	+Ures 1	3 c
10	-Ures 2/ 0V	2 c
11	+Ures 2	1 c
12	0V Erde	8 b
13	+15V I	9 a
14	-15V I	8 a



OPTIONAL SUPPLY



---

**2.2 Standby power supply Dual power supply / MASTER**

---

**1.918.420**

This alignment is only required if a dual supply with a standby power supply unit exists.

Perform the same adjustments as described in **Sections 2.1 to 2.7**. Of course, the diagnostic board must be connected to the optional power supply. The **basic difference** applicable to standby units is:

All voltages of the standby power supply must be set lower by **0.2V**.

This setting assures that only one system is loaded. The standby power supply operates in no-load mode and can assume the supply function without interruption when this is required.

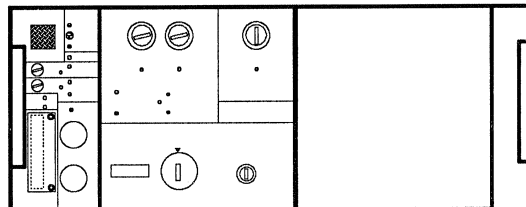
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**2.3 Single power supply / MASTER**

---

**1.918.421**

This power supply is used in smaller mixing consoles that have low power requirements.



The adjustments are the same as for the Dual power supply / MASTER as described in Sections 2.1, 2.3, 2.4, 2.5, 2.6, and 2.7.

---

**2.4 Optional power supply Single power supply / MASTER**

---

**1.918.421**

This alignment is only required if a dual supply with a standby power supply unit exists.

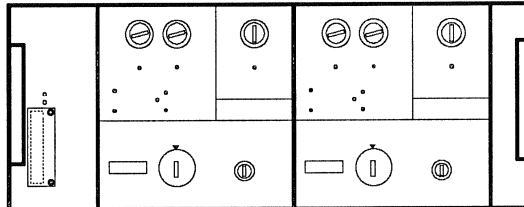
The same adjustments as described in **Section 3** must be performed. Of course, the diagnostic board must be connected to the optional power supply unit. The basic difference applicable to standby units is:

All voltages of the standby power supply must be set lower by **0.2V**.

**2.5 Dual power supply / SLAVE**

**1.918.422**

SLAVE power supplies increase the capacity of the power supply. In contrast to the master there is no standby/phantom unit.



The alignment procedure follows the instructions in **Sections 2.1** and **2.2**. The fan and the switch-on delay are adjusted as described in **2.5** and **2.6**. The corresponding bores through which the trimmers are accessible are located in the blank lower cover plate.  
If there is an optional supply it is aligned according to **2.7**.

**2.6 Standby power supply Dual power supply / SLAVE**

**1.918.422**

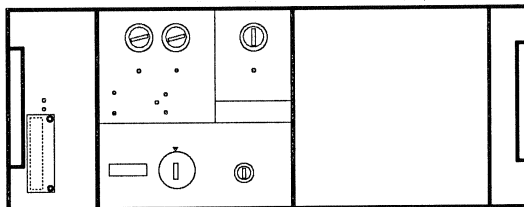
Perform the same adjustments as described in **Section 5**. Of course, the diagnostic board must be connected to the standby power supply unit. The basic difference applicable to standby units is:

All voltages of the standby power supply must be set lower by **0.2V**.

**2.7 Single power supply / SLAVE**

**1.918.423**

This unit is aligned according to the instructions in **Sections 2.1, 2.5, 2.6** and possibly **2.7** (if the optional power supply is installed).



## 2.8 Standby power supply Single power supply / SLAVE

1.918.423

Perform the same adjustments as described in **Section 7**, with the usual limitation:

All voltages of the standby power supply must be set lower by **0.2V**.

## 2.9 Dual supply with standby system / change-over

### General

If maximum reliability is required, possible defects in the power supplies should be taken into consideration. By installing standby units it is possible to bridge a power supply failure without interference with normal operation. Two versions are feasible:

- Redundant cards are installed for all power converters in the Eurocard format.
- The entire power supply system as well as the power converter cards are redundant.

### Power supply change-over

Two complete power supply complexes comprising master and slave units exists. The output voltage of each pair consisting of a main unit and standby unit are connected to the mixing console via change-over units. In the event of a supply voltage failure this change-over unit switches to the standby transformer without any interference. The change-over unit can be conveniently plugged into the 30-pin socket of the transformer block.

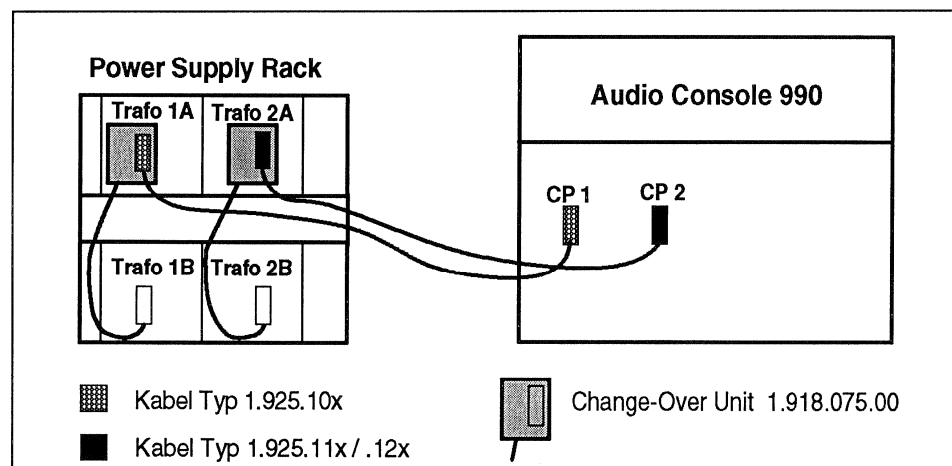
Required material:

- For each power supply unit one standby unit of the same type
- For each existing supply cable 1 Change-over unit 1.918.075

### Example

In this simple example a dual master main power supply and a dual master standby power supply are connected via two change-over units. A control line (not shown) interconnects the two units into a system with networked alarm and function monitoring.

(For additional information refer to Section 5 of the operating instructions)



**Fig. 5** The entire power supply system is redundant. The CHANGE-OVER unit connects each transformer to its standby transformer and connects the higher of the two voltages to the mixing console. In this example the host processor rack is installed in the mixing console.



### 3 Alignment of the DC/DC converters

1.915.111

The DC/DC converter boards (power supply 3–6V 1.915.111.81) convert the unstabilized 25V to:

- +5V (supply of the processor board as well as logical circuits)
- $U_{LED}$  (controllable supply of the LEDs)

As in the case of the power supplies a standby power converter with change-over can be installed for each converter.

#### Special cases

- On request the central control rack can be installed outside the mixing console. In this case the +5V host converter (plus optional standby board) is located in the external rack. The adjustments (Section 3) are made on the VME connection board on the rear of the external rack.
- For a redundant power supply with at least one redundant power converter a 'Diodes/Power Alarm 2 Board' is also installed.

#### 3.1 Block diagram: Redundant power supply with "change-over"

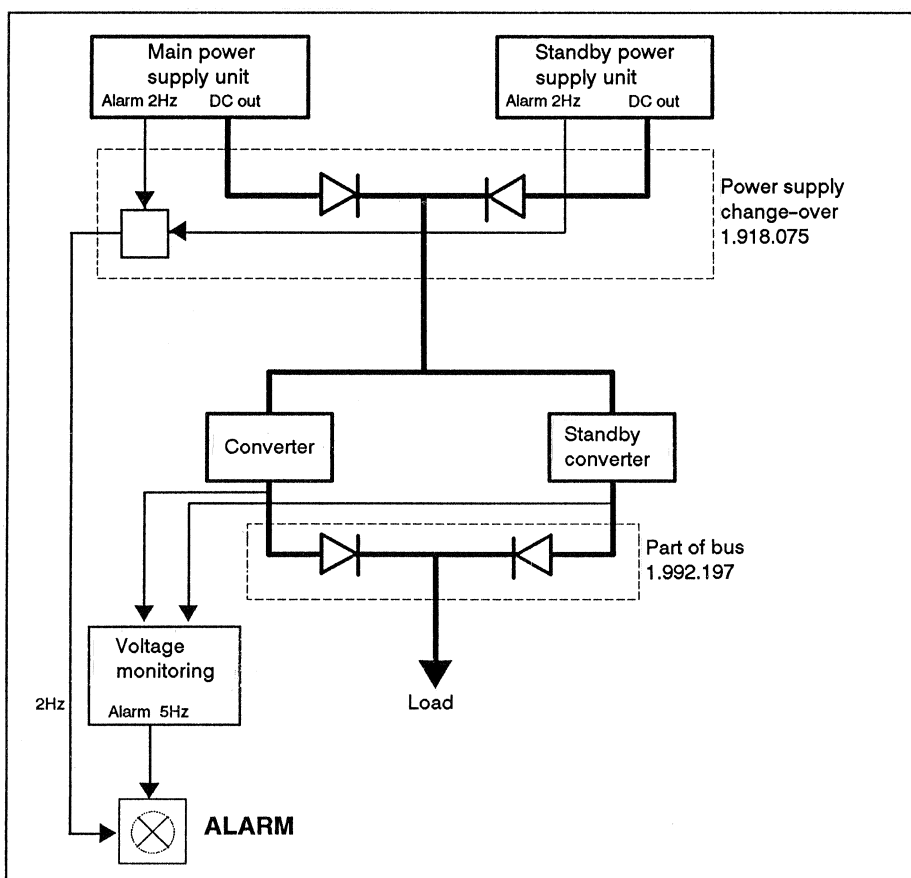


Fig. 1 Dual supply with standby units for power supply and converter boards. The alarm system monitors also the correct functioning of the standby unit.

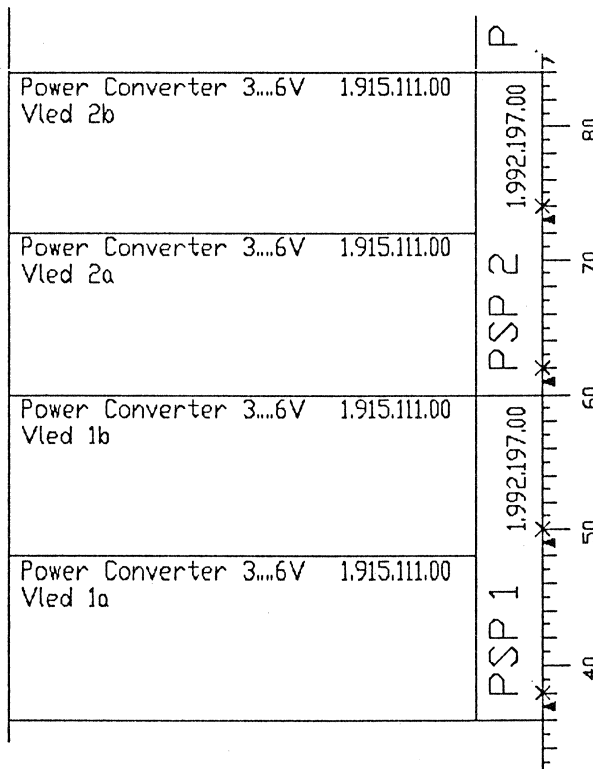
For implementing the comprehensive alarm indications to stabilized voltages from up to 8 converters are connected to a 'Diodes/Power Alarm 2 Board' 1.915.109.

This board is only configured for consoles with standby converters (Eurorack)! The assignment of the converters to the loads is documented in the manual of the specific console. The main board is labeled as 'a' or '.1', the standby board with 'b' or '.2'.

Example from a specific console manual:

Power Converter 3...6V 1.915.111.00 5V Host b	PSP	1.992.197.00	120
Power Converter 3...6V 1.915.111.00 5V Host a			
Power Converter 3...6V 1.915.111.00 5V 2b	PSP 6	1.992.197.00	110
Power Converter 3...6V 1.915.111.00 5V2a			
Power Converter 3...6V 1.915.111.00 5V 1b	PSP 5	1.992.197.00	100
Power Converter 3...6V 1.915.111.00 5V 1a			
	PAB 2	1.910.209.00	90
Power Alarm Board 1.915.109.00 A: Vled3 B: Vled4 C: 5Vh D: --			
	PAB 1	1.910.209.00	80
Power Alarm Board 1.915.109.00 A: Vled1 B: Vled2 C: 5V 1 D: 5V 2			
			70
			60
			50
			40

Example of a console with standby converters



On consoles without standby supply the alignment is the same as for 'main boards' and the adjustments to the 'standby boards' are not applicable.

3.2 Alignment of +5V Logic

Main boards

- Connect a digital multimeter to the corresponding converter TP1(±) and TP2(+U).
- Align to +5.6V with R45 ("FINE ADJ").
- Repeat the procedure for all 5V converters.

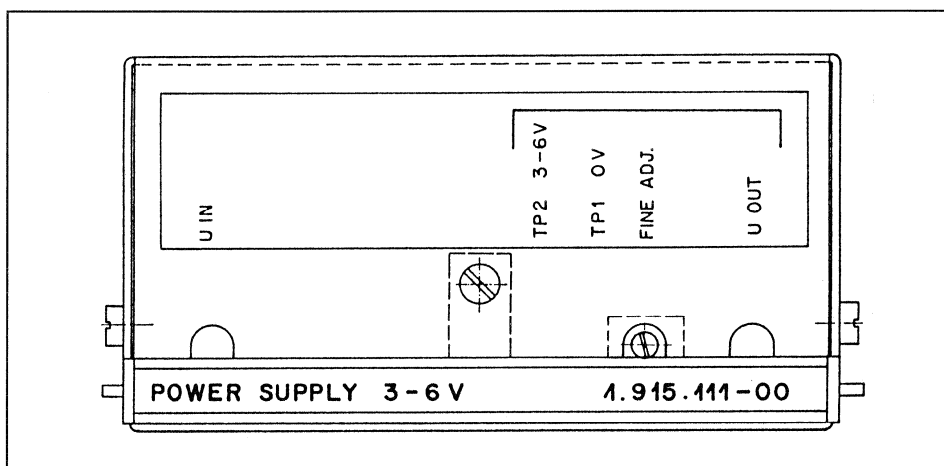


Fig. 2 DC/DC converter 3...6V (1.915.111)

Standby boards

- Align the standby converters to a voltage that is lower by 0.2V (+5.4V).
- Repeat the procedure for all +5V logic standby converters.

3.3 Alignment of +5V Host

Main boards

- Connect a digital multimeter to the corresponding converter TP1(⊥) and TP2(+U).
- Align to +5.6V with R45 ("FINE ADJ").

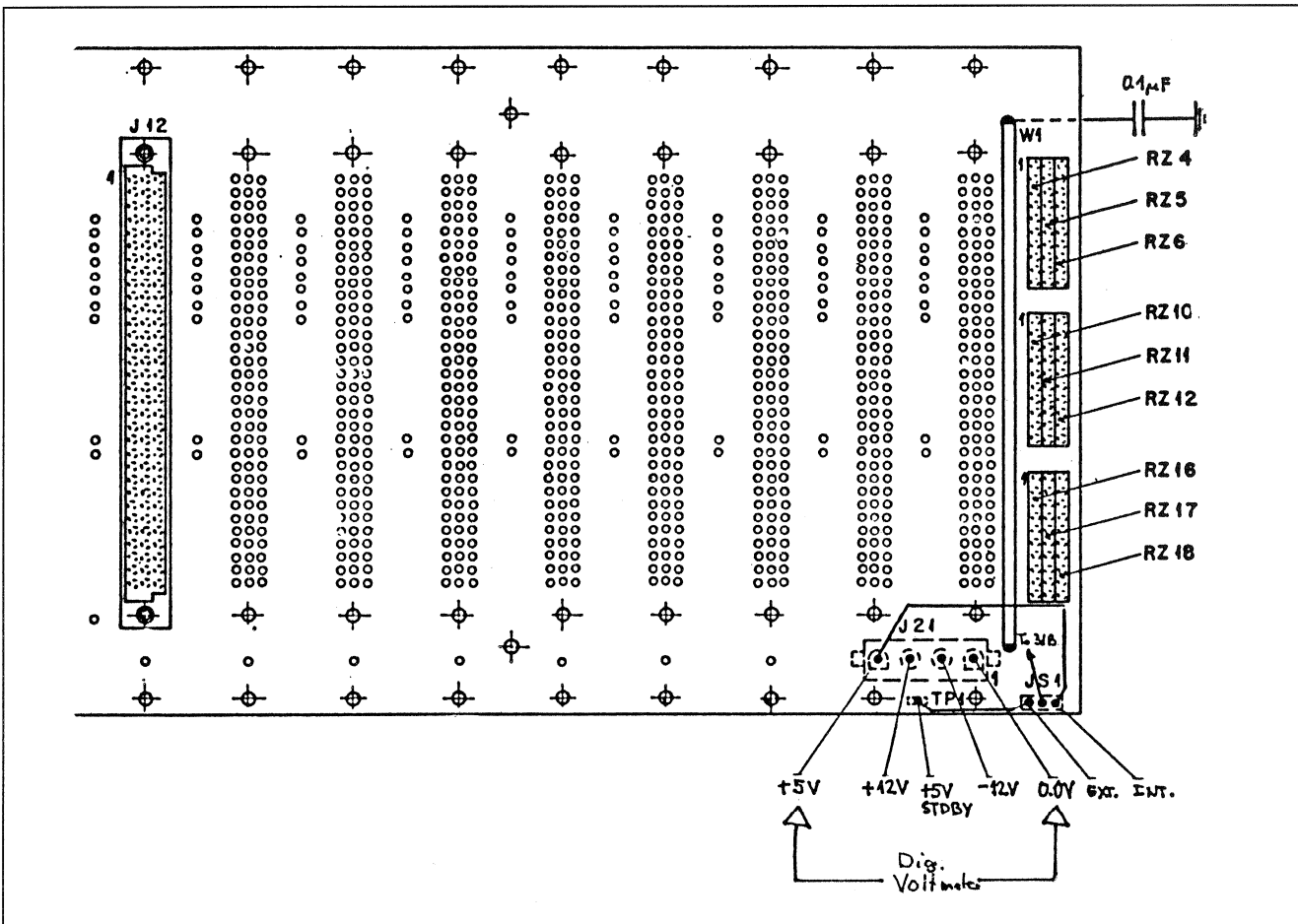


Fig. 3 Connection board on the back of the central control rack.

Check the +5V Host voltage on the VME motherboard. It must be between +5V and +5.4V.

Standby boards

- Perform the same alignment as for the main boards, but set the voltage to +5.4V.

### 3.4 Alignment of the VLED for consoles without standby supply

- Measuring instruments:**
- Digital multimeter  $R_i \geq 1 \text{ M}\Omega$
  - Diagnostic board 1.918.080

- Alignment:**
- Turn the BRIGHTNESS potentiometer (TB/Display control unit) to the **minimum**.
  - Connect the voltmeter to the 1st converter ( $V_{\text{Led 1}}$ ) between test point TP1 (0V) and TP2 ( $V_{\text{Led}}$ ).
  - Adjust  $V_{\text{Led}}$  with the **FINE ADJ** (R45) trimmer to **+2.8V**.
  - Repeat this procedure for all existing converters that supply the LEDs.

The number of existing converters depends on the size of the mixing console and can consequently vary.

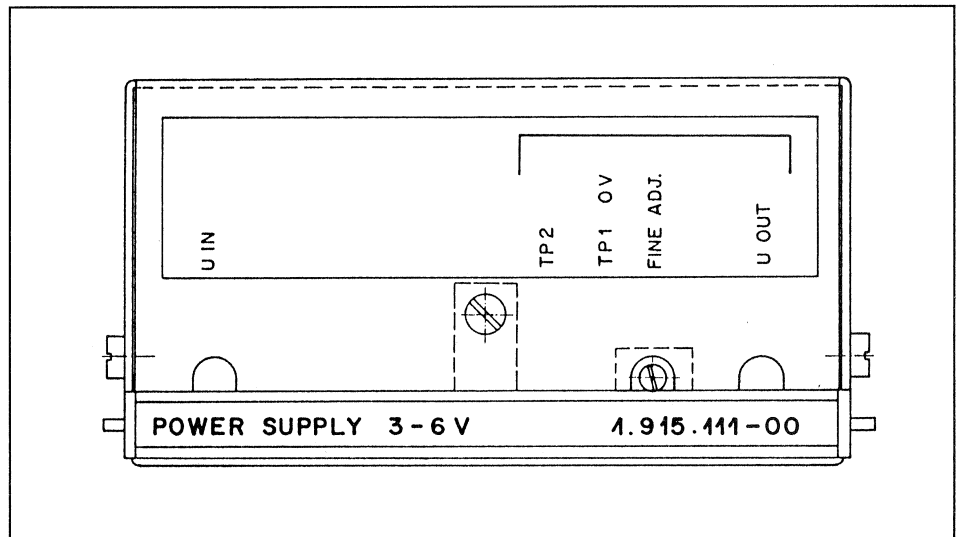


Fig. 4 DC/DC converter 1.915.111

### 3.5 Diodes / Power alarm 2 board

1.915.109.00

This board exists only in mixing consoles with dual supply and standby converters. Familiarity with this board is required for the subsequent alignments.

This Euroboard monitors the stabilized voltages of the DC/DC converters. If a converter fails (main or standby board) this alarm board causes the alarm LED on the TB/Display control unit to flash ( $\approx 5\text{Hz}$ ).

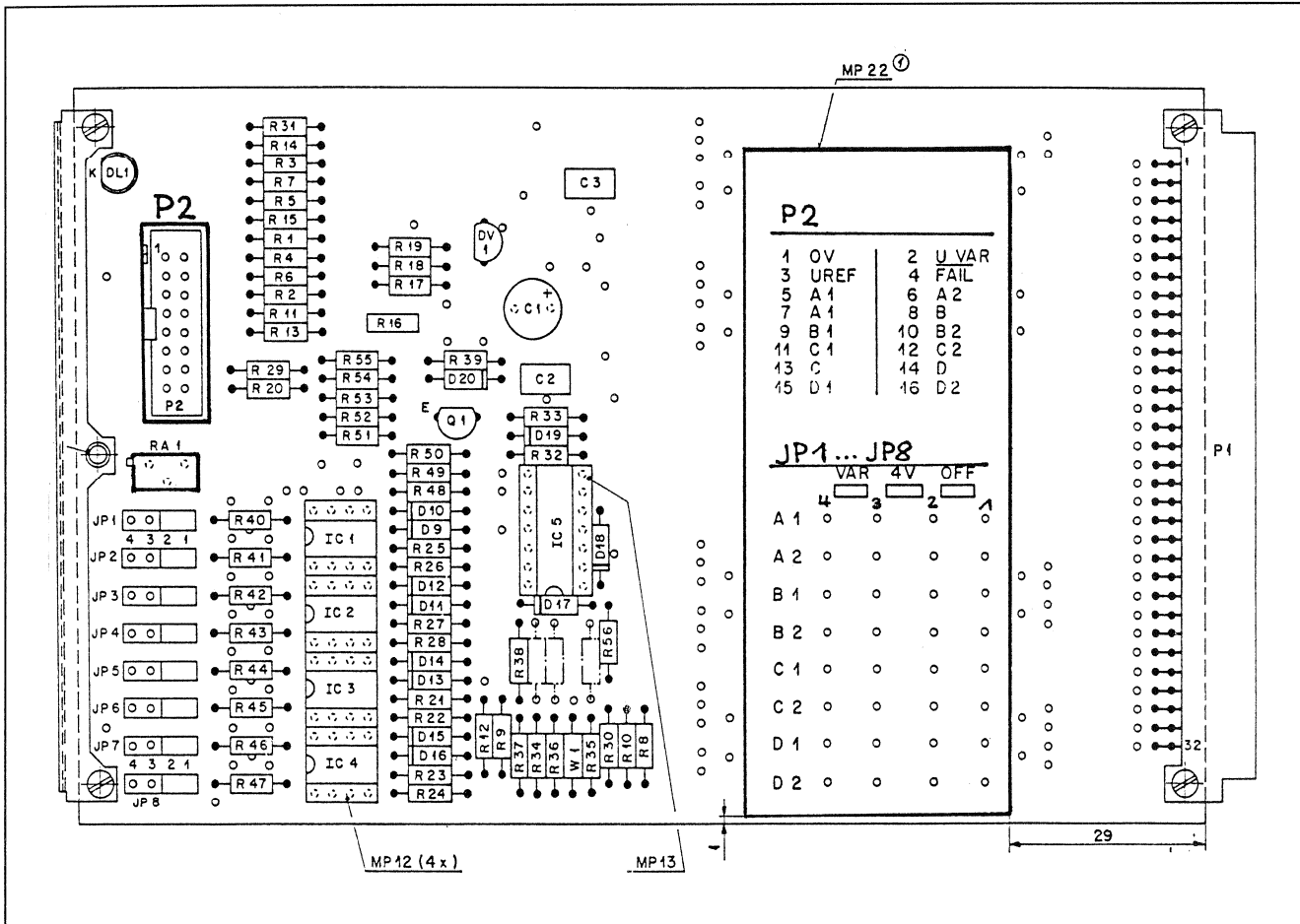


Fig. 5 Diodes/Power alarm 2 board (1.915.109) with specifications for jumper settings JP1...JP8 and pin assignment of connector P2 with the monitored voltages.

8 Converters can be monitored with this board.

The jumpers JP1...JP8 determine the voltage to which the converters are stabilized.

- Position VAR = Jumper position 4/3 for  $V_{Led}$
- Position 4V = Jumper position 3/2 for +5V LOG/HOST
- Position OFF = Jumper position 2/1 for unused input

The pin assignment of P2 to the voltages A1...D2 is specified in Fig. 5.

### 3.6 Alignment of the VLED s for consoles with standby supply

- Set the BRIGHTNESS /(TB/Display control unit) potentiometer to the MINIMUM.
- Turn trimmer R45 on the  $V_{Led}$  converters to the MAXIMUM (clockwise limit position).
- Connect the diagnostic board 1.918.090 to P2 (16-pin flat cable connector) of the power alarm board. Before you remove this board switch the mixing console off and do not turn it on again until the board has been removed.
- Connect the digital voltmeter to pin 1 (0V) and pin 5 (A1) of the diagnostic board.

- Align  $V_{Led}$  1.1 with R45 on the corresponding **main converter** ('a') to +2.9V.
- Align  $V_{Led}$  1.2 between **pin 1** (0V) and **pin 6** (A2) with R45 on the corresponding **standby converter** to +2.7V.
- Align  $V_{Led}$  2.1 between **pin 1** (0V) and **pin 9** (B1) with R45 on the corresponding **main converter** to +2.9V.
- Align  $V_{Led}$  2.2 between **pin 1** (0V) and **pin 10** (B2) with R45 on the corresponding **standby converter** to +2.7V (standby).
- Repeat the procedure for all other converter pairs. Main boards (\*.1) are to be aligned to +2.9V, standby boards (\*.2) to +2.7V. The pin assignment of P2 is shown in Fig. 5.

The assignment of the converters to positions A1...D2 on the alarm board is shown in the drawing of the Eurorack and the wiring list of the power supply.

CABLE KABEL	WIRE DRAHT	---FROM/VON--- CONNECTOR STECKER	PIN KONT	---TO/NACH--- CONNECTOR STECKER	PIN KONT	Q mm2	VOLTAGE	SIGNAL NAME SIGNAL NAME	FROM VON	TO NACH
< 11 >	: GRN	PSP 1	1 : VLED	PAB 1	0 : UA1	0.1	VLED	VLED1.1 TO PWR ALARM	: EUROBOARD	EUROBOARD
	:		:		:				:	
< 12 >	: GRN	PSP 1	2 : VLED	PAB 1	0 : UA2	0.1	VLED	VLED1.2 TO PWR ALARM	: EUROBOARD	EUROBOARD
	:		:		:				:	
< 13 >	: GRN	PSP 2	1 : VLED	PAB 1	0 : UB1	0.1	VLED	VLED2.1 TO PWR ALARM	: EUROBOARD	EUROBOARD
	:		:		:				:	
< 14 >	: GRN	PSP 2	2 : VLED	PAB 1	0 : UB2	0.1	VLED	VLED2.2 TO PWR ALARM	: EUROBOARD	EUROBOARD
	:		:		:				:	
< 15 >	: GRN	PSP 3	1 : VLED	PAB 2	0 : UA1	0.1	VLED	VLED3.1 TO PWR ALARM	: EUROBOARD	EUROBOARD
	:		:		:				:	

<b>FROM column</b>	<b>TO column</b>
PSP 1.1 Connection board of converter 1.1	PAB1 Connection board of alarm board 1
PSP 1.2 Connection board of converter 1.2	PAB2 Connection board of alarm board 2
etc.	U A1 Voltage A1 of an alarm board
	U A2 Voltage A2 of an alarm board
	etc.

Fig. 6 Extract from the wiring list of a console with 2 alarm boards.

**Example:**  $V_{Led}$  3.1 → UA1: On the alarm board the  $V_{Led}$  voltage is monitored in position A1. Jumper JP1 must consequently be set to VAR.  
 $V_{Led}$  3.2 → UA2: On the alarm board the  $V_{Led}$  voltage is monitored in position A2. Jumper JP2 must consequently be set to VAR.

Jumpers JP1...JP8 on the alarm board are factory set according to these specifications.

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### 3.7 Alignment of the alarm threshold

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After all converters have been aligned the alarm threshold must be set.

- Turn the BRIGHTNESS potentiometer on the TB/Display control unit to the MINIMUM.
- Connect the diagnostic board to P2 on the Power alarm board.
- Connect the digital voltmeter to **pin 1** (0V) and **pin 2** (U VAR).
- Turn the multiturn potentiometer **RA1** until the LED DL1 is continuously on.
- Write down the voltage reading of the voltmeter. (Example: +2.0V)
- With RA1 adjust to **100mV below the measured voltage**  
(Example: +2.0 - 0.1V = +1.9V)

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### 3.8 Checking the alarm threshold

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- a Turn BRIGHTNESS to **MAX.** → LED DL1 on the alarm board should **not flash**.
- b Pull out each converter individually:
  - LED DL1 should flash ( $\approx 5\text{Hz}$ )
  - ALARM on the console (TB/display control unit)
- c Switch the console off, reinsert the converter, switch the console on again. (no alarm)
- d Repeat the test with the other converters until all of them are checked.



**4 Technical data power supply system**

**1.918.42X**

**4.1 Primary side**

<b>Standby supply</b>	Voltage range		<b>100...240V AC</b>
	Voltage tolerance		<b>±10%</b>
	Line frequency		<b>50/60Hz</b>
	Power consumption	Standby	<b>&lt; 3W</b>
		Operation ON	<b>&lt; 5W</b>
	Safety transformer		<b>short-circuit-proof</b>
	Insulation primary/secondary		<b>4kV</b>
	Secondary fuse with thermistor		<b>0.3A PTC</b>
<b>Main supply</b>	Voltage range		<b>100...240V AC</b>
	Voltage tolerance		<b>+10% / -5%</b>
	Line frequency		<b>50/60Hz</b>
	Voltage selection Philberth system		<b>100, 120, 140V AC 200, 220, 240V AC</b>
	Power consumption:	Single supply	<b>&lt; 500VA</b>
		Dual supply	<b>&lt; 1000VA</b>
	Primary fuse: according to labeling on front plate		
		100...140V AC F6 =	<b>T 5A (slow blow)</b>
		200...240V AC F6 =	<b>T 3.15A (slow blow)</b>
	Inrush current limiter		<b>2.2Ω NTC</b>
$I_{max}$ (ON)		<b>&lt; 100A</b>	
Transformer insulation		<b>4kV</b>	
Transformer cut-off temperature		<b>approx. 393K (120°C)</b>	
Indirect power-on with relay			

**4.2 Safety features**

The power supply unit conforms to the requirements for equipment class I according to EN 60065 (IEC 65).

The primary side is designed with double insulation and withstands an AC test voltage of 4kV<sub>eff</sub>.

The outputs of the power supply are not connected to the power supply housing. This means that it is not hazardous to separate the connection between the housing and the studio ground for measurement purposes while the mixing console is connected to the AC power source.

<b>Detailed Inspections on the power supply:</b>	High voltage test (2.5kV <sub>eff</sub> ; 50Hz)
	Discharge current test
	Insulation test (500V)
	Protective ground resistance test

### 4.3 Secondary side

#### 4.3.1 General data

Some of the generated reference voltages are used for several applications. The reference systems of the stabilizer circuit and monitoring circuit are completely separated.

##### Standby supply

Without standby voltage, operation of the equipment is not possible. The supply is implemented with discrete elements.

Output voltage	$U_{sb}$	<b>5V ±5%</b>
Maximum current	$I_{max}$	<b>80mA</b>
Short-circuit current	$I_k$	<b>approx. 110mA</b>
Overvoltage protection, Z-Diode	$U_{max}$	<b>5.6V</b>
Min. indication voltage of LEDs	$U_{min}$	<b>&gt; 4V</b>
Measuring resistor 1Ω	$U_{meas}$	<b>1mV ≅ 1mA</b>

##### Auxiliary voltage on diagnostic connector Pin 2

$U_{out}$	<b>5V ±5%</b>
$R_i$ (R fuse PTC)	<b>50Ω</b>
$I_{max}$	<b>10mA</b>

##### Batteries/standby

Type: AM3 alkaline, 2 pcs.	<b>1.5V</b>
Standby voltage with failed power supply (pin 8, diagnostic connector)	<b>&gt; 2.6V</b>
Measurement resistor 10Ω	$U_{meas}$ <b>1mV ≅ 0.1mA</b>
Autonomy with disconnected power supply and new batteries	<b>T &gt; 2 months</b>
The LEDs flash when the battery is low.	
The operating voltage is integrated in the alarm system.	

#### 4.3.2 ±12V supply

The ±12V supply is used for the RS 232 interface with low power consumption. It suffices for supplying a hard disk drive. The high start-up current of the hard disk is required for only approx. 10 seconds. The power supply can provide this high current for only a few minutes. The fuse or the temperature sensor trips if a high current is drawn for too long. The total output power of the ±12V supply should not exceed 15W continuous load. The ±12V supply is fed by a voltage doubler circuit from the same transformer winding.

The ±12V supply has a floating potential relative to the general 0V (no digital interference).

The fuse protection is implemented with fuse F2 (labeled on the front shield as T 4A (slow blow)).

The ±12V can be adjusted with a trimmer on the front.

<b>+12V supply</b>	Output voltage	$U_{out}$	<b>+12V</b>
	Output current, continuous load	$I$	<b>&lt; 1A</b>
	Output current (T < 1 min)	$I_{max}$	<b>&lt; 2A</b>
	Short circuit current	$I_k$	<b>approx. 2.5A</b>
	Fold back	$I_{fb}$	<b>approx. 1.7A</b>
	Oversvoltage/cut-off point	$U_{max}$	<b>approx. +13.5V</b>
	Overtemperature/cut-off point	T	<b>approx. 393K (120°C)</b>
	No indication of undervoltage	$U_{min}$	<b>&lt; 8V</b>
	Ripple/residual V BW 20kHz	$U_r$	<b>&lt; 15mV at I</b>
	Measurement resistor 10mΩ	$U_{meas}$	<b>1mV <math>\cong</math> 0.1A</b>
	The +12V is integrated in the alarm system.		
<b>-12V supply</b>	Output voltage	$U_{out}$	<b>-12V</b>
	Output current, continuous load	$I$	<b>&lt; 0.5A</b>
	Output current (T < 1 min)	$I_{max}$	<b>&lt; 1A</b>
	Short circuit current	$I_k$	<b>approx. 1.5A</b>
	Oversvoltage/cut-off point	$U_{max}$	<b>approx. -13.5V</b>
	Overtemperature/cut-off point	T	<b>approx. 393K (120°C)</b>
	No indication of undervoltage	$U_{min}$	<b>&lt; -8V</b>
	Ripple/resid. voltage BW 20kHz	$U_r$	<b>&lt; 10mV at I</b>
	Internal resistance	$R_i$	<b>approx. 10mΩ</b>
	Measurement resistor 10mΩ	$U_{meas}$	<b>1mV <math>\cong</math> 0.1A</b>
	The -12V is integrated in the alarm system.		

### 4.3.3 Phantom supply

Basic specification IEC 268-15A

The factory setting for the phantom supply is 48V

As a special version a conversion to 12V or 24V is feasible. Such a conversion involves:

Transformer	→	Resolder jumper (see power supply)
Electronics	→	Replug jumper (see power supply)
Mixing console	→	Change phantom resistors (24V→R=4.3kΩ; 12V→R=680Ω)

F1: Fuse (labeling on front plate)

**T 2A (slow blow)**

The phantom supply is adjustable with a trimmer that can be operated from the front.

<b>+48V phantom supply</b>	Measurement resistor 1Ω	$U_{mess}$	<b>1mV <math>\cong</math> 1mA</b>	
	Output voltage	$U_{out}$	<b>+48V</b>	
	Output current; continuous load	$I$	<b>&lt; 0.5A</b>	
	Short-circuit current	$I_k$	<b>approx. 0.9A</b>	
	Fold back	$I_{fb}$	<b>approx. 0.45A</b>	
	Oversvoltage/cut-off point	$U_{max}$	<b>approx. +56V</b>	
	Overtemperature/cut-off point	T	<b>approx. 393K (120°C)</b>	
	Flashing indicator for undervoltage	$U_{min}$	<b>&lt; approx. 44V</b>	
	Ripple/resid. voltage BW 20kHz	$U_r$	<b>&lt; 1mV at I</b>	
	The +48V is integrated in the alarm system.			

<b>+24V phantom supply</b>	Output voltage	$U_{out}$	<b>+24V</b>	
	Output current; continuous load	$I$	<b>&lt; 0.5A</b>	
	Short-circuit current	$I_k$	approx. <b>1.0A</b>	
	Fold back	$I_{fb}$	approx. <b>0.8A</b>	
	Overvoltage/cut-off point	$U_{max}$	approx. <b>+27V</b>	
	Overtemperature/cut-off point	$T$	approx. <b>393K (120°C)</b>	
	Flashing indicator for undervoltage	$U_{min}$	<b>&lt; approx. 20V</b>	
	Ripple/resid. voltage BW 20kHz	$U_r$	<b>&lt; 1mV at I</b>	
	The +24V is integrated in the alarm system.			
	<b>+12V phantom supply</b>	Output voltage	$U_{out}$	<b>+12V</b>
Output current; continuous load		$I$	<b>&lt; 0.5A</b>	
Short-circuit current		$I_k$	approx. <b>1.1A</b>	
Fold back		$I_{fb}$	approx. <b>1A</b>	
Overvoltage/cut-off point		$U_{max}$	approx. <b>+13.5V</b>	
Overtemperature/cut-off point		$T$	approx. <b>393K (120°C)</b>	
Flashing indicator for undervoltage		$U_{min}$	<b>&lt; approx. 9V</b>	
Ripple/resid. voltage BW 20kHz		$U_r$	<b>&lt; 1mV at I</b>	
The +12V is integrated in the alarm system.				

**4.3.4 ±15V supply: Supply 1 and Supply 2**

These supplies exist once in a single power supply (master or slave version), or twice in a dual power supply.

The two outputs supply 1 and supply 2 have a common input feeder.

**Fuse:** -20V on the charging capacitor      F3:    **T 10A (slow blow)**  
 +20V on the charging capacitor      F4:    **T 10A (slow blow)**

The availability of ±20V is signaled with 2 LEDs.

The ±20V input voltages are split into 2\* ±15V stabilizer systems with common 0V.

**Alarm:  
VOLTAGE DEVIATION  
SHORT CIRCUIT**

A short circuit or an overvoltage on the output disconnects the corresponding transformer unit. This is signaled by a local flashing LED. This status information is transmitted also to the central ALARM LED. The local ALARM LED flashes also in case of undervoltage, but no ALARM is triggered.

**Alarm:  
TEMPERATURE**

If the heat sink temperature rises above 393K (120°C) the corresponding transformer unit is switched off. This status is signaled by a local flashing LED. The status information is also transmitted to the central ALARM LED.

For resetting the alarm systems the power supply must be switched OFF and ON again.

**SUPPLY 1; SUPPLY 2**

The 4 voltages behave in the same way and are described only once.

Controlled linear ramping up of the 4 output voltages;  $t_{\text{ein}}$  approx. **4s**

The max. total output power may not exceed **180W**.

The 4 voltages are adjusted in common with a trimmer that is accessible from the front.

**±15V supply**

Output voltage	$U_{\text{out}}$	<b>15V</b>
Output current, continuous load	$I$	<b>&lt; 6A</b> (SUPPLY 2 $I = 0A$ )
Short circuit current	$I_k$	<b>approx. 9A</b>
Fold back	$I_{\text{fb}}$	<b>approx. 5A</b>
Overvoltage/cut-off point	$U_{\text{max}}$	<b>approx. 17V</b>
Overtemperature/cut-off point	$T$	<b>approx. 393K (120°C)</b>
Overvoltage extinguishes SUPPLY LED	$U_{\text{min}}$	<b>&lt; 24V + U to -U</b>
Ripple/resid. voltage BW 20kHz	$U_r$	<b>&lt; 0.25mV at I</b>
Measurement resistor 10mΩ	$U_{\text{meas}}$	<b>1mV <math>\cong</math> 0.1A</b>

Normally the output currents Supply 1/2 are allocated approx. to 3A to 3A.

**4.3.5 +25V supply unstabilized**

Voltage for supplying the switching regulators in the mixing console.  
Charging capacitor 20'000μF

Output voltage	$U_{\text{out}}$	<b>approx. 25V</b>
Max. output current	$I_{\text{max}}$	<b>&lt; 5A</b>
In case of undervoltage the LED goes out	$U_{\text{min}}$	<b>&lt; 20V</b>
Measurement resistor 10mΩ	$U_{\text{meas}}$	<b>1mV <math>\cong</math> 0.1A</b>

**Fuse:** F5 (labeling on front plate) **T 8A (slow blow)**

**4.4 Auxiliary circuits**

**4.4.1 Ventilator**

Ventilator (low noise)  
 AC voltage 25V...35V AC  
 Changeover "Off/slow" to "fast": temperature dependent

		$T < T_{vent}$	$T > T_{vent}$
Operating modes	1.)	OFF	fast
	2.)	slow	fast
	3.)	fast	fast

Changeover point adjustment with FAN trimmer on the front.  
 If any point in the power supply exceeds 393K (120°C) "fast" speed is always activated.

**4.4.2 Power-on delay**

Adjustable with DELAY trimmer from the front  
 Range t: 50...150ms

**4.4.3 Control electronics**

Technology C-MOS  
 Supply voltage +5V  
 ON/OFF state of master switch stored  
 ON/OFF remotable

**4.5 Options**

**4.5.1 Option 1; supply for 2 power amplifiers**

2 Separate floating supplies		
Output voltage	$U_{out}$	approx. 42V
Output current; ED 50%	I	1.5A
Undervoltage extinguishes LED	$U_{min}$	< 24V
Charging capacitors	2*	2200µF
Inrush current limitation		2.2Ω NTC
Measurement resistor 10mΩ	$U_{meas}$	1mV $\cong$ 0.1A
<b>Fuses:</b> F7, F8 (labeling on front plate)		<b>T 2A (slow blow)</b>

4.5.2 Option 2; stabilized voltages 1.918.077.00

<b>System 1:</b> Higher voltages, low current	Output voltage	$U_{out}$	5 - 24V
	Voltage on charging capacitor,	$U_{max}$	45V DC
	Useful current		
	dependent on power dissipation	$I$	0.4A
	Short-circuit current	$I_k$	0.5A
	Overvoltage/cut-off point/crow bar:	$U_{min}$	Jumper 6.5V; 12.5V; 24.5V
	Output voltage ind. by a LED		
	Ripple/resid. voltage BW 20kHz	$U_r$	< 30mV at I
Measurement resistor 10mΩ	$U_{meas}$	1 mV $\cong$ 0.1A	
<b>System 2:</b> Lower voltages, high current	Output voltage	$U_{out}$	5 - 6V
	Voltage on charging capacitor,	$U_{max}$	35V DC
	Useful current		
	dependent on power dissipation	$I$	2A
	Short-circuit current	$I_k$	2.5A
	Fold back		
	Overvoltage/cut-off point/crow bar:	$U_{min}$	6.5V
	Output voltage ind. by a LED		
Ripple/resid. voltage BW 20kHz	$U_r$	< 30mV at I 1A	
Measurement resistor 10mΩ	$U_{meas}$	1 mV $\cong$ 0.1A	

4.5.3 Option 2; stabilized voltages 1.918.087.81

<b>System 1:</b>	Output voltage	$U_{out}$	5 - 24V
	Voltage on charging capacitor,	$U_{max}$	45V DC
	Useful current		
	dependent on power dissipation	$I$	1A
	Short-circuit current	$I_k$	1.3A
	Thermal fold back		
	Overvoltage/cut-off point/crow bar:	$U_{min}$	Jumper 6.5V; 12.5V; 24.5V
	Output voltage ind. by a LED		
Ripple/resid. voltage BW 20kHz	$U_r$	< 30mV at I	
Measurement resistor 10mΩ	$U_{meas}$	1 mV $\cong$ 0.1A	
<b>System 2:</b>	Output voltage	$U_{out}$	5 - 24V
	Voltage on charging capacitor,	$U_{max}$	45V DC
	Useful current		
	dependent on power dissipation	$I$	1A
	Short-circuit current	$I_k$	1.3A
	Thermal fold back		
	Overvoltage/cut-off point/crow bar:	$U_{min}$	Jumper 6.5V; 12.5V; 24.5V
	Output voltage ind. by a LED		
Ripple/resid. voltage BW 20kHz	$U_r$	< 30mV at I	
Measurement resistor 10mΩ	$U_{meas}$	1 mV $\cong$ 0.1A	

**Fuses:** F7, F8 (labeling on front plate) T 2A (slow blow)

These fuse ratings limit the output current to approx. 1.5A. If the rating is for higher current the front plate is correspondingly engraved.

---

**4.6 General specifications**

---

Storage temperature		253K...343K / -20°C...+70°C
Ambient temperature	Guaranteed	<b>283K...313K / +10°...+40°C</b>
	Function	263K...318K / -10°C...+45°C

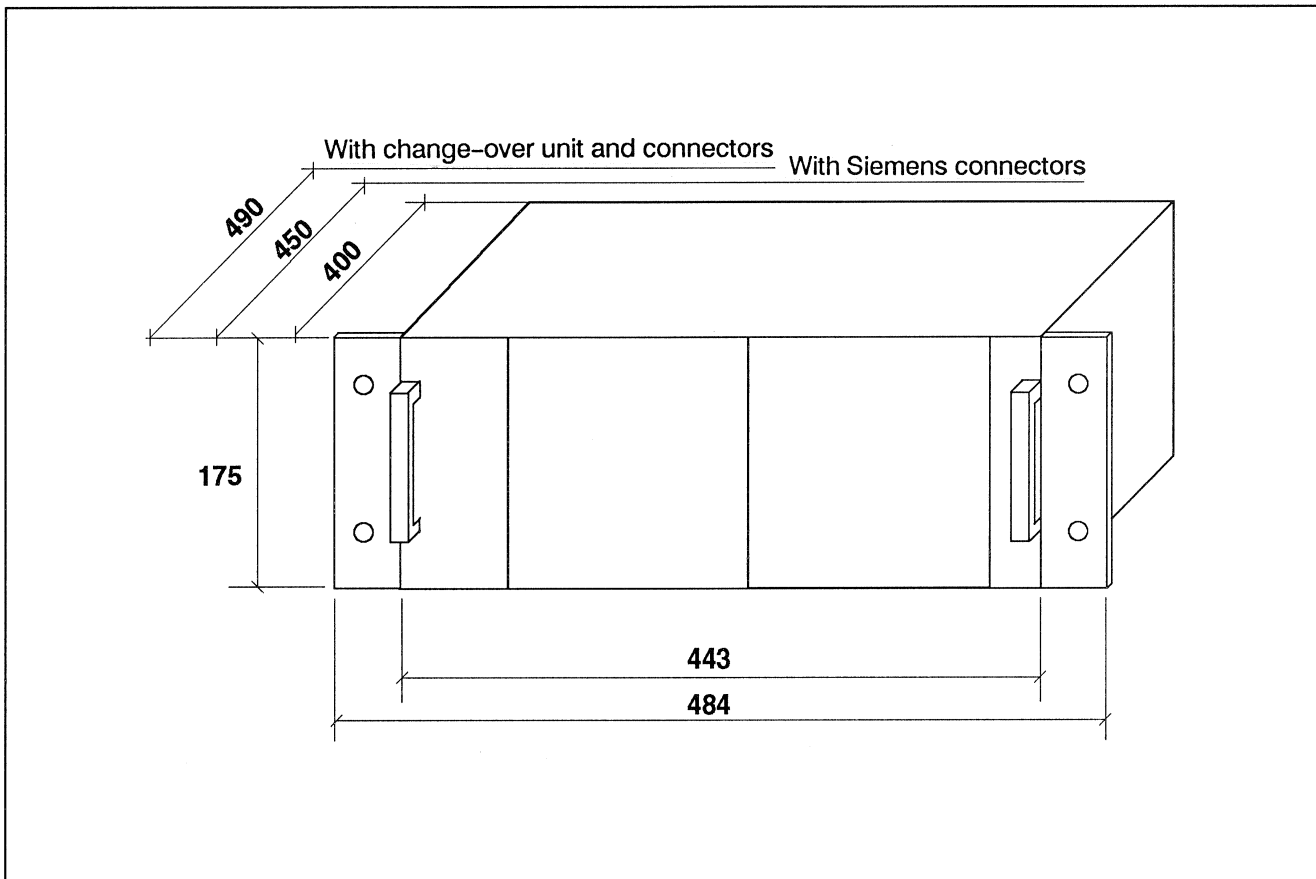
Electrostatic discharge without adverse effect on the function according to IEC 801-2 **8kV** air discharge,

Radio interference voltage on mains according to CISPR 11, class B and DIN VDE 0871, class B and FCC PART 15 B, class B.



**4.7 Mechanical data**

**4.7.1 Dimensions**



To ensure adequate ventilation the power supply must remain open on all sides. Operation on a closed surface does not give optimum results.

Two aids are available:

Feed: 4 pcs. retrofittable  
Stand-off from floor approx. 12mm

Part No. 31.02.0209

Air baffle  
Can be placed on the floor

Part No. 1.918.207.00

**4.7.2 Weight**

1.918.420	Dual master power supply	<b>27.0kg</b>
1.918.421	Single master power supply	<b>18.8kg</b>
1.918.422	Dual slave power supply	<b>26.2kg</b>
1.918.423	Single slave power supply	<b>18.0kg</b>

## Alignment Instructions for Audio Console 990

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5 Module Processors of the Fader Units

1.990.190

This instruction relates to module processor boards located in the following assemblies:

- Input Fader with motor
- Group Fader with motor
- Master Fader with motor

Kindly note the difference concerning the logical adress of each unit.

Adjustments

- +5V reference
- Gain of main fader
- Gain of small fader
- Offset (same for small and main faders)

Adapter

Use the fader adapter 1.990.091.00 to operate the fader during the adjustment.

5.1 Basic settings

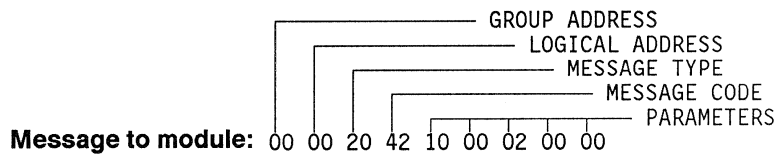
- Switch off all filters, EQ, limiters, compressors and gates.
- Set the faders to the 0dB position. (main and small faders)
- Switch on the channels (press the ON key of the main and small fader units).
- Connect a computer terminal to the RS232 interface of the HDLC controller.
- Press the RESET button of the host processor unit.

5.2 VCA setting via computer terminal

The Fader unit must be in the 'ENABLE' status. (press STAT button).

- Press [ENTER] and [CTRL] + [F] to start the dialog. A message can now be sent to a module.

To set the VCA of a single channel or of all channels to 0dB or to +10dB the "message to module" has to be entered as follows:



The message shown above sets the main fader VCA of channel 1 to 0dB.

Group address  
Logical address

00  
Enter the address of the fader module as a hexadecimal value.  
Channel 1 → 00 (HEX)  
Channel 2 → 01 (HEX)  
All channels → FF (HEX)

Message type  
Message code

20  
42

Parameters: Main fader

10 00 02 00 00 → sets VCA to 0dB  
10 00 02 64 00 → sets VCA to +10dB

Small fader

0F 00 02 00 00 → sets VCA to 0dB  
0F 00 02 00 64 → sets VCA to +10dB

- Press [ENTER] to send the message to the console.
- For next command press [CTRL] + [F] again.

### 5.3 Adjustment of U<sub>REF</sub>

---

- Switch OFF the console.
- Replace the fader unit by the fader adapter 1.990.091 and install the fader on top of it.
- Switch ON the console
  
- Connect the voltmeter to **A ground** and **UREF** contacts of the fader adapter.
- Adjust UREF with the Trimmer **RA 4** to **+5V (±5mV)** .

The reference voltage of +5V is valid both for main and small faders.

### 5.4 Adjustment of main fader gain and offset (≅ stereo left channel)

---

In stereo input units these adjustments relate to the left channel VCA.

- Test point**
- Connect voltmeter to **OUT 0** of the fader adapter (CV of main fader) and to **0VA** (audio ground) at the **rearside** of the console.
  - ! The **master fader** as well as all **motor faders** have to be measured between **OUT 0** and the **audio ground** of the fader adapter!

**Set VCA by terminal** Set the VCA to +10dB gain by a terminal command. (see 5.2)

**Offset** Adjust the fader offset with **RA 3** to **0V (±5mV)**. This value is used for the small fader too.

- Gain**
- Mute the channel (press ON key).
  - Adjust the fader gain with **RA 1** to **-11V (±10mV)**.
  - Turn the channel on again.

### 5.5 Adjustment of small fader gain and offset (≅ stereo right channel)

---

In stereo input units these adjustments relate to the right channel VCA.

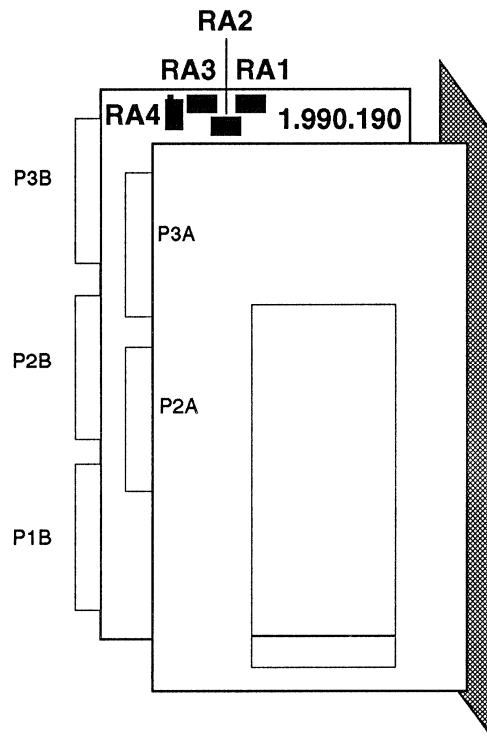
- Test point**
- Connect voltmeter to **OUT 1** of the fader adapter (CV of small fader) and to **0VA** (audio ground) at the **rearside** of the console.

**Set VCA by terminal** Set the VCA to +10dB gain by a terminal command (see 5.2) and check the aligned offset (0V ±5mV).

- Gain**
- Mute the channel (press ON key).
  - Adjust the fader gain with **RA 2** to **-11V (±10mV)**.
  - Turn the channel on again.

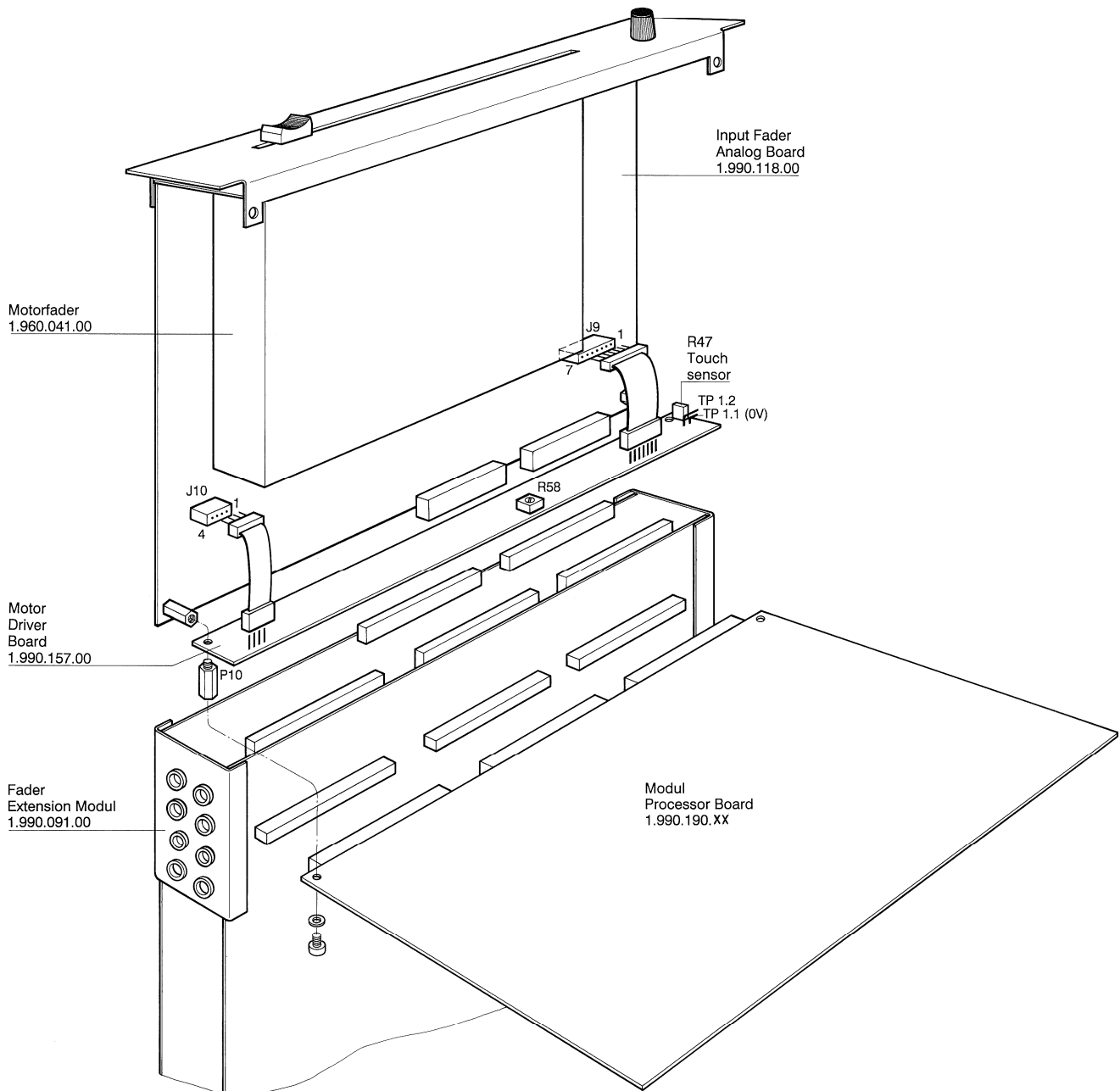
5.6 Position of trimmers

1.990.190



## 5.7 Adjustment of the motor fader offset

Remove and disassembly the motor fader as depicted below.



## 5.8 Adjustment of the touch sensor

The alignment of the Module Processor Board is a precondition for this adjustment.

Install the fader adapter as shown in the drawing.

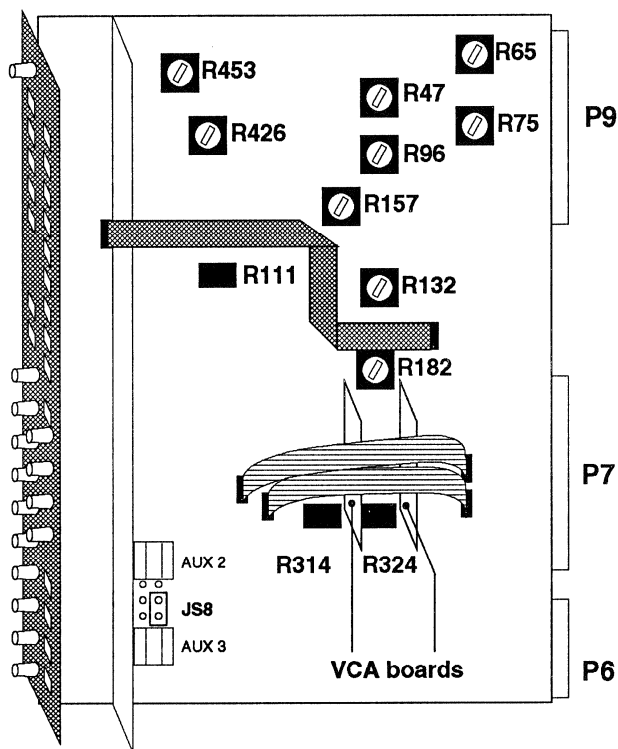
- Connect DC voltmeter to test points **TP1.1** (ground) and **TP1.2 (+)**.
- Check basic settings (fader position 0dB, channel on etc.)
- Do not touch the fader knob now.
- Adjust with **R47** to **1,0V** ( $\pm 0,1V$ )

6 Mono Input Unit 'MCH'

1.990.210

- All module processors must be adjusted before aligning any signal level of the input channel. (see above)
- The adjustments can be applied to the versions .00 and .81 except for those steps that are separately described for both versions.

6.1 Position of trimmers and jumpers



Jumpers		Trimmers	
JS8	AF Main to Direct Out (Default setting)	R47	CM Rejection Line A
JS7	PFL Main to Direct Out	R65	CM Rejection Tape RET
JS2	* AUX 5 to Direct Out	R75	CM Rejection Bus RET
JS1	* AUX 4 to Direct Out	R96	Monitor path PF (only .81)
	* phase reverse	R111	Main path PF (only .81)
		R132	Insert 1
		R157	Insert 2
		R182	EQ
		R314	Main Fader
		R324	Small Fader
		R426	BUS Out
		R453	DIRECT Out



## 6.2 Basic settings of the controls

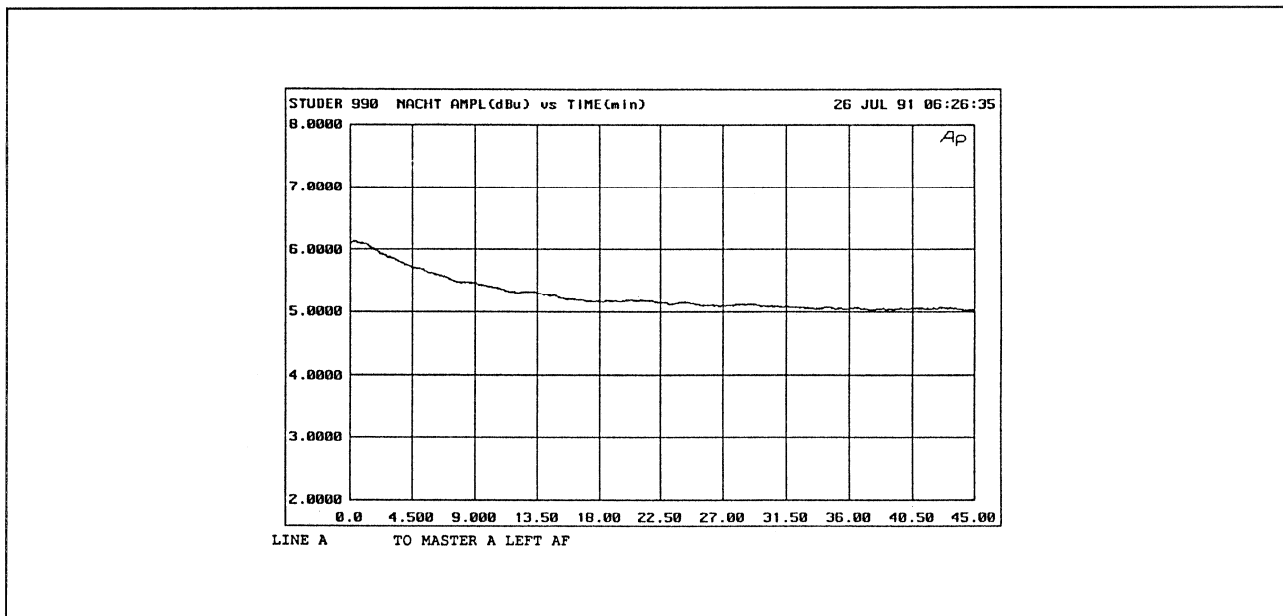
A basic precondition for correct alignment is the precise positioning of the controls according to the following table:

<b>Mono Input Unit</b>	Source..... LINE A
	Phase Ø..... OFF $\cong$ 0°
	Input Gain ..... 0 dB
	Filter..... OFF
	EQ..... OFF
	Inserts..... OFF
	(Note: If inserts are not wired to a patch link SEND → RETURN)

<b>Input Fader, Small Fader</b>	Channel on/off..... ON
	Faderposition..... 0dB
	PAN ..... OFF
	MIX bus ..... $\Sigma$ A ON
	(The VCA can be set to exactly 0.0dB by use of a data terminal, as described below.)

## 6.3 VCA alignments of main fader and small fader

Though the VCA is temperature compensated its level may change after removing the unit from the console. The VCA adjustments should therefore be performed as fast as possible to keep temperature changes small. It is recommended to work in a warm room (windows and door closed).



VCA amplification after switching on the console.

6.3.1 VCA alignment for version .00

**Test signal** 1kHz sine wave at nominal level into input **LINE A**

**Test point** **INSERT Send ΣA left**

**Main Fader VCA gain: 0dB**

- Position the fader to 0dB. Make sure that there is no offset between fader and VCA position ("nulled" fader).
- For a precise setting use a computer terminal with the servicing software. Set the VCA of the input channel to a 0dB level with the following command: "10 00 02 00 00": Main fader VCA to 0dB.

**Small Fader VCA gain: 0dB**

- Position the fader to 0dB. Make sure that there is no offset between fader and VCA position ("nulled" fader).
- For a precise setting use a computer terminal with the servicing software. Set the VCA of the input channel to a 0dB level with the following command: "0F 00 02 00 00": Small fader VCA to 0dB.

**Measurement**

Measure the Σ insert send now and note the difference between nominal level and measured value on a sheet of paper. For this measurement it is essential to operate the unit under normal conditions (i.e. unit installed in the console, normal operating temperature).

To send the signal from input LINE A to the small fader press the FLIP INPUT button on the inline unit and repeat the procedure.

Example:	Main Path	Small Path
Nominal level:	+ 6dBu	+ 6dBu
Measured value:	+ 5.2dBu	+ 6.5dBu
Difference:	<u>+ 0.8dB</u>	<u>- 0.5dB</u>

**Adjustment**

- Switch off the console, remove the Input Unit and connect it to the suitable extension boards. Cover the VCA assembly with a piece of cloth to minimize VCA temperature drift.
- Switch on the console.
- Now read the level again and add the noted difference.
- Adjust quickly with **R314** to this calculated value.

Example:	Measured value:	+ 5.5dBu (value rises while VCA cools down)
	Calculate:	5.5dBu + 0.8 dB = <u>+6.3dBu</u>

- Adjust quickly with **R324** to the calculated value (Small Fader VCA)

Example:	Measured value:	+ 6.9dBu (value rises while VCA cools down)
	Calculate:	+6.9dBu + -0.5dB = <u>+6.4dBu</u>

6.3.2 VCA alignment for version .81

**Test signal** 1kHz sine wave at nominal level into Input Insert 1 Return  
Switch Input Insert 1 ON

**Test point** **Insert Send ΣA left**

**Main Fader VCA gain: 0dB**

- Position the fader to 0dB. Make sure that there is no offset between fader and VCA position ("nulled" fader).
- For a precise setting use a computer terminal with the servicing software. Set the VCA of the input channel to a 0dB level with the following command: "10 00 02 00 00": Main fader VCA to 0dB.

**Small Fader VCA gain: 0dB**

- Position the fader to 0dB. Make sure that there is no offset between fader and VCA position (\*nulled\* fader).
- For a precise setting use a computer terminal with the servicing software. Set the VCA of the input channel to a 0dB level with the following command: "0F 00 02 00 00": Small fader VCA to 0dB.

**Measurement**

Measure the  $\Sigma$  insert send now and note the difference between nominal level and measured value on a sheet of paper. For this measurement it is essential to operate the unit under normal conditions (i.e. unit installed in the console, normal operating temperature).

To send the signal from Input Insert 1 Return to the small fader push the INS 1 button on the Inline Unit and note the difference as above.

Example:	Main Path	Small Path
Nominal level:	+ 6dBu	+ 6dBu
Measured value:	+ 5.2dBu	+ 6.5dBu
Difference:	+ 0.8dB	- 0.5dB

**Adjustment**

- Switch off the console, remove the Input Unit and connect it to the suitable extension boards. Cover the VCA assembly with a piece of cloth to minimize VCA temperature drift.
- Switch on the console.
- Now read the level again and add the noted difference.
- Adjust quickly with **R314** to this calculated value (Main fader VCA).

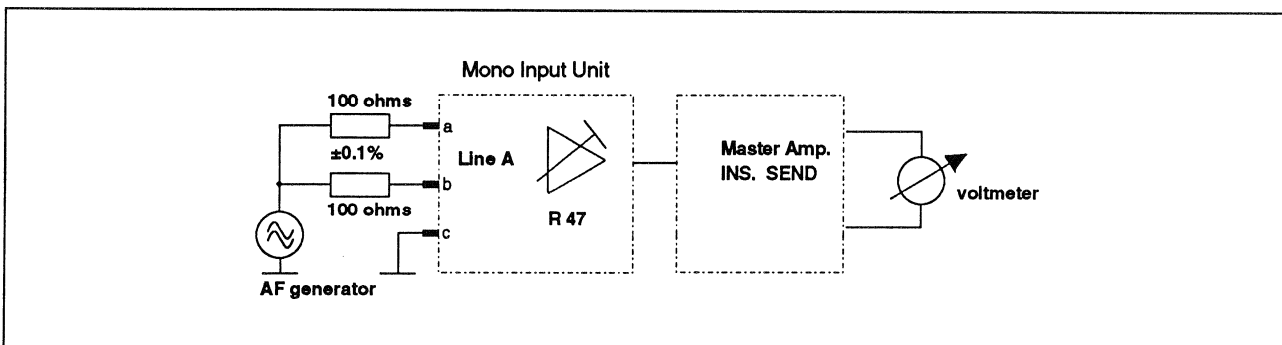
Example: Measured value: + 5.5dBu (value rises while VCA cools down)  
 Calculate: 5.5dBu + 0.8 dB = +6.3dBu

- Adjust quickly with **R324** to the calculated value (Small Fader VCA).
- Example: Measured value: + 6.9dBu (value rises while VCA cools down)  
 Calculate: +6.9dBu + -0.5dB = +6.4dBu

**6.4 Common Mode Rejection**

**Test signal** 16kHz sine wave at nominal level into input **LINE A**  
 Connect the AF generator to the balanced input as shown below.

**Test point** Insert Send  $\Sigma A$  left



Measuring setup for adjusting the common mode rejection.

**Adjustment**

Minimize measured value with **R47**. Insert Send  $\Sigma A \leq -60\text{dBu}$  (775 $\mu\text{V}$ )

**Tape Return, Bus Return**

Adjust these inputs of Inline consoles according to this procedure as follows:  
 Tape Return **R65**; Bus Return **R75**;

## 6.5 Level of input insert 1

---

**Test signal** 1kHz sine wave at nominal level into input **LINE A**

**Test point** **Insert Send  $\Sigma$  A left**

If the input inserts are not wired to a patch you have to link SEND to RETURN for all measurements.

**Adjustment**

- Switch input 1 insert OFF.
- Measure the Insert Send  $\Sigma$  A L level as a **momentary reference** under the actual operating conditions.
- Switch input insert 1 ON and measure again.
- Adjust level with **R132** to the reference level measured above.
- Switch input insert 1 OFF. The level should not change for more than  $\pm 0.2\text{dBu}$ .

## 6.6 Level of input insert 2

---

Same procedure as 6.5: adjust the level of insert 2 with **R157**.

## 6.7 Equalizer

---

**Test signal** 1kHz sine wave at nominal level into input **LINE A**

**Test point** **Insert Send  $\Sigma$  A left**

**Adjustment**

- Turn all EQ gain potentiometers to the 0dB position.
- Switch EQ OFF.
- Measure the Insert Send  $\Sigma$  A as a momentary reference level.
- Switch EQ ON. The value measured now should match the momentary reference level.
- Adjust with **R182**.
- Switch EQ OFF again. The level should not change for more than  $\pm 0.2\text{dBu}$ .

## 6.8 Main path PF level (version .81 only)

---

**Test signal** **LINE A**

**Test Point** **Input Insert 1 Send**

**Adjustment**

Adjust level with **R111** to nominal level

## 6.9 Small path PF level (version .81 only)

---

**Test signal** Bus Return

**Test Point** Input Insert 1 Send

**Adjustment**

- Push "BUS RET" and FLIP INP" on Inline unit
- Adjust level with **R96** to nominal level

## 6.10 Direct output

---

**Test signal** 1kHz sine wave at nominal level into input **LINE A**

**Test point** Direct OUT2  
**Reference** Insert Send  $\Sigma$ A left

**Adjustment**

- Turn the potentiometer DIRECT to the CAL position.
- Measure the Insert Send  $\Sigma$ A as a momentary reference level.
- Measure the Direct Out level.
- Adjust the DIRECT OUT with **R453** to the momentary reference level.

## 6.11 Bus output

---

**Test signal** LINE A

**Test Point** BUS output  
**Reference** Insert Send  $\Sigma$ A left

**Adjustment**

- Measure insert  $\Sigma$ A left as a reference
- Send signal to the BUS OUTPUT by pressing "DIR BUS"
- Measure Bus Output
- Adjust Bus Output to reference with **R426**

## 6.12 Checking

---

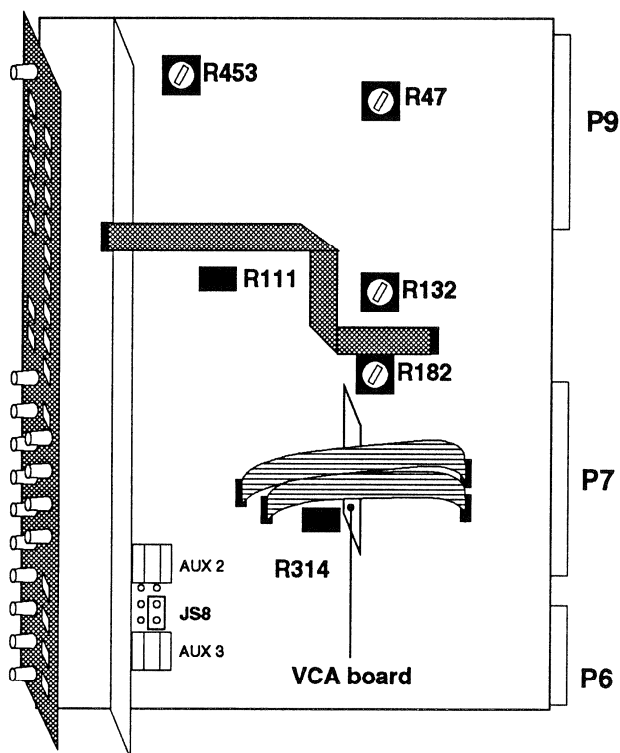
Finally you put the unit back into the console and let it reach steady conditions. The measurements should now give the desired level as a result. Otherwise the procedure has to be repeated.











7 Mono Input Unit 'B'

1.990.220

All module processors must be adjusted before aligning any signal level of the input channel. (see above)

7.1 Position of trimpots and jumpers



Jumpers		Trimmers	
JS8 	AF Main to Direct Out (Default setting)	R47 	CM Rejection Line A
JS7 	PFL Main to Direct Out	R111 	Main path PF (only .81)
JS2 	* AUX 5 to Direct Out	R132 	Insert 1
JS1 	* AUX 4 to Direct Out  * phase reverse	R182 	EQ
		R314 	Main Fader
		R453 	DIRECT Out

### 7.2 Basic settings of the controls

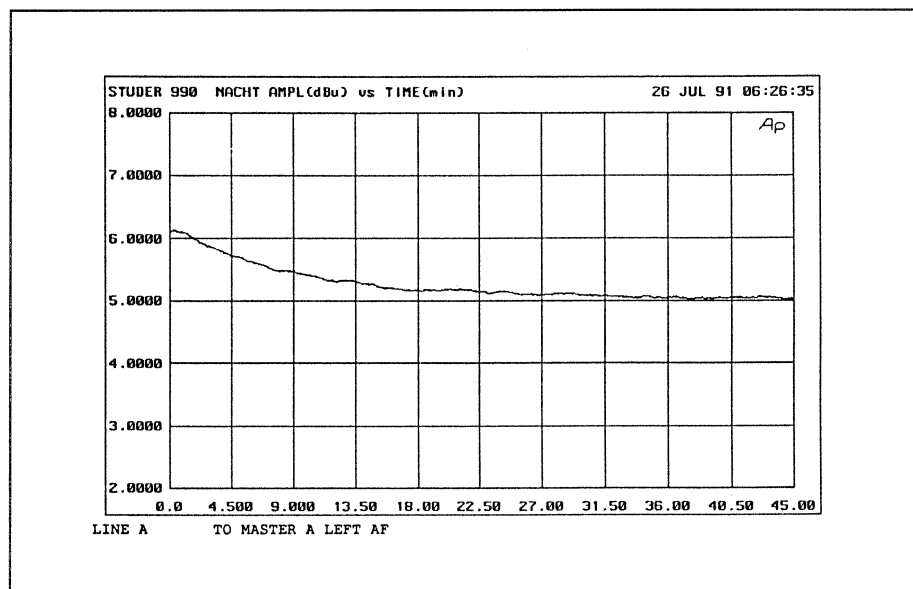
A basic precondition for correct alignment is the precise positioning of the controls according to the following table:

<b>Mono Input Unit</b>	Source..... LINE A
	Phase Ø..... OFF $\cong$ 0°
	Input Gain ..... 0 dB
	Filter..... OFF
	EQ..... OFF
	Inserts..... OFF
	(Note: If inserts are not wired to a patch link SEND → RETURN)

<b>Input Fader</b>	Channel on/off..... ON
	Faderposition..... 0dB
	PAN ..... OFF
	MIX bus ..... $\Sigma$ A ON
	(The VCA can be set to exactly 0.0dB by use of a data terminal, as described below.)

### 7.3 VCA alignment

Though the VCA is temperature compensated its level may change after removing the unit from the console. The VCA adjustments should therefore be performed as fast as possible to keep temperature changes small. It is recommended to work in a warm room (windows and door closed).



VCA amplification after switching on the console.

### 7.3.1 VCA alignment for version .00

---

**Test signal** 1kHz sine wave at nominal level into input **LINE A**

**Test point** **Insert Send ΣA left**

**VCA gain: 0dB**

- Position the fader to 0dB. Make sure that there is no offset between fader and VCA position ("nulled" fader).
- For a precise setting use a computer terminal with the servicing software. Set the VCA of the input channel to a 0dB level with the following command:  
\*10 00 02 00 00\*: Main fader VCA to 0dB.

**Measurement**

Measure the Σ insert send now and note the difference between nominal level and measured value on a sheet of paper. For this measurement it is essential to operate the unit under normal conditions (i.e. unit installed in the console, normal operating temperature).

Example:   Nominal level:       + 6dBu  
              Measured value:     + 5.2dBu  
              Difference:         + 0.8dB

**Adjustment**

- Switch off the console, remove the Input Unit and connect it to the suitable extension boards. Cover the VCA assembly with a piece of cloth to minimize VCA temperature drift.
- Switch on the console.
- Now read the level again and add the noted difference.
- Adjust quickly with **R314** to this calculated value.

Example:   Measured value:     + 5.5dBu (value rises while VCA cools down)  
              Calculate:           5.5dBu + 0.8dB = +6.3dBu

### 7.3.2 VCA alignment for version .81

---

**Test signal** 1kHz sine wave at nominal level into **Input Insert 1 Return**  
Switch **Input Insert 1 ON**

**Test point** **Insert Send ΣA left**

**VCA gain: 0dB**

- Position the fader to 0dB. Make sure that there is no offset between fader and VCA position ("nulled" fader).
- For a precise setting use a computer terminal with the servicing software. Set the VCA of the input channel to a 0dB level with the following command:  
\*10 00 02 00 00\*: Main fader VCA to 0dB.

**Measurement**

Measure the Σ insert send now and note the difference between nominal level and measured value on a sheet of paper. For this measurement it is essential to operate the unit under normal conditions (i.e. unit installed in the console, normal operating temperature).

Example:   Nominal level:       + 6dBu  
              Measured value:     + 5.2dBu  
              Difference:         + 0.8dB



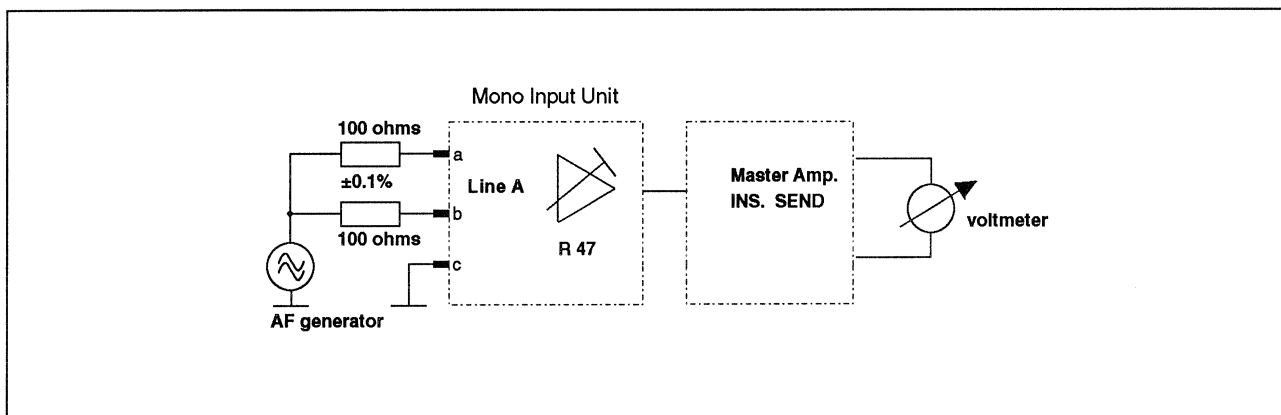
**Adjustment**

- Switch off the console, remove the Input Unit and connect it to the suitable extension boards. Cover the VCA assembly with a piece of cloth to minimize VCA temperature drift.
  - Switch on the console.
  - Now read the level again and add the noted difference.
  - Adjust quickly with **R314** to this calculated value.
- Example: Measured value: + 5.5dBu (value rises while VCA cools down)  
 Calculate: 5.5dBu + 0.8dB = +6.3dBu

**7.4 Common mode rejection**

**Test signal** 16kHz sine wave at nominal level into input **LINE A**  
 Connect the AF generator to the balanced input as shown below.

**Test point** Insert Send  $\Sigma$  A left



Measuring setup for adjusting the common mode rejection.

**Adjustment** Minimize measured value with **R47**. Insert Send  $\Sigma$  A  $\leq -60$ dBu (775 $\mu$ V)

**7.5 Input insert level**

**Test signal** 1kHz sine wave at nominal level into input **LINE A**

**Test point** Insert Send  $\Sigma$  A left

If the input inserts are not wired to a patch you have to link SEND to RETURN for all measurements.

- Adjustment**
- Switch input insert OFF.
  - Measure the Insert Send  $\Sigma$  A L level as a **momentary reference** under the actual operating conditions.
  - Switch input insert ON and measure again.
  - Adjust level with **R132** to the reference level measured above.
  - Switch input insert OFF. The level should not change for more than  $\pm 0.2$ dBu.

---

## 7.6 Equalizer

---

- Test signal** 1kHz sine wave at nominal level into input **LINE A**
- Test point** **Insert Send ΣA left**
- Adjustment**
- Turn all EQ gain potentiometers to the 0dB position.
  - Switch EQ OFF.
  - Measure the Insert Send ΣA as a momentary reference level.
  - Switch EQ ON. The value measured now should match the momentary reference level.
  - Adjust with **R182**.
  - Switch EQ OFF again. The level should not change for more than  $\pm 0.2\text{dBu}$ .

---

## 7.7 Main path PF level

---

- Test signal** **LINE A**
- Test Point** **Input Insert Send**
- Adjustment** Adjust level with **R111** to nominal level

---

## 7.8 Direct output

---

- Test signal** 1kHz sine wave at nominal level into input **LINE A**
- Test point** **Direct OUT**
- Reference** **Insert Send ΣA left**
- Adjustment**
- Turn the potentiometer **DIRECT** to the **CAL** position.
  - Measure the Insert Send ΣA as a momentary reference level.
  - Measure the Direct Out level.
  - Adjust the **DIRECT OUT** with **R453** to the momentary reference level.

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## 7.9 Checking

---

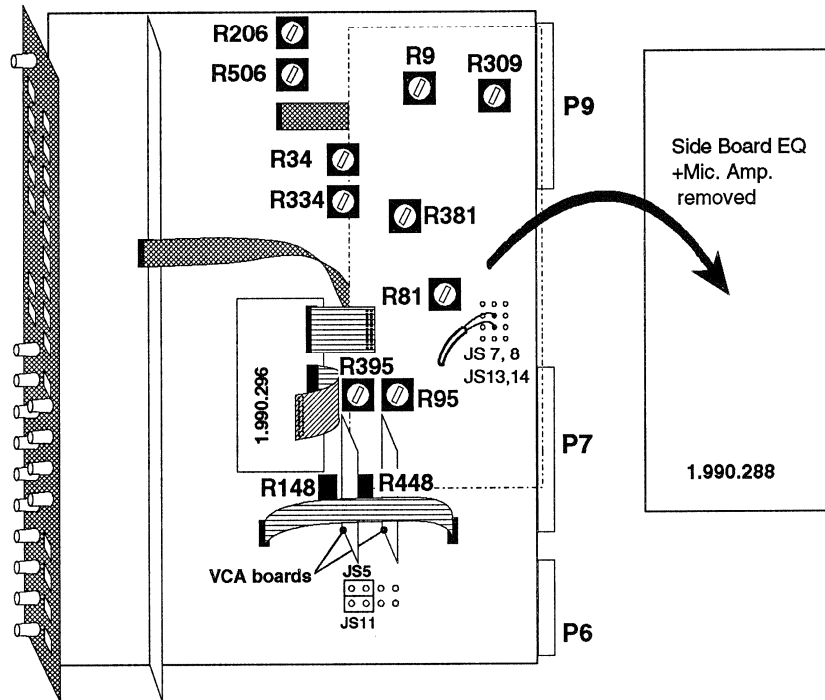
Finally put the unit back into the console and let it reach steady conditions. The measurements should now give the desired level as a result. Otherwise the procedure has to be repeated.

8 Input Units Stereo

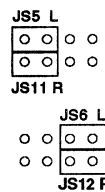
1.990.230...245

All module processors must be adjusted before aligning any signal level of the input channel. (see above)

8.1 Position of trimmers and jumpers

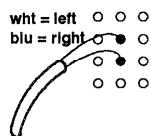


Jumpers

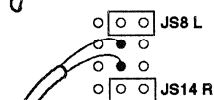


AF to Direct Out  
(Default setting)

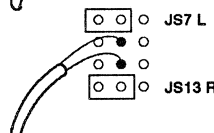
AUX 5/6 to Direct Out



After PAN to Direct Out  
used for MPX function  
(Default setting)



After Pan to Direct Out



PF to Direct Out

Trimmers

- R 9 Common Mode Rejection
- R 309 CMR Line A left
- R 34 Input gain adjust left
- R 334 Input gain adjust right
- R 81 Insert send level left
- R 381 Insert send level right
- R 95 EQ gain adjust left
- R 395 EQ gain adjust right
- R 148 VCA gain adjust left
- R 448 VCA gain adjust right
- R 206 Direct Out level left
- R 506 Direct Out level right

## 8.2 Basic settings of the controls

A basic precondition for correct alignment is the precise positioning of the controls according to the following table:

<b>Stereo Input Unit</b>	Source .....	LINE A
	Phase $\emptyset$ .....	OFF $\cong$ 0°
	Input Gain .....	0 dB
	Filter .....	OFF
	EQ .....	OFF
	Insert .....	OFF
	(Note: If inserts are not wired to a patch, link SEND → RETURN)	
<b>Input Fader</b> (Small and Main Fader)	Channel on/off .....	ON
	Fader position .....	0dB
	PAN / Balance .....	OFF
	MIX bus .....	$\Sigma$ A ON
		(The VCA can be set to exactly 0.0dB by use of a data terminal, as described below.)

## 8.3 VCA alignment

**Test signal** 1kHz sine wave at nominal level into **input Insert RETURN left / right**. Press the input INSERT IN key to switch on the insert.

**Test point** **Insert Send  $\Sigma$ A left / right**

### VCA gain: 0dB

- Position the fader to 0dB. Make sure that there is no offset between fader and VCA position ("nulled" fader).
- For a precise setting use a computer terminal with the servicing software. Set the VCA of the input channel to a 0dB level with the following command: "10 00 02 00 00": Main fader VCA to 0dB.

### Measurement

Measure the  $\Sigma$  insert send left and right and note the difference between nominal level and measured value for both channels on a sheet of paper. It is essential for this measurement to operate the unit under normal conditions (i.e. unit installed in the console, normal operating temperature).

Example:

Nominal level:	+ 6dBu
Measured value:	+ 6.4dBu (left channel)
Difference:	- 0.4dB (left channel)
Measured value:	+ 5.7dBu (right channel)
Difference:	+ 0.3dB (right channel)

### Adjustment

- Switch off the console, remove the Input Unit and connect it to the suitable extension boards. Cover the VCA assemblies with a piece of cloth to minimize VCA temperature drift.
- Switch on the console.
- Now read the level of the **left channel** again and add the noted difference.
- Adjust VCA quickly with **R148 (left)** to this calculated value.
 

Example:	Measured value:	+ 6.6dBu (value rises while VCA cools down)
	Calculate:	6.6dBu - 0.4dB = <u>+6.2dBu</u> (left channel)
- Measure the **right channel** the same way and adjust it with **R448 (right)**.
 

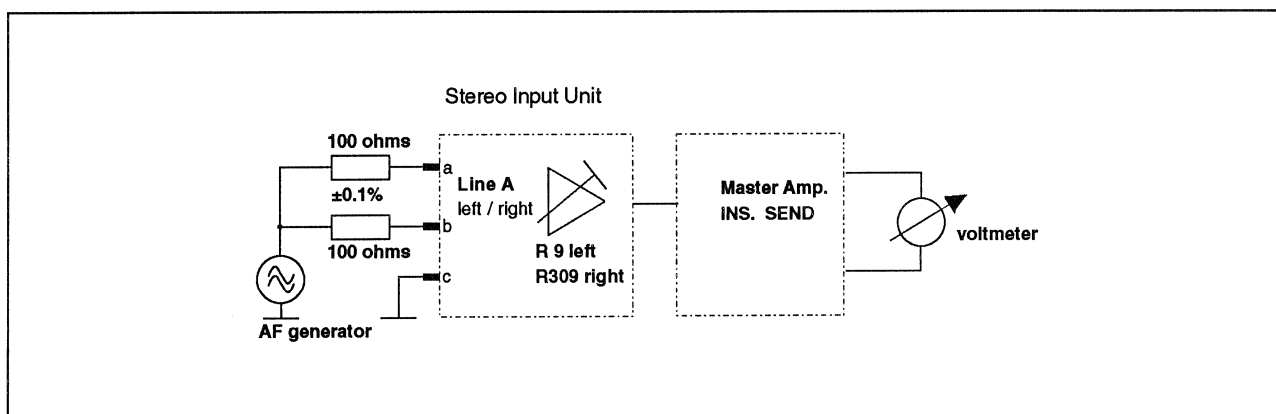
Example:	Measured value:	+ 6.0dBu
	Calculate:	6.0dBu + 0.3dB = <u>+6.3dBu</u> (right channel)

## 8.4 Common mode rejection

only 1.990.232 / 235 / 242 / 245

**Test signal** 16kHz sine wave at nominal level into input **LINE A left / right**.  
Connect the AF generator to the balanced input as shown below.

**Test point** Insert Send  $\Sigma$ A left / right



Measuring setup for adjusting the common mode rejection.

## Adjustment

**Minimize** measured value for both channels with the following trimmers:

LINE A left: **R9**

LINE A right: **R309**

Insert Send  $\Sigma$ A left / right  $\leq -60\text{dBu}$  ( $775\mu\text{V}$ )

## 8.5 Input insert level

**Test signal** 1kHz sine wave at nominal level into input **LINE A left / right**

**Test point** Insert Send  $\Sigma$ A left / right

If the input inserts are not wired to a patch you have to link SEND to RETURN.

## Adjustment

- Switch input insert **OFF**.
- Measure the left insert Send  $\Sigma$ A level as a **momentary reference** under the present operating conditions.
- Switch input insert **ON** and measure again.
- Adjust level with **R81 (left)** to the reference level measured above.
- Switch input insert **OFF**. The level should not change for more than  $\pm 0.2\text{dBu}$ .
- Measure the **right channel** the same way and adjust it with **R381 (right)**.

**8.6 Equalizer****only 1.990.230 / 232 / 240 / 242****Test signal** 1kHz sine wave at nominal level into input **LINE A left / right****Test point** **Insert Send  $\Sigma$ A left / right****Adjustment**

- Turn all EQ gain potentiometers to the 0dB position.
- Switch EQ OFF.
- Measure the Insert Send  $\Sigma$ A for both channels as a momentary reference level.
- Switch EQ ON. The value measured now for the **left channel** should match its momentary reference level.
- Adjust with **R95 (left)**.
- Switch EQ OFF again. The level should not change for more than  $\pm 0.2$ dBu.
- Repeat the procedure for the **right channel**. Adjust with **R395 (right)**.

**8.7 Input amplifier****Test signal** 1kHz sine wave at nominal level into input **LINE A left / right**  
(Switch off the input insert)**Test point** **Insert Send  $\Sigma$ A left / right****Note:** You can use the values calculated for the VCA adjustment if you align the input path immediately afterwards.**Adjustment**Measure the Insert Send  $\Sigma$ A and adjust the level of each channel to the value, calculated for the VCA adjustment ( $\pm 0.2$ dB).Input path **left: R34**Input path **right: R334****8.8 Direct output****Test signal** 1kHz sine wave at nominal level into input **LINE A left / right****Test point** **Direct OUT left / right**  
**Reference** **Insert Send  $\Sigma$ A left / right****Adjustment**

- Turn the potentiometer DIRECT to the CAL position.
- Measure the Insert Send  $\Sigma$ A for both channels as a momentary reference level.
- Measure the Direct Out level of the left channel.
- Adjust the DIRECT OUT with **R203 (left)** to the momentary reference level.
- Repeat the procedure for the **right channel**. Adjust with **R503 (right)**.

**8.9 Checking**

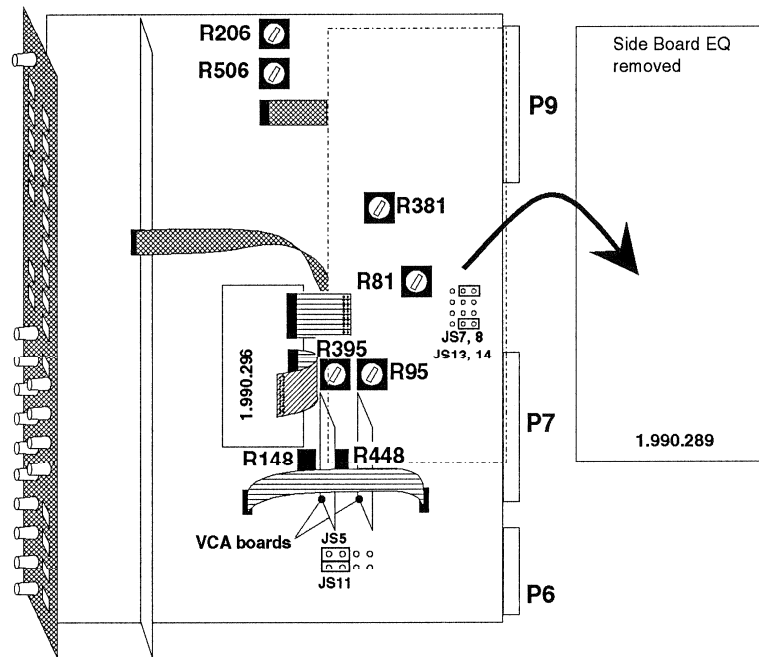
Finally you put the unit back into the console and let it reach steady conditions. The measurements should now give the desired level as a result. Otherwise the procedure has to be repeated.

9 Group Units, Mono and Stereo

1.990.250...285

All module processors must be adjusted before aligning any signal level of the input channel (see above).

9.1 Position of Trimmers and Jumpers



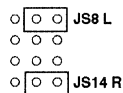
Jumpers



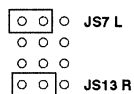
AF to Direct Out  
(Default setting)



AUX 5/6 to Direct Out



After Pan to Direct Out



PF to Direct Out

Trimmers

- R 81 Insert left
- R 381 Insert right (for stereo unit only)
- R 95 EQ left
- R 395 EQ left (for stereo unit only)
- R 148 VCA left
- R 448 VCA right (for stereo unit only)
- R 206 Direct Out left
- R 506 Direct Out right (for stereo unit only)

## 9.2 Basic Settings of the Controls

A basic precondition for correct alignment is the precise positioning of the controls according to the following table:

<b>Mono Input Unit:</b>	Source ..... LINE A
	Phase Ø ..... OFF $\pm$ 0°
	Input Gain ..... 0 dB
	Filter ..... OFF
	EQ ..... OFF
	Insert ..... OFF
	Group Bus ..... 1...8 ON
<b>Input Fader:</b>	Channel on/off ..... ON
	Fader position ..... 0 dB
	PAN / Balance ..... OFF
	(Note: The VCA can be set to exactly 0.0 dB by using a data terminal, as described below.)
<b>Group Unit:</b>	MIX Bus ..... $\Sigma$ A left/right ON
	EQ ..... OFF
	Insert ..... OFF
	(Note: If inserts are not wired to a patch, link SEND → RETURN.)
<b>Group Fader:</b>	Channel on/off ..... ON
	Fader position ..... 0 dB
	PAN / Balance ..... OFF
	(Note: The VCA can be set to exactly 0.0 dB by using a data terminal, as described below.)

## 9.3 VCA Alignment

**Test signal** 1 kHz sine wave at nominal level into LINE A of Mono Input Unit.

**Test point** *Insert Send  $\Sigma$ A left/right*

- VCA gain: 0 dB**
- Position the fader to 0 dB. Make sure that there is no offset between fader and VCA position ("nulled" fader).
  - For a precise setting use a computer terminal with the servicing software. Set the VCA of the input channel to a 0 dB level with the following command: "10 00 02 00 00": Main fader VCA to 0 dB.

**Measurement** Measure the  $\Sigma$  insert sen left and right and note the difference between nominal level and measured value for both channels on a sheet of paper. It is essential for this measurement to operate the unit under normal conditions (i.e. unit installed in the console, normal operating temperature).

Example:	Nominal level	+6.0 dBu	
	Measured value	+6.4 dBu	(left channel)
	Difference	<b>-0.4 dB</b>	(left channel)
	Measured value	+5.7 dBu	(right channel)
	Difference	<b>+0.3 dB</b>	(right channel)

- Adjustment**
- Switch off the console, remove the Input Unit and connect it to the suitable extension boards. Cover the VCA assemblies with a piece of cloth to minimize VCA temperature drift.
  - Switch the console on.
  - Now read the level of the left channel again and add the noted difference.



- Adjust VCA quickly with R148 (left) to this calculated value.  
Example: Measured value +6.6 dBu (value rises while VCA cools down)  
Calculate: 6.6 dBu - 0.4 dB = **+6.2 dBu** (left channel)
- Measure the right channel the same way and adjust it with R448 (right).  
Example: Measured value +6.0 dBu (value rises while VCA cools down)  
Calculate: 6.0 dBu + 0.3 dB = **+6.3 dBu** (right channel)

#### 9.4 Group Insert Level

---

**Test signal** 1 kHz sine wave at nominal level into input LINE A left/right.

**Test point** *Insert Send ΣA left/right*

- Adjustment**
- Switch input insert off.
  - Measure the left Insert Send ΣA level as a momentary reference under the present operating conditions.
  - Switch input insert on and measure again.
  - Adjust level with R81 (left) to the reference level measured above.
  - Switch input insert off. The level should not change more than ±0.2 dB.
  - Measure the right channel the same way and adjust with R381 (right).

#### 9.5 Equalizer

**only 1.990.250 / 260 / 270 / 280**

---

**Test signal** 1 kHz sine wave at nominal level into input LINE A left/right.

**Test point** *Insert Send ΣA left/right*

- Adjustment**
- Turn all EQ gain potentiometers to the 0 dB position.
  - Switch EQ off.
  - Measure the Send ΣA level for both channels as a momentary reference level.
  - Switch EQ on. The value measured now for the left channel should match its momentary reference level.
  - Adjust with R95 (left).
  - Switch EQ off again. The level should not change more than ±0.2 dB.
  - Repeat the procedure for the right channel, adjust with R395 (right).

#### 9.6 Direct Output (Group Output)

---

**Test signal** 1 kHz sine wave at nominal level into input LINE A left/right.

**Test point** *Direct OUT left/right (Group OUT left/right)*

**Reference** *Insert Send ΣA left/right*

- Adjustment**
- Measure the Send ΣA level for both channels as a momentary reference level.
  - Measure the Direct OUT level of the left channel.
  - Adjust the Direct OUT with R203 (left) to the momentary reference level.
  - Repeat the procedure for the right channel, adjust with R503 (right).

#### 9.7 Checking

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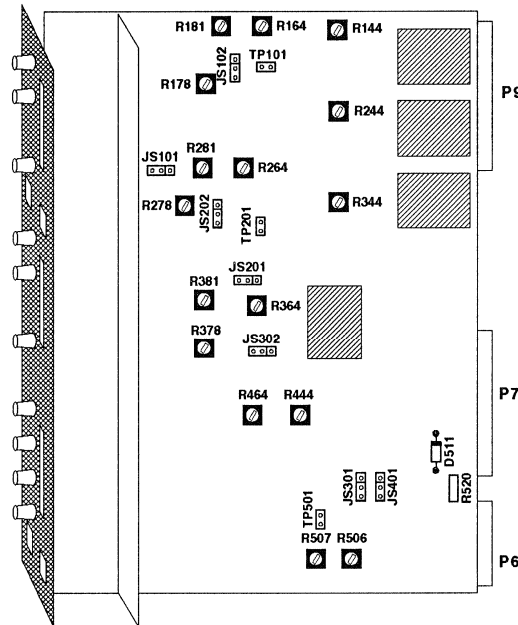
Finally you put the unit back into the console and let it reach steady conditions. The measurements should now give the desired level as a result. Otherwise repeat the procedures.

10 Aux Master Unit

1.990.310

All module processors must be adjusted before aligning any signal level of the input channel (see above).  
Also the Mono Input Unit must be aligned before.

10.1 Position of Trimmers and Jumpers



Jumpers	Level adjustment
JS101: <input type="checkbox"/> <input type="checkbox"/> AUX1: PFL <input type="checkbox"/> <input type="checkbox"/> AUX1: SOLO	R144 AUX1 R244 AUX2 R344 AUX5 R444 AUX6
JS102: <input type="checkbox"/> AUX1: PPM <input type="checkbox"/> AUX1: VU	<b>Meter adjustment</b>
JS201: <input type="checkbox"/> <input type="checkbox"/> AUX2: PFL <input type="checkbox"/> <input type="checkbox"/> AUX2: SOLO	R164 AUX1 R264 AUX2 R364 AUX5 R464 AUX6
JS202: <input type="checkbox"/> AUX2: PPM <input type="checkbox"/> AUX2: VU	<b>Meter scale adjustment</b>
JS301: <input type="checkbox"/> <input type="checkbox"/> AUX5: PFL <input type="checkbox"/> <input type="checkbox"/> AUX5: SOLO	R178 / R181 AUX1 R278 / R281 AUX2 R378 / R381 AUX5
JS302: <input type="checkbox"/> <input type="checkbox"/> AUX5/6: VU <input type="checkbox"/> <input type="checkbox"/> AUX5/6: PPM	<b>LED bargraph brightness adjustment</b>
JS401: <input type="checkbox"/> <input type="checkbox"/> AUX6: PFL <input type="checkbox"/> <input type="checkbox"/> AUX6: SOLO	R507 R506

## 10.2 Basic Settings of the Controls

---

A basic precondition for correct alignment is the precise positioning of the controls according to the following table:

<b>Mono Input Unit:</b>	Source ..... LINE A
	Input Gain ..... 0 dB
	Routing ..... OFF
	All Aux ..... ON
	Aux source ..... Pre fader
	All Aux pots ..... max. position
	Aux Pan ..... center position
<b>Aux Master Unit:</b>	All Aux ..... ON
	Aux level pots ..... max. position
	EQ ..... OFF
	Aux balance ..... calibrated

## 10.3 Alignment of Mono AUX 1 and 2 ( $\cong$ 3 and 4)

---

**Test signal** 1 kHz sine wave at nominal level into LINE A of Mono Input Unit.

**Test point** *AUX Master out 1 and 2*

### Adjustment

- Adjust the AUX1 output level with R144 to 10 dB above nominal level.
- Turn potentiometer AUX MASTER 1 on the AUX Unit down to nominal level.
- Adjust the AUX1 meter with R164 to 0 dB indication; turn R164 until the first red LED comes on. Then slowly turn backwards until the first red LED becomes dark again.
- Repeat for AUX2; trimmers are R244 for level adjustment, R264 for meter adjustment.

## 10.4 Alignment of Stereo AUX 5/6 ( $\cong$ 7/8)

---

**Test signal** 1 kHz sine wave at nominal level into LINE A of Mono Input Unit.

**Test point** *AUX Master Out 5.*

### Adjustment

- Set the BALANCE pot on the AUX Unit to the center position.
- Turn the PAN pot 5/6 on the Mono Input Unit fully counterclockwise (AUX 5).
- Adjust the AUX5 output level with R344 to 10 dB above nominal level.
- Turn potentiometer AUX MASTER 5 on the AUX Unit down to nominal level.
- Adjust the AUX5 meter with R364 to 0 dB indication; turn R364 until the first red LED comes on. Then slowly turn backwards until the first red LED becomes dark again.

**Test point** *AUX Master Out 6.*

- Turn the PAN pot 5/6 on the Mono Input Unit fully clockwise (AUX 6).
- Adjust the AUX6 output level with R444 to *nominal level*.
- Adjust the AUX6 meter with R464 to 0 dB indication; turn R464 until the first red LED comes on. Then slowly turn backwards until the first red LED becomes dark again.

## 10.5 Alignment of LED Bargraph Meter Scale

---

**Test signal** 1 kHz sine wave at nominal level into input LINE A left/right.

**Test point** *AUX Master Out 1, 2, 5.*

### Adjustment

- ❶ Set the AUX Master Output to 25 dB *below* nominal level.
- ❷ Turn R181 until the 5th green LED comes on. Then turn R181 back slowly until the 5th green LED turns off again.
- ❸ Set the AUX Master Output to 5 dB *above* nominal level.
- ❹ Turn R178 until the 3rd red LED comes on. Then turn R178 back slowly until the 3rd red LED turns off again.
- Repeat steps ❶ to ❹, until the indications are correct.
- Proceed as above for AUX2 and AUX5;  
AUX2 controls are R281, R278  
AUX5 controls are R381, R378 (also valid for AUX6).

## 10.6 Alignment of LED Bargraph Meter Brightness

---

Set output to 15 dB above nominal level so that all LEDs are on.

### Two possibilities:

- A:** Either adjust a fixed brightness - independent of the central brightness control, or
- B:** Adjust the factory setting; the brightness is depending on the central brightness control.

### Alignment A

- Connect DC voltmeter to test point TP501.
- Turn R506 fully counterclockwise.
- Align with R507 for a 2 V DC reading on the voltmeter.

### Alignment B

- Connect DC voltmeter between any terminal of R520 (PTC  $V_{LED}$ ) and the cathode of D511 ( $0 V_A$ ). Adjust with the the central brightness control to 3.5 V DC.
- Connect DC voltmeter to test point TP501.
- Turn R507 fully counterclockwise.
- Align with R506 for a 2 V DC reading on the voltmeter.

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**Section 3                      Fader Panel Units**


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**Table of Contents**

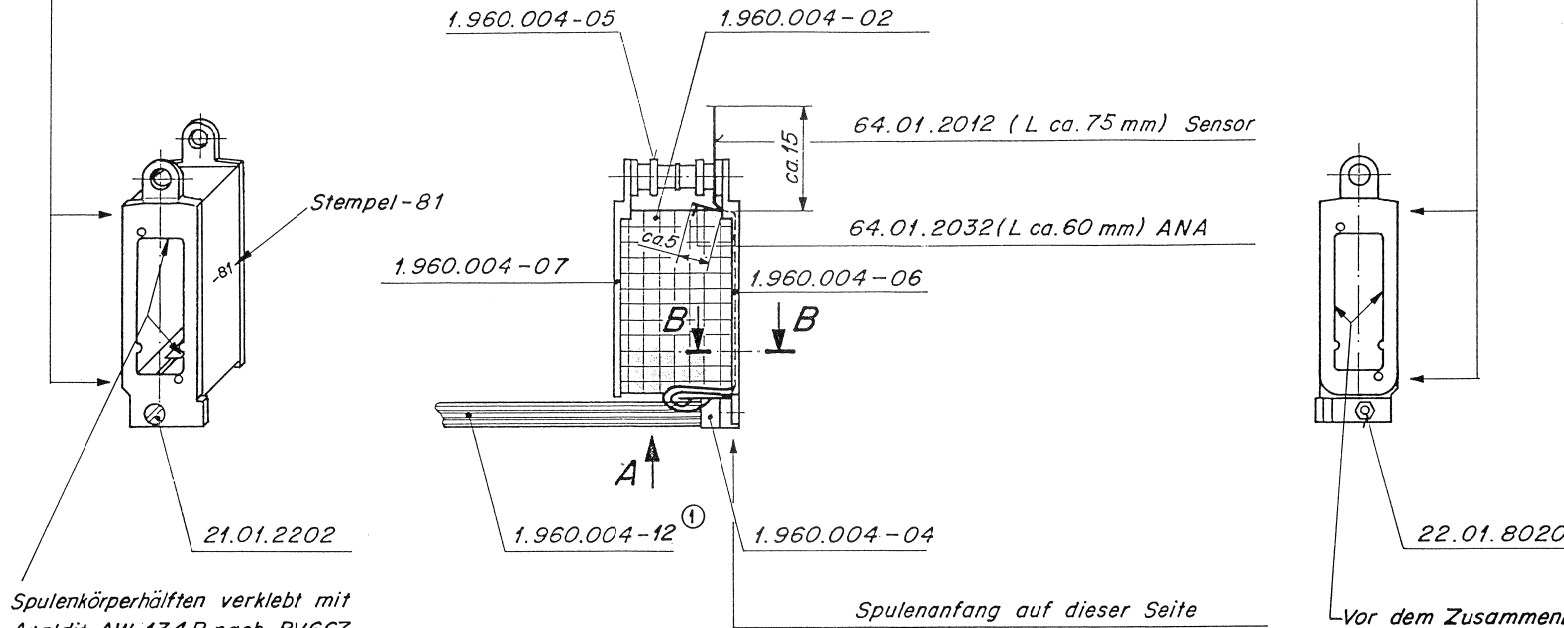

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Spule komplett.....	1.960.004.81
Fader 1xLin. 104mm.....	1.960.021.00
Motor Fader 1xLin. 104mm.....	1.960.041.00
Motor Fader 1xLin. 104mm.....	1.960.042.82
<b>Input Fader Unit.....</b>	<b>1.990.111.00</b>
Pin location list.....	1.990.110
Input Fader Unit.....	1.990.110/111.00
4 Amplifier Board.....	1.990.117.00
Input Fader Analog Board .....	1.990.118.00
Input Fader Switch Board.....	1.990.119.00
<b>Group Fader Unit.....</b>	<b>1.990.131.00</b>
Group Fader Unit.....	1.990.130/131.00
Group Fader Switch Board.....	1.990.139.00
<b>Master Fader Unit.....</b>	<b>1.990.141.00</b>
Master Fader Unit.....	1.990.140/141.00
Master Fader Analog Board .....	1.990.148.00
Master Fader Switch Board .....	1.990.149.00
<b>Input Fader Unit w. Motor.....</b>	<b>1.990.151.00</b>
<b>Input Fader Unit w. Motor.....</b>	<b>1.990.151.81</b>
Linear Motor Driver Board.....	1.990.157.00
Linear Motor Driver Board.....	1.990.157.81
<b>Group Fader Unit w. Motor.....</b>	<b>1.990.171.00</b>
<b>Group Fader Unit w. Motor.....</b>	<b>1.990.171.81</b>
<b>Master Fader Unit w. Motor.....</b>	<b>1.990.181.00</b>
<b>Master Fader Unit w. Motor.....</b>	<b>1.990.181.81</b>
Module Processor Board.....	1.990.190.30
Memory Board.....	1.990.193.00
<b>Single Processor Unit .....</b>	<b>1.990.195.00</b>
<b>Dual Processor Unit .....</b>	<b>1.990.196.00</b>

SPULE COMPLETT

1.960.004.81

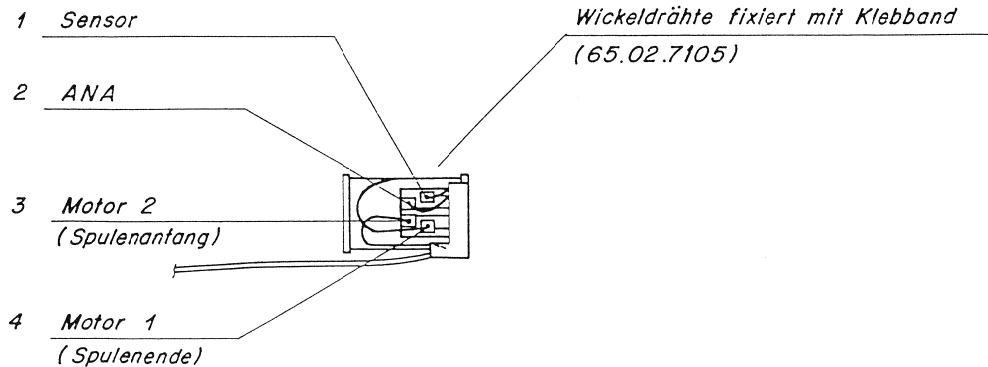
Unter Temperatur und Druck verstemmt  
(mit spez. LötKolben 160°C)



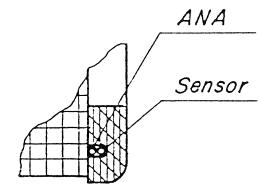
Spulenkörperhälften verklebt mit  
Araldit AW 134 B nach BV667.  
Klebestelle bündig mit Spulenkörper.

Vor dem Zusammenbau prüfen,  
ob Spule sauber verbacken ist.  
Keine losen Windungen zulässig.

Ansicht A



Schnitt B-B  
M 5:1

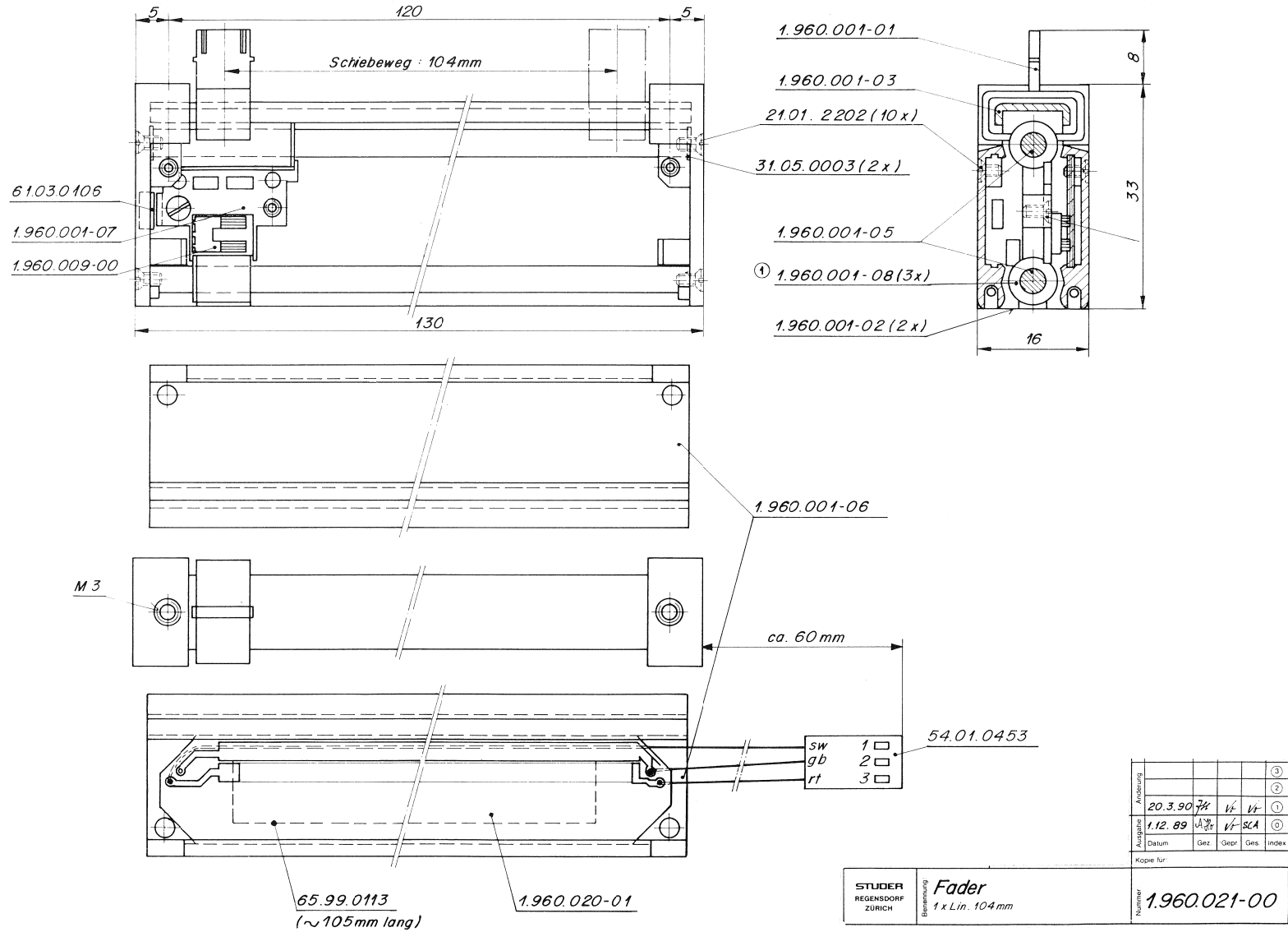


10.6.94	DH	16	16						⊙
15.5.94	JH	16	16						⊙
									⊙

STUDER REGENSDORF ZÜRICH	Spule komplett MK II	1.960.004-81
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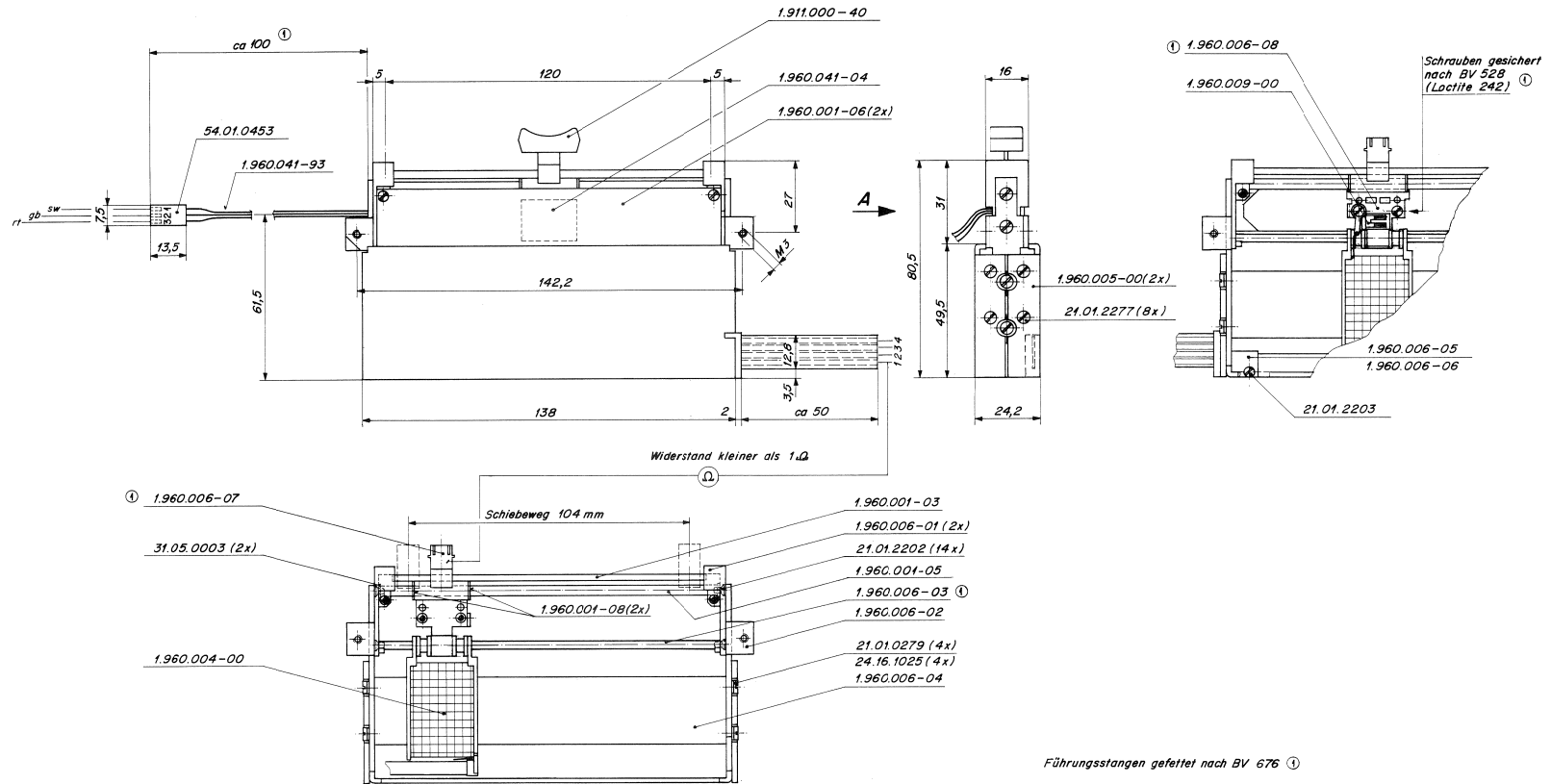
FADER 1 x LIN. 104mm

1.960.021.00

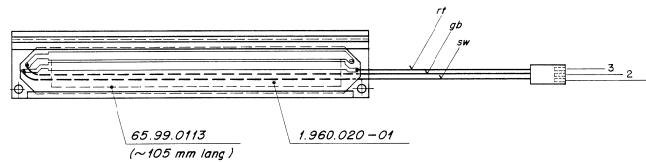


MOTOR FADER 1 x LIN. 104mm

1.960.041.00



Ansicht von A (heruntergeklappt)



Führungsstangen gefettet nach BV 676 (circled)

Kernstück im Bereich der seitlichen Führungen mit 99.01.4302 leicht gefettet (circled)

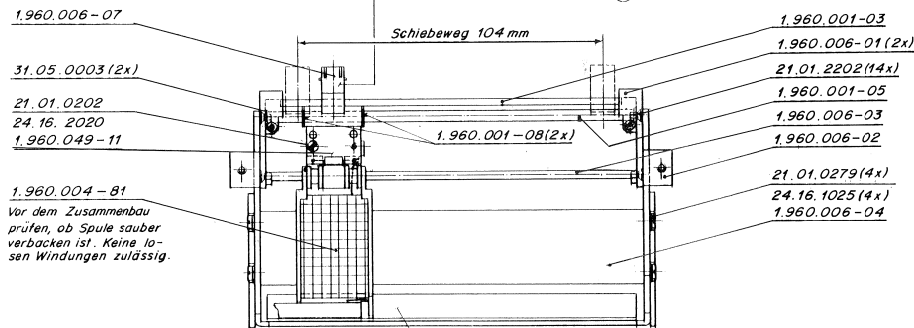
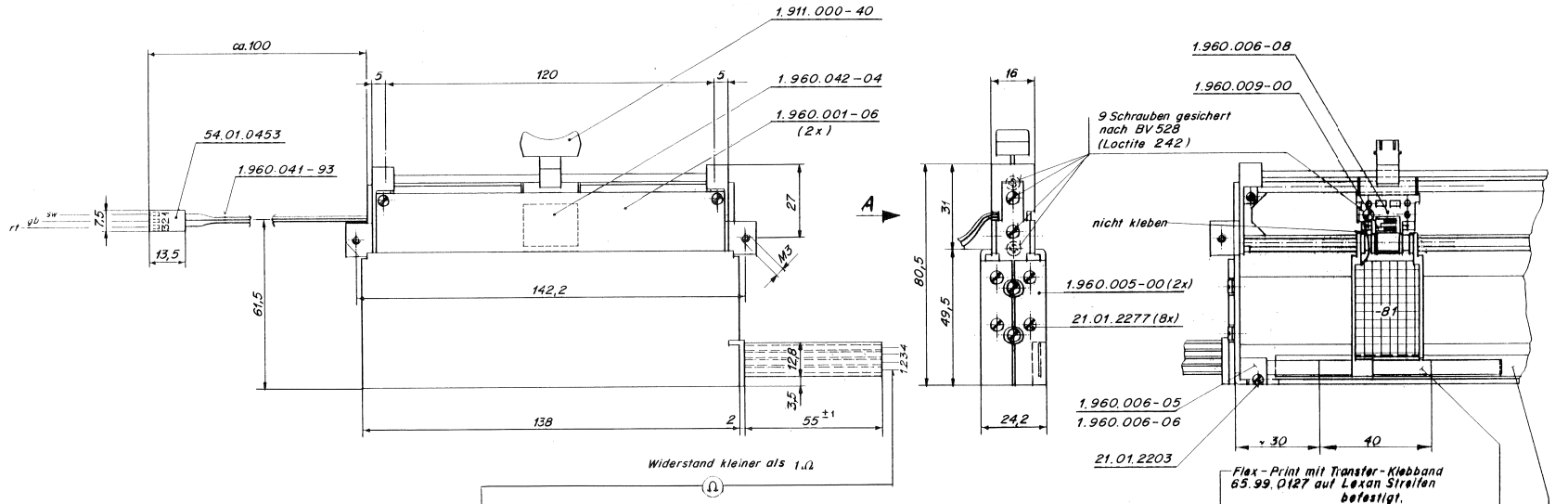
STUDER REGENSDORF ZÜRICH	Bezeichnung: <b>Motorfader 1 x Lin. 104 mm</b>	Nummer: <b>1.960.041-00</b>
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Änderung					(3)
					(2)
Datum	6.11.89	Gez.	Gepr.	Ges.	Index
Ärztlich	11.8.88	Gez.	Gepr.	Ges.	Index



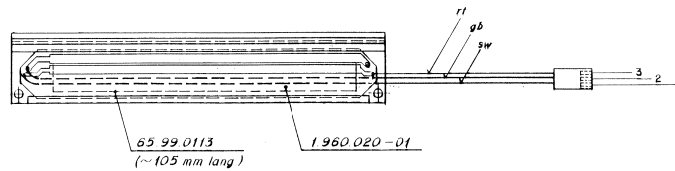
MOTOR FADER 1 x LIN. 104mm

1.960.042.82



1.960.001-09 mit Transferklebband 65.99.0127 auf Rückschlussplatte befestigt.

Ansicht von A (heruntergeklappt)



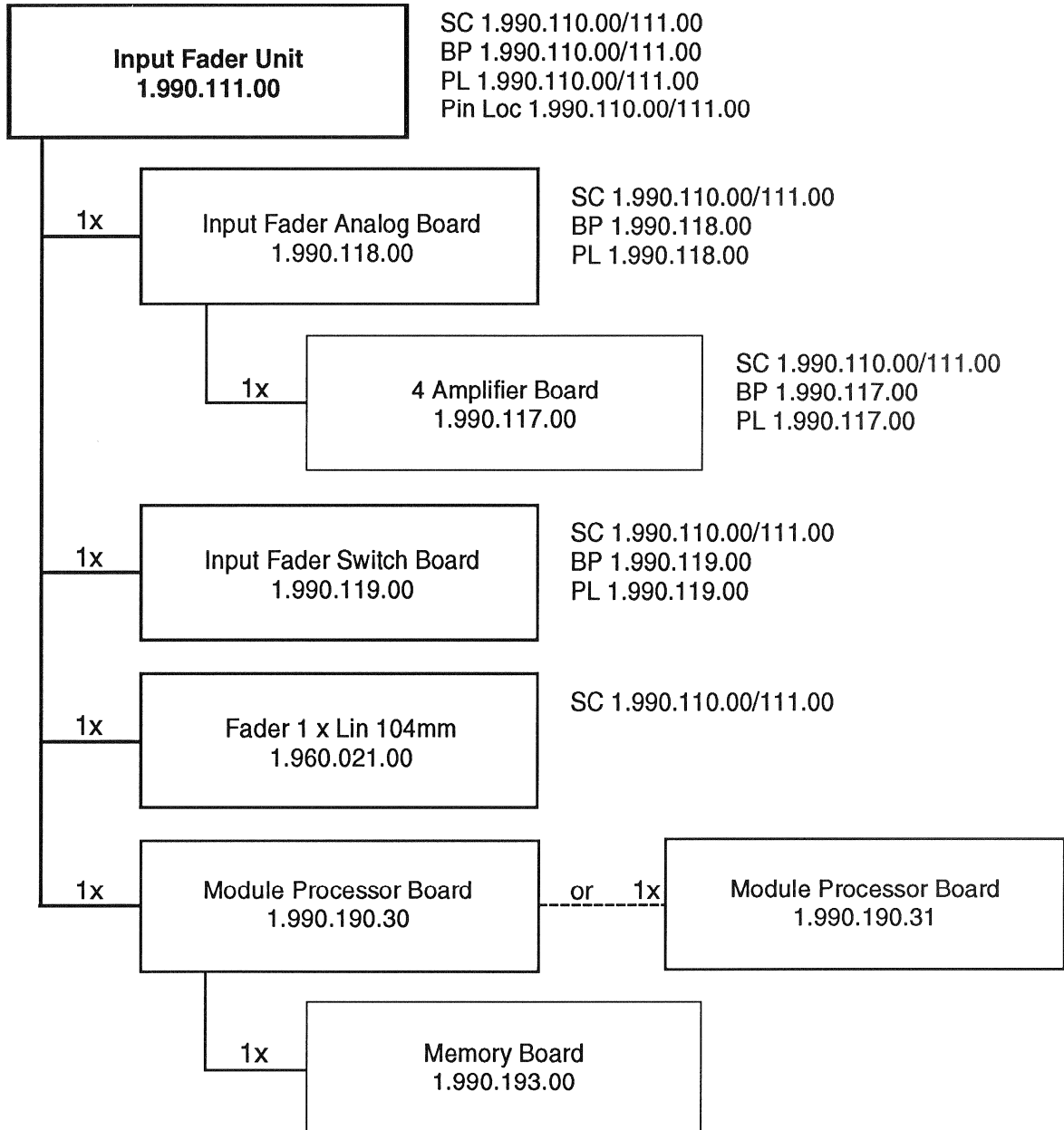
Führungsstangen gefettet nach BV 676  
Kernstück im Bereich der seitlichen Führungen mit 99.01.4302 leicht gefettet.

16.5.94	94	10	10	(3)
2	Delium	Gez	Gez	(1)

STUDER REIHERDRUCK ZEICHNUNG	Motorfader 1*Lin 104mm EMV MK 2	1.960.042-82
------------------------------------	------------------------------------	--------------

Input Fader Unit

1.990.111.00



SC: Schema      Circuit Diagram  
BP: Bestückungsplan    PCB Layout  
PL: Positionsliste      Positional List

## Pin location list

1.990.110

ALSO USED FOR	-GROUP FADER UNIT	1.990.130
	-MASTER FADER UNIT	1.990.140
	-INP.FADER W.MOTOR	1.990.150
	-GROUP FADER W.MOTOR	1.990.170
	-MASTER FADER W.MOTOR	1.990.180

P	NO	NAME	REMARK	
-----			-----	

B=BUS  
 O=CONNECTION  
 S=SYMMETRIC  
 I=INVERS  
 AS=ASYMMETRIC

-----

P1A NOT EXIST

P1B 01A	0V-L	GROUND SIGN (LOGIC)	B	
P1B 01B	RESET-B	MASTER RESET INVERS	I	
P1B 02A	ID 0	MODUL IDENTIFICATION 0	O	
P1B 02B	ID 1	MODUL IDENTIFICATION 1	O	
P1B 03A	ID 2	MODUL IDENTIFICATION 2	O	
P1B 03B	ID 3	MODUL IDENTIFICATION 3	O	
P1B 04A	ID 4	MODUL IDENTIFICATION 4	B	
P1B 04B	ID 5	MODUL IDENTIFICATION 5	B	
P1B 05A	ID 6	MODUL IDENTIFICATION 6	B	
P1B 05B	ID 7	MODUL IDENTIFICATION 7	B	
P1B 06A	5V SBY	+ 5V STANDBY	B	
P1B 06B	BLCK	BLINK BLOCK	B	
P1B 07	- 15.5V	- SUPPLY	B	X X
P1B 08A	HDRC-a	HDLC RECEIVE CLOCK a	B,S	
P1B 08B	HDRC-b	HDLC RECEIVE CLOCK b	B,S	
P1B 09	0V-A	GROUND AUDIO	B	X X
P1B 10A	HDTX-a	HDLC TRANSMIT CLOCK a	B,S	
P1B 10B	HDTX-b	HDLC TRANSMIT CLOCK b	B,S	
P1B 11	+ 15.5V	+ SUPPLY	B	X X
P1B 12A	HDTX-a	HDLC TRANSMIT DATA a	B,S	
P1B 12B	HDTX-b	HDLC TRANSMIT DATA b	B,S	
P1B 13	+ 5.5V	+ SUPPLY	B	X X
P1B 14A	HDRX-a	HDLC RECEIVE DATA a	B,S	
P1B 14B	HDRX-b	HDLC RECEIVE DATA b	B,S	
P1B 15	+3...4V LED	LED SUPPLY VARIABLE +3...4V	B	X X
P1B 16	0V-L	GROUND SIGN (LOGIC)	B	X X
P2A 01	+3...4V LED	LED SUPPLY VARIABLE +3...4V	B	
P2A 02	+ 15.5V	+ SUPPLY	B	
P2A 03	- 15.5V	- SUPPLY	B	
P2A 04	DISDAT	DISPLAY DATA	O	
P2A 05	RCL	RECEIVE CLOCK	O	
P2A 06	TCL	TRANSMIT CLOCK	O	
P2A 07	RSTB	RECEIVE STROBE	O	
P2A 08	TXD	TRANSMIT DATA	O	
P2A 09	RXD 0	RECEIVE DATA 0	O	
P2A 10	TSTB 0	TRANSMIT STROBE 0	O	
P2A 11	INT 1	INTERUPT 1	O	
P2A 12	INT 0	INTERUPT 0	O	
P2A 13	DO 0	DATA OUT 0 (ENABLE)	O	
P2A 14	-	NC		
P2A 15	+ 5.5V	+ SUPPLY	B	
P2A 16	0V-L	GROUND SIGN (LOGIC)	B	

## Pin location list

1.990.110

P2B 01A	0V-L	GROUND SIGN (LOGIC)	B
P2B 01B	+ 5.5V	+ SUPPLY	B
P2B 02A	DO 0	DATA OUT 0 (ENABLE)	0
P2B 02B	5V SBY	+ 5V STANDBY	B
P2B 03A	INT 0	INTERRUPT 0	0
P2B 03B	INT 1	INTERRUPT 1	0
P2B 04A	INT 2	INTERRUPT 2	0
P2B 04B	INT 3	INTERRUPT 3	0
P2B 05A	INT 4	INTERRUPT 4	0
P2B 05B	INT 5	INTERRUPT 5	0
P2B 06A	INT 6	INTERRUPT 6	0
P2B 06B	INT 7	INTERRUPT 7	0
P2B 07A	TSTB 0	TRANSMIT STROBE 0	0
P2B 07B	TSTB 1	TRANSMIT STROBE 1	0
P2B 08A	TSTB 2	TRANSMIT STROBE 2	0
P2B 08B	TSTB 3	TRANSMIT STROBE 3	0
P2B 09A	TSTB 4	TRANSMIT STROBE 4	0
P2B 09B	TSTB 5	TRANSMIT STROBE 5	0
P2B 10A	TSTB 6	TRANSMIT STROBE 6	0
P2B 10B	TSTB 7	TRANSMIT STROBE 7	0
P2B 11A	RXD 0	RECEIVE DATA 0	0
P2B 11B	RXD 1	RECEIVE DATA 1	0
P2B 12A	RXD 2	RECEIVE DATA 2	0
P2B 12B	RXD 3	RECEIVE DATA 3	0
P2B 13A	RXD 4	RECEIVE DATA 4	0
P2B 13B	RXD 5	RECEIVE DATA 5	0
P2B 14A	RXD 6	RECEIVE DATA 6	0
P2B 14B	RXD 7	RECEIVE DATA 7	0
P2B 15A	TXD	TRANSMIT DATA	0
P2B 15B	RSTB	RECEIVE STROBE	0
P2B 16A	TCL	TRANSMIT CLOCK	0
P2B 16B	RCL	RECEIVE CLOCK	0
P3A 01	- 15V	- SUPPLY FROM INPUT UNIT	0
P3A 02	+ 15V	+ SUPPLY FROM INPUT UNIT	0
P3A 03	C OUT	BAL COMMON OUT	0
P3A 04	B/PAN1-OUT-R	BAL/PAN 1 OUT RIGHT	0
P3A 05	B/PAN1-OUT-L	BAL/PAN 1 OUT LEFT	0
P3A 06	B-L/PAN1-IN	BAL LEFT/PAN 1 IN	0
P3A 07	B-Rb/PAN1-IN	BAL RIGHT INV./PAN 1 IN	I
P3A 08	B-R/PAN1-IN	BAL RIGHT/PAN 1 IN	0
P3A 09	OVA BAL/PAN1	GROUND SIGN BAL/PAN 1	0
P3A 10	UREF	+ 5V REFERENZ	0
P3A 11	AN GND	ANALOG GROUND	0
P3A 12	A OUT 4	INPUT ; FROM MCU ANALOG OUT 4	0
P3A 13	A IN 2	OUTPUT ; TO MCU ANALOG IN 2	0
P3A 14	A IN 0	OUTPUT ; TO MCU ANALOG IN 0	0
P3A 15	DO 2	DATA OUT 20	0
P3A 16	0V-A	GROUND AUDIO	B

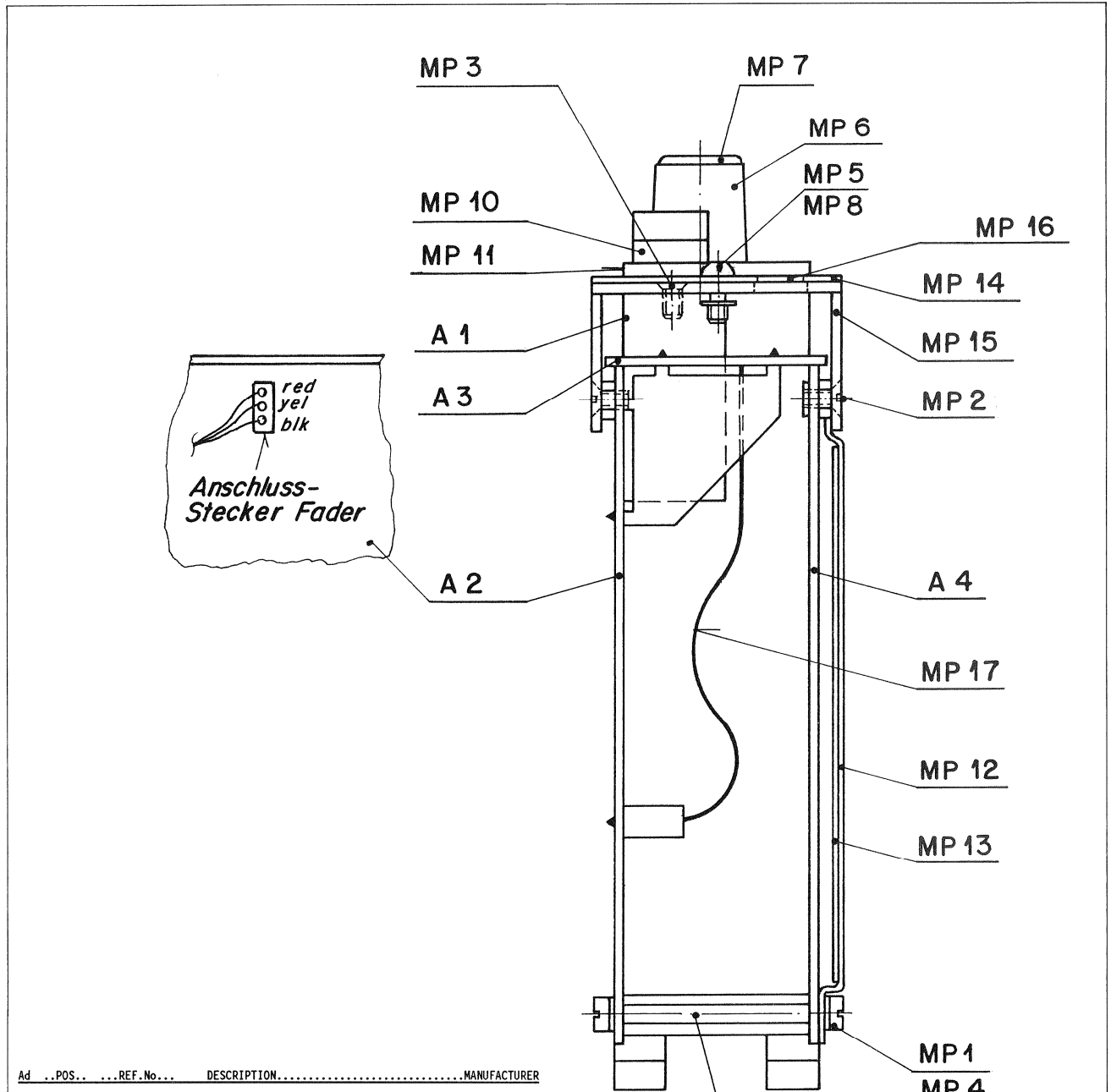
## Pin location list

1.990.110

P3B 01A	0V-A	GROUND AUDIO	B	
P3B 01B	+3..4V LED	LED SUPPLY VARIABLE +3...4V	B	
P3B 02A	+ 15.5V	+ SUPPLY	B	
P3B 02B	- 15.5V	- SUPPLY	B	
P3B 03A	-	RES	0	
P3B 03B	-	RES	0	
P3B 04A	-	RES	0	
P3B 04B	-	RES	0	
P3B 05A	DYN 0	DYNAMIC CONTR.VOLTAGE 0	0	
P3B 05B	-	RES	0	
P3B 06A	-	RES	0	
P3B 06B	DYN 1	DYNAMIC CONTR.VOLTAGE 1	0	
P3B 07A	A IN 0	INPUT ; TO MCU ANALOG IN 0	0	
P3B 07B	A IN 1	INPUT ; TO MCU ANALOG IN 1	0	
P3B 08A	A IN 2	INPUT ; TO MCU ANALOG IN 2	0	
P3B 08B	A IN 3	INPUT ; TO MCU ANALOG IN 3	0	
P3B 09A	A IN 4	INPUT ; TO MCU ANALOG IN 4	0	
P3B 09B	A IN 5	INPUT ; TO MCU ANALOG IN 5	0	
P3B 10	AN GND	ANALOG GROUND	0	X X
P3B 11	UREF	+ 5V REFERENZ	0	X X
P3B 12A	DO 2	DATA OUT 2	0	
P3B 12B	DO 1	DATA OUT 1 (TRANSMIT STROBE 8)	0	
P3B 13A	A OUT 0	OUTPUT ; FROM MCU ANALOG OUT 0	0	
P3B 13B	A OUT 1	OUTPUT ; FROM MCU ANALOG OUT 1	0	
P3B 14A	A OUT 2	OUTPUT ; FROM MCU ANALOG OUT 2	0	
P3B 14B	A OUT 3	OUTPUT ; FROM MCU ANALOG OUT 3	0	
P3B 15A	A OUT 4	OUTPUT ; FROM MCU ANALOG OUT 4	0	
P3B 15B	A OUT 5	OUTPUT ; FROM MCU ANALOG OUT 5	0	
P3B 16	0V-L	GROUND SIGN (LOGIC)	B	X X

INPUT FADER UNIT

1.990.111.00



Ad ..POS... ..REF.No... DESCRIPTION.....MANUFACTURER

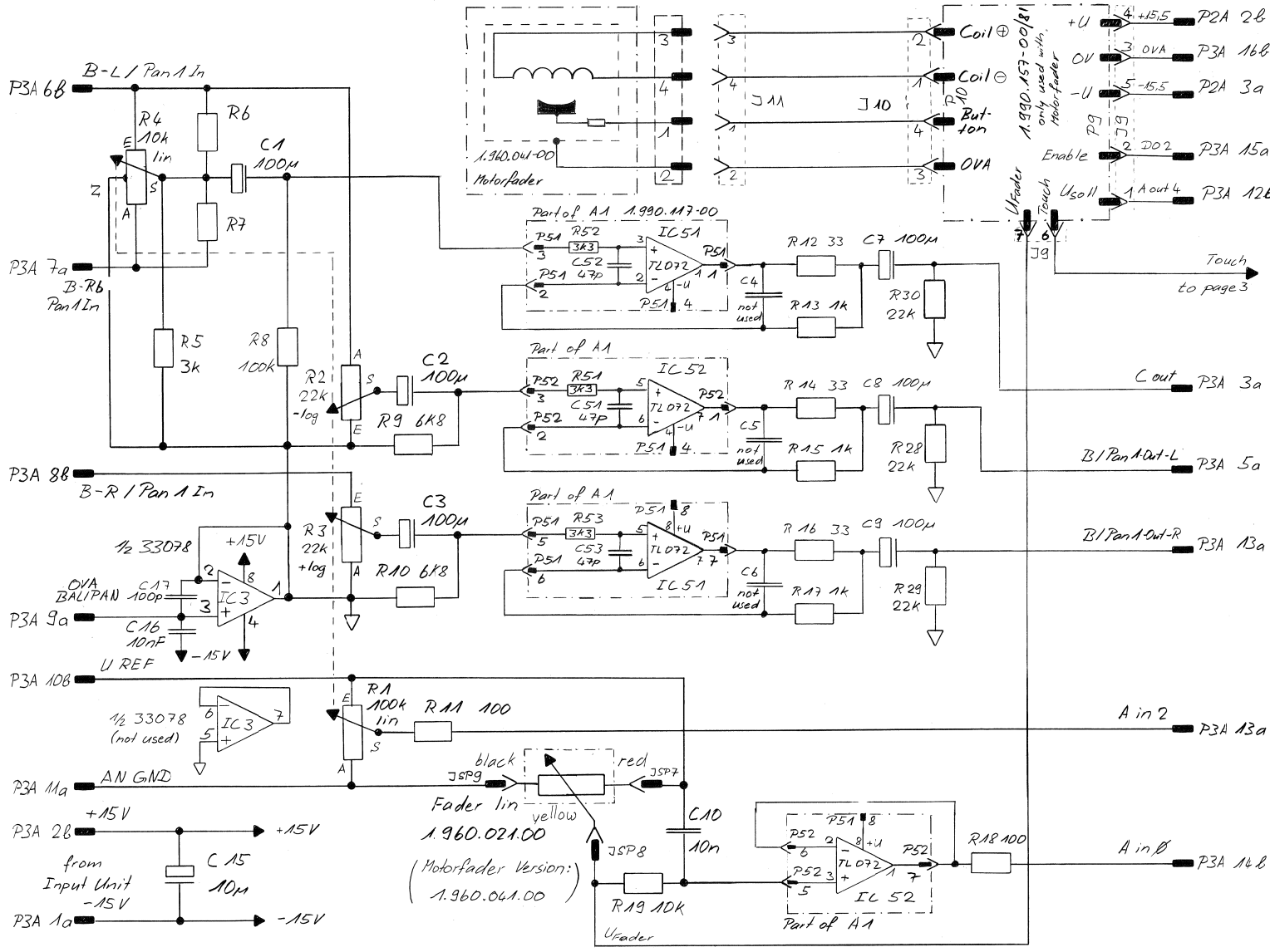
A....1	1.960.021.00		FADER 1*1in 104 mm	
A....2	1.990.118.00		INPUT FADER ANALOG BOARD	
A....3	1.990.119.00		INPUT FADER SWITCH BOARD	
A....4	1.990.190.30		MODULE PROCESSOR BOARD	
A....10	1.990.193.00		Memory Board	St
MP...1	21.01.0354	4 pcs	Z-Schr. M3*6	
MP...2	21.01.2352	4 pcs	S-Schr. M3*4	
MP...3	21.99.0175	2 pcs	S-Schr. M3*6, SW-0X	
MP...4	24.16.1030	4 pcs	Rippenscheibe M3	
MP...5	24.16.3023	2 pcs	Wellensicherung	
MP...6	42.01.0233	1 pcs	Knebelknopf grau D 15/4	
MP...7	42.01.0257	1 pcs	Deckel hellgrau zu D 15	
MP...8	1.010.022.21	2 pcs	Linse rundschr. IS M3*8	
MP...9	1.010.026.27	2 pcs	Mutterbolzen M3*30	
MP...10	1.911.000.38	1 pcs	Faderknopf grau	
MP...11	1.990.000.01	2 pcs	Schutzkragen Taste 12.5*12.5	
MP...12	1.990.100.06	1 pcs	Schirmblech Fader	
MP...13	1.990.100.07	1 pcs	Isolierung 208*87 selbstklebend	
MP...14	1.990.110.01	1 pcs	Frontschild INPUT FADER	
MP...15	1.990.110.02	1 pcs	Traeger FADER	
MP...16	1.990.110.05	1 pcs	Fenster FADER	
MP...17	64.03.0504	8 pcs	Flachkabel konf. FSN 23,5A-6 pol	
MP...18	1.990.111.04	1 pcs	Studer-Nr-Etikette 10*20	

1.990.111.00 INPUT FADER UNIT ABB92/03/0400

STUDER REGENSDORF ZÜRICH	Benennung: <b>INPUT FADER UNIT</b>	Änderung:	①
		②	
Ausgabe: <b>4.3.92</b> <i>A. K. alle</i>		Datum:	Gez. Gepr. Ges. Index
Kopie für:		Nummer:	<b>1.990.111-00</b>

INPUT FADER UNIT

1.990.110/111.00

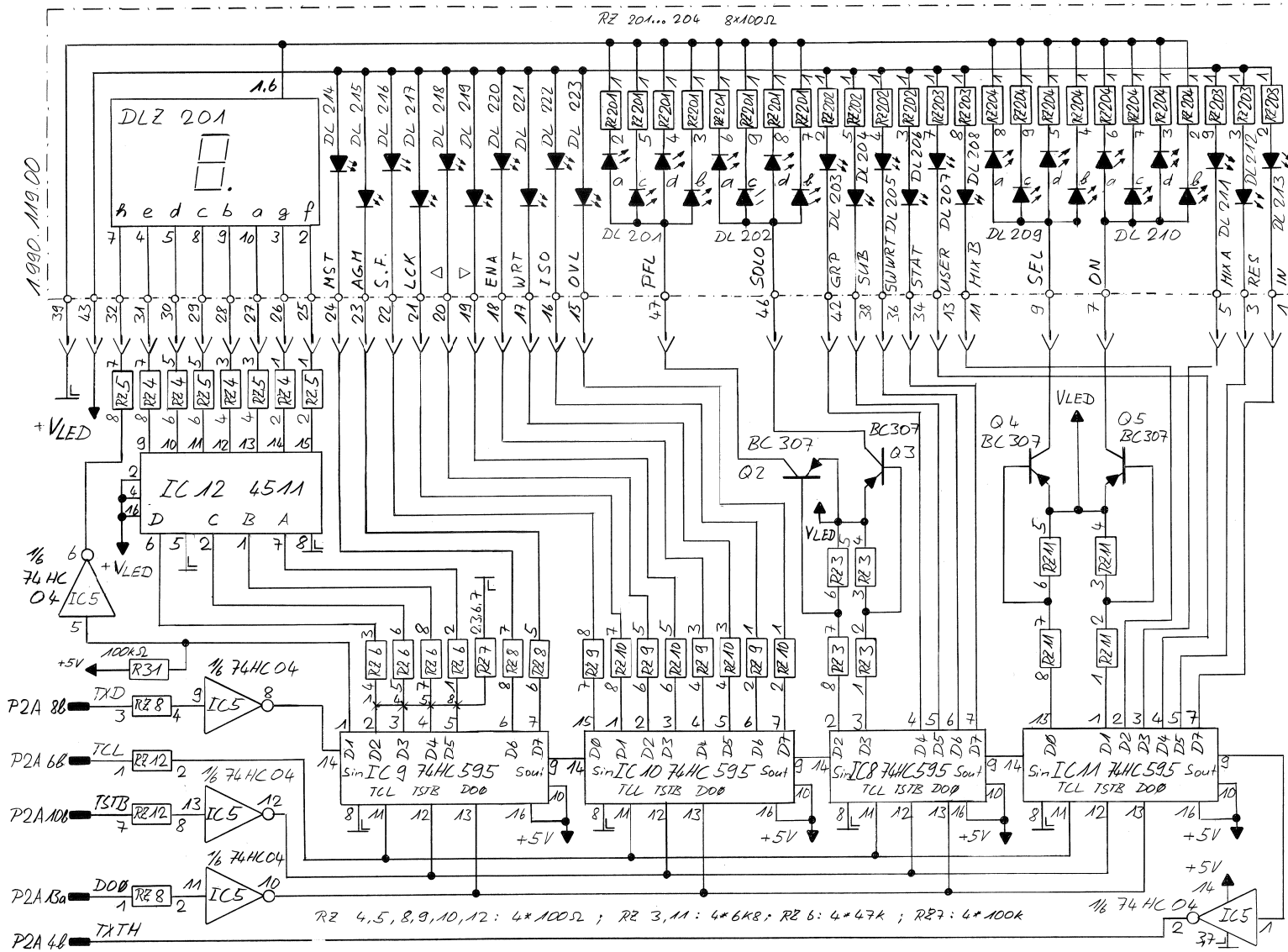


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 01.06.90 A Schmid 04.09.90 A Schmid 26.04.91 A Schmid  
 INCL 1.990.117.00 / 1.990.118.00 / 1.990.119.00  
 21.06.90 A Schmid  
 06.09.90 A Schmid  
 26.04.91 A Schmid  
 1.990.110/111.00

PAGE 1 OF 3  
 SC 1.990.110/111.00  
 INPUT FADER UNIT

INPUT FADER UNIT

1.990.110/111.00



1.990.119.00

RZ 201...204 8x100Ω

+VLED

1/6 74HC 04

+5V

P2A 88 TXD

P2A 68 TCL

P2A 108 TSTB

P2A 13a DOB

P2A 48 TXTH

RZ 4,5,8,9,10,12: 4\*100Ω ; RZ 3,11: 4\*6k8 ; RZ 6: 4\*47k ; RZ 7: 4\*100k

1/6 74HC 04

VLED

BC 307

Q2

VLED

BC 307

Q3

Q4

BC 307

Q5

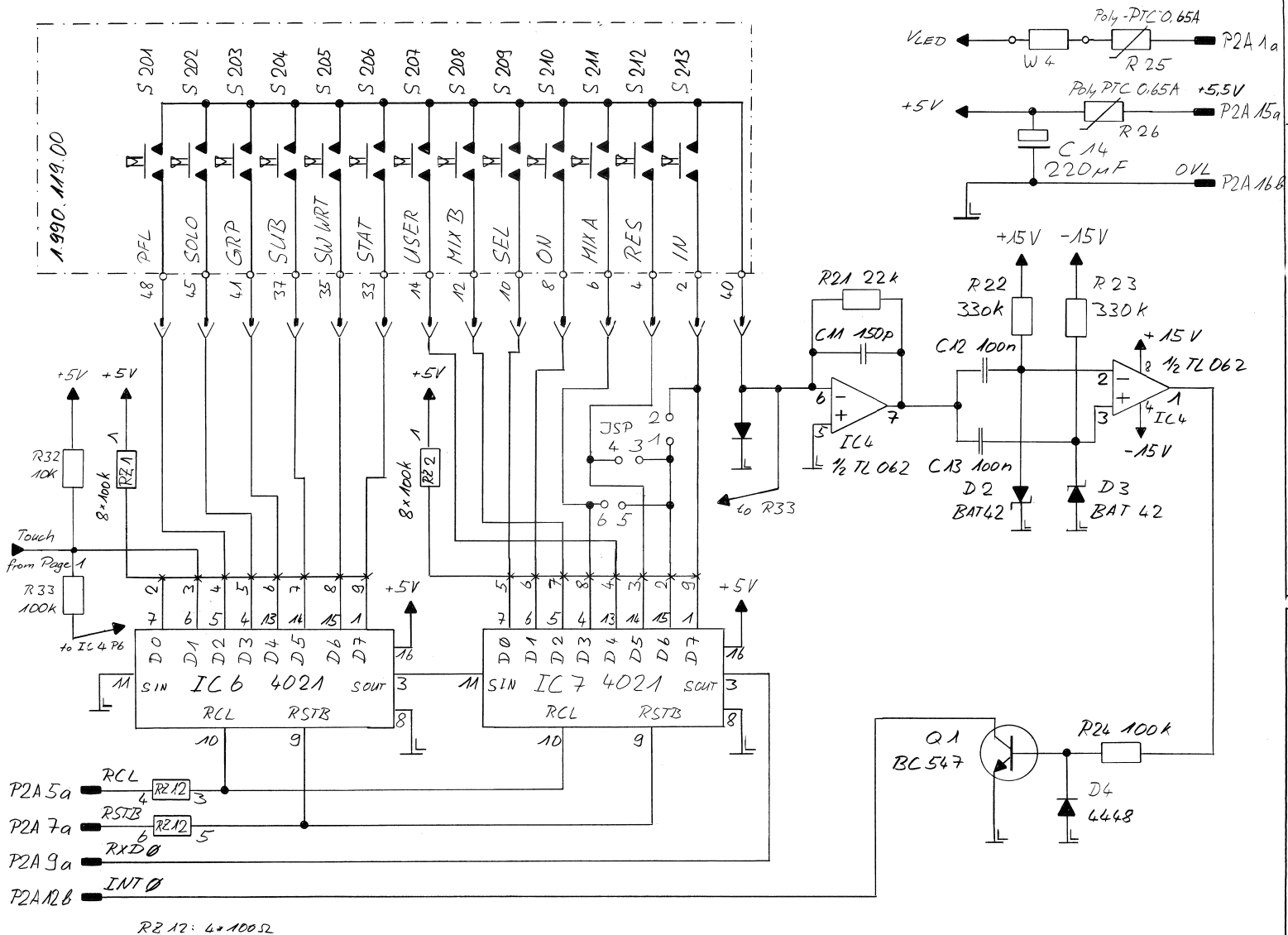
BC 307

1.990.110.00 INCL. 1.990.190-21	1.990.111.00 INCL. 1.990.190-30/1.990.193.00	10.3.92
① 01.09.90 A. Schmid	② 02.04.91 A. Schmid	
INCL. 1.990.117.00/1.990.118.00/1.990.119.00		
PAGE 2 OF 3		
STUDER		SC 1.990.110/111.00



INPUT FADER UNIT

1.990.110/111.00



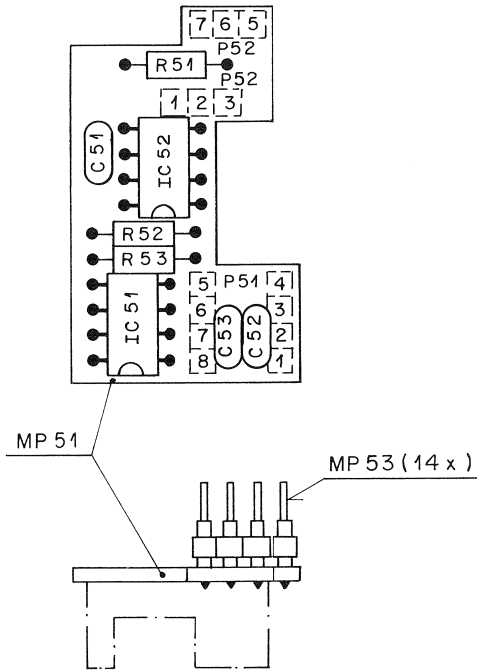
1.990.119.00

RZ 12: 4\*100Ω

1.990.110.00	INCL. 1.990.190.21	1.990.111.00	INCL. 1.990.190.30/1.990.192.00	10.3.92	for
①	① 04.09.90 A.Schmid	②	04.04.91 A.Schmid	...	PAGE 3 OF 3
INCL. 1.990.117.00	1.990.118.00	1.990.119.00	1.990.110/111.00	SC	
STUDER INPUT FADER UNIT					

4 AMPLIFIER BOARD

1.990.117.00



Ad ...POS... REF.No... DESCRIPTION.....MANUFACTURER

C...51	59.34.2470	47 pF	CE	
C...52	59.34.2470	47 pF	CE	
C...53	59.34.2470	47 pF	CE	
IC...51	50.09.0101	TLO72	DUAL OP. AMP.	FET TI
IC...52	50.09.0101	TLO72	DUAL OP. AMP.	FET TI
MP...51	1.990.117.11		4 Amplifier PCB	St
MP...52	43.01.0108	1 pcs	ESL-Markenschild	
MP...53	53.03.0251	14 pcs	Steckerstifte fuer IC-Sockel	
P...51	.	.	see MP 53	
P...52	.	.	see MP 53	
R...51	57.11.3332	3.3 kOhm	5% 0.25W	
R...52	57.11.3332	3.3 kOhm	5% 0.25W	
R...53	57.11.3332	3.3 kOhm	5% 0.25W	

CER=Ceramic

MANUFACTURER: TI=Texas Instrument, St=Studer

1.990.117.00 4 AMPLIFIER BOARD

AB 9/06/1800

14.6.91	1	1	1	1	1	1	1	1	1
Datum	Gez	Gez	Gez	Gez	Gez	Gez	Gez	Gez	Gez

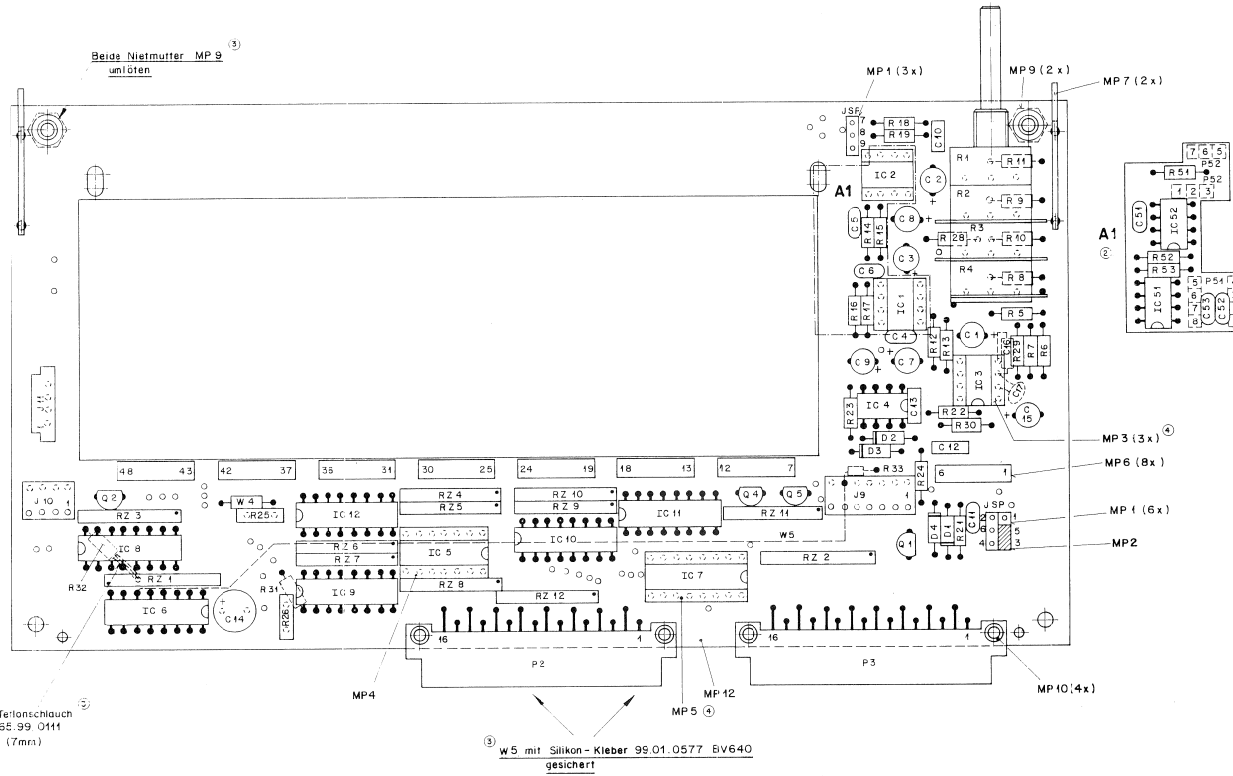
STUJDER  
INGENIEURBÜRO  
ZÜRICH

4 AMPLIFIER BOARD  
ESE

1.990.117-00

INPUT FADER ANALOG BOARD

1.990.118.00



Teflonschlauch  
65.99.0111  
(7mm)

Beide Nietmutter MP 9  
unilöten

w5 mit Silikon-Kleber 99.01.0577 BV640  
gesichert

Ad	POS.	REF.No.	DESCRIPTION	MANUFACTURER
03	A.....1	1.990.117.00	4 AMPLIFIER BOARD	St
C.....1	59.22.3101	100 uF	10V EL	
C.....2	59.22.3101	100 uF	10V EL	
C.....3	59.22.3101	100 uF	10V EL	
C.....4	59.34.2101	100 pF	5k CER	
01	C.....4	not used		
C.....5	59.34.2101	100 pF	5k CER	
01	C.....5	not used		
C.....6	59.34.2101	100 pF	5k CER	
C.....7	59.22.3101	100 uF	10V EL	
C.....8	59.22.3101	100 uF	10V EL	
C.....9	59.22.3101	100 uF	10V EL	
C.....10	59.06.0103	10 nF	10k PE	
C.....11	59.34.2151	150 pF	5k CER	
C.....12	59.06.0104	10 nF	10k PE	
C.....13	59.06.0104	10 nF	10k PE	
C.....14	59.22.2221	220 uF	6V EL	
C.....15	59.22.6100	10 uF	35V EL	
C.....16	59.06.0103	10 nF	10k PE	
03	C.....17	59.34.4101	100 pF	CER
D.....1	50.04.0125	1N4448		any
D.....2	50.04.0127	BAT42		Tho,Ph
D.....3	50.04.0127	BAT42		Tho,Ph
D.....4	50.04.0125	1N4448		any

Ad	POS.	REF.No.	DESCRIPTION	MANUFACTURER	
IC.....1	50.09.0118	RC 4562 N	Dual OP	Ra,JRC	
01	IC.....1	50.09.0107	RC 4559 N	Dual OP	NEC,Ra,TI
02	IC.....1	50.09.0121	TL 0728CP	Dual OP J-FET low offset	NEC,Ra,TI
03	IC.....1	not used	see A1		
IC.....2	50.09.0118	RC 4562 N	Dual OP	Ra,JRC	
01	IC.....2	50.09.0107	RC 4559 N	Dual OP	NEC,Ra,TI
02	IC.....2	50.09.0121	TL 0728CP	Dual OP J-FET low offset	NEC,Ra,TI
03	IC.....2	not used	see A1		
IC.....3	50.09.0118	RC 4562 N	Dual OP	Ra,JRC	
01	IC.....3	50.09.0107	RC 4559 N	Dual OP	NEC,Ra,TI
02	IC.....3	50.09.0117	MC 33778	Dual OP	NEC,Ra,TI
IC.....4	50.09.0119	TL 082 CP	J-FET Dual OP	TI,Tho	
IC.....5	50.17.1004	74 HC 04	Hex-Inverter	any	
IC.....6	50.07.1021	CD 4021	8-bit static shift register	any	
IC.....7	50.09.1021	CD 4559 N	8-bit static shift register	any	
IC.....8	50.17.1595	74 HC 595	8-bit shift/output register	NS,SGS,TI	
IC.....9	50.17.1595	74 HC 595	8-bit shift/output register	NS,SGS,TI	
IC.....10	50.17.1595	74 HC 595	8-bit shift/output register	NS,SGS,TI	
IC.....11	50.17.1595	74 HC 595	8-bit shift/output register	NS,SGS,TI	
IC.....12	50.07.0511	CD 4511	BCD/7-seg. latch/dec/driver	MoT,SGS,To	
J.....9	54.01.0241	4 pin	CIS-connector, 4 pin Mot.PCB		
J.....10	54.01.0218	7 pin	CIS-connector, 7 pin Mot.PCB		
J.....11	54.10.3004	4-pol	Federleiste fuer flexiblen Print		

Ad	POS.	REF.No.	DESCRIPTION	MANUFACTURER
MP.....1	54.01.0020	9 pcs	Jumper plug	
MP.....2	54.01.0021	1 pcs	Jumper bridge	
MP.....3	53.03.0166	4 pcs	IC-Socket, 8 pin	
MP.....4	53.03.0166	3 pcs	IC-Socket, 8 pin	
MP.....5	53.03.0167	1 pcs	IC-Socket, 16 pin	
MP.....6	53.03.0168	7 pcs	IC-Socket, 16 pin	
MP.....7	53.03.0168	1 pcs	IC-Socket, 16 pin	
MP.....8	54.10.3506	8 pcs	Buchsenleiste 744-6	
MP.....9	1.990.100.01	2 pcs	Querprintstuetze	
MP.....10	1.990.118.04	1 pcs	Mr-Etikette 5*20	
MP.....11	1.010.012.22	2 pcs	Nietmutter 5x6, N3*2	
MP.....12	28.99.0119	4 pcs	Rohrriete D2.5*0.15*10	
MP.....11	43.01.0108	1 pcs	ESE-Schild	
MP.....12	1.990.118.11	1 pcs	FADER ANALOG PCB	
F.....2	54.11.2007	*16 pin	Eurocard connector, 16 pin	
F.....3	54.11.2007	*16 pin	Eurocard connector, 16 pin	
F.....4	54.01.0241	4 pin	CIS-connector, 4 pin Mot.PCB	
F.....5	54.01.0218	7 pin	CIS-connector, 7 pin Mot.PCB	
C.....1	50.03.0436	BC 547 B	key detection	ITT,Mo
C.....2	50.03.0515	BC 307 B	p1 -LED	ITT,Mo
C.....3	50.03.0515	BC 307 B	solo-LED	ITT,Mo
C.....4	50.03.0515	BC 307 B	sel-LED	ITT,Mo
C.....5	50.03.0515	BC 307 B	on/mute-LED	ITT,Mo
R.....1	1.010.033.58	100 kOhm	20k 1in.,comb. with R2,R3,R4	St
R.....2	not used	see R1		
R.....3	not used	see R1		
R.....4	not used	see R1		
R.....5	57.11.3302	3 kOhm	1k	
R.....6	not used	not used		
R.....7	not used	not used		
R.....8	57.11.3104	100 kOhm	1k	
R.....9	57.11.3682	6.8 kOhm	1k	
R.....10	57.11.3682	6.8 kOhm	1k	
R.....11	57.11.3101	100 Ohm	1k	
R.....12	57.11.3330	33 Ohm	1k	
R.....13	57.11.3102	1 kOhm	1k	
R.....14	57.11.3330	33 Ohm	1k	
R.....15	57.11.3102	1 kOhm	1k	
R.....16	57.11.3330	33 Ohm	1k	
R.....17	57.11.3102	1 kOhm	1k	
R.....18	57.11.3101	100 Ohm	1k	
R.....19	57.11.3103	10 kOhm	1k	
R.....21	57.11.3223	22 kOhm	1k	
R.....22	57.11.3334	330 kOhm	1k	
R.....23	57.11.3334	330 kOhm	1k	
R.....24	57.11.3104	100 kOhm	1k	
R.....25	57.92.7014	650 mA	Poly-PTC, I-hold=650mA,R=0.46 Ohm	MCI
R.....26	57.92.7014	650 mA	Poly-PTC, I-hold=650mA,R=0.46 Ohm	MCI
R.....27	57.11.3223	22 kOhm	1k	
R.....28	57.11.3223	22 kOhm	1k	
R.....29	57.11.3223	22 kOhm	1k	
R.....30	57.11.3223	22 kOhm	1k	
01	R.....31	57.11.3104	100 kOhm	1k
04	R.....32	57.11.3103	10 kOhm	1k
04	R.....33	57.11.3104	100 kOhm	1k
RZ.....1	57.88.4104	100 kOhm	2k ,8*	
RZ.....2	57.88.4104	100 kOhm	2k ,8*	
RZ.....3	57.88.2682	6.8 kOhm	2k ,4*	
RZ.....4	57.88.2101	100 Ohm	2k ,4*	
RZ.....5	57.88.2101	100 Ohm	2k ,4*	
RZ.....6	57.88.2473	47 kOhm	2k ,4*	
RZ.....7	57.88.2104	100 kOhm	2k ,4*	
RZ.....8	57.88.2101	100 Ohm	2k ,4*	
RZ.....9	57.88.2101	100 Ohm	2k ,4*	
RZ.....10	57.88.2101	100 Ohm	2k ,4*	
RZ.....11	57.88.2682	6.8 kOhm	2k ,4*	
RZ.....12	57.88.2101	100 Ohm	2k ,4*	
W.....4	57.11.3000	0 Ohm	Bridge	
04	W.....5	1.010.122.64	Wire-Wrap Draht	

CER = ceramic, EL = electrolytic, PE = polyester

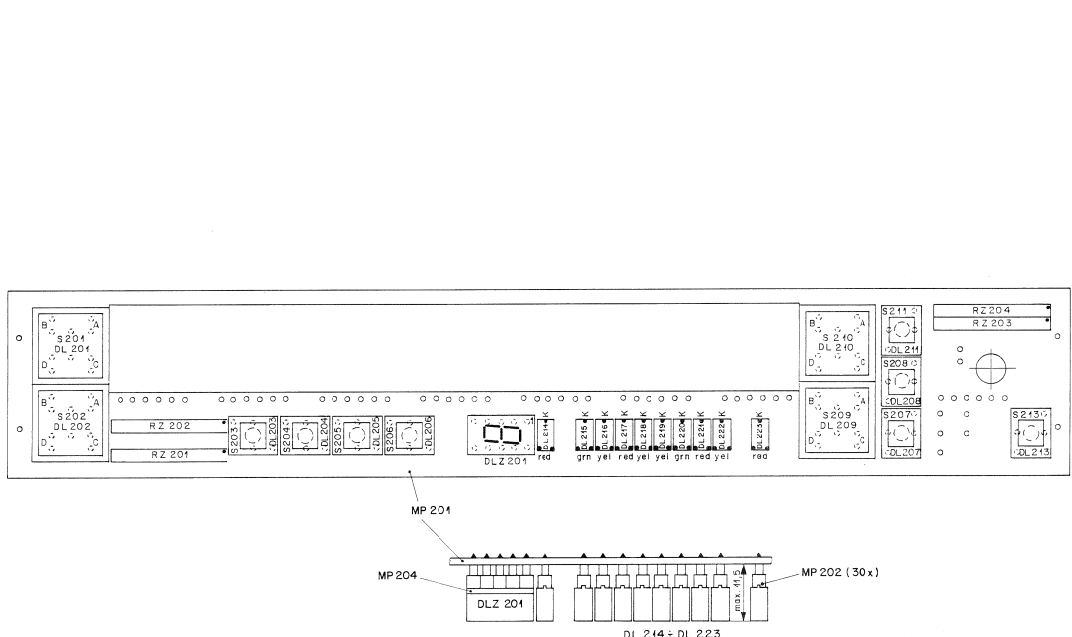
MANUFACTURER ITT=Intermetall, JRC=Japan Radio Corporation, Mo=Motorola, NS=National Semiconductor, Ph=Philips, Ra=Raytheon, SGS=SGS/Ates, St=Studer, TI=Texas Instruments, Tho=Thomson, To=Toshiba

1.990.118.00	INPUT FADER ANALOG BOARD	VOL88/08/2400
1.990.118.00	INPUT FADER ANALOG BOARD	SCA90/06/1801
1.990.118.00	INPUT FADER ANALOG BOARD	SCA90/09/0402
1.990.118.00	INPUT FADER ANALOG BOARD	SCA91/04/2403
1.990.118.00	INPUT FADER ANALOG BOARD	VOL91/07/2904
1.990.118.00	INPUT FADER ANALOG BOARD	FR193/01/0505

STUDER REGENSDORF ZURICH	INPUT FADER ANALOG BOARD	1.990.118-00
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INPUT FADER SWITCH BOARD

1.990.119.00



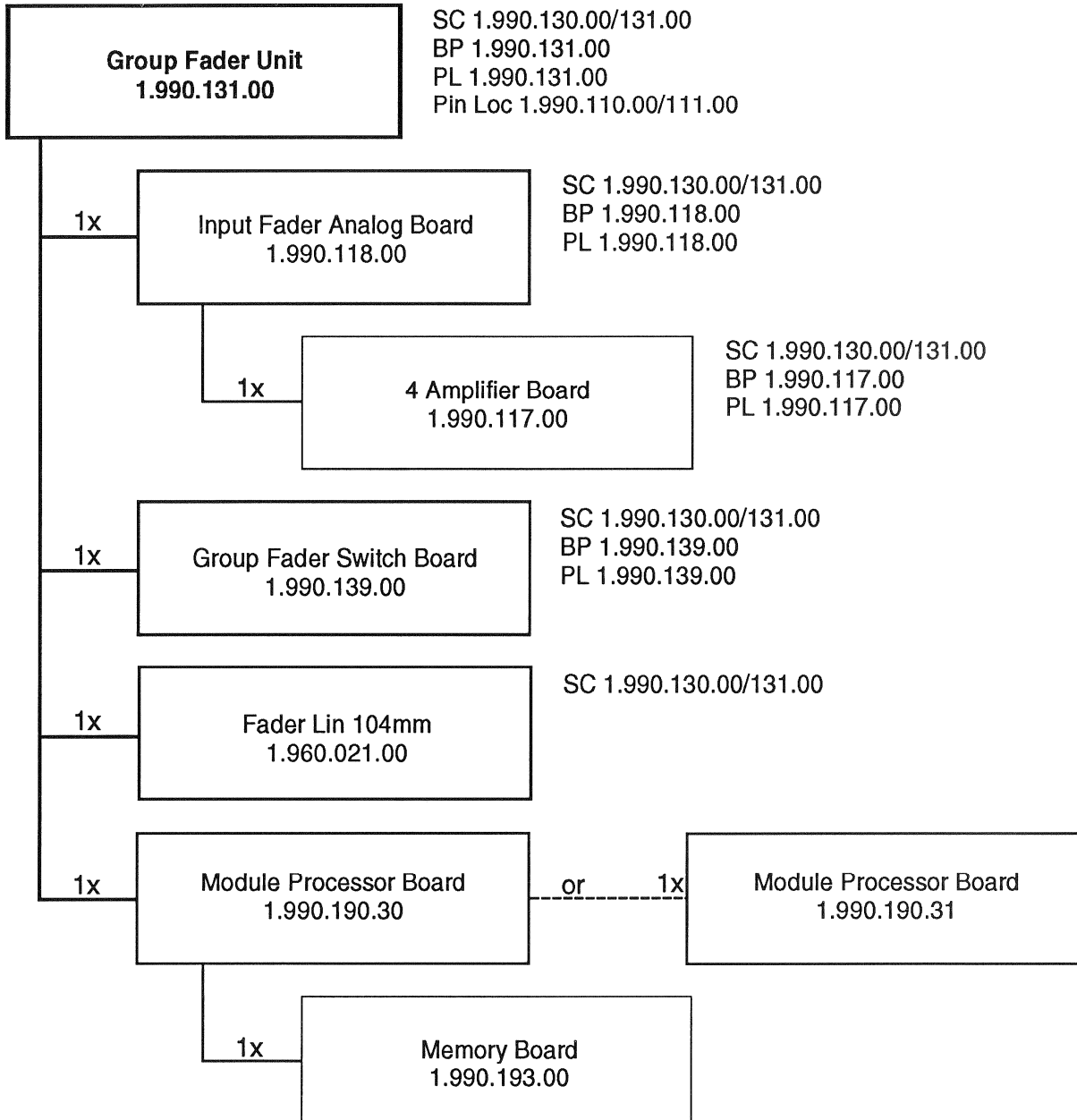
16.3.90	10	11	12	13	14	15	16	17	18	19	20
1	2	3	4	5	6	7	8	9	10	11	12

STUDER REGENSCHOPF ZÜRICH	INPUT FADER SWITCH BOARD	Part No.	1.990.119-00
		Price for:	

Ad	POS.	REF.No.	DESCRIPTION	MANUFACTURER
DL..201	.	0	not used	see S201
DL..202	.	0	not used	see S202
DL..203	.	0	not used	see S203
DL..204	.	0	not used	see S204
DL..205	.	0	not used	see S205
DL..206	.	0	not used	see S206
DL..207	.	0	not used	see S207
DL..208	.	0	not used	see S208
DL..209	.	0	not used	see S209
DL..210	.	0	not used	see S210
DL..211	.	0	not used	see S211
DL..212	.	0	not used	see S212
DL..213	.	0	not used	see S213
DL..214	50.04.2119	MV 57124	LED, red	GI
DL..215	50.04.2146	MV 54124	LED, green	GI
DL..216	50.04.2118	MV 53124	LED, yellow	GI
DL..217	50.04.2119	MV 57124	LED, red	GI
DL..218	50.04.2118	MV 53124	LED, yellow	GI
DL..219	50.04.2118	MV 53124	LED, yellow	GI
DL..220	50.04.2146	MV 54124	LED, green	GI
DL..221	50.04.2119	MV 57124	LED, red	GI
DL..222	50.04.2118	MV 53124	LED, yellow	GI
DL..223	50.04.2119	MV 57124	LED, red	GI
DLZ.201	73.01.0128	HDSP 7303	7-Segment display, common cathode	HP
MP..201	1.990.119.11	1 pcs	Input Fader Switch Board	
MP..202	53.03.0218	30 pcs	In Line IC-Socket	
MP..203	1.990.119.04	1 pcs	Nr-Etikette 5*20	
MP..204	1.990.119.01	1 pcs	Display Unterlage	
S...201	55.15.0705		Taste,1"A,12mm GN/Trans (PFL)	
S...202	55.15.0704		Taste,1"A,12mm GB/Trans (SOLO)	
S...203	55.15.0602		Taste,1"A, 5mm RT/Trans (GRP)	
S...204	55.15.0604		Taste,1"A, 5mm GB/Trans (SUB)	
S...205	55.15.0602		Taste,1"A, 5mm RT/Trans (SW WRT)	
S...206	55.15.0605		Taste,1"A, 5mm GN/Trans (STAT)	
S...207	55.15.0602		Taste,1"A, 5mm RT/Trans (USER)	
S...208	55.15.0604		Taste,1"A, 5mm GB/Trans (B mix)	
S...209	55.15.0705		Taste,1"A,12mm GN/Trans (SEL)	
S...210	55.15.0704		Taste,1"A,12mm GB/Trans (ON)	
S...211	55.15.0604		Taste,1"A, 5mm GB/Trans (A mix)	
S...212	0	not used	Taste,1"A, 5mm RT/Trans (res)	
S...213	55.15.0622		Taste,1"A, 5mm RT/RT (IN pan)	
RZ..201	57.88.4101	100 Ohm	2k ,8"	
RZ..202	57.88.4101	100 Ohm	2k ,8"	
RZ..203	57.88.4101	100 Ohm	2k ,8"	
RZ..204	57.88.4101	100 Ohm	2k ,8"	
MANUFACTURER			GI-General Instruments, HP-Hewlett Packard	
1.990.119.00			INPUT FADER SWITCH BOARD	SCA90/07/1100

Group Fader Unit

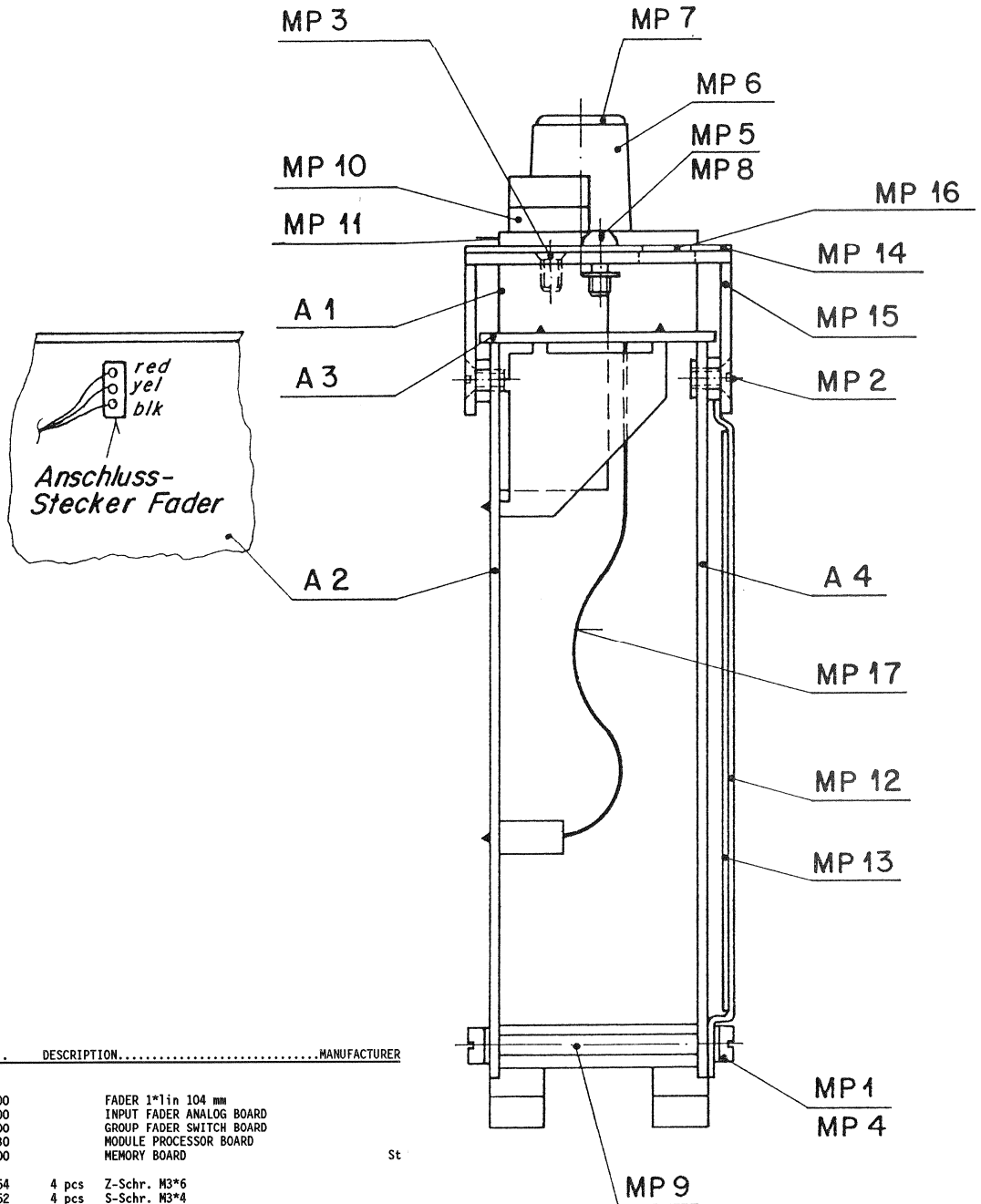
1.990.131.00



SC: Schema      Circuit Diagram  
BP: Bestückungsplan    PCB Layout  
PL: Positionsliste      Positional List

GROUP FADER UNIT

1.990.131.00



Ad ..POS. ...REF.No... DESCRIPTION.....MANUFACTURER

A....1	1.960.021.00		FADER 1*lin 104 mm	
A....2	1.990.118.00		INPUT FADER ANALOG BOARD	
A....3	1.990.139.00		GROUP FADER SWITCH BOARD	
A....4	1.990.190.30		MODULE PROCESSOR BOARD	
A....10	1.990.193.00		MEMORY BOARD	
MP...1	21.01.0354	4 pcs	Z-Schr. M3*6	
MP...2	21.01.2352	4 pcs	S-Schr. M3*4	
MP...3	21.99.0175	2 pcs	S-Schr. M3*6, SW-OX	
MP...4	24.16.1030	4 pcs	Rippenscheibe M3	
MP...5	24.16.3023	2 pcs	Wellensicherung	
MP...6	42.01.0233	1 pcs	Knebelknopf grau D 15/4	
MP...7	42.01.0257	1 pcs	Deckel hellgrau zu D 15	
MP...8	1.010.022.21	2 pcs	Linse rundschr. IS M3*8	
MP...9	1.010.026.27	2 pcs	Mutterbolzen M3*30	
MP...10	1.911.000.32	1 pcs	Faderknopf rot	
MP...11	1.990.000.01	2 pcs	Schutzkragen Taste 12.5*12.5	
MP...12	1.990.100.06	1 pcs	Schirmblech Fader	
MP...13	1.990.100.07	1 pcs	Isolierung 208*87 selbstklebend	
MP...14	1.990.130.01	1 pcs	Frontschild GROUP FADER	
MP...15	1.990.110.02	1 pcs	Traeger FADER	
MP...16	1.990.110.05	1 pcs	Fenster FADER	
MP...17	64.03.0504	8 pcs	Flachkabel konf. FSN 23,5A-6 pol	
MP...18	1.990.131.04	1 pcs	Studer-Nr-Etikette 10*20	

1.990.131.00 GROUP FADER UNIT ABB92/03/0400

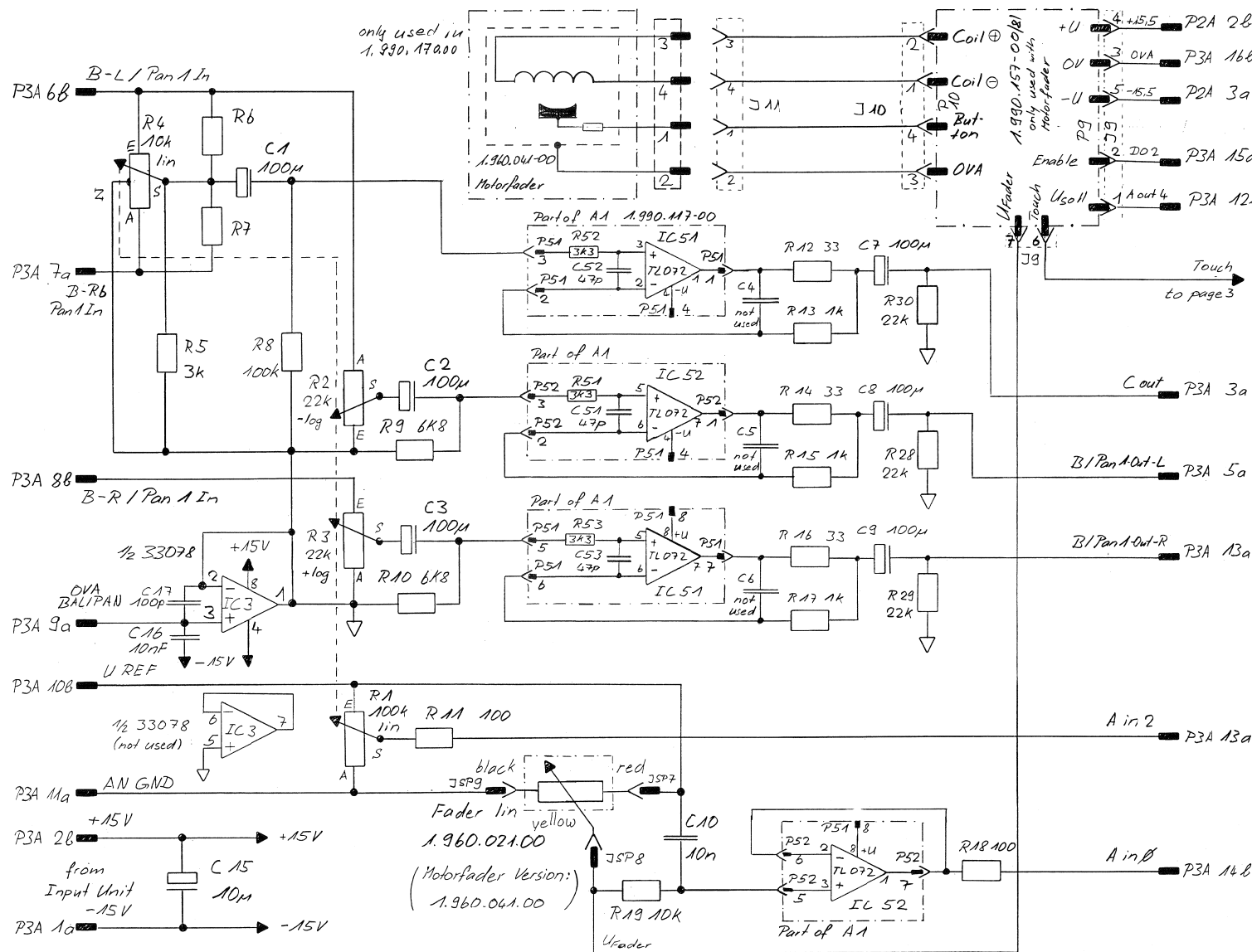
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STUDER RESENSOREN ZÜRICH	Benennung: <b>GROUP FADER UNIT</b>	Nummer: <b>1.990.131-00</b>	Ausgabe			
			Datum	Gez.	Gepr.	Ges. Index
			4.3.92	abb	abb	abb

Änderung	③
	②
	①
	④

GROUP FADER UNIT

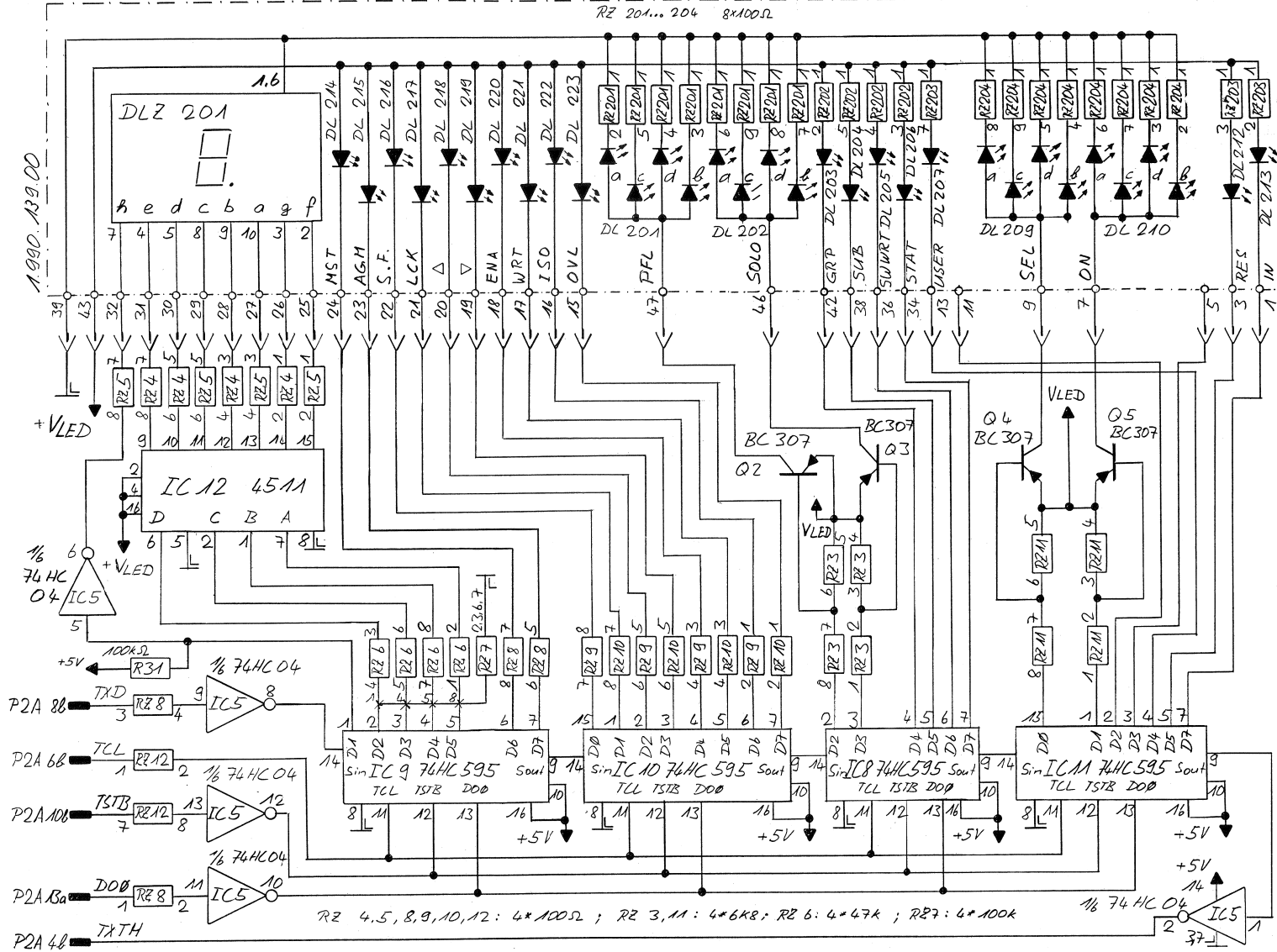
1.990.130/131.00



1.990.130.00 INCL.1.990.190.21 1.990.131 INCL.1.990.190.30/1.990.193.00 10.3.92  
 28.07.89 A.Schmid 4.9.80 A.Schmid 24.04.91 A.Schmid  
 INCL.1.990.117.00/1.990.118.00/1.990.139.00 PAGE 1 OF 3  
 SC 1.990.130/131.00  
 STUDER GROUP FADER UNIT

GROUP FADER UNIT

1.990.130/131.00



1.990.130.00

1/8 74HC 04

P2A 88 TXD

P2A 68 TCL

P2A 106 TSTB

P2A 13a DOB

P2A 48 TXTH

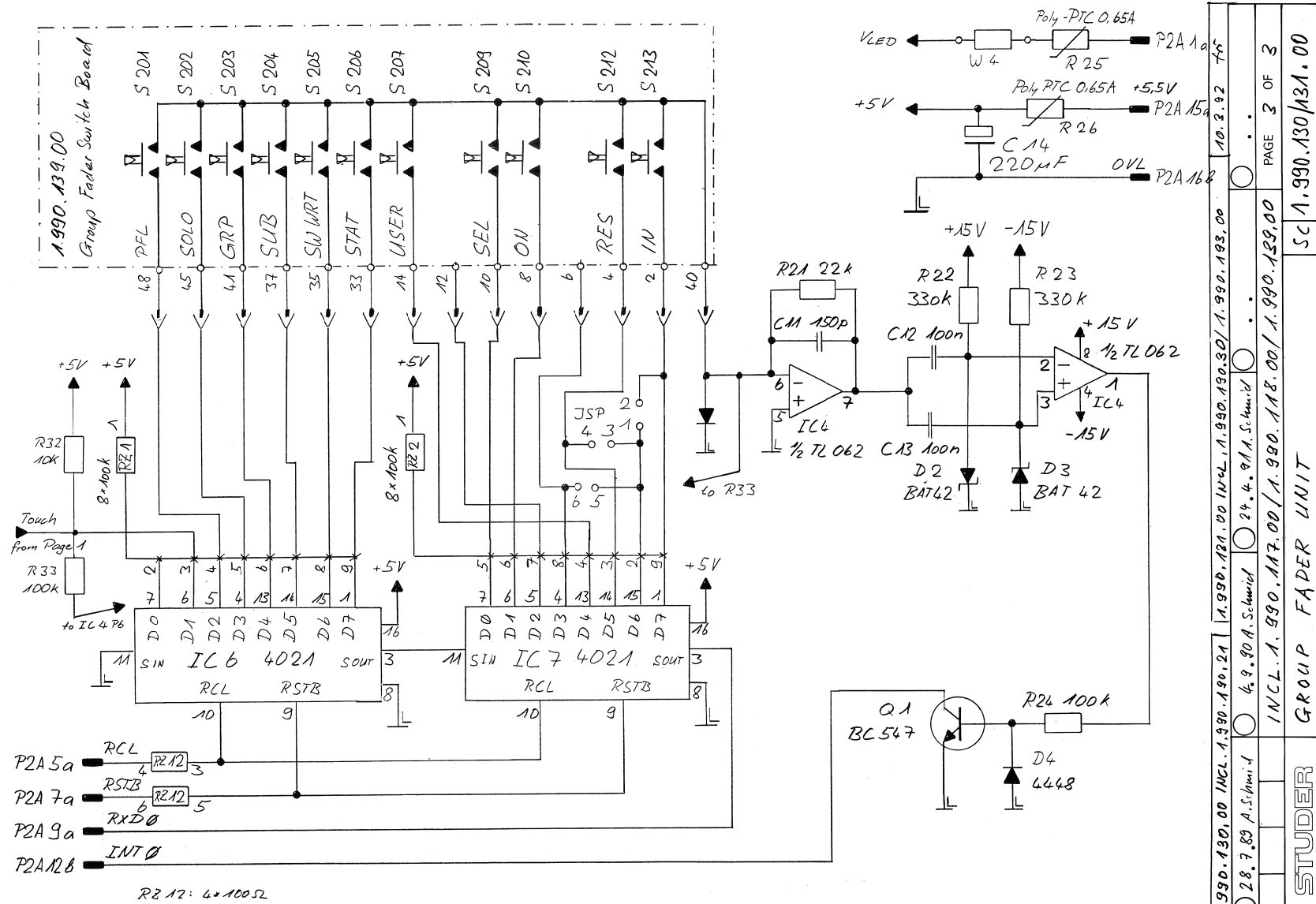
RZ 4.5, 8.9, 10, 12: 4\*100Ω; RZ 3.11: 4\*6k8; RZ 6: 4\*47k; RZ 7: 4\*100k

1.990.130.00 INCL.1.990.190.21	1.990.131.00 INCL.1.990.190.30/1.990.192.00	10.3.92 7*
© 28.7.89 A.Schmid	© 4.9.90 A.Schmid	21.4.91 A.Schmid
INCL.1.990.117.00/1.990.118.00/1.990.139.00		
PAGE 2 OF 3		
GROUP FADER UNIT		
SC 1.990.130/131.00		



GROUP FADER UNIT

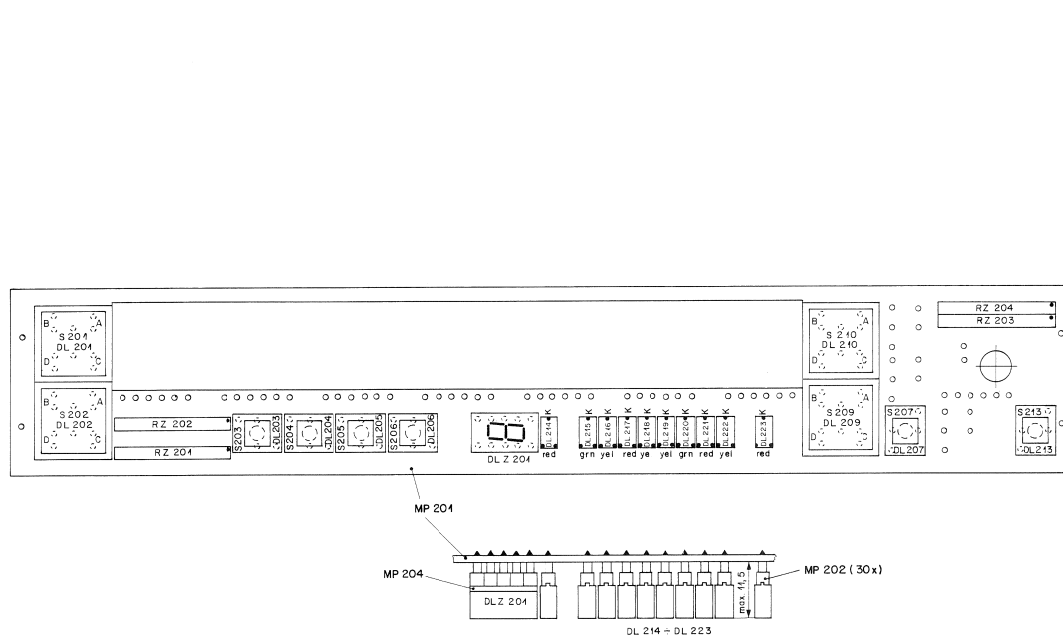
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28.7.89	A. S. (Invt.)	4.9.90	A. Schmidt	24.4.91
INCL. 1.990.117.00/1.990.118.00/1.990.129.00				PAGE 3 OF 3
GROUP FADER UNIT				SC 1.990.130/131.00

GROUP FADER SWITCH BOARD

1.990.139.00



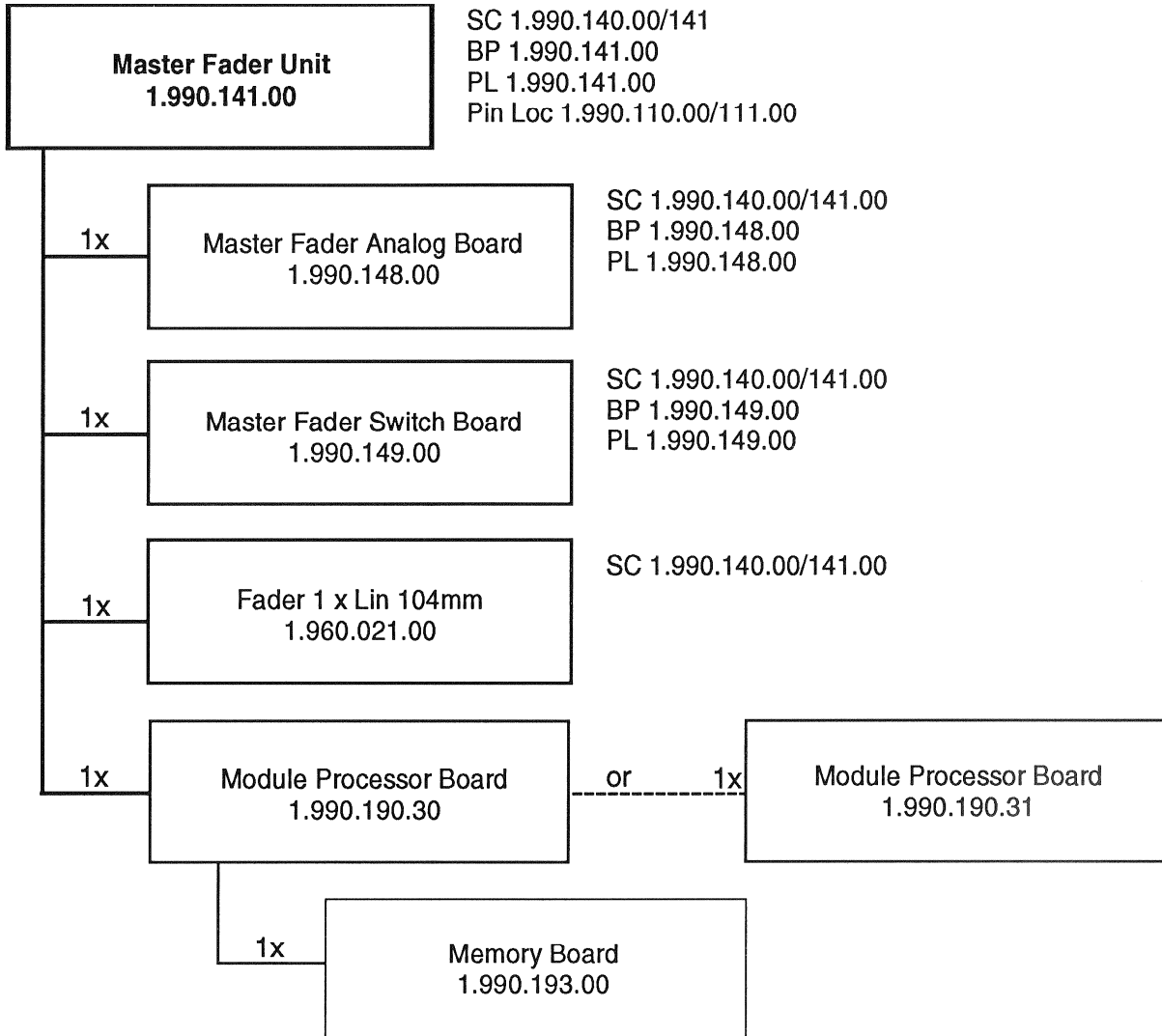
Abmessungen					
Preis	6.3.90	1/1	1/1	1/1	1/1
Datum					
Gezeichnet					
Geprüft					
Geplant					
Herstellung					

STUOBER REGENSDORF ZÜRICH	GROUP FADER SWITCH BOARD	1.990.139-00
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Ad	..POS.	..REF.No.	DESCRIPTION	MANUFACTURER
DL..201	.	0	not used see S201	
DL..202	.	0	not used see S202	
DL..203	.	0	not used see S203	
DL..204	.	0	not used see S204	
DL..205	.	0	not used see S205	
DL..206	.	0	not used see S206	
DL..207	.	0	not used see S207	
DL..209	.	0	not used see S209	
DL..210	.	0	not used see S210	
DL..212	.	0	not used see S212	
DL..213	.	0	not used see S213	
DL..214	50.04.2119	MV 57124	LED, red	GI
DL..215	50.04.2146	MV 54124	LED, green	GI
DL..216	50.04.2118	MV 53124	LED, yellow	GI
DL..217	50.04.2119	MV 57124	LED, red	GI
DL..218	50.04.2118	MV 53124	LED, yellow	GI
DL..219	50.04.2118	MV 53124	LED, yellow	GI
DL..220	50.04.2146	MV 54124	LED, green	GI
DL..221	50.04.2119	MV 57124	LED, red	GI
DL..222	50.04.2118	MV 53124	LED, yellow	GI
DL..223	50.04.2119	MV 57124	LED, red	GI
DLZ.201	73.01.0128	HDSP 7303	7-Segment display, common cathode	HP
MP..201	1.990.119.11	1 pcs	Input Fader Switch PCB	
MP..202	53.03.0218	30 pcs	In Line IC-Socket	
MP..203	1.990.139.04	1 pcs	Wr-Etikette 5*20	
MP..204	1.990.119.01	1 pcs	Display Unterlage	
S...201	55.15.0705		Taste,1"A, 12mm GN/Trans (PFL)	
S...202	55.15.0704		Taste,1"A, 12mm GB/Trans (SOLO)	
S...203	55.15.0602		Taste,1"A, 5mm RT/Trans (GRP)	
S...204	55.15.0604		Taste,1"A, 5mm GB/Trans (SUB)	
S...205	55.15.0602		Taste,1"A, 5mm RT/Trans (SW WRT)	
S...206	55.15.0605		Taste,1"A, 5mm GN/Trans (STAT)	
S...207	55.15.0602		Taste,1"A, 5mm RT/Trans (USER)	
S...209	55.15.0705		Taste,1"A, 12mm GN/Trans (SEL)	
S...210	55.15.0704		Taste,1"A, 12mm GB/Trans (ON)	
S...212	.	0	not used Taste,1"A, 5mm RT/Trans (res)	
S...213	55.15.0622		Taste,1"A, 5mm RT/RT (IN pan)	
RZ..201	57.88.4101	100 Ohm	2%, 8*	
RZ..202	57.88.4101	100 Ohm	2%, 8*	
RZ..203	57.88.4101	100 Ohm	2%, 8*	
RZ..204	57.88.4101	100 Ohm	2%, 8*	
MANUFACTURER	GI=General Instruments, HP=Hewlett Packard			
1.990.139.00	GROUP FADER SWITCH BOARD	SCA90/07/1100		

Master Fader Unit

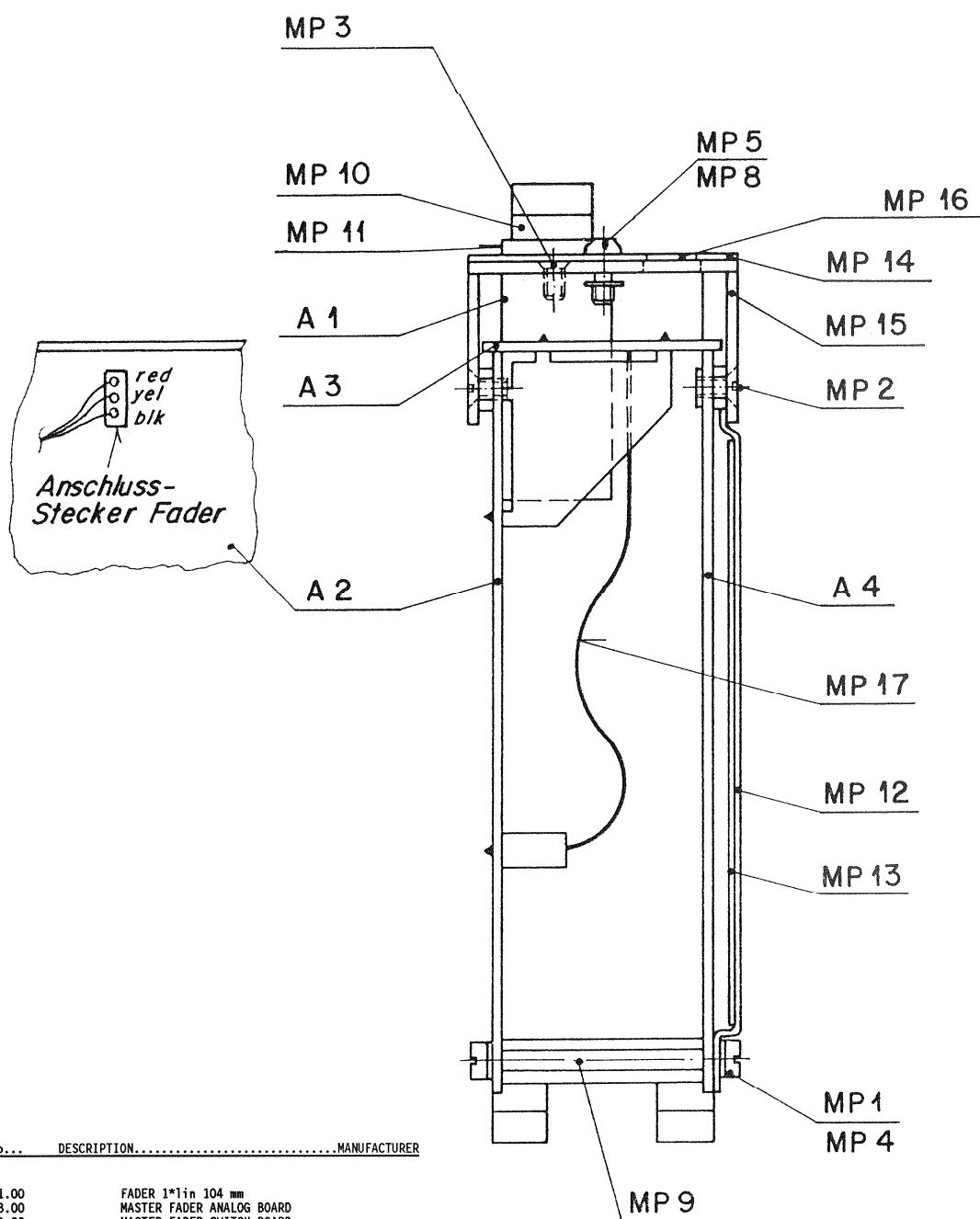
1.990.141.00



SC: Schema      Circuit Diagram  
BP: Bestückungsplan    PCB Layout  
PL: Positionsliste      Positional List

MASTER FADER UNIT

1.990.141.00



Ad . . . POS . . . REF.No . . . DESCRIPTION . . . . . MANUFACTURER

A . . . . 1	1.960.021.00		FADER 1*1in 104 mm	
A . . . . 2	1.990.148.00		MASTER FADER ANALOG BOARD	
A . . . . 3	1.990.149.00		MASTER FADER SWITCH BOARD	
A . . . . 4	1.990.190.30		MODULE PROCESSOR BOARD	
A . . . . 10	1.990.193.00		MEMORY MODULE	
MP . . . 1	21.01.0354	4 pcs	Z-Schr. M3*6	
MP . . . 2	21.01.2352	4 pcs	S-Schr. M3*4	
MP . . . 3	21.99.0175	2 pcs	S-Schr. M3*6, SW-OX	
MP . . . 4	24.16.1030	4 pcs	Rippenscheibe M3	
MP . . . 5	24.16.3023	2 pcs	Wellensicherung	
MP . . . 8	1.010.022.21	2 pcs	Linse rundschr. IS M3*8	
MP . . . 9	1.010.026.27	2 pcs	Mutterbolzen M3*30	
MP . . . 10	1.911.000.32	1 pcs	Faderknopf rot	
MP . . . 11	1.990.000.01	1 pcs	Schutzkragen Taste 12.5*12.5	
MP . . . 12	1.990.100.06	1 pcs	Schirmblech Fader	
MP . . . 13	1.990.100.07	1 pcs	Isolierung 208*87 selbstklebend	
MP . . . 14	1.990.140.01	1 pcs	Frontschild MASTER FADER	
MP . . . 15	1.990.110.02	1 pcs	Traeger FADER	
MP . . . 16	1.990.110.05	1 pcs	Fenster FADER	
MP . . . 17	64.03.0504	8 pcs	Flachkabel konf. FSM 23,5A-6 poi	
MP . . . 18	1.990.141.00	1 pcs	Studer-Nr-Etikette 10*20	

St

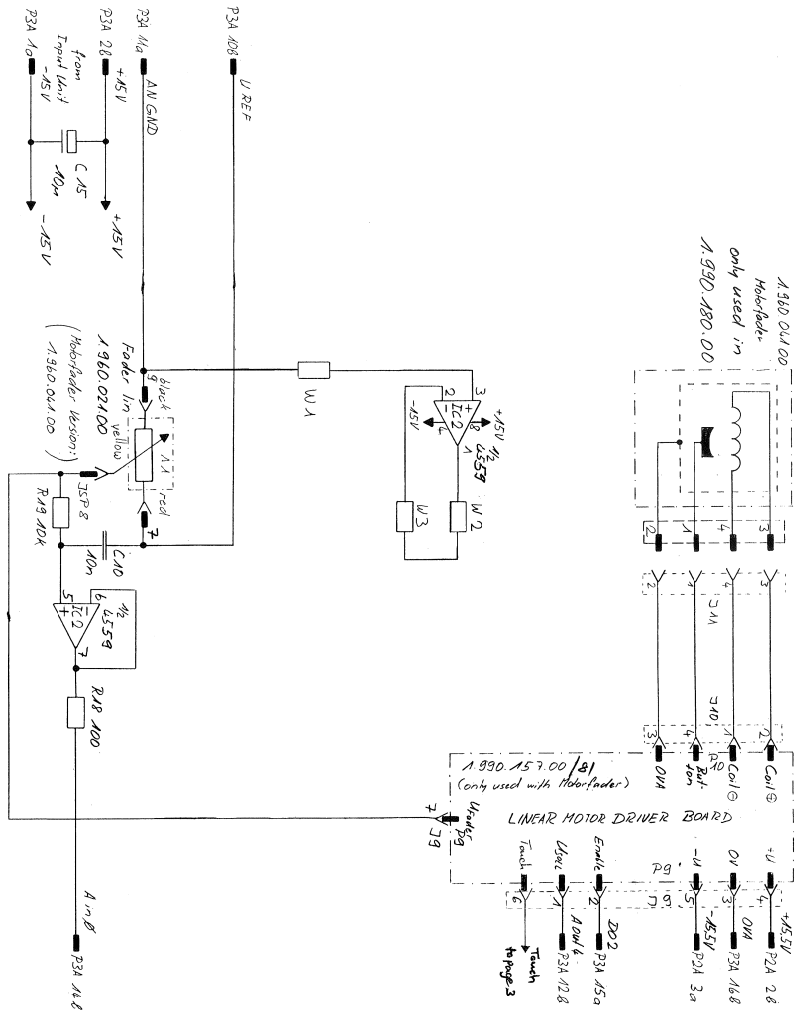
1.990.141.00 MASTER FADER UNIT ABB92/03/0400

STUDER REGENSDORF ZÜRICH	Bestimmung <b>MASTER FADER UNIT</b>	Nummer:	1.990.141-00
		Kopie für:	

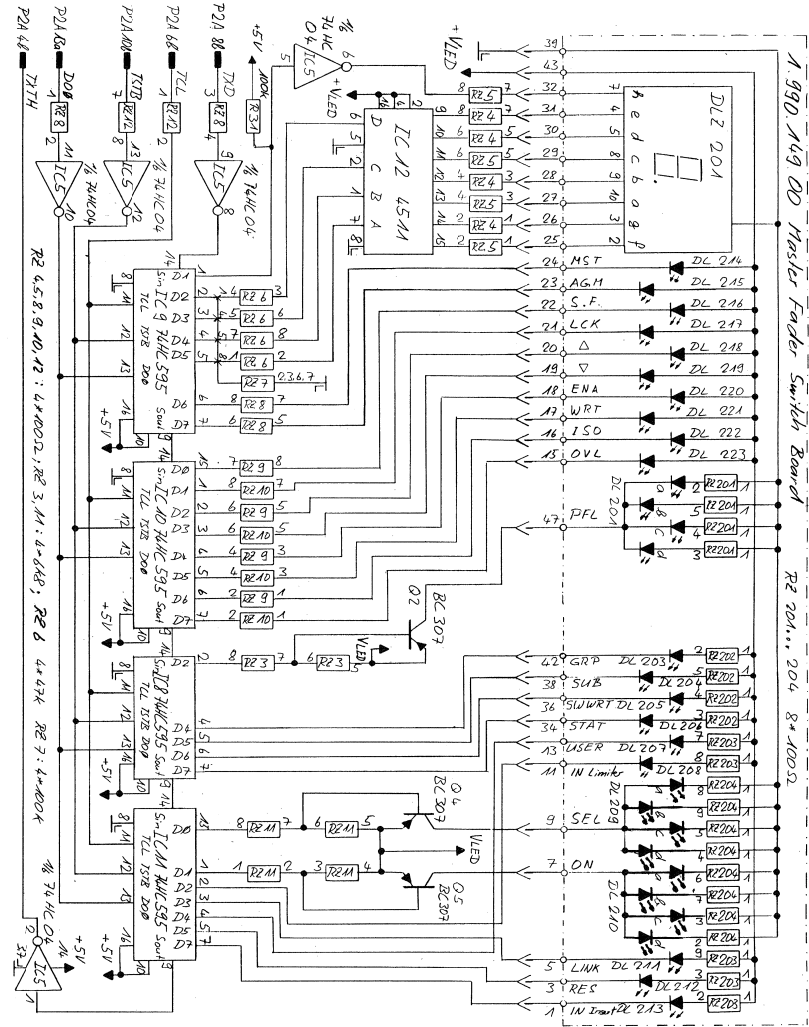
Ausgabe Änderung									③
									②
									①
	4.3.92	all							④
	Datum	Gez.	Gepr.	Ges.	Index				

MASTER FADER UNIT

1.990.140/141.00



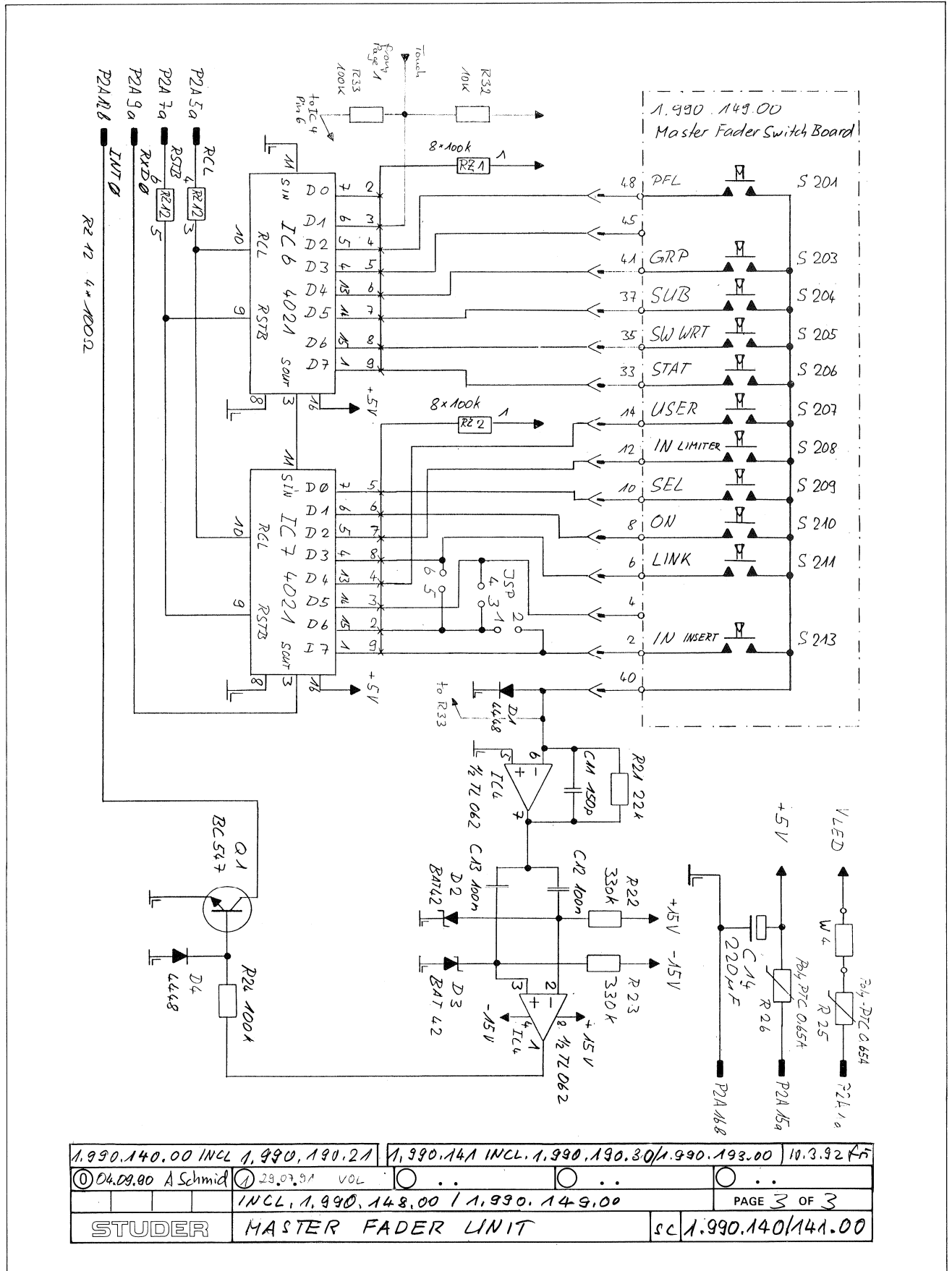
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04.09.90 A Schmid	25.03.91 VOL	
INCL. 1.990.148.00 / 1.990.149.00		PAGE 1 OF 3
STUDER	MASTER FADER UNIT	1.990.140/141.00



1.990.140.00 INCL. 1.990.190.21	1.990.141 INCL. 1.990.190.30/1.990.193.00	10.3.92 48
04.09.90 A Schmid	25.03.91 VOL	
INCL. 1.990.148.00 / 1.990.149.00		PAGE 2 OF 3
STUDER	MASTER FADER UNIT	SC 1.990.140/141.00

MASTER FADER UNIT

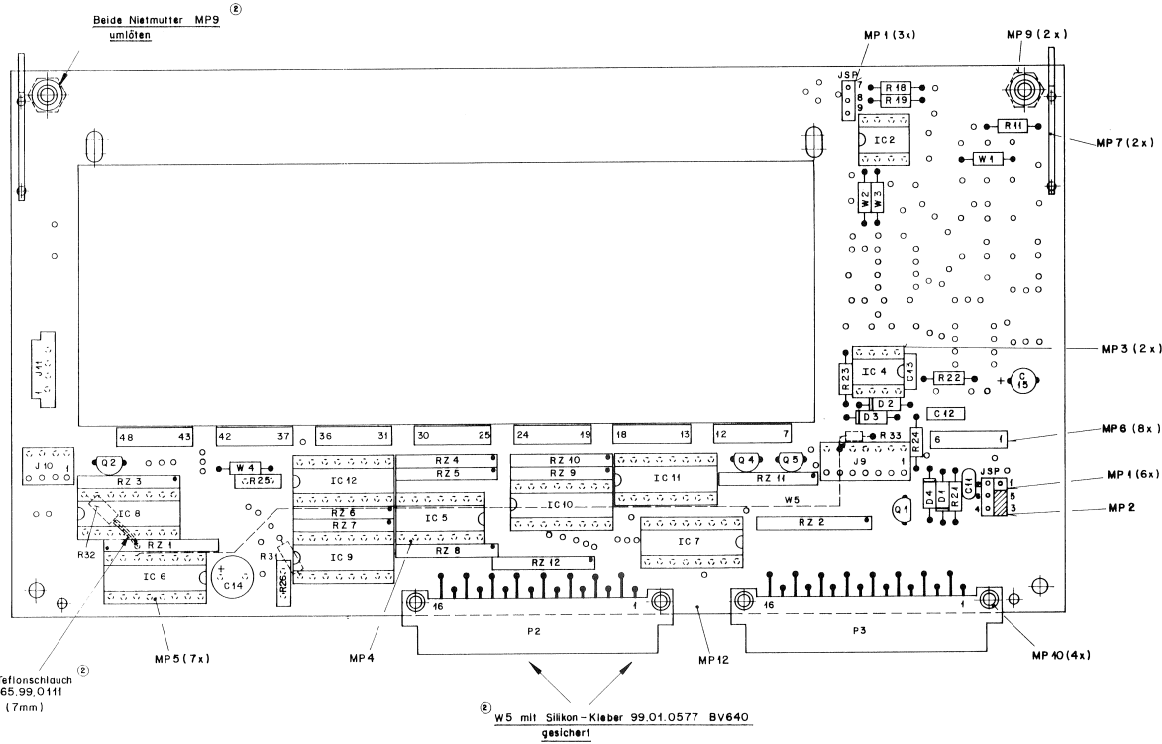
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1.990.140.00 INCL 1.990.190.21		1.990.141 INCL 1.990.190.30/1.990.193.00		10.3.92 Fr
04.09.00 A Schmid	28.07.91 VOL			
INCL 1.990.148.00 / 1.990.149.00			PAGE 3 OF 3	
STUDER	MASTER FADER UNIT		sc	1.990.140/141.00

MASTER FADER ANALOG BOARD

1.990.148.00



Tafelanschlauch  
65.99.0111  
(7mm)

W5 mit Silikon-Kleber 99.01.0577 BV640  
gesichert

Nr. Etikette / ESE-Warnschild  
aufgeklebt nach Fabrikationsmuster.

Erstellt: Nr.	Erstellt durch:	Kopie Nr.:
STUDER REGENSDORF ZÜRICH	MASTER FADER ANALOG BOARD ESE	1.990.148-00

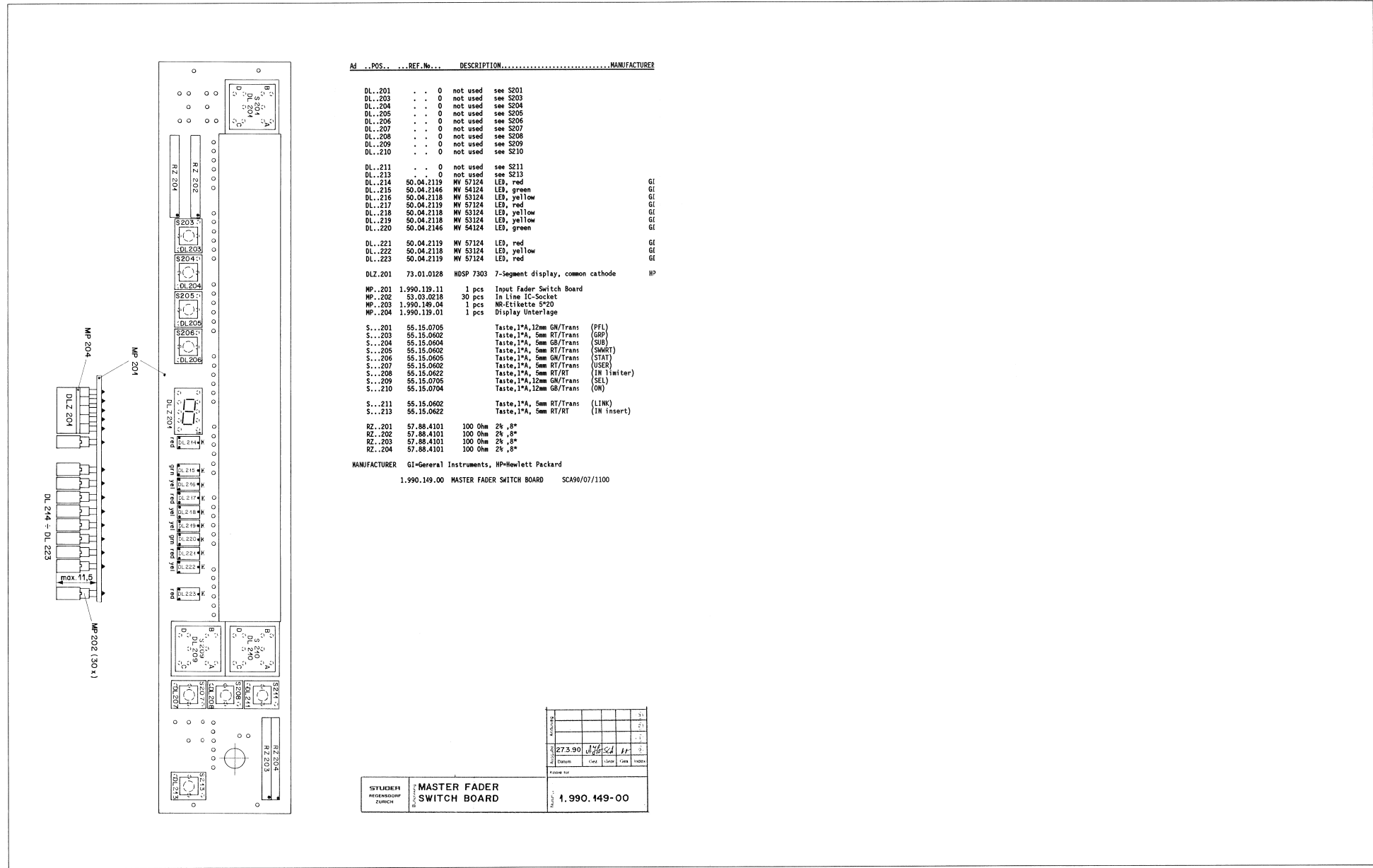
  

Version	29.7.91	78	16	16	16
Version	4.9.90	78	16	16	16
Version	16.3.90	78	16	16	16
Datum	Gez.	Gepr.	Gez.	Gez.	Index

Ad	POS.	REF.No.	DESCRIPTION	MANUFACTURER
C....10	59.06.0103	10 nF	10% PE	
C....11	59.34.2151	150 pF	5% CER	
C....12	59.06.0104	100 nF	10% PE	
C....13	59.06.0104	100 nF	10% PE	
C....14	59.22.2221	220 uF	6V EL	
C....15	59.22.6100	10 uF	35V EL	
B.....1	50.04.0125	1M448		any
B.....2	50.04.0127	BAT42		Tho,Ph
B.....3	50.04.0127	BAT42		Tho,Ph
B.....4	50.04.0125	1M448		any
IC.....2	50.09.0118	RC 4562 N	Dual OP	Ra,JRC
IC.....2	50.09.0107	RC 4559 N	Dual OP	NEC,Ra,TII
IC.....4	50.09.0119	TL 062 CP	J-FET Dual OP	TI,Tho
IC.....5	50.17.1004	74 HC 04	Hex-Inverter	any
IC.....6	50.07.1021	CD 4021	8-bit static shift register	any
IC.....7	50.07.1021	CD 4021	8-bit static shift register	any
IC.....8	50.17.1995	74 HC 595	8-bit shift/output register	NS,SGS,TI
IC.....9	50.17.1995	74 HC 595	8-bit shift/output register	NS,SGS,TI
IC.....10	50.17.1995	74 HC 595	8-bit shift/output register	NS,SGS,TI
IC.....11	50.17.1995	74 HC 595	8-bit shift/output register	NS,SGS,TI
IC.....12	50.07.0511	CD 4511	BCD/7-seg. latch/driver	Not,SGS,To
J.....9	54.01.0241	4 pin	CIS-connector, 4 pin	Mot.PCB
J.....10	54.01.0218	7 pin	CIS-connector, 7 pin	Mot.PCB
J.....11	54.10.3004	4-pol	Federleiste fuer flexiblen Print	
MP.....1	54.01.0020	9 pcs	Jumper plug	
MP.....2	54.01.0021	1 pcs	Jumper bridge	
MP.....3	53.03.0166	2 pcs	IC-Socket, 8 pin	
MP.....4	53.03.0167	1 pcs	IC-Socket, 14 pin	
MP.....5	53.03.0168	7 pcs	IC-Socket, 16 pin	
MP.....6	54.10.3506	8 pcs	Buchsenleiste 744-6	
MP.....7	1.990.100.01	2 pcs	Querprintstuetze	
MP.....8	1.990.148.04	1 pcs	Nr.-Etikette 5*20	
MP.....9	1.010.012.22	2 pcs	Nietmutter SW 6 R0*2	
MP.....10	68.99.0119	4 pcs	Rohrniete D2.5*0.15*10	
MP.....11	43.01.0108	1 pcs	ESE-Schild	
MP.....12	1.990.118.11	1 pcs	FADER ANALOG PCB	
P.....2	54.11.2007	1*16 pin	Eurocard connector, 16 pin	
P.....3	54.11.2007	1*16 pin	Eurocard connector, 16 pin	
P.....4	54.01.0241	4 pin	CIS-connector, 4 pin	Mot.PCB
P.....5	54.01.0218	7 pin	CIS-connector, 7 pin	Mot.PCB
Q.....1	50.03.0436	BC 547 B	key detection	Not
Q.....2	50.03.0515	BC 307 B	pFI-LED	ITT,Mot
Q.....4	50.03.0515	BC 307 B	sel-LED	ITT,Mot
Q.....5	50.03.0515	BC 307 B	on/mute-LED	ITT,Mot
R.....11	57.11.3101	100 Ohm	1%	
R.....11	.	.	not used	
R.....18	57.11.3101	100 Ohm	1%	
R.....19	57.11.3103	10 kOhm	1%	
R.....21	57.11.3223	22 kOhm	1%	
R.....22	57.11.3334	330 kOhm	1%	
R.....23	57.11.3334	330 kOhm	1%	
R.....24	57.11.3104	100 kOhm	1%	
R.....25	57.92.7014	650 mA	Poly-PTC, I-hold=500mA, R=0.46 Ohm	MCI
R.....26	57.92.7014	650 mA	Poly-PTC, I-hold=500mA, R=0.46 Ohm	MCI
R.....31	57.11.3104	100 kOhm	1%	
R.....32	57.11.3103	10 kOhm	1%	
R.....33	57.11.3104	100 kOhm	1%	
RZ.....1	57.88.4104	100 kOhm	2% ,8°	
RZ.....2	57.88.4104	100 kOhm	2% ,8°	
RZ.....3	57.88.2682	6.8 kOhm	2% ,4°	
RZ.....4	57.88.2101	100 Ohm	2% ,4°	
RZ.....5	57.88.2101	100 Ohm	2% ,4°	
RZ.....6	57.88.2473	47 kOhm	2% ,4°	
RZ.....7	57.88.2104	100 kOhm	2% ,4°	
RZ.....8	57.88.2101	100 Ohm	2% ,4°	
RZ.....9	57.88.2101	100 Ohm	2% ,4°	
RZ.....10	57.88.2101	100 Ohm	2% ,4°	
RZ.....11	57.88.2682	6.8 kOhm	2% ,4°	
RZ.....12	57.88.2101	100 Ohm	2% ,4°	
W.....1	57.11.3000	0 Ohm	wire bridge	
W.....2	57.11.3000	0 Ohm	wire bridge	
W.....3	57.11.3000	0 Ohm	wire bridge	
W.....4	57.11.3000	0 Ohm	wire bridge	
W.....5	1.010.122.64		wire-wrap Draht	
03	W.....5		EL = electrolytic, PE = polyester	
MANUFACTURER ITI=Intermetall, JRC=Japan Radio Corporation, NEC=National Semiconductor, Ph=Phillips, Ra=Raytheon, SGS=SGS/Ates, St=Studer, TI=Texas Instruments, Tho=Thomson, To=Toshiba				
1.990.148.00	MASTER FADER ANALOG BOARD	SCA89/05/1200		
1.990.148.00	MASTER FADER ANALOG BOARD	SCA90/06/1801		
1.990.148.00	MASTER FADER ANALOG BOARD	SCA90/09/0402		
1.990.148.00	MASTER FADER ANALOG BOARD	VOL91/07/2903		

MASTER FADER SWITCH BOARD

1.990.149.00



Ad	POS.	REF.No.	DESCRIPTION	MANUFACTURER
DL..201	.	0	not used	see S201
DL..203	.	0	not used	see S203
DL..204	.	0	not used	see S204
DL..205	.	0	not used	see S205
DL..206	.	0	not used	see S206
DL..207	.	0	not used	see S207
DL..208	.	0	not used	see S208
DL..209	.	0	not used	see S209
DL..210	.	0	not used	see S210
DL..211	.	0	not used	see S211
DL..213	.	0	not used	see S213
DL..214	50.04.2119	MV 57124	LED, red	GI
DL..215	50.04.2146	MV 54124	LED, green	GI
DL..216	50.04.2118	MV 53124	LED, yellow	GI
DL..217	50.04.2119	MV 57124	LED, red	GI
DL..218	50.04.2118	MV 53124	LED, yellow	GI
DL..219	50.04.2118	MV 53124	LED, yellow	GI
DL..220	50.04.2146	MV 54124	LED, green	GI
DL..221	50.04.2119	MV 57124	LED, red	GI
DL..222	50.04.2118	MV 53124	LED, yellow	GI
DL..223	50.04.2119	MV 57124	LED, red	GI
DLZ.201	73.01.0128	HDSP 7303	7-segment display, common cathode	HP
MP..201	1.990.119.11	1 pcs	Input Fader Switch Board	
MP..202	53.03.0218	30 pcs	In Line IC-Socket	
MP..203	1.990.149.04	1 pcs	NR-Etikette 5*20	
MP..204	1.990.119.01	1 pcs	Display Unterlage	
S...201	55.15.0705		Taste,1*A,12mm GN/Trans (PFL)	
S...203	55.15.0602		Taste,1*A, 5mm RT/Trans (GRP)	
S...204	55.15.0604		Taste,1*A, 5mm GB/Trans (SUS)	
S...205	55.15.0602		Taste,1*A, 5mm RT/Trans (SMWRT)	
S...206	55.15.0605		Taste,1*A, 5mm GN/Trans (STAT)	
S...207	55.15.0602		Taste,1*A, 5mm RT/Trans (USEP)	
S...208	55.15.0622		Taste,1*A, 5mm RT/RT (IN limiter)	
S...209	55.15.0705		Taste,1*A,12mm GN/Trans (SEL)	
S...210	55.15.0704		Taste,1*A,12mm GB/Trans (GN)	
S...211	55.15.0602		Taste,1*A, 5mm RT/Trans (LINK)	
S...213	55.15.0622		Taste,1*A, 5mm RT/RT (IN insert)	
RZ..201	57.88.4101	100 Ohm	2k, 8°	
RZ..202	57.88.4101	100 Ohm	2k, 8°	
RZ..203	57.88.4101	100 Ohm	2k, 8°	
RZ..204	57.88.4101	100 Ohm	2k, 8°	

MANUFACTURER GI=General Instruments, HP=Hewlett Packard  
 1.990.149.00 MASTER FADER SWITCH BOARD SCA99/07/1100

STUDER  
 RECHENWERK  
 ZÜRICH

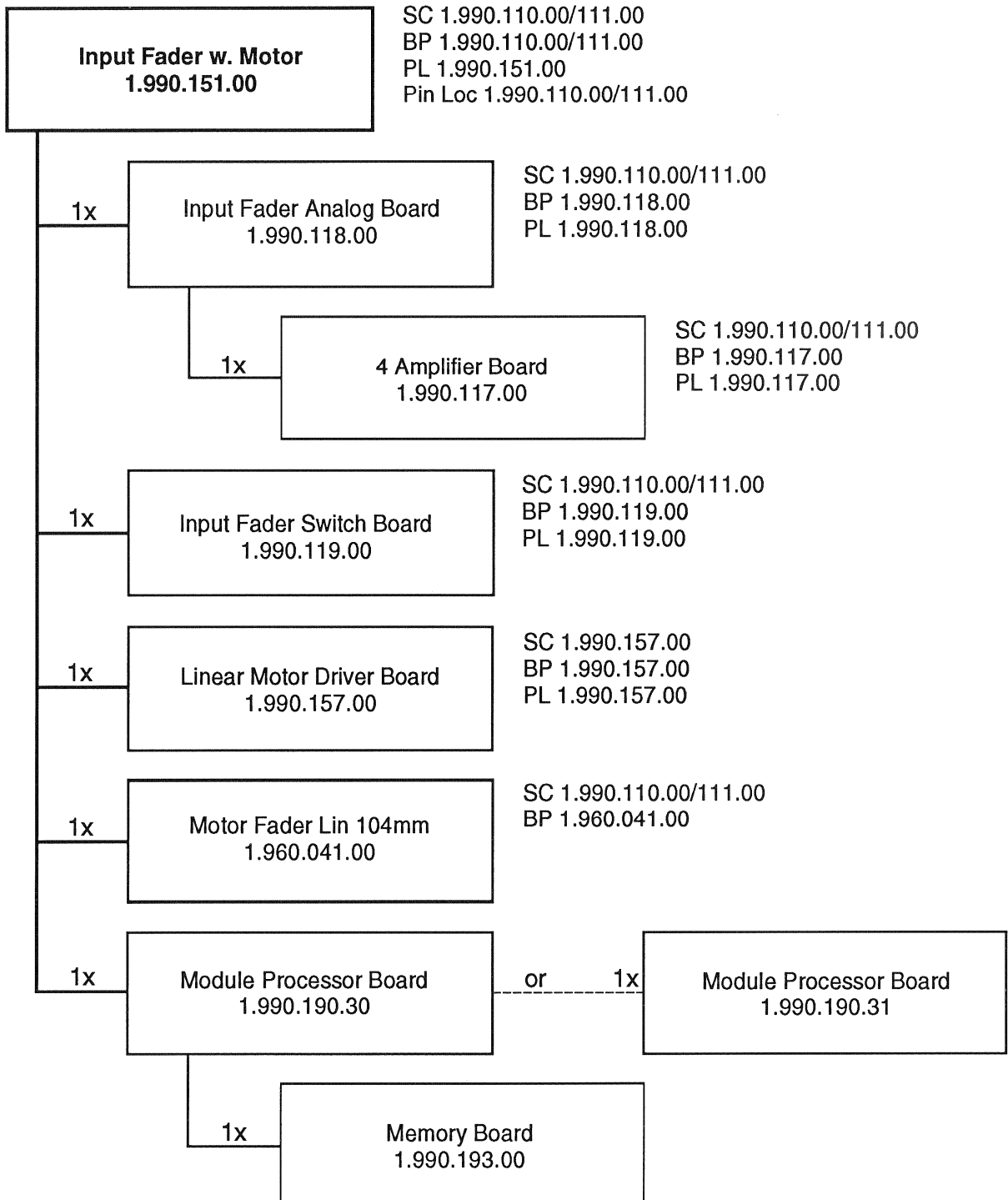
MASTER FADER  
 SWITCH BOARD

1.990.149-00



Input Fader Unit w. Motor

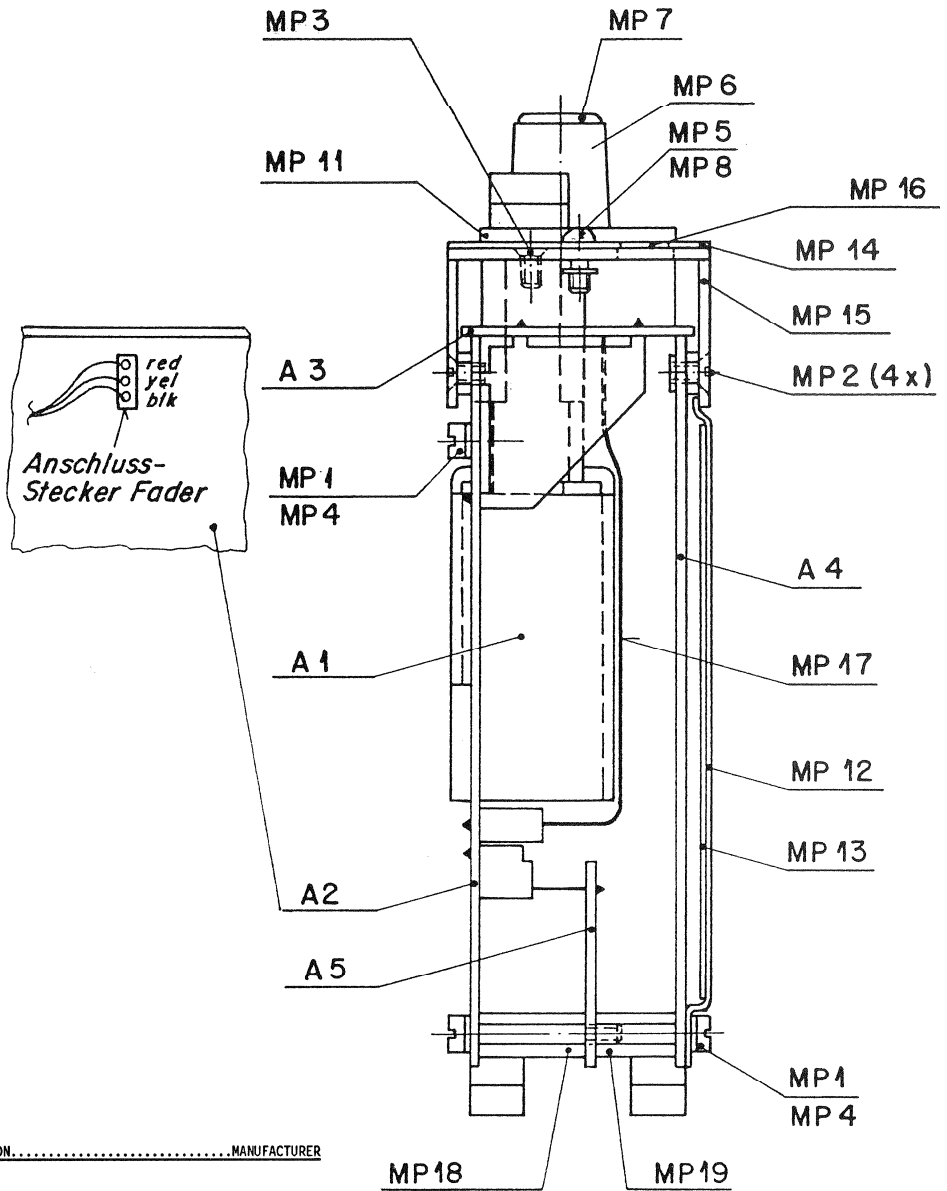
1.990.151.00



SC: Schema      Circuit Diagram  
 BP: Bestückungsplan    PCB Layout  
 PL: Positionsliste      Positional List

INPUT FADER UNIT W. MOTOR

1.990.151.00



Ad . . POS. . . . REF. No. . . . DESCRIPTION . . . . . MANUFACTURER

A. ....1	1.960.042.00	MOTOR FADER 1*1in 104 mm
01 A. ....1	1.960.042.81	MOTOR FADER 1*1in 104 mm
A. ....2	1.990.118.00	INPUT FADER ANALOG BOARD
A. ....3	1.990.119.00	INPUT FADER SWITCH BOARD
A. ....4	1.990.190.31	MODULE PROCESSOR BOARD
A. ....5	1.990.157.81	LINEAR MOTOR DRIVER BOARD
A. ....10	1.990.193.00	MEMORY BOARD
MP. ....1	21.01.0354	6 pcs Z-Schr. M3*6
MP. ....2	21.01.2352	4 pcs S-Schr. M3*4
MP. ....3	21.99.0175	2 pcs S-Schr. M3*6, SW-0X
MP. ....4	24.16.1030	6 pcs Rippenscheibe M3
MP. ....5	24.16.3023	2 pcs Wellensicherung
MP. ....6	42.01.0233	1 pcs Knebelknopf grau D 15/4
MP. ....7	42.01.0257	1 pcs Deckel hellgrau zu D 15
MP. ....8	1.010.022.21	2 pcs Linsenrundschr. IS M3*8
MP. ....11	1.990.000.01	2 pcs Schutzkragen Taste 12.5*12.5
MP. ....12	1.990.100.06	1 pcs Schirmblech Fader
MP. ....13	1.990.100.07	1 pcs Isolierung 208*87 selbstklebend
MP. ....14	1.990.110.01	1 pcs Frontschild INPUT FADER
MP. ....15	1.990.110.02	1 pcs Traeger FADER
MP. ....16	1.990.110.05	1 pcs Fenster FADER
MP. ....17	64.03.0504	8 pcs Flachkabel konf. FSN 23,5A-6 pol
MP. ....18	1.010.049.27	2 pcs Mutterbolzen M3x17
MP. ....19	1.010.152.27	2 pcs Distanzbolzen M3x11,5
MP. ....20	1.990.151.04	1 pcs Studer-Nr-Etikette 10*20

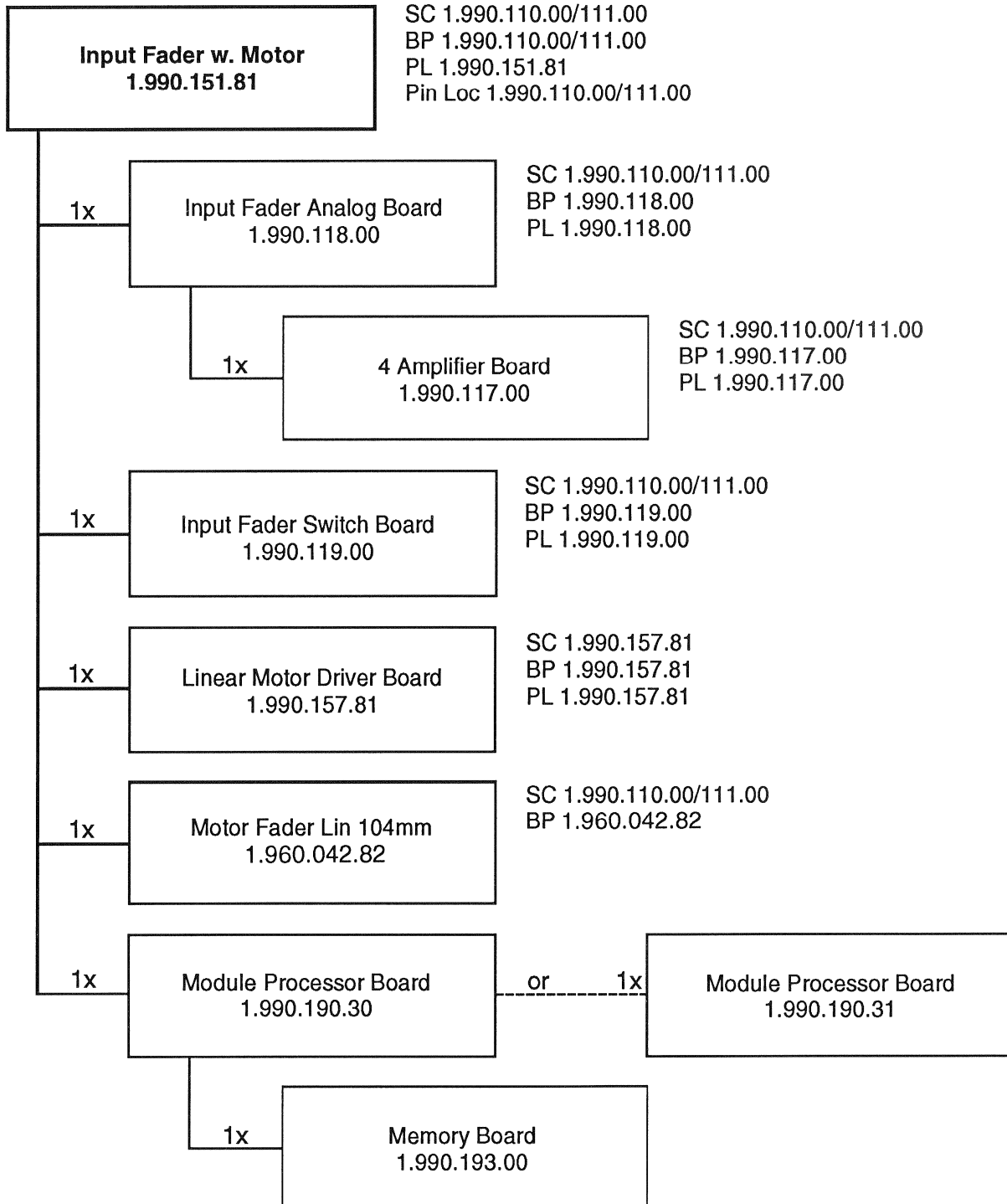
St

01 MOTOR FADER 1.960.042.81		
1.990.151.81	INPUT FADER UNIT W. MOTOR	FRI92/12/1600
1.990.151.81	INPUT FADER UNIT W. MOTOR	FRI94/01/0401

Ausgabe		Anmerkung		
Datum	Gez	Gepr	Gus	Indux
4.3.92	A/10	al6	1/1	(0)
Kreuz für				
STUDER		INPUT FADER UNIT		
REGENDORF		W. MOTOR		
ZÜRICH				1.990.151-00

Input Fader Unit w. Motor

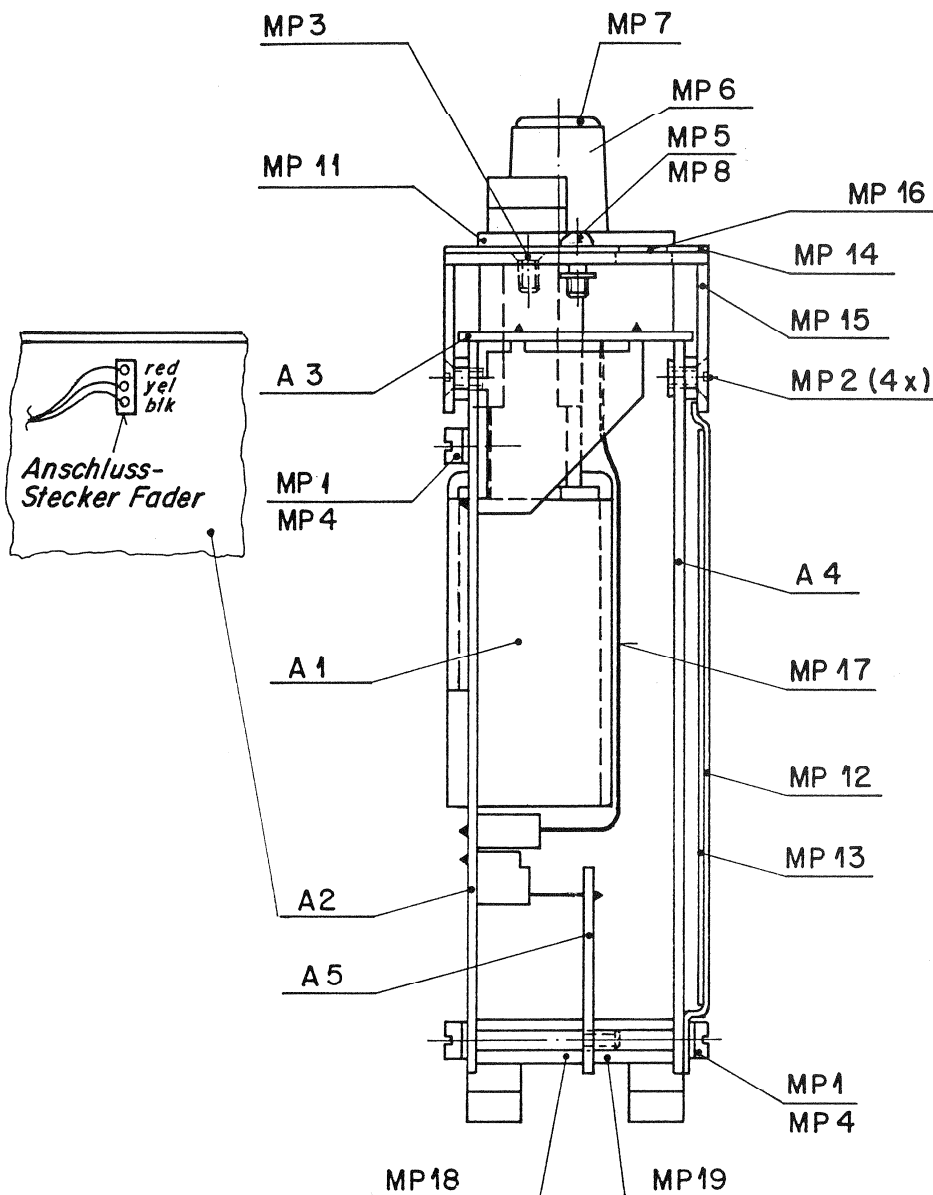
1.990.151.81



SC: Schema      Circuit Diagram  
BP: Bestückungsplan    PCB Layout  
PL: Positionsliste      Positional List

INPUT FADER UNIT W. MOTOR

1.990.151.81



Ad ..POS... REF.No... DESCRIPTION.....MANUFACTURER

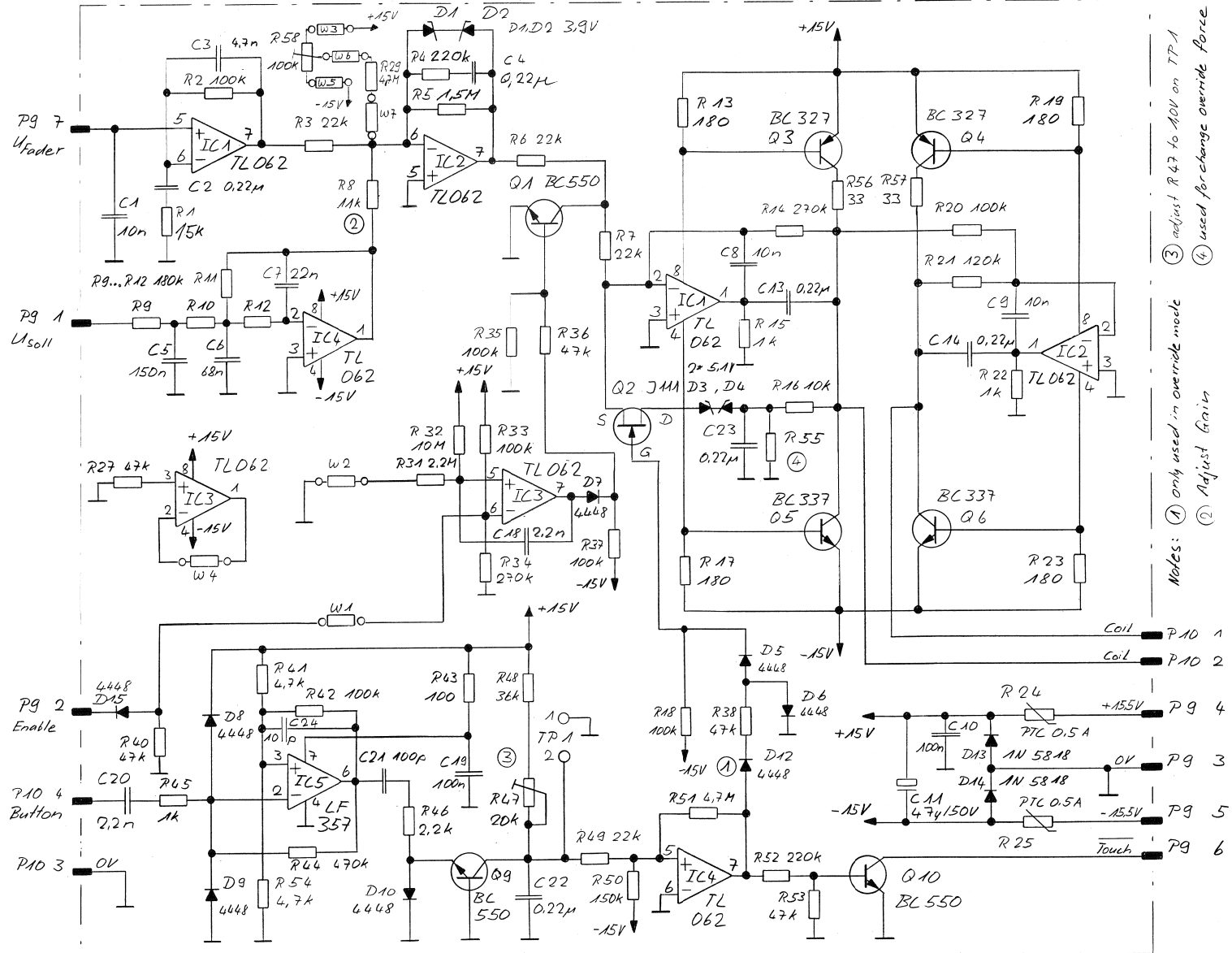
A.....1	1.960.042.00		MOTOR FADER 1*1in 104 mm	
A.....2	1.990.118.00		INPUT FADER ANALOG BOARD	
A.....3	1.990.119.00		INPUT FADER SWITCH BOARD	
A.....4	1.990.190.31		MODULE PROCESSOR BOARD	
A.....5	1.990.157.81		LINEAR MOTOR DRIVER BOARD	
A.....10	1.990.193.00		MEMORY BOARD	St
MP...1	21.01.0354	6 pcs	Z-Schr. M3*6	
MP...2	21.01.2352	4 pcs	S-Schr. M3*4	
MP...3	21.99.0175	2 pcs	S-Schr. M3*6, SW-0X	
MP...4	24.16.1030	6 pcs	Rippenscheibe M3	
MP...5	24.16.3023	2 pcs	Wellensicherung	
MP...6	42.01.0233	1 pcs	Knebelknopf grau D 15/4	
MP...7	42.01.0257	1 pcs	Deckel hellgrau zu D 15	
MP...8	1.010.022.21	2 pcs	Linse rundschr. IS M3*8	
MP...11	1.990.000.01	2 pcs	Schutzkragen Taste 12.5*12.5	
MP...12	1.990.100.06	1 pcs	Schirmblech Fader	
MP...13	1.990.100.07	1 pcs	Isolierung 208*87 selbstklebend	
MP...14	1.990.110.01	1 pcs	Frontschild INPUT FADER	
MP...15	1.990.110.02	1 pcs	Traeger FADER	
MP...16	1.990.110.05	1 pcs	Fenster FADER	
MP...17	64.03.0504	8 pcs	Flachkabel konf. FSN 23,5A-6 pol	
MP...18	1.010.049.27	2 pcs	Mutterbolzen M3x17	
MP...19	1.010.152.27	2 pcs	Distanzbolzen M3x11.5	
MP...20	1.990.151.04	1 pcs	Studer-Nr-Etikette 10*20	

1.990.151.81 INPUT FADER UNIT W. MOTOR FR192/12/1600

STUDER REGENSDORF ZÜRICH	INPUT FADER UNIT W. MOTOR	Ausgabe				
		16.12.92	SP	LS	W	
Kopie Nr.:		Datum	Gez.	Gepr.	Ges.	Index
STUDER-NR.		1.990.151-81				

LINEAR MOTOR DRIVER BOARD

1.990.157.00

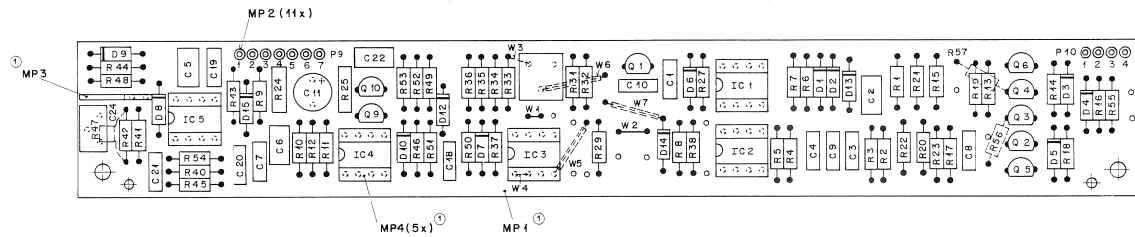


Notes: ① only used in override mode  
 ② Adjust Gain  
 ③ adjust R 47 to 10V on TP-1  
 ④ used for change override force

① 07.03.90 A Schindl	② 12.06.91 A Schindl	③ 10.9.92 fr	④
PAGE 1 OF 1			
5C 1.990.157-00			
STUDER LINEAR MOTOR DRIVER BOARD			

LINEAR MOTOR DRIVER BOARD

1.990.157.00



② Leiterbahnen auftrennen und Drahtbrücken auf \_Ötseite nach Fabrikationsmuster.

② C 24, R 56, R 57, W 3, W 4, W 5, W 6, W 7 auf Lötseite

Table with columns for 'Änderung', 'Ausgabe', 'Datum', 'Gez', 'Gepr', 'Gest', 'Index', and 'Nummer'. Contains handwritten entries and the number 1.990.157-00.

STUDER RESENSDORF ZÜRICH logo and title 'LINEAR MOTOR DRIVER BOARD'. Includes a table with 'Nummer' and the value '1.990.157-00'.

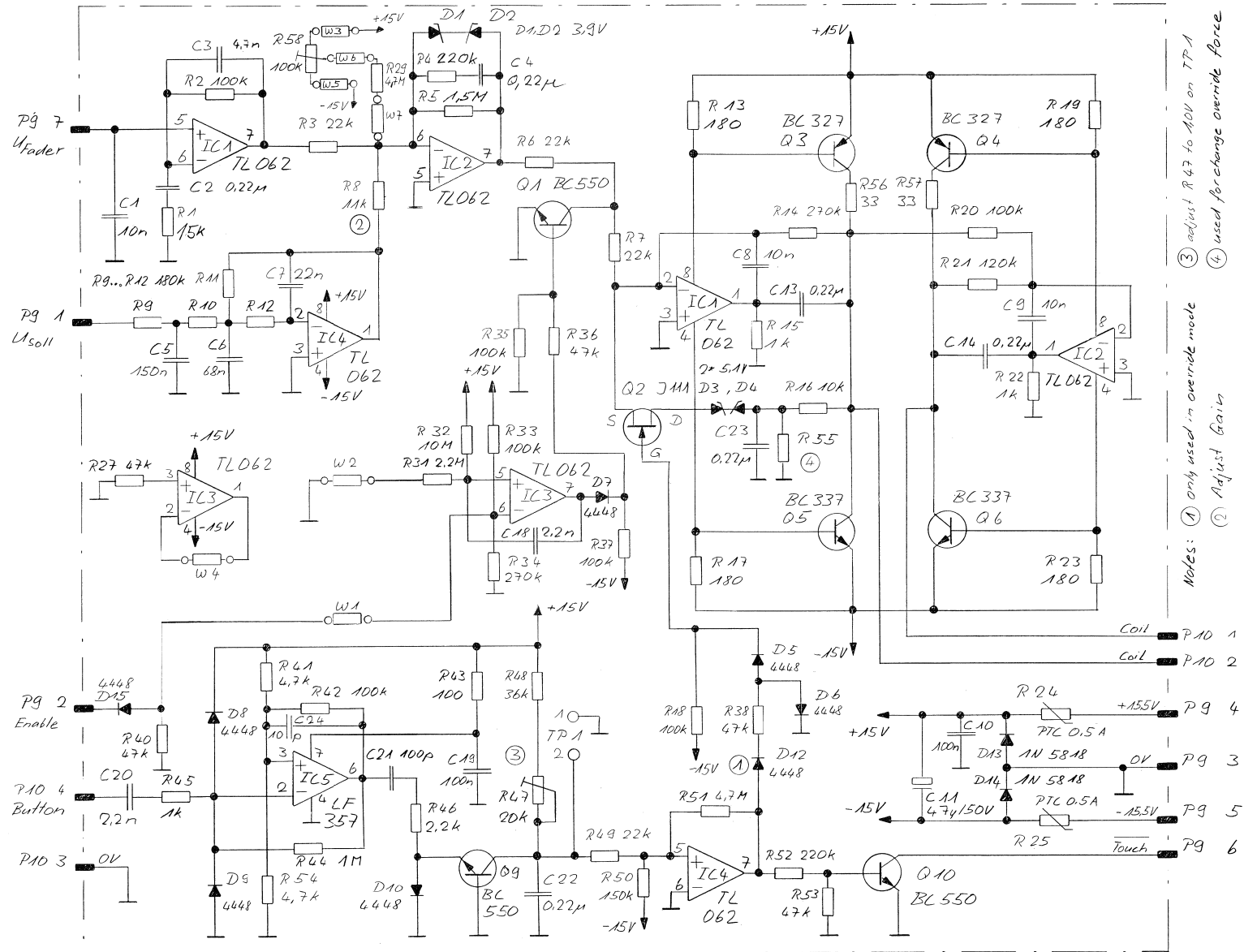
Table with columns: Ad, POS, REF.No., DESCRIPTION, MANUFACTURER. Lists component values such as capacitors (C...), resistors (R...), and diodes (D...).

Table with columns: Ad, POS, REF.No., DESCRIPTION, MANUFACTURER. Lists component values such as resistors (R...), capacitors (C...), and diodes (D...).

Main component list table with columns: Ad, POS, REF.No., DESCRIPTION, MANUFACTURER. Includes detailed descriptions for various resistors, capacitors, diodes, and integrated circuits, along with assembly notes and manufacturer information.

LINEAR MOTOR DRIVER BOARD

1.990.157.81

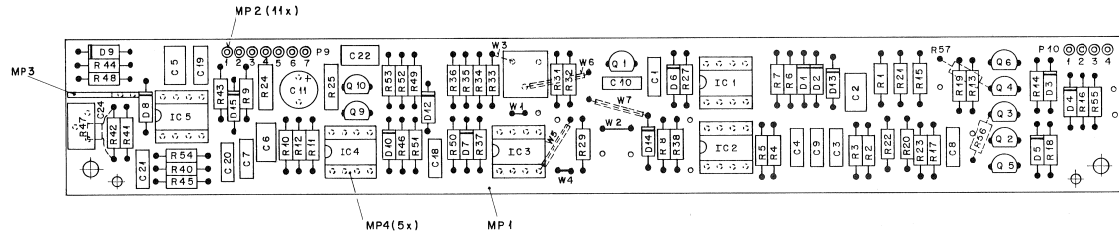


Notes: (1) only used in override mode  
 (2) Adjust Gain  
 (3) adjust R47 to 40V on TP1  
 (4) used for change override force

16.12.92	STUDER	LINEAR MOTOR DRIVER BOARD	SC	1.990.157-81
			PAGE 1 OF 1	

LINEAR MOTOR DRIVER BOARD

1.990.157.81



STUDER FEDERSDORF ZÜRICH	LINEAR MOTOR DRIVER BOARD	Stromversorgung	Ausgangsbuchung			
			Dat/Lum	Orce	Gezr	Ges/Indextz
Kopie für:			1612.92	24	14	
Stempelnummer			1.990.157-81			

Leitbahnen auftrennen und  
Drahtbrücken auf Lötseite  
nach Fabrikationsmuster.

C 24, R 56, R 57,  
W 3, W 5, W 6, W 7 auf Lötseite

Nr. Etikette  
aufgeklebt nach Fabrikationsmuster.

Ad .POS. . . . REF.No. . . . DESCRIPTION . . . . . MANUFACTURER

R....6	57.11.3223	22 kOhm	1%
R....7	57.11.3223	22 kOhm	1%
R....8	57.11.3113	11 kOhm	1%
R....9	57.11.3184	180 kOhm	1%
R....10	57.11.3184	180 kOhm	1%
R....11	57.11.3184	180 kOhm	1%
R....12	57.11.3184	180 kOhm	1%
R....13	57.11.3181	180 Ohm	1%
R....14	57.11.3274	270 kOhm	1%
R....15	57.11.3102	1.0 kOhm	1%
R....16	57.11.3103	10 kOhm	1%
R....17	57.11.3181	180 Ohm	1%
R....18	57.11.3104	100 kOhm	1%
R....19	57.11.3181	180 Ohm	1%
R....20	57.11.3104	100 kOhm	1%
R....21	57.11.3124	120 kOhm	1%
R....22	57.11.3102	1.0 kOhm	1%
R....23	57.11.3181	180 Ohm	1%
R....24	57.92.7013	0.5 A	Poly-PTC
R....25	57.92.7013	0.5 A	Poly-PTC
R....26		not exist	
R....27	57.11.3473	47 kOhm	1%
R....28		not exist	
R....29	57.11.5475	4.7 kOhm	5%
R....30		not exist	
R....31	57.11.6225	2.2 kOhm	5%
R....32	57.11.5106	10 kOhm	10%
R....33	57.11.3104	100 kOhm	1%
R....34	57.11.3274	270 kOhm	1%
R....35	57.11.3104	100 kOhm	1%
R....36	57.11.3473	47 kOhm	1%
R....37	57.11.3104	100 kOhm	1%
R....38	57.11.3473	47 kOhm	1%
R....39		not exist	
R....40	57.11.3473	47 kOhm	1%
R....41	57.11.3472	4.7 kOhm	1%
R....42	57.11.3104	100 kOhm	1%
R....43	57.11.3101	100 Ohm	1%
R....44	57.11.3105	1 kOhm	1%
R....45	57.11.3102	1.0 kOhm	1%
R....46	57.11.3222	2.2 kOhm	1%
R....47	58.01.9203	20 kOhm	10% variable resistor
R....48	57.11.3363	36 kOhm	1%
R....49	57.11.3223	22 kOhm	1%
R....50	57.11.3184	180 kOhm	1%
R....51	57.11.5475	4.7 kOhm	5%
R....52	57.11.3224	220 kOhm	1%
R....53	57.11.3473	47 kOhm	1%
R....54	57.11.3472	4.7 kOhm	1%
R....55		0	not used
R....56	57.11.3330	33 Ohm	1% on solderside of PCB
R....57	57.11.3330	33 Ohm	1% on solderside of PCB
R....58	58.01.8104	100 kOhm	10% variable resistor
W.....1	1.C10.329.64	2.5 mm	wirebridge
W.....2	1.C10.321.64	5.0 mm	wirebridge
W.....3		used	see MP 5 (bridge)
W.....4	1.C10.329.64	2.5mm	wirebridge
W.....5		used	see MP 5, MP 6 (bridge,insulation)
W.....6		used	see MP 5, MP 6 (bridge,insulation)
W.....7		used	see MP 5, MP 6 (bridge,insulation)

Ad .POS. . . . REF.No. . . . DESCRIPTION . . . . . MANUFACTURER

C....1	59.06.0103	10 nF	PE
C....2	59.06.0224	220 nF	PE
C....3	59.06.0472	4.7 nF	PE
C....4	59.06.0224	220 nF	PE
C....5	59.06.5154	150 nF	PE
C....6	59.06.0683	68 nF	PE
C....7	59.06.0223	22 nF	PE
C....8	59.06.0103	10 nF	PE
C....9	59.06.0103	10 nF	PE
C....10	59.06.0104	100 nF	PE
C....11	59.22.6470	47 uF	EL
C....12		0	not exist
C....13			not exist
C....14			not exist
C....15			not exist
C....16			not exist
C....17			not exist
C....18			not exist
C....19	59.06.0104	100 nF	PE
C....20	59.06.0222	2.2 nF	PE
C....21	59.32.1101	100 pF	CE
C....22	59.06.0224	220 nF	PE
C....23			not exist
C....24	59.34.1100	10 pF	CE on solderside of PCB
D....1	50.04.1101	Z 3.9V	500mW
D....2	50.04.1101	Z 3.9V	500mW
D....3	50.04.1112	Z 5.1V	500mW
D....4	50.04.1112	Z 5.1V	500mW
D....5	50.04.0125		1M4448
D....6	50.04.0125		1M4448
D....7	50.04.0125		1M4448
D....8	50.04.0125		1M4448
D....9	50.04.0125		1M4448
D....10	50.04.0125		1M4448

Ad .POS. . . . REF.No. . . . DESCRIPTION . . . . . MANUFACTURER

D....11			not exist
D....12	50.04.0125		1M4448
D....13	50.04.0512		1M5818
D....14	50.04.0512		1M5818
D....15	50.04.0125		1M4448
IC....1	50.09.0119	TL 062 CP	dual J-FET
IC....2	50.09.0119	TL 062 CP	dual J-FET
IC....3	50.09.0119	TL 062 CP	dual J-FET
IC....4	50.09.0119	TL 062 CP	dual J-FET
IC....5	50.09.0102	LF 357 M	single Bi-FET
MP....1	1.990.157.11	1 pcs	Linear Motor Driver PCB
MP....2	1.228.105.01	11 pcs	Loetstift
MP....3	54.11.0130	1 pcs	Stiftleiste (2 pin = 1 Stueck)
MP....4	63.03.0166	6 pcs	DIL IC-Socket 8-pin
MP....5	64.01.0106	100 mm	Schalt draht CU 0.6 mm
MP....6	66.99.0111	60 mm	Isolierschlauch 0.89 * 0.152
Q....1	50.03.0407	BC 550	npn uni
Q....2	50.03.0216	J 111	n-FET
Q....3	50.03.0351	BC 327-25	ppn 800 mA
Q....4	50.03.0351	BC 327-25	ppn 800 mA
Q....5	50.03.0340	BC 337-25	npn 800 mA
Q....6	50.03.0340	BC 337-25	npn 800 mA
Q....7			not exist
Q....8			not exist
Q....9	50.03.0407	BC 550	npn uni
Q....10	50.03.0407	BC 550	npn uni
Q....11			not exist
R....1	57.11.3153	15 kOhm	1%
R....2	57.11.3104	100 kOhm	1%
R....3	57.11.3223	22 kOhm	1%
R....4	57.11.3224	220 kOhm	1%
R....5	57.11.5155	1.5 Mohm	5%

7.1.93 ZT  
 = Diese Baugruppe 1.990.157.81 wird von 1.990.157.82 abgelöst  
 = nachdem Lagerbestand von ca 1000 Stk.aufgebraucht ist.  
 =  
 = Baugruppe 1.990.157.82 ist zur Zeit noch nicht freigegeben.  
 = Schemagrappprint 1.990.157-12 ist bereits freigegeben.  
 = Schema 1.990.157.82 wurde auf dem IBM-System gezeichnet  
 = und archiviert.  
 =  
 = Postliste 1.990.157.82 (#990157E, #990157F) sind bereits  
 = erstellt.  
 = fuer weitere Info siehe Hangeregister 990 1.990.157.81

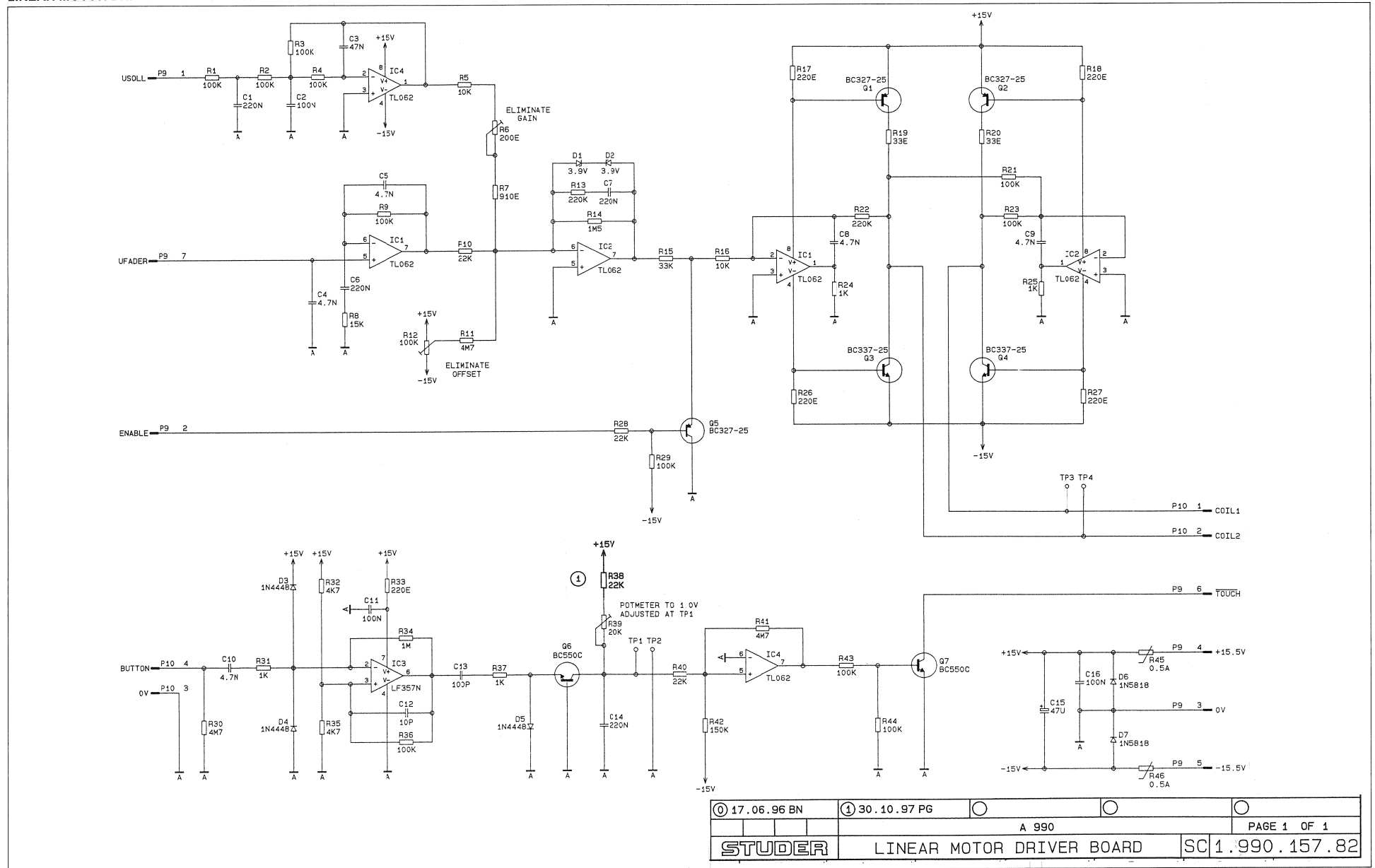
CER = ceramic, EL = electrolytic, PE = polyester  
 MANUFACTURER ITI=Intermetall, Ph=Philips, Siw=Siemens,  
 St=Studer, TI=Texas Instruments, Tho=Thoson

1.990.157.81 LINEAR MOTOR DRIVER BOARD FR192/12/1600



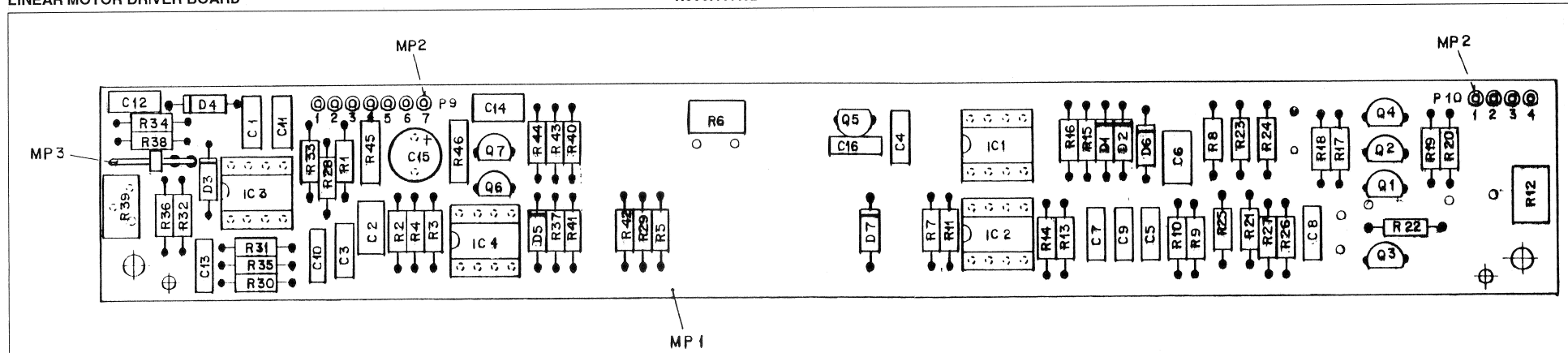
LINEAR MOTOR DRIVER BOARD

1.990.157.82



LINEAR MOTOR DRIVER BOARD

1.990.157.82



Idx.	Pos.	Part No.	Qty.	Type/Val.	Description	Mx.	Pos.	Part No.	Qty.	Type/Val.	Description
0	C 1	59 06 0224	220n		PETP, 63V, 10%, RM5	0	R 4	57 11 3104	100k		MF, 1%, 0207
0	C 2	59 06 0104	100n		PETP, 63V, 10%, RM5	0	R 5	57 11 3103	10k		MF, 1%, 0207
0	C 3	59 06 0473	47n		PETP, 63V, 10%, RM5	0	R 6	58 01 9201	200R		Cermet, 10%, 0.5W, vertical
0	C 4	59 06 0472	4n7		PETP, 63V, 10%, RM5	0	R 7	57 11 3911	910R		MF, 1%, 0207
0	C 5	59 06 0472	4n7		PETP, 63V, 10%, RM5	0	R 8	57 11 3153	15k		MF, 1%, 0207
0	C 6	59 06 0224	220n		PETP, 63V, 10%, RM5	0	R 9	57 11 3104	100k		MF, 1%, 0207
0	C 7	59 06 0224	220n		PETP, 63V, 10%, RM5	0	R 10	57 11 3223	22k		MF, 1%, 0207
0	C 8	59 06 0472	4n7		PETP, 63V, 10%, RM5	0	R 11	57 11 5475	4M7		MF, 5%, 0207
0	C 9	59 06 0472	4n7		PETP, 63V, 10%, RM5	0	R 12	58 01 9104	100k		Cermet, 10%, 0.5W, vertical
0	C 10	59 06 0472	4n7		PETP, 63V, 10%, RM5	0	R 13	57 11 3224	220k		MF, 1%, 0207
0	C 11	59 06 0104	100n		PETP, 63V, 10%, RM5	0	R 14	57 11 5155	1M5		MF, 5%, 0207
0	C 12	59 34 1100	10p		CER 63V, 5%, NP 0	0	R 15	57 11 3333	33k		MF, 1%, 0207
0	C 13	59 32 1101	100p		C 100 P, 10%, 400V, CER	0	R 16	57 11 3103	10k		MF, 1%, 0207
0	C 14	59 06 0224	220n		PETP, 63V, 10%, RM5	0	R 17	57 11 3221	220R		MF, 1%, 0207
0	C 15	59 22 6470	47u		EL 40V, 20%, RM5	0	R 18	57 11 3221	220R		MF, 1%, 0207
0	C 16	59 06 0104	100n		PETP, 63V, 10%, RM5	0	R 19	57 11 3330	33R		MF, 1%, 0207
0	D 1	50 04 1101	3V9		Zener, 5%, 0.5W, DO-35	0	R 20	57 11 3330	33R		MF, 1%, 0207
0	D 2	50 04 1101	3V9		Zener, 5%, 0.5W, DO-35	0	R 21	57 11 3104	100k		MF, 1%, 0207
0	D 3	50 04 0125	1N4448		75V, 150mA, 4ns, DO-35	0	R 22	57 11 3224	220k		MF, 1%, 0207
0	D 4	50 04 0125	1N4448		75V, 150mA, 4ns, DO-35	0	R 23	57 11 3104	100k		MF, 1%, 0207
0	D 5	50 04 0125	1N4448		75V, 150mA, 4ns, DO-35	0	R 24	57 11 3102	110		MF, 1%, 0207
0	D 6	50 04 0312	1N5818		D 1N 5818, 1N 58-9	0	R 25	57 11 3102	110		MF, 1%, 0207
0	D 7	50 04 0312	1N5818		D 1N 5818, 1N 58-9	0	R 26	57 11 3221	220R		MF, 1%, 0207
0	IC 1	50 09 0119	TL062		IC TL 062 ACP ,A	0	R 27	57 11 3221	220R		MF, 1%, 0207
0	IC 2	50 09 0119	TL062		IC TL 062 ACP ,A	0	R 28	57 11 3223	22k		MF, 1%, 0207
0	IC 3	50 09 0102	LF357N		IC LF 357 N, ,A	0	R 29	57 11 3104	100k		MF, 1%, 0207
0	IC 4	50 09 0119	TL062		IC TL 062 ACP ,A	0	R 30	57 11 5475	4M7		MF, 5%, 0207
0	MP 1	1.990.157.12			LINEAR MOTOR DRIVER PCB	0	R 31	57 11 3102	110		MF, 1%, 0207
0	MP 2	1.228.105.01	11 pcs		LOESTIFT L1 = 11.2	0	R 32	57 11 3472	4k7		MF, 1%, 3207
0	MP 3	54.11.0130	2p		P STIFT,2R WVKL 2 PIN=1 STK.	0	R 33	57 11 3221	220R		MF, 1%, 0207
0	MP 4	1.990.157.04			NR-ETIKETTE 5 *20	0	R 34	57 11 3105	110		MF, 1%, 3207
0	MP 5	43.01.0108			ESE-WARNSHILD	0	R 35	57 11 3472	4k7		MF, 1%, 3207
0	Q 1	50 03 0351	BC327-25		PNP, 800mA	0	R 36	57 11 3104	100k		MF, 1%, 3207
0	Q 2	50 03 0351	BC327-25		PNP, 800mA	0	R 37	57 11 3102	110		MF, 1%, 3207
0	Q 3	50 03 0340	BC337-25		800mA, 45V, NPN	0	R 38	57 11 3333	22k		MF, 1%, 3207
0	Q 4	50 03 0340	BC337-25		800mA, 45V, NPN	0	R 39	58 01 9203	22k		Cermet, 10%, 0.5W, vertical
0	Q 5	50 03 0351	BC327-25		PNP, 800mA	0	R 40	57 11 3223	22k		MF, 1%, 3207
0	Q 6	50 03 0407	BC550C		BC 550 C	0	R 41	57 11 5475	4M7		MF, 5%, 0207
0	Q 7	50 03 0407	BC550C		BC 550 C	0	R 42	57 11 3154	150k		MF, 1%, 0207
0	XIC 1	57 11 3104	100k		MF, 1%, 0207	0	R 43	57 11 3104	100k		MF, 1%, 0207
0	XIC 2	57 11 3104	100k		MF, 1%, 0207	0	R 44	57 11 3104	100k		MF, 1%, 0207
0	XIC 3	57 11 3104	100k		MF, 1%, 0207	0	R 45	57 92 7013	0.5A		POLY-PTC, 60V
0	XIC 4	57 11 3104	100k		MF, 1%, 0207	0	R 46	57 92 7013	0.5A		POLY-PTC, 60V
0	XIC 1	53.03.0166	8p		DIL 0.3", lot, gerade	0	XIC 1	53.03.0166	8p		DIL 0.3", lot, gerade
0	XIC 2	53.03.0166	8p		DIL 0.3", lot, gerade	0	XIC 2	53.03.0166	8p		DIL 0.3", lot, gerade
0	XIC 3	53.03.0166	8p		DIL 0.3", lot, gerade	0	XIC 3	53.03.0166	8p		DIL 0.3", lot, gerade
0	XIC 4	53.03.0166	8p		DIL 0.3", lot, gerade	0	XIC 4	53.03.0166	8p		DIL 0.3", lot, gerade

End of List

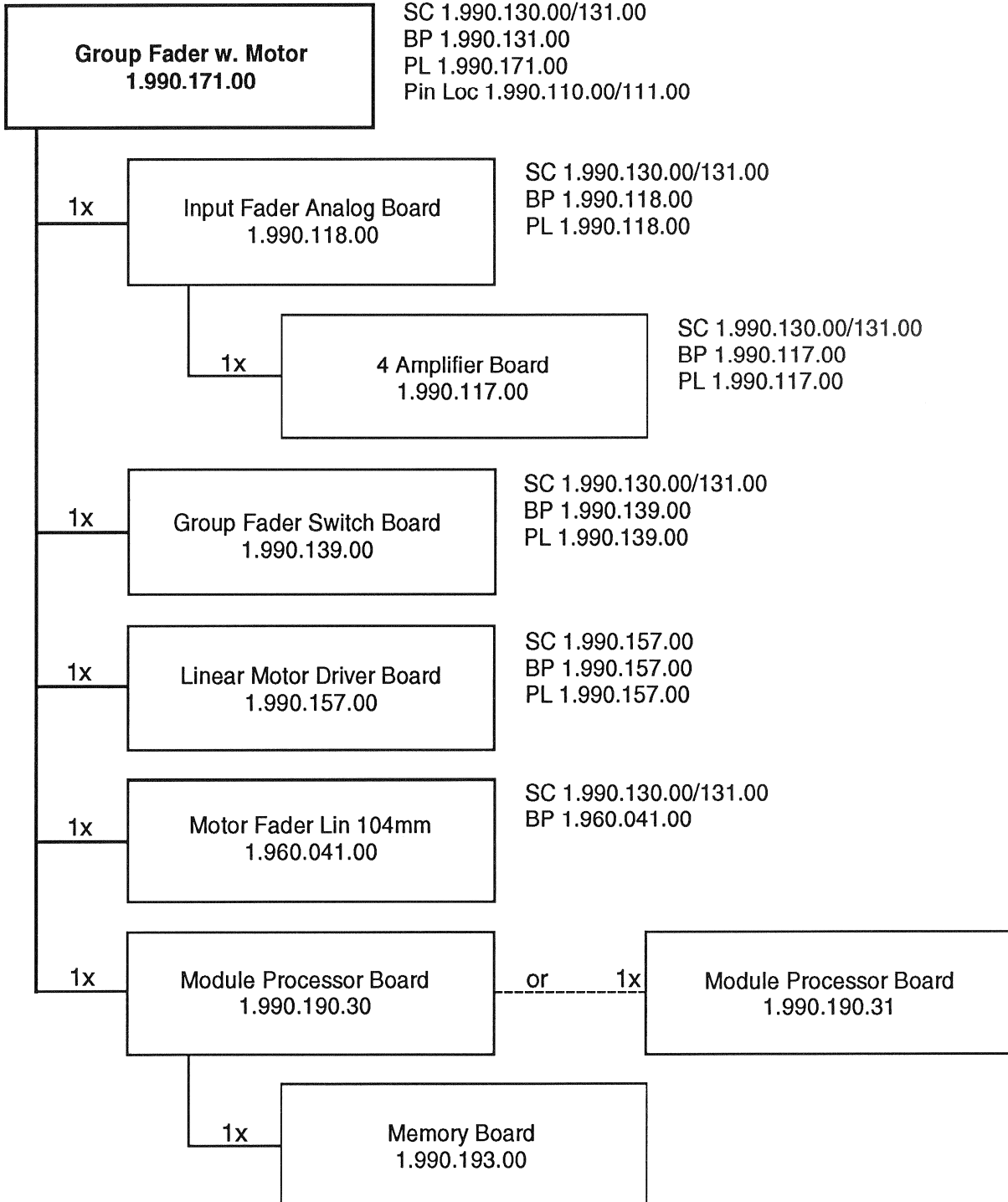
Comments: Index 01: Adjustmentrange of R39 changed

Approved:					
Checked:					
Date:	26.7.96		871		
Project No.:					

STUDER HEGENBERG ZÜRICH	LINEAR MOTOR DRIVER BOARD	1.990.157-82
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Group Fader Unit w. Motor

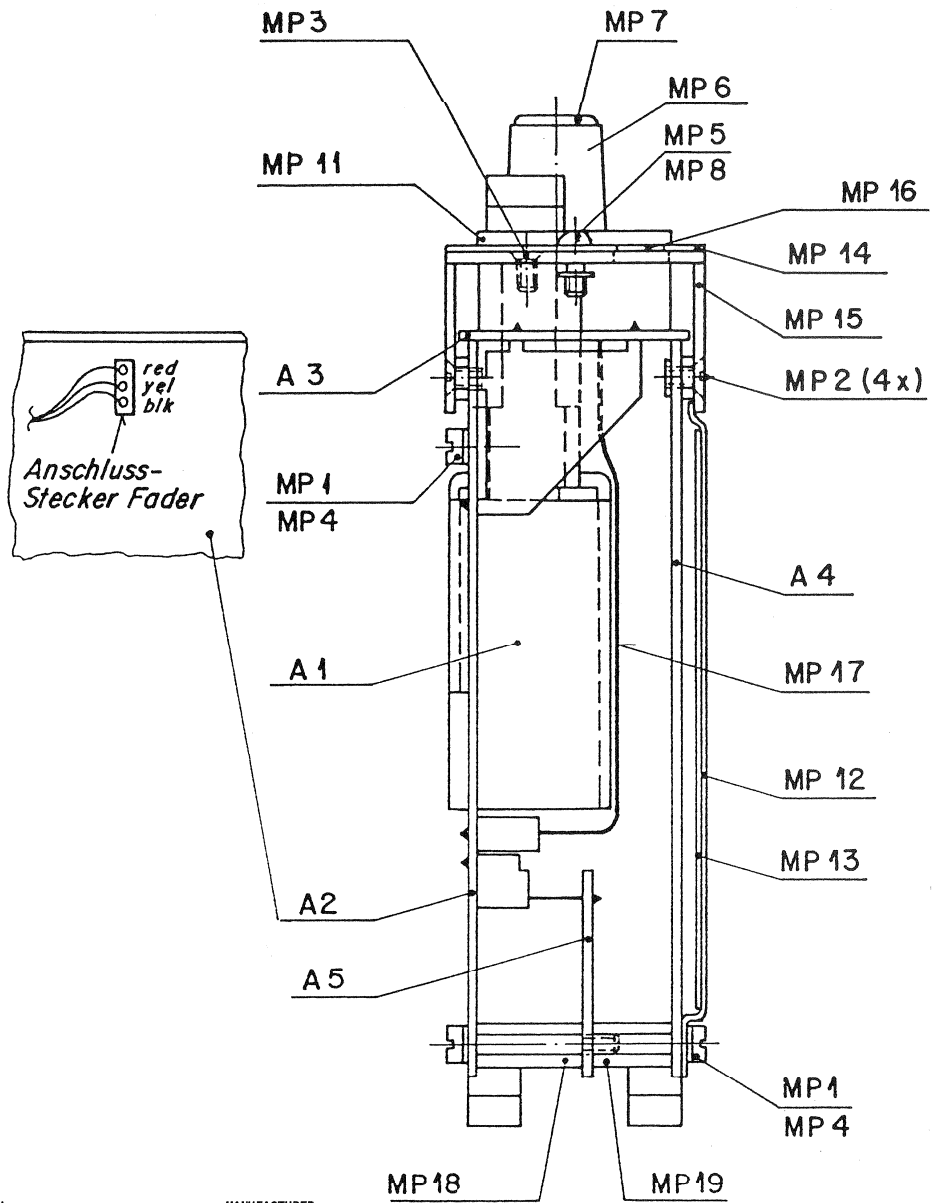
1.990.171.00



SC: Schema      Circuit Diagram  
BP: Bestückungsplan    PCB Layout  
PL: Positionsliste      Positional List

GROUP FADER UNIT W. MOTOR

1.990.171.00



Ad ..POS. ...REF.No... DESCRIPTION.....MANUFACTURER

A.....1	1.960.041.00		MOTOR FADER 1*lin 104 mm	
A.....2	1.990.118.00		INPUT FADER ANALOG BOARD	
A.....3	1.990.139.00		GROUP FADER SWITCH BOARD	
A.....4	1.990.190.30		MODULE PROCESSOR BOARD	
A.....5	1.990.157.00		LINEAR MOTOR DRIVER BOARD	
A.....10	1.990.193.00		MEMORY BOARD	St
MP...1	21.01.0354	6 pcs	Z-Schr. M3*6	
MP...2	21.01.2352	4 pcs	S-Schr. M3*4	
MP...3	21.99.0175	2 pcs	S-Schr. M3*6, SW-0X	
MP...4	24.16.1030	6 pcs	Rippenscheibe M3	
MP...5	24.16.3023	2 pcs	Wellensicherung	
MP...6	42.01.0233	1 pcs	Knebelknopf grau D 1!	
MP...7	42.01.0257	1 pcs	Deckel hellgrau zu D ...	
MP...8	1.010.022.21	2 pcs	Linse rundschr. IS M3*8	
MP...11	1.990.000.01	2 pcs	Schutzkragen Taste 12.5*12.5	
MP...12	1.990.100.06	1 pcs	Schirmblech Fader	
MP...13	1.990.100.07	1 pcs	Isolierung 208*87 selbstklebend	
MP...14	1.990.130.01	1 pcs	Frontschild GROUP FADER	
MP...15	1.990.110.02	1 pcs	Traeger FADER	
MP...16	1.990.110.05	1 pcs	Fenster FADER	
MP...17	64.03.0504	8 pcs	Flachkabel konf. FSN 23,5A-6 pol	
MP...18	1.010.049.27	2 pcs	Mutterbolzen M3x17	
MP...19	1.010.152.27	2 pcs	Distanzbolzen M3x11.5	
MP...20	1.990.171.04	1 pcs	Studer-Nr-Etikette	

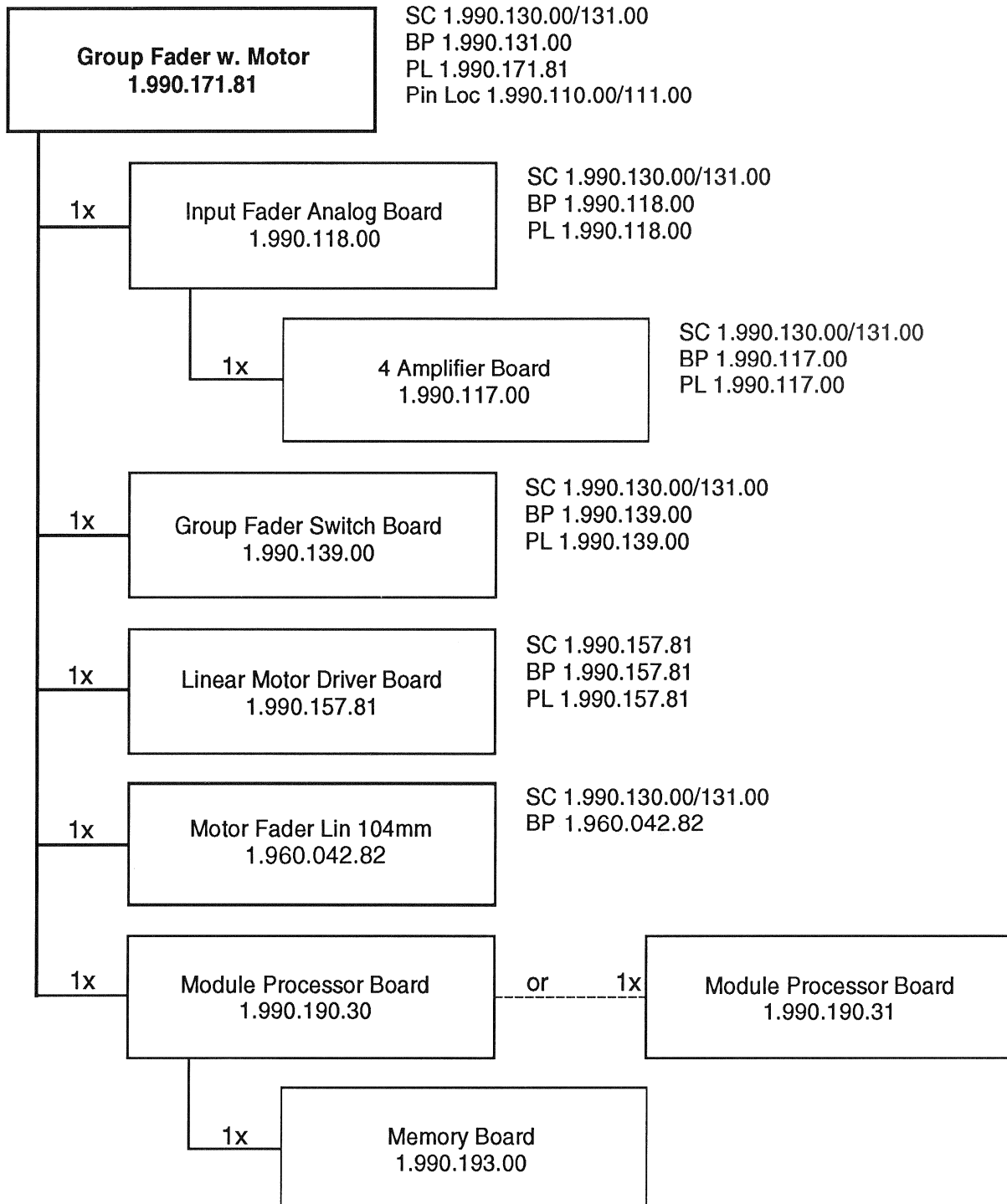
1.990.171.00 GROUP FADER UNIT W. MOTOR ABB92/03/0400

STUDER REGENSDORF ZÜRICH	Benennung: <b>GROUP FADER UNIT W. MOTOR</b>	Nummer: <b>1.990.171-00</b>
		Kopie für:

Änderung:									
Ansicht:	4.3.92								
Datum:									

Group Fader Unit w. Motor

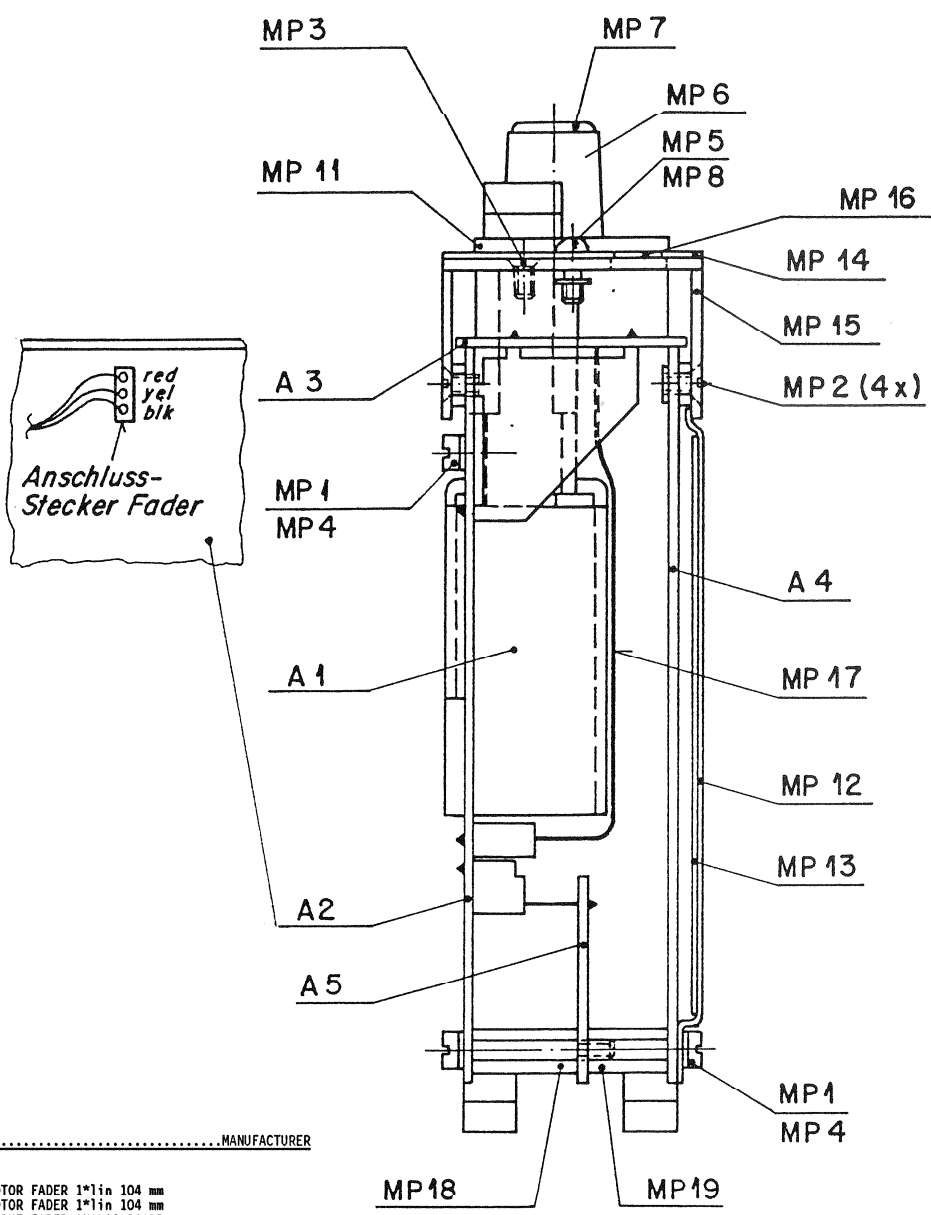
1.990.171.81



SC: Schema      Circuit Diagram  
BP: Bestückungsplan    PCB Layout  
PL: Positionsliste      Positional List

GROUP FADER UNIT W. MOTOR

1.990.171.81



Ad .POS. . . . REF.No. . . . . DESCRIPTION . . . . . MANUFACTURER

A.....1	1.960.042.00		MOTOR FADER 1*1in 104 mm	
01 A.....1	1.960.042.81		MOTOR FADER 1*1in 104 mm	
A.....2	1.990.118.00		INPUT FADER ANALOG BOARD	
A.....3	1.990.139.00		GROUP FADER SWITCH BOARD	
A.....4	1.990.190.31		MODULE PROCESSOR BOARD	
A.....5	1.990.157.81		LINEAR MOTOR DRIVER BOARD	
A.....10	1.990.193.00		MEMORY BOARD	St
MP...1	21.01.0354	6 pcs	Z-Schr. M3*6	
MP...2	21.01.2352	4 pcs	S-Schr. M3*4	
MP...3	21.99.0175	2 pcs	S-Schr. M3*6, SW-OX	
MP...4	24.16.1030	6 pcs	Rippenscheibe M3	
MP...5	24.16.3023	2 pcs	Wellensicherung	
MP...6	42.01.0233	1 pcs	Knebelknopf grau D 15/4	
MP...7	42.01.0237	1 pcs	Deckel hellgrau zu D 15	
MP...8	1.010.022.21	2 pcs	Linse rundschr. IS M3*8	
MP...11	1.990.000.01	2 pcs	Schutzkragen Taste 12.5*12.5	
MP...12	1.990.100.06	1 pcs	Schirmblech Fader	
MP...13	1.990.100.07	1 pcs	Isolierung 208*87 selbstklebend	
MP...14	1.990.130.01	1 pcs	Frontschild GROUP FADER	
MP...15	1.990.110.02	1 pcs	Träger FADER	
MP...16	1.990.110.05	1 pcs	Fenster FADER	
MP...17	64.03.0504	8 pcs	Flachkabel konf. FSN 23,5A-6 pol	
MP...18	1.010.049.27	2 pcs	Mutterbolzen M3x17	
MP...19	1.010.152.27	2 pcs	Distanzbolzen M3x11.5	
MP...20	1.990.171.04	1 pcs	Studer-Nr.-Etikette	

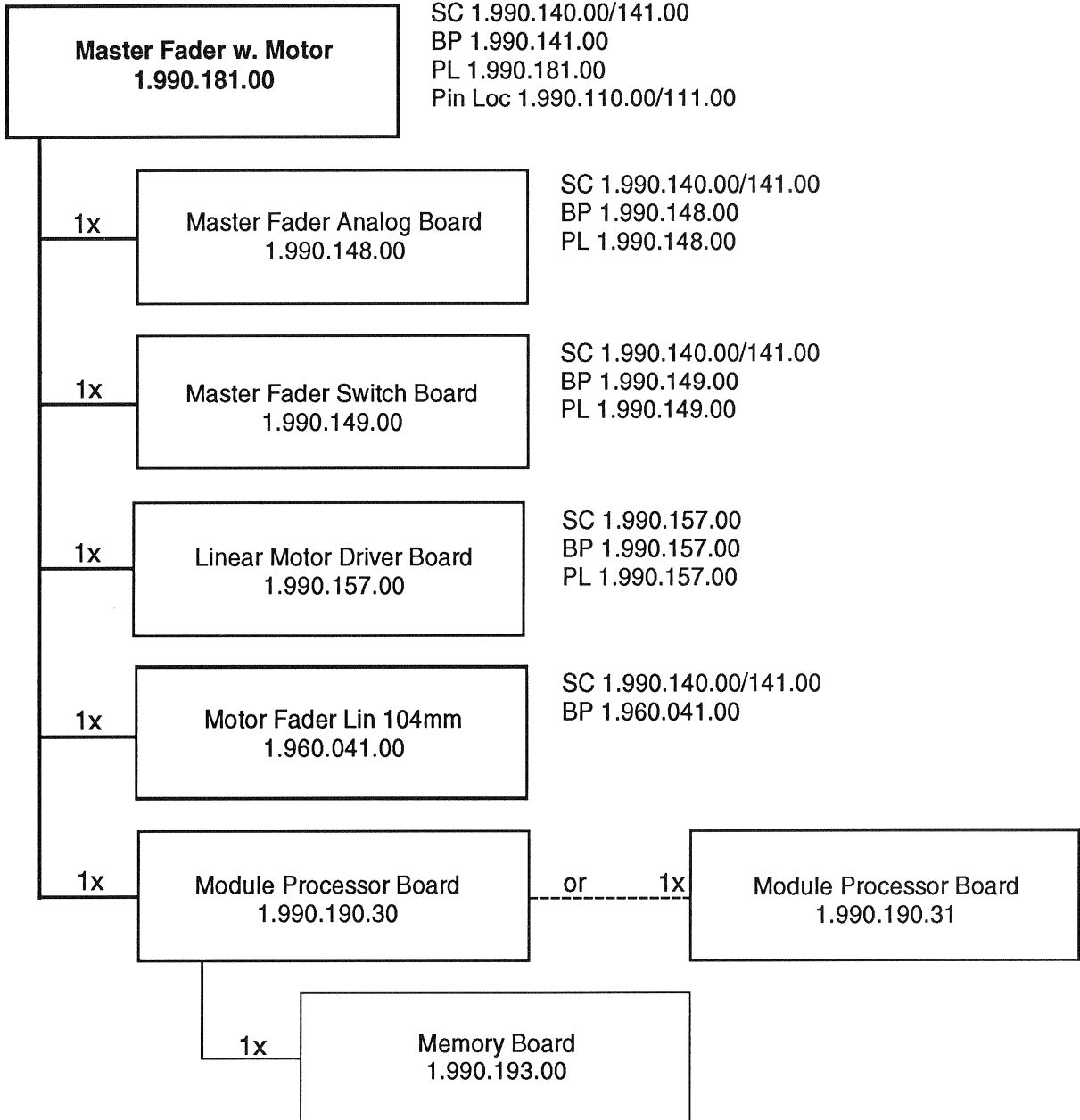
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	1.990.171.81	GROUP FADER UNIT W. MOTOR	FRI92/12/1600	
	1.990.171.81	GROUP FADER UNIT W. MOTOR	FRI94/01/0401	

Änderung					③
					②
					①
Ausgabe	16.12.92	FK	fn	if	④
Datum	Gez.	Geor.	Gez.	Index	

STUDER REGENSDORF ZÜRICH	Benennung:	GROUP FADER UNIT W. MOTOR	Kopie für:
		1.990.171 - 81	

Master Fader Unit w. Motor

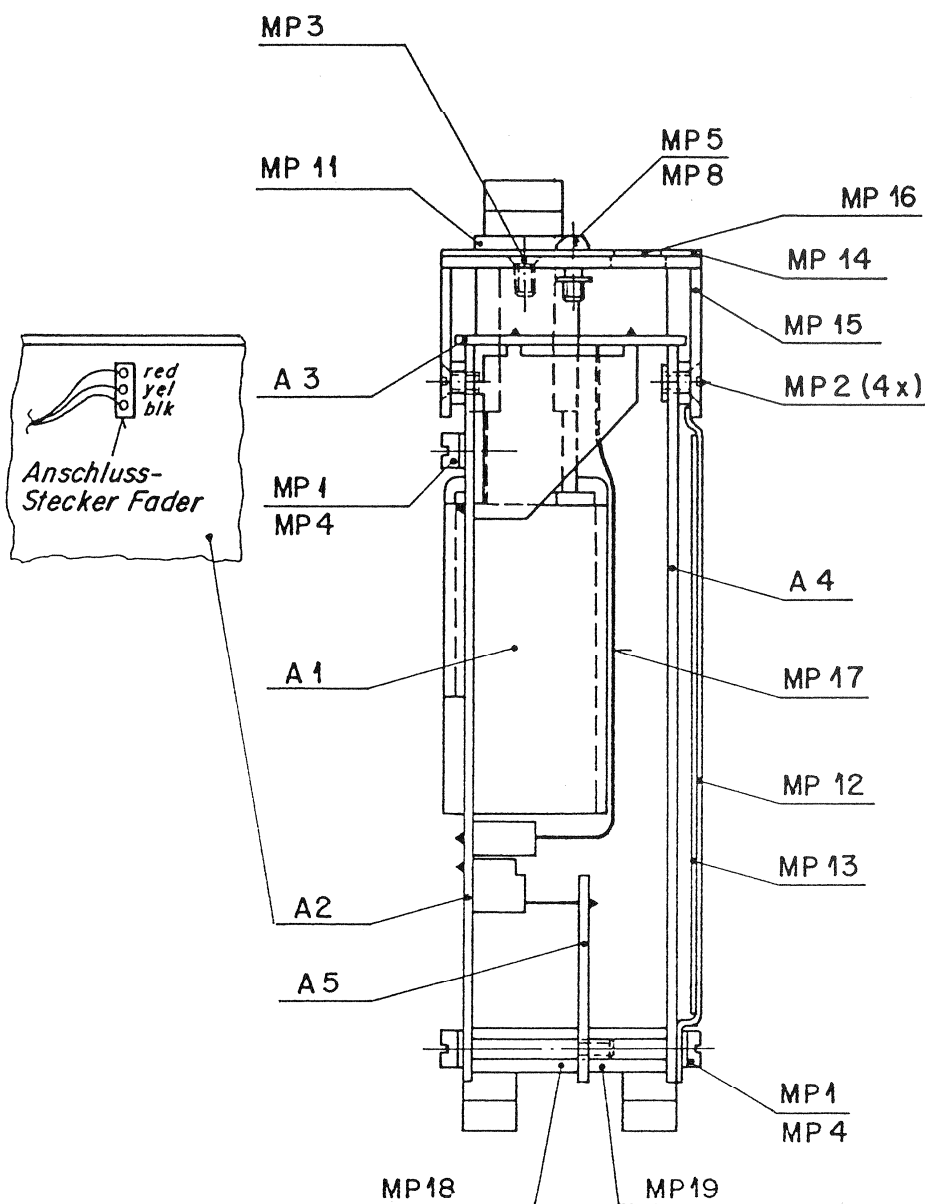
1.990.181.00



SC: Schema      Circuit Diagram  
BP: Bestückungsplan    PCB Layout  
PL: Positionenliste    Positional List

MASTER FADER UNIT W. MOTOR

1.990.181.00



Ad ..POS... ..REF.No... DESCRIPTION.....MANUFACTURER

A.....1	1.960.041.00		MOTOR FADER 1*1in 104 mm	
A.....2	1.990.148.00		MASTER FADER ANALOG BOARD	
A.....3	1.990.149.00		MASTER FADER SWITCH BOARD	
A.....4	1.990.190.30		MODULE PROCESSOR BOARD	
A.....5	1.990.157.00		LINEAR MOTOR DRIVER BOARD	
A.....10	1.990.193.00		MEMORY BOARD	
MP...1	21.01.0354	6 pcs	Z-Schr. M3*6	
MP...2	21.01.2352	4 pcs	S-Schr. M3*4	
MP...3	21.99.0175	2 pcs	S-Schr. M3*6, SW-0X	
MP...4	24.16.1030	6 pcs	Rippenscheibe M3	
MP...5	24.16.3023	2 pcs	Wellensicherung	
MP...8	1.010.022.21	2 pcs	Linse rundschr. IS M3*8	
MP...11	1.990.000.01	1 pcs	Schutzkragen Taste 12.5*12.5	
MP...12	1.990.100.06	1 pcs	Schirmblech Fader	
MP...13	1.990.100.07	1 pcs	Isolierung 208*87 selbstklebend	
MP...14	1.990.140.01	1 pcs	Frontschild MASTER FADER	
MP...15	1.990.110.02	1 pcs	Traeger FADER	
MP...16	1.990.110.05	1 pcs	Fenster FADER	
MP...17	64.03.0504	8 pcs	Flachkabel konf. FSN 23,5A-6 pol	
MP...18	1.010.049.27	2 pcs	Mutterbolzen M3x17	
MP...19	1.010.152.27	2 pcs	Distanzbolzen M3x11.5	
MP...20	1.990.181.04	1 pcs	Studer-Nr-Etikette	

St

Zeichn.									
Änderung									
Datum	4.3.92	Gez.	A. K. K. K.	Gepr.	V.	Gez.			

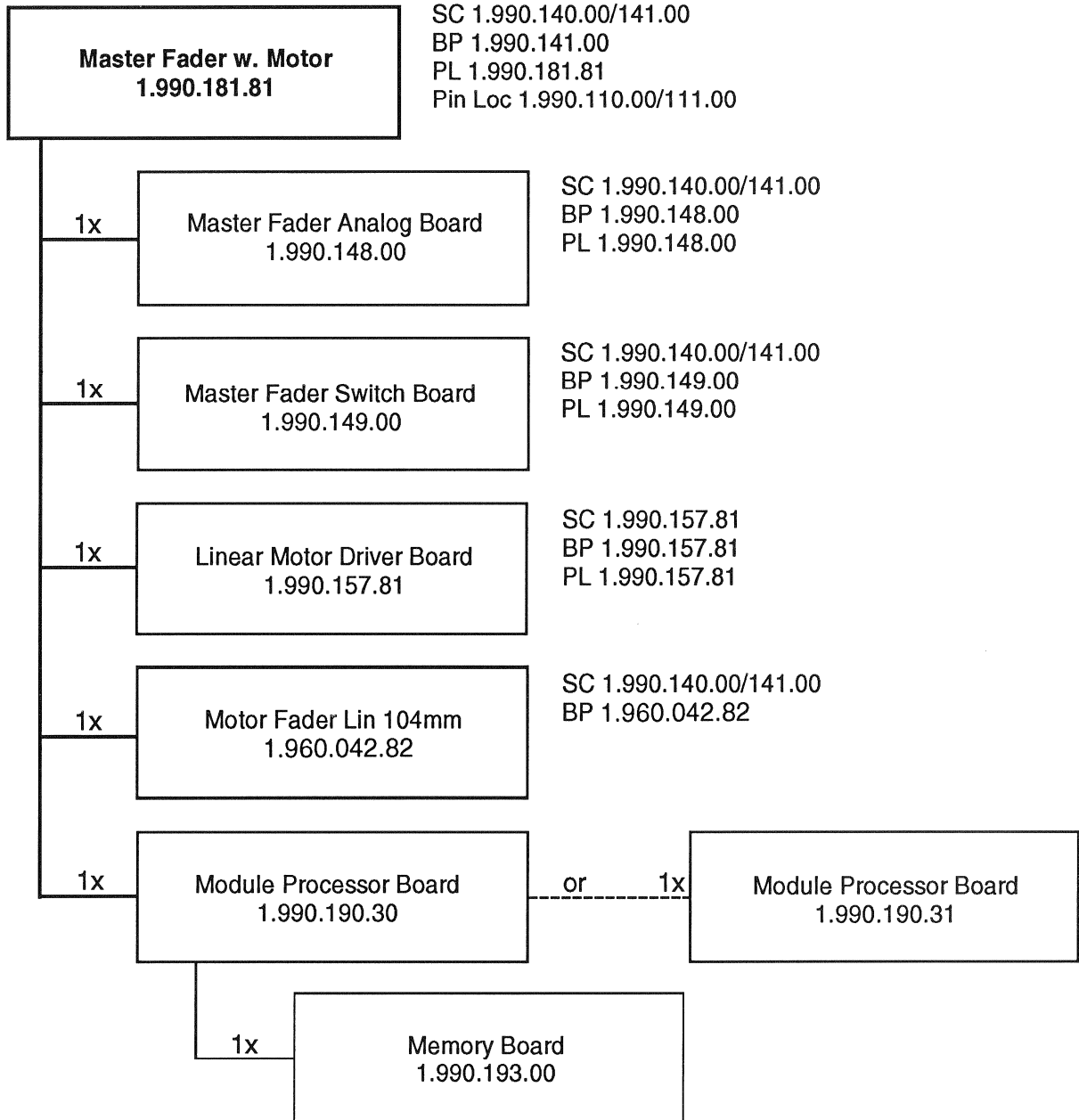
STUDER REGENSDORF ZÜRICH	Benennung: MASTER FADER UNIT W. MOTOR	Nummer:	1.990.181-00
		Kopie für:	

1.990.181.00 MASTER FADER UNIT W.MOTOR ABB92/03/0400



Master Fader Unit w. Motor

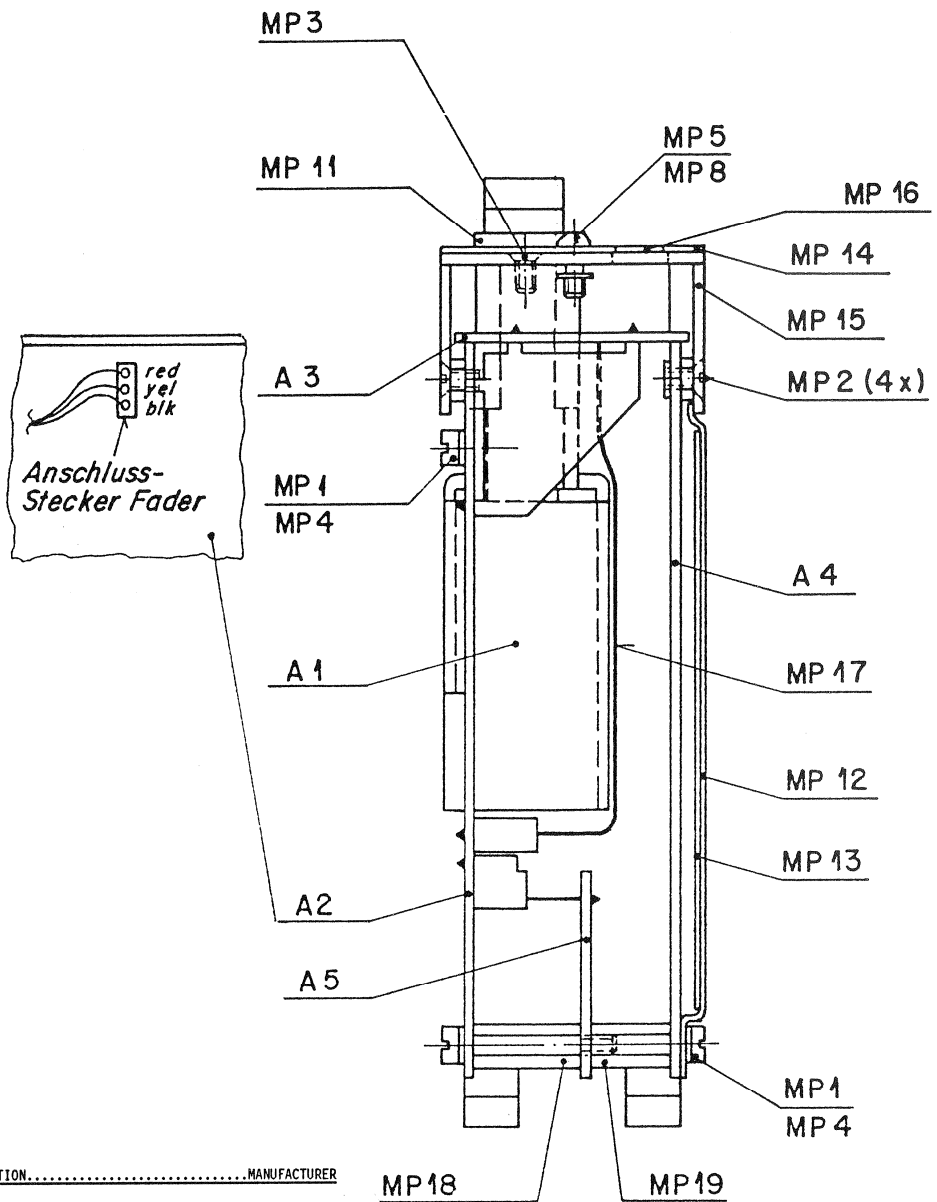
1.990.181.81



SC: Schema      Circuit Diagram  
BP: Bestückungsplan    PCB Layout  
PL: Positionsliste      Positional List

MASTER FADER UNIT W. MOTOR

1.990.181.81



Ad .POS. . .REF.No. . .DESCRIPTION. . .MANUFACTURER

A....1	1.960.042.00		MOTOR FADER 1*1in 104 mm	
A....1	1.960.042.81		MOTOR FADER 1*1in 104 mm	
A....2	1.990.148.00		MASTER FADER ANALOG BOARD	
A....3	1.990.149.00		MASTER FADER SWITCH BOARD	
A....4	1.990.190.31		MODULE PROCESSOR BOARD	
A....5	1.990.167.81		LINEAR MOTOR DRIVER BOARD	
A....10	1.990.193.00		MEMORY BOARD	
MP....1	21.01.0354	6 pcs	Z-Schr. M3*6	
MP....2	21.01.2352	4 pcs	S-Schr. M3*4	
MP....3	21.99.0175	2 pcs	S-Schr. M3*6, SM-OX	
MP....4	24.16.1030	6 pcs	Rippenscheibe M3	
MP....5	24.16.3023	2 pcs	Wellensicherung	
MP....8	1.010.022.21	2 pcs	Linse rundschr. IS M3*8	
MP....11	1.990.000.01	1 pcs	Schutzkragen Taste 12.5*12.5	
MP....12	1.990.100.06	1 pcs	Schirmblech Fader	
MP....13	1.990.100.07	1 pcs	Isolierung 208*87 selbstklebend	
MP....14	1.990.140.01	1 pcs	Frontschild MASTER FADER	
MP....15	1.990.110.02	1 pcs	Traeger FADER	
MP....16	1.990.110.05	1 pcs	Fenster FADER	
MP....17	64.03.0504	8 pcs	Flachkabel konf. FSN 23,5A-6 pol	
MP....18	1.010.049.27	2 pcs	Mutterbolzen M3x17	
MP....19	1.010.152.27	2 pcs	Distanzbolzen M3x11.5	
MP....20	1.990.181.04	1 pcs	Studer-Nr-Etikette	

St

01 MOTOR FADER 1.960.042.81

1.990.181.81	MASTER FADER UNIT W.MOTOR	FRI92/12/1600
1.990.181.81	MASTER FADER UNIT W.MOTOR	FRI94/01/0401

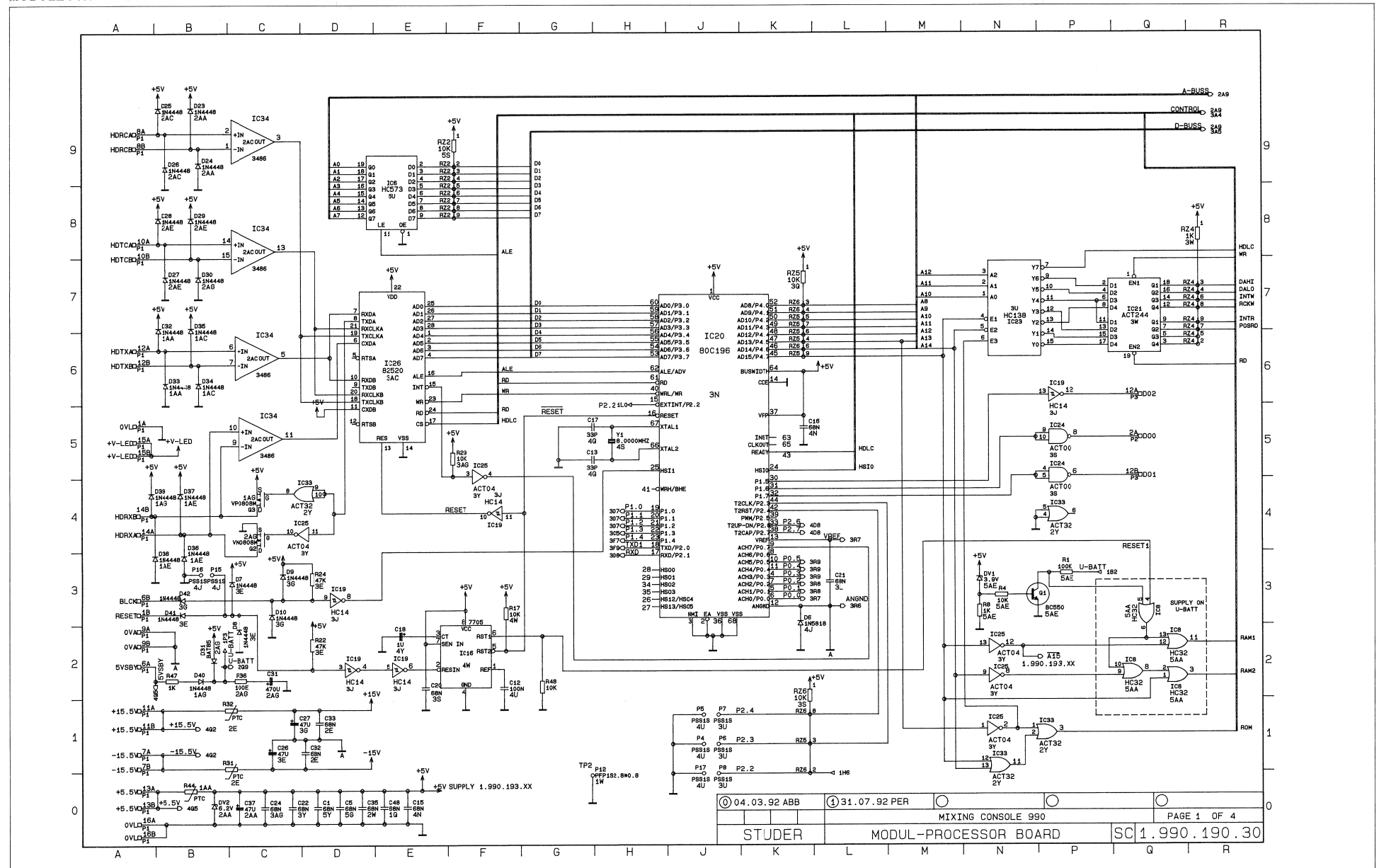
MP18 MP19

Ausgabe						③
Änderung						②
						①
Datum	16.12.92	Gez	Gez	Gez	Gez	①
Kopie für:						

STUDER REGENSDORF ZÜRICH	Benennung MASTER FADER UNIT W. MOTOR	Nummer: 1.990.181-81
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MODULE PROCESSOR BOARD

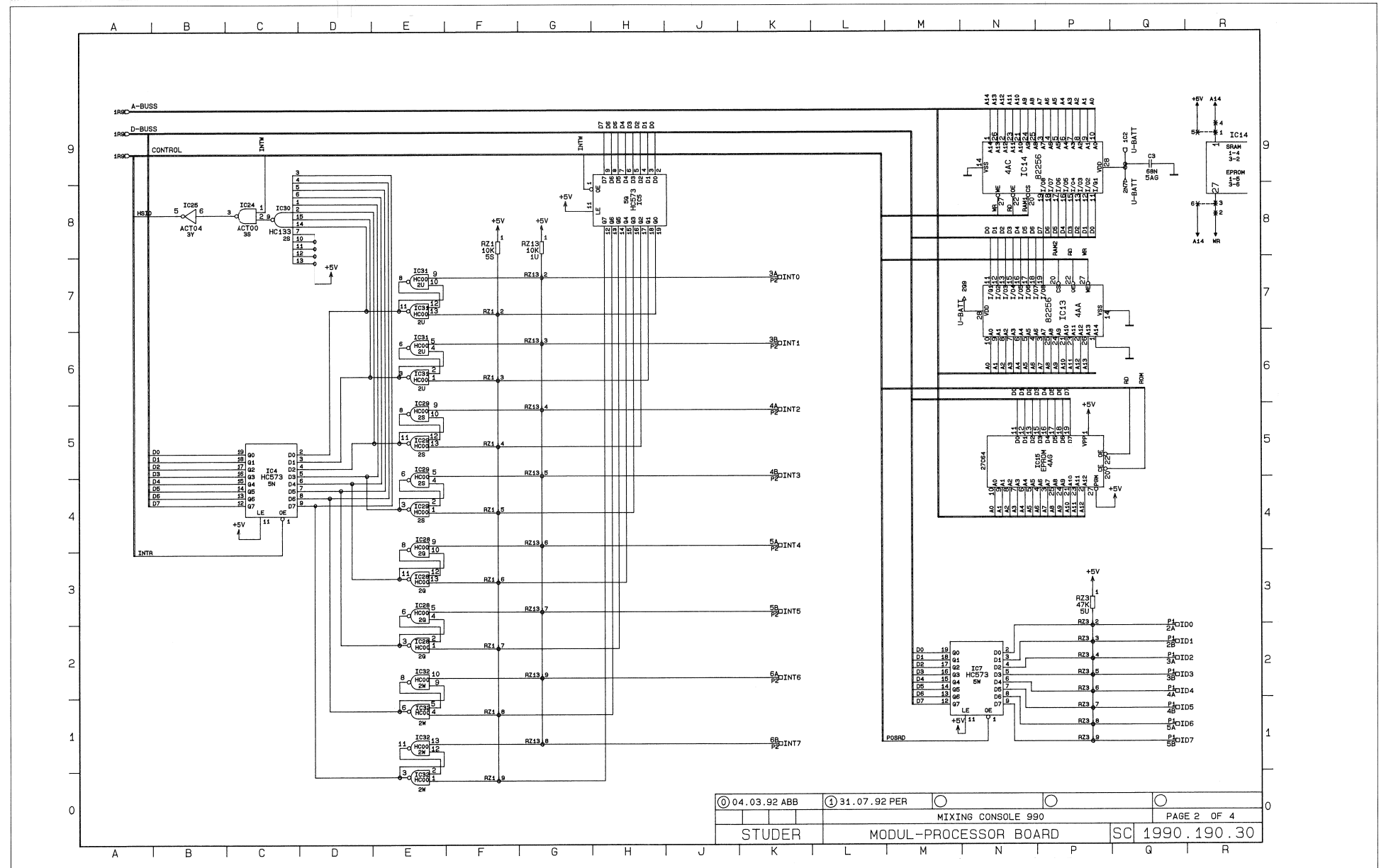
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04.03.92 ABB	31.07.92 PER	MIXING CONSOLE 990	PAGE 1 OF 4
STUDER		MODUL-PROCESSOR BOARD	
		SC 1.990.190.30	

MODULE PROCESSOR BOARD

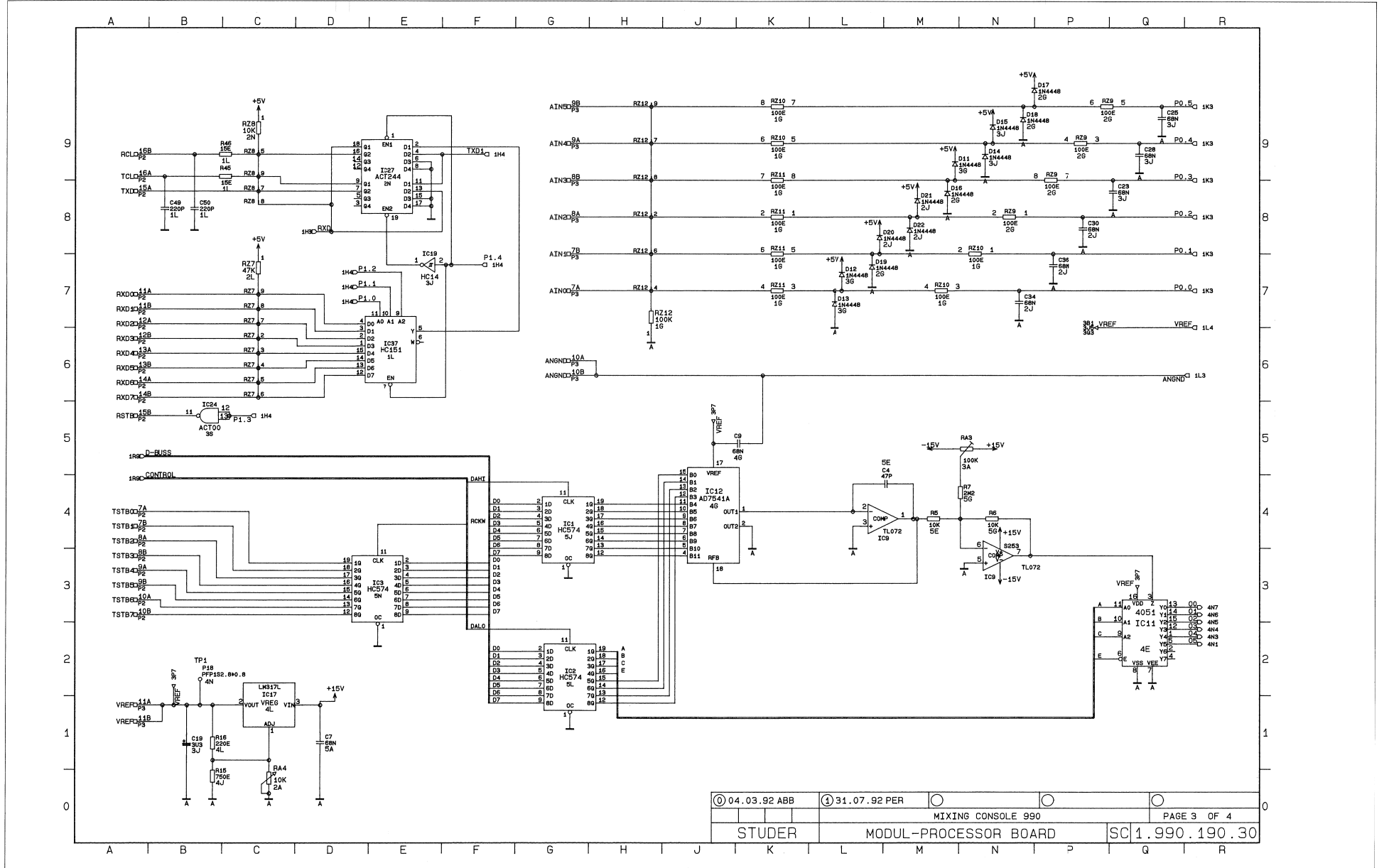
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① 04.03.92 ABB	① 31.07.92 PER	MIXING CONSOLE 990	PAGE 2 OF 4
STUDER		MODUL-PROCESSOR BOARD	SC 1990.190.30

MODULE PROCESSOR BOARD

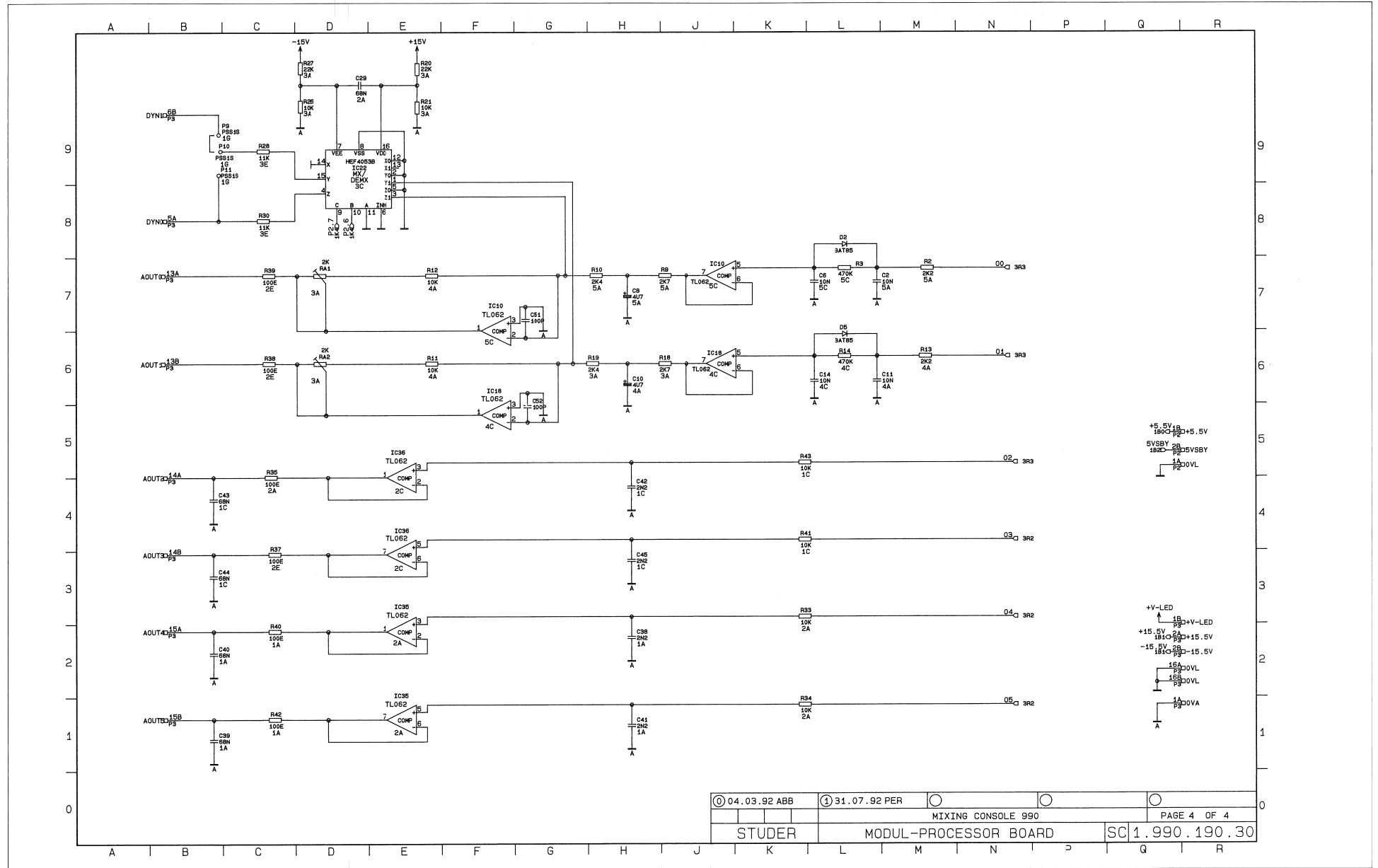
1.990.190.30



04.03.92 ABB	31.07.92 PER	MIXING CONSOLE 990	PAGE 3 OF 4
STUDER	MODUL-PROCESSOR BOARD	SC 1.990.190.30	

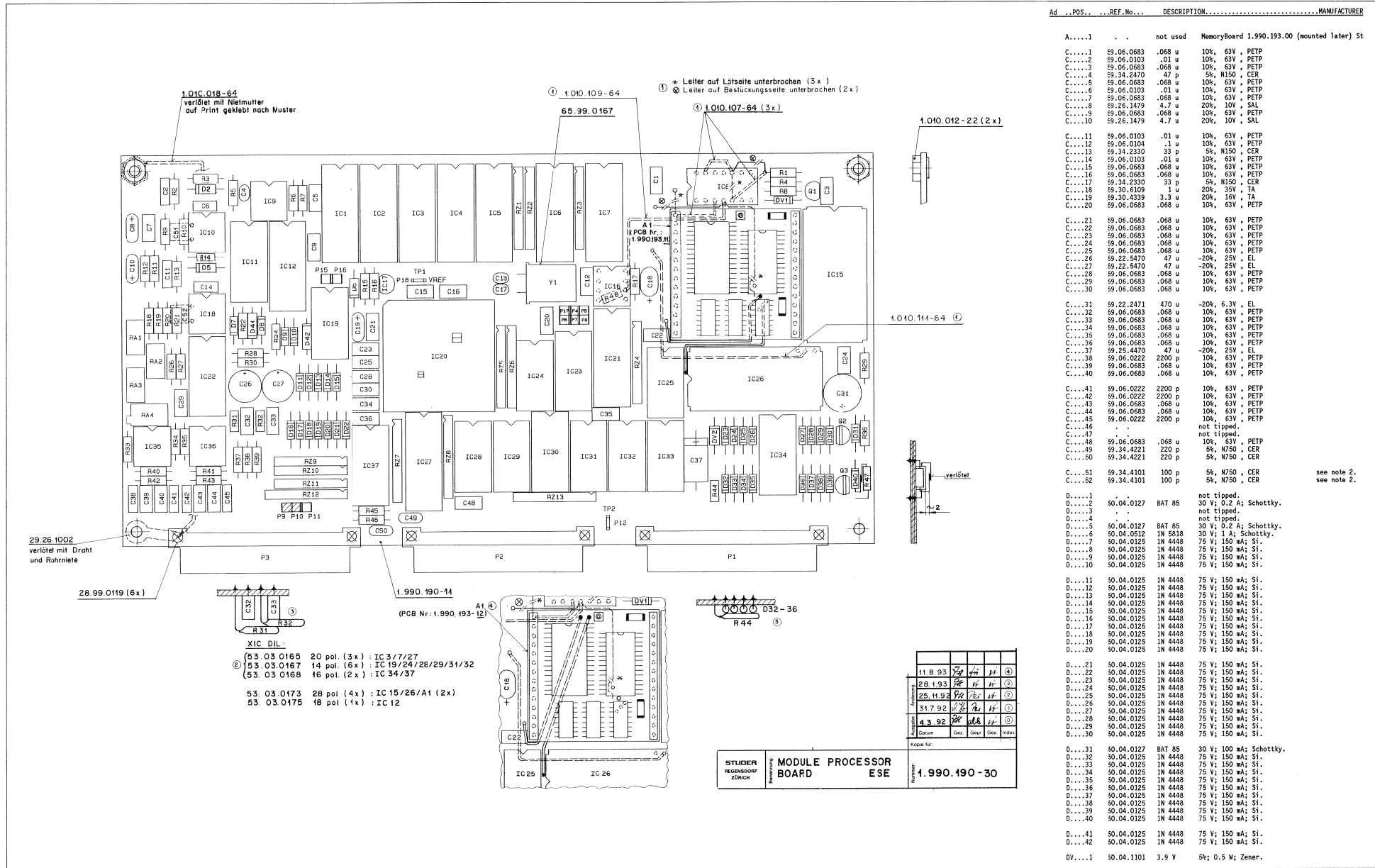
MODULE PROCESSOR BOARD

1.990.190.30



MODULE PROCESSOR BOARD

1.990.190.30



Ad	POS.	REF.No.	DESCRIPTION	MANUFACTURER
A.....1			not used	MemoryBoard 1.990.193.00 (mounted later) St
C.....1	59.06.0683	.068 u	10%, 63V	PETP
C.....2	59.06.0103	.01 u	10%, 63V	PETP
C.....3	59.06.0683	.068 u	10%, 63V	PETP
C.....4	59.34.2470	47 p	5%, N150	CER
C.....5	59.06.0683	.068 u	10%, 63V	PETP
C.....6	59.06.0103	.01 u	10%, 63V	PETP
C.....7	59.06.0683	.068 u	10%, 63V	PETP
C.....8	59.26.1479	4.7 u	20%, 10V	SAL
C.....9	59.06.0683	.068 u	10%, 63V	PETP
C.....10	59.26.1479	4.7 u	20%, 10V	SAL
C.....11	59.06.0103	.01 u	10%, 63V	PETP
C.....12	59.06.0104	.1 u	10%, 63V	PETP
C.....13	59.34.2330	33 p	5%, N150	CER
C.....14	59.06.0103	.01 u	10%, 63V	PETP
C.....15	59.06.0683	.068 u	10%, 63V	PETP
C.....16	59.06.0683	.068 u	10%, 63V	PETP
C.....17	59.34.2330	33 p	5%, N150	CER
C.....18	59.30.6109	1 u	20%, 35V	TA
C.....19	59.30.4339	3.3 u	20%, 16V	TA
C.....20	59.06.0683	.068 u	10%, 63V	PETP
C.....21	59.06.0683	.068 u	10%, 63V	PETP
C.....22	59.06.0683	.068 u	10%, 63V	PETP
C.....23	59.06.0683	.068 u	10%, 63V	PETP
C.....24	59.06.0683	.068 u	10%, 63V	PETP
C.....25	59.06.0683	.068 u	10%, 63V	PETP
C.....26	59.22.5470	47 u	-20%, 25V	EL
C.....27	59.22.5470	47 u	-20%, 25V	EL
C.....28	59.06.0683	.068 u	10%, 63V	PETP
C.....29	59.06.0683	.068 u	10%, 63V	PETP
C.....30	59.06.0683	.068 u	10%, 63V	PETP
C.....31	59.22.2471	470 u	-20%, 6.3V	EL
C.....32	59.06.0683	.068 u	10%, 63V	PETP
C.....33	59.06.0683	.068 u	10%, 63V	PETP
C.....34	59.06.0683	.068 u	10%, 63V	PETP
C.....35	59.06.0683	.068 u	10%, 63V	PETP
C.....36	59.06.0683	.068 u	10%, 63V	PETP
C.....37	59.25.4470	47 u	-20%, 25V	EL
C.....38	59.06.0222	2200 p	10%, 63V	PETP
C.....39	59.06.0683	.068 u	10%, 63V	PETP
C.....40	59.06.0683	.068 u	10%, 63V	PETP
C.....41	59.06.0222	2200 p	10%, 63V	PETP
C.....42	59.06.0222	2200 p	10%, 63V	PETP
C.....43	59.06.0683	.068 u	10%, 63V	PETP
C.....44	59.06.0683	.068 u	10%, 63V	PETP
C.....45	59.06.0222	2200 p	10%, 63V	PETP
C.....46			not tipped.	
C.....47			not tipped.	
C.....48	59.06.0683	.068 u	10%, 63V	PETP
C.....49	59.34.4221	220 p	5%, N750	CER
C.....50	59.34.4221	220 p	5%, N750	CER
C.....51	59.34.4101	100 p	5%, N750	CER
C.....52	59.34.4101	100 p	5%, N750	CER
D.....1			not tipped.	
D.....2	50.04.0127	BAT 85	30 V; 0.2 A;	Schottky.
D.....3			not tipped.	
D.....4			not tipped.	
D.....5	50.04.0127	BAT 85	30 V; 0.2 A;	Schottky.
D.....6	50.04.0512	1N 5819	30 V; 1 A;	Schottky.
D.....7	50.04.0125	1N 4448	75 V; 150 mA;	Si.
D.....8	50.04.0125	1N 4448	75 V; 150 mA;	Si.
D.....9	50.04.0125	1N 4448	75 V; 150 mA;	Si.
D.....10	50.04.0125	1N 4448	75 V; 150 mA;	Si.
D.....11	50.04.0125	1N 4448	75 V; 150 mA;	Si.
D.....12	50.04.0125	1N 4448	75 V; 150 mA;	Si.
D.....13	50.04.0125	1N 4448	75 V; 150 mA;	Si.
D.....14	50.04.0125	1N 4448	75 V; 150 mA;	Si.
D.....15	50.04.0125	1N 4448	75 V; 150 mA;	Si.
D.....16	50.04.0125	1N 4448	75 V; 150 mA;	Si.
D.....17	50.04.0125	1N 4448	75 V; 150 mA;	Si.
D.....18	50.04.0125	1N 4448	75 V; 150 mA;	Si.
D.....19	50.04.0125	1N 4448	75 V; 150 mA;	Si.
D.....20	50.04.0125	1N 4448	75 V; 150 mA;	Si.
D.....21	50.04.0125	1N 4448	75 V; 150 mA;	Si.
D.....22	50.04.0125	1N 4448	75 V; 150 mA;	Si.
D.....23	50.04.0125	1N 4448	75 V; 150 mA;	Si.
D.....24	50.04.0125	1N 4448	75 V; 150 mA;	Si.
D.....25	50.04.0125	1N 4448	75 V; 150 mA;	Si.
D.....26	50.04.0125	1N 4448	75 V; 150 mA;	Si.
D.....27	50.04.0125	1N 4448	75 V; 150 mA;	Si.
D.....28	50.04.0125	1N 4448	75 V; 150 mA;	Si.
D.....29	50.04.0125	1N 4448	75 V; 150 mA;	Si.
D.....30	50.04.0125	1N 4448	75 V; 150 mA;	Si.
D.....31	50.04.0127	BAT 85	30 V; 100 mA;	Schottky.
D.....32	50.04.0125	1N 4448	75 V; 150 mA;	Si.
D.....33	50.04.0125	1N 4448	75 V; 150 mA;	Si.
D.....34	50.04.0125	1N 4448	75 V; 150 mA;	Si.
D.....35	50.04.0125	1N 4448	75 V; 150 mA;	Si.
D.....36	50.04.0125	1N 4448	75 V; 150 mA;	Si.
D.....37	50.04.0125	1N 4448	75 V; 150 mA;	Si.
D.....38	50.04.0125	1N 4448	75 V; 150 mA;	Si.
D.....39	50.04.0125	1N 4448	75 V; 150 mA;	Si.
D.....40	50.04.0125	1N 4448	75 V; 150 mA;	Si.
D.....41	50.04.0125	1N 4448	75 V; 150 mA;	Si.
D.....42	50.04.0125	1N 4448	75 V; 150 mA;	Si.
DV.....1	50.04.1101	3.9 V	5%; 0.5 A;	Zenar.

MODULE PROCESSOR BOARD



1.990.190.30

Ad	..POS.	...REF.No...	DESCRIPTION.....	MANUFACTURER	Ad	..POS.	...REF.No...	DESCRIPTION.....	MANUFACTURER
DV...	2	50.04.1511	6.2 V	5%, 1.3 W; Zener.					
IC....1		50.17.1574	74 HC 574	Octal 3-st. Noninv. D-Type Flip-Flop.	R....42		57.11.3101	100	1%, 0207, MF
IC....2		50.17.1574	74 HC 574	Octal 3-st. Noninv. D-Type Flip-Flop.	R....43		57.11.3103	10 k	1%, 0207, MF
IC....3		50.17.1574	74 HC 574	Octal 3-st. Noninv. D-Type Flip-Flop.	R....44		57.92.7014	0.460 ohm	650 mA; PTC for Circuit Protection.
IC....4		50.17.1573	74 HC 573	Octal 3-st. Noninv. D-Type Transparent Latch	R....45		57.11.3150	15	1%, 0207, MF
IC....5		50.17.1573	74 HC 573	Octal 3-st. Noninv. D-Type Transparent Latch	R....46		57.11.3150	15	1%, 0207, MF
IC....6		50.17.1573	74 HC 573	Octal 3-st. Noninv. D-Type Transparent Latch	R....47		57.11.3102	1 k	1%, 0207, MF
IC....7		50.17.1573	74 HC 573	Octal 3-st. Noninv. D-Type Transparent Latch	R....48		57.11.3103	10 k	5%, 0207, MF
IC....8		50.17.1032	74 HC 32	Quad 2-Input OR Gate.	RA....1		58.01.9202	2 k 1	0%, .5 W, PMG (Cermet) Trimm-Potentiometer.
IC....9		50.09.0101	TL 072 CP	Dual Low Offset JFET-Input Op. Amp.	RA....2		58.01.9202	2 k 1	0%, .5 W, PMG (Cermet) Trimm-Potentiometer.
IC....10		50.09.0119	TL 062 ACP	Dual Low Power JFET-Input Op. Amp.	RA....3		58.01.9104	100 k 1	0%, .5 W, PMG (Cermet) Trimm-Potentiometer.
					RA....4		58.05.0103	10 k 1	0%, .5 W, PMG (Cermet) Trimm-Potentiometer.
IC....11		50.07.0051	CD 4051 BE	8-Channel Analog Multiplexer/Demultiplexer.	RZ....1		57.88.4103	8 * 10 k	2%, SIP 9,
IC....12		50.19.0102	MP 7623 JN	12-Bit Monolithic Multiplying D/A Conv. MPS	RZ....2		57.88.4103	8 * 10 k	2%, SIP 9,
IC....13		.	.	replaced by A1	RZ....3		57.88.4473	8 * 47 k	2%, SIP 9,
IC....14		.	.	replaced by A1	RZ....4		57.88.4102	8 * 1 k	2%, SIP 9,
IC....15		1.990.993.30		SW MODULE MONITOR	RZ....5		57.88.4103	8 * 10 k	2%, SIP 9,
IC....16		50.11.0122	TL 7705 AC	Reset Generator.	RZ....6		57.88.4103	8 * 10 k	2%, SIP 9,
IC....17		50.10.0108	LM 317 LZ	3-Terminal Positive Voltage Regulator.	RZ....7		57.88.4473	8 * 47 k	2%, SIP 9,
IC....18		50.09.0119	TL 062 ACP	Dual Low Power JFET-Input Op. Amp.	RZ....8		57.88.4103	8 * 10 k	2%, SIP 9,
IC....19		50.17.1014	74 HC 14	Hex Schmitt-Trigger Inverter.	RZ....9		57.88.2101	4 * 100	2%, SIP 8,
IC....20		50.63.0003	N 80C196KB	16-Bit MPU, 12 MHz, 10 Bit A/D Convert. It	RZ....10		57.88.2101	4 * 100	2%, SIP 8,
IC...21		50.17.7244	74 ACT 244	Octal 3-st. Noninv. Buf./Line Drv./Line Rec.	RZ...11		57.88.2101	4 * 100	2%, SIP 8,
IC...22		50.07.0015	CD 4053 BC	Triple 2-Chan. Analog Multipl./Demultiplexer	RZ...12		57.88.4104	8 * 100 k	2%, SIP 9,
IC...23		50.17.1138	74 HC 138	1-of-8 Decoder/Demultiplexer.	RZ...13		57.88.4103	8 * 10 k	2%, SIP 9,
IC...24		50.17.7000	74 ACT 00	Quad 2-Input NAND Gate.	Y....1		89.01.1008	8.000 MHz	Xtal; HC-18/U; Parallel;
IC...25		50.17.7004	74 ACT 04	Hex Inverter.					
IC...26		50.16.0153	SAB82520-P	High-Level Serial Communic. Controller. Sie					
IC...27		50.17.7244	74 ACT 244	Octal 3-st. Noninv. Buf./Line Drv./Line Rcv.					
IC...28		50.17.1000	74 HC 00	Quad 2-Input NAND Gate.					
IC...29		50.17.1000	74 HC 00	Quad 2-Input NAND Gate.					
IC...30		50.17.1133	74 HC 133	13-Input NAND Gate.					
IC...31		50.17.1000	74 HC 00	Quad 2-Input NAND Gate.					
IC...32		50.17.1000	74 HC 00	Quad 2-Input NAND Gate.					
IC...33		50.17.7032	74 ACT 32	Quad 2-Input OR Gate.					
IC...34		50.15.0104	MC 3486 P	Quad Line Receiver RS 422/423.					
IC...35		50.09.0119	TL 062 ACP	Dual Low Power JFET-Input Op. Amp.					
IC...36		50.09.0119	TL 062 ACP	Dual Low Power JFET-Input Op. Amp.					
IC...37		50.17.1151	74 HC 151	8-Input Data Selector/Multiplexer.					
P....1		54.11.2013	2*16 pins	BK Angled Print Male Eurocard Connector.					
P....2		54.11.2013	2*16 pins	BK Angled Print Male Eurocard Connector.					
P....3		54.11.2013	2*16 pins	BK Angled Print Male Eurocard Connector.					
P....4		54.01.0020	0.63*0.63	Straight Pin-Header.					
P....5		54.01.0020	0.63*0.63	Straight Pin-Header.					
P....6		54.01.0020	0.63*0.63	Straight Pin-Header.					
P....7		54.01.0020	0.63*0.63	Straight Pin-Header.					
P....8		54.01.0020	0.63*0.63	Straight Pin-Header.					
P....9		54.01.0020	0.63*0.63	Straight Pin-Header.					
P....10		54.01.0020	0.63*0.63	Straight Pin-Header.					
P....11		54.01.0020	0.63*0.63	Straight Pin-Header.					
P....12		54.02.0320	2.8 * 0.8	Straight Faston Connector.					
P....15		54.01.0020	0.63*0.63	Straight Pin-Header.					
P....16		54.01.0020	0.63*0.63	Straight Pin-Header.					
P....17		54.01.0020	0.63*0.63	Straight Pin-Header.					
P....18		54.02.0320	2.8 * 0.8	Straight Faston Connector.					
Q....1		50.03.0407	BC 550 C	45 V; 100 mA; NPN Si.					
Q....2		50.03.1505	VN 0808 M	80 V; 350 mA; N-Channel V-MOS-FET.					
Q....3		50.03.1554	VP 0808 M	80 V; 330 mA; P-Channel V-MOS-FET.					
R....1		57.11.3104	100 k	1%, 0207, MF					
R....2		57.11.3222	2.2 k	1%, 0207, MF					
R....3		57.11.3474	470 k	1%, 0207, MF					
R....4		57.11.3103	10 k	1%, 0207, MF					
R....5		57.11.3103	10 k	1%, 0207, MF					
R....6		57.11.3103	10 k	1%, 0207, MF					
R....7		57.11.5225	2.2 M	5%, 0207, MF					
R....8		57.11.3102	1 k	1%, 0207, MF					
R....9		57.11.3272	2.7 k	1%, 0207, MF					
R....10		57.11.3242	2.4 k	1%, 0207, MF					
R....11		57.11.3103	10 k	1%, 0207, MF					
R....12		57.11.3103	10 k	1%, 0207, MF					
R....13		57.11.3222	2.2 k	1%, 0207, MF					
R....14		57.11.3474	470 k	1%, 0207, MF					
R....15		57.11.3751	750	1%, 0207, MF					
R....16		57.11.3221	220	1%, 0207, MF					
R....17		57.11.3103	10 k	1%, 0207, MF					
R....18		57.11.3272	2.7 k	1%, 0207, MF					
R....19		57.11.3242	2.4 k	1%, 0207, MF					
R....20		57.11.3223	22 k	1%, 0207, MF					
R....21		57.11.3103	10 k	1%, 0207, MF					
R....22		57.11.3473	47 k	1%, 0207, MF					
R....24		57.11.3473	47 k	1%, 0207, MF					
R....26		57.11.3103	10 k	1%, 0207, MF					
R....27		57.11.3223	22 k	1%, 0207, MF					
R....28		57.11.3113	11 k	1%, 0207, MF					
R....29		57.11.3103	10 k	1%, 0207, MF					
R....30		57.11.3113	11 k	1%, 0207, MF					
R....31		57.92.7014	0.460 ohm	650 mA; PTC for Circuit Protection.					
R....32		57.92.7014	0.460 ohm	650 mA; PTC for Circuit Protection.					
R....33		57.11.3103	10 k	1%, 0207, MF					
R....34		57.11.3103	10 k	1%, 0207, MF					
R....35		57.11.3101	100	1%, 0207, MF					
R....36		57.11.3101	100	1%, 0207, MF					
R....37		57.11.3101	100	1%, 0207, MF					
R....38		57.11.3101	100	1%, 0207, MF					
R....39		57.11.3101	100	1%, 0207, MF					
R....40		57.11.3101	100	1%, 0207, MF					
R....41		57.11.3103	10 k	1%, 0207, MF					

(01) Data Lost appearances caused by critical reset performance.  
R 48 added, redesign made by cuts and wire wrap connections.

Note 1: in standard version there is a jumper connector, # 54.01.0021, plugged into pin 9 and pin 10.  
Note 2: C51 is directly soldered on pin 2 and pin 3 of IC10 on the back-side of the board.  
C52 is directly soldered on pin 2 and pin 3 of IC18 on the back-side of the board.

Suffix -21 : There were some changes concerning the layout of the board (18.04.91) and the components plugged on. The new No. of the print is 1.990.190-11 index 1.

Suffix -30 : IC13 and IC14 replaced by Memory Board 1.990.193.00 (04.03.92) Cut 1 trace on PCB, solder 1 connection to PCB (see drawings)

CER=Ceramic, EL=Electrolytic, PETP=Polyester, SAL=Solid Aluminium, Cermet=Ceramic Metal, MF=Metal Film, TA=Tantal.

MANUFACTURERS :  
Hi = Hitachi  
It = Intel  
MPS = Micro Power Systems  
NEC = Nippon Electric Corporation  
Sie = Siemens  
St = Studer  
To = Toshiba

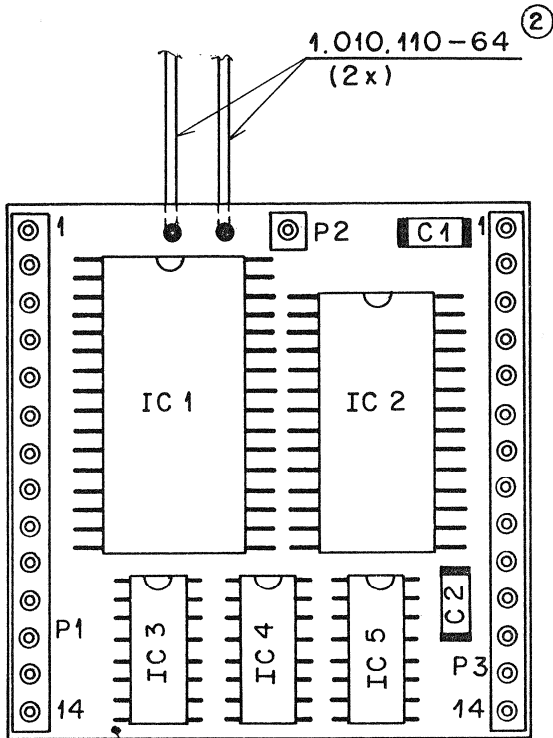
1.990.190-30 MODULE PROCESSOR BOARD ABB92/03/0400  
1.990.190-30 MODULE PROCESSOR BOARD PER92/07/3101





MEMORY BOARD

1.990.193.00



Ad ..POS.. ..REF.No... DESCRIPTION.....MANUFACTURER

C.....1	59.60.1104	100 N	10%, X7R , CER	
C.....2	59.60.1104	100 N	10%, X7R , CER	
IC....1	50.63.1504	TC551001FL	131.072 Word*8 Bit CMOS SRAM, 100 nS. NEC,To	
IC....2	50.63.1503	HM62256LFP	32.768 Word*8 Bit CMOS SRAM, 100 nS.	
IC....3	50.62.5174	74 AC 174	Hex D-Type FLIP-FLOP with Master Reset.	
IC....4	50.62.5139	74 AC 139	Dual 1-of-4 Decoder/Demultiplexer.	
IC....5	50.62.5139	74 AC 139	Dual 1-of-4 Decoder/Demultiplexer.	
P.....1	53.03.0218	14 * 1	Multi-Terminal Strip.	
P.....2	53.03.0218	1 * 1	Multi-Terminal Pin.	
P.....3	53.03.0218	14 * 1	Multi-Terminal Strip.	

All components are SMD devices.

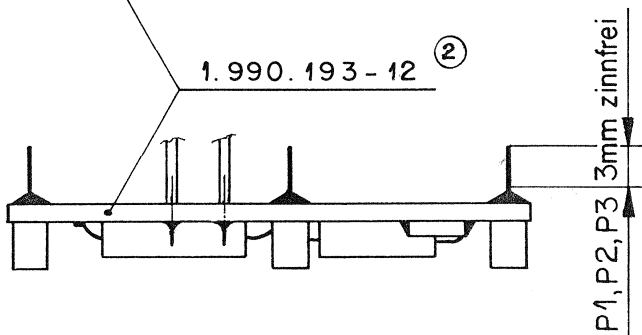
CER=Ceramic.

MANUFACTURERS :

NEC = Nippon Electric Corporation  
To = Toshiba

1.990.193-00 MEMORY BOARD

CM91/02/2800

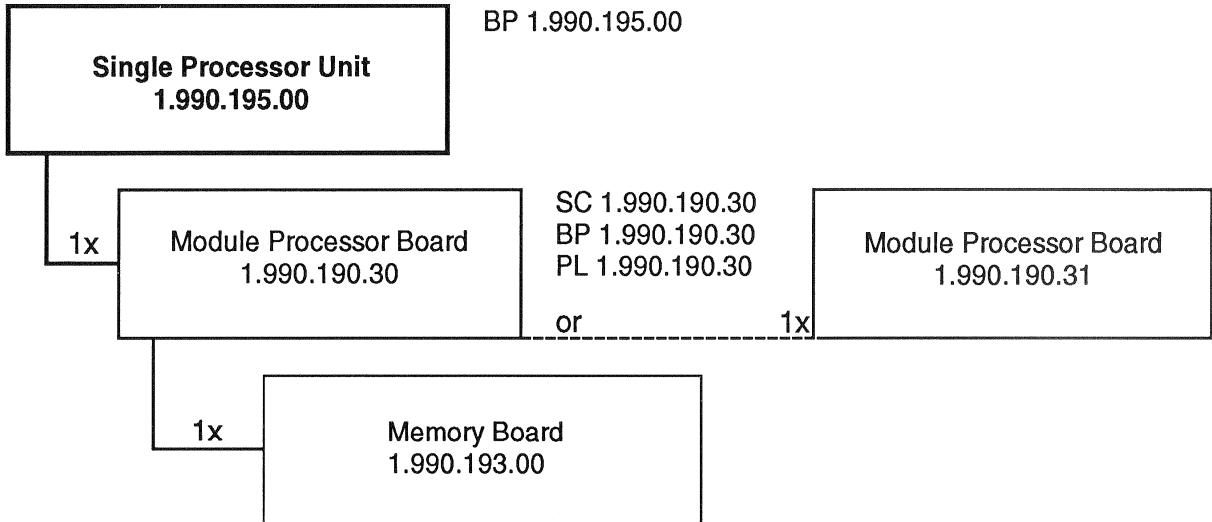


Ausgabe					③
Änderung	11.8.93	<i>Per</i>	<i>Utri</i>	<i>Vp</i>	②
	31.7.92	<i>Per</i>	<i>Vp</i>	<i>Vp</i>	①
Datum	11.10.91	<i>Per</i>	<i>Vp</i>	<i>Vp</i>	①
Kopie für:	Gez.	Gepr.	Ges.	Index	

STUDER REGENSDORF ZÜRICH	MEMORY BOARD	Nummer:	1.990.193- 00
		Bemerkung:	

Single Processor Unit

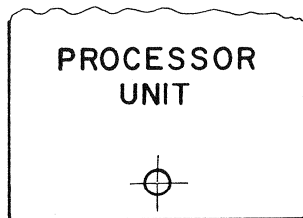
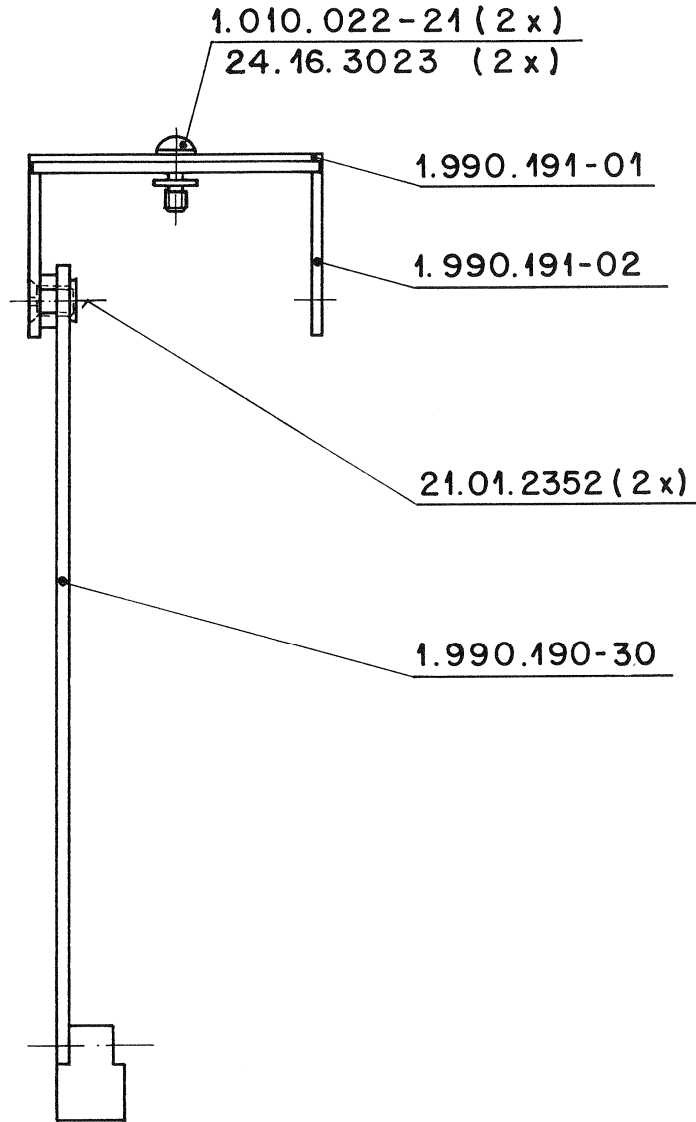
1.990.195.00



SC: Schema      Circuit Diagram  
BP: Bestückungsplan    PCB Layout  
PL: Positionsliste      Positional List

SINGLE PROCESSOR UNIT

1.990.195.00

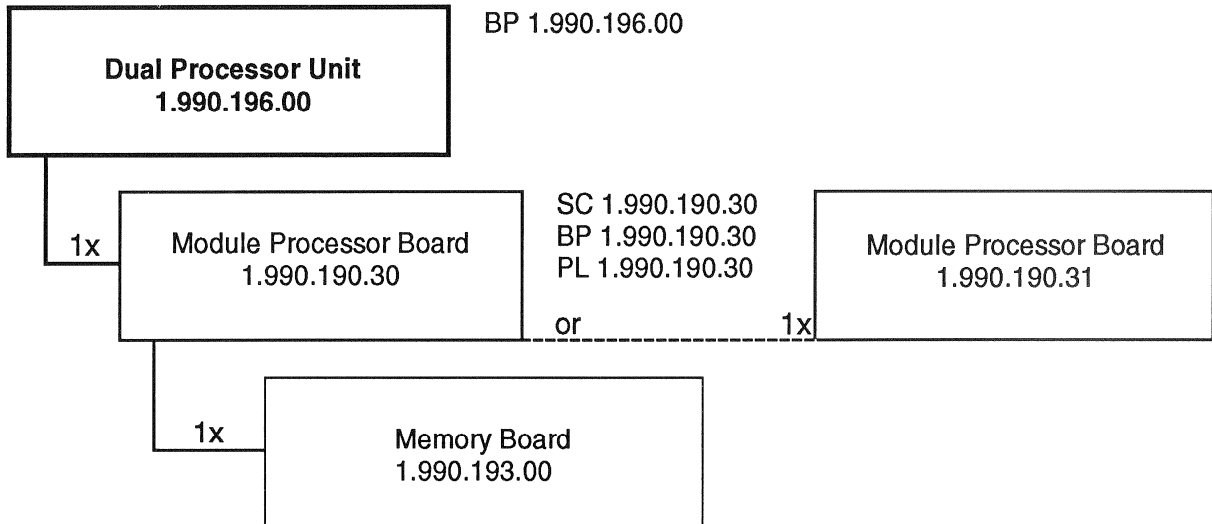


Änderung						3
						2
						1
Ausgabe	4.3.92	Abfall				0
Datum		Gez	Gepr	Ges	Index	
Kopie für:						
STUDER REGENSDORF ZÜRICH						1.990.195-00

Single Processor Unit

Dual Processor Unit

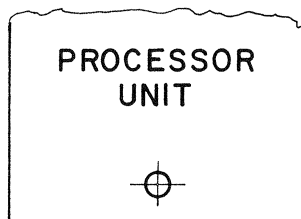
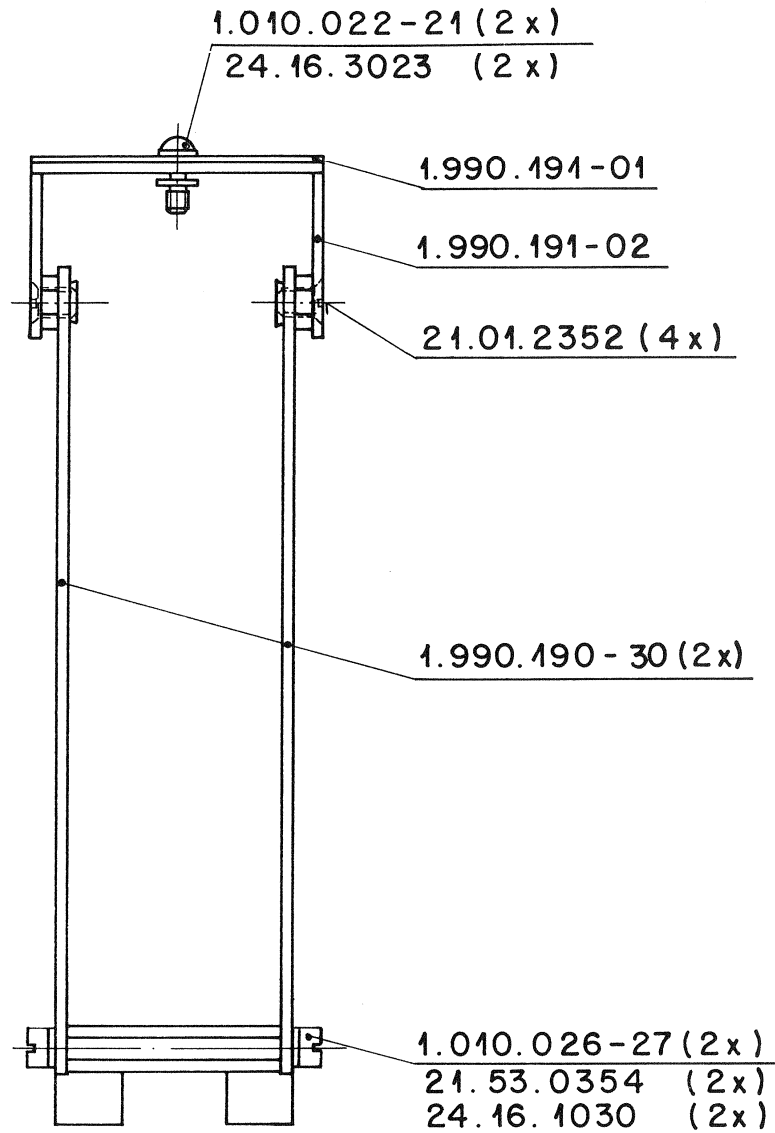
1.990.196.00



SC: Schema      Circuit Diagram  
BP: Bestückungsplan    PCB Layout  
PL: Positionsliste    Positional List

DUAL PROCESSOR UNIT

1.990.196.00



Änderung					③
					②
					①
Ausgabe	4.3.92	H. J.	DB	H	④
Datum		Gez.	Gedr.	Ges.	Index

Kopie für:

Nummer:	1.990.196-00
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STUDER REGENSDORF ZÜRICH	Benennung	Dual Processor Unit	Nummer:	1.990.196-00
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**Section 4                    Input Panel Units**


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**Table of Contents**


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VCA Board Type 2F .....	1.911.292.00
<b>Mono Input Unit MCH .....</b>	<b>1.990.210.81</b>
Input Mono Switch Board .....	1.990.219.00
Input Mono B Switch Board.....	1.990.229.00
<b>Mono Input Unit 'B' .....</b>	<b>1.990.220.81</b>
<b>Stereo Input Unit Universal MCH .....</b>	<b>1.990.230.00</b>
<b>Stereo Input Unit HL + EQ MCH .....</b>	<b>1.990.232.00</b>
<b>Stereo Input Unit MCH .....</b>	<b>1.990.235.00</b>
Switch Board Stereo .....	1.990.238.00
Switch Board Stereo .....	1.990.239.00
<b>Stereo Input Unit Universal 'B' .....</b>	<b>1.990.240.00</b>
<b>Stereo Input Unit HL + EQ 'B' .....</b>	<b>1.990.242.00</b>
<b>Stereo Input Unit 'B' .....</b>	<b>1.990.245.00</b>
<b>Group Unit Mono + EQ MCH .....</b>	<b>1.990.250.00</b>
<b>Group Unit Mono MCH .....</b>	<b>1.990.255.00</b>
Switch Board Group.....	1.990.258.00
Switch Board Group.....	1.990.259.00
<b>Group Unit Mono + EQ 'B' .....</b>	<b>1.990.260.00</b>
<b>Group Unit Mono 'B' .....</b>	<b>1.990.265.00</b>
<b>Group Unit Stereo + EQ MCH.....</b>	<b>1.990.270.00</b>
<b>Group Unit Stereo MCH .....</b>	<b>1.990.275.00</b>
<b>Group Unit Stereo + EQ 'B'.....</b>	<b>1.990.280.00</b>
<b>Group Unit Stereo 'B' .....</b>	<b>1.990.285.00</b>
Side Board EQ + Mic. Amp.....	1.990.288.00
Side Board EQ.....	1.990.289.00
3 POT. 24,6mm Board.....	1.990.291.00
5 POT. 10mm Board.....	1.990.292.00
3 POT. 10mm Board.....	1.990.293.00

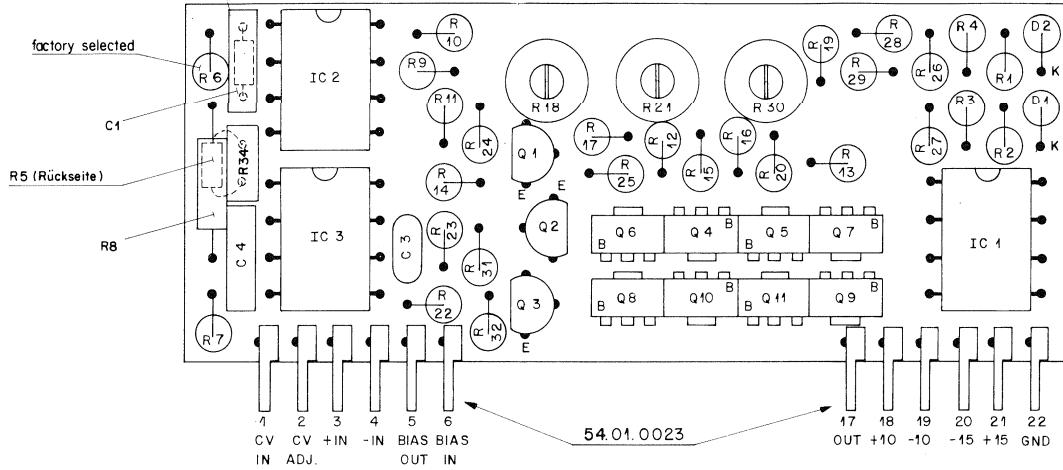
## STUDER AUDIO CONSOLE 990

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2 POT. 24,6mm Board.....	1.990.294.00
5 POT. 10mm Board.....	1.990.295.00
3*5 POT. 24,6mm Board.....	1.990.296.00
6 POT. 10mm Board.....	1.990.297.00
<b>AUX Master Unit.....</b>	<b>1.990.310.00</b>
Filter Board LI.....	1.990.317.00
Filter Board PIN.....	1.990.318.00
AUX Master Switch Board.....	1.990.319.00

VCA-BOARD TYPE 2F

1.911.292.00



Ad .POS. . . . REF.No. . . . DESCRIPTION . . . . . MANUFACTURER

Ad	POS.	REF.No.	DESCRIPTION	MANUFACTURER
C.....1		59.34.4271	270 pF 5% CER	
C.....3		59.99.0236	470 pF 20% CER	
C.....4		59.06.0103	10 nF 20% PE	
D.....1		50.04.1114	10 V zener diode 400mW	any
D.....2		50.04.1112	5.1 V zener diode 400mW	any
IC....1		50.09.0107	RC4559 dual op. amp.	Ra, TI
IC....2		50.09.0101	TL072 dual op. amp. J-FET	Mot, TI
IC....3		50.09.0101	TL072 dual op. amp. J-FET	Mot, TI
Q.....1		1.010.037.50	BC 337 NPN selected	St
Q.....2		1.010.036.50	BC 327 NPN selected	St
Q.....3		1.010.037.50	BC 337 NPN selected	St
Q.....4		50.60.0100	BCX 68 NPN selected	St
Q.....5		50.60.0100	BCX 68 NPN selected	St
Q.....6		50.60.1100	BCX 69 PNP selected	St
Q.....7		50.60.1100	BCX 69 PNP selected	St
Q.....8		50.60.0100	BCX 68 NPN selected	St
Q.....9		50.60.0100	BCX 68 NPN selected	St
Q.....10		50.60.1100	BCX 69 PNP selected	St
Q.....11		50.60.1100	BCX 69 PNP selected	St
R.....1		57.11.3103	10 kOhm 1%	
R.....2		57.11.3103	10 kOhm 1%	
R.....3		57.11.3203	20 kOhm 1%	
R.....4		57.11.3103	10 kOhm	
R.....5		57.11.3304	300 kOhm 1%	
R.....6		57.11.9999	factory selected	
R.....7		57.11.3103	10 kOhm	
R.....8		57.11.3105	1 MOhm	
R.....9		57.11.3203	20 kOhm 1%	
R.....10		57.11.3203	20 kOhm 1%	
R.....11		57.11.3222	2.2 kOhm 1%	
R.....12		57.11.3330	33 Ohm 1%	
R.....13		57.11.3100	10 Ohm 1%	
R.....14		57.11.3222	2.2 kOhm 1%	
R.....15		57.11.3330	33 Ohm 1%	
R.....16		57.11.3100	10 Ohm 1%	
R.....17		57.11.9999	105 Ohm 1%	
R.....18		58.11.6102	1 kOhm variable resistor	
R.....19		57.11.3203	20 kOhm 1%	
R.....20		57.11.3203	20 kOhm 1%	
R.....21		58.11.6503	50 kOhm variable resistor	
R.....22		57.11.3105	1 MOhm	
R.....23		57.11.5106	10 MOhm	
R.....24		57.11.3472	4.7 kOhm 1%	
R.....25		57.11.3622	6.2 kOhm 1%	
R.....26		57.11.3152	1.5 kOhm 1%	
R.....27		57.11.3152	1.5 kOhm 1%	
R.....28		57.11.3102	1 kOhm	
R.....29		57.11.3102	1 kOhm	
R.....30		58.11.6501	500 Ohm variable resistor	
R.....31		57.11.3332	3.3 kOhm 1%	
R.....32		57.11.3332	3.3 kOhm 1%	
R.....33		57.11.3824	820 kOhm 1%	
R.....34		57.99.0220	NTC	St
MP....1		1.911.290.11	1 pcs PCB	St
MP....2		54.01.0023	1 pcs STIFTENLEISTE	

CER=ceramic, PE=polyester,

MANUFACTURER: Mot=Motorola, TI=Texas Instruments, St=Studer

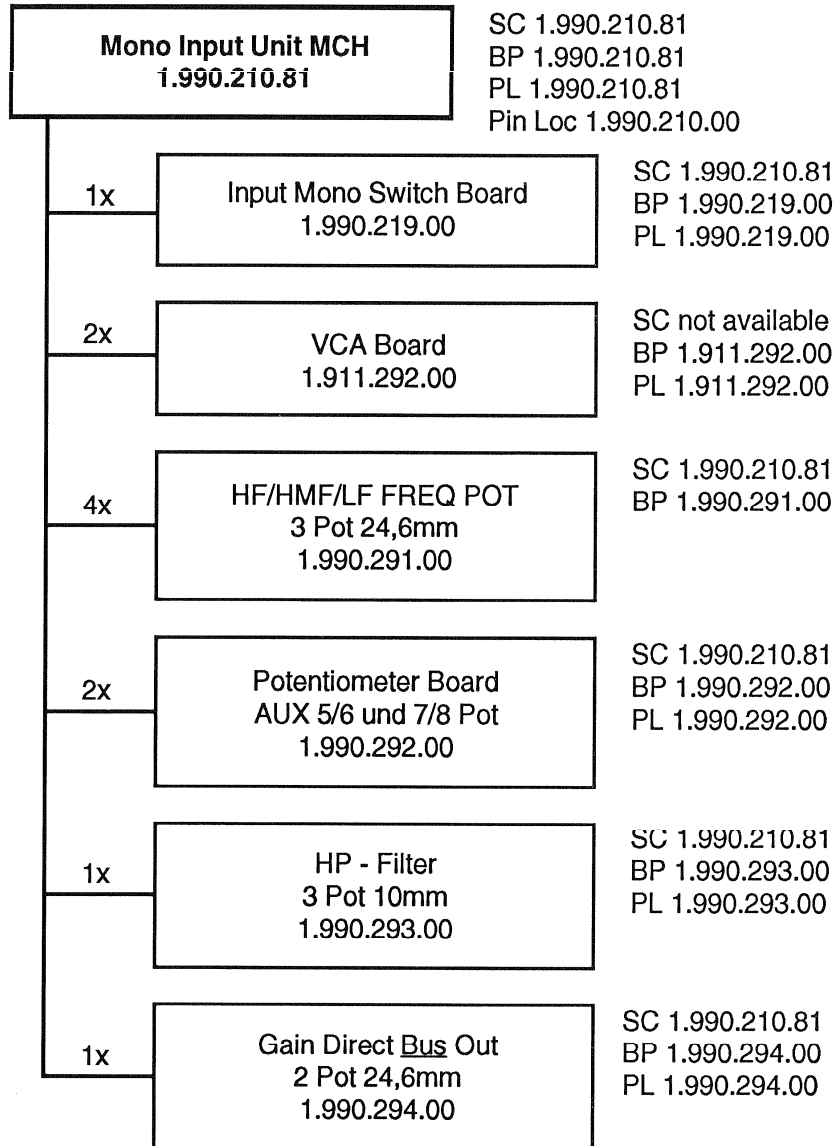
1.911.292.00 VCA BOARD TYPE 2F WY 90.02.1000

Änderung									
Ausgabe	9.2.90	34	11	44					
Datum		Gez.	Gepr.	Ges.	Index				
Kopie für									
STUDER REGENSDORF ZÜRICH					VCA-Board Type 2F ESE				
Benennung					Nummer 1.911.292-00				



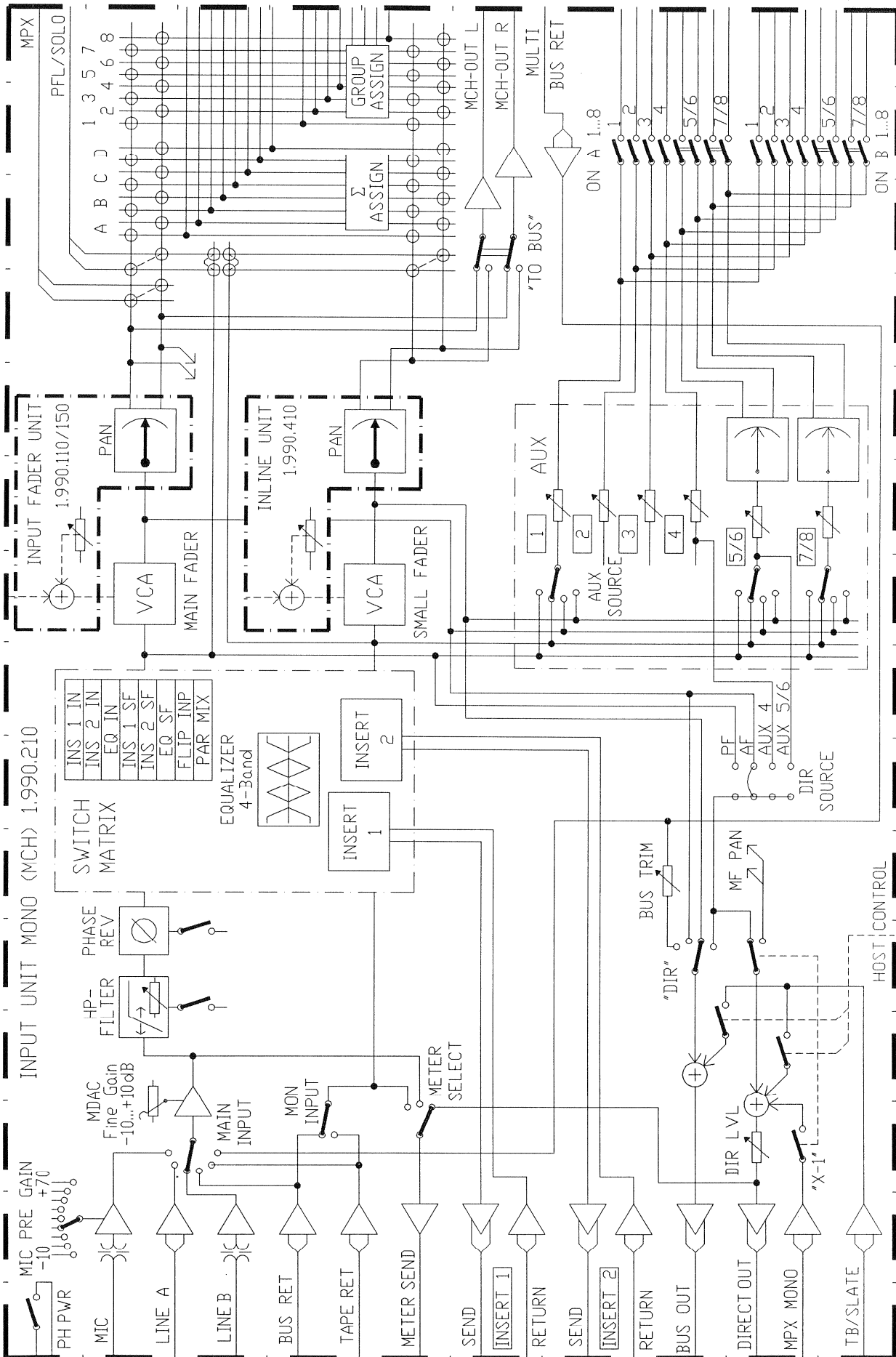
## Mono Input Unit MCH

1.990.210.81



SC: Schema      Circuit Diagram  
 BP: Bestückungsplan    PCB Layout  
 PL: Positionsliste      Positional List

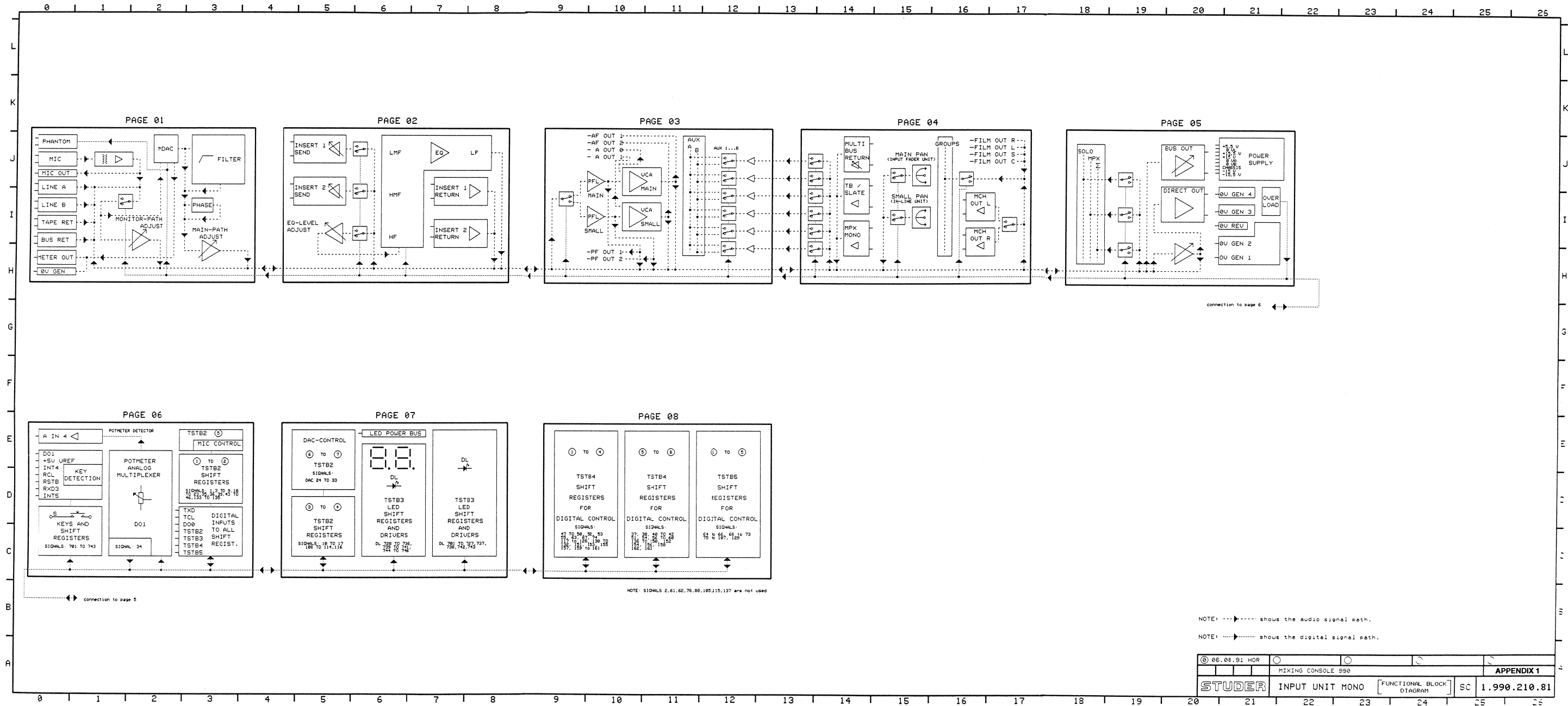
MONO INPUT UNIT MCH 1.990.210.81



INPUT UNIT MONO



1.990.210.81



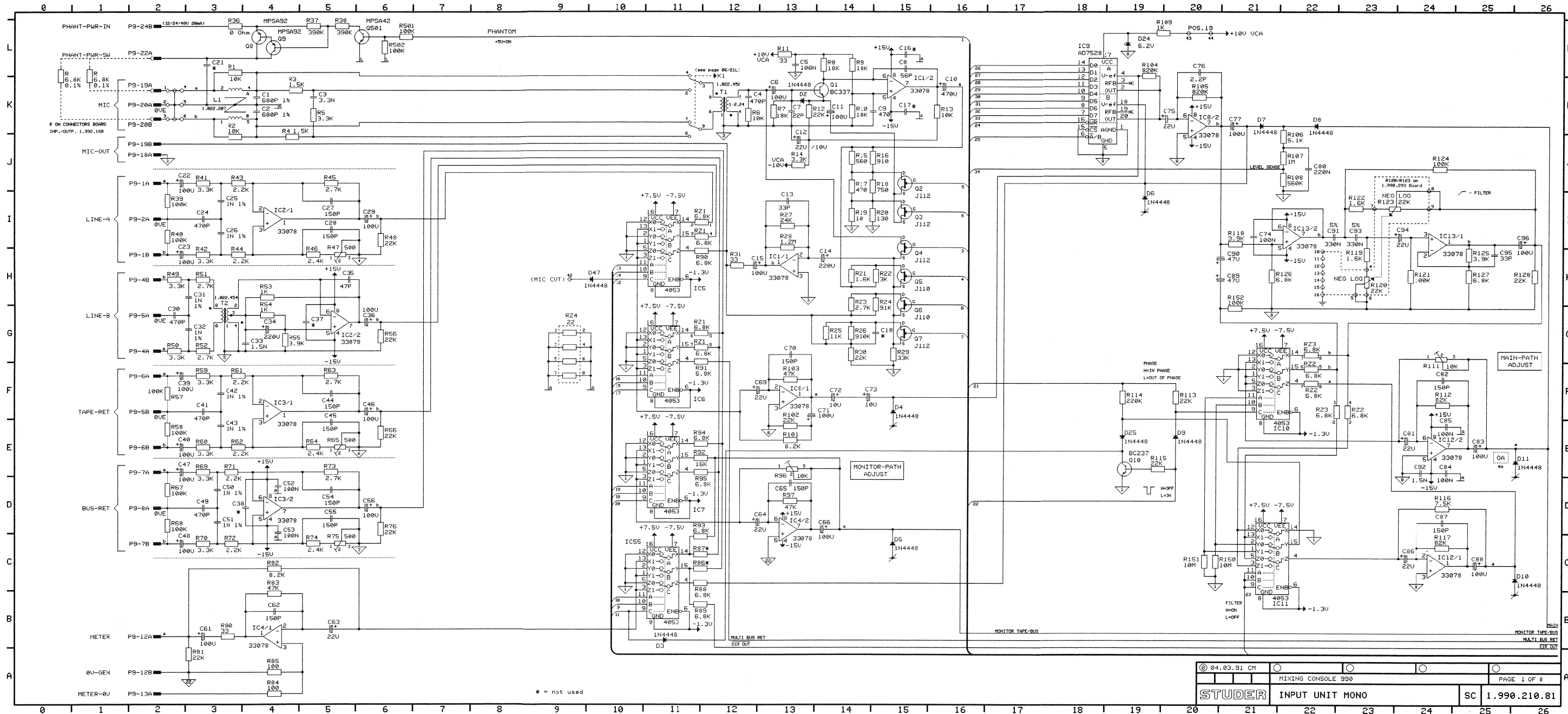
NOTE: - - - - - shows the audio signal path.  
 NOTE: ····· shows the digital signal path.

© 05.08.91 HOR	MIXING CONSOLE 990	APPENDIX 1
STUDER	INPUT UNIT MONO	SC 1.990.210.81



INPUT UNIT MONO

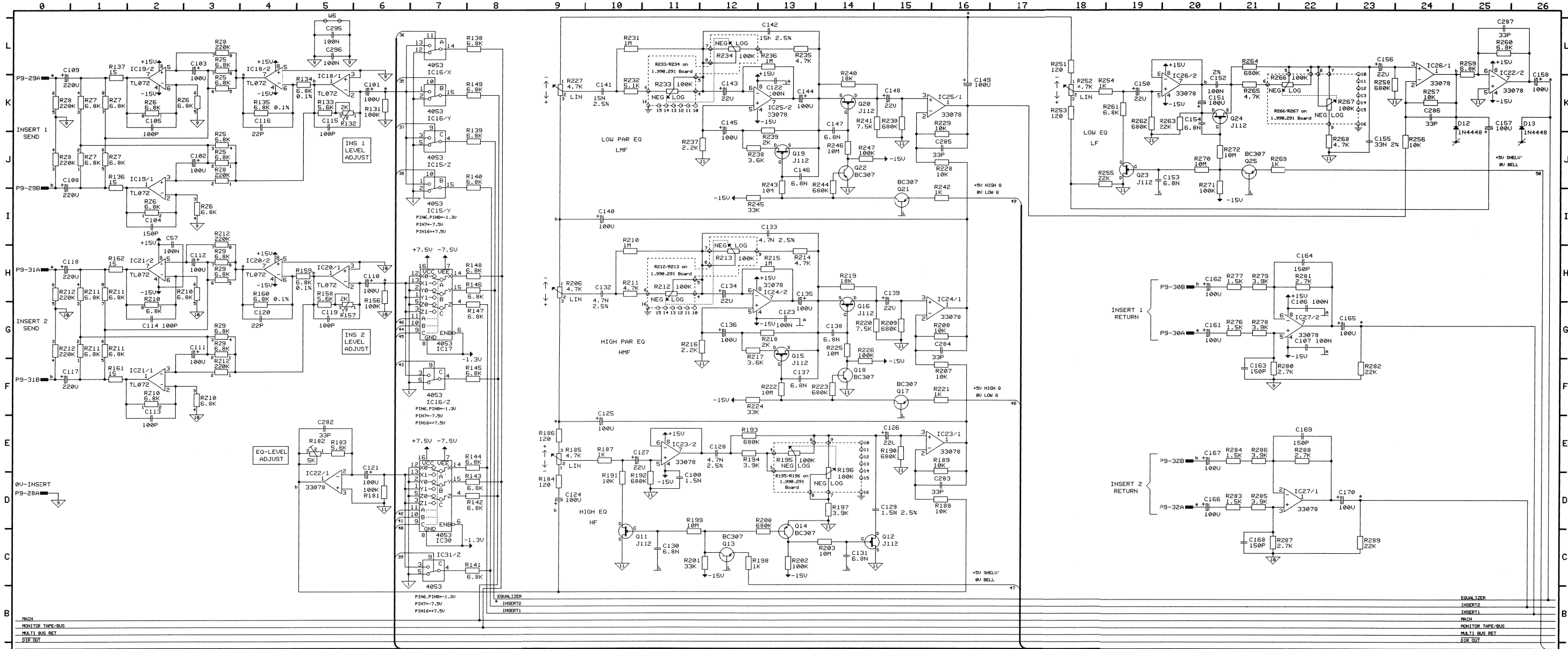
1.990.210.81



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<b>STUDER</b>	<b>INPUT UNIT MONO</b>	<b>SC 1.990.210.81</b>

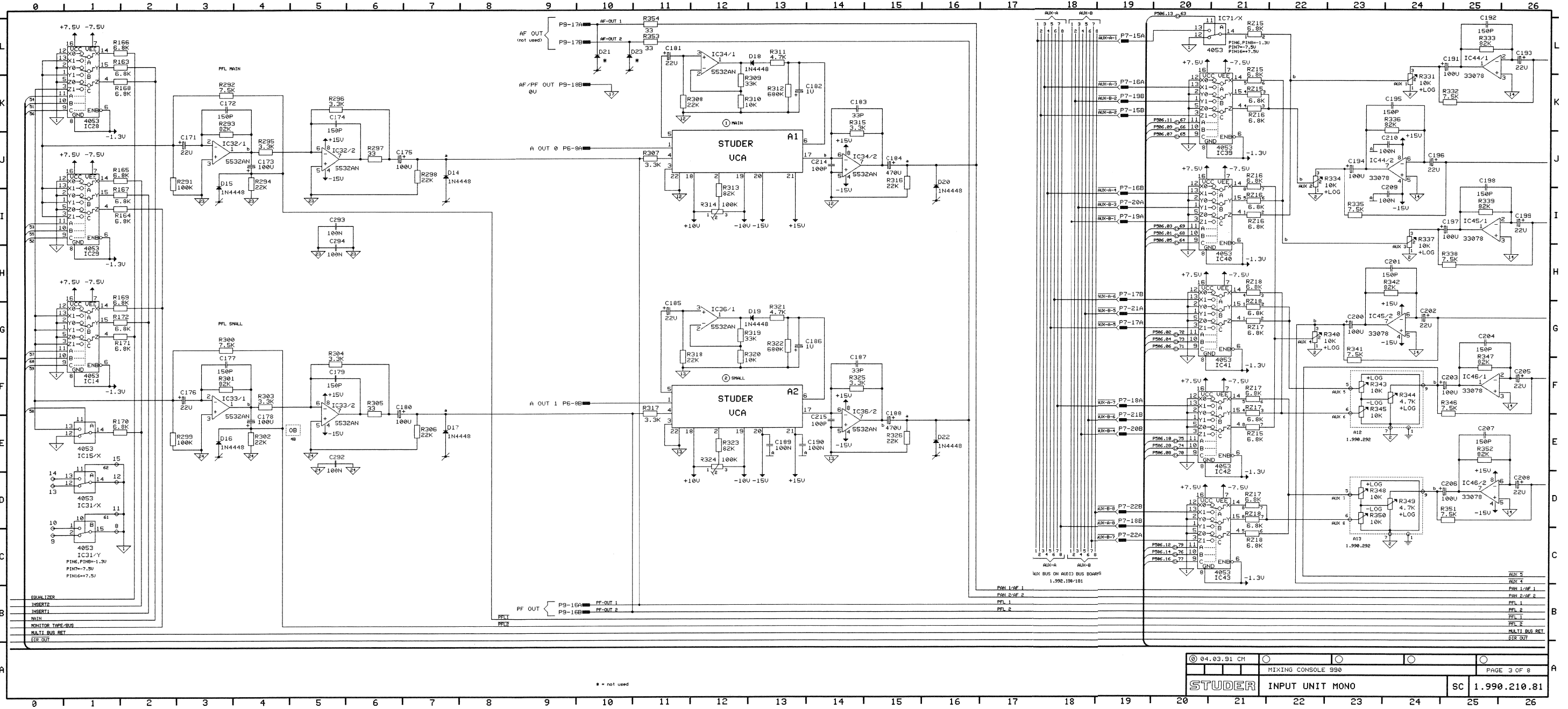
INPUT UNIT MONO

1.990.210.81



INPUT UNIT MONO

1.990.210.81

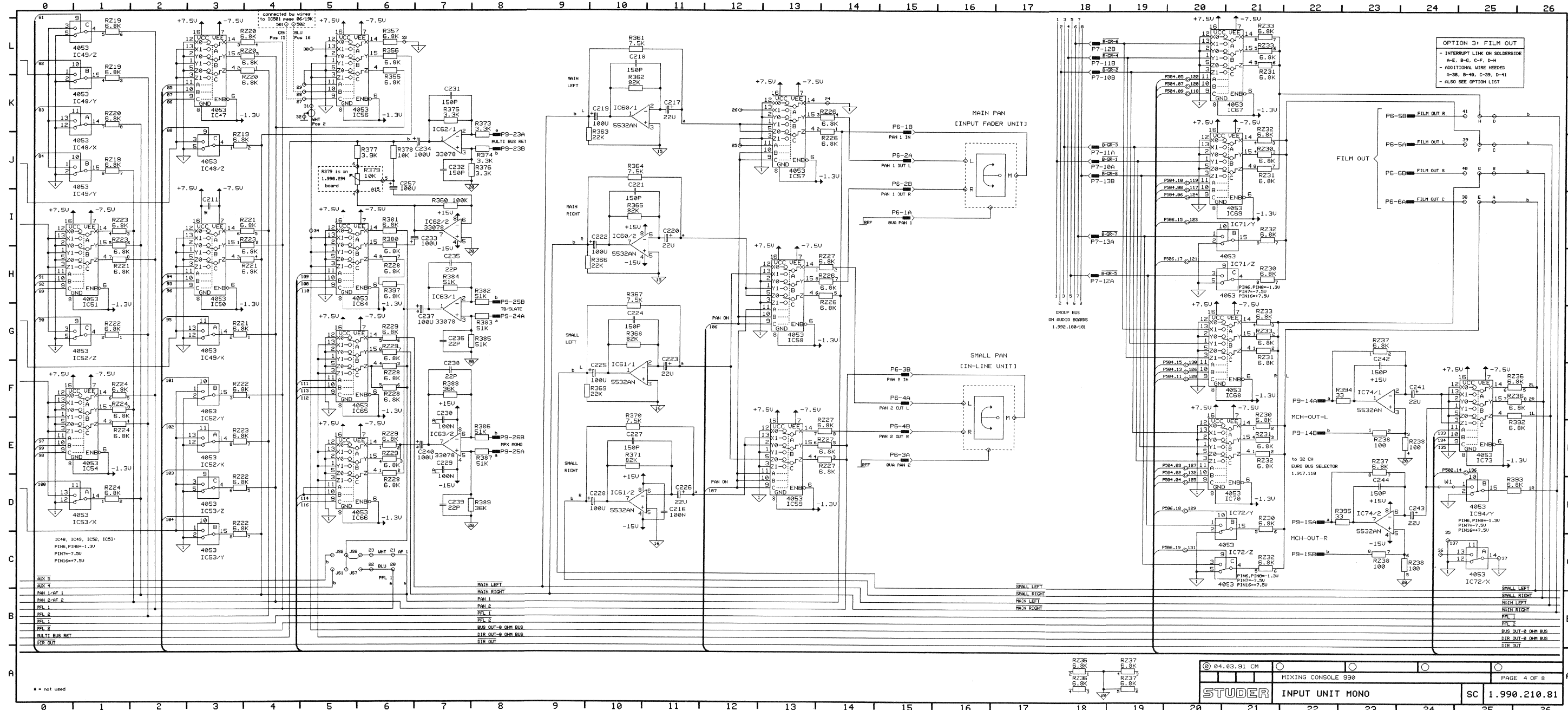


© 04.03.91 CM	MIXING CONSOLE 990	PAGE 3 OF 9
<b>STUDER</b>	INPUT UNIT MONO	SC 1.990.210.81

\* - not used



INPUT UNIT MONO

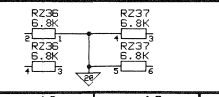


OPTION 3: FILM OUT  
 - INTERRUPT LINK ON SOLDER SIDE  
 - A-E, B-C, C-F, D-H  
 - ADDITIONAL WIRE NEEDED  
 - A-38, B-48, C-39, D-41  
 - ALSO SEE OPTION LIST

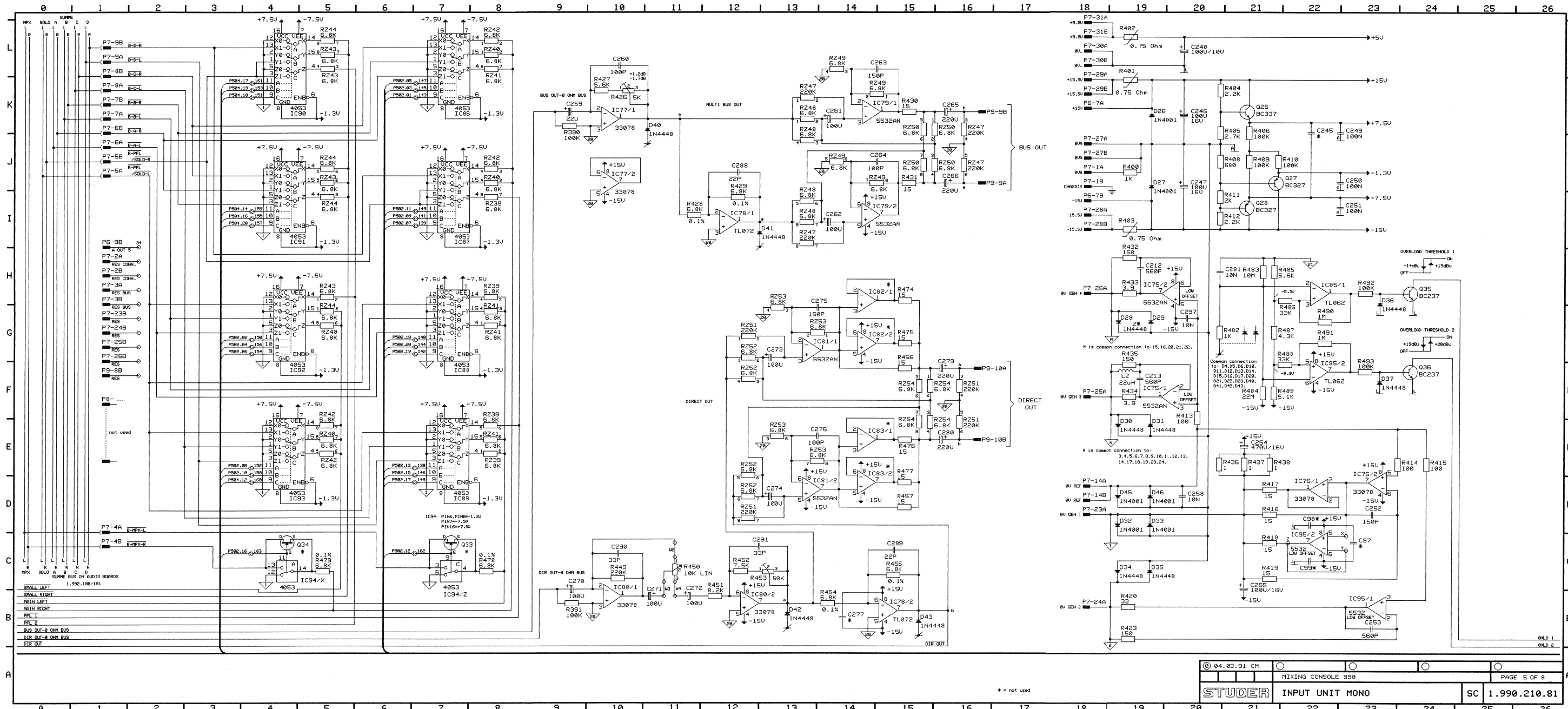
IC48, IC49, IC52, IC53:  
 PIN6, PIN8=-1.3V  
 PIN7=-7.5V  
 PIN16=+7.5V

MAIN LEFT  
 PAN 1 IN  
 PAN 1 OUT L  
 PAN 1 OUT R  
 PAN 2 IN  
 PAN 2 OUT L  
 PAN 2 OUT R  
 MCH-OUT-L  
 MCH-OUT-R  
 FILM OUT R  
 FILM OUT L  
 FILM OUT S  
 FILM OUT C

MAIN RIGHT  
 PAN 2 IN  
 PAN 2 OUT L  
 PAN 2 OUT R  
 MCH-OUT-L  
 MCH-OUT-R  
 FILM OUT R  
 FILM OUT L  
 FILM OUT S  
 FILM OUT C



INPUT UNIT MONO



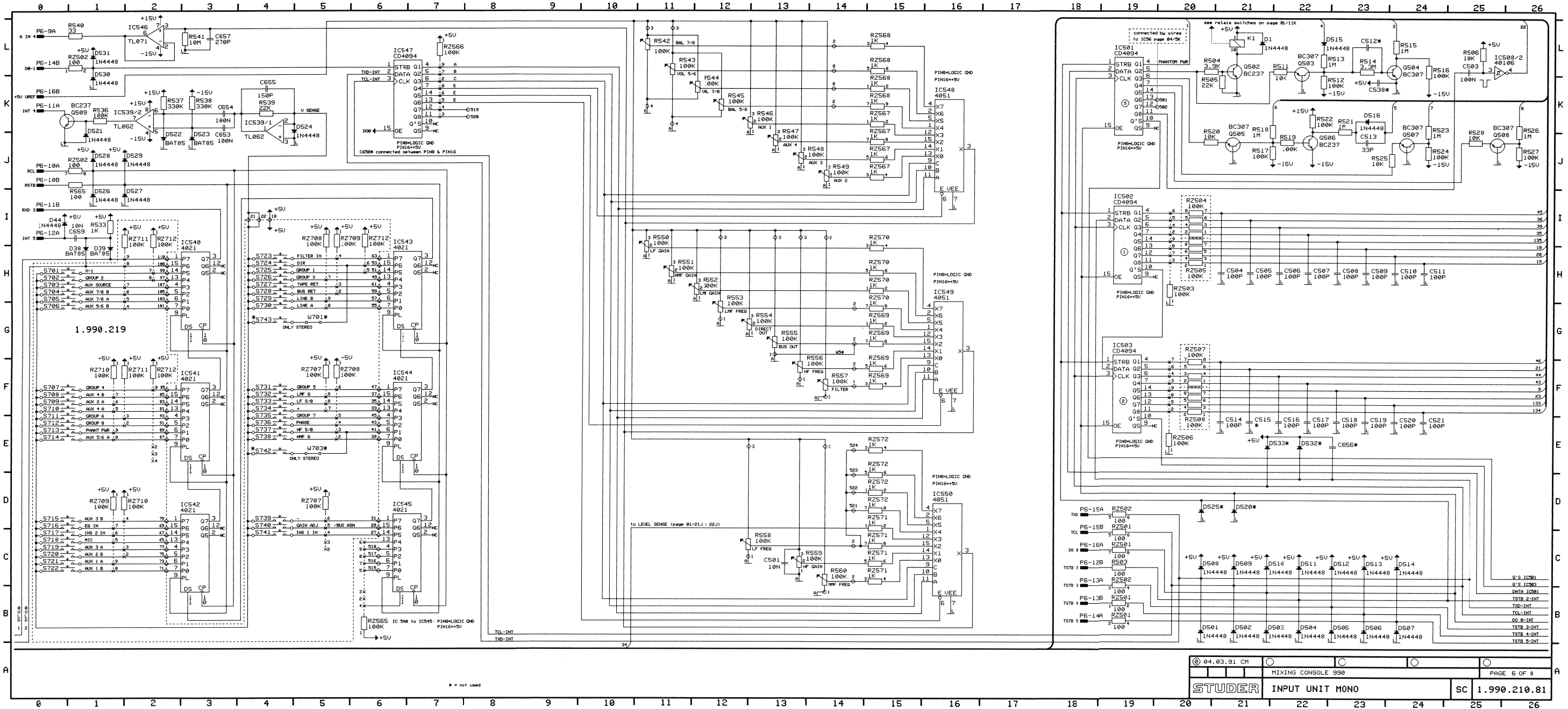
\* = not used





INPUT UNIT MONO

1.990.210.81

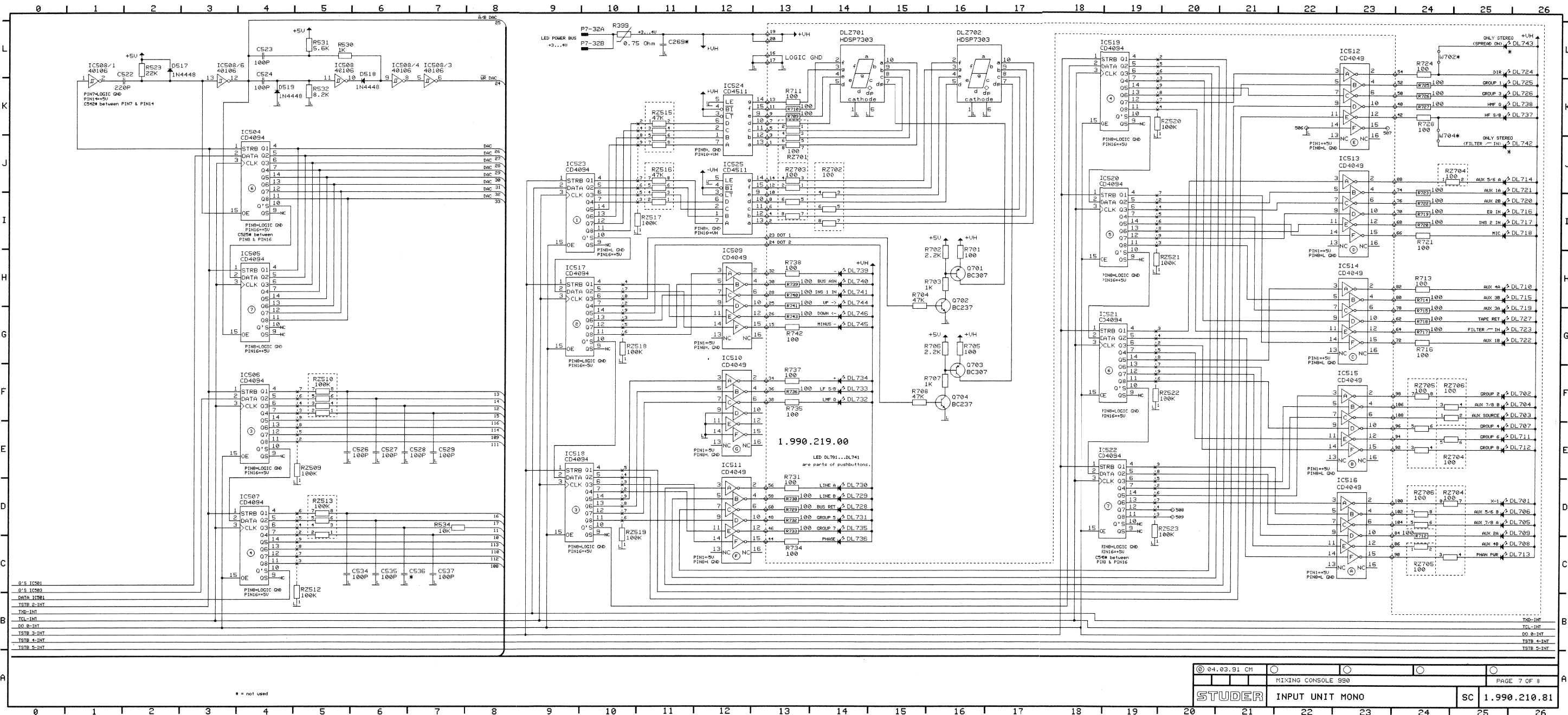


\* = not used



INPUT UNIT MONO

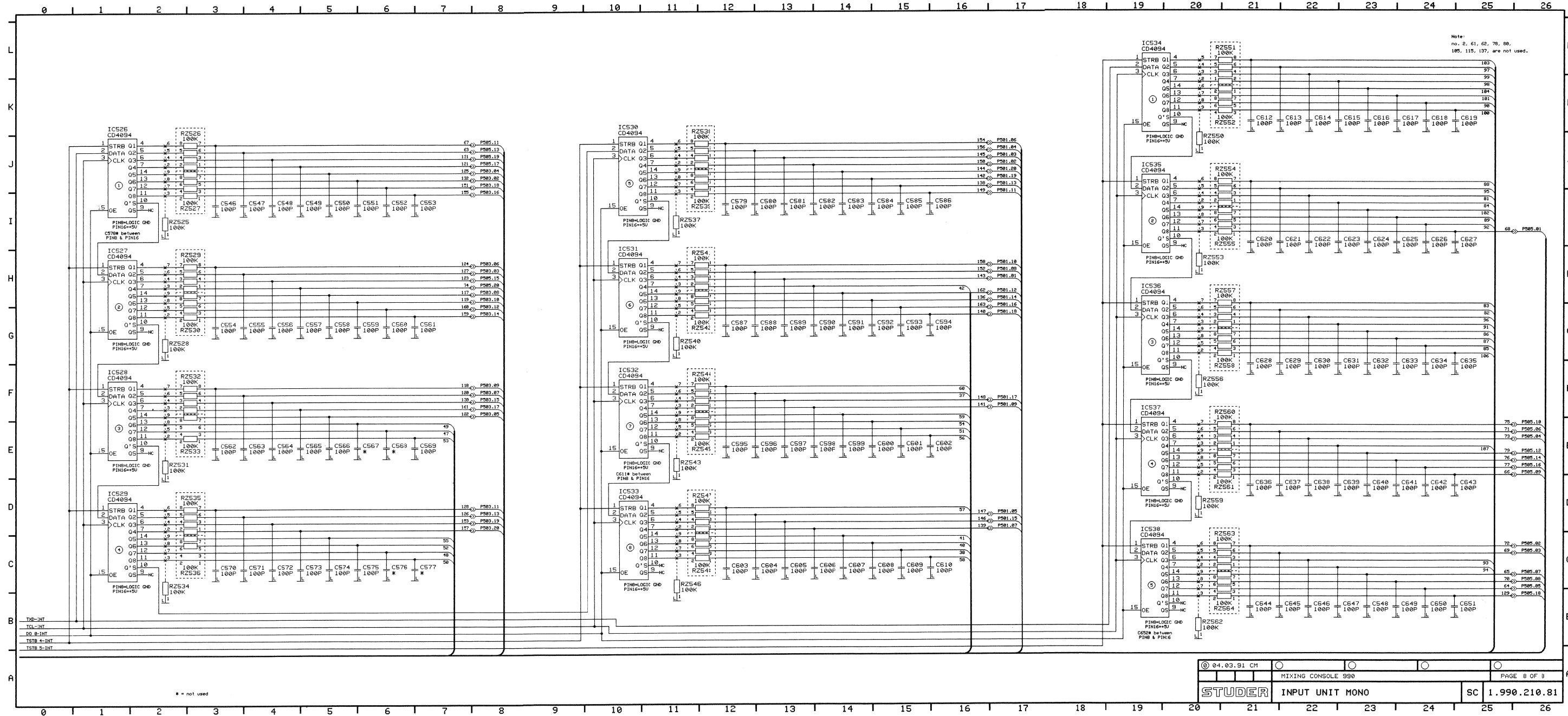
1.990.210.81



INPUT UNIT MONO



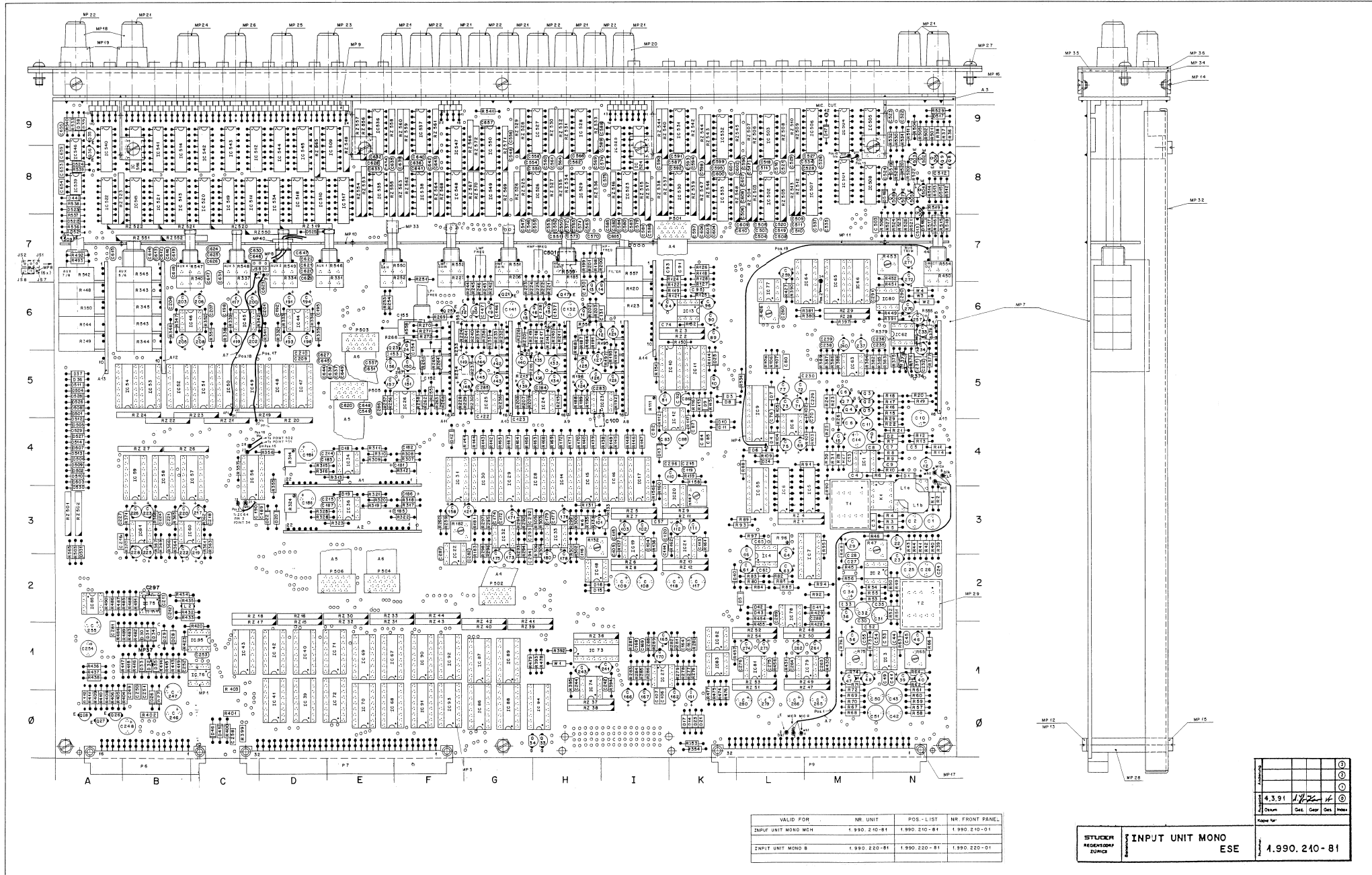
1.990.210.81



INPUT UNIT MONO



1.990.210.81



VALID FOR	NR UNIT	POS.-LIST	NR FRONT PANEL
INPUT UNIT MONO MCH	1.990.210-81	1.990.210-81	1.990.210-01
INPUT UNIT MONO B	1.990.220-81	1.990.220-81	1.990.220-01

STUDER  
REPRODUCTION  
SERVICE

INPUT UNIT MONO  
ESE

1.990.210-81

4.3.91	172	4	0
Drawn	Calc	Comp	Check









INPUT UNIT MONO

Table with columns: Ad, POS., REF. No., DESCRIPTION, MANUFACTURER. Contains parts list for the first section of the console.

Table with columns: Ad, POS., REF. No., DESCRIPTION, MANUFACTURER. Contains parts list for the second section of the console.

Table with columns: Ad, POS., REF. No., DESCRIPTION, MANUFACTURER. Contains parts list for the third section of the console.

Table with columns: Ad, POS., REF. No., DESCRIPTION, MANUFACTURER. Contains parts list for the fourth section of the console, including options and manufacturer details.

Pin location list

1.990.210

ALSO USED FOR		-INPUT UNIT MONO B		1.990.220
P	NO	NAME	REMARK	
-----				-----
				B=BUS O=CONNECTION S=SYMMETRIC I=INVERS AS=ASYMMETRIC -----
P6	01A	OVA BAL/PAN1	GROUND SIGN PAN 1 (BAL)	0
P6	01B	B-L/PAN1-IN	PAN 1 IN (MAIN) (BAL LEFT IN)	0
P6	02A	B/PAN1-OUT-L	PAN 1 OUT LEFT (BAL OUT LEFT)	0
P6	02B	B/PAN1-OUT-R	PAN 1 OUT RIGHT (BAL OUT RIGHT)	0
P6	03A	OVA PAN2	GROUND SIGN PAN 2	0
P6	03B	B-R/PAN2-IN	PAN 2 IN (SMALL) (BAL RIGHT IN)	0
P6	04A	PAN2-OUT-L	PAN 2 OUT LEFT (BAL RIGHT IN-B)	0
P6	04B	PAN2-OUT-R	PAN 2 OUT RIGHT (C OUT)	0
P6	05A	FILM-OUT-L	OPTIONAL OUTPUT LEFT	0
P6	05B	FILM-OUT-R	OPTIONAL OUTPUT RIGHT	0
P6	06A	FILM-OUT-C	OPTIONAL OUTPUT	0
P6	06B	FILM-OUT-S	OPTIONAL OUTPUT	0
P6	07A	+ 15V	+ SUPPLY TO FADER UNIT	0
P6	07B	- 15V	- SUPPLY TO FADER UNIT	0
P6	08A	A OUT 0	INPUT ; FROM MCU ANALOG OUT 0	0
P6	08B	A OUT 1	INPUT ; FROM MCU ANALOG OUT 1	0
P6	09A	A IN 4	OUTPUT ; TO MCU ANALOG IN 4	0
P6	09B	A OUT 5	INPUT ; FROM MCU ANALOG OUT 5	0
P6	10A	RCL	RECEIVE CLOCK	0
P6	10B	RSTB	RECEIVE STROBE	0
P6	11A	INT 4	INTERUPT 4	0
P6	11B	RXD 3	RECEIVE DATA 3	0
P6	12A	INT 5	INTERUPT 5	0
P6	12B	TSTB 2	TRANSMIT STROBE 2	0
P6	13A	TSTB 3	TRANSMIT STROBE 3	0
P6	13B	TSTB 4	TRANSMIT STROBE 4	0
P6	14A	TSTB 5	TRANSMIT STROBE 5	0
P6	14B	DO 1	DATA OUT 1 (TRANSMIT STROBE 8)	0
P6	15A	TXD	TRANSMIT DATA	0
P6	15B	TCL	TRANSMIT CLOCK	0
P6	16A	DO 0	DATA OUT 0 (ENABLE)	0
P6	16B	UREF	+ 5V REFERENCE	0
P7	01A	0V-B	GROUND AUDIO (PIN)	0
P7	01B	CHASSIS	METAL FRAME	B
P7	02A	-	RES	0
P7	02B	-	RES	0
P7	03A	-	RES LEFT	B
P7	03B	-	RES RIGHT	B
P7	04A	B-MPX-L	MPX LEFT ; 0-OHM BUS	B,I
P7	04B	B-MPX-R	MPX RIGHT ; 0-OHM BUS	B,I
P7	05A	B-PFL/SOLO-L	PFL/SOLO LEFT ; 0-OHM BUS	B,I
P7	05B	B-PFL/SOLO-R	PFL/SOLO RIGHT ; 0-OHM BUS	B,I
P7	06A	B-A-L	MASTER A LEFT ; 0-OHM BUS	B,I
P7	06B	B-A-R	MASTER A RIGHT ; 0-OHM BUS	B,I
P7	07A	B-B-L	MASTER B LEFT ; 0-OHM BUS	B,I
P7	07B	B-B-R	MASTER B RIGHT ; 0-OHM BUS	B,I
P7	08A	B-C-L	MASTER C LEFT ; 0-OHM BUS	B,I
P7	08B	B-C-R	MASTER C RIGHT ; 0-OHM BUS	B,I
P7	09A	B-D-L	MASTER D LEFT ; 0-OHM BUS	B,I
P7	09B	B-D-R	MASTER D RIGHT ; 0-OHM BUS	B,I
P7	10A	B-GR-1	GROUP 1 ; 0-OHM BUS	B,I



## Pin location list

1.990.210

P7	10B	B-GR-2	GROUP 2	; 0-OHM BUS	B,I	
P7	11A	B-GR-3	GROUP 3	; 0-OHM BUS	B,I	
P7	11B	B-GR-4	GROUP 4	; 0-OHM BUS	B,I	
P7	12A	B-GR-5	GROUP 5	; 0-OHM BUS	B,I	
P7	12B	B-GR-6	GROUP 6	; 0-OHM BUS	B,I	
P7	13A	B-GR-7	GROUP 7	; 0-OHM BUS	B,I	
P7	13B	B-GR-8	GROUP 8	; 0-OHM BUS	B,I	
P7	14	OV-REF	OV REFERENCE		B	X X
P7	15A	B-AUX-A-1	AUX A-1	; 0-OHM BUS	B,I	
P7	15B	B-AUX-A-2	AUX A-2	; 0-OHM BUS	B,I	
P7	16A	B-AUX-A-3	AUX A-3	; 0-OHM BUS	B,I	
P7	16B	B-AUX-A-4	AUX A-4	; 0-OHM BUS	B,I	
P7	17A	B-AUX-A-5	AUX A-5	; 0-OHM BUS	B,I	
P7	17B	B-AUX-A-6	AUX A-6	; 0-OHM BUS	B,I	
P7	18A	B-AUX-A-7	AUX A-7	; 0-OHM BUS	B,I	
P7	18B	B-AUX-A-8	AUX A-8	; 0-OHM BUS	B,I	
P7	19A	B-AUX-B-1	AUX B-1	; 0-OHM BUS	B,I	
P7	19B	B-AUX-B-2	AUX B-2	; 0-OHM BUS	B,I	
P7	20A	B-AUX-B-3	AUX B-3	; 0-OHM BUS	B,I	
P7	20B	B-AUX-B-4	AUX B-4	; 0-OHM BUS	B,I	
P7	21A	B-AUX-B-5	AUX B-5	; 0-OHM BUS	B,I	
P7	21B	B-AUX-B-6	AUX B-6	; 0-OHM BUS	B,I	
P7	22A	B-AUX-B-7	AUX B-7	; 0-OHM BUS	B,I	
P7	22B	B-AUX-B-8	AUX B-8	; 0-OHM BUS	B,I	
P7	23A	OV GEN 1	GROUND AUDIO GENERIERT 1		0	
P7	23B	-	N.C. (STEREO)		0	
P7	24A	OV GEN 2	GROUND AUDIO GENERIERT 2		0	
P7	24B	-	N.C. (STEREO)		0	
P7	25A	OV GEN 3	GROUND AUDIO GENERIERT 3		0	
P7	25B	-	N.C. (STEREO)		0	
P7	26A	OV GEN 4	GROUND AUDIO GENERIERT 4		0	
P7	26B	-	N.C. (STEREO)		0	
P7	27	OV-A	GROUND AUDIO		B	
P7	28	- 15.5V	+ SUPPLY		B	X X
P7	29	+ 15.5V	+ SUPPLY		B	X X
P7	30	OV-L	GROUND SIGN (LOGIC)		B	X X
P7	31	+ 5.5V	+ SUPPLY		B	X X
P7	32	+3...4V LED	LED SUPPLY VARIABLE +3...4V		B	X X
P9	01A	LINE-A-a	LINE INPUT A (LEFT) a		S,0	
P9	01B	LINE-A-b	LINE INPUT A (LEFT) b		S,0	
P9	02A	LINE-A-OVE	LINE INPUT A GROUND EXTERN		0	
P9	02B	-	N.C. (STEREO)		0	
P9	03A	-	N.C. (STEREO)		0	
P9	03B	-	N.C. (STEREO)		0	
P9	04A	LINE-B-a	LINE INPUT B (LEFT) a		S,0	
P9	04B	LINE-B-b	LINE INPUT B (LEFT) b		S,0	
P9	05A	LINE-B-OVE	LINE INPUT B GROUND EXTERN		0	
P9	05B	TAPE-RET-OVE	TAPE RETURN INPUT GROUND EXTERN		0	
P9	06A	TAPE-RET-a	TAPE RETURN INPUT a		S,0	
P9	06B	TAPE-RET-b	TAPE RETURN INPUT b		S,0	
P9	07A	BUS-RET-a	BUS RETURN INPUT a		S,0	
P9	07B	BUS-RET-b	BUS RETURN INPUT b		S,0	
P9	08A	BUS-RET-OVE	BUS RETURN INPUT GROUND EXTERN		0	
P9	08B	-	RES		0	
P9	09A	BUS-OUT-a	BUS OUTPUT a		S,0	
P9	09B	BUS-OUT-b	BUS OUTPUT b		S,0	
P9	10A	DIR-OUT-a	DIRECT OUT (LEFT) a		S,0	
P9	10B	DIR-OUT-b	DIRECT OUT (LEFT) b		S,0	
P9	11A	-	N.C. (STEREO)		0	
P9	11B	-	N.C. (STEREO)		0	

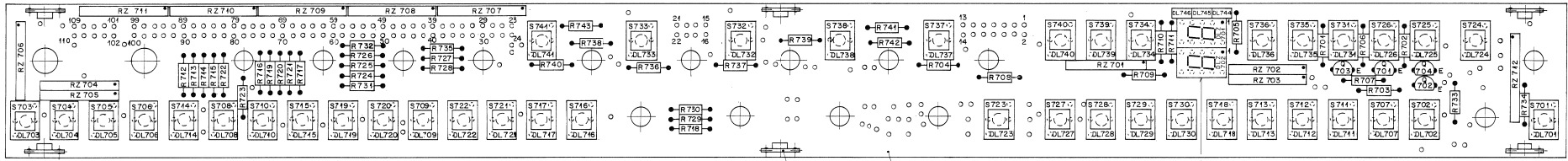
## Pin location list

1.990.210

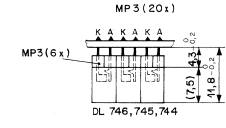
P9	12A	METER	METER (LEFT)	AS,0
P9	12B	OV-GEN	GROUND AUDIO GENERIERT ( 22 )	0
P9	13A	METER-OV	METER GROUND	0
P9	13B	-	N.C. ( STEREO )	0
P9	14A	MCH-OUT-L-a	TO EURO 32CH BUS SELECTOR LEFT a	S,0
P9	14B	MCH-OUT-L-b	TO EURO 32CH BUS S. LEFT b (GND)	S,0
P9	15A	MCH-OUT-R-a	TO EURO 32CH BUS SELECTOR RIGHT a	S,0
P9	15B	MCH-OUT-R-b	TO EURO 32CH BUS S. RIGHT b (GND)	S,0
P9	16A	PF-OUT-1	PRE FADER OUT MAIN	AS,0
P9	16B	PF-OUT-2	PRE FADER OUT SMALL	AS,0
P9	17A	AF-OUT-1	AFTER FADER OUT MAIN	AS,0
P9	17B	AF-OUT-2	AFTER FADER OUT SMALL	AS,0
P9	18A	MIC-OUT-OV	MIC OUTPUT (LEFT) GROUND GENERIERT	0
P9	18B	AF/PF-OUT-OV	AF/PF OUT GROUND GENERIERT	0
P9	19A	MIC-a	MIC INPUT (LEFT) a	S,0
P9	19B	MIC-OUT	MIC OUTPUT (LEFT)	AS
P9	20A	MIC-OVE	MIC (LEFT) GROUND EXTERN	0
P9	20B	MIC-b	MIC INPUT (LEFT) b	S,0
P9	21A	-	N.C. ( STEREO )	0
P9	21B	-	N.C. ( STEREO )	0
P9	22A	PHANT-PWR-SW	PHANTOM SUPPLY SWITCHED	0
P9	22B	-	N.C. ( STEREO )	0
P9	23A	MLT-BUS-RET-a	MULTI BUS RETURN a	S,0
P9	23B	MLT-BUS-RET-b	MULTI BUS RETURN b	S,0
P9	24A	TB/SLATE-a	TALK BACK / SLATE INPUT a	S,B
P9	24B	PHANT-PWR-IN	PHANTOM SUPPLY BUS IN	B
P9	25A	MPX-MONO-a	MPX INPUT MONO a	S,B
P9	25B	TB/SLATE-b	TALK BACK / SLATE INPUT b	S,B
P9	26A	-	N.C. ( STEREO )	B
P9	26B	MPX-MONO-b	MPX INPUT MONO b	S,B
P9	27A	-	N.C. ( STEREO )	B
P9	27B	-	N.C. ( STEREO )	B
P9	28A	INS-OV	INSERT GROUND	0
P9	28B	-	N.C. ( STEREO )	B
P9	29A	INS-SEND-1-a	SYM INSERT MAIN OUTPUT a	S,0
P9	29B	INS-SEND-1-b	SYM INSERT MAIN OUTPUT b	S,0
P9	30A	INS-RET -1-a	SYM INSERT MAIN INPUT a	S,0
P9	30B	INS-RET -1-b	SYM INSERT MAIN INPUT b	S,0
P9	31A	INS-SEND-2-a	SYM INSERT SMALL OUTPUT a	S,0
P9	31B	INS-SEND-2-b	SYM INSERT SMALL OUTPUT b	S,0
P9	32A	INS-RET -2-a	SYM INSERT SMALL INPUT a	S,0
P9	32B	INS-RET -2-b	SYM INSERT SMALL INPUT b	S,0

INPUT MONO SWITCH BOARD

1.990.219.00 / 1.990.229.00



VALID FOR	NR. UNIT	NR. POS. LIST
INPUT MONO MCH SWITCH BOARD	1.990.219-00	1.990.219-00
INPUT MONO B SWITCH BOARD	1.990.229-00	1.990.229-00



STUDER REGENSDORF ZÜRICH	INPUT MONO SWITCH BOARD	1.990.219-00
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Ad	POS.	REF.No.	DESCRIPTION	MANUFACTURER	Ad	POS.	REF.No.	DESCRIPTION	MANUFACTURER	Ad	POS.	REF.No.	DESCRIPTION	MANUFACTURER	Ad	POS.	REF.No.	DESCRIPTION	MANUFACTURER
DL..701	-	-	red	see S701	Q...701	50.03.0515	BC 307	PNP	IC-100mA, B-100	any	R...741	57.11.3101	100 Ohm	5% 0.25W	S...731	55.15.0604	1 * A	yel/trans.	( GROUP 5 )
DL..702	-	-	yel	see S702	Q...702	50.03.0436	BC 237	NPN	IC-100mA, B-100	any	R...742	57.11.3101	100 Ohm	5% 0.25W	S...732	55.15.0605	1 * A	grn/trans.	( LMF ; 0 )
DL..703	-	-	yel	see S703	Q...703	50.03.0515	BC 307	PNP	IC-100mA, B-100	any	R...743	57.11.3101	100 Ohm	5% 0.25W	S...733	55.15.0605	1 * A	grn/trans.	( LF ; S/B )
DL..704	-	-	grn	see S704	Q...704	50.03.0436	BC 237	NPN	IC-100mA, B-100	any	RZ..701	57.88.2101	100 Ohm	SIP 8 ( 4* )	S...734	55.15.0655	1 * A	grn/grn	( + )
DL..705	-	-	grn	see S705	R...701	57.11.3101	100 Ohm	5% 0.25W	RZ..702	57.88.2101	100 Ohm	SIP 8 ( 4* )	S...735	55.15.0604	1 * A	yel/trans.	( GROUP 5 )		
DL..706	-	-	grn	see S706	R...702	57.11.3222	2.2 kOhm	5% 0.25W	RZ..703	57.88.2101	100 Ohm	SIP 8 ( 4* )	S...736	55.15.0605	1 * A	grn/trans.	( PHASE )		
DL..707	-	-	yel	see S707	R...703	57.11.3102	1 kOhm	5% 0.25W	RZ..704	57.88.2101	100 Ohm	SIP 8 ( 4* )	S...737	55.15.0605	1 * A	grn/trans.	( HF ; S/B )		
DL..708	-	-	grn	see S708	R...704	57.11.3473	47 kOhm	5% 0.25W	RZ..705	57.88.2101	100 Ohm	SIP 8 ( 4* )	S...738	55.15.0605	1 * A	grn/trans.	( HME ; 0 )		
DL..709	-	-	yel	see S709	R...705	57.11.3101	100 Ohm	5% 0.25W	RZ..706	57.88.2101	100 Ohm	SIP 8 ( 4* )	S...739	55.15.0655	1 * A	grn/grn	( - )		
DL..710	-	-	yel	see S710	R...706	57.11.3222	2.2 kOhm	5% 0.25W	RZ..707	57.88.4104	100 Ohm	SIP 9 ( 8* )	S...740	55.15.0644	1 * A	yel/yel	( SHIFT )		
DL..711	-	-	yel	see S711	R...707	57.11.3102	1 kOhm	5% 0.25W	RZ..708	57.88.4104	100 Ohm	SIP 9 ( 8* )	S...741	55.15.0622	1 * A	red/red	( INS 1 IN )		
DL..712	-	-	yel	see S712	R...708	57.11.3473	47 kOhm	5% 0.25W	RZ..709	57.88.4104	100 Ohm	SIP 9 ( 8* )	S...742	-	-	not used			
DL..713	-	-	grn	see S713	R...709	57.11.3101	100 Ohm	5% 0.25W	RZ..710	57.88.4104	100 Ohm	SIP 9 ( 8* )	S...743	-	-	not used			
DL..714	-	-	yel	see S714	R...710	57.11.3101	100 Ohm	5% 0.25W	RZ..711	57.88.4104	100 Ohm	SIP 9 ( 8* )	S...744	-	-	not used			
DL..715	-	-	grn	see S715	R...711	57.11.3101	100 Ohm	5% 0.25W	S...701	55.15.0602	1 * A	red/trans.	( X-1 )						
DL..716	-	-	red	see S716	R...712	57.11.3101	100 Ohm	5% 0.25W	S...702	55.15.0604	1 * A	yel/trans.	( GROUP 1 )						
DL..717	-	-	red	see S717	R...713	57.11.3101	100 Ohm	5% 0.25W	S...703	55.15.0644	1 * A	yel/yel	( SHIFT AUX )						
DL..718	-	-	red	see S718	R...714	57.11.3101	100 Ohm	5% 0.25W	S...704	55.15.0605	1 * A	grn/trans.	( AUX7/8 ON B )						
DL..719	-	-	yel	see S719	R...715	57.11.3101	100 Ohm	5% 0.25W	S...705	55.15.0604	1 * A	yel/trans.	( AUX7/8 ON A )						
DL..720	-	-	grn	see S720	R...716	57.11.3101	100 Ohm	5% 0.25W	S...706	55.15.0605	1 * A	grn/trans.	( AUX5/6 ON B )						
DL..721	-	-	yel	see S721	R...717	57.11.3101	100 Ohm	5% 0.25W	S...707	55.15.0604	1 * A	yel/trans.	( GROUP 4 )						
DL..722	-	-	grn	see S722	R...718	57.11.3101	100 Ohm	5% 0.25W	S...708	55.15.0605	1 * A	grn/trans.	( AUX4 ON B )						
DL..723	-	-	red	see S723	R...719	57.11.3101	100 Ohm	5% 0.25W	S...709	55.15.0604	1 * A	yel/trans.	( AUX4 ON A )						
DL..724	-	-	red	see S724	R...720	57.11.3101	100 Ohm	5% 0.25W	S...710	55.15.0604	1 * A	yel/trans.	( AUX4 ON A )						
DL..725	-	-	yel	see S725	R...721	57.11.3101	100 Ohm	5% 0.25W	S...711	55.15.0604	1 * A	yel/trans.	( GROUP 6 )						
DL..726	-	-	red	see S726	R...722	57.11.3101	100 Ohm	5% 0.25W	S...712	55.15.0604	1 * A	yel/trans.	( GROUP 8 )						
DL..727	-	-	red	see S727	R...723	57.11.3101	100 Ohm	5% 0.25W	S...713	55.15.0605	1 * A	grn/trans.	( PHANT PWR )						
DL..728	-	-	red	see S728	R...724	57.11.3101	100 Ohm	5% 0.25W	S...714	55.15.0604	1 * A	yel/trans.	( AUX5/6 ON A )						
DL..729	-	-	red	see S729	R...725	57.11.3101	100 Ohm	5% 0.25W	S...715	55.15.0605	1 * A	grn/trans.	( AUX3 ON B )						
DL..730	-	-	red	see S730	R...726	57.11.3101	100 Ohm	5% 0.25W	S...716	55.15.0622	1 * A	red/red	( EQ 1M )						
DL..731	-	-	yel	see S731	R...727	57.11.3101	100 Ohm	5% 0.25W	S...717	55.15.0622	1 * A	red/red	( INS 2 IN )						
DL..732	-	-	grn	see S732	R...728	57.11.3101	100 Ohm	5% 0.25W	S...718	55.15.0602	1 * A	red/trans.	( MIC )						
DL..733	-	-	grn	see S733	R...729	57.11.3101	100 Ohm	5% 0.25W	S...719	55.15.0604	1 * A	yel/trans.	( AUX3 ON A )						
DL..734	-	-	grn	see S734	R...730	57.11.3101	100 Ohm	5% 0.25W	S...720	55.15.0605	1 * A	grn/trans.	( AUX3 ON B )						
DL..735	-	-	yel	see S735	R...731	57.11.3101	100 Ohm	5% 0.25W	S...721	55.15.0604	1 * A	yel/trans.	( AUX1 ON A )						
DL..736	-	-	grn	see S736	R...732	57.11.3101	100 Ohm	5% 0.25W	S...722	55.15.0605	1 * A	grn/trans.	( AUX1 ON B )						
DL..737	-	-	grn	see S737	R...733	57.11.3101	100 Ohm	5% 0.25W	S...723	55.15.0622	1 * A	red/red	( FILTER IN )						
DL..738	-	-	grn	see S738	R...734	57.11.3101	100 Ohm	5% 0.25W	S...724	55.15.0602	1 * A	red/trans.	( BUS DIR )						
DL..739	-	-	grn	see S739	R...735	57.11.3101	100 Ohm	5% 0.25W	S...725	55.15.0604	1 * A	red/trans.	( BUS RET )						
DL..740	-	-	yel	see S740	R...736	57.11.3101	100 Ohm	5% 0.25W	S...726	55.15.0604	1 * A	yel/trans.	( GROUP 3 )						
DL..741	-	-	red	see S741	R...737	57.11.3101	100 Ohm	5% 0.25W	S...727	55.15.0602	1 * A	red/trans.	( TAPE RET )						
DL..742	-	-	not used		R...738	57.11.3101	100 Ohm	5% 0.25W	S...728	55.15.0602	1 * A	red/trans.	( BUS RET )						
DL..743	-	-	not used		R...739	57.11.3101	100 Ohm	5% 0.25W	S...729	55.15.0602	1 * A	red/trans.	( LINE B )						
DL..744	50.04.2701	MW 57123	red		R...740	57.11.3101	100 Ohm	5% 0.25W	S...730	55.15.0602	1 * A	red/trans.	( LINE A )						
DL..745	50.04.2701	MW 57123	red																
DL..746	50.04.2701	MW 57123	red																
DLZ.701	73.01.0128	H05P7303	7-segment display common cathode	HP	DLZ.702	73.01.0128	H05P7303	7-segment display common cathode	HP										
MP..701	1.990.219.11	1 pcs	Input Mono PCB		MP..702	1.990.100.05	6 pcs	Querschnittlar											
MP..703	53.03.0218	26 pcs	single line socket		MP..704	1.990.219.04	1 pcs	Nr.Étiquette 5*20											

CE=Ceramic, CF=Carbon Film, EL=Electrolytic, MF=Metal Film, PE=Polyester, PP=Polypropylen, PS=Polystyrol  
 MANUFACTURER: Bu=Burdyn, Ex=Exar, Fc=Fairchild, GI=General Instrument, HP=Hewlett Packard, ITT=Intermetall, Mot=Motorola, Nat=National (Matsushita), NS=National Semiconductor, Ph=Philips, Ra=Raytheon, Sig=Signetics, Six=Siliconix, St=Studer, TI=Texas Instrument

1.990.219.00 INPUT MONO SWITCH BOARD TA 90/03/2600

## INPUT MONO B SWITCH BOARD

1.990.229.00

Ad	..POS..	..REF.No..	DESCRIPTION	MANUFACTURER	Ad	..POS..	..REF.No..	DESCRIPTION	MANUFACTURER	
DL..701	.	.	red	see S701						
DL..702	.	.	yel	see S702	R..741	57.11.3101	100 Ohm	5% 0.25W		
DL..703	.	.	yel	see S703	R..742	57.11.3101	100 Ohm	5% 0.25W		
DL..704	.	.	grn	see S704	R..743	57.11.3101	100 Ohm	5% 0.25W		
DL..705	.	.	yel	see S705						
DL..706	.	.	grn	see S706	RZ..701	57.88.2101	100 Ohm	SIP 8 ( 4* )		
DL..707	.	.	yel	see S707	RZ..702	57.88.2101	100 Ohm	SIP 8 ( 4* )		
DL..708	.	.	grn	see S708	RZ..703	57.88.2101	100 Ohm	SIP 8 ( 4* )		
DL..709	.	.	yel	see S709	RZ..704	57.88.2101	100 Ohm	SIP 8 ( 4* )		
DL..710	.	.	yel	see S710	RZ..705	57.88.2101	100 Ohm	SIP 8 ( 4* )		
					RZ..706	57.88.2101	100 Ohm	SIP 8 ( 4* )		
DL..711	.	.	yel	see S711	RZ..707	57.88.4104	100 kOhm	SIP 9 ( 8* )		
DL..712	.	.	yel	see S712	RZ..708	57.88.4104	100 kOhm	SIP 9 ( 8* )		
DL..713	.	.	grn	see S713	RZ..709	57.88.4104	100 kOhm	SIP 9 ( 8* )		
DL..714	.	.	yel	see S714	RZ..710	57.88.4104	100 kOhm	SIP 9 ( 8* )		
DL..715	.	.	grn	see S715						
DL..716	.	.	red	see S716	RZ..711	57.88.4104	100 kOhm	SIP 9 ( 8* )		
DL..717	.	.	red	see S717	RZ..712	57.88.4104	100 kOhm	SIP 9 ( 8* )		
DL..718	.	.	red	see S718						
DL..719	.	.	yel	see S719	S...701	55.15.0602	1 * A	red/trans. ( X-1 )		
DL..720	.	.	grn	see S720	S...702	55.15.0604	1 * A	yel/trans. ( GROUP 1 )		
					S...703	55.15.0644	1 * A	yel/yel	RES )	
DL..721	.	.	yel	see S721	S...704	55.15.0605	1 * A	grn/trans. ( AUX7/8 PRE )		
DL..722	.	.	grn	see S722	S...705	55.15.0604	1 * A	yel/trans. ( AUX7/8 OM )		
DL..723	.	.	red	see S723	S...706	55.15.0605	1 * A	grn/trans. ( AUX5/6 PRE )		
DL..724	.	.	not used		S...707	55.15.0604	1 * A	yel/trans. ( )		
DL..725	.	.	yel	see S725	S...708	55.15.0605	1 * A	grn/trans. ( AUX4 PRE )		
DL..726	.	.	yel	see S726	S...709	55.15.0604	1 * A	yel/trans. ( AUX2 OM )		
DL..727	.	.	not used		S...710	55.15.0604	1 * A	yel/trans. ( AUX4 OM )		
DL..728	.	.	not used							
DL..729	.	.	red	see S729	S...711	55.15.0604	1 * A	yel/trans. ( GROUP 6 )		
DL..730	.	.	red	see S730	S...712	55.15.0604	1 * A	yel/trans. ( GROUP 6 )		
					S...713	55.15.0605	1 * A	grn/trans. ( PHANT PMW )		
DL..731	.	.	yel	see S731	S...714	55.15.0604	1 * A	yel/trans. ( AUX5/6 OM )		
DL..732	.	.	grn	see S732	S...715	55.15.0605	1 * A	grn/trans. ( AUX5 PRE )		
DL..733	.	.	grn	see S733	S...716	55.15.0622	1 * A	red/red	( EQ IN )	
DL..734	.	.	grn	see S734	S...717	55.15.0622	1 * A	red/red	( INS IN )	
DL..735	.	.	yel	see S735	S...718	55.15.0602	1 * A	red/trans. ( MIC )		
DL..736	.	.	grn	see S736	S...719	55.15.0604	1 * A	yel/trans. ( AUX3 OM )		
DL..737	.	.	grn	see S737	S...720	55.15.0605	1 * A	grn/trans. ( AUX2 PRE )		
DL..738	.	.	grn	see S738						
DL..739	.	.	grn	see S739	S...721	55.15.0604	1 * A	yel/trans. ( AUX1 OM )		
DL..740	.	.	yel	see S740	S...722	55.15.0605	1 * A	grn/trans. ( AUX1 PRE )		
					S...723	55.15.0622	1 * A	red/red	( FILTER IN )	
DL..741	.	.	grn	see S741	S...724	55.15.0604	1 * A	yel/trans. ( GROUP 1 )		
DL..742	.	.	not used		S...725	55.15.0604	1 * A	yel/trans. ( GROUP 3 )		
DL..743	.	.	not used		S...726	55.15.0604	1 * A	yel/trans. ( )		
DL..744	50.04.2701		WV 57123	red	S...727	.	.	not used		
DL..745	50.04.2701		WV 57123	red	S...728	.	.	not used		
DL..746	50.04.2701		WV 57123	red	S...729	55.15.0602	1 * A	red/trans. ( LINE B )		
					S...730	55.15.0602	1 * A	red/trans. ( LINE A )		
DLZ.701	73.01.0128		HDSPT303	7-segment display common cathode	HP					
DLZ.702	73.01.0128		HDSPT303	7-segment display common cathode	HP					
MP..701	1.990.219.11		1 pcs	Input Mono PCB		S...731	55.15.0604	1 * A	yel/trans. ( GROUP 5 )	
MP..702	1.990.100.05		6 pcs	Querrinthalter		S...732	55.15.0605	1 * A	grn/trans. ( LNF ; Q )	
MP..703	53.03.0218		26 pcs	single line socket		S...733	55.15.0605	1 * A	grn/trans. ( LF ; S/B )	
MP..704	1.990.229.04		1 pcs	W-Litkarte 5*20		S...734	55.15.0655	1 * A	grn/grn	( + )
Q...701	50.03.0515	BC 307	PMP	IC=100mA, B=100	any	S...735	55.15.0604	1 * A	yel/trans. ( GROUP 5 )	
Q...702	50.03.0436	BC 237	MPM	IC=100mA, B=100	any	S...736	55.15.0605	1 * A	grn/trans. ( PHASE )	
Q...703	50.03.0515	BC 307	PMP	IC=100mA, B=100	any	S...737	55.15.0605	1 * A	grn/trans. ( HF ; S/B )	
Q...704	50.03.0436	BC 237	MPM	IC=100mA, B=100	any	S...738	55.15.0605	1 * A	grn/trans. ( HF ; Q )	
						S...739	55.15.0655	1 * A	grn/grn	( - )
						S...740	55.15.0644	1 * A	yel/yel	( SWIFT )
R...701	57.11.3101	100 Ohm	5% 0.25W		S...741	55.15.0605	1 * A	grn/trans. ( PRE EQ )		
R...702	57.11.3222	2.2 kOhm	5% 0.25W		S...742	.	.	not used		
R...703	57.11.3102	1 kOhm	5% 0.25W		S...743	.	.	not used		
R...704	57.11.3473	47 kOhm	5% 0.25W							
R...705	57.11.3101	100 Ohm	5% 0.25W		W...701	.	.	not used		
R...706	57.11.3222	2.2 kOhm	5% 0.25W		W...702	.	.	not used		
R...707	57.11.3102	1 kOhm	5% 0.25W		W...703	.	.	not used		
R...708	57.11.3473	47 kOhm	5% 0.25W		W...704	.	.	not used		
R...709	57.11.3101	100 Ohm	5% 0.25W							
R...710	57.11.3101	100 Ohm	5% 0.25W							
R...711	57.11.3101	100 Ohm	5% 0.25W							
R...712	57.11.3101	100 Ohm	5% 0.25W							
R...713	57.11.3101	100 Ohm	5% 0.25W							
R...714	57.11.3101	100 Ohm	5% 0.25W							
R...715	57.11.3101	100 Ohm	5% 0.25W							
R...716	57.11.3101	100 Ohm	5% 0.25W							
R...717	57.11.3101	100 Ohm	5% 0.25W							
R...718	.	.	not used							
R...719	57.11.3101	100 Ohm	5% 0.25W							
R...720	57.11.3101	100 Ohm	5% 0.25W							
R...721	57.11.3101	100 Ohm	5% 0.25W							
R...722	57.11.3101	100 Ohm	5% 0.25W							
R...723	57.11.3101	100 Ohm	5% 0.25W							
R...724	.	.	not used							
R...725	57.11.3101	100 Ohm	5% 0.25W							
R...726	57.11.3101	100 Ohm	5% 0.25W							
R...727	57.11.3101	100 Ohm	5% 0.25W							
R...728	57.11.3101	100 Ohm	5% 0.25W							
R...729	.	.	not used							
R...730	57.11.3101	100 Ohm	5% 0.25W							
R...731	57.11.3101	100 Ohm	5% 0.25W							
R...732	57.11.3101	100 Ohm	5% 0.25W							
R...733	57.11.3101	100 Ohm	5% 0.25W							
R...734	57.11.3101	100 Ohm	5% 0.25W							
R...735	57.11.3101	100 Ohm	5% 0.25W							
R...736	57.11.3101	100 Ohm	5% 0.25W							
R...737	57.11.3101	100 Ohm	5% 0.25W							
R...738	57.11.3101	100 Ohm	5% 0.25W							
R...739	57.11.3101	100 Ohm	5% 0.25W							
R...740	57.11.3101	100 Ohm	5% 0.25W							

CE=Ceramic, CF=Carbon Film, EL=Electrolytic, MF=Metal Film, PE=Polyester, PP=Polypropylen, PS=Polystyrol

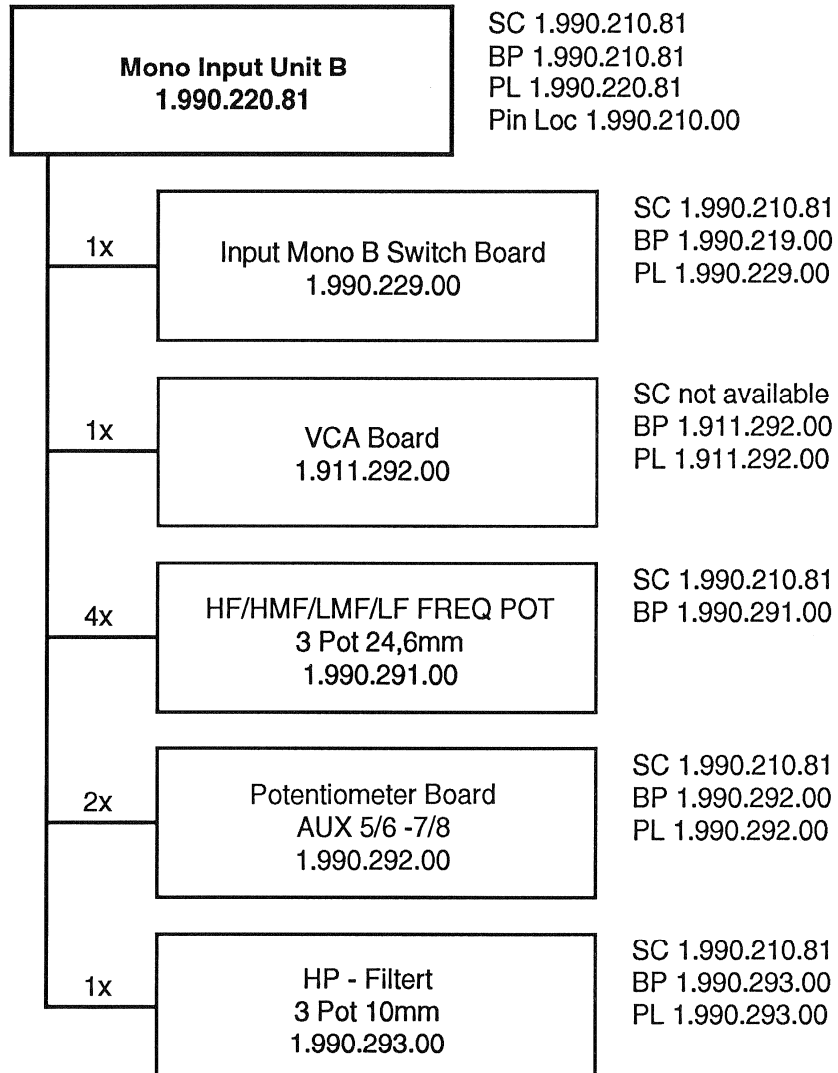
MANUFACTURER: Bu=Burdyn, Ev=Exar, Fc=Fairchild, GI=General Instrument, HP=Hewlett Packard, ITT=Intermetal, Mot=Motorola, Nat=National (Matsushita), NS=National Semiconductors, Ph=Philips, Ra=Raytheon, Sig=Signetics, Six=Siliconix, St=Studer, TI=Texas Instrument

1.990.229.00 INPUT MONO B SWITCH BOARD TA 90/03/3000

END

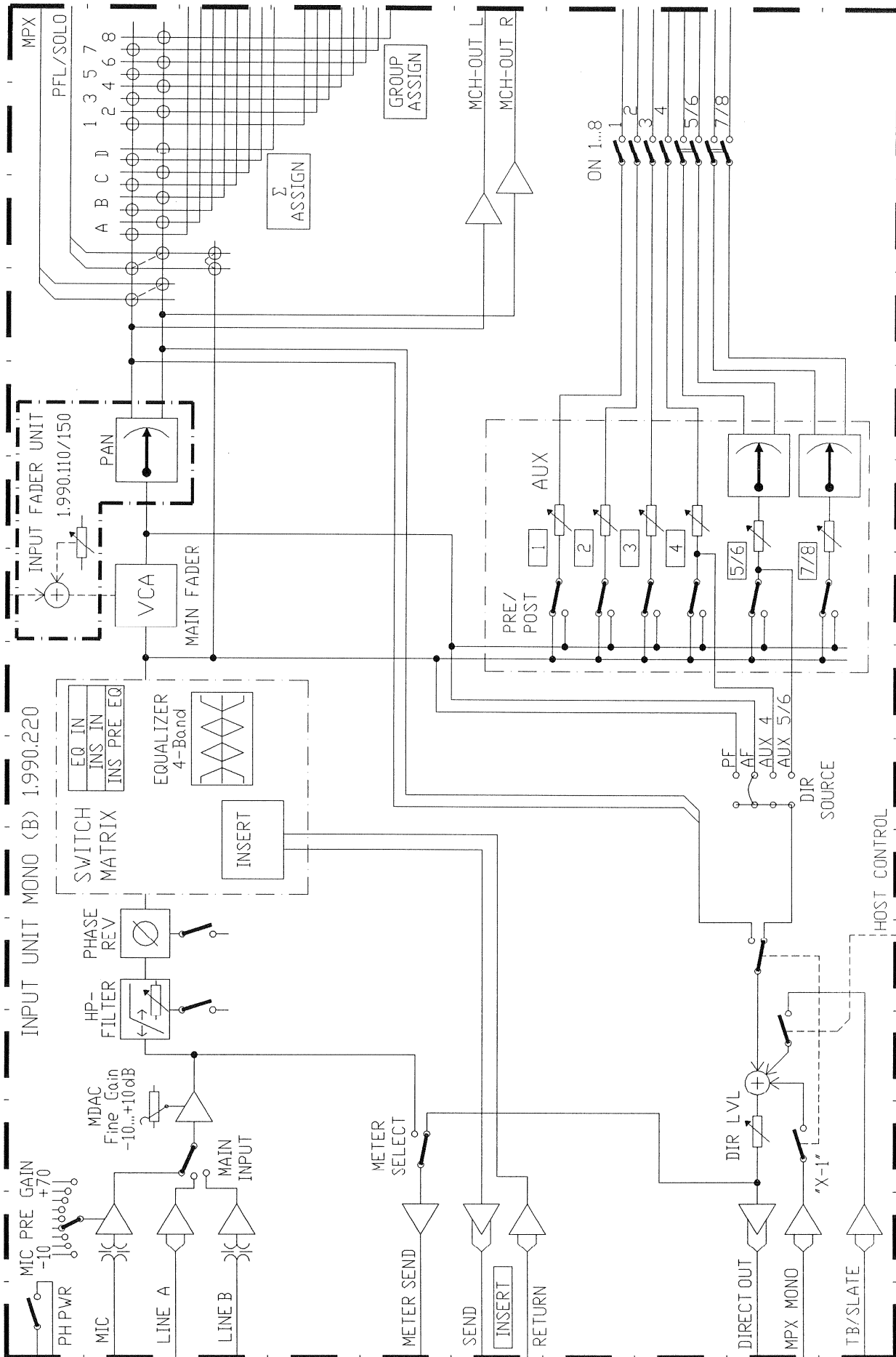
## Mono Input Unit B

1.990.220.81



SC: Schema      Circuit Diagram  
 BP: Bestückungsplan    PCB Layout  
 PL: Positionsliste      Positional List

MONO INPUT UNIT B 1.990.220.81





INPUT UNIT MONO B

1.990.220.81

Ad	..POS.	..REF.No...	DESCRIPTION.....	MANUFACTURER	Ad	..POS.	..REF.No...	DESCRIPTION.....	MANUFACTURER
A.....1		1.911.292.00	VCA	St E4	C....82		59.34.7151	150 pF 2%	CE
A.....2		0	not used	E3	C....83		59.22.3101	100 uF -20%	10V EL
A.....3		1.990.229.00	input mono B switch board	St	C....84		59.06.0104	100 nF	PE
A.....4		1.023.402.03	1/40" flatcable connect. 260mm 20pol	St	C....85		59.06.0104	100 nF	PE
A.....5		1.023.402.01	1/40" flatcable connect. 120mm 20pol	St	C....86		59.22.6220	22 uF -20%	16V EL
A.....6		1.023.402.01	1/40" flatcable connect. 120mm 20pol	St	C....87		59.34.7151	150 pF 2%	CE
A.....7		1.990.220.94	Index 2 cable list input unit mono B	St	C....88		59.22.3101	100 uF -20%	10V EL
A.....8		1.990.291.00	3 pot. 24.6mm board	St	C....89		59.22.3470	47 uF -20%	10V EL
A.....9		1.990.291.00	3 pot. 24.6mm board	St	C....90		59.22.3470	47 uF -20%	10V EL
A.....10		1.990.291.00	3 pot. 24.6mm board	St	C....91		59.06.5334	330 nF 1%	PE
A.....11		1.990.291.00	3 pot. 24.6mm board	St	C....92		59.32.4152	1.5 nF	CE
A.....12		1.990.292.00	5 pot. 10mm board	St B6	C....93		59.06.5334	330 nF 1%	PE
A.....13		1.990.292.00	5 pot. 10mm board	St A6	C....94		59.22.6220	22 uF -20%	16V EL
A.....14		1.990.293.00	3 pot. 10mm board	St T6	C....95		59.34.2330	33 pF	CE
A.....15		0	not used	N6	C....96		59.22.3101	100 uF -20%	10V EL
C....1		59.05.1681	680 pF 1%	N3	C....97		0	not used	A7
C....2		59.05.1681	680 pF 1%	N3	C....98		0	not used	A7
C....3		59.06.0332	3.3 nF 10%	N3	C....99		0	not used	A7
C....4		59.32.2471	470 pF	M4	C...100		59.32.4152	1.5 nF	CE (LS) H5
C....5		59.06.0104	100 nF	N4	C...101		59.22.3101	100 uF -20%	10V EL
C....6		59.22.3101	100 uF -20%	M4	C...102		59.22.3101	100 uF -20%	10V EL
C....7		59.34.2220	22 pF	N4	C...103		59.22.3101	100 uF -20%	10V EL
C....8		59.34.4560	56 pF	N4	C...104		59.34.7151	150 pF 2%	CE
C....9		59.34.5471	470 pF	N4	C...105		59.34.4101	100 pF	CE
C....10		59.22.3471	470 pF -20%	N5	C...106		59.06.0104	100 nF	PE
C....11		59.22.3101	100 uF -20%	M4	C...107		59.06.0104	100 nF	PE
C....12		59.22.6220	22 uF -20%	N4	C...108		59.22.2221	220 uF -20%	6V EL
C....13		59.34.2330	33 pF	N4	C...109		59.22.2221	220 uF -20%	6V EL
C....14		59.22.2221	220 uF -20%	M4	C...110		0	not used	A
C....15		59.22.3101	100 uF -20%	M4	C...111		0	not used	A
C....16		0	not used	N4	C...112		0	not used	A
C....17		0	not used	N4	C...113		0	not used	A
C....18		0	not used	M4	C...114		0	not used	A
C....19		0	not exist		C...115		59.34.4101	100 pF	CE
C....20		0	not exist		C...116		59.34.2220	22 pF	CE
C....21		0	not used	N4	C...117		0	not used	A
C....22		59.22.3101	100 uF -20%	C3	C...118		0	not used	A
C....23		59.22.3101	100 uF -20%	C2	C...119		0	not used	A
C....24		59.34.5471	470 pF	C2	C...120		0	not used	A
C....25		59.05.1102	1 nF 1%	C2	C...121		59.22.3101	100 uF -20%	10V EL
C....26		59.05.1102	1 nF 1%	C2	C...122		59.06.0104	100 nF	PE
C....27		59.34.7151	150 pF 2%	M2	C...123		59.06.0104	100 nF	PE
C....28		59.34.7151	150 pF 2%	M2	C...124		59.22.3101	100 uF -20%	10V EL
C....29		59.22.3101	100 uF -20%	M3	C...125		59.22.3101	100 uF -20%	10V EL
C....30		59.34.5471	470 pF	M2	C...126		59.22.6220	22 uF -20%	16V EL
C....31		59.05.1102	1 nF 1%	N2	C...127		59.22.6220	22 uF -20%	16V EL
C....32		59.05.1102	1 nF 1%	N2	C...128		59.05.2472	4700 pF 2.5%	PP
C....33		59.06.5152	1.5 nF 10%	M2	C...129		59.05.2152	1500 pF 2.5%	PP
C....34		59.22.2221	220 uF -20%	M2	C...130		59.06.0682	6.8 nF	PE
C....35		59.34.2470	47 pF	N2	C...131		59.06.0682	6.8 nF	PE
C....36		59.22.3101	100 uF -20%	N2	C...132		59.05.2472	4700 pF 2.5%	PP
C....37		0	not used	M2	C...133		59.05.2472	4700 pF 2.5%	PP
C....38		0	not used	N1	C...134		59.22.6220	22 uF -20%	16V EL
C....39		0	not used	N1	C...135		59.22.3101	100 uF -20%	10V EL
C....40		0	not used	N1	C...136		59.22.3101	100 uF -20%	10V EL
C....41		0	not used	N1	C...137		59.06.0682	6.8 nF	PE
C....42		0	not used	N0	C...138		59.06.0682	6.8 nF	PE
C....43		0	not used	N0	C...139		59.22.6220	22 uF -20%	16V EL
C....44		0	not used	N1	C...140		59.22.3101	100 uF -20%	10V EL
C....45		0	not used	N1	C...141		59.99.1400	15 nF 2.5%	PP
C....46		0	not used	N1	C...142		59.99.1400	15 nF 2.5%	PP
C....47		0	not used	M1	C...143		59.22.6220	22 uF -20%	16V EL
C....48		0	not used	M1	C...144		59.22.3101	100 uF -20%	10V EL
C....49		0	not used	N1	C...145		59.22.3101	100 uF -20%	10V EL
C....50		0	not used	N0	C...146		59.06.0682	6.8 nF	PE
C....51		0	not used	N0	C...147		59.06.0682	6.8 nF	PE
C....52		59.06.0104	100 nF	M1	C...148		59.22.6220	22 uF -20%	16V EL
C....53		59.06.0104	100 nF	M1	C...149		59.22.3101	100 uF -20%	10V EL
C....54		0	not used	N1	C...150		59.22.6220	22 uF -20%	16V EL
C....55		0	not used	M1	C...151		59.22.3101	100 uF -20%	10V EL
C....56		0	not used	M1	C...152		59.12.7104	100 nF 1%	PS
C....57		59.06.0104	100 nF	I3	C...153		59.06.0682	6.8 nF	PE
C....58		0	not exist		C...154		59.06.0682	6.8 nF	PE
C....59		0	not exist		C...155		59.12.7333	33 nF 1%	PS
C....60		0	not exist		C...156		59.22.6220	22 uF -20%	16V EL
C....61		59.22.3101	100 uF -20%	L2	C...157		59.22.3101	100 uF -20%	10V EL
C....62		59.34.7151	150 pF 2%	L2	C...158		59.22.3101	100 uF -20%	10V EL
C....63		59.22.6220	22 uF -20%	L2	C...159		0	not exist	F3
C....64		0	not used	L2	C...160		0	not exist	
C....65		0	not used	L3	C...161		59.22.3101	100 uF -20%	10V EL
C....66		59.34.7151	150 pF 2%	L3	C...162		59.22.3101	100 uF -20%	10V EL
C....67		0	not exist	L2	C...163		59.34.7151	150 pF 2%	CE
C....68		0	not exist		C...164		59.34.7151	150 pF 2%	CE
C....69		59.22.6220	22 uF -20%	L4	C...165		59.22.3101	100 uF -20%	10V EL
C....70		59.34.7151	150 pF 2%	M5	C...166		0	not used	A
C....71		59.22.3101	100 uF -20%	L5	C...167		0	not used	A
C....72		59.22.6100	10 uF -20%	L5	C...168		0	not used	A
C....73		59.22.6100	10 uF -20%	L5	C...169		0	not used	A
C....74		59.06.0104	100 nF	L5	C...170		0	not used	A
C....75		59.22.6220	22 uF -20%	L6	C...171		59.22.6220	22 uF -20%	16V EL
C....76		59.34.0229	2.2 pF	L4	C...172		59.34.7151	150 pF 2%	CE
C....77		59.22.3101	100 uF -20%	L5	C...173		59.22.3101	100 uF -20%	10V EL
C....78		0	not exist		C...174		59.34.7151	150 pF 2%	CE
C....79		0	not exist		C...175		59.22.3101	100 uF -20%	10V EL
C....80		59.06.0224	220 nF	L5	C...176		0	not used	A
C....81		59.22.6220	22 uF -20%	L5	C...177		0	not used	A
					C...178		0	not used	A
					C...179		0	not used	A



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Ad	POS.	REF.No.	DESCRIPTION	MANUFACTURER	Ad	POS.	REF.No.	DESCRIPTION	MANUFACTURER	
C...180	.	0	not used	A	H2	C...277	.	0	not used	L1
C...181	59.26.1220	22 uF	-20%	10V SAL	F4	C...278	.	0	not exist	L0
C...182	59.26.5109	1 uF	-20%	10V SAL	F4	C...279	59.22.2221	220 uF	-20%	6V EL
C...183	59.34.2330	33 pF	2%	CF	na	C...280	59.22.2221	220 uF	-20%	6V EL
C...184	59.22.3471	470 uF	-20%	10V EL	D4	C...281	59.06.5103	10 nF		PE
C...185	.	0	not used	A	F3	C...282	59.34.2330	33 pF		CE
C...186	.	0	not used	A	F3	C...283	59.34.2330	33 pF		CE
C...187	.	0	not used	A	D3	C...284	59.34.2330	33 pF		CE
C...188	.	0	not used	A	D3	C...285	59.34.2330	33 pF		CE
C...189	59.06.0104	100 nF		PE	D3	C...286	59.34.2330	33 pF		CE
C...190	59.06.0104	100 nF		PE	D3	C...287	59.34.2330	33 pF		CE
C...191	59.22.3101	100 uF	-20%	10V EL	D6	C...288	.	0	not used	A
C...192	59.34.7151	150 pF	2%	CE	D6	C...289	59.34.2220	22 pF		CE
C...193	59.22.6220	22 uF	-20%	16V EL	D6	C...290	59.34.2330	33 pF		CE
C...194	59.22.3101	100 uF	-20%	10V EL	D6	C...291	59.34.2330	33 pF		CE
C...195	59.34.7151	150 pF	2%	CE	D6	C...292	.	0	not used	A
C...196	59.22.6220	22 uF	-20%	16V EL	D6	C...293	.	0	not used	A
C...197	59.22.3101	100 uF	-20%	10V EL	C6	C...294	.	0	not used	A
C...198	59.34.7151	150 pF	2%	CE	C6	C...295	59.06.0104	100 nF		PE
C...199	59.22.6220	22 uF	-20%	16V EL	C6	C...296	59.06.0104	100 nF		PE
C...200	59.22.3101	100 uF	-20%	10V EL	C6	C...297	59.06.5103	10 nF		PE (LS)
C...201	59.34.7151	150 pF	2%	CE	D6	C...501	59.06.5103	10 nF		PE (LS)
C...202	59.22.6220	22 uF	-20%	16V EL	C6	C...502	.	0	not exist	
C...203	59.22.3101	100 uF	-20%	10V EL	B6	C...503	59.06.0104	100 nF		PE
C...204	59.34.7151	150 pF	2%	CE	B6	C...504	.	0	not used	A
C...205	59.22.6220	22 uF	-20%	16V EL	B6	C...505	.	0	not used	A
C...206	59.22.3101	100 uF	-20%	10V EL	C6	C...506	.	0	not used	A
C...207	59.34.7151	150 pF	2%	CE	C6	C...507	59.34.4101	100 pF		CE
C...208	59.22.6220	22 uF	-20%	16V EL	C6	C...508	.	0	not used	A
C...209	59.06.0104	100 nF		PE	D5	C...508	59.34.4101	100 pF		CE
C...210	59.06.0104	100 nF		PE	D5	C...509	.	0	not used	A
C...211	.	0	not used		D5	C...510	.	0	not used	A
C...212	59.34.5561	560 pF		CE	B2	C...511	.	0	not used	A
C...213	59.34.5561	560 pF		CE	B2	C...512	.	0	not used	A
C...214	59.34.4101	100 pF		CE	E4	C...513	59.34.2330	33 pF		CE
C...215	.	0	not used	A	E3	C...514	.	0	not used	A
C...216	59.06.0104	100 nF		PE	B3	C...515	.	0	not used	A
C...217	59.22.6220	22 uF	-20%	16V EL	C3	C...516	.	0	not used	A
C...218	59.34.7151	150 pF	2%	CE	C3	C...517	.	0	not used	A
C...219	59.22.3101	100 uF	-20%	10V EL	C3	C...518	59.34.4101	100 pF		CE
C...220	59.22.6220	22 uF	-20%	16V EL	B3	C...519	59.34.4101	100 pF		CE
C...221	59.34.7151	150 pF	2%	CE	B3	C...520	.	0	not used	A
C...222	59.22.3101	100 uF	-20%	10V EL	B3	C...521	.	0	not used	A
C...223	.	0	not used	A	B3	C...522	59.34.4221	220 pF		CE
C...224	.	0	not used	A	B3	C...523	59.34.4101	100 pF		CE
C...225	.	0	not used	A	B3	C...524	59.34.4101	100 pF		CE
C...226	.	0	not used	A	B3	C...525	.	0	not used	A
C...227	.	0	not used	A	A3	C...526	59.34.4101	100 pF		CE
C...228	.	0	not used	A	B3	C...527	59.34.4101	100 pF		CE
C...229	59.06.0104	100 nF		PE	M5	C...528	59.34.4101	100 pF		CE
C...230	59.06.0104	100 nF		PE	M5	C...529	.	0	not used	A
C...231	.	0	not used	A	N5	C...530	.	0	not exist	
C...232	.	0	not used	A	N5	C...531	.	0	not exist	
C...233	.	0	not used	A	N6	C...532	.	0	not exist	
C...234	.	0	not used	A	N6	C...533	.	0	not exist	
C...235	59.34.2220	22 pF	2%	CE	N6	C...534	.	0	not used	A
C...236	59.34.2220	22 pF	2%	CE	N6	C...535	.	0	not used	A
C...237	59.22.3101	100 uF	-20%	10V EL	M6	C...536	.	0	not used	A
C...238	59.34.2220	22 pF	2%	CE	M6	C...537	.	0	not used	A
C...239	59.34.2220	22 pF	2%	CE	M6	C...537	59.34.4101	100 pF		CE
C...240	59.22.3101	100 uF	-20%	10V EL	M6	C...538	.	0	not used	A
C...241	59.22.6220	22 uF	-20%	16V EL	I1	C...539	.	0	not exist	
C...242	59.34.7151	150 pF	2%	CE	I1	C...540	.	0	not exist	
C...243	59.22.6220	22 uF	-20%	16V EL	H1	C...541	.	0	not exist	
C...244	59.34.7151	150 pF	2%	CE	H1	C...542	.	0	not exist	
C...245	.	0	not used	A	CO	C...543	.	0	not exist	
C...246	59.22.4101	100 uF	-20%	16V EL	B0	C...544	.	0	not exist	
C...247	59.22.4101	100 uF	-20%	16V EL	B0	C...545	.	0	not used	A
C...248	59.22.4101	100 uF	-20%	16V EL	B0	C...546	59.34.4101	100 pF		CE
C...249	59.06.0104	100 nF		PE	B0	C...547	59.34.4101	100 pF		CE
C...250	59.06.0104	100 nF		PE	B0	C...548	.	0	not used	A
C...251	59.06.0104	100 nF		PE	B0	C...549	59.34.4101	100 pF		CE
C...252	59.34.7151	150 pF		CE	B1	C...550	.	0	not used	A
C...253	59.34.5561	560 pF		CE	C1	C...551	.	0	not used	A
C...254	59.22.4471	470 uF	-20%	16V EL	A1	C...552	.	0	not used	A
C...255	59.22.4101	100 uF	-20%	16V EL	A1	C...553	.	0	not used	A
C...256	.	0	not exist		B3	C...554	59.34.4101	100 pF		CE
C...257	59.22.3101	100 uF	-20%	10V EL	N6	C...555	.	0	not used	A
C...258	59.06.5103	10 nF		PE	CO	C...556	59.99.1101	100 pF		CE
C...259	.	0	not used	A	L7	C...557	.	0	not used	A
C...260	.	0	not used	A	L6	C...558	59.34.4101	100 pF		CE
C...261	.	0	not used	A	M1	C...559	59.34.4101	100 pF		CE
C...262	.	0	not used	A	L1	C...560	.	0	not used	A
C...263	.	0	not used	A	M1	C...561	.	0	not used	A
C...264	.	0	not used	A	L1	C...562	59.99.1101	100 pF		CE
C...265	.	0	not used	A	MO	C...563	59.34.4101	100 pF		CE
C...266	.	0	not used	A	LO	C...564	.	0	not used	A
C...267	.	0	not exist			C...565	.	0	not used	A
C...268	.	0	not exist			C...566	59.99.1101	100 pF		CE
C...269	.	0	not used	A	G9	C...567	.	0	not used	A
C...270	59.22.3101	100 uF	-20%	10V EL	N6	C...568	.	0	not used	A
C...271	59.22.3101	100 uF	-20%	10V EL	N7	C...569	.	0	not used	A
C...272	59.22.3101	100 uF	-20%	10V EL	N7	C...570	.	0	not used	A
C...273	59.22.3101	100 uF	-20%	10V EL	L1	C...571	.	0	not used	A
C...274	59.22.3101	100 uF	-20%	10V EL	L1	C...572	.	0	not used	A
C...275	59.34.7151	150 pF	2%	CE	L1	C...573	.	0	not used	A
C...276	59.34.4101	100 pF		CE	L1	C...574	59.34.4101	100 pF		CE





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Ad	POS	REF.No	DESCRIPTION	MANUFACTURER	Ad	POS	REF.No	DESCRIPTION	MANUFACTURER
C...575	.	0	not used	A	D...13	50.04.0125	1N4448		any I4
C...576	.	0	not used	A	D...14	50.04.0125	1N4448		any K0
C...577	.	0	not used	A	D...15	50.04.0125	1N4448		any H2
C...578	.	0	not exist		D...16	.	0	not used	A
C...579	.	0	not used	A	D...17	.	0	not used	A
C...580	.	0	not used	A	D...18	50.04.0125	1N4448		any E4
C...581	59.34.4101	100 pF		CE	D...19	.	0	not used	A
C...582	.	0	not used	A	D...20	50.04.0125	1N4448		any E3
C...583	59.99.1101	100 pF		CE	D...21	.	0	not used	
C...584	59.99.1101	100 pF		CE	D...22	.	0	not used	A
C...585	59.34.4101	100 pF		CE	D...23	.	0	not used	
C...586	59.34.4101	100 pF		CE	D...24	50.04.1118	6V2	z-diode	any L4
C...587	.	0	not used	A	D...25	50.04.0125	1N4448		any K5
C...588	.	0	not used	A	D...26	50.04.0122	1N4001	1A / 50V	any B0
C...589	59.34.4101	100 pF		CE	D...27	50.04.0122	1N4001	1A / 50V	any B0
C...590	59.34.4101	100 pF		CE	D...28	50.04.0125	1N4448		any B1
C...591	59.34.4101	100 pF		CE	D...29	50.04.0125	1N4448		any B1
C...592	.	0	not used	A	D...30	50.04.0125	1N4448		any B1
C...593	59.34.4101	100 pF		CE	D...31	50.04.0125	1N4448		any B1
C...594	59.34.4101	100 pF		CE	D...32	50.04.0122	1N4001	1A / 50V	any B1
C...595	.	0	not used	A	D...33	50.04.0122	1N4001	1A / 50V	any B1
C...596	59.34.4101	100 pF		CE	D...34	50.04.0125	1N4448		any B1
C...597	59.34.4101	100 pF		CE	D...35	50.04.0125	1N4448		any B1
C...598	59.34.4101	100 pF		CE	D...36	50.04.0125	1N4448		any A5
C...599	.	0	not used	A	D...37	50.04.0125	1N4448		any A5
C...600	59.34.4101	100 pF		CE	D...38	50.04.0127	BAT 85	schottky	any A9
C...601	59.34.4101	100 pF		CE	D...39	50.04.0127	BAT 85	schottky	any A9
C...602	.	0	not used	A	D...40	.	0	not used	A
C...603	.	0	not used	A	D...41	.	0	not used	A
C...604	59.34.4101	100 pF		CE	D...42	50.04.0125	1N4448		any L2
C...605	59.99.1101	100 pF		CE	D...43	50.04.0125	1N4448		any L2
C...606	59.34.4101	100 pF		CE	D...44	50.04.0125	1N4448		any A8
C...607	.	0	not used	A	D...45	50.04.0122	1N4001	1A / 50V	any C0
C...608	59.34.4101	100 pF		CE	D...46	50.04.0122	1N4001	1A / 50V	any C0
C...609	.	0	not used	A	D...47	50.04.0125	1N4448		any M9
C...610	.	0	not used	A	D...50	50.04.0125	1N4448		any A5
C...611	.	0	not used	A	D...502	50.04.0125	1N4448		any A4
C...612	.	0	not used	A	D...503	50.04.0125	1N4448		any A4
C...613	59.34.4101	100 pF		CE	D...504	50.04.0125	1N4448		any A5
C...614	.	0	not used	A	D...505	50.04.0125	1N4448		any A4
C...615	.	0	not used	A	D...506	50.04.0125	1N4448		any A4
C...616	59.34.4101	100 pF		CE	D...507	50.04.0125	1N4448		any A4
C...617	59.34.4101	100 pF		CE	D...508	50.04.0125	1N4448		any A5
C...618	.	0	not used	A	D...509	50.04.0125	1N4448		any A4
C...619	59.34.4101	100 pF		CE	D...510	50.04.0125	1N4448		any A4
C...620	59.34.4101	100 pF		CE	D...511	50.04.0125	1N4448		any A5
C...621	.	0	not used	A	D...512	50.04.0125	1N4448		any A4
C...622	59.34.4101	100 pF		CE	D...513	50.04.0125	1N4448		any A4
C...623	.	0	not used	A	D...514	50.04.0125	1N4448		any A4
C...624	.	0	not used	A	D...515	50.04.0125	1N4448		any N8
C...625	59.34.4101	100 pF		CE	D...516	50.04.0125	1N4448		any N7
C...626	59.34.4101	100 pF		CE	D...517	50.04.0125	1N4448		any N9
C...627	.	0	not used	A	D...518	50.04.0125	1N4448		any N8
C...628	59.34.4101	100 pF		CE	D...519	50.04.0125	1N4448		any N8
C...629	.	0	not used	A	D...520	.	0	not used	G9
C...630	59.34.4101	100 pF		CE	D...521	50.04.0125	1N4448		any A7
C...631	.	0	not used	A	D...522	50.04.0127	BAT 85	schottky	any A7
C...632	.	0	not used	A	D...523	50.04.0127	BAT 85	schottky	any A8
C...633	.	0	not used	A	D...524	50.04.0125	1N4448		any A8
C...634	59.99.1101	100 pF		CE	D...525	.	0	not used	D7
C...635	59.99.1101	100 pF		CE	D...526	50.04.0125	1N4448		any A5
C...636	59.34.4101	100 pF		CE	D...527	50.04.0125	1N4448		any A4
C...637	59.34.4101	100 pF		CE	D...528	50.04.0125	1N4448		any A5
C...638	.	0	not used	A	D...529	50.04.0125	1N4448		any A4
C...639	.	0	not used	A	D...530	50.04.0125	1N4448		any A4
C...640	.	0	not used	A	D...531	50.04.0125	1N4448		any A3
C...641	59.34.4101	100 pF		CE	D...532	.	0	not used	
C...642	.	0	not used	A	D...533	.	0	not used	
C...643	.	0	not used	A	D...533	.	0	not used	
C...644	59.34.4101	100 pF		CE	IC...1	50.09.0117	MC33078P	dual op. amp. low noise	Mot H4
C...645	59.34.4101	100 pF		CE	IC...2	50.09.0117	MC33078P	dual op. amp. low noise	Mot M2
C...646	59.34.4101	100 pF		CE	IC...3	.	0	not used	A
C...647	.	0	not used	A	IC...4	50.09.0117	MC33078P	dual op. amp. low noise	Mot L2
C...648	59.34.4101	100 pF		CE	IC...5	50.07.0015	CD4053	3*2 channel analog mux/demux	Ph,Mot,RCA M3
C...649	.	0	not used	A	IC...6	.	0	not used	A
C...650	.	0	not used	A	IC...7	.	0	not used	A
C...651	.	0	not used	A	IC...8	50.09.0117	MC33078P	dual op. amp. low noise	Mot L4
C...652	.	0	not used	A	IC...9	50.07.0037	AD7528JN	D/A converter 8 bit dual multiplexer	ADI L5
C...653	59.06.0104	100 nF		PE	IC...10	50.07.0015	CD4053	3*2 channel analog mux/demux	Ph,Mot,RCA K5
C...654	59.06.0104	100 nF		PE	IC...11	50.07.0015	CD4053	3*2 channel analog mux/demux	Ph,Mot,RCA K5
C...655	59.34.7151	150 pF	2%	CE	IC...12	50.09.0117	MC33078P	dual op. amp. low noise	Mot K5
C...656	.	0	not used	A	IC...13	50.09.0117	MC33078P	dual op. amp. low noise	Mot K5
C...657	59.34.4221	220 pF		CE	IC...14	.	0	not used	A
C...658	.	0	not used	A	IC...15	50.07.0015	CD4053	3*2 channel analog mux/demux	Ph,Mot,RCA H4
C...659	59.06.5103	10 nF		PE	IC...16	50.07.0015	CD4053	3*2 channel analog mux/demux	Ph,Mot,RCA H4
D...1	50.04.0125	1N4448			IC...17	.	0	not used	A
D...2	50.04.0125	1N4448			IC...18	50.09.0117	MC33078P	dual op. amp. low noise	Mot H2
D...3	50.04.0125	1N4448			IC...19	50.09.0101	TL072	dual op. amp. FET	TI I5
D...4	50.04.0125	1N4448			IC...20	.	0	not used	A
D...5	.	0	not used	A	IC...21	.	0	not used	A
D...6	50.04.0125	1N4448			IC...22	50.09.0117	MC33078P	dual op. amp. low noise	Mot F2
D...7	50.04.0125	1N4448			IC...23	50.09.0117	MC33078P	dual op. amp. low noise	Mot I5
D...8	50.04.0125	1N4448			IC...24	50.09.0117	MC33078P	dual op. amp. low noise	Mot G5
D...9	50.04.0125	1N4448			IC...25	50.09.0117	MC33078P	dual op. amp. low noise	Mot G5
D...10	50.04.0125	1N4448			IC...26	50.09.0117	MC33078P	dual op. amp. low noise	Mot F5
D...11	50.04.0125	1N4448			IC...27	50.09.0117	MC33078P	dual op. amp. low noise	Mot I1
D...12	50.04.0125	1N4448			IC...28	50.07.0015	CD4053	3*2 channel analog mux/demux	Ph,Mot,RCA H4
D...12	50.04.0125	1N4448			IC...29	50.07.0015	CD4053	3*2 channel analog mux/demux	Ph,Mot,RCA G4

INPUT UNIT MONO B



1.990.220.81

Ad	..POS..	..REF.No..	DESCRIPTION.....	MANUFACTURER	Ad	..POS..	..REF.No..	DESCRIPTION.....	MANUFACTURER
IC...30	50.07.0015	CD4053	3*2 channel analog mux/demux	Ph,Mot,RCA G4	IC...531	50.07.0018	CD4094	shift and store bus register	Ph,Mot,RCA K9
IC...31	. . . 0	not used	A	F4	IC...532	50.07.0018	CD4094	shift and store bus register	Ph,Mot,RCA K9
IC...32	50.09.0106	NE5532AN	dual op. amp. low noise	Ex,Ra,Sig G3	IC...533	50.07.0018	CD4094	shift and store bus register	Ph,Mot,RCA K8
IC...33	. . . 0	not used	A	H3	IC...534	50.07.0018	CD4094	shift and store bus register	Ph,Mot,RCA E8
IC...34	50.09.0106	NE5532AN	dual op. amp. low noise	Ex,Ra,Sig E4	IC...535	50.07.0018	CD4094	shift and store bus register	Ph,Mot,RCA D8
IC...35	. . . 0	not exist	A		IC...536	50.07.0018	CD4094	shift and store bus register	Ph,Mot,RCA E9
IC...36	. . . 0	not used	A	E3	IC...537	50.07.0018	CD4094	shift and store bus register	Ph,Mot,RCA F9
IC...37	. . . 0	not exist	A		IC...538	50.07.0018	CD4094	shift and store bus register	Ph,Mot,RCA F8
IC...38	. . . 0	not exist	A		IC...539	50.09.0119	TL 062	dual fet op. amp.	Tho A8
IC...39	50.07.0015	CD4053	3*2 channel analog mux/demux	Ph,Mot,RCA D0	IC...540	50.07.1021	CD4021	8-bit static shift register	Ph,Mot,RCA A9
IC...40	50.07.0015	CD4053	3*2 channel analog mux/demux	Ph,Mot,RCA D1	IC...541	50.07.1021	CD4021	8-bit static shift register	Ph,Mot,RCA B9
IC...41	50.07.0015	CD4053	3*2 channel analog mux/demux	Ph,Mot,RCA D0	IC...542	50.07.1021	CD4021	8-bit static shift register	Ph,Mot,RCA C9
IC...42	50.07.0015	CD4053	3*2 channel analog mux/demux	Ph,Mot,RCA D1	IC...543	50.07.1021	CD4021	8-bit static shift register	Ph,Mot,RCA D9
IC...43	50.07.0015	CD4053	3*2 channel analog mux/demux	Ph,Mot,RCA C1	IC...544	50.07.1021	CD4021	8-bit static shift register	Ph,Mot,RCA C9
IC...44	50.09.0117	MC33078P	dual op. amp. low noise	Mot D6	IC...545	50.07.1021	CD4021	8-bit static shift register	Ph,Mot,RCA D9
IC...45	50.09.0117	MC33078P	dual op. amp. low noise	Mot C6	IC...546	50.09.0103	TL 071	fet op. amp.	TI A9
IC...46	50.09.0117	MC33078P	dual op. amp. low noise	Mot C6	IC...547	50.07.0018	CD4094	shift and store bus register	Ph,Mot,RCA F9
IC...47	50.07.0015	CD4053	3*2 channel analog mux/demux	Ph,Mot,RCA D4	IC...548	50.07.0051	CD4051	8-channel analog mux/demux	Ph,Mot,RCA F8
IC...48	50.07.0015	CD4053	3*2 channel analog mux/demux	Ph,Mot,RCA D4	IC...549	50.07.0051	CD4051	8-channel analog mux/demux	Ph,Mot,RCA G8
IC...49	50.07.0015	CD4053	3*2 channel analog mux/demux	Ph,Mot,RCA C5	IC...550	50.07.0051	CD4051	8-channel analog mux/demux	Ph,Mot,RCA G8
IC...50	50.07.0015	CD4053	3*2 channel analog mux/demux	Ph,Mot,RCA C5					
IC...51	50.07.0015	CD4053	3*2 channel analog mux/demux	Ph,Mot,RCA C5	JSJ...1	. . . 0	not used	AUX 4	
IC...52	50.07.0015	CD4053	3*2 channel analog mux/demux	Ph,Mot,RCA B5	JSJ...2	. . . 0	not used	AUX 5/6	
IC...53	50.07.0015	CD4053	3*2 channel analog mux/demux	Ph,Mot,RCA B5	JSJ...3	. . . 0	not used	option film out C	{ Leiterbahn }
IC...54	50.07.0015	CD4053	3*2 channel analog mux/demux	Ph,Mot,RCA B5	JSJ...4	. . . 0	not used	option film out L	{ Leiterbahn }
IC...55	50.07.0015	CD4053	3*2 channel analog mux/demux	Ph,Mot,RCA L3	JSJ...5	. . . 0	not used	option film out S	{ Leiterbahn }
IC...56	. . . 0	not used	A	C4	JSJ...6	. . . 0	not used	option film out R	{ Leiterbahn }
IC...57	50.07.0015	CD4053	3*2 channel analog mux/demux	Ph,Mot,RCA B4	JSJ...7	. . . 0	not used	PF-L	
IC...58	50.07.0015	CD4053	3*2 channel analog mux/demux	Ph,Mot,RCA B4	JSJ...8	54.01.0021	Jumper	AF-L	D7
IC...59	. . . 0	not used	A	B4					
IC...60	50.09.0106	NE5532AN	dual op. amp. low noise	Ex,Ra,Sig B3	K....1	56.04.0195	TQ2-6V		SDS M3
IC...61	. . . 0	not used	A	B3	L....1	1.022.207.00			St N3
IC...62	. . . 0	not used	A	N6	L....2	62.02.3220	22 uH	hf-sym.choke	B2
IC...63	50.09.0117	MC33078P	dual op. amp. low noise	Mot M5	MP...1	53.03.0166	29 pcs	IC-socket 8 pin	
IC...64	. . . 0	not used	A	N7	MP...2	. . . 0	not exist		
IC...65	50.07.0015	CD4053	3*2 channel analog mux/demux	Ph,Mot,RCA M7	MP...3	53.03.0168	34 pcs	IC-socket 16 pin	
IC...66	50.07.0015	CD4053	3*2 channel analog mux/demux	Ph,Mot,RCA M7	MP...4	53.03.0165	1 pcs	IC-socket 20 pin	
IC...67	50.07.0015	CD4053	3*2 channel analog mux/demux	Ph,Mot,RCA E1	MP...5	. . . 0	not exist		
IC...68	. . . 0	not used	A	E0	MP...6	43.01.0108	1 pcs	ESE-Warnschild	ST
IC...69	50.07.0015	CD4053	3*2 channel analog mux/demux	Ph,Mot,RCA E1	MP...7	1.990.210.12	1 pcs	Input Mono PCB	St
IC...70	. . . 0	not used	A	E0	MP...8	54.01.0020	6 pcs	Jumper plug	
IC...71	50.07.0015	CD4053	3*2 channel analog mux/demux	Ph,Mot,RCA E1	MP...9	54.11.0131	55 pcs	dual Pin ( totaly 110 pins )	
IC...72	. . . 0	not used	A	E0	MP...10	1.990.210.06	1 pcs	Abschirmung A/D Input links	
IC...73	50.07.0015	CD4053	3*2 channel analog mux/demux	Ph,Mot,RCA H1	MP...11	1.990.210.07	1 pcs	Abschirmung A/D Input rechts	
IC...74	50.09.0106	NE5532AN	dual op. amp. low noise	Ex,Ra,Sig H0	MP...12	21.01.0354	3 pcs	Z-Schr. M3*6	
IC...75	1.010.051.50	NE5532AN	dual op. amp. low offset <1mV	St B2	MP...13	24.16.1030	3 pcs	Rippensch. D 3.2/5.5	
IC...76	50.09.0117	MC33078P	dual op. amp. low noise	Mot C1	MP...14	21.01.2352	6 pcs	S-Schr. M3*4	
IC...77	. . . 0	not used	A	L6	MP...15	21.99.0117	7 pcs	Z-Schr. Nylon M3*6	
IC...78	50.09.0101	TL072	dual op. amp. FET	TI L2	MP...16	24.16.3023	2 pcs	Wellensicherung 2.3	
IC...79	. . . 0	not used	A	M1	MP...17	28.99.0119	6 pcs	Rohrnieten D 2.5*0.15*9	
IC...80	50.09.0117	MC33078P	dual op. amp. low noise	Mot N6	MP...18	42.01.0203	2 pcs	Drehknopf gr. D 10/4	
IC...81	50.09.0106	NE5532AN	dual op. amp. low noise	Ex,Ra,Sig L1	MP...19	1.912.000.03	2 pcs	Drehring D 6.2/13	
IC...82	. . . 0	not used	A	K1	MP...20	42.01.0228	14 pcs	Knebelknopf gr. D 10/4	
IC...83	. . . 0	not used	A	K1	MP...21	42.01.0250	7 pcs	Deckel h'gr. D 10	
IC...84	. . . 0	not exist	A		MP...22	42.01.0251	5 pcs	Deckel d'gr. D 10	
IC...85	50.09.0119	TL 062	dual fet op. amp.	Tho A2	MP...23	42.01.0253	1 pcs	Deckel rt. D 10	
IC...86	50.07.0015	CD4053	3*2 channel analog mux/demux	Ph,Mot,RCA G0	MP...24	42.01.0254	1 pcs	Deckel bl. D 10	
IC...87	50.07.0015	CD4053	3*2 channel analog mux/demux	Ph,Mot,RCA G1	MP...25	42.01.0255	1 pcs	Deckel gb. D 10	
IC...88	50.07.0015	CD4053	3*2 channel analog mux/demux	Ph,Mot,RCA G0	MP...26	42.01.0256	1 pcs	Deckel gn. D 10	
IC...89	50.07.0015	CD4053	3*2 channel analog mux/demux	Ph,Mot,RCA G1	MP...27	1.010.022.21	2 pcs	Linsensch. spez M3*8	
IC...90	. . . 0	not used	A	F1	MP...28	1.010.048.27	3 pcs	Mutterbolzen M3*32.5	
IC...91	. . . 0	not used	A	F0	MP...29	1.022.400.03	2 pcs	Trafo-Isolation	
IC...92	. . . 0	not used	A	F1	MP...30	1.990.100.02	2 pcs	Querprintstuetze links	
IC...93	. . . 0	not used	A	F0	MP...31	1.990.100.03	2 pcs	Querprintstuetze rechts	
IC...94	50.07.0015	CD4053	3*2 channel analog mux/demux	Ph,Mot,RCA H0	MP...32	1.990.200.03	1 pcs	Schirmblech Input	
IC...95	1.010.051.50	NE5532AN	dual op. amp. low offset <1mV	St C1	MP...33	1.990.200.05	9 pcs	Poti-Achsenverlaengerung	
IC...501	50.07.0018	CD4094	shift and store bus register	Ph,Mot,RCA M8	MP...34	1.990.210.02	1 pcs	Traeger Input	
IC...502	50.07.0018	CD4094	shift and store bus register	Ph,Mot,RCA L8	MP...35	1.990.210.05	1 pcs	Fenster Input	
IC...503	50.07.0018	CD4094	shift and store bus register	Ph,Mot,RCA L9	MP...36	1.990.220.01	1 pcs	Frontschild Input	
IC...504	50.07.0018	CD4094	shift and store bus register	Ph,Mot,RCA M9	MP...37	1.010.366.64	1 pcs	Blankdraht D 0.6 L= 15mm	
IC...505	50.07.0018	CD4094	shift and store bus register	Ph,Mot,RCA M9	MP...38	. . .	not exist		
IC...506	50.07.0018	CD4094	shift and store bus register	Ph,Mot,RCA M9	MP...39	. . .	not exist		
IC...507	50.07.0018	CD4094	shift and store bus register	Ph,Mot,RCA M8	MP...40	. . .	not exist	A	
IC...508	50.07.0014	40106	hex. schmitt-trig. S MC14584;	40014 Ph,Mot M8					
IC...509	50.07.0049	4049	hex inverting buffer CMOS	Ph, To E9	MP...41	. . .	not exist		
IC...510	50.07.0049	4049	hex inverting buffer CMOS	Ph, To D8	MP...42	1.990.220.04	0 pcs	studer-nr. etikette 10 * 20	
IC...511	50.07.0049	4049	hex inverting buffer CMOS	Ph, To C8	P....1	. . . 0	not exist		
IC...512	50.07.0049	4049	hex inverting buffer CMOS	Ph, To C9	P....2	. . . 0	not exist		
IC...513	50.07.0049	4049	hex inverting buffer CMOS	Ph, To B8	P....3	. . . 0	not exist		
IC...514	50.07.0049	4049	hex inverting buffer CMOS	Ph, To B9	P....4	. . . 0	not exist		
IC...515	50.07.0049	4049	hex inverting buffer CMOS	Ph, To B8	P....5	. . . 0	not exist		
IC...516	50.07.0049	4049	hex inverting buffer CMOS	Ph, To B9	P....6	54.11.2013	2*16pin	euroconnector	Ht, Ec B0
IC...517	50.07.0018	CD4094	shift and store bus register	Ph,Mot,RCA E8	P....7	54.11.2004	2*32pin	euroconnector	Ht, Ec E0
IC...518	50.07.0018	CD4094	shift and store bus register	Ph,Mot,RCA D8	P....8	. . . 0	not used		IO
IC...519	50.07.0018	CD4094	shift and store bus register	Ph,Mot,RCA C8	P....9	54.11.2004	2*32pin	euroconnector	Ht, Ec M0
IC...520	50.07.0018	CD4094	shift and store bus register	Ph,Mot,RCA C8	P...501	54.16.0520	20pol	1/40 inch flatcable connector	Ya K7
IC...521	50.07.0018	CD4094	shift and store bus register	Ph,Mot,RCA B8	P...502	54.16.0520	20pol	1/40 inch flatcable connector	Ya G2
IC...522	50.07.0018	CD4094	shift and store bus register	Ph,Mot,RCA A8	P...503	54.16.0520	20pol	1/40 inch flatcable connector	Ya E6
IC...523	50.07.0018	CD4094	shift and store bus register	Ph,Mot,RCA I8	P...504	54.16.0520	20pol	1/40 inch flatcable connector	Ya E2
IC...524	50.07.0511	4511	BCD to 7-segment latch/decod/drivr Mot, To I9		P...505	54.16.0520	20pol	1/40 inch flatcable connector	Ya E5
IC...525	50.07.0511	4511	BCD to 7-segment latch/decod/drivr Mot, To I9		P...506	54.16.0520	20pol	1/40 inch flatcable connector	Ya E2
IC...526	50.07.0018	CD4094	shift and store bus register	Ph,Mot,RCA H8	Q....1	50.03.0516	BC 337	NPN low noise	Sie W4
IC...527	50.07.0018	CD4094	shift and store bus register	Ph,Mot,RCA J8	Q....2	50.03.0350	J 112	N-JFET	NS, Mot, Six M5
IC...528	50.07.0018	CD4094	shift and store bus register	Ph,Mot,RCA J9	Q....3	50.03.0350	J 112	N-JFET	NS, Mot, Six M5
IC...529	50.07.0018	CD4094	shift and store bus register	Ph,Mot,RCA H8	Q....4	50.03.0350	J 112	N-JFET	NS, Mot, Six M5
IC...530	50.07.0018	CD4094	shift and store bus register	Ph,Mot,RCA K8	Q....5	50.03.1130	J 110	N-JFET	NS, Mot, Six M5
					Q....6	50.03.1130	J 110	N-JFET	NS, Mot, Six M5
					Q....7	50.03.0350	J 112	N-JFET	NS, Mot, Six M5

INPUT UNIT MONO B

1.990.220.81



Ad	POS.	REF.No.	DESCRIPTION	MANUFACTURER	Ad	POS.	REF.No.	DESCRIPTION	MANUFACTURER					
Q....8		50.03.0485	MPSA92	PNP	UCE >100V	Mot	N8	R....60	0	not used	A	N0		
Q....9		50.03.0485	MPSA92	PNP	UCE >100V	Mot	N8	R....61	0	not used	A	N0		
Q....10		50.03.0436	BC 237	NPN	IC>100mA, B>100	any	K5	R....62	0	not used	A	N1		
Q....11		50.03.0350	J 112	N-JFET	NS,Mot,Six	H6		R....63	0	not used	A	N1		
Q....12		50.03.0350	J 112	N-JFET	NS,Mot,Six	I6		R....64	0	not used	A	N1		
Q....13		50.03.0515	BC 307	PNP	IC>100mA, B>100	any	H6	R....65	0	not used	A	N1		
Q....14		50.03.0515	BC 307	PNP	IC>100mA, B>100	any	I6	R....66	0	not used	A	N1		
Q....15		50.03.0350	J 112	N-JFET	NS,Mot,Six	H6		R....67	0	not used	A	M0		
Q....16		50.03.0350	J 112	N-JFET	NS,Mot,Six	H6		R....68	0	not used	A	M0		
Q....17		50.03.0515	BC 307	PNP	IC>100mA, B>100	any	H6	R....69	0	not used	A	M0		
Q....18		50.03.0515	BC 307	PNP	IC>100mA, B>100	any	G6	R....70	0	not used	A	M0		
Q....19		50.03.0350	J 112	N-JFET	NS,Mot,Six	G6		R....71	0	not used	A	M1		
Q....20		50.03.0350	J 112	N-JFET	NS,Mot,Six	G6		R....72	0	not used	A	M1		
Q....21		50.03.0515	BC 307	PNP	IC>100mA, B>100	any	G6	R....73	0	not used	A	M1		
Q....22		50.03.0515	BC 307	PNP	IC>100mA, B>100	any	G6	R....74	0	not used	A	M1		
Q....23		50.03.0350	J 112	N-JFET	NS,Mot,Six	E6		R....75	0	not used	A	M1		
Q....24		50.03.0350	J 112	N-JFET	NS,Mot,Six	F6		R....76	0	not used	A	M1		
Q....25		50.03.0515	BC 307	PNP	IC>100mA, B>100	any	F6	R....77	0	not exist				
Q....26		50.03.0340	BC 337	NPN	IC>800mA	NS,Mot,Six	A0	R....78	0	not exist				
Q....27		50.03.0351	BC 327	PNP	IC>800mA	NS,Mot,Six	A0	R....79	0	not exist				
Q....28		50.03.0351	BC 327	PNP	IC>800mA	NS,Mot,Six	A0	R....80	57.11.3330	33 Ohm	5%	0.25W	L2	
Q....29		0	not exist					R....81	57.11.3223	22 kOhm	5%	0.25W	L2	
Q....30		0	not exist					R....82	57.11.3822	8.2 kOhm	1%	0.25W	L2	
Q....31		0	not exist					R....83	57.11.3473	47 kOhm	1%	0.25W	L2	
Q....32		0	not exist					R....84	57.11.3101	100 Ohm	1%	0.25W	L2	
Q....33		0	not used					R....85	57.11.3101	100 Ohm	1%	0.25W	L2	
Q....34		0	not used					R....86	0	not used	A	L3		
Q....35		50.03.0436	BC 237	NPN	IC>100mA, B>100	any	A9	R....87	0	not used	A	L3		
Q....36		50.03.0436	BC 237	NPN	IC>100mA, B>100	any	A8	R....88	57.11.3682	6.8 kOhm	1%	0.25W	L4	
Q....501		50.03.0484	MPSA42	NPN	UCE >300V	Mot	N8	R....89	57.11.3682	6.8 kOhm	1%	0.25W	M3	
Q....502		50.03.0436	BC 237	NPN	IC>100mA, B>100	any	N8	R....90	0	not used	A	M4		
Q....503		50.03.0515	BC 307	PNP	IC>100mA, B>100	any	N8	R....91	0	not used	A	M2		
Q....504		50.03.0515	BC 307	PNP	IC>100mA, B>100	any	N8	R....92	0	not used	A	M2		
Q....505		50.03.0515	BC 307	PNP	IC>100mA, B>100	any	N8	R....93	0	not exist				
Q....506		50.03.0436	BC 237	NPN	IC>100mA, B>100	any	N8	R....94	0	not used	A	M2		
Q....507		50.03.0515	BC 307	PNP	IC>100mA, B>100	any	N8	R....95	0	not used	A	M3		
Q....508		50.03.0515	BC 307	PNP	IC>100mA, B>100	any	N8	R....96	0	not used	A	L3		
Q....509		50.03.0436	BC 237	NPN	IC>100mA, B>100	any	A7	R....97	57.11.3473	47 kOhm	1%	0.25W	L3	
R....1		57.11.3103	10 kOhm	1%	0.25W	N3		R....98	0	not exist				
R....2		57.11.3103	10 kOhm	1%	0.25W	N3		R....99	0	not exist				
R....3		57.11.3152	1.5 kOhm	1%	0.25W	N3		R....100	0	not exist				
R....4		57.11.3152	1.5 kOhm	1%	0.25W	N3		R....101	57.11.3822	8.2 kOhm	1%	0.25W	M4	
R....5		57.11.3332	3.3 kOhm	5%	0.25W	N3		R....102	57.11.3223	22 kOhm	5%	0.25W	M5	
R....6		57.11.3103	10 kOhm	1%	0.25W	N4		R....103	57.11.3473	47 kOhm	1%	0.25W	M4	
R....7		57.11.3183	18 kOhm	5%	0.25W	N4		R....104	57.11.3824	820 kOhm	1%	0.25W	M4	
R....8		57.11.3183	18 kOhm	5%	0.25W	N4		R....105	57.11.3824	820 kOhm	1%	0.25W	L5	
R....9		57.11.3183	18 kOhm	5%	0.25W	N4		R....106	57.11.3512	5.1 kOhm	1%	0.25W	L5	
R....10		57.11.3183	18 kOhm	5%	0.25W	N4		R....107	57.11.3105	1 MOhm	1%	0.25W	L5	
R....11		57.11.3330	33 Ohm	5%	0.25W	N4		R....108	57.11.3564	560 kOhm	1%	0.25W	L5	
R....12		57.11.3223	22 kOhm	5%	0.25W	N4		R....109	57.11.3102	1 kOhm	1%	0.25W	L4	
R....13		57.11.3103	10 kOhm	5%	0.25W	N4		R....110	0	not exist				
R....14		57.11.3332	3.3 kOhm	5%	0.25W	N4		R....111	58.05.1103	10 kOhm	10%	0.5 W	mehrgangtrimmer	15
R....15		57.11.3561	560 Ohm	1%	0.25W	N5		R....112	57.11.3823	82 kOhm	1%	0.25W	I4	
R....16		57.11.3911	910 Ohm	1%	0.25W	N5		R....113	57.11.3223	22 kOhm	5%	0.25W	K5	
R....17		57.11.3471	470 Ohm	1%	0.25W	N5		R....114	57.11.3224	220 kOhm	5%	0.25W	K5	
R....18		57.11.3751	750 Ohm	1%	0.25W	N5		R....115	57.11.3223	22 kOhm	5%	0.25W	K5	
R....19		57.11.3100	10 Ohm	1%	0.25W	N5		R....116	57.11.3752	7.5 kOhm	1%	0.25W	K5	
R....20		57.11.3131	130 Ohm	1%	0.25W	N5		R....117	57.11.3823	82 kOhm	1%	0.25W	K4	
R....21		57.11.3162	1.6 kOhm	1%	0.25W	N4		R....118	57.11.3392	3.9 kOhm	5%	0.25W	K7	
R....22		57.11.3302	3 kOhm	1%	0.25W	N4		R....119	57.11.3162	1.6 kOhm	1%	0.25W	K6	
R....23		57.11.3272	2.7 kOhm	1%	0.25W	N5		R....120	0	not exist				
R....24		57.11.3913	91 kOhm	1%	0.25W	M5		R....121	57.11.3104	100 kOhm	5%	0.25W	K6	
R....25		57.11.3113	11 kOhm	1%	0.25W	M4		R....122	57.11.3162	1.6 kOhm	1%	0.25W	K6	
R....26		57.11.3914	910 kOhm	1%	0.25W	M5		R....123	0	not exist				
R....27		57.11.3243	24 kOhm	1%	0.25W	M4		R....124	57.11.3104	100 kOhm	5%	0.25W	K7	
R....28		57.11.5125	1.2 MOhm	5%	0.25W	M4		R....125	57.11.3392	3.9 kOhm	1%	0.25W	K6	
R....29		57.11.3223	22 kOhm	5%	0.25W	N5		R....126	57.11.3682	6.8 kOhm	1%	0.25W	K7	
R....30		57.11.3223	22 kOhm	5%	0.25W	M4		R....127	57.11.3682	6.8 kOhm	1%	0.25W	K6	
R....31		57.11.3330	33 Ohm	5%	0.25W	M4		R....128	57.11.3223	22 kOhm	5%	0.25W	K7	
R....32		0	not exist					R....129	0	not exist				
R....33		0	not exist					R....130	0	not exist				
R....34		0	not exist					R....131	57.11.3104	100 kOhm	5%	0.25W	H3	
R....35		0	not exist					R....132	58.01.8202	2 kOhm	20%	trimmer	H3	
R....36		57.11.3000	0 Ohm	0	0.25W	N9		R....133	57.11.3562	5.6 kOhm	0.25W		I3	
R....37		57.11.3394	390 kOhm	5%	0.25W	N9		R....134	57.99.0250	6.8 kOhm	0.1%	0.25W	H3	
R....38		57.11.3394	390 kOhm	5%	0.25W	N9		R....135	57.99.0250	6.8 kOhm	0.1%	0.25W	H3	
R....39		57.11.3104	100 kOhm	1%	0.25W	N3		R....136	57.11.3150	15 Ohm	1%	0.25W	I3	
R....40		57.11.3104	100 kOhm	1%	0.25W	N3		R....137	57.11.3150	15 Ohm	1%	0.25W	I3	
R....41		57.11.3332	3.3 kOhm	1%	0.25W	N3		R....138	0	not used	A	I4		
R....42		57.11.3332	3.3 kOhm	1%	0.25W	N3		R....139	57.11.3682	6.8 kOhm	1%	0.25W	(gesickt)	H4
R....43		57.11.3222	2.2 kOhm	1%	0.25W	N3		R....140	0	not used	A	H4		
R....44		57.11.3222	2.2 kOhm	1%	0.25W	N3		R....141	0	not used	A	G4		
R....45		57.11.3272	2.7 kOhm	5%	0.25W	M2		R....142	57.11.3682	6.8 kOhm	1%	0.25W	(gesickt)	G4
R....46		57.11.3242	2.4 kOhm	5%	0.25W	N3		R....143	0	not used	A	G4		
R....47		58.01.8501	500 Ohm	10%	0.25W	N3		R....144	57.11.3682	6.8 kOhm	1%	0.25W	(gesickt)	G4
R....48		57.11.3223	22 kOhm	5%	0.25W	N3		R....145	0	not used	A	I4		
R....49		57.11.3332	3.3 kOhm	1%	0.25W	N2		R....146	0	not used	A	I4		
R....50		57.11.3332	3.3 kOhm	1%	0.25W	N2		R....147	0	not used	A	I4		
R....51		57.11.3272	2.7 kOhm	1%	0.25W	N2		R....148	0	not used	A	I4		
R....52		57.11.3272	2.7 kOhm	1%	0.25W	N2		R....149	57.11.3682	6.8 kOhm	1%	0.25W	(gesickt)	I4
R....53		57.11.3102	1 kOhm	5%	0.25W	N2		R....150	57.11.5106	10 MOhm	5%	0.25W	K6	
R....54		57.11.3102	1 kOhm	5%	0.25W	N2		R....151	57.11.5106	10 MOhm	5%	0.25W	I4	
R....55		57.11.3392	3.9 kOhm	5%	0.25W	N2		R....152	57.11.3104	100 kOhm	5%	0.25W	K6	
R....56		57.11.3223	22 kOhm	5%	0.25W	N2		R....153	0	not exist				
R....57		0	not used	A				R....154	0	not exist				
R....58		0	not used	A				R....155	0	not exist				
R....59		0	not used	A				R....156	0	not used	A	I3		

## INPUT UNIT MONO B



1.990.220.81

Ad	..POS..	..REF.No...	DESCRIPTION.....	MANUFACTURER	Ad	..POS..	..REF.No...	DESCRIPTION.....	MANUFACTURER	
R...157	.	0	not used	A	K3	R...254	57.11.3102	1 kOhm	1% 0.25W	E6
R...158	.	0	not used	A	K4	R...255	57.11.3223	22 kOhm	5% 0.25W	F5
R...159	.	0	not used	A	K4	R...256	57.11.3103	10 kOhm	1% 0.25W	E5
R...160	.	0	not used	A	I3	R...257	57.11.3103	10 kOhm	1% 0.25W	E5
R...161	.	0	not used	A	K3	R...258	57.11.3684	680 kOhm	5% 0.25W	F5
R...162	.	0	not used	A	K3	R...259	57.11.3682	6.8 kOhm	1% 0.25W	F3
R...163	57.11.3682	6.8 kOhm	1% 0.25W	(gesickt)	H4	R...260	57.11.3682	6.8 kOhm	1% 0.25W	F3
R...164	.	0	not used	A	G4	R...261	57.11.3682	6.8 kOhm	1% 0.25W	F5
R...165	.	0	not used	A	G4	R...262	57.11.3684	680 kOhm	5% 0.25W	F5
R...166	57.11.3682	6.8 kOhm	1% 0.25W	(gesickt)	G4	R...263	57.11.3223	22 kOhm	5% 0.25W	F5
R...167	57.11.3682	6.8 kOhm	1% 0.25W	(gesickt)	G4	R...264	57.11.3684	680 kOhm	5% 0.25W	F5
R...168	.	0	not used	A	H4	R...265	57.11.3472	4.7 kOhm	1% 0.25W	F5
R...169	.	0	not used	A	H4	R...266	.	100 kOhm	10% -log.-> R267 1.010.031.58 on A11 St	F6
R...170	.	0	not used	A	H4	R...267	.	100 kOhm	10% -log. comb. with R266/R553	F5
R...171	.	0	not used	A	H4	R...268	57.11.3472	4.7 kOhm	1% 0.25W	F6
R...172	.	0	not used	A	H4	R...269	57.11.3102	1 kOhm	5% 0.25W	F5
R...173	.	0	not exist			R...270	57.11.5106	10 MOhm	10% 0.25W	F6
R...174	.	0	not exist			R...271	57.11.3104	100 kOhm	5% 0.25W	F6
R...175	.	0	not exist			R...272	57.11.5106	10 MOhm	10% 0.25W	F6
R...176	.	0	not exist			R...273	.	not exist		
R...177	.	0	not exist			R...274	.	not exist		
R...178	.	0	not exist			R...275	.	not exist		
R...179	.	0	not exist			R...276	57.11.3152	1.5 kOhm	1% 0.25W	K1
R...180	.	0	not exist			R...277	57.11.3152	1.5 kOhm	1% 0.25W	K1
R...181	57.11.3104	100 kOhm	5% 0.25W		G3	R...278	57.11.3392	3.9 kOhm	1% 0.25W	K1
R...182	58.01.8502	5 kOhm	20% trimmer	F3		R...279	57.11.3392	3.9 kOhm	1% 0.25W	K1
R...183	57.11.3562	5.6 kOhm	1% 0.25W		G3	R...280	57.11.3272	2.7 kOhm	1% 0.25W	K1
R...184	57.11.3121	120 Ohm	1% 0.25W		H6	R...281	57.11.3272	2.7 kOhm	1% 0.25W	K1
R...185	1.010.108.58	4.7 kOhm	10% lin	comb. with R559	St H7	R...282	57.11.3223	22 kOhm	5% 0.25W	K1
R...186	57.11.3121	120 Ohm	1% 0.25W		H6	R...283	.	not used	A	I1
R...187	57.11.3102	1 kOhm	1% 0.25W		H6	R...284	.	not used	A	I1
R...188	57.11.3103	10 kOhm	1% 0.25W		H5	R...285	.	not used	A	I1
R...189	57.11.3103	10 kOhm	1% 0.25W		H5	R...286	.	not used	A	I1
R...190	57.11.3684	680 kOhm	5% 0.25W		H5	R...287	.	not used	A	I1
R...191	57.11.3103	10 kOhm	1% 0.25W		H6	R...287	57.11.3272	2.7 kOhm	1% 0.25W	I1
R...192	57.11.3684	680 kOhm	5% 0.25W		I5	R...288	57.11.3272	2.7 kOhm	1% 0.25W	I1
R...193	57.11.3684	680 kOhm	5% 0.25W		I5	R...289	.	not used	A	I1
R...194	57.11.3392	3.9 kOhm	1% 0.25W		I5	R...290	.	not exist		
R...195	.	100 kOhm	10% -log. -> R196 1.010.031.58 on A8 St	H6		R...291	57.11.3104	100 kOhm	5% 0.25W	G3
R...196	.	100 kOhm	10% -log. comb. with R195/R556	H5		R...292	57.11.3752	7.5 kOhm	1% 0.25W	G3
R...197	57.11.3392	3.9 kOhm	1% 0.25W		I5	R...293	57.11.3823	82 kOhm	1% 0.25W	G3
R...198	57.11.3102	1 kOhm	5% 0.25W		H7	R...294	57.11.3223	22 kOhm	5% 0.25W	G3
R...199	57.11.5106	10 MOhm	10% 0.25W		H7	R...295	57.11.3332	3.3 kOhm	1% 0.25W	G3
R...200	57.11.3684	680 kOhm	5% 0.25W		I7	R...296	57.11.3332	3.3 kOhm	1% 0.25W	G3
R...201	57.11.3333	33 kOhm	5% 0.25W		H7	R...297	57.11.3330	33 Ohm	5% 0.25W	G3
R...202	57.11.3104	100 kOhm	5% 0.25W		H6	R...298	57.11.3223	22 kOhm	1% 0.25W	G3
R...203	57.11.5106	10 MOhm	10% 0.25W		H6	R...299	.	not used	A	H3
R...204	.	0	not exist			R...300	.	not used	A	H3
R...205	.	0	not exist			R...301	.	not used	A	H3
R...206	1.010.108.58	4.7 kOhm	10% lin	comb. with R551	St G7	R...302	.	not used	A	H3
R...207	57.11.3103	10 kOhm	1% 0.25W		G5	R...303	.	not used	A	H3
R...208	57.11.3103	10 kOhm	1% 0.25W		G5	R...304	.	not used	A	H3
R...209	57.11.3684	680 kOhm	5% 0.25W		G5	R...305	.	not used	A	H3
R...210	57.11.3105	1 MOhm	5% 0.25W		H6	R...306	.	not used	A	H3
R...211	57.11.3472	4.7 kOhm	1% 0.25W		H6	R...307	57.11.3332	3.3 kOhm	1% 0.25W	F4
R...212	.	100 kOhm	10% -log. -> R213 1.010.031.58 on A9 St	H6		R...308	57.11.3223	22 kOhm	5% 0.25W	F4
R...213	.	100 kOhm	10% -log. comb. with R212/R560	H5		R...309	57.11.3333	33 kOhm	1% 0.25W	E4
R...214	57.11.3472	4.7 kOhm	1% 0.25W		H6	R...310	57.11.3103	10 kOhm	1% 0.25W	E4
R...215	57.11.3105	1 MOhm	5% 0.25W		H5	R...311	57.11.3472	4.7 kOhm	1% 0.25W	E4
R...216	57.11.3222	2.2 kOhm	5% 0.25W		G5	R...312	57.11.3684	680 kOhm	5% 0.25W	F4
R...217	57.11.3362	3.6 kOhm	1% 0.25W		H6	R...313	57.11.3823	82 kOhm	1% 0.25W	E4
R...218	57.11.3202	2 kOhm	1% 0.25W		H6	R...314	58.05.1104	100 kOhm	10% 0.5 W mehrgangtrimmer	D4
R...219	57.11.3183	18 kOhm	1% 0.25W		G6	R...315	57.11.3332	3.3 kOhm	1% 0.25W	D4
R...220	57.11.3752	7.5 kOhm	1% 0.25W		G6	R...316	57.11.3223	22 kOhm	1% 0.25W	D4
R...221	57.11.3102	1 kOhm	5% 0.25W		H6	R...317	.	not used	A	F3
R...222	57.11.5106	10 MOhm	10% 0.25W		H6	R...318	.	not used	A	F3
R...223	57.11.3684	680 kOhm	5% 0.25W		G6	R...319	.	not used	A	E3
R...224	57.11.3333	33 kOhm	5% 0.25W		H6	R...320	.	not used	A	E3
R...225	57.11.5106	10 MOhm	10% 0.25W		H6	R...321	.	not used	A	E3
R...226	57.11.3104	100 kOhm	5% 0.25W		G6	R...322	.	not used	A	F3
R...227	1.010.108.58	4.7 kOhm	10% lin	comb. with R552	St F7	R...323	.	not used	A	E3
R...228	57.11.3103	10 kOhm	1% 0.25W		F5	R...324	.	not used	A	D3
R...229	57.11.3103	10 kOhm	1% 0.25W		G5	R...325	.	not used	A	D3
R...230	57.11.3684	680 kOhm	5% 0.25W		G5	R...326	.	not used	A	D3
R...231	57.11.3105	1 MOhm	5% 0.25W		G6	R...327	.	not exist		
R...232	57.11.3512	5.1 kOhm	1% 0.25W		G6	R...328	.	not exist		
R...233	.	100 kOhm	10% -log.-> R234 1.010.031.58 on A10 St	G6		R...329	.	not exist		
R...234	.	100 kOhm	10% neg.log. comb. with R233/R553	St G5		R...330	.	not exist		
R...235	57.11.3472	4.7 kOhm	1% 0.25W		G6	R...331	1.010.106.58	10 kOhm	10% pos.log. comb. with R546	St E7
R...236	57.11.3105	1 MOhm	5% 0.25W		G5	R...332	57.11.3752	7.5 kOhm	1% 0.25W	D6
R...237	57.11.3222	2.2 kOhm	5% 0.25W		G5	R...333	57.11.3823	82 kOhm	1% 0.25W	D6
R...238	57.11.3362	3.6 kOhm	1% 0.25W		G6	R...334	1.010.106.58	10 kOhm	10% pos.log. comb. with R549	St D7
R...239	57.11.3202	2 kOhm	1% 0.25W		G6	R...335	57.11.3752	7.5 kOhm	1% 0.25W	D6
R...240	57.11.3183	18 kOhm	1% 0.25W		G6	R...336	57.11.3823	82 kOhm	1% 0.25W	D6
R...241	57.11.3752	7.5 kOhm	1% 0.25W		G6	R...337	1.010.106.58	10 kOhm	10% pos.log. comb. with R547	St C7
R...242	57.11.3102	1 kOhm	5% 0.25W		G6	R...338	57.11.3752	7.5 kOhm	1% 0.25W	C6
R...243	57.11.5106	10 MOhm	10% 0.25W		G6	R...339	57.11.3823	82 kOhm	1% 0.25W	C6
R...244	57.11.3684	680 kOhm	5% 0.25W		G6	R...340	1.010.106.58	10 kOhm	10% pos.log. comb. with R548	St C7
R...245	57.11.3333	33 kOhm	5% 0.25W		G6	R...341	57.11.3752	7.5 kOhm	1% 0.25W	D6
R...246	57.11.5106	10 MOhm	10% 0.25W		G6	R...342	57.11.3823	82 kOhm	1% 0.25W	C6
R...247	57.11.3104	100 kOhm	5% 0.25W		F6	R...343	.	10 kOhm	10% +log.-> R345 1.010.034.58 on A12 St	B6
R...248	.	0	not exist			R...344	.	4.7 kOhm	10% +log. see R345	B6
R...249	.	0	not exist			R...345	.	10 kOhm	10% -log. comb. with R343/344/543/545	B6
R...250	.	0	not exist			R...346	57.11.3752	7.5 kOhm	1% 0.25W	B6
R...251	57.11.3121	120 Ohm	1% 0.25W		F7	R...347	57.11.3823	82 kOhm	1% 0.25W	B6
R...252	1.010.108.58	4.7 kOhm	10% lin	comb. with R550	St E7	R...348	.	10 kOhm	10% +log.-> R350 1.010.034.58 on A13 St	A6
R...253	57.11.3121	120 Ohm	1% 0.25W		E6	R...349	.	4.7 kOhm	10% +log. see R350	A6
						R...350	.	10 kOhm	10% -log. comb. with R348/349/542/544	A6



INPUT UNIT MONO B

1.990.220.81

Ad	POS.	REF.No.	DESCRIPTION	MANUFACTURER	Ad	POS.	REF.No.	DESCRIPTION	MANUFACTURER
R...351		57.11.3752	7.5 kOhm	1% 0.25W	C6	R...449	57.11.3224	220 kOhm	5% 0.25W
R...352		57.11.3823	82 kOhm	1% 0.25W	C6	R...450	1.010.101.58	10 kOhm	10% lin. comb. with R554
R...353		0	not used	A	K0	R...451	57.11.3822	8.2 kOhm	1% 0.25W
R...354		57.11.3330	33 Ohm	5% 0.25W	K0	R...452	57.11.3762	7.5 kOhm	1% 0.25W
R...355		0	not used	A	D4	R...453	58.01.8503	50 kOhm	10% 0.25W trimmer
R...356		0	not used	A	C4	R...454	57.99.0250	6.8 kOhm	0.1% 0.25W
R...357		0	not used	A	C4	R...455	57.99.0250	6.8 kOhm	0.1% 0.25W
R...358		0	not used	A		R...456	57.11.3150	15 Ohm	1% 0.25W
R...359		0	not exist			R...457	57.11.3150	15 Ohm	1% 0.25W
R...360		0	not used	A	N6	R...458	0	not exist	
R...361		57.11.3752	7.5 kOhm	1% 0.25W	C3	R...459	0	not exist	
R...362		57.11.3823	82 kOhm	1% 0.25W	C3	R...460	0	not exist	
R...363		57.11.3223	22 kOhm	5% 0.25W	C3	R...461	0	not exist	
R...364		57.11.3752	7.5 kOhm	1% 0.25W	B3	R...462	0	not exist	
R...365		57.11.3823	82 kOhm	1% 0.25W	B3	R...463	0	not exist	
R...366		57.11.3223	22 kOhm	5% 0.25W	B3	R...464	0	not exist	
R...367		0	not used	A	B3	R...465	0	not exist	
R...368		0	not used	A	B3	R...466	0	not exist	
R...369		0	not used	A	B3	R...467	0	not exist	
R...370		0	not used	A	B3	R...468	0	not exist	
R...371		0	not used	A	B3	R...469	0	not exist	
R...372		0	not exist		R...470	0	not exist		
R...373		0	not used	A	N5	R...471	0	not exist	
R...374		0	not used	A	N5	R...472	0	not exist	
R...375		0	not used	A	N5	R...473	0	not exist	
R...376		0	not used	A	N5	R...474	57.11.3150	15 Ohm	1% 0.25W
R...377		0	not used	A	N6	R...475	57.11.3150	15 Ohm	1% 0.25W
R...378		0	not used	A	N6	R...476	57.11.3150	15 Ohm	1% 0.25W
R...379		0	not used	A	N6	R...477	57.11.3150	15 Ohm	1% 0.25W
R...380		0	not used	A	N6	R...478	57.99.0250	6.8 kOhm	0.1% 0.25W
R...381		0	not used	A	N6	R...479	57.99.0250	6.8 kOhm	0.1% 0.25W
R...382		57.11.3513	51 kOhm	1% 0.25W	N5	R...480	0	not exist	
R...383		57.11.3513	51 kOhm	1% 0.25W	N5	R...481	0	not exist	
R...384		57.11.3513	51 kOhm	1% 0.25W	N5	R...482	57.11.3102	1 kOhm	5% 0.25W
R...385		57.11.3513	51 kOhm	1% 0.25W	N5	R...483	57.11.5106	10 MOhm	10% 0.25W
R...386		57.11.3513	51 kOhm	1% 0.25W	N5	R...484	57.11.6226	22 MOhm	10% 0.25W
R...387		57.11.3513	51 kOhm	1% 0.25W	N5	R...485	57.11.3562	5.6 kOhm	1% 0.25W
R...388		57.11.3363	36 kOhm	1% 0.25W	M5	R...486	57.11.3333	33 kOhm	5% 0.25W
R...389		57.11.3363	36 kOhm	1% 0.25W	M5	R...487	57.11.3432	4.3 kOhm	1% 0.25W
R...390		0	not used	A	L6	R...488	57.11.3333	33 kOhm	5% 0.25W
R...391		57.11.3104	100 kOhm	5% 0.25W	N6	R...489	57.11.3512	5.1 kOhm	1% 0.25W
R...392		57.11.3682	6.8 kOhm	1% 0.25W	H1	R...490	57.11.3105	1 MOhm	5% 0.25W
R...393		57.11.3682	6.8 kOhm	1% 0.25W	H1	R...491	57.11.3105	1 MOhm	5% 0.25W
R...394		57.11.3330	33 Ohm	1% 0.25W	I1	R...492	57.11.3104	100 kOhm	5% 0.25W
R...395		57.11.3330	33 Ohm	1% 0.25W	H1	R...493	57.11.3104	100 kOhm	5% 0.25W
R...396		0	not exist		M6	R...501	57.11.3104	100 kOhm	5% 0.25W
R...397		0	not used	A	C0	R...502	57.11.3104	100 kOhm	5% 0.25W
R...398		0	not exist		C0	R...503	57.11.3101	100 Ohm	5% 0.25W
R...399		57.92.7013	0.75 Ohm	I hold = 0.5A	R-PTC	R...504	57.11.3392	3.9 kOhm	5% 0.25W
R...400		57.11.3102	1 kOhm	5% 0.25W	C0	R...505	57.11.3223	22 kOhm	5% 0.25W
R...401		57.92.7013	0.75 Ohm	I hold = 0.5A	R-PTC	R...506	57.11.3103	10 kOhm	5% 0.25W
R...402		57.92.7013	0.75 Ohm	I hold = 0.5A	R-PTC	R...507	0	not exist	
R...403		57.92.7013	0.75 Ohm	I hold = 0.5A	R-PTC	R...508	0	not exist	
R...404		57.11.3222	2.2 kOhm	5% 0.25W	A0	R...509	0	not exist	
R...405		57.11.3272	2.7 kOhm	5% 0.25W	A0	R...510	0	not exist	
R...406		57.11.3104	100 kOhm	5% 0.25W	A0	R...511	57.11.3103	10 kOhm	5% 0.25W
R...407		0	not exist		A0	R...512	57.11.3104	100 kOhm	5% 0.25W
R...408		57.11.3681	680 Ohm	5% 0.25W	A0	R...513	57.11.3105	1 MOhm	5% 0.25W
R...409		57.11.3104	100 kOhm	5% 0.25W	A0	R...514	57.11.5335	3.3 MOhm	5% 0.25W
R...410		57.11.3104	100 kOhm	5% 0.25W	A0	R...515	57.11.3105	1 MOhm	5% 0.25W
R...411		57.11.3202	2 kOhm	5% 0.25W	A0	R...516	57.11.3104	100 kOhm	5% 0.25W
R...412		57.11.3222	2.2 kOhm	5% 0.25W	A0	R...517	57.11.3104	100 kOhm	5% 0.25W
R...413		57.11.3101	100 Ohm	5% 0.25W	B1	R...518	57.11.3105	1 MOhm	5% 0.25W
R...414		57.11.3101	100 Ohm	5% 0.25W	B1	R...519	57.11.3104	100 kOhm	5% 0.25W
R...415		57.11.3101	100 Ohm	5% 0.25W	B1	R...520	57.11.3103	10 kOhm	5% 0.25W
R...416		57.11.3150	15 Ohm	1% 0.25W	A1	R...521	57.11.3105	1 MOhm	5% 0.25W
R...417		57.11.3150	15 Ohm	1% 0.25W	B1	R...522	57.11.3104	100 kOhm	5% 0.25W
R...418		57.11.3150	15 Ohm	1% 0.25W	B1	R...523	57.11.5335	3.3 MOhm	5% 0.25W
R...419		57.11.3150	15 Ohm	1% 0.25W	B1	R...524	57.11.3104	100 kOhm	5% 0.25W
R...420		57.11.3330	33 Ohm	5% 0.25W	C1	R...525	57.11.3103	10 kOhm	5% 0.25W
R...421		0	not exist		R...526	57.11.5335	3.3 MOhm	5% 0.25W	
R...422		0	not exist		R...527	57.11.3104	100 kOhm	5% 0.25W	
R...423		57.11.3151	150 Ohm	5% 0.25W	B1	R...528	57.11.3103	10 kOhm	5% 0.25W
R...424		0	not exist		R...529	57.11.3223	22 kOhm	5% 0.25W	
R...425		0	not exist		R...530	57.11.3102	1 kOhm	5% 0.25W	
R...426		0	not used	A	L6	R...531	57.11.3562	5.6 kOhm	5% 0.25W
R...427		0	not used	A	L6	R...532	57.11.3822	8.2 kOhm	5% 0.25W
R...428		0	not used	A	M1	R...533	57.11.3102	1 kOhm	5% 0.25W
R...429		57.99.0250	6.8 kOhm	0.1% 0.25W	M2	R...534	57.11.3103	10 kOhm	5% 0.25W
R...430		0	not used	A	M1	R...535	0	not exist	
R...431		0	not used	A	L1	R...536	57.11.3104	100 kOhm	5% 0.25W
R...432		57.11.3151	150 Ohm	5% 0.25W	B2	R...537	57.11.3334	330 kOhm	5% 0.25W
R...433		57.11.3399	3.9 Ohm	5% 0.25W	B2	R...538	57.11.3334	330 kOhm	5% 0.25W
R...434		57.11.3399	3.9 Ohm	5% 0.25W	B2	R...539	57.11.3223	22 kOhm	5% 0.25W
R...435		57.11.3151	150 Ohm	5% 0.25W	B2	R...540	57.11.3330	33 Ohm	5% 0.25W
R...436		57.11.3109	1 Ohm	5% 0.25W	A1	R...541	57.11.5106	10 MOhm	10% 0.25W
R...437		57.11.3109	1 Ohm	5% 0.25W	A1	R...542	100 kOhm	20% lin. see R348	
R...438		57.11.3109	1 Ohm	5% 0.25W	A1	R...543	100 kOhm	20% lin. see R343	
R...439		0	not exist		R...544	100 kOhm	20% lin. see R348		
R...440		0	not exist		R...545	100 kOhm	20% lin. see R343		
R...441		0	not exist		R...546	100 kOhm	20% lin. comb. with R331		
R...442		0	not exist		R...547	100 kOhm	20% lin. comb. with R340		
R...443		0	not exist		R...548	100 kOhm	20% lin. comb. with R337		
R...444		0	not exist		R...549	100 kOhm	20% lin. comb. with R334		
R...445		0	not exist		R...550	100 kOhm	20% lin. comb. with R252		
R...446		0	not exist		R...551	100 kOhm	20% lin. comb. with R206		
R...447		0	not exist						
R...448		0	not exist						

INPUT UNIT MONO B



1.990.220.81

Ad	..POS..	..REF.No..	DESCRIPTION.....	MANUFACTURER	Ad	..POS..	..REF.No..	DESCRIPTION.....	MANUFACTURER	
R...	552	.	100 kOhm	20% lin. comb. with R227	St	F7	RZ..528	57.88.4104	100 kOhm SIP 9 (8*)	G9
R...	553	.	100 kOhm	20% lin. comb. with R233/R234	St	G6	RZ..529	57.88.2104	100 kOhm SIP 8 (4*)	G9
R...	554	.	100 kOhm	20% lin. comb. with R449	St	N7	RZ..530	57.88.2104	100 kOhm SIP 8 (4*)	H9
R...	555	0	not used							
R...	556	.	100 kOhm	20% lin. comb. with R195/R196	St	H6	RZ..531	57.88.4104	100 kOhm SIP 9 (8*)	H9
R...	557	.	100 kOhm	20% lin. comb. with R120/R123	St	I7	RZ..532	57.88.2104	100 kOhm SIP 8 (4*)	H9
R...	558	.	100 kOhm	20% lin. comb. with R266/R267	St	F6	RZ..533	57.88.2104	100 kOhm SIP 8 (4*)	H9
R...	559	.	100 kOhm	20% lin. comb. with R185	St	H7	RZ..534	57.88.4104	100 kOhm SIP 9 (8*)	H8
R...	560	.	100 kOhm	20% lin. comb. with R212/R213	St	H6	RZ..535	.	0 not used	H8
RZ...	536	.	57.88.2104				RZ..536	57.88.2104	100 kOhm SIP 8 (4*)	H8
RZ...	537	.	57.88.4104				RZ..537	57.88.4104	100 kOhm SIP 9 (8*)	I8
RZ...	538	.	57.88.2104				RZ..538	57.88.2104	100 kOhm SIP 8 (4*)	I8
RZ...	539	.	57.88.2104				RZ..539	57.88.2104	100 kOhm SIP 8 (4*)	K8
RZ...	540	.	57.88.4104				RZ..540	57.88.4104	100 kOhm SIP 9 (8*)	I9
RZ...	541	.	57.88.2104				RZ..541	57.88.2104	100 kOhm SIP 8 (4*)	I9
RZ...	542	.	57.88.2104				RZ..542	57.88.2104	100 kOhm SIP 8 (4*)	K9
RZ...	543	.	57.88.4104				RZ..543	57.88.4104	100 kOhm SIP 9 (8*)	K9
RZ...	544	.	57.88.2104				RZ..544	57.88.2104	100 kOhm SIP 8 (4*)	K9
RZ...	545	.	57.88.2104				RZ..545	57.88.2104	100 kOhm SIP 8 (4*)	L9
RZ...	546	.	57.88.4104				RZ..546	57.88.4104	100 kOhm SIP 9 (8*)	K8
RZ...	547	.	57.88.2104				RZ..547	57.88.2104	100 kOhm SIP 8 (4*)	L8
RZ...	548	.	57.88.2104				RZ..548	57.88.2104	100 kOhm SIP 8 (4*)	K8
RZ...	549	.	.	0 not exist			RZ..549	.	0 not exist	
RZ...	550	.	57.88.4104				RZ..550	57.88.4104	100 kOhm SIP 9 (8*)	D7
RZ...	551	.	57.88.2104				RZ..551	57.88.2104	100 kOhm SIP 8 (4*)	B7
RZ...	552	.	57.88.2104				RZ..552	57.88.2104	100 kOhm SIP 8 (4*)	E7
RZ...	553	.	57.88.4104				RZ..553	57.88.4104	100 kOhm SIP 9 (8*)	B8
RZ...	554	.	57.88.2104				RZ..554	57.88.2104	100 kOhm SIP 8 (4*)	E8
RZ...	555	.	57.88.2104				RZ..555	57.88.2104	100 kOhm SIP 8 (4*)	E8
RZ...	556	.	57.88.4104				RZ..556	57.88.4104	100 kOhm SIP 9 (8*)	E9
RZ...	557	.	57.88.2104				RZ..557	57.88.2104	100 kOhm SIP 8 (4*)	E9
RZ...	558	.	57.88.2104				RZ..558	57.88.2104	100 kOhm SIP 8 (4*)	E9
RZ...	559	.	57.88.4104				RZ..559	57.88.4104	100 kOhm SIP 9 (8*)	F9
RZ...	560	.	57.88.2104				RZ..560	57.88.2104	100 kOhm SIP 8 (4*)	F9
RZ...	561	.	57.88.2104				RZ..561	57.88.2104	100 kOhm SIP 8 (4*)	F9
RZ...	562	.	57.88.4104				RZ..562	57.88.4104	100 kOhm SIP 9 (8*)	F8
RZ...	563	.	57.88.2104				RZ..563	57.88.2104	100 kOhm SIP 8 (4*)	F8
RZ...	564	.	57.88.2104				RZ..564	57.88.2104	100 kOhm SIP 8 (4*)	D8
RZ...	565	.	57.88.4104				RZ..565	57.88.4104	100 kOhm SIP 9 (8*)	G8
RZ...	566	.	57.88.2102				RZ..566	57.88.2102	1 kOhm SIP 8 (4*)	G8
RZ...	567	.	57.88.2102				RZ..567	57.88.2102	1 kOhm SIP 8 (4*)	F8
RZ...	568	.	57.88.2102				RZ..568	57.88.2102	1 kOhm SIP 8 (4*)	G8
RZ...	569	.	57.88.2102				RZ..569	57.88.2102	1 kOhm SIP 8 (4*)	G8
RZ...	570	.	57.88.2102				RZ..570	57.88.2102	1 kOhm SIP 8 (4*)	G8
RZ...	571	.	57.88.2102				RZ..571	57.88.2102	1 kOhm SIP 8 (4*)	G9
RZ...	572	.	57.88.2102				RZ..572	57.88.2102	1 kOhm SIP 8 (4*)	G9
T.....	1	1.022.456.00						input trafo	1:2.24	St M3
T.....	2	1.022.454.00						input trafo	1:3.16	St M2
W.....	1	57.11.3000	0 Ohm							H1
W.....	2	57.11.3000	0 Ohm							H6
W.....	3	57.11.3000	0 Ohm							N6
W.....	4	57.11.3000	0 Ohm							N6
W.....	5	1.010.329.64						wire 2.5mm		N6
W.....	6	.	0 not used							H3
<p>OPTIONS: see optionlist 1.990.210.00                  *****                  option 1.....: not available                  option 2.....: not available                  option 3.....: FILM OUT -&gt; group 1...8                  software option A : not available</p>										
RZ...	501	57.88.2101	100 Ohm	SIP 8 (4*)	A3					
RZ...	502	57.88.2101	100 Ohm	SIP 8 (4*)	A3					
RZ...	503	57.88.4104	100 kOhm	SIP 9 (8*)	L8					
RZ...	504	57.88.2104	100 kOhm	SIP 8 (4*)	L8					
RZ...	505	.	not used		A					
RZ...	506	57.88.2104	100 kOhm	SIP 8 (4*)	L9					
RZ...	507	57.88.4104	100 kOhm	SIP 9 (8*)	L9					
RZ...	508	57.88.2104	100 kOhm	SIP 8 (4*)	L9					
RZ...	509	57.88.2104	100 kOhm	SIP 8 (4*)	L9					
RZ...	510	57.88.4104	100 kOhm	SIP 9 (8*)	L9					
RZ...	511	.	not exist							
RZ...	512	57.88.4104	100 kOhm	SIP 9 (8*)	L8					
RZ...	513	.	not used		A					
RZ...	513	57.88.2104	100 kOhm	SIP 8 (4*)	L8					
RZ...	514	.	not exist							
RZ...	515	57.88.2473	47 kOhm	SIP 8 (4*)	I8					
RZ...	516	57.88.2473	47 kOhm	SIP 8 (4*)	I8					
RZ...	517	57.88.4104	100 kOhm	SIP 9 (8*)	I8					
RZ...	518	57.88.4104	100 kOhm	SIP 9 (8*)	E8					
RZ...	519	57.88.4104	100 kOhm	SIP 9 (8*)	D7					
RZ...	520	57.88.4104	100 kOhm	SIP 9 (8*)	C7					
RZ...	521	57.88.4104	100 kOhm	SIP 9 (8*)	B7					
RZ...	522	57.88.4104	100 kOhm	SIP 9 (8*)	B7					
RZ...	523	57.88.4104	100 kOhm	SIP 9 (8*)	A8					
RZ...	524	.	not exist							
RZ...	525	57.88.4104	100 kOhm	SIP 9 (8*)	G8					
RZ...	526	57.88.2104	100 kOhm	SIP 8 (4*)	G8					
RZ...	527	.	not used		A					

CE=Ceramic, CF=Carbon Film, EL=Electrolytic, MF=Metal Film, PE=Polyester, PP=Polypropylen, PS=Polystyrol

MANUFACTURER:  
 \*\*\*\*\*  
 ADI=Analog Devices Inc., Bu=Burndy, El=Elco, Ex=Exar,  
 Fc=Fairchild, Fa=Farranti, GI=General Instrument, Ha=Harting,  
 HP=Hewlett Packard, IT=Intermetall, Mo=Motorola, Nat=National  
 (Matsushita), NS=National Semiconductors, Ph=Philips,  
 PMI=Precision Monolithics Inc., Ra=Raytheon, RCA=Radio Corp. of  
 America, SDS=SDS-Relais, Sie=Siemens, Sig= Signetics  
 Six=Siliconix, St=Studer,  
 Tho=Thomson, To=Toshiba, TI=Texas Instrument, Ya=Yamaichi

HISTORY:  
 \*\*\*\*\*  
 1.10.90 Stand RAI-Pult  
 13.11.90 Eliminierung digitaler Stoerungen (DAC)  
 Aux-Klirr (OV generiert 1)  
 PF-Headroom  
 21.11.90 Postlst Bereinigung  
 19.12.90 MIC-Knacksen (Software Update noetig)  
 Verbesserung Rauschabstand bei eingeschaltetem Insert  
 8.04.91 Aenderung der B6 auf -81 wegen besserer Produzier-  
 barkeit (von LS auf BS) und diverser elektrischer  
 Modifikationen.  
 Zusatzlich wird MCH-OUT bestueckt.  
 24.04.91 3 neue C auf LS wegen HF-Stoerungen vom Prozessor her  
 und 1 Stk. Blankdraht wegen fehlender Leiterbahn



## INPUT UNIT MONO B

1.990.220.81

Ad ..POS.. ...REF.No... DESCRIPTION.....MANUFACTURER

21.05.92 a) Offene Steuerleitung von IC 55 verursacht Schwingen  
und Einstreuung digitaler Stoerungen. -> C 537, RZ 513  
b) Schwingen von IC 4. -> C 65  
c) Fuer Option "MCH Bus Out" fehlen Bauelemente, welche  
dann nachbestueckt werden muessen. -> C 508, RZ 505

1.990.220.81 INPUT UNIT MONO B HOR91/04/2400

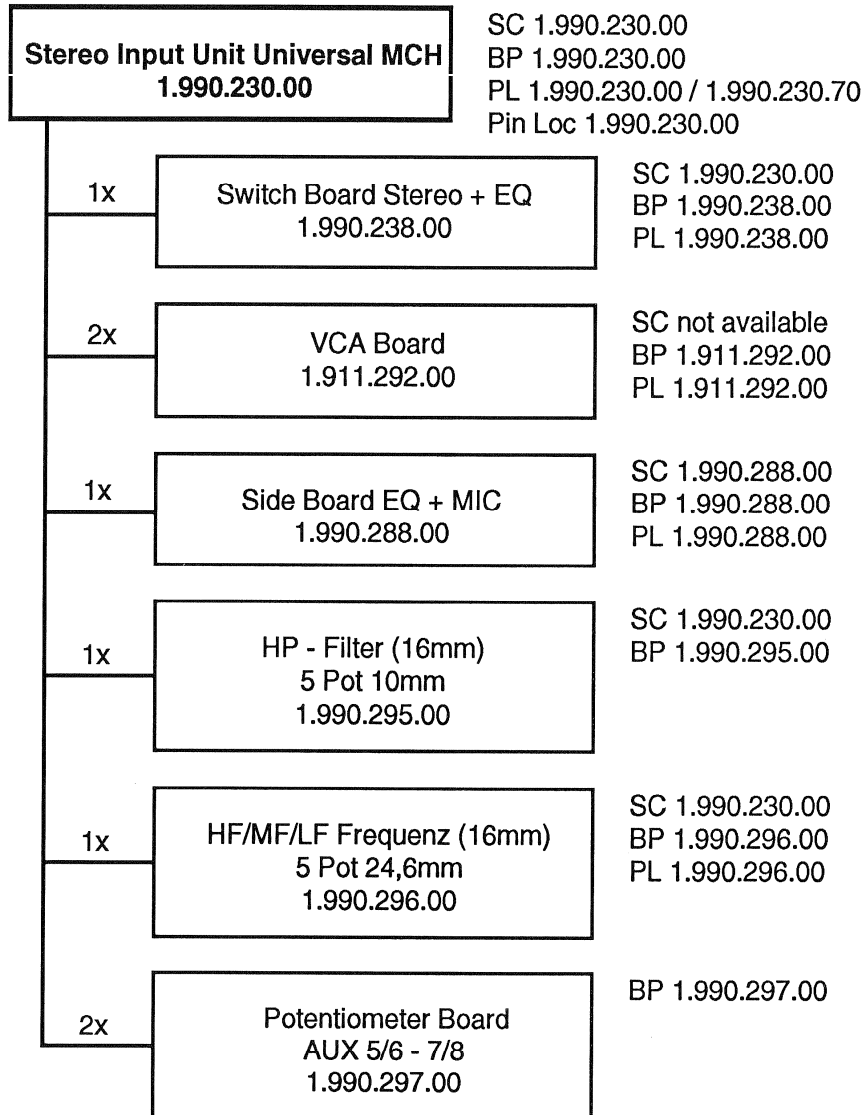
1.990.220.81 INPUT UNIT MONO B HOR92/05/2101

END

→

## Stereo Input Unit Universal MCH

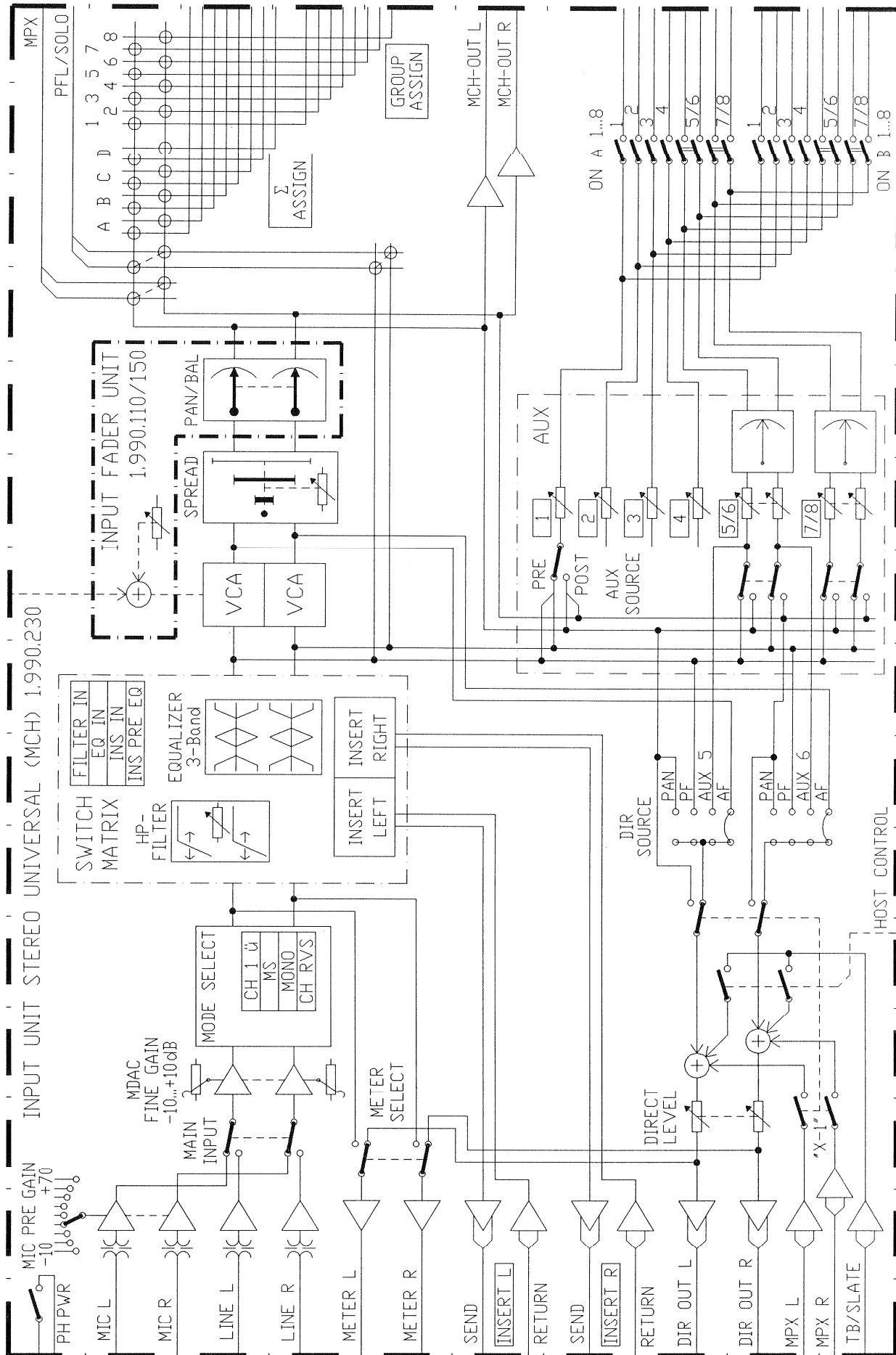
1.990.230.00

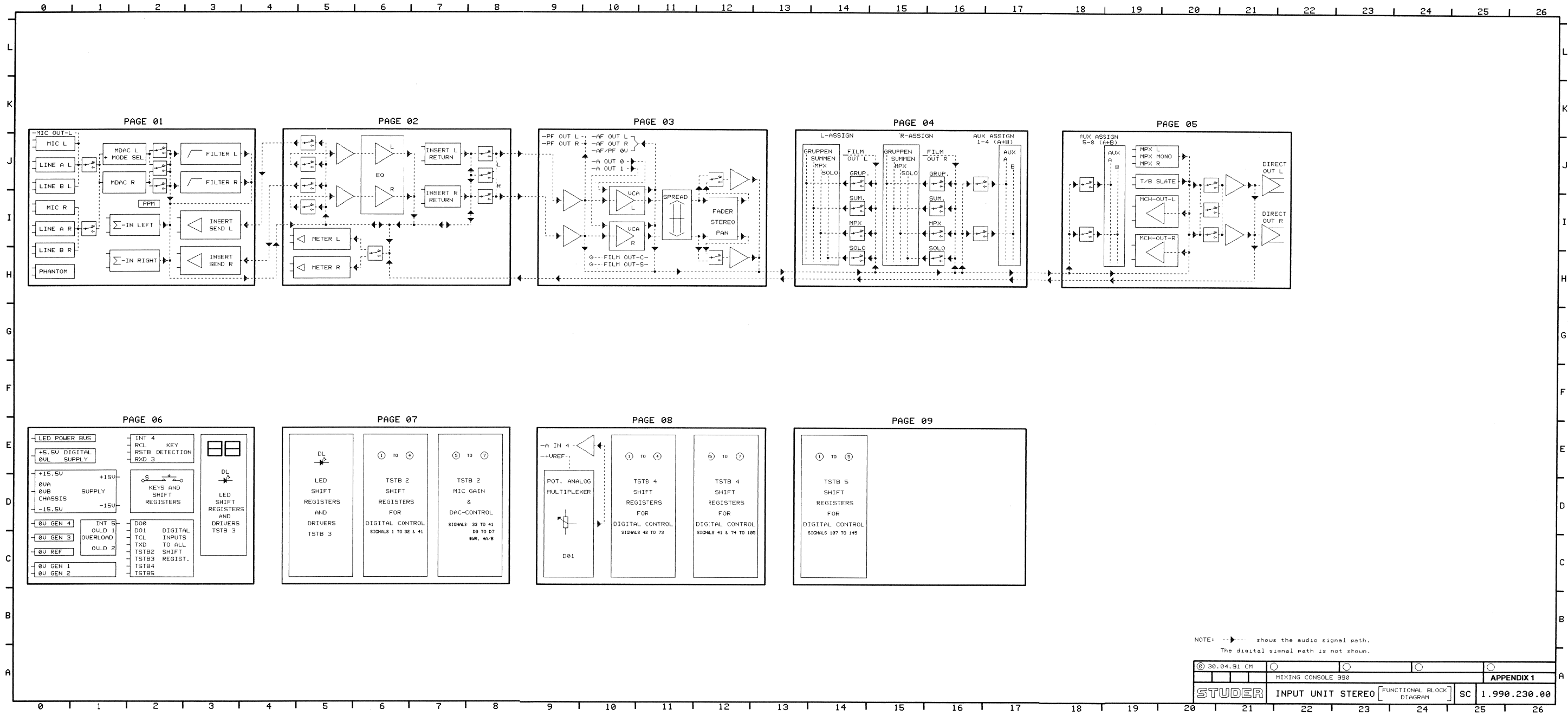


SC: Schema      Circuit Diagram  
 BP: Bestückungsplan    PCB Layout  
 PL: Positionsliste      Positional List



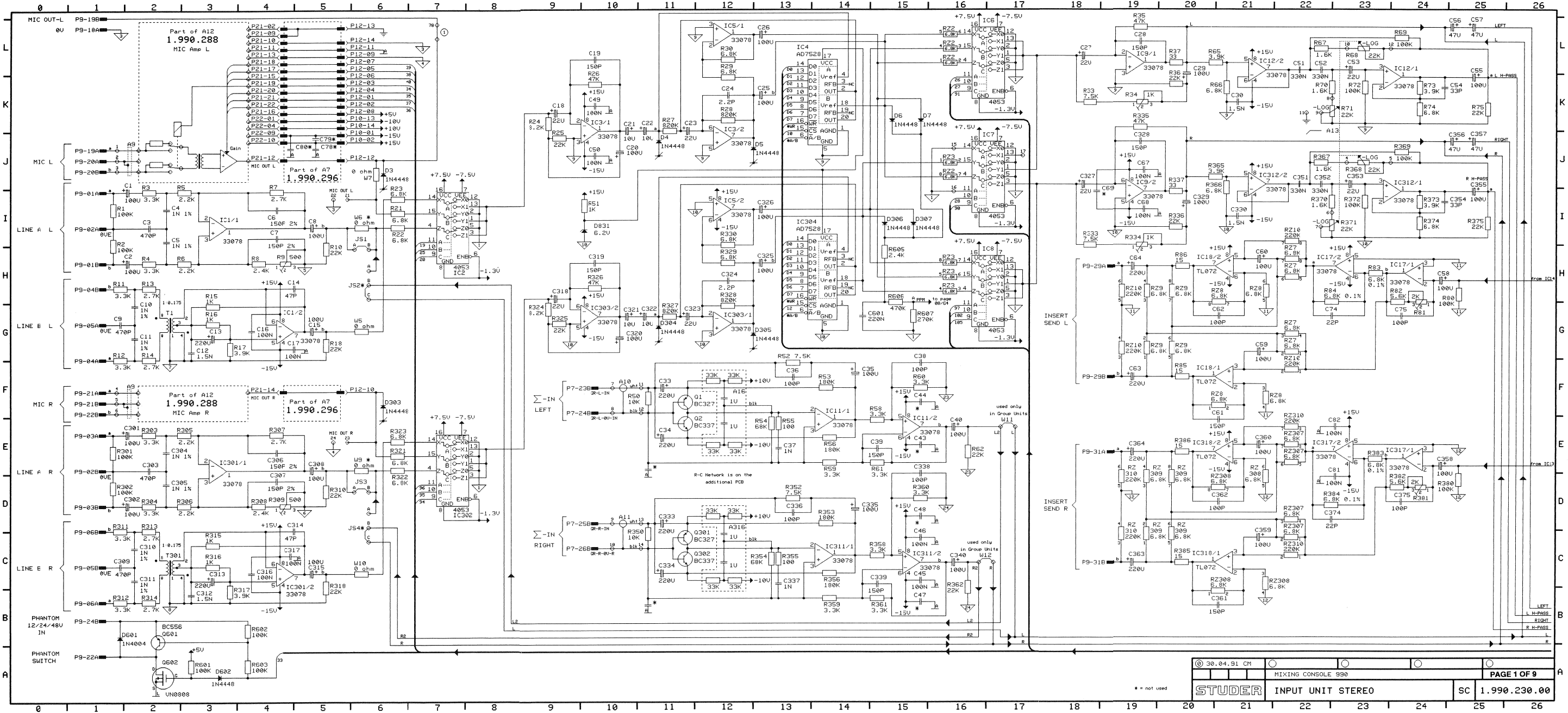
STEREO INPUT UNIT UNIVERSAL MCH 1.990.230.00





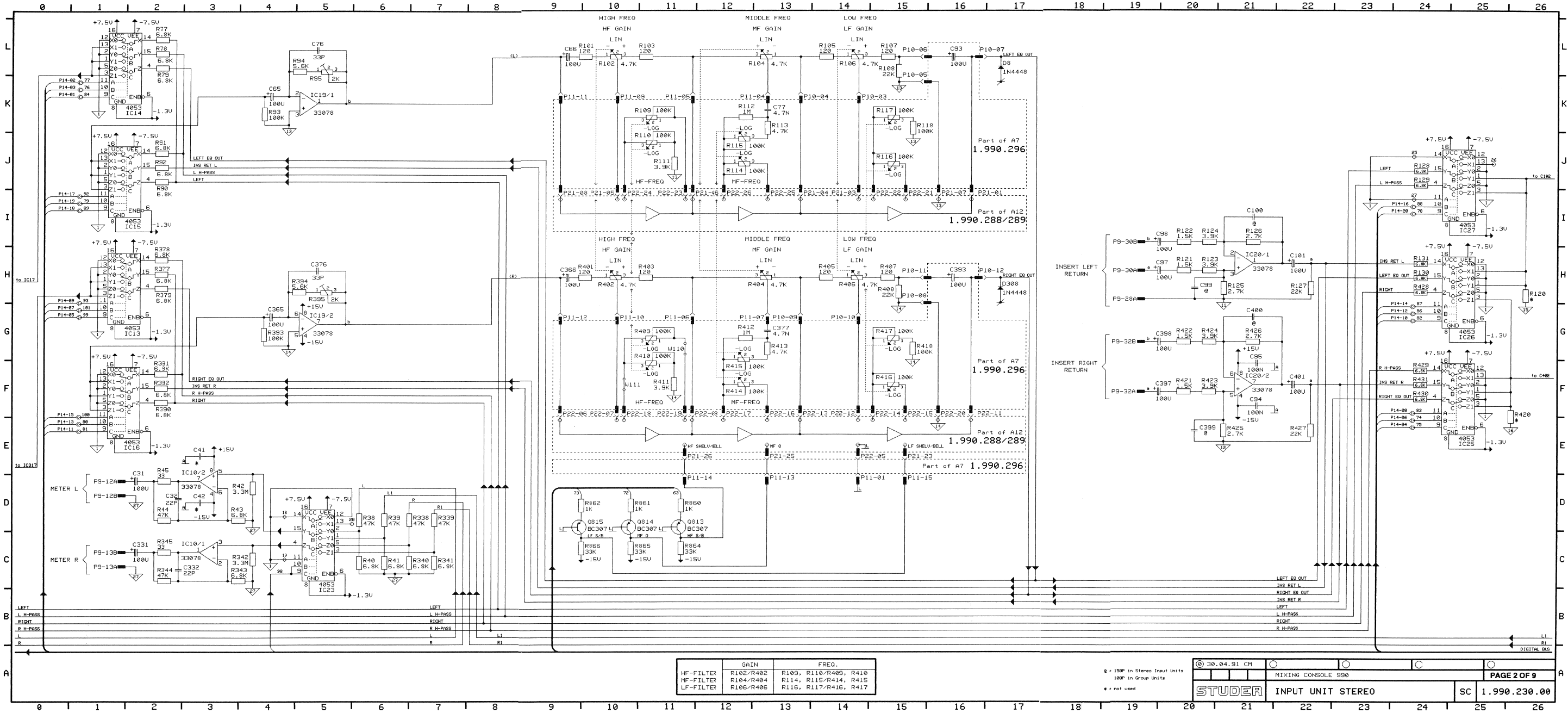
INPUT UNIT STEREO

1.990.230.00



INPUT UNIT STEREO

1.990.230.00



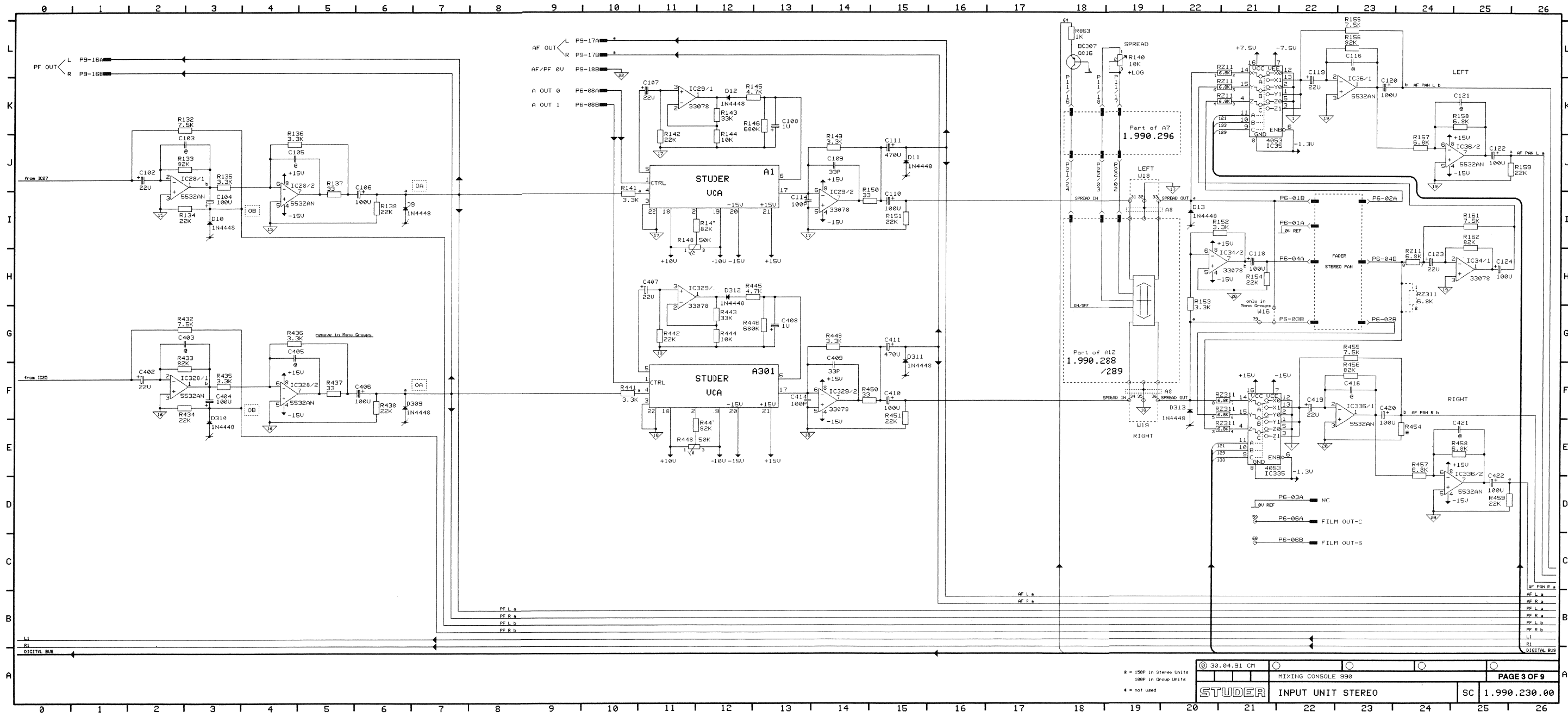
	GAIN	FREQ.
HF-FILTER	R102/R402	R103, R110/R403, R410
MF-FILTER	R104/R404	R114, R115/R414, R415
LF-FILTER	R105/R405	R116, R117/R416, R417

\* 150p in Stereo Input Units  
 100p in Group Units  
 • not used

INPUT UNIT STEREO



1.990.230.00



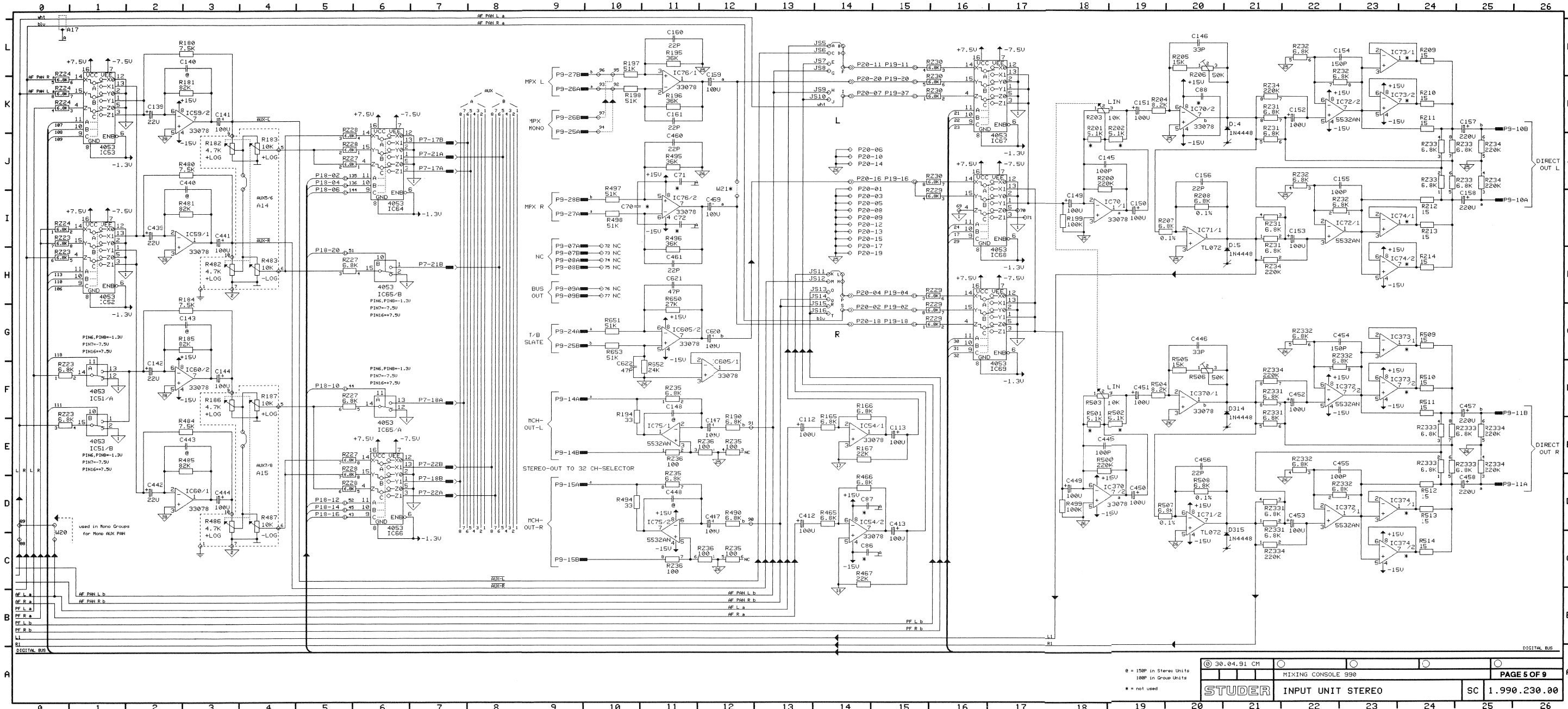
⊕ = 150P in Stereo Units  
 100P in Group Units  
 \* = not used





INPUT UNIT STEREO

1.990.230.00





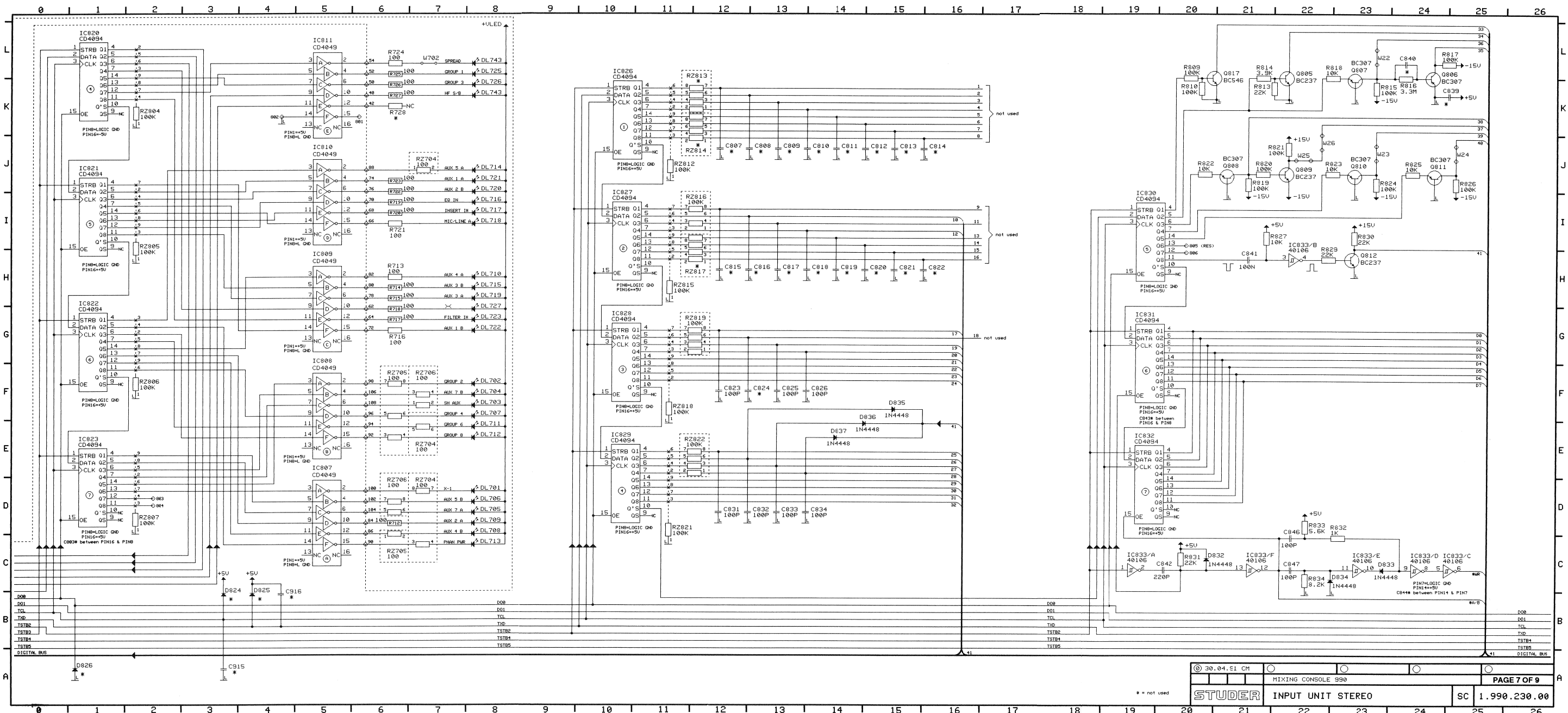




INPUT UNIT STEREO



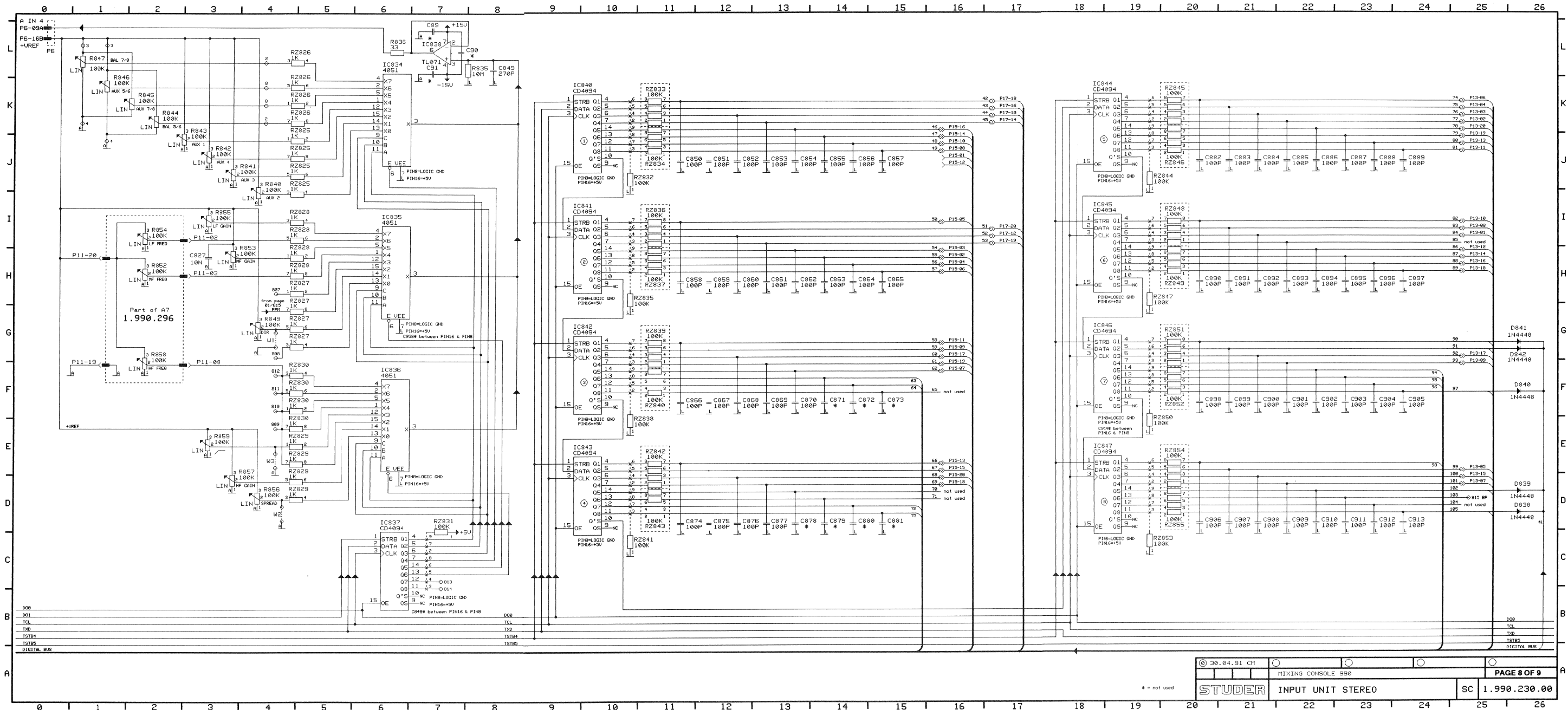
1.990.230.00





INPUT UNIT STEREO

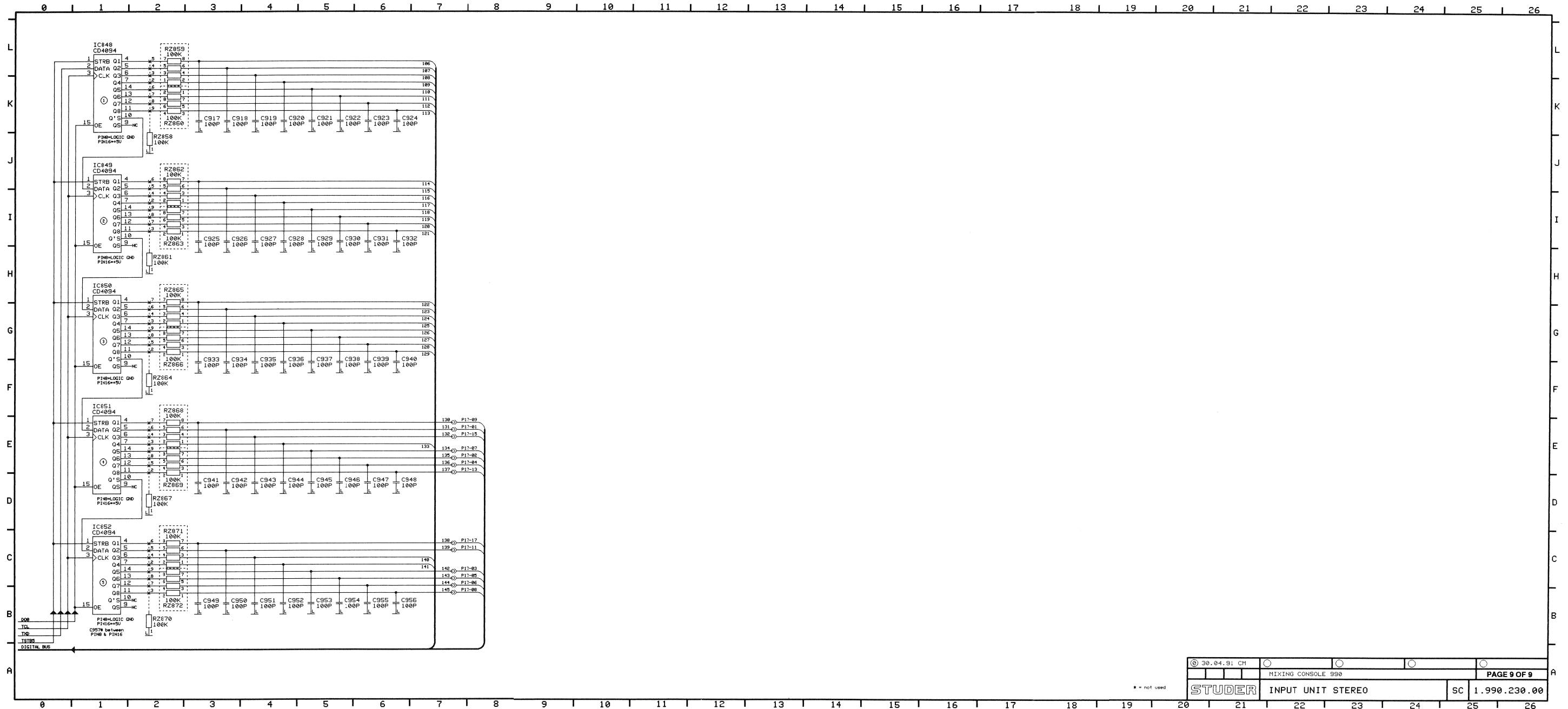
1.990.230.00



INPUT UNIT STEREO



1.990.230.00



© 30.04.91 CM				
	MIXING CONSOLE 990			PAGE 9 OF 9
STUDER		INPUT UNIT STEREO	SC	1.990.230.00

\*\* not used

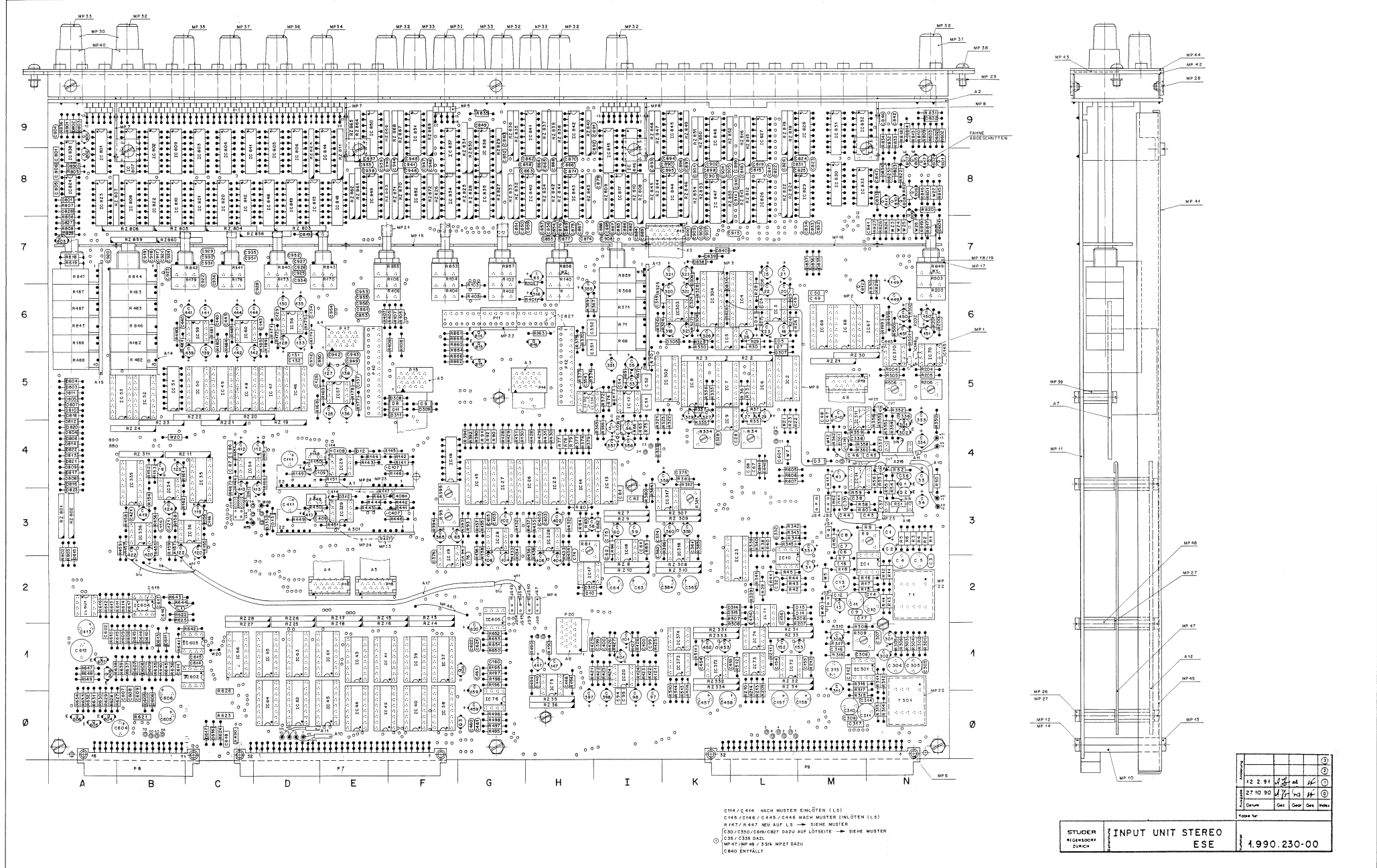
VALID FOR	NR UNIT	POS.-LIST	NR FRONT PANEL	NR. SIDE BOARD
INF UNIT STEREO VORMONTIERT	1.990.230-70	1.990.230-70	MP 44	IA 121
INF UNIT STEREO UNIVERSAL MCH	1.990.232-00	1.990.232-01	1.990.288-00	---
INF UNIT STEREO HL + EG MCH	1.990.232-00	1.990.232-00	1.990.232-01	1.990.289-00
INF UNIT STEREO HL MCH	1.990.235-00	1.990.235-00	1.990.235-01	---
INF UNIT STEREO UNIVERSAL B	1.990.240-00	1.990.230-00	1.990.240-01	1.990.288-00
INF UNIT STEREO HL + EG B	1.990.242-00	1.990.232-00	1.990.242-01	1.990.289-00
INF UNIT STEREO HL B	1.990.245-00	1.990.235-00	1.990.245-01	---

VALID FOR	NR UNIT	POS.-LIST	NR FRONT PANEL	NR. SIDE BOARD
GROUP UNIT VORMONTIERT	1.990.230-70	1.990.230-70	MP 44	IA 121
GROUP UNIT UNIVERSAL MCH	1.990.232-00	1.990.232-00	1.990.232-01	1.990.289-00
GROUP UNIT MCH	1.990.235-00	1.990.235-00	1.990.235-01	---
GROUP UNIT MONO + EG B	1.990.260-00	1.990.250-00	1.990.260-01	1.990.289-00
GROUP UNIT MONO B	1.990.265-00	1.990.255-00	1.990.265-01	---
GROUP UNIT STEREO + EG MCH	1.990.270-00	1.990.270-00	1.990.270-01	1.990.289-00
GROUP UNIT STEREO MCH	1.990.275-00	1.990.275-00	1.990.275-01	---
GROUP UNIT STEREO + EG B	1.990.280-00	1.990.270-00	1.990.280-01	1.990.289-00
GROUP UNIT STEREO B	1.990.285-00	1.990.275-00	1.990.285-01	---

INPUT UNIT STEREO



1.990.230.00



C144 / C 414 NACH MUSTER EINLÖTEN (LS)  
 C145 / C146 / C 445 / C 446 NACH MUSTER EINLÖTEN (LS)  
 R 471 / R 472 NEU AUF LS - SIEHE MUSTER  
 C30 / C30 / C 30 / C 31 DAZU AUF LÖTSEITE - SIEHE MUSTER  
 C31 / C35 DAZU  
 MP 47 MP 48 3 SIK MP2 DAZU  
 C840 ENTLÖT!

STUDER INPUT UNIT STEREO ESE 1.990.230.00  
 NIGENBACH ZÜRICH

12 2 91					
27 10 93					
Datum	Gez.	Gepr.	Dok.	Menge	

INPUT UNIT STEREO

Main table listing components for the INPUT UNIT STEREO. Columns include Ad, POS., REF.No., DESCRIPTION, MANUFACTURER, and various component details like values, tolerances, and part numbers. The table is organized into multiple columns for readability.



INPUT UNIT STEREO

1.990.230.00

Main table containing component lists with columns for Ad., POS., REF.No., DESCRIPTION, MANUFACTURER, and various part numbers and descriptions.





Pin location list

1.990.230

ALSO USED FOR -INPUT UNIT STEREO UNIV B 1.990.240  
 -INPUT UNIT STEREO HL+EQ MCH / B 1.990.232 / 242  
 -INPUT UNIT STEREO HL MCH / B 1.990.235 / 245

P	NO	NAME	REMARK	
				B=BUS O=CONNECTION S=SYMMETRIC I=INVERS AS=ASYMMETRIC
P6	01A	OVA BAL/PAN1	GROUND SIGN BAL (PAN 1)	0
P6	01B	B-L/PAN1-IN	BAL LEFT IN (PAN 1 IN)	0
P6	02A	B/PAN1-OUT-L	BAL OUT LEFT (PAN 1 OUT LEFT)	0
P6	02B	B/PAN1-OUT-R	BAL OUT RIGHT (PAN 1 OUT RIGHT)	0
P6	03A	-	NC (GROUND SIGN PAN 2)	0
P6	03B	B-R/PAN2-IN	BAL RIGHT IN (PAN 2 IN)	0
P6	04A	B-Rb-IN	BAL IN RIGHT b (PAN 2 OUT LEFT)	I,0
P6	04B	C-OUT	BAL COMMON OUT (PAN 2 OUT RIGHT)	0
P6	05A	FILM-OUT-L	OPTIONAL OUTPUT LEFT	0
P6	05B	FILM-OUT-R	OPTIONAL OUTPUT RIGHT	0
P6	06A	FILM-OUT-C	OPTIONAL OUTPUT	0
P6	06B	FILM-OUT-S	OPTIONAL OUTPUT	0
P6	07A	+ 15V	+ SUPPLY TO FADER UNIT	0
P6	07B	- 15V	- SUPPLY TO FADER UNIT	0
P6	08A	A OUT 0	INPUT ; FROM MCU ANALOG OUT 0	0
P6	08B	A OUT 1	INPUT ; FROM MCU ANALOG OUT 1	0
P6	09A	A IN 4	OUTPUT ; TO MCU ANALOG IN 4	0
P6	09B	A OUT 5	INPUT ; FROM MCU ANALOG OUT 5	0
P6	10A	RCL	RECEIVE CLOCK	0
P6	10B	RSTB	RECEIVE STROBE	0
P6	11A	INT 4	INTERUPT 4	0
P6	11B	RXD 3	RECEIVE DATA 3	0
P6	12A	INT 5	INTERUPT 5	0
P6	12B	TSTB 2	TRANSMIT STROBE 2	0
P6	13A	TSTB 3	TRANSMIT STROBE 3	0
P6	13B	TSTB 4	TRANSMIT STROBE 4	0
P6	14A	TSTB 5	TRANSMIT STROBE 5	0
P6	14B	DO 1	DATA OUT 1 (TRANSMIT STROBE 8)	0
P6	15A	TXD	TRANSMIT DATA	0
P6	15B	TCL	TRANSMIT CLOCK	0
P6	16A	DO 0	DATA OUT 0 (ENABLE)	0
P6	16B	UREF	+ 5V REFERENCE	0
P7	01A	OV-B	GROUND AUDIO (PIN)	0
P7	01B	CHASSIS	METAL FRAME	B
P7	02A	-	RES	0
P7	02B	-	RES	0
P7	03A	-	RES LEFT	B
P7	03B	-	RES RIGHT	B
P7	04A	B-MPX-L	MPX LEFT ; 0-OHM BUS	B,I
P7	04B	B-MPX-R	MPX RIGHT ; 0-OHM BUS	B,I
P7	05A	B-PFL/SOLO-L	PFL/SOLO LEFT ; 0-OHM BUS	B,I
P7	05B	B-PFL/SOLO-R	PFL/SOLO RIGHT ; 0-OHM BUS	B,I
P7	06A	B-A-L	MASTER A LEFT ; 0-OHM BUS	B,I
P7	06B	B-A-R	MASTER A RIGHT ; 0-OHM BUS	B,I
P7	07A	B-B-L	MASTER B LEFT ; 0-OHM BUS	B,I
P7	07B	B-B-R	MASTER B RIGHT ; 0-OHM BUS	B,I
P7	08A	B-C-L	MASTER C LEFT ; 0-OHM BUS	B,I
P7	08B	B-C-R	MASTER C RIGHT ; 0-OHM BUS	B,I



## Pin location list

1.990.230

P7	09A	B-D-L	MASTER D LEFT	; 0-OHM BUS	B,I	
P7	09B	B-D-R	MASTER D RIGHT	; 0-OHM BUS	B,I	
P7	10A	B-GR-1	GROUP 1	; 0-OHM BUS	B,I	
P7	10B	B-GR-2	GROUP 2	; 0-OHM BUS	B,I	
P7	11A	B-GR-3	GROUP 3	; 0-OHM BUS	B,I	
P7	11B	B-GR-4	GROUP 4	; 0-OHM BUS	B,I	
P7	12A	B-GR-5	GROUP 5	; 0-OHM BUS	B,I	
P7	12B	B-GR-6	GROUP 6	; 0-OHM BUS	B,I	
P7	13A	B-GR-7	GROUP 7	; 0-OHM BUS	B,I	
P7	13B	B-GR-8	GROUP 8	; 0-OHM BUS	B,I	
P7	14	OV-REF	OV REFERENCE		B	X X
P7	15A	B-AUX-1	AUX 1	; 0-OHM BUS	B,I	
P7	15B	B-AUX-2	AUX 2	; 0-OHM BUS	B,I	
P7	16A	B-AUX-3	AUX 3	; 0-OHM BUS	B,I	
P7	16B	B-AUX-4	AUX 4	; 0-OHM BUS	B,I	
P7	17A	B-AUX-5	AUX 5	; 0-OHM BUS	B,I	
P7	17B	B-AUX-6	AUX 6	; 0-OHM BUS	B,I	
P7	18A	B-AUX-7	AUX 7	; 0-OHM BUS	B,I	
P7	18B	B-AUX-8	AUX 8	; 0-OHM BUS	B,I	
P7	19A	B-AUX-9	AUX 9	; 0-OHM BUS	B,I	
P7	19B	B-AUX-10	AUX 10	; 0-OHM BUS	B,I	
P7	20A	B-AUX-11	AUX 11	; 0-OHM BUS	B,I	
P7	20B	B-AUX-12	AUX 12	; 0-OHM BUS	B,I	
P7	21A	B-AUX-13	AUX 13	; 0-OHM BUS	B,I	
P7	21B	B-AUX-14	AUX 14	; 0-OHM BUS	B,I	
P7	22A	B-AUX-15	AUX 15	; 0-OHM BUS	B,I	
P7	22B	B-AUX-16	AUX 16	; 0-OHM BUS	B,I	
P7	23A	OV GEN 1	GROUND AUDIO GENERIERT 1		0	
P7	23B	-	N.C.	( GROUP )	0	
P7	24A	OV GEN 2	GROUND AUDIO GENERIERT 2		0	
P7	24B	-	N.C.	( GROUP )	0	
P7	25A	OV GEN 3	GROUND AUDIO GENERIERT 3		0	
P7	25B	-	N.C.	( GROUP )	0	
P7	26A	OV GEN 4	GROUND AUDIO GENERIERT 4		0	
P7	26B	-	N.C.	( GROUP )	0	
P7	27	OV-A	GROUND AUDIO		B	X X
P7	28	- 15.5V	- SUPPLY		B	X X
P7	29	+ 15.5V	+ SUPPLY		B	X X
P7	30	OV-L	GROUND SIGN (LOGIC)		B	X X
P7	31	+ 5.5V	+ SUPPLY		B	X X
P7	32	+3..4V LED	LED SUPPLY VARIABLE +3...4V		B	X X
P9	01A	LINE A-L-a	LINE INPUT A LEFT a		S,0	
P9	01B	LINE A-L-b	LINE INPUT A LEFT b		S,0	
P9	02A	LINE A-L-OVE	LINE INPUT A LEFT GROUND EXTERN		0	
P9	02B	LINE A-R-OVE	LINE INPUT A RIGHT GROUND EXTERN		0	
P9	03A	LINE A-R-a	LINE INPUT A RIGHT a		S,0	
P9	03B	LINE A-R-b	LINE INPUT A RIGHT b		S,0	
P9	04A	LINE B-L-a	LINE INPUT B LEFT a		S,0	
P9	04B	LINE B-L-b	LINE INPUT B LEFT b		S,0	
P9	05A	LINE B-L-OVE	LINE INPUT B GROUND EXTERN		0	
P9	05B	LINE B-R-OVE	LINE INPUT B RIGHT GROUND EXTERN		0	
P9	06A	LINE B-R-a	LINE INPUT B RIGHT a		S,0	
P9	06B	LINE B-R-b	LINE INPUT B RIGHT b		S,0	
P9	07A	-	N.C.	( MONO )	0	
P9	07B	-	N.C.	( MONO )	0	
P9	08A	-	N.C.	( MONO )	0	
P9	08B	-	RES		0	
P9	09A	BUS-OUT-a	BUS OUTPUT a		S,0	
P9	09B	BUS-OUT-b	BUS OUTPUT b		S,0	
P9	10A	DIR-OUT-L-a	DIRECT OUT LEFT a		S,0	
P9	10B	DIR-OUT-L-b	DIRECT OUT LEFT b		S,0	

## Pin location list

1.990.230

P9	11A	DIR-OUT-R-a	DIRECT OUT RIGHT a	S,0
P9	11B	DIR-OUT-R-b	DIRECT OUT RIGHT b	S,0
P9	12A	METER-L	METER LEFT	AS,0
P9	12B	OV-GEN	GROUND AUDIO GENERIERT	0
P9	13A	METER-OV	METER GROUND	0
P9	13B	METER-R	METER RIGHT	AS,0
P9	14A	MCH-OUT-L-a	TO EURO 32CH BUS SELECTOR LEFT a	S,0
P9	14B	MCH-OUT-L-b	TO EURO 32CH BUS S. LEFT b(GROUND)	S,0
P9	15A	MCH-OUT-R-a	TO EURO 32CH BUS SELECTOR RIGHT a	S,0
P9	15B	MCH-OUT-R-b	TO EURO 32CH BUS S. RIGHT b(GROUND)	S,0
P9	16A	PF-OUT-L	PRE FADER OUT LEFT	AS,0
P9	16B	PF-OUT-R	PRE FADER OUT RIGHT	AS,0
P9	17A	AF-OUT-L	AFTER FADER OUT LEFT	AS,0
P9	17B	AF-OUT-R	AFTER FADER OUT RIGHT	AS,0
P9	18A	MIC-OUT-L-OV	MIC OUTPUT LEFT GROUND	0
P9	18B	AF/PF-OUT-OV	AF/PF OUT GROUND	0
P9	19A	MIC-L-a	MIC INPUT LEFT a	S,0
P9	19B	MIC-OUT-L	MIC OUTPUT LEFT	AS,0
P9	20A	MIC-L-OVE	MIC LEFT GROUND EXTERN	0
P9	20B	MIC-L-b	MIC INPUT LEFT b	S,0
P9	21A	MIC-R-a	MIC INPUT RIGHT a	S,0
P9	21B	MIC-R-OVE	MIC RIGHT GROUND EXTERN	0
P9	22A	PHANT-PWR-SW	PHANTOM SUPPLY SWITCHED	0
P9	22B	MIC-R-b	MIC INPUT RIGHT b	S,0
P9	23A	MLT-BUS-RET-a	MULTI BUS RETURN a	S,0
P9	23B	MLT-BUS-RET-b	MULTI BUS RETURN b	S,0
P9	24A	TB/SLATE-a	TALK BACK / SLATE INPUT a	S,B
P9	24B	PHANT-PWR-IN	PHANTOM SUPPLY BUS INPUT	B
P9	25A	MPX-MONO-a	MPX INPUT MONO a	S,B
P9	25B	TB/SLATE-b	TALK BACK / SLATE INPUT b	S,B
P9	26A	MPX-L-a	MPX INPUT LEFT a	S,B
P9	26B	MPX-MONO-b	MPX INPUT MONO b	S,B
P9	27A	MPX-R-a	MPX INPUT RIGHT a	S,B
P9	27B	MPX-L-b	MPX INPUT LEFT b	S,B
P9	28A	INS-OV	INSERT GROUND	0
P9	28B	MPX-R-b	MPX INPUT RIGHT b	S,B
P9	29A	INS-SEND-L-a	SYM INSERT LEFT OUTPUT a	S,0
P9	29B	INS-SEND-L-b	SYM INSERT LEFT OUTPUT b	S,0
P9	30A	INS-RET -L-a	SYM INSERT LEFT INPUT a	S,0
P9	30B	INS-RET -L-b	SYM INSERT LEFT INPUT b	S,0
P9	31A	INS-SEND-R-a	SYM INSERT RIGHT OUTPUT a	S,0
P9	31B	INS-SEND-R-b	SYM INSERT RIGHT OUTPUT b	S,0
P9	32A	INS-RET -R-a	SYM INSERT RIGHT INPUT a	S,0
P9	32B	INS-RET -R-b	SYM INSERT RIGHT INPUT b	S,0

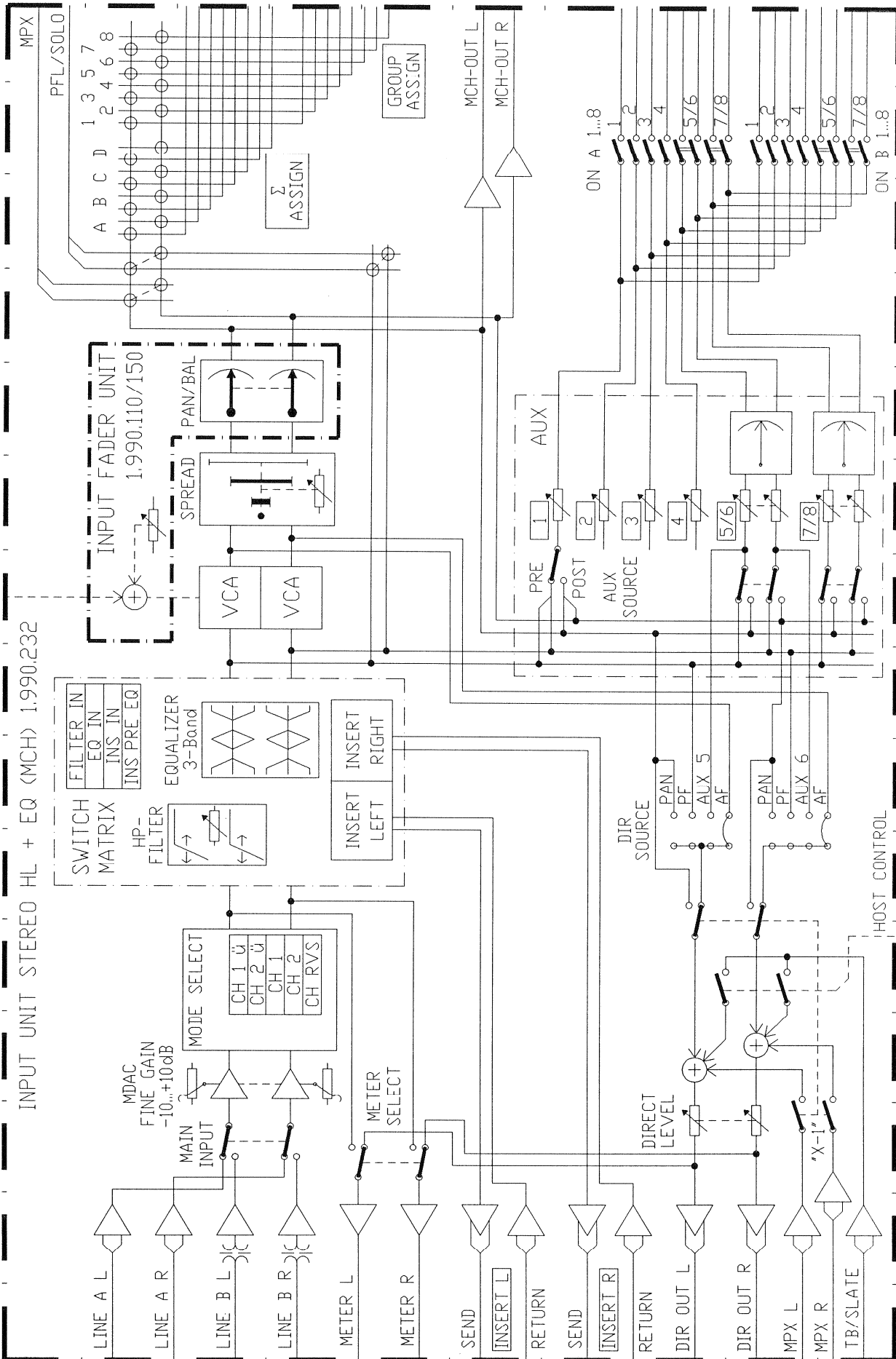
## Stereo Input Unit HL + EQ MCH

1.990.232.00

<b>Stereo Input Unit HL + EQ MCH</b> 1.990.232.00		SC 1.990.230.00 BP 1.990.230.00 PL 1.990.232.00 / 1.990.230.70 Pin Loc 1.990.230.00
1x	Switch Board Stereo + EQ 1.990.238.00	SC 1.990.230.00 BP 1.990.238.00 PL 1.990.238.00
2x	VCA Board 1.911.292.00	SC not available BP 1.911.292.00 PL 1.911.292.00
1x	Side Board EQ 1.990.289.00	SC 1.990.288.00 BP 1.990.289.00 PL 1.990.289.00
1x	HP - Filter (16mm) 5 Pot 10mm 1.990.295.00	SC 1.990.230.00 BP 1.990.295.00
1x	HF/MF/LF Frequenz (16mm) 5 Pot 24,6mm 1.990.296.00	SC 1.990.230.00 BP 1.990.296.00 PL 1.990.296.00
2x	Potentiometer Board AUX 5/6 - 7/8 1.990.297.00	SC 1.990.230.00 BP 1.990.297.00

SC: Schema      Circuit Diagram  
BP: Bestückungsplan    PCB Layout  
PL: Positionsliste      Positional List

STEREO INPUT UNIT HL+EQ MCH 1.990.232.00



INPUT UNIT STEREO HL+EQ MCH

1.990.232.00

Ad	..POS..	...REF.No...	DESCRIPTION.....	MANUFACTURER	Ad	..POS..	...REF.No...	DESCRIPTION.....	MANUFACTURER
A....2		1.990.238.00	SWITCH BOARD STEREO +EQ	St	W...110		0 Ohm	57.11.3000	on 1.990.296 G4
A....7		1.990.296.00	3*5 POT. 24.6MM BOARD	St	W...111		0 Ohm	57.11.3000	on 1.990.296 G5
A....8		1.990.230.93	LL INPUT UNIT STEREO	St					
A....12		1.990.289.00	SIDE BOARD FO	A St					
A....13		1.990.295.00	5 POT. 10MM BOARD	St I6					
A....70		1.990.230.70	Baugruppe Stereo vorbestueckt	St					
C....77			4700 pF	59.05.2472	on 1.990.296 G6				
C....78			not used		on 1.990.296				
C....79			not used		on 1.990.296				
C....80			not used		on 1.990.296				
C....93			100 uF	59.22.3101	on 1.990.296 E5				
C...377			4700 pF	59.05.2472	on 1.990.296 F6				
C...393			100 uF	59.22.3101	on 1.990.296 E5				
IC...12		50.09.0117	MC33078P	dual op. amp. low noise	Mot I5				
IC...312		50.09.0117	MC33078P	dual op. amp. low noise	Mot H5				
MP...17		1.010.100.58	4 pcs	Masseblech zu Preh-Pot Type 12					
MP...18		22.99.0137	4 pcs	6-Kt. Mutter M7*0.75					
MP...19		23.99.0122	4 pcs	U-Scheibe D 7.1/12*0.5					
MP...21		1.990.200.05	4 pcs	Poti-Achsverlaengerung					
MP...26		21.01.0279	5 pcs	Z-Schr. M2.5*6					
MP...27		24.16.1025	5 pcs	Rippenscheibe D 2.7 / 5					
MP...27		24.16.1025	8 pcs	Rippenscheibe D 2.7 / 5					
MP...28		21.01.2352	6 pcs	S-Schr. M3*4					
MP...29		24.16.3023	2 pcs	Wellensicherung 2.3					
MP...30		42.01.0203	2 pcs	Drehknopf gr, D 10/4					
MP...31		42.01.0228	13 pcs	Knebelknopf gr, D 10/4					
MP...32		42.01.0250	7 pcs	Deckel h'gr, D 10					
MP...33		42.01.0251	4 pcs	Deckel d'gr, D 10					
MP...34		42.01.0253	1 pcs	Deckel rt, D 10					
MP...35		42.01.0254	1 pcs	Deckel bl, D 10					
MP...36		42.01.0255	1 pcs	Deckel gb, D 10					
MP...37		42.01.0256	1 pcs	Deckel gn, D 10					
MP...38		1.010.022.21	2 pcs	Linse Schr. spez H3*8					
MP...39		1.010.221.27	1 pcs	Mutterbolzen M2.5*10.5					
MP...40		1.912.000.03	2 pcs	Drehring D 6.2/13					
MP...41		1.990.200.03	1 pcs	Schirmblech Input					
MP...42		1.990.210.02	1 pcs	Traeger Input					
MP...43		1.990.210.05	1 pcs	Fenster Input					
MP...44		1.990.232.01	1 pcs	Frontschild Input (1.990.242.01 -> BG 2421)					
MP...45		1.990.289.02	1 pcs	Isolation Side Board					
MP...47		1.990.289.01	1 pcs	Schirmblech SIDE BOARD					
MP...48		1.010.208.27	3 pcs	Mutterbolzen M2.5x14mm					
P....21			26 pol	1/20"	54.14.2003	on 1.990.296			
P....22			26 pol	1/20"	54.14.2003	on 1.990.296			
R....68			22 kOhm	10%	-log.comb.with R71/368/371/859	I295 I6			
R....71			22 kOhm	10%	-log.see R 68	1.010.029.58	on A 13 I6		
R...102		1.010.107.58	4.7 kOhm	10%	lin. comb.with R402/857	St G7			
R...104		1.010.107.58	4.7 kOhm	10%	lin. comb.with R404/853	St F7			
R...106		1.010.107.58	4.7 kOhm	10%	lin. comb.with R406/855	St E7			
R...109			100 kOhm	10%	neg.log. 1.010.030.58	on 1.990.296 H5			
R...110			100 kOhm	10%	neg.log. see R 109	on 1.990.296 H6			
R...111			3.9 kOhm		57.11.3392	on 1.990.296 H6			
R...112			1 MOhm		57.11.3105	on 1.990.296 G5			
R...113			4.7 kOhm		57.11.3472	on 1.990.296 G5			
R...114			100 kOhm	10%	neg.log. 1.010.030.58	on 1.990.296 G6			
R...115			100 kOhm	10%	neg.log. see R 114	on 1.990.296 G5			
R...116			100 kOhm	10%	neg.log. 1.010.030.58	on 1.990.296 F6			
R...117			100 kOhm	10%	neg.log. see R 116	on 1.990.296 F5			
R...118			4.7 kOhm		57.11.3472	on 1.990.296 F5			
R...140		1.010.102.58	10 kOhm	10%	pos log.comb. with R440/856	St H7			
R...368			22 kOhm	10%	neg.log. see R 68	I6			
R...371			22 kOhm	10%	neg.log. see R 68	I6			
R...402			4.7 kOhm	10%	lin. see R 102	G6			
R...404			4.7 kOhm	10%	lin. see R 104	F6			
R...406			4.7 kOhm	10%	lin. see R 106	E6			
R...409			100 kOhm	10%	neg.log. see R 109	on 1.990.296 H5			
R...410			100 kOhm	10%	neg.log. see R 109	on 1.990.296 H5			
R...411			3.9 kOhm		57.11.3392	on 1.990.296 G4			
R...412			1 MOhm		57.11.3105	on 1.990.296 F5			
R...413			4.7 kOhm		57.11.3472	on 1.990.296 F5			
R...414			100 kOhm	10%	neg.log. see R 114	on 1.990.296 G5			
R...415			100 kOhm	10%	neg.log. see R 114	on 1.990.296 G5			
R...416			100 kOhm	10%	neg.log. see R 116	on 1.990.296 F5			
R...417			100 kOhm	10%	neg.log. see R 116	on 1.990.296 F5			
R...418			4.7 kOhm		57.11.3472	on 1.990.296 F5			
R...440			0	not used	see R 140	H6			
R...852			100 kOhm	20%	lin. see R 114	on 1.990.296 G6			
R...853			100 kOhm	20%	lin. see R 104	F7			
R...854			100 kOhm	20%	lin. see R 116	on 1.990.296 F6			
R...855			100 kOhm	20%	lin. see R 106	E7			
R...856			100 kOhm	20%	lin. see R 140	H7			
R...857			100 kOhm	20%	lin. see R 102	G7			
R...858			100 kOhm	20%	lin. see R 109	on 1.990.296 H6			
R...859			100 kOhm	20%	lin. see R 68	I7			

12/02/91 (01) Erleichterung Fertigung und Pruefung (Schirmblech und Mutterbolzen zu EQ werden erst am Schluss montiert)

>> POSLST 1.990.232 gilt auch fuer BG 1.990.242.xx ( B - Version ) <<

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Die files zu dieser POSLST heissen #990232A,B

Die posliste 1.990.230.70 ist in den files #990230S,T

\*\*\*\*\*  
 OPTIONS : SEE OPTIONLIST 1.990.230.00  
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option 1 :.....multichannel out  
 option 2 :.....output trim (stereo inputs:standard)  
 option 3 :.....0 ohm input to processing ( only input unit stereo )

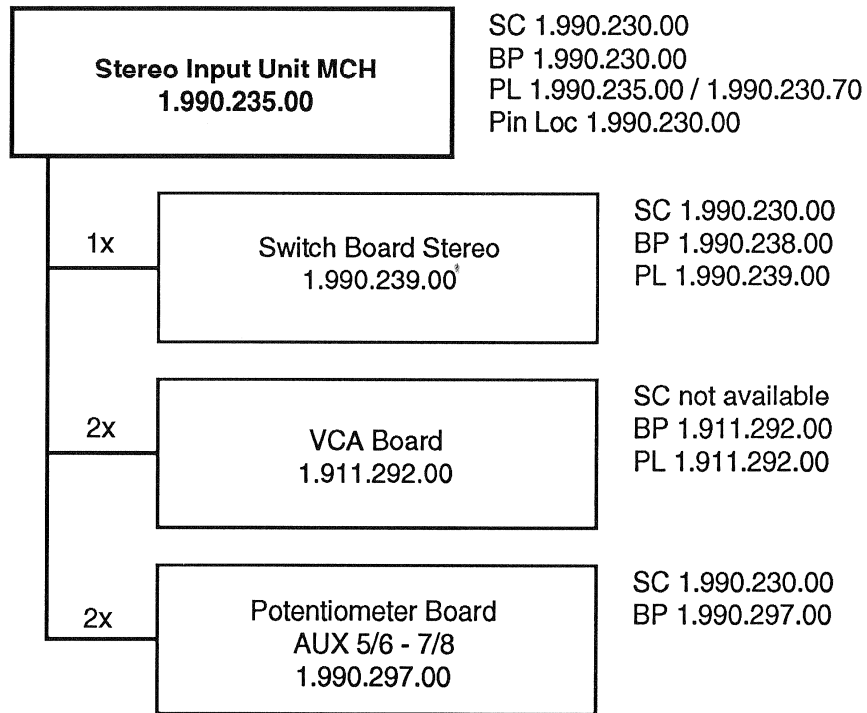
\*\*\*\*\*  
 Die Koordinaten bei Manuf. beziehen sich auf Bestueckplan

CE=Ceramic, CF=Carbon Film, EL=Electrolytic, MF=Metal Film, PE=Polyester, PP=Polypropylen, PS=Polystyrol

MANUFACTURER: ADI=Aanalog Devices Inc., Bu=Burndy, El=Elco, Ex=Exar, Fc=Fairchild, Fe=Ferranti, Gl=General Instrument, Ha=Harting, HP=Hewlett Packard, ITT=Intermetall, Mot=Motorola, Nat=National (Matsushita), NS=National Semiconductors, Ph=Philips, PMI=Precision Monolithics Inc., Ra=Raytheon, RCA=Radio Corp. of America, SDS=SDS-Relais, Sie=Siemens, Six=Siliconix, St=Studer, Tho=Thomson, To=Toshiba, TI=Texas Instrument, Ya=Yamaichi

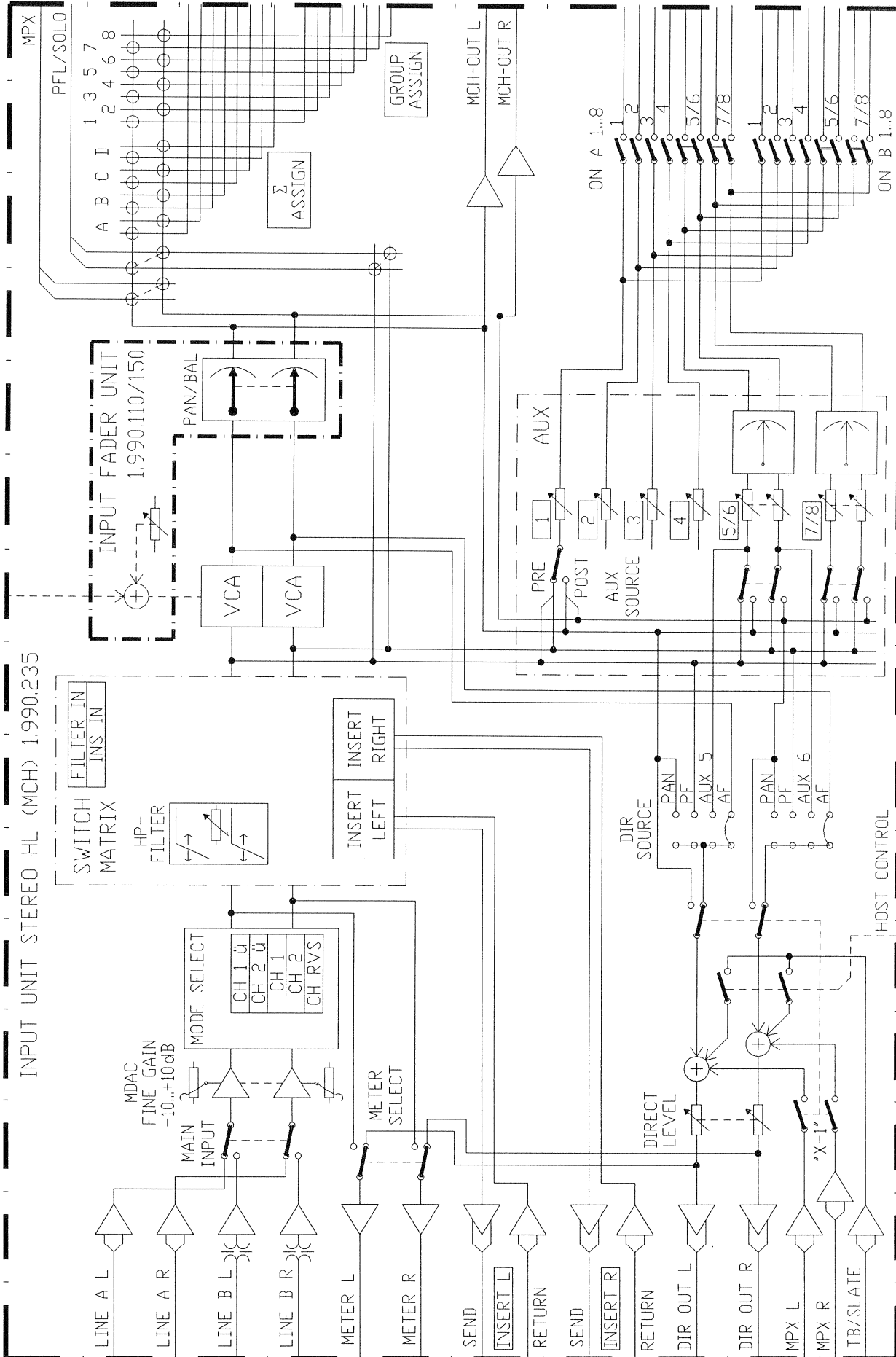
1.990.232.00 INPUT UNIT STEREO HL+EQ MCH AB 91/02/0400  
 1.990.232.00 INPUT UNIT STEREO HL+EQ MCH AB 91/02/1201

END  
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**Stereo Input Unit MCH****1.990.235.00**

SC: Schema      Circuit Diagram  
BP: Bestückungsplan      PCB Layout  
PL: Positionsliste      Positional List

INPUT UNIT STEREO HL (MCH) 1.990.235.00



INPUT UNIT STEREO HL MCH

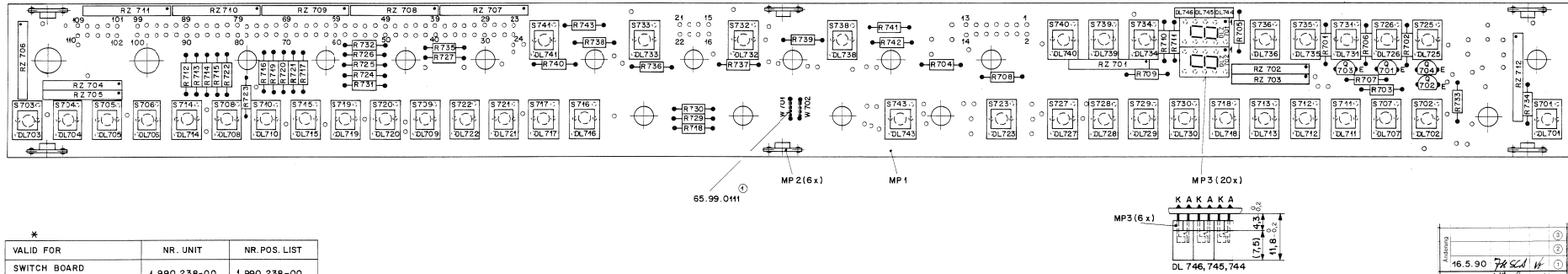
1.990.235.00

Ad	..POS..	...REF.No...	DESCRIPTION.....	MANUFACTURER
A....2	1.990.239.00		SWITCH BOARD STEREO	St
A....70	1.990.230.70		Baugruppe Stereo vorbestueckt	St
MP...28	21.01.2352	6 pcs	S-Schr. M3*4	
MP...29	24.16.3023	2 pcs	Wellensicherung 2.3	
MP...30	42.01.0203	2 pcs	Drehknopf gr, D 10/4	
MP...31	42.01.0228	5 pcs	Knebelknopf gr, D 10/4	
MP...32	42.01.0250	2 pcs	Deckel h'gr, D 10	
MP...33	42.01.0251	1 pcs	Deckel d'gr, D 10	
MP...34	42.01.0253	1 pcs	Deckel rt, D 10	
MP...35	42.01.0254	1 pcs	Deckel bl, D 10	
MP...36	42.01.0255	1 pcs	Deckel gb, D 10	
MP...37	42.01.0256	1 pcs	Deckel gn, D 10	
MP...38	1.010.022.21	2 pcs	Linsenschr. spez M3*8	
MP...40	1.912.000.03	2 pcs	Drehring D 6.2/13	
MP...41	1.990.200.03	1 pcs	Schirmblech Input	
MP...42	1.990.210.02	1 pcs	Traeger Input	
MP...43	1.990.210.05	1 pcs	Fenster Input	
MP...44	1.990.235.01	1 pcs	Frontschild Input (1.990245.01 -> BG 245I)	
W....18	1.010.329.64	wire	2.5mm, bypass spread	D3
W....19	1.010.329.64	wire	2.5mm, bypass spread	C3
>> POSLST 1.990.235 gilt auch fuer BG 1.990.245.xx ( B - Version ) <<				
>-----<   Die files zu dieser POSLST heissen #990235A,B   >-----<				
Die posliste 1.990.230.70 ist in den files #990230S,T				
*****				
OPTIONS : SEE OPTIONLIST 1.990.230.00				
*****				
option 1 :.....multichannel out				
option 2 :.....output trim (stereo inputs : standard)				
option 3 :.....0 ohm input to processing ( only input unit stereo )				
*****				
Die Koordinaten bei Manuf. beziehen sich auf Bestueckplan				
CE=Ceramic, CF=Carbon Film, EL=Electrolytic, MF=Metal Film,				
PE=Polyester, PP=Polypropylen, PS=Polystyrol				
MANUFACTURER: ADI=Aanalog Devices Inc., Bu=Burndy, El=Elco, Ex=Exar,				
Fc=Fairchild, Fe=Ferranti, GI=General Instrument, Ha=Harting,				
HP=Hewlett Packard, ITT=Intermetall, Mot=Motorola, Nat=National				
{Matsushita}, NS=National Semiconductors, Ph=Phillips,				
PMI=Precision Monolithics Inc., Ra=Raytheon, RCA=Radio Corp. of				
America, SDS=SDS-Relais, Sie=Siemens, Six=Siliconix, St=Studer,				
Tho=Thomson, To=Toshiba, TI=Texas Instrument, Ya=Yamaichi				
1.990.235.00 INPUT UNIT STEREO HL MCH AB 91/02/0400				
END				



SWITCH BOARD STEREO

1.990.238.00 / 1.990.239.00



VALID FOR	NR. UNIT	NR. POS. LIST
SWITCH BOARD STEREO + EQ	1.990.238-00	1.990.238-00
SWITCH BOARD STEREO	1.990.239-00	1.990.239-00

STUDER REGENSDORF ZÜRICH	SWITCH BOARD STEREO	1.990.238-00
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Ad	POS.	REF.No.	DESCRIPTION	MANUFACTURER	Ad	POS.	REF.No.	DESCRIPTION	MANUFACTURER	Ad	POS.	REF.No.	DESCRIPTION	MANUFACTURER	Ad	POS.	REF.No.	DESCRIPTION	MANUFACTURER	
DL..701	.	.	red see S701		MP..701	1.990.219.11	1	pcs	Input Mono PCB		R..741	57.11.3101	100 Ohm	5%	0.25W	S...731	55.15.0604	1	A	yel/trans.
DL..702	.	.	grn see S702		MP..702	1.990.100.05	6	pcs	Querrinthalter		R..742	57.11.3101	100 Ohm	5%	0.25W	S...732	55.15.0605	1	A	grn/trans.
DL..703	.	.	yel see S703		MP..703	53.03.0218	26	pcs	single line socket		R..743	57.11.3101	100 Ohm	5%	0.25W	S...733	55.15.0605	1	A	grn/trans.
DL..704	.	.	grn see S704		MP..704	1.990.238.04	1	pcs	Nr. Etikette 5*20		RZ..701	57.88.2101	100 Ohm	SIP 8	(4*)	S...734	55.15.0655	1	A	grn/grn
DL..705	.	.	yel see S705		Q...701	50.03.0515	BC 307	PNP	IC-100mA, B-100 any		RZ..702	57.88.2101	100 Ohm	SIP 8	(4*)	S...735	55.15.0604	1	A	yel/trans.
DL..706	.	.	grn see S706		Q...702	50.03.0436	BC 237	NPN	IC-100mA, B-100 any		RZ..703	57.88.2101	100 Ohm	SIP 8	(4*)	S...736	55.15.0605	1	A	grn/trans.
DL..707	.	.	yel see S707		Q...703	50.03.0515	BC 307	PNP	IC-100mA, B-100 any		SZ..705	57.88.2101	100 Ohm	SIP 8	(4*)	S...737	.	.	0	not used
DL..708	.	.	grn see S708		Q...704	50.03.0436	BC 237	NPN	IC-100mA, B-100 any		RZ..706	57.88.2101	100 Ohm	SIP 8	(4*)	S...738	55.15.0605	1	A	grn/trans.
DL..709	.	.	yel see S709		R...701	57.11.3101	100 Ohm	5%	0.25W		RZ..707	57.88.4104	100 Ohm	SIP 9	(8*)	S...739	55.15.0655	1	A	grn/grn
DL..710	.	.	yel see S710		R...702	57.11.3222	2.2 kOhm	5%	0.25W		RZ..708	57.88.4104	100 Ohm	SIP 9	(8*)	S...740	55.15.0644	1	A	yel/yel
DL..711	.	.	yel see S711		R...703	57.11.3102	1 kOhm	5%	0.25W		RZ..709	57.88.4104	100 Ohm	SIP 9	(8*)	S...741	55.15.0605	1	A	grn/trans.
DL..712	.	.	yel see S712		R...704	57.11.3473	47 kOhm	5%	0.25W		RZ..710	57.88.4104	100 Ohm	SIP 9	(8*)	S...742	.	.	0	not used
DL..713	.	.	grn see S713		R...705	57.11.3101	100 Ohm	5%	0.25W		RZ..711	57.88.4104	100 Ohm	SIP 9	(8*)	S...743	55.15.0622	1	A	red/red
DL..714	.	.	yel see S714		R...706	57.11.3222	2.2 kOhm	5%	0.25W		S...701	55.15.0602	1	A	red/trans.	W...701	1.010.321.64	5mm	link	
DL..715	.	.	grn see S715		R...707	57.11.3102	1 kOhm	5%	0.25W		S...702	55.15.0604	1	A	yel/trans.	W...702	1.010.321.64	5mm	link	
DL..716	.	.	red see S716		R...708	57.11.3473	47 kOhm	5%	0.25W		S...703	55.15.0644	1	A	yel/yel	W...703	.	.	0	not used
DL..717	.	.	red see S717		R...709	57.11.3101	100 Ohm	5%	0.25W		S...704	55.15.0605	1	A	grn/trans.	W...704	.	.	0	not used
DL..718	.	.	red see S718		R...710	57.11.3101	100 Ohm	5%	0.25W		S...705	55.15.0604	1	A	yel/trans.					
DL..719	.	.	yel see S719		R...711	57.11.3101	100 Ohm	5%	0.25W		S...706	55.15.0604	1	A	yel/trans.					
DL..720	.	.	grn see S720		R...712	57.11.3101	100 Ohm	5%	0.25W		S...707	55.15.0604	1	A	yel/trans.					
DL..721	.	.	yel see S721		R...713	57.11.3101	100 Ohm	5%	0.25W		S...708	55.15.0604	1	A	yel/trans.					
DL..722	.	.	grn see S722		R...714	57.11.3101	100 Ohm	5%	0.25W		S...709	55.15.0604	1	A	yel/trans.					
DL..723	.	.	yel see S723		R...715	57.11.3101	100 Ohm	5%	0.25W		S...710	55.15.0604	1	A	yel/trans.					
DL..724	.	0	not used		R...716	57.11.3101	100 Ohm	5%	0.25W		S...711	55.15.0604	1	A	yel/trans.					
DL..725	.	.	yel see S725		R...717	57.11.3101	100 Ohm	5%	0.25W		S...712	55.15.0604	1	A	yel/trans.					
DL..726	.	.	yel see S726		R...718	57.11.3101	100 Ohm	5%	0.25W		S...713	55.15.0605	1	A	grn/trans.					
DL..727	.	.	grn see S727		R...719	57.11.3101	100 Ohm	5%	0.25W		S...714	55.15.0604	1	A	yel/trans.					
DL..728	.	.	grn see S728		R...720	57.11.3101	100 Ohm	5%	0.25W		S...715	55.15.0604	1	A	yel/trans.					
DL..729	.	.	grn see S729		R...721	57.11.3101	100 Ohm	5%	0.25W		S...716	55.15.0622	1	A	red/red					
DL..730	.	.	red see S730		R...722	57.11.3101	100 Ohm	5%	0.25W		S...717	55.15.0622	1	A	red/red					
DL..731	.	.	yel see S731		R...723	57.11.3101	100 Ohm	5%	0.25W		S...718	55.15.0604	1	A	yel/trans.					
DL..732	.	.	grn see S732		R...724	57.11.3101	100 Ohm	5%	0.25W		S...719	55.15.0604	1	A	yel/trans.					
DL..733	.	.	grn see S733		R...725	57.11.3101	100 Ohm	5%	0.25W		S...720	55.15.0605	1	A	grn/trans.					
DL..734	.	.	grn see S734		R...726	57.11.3101	100 Ohm	5%	0.25W		S...721	55.15.0604	1	A	yel/trans.					
DL..735	.	.	yel see S735		R...727	57.11.3101	100 Ohm	5%	0.25W		S...722	55.15.0605	1	A	grn/trans.					
DL..736	.	.	grn see S736		R...728	0	0	not used		S...723	55.15.0622	1	A	red/red						
DL..737	.	0	not used		R...729	57.11.3101	100 Ohm	5%	0.25W		S...724	.	.	0	not used					
DL..738	.	.	grn see S738		R...730	57.11.3101	100 Ohm	5%	0.25W		S...725	55.15.0604	1	A	yel/trans.					
DL..739	.	.	grn see S739		R...731	57.11.3101	100 Ohm	5%	0.25W		S...726	55.15.0604	1	A	yel/trans.					
DL..740	.	.	yel see S740		R...732	57.11.3101	100 Ohm	5%	0.25W		S...727	55.15.0605	1	A	grn/trans.					
DL..741	.	.	grn see S741		R...733	57.11.3101	100 Ohm	5%	0.25W		S...728	55.15.0605	1	A	grn/trans.					
DL..742	.	0	not used		R...734	57.11.3101	100 Ohm	5%	0.25W		S...729	55.15.0604	1	A	yel/trans.					
DL..743	.	.	red see S743		R...735	57.11.3101	100 Ohm	5%	0.25W		S...730	55.15.0602	1	A	red/trans.					
DL..744	50.04.2701	MV 57123	red		R...736	57.11.3101	100 Ohm	5%	0.25W											
DL..745	50.04.2701	MV 57123	red		R...737	57.11.3101	100 Ohm	5%	0.25W											
DL..746	50.04.2701	MV 57123	red		R...738	57.11.3101	100 Ohm	5%	0.25W											
DLZ.701	73.01.0128	HDSP7303	7-segment display common cathode	HP	R...739	57.11.3101	100 Ohm	5%	0.25W											
DLZ.702	73.01.0128	HDSP7303	7-segment display common cathode	HP	R...740	57.11.3101	100 Ohm	5%	0.25W											

CE=Ceramic, CF=Carbon Film, EL=Electrolytic, MF=Metal Film, PE=Polyester, PP=Polypropylen, PS=Polystyrol

MANUFACTURER: Bu=Burndy, Ex=Exer, Fc=Fairchild, GI=General Instrument, HP=Hewlett Packard, IT=Intermetal, M=Motorola, M=National (Matsushita), NS=National Semiconductors, Ph=Philips, Ra=Raytheon, Sig=SiGeonics, Six=Siliconix, St=Studer, TI=Texas Instrument

1.990.238.00 SWITCH BOARD STEREO + EQ TA 90/04/0200

## SWITCH BOARD STEREO

1.990.239.00

Ad	..POS..	..REF.No..	DESCRIPTION	MANUFACTURER	Ad	..POS..	..REF.No..	DESCRIPTION	MANUFACTURER	
DL..701	.	.	red	see S701	R..741	57.11.3101	100	Ohm	5% 0.25W	
DL..702	.	.	yel	see S702	R..742	57.11.3101	100	Ohm	5% 0.25W	
DL..703	.	.	yel	see S703	R..743	57.11.3101	100	Ohm	5% 0.25W	
DL..704	.	.	grn	see S704	RZ..701	57.88.2101	100	Ohm	SIP 8 (4°)	
DL..705	.	.	yel	see S705	RZ..702	57.88.2101	100	Ohm	SIP 8 (4°)	
DL..706	.	.	grn	see S706	RZ..703	57.88.2101	100	Ohm	SIP 8 (4°)	
DL..707	.	.	yel	see S707	RZ..704	57.88.2101	100	Ohm	SIP 8 (4°)	
DL..708	.	.	grn	see S708	RZ..705	57.88.2101	100	Ohm	SIP 8 (4°)	
DL..709	.	.	yel	see S709	RZ..706	57.88.2101	100	Ohm	SIP 8 (4°)	
DL..710	.	.	yel	see S710	RZ..707	57.88.4104	100	kOhm	SIP 9 (8°)	
DL..711	.	.	yel	see S711	RZ..708	57.88.4104	100	kOhm	SIP 9 (8°)	
DL..712	.	.	yel	see S712	RZ..709	57.88.4104	100	kOhm	SIP 9 (8°)	
DL..713	.	.	grn	see S713	RZ..710	57.88.4104	100	kOhm	SIP 9 (8°)	
DL..714	.	.	yel	see S714	RZ..711	57.88.4104	100	kOhm	SIP 9 (8°)	
DL..715	.	.	grn	see S715	RZ..712	57.88.4104	100	kOhm	SIP 9 (8°)	
DL..716	.	0	not used		S...701	55.15.0602	1	* A	red/trans.	
DL..717	.	.	red	see S717	S...702	55.15.0604	1	* A	yel/trans.	
DL..718	.	.	red	see S718	S...703	55.15.0644	1	* A	yel/yel	
DL..719	.	.	grn	see S719	S...704	55.15.0605	1	* A	grn/trans.	
DL..720	.	.	gm	see S720	S...705	55.15.0604	1	* A	yel/trans.	
DL..721	.	.	yel	see S721	S...706	55.15.0605	1	* A	grn/trans.	
DL..722	.	0	not used		S...707	55.15.0604	1	* A	yel/trans.	
DL..723	.	0	not used		S...708	55.15.0605	1	* A	grn/trans.	
DL..724	.	0	not used		S...709	55.15.0604	1	* A	yel/trans.	
DL..725	.	.	yel	see S725	S...710	55.15.0604	1	* A	yel/trans.	
DL..726	.	.	yel	see S726	S...711	55.15.0604	1	* A	yel/trans.	
DL..727	.	.	grn	see S727	S...712	55.15.0604	1	* A	yel/trans.	
DL..728	.	.	grn	see S728	S...713	55.15.0605	1	* A	grn/trans.	
DL..729	.	.	grn	see S729	S...714	55.15.0604	1	* A	yel/trans.	
DL..730	.	.	red	see S730	S...715	55.15.0605	1	* A	grn/trans.	
DL..731	.	.	yel	see S731	S...716	55.15.0605	1	* A	grn/trans.	
DL..732	.	0	not used		S...717	55.15.0622	1	* A	red/red	
DL..733	.	0	not used		S...718	55.15.0602	1	* A	red/trans.	
DL..734	.	.	grn	see S734	S...719	55.15.0604	1	* A	yel/trans.	
DL..735	.	.	yel	see S735	S...720	55.15.0605	1	* A	grn/trans.	
DL..736	.	.	grn	see S736	S...721	55.15.0604	1	* A	yel/trans.	
DL..737	.	0	not used		S...722	55.15.0605	1	* A	grn/trans.	
DL..738	.	0	not used		S...723	55.15.0604	1	* A	yel/trans.	
DL..739	.	.	grn	see S739	S...724	55.15.0604	1	* A	yel/trans.	
DL..740	.	.	yel	see S740	S...725	55.15.0604	1	* A	yel/trans.	
DL..741	.	0	not used		S...726	55.15.0604	1	* A	yel/trans.	
DL..742	.	0	not used		S...727	55.15.0605	1	* A	grn/trans.	
DL..743	.	0	not used		S...728	55.15.0605	1	* A	grn/trans.	
DL..744	50.04.2701	MV 57123	red		S...729	55.15.0605	1	* A	grn/trans.	
DL..745	50.04.2701	MV 57123	red		S...730	55.15.0602	1	* A	red/trans.	
DL..746	50.04.2701	MV 57123	red		S...731	55.15.0604	1	* A	yel/trans.	
DLZ.701	73.01.0128	HCSPT303	7-segment display common cathode	HP	S...732	55.15.0604	1	* A	yel/trans.	
DLZ.702	73.01.0128	HCSPT303	7-segment display common cathode	HP	S...733	55.15.0604	1	* A	yel/trans.	
MP..701	1.990.219.11	1 pcs	Input Mono PCB		S...734	55.15.0655	1	* A	grn/grn	
MP..702	1.990.100.05	6 pcs	Querprinthalter		S...735	55.15.0604	1	* A	yel/trans.	
MP..703	53.03.0218	26 pcs	single line socket		S...736	55.15.0605	1	* A	grn/trans.	
MP..704	1.990.239.04	1 pcs	Nr.Etikette S720		S...737	55.15.0605	1	* A	grn/trans.	
Q...701	50.03.0515	BC 307	PNP	I<=100mA, B=100	any	S...738	55.15.0605	1	* A	grn/grn
Q...702	50.03.0436	BC 237	PNP	I<=100mA, B=100	any	S...740	55.15.0644	1	* A	yel/yel
Q...703	50.03.0515	BC 307	PNP	I<=100mA, B=100	any	S...741	55.15.0604	1	* A	not used
Q...704	50.03.0436	BC 237	PNP	I<=100mA, B=100	any	S...742	55.15.0604	1	* A	not used
R...701	57.11.3101	100	Ohm	5% 0.25W	S...743	55.15.0604	1	* A	not used	
R...702	57.11.3222	2.2	kOhm	5% 0.25W	W...701	57.11.3101	100	Ohm	5% 0.25W	
R...703	57.11.3102	1	kOhm	5% 0.25W	W...702	57.11.3101	100	Ohm	5% 0.25W	
R...704	57.11.3473	47	kOhm	5% 0.25W	W...703	57.11.3102	1	kOhm	5% 0.25W	
R...705	57.11.3101	100	Ohm	5% 0.25W	W...704	57.11.3473	47	kOhm	5% 0.25W	
R...706	57.11.3222	2.2	kOhm	5% 0.25W	CE=Ceramic, CF=Carbon Film, EL=Electrolytic, MF=Metal Film, PE=Polyester, PP=Polypropylen, PS=Polystyrol					
R...707	57.11.3102	1	kOhm	5% 0.25W	MANUFACTURER: Bu=Burdyn, Ex=Exar, Fc=Fairchild, GI=General Instrument HHi=Harris, Packard, ITI=Intersil, ILL=Intematel, Mat=National (Matsushita), NS=National Semiconductors, Ph=Philips, Re=Raytheon, Sig=Signetics, Six=Siliconix, St=Studer, TI=Texas Instrument					
R...708	57.11.3473	47	kOhm	5% 0.25W	1.990.239.00 SWITCH BOARD STEREO TA 50/04/0200					
R...709	57.11.3101	100	Ohm	5% 0.25W	END					
R...710	57.11.3101	100	Ohm	5% 0.25W	*					
R...711	57.11.3101	100	Ohm	5% 0.25W						
R...712	57.11.3101	100	Ohm	5% 0.25W						
R...713	57.11.3101	100	Ohm	5% 0.25W						
R...714	57.11.3101	100	Ohm	5% 0.25W						
R...715	57.11.3101	100	Ohm	5% 0.25W						
R...716	57.11.3101	100	Ohm	5% 0.25W						
R...717	57.11.3101	100	Ohm	5% 0.25W						
R...718	57.11.3101	100	Ohm	5% 0.25W						
R...719	57.11.3101	100	Ohm	5% 0.25W						
R...720	57.11.3101	100	Ohm	5% 0.25W						
R...721	57.11.3101	100	Ohm	5% 0.25W						
R...722	57.11.3101	100	Ohm	5% 0.25W						
R...723	57.11.3101	100	Ohm	5% 0.25W						
R...724	57.11.3101	100	Ohm	5% 0.25W						
R...725	57.11.3101	100	Ohm	5% 0.25W						
R...726	57.11.3101	100	Ohm	5% 0.25W						
R...727	57.11.3101	100	Ohm	5% 0.25W						
R...728	57.11.3101	100	Ohm	5% 0.25W						
R...729	57.11.3101	100	Ohm	5% 0.25W						
R...730	57.11.3101	100	Ohm	5% 0.25W						
R...731	57.11.3101	100	Ohm	5% 0.25W						
R...732	57.11.3101	100	Ohm	5% 0.25W						
R...733	57.11.3101	100	Ohm	5% 0.25W						
R...734	57.11.3101	100	Ohm	5% 0.25W						
R...735	57.11.3101	100	Ohm	5% 0.25W						
R...736	57.11.3101	100	Ohm	5% 0.25W						
R...737	57.11.3101	100	Ohm	5% 0.25W						
R...738	57.11.3101	100	Ohm	5% 0.25W						
R...739	57.11.3101	100	Ohm	5% 0.25W						
R...740	57.11.3101	100	Ohm	5% 0.25W						

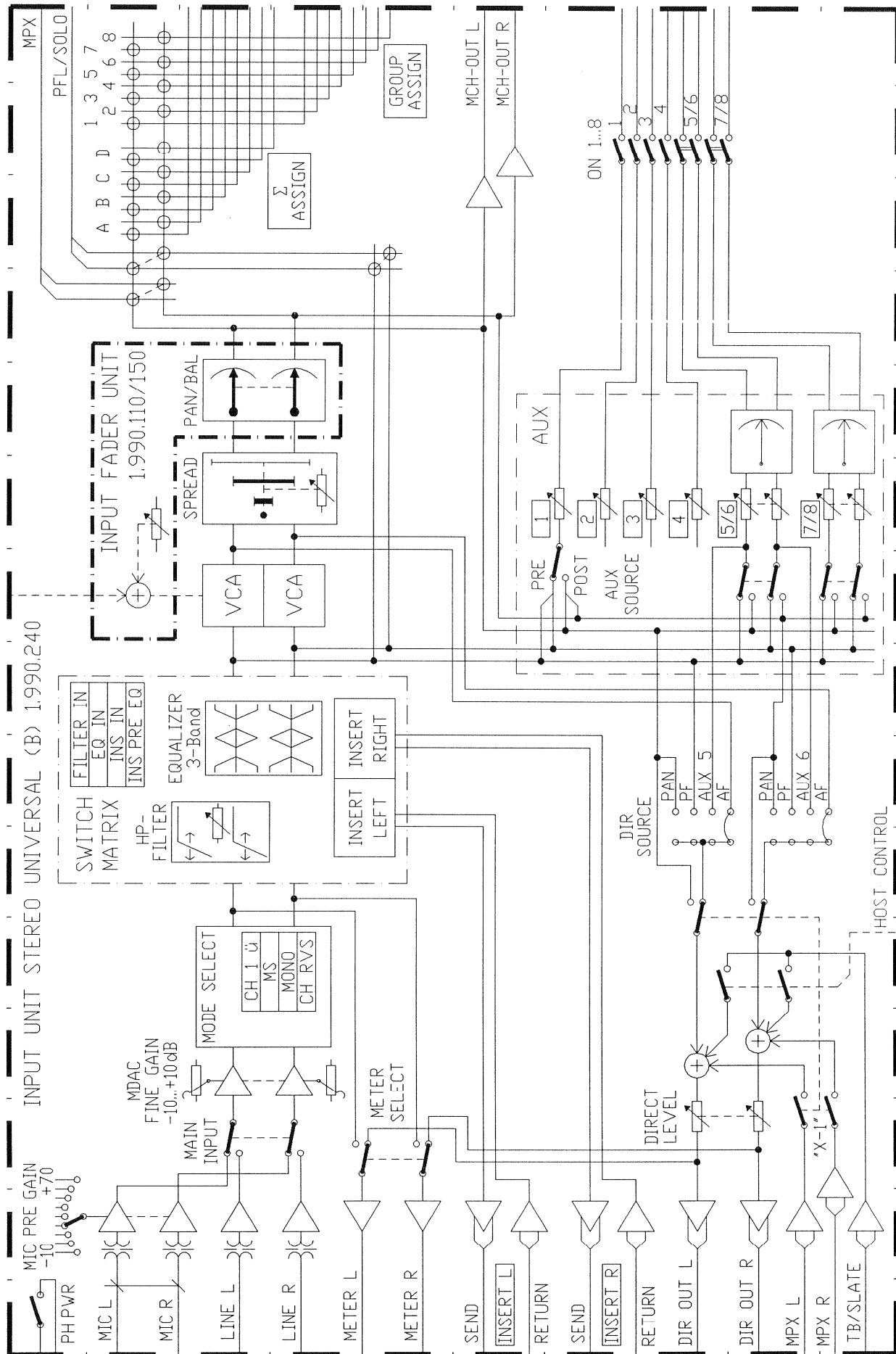
## Stereo Input Unit Universal B

1.990.240.00

<b>Stereo Input Unit Universal B</b> 1.990.240.00		SC 1.990.230.00 BP 1.990.230.00 PL 1.990.230.00 / 1.990.230.70 Pin Loc 1.990.230.00
1x	Switch Board Stereo + EQ 1.990.238.00	SC 1.990.230.00 BP 1.990.238.00 PL 1.990.238.00
2x	VCA Board 1.911.292.00	SC not available BP 1.911.292.00 PL 1.911.292.00
1x	Side Board EQ + MIC 1.990.288.00	SC 1.990.288.00 BP 1.990.288.00 PL 1.990.288.00
1x	HP - Filter (16mm) 5 Pot 10mm 1.990.295.00	SC 1.990.230.00 BP 1.990.295.00
1x	HF/MF/LF Frequenz (16mm) 5 Pot 24,6mm 1.990.296.00	SC 1.990.230.00 BP 1.990.296.00 PL 1.990.296.00
2x	Potentiometer Board AUX 5/6 - 7/8 1.990.297.00	SC 1.990.230.00 BP 1.990.297.00

SC: Schema      Circuit Diagram  
BP: Bestückungsplan    PCB Layout  
PL: Positionsliste      Positional List

STEREO INPUT UNIT UNIVERSAL B 1.990.240.00

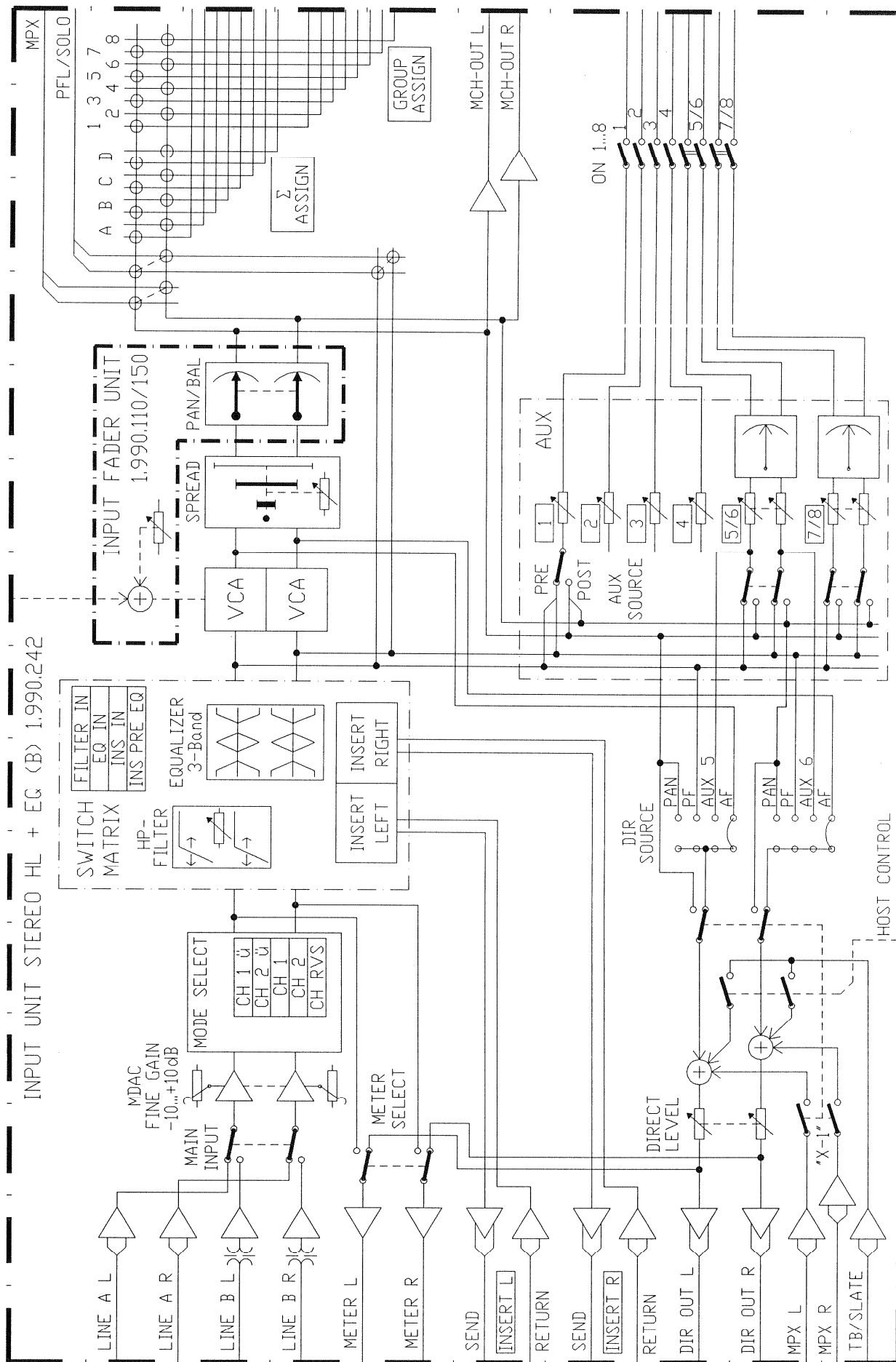


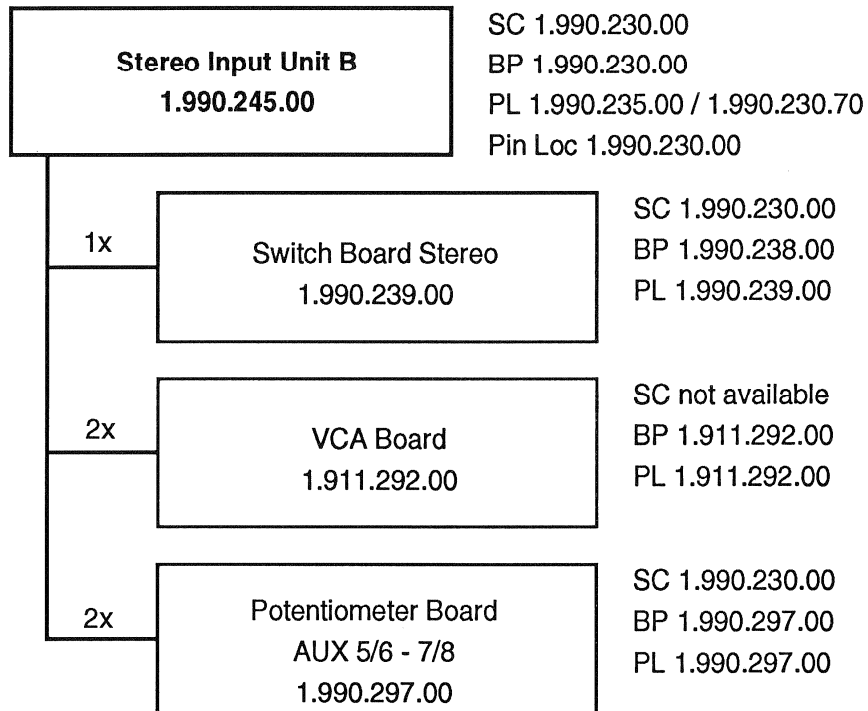
**Stereo Input Unit HL + EQ B****1.990.242.00**

<b>Stereo Input Unit HL + EQ B</b> <b>1.990.242.00</b>		SC 1.990.230.00 BP 1.990.230.00 PL 1.990.232.00 / 1.990.230.70 Pin Loc 1.990.230.00
1x	<b>Switch Board Stereo + EQ</b> 1.990.238.00	SC 1.990.230.00 BP 1.990.238.00 PL 1.990.238.00
2x	<b>VCA Board</b> 1.911.292.00	SC not available BP 1.911.292.00 PL 1.911.292.00
1x	<b>Side Board EQ</b> 1.990.289.00	SC 1.990.288.00 BP 1.990.289.00 PL 1.990.289.00
1x	<b>HP - Filter (16mm)</b> 5 Pot 10mm 1.990.295.00	SC 1.990.230.00 BP 1.990.295.00
1x	<b>HF/MF/LF Frequenz (16mm)</b> 5 Pot 24,6mm 1.990.296.00	SC 1.990.230.00 BP 1.990.296.00 PL 1.990.296.00
2x	<b>Potentiometer Board</b> AUX 5/6 - 7/8 1.990.297.00	SC 1.990.230.00 BP 1.990.297.00

SC: Schema      Circuit Diagram  
 BP: Bestückungsplan    PCB Layout  
 PL: Positionsliste      Positional List

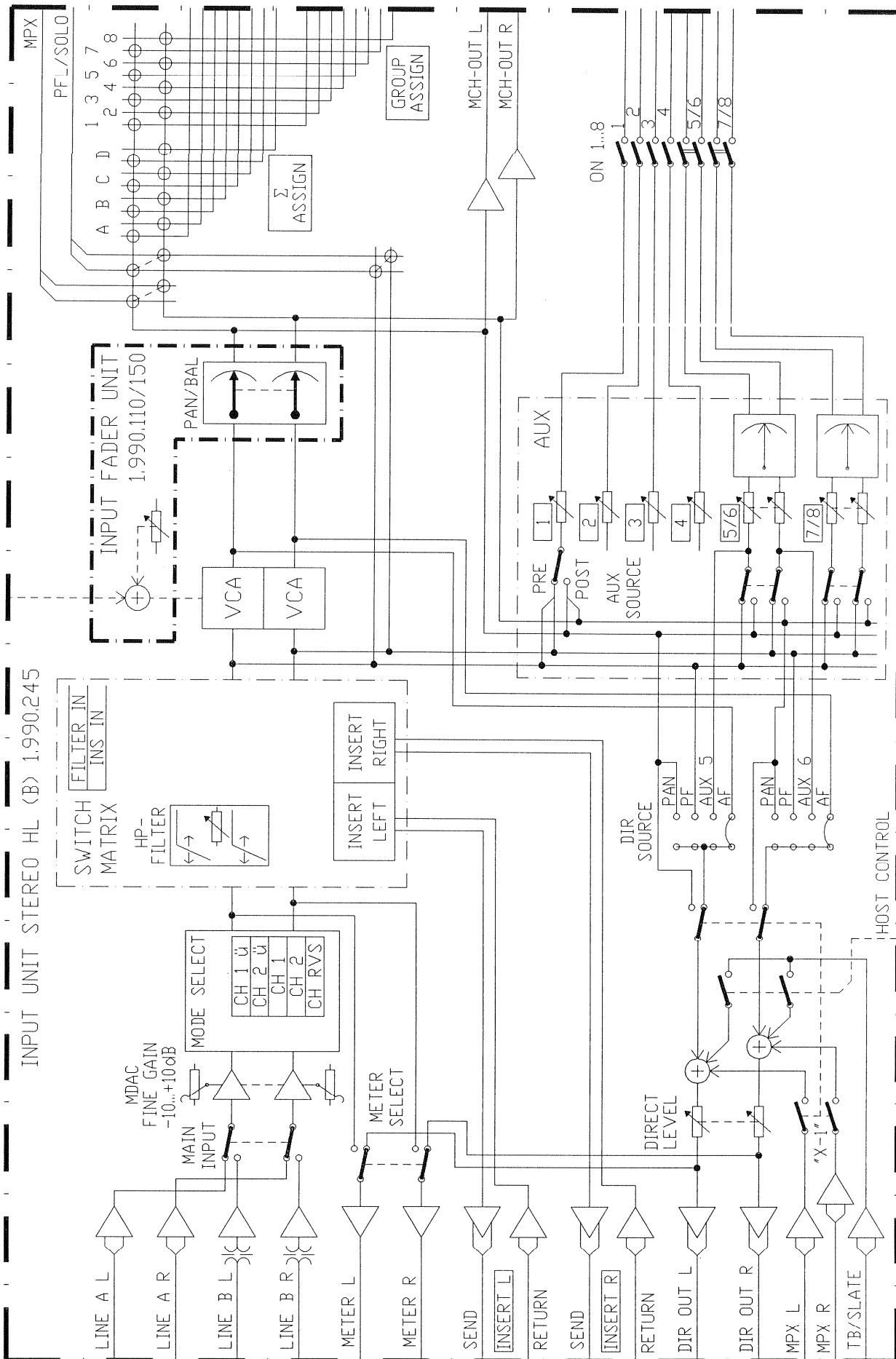
STEREO INPUT UNIT HL+EQ B 1.990.242.00



**Stereo Input Unit B****1.990.245.00**

SC: Schema      Circuit Diagram  
 BP: Bestückungsplan    PCB Layout  
 PL: Positionsliste      Positional List

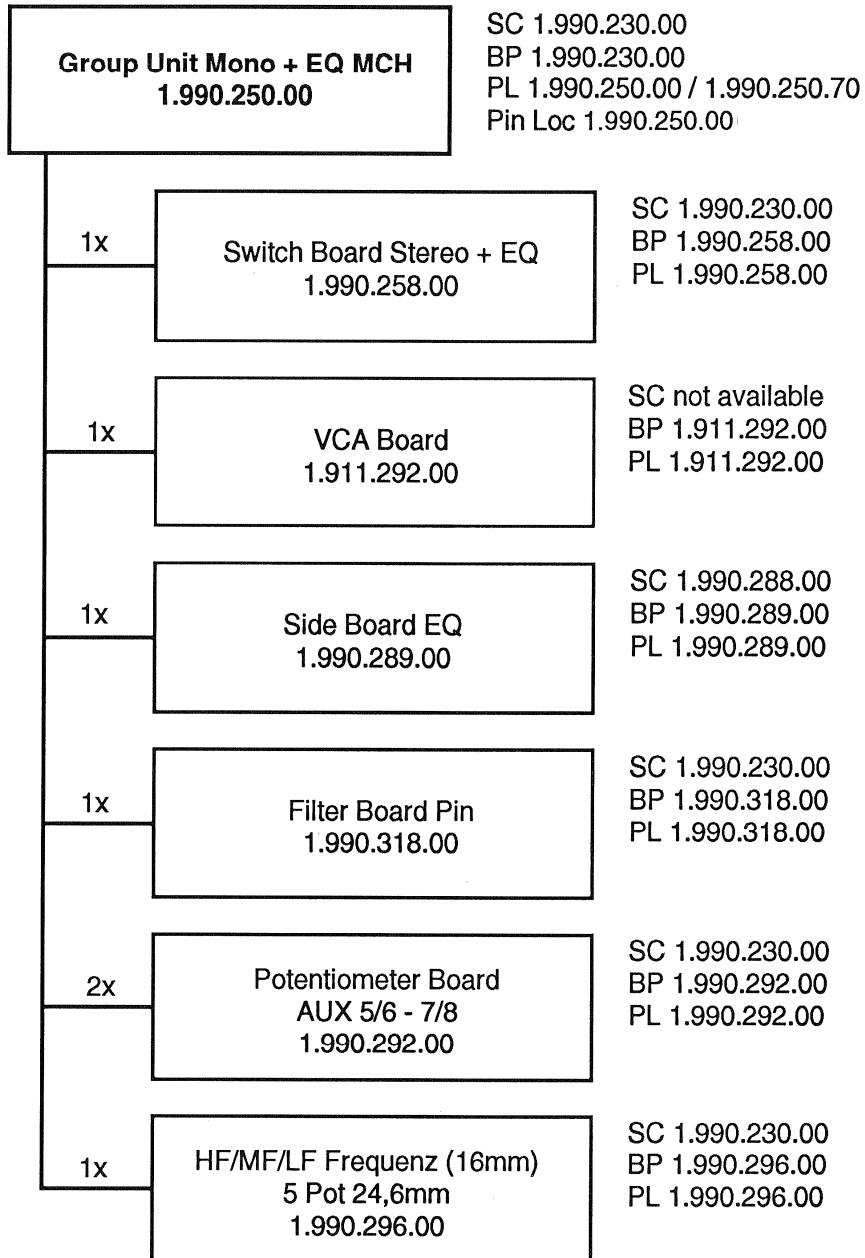
INPUT UNIT STEREO HL (B) 1.990.245.00





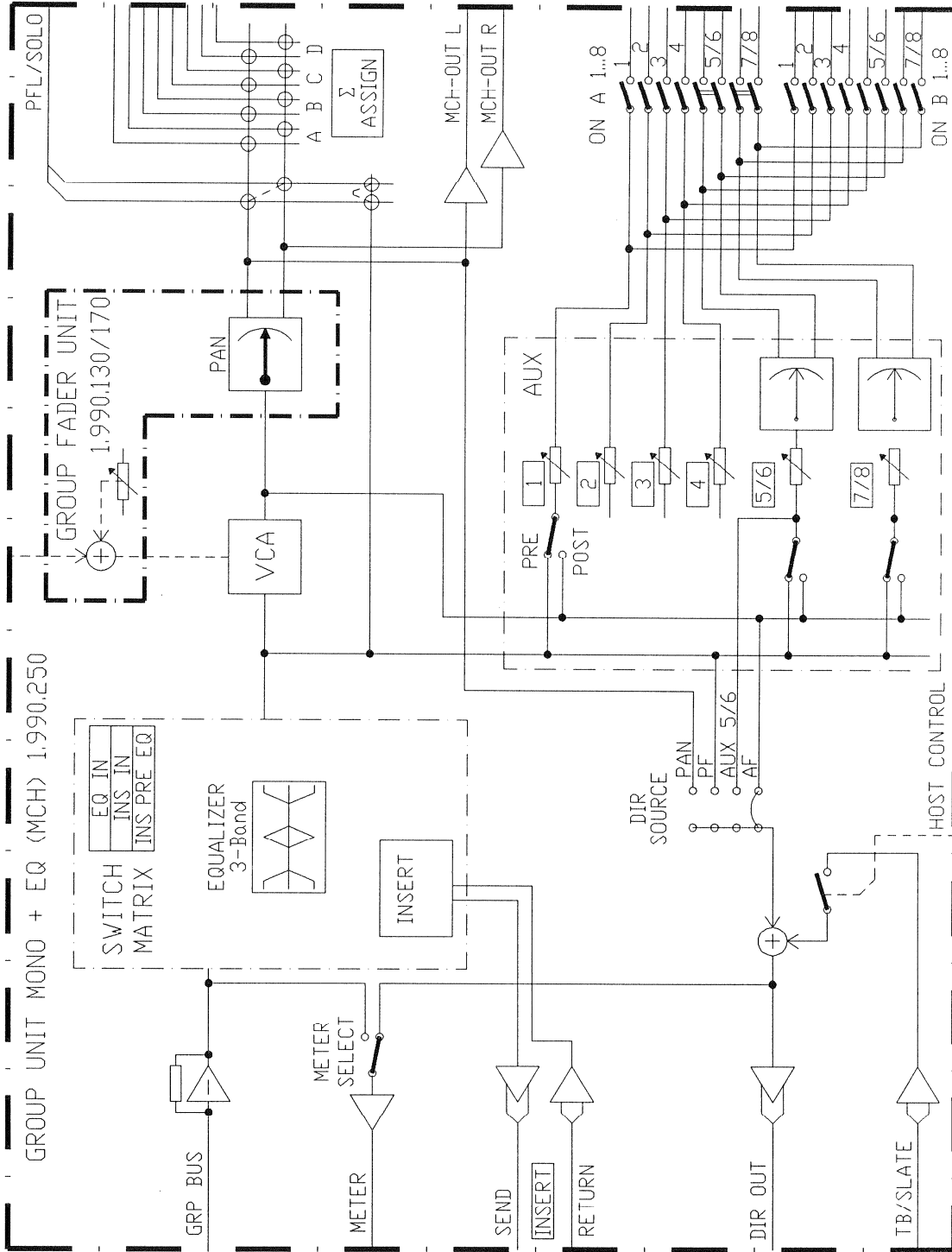
Group Unit Mono + EQ MCH

1.990.250.00



SC: Schema            Circuit Diagram  
 BP: Bestückungsplan PCB Layout  
 PL: Positionsliste    Positional List

GROUP UNIT MONO+EQ MCH 1.990.250.00





GROUP UNIT MONO +EQ

1.990.250.00

Ad	..POS..	...REF.No...	DESCRIPTION.....	MANUFACTURER	Ad	..POS..	...REF.No...	DESCRIPTION.....	MANUFACTURER
A....2		1.990.258.00	SWITCH BOARD GROUP +EQ	St	R...857			100 kOhm 20% lin.	see R 102
A....7		1.990.296.00	3*5 POT. 24.6MM BOARD	St	R...858			100 kOhm 20% lin.	see R 109 on 1.990.296
A....12		1.990.289.00	SIDE BOARD EQ	,A St	W....16	1.010.330.64	wire	3.5mm, Group Mono Pan	C1
A....14		1.990.292.00	5 POT. 10MM BOARD	St B6	W....19	0	not used	remove W 19 in MONO GROUPS	C3
A....15		1.990.292.00	5 POT. 10MM BOARD	St B6	W....20	57.11.3000	0 Ohm	Group AUX Mono Pan	B4
A....16		1.990.318.00	FILTER BOARD PIN	St N3	W...110		0 Ohm	57.11.3000	on 1.990.296
A....70		1.990.250.70	GROUP UNIT VORMONTIERT	,A St	W...111		0 Ohm	57.11.3000	on 1.990.296
C....77			4700 pF	59.05.2472	on 1.990.296				
C....93			100 uF	59.22.3101	on 1.990.296				
C...377			4700 pF	59.05.2472	on 1.990.296				
C...393			100 uF	59.22.3101	on 1.990.296				
IC...15		50.07.0015	CD4053	3 * 2 channel analog mux/demux	Ph,Mot,RCA G4				
IC...19		50.09.0117	MC33078P	dual op. amp. low noise	Mot F3				
IC...75			0	not used	see option 1 H1				
IC..813		50.07.0049	4049	hex inverting buffer CMOS	Ph,To D8				
IC..814		50.07.0049	4049	hex inverting buffer CMOS	Ph,To E9				
IC..835		50.07.0051	CD4051	8-channel analog mux/demux	Ph,Mot,RCA G8				
IC..836		50.07.0051	CD4051	8-channel analog mux/demux	Ph,Mot,RCA G9				
MP...21		1.990.200.05	3 pcs	Poti-Achsverlaengerung					
MP...26		21.01.0279	5 pcs	Z-Schr. M2.5*6					
MP...27		24.16.1025	5 pcs	Rippenscheibe D 2.7 / 5					
MP...27		24.16.1025	8 pcs	Rippenscheibe D 2.7 / 5					
MP...28		21.01.2352	6 pcs	S-Schr. M3*4					
MP...29		24.16.3023	2 pcs	Wellensicherung 2.3					
MP...30		42.01.0203	2 pcs	Drehknopf gr, D 10/4					
MP...31		42.01.0228	10 pcs	Knebelknopf gr, D 10/4					
MP...32		42.01.0250	4 pcs	Deckel h'gr, D 10					
MP...33		42.01.0251	4 pcs	Deckel d'gr, D 10					
MP...34		42.01.0253	1 pcs	Deckel rt, D 10					
MP...35		42.01.0254	1 pcs	Deckel bl, D 10					
MP...36		42.01.0255	1 pcs	Deckel gb, D 10					
MP...37		42.01.0256	1 pcs	Deckel gn, D 10					
MP...38		1.010.022.21	2 pcs	Linsenschr. spez M3*8					
MP...39		1.010.221.27	1 pcs	Mutterbolzen M2.5*10.5					
MP...40		1.912.000.03	2 pcs	Drehring D 6.2/13					
MP...41		1.990.200.03	1 pcs	Schirmblech Input					
MP...42		1.990.210.02	1 pcs	Traeger Input					
MP...44		1.990.250.01	1 pcs	Frontschild Input (1.990260.01 -> BG 260!)					
MP...45		1.990.289.02	1 pcs	Isolation Side Board					
MP...46		1.010.108.64	1 pcs	gelber Draht connects PF L&PF R	F2				
01 MP...47		1.990.289.01	1 pcs	Schirmblech SIDE BOARD					
01 MP...48		1.010.208.27	3 pcs	Mutterbolzen M2.5x14mm					
P...21			26 pol	1/20"	54.14.2003	on 1.990.296			
P...22			26 pol	1/20"	54.14.2003	on 1.990.296			
R...102		1.010.108.58	4.7 kOhm	10% lin. comb.with 857	St G7				
R...104		1.010.108.58	4.7 kOhm	10% lin. comb.with 853	St F7				
R...106		1.010.108.58	4.7 kOhm	10% lin. comb.with 855	St E7				
R...109			100 kOhm	10% neg.log. 1.010.030.58	on 1.990.296				
R...110			100 kOhm	10% neg.log. see R 109	on 1.990.296				
R...111			3.9 kOhm	57.11.3392	on 1.990.296				
R...112			1 MOhm	57.11.3105	on 1.990.296				
R...113			4.7 kOhm	57.11.3472	on 1.990.296				
R...114			100 kOhm	10% neg.log. 1.010.030.58	on 1.990.296				
R...115			100 kOhm	10% neg.log. see R 114	on 1.990.296				
R...116			100 kOhm	10% neg.log. 1.010.030.58	on 1.990.296				
R...117			100 kOhm	10% neg.log. see R 116	on 1.990.296				
R...118			4.7 kOhm	57.11.3472	on 1.990.296				
R...182			4.7 kOhm	10% +log.comb.withR183/483/844/846	B6				
R...183			10 kOhm	10% +log.see R 182 1.010.034.58	on A 14 B6				
R...186			4.7 kOhm	10% +log.comb.withR187/487/845/847	A6				
R...187			10 kOhm	10% +log.see R 186 1.010.034.58	on A 15 A6				
R...203			0	not used	see option 2 N6				
R...409			100 kOhm	10% neg.log. see R 109	on 1.990.296				
R...410			100 kOhm	10% neg.log. see R 109	on 1.990.296				
R...411			3.9 kOhm	57.11.3392	on 1.990.296				
R...412			1 MOhm	57.11.3105	on 1.990.296				
R...413			4.7 kOhm	57.11.3472	on 1.990.296				
R...414			100 kOhm	10% neg.log. see R 114	on 1.990.296				
R...415			100 kOhm	10% neg.log. see R 114	on 1.990.296				
R...416			100 kOhm	10% neg.log. see R 116	on 1.990.296				
R...417			100 kOhm	10% neg.log. see R 116	on 1.990.296				
R...418			4.7 kOhm	57.11.3472	on 1.990.296				
R...436			0	not used	remove R 436 in MONO GROUPS	H3			
R...483			10 kOhm	10% neg.log. see R 182	B6				
R...487			10 kOhm	10% neg.log. see R 186	A6				
R...844			100 kOhm	20% lin. see R 182	B7				
R...845			100 kOhm	20% lin. see R 186	A6				
R...846			100 kOhm	20% lin. see R 182	B6				
R...847			100 kOhm	20% lin. see R 186	A7				
R...852			100 kOhm	20% lin. see R 114	on 1.990.296				
R...853			100 kOhm	20% lin. see R 104	F7				
R...854			100 kOhm	20% lin. see R 116	on 1.990.296				
R...855			100 kOhm	20% lin. see R 106	E7				

12/02/91 (01) Erleichterung Fertigung und Pruefung (Schirmblech und Mutterbolzen zu EQ werden erst am Schluss montiert)

>> POSLST 1.990.250 gilt auch fuer BG 1.990.260.xx ( B - Version ) <<

-----<  
 | Die files zu dieser POSLST heissen #990250A,B |  
 ----->

Die posliste 1.990.250.70 ist in den files #990250S,T

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OPTIONS : SEE OPTIONLIST 1.990.230.00

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option 1 :.....multichannel out  
 option 2 :.....output trim

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Die Koordinaten bei Manuf. beziehen sich auf Bestueckplan

CE=Ceramic, CF=Carbon Film, EL=Electrolytic, MF=Metal Film,  
 PE=Polyester, PP=Polypropylen, PS=Polystyrol

MANUFACTURER: ADI=Analog Devices Inc., Bu=Burndy, El=Elco, Ex=Exar,  
 Fc=Fairchild, Fe=Ferranti, GI=General Instrument, Ha=Harting,  
 HP=Hewlett Packard, IT=Intermetall, Mot=Motorola, Nat=National  
 (Matsushita), NS=National Semiconductors, Ph=Philips,  
 PMI=Precision Monolithics Inc., Ra=Raytheon, RCA=Radio Corp. of  
 America, SDS=SDS-Relais, Sie=Siemens, Six=Siliconix, St=Studer,  
 Tho=Thomson, To=Toshiba, TI=Texas Instrument, Ya=Yamaichi

1.990.250.00 GROUP UNIT MONO +EQ AB 91/02/1100

1.990.250.00 GROUP UNIT MONO +EQ AB 91/02/1201

END



COMMON GROUP UNIT

1.990.250.70

Ad	.POS.	REF.No.	DESCRIPTION	MANUFACTURER	Ad	.POS.	REF.No.	DESCRIPTION	MANUFACTURER	
A.....1		1.911.292.00	VCA	St E4	C....77		0	NOT USED		
A.....2		0	NOT USED		C....78		0	not used	(on 1.990.296)	
A.....3		1.023.412.02	1/40 " flatcable connect. 200mm 20pol	St	C....79		0	not used	(on 1.990.296)	
A.....4		1.023.412.14	1/40 " flatcable connect. 140mm 20pol	St	C....80		0	not used	(on 1.990.296)	
A.....5		1.023.412.14	1/40 " flatcable connect. 140mm 20pol	St						
A.....6		1.023.412.25	1/40 " flatcable connect. 250mm 20pol	St	C....81	59.06.0104	100 nF		PE I3	
A.....7		0	NOT USED		C....82	59.06.0104	100 nF		PE I3	
A.....8		0	not used		C....83		0	not used	G5	
A.....9		0	not used		C....84		0	not used	G5	
A.....10		1.990.250.94	KL GROUP UNIT	St	C....85		0	not used	G5	
A.....11		0	NOT USED		C....86	59.06.0104	100 nF		PE C4	
A.....12		0	NOT USED		C....87	59.06.0104	100 nF		PE C4	
A.....13		0	not used		C....88		0	not used	N5	
A.....14		0	NOT USED	B5	C....89		0	not used	A7	
A.....15		0	NOT USED	A5	C....90		0	not used	A7	
A.....16		0	NOT USED	N3	C....91		0	not used	A7	
A.....17		0	not used		C....93		0	NOT USED		
A....70		0	NOT USED		C....94	59.06.0104	100 nF		PE I0	
A...301		0	NOT USED	E3	C....95	59.06.0104	100 nF		PE I0	
A...316		0	NOT USED	N4	C....97	59.22.3101	100 uF	-20%	10V EL I0	
C.....1		0	not used	N3	C....98	59.22.3101	100 uF	-20%	10V EL I0	
C.....2		0	not used	N3	C....99	59.34.4101	100 pF		CE I1	
C.....3		0	not used	N2	C...100	59.34.4101	100 pF		CE I1	
C.....4		0	not used	N2	C...101	59.22.3101	100 uF	-20%	10V EL I1	
C.....5		0	not used	N2	C...102	59.22.6220	22 uF	-20%	16V EL G3	
C.....6		0	not used	N3	C...103	59.34.4101	100 pF		CE G3	
C.....7		0	not used	N3	C...104	59.22.3101	100 uF	-20%	10V EL G2	
C.....8		0	not used	M3	C...105	59.34.4101	100 pF		CE G3	
C.....9		0	not used	M3	C...106	59.22.3101	100 uF	-20%	10V EL G2	
C.....10		0	not used	M2	C...107	59.26.1220	22 uF	-20%	10V SAL F4	
C.....11		0	not used	M2	C...108	59.26.5109	1 uF	-20%	10V SAL E4	
C.....12		0	not used	N2	C...109	59.34.2330	33 pF		CE D4	
C.....13		0	not used	N2	C...110	59.22.3101	100 uF	-20%	10V EL D4	
C.....14		0	not used	M2	C...111	59.22.3471	470 uF	-20%	6V EL D4	
C.....15		0	not used	M2	C...112	59.22.3101	100 uF	-20%	10V EL D4	
C.....16		0	not used	M2	C...113	59.22.3101	100 uF	-20%	10V EL D4	
C.....17		0	not used	M2	C...114	59.34.4101	100 pF		CE E4	
C.....18		0	not used	M2	C...115	59.34.4101	100 pF		CE C3	
C.....19		0	not used	M2	C...116	59.34.4101	100 pF		CE C3	
C.....20		0	not used	M2	C...117	59.22.3101	100 uF	-20%	10V EL B4	
C.....21		0	not used	M2	C...118	59.22.3101	100 uF	-20%	10V EL C3	
C.....22		0	not used	L6	C...119	59.22.6220	22 uF	-20%	10V EL C3	
C.....23		0	not used	L6	C...120	59.22.3101	100 uF	-20%	10V EL C3	
C.....24		0	not used	L6	C...121	59.34.4101	100 pF		CE B3	
C.....25		0	not used	L7	C...122	59.22.3101	100 uF	-20%	10V EL B3	
C.....26		0	not used	L6	C...123	59.22.6220	22 uF	-20%	10V EL B4	
C.....27		0	not used	L6	C...124	59.22.3101	100 uF	-20%	10V EL B3	
C.....28		0	not used	L6	C...125	59.22.6220	22 uF	-20%	10V EL E5	
C.....29		0	not used	L7	C...126	59.34.4101	100 pF		CE D5	
C.....30		0	not used	L5	C...127	59.22.3101	100 uF	-20%	10V EL E5	
C.....31		59.22.3101	100 uF	-20%	10V EL	C...128	59.22.6220	22 uF	-20%	10V EL D6
C.....32		59.34.7220	22 pF	2%	CE	C...129	59.34.4101	100 pF		CE D6
C.....33		59.22.2221	220 uF	-20%	6V EL	C...130	59.22.3101	100 uF	-20%	10V EL D6
C.....34		59.22.2221	220 uF	-20%	6V EL	C...131	59.06.0104	100 nF		PE D6
C.....35		0	not used		C...132	59.06.0104	100 nF		PE D6	
01 C.....35		59.22.3101	100 uF	-20%	10V EL	C...133	59.22.6220	22 uF	-20%	10V EL D6
C.....36		59.34.4101	100 pF	2%	CE	C...134	59.34.4101	100 pF		CE D6
C.....37		59.06.0102	1.0 nF		PE	C...135	59.22.3101	100 uF	-20%	10V EL D6
C.....38		59.34.4101	100 pF		CE	C...136	59.22.6220	22 uF	-20%	10V EL E5
C.....39		59.34.7151	150 pF	2%	CE	C...137	59.34.4101	100 pF		CE E5
C.....40		59.22.3101	100 uF	-20%	10V EL	C...138	59.22.3101	100 uF	-20%	10V EL E5
C.....41		0	not used			C...139	59.22.6220	22 uF	-20%	10V EL C6
C.....42		0	not used			C...140	59.34.4101	100 pF		CE C6
C.....43		0	not used			C...141	59.22.3101	100 uF	-20%	10V EL D6
C.....44		0	not used			C...142	59.22.6220	22 uF	-20%	10V EL D6
C.....45		59.06.0104	100 nF		PE	C...143	59.34.4101	100 pF		CE D6
C.....46		59.06.0104	100 nF		PE	C...144	59.22.3101	100 uF	-20%	10V EL D6
C.....47		0	not used			C...145	59.34.4101	100 pF		CE N5
C.....48		0	not used			C...146	59.34.2330	33 pF		CE N5
C.....49		59.06.0104	100 nF		PE	C...147	59.22.3101	100 uF	-20%	10V EL H1
C.....50		59.06.0104	100 nF		PE	C...148	59.34.4101	100 pF		CE H1
C.....51		0	not used			C...149	59.22.3101	100 uF	-20%	10V EL W7
C.....52		0	not used			C...150	59.22.3101	100 uF	-20%	10V EL W6
C.....53		0	not used			C...151	59.22.3101	100 uF	-20%	10V EL N6
C.....54		0	not used			C...152	59.22.3101	100 uF	-20%	10V EL L1
C.....55		0	not used			C...153	59.22.3101	100 uF	-20%	10V EL M1
C.....56		59.22.3470	47 uF	-20%	10V EL	C...154	59.34.7151	150 pF	2%	CE L1
C.....57		59.22.3470	47 uF	-20%	10V EL	C...155	59.34.4101	100 pF	2%	CE M1
C.....58		59.22.3101	100 uF	-20%	10V EL	C...156	59.34.7220	22 pF	2%	CE L2
C.....59		59.22.3101	100 uF	-20%	10V EL	C...157	59.22.2221	220 uF	-20%	6V EL L0
C.....60		59.22.3101	100 uF	-20%	10V EL	C...158	59.22.2221	220 uF	-20%	6V EL M0
C.....61		59.34.7151	150 pF	2%	CE	C...159		0	not used	G1
C.....62		59.34.4101	100 pF	2%	CE	C...160		0	not used	G1
C.....63		59.22.2221	220 uF	-20%	6V EL	C...161		0	not used	G1
C.....64		59.22.2221	220 uF	-20%	6V EL	C...301		0	not used	N1
C.....65		59.22.3101	100 uF	-20%	10V EL	C...302		0	not used	N1
C.....66		59.22.3101	100 uF	-20%	10V EL	C...303		0	not used	N1
C.....67		0	not used			C...304		0	not used	N1
C.....68		0	not used			C...305		0	not used	N1
C.....69		0	not used			C...306		0	not used	N1
C.....70		0	not used			C...307		0	not used	N1
C.....71		0	not used			C...308		0	not used	N1
C.....72		0	not used			C...309		0	not used	N0
C.....73		0	not used			C...310		0	not used	N0
C.....74		59.34.7220	22 pF	2%	CE	C...311		0	not used	N0
C.....75		59.34.4101	100 pF	2%	CE	C...312		0	not used	N1
C.....76		59.34.2330	33 pF		CE	C...313		0	not used	N1
						C...314		0	not used	N0
						C...315		0	not used	M1



COMMON GROUP UNIT

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Ad	..POS..	..REF.No..	DESCRIPTION	MANUFACTURER	Ad	..POS..	..REF.No..	DESCRIPTION	MANUFACTURER
C...316	.	0	not used	M1	C...604	59.22.4101	100 uF	-20% 16V EL	B0
C...317	.	0	not used	M0	C...605	59.22.4101	100 uF	-20% 16V EL	B0
C...318	.	0	not used	K6	C...606	59.22.4101	100 uF	-20% 16V EL	B0
C...319	.	0	not used	I6	C...607	59.06.0104	100 nF	PE	B0
C...320	.	0	not used	K6	C...608	59.06.0104	100 nF	PE	B0
C...321	.	0	not used	K7	C...609	59.06.0104	100 nF	PE	B0
C...322	.	0	not used	K6	C...610	.	0	not used	CO
C...323	.	0	not used	K6	C...611	59.34.7151	150 pF	CE	B1
C...324	.	0	not used	K6	C...612	59.22.4471	470 uF	-20% 16V EL	A1
C...325	.	0	not used	K7	C...613	59.22.4101	100 uF	-20% 16V EL	A1
C...326	.	0	not used	K6	C...614	59.34.5471	470 pF	CE	C1
C...327	.	0	not used	K5	C...615	59.34.2330	33 pF	2% CE	C1
C...328	.	0	not used	K4	C...616	59.34.5471	470 pF	CE	B2
C...329	.	0	not used	K5	C...617	59.34.5471	470 pF	CE	B2
C...331	59.22.3101	100 uF	-20% 10V EL	M3	C...618	59.06.5103	10 nF	PE	CO
C...332	59.34.7220	22 pF	2% CE	L3	01 C...619	59.06.0103	10 nF	PE (LS)	B2
C...333	59.22.2221	220 uF	-20% 6V EL	N5	C...620	59.22.3101	100 uF	-20% 10V EL	G1
C...334	59.22.2221	220 uF	-20% 6V EL	N4	C...621	59.34.2470	47 pF	2% CE	G1
C...335	.	0	not used	N4	C...622	59.34.2470	47 pF	2% CE	G1
01 C...335	59.22.3101	100 uF	-20% 10V EL	N5	C...801	59.06.5103	10 nF	PE	A8
C...336	59.34.4101	100 pF	2% CE	N5	C...803	.	0	not used	A7
C...337	59.06.0102	1.0 nF	PE	N4	C...804	59.34.7151	150 pF	2% CE	A9
C...338	59.34.4101	100 pF	CE	M4	C...805	59.06.0104	100 nF	PE	A8
C...339	59.34.7151	150 pF	2% CE	M4	C...806	59.06.0104	100 nF	PE	A8
C...340	59.22.3101	100 uF	-20% 10V EL	M5	C...807	.	0	not used	L7
C...351	.	0	not used	H6	C...808	.	0	not used	L7
C...352	.	0	not used	H6	C...809	.	0	not used	L8
C...353	.	0	not used	I5	C...810	.	0	not used	L7
C...354	.	0	not used	H5	C...811	.	0	not used	L7
C...355	.	0	not used	H6	C...812	.	0	not used	L7
C...356	59.22.3470	47 uF	-20% 10V EL	I4	C...813	.	0	not used	L7
C...357	59.22.3470	47 uF	-20% 10V EL	I4	C...814	.	0	not used	L7
C...358	59.22.3101	100 uF	-20% 10V EL	K4	C...815	.	0	not used	L8
C...359	59.22.3101	100 uF	-20% 10V EL	K3	C...816	.	0	not used	L8
C...360	59.22.3101	100 uF	-20% 10V EL	K3	C...817	.	0	not used	L8
C...361	59.34.7151	150 pF	2% CE	K3	C...818	.	0	not used	L8
C...362	59.34.4101	100 pF	2% CE	I3	C...819	.	0	not used	L8
C...363	59.22.2221	220 uF	-20% 6V EL	K2	C...820	.	0	not used	L7
C...364	59.22.2221	220 uF	-20% 6V EL	K2	C...821	.	0	not used	L7
C...365	59.22.3101	100 uF	-20% 10V EL	F3	C...822	.	0	not used	L8
C...366	59.22.3101	100 uF	-20% 10V EL	H6	C...822	59.34.4101	100 pF	2% CE	M8
C...374	59.34.7220	22 pF	2% CE	I3	C...823	.	0	not used	M8
C...375	59.34.4101	100 pF	2% CE	K4	C...824	.	0	not used	M8
C...376	59.34.2330	33 pF	2% CE	F3	C...825	.	0	not used	M8
C...377	.	0	NOT USED	F3	01 C...826	.	0	not used	L8
C...393	.	0	NOT USED	F3	C...827	59.06.0103	10 nF	PE (LS)	F7
C...397	59.22.3101	100 uF	-20% 10V EL	H0	C...831	.	0	not used	M8
C...398	59.22.3101	100 uF	-20% 10V EL	I0	C...832	.	0	not used	M7
C...399	59.34.4101	100 pF	CE	I1	C...833	.	0	not used	M7
C...400	59.34.4101	100 pF	CE	I1	C...834	.	0	not used	M7
C...401	59.22.3101	100 uF	-20% 10V EL	I1	C...839	.	0	not used	N8
C...402	59.22.6220	22 uF	-20% 16V EL	H3	C...840	.	0	not used	N8
C...403	59.34.4101	100 pF	CE	H3	C...841	.	0	not used	N7
C...404	59.22.3101	100 uF	-20% 10V EL	H2	C...842	.	0	not used	N9
C...405	59.34.4101	100 pF	CE	H3	C...843	.	0	not used	M8
C...406	59.22.3101	100 uF	-20% 10V EL	H2	C...844	.	0	not used	N9
C...407	59.26.1220	22 uF	-20% 10V SAL	F3	C...846	.	0	not used	M9
C...408	59.26.5109	1 uF	-20% 10V SAL	F3	C...847	.	0	not used	N8
C...409	59.34.2330	33 pF	CE	D3	C...848	.	0	not used	F9
C...410	59.22.3101	100 uF	-20% 10V EL	D3	C...849	59.34.4271	270 pF	CE	G9
C...411	59.22.3471	470 uF	-20% 6V EL	D3	C...850	.	0	not used	G7
C...412	59.22.3101	100 uF	-20% 10V EL	C4	C...851	59.34.4101	100 pF	2% CE	G8
C...413	59.22.3101	100 uF	-20% 10V EL	C4	C...852	59.99.1101	100 pF	2% CE	E6
C...414	59.34.4101	100 pF	CE (LS)	E3	C...853	59.34.4101	100 pF	2% CE	H7
C...416	59.34.4101	100 pF	CE	B3	C...854	59.99.1101	100 pF	2% CE	H7
C...419	59.22.6220	22 uF	-20% 10V EL	B3	C...855	.	0	not used	H7
C...420	59.22.3101	100 uF	-20% 10V EL	B3	C...856	.	0	not used	H7
C...421	59.34.4101	100 pF	CE	B3	C...857	.	0	not used	H8
C...422	59.22.3101	100 uF	-20% 10V EL	B3	C...858	59.34.4101	100 pF	2% CE	H8
C...439	59.22.6220	22 uF	-20% 10V EL	C6	C...859	59.34.4101	100 pF	2% CE	H7
C...440	59.34.4101	100 pF	CE	B6	C...860	59.99.1101	100 pF	2% CE	G9
C...441	59.22.3101	100 uF	-20% 10V EL	C6	C...861	.	0	not used	E6
C...442	59.22.6220	22 uF	-20% 10V EL	C6	C...862	59.34.4101	100 pF	2% CE	H8
C...443	59.34.4101	100 pF	CE	C6	C...863	59.34.4101	100 pF	2% CE	H8
C...444	59.22.3101	100 uF	-20% 10V EL	C6	C...864	.	0	not used	H8
C...445	59.34.4101	100 pF	CE (LS)	C6	C...865	.	0	not used	H8
C...446	59.34.2330	33 pF	CE (LS)	C6	C...866	59.99.1101	100 pF	2% CE	H8
C...447	59.22.3101	100 uF	-20% 10V EL	N5	C...867	59.34.4101	100 pF	2% CE	H7
C...448	59.34.4101	100 pF	CE	N5	C...868	59.99.1101	100 pF	2% CE	H8
C...449	59.22.3101	100 uF	-20% 10V EL	H1	C...869	.	0	not used	H7
C...450	59.22.3101	100 uF	-20% 10V EL	H1	C...870	59.99.1101	100 pF	2% CE	H8
C...451	59.22.3101	100 uF	-20% 10V EL	N6	C...871	.	0	not used	H8
C...452	59.22.3101	100 uF	-20% 10V EL	N6	C...872	.	0	not used	H8
C...453	59.22.3101	100 uF	-20% 10V EL	K1	C...873	.	0	not used	H8
C...454	59.34.7151	150 pF	2% CE	K1	C...874	59.34.4101	100 pF	2% CE	H7
C...455	59.34.4101	100 pF	2% CE	L1	C...875	59.34.4101	100 pF	2% CE	H7
C...456	59.34.7220	22 pF	2% CE	L2	C...876	59.99.1101	100 pF	2% CE	H7
C...457	59.22.2221	220 uF	-20% 6V EL	K0	C...877	59.99.1101	100 pF	2% CE	H7
C...458	59.22.2221	220 uF	-20% 6V EL	K0	C...878	.	0	not used	18
C...459	.	0	not used	K0	C...879	.	0	not used	18
C...460	.	0	not used	K0	C...880	.	0	not used	17
C...461	.	0	not used	G0	C...881	.	0	not used	H7
C...601	.	0	not used	G0	C...882	59.34.4101	100 pF	2% CE	17
C...602	59.06.5103	10 nF	PE	L4	C...883	59.99.1101	100 pF	2% CE	17
C...603	.	0	not used	A1	C...884	.	0	not used	17
				69	C...885	59.34.4101	100 pF	2% CE	17
					C...886	.	0	not used	17



COMMON GROUP UNIT

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Ad	POS	REF.No	DESCRIPTION	MANUFACTURER	Ad	POS	REF.No	DESCRIPTION	MANUFACTURER
C...887	59.99.1101	100 pF	2%	CE	I7	D...314	50.04.0125	1N4448	any L2
C...888	59.34.4101	100 pF	2%	CE	I7	D...315	50.04.0125	1N4448	any L2
C...889	59.34.4101	100 pF	2%	CE	I7				
C...890	59.34.4101	100 pF	2%	CE	K8	D...601	. . . 0	not used	N7
C...891	. . . 0	not used			D...602	. . . 0	not used		N9
C...892	59.34.4101	100 pF	2%	CE	I9	D...603	50.04.0125	1N4448	any A5
C...893	. . . 0	not used			I9	D...604	50.04.0125	1N4448	any A5
C...894	59.34.4101	100 pF	2%	CE	I8	D...605	50.04.0122	1N4001	1A / 50V
C...895	59.34.4101	100 pF	2%	CE	K8	D...606	50.04.0122	1N4001	1A / 50V
C...896	59.34.4101	100 pF	2%	CE	K8	D...607	50.04.0125	1N4448	any B1
C...897	59.34.4101	100 pF	2%	CE	K8	D...608	50.04.0125	1N4448	any B1
C...898	. . . 0	not used			K8	D...609	50.04.0125	1N4448	any B1
C...899	. . . 0	not used			K8	D...610	50.04.0125	1N4448	any B1
C...900	. . . 0	not used			L8				
C...901	. . . 0	not used			K7	D...611	50.04.0125	1N4448	any B1
C...902	. . . 0	not used			K8	D...613	50.04.0125	1N4448	any B1
C...903	. . . 0	not used			K8	D...614	50.04.0125	1N4448	any B1
C...904	. . . 0	not used			K8	D...615	50.04.0125	1N4448	any B1
C...905	. . . 0	not used			K8	D...616	50.04.0122	1N4001	1A / 50V
C...906	59.34.4101	100 pF	2%	CE	L8	D...617	50.04.0122	1N4001	1A / 50V
C...907	59.34.4101	100 pF	2%	CE	K7	D...801	50.04.0125	1N4448	any A8
C...908	. . . 0	not used			K7	D...802	50.04.0127	BAT 85	schottky
C...909	59.34.4101	100 pF	2%	CE	I7	D...803	50.04.0127	BAT 85	schottky
C...910	. . . 0	not used			K7	D...804	50.04.0125	1N4448	any A9
C...911	. . . 0	not used			L8	D...805	50.04.0125	1N4448	any A9
C...912	. . . 0	not used			L7	D...806	50.04.0125	1N4448	any A5
C...913	. . . 0	not used			L7	D...807	50.04.0125	1N4448	any A5
C...914	. . . 0	not used			K9	D...808	50.04.0125	1N4448	any A4
C...915	. . . 0	not used			A7	D...809	50.04.0125	1N4448	any A4
C...916	. . . 0	not used	(TCL)		C8	D...810	50.04.0125	1N4448	any A5
C...917	59.34.4101	100 pF	2%	CE	B7	D...811	50.04.0125	1N4448	any A5
C...918	59.34.4101	100 pF	2%	CE	B7	D...812	50.04.0125	1N4448	any A5
C...919	59.34.4101	100 pF	2%	CE	B7	D...813	50.04.0125	1N4448	any A4
C...920	59.34.4101	100 pF	2%	CE	A7	D...814	50.04.0125	1N4448	any A4
C...921	59.34.4101	100 pF	2%	CE	A7	D...815	50.04.0125	1N4448	any A3
C...922	59.34.4101	100 pF	2%	CE	B7	D...816	50.04.0125	1N4448	any A4
C...923	59.34.4101	100 pF	2%	CE	B7	D...817	50.04.0125	1N4448	any A4
C...924	59.34.4101	100 pF	2%	CE	C7	D...818	50.04.0125	1N4448	any A5
C...925	59.34.4101	100 pF	2%	CE	B7	D...819	50.04.0125	1N4448	any A5
C...926	59.34.4101	100 pF	2%	CE	B7	D...820	50.04.0125	1N4448	any D7
C...927	59.34.4101	100 pF	2%	CE	D7	D...821	50.04.0125	1N4448	any A4
C...928	59.34.4101	100 pF	2%	CE	D7	D...822	50.04.0125	1N4448	any A4
C...929	59.34.4101	100 pF	2%	CE	D7	D...823	50.04.0125	1N4448	any A4
C...930	59.34.4101	100 pF	2%	CE	C7	D...824	. . . 0	not used	(TCL)
C...931	59.34.4101	100 pF	2%	CE	C7	D...825	. . . 0	not used	(TXD)
C...932	59.34.4101	100 pF	2%	CE	D5	D...826	. . . 0	not used	(DOO)
C...933	59.34.4101	100 pF	2%	CE	E8	D...827	50.04.0127	BAT 85	schottky
C...934	59.34.4101	100 pF	2%	CE	E8	D...828	50.04.0127	BAT 85	schottky
C...935	59.34.4101	100 pF	2%	CE	D7	D...829	50.04.0125	1N4448	any A7
C...936	59.34.4101	100 pF	2%	CE	D7	D...830	50.04.0125	1N4448	any A8
C...937	59.34.4101	100 pF	2%	CE	C7	D...831	. . . 0	not used	K7
C...938	59.34.4101	100 pF	2%	CE	E8	D...832	. . . 0	not used	N9
C...939	59.99.1101	100 pF	2%	CE	E8	D...833	. . . 0	not used	N8
C...940	59.99.1101	100 pF	2%	CE	E8	D...834	. . . 0	not used	N8
C...941	59.34.4101	100 pF	2%	CE	E8	D...835	. . . 0	not used	H7
C...942	59.34.4101	100 pF	2%	CE	E8	D...836	. . . 0	not used	H7
C...943	. . . 0	not used			E5	D...837	. . . 0	not used	H7
C...944	59.99.1101	100 pF	2%	CE	F8	D...838	. . . 0	not used	K7
C...945	59.34.4101	100 pF	2%	CE	F8	D...839	. . . 0	not used	K7
C...946	59.34.4101	100 pF	2%	CE	F8	D...840	. . . 0	not used	K7
C...947	59.34.4101	100 pF	2%	CE	F8	D...841	. . . 0	not used	L4
C...948	59.34.4101	100 pF	2%	CE	F8	D...842	. . . 0	not used	L4
C...949	. . . 0	not used			E5	IC...1	. . . 0	not used	N7
C...950	59.34.4101	100 pF	2%	CE	D5	IC...2	. . . 0	not used	L5
C...951	59.34.4101	100 pF	2%	CE	C7	IC...3	. . . 0	not used	L6
C...952	59.34.4101	100 pF	2%	CE	D7	IC...4	. . . 0	not used	L6
C...953	59.34.4101	100 pF	2%	CE	E6	IC...5	. . . 0	not used	K6
C...954	59.34.4101	100 pF	2%	CE	E6	IC...6	. . . 0	not used	L5
C...955	59.34.4101	100 pF	2%	CE	E6	IC...7	. . . 0	not used	K5
C...956	59.34.4101	100 pF	2%	CE	E6	IC...8	. . . 0	not used	K5
C...957	. . . 0	not used			F8	IC...9	. . . 0	not used	K5
C...958	. . . 0	not used			G1	IC...10	50.09.0117	MC33078P	dual op. amp. low noise Mot L2
D...3	. . . 0	not used			M4	IC...11	50.09.0117	MC33078P	dual op. amp. low noise Mot M4
D...4	. . . 0	not used			L6	IC...12	. . . 0	not used	L5
D...5	. . . 0	not used			L6	IC...13	. . . 0	NOT USED	14
D...6	. . . 0	not used			L7	IC...14	50.07.0015	CD4053	3 * 2 channel analog mux/demux Ph,Mot,RCA H4
D...7	. . . 0	not used			L6	IC...15	. . . 0	NOT USED	F4
D...8	50.04.0125	1N4448			any F5	IC...16	. . . 0	NOT USED	F4
D...9	50.04.0125	1N4448			any F5	IC...17	50.09.0117	MC33078P	dual op. amp. low noise Mot H2
D...10	50.04.0125	1N4448			any H2	IC...18	50.09.0101	TL072	dual op. amp. FET TI 13
D...11	50.04.0125	1N4448			any F5	IC...19	. . . 0	NOT USED	F3
D...12	50.04.0125	1N4448			any E4	IC...20	50.09.0117	MC33078P	dual op. amp. low noise Mot L1
D...13	50.04.0125	1N4448			any D3	IC...21	50.07.0015	CD4053	3 * 2 channel analog mux/demux Ph,Mot,RCA L2
D...14	50.04.0125	1N4448			any M2	IC...22	. . . 0	NOT USED	H4
D...15	50.04.0125	1N4448			any M2	IC...23	50.07.0015	CD4053	3 * 2 channel analog mux/demux Ph,Mot,RCA H4
D...303	. . . 0	not used			I4	IC...24	50.07.0015	CD4053	3 * 2 channel analog mux/demux Ph,Mot,RCA G4
D...304	. . . 0	not used			K6	IC...25	50.09.0106	NE5532AN	dual op. amp. low noise Sig,Ra G3
D...305	. . . 0	not used			K6	IC...26	50.07.0015	NE5532AN	dual op. amp. low noise Sig,Ra G3
D...306	. . . 0	not used			K7	IC...27	50.07.0015	CD4053	3 * 2 channel analog mux/demux Ph,Mot,RCA F0
D...307	. . . 0	not used			L6	IC...28	50.07.0015	CD4053	3 * 2 channel analog mux/demux Ph,Mot,RCA F0
D...308	50.04.0125	1N4448			any F5	IC...29	50.09.0117	MC33078P	dual op. amp. low noise Mot E4
D...309	50.04.0125	1N4448			any F5	IC...30	. . . 0	NOT USED	B4
D...310	50.04.0125	1N4448			any H2	IC...31	50.07.0015	CD4053	3 * 2 channel analog mux/demux Ph,Mot,RCA C4
D...311	50.04.0125	1N4448			any F5	IC...32	50.09.0106	NE5532AN	dual op. amp. low noise Sig,Ra C3
D...312	50.04.0125	1N4448			any E3	IC...33	50.07.0015	CD4053	3 * 2 channel analog mux/demux Ph,Mot,RCA F1
D...313	50.04.0125	1N4448			any D3	IC...34	50.07.0015	CD4053	3 * 2 channel analog mux/demux Ph,Mot,RCA F0
D...314	50.04.0125	1N4448			any D3	IC...35	50.07.0015	CD4053	3 * 2 channel analog mux/demux Ph,Mot,RCA F0
D...315	50.04.0125	1N4448			any D3	IC...36	50.07.0015	CD4053	3 * 2 channel analog mux/demux Ph,Mot,RCA F0
D...316	50.04.0125	1N4448			any D3	IC...37	50.07.0015	CD4053	3 * 2 channel analog mux/demux Ph,Mot,RCA F0
D...317	50.04.0125	1N4448			any D3	IC...38	50.07.0015	CD4053	3 * 2 channel analog mux/demux Ph,Mot,RCA F0
D...318	50.04.0125	1N4448			any D3	IC...39	50.07.0015	CD4053	3 * 2 channel analog mux/demux Ph,Mot,RCA F0
D...319	50.04.0125	1N4448			any D3	IC...40	50.07.0015	CD4053	3 * 2 channel analog mux/demux Ph,Mot,RCA F0
D...320	50.04.0125	1N4448			any D3	IC...41	50.07.0015	CD4053	3 * 2 channel analog mux/demux Ph,Mot,RCA E1
D...321	50.04.0125	1N4448			any D3	IC...42	50.07.0015	CD4053	3 * 2 channel analog mux/demux Ph,Mot,RCA E0

## COMMON GROUP UNIT



1.990.250.70

Ad	..POS..	..REF.No..	DESCRIPTION.....	MANUFACTURER	Ad	..POS..	..REF.No..	DESCRIPTION.....	MANUFACTURER
IC..43	.	0	not used	E1	IC..844	50.07.0018	CD4094	shift and store bus register	Ph,Mot,RCA K8
IC..44	.	0	not used	E0	IC..845	50.07.0018	CD4094	shift and store bus register	Ph,Mot,RCA K9
IC..45	.	0	not used	E0	IC..846	50.07.0018	CD4094	shift and store bus register	Ph,Mot,RCA K9
IC..46	50.07.0015		CD4053	3 * 2 channel analog mux/demux Ph,Mot,RCA D5	IC..847	50.07.0018	CD4094	shift and store bus register	Ph,Mot,RCA K8
IC..47	50.07.0015		CD4053	3 * 2 channel analog mux/demux Ph,Mot,RCA D5	IC..848	50.07.0018	CD4094	shift and store bus register	Ph,Mot,RCA D8
IC..48	50.07.0015		CD4053	3 * 2 channel analog mux/demux Ph,Mot,RCA C5	IC..849	50.07.0018	CD4094	shift and store bus register	Ph,Mot,RCA E8
IC..49	50.07.0015		CD4053	3 * 2 channel analog mux/demux Ph,Mot,RCA C5	IC..850	50.07.0018	CD4094	shift and store bus register	Ph,Mot,RCA E9
IC..50	50.07.0015		CD4053	3 * 2 channel analog mux/demux Ph,Mot,RCA C5	IC..851	50.07.0018	CD4094	shift and store bus register	Ph,Mot,RCA F9
IC..51	50.07.0015		CD4053	3 * 2 channel analog mux/demux Ph,Mot,RCA B5	IC..852	50.07.0018	CD4094	shift and store bus register	Ph,Mot,RCA F8
IC..52	50.07.0015		CD4053	3 * 2 channel analog mux/demux Ph,Mot,RCA B5	JS...0	.	.	see also MP 4	
IC..53	50.07.0015		CD4053	3 * 2 channel analog mux/demux Ph,Mot,RCA B5	JSJ...1	.	0	not used	2 pin not used M3
IC..54	50.09.0117		MC33078P	dual op. amp. low noise Mot C4	JSJ...2	.	0	not used	3 pin not used M3
IC..57	50.09.0117		MC33078P	dual op. amp. low noise Mot E5	JSJ...3	.	0	not used	2 pin not used M2
IC..58	50.09.0117		MC33078P	dual op. amp. low noise Mot D6	JSJ...4	.	0	not used	3 pin not used M3
IC..59	50.09.0117		MC33078P	dual op. amp. low noise Mot C6	JSJ...5	54.01.0021	Jumper	AF L Inv. => DIR OUT L	2 pin used C3
IC..60	50.09.0117		MC33078P	dual op. amp. low noise Mot C6	JSJ...6	.	0	not used	AUX L Inv. " 2 pin used C3
IC..61	50.07.0015		CD4053	3 * 2 channel analog mux/demux Ph,Mot,RCA E1	JSJ...7	.	0	not used	PF L Inv. " 2 pin used H2
IC..62	50.07.0015		CD4053	3 * 2 channel analog mux/demux Ph,Mot,RCA D0	JSJ...8	.	0	not used	AF Pan L Inv. " 1 pin used H2
IC..63	50.07.0015		CD4053	3 * 2 channel analog mux/demux Ph,Mot,RCA D1	JSJ...9	.	0	not used	AF Pan L Inv. " 2 pin used H2
IC..64	50.07.0015		CD4053	3 * 2 channel analog mux/demux Ph,Mot,RCA D0	JSJ...10	.	0	not used	PF L Inv. " 1 pin used H2
IC..65	50.07.0015		CD4053	3 * 2 channel analog mux/demux Ph,Mot,RCA D1	JSJ...11	54.01.0021	Jumper	AF R Inv. => DIR OUT R	2 pin used C3
IC..66	50.07.0015		CD4053	3 * 2 channel analog mux/demux Ph,Mot,RCA C1	JSJ...12	.	0	not used	AUX R Inv. " 2 pin used C3
IC..67	50.07.0015		CD4053	3 * 2 channel analog mux/demux Ph,Mot,RCA N6	JSJ...13	.	0	not used	PF R Inv. " 2 pin used G2
IC..68	50.07.0015		CD4053	3 * 2 channel analog mux/demux Ph,Mot,RCA M6	JSJ...14	.	0	not used	AF Pan R Inv. " 1 pin used G2
IC..69	.	0	NOT USED	M6	JSJ...15	.	0	not used	AF Pan R Inv. " 2 pin used G2
IC..70	50.09.0117		MC33078P	dual op. amp. low noise Mot N5	JSJ...16	.	0	not used	PF R Inv. " 1 pin used G2
IC..71	50.09.0101		TL 072	dual op. amp. FET TI L2	L....1	62.02.3101	100 uH	hf-choke-coil	B2
IC..72	50.09.0106		NE5532AN	dual op. amp. low noise Sig,Ra L1	MP...1	53.03.0166	32 pcs	IC-socket 8 pin	
IC..73	.	0	not used	L1	MP...2	53.03.0168	31 pcs	IC-socket 16 pin	
IC..74	.	0	not used	L1	MP...3	.	0	not used	
IC..75	.	0	NOT USED	( option 1 ) H1	MP...4	54.01.0020	20 pcs	Jumper plug see also JSJ	
IC..76	.	0	not used	G0	MP...5	54.11.0131	55 pcs	dual pin ( totally 110 pins )	
IC..301	.	0	not used	M1	MP...6	28.99.0119	6 pcs	Rohrniete, D2.5*0.15*9	St
IC..302	.	0	not used	K5	MP...7	1.990.100.02	2 pcs	Querprintstuetze links	St
IC..303	.	0	not used	K6	MP...8	1.990.100.03	2 pcs	Querprintstuetze rechts	St
IC..304	.	0	not used	K6	MP...9	.	0	not used	
IC..311	.	0	NOT USED	M5	MP...10	1.010.048.27	3 pcs	Mutterbolzen M 3 *32.5	St
IC..312	.	0	not used	H5	MP...11	1.990.230.11	1 pcs	Input Stereo PCB	St
IC..317	.	0	NOT USED	K3	MP...12	21.01.0354	3 pcs	Z-Schraube , ZN , M 3 * 6	
IC..318	.	0	NOT USED	K3	MP...13	21.99.0117	7 pcs	Z-Schraube Nylon , M 3 * 6	
IC..328	.	0	NOT USED	H3	MP...14	24.16.1030	3 pcs	Rippen Scheibe D 3.2*5.5	
IC..329	.	0	NOT USED	E3	MP...15	1.990.210.06	1 pcs	Abschirmung A/D Input links	St
IC..335	50.07.0015		CD4053	3 * 2 channel analog mux/demux Ph,Mot,RCA B4	MP...16	1.990.210.07	1 pcs	Abschirmung A/D Input rechts	St
IC..336	50.09.0106		NE5532AN	dual op. amp. low noise Sig,Ra B1	MP...17	.	0	NOT USED	
IC..370	.	0	NOT USED	N5	MP...18	.	0	NOT USED	
IC..372	.	0	NOT USED	K1	MP...19	.	0	NOT USED	
IC..373	.	0	not used	K1	MP...20	43.01.0108	1 pcs	ESE-Warnschild	St
IC..374	.	0	not used	K1	MP...21	1.990.200.05	4 pcs	Poti-Achsverlaengerung	St
IC..601	50.09.0119		TL 062	dual fet op. amp. Tho A2	MP...22	1.022.400.03	1 pcs	Trafo-Isolation	
IC..602	50.09.0117		MC33078P	dual op. amp. low noise Mot C1	MP...23	1.010.111.65	1 pcs	Schrumpfschlauch	
IC..603	50.05.0244		NE5534NB	single op. amp. low noise Sig,Ra C1	MP...24	1.010.109.64	1 pcs	gelber Draht l = 38mm	
IC..604	1.010.051.50		NE5532AN	dual op. amp. low offset +/- 1mV St B2	MP...25	1.010.107.64	5 pcs	gelber Draht l = 18mm	
IC..605	50.09.0117		MC33078P	dual op. amp. low noise Mot G2	MP...26	.	0	NOT USED	
IC..801	50.07.1021		CD4021	8-bit static shift register Ph,Mot,RCA A9	MP...27	.	0	NOT USED	
IC..802	50.07.1021		CD4021	8-bit static shift register Ph,Mot,RCA B9	MP...28	.	0	NOT USED	
IC..803	50.07.1021		CD4021	8-bit static shift register Ph,Mot,RCA C9	MP...29	.	0	NOT USED	
IC..804	50.07.1021		CD4021	8-bit static shift register Ph,Mot,RCA C9	MP...30	.	0	NOT USED	
IC..805	50.07.1021		CD4021	8-bit static shift register Ph,Mot,RCA D9	MP...31	.	0	NOT USED	
IC..806	50.07.1021		CD4021	8-bit static shift register Ph,Mot,RCA D9	MP...32	.	0	NOT USED	
IC..807	50.07.0049		4049	hex inverting buffer CMOS Ph, To B9	MP...33	.	0	NOT USED	
IC..808	50.07.0049		4049	hex inverting buffer CMOS Ph, To B8	MP...34	.	0	NOT USED	
IC..809	50.07.0049		4049	hex inverting buffer CMOS Ph, To B9	MP...35	.	0	NOT USED	
IC..810	50.07.0049		4049	hex inverting buffer CMOS Ph, To B8	MP...36	.	0	NOT USED	
IC..811	50.07.0049		4049	hex inverting buffer CMOS Ph, To C9	MP...37	.	0	NOT USED	
IC..812	50.07.0049		4049	hex inverting buffer CMOS Ph, To C8	MP...38	.	0	NOT USED	
IC..813	.	0	NOT USED	D8	MP...39	.	0	NOT USED	
IC..814	.	0	NOT USED	E9	MP...40	.	0	NOT USED	
IC..815	.	0	not used	I9	MP...41	.	0	NOT USED	
IC..816	.	0	not used	I9	MP...42	.	0	NOT USED	
IC..817	50.07.0018		CD4094	shift and store bus register Ph,Mot,RCA I8	MP...43	.	0	NOT USED	
IC..818	50.07.0018		CD4094	shift and store bus register Ph,Mot,RCA E8	MP...44	.	0	NOT USED	
IC..819	50.07.0018		CD4094	shift and store bus register Ph,Mot,RCA D8	MP...45	.	0	NOT USED	
IC..820	50.07.0018		CD4094	shift and store bus register Ph,Mot,RCA C8	MP...46	.	0	NOT USED	
IC..821	50.07.0018		CD4094	shift and store bus register Ph,Mot,RCA C8	P....6	54.11.2013	2*16pin	euroconnector	Ht, Ec B0
IC..822	50.07.0018		CD4094	shift and store bus register Ph,Mot,RCA B8	P....7	54.11.2004	2*32pin	euroconnector	Ht, Ec E0
IC..823	50.07.0018		CD4094	shift and store bus register Ph,Mot,RCA A8	P....9	54.11.2004	2*32pin	euroconnector	Ht, Ec M0
IC..824	50.09.0119		TL062	dual fet op. amp. Tho A8	P....10	54.01.0294	16 pin	CIS	E5
IC..826	50.07.0018		CD4094	shift and store bus register Ph,Mot,RCA L8	P....11	54.01.0226	20 pin	CIS	G6
IC..827	50.07.0018		CD4094	shift and store bus register Ph,Mot,RCA L9	P....12	54.01.0293	14 pin	CIS	H7
IC..828	50.07.0018		CD4094	shift and store bus register Ph,Mot,RCA M9	P....13	54.16.0520	20pol	1/40 inch flatcable connector ( to A 3 )	Ya K5
IC..829	50.07.0018		CD4094	shift and store bus register Ph,Mot,RCA M8	P....14	.	0	not used	see A 3 H5
IC..830	50.07.0018		CD4094	shift and store bus register Ph,Mot,RCA M8	P....15	.	0	not used	see A 5 H5
IC..831	50.07.0018		CD4094	shift and store bus register Ph,Mot,RCA M9	P....16	54.16.0520	20pol	1/40 inch flatcable connector ( to A 5 )	Ya E2
IC..832	50.07.0018		CD4094	shift and store bus register Ph,Mot,RCA M9	P....17	.	0	not used	see A 4 E6
IC..833	.	0	not used	M8	P....18	54.16.0520	20pol	1/40 inch flatcable connector ( to A 4 )	Ya E2
IC..834	50.07.0051		CD4051	8-channel analog mux/demux Ph,Mot,RCA F8	P....19	54.16.0520	20pol	1/40 inch flatcable connector ( to A 6 )	Ya E5
IC..835	.	0	NOT USED	G8	P....20	.	0	not used	see A 6 H1
IC..836	.	0	NOT USED	G9	P....21	.	0	NOT USED	
IC..837	50.07.0018		CD4094	shift and store bus register Ph,Mot,RCA F9	P....22	.	0	NOT USED	
IC..838	50.09.0103		TL 071	fet op. amp. TI A9	Q....1	50.03.0351	BC 327	PNP IC>800mA	NS,Mot,Six M4
IC..840	50.07.0018		CD4094	shift and store bus register Ph,Mot,RCA H8	Q....2	50.03.0516	BC 337	NPN low noise	Sie N3
IC..841	50.07.0018		CD4094	shift and store bus register Ph,Mot,RCA H9	Q....3	.	0	not used	GO
IC..842	50.07.0018		CD4094	shift and store bus register Ph,Mot,RCA H9					
IC..843	50.07.0018		CD4094	shift and store bus register Ph,Mot,RCA H8					

COMMON GROUP UNIT



1.990.250.70

Ad	POS	REF.No	DESCRIPTION	MANUFACTURER	Ad	POS	REF.No	DESCRIPTION	MANUFACTURER
Q...	301	50.03.0351	BC 327 PNP	IC>800mA NS,Mot,Six N4	R...	81	58.01.8202	2 kOhm 10% 0.25W trimmer	H3
Q...	302	50.03.0516	BC 337 NPN	low noise Sie N4	R...	82	57.11.3562	5.6 kOhm 1% 0.25W	I3
Q...	303	.	0 not used		R...	83	57.99.0250	6.8 kOhm 0.1% 0.25W	H3
Q...	601	.	0 not used		R...	84	57.99.0250	6.8 kOhm 0.1% 0.25W	H3
Q...	602	.	0 not used		R...	85	57.11.3150	15 Ohm 1% 0.25W	I3
Q...	604	50.03.0340	BC 337 NPN	IC>800mA NS,Mot,Six A0	R...	86	57.11.3150	15 Ohm 1% 0.25W	I3
Q...	605	50.03.0351	BC 327 PNP	IC>800mA NS,Mot,Six A0	R...	90	57.11.3682	6.8 kOhm 1% 0.25W	G4
Q...	606	50.03.0351	BC 327 PNP	IC>800mA NS,Mot,Six A0	R...	91	.	0 not used	G4
Q...	607	50.03.0340	BC 337 NPN	IC>800mA NS,Mot,Six A1	R...	92	57.11.3682	6.8 kOhm 1% 0.25W	G4
Q...	608	50.03.0351	BC 327 PNP	IC>800mA NS,Mot,Six A1	R...	93	57.11.3104	100 kOhm 5% 0.25W	G3
Q...	801	50.03.0436	BC 237 NPN	IC>100mA, B>100 any A9	R...	94	57.11.3562	5.6 kOhm 1% 0.25W	G3
Q...	802	50.03.0436	BC 237 NPN	IC>100mA, B>100 any A8	R...	95	58.01.8202	2 kOhm 10% 0.25W trimmer	F3
Q...	803	50.03.0436	BC 237 NPN	IC>100mA, B>100 any A7	R...	101	57.11.3121	120 Ohm 1% 0.25W	H7
Q...	805	.	0 not used		R...	102	.	0 NOT USED	G7
Q...	806	.	0 not used		R...	103	57.11.3121	120 Ohm 1% 0.25W	G7
Q...	807	.	0 not used		R...	104	.	0 NOT USED	F7
Q...	808	.	0 not used		R...	105	57.11.3121	120 Ohm 1% 0.25W	F6
Q...	809	.	0 not used		R...	106	.	0 NOT USED	E7
Q...	810	.	0 not used		R...	107	57.11.3121	120 Ohm 1% 0.25W	F6
Q...	811	.	0 not used		R...	108	57.11.3223	22 kOhm 5% 0.25W	F6
Q...	812	.	0 not used		R...	109	.	0 NOT USED	
Q...	813	50.03.0515	BC 307 PNP	IC>100mA, B>100 any G6	R...	110	.	0 NOT USED	
Q...	814	50.03.0515	BC 307 PNP	IC>100mA, B>100 any G6	R...	111	.	0 NOT USED	
Q...	815	50.03.0515	BC 307 PNP	IC>100mA, B>100 any G5	R...	112	.	0 NOT USED	
Q...	816	.	0 not used		R...	113	.	0 NOT USED	
Q...	817	.	0 not used		R...	114	.	0 NOT USED	
R...	1	.	0 not used		R...	115	.	0 NOT USED	
R...	2	.	0 not used		R...	116	.	0 NOT USED	
R...	3	.	0 not used		R...	117	.	0 NOT USED	
R...	4	.	0 not used		R...	118	.	0 NOT USED	
R...	5	.	0 not used		R...	120	.	0 not used	G3
R...	6	.	0 not used		R...	121	57.11.3152	1.5 kOhm 1% 0.25W	I1
R...	7	.	0 not used		R...	122	57.11.3152	1.5 kOhm 1% 0.25W	I1
R...	8	.	0 not used		R...	123	57.11.3392	3.9 kOhm 1% 0.25W	I1
R...	9	.	0 not used		R...	124	57.11.3392	3.9 kOhm 1% 0.25W	I1
R...	10	.	0 not used		R...	125	57.11.3272	2.7 kOhm 1% 0.25W	I1
R...	11	.	0 not used		R...	126	57.11.3272	2.7 kOhm 1% 0.25W	I1
R...	12	.	0 not used		R...	127	57.11.3223	22 kOhm 5% 0.25W	I1
R...	13	.	0 not used		R...	128	57.11.3682	6.8 kOhm 1% 0.25W	G4
R...	14	.	0 not used		R...	129	.	0 not used	G4
R...	15	.	0 not used		R...	130	57.11.3682	6.8 kOhm 1% 0.25W	G4
R...	16	.	0 not used		R...	131	57.11.3682	6.8 kOhm 1% 0.25W	G4
R...	17	.	0 not used		R...	132	57.11.3752	7.5 kOhm 1% 0.25W	G3
R...	18	.	0 not used		R...	133	57.11.3823	82 kOhm 1% 0.25W	G3
R...	21	.	0 not used		R...	134	57.11.3223	22 kOhm 5% 0.25W	G3
R...	22	.	0 not used		R...	135	57.11.3332	3.3 kOhm 1% 0.25W	G3
R...	23	.	0 not used		R...	136	57.11.3332	3.3 kOhm 1% 0.25W	G3
R...	24	.	0 not used		R...	137	57.11.3330	33 Ohm 5% 0.25W	G3
R...	25	.	0 not used		R...	138	57.11.3223	22 kOhm 5% 0.25W	G3
R...	26	.	0 not used		R...	140	.	0 not used	H7
R...	27	.	0 not used		R...	141	57.11.3332	3.3 kOhm 1% 0.25W	F4
R...	28	.	0 not used		R...	142	57.11.3223	22 kOhm 5% 0.25W	F4
R...	29	.	0 not used		R...	143	57.11.3333	33 kOhm 1% 0.25W	E4
R...	30	.	0 not used		R...	144	57.11.3103	10 kOhm 1% 0.25W	E4
R...	33	.	0 not used		R...	145	57.11.3472	4.7 kOhm 1% 0.25W	F4
R...	34	.	0 not used		R...	146	57.11.3684	680 kOhm 5% 0.25W	F4
R...	35	.	0 not used		R...	147	57.11.3823	82 kOhm 5% 0.25W (LS)	E3
R...	36	.	0 not used		R...	148	58.05.1503	50 kOhm 10% 0.25W trimmer	D4
R...	37	.	0 not used		R...	149	57.11.3332	3.3 kOhm 1% 0.25W	D4
R...	38	57.11.3473	47 kOhm 1% 0.25W		R...	150	57.11.3330	33 Ohm 5% 0.25W	D4
R...	39	57.11.3473	47 kOhm 1% 0.25W		R...	151	57.11.3223	22 kOhm 5% 0.25W	E4
R...	40	57.11.3682	6.8 kOhm 1% 0.25W		R...	152	57.11.3332	3.3 kOhm 1% 0.25W	B4
R...	41	57.11.3682	6.8 kOhm 1% 0.25W		R...	153	57.11.3332	3.3 kOhm 1% 0.25W	B4
R...	42	57.11.5335	3.3 MOhm 5% 0.25W		R...	154	57.11.3223	22 kOhm 5% 0.25W	B3
R...	43	57.11.3682	6.8 kOhm 1% 0.25W		R...	155	57.11.3752	7.5 kOhm 1% 0.25W	C3
R...	44	57.11.3473	47 kOhm 1% 0.25W		R...	156	57.11.3823	82 kOhm 1% 0.25W	C3
R...	45	57.11.3330	33 Ohm 5% 0.25W		R...	157	57.11.3682	6.8 kOhm 1% 0.25W	B3
R...	50	57.11.3103	10 kOhm 1% 0.25W		R...	158	57.11.3682	6.8 kOhm 1% 0.25W	B3
R...	51	.	0 not used		R...	159	57.11.3223	22 kOhm 5% 0.25W	B3
R...	52	57.11.3752	7.5 kOhm 1% 0.25W		R...	161	57.11.3752	7.5 kOhm 1% 0.25W	B4
R...	53	57.11.3184	180 kOhm 1% 0.25W		R...	162	57.11.3823	82 kOhm 1% 0.25W	B3
R...	54	57.11.3683	68 kOhm 1% 0.25W		R...	165	57.11.3682	6.8 kOhm 1% 0.25W	D4
R...	55	57.11.3101	100 Ohm 1% 0.25W		R...	166	57.11.3682	6.8 kOhm 1% 0.25W	D4
R...	56	57.11.3184	180 kOhm 1% 0.25W		R...	167	57.11.3223	22 kOhm 5% 0.25W	C3
R...	57	.	0 not used		R...	168	57.11.3752	7.5 kOhm 1% 0.25W	D5
R...	58	57.11.3332	3.3 kOhm 1% 0.25W		R...	169	57.11.3823	82 kOhm 1% 0.25W	E5
R...	59	57.11.3332	3.3 kOhm 1% 0.25W		R...	170	1.010.106.58	10 kOhm 10% pos.log.comb.with R843	St E7
R...	60	57.11.3332	3.3 kOhm 1% 0.25W		R...	171	57.11.3752	7.5 kOhm 1% 0.25W	D6
R...	61	57.11.3332	3.3 kOhm 1% 0.25W		R...	172	57.11.3823	82 kOhm 1% 0.25W	D6
R...	62	57.11.3223	22 kOhm 5% 0.25W		R...	173	1.010.106.58	10 kOhm 10% pos.log.comb.with R840	St D7
R...	65	.	0 not used		R...	174	57.11.3752	7.5 kOhm 1% 0.25W	D6
R...	66	.	0 not used		R...	175	57.11.3823	82 kOhm 1% 0.25W	D6
R...	67	.	0 not used		R...	176	1.010.106.58	10 kOhm 10% pos.log.comb.with R841	St C7
R...	68	.	0 not used		R...	177	57.11.3752	7.5 kOhm 1% 0.25W	E5
R...	69	.	0 not used		R...	178	57.11.3823	82 kOhm 1% 0.25W	E5
R...	70	.	0 not used		R...	179	1.010.106.58	10 kOhm 10% pos.log.comb.with R842	St C7
R...	71	.	0 not used		R...	180	57.11.3752	7.5 kOhm 1% 0.25W	C6
R...	72	.	0 not used		R...	181	57.11.3823	82 kOhm 1% 0.25W	C6
R...	73	.	0 not used		R...	182	.	0 NOT USED	B6
R...	74	.	0 not used		R...	183	.	0 NOT USED	B6
R...	75	.	0 not used		R...	184	57.11.3752	7.5 kOhm 1% 0.25W	D6
R...	77	57.11.3682	6.8 kOhm 1% 0.25W		R...	185	57.11.3823	82 kOhm 1% 0.25W	D6
R...	78	.	0 not used		R...	186	.	0 NOT USED	A6
R...	79	57.11.3682	6.8 kOhm 1% 0.25W		R...	187	.	0 NOT USED	A6
R...	80	57.11.3104	100 kOhm 5% 0.25W		R...	190	57.11.3682	6.8 kOhm 1% 0.25W	H1
					R...	194	57.11.3330	33 Ohm 5% 0.25W	H1





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Ad	..POS..	..REF.No..	DESCRIPTION.....	MANUFACTURER	Ad	..POS..	..REF.No..	DESCRIPTION.....	MANUFACTURER
R...195	.	0	not used	G1	R...391	.	0	not used	G4
R...196	.	0	not used	G1	R...392	57.11.3682		6.8 kOhm	G4
R...197	.	0	not used	G1	R...393	57.11.3104		100 kOhm	G3
R...198	.	0	not used	N6	R...394	57.11.3562		5.6 kOhm	F3
R...199	57.11.3104		100 kOhm	N6	R...395	58.01.8202		2 kOhm	F3
R...200	57.11.3224		220 kOhm	N6					
R...201	57.11.3512		5.1 kOhm	N6	R...401	57.11.3121		120 Ohm	H6
R...202	57.11.3512		5.1 kOhm	N6	R...402	.	0	NOT USED	G6
R...203	.	0	NOT USED	N6	R...403	57.11.3121		120 Ohm	G6
R...204	57.11.3822		8.2 kOhm	N5	R...404	.	0	NOT USED	F6
R...205	57.11.3153		15 kOhm	N5	R...405	57.11.3121		120 Ohm	F6
R...206	58.01.8503		50 kOhm	N5	R...406	.	0	NOT USED	E6
R...207	57.99.0250		6.8 kOhm	M2	R...407	57.11.3121		120 Ohm	E6
R...208	57.99.0250		6.8 kOhm	M2	R...408	57.11.3223		22 kOhm	F6
R...209	57.11.3150		15 Ohm	L1	R...409	.	0	NOT USED	
R...210	57.11.3150		15 Ohm	L1	R...410	.	0	NOT USED	
R...211	57.11.3150		15 Ohm	L1	R...411	.	0	NOT USED	
R...212	57.11.3150		15 Ohm	M1	R...412	.	0	NOT USED	
R...213	57.11.3150		15 Ohm	L1	R...413	.	0	NOT USED	
R...214	57.11.3150		15 Ohm	L1	R...414	.	0	NOT USED	
R...301	.	0	not used	N1	R...415	.	0	NOT USED	
R...302	.	0	not used	N1	R...416	.	0	NOT USED	
R...303	.	0	not used	N1	R...417	.	0	NOT USED	
R...304	.	0	not used	N1	R...418	.	0	NOT USED	
R...305	.	0	not used	N1	R...420	.	0	not used	H3
R...306	.	0	not used	N1					
R...307	.	0	not used	N1	R...421	57.11.3152		1.5 kOhm	I1
R...308	.	0	not used	M1	R...422	57.11.3152		1.5 kOhm	I1
R...309	.	0	not used	M1	R...423	57.11.3392		3.9 kOhm	I1
R...310	.	0	not used	M1	R...424	57.11.3392		3.9 kOhm	I1
R...311	.	0	not used	N1	R...425	57.11.3272		2.7 kOhm	I1
R...312	.	0	not used	N1	R...426	57.11.3272		2.7 kOhm	I1
R...313	.	0	not used	N0	R...427	57.11.3223		22 kOhm	I1
R...314	.	0	not used	N0	R...428	57.11.3682		6.8 kOhm	H4
R...315	.	0	not used	M0	R...429	.	0	not used	H4
R...316	.	0	not used	M1	R...430	57.11.3682		6.8 kOhm	H4
R...317	.	0	not used	M1					
R...318	.	0	not used	M1	R...431	57.11.3682		6.8 kOhm	H3
R...321	.	0	not used	I4	R...432	57.11.3752		7.5 kOhm	H3
R...322	.	0	not used	K4	R...433	57.11.3823		82 kOhm	H3
R...323	.	0	not used	K4	R...434	57.11.3223		22 kOhm	H3
R...324	.	0	not used	K6	R...435	57.11.3332		3.3 kOhm	H3
R...325	.	0	not used	K6	R...436	57.11.3332		3.3 kOhm	H3
R...326	.	0	not used	K6	R...437	57.11.3330		33 Ohm	H3
R...327	.	0	not used	K6	R...438	57.11.3223		22 kOhm	H3
R...328	.	0	not used	K6	R...440	.	0	not used	H6
R...329	.	0	not used	K6					
R...330	.	0	not used	K6	R...441	57.11.3332		3.3 kOhm	F3
R...333	.	0	not used	K5	R...442	57.11.3223		22 kOhm	F3
R...334	.	0	not used	K4	R...443	57.11.3333		33 kOhm	E3
R...335	.	0	not used	K4	R...444	57.11.3103		10 kOhm	E3
R...336	.	0	not used	K5	R...445	57.11.3472		4.7 kOhm	E3
R...337	.	0	not used	K5	R...446	57.11.3684		680 kOhm	E3
R...338	57.11.3473		47 kOhm	L3	R...447	.	0	NOT USED	F3
R...339	57.11.3473		47 kOhm	L2	R...448	58.05.1503		50 kOhm	D3
R...340	57.11.3682		6.8 kOhm	L3	R...449	57.11.3332		3.3 kOhm	D3
R...341	57.11.3682		6.8 kOhm	L2	R...450	57.11.3330		33 Ohm	D3
R...342	57.11.5335		3.3 MOhm	L3					
R...343	57.11.3682		6.8 kOhm	L3	R...451	57.11.3223		22 kOhm	E3
R...344	57.11.3473		47 kOhm	L3	R...454	.	0	not used	B3
R...345	57.11.3330		33 Ohm	L3	R...455	57.11.3752		7.5 kOhm	B3
R...350	57.11.3103		10 kOhm	N4	R...456	57.11.3823		82 kOhm	B3
R...351	.	0	not used	N4	R...457	57.11.3682		6.8 kOhm	B3
R...352	57.11.3752		7.5 kOhm	N5	R...458	57.11.3682		6.8 kOhm	B3
R...353	57.11.3184		180 kOhm	N4	R...459	57.11.3223		22 kOhm	B3
R...354	57.11.3683		68 kOhm	N4					
R...355	57.11.3101		100 Ohm	N4	R...465	57.11.3682		6.8 kOhm	C4
R...356	57.11.3184		180 kOhm	N4	R...466	57.11.3682		6.8 kOhm	C4
R...357	.	0	not used	N4	R...467	57.11.3223		22 kOhm	C4
R...358	57.11.3332		3.3 kOhm	M4	R...480	57.11.3752		7.5 kOhm	B6
R...359	57.11.3332		3.3 kOhm	M4					
R...360	57.11.3332		3.3 kOhm	M4	R...481	57.11.3823		82 kOhm	B6
R...361	57.11.3332		3.3 kOhm	M4	R...482	.	0	NOT USED	B6
R...362	57.11.3223		22 kOhm	M4	R...483	.	0	NOT USED	B6
R...365	.	0	not used	I	R...484	57.11.3752		7.5 kOhm	C6
R...366	.	0	not used	I	R...485	57.11.3823		82 kOhm	C6
R...367	.	0	not used	I6	R...486	.	0	NOT USED	A6
R...368	.	0	not used	I6	R...487	.	0	NOT USED	A6
R...369	.	0	not used	H6	R...490	57.11.3682		6.8 kOhm	H1
R...370	.	0	not used	H6					
R...371	.	0	not used	I6	R...494	57.11.3330		33 Ohm	H1
R...372	.	0	not used	I5	R...495	.	0	not used	G0
R...373	.	0	not used	H5	R...496	.	0	not used	G0
R...374	.	0	not used	H5	R...497	.	0	not used	G0
R...375	.	0	not used	H6	R...498	.	0	not used	G0
R...377	57.11.3682		6.8 kOhm	H4	R...499	57.11.3104		100 kOhm	N6
R...378	.	0	not used	H4	R...500	57.11.3224		220 kOhm	N6
R...379	57.11.3682		6.8 kOhm	I3					
R...380	57.11.3104		100 kOhm	I3	R...501	57.11.3512		5.1 kOhm	N6
R...381	58.01.8202		2 kOhm	K3	R...502	57.11.3512		5.1 kOhm	N6
R...382	57.11.3562		5.6 kOhm	K4	R...503	.	0	not used	N7
R...383	57.99.0250		6.8 kOhm	K4	R...504	57.11.3822		8.2 kOhm	N5
R...384	57.99.0250		6.8 kOhm	I3	R...505	57.11.3153		15 kOhm	N5
R...385	57.11.3150		15 Ohm	K3	R...506	58.01.8503		50 kOhm	N5
R...386	57.11.3150		15 Ohm	K3	R...507	57.99.0250		6.8 kOhm	L2
R...390	57.11.3682		6.8 kOhm	G4	R...508	57.99.0250		6.8 kOhm	L2
					R...509	57.11.3150		15 Ohm	K1
					R...510	57.11.3150		15 Ohm	K1
					R...511	57.11.3150		15 Ohm	K1
					R...512	57.11.3150		15 Ohm	L1
					R...513	57.11.3150		15 Ohm	K1
					R...514	57.11.3150		15 Ohm	K1