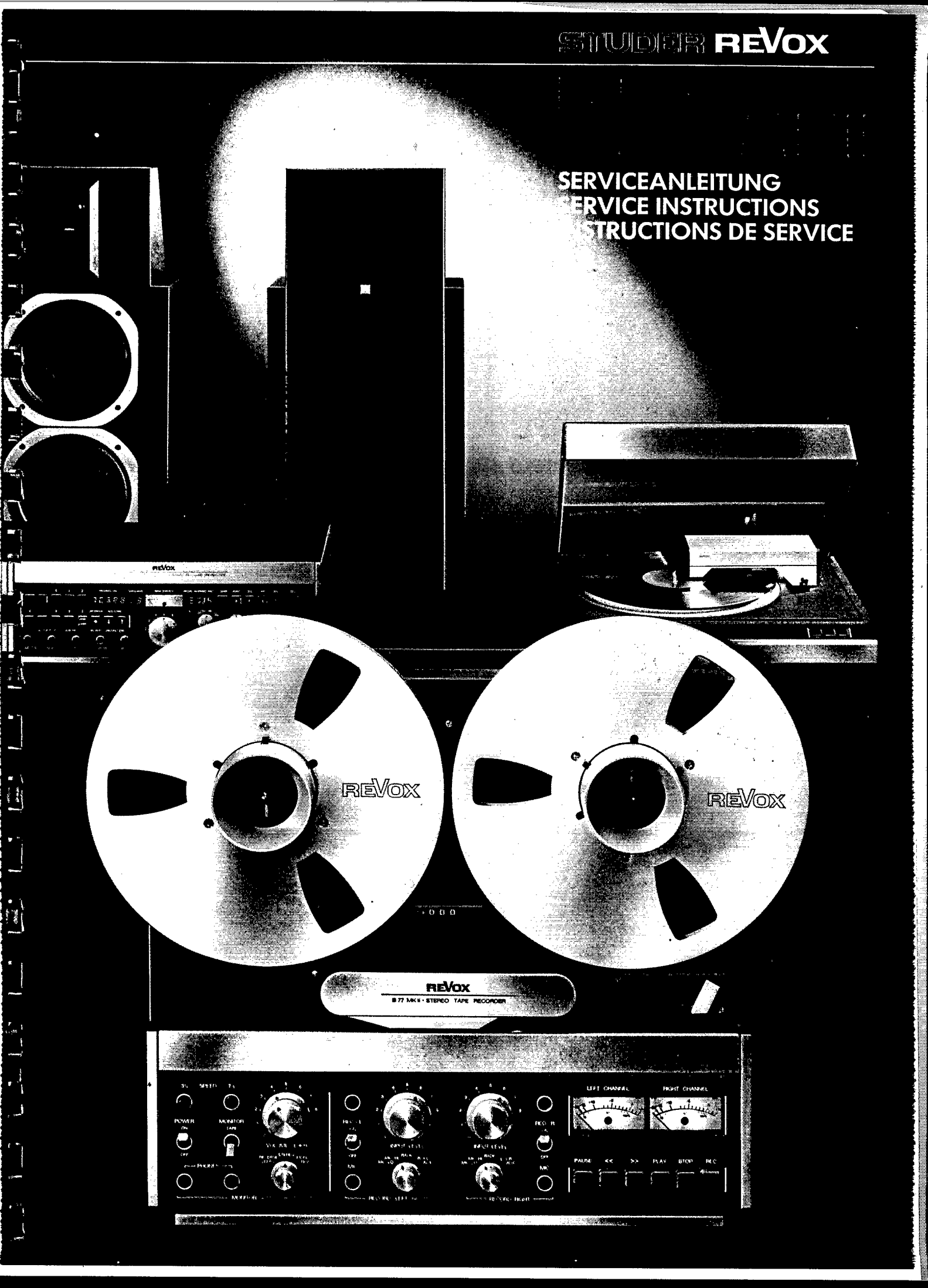
STUDER REVOX

SERVICEANLEITUNG
ERVICE INSTRUCTIONS
STRUCTIONS DE SERVICE



2. Technische Daten

(Messwerte "über Band" mit Tonband REVOX 631)

Laufwerk:
3-Motoren Laufwerk, 2 AC-Wickelmotoren, 1 AC-Capstanmotor, elektronisch geregelt

Bandgeschwindigkeiten:
9,5 cm/s und 19 cm/s, elektronisch umgeschaltet
Toleranz der Sollgeschwindigkeit ± 0,2 %
Variable Geschwindigkeit von 6,5 ... 28cm/s

Tonhöhenschwankungen:
(nach DIN 45507)
bei 9,5 cm/s besser als 0,1 %
bei 19 cm/s besser als 0,08 %

Schlupf:
max. 0,2 %

Spulengrösse:
bis 26,5 cm (10.5") Durchmesser
(min. Kerndurchmesser 6 cm)
Bandzug umschaltbar
(für kleine Kerndurchmesser)

Umspulzeiten:
ca. 135 sec für 1100 m Tonband

Laufwerksteuerung:
Integrierte Logik für beliebige Funktionsübergänge mit Bandlaufsensor. Motoren kontaktlos, elektronisch umgeschaltet. Alle Funktionen fernsteuerbar. Schaltuhrbetrieb mit Fernbedienung möglich.

Entzerrungen:
(nach NAB)
9,5 cm/s: 90 µsec / 3180 µsec
19 cm/s: 50 µsec / 3180 µsec

Frequenzgang:
(über Band gemessen, bei –20 VU)

bei 9,5 cm/s	30 Hz ... 16 kHz	+ 2/–3 dB
	50 Hz ... 10 kHz	± 1,5 dB
bei 19 cm/s	30 Hz ... 20 kHz	+ 2/–3 dB
	50 Hz ... 15 kHz	± 1,5 dB

Vollaussteuerung:
514 nWb/m entsprechen 6 dB über 0 VU

Aussteuerungsanzeige:
VU-Meter nach ASA-Norm,
mit LED Übersteuerungsanzeigen

Klirrfaktor:

bei	0 VU (257 nWb/m)	0 VU + 6 dB (514 nWb/m)
bei 9,5 cm/s	< 0,5 %	< 1,5 %
bei 19 cm/s	< 0,2 %	< 0,5 %

2. Technical Specifications

("overall" performance data as measured with REVOX 631 tape)

Tape transport mechanism:
3-motor tape drive; 2 AC driven spooling motors; 1 AC driven capstan motor, electronically regulated.

Tape speeds:
3.75 ips and 7.5 ips, electronic change-over
Tolerance from nominal ± 0.2 %
Speed variable from 2.5 ... 11ips

Wow and flutter:
(as per DIN 45507/consistent with IEEE standard 193-1071)
at 3.75 ips less than 0.1 %
at 7.5 ips less than 0.08 %

Tape slip:
max. 0.2 %

Reel size:
Up to 10.5 inch diameter (min. hub diameter 2.36 inches). Tape tension switchable (for small hub diameters).

Winding time:
Approx. 135 sec for 3600 ft of tape

Tape transport control:
Integrated control logic with tape motion sensor for any desired transition between different operating modes. Contactless electronic switching of all motors. Remote control of all functions and electric timer operation are possible.

Equalization:
(as per NAB)
3.75 ips: 90 µsec / 3180 µsec
7.5 ips: 50 µsec / 3180 µsec

Frequency response:
(measured via tape, at –20 VU)

at 3.75 ips	30 Hz ... 16 kHz	+ 2/–3 dB
	50 Hz ... 10 kHz	± 1.5 dB
at 7.5 ips	30 Hz ... 20 kHz	+ 2/–3 dB
	50 Hz ... 15 kHz	± 1.5 dB

Peak recording level:
514 nWb/m corresponds to 6 dB above 0 VU

Level metering:
VU-meter as per ASA-standard, with LED peak level indicators.

Distortion:

at	0 VU (257 nWb/m)	0 VU + 6 dB (514 nWb/m)
at 3.75 ips	< 0.5 %	< 1.5 %
at 7.5 ips	< 0.2 %	< 0.5%

2. Caractéristiques techniques

(Valeurs de mesure "après bande" avec la bande REVOX 631)

Entraînement:
entraînement à 3 moteurs, 2 moteurs AC de bobinage;
1 moteur AC de cabestan, à régulation électronique.

Vitesse de défilement:
9,5 cm/s et 19 cm/s
à commutation électronique
Tolérance de la vitesse nominale: ± 0,2 %
Variation de vitesse de 6,5 à 28cm/s

Pleurage:
(d'après DIN 45507)
à 9,5 cm/s meilleur que 0,1 %
à 19 cm/s meilleur que 0,08 %

Dérive:
max. 0,2 %

Diamètre des bobines:
jusqu'à 26,5 cm (10.5")
Diamètre minimum du noyau: 6 cm
Tension de bande commutable
(pour les petits noyaux)

Durée de rebobinage:
environ 135 sec pour une bande de 1100 m

Commande du mécanisme:
Commande des fonctions par logique intégrée avec détecteur de mouvement.
Commande électronique (sans contact) des moteurs. Toutes les fonctions télécommandables. Fonctionnement possible de la télécommande avec interrupteur horaire.

Corrections:
(d'après NAB)
9,5 cm/s: 90 µsec / 3180 µsec
19 cm/s: 50 µsec / 3180 µsec

Réponse en fréquence:
(enregistrement-lecture, mesurée à –20 VU)

à 9,5 cm/s	30 Hz ... 16 kHz	+ 2 / –3 dB
	50 Hz ... 10 kHz	± 1,5 dB
à 19 cm/s	30 Hz ... 20 kHz	+ 2 / –3 dB
	50 Hz ... 15 kHz	± 1,5 dB

Niveau maximum:
514 nWb/m, correspondant à + 6 dB VU

Indicateurs de niveau:
VU-mètres d'après la norme ASA, avec indicateurs LED des valeurs de pointe

Taux de distorsion harmonique:

à	0 dB VU (257 nWb/m)	+ 6 dB VU (514 nWb/m)
à 9,5 cm/s	< 0,5 %	< 1,5 %
à 19 cm/s	< 0,2 %	< 0,5%

Geräuschspannungsabstand:
(nach ASA-A, über Band gemessen)
2-Spur:
bei 9,5 cm/s besser als 64 dB
bei 19 cm/s besser als 67 dB
4-Spur:
bei 9,5 cm/s besser als 60 dB
bei 19 cm/s besser als 63 dB

Signal to noise ratio:
(weighted as per ASA-A, measured via tape)
half track:
at 3.75 ips better than 64 dB
at 7.5 ips better than 67 dB
quarter track:
at 3.75 ips better than 60 dB
at 7.5 ips better than 63 dB

Rapport signal/bruit:
(d'après ASA-A, enregistrement-lecture)
2 pistes.
à 9,5 cm/s meilleur que 64 dB
à 19 cm/s meilleur que 67 dB
4 pistes.
à 9,5 cm/s meilleur que 60 dB
à 19 cm/s meilleur que 63 dB

Übersprechdämpfung:
(bei 1000 Hz)
Stereo besser als 45 dB
Mono besser als 60 dB

Crosstalk:
(at 1000 Hz)
Stereophonic better than 45 dB
Monophonic better than 60 dB

Amortissement de la diaphonie:
(à 1000 Hz)
Stéréo plus de 45 dB
Mono plus de 60 dB

Löschdämpfung:
bei 19 cm/s besser als 75 dB

Erasure:
at 7.5 ips better than 75 dB

Efficacité d'effacement:
plus de 75 dB à 19 cm/s

Eingänge pro Kanal:
MIC (asymmetrisch)
Position LO: 0,15 mV / 2,2 kOhm
für Mikrofone von 50 ... 600 Ohm
Position HI: 2,8 mV / 110 kOhm
für Mikrofone von 50 Ohm ... 20 kOhm
RADIO: 2,8 mV / 20 kOhm
AUX: 40 mV / 220 kOhm
Übersteuerungsfestigkeit aller Eingänge:
40 dB (1 : 100)

Inputs per channel:
MIC (unbalanced)
position LO: 0.15 mV / 2.2 kohms
for 50 ... 600 ohms microphones
position HI: 2.8 mV / 110 kohms
for microphone impedances from 50 ohms to 20 kohms
RADIO: 2.8 mV / 20 kohms
AUX: 40 mV / 220 kohms
Overload margin on all inputs:
40 dB (1 : 100)

Entrées par canal:
MIC (asymétrique)
position LO: 0,15 mV / 2,2 kohms
pour microphones de 50 à 600 ohms
position HI: 2,8 mV / 110 kohms
pour microphones de 50 ohms ... 20 kohms
RADIO: 2,8 mV / 20 kohms
AUX. 40 mV / 220 kohms
Taux de surcharge de toutes les entrées:
40 dB (1 : 100)

Ausgänge pro Kanal:
(Pegel bei 0 VU + 6 dB, resp. 514 nWb/m)
OUTPUT: 1,55 V / R_i 390 Ohm, max. 1,5 kOhm
mit Pegelsteller regelbar, max. –26 dB
RADIO: 1,55 V / R_i 4,7 kOhm
mit Pegelsteller regelbar, max. –26 dB
PHONES: (2 x) max. 5,6 V / R_i 220 kOhm
kurzschlussfest, optimal für Kopfhörer von 200 ... 600 Ohm

Outputs per channel:
(Level at 6 dB above 0 VU / 514 nWb/m)
OUTPUT: 1.55 V / R_i 390 ohms max. 1.5 kohms
adjustable with preset control, max. attenuation –26 dB
RADIO: 1.55 V / R_i 4.7 kohms
adjustable with preset control, max. attenuation –26 dB
PHONES: (2 x) max. 5.6 V / R_i 220 ohms
short-circuit proof, optimum matching impedance 200 ... 600 ohms

Sorties par canal:
(niveau à + 6 dB VU, resp. 514 nWb/m)
OUTPUT: 1,55 V / R_i 390 ohms max. 1,5 kohms
avec atténuation ajustable, max. –26 dB
RADIO: 1,55 V / R_i 4,7 kohm
avec atténuation ajustable, max. –26 dB
PHONES: (2 x) max. 5,6 V / R_i 220 ohms
court-circuit sans risque, pour casques de 200 ... 600 ohms.

Anschlüsse für:
Fernbedienung Laufwerk-Funktionen
Fernbedienung variable Bandgeschwindigkeit
Diaprojektor oder Überblendeinheit (nachrüstbar)

Connectors for:
Remote control of tape transport functions
Remote control of variable tape speed
Slide projector or crossfade unit (electronics optional)

Raccordement pour:
télécommande du mécanisme
variateur de vitesse
projecteur de diapositives ou fondu enchaîné (en option)

Bestückung:
11 IC, 1 Opto-Koppler, 4 Triac, 60 Transistoren, 33 Dioden, 5 LED, 2 Brückengleichrichter, 3 Relais.

Component parts:
11 ICs, 1 Opto-coupler, 4 Triacs, 60 transistors, 33 diodes, 5 LEDs, 2 full wave rectifiers, 3 relays.

Composants:
11 IC, 1 photo-coupleur, 4 triacs, 60 transistors, 33 diodes, 5 LED, 2 redresseurs et 3 relais.

Stromversorgung:
100 ... 240 V ∿ ± 10 %,
umschaltbar: 100 V, 120 V, 140 V, 200 V, 220 V, 240 V
50 ... 60 Hz ohne Umschaltung
max. 80 Watt
Netzsicherung:
100 ... 140 V: 1 AT
200 ... 240 V: 0.5 AT

Electric current supply:
100 ... 240 V ∿ ± 10 %
voltage selector for 100 V, 120 V, 140 V, 200 V, 220 V, 240 V
50 ... 60 Hz without conversion
max. 80 watts
Main fuse:
100 ... 140 V: 1 amp slow-blow
200 ... 240 V: 0.5 amp slow-blow

Alimentation:
100 ... 240 V ∿ ± 10 %
commutable: 100 V, 120, V, 140 V, 200 V, 220 V et 240 V
50 .. 60 Hz sans commutation
consommation max. 80 W
Fusible secteur.
100 ... 140 V: 1 AT
200 ... 240 V: 0,5 AT

Gewicht (Masse):
ca. 17 kg

Weight:
Approx. 17 kg / 37 lbs 7 ozs

Poids:
environ 17 kg

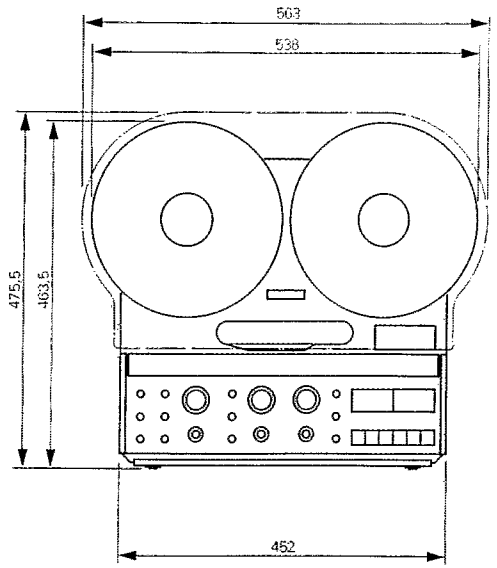
Änderungen vorbehalten.

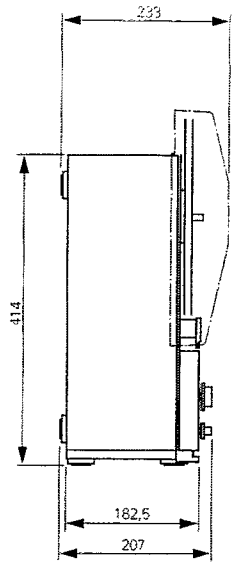
Subject to change.

Sous réserve de modification

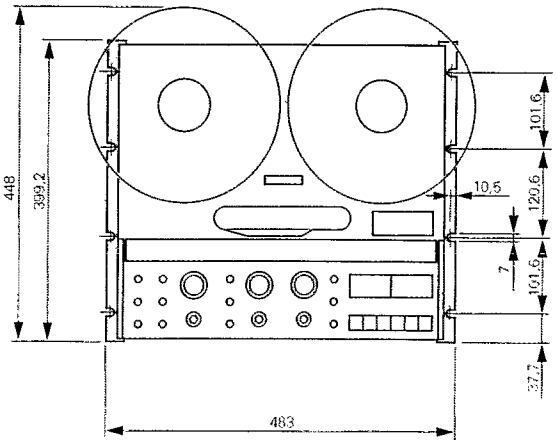
Abmessungen **Dimensions** **Dimensions**

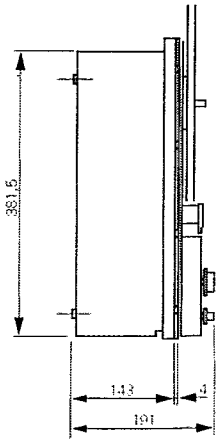
Normale Ausführung Standard Version Version normale





Rack-Ausführung Rack Version Version rack

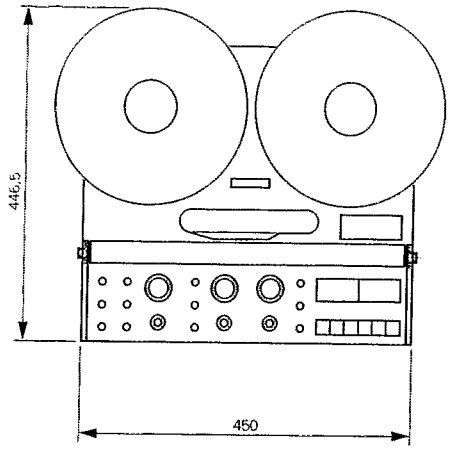


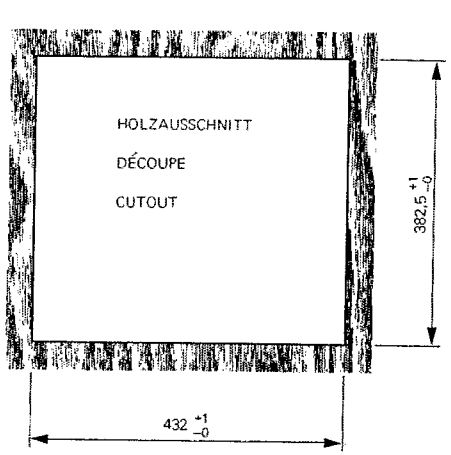


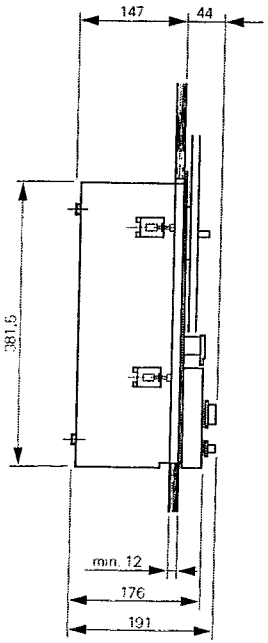
Einbau-Ausführung

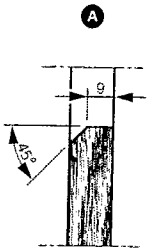
Installation Version

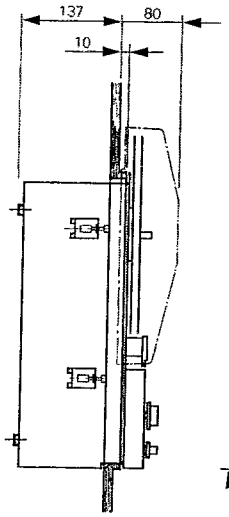
Version à encastrer

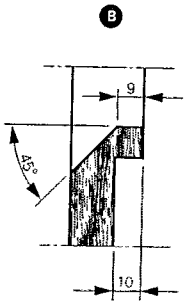












(A) Fasette nur auf der unteren Seite
(A) Plattendicke grösser als 12 mm

(B) Einbaumasse bei Verwendung
(B) Abdeckhaube

(A) On panel thicknesses in excess of 12 mm, bevelled edge on the bottom side only

(B) Space requirement minimum when using the dust cover

(A) Seule la découpe inférieure nécessite un biseau pour les panneaux de plus de 12 mm d'épaisseur

(B) Dimensions requises pour l'utilisation du couvercle de protection

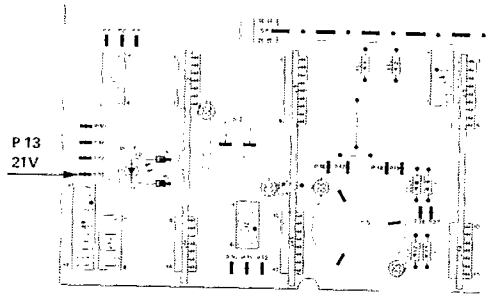


Fig. 6.2.–1

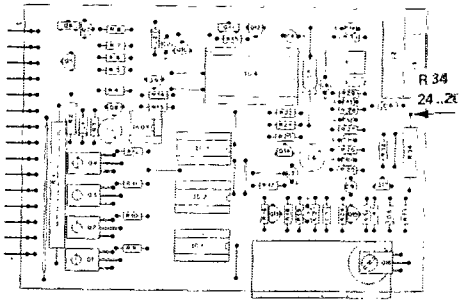


Fig. 6.2.–2

6. Elektrische Einstellungen und Messungen

6.1. Messgeräte und Hilfsmittel

- Entmagnetisierungs-Drossel
- NF-Millivoltmeter
- NF-Generator
- Klirrfaktor-Messgerät
- Oszilloskop
- Digitalzähler (Counter)
- Tonhöhenschwankungsmesser

6.2. Kontrolle der Speisespannungen

Stabilisierte Speisespannungen 21 V:
Auf Audio-Verbindungs-Platine (P13, Fig. 6.2.–1)
Spannung messen: 21 V ± 1 V.
Unstabilisierte Speisespannung 24 V:
Gerät in STOP-Position.
Auf Laufwerksteuerung an Widerstand R34 (Fig. 6.2.–2)
Spannung messen: 24 V ... 26 V (bei Nenn-Netzspannung)

6.3. Laufwerk-Einstellungen

6.3.1. Kontrolle der Laufwerkfunktionen

Gerät von Umspulen auf Wiedergabe (PLAY) tasten. Die Andruckrolle darf erst nach Stillstand des rechten Wickeltellers einfahren.

Sollte die Andruckrolle das Band zu früh an die Tonwelle drücken, so ist der Abstand zwischen Sensorspule und Glocke des rechten Wickelmotors zu kontrollieren (ca. 1 ... 1,5 mm).

6.3.2. Tachokopf-Einstellung (Tonmotor)

Der Luftspalt zwischen Tachokopf und Rotor soll 0,3 ... 0,4 mm betragen. Die Einstellung ist in Ordnung, wenn an den Anschlüssen P12 (braun) und P13 (blau) der Stromversorgungs-Platine 35 ... 50 mV (bei 9,5 cm/s) Tachometer-Signal gemessen wird.

6. Electrical adjustments

6.1. Required test equipment

- Audio millivoltmeter
- Audio generator
- Distortion factor meter
- Oscilloscope
- Digital counter
- Wow and flutter meter
- Head demagnetizer

6.2. Checking the supply voltages

Regulated 21 V supply:
measure voltage on audio interconnection board (P13, fig. 6.2.–1), it must read 21 V ± 1 V.
Unregulated 24 V supply:
Recorder in position STOP.
Measure voltage on tape transport control board at resistor R34 (fig. 6.2.–2), it must read 24 V ... 26 V (under nominal line voltage).

6.3. Tape transport adjustments

6.3.1. Checking the tape transport functions

Start the recorder in the fast forward wind function. After a high winding speed is attained, select PLAY – the pinch roller arm must not become activated prior to the complete standstill of the right-hand reel.

If the pinch roller presses the tape against the capstan shaft too soon, check and if necessary correct the clearance between the sensor coil and the spooling motor (approx. 1 ... 1.5 mm/0.039 ... 0.062 inches).

6.3.2. Tacho head adjustment

The clearance between the tacho head and the rotor of the capstan motor should amount to 0.3 ... 0.4 mm/0.011 ... 0.017 inches. The head is correctly positioned when measuring a signal voltage of 35 ... 50 mV at 9.5 cm/s at the contacts P12 (brown) P13 (blue).

6. Mesures et réglages électriques

6.1. Appareils de mesure et accessoires

- Démagnétiseur
- Millivoltmètre BF
- Générateur BF
- Pont de distorsion
- Oscilloscope
- Compteur digital
- Scintillomètre

6.2. Contrôle des tensions d'alimentation

Tension d'alimentation stabilisée 21 V:
Sur le circuit d'interconnexion (P13, fig. 6.2.–1)
Tension à mesurer: 21 V ± 1 V.
Tension d'alimentation non stabilisée 24 V:
Appareil en position STOP.
Sur la commande du mécanisme à la résistance R34 (fig. 6.2.–2)
Tension à mesurer: 24 V ... 26 V (pour la tension secteur nominale)

6.3. Réglage du mécanisme

6.3.1. Contrôle des fonctions du mécanisme

Passez du bobinage rapide en lecture (PLAY): Le galet presseur ne doit coller qu'après l'arrêt complet du plateau de bobine droit.

Si ce n'est pas le cas, et que le galet presseur colle trop tôt, contrôlez la distance entre la bobine du détecteur et la cloche du moteur (environ 1 ... 1,5 mm).

6.3.2. Réglage de la tête tachymétrique

La distance entre la tête tachymétrique et la cloche du moteur doit être de 0,3 ... 0,4 mm. Le réglage est correct, lorsque l'on obtient 35 ... 50 mV (à 9,5 cm/s) entre les points P12 (brun) et P13 (bleu) du circuit d'alimentation, la tête tachymétrique de 35 ... 50 mV.

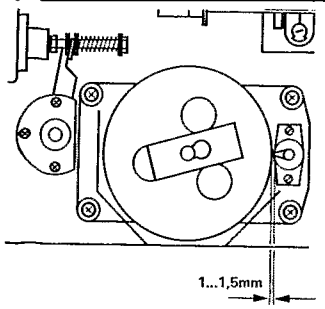


Fig. 6.3.–1

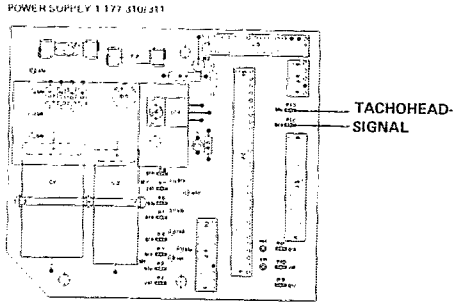


Fig. 6.3.–2

6.3.3. Geschwindigkeits-Eichung

– Band einlegen.
– Taste VARY SPEED lösen.
– Gerät auf hoher Bandgeschwindigkeit auf Wiedergabe starten.
– Zähler an TP1 und P5 (Masse) auf Drehzahlregelungs-Steckkarte anschliessen.
– Anzeige an Zähler muss 800 Hz sein. Einstellung an R14.
– Gerät auf kleine Bandgeschwindigkeit umschalten.
Anzeige muss 800 Hz sein.
Die Anzeige bei beiden Bandgeschwindigkeiten muss innerhalb 1 Hz liegen.

6.3.3. Tape speed calibration

– Load recorder with tape.
– Release push button VARY SPEED
– Connect digital counter to TP1 and P5 (ground) on the speed control board.
– Select high tape speed and start recorder in function PLAY.
– The readout on the counter must show 800 Hz. If necessary adjust R14.
– Switch recorder to low tape speed, readout must again show 800 Hz.
At both tape speeds the indicated frequency must be within 1 Hz of the nominal frequency.

6.3.3. Réglage de la vitesse

– Mettez une bande.
– Poussoir VARY SPEED relâché.
– Enclenchez l'appareil en lecture, en grande vitesse.
– Branchez un compteur entre les points TP1 et P5 (masse) de la plaquette de régulation de vitesse.
– Le compteur doit indiquer 800 Hz. Réglage par R14.
– Commutez l'appareil en petite vitesse. Le compteur doit également indiquer 800 Hz.
La différence entre les deux vitesses ne doit pas dépasser 1 Hz.

6.3.4. Kontrolle Bandendschalter

Gerät mit eingelegtem Band auf Wiedergabe starten. Bei Transparentband schaltet das Gerät auf STOP. Durch Abheben des Bandes aus dem Strahlbereich der LED muss das Gerät ebenfalls auf STOP schalten.

6.3.4. Checking the end-of-tape switch

Load recorder with a short section of tape or prepare a reel of tape by splicing a section of transparent leader into the tape. Start recorder in function PLAY. When the transparent section reaches the light gate, the machine must STOP. This can also be simulated by trying to lift the running tape away from the light gate.

6.3.4. Contrôle de l'arrêt de fin de bande

L'appareil étant muni d'une bande, démarrez en lecture. Sur l'amorce transparente l'appareil passe en fonction STOP. En écartant la bande du rayonnement de la diode LED, l'appareil doit également s'arrêter.

6.4. Audio-Einstellungen
6.4.1. Testbänder

Zur Einpegelung der Aufnahme- und Wiedergabeverstärker wird in der nachfolgenden Einstellanleitung das REVOX-Testband als Bezugsband verwendet. Dessen Spezifikationen sind nachfolgend festgehalten.

Bezugspegel		OUTPUT
0 VU	= 257 nWb/m	775 mV
0 VU –20 dB	= 25,7 nWb/m	77,5 mV

Alle NF- und HF-Messungen mit abgeschirmten Leitungen vornehmen.

Alle Messwerte an OUTPUT (51) beziehen sich auf voll geöffnete Regler LEVEL (50) (Fig. 6.4.–1).

6.4. Audio adjustments
6.4.1. Calibration tapes

For adjusting the reproducing and recording amplifiers as described hereunder, use the REVOX calibration tape (part no 46001) as a reference. The recorded levels are as follows:

Reference level		OUTPUT
0 VU	= 257 nWb/m	775 mV
–20 dB from 0 VU	= 25,7 nWb/m	77,5 mV

Use shielded cables for all audio and high frequency measurements.

The signal levels specified for OUTPUT (51) are taken with the controls LEVEL (50) (fig. 6.4.–1) fully open.

6.4. Réglages audio
6.4.1. Bande étalon

Pour l'alignement des amplificateurs d'enregistrement et de lecture, il est recommandé de suivre les instructions de réglage et d'utiliser la bande étalon REVOX dont les spécifications sont les suivantes:

Niveau de référence		OUTPUT
0 VU	= 257 nWb/m	775 mV
0 VU –20 dB	= 25,7 nWb/m	77,5 mV

Toutes les mesures BF et HF se font à l'aide de câbles blindés.

Toutes les valeurs mesurées à la sortie OUTPUT (51) au réglage maximum des potentiomètres LEVEL (50) (fig. 6.4.–1).

6.4.2. Entmagnetisierung

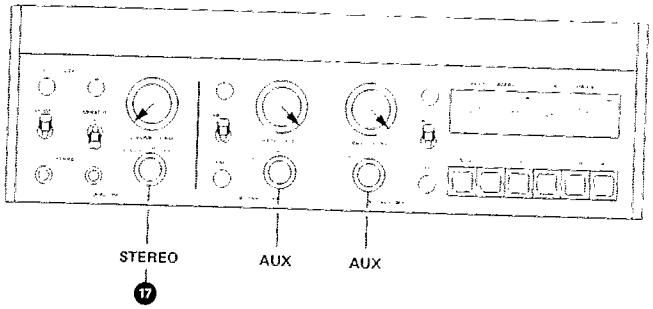
Vor jeder Messung oder Einstellung mit laufendem Band sind die Tonköpfe und Bandführungen zu entmagnetisieren!

6.4.2. Demagnetizing

Demagnetize the sound heads and tape guides prior to any adjustments or measurements with tape.

6.4.2. Démagnétisation

Il est très important de démagnétiser les têtes et les guides de bande avant de poser une bande de mesure sur l'appareil.



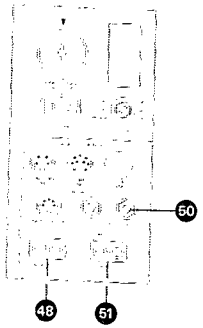


Fig. 6.4.–1

Starke Gleichfeld-Magnetisierungen verschlechtern den Geräuschspannungsabstand und den Frequenzgang. An den Bezugsbändern können zudem Beschädigungen zurückbleiben.

Strong DC magnetization causes a deterioration of the signal to noise ratio and frequency response as well. Reference tapes may become permanently damaged.

De fortes inductions magnétiques peuvent dégrader les caractéristiques du bruit de fond et de la courbe de réponse et peuvent abîmer partiellement les bandes étalon.

6.4.3. Kontrolle Eingangsverstärker

– Bedienungselemente nach Fig. 6.4.–1 einstellen.
– NF-Millivoltmeter an Ausgang OUTPUT (51) anschliessen (Regler LEVEL (50) voll geöffnet).
– NF-Generator an Anschluss AUX INPUT (48) parallel anschliessen. Generatorpegel bei 1000 Hz so einstellen, dass sich am NF-Millivoltmeter eine Spannung von 0,775 V einstellt. Für diese Spannung wird ein Eingangspegel von ca. 20 mV benötigt.

Anmerkung:
Der Pegelunterschied am Ausgang soll max. 0,5 dB betragen bei allen Positionen des Betriebsartenschalters MONITOR (17).

6.4.3. Gain of input amplifier

– Adjust operating controls as per fig. 6.4.–1.
– Connect audio voltmeter to OUTPUT (51) (potmeters LEVEL (50) fully open).
– Connect audio generator to feed the sockets AUX INPUT (48) parallel. Select frequency of 1000 Hz and adjust generator level until a reading of 0.775 V is obtained on the audio voltmeter. The required input level should read 20 mV approx.

Note:
At all positions of the mode selector (MONITOR (17)) the difference in output level must not exceed 0.5 dB.

6.4.3. Contrôle de l'amplificateur d'entrée

– Effectuez les commutations selon fig. 6.4.–1.
– Branchez un millivoltmètre BF à la sortie OUTPUT 51 (potentiomètres LEVEL (50) ouvert au max.).
– Raccordez un générateur BF aux entrées AUX INPUT (48). Réglez le générateur à 1000 Hz et le niveau de façon à obtenir 0,775 V au millivoltmètre BF. Le niveau d'entrée s'élève à environ 20 mV.

Remarque:
La différence de niveau à la sortie, pour toutes les positions du sélecteur MONITOR (17), ne doit être de 0,5 dB au maximum.

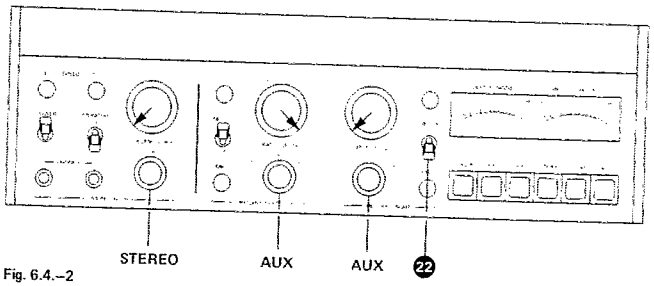


Fig. 6.4.–2

6.4.4. Kontrolle Eingangsmischung bei einkanaliger Einspeisung

– Bedienungselemente nach Fig. 6.4.–2 einstellen.
– NF-Generator auf gleichem Pegel belassen (1000 Hz, 0,775 V am Ausgang).
Anschluss AUX INPUT (48). Beide VU-Meter zeigen 0 VU.
– Zusätzlich Antriebsverstärker REC–R (22) auf ON. Nur untere VU-Meter zeigt 0 VU.

6.4.4. Testing the mixing facility with a single channel feed

– Adjust operating controls as per fig. 6.4.–2.
– Audio generator adjusted as for previous test (1000 Hz, 0.775 V output level) and connected to AUX INPUT (48). Both VU-meters indicate 0 VU.
– Switch record preselector REC (22) to ON. Only the lower VU-meter indicates 0 VU.

6.4.4. Contrôle du mélange des entrées à l'enregistrement d'un seul canal

– Effectuez les commutations selon fig. 6.4.–2.
– Laissez le même niveau du générateur BF (1000 Hz et 0.775 V à la sortie). Reliez-le aux entrées AUX INPUT (48). Les deux VU-mètres indiquent 0 VU.
– Commutez le présélecteur d'enregistrement REC R (22) sur ON. Seul le VU-mètre inférieur indique 0 VU.

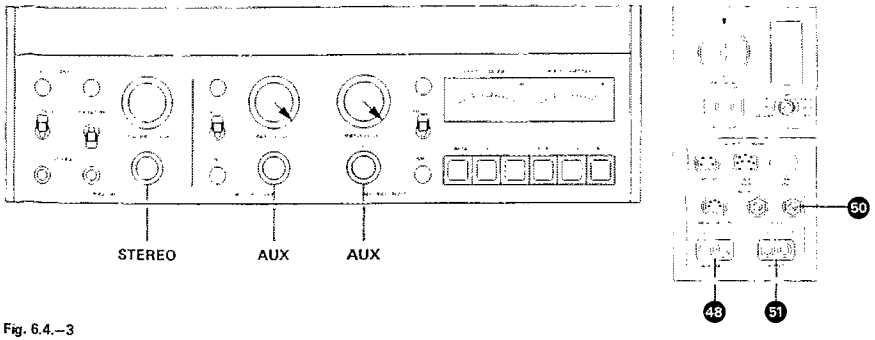


Fig. 6.4.–3

– Eingangs-Pegelregler INPUT LEVEL LEFT auf Anschlag "0".
– Eingangspegelregler INPUT LEVEL RIGHT auf Anschlag "10". Nur rechtes VU-Meter zeigt 0 VU.
– Aufnahmevorwahlschalter REC–L auf OFF. Beide VU-Meter zeigen 0 VU.

– Turn potentiometer INPUT LEVEL LEFT fully counterclockwise to position "0".
– Turn potentiometer INPUT LEVEL RIGHT fully clockwise to position "10". Only the right-hand VU-meter will read 0 VU.
– Switch record preselector REC L to position OFF. Both VU-meters indicate 0 VU.

– Tournez le potentiomètre d'entrée INPUT LEVEL LEFT sur "0".
– Tournez le potentiomètre d'entrée INPUT LEVEL RIGHT sur "10". Seul le VU-mètre droit indique 0 VU.
– Commutez le présélecteur d'enregistrement REC–L sur OFF. Les deux VU-mètres indiquent 0 VU

6.4.5. VU-Meter-Eichung

– Bedienungselemente nach Fig. 6.4.–3 einstellen.
– NF-Generator immer noch gleicher Pegel (1000 Hz, 0,775 V am Ausgang).
– Mit Reglern METER CAL. L + R (Fig. 6.4.–4) linkes und rechtes VU-Meter auf 0 VU eichen.

6.4.5. VU-meter calibration

– Set operating controls as per fig. 6.4.–3.
– Audio generator still adjusted to same level and frequency (1000 Hz, 0.775 V on output).
– Adjust potentiometers METER CAL. L + R (fig. 6.4.–4) to obtain a 0 VU deflection on the respective VU-meter.

6.4.5. Etalonnage des VU-mètres

– Effectuez les commutations selon la fig. 6.4.–3.
– Laissez encore le même niveau du générateur BF (1000 Hz et 0.775 V à la sortie).
– A l'aide des réglages METER CAL. L + R (fig. 6.4.–4) gauche et droit, étalonnez les VU-mètres sur 0 dB.

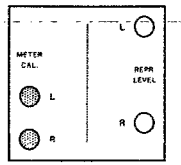


Fig. 6.4.–4

6.4.6. Kontrolle Übersteuerungsanzeige

Wird der Pegel um mehr als 6 dB erhöht, so müssen die Übersteuerungs-Anzeigelampen in den VU-Metern aufleuchten. Der Unterschied der Ansprechschwellen beider Lampen darf nicht grösser als 0,5 dB sein.

Bei grösserer Toleranz sind die Widerstände R37 bzw. R34 auf dem Monitorverstärker 1.177.260 zu ändern.

Bei neuerer Ausführung sind R34/R37 durch Einstellpotentiometer R30, R38 ergänzt worden.

6.4.6. Checking the overload indicators

When raising the signal level by more than 6 dB, the overload indicators in the VU-meters must become illuminated. The difference in triggering level between the two indicators must not exceed 0.5 dB.

When exceeding this tolerance, alter the values of resistors R37 or R34 respectively in the monitor amplifier 1.177.260

On newer versions, resistors R34/R37 are replaced by additional trimpots R30, R38

6.4.6. Contrôle des indicateurs de surmodulation

En augmentant de 6 dB le niveau, les indicateurs de surmodulation doivent s'allumer. L'écart entre les seuils d'allumage ne doit pas dépasser 0,5 dB

Un trop grand ecart peut être réduit en changeant les valeurs des résistances R37 ou R34 de l'amplificateur moniteur 1.177.260.

Pour les nouvelles versions, les résistances R34 et R37 sont remplacées par des résistances variables, supplémentaires R30, R38

6.4.7. Frequenzgang-Kontrolle "Vor Band"

– Bedienungselemente nach Fig. 6.4.–3 einstellen.
– NF-Generator an Anschluss AUX INPUT (48) parallel anschliessen.
– NF-Millivoltmeter am Ausgang OUTPUT (51) anschliessen

6.4.7. Frequency response "before tape"

– Set operating controls as per fig. 6.4.–3.
– Connect audio generator to both AUX INPUTs (48) in parallel.
– Connect audio millivoltmeter to OUTPUT (51).

6.4.7. Contrôle de la courbe de réponse des canaux d'entrée

– Effectuez les commutations selon la fig. 6.4.–3.
– Raccordez un générateur BF aux entrées AUX INPUT (48).
– Branchez un millivoltmètre à la sortie OUTPUT (51).

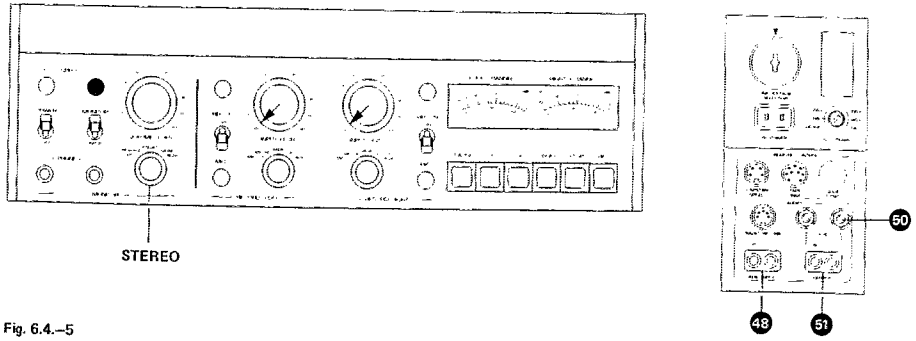


Fig. 6.4.–5

– Generator von 30 Hz bis 20 000 Hz durchstimmen. Am Millivoltmeter Frequenzgang-Abweichungen ablesen. Toleranz: + 0 dB / –1 dB.
– Frequenzgang-Kontrolle an OUTPUT L + R vornehmen.

– Sweep generator from 30 Hz to 20 000 Hz and check frequency response by observing the level variation on the audio millivoltmeter. Permissible tolerance + 0/–1 dB.
– Check frequency response on OUTPUT L + R.

– Faites varier la fréquence du générat de 30 à 20 000 Hz et contrôlez les écarts niveau au millivoltmètre. Tolérance: + 0 –1 dB.
– Contrôlez la courbe de réponse sorties OUTPUT L + R.

6.4.8. Spaltjustierung Wiedergabekopf, grob (Pegelmaximum)

Kontrolle:

Der Spalt muss in der Mitte des Schleifspiegels liegen.

– Schleifspiegel mit einem Fettstift waagrecht markieren und anschliessend kurz ein Band laufen lassen. Der Spalt muss in der Mitte der durch das Band polierten Stelle liegen.
– Bedienungselemente nach Fig. 6.4.–5 einstellen.
– Testband 19 cm/s auflegen und auf Spaltjustierteil (10 kHz) vorspulen.
– NF-Millivoltmeter an Ausgang (51) OUTPUT L anschliessen.
– Wiedergabetaste PLAY drücken und an Justierschraube (P) auf Ausgangsspannungs-Maximum einstellen.

6.4.8. Reproducing head azimuth, coarse adjustment (Level maximum)

Double check:

Check to make sure that the head gap is centered inside the wear patter on the head.

– With grease pencil make horizontal mark on the head face, run tape for several seconds, then check position of the head gap inside the polished area. If necessary adjust head position to bring gap into center of wear area.
– Set operating controls as per fig. 6.4.–5.
– Connect audio millivoltmeter to OUTPUT L (51).
– Load recorder with calibration tape 7 1/2 ips and run azimuth adjusting section (10 kHz) by pressing button PLAY.
– Rotate screw (P) to obtain maximum output voltage

6.4.8. Préréglage de l'azimut de la tête lecture (Niveau maximum)

Contrôle:

L'entre-fer doit être centré sur la surface de contact de la bande.

– Faites un trait horizontal sur chaq piste avec un crayon gras, puis passez une ban quelques instants. Contrôlez que l'entre-fer trouve bien centré sur les parties effacées.
– Effectuez les commutations selon la 6.4.–5.
– Placez la bande étalon de 19 cm/s sur partie réservée à l'azimut (10 kHz).
– Raccordez un voltmètre BF à la sort OUTPUT L (51).
– Appuyez sur la touche PLAY et ajust le niveau de sortie maximum à l'aide de la vis réglage (P).

6.4.9. Spaltjustierung Wiedergabekopf, fein (Phasenmethode)

Für die Spaltjustierung nach der Phasenmethode ist es unbedingt erforderlich, dass die Spalteinstellung mit Pegelmaximum-Abgleich (6.4.8.) zuerst vorgenommen wird, damit Phasenfehler > 90° mit Sicherheit vermieden werden.

– Betriebsartenschalter MONITOR auf Stellung MONO.
– NF-Millivoltmeter an Ausgang (51) OUTPUT L + R parallel anschliessen.
– Testband auf Spaltjustierteil (10 kHz) auf Wiedergabe starten und mit Justierschraube (P) auf Ausgangsspannungs-Maximum (scharf) einstellen.

6.4.9. Reproducing head azimuth, fine adjustment (Phase check method)

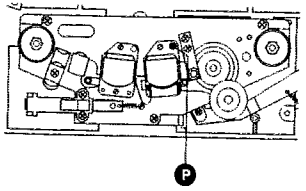
When using the phase check method for alignment of the head azimuth, it is essential that the azimuth is first adjusted for level maximum (section 6.4.8.) so as to avoid the possibility of a phase error in excess of 90°.

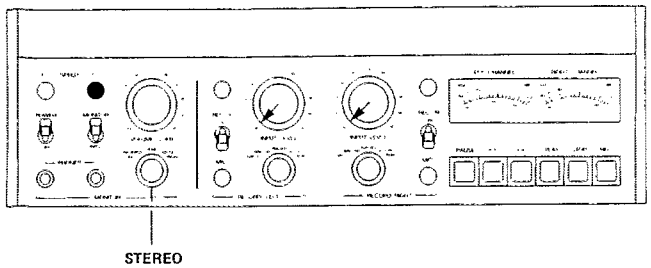
– Switch mode selector MONITOR to position MONO
– Connect audio millivoltmeter to both outputs OUTPUT L + R (51) in parallel.
– Load recorder with calibration tape 7 1/2 ips and run azimuth adjusting section (10 kHz) while rotating screw (P) until a pronounced maximum in output voltage is obtained.

6.4.9. Réglage fin de l'azimut de la tête lecture (Méthode des phases)

– Pour effectuer ce réglage, il est absol ment nécessaire de procéder au réglage déc précédant (6.4.8.) pour éviter une erreur de 90

– Sélecteur MONITOR en positic MONO
– Branchez un millivoltmètre BF au sorties (51) OUTPUT L et R.
– Passez en lecture la partie destinée à réglage de l'azimut (10 kHz) et effectuez le glage fin (très pointu) avec la vis (P) pour obten le signal de sortie maximum.





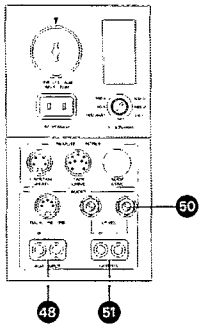


Fig. 6.4.–6

6.4.10. Wiedergabe-Pegel ab Testband
(REVOX-Testband Art. Nr. 46 001)

– Bedienungselemente nach Fig. 6.4.–6 einstellen.
– NF-Millivoltmeter an Ausgang OUTPUT L (51) anschliessen (1 V-Bereich).
– Testband auf Pegelteil (257 nWb/m) vorspulen.
– Gerät auf Wiedergabe starten.
– Mit dem Regler REPR LEVEL L (Fig. 6.4.–7) eine Ausgangsspannung von 0,775 V einstellen.
– NF-Millivoltmeter an Ausgang OUTPUT R anschliessen.
– Mit dem Regler REPR LEVEL R eine Ausgangsspannung von 0,775 V einstellen.

6.4.10. Reference level from calibration tape
(REVOX test tape no. 46001)

– Set operating controls as per fig. 6.4.–6.
– Connect audio millivoltmeter (1 V range) to OUTPUT L (51).
– Search for reference level 257 nWb/m on the calibration tape and run that section by pressing the button PLAY.
– Adjust trimpot REPR LEVEL L (fig. 6.4.–7) to obtain an output level of 0.775 V.
– Connect audio millivoltmeter to OUTPUT R.
– Adjust trimpot REPR LEVEL R to obtain an output level of 0.775 V.

6.4.10. Niveau de référence d'après la bande étalon
(Bande étalon REVOX Art. Nr. 46001)

– Effectuez les commutations selon la fig. 6.4.–6.
– Raccordez un millivoltmètre BF à la sortie OUTPUT L (51) (échelle 1 V).
– Bobinez la bande étalon jusqu'à la partie niveau de référence (257 nWb/m).
– Démarrez en lecture.
– A l'aide du réglage REPR LEVEL L (fig. 6.4.–7), ajustez la tension de sortie à 0,775 V.
– Raccordez le millivoltmètre BF à la sortie OUTPUT R.
– A l'aide du réglage REPR LEVEL R, ajustez la tension de sortie à 0,775 V.

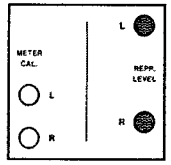


Fig. 6.4.–7

6.4.11. Frequenzgang-Kontrolle, Wiedergabe
(ab Testband)

– Bedienungselemente nach Fig. 6.4.–6 einstellen.
– Testband auf den Frequenzgangteil vorspulen.
– NF-Millivoltmeter an Ausgang (51) OUTPUT L + R anschliessen.
– Gerät auf Wiedergabe starten und den Frequenzgang bezogen auf 1000 Hz kontrollieren.

Es können gleichzeitig beide Kanäle gemessen werden, indem der Betriebsartenschalter MONITOR umgeschaltet wird (L/R).

6.4.11. Reproducing system frequency response
(measured with calibration tape)

– Set operating controls as per fig 6.4.–6.
– Search for the beginning of the frequency response section on the calibration tape.
– Connect audio millivoltmeter to OUTPUT L + R (51) in parallel.
– Start recorder in PLAY and measure frequency response relative to 1000 Hz.

The frequency response of both channels may be checked in one run by alternating the setting of the MONITOR mode selector between the positions LEFT and RIGHT.

6.4.11. Courbe de réponse en lecture
(d'après la bande étalon)

– Effectuez les commutations selon la fig. 6.4.–6.
– Bobinez la bande étalon jusqu'à la partie courbe de réponse.
– Raccordez un millivoltmètre BF à la sortie (51) OUTPUT L + R.
– Démarrez en lecture et contrôlez la courbe de réponse par rapport au niveau à 1000 Hz.

Les deux canaux peuvent être mesurés en une fois en commutant le sélecteur du mode de reproduction MONITOR (L/R).

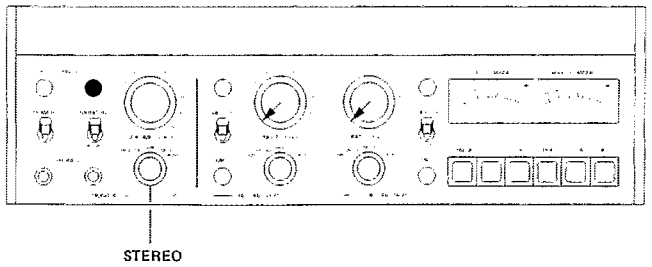


Fig. 6.4.–8

6.4.12. HF-Spannungen und Frequenz kontrollieren

– Bedienungselemente nach Fig. 6.4.–8 einstellen.
– Leeres Band REVOX 631 auflegen und auf Aufnahme starten.

Löschkopfspannung:
– Löschkopfspannung am Löschkopf mit Voltmeter messen:
Richtwert: 30 V ... 32 V AC

Oszillatorfrequenz:
– Oszillatorfrequenz mit Digital-Zähler oder Oszilloskop am Löschkopf messen. Die Frequenz beträgt 150 kHz ± 5 kHz. Aufzeichnung am Oszilloskop: 15 Schwingungen/100 µs.
– Bei Frequenzabweichung, mit Regelstift von T1 auf Oszillator-Steckkarte, nachjustieren. Oszillator ist dabei auf Verlängerungs-Steckkarte 1.177.241 aufzustecken.

6.4.12. Checking oscillator frequency and RF-voltages

– Set operating controls as per fig. 6.4.–8.
– Load recorder with blank tape (REVOX 631) and start in the recording mode.

Erase voltage:
– Use electronic voltmeter to measure the RF-voltage on the erase head:
approx. value: 30 V ... 32 V

Oscillator frequency:
– Measure the oscillator frequency on the erase head with a digital counter. The frequency must read 150 kHz ± 5 kHz. When measuring with an oscilloscope, the display must consist of 15 cycles on the 100 µsec time base.
– If the frequency deviates beyond the above limits, adjust the slug in T1 on the oscillator board. For this adjustment, the extension board 1.177.241 is required in order to gain access to the coil.

6.4.12. Contrôle de la tension HF et de la f quence

– Effectuez les commutations selon la 6.4.–8.
– Placez une bande vierge REVOX 631 démarrez en enregistrement.

Tension d'effacement:
– Mesurez la tension d'effacement sur tête d'effacement:
Valeur approchée :30 .. 32 V AC.

Fréquence de l'oscillateur:
– Effectuez la mesure sur la tête d'er gistrement avec un compteur digital un oscilloscope. La fréquence est 150 kHz ± 5 kHz. Sur l'oscilloscope doit obtenir 15 alternances par 100
– Une déviation de la fréquence se con à l'aide du noyau de T1 de la plaque oscillateur, qui pour le réglage sera fichée sur la plaquette de prolongat 1.177.241.

6.4.13. HF-Sperrkreise Aufnahme

– Bedienungselemente nach Fig. 6.4.–8 einstellen.
– NF-Millivoltmeter an Messpunkt (X) des jeweiligen Aufnahmekanals anschliessen (Fig. 6.4.–9), siehe auch Schaltbild 1.177.230.
– Leeres Band auflegen und Gerät auf Aufnahme schalten.
– Mit Reglern BIAS TRAP L und R auf Spannungsminimum einstellen (< 350 mV), Fig 6.4.–10.

6.4.13. Adjustment of bias trap in recording amplifier

– Set operating controls as per fig 6.4.–8.
– Connect millivoltmeter to the test point (X) of the respective recording channel (fig 6.4.–9). Refer to circuit diagram 1.177.230.
– Load recorder with blank tape and start in the recording mode.
– Adjust the controls BIAS TRAP L + R to obtain a minimum voltage indication (< 350 mV), fig 6.4.–10.

6.4.13. Circuit réjecteur HF d'enregistrement

– Effectuez les commutations selon la 6.4.–8
– Branchez un millivoltmètre BF au p de mesure (X) de chaque canal d'enregis ment (fig 6.4.–9); voyez également le sche 1.177.230.
– Placez une bande vierge et démarrez enregistrement.
– Reglez les BIAS TRAP L et R au m mum de tension (< 350 mV), fig. 6.4.–10

wichtig

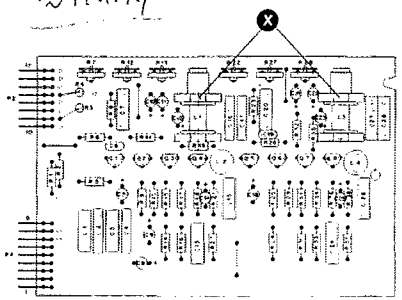


Fig. 6.4.–9

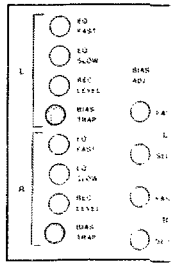
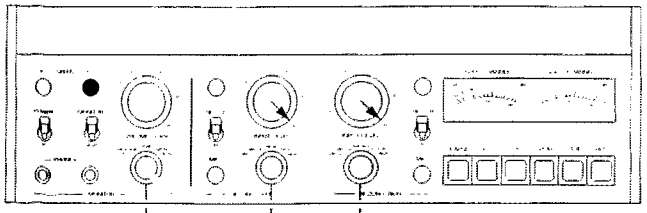


Fig. 6.4.–10



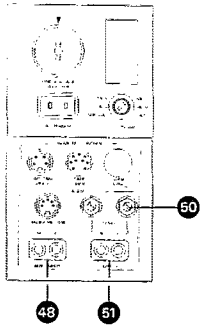


Fig. 6.4.–11

6.4.14. Spaltjustierung Aufnahmekopf, grob (Pegelmaximum)

– Bedienungselemente nach Fig 6.4.–11 einstellen.

– NF-Millivoltmeter an Ausgang (51) OUTPUT anschliessen. Bereich 100 mV.

– NF-Generator an Anschluss (48) AUX INPUT parallel anschliessen. Frequenz: 10 kHz.

– Leeres Band (REVOX 631) einlegen und auf Aufnahme starten. Generatorpegel so verstellen, dass sich am Ausgang eine Spannung von 77,5 mV einstellt.

– Mit Justierschraube (R) (Fig. 6.4.–12) Pegelmaximum einstellen. Anzeigeverzögerung beachten, deshalb besonders langsam einstellen.

6.4.14. Recording head azimuth coarse adjustment (Level maximum)

– Set operating controls as per fig. 6.4.–11.

– Connect audio millivoltmeter to OUTPUT 51 and select 100 mV range.

– Connect audio generator in parallel to AUX INPUTs (48). Select frequency of 10 kHz.

– Load recorder with blank tape (REVOX 631) and start in the recording mode. Adjust generator level to obtain an output reading of 77.5 mV.

– Rotate screw (R) (fig. 6.4.–12) to obtain maximum output level. Because there is a time lag before the effects of any alteration in record head azimuth will be shown on the meter, screw (R) should be rotated very slowly.

6.4.14. Préréglage de l'azimut de la tête d'enregistrement (Niveau maximum)

– Effectuez les commutations selon la fig. 6.4.–11.

– Branchez un millivoltmètre BF à la sortie (51) OUTPUT. Echelle 100 mV.

– Raccordez le générateur BF aux entrées (48) AUX INPUT. Fréquence: 10 k kHz/signal: 0.775 V à la sortie.

– Placez une bande vierge (REVOX 631) et démarrez en enregistrement.

– Ajustez le niveau du générateur de façon à obtenir à la sortie une tension de 77,5 mV.

– Tournez la vis de réglage (R) (fig. 6.4.–12) pour obtenir le signal de sortie maximum. Tournez la vis lentement en tenant compte du décalage des têtes.

6.4.15. Spaltjustierung Aufnahmekopf, fein (Phasenmethode)

Um Messfehler, die durch Phasenverschiebung > 90° entstehen könnten, zu vermeiden, ist es unbedingt erforderlich die Spaltjustierung nach Pegelmaximum-Methode (6.4.14.) vorzunehmen.

– Betriebsartenschalter MONITOR auf Stellung MONO.

– NF-Millivoltmeter an Ausgang (51) OUTPUT anschliessen.

– NF-Generator an Anschluss (48) AUX INPUT parallel anschliessen. Frequenz: 10 kHz / Spannung: 0 VU –20 dB.

– Leeres Band (REVOX 631) auflegen und auf Aufnahme starten.

– Mit Justierschraube (R) (Fig. 6.4.–12) die Ausgangsspannung auf Maximum (scharf) einstellen.

6.4.15. Recording head azimuth fine adjustment (Phase check method)

In order to avoid the possibility of phase errors in excess of 90°, it is essential that the azimuth adjustment as described under section 6.4.14. is first completed.

– Turn mode selector MONITOR to position MONO.

– Connect audio millivoltmeter to both sockets OUTPUT (51) in parallel.

– Connect audio generator to AUX INPUTs (48) in parallel. Select frequency of 10 kHz and adjust to a level of 20 dB below 0 VU.

– Load recorder with blank tape (REVOX 631) and start in the recording mode.

– Adjust screw (R) (fig. 6.4.–12) until a sharply rising, well defined maximum in output voltage is obtained.

6.4.15. Réglage fin de l'azimut de la tête d'enregistrement (Methode des phases)

– Pour effectuer ce réglage, il est absolument nécessaire de proceder au réglage décrit précédant (6.4.14.) pour éviter une erreur de 90°.

– Sélecteur MONITOR sur MONO.

– Branchez un millivoltmètre BF à la sortie (51) OUTPUT.

– Raccordez un générateur BF aux entrées (48) AUX INPUT. Fréquence: 10 kHz/tension: 0 VU –20 dB.

– Placez une bande vierge (REVOX 631) et démarrez en enregistrement.

– Effectuez le réglage fin (très pointu) avec la vis (R) pour obtenir le signal de sortie maximum.

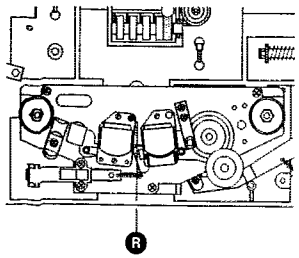
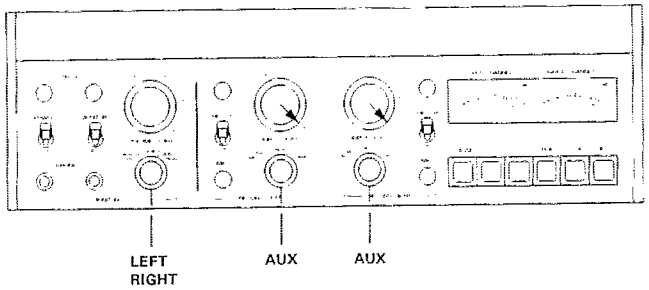


Fig. 6.4.–12



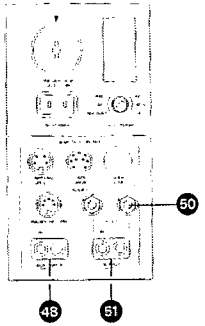


Fig. 6.4.–14

6.4.16. Vormagnetisierung

Da der Wiedergabepegel für hohe Frequenzen abhängig vom Vormagnetisierungsstrom in Form einer Kurve mit ausgeprägtem Maximum verläuft, kann diese Beziehung zur Festlegung des Arbeitspunktes herangezogen werden (Fig. 6.4.–13).

– Bedienungselemente nach Fig. 6.4.–14 einstellen.

– NF-Millivoltmeter an Ausgang (51) OUTPUT L bzw. R anschliessen.

– NF-Generator an Anschluss (48) AUX INPUT parallel anschliessen (10 kHz, 0 VU –20 dB).

– Leeres Band (REVOX 631) auflegen und auf Aufnahme starten.

– Mit Reglern
BIAS ADJ. LEFT (SLOW + FAST)
BIAS ADJ. RIGHT (SLOW + FAST)
vom Linksanschlag in Uhrzeigerrichtung drehen bis das NF-Ausgangsspannungs-Maximum erreicht ist. Betriebsartenschalter wahlweise auf LEFT/RIGHT. (entsprechende Bandgeschwindigkeitstaste wählen).

Man merke sich die Maximum-Anzeige und drehe nun in gleicher Drehrichtung weiter bis die NF-Ausgangsspannung um den in der Tabelle 6.4.–15 aufgeführten Wert gesunken ist (Δ U).

6.4.16. Bias adjustment

Since tape magnetization varies with bias current, a sharply defined maximum output is exhibited at high frequencies when gradually increasing the bias current from zero upwards. This relationship may be utilized to determine the optimum operating point (6.4.–13).

– Set operating controls as per fig 6.4.–14.

– Connect audio millivoltmeter to OUTPUT L or R (51) respectively

– Connect audio generator to AUX INPUTs (48) in parallel.

– Select frequency of 10 kHz and adjust to a level of 20 dB below 0 VU.

– Load recorder with blank tape (REVOX 631) and start in the recording mode.

– The potentiometers
BIAS ADJ LEFT (SLOW + FAST)
BIAS ADJ RIGHT (SLOW + FAST)
are to be adjusted at their respective tape speeds by turning them from their fully counterclockwise position in clockwise direction until the signal level, as measured on the recorder's output, reaches its maximum (mode selector switched to either LEFT or RIGHT as required).

After having reached the maximum, slowly keep on rotating the respective trimpot in clockwise direction until the 10 kHz output signal has dropped by the amount shown in table 6.4.–15 (ΔU).

6.4.16. Prémagnétisation

Le courant de prémagnétisation provoque une courbe dont le maximum très pointu influence le niveau de lecture des hautes fréquences. Il est possible de fixer avec précision son point de travail (6.4.–13)

– Effectuez les commutations selon la fig 6.4.–14.

– Branchez un millivoltmètre BF aux sorties (51) OUTPUT L ou R.

– Raccordez un générateur BF aux entrées (48) AUX INPUT (10 kHz, 0 VU –20 dB).

– Placez une bande vierge (REVOX 631) et démarrez en enregistrement.

– Tournez les réglages
BIAS ADJ. LEFT (SLOW + FAST
BIAS ADJ. RIGHT (SLOW + FAST)
dans le sens des aiguilles d'une montre, jusqu'à l'obtention de la tension de sortie BF maximum. Commutez alternativement le sélecteur de mode sur LEFT/RIGHT (conformément à la vitesse de bande choisie).

Repérez le point maximum et tournez le potentiomètre toujours dans le même sens, jusqu'à ce que la chute de tension de sortie BF corresponde aux valeurs de la tabelle 6.4.–15 (Δ U).

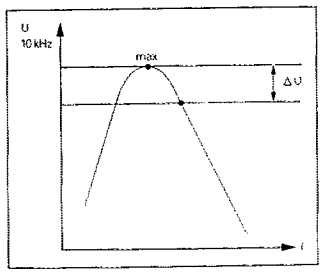
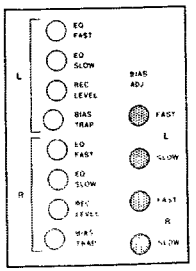
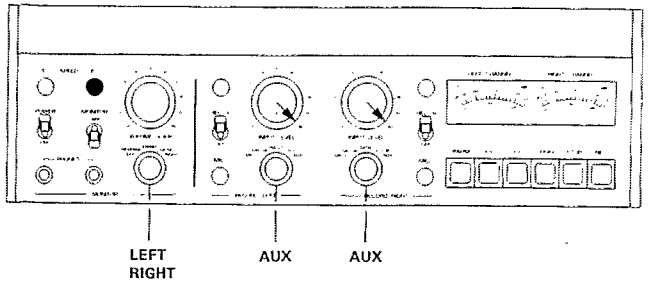


Fig. 6.4.–13

Bandsorte / Type of tape / Type de bande	ΔU 9.5cm/s / ΔV 3 3/4ips	ΔU 19cm/s / ΔV 7 1/2ips	ΔU 38cm/s / ΔV 15ips
REVOX A01	5 dB	4 dB	3 dB
REVOX 621	[illegible]	4	2,5
REVOX 631	6	6	4
SCOTCH 206/207	5	4	3
SCOTCH 256	5	5	3
SCOTCH Classic	5	5	3
AMPEX 406/407	6	5	3
AMPEX 456	5	5	3,5
AGFA PEM 368	5	4	3,5
AGFA PEM 468	5	5	3,5
BASF LPR-35LH	5	4	3
MAXELL UD-35	7	5	3,5
MAXELL UD-XL	6	5	3
TDK AD/SA	6	5	3

Fig. 6.4.–15





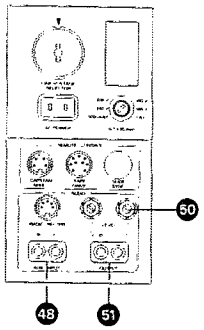


Fig. 6.4.–16

6.4.17. Aufnahme-Pegel

– Bedienungselemente nach Fig. 6.4.–16 einstellen.
– Wiedergabe-Pegel müssen eingestellt sein.
– NF-Generator an Anschluss (48) AUX INPUT parallel anschliessen.
– NF-Millivoltmeter an Ausgang (51) OUTPUT anschliessen.
– Leeres Band auflegen und auf Aufnahme starten.
– Generatorpegel bei 1000 Hz so einstellen, dass am NF-Millivoltmeter eine Spannung von 0,775 V erscheint.
– TAPE/INPUT Schalter MONITOR auf TAPE.
– Mit den Reglern REC LEVEL, LEFT bzw. RIGHT auf 0,775 V einstellen. Betriebsartenschalter entsprechend auf LEFT oder RIGHT.

Kontrolle:
Kein Pegelsprung beim Umschalten zwischen TAPE und INPUT.

Bei der Bandgeschwindigkeit 9,5 cm/s (3 3/4 ips) muss der Pegelsprung innerhalb 1 dB liegen.

6.4.17. Recording level

– Set operating controls as per fig. 6.4.–16.
– The levels of the reproducing system must already be adjusted as per section 6.4.10
– Connect audio generator in parallel to AUX INPUTS (48).
– Connect audio millivoltmeter to OUTPUT (51).
– Load recorder with blank tape and start in the recording mode.
– Select frequency of 1000 Hz on audio generator and adjust its level until a reading of 0.775 V is obtained on the audio millivoltmeter.
– Switch MONITOR selector to position TAPE
– Adjust the trimpots REC LEVEL, LEFT or RIGHT respectively to obtain an output level of 0.775 volts. Turn mode selector to either LEFT or RIGHT as required.

Double check:
There must be no level difference when switching the monitor selector between the positions TAPE and INPUT.

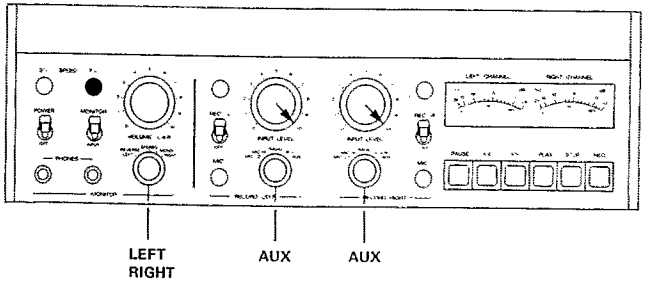
At the tape speed of 3 3/4 ips, a level difference of 1 dB is permissible.

6.4.17. Niveau d'enregistrement

– Effectuez les commutations selon la fig. 6.4.–16.
– Les niveaux de lecture doivent être ajustés.
– Raccordez un générateur BF aux entrées (48) AUX INPUT.
– Branchez un millivoltmètre BF à la sortie (51) OUTPUT.
– Placez une bande vierge et démarrez en enregistrement.
– Reglez le générateur BF à 1000 Hz de façon à lire une tension de 0,775 V sur le millivoltmètre BF.
– Mettez le sélecteur TAPE/INPUT sur TAPE.
– Réglez les potentiomètres REC LEVEL, LEFT et RIGHT pour obtenir 0,775 V. Le sélecteur de mode sera commuté sur LEFT et RIGHT respectivement.

Contrôle:
Assurez-vous qu'il n'y a aucune différence de niveau entre TAPE et INPUT.

Pour la vitesse de 9,5 cm/s (3 3/4 ips) la tolérance est de 1 dB.



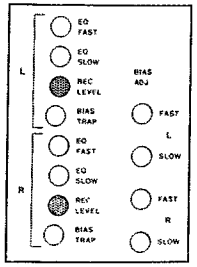


Fig. 6.4.–17

6.4.18. Aufnahme-Entzerrung

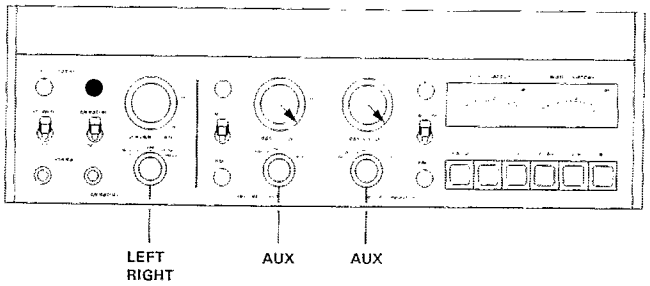
– Bedienungselemente nach Fig. 6.4.–17 einstellen.
– NF-Millivoltmeter an Ausgang (51) OUTPUT anschliessen.
– NF-Generator an Anschluss (48) AUX INPUT parallel anschliessen (0 VU –20 dB, 12 kHz).

6.4.18. Adjusting the recording equalization

– Set operating controls as per fig 6.4.–17.
– Connect audio millivoltmeter to OUTPUT (51).
– Connect audio generator in parallel to both AUX INPUTS (48) (signal condition: 12 kHz, level 20 dB below 0 VU)

6.4.18. Préaccentuation d'enregistrement

– Effectuez les commutations selon la fig. 6.4.–17.
– Branchez un millivoltmètre BF à la sortie (51) OUTPUT
– Raccordez un générateur BF aux entrées (48) AUX INPUT (0 VU –20 dB, 12 kHz).



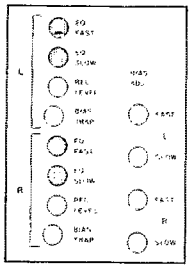


Fig. 6.4.–18

– Leeres Band auflegen und auf Aufnahme starten.
– Entsprechend der Bandgeschwindigkeit mit den Einstellreglern EQ SLOW, FAST die Ausgangsspannung auf 0 dB (77,5 mV) bis + 1 dB bezüglich 1 kHz einstellen
– Betriebsartenschalter auf RIGHT Einstellungen vornehmen für rechten Kanal.

– Load recorder with blank tape and start in the recording mode.
– While recording the 12 kHz signal, adjust the trimpots EQ SLOW, FAST at the respective tape speeds until the signal level at the recorder's output falls within the range from 0 dB to + 1 dB relative to 1 kHz (77.5 mV).
– Turn mode selector to position RIGHT and adjust equalization for the right channel as well

– Placez une bande vierge et démarrez l'enregistrement.
– Réglez les niveaux de sortie aux vitesses correspondantes EQ SLOW, FAST pour obtenir 0 dB (77,5 mV) jusqu' à + 1 dB relatif à 1 kHz
– Placez le sélecteur de mode sur RIGHT. Effectuez le réglage pour le canal droit.

6.4.19. Frequenzgang "Über Band"

– Bedienungselemente nach Fig. 6.4.–18 einstellen.
– NF-Generator etwa auf gleichem Pegel belassen (0 VU –20 dB)
– Leeres Band auflegen und auf Aufnahme starten.
– NF-Millivoltmeter bei 1 kHz auf ganzzahlige dB-Anzeige eichen.
– Frequenzgänge entsprechend der gewählten Bandgeschwindigkeit messen. Durch Umschalten des Betriebsartenschalters MONITOR auf Stellung LEFT bzw. RIGHT können beide Kanäle hintereinander gemessen werden.

Die Frequenzgangwerte sind aus den technischen Daten ersichtlich.

6.4.19. Frequency response "overall"

– Set operating controls as per fig 6.4.–18.
– Output level of audio generator remains set as for previous test (20 dB below 0 VU).
– Load recorder with blank tape and start in the recording mode.
– Calibrate audio millivoltmeter for frequency response measurement by adjusting the audio generator level at 1 kHz to obtain a convenient mid-scale deflection on the meter (e.g. –5 dB on the 100 mV range).
– Check frequency response at the two tape speeds. Both channels may be checked in one run by alternating the mode selector between the positions LEFT and RIGHT at each individual frequency.

For permissible response deviations, check section 2. Technical Specifications of this manual.

6.4.19. Courbe de réponse "après bande"

– Effectuez les commutations selon la fig. 6.4.–18.
– Laissez le générateur BF sur le même niveau que précédemment (0 VU –20 dB)
– Placez une bande vierge et démarrez l'enregistrement.
– Calibrez le millivoltmètre BF à 1 kHz sur un nombre entier de dB.
– Contrôlez la courbe de réponse pour les deux vitesses. En commutant le sélecteur de mode alternativement sur LEFT et RIGHT, il est possible de contrôler les deux canaux.

Comparez les valeurs avec celles du caractéristiques techniques

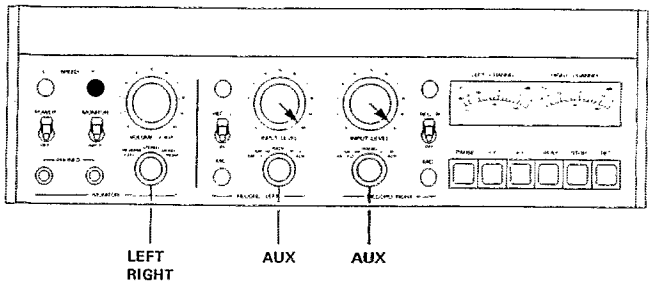


Fig. 6.5.–1

	0 VU 257 nWb/m	0 VU + 6 dB 514 nWb/m
9.5 cm/s	< 1 %	< 2,5 %
19 cm/s	< 0,6 %	< 1,5 %

Fig. 6.5.–2

6.5. Messungen verschiedener Kenndaten

6.5.1. Klirrfaktor "Über Band"

– Bedienungselemente nach Fig. 6.5.–1 einstellen.
– NF-Generator an Anschluss (48) AUX INPUT parallel anschliessen.
Frequenz: 500 Hz
Pegel: 0 VU + 6 dB
– Klirrfaktor-Messgerät an Ausgang (51) OUTPUT anschliessen.
– Leeres Band auflegen und auf Aufnahme starten.
– Klirrfaktor messen. Betriebsartenschalter MONITOR auf LEFT bzw. RIGHT.

Aus der Tabelle 6.5.–2 sind die zulässigen Klirrfaktorwerte entsprechend der Bandgeschwindigkeit ersichtlich.

6.5. Measurement of various performance data

6.5.1. Distortion via tape

– Set operating controls as per fig. 6.5.–1.
– Connect audio generator to AUX INPUT (48).
Frequency: 500 Hz
Level: 0 VU + 6 dB
– Connect distortion factor meter to OUTPUT (51).
– Load recorder with blank tape and start in the recording mode.
– Measure distortion on both channels. Switch MONITOR mode selector between positions LEFT and RIGHT as required.

The permissible amount of distortion (pure third harmonic) at the respective tape speeds may be seen from table 6.5.–2.

6.5. Mesure de différentes caractéristiques

6.5.1. Distorsion "après bande"

– Effectuez les commutations selon la fig. 6.5.–1.
Raccordez un générateur BF aux prises (48) AUX INPUT.
Fréquence: 500 Hz
Niveau: 0 VU + 6 dB
– Branchez un pont de distorsion à la sortie (51) OUTPUT.
– Placez une bande vierge et démarrez en enregistrement.
– Mesurez la distorsion en commutant alternativement le sélecteur de mode sur LEFT et RIGHT. Consultez les valeurs admissibles de la tabelle 6.5.–2.

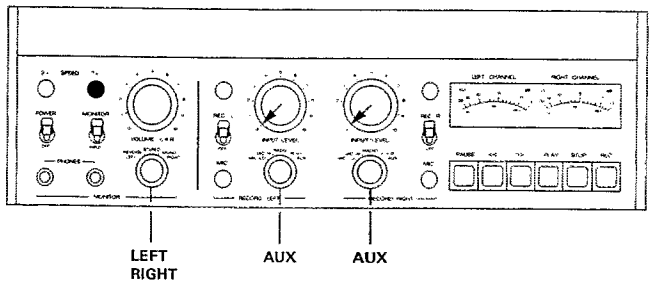
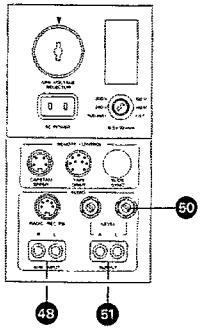


Fig. 6.5.–3



6.5.2. Geräuschspannungs-/Fremdspannungsabstand "Über Band"

Die Geräuschspannungsmessungen beziehen sich auf Vollaussteuerung (1,55 V; 514 nWb/m). Um Messfehler durch HF-Einstreuungen zu vermeiden, wird ein vorher auf dem Gerät gelöschtes Band verwendet.

– Bedienungselemente nach Fig. 6.5.–3 einstellen.
– NF-Millivoltmeter an Ausgang (51) OUTPUT L anschliessen.
– Gerät auf Wiedergabe starten.
– Geräuschspannung Kanal LEFT messen.
– Betriebsartenschalter auf RIGHT, NF-Millivoltmeter an OUTPUT R.

6.5.2. Weighted and unweighted noise measurements via tape

Noise voltage measurements are taken with reference to the peak level modulation of 514 nWb/m (output level 1.55 V). In order to avoid erroneous test results due to bias frequency pick-up, all measurements are taken by running tape, which has been erased on the recorder in a previous run.

– Set operating elements as per fig. 6.5.–3.
– Connect audio millivoltmeter to OUTPUT L (51).
– With previously erased tape on the recorder, start the machine in PLAY.
– Read noise voltage of the left channel through ASA A weighting network.

6.5.2. Recul du bruit de fond "après bande"

Le recul du bruit de fond se réfère au niveau maximum admissible (514 nWb/m; 1,55 V). Afin de ne pas fausser la mesure par des inductions parasites HF, utilisez une bande effacée.

– Effectuez les commutations selon la fig. 6.5.–3.
– Branchez un millivoltmètre BF à la sortie (51) OUTPUT L.
– Démarrez en lecture.
– Mesurez le bruit de fond du canal LEFT.
– Sélecteur de mode sur RIGHT, millivoltmètre BF à la sortie OUTPUT R.

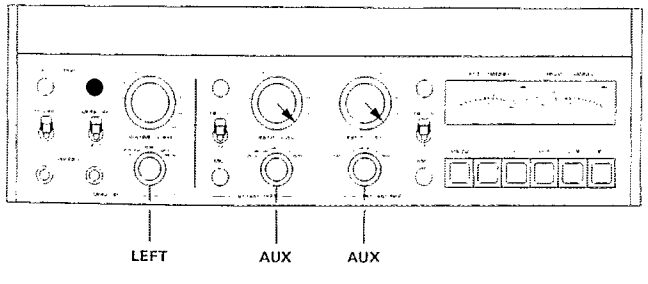


Fig. 6.5.–5

2-Spur 2-track 2-pistes		4-Spur 4-track 4-pistes	
19 cm/s	9.5 cm/s	19 cm/s	9.5 cm/s
dB	dB	dB	dB
> 66	> 63	> 62	> 57

GEMESSEN MIT REVOX 631

Fig. 6.5.–4

– Geräuschspannung Kanal RIGHT messen.

Messungen für die niedrige Bandgeschwindigkeit vornehmen. Die Effektiv-Werte (bewertet ASA A) sind aus der Tabelle 6.5.–4 ersichtlich.

Werden diese Geräuschspannungsabstände nicht erreicht, sind die Bandführungen und Tonköpfe nochmals sorgfältig zu entmagnetisieren.

Die folgenden Messungen:
– Löschdämpfung
– Übersprechen MONO
– Übersprechen STEREO
können nur mit einem selektiven Voltmeter (Bandbreite < 100 Hz) gemessen werden.

– Switch mode selector to position RIGHT.
– Read noise voltage of the right channel through ASA A weighting network.
– Measure noise voltage at the second tape speed as described above. The RMS signal to noise ratios (weighted as per ASA A) can be seen from table 6.5.–4.

If the signal to noise ratios are less than those shown in the table, carefully demagnetize the heads and tape guides and repeat the test.

For the following measurements
– Erase depth
– Crosstalk MONO
– Crosstalk STEREO
an audio millivoltmeter with a narrow band-pass filter of less than 100 Hz bandwidth (wave analyzer) will be required.

– Mesurez le bruit de fond du c RIGHT.

Répétez les mesures pour la pe vitesse. Les valeurs effectives (pondér ASA A sont données dans la tabelle 6.5.–4.)

S'il n'est pas possible d'atteindre valeurs, démagnétisez encore une fois et c sciencieusement les têtes et les guides de ba

Les mesures suivantes:
– profondeur d'effacement
– diaphonie MONO
– diaphonie STEREO
ne peuvent être effectuées qu'avec un millivo mètre sélectif (largeur de bande < 100 Hz).

6.5.3. Löschdämpfung

Zum Messen der Löschdämpfung wird eine Frequenz von ca. 1000 Hz aufgezeichnet und anschliessend gelöscht. Die auf dem Band verbleibende Aufzeichnung wird gemessen.

– Bedienungselemente nach Fig. 6.5.–5 einstellen.
– NF-Millivoltmeter an Ausgang (51) OUTPUT anschliessen.
– NF-Generator an Anschluss (48) AUX INPUT parallel anschliessen (1000 Hz, 0 VU + 6 dB).
– Leeres Band auflegen, auf Aufnahme starten und kurze Aufzeichnung vornehmen.
– STOP. Band an Aufzeichnungsanfang zurückwickeln.
– Regler INPUT LEVEL L auf "0".
– Maschine auf Aufnahme starten und Löschdämpfung messen. Der verbleibende Rest der Aufzeichnung soll mindestens 75 dB unter dem Pegel der Vollaussteuerung liegen (typ. Wert 80 dB).
– Betriebsartenschalter MONITOR auf RIGHT. Analoger Messvorgang für rechten Kanal vornehmen.

6.5.3. Erase efficiency

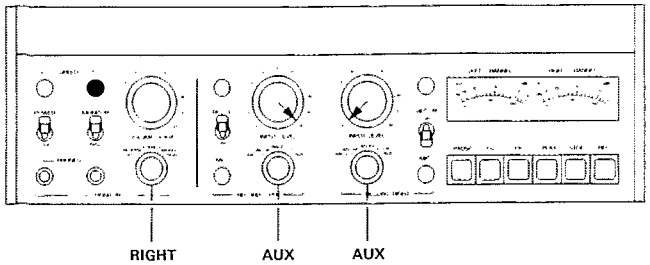
To measure the erase depth, a signal of approximately 1000 Hz has to be recorded at peak level and that same recording has to be erased again in a subsequent run. The residual level of that signal will then be measured.

– Set operating controls as per fig. 6.5.–5.
– Connect wave analyzer to OUTPUT (51).
– Connect audio generator in parallel to both AUX INPUTs (48).
– Select 1000 Hz and adjust level to obtain peak level indication on the VU-meter (1000 Hz, 0 VU + 6 dB).
– Load recorder with blank tape and start in the recording mode.
– Establish reference reading on wave analyzer.
– STOP and rewind to the beginning of the recording.
– Close fader INPUT LEVEL L to position "0".
– Start the machine again in the recording mode and measure the residual signal level on tape. The magnetic recording remaining on tape must be attenuated by at least 75 dB below the above established reference (typical value 80 dB).
– Switch mode selector MONITOR to position RIGHT and repeat the above measurements.

6.5.3. Profondeur d'effacement

Pour mesurer la profondeur d'effacement, - registrez une fréquence de 1000 Hz, puis effa la bande. Ensuite, mesurez les restes de l'en gistrement.

– Effectuez les commutations selon la 6.5.–5.
– Branchez un millivoltmètre BF à sortie (51) OUTPUT.
– Raccordez un générateur aux pr (48) AUX INPUT (1000 Hz, 0 VU + 6 dB)
– Placez une bande vierge et demarrez enregistrement.
– STOP, rebobinez la bande
– Mettez le réglage d'entrée INP LEVEL sur "0".
– Démarrez en enregistrement et mesu la profondeur d'effacement. Le résidu de l'e registrement doit se trouver au moins à 75 en dessous du niveau + 6 dB (valeur typiq 80 dB)
– Commutez le sélecteur de mode MO TOR sur RIGHT, et répetez la mesure



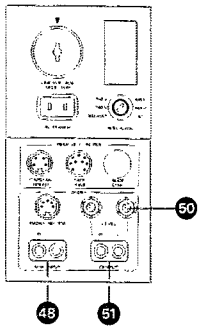


Fig. 6.5.–6

6.5.4. Übersprechen MONO

Zu dieser Messung wird zweckmässigerweise auf einem neuen Band auf dem linken Kanal während ca. 1 Minute und anschliessend auf dem rechten Kanal während ca. 1 Minute eine MONO-Aufnahme mit 1000 Hz und Vollaussteuerung aufgenommen. Dabei ist darauf zu achten, dass der Aufnahmevorwahlschalter des jeweils nicht benützten Kanals auf Stellung OFF steht.

– Bedienungselemente nach Fig. 6.5.–6 einstellen.
– NF-Generator auf 1000 Hz und Vollpegel einstellen.
– Leeres Band einlegen und auf Aufnahme starten.
– Nach ca. 1 Minute:
  Aufnahmevorwahlschalter REC–L auf OFF.
  Regler INPUT LEVEL LEFT auf 0.
  Aufnahmevorwahlschalter REC–R auf ON.
  Regler INPUT LEVEL RIGHT auf 10.
– Nach ca. einer weiteren Minute:
  Taste STOP betätigen und an Anfang der Aufzeichnung zurückspulen.
– Selektives Voltmeter an Ausgang (51) OUTPUT R anschliessen. Auf Wiedergabe starten. Das Übersprechen L ► R messen (≥ 60 dB).
– Auf Aufzeichnung des rechten Kanals vorspulen.
– Selektives Voltmeter an Ausgang (51) OUTPUT L anschliessen. Betriebsartenschalter MONITOR auf LEFT. Gerät auf Wiedergabe starten. Das Übersprechen R ► L messen (≥ 60 dB).

6.5.4. Crosstalk MONO

It is advisable to use virgin (or bulk erased) tape for this test. Record a signal of 1000 Hz at peak level for approximately 1 minute on the left channel only, then record the same signal again for 1 minute on the right channel. In making that recording preselector switch of the unused channel is switched to the position OFF.

– Set operating controls as per fig. 6.5.–6.
– Select 1000 Hz on audio generator and adjust for peak level recording.
– Load recorder with tape and start in the recording mode as described above.
– After approximately 1 minute switch recording preselector REC–L to position OFF.
  Turn potentiometer INPUT LEVEL LEFT to position 0.
  Switch recording preselector REC–R to position ON.
  Turn potentiometer INPUT LEVEL RIGHT to position 10.
– Continue to record for approximately 1 minute, then press button STOP and rewind to the beginning of the recording.
– Connect wave analyzer to OUTPUT R (51). Start recorder in PLAY. Measure crosstalk L ► R (≥ 60 dB).
– Wind forward to the recording on the right channel.
– Connect wave analyzer to OUTPUT L (51) and switch mode selector MONITOR to LEFT. Start recorder in PLAY. Measure crosstalk R ► L (≥ 60 dB).

6.5.4. Diaphonie MONO

Pour effectuer cette mesure, il est nécessaire d'enregistrer auparavant sur une bande neuve une fréquence de 1000 Hz à + 6 dB VU, sur le canal gauche pendant 1 minute. Puis enchaînez le même enregistrement sur le canal droit. Pendant ces opérations, commutez sur OFF le présélecteur d'enregistrement du canal non utilisé.

– Effectuez les commutations selon la fig. 6.5.–6.
– Générateur BF sur 1000 Hz,+ 6 dB VU.
– Placez une bande vierge et démarrez en enregistrement.
– Après 1 minute environ:
  Présélecteur d'enregistrement REC-L sur OFF.
  Réglage INPUT LEVEL sur "0"
  Présélecteur d'enregistrement REC–R sur ON.
  Réglage INPUT LEVEL RIGHT sur "10".
– Après 1 autre minute environ:
  Pressez la touche STOP et rebobinez la bande au début.
– Branchez un millivoltmètre BF sélectif à la sortie (51) OUTPUT R. Démarrez en lecture et mesurez la diaphonie L ► R (≥ 60 dB).
– Bobinez et recherchez le début du canal droit.
– Branchez le millivoltmètre BF sélectif à la sortie (51) OUTPUT L. Sélecteur de mode MONITOR sur LEFT. Démarrez en lecture et mesurez la diaphonie R ► L (≥ 60 dB).

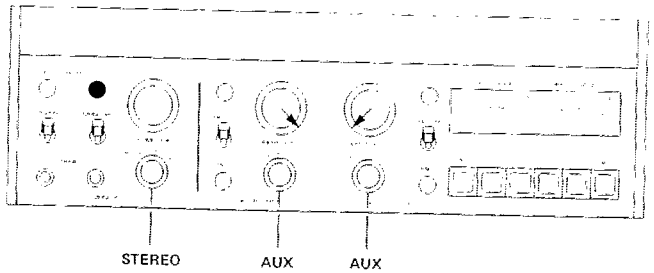


Fig. 6.5.–7

6.5.5. Übersprechen STEREO

Für die Messung der Stereo-Übersprechdämpfung wird der NF-Generator an den Eingang (48) AUX INPUT L angeschlossen.

– Bedienungselemente nach Fig. 6.5.–7 einstellen.
  Messung L ► R
– Selektives Voltmeter an Ausgang (51) OUTPUT R anschliessen.
– NF-Generator auf 1000 Hz einstellen, Vollaussteuerung.
– Gerät auf Aufnahme starten.
– Übersprechdämpfung messen.
  Der Wert soll min. 45 dB unter Vollpegel liegen.
  Messung R ► L
– NF-Generator an Eingang AUX INPUT R anschliessen.
– Selektives Voltmeter an linken Ausgang OUTPUT L anschliessen.
– Regler INPUT LEVEL LEFT auf "0".
– Regler INPUT LEVEL RIGHT auf "10".
– Übersprechdämpfung messen.
  Der Wert soll min. 45 dB unter Vollpegel liegen.

6.5.5. Crosstalk STEREO

To measure the stereo crosstalk performance connect audio generator to AUX INPUT L (48).

– Set operating controls as per fig 6.5.–7
  Crosstalk L ► R.
– Connect wave analyzer to OUTPUT R (51).
– Select 1000 Hz on the audio generator and adjust for peak level recording.
– Start the recorder in the recording mode.
– The signal level appearing on OUTPUT R must be 45 dB below that of a peak level recording
  Crosstalk R ► L
– Connect audio generator to AUX INPUT R.
– Connect wave analyzer to OUTPUT L.
– Close potentiometer INPUT LEVEL LEFT to position "0".
– Open potentiometer INPUT LEVEL RIGHT to position "10".
– Continue to record 1000 Hz at peak level
– Measure crosstalk. The signal level appearing on OUTPUT L must be 45 dB below a peak level recording

6.5.5. Diaphonie STEREO

Pour mesurer la diaphonie stéréo, branchez générateur BF à l'entrée (48) AUX INPUT

– Effectuez les commutations selon la 6.5.–7.
  Mesure L ► R
– Branchez un millivoltmètre BF sélec La sortie (51) OUTPUT R.
– Réglez le générateur sur 1000 + 6 dB VU.
– Démarrez en enregistrement
– Mesurez la diaphonie.
  La valeur doit être de 45 dB au mi mum en dessous de + 6 dB VU
  Mesure R ► L
– Branchez le générateur BF à l'entr (48) AUX INPUT R.
– Branchez le millivoltmètre BF sélect la sortie (51) OUTPUT L.
– Réglage INPUT LEVEL LEFT sur "0
– Réglage INPUT LEVEL RIGHT s "10".
– Mesurez la diaphonie.
  La valeur doit être de 45 dB au mi mum en dessous de + 6 dB VU.

6.5.6. NF-Messwerte "Vor Band"

6.5.6. Audio Measurements "Before tape"

6.5.6. Valeurs de mesure BF "avant bande"

Eingang Input Entrée	Pegel für Vollaussteuerung (0 VU + 6 dB) Input voltages for peak level recording (0 VU + 6 dB) Niveau pour modulation maximum (0 VU + 6 dB)	Abschlusswiderstand für Fremdspannungsmessung Terminating resistance for noise measurements Résistance terminale pour pour la mesure du bruit de fond	Fremdspannungsabstand* bzw. Vollaussteuerung Unweighted* S/N ratios relative to peak level Recul du bruit de fond* se rapportant au maximum de modulation
AUX	38 mV	10 kΩ	≥ 73 dB
RADIO	2.8 mV	offen/open/ouvert	≥ 60 dB
MIC HI	2.8 mV	200 Ω	≥ 70 dB
MIC LO	0.17 mV	200 Ω	≥ 50 dB
LINE AMP.	–	Input level pot pos "0"	≥ 80 dB

*B = 20 kHz linear gemessen
*B = 20 kHz linear
*B = 20 kHz mesurée linéaire

AUSGANG OUTPUT SORTIE		Pegel bei Vollaussteuerung Output voltages from peak level recording Niveau à la modulation maximum	
OUTPUT	LEVEL max.	1.55 V	± 0.75 dB
OUTPUT	LEVEL min.	70 mV	
RADIO	LEVEL max.	≤ 1.55 V	± 0.75 dB
RADIO	LEVEL min.	≤ 70 mV	
PHONES		max. 5.6 V $R_L = \infty$	
PHONES		max. 2.8 V $R_L = 220\ \Omega$	

☐ Toleranz beinhaltet Verstärkung sowie Kanalunterschied.
☐ Tolerance includes differences between channels and differences in amplification factors.
☐ Tolerance se rapportant à l'amplification ainsi qu'à la différence entre les canaux

6.5.7. Tonhöhenschwankungen

Die in den technischen Daten spezifizierten Gleichlaufwerte sind mit einem Tonhöhenschwankungsmesser nach DIN 45507 gemessen.

6.5.7. Wow and flutter

The wow and flutter values as specified in the technical data section are measured with test equipment which conforms to the German standard DIN 45507 (consistent with IEEE standard 193-1971).

6.5.7. Pleurage et scintillement

Les caractéristiques techniques se rapportant au pleurage et au scintillement ont été mesurées d'après DIN 45507

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DESCRIPTION	SCHEMATIC NO.	SECTION/PAGE
GENERAL AND TAPE TRANSPOBT CONTROL		
BLOCK DIAGRAM / POWER SUPPLY AND TAPE DRIVE CONTROL		7/3
POWER SUPPLY PCB	1.177.310	7/4
POWER SUPPLY PCB	1.177.311	7/6
POWER SUPPLY PCB	1.177.312	7/8
TAPE DRIVE CONTROL PCB	1.177.315	7/10
SUBSTITUTION LOGIC PCB	1.177.316	7/12
TAPE DRIVE CONTROL PCB	1.177.317 (B77 MKI)	7/14
TAPE DRIVE CONTROL PCB	1.177.317–00/–81 (B77 MKII)	7/16
TAPE TENSION SWITCH PCB	1.177.135/136/137	7/18
TAPE MOVE SENSOR PCB	1.177.320	7/20
TAPE MOVE SENSOR PCB	1.177.321	7/21
CAPSTAN SPEED CONTROL PCB	1.177.325/326/327 (B77 MKI)	7/22
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AUDIO		
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INPUT AMPLIFIER PCB	1.177.221	7/34
RECORD AMPLIFIER PCB (NAB 3 3/4–7 1/2 ips)	1.177.230–81	7/36
RECORD AMPLIFIER PCB (NAB 7 1/2–15 ips)	1.177.232–81	7/38
RECORD AMPLIFIER PCB (IEC 7 1/2–15 ips)	1.177.233–81	7/40
RECORD AMPLIFIER PCB (NAB 1 7/8–3 3/4 ips)	1.177.237–81	7/42
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REPRODUCE AMPLIFIER PCB (NAB 7 1/2–15 ips)	1.177.252–81	7/50
REPRODUCE AMPLIFIER PCB (IEC 7 1/2–15 ips)	1.177.253–81	7/52
REPRODUCE AMPLIFIER PCB (NAB 1 7/8–3 3/4 ips)	1.177.257–81	7/54
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INSTALLATION INSTRUCTIONS FOR SLIDE CONTROL ELECTRONICS		7/60
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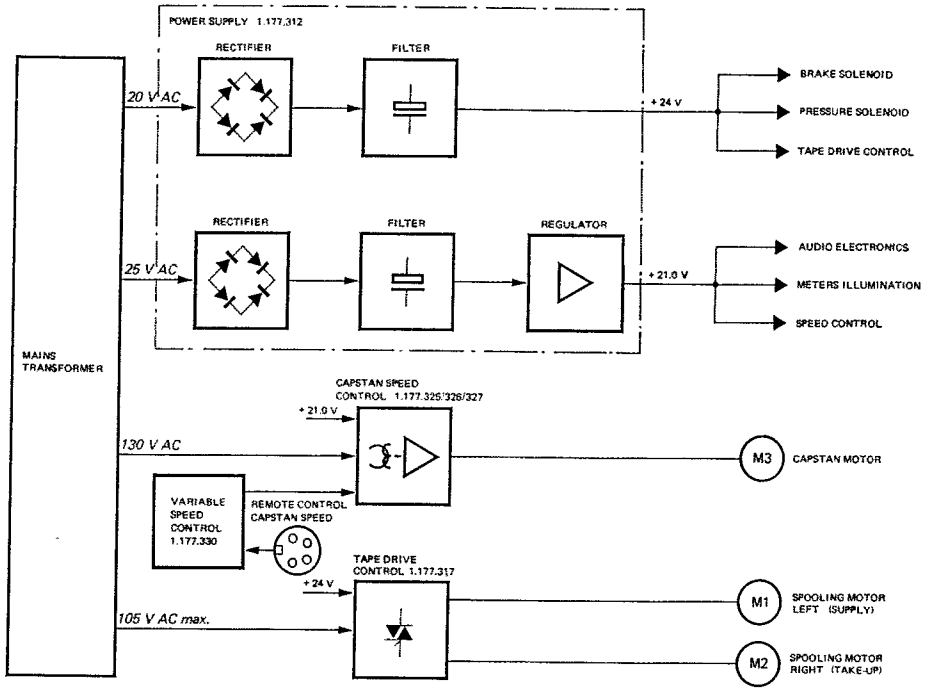
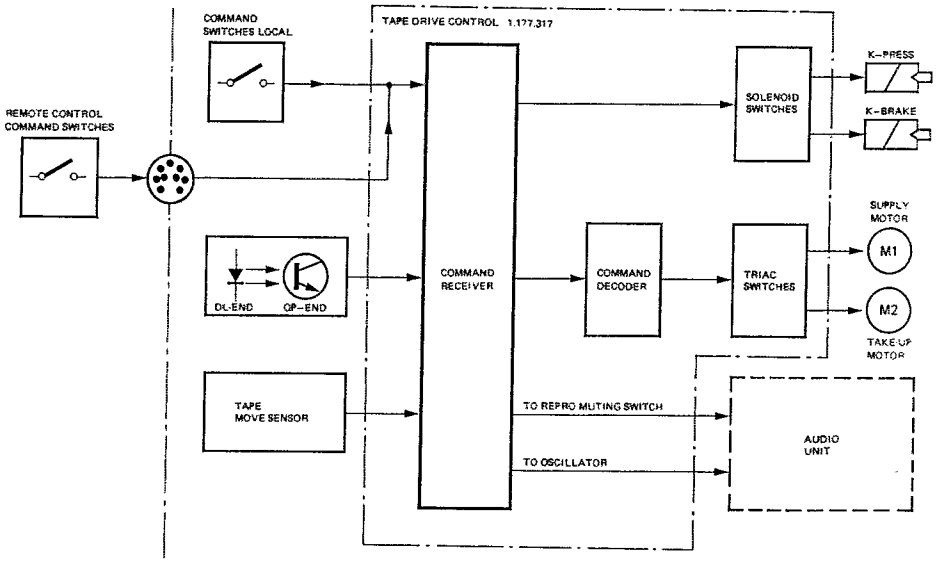
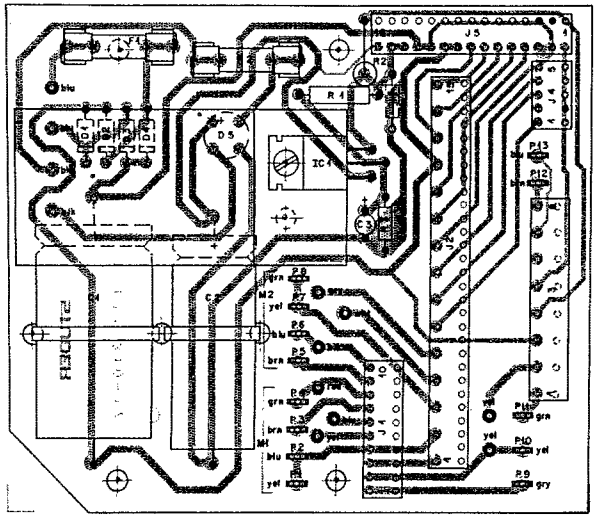
DISSOLVE HEAD AMPLIFIER PCB (INTERFACE SIMDA ED 3000 P)	1.177.282	7/64

BLOCK DIAGRAM / POWER SUPPLY AND TAPE DRIVE CONTROL





POWER SUPPLY PCB 1.177.310

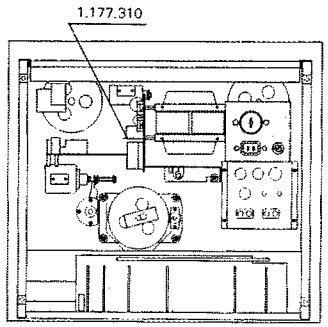


POS NO	PART NO	VALUE	SPECIFICATIONS	EQUIVALENT	MFR
C 01	59.25.5222	2200 U	-10% 35V	EL	
C 02	59.25.5102	1000 U	-10% 40V	EL	
C 03	59.30.1101	100 U	-20% 3V	TA	
D 01	50.04.0122	1 N 4001			any
D 02	50.04.0122	1 N 4001			any
D 03	50.04.0122	1 N 4001			any
D 04	50.04.0122	1 N 4001			any
D 05	70.01.0222	BZX C 800			
F 01	51.01.0119	1.6 AT	5 X 20 Slow Blow		
F 02	51.01.0114	500 mAT	5 X 20 Slow Blow		
IC 01	50.05.0242	78 M 20	20V 0.5 A		F.T
J 01	54.01.0290	10-Pole	Socket Strip		
J 02	54.01.0535	15-Pole	"		
J 03	54.01.0546	8-Pole	"		
J 04	54.01.0388	5-Pole	"		
J 05	54.01.0219	15-Pole	"		
P 1,13	54.02.0320		Flat Pin 0.8 AMP		
R 01	57.42.4182	1.8 K	5% .33W	CF	
R 02	57.41.4220	22	5% 4 W	WW	
R 03	57.41.4820	82	5% 25W	CF	

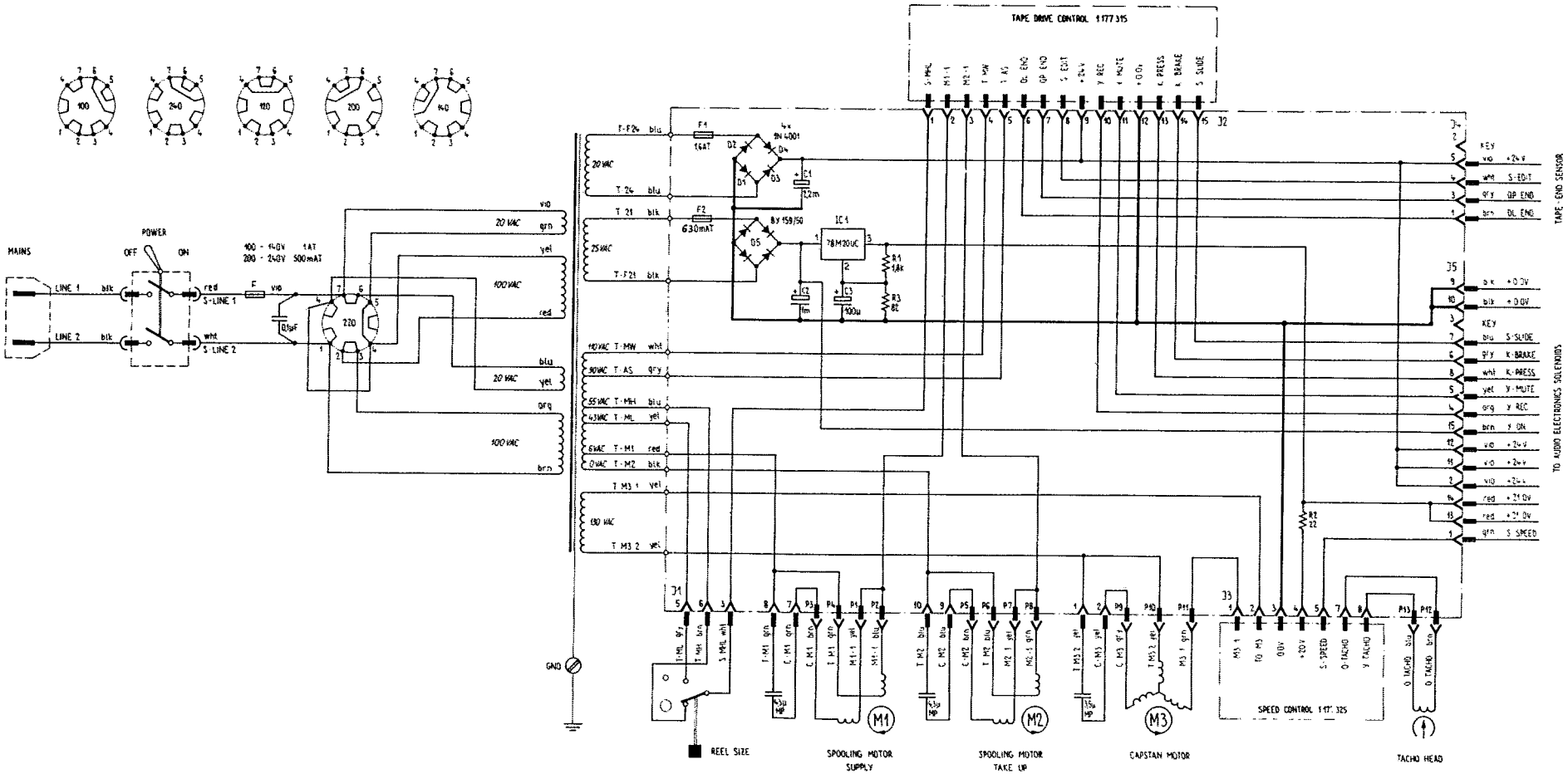
F = Fairchild , CF = Carbon Film
T = Texas Instr.,WW = Wire Wound

IND	DATE	NAME
	1.04.77	Hartberger

STUDER | Power Supply | 1.177.310 | PAGE 1 of 1



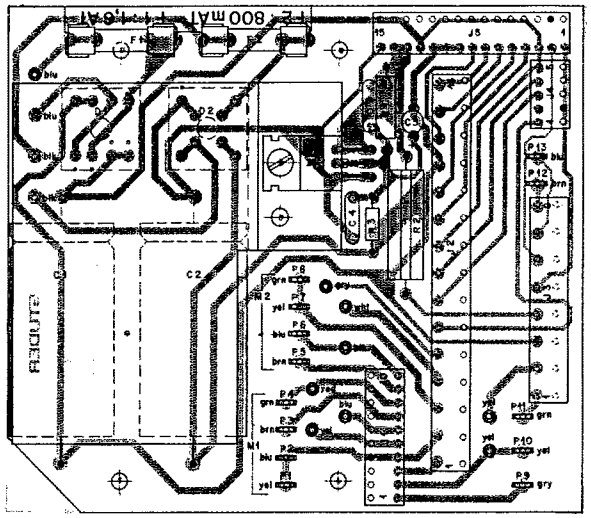
POWER SUPPLY PCB 1.177.310



VALID UP TO SERIAL NUMBER 10149

SEE SERVICE INFORMATION
48.6 : BY CHANGE OF 1.177.311

WER SUPPLY PCB 1.177.311

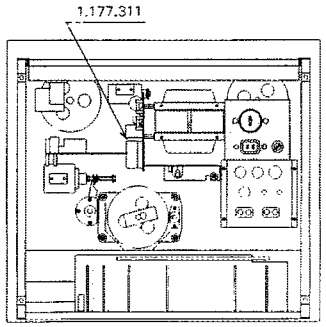


POS NO	PART NO	VALUE	SPECIFICATIONS	EQUIVALENT	MFR
C 01	59.25.5222	2200 U	10% 35V EL		
C 02	59.25.5222	2200 U	10% 35V EL		
C 03	59.30.1101	100 U	20% 3V TA		
1) C 04	59.32.3104	100 N	20% 40V CER		
1) C 05	59.32.3104	100 N	20% 40V CER		
D 01	70.01.0226	280V/2A	Bridge Rect. SI		
D 02	70.01.0226	280V/2A	Bridge Rect. SI		
F 01	51.01.0119	1.6AT	5 x 20 Slow Blow		
F 02	51.01.0116	800 mAT	5 x 20 Slow Blow		
IC 01	50.05.0242	78 M 20	20V 0.5 A		F.T
J 01	54.01.0290	10-Pole	Socket Strip		
J 02	54.01.0535	15-Pole	"		
J 03	54.01.0546	8-Pole	"		
J 04	54.01.0288	5-Pole	"		
J 05	54.01.0219	15-Pole	"		
P 1-13	54.02.0520		Flat Pin 0.8 AMP		
R 01	57.42.4182	1.8 K	5% .33W CF		
R 02	57.56.4220	22	5% 4 W MW		
R 03	57.41.4820	82	5% .25W CF		

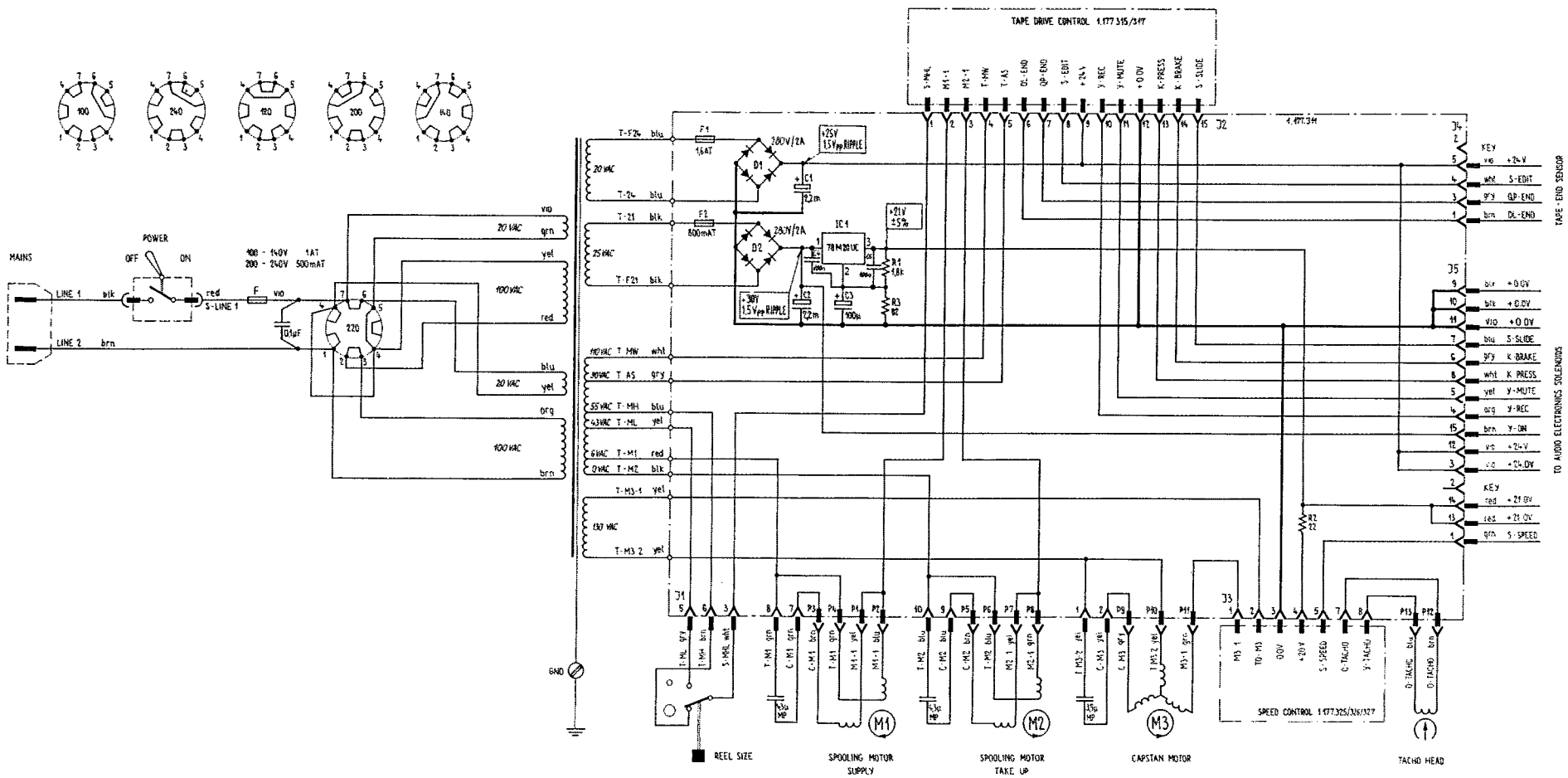
F = Fairchild
T = Texas Instr.
CF= Carbon Film
MW= Wire Wound

NO	DATE	NAME
A	7.10.79	JG
B	15.10.79	LUDWIG

STUDER | Power Supply | 1.177.311 | PAGE 1 of 1



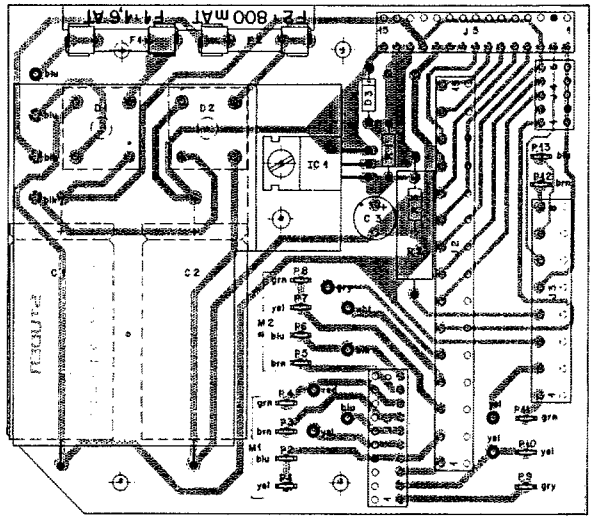
POWER SUPPLY PCB 1.177.311

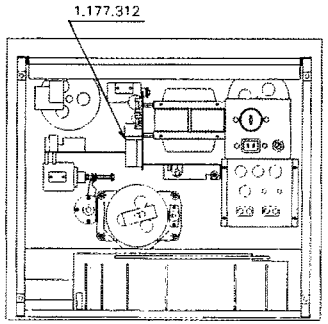


VALID FROM SERIAL NUMBER 10150 TO 107301

SEE SERVICE INFORMATION
57.6 : C4, C5

WER SUPLLY PCB 1.177.312





Pos.	Ref. No.	Part No.	Value	Specifications / Equivalent	Manufr.
Passive	[illegible]	[illegible]	2700 uF	[illegible]	[illegible]
Passive	[illegible]	[illegible]	2000 uF	[illegible]	[illegible]
Passive	[illegible]	[illegible]	47 uF	[illegible]	[illegible]
Passive	[illegible]	[illegible]	[illegible]	Bridge Rectf.	[illegible]
Passive	[illegible]	[illegible]	[illegible]	Bridge Rectf.	[illegible]
Passive	[illegible]	[illegible]	[illegible]		[illegible]
Passive	[illegible]	[illegible]	3x6 A	Slow fuse	5x20mm
Passive	[illegible]	[illegible]	800 mA	Slow fuse	5x20mm
Electr.	[illegible]	[illegible]	[illegible]	Voltage Regulator	No. 3
Passive	[illegible]	[illegible]	10-Polar	Socket Strip	
Passive	[illegible]	[illegible]	15-Polar	Socket Strip	
Passive	[illegible]	[illegible]	8-Polar	Socket Strip	
Passive	[illegible]	[illegible]	5-Polar	Socket Strip	
Passive	[illegible]	[illegible]	14-Polar	Socket Strip	
Passive	[illegible]			Flat Pin 0.8	[illegible]
Passive	[illegible]			Flat Pin 0.8	[illegible]
Passive	[illegible]			Flat Pin 0.8	[illegible]
Passive	[illegible]			Flat Pin 0.8	[illegible]
Passive	[illegible]			Flat Pin 0.8	[illegible]
Passive	[illegible]			Flat Pin 0.8	[illegible]
Passive	[illegible]			Flat Pin 0.8	[illegible]
Passive	[illegible]			Flat Pin 0.8	[illegible]
Passive	[illegible]			Flat Pin 0.8	[illegible]
Passive	[illegible]			Flat Pin 0.8	[illegible]
Passive	[illegible]			Flat Pin 0.8	[illegible]
Passive	[illegible]			Flat Pin 0.8	[illegible]
Passive	[illegible]			Flat Pin 0.8	[illegible]
Passive	[illegible]			Flat Pin 0.8	[illegible]
Passive	[illegible]		301	[illegible]	[illegible]
Passive	[illegible]		[illegible]	[illegible]	[illegible]
Passive	[illegible]		[illegible]	[illegible]	[illegible]

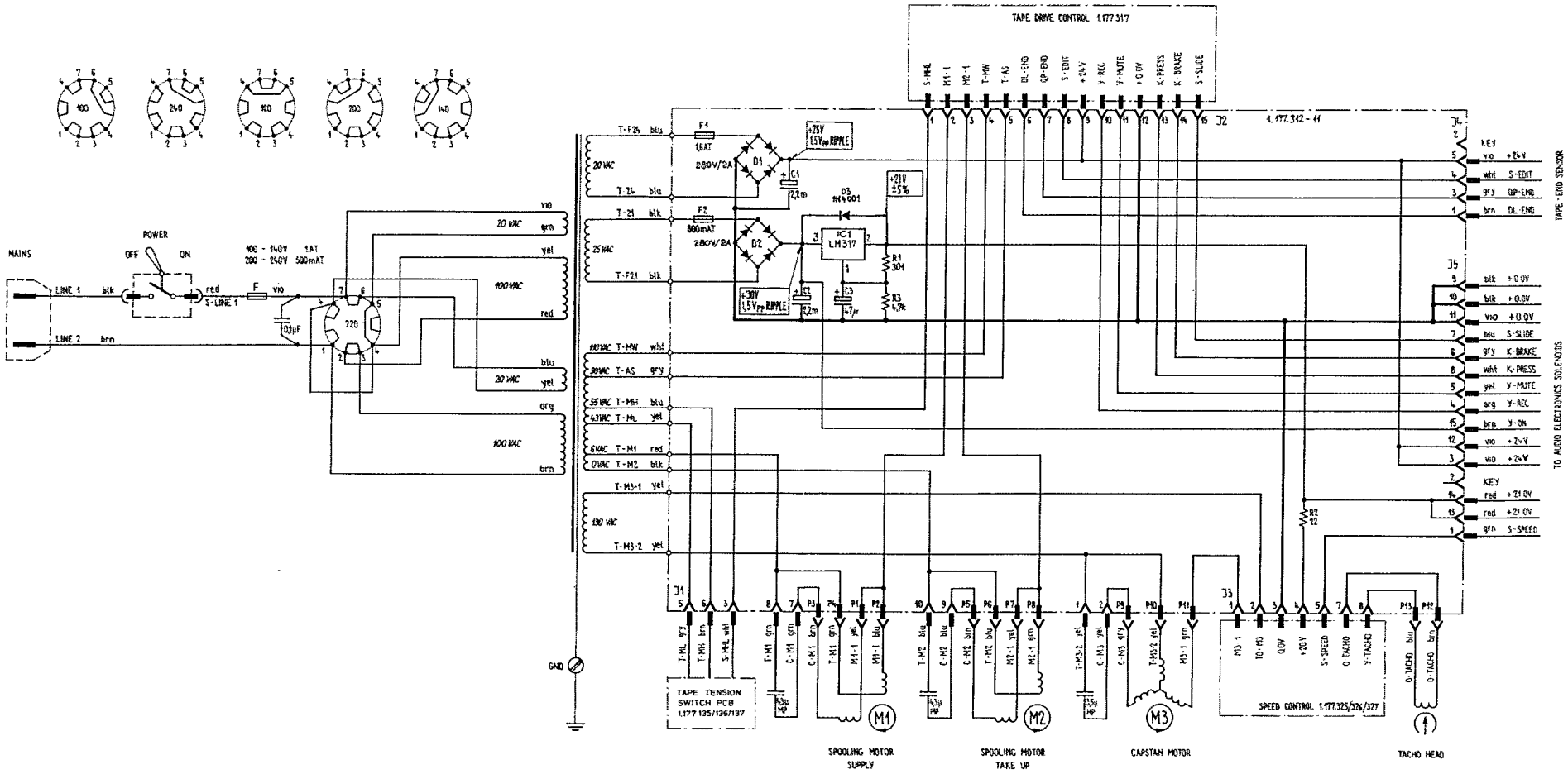
ELECTROLYTIC
SIEMENS
EXPERIMENTAL PROPS AVAILABLE WITHIN
MANUFACTURER: NATIONAL, TEXTEXAS INSTRUMENTS.

CHECK REVOXUZZ

S T U D E R REVOXUZZ RN POWER SUPPLY 1.177.312.00 PAGE 1

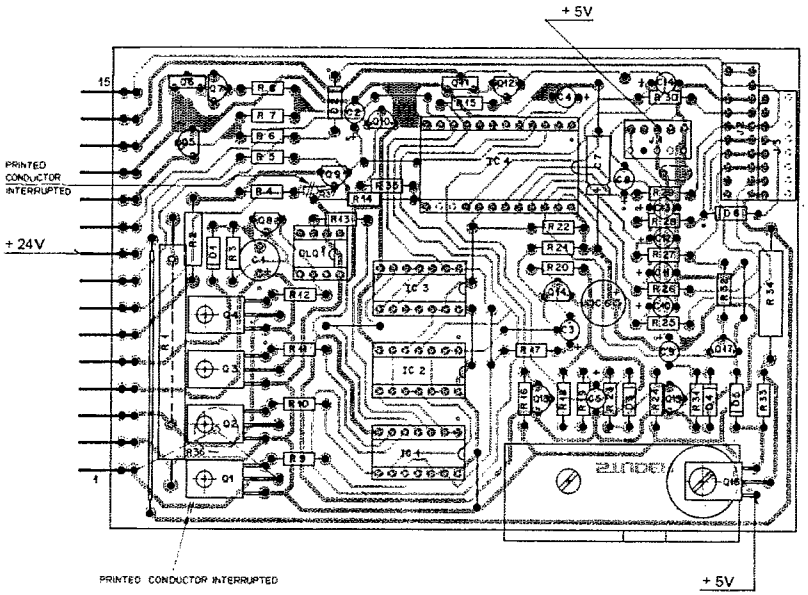
S T U D E R REVOXUZZ RN POWER SUPPLY 1.177.312.00 PAGE 2

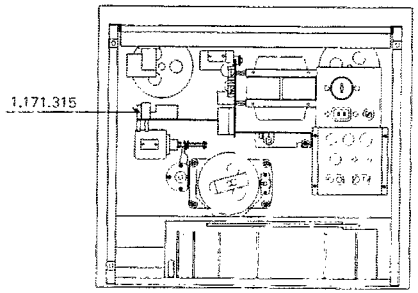
POWER SUPPLY PCB 1.177.312



VALID FROM SERIAL NUMBER 107302

APE DRIVE CONTROL PCB 1.177.315





POS NO	PART NO	VALUE	SPECIFICATIONS	EQUIVALENT	MFR
C 01	59.22.6470	47 U	-10% 40V	EL	
C 02	59.30.6339	3.3 U	-20% 35V	TA	
C 03	59.30.4100	10 U	-20% 16V	TA	
C 04	59.30.6339	3.3 U	-20% 35V	TA	
C 05	59.30.2470	47 U	-20% 6.3V	TA	
C 06	59.22.7101	100 U	-10% 12V	EL	
C 07	59.25.4100	10 U	-10% 25V	EL	
C 08	59.30.6339	3.3 U	-20% 35V	TA	
C 09	59.30.6339	3.3 U			
C 10	59.30.6339	3.3 U			
C 11	59.30.6339	3.3 U			
C 12	59.30.6339	3.3 U			
C 13	59.30.6339	3.3 U			
C 14	59.30.6339	3.3 U			
D 01	50.04.0122	1 N 4001			any
D 02	50.04.0125	1 N 4448			any
D 03	50.04.0125	1 N 4448			any
D 04	50.04.0125	1 N 4448			any
D 05	50.04.1108	Z 5V6	5.6V 5% 400mW		
D 06	50.04.0125	1 N 4448			any
OLQ 1	50.99.0126	4 N 28	Ic/If = min.10%	TIL 118	O.T.
IC 01	50.06.0000	SN74LS00	LS-TTL		any
IC 02	50.06.0000	SN74LS00	LS-TTL		any
IC 03	50.06.0000	SN74LS00	LS-TTL		any
IC 04	50.09.0143	SC 10429	N-FET		M
J 01	54.01.0288	5 - Pole	Socket Strip	AMP	
J 02	54.01.0242	10 - Pole	Socket Strip	AMP	
J 03	54.01.0262	8 - Pole	Socket Strip	AMP	
P 01	54.01.0481	15 - Pole	Pin Strip	AMP	
Q 01	50.99.0119	2 N 6073 B	TRIAC 400V 3A		M
Q 02	50.99.0119	2 N 6073 B			
Q 03	50.99.0119	2 N 6073 B			
Q 04	50.99.0119	2 N 6073 B			
Q 05	50.03.0436	BC 107 B	NPN		any
Q 06	50.03.0478	BD 139	medium power NPN		T. S

P = Motorola
O = Optron
M = Texas Instr.
T = Toshiba
S = Siemens

IND	DATE	NAME
A	7.3.79	Fol
B	7.10.77	Fol.
C	31.3.77	Wartburg/SV

STUDER Tape Drive Control 1.177.315 PAGE 1 of 3

POS NO	PART NO	VALUE	SPECIFICATIONS	EQUIVALENT	MFR
Q 07	50.03.0436	BC 107 B	NPN		any
Q 08	50.03.0436	BC 107 B	NPN		any
Q 09	50.03.0436	BC 107 B	NPN		any
Q 10	50.03.0436	BC 107 B	NPN		any
Q 11	50.03.0478	BD 139	medium power NPN		T. S
Q 12	50.03.0436	BC 107 B	NPN		any
Q 13	50.03.0436	BC 107 B	NPN		any
Q 14	50.03.0436	BC 107 B	NPN		any
Q 15	50.03.0436	BC 107 B	NPN		any
Q 16	50.03.0478	BD 139	medium power NPN		T. S
Q 17	50.03.0436	BC 107 B	NPN		any
R 01	57.57.4122	1.2 k	5% .5W CER		
(2) R 02	57.41.4332	3.3 k	5% .25W CF		
R 03	57.41.4472	4.7 k			
R 04	57.41.4333	33 k			
R 05	57.41.4682	6.8 k			
R 06	57.41.4104	100 k			
R 07	57.41.4153	15 k			
R 08	57.41.4272	2.7 k			
R 09	57.41.4471	470			
R 10	57.41.4471	470			
R 11	57.41.4471	470			
R 12	57.41.4122	1.2 k			
R 13	57.41.4181	180			
(1) R 14	57.41.4102	1 k			
R 15	57.41.4562	5.6 k			
R 16	57.41.4223	22 k			
R 17	57.41.4472	4.7 k			
R 18	57.41.4822	8.2 k			
R 19	57.41.4223	22 k			
R 20	57.41.4223	22 k			
R 21	57.41.4392	3.9 k			
R 22	57.41.4472	4.7 k			
R 23	57.41.4104	100 k			
R 24	57.41.4123	12 k			
R 25	57.41.4392	3.9 k			
R 26	57.41.4392	3.9 k			
R 27	57.41.4392	3.9 k			
R 28	57.41.4392	3.9 k			
R 29	57.41.4392	3.9 k			
R 30	57.41.4392	3.9 k			
R 31	57.41.4473	47 k			
R 32	57.41.4107	100 k			

IND	DATE	NAME
A	7.3.79	Fol
B	7.10.77	Fol.
C	31.3.77	Wartburg/SV

STUDER Tape Drive Control 1.177.315 PAGE 2 of 3

POS NO	PART NO	VALUE	SPECIFICATIONS	EQUIVALENT	MFR
R 33	57.41.4122	1.2 k	5% .25W CF		
R 34	57.56.4101	100	10% 5 W CER		
(1) R 35	57.02.4102	1 k	5% .25W CF		
(2) R 36	57.99.0210	2.2	PTC		
(2) R 37	57.11.4222	2.2 k	5% .25W CF		

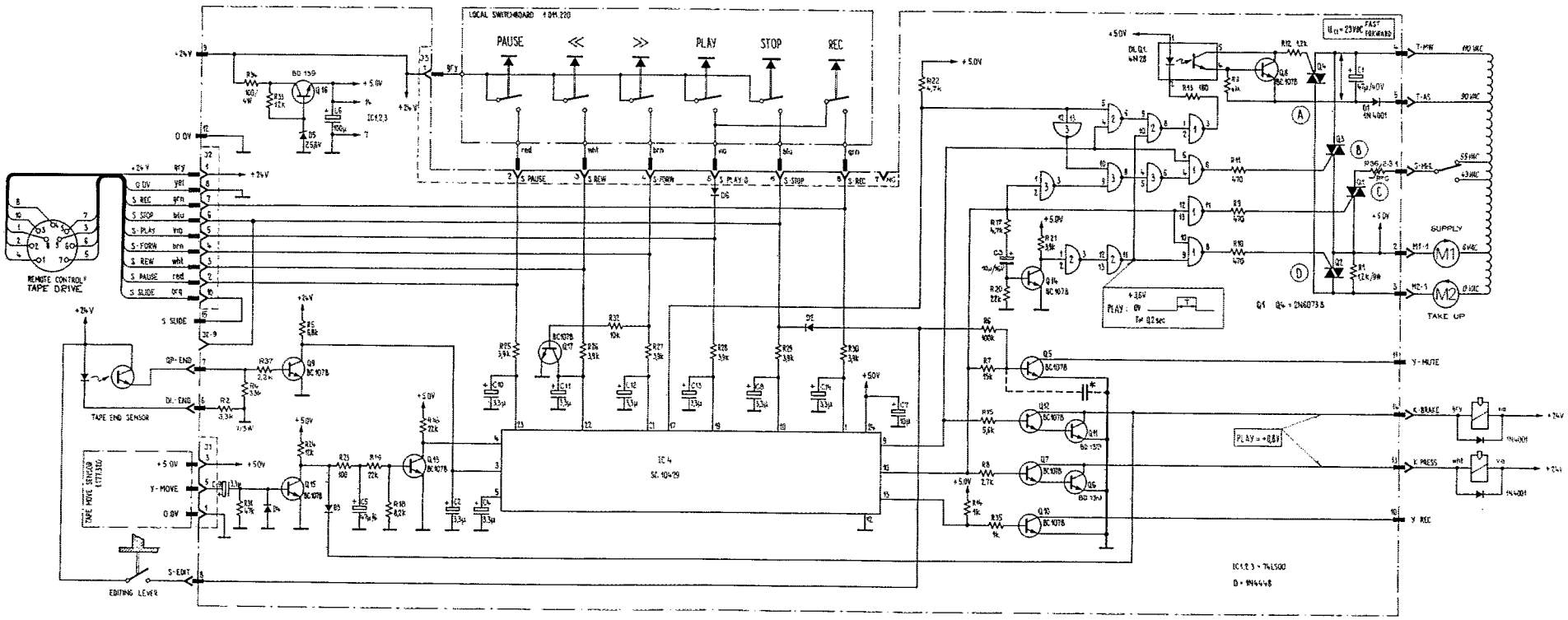
CF = Carbon Film

IND	DATE	NAME
A	7.3.79	Fol
B	7.10.77	Fol.
C	31.3.77	Wartburg/SV

STUDER Tape Drive Control 1.177.315 PAGE 3 of 3

TAPE DRIVE CONTROL PCB 1.177.315

REVISED EDITION

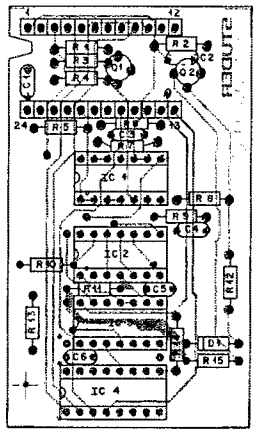


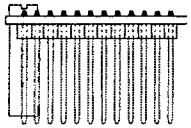
VALID UP TO SERIAL NUMBER 52699

IC4 MAY BE REPLACED BY THE SUBSTITUTION LOGIC PC-BOARD 1.177.316

SEE SERVICE INFORMATION
48.9 : C*
52.6 : R2

JBSTITUTION LOGIC PCB 1.177.316





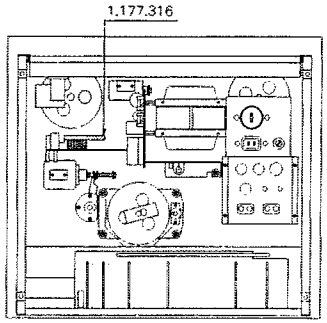
POS NO	PART NO	VALUE	SPECIFICATIONS	EQUIVALENT	MFR
C 1..6	59.12.3103	10 nF	20% CER		
D 01	50.04.1106	Z 2,7 V	5% SI		any
IC 01	50.06.0000	74L900	LS-TTL		any
IC 02	50.06.0002	74L902	LS-TTL		any
IC 03	50.06.0078	74LS278	LS-TTL		any
IC 4	1.177.315-51	R 0147	PROM 32x8 Tri-State		Sig.
P1..24	54.01.0020		Pin .63 x .63		
Q1,Q2	50.03.0438	BC 108 B	NPN		any
R 01	57.41.4172	1,2 k	5% .25W CF		
R 02	57.41.4681	680			
R 03	57.41.4681	680			
R 04	57.41.4471	470			
R 05	57.41.4681	680			
R 06	57.41.4681	680			
R 07	57.41.4681	680			
R 08	57.41.4121	120			
R 09	57.41.4681	680			
R 10	57.41.4332	3,3 k			
R 11	57.41.4332	3,3 k			
R 12	57.41.4121	120			
R 13	57.41.4471	470			
R 14	57.41.4471	470			
R 15	57.41.4332	3,3 k			

Sig w Signetics

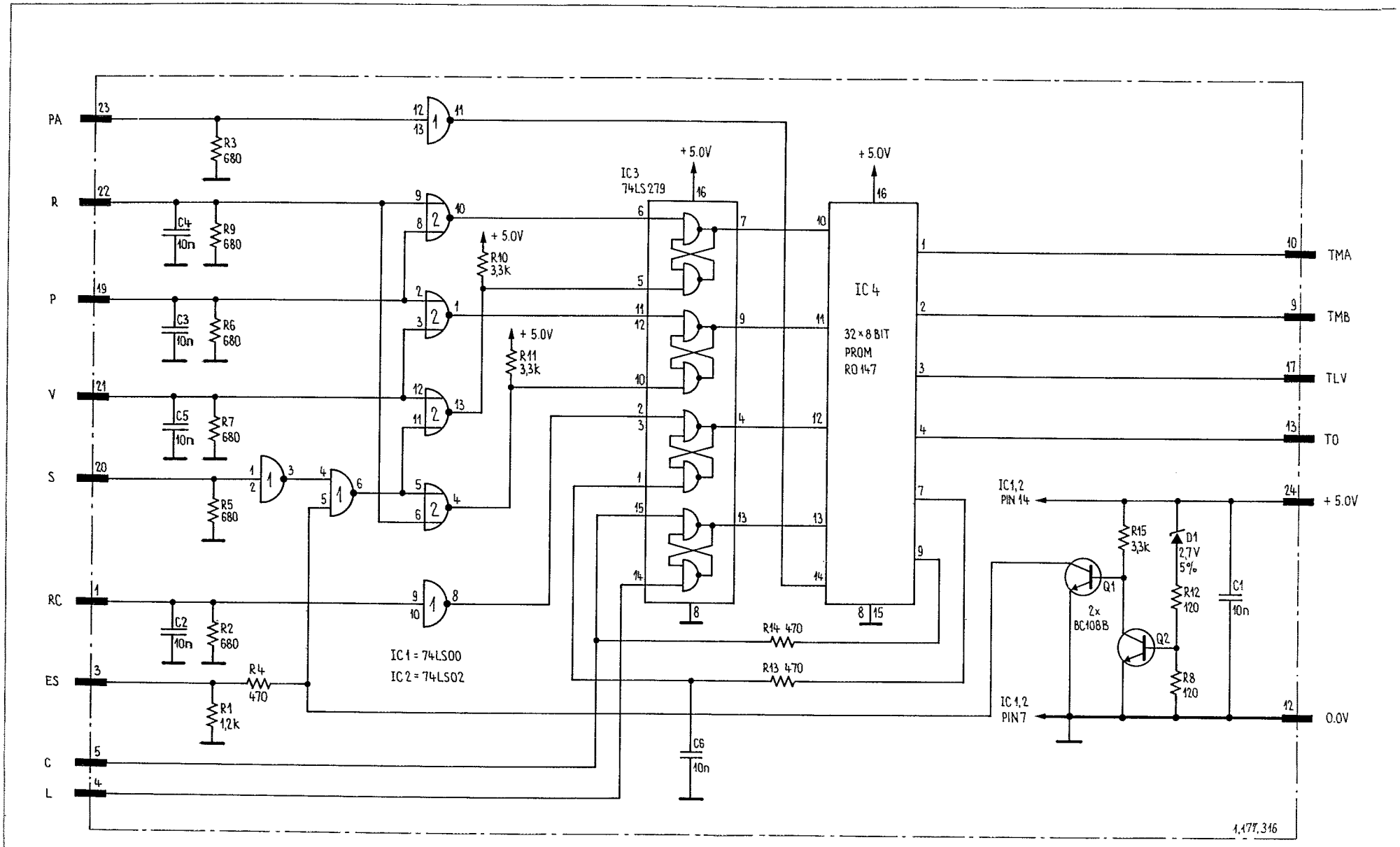
Changes: 4.11.77 Waser/gv

IND | DATE | NAME

STUDER | Substitution Logic Board | 1.177.316 | PAGE 1 of 1

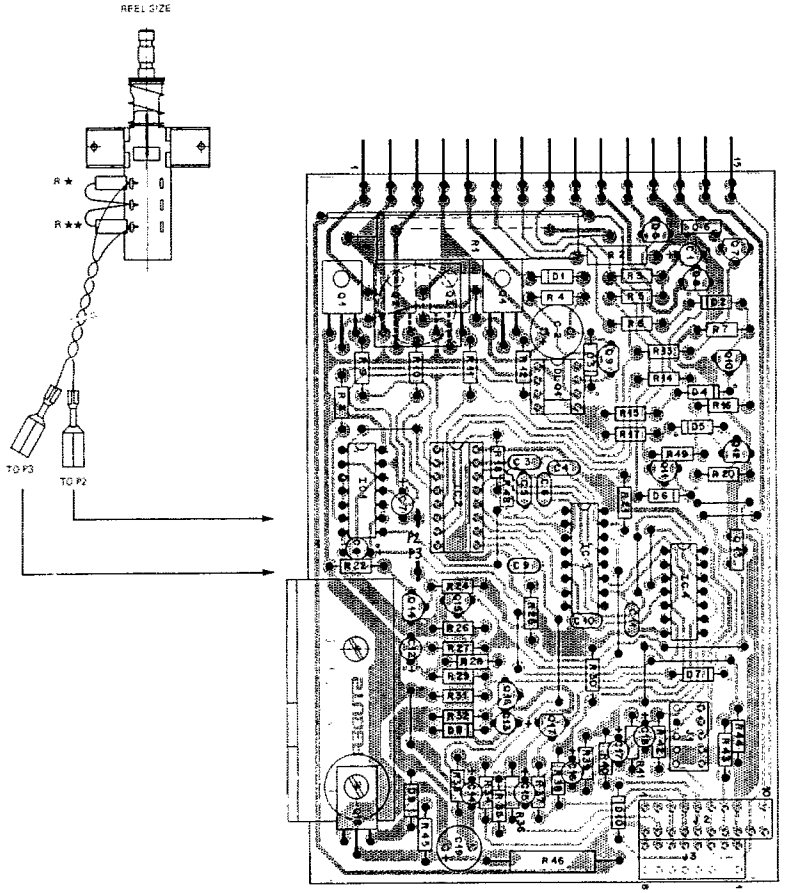


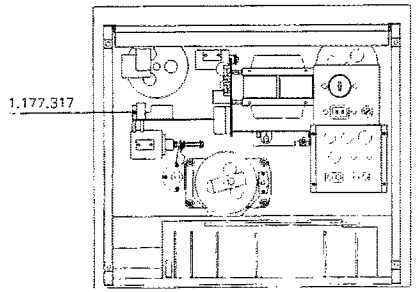
SUBSTITUTION LOGIC PCB 1.177.316



IC4 (TAPE DRIVE CONTROL PCB 1.177.315) MAY BE REPLACED BY THE SUBSTITUTION LOGIC PC-BOARD 1 177.316

PE DRIVE CONTROL PCB 1.177.317 (B77 MKI)





POS NO	PART NO	VALUE	SPECIFICATIONS		EQUIVALENT	MFR
C 01	59.30.1104	100 µ	-20%	7V	TA	
C 02	59.22.4470	47 µ	-10%	40V	EL	
C 03	59.32.5103	10 n	-20%	40V	CER	
C 04	59.32.5103	10 n				
(1) C 05	59.30.6339	3.3 µ		35V	TA	
C 06	59.32.5103	10 n		40V	CER	
C 07	59.30.4100	10 µ	-20%	16V	TA	
C 08	59.30.6339	3.3 µ	-20%	35V	TA	
C 09	59.32.5103	10 n	-20%	40V	CER	
C 10	59.32.5103	10 n				
C 11	59.32.5103	10 n				
C 12	59.30.2470	47 µ	-20%	6.3V	TA	
C 13	59.30.6339	3.3 µ	-20%	35V	TA	
C 14	59.30.6339	3.3 µ				
C 15	59.30.6339	3.3 µ				
C 16	59.30.6339	3.3 µ				
C 17	59.30.6339	3.3 µ				
C 18	59.30.6339	3.3 µ				
C 19	59.22.3101	100 µ	-10%	10V	EL	
D 01	50.04.0122	1N4001				any
D 02	50.04.1119	Z 15	5%	15V	400mW	
D 03	50.04.0122	1N4001				
D 04	50.04.0125	1N4448				any
D 05	50.04.1106	Z 2.7	5%	2.7V	400mW	
D 06	50.04.0125	1N4448				any
D 07	50.04.0125	1N4448				
D 08	50.04.0125	1N4448				
D 09	50.04.1108	Z 5.6	5%	5.6V	400mW	
D 10	50.04.0125	1N4448				any
DIL 1	50.99.0126	4 N 28	Ic/Ii= min 10%		TIL 119	G. TI
IC 01	50.06.0000	SN74LS00	LS-TTL			any
IC 02	1.177.317.51	32 x 8	Prom	Tri-State		S.M.I
IC 03	50.06.0279	SN74LS279	LS-TTL			any
IC 04	50.06.0002	SN74LS02	LS-TTL			any
J 01	54.01.0188	5-Pole	Socket-Strip		AMP	
J 02	54.01.0242	10-Pole	Socket-Strip		AMP	
J 03	54.01.0262	6-Pole	Socket-Strip		AMP	
P 01	54.01.0481	15-Pole	Pin-Strip		AMP	

O = Option I = Internal
TI= Texas Instr.
S = Signetics
M = SMI

IND	DATE	NAME
A	23.1.81	Fol/gv
B	12.5.79	Fol/gv
C	22.7.78	Lu./gv

STUDER Tape Drive Control MK II 1.177.317 PAGE 1 of 3

POS NO	PART NO	VALUE	SPECIFICATIONS		EQUIVALENT	MFR
Q 01	50.99.0119	2N6073B	TRIAC 400V/3A			MO
Q 02	50.99.0119	2N6073B	Igt 3mA			
Q 03	50.99.0119	2N6073B				
Q 04	50.99.0119	2N6073B				
Q 05	50.03.0436	BC107B		NPN		any
Q 06	50.03.0478	BD 135	medium power	NPN	2SC 496-O	
Q 07	50.03.0436	BC107B		NPN		any
Q 08	50.03.0436	BC107B		NPN		any
Q 09	50.03.0436	BC107B		NPN		any
Q 10	50.03.0436	BC107B		NPN		any
Q 11	50.03.0147	BC177A		PNP		any
Q 12	50.03.0436	BC107B		NPN		any
Q 13	50.03.0478	BD 135	medium power	NPN	2SC 496-O	
Q 14	50.03.0436	BC107B		NPN		any
Q 15	50.03.0436	BC107B		NPN		any
Q 16	50.03.0436	BC107B		NPN		any
Q 17	50.03.0436	BC107B		NPN		any
Q 18	50.03.0478	BD 135	medium power	NPN	2SC 496-O	
R 01	57.57.4821	820	5%	5W	WW	
(1) R 02	57.42.4332	3.3 k	5%	.33W	CF	
R 03	57.11.4104	100 k	5%	.25W	CF	
R 04	57.11.4472	4.7 k				
R 05	57.11.4153	15 k				
(1) R 06	57.11.4472	4.7 k				
(1) R 07	57.11.4223	22 k				
R 08	57.11.4181	180				
R 09	57.11.4471	470				
R 10	57.11.4471	470				
R 11	57.11.4471	470				
R 12	57.11.4122	1.2 k				
R 13	57.11.4272	2.7 k				
R 14	57.11.4122	1.2 k				
R 15	57.11.4332	3.3 k				
R 16	57.11.4331	33 k				
R 17	57.11.4121	120				
R 18	57.11.4471	470				
R 19	57.11.4123	12 k				
R 20	57.11.4121	120				
R 21	57.11.4471	470				
R 22	57.11.4391	3.9 k				
R 23	57.11.4822	8.2 k				
R 24	57.11.4223	22 k				
R 25	57.11.4331	330				
R 26	57.11.4822	8.2 k				
R 27	57.11.4223	22 k				
R 28	57.11.4223	22 k				
R 29	57.11.4[illegible]	[illegible]				
R 30	57.11.4[illegible]	[illegible]				

CF = Carbon Film
WW = Wire Wound

IND	DATE	NAME
A	23.1.81	Fol/gv
B	12.5.79	Fol/gv
C	22.7.78	Lu./gv

STUDER Tape Drive Control MK II 1.177.317 PAGE 2 of 3

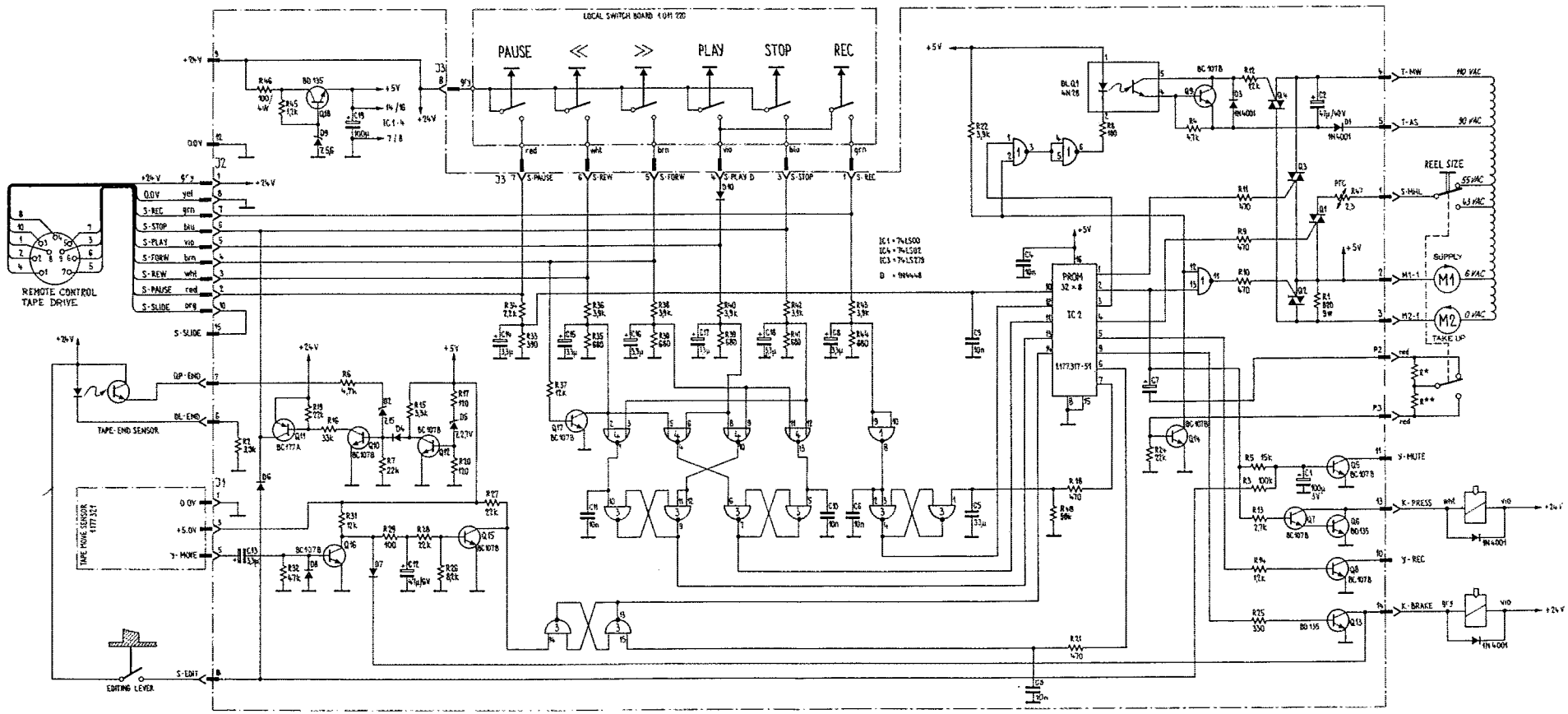
POS NO	PART NO	VALUE	SPECIFICATIONS		EQUIVALENT	MFR
(2) R 31	57.11.4153	15 k	5%	.25W	CF	
R 32	57.11.4473	47 k				
R 33	57.11.4391	390				
R 34	57.11.4222	2.2 k				
R 35	57.11.4681	680				
R 36	57.11.4392	3.9 k				
R 37	57.11.4123	12 k				
R 38	57.11.4392	3.9 k				
R 39	57.11.4681	680				
R 40	57.11.4392	3.9 k				
R 41	57.11.4681	680				
R 42	57.11.4392	3.9 k				
R 43	57.11.4392	3.9 k				
R 44	57.11.4681	680				
R 45	57.11.4122	1.2 k				
R 46	57.56.4101	100	10%	5W	WW	
R 47	57.99.0210	2.0	PTC			
(1) R 48	57.11.4563	56 k				

CF = Carbon Film
WW = Wire Wound

IND	DATE	NAME
A	23.1.81	Fol/gv
B	12.5.79	Fol/gv
C	22.7.78	Lu./gv

STUDER Tape Drive Control MK II 1.177.317 PAGE 3 of 3

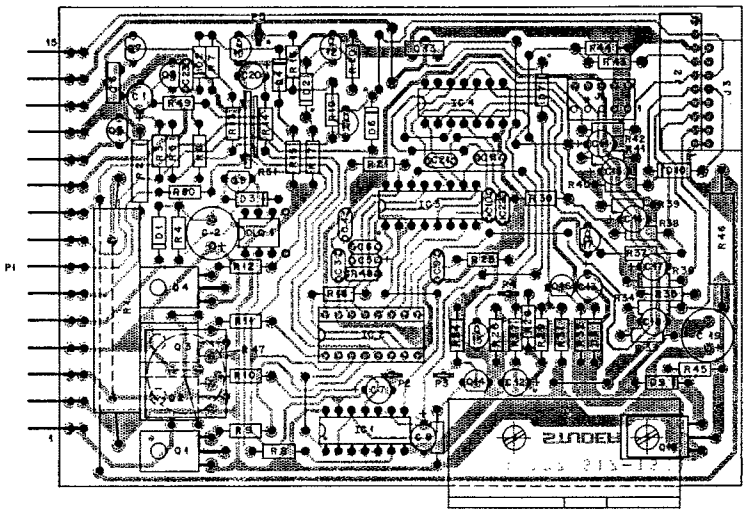
TAPE DRIVE CONTROL PCB 1.177.317 (B77 MKI)

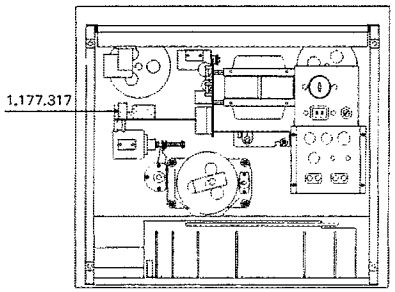


VERSION	REEL SIZE SWITCH	R*	R**
B77 LS/SLS	1.177.145	470 Ω	470 Ω
B77 STD	1.177.146	470 Ω	8.2 k
B77 HS	1.177.147	3.9 k	8.2 k

VALID FROM SERIAL NUMBER 53522 TO 52699

APE DRIVE CONTROL PCB 1.177.317–81 (B77 MKII)





INV.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	C.....1	59.322.3101	100 uF	10%, 10V, El	
	C.....2	59.221.6470	47 uF	-10%, 40V, El	
	C.....3	59.322.3103	10 nF	-20%, 40V, Cer	
	C.....4	59.322.3103	10 nF	-20%, 40V, Cer	
	C.....5	59.221.8479	4.7 uF	10%, 50V, El	
	C.....6	59.322.3103	10 nF	-20%, 40V, Cer	
	C.....7	59.221.6100	10 uF	10%, 35V, El	
	C.....8	59.221.8479	4.7 uF	10%, 50V, El	
	C.....9	59.322.3103	10 nF	-20%, 40V, Cer	
	C.....10	59.322.3103	10 nF	-20%, 40V, Cer	
	C.....11	59.322.3103	10 nF	-20%, 40V, Cer	
	C.....12	59.221.3470	47 uF	10%, 10V, El	
	C.....13	59.221.8479	4.7 uF	10%, 50V, El	
	C.....14	59.221.8479	4.7 uF	10%, 50V, El	
	C.....15	59.221.8479	4.7 uF	10%, 50V, El	
	C.....16	59.221.8479	4.7 uF	10%, 50V, El	
	C.....17	59.221.8479	4.7 uF	10%, 50V, El	
	C.....18	59.221.8479	4.7 uF	10%, 50V, El	
	C.....19	59.221.3101	100 uF	-10%, 10V, El	
	C.....20	59.260.6680	68 uF	20%, 6.3V, TAL	
	C.....21	59.322.3472	4700 pF	20%, 40V, Cer	
	C.....22	59.322.3472	4700 pF	20%, 40V, Cer	
	C.....23	59.322.3103	10 nF	-20%, 40V, Cer	
	D.....1	50.04.0122	1 N 4001	any	
	D.....2	50.04.1128	Z 5V6	5%, 5.6V, 400mW	
	D.....3	50.04.0122	1 N 4001	any	
	D.....4	50.04.0125	1 N 4448	any	
	D.....5	50.04.3106	Z 2V7	5%, 2.7V, 400mW	
	D.....6	50.04.0125	1 N 4448	any	
	D.....7	50.04.0125	1 N 4448	any	
	D.....8	50.04.0125	1 N 4448	any	
	D.....9	50.04.1128	Z 5V6	5%, 5.6V, 400mW	
	D.....10	50.04.0125	1 N 4448	any	
	DL.....1	50.99.0126	4 N 28	Ic/It = min.10%	Opto

S T U D E R (01) 84/03/23 Rw TAPE DRIVE CONTROL MK 2 1.177.317.81 PAGE 1

INV.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	IC.....1	50.06.0000	SN74LS00	LS-TTL any	
	IC.....2	1.177.317.53	3 x 8	Prom Tri-State	Siemens
	IC.....3	50.06.0229	SN74LS279	LS-TTL any	
	IC.....4	50.06.0002	SN74LS02	LS-TTL any	
	J.....1	54.01.0288	5-Pole	Socket-Strip	AMP
	J.....2	54.01.0242	10-Pole	Socket-Strip	AMP
	J.....3	54.01.0262	8-Pole	Socket-Strip	AMP
	P.....1	54.01.0481	15-Pole	Pin-Strip	AMP
	P.....2	54.01.0320		Flat-Pin	AMP
	P.....3	54.01.0320		Flat-Pin	AMP
	P.....4	54.01.0320		Flat-Pin	AMP
	P.....5	54.01.0320		Flat-Pin	AMP
	Q.....1	50.99.0119	2N6073B	Triac 400V/4A	Mo
	Q.....2	50.99.0119	2N6073B	Triac 400V/4A	Mo
	Q.....3	50.99.0119	2N6073B	Triac 400V/4A	Mo
	Q.....4	50.99.0119	2N6073B	Triac 400V/4A	Mo
	Q.....5	50.03.0434	BC 107 B	NPN any	
	Q.....6	50.03.0478	BD 135	Medium power NPN	Z SC 496-0
	Q.....7	50.03.0434	BC 107 B	NPN any	
	Q.....8	50.03.0434	BC 107 B	NPN any	
	Q.....9	50.03.0436	BC 107 B	NPN any	
	Q.....10	50.03.0436	BC 107 B	NPN any	
	Q.....11	50.03.0317	BC 177 A	PNP any	
	Q.....12	50.03.0436	BC 107 B	NPN any	
	Q.....13	50.03.0478	BD 135	Medium power NPN	Z SC 496-0
	Q.....14	50.03.0436	BC 107 B	NPN any	
	Q.....15	50.03.0436	BC 107 B	NPN any	
	Q.....16	50.03.0436	BC 107 B	NPN any	
	Q.....17	50.03.0436	BC 107 B	NPN any	
	Q.....18	50.03.0478	BD 135	Medium Power NPN	Z SC 496-0
	R.....1	57.47.4821	820 Ohm	5%, 0 W	
	R.....2	57.13.4332	3.3 kOhm	5%, 0.33W, CF	
	R.....3	57.11.4104	100 kOhm	5%, 0.25W, CF	

S T U D E R (01) 84/03/23 Rw TAPE DRIVE CONTROL MK 2 1.177.317.81 PAGE 2

INV.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	R.....4	57.11.4472	4.7 kOhm	5%, 0.25W, CF	
	R.....5	57.11.4153	15 kOhm	5%, 0.25W, CF	
	R.....6	57.11.4472	4.7 kOhm	5%, 0.25W, CF	
	R.....7	57.11.4223	22 kOhm	5%, 0.25W, CF	
	R.....8	57.11.4181	180 Ohm	5%, 0.25W, CF	
	R.....9	57.13.4471	470 Ohm	5%, 0.5 W, CF	
	R.....10	57.11.4471	470 Ohm	5%, 0.25W, CF	
	R.....11	57.11.4471	470 Ohm	5%, 0.25W, CF	
	R.....12	57.11.4122	1.2 kOhm	5%, 0.25W, CF	
	R.....13	57.11.4272	2.7 kOhm	5%, 0.25W, CF	
	R.....14	57.11.4681	680 Ohm	5%, 0.25W, CF	
	R.....15	57.13.4332	3.3 kOhm	5%, 0.25W, CF	
	R.....16	57.13.4333	33 kOhm	5%, 0.25W, CF	
	R.....17	57.11.4121	120 Ohm	5%, 0.25W, CF	
	R.....18	57.11.4471	470 Ohm	5%, 0.25W, CF	
	R.....19	57.11.4223	22 kOhm	5%, 0.25W, CF	
	R.....20	57.11.4121	120 Ohm	5%, 0.25W, CF	
	R.....21	57.11.4471	470 Ohm	5%, 0.25W, CF	
	R.....22	57.11.4392	3.9 kOhm	5%, 0.25W, CF	
	R.....23				
	R.....24	57.11.4223	22 kOhm	5%, 0.25W, CF	
	R.....25	57.13.4331	330 Ohm	5%, 0.25W, CF	
	R.....26	57.11.4822	8.2 kOhm	5%, 0.25W, CF	
	R.....27	57.11.4223	22 kOhm	5%, 0.25W, CF	
	R.....28	57.11.4223	22 kOhm	5%, 0.25W, CF	
	R.....29	57.11.4101	100 Ohm	5%, 0.25W, CF	
	R.....30	57.11.4681	680 Ohm	5%, 0.25W, CF	
	R.....31	57.11.4153	15 kOhm	5%, 0.25W, CF	
	R.....32	57.11.4473	47 kOhm	5%, 0.25W, CF	
	R.....33	57.11.4391	390 Ohm	5%, 0.25W, CF	
	R.....34	57.11.4222	2.2 kOhm	5%, 0.25W, CF	
	R.....35	57.11.4681	680 Ohm	5%, 0.25W, CF	
	R.....36	57.13.4392	3.9 kOhm	5%, 0.25W, CF	
	R.....37	57.11.4123	12 kOhm	5%, 0.25W, CF	
	R.....38	57.11.4392	3.9 kOhm	5%, 0.25W, CF	
	R.....39	57.11.4681	680 Ohm	5%, 0.25W, CF	
	R.....40	57.11.4392	3.9 kOhm	5%, 0.25W, CF	

S T U D E R (01) 84/03/23 Rw TAPE DRIVE CONTROL MK 2 1.177.317.81 PAGE 3

INV.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	R.....41	57.11.4681	680 Ohm	5%, 0.25W, CF	
	R.....42	57.11.4392	3.9 kOhm	5%, 0.25W, CF	
	R.....43	57.11.4392	3.9 kOhm	5%, 0.25W, CF	
	R.....44	57.11.4681	680 Ohm	5%, 0.25W, CF	
	R.....45	57.11.4122	1.2 kOhm	5%, 0.25W, CF	
	R.....46	57.96.4101	100 Ohm	10%, 5 W, Ww	
	R.....47	57.99.0210	2.5 Ohm	PTC	
	R.....48	57.11.4563	56 kOhm	5%, 0.25W, CF	
	R.....49	57.11.4681	680 Ohm	5%, 0.25W, CF	
(S0)	R.....50	57.11.4473	47 kOhm	5%, 0.25W, CF	
(01)	R.....50	57.11.4103	10 kOhm	5%, 0.25W, CF	
	R.....51	58.99.0131	470 kOhm	0.5%, TCF, Lim.	

(01) 21.03.84 Adaptation for very thin tapes
1-Elektrolytics Cer=Ceramics

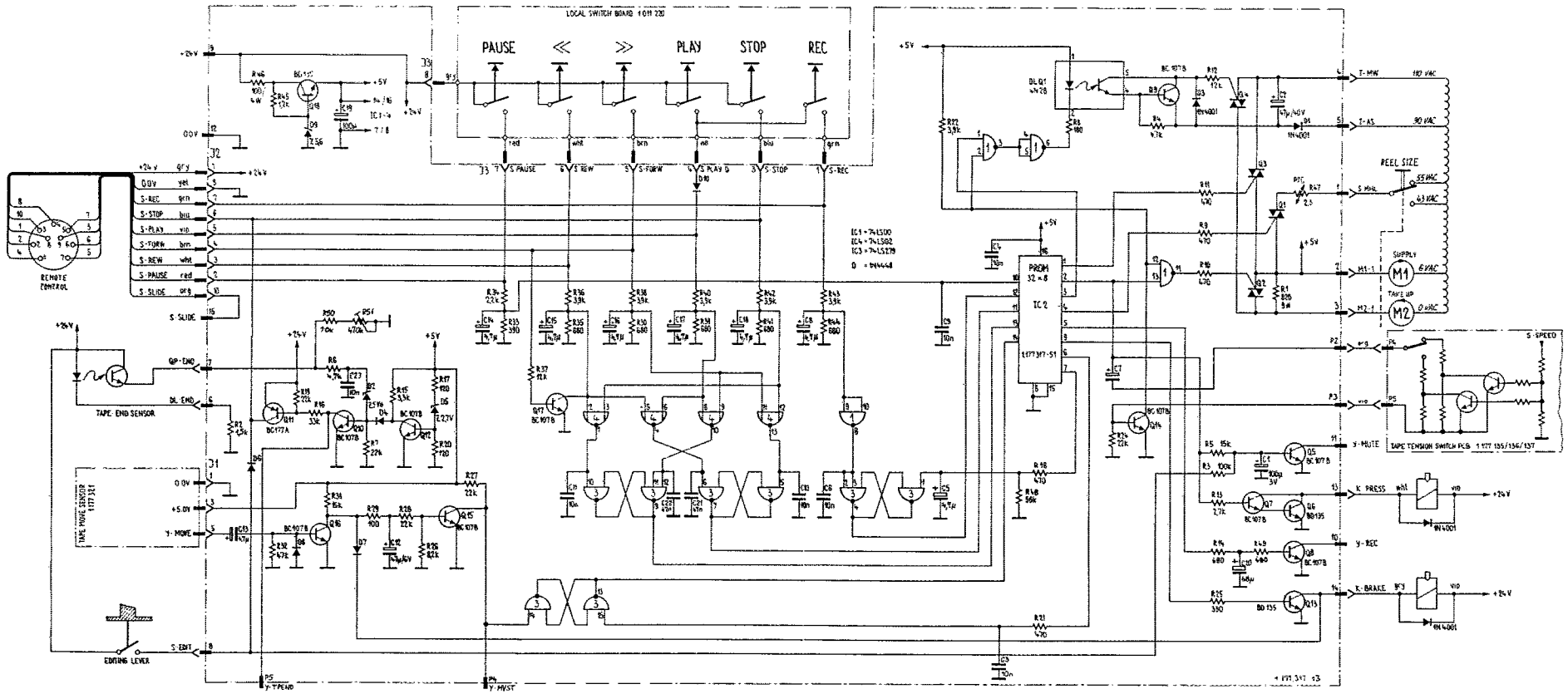
Manufacturer: Opt=Optron. MMI=Monolitic Memories Inc.
TI=Texas Instruments. Is=Intersil. SigSig=Metics.

DR36 #3/12/01 (01) 84/03/23

S T U D E R (01) 84/03/23 Rw TAPE DRIVE CONTROL MK 2 1.177.317.81 PAGE 4

TAPE DRIVE CONTROL PCB 1.177.317–81 (B77 MKII)

VERSION 1.177.317–00:
C23 = NOT EQUIPPED
D02 = Z15V
P05 = NOT EQUIPPED
R02 = 3,3k
R50 = NOT EQUIPPED
R51 = NOT EQUIPPED
PCB = 1.177.317–12

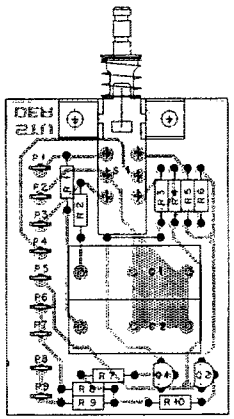


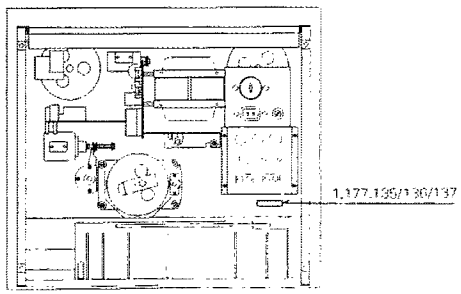
VALID FROM SERIAL NUMBER 100001

SEE SERVICE INFORMATION
67.9/67.10/69.7 : TAPE END SWITCH
57.9 : C5 (TIMER MODE)
63.5 : RECORD CLICK
68.5 : C21, C22

APE TENSION SWITCH PCB 1.177.135/136/137

REEL SIZE





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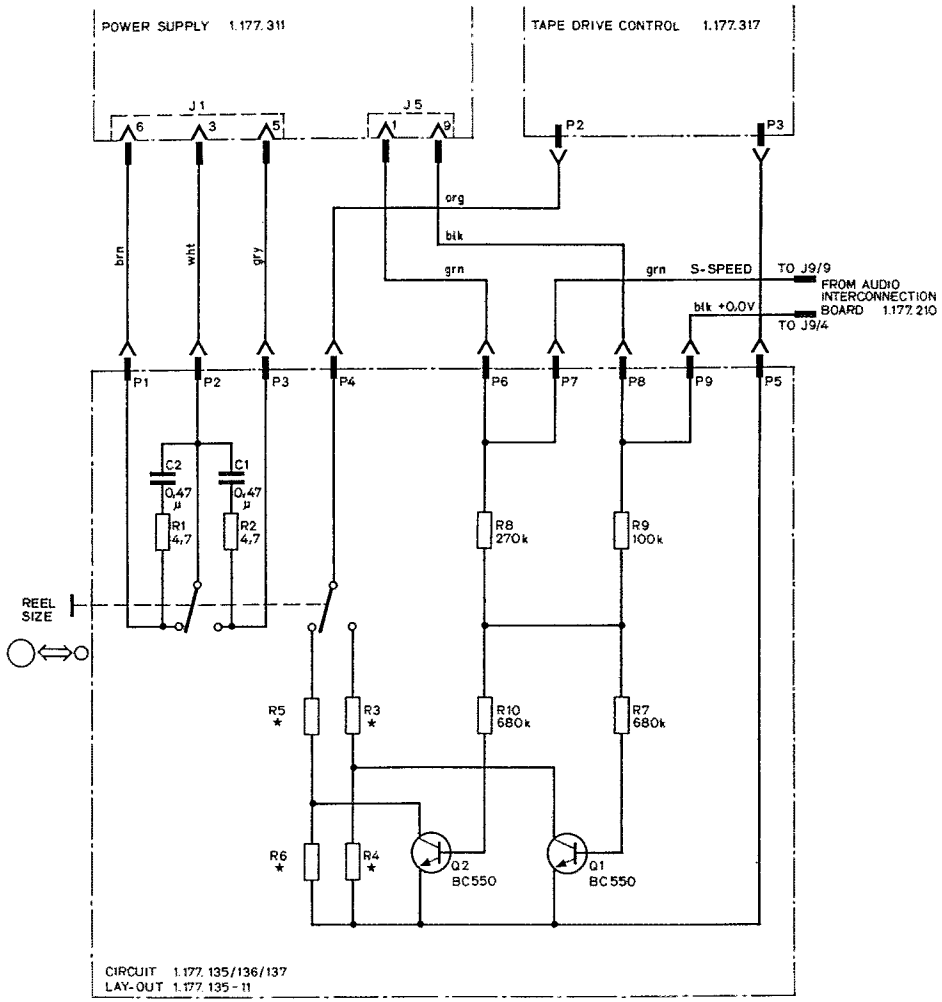
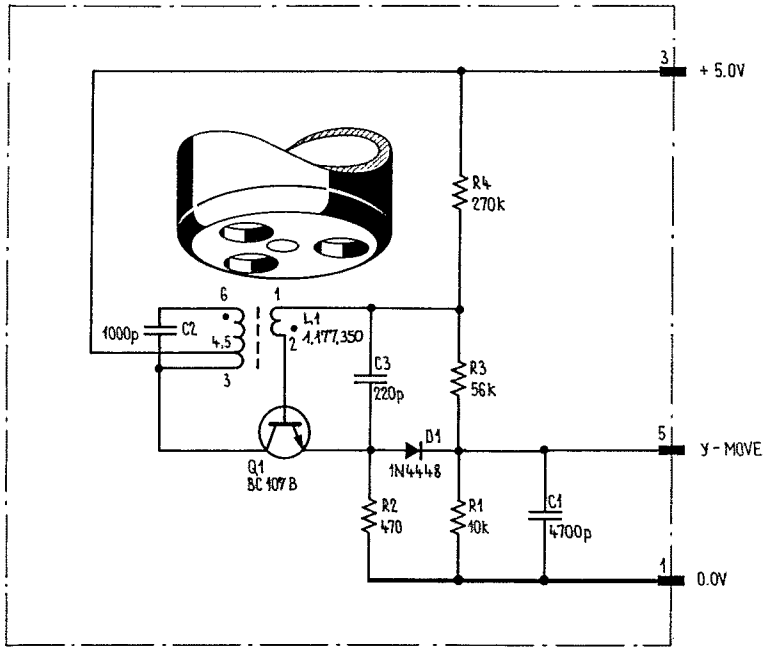
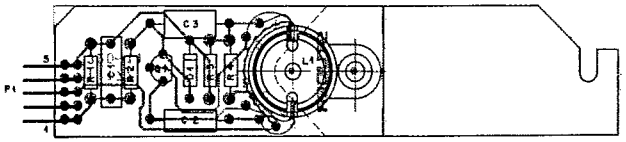
TAPE TENSION SWITCH PCB 1.177.135/136/137



SPEED RANGE	*R3	*R4	*R5	*R6
1.177.135.00 1 7/8 - 3 3/4"	220R	180R	220R	180R
1.177.136.00 3 3/4 - 7 1/2"	220R	470R	3,9k	3,9k
1.177.137.00 7 1/2 - 15"	1,2k	2,7k	3,9k	3,9k

APE MOVE SENSOR PCB 1.177.320



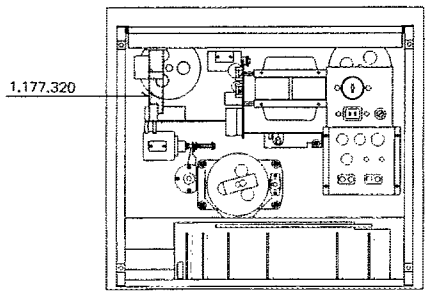


POS NO	PART NO	VALUE	SPECIFICATIONS		EQUIVALENT	MFR
C 01	59.31.4472	4700 P	20%	160V	PETP	
C 02	59.04.7102	1000 P	5%	63V	PS	
C 03	59.04.8221	220 P	5%	160V	PS	
D 01	50.04.0125	1 N 4448				any
L 01	1.177.350					S
P 01	54.01.0269	5 - Pole	Pin Strip		AMP	
Q 01	50.03.0436	BC 107 B				any
R 01	57.41.4103	10 K	5%	.25W	CF	
R 02	57.41.4471	470				
R 03	57.41.4563	56 K				
R 04	57.41 4274	270 K				

S = Studer CF = Carbon Film
PS = polystyrene
PETP = polyester

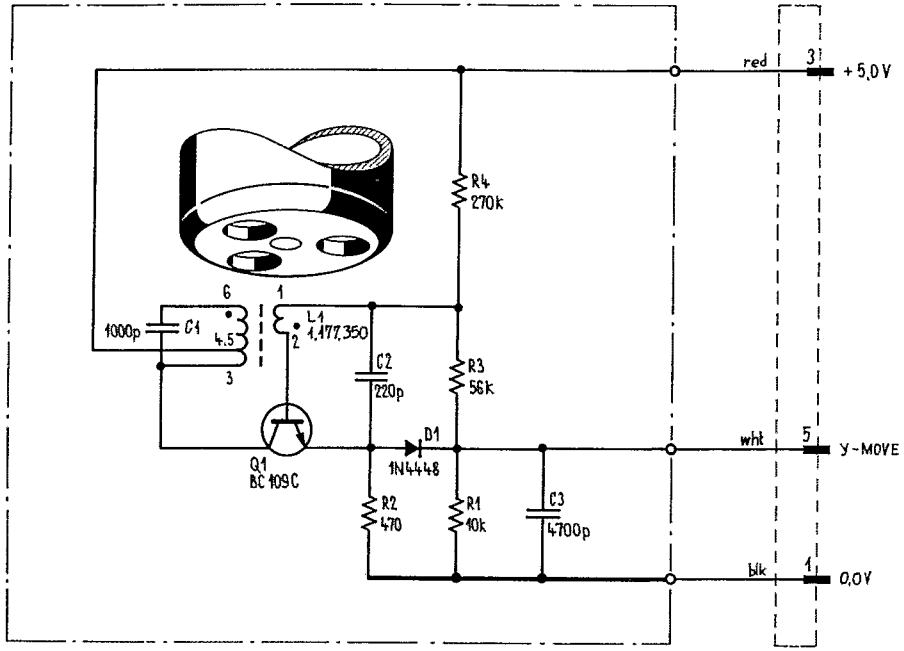
	ING	DATE	NAME
		31.3.77	Waitburg

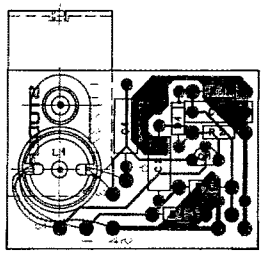
STUDER Tape Move Sensor 1.177.320 PAGE 1 of 1

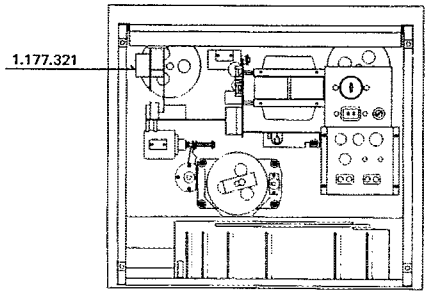


VALID ONLY UP TO SERIAL NUMBER 24029

TAPE MOVE SENSOR PCB 1.177.321







POS NO	PART NO	VALUE	SPECIFICATIONS	EQUIVALENT	MFR
C 01	59.04.7102	1000 P	5% 63V PS		
C 02	59.04.8221	220 P	5% 160V PS		
C 03	59.31.4472	4700 P	20% 160V PETP		
D 01	50.04.0125	1 N 4448			any
L 01	1.177.350				S
Q 01	50.03.0439	BC 109 C			any
R 01	57.41.4103	10 k	5% .25W CF		
R 02	57.41.4471	470			
R 03	57.41.4563	56 k			
R 04	57.41.4274	270 k			

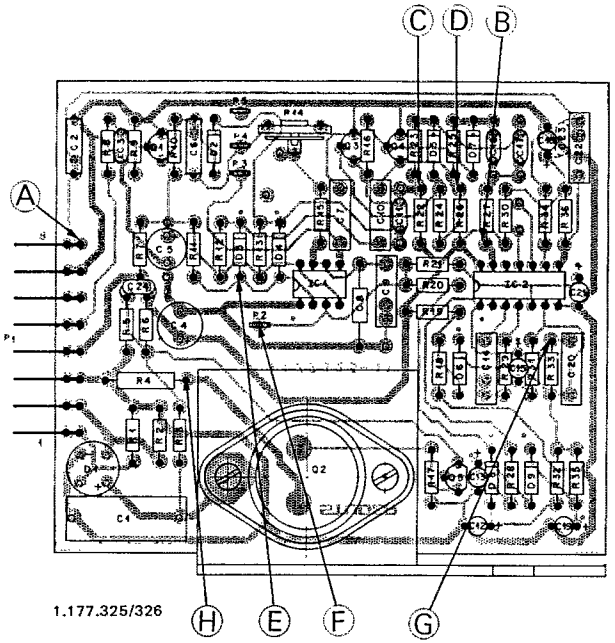
S = Studer
CF = Carbon Film
PS = Polystyrene
PETP = Polyester

3	1.78	Ed. Fay
IND	DATE	NAME

STUDER — Tape Move Sensor — 1.177.321 — PAGE 1 of 1

VALID FROM SERIAL NUMBER 24030

CAPSTAN SPEED CONTROL PCB 1.177.325/326/327 (B77 MKII)



1.177.325/326

POS NO	PART NO	VALUE	SPECIFICATIONS			EQUIVALENT	MFR
C 01	54.[illegible].0450	0.47 U	±10%	150V	MP		
C 02	59.31.4104	0.1 U	5%	250V	MPETP		
C 03	59.32.3472	4700 P	±20%	40V	CER		
C 04	59.22.5470	47 U	10%	25V	EL		
C 05	59.22.5470	47 U	10%	25V	EL		
C 06	59.31.4104	0.1 U	5%	250V	MPETP		
C 07	59.31.4103	0.01 U	20%	160V	PETP		
C 08	54.12.8162	1600 P	1%	125V	PS		
C 09	59.11.4472	4700 P	2.5%	160V	PC		
C 10	59.31.4472	4700 P	20%	160V	PETP		
C 11	59.32.3472	4700 P	±20%	40V	CER		
C 12	59.30.4100	10 U	±20%	16V	TA		
C 13	59.30.6109	1 U	±20%	35V	TA		
C 14	59.31.4103	0.01 U	20%	160V	PETP		
C 15	59.30.4100	10 U	20%	16V	TA		
C 16	59.32.3472	4700 P	±20%	40V	CER		
C 17	59.32.3472	4700 P	±20%	40V	CER		
C 18	59.30.4100	10 U	20%	16V	TA		
C 19	59.30.4100	10 U	20%	16V	TA		
C 20	59.31.1224	0.22 U	20%	100V	MPETP		
C 21	59.30.6109	1 U	20%	35V	TA		
C 22	59.31.4473	0.047U	20%	250V	MPETP		
C 23	59.32.0220	22 P	20%	500V	KER		
(1) C 24	59.32.0220	22 P	20%	500V	KER		
D 01	70.01.0223	Z 250 CB00					
D 02	50.04.0125	1 N 4448					any
D 03	50.04.0125	1 N 4448					any
D 04	50.04.0125	1 N 4448					any
D 05	50.04.0125	1 N 4448					any
D 06	50.04.0125	1 N 4448					any
D 07	50.04.0125	1 N 4448					any
D 08	50.04.0125	1 N 4448					any
D 09	50.04.0125	1 N 4448					any
IC 01	50.05.0158	NE 555	Timer			MC1455P	S.M
IC 02	50.05.0237	TBA 231	μA 739 equiv.			SN76131N	F.A.Z
P 01	54.01.0582	8 - Pole	Pin Strip		AMP		
P 2-5	54.02.0320		FLAT-PIN 0.8		AMP		
Q 01	50.03.0436	BC 107 B			NPN		
Q 02	50.03.0477	MJ 421		NPN Power		RCA 411	M.ROM
Q 03	50.03.0436	BC 107 B			NPN		
Q 04	50.03.0436	BC 107 B			NPN		
Q 05	50.03.0318	BC 178 B			PNP		

M = Motorola MP =metallized paper
S = Siemens PS =polystyrene
A = Atea CER=ceramic
T = Texas Instr PETP = polyester
F = Fairchild MPETP= metallized polyester

IND	DATE	NAME
A	8.4.81	Foil./gv
B	15.6.78	JK
C	1.4.77	Marthurow

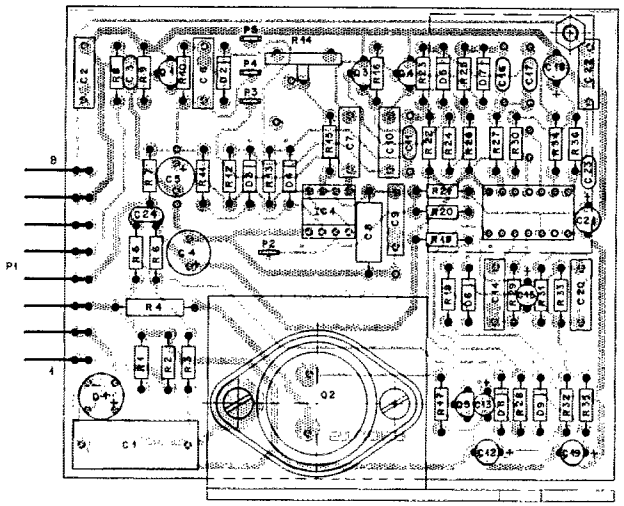
STUDER Capstan Speed Control 1.177.325 PAGE 1 of 2

POS NO	PART NO	VALUE	SPECIFICATIONS			EQUIVALENT	MFR
R 01	57.41.4473	47 K	5%	.25W	CF		
R 02	57.41.4473	47 K	5%	.25W	CF		
R 03	57.41.4681	68 K	5%	.25W	CF		
R 04	57.42.4100	10	5%	.33W	CF		
R 05	57.41.4222	2.2 K	5%	.25W	CF		
R 06	57.41.4102	1 K					
R 07	57.41.4821	820					
R 08	57.41.4103	10 K					
R 09	57.41.4223	22 K					
R 10	57.41.4472	4.7 K					
R 11	57.41.4223	22 K					
R 12	57.41.4103	10 K					
R 13	57.41.4103	10 K					
R 14	56.09.0126	10 K	10%	50ppm/°C	PCP		
R 15	57.39.0179	86.6K	1%	50ppm	MF		
R 16	57.41.4223	22 K	5%	.25W	CF		
R 17	57.41.4152	1.5 K					
(2) R 18	57.41.4152	1.5 K					
R 19	57.41.4103	10 K					
R 20	57.41.4221	220					
R 21	57.41.4472	4.7 K					
R 22	57.41.4332	3.3 K					
R 23	57.41.4223	22 K					
R 24	57.41.4223	22 K					
R 25	57.41.4223	22 K					
R 26	57.41.4332	3.3 K					
R 27	57.41.4472	4.7 K					
R 28	57.41.4472	4.7 K					
R 29	57.41.4330	33					
R 30	57.41.4103	10 K					
R 31	57.41.4682	6.8 K					
R 32	57.41.4222	2.2 K					
R 33	57.41.4105	1 M					
R 34	57.41.4103	10 K					
R 35	57.41.4222	2.2 K					
R 36	57.41.4103	10 K					

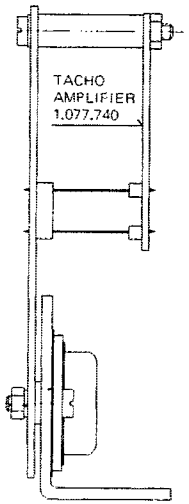
CF = Carbon Film
PCP= Pot.carbon Film
MF = Metal Film

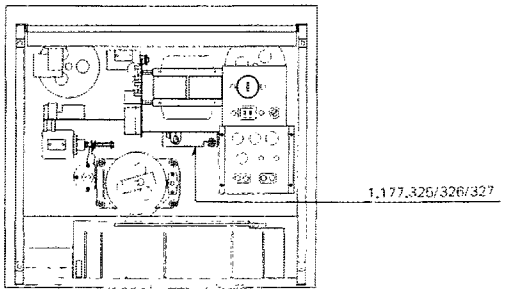
IND	DATE	NAME
A	8.4.81	TCl./gv
B	15.6.79	JK
C	1.4.77	Marthurow

STUDER Capstan Speed Control 1.177.325 PAGE 2 of 2

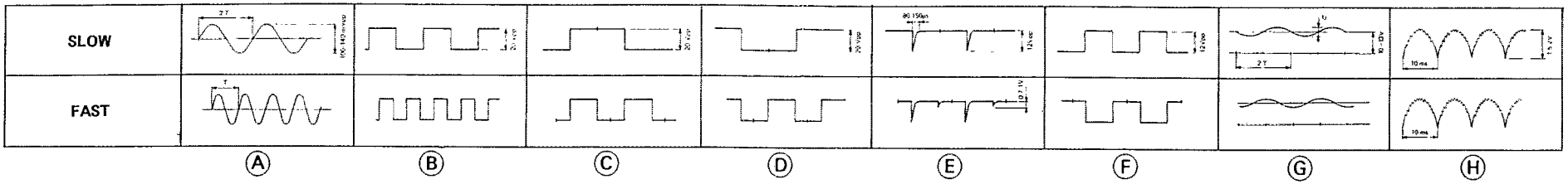


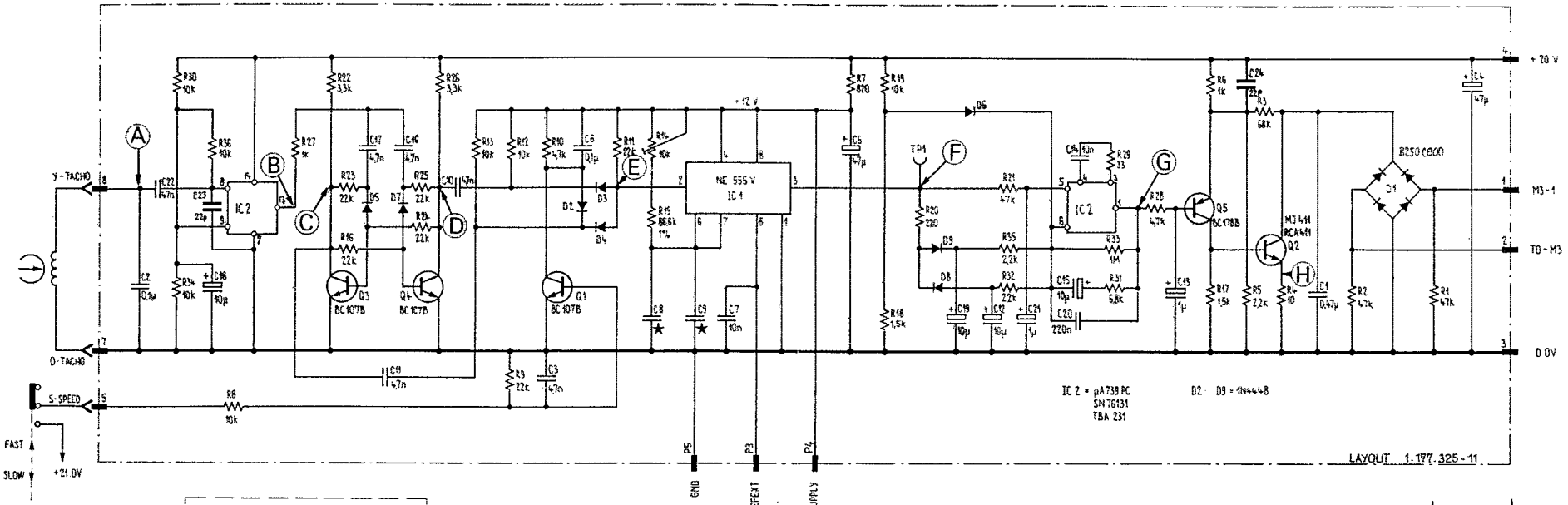
1.177.327

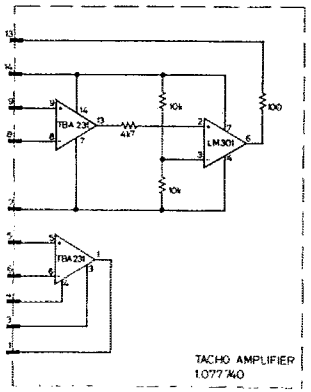




CAPSTAN SPEED CONTROL PCB 1,177.325/326/327 (B77 MKI)



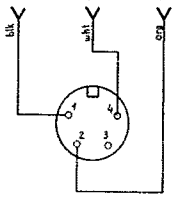




PIN CONFIGURATION
14-PIN DUAL-IN-LINE

TACHO AMPLIFIER
1.077.740

VERSION 1.177.327:
INSTEAD OF THE
REMOVED IC2 THE
SUB-ASSEMBLY
TACHO AMPLIFIER
1.077.740 IS PLUGGED
INTO THE IC2 SOCKET



REMOTE CONTROL
CAPSTAN SPEED

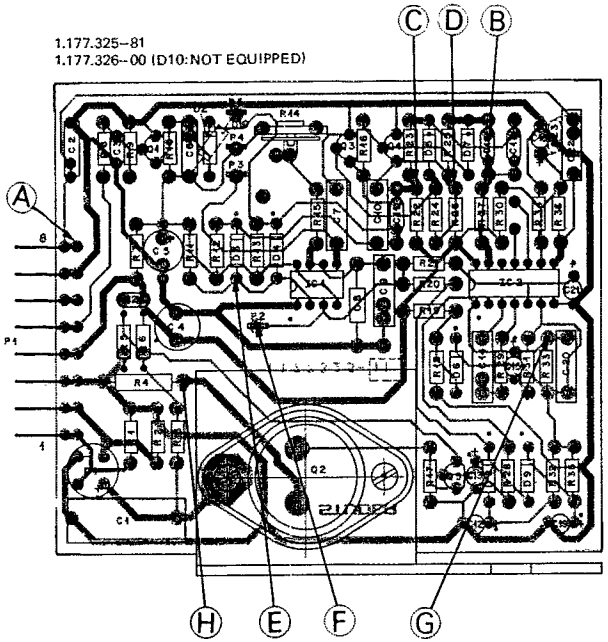
SEE SERVICE INFORMATION
63.9 : CAPSTAN START

SPEED CONTROL	T	U
1.177.325	625 µs	1 Vpp
1.177.326	833 µs	2.5 Vpp
1.177.327	1666 µs	3 Vpp

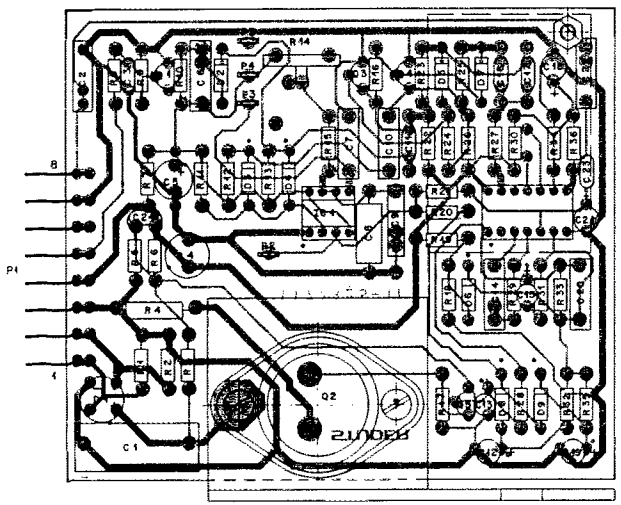
TYPE	SPEED	CAPSTAN SHAFT ø	C-MOTOR NO.	SPEED CONTROL	C8 ★	C9 ★
HS	7 1/2"–15"	9.06 mm	1.021.320	1.177.325	1.6 nF	4.7 nF
STD	3 3/4"–7 1/2"	4.51 mm	1.021.300	1.177.325	1.6 nF	4.7 nF
LS	1 7/8"–3 3/4"	3.00 mm	1.021.304	1.177.326	1.6 nF	6.8 nF
SLS	15/16"–1 7/8"	3.00 mm	1.021.304	1.177.327	5.6 nF	10 nF

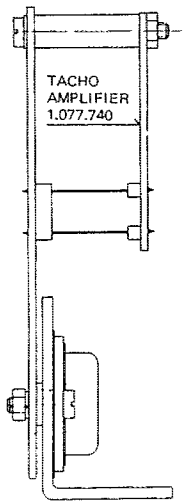
APSTAN SPEED CONTROL PCB 1.177.325–00/–81/326/327 (B77 MKII)

1.177.325–81
1.177.326–00 (D10:NOT EQUIPPED)



1.177.327–00





IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	C.....1	59.09.0450	0.47 uF	10%, 150V, MP	
	C.....2	59.32.4124	0.1 uF	5%, 250V, MPETP	
	C.....3	59.32.3472	4700 pF	-20%, 40V, Cer	
	C.....4	59.22.5470	47 uF	10%, 25V, El	
	C.....5	59.22.5470	47 uF	10%, 25V, El	
	C.....6	59.32.4104	0.1 uF	5%, 250V, MPETP	
	C.....7	59.32.4103	0.01 uF	20%, 160V, PETP	
	C.....8	59.32.8162	1600 uF	15, 125V, El	
	C.....9	59.09.0417	4700 pF	-25%, 160V, PC	
	C.....10	59.32.8471	470 pF	20%, 25V, PL	
	C.....11	59.32.8471	470 uF	20%, 40V, PL	
	C.....12	59.22.6100	10 uF	10%, 35V, El	
	C.....13	59.22.8109	1 uF	10%, 50V, El	
	C.....14	59.32.4103	0.01 uF	20%, 160V, PETP	
	C.....15	59.22.6109	10 uF	10%, 35V, El	
	C.....16	59.32.3472	4700 pF	-20%, 40V, Cer	
	C.....17	59.32.3472	4700 pF	-20%, 40V, Cer	
	C.....18	59.22.6100	10 uF	10%, 35V, El	
	C.....19	59.22.6100	10 uF	10%, 35V, El	
	C.....20	59.32.1274	0.22 uF	20%, 100V, MPETP	
	C.....21	59.22.8109	1 uF	10%, 50V, El	
	C.....22	59.21.4475	0.047uF	20%, 250V, MPETP	
	C.....23	59.32.0220	22 pF	20%, 500V, Cer	
	C.....24	59.32.0220	22 pF	20%, 500V, Cer	
	C.....25		not used		
	D.....1	70.03.0223	BZX C800		
	D.....2	50.04.0125	1 N 4448		any
	D.....3	50.04.0125	1 N 4448		any
	D.....4	50.04.0125	1 N 4448		any
	D.....5	50.04.0125	1 N 4448		any
	D.....6	50.04.0125	1 N 4448		any
	D.....7	50.04.0125	1 N 4448		any
	D.....8	50.04.0125	1 N 4448		any
	D.....9	50.04.0125	1 N 4448		any
	D.....10	50.04.1319	15 V	5%, 400mW, Z	

S T U D E R (00) 84/03/22 WEN LAPSTAN SPEED CONTROL 1.177.325.81 PAGE 1

IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	IC.....1	50.04.0155	NE 555	Timer	MOTOROLA CJM
	IC.....2	50.04.2037	TDA 2151	4W TOP VOLTAGE	SGS-ATES FAST
	P.....1	54.01.0982	8-Pole	Pin-Strip	AMP
	P.....2	54.01.0320		Flat-Pin 0.4	AMP
	P.....3	54.01.0320		Flat-Pin 0.4	AMP
	P.....4	54.01.0320		Flat-Pin 0.4	AMP
	P.....5	54.01.0320		Flat-Pin 0.4	AMP
	Q.....1	50.03.0436	BC 107 B	NPN	
	Q.....2	50.03.0471	BD 433	NPN-Power	VCA 433 MATCH
	Q.....3	50.03.0436	BC 107 B	NPN	
	Q.....4	50.03.0436	BC 107 B	NPN	
	Q.....5	50.03.0318	BC 178 *	PNP	
	R.....1	57.11.4473	47 kOhm	5%, 0.25W, CF	
	R.....2	57.11.4473	47 kOhm	5%, 0.25W, CF	
	R.....3	57.11.4683	68 kOhm	5%, 0.25W, CF	
	R.....4	57.12.4100	10 Ohm	5%, 0.33W, CF	
	R.....5	57.11.4222	2.2 kOhm	5%, 0.25W, CF	
	R.....6	57.11.4102	1 kOhm	5%, 0.25W, CF	
	R.....7	57.11.4561	560 Ohm	5%, 0.25W, CF	
	R.....8	57.11.4103	10 kOhm	5%, 0.25W, CF	
	R.....9	57.11.4223	22 kOhm	5%, 0.25W, CF	
	R.....10	57.11.4472	4.7 kOhm	5%, 0.25W, CF	
	R.....11	57.11.4223	22 kOhm	5%, 0.25W, CF	
	R.....12	57.11.4103	10 kOhm	5%, 0.25W, CF	
	R.....13	57.11.4103	10 kOhm	5%, 0.25W, CF	
	R.....14	56.99.0126	50 kOhm	10%, 500ppm/60°, PCA	
	R.....15	56.99.0179	86.6kOhm	1%, 50ppm MF	
	R.....16	57.11.4223	22 kOhm	5%, 0.25W, CF	
	R.....17	57.11.4152	1.5 kOhm	5%, 0.25W, CF	
	R.....18	57.11.4152	1.5 kOhm	5%, 0.25W, CF	
	R.....19	57.11.4103	10 kOhm	5%, 0.25W, CF	
	R.....20	57.11.4221	220 Ohm	5%, 0.25W, CF	
	R.....21	57.11.4472	4.7 kOhm	5%, 0.25W, CF	
	R.....22	57.11.4332	3.3 kOhm	5%, 0.25W, CF	

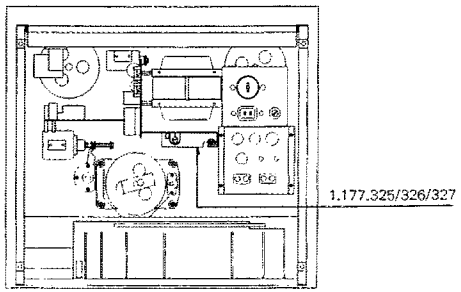
S T U D E R (00) 84/03/22 WEN LAPSTAN SPEED CONTROL 1.177.325.81 PAGE 2

IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	R.....23	57.11.4223	22 kOhm	5%, 0.25W, CF	
	R.....24	57.11.4223	22 kOhm	5%, 0.25W, CF	
	R.....25	57.11.4223	22 kOhm	5%, 0.25W, CF	
	R.....26	57.11.4332	3.3 kOhm	5%, 0.25W, CF	
	R.....27	57.11.4102	1 kOhm	5%, 0.25W, CF	
	R.....28	57.11.4472	4.7 kOhm	5%, 0.25W, CF	
	R.....29	57.11.4330	33 Ohm	5%, 0.25W, CF	
	R.....30	57.11.4103	10 kOhm	5%, 0.25W, CF	
	R.....31	57.11.4682	6.8 kOhm	5%, 0.25W, CF	
	R.....32	57.11.4227	2.2 kOhm	5%, 0.25W, CF	
	R.....33	57.11.4105	1 MOhm	5%, 0.25W, CF	
	R.....34	57.11.4103	10 kOhm	5%, 0.25W, CF	
	R.....35	57.11.4222	2.2 kOhm	5%, 0.25W, CF	
	R.....36	57.11.4103	10 kOhm	5%, 0.25W, CF	

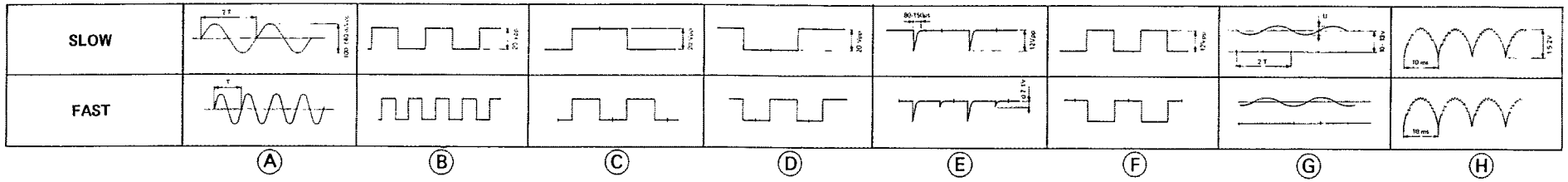
El=Electrolytic; Cer=Ceramic; MP=Metallized Paper; PS=Polystyrene;
MPETP=Metallized Polyester; PETP=Polyester; PC=Polycarbonate
Manufacturer: S=Siemens; TI=Texas Instruments
A=Ates; M=Motorola; F=Fairchild

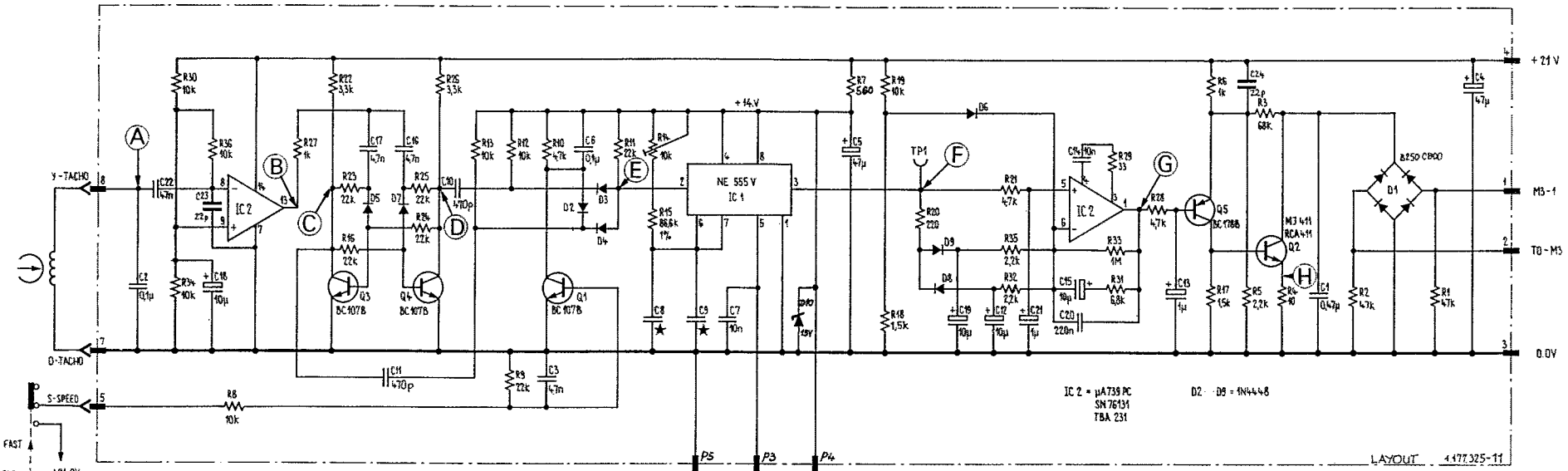
DATE 84/03/22

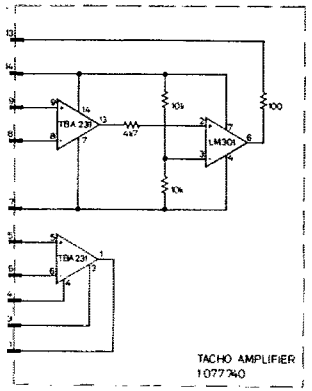
S T U D E R (00) 84/03/22 WEN CAPSTAN SPEED CONTROL 1.177.325.81 PAGE 3



CAPSTAN SPEED CONTROL PCB 1.177.325–00/–81/326/327 (B77 MKII)







VERSION 1.177.327: INSTEAD OF THE REMOVED IC2 THE SUB-ASSY TACHO APLIFIER 1.077.740 IS PLUGGED INTO THE IC2 SOCKET

VERSION 1.177.325–00/326–00/327–00
D10 = NOT EQUIPPED
R 7 = 820 Ω

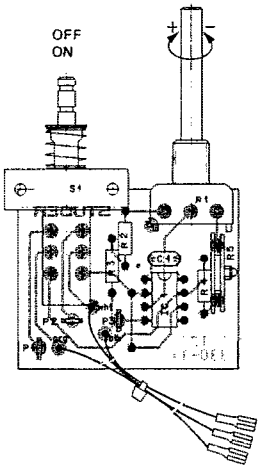
SPEED CONTROL	T	U
1.177.325	625 µs	1 Vpp
1.177.326	833 µs	2.5 Vpp
1.177.327	1666 µs	3 Vpp

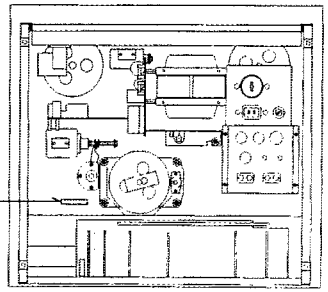
SEE SERVICE INFORMATION
63.9 : CAPSTAN START

TYPE	SPEED	CAPSTAN SHAFT ø	C-MOTOR NO.	SPEED CONTROL	C8 ★	C9 ★
HS	7 1/2"–15"	9.06 mm	1.021.320	1.177.325	1.6 nF	4.7 nF
STD	3 3/4"–7 1/2"	4.51 mm	1.021.300	1.177.325	1.6 nF	4.7 nF
LS	1 7/8"–3 3/4"	3.00 mm	1.021.304	1.177.326	1.6 nF	6.8 nF
SLS	15/16"–1 7/8"	3.00 mm	1.021.304	1.177.327	5.6 nF	10 nF

ARIABLE SPEED CONTROL PCB 1.177.330

VARIABLE SPEED





IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	C-----1	59.32.1680	68 pF	Ce	
	IC-----1	40.24.0257	LM301		Sig. Ti
	P-----1	54.02.0320		AMP-Flat p.n	
	P-----2	54.02.0376		AMP-Flat p.n	
	P-----3	54.02.0376		AMP-Flat p.n	
	R-----1	1.177.330.03	10 kOhm		
	R-----2	57.11.4332	3.3 kOhm	5% 0.25W, CF	
	R-----3	57.11.4543	56 kOhm	5% 0.25W, CF	
	R-----4	57.19.2472	24.3 kOhm	1% 0.25W, CF	
	R-----5	59.49.0132	4.7 kOhm		
	S-----1	1.177.330.02		Push-button switch	

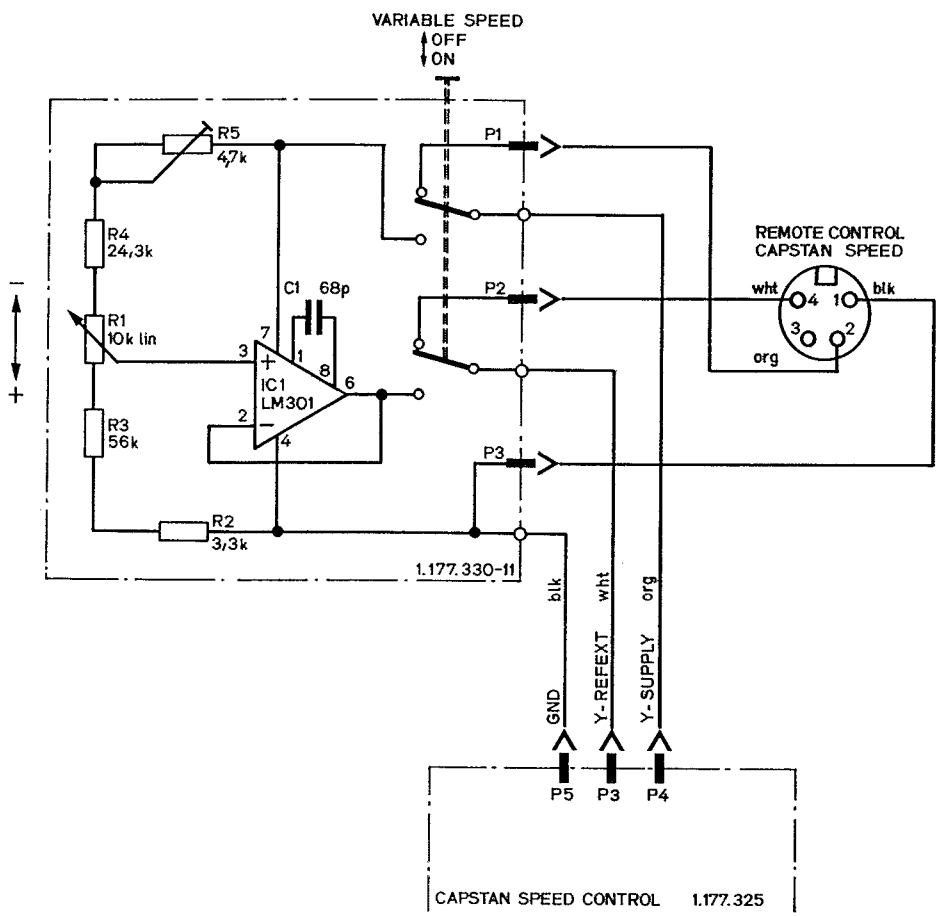
El=Electrolytic Ce=Ceramic

Manufacturer: Sig=Siemens, Ti=Texas Instruments

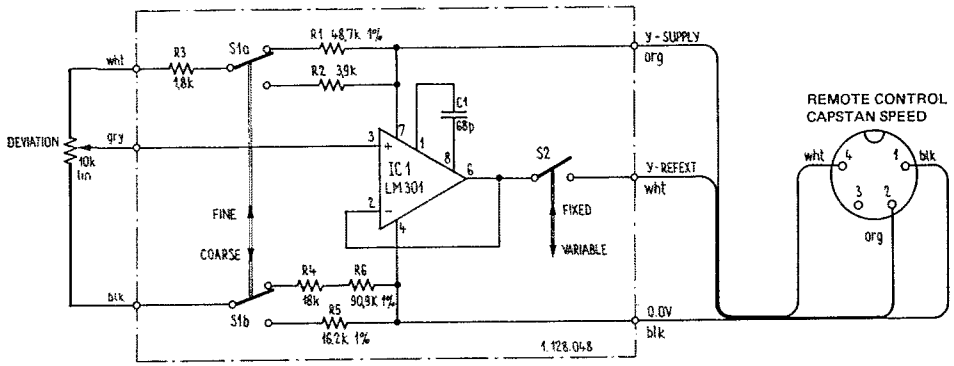
CATC 80/09/25

S T W C E R 80/08/25 RW VARIABLE SPEED CONTROL PL 1.177.330.00 PAGE 1

VARIABLE SPEED CONTROL PCB 1.177.330



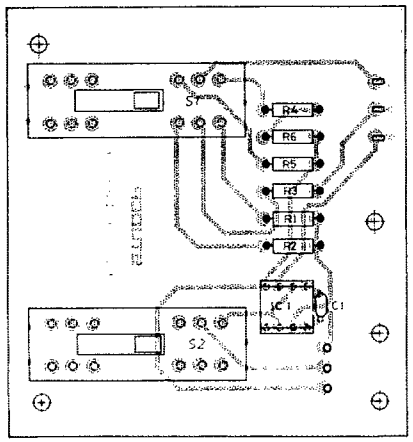
VARIABLE SPEED CONTROL UNIT / EXTERNAL 1.128.045



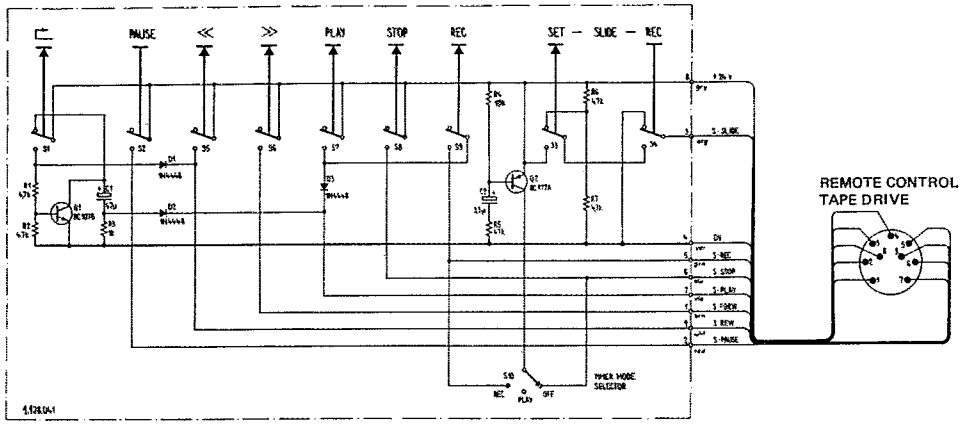
POS NO	PART NO	VALUE	SPECIFICATIONS	EQUIVALENT	MFR
C 03	59.32 1680	68 P	100V 50%	KER	
IC 1	50.05.0144	LM 301 AN		LIN	
R 01	57.39.4872	48,7 K	25W 1%	MF	(1)
R 02	57.41.4392	3,9 K	5%	CSCR	(1)
R 03	57.41.4182	1,8 K	5%	CSCR	(1)
R 04	57.41.4183	18 K	5%	CSCR	(1)
R 05	57.39.1622	16,2 K	1%	MF	(1)
R 06	57.39.9092	90,9 K	1%	MF	(1)
S 01	1.128.021.03		Schiebeschalter		
S 02	1.128.021.04				

IND	DATE	NAME
A	14.9.77	
B	28.11.77	

STUDER | Capstanregelsteuerprint | 1.128.048 | PAGE 1 of 1



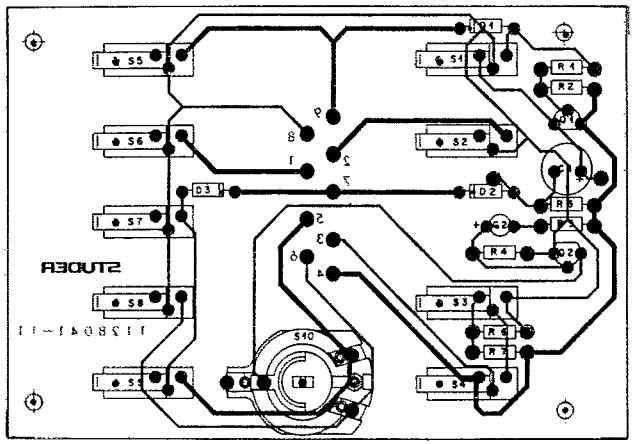
REMOTE CONTROL UNIT / COMMAND SWITCHES 1.128.040



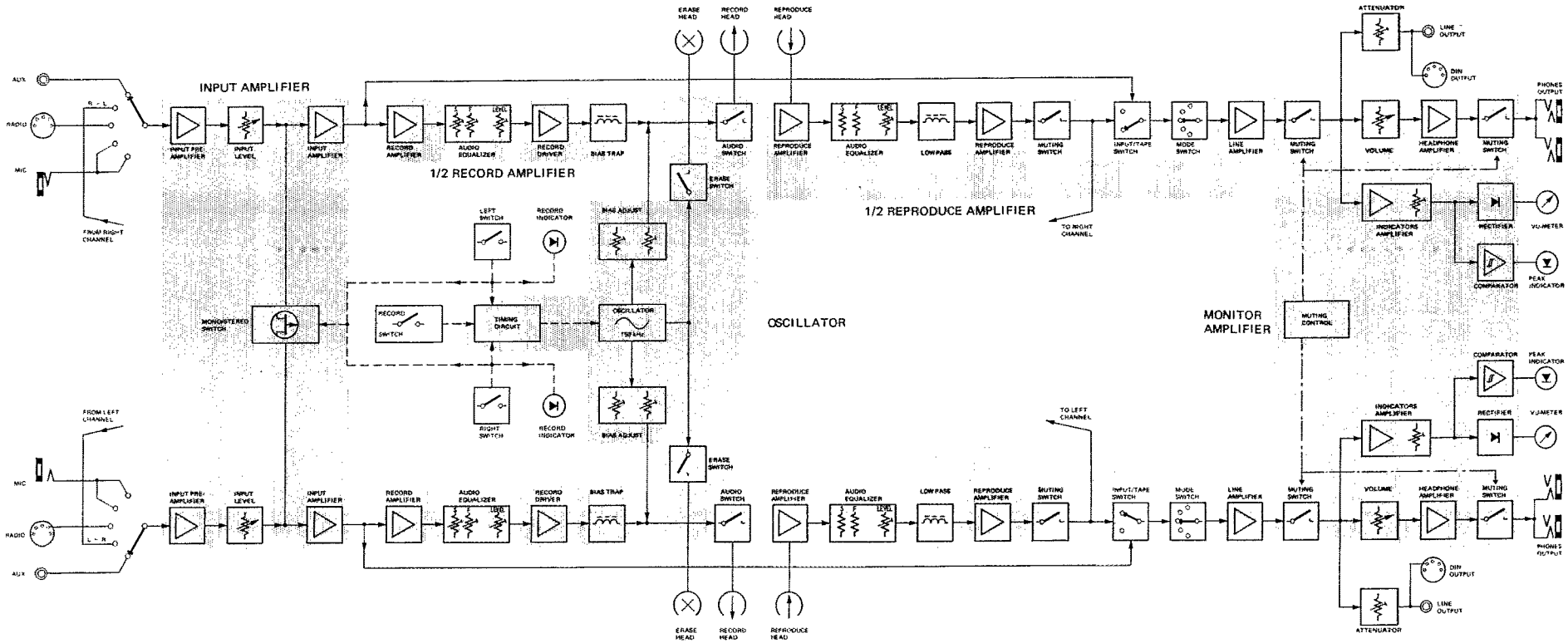
POS NO	PART NO	VALUE	SPECIFICATIONS	EQUIVALENT	MFR
C 01	59.22.6470	47 U	±10% 40V		BE
C 02	59.30.6339	3.3 U	±20% 35V		TA
D 01-3	50.04.0125	1 N 4448			SI
Q 01	50.03.0436	BC 107 B			NPN
Q 02	50.03.0317	BC 177 A			PNP
R 01	57.41.4472	4.7 K	5% .25W		CSCH
R 02	57.41.4472	4.7 K			
R 03	57.41.4102	1 K			
R 04	57.41.4103	10 K			(1)
R 05-07	57.41.4473	47 K			
S 01-09	55.99.0139	1 x U	Microsw.		AG
S 10	55.99.0142	3 x U	Dreh.		UNTER.

IND	DATE	NAME
A	5.4.78	
B	30.1.77	

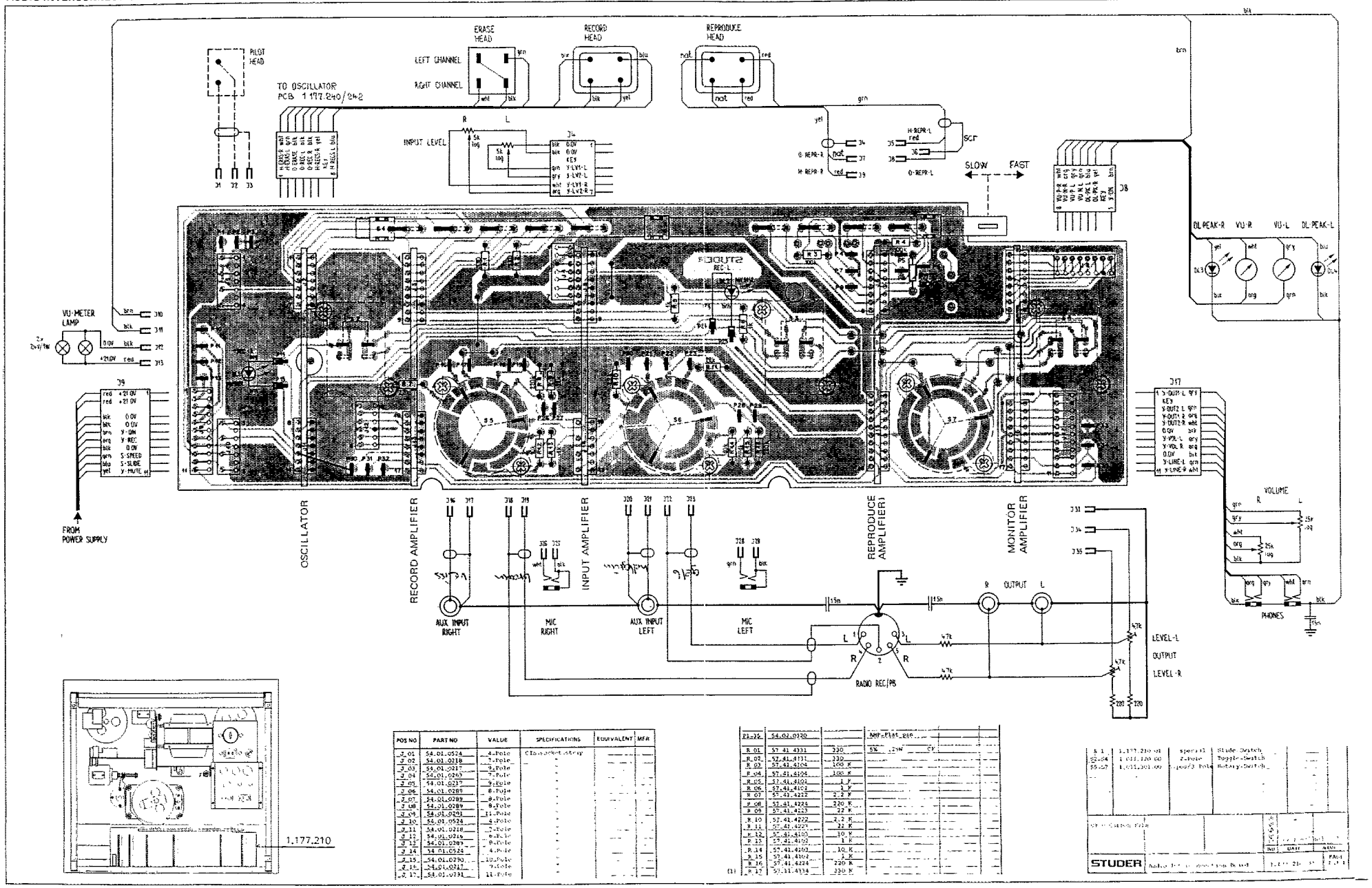
STUDER Laufwerkfernsteuerprint 1.128.041 PAGE 1 of 1



LOCK DIAGRAM / AUDIO



AUDIO INTERCONNECTION PCB 1.177.210–81



POS NO	PART NO	VALUE	SPECIFICATIONS	EQUIVALENT	MFR
J 01	54.01.0524	4-Pole	CIS-socket,strip		
J 02	54.01.0218	7-Pole	"		
J 03	54.01.0217	9-Pole	"		
J 04	54.01.0267	7-Pole	"		
J 05	54.01.0217	9-Pole	"		
J 06	54.01.0289	8-Pole	"		
J 07	54.01.0289	8-Pole	"		
J 08	54.01.0289	8-Pole	"		
J 09	54.01.0291	11-Pole	"		
J 10	55.01.0524	4-Pole	"		
J 11	54.01.0218	7-Pole	"		
J 12	54.01.0216	6-Pole	"		
J 13	54.01.0289	8-Pole	"		
J 14	54.01.0524	4-Pole	"		
J 15	54.01.0290	10-Pole	"		
J 16	54.01.0217	9-Pole	"		
J 17	54.01.0291	11-Pole	"		

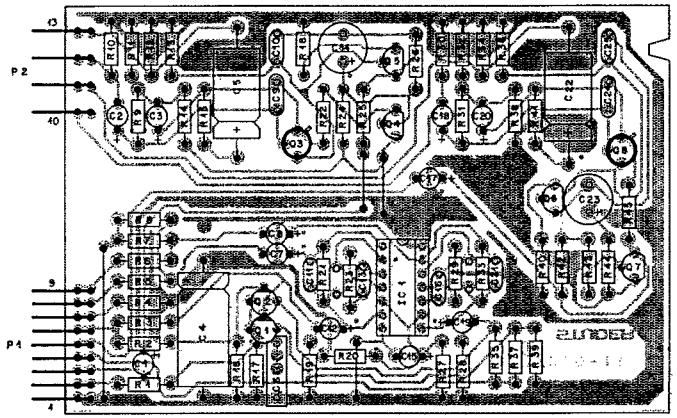
J1-J3	54.02.0320			AMP-Flat.810			
R 01	57.41.4331	330		5%	2W	CF	
R 02	57.41.4131	130					
R 03	57.41.4104	100 K					
R 04	57.41.4104	100 K					
R 05	57.41.4102	1 K					
R 06	57.41.4102	1 K					
R 07	57.41.4222	2.2 K					
R 08	57.41.4221	220 K					
R 09	57.41.4223	22 K					
R 10	57.41.4222	2.2 K					
R 11	57.41.4223	22 K					
R 12	57.41.4103	10 K					
R 13	57.41.4102	1 K					
R 14	57.41.4103	10 K					
R 15	57.41.4102	1 K					
R 16	57.41.4221	220 K					
R 17	57.41.4331	330 K					

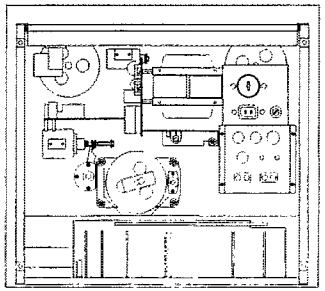
S 1	1.177.210.01	special	Slide Switch
S2-S4	1.011.120.00	2-Pole	Toggle-Switch
S5-S7	1.011.301.00	1pol/3 Pole	Rotary-Switch

STUDER

13.01.81

INPUT AMPLIFIER PCB 1.177.220





POS NO	PART NO	VALUE	SPECIFICATIONS		EQUIVALENT	MFR
C 01	59.30.4100	10 U	-20%	16 V	TA	
C 02	59.30.4100	10 U	-20%	16 V	TA	
C 03	59.30.4339	3.3 U	-20%	16 V	TA	
C 04	59.25.4221	220 U	-10%	25 V	EL	
C 05	59.25.3121	125 U	-10%	16 V	EL	
C 06	59.31.1104	0.1 U	20%	100V	MPETF	
C 07	59.30.4100	10 U	-20%	16 V	TA	
C 08	59.30.4100	10 U	-20%	16 V	TA	
C 09	59.32.1152	1500P	-10%	500V	CER	
C 10	59.32.0220	22 P	-20%	500V	CER	
C 11	59.32.0220	22 P	-20%	500V	CER	
C 12	59.30.4100	10 U	-20%	16 V	TA	
C 13	59.32.3103	0.01U	-20%	40 V	CER	
C 14	59.22.5470	47 U	-10%	25 V	EL	
C 15	59.30.4100	10 U	-20%	16 V	TA	
C 16	59.32.3103	0.01U	-20%	40 V	CER	
C 17	59.30.4100	10 U	-20%	16 V	TA	
C 18	59.30.4100	10 U	-20%	16 V	TA	
C 19	59.30.4100	10 U	-20%	16 V	TA	
C 20	59.30.4339	3.3 U	-20%	16 V	TA	
C 21	59.32.0220	22 P	-20%	500V	CER	
C 22	59.25.3121	125 U	-10%	16 V	EL	
C 23	59.22.5470	47 U	-10%	25 V	EL	
C 24	59.32.1152	1500P	-10%	500V	CER	
C 25	59.32.0220	22 P	-20%	500V	CER	
IC 01	50.05.0288	TBA 231				A
P 01	54.01.0220	9 - Pole	PIN-Strip		AMP	
P 02	54.01.0470	4 - Pole	PIN-Strip		AMP	
Q 01	50.03.0329	SFF 316	P-Channel J-FET		P128SE	M,T
Q 02	50.03.0329	SFF 316	P-Channel J-FET		P128SE	M,T
Q 03	50.03.0305	BC 179 B		PNP		
Q 04	50.03.0436	BC 107 B		NPN		any
Q 05	50.03.0439	BC 109 C		NPN		
Q 06	50.03.0439	BC 109 C		NPN		
Q 07	50.03.0436	BC 107 B		NPN		any
Q 08	50.03.0305	BC 179 B		PNP		

A = Ates
M = Motorola
T = Teledyne
TI= Texas Instr.

IND	DATE	NAME
	29.9.78	ZH
	5.4.77	Wartburg

STUDER | Input Amplifier | 1.177.220 | PAGE 1 of 2

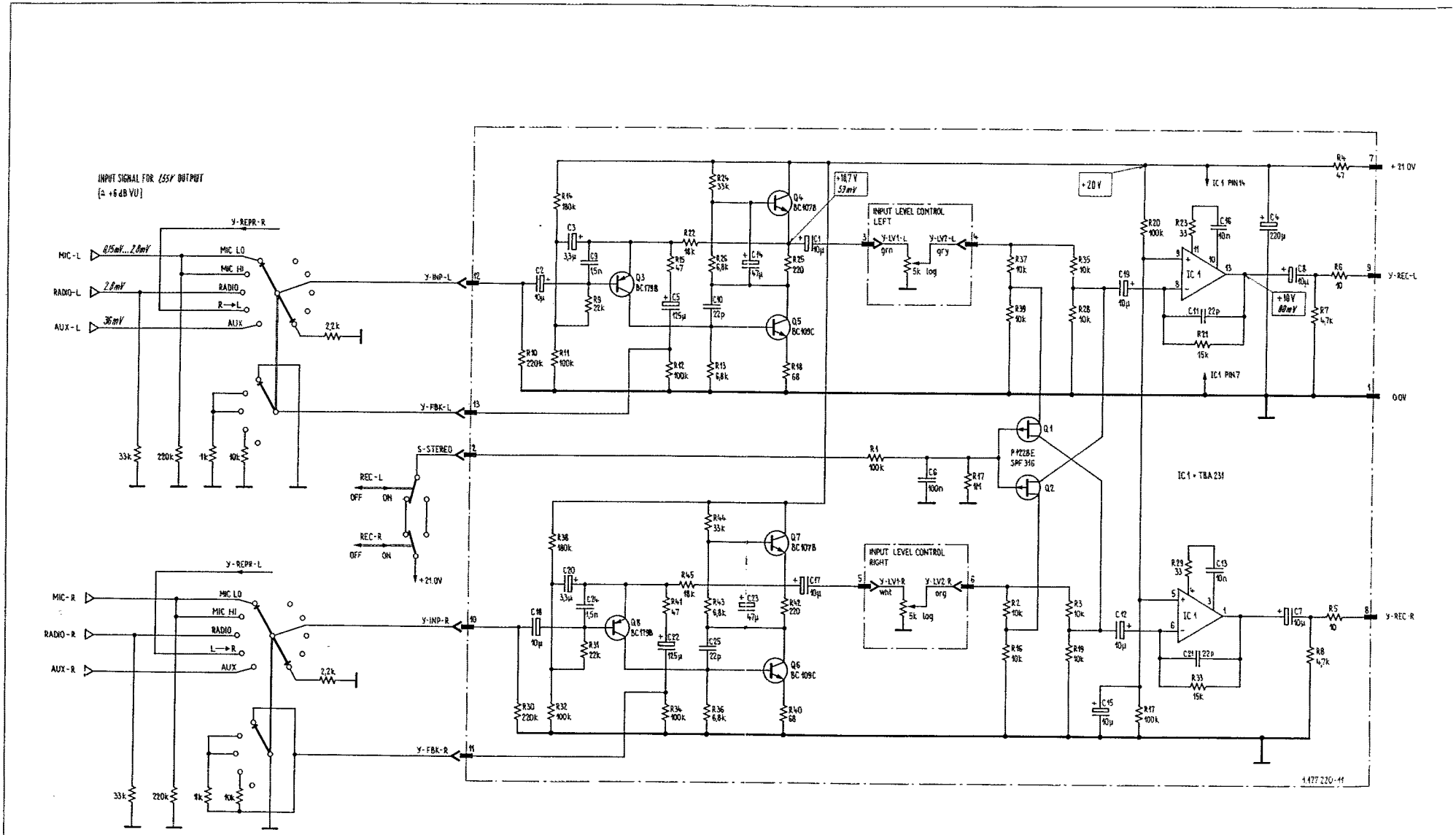
POS NO	PART NO	VALUE	SPECIFICATIONS	EQUIVALENT	MFR
R 01	57.41.4104	100 k	5% .25W CF		
R 02	57.41.4103	10 k			
R 03	57.41.4103	10 k			
R 04	57.41.4470	47			
R 05	57.41.4100	10			
R 06	57.41.4100	10			
R 07	57.41.4472	4.7 k			
R 08	57.41.4472	4.7 k			
R 09	57.41.4223	22 k			
R 10	57.41.4224	220 k			
R 11	57.41.4104	100 k			
R 12	57.41.4104	100 k			
R 13	57.41.4682	6.8 k			
R 14	57.41.4184	180 k			
R 15	57.41.4470	47			
R 16	57.41.4103	10 k			
R 17	57.41.4105	1 M			
R 18	57.41.4680	68			
R 19	57.41.4103	10 k			
R 20	57.41.4104	100 k			
R 21	57.41.4153	15 k			
R 22	57.41.4183	18 k			
R 23	57.41.4330	33			
R 24	57.41.4333	33 k			
R 25	57.41.4221	220			
R 26	57.41.4682	6.8 k			
R 27	57.41.4104	100 k			
R 28	57.41.4103	10 k			
R 29	57.41.4330	33			
R 30	57.41.4224	220 k			
R 31	57.41.4223	22 k			
R 32	57.41.4104	100 k			
R 33	57.41.4153	15 k			
R 34	57.41.4104	100 k			
R 35	57.41.4103	10 k			
R 36	57.41.4682	6.8 k			
R 37	57.41.4103	10 k			
R 38	57.41.4184	180 k			
R 39	57.41.4103	10 k			
R 40	57.41.4680	68			
R 41	57.41.4470	47			
R 42	57.41.4221	220			
R 43	57.41.4682	6.8 k			
R 44	57.41.4333	33 k			
R 45	57.41.4183	18 k			

CF= Carbon Film

IND	DATE	NAME
	29.9.78	ZH
	5.4.77	Wartburg

STUDER | Input Amplifier | 1.177.220 | PAGE 2 of 2

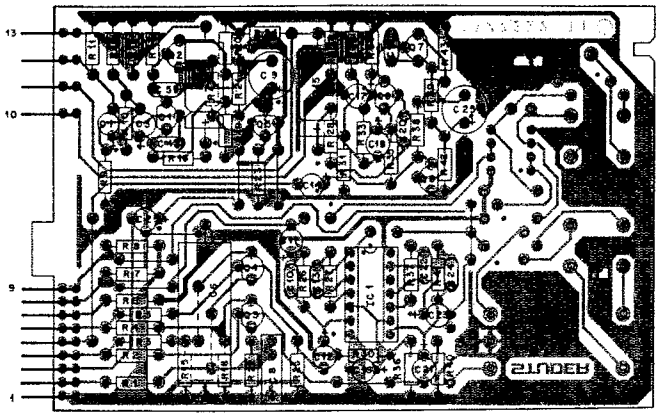
INPUT AMPLIFIER PCB 1.177.220



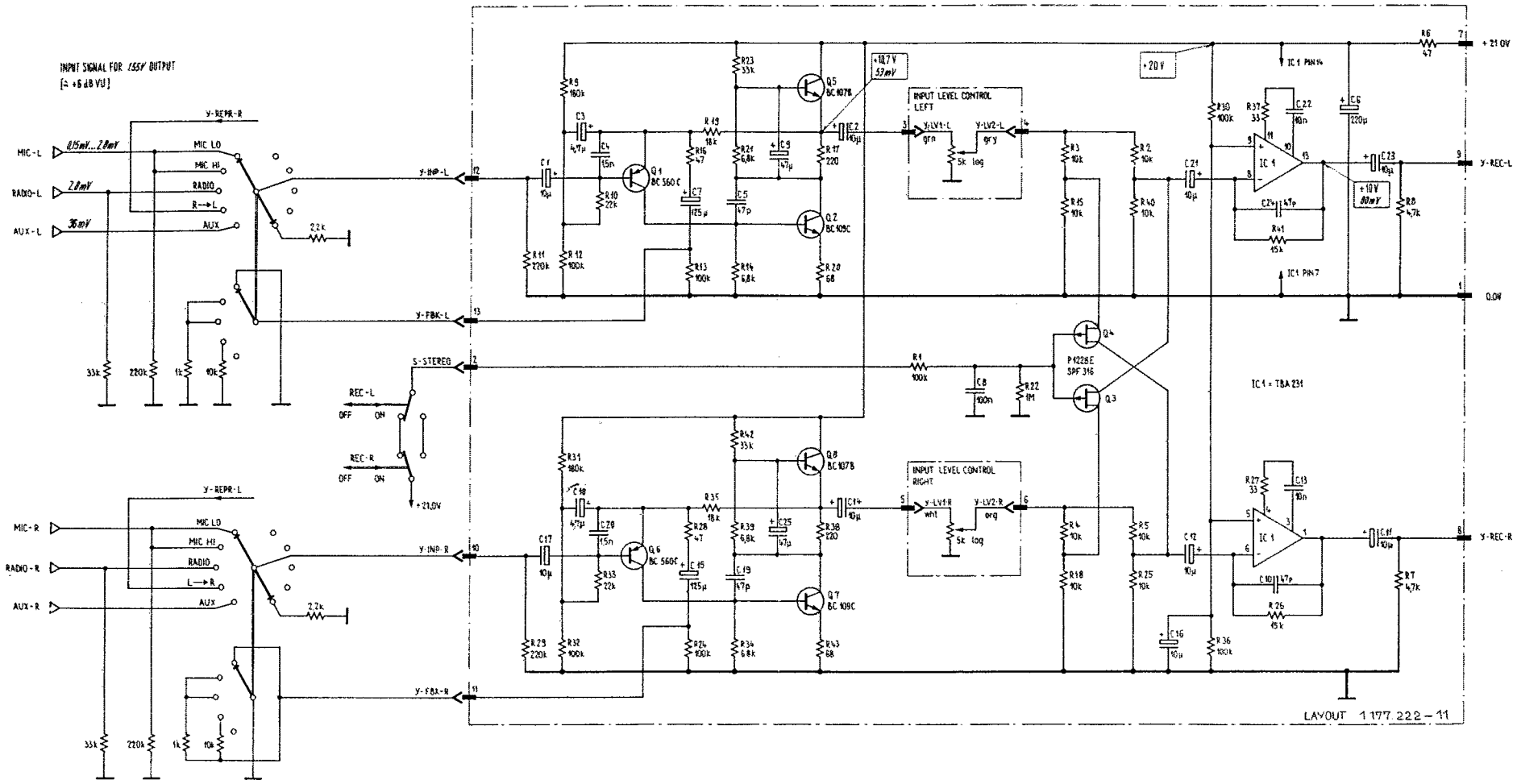
VALID TILL SERIAL No. 38284

SEE SERVICE INFORMATION
51.3 : C10,11,21,25 (OSCILLATION)

INPUT AMPLIFIER PCB 1.177.221

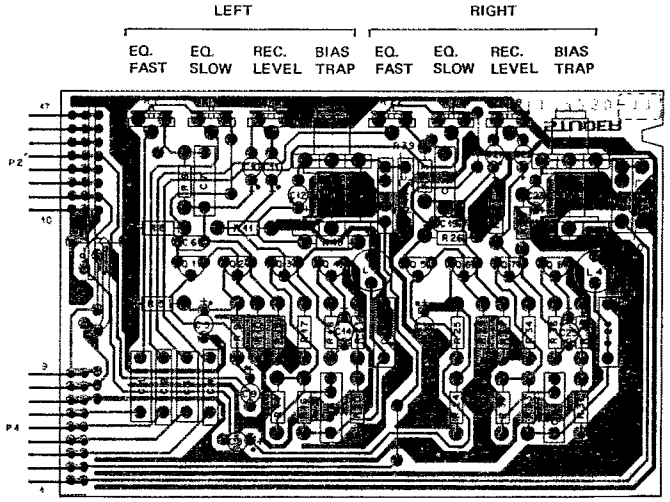


INPUT AMPLIFIER PCB 1.177.221

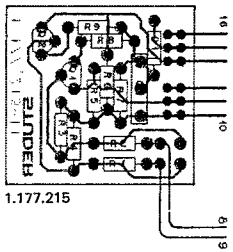


VALID SINCE SERIAL No. 38285

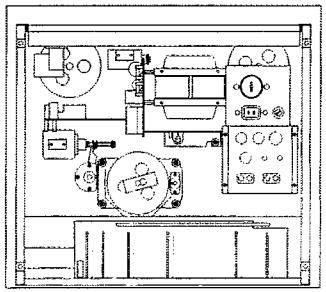
RECORD AMPLIFIER PCB (NAB 3 3/4 - 7 1/2 ips) 1.177.230–81



1.177.230-81



1.177.215



IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	Cxxxx1	50.11.4232	2200 pF	5% 400V PC	
	Cxxxx2	50.11.4232	2200 pF	5% 400V PC	
	Cxxxx3	50.11.4232	2200 pF	5% 400V PC	
	Cxxxx4	50.11.4232	2200 pF	5% 400V PC	
	Cxxxx5	50.22.3174	100 uF	10% 12V EI	
	Cxxxx6	50.31.5220	22 pF	20% 400V CER	
	Cxxxx7	50.31.6314	0.1 uF	10% 100V MPETP	
	Cxxxx8	50.22.4478	4.7 uF	10% 50V EI	
	Cxxxx9	50.22.4478	4.7 uF	10% 50V EI	
	Cxxxx10	50.22.4479	4.7 uF	10% 40V EI	
	Cxxxx11	50.22.5108	1 uF	10% 50V EI	
	Cxxxx12	50.22.4478	4.7 uF	10% 50V EI	
	Cxxxx13	50.99.5147	0.033uF	10% 160V PETP	
	Cxxxx14	50.22.4476	47 uF	10% 10V EI	
	Cxxxx15	50.33.5183	0.01 uF	10% 100V PETP	
	Cxxxx16	50.11.6471	470 pF	5% 400V PC	
	Cxxxx17	50.11.6132	3300 pF	5% 400V PC	
	Cxxxx18	50.22.3174	100 uF	10% 12V EI	
	Cxxxx19	50.31.5220	22 pF	20% 400V CER	
	Cxxxx20	50.31.6314	0.1 uF	10% 100V MPETP	
	Cxxxx21	50.22.4478	4.7 uF	10% 50V EI	
	Cxxxx22	50.22.4119	1 uF	20% 40V EI	
	Cxxxx23	50.22.4478	4.7 uF	10% 50V EI	
	Cxxxx24	50.99.0257	0.033uF	10% 160V PETP	
	Cxxxx25	50.22.4476	47 uF	10% 10V EI	
	Cxxxx26	50.33.5183	0.01 uF	10% 100V PETP	
	Cxxxx27	50.11.6471	470 pF	5% 400V PC	
	Cxxxx28	50.11.6132	3300 pF	5% 400V PC	
	Lxxxx1	1.177.231.00			S
	Lxxxx2	82.03.1272	7.2 mH	5%	
	Lxxxx3	1.177.231.00			T
	Lxxxx4	82.03.1272	7.2 mH	5%	
	Mxxxx1	54.01.0270	4-Pole	Pin-Strip	AMP
	Mxxxx2	54.01.0270	5-Pole	Pin-Strip	AMP

S T U D E R 27/11/79 Pm RECORD AMPLIFIER 1.177.230.81 PAGE 1

IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	Qxxxx1	50.03.0439	BC 109 C	NPN	
	Qxxxx2	50.03.0436	BC 107 B	NPN	
	Qxxxx3	50.03.0436	BC 107 B	NPN	
	Qxxxx4	50.03.0436	BC 107 B	NPN	
	Qxxxx5	50.03.0439	BC 109 C	NPN	
	Qxxxx6	50.03.0436	BC 107 B	NPN	
	Qxxxx7	50.03.0436	BC 107 B	NPN	
	Qxxxx8	50.03.0436	BC 107 B	NPN	
	Rxxxx1				
	Rxxxx2				
	Rxxxx3				
	Rxxxx4				
	Rxxxx5	57.11.4823	820 Ohm	5% 0.25W CF	
	Rxxxx6	57.11.4337	3.3 kOhm	5% 0.25W CF	
	Rxxxx7	58.02.4223	22 kOhm	10% 0.1 W CF	
	Rxxxx8	57.11.4563	56 kOhm	5% 0.25W CF	
	Rxxxx9	57.11.4104	100 kOhm	5% 0.25W CF	
	Rxxxx10	57.11.4154	150 kOhm	5% 0.25W CF	
	Rxxxx11	57.11.4563	56 kOhm	5% 0.25W CF	
	Rxxxx12	58.02.4223	22 kOhm	10% 0.1 W CF	
	Rxxxx13	58.02.4223	22 kOhm	10% 0.1 W CF	
	Rxxxx14	57.11.4472	4.7 kOhm	5% 0.25W CF	
	Rxxxx15	57.11.4682	6.8 kOhm	5% 0.25W CF	
	Rxxxx16	57.11.4681	680 Ohm	5% 0.25W CF	
	Rxxxx17	57.11.4274	270 kOhm	5% 0.25W CF	
	Rxxxx18	57.11.4331	330 Ohm	5% 0.25W CF	
	Rxxxx19	57.11.4172	1 kOhm	5% 0.25W CF	
	Rxxxx20	57.11.4274	270 kOhm	5% 0.25W CF	
	Rxxxx21	57.11.4104	100 kOhm	5% 0.25W CF	
	Rxxxx22	58.02.4223	22 kOhm	10% 0.1 W CF	
	Rxxxx23	57.11.4563	56 kOhm	5% 0.25W CF	
	Rxxxx24	57.11.4821	820 Ohm	5% 0.25W CF	
	Rxxxx25	57.11.4104	100 kOhm	5% 0.25W CF	
	Rxxxx26	57.11.4332	3.3 kOhm	5% 0.25W CF	
	Rxxxx27	58.02.4223	22 kOhm	10% 0.1 W CF	
	Rxxxx28	58.02.4223	22 kOhm	10% 0.1 W CF	

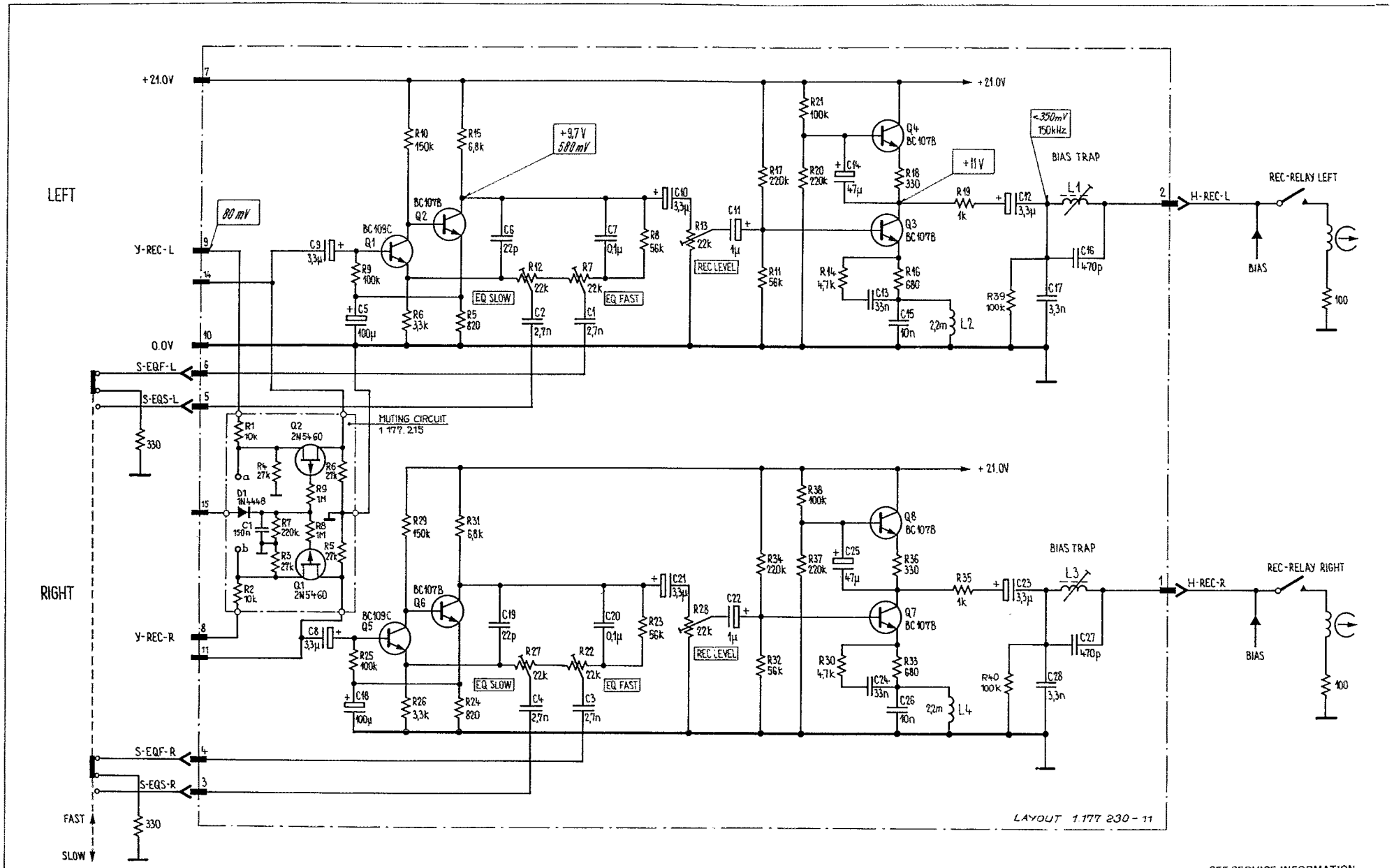
S T U D E R 27/11/79 Pm RECORD AMPLIFIER 1.177.230.81 PAGE 2

IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	Rxxxx29	57.11.4154	150 kOhm	5% 0.25W CF	
	Rxxxx30	57.11.4472	4.7 kOhm	5% 0.25W CF	
	Rxxxx31	57.11.4682	6.8 kOhm	5% 0.25W CF	
	Rxxxx32	57.11.4563	56 kOhm	5% 0.25W CF	
	Rxxxx33	57.11.4681	680 Ohm	5% 0.25W CF	
	Rxxxx34	57.11.4274	270 kOhm	5% 0.25W CF	
	Rxxxx35	57.11.4102	1 kOhm	5% 0.25W CF	
	Rxxxx36	57.11.4331	330 Ohm	5% 0.25W CF	
	Rxxxx37	57.11.4224	220 kOhm	5% 0.25W CF	
	Rxxxx38	57.11.4104	100 kOhm	5% 0.25W CF	
	Rxxxx39	57.11.4104	100 kOhm	5% 0.25W CF	
	Rxxxx40	57.11.4104	100 kOhm	5% 0.25W CF	

IND	POS NO	PART NO	VALUE	SPECIFICATIONS/EQUIVALENT	MFR
(3)	C1	59.11.4154	150nF		
	D1	50.04.0125	1N4148	Si	
	T1	54.10.0227	3Pol	CTS	
	T2	54.10.0227	3Pol	CTS	
	C1	50.03.0312	2.5/40	PCH Pot	
	C2	50.03.0312	2.5/40	PCH Pot	
(2)	P1	57.11.4103	10k		
(2)	P2	57.11.4103	10k		
	R3	57.11.4273	27k		
	R4	57.11.4273	27k		
	R5	57.11.4273	27k		
	R6	57.11.4273	27k		
	R7	57.11.4224	220k		
(2)	R8	57.11.4105	1M		
(2)	R9	57.11.4105	1M		

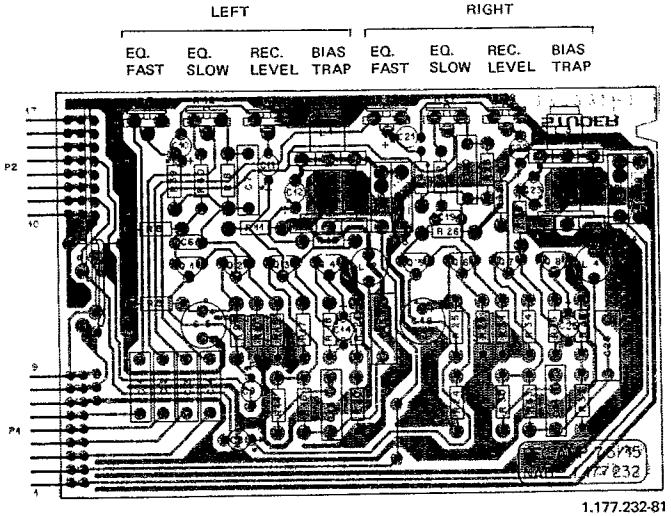
IND	DATE	NAME			
(4)					
(3)	12. 1. 81	Wenglein			
(2)	18. 1. 81	Wenglein			
(1)	16. 1. 81	Wenglein			
	15. 1. 81	Wenglein			
		Spring Circuit	PL	1.177.245-00	PAGE 1 OF 1

RECORD AMPLIFIER PCB (NAB 3 3/4 - 7 1/2 ips) 1.177.230–81

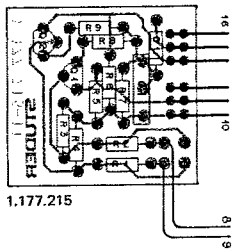


SEE SERVICE INFORMATION
63.7 : MUTING CIRCUIT 1.177.215

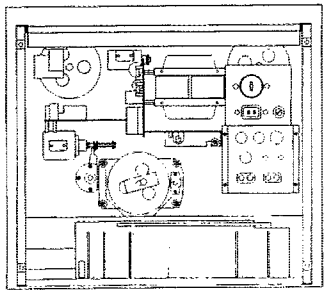
RECORD AMPLIFIER PCB (NAB 7 1/2 - 15 ips) 1.177.232-81



1.177.232-81



1.177.215



INDEX	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
C.....1		49.11.4542	6800 pF	5%, 400V, PC	
C.....2		49.11.4272	2700 pF	5%, 400V, PC	
C.....3		49.11.4682	6800 pF	5%, 400V, PC	
C.....4		49.11.4272	2700 pF	5%, 400V, PC	
C.....5		49.11.5151	150 pF	10%, 12V, EI	
C.....6		49.57.0224	22 pF	20%, 500V, Cer	
C.....7		49.11.4104	0.1 µF	10%, 100V, MPETP	
C.....8		49.22.4474	4.7 µF	10%, 50V, EI	
C.....9		49.22.4474	4.7 µF	10%, 50V, EI	
C.....10		49.22.4479	4.7 µF	10%, 50V, EI	
C.....11		49.22.4109	1 µF	10%, 50V, EI	
C.....12		49.22.4479	4.7 µF	10%, 50V, EI	
C.....13		49.11.3682	6800 pF	5%, 400V, PC	
C.....14		49.22.3476	47 µF	10%, 10V, EI	
C.....15		49.11.5103	0.01 µF	10%, 100V, METP	
C.....16		49.11.4471	470 pF	5%, 400V, PC	
C.....17		49.11.4332	3300 pF	5%, 400V, PC	
C.....18		49.22.3101	100 µF	10%, 12V, EI	
C.....19		49.57.0224	22 pF	20%, 500V, Cer	
C.....20		49.11.4104	0.1 µF	10%, 100V, MPETP	
C.....21		49.22.4474	4.7 µF	10%, 50V, EI	
C.....22		49.22.4109	1 µF	10%, 50V, EI	
C.....23		49.22.4479	4.7 µF	10%, 50V, EI	
C.....24		49.11.3682	6800 pF	5%, 400V, PC	
C.....25		49.22.3476	47 µF	10%, 10V, EI	
C.....26		49.11.5103	0.01 µF	10%, 100V, METP	
C.....27		49.11.4471	470 pF	5%, 400V, PC	
C.....28		49.11.4332	3300 pF	5%, 400V, PC	
L.....1		1.177.231.04			S
L.....2		62.02.3222	2.2 mH	5%	
L.....3		1.177.231.08			S
L.....4		62.02.3222	2.2 mH	5%	
P.....1		44.01.0212	9-Pole	Pin-Strip	AMP
P.....2		44.01.0270	8-Pole	Pin-Strip	AMP

S T U D E R RECORD AMPLIFIER 7.5-15 NAB 1.177.232.81 PAGE 1

INDEX	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
Q.....1		46.03.0439	BC 109 C	NPN	
Q.....2		50.03.0436	BC 107 B	NPN	
Q.....3		50.03.0436	BC 107 B	NPN	
Q.....4		50.03.0436	BC 107 B	NPN	
Q.....5		50.03.0439	BC 109 C	NPN	
Q.....6		50.03.0436	BC 107 B	NPN	
Q.....7		50.03.0436	BC 107 B	NPN	
Q.....8		50.03.0436	BC 107 B	NPN	
R.....1					
R.....2					
R.....3					
R.....4					
R.....5		57.11.4821	820 Ohm	5%, 0.25W, CF	
R.....6		57.11.4332	3.3 kOhm	5%, 0.25W, CF	
R.....7		58.02.4223	22 kOhm	10%, 0.1 W, CF	
R.....8		57.11.4393	39 kOhm	5%, 0.25W, CF	
R.....9		57.11.4104	100 kOhm	5%, 0.25W, CF	
R.....10		57.11.4154	150 kOhm	5%, 0.25W, CF	
R.....11		57.11.4563	56 kOhm	5%, 0.25W, CF	
R.....12		58.02.4223	22 kOhm	10%, 0.1 W, CF	
R.....13		58.02.4223	22 kOhm	10%, 0.1 W, CF	
R.....14		57.11.4102	1 kOhm	5%, 0.25W, CF	
R.....15		57.11.4682	6.8 kOhm	5%, 0.25W, CF	
R.....16		57.11.4681	680 Ohm	5%, 0.25W, CF	
R.....17		57.11.4224	220 kOhm	5%, 0.25W, CF	
R.....18		57.11.4331	330 Ohm	5%, 0.25W, CF	
R.....19		57.11.4102	1 kOhm	5%, 0.25W, CF	
R.....20		57.11.4224	220 kOhm	5%, 0.25W, CF	
R.....21		57.11.4104	100 kOhm	5%, 0.25W, CF	
R.....22		58.02.4223	22 kOhm	10%, 0.1 W, CF	
R.....23		57.11.4393	39 kOhm	5%, 0.25W, CF	
R.....24		57.11.4821	820 Ohm	5%, 0.25W, CF	
R.....25		57.11.4104	100 kOhm	5%, 0.25W, CF	
R.....26		57.11.4332	3.3 kOhm	5%, 0.25W, CF	
R.....27		58.02.4223	22 kOhm	10%, 0.1 W, CF	
R.....28		58.02.4223	22 kOhm	10%, 0.1 W, CF	

S T U D E R RECORD AMPLIFIER 7.5-15 NAB 1.177.232.81 PAGE 2

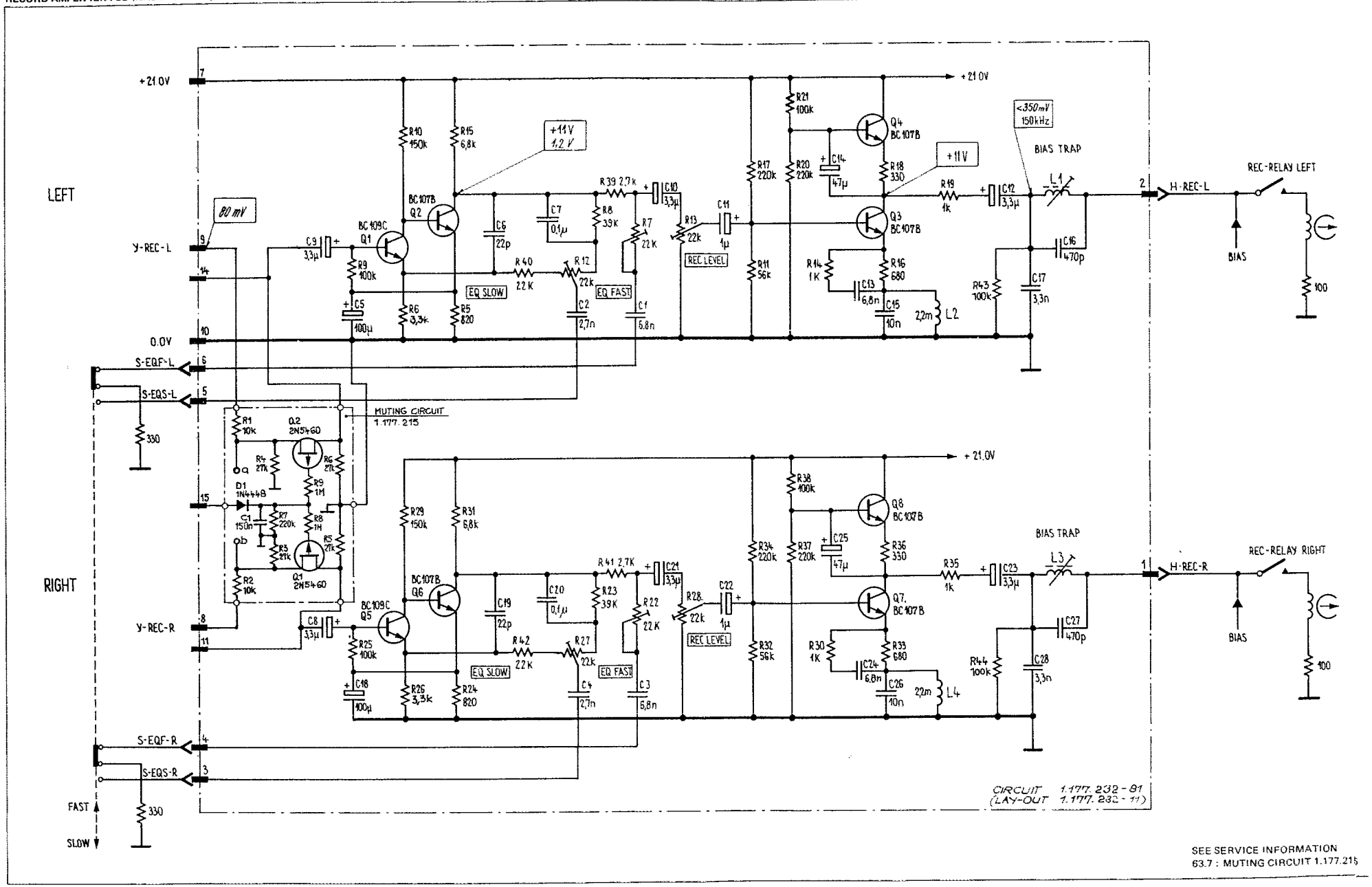
INDEX	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
R.....29		57.11.4154	150 kOhm	5%, 0.25W, CF	
R.....30		57.11.4102	1 kOhm	5%, 0.25W, CF	
R.....31		57.11.4682	6.8 kOhm	5%, 0.25W, CF	
R.....32		57.11.4563	56 kOhm	5%, 0.25W, CF	
R.....33		57.11.4681	680 Ohm	5%, 0.25W, CF	
R.....34		57.11.4224	220 kOhm	5%, 0.25W, CF	
R.....35		57.11.4102	1 kOhm	5%, 0.25W, CF	
R.....36		57.11.4331	330 Ohm	5%, 0.25W, CF	
R.....37		57.11.4224	220 kOhm	5%, 0.25W, CF	
R.....38		57.11.4104	100 kOhm	5%, 0.25W, CF	
R.....39		57.11.4272	2.7 kOhm	5%, 0.25W, CF	
R.....40		57.11.4223	22 kOhm	5%, 0.25W, CF	
R.....41		57.11.4272	2.7 kOhm	5%, 0.25W, CF	
R.....42		57.11.4223	22 kOhm	5%, 0.25W, CF	
R.....43		57.11.4104	100 kOhm	5%, 0.25W, CF	
R.....44		57.11.4104	100 kOhm	5%, 0.25W, CF	

INDEX	POS.NO.	PART NO.	VALUE	SPECIFICATIONS/EQUIVALENT	NPR.
3	C1	59.34.4154	150nF		
	D1	50.04.0125	15mA	Si	
	T1	50.03.0227	BPX	CTS	
	T2	50.03.0231	BPX	CTS	
	T1	50.03.0310	2N5551	PHW Ref	
	T2	50.03.0312	2N5960	PCW Ref	
2	R1	57.11.4103	10k		
2	R2	57.11.4103	10k		
	R3	57.11.4223	22k		
	R4	57.11.4223	22k		
	R5	57.11.4223	22k		
	R6	57.11.4223	22k		
	R7	57.11.4224	220k		
1	R8	57.11.4105	1M		
1	R9	57.11.4105	1M		

INDEX	DATE	NAME
4		
3	1.1.81	Haughton
2	28.1.81	Haughton
1	16.1.81	Gantner
0	8.12.80	Gantner

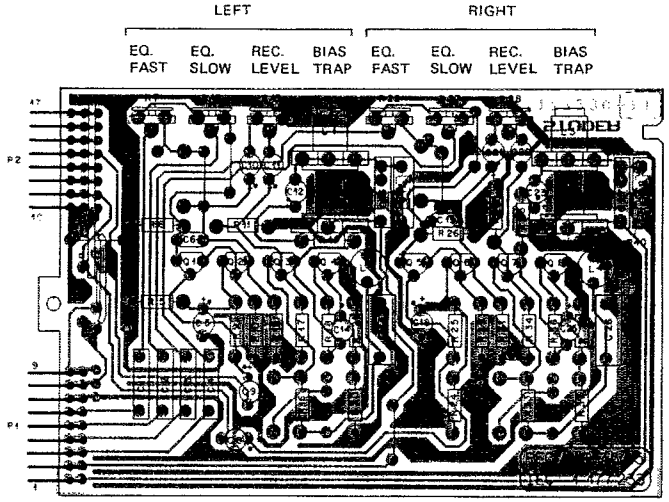
STUDER Wiring Circuit PL 1.177.245-00 PAGE 1 OF 1

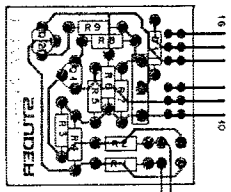
RECORD AMPLIFIER PCB (NAB 7 1/2 - 15 ips) 1.177.232–81

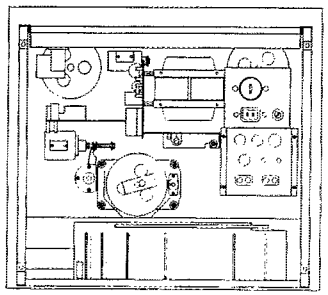


SEE SERVICE INFORMATION
63.7 : MUTING CIRCUIT 1.177.215

RECORD AMPLIFIER PCB (IEC 7 1/2 - 15 ips) 1.177.233–81







IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	C1	59.31.4272	2700 pF	5%, 400V, PC	
	C2	59.31.4272	2700 pF	5%, 400V, PC	
	C3	59.31.4272	2700 pF	5%, 400V, PC	
	C4	59.31.4272	2700 pF	5%, 400V, PC	
	C5	59.22.4470	100 pF	10%, 12V, E1	
	C6	59.32.0220	22 pF	20%, 400V, Cer	
	C7				
	C8	59.22.4479	4.7 uF	10%, 50V, E1	
	C9	59.22.4479	4.7 uF	10%, 50V, E1	
	C10	59.22.4479	4.7 uF	10%, 50V, E1	
	C11	59.22.4109	1 uF	10%, 50V, E1	
	C12	59.22.4479	4.7 uF	10%, 50V, E1	
	C13				
	C14	59.22.3470	47 uF	10%, 10V, E1	
	C15	59.31.6103	0.01 uF	10%, 100V, METP	
	C16	59.31.4471	470 pF	5%, 400V, PC	
	C17	59.31.6332	3300 pF	5%, 400V, PC	
	C18	59.22.3101	100 uF	10%, 12V, E1	
	C19	59.32.0220	22 pF	20%, 500V, Cer	
	C20				
	C21	59.22.4479	4.7 uF	10%, 50V, E1	
	C22	59.22.4109	1 uF	10%, 50V, E1	
	C23	59.22.4479	4.7 uF	10%, 50V, E1	
	C24				
	C25	59.22.3470	47 uF	10%, 10V, E1	
	C26	59.31.6103	0.01 uF	10%, 100V, METP	
	C27	59.31.4471	470 pF	5%, 400V, PC	
	C28	59.31.6322	3300 pF	5%, 400V, PC	
	L1	1.177.231.00			S
	L2	62.02.1212	2.2 mH	5%	
	L3	1.177.231.00			S
	L4	62.02.1212	2.2 mH	5%	
	P1	54.01.0270	9-Pole	Pin-Strip	AMP
	P2	54.01.0270	8-Pole	Pin-Strip	AMP

S T L B E M 82/11/30 MW RECORD AMPLIFIER 7.5-15 CCIR 1.177.233.81 PAGE 1

IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	Q1	50.03.0439	BC 109 C	NPN	
	Q2	50.03.0436	BC 107 B	NPN	
	Q3	50.03.0436	BC 107 B	NPN	
	Q4	50.03.0436	BC 107 B	NPN	
	Q5	50.03.0439	BC 109 C	NPN	
	Q6	50.03.0436	BC 107 B	NPN	
	Q7	50.03.0436	BC 107 B	NPN	
	Q8	50.03.0436	BC 107 B	NPN	
	R1				
	R2				
	R3				
	R4				
	R5	57.11.4821	820 Ohm	5%, 0.25W, CF	
	R6	57.11.4152	1.5 kOhm	5%, 0.25W, CF	
	R7	58.02.4223	22 kOhm	10%, 0.1 W, CF	
	R8				
	R9	57.11.4104	100 kOhm	5%, 0.25W, CF	
	R10	57.11.4154	150 kOhm	5%, 0.25W, CF	
	R11	57.11.4563	56 kOhm	5%, 0.25W, CF	
	R12	58.02.4223	22 kOhm	10%, 0.1 W, CF	
	R13	58.02.4223	22 kOhm	10%, 0.1 W, CF	
	R14				
	R15	57.11.4682	6.8 kOhm	5%, 0.25W, CF	
	R16	57.11.4681	680 Ohm	5%, 0.25W, CF	
	R17	57.11.4224	220 kOhm	5%, 0.25W, CF	
	R18	57.11.4331	330 Ohm	5%, 0.25W, CF	
	R19	57.11.4107	1 kOhm	5%, 0.25W, CF	
	R20	57.11.4224	220 kOhm	5%, 0.25W, CF	
	R21	57.11.4104	100 kOhm	5%, 0.25W, CF	
	R22	58.02.4223	22 kOhm	10%, 0.1 W, CF	
	R23				
	R24	57.11.4821	820 Ohm	5%, 0.25W, CF	
	R25	57.11.4104	100 kOhm	5%, 0.25W, CF	
	R26	57.11.4152	1.5 kOhm	5%, 0.25W, CF	
	R27	58.02.4223	22 kOhm	10%, 0.1 W, CF	
	R28	58.02.4223	22 kOhm	10%, 0.1 W, CF	

S T L B E M 82/11/30 MW RECORD AMPLIFIER 7.5-15 CCIR 1.177.233.81 PAGE 2

IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	R29	57.11.4154	150 kOhm	5%, 0.25W, CF	
	R30				
	R31	57.11.4682	6.8 kOhm	5%, 0.25W, CF	
	R32	57.11.4563	56 kOhm	5%, 0.25W, CF	
	R33	57.11.4681	680 Ohm	5%, 0.25W, CF	
	R34	57.11.4224	220 kOhm	5%, 0.25W, CF	
	R35	57.11.4107	1 kOhm	5%, 0.25W, CF	
	R36	57.11.4331	330 Ohm	5%, 0.25W, CF	
	R37	57.11.4224	220 kOhm	5%, 0.25W, CF	
	R38	57.11.4104	100 kOhm	5%, 0.25W, CF	
	R39	57.11.4104	100 kOhm	5%, 0.25W, CF	
	R40	57.11.4104	100 kOhm	5%, 0.25W, CF	

Elektrolytics CeramCeramics, PC=Polycarbonate, MPETP=Metallized Polyester
PETP=Polyester
Manufacturer: S=STLDEM

PRIN 82/02/08 ÄÖ21 83/12/23

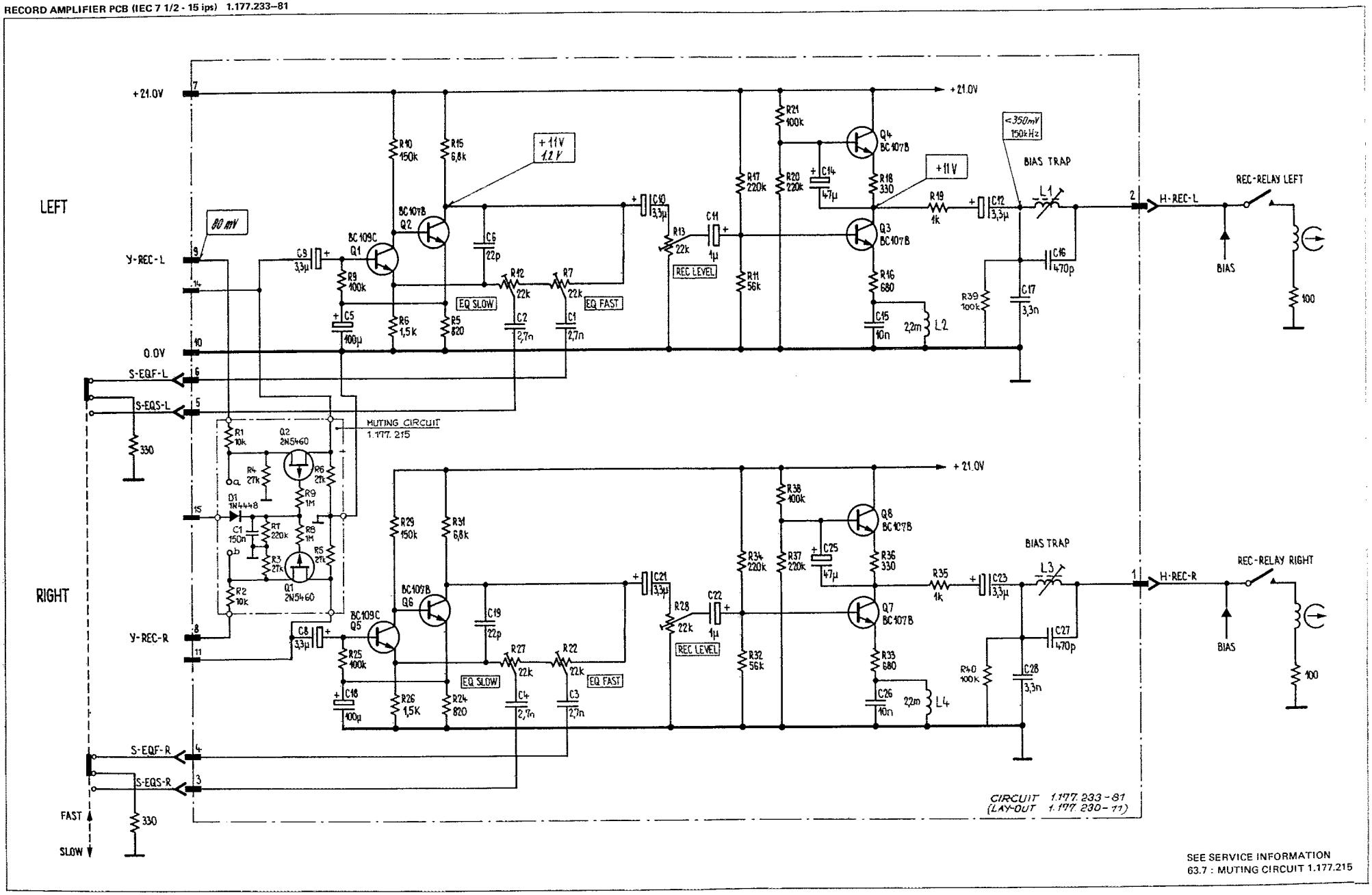
S T L D E M 83/12/05 MW RECORD AMPLIFIER 7.5-15 CCIR 1.177.233.81 PAGE 1

IND.	POS NO	PART NO	VALUE	SPECIFICATIONS/EQUIVALENT	MFR
3	C4	59.31.4154	150nF		
	R1	50.04.0125	1N4148	D	
	T1	50.04.0227	3.4kl	CCS	
	T2	50.04.0227	3.4kl	CCS	
	Q1	50.03.0312	2N5840	PCK Ref	
	Q2	50.03.0312	2N5840	PCK Ref	
2	R1	57.11.4103	10k		
2	R2	57.11.4103	10k		
	R3	57.11.4273	27k		
	R4	57.11.4273	27k		
	R5	57.11.4273	27k		
	R6	57.11.4273	27k		
	R7	57.11.4224	220k		
3	R8	57.11.4105	1M		
3	R9	57.11.4105	1M		

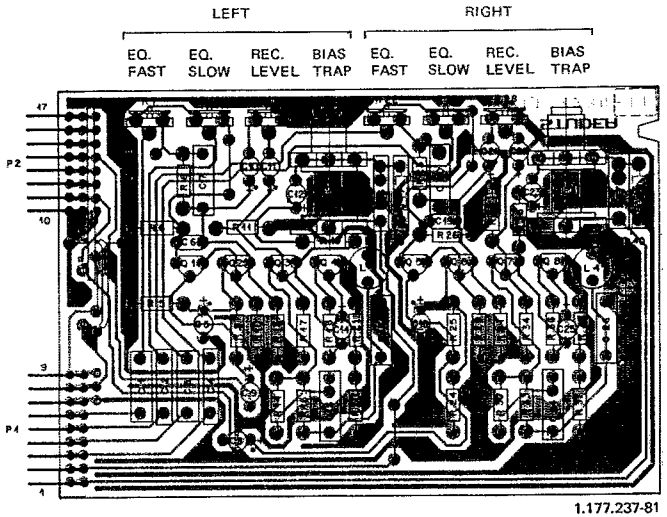
IND	DATE	NAME
4		
3	1.3.81	Wuthrich
2	28.1.81	Wuthrich
1	14.1.81	Spuhler
	18.12.80	Spuhler

STUDER	Mixing Circuit	PL	1.177.245-00	PAGE 1 of 1

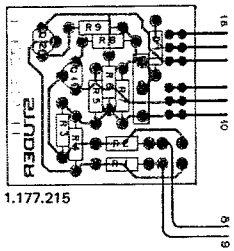
RECORD AMPLIFIER PCB (IEC 7 1/2 - 15 ips) 1.177.233–81



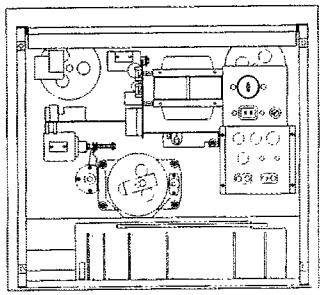
RECORD AMPLIFIER PCB (NAB 1 7/8 – 3 3/4 ips) 1.177.237–81



1.177.237-81



1.177.215



IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	C.....1	59.11.4272	2700 pF	5% 400V. PC	
	C.....2	59.11.4272	4700 pF	2.5% PC	
	C.....3	59.11.4272	2700 pF	5% 400V. PC	
	C.....4	59.11.4272	4700 pF	2.5% PC	
	C.....5	59.22.3101	100 uF	10% 35V. EI	
	C.....6	59.32.0220	22 pF	20% 500V. Cer	
	C.....7	59.31.8104	0.1 uF	10% 100V. MPETP	
	C.....8	59.22.8473	4.7 uF	10% 50V. EI	
	C.....9	59.22.8479	4.7 uF	10% 50V. EI	
	C.....10	59.22.8479	4.7 uF	10% 50V. EI	
	C.....11	59.22.8109	3 uF	10% 50V. EI	
	C.....12	59.22.8479	4.7 uF	10% 50V. EI	
	C.....13	59.11.5103	0.01uF	10% 160V. PETP	
	C.....14	59.22.3470	47 uF	10% 10V. EI	
	C.....15	59.11.5103	0.01 uF	5% 160V. PETP	
	C.....16	59.11.6471	470 pF	5% 400V. PC	
	C.....17	59.11.6332	3300 pF	5% 400V. PC	
	C.....18	59.22.3101	100 uF	10% 12V. EI	
	C.....19	59.32.0220	22 pF	20% 500V. Cer	
	C.....20	59.31.8104	0.1 uF	10% 100V. MPETP	
	C.....21	59.22.8479	4.7 uF	10% 50V. EI	
	C.....22	59.22.8109	1 uF	10% 50V. EI	
	C.....23	59.22.8479	4.7 uF	10% 50V. EI	
	C.....24	59.11.5103	0.01 uF	10% 160V. PETP	
	C.....25	59.22.3470	47 uF	10% 10V. EI	
	C.....26	59.11.5103	0.01 uF	5% 160V. PETP	
	C.....27	59.11.6471	470 pF	5% 400V. PC	
	C.....28	59.11.6332	3300 pF	5% 400V. PC	
	C.....1	1.177.231.00			5
	L.....2	62.02.1272	2.2 mH	5%	
	C.....3	1.177.231.00			5
	L.....4	62.02.1272	2.2 mH	5%	
	P.....1	54.01.0220	9-Pole	Pin-Strip	AMP
	P.....2	54.01.0270	8-Pole	Pin-Strip	AMP

S T U D E R 82/11/30 RW RECORD AMPLIFIER 4.75/9.5 1.177.237.81 PAGE 1

IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	Q.....1	56.03.0438	BC 109 C	NPN	
	Q.....2	56.03.0436	BC 107 B	NPN	
	Q.....3	56.03.0436	BC 107 B	NPN	
	Q.....4	56.03.0436	BC 107 B	NPN	
	Q.....5	56.03.0438	BC 109 C	NPN	
	Q.....6	56.03.0436	BC 107 B	NPN	
	Q.....7	56.03.0436	BC 107 B	NPN	
	Q.....8	56.03.0436	BC 107 B	NPN	
	R.....1				
	R.....2				
	R.....3				
	R.....4				
	R.....5	57.11.4821	820 Ohm	5% 0.25W. CF	
	R.....6	57.11.4222	2.2 kOhm	5% 0.25W. CF	
	R.....7	58.02.4223	22 kOhm	10% 0.1 W. CF	
	R.....8	57.11.4473	47 kOhm	5% 0.25W. CF	
	R.....9	57.11.4104	100 kOhm	5% 0.25W. CF	
	R.....10	57.11.4154	150 kOhm	5% 0.25W. CF	
	R.....11	57.11.4563	56 kOhm	5% 0.25W. CF	
	R.....12	58.02.4223	22 kOhm	10% 0.1 W. CF	
	R.....13	58.02.4223	22 kOhm	10% 0.1 W. CF	
	R.....14	57.11.4102	1 kOhm	5% 0.25W. CF	
	R.....15	57.11.4682	6.8 kOhm	5% 0.25W. CF	
	R.....16	57.11.4681	680 Ohm	5% 0.25W. CF	
	R.....17	57.11.4224	220 kOhm	5% 0.25W. CF	
	R.....18	57.11.4331	330 Ohm	5% 0.25W. CF	
	R.....19	57.11.4102	1 kOhm	5% 0.25W. CF	
	R.....20	57.11.4224	220 kOhm	5% 0.25W. CF	
	R.....21	57.11.4104	100 kOhm	5% 0.25W. CF	
	R.....22	58.02.4223	22 kOhm	10% 0.1 W. CF	
	R.....23	57.11.4473	47 kOhm	5% 0.25W. CF	
	R.....24	57.11.4821	820 Ohm	5% 0.25W. CF	
	R.....25	57.11.4104	100 kOhm	5% 0.25W. CF	
	R.....26	57.11.4222	2.2 kOhm	5% 0.25W. CF	
	R.....27	58.02.4223	22 kOhm	10% 0.1 W. CF	
	R.....28	58.02.4223	22 kOhm	10% 0.1 W. CF	

S T U D E R 82/11/30 RW RECORD AMPLIFIER 4.75/9.5 1.177.237.81 PAGE 2

IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	R.....29	57.11.4154	150 kOhm	5% 0.25W. CF	
	R.....30	57.11.4102	1 kOhm	5% 0.25W. CF	
	R.....31	57.11.4682	6.8 kOhm	5% 0.25W. CF	
	R.....32	57.11.4563	56 kOhm	5% 0.25W. CF	
	R.....33	57.11.4681	680 Ohm	5% 0.25W. CF	
	R.....34	57.11.4224	220 kOhm	5% 0.25W. CF	
	R.....35	57.11.4102	1 kOhm	5% 0.25W. CF	
	R.....36	57.11.4331	330 Ohm	5% 0.25W. CF	
	R.....37	57.11.4224	220 kOhm	5% 0.25W. CF	
	R.....38	57.11.4104	100 kOhm	5% 0.25W. CF	
	R.....39	57.11.4104	100 kOhm	5% 0.25W. CF	
	R.....40	57.11.4104	100 kOhm	5% 0.25W. CF	

Kondensatoren: Tantalum, Keramik, PC, Polycarbonat, MPETP, MPETP, Polyester, Polyester
Manufacturer: S-STUDER

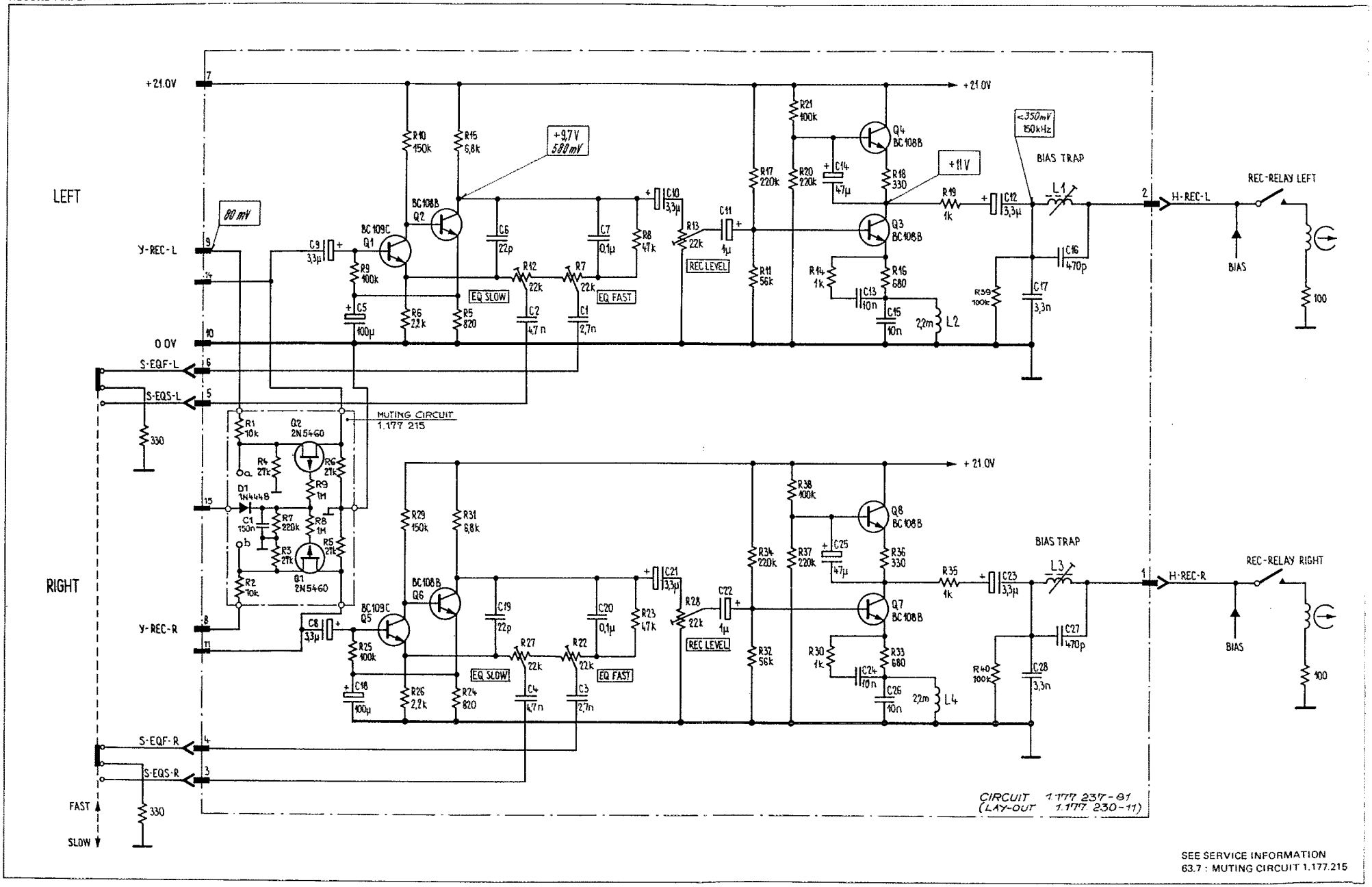
S T U D E R 82/11/30 RW RECORD AMPLIFIER 4.75/9.5 1.177.237.81 PAGE 3

IND.	POS NO.	PART NO	VALUE	SPECIFICATIONS/EQUIVALENT	MFR
3	C.1	59.11.4154	150nF		
	D.1	50.04.0120	1N4148		
	T.1	54.01.0227	3.7kΩ	2.5%	
	T.2	54.01.0227	3.7kΩ	2.5%	
	J.1	50.03.03.12	2.85-50	PCM Fet	
	J.2	50.03.03.12	2.85-40	PCM Fet	
3	R.1	57.11.4103	10k		
3	R.2	57.11.4103	10k		
	R.3	57.11.4273	27k		
	R.4	57.11.4273	27k		
	R.5	57.11.4273	27k		
	R.6	57.11.4273	27k		
	R.7	57.11.4204	200k		
3	R.8	57.11.4105	1M		
3	R.9	57.11.4105	1M		

IND.	DATE	NAME
4		
3	11.3.81	Wasthuth
2	28.1.81	Wasthuth
1	14.1.81	Sommer
0	18.12.80	Sommer

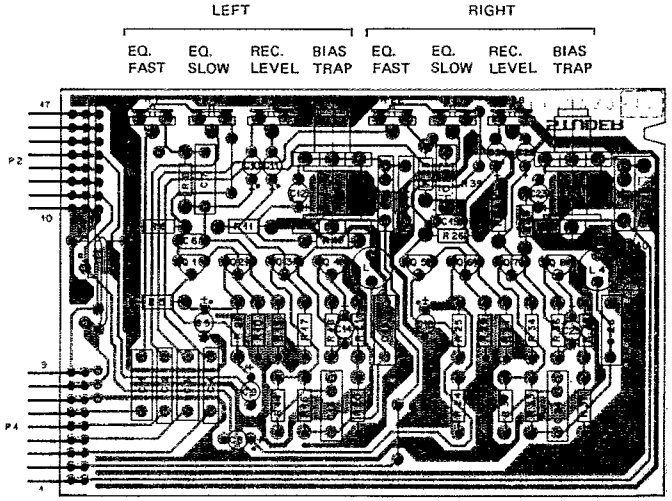
STUDER | Mixing Circuit | PL 1.177.245-00 | PAGE 1 of 1

RECORD AMPLIFIER PCB (NAB 1 7/8 – 3 3/4 ips) 1.177.237–81

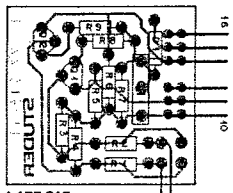


SEE SERVICE INFORMATION
63.7 : MUTING CIRCUIT 1.177.215

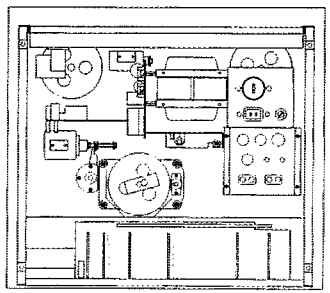
RECORD AMPLIFIER PCB (NAB 15/16 - 1 7/8 ips) 1.177.238–81



1.177.238-81



1.177.215



INC.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	C.....1	59.11.4101	0.01 uF	±5%, 160V, PC	
	C.....2	59.11.4101	0.01uF	5%, 160V, MPETP	
	C.....3	59.11.4101	0.01 uF	2.5%, 160V, PP	
	C.....4	59.11.4473	0.015uF	5%, 250V, MPETP	
	C.....5	59.22.4101	100 uF	10%, 12V, EI	
	C.....6	59.12.4220	22 pF	20%, 500V, Cer	
	C.....7	59.11.4104	0.1 uF	10%, 100V, MPETP	
	C.....8	59.22.4479	4.7 uF	10%, 50V, EI	
	C.....9	59.22.4479	4.7 uF	10%, 50V, EI	
	C.....10	59.22.4479	4.7 uF	10%, 50V, EI	
	C.....11	59.22.4109	1 uF	10%, 50V, EI	
	C.....12	59.22.4479	4.7 uF	10%, 50V, EI	
	C.....13	59.11.4103	0.01uF	10%, 160V, PETP	
	C.....14	59.22.4479	47 uF	10%, 10V, EI	
	C.....15	59.11.4101	0.01 uF	10%, 100V, PETP	
	C.....16	59.11.4471	470 uF	5%, 400V, PC	
	C.....17	59.11.4332	3300 pF	5%, 400V, PC	
	C.....18	59.22.4101	100 uF	10%, 12V, EI	
	C.....19	59.12.4220	22 pF	20%, 500V, Cer	
	C.....20	59.11.4104	0.1 uF	10%, 100V, MPETP	
	C.....21	59.22.4479	4.7 uF	10%, 50V, EI	
	C.....22	59.22.4109	1 uF	10%, 50V, EI	
	C.....23	59.22.4479	4.7 uF	10%, 50V, EI	
	C.....24	59.11.4102	0.01 uF	2.5%, 160V, PC	
	C.....25	59.22.4479	47 uF	10%, 10V, EI	
	C.....26	59.11.4103	0.01 uF	10%, 100V, PETP	
	C.....27	59.11.4471	470 uF	5%, 400V, PC	
	C.....28	59.11.4332	3300 pF	5%, 400V, PC	
	L.....1	1.177.231.00			1
	L.....2	42.02.1222	2.2 mH	5%	
	L.....3	1.177.231.00			3
	L.....4	42.02.1222	2.2 mH	5%	
	P.....1	54.01.0272	9-Pole	Pin-Strip	AMP
	P.....2	54.01.0196	8-Pole	Pin-Strip	AMP

S T U D E R 82/11/30 RW RECORD AMPLIFIER 2.38/4.75 1.177.238.81 PAGE 1

INC.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	Q.....1	50.03.0439	BC 109 L	NPN	
	Q.....2	50.03.0436	BC 107 B	NPN	
	Q.....3	50.03.0436	BC 107 B	NPN	
	Q.....4	50.03.0436	BC 107 B	NPN	
	Q.....5	50.03.0439	BC 109 C	NPN	
	Q.....6	50.03.0436	BC 107 B	NPN	
	Q.....7	50.03.0436	BC 107 B	NPN	
	Q.....8	50.03.0436	BC 107 B	NPN	
	R.....1				
	R.....2				
	R.....3				
	R.....4				
	R.....5	57.11.4821	820 Ohm	5%, 0.25W, CF	
	R.....6	57.11.4332	3.3 kOhm	5%, 0.25W, CF	
	R.....7	58.02.4223	22 kOhm	10%, 0.1 W, CF	
	R.....8	57.11.4563	56 kOhm	5%, 0.25W, CF	
	R.....9	57.11.4104	100 kOhm	5%, 0.25W, CF	
	R.....10	57.11.4154	150 kOhm	5%, 0.25W, CF	
	R.....11	57.11.4563	56 kOhm	5%, 0.25W, CF	
	R.....12	58.02.4223	22 kOhm	10%, 0.1 W, CF	
	R.....13	58.02.4223	22 kOhm	10%, 0.1 W, CF	
	R.....14	57.11.4681	680 Ohm	5%, 0.25W, CF	
	R.....15	57.11.4682	6.8 kOhm	5%, 0.25W, CF	
	R.....16	57.11.4681	680 Ohm	5%, 0.25W, CF	
	R.....17	57.11.4224	220 kOhm	5%, 0.25W, CF	
	R.....18	57.11.4331	330 Ohm	5%, 0.25W, CF	
	R.....19	57.11.4102	1 kOhm	5%, 0.25W, CF	
	R.....20	57.11.4224	220 kOhm	5%, 0.25W, CF	
	R.....21	57.11.4104	100 kOhm	5%, 0.25W, CF	
	R.....22	58.02.4223	22 kOhm	10%, 0.1 W, CF	
	R.....23	57.11.4563	56 kOhm	5%, 0.25W, CF	
	R.....24	57.11.4821	820 Ohm	5%, 0.25W, CF	
	R.....25	57.11.4104	100 kOhm	5%, 0.25W, CF	
	R.....26	57.11.4332	3.3 kOhm	5%, 0.25W, CF	
	R.....27	58.02.4223	22 kOhm	10%, 0.1 W, CF	
	R.....28	58.02.4223	22 kOhm	10%, 0.1 W, CF	

S T U D E R 82/11/30 RW RECORD AMPLIFIER 2.38/4.75 1.177.238.81 PAGE 2

INC.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	R.....29	57.11.4154	150 kOhm	5%, 0.25W, CF	
	R.....30	57.11.4681	680 Ohm	5%, 0.25W, CF	
	R.....31	57.11.4682	6.8 kOhm	5%, 0.25W, CF	
	R.....32	57.11.4563	56 kOhm	5%, 0.25W, CF	
	R.....33	57.11.4681	680 Ohm	5%, 0.25W, CF	
	R.....34	57.11.4224	220 kOhm	5%, 0.25W, CF	
	R.....35	57.11.4102	1 kOhm	5%, 0.25W, CF	
	R.....36	57.11.4331	330 Ohm	5%, 0.25W, CF	
	R.....37	57.11.4224	220 kOhm	5%, 0.25W, CF	
	R.....38	57.11.4104	100 kOhm	5%, 0.25W, CF	
	R.....39	57.11.4104	100 kOhm	5%, 0.25W, CF	
	R.....40	57.11.4104	100 kOhm	5%, 0.25W, CF	

Electrolytics, Ceramics, Prototypes: MPETP=Metallized Polyester
PETP=Polyester
Resistors: S.STUDER

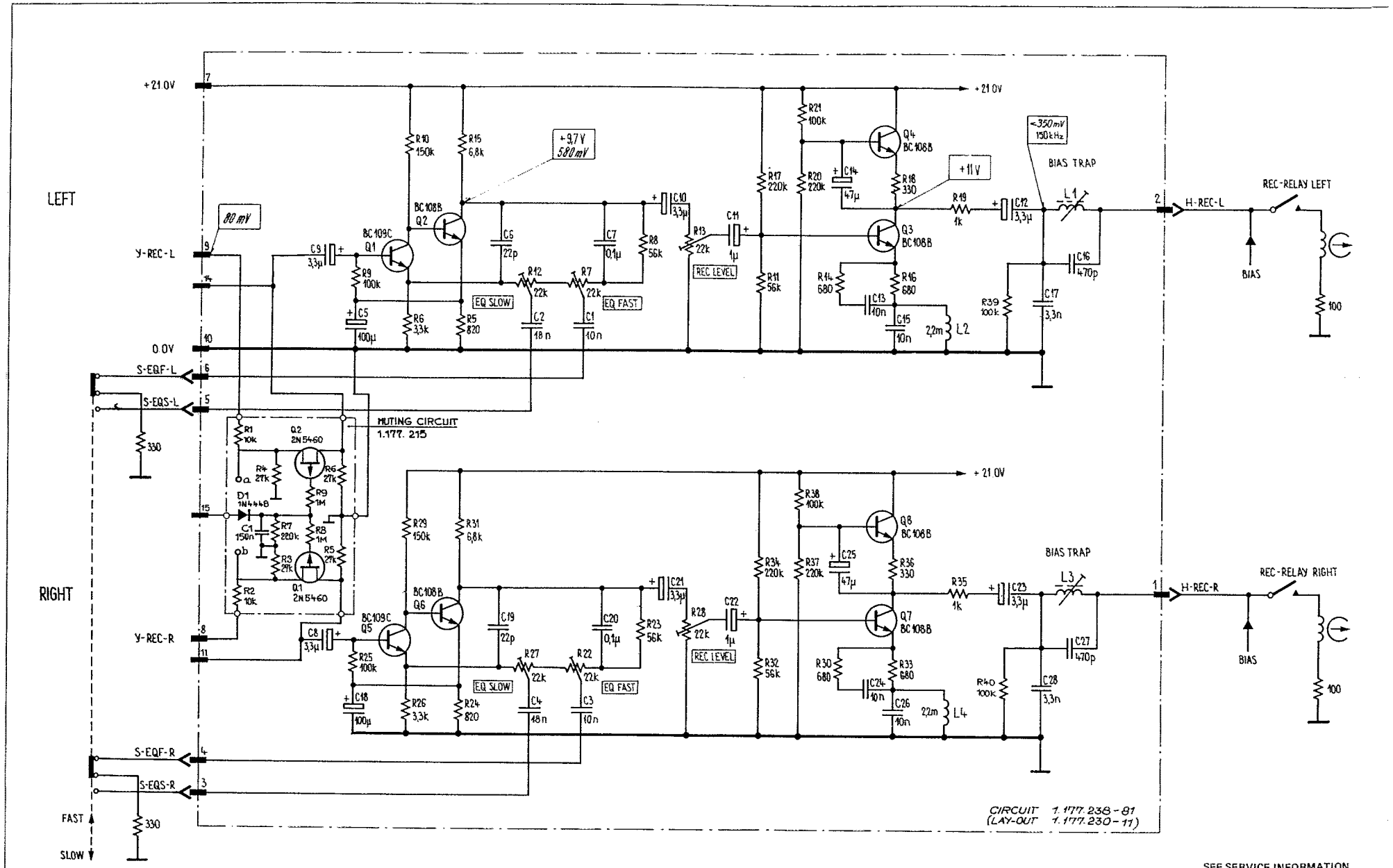
S T U D E R 82/11/30 RW RECORD AMPLIFIER 2.38/4.75 1.177.238.81 PAGE 3

INC.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS/EQUIVALENT	MFR.
3	C1	59.11.4154	150nF		
	D1	50.04.0125	1N4148		
	T1	50.01.0227	3.961	CTS	
	T2	50.01.0227	3.961	CTS	
	J1	50.03.0312	2.N5460	PCH Fet	
	J2	50.03.0312	2.N5460	PCH Fet	
3	R1	59.11.4103	10k		
3	R2	59.11.4103	10k		
	R3	59.11.4223	22k		
	R4	59.11.4223	22k		
	R5	59.11.4223	22k		
	R6	59.11.4273	27k		
	R7	59.11.4224	220k		
3	R8	59.11.4105	1.M		
3	R9	59.11.4105	1.M		

INDI	DATE	NAME
4		
3	11.3.81	Wagthein
2	28.1.81	Wagthein
1	14.1.81	Sommer
0	18.12.80	Sommer

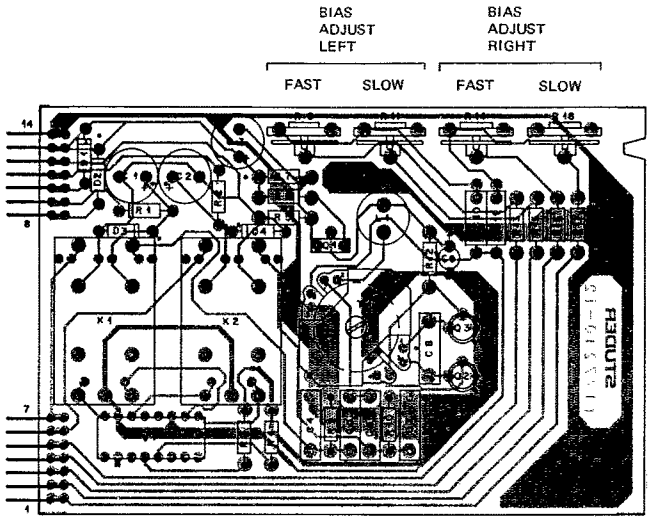
STUDER	Plating Circuit	PL	1.177.245-00	PAGE 1 OF 1

RECORD AMPLIFIER PCB (NAB 15/16 - 1 7/8 ips) 1.177.238-81

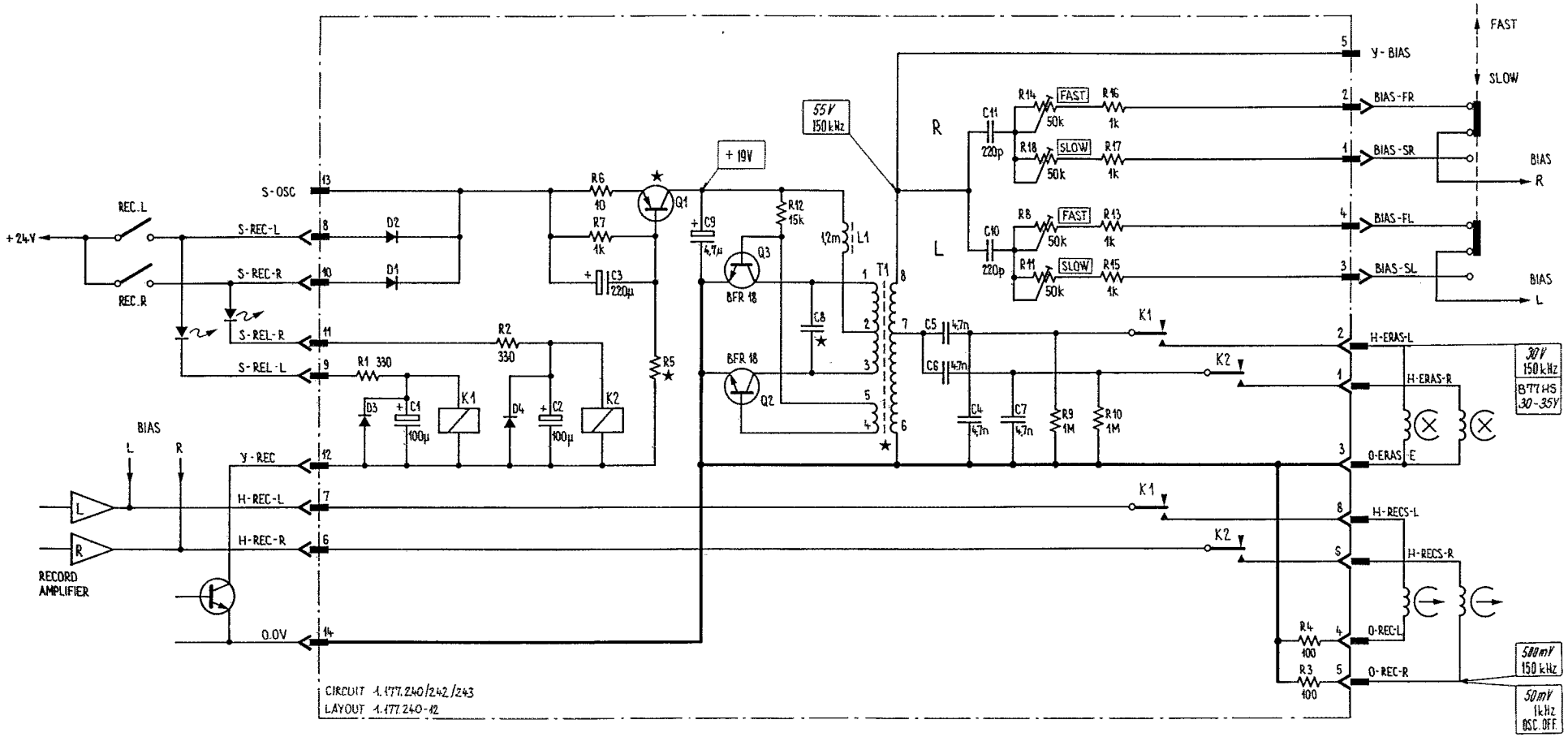


SEE SERVICE INFORMATION
63.7 : MUTING CIRCUIT 1.177.215

OSCILLATOR PCB 4 TRACK 1.177.240 / 2 TRACK 1.177.243



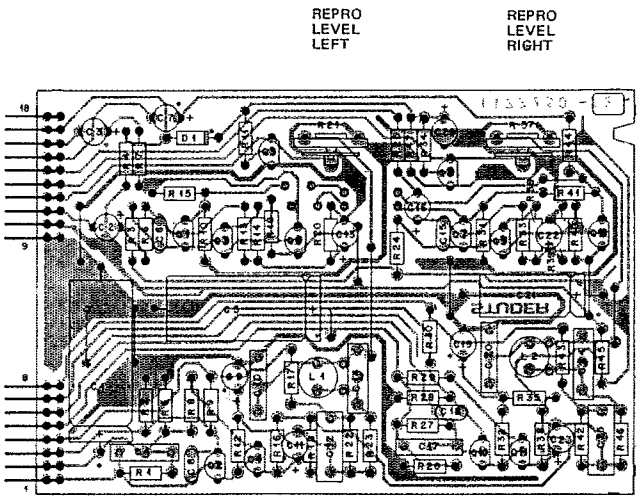
OSCILLATOR PCB 4 TRACK 1.177.240 / 2 TRACK 1.177.243

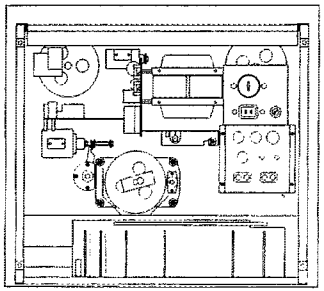


1.177.242: VALID ONLY FOR EARLIER VERSIONS B77 HS
T1 = 1.022.192.00 C8 = 8200p

★ VALUES SEE CORRESPONDING POSITION LIST

REPRODUCE AMPLIFIER PCB (NAB 3 3/4 - 7 1/2 ips) 1.177.250--81





IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	C.....1	59.25.0162	1600 uF	10%. 3V. El	
	C.....2	59.22.8478	4.7 uF	10%. 50V. El	
	C.....3	59.22.6220	22 uF	10%. 40V. El	
	C.....4	59.31.6221	220 pF	5%. 400V. PC	
	C.....5	59.25.0162	1600 uF	10%. 3V. El	
	C.....6	59.32.0101	100 pF	20%. 500V. Cer	
	C.....7	59.22.6220	22 uF	10%. 40V. El	
	C.....8	59.32.0101	100 pF	20%. 500V. Cer	
	C.....9	59.22.8478	4.7 uF	10%. 50V. El	
	C.....10	59.49.6294	2700 pF	10%. 50V. PETP	
	C.....11	59.22.8479	4.7 uF	10%. 50V. El	
	C.....12	59.33.3183	0.01 uF	5%. 160V. PC	
	C.....13	59.22.3101	100 uF	10%. 10V. El	
	C.....14	59.31.6561	560 pF	5%. 400V. PC	
	C.....15	59.32.0101	100 pF	20%. 500V. Cer	
	C.....16	59.22.8479	4.7 uF	10%. 50V. El	
	C.....17	59.31.6221	220 pF	5%. 400V. PC	
	C.....18	59.32.0101	100 pF	20%. 500V. Cer	
	C.....19	59.22.8479	4.7 uF	10%. 50V. El	
	C.....20	59.49.6259	2700 pF	10%. 400V. PETP	
	C.....21	59.25.4101	100 uF	10%. 25V. El	
	C.....22	59.22.3101	100 uF	10%. 10V. El	
	C.....23	59.22.8479	4.7 uF	10%. 50V. El	
	C.....24	59.31.6561	560 pF	5%. 400V. PC	
	C.....25	59.33.3101	0.01 uF	5%. 160V. PC	
	C.....26	59.36.5539	3.3 uF	20%. 35V. TA	
	D.....1	50.04.0125	IN 4448		
	L.....1	62.02.1222	2.2 mH	5%	
	L.....2	62.02.1222	2.2 mH	5%	
	P.....1	54.01.0270	8-Pole	Pin-Strip	AMP
	P.....2	54.01.0271	10-Pole	Pin-Strip	AMP
	Q.....1	50.03.0439	BC 109 C	NPN	
	Q.....2	50.03.0407	BC 109 C	TO18. NPN	ANY

S T U D E R 82/07/06 RW REPRODUCE-AMPLIFIER 1.177.250.81 PAGE 1

IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	Q.....3	50.03.0436	BC 107 B	NPN	
	Q.....4	50.03.0407	BC 109 C	TO18. NPN	
	Q.....5	50.03.0436	BC 107 B	NPN	
	Q.....6	50.03.0436	BC 107 B	NPN	
	Q.....7	50.03.0439	BC 109 C	NPN	
	Q.....8	50.03.0436	BC 107 B	NPN	
	Q.....9	50.03.0436	BC 107 B	NPN	
	Q.....10	50.03.0407	BC 109 C	TO18. NPN	
	Q.....11	50.03.0407	BC 109 C	TO18. NPN	
	Q.....12	50.03.0436	BC 107 B	NPN	
	R.....1	57.11.4224	220 kOhm	5%. 0.25W. CF	
	R.....2	57.11.4331	330 Ohm	5%. 0.25W. CF	
	R.....3	57.11.4154	150 kOhm	5%. 0.25W. CF	
	R.....4	57.11.4682	6.8 kOhm	5%. 0.25W. CF	
	R.....5	57.11.4102	1 kOhm	5%. 0.25W. CF	
	R.....6	57.11.4107	1 Ohm	5%. 0.25W. CF	
	R.....7	57.11.4391	390 Ohm	5%. 0.25W. CF	
	R.....8	57.11.4680	68 Ohm	5%. 0.25W. CF	
	R.....9	57.11.4392	3.9 kOhm	5%. 0.25W. CF	
	R.....10	57.11.4470	47 Ohm	5%. 0.25W. CF	
	R.....11	57.11.4123	12 kOhm	5%. 0.25W. CF	
	R.....12	57.11.4184	180 kOhm	5%. 0.25W. CF	
	R.....13	57.11.4154	150 kOhm	5%. 0.25W. CF	
	R.....14	57.11.4680	68 Ohm	5%. 0.25W. CF	
	R.....15	57.11.4102	1 kOhm	5%. 0.25W. CF	
	R.....16	57.11.4123	12 kOhm	5%. 0.25W. CF	
	R.....17	57.11.4472	4.7 kOhm	5%. 0.25W. CF	
	R.....18	57.11.4184	180 kOhm	5%. 0.25W. CF	
	R.....19	57.11.4153	15 kOhm	5%. 0.25W. CF	
	R.....20	57.11.4182	1.8 kOhm	5%. 0.25W. CF	
	R.....21	58.19.6203	20 kOhm	20%. 0.15W. PCF. lin	
	R.....22	57.11.4334	330 kOhm	5%. 0.25W. CF	
	R.....23	57.11.4102	1 kOhm	5%. 0.25W. CF	
	R.....24	57.11.4154	150 kOhm	5%. 0.25W. CF	
	R.....25	57.11.4102	1 kOhm	5%. 0.25W. CF	
	R.....26	57.11.4102	1 kOhm	5%. 0.25W. CF	

S T U D E R 82/07/06 RW REPRODUCE-AMPLIFIER 1.177.250.81 PAGE 2

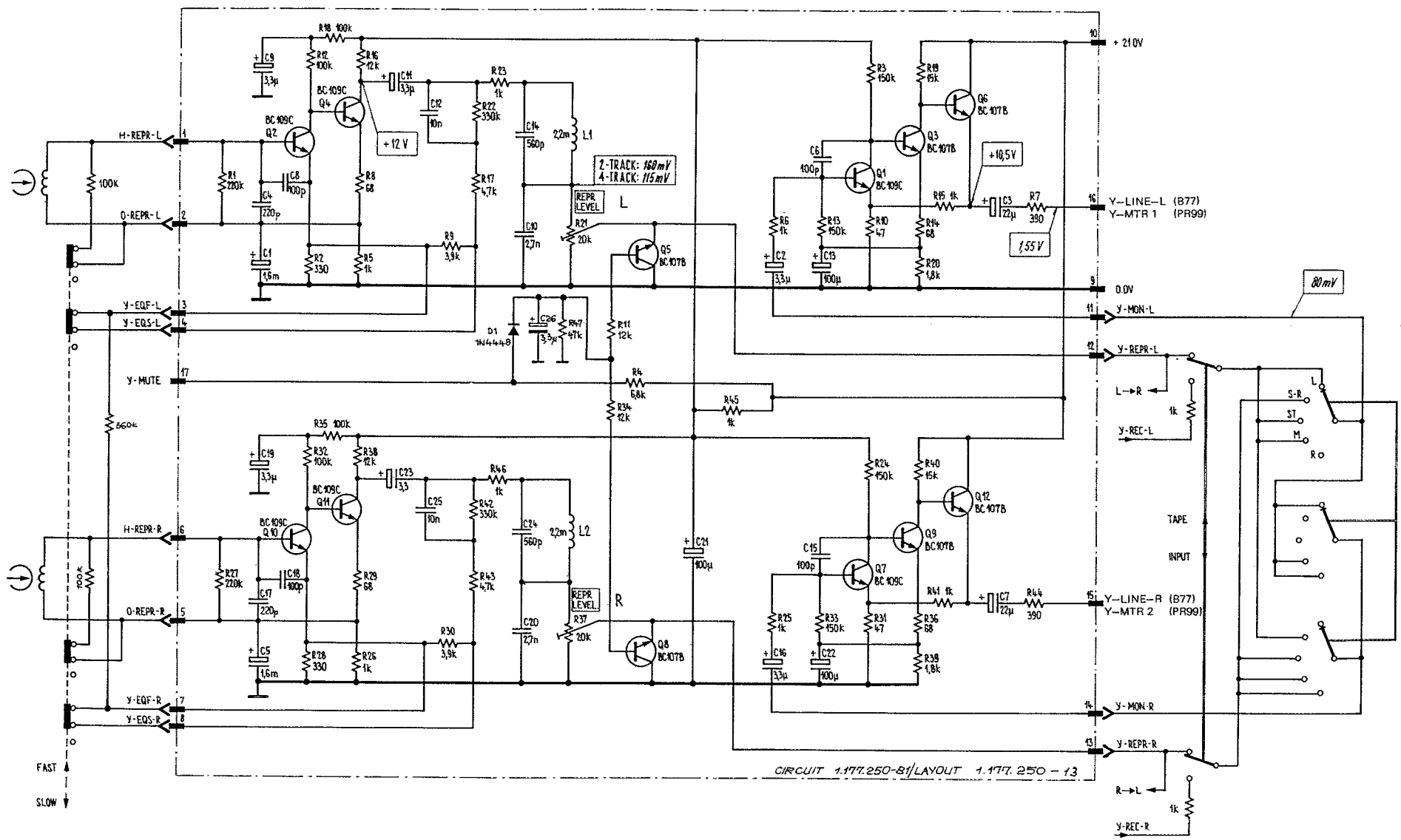
IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	R.....27	57.11.4224	220 kOhm	5%. 0.25W. CF	
	R.....28	57.11.4331	330 Ohm	5%. 0.25W. CF	
	R.....29	57.11.4680	68 Ohm	5%. 0.25W. CF	
	R.....30	57.11.4392	3.9 kOhm	5%. 0.25W. CF	
	R.....31	57.11.4470	47 Ohm	5%. 0.25W. CF	
	R.....32	57.11.4184	180 kOhm	5%. 0.25W. CF	
	R.....33	57.11.4154	150 kOhm	5%. 0.25W. CF	
	R.....34	57.11.4123	12 kOhm	5%. 0.25W. CF	
	R.....35	57.11.4184	180 kOhm	5%. 0.25W. CF	
	R.....36	57.11.4680	68 Ohm	5%. 0.25W. CF	
	R.....37	58.19.6203	20 kOhm	20%. 0.15W. PCF. lin	
	R.....38	57.11.4123	12 kOhm	5%. 0.25W. CF	
	R.....39	57.11.4182	1.8 kOhm	5%. 0.25W. CF	
	R.....40	57.11.4153	15 kOhm	5%. 0.25W. CF	
	R.....41	57.11.4102	1 kOhm	5%. 0.25W. CF	
	R.....42	57.11.4334	330 kOhm	5%. 0.25W. CF	
	R.....43	57.11.4472	4.7 kOhm	5%. 0.25W. CF	
	R.....44	57.11.4391	390 Ohm	5%. 0.25W. CF	
	R.....45	57.11.4102	1 kOhm	5%. 0.25W. CF	
	R.....46	57.11.4102	1 kOhm	5%. 0.25W. CF	
	R.....47	57.11.4473	47 kOhm	5%. 0.25W. CF	

E:=Electrolytic, C=Ceramic, PC=Polycarbonate, PETP=Polyester,
CF=Carbon Film, PCF=Pot.Carbon Film
Manufacturer: S=Siemens, T=Texas Instruments

ORIG 82/07/08

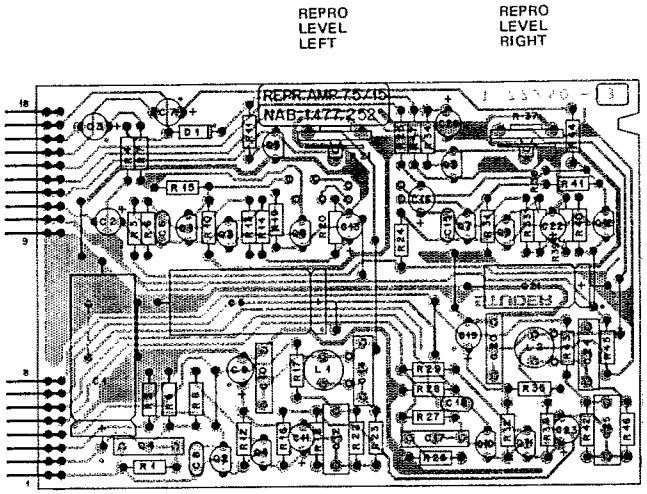
S T U D E R 82/07/08 RW REPRODUCE-AMPLIFIER 1.177.250.81 PAGE 3

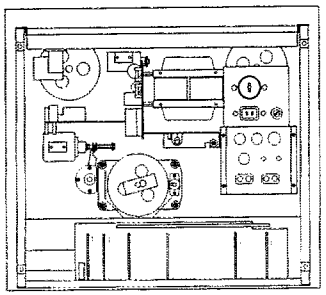
REPRODUCE AMPLIFIER PCB (NAB 3 3/4 - 7 1/2 ips) 1.177.250–81



C26,D1,R47 ARE MISSING FOR VERSION 1.177.250–00

EPRODUCE AMPLIFIER PCB (NAB 7 1/2 - 15 ips) 1.177.252–81





INC.	PCS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	C.....1	49.25.0162	1600 uF	10%, 3V, EI	
	C.....2	49.22.6474	4.7 uF	10%, 50V, EI	
	C.....3	49.22.6220	22 uF	10%, 40V, EI	
	C.....4	49.11.6271	220 pF	5%, 400V, PC	
	C.....5	49.25.0162	1600 uF	10%, 3V, EI	
	C.....6	49.12.0101	100 pF	20%, 400V, Cer	
	C.....7	49.22.6220	22 uF	10%, 40V, EI	
	C.....8	49.12.0101	100 pF	20%, 400V, Cer	
	C.....9	49.22.6474	4.7 uF	10%, 50V, EI	
	C.....10	49.94.8269	2700 pF	10%, 50V, METP	
	C.....11	49.22.6479	4.7 uF	10%, 50V, EI	
	C.....12	49.11.3103	0.01 uF	5%, 160V, PC	
	C.....13	49.22.3101	100 uF	10%, 10V, EI	
	C.....14	49.11.6561	560 pF	5%, 400V, PC	
	C.....15	49.12.0101	100 pF	20%, 400V, Cer	
	C.....16	49.22.6479	4.7 uF	10%, 50V, EI	
	C.....17	49.11.6221	220 pF	5%, 400V, PC	
	C.....18	49.12.0101	100 pF	20%, 400V, Cer	
	C.....19	49.22.6479	4.7 uF	10%, 50V, EI	
	C.....20	49.94.8269	2700 pF	10%, 400V, METP	
	C.....21	49.25.4101	100 uF	10%, 25V, EI	
	C.....22	49.22.3101	100 uF	10%, 10V, EI	
	C.....23	49.22.6479	4.7 uF	10%, 50V, EI	
	C.....24	49.11.6561	560 pF	5%, 400V, PC	
	C.....25	49.11.3103	0.01 uF	5%, 160V, PC	
	C.....26	49.24.5339	3.3 uF	20%, 35V, TA	
	D.....1	50.04.0125	1N4148		
	L.....1	62.02.1222	2.2 mH	5%	
	L.....2	62.02.1222	2.2 mH	5%	
	P.....1	54.01.0270	6-Pole	Pin-Strip	AMP
	P.....2	54.21.0271	10-Pole	Pin-Strip	AMP
	Q.....1	50.03.0438	BC 109 C	NPN	
	Q.....2	50.03.0407	BC 109 C	TO18, NPN	ANY

S T U D E R 82/11/30 Pm REPRODUCE AMPL. 7.5-15 NAB 1.177.252.R1 PAGE 1

INC.	PCS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	Q.....3	50.03.0436	BC 107 B	NPN	
	Q.....4	50.03.0407	BC 109 C	TO18, NPN	
	Q.....5	50.03.0436	BC 107 B	NPN	
	Q.....6	50.03.0436	BC 107 B	NPN	
	Q.....7	50.03.0438	BC 109 C	NPN	
	Q.....8	50.03.0436	BC 107 B	NPN	
	Q.....9	50.03.0436	BC 107 B	NPN	
	Q.....10	50.03.0407	BC 109 C	TO18, NPN	
	Q.....11	50.03.0407	BC 109 C	TO18, NPN	
	Q.....12	50.03.0436	BC 107 B	NPN	
	R.....1	57.11.4224	220 kOhm	5%, 0.25W, CF	
	R.....2	57.11.4331	330 Ohm	5%, 0.25W, CF	
	R.....3	57.11.4154	150 kOhm	5%, 0.25W, CF	
	R.....4	57.11.4682	6.8 kOhm	5%, 0.25W, CF	
	R.....5	57.11.4102	1 kOhm	5%, 0.25W, CF	
	R.....6	57.11.4102	1 Ohm	5%, 0.25W, CF	
	R.....7	57.11.4391	390 Ohm	5%, 0.25W, CF	
	R.....8	57.11.4680	68 Ohm	5%, 0.25W, CF	
	R.....9				
	R.....10	57.11.4470	47 Ohm	5%, 0.25W, CF	
	R.....11	57.11.4123	12 kOhm	5%, 0.25W, CF	
	R.....12	57.11.4104	100 kOhm	5%, 0.25W, CF	
	R.....13	57.11.4154	150 kOhm	5%, 0.25W, CF	
	R.....14	57.11.4680	68 Ohm	5%, 0.25W, CF	
	R.....15	57.11.4102	1 kOhm	5%, 0.25W, CF	
	R.....16	57.11.4123	12 kOhm	5%, 0.25W, CF	
	R.....17	57.11.4472	4.7 kOhm	5%, 0.25W, CF	
	R.....18	57.11.4104	100 kOhm	5%, 0.25W, CF	
	R.....19	57.11.4153	15 kOhm	5%, 0.25W, CF	
	R.....20	57.11.4182	1.8 kOhm	5%, 0.25W, CF	
	R.....21	58.19.0203	20 kOhm	20%, 0.15W, PCF, Tim	
	R.....22	57.11.4274	270 kOhm	5%, 0.25W, CF	
	R.....23	57.11.4102	1 kOhm	5%, 0.25W, CF	
	R.....24	57.11.4154	150 kOhm	5%, 0.25W, CF	
	R.....25	57.11.4102	1 kOhm	5%, 0.25W, CF	
	R.....26	57.11.4102	1 kOhm	5%, 0.25W, CF	

S T U D E R 82/11/30 Pm REPRODUCE AMPL. 7.5-15 NAB 1.177.252.R1 PAGE 2

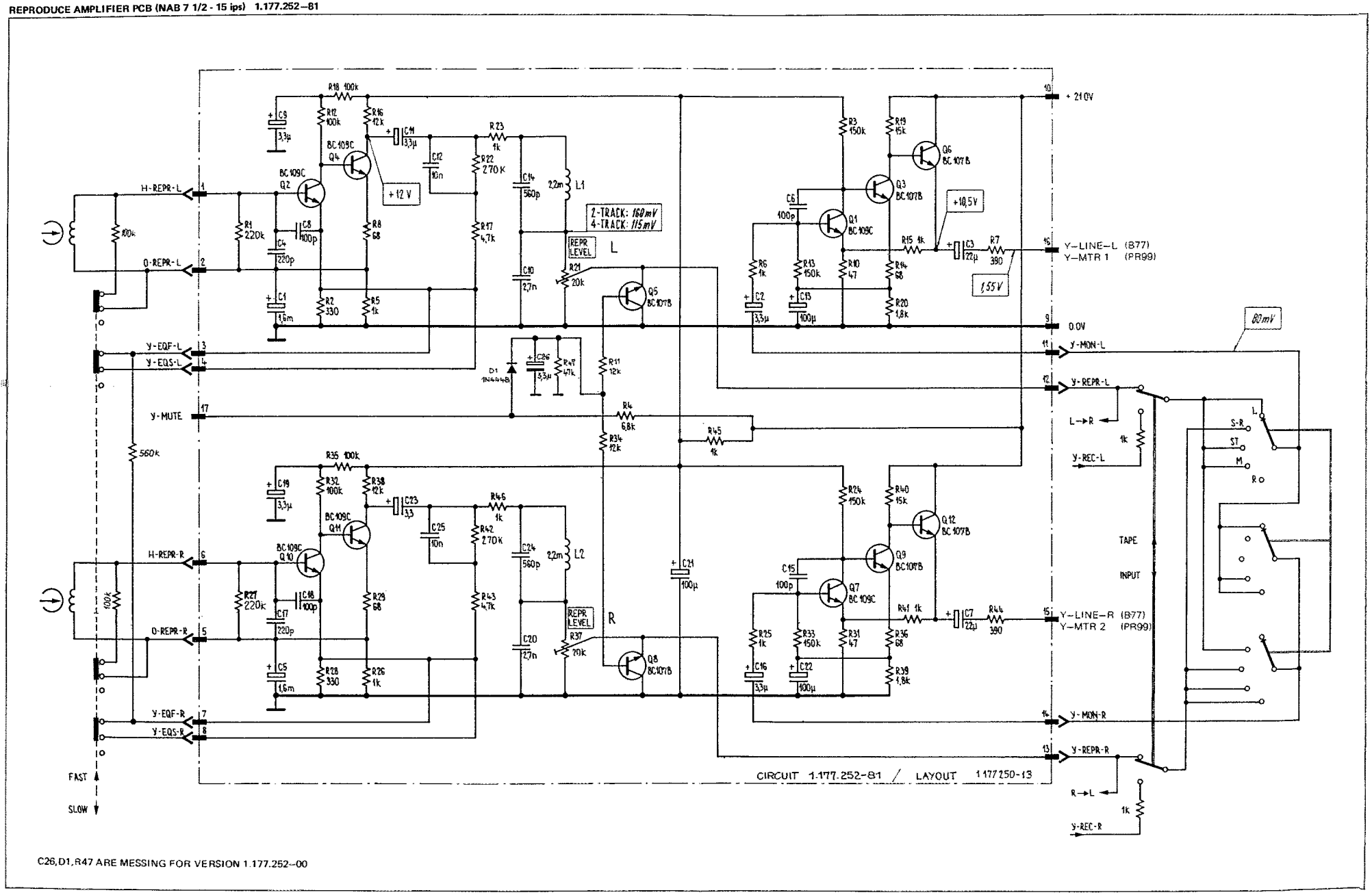
INC.	PCS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	R.....27	57.11.4224	220 kOhm	5%, 0.25W, CF	
	R.....28	57.11.4331	330 Ohm	5%, 0.25W, CF	
	R.....29	57.11.4680	68 Ohm	5%, 0.25W, CF	
	R.....30				
	R.....31	57.11.4470	47 Ohm	5%, 0.25W, CF	
	R.....32	57.11.4104	100 kOhm	5%, 0.25W, CF	
	R.....33	57.11.4154	150 kOhm	5%, 0.25W, CF	
	R.....34	57.11.4123	12 kOhm	5%, 0.25W, CF	
	R.....35	57.11.4104	100 kOhm	5%, 0.25W, CF	
	R.....36	57.11.4680	68 Ohm	5%, 0.25W, CF	
	R.....37	58.19.0203	20 kOhm	20%, 0.15W, PCF, Tim	
	R.....38	57.11.4123	12 kOhm	5%, 0.25W, CF	
	R.....39	57.11.4182	1.8 kOhm	5%, 0.25W, CF	
	R.....40	57.11.4153	15 kOhm	5%, 0.25W, CF	
	R.....41	57.11.4102	1 kOhm	5%, 0.25W, CF	
	R.....42	57.11.4274	270 kOhm	5%, 0.25W, CF	
	R.....43	57.11.4472	4.7 kOhm	5%, 0.25W, CF	
	R.....44	57.11.4391	390 Ohm	5%, 0.25W, CF	
	R.....45	57.11.4102	1 kOhm	5%, 0.25W, CF	
	R.....46	57.11.4102	1 kOhm	5%, 0.25W, CF	
	R.....47	57.11.4473	47 kOhm	5%, 0.25W, CF	

[illegible]

[illegible]

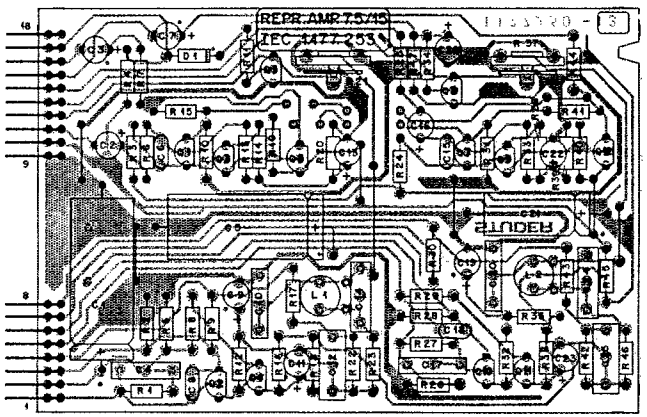
S T U D E R [illegible] [illegible] 1.177.252.R1 PAGE 3

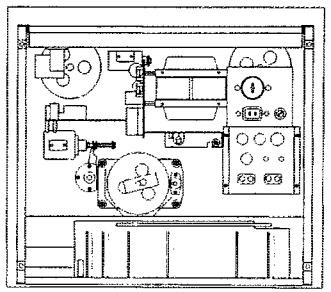
REPRODUCE AMPLIFIER PCB (NAB 7 1/2 - 15 ips) 1.177.252–81



C26,D1,R47 ARE MESSING FOR VERSION 1.177.252–00

EPRODUCE AMPLIFIER PCB (IEC 7 1/2 - 15 ips) 1.177.253–81





IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	C.....1	59.25.0162	1600 uF	10%, 4V, E1	
	C.....2	59.22.8479	4.7 uF	10%, 50V, E1	
	C.....3	59.22.6220	22 uF	10%, 40V, E1	
	C.....4	59.13.6221	220 pF	5%, 400V, PC	
	C.....5	59.25.0162	1600 uF	10%, 3V, E1	
	C.....6	59.32.0101	100 pF	20%, 500V, Cer	
	C.....7	59.22.6220	22 uF	10%, 40V, E1	
	C.....8	59.32.0101	100 uF	20%, 500V, Cer	
	C.....9	59.22.8479	4.7 pF	10%, 50V, E1	
	C.....10	59.99.0259	2700 pF	10%, 50V, PETP	
	C.....11	59.22.8479	4.7 uF	10%, 50V, E1	
	C.....12	59.11.3101	0.01 uF	5%, 160V, PC	
	C.....13	59.22.3101	100 uF	10%, 10V, E1	
	C.....14	59.13.6561	560 pF	5%, 400V, PC	
	C.....15	59.32.0101	100 pF	20%, 500V, Cer	
	C.....16	59.22.8479	4.7 uF	10%, 50V, E1	
	C.....17	59.13.6221	220 pF	5%, 400V, PC	
	C.....18	59.32.0101	100 pF	20%, 500V, Cer	
	C.....19	59.22.8479	4.7 uF	10%, 50V, E1	
	C.....20	59.99.0259	2700 pF	10%, 400V, PETP	
	C.....23	59.27.4101	100 uF	10%, 25V, E1	
	C.....22	59.22.3101	100 uF	10%, 10V, E1	
	C.....23	59.22.8479	4.7 uF	10%, 50V, E1	
	C.....24	59.13.6561	560 pF	5%, 400V, PC	
	C.....25	59.11.3101	0.01 uF	5%, 160V, PC	
	C.....26	59.16.5339	3.3 uF	20%, 35V, TA	
	D.....1	50.04.0125	1N4448		Any
	L.....1	62.02.1222	2.2 mH	5%	
	L.....2	62.02.1222	2.2 mH	5%	
	P.....1	54.01.0070	8-Pole	Pin-Strip	AMP
	P.....2	54.01.0071	10-Pole	Pin-Strip	AMP
	Q.....1	50.03.0436	BC 107 C	NPN	
	Q.....2	50.03.0407	BC 109 C	TO18, NPN	Any

S T U D E R (01) 82/12/14 Mu REPRODUCE AMPL. 7.5-15 CCIR 1.177.253.81 PAGE 1

IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	Q.....3	50.03.0436	BC 107 B	NPN	
	Q.....4	50.03.0407	BC 109 C	TO18, NPN	
	Q.....5	50.03.0436	BC 107 B	NPN	
	Q.....6	50.03.0436	BC 107 B	NPN	
	Q.....7	50.03.0436	BC 107 C	NPN	
	Q.....8	50.03.0436	BC 107 B	NPN	
	Q.....9	50.03.0436	BC 107 B	NPN	
	Q.....10	50.03.0407	BC 109 C	TO18, NPN	
	Q.....11	50.03.0407	BC 109 C	TO18, NPN	
	Q.....12	50.03.0436	BC 107 B	NPN	
	R.....1	57.41.4563	56 kOhm	5%, 0.25W, CF	
	R.....2	57.41.4331	330 Ohm	5%, 0.25W, CF	
	R.....3	57.41.4154	150 kOhm	5%, 0.25W, CF	
	R.....4	57.41.4682	6.8 kOhm	5%, 0.25W, CF	
	R.....5	57.41.4102	1 kOhm	5%, 0.25W, CF	
	R.....6	57.41.4102	1 kOhm	5%, 0.25W, CF	
	R.....7	57.41.4391	390 Ohm	5%, 0.25W, CF	
	R.....8	57.41.4680	68 Ohm	5%, 0.25W, CF	
	R.....9	57.41.4272	2.7 kOhm	5%, 0.25W, CF	
	R.....10	57.41.4470	47 Ohm	5%, 0.25W, CF	
	R.....11	57.41.4123	12 kOhm	5%, 0.25W, CF	
	R.....12	57.41.4104	100 kOhm	5%, 0.25W, CF	
	R.....13	57.41.4154	150 kOhm	5%, 0.25W, CF	
	R.....14	57.41.4680	68 Ohm	5%, 0.25W, CF	
	R.....15	57.41.4102	1 kOhm	5%, 0.25W, CF	
	R.....16	57.11.4123	12 kOhm	5%, 0.25W, CF	
	R.....17	57.41.4392	3.9 kOhm	5%, 0.25W, CF	
	R.....18	57.41.4104	100 kOhm	5%, 0.25W, CF	
	R.....19	57.41.4153	15 kOhm	5%, 0.25W, CF	
	R.....20	57.41.4182	1.8 kOhm	5%, 0.25W, CF	
	R.....21	58.19.0203	20 kOhm	20%, 0.15W, PCF, lin	
(03)	R.....22	57.41.4474	470 kOhm	5%, 0.25W, CF	
(01)	R.....22	57.41.4684	680 kOhm	5%, 0.25W, CF	
	R.....23	57.41.4102	1 kOhm	5%, 0.25W, CF	
	R.....24	57.41.4154	150 kOhm	5%, 0.25W, CF	
	R.....25	57.41.4102	1 kOhm	5%, 0.25W, CF	

S T U D E R (01) 82/12/14 Mu REPRODUCE AMPL. 7.5-15 CCIR 1.177.253.81 PAGE 2

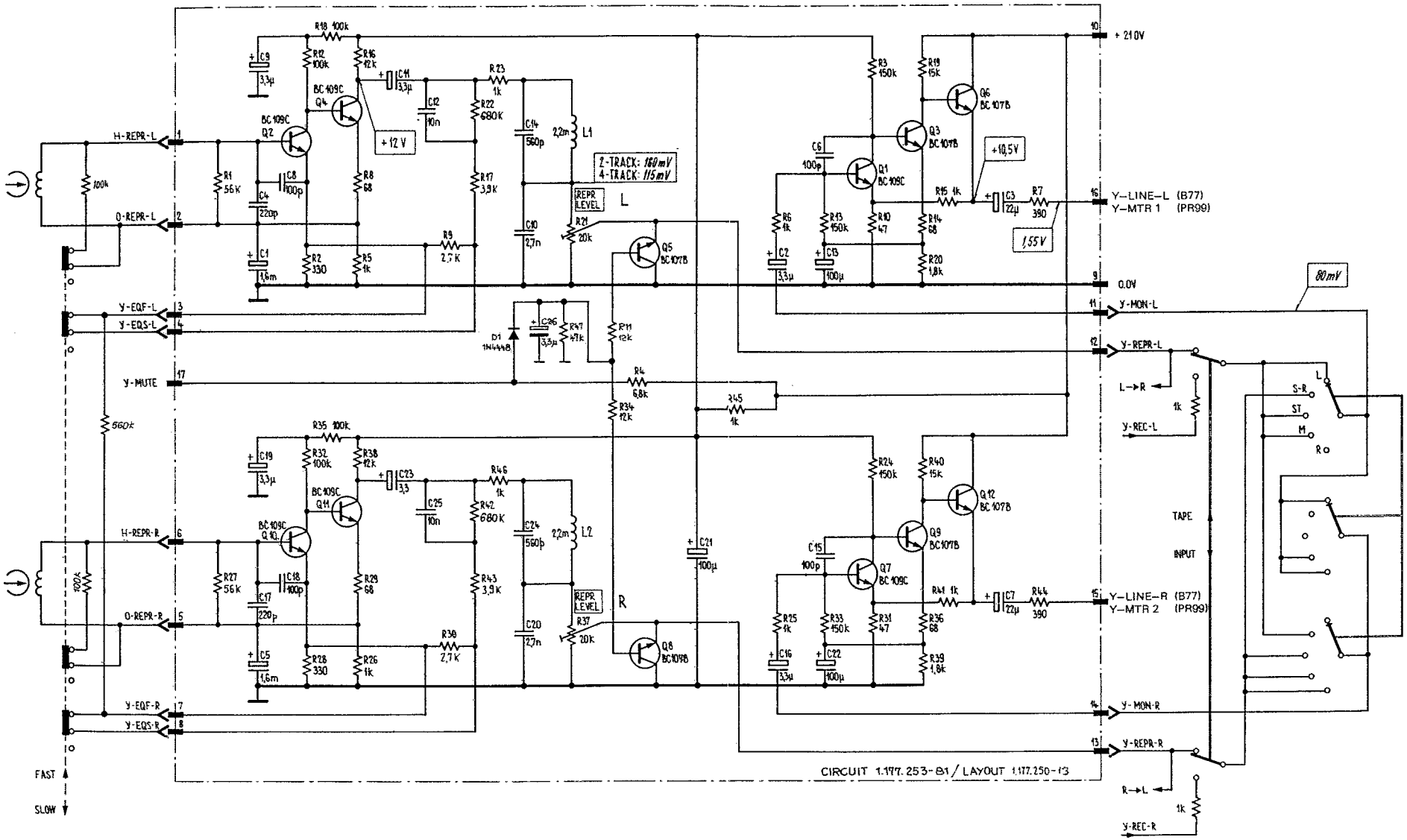
IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	R.....26	57.41.4102	1 kOhm	5%, 0.25W, CF	
	R.....27	57.41.4563	56 kOhm	5%, 0.25W, CF	
	R.....28	57.41.4331	330 Ohm	5%, 0.25W, CF	
	R.....29	57.41.4680	68 Ohm	5%, 0.25W, CF	
	R.....30	57.41.4272	2.7 kOhm	5%, 0.25W, CF	
	R.....31	57.41.4470	47 Ohm	5%, 0.25W, CF	
	R.....32	57.11.4104	100 kOhm	5%, 0.25W, CF	
	R.....33	57.41.4154	150 kOhm	5%, 0.25W, CF	
	R.....34	57.41.4123	12 kOhm	5%, 0.25W, CF	
	R.....35	57.41.4104	100 kOhm	5%, 0.25W, CF	
	R.....36	57.41.4680	68 Ohm	5%, 0.25W, CF	
	R.....37	58.19.0203	20 kOhm	20%, 0.15W, PCF, lin	
	R.....38	57.11.4123	12 kOhm	5%, 0.25W, CF	
	R.....39	57.41.4182	1.8 kOhm	5%, 0.25W, CF	
	R.....40	57.41.4153	15 kOhm	5%, 0.25W, CF	
	R.....41	57.41.4102	1 kOhm	5%, 0.25W, CF	
(03)	R.....42	57.41.4474	470 kOhm	5%, 0.25W, CF	
(01)	R.....42	57.41.4684	680 kOhm	5%, 0.25W, CF	
	R.....43	57.41.4392	3.9 kOhm	5%, 0.25W, CF	
	R.....44	57.41.4391	390 Ohm	5%, 0.25W, CF	
	R.....45	57.41.4102	1 kOhm	5%, 0.25W, CF	
	R.....46	57.41.4102	1 kOhm	5%, 0.25W, CF	
	R.....47	57.11.4473	47 kOhm	5%, 0.25W, CF	

11/17/Tantalytics Cer/Ceramics, PC-Polycarbonate, PETP-Polyester, Ta-Tantal

DPEG 82/07/08 (01) 82/11/14

S T U D E R (01) 82/12/14 Mu REPRODUCE AMPL. 7.5-15 CCIR 1.177.253.81 PAGE 3

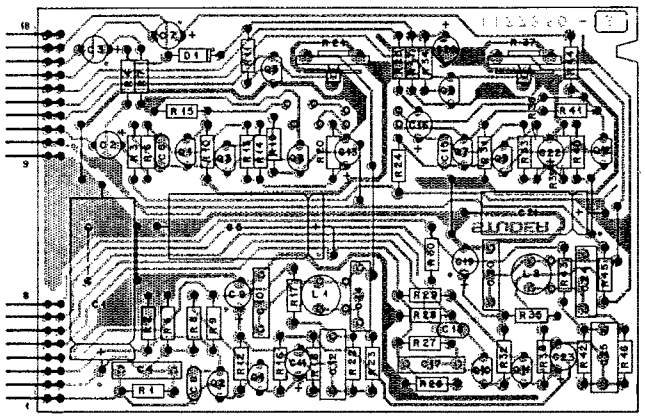
REPRODUCE AMPLIFIER PCB (IEC 7 1/2 - 15 ips) 1.177.253–81

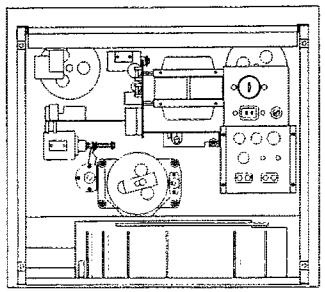


C26,D1,R47 ARE MISSING FOR VERSION 1.177.253–00

SEE SERVICE INFORMATION
63.10 : R17

REPRODUCE AMPLIFIER PCB (NAB 1 7/8 - 3 3/4 ips) 1.177.257–81





INC.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	C.....1	59.25.0102	1600 uF	10%, 6V, El	
	C.....2	59.22.8479	4.7 uF	10%, 50V, El	
	C.....3	59.22.6220	22 uF	10%, 40V, El	
	C.....4	59.11.6221	220 pF	5%, 400V, PC	
	C.....5	59.25.0102	1600 uF	10%, 6V, El	
	C.....6	59.32.0101	100 pF	20%, 500V, Cer	
	C.....7	59.22.6220	22 uF	10%, 40V, El	
	C.....8	59.32.0101	100 uF	20%, 500V, Cer	
	C.....9	59.22.8479	4.7 uF	10%, 50V, El	
	C.....10	59.99.0259	2700 pF	10%, 400V, PETP	
	C.....11	59.22.8479	4.7 uF	10%, 50V, El	
	C.....12	59.31.3103	0.01 uF	5%, 160V, PC	
	C.....13	59.22.3101	100 uF	10%, 10V, El	
	C.....14	59.11.8561	560 pF	5%, 400V, PC	
	C.....15	59.32.0101	100 pF	20%, 500V, Cer	
	C.....16	59.22.8479	4.7 uF	10%, 50V, El	
	C.....17	59.11.6221	220 pF	5%, 400V, PC	
	C.....18	59.32.0101	100 pF	20%, 500V, Cer	
	C.....19	59.22.8479	4.7 uF	10%, 50V, El	
	C.....20	59.99.0259	2700 pF	10%, 400V, PETP	
	C.....21	59.25.4101	100 uF	10%, 2V, El	
	C.....22	59.22.3101	100 uF	10%, 10V, El	
	C.....23	59.22.8479	4.7 uF	10%, 50V, El	
	C.....24	59.11.8561	560 pF	5%, 400V, PC	
	C.....25	59.11.3101	0.01 uF	5%, 160V, PC	
	C.....26	59.76.5309	3.3 uF	20%, 35V, Ta	
	D.....1	50.04.0125	IN 4448		
	L.....1	62.02.1222	2.2 mH	5%	
	L.....2	62.02.1222	2.2 mH	5%	
	P.....1	54.01.0270	8-Pole	Pin-Strip	AMP
	P.....2	54.01.0271	10-Pole	Pin-Strip	AMP
	Q.....1	50.03.0439	BC 109 C	NPN	
	Q.....2	50.03.0407	BC 109 C	TO18, NPN	any

S T U D E R 82/07/06 RM REPRODUCE-AMPLIFIER 4.75/9.5 1.177.257.81 PAGE 1

INC.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	Q.....3	50.03.0436	BC 107 B	NPN	
	Q.....4	50.03.0407	BC 109 C	TO18, NPN	
	Q.....5	50.03.0436	BC 107 B	NPN	
	Q.....6	50.03.0436	BC 107 B	NPN	
	Q.....7	50.03.0439	BC 109 C	NPN	
	Q.....8	50.03.0436	BC 107 B	NPN	
	Q.....9	50.03.0436	BC 107 B	NPN	
	Q.....10	50.03.0407	BC 109 C	TO18, NPN	
	Q.....11	50.03.0407	BC 109 C	TO18, NPN	
	Q.....12	50.03.0436	BC 107 B	NPN	
	R.....1	57.11.4224	220 kOhm	5%, 0.25W, CF	
	R.....2	57.11.4331	330 Ohm	5%, 0.25W, CF	
	R.....3	57.11.4154	150 kOhm	5%, 0.25W, CF	
	R.....4	57.11.4682	6.8 kOhm	5%, 0.25W, CF	
	R.....5	57.11.4102	1 kOhm	5%, 0.25W, CF	
	R.....6	57.11.4102	1 kOhm	5%, 0.25W, CF	
	R.....7	57.11.4391	390 Ohm	5%, 0.25W, CF	
	R.....8	57.11.4680	68 Ohm	5%, 0.25W, CF	
	R.....9	57.11.4332	3.3 kOhm	5%, 0.25W, CF	
	R.....10	57.11.4470	47 Ohm	5%, 0.25W, CF	
	R.....11	57.11.4123	12 kOhm	5%, 0.25W, CF	
	R.....12	57.11.4104	100 kOhm	5%, 0.25W, CF	
	R.....13	57.11.4154	150 kOhm	5%, 0.25W, CF	
	R.....14	57.11.4680	68 Ohm	5%, 0.25W, CF	
	R.....15	57.11.4102	1 kOhm	5%, 0.25W, CF	
	R.....16	57.11.4123	12 kOhm	5%, 0.25W, CF	
	R.....17	57.11.4822	8.2 kOhm	5%, 0.25W, CF	
	R.....18	57.11.4104	100 kOhm	5%, 0.25W, CF	
	R.....19	57.11.4153	15 kOhm	5%, 0.25W, CF	
	R.....20	57.11.4182	1.8 kOhm	5%, 0.25W, CF	
	R.....21	58.19.0203	20 kOhm	20%, 0.15W, MCP, lin	
	R.....22	57.11.4334	330 kOhm	5%, 0.25W, CF	
	R.....23	57.11.4102	1 kOhm	5%, 0.25W, CF	
	R.....24	57.11.4154	150 kOhm	5%, 0.25W, CF	
	R.....25	57.11.4102	1 kOhm	5%, 0.25W, CF	
	R.....26	57.11.4102	1 kOhm	5%, 0.25W, CF	

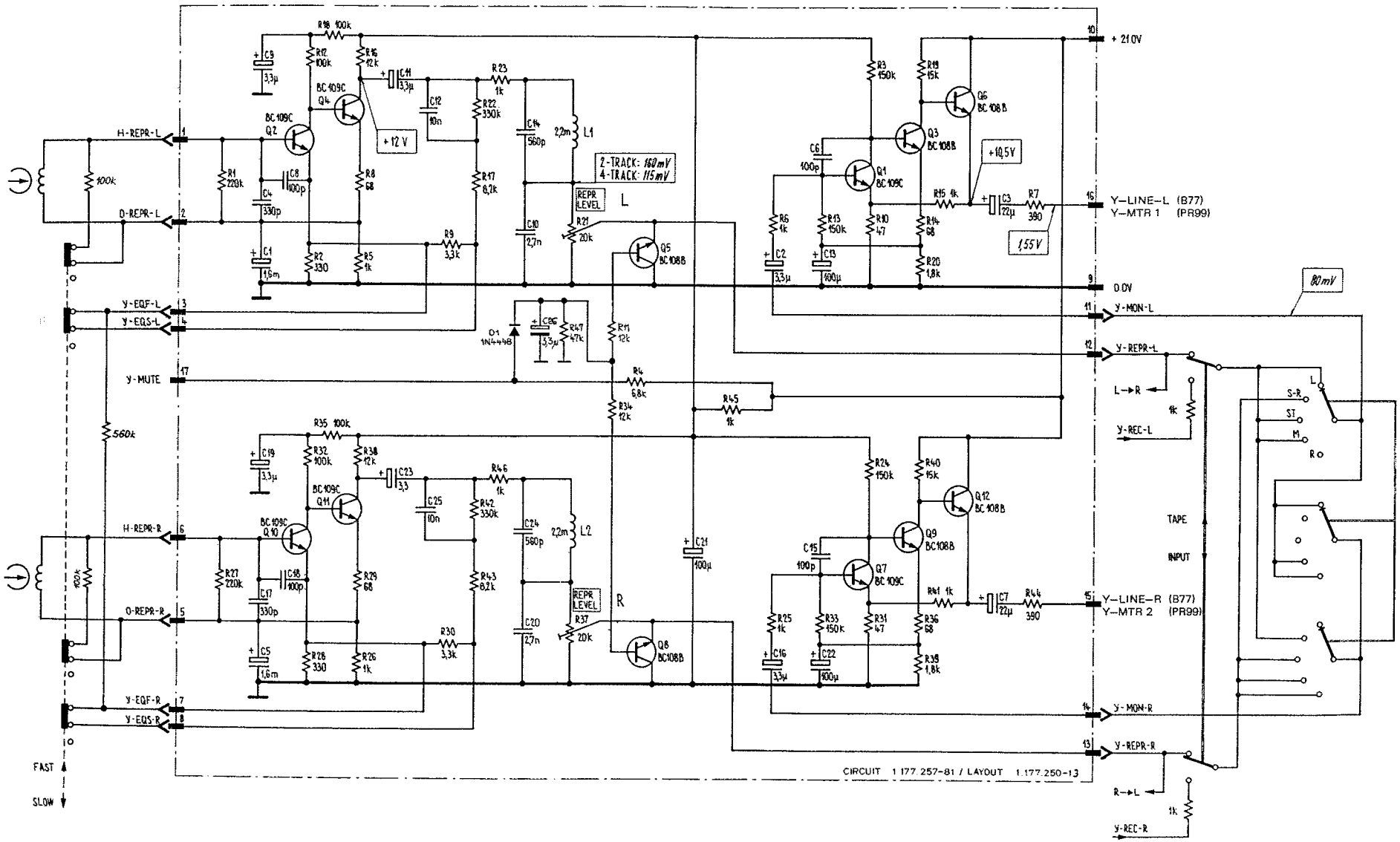
S T U D E R 82/07/06 RM REPRODUCE-AMPLIFIER 4.75/9.5 1.177.257.81 PAGE 2

INC.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	R.....27	57.11.4224	220 kOhm	5%, 0.25W, CF	
	R.....28	57.11.4331	330 Ohm	5%, 0.25W, CF	
	R.....29	57.11.4680	68 Ohm	5%, 0.25W, CF	
	R.....30	57.11.4332	3.3 kOhm	5%, 0.25W, CF	
	R.....31	57.11.4470	47 Ohm	5%, 0.25W, CF	
	R.....32	57.11.4104	100 kOhm	5%, 0.25W, CF	
	R.....33	57.11.4154	150 kOhm	5%, 0.25W, CF	
	R.....34	57.11.4123	12 kOhm	5%, 0.25W, CF	
	R.....35	57.11.4104	100 kOhm	5%, 0.25W, CF	
	R.....36	57.11.4680	68 Ohm	5%, 0.25W, CF	
	R.....37	58.19.0203	20 kOhm	20%, 0.15W, MCP, lin	
	R.....38	57.11.4123	12 kOhm	5%, 0.25W, CF	
	R.....39	57.11.4182	1.8 kOhm	5%, 0.25W, CF	
	R.....40	57.11.4153	15 kOhm	5%, 0.25W, CF	
	R.....41	57.11.4102	1 kOhm	5%, 0.25W, CF	
	R.....42	57.11.4334	330 kOhm	5%, 0.25W, CF	
	R.....43	57.11.4822	8.2 kOhm	5%, 0.25W, CF	
	R.....44	57.11.4391	390 Ohm	5%, 0.25W, CF	
	R.....45	57.11.4102	1 kOhm	5%, 0.25W, CF	
	R.....46	57.11.4102	1 kOhm	5%, 0.25W, CF	
	R.....47	57.11.4473	47 kOhm	5%, 0.25W, CF	

El=Electrolytic, Cer=Ceramic, PC=Polycarbonate, PETP=Polyester
CF=Carbon Film, MF=Met.Carbon Film
MANUF.=Equiv. Siemens, TI=Texas Instruments
RM=RM 82/07/06

S T U D E R 82/07/06 RM REPRODUCE-AMPLIFIER 4.75/9.5 1.177.257.81 PAGE 3

REPRODUCE AMPLIFIER PCB (NAB 1 7/8 - 3 3/4 ips) 1.177.257–81

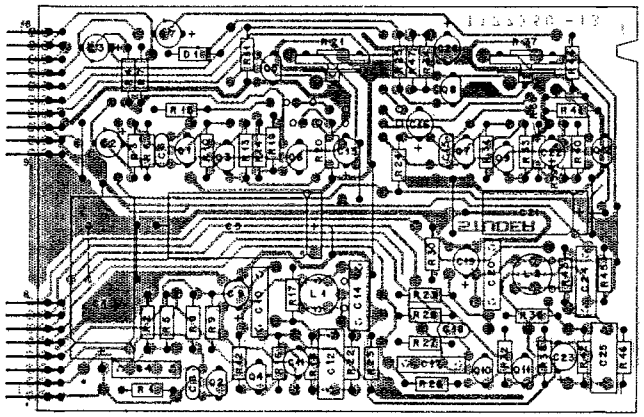


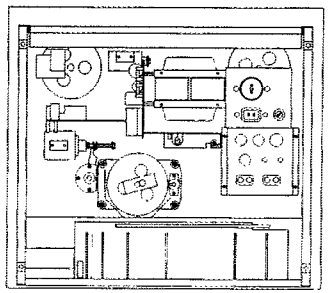
C26,D1,R47 ARE MISSING FOR VERSION 1.177.257–00

EPRODUCE AMPLIFIER PCB (NAB 15/15 - 1 7/8 ips) 1.177.258-00

REPRO LEVEL LEFT

REPRO LEVEL RIGHT





INDX.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	C****1	59.25.0467	1600 µF	10% 35V 85	
	C****2	59.22.8479	4.7 µF	10% 50V 85	
	C****3	59.22.8220	22 µF	10% 40V 85	
	C****4	58.11.4821	820 pF	5% 400V PC	
	C****5	59.25.0467	1600 µF	10% 35V 85	
	C****6	59.12.0101	100 µF	20% 400V Cer	
	C****7	59.22.8220	22 µF	10% 40V 85	
	C****8	59.12.0131	330 pF	20% 400V Cer	
	C****9	59.22.8479	4.7 µF	10% 50V 85	
	C****10	59.25.0259	2700 µF	10% 40V PolyP	
	C****11	59.22.8479	4.7 µF	10% 50V 85	
	C****12	59.11.3123	9.01 µF	5% 160V PC	
	C****13	59.22.3101	100 µF	10% 10V 85	
	C****14	59.11.6561	560 pF	5% 400V PC	
	C****15	59.12.0101	100 pF	20% 400V Cer	
	C****16	59.22.8479	4.7 µF	10% 50V 85	
	C****17	59.11.5821	820 pF	5% 400V PC	
	C****18	59.12.0131	330 pF	20% 400V Cer	
	C****19	59.22.8479	4.7 µF	10% 50V 85	
	C****20	59.49.0259	2700 µF	10% 40V PolyP	
	C****21	59.25.4101	100 µF	10% 25V 85	
	C****22	59.22.3101	100 µF	10% 10V 85	
	C****23	59.22.8479	4.7 µF	10% 50V 85	
	C****24	59.11.6561	560 pF	5% 400V PC	
	C****25	59.11.3161	0.01 µF	5% 160V PC	
(01)	C****26	58.36.5339	1.3 µF	20% 25V TA	
(01)	D****1	50.04.0125	1N4148	any	
	L****1	62.92.1222	2.2 mH	5%	
	L****2	62.92.1222	2.2 mH	5%	
	P****1	54.01.0270	4-Pole	Pin-Strip	AMP
	P****2	54.01.0271	10-Pole	Pin-Strip	AMP
	Q****1	50.03.0439	BC 109 C	NPN	
	Q****2	50.03.0497	BC 107 C	TO18, NPN	any

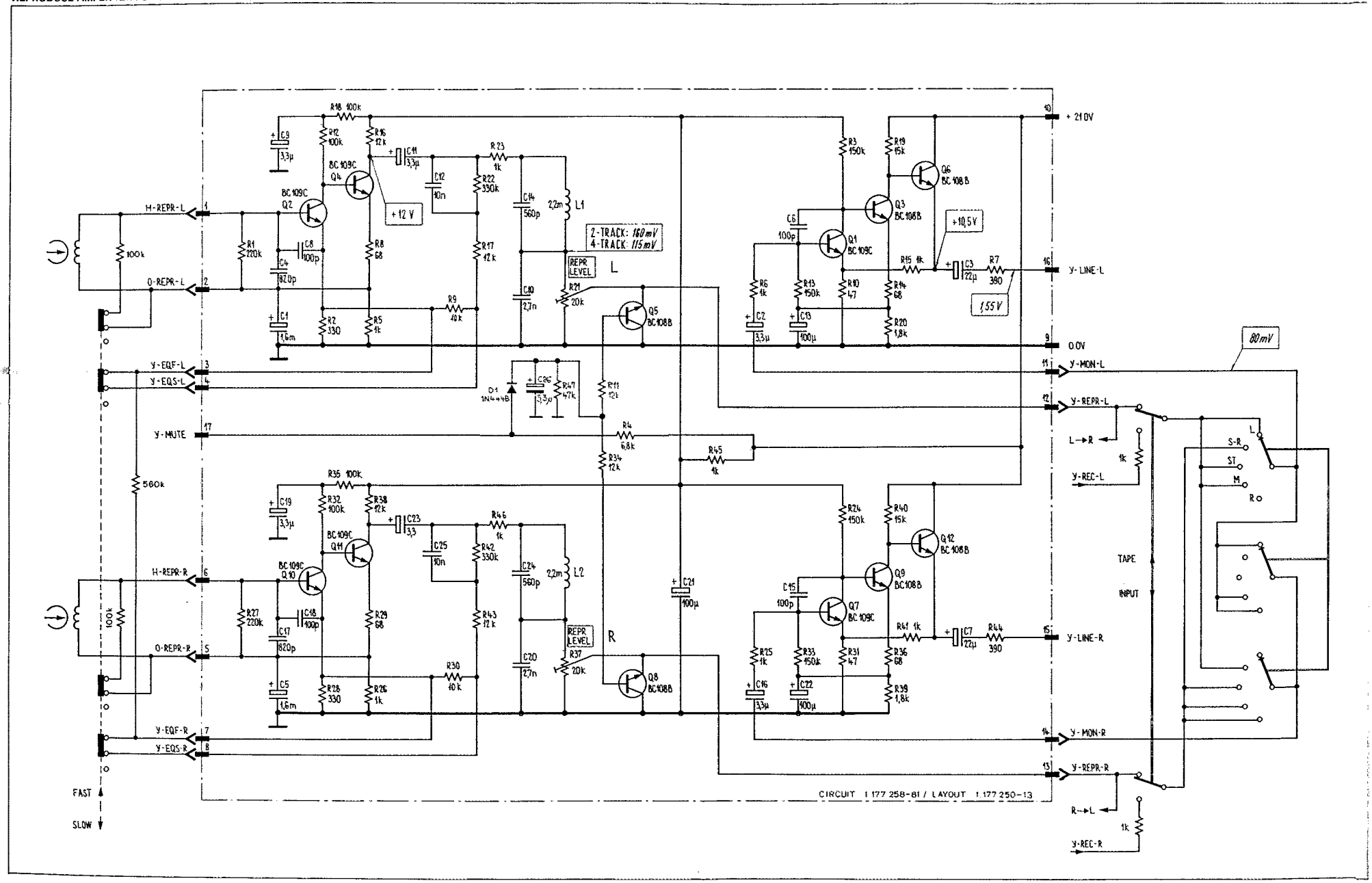
INDX.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	Q****3	50.03.0436	BC 107 B	NPN	
	Q****4	50.03.0407	BC 109 C	TO18, NPN	
	Q****5	50.03.0436	BC 107 B	NPN	
	Q****6	50.03.0436	BC 107 B	NPN	
	Q****7	50.03.0439	BC 109 C	NPN	
	Q****8	50.03.0436	BC 107 B	NPN	
	Q****9	50.03.0436	BC 107 B	NPN	
	Q****10	50.03.0467	BC 109 C	TO18, NPN	
	Q****11	50.03.0497	BC 109 C	TO18, NPN	
	Q****12	50.03.0436	BC 107 B	NPN	
	R****1	57.11.4224	220 kOhm	5% 0.25W CF	
	R****2	57.11.4331	330 Ohm	5% 0.25W CF	
	R****3	57.11.4154	150 kOhm	5% 0.25W CF	
	R****4	57.11.4682	6.8 kOhm	5% 0.25W CF	
	R****5	57.11.4102	1 kOhm	5% 0.25W CF	
	R****6	57.11.4102	1 kOhm	5% 0.25W CF	
	R****7	57.11.4391	390 Ohm	5% 0.25W CF	
	R****8	57.11.4689	68 Ohm	5% 0.25W CF	
	R****9	57.11.4103	10 kOhm	5% 0.25W CF	
	R****10	57.11.4470	47 Ohm	5% 0.25W CF	
	R****11	57.11.4123	12 kOhm	5% 0.25W CF	
	R****12	57.11.4104	100 kOhm	5% 0.25W CF	
	R****13	57.11.4154	150 kOhm	5% 0.25W CF	
	R****14	57.11.4680	68 Ohm	5% 0.25W CF	
	R****15	57.11.4102	1 kOhm	5% 0.25W CF	
	R****16	57.11.4123	12 kOhm	5% 0.25W CF	
	R****17	57.11.4123	12 kOhm	5% 0.25W CF	
	R****18	57.11.4104	100 kOhm	5% 0.25W CF	
	R****19	57.11.4153	15 kOhm	5% 0.25W CF	
	R****20	57.11.4182	1.8 kOhm	5% 0.25W CF	
	R****21	58.19.0203	20 kOhm	20% 0.15W PCF, Tim	
	R****22	57.11.4334	330 kOhm	5% 0.25W CF	
	R****23	57.11.4102	1 kOhm	5% 0.25W CF	
	R****24	57.11.4154	150 kOhm	5% 0.25W CF	
	R****25	57.11.4102	1 kOhm	5% 0.25W CF	
	R****26	57.11.4102	1 kOhm	5% 0.25W CF	

INDX.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	R****27	57.11.4224	220 kOhm	5% 0.25W CF	
	R****28	57.11.4331	330 Ohm	5% 0.25W CF	
	R****29	57.11.4680	68 Ohm	5% 0.25W CF	
	R****30	57.11.4103	10 kOhm	5% 0.25W CF	
	R****31	57.11.4470	47 Ohm	5% 0.25W CF	
	R****32	57.11.4104	100 kOhm	5% 0.25W CF	
	R****33	57.11.4154	150 kOhm	5% 0.25W CF	
	R****34	57.11.4123	12 kOhm	5% 0.25W CF	
	R****35	57.11.4104	100 kOhm	5% 0.25W CF	
	R****36	57.11.4680	68 Ohm	5% 0.25W CF	
	R****37	58.19.0203	20 kOhm	20% 0.15W PCF, Tim	
	R****38	57.11.4123	12 kOhm	5% 0.25W CF	
	R****39	57.11.4182	1.8 kOhm	5% 0.25W CF	
	R****40	57.11.4153	15 kOhm	5% 0.25W CF	
	R****41	57.11.4102	1 kOhm	5% 0.25W CF	
	R****42	57.11.4334	330 kOhm	5% 0.25W CF	
	R****43	57.11.4123	12 kOhm	5% 0.25W CF	
	R****44	57.11.4391	390 Ohm	5% 0.25W CF	
	R****45	57.11.4102	1 kOhm	5% 0.25W CF	
	R****46	57.11.4102	1 kOhm	5% 0.25W CF	
(01)	R****47	57.11.4471	47 kOhm	5% 0.25W CF	

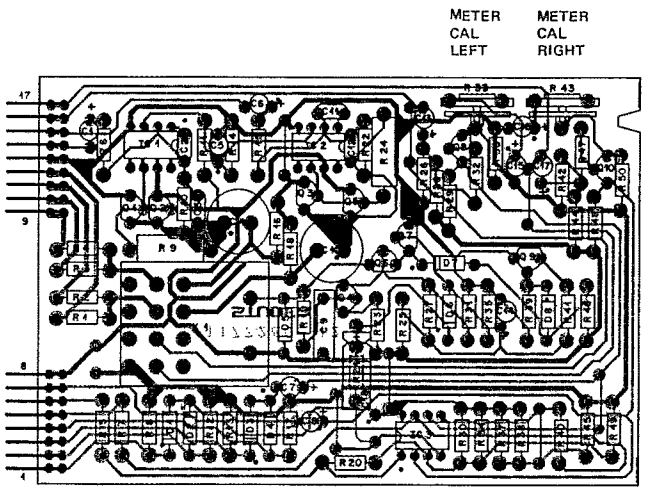
E=Electrolytic Capacitors PC=Polycarbonate PET=Polyester
CF=Carbon Film MCF=Metal Film
Manufacturers: Siemens=Siemens TI=Texas Instruments

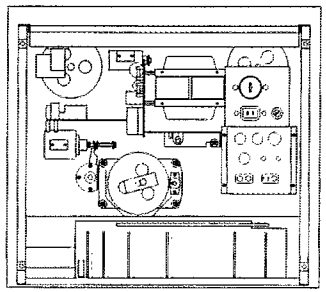
DATE 29/6/225 (01) 81/12/21

REPRODUCE AMPLIFIER PCB (NAB 15/16 - 1 7/8 ips) 1.177.258–00



ONITOR AMPLIFIER PCB 1.177.260





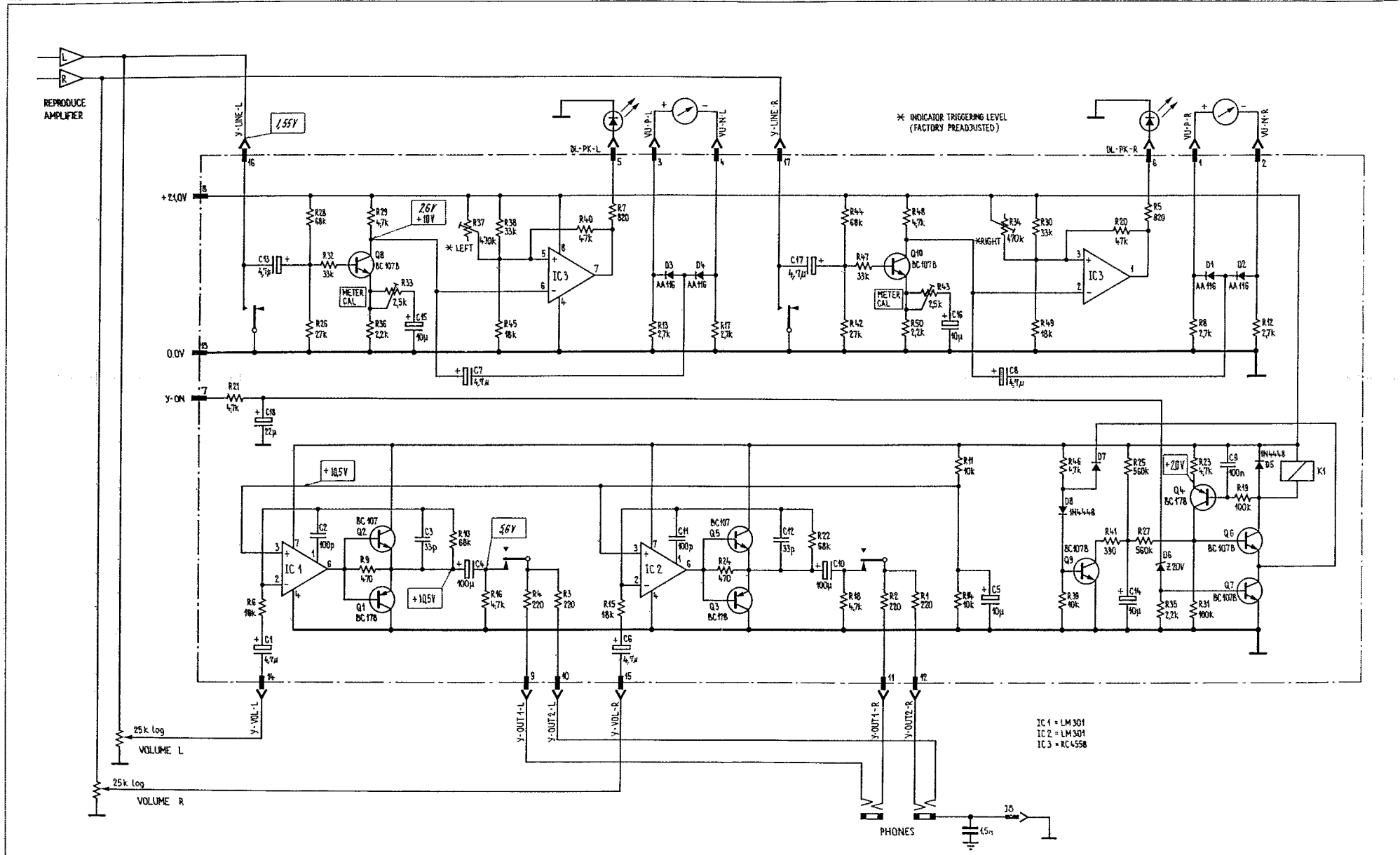
INC.	PCS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
C-----1	59.22.8679		4.7 uF	10%, 50V, El	
C-----2	59.32.0101		100 pF	20%, 500V, Cer	
C-----3	59.32.1336		33 pF	10%, 500V, Cer	
C-----4	59.22.8179		100 uF	10%, 25V, El	
C-----5	59.22.6100		10 uF	10%, 35V, El	
C-----6	59.22.8479		4.7 uF	10%, 50V, El	
C-----7	59.22.8679		4.7 uF	10%, 50V, El	
C-----8	59.22.8479		4.7 uF	10%, 50V, El	
C-----9	59.31.1104		0.1 uF	20%, 100V, MPETP	
C-----10	59.22.5101		100 uF	20%, 25V, El	
C-----11	59.32.0101		100 pF	20%, 500V, Cer	
C-----12	59.32.1336		33 pF	10%, 500V, Cer	
C-----13	59.22.8479		4.7 uF	10%, 50V, El	
C-----14	59.22.6100		10 uF	10%, 35V, El	
C-----15	59.22.6100		10 uF	10%, 35V, El	
C-----16	59.22.6106		10 uF	10%, 35V, El	
C-----17	59.22.8479		4.7 uF	10%, 50V, El	
C-----18	59.25.5230		22 uF	10%, 40V, El	
D-----1	50.04.0953	AA 116		GE	
D-----2	50.04.0953	AA 116		GE	
D-----3	50.04.0953	AA 116		GE	
D-----4	50.04.0953	AA 116		GE	
D-----5	50.04.0123	1 N 4448		any	
D-----6	50.04.1309	Z 20 V		5% 400mW	
D-----7	50.04.0125	1 N 4448		any	
D-----8	50.04.0125	1 N 4448		any	
IC----1	50.05.0257	LM 301			TI.N
IC----2	50.05.0257	LM 301			TI.N
IC----3	50.05.0245	MC 4558			TI.M
K-----1	54.04.0121	PZ 4		850 Ohm, 24V	
P-----1	54.01.0270	8-Pole		Pin-Strip	AMP
P-----2	54.01.0270	9-Pole		Pin-Strip	AMP

INC.	PCS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
Q-----1	50.03.0318	BC 178 B		PNP	
Q-----2	50.03.0436	BC 107 B		NPN	
Q-----3	50.03.0318	BC 178 B		PNP	
Q-----4	50.03.0318	BC 178 B		PNP	
Q-----5	50.03.0436	BC 107 B		NPN	
Q-----6	50.03.0436	BC 107 B		NPN	
Q-----7	50.03.0436	BC 107 B		NPN	
Q-----8	50.03.0436	BC 107 B		NPN	
Q-----9	50.03.0436	BC 107 B		NPN	
Q-----10	50.03.0436	BC 107 B		NPN	
R-----1	57.41.4221	220 Ohm		5%, 0.25W, CF	
R-----2	57.41.4221	220 Ohm		5%, 0.25W, CF	
R-----3	57.41.4221	220 Ohm		5%, 0.25W, CF	
R-----4	57.41.4221	220 Ohm		5%, 0.25W, CF	
R-----5	57.41.4821	820 Ohm		5%, 0.25W, CF	
R-----6	57.41.4183	18 kOhm		5%, 0.25W, CF	
R-----7	57.41.4821	820 Ohm		5%, 0.25W, CF	
R-----8	57.41.4272	2.7 kOhm		5%, 0.25W, CF	
R-----9	57.41.4471	470 Ohm		5%, 0.5 W, CF	
R-----10	57.41.4683	68 kOhm		5%, 0.25W, CF	
R-----11	57.41.4103	10 kOhm		5%, 0.25W, CF	
R-----12	57.41.4272	2.7 kOhm		5%, 0.25W, CF	
R-----13	57.41.4272	2.7 kOhm		5%, 0.25W, CF	
R-----14	57.41.4103	10 kOhm		5%, 0.25W, CF	
R-----15	57.41.4183	18 kOhm		5%, 0.25W, CF	
R-----16	57.41.4472	4.7 kOhm		5%, 0.25W, CF	
R-----17	57.41.4272	2.7 kOhm		5%, 0.25W, CF	
R-----18	57.41.4472	4.7 kOhm		5%, 0.25W, CF	
R-----19	57.41.4104	100 kOhm		5%, 0.25W, CF	
R-----20	57.41.4473	47 kOhm		5%, 0.25W, CF	
R-----21	57.41.4472	4.7 kOhm		5%, 0.25W, CF	
R-----22	57.41.4683	68 kOhm		5%, 0.25W, CF	
R-----23	57.41.4472	4.7 kOhm		5%, 0.25W, CF	
R-----24	57.41.4471	470 Ohm		5%, 0.5 W, CF	
R-----25	57.41.4564	560 kOhm		5%, 0.25W, CF	
R-----26	57.41.4273	27 kOhm		5%, 0.25W, CF	

INC.	PCS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
R-----27	57.41.4564	560 kOhm		5%, 0.25W, CF	
R-----28	57.41.4683	68 kOhm		5%, 0.25W, CF	
R-----29	57.41.4472	4.7 kOhm		5%, 0.25W, CF	
R-----30	57.41.4333	33 kOhm		5%, 0.25W, CF	
R-----31	57.41.4104	100 kOhm		5%, 0.25W, CF	
R-----32	57.41.4333	33 kOhm		5%, 0.25W, CF	
R-----33	58.19.0252	2.5 kOhm		20%, 0.15W, MCF	
R-----34	58.99.0131	470 kOhm		20%, 0.15W, MCF	
R-----35	57.41.4272	2.7 kOhm		5%, 0.25W, CF	
R-----36	57.41.4272	2.7 kOhm		5%, 0.25W, CF	
R-----37	58.99.0131	470 kOhm		20%, 0.15W, MCF	
R-----38	57.41.4333	33 kOhm		5%, 0.25W, CF	
R-----39	57.41.4103	10 kOhm		5%, 0.25W, CF	
R-----40	57.41.4473	47 kOhm		5%, 0.25W, CF	
R-----41	57.41.4391	390 Ohm		5%, 0.25W, CF	
R-----42	57.41.4273	27 kOhm		5%, 0.25W, CF	
R-----43	58.19.0252	2.5 kOhm		20%, 0.15W, MCF	
R-----44	57.41.4683	68 kOhm		5%, 0.25W, CF	
R-----45	57.41.4183	18 kOhm		5%, 0.25W, CF	
R-----46	57.41.4472	4.7 kOhm		5%, 0.25W, CF	
R-----47	57.41.4223	22 kOhm		5%, 0.25W, CF	
R-----48	57.41.4472	4.7 kOhm		5%, 0.25W, CF	
R-----49	57.41.4183	18 kOhm		5%, 0.25W, CF	
R-----50	57.41.4222	2.2 kOhm		5%, 0.25W, CF	

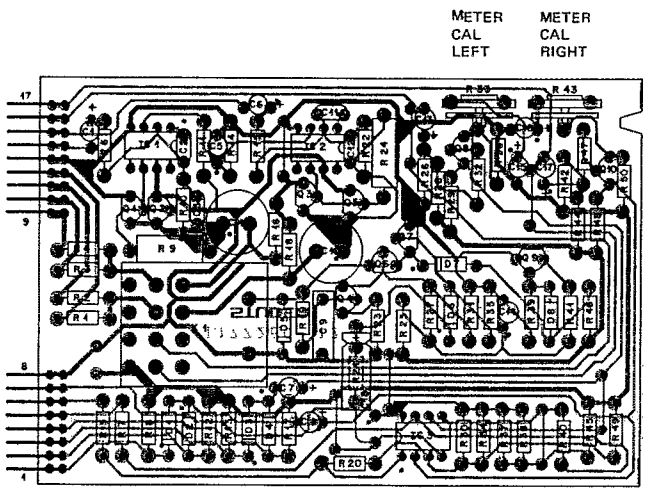
[illegible]

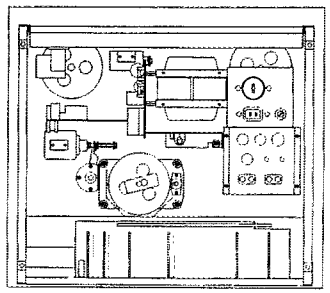
MONITOR AMPLIFIER PCB 1.177.260



UP TO SERIAL NUMBER 20190 : D6 = Z 24V / R34, R37 = FIXED RESISTORS

ONITOR AMPLIFIER PCB 1.177.260





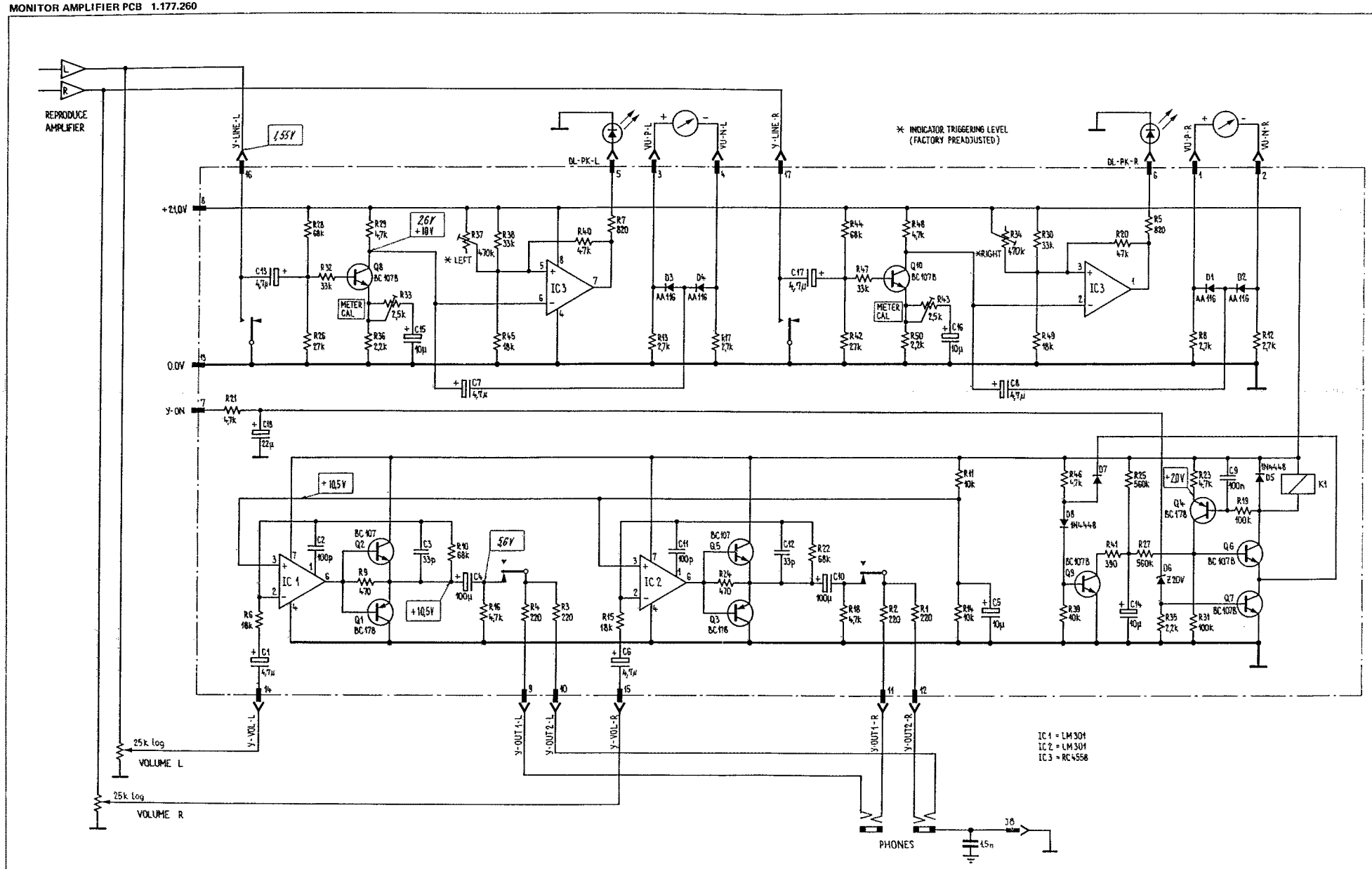
INC.	PCS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	C-----1	59.22.8479	4.7 uF	10%, 50V,	EI
	C-----2	59.32.5101	100 pF	20%, 500V,	Cer
	C-----3	59.32.5330	33 pF	10%, 500V,	Cer
	C-----4	59.22.5101	100 uF	10%, 25V,	EI
	C-----5	59.22.8108	10 uF	10%, 35V,	EI
	C-----6	59.22.8479	4.7 uF	10%, 50V,	EI
	C-----7	59.22.8479	4.7 uF	10%, 50V,	EI
	C-----8	59.22.8479	4.7 uF	10%, 50V,	EI
	C-----9	59.31.1104	0.1 uF	20%, 100V,	MKETP
	C-----10	59.22.5101	100 uF	20%, 25V,	EI
	C-----11	59.32.0101	100 pF	20%, 500V,	Cer
	C-----12	59.32.5330	33 pF	10%, 500V,	Cer
	C-----13	59.22.8479	4.7 uF	10%, 50V,	EI
	C-----14	59.22.8108	10 uF	10%, 35V,	EI
	C-----15	59.22.8108	10 uF	10%, 35V,	EI
	C-----16	59.22.8108	10 uF	10%, 35V,	EI
	C-----17	59.22.8479	4.7 uF	10%, 50V,	EI
	C-----18	59.25.5220	22 uF	10%, 40V,	EI
	D-----1	50.04.0955	AA 116	GE	
	D-----2	50.04.0955	AA 116	GE	
	D-----3	50.04.0955	AA 116	GE	
	D-----4	50.04.0955	AA 116	GE	
	D-----5	50.04.0125	1 N 4448	any	
	D-----6	50.04.1109	Z 20 V	5% 400mW	
	D-----7	50.04.0125	1 N 4448	any	
	D-----8	50.04.0125	1 N 4448	any	
	IC----1	50.05.0257	LM 301		TI-N
	IC----2	50.05.0257	LM 301		TI-N
	IC----3	50.05.0245	NC 4558		TI-P
	K-----1	56.04.0121	PZ 4	856 Ohms 2kV	
	P-----1	54.01.0270	8-Pole	Pin-Strip	AMP
	P-----2	54.01.0220	4-Pole	Pin-Strip	AMP

INC.	PCS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	D-----1	50.03.0118	BC 178 B	PNP	
	D-----2	50.03.0436	BC 107 B	NPN	
	D-----3	50.03.0118	BC 178 B	PNP	
	D-----4	50.03.0118	BC 178 B	PNP	
	D-----5	50.03.0436	BC 107 B	NPN	
	D-----6	50.03.0436	BC 107 B	NPN	
	D-----7	50.03.0436	BC 107 B	NPN	
	D-----8	50.03.0436	BC 107 B	NPN	
	D-----9	50.03.0436	BC 107 B	NPN	
	D-----10	50.03.0436	BC 107 B	NPN	
	R-----1	57.41.4221	220 Ohm	5%, 0.25W, CF	
	R-----2	57.41.4221	220 Ohm	5%, 0.25W, CF	
	R-----3	57.41.4221	220 Ohm	5%, 0.25W, CF	
	R-----4	57.41.4221	220 Ohm	5%, 0.25W, CF	
	R-----5	57.41.4821	820 Ohm	5%, 0.25W, CF	
	R-----6	57.41.4183	18 kOhm	5%, 0.25W, CF	
	R-----7	57.41.4821	820 Ohm	5%, 0.25W, CF	
	R-----8	57.41.4272	2.7 kOhm	5%, 0.25W, CF	
	R-----9	57.41.4471	470 Ohm	5%, 0.5 W, CF	
	R-----10	57.41.4683	68 kOhm	5%, 0.25W, CF	
	R-----11	57.41.4103	10 kOhm	5%, 0.25W, CF	
	R-----12	57.41.4272	2.7 kOhm	5%, 0.25W, CF	
	R-----13	57.41.4272	2.7 kOhm	5%, 0.25W, CF	
	R-----14	57.41.4103	10 kOhm	5%, 0.25W, CF	
	R-----15	57.41.4183	18 kOhm	5%, 0.25W, CF	
	R-----16	57.41.4472	4.7 kOhm	5%, 0.25W, CF	
	R-----17	57.41.4272	2.7 kOhm	5%, 0.25W, CF	
	R-----18	57.41.4472	4.7 kOhm	5%, 0.25W, CF	
	R-----19	57.41.4104	100 kOhm	5%, 0.25W, CF	
	R-----20	57.41.4473	47 kOhm	5%, 0.25W, CF	
	R-----21	57.41.4472	4.7 kOhm	5%, 0.25W, CF	
	R-----22	57.41.4683	68 kOhm	5%, 0.25W, CF	
	R-----23	57.41.4472	4.7 kOhm	5%, 0.25W, CF	
	R-----24	57.41.4471	470 Ohm	5%, 0.5 W, CF	
	R-----25	57.41.4564	560 kOhm	5%, 0.25W, CF	
	R-----26	57.41.4273	27 kOhm	5%, 0.25W, CF	

INC.	PCS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
	R-----27	57.41.4564	560 kOhm	5%, 0.25W, CF	
	R-----28	57.41.4683	68 kOhm	5%, 0.25W, CF	
	R-----29	57.41.4472	4.7 kOhm	5%, 0.25W, CF	
	R-----30	57.41.4333	33 kOhm	5%, 0.25W, CF	
	R-----31	57.41.4104	100 kOhm	5%, 0.25W, CF	
	R-----32	57.41.4333	33 kOhm	5%, 0.25W, CF	
	R-----33	58.19.9252	2.5 kOhm	20%, 0.15W, PCF	
	R-----34	58.59.3171	470 kOhm	20%, 0.15W, PCF	
	R-----35	57.41.4222	2.2 kOhm	5%, 0.25W, CF	
	R-----36	57.41.4222	2.2 kOhm	5%, 0.25W, CF	
	R-----37	58.59.3171	470 kOhm	20%, 0.15W, PCF	
	R-----38	57.41.4333	33 kOhm	5%, 0.25W, CF	
	R-----39	57.41.4103	10 kOhm	5%, 0.25W, CF	
	R-----40	57.41.4473	47 kOhm	5%, 0.25W, CF	
	R-----41	57.41.4391	390 Ohm	5%, 0.25W, CF	
	R-----42	57.41.4273	27 kOhm	5%, 0.25W, CF	
	R-----43	58.19.9252	2.5 kOhm	20%, 0.15W, PCF	
	R-----44	57.41.4683	68 kOhm	5%, 0.25W, CF	
	R-----45	57.41.4183	18 kOhm	5%, 0.25W, CF	
	R-----46	57.41.4472	4.7 kOhm	5%, 0.25W, CF	
	R-----47	57.41.4333	33 kOhm	5%, 0.25W, CF	
	R-----48	57.41.4472	4.7 kOhm	5%, 0.25W, CF	
	R-----49	57.41.4183	18 kOhm	5%, 0.25W, CF	
	R-----50	57.41.4222	2.2 kOhm	5%, 0.25W, CF	

Abbreviations: Capacitors: Ele=Electrolytic, Mkt=Metallized Polyester, Mkm=Metallized Polycarbonate, Cer=Ceramic
Resistors: Cf=Carbon Film, MCF=Metallized Carbon Film.
Manufacturers: AMP=Amphenol, TI=Texas Instruments, N=National.

MONITOR AMPLIFIER PCB 1.177.260



UP TO SERIAL NUMBER 20190 : D6 = Z 24V / R34, R37 = FIXED RESISTORS

INBAUANLEITUNG FÜR DIA-TEUERUNGEN

H / Free Head
ur "free head"-Betrieb
estellnummern: 2-Spur 74501
4-Spur 74503

IA / Dia-Synchro
ur einfachen Diasteuerung
estellnummern: 2-Spur 74502
4-Spur 74504

HA / Dissolve Head Amplifier
ur Dia Überblendsysteme
estellnummern: 2-Spur 74495
4-Spur 74496

llgemeines

.
aufwerkabdeckung vom Tonbandgerat abneh-
en.

.
a-Pilotkopf auf die im Nachrüstsatz enthalte-
, rechteckige Montageplatte aufschrauben und
wer auf der Seite der versenkten Montagelö-
her

.
Montageplatte mit Diapilotkopf rechts von der
onachse auf den Kopfträger schrauben (siehe
g. 4). Die drei Federn sind an der Unterseite
er Montageplatte zu verwenden.

.
ie am anderen Ende des Kopfkabels befindli-
en Flachstecker auf dem Audio Interconnec-
on Board 1.177.210 einstecken (gemäss Fig.
2. 3/Polarität beliebig). Kopfkabel kann am
ossen Kabelbund fixiert werden

.
ach Ausbau des Audio-Anschlussfeldes die be-
its mit Verbindungskabeln versehene 5- bzw.
polige Buchse beim Anschluss SLIDE SYNC
ontieren. Im Falle eines DHA-Bausatzes ist das
geschirmte Kabel zwischen Capstan-Motor
nd NF-Platine zu verlegen.
eiteres Vorgehen entsprechend der jeweiligen
ausatzvariante.

aim FH-Bausatz:

.
au Kabel von der 5-poligen Buchse oberhalb
es Tonmotors verlegen und den am Kabelende
efindlichen Flachstecker in die Steckerleiste J1
es Audio Interconnection Boards 1.177.210
instecken (siehe Fig. 1). Danach weiter bei
unkt 10

INSTALLATION INSTRUCTIONS FOR SLIDE CONTROL ELECTRONICS

FH / Free Head
For "free head" operation
Order number: 2-track 74501
4-track 74503

DIA / Dia-Synchro
For single projector operation
Order number: 2-track 74502
4-track 74504

DHA / Dissolve Head Amplifier
For cross-fade systems
Order number: 2-track 74495
4-track 74496

General

1.
Remove tape transport cover

2.
Attach the sync head to the rectangular mounting plate contained in the kit, so that the countersink side of the holes points to its head.

3.
Install the sync head with its mounting plate on the right of the capstan shaft by utilizing the 3-flat head screws (see fig. 4). Use the 3 springs on the underside of the mounting plate.

4.
Connect the push on terminals of the head cable to the mother board 1.177.210 as shown in the drawing on page 3 of this instruction sheet (according fig. 1, 2, 3/no need to observe polarity). If found necessary, tie the head cable to the existing wire harness.

5.
Remove audio connector panel and install the 5-pole or 6-pole socket (depending on kit) at position 44 (SLIDE SYNC) of the connector panel. Route the shielded cable between the capstan motor and the audio boards.
Continue as described under the appropriate heading.

FH kit

6.
Place the cable from the 5-pole socket above the capstan motor and insert the flat plug at the cable's end into the upper edge J1 connector on board 1.177.210 (see fig. 1).
Continue at step 10

INSTRUCTION DE MONTAGE POUR LES KITS DE COMMANDE DE DIAPOSITIVES

FH / Free Head
Pour utilisation "tête libre"
Numéros de référence: 2-pistes 74501
4-pistes 74503

DIA / Dia-Synchro
Pour commande dias simple
Numéros de référence: 2-pistes 74502
4-pistes 74504

DHA / Dissolve Head Amplifier
Pour fondu enchaîné
Numéros de référence: 2-pistes 74495
4-pistes 74496

Généralités

1.
Déposez le capot de recouvrement du mécanisme.

2.
Vissez la tête pilote contenue dans le kit, sur la plaque de montage rectangulaire, côté fraisé des trous de fixation.

3.
A droite de l'axe de cabestan, vissez la plaque de montage avec la tête pilote, sur le support des têtes (voir fig. 4), les 3 ressorts sous la plaque de montage.

4.
Raccordez la fiche plate de l'extrémité du câble à circuit de base 1.177.210 (conforme à fig. 1, 2, 3/polarité quelconque). Attachez si nécessaire, le câble au toron principal

5.
Après démontage du panneau de raccordement audio, fixez la prise 5 ou 6 pôles à l'emplacement 44 (SLIDE SYNC). Pour la version DHA, tirez le câble blindé entre le moteur de cabestan et le circuit de base.
Les instructions suivantes varient selon les versions.

Kit de montage FH

6.
Placez le câble de la fiche 5 pôles au-dessus du moteur de cabestan et raccordez la fiche plate de l'extrémité du câble J1 à la partie supérieure du connecteur libre du circuit de base 1.177.210 (voir fig. 1).
Poursuivre au point 10.

Beim DIA- sowie DHA Bausatz:

6.
DIA- oder DHA-Platine (1.177.270 resp. 1.177.282) in die freien Steckerleisten J1/J10 auf dem Audio Interconnection Board 1.177.210 einstecken (siehe Fig. 2).

7.
Drehschalter des DHA-Bausatzes bzw. Schalter des DIA-1/4Spur-Bausatzes in das im Chassis vorhandene Loch rechts der Drucktaste "reel size" einbauen.

8.
Beim DIA-Bausatz das Verbindungskabel zur 6-poligen Buchse SLIDE SYNC oberhalb des Tonmotors verlegen und die beiden Flachstecker (beliebige Polung) auf dem Slide Synchronizer 1.177.270 einstecken (siehe Fig. 2).

Beim DHA-Satz den flachen, 6-poligen (CIS) Stecker in die freie Steckerleiste auf dem Interface 1.177.282 einstecken (siehe Fig. 3).

9.
Bei DHA- oder DIA-1/4Spur-Umrüstung auf der Laufwerkabdeckung die Lochmitte für den jeweiligen Schalter links vom Kopfträger, schräg unterhalb des Bandfühlhebels, gemäss der Massskizze Fig. 4 anreissen. Loch mit einem Durchmesser von 8,7 mm bohren und anschliessend die zutreffende Beschriftungsetikette aufkleben.

10.
Nach Auflegen eines Tonbandes den Diapilotkopf in der Höhe so verstellen, dass seine Ober- und Unterkante mit dem vorbeilaufenden Tonband bündig ist.
Bei den DHA- und FH-Versionen kann zur Senkrechtstellung des Spaltes die Vollspur-Aufzeichnung einer Frequenz im Bereich von 1...3 kHz abgespielt werden, wobei der Kopf mittels Taumelschraube auf maximale Ausgangsspannung einzustellen ist.
Bei der Version DIA empfiehlt sich eine Funktionskontrolle nach Bedienungsanleitung 10.2.

11.
Laufwerkabdeckung wieder montieren. Dabei darauf achten, dass das Kopfkabel nicht eingeklemmt wird

DIA and DHA kit

6.
Insert DIA or DHA circuit board (1.177.270 or 1.177.282) into the free socket strip J1/J10 on board 1.177.210 (see fig. 2)

7.
Install the 3 position rotary switch of the DHA kit or the push-button switch of the DIA-1/4track-kit in the free hole to the right of the push-button "reel size".

8.
When installing a DIA kit, route the interconnecting cable to the 6-pole socket SLIDE SYNC above the capstan motor and connect the two push-on terminals to the DIA electronics 1.177.270 (see fig. 2).

In case of the DHA kit connect the flat 6-pole plug to the free socket on board 1.177.282 (see fig. 3).

9.
When retrofitting a DHA- or DIA-1/4track-kit, mark the center of the hole for the required switch to the left of the head-block as shown on the drawing at the bottom according the dimensional drawing fig. 4. Drill a 8,7 mm (11/32 inch) diameter hole and attach the self-adhesive designation label.

10.
By running a tape on the recorder, adjust the sync head laterally, so that its upper and lower edges are in line with the passing tape.
On DHA and FH kits gap azimuth can be adjusted by reproducing a full-track recording of 1...3 khz and altering the heads azimuth setting until a maximum signal output is obtained.
On DIA conversions, it is suggested to run a functional check as per section 10.2 of the recorders operating instructions.

11.
Reinstall the plastic deck cover and take care not to pinch the head cable.

Kit de montage DIA ou DHA

6.
Enfichez la plaquette DIA (1.177.270) ou DHA (1.177.282) dans les connecteurs libres J1/J10 du circuit de base 1.177.210 (voir fig. 2).

7.
A droite de la touche "reel size", montez dans le trou libre du châssis le commutateur du kit DIA 4 pistes ou le commutateur rotatif du kit DHA.

8.
Pour le kit DIA, placez au-dessus du moteur de cabestan, le câble de la fiche 6 pôles SLIDE SYNC et raccordez les deux fiches plates (sans tenir compte de la polarité) aux connecteurs de la plaquette DIA 1.177.270 (voir fig. 2).

Pour le kit DHA, raccordez la fiche plate 6 pôles (CIS) au connecteur de la plaquette 1.177.282 (voir fig. 3).

9.
Les versions DIA 4 pistes et DHA nécessitent une perforation du capot de recouvrement du mécanisme, à gauche du support des têtes, endessous du tendeur de bande. Marquez le centre du trou à l'aide de l'esquisse se trouvant au dessin des dimensions fig. 4. Percez avec une mèche de 8,7 mm et collez l'étiquette correspondante.

10.
Après la mise en place d'une bande, ajustez la hauteur de la tête pilote, de manière à faire coincider les arrêts supérieurs et inférieurs avec la largeur de la bande.
Dans les versions DHA et FH, l'ajustage correct de l'azimut permet l'enregistrement et la lecture dans une largeur de bande allant de 1...3 kHz.
On réglera l'azimut au maximum de signal de sortie.
Pour la version DIA, il est conseillé d'effectuer un contrôle de fonction selon le mode d'emploi 10.2.

11.
Remontez le capot de recouvrement du mécanisme, en veillant de ne pas pincer le câble de la tête pilote.

FIG.1 INSTALLATION OF FREE HEAD KIT

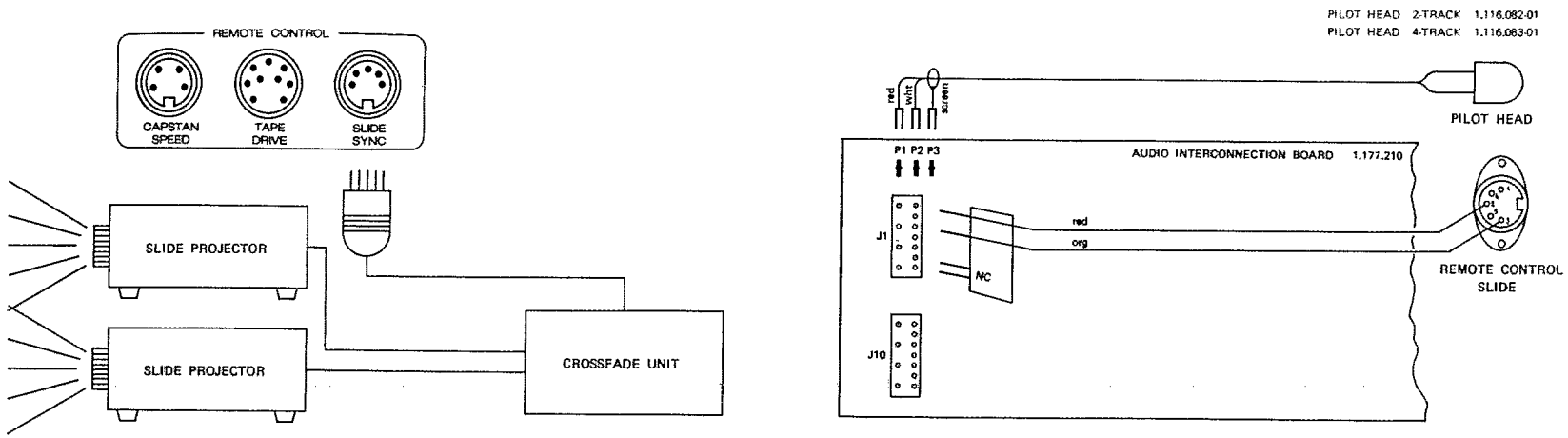
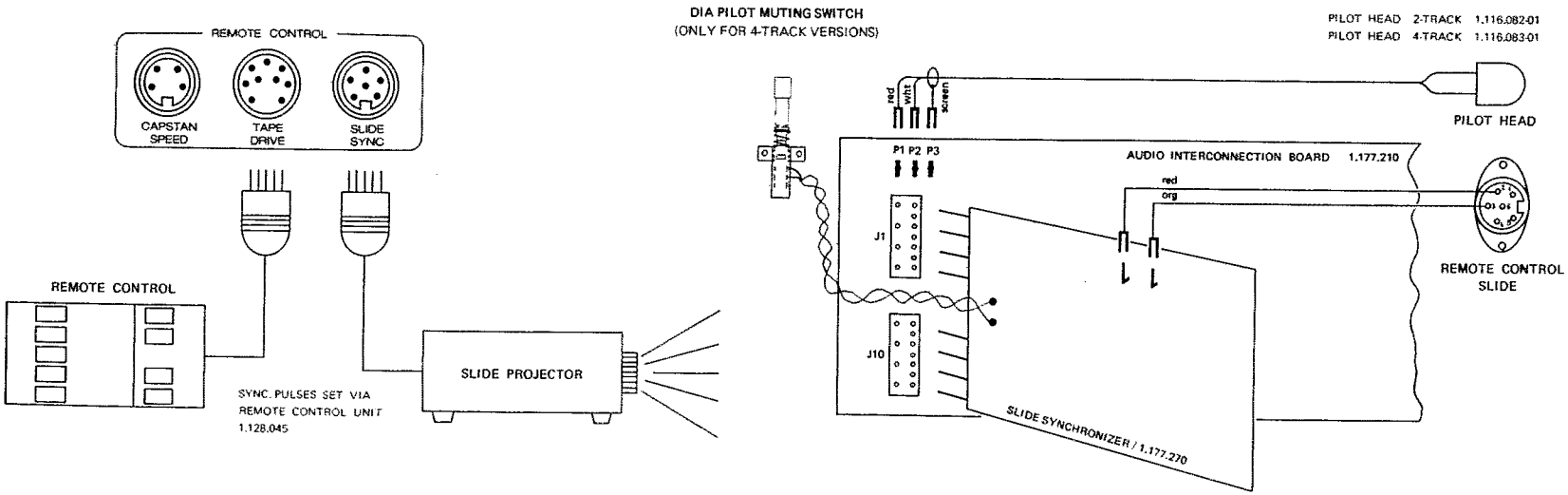
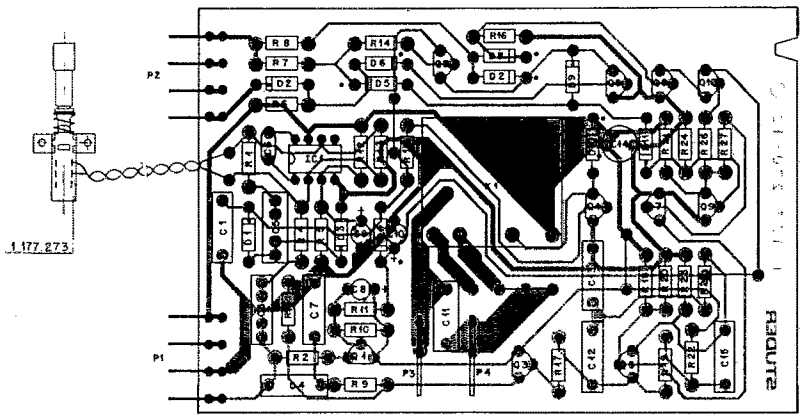


FIG.2 INSTALLATION OF DIA SYNC KIT



SLIDE SYNCHRONIZER PCB 1.177.270



Schaltzustand	Funktion
PLAY	Wiedergabe Steuerimpulse
PLAY + SLIDE REC	Wiedergabe Steuerimpulse gesperrt
PLAY + REC + normal	normale NF Aufnahme
PLAY + REC + SLIDE REC	Löschen der Steuerimpulse
PLAY + REC + SLIDE REC + SET SLIDE	Solange SET gedrückt wird Steuerimpuls gesetzt Kurz und lang möglich!

Effected switching	Resulting function
PLAY	Reproduction of control impulses
PLAY + SLIDE REC	Reproduction of control impulses disabled
PLAY + REC + preselector	Normal audio recording
PLAY + REC + SLIDE REC	Erasure of control impulses
PLAY + REC + SLIDE REC + SET SLIDE	Recording of a new impulse as long as the button SET is kept depressed

Commande	Fonction
PLAY	Lecture des impulsions
PLAY + SLIDE REC	Blocage de la lecture des impulsions
PLAY + REC + présélecteur	Enregistrement BF normal
PLAY + REC + SLIDE REC	Effacement des impulsions de commande
PLAY + REC + SLIDE REC + SET SLIDE	Enregistrement des impulsions de commande aussi longtemps que la touche SET reste enfoncée

POS NO	PART NO	VALUE	SPECIFICATIONS	EQUIVALENT	MFR
C 01	59.31.6104	0.1 U	10% 100V MPETP		
C 03	59.31.6104	0.1 U	10% 100V MPETP		
C 04	59.31.6104	0.1 U	10% 100V MPETP		
C 05	59.31.1224	0.22 U	20% 100V MPETP		
C 06	59.22.0100	10 P	20% 50V CER		
C 07	59.31.6104	0.1 U	10% 100V MPETP		
C 08	59.30.1470	47 U	-20% 3V TA		
C 09	59.30.6339	3.3 U	-20% 35V TA		
C 10	59.30.6339	3.3 U			
C 11	59.31.1224	0.22 U	20% 100V MPETP		
C 12	59.31.6104	0.1 U	10%		
C 13	59.31.6104	0.1 U			
C 14	59.22.5470	47 U	-10% 25V EL		
C 15	59.31.6104	0.1 U	10% 100V MPETP		
D 01	50.04.0125	1N 4448			any
D 02	50.04.0125	1N 4448			
D 03	50.04.0125	1N 4448			
D 04	50.04.0125	1N 4448			
D 05	50.04.0126	Z 15	15V 5% 400mW		
D 06	50.04.0125	1N 4448			
D 07	50.04.0125	1N 4448			
D 08	50.04.0125	1N 4448			
D 09	50.04.0125	1N 4448			
D 10	50.04.0125	1N 4448			
D 11	50.04.0125	1N 4448			
IC 1	50.05.0287	LM 301			TI,N
K 01	56.99.0116	I x U	24V		S, O
P 01	54.01.0470	4-Pole	Pin-Strip	AMP	
P 02	54.01.0470	4-Pole	Pin-Strip	AMP	
P 03	54.02.0328		Flat Pin 0.8	AMP	
P 04	54.02.0328		Flat Pin 0.8	AMP	
Q 01	50.03.0318	BC178B		PNP	any
Q 02	50.03.0436	BC107B		NPN	
Q 03	50.03.0436	BC107B		NPN	
Q 04	50.03.0436	BC107B		NPN	
Q 05	50.03.0439	BC109C		NPN	
Q 06	50.03.0436	BC107B		NPN	
Q 07	50.03.0436	BC107B		NPN	
Q 08	50.03.0436	BC107B		NPN	
Q 09	50.03.0436	BC107B		NPN	
Q 10	50.03.0436	BC107B		NPN	

TI = Texas Instr.
N = National
S = Siemens
O = Omron

MPETP = metallized polyester
TA = tantalum
EL = electrolytic
CER = ceramic

IND	DATE	NAME
	1.2.80	
	8.1.79	
	8.6.78	

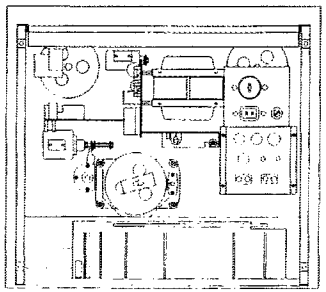
STUDER — SLIDE SYNCHRONIZER — 1.177.270 — PAGE 1 of 2

POS NO	PART NO	VALUE	SPECIFICATIONS	EQUIVALENT	MFR
R 01	57.41.4682	6.8 k	5% .25W CF		
R 02	57.41.4153	15 k			
R 03	57.41.4822	8.2 k			
R 04	57.41.4271	270			
R 05	57.41.4223	22 k			
R 06	57.41.4223	22 k			
R 07	57.41.4182	1.8 k			
R 08	57.41.4103	10 k			
R 09	57.41.4472	4.7 k			
R 10	57.41.4332	3.3 k			
R 11	57.41.4333	33 k			
R 12	57.41.4223	22 k			
R 13	57.41.4105	1 M			
R 14	57.41.4223	22 k			
R 15	57.41.4333	33 k			
R 16	57.41.4332	3.3 k			
R 17	57.41.4103	10 k			
R 18	57.41.4333	33 k			
R 19	57.41.4332	3.3 k			
R 20	57.41.4183	18 k			
R 21	57.41.4103	10 k			
R 22	57.41.4182	1.8 k			
R 23	57.41.4332	3.3 k			
R 24	57.41.4332	3.3 k			
R 25	57.41.4331	330			
R 26	57.41.4333	33 k			
R 27	57.41.4333	33 k			

CF = Carbon Film

IND	DATE	NAME
	1.2.80	
	8.3.78	
	8.6.78	

STUDER — SLIDE SYNCHRONIZER — 1.177.270 — PAGE 2 of 2



DIASTEUERUNG 1.177.270

Mit einem eingebauten Spezial-Tonkopf und angeschlossener Laufwerk-Fernbedienung, ermöglicht diese Schaltung Steuerimpulse für den Bildwechsel bei handelsüblichen Dia-Projektoren auf Band zu bringen.

Eine Anpassung der Steuerschaltung an diverse Projektor-Fabrikate ist gewährleistet, indem über einen galvanisch getrennten Relaiskontakt geschaltet wird.

Über die beiden Steuertasten REC-SLIDE und SET-SLIDE, werden die folgenden Betriebszustände gewählt.

- Wiedergabe von Schaltimpulsen
- Sperren der Wiedergabe von bereits aufgezeichneten Schaltimpulsen (wichtig bei bespielten 4-Spur Bändern)
- Löschen sowie Setzen von (neuen) Impulsen

Es werden 1 kHz Sinussignale aufgezeichnet. Die Löschung erfolgt mit Gleichstrom.

Die genaue Funktion der Steuertasten ist aus der Tabelle ersichtlich. Ausserbetriebsetzen des Relais ohne angeschlossene Fernbedienung ist mit Schalter "DIA PILOT MUTING SWITCH" möglich.

Slide synchronizing electronics 1.177.270

A special magnetic head in conjunction with the slide synchronizing electronics makes it possible to record control impulses on tape. Upon playback, these impulses will effect a picture change in any commercially available projector, when connected to the B77 recorder. This system is operational only in conjunction with the REVOX B77 remote control device.

Reliable operation with different makes of projectors is ensured by the fact that control of the slide advance mechanism is effected by separate relay contacts.

By means of the buttons REC-SLIDE and SET-SLIDE on the remote control device, the following operating conditions can be selected:

- Reproduction of control (switching) impulses.
- Disabling of the synchronizing circuit so as not to respond to signals scanned by the impulse head (important when playing fully recorded quarter track tapes)
- Erasure and recording of (new) control impulses

The exact function of each control button can be seen from the table. To disable the relay without a remote control device connected to the recorder, pull the "DIA PILOT MUTING SWITCH".

Synchronisateur de diapositives 1.177.270

Ce circuit monté dans un B77 équipé d'une tête pilote et raccordé à la commande à distance, permet la commande par la bande d'un projecteur de diapositives.

La commande par les contacts du relais, isolés galvaniquement du circuit, s'adapte à n'importe quel type de projecteur.

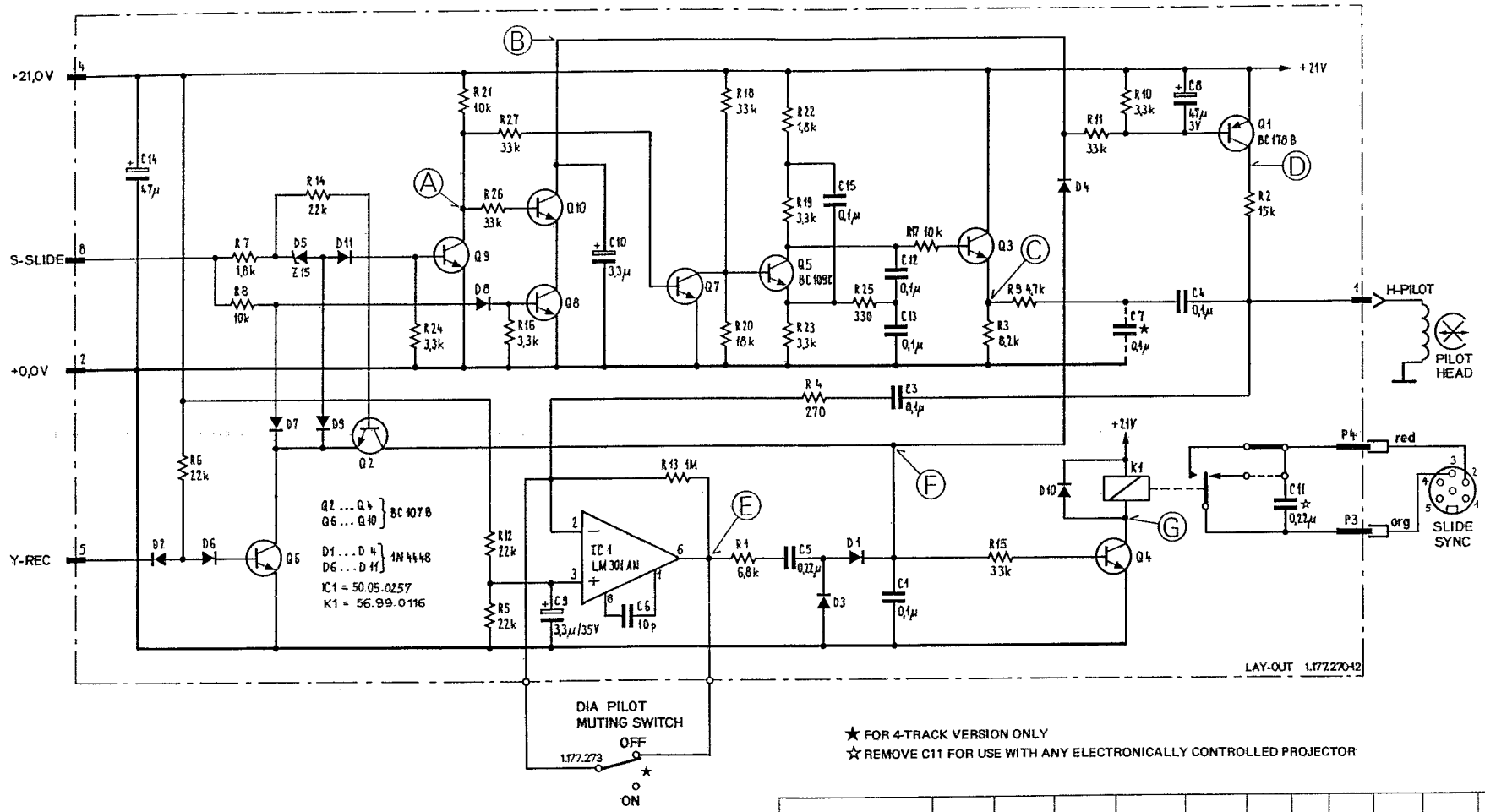
Les deux touches de commande REC-SLIDE et SET-SLIDE permettent les fonctions suivantes:

- Lecture des impulsions de commande
- Blocage de la lecture des impulsions de commande (important pour les appareils 4 pistes)
- Effacement ainsi qu'enregistrement des (nouvelles) impulsions.

Ces impulsions sont constituées par des trains d'un signal sinusoïdal de 1 kHz. L'effacement s'effectue par courant continu.

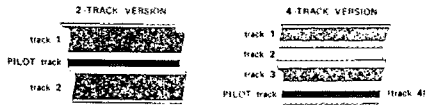
Les fonctions exactes des touches de commande sont données par la tabelle. La mise sans l'aide de la commande à distance, peut se faire avec le bouton poussoir "DIA PILOT MUTING SWITCH".

SLIDE SYNCHRONIZER PCB 1.177.270



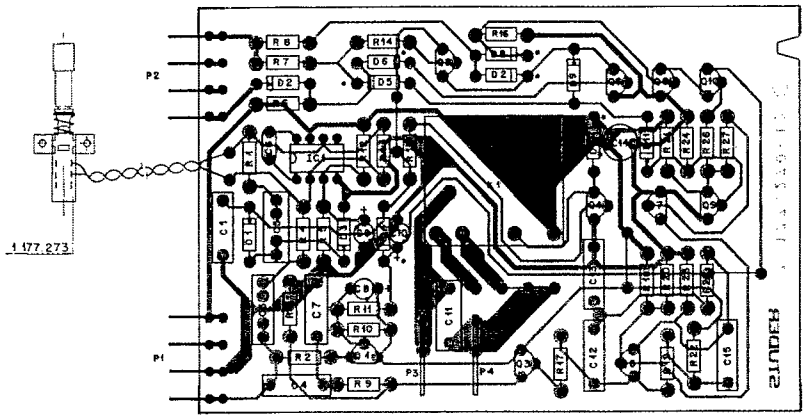
★ FOR 4-TRACK VERSION ONLY
☆ REMOVE C11 FOR USE WITH ANY ELECTRONICALLY CONTROLLED PROJECTOR

MODE	Y–REC	S–SLIDE	RELAY	1 kHz–OSC	DC ERASING	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	Ⓕ	Ⓖ
PLAY	HI	0V	(ON)	--	--	15 V	21 V	--	0V	46Vrms	1.5V AC ±0.5V	(0V)
RECORD + REC–SLIDE	LO	12V	--	--	ON	12.5V	0.1V	--	21V	--	0.5V DC	21V
RECORD + REC–SLIDE + SET–SLIDE	LO	24V	ON	ON	--	0.1V	21 V	2Vrms	0V	15Vpp	3 V AC ±0.7V	(0V)
PLAY + REC–SLIDE (CANCELS REPRO PULSES)	HI	12V	--	--	--	15 V	21 V	--	0V	--	0V	21V



2-TRACK VERSION / KIT 74502
4-TRACK VERSION / KIT 74504

LIDE SYNCHRONIZER PCB 1.177.270



Schaltfeld	Funktion
PLAY	Weitergabe Steuerimpulse
PLAY + SLIDE REC	Weitergabe Steuerimpulse gesperrt
PLAY + REC + normale	normale NF Aufnahme
PLAY + REC + SLIDE REC	Löschen der Steuerimpulse
PLAY + REC + SLIDE REC + SET-SLIDE	solange SET gedrückt wird Steuerimpulse generiert (kurz und lang möglich)

Effectuation	Fonction
PLAY	Reproduction of control impulses
PLAY + SLIDE REC	Reproduction of control impulses disabled
PLAY + REC + prosecutor	Normal audio recording
PLAY + REC + SLIDE REC	Erasure of control impulses
PLAY + REC + SLIDE REC + SET SLIDE	Recording of a new impulse as long as the button SET is kept depressed

Commande	Fonction
PLAY	Lecture des impulsions
PLAY + SLIDE REC	Blocage de la lecture des impulsions
PLAY + REC + présélecteur	Enregistrement BF normal
PLAY + REC + SLIDE REC	Effacement des impulsions de commande
PLAY + REC + SLIDE REC + SET SLIDE	Enregistrement des impulsions de commande aussi longtemps que la touche SET reste enfoncée

POS NO	PART NO	VALUE	SPECIFICATIONS	EQUIVALENT	MFR
C 01	59.31.6104	0.1 U	10% 100V MPETP		
C 02	59.31.6104	0.1 U	10% 100V MPETP		
C 04	59.31.6104	0.1 U	10% 100V MPETP		
C 05	59.31.1224	0.22 U	20% 100V MPETP		
C 06	59.32.0100	10 P	20% 50V CER		
C 07	59.31.6104	0.1 U	10% 100V MPETP		
C 08	59.30.1470	47 U	-20% 3V TA		
C 09	59.30.6334	3.3 U	-20% 35V TA		
C 10	59.30.6334	3.3 U			
C 11	59.31.1224	0.22 U	20% 100V MPETP		
C 12	59.31.6104	0.1 U	10%		
C 13	59.31.6104	0.1 U			
C 14	59.22.5470	47 U	-10% 25V EL		
C 15	59.31.6104	0.1 U	10% 100V MPETP		
D 01	50.04.0125	1N 4448			any
D 02	50.04.0125	1N 4448			
D 03	50.04.0125	1N 4448			
D 04	50.04.0125	1N 4448			
D 05	50.04.0119	Z 15	15V 5% 400mW		
D 06	50.04.0125	1N 4448			
D 07	50.04.0125	1N 4448			
D 08	50.04.0125	1N 4448			
D 09	50.04.0125	1N 4448			
D 10	50.04.0125	1N 4448			
D 11	50.04.0125	1N 4448			
IC 1	50.05.0257	LM 301			TI.N
K 01	56.89.0116	1 x U	24V		S. O
P 01	54.01.0470	4.Pole	PIN.Strap		AMP
P 02	54.01.0470	4.Pole	PIN.Strip		AMP
P 03	54.02.0328		Flat Pin 0.8		AMP
P 04	54.02.0328		Flat Pin 0.8		AMP
Q 01	50.03.0318	BC178B		PNP	any
Q 02	50.03.0436	BC107B		NPN	
Q 03	50.03.0436	BC107B		NPN	
Q 04	50.03.0436	BC107B		NPN	
Q 05	50.03.0439	BC109C		NPN	
Q 06	50.03.0436	BC107B		NPN	
Q 07	50.03.0436	BC107B		NPN	
Q 08	50.03.0436	BC107B		NPN	
Q 09	50.03.0436	BC107B		NPN	
Q 10	50.03.0436	BC107B		NPN	

TI = Texas Instr.
N = National
S = Siemens
O = Omron

MPETP = metallized polyester
TA = tantalum
EL = electrolytic
CER = ceramic

IND	DATE	NAME
1	1.1.80	Kol
2	8.5.79	Kol
3	8.6.78	Kol/Sr A

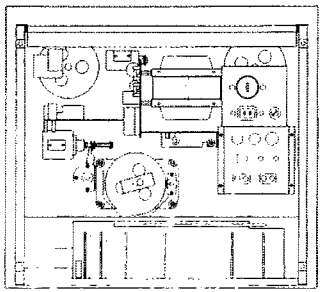
STUDER — SLIDE SYNCHRONIZER — 1.177.270 — PAGE 1 of 2

POS NO	PART NO	VALUE	SPECIFICATIONS	EQUIVALENT	MFR
R 01	57.41.4682	6.8 k	5% .25W CF		
R 02	57.41.4153	15 k			
R 03	57.41.4822	8.2 k			
R 04	57.41.4271	270			
R 05	57.41.4223	22 k			
R 06	57.41.4223	22 k			
R 07	57.41.4182	1.8 k			
R 08	57.41.4103	10 k			
R 09	57.41.4472	4.7 k			
R 10	57.41.4332	3.3 k			
R 11	57.41.4333	33 k			
R 12	57.41.4223	22 k			
R 13	57.41.4105	1 M			
R 14	57.41.4223	22 k			
R 15	57.41.4333	33 k			
R 16	57.41.4332	3.3 k			
R 17	57.41.4103	10 k			
R 18	57.41.4333	33 k			
R 19	57.41.4332	3.3 k			
R 20	57.41.4183	18 k			
R 21	57.41.4103	10 k			
R 22	57.41.4182	1.8 k			
R 23	57.41.4332	3.3 k			
R 24	57.41.4332	3.3 k			
R 25	57.41.4331	330			
R 26	57.41.4333	33 k			
R 27	57.41.4333	33 k			

CF = Carbon Film

IND	DATE	NAME
1	1.1.80	Kol
2	8.5.79	Kol
3	8.6.78	Kol/Sr A

STUDER — SLIDE SYNCHRONIZER — 1.177.270 — PAGE 2 of 2



DIASTEUERUNG 1.177.270

Mit einem eingebauten Spezial-Tonkopf und angeschlossener Laufwerk-Fernbedienung, ermöglicht diese Schaltung Steuerimpulse für den Bildwechsel bei handelsüblichen Dia-Projektoren auf Band zu bringen.

Eine Anpassung der Steuerschaltung an diverse Projektor-Fabrikate ist gewährleistet, indem über einen galvanisch getrennten Relaiskontakt geschaltet wird.

Über die beiden Steuertasten REC-SLIDE und SET-SLIDE, werden die folgenden Betriebszustände gewählt:

- Wiedergabe von Schaltimpulsen
- Sperren der Wiedergabe von bereits aufgezeichneten Schaltimpulsen (wichtig bei bespielten 4-Spur Bandern)
- Löschen sowie Setzen von (neuen) Impulsen

Es werden 1 kHz Sinussignale aufgezeichnet. Die Löschung erfolgt mit Gleichstrom.

Die genaue Funktion der Steuertasten ist aus der Tabelle ersichtlich. Außerbetriebsetzen des Relais ohne angeschlossene Fernbedienung ist mit Schalter "DIA PILOT MUTING SWITCH" möglich.

Slide synchronizing electronics 1.177.270

A special magnetic head in conjunction with the slide synchronizing electronics makes it possible to record control impulses on tape. Upon playback, these impulses will effect a picture change in any commercially available projector, when connected to the B77 recorder. This system is operational only in conjunction with the REVOX B77 remote control device.

Reliable operation with different makes of projectors is ensured by the fact that control of the slide advance mechanism is effected by separate relay contacts.

By means of the buttons REC-SLIDE and SET-SLIDE on the remote control device, the following operating conditions can be selected.

- Reproduction of control (switching) impulses.
- Disabling of the synchronizing circuit so as not to respond to signals scanned by the impulse head (important when playing fully recorded quarter track tapes).
- Erasure and recording of (new) control impulses.

The exact function of each control button can be seen from the table. To disable the relay without a remote control device connected to the recorder, pull the "DIA PILOT MUTING SWITCH".

Synchronisateur de diapositives 1.177.270

Ce circuit monté dans un B77 équipé d'une tête pilote et raccordé à la commande à distance, permet la commande par la bande d'un projecteur de diapositives.

La commande par les contacts du relais, isolés galvaniquement du circuit, s'adapte à n'importe quel type de projecteur.

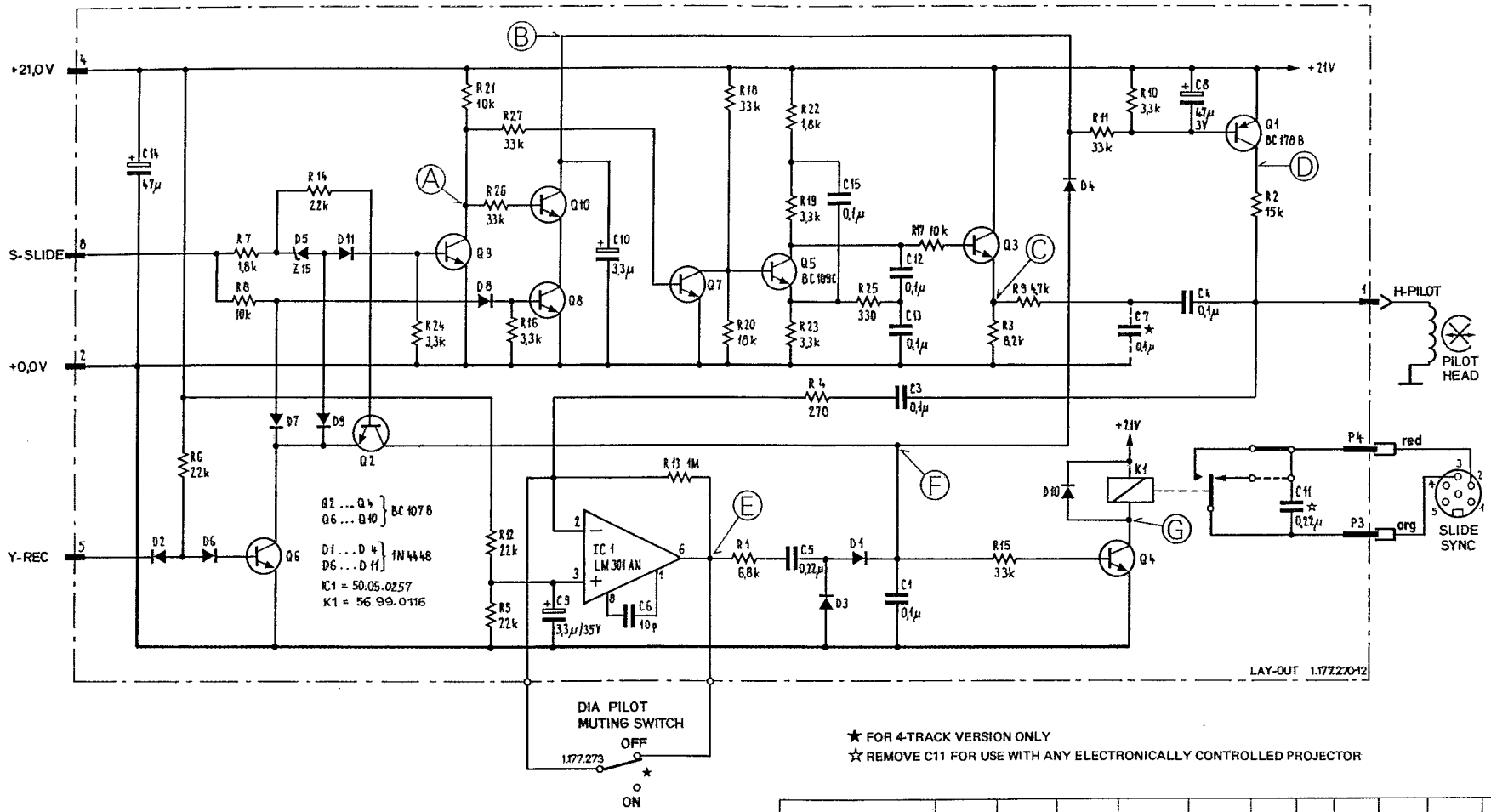
Les deux touches de commande REC-SLIDE et SET-SLIDE permettent les fonctions suivantes:

- Lecture des impulsions de commande
- Blocage de la lecture des impulsions de commande (important pour les appareils 4 pistes).
- Effacement ainsi qu'enregistrement des (nouvelles) impulsions.

Ces impulsions sont constituées par des trains d'un signal sinusoïdal de 1 kHz. L'effacement s'effectue par courant continu.

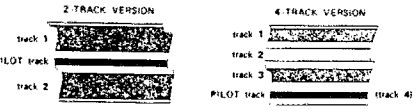
Les fonctions exactes des touches de commande sont données par la tabelle. La mise sans l'aide de la commande à distance, peut se faire avec le boutton poussoir "DIA PILOT MUTING SWITCH".

SLIDE SYNCHRONIZER PCB 1.177.270



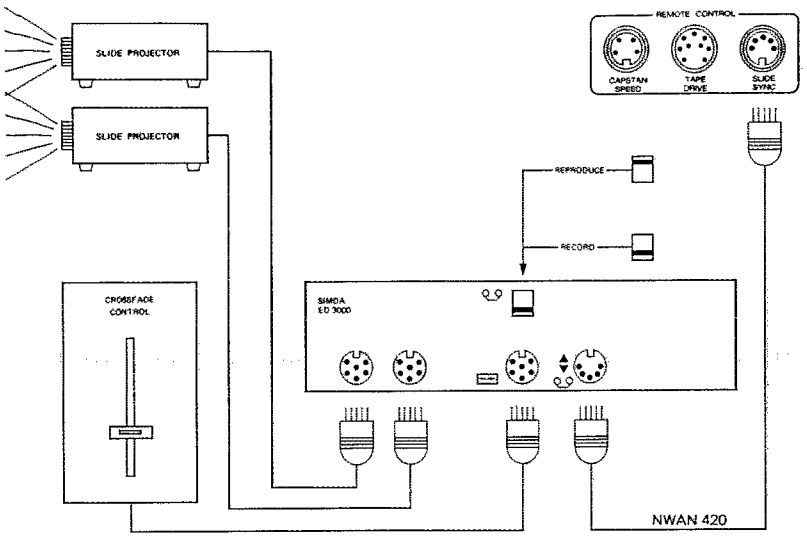
★ FOR 4-TRACK VERSION ONLY
☆ REMOVE C11 FOR USE WITH ANY ELECTRONICALLY CONTROLLED PROJECTOR

MODE	Y-REC	S-SLIDE	RELAY	1 kHz-OSC	DC ERASING	(A)	(B)	(C)	(D)	(E)	(F)	(G)
PLAY	HI	0V	(ON)	--	--	15 V	21 V	--	0V	4mVrms	1.5V AC ±0.5V	(0V)
RECORD + REC-SLIDE	LO	12V	--	--	ON	12.5V	0.1V	--	21V	--	0.5V DC	21V
RECORD + REC-SLIDE + SET-SLIDE	LO	24V	ON	ON	--	0.1V	21 V	2Vrms	0V	15Vpp	3 V AC ±0.7V	(0V)
PLAY + REC-SLIDE (CANCELS REPRO PULSES)	HI	12V	--	--	--	15 V	21 V	--	0V	--	0V	21V



2-TRACK VERSION / KIT 74502
4-TRACK VERSION / KIT 74504

G.3 INSTALLATION OF DISSOLVE HEAD KIT



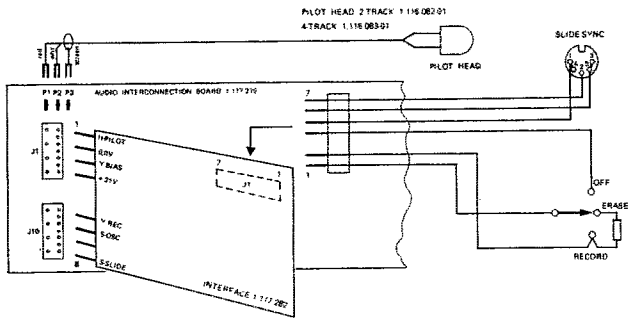


FIG.4 HOLE DRILLING INSTRUCTIONS

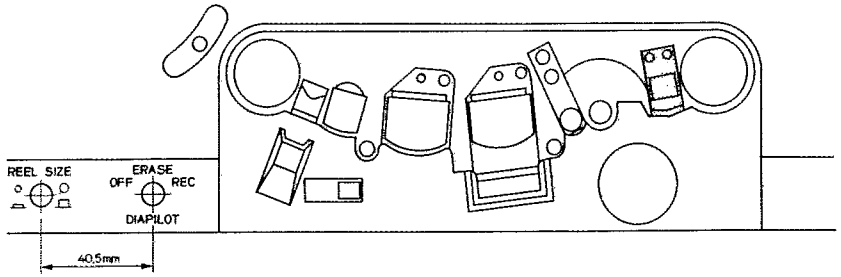
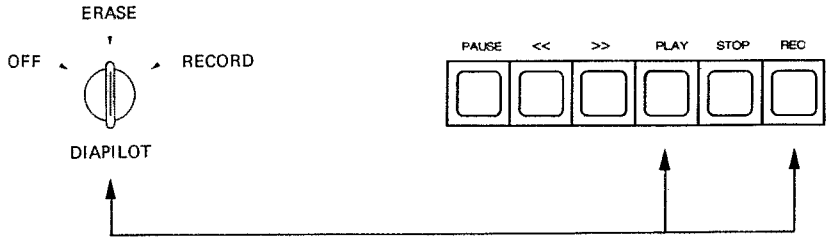
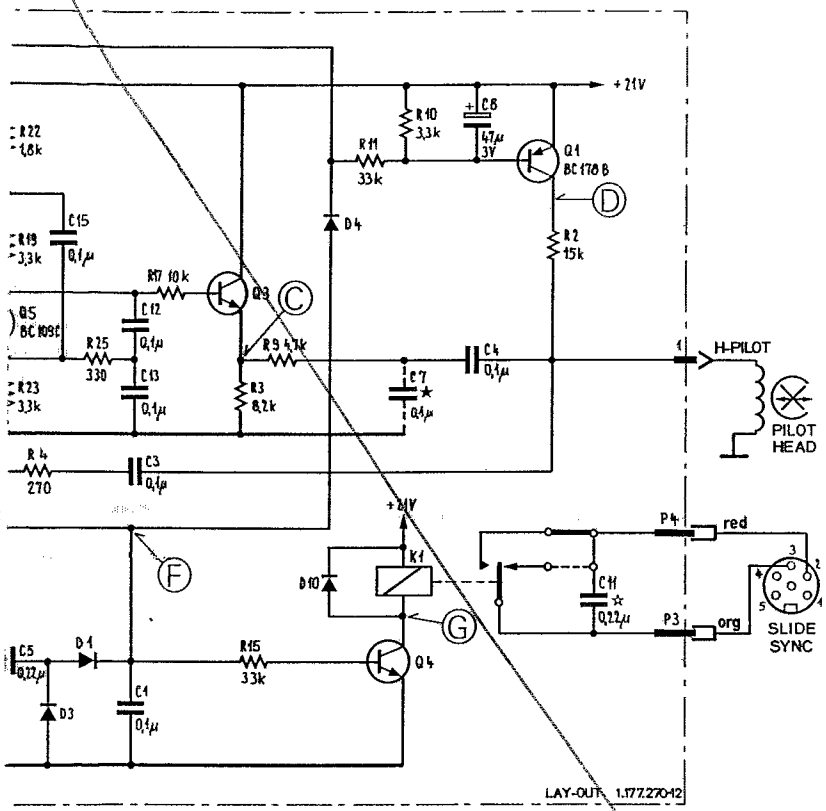


FIG.5 DHA OPERATION



PLAY+REC	⊕	DIAPILOT	"OFF"	= REPRODUCTION OF PILOT-TRACK
			"ERASE"	= PILOT TRACK ERASED
			"RECORD"	= SIMDA-SIGNAL RECORDED ON PILOT-TRACK
PLAY	⊕	DIAPILOT	"OFF", "ERASE", "RECORD"	= REPRODUCTION OF PILOT-TRACK

POSITION OF RECORD PRESELECTORS NOT IMPORTANT FOR DIAPILOT-MODE



★ FOR 4-TRACK VERSION ONLY

☆ REMOVE C11 FOR USE WITH ANY ELECTRONICALLY CONTROLLED PROJECTOR

MODE	Y-REC	S-SLIDE	RELAY	1 kHz-OSC	DC ERASING	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	Ⓕ	Ⓖ
PLAY	HI	0V	(ON)	--	--	15 V	21 V	--	0V	4V rms	1.5V AC ±0.5V	(0V)
RECORD + REC-SLIDE	LO	12V	--	--	ON	12.5V	0 1V	--	21V	--	0.5V DC	21V
RECORD + REC-SLIDE + SET-SLIDE	LO	24V	ON	ON	--	0 1V	21 V	2Vrms	0V	15Vpp	3 V AC ±0.7V	(0V)
PLAY + REC-SLIDE (CANCELS REPRO PULSES)	HI	12V	--	--	--	15 V	21 V	--	0V	--	0V	21V

DISSOLVE HEAD AMPLIFIER PCB 1.177.282 (INTERFACE SIMDA ED 3000 P)

IND	POS NO	PART NO	VALUE	SPECIFICATIONS/EQUIVALENT	MFR
	C 01	59.31.2103	10 N	20% 100V MPETP	
	C 02	59.32.1152	1500 P	10% 400V CER	
	C 03	59.11.3562	5,6 N	10% 100V PC	
	C 04	59.31.1224	220 N	20% 100V MPETP	
	C 05	59.30.4100	10 U	20% 16V TA	
	C 06	59.30.4100	10 U		
	C 07	59.31.1104	100 N	20% 100V MPETP	
	C 08	59.31.1104	100 N		
	C 09	59.30.4100	10 U	20% 16V TA	
	C 10	59.11.6561	560 P	5% 400V PC	
	C 11	59.30.1479	47 U	20% 3V TA	
	C 12	59.30.4100	10 U	20% 16V TA	
	C 13	59.31.1104	100 N	20% 100V MPETP	
	D 01	50.04.0125	1N4448		
	D 02	50.04.0125	1N4448		
	D 03	50.04.0125	1N4448		
	D 04	50.04.0125	1N4448		
	D 05	50.04.0125	1N4448		
	D 06	50.04.0125	1N4448		
	D 07	50.04.0125	1N4448		
	D 08	50.04.1119	15 V	Z	
	J 01	54.01.0244	7-Pole	Socket-Strip AMP	
	IC 01	50.05.0245	MC4558		
	K 01	56.04.0140	500 Ω	Relais 12V	N

IND	DATE	NAME
C	23.5.79	R.W/gv

N = National

STUDER Interface Simda ED3000P/B77 1.177.282.00 PAGE 1 OF 3

IND	POS NO	PART NO	VALUE	SPECIFICATIONS/EQUIVALENT	MFR
	L 01	1.022.141.00		RF Transformer	
	L 02	62.02.3473	47 mH		
	P 01	54.01.0470	4-Pole	PIN-Strip AMP	
	P 02	54.01.0470	4-Pole	PIN-Strip AMP	
	Q 01	50.03.0436	BC107B	NPN	
	Q 02	50.03.0436	BC107B	NPN	
	Q 03	50.03.0318	BC178A	PNP	
	Q 04	50.03.0436	BC107B	NPN	
	Q 05	50.03.0436	BC107B	NPN	
	Q 06	50.03.0436	BC107B	NPN	
	Q 07	50.03.0318	BC178A	PNP	
	Q 08	50.03.0436	BC107B	NPN	
	R 01	57.11.4472	4,7 k	5% .25W CF	
	R 02	57.11.4391	390		
	R 03	57.11.4153	15 k		
	R 04	57.11.4472	4,7 k		
	R 05	57.11.4223	22 k		
	R 06	57.11.4222	2,2 k		
	R 07	57.11.4471	470		
	R 08	57.11.4223	22 k		
	R 09	58.02.5103	10 k	20% .1 W PCF	
	R 10	57.11.4103	10 k	5% .25W CF	
	R 11	57.11.4562	5,6 k		
	R 12	57.11.4472	4,7 k		
	R 13	57.11.4472	4,7 k		

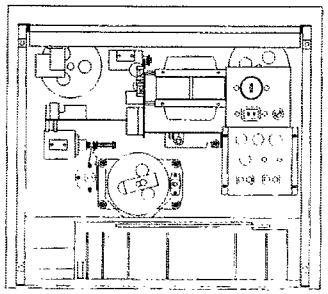
IND	DATE	NAME
C	23.5.79	R.W/gv

STUDER Interface Simda ED3000P/B77 1.177.282.00 PAGE 2 OF 3

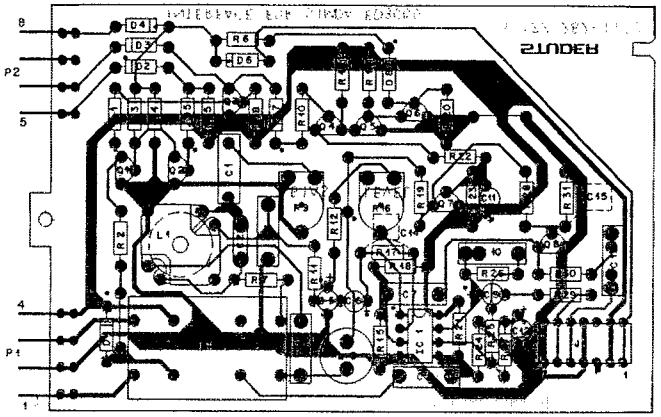
IND	POS NO	PART NO	VALUE	SPECIFICATIONS/EQUIVALENT	MFR
	R 14	57.11.4103	10 k	5% .25W CF	
	R 15	57.11.4224	220 k		
	R 16	58.02.5103	10 k	20% .1 W PCF	
	R 17	57.11.4104	100 k	5% .25W CF	
	R 18	57.11.4224	220 k		
	R 19	57.11.4153	15 k		
	R 20	57.11.4223	22 k		
	R 21	57.11.4224	220 k		
	R 22	57.11.4103	10 k		
	R 23	57.11.4332	3,3 k		
	R 24	57.11.4224	220 k		
	R 25	57.11.4154	150 k		
	R 26	57.11.4105	1 M		
	R 27	57.11.4102	1 k		
	R 28	57.11.4153	15 k		
	R 29	57.11.4222	2,2 k		
	R 30	57.11.4104	100 k		
	R 31	57.11.4332	3,3 k		

IND	DATE	NAME
C	23.5.79	R.W/gv

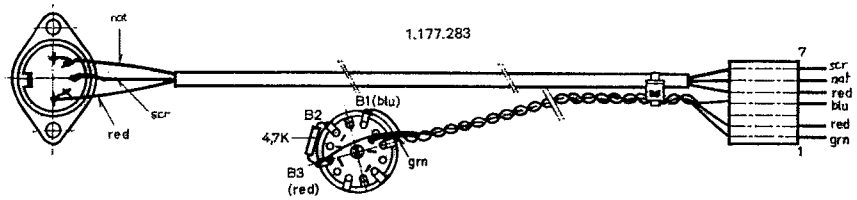
STUDER Interface Simda ED3000P/B77 1.177.282.00 PAGE 3 OF 3



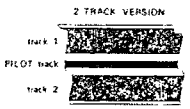
DISSOLVE HEAD AMPLIFIER PCB 1.177.282 (INTERFACE SIMDA ED 3000 P)

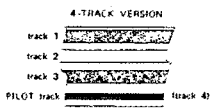


WIRE HARNESS TO DHA–KIT

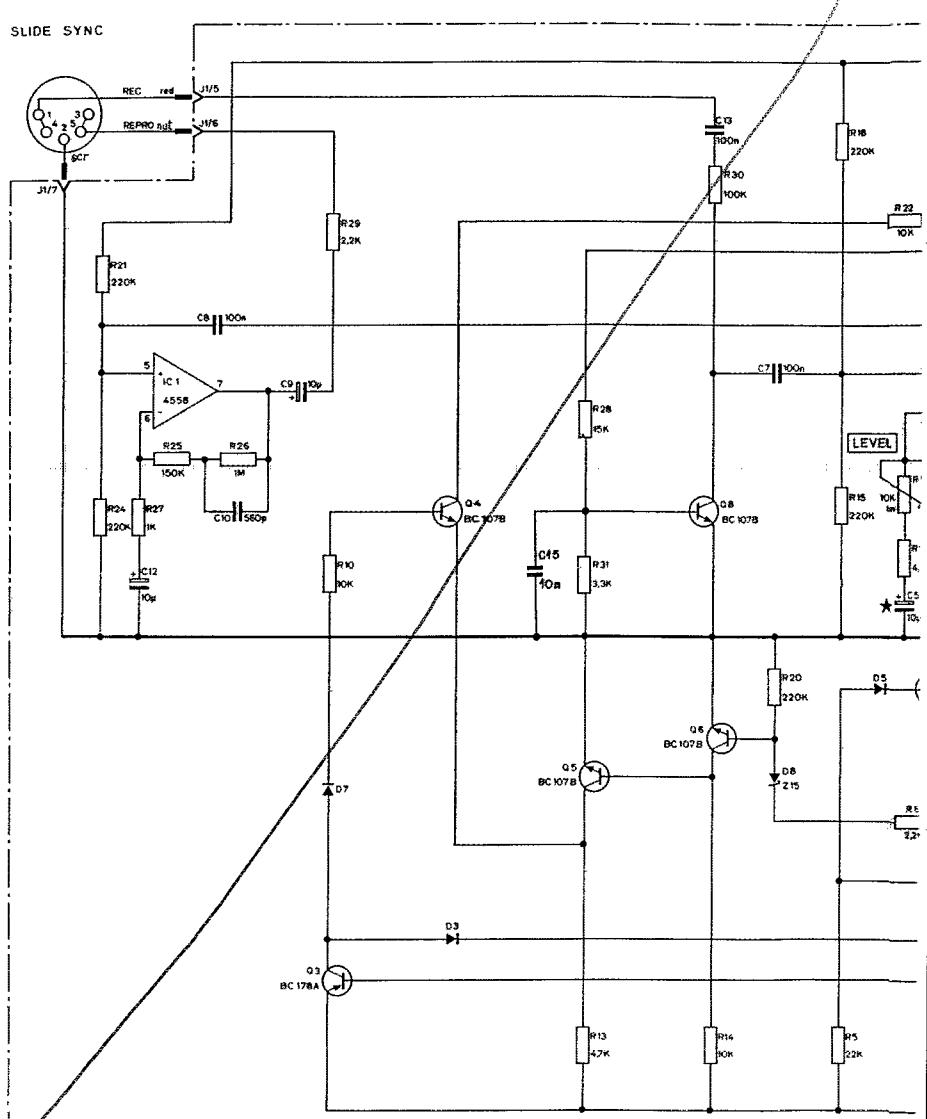


PILOT TRACK VERSIONS





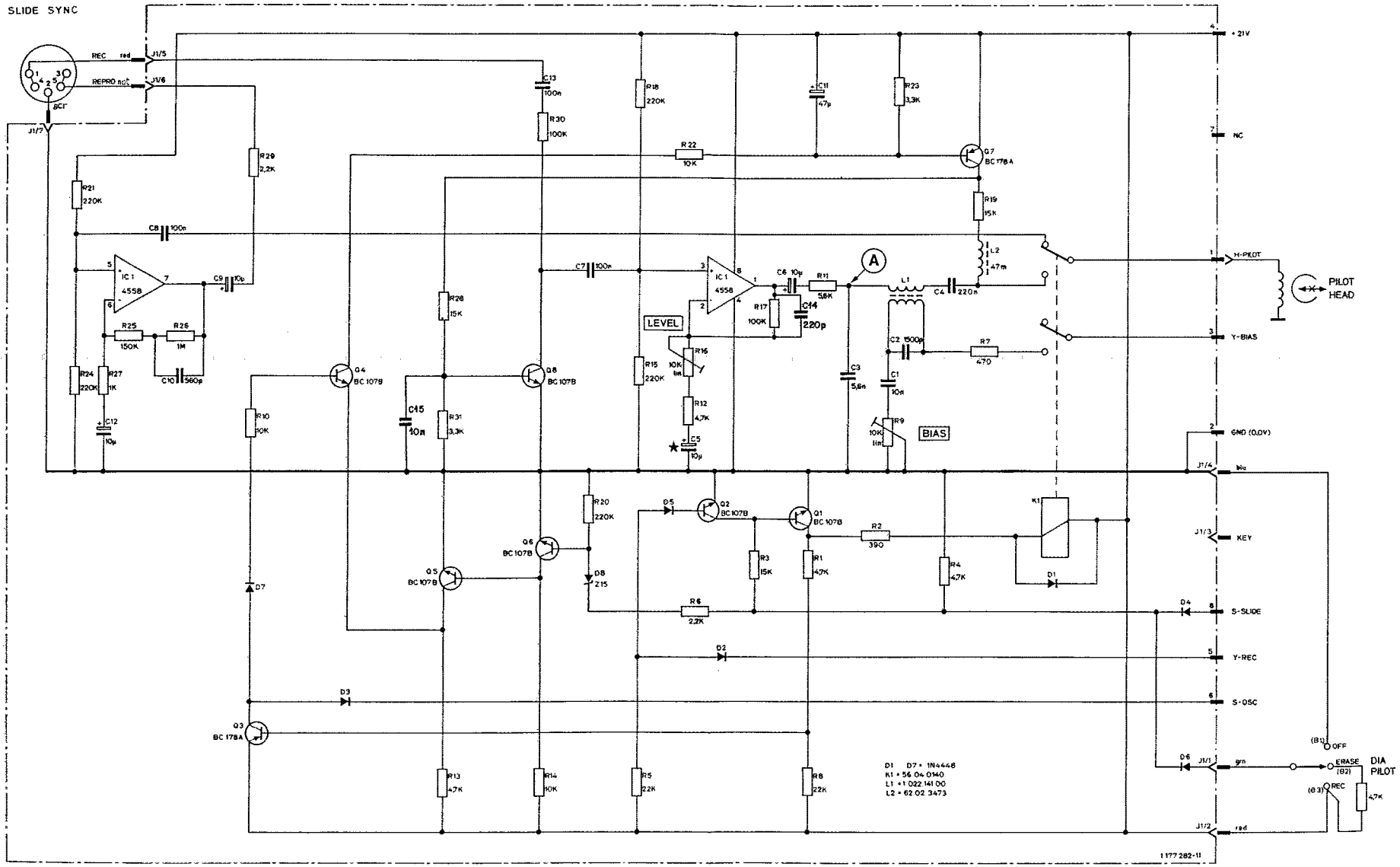
DISSOLVE HEAD AMPLIFIER PCB 1.177.282 (INTERFACE SIMDA ED 3000 P)



WIRE HARNESS TO DIA PILOT SWITCH AND SLIDE SYNC CONNECTOR = 1.177.183

★FOR SYSTEMS OTHER THAN ED 3000 P C5 = 1 µF TO DECREASE HUM SENSITIVITY

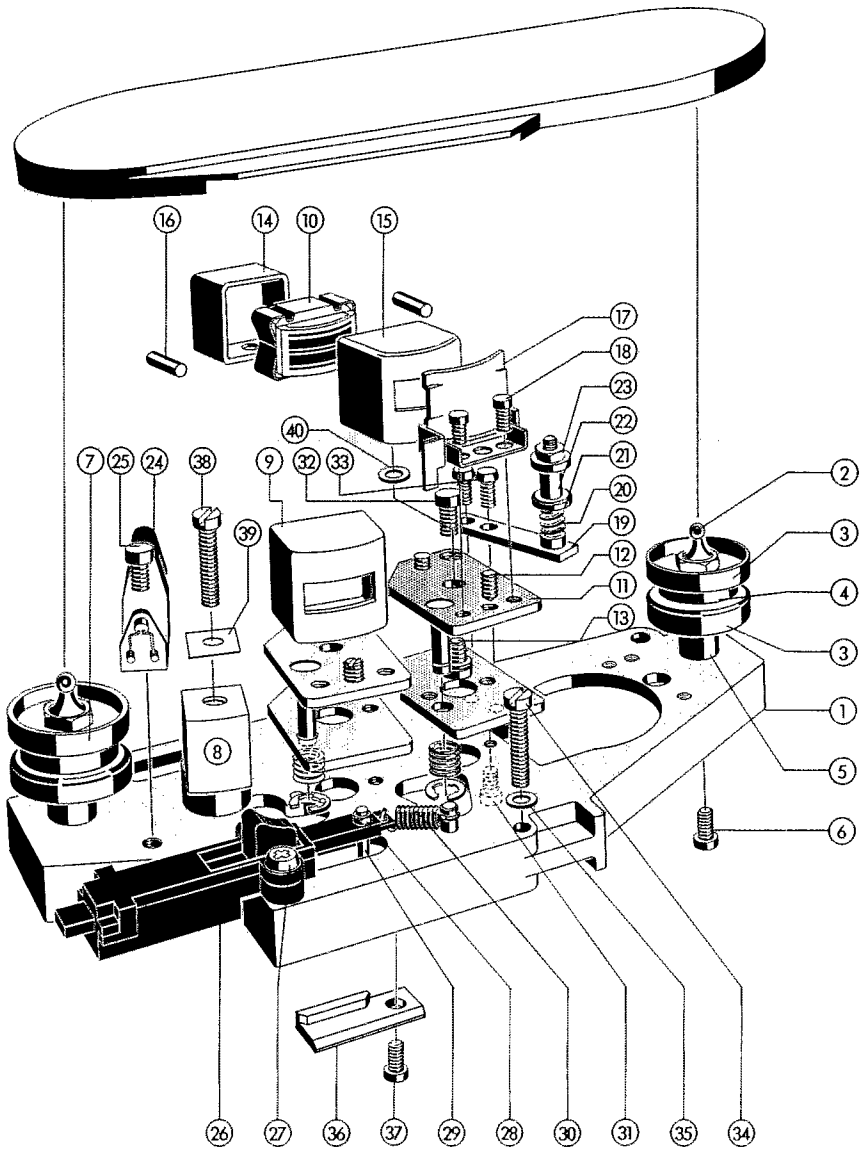
DISSOLVE HEAD AMPLIFIER PCB 1.177.282 (INTERFACE SIMDA ED 3000 P)



WIRE HARNESS TO DIA PILOT SWITCH AND SLIDE SYNC CONNECTOR = 1.177.183

★FOR SYSTEMS OTHER THAN ED 3000 P C5 = 1 µF TO DECREASE HUM SENSITIVITY

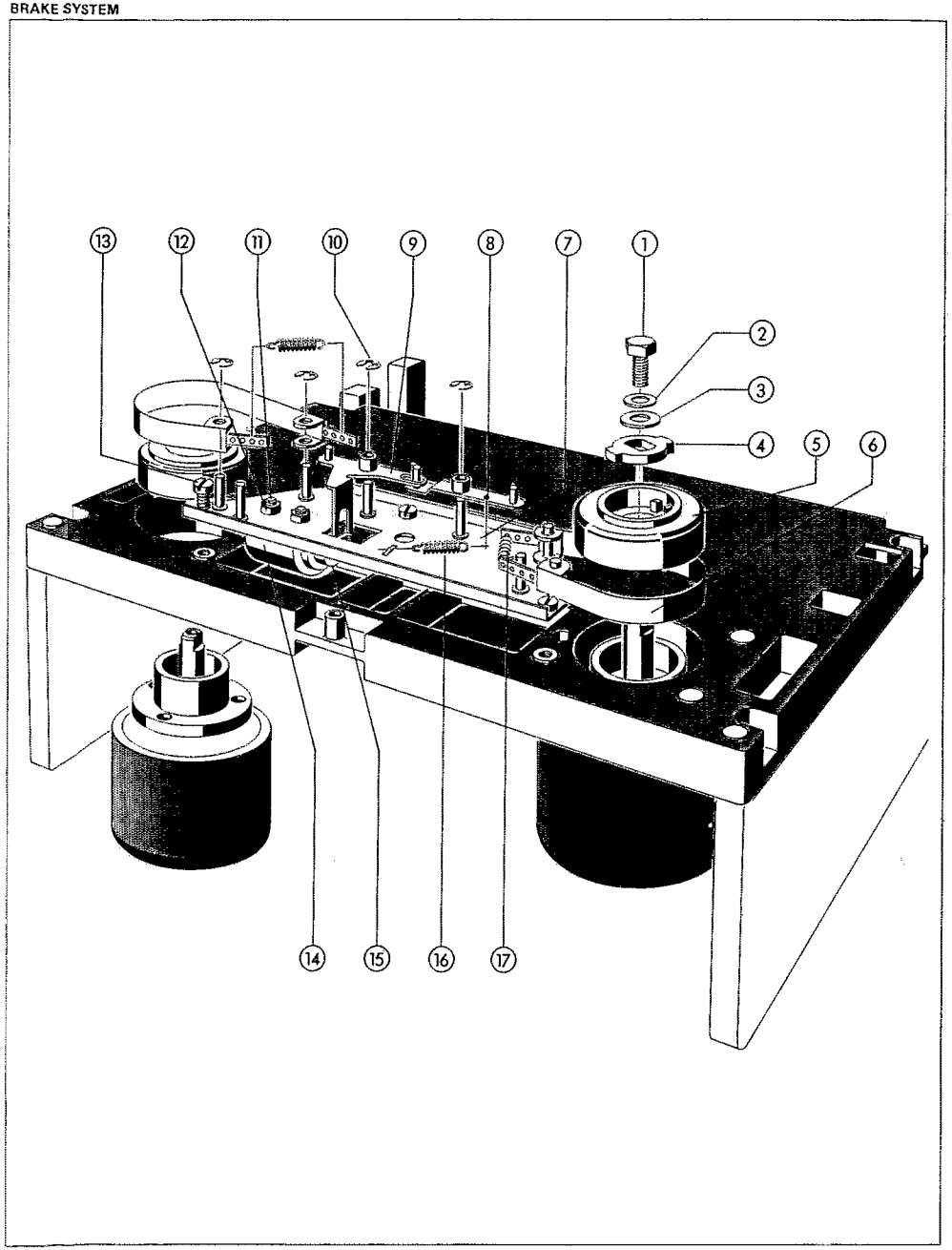
TAPE HEAD ASSEMBLY



TAPE HEAD ASSEMBLY

INDEX	QTY		ORDER NUMBER	PART NAME
			1.020.300.00	Tape head assembly compl. 1/4",2-track
			1.020.301.00	Tape head assembly compl. 1/4",4-track
01	1		1.020.300.01	Tape head chassis
02	2		1.020.300.06	Centering screw
03	4		1.077.121.02	Tape guide cup
04	1		1.077.121.04	Spacer
05	2		1.020.300.04	Threaded support
06	2		21.26.0455	Screw M4x8
07	1		41.99.0102	Ball bearing
08	1		1.116.098.01	Erase head 1/4",2-track
from	57329		1.116.098.04	Erase head 1/4",2-track
	1		1.116.099.01	Erase head 1/4",4-track
from	60977		1.116.099.04	Erase head 1/4",4-track
09	1		1.116.022.00	Record head 1/4",2-track
	1		1.116.042.00	Record head 1/4",4-track
10	1		1.116.027.00	Reproduce head 1/4",2-track
	1		1.116.047.00	Reproduce head 1/4",4-track
11	2		1.020.801.00	Head mounting plate compl.
12	4		21.18.6354	Set screw
13	2		21.99.0118	Screw M3x7
14	2		1.077.155.05	Head housing, internal
15	2		1.077.155.06	Head housing, outer
16	4		1.077.155.07	Plastic pin
17	1		1.020.311.00	Shielding lid compl.
18	2		21.01.0202	Screw M2x4
19	1		1.020.310.00	Clamp, riveted
20	1		1.020.820.12	Pressure spring
21	2		1.077.145.01	Guide disk
22	1		1.077.145.02	Spacer sleeve
23	1		22.01.8030	Nut M3
24	1		1.020.320.00	Light gate compl.
to above	1		23.01.3032	Washer
25	1		21.26.0354	Screw M3x6
26	1		1.020.318.00	Edit switch compl.

BRAKE SYSTEM



BRAKE SYSTEM

INDEX	QTY		ORDER NUMBER	PART NAME
01	2		21.01.4455	Screw M4x8
02	2		23.01.3043	Washer
03	2		37.01.0103	Cup washer
04	2		1.067.100.27	Driver
05	2		1.077.562.00	Brake drum
06	2		1.077.421.00	Brake band compl.
07	1		1.077.406.00	Brake chassis compl.
08	1		1.077.415.00	Brake lever
09	1		1.077.411.00	Brake lever
10	6		24.16.3032	Circlip
11	2		21.26.0353	Screw (M3x5 max.)
12	2		23.01.2032	Washer M3
13	3		21.26.0354	Screw M3x6
14	1		1.014.805.00	Brake solenoid
from	21618		1.014.806.00	Brake solenoid
15	1		1.014.803.00	Plunger to brake solenoid
from	21618		1.014.808.00	Plunger to brake solenoid
16	1		1.062.210.06	Tension spring
17	2		1.077.100-13	Tension spring

9. Spezialversionen
9.1. B77 mit Diasteuerung
9.1.1. Allgemeines

Die B77 mit Diasteuerung ist mit einem Spezial-Tonkopf für die Steuerimpuls-Aufnahme und -Wiedergabe ausgerüstet. Die Steuerimpulse werden zwischen zwei Spuren gespeichert, dadurch ist es nicht nötig, eine Tonspur für die Steuerimpulse zu verbrauchen

Zugehörige Schemata 7–35/7–37

9. Special Versions
9.1. B77 with slide synchronizing electronics
9.1.1. General

For slide presentations with synchronous sound accompaniment, the B77 recorder must be equipped with a special magnetic head to record and to reproduce the sync impulses. These impulses are recorded on the "land" between the two audio tracks, which means that both tracks are available for stereophonic sound reproduction.

Relating circuit diagrams 7–35/7–37

9. Versions spéciales
9.1. B77 avec synchronisateur de diapositives
9.1.1. Généralités

Le magnétophone B77 avec synchronisateur de diapositives est équipé d'une tête magnétique spéciale supplémentaire pour l'enregistrement et la lecture des impulsions de commande. Ces impulsions sont enregistrées entre les deux pistes, laissant ces dernières absolument libres.

Schéma correspondant 7–35/7–37

9.2. Tonbandmaschine B77 HS (High Speed)
9.2.1. Allgemeines

Bei der Tonbandmaschine B77 HS mussten einige Baugruppen abgeändert werden.

Die zu Kapitel 5.1. nicht identischen Baugruppen sind:

Aufnahmeverstärker	
Entzerrung CCIR	1.177.233
Entzerrung NAB	1.177.232
Wiedergabeverstärker	
Entzerrung CCIR	1.177.253
Entzerrung NAB	1.177.252
Capstanmotor 19/38	1.021.302 00

Zugehörige Schemata

1.177.232/233	7–23a/7–23b
1.177.252/253	7–27a/7–27b

9.2. Tape recorder B77 "HS" (High Speed)
9.2.1. General

In the HS version of the B77 tape recorder, several subassemblies had to be changed.

The following assemblies are not identical with those described in chapter 5.1.:

Recording amplifier	
CCIR equalization	1.177.233
NAB equalization	1.177.232
Replay amplifier	
CCIR equalization	1.177.253
NAB equalization	1.177.252
Capstan motor 19/38	1.021 302.00

Relating circuit diagrams

1.177.232/233	7–23a/7–23b
1.177.252/253	7–27a/7–27b

9.2. Magnétophone B77 "HS" (High Speed)
9.2.1. Généralités

Dans cette version un certain nombre de modules sont modifiés.

Les modules différents du chapitre 5.1. sont:

Amplificateur d'enregistrement	
Norme CCIR	1.177.233
Norme NAB	1.177.232
Amplificateur de lecture	
Norme CCIR	1.177.253
Norme NAB	1.177.252
Moteur de cabestan 19/38	1.021.302.00

Schémas correspondants

1.177.232/233	7–23a/7–23b
1.177.252/253	7–27a/7–27b

9.2.2. Daten

Der Einfachheit halber sind nur die von der Normalversion abweichenden Daten aufgeführt.

Tonhöhenschwankungen:
(nach DIN 45507)
bei 19 cm/s
besser als 0,08 %
bei 38 cm/s
besser als 0,06 %

Frequenzgang:
(über Band gemessen bei –20 VU)
bei 19 cm/s
30 Hz ... 20 kHz + 2 –3 dB
50 Hz ... 15 kHz ± 1,5 dB
bei 38 cm/s
30 Hz ... 22 kHz + 2 –3 dB
50 Hz ... 18 kHz ± 1,5 dB

9.2.2. Performance data

For the sake of simplicity, only the data differing from the standard version are listed.

Wow and flutter:
(per DIN 45507)
at 7.5 ips
less than 0.08 %
at 15 ips
less than 0.06 %

Frequency response:
(measured via tape, at –20 VU)
at 7.5 ips
30 Hz ... 20 kHz + 2 –3 dB
50 Hz ... 15 kHz ± 1.5 dB
at 15 ips
30 Hz ... 22 kHz + 2 –3 dB
50 Hz ... 18 kHz ± 1.5 dB

9.2.2. Caractéristiques

Afin de simplifier, seules les caractéristiques de la version standard sont données.

Pleurage:
(d'après DIN 45507)
à 19 cm/s
meilleur que 0,08 %
à 38 cm/s
meilleur que 0,06 %

Réponse en frequence:
(enregistrement-lecture, mesuré à –20 VU)
à 19 cm/s
30 Hz ... 20 kHz + 2 dB –3 dB
50 Hz ... 15 kHz ± 1,5 dB
à 38 cm/s
30 Hz ... 22 kHz + 2 dB –3 dB
50 Hz ... 18 kHz ± 1,5 dB

:äuschspannungsabstand:
:ch ASA-A 2-Spur)
:ogen auf Vollaussteuerung (514 nWb/m)

cm/s	*38 cm/s*
:6 dB	> 65 dB

Signal to noise ratio:
(weighted as per ASA-A, measured via tape)
half track

at 7.5 ips	*at 15 ips*
> 66 dB	> 65 dB

Rapport signal/bruit:
(d'après ASA-A, enregistrement-lecture)
2 pistes

à 19 cm/s	*à 38 cm/s*
> 66 dB	> 65 dB

\S-Einstellung:

	ΔU-19 cm/s	ΔU-38 cm/s
VOX 601	4 dB	2 dB
VOX 621	4 dB	2,5 dB
/OX 631	6 dB	4 dB

BIAS adjustment:

	ΔU-7.5 ips	ΔU-15 ips
REVOX 601	4 dB	2 dB
REVOX 621	4 dB	2.5 dB
REVOX 631	6 dB	4 dB

Ajustement du courant de prémagnetisation:

	ΔU-19 cm/s	ΔU-38 cm/s
REVOX 601	4 dB	2 dB
REVOX 621	4 dB	2,5 dB
REVOX 631	6 dB	4 dB

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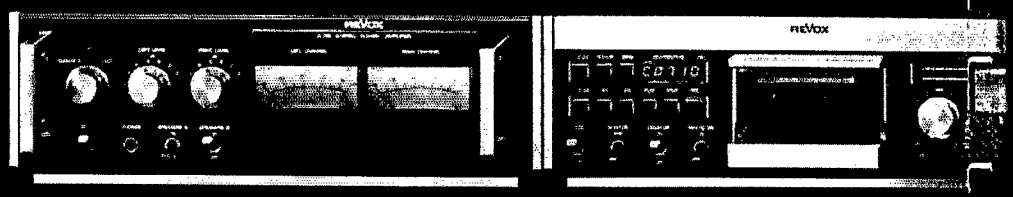
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