SPEZIAL-SERVICE-UNTERLAGEN
PARTICULAR SERVICE INSTRUCTIONS
INSTRUCTIONS DE SERVICE INDIVIDUELLES

electronic

MUSIKAUTOMAT
PHONOGRAPH
ELECTROPHONE

prestige II

NSM
APPARATEBAU
GmbH & Co. KG
Postfach 249 · 6530 Bingen am Rhein 1 · Germany · Allemagne

06/84

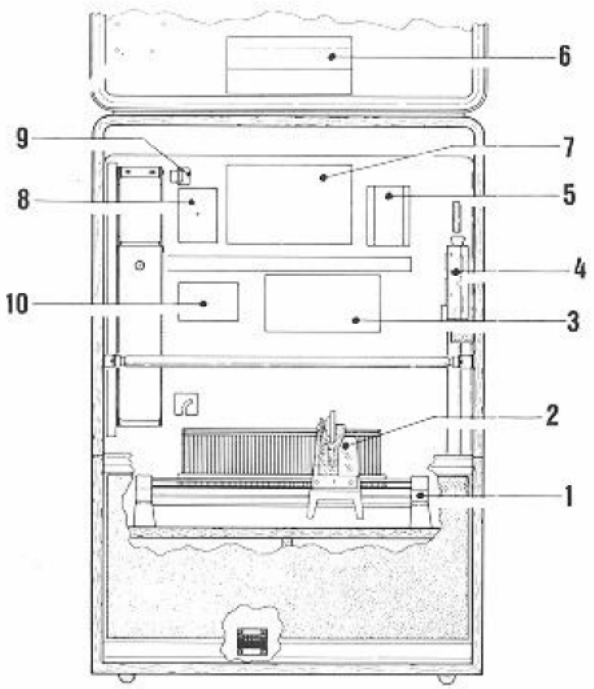
218 463

INHALTSVERZEICHNIS INDEX

BAUGRUPPEN-LAGEPLAN

LAYOUT OF ELEMENTS

PLAN DE ELEMENTS



1 LAUFGESTELL
CARRIAGE BASE
BASE DU CHARIOT

2 LAUFWERK
CARRIAGE
CHARIOT

3 STEUER- UND SPEICHEREINHEIT
CONTROL AND CREDIT UNIT
CENTRE DE COMMANDE ET DE CREDIT

4 MÜNZANLAGE
COIN MECHANISM
MONNAYEUR

5 LAUTSTÄRKESTELLER
VOLUME CONTROL
REGULATEUR DE VOLUME

6 TASTATUR
KEY BOARD
CLAVIER

7 "electronic"- ZENTRALE
CENTRE

8 SCHALTERPLATTE
JUNCTION PLATE
PLAQUE PORTE-INTERRUPTEUR

9 SERVICE - STECKDOSE
SERVICE CONNECTION
PRISE DE CONTACT DE SERVICE

10 AUSGANGSÜBERTRAGER
OUTPUT JUNCTION BOX
TRANSFORMATEUR DE LIGNE

BITTE BEI DER AUFSTELLUNG BEACHTEN

TRANSPORTSCHÄDEN

Soweit äußerliche Transportschäden erkennbar sind, müssen diese sofort beanstandet, auf einem Transportschein festgehalten und vom Anlieferer (Spediteur, Bundesbahn, etc.) bestätigt werden.

Der Hersteller haftet nicht für Transportschäden!

NETZSPANNUNG

Das Gerät ist für die auf der Anhängekarte am Netzkabel angekreuzten Netzspannung eingerichtet. Für andere Spannungen an den Transformatoren die entsprechende Spannung einstellen.

Gemäß VDE-Vorschrift ist das Gerät mit Schutzleiteranschluß zu versehen.

Ein Gehäuse-und ein Kassenschlüssel

sind mit Klebeband auf der Frontscheibe befestigt. Die übrigen Schlüssel befinden sich in der Kasse.
Nach Öffnen der Schlösser an beiden Gehäuseseiten läßt sich die Haube mit dem Programmtafelrahmen hochschwenken.

PROGRAMMTAFELN

am Griff fassen, aus der Rasterung ziehen und Programmtafel aufklappen.
(Die voll aufgeklappten Programmtafeln lassen sich aushängen).

TITELSTREIFEN

aus dem Kassenbeutel nehmen, beschriften und in gewünschter Reihenfolge in die Programmtafel einschieben.

Das NETZANSCHLUSSKABEL

befindet sich im Gehäuse. Kabel durch die Aussparung in der Gehäuserückwand ziehen. Aussparung durch Schutzblech abdecken.
Vor Anschluß Netzspannung prüfen! Stecker in die Steckdose stecken und Netzschalter an der Gehäuserückwand einschalten. (Box-Beleuchtung muß jetzt leuchten).

ACHTUNG!

Vor Herausnahme der bedruckten Blenden (rechts und links) müssen die Verschlüsse um 90° gedreht werden.

PLEASE READ INSTRUCTIONS BEFORE INSTALLATION

TRANSPORT DAMAGES

If external damage due to transport is noticed, this should at once be recorded on the delivery note and endorsed by the person making the delivery (Forwarding Agent, Railways, etc.)

The manufacturer is not liable for damage caused during transit!

VOLTAGES

The tag at linecord shows the voltage setting by the factory. For other voltages set voltage required at transformers.

Green-yellow of the 3-wire main cord must be connected to earth according to international safety codes.

One CABINET KEY and one CASH KEY

are taped to the front panel. The other keys are in the cash bag.

Cover with program lid can swing upwards upon opening of the locks at the two sides of the cabinet.

TITLE STRIP HOLDERS

Seize at handle. Press plastic retainers together, and swing out holder.
(The fully swung-out holder can be unhinged).

TITLE STRIPS

Take title strips out of cash bag. After lettering of the title strips insert same into title strip holder in the desired sequence.

The LINE-CORD

is located in the cabinet. Put cable through respective hole at rear side. Cover the hole with shield.

Check mains voltage before connecting! After plugging in, switch on line switch, located at the rear side of cabinet. (Fluorescent lamps should now light up).

ATTENTION!

Prior to removing the print trimplates (right and left) the locking devices must be turned for 90°.

A LIRE AVANT LA MISE EN SERVICE

AVARIES DE TRANSPORT

Les avaries de transport apparentes et constatées sont à réclamer tout de suite, à consigner en bordereau de transport et à faire confirmer par le livreur en cause (transitaire, chemin de fer, etc...).

Le fabricant n'est pas responsable des avaries de transport!

TENSION DU SECTEUR

L'étiquette attachée au cordon d'alimentation indique le voltage auquel l'appareil fut adapté dans la fabrique. Toute autre tension demandée est à mettre au point du transformateurs.

D'après le réglement de sécurité international, il y a lieu de prévoir un raccordement à la terre.

Une CLE DE L'APPAREIL et une CLE DE LA CAISSE

sont fixées avec une bande adhésive sur la vitre frontale. Les autres clés se trouvent dans le sac à caisse.
Après déverrouillage des serrures arrangées aux deux côtes du meuble, on peut relever le cadre du tableau de programme.

PORTES DES TITRES

Saisir par la poignée, presser les ressorts à cran d'arrêt, relever le porte-titres.
On peut retirer les portes-titres lorsque tout à fait relevés).

TITRES

Pendre dans le sachet les bandes de titres, apposer les inscrptions et les introduire dans les portes-titres dans l'ordre voulu.

Le CORDON DE SECTEUR

Tirer par l'évidement de l'arrière du meuble le câble de branchement sur le secteur. Appliquer sur cet évidement la tôle de protection.

Vérifier la tension du secteur avant de procéder au branchement.
Introduire la fiche du cable d'alimentation dans la prise et tourner l'interrupteur principal disposé au dos de l'appareil. (L'éclairage du box devra alors s'allumer).

ATTENTION!

Avant enlever les écrans imprimés (à droite et à gauche) il faut tourner les arrêts pour 90°.

TECHNISCHE DATEN

Netzspannung 100 - 240 V~ 50/60 Hz

Netztransformator 100 - 240 V~ prim.

sec I = 2 x 13 V
sec II = 22 V
sec III = 43 V

Leistungsaufnahme:

im Leerlauf 150 W
beim Spiel 200 W

SICHERUNGEN

Hauptsicherung 2 x T 3,15 A (200-240 V)
2 x T 4 A (100-127 V)

Sek.-Sicherung
Si 1 = T 5 A
Si 2/3 = T 2 A
Si 4 = T 1,25 A
Si 5/6 = T 3,15 A
Si 7 = T 1 A
Lichtspiel:
1 x = T 8 A
3 x = T 3,15 A

BELEUCHTUNG

1 Leuchtstofflampe TL - D 16 W
1 Vorschaltgerät 220 V/16 W (117 V/18 W)
1 Starter S 10 S 2
5 Sieben-Segmentanzeigen
42 Glassockellampen 12 V / 2 W

VORWAHLEINRICHTUNG

Mikrocomputer

10 Zifferntasten
1 Korrekturtaste " C "
1 HIT - Taste
1 Hit - Wähltaste

STEUERUNG

ROM's, EA-ROM, Integrierte MOS-Schaltkreise, Integrierte TTL-Schaltkreise, Integrierte Transistor-Array
2 integrierte Spannungsregler
3 Relais
4 Leuchtdioden für Spannungsanzeige

2 Foto-Transistoren
1 Infrarot-Leuchtdiode — Laufwerkposition

3 bzw. 4 Foto-Transistoren
2 Infrarot-Leuchtdioden — Münzdurchlauf

ABSPIELMECHANIK

1 Laufgestell mit Schallplattenkassetten für 80 Platten, vertikal gelag.
1 Laufwerk 45 UpM, Stereo oder Mono
1 Spielmotor 1500 UpM 42 V~ 100% ED
1 Antriebsmotor 25 12 V= /42 V~ 20% ED
1 Auslösemagnet 56 V= 25% ED
1 Tonkopf Ortofon / SHURE-Magnetsystem

SPECIFICATIONS

Mains voltages 100 - 240 VAC 50/60 Hz

Mains transformer 100 - 240 VAC prim.

sec I = 2 x 13 VAC
sec II = 22 VAC
sec III = 43 VAC

Power consumation:

at stand by 150 W 60 Hz = 165 W
max. 200 W 60 Hz = 225 W

FUSES

Main fuse 2 x T 3,15 A (200-240 V)
2 x T 4 A (100-127 V)

Secondary Fuses
Si 1 = T 5 A slo blo
Si 2/3 = 60 Hz = T 2 A
Si 4 = T 1 A slo blo
Si 5/6 = T 3,2 A slo blo
Si 7 = T 1 A slo blo
Illumination:
1 x = T 8 A slo blo
3 x = T 3,2 A slo blo

LIGHTING

1 fluorescent lamp F 28" T 8 CW 4
1 ballast 220 V/16 W (117 V/18 W)
1 starter S 10 S 2
5 seven-segment displays 1/2"
42 lamps 12 V/ 2 W

SELECTION CIRCUIT

Microcomputer

10 number keys
1 correction key " C ""
1 Hit key
1 Hit selection key

CONTROL

ROM's, EA-ROM, MOS integrated, circuits, TTL integrated circuits, integrated transistor array
2 integrated voltage regulator
3 relays
4 LED's for voltage indication

2 photo-transistors
1 infrared LED — placed at carriage

3, or 4 photo-transistors
2 infrared LED's — placed at coin chut

PLAYING MECHANISM

1 Carriage base with magazine for 80 records vertically stored
1 Carriage 45 RPM, stereo or mono
1 Play motor 1500 RPM 42 V~ 100% ED
1 Drive motor 2 12 V =/ 42 V~ 20% ED
1 Trip solenoid 56 V= 25% ED
1 Cartridge Ortofon / SHURE-magnetic-system

CARACTERISTIQES TECHNIQES

Tension secteur 100 - 240 V~ 50/60 Hz

Tension transformateur 100 - 240 V~ prim.

sec I = 2 x 13 V
sec II = 22 V
sec III = 43 V

Absorption de puissance:

en marche a vide 150 W
lors du passage 200 W

FUSIBLES

Fusible principal 2 x T 3,15 A (200-240)
2 x T 4 A (100-127)

Sec. fusible
Si 1 = T 5 A
Si 2/3 = T 2 A
Si 4 = T 1,25 A
Si 5/6 = T 3,15 A
Si 7 = T 1 A
Illumination:
1 x = T 8 A
3 x = T 3,15 A

ILLUMINATION

1 lampe fluorescente TL - D 16 W
1 bobine de réactance 220 V/16 W
1 starter S 10
5 témoins à 7 segments 1/2 "
42 lampes 12 V / 2 W

DISPOSIF DE SELECTION

microordinateur

10 touches de chiffres
1 touches de correction " C "
1 touches de hit
1 touches de selection "hit"

COMMANDE

ROM's, EA-ROM, circuits intégrées type MOS, circuits intégrées type TTL, groupements de transistors intégrées
2 régulateurs de tension intégrés
3 relais
4 diodes de signalisation faisant indicateur de tension

2 transistors photoélectrique
1 diode infrarouge — pos. du chariot

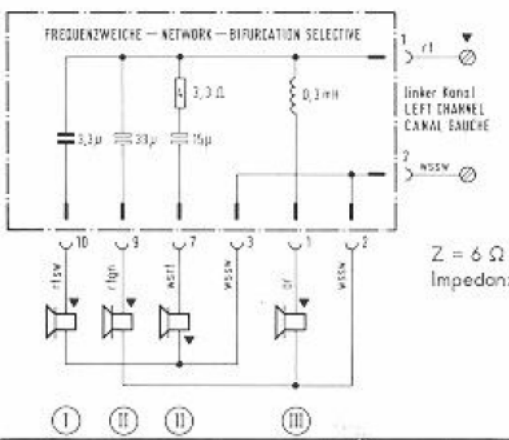
3 ou 4 transistors photoélectrique
2 diodes infrarouge — monnayeur

MECANISME DE LECTURE

1 base du chariot avec magasin pour 80 disques, logement vertic.
1 chariot 45 tr/mn, stéréo ou mono
1 moteur p. tourne-disque 1500 tr/mn 42 V~
1 moteur de commande 25 12 V =/ 42 V~
1 aimant de déclenchement 56 V=
1 tête de lecture système magnétique

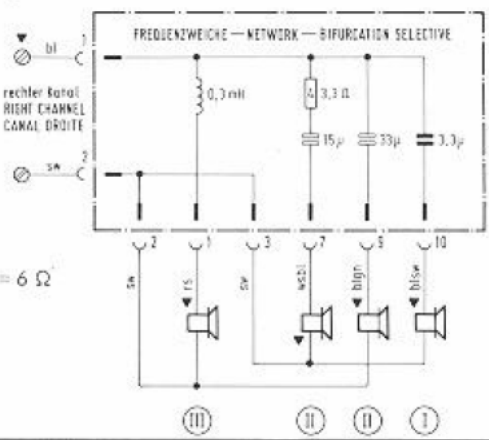
TECHNISCHE DATEN	SPECIFICATIONS	CARACTERISTIQES TECHNIQES
KREDITSPEICHERUNG und - VERRECHNUNG Einstellung - Preisstaffel durch Service-Programm über Mikrocomputer direkte / indirekte Umwertung (Bonus) Additions-Taste Service-Auswertung: Anschluß für Service-Speicher (EA-ROM)	CREDIT and CONVERTION Setting of prices by Service Program thru microcomputer direct / indirect conversion (bonus) add button Service evaluation: connection for service modul (EA-ROM)	MEMORISATION ET DE COMPTE Mise de la gamme des prix par Programme Service sur microordinateur conversion directe / indirecte (boni) clef d'addition Exploitation du Service: connexion pour mémoire-Service (EA-ROM)
VERSTÄRKER siehe "SERVICE MANUAL" Lautstärkesteller: getrennte Lautstärkeeinstellung beider Kanäle und 1 REJECT-Knopf	AMPLIFIER see "SERVICE MANUAL" Volume control: for each channel separately and one REJECT-button	AMPLIFICATEUR voir "SERVICE MANUAL" Régulateurs de volume: séparés pour les deux canaux d'amplificateur et une clef REJECT
LAUTSPRECHER 2 Tiefton-Lautsprecher 4 Mittelton-Lautsprecher 2 Hochton-Lautsprecher 2 Frequenzweiche	LOUDSPEAKER 2 Woofers 4 Mediums 2 Tweeters 2 networks	HAUT-PARLEUR 2 haut-parleurs graves 4 haut-parleurs moyemme 2 haut-parleurs aigus 2 aiguilles de fréquence
SCHLÖSSER und SCHLÜSSEL 2 Gehäuse-Schlösser 2 Gehäuse-Schlüssel 1 Kassenschloß 2 Kassenschlüssel (verschiedene Nr.)	LOCKS and KEYS 2 Cabinet locks 2 Cabinet keys 1 Cash box lock 2 Cash box keys (different from cabinet key)	SERRURES et CLEFS 2 serrures armoire 2 clefs armoire 1 serrure caisse 2 clefs caisse (nos. différents)

Lautsprecher-Kombination



Z = 6 Ω
Impedanz = 6 Ω

Speaker combination



Combinaison de haut-parleur

(III) Tiefton-Lautsprecher
Woofer
haut-parleur graves

(II) Mittelton-Lautsprecher
Medium
haut-parleur moyenne

(I) Hochton-Lautsprecher
Tweeter
haut-parleur aigus

Maße — Measurements — Cotes

Höhe	max. height	hauteur	Breite	max. width	largeur	Tiefe	max. depth	profondeur
1323 mm 52-3/4 inches			913 mm 36 inches			667 mm 26-1/4 inches		

Bestell-Nr. PART NR. REFERENCE	ZUBEHÖR	ACCESSORIES	ACCESSOIRES
106 740	SERVICE-SPEICHER Handliches Zusatz-Speichergerät, in welches (beim Kassieren) die Zählerstände für Gesamtspiele, Extraspiele und Kasseneingang, zusammen mit der jeweiligen Gerätekennzahl von bis zu 16 Automaten übertragen werden kann.	SERVICE MEMORY UNIT A handy additional storage device allowing the storage of the total cash, total plays together with the code number of the phonograph involved. This unit will accept information from up to 16 phonographs.	MEMOIRE SERVICE C'est un accumulateur supplémentaire très utile qui permet, à la collection de la monnaie, d'accumuler les cotes des comteurs du nombre du total des lectures, de celui des lectures spéciales et du monnayeur de jusqu' à concurrence de 16 appareils, avec les numéros d'identification respectifs de ces derniers.
108 125 (D) 107 054 50 Hz 107 359 60 Hz	AUSWERTEGERÄT Mit einem Auswertegerät werden dann, in der Buchhaltung, diese Daten automatisch ausgewertet und angezeigt.	RECORDING DEVICE The recording device will then display the data stored in the service memory unit for your Accounts Dept.	DISPOSITIF D'EXPLOITATION Un dispositif d'exploitation permet alors, au Dépt. Comtabilité, l'exploitation et l'indication automatiques des dates accumulées.
171 261	AUSGANGSÜBERTRAGER Erheblich erweiterte Anpassungsmöglichkeiten und geringere Leitungsverluste.	OUTPUT TRANSFORMER With output-power terminal for remote speakers an C.V.connectors.	TRANSFORMATEUR DE SORTIE Adaptions considéroblement élargies et moins de perte de puissance.
170 889	MIKROFON-ZUSATZ Dynamisches Mikrofon mit Sprechschalter, Anschlußkasten mit Relais. Kann nach mitgelieferter Anweisung leicht angeschlossen werden. Ermöglicht Mikrofondurchsagen bei jedem Betriebszustand der Box.	MICROPHONE, ASSY Dynamic microphon with paging switch. Adapter with relays. Easy installation when following attached installation instructions. Possible use of microphon in any operating position and stand by.	MICROPHONE COMPLEMENTAIRE Microphone dynamique avec interrupteur. Adapteur avec relais. Branchement facile à l'aide des instructions includes. Emploi du microphone à n'importe quel état en service du phonographe.
108 650 ES 170 686 ES III	FERNWAHLBOX CONSULETTE ES CONSULETTE ES III Für den Anschluß an NSM-Elektronik-Musikautomaten. Der Musikautomat muß hierzu mit einer Anschlußeinheit (106 766) ausgerüstet sein. Eine ausführliche technische Anleitung wird mitgeliefert.	ELECTRONIC WALLBOX CONSULETTE ES CONSULETTE ES III To be connected to the NSM electronic phonograph. The phonograph must be equipped with a special connection unit (adapter) 106 766 50 Hz or 106 767, 60 Hz. Detailed technical instructions are supplied.	BOITE A TELE-SELECTION CONSULETTE ES CONSULETTE ES III Pour être relier à des appareils électroniques NSM. Pour cette application, le juke-box doit être muni d'un dispositif de raccord 106 766 Schema inclus.
107 312	SCHLÜSSELSCHALTER Zum Einschalten von Extraspielen oder Freispielen. Kann nach mitgelieferter Anleitung leicht eingebaut werden.	KEY SWITCH For setting of special plays or free plays. Easy installation when following attached installation instruction.	COMMUTATEUR - CLE Pour brancher les Lectures spéciales ou les Lectures libres. A installer facilement selon les Instructions fournies avec.

ÄNDERUNGEN IM SINNE DES TECHNISCHEN FORTSCHRITTES VORBEHALTEN, JEDOCH KEINE NACHRÜSTPFLICHT!

SUBJECT TO, BUT NO OBLIGATION OF, SUBSEQUENT TECHNOLOGICAL MODIFICATION!

SOUS LA RESERVE DE MODIFICATIONS AU SENS DU PROGRES TECHNOLOGIQUE, MAIS SANS OBLIGATION D'UN FINISSAGE SUBSEQUENT ET SUPPLEMENTAIRE!

NSM APPARATEBAU GmbH + Co.KG
D 6530 BINGEN / RHEIN 1

Sach-Nr. 218 463
Ausgabe: 06 / 84

ERSATZTEIL-LISTE
SPARE PARTS LIST

MUSIKAUTOMAT

PHONOGRAPH

PRESTIGE II-O

09 / 1984

NSM
APPARATEBAU
GmbH & Co. KG
Postfach 249 · 6530 Bingen am Rhein 1 · Germany · Allemagne

218 538

ERSATZTEIL-LISTE — SPARE PARTS LIST

BITTE BEACHTEN SIE!

Diese Ersatzteil-Liste gilt nur für

PRESTIGE II - O

Jede Ersatzteil-Bestellung muß folgende Angaben enthalten:

1) Geräte-Typ
2) Geräte-Nummer
3) Bestell-Menge
4) Bestell-Nummer
5) Benennung

PLEASE NOTE

This spare parts list is applicable to

PRESTIGE II - O

Every spare part order should contain the following:

1) Model
2) Serial number
3) Quantity
4) Part number
5) Description

Beispiel
Example

Geräte-Typ Model	Geräte-Nummer Serial-number	Stück QTY	Best.-Nr. Part-no.	Benennung	Description
PRESTIGE II - O	0854	3 2 5	220 320 225 367 225 040	Funk-Entstörkondensator Einbaufassung Starter	RADIO INTERFERENCE COND. SOCKET STARTER

Die Geräte-Nummer befindet sich auf dem Typenschild an der Gehäuse-Rückwand.

Klare Bestellangaben ersparen unnötige Rückfragen und führen zu rascher Erledigung Ihres Auftrages.

BITTE RICHTEN SIE IHRE ERSATZTEIL-BESTELLUNGEN NUR AN IHREN GROSSHÄNDLER ODER AN DIE LÖWEN-ORGANISATION!

The serial number is on the manufacturing plate on the rearside of cabinet.

Precise orders save unnecessary questions and bring the best results.

ORDER SPARE PARTS THRU YOUR NSM-DISTRIBUTOR!

ÄNDERUNGEN IM SINNE DES TECHNISCHEN FORTSCHRITTES VORBEHALTEN, JEDOCH KEINE NACHRÜSTPFLICHT!

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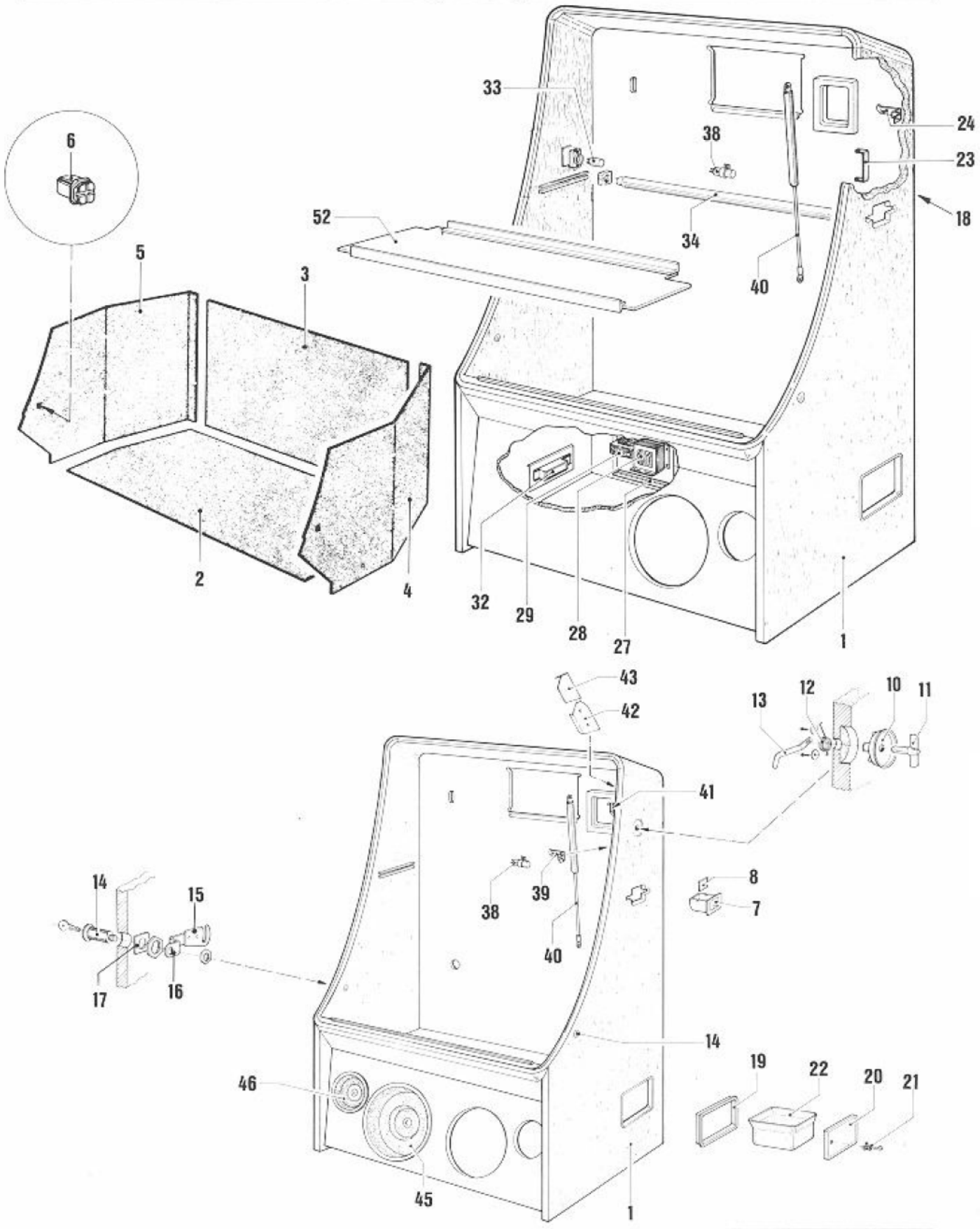
Die in dieser Ersatzteil-Liste enthaltenen Angaben und Abbildungen entsprechen dem Stand zur Zeit der Drucklegung.

Information and illustrations contained in this spare parts list, are correct at the time of going to press.

	BEST.-NR. PART-NR.	BENENNUNG		STCK QTY	DESCRIPTION
ohne Abbildung / no picture		KABELBÄUME			CABLE HARNESSES
	108 315	Spielanzeige - Spielanw.		1	DISPLAY - PRICING INSTR.
	106 741	Steuereinheit - Zentrale		1	CONTROL UNIT - CENTRALE
	108 239	Zentrale - Trafo		1	CENTRALE - TRANSFO
	108 337	Gehäuseschalter		1	CABINET SWITCH
	108 244	Zentrale - Münzprüfer		1	CENTRALE - COIN ACCEPTOR
	171 334	Tastatur		1	KEY BOARD
	171 324	Lautsprecher		1	LOUDSPEAKER
	171 336	Trafo - Lichtorgel - Schalterpl.		1	TRANSFO-PERM.LIGHT-JUNCT.
	171 338	Schleppleitung		1	TRAILING CABLE
	171 113	Führungsklammer für Schleppleitung		1	GUIDE CLIP FOR TRAILING CABLE
	171 367	Lichtorgel - Lauflicht		1	PERM.LIGHT-RUNNING LIGHT
	171 353	Lichtorgel - Versorgung		1	PERM.LIGHT-SUPPLY UNIT
	171 362	Steuertrafo - Lampentrafo		1	CONTROL TRANSFO-LAMPTRANSF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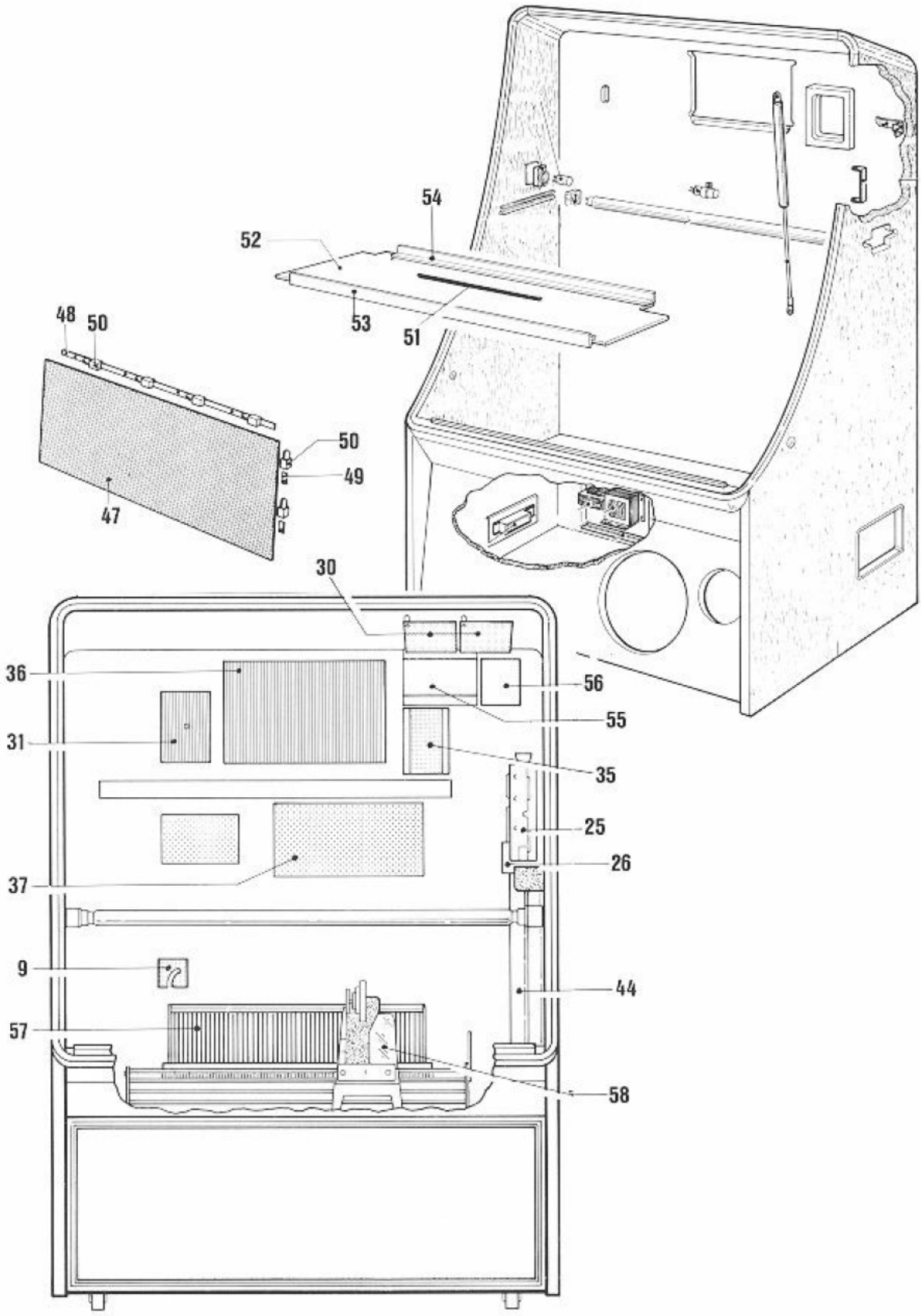
POS.	BEST.-NR. PART-NR.	BENENNUNG	DATEN DATA		STCK QTY	DESCRIPTION
		MUSIKAUTOMAT	PRESTIGE II-O			PHONOGRAPH
1	203 647	Gehäuse			1	CABINET
2	211 440	Bodenblende			1	BOTTOM TRIMPLATE
3	211 439	Blende, hinten			1	TRIMPLATE, BACK SIDE
4	211 441	Blende, rechts			1	TRIMPLATE, RIGHT
5	211 442	Blende, links			1	TRIMPLATE, LEFT
6	229 172	ARROW-Verschluß			4	CLIP
7	103 378	Rückzahlbecher			1	COIN RETURN CUP
8	102 495	Münzklappe			1	COIN LID
9	170 113	Verschlußplatte			1	CLOSING PLATE
10	028 233	Lagertopf			1	RETAINING SPACER
11	028 007	Drehknopf			1	REJECT KNOB
12	205 448	Torisionsfeder			1	TORSION SPRING
13	171 265	Druckwinkel			1	PRESSURE BRACKET
14	217 133	Zylinderschloß			2	CABINET LOCK
15	217 134	Schließnase			2	CLOSING LEVER
16	171 253	Halterteil			2	HOLDER
17	201 958	Halteplatte			2	HOLDING PLATE
18	170 852	Handgriff			2	HANDLE
19	023 681	Kassenrahmen			1	CASH-BOX, FRAME
20	042 108	Kassendeckel, vollst.			1	CASH-BOX, DOOR, ASSY
21	207 008	Kassenschloß m. Schl.			1	CASH BOX, LOCK with KEYS
22	207 496	Geldbeutel, vollst.			1	CASH BAG, ASSY
23	171 080	Bügel			1	BRACKET
24	171 081	Blattfeder			1	FLAT SPRING
25	107 812	Münzprüferhalteblech	3-Kanal / 3-CHANNEL		1	COIN MECHANISM, ASSY
26	108 927	Münzdurchlauf			1	COIN CHUTE
27	217 772	Scharnier			1	HINGE
28	223 325	Transformator			1	TRANSFORMER
29	223 379	Transformator			1	TRANSFORMER
30	171 356	Frequenzweiche, vollst.			2	NETWORK, ASSY
31	170 291	Schalterplatte		50 Hz	1	JUNCTION PLATE
	170 098	Schalterplatte		60 Hz		JUNCTION PLATE
32	224 064	Vorschaltgerät	KX 16 D	50 Hz	1	BALLAST
	224 185	Vorschaltgerät		60 Hz		BALLAST
33	225 040	Starter	S 10	50 Hz	1	STARTER
	225 343	Starter	S 2	60 Hz		STARTER
34	226 073	Leuchtstofflampe	16 W	50 Hz	1	FLUORESCENT LAMP
	226 074	Leuchtstofflampe		60 Hz		FLUORESCENT LAMP
35	106 290	Lautstärkeregler, vollst.			1	VOLUME CONTROL, ASSY
36	171 370	Zentrale	200 W	50 Hz	1	CENTRALE
	171 380	Zentrale	200 W	60 Hz		CENTRALE
37	171 635	Steuer-u. Speichereinheit			1	CONTROL and CREDIT UNIT
38	220 320	Funk-Entstörkondens.			1	RADIO INTERFERENCE
39	222 406	Microschalter			1	MICRO SWITCH
40	217 784	Gasfeder			2	PISTON ROD
41	171 296	Haltewinkel			1	HOLDING BRACKET
42	250 162	Münzrohr			1	COIN TUBE
43	171 244	Einschub			1	PANEL
44	171 344	Münzrohr			1	COIN TUBE
45	224 199	Lautsprecher	P 265	35 / 70 W	2	LOUDSPEAKER
46	224 199	Lautsprecher	P 135	10 W	2	LOUDSPEAKER
	170 284	Zierring			2	DECORATIVE RING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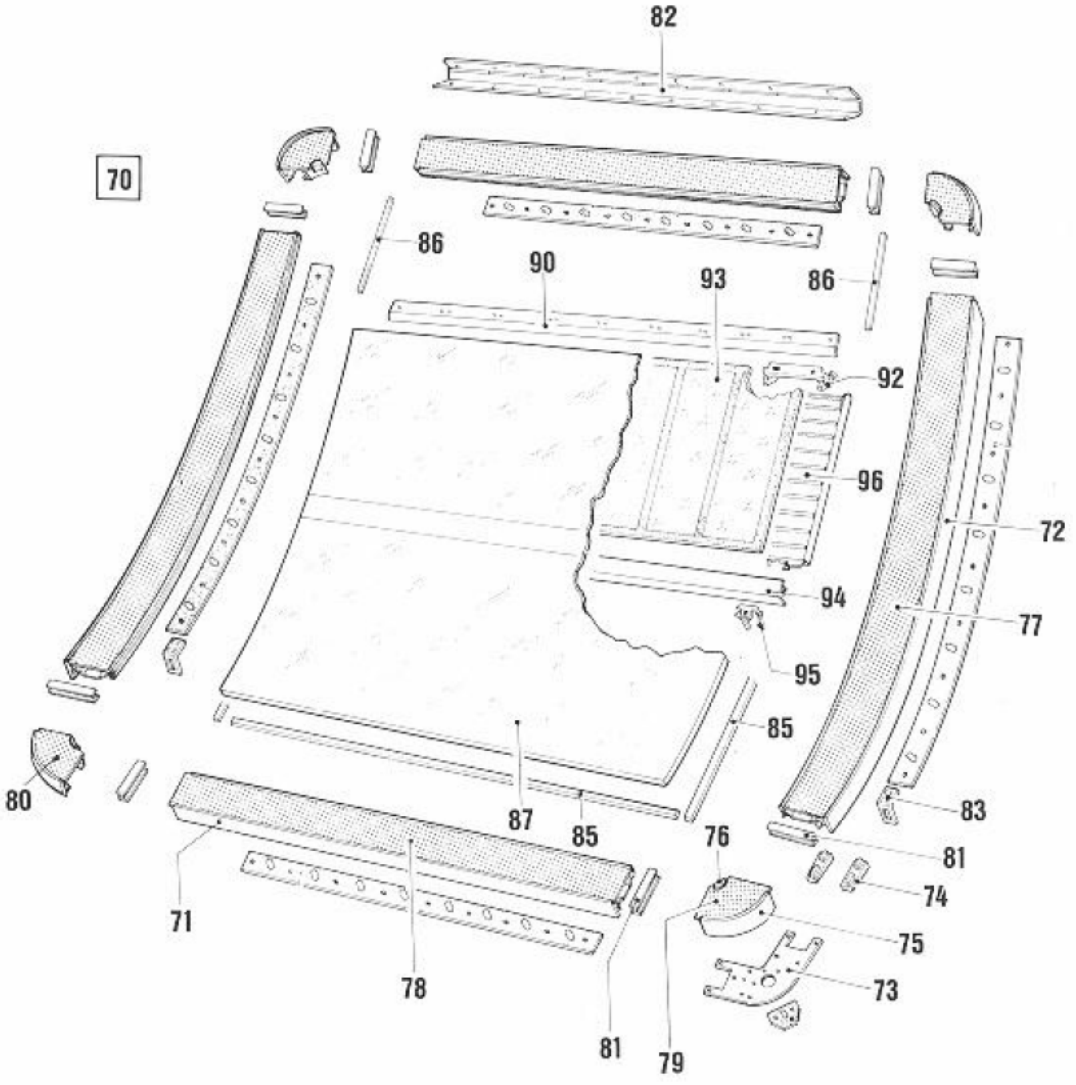
POS.	BEST.-NR. PART-NR.	BENENNUNG	DATEN DATA	STCK QTY	DESCRIPTION
47	171 258	Lautsprechergitter		1	SPEAKER GRILL
48	171 260	Lampenhalter, lang		2	LAMP HOLDER, long
49	170 130	Lampenhalter, kurz		4	LAMP HOLDER, short
50	225 587	Lampensockel		12	LAMP SOCKET
	226 049	Glassockellampe	12 V 2 W	12	LAMP
51	171 091	Montagerohr		1	MOUNTING TUBE
52	212 174	Abdeckscheibe		1	COVER GLASS
53	250 155	Blendenprofil, vorn	nur bei Einsicht-Box	1	PROFILE, FRONT
54	250 154	Blendenprofil, hinten	by lock thru boxes only	1	PROFILE, REAR
55	171 003	Leiterpl.-Lichtorgel, vollst.	50 Hz	1	LP-PERMANENT LIGHT
	171 002	Leiterpl.-Lichtorgel, vollst.	60 Hz		LP-PERMANENT LIGHT
56	171 363	Leiterpl.-Lauflicht, vollst.		1	LP-RUNNING LIGHT
57	171 045	Laufgestell, vollst.			CARRIAGE BASE, ASSY
58	171 215	Laufwerk, vollst.	ES II 50 Hz		CARRIAGE, ASSY
	171 216	Laufwerk, vollst	ES II 60 Hz		CARRIAGE, ASSY
	211 465	Blende, links	Silber / SILVER		TRIMPLATE, LEFT
	211 464	Blende, rechts	Silber / SILVER		TRIMPLATE, RIGHT
	211 467	Blende, hinten	Silber / SILVER		TRIMPLATE, BACK SIDE
	211 466	Bodenblende	Silber / SILVER		BOTTOM TRIMPLATE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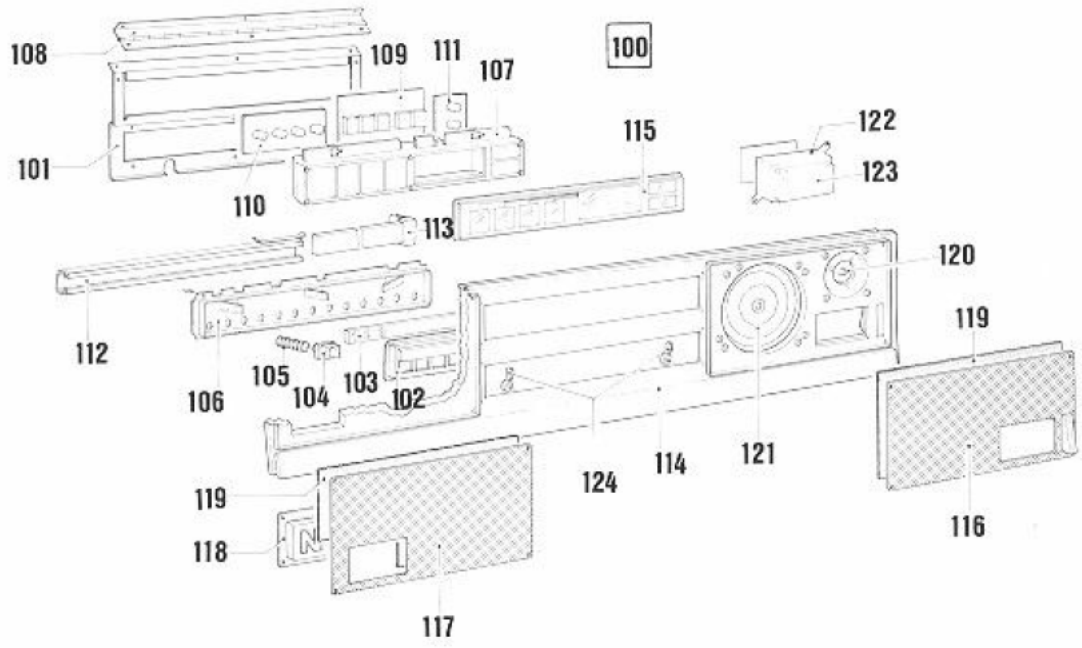
POS.	BEST.-NR. PART-NR.	BENENNUNG	DATEN DATA	STCK QTY	DESCRIPTION
70		RAHMEN			FRAME
71	250 141	Querprofil		2	CROSS PROFILE
72	250 140	Längsprofil		2	LONGITUDINAL PROFILE
73	171 240	Knotenblech		4	JUNCTION PLATE
74	200 905	Ausgleichsstück		8	COMPENSATOR
75	250 142	Eckprofil		4	EDGE PROFILE
76	171 242	Eckstück		4	EDGE PIECES
77	212 191	Blende rechts u. links		2	TRIMPLATE RIGHT u. LEFT
78	212 190	Blende oben und unten		2	TRIMPLATE UPPER u. LOWER
79	212 188	Blende		2	TRIMPLATE
80	212 189	Blende		2	TRIMPLATE
81	250 156	Profil		8	PROFILE
82	217 726	Scharnier		1	HINGE
83	171 248	Haltewinkel		2	HOLDING BRACKET
85	217 759	Gummiprofil	775 mm	5	RUPPER PROFILE
86	217 760	Gummiprofil	155 mm	2	RUPPER PROFILE
87	212 175	Frontscheibe		1	FRONT GLASS
	212 202	Frontscheibe o. Einsicht			FRONT GLASS
90	250 129	Profil, oben		1	PROFILE, UPPER
92	108 305	Scharnierteil		8	HINGE PART
93	212 181	Abdeckscheibe		1	COVER GLASS
94	250 130	Profil, unten		1	PROFILE, LOWER
95	029 240	Rastfeder		8	STOP SPRING
	106 563	Streifenträger	100 - 209	1	TITLE STRIP HOLDER
	106 564	Streifenträger	110 - 219	1	TITLE STRIP HOLDER
	106 565	Streifenträger	120 - 229	1	TITLE STRIP HOLDER
96	106 566	Streifenträger	130 - 239	1	TITLE STRIP HOLDER
	106 567	Streifenträger	140 - 249	1	TITLE STRIP HOLDER
	106 568	Streifenträger	150 - 259	1	TITLE STRIP HOLDER
	106 569	Streifenträger	160 - 269	1	TITLE STRIP HOLDER
	106 570	Streifenträger	170 - 279	1	TITLE STRIP HOLDER
	225 533	Lampensockel		36	LAMP SOCKET
	226 049	Lampe	12 V 2 W	36	LAMP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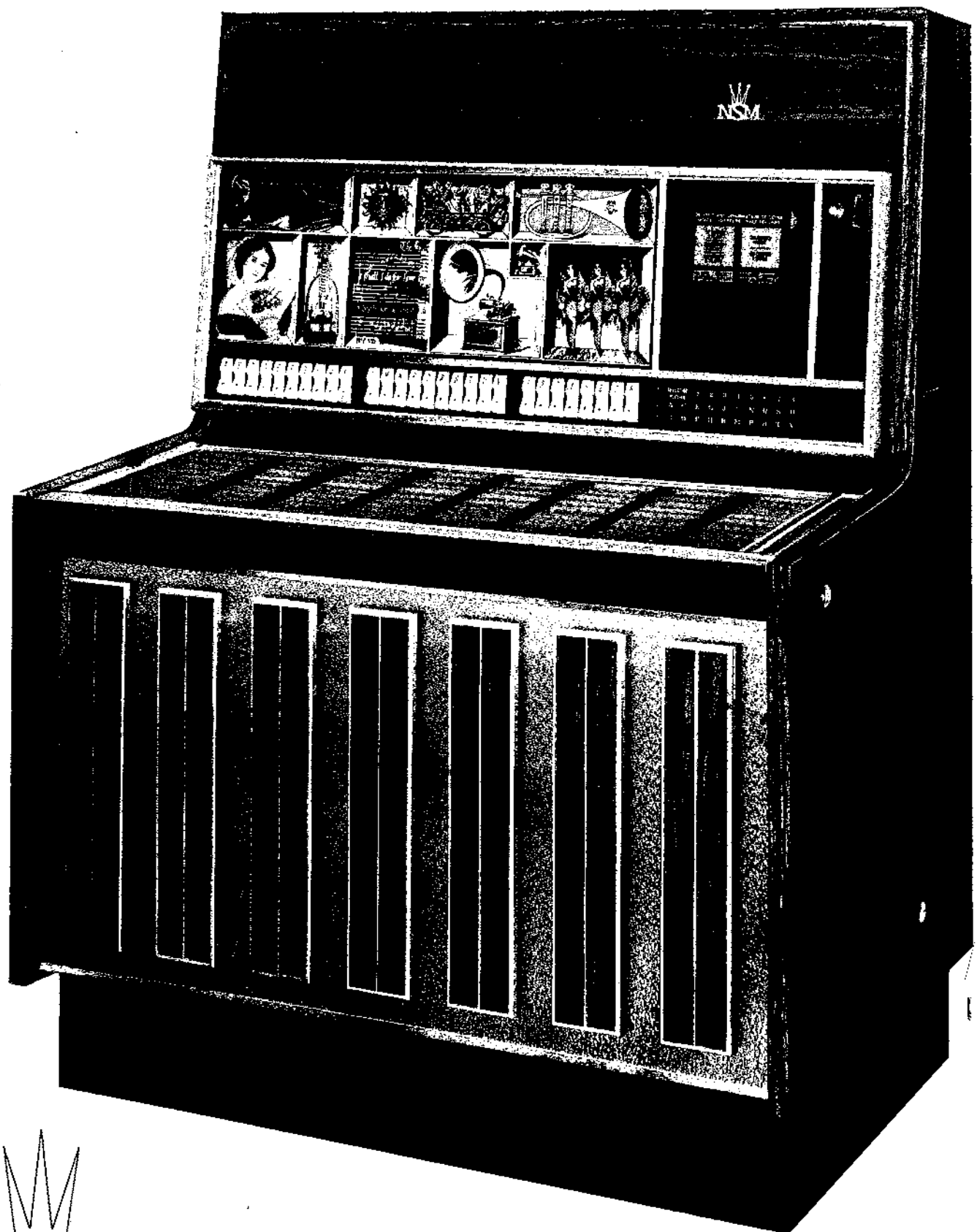
ERSATZTEIL-LISTE — SPARE PARTS LIST

POS.	BEST.-NR. PART-NR.	BENENNUNG	DATEN DATA	STCK QTY	DESCRIPTION
100		TASTATUR			KEY BOARD
101	171 247	Halteblech		1	HOLDING PLATE
102	105 468	Tastenrahmen		1	KEY FRAME
103	106 663	Einsatzstück, bedruckt		1	INSERTION PIECE
104	103 987	Drucktaste, vollst.		13	PRESS BUTTON, ASSY
105	205 447	Druckfeder		13	PRESSURE SPRING
106	106 664	Tastenboden		1	KEY SUPPORT
107	106 666	Tubus		1	TUBE
108	217 735	Scharnier		1	HINGE
109	106 668	LP - Spielanzeige, gel.		1	LP -PLAYING INDICATOR
	221 185	Widerstand	180 Ω 1W	7	RESISTOR
110	109 340	LP - Spielanweisung		1	LP - PRICING INSTRUCTION
	221 668	Widerstand	18 Ω 1W	2	RESISTOR
	221 115	SI - Diode	1 N 4004	3	SI - DIODE
111	217 055	Leiterplatte II		1	CIRCUIT PLATE II
	106 638	Tastaturprofil, vollst.		1	KEY BOARD PROFILE, ASSY
112	106 637	Tastaturprofil, gen.		1	KEY BOARD PROFILE, STAMP.
113	106 628	Kontaktleiste, vollst.		1	CONTACT STRIP
114	171 293	Trägerplatte		1	SUPPORTING PLATE
115	212 004	Programmtafelscheibe		1	PROGRAM GLASS
116	109 171	Lautsprecherabdeckung	rechts / right	1	LOUDSPEAKER - COVER
117	211 130	Lautsprecherabdeckung	links / left	1	LOUDSPEAKER - COVER
118	109 303	Verschlußplatte	Dollar-Bill	1	CLOSING PLATE
119	209 056	Schutzgewebe		2	
120	224 214	HIFI - Hochton - Lautspr.		2	HIFI - LOUDSPEAKER
121	224 171	Lautsprecher	P 130 8 Ω 10 W	2	LOUDSPEAKER
122	108 232	Rahmen f. Spielanweisung		1	FRAME FOR PRICING INSTR.
123	108 233	Halter f. Spielanweisung		1	HOLDER FOR PRICING INSTR.
124	108 575	Knebel		2	LEVER



PRESTIGE 160

60 cycles

INSTALLATION OF THE PHONOGRAPH PRESTIGE 160

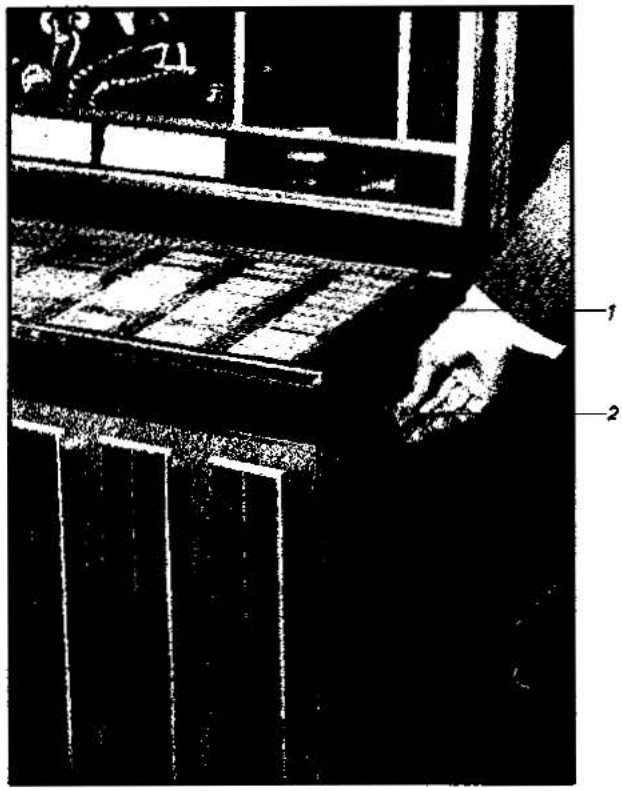


Fig. a

Fig. b

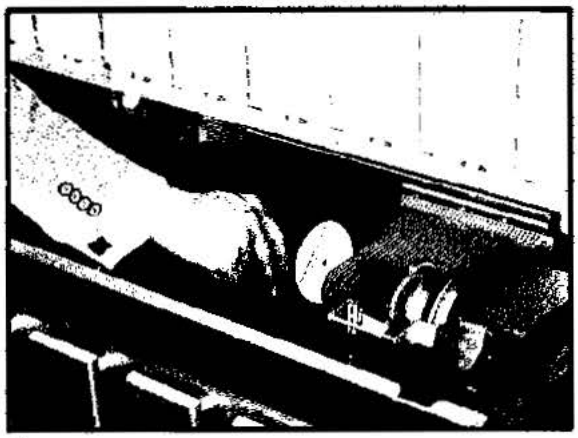


Fig. c

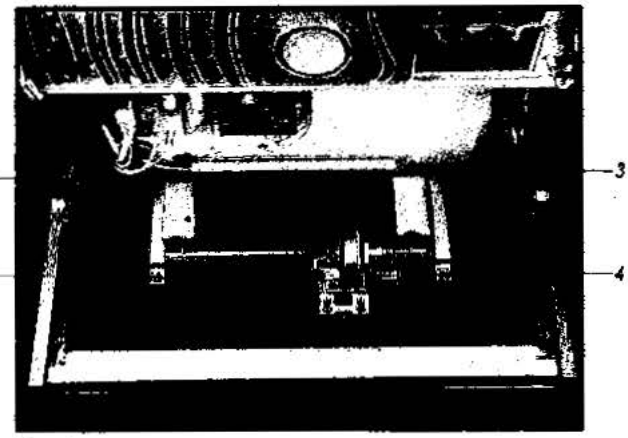


Fig. d

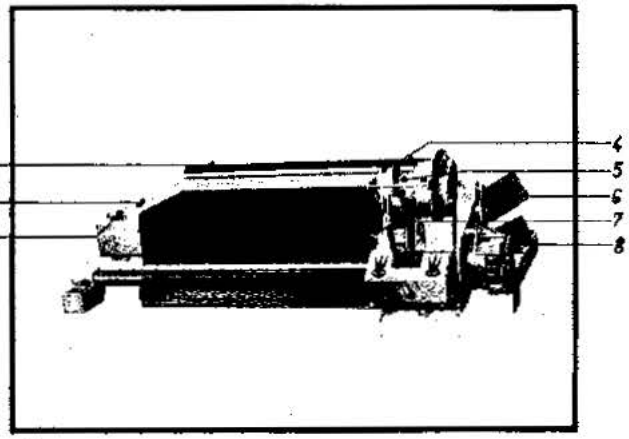


Fig. e

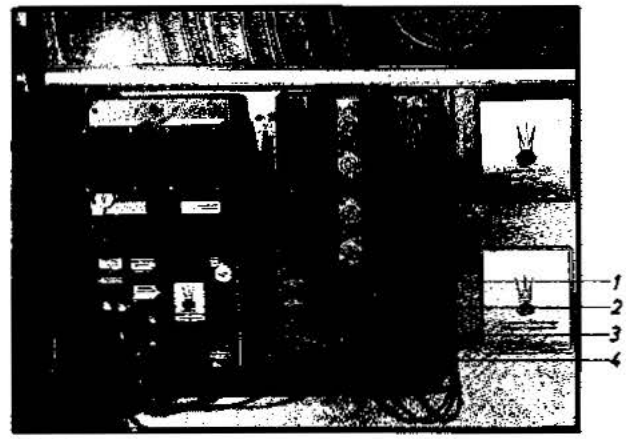


Fig. f

See instructions next page ⟶

PLEASE READ INSTRUCTIONS BEFORE INSTALLATION

GENERAL

1. If external damage due to transport is noticed, this should at once be recorded on the delivery note and endorsed by the person making the delivery (Forwarding Agent, Railways, etc.). The manufacturer is not liable for damage caused during transit.

2. Devices for the safety and protection during transit must be removed before switching the phonograph on. They must, however, be refitted in the event of further transit.

3. All standard models of the phonographs are for a line voltage of 117 V/60 cycles.

4. The box is supplied with a 3-core line cable. Green-yellow must be connected to earth, corresponding to international wire code.

5. The proper functioning of the phonograph necessitates it to be horizontally and vertically levelled.

INSTALLATION OF THE PHONOGRAPH

1. Unscrew cabinet keys (end figures ... 76) and cash box keys from the back.

2. Open left hand cabinet lock by turning the cabinet key to the left and right hand cabinet lock by turning the cabinet key to the right (figure a/item 2). While doing so, press lightly on the program frame.
   Lift up program frame (figure b/item 2).

3. Remove clip from rack on carriage base.

4. To loosen carriage, remove screws painted red (figure e/items 6 and 8) on the right hand side of the carriage base.

5. To loosen record clamp arm, remove rubber ring (figure e/item 5) and rubber wedge (figure e/item 7).

6. To free pick-up arm, remove rubber band, but leave the stylus cover on (figure e/item 4) in order to protect the diamonds.

7. To loosen carriage base, unscrew four nuts (figure d) up to the catch.

8. Pull line cable through the cutout hole in the back of the cabinet. Cover cutout hole with protection plate.

9. **ATTENTION:** Check line voltage before connecting! After plugging line plug into the wall socket, switch on line switch on the back of the cabinet. (Fluorescent lamps should now light up.)

10. By depressing the scan button (figure e/item 2) let the carriage move from its rest position on the right to the left and remove card board strip out of groove.

11. Seize handle at the bottom of the title strip holder section figure b/item 1) and lift up title strip holders.

12. Open cash box, title strips will be found in the cash bag. After lettering the title strips, insert same in the desired succession into the title holders A—V. After adjustment arrange in proper order the "ALBUM" title strips.

13. Insert records into record magazine (figure c) in the order of the title strips, the upper lettering of the magazine marking to the left. Move carriage by pressing scan button (figure e/item 2) from space into which records have to be fitted.

14. Remove stylus covers from cartridge. (Save the covers for later use.)

15. Slightly press program holder frame (figure a/item 1) downwards and lock cabinet. (Left hand lock by turning to the right and right hand lock by turning to the left.)

16. Refit cash box cover and lock cash box.

17. **IN CASE OF TRANSIT:** move carriage to the extreme right and insert safety screws. All other safety and protection devices have to be mounted contrary to above described sequence.

CONTROL AND SERVICE SWITCHES:

Credit Button: Free play button, each pulse gives one credit. Located on inside of the right hand side of the cabinet — the upper button on coin acceptor assembly.

Credit Cancel Button: All credits can be cancelled. Located on inside of the right hand side of the cabinet — the lower button on the coin accepter assembly.

Record Reject: By holding the button down for 1.5 seconds, any record can be rejected before end of play. Locations: one is located on the back left hand corner of the cabinet and one is on the control box.

Scan Button: permits travel of the carriage to any desired place. Located at the left hand side of carriage base.

TAKING INTO OPERATION:

After inserting coin for single play, the single indicator lights up. After inserting coin for ALBUM play, the ALBUM indicator lights up. If both indicator lights are lit Album or Single Plays may be selected. When only Single indicator light is lit, only Single Play can be selected. After selection has been made, selection light will go out. Bent coins or slugs will — either immediately or after pressing the coin reject button — drop into the coin return cup.

The corresponding letter and number buttons are to be pressed. It is immaterial, which button will be pressed first. After the selection has been made, the buttons will be released. The selected and now playing record is being indicated by lighted figure- and letter-fields on the green panel.

The control box is fitted with a volume control and one reject button. The volume of both channels can be adjusted together.

In case of low volume the bass will automatically be reproduced louder (physiological volume control).

The control box is mounted at the back of the cabinet. It can easily be taken out and used as a remote control. (Cover hole with protection plate.)
A 3 core shielded or unshielded cable can be used.
Therefore connection is possible at any location where remote control cable is on hand.
The remote control cable has to be connected to the corresponding terminals between amplifier and volume control box.

The box is equipped with a new type popularity meter (figure e/item 1) that indicates — easily detectable — the playing frequency of each record. The popularity meter can — by one simple movement of the lever — be reset to "0".

The total play meter is located on the left hand side of the carriage base (figure e/item 3).

Used or damaged diamonds can — together with their holders — easily be removed from the cartridge without any tools and be replaced by new ones.

CREDIT UNIT:

In order to alter credits, the corresponding wheel together with the needed slot have to be placed on the drive pin. For ex.:

1 play — slot nr. 1
3 plays — slot nr. 3
6 plays — slot nr. 6

Thus, any variation from 1 — 12 plays is possible.

1. Remove credit unit cover
2. Clap out base plate of credit unit
3. To take off top plate, loosen screw and remove circlip from main wheel pin. Take off plastic spacer and washer.
4. Remove tension spring
5. Take off top wheel
6. Refit wheel in such a way that the drive pin is led into the needed slot of the wheel
7. If second or third wheel has to be altered, follow same procedure as above. (Be careful to replace washers when assembling.)
8. Refit all other parts contrary to above indicated sequence.
9. Check with coins.
10. Change price instructions at the selector key panel. Credits and price instructions have to coincide.

DISCOTHEQUE / ALBUM:

An ALBUM-selection can be made, when sufficient credits have been accumulated. (See price instruction.) If, for ex., an ALBUM-selection is set for 3 credits, a minimum of 3 credits must be accumulated.

1. Positions 1 and 2 in the credit unit are connected with one contact finger and positions 3 and 4 with another contact finger.
2. Cam N4 of the switch mechanism (left hand side — carriage base) is set in such a way that 3 subtractions are realized in the credit unit at each ALBUM-selection.
3. Push open cover of the selector switches, contact finger at the selector switches must be changed from 1 to 2 for ALBUM-selection.

CONNECTION OF LOUDSPEAKERS:

The impedance of installed loudspeaker combinations is 8 Ω per channel. If additional loudspeakers are to be used, attention must be paid to the impedance matching.

In case of mismatching the electronic fuses in the amplifier will cut out.

The total impedance of the connected loudspeakers should not be less than 3 Ω per channel.

See inclosed "EXTENSION SPEAKER CONNECTIONS".
Max. music power = 60 Watts per channel.

MATCHING THE SOUND TO THE ROOM ACOUSTICS:

After lifting up selector key panel, the sound controls can be reached.

Treble-control switch (figure f/item 4)
Bass-control switch (figure f/item 3)
Record quality compensator (figure f/item 2)
Channel level adjusting (figure f/item 1)

Upon leaving the factory both channels are adjusted to the same level. If neccessary, the level may be limited to the desired maximum at the place of installation.

SWITCH-ASSY

REJECT BUTTON

LINE-SWITCH

117 VAC 60 Cps

GROUND

1b 5 prong white

1a

12 b 3 prong white

FOR ALL OTHER VOLTAGES USE MES-TRANSFORMER

FLUORESCENT LAMPS

STARTER 30 W

STARTER 30 W

BALLAST

BALLAST

2a

2 b 3prong white

AMPLIFIER 70 S

9a

9 b 3prong blue

MUTING RELAY

PICK UP

VOLUME CONTROL

SPEAKER-COMBINATION left

SPEAKER-COMBINATION right

3 b 6 prong red

AMPLIFIER TRANSFORMER

CONTROL TRANSFORMER

CONTROL-CENTER

LP I

LR = TRIP RELAY

LP II

SR = START RELAY
WS = RESTART BLOCKING RELAY
TR = LATCH BAR RELAY
SR = SINGLE RELAY
AR = SEARCH RELAY
MR = MOTOR RELAY

LP III

8 b 12prong blue

5 b 12 prong red

5a

MAGNET CORE MEMORY UNIT

HUNDER KEYS

LETTER KEYS

NUMBER KEYS

TM LATCH BAR SOLENOID

SELECTOR-KEY-PANEL

7 b 9 prong blue

DUO TYNE

COIN SWITCH

CREDIT UNIT

4 b 4a 9 prong white

CARRIAGE BASE WITH SELECTOR CONTROL

CARRIAGE

SCAN SWITCH

REVERSING SWITCH

CLUTCH SOLENOID

CARRIAGE MOTOR

OPERATING SWITCH

REEQ CANCEL SWITCH

TRIP SOLENOID

READ OUT

SELECT MOTOR

6 b 6a 12 prong white

14 b 8prong white

14a

ILLUMINATION SELECTION DISPLAY

SELECTION PLAYING INDICATOR

10a

10 b 9 prong blue

11a

11 b 5 prong red

TRIP LINE

ALBUM

SINGLE

wh	white
bk	black
bro	brown
blu	blue
yel	yellow
grn	green
gr	grey
red	red
pk	pink
or	orange
vio	violet
cre	cream

CONTACT POSITION LINE SWITCH „OFF"
ALL RELAYS AND SOLENOIDS 30 V DC

MODIFICATIONS BY TECHNICAL PROGRESS RESERVED

Datum	Name
Gez. 13.3.69	
Bearb.	
Gepr.	

Änd. Änderung Datum Name Ges.

Benennung

WIRING DIAGRAM PRESTIGE 160

60 Cps

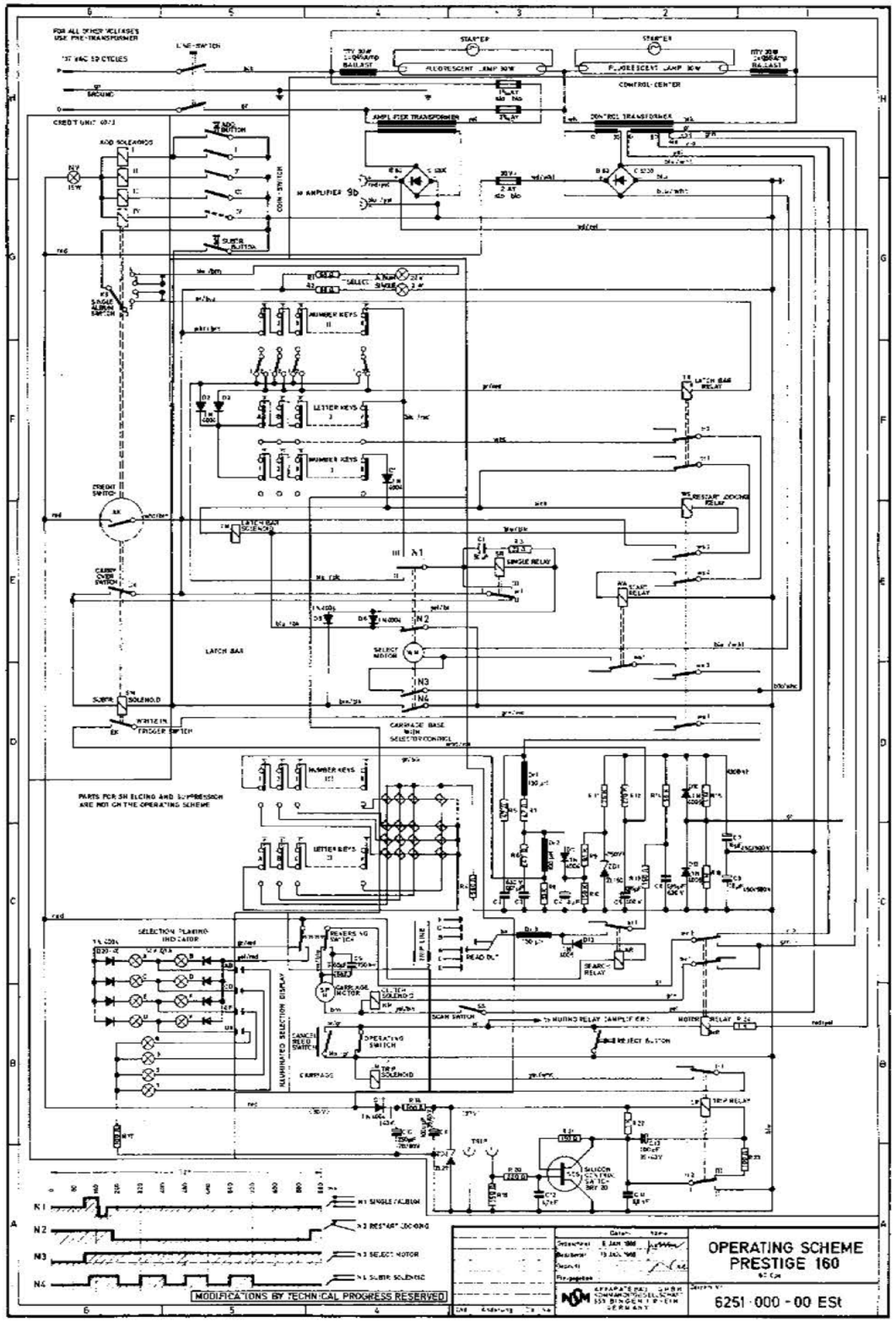
APPARATEBAU GMBH
KOMMANDITGESELLSCHAFT
859 RINGEN/GERMANY

Zeichn. Nr.

6251 · 000 - 00 ESt

Blätter:

Blatt:



ATTENTION:

Sections of the wiring diagram with the corresponding circuits marked through heavy lines, have been added to the following descriptions. This makes it easier to follow the current run and helps to understand the functionings.

We recommend to have the left side of this page unfolded when studying the following sheets, because then the explained operations may be followed on the whole operating scheme.

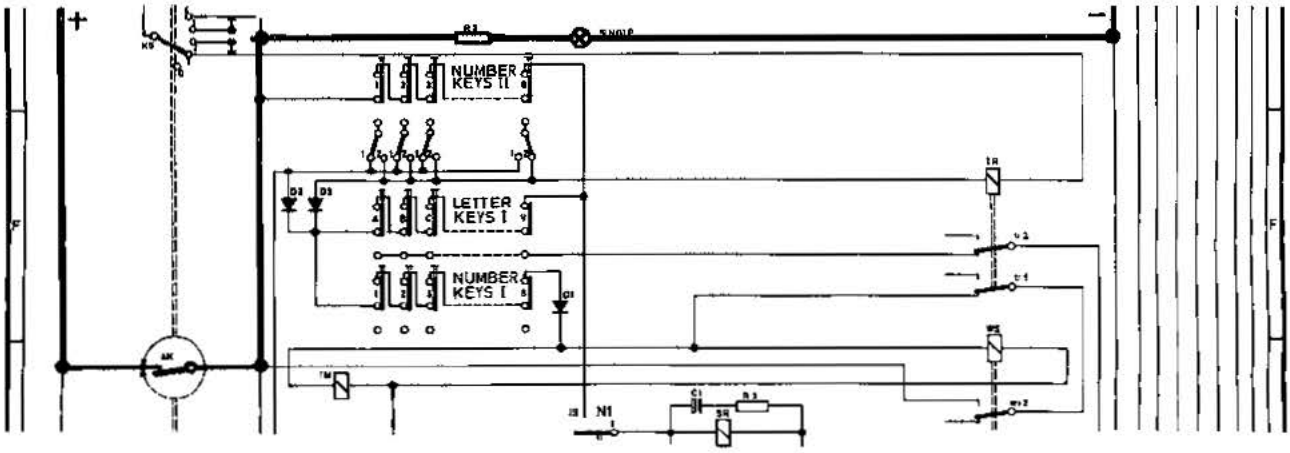
← While reading, unfold operating scheme to the left.

CIRCUIT DESCRIPTION OF PRESTIGE 160

After connecting the cord to the 117 VAC line and switching the machine ON, it is ready to operate. The 3 2/10 amp. slo-blo fuse protects the circuit of the flourescent lights, and the primary of the control transformer. The primary of the amplifier transformer is protected by the 1 2/10 amp. slo-blo fuse. All other circuits feed from the secondary of the transformer, and are thus insulated from the line voltage.

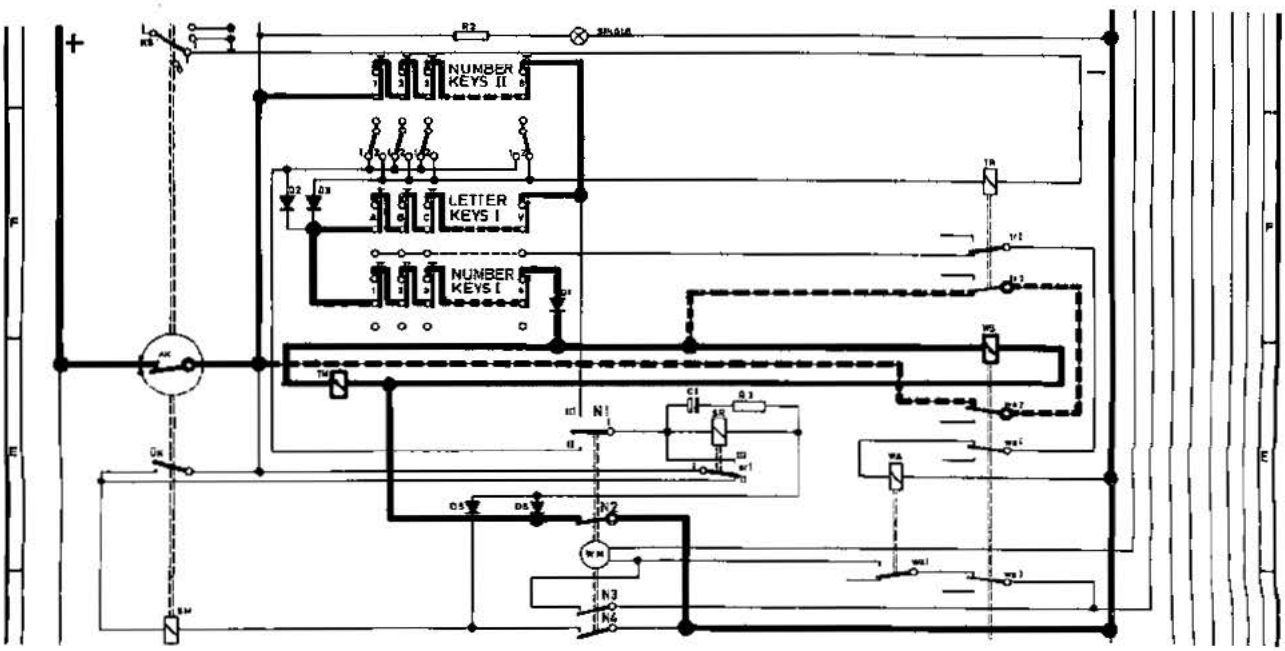
1. CREDIT

When a coin is deposited through the coin slot, it passes through the acceptor, closing the corresponding coin switch. This energizes the related add solenoid, a credit is made and the credit switch AK in the credit unit is now closed. Depending on the number of credits, the single-album switch KS will move to one of its contacts. Over contact AK the " Single Selection" lamp will be lit.



Circuit:
plus - AK - R2 - lamp, SINGLE - minus.

Simultaneously the circuit to the latch bar solenoid (TM) and the restart locking relay (WS) is closed.



Circuit:
plus - AK - number keys II (1 through 8) letter keys I(V through A) - number keys I(1 through 8) - D1 - TM and WS - N2 - minus.

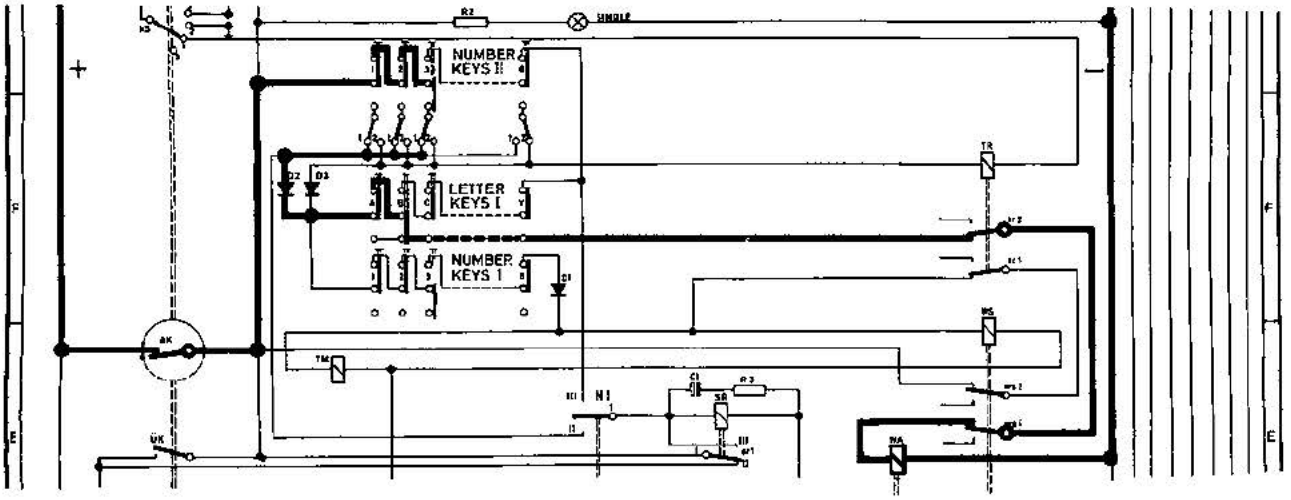
With the latch bar solenoid energized, the buttons will be able to lock in. The contacts on the restart locking relay, ws1 through ws4, are now switched over. Contact ws2 locks the circuit to TM and WS.

Circuit:
plus - AK - ws2 - tr1 - TM and WS - N2 - minus.

The price for album play can be changed (see credit unit). On the diagram, the album circuit is set for 3 credits per album. With less than 3 credits registered, the single-album switch KS is in the 1 or 2 position, thus connecting one side of the latch bar relay to minus.

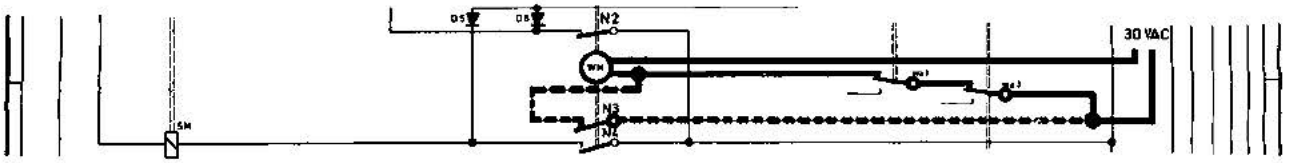
2.1 SINGLE SELECTION CYCLE

When a number (single) and letter button are pressed, the circuit to the start relay (WA) is closed and the selection cycle starts.



Circuit (B3 selected):
plus - AK - number keys II,3 - contact plate pos. 1 - D2 - letter keys I,B - tr2 - ws4 - WA - minus.

Energizing the start relay, closes contact wa1 hereby connecting the selection motor to the 30 VAC.

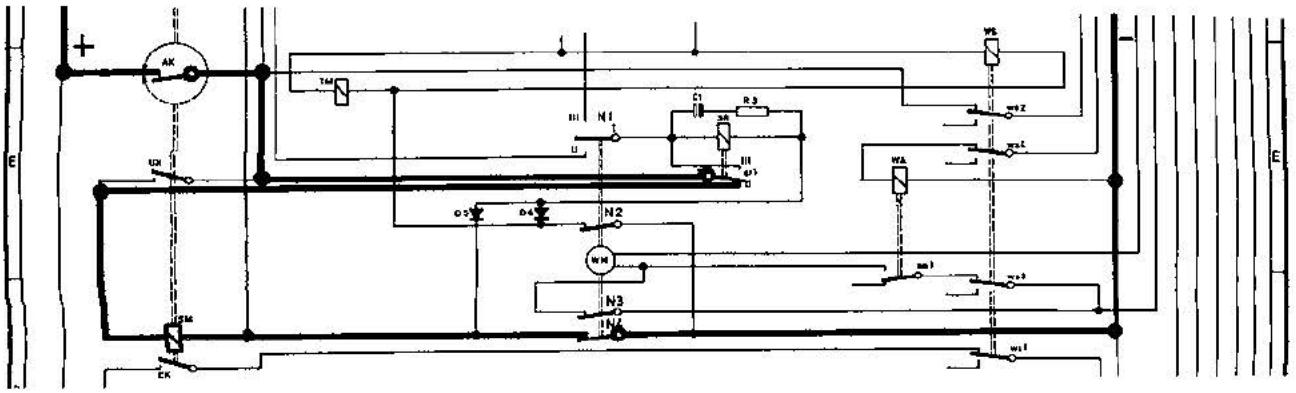


Circuit:
30 VAC - selection motor - wa1 - ws3 - 30 VAC.

The selection motor turns the contact cam, and contact N3 will close first.

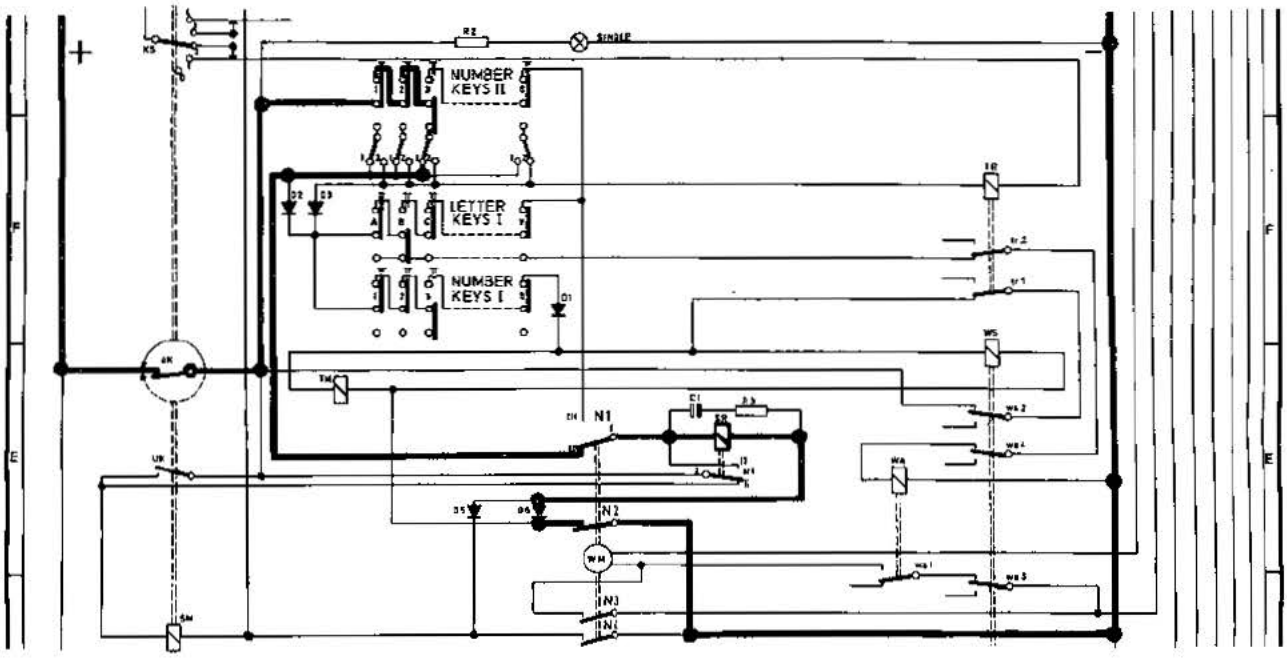
Circuit:
30 VAC - selection motor - N3 - 30 VAC.

When contact N4 closes, the subtract solenoid (SM) is energized.



Circuit:
plus - AK - sr1 - SM - N4 - minus.

The movement of the subtract solenoid causes the carry over switch SÜ and the write-in trigger switch EK to close. When the write-in trigger switch is closed, the actual preselection is concluded, but this action will be described in paragraph 3. Now contact N1, II-1 closes, completing the circuit to the single relay SR.



Circuit:
plus - AK - number keys II,3 - contact plate pos.1 - N1, II-1 - SR - D6 - N2 - minus.

Single relay contact sr 1, I-II, opens the circuit to the subtract solenoid, thus cancelling all the other subtract pulses from contact N4, by single selection. Contact sr 1, I-III, is now the holding contact for the single relay. The single relay stays energized after N2 has opened. It gets the minus over N4 and D5. Time constant network R3 and C1 over the single relay, keeps the relay closed while N4 is open between pulses. The movement of the subtract solenoid moves the credit wheel back one credit.

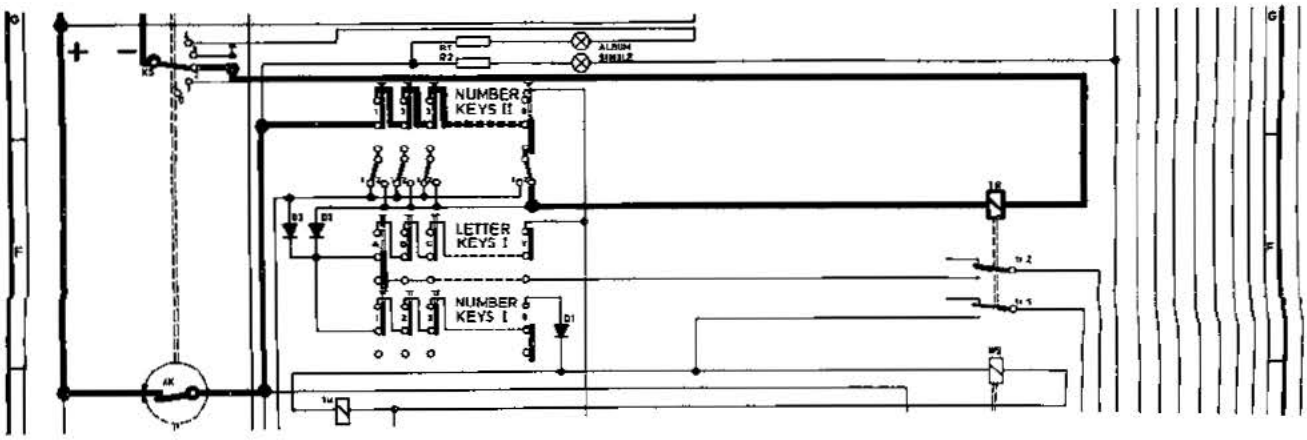
The selection motor closes the scan switch, which completes the circuit to the carriage motor and the clutch solenoid (see scanning). Just before completing the one subtraction pulse, N2 opens the circuit to the latch bar solenoid and the restart locking relay. The buttons will now jump back to the rest position.

At the end of the selection cycle, contact N2 closed again. If anymore credit is available, the restart locking relay and the latch bar solenoid will energize again through N2 and the rest contacts of the buttons. If a button should stay down, the restart locking relay cannot pull in because contact ws4 is open. This prevents making any undesired selections.

The selection motor will stop running as soon as contact N3 opens.

2.2 ALBUM SELECTION CYCLE

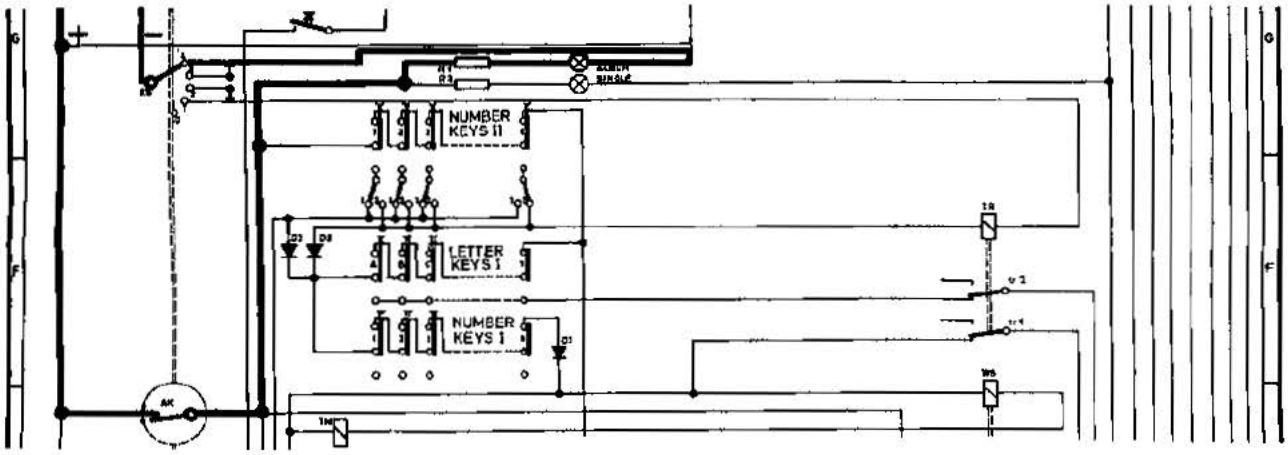
The jumper blade of number key 8 on the contact plate is in position 2. If an album number key is pressed, and there is not enough credit available the latch bar relay (TR) will energize.



Circuit:
plus - AK - number keys II,8 - contact plate pos. 2 - TR - single-album switch KS - minus.

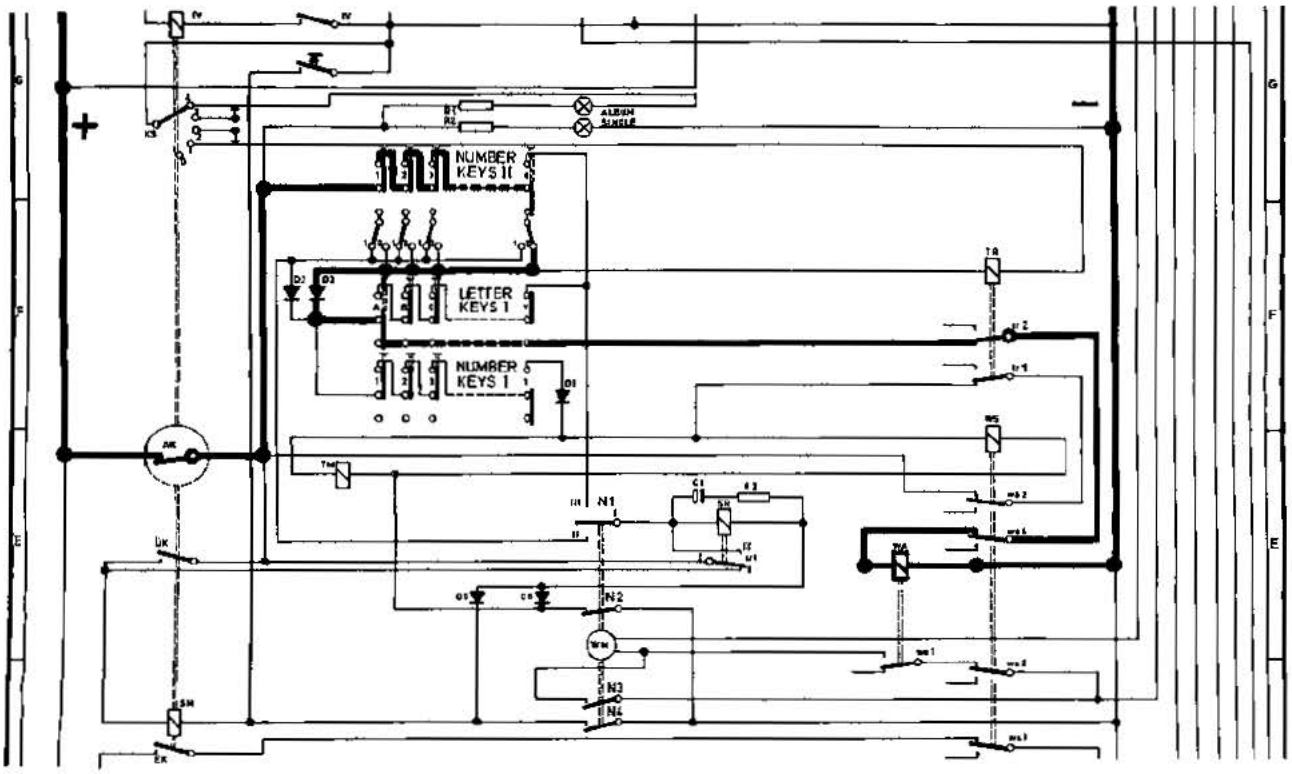
When the latch bar relay energizes, and contact tr 1 opens the circuit to the restart locking relay an the latch bar solenoid, the buttons cannot latch, contact tr 2 opens the circuit to the start relay, and no selection is made.

If 3 or more credits are available, single-album switch KS is in position 3 or 4, thus the negative line to the latch bar relay is open and the " ALBUM selection " lamp is lit.



Circuit:
plus - lamp, ALBUM - R1 - single-album switch KS - minus.

If a number (ALBUM) and letter button is pressed now, the circuit to the start relay is closed and the selection cycle starts.

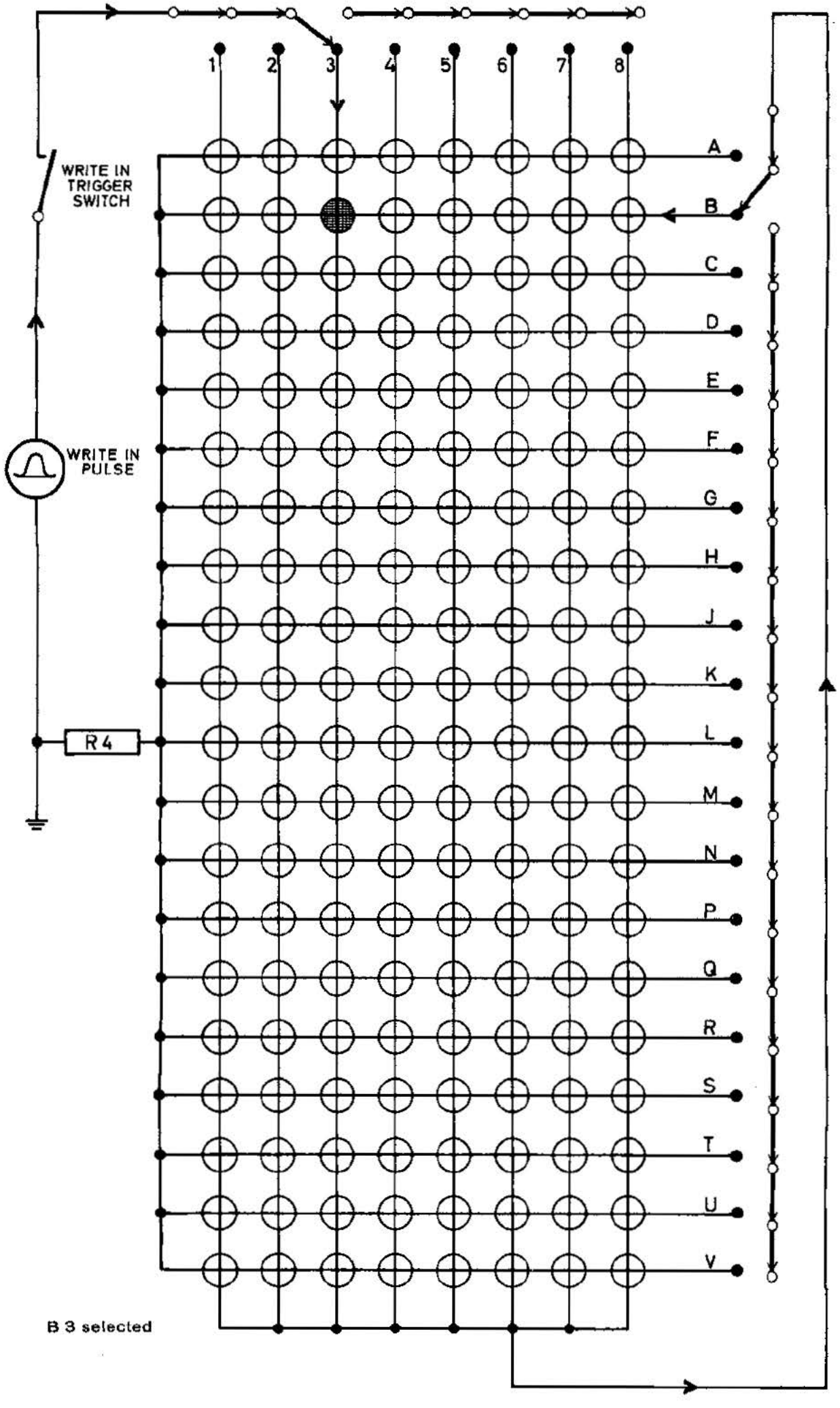


Circuit:
(A8 selected) plus - AK - number keys II,8 - contact plate pos.2 - D3 - letter keys I,A - tr2 - ws4 - WA - minus.

The cycle is the same as for single selection, except the following. The single relay will not be energized by album selection, therefore all the subtract pulses from contact N4 will be registered. Because contact N2 opens after the first subtract pulse, the restart locking relay is deenergized, opens contact ws1, thus only the first write-in pulse from the write-in trigger switch will be used.

3. THE ELECTRONIC SELECTION SYSTEM

The Prestige 160 uses the more advanced electronic system using toroidal shaped magnetic cores of magnesium ferrite, called toroids. There are 160 toroids, one for each selection arranged in two rows of 80. The system uses a minimum amount of current, while the only moving parts, the read-out plungers, only touch the contacts.
The 160 toroids are ring shaped with a diameter of 4 mm. Because they are made of ferrite, they have very definite properties.



SCHEMATIC
MEMORY UNIT

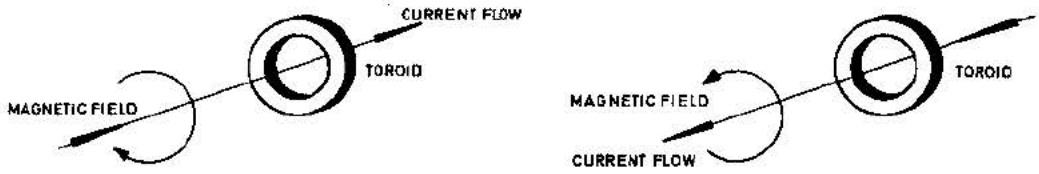
Each magnet has a northpole and a southpole.

Magnetic lines run between the poles. With ring magnets, the lines form a closed circuit.

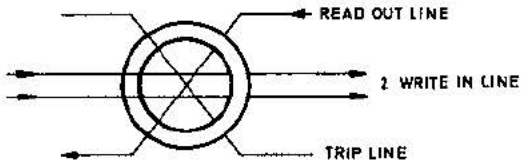
There are two conditions, the lines run clockwise, or they run counter clockwise.

To change a toroid from one condition into the other a magnetic field of well defined amplitude, shape, and polarity is necessary.

When electric current flows through a wire, a magnetic field builds up around the wire. The direction of the magnetic lines depend on the direction of the current in the wire.



4 wires run through each toroid, 2 for write-in, 1 for read-out, 1 for trip.

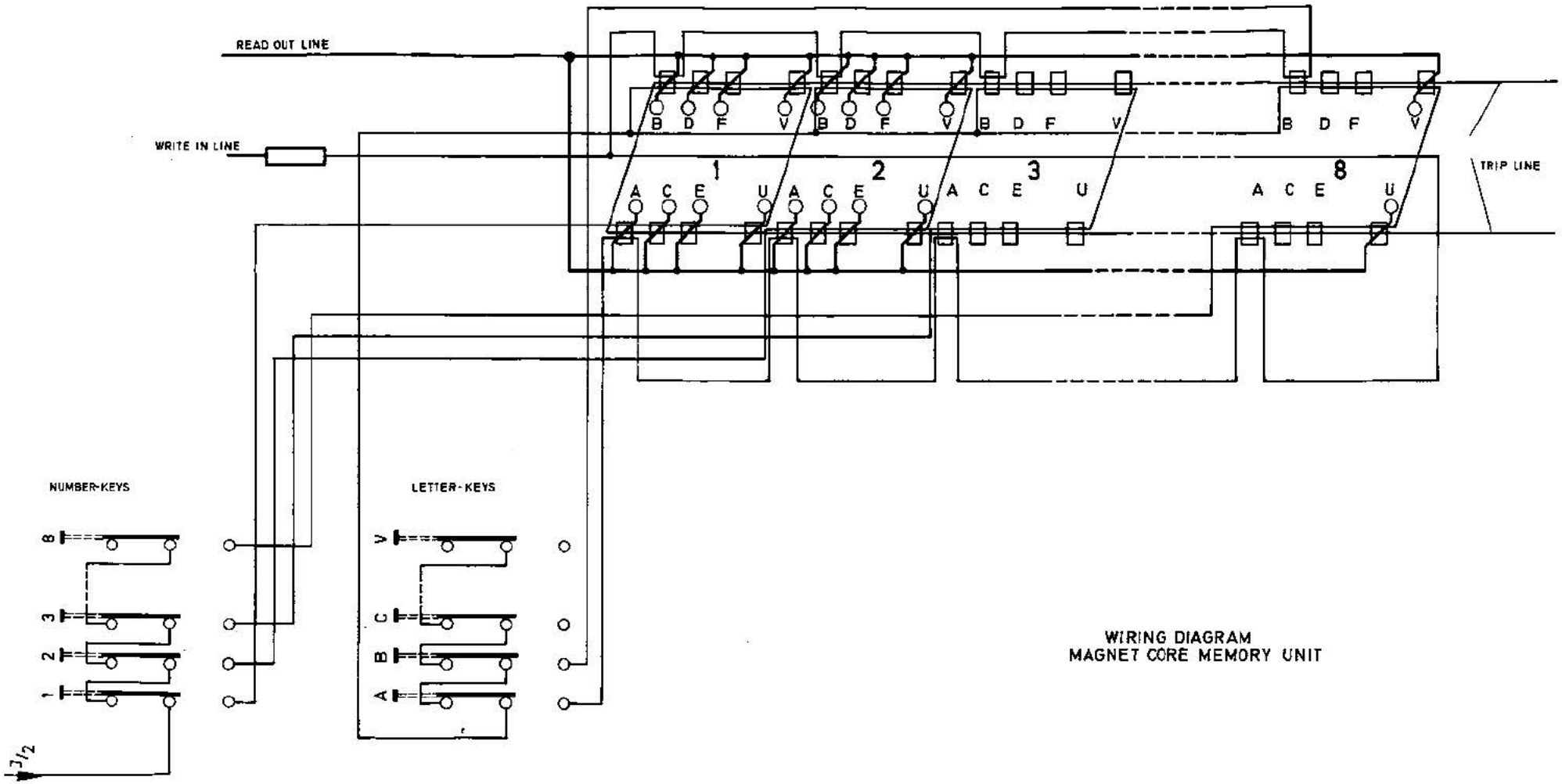


The electric pulses through these wires are of such amplitude and direction that the selected toroid will change its condition. We call the selected state the YES condition, the not selected state NO condition.

3.1 WRITE-IN (PRESELECTION)

From each number key a write-in line runs through that number group, then to the letter keys. From there a second write-in line runs through that letter group, over resistor R4 to negative. (See schematic).

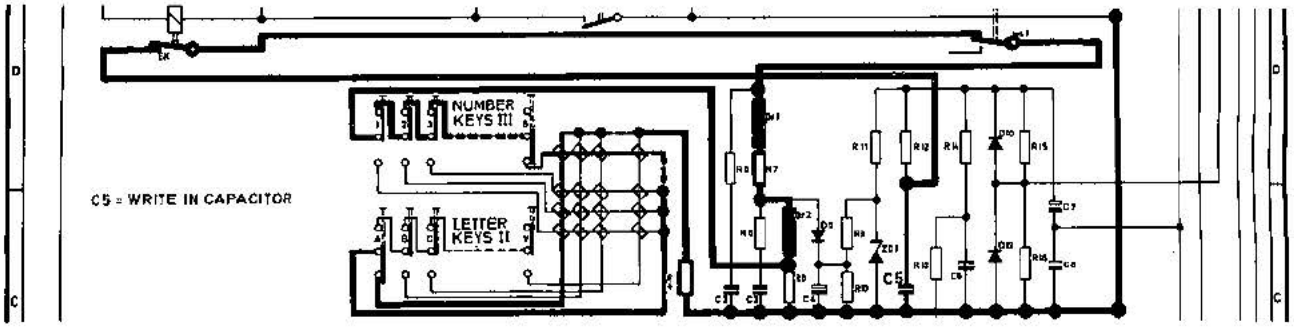
When a selection is made, in this case B3, the pulse travels through the write-in trigger switch, the line going through all the number 3 toroids, to the letter keys, through all the B toroids, and over R4 back to minus. Thus, all the number 3 and letter B toroids receive a current of half the necessary amplitude, but only the toroid where the two lines cross, in this case B3, will receive the pulse with the needed amplitude to turn from the NO to the YES condition.



WIRING DIAGRAM
MAGNET CORE MEMORY UNIT

The 110 VAC coming from the secondary of the control transformer is converted to 300 VDC by the rectifier-doubler circuit of D10, C7, C8, D12, R15 and R16.

Over R12, the write-in capacitor C5 is charged to 300 VDC. R11 is a series resistor for Zener diode ZD1. Over voltage divider R9 and R10, a reference pulse is placed over C4, which through D11, will control the amplitude of the write-in pulse. When the write-in trigger switch is closed, capacitor C5 is discharged over contact ws1 through the network R5, C2, Dr1, R7, R6, C3, which will give the pulse the desired shape, over Dr2, number and letter keys, the selected toroid, and through R4 back to ground.

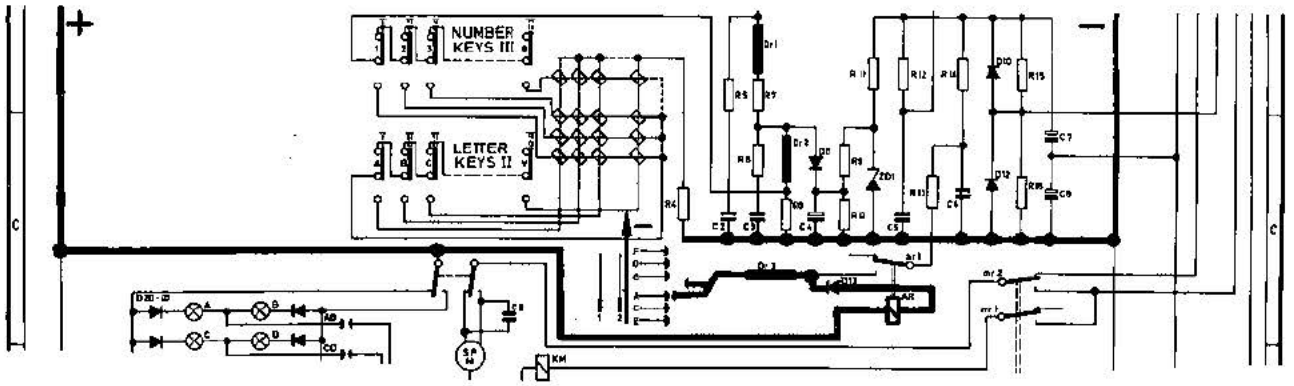


Circuit (A8 selected):
C5 - write-in trigger switch - ws1 - pulse shape circuit - Dr2 - number keys III,8 - toroids number 8 - letter keys II,A - toroids letter A - R4 - C5 minus.

Flipping over of toroid A8 completes the write-in cycle of selection A8.

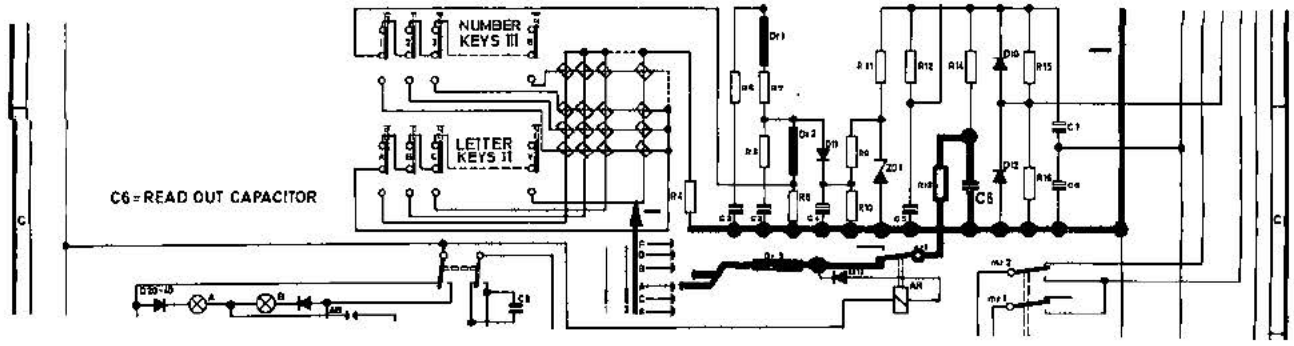
3.2 READ-OUT

As we saw before, the turning of the selection motor, closes the scan switch, thus energizing the clutch solenoid, and starting the carriage motor. The read-out contacts will touch each contact on the memory unit in sequence. From each contact a read-out line runs through the related toroid to minus. Each time the read-out contact touches a toroid contact the circuit to the search relay (AR) is closed.



Circuit:
plus - AR - D13 - Dr3 - read-out contact - toroid contact - toroid - minus.

The search relay is energized. The current drawn by the relay through the toroids is not strong enough to flip a toroid over. This happens over the closing contact ar1. Now read-out capacitor C6, charged to 300 VDC, can discharge over R14 through the read-out line. Amplitude and rise time of this pulse are controlled by R13 and Dr3.

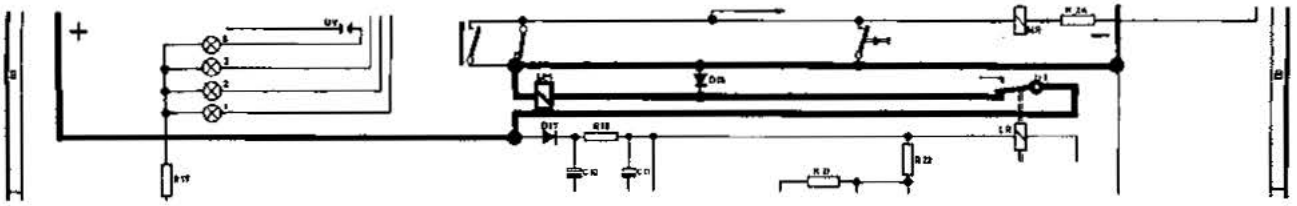


Circuit:
C6 - R13 - ar1 - Dr3 - read-out contact - toroid contact - toroid - C6 minus.

This happens with each of the 160 toroids.
If we encounter a toroid in the YES condition, this will flip over. Because of the changing magnetic field, a pulse will be induced in the trip line. Because the amplitude and duration (1 μ sec.) of this pulse are very small, we feed it to a pulse amplifier.

3.3 TRIP

The trip pulse is of positive polarity. These pulses are integrated by the input network R19, R20, and C12, and coupled to the cathode gate of the Silicone Control Switch (SCS). The supply voltage for SCS comes from the 30 VDC, and is filtered and stabilized by the network C10, R18, C11 and ZD1. The capacitor C14, prevents premature conducting of SCS by any transient pulses in the circuit. The input of the pulse amplifier is so designed that only pulses with the right amplitude and duration will trip the circuit. We can thus disregard the pulses induced during the write-in cycle, since these are of negative polarity. Capacitor C13 is discharged over R23 and contact lr2, I-III. The positive trip pulse will cause SCS to conduct, and trip relay (LR) will be energized. This will cause contact lr2, I-III, to switch. The relay will be held in by the charge current of C13. When C13 is completely charged the trip relay will deenergize. However, while the relay was energized, the anode gate of SCS was connected to ground by contact lr2, I- II, causing the SCS to go back into cut-off. Contact lr1 will have closed the circuit of the trip solenoid. (LM)



Circuit:
plus - lr1 - LM - minus.

The trip solenoid uncouples the scan gear, the carriage stops, and the transfer cycle starts.

4. TRANSFER

The selected record is transfered by the transfer arm. The record clamp arm will sense the diameter of the centerhole, and determine the desired speed, 45 RPM or 33 1/3 RPM. The pick-up arm lands in the first groove. The operating switch opens, causing the motor relay (MR) and the muting relay (SR) to deenergize.

Motor relay contact mr1: opens the circuit to the clutch solenoid.

contact mr2: switches the carriage motor from 125 VAC to 80 VAC.

Muting relay contact sr1: switches the amplifier ON.

5. PLAY

The needle will track the record.

6. END OF RECORD

When the needle reaches the cut-off groove the cancel reed switch will close, causing the motor relay and the muting relay to energize.

Motor relay contact mr1: closes the circuit to the clutch solenoid.

contact mr2: switches the motor back from 80 VAC to 125 VAC.

Muting relay contact sr1: mutes the amplifier.

7. TRANSFER AND SCANNING:

After returning the record to the record magazine, the carriage unlocks itself from the gear rack, and the drive gear goes back from the transfer to the scan position. At each end of the record magazine is a lever which controls the reversing switch, hereby changing the direction of travel of the carriage. The carriage will scan twice and will come to its rest position if no more selections are made.

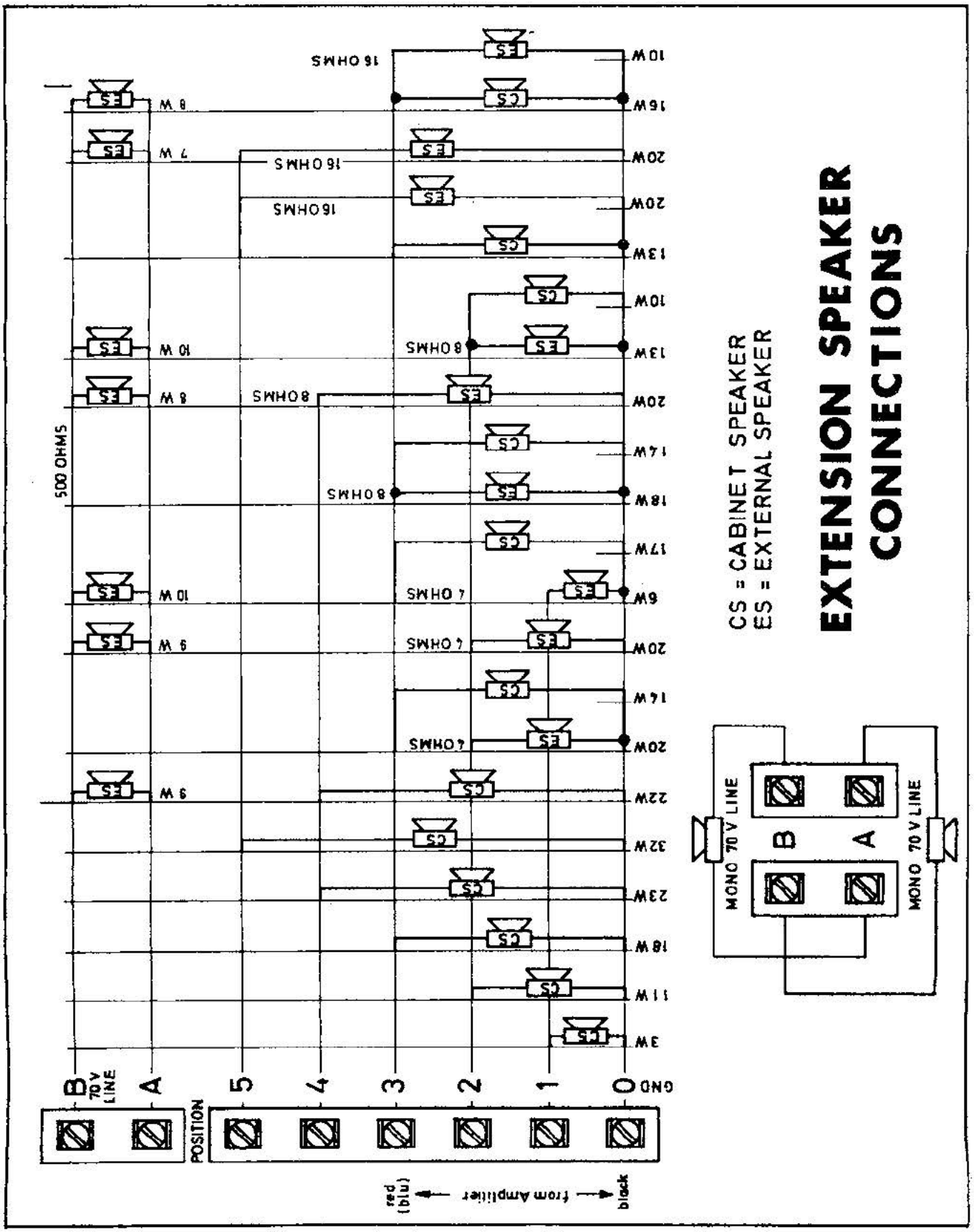
8. CONTROL AND SERVICE SWITCHES

Credit button: Free play button, each pulse gives one credit.

Credit cancel button: Each pulse will subtract one credit.

Record reject: By holding the reject button down for 1.5 seconds any record can be rejected before end of play.

Scan button: Allows travel and stop of carriage in any desired place.

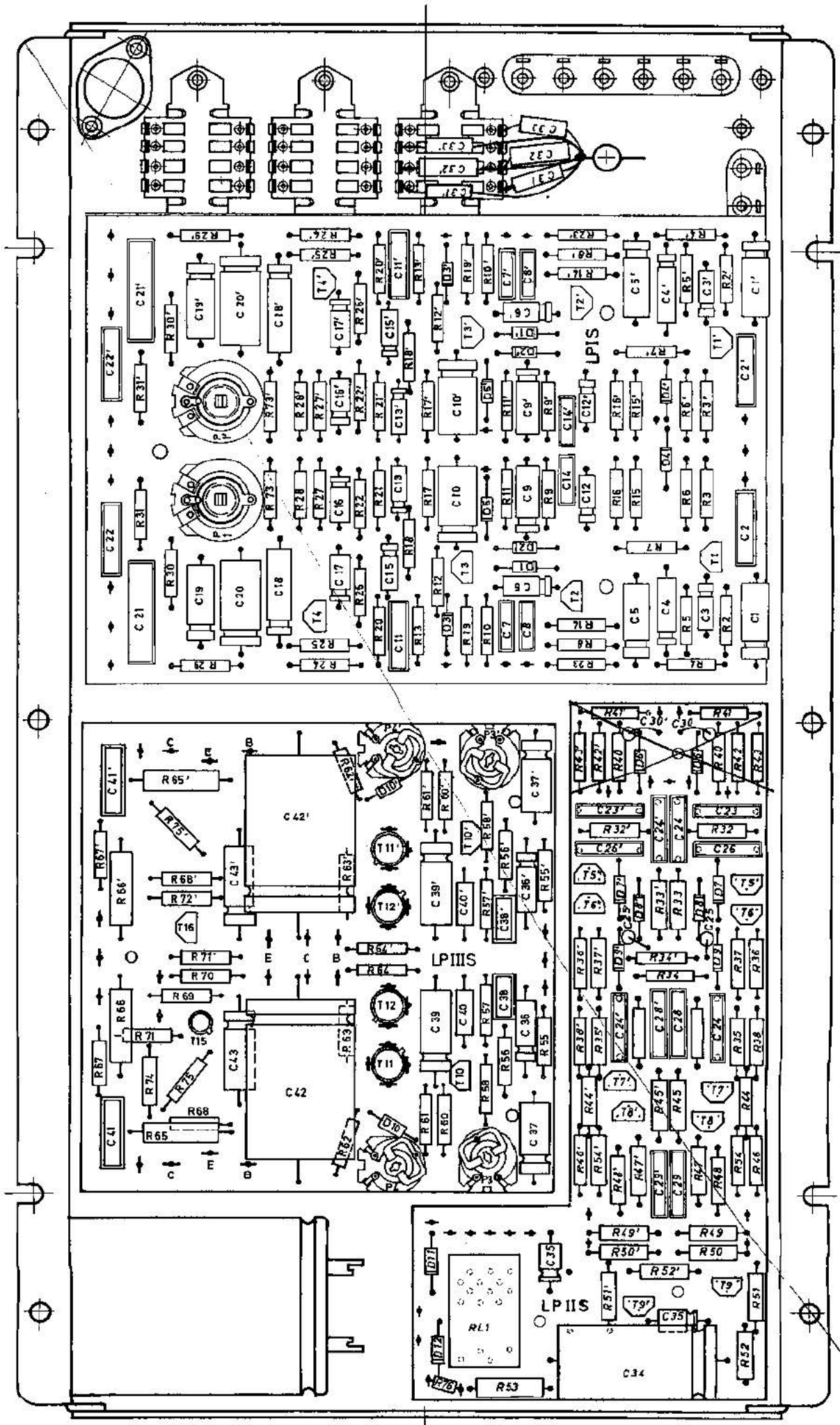

EXTENSION SPEAKER CONNECTIONS
CS = CABINET SPEAKER
ES = EXTERNAL SPEAKER
500 OHMS
16 OHMS
8 OHMS
4 OHMS
8 W
7 W
10 W
9 W
10W
16W
20W
13W
14W
18W
17W
6W
22W
32W
23W
11W
3W
MONO 70 V LINE
B
A
GND
POSITION
70 V LINE
red (blu)
from Amplifier
black

TRANSISTOR-AMPLIFIER 70 S

R 2/R 2'	Carbon resistor	2 Megohm	1/3 W. 5 %
R 3/R 3'	Carbon resistor	8 200 Ohm	1/3 W. 5 %
R 4/R 4'	Carbon resistor	3 300 Ohm	1/3 W. 5 %
R 5/R 5'	Carbon resistor	1 Megohm	1/3 W. 5 %
R 6/R 6'	Carbon resistor	120 000 Ohm	1/3 W. 5 %
R 7/R 7'	Carbon resistor	27 000 Ohm	1/3 W. 5 %
R 8/R 8'	Carbon resistor	1 000 Ohm	1/3 W. 5 %
R 9/R 9'	Carbon resistor	8 200 Ohm	1/3 W. 5 %
R10/R10'	Carbon resistor	82 000 Ohm	1/3 W. 5 %
R11/R11'	Carbon resistor	390 000 Ohm	1/3 W. 5 %
R12/R12'	Carbon resistor	10 000 Ohm	1/3 W. 5 %
R13/R13'	Carbon resistor	8 200 Ohm	1/3 W. 5 %
R14/R14'	Carbon resistor	22 000 Ohm	1/3 W. 5 %
R15/R15'	Carbon resistor	2 700 Ohm	1/3 W. 5 %
R16/R16'	Carbon resistor	560 Ohm	1/3 W. 5 %
R17/R17'	Carbon resistor	4 700 Ohm	1/3 W. 5 %
R18/R18'	Carbon resistor	120 Ohm	1/3 W. 5 %
R19/R19'	Carbon resistor	27 000 Ohm	1/3 W. 5 %
R20/R20'	Carbon resistor	820 000 Ohm	1/3 W. 5 %
R21/R21'	Carbon resistor	120 000 Ohm	1/3 W. 5 %
R22/R22'	Carbon resistor	82 000 Ohm	1/3 W. 5 %
R23/R23'	Carbon resistor	10 000 Ohm	1/3 W. 5 %
R24/R24'	Carbon resistor	10 000 Ohm	1/3 W. 5 %
R25/R25'	Carbon resistor	10 000 Ohm	1/3 W. 5 %
R26/R26'	Carbon resistor	100 000 Ohm	1/3 W. 5 %
R27/R27'	Carbon resistor	120 000 Ohm	1/3 W. 5 %
R28/R28'	Carbon resistor	3 900 Ohm	1/3 W. 5 %
R29/R29'	Carbon resistor	8 200 Ohm	1/3 W. 5 %
R30/R30'	Carbon resistor	2 200 Ohm	1/3 W. 5 %
R31/R31'	Carbon resistor	22 000 Ohm	1/3 W. 5 %
R32/R32'	Carbon resistor	150 000 Ohm	1/3 W. 2 %
R33/R33'	Carbon resistor	150 000 Ohm	1/3 W. 2 %
R34/R34'	Carbon resistor	10 000 Ohm	1/3 W. 2 %
R35/R35'	Carbon resistor	1 Megohm	1/3 W. 2 %
R36/R36'	Carbon resistor	5 600 Ohm	1/3 W. 2 %
R37/R37'	Carbon resistor	68 Ohm	1/3 W. 2 %
R38/R38'	Carbon resistor	1 Megohm	1/3 W. 2 %
R39/R39'	Carbon resistor	220 000 Ohm	1/3 W. 2 %
R40/R40'	Carbon resistor	10 000 Ohm	1/3 W. 2 %
R41/R41'	Carbon resistor	15 Ohm	1/3 W. 2 %
R42/R42'	Carbon resistor	4 700 Ohm	1/3 W. 2 %
R43/R43'	Carbon resistor	4 700 Ohm	1/3 W. 2 %
R44/R44'	Carbon resistor	3 900 Ohm	1/3 W. 2 %
R45/R45'	Carbon resistor	1 Megohm	1/3 W. 2 %
R46/R46'	Carbon resistor	5 600 Ohm	1/3 W. 2 %
R47/R47'	Carbon resistor	68 Ohm	1/3 W. 2 %
R48/R48'	Carbon resistor	220 000 Ohm	1/3 W. 2 %
R49/R49'	Carbon resistor	150 000 Ohm	1/3 W. 2 %
R50/R50'	Carbon resistor	220 000 Ohm	1/3 W. 2 %
R51/R51'	Carbon resistor	5 600 Ohm	1/3 W. 2 %
R52/R52'	Carbon resistor	4 700 Ohm	1/3 W. 2 %
R53	Carbon resistor	1 500 Ohm	1/2 W. 5 %
R54/R54'	Carbon resistor	1 Megohm	1/3 W. 2 %
R55/R55'	Carbon resistor	1 000 Ohm	1/3 W. 2 %
R56/R56'	Carbon resistor	1 000 Ohm	1/3 W. 2 %
R57/R57'	Carbon resistor	1 200 Ohm	1/3 W. 2 %
R58/R58'	Carbon resistor	12 000 Ohm	1/3 W. 2 %
R60/R60'	Carbon resistor	1 000 Ohm	1/3 W. 2 %
R61/R61'	Carbon resistor	1 800 Ohm	1/3 W. 2 %
R62/R62'	Carbon resistor	560 Ohm	1/3 W. 2 %
R63/R63'	Carbon resistor	330 Ohm	1/3 W. 2 %
R64/R64'	Carbon resistor	330 Ohm	1/3 W. 2 %
R65/R65'	Wire resistor	1/2 Ohm	2 W. 5 %
R66/R66'	Wire resistor	1/2 Ohm	2 W. 5 %
R67/R67'	Carbon resistor	22 Ohm	1/3 W. 2 %
R68/R68'	Carbon resistor	8 200 Ohm	1/3 W. 2 %
R69	Carbon resistor	5 600 Ohm	1/3 W. 2 %
R70	Carbon resistor	220 Ohm	1/3 W. 2 %
R71/R71'	Carbon resistor	4 700 Ohm	1/3 W. 2 %
R72	Carbon resistor	4 700 Ohm	1/3 W. 2 %
R73/R73'	Carbon resistor	120 Ohm	1/3 W. 2 %
R74	Carbon resistor	1 500 Ohm	1/3 W. 2 %
R75/R75'	Carbon resistor	1 200 Ohm	1/3 W. 2 %
R76	Carbon resistor	1 000 Ohm	1/2 W. 2 %

P 1/P 1'	Trimmer resistor	250 Ohm 1/3 W. lin.
P 3/P 3'	Adjusting resistor	500 000 Ohm, lin.
P 4/P 4'	Adjusting resistor	2 500 Ohm, lin.
C 1/C 1'	Lytic	50 Mfd/ 15 V
C 2/C 2'	Mylar	0.1 Mfd/250 V
C 3/C 3'	Lytic	1 Mfd/ 35 V
C 4/C 4'	Lytic	50 Mfd/ 15 V
C 5/C 5'	Lytic	50 Mfd/ 25 V
C 6/C 6'	Lytic	10 Mfd/ 10 V
C 7/C 7'	Mylar	0.033 Mfd/250 V
C 8/C 8'	Mylar	0.015 Mfd/400 V
C 9/C 9'	Lytic	100 Mfd/ 3 V
C10/C10'	Lytic	250 Mfd/ 6 V
C11/C11'	Mylar	0.22 Mfd/250 V
C12/C12'	Lytic	25 Mfd/ 10 V
C13/C13'	Lytic	25 Mfd/ 10 V
C14/C14'	Mylar	0.01 Mfd/400 V
C15/C15'	Lytic	5 Mfd/ 35 V
C16/C16'	Lytic	10 Mfd/ 25 V
C17/C17'	Lytic	10 Mfd/ 25 V
C18/C18'	Lytic	50 Mfd/ 25 V
C19/C19'	Lytic	10 Mfd/ 25 V
C20/C20'	Lytic	100 Mfd/ 35 V
C21/C21'	Mylar	0.68 Mfd/250 V
C22/C22'	Mylar	0.22 Mfd/250 V
C23/C23'	Mylar	0.1 Mfd/250 V
C24/C24'	Mylar	0.1 Mfd/250 V
C25/C25'	Lytic	5 Mfd/ 35 V
C26/C26'	Mylar	0.1 Mfd/250 V
C27/C27'	Mylar	0.1 Mfd/250 V
C28/C28'	Mylar	0.1 Mfd/250 V
C29/C29'	Mylar	0.1 Mfd/250 V
C30/C30'	Lytic	250 Mfd/ 6 V
C31/C31'	Mylar	0.01 Mfd/250 V
C32/C32'	Mylar	0.033 Mfd/250 V
C33/C33'	Mylar	0.1 Mfd/250 V
C34	Lytic	1000 Mfd/ 35 V
C35/C35'	Lytic	5 Mfd/ 35 V
C36/C36'	Lytic	25 Mfd/ 10 V
C37/C37'	Lytic	25 Mfd/ 35 V
C38/C38'	Mylar	0.01 Mfd/400 V
C39/C39'	Lytic	50 Mfd/ 35 V
C40/C40'	Mylar	0.001 Mfd/160 V
C41/C41'	Mylar	0.22 Mfd/250 V
C42/C42'	Lytic	2500 Mfd/35/40 V
C43/C43'	Lytic	250 Mfd/ 6 V
D 1/D 1'	Silicon diode	1 N 4004
D 2/D 2'	Silicon diode	1 N 4004
D 3/D 3'	Silicon diode	1 N 4004
D 4/D 4'	Silicon diode	1 N 4004
D 5/D 5'	Silicon diode	1 N 4004
D 6/D 6'	Silicon diode	1 N 4148
D 7/D 7'	Silicon diode	1 N 4148
D 8/D 8'	Silicon diode	1 N 4148
D 9/D 9'	Silicon diode	1 N 4148
D10/D10'	Zener diode	BZY 85 C 4 V 7
D11	Silicon diode	1 N 4004
D12	Silicon diode	1 N 4004
T 1/T 1'	Transistor	BC 149 B
T 2/T 2'	Transistor	BC 149 B
T 3/T 3'	Transistor	BC 147 B
T 4/T 4'	Transistor	BC 147 B
T 5/T 5'	Transistor	BC 147 B
T 6/T 6'	Transistor	BC 147 B
T 7/T 7'	Transistor	BC 147 B
T 8/T 8'	Transistor	BC 147 B
T 9/T 9'	Transistor	BC 147 B
T10/T10'	Transistor	BC 147 B
T11/T11'	Transistor	40361 RCA
T12/T12'	Transistor	40362 RCA
T15	Transistor	BC 117 VI/BC 157 A
T16	Transistor	BC 147 B
RL 1	Mute relay	V 23154 — NO 721 — B 110

TRANSISTOR-AMPLIFIER 70 S



TRANSISTOR AMPLIFIER 70 S

The 70 S is a fully transistorized amplifier, free from iron cores and unaffected by supply voltage variations.
Output is 60 W. music power per channel.
Distortion is less than 1% at 20 W. sine output in frequency range of 20 cs to 20 Kcs.
The 2 channels are completely separate and the amplifier has 30 transistors and 22 silicone diodes, and is divided in 3 major sections.

1. PLATE I S

   Pre-amplifier with AVC and treble control.

2. PLATE II S

   Volume control and bass control network, and muting relay.

3. PLATE III S

   Phase splitter and output stage with electronic fuse.

1. PRE-AMPLIFIER (PLATE I S)

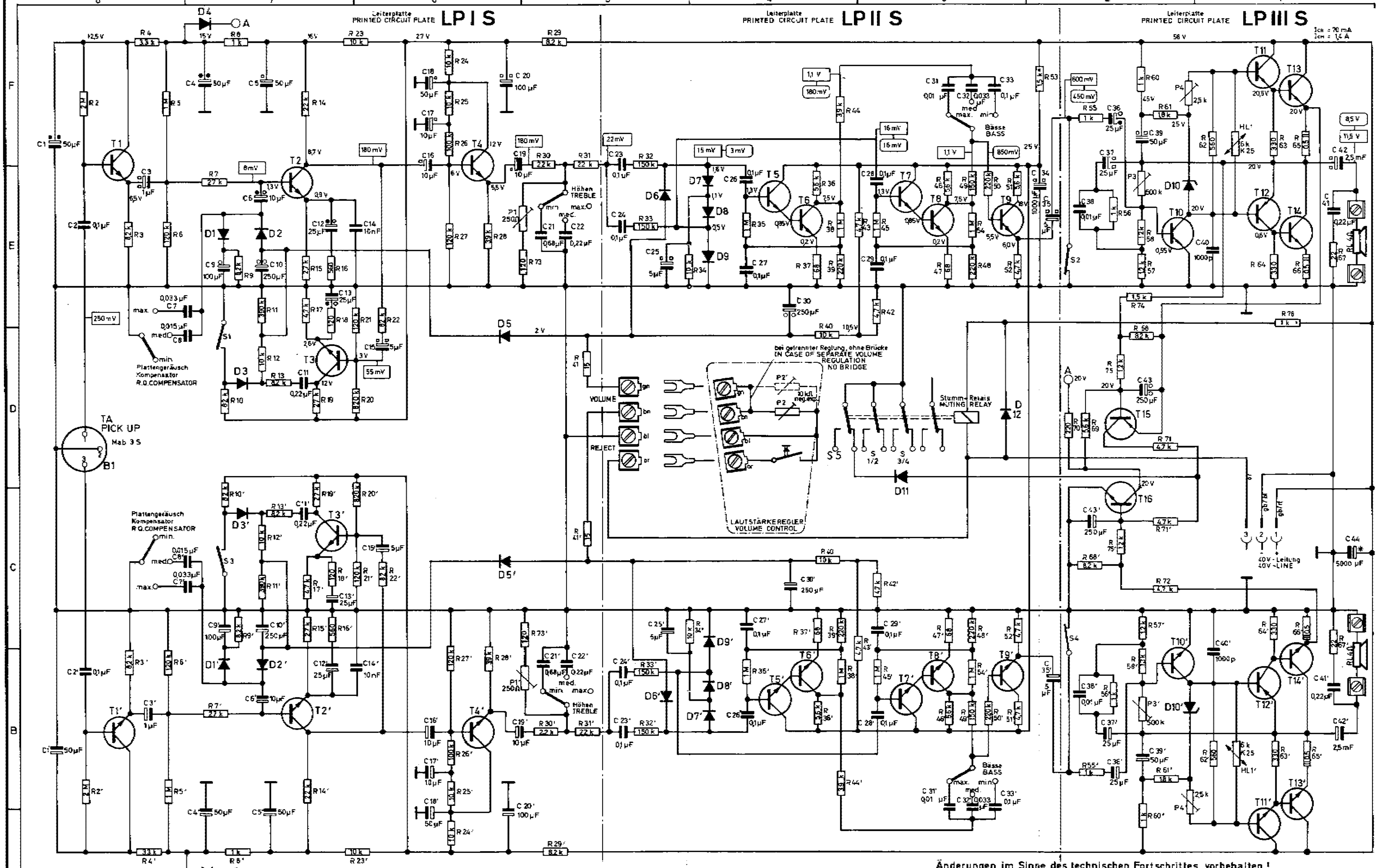
The audio signal from the cartridge is amplified by high input impedance transistor T1 and passed to the base of transistor T2. In order to obtain a constant output volume on records with varying recording levels, the next stage acts as AVC amplifier. After being amplified by T2, the audio signal is tapped before C16, and is coupled to the base of T3. The output of T3 in conjunction with D1, D2 and D3 forms a variable internal resistance: If the strength of the incoming signal changes, the AC-impedance of the network will also change and control the signal at the base of T2. Therefore, high signals will be amplified less and low signals will be amplified more. To reduce the background noise of old and worn records, a record noise compensating switch, with 3 positions, has been fitted into the circuit. To reduce the noise of the needle setting down on the record and entering the first groove, the AVC will allow the volume to reach its preset level with an 8 to 10 second delay. The output of each channel can be adjusted over 10 db. with the level controls.

2. VOLUME CONTROL (PLATE II S WITH MUTING RELAY)

The signal coming from emitter-follower T4 goes over level control P1 to the volume control circuit. Diodes D6, D7, D8 and D9, and transistors T5, T6, T7 and T8 make up the two wire volume control and bass boost circuit. With full volume, the volume control has zero resistance. No current will flow through the diodes, thus they have a very high resistance, several M ohms. Therefore, the signal going to T5 and T7 is of the same amplitude. T6 and T8 are the drivers for T9. The combination of T5 and T6 drives the bottom end of the bass boost circuit, that means no filtering takes and the frequency response is flat. As the volume is turned down, current will flow through the diodes, and their resistance decreases. Due to the shunting effect of resistor R34 and capacitor C25, diodes D6 and D7 start reducing the signal before D8 and D9. This means smaller input to T5 and thus smaller output from T6. Since the signal over the bass boost is now different, the higher frequencies will be cut, thus giving the desired bass boost. As the volume control is turned down more, more current will flow through the diodes, D8 and D9 will to start conduct. This in turn will reduce the input to T7 and thus the output of T8, hereby reducing the total volume.
The bass boost will continue throughout the entire volume range, because D6 and D7 will always conduct more current than D8 and D9. Diode is to turn off the AVC, thus achieving complete turn off of the amplifier with minimum volume. T9 is an emitter-follower to match the low impedance of the next stage. With volume control, the volume of both channels can be adjusted together. There are two 3 positions switches to adjust treble and bass.

3. PHASE SPLITTER AND OUTPUT STAGE (PLATE III S)

The signal from T9 goes over amplifier T10 to the complementary pair phase splitters T11 and T12, these drive the transformerless push-pull output pair T13 and T14. The thermistor HL1 in base of T11 and T12 gives the circuit good thermal stability. Fine control P3 keeps both drivers symmetrical, and P4 adjusts the rest current (nosignal) of the output stage.
The overload protection is determined by the emitter current of the output stage. The voltage over R65, created by the emitter current flowing through it, is coupled to T15 over an integrating network with a time constant of 1 sec. When T15 starts conducting, the base of T16 becomes positive, thus placing point A in plate I at ground potential. This point is the voltage supply of the input stage. The audio signal is hereby completely cut-off. When the record rejects, the muting relay is energized. One of the muting contacts will bring the collector of T15 and the base of T16 back to negative, driving these transistors in cut-off, this on condition that the overload is removed from the circuit. In the muted state, the base of T10 is to ground over contacts S2 and S4, and the ground line to diode D3 is open over contacts S1 and S3.



Änderungen im Sinne des technischen Fortschrittes vorbehalten !
MODIFICATIONS BY TECHNICAL PROGRESS RESERVED !

NF Pegel bei 1 kHz $P_2 = \leq 1\Omega$ gemessen mit Röhren-Voltmeter
AC SIGNAL VOLTAGES AT 1000 CPS ; $P_2 \leq 1$ OHM WERE MEASURED WITH VTVM

NF Pegel bei 40 Hz ; $P_2 = 620\,\Omega$ gemessen mit Röhren-Voltmeter
AC SIGNAL VOLTAGES AT 40 CPS ; $P_2 = 620$ OHMS WERE MEASURED WITH VTVM

Gleichspannung ohne Signal gemessen mit 100 kΩ/V gegen Masse
DC VOLTAGES WITHOUT SIGNAL WERE MEASURED WITH VOLTMETER 100 K OHMS / V TO GROUND

P3 = Sym. Regler SYMMETRICAL REGULATOR

P4 = Ruhestrom-Einstellung CLOSED CIRCUIT ADJUSTMENT

T1, T2 = BC 149 B
T3-T10, T16 = BC 147 B
T11 = RCA 40361
T12 = RCA 40362
T13, T14 = RCA 2 N 3055
T15 = BC 177 VI

D1-D5, D11, D12 = 1 N 4004
D6-D9 = 1 N 4148
D10 = BZY 85 C4 V7

3 V, 6 V, 10 V, 15 V, 25 V, 35 V, 70 V, MKH, Styroflex
1/3 W, 1/2 W, 2 W

Ind.	Änderung	Da.	Na.

	Datum	Name
Gez.	5. 2. 69	
Bearb.		
Gepr.		
Ges.		

Schaltbild
WIRING DIAGRAM
Transistor-Verstärker TRANSISTORIZED AMPLIFIER **70 S**

Apparatebau G.m.b.H - KG 653 BINGEN Germany

Zeichn.Nr. 385 - 000 - 00 ESt

Blätter:
Blatt :

SPECIFICATIONS

Electrical Dates:

Line Voltage	117 V. AC 60 cycles
Working Voltage	30 V. DC
Power: standby	100 W.
transfer and scan	135 W.
play	150 W.

Control Center:

1 Transformer for working voltage	117 V. AC prim. 80/110/125 V. AC sec. I 30 V. AC sec. II
1 Transformer for amplifier	117 V. AC prim. 40 V. AC sec.

Fuses:

1 Line Voltage 117 V. AC	3²/₁₀ Amp. slo blo
1 Amplifier	1²/₁₀ Amp. slo blo
1 Working Voltage	2 Amp. slo blo
1 Accessories connection (AMP)	as needed
1 Electronic fuse	in the amplifier

Lighting:

1 Fluorescent lamp	F 30 T 8 30 W./33
1 Starter	FS — 4
1 Ballast	117 V./30 W./0.65 Amp.
2 Credit lights	24 V./ 3 W.
1 Safety lamp in Credit unit	24 V./15 W.
28 Indicator lamps (miniature GE 19)	12 V./0.1 Amp.

Credit Unit:

Credits	adjustable from 1 to 12 credits. (See note inside the lid)
Accumulation possible	up to 40 credits

Selection Circuit:

20 Letter buttons A — V	2 sets of switches, each 10 × 2 contacts
8 Number buttons 1 — 8	1 set of switches with 8 × 3 contacts
1 Latch bar solenoid	30 V. DC 100 % ED
1 Selection motor	30 V. AC
4 Cam switches N 1 — N 4	radio-shielded
1 Magnetic core memory unit	160 cores
. ALBUM-selection	Adjustment see note in credit unit lid

Playing Mechanism:

1 Carriage base
with pre-selector unit and record magazine for 80 records alternatively 45 rpm or 33⅓ rpm, 7 inch diameter, mono or stereo, vertically located.

1 Popularity meter	80 counting strips
1 Total play meter	4 digits
1 Carriage with play motor (synchronous)	80/125 V. AC 15/33 W. 1500 rpm, left and right hand turns.
1 Clutch solenoid	125 V. AC 100 % ED
1 Trip solenoid	30 V. DC 5 % ED
1 Cartridge	ceramic DB 200 stereo/mono
2 Needles	diamond D 102 stereo/mono

Amplifier:

Stereo amplifier	with electronic fuse
Volume compensator	automatic (AVC)
Output stage	2 × 2 N 30 55 in push-pull
Output capacity per channel	60 W. music
Impedance	4 Ohms output
Muting relay	40 V. DC
1 (Remote-) volume control	volume control for both channels and one reject button
2 Woofers 10 inches	7 Ohms 10 W.
2 Medium (speakers) 7 inches × 10 inches	5 Ohms 5 W.
2 Tweeters 5 inches × 7 inches	6 Ohms 3 W.
1 Stereo network	1.5 mHy / 32 µF / 8 µF

Locks and Keys:

2 Cabinet locks Zeiss Ikon	SL 82 h/SL 82 g
2 Cabinet keys Zeiss Ikon	Nr. 167 676 (K 5)
1 Cash box lock Zeiss Ikon	SL 860
2 Cash box keys Zeiss Ikon	different numbers.

MEASUREMENTS AND WEIGHTS:

	mm (max.) height	width	depth	kg (max.) weight
Box (without the following parts)	1335	1000	630	126.0
Carriage base	235	695	286	13.5
Carriage	260	200	345	4.0
Amplifier	356	206	90	3.0
Control Center	356	206	122	6.0
Box total	1490	1090	720	net 152.5
Box packing				28.5
				gross 181.0

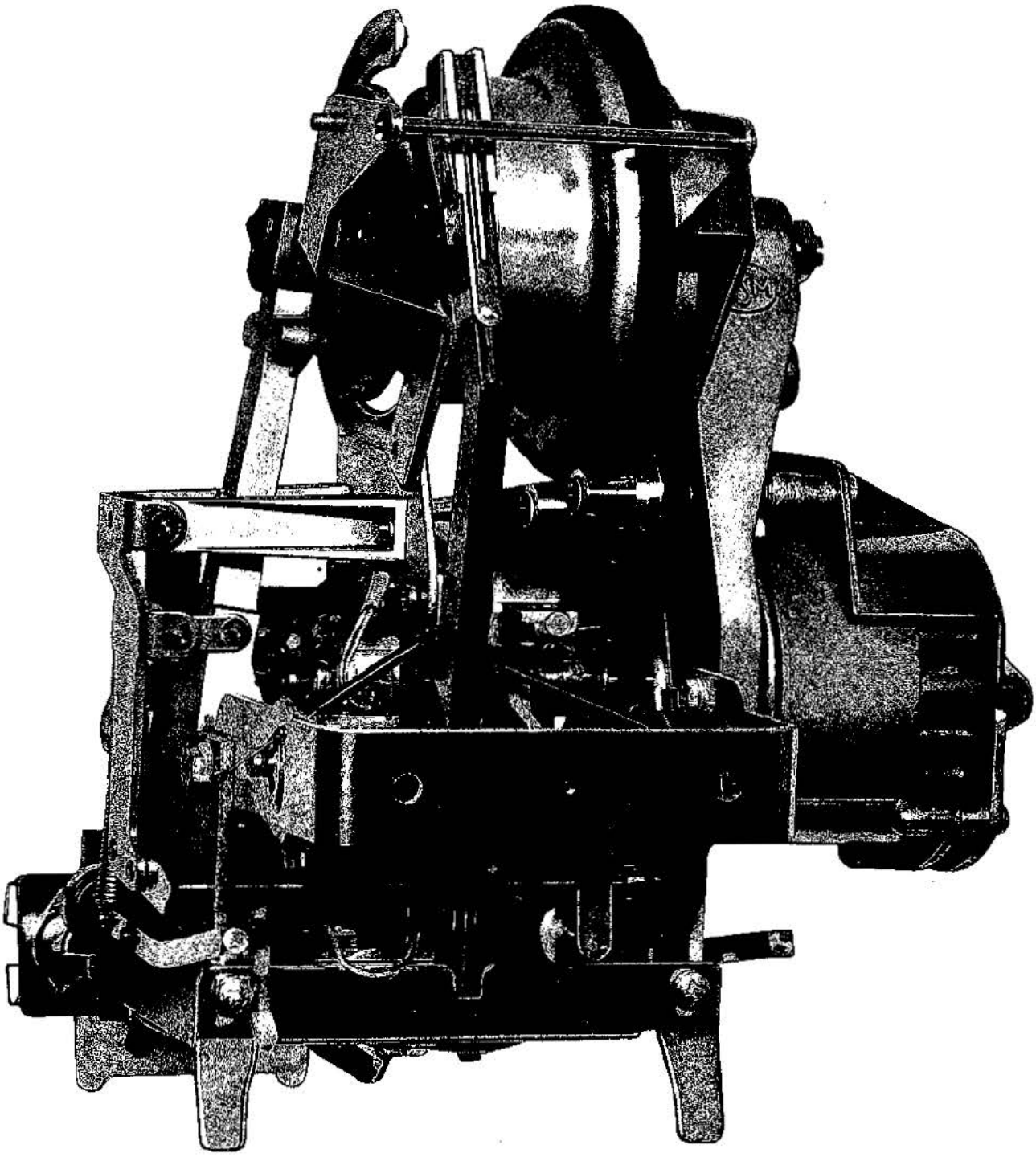
	inches (max.)			pounds (max.)
Box (without the following parts)	52¼	39½	24¾	277¼
Carriage base	9¼	27½	11¼	29¾
Carriage	10¼	8	13¾	8¾
Amplifier	14¼	8¼	3½	6½
Control Center	14¼	8¼	5	13¼
Box total				net 335 ½
Box packing	58¾	43	28½	62¼
				gross 398¼

NSM APPARATEBAU KG
653 BINGEN/RHEIN · GERMANY

SCHMIERUNG
LUBRICATION

GRAISSAGE
LUBRIFICAZIONE

Laufwerk **Carriage** **Curseur** **Carello**



PRESTIGE 160 / 160 A / 120
CONSUL 120 / HIT 120

Ihre Box benötigt das richtige Öl an der richtigen Stelle!

Die im Herstellwerk NSM durchgeführte Erstschmierung gewährleistet einwandfreies Arbeiten für ca. 5000 Betriebsstunden. Das entspricht etwa 100 000 Single-Plattenseiten. Dadurch ist im Normalfall auf Jahre keinerlei Schmierung nötig. Nach dieser Betriebsdauer sind die auf den folgenden Seiten angezeigten Lauf- und Gleitstellen bei Bedarf zu schmieren.

ACHTUNG! Nur die angegebenen Schmiermittel verwenden. Im NSM-Schmiermittelsatz, der durch den Automaten-Großhandel oder die Löwen-Organisation zu beziehen ist, sind diese Schmiermittel enthalten.

Your Box needs the right oil at the right spot.

Initial lubrication in the factory guarantees troublefree operation for a bout 5000 operating hours, or in other words, 100 000 single plays. This means that no lubrication is required for years under normal working conditions. After that time of operation lubricate those spots as shown on the following pages if necessary.

Caution: Use only lubricants as indicated. You will find these lubricants in the NSM lubrication Kit which can be obtained thru your Löwen-Automaten distributors.

Votre juke-box a besoin de l'huile appropriée à l'endroit approprié.

Le premier graissage effectué chez le fabricant, les usines NSM, assure un fonctionnement impeccable pendant 5.000 heures de service. Ceci correspond à 100.000 côtés de disques. De ce fait, dans le cas normal, aucun graissage n'est nécessaire pendant des années. Après cette durée de service, graisser si le besoin s'en fait sentir les portées indiquées dans les pages suivantes.

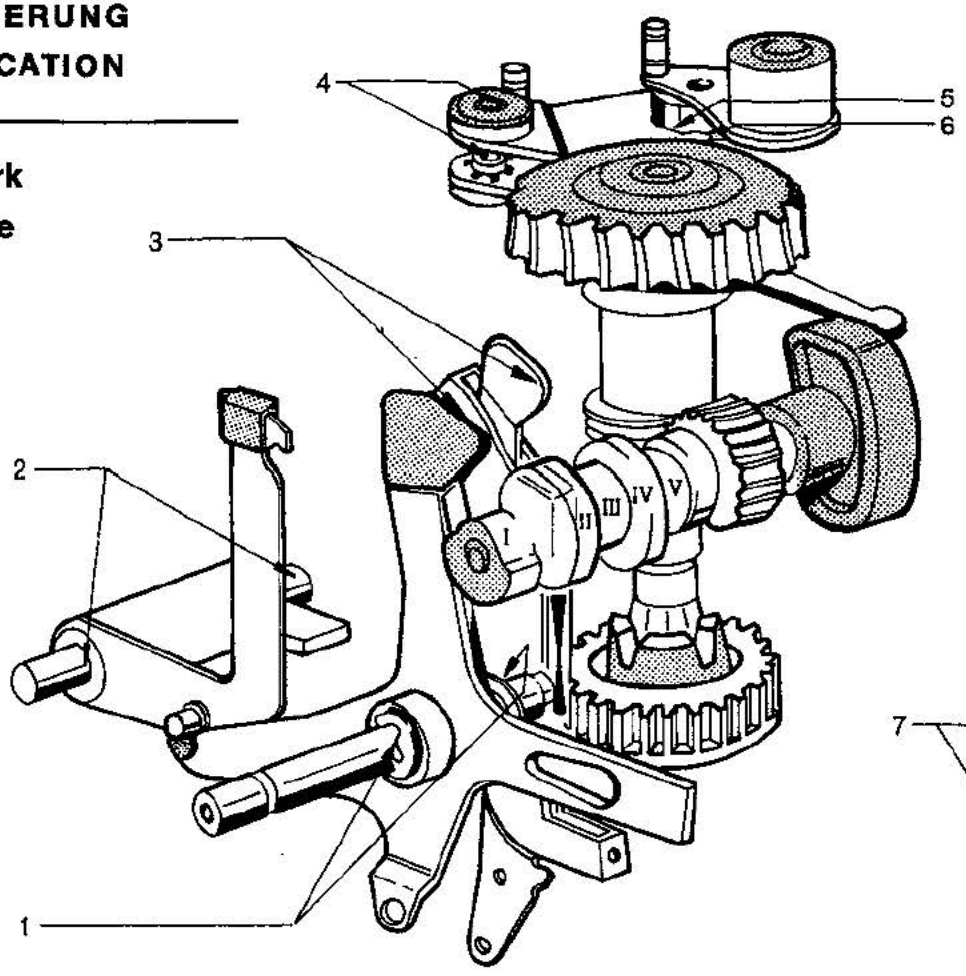
ATTENTION: N'utiliser que les lubrifiants indiqués. Le jeu des lubrifiants NSM que l'on pourra se procurer dans le commerce de gros des appareils automatiques ou par l'organisation Löwen contient ces lubrifiants.

Al Vostro juke-box occorre l'olio giusto nella posizione giusta.

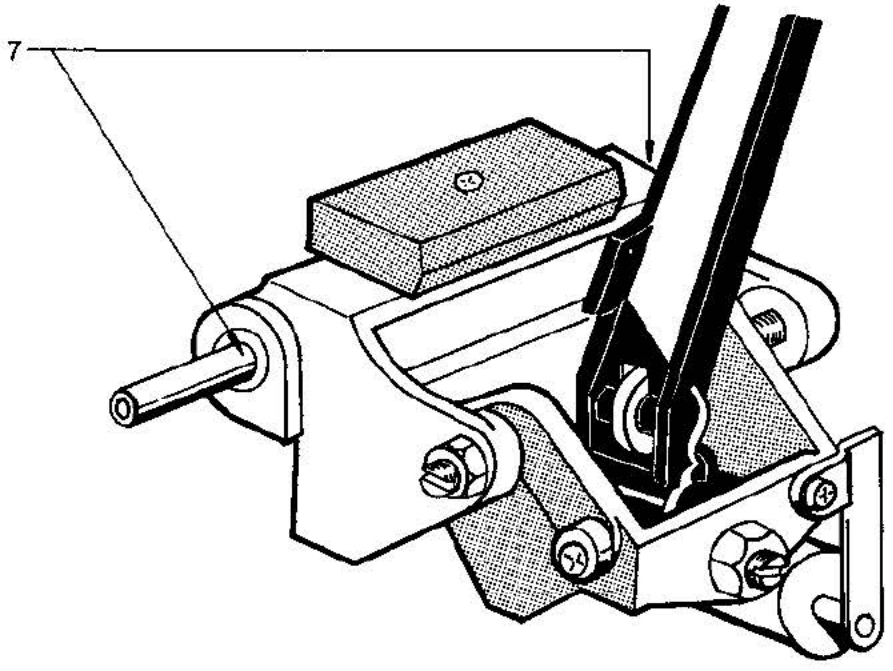
La prima operazione di lubrificazione eseguita nello stabilimento NSM garantisce una perfetta lavorazione per circa 5.000 ore di funzionamento. Questa cifra corrisponde a circa 100.000 parti singole di dischi. Quindi in caso di ascolto normale per anni non é necessaria alcuna lubrificazione. Dopo questo periodo si può procedere in caso di necessità, alla lubrificazione delle parti di funzionamento e di scorrimento più usate.

ATTENZIONE: Adoperare solo i mezzi di lubrificazione messi a Vostra disposizione. Nel corredo di accessori di lubrificazione NSM, che si può ritirare presso la AUTOMATEN oppurre la LOEWEN, sono inclusi questi mezzi di lubrificazione.

Laufwerk
Carriage



Curseur
Carello



SCHMIERSTELLE	SCHMIERMITTEL	ANWEISUNG
1. Lagerstellen des Federhebels des Sperrhebels und der Sperrklinke auf der Achse.	Öl DTE HH	Ohne Demontage zugänglich.
2. Lagerung des Riegels auf der Achse.	Öl DTE HH	Ohne Demontage zugänglich.
3. Zwischen den Köpfen des Federhebels sowie des Sperrhebels und der Nockenwelle.	Fett-Mobilplex 47	Ohne Demontage zugänglich. Fett mit Stäbchen auf die Nocken III, IV und V bringen.
4. Lagerstellen des Umsteuerhebels und des Schlepphebels auf der Achse.	Öl DTE HH	Ohne Demontage zugänglich.
5. Spannklinkenrolle zur Kurve des Umsteuerhebels.	Fett-Mobilplex 47	Ohne Demontage zugänglich.
6. Zwischen Kopf des Schlepphebels und der Kupplungsschnecke.	Fett-Mobilplex 47	Ohne Demontage zugänglich.
7. Lagerung des Tonarmschlittens auf der Achse.	Siliconöl F 422	Ohne Demontage zugänglich.

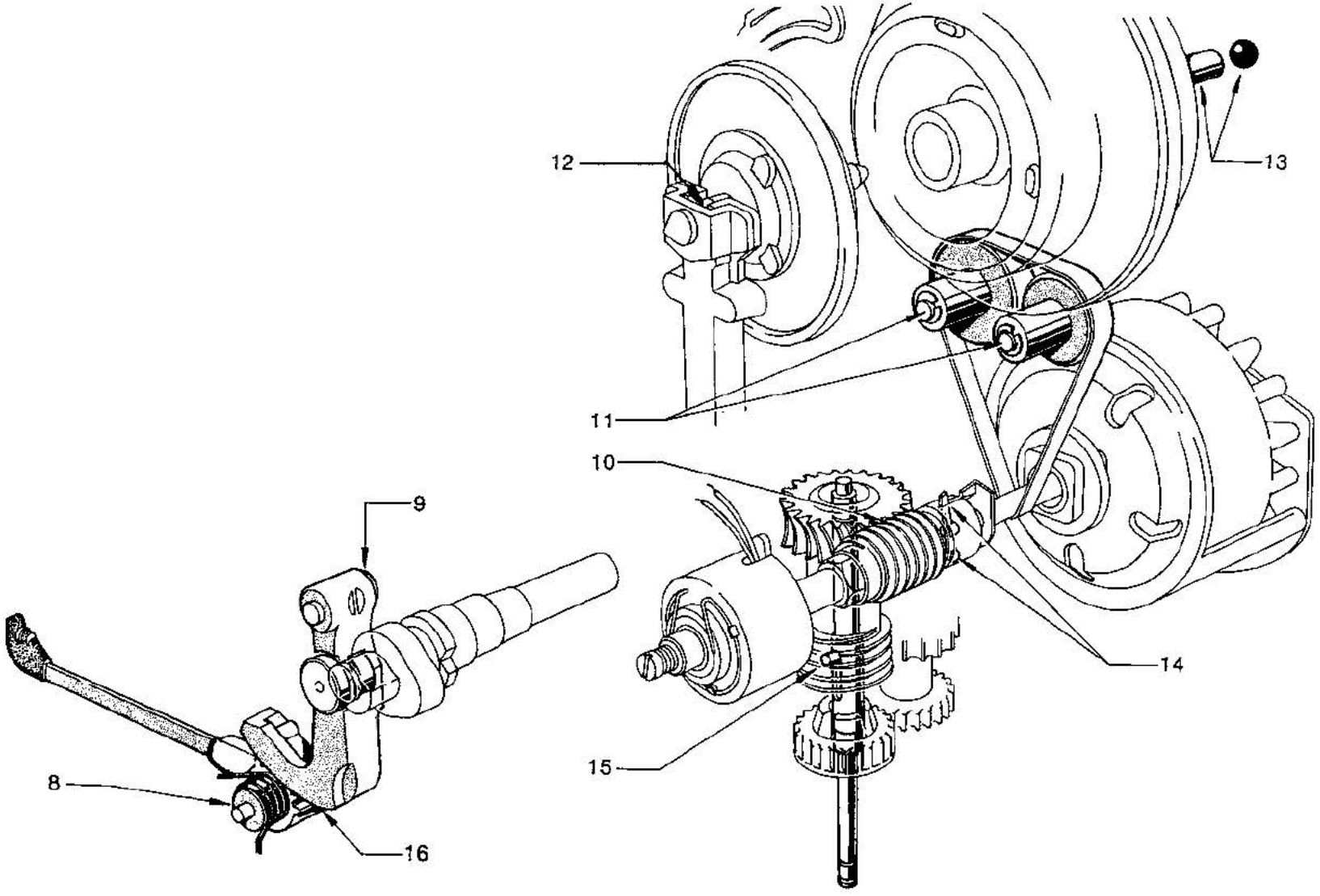
Es muß sorgfältig darauf geachtet werden, daß der Flachriemen, die Zwischenräder und der Reibring am Plattenteller frei von Fett und Öl bleiben. Diese Teile sollen alle 2000 Spiele mit Spiritus gereinigt werden.

POINTS OF LUBRICATION	LUBRICANTS	PROCEDURE
1. Bearing of trip-lever and locking-lever assy.	Oil DTE HH	Accessible without disassembling.
2. Bearing of locking pawl.	Oil DTE HH	Accessible without disassembling.
3. Plastic noses of trip-lever as well as locking-lever and cam-shaft.	Grease-Mobilplex 47	Accessible without disassembling. Apply grease to cams III, IV and V.
4. Bearing of pick up shifting-lever and cradle actuator.	Oil DTE HH	Accessible without disassembling.
5. Roller surface of latching-lever.	Grease-Mobilplex 47	Accessible without disassembling.
6. Between surface of cradle actuator and worm-gear.	Grease-Mobilplex 47	Accessible without disassembling.
7. Bearing of cradle-block.	Siliconoil F 422	Accessible without disassembling.

Please keep oil and grease away from drive tire, flat belt and idler wheels. These parts should be cleaned with alcohol every 2000 plays.

Laufwerk
Carriage

Curseur
Carello



SCHMIERSTELLE	SCHMIERMITTEL	ANWEISUNG
8. Lagerung des Plattenzubringers auf der Achse.	Öl DTE HH	Ohne Demontage zugänglich.
9. Lagerstelle des Zahnsegmentes auf der Achse.	Öl DTE HH	Ohne Demontage zugänglich.
10. Eingriff des Schneckenrades mit der Antriebsschnecke.	Fett-Mobilplex 47	Ohne Demontage zugänglich.
11. Lagerstellen der Zwischenräder.	Öl DTE BB	Plattenteller vorziehen (siehe 13). Wellensicherungen von den Zwischenradwellen entfernen. Anlaufscheibe abnehmen (nicht verlieren). Zwischenräder soweit wie möglich vorziehen, mit Stäbchen einige Tropfen Öl DTE BB auf die Achse und an die Sinterlager bringen. Wieder zusammenbauen. ACHTUNG! Stahldraht am Schaltkreuz nicht verbiegen.
12. Gelenkstück im Gegenlager.	Fett-Mobilplex 47	Ohne Demontage zugänglich.
13. Lagerstellen der Plattentellerachse.	Siliconöl F 422 Fett-Mobilplex 47	Wellensicherung entfernen und Plattenteller soweit wie möglich vorziehen. (Spurkugel nicht verlieren). Mit Stäbchen einige Tropfen Öl F 422 auf die Achse und an die Sinterlager bringen. Spurkugel mit Mobilplex 47 fetten. Wieder zusammenbauen. Reibring mit Spiritus entfetten.
14. Lagerstelle und Anlage des Mitnehmers in der Antriebsschnecke.	Siliconöl F 422	Ohne Demontage zugänglich.
15. Kupplungsstößel in Kupplungswelle.	Siliconöl F 422	Ohne Demontage zugänglich. Mit Stäbchen einige Tropfen F 422 in das Langloch der Welle bringen.
16. Eingriff der Zahnsegmente.	Fett-Mobilplex 47	Ohne Demontage zugänglich.

Es muß sorgfältig darauf geachtet werden, daß der Flachriemen, die Zwischenräder und der Reibring am Plattenteller frei von Fett und Öl bleiben. Diese Teile sollen alle 2000 Spiele mit Spiritus gereinigt werden.

POINTS OF LUBRICATION	LUBRICANTS	PROCEDURE
8. Bearing of record-transfer arm assy.	Oil DTE HH	Accessible without disassembling.
9. Bearing of gear segment.	Oil DTE HH	Accessible without disassembling.
10. Between coupling-gear and worm-drive assy.	Grease-Mobilplex 47	Accessible without disassembling.
11. Bearings of idler wheels.	Oil DTE BB	Move turntable forward (see 13) take off washers from idler wheels. (be careful don't loose washers). Pull idler wheels forward apply a few drops of oil DTE BB to bearing. Reassemble. Attention don't bent wire at the shifting cross.
12. Between pivot-block and joint.	Grease-Mobilplex 47	Accessible without disassembling.
13. Bearing of turntable axle.	Siliconoil F 422 Grease-Mobilplex 47	Take off washer, move turntable forward (don't loose steel ball). Apply a few drops of oil F 422 to axle and bearing. Grease steel ball with Mobilplex 47. Reassemble. Clean drive tire with alcohol.
14. Worm drive finger.	Siliconoil F 422	Accessible without disassembling.
15. Clutch rod in the clutch shaft.	Siliconoil F 422	Accessible without disassembling. Apply a few drops F 422 into eyhole on shaft.
16. Gear-segment.	Grease-Mobilplex 47	Accessible without disassembling.

Please keep oil and grease away from drive tire, flat belt and idler wheels. These parts should be cleaned with alcohol every 2000 plays.

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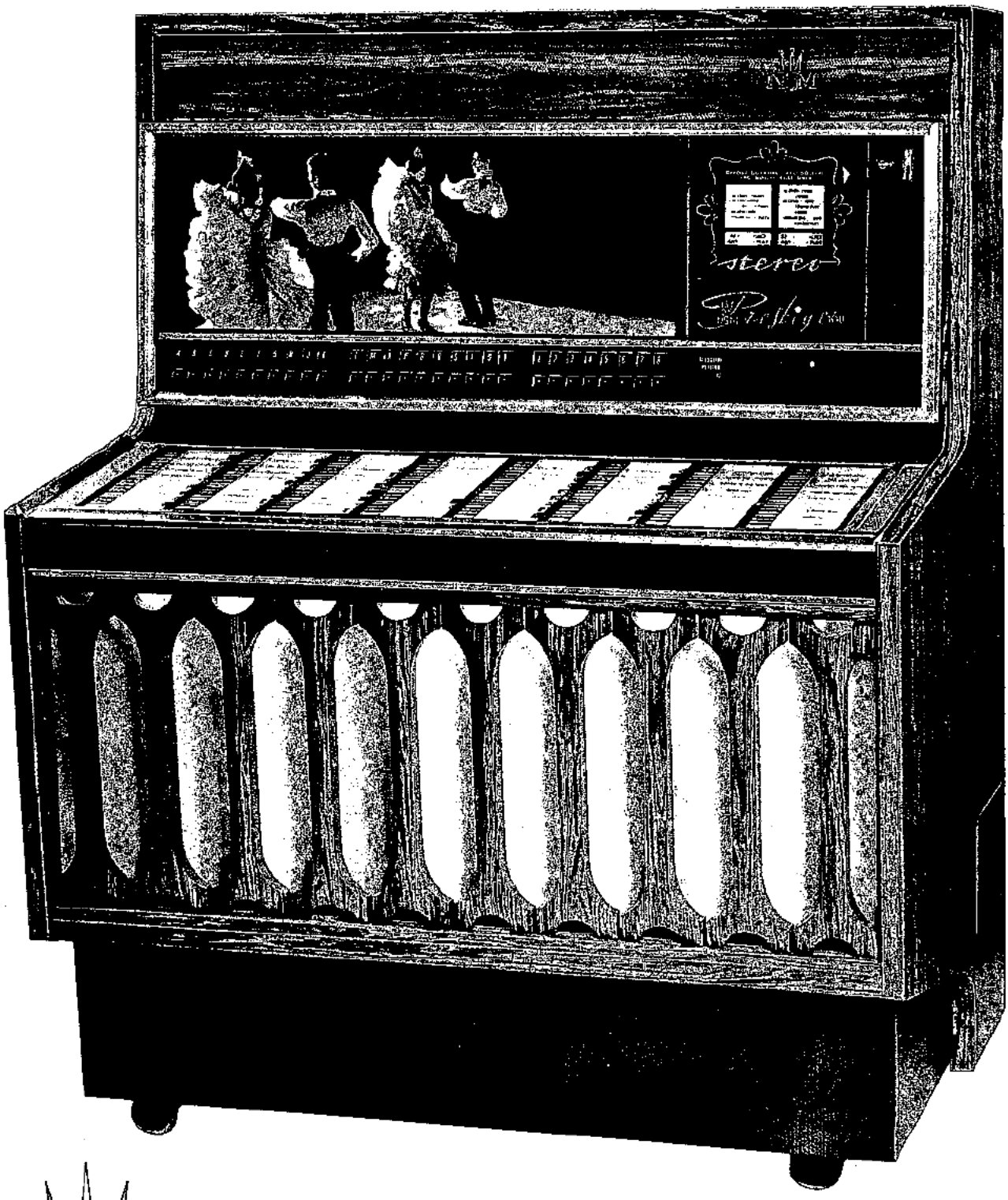
SERVICE MANUAL

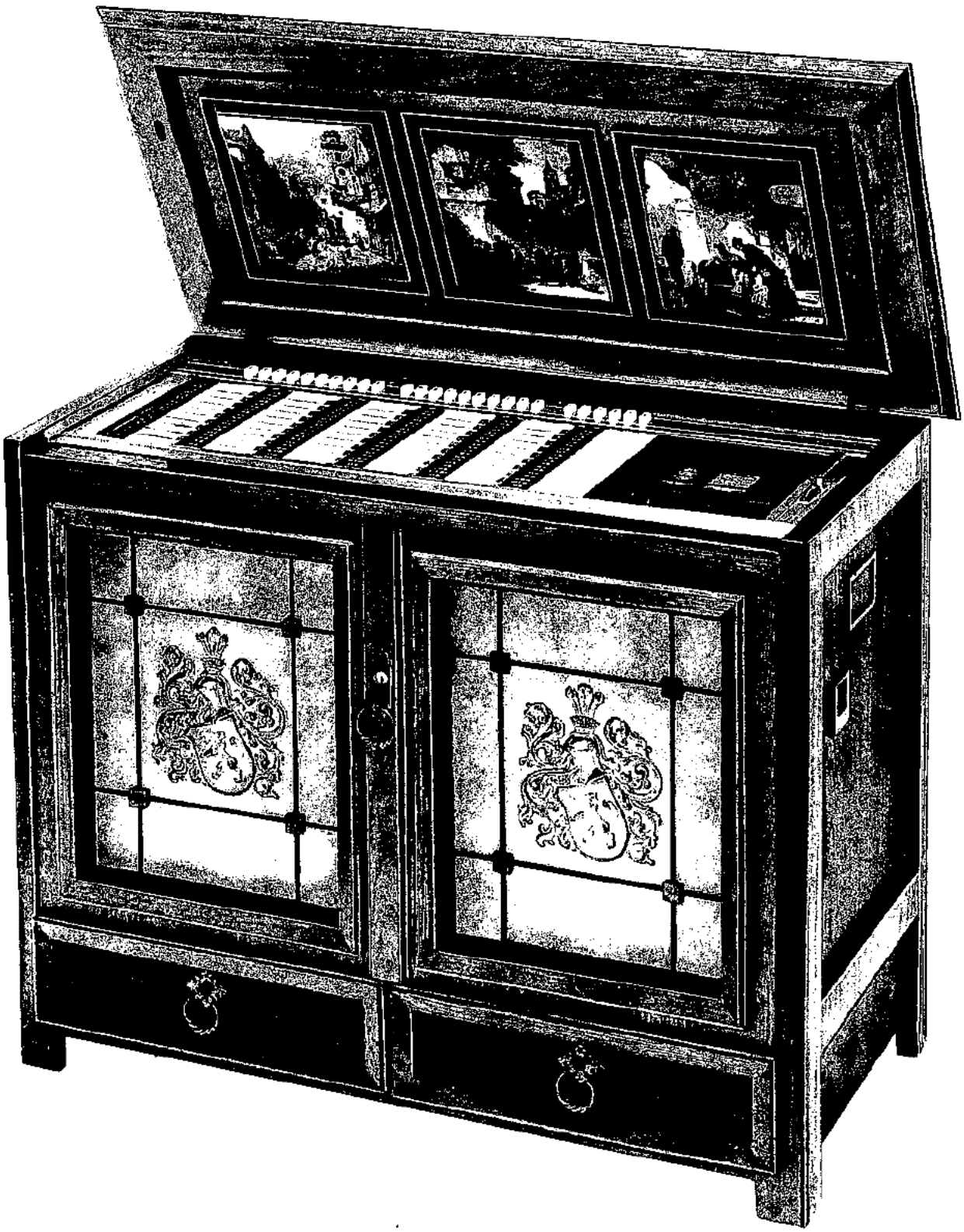


PRESTIGE 160 B II

CONSUL 120 A II

60 Cycles (Hz)

CONSUL 120 A II



VERY IMPORTANT !

SINCE THE ONLY TECHNICAL DIFFERENCE BETWEEN PRESTIGE AND CONSUL IS A SMALLER SELECTION SYSTEM, THIS MANUAL IS USED FOR BOTH PHONOGRAPHS. A SPECIAL SECTION CAN BE FOUND AT THE END, COVERING THE SPECIFICS OF THE CONSUL 120 A II

I N D E X

INSTALLATION OF THE PHONOGRAPH PRESTIGE 160 B II

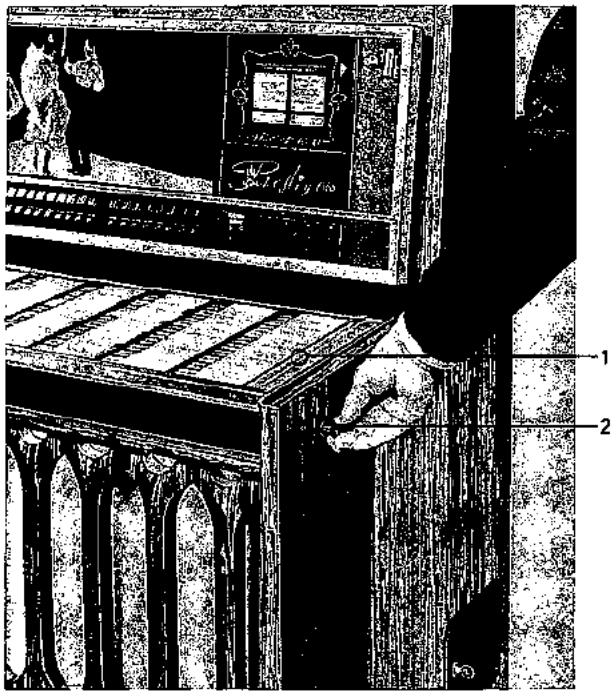


Fig. 1

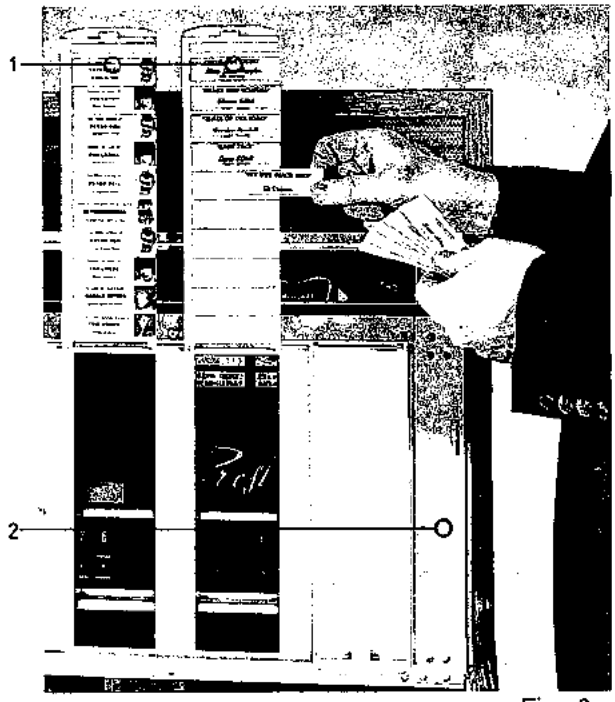


Fig. 2

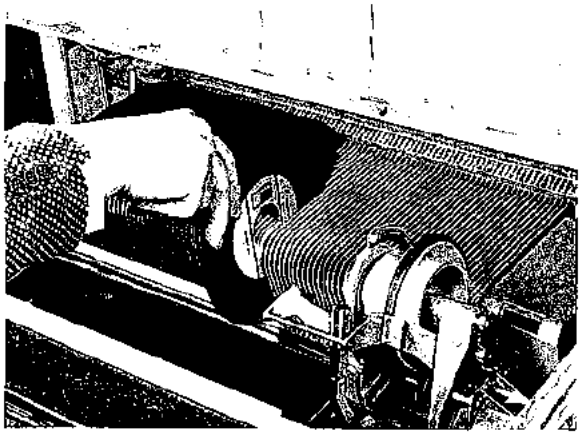


Fig. 3

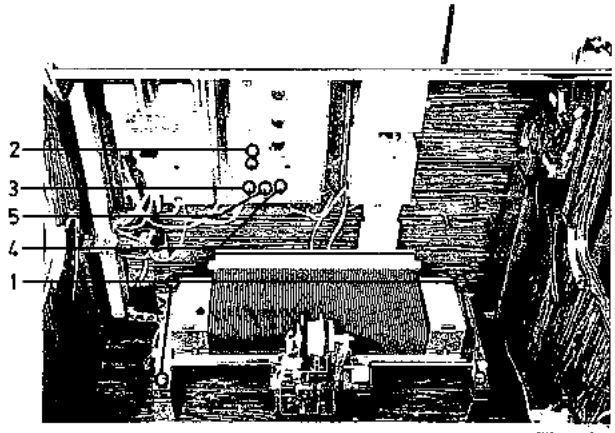


Fig. 4

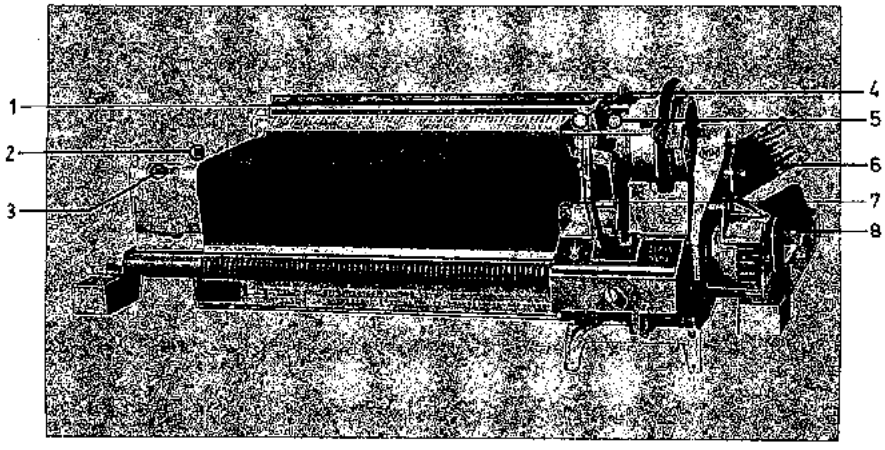


Fig. 5

See instructions next page ⟶

PLEASE READ INSTRUCTIONS BEFORE INSTALLATION

GENERAL

1. If external damage due to transport is noticed, this should at once be recorded on the delivery note and endorsed by the person making the delivery (Forwarding Agent, Railways, etc.). The manufacturer is not liable for damage caused during transit.

2. Devices for the safety and protection during transit must be removed before switching the phonograph on. They must, however, be refitted in the event of further transit.

3. All standard models of the phonographs are for a line voltage of 117 V/60 cycles.

4. The box is supplied with a 3-core line cable. Green-yellow must be connected to earth, corresponding to international wire code.

5. The proper functioning of the phonograph necessitates it to be horizontally and vertically levelled.

INSTALLATION OF THE PHONOGRAPH

1. Unscrew cabinet keys and cash box keys from the back.

2. Open left hand cabinet lock by turning the cabinet key to the left and right hand cabinet lock by turning the cabinet key to the right (figure 1-2). While doing so, press lightly on the program frame.
   Lift up program frame (figure 2-2).

3. To loosen carriage, remove screws painted red (figure 5-6 and 8) on the right hand side of the carrige base. Turn the security lever on the left hand side of carriage clockwise.

4. To loosen record clamp arm, remove rubber ring (figure 5-5) and rubber wedge (figure 5-7).

5. To free pick-up arm, remove rubber band, but leave the stylus cover on (figure 5-4) in order to protect the diamonds.

6. To loosen carriage base, unscrew four nuts (figure 4). The Nuts should clear the Carriage Base by at least 1/8 inch.

7. Pull line cable through the cutout hole in the back of the cabinet. Cover cutout hole with protection plate.

8. ATTENTION: Check line voltage before connecting! After plugging line plug into the wall socket, switch on line switch on the back of the cabinet. (Fluorescent lamps should now light up.)

9. By depressing the scan button (figure 5-2) let the carriage move from its rest position on the right to the left and remove card board strip out of groove.

10. Seize handle at the bottom of the title strip holder section (figure 2-1) and lift up title strip holders.

11. Open cash box, title strips will be found in the cash bag. After lettering the title strips, insert same in the desired succession into the title holders A—V. After adjustment arrange in proper order the "ALBUM" title strips.

12. Insert records into record magazine (figure 3) in the order of the title strips, the upper lettering of the magazine marking to the left. Move carriage by pushing it by Hand to any desired position.

13. Remove stylus covers from cartridge. (Save the covers for later use.)

14. Slightly press program holder frame (figure 1-1) downwards and lock cabinet. (Left hand lock by turning to the right and right hand lock by turning to the left.)

15. Refit cash box cover and lock cash box.

16. IMPORTANT WHEN TAKING OUT CARRIAGE. Also on this model, the carriage can be taken out for servicing. In case the carriage has to be taken out, make shure that the security lever on the left hand side is compietely turned to the back. Lift locking levers (2), located on both sides of carriage, with both hands. When inserting carriage, follow reverse procedure.

17. IN CASE OF TRANSIT: move carriage to the extreme right and insert safety screws. All other safety and protection devices have to be mounted contrary to above described sequence.

CONTROL AND SERVICE SWITCHES:

Credit Button: Free play button, each pulse gives one credit. Located on inside of the right hand side of the cabinet — the upper button on coin acceptor assembly.

Credit Cancel Button: All credits can be cancelled. Located on inside of the right hand side of the cabinet — the lower button on the coin acceptor assembly.

Record Reject: By holding the button down for 1.5 seconds, any record can be rejected before end of play. Locations: one is located on the back left hand corner of the cabinet and one is on the volume control box.

Scan Button: permits travel of the carriage. Located at the left hand side of carriage base.

TAKING INTO OPERATION:

After inserting coin for SINGLE play, the SINGLE indicator lights up. After inserting coin for ALBUM play, the ALBUM indicator lights up. If both indicator lights are lit Album or Single Plays may be selected. When only Single indicator light is lit, only Single Play can be selected. After selection has been made, selection light will go out. Bent coins or slugs will — either immediately or after pressing the coin reject button — drop into the coin return cup.

The corresponding letter and number buttons are to be pressed. It is immaterial, which button will be pressed first. After the selection has been made, the buttons will be released. The record playing is being indicated by lighted figure- and letter-fields on the green panel.

The control box R 2 is fitted with a volume control for both channels and one reject button.

In case of low volume the bass will automatically be reproduced louder (physiological volume control).

The control box is mounted at the back of the cabinet. It can easily be taken out and used as a remote control. (Cover hole with protection plate.)

A 4 core shielded or unshielded cable can be used.

Therefore connection is possible at any location where remote control cable is on hand.
The remote control cable has to be connected to the corresponding terminals between amplifier and volume control box.

The machine is equipped with a new type popularity meter (figure 5-1) that indicates — easily detectable — the playing frequency of each record. The popularity meter can — by one simple movement of the lever — be reset to "0".

The total play meter is located on the left hand side of the carriage base (figure 5-3).

Used or damaged diamonds can — together with their holders — easily be removed from the cartridge without any tools and be replaced by new ones.

CREDIT UNIT:

In order to alter credits, the corresponding wheel together with the needed slot have to be placed on the drive pin. For ex.:

1 play — slot nr. 1
3 plays — slot nr. 3
6 plays — slot nr. 6

Thus, any variation from 1 — 12 plays is possible.

1. Remove credit unit cover
2. Clap out base plate of credit unit
3. To take off top plate, loosen screw and remove circlip from main wheel pin. Take off plastic spacer and washer.
4. Remove tension spring
5. Take off top wheel
6. Refit wheel in such a way that the drive pin is led into the needed slot of the wheel
7. If second or third wheel has to be altered, follow same procedure as above. (Be careful to replace washers when assembling.)
8. Refit all other parts contrary to above indicated sequence.
9. Check with coins.
10. Change price instructions at the selector key panel. Credits and price instructions have to coincide.

DISCOTHEQUE / ALBUM:

An ALBUM-selection can be made, when sufficient credits have been accumulated. (See price instruction.) If, for ex., an ALBUM-selection is set for 3 credits, a minimum of 3 credits must be accumulated.

1. Positions 1 and 2 in the credit unit are connected with one contact finger and positions 3 and 4 with another contact finger.
2. Cam N4 of the switch mechanism (left hand side — carriage base) is set in such a way that 3 subtractions are realized in the credit unit at each ALBUM-selection.
3. Slide open cover of the selector switches and switch the contact fingers in the left (green) row.

   Position 1 - Single
   Position 2 - Album

   Selector keys 5 through 8 can be changed.

CHANGING THE CARRIAGE TO ALBUMS

To change the speed for album play, switch the contact fingers in the right (red) row.

Position 1 - 45 RPM
Position 2 - 33 ⅓ RPM

Selector keys 5 through 8 can be changed.

CONNECTION OF LOUDSPEAKERS:

The impedance of installed loudspeaker combinations is 8 Ω per channel. If additional loudspeakers are to be used, attention must be paid to the impedance matching.

In case of mismatching the electronic fuses in the amplifier will cut out.

The total impedance of the connected loudspeakers should not be less than 3 Ω per channel.

See inclosed "EXTENSION SPEAKER CONNECTIONS".
Max. music power = 35 Watts per channel.

MATCHING THE SOUND TO THE ROOM ACOUSTICS:

After lifting up selector key panel, the sound controls can be reached.

Treble-control switch (figure 4-5).
Bass-control switch (figure 4-4).
Record quality compensator (figure 4-3).
Channel level adjusting (figure 4-2).

Upon leaving the factory both channels are adjusted to the same level. If neccessary, the level may be limited to the desired maximum at the place of installation.

PRESTIGE 160 B II

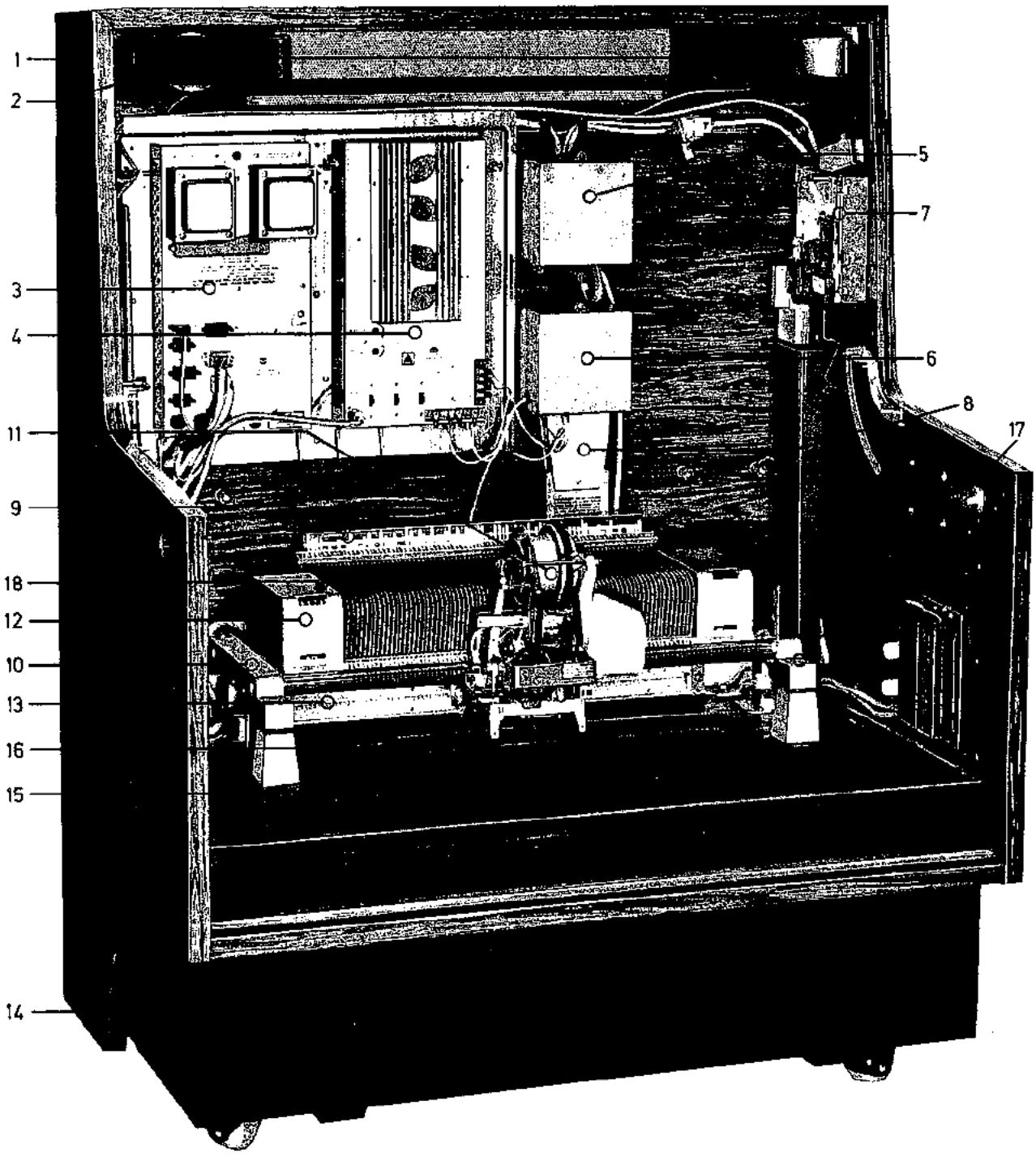
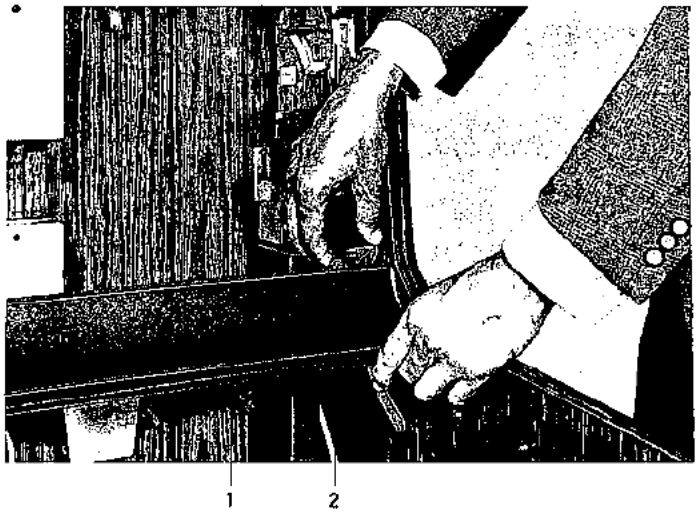


FIGURE 6 INSIDE VIEW

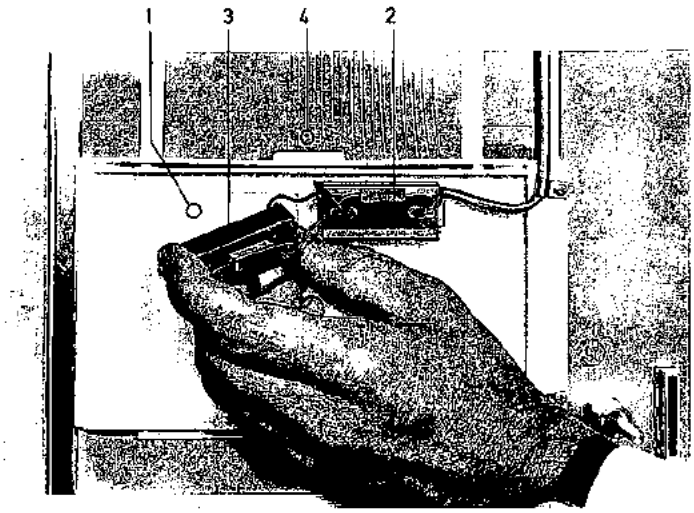
1. Wooden Box
2. Tweeters
3. Control Center
4. Amplifier
5. Credit unit
6. Output Junction Box
7. Coin Mechanism
8. Volume Control
9. Popularity Meter
10. Carriage Base
11. Carriage
12. Control Box
13. Memory unit
14. Woofers
15. Carriage Rod
16. Hole for Carriage Rod
17. Locking Bolts
18. Scan button



To remove the cross bar (fig.7 - 1) unlock both latches (fig.7 - 2) by pulling up. Then pull the cross bar forward and up.

FIGURE 7 CROSS BAR

1. Cross Bar
2. Latch

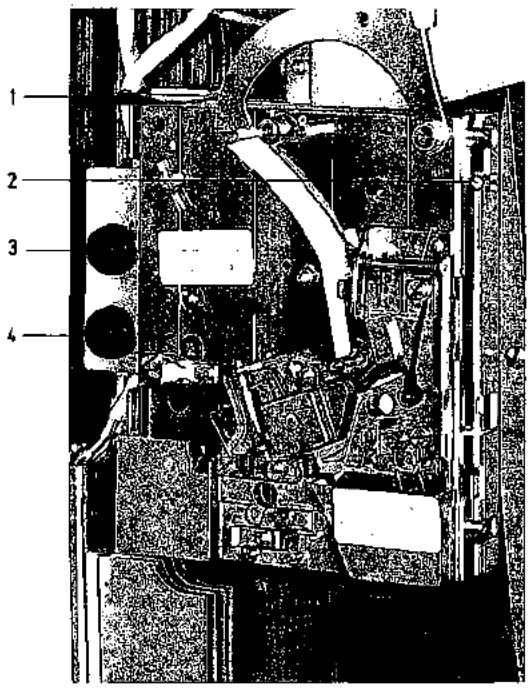


To remove the single credit light (fig.8 - 1) or the album credit light (fig.8 - 2), press both sides of lampholder in, and pull out. The bulb (fig.8 - 3) can now be removed.

To change the pricing plastic (fig. 8 - 4), slip the plastic out from the top and insert the other, making sure it is centered in front of the window.

FIGURE 8 Credit Lights

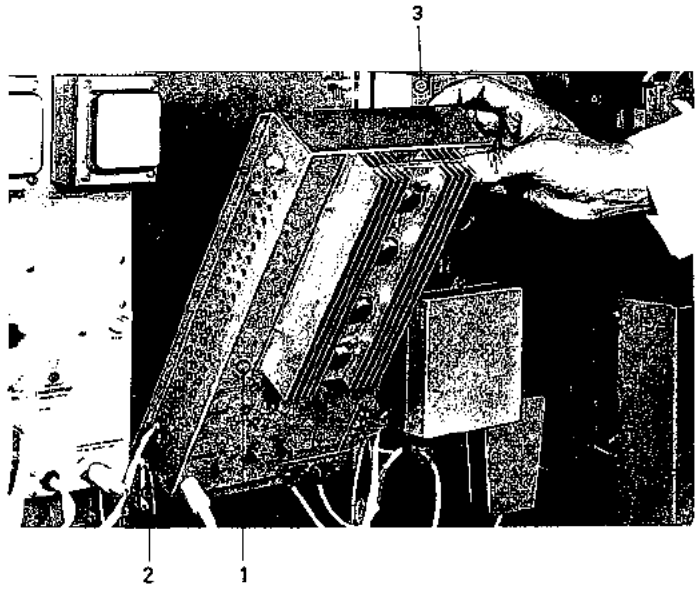
1. Single light
2. Album light
3. Bulb
4. Pricing Plastic



The coin mechanism swings out on the hinges (fig. 9-2), after lifting the latch (fig. 9-1). It can be removed by lifting it off the hinges, and unplugging the cable.

FIGURE 9 COIN MECHANISM

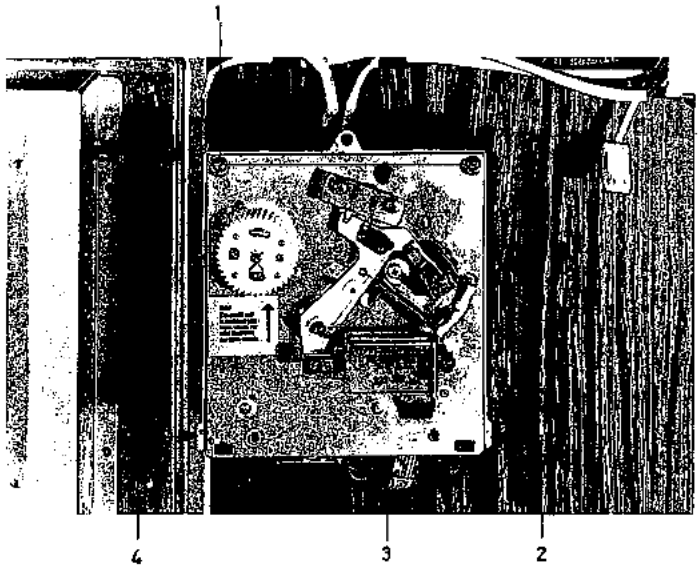
1. Latch
2. Hinges
3. Add-button
4. Subtract-button



The control center and amplifier can be taken out of the cabinet, by disconnecting all the cables, then letting the unit swing down 1/4 of the way, and lifting the unit of the brackets (fig. 10).

FIGURE 10 E-Z SNAP OUT UNITS

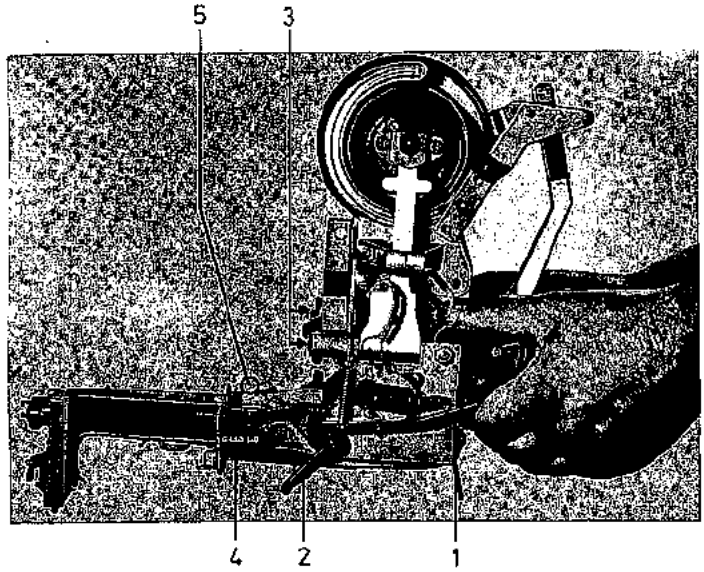
1. Amplifier
2. Bracket
3. Credit unit



To remove the credit unit from the machine, loosen the screw holding the plastic cover. Disconnect the plug (fig. 11 - 3) loosen the 2 screws (fig. 11 - 1) holding the unit. Let the unit swing down. Unscrew the pivot (fig. 11 - 2). First pull the right side out, and slip the pin (fig. 11 - 4) out of the hole.

FIGURE 11 CREDIT UNIT

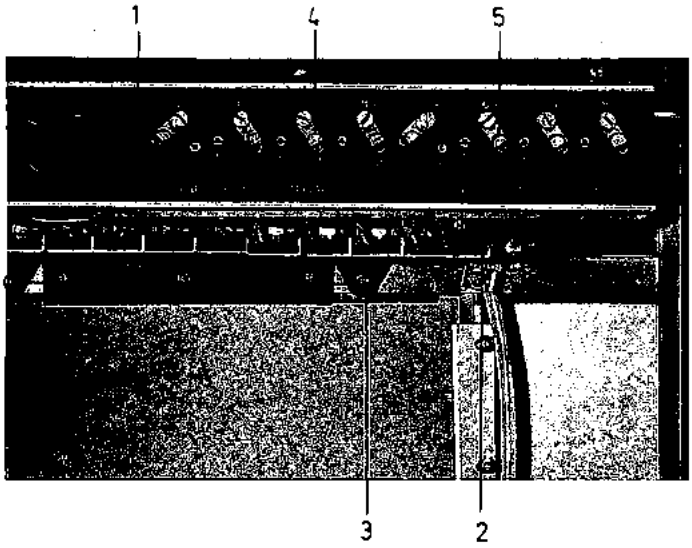
1. Screws
2. Pivot
3. Plug
4. Pin



To take the carriage off the carriage base, swing the handle lock (fig. 12 - 2) backwards. Lift up on both handle bars (fig. 12 -1) lift mechanism slightly to clear the rollers (fig. 12 - 3) off the gear rack. Pass the carriage forward from underneath the carriage base. After inserting the carriage rod (fig. 6 - 15) into the hole (fig. 6 - 16) place the pin on the bottom of the carriage in the rod. Should it be necessary to remove the carriage completely, unplug the pick-up plug (fig. 12 - 4) and the control plug (fig. 12 - 5) and unlock the cable from the clamp. The control center and the amplifier can be lowered in horizontal position by turning the locking bolts (fig. 6 - 17) a quarter turn. The clearance of the carriage is still enough to play any selection, while both units are down.

FIGURE 12 CARRIAGE

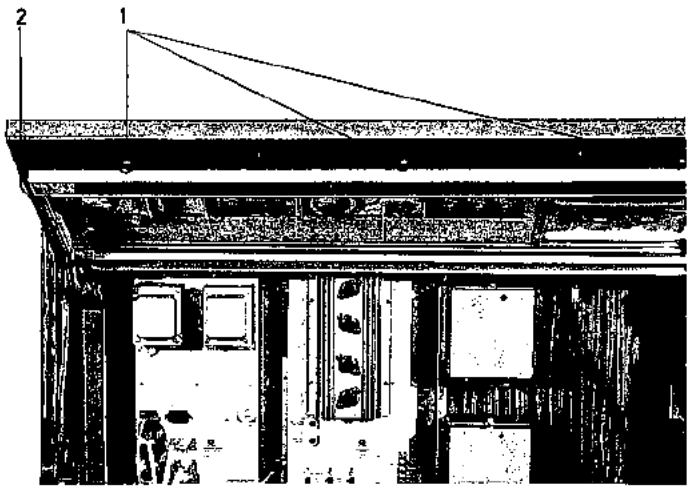
1. Handle Bars
2. Handle lock
3. Rollers
4. Pick-up plug
5. Control plug



The contact finger plate (single-album) (fig. 13-1) can be reached by sliding back the metal cover. The lights in the playing indicator (fig. 13-2) are Type No. 19 GE 120. 1A bulbs. To take out the indicator, remove the 2 screws (fig. 13-3) and slide the indicator from underneath the contact finger plate.

FIGURE 13 CONTACT FINGERS PLAYING INDICATOR

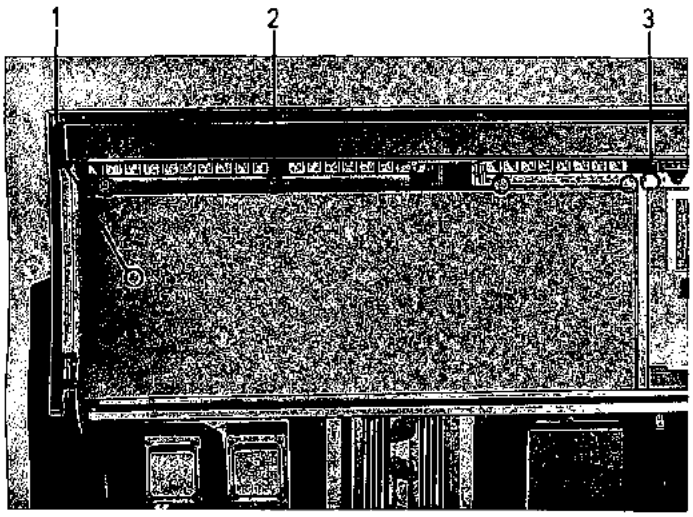
1. Contact finger plate
2. Playing indicator
3. Screws
4. Green section (credit change)
5. Red section (speed change)



To remove the keyboard (fig. 14) remove the 3 screws (fig. 14-1). The keyboard is now free. Take the cover of the wire channel (fig. 14-2) and remove wires. The keyboard can now be placed on the glass lid. If it is necessary to remove the keyboard completely, take cover of large wire channel, and remove wires and plugs.

FIGURE 14 KEYBOARD

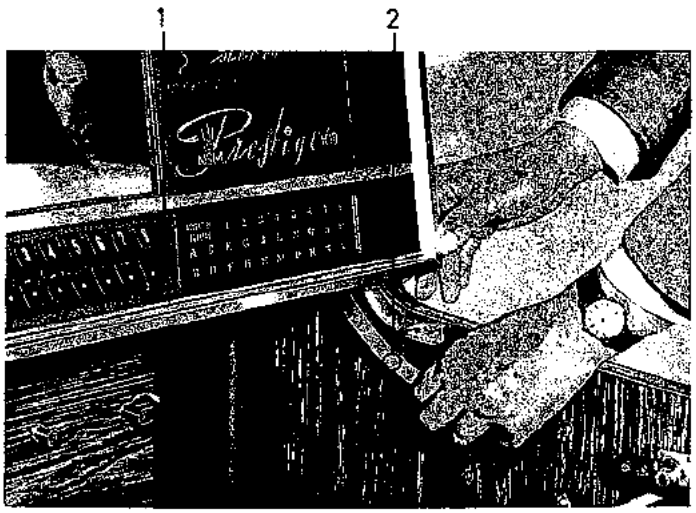
1. Screws
2. Wire channel



To remove the display panel (fig. 15-1) remove the 4 screws (fig. 15-2 and the aluminium trim (fig. 15-3). The panel can now be removed.

FIGURE 15 DISPLAY PANEL

1. Panel
2. Screws
3. Trim



To bring display lid up (fig. 16-1) the program frame will have to be removed. Unlock both locks, lift frame up halfway and lift the frame out. Unlock both latches (fig. 16-1) and bring lid up.

FIGURE 16 DISPLAY LID

1. Lid
2. Latch

PRESTIGE 160 B II

MEASUREMENTS AND WEIGHTS:

	mm (max.) height	width	depth	kg (max.) weight
Box total	1265	1000	655	143
Carriage base	235	695	286	14.0
Carriage	260	200	345	4.0
Amplifier	356	206	90	3.0
Control Center	356	206	122	6.0
Box packing				28.0

	inches (max.)			pounds (max.)
Box total	49 1/2	39 1/2	25 3/4	314,5
Carriage base	9 1/4	27 1/2	11 1/4	30 3/4
Carriage	10 1/4	8	13 3/4	8 3/4
Amplifier	14 1/4	8 1/4	3 1/2	6 1/2
Control Center	14 1/4	8 1/4	5	13 1/4
Box packing				61 1/2

PRESTIGE 160 B II

SPECIFICATIONS

Electrical Data:

Line Voltage	117 V. AC 60 cycles
Working Voltage	30 V. DC
Power: standby	100 W.
transfer and scan	135 W.
play	150 W.

Control Center:

1 Transformer for working voltage	117 V. AC prim. 80/110/125 V. AC sec. I 30 V. AC sec. II
1 Transformer for amplifier	117 V. AC prim. 40 V. AC sec.

Fuses:

1 Line Voltage 117 V. AC	3$^{3}/_{10}$ Amp. slo blo
1 Amplifier	1$^{2}/_{10}$ Amp. slo blo
1 Working Voltage	2 Amp. slo blo
1 Accessories connection (AMP)	as needed
1 Electronic fuse	in the amplifier

Lighting:

2 Fluorescent lamp	F 30 T 30 W./33
2 Starter	FS — 4
2 Ballast	117 V./30 W./0.65 Amp.
2 Credit lights	24 V./ 3 W.
1 Safety lamp in Credit unit	24 V./15 W.
28 Indicator lamps (miniature GE 19)	12 V./0.1 Amp.

Credit Unit:

Credits	adjustable from 1 to 12 credits. (See note inside the lid)
Accumulation possible	up to 40 credits

Selection Circuit:

20 Letter buttons A — V	2 sets of switches, each 10 × 2 contacts
8 Number buttons 1 — 8	1 set of switches with 8 × 3 contacts
1 Latch bar solenoid	30 V. DC 100 % ED
1 Selection motor	30 V. AC
1 Positioning Motor	30 V. AC
4 Cam switches N 1 — N 4	radio-shielded
1 Pin assembly	160 pints 16 selection coils
ALBUM-selection	Adjustment see note in credit unit lid

Playing Mechanism:

1 Carriage base
with pre-selector unit and record magazine for 80 records alternatively 45 rpm or 33⅓ rpm, 7 inch diameter, mono or stereo, vertically located.

1 Popularity meter	80 counting strips
1 Total play meter	4 digits
1 Carriage with play motor (synchronous)	80/125 V. AC 15/33 W. 1500 rpm, left and right hand turns.
1 Clutch solenoid	58 V. DC 100 % ED
1 Trip solenoid	30 V. DC 5 % ED
1 Speed changing solenoid	58 V. DC 100 % ED
1 Cartridge	ceramic DB 200 stereo/mono
2 Needles	diamond D 102 stereo/mono

Amplifier:

Stereo amplifier	with electronic fuse
Volume compensator	automatic (AVC)
Output stage	2 × 2 N 30 55 in push-pull
Output capacity per channel	35 W. music per channel (60 W. sine wave)
Impedance	4 Ohms output
Muting relay	40 V. DC
1 (Remote-) volume control	volume control for each channel separately and
2 Woofers 10 inches	one reject button
2 Tweeters DKS 6/13/100 pressure chamber system	8 Ohms 30 W.
1 Stereo network	4 Ohms 6 W.

Locks and Keys:

2 Cabinet locks	SL 82 h/SL 82 g
2 Cabinet keys	Nr. 167 676 (K 5)
1 Cash box lock	SL 86 p
2 Cash box keys	different numbers.

SEQUENCE OF OPERATION

1. Motor relay, muting relay, speed changing solenoid and clutch solenoid are energized in stand-by position
2. Coin switch energizes add solenoid, credit switch (AK) closed.
3. Credit switch (AK) supplies 30 VDC to control circuits.
4. Selection light is lit.
5. Latch bar solenoid and restart locking relay are energized.
6. Start relay is energized when buttons are pressed.
7. Position motor starts.
8. Position relay is energized, stops motor at selected letter.
9. Selection motor starts.
10. N3 holding contact for selection motor.
11. N4 pulses subtract solenoid
12. Carry over switch (UK) completes subtract pulse.
13. Write-in trigger switch completes write-in
14. N1 energizes single relay by single selection.
15. Single relay allows only one subtract pulse.
16. Scan switch closed by selection motor.
17. N2 opens latch bar solenoid and restart locking relay.
18. N2 reenergizes latch bar solenoid and restart locking relay.
19. Carriage motor starts.
20. Trip solenoid stops carriage.
21. Motor relay and muting relay released.
22. Clutch solenoid deenergized.
23. record plays.
24. Reed switch activated.
25. Motor relay and muting relay energized.
26. Clutch solenoid energized.
27. Scanswitch opens.
28. Carriage stops on right side of carriage base.

SEQUENCE OF OPERATING P 160 B II AND C 120 II

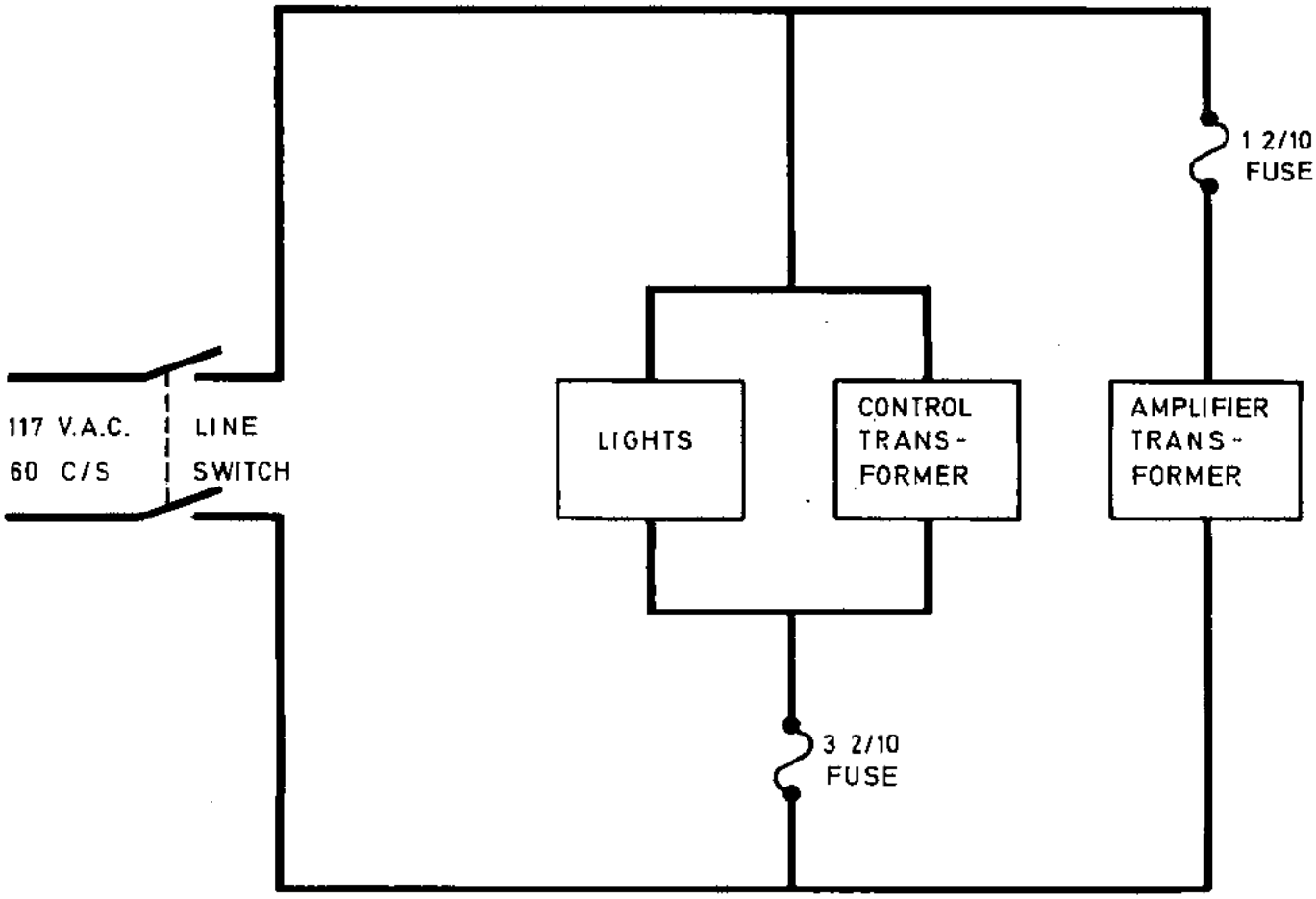


FIGURE 17

Closing the line switch connects the 117 V.A.C. line to the fluorescent lights, the control transformer and the amplifier transformer.

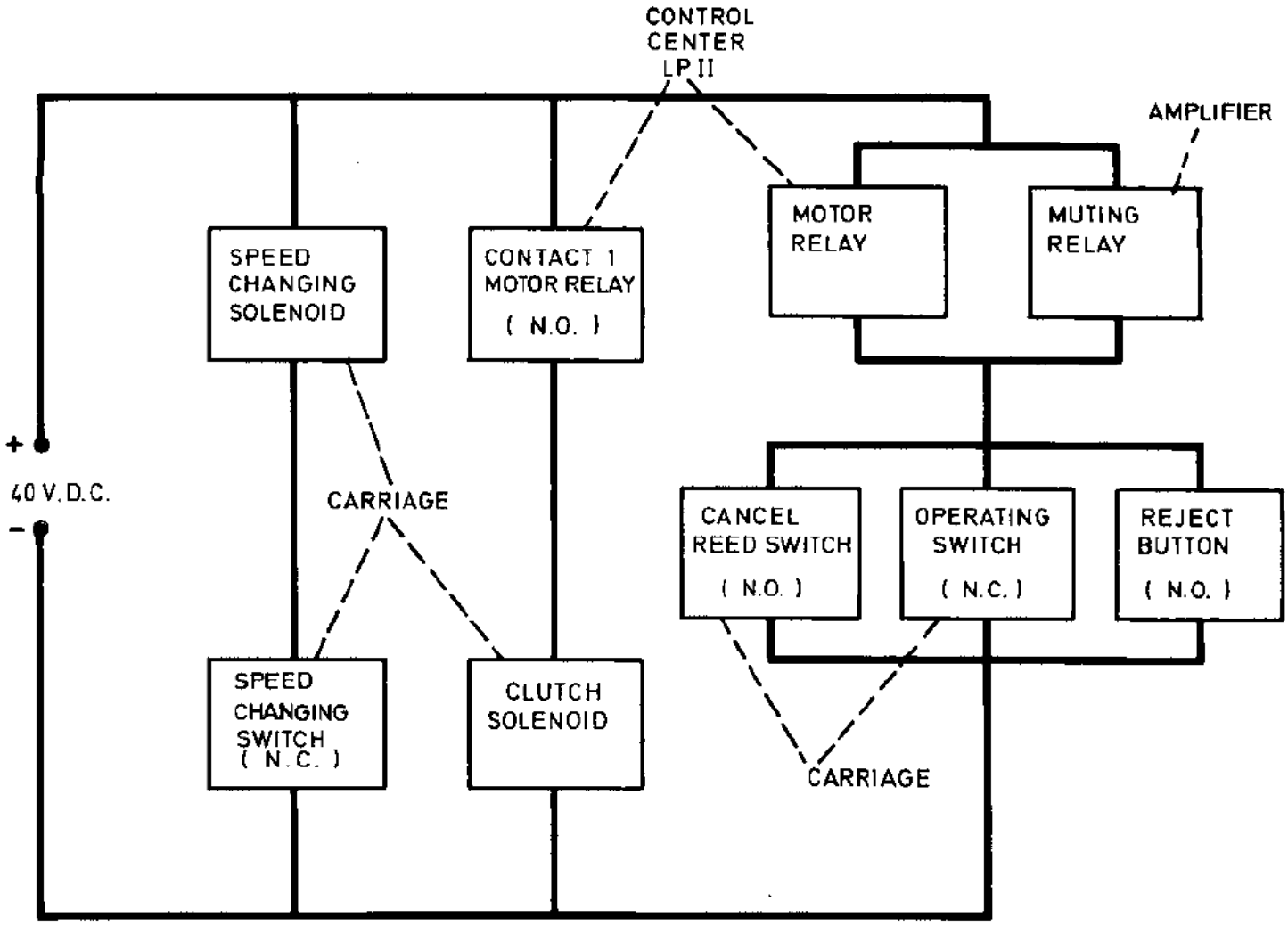


FIGURE 18

The muting relay and motor relay are energized as soon as the line switch is turned on, over the normally closed operating switch.
With the record transfer arm in the down position, the speed changing switch is closed, completing the circuit to the speed changing solenoid.
The clutch solenoid is energized over the now closed contact 1 of the motor relay.
Thus with the line switch on and the machine in stand-by, the following are energized: motor relay, muting relay, speed changing solenoid and clutch solenoid.

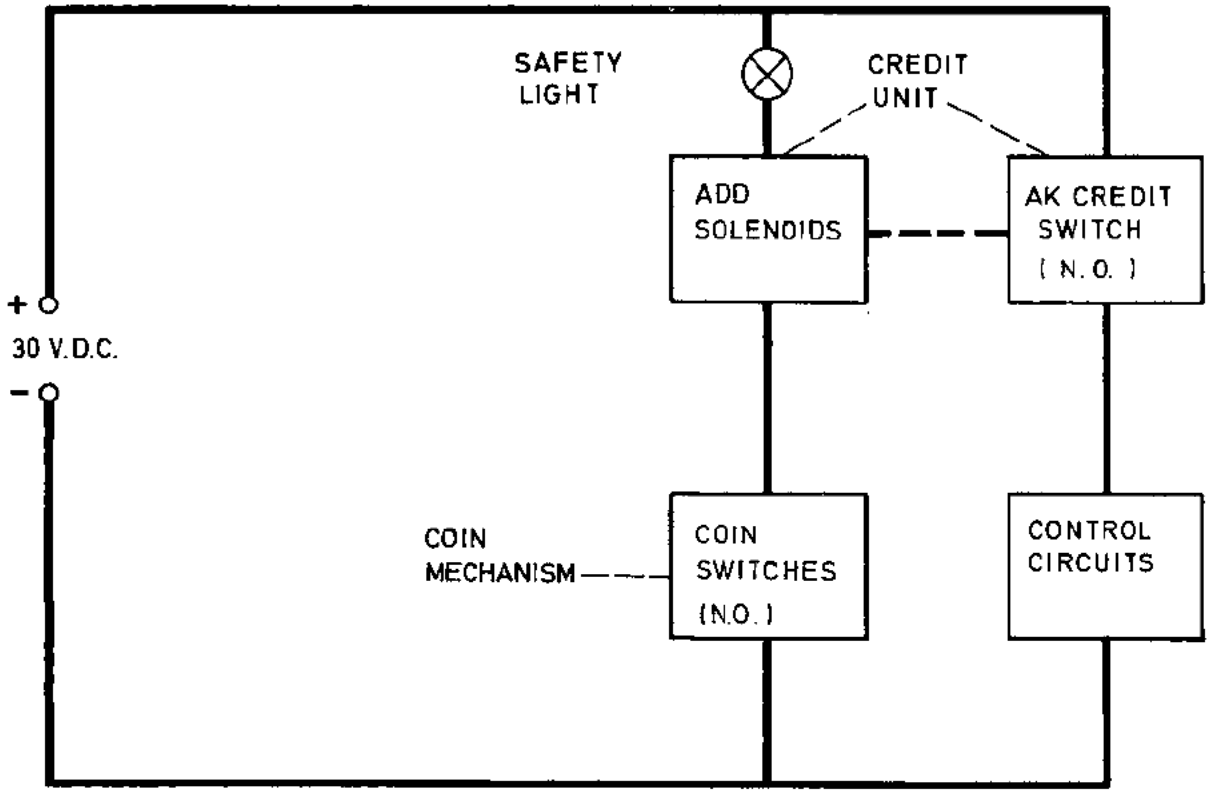


FIGURE 19

Closing one of the coin switches will energize the corresponding add solenoid. When credit is established, the AK credit switch will be closed, connecting all the control circuits to the 30 V.D.C.

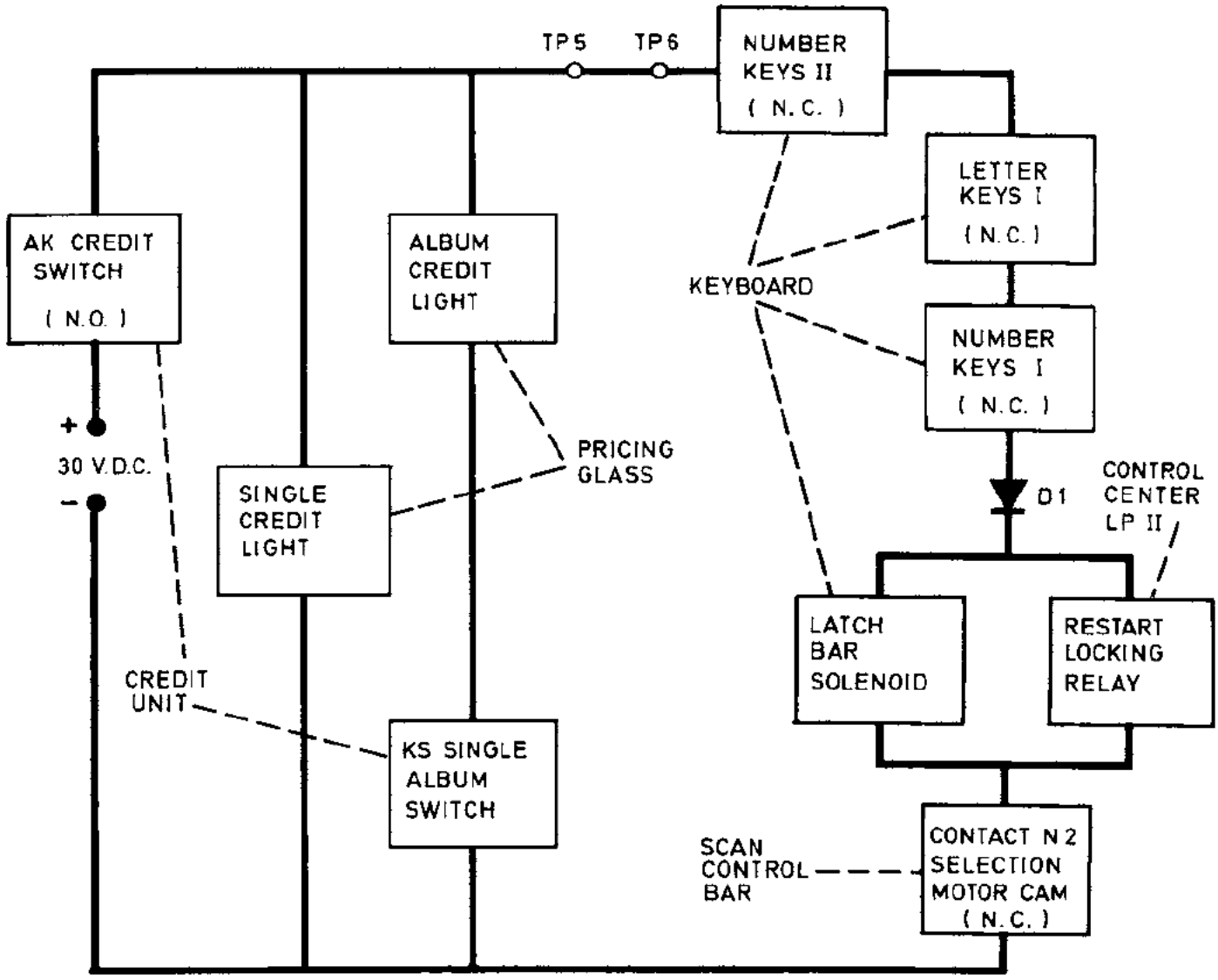


FIGURE 20

Closing the AK credit switch will light the single credit light. Also the album credit light depending on the position of the KS single-album switch. The restart locking relay and the latch bar solenoid are energized over the rest contacts of the buttons and contact N2.

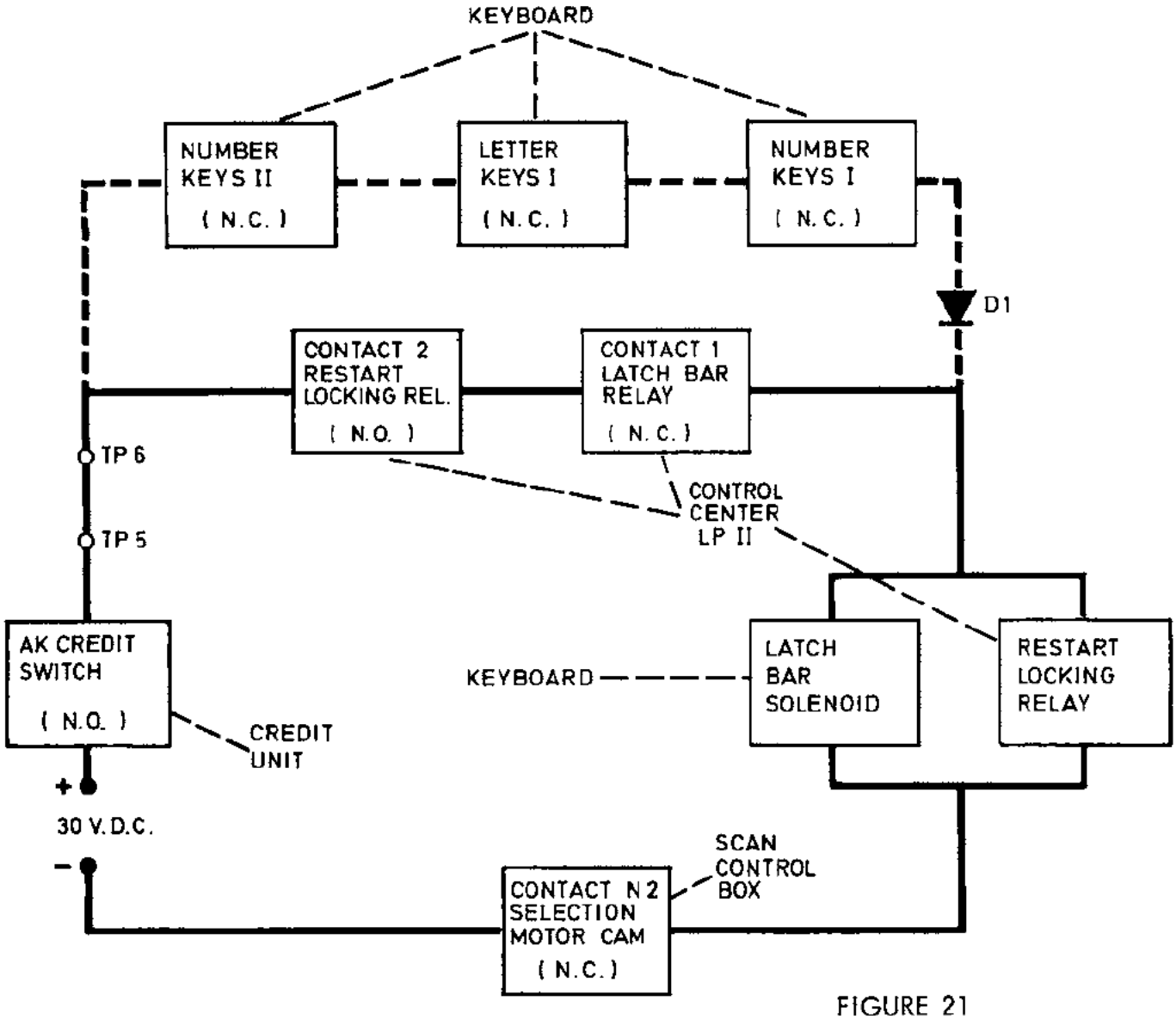


FIGURE 21

After the restart locking relay is energized, its own contact 2 will lock the circuit over contact 1 of the latch bar relay even if the buttons are pressed.

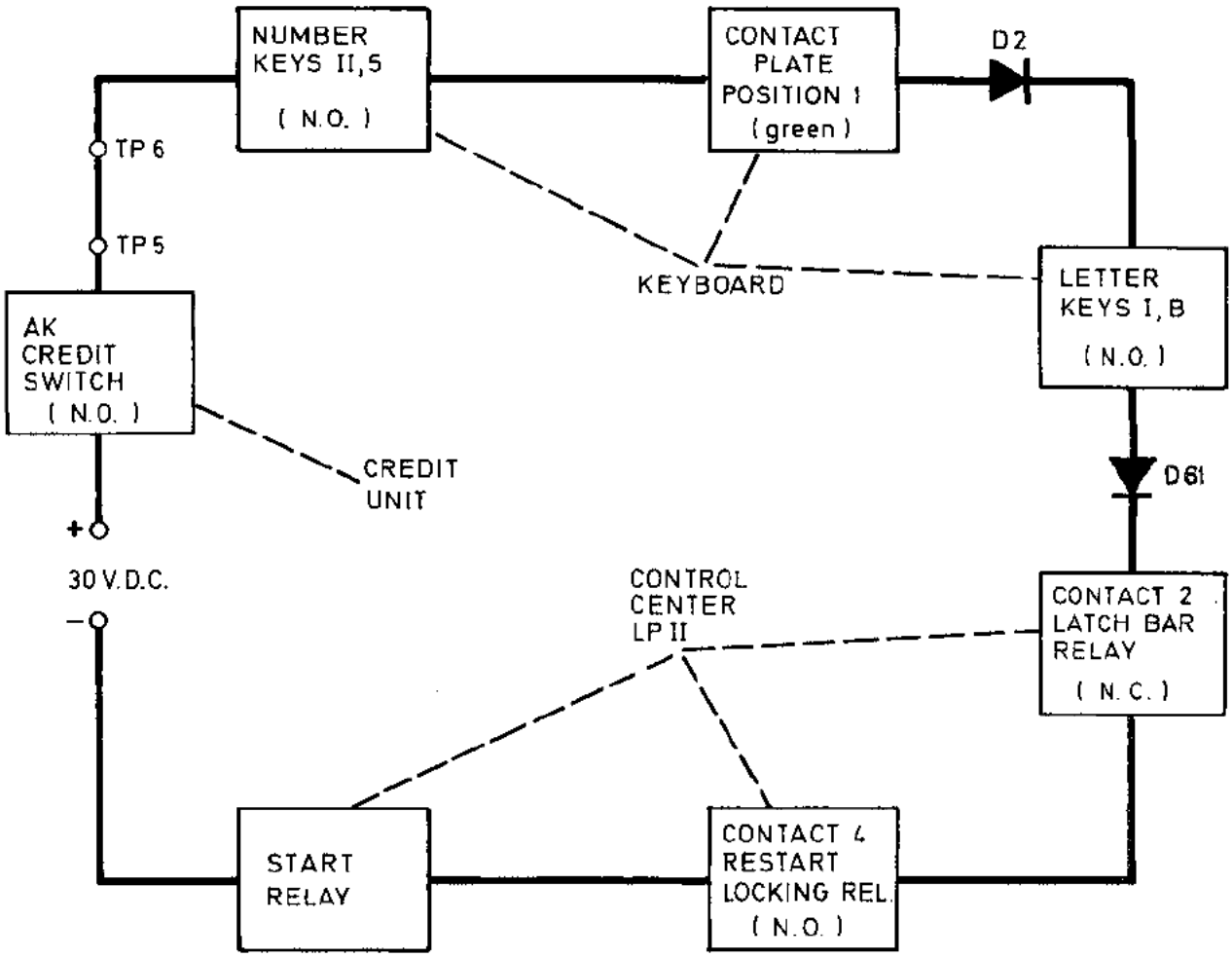


FIGURE 22

When we press a letter (B), and a number (5) button, the circuit to the start relay is closed over contact plate 1 (green section) and D2 for single selections, and over contact plate 2 and D3 for album selections. The letter keys from A to K go through D61, the letter keys from L to V go through D62.

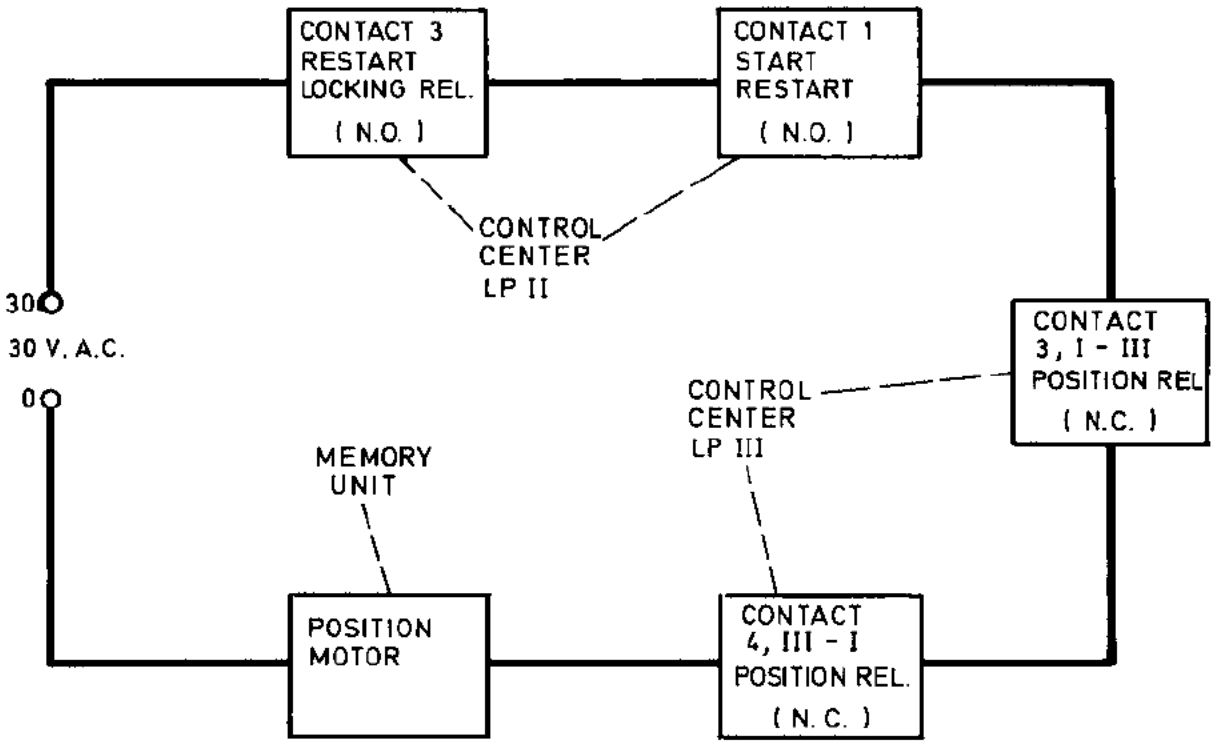


FIGURE 23

Closing of start relay contact 1, starts the position motor.

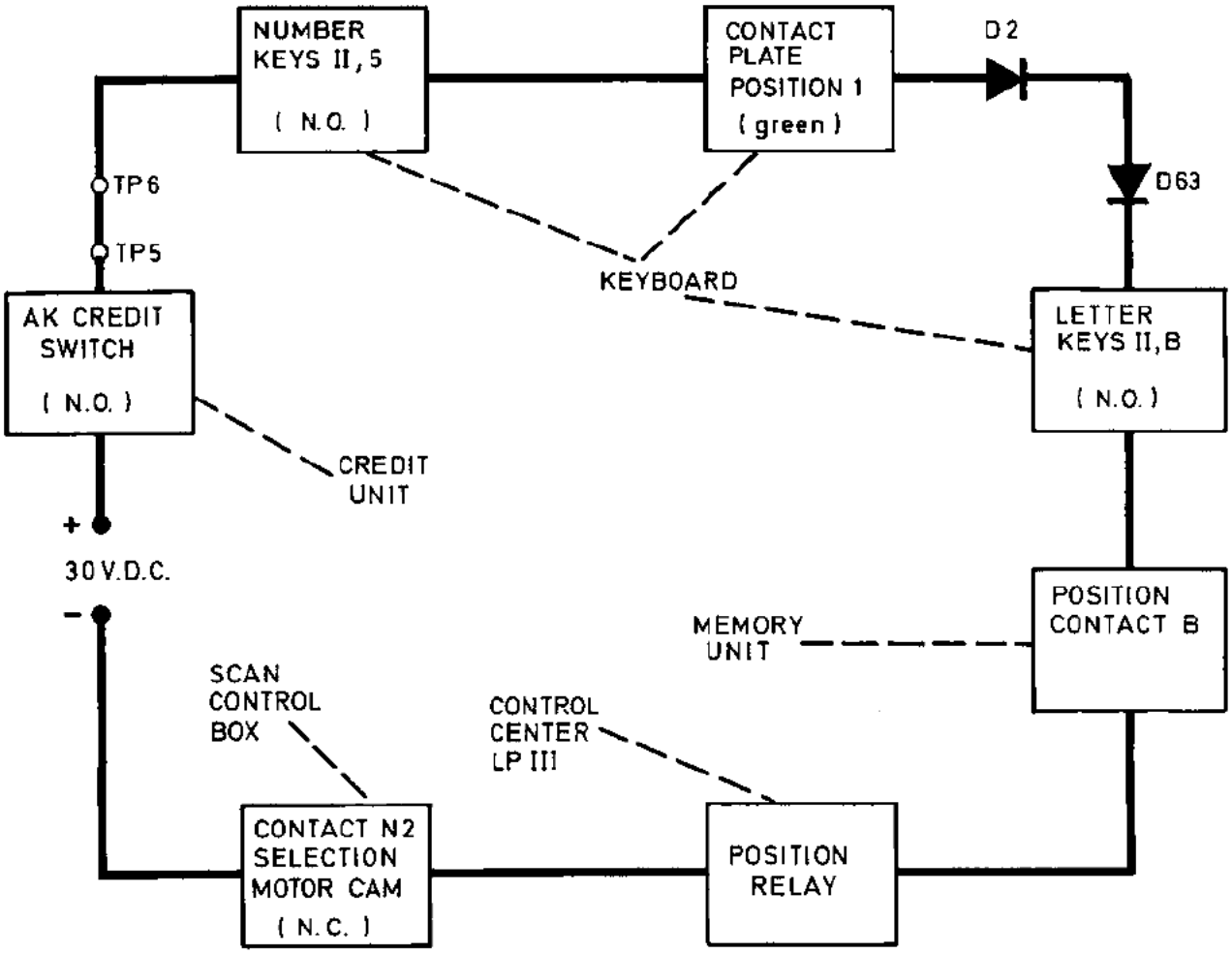


FIGURE 24

The position motor moves the wiper contact over the position contacts. When position contact B is reached, the circuit to the position relay is completed.

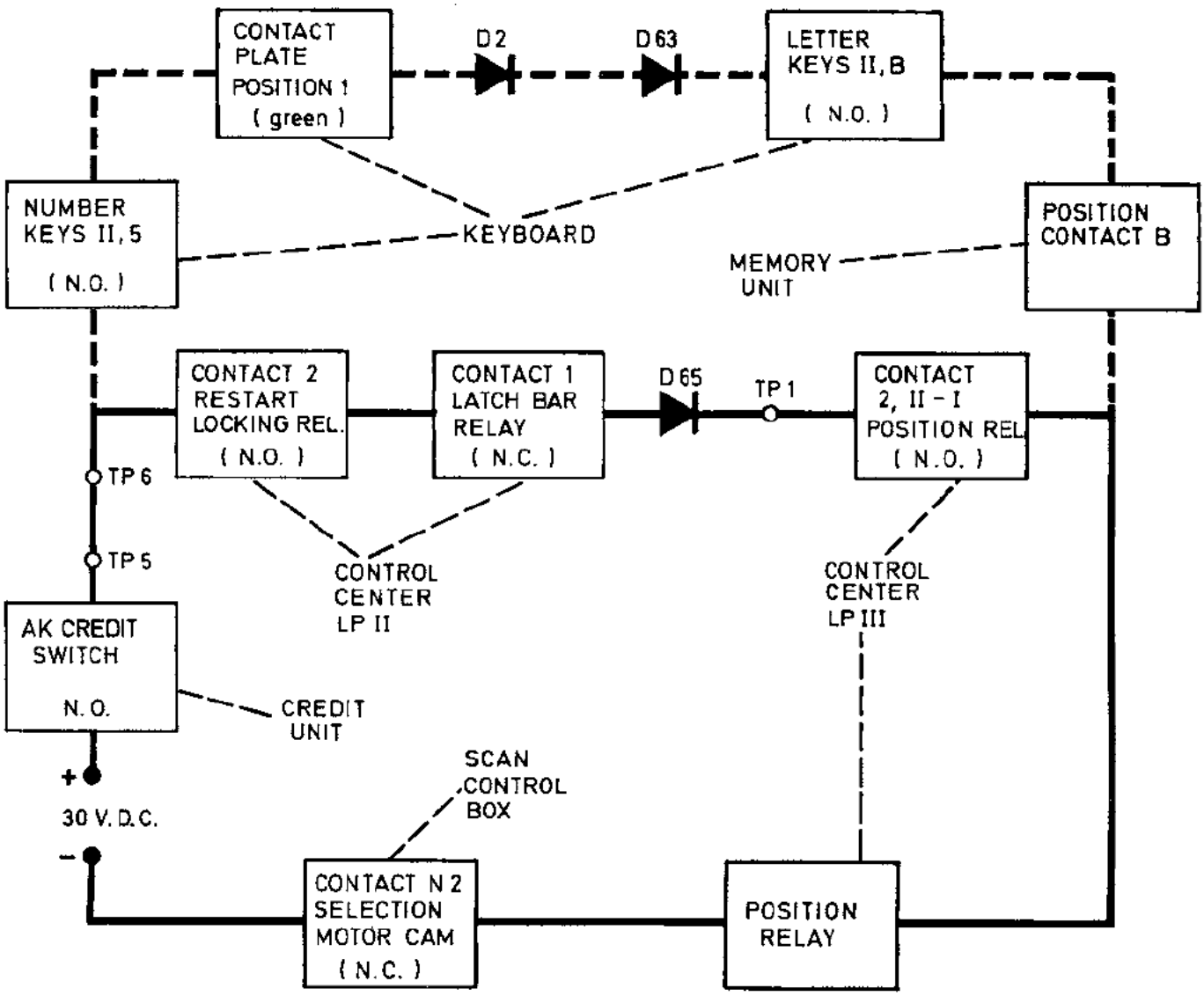


FIGURE 25

Once the position relay is energized, it is locked in over its own contact 2.

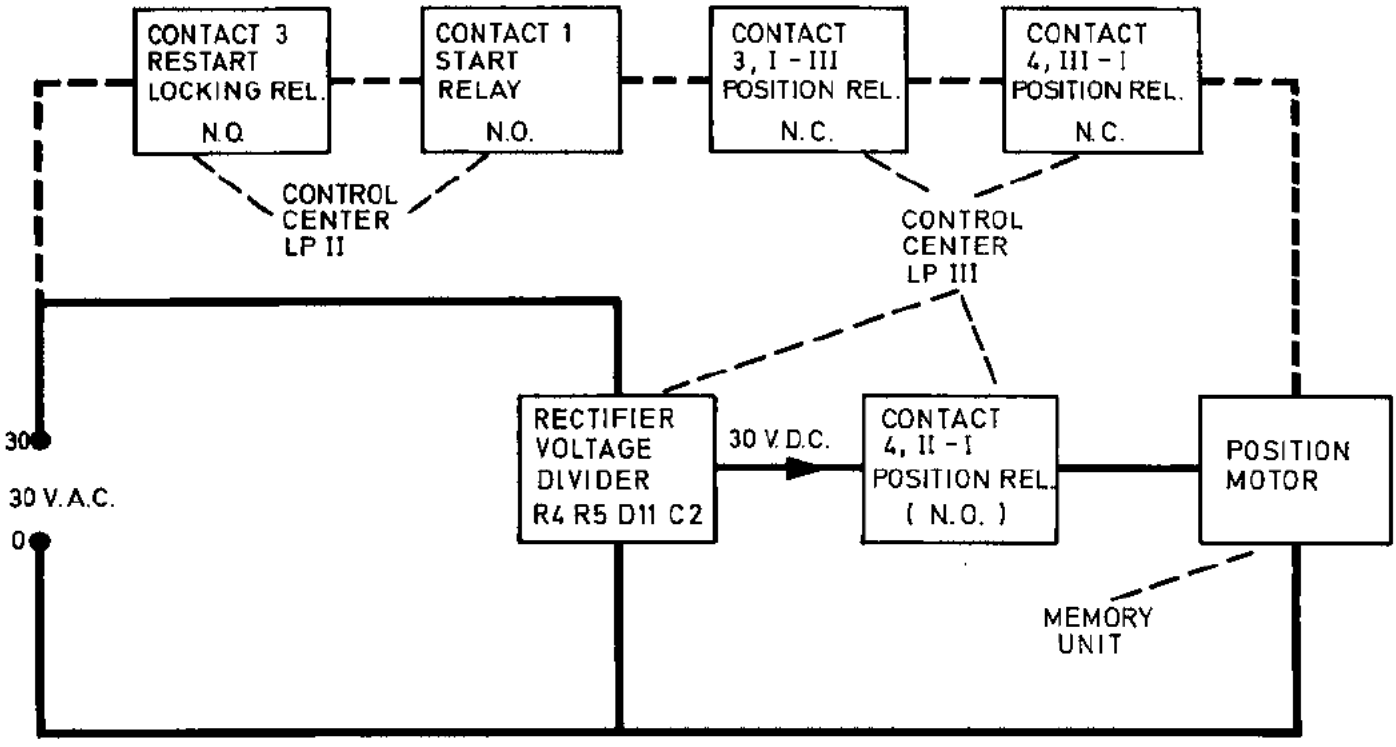


FIGURE 26

Contact 4 of the position relay will switch the position motor from A.C. to D.C. over the rectifier-voltage divider R4 - R5 - D11 - C2. Since the position motor is an A.C. motor, the D.C. current created by the discharge of C2 through the motor will stop the motor immediatly.

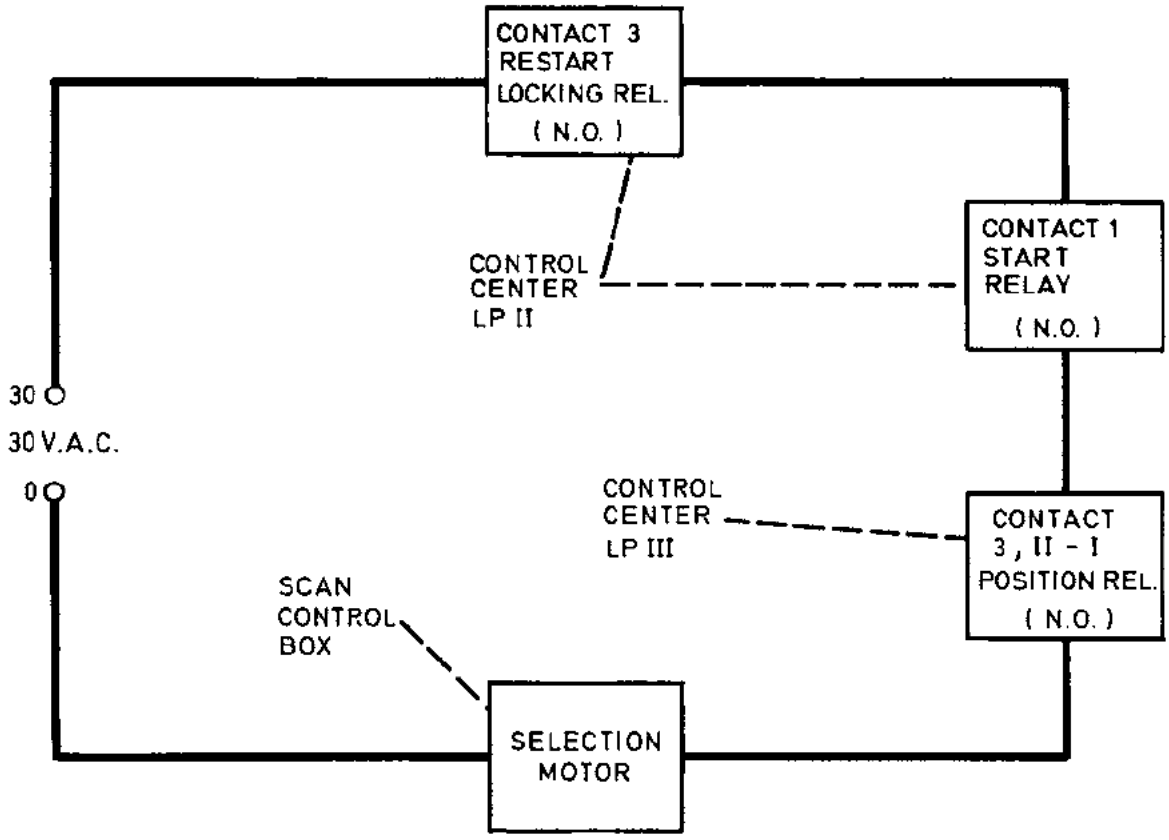


FIGURE 27

Switching contact 3 of the position relay will complete the circuit to the selection motor.

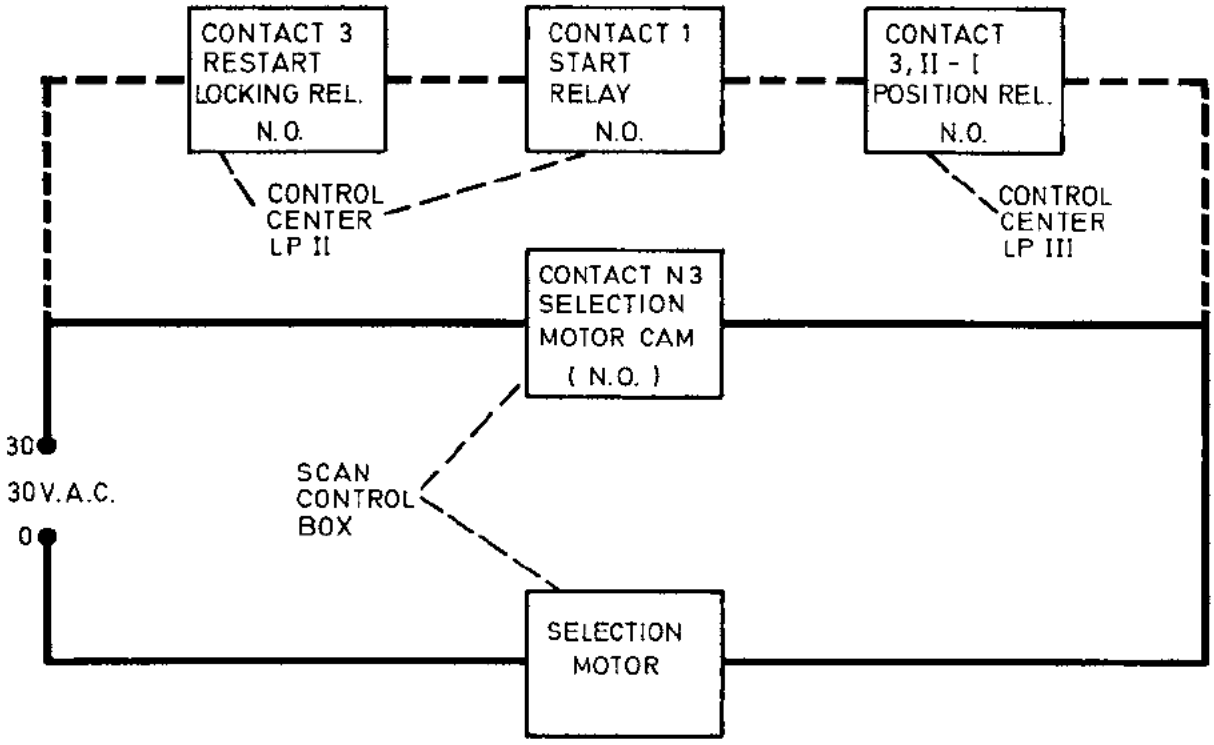


FIGURE 28

Starting the selection motor will close contact N3, which will carry the motor through the full cycle.

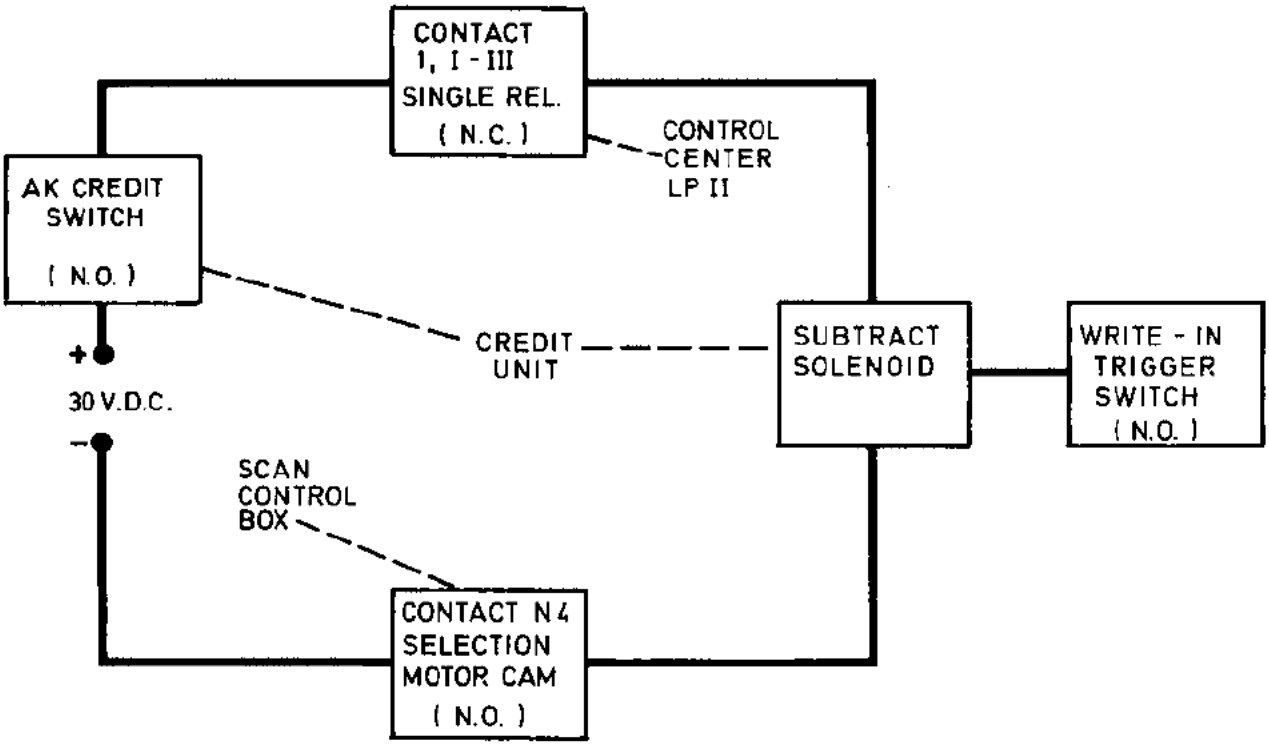


FIGURE 29

When contact N4 closes, the subtract solenoid is energized, closing the write-in trigger switch.

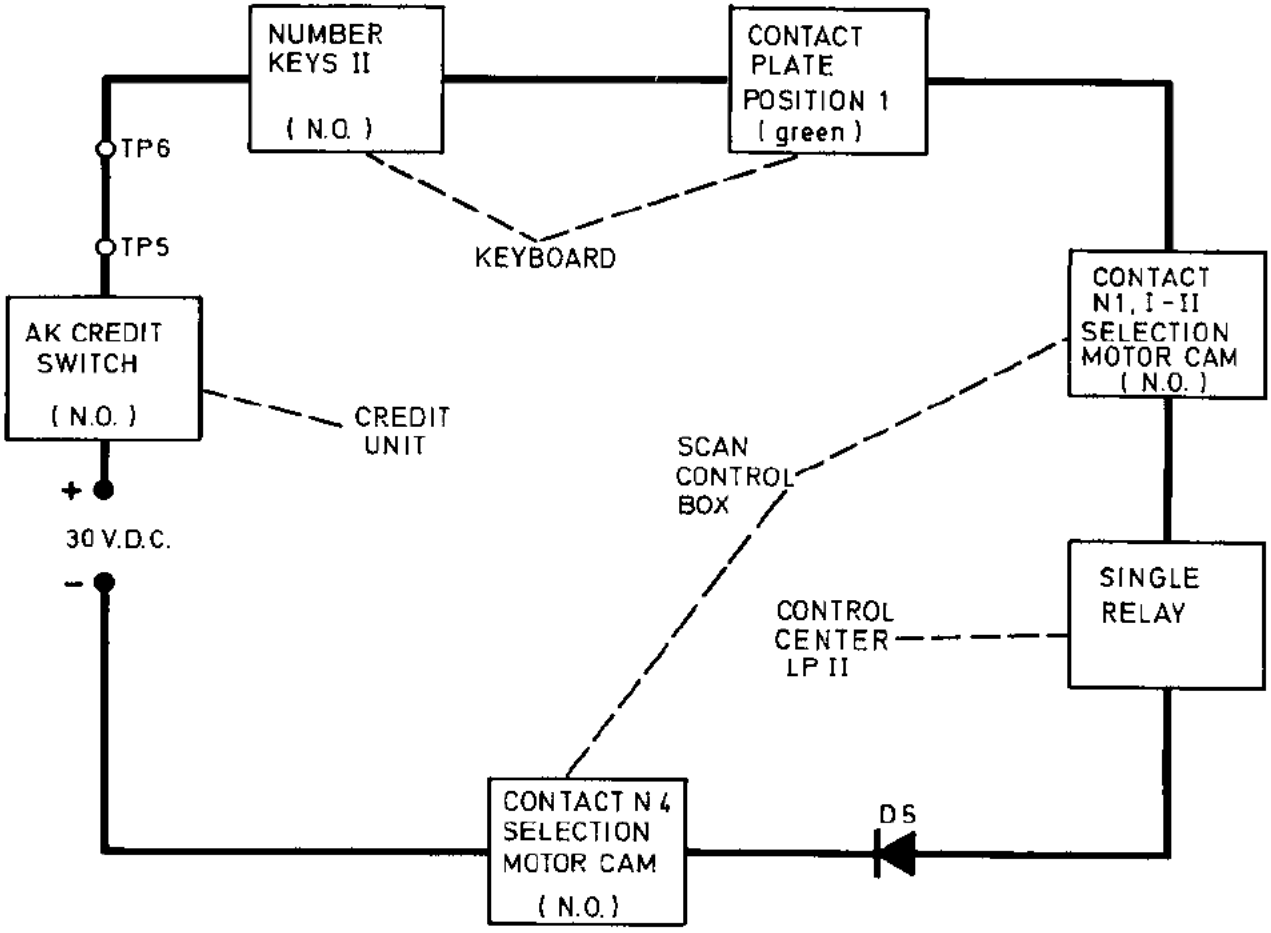


FIGURE 30

During the first subtraction pulse, the single relay is energized when contact N1, (I-II) closes.

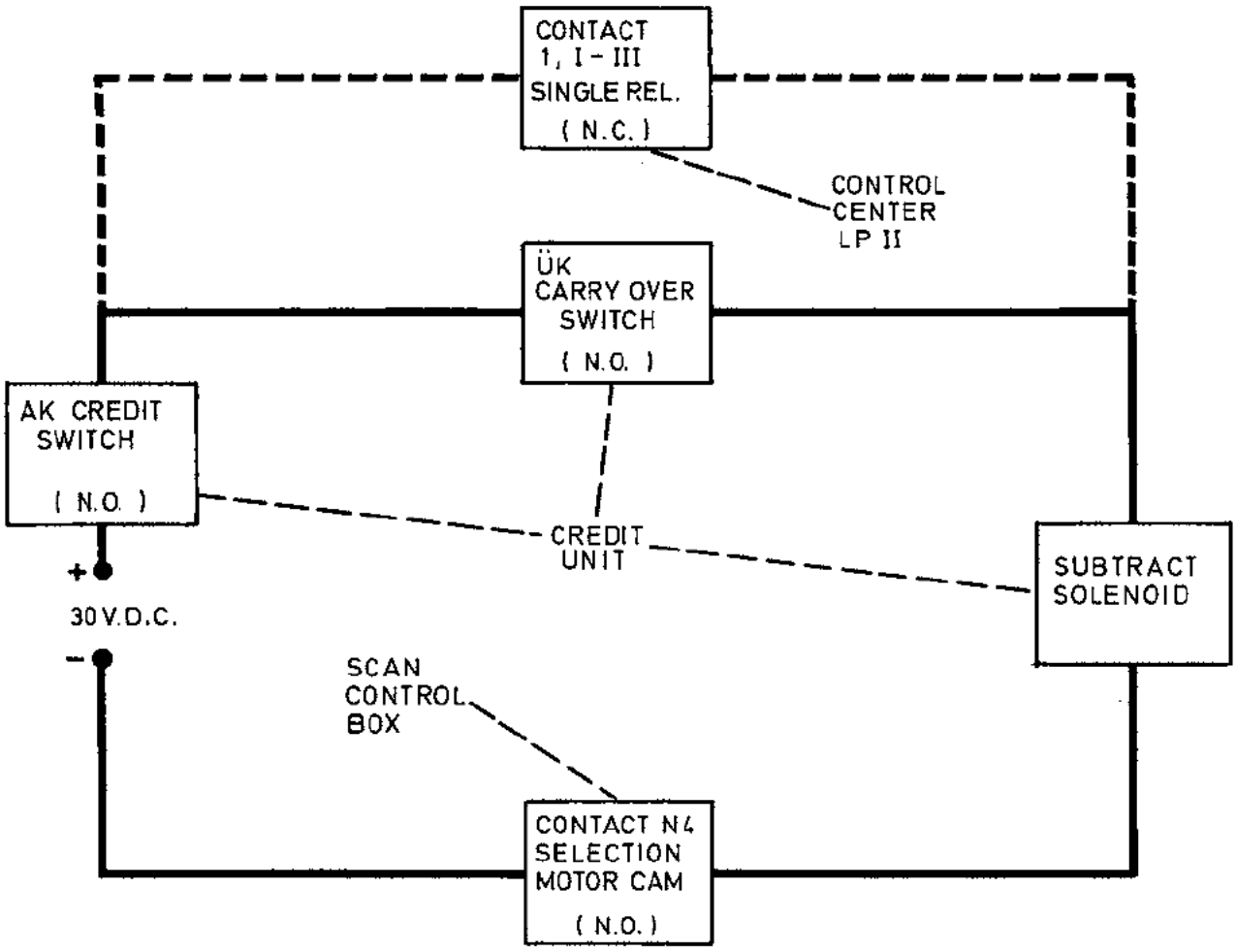


FIGURE 31

Energizing the single relay will open the circuit to the subtract solenoid, but by that time, the carry-over switch has been closed, and the subtraction pulse will not be interrupted.
The credit wheel is moved back one credit.

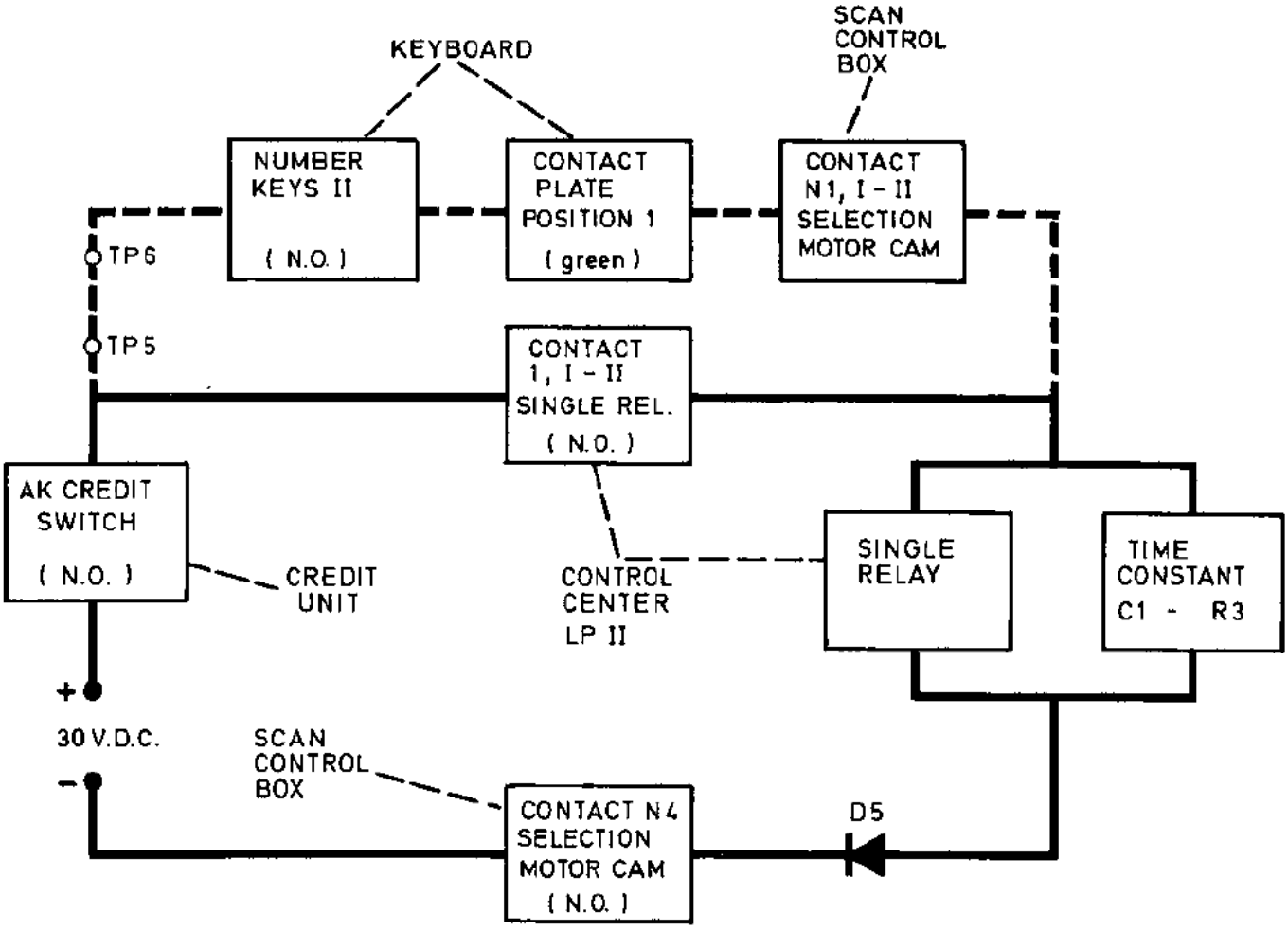


FIGURE 32

When the single relay is energized, contact 1, (I-II) on the single relay is now closed, locking the positive line of the single relay. Opening N4, will break the negative line to the single relay, but the relay is held in by the discharge current of C1 over the relay coil, long enough until N4 will close again.
As long as the single relay is energized, the subtraction solenoid circuit is open, thus only the first pulse of N4 will reach the solenoid and only one subtraction is made.
When contact N2 opens, the latch bar solenoid and the restart locking relay will deenergize, releasing the buttons. They will pull in again if more credit is available.

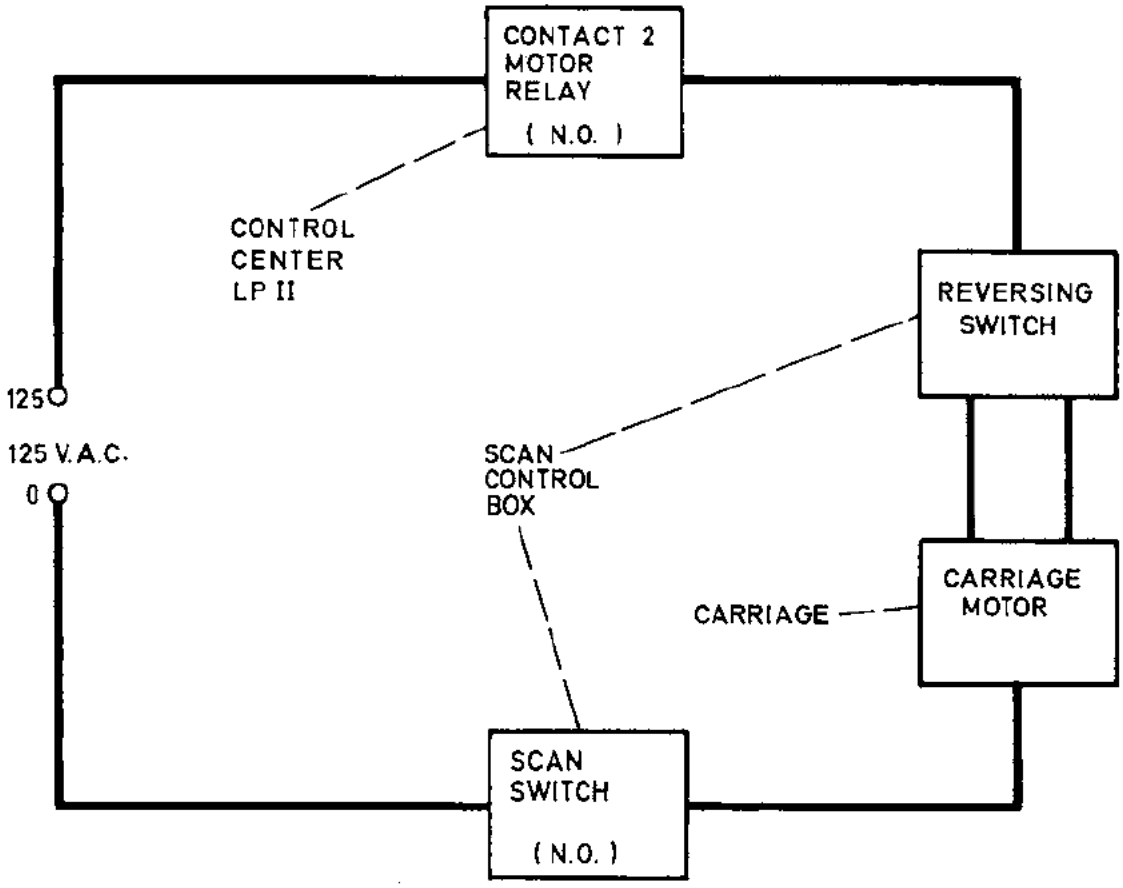


FIGURE 33

The mechanical motion of the selection motor closes the scan switch, hereby completing the 125 VAC circuit to the carriage motor.

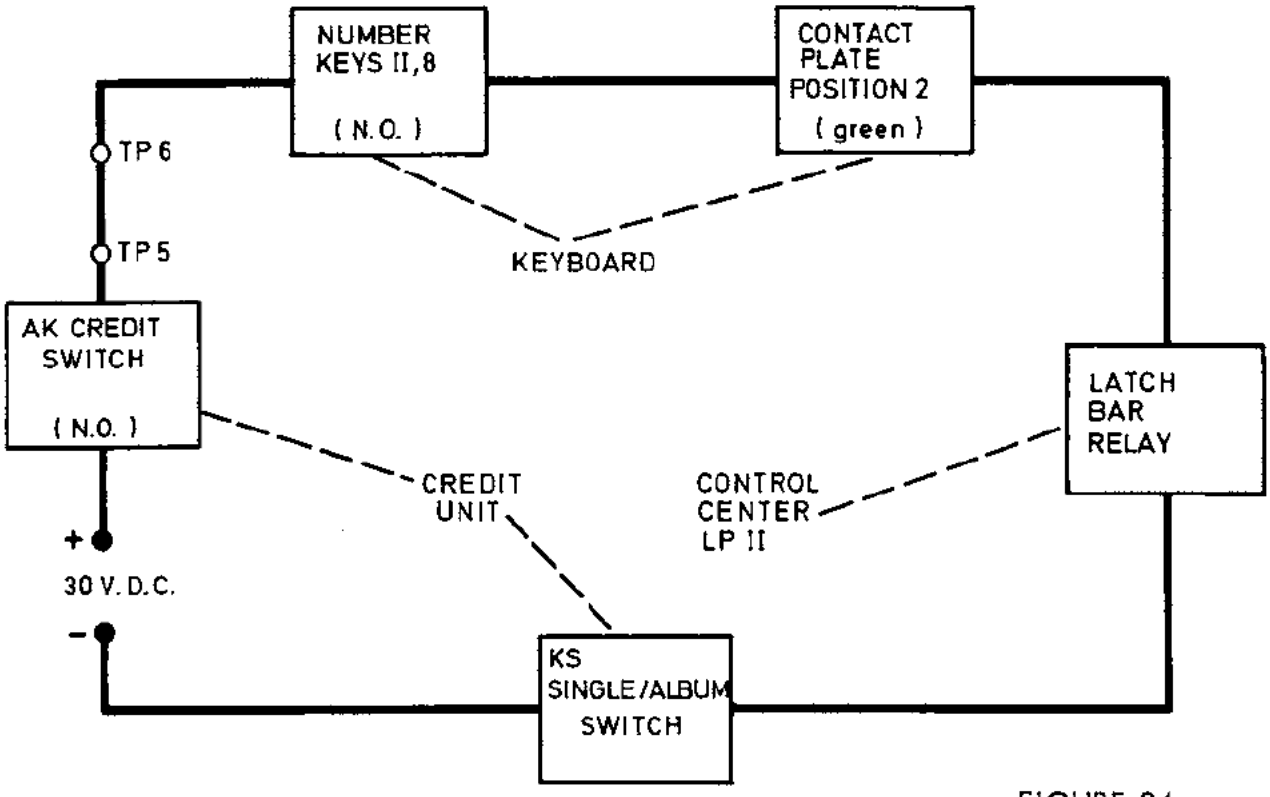


FIGURE 34

If not enough credit is available for album selection, the negative line to the latch bar relay is completed over the KS single-album switch. If a number key programmed for albums (8) is pressed, the latch bar relay will be energized opening its contacts 1 and 2. Contact 1 will release the buttons by opening the circuit to the latch bar solenoid and the restart locking relay. (see page 18) Contact 2 will open the circuit to the start relay. (see page 19). No selection is made.

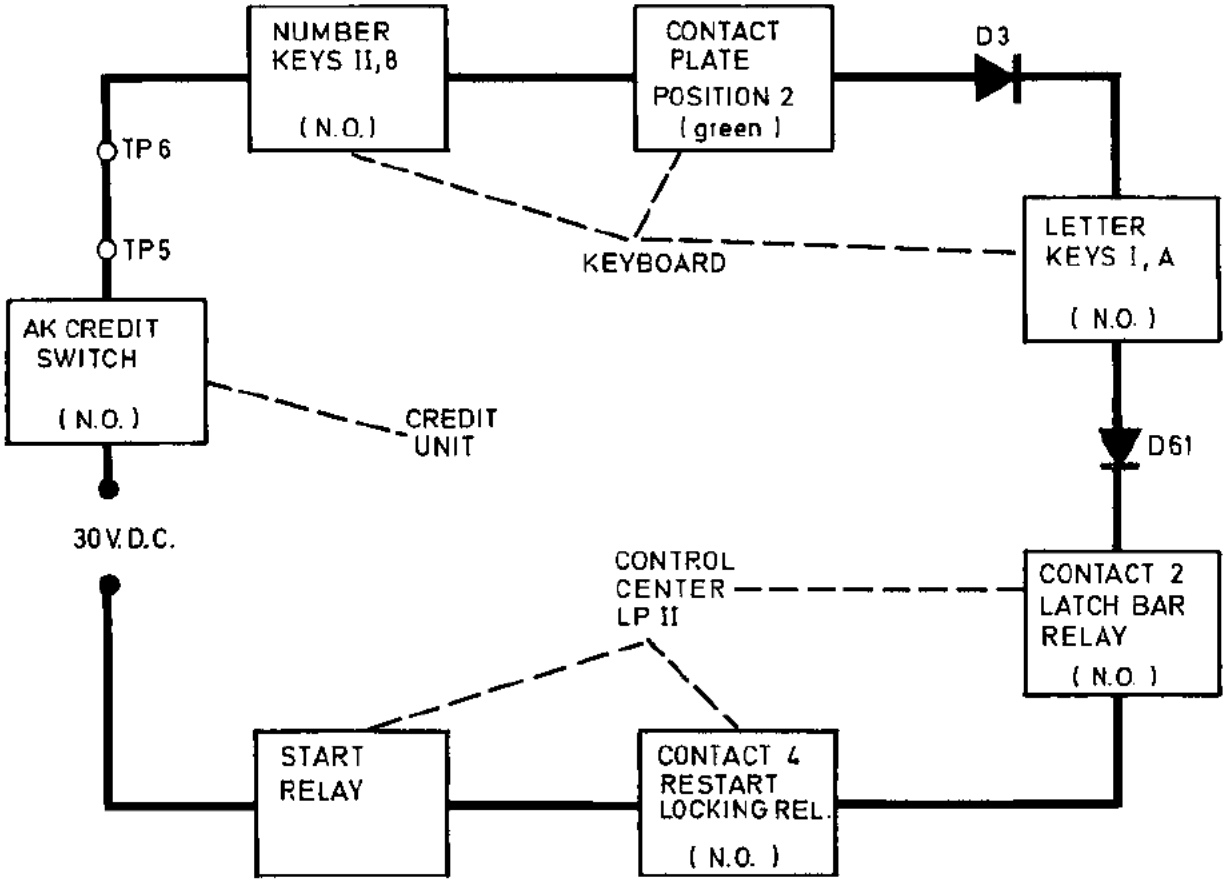


FIGURE 35

If enough credit is available, the start relay is energized over contact plate position 2.
The single relay will not be energized over contact plate position 2, single relay contact 1 (I-III) will stay closed, and the subtract solenoid will receive all the pulses from contact N4.

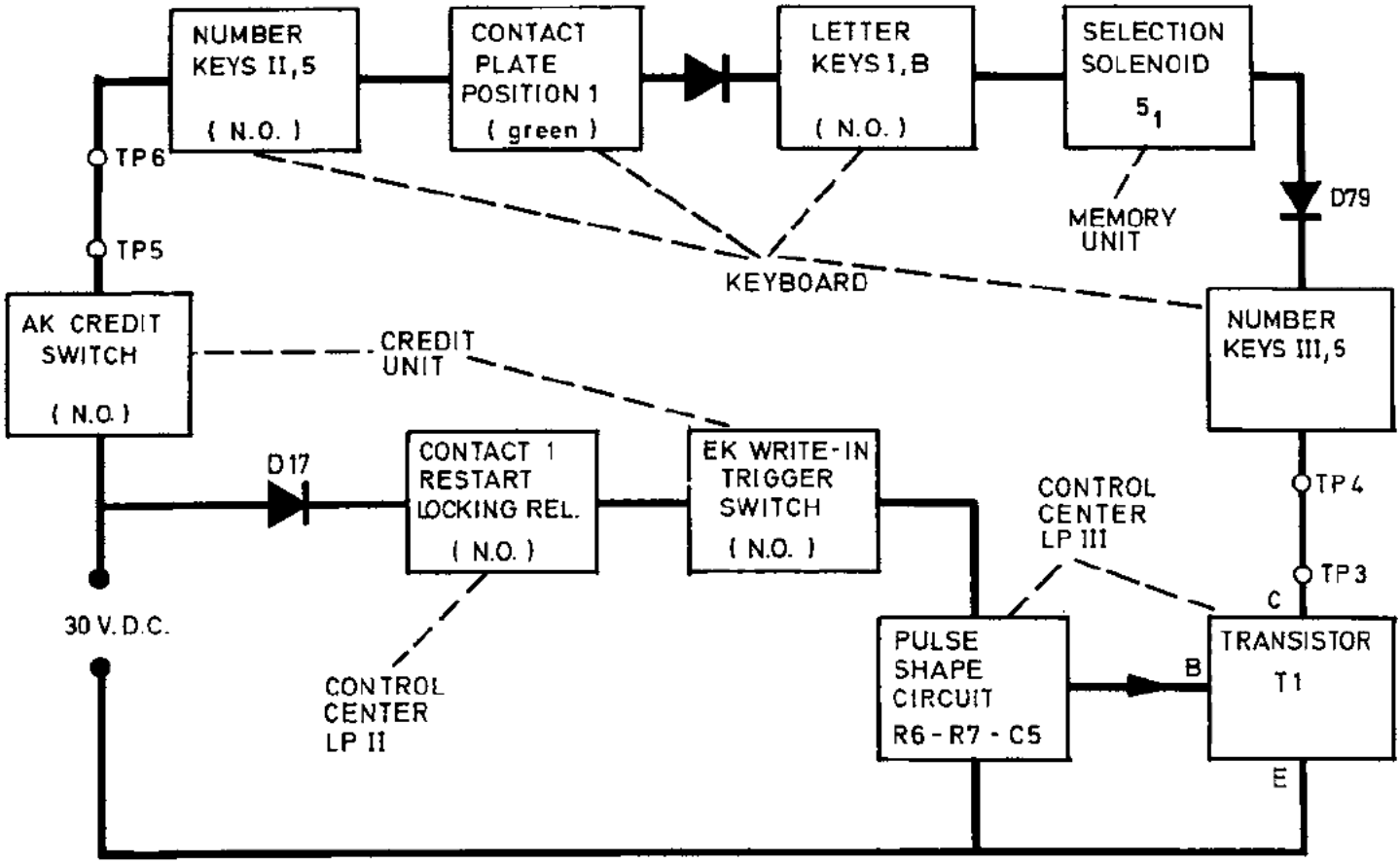


FIGURE 36

The pulse from the write-in trigger switch is shaped over R6 - R7 - C5 and send to the base of transistor T1. This transistor will start conducting and the resulting current will energize a selection solenoid. (In our case with selection B5 it will be solenoid 5_1).
Since the soleneoid is lined up with selection pin B5, this pin will be pushed out far enough to be sensed by the search contacts.

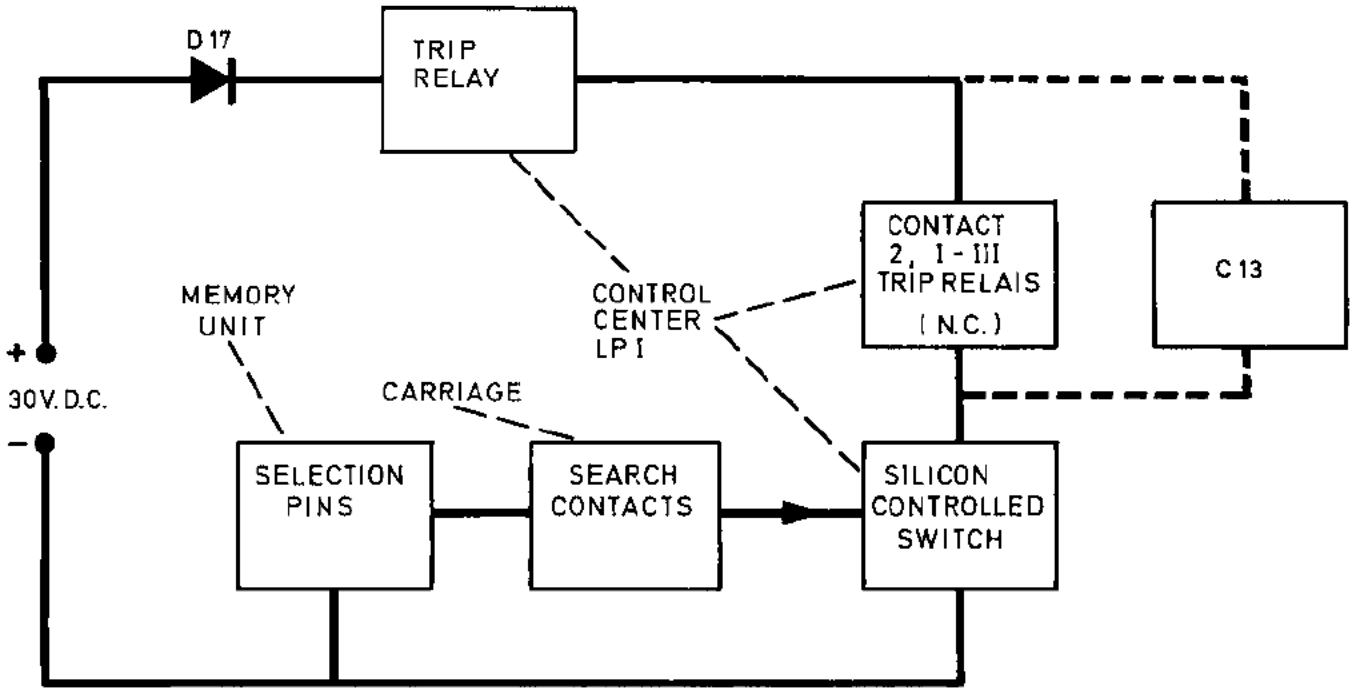


FIGURE 37

If a search contact touches a selection pin, the silicon controlled switch will be triggered. This will energize the trip relay. After contact 2, (I–III) is opened, the loading current of C 13 will keep the trip relay energized long enough to energize the trip solenoid.

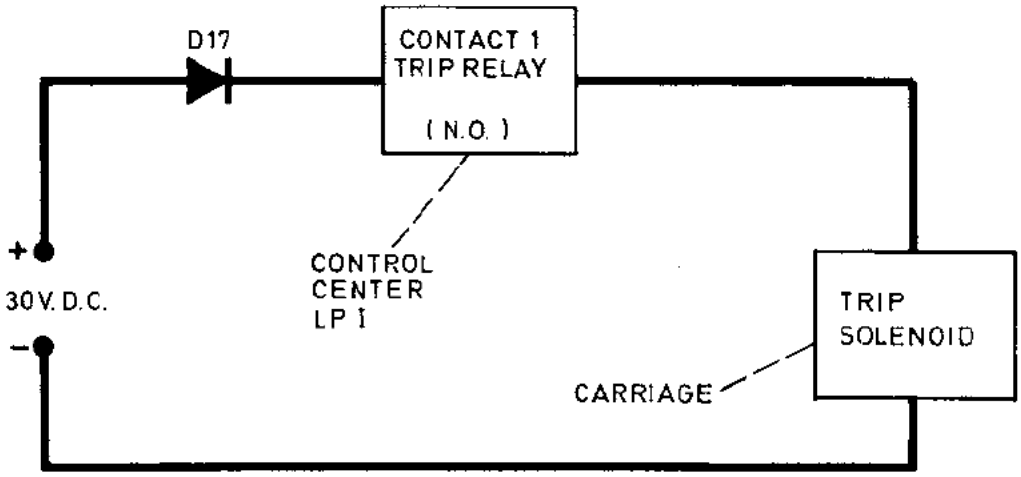


FIGURE 38

Trip relay contact 1 closes the circuit to the trip solenoid, hereby stopping the carriage and starting the transfer cycle. When the record is in play position, the operating switch will open, deenergizing the muting and motor relays. (see page15). Motor relay contact 1 opens the circuit to the clutch solenoid, and contact 2 switches the carriage motor from 125 VAC. to 80 VAC. At the end of the record, the cancel reed switch will energize the motor relay again. The record is placed back in the record rack, and the carriage will start scanning again.

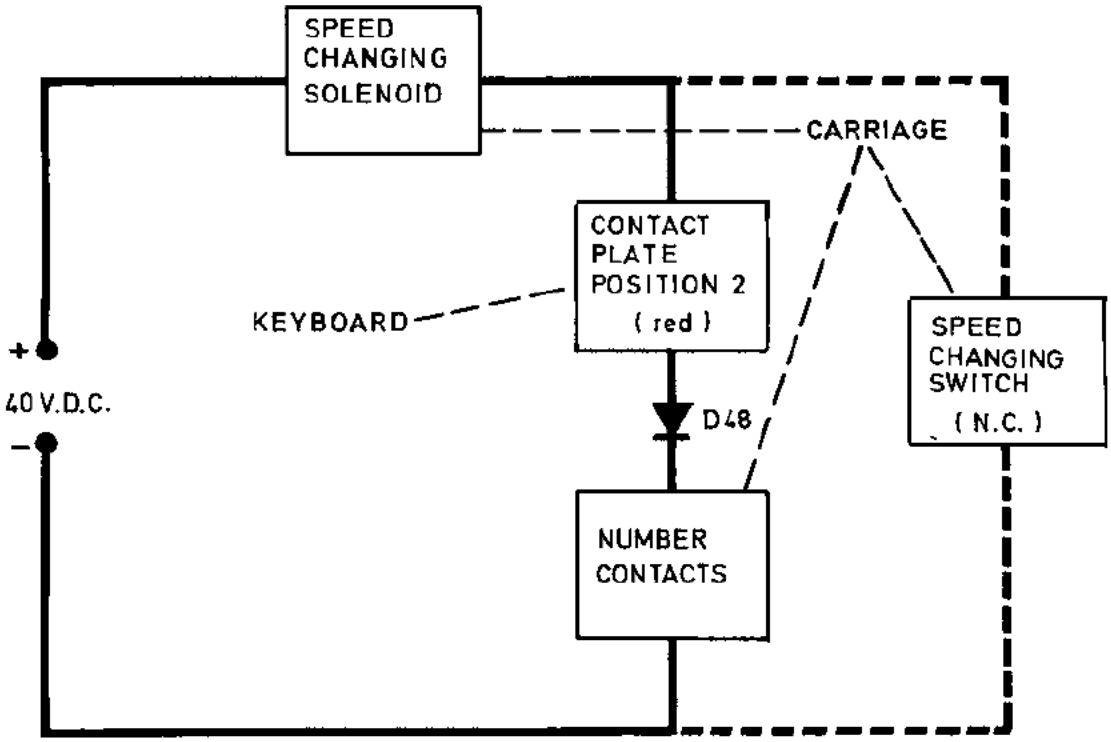


FIGURE 39

The speed changing solenoid is energized with the transfer arm down. As the transfer arm brings the record up, the speed changing switch will open. If the carriage is in a number section set for albums, the speed changing solenoid will stay energized over the number contacts. (In our case all 8 selections).
With the solenoid energized, the turntable will turn at 33 1/3 RPM. If the carriage stops in a number section set for singles, the solenoid will deenergize and the turntable will turn at 45 RPM.

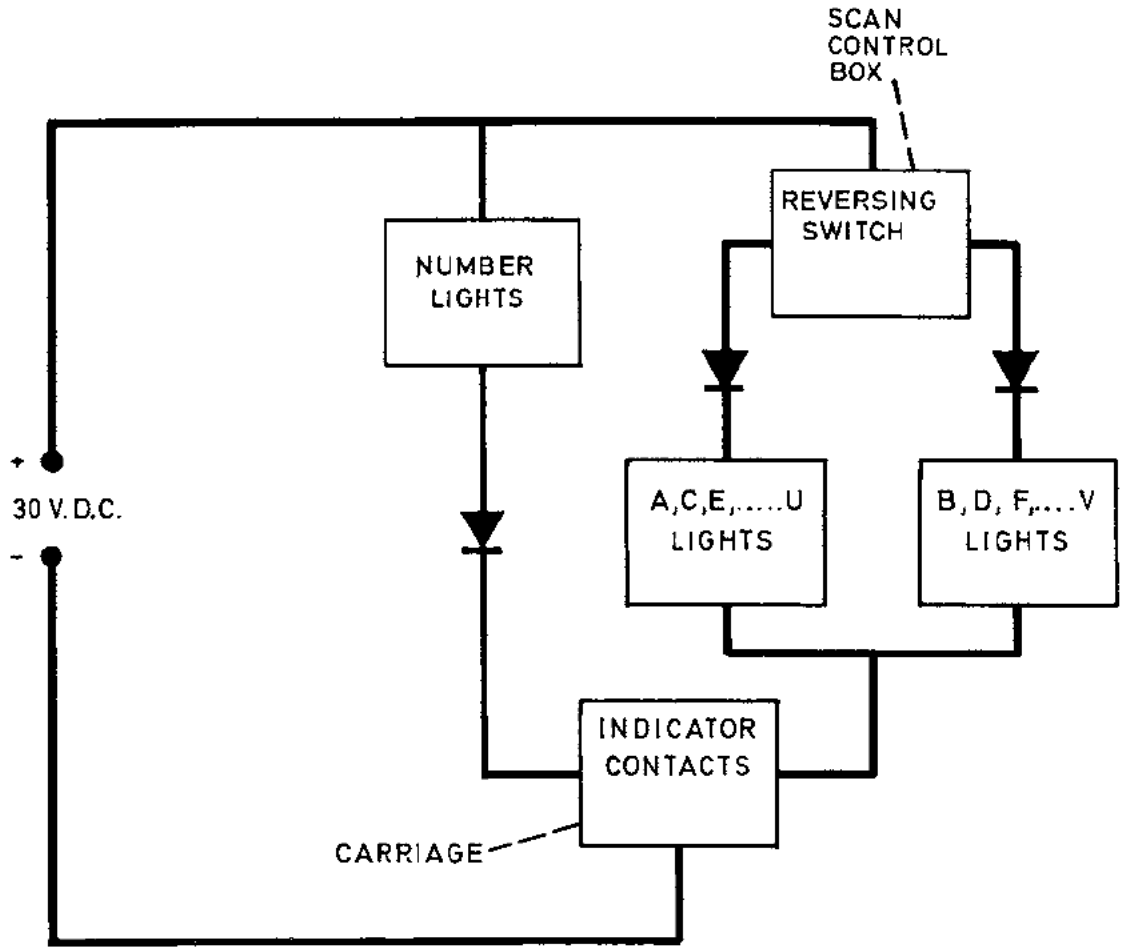


FIGURE 40

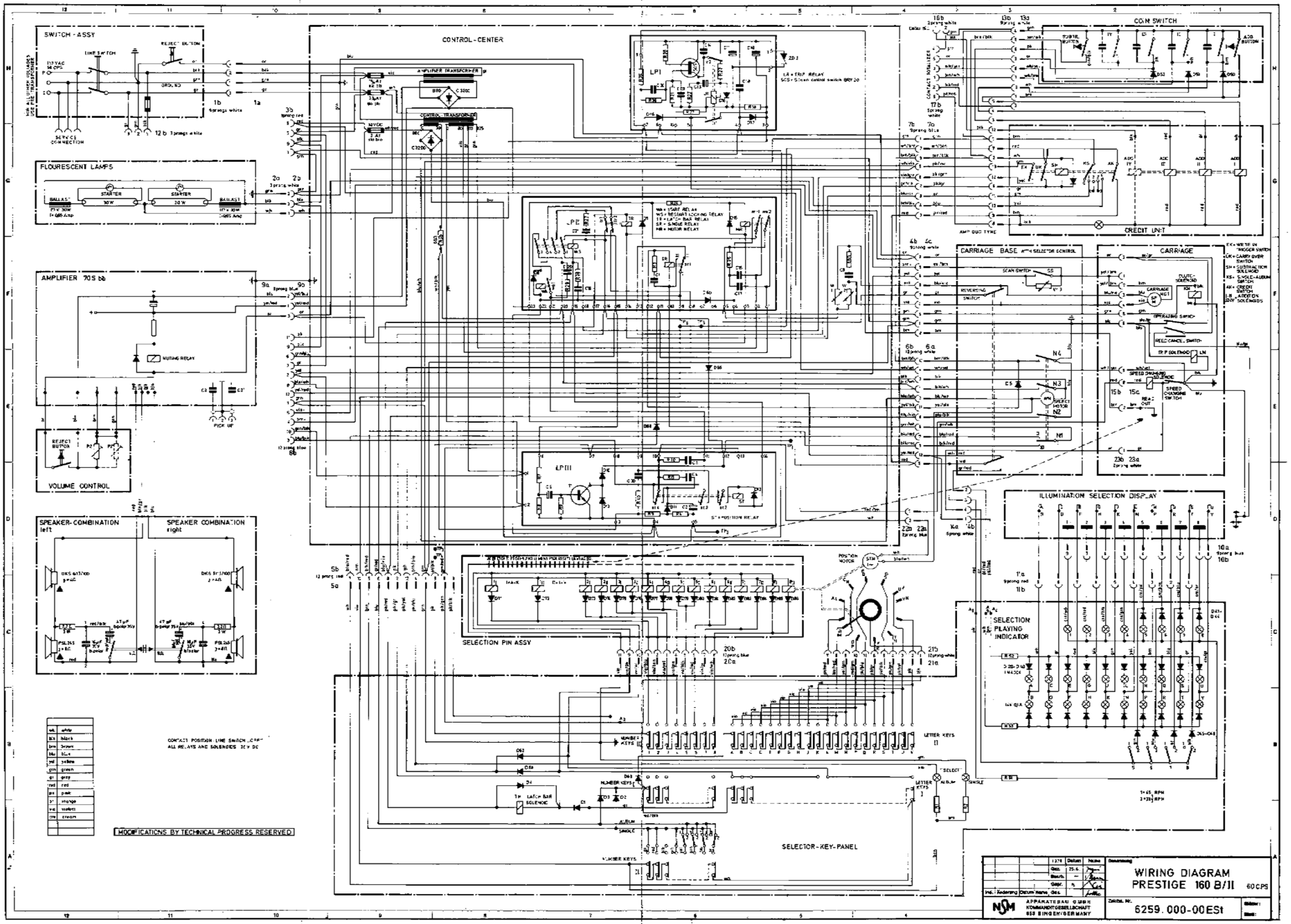
On the memory unit are 8 silver plated bars, one for each number. Under each bar are 10 contacts, one for each record space. (AB, CD..UV) The reversing switch determines which light will be connected to the positive line, together with the number light.

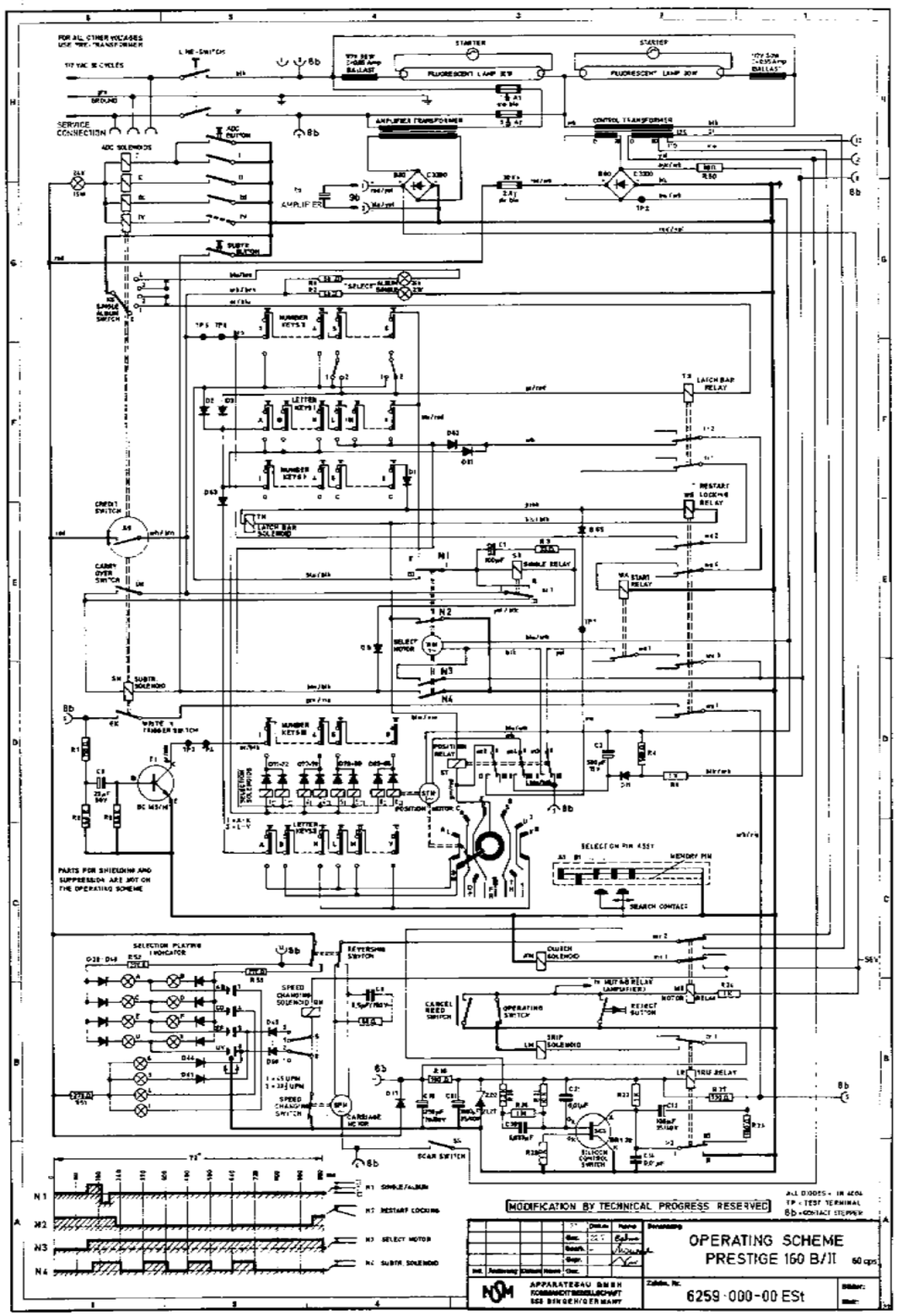
DETAILED CIRCUIT
DESCRIPTION OF PRESTIGE 160 B II

NOTICE:

SINCE THE BASIC OPERATION IS THE SAME FOR 160 OR 120 SELECTIONS,

THIS DESCRIPTION CAN ALSO BE USED FOR THE CONSUL 120 A II.

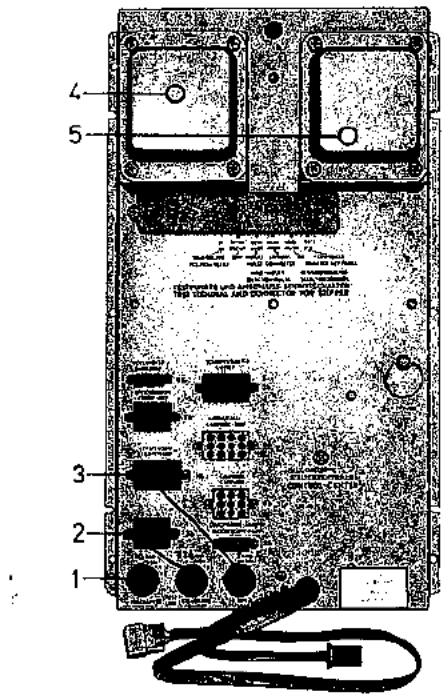

SWITCH - ASSY
LINE SWITCH
REJECT BUTTON
SERVICE CONNECTION
CONTROL - CENTER
AMPLIFIER TRANSFORMER
CONTROL TRANSFORMER
FLOURESCENT LAMPS
STARTER
BALLAST
AMPLIFIER 70S bb
MUTING RELAY
PICK UP
VOLUME CONTROL
SPEAKER-COMBINATION left
SPEAKER COMBINATION right
LP I
LP II
LP III
LA = TRIP RELAY
SCS = Scan control switch
SELECTION PIN ASSY
SELECTION PLAYING INDICATOR
ILLUMINATION SELECTION DISPLAY
COIN SWITCH
CREDIT UNIT
CONTACT POSITION
CARRIAGE BASE
CARRIAGE
REVERSING SWITCH
SCAN SWITCH
SELECT MOTOR
SPEED CHANGING SWITCH
TRIP SOLENOID
POSITION MOTOR
SELECTOR-KEY-PANEL
NUMBER KEYS
LETTER KEYS
SELECT
ALBUM
SINGLE
TH LATCH BAR SOLENOID
wh white
bks black
brn brown
blu blue
ye yellow
grn green
gr grey
red red
pk pink
or orange
vio violett
cre cream
MODIFICATIONS BY TECHNICAL PROGRESS RESERVED
WIRING DIAGRAM
PRESTIGE 160 B/II 60CPS
6259.000-00ESt
APPARATEBAU GMBH
KOMMANDITGESELLSCHAFT
653 BINGEN/GERMANY



ATTENTION:

Sections of the wiring diagram with the corresponding circuits marked through heavy lines, have been added to the following descriptions. This makes easier to follow the current run and helps to understand the functionings.

We recommend to have the left side of this page unfolded when studying the following sheets, because then the explained operations may be followed on the whole operating scheme



← While reading, unfold operating scheme to the left.

CIRCUIT DESCRIPTION OF PRESTIGE 160 B II

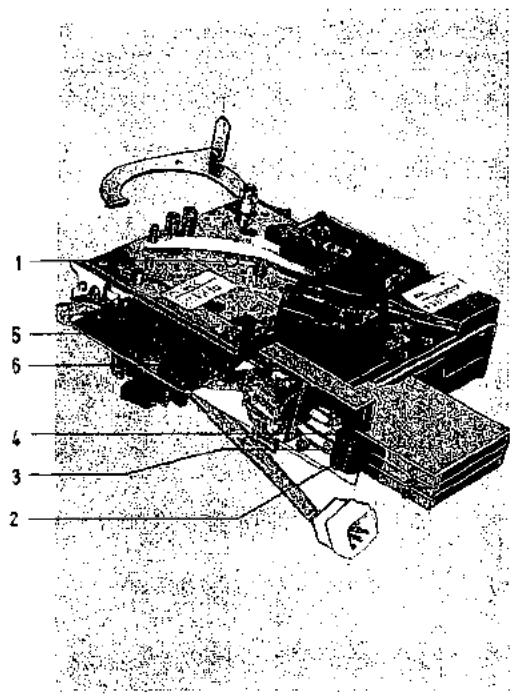
After connecting the cord to the 117 VAC line and switching the machine on, it is ready to operate.

The 1 2/10 Amp.slo-blo fuse (fig.41-1) protects the primary of the amplifier transformer (fig.41-4). The 3 2/10 Amp.slo-blo fuse (fig.41-2) protects the primary of the control transformer (fig.41-5) and the fluorescent lights.

All other circuits feed from the secondary of the transformer, and are thus insulated from the line voltage, whereby the 2 Amp.slo-blo fuse (fig.41-3) protects the 30 VDC control voltage.

FIGURE 41 CONTROL CENTER

1. 1 2/10 Amp.slo-blo
2. 3 2/10 Amp.slo-blo
3. 2 Amp.slo-blo
4. Amplifier Transformer
5. Control Transformer



1. CREDIT

When a coin is deposited through the coin slot, it passed through the acceptor (fig.42-1), closing the corresponding coin switch (fig.42-2, 3 or 4). This energizes the related add solenoid (fig.43-1, 2 or 3), a credit is made and the credit switch AK (fig.43-7) in the credit unit is now closed. Depending on the number of credits, the single-album switch KS (fig.43-8) will move to one of its contacts. Over contacts AK the "single-selection" lamp (fig.44-1)will be lit.

FIGURE 42 COIN MECHANISM AND SWITCHES

1. Coin acceptor
2. Nickel and dime coin switch
3. Quarter coin switch
4. Half Dollar coin switch
5. Add-button
6. Subtraction-button

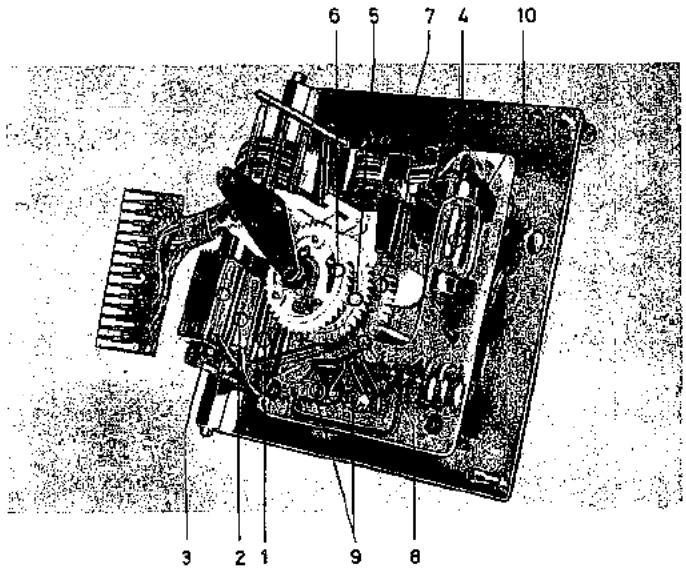


FIGURE 43 CREDIT UNIT (INSIDE)

1. Nickel-dime add solenoid
2. Quarter add solenoid
3. Half Dollar add solenoid
4. Nickel-dime credit wheel
5. Quarter credit wheel
6. Half Dollar credit wheel
7. Credit switch (AK)
8. Single Album switch (KS)
9. Contact Jumpers
10. Fuse light

Important:

All prestige 160 B II machines have a dollar credit unit. (Additional add solenoid and credit wheel). Is interchange able with standard credit unit if no dollars are used.

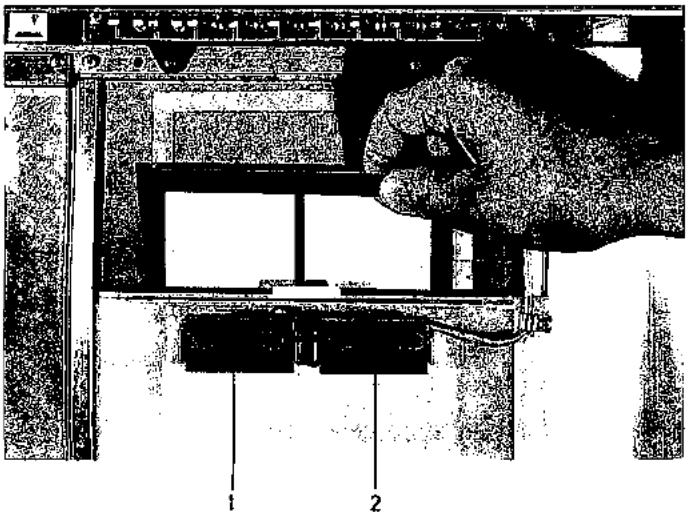
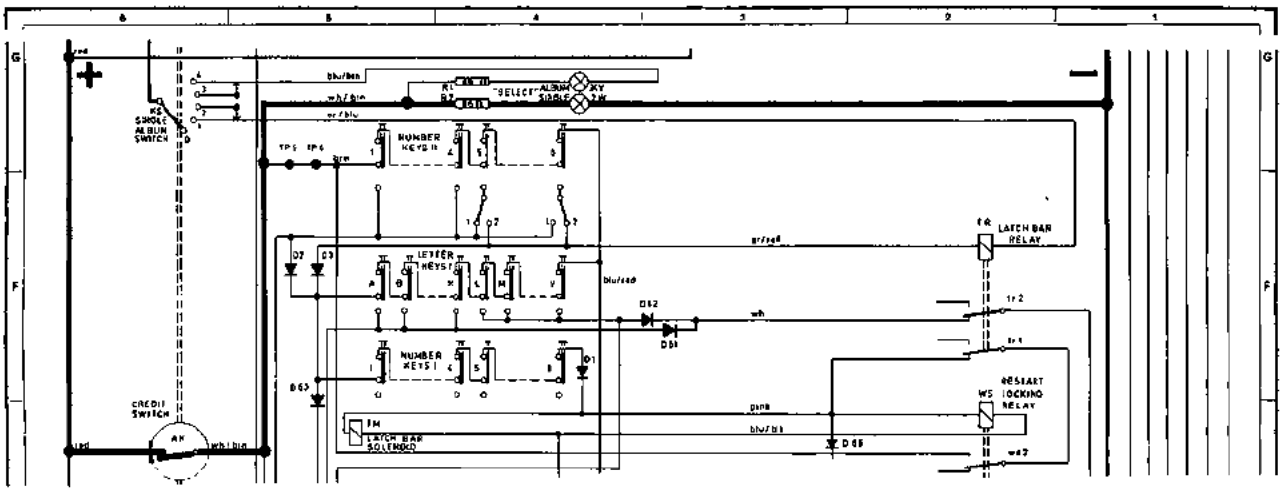


FIGURE 44 SELECTION LIGHTS

1. Single selection
2. Album selection



Circuit:
Plus - AK - R 2 - lamp, Single - minus.

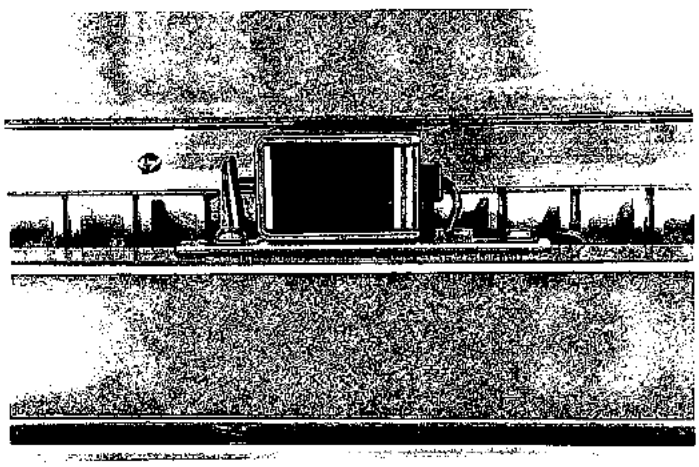


FIGURE 45 LATCH BAR SOLENOID (TM)

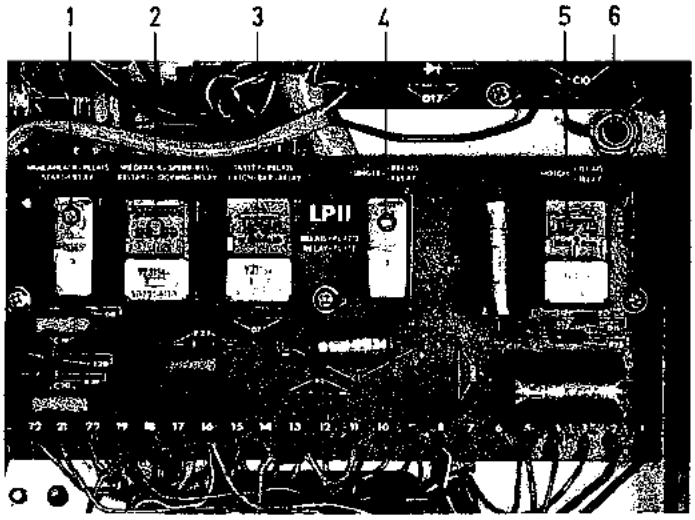
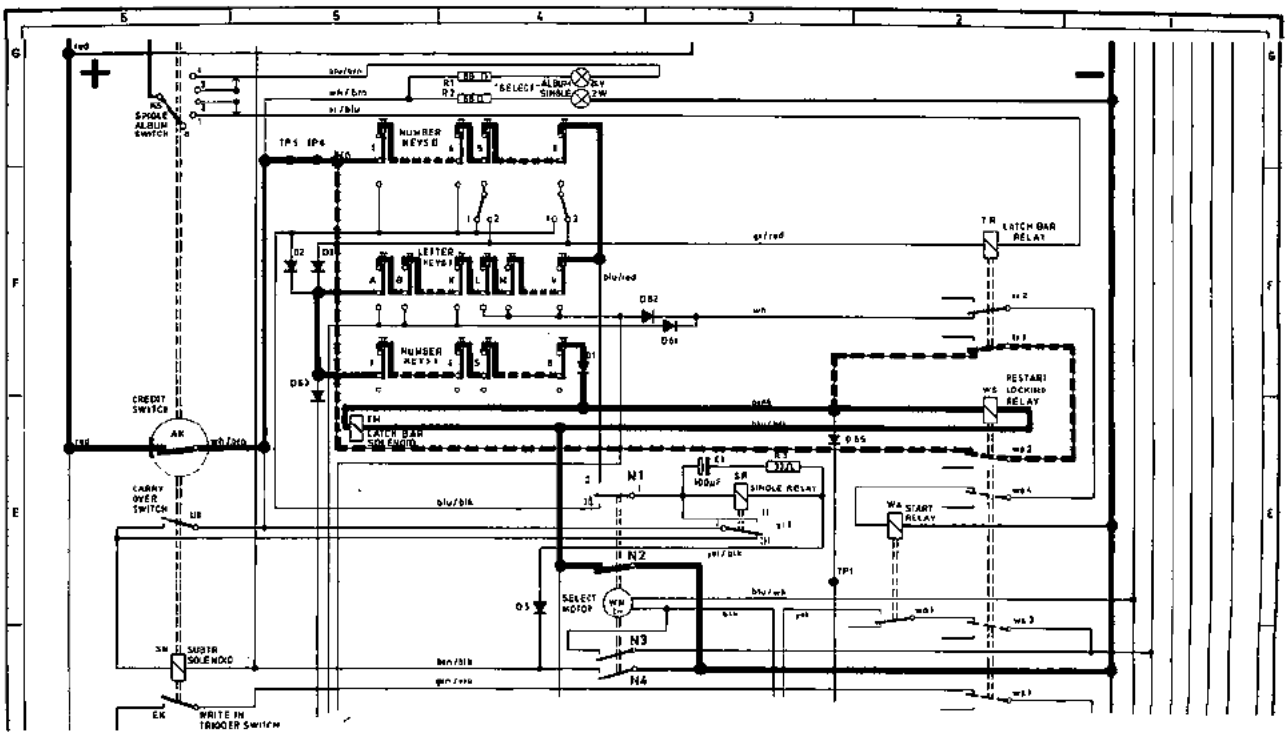


FIGURE 46 RELAY PLATE LP II

1. Start relay (WA)
2. Restart locking relay (WS)
3. Latch bar relay (TR)
4. Single relay (SR)
5. Motor relay (MR)
6. ZD 2 (27 V) Zener-Diode

Simultaneously the circuit to the latch bar solenoid TM (Fig.45) and the restart locking relay WS (Fig.46-2) is closed.



Circuit:

Plus - AK - TP 5-6 number keys II (1 through 8) - letter keys I (V through A) - number keys I (1 through 8) - D1 - latch bar solenoid TM and restart locking relais WS - N2 - minus.

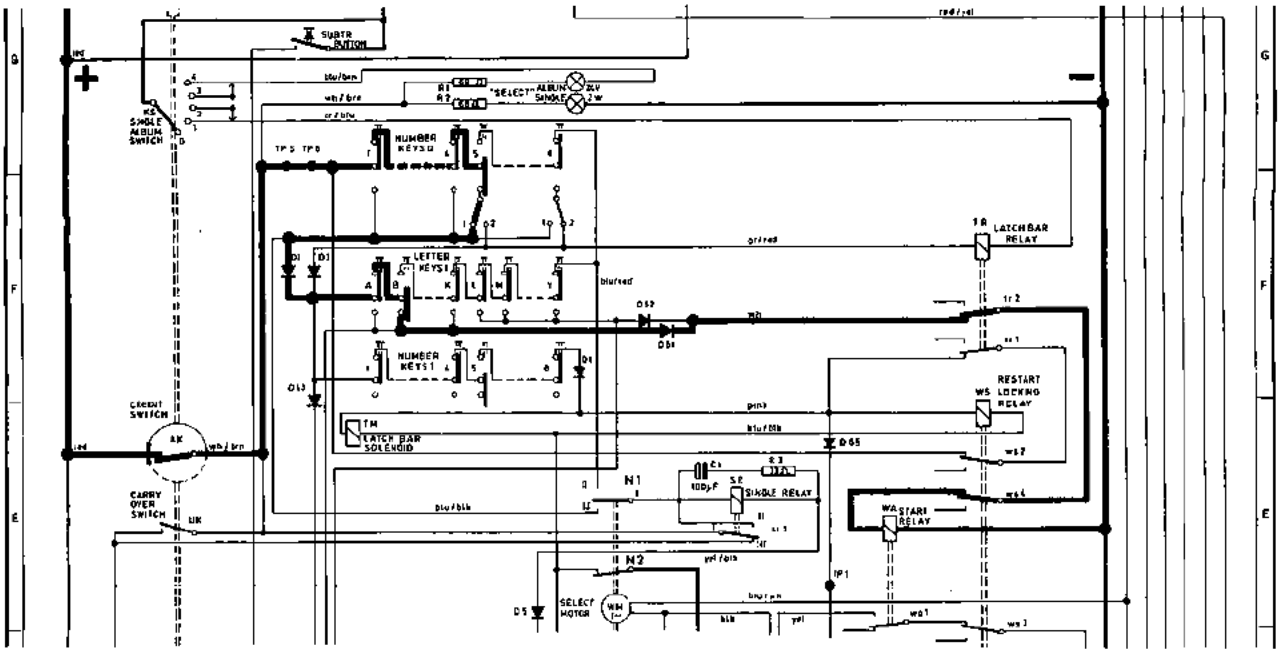
With the latch bar solenoid TM energized, the button will be able to lock in. The contacts *on the* restart locking relay, ws 1 through ws4, are now switched over. Contact ws2 locks the circuit to latch bar solenoid TM and restart locking relais WS.

Circuit:

Plus - AK - TP 5-6 - ws2 - tr1 - latch bar solenoid TM and restart locking relais WS - N2 - minus.

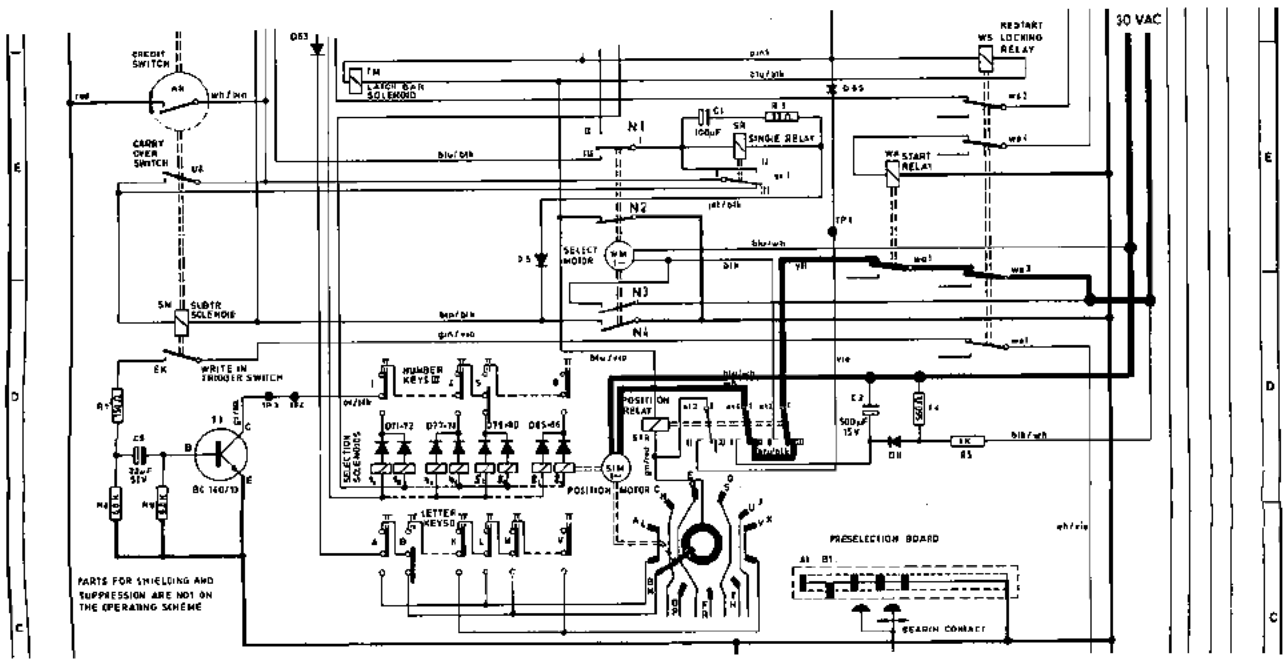
2. 1 SINGLE SELECTION CYCLE

When a number (single) and letter button are pressed, the circuit to the start relay WA (Fig.46-1) is closed and the selection cycle starts.



Circuit: (B 5 selected)
Plus - AK - TP 5-6 - number keys II,5 - contact plate, position 1 - D 2 - letter keys I,B - D 61 - tr 2 - ws 4 - start relay WA - minus.

Energizing the start relay, closes contact wa 1, hereby connecting the positioning motor STM (Fig.47-3) to the 30 VAC.



Circuit:
30 VAC - ws 3 - wa 1 - st 3, I-III - st 4, III-I - positioning motor STM - 30 VAC.

The positioning motor moves the 16 selection solenoids (Fig.50-1) behind the selection pins (Fig.49-1) back and forth and at the same time moves the wiper contacts (Fig.48-4) over the printed circuit plate (Fig.48-1).
Each number group has two selection solenoids. One for the letters A to K. The second one for the letters L to V. One side of the solenoids are connected together, the other side goes to the corresponding letter key. When the wiper - contacts touch the selected position contact (Fig.48-2) the position relay (Fig.51-1) is energized.

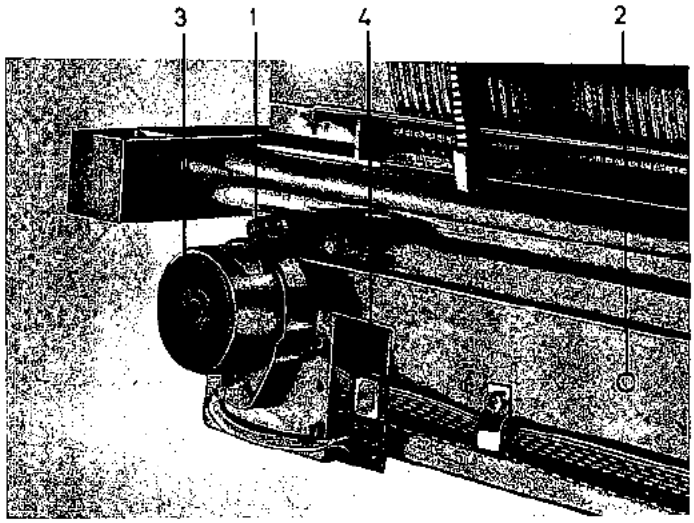


FIGURE 47 POSITION MOTOR

1. Bolts
2. Pin assembly
3. Position motor
4. Printed circuit board

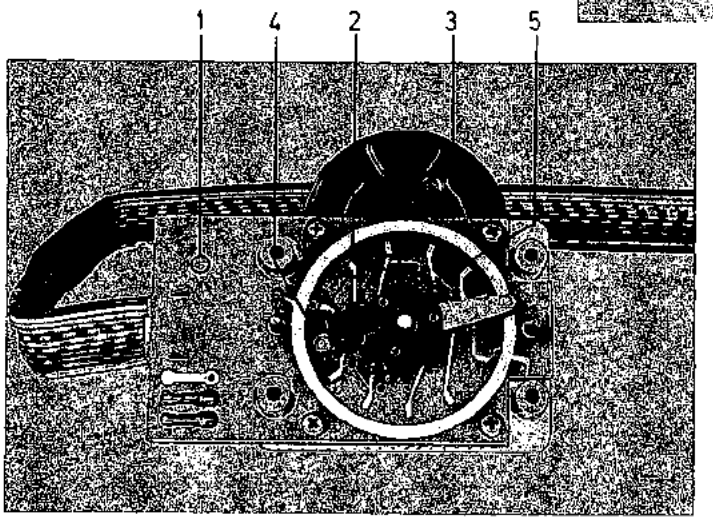


FIGURE 48 CIRKUID BOARD

1. Printed circuit board
2. Position contacts
3. Position motor
4. Contact wiper
5. Crank arm coupling

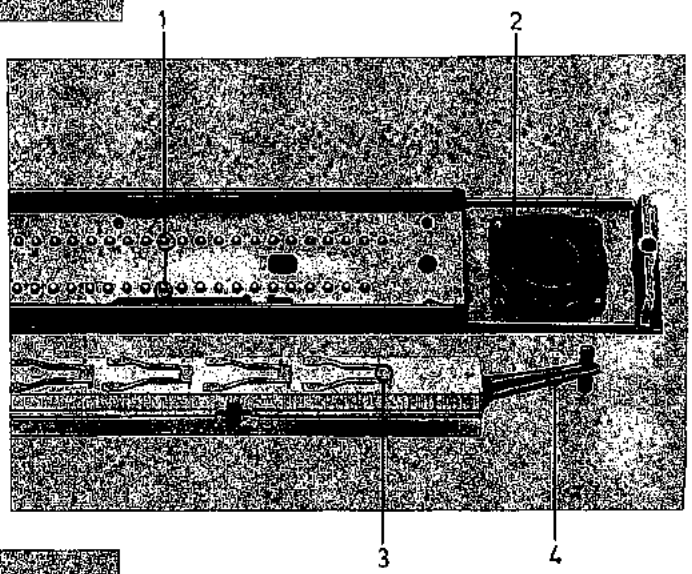


FIGURE 49 PIN ASSY

1. Pins
2. Crank guide
3. Pin pushers
4. Crank arm

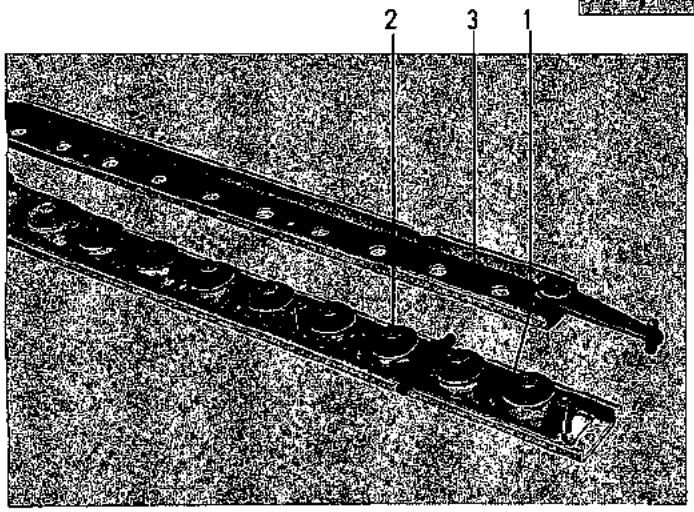


FIGURE 50 COIL BANK

1. Selection coils
2. Plungers
3. Cover

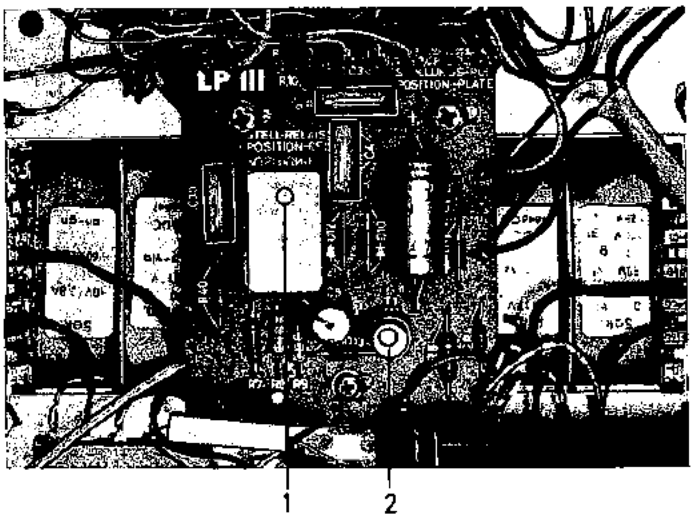
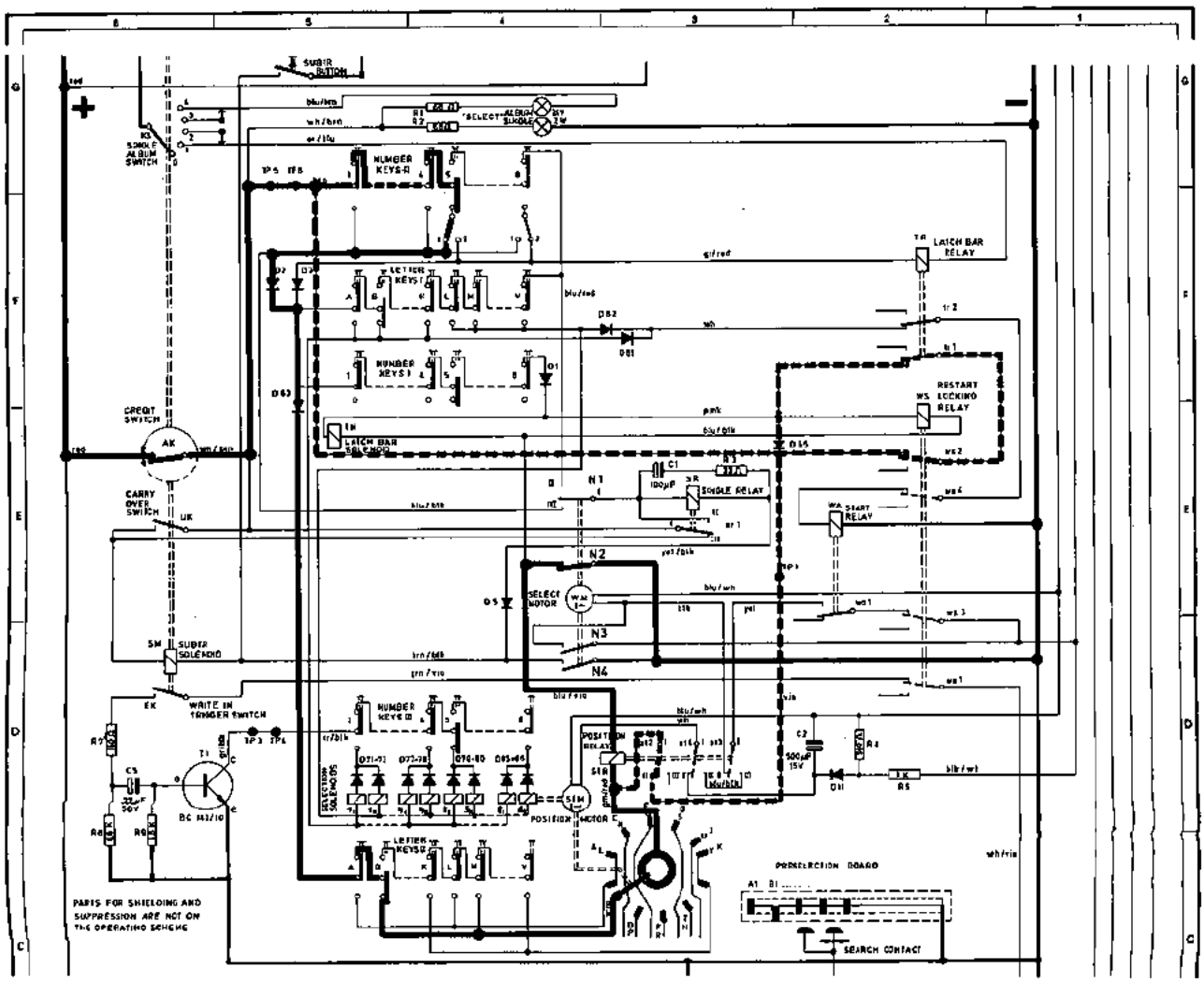


FIGURE 51 POSITION PLATE LP III

1. Position relay
2. Transistor T1

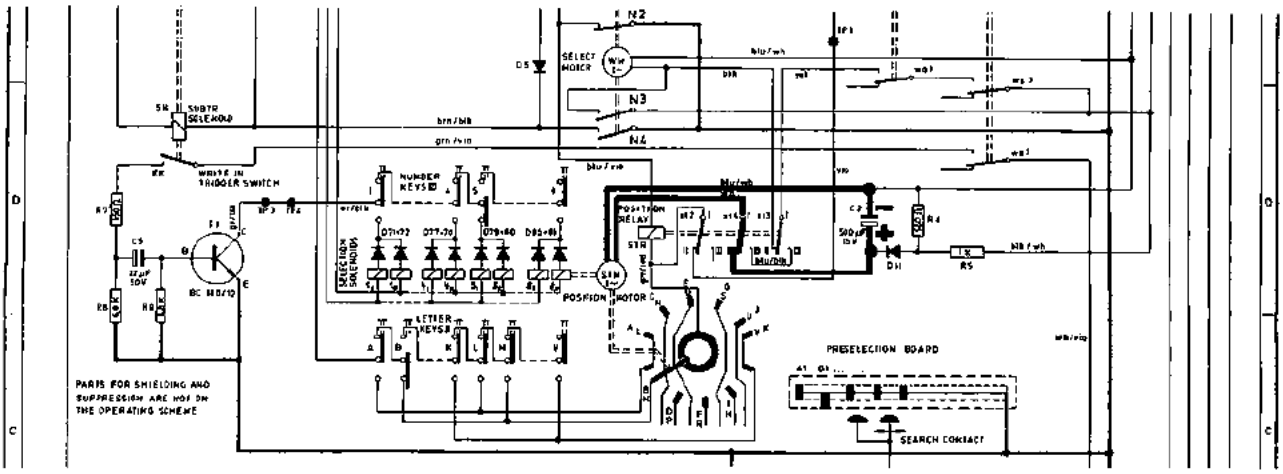


Circuit:
Plus - AK - TP 5-6 - number keys II,5 - contact plate, position 1 - D 2 - D 63 letter keys II,B - position contact B - wiper contact - position relay ST - N 2 - minus.

The position relay ST is locked in over

Circuit:
Plus - AK - ws 2 - tr 1 - D 65 - TP 1 - st 2,II-1 - position relay ST - N 2 - minus.

Position relay contacts 3 and 4 switch the positioning motor STM from AC to DC. This DC is used to brake the motor (brakecurrent), and is caused by discharging capacitor C2.



Circuit:
C2 plus - st 4, II-I - positioning motor STM - C2 minus.

C2 is charged over the voltage divider R4 - R5 with the 30 VAC, rectified by D11.
st 3, I-II closes the circuit to the selection motor WM (Fig.52-2).

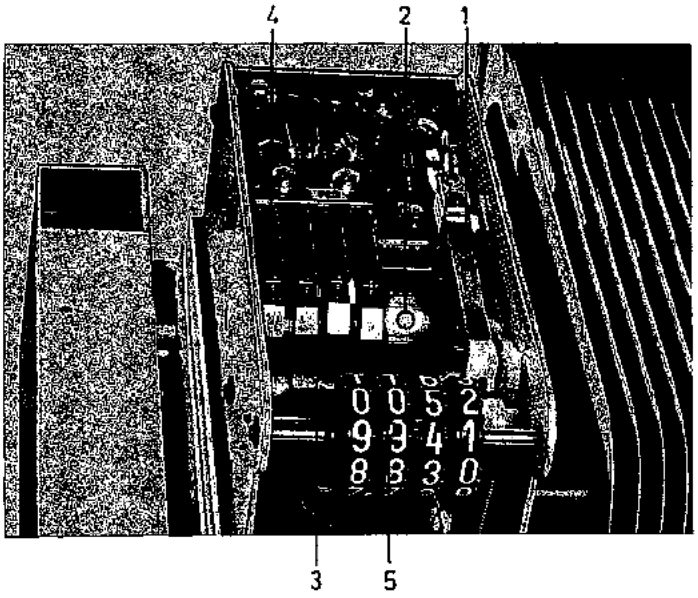
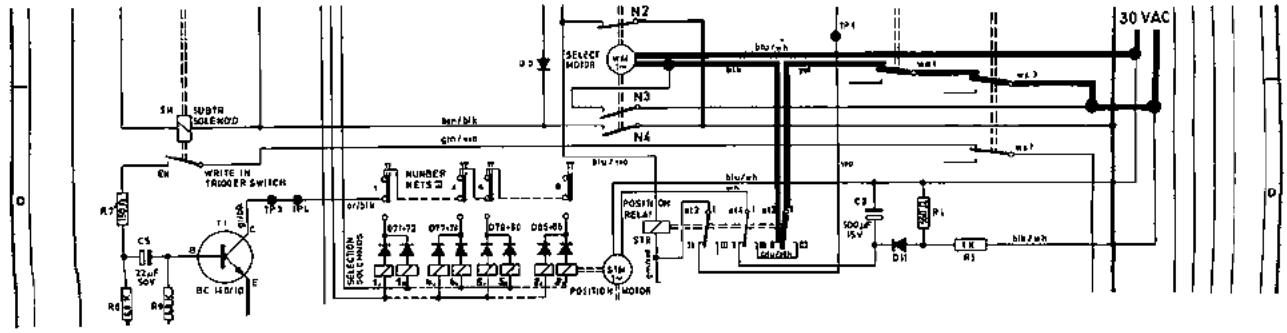


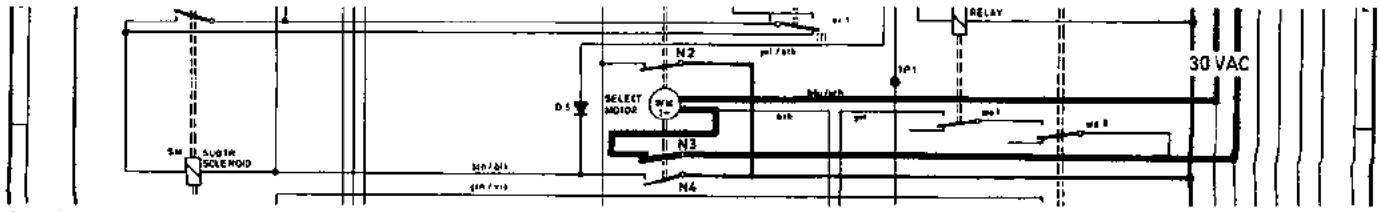
FIGURE 52 SCAN CONTROL BOX

1. Scan switch
2. Selection motor
3. Contact cam
4. Cam switches
5. Playmeter



Circuit:
30 VAC - ws 3 - wa 1 - st 3, I-II - selection motor WM - 30 VAC.

The selection motor (Fig.52-2) turns the contact cam (Fig.52-3) and contact N3 (Fig.52-4) will close first.



Circuit:
30 VAC - selection motor - N 3 - 30 VAC.

When contact N 4 (Fig.52-4) closes, the subtract solenoid (SM) (Fig.53-1) is energized.

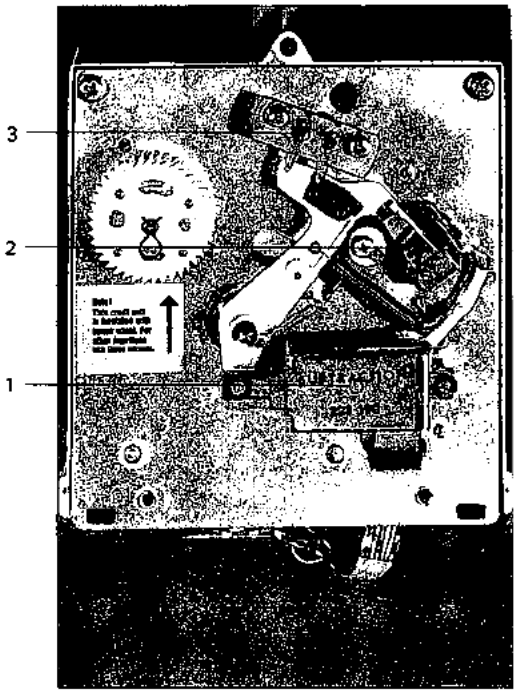
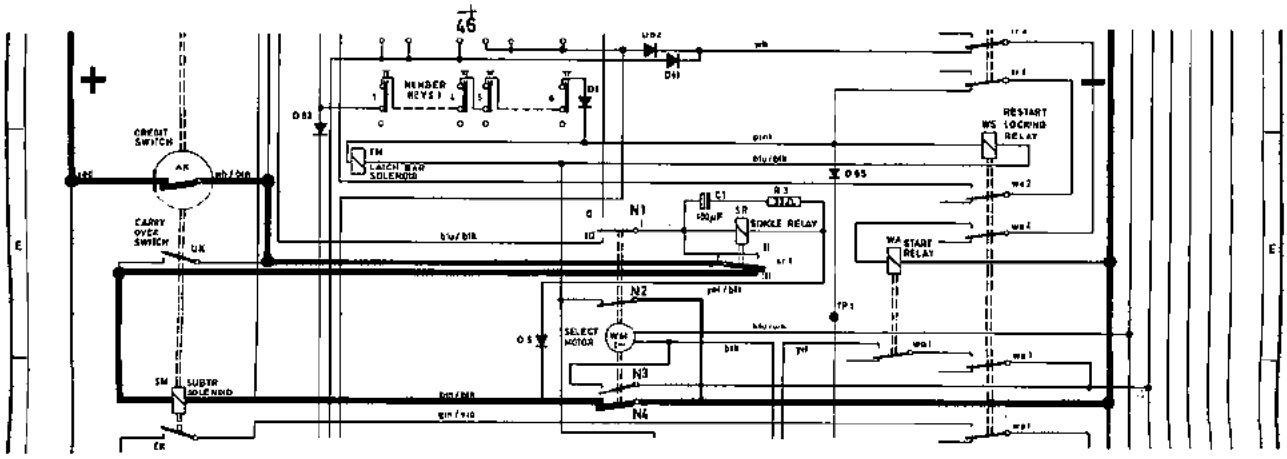


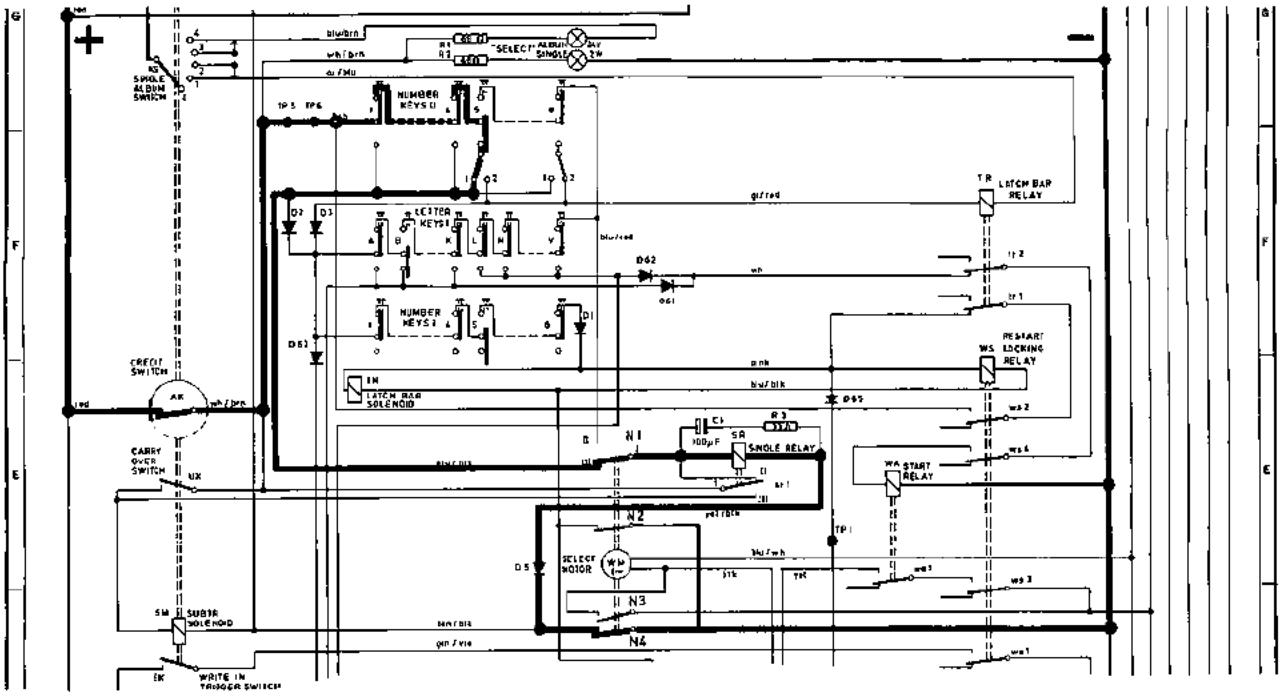
FIGURE 53 CREDIT UNIT (OUTSIDE)

1. Subtract solenoid
2. Carry over switch UK
3. Write-in trigger switch EK



Circuit:
Plus - AK - sr 1, I-III - subtract solenoid SM - N4 - minus.

The movement of the subtract solenoid (Fig.53-1) causes the carry over switch (Fig.53-2) (UK) and the write-in trigger switch (Fig.53-3) (EK) to close. When the write-in trigger switch is closed, the actual pre selection is concluded, but this action will be described in paragraph 3. Now contact N 1, III-1 closes, completing the circuit to the single relay SR (Fig.46-4).

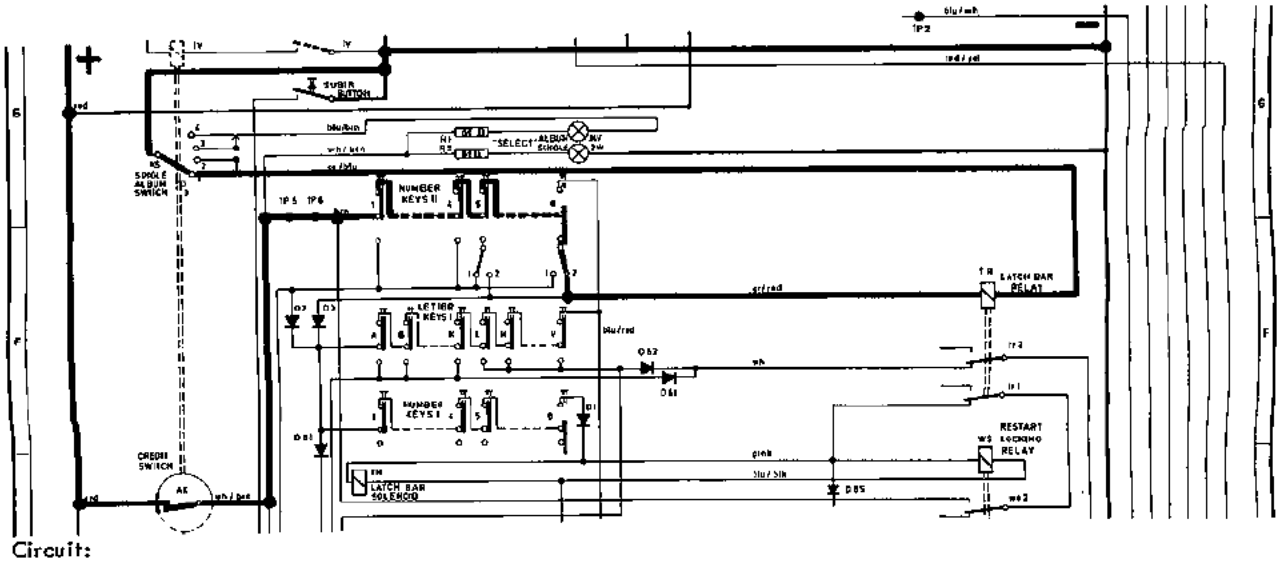


Circuit:
Plus - AK - TP 5-6 - number keys II,5 - contact plate, position 1 - N 1, III-1 - single relay SR - D 5 - N 4 - minus.

Single relay contact sr 1, I-III opens the circuit to the subtract solenoid, thus cancelling all the other subtract pulses from contact N4, by single selection. Contact sr 1, I-II is now the holding contact for the single relay. The single relay stays energized after N 2 has opened. It gets minus over N4 and D5. Time constant network R 3 and C1 over the single relay keeps the single relay closed while N 4 is open between pulses. The movement of the subtract solenoid moves the credit wheel (Fig.43-4) back one credit. The selection motor advances the playmeter (Fig.52-5) and closes the scan switch (Fig.52-1), which completes the circuit to the carriage motor (see scanning). Just before completing the one subtract pulse, N2 opens the circuit to the latch bar solenoid, the restart locking relay and the position relay. The buttons will now reset back to the rest position. At the end of the selection cycle, contact N 2 closed again. If anymore credit is available, the restart locking relay and the latch bar solenoid will energize again through N2 and the rest contacts of the buttons. The position relay is in stand-by for the next selection. If a button should stay down, the restart locking relay cannot pull in, because contact ws4 is open. This prevents making any undesired selections. The selection motor will stop running as soon as contact N 3 opens.

2.2 ALBUM SELECTION CYCLE

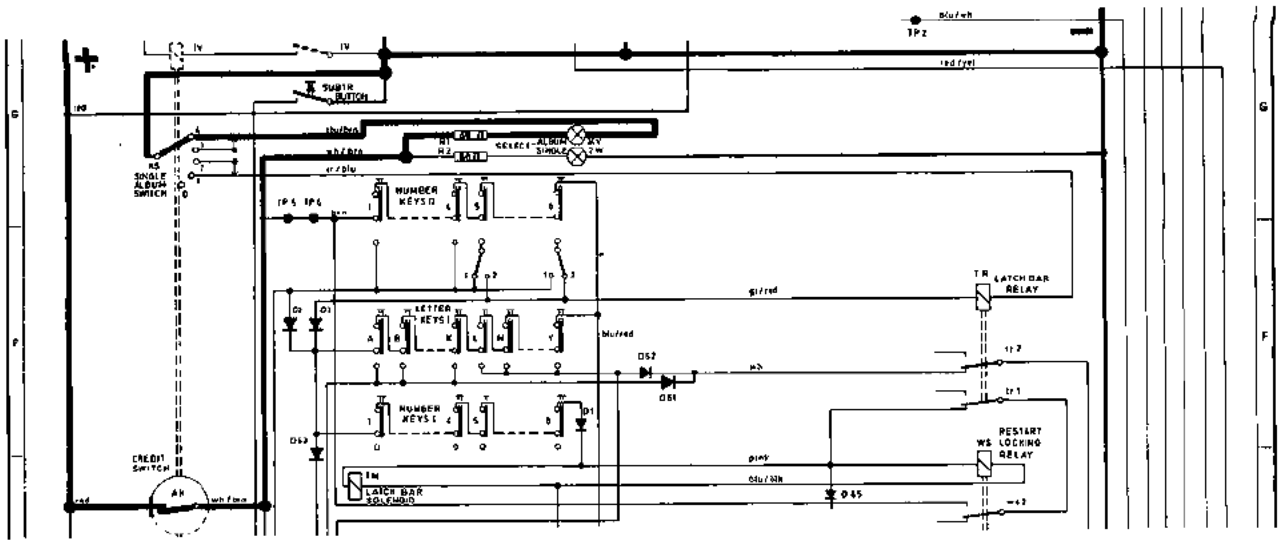
The jumper blade of number key 8 on the contact plate (Fig.13-4) is in position 2. If an album number key is pressed and there is NOT ENOUGH CREDIT AVAILABLE the latch bar relay TR (Fig.46-3) will energize.



Circuit:
Plus - AK - TP 5-6 - number keys II,8 - contact plate, position 2 - latch bar relay TR - single-album switch KS - minus.

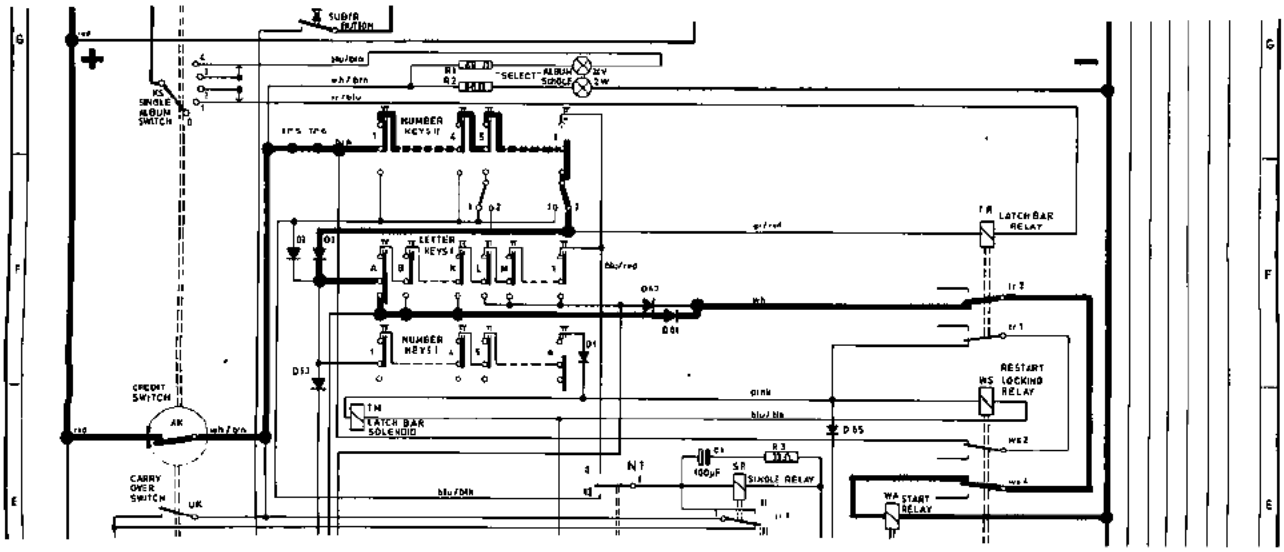
When the latch bar relay energizes and contact tr 1 opens the circuit to the restart locking relay and the latch bar solenoid, the buttons cannot latch, contact tr 2 opens the circuit to the start relay and no selection is made.

If three or more credits are available, single-album switch KS (Fig.43-8) is in position 3 or 4, thus the negative line to the latch bar relay is open and the "Album selection" lamp is lit.



Circuit:
Plus - AK - R 1 - album-lamp - single-album switch KS - minus.

If a number (Album) and letter button is pressed now, the circuit to the start relay is closed and the selection cycle starts.

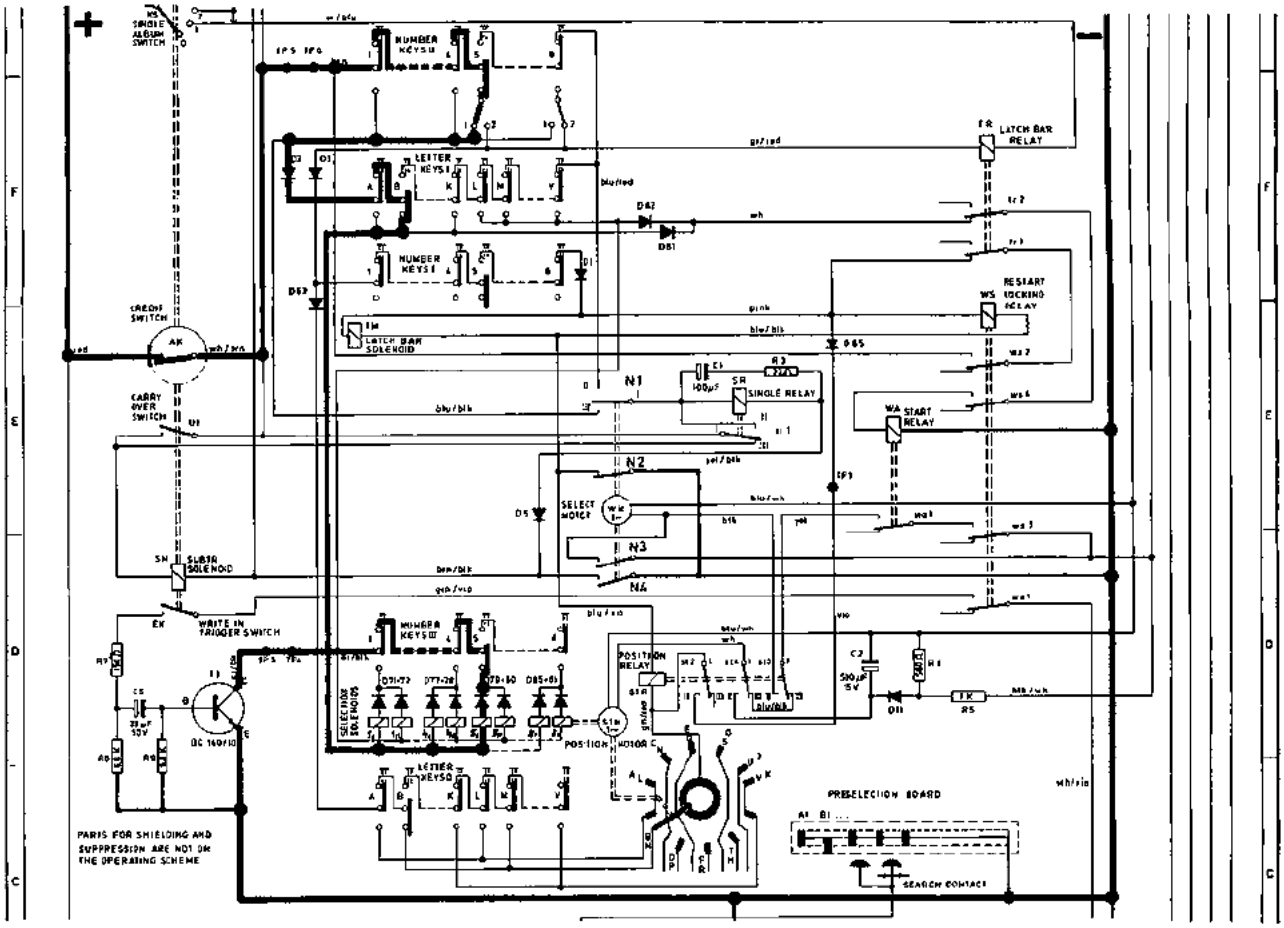


Circuit: (A8 selected)
Plus - AK-TP 5-6 - number keys II, 8 - contact plate, position 2 - D3 - letter keys I, A - D 61 - tr 2 - ws 4 - start relay WA - minus.

The cycle is the same as for single selection, except the following:
The single relay will not be energized by album selection, therefore, all the subtract pulses from contact N4 will be registered. Because contact N2 opens after the first subtract pulse, the restart locking relay is deenergized which opens contact ws 1. thus, only the first pulse from write-in trigger switch will be used.

3. WRITE-IN

The selection pulse from trigger switch EK is shaped over network R 6 - C 5 - R 7 and limited to 20 ms, then send to the base of transistor T 1 (Fig.51-2). The transistor will drive the selected selection solenoid (Fig.5a-1).



Circuit: (B 5 selected)
Plus - AK - TP 5-6 - number keys II, 5 - contact plate, position 1 - D 2 - letter keys I, B - selection solenoid 5 1 - D 79 - number keys III, 5 - TP 4-3 - T 1, C-E - minus.

Selection solenoid 5 1 will energize and push selection pin (Fig.49-1) (B 5) in the selected position. The pin will stick out far enough (1 mm) to be detected.

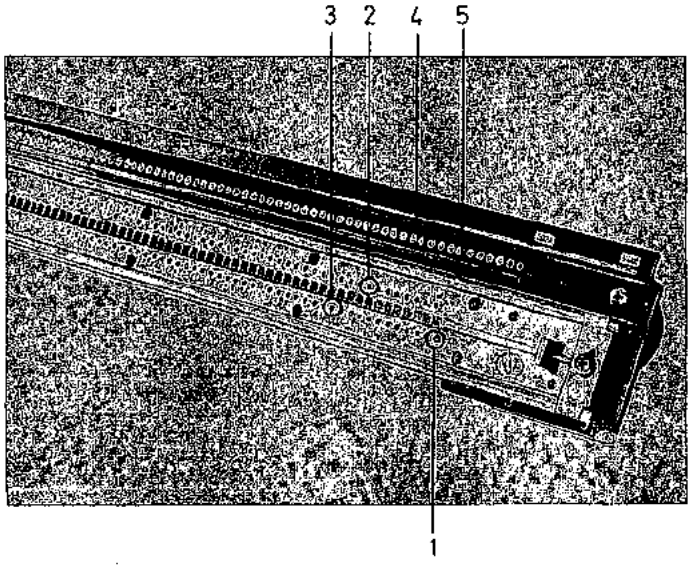


FIGURE 54 MEMORY UNIT

1. Selected pin
2. A, C, E, ... selection pins
3. B, D, F, ... selection pins
4. Letter contacts
5. Number contacts and speed selection

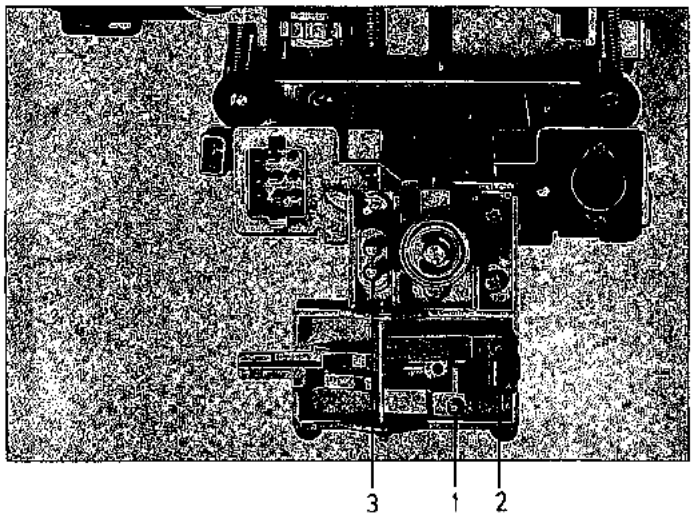


FIGURE 55 READ-OUT BLOCK

1. B, D, F, . . . search contact
2. A, C, E, . . . search contact
3. Selection playing and speed changing contacts

4. READ-OUT

The turning of the selection motor closes the scan switch (Fig.52-1). This starts the carriage motor (Fig.57-1) and the carriage will scan. The search contacts (Fig.55-1,2) glide over the selection pins (Fig.54-2,3). Not selected pins will be recessed and no contact will be made. Selected pins (Fig.54-1) will stick out far enough to be touched by the search contacts. Resistor R 35 is now grounded over the search contact, thus the anode gate of the silicon controlled switch, SCS, (Fig.56-1) will receive a negative pulse. The spring tension of the search contacts will push the selection pins back to the neutral position.

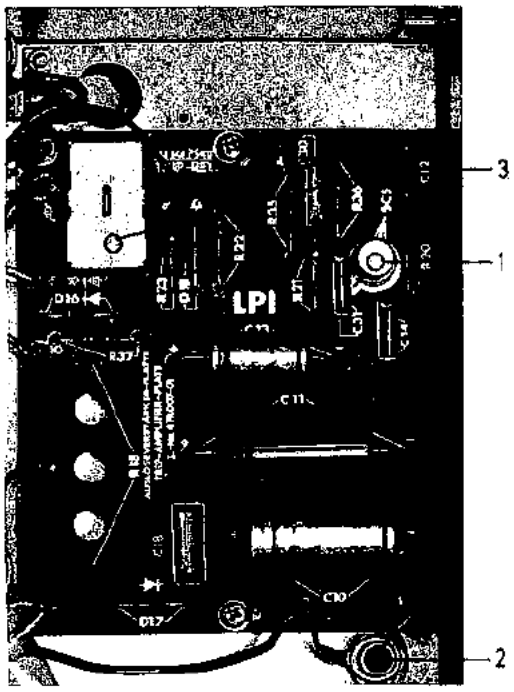
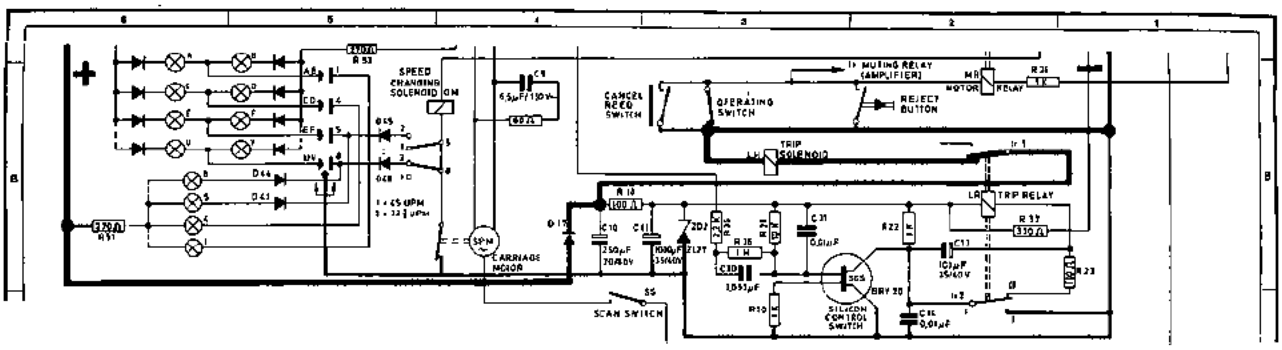


FIGURE 56 TRIP PLATE LPI

1. Silicon controlled switch (SCS)
2. ZD2 ZL 27 Zener diode
3. Trip relay LR

5. TRIP

The trip pulse is of negative polarity. These pulses are integrated by the input network and coupled to the anode gate of the silicone controlled switch SCS. The supply voltage for SCS comes from the 30 VDC and is filtred and stabilized by the network C 10, R 18, C 11 and ZD 2 (Fig.56-2). The capacitor C 14 prevents premature conducting of SCS by any transient pulses in the circuit. The input of the pulse amplifier is so designed that only pulses with the right amplitude and duration will trigger the circuit. Capacitor C 13 is discharged over R 23 and contact Ir 2, I-III. The negative trip pulse will cause SCS to conduct and trip relay LR (Fig.56-3) will be energized. This will cause Ir 2, I-III to open, but the relay will be held in by the charge current of C 13. When C 13 is completely charged, the trip relay will deenergize. However while the relay was energized the anode gate of SCS was connected to ground by contact Ir 2, I-II, causing the SCS to go back into cut-off. Contact Ir 1 will have closed the circuit of the trip solenoid LM (Fig.58-1).



Circuit:
Plus - D 17 - Ir 1 - trip solenoid LM - minus.

The trip solenoid uncouples the scan gear, the carriage stops, and the transfer cycle starts.

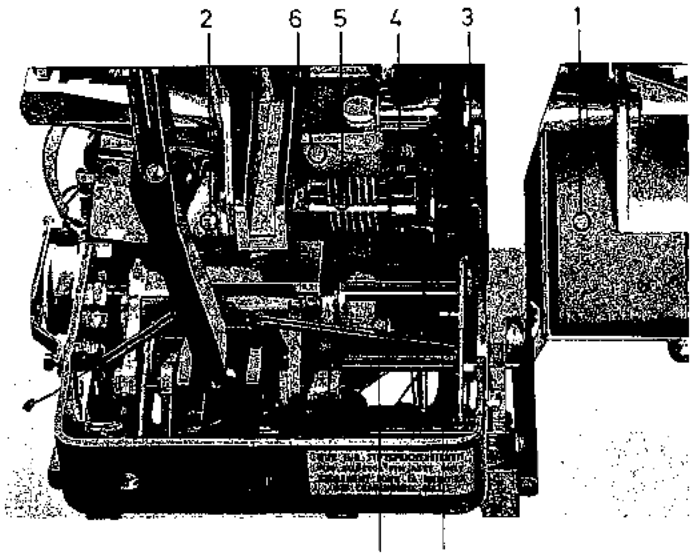


FIGURE 57 CARRIAGE (FRONT)

1. Carriage motor
2. Clutch solenoid
3. Butterfly clutch
4. Spring loaded lever
5. Worm gear
6. Gear for alternating clutch
7. Top gear slip clutch (SCAN GEAR)
8. Bottom gear slip clutch

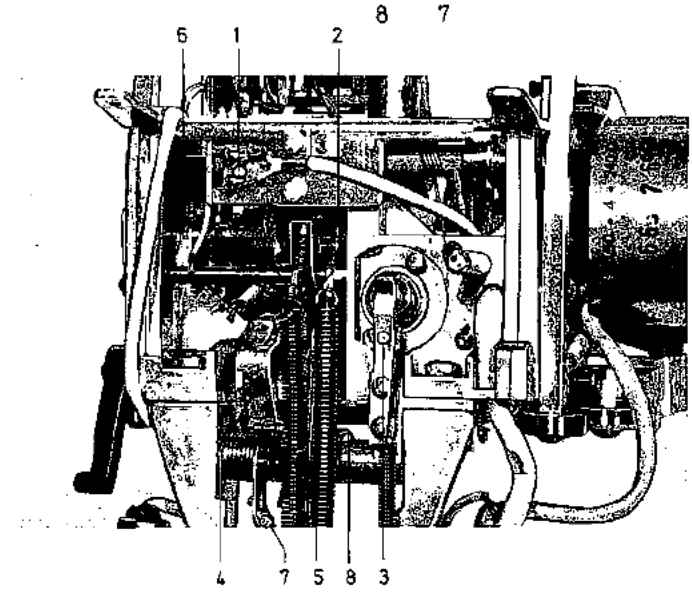
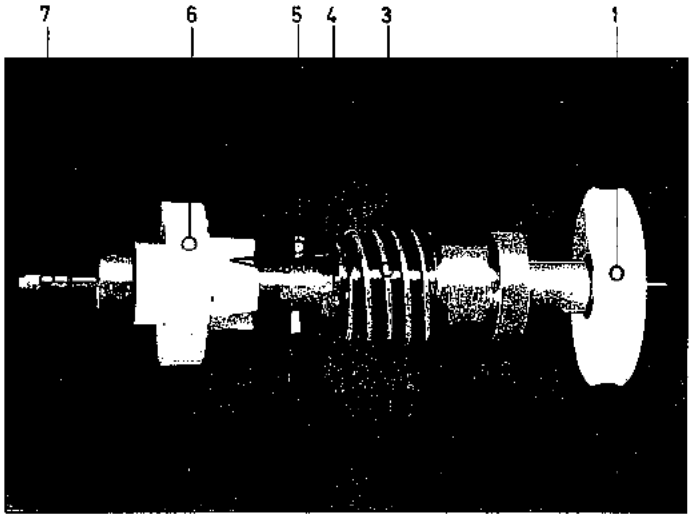


FIGURE 58 CARRIAGE (BOTTOM)

1. Trip solenoid
2. Trip lever
3. Clutch arm
4. Gear segment
5. Record transfer arm
6. Locking lever
7. Popularity meter lever
8. Locking pawl

6. SCAN

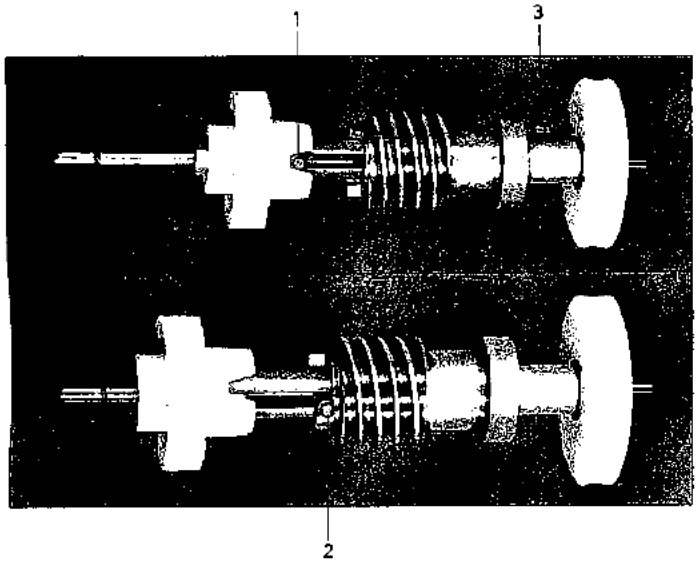
The carriage starts from the rest position, right hand side of the carriage base. The clutch solenoid (Fig.57-2) is normally energized, causing the spring loaded lever (Fig.57-4) to engage with the butterfly clutch (Fig.57-3) which is attached to the motor shaft . The moment the scan switch closes, the carriage motor will turn.



This causes the worm gear (Fig.57-5)to turn the gear for the alternating clutch (Fig.57-6, 59-1). This gear will turn the drive pin (fig.59-5) which is in the scan position (Fig.60-1), resting on the bottom of the notch of the cam gear (Fig.59-6). The cam gear will turn the bottom gear of the slip-clutch (Fig.57-8). This gear is friction-coupled to the scan gear (Fig.61-1) which travels in the gear-rack.

FIGURE 59 ALTERNATING CLUTCH

1. Gear for alternating clutch
3. Worm gear
4. Worm gear cam
5. Drive pin
6. Cam gear
7. Drive pin shaft



Since the two gears of the slip clutch are friction coupled through a spring, the carriage can be stopped while travelling. The pressure needed for this, is between 750 and 1200 grams (900 grams is ideal). When carriage reaches the end of the carriage base, it moves the reversing arm (Fig.62-1) causing the reversing switch (Fig.62-2) to activate, hereby reversing the direction of travel. Travelling from right to left, the carriage will play A, C, E, ...selections, travelling from left to right B, D, F, ...selections. As seen before, when the trip solenoid (Fig.58-1) is energized, the carriage will stop.

FIGURE 60 DRIVE PIN POSITION

1. Scan position
2. Transfer-play position
3. Lever actuator

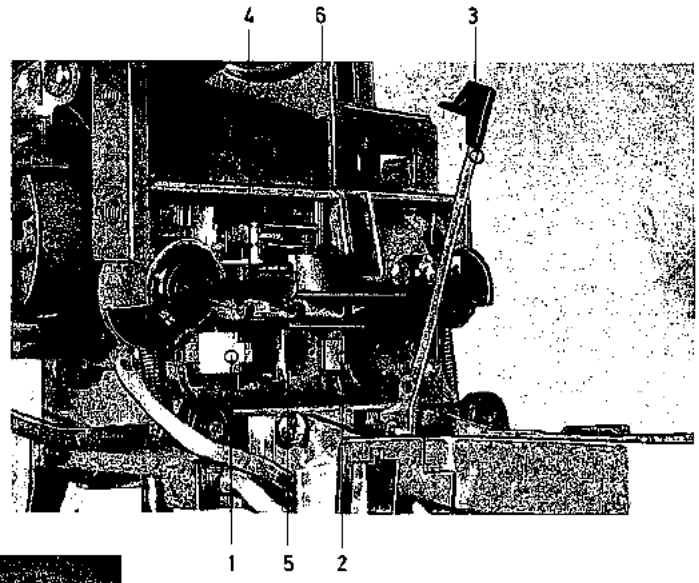


FIGURE 61 CARRIAGE (REAR)

1. Scan gear
2. Locking pawl
3. Record transfer arm
4. Locking arm
5. Pick-up shifting lever
6. Cradle actuator

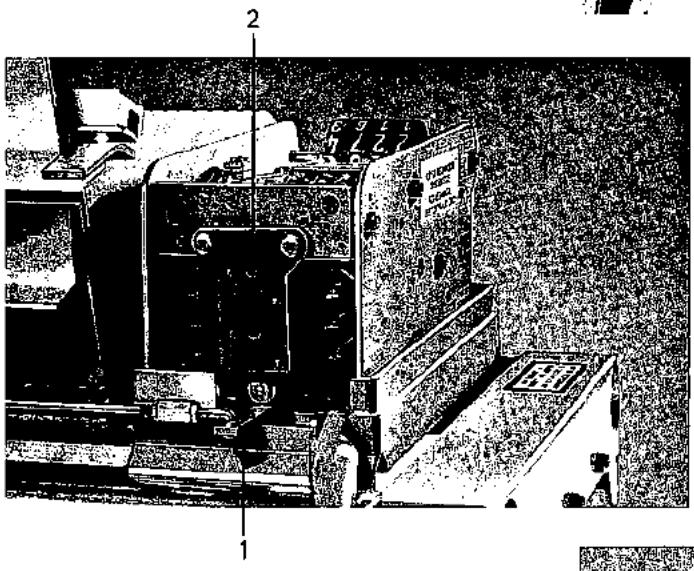


FIGURE 62 REVERSING SWITCH

1. Reversing arm
2. Reversing switch

7. CHANGING THE SPEED

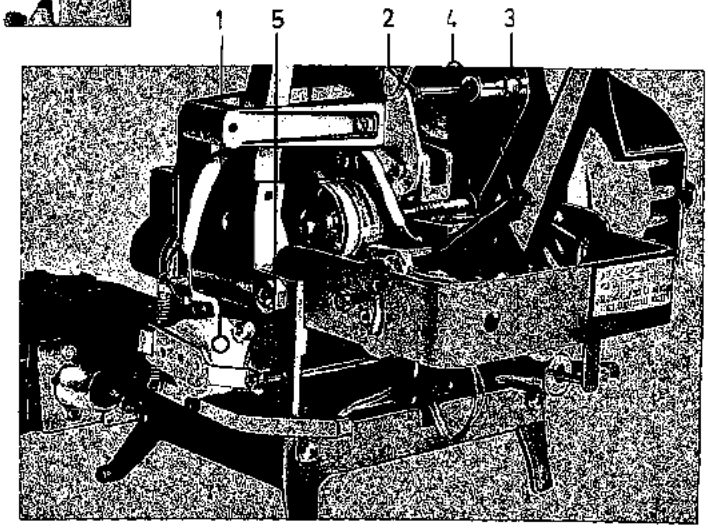


FIGURE 63

1. Speed changing solenoid
2. 33 1/3 RPM idler wheel
3. 45 RPM idler wheel
4. Turntable
5. 2 speed drive rod

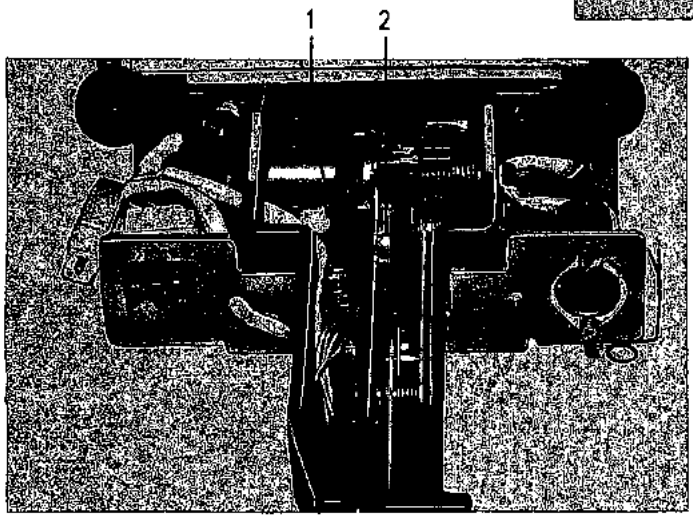
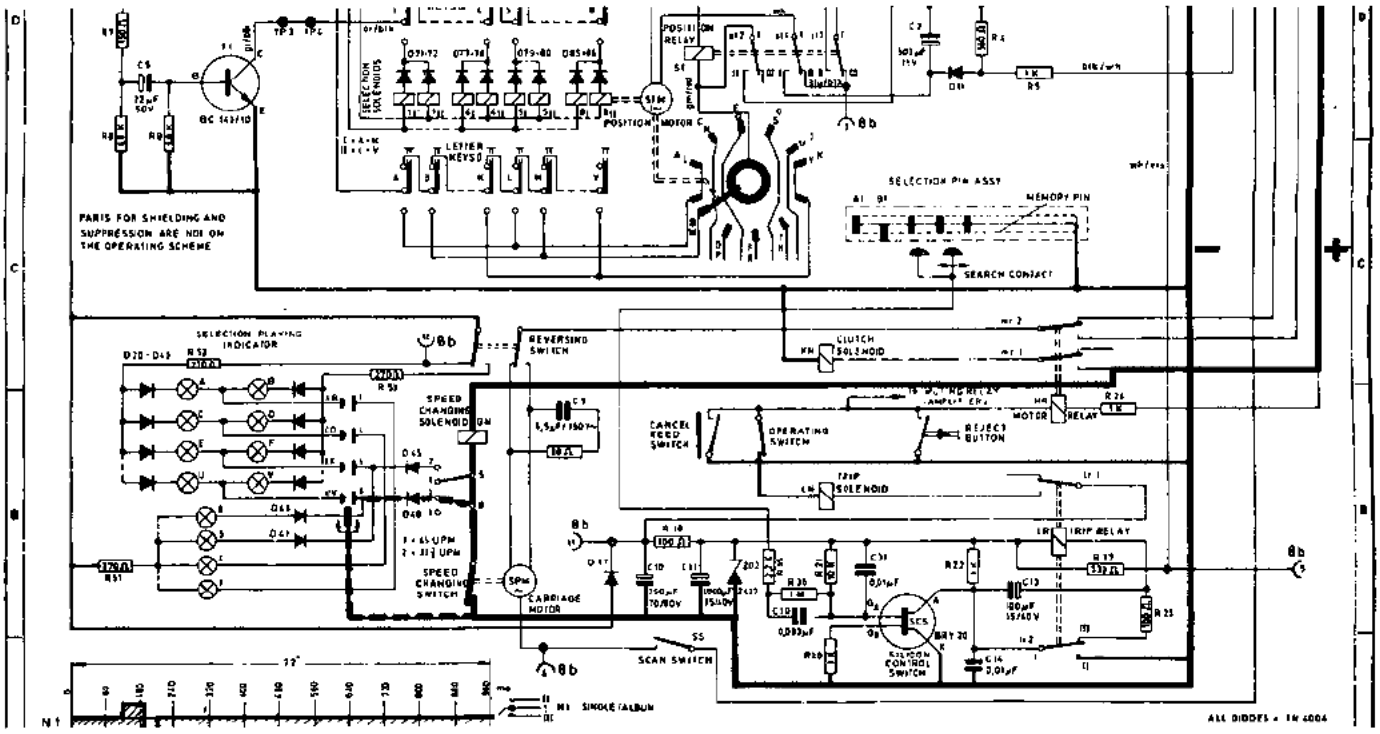


FIGURE 64

1. Speed changing switch
2. Transfer arm

The speed changing solenoid (Fig.63-1) is normally energized over the speed changing switch (Fig.64-1). Parallel over this switch is another circuit, over contact plate position 2, red section (Fig.13-5) to the playing indicator number contacts (Fig.54-5). The record transfer arm (Fig.64-2) opens the speed changing switch, the speed changing solenoid will deenergize and the turntable (Fig.63-4) will be driven by the 45 RPM idler wheel (Fig.63-3). However if the switch opens while the carriage is in the album section, the speed changing contact (Fig.55-3) will touch the number contact (Fig.54-5). Hereby overriding the speed changing switch, and the turntable will be driven by the 33 1/3 RPM idler wheel (Fig.63-2).



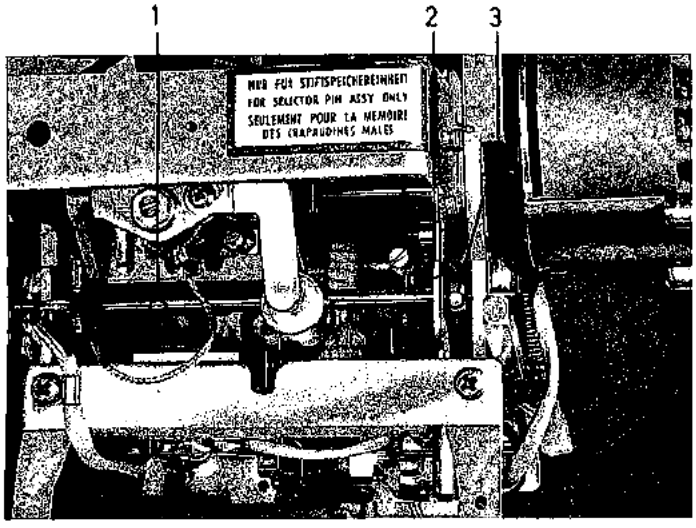


FIGURE 65 33 1/3 RPM

1. 2 speed drive rod
2. Speed control lever
3. Speed control ring

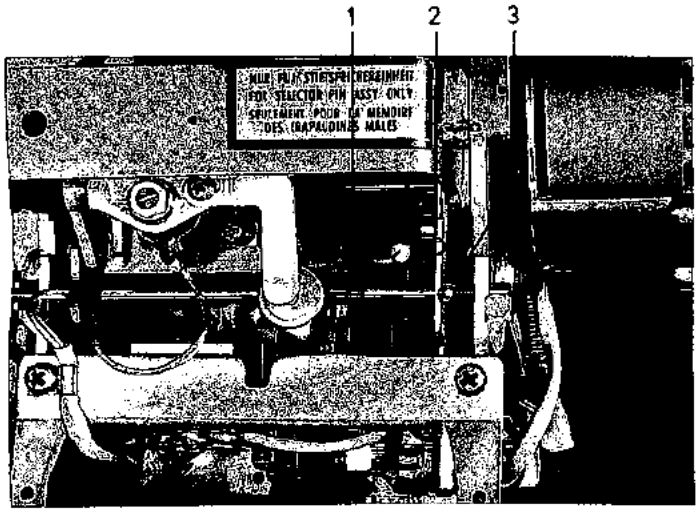


FIGURE 66 45 RPM

1. 2 speed drive rod
2. Speed control lever
3. Speed control ring

In the 33 1/3 RPM position, the speed changing solenoid will push the speed drive rod (Fig.63-5) in all the way. The speed control ring (Fig.65-3) is now past the speed control lever (Fig.65-2). This lever will now rest on the rod in the play position (Fig.65), and push the large idler wheel (Fig.63-2) against the turntable.
In the 45 RPM position, the speed control lever will rest on the speed control ring and the small idler wheel (Fig.63-3) will drive the turntable. (Fig.66)

B. TRANSFER

When the trip lever (Fig.58-2) is activated, the clutch arm (Fig.58-3) is moved up, and the locking pawl (Fig.58-8, 61-2) locks itself in one of the teeth of the gear rack. The upward movement of the clutch arm causes the drive pin (Fig.59-5) to go up, into the transfer position (Fig.60-2), and engages the worm gear cam (Fig.59-4). The cam gear (Fig.59-6) stops, and the worm gear (Fig.59-3) turns.
If the carriage stops while traveling from right to left, the movement of the worm gear (Fig.59-3) is so that the cradle actuator (Fig.61-6)is moved to the left by the lever actuator (Fig.60-3), also moving the pick-up shifting lever (Fig.61-5), hereby positioning the pick-up cradle (Fig.68) on the left side of the carriage. The locking arm (Fig.61-4) will keep the cradle actuator in this position. The worm gear also starts the camshaft (Fig.67) turning.

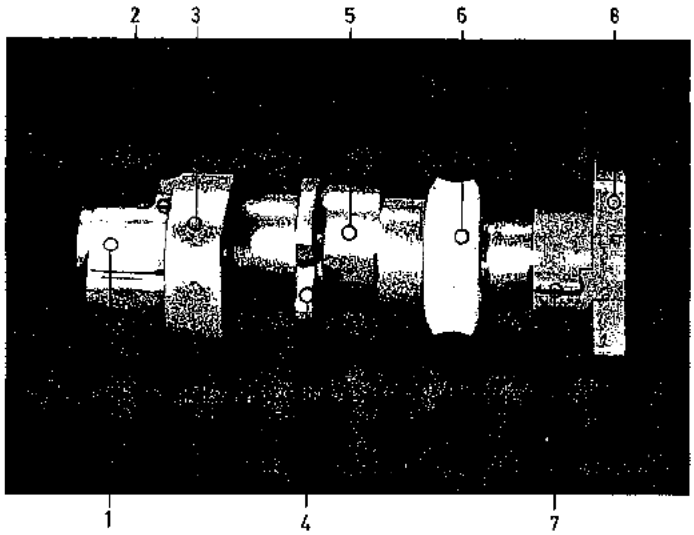


FIGURE 67 CAM SHAFT

1. Clamp arm cam
2. Gear segment cam (large roller)
3. Gear segment cam (small roller)
4. Locking lever cam
5. Trip lever reset cam
6. Cam shaft gear
7. Operating switch cam
8. Speed drive cam

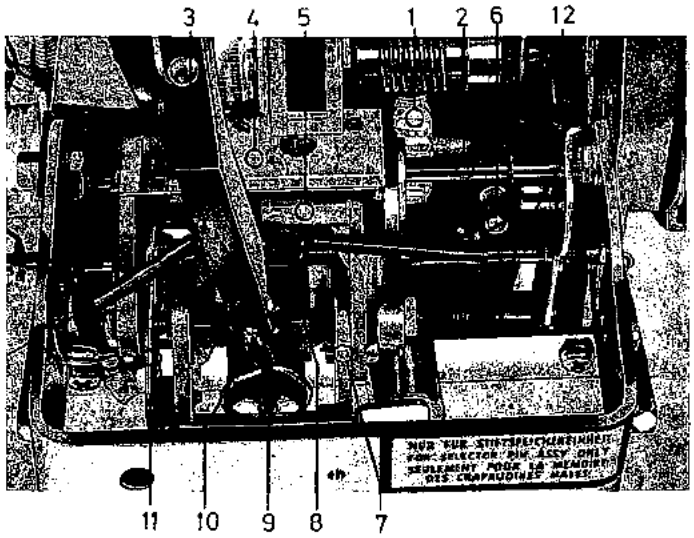


FIGURE 68 CRADLE

1. Cam shaft gear
2. Cradle shaft
3. Tonearm
4. Reedswitch
5. Magnet holder
6. Operating switch
7. Cradle
8. Pick-up guide
9. Pick-up pivot
10. Pick-up roller
11. Reset control lever
12. 2 speed drive rod

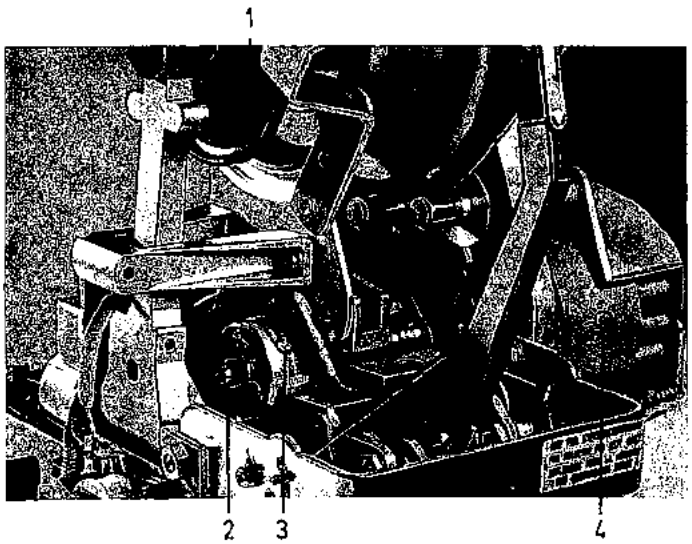


FIGURE 69

1. Clamp arm disc
2. Clamp arm roller
3. Clutch solenoid
4. Carriage motor

1. The clamp arm disc (Fig.69-1) is moved away from the turntable by the clamp arm roller (Fig.69-2) riding on the clamp arm cam (Fig.67-1)
2. The locking lever (Fig.58-6) is moved out by the cam (Fig.67-4) and locks the locking pawl (Fig.61-2) so it will keep the carriage locked after the trip lever (Fig.58-2) is reset.
3. The small roller on the gear segment (Fig.58-4) moves the record transfer arm (Fig.61-3) up, riding on its cam (Fig.67-3).
4. When the record transfer arm is at its maximum upward position, the clamp disc begins to move in, towards the turntable. The popularity meter lever (Fig.58-7) is pushed upwards.
5. The gear segment cam (Fig.67-3) now pushes the pick-up guide (Fig.68-8) up, thereby moving the tonearm (Fig.68-3) towards the record.
6. The record transfer arm is now moved slightly away from the record by the large roller on the gear segment (Fig.58-4) riding on the gear segment cam (Fig.67-2). This is to prevent the record from rubbing against the transfer arm. The record transfer arm also spreads the record seperators for the same reason.
7. Trip lever reset cam (Fig.67-5) places the trip lever (Fig.58-2) back in front of the trip solenoid.
8. The speed control lever (Fig.65-2) will move inward riding on the speed drive cam (Fig.67-8) and come to rest on either the speed control ring (Fig.65-3) or the speed drive rod (Fig.65-1) depending on the speed changing solenoid.
9. The upward movement of the pick-up guide (Fig.68-8) allows the tonearm to land on the record. The pick-up pivot (Fig.68-9) is filled with silicon grease, to slow down the landing of the needle.
10. The high part of the operating switch cam (Fig. 67-7) will open the operating switch (Fig.68-6) causing the motor relay MR (Fig.46-5) and the muting relay in the amplifier to deenergize.

    Motor relay contact mr 1 : Opens the circuit to the clutch solenoid (Fig.69-3)

    contact mr 2 : Switches the carriage motor from 125 VAC to 80 VAC.

    Muting relay contact sr 1 : Switches the amplifier on.

11. The spring loaded lever (Fig.57-4) is now disengaged from the butterfly clutch (Fig.57-3). The carriage now only drives the turntable.

9. PLAY

The needle will track the record

10. END OF RECORD

When the neddle reaches the cut-off groove, the magnet (Fig.68-5) will close the cancel reed switch (Fig.68-4), causing the motor relay and muting relay to energize.

Motor relay contact mr 1 : Closes the circuit to the clutch solenoid

contact mr 2 : Switches the carriage motor back from 80 VAC to 125 VAC.

Muting relay contact sr 1 : Mutes the amplifier.

11. TRANSFER AND SCANNING

With the clutch solenoid energized, the spring loaded lever (Fig.57-4) is again engaged with the butterfly clutch (Fig.57-3). The camshaft (Fig.67) will start turning

1. The operating switch cam (Fig.67-7) closes the operating switch (Fig.68-6). The switch takes over from the reed switch, keeping the motor and muting relays energized.
2. The gear segment cam (Fig.67-3) will allow the pick-up guide (Fig.68-8) to move the tonearm away from the record.
3. The pick-up guide (Fig.68-8) will also move the reset control lever (Fig.68-11), down, moving the tonearm out.
4. The clamp arm cam (Fig.67-1) will move the record clamp away from the turntable, thereby releasing the record.
5. The record transfer arm (Fig.61-3) is brought down by the gear segment cam (Fig.67-3), replacing the record in the record magazine.
6. The speed changing solenoid is energized.
7. When the record is back in the magazine, the clamp arm is moved back slightly towards the turntable.

8. The locking lever (Fig.58-6) drops into the notch of the locking lever cam (Fig.67-4) and releases the locking pawl. (Fig. 61 - 2)

9. With the locking pawl, the clutch arm (Fig.58-3) is released, this brings the drive pin (Fig.59-5) down, into the scan position (Fig.60-1).

10. The drive pin is now in one of the notches of the cam gear (Fig.59-6). The worm gear (Fig.59-3) will stop, and the cam gear will turn the clutch gears (Fig.61-1).

The carriage will start scanning. If no more selections are made, the carriage will scan twice and stop in its rest position. If a B, D, selection was made, the carriage will trip while travelling from left to right. The movement of the worm gear (Fig.59-3) will shift the cradle actuator (Fig.61-6) to the right with the lever actuator (Fig.60-3).

The rest of the action is the same as before, only the right side of the record will-be played.

SWITCHES AND RELAYS (SEE OPERATING SCHEME)

Credit switch AK (E-6) (Fig.43-7): Is closed when credit is made. Supplies 30 VDC to all circuits related to the selection system.

Restart locking relay ws (E, F-2) (Fig.46-2): Is in parallel with the latch bar solenoid TM (E-5) (Fig.45). Is energized when the credit switch AK (E-6) (Fig.43-7) is closed, and is released during part of the selection cycle over contact N2 (E-4) (Fig.52-4).

ws 1 (D-2) N.O.: Connects the write-in voltage to one side of the write-in trigger switch EK (D-6) (Fig.53-3), thereby preparing the write-in circuit for the trigger switch EK (D-6) (Fig.53-3).

ws 2 (E-2) N.O.: Locks the restart locking relay ws (E, F-2) (Fig.46-2) and the latch bar solenoid TM (E-5) (Fig.45) while the buttons are down.

ws 3 (D-2) N.O.: Prepares the circuit of the selection motor WM (E-4) (Fig.52-2) and the position motor STM (D-4) (Fig.47-3) by feeding the 30 VAC to contact WA 1 (D-2) of the start relay WA (E-2) (Fig.46-1).

ws 4 (E-2) N.O.: In the circuit of the start relay WA (E-2) (Fig.46-1) which will now energize when a letter and number button are pressed.

Start Relay WA (E-2): Is energized when a letter and number button are pressed. Is deenergized when the release of the restart locking relay WS (E, F, -2) (Fig.46-2) opens contact WS 4 (E-2).

wa 1 (D-2) N.O.: Completes the circuit to the position motor STM (D-4) (Fig.47-3), and the selection motor WM (E-4) (Fig.46-2) hereby starting the selection cycle.

Position motor contact wiper (C3) (Fig.48-4):

Energizes the position relay (D3) (Fig.51-1) when the contact wiper (Fig.48-4) reaches the selected position contact (Fig.48-2).

Position relay ST (D3) (Fig.51-1) :

Energized when the position motor contact wiper (C3) (Fig.48-4) reaches the selected position contact (Fig.48-2).

ST 1 not used.

ST 2 (D3) N.O.: Locks the position relay in, once it is energized.

ST 3 (D3) SPDT.: Switches the 30 VAC from the position motor (D4) (Fig.47-3) to the selection motor (E4) (Fig.52-2) when the position relay energizes.

ST 4 (D3) SPDT.: Switches the position motor (D4) (Fig.47-3) from 30 VAC to the DC brake voltage, when the position relay energizes.

Speed changing switch (B4) (Fig.64-1) N.C.:

Energizes the speed changing solenoid (B4) (Fig.63-1) when the record transfer arm is in the downward position.

Selection motor cam switch (Fig.52-4) : (See timing on bottom of operating scheme).

N 1 (E-4) N.O.: Is one middle blade with an N.O. contact on each side. One contact closes when on the high part of the cam, the other closes when on the low part.

The top contact will close first, but this is only a safety circuit. If for any reason the buttons should not lock in, the single relay SR (E-3) (Fig.46-4) will be energized, preventing the subtraction of any credit.

The bottom contact will close after N 3 and N 4. This will energize the single relay SR (E-3) (Fig.46-4) when a single selection is made.

N 2 (E-4) N.C.: Just before the end of the first subtraction pulse, N 2 opens the circuit to the latch bar solenoid TM (E-5) (Fig.45) and the restart locking relay ws (E, F,-2) (Fig.46-2) thereby releasing the buttons.

N 3 (D-4) N.O.: Is the first contact to close, it is parallel over contact wa 1 (D-2) and ws 3 (D-2), thus serving as the carry-over contact for the selection motor WM (E-4) (Fig.46-2).

N 4 (D-4) N.O.: Pulses the subtract solenoid SM (D-6) (Fig.53-1).

Carry over switch ÜK (E-6) (Fig.53-2) N.O.: In the circuit of the subtract solenoid SM (D-6) (Fig.53-1) to assure complete travel of the subtract solenoid plunger. Activated by the subtract solenoid SM (D-6) (Fig.53-1).

Write-in trigger switch EK (D-6) (Fig.53-3) N.O.: Triggers transistor T 1 with the write-in pulse. Is activated by the subtract solenoid SM (D-6) (Fig.53-1).

Single relay SR (E-3) (Fig.46-4): Is energized only when a single selection is made, over contact N 1 (E-4) (Fig.52-4). Its own contact SR 1 locks the relay in. The relay will not release, while contact N 4 (D-4) (Fig.52-4) is pulsing and time constant C 1 and R 3, over the relay, keeps it energized between pulses. After the last pulse, of N 4, the relay will release.

SR 1 (E-3) S.P.D.T.: Opens the circuit to the subtract solenoid SM (D-6) (Fig.53-1) after the first subtract pulse, and locks its own relay.

Latch bar relay TR (F-2) (Fig.46-3): Is energized when an album is selected and not enough credit is available.

TR 1 (F-2) N.C.: Opens the circuit of the latch bar solenoid TM (E-5) (Fig.45) and the restart locking relay WS (E, F, -2) (Fig.46-2) thus the buttons will not lock.

TR 2 (F-2) N.C.: Opens the circuit of the start relay WA (E-2) (Fig.46-1) so the selection cycle can not start.

Scan switch SS (A-4) (Fig.52-1) N.O.: Completes the circuit to the carriage motor SPM (B-4) (Fig.69-4). Is a two step switch, mechanically activated by the selection motor WM (E-4) (Fig.52-2) or the scan button (Fig.6-18).

Reversing switch (C-4) (Fig.62-2) DPDT: Reverses the direction of the carriage motor SPM (B-4) (Fig.69-4) and switches the playing indicator lights.

Operating switch (B-3) (Fig.68-6) N.C.: Keeps the motor relay MR (B-2) (Fig.46-5), and the muting relay in the amplifier, energized during scan and transfer.

Motor relay MR (B-2) (Fig.46-5): Is normally energized, only released in the play position.

MR 1 (C-2) N.O.: Is in the circuit of the clutch solenoid KM (C-3) (Fig.69-3).

MR 2 (C-2) SPDT.: Switches the carriage motor SPM (B-4) (Fig.69-4) from 80 VAC in the play position, to 125 VAC in the transfer and scan position.

Cancel reed switch (B-3) (Fig.68-4) N.O.: Energizes the motor relay MR (B-2) (Fig.46-5), thus activating the clutch solenoid KM (C-3) (Fig.69-3).

Trip relay LR (B-2) (Fig.56-3): Is energized through the loading current of C 13 when the SCS (B-2) (Fig.56-1) fires. Will release as soon as C 13 is fully charged.

LR 1 (B-2) N.O.: Energizes the trip solenoid LM (B-3) (Fig.58-1).

LR 2 (A-2) S.P.D.T.: Keeps C 13 discharged over R 23 in the normal position. Places the anode gate of the SCS (B-2) (Fig.56-1) to ground, cutting of the switch when the trip relay LR (B-2) (Fig.56-3) is energized.

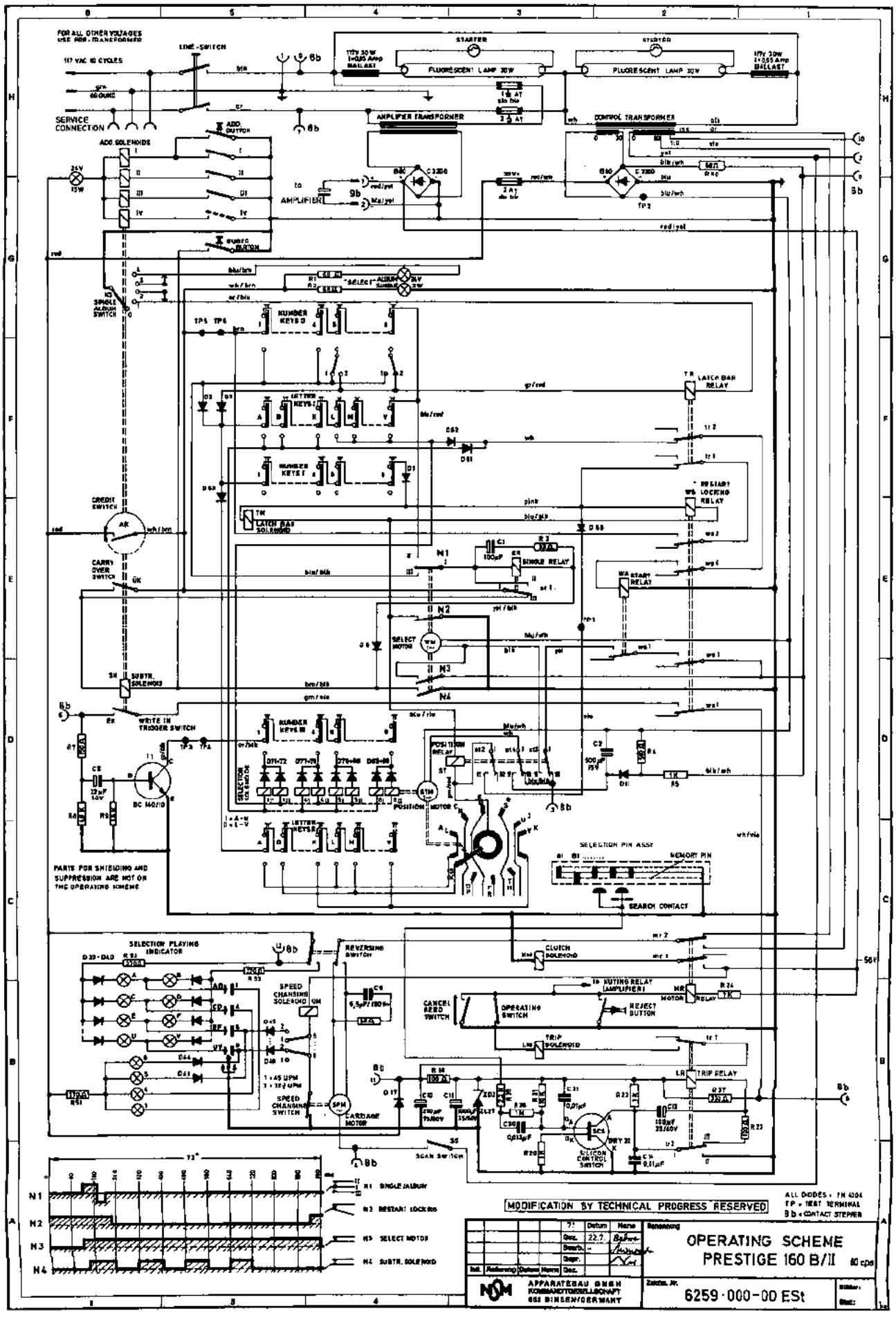
Trip solenoid LM (B-3) (Fig.58-1): Activates the trip lever (Fig.58-2). Energized through contact LR 1 (B-2)

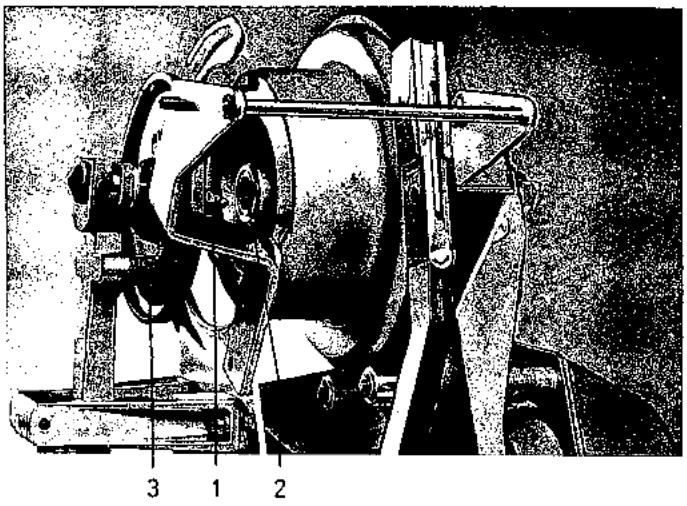
Muting relay (in amplifier): Energized together with the motor relay MR (B-2).

S 1-2 SPDT: With the relay energized contact S 1 is open, and places a bias voltage on the AVC circuit, so that when the needle enters the first groove, it will take several seconds for the sound to reach full volume. Contact S 2 is closed connecting the input of the output stage to ground, thereby muting the amplifier. With the relay deenergized, contact S 1 is closed, connecting D 3 to ground, hereby activating the AVC. Contact S 2 is open, thus the signal from T 9 can now be amplified.

S 3 - 4 SPDT: Has the same function as S 1-2, but for the other channel.

S 5 N.O.: Will reset the electronic fuse as soon as the relay is energized.


FOR ALL OTHER VOLTAGES USE ADD. TRANSFORMER
117 VAC 60 CYCLES
LINE - SWITCH
SERVICE CONNECTION
STARTER
FLUORESCENT LAMP 30W
BALLAST
AMPLIFIER TRANSFORMER
CONTROL TRANSFORMER
ADD. SOLENOIDE
ADD. SWITCH
SUBTR. SOLENOID
SUBTR. BUTTON
AMPLIFIER
SELECT ALBUM SWITCH
SELECT ALBUM
SPIDLE ALBUM SWITCH
NUMBER KEYS II
NUMBER KEYS I
LETTER KEYS I
LETTER KEYS II
LATCH BAR SOLENOID
LATCH BAR RELAY
RESTART LOCKING RELAY
CREDIT SWITCH
CARRY OVER SWITCH
SINGLE RELAY
START RELAY
SELECT MOTOR
SUBTR. SOLENOIDS
WRITE IN TRIGGER SWITCH
POSITION RELAY
POSITION MOTOR
SELECTION PIN ASSY
MEMORY PIN
SEARCH CONTACT
PARTS FOR SHIELDING AND SUPPRESSION ARE NOT ON THE OPERATING SCHEME
SELECTION PLAYING INDICATOR
REVERSING SWITCH
SPEED CHANGING SOLENOID
SPEED CHANGING SWITCH
CARRIAGE MOTOR
SCAN SWITCH
CLUTCH SOLENOID
CANCEL REED SWITCH
OPERATING SWITCH
REJECT BUTTON
TRIP SOLENOID
TRIP RELAY
SILICON CONTROL SWITCH
MOTOR RELAY
N1 SINGLE ALBUM
N2 RESTART LOCKING
N3 SELECT MOTOR
N4 SUBTR. SOLENOID
MODIFICATION BY TECHNICAL PROGRESS RESERVED
ALL DIODES = 1N 4004
TP = TEST TERMINAL
9b = CONTACT STEPPER
OPERATING SCHEME
PRESTIGE 160 B/II
60 cps
APPARATEBAU GMBH
KOMMANDITGESELLSCHAFT
663 BIRKENFELD/GERMANY
6259·000-00 ESt

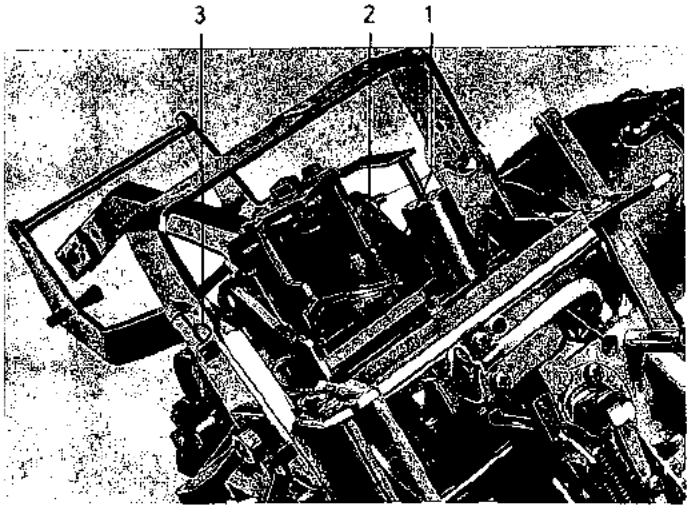


ADJUSTMENTS

The clamp disc has two adjustments. The vertical and horizontal positions of the centering pin (Fig.70-1) in relation to the hole (Fig.70-2). If we imagine a vertical line through the middle of the hole, the pin should enter the hole on that line. This adjustment depends on the position of the two plastic nuts (Fig.70-3) in relation to each other. Horizontally, the centering pin should touch the bottom slope of the centering hole. This adjustment depends on both plastic nuts in relation to the clamp disc.

FIGURE 70 CLAMP DISC

1. Centering pin
2. Centering hole
3. Adjusting nut



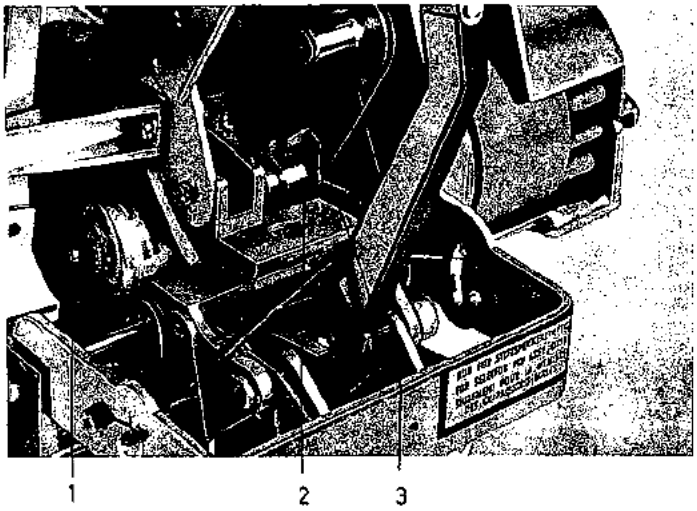
The needle should enter the first grove, when landing on the record. Turning in the record entering adjusting screw (Fig.71-1) advances the needle inward toward the center of the record. Cancelling of the record is done by the magnet (Fig.68-5) closing the reed switch (Fig.68-4) at the end of the record. After loosening the record cancel adjustment screw (Fig.71-2), the magnet holder can be moved.

FIGURE 71 TONE ARM

1. Record entering Adj.
2. Record cancel Adj.
3. Needle pressure Adj.

Moving it in, results in a sooner closing of the reed switch, moving it out will close the reed switch later.

The needle pressure should be 7 grams. Bringing the lugs (Fig.71-3) down will apply more pressure, bringing them up, less pressure. In the left side play position, the right spring is adjusted, in the right side play position, the left spring is adjusted.



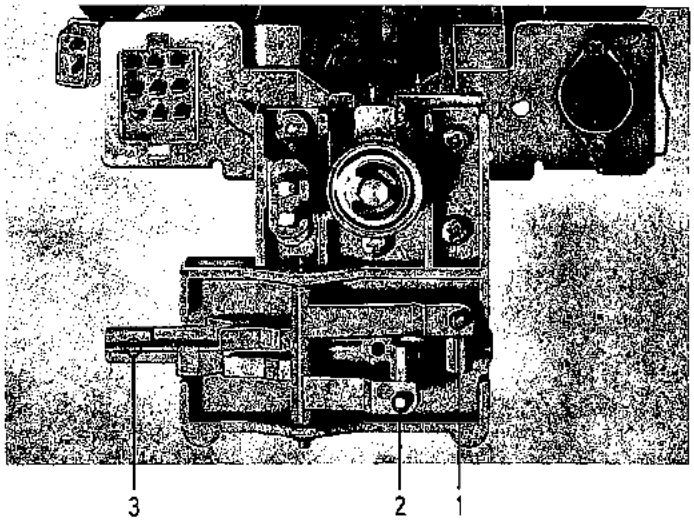
CLUTCH

By pressing on the adjusting screw (Fig.72-1), the clutch armature can be seated against the core inside the clutch solenoid. The spring loaded lever (Fig.72-2) should engage with the butterfly clutch (Fig.72-3) for at least 1/16".

The armature is slotted, so a screwdriver can be used to hold it steady while the adjusting screw is turned in or out as needed.

FIGURE 72 CLUTCH

1. Adjusting screw
2. Spring loaded lever
3. Butterfly clutch



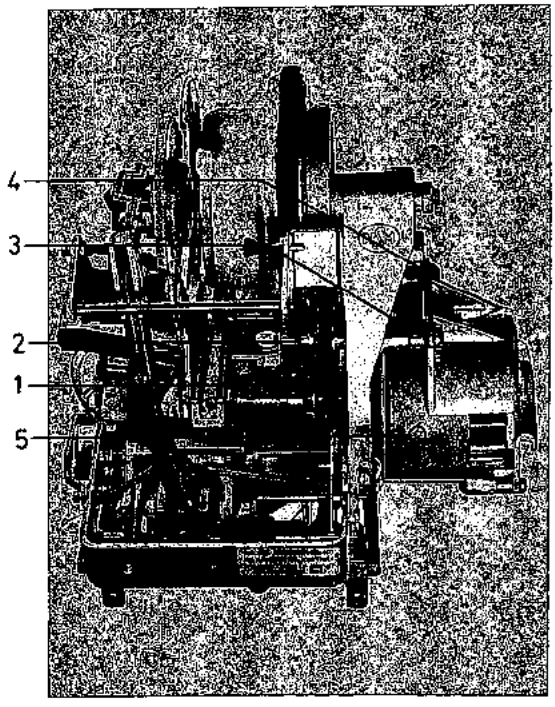
PIN ASSEMBLY

FIG. 73 READ-OUT BLOCK

1. A selection search contact
2. B selection search contact
3. Reversing lever

The pin assembly is adjusted at the factory, and secured in place by 4 bolts (Fig.47-1) to the carriage base. It is very unlikely that the unit will have to be removed. The contacts can be cleaned by simply taking the carriage out. If the need ever occurs, the following procedure should be followed.
Remove the complete carriage base from the machine, by removing all the plugs, and the 4 nuts, used to bolt down the base. Lift the carriage base out of the cabinet and place it horizontally on a table. Push the carriage by hand to the right side of the base, and manually trip the trip lever, while the record transfer arm is lined up with the A8–B8 record space. This will lock the carriage in the A8 selected position. Now note the gap between the A selection search contact (Fig.73-1) and the face of the pin assembly. Manually switch the reversing lever. The gap between the B selection search contact and the face of the pin assembly should be the same as with the A contact, approximately 1/16" . If the two spaces are not the same, the pin assembly should be moved as needed.

Important: If the bolts holding the pin assembly are loosened too much, excessive play between the pin assembly and the contact block will make proper adjustment impossible.



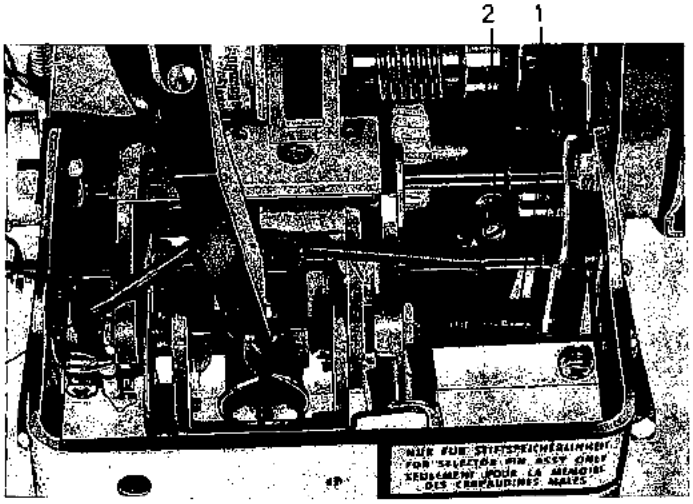
MOTOR

FIGURE 74 MOTOR

1. Drive belt
2. Idler wheel
3. Front screw
4. Rear screw
5. Carriage motor

Place the carriage on the carriage rod. Press the scan button, this will start the carriage motor. (Fig.74-5). The direction of rotation can be changed by the reversing arm on the contral box (Fig.62-1). The drive belt (Fig.74-1) should always travel in the center of the idler wheel (Fig.74-2). While the belt is traveling downward, loosen the front screw (Fig.74-3) and move the motor up or down until the belt stays in the center of the idler wheel. Reverse the direction of the motor. The belt will travel upward.

Loosen the rear screw (Fig.74-4) and move the motor until the belt again stays in the center of the idler wheel. Now go back to the first adjustment, and keep repeating this procedure till the belt stays in the center in both directions. This adjustment might be necessary when replacing the rubber grommets in the front and the rear of the carriage motor. Spare grommets are delivered with each machine.

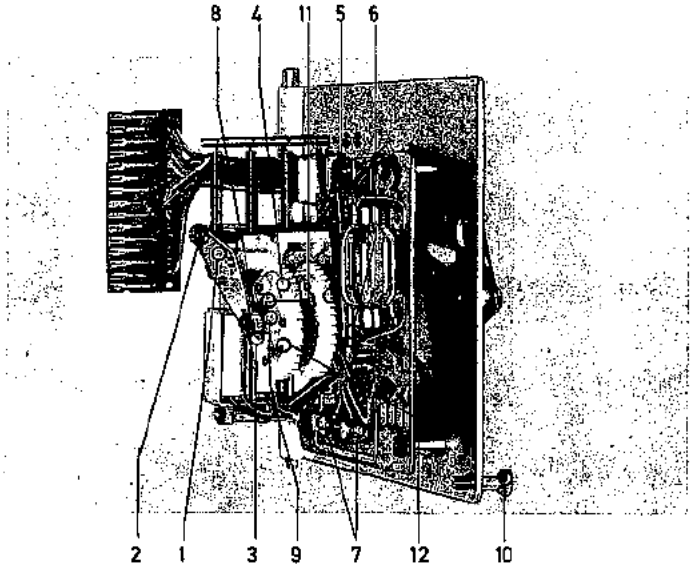


OPERATING SWITCH

With the carriage in the play position, the operating switch (Fig.75-1) should be open with a gap of 1/64". This ajustment can be done by turning the adjusting screw (Fig.75-2) in or out as needed.

FIGURE 75 OPERATING SWITCH

1. Operating switch
2. Adjusting screw



CREDIT UNIT

FIGURE 76 CREDIT UNIT

1. top plate
2. holding screw
3. circlip
4. half dollar credit wheel
5. quarter credit wheel
6. nickel-dime credit wheel
7. contact jumpers
8. washer
9. spacer
10. screws
11. tension spring
12. drive pin

The half dollar credit wheel (Fig.76-4) and the quarter credit wheel (Fig.76-5) have several slots, numbered to indicate the amount of credits. The mounted half dollar wheel gives 4-6-8 credits, the spare wheel, on the outside of the credit unit gives 5-7-9 credits.

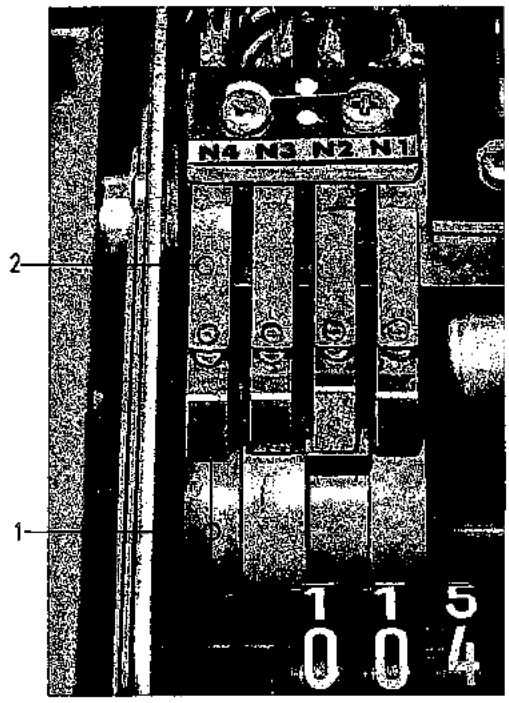
The factory setting of the credit unit is: 2 plays- 1 quarter
5 plays- half dollar or 2 quarters

Credit change procedure:

1. Remove credit unit cover.
2. Drop credit unit by loosening two top screws (Fig.76-10).
3. To take off top plate (Fig.76-1), loosen screw (Fig.76-2) and remove circlip (Fig.76-3) from main wheel shaft. Remove plastic spacer (Fig.76-9) and washer (Fig.76-8).

Important: If the credit unit has 4 credit wheels, the top wheel will be for use with the dollar bill validator.

4. Remove tension spring (Fig.76-11).
5. Take off top wheel (Fig.76-4).
6. Refit wheel in such a way that the drive pin (Fig.76-12 is led into the needed slot of the wheel.
7. If second or third wheel has to be *altered, follow* same procedure as above. (Be careful to replace washers and spacers when assembling).
8. Refit all other parts contrary to above indicated sequence.
9. Check with coins.
10. Change price instructions at the selector key panel. Credits and price instructions have to coincide.



To change album price, the number of subtract pulses from cam switch N4 (Fig.77-2) will have to be changed. At the left hand side of the contact cam is a spring loaded disc (Fig.77-1) that after lifting it away from the contact cam can be turned clockwise or counterclockwise.

FIGURE 77 SCAN CONTROL BOX

1. Spring loaded disc.
2. N4 cam switch

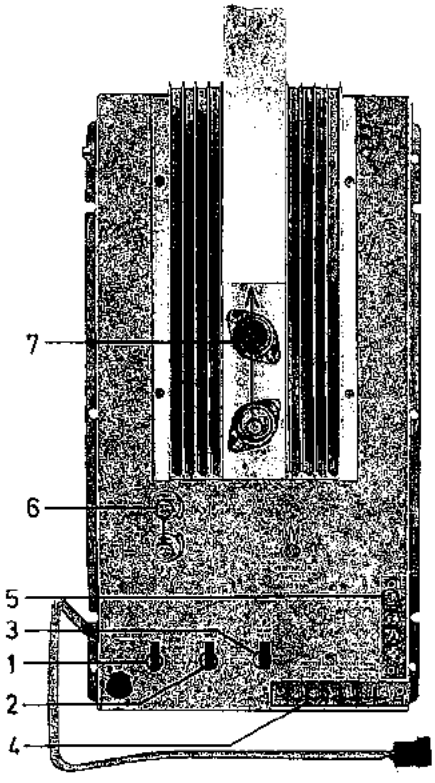
There are 3 positions:

1. Two credits are needed per album selection, contact N4 should pulse twice. The teeth on the disc and on the contact cam are lined up to form 2 wide teeth. Contact jumpers 2-3-4 (Fig.76-7) in the credit unit are connected. The album light is lit with 2 credits.

2. Three credits are needed per album selection, contact N4 should pulse three times. The middle teeth are lined up to form 1 wide and 2 narrow teeth. Contact jumpers 1-2 and 3-4 are connected. The album light is lit with 3 credits.

3. Four credits are needed per album selection, contact N4 should pulse four times. None of the teeth are lined up to form 4 narrow teeth. Contact jumpers 1-2-3 are connected, the album light is lit with 4 credits.

Each number series can be selected for single or album play, by placing the contact fingers on the contact plate (Fig.48) in the 1 position for single play or the 2 position for album play.



AMPLIFIER 70 S bb

After lifting up the selector key panel, the sound controls can be reached. Treble control (Fig.78-2) bass control (Fig.78-3) record quality compensator (Fig.78-1) channel level adjustment (Fig.78-6). Upon leaving the factory, both channels are adjusted to the same level. If necessary, the level may be limited to the desired maximum at the place of installation.

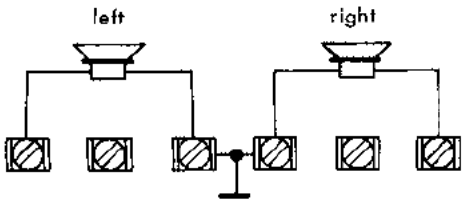
FIGURE 78 AMPLIFIER

1. Record quality compensator
2. Treble control switch
3. Bass control switch
4. Output to junction box
5. Volume control connections
6. Level controls
7. Output transistors

EXTENSION SPEAKER CONNECTIONS

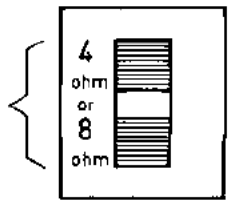
without output transformer

CABINET - SPEAKERS

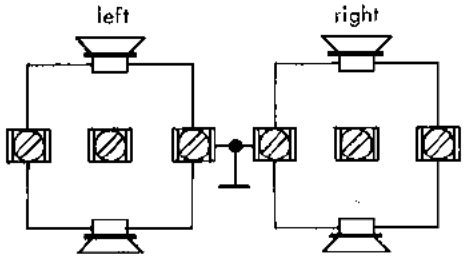


Box without extension speakers

cabinet speaker-switch in position:



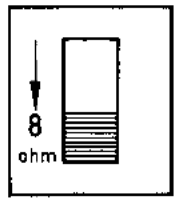
CABINET - SPEAKERS



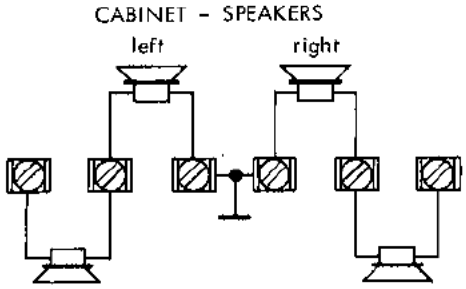
ADDITIONAL SPEAKERS
8 - 16 Ohm

Clamp additional speakers between
8 - 16 Ohm parallel to box speakers

cabinet speaker-switch in position:



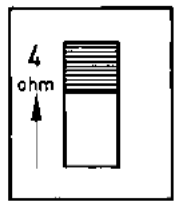
CABINET - SPEAKERS



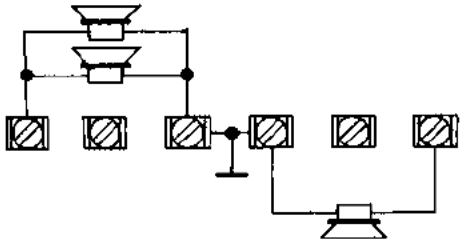
ADDITIONAL SPEAKERS
2 - 8 Ohm

Clamp additional speakers between
2 - 8 Ohm in series with box speakers

cabinet speaker-switch in position:



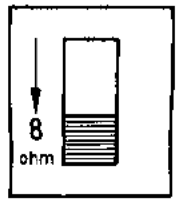
CABINET - SPEAKERS
parallel (mono)



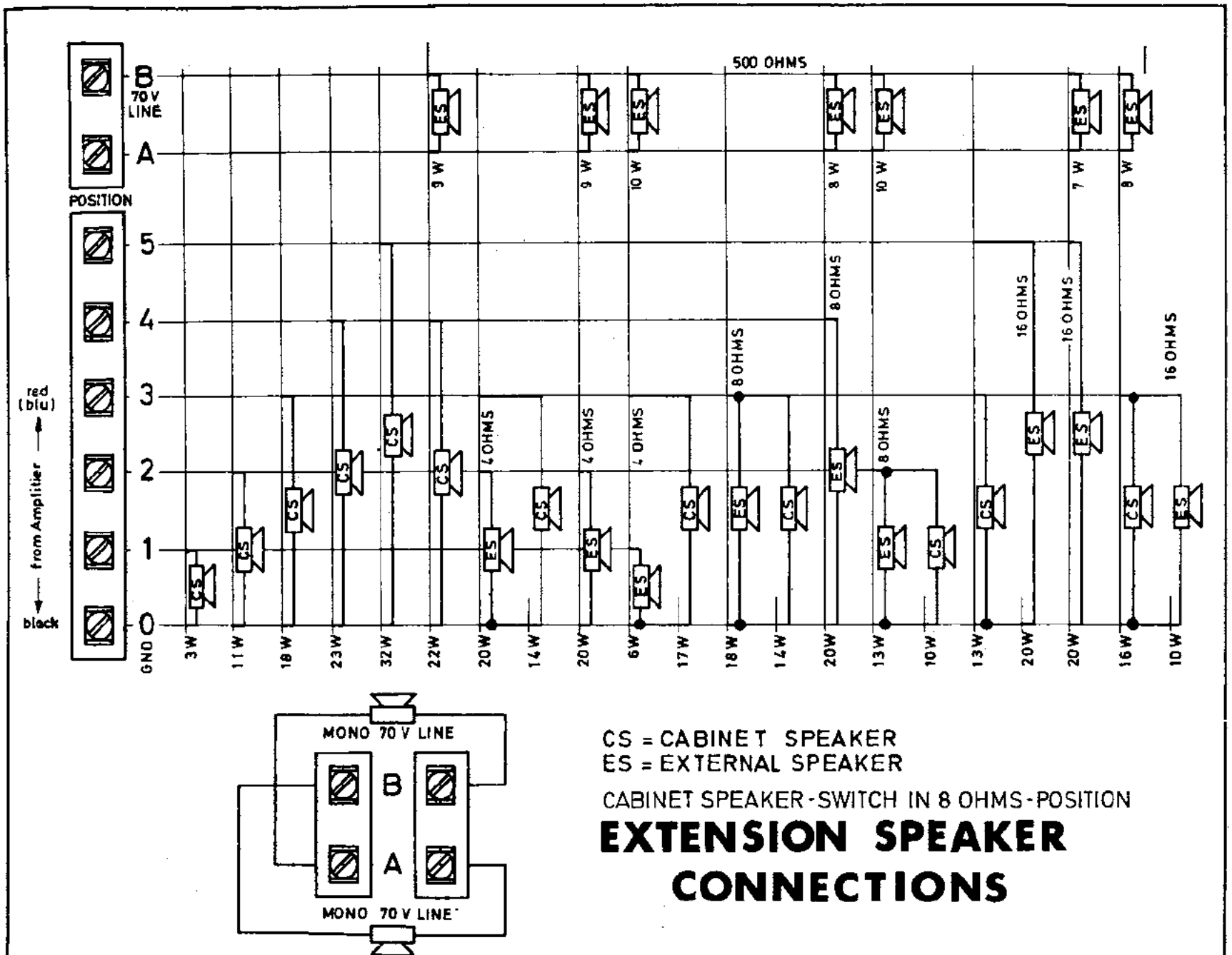
ADDITIONAL SPEAKER (mono)
in other Room

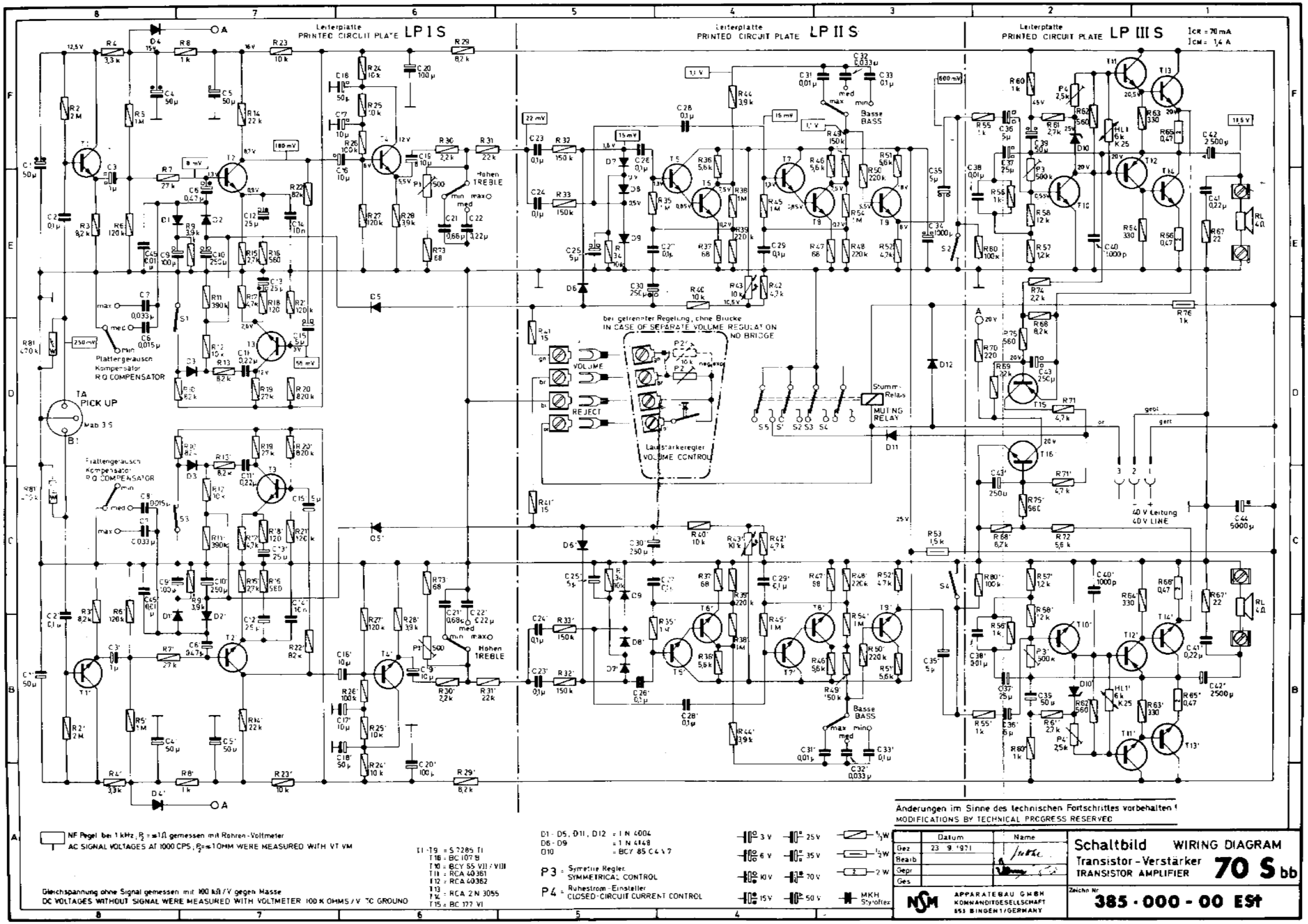
Additional speakers in other room (mono).
With volume-control R 2, Part-Nr. 41 527,
separate control for both rooms possible.

cabinet speaker-switch in position:

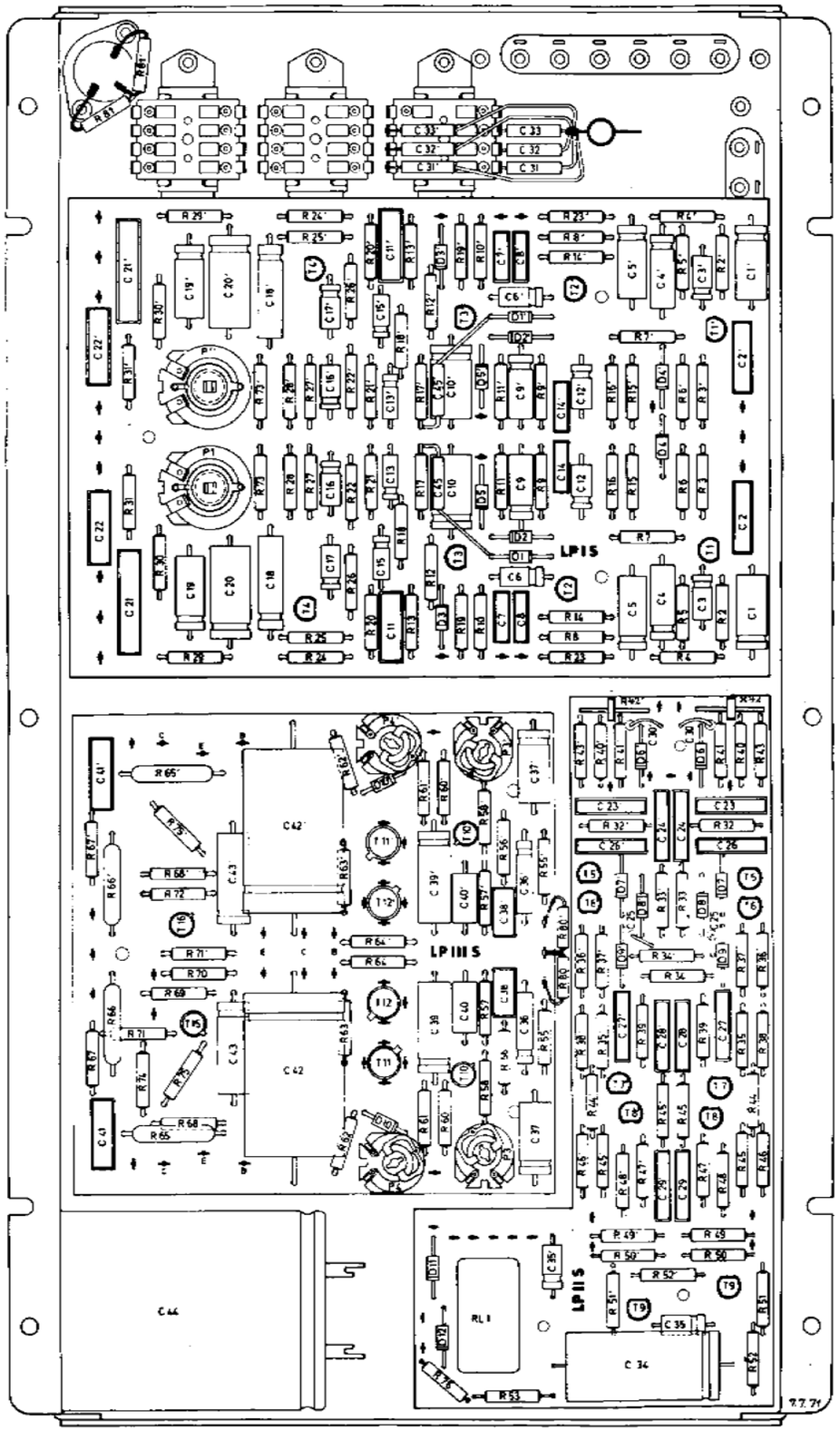


The cabinet speaker-switch is mounted on the left inside the cabinet. (PRESTIGE 160 B II only)


B
70 V
LINE
A
POSITION
5
4
3
2
1
0
red
(blu)
from Amplifier
black
GND
500 OHMS
9 W
9 W
10 W
8 W
10 W
7 W
8 W
4 OHMS
4 OHMS
4 OHMS
8 OHMS
8 OHMS
8 OHMS
16 OHMS
16 OHMS
16 OHMS
3W
11W
18W
23W
32W
22W
20W
14W
20W
6W
17W
18W
14W
20W
13W
10W
13W
20W
20W
16W
10W
CS
ES
MONO 70 V LINE
B
A
MONO 70 V LINE
CS = CABINET SPEAKER
ES = EXTERNAL SPEAKER
CABINET SPEAKER-SWITCH IN 8 OHMS-POSITION
EXTENSION SPEAKER
CONNECTIONS


Leiterplatte PRINTED CIRCUIT PLATE LP I S
Leiterplatte PRINTED CIRCUIT PLATE LP II S
Leiterplatte PRINTED CIRCUIT PLATE LP III S
Icr = 70 mA
Icm = 1,4 A
Höhen TREBLE
Basse BASS
Plattengeräusch Kompensator R.O. COMPENSATOR
TA PICK UP
VOLUME
REJECT
bei getrennter Regelung, ohne Brücke
IN CASE OF SEPARATE VOLUME REGULATION NO BRIDGE
Lautstärkeregler VOLUME CONTROL
Stumm-Relais MUTING RELAY
40 V Leitung 40 V LINE
Änderungen im Sinne des technischen Fortschrittes vorbehalten!
MODIFICATIONS BY TECHNICAL PROGRESS RESERVED
NF Pegel bei 1 kHz, Ri = ≈1 Ω gemessen mit Röhren-Voltmeter
AC SIGNAL VOLTAGES AT 1000 CPS, Ri = ≈1 OHM WERE MEASURED WITH VT VM
Gleichspannung ohne Signal gemessen mit 100 kΩ/V gegen Masse
DC VOLTAGES WITHOUT SIGNAL WERE MEASURED WITH VOLTMETER 100 K OHMS/V TO GROUND
T1-T9 = S 7285 TI
T16 = BC 107 B
T10 = BCY 55 VII / VIII
T11 = RCA 40361
T12 = RCA 40362
T13, T14 = RCA 2N 3055
T15 = BC 177 VI
D1-D5, D11, D12 = 1 N 4004
D6-D9 = 1 N 4148
D10 = BCY 85 C4 V7
P3 = Symetrie Regler SYMMETRICAL CONTROL
P4 = Ruhestrom-Einsteller CLOSED-CIRCUIT CURRENT CONTROL
MKH Styroflex
Datum
Name
Gez 23.9.1971
Bearb
Gepr
Ges
Schaltbild WIRING DIAGRAM
Transistor-Verstärker TRANSISTOR AMPLIFIER
70 S bb
NSM APPARATEBAU GMBH KOMMANDITGESELLSCHAFT 653 BINGEN 1/GERMANY
Zeichn.Nr 385 - 000 - 00 ESt

TRANSISTOR-AMPLIFIER 70 Sbb



TRANSISTOR-AMPLIFIER 70 Sbb

R 2/R 2'	Carbon resistor	2 Megohm	1/3 W. ± 5%
R 3/R 3'	Carbon resistor	8 200 Ohm	1/3 W. ± 5%
R 4/R 4'	Carbon resistor	3 300 Ohm	1/3 W. ± 5%
R 5/R 5'	Carbon resistor	1 Megohm	1/3 W. ± 5%
R 6/R 6'	Carbon resistor	120 000 Ohm	1/3 W. ± 5%
R 7/R 7'	Carbon resistor	27 000 Ohm	1/3 W. ± 5%
R 8/R 8'	Carbon resistor	1 000 Ohm	1/3 W. ± 5%
R 9/R 9'	Carbon resistor	3 900 Ohm	1/3 W. ± 5%
R10/R10'	Carbon resistor	82 000 Ohm	1/3 W. ± 5%
R11/R11'	Carbon resistor	390 000 Ohm	1/3 W. ± 5%
R12/R12'	Carbon resistor	10 000 Ohm	1/3 W. ± 5%
R13/R13'	Carbon resistor	8 200 Ohm	1/3 W. ± 5%
R14/R14'	Carbon resistor	22 000 Ohm	1/3 W. ± 5%
R15/R15'	Carbon resistor	2 700 Ohm	1/3 W. ± 5%
R16/R16'	Carbon resistor	560 Ohm	1/3 W. ± 5%
R17/R17'	Carbon resistor	4 700 Ohm	1/3 W. ± 5%
R18/R18'	Carbon resistor	120 Ohm	1/3 W. ± 5%
R19/R19'	Carbon resistor	27 000 Ohm	1/3 W. ± 5%
R20/R20'	Carbon resistor	820 000 Ohm	1/3 W. ± 5%
R21/R21'	Carbon resistor	120 000 Ohm	1/3 W. ± 5%
R22/R22'	Carbon resistor	82 000 Ohm	1/3 W. ± 5%
R23/R23'	Carbon resistor	10 000 Ohm	1/3 W. ± 5%
R24/R24'	Carbon resistor	10 000 Ohm	1/3 W. ± 5%
R25/R25'	Carbon resistor	10 000 Ohm	1/3 W. ± 5%
R26/R26'	Carbon resistor	100 000 Ohm	1/3 W. ± 5%
R27/R27'	Carbon resistor	120 000 Ohm	1/3 W. ± 5%
R28/R28'	Carbon resistor	3 900 Ohm	1/3 W. ± 5%
R29/R29'	Carbon resistor	8 200 Ohm	1/3 W. ± 5%
R30/R30'	Carbon resistor	2 200 Ohm	1/3 W. ± 5%
R31/R31'	Carbon resistor	22 000 Ohm	1/3 W. ± 5%
R32/R32'	Carbon resistor	150 000 Ohm	1/3 W. ± 5%
R33/R33'	Carbon resistor	150 000 Ohm	1/3 W ± 5%
R34/R34'	Carbon resistor	10 000 Ohm	1/3 W. ± 5%
R35/R35'	Carbon resistor	1 Megohm	1/3 W. ± 5%
R36/R36	Carbon resistor	5 600 Ohm	1/3 W. ± 5%
R37/R37'	Carbon resistor	68 Ohm	1/3 W. ± 5%
R38/R38'	Carbon resistor	1 Megohm	1/4 W. ± 5%
R39/R39'	Carbon resistor	220 000 Ohm	1/3 W. ± 5%
R40/R40'	Carbon resistor	10 000 Ohm	1/3 W. ± 5%
R41/R41'	Carbon resistor	15 Ohm	1/3 W. ± 5%
R42/R42'	Carbon resistor	4 700 Ohm	1/3 W. ± 5%
R43/R43'	Thermistor	10 000 Ohm	1/3 W. ± 5%
R44/R44'	Carbon resistor	3 900 Ohm	1/3 W. ± 5%
R45/R45'	Carbon resistor	1 Megohm	1/3 W. ± 5%
R46/R46'	Carbon resistor	5 600 Ohm	1/3 W. ± 5%
R47/R47'	Carbon resistor	68 Ohm	1/3 W. ± 5%
R48/R48'	Carbon resistor	220 000 Ohm	1/3 W. ± 5%
R49/R49'	Carbon resistor	150 000 Ohm	1/3 W. ± 5%
R50/R50'	Carbon resistor	220 000 Ohm	1/3 W. ± 5%
R51/R51'	Carbon resistor	5 600 Ohm	1/3 W. ± 5%
R52/R52'	Carbon resistor	4 700 Ohm	1/3 W. ± 5%
R53	Carbon resistor	1 500 Ohm	1/3 W. ± 5%
R54/R54'	Carbon resistor	1 Megohm	1/3 W. ± 5%
R55/R55'	Carbon resistor	1 000 Ohm	1/3 W. ± 5%
R56/R56'	Carbon resistor	1 000 Ohm	1/3 W. ± 5%
R57/R57'	Carbon resistor	1 200 Ohm	1/3 W. ± 5%
R58/R58'	Carbon resistor	12 000 Ohm	1/3 W. ± 5%
R60/R60'	Carbon resistor	1 000 Ohm	1/3 W. ± 5%
R61/R61'	Carbon resistor	2 700 Ohm	1/3 W. ± 5%
R62/R62'	Carbon resistor	560 Ohm	1/3 W. ± 5%
R63/R63'	Carbon resistor	330 Ohm	1/3 W. ± 5%
R64/R64'	Carbon resistor	330 Ohm	1/3 W. ± 5%
R65/R65'	Metal resistor	0.47 Ohm	2 W. ± 10%
R66/R66'	Metal resistor	0.47 Ohm	2 W. ± 10%
R67/R67'	Carbon resistor	22 Ohm	1/3 W. ± 5%
R68/R68'	Carbon resistor	8 200 Ohm	1/3 W. ± 5%
R69	Carbon resistor	22 000 Ohm	1/3 W. ± 5%
R70	Carbon resistor	220 Ohm	1/3 W. ± 5%
R71/R71'	Carbon resistor	4 700 Ohm	1/3 W. ± 5%
R72	Carbon resistor	5 600 Ohm	1/3 W. ± 5%
R73/R73'	Carbon resistor	68 Ohm	1/3 W. ± 5%
R74	Carbon resistor	2 200 Ohm	1/3 W. ± 5%
R75/R75'	Carbon resistor	560 Ohm	1/3 W. ± 5%
R76	Metal resistor	1 000 Ohm	1/3 W. ± 5%
R80/R80'	Carbon resistor	100 000 Ohm	1/3 W. ± 5%
R81/R81'	Carbon resistor	470 000 Ohm	1/4 W. ± 5%

P 1/P 1'	Trimmer resistor	500 Ohm 1/3 W. lin.
P 3/P 3'	Adjusting resistor	500 000 Ohm, lin.
P 4/P 4'	Adjusting resistor	2 500 Ohm, lin.
C 1/C 1'	Lytic	50 Mfd/ 15 V
C 2/C 2'	Mylar	0.1 Mfd/250 V
C 3/C 3'	Lytic	1 Mfd/ 35 V
C 4/C 4'	Lytic	50 Mfd/ 15 V
C 5/C 5'	Lytic	50 Mfd/ 25 V
C 6/C 6'	Lytic	0.47 Mfd/ 63 V
C 7/C 7'	Mylar	0.033 Mfd/250 V
C 8/C 8'	Mylar	0.015 Mfd/400 V
C 9/C 9'	Lytic	100 Mfd/ 3 V
C10/C10'	Lytic	250 Mfd/ 6 V
C11/C11'	Mylar	0.22 Mfd/250 V
C12/C12'	Lytic	25 Mfd/ 10 V
C13/C13'	Lytic	25 Mfd/ 10 V
C14/C14'	Mylar	0.01 Mfd/400 V
C15/C15'	Lytic	5 Mfd/ 35 V
C16/C16'	Lytic	10 Mfd/ 25 V
C17/C17'	Lytic	10 Mfd/ 25 V
C18/C18'	Lytic	50 Mfd/ 25 V
C19/C19'	Lytic	10 Mfd/ 25 V
C20/C20'	Lytic	100 Mfd/ 35 V
C21/C21'	Mylar	0.68 Mfd/250 V
C22/C22'	Mylar	0.22 Mfd/250 V
C23/C23'	Mylar	0.1 Mfd/250 V
C24/C24'	Mylar	0.1 Mfd/250 V
C25/C25'	Lytic	5 Mfd/ 35 V
C26/C26'	Mylar	0.1 Mfd/250 V
C27/C27'	Mylar	0.1 Mfd/250 V
C28/C28'	Mylar	0.1 Mfd/250 V
C29/C29'	Mylar	0.1 Mfd/250 V
C30/C30'	Lytic	250 Mfd/ 6 V
C31/C31'	Mylar	0.01 Mfd/250 V
C32/C32'	Mylar	0.033 Mfd/250 V
C33/C33'	Mylar	0.1 Mfd/250 V
C34	Lytic	1000 Mfd/ 35 V
C35/C35'	Lytic	5 Mfd/ 35 V
C36/C36'	Lytic	5 Mfd/ 35 V
C37/C37'	Lytic	25 Mfd/ 35 V
C38/C38'	Mylar	0.01 Mfd/400 V
C39/C39'	Lytic	50 Mfd/ 35 V
C40/C40'	Mylar	0.001 Mfd/160 V
C41/C41'	Mylar	0.22 Mfd/250 V
C42/C42'	Lytic	2500 Mfd/50/60 V
C43/C43'	Lytic	250 Mfd/ 6 V
C44	Lytic	5000 Mfd/ 70 V
C45/C45'	MKH	0.01 Mfd
D 1/D 1'	Silicon diode	1 N 4004
D 2/D 2'	Silicon diode	1 N 4004
D 3/D 3'	Silicon diode	1 N 4004
D 4/D 4'	Silicon diode	1 N 4004
D 5/D 5'	Silicon diode	1 N 4004
D 6/D 6'	Silicon diode	1 N 4148
D 7/D 7'	Silicon diode	1 N 4148
D 8/D 8'	Silicon diode	1 N 4148
D 9/D 9'	Silicon diode	1 N 4148
D10/D10'	Zener diode	BZY 85 C 4 V 7
D11	Silicon diode	1 N 4004
D12	Silicon diode	1 N 4004
T 1/T 1'	Transistor	S 7285 TI
T 2/T 2'	Transistor	S 7285 TI
T 3/T 3'	Transistor	S 7285 TI
T 4/T 4'	Transistor	S 7285 TI
T 5/T 5'	Transistor	S 7285 TI
T 6/T 6'	Transistor	S 7285 TI
T 7/T 7'	Transistor	S 7285 TI
T 8/T 8'	Transistor	S 7285 TI
T 9/T 9'	Transistor	S 7285 TI
T10/T10'	Transistor	BCY 65 VII/VIII
T11/T11'	Transistor	40361 RCA
T12/T12'	Transistor	40362 RCA
T15	Transistor	BC 177 VI/BC 157 A
T16	Transistor	BC 107 B
RL 1	Mute relay	V 23154 — NO 721 — B 110

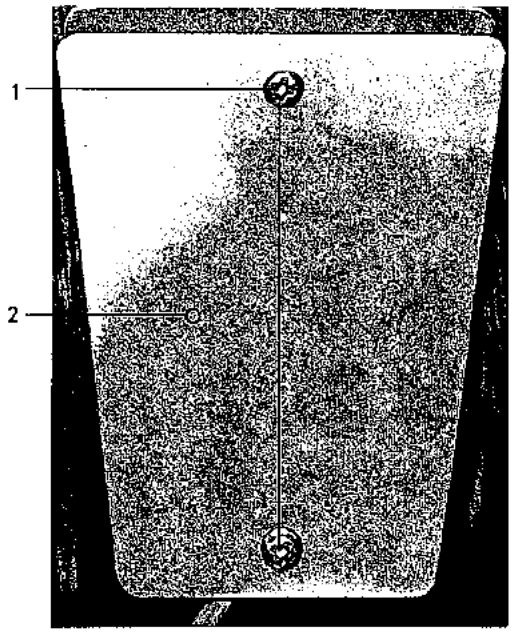


FIGURE 79 VOLUME CONTROL BOX

1. Screws
2. Plate

If a remote control is needed, the control mounted in the machine (Fig.79) can easily be removed. Loosen the 2 screws (Fig.79-1) that hold the plate (Fig.79-2). The box can now be removed. Unscrew the 2 spacers, place the plate flush with the back of the machine. Secure the plate with the spacers and put the screws back in the spacers. Any cable, shielded or not, can be used for a remote volume control installation.

In most cases, the existing cable from a former installation can be used, if not, the 3 wire cable used for wallbox installation is ideal for this purpose.

The amplifier is fitted with a 4 prong connection strip (Fig.78-5). With a dual volume control each channel can be adjusted separately. The machine is delivered with a single control, both channels are controlled simultaneously, thus only 3 wires are needed, and a jumper is placed between the green and brown connections. The same colorcode is used in the control box. To connect additional speakers see the paragraph on this subject.

Any repairs or adjustments should be done by qualified technicians, or dubious damage to the amplifier may result.

CONNECTION OF ADDITIONAL SPEAKERS

With the tube type amplifiers, the impedance matching of speakers to the output was very important. However, mismatching resulted in possible distortion, loss of power, premature exhausting of the output tubes, but in most cases the amplifier would keep on functioning. With the solid state amplifiers, using direct coupled output stages, complete destruction of the output stage will result.

The 70 S amplifier is protected against overload by an electronic fuse, this protection however is not definite. In case of mismatch, the output is not completely shorted, thus it is possible that the electronic fuse will not function, so damage to the output stage will result after a certain length of time.

If certain rules are observed, the 70 S amplifier will produce Hi-Fidelity stereo sound for an indefinite period of time.

NEVER, UNDER ANY CONDITION CONNECT ADDITIONAL SPEAKERS DIRECTLY TO THE AMPLIFIER OUTPUT TERMINALS, ALWAYS USE THE OUTPUT JUNCTION BOX.

Use the 70.7 C.V. line whenever possible. In case of mismatching, the C.V. transformer will insulate the amplifier from the overload. Greater flexibility is possible with the use of multi-tap C.V. transformers.

The primary winding of the transformers is marked in either ohms or watts. Conversion is easily done by these two formulas.

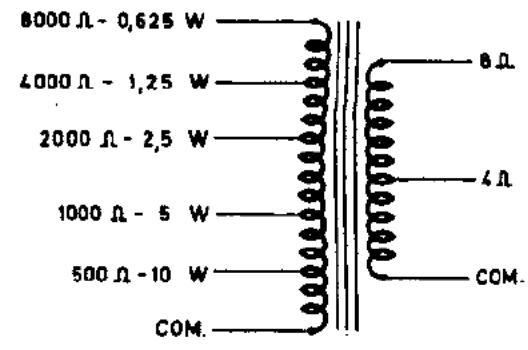
Z: impedance in ohms.

P: needed power in watts

E: output voltage (70.7V).

$$Z = \frac{E^2}{P} = \frac{70.7 \times 70.7}{P} = \frac{5.000}{P} = \text{impedance in ohms}$$

$$P = \frac{E^2}{Z} = \frac{70.7 \times 70.7}{Z} = \frac{5.000}{Z} = \text{power in watts}$$



See extension speaker connections chart.

TRANSISTOR AMPLIFIER 70 S bb

The 70 S is a fully transistorized amplifier, free from iron cores and unaffected by supply voltage variations.
Output is 60 W. music power per channel.
Distortion is less than 1% at 20 W. sine output in frequency ranges from 20 cs to 20 Kcs.
The 2 channels are completely separate and the amplifier has 30 transistors and 22 silicone diodes, and is divided in 3 major sections.

1. PLATE I S

   Pre-amplifier with AVC and treble control.

2. PLATE II S

   Volume control and bass control network, and muting relay.

3. PLATE III S

   Phase splitter and output stage with electronic fuse.

TECHNICAL DESCRIPTION, AND ADJUSTMENTS FOR 70 S bb AMPLIFIER

Since we use a ceramic cartridge, the input of the amplifier should be high impedance, therefore T 1 is used in a common collector or emitter-follower configuration. The amplification factor of this stage is less than 1, and is only used for impedance matching. T2 will amplify the output of T1. Since this is a common emitter circuit, there will be gain. The output of T2 is send to T3 and T4. Stage T3 is a voltage amplifier. The output of T3 is rectified by D3, and this positive voltage, developed over voltage divider R11, R12, is send to D1 and D2. The higher this voltage, the more current will flow through D1 and D2, thus the smaller the resistance to ground from C6. The RC network R9-C9 will delay the attack time, resulting in a smooth performance of the AVC. T4 is an emitter-follower to match the impedance of T2 to the volume control circuit. Again no amplification in this stage. The output of LP1 is at this point controlled by the level control P1.
The signal reaches T5 over C23-R32-C26, and T7 over C24-R33-C28. The input to these transistors is shunted by diodes D6-D7 and D8-D9. With P2 at zero resistance, the anode of D6 is at ground potential and no current is flowing through the diodes. The internal resistance of the diodes is very high when they are not conducting, thus the full signal will reach T5 and T7, so with P2 minimum, the volume is maximum. As P2 is turned up, the potential at the anode of D6 will increase, and current will flow through the diodes. As the current increases, the internal resistance decreases and more of the audio signal will be diverted to ground. Due to the shunting effect of resistor R34 and capacitor C25, diodes D6 and D7 start reducing the signal before D8 and D9. The circuits T5- T6 and T7-T8 are identical darlington amplifiers.
With full volume, both amplifiers receive the same input, therefore the outputs of T6 and T8 will also be the same, and there is no potential difference accross the capacitor network C31-C32-C33. As the volume is turned down, D6 and D7 start conducting first, hereby reducing the input to T5, thus a smaller output from T6. The bottom of the bass boost circuit is now at a higher potential and the higher frequencies will be filtered over the bass control. Cutting the high frequencies will give us the bass boost needed to compensate for bass losses at low volume. As the volume is turned down more, a greater amount of current will flow through the diodes and D8 - D9 will start conducting, hereby reducing the input to T7 and thus the total volume. The bass boost will continue throughout the entire volume range because D6-D7 will always conduct more current than D8-D9. Diode D5 turns off the amplifier at minimum volume, by activating the AVC. T9 is an emitter-follower to match the impedance of the next stage.

The complete power amplifier and the electronic fuse are mounted on the LP III S board. The amplifier is a quasi-complementary type. (see schematic on page 73). T11 and T13 form the conventional darlington circuit, T12 and T14 are the complementary amplifier pair. The output load of T10 is formed by R62-P4-R61-R60. Thermal stability is achieved by thermistor HL1 in parallel with R62. The value of R62 is so low that it can be disregarded in the following audio analysis of the amplifier. This resistor together with P4 and D10 sets the bias for T11 and T12. The quiescent current, or rest current, of the circuit is a direct function of this bias voltage, as we will see in the adjustment procedure for P4. Therefore it is very important that this circuit is very stable, hence the use of Zener diode D10 and thermistor HL1. This bias also minimizes crossover distortion.

Under quiescent conditions, the voltage at X is 1/2 Vcc and the collector of T10 is adjusted to this same potential by P3. When the collector of T10 is positive with respect to X, due to an input signal, T11 and T13 conduct, and output power is developed accross the output load. When an input signal swings the collector of T10 negative with respect to X, T12 and T14 will conduct. The two outputs combine accross the output load to recreate the input signal.

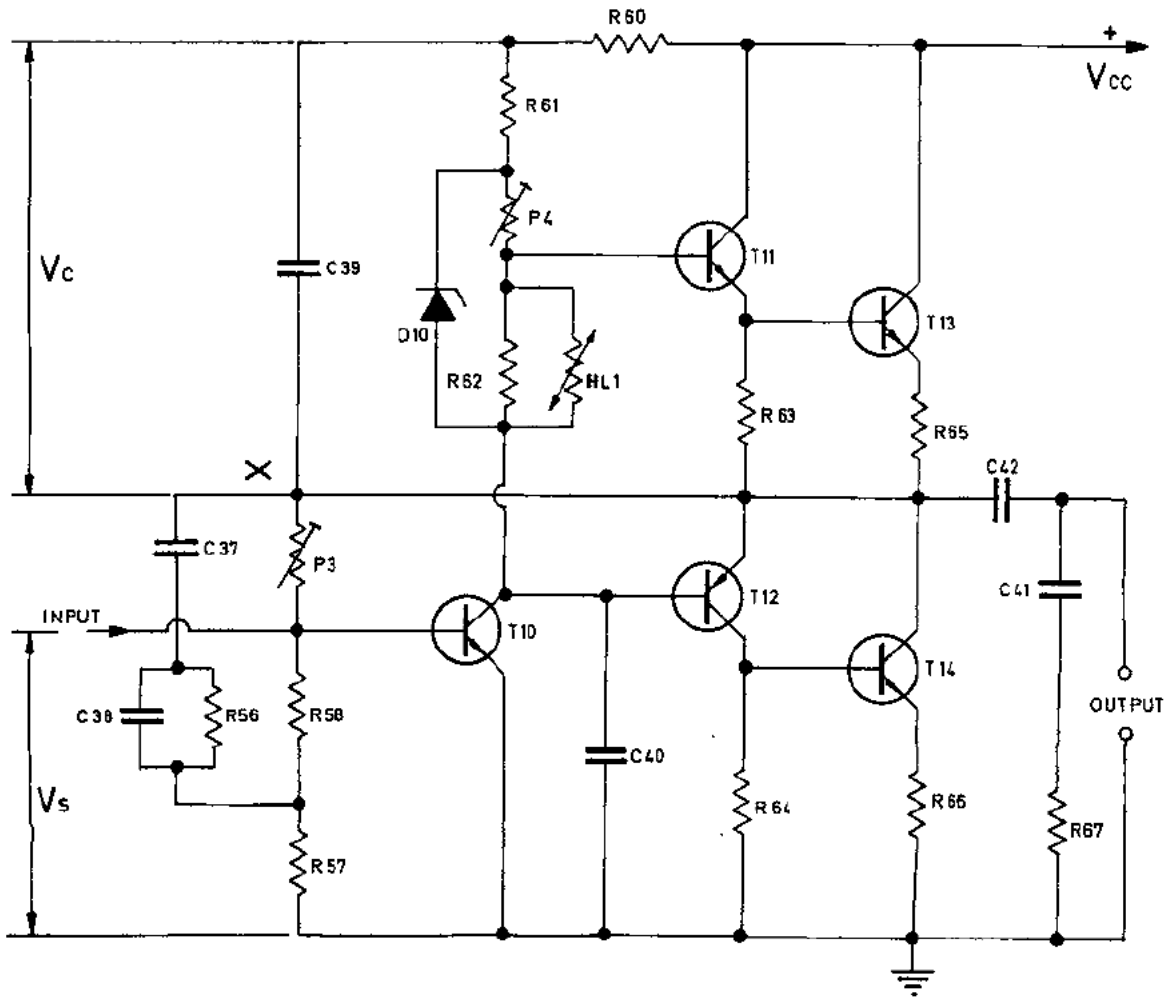
The DC collector currents through T13 and T14 are determined by their respective base currents, which are in turn, functions of the collector and base currents of T11 and T12, respectively. The base current through T12 never drops below the quiescent value, regardless of the input signal. Wihout a special circuit, this would not be the case with the quiescent base current of T11. This transistor would cut off during the peak in the positive swing of the input signal. Capacitor C39 is used to prevent T11 from cutting off at any time. This is called "bootstrapping". The positive feedback through this capacitor is offset by about the same magnitude of negative feedback via P3 for DC and C37-R56 for AC. If C39 were not in the circuit, T11 would not conduct on the signal peaks. With C39 in the circuit, the voltage accross the capacitor remains constant at Vc. As the lower end of C39 is at point X and the upper end is at the junction of R60 and R61, the capacitor maintains the junction at Vc volts above the voltage at X. This voltage is higher than Vcc during positive signal peaks. As Vc is accross the sum of R61 and the base emitter junction of T11, it will keep this transistor conducting at all times, even when point X or the emitter is at Vcc.

Under quiescent conditions, the voltage at X is 1/2 Vcc. Since the collector of T10 is at the same potential, this is essentially the voltage accross R60-R61-P4-R62. It is also the voltage accross C39-R60. The voltage accross R60-R61-P4 will change with the output signal of T10. However the voltage accross the capacitor, Vc, will remain constant until discharged. The charged capacitor is essential to maintain the voltage at the junction of R60 at Vc volts with respect to X. While being discharged, the voltage accross C39 will maintain a current through R61-P4 and the base-emitter junction of T11. This current keeps T11 and T13 in the conducting state. The action can be clarified with a typical example. Assume that the current through the base of T11 must be 20 ma, if transistor T11 and T13 are to idle properly. When the signal is at a positive peak, the base and emitter of T11 are at +Vcc, and the transistors will not conduct. For proper circuit operation, T11 must conduct at all times. This can only be done keepeing the voltage accross R61 stable. This voltage is approximately the same as Vc accross C39. Since C39 maintains the charge, it does not permit the voltage accross R61 to change. By selecting the proper values for the time constant R61-P4-C39, this will be true even at the lowest frequency to be amplified.

The power output transistors T13 and T14 operate in a single-ended class B push-pull arrangement. They have a small forward bias to minimize cross-over distortion and it also operates the output transistors in a more favorable beta range. This bias is set by the voltage drop accross R63-R64 that shunt the input to T13 and T14. A small fuse resistor, R65-R66, is used in the emitter of each output transistor for protective fusing, and also to provide local feedback. This local feedback increases the bias stability of the circuit and also improves the declining frequency response of T13 and T14 at the upper end of the audio spectrum.

Because of the lower transistor efficiency above 10 Kc/s, care should be used when checking the amplifier for maximum continuous sinewave output at these frequencies. If continuous power is applied for more than a short duration, sufficient heating may result to raise the transistor current enough to burn the fuse resistors. Since there is not sufficient sustained high frequency power in regular record material to raise the current to this level, actual performance of the amplifier does not suffer since the power level in music declines as the frequency increases beyond about 1 to 2 Kc/s.
The speaker system is shunted by C41-R67 to filter out any frequencies beyond the audio spectrum that may increase the load impedance. The overload protection is determined by the emitter current of the output stage. The voltage over R65, created by the emitter current flowing through it, is coupled to T15 over an integrating network with a time constant of 1 second. When T15 starts conducting, the base of T16 becomes positive, thus placing point A in LP I S at ground potential. This point is the voltage supply of the pre-amplifier stage. The audio signal is hereby completely cut off. When the record rejects, the muting relay is energized. One of the muting contacts will bring the collector of T15 and base of T16 back to negative, driving these transistors in cut-off, this on condition that the overload is removed from the circuit.

POWER AMPLIFIER LP III S



ADJUSTMENT PROCEDURE : (see drawing on page 15)

If after repairs, readjustment of the amplifier should be necessary, the following step by step procedure should be executed very carefully.

The following test instruments are necessary:

1 AC-DC voltmeter; input resistance at least 10 K Ω/volt, preferably VTVM.
1 Ammeter, range 100 mA.
1 Sinewave generator.
1 Oscilloscope.
2 Dummy loads, 4 Ω, at least 80 watts each.
1 Male plug to fit the input of the amplifier. Wire the output of the sinewave generator to both channels (pins 1 and 3)

A control center with a linecord soldered to the amplifier and control fuses makes an ideal power supply.

The amplifier must be cold, unplugged for several hours.

1. Connect the volume control, and the 4 Ω dummy loads (both channels).

Set the following controls: Volume control-min.
Record quality compensator-min.
Bass and treble-max.

2. Turn P4 and P4' to exactly halfway.

3. Connect the mA meter. The positive lead to the positive lug of C44. Use the range 0-100 mA.

4. Disconnect both power supply jumpers on LP III S.

   Now comes the most critical part of the procedure. There is only 5 sec. to make the next adjustment, since the current will start rising rapidly. Performing the adjustment will be simplified if the negative lead of the mA-Meter ends in an alligator clip.

   Plug the amplifier into the control center.

5. With the negative lead of the meter, tap the collector terminal several times to avoid the surge current from damaging the meter. Clamp the lead to the terminal, and adjust P4 until the current reads between 40 and 45 mA. Notice that the current will start rising almost immediately. If this should happen before the adjustment is completed, disconnect the negative lead from the collector terminal and let the circuit cool off for several minutes.
   Repeat this procedure for the other channel with P4'.
   To increase the current, P4 is turned counter clockwise, and P4' clockwise.

6. Unplug the amplifier and disconnect the meter. Resolder both jumpers.

7. Connect the voltmeter and the oscilloscope to the right channel output terminals (blue wire). Set the voltmeter on the AC scale, 0-15 V.

8. Connect the sinewave generator to the amplifier. The input should be 1000 c/s at 250 mV., going to both channels. If the generator does not have an output meter, this can be measured with the AC voltmeter first.

9. Turn both level controls to minimum, P1 clockwise and P1' counter clockwise.
   Plug in the amplifier and turn the volume control to maximum.
   Increase P1 until clipping occurs. Notice the clipping is not the same for the positive as for the negative part of the sinewave.

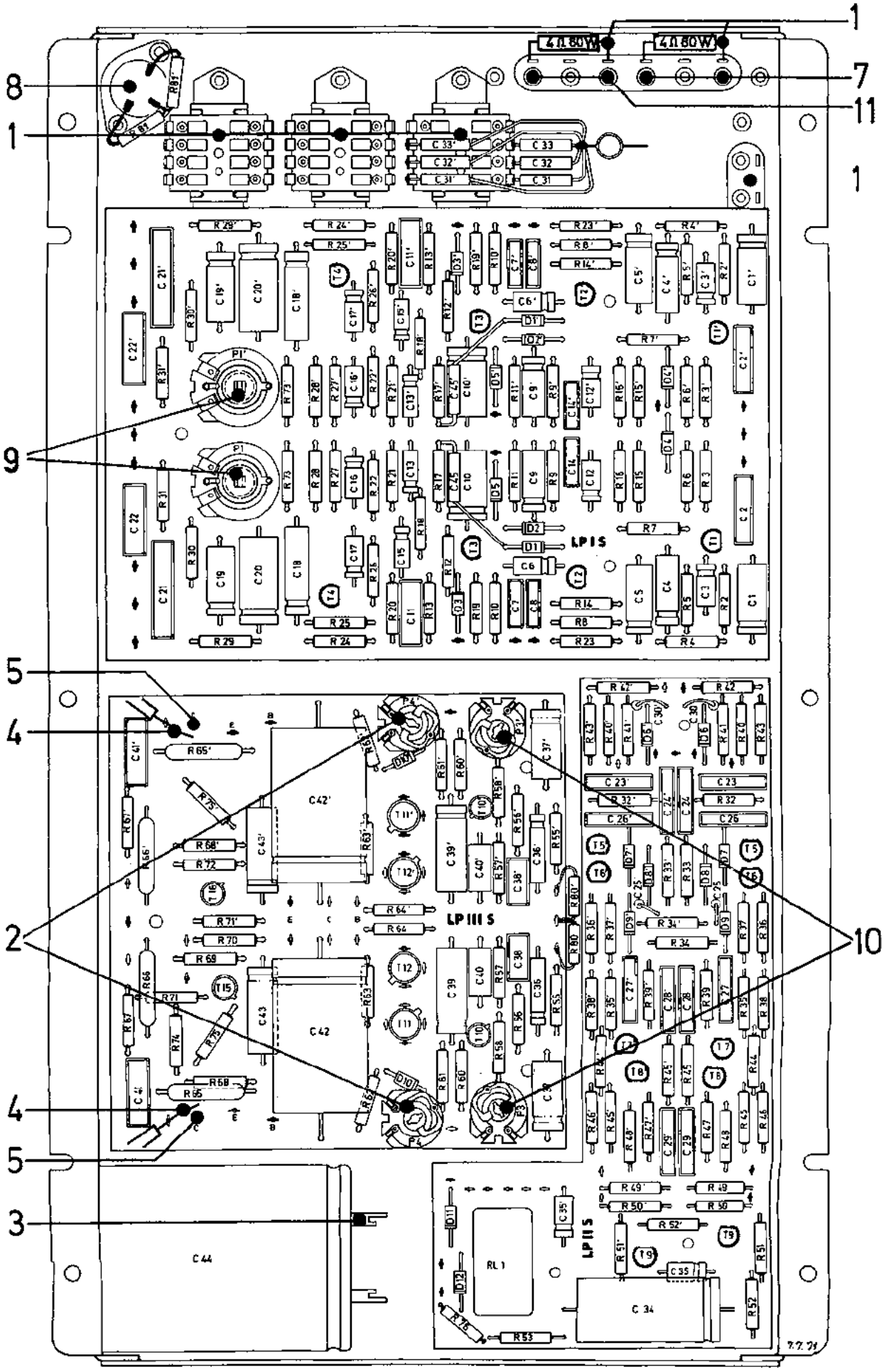
10. Adjust P3 that when P1 is turned up, both peaks, positive and negative, of the sinewave will start clipping at the same time. With P3 adjusted, P1 should be set for an output of 11 V.

11. Connect the scope and the voltmeter to the left channel output terminals (red wire), and repeat the procedure for the left channel with P1' and P3'.

12. After adjusting P1', measure the output of the right channel again, since this may have been affected by adjusting the left channel. Both channels should have the same output of 11 V.

All controls should now be sealed with a drop of sealing paint, or nailpolish.

TRANSISTOR - AMPLIFIER 70 S bb
ADJUSTMENT PROCEDURE



ACCESSORIES

Electro-mechanical totalizer

It is simple to install on the right side of the carriage base assembly. Mounting instructions will be included. The totalizer registers the total amount of coins which have been inserted.

Part-number 41 654

Microphone assy

Dynamic microphone MB 270 RS with switch and 15 m (50 ft.) cable-length Microphone assy with relays, mix-control and terminal board for volume control. The assy may be easily connected by following the instructions. The microphone may be used during sound production or also in stand by position.

Part-number 41 676

Remote Selection-Stepper

Adaptable to all world known remote control boxes (wall box). Detailed installation instructions are included in unit.

Part-number 41 925

CONSUL 120 A II

60 Cycles (Hz)

INSTALLATION OF THE PHONOGRAPH CONSUL 120 A II

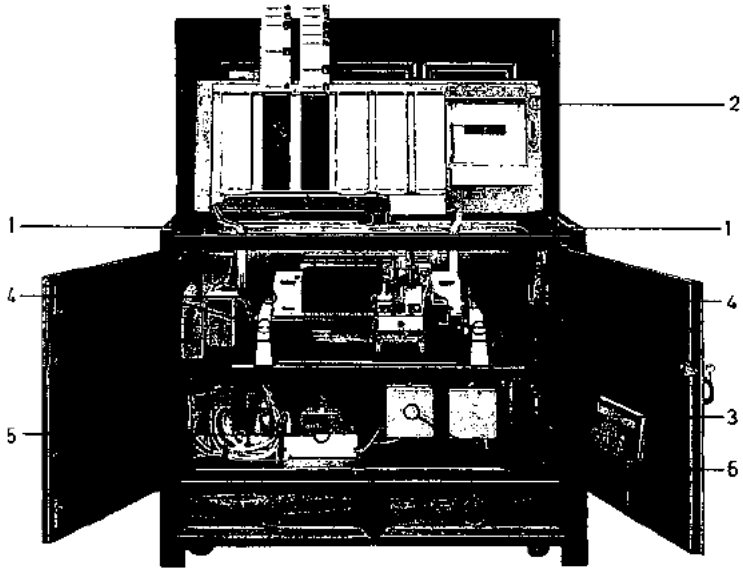


Fig. 1

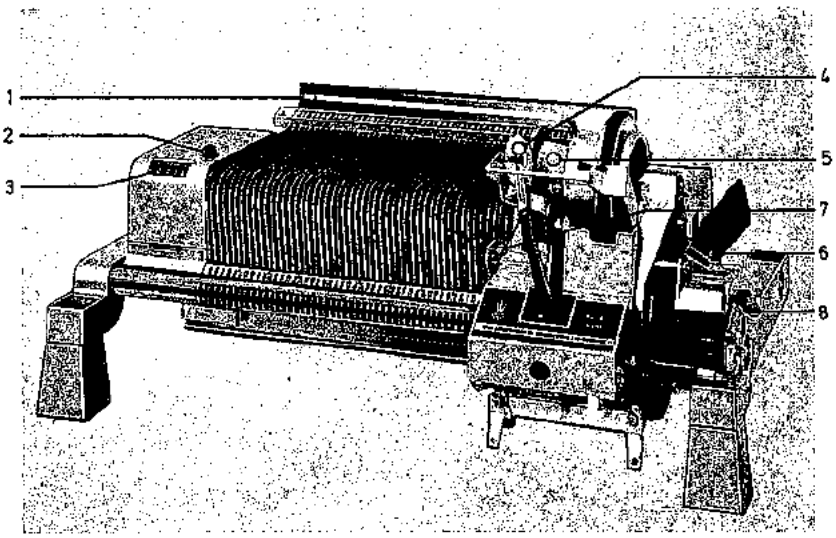


Fig. 2

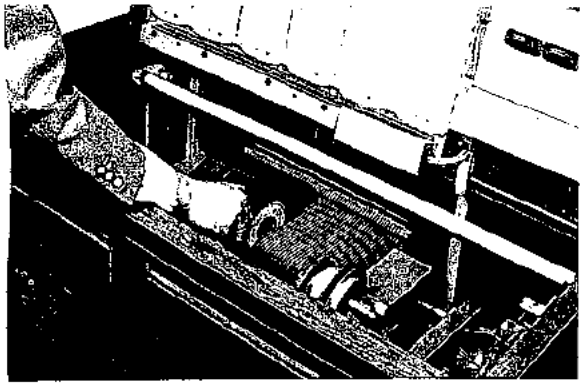


Fig. 3

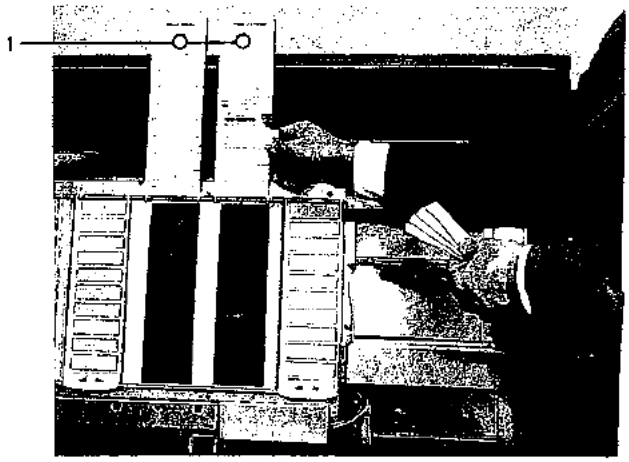


Fig. 4

See instructions next page ⟶

PLEASE READ INSTRUCTIONS BEFORE INSTALLATION

GENERAL

1. If external damage due to transport is noticed, this should at once be recorded on the delivery note and endorsed by the person making the delivery (Forwarding Agent, Railways, etc.). The manufacturer is not liable for damage caused during transit.

2. Devices for the safety and protection during transit must be removed before switching the phonograph on. They must, however, be refitted in the event of further transit.

3. All standard models of the phonographs are for a line voltage of 117 V/60 cycles.

4. The box is supplied with a 3-core line cable. Green-yellow must be connected to earth, corresponding to international wire code.

5. The proper functioning of the phonograph necessitates it to be horizontally and vertically levelled.

INSTALLATION OF THE PHONOGRAPH

1. Remove cabinet keys located at the front door.

2. Lift the top lid of the cabinet.

3. Unlock and open right front door. Unlatch top and bottom of left front door by depressing spring loaded latch. Unlatch lid containing program holder (figure 1-1).

4. To loosen carriage, remove screws painted red (figure 2-6 and 8) on the right hand side of the carriage base.Turn the security lever on the left hand side of carriage clockwise.

5. To loosen record clamp arm, remove rubber ring (figure 2-5) and rubber wedge (figure 2-7).

6. To free pick-up arm, remove rubber band, but leave the stylus cover on (figure 2-4) in order to protect the diamonds.

7. To loosen carriage base, unscrew four nuts (figure 1-4). The Nuts should clear the Carriage Base by at least 1/8 inch.

8. Pull line cable through the cutout hole in the back of the cabinet. Cover cutout hole with protection plate.

9. ATTENTION: Check line voltage before connecting! After plugging line plug into the wall socket, switch on line switch on the back of the cabinet. (Fluorescent lamps should now light up.)

10. By depressing the scan button (figure 2-2) let the carriage move from its rest position on the right to the left and remove card board strip out of groove.

11. Seize handle at the bottom of the title strip holder section (figure 4-1) and lift up title strip holders.

12. Open cash box, title strips will be found in the cash bag. After lettering the title strips, insert same in the desired succession into the title holders A—V. After adjustment arrange in proper order the "ALBUM" title strips.

13. Insert records into record magazine (figure 3) in the order of the title strips, the upper lettering of the magazine marking to the left. Move carriage by pushing it by Hand to any desired position.

14. Remove stylus covers from cartridge. (Save the covers for later use.)

15. Slightly press program holder frame downwards and lock cabinet.

16. Lock cash box and remove key (figure 1-2).

17. Close front doors and lock cabinet.

18. IMPORTANT WHEN TAKING OUT CARRIAGE. Also on this model, the carriage can be taken out for servicing. In case the carriage has to be taken out, make shure that the security lever on the left hand side is completely turned to the back. Lift locking levers (2), located on both sides of carriage, with both hands. When inserting carriage, follow reverse procedure.

19. IN CASE OF TRANSIT: move carriage to the extreme right and insert safety screws. All other safety and protection devices have to be mounted contrary to above described sequence.

CONTROL AND SERVICE SWITCHES:

Credit Button: Free play button, each pulse gives one credit. Located on inside of the right hand side of the cabinet — the upper button on coin acceptor assembly.

Credit Cancel Button: All credits can be cancelled. Located on inside of the right hand side of the cabinet — the lower button on the coin acceptor assembly.

Record Reject: By holding the button down for 1.5 seconds, any record can be rejected before end of play. Locations: one is located on the back left hand corner of the cabinet and one is on the volume control box.

Scan Button: permits travel of the carriage. Located at the left hand side of carriage base.

TAKING INTO OPERATION:

After inserting coin for SINGLE play, the SINGLE indicator lights up. After inserting coin for ALBUM play, the ALBUM indicator lights up. If both indicator lights are lit Album or Single Plays may be selected. When only Single indicator light is lit, only Single Play can be selected. After selection has been made, selection light will go out. Bent coins or slugs will — either immediately or after pressing the coin reject button — drop into the coin return cup.

The corresponding letter and number buttons are to be pressed. It is immaterial, which button will be pressed first. After the selection has been made, the buttons will be released. The record playing is being indicated by lighted figure- and letter-fields

The control box R 2 is fitted with a volume control for both channels and one reject button.

In case of low volume the bass will automatically be reproduced louder (physiological volume control).

The control box is mounted at the back of the cabinet. It can easily be taken out and used as a remote control. (Cover hole with protection plate.)
A 4 core shielded or unshielded cable can be used.

Therefore connection is possible at any location where remote control cable is on hand.
The remote control cable has to be connected to the corresponding terminals between amplifier and volume control box.

The machine is equipped with a new type popularity meter (figure 2 - 1) that indicates — easily detectable — the playing frequency of each record. The popularity meter can — by one simple movement of the lever — be reset to "0".

The total play meter is located on the left hand side of the carriage base (figure 2 - 3).

Used or damaged diamonds can — together with their holders — easily be removed from the cartridge without any tools and be replaced by new ones.

CREDIT UNIT:

In order to alter credits, the corresponding wheel together with the needed slot have to be placed on the drive pin. For ex.:

1 play — slot nr. 1
3 plays — slot nr. 3
6 plays — slot nr. 6

Thus, any variation from 1 — 12 plays is possible.

1. Remove credit unit cover
2. Clap out base plate of credit unit
3. To take off top plate, loosen screw and remove circlip from Line wheel pin. Take off plastic spacer and washer.
4. Remove tension spring
5. Take off top wheel
6. Refit wheel in such a way that the drive pin is led into the needed slot of the wheel
7. If second or third wheel has to be altered, follow same procedure as above. (Be careful to replace washers when assembling.)
8. Refit all other parts contrary to above indicated sequence.
9. Check with coins.
10. Change price instructions at the selector key panel. Credits and price instructions have to coincide.

DISCOTHEQUE / ALBUM:

An ALBUM-selection can be made, when sufficient credits have been accumulated. (See price instruction.) If, for ex., an ALBUM-selection is set for 3 credits, a minimum of 3 credits must be accumulated.

1. Positions 1 and 2 in the credit unit are connected with one contact finger and positions 3 and 4 with another contact finger.
2. Cam N4 of the switch mechanism (left hand side — carriage base) is set in such a way that 3 subtractions are realized in the credit unit at each ALBUM-selection.
3. Slide open cover of the selector switches and switch the contact fingers in the left (green) row.

   Position 1 - Single
   Position 2 - Album

   Selector keys 4 through 6 can be changed.

   To change the speed for album play, switch the contact fingers in the right (red) row.

   Position 1 - 45 RPM
   Position 2 - 33 1/3 RPM

   Selector keys 4 through 6 can be changed.

CONNECTION OF LOUDSPEAKERS:

The impedance of installed loudspeaker combinations is 8 Ω per channel. If additional loudspeakers are to be used, attention must be paid to the impedance matching.

In case of mismatching the electronic fuses in the amplifier will cut out.

The total impedance of the connected loudspeakers should not be less than 3 Ω per channel.

See inclosed "EXTENSION SPEAKER CONNECTIONS".
If desired outputtransformer is available Part No. 41513
Max. music power = 35 Watts per channel.

MATCHING THE SOUND TO THE ROOM ACOUSTICS:

After lifting up selector key panel, the sound controls can be reached.

Treble-control switch — Record quality compensator
Bass-control switch — Channel level adjusting

Upon leaving the factory both channels are adjusted to the same level. If neccessary, the level may be limited to the desired maximum at the place of installation.

CONSUL 120 A II

SPECIFICATIONS

Electrical Data:

Line Voltage	117 V. AC 60 cycles
Working Voltage	30 V. DC
Power: standby	85 W.
transfer and scan	120 W.
play	140 W.

Control Center:

1 Transformer for working voltage	117 V. AC prim. 80/110/125 V. AC sec. I 30 V. AC sec. II
1 Transformer for amplifier	117 V. AC prim. 40 V. AC sec.

Fuses:

1 Line Voltage 117 V. AC	3²/₁₀ Amp. slo blo
1 Amplifier	1²/₁₀ Amp. slo blo
1 Working Voltage	2 Amp. slo blo
1 Accessories connection (AMP)	as needed
1 Electronic fuse	in the amplifier

Lighting:

1 Fluorescent lamp	F 30 T 8 30 W./33
1 Starter	FS — 4
1 Ballast	117 V./30 W./0.65 Amp.
2 Credit lights	24 V./ 3 W.
1 Safety lamp in Credit unit	24 V./15 W.
26 Indicator lamps (miniature GE 19)	12 V./0.1 Amp.

Credit Unit:

Credits	adjustable from 1 to 12 credits. (See note inside the lid)
Accumulation possible	up to 40 credits

Selection Circuit:

20 Letter buttons A — V	2 sets of switches, each 10 × 2 contacts
6 Number buttons 1 — 6	1 set of switches with 6 × 3 contacts
1 Latch bar solenoid	30 V. DC 100 % ED
1 Selection motor	30 V. AC
1 Positioning Motor	30 V. AC
4 Cam switches N 1 — N 4	radio-shielded
1 Pin assembly	120 pins 12 selection solenoids
ALBUM-selection	Adjustment see note in credit unit lid

Playing Mechanism:

1 Carriage base
with pre-selector unit and record magazine for 60 records alternatively 45 rpm or 33⅓ rpm, 7 inch diameter, mono or stereo, vertically located.

1 Popularity meter	60 counting strips
1 Total play meter	4 digits
1 Carriage with play motor (synchronous)	80/110 V. AC 15/31 W. 1500 rpm, left and right hand turns.
1 Clutch solenoid	100 V. AC 100 % ED
1 Trip solenoid	30 V. DC 5 % ED
1 Speed changing solenoid	58 V. DC 100 % ED
1 Cartridge	ceramic DB 200 stereo/mono
2 Needles	diamond D 102 stereo/mono

Amplifier:

Stereo amplifier 70 S bb	with electronic fuse
Volume compensator	automatic (AVC)
Output stage	2 × 2 N 30 55 in push-pull
Output capacity per channel	35 W. music (60 W. sine wave)
Impedance	4 Ohms output
Muting relay	40 V. DC
1 (Remote-) volume control	volume control for both channels and one reject button
2 Woofers 10 inches	8 Ohms 30 W.
2 Tweeters DKS 6/13/100 pressure chamber system	4 Ohms 6 W.
1 Stereo network	1.5 mHy / 32 µF

Locks and Keys:

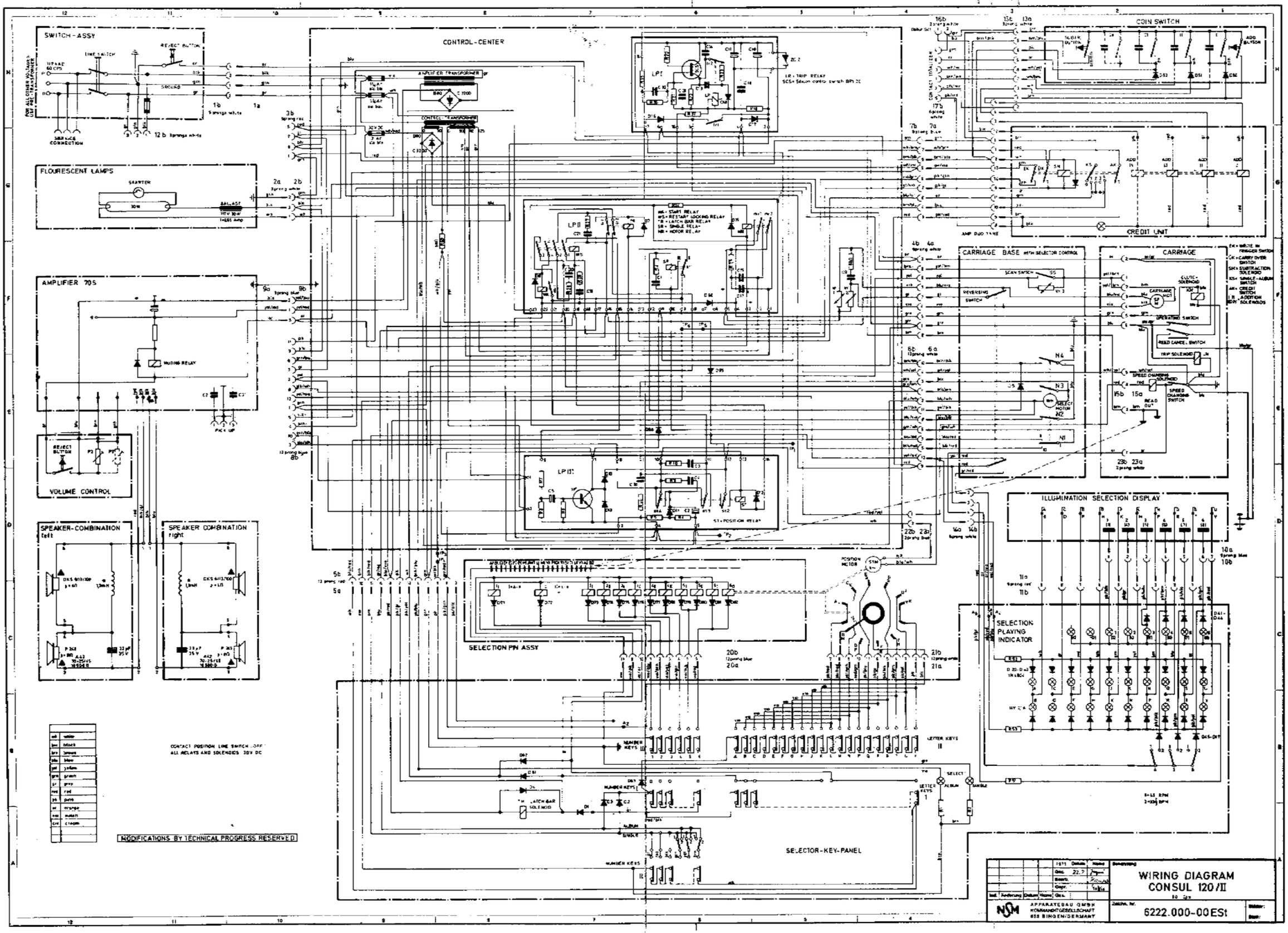
1 Cabinet locks	SL 82 d
2 Cabinet keys	Nr. 167 676 (K5)
1 Cash box lock	SL 86 p
2 Cash box keys	different numbers.

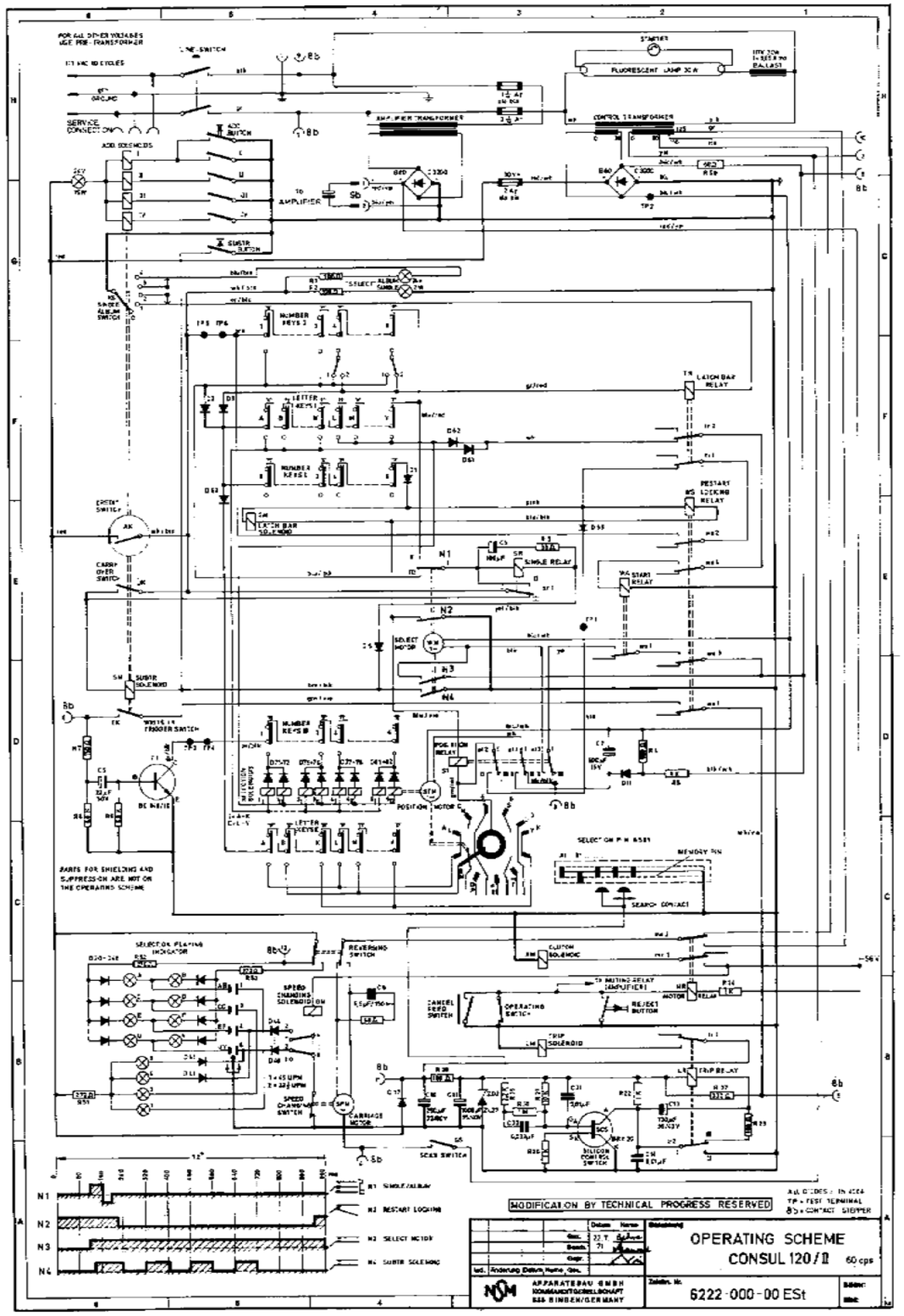
CONSUL 120 A II

MEASUREMENTS AND WEIGHTS:

	mm (max.) height	width	depth	kg (max.) weight
Box total	850	1070	550	112,0
Carriage base	235	583	286	12,0
Carriage	260	200	345	4,0
Amplifier 70 S bb	356	206	90	3,0
Control Center	356	206	122	6,0
Box packing	950	1140	620	19,0

	Inches (max.)			pounds (max.)
Box total	33 1/2	42	21 1/2	246 1/2
Carriage base	9 1/4	23	11 1/4	26 1/2
Carriage	10 1/4	8	13 3/4	8 3/4
Amplifier 70 S bb	14 1/4	8 1/4	3 1/2	6 1/2
Control Center	14 1/4	8 1/4	5	13 1/4
Box packing	37 1/2	44 3/4	24 1/2	41 3/4


SWITCH-ASSY
LINE SWITCH
REJECT BUTTON
SERVICE CONNECTION
CONTROL-CENTER
AMPLIFIER TRANSFORMER
CONTROL TRANSFORMER
LP I
LP II
LP III
FLOURESCENT LAMPS
STARTER
BALLAST
AMPLIFIER 70S
MUTING RELAY
VOLUME CONTROL
SPEAKER-COMBINATION left
SPEAKER COMBINATION right
COIN SWITCH
CREDIT UNIT
CARRIAGE BASE WITH SELECTOR CONTROL
CARRIAGE
SCAN SWITCH
REVERSING SWITCH
OPERATING SWITCH
TRIP SOLENOID
SPEED CHANGING SOLENOID
SPEED CHANGING SWITCH
ILLUMINATION SELECTION DISPLAY
SELECTION PLAYING INDICATOR
SELECTION PIN ASSY
SELECTOR-KEY-PANEL
NUMBER KEYS
LETTER KEYS
CONTACT POSITION LINE SWITCH OFF
ALL RELAYS AND SOLENOIDS 30V DC
MODIFICATIONS BY TECHNICAL PROGRESS RESERVED
WIRING DIAGRAM
CONSUL 120/II
6222.000-00ESt
APPARATEBAU GMBH
KOMMANDITGESELLSCHAFT
653 BINGEN/GERMANY

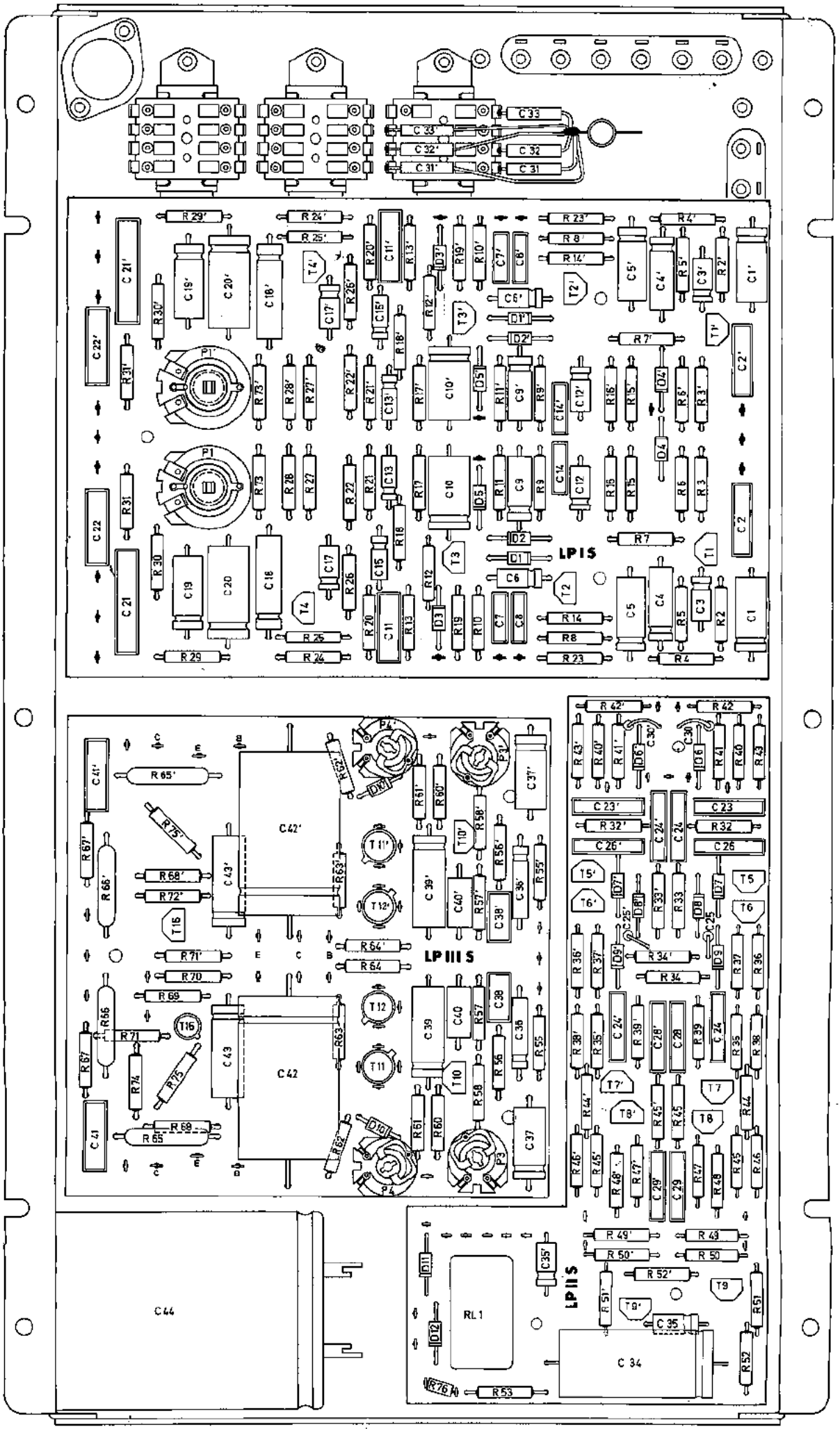


ATTENTION:

Sections of the wiring diagram with the corresponding circuits marked through heavy lines, have been added to the following descriptions. This makes easier to follow the current run and helps to understand the functionings.

We recommend to have the left side of this page unfolded when studying the following sheets, because then the explained operations may be followed on the whole operating scheme

TRANSISTOR-VERSTÄRKER 70 S
TRANSISTOR-AMPLIFIER 70 S



TROUBLE SHOOTING CHART

1. No lights, no power	Check wall outlet, ON-OFF switch, 3 2/10 amp fuse.
2. Coins hang up in rejector or return	Check for dirt or slugs in coin rejektor.
3. Coins fall into cash bag but no credit	Check coin switches, 24 V light in credit unit, 2 amp fuse AK credit switch.
4. Buttons do not latch, latch bar solenoid not energized	Check AK credit switch, rest contacts in key switch assembly. Open latch bar solenoid, plunger in latch bar solenoid.
5. Buttons stay down, no selection is made	Check start relay, contacts in key switch assembly.
6. Selection cycle completed, carriage scans but no selection is made and no credit is subtracted.	Check single relay contact, subtract solenoid.
7. Selection is made, motor does not turn	Check scan switch.
8. Motor turns but does not scan	Check clutch solenoid, butterfly clutch, slip clutch.
9. Motor turns clutch solenoid not energized	Check operating switch, amplifier plug, 1 2/10 fuse.
10. Credits subtracted but no selection is made	Check write-in trigger switch, carry over switch, read-out contacts.
11. Too many credits subtracted when single selection is made	Check single relay, cam switch N 1, check contact plate.
12. Not enough credits subtracted when album selection is made	Check contact plate.
13. Carriage picks up record and puts it back without playing	Check armature in clutch solenoid, magnetic reed switch.
14. Record does not cut off at the end	Check magnetic reed switch, magnet.
15. Record plays at wrong speed	Check idler wheels, belt, turntable, speed changing mechanism.
16. No sound	Check amplifier, needles, pick-up.
17. Sound at start of record and then disappears	Check outside speaker lines for mismatch or short.
18. Sound distored or low	Check for mismatch of speakers, pick-up, needles

NSM APPARATEBAU KG
653 BINGEN/RHEIN · GERMANY

TECHNISCHE ANLEITUNG

TECHNICAL INSTRUCTIONS

NOTICE TECHNIQUE

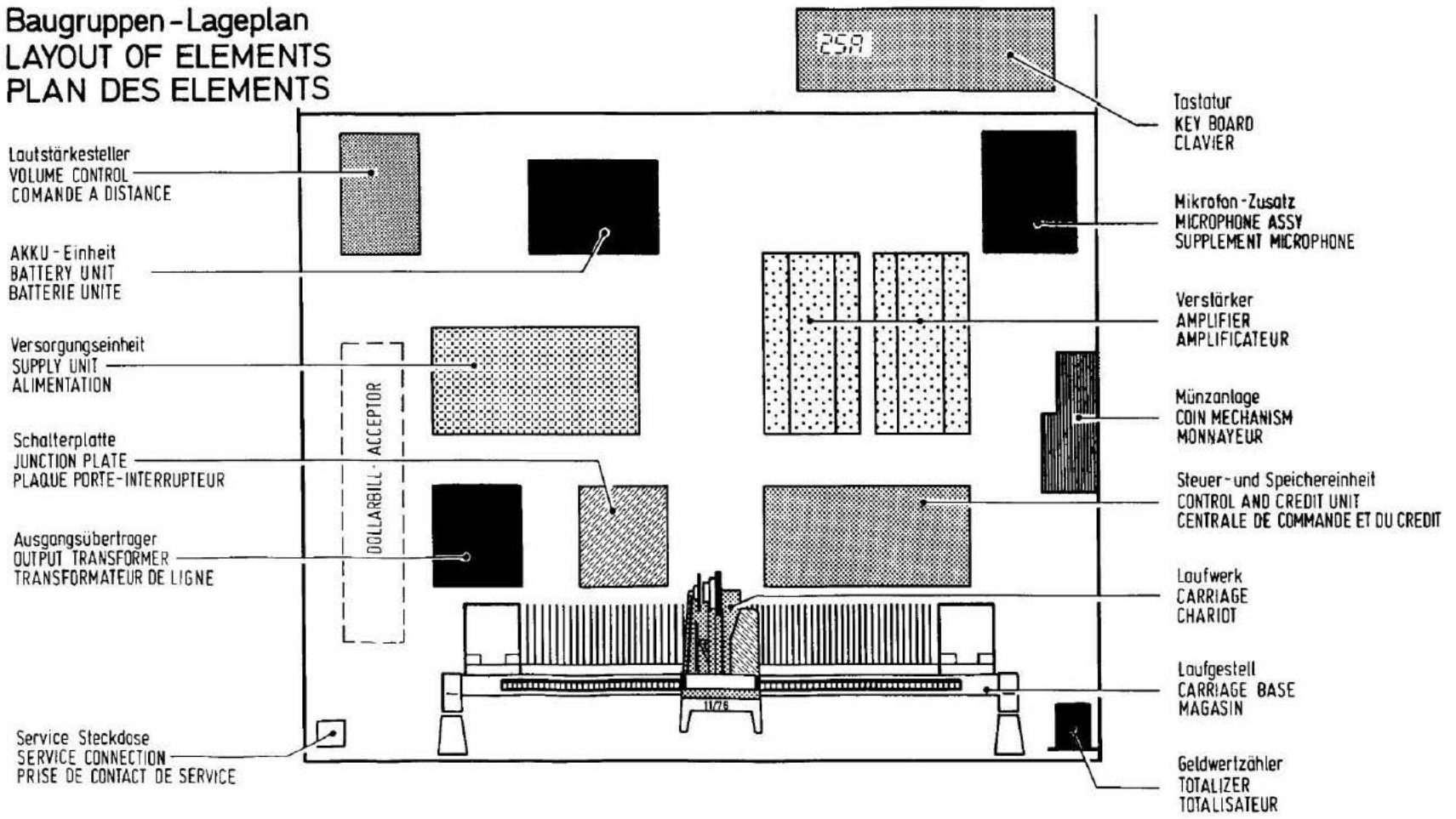
electronic

PRESTIGE E 160

50/60 Hz

208 228
***

Baugruppen-Lageplan
LAYOUT OF ELEMENTS
PLAN DES ELEMENTS



BITTE BEI DER AUFSTELLUNG BEACHTEN

TRANSPORTSCHÄDEN

Soweit äußerliche Transportschäden erkennbar sind, müssen diese sofort beanstandet, auf einem Transportschein festgehalten und vom Anlieferer (Spediteur, Bundesbahn etc.) bestätigt werden.

Der Hersteller haftet nicht für Transportschäden

NETZSPANNUNG

Das Gerät ist für 220 V Wechselstrom eingerichtet. Für andere Spannungen, am Transformator die entsprechende Spannung einstellen.

Gemäß VDE-Vorschrift ist das Gerät mit Schutzleiteranschluß zu versehen.

* * * * * * * * * * * * *

AUFSTELLEN DER BOX

Einwandfreies Arbeiten der Münzanlage bedingt waage- und lotrechtes Aufstellen der Box.

Transportsicherungen und Schutzvorrichtungen müssen vor Inbetriebnahme entfernt und vor jedem Weitertransport eingesetzt werden.

GEHÄUSESCHLÜSSEL

befinden sich an der Gehäuserückseite. Nach dem Aufschließen Gehäuse-Oberteil aufklappen.

PROGRAMMTAFELRAHMEN

Bei aufgeklapptem Gehäuse-Oberteil Programmtafelrahmen entriegeln (Gehäuse innen rechts und links) und hochschwenken

LAUFWERK LÖSEN

Rote Schrauben rechts am Laufwerk entfernen. Sicherungshebel links am Laufwerk nach hinten schwenken.

PLATTENSPANNTEIL ENTSICHERN

Gummiring und Gummikeil abnehmen.

TONARM BEFREIEN

Gummiband entfernen, aber Transportschutz noch am Tonkopf belassen.

LAUFGESTELL LÖSEN

4 Muttern zurückdrehen bis das Laufgestell frei auf den Federn schwingt.

NETZANSCHLUSSKABEL

befindet sich im Gehäuse. Kabel durch die Aussparung in der Gehäuserückwand ziehen. Aussparung durch Schutzblech abdecken. Vor Anschluß Netzspannung prüfen ! Stecker in die Steckdose stecken und Netzschalter an der Gehäuserückseite einschalten. (Box-Beleuchtung muß jetzt leuchten.)

LAUFWERK

- Parkstellung rechts- nach links fahren: Fahrschalter (befindet sich in der Versorgungseinheit) drücken und Pappstreifen aus der Nut der Zahnstange entnehmen.

PROGRAMMTAFELN

am Griff fassen. Rastfeder zusammendrücken und Tafel aufklappen.

KASSENSCHLÜSSEL

hängen an den Gehäuseschlüsseln.

TITELSTREIFEN

aus dem Kassenbeutel nehmen, beschriften und in gewünschter Reihenfolge in die Programmtafel einschieben.

SCHALLPLATTEN

in der Reihenfolge der Titelstreifen, mit dem oberen Titel (A) nach links in die Schallplattenkassette einlegen. Laufwerk von der Stelle wegschieben, an der noch Schallplatten einzulegen sind.

TRANSPORTSCHUTZ

vom Tonkopf entfernen. Alle Transportsicherungen für spätere Wiederverwendung aufbewahren.

Gehäuse und Kasse verschließen.

ACHTUNG

Zur Vorbeugung von Betrugsversuchen empfehlen wir, die Gewindebohrung in der Rückwand, über dem Münzprüfer, mit einer der Laufwerk-Transportschrauben von innen zu verschließen.

KONTROLL- UND SERVICEKNÖPFE

Additionsknopf : Freispielknopf, jeder Impuls gibt Kredit Sitzt innen an der rechten Seite im Gehäuse- an der Münzprüfereinheit.

Subtraktionstaste: Alle Kredite können subtrahiert werden. Sitzt innen in der Steuer- und Speichereinheit (nach Aufschieben des Deckels zugänglich.
Achtung! Wenn die Steuer- und Speichereinheit auf "Indirekte Umwertung" eingestellt ist, muß mindestens eine Wahl getätigt werden, bevor mit der Taste subtrahiert werden kann.

REJECT : Halte den Knopf 1,5 Sek. gedrückt. Die spielende Platte wird vorzeitig beendet. Sitzt am Lautstärkesteller.

Fahrschalter : Dient dazu, das Laufwerk zu prüfen. Sitzt in der Versorgungseinheit.

INBETRIEBNAHME DER BOX

Nach Einwurf des Münzwertes für mindestens 1 Spiel leuchtet die Anzeige "SINGLE". Solange das Schild leuchtet, können Spiele gewählt werden.

Falsche oder verklemmte Münzen fallen sofort- oder nach Betätigen des Drehknopfes- in den Rückzahlbecher. Die entsprechenden Wähltasten sind zu drücken, zuerst die erste Ziffer, dann die zweite Ziffer und danach der Buchstabe A oder B. Während des Wahlvorganges werden die gedrückten Tasten (1. und 2. Ziffer) angezeigt. Sollte während des Drückens der 1. und 2. Ziffer eine verkehrte Ziffer gedrückt werden, kann der Wahlvorgang nach Drücken der "COR"-Taste wiederholt werden.
Die gewählte, gerade abspielende Platte wird danach wieder angezeigt.

Lautstärkesteller und REJECT-Knopf sind in einem Gehäuse zusammengefaßt. Diese Einheit läßt sich wahlweise an der Box - Rückwand montiert oder als Fernregler verwenden.
Die Fernreglerleitung braucht keine Abschirmung. Es kann jede handelsübliche 4 - adrige Leitung verwendet werden.
Die Fernreglerleitung muß Klemmen gleicher Bezeichnung am Verstärker und im Reglerkästchen verbinden.

Die Box ist mit einem Popularitätszähler- am Laufgestell- ausgerüstet, welcher auf einen Blick Aufschluß über die Abspielhäufigkeit jeder Schallplatte gibt. Mit einem Hebeldruck können die Anzeigestreifen in Nullstellung gebracht werden.

Der Gesamtspielezähler sitzt links am Laufwerk.

*

ANPASSEN DES KLANGBILDES AN DIE RAUMAKUSTIK

ist durch die Höhen- und Baßsteller auf den Verstärkern möglich.

ANSCHLUSS DER LAUTSPRECHER

Die Impedanz der eingebauten Lautsprecher-Kombination ist 8 Ω pro Kanal.
Wenn Zusatzlautsprecher angeschlossen werden, ist auf die Anpassung zu achten.
Unteranpassung führt zu Verzerrungen durch Ansprechen der Begrenzerschaltung im Verstärker. Die Gesamt-Impedanz der angeschlossenen Lautsprecher soll 4 Ω pro Kanal nicht unterschreiten.
Bei Bedarf kann ein Ausgangsübertrager geliefert werden. (siehe Zubehör - Seite 6

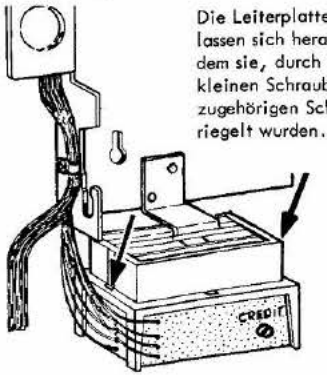
Mit den Pegelstellern sind beide Kanäle vom Hersteller auf gleichen Pegel eingestellt.

ABTASTNADEL

Nadelhalter am Tonkopf belassen und Abtastnadel mit einem weichen Pinsel reinigen. Durch öfteres Abnehmen werden die Nadelhalterführungen locker, verminderte Tonqualität ist die Folge.

Verbrauchte oder beschädigte Abtastnadeln können mit ihrem Halter (Systemeinschub) leicht ohne Werkzeug vom Tonkopf abgenommen und durch neue ersetzt werden. Verwenden Sie nur den Original Shure Ersatz-Systemeinschub N 17 CM.
Die Verwendung von Systemeinschüben anderer Hersteller kann erheblich verminderte Musikleistung verursachen.

Münzkanal



Die Leiterplatten im Münzkanal lassen sich herausschieben, nachdem sie, durch Einstecken eines kleinen Schraubenziehers in den zugehörigen Schlitz (Pfeil), entriegelt wurden.

SERVICE TIPS

VOR REPARATUR NETZSTECKER ZIEHEN

Bei Überwachung und Erprobung, Netzspannung führende Teile nicht mit der Hand berühren.

Sicherungen nur durch solche mit gleichen Werten ersetzen.

SEHR WICHTIG !

Falls das Laufwerk für Servicezwecke herausgenommen werden soll, ist darauf zu achten, daß der an der linken Seite befindliche Sicherungshebel ganz nach hinten geschwenkt ist. Danach Laufwerk mit den beiden Händen fassen und unter gleichzeitigem Anheben beider Spannhebel herausheben. Beim Wiedereinsetzen in umgekehrter Reihenfolge verfahren

Bitte, denken Sie daran !

Im Gegensatz zu Keramiksystemen sind Magnetsysteme nicht altersempfindlich.
Wenn Sie ein Laufwerk mit Shure-Magnetkopf zur Reparatur einsenden, belassen Sie bitte den Tonkopf am Tonarm und schützen die Abtastdiamanten durch die Transportschutzhaube.
Herausgenommene Abtastdiamanten nicht vertauschen, sondern an der gleichen Tonkopfseite einsetzen.

STANDORTWECHSEL

Laufwerk rechts an den Anschlag bringen. Danach Sicherungsschrauben eindrehen. Alle übrigen Transportsicherungen wieder anbringen.

SCHMIERUNG

Die im Herstellwerk NSM durchgeführte Erstschmierung gewährleistet einwandfreies Arbeiten für ca. 3000 Betriebsstunden. Dadurch ist im Normalfall auf Jahre keinerlei Schmierung nötig. Zur Nachschmierung nur die verwendeten Schmiermittel benutzen, weil sonst Störungen durch Verharzung auftreten können. Im NSM-Schmiermittelsatz (Bestell-Nr. 106 299) der durch den Automaten-Großhandel oder die LÖWEN-ORGANISATION zu beziehen ist, sind diese Schmiermittel enthalten.

Krediteinstellung

Bei Auslieferung des Musikautomaten sind die Steckdioden auf dem Programmfeld der Steuer- und Speichereinheit so eingesteckt, daß die Programmeinstellung mit der Spielanweisung übereinstimmt. Wenn Steckdioden herausgezogen werden, (z.B. für Service oder Erprobung) sind ihre Positionen - an den Löchern in der Papierschablone, die auf dem Programmfeld liegt - leicht wiederzufinden. Für eine andere Spielanweisung muß die Programmeinstellung, durch Umstecken der Steckdioden geändert werden.

In dieser Beschreibung ist der gesamte Einstellvorgang anhand eines Beispiels erklärt. Es wird von folgenden Voraussetzungen ausgegangen:

Die Box hat 160 Wahlmöglichkeiten

Sie ist ausschließlich mit Single-Platten bestückt

Es sollen für 0,50 DM - 1 Spiel
für 1,- DM - 3 Spiele
und für 2,- DM - 7 Spiele gegeben werden.

Das eingeworfene Geld wird vom Münzprüfer sortiert und in verschiedene Münzkanäle geleitet. In jedem Münzkanal befindet sich eine Lichtschranke, welche erkennt, wenn eine Münze hindurchfällt. Von jeder dieser Lichtschranken führt eine Leitung zum Programmfeld der Steuer- und Speichereinheit. An den Enden dieser Leitungen sitzen die Steckdioden DMK 1 - DMK 5. Diese dienen zum Einstellen des Geldwertspeichers.

1. Geldwertspeicher einstellen
Die eingeworfenen Münzen sind - in diesem Beispiel 0,50 DM, 1,- DM und 2,- DM. Diese Geldwerte verhalten sich wie 1 : 2 : 4; anders ausgedrückt:

0,50 DM = 1 x 0,50 DM oder 1 Geldeinheit
1,- DM = 2 x 0,50 DM oder 2 Geldeinheiten
2,- DM = 4 x 0,50 DM oder 4 Geldeinheiten

Die Summe der Geldeinheiten ist der Geldwert.

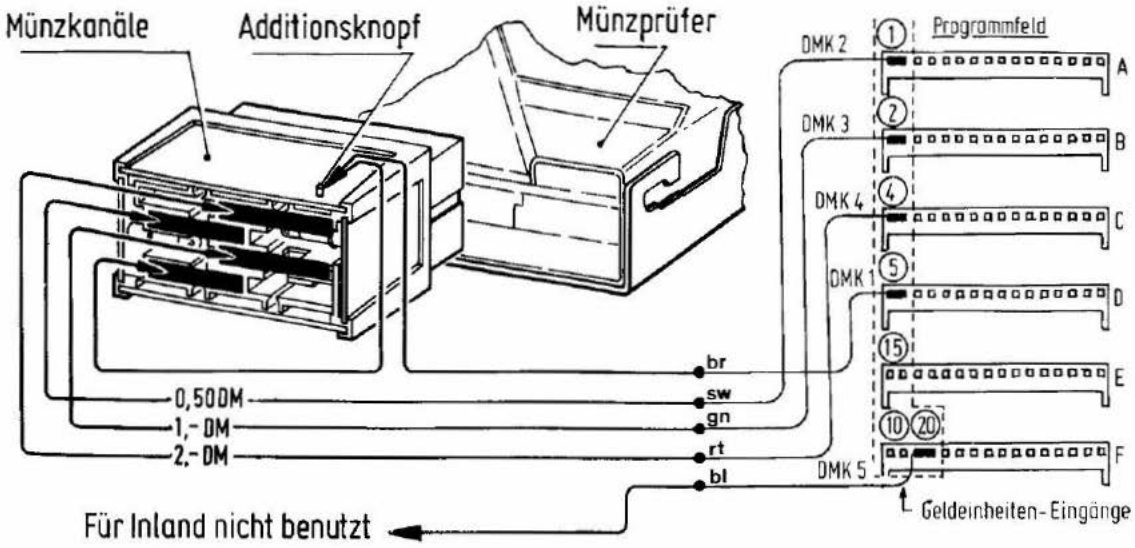


Abb. 1

Mit den Steckdioden DMK 1 - 5 wird der Geldwertspeicher so eingestellt, daß der gespeicherte Geldwert den eingeworfenen Münzen entspricht.

Weil 0,50 DM in unserem Beispiel = 1 Geldeinheit ist, muß die Steckdiode DMK 2 an der schwarzen Leitung, die vom 0,50 DM-Münzkanal kommt, in Geldeinheiten-Eingang (1) auf Position A1 eingesteckt werden.

Weil 1,- DM (=2 x 0,50 DM) = 2 Geldeinheiten sind, muß die Steckdiode DMK 3 an der grünen Leitung, die vom 1,- DM-Münzkanal kommt, in Geldeinheiten-Eingang (2) auf Position B1 eingesteckt werden.

Weil 2,- DM(= 4 x 0,50 DM) = 4 Geldeinheiten sind, muß die Steckdiode DMK 4 an der roten Leitung, die vom 2,- DM-Münzkanal kommt, in Geldeinheiten-Eingang (4) auf Position C1 eingesteckt werden.

Wenn die Steckdiode DMK 1 an der braunen Leitung, die vom Additionsknopf kommt, in den Geldeingang (5) auf Position D1 eingesteckt ist, werden bei jedem Druck auf den Knopf, 5 Geldeinheiten gespeichert.

Die noch freie Steckdiode DMK 5 an der blauen Leitung, die nur in ausländischen Musikautomaten gebraucht wird, kann in einen freien Geldeinheiten-Eingang - z.B. (20) = Position F2 - eingesteckt werden.

2. Umwertung einstellen

Der gespeicherte Geldwert wird vom Microcomputer in eine einstellbare Anzahl Single-Spiele umgewertet. Hierbei ist zwischen direkter und indirekter Umwertung zu wählen. Bei direkter Umwertung wird das eingeworfene Geld sofort in die eingestellte Anzahl Single-Spiele umgewertet, d.h. die Umwertung ist an den Wert der jeweils eingeworfenen Münze gebunden.

Bei direkter Umwertung werden für 2,- DM nur dann 7 Spiele gegeben, wenn sie als 2,- DM-Münze eingeworfen wurden.

Wenn auf Pos. F6 eine Steckdiode eingesetzt wird, ist der Microcomputer auf indirekte Umwertung eingestellt. Bei indirekter Umwertung wird das gesamte eingeworfene Geld erst bei der darauffolgenden Wahl umgewertet. Damit ist erreicht, daß jeder Geldwert in Münzen beliebiger Größe eingeworfen werden kann.

Bei indirekter Umwertung werden beispielsweise für eingeworfene 2 x 0,50 DM + 1 x 1,- DM = 2,- DM, ebenso 7 Single-Spiele gegeben wie für eine 2,- DM-Münze.

2.1 Umwertung von 1 Geldeinheit (0,50 DM) einstellen

Weil für 1 Geldeinheit = 1 Single-Spiel gegeben werden soll, muß eine Steckdiode auf das Einstellfeld für die Umwertung von 1 Geldeinheit in 1 Single-Spiel [1 ≙ 1] in Position D2 gesteckt werden.

2.2 Umwertung von 2 Geldeinheiten (1,- DM) einstellen

Für die Umwertung von 2 Geldeinheiten in 3 Single-Spiele müssen 2 Steckdioden eingesteckt werden, eine auf das Einstellfeld für Umwertung von 2 Geldeinheiten in 1 Single-Spiel [2 ≙ 1] - in Position A2 - und eine auf das Einstellfeld für Umwertung von 2 Geldeinheiten in 2 Single-Spiele [2 ≙ 2] - in Position B2.

2 ≙ 1
+ 2 ≙ 2
ergibt 2 ≙ 3 Single-Spiele

2.3 Umwertung von 4 Geldeinheiten (2,- DM) einstellen

Für die Umwertung von 4 Geldeinheiten in 7 Single-Spiele müssen 3 Steckdioden eingesteckt werden, eine auf das Einstellfeld für Umwertung von 4 Geldeinheiten in 1 Single-Spiel [4 ≙ 1] - in Position A4 -, eine auf das Einstellfeld für Umwertung von 4 Geldeinheiten in 2 Single-Spiele [4 ≙ 2] -in Position B4- und eine auf das Einstellfeld für Umwertung von 4 Geldeinheiten in 4 Single-Spiele [4 ≙ 4] -in Position C4.

4 ≙ 1
+ 4 ≙ 2
+ 4 ≙ 4
ergibt 4 ≙ 7 Single-Spiele

Anzahl der SINGLE - Spiele →

Geldwert ↓

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1	D2	D3	D2/D3	C7	D2/C7	D3/C7	D2/D3 C7	E4	E4/D2	E4/D3	D2/D3 E4	C7/E4	D2/C7 E4	C7/D3 E4	D2/D3 C7/E4				
2	A2	B2	A2/B2	C2	A2/C2	B2/C2	A2/B2 C2	E3	A2/E3	B2/E3	A2/B2 E3	C2/E3	A2/C2 E3	B2/C2 E3	A2/B2 C2/E3				
3	A3	B3	A3/B3	C3	A3/C3	B3/C3	A3/B3 C3	B7	A3/B7	B3/B7	A3/B3 B7	C3/B7	A3/C3 B7	B3/C3 B7	A3/B3 C3/B7				
4	A4	B4	A4/B4	C4	A4/C4	B4/C4	A4/B4 C4	A7	A4/A7	B4/A7	A4/B4 A7	C4/A7	A4/C4 A7	B4/C4 A7	A4/B4 C4/A7				
5	A5	B5	A5/B5	C5	A5/C5	B5/C5	A5/B5 C5	D6	A5/D6	B5/D6	A5/B5 D6	C5/D6	A5/C5 D6	B5/C5 D6	A5/B5 C5/D6				
10					A6	B6	A6/B6	C6	A6/C6	B6/C6	A6/B6 C6	D7	A6/D7	B6/D7	A6/B6 D7	C6/D7	A6/C6 D7	B6/C6 D7	A6/B6 C6/D7
20					E2	D5	E2/D5	D4	D4/E2	D4/D5	D4/D5 E2	E5	E2/E5	D5/E5	D5/E2 E5	D4/E5	D4/E2 E5	D4/D5 E5	D4/D5 E2/E5

Bei Umwertung von Geldwert 10 und Geldwert 20 erhöht sich die Zahl der SINGLE-Spiele um 4.

Abb. 2

3. Einstellen für Single-Platten

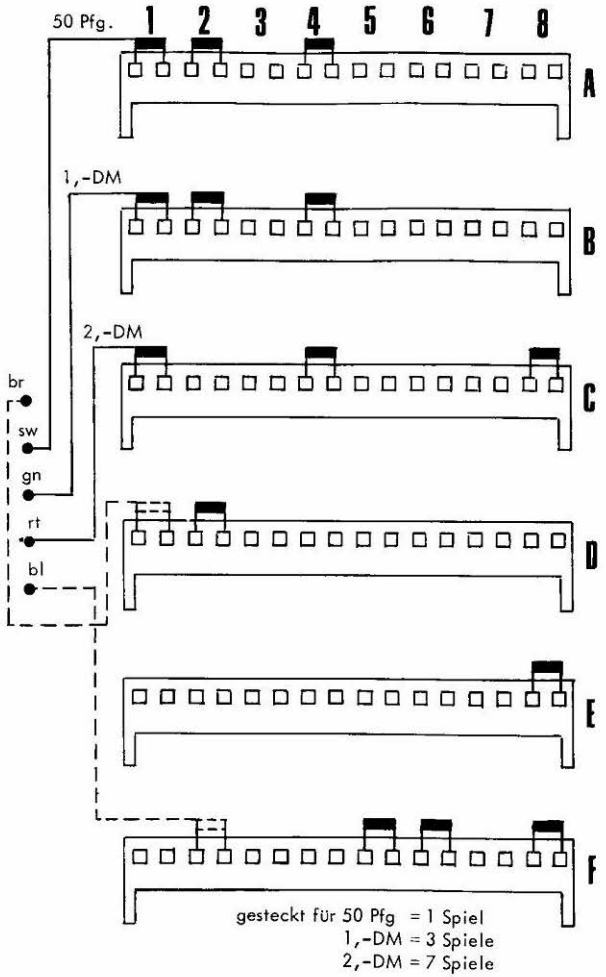
Damit bei jeder Plattenwahl ein Single-Spiel subtrahiert wird, muß Single-Wert 1 eingestellt, also auf Position C8 eine Steckdiode eingesetzt werden. Die ersten 10 Fächer des Plattenmagazins (10-19) sind immer für Single-Platten eingestellt. Um die übrigen Fächer für Single-Platten einzustellen, müssen auf den Positionen E8, F5 und F8 Steckdioden eingesteckt werden.

Damit ist die Einstellung fertig

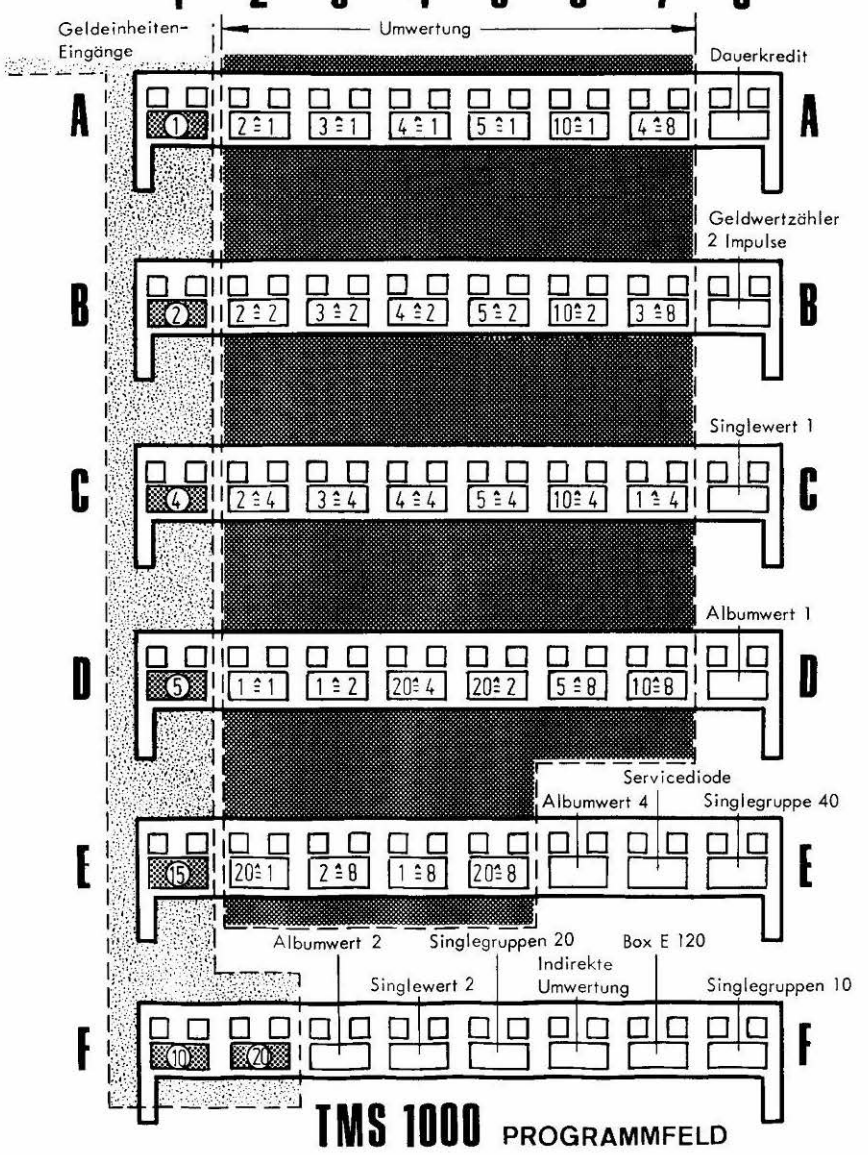
(Bei einer Box mit 120 Wahlmöglichkeiten müßte noch eine Steckdiode in Position F7 eingesteckt werden.)

4. Umstellen auf eine andere Spielanweisung

Solange die Box für die Annahme der gleichen Geldwerte (0,50 DM, 1,- DM, 2,- DM) eingerichtet bleibt, also keinen anderen Münzprüfer erhält, bleiben die Steckdioden DMK 1 - DMK 5 auch dann an den gleichen Positionen eingesteckt, wenn die Spielanweisung geändert wird. Es sind also nur die Positionen der Steckdioden für Umwertungseinstellung (A2, A4, B2, B4, C4, D2) zu verändern.
Aus Tabelle Abb. 2 ist zu entnehmen, an welche Positionen Steckdioden einzusetzen sind, um die gespeicherten Geldwerte in die gewünschten Single-Spiele umzuwerten. Auf Beschreibung der weiteren Einstellmöglichkeiten für Prüf- und Servicezwecke wurde hier verzichtet, sie sind den ausführlichen Erklärungen in der "Funktionsbeschreibung" - die jeder Box beiliegt - zu entnehmen.



indirekte Umwertung



TMS 1000 PROGRAMMFELD

ZUBEHÖR

Akku-Einheit — Best.-Nr. 103 842

Kredit- und Vorwahlspeicherung bleiben bei Stromausfall für 15 bis 30 Minuten erhalten. Sitzt im Gehäuse (siehe Baugruppen-Lageplan). Einbauanweisung liegt bei.

Mikrofon-Zusatz — Best.-Nr. 042139

Dynamisches Mikrofon mit Sprechschalter, Anschlußkasten mit Relais. Kann nach mitgelieferter Anweisung leicht angeschlossen werden. Ermöglicht Mikrofondurchsagen bei jedem Betriebszustand der Box.

Ausgangsübertrager — Best.-Nr. 041 622

Erheblich erweiterte Anpassungsmöglichkeiten und geringere Leitungsverluste.

Anschlusseinheit für Zusatzlautsprecher — Best.-Nr. 042 060

Praktisch alle vorkommenden Anschlußarten von Zusatzlautsprechern, stereophon oder monaural, können mit Schaltern rasch und problemlos eingestellt werden. Fehlanpassungen werden ohne umständliches Rechnen vermieden.

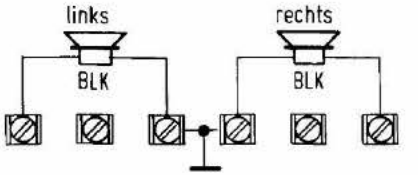
Geldwertzähler — Best.-Nr. 103 996

Nach mitgelieferter Anweisung leicht an der rechten Seite im Gehäuse zu montieren. (siehe Baugruppen-Lageplan). Registriert und druckt den eingeworfenen Gesamtbetrag.

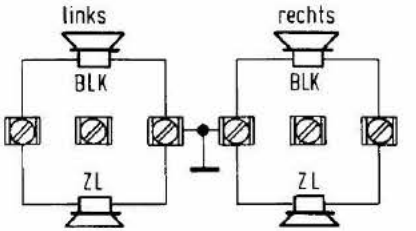
Elektronische Fernwahlbox — Best.-Nr. 104 215

Für den Anschluß an NSM-Elektronik-Musikautomaten. Eine ausführliche Technische Anleitung wird mitgeliefert.

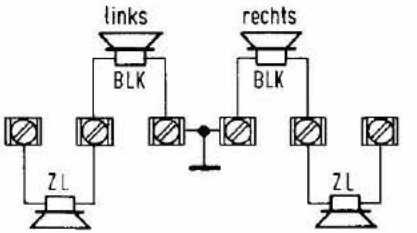
LAUTSPRECHER - ANSCHLUSSMÖGLICHKEITEN



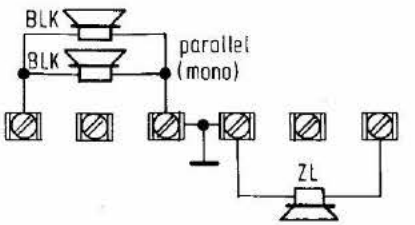
Box ohne Zusatzlautsprecher



Zusätzliche Lautsprechergruppen mit einer Gesamtimpedanz von 8 bis 16 Ω, parallel zu den Box-Lautsprecher-Kombinationen klemmen.



Zusätzliche Lautsprechergruppen mit einer Gesamtimpedanz von 2 bis 8 Ω, in Serie mit den Box-Lautsprecher-Kombinationen klemmen.



Zusätzliche Lautsprecher in anderem Raum (mono). Mit dem Lautstärkesteller VC 2 ist getrennte Lautstärkeeinstellung für beide Räume möglich.

BLK = Box-Lautsprecher-Kombination
ZL = Zusätzliche Lautsprecher

Die Mindestanpassung von 4 Ω pro Kanal soll nicht unterschritten werden.

PLEASE READ INSTRUCTIONS TRANSPORT DAMAGES

TRANSPORT DAMAGES

If external damage due to transport is noticed, this should at once be recorded on the delivery note and endorsed by the person making the delivery (Forwarding Agent, Railways etc.)

The manufacturer is not liable for damage caused during transit

VOLTAGES

The phonograph is supplied for 220 V/50 cycles or 117 V/60 cycles. For other voltage, adjust corresponding voltage at transformer

Green-yellow of the 3-core main cable must be connected to earth according to international wire code.

* * * * * * * * * * * * * *

INSTALLATION OF PHONOGRAPH

Proper functioning of the coin acceptor can only be assured when it is properly horizontally and vertically levelled

Devices for safety and protection during transport have to be removed before operation of phonograph. Prior to any further transit, the safety and protection devices have to be refitted.

CABINET KEYS

are located at the rear of the cabinet. After unlocking lift upper part of box front.

PROGRAM LID

With the upper part of the box open, unlatch lid holder (at the left and right inside the box) and lift same.

CARRIAGE

To loosen carriage, remove red screws on right hand side of carriage base. Turn red security lever on left hand side of carriage backwards.

RECORD CLAMP ARM

Remove rubber spacer and rubber wedge.

TONE ARM

Remove rubber band, but leave protection cover on.

CARRIAGE BASE

Turn back 4 nuts until carriage base is swinging freely on the springs.

MAINS CABLE

is located in the cabinet. Put cable through respective opening at rear side. Cover opening with shield. Check mains voltage before connecting. After plugging in, switch on line switch, located at the rear side of cabinet. (Fluorescent lamps should now light up.)

CARRIAGE

(rest position at right side of carriage base). Move carriage to left:Push scan switch (located in the supply unit) and take paper strip out of groove of the gear rack

TITEL STRIP HOLDERS

push latch levers together and lift holder.

TITLE STRIPS

Take title strips out of cash bag. After lettering of title strips insert same into title strip holders in the desired sequence.

CASH BOX KEYS

are together with cabinet keys.

RECORDS

Place records into the record magazine in the same sequence as title strips, with upper letter (A) to the left. Remove carriage from place, where records still have to be put in.

PROTECTION COVER

Remove protection cover from styli. Keep all protection devices for possible re use.

Lock cabinet and cash box.

ATTENTION

In order to prevent manipulation, it is recommended that the tapped hole in the rear of the cabinet be closed from the inside by means of a red security screw (from the carriage) right above the coin acceptor.

* * * * * * * * * * * * * *

CONTROL-AND SERVICE-BUTTONS

Credit button : Free play button, each pulse gives credit. Button located on the right hand side in the cabinet - on coin mechanism.

Subtr. button : All credits can be subtracted. Located inside the control-and credit unit. (Can be reached after removing lid.) Attention: when control-and credit unit is adjusted for "indirect conversion", at least one selection has to be made before it is possible to subtract with this button.

REJECT : Push button for 1,5 sec. The record playing will be cut off. Button is located at the volume control.

Scan switch : Used for scanning of carriage. Located in the supply unit.

OPERATION OF PHONOGRAPH

After insertion of coins for at least 1 play, selection light "SINGLE" is lit. Selections can be made as long as the selection light is on.

Slugs or bent coins are rejected into the coin return cup, either right away or after actuating the reject button. For selections the corresponding selection buttons must be pressed - at first the first digit, then the second digit and after that the letter A or B. During selection, the pressed buttons (first and second digit) are indicated. In case a wrong number was selected, the COR button may be pushed and the selection repeated. After that, the record playing is again indicated.

Volume control and reject buttons are combined in one box. This unit may be used as desired, either mounted at the rear of cabinet or as remote control. Unshielded remote control cable can be used. Any available 4-wire cable can be used

The remote control cable has to be connected to the corresponding terminals between amplifier and volume control.

The phonograph is equipped with a popularity meter, located on the carriage base, which indicates - easily detectable - the playing frequency of each record. The popularity meter can be set back to 0 by pressing the reset bar!

The total play meter is located on the left hand side of carriage.

*

MATCHING THE SOUND TO THE ROOM ACOUSTICS

is possible by means of the treble control and the bass control on the amplifiers.

CONNECTION OF LOUDSPEAKERS

The impedance of installed speaker combinations is 8 Ω per channel.
If remote speakers have to be connected, attention must be paid to matching impedance. In case of mismatching, the electronic fuse in the amplifier will respond. The total impedance of connected speakers should not be less than 4 Ω per channel.
Output transformer can be supplied upon request.
(see Accessories - Page 6

The factory has adjusted both channels to the same level.

NEEDLE

Do not remove needle holder from cartridge and clean needle with a soft brush. Frequent removal of the needle holder will loosen the guide of the needle holder and thus result in inferior sound quality.

Used or damaged stylus-armatures can easily be removed and replaced by new ones. Use only the original SHURE replacement stylus N 17 CM. The use of other than the genuine stylus assembly (needles) may result in enormously reduced music power.

SERVICE GUIDE

PULL MAIN PLUG BEFORE SERVICE

Do not Touch any high tension carrying parts.

Replace fuses with identical ones only.

VERY IMPORTANT.

In case the carriage has to be taken out for servicing, be sure that the red security lever on the left hand side is completely turned to the back. After that take carriage with both hands, lift locking levers located on both sides of carriage at the same time and take carriage out.
When inserting carriage, follow reverse procedure.

PLEASE NOTE THAT

Contrary to the ceramic system the magnetic system is non-ageing.
In case you send a carriage with Shure magnetic system in for repair, do not remove styli armature and put protection cover on.

In case styli are removed, they should always be put back on same armature side they were removed from.

IN CASE OF TRANSIT

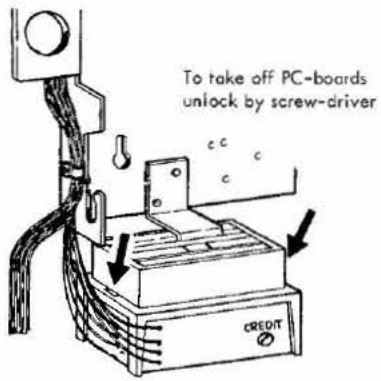
Move carriage to extreme right and fasten with safety screws. All other safety and protection devieces have to be refitted.

LUBRICATION

All moving parts have been lubricated in the factory, which should be sufficient for approximately 3000 operating hours.

When relubricating, use original oil and grease only. NSM lubrication sets (part number 106 299) are available upon request.

COIN CHUTE



CREDIT-ADJUSTMENT

The Phonograph will be delivered that Credit Adjustment will meet with installed pricing window. If programming diodes are removed at program-board the factory setting can be seen by punched holes in stancel.

When change of pricing or credit will be required, alternations have to be made by placing or replacing diodes at program-board.

Instruction and sample refers to:
160 Selections, Phonograph with "singles" records only

10 p - 1 Selection
2 x 10 p - 2 Selections
50 p - 10 Selections

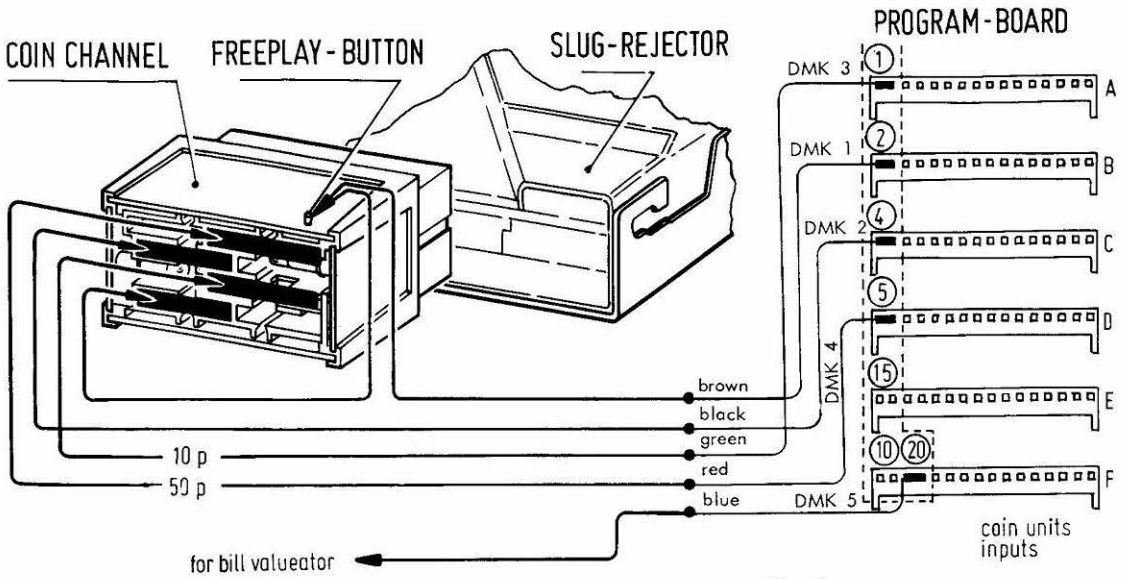


fig. 1

Coins will be checked and separated by the slug rejector. Each coin passes there corresponding coin-channel with a light-gate. 4 light sensors transmitting the input-pulses to the programm board of the computer.
Every inputline brown, black, green, red and blue is connected with a diode (installed in a little plug, DMK 1 - DMK 5).
By connecting these inputs to the programming board the computer
will be programmed for the different coin-units (1 to 20).
Inputs DMK 1 to 5 will be connected to match with coin unit (1 to 20).

1. Setting of coin-units

For example 10p and 50p coins will be used.

Coins	Position	Color
10p = 1 coin-unit	A1	green
50p = 5 x 10p = 5 coin-units	D1	red

If the brown wire (DMK 1), which is in serie with the "Freeplay-Button" will be connected to input B1, 2 coin units will be accumulated by pressing the Freeplay-Button.

The black wire input DMK 2 should be placed in C1 (4 coin units).

The blue wire (bill valueator input) must be placed in F2 (20 coin units).

2. Adjusting Value Conversion

The monetary value stored in the microcomputer is converted into a number of single plays. The selection between direct and indirect conversion must be made. In direct conversion, the coins inserted are converted immediately into a number of plays, i.e., the conversion is dependent on the value of each individual coin.

With direct conversion, 50 p will result in 10 plays only when a 50 p coin is inserted.

When a plug diode is installed at position F6, the microcomputer is then set for indirect conversion. With indirect conversion, the entire value of the coins inserted is converted when the subsequent selection is made. This means that any amount of money may be inserted using coins of any denomination.

With indirect conversion, 5 x 10 p will result in 10 plays, just as a 50 p coin.

2.1. Adjusting Conversion of Single Coin-Units (10p)

Because one single play is to be registered for one coin-unit, a diode must be inserted in the adjustment field for the conversion of a single coin-unit into a single play [1≙1] at position D2.

2.2 Adjusting Conversion of 5 Coin-Units (50 p)

Two diodes must be inserted to convert 5 coin-units into 10 single plays - one on the adjustment field for converting 5 coin units into 8 single plays [5≙8] in position D6 - and one on the adjustment field for converting 5 coin-units into 2 single plays [5≙2] at position B5.

	5≙8
	+ 5≙2
results in	5≙10 single plays.

NUMBER OF SINGLE PLAYS

MONEY VALUE

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1	D2	D3	D2/D3	C7	D2/C7	D3/C7	D2/D3 C7	E4	E4/D2	E4/D3	D2/D3 E4	C7/E4	D2/C7 E4	C7/D3 E4	D2/D3 C7/E4				
2	A2	B2	A2/B2	C2	A2/C2	B2/C2	A2/B2 C2	E3	A2/E3	B2/E3	A2/B2 E3	C2/E3	A2/C2 E3	B2/C2 E3	A2/B2 C2/E3				
3	A3	B3	A3/B3	C3	A3/C3	B3/C3	A3/B3 C3	B7	A3/B7	B3/B7	A3/B3 B7	C3/B7	A3/C3 B7	B3/C3 B7	A3/B3 C3/B7				
4	A4	B4	A4/B4	C4	A4/C4	B4/C4	A4/B4 C4	A7	A4/A7	B4/A7	A4/B4 A7	C4/A7	A4/C4 A7	B4/C4 A7	A4/B4 C4/A7				
5	A5	B5	A5/B5	C5	A5/C5	B5/C5	A5/B5 C5	D6	A5/D6	B5/D6	A5/B5 D6	C5/D6	A5/C5 D6	B5/C5 D6	A5/B5 C5/D6				
10					A6	B6	A6/B6	C6	A6/C6	B6/C6	A6/B6 C6	D7	A6/D7	B6/D7	A6/B6 D7	C6/D7	A6/C6 D7	B6/C6 D7	A6/B6 C6/D7
20					E2	D5	E2/D5	D4	D4/E2	D4/D5	D4/D5 E2	E5	E2/E5	D5/E5	D5/E2 E5	D4/E5	D4/E2 E5	D4/D5 E5	D4/D5 E2/E5

Money value 10 and 20 adds automatically 4 singles

fig.2

3. Adjusting for Singles

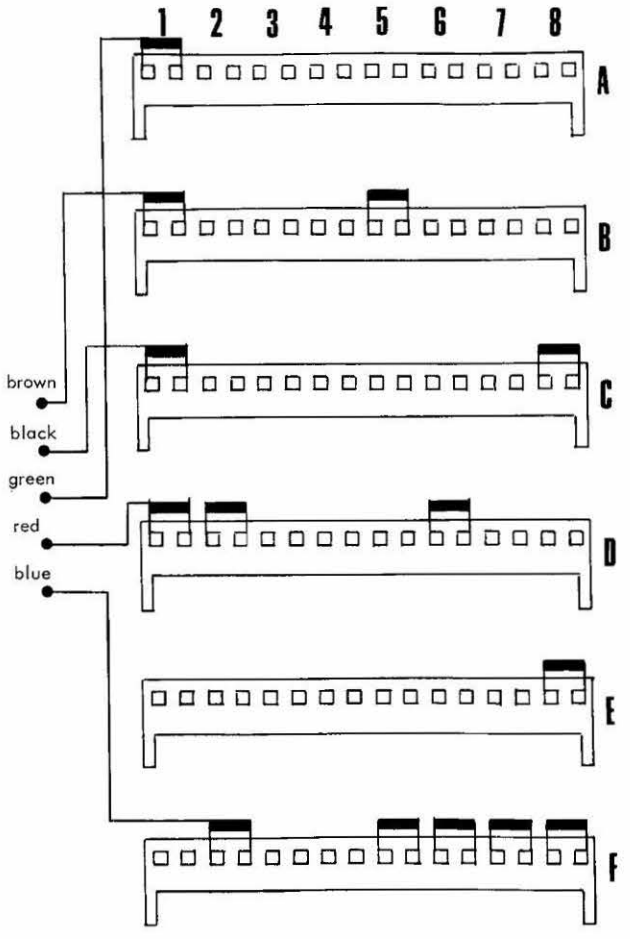
Single-value of 1 must be adjusted so that one single play will be subtracted with each selection; this is done by inserting a diode at position C8.
The first ten slots of the record magazine (10-19) are always adjusted for singles. To set the other slots for singles, diodes must be inserted at position E8, F5 and F8.

The adjustment is now complete.

If the unit had 120 selections another diode would have to be inserted in position F7.

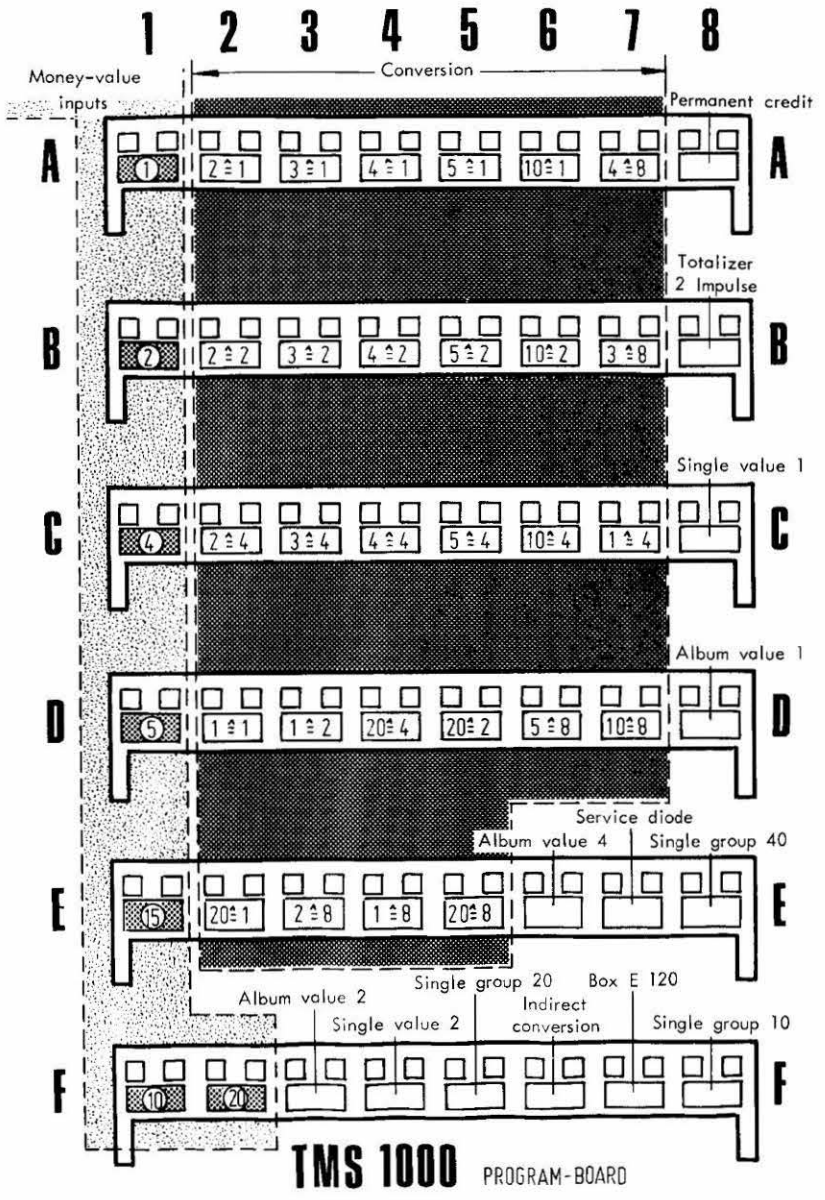
4. Adjusting for Other Playing Instructions (New Princing)

As long as the unit is set up to accept the same coins (10 p and 50 p), i.e., as long as no other slug rejector is installed, diodes DMK 1 through DMK 5 remain in the same positions, even when the playing instructions are changed. Only the positions of the diodes for conversion adjustment (B5, D2 and D6) are to be changed.
The table at fig. 2 shows at which positions diodes must be inserted, in order to convert the stored values into the desired number of single plays.
We do not give further instructions as to adjustment possibilities for testing and service purposes, as they are published in detail in the "Description of function" which is packed with each unit.



indirect conversion

1 play = 10 p
2 plays = 2 x 10 p
10 plays = 50 p



ACCESSORIES-OPTIONAL

BATTERY — PART NR. 103 842

Conserves the stored preselections and credit for about 15 to 30 minutes in case of voltage failure. Located inside the cabinet (s. layout of elements). Installation instructions enclosed.

MICROPHONE ASSY — PART NR. 042 139

Dynamic microphon with switch. Adapter with relays. Easy installation when following attached installation instructions. Possible use of microphone in any operation position.

OUTPUT JUNCTION BOX — PART NR. 041 622

Considerable expanded adaptions and smaller loss of power.

ADAPTER FOR REMOTE SPEAKERS — PART NR. 042 060

For connection of remote speakers, adjustable by switch for stereo or mono. Avoids mismatching, corrects impedance.

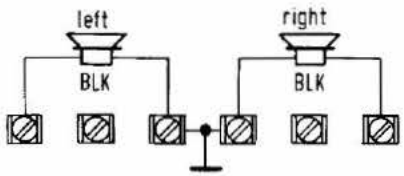
MONEY VALUE COUNTER (TOTALIZER) — PART NR. 103 996

Can easily be installed inside the cabinet according to the furnished instructions at the right hand side. (s. layout of elements). Registers and prints the inserted total.

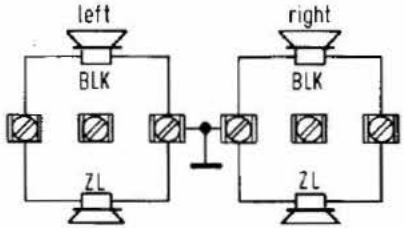
ELECTRONIC WALL BOX — PART NR. 104 215

to be connected to the NSM electronic phonograph. Detailed technical instructions are furnished.

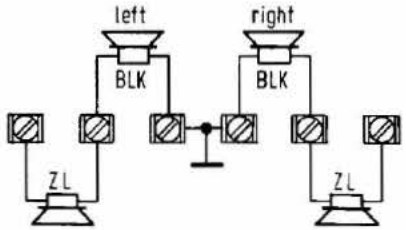
EXTENSION SPEAKER CONNECTIONS



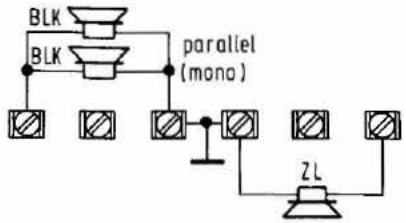
Box without extension speaker



Additional speaker combinations with a total impedance of 8 to 16 ohms should be connected parallel to the cabinet speakers.



Additional speaker combinations with a total impedance of 2 to 8 ohms should be connected in series to the cabinet speakers.



Additional speakers in other room(mono) With volume control VC 2, separate control for both rooms possible.

BLK = Cabinet speaker
ZL = Extension Speaker

Minimum adaption should not be lower than 4 ohms per channel.

NOTICE A CONSULTER AU MOMENT DE L'INSTALLATION

NOTER LES DOMMAGES SUBIES EN COURS DE TRANSPORT

Si l'on constate des dommages apparents survenus en cours de transport, on devra adresser immédiatement une réclamation qui sera consignée sur le bordereau de transport et confirmée par le livreur (Transporteur, Chemins de Fer, etc.)

Le constructeur n'est pas responsable des dégats subis en cours de transport.

TENSION

L'appareil est prévu pour courant alternatif 220 V.
Pour les autres tensions, rectifier le transformateur

L'appareil doit être, d'apres les réglements VDE, relié à un fil de protection.

* * * * * * * * * * * * *

MISE EN PLACE DES BOX

Le fonctionnement irréprochable de l'installation à pièces de monnaie exige l'alignement tant horizontal que vertical du box.

On retirera avant la mise en service les cales de transport et les dispositifs de protection, les remettre en place avant tout nouveau transport de l'appareil.

CLE DE L'APPAREIL

se trouve au de dos de la caisse. Aprés ouverture lever le couvercle

PORTE PROGRAMME

le couvercle levé, retirer les verrous (à droite et à gauche de l'intérieur de la caisse) et pivoter en haut le porte programme.

DEBLOCAGE DU CHARIOT

retirer les vis rouges montées sur la droite de la base. Faire pivoter vers l'arrière le levier de sécurité disposé sur la gauche du plateau.

DEBLOQUER LE DISPOSITIF DU MAINTIEN DES DISQUES

Retirer la rondelle caoutchouc et la clavette en caoutchouc.

LIBERER LE BRAS DE PICK-UP

Retirer la bande caoutchouc, mais laisser encore en place les capuchons sur la tête sonore, afin de protéger les diamants.

DEBLOCAGE DE LA BASE DU CHARIOT

Desserrer jusqu'à butée les 4 écrous.

CORDE DU SECTEUR

Tirer par l'évidement de l'arrière du meuble le câble de branchement sur le sectuer. Appliquer sur cet évidement la tôle de protection. Vérifier la tension du secteur avant de procéder au branchement. Introduire la fiche du câble d'alimentation dans la prise et ouvrir l'interrupteur général disposé au dos de l'appareil. (L'éclairage du box devra alors s'allumer).

AMENER LE CHARIOT

(position de repos à droite) vers la gauche. Appuyer sur le bouton de marche et retirer les bandes de la gorge de la crémaillère.

TABLEAU DES TITRES

par l'élément de prise situé dans le bas et rabattre vers le haut.

LES CLES DE LA CAISSE

sont ensemble avec les clés du meuble.

TITRES

Pendre dans le sachet les bandes de titres, apposer les inscriptions et les introduire dans les tableaux de programmation dans l'ordre voulu.

DISQUES

Placer les disques dans le magasin suivant l'ordre des bandes de titres, les lettres les plus élevées (A) se trouvant vers la gauche. Déplacer le chariot de l'endroit où l'on aura à placer les disques.

RETIRER LES CAPUCHONS DE SECURITE

de la tête de lecture. Conserver, en vue d'une réutilisation eventuelle les cales de transport.

Fermer le meuble, fermer la caisse.

ATTENTION

Pour éviter la fraude nous conseillons de boucher par l'intérieur le trou spécialement fait pour fixer l'emballage par un des vis de fixation.

* * * * * * * * * * * * *

BOUTONS DE CONTROLE ET DE SERVICE

Bouton d'addition	: bouton de jeu libre, chaque impulsion procure un crédit. Se trouve à l'intérieur sur le côte droit du meuble, près de l'unité monnayeur.
Bouton de soustration	:tous les crédits peuvent être soustraits. Attention! Le moment où la centrale de commande et du crédit est mise sur "transformation indirecte", il faut exécuter au moins un choix avant de pouvoir soustraire par la touche de soustraction.
Boutons d'annulation	: maintenir le bouton appuyé pendant 1,5 secondes. Le disque en fonction s'arrête avant la fin de son cycle. Le bouton se trouve près du régulateur puissance sonore.
Bouton pour mise en marche	: sert pour faire marcher le chariot. Se trouve dans l'unité alimentation.

MISE EN MARCHE DE L'APPAREIL

L'annonce "SINGLE" s'allume après introduction d'une valeur correspondante à un jeu. Tant que ce "SINGLE) est allumé on peut choisir.

Les fausses pièces tomberont immédiatement ou après avoir appuyé sur le bouton de rejet dans le godet de monnaie en retour. Appuyez les touches de votre choix, soit premier chiffre, deuxième chiffre ensuite lettre A ou B. Pendant le procédé encore les chiffres s'allument. En cas d'erreur des chiffres, le procédé peut être renouvellé par enfoncement de la touche "COR". Le disque choisi et en fonction sera ensuite témoigné.

Le régulateur de puissance et le bouton d'annulation se trouvent dans un seule bôitier. Ce bôitier peut être soit monté contre le dos de l'appareil ou utilisé comme régulateur à distance. Le cable n'a pas besoin d'une protection spéciale. Chaque cable à 4 fils est utilisable. Les pinces de chaques côtés doivent obligatoirement correspondre parallèlement.

Le box est équipé d'un compteur de popularité qui fournit immédiatement des précisions sur la fréquence de passage de chaque disque. Les bandes d'enregistrement peuvent être placées sur zéro en faisant intervenir la poussée d'un levier.

Le compteur du nombre total des disques joués se trouve à côté gauche de la base du chariot.

*

L'ADAPTATION DE LA TONALITE A L'ACOUSTIQUE AMBIANTE

au point d'installation, est réalisable grâce aux éléments de réglage disposés sur l'amplificateur.

BRANCHEMENT DES HAUT-PARLEURS

L'impédance des combinaisons de haut-parleurs incorporés est de 8 Ω par canal.
Il est à tenir l'adaptation lors du branchement de haut-parleurs. La sous adaptation pourra provoquer des pannes par suite de la réaction des coupe circuits électroniques de l'amplificateur. La résistance totale des haut-parleurs accouplés ne devra pas être inférieure à 4 Ω par canal.
La feuille "Possibilités de branchement des haut-parleurs" ci-jointe en montre quelques exemples. On pourra fournir au besoin un transmetteur de sortie.

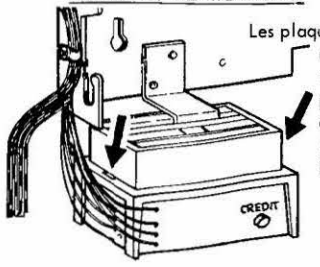
Les deux canaux sont ajustés au même niveau par le constructeur au moyen des régulateurs de niveau.

DIAMANT

Ne séparez-pas sans raison le support-aiguille de la tête de lecture et n'utilisez qu'une douce brosse pour le nettoyage de l'aiguille. Un enlêvement trop fréquent du support entraine l'usage de son couplage et diminue la qualité sonore.

Les diamants usés ou défectueux ensemble avec leurs supports peuvent facilement être retirés de la tête de lectur et être remplacés par des nouveaux. n'utilisez que le système SHURE N 17 CM. Toute autre marque influence l'exploit de la musique.

PASSAGE DE MONNAIE



Les plaquettes du passage de monnaie peuvent être retirées à l'aide d'un petit tournevis que l'on appuie dans la fente (voir flèche) pour débloquer.

QUELQUES TRUCS DE SERVICE

RETIRER LA PRISE DE SECTEUR AVANT DE PROCEDER A UNE REPARATION

Ne pas toucher avec les mains les pièces conduisant le courant lors de la surveillance et des essais.

Remplacer les coupe circiuts par dâutes de valeur équivalente.

POINT TRES IMPORTANT !

Si l'on doit retirer le mécanisme pour des raisons de service, on veillera à ce que le levier de sureté qui se trouve du côté gauche soit entièrement basculé vers l'arrière. Prendre ensuite le mécanisme avec les deux mains et le retirer en relevant simultanément les 2 leviers de serrage. Procéder dans l'ordre inverse des opérations pour la remise en place.

PRIERE DE NOTER

contrairement au systeme céramique, le systeme magnetique ne vieillit pas. En cas d'enlèvement d'un chariot avec tête magnétique SHURE n'enlever pas la tête du bras de lecture et protéger le diamant par le capuchon de protection.

N'échangez pas les diamants enlevés aux fins d'un nettoyage et remettez les sur le même côté de la tête comme auparavant.

Changement d'emplacement !

Amener le mécanisme jusqu'à sa butée droite. Tourner ensuite les vis de retenue. Remettre en place toutes les autes sûretés de transport.

GRAISSAGE

Le premier graissage effecturé en usine NSM par le constructeur garantit un fonctionnement irréprochable pendant 3000 heures de travail. Dans ces conditions, aucun graissage ne sera nécessaire, dans les cas normaux, durant des années. N'avoir recours pour les graissages qu'aux lubrifiants déjà utilisés, car la résinification risquerait de provoquer des pannes. Ces lubrifiants sont contenus dans les lubrifiants NSM qu'on pourra se procurer auprès du commerce en gros d'appareils automatiques ou de l'organisation Löwen. (reference 106 299)

ADJUSTEMENT DU CREDIT

Au moment de l'installation de l'appareil, les diodes enfichables sont implantées dans la zone de programmation de l'unité de commande et de mémorisation, de manière telle que le programme corresponde à la plaque de tarification. Lorsque des diodes enfichables sont retirées (pour des raisons de service ou pour tout autre motif), leur position est facilement repérable par les perforations ménagées sur le cliché papier se trouvant sur la zone de programmation.

Pour modifier les instructions de fonctionnement, il y a lieu d'y adapter le programme en conséquence en modifiant l'implantation des diodes enfichables.

Cette description comporte, en référence à un exemple précis, toute la procédure de réglage applicable en pareils cas. Ces commentaires tiennent compte des hypothèses suivantes:

L'appareil offre un éventail de 160 possibilités.

Il est équipé de disques monofaces exclusivement et offre:

2 disques pour 1 franc
5 disques pour 2 x 1 franc et
14 disques pour 5 francs

La pièce de monnaie introduite est reconnue et triée par un "verificateur" pour être dirigée dans les "canaux monnaie" correspondants. Chaque canal comporte une barrière optique qui repère le passage de chaque pièce. Une conduite relie cette barrière optique à la zone de programmation de l'unité de commande et de mémorisation. Les extrémités de cette conduite sont équipées de diodes enfichables DMK 1 à DMK 5. Elles servent à la mise à jour de la mémoire affectée à la "valeur monnaie cumulée".

1. Réglage de la mémoire "valeur monnaie cumulée"

Dans le présent exemple l'appareil fonctionne avec des pièces de 1 franc ou 2 x 1 franc et des pièces de 5 francs dont le rapport est de 1/5. En d'autres termes:

1 franc = 1 unité monnaie et
5 francs = 5 x 1 franc = 5 unités monnaie

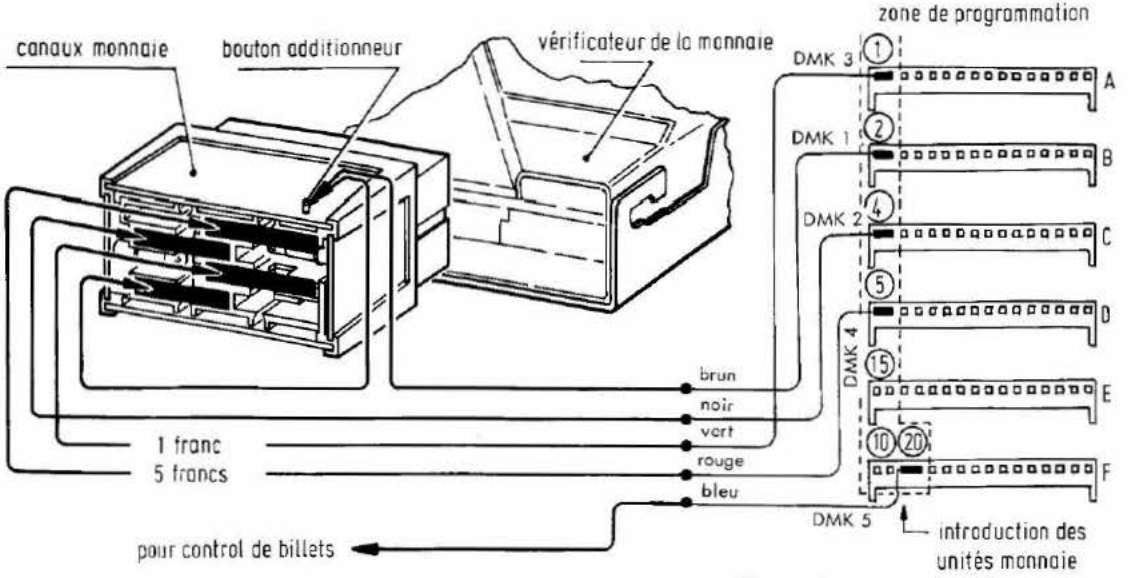


figure 1

Le total des "unités monnaie" représente la "valeur monnaie cumulée". Les diodes enfichables DMK 1 à DMK 5 permettent de régler la mémoire "valeur monnaie cumulée" de manière telle que la valeur mémorisée représente le total de la valeur des pièces introduites isolément.

Etant donné que dans le présent exemple la valeur de 1 franc correspond à 1 "unité monnaie" la diode enfichable DMK 3 devra être enfichée en position A1, à l'entrée de l'"unité monétaire" (1) sur la conduite verte, raccordée au canal des pièces de 1 franc.

Du fait qu'une pièce de 5 francs correspond à 5 "unités monnaie" la diode DMK 4 devra être enfichée en position D1, à l'entrée de l'unité monnaie (5), sur la conduite verte raccordée au canal des pièces de 5 francs.

Dans le cas où la diode enfichable est placée en position B1 à l'entrée de l'unité monnaie (2) sur la conduite brune, reliée au bouton additionneur, chaque actionnement du bouton provoque la mémorisation de 2 "unités monnaie".

Les diodes enfichables encore disponibles, c'est-à-dire la diode DMK 2, reliée à la conduite noire et DMK 5 reliée à la conduite bleue (vérification des billets de banque) peuvent être posées sur les "entrées monnaie" encore libres telles par exemple l'entrée (4) en position C1 et l'entrée (20) en position F2.

2. Réglage de Inversion

La "valeur monnaie cumulée" mémorisée est transformée par le micro-ordinateur en un certain nombre de disques monofaces. Il y a lieu de faire un choix entre la conversion directe et la conversion indirecte. Avec la conversion directe, les pièces introduites sont transformées immédiatement en un certain nombre de disques monofaces correspondant au nombre de disques sélectionnées par le client, c'est-à-dire la conversion se fait en fonction de la pièce introduite.

Avec la conversion directe 5 francs ne donnent droit au passage de 14 disques que s'ils ont été introduits sous la forme d'une pièce de 5 francs.

Dans le cas où une diode est enfichée en position F6 le micro-ordinateur assure la conversion indirecte. Avec la conversion indirecte la totalité de la monnaie introduite n'est convertie qu'au moment de la sélection suivante. Ainsi toute "valeur monnaie cumulée" peut être obtenue à l'aide de pièces de valeur différentes.

Avec la conversion indirecte 5 x 1 franc = 5 francs donnent droit au passage de 14 disques au même titre qu'une pièce unique de 5 francs.

2.1 Réglage sur la conversion de 1 unité monnaie (1 franc)

Si 1 unite monnaie doit donner droite au passage de 2 disques monofaces, une diode devra être enfichée en position D3 dans la zone de réglage affectée à la conversion de 1 unite monnaie en 2 disques monofaces. Soit 1 ≙ 2

2.2 Réglage sur la conversion de 2 unités monnaie (2 x 1 franc)

Dans le cas où 2 unités monnaie doivent droit au passage de 5 disques monofaces il est fait appel à 2 diodes à enficher comme suit:

1 diode - en position A2 - dans la zone de réglage réservée à la conversion de 2 unités monnaie en 1 disque monoface, soit 2 ≙ 1 et

1 diode - en position C2 - dans la zone de réglage réservée à la conversion de 2 unités monnaie en 4 disques monofaces, soit 2 ≙ 4

ainsi	2 ≙ 1
	+ 2 ≙ 4
correspond à	2 ≙ 5 passages de disques monofaces

2.3 Réglage sur la conversion de 5 unités monnaie (5 francs)

La conversion de 5 unités monnaie en 14 passages de disques monofaces exige la mise en place de 3 diodes, à enficher comme suit:

1 diode - en position B5 - dans la zone de réglage réservée à la conversion de 5 unités monnaie en 2 passages de disques monofaces soit 5 ≙ 2

1 diode - en position C5 - dans la zone de réglage réservée à la conversion de 5 unités monnaie en 4 passages de disques monofaces soit 5 ≙ 4

1 diode - en position D6 - dans la zone de réglage réservée à la conversion de 5 unités monnaie en 8 passages des disques monofaces 5 ≙ 8

ainsi	5 ≙ 2
	+ 5 ≙ 4
	+ 5 ≙ 8
correspond à	5 ≙ 14 passages de disques monofaces

nombre de passages unitaires

valeur monnaie

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1	D2	D3	D2/D3	C7	D2/C7	D3/C7	D2/D3 C7	E4	E4/D2	E4/D3	D2/D3 E4	C7/E4	D2/C7 E4	C7/D3 E4	D2/D3 C7/E4				
2	A2	B2	A2/B2	C2	A2/C2	B2/C2	A2/B2 C2	E3	A2/E3	B2/E3	A2/B2 E3	C2/E3	A2/C2 E3	B2/C2 E3	A2/B2 C2/E3				
3	A3	B3	A3/B3	C3	A3/C3	B3/C3	A3/B3 C3	B7	A3/B7	B3/B7	A3/B3 B7	C3/B7	A3/C3 B7	B3/C3 B7	A3/B3 C3/B7				
4	A4	B4	A4/B4	C4	A4/C4	B4/C4	A4/B4 C4	A7	A4/A7	B4/A7	A4/B4 A7	C4/A7	A4/C4 A7	B4/C4 A7	A4/B4 C4/A7				
5	A5	B5	A5/B5	C5	A5/C5	B5/C5	A5/B5 C5	D6	A5/D6	B5/D6	A5/B5 D6	C5/D6	A5/C5 D6	B5/C5 D6	A5/B5 C5/D6				
10					A6	B6	A6/B6	C6	A6/C6	B6/C6	A6/B6 C6	D7	A6/D7	B5/D7	A6/B6 D7	C6/D7	A6/C6 D7	B6/C6 D7	A6/B6 C6/D7
20					E2	D5	E2/D5	D4	D4/E2	D4/D5	D4/D5 E2	E5	E2/E5	D5/E5	D5/E2 E5	D4/E5	D4/E2 E5	D4/D5 E5	D4/D5 E2/E5

A l'occasion d'une transformation de la valeur 10 et de la valeur 20, le nombre de jeux singles est augmenté de 4.

figure 2

3. Réglage pour disques monofaces

Pour que chaque opération de sélection provoque la déduction d'un passage de disque il y a lieu de régler l'appareil sur la valeur unitaire 1, c'est-à-dire qu'il y a lieu d'enficher une diode en position C8. Les 10 premières cases de l'étalage des disques (10-19) sont toujours réglées sur le principe des disques monofaces. Pour adapter les autres cases à ce même principe il y a lieu d'enficher des diodes en position E8, F5 et F8.

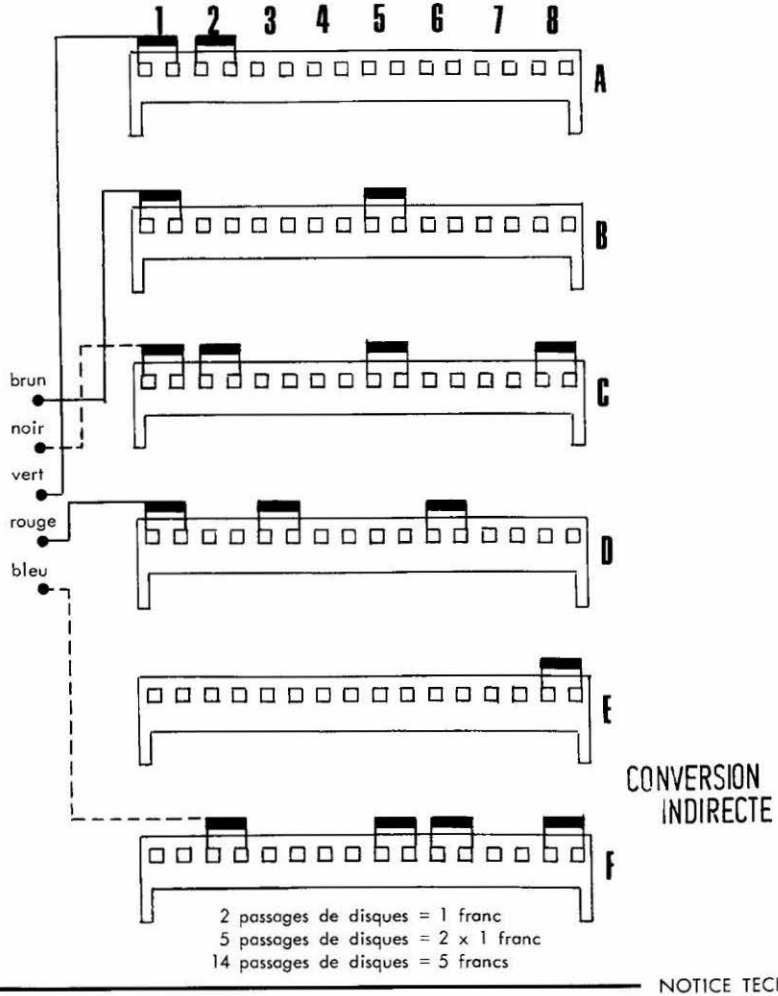
Le réglage est ainsi terminé.

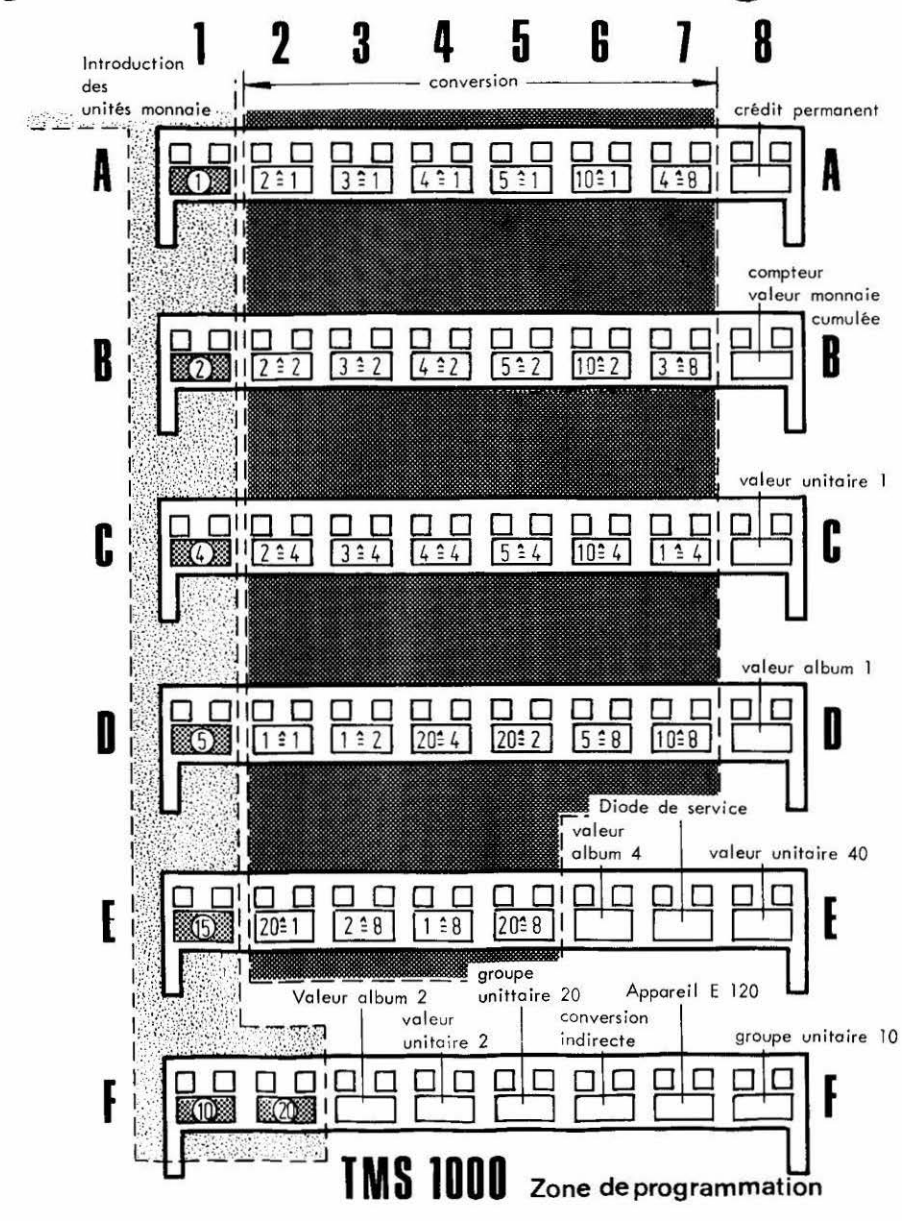
Pour l'appareil de 120 sélections l'enfichage d'une diode dans la position F7 serait indisponsable.

4. Réglage sur d'autres instructions

Aussi longtemps que l'appareil restera équipé pour l'acceptation de ces mêmes pièces (1 franc et 5 francs), c'est-à-dire aussi longtemps que l'appareil ne sera pas doté d'un autre "vérificateur de monnaie", les diodes enfichables DMK 1 à DMK 5 seront maintenues dans leur position actuelle même dans le cas où la plaque de tarification est modifiée. Il n'y a donc lieu de modifier que les seules positions de des diodes relatives à la conversion, c'est-à-dire A2, B5, C2, C5, D3 et D6.

Le tableau de la figure 2 précise les positions susceptibles d'être équipées de diodes pour obtenir une conversion correcte des pièces de monnaie en passages de disques monofaces. Il n'a pas été reconnu utile de donner d'autres directives concernant notamment le réglage pour les besoins de service ou pour les essais, celles-ci étant amplement commentées dans les "description du fonctionnement" joints à chaque appareil.





ACCESSOIRES

Accumulateur — numéro de réf. 103842

maintient pour une durée de 15 à 30 minutes le crédit et la preselection au moment d'un manque de circuit.
Localisé à l'intérieur du meuble (voir le plan des éléments) Instructions incluses.

Micro-supplément — numéro de réf. 042139

microphone dynamique avec interrupteur. Adaption avec relais. Branchement facile à l'aide des instructions incluses. Emploi du microphone à n'importe quel état de fonction du juke-box.

Transformateur de ligne — numéro de réf. 041622

adaptions considérablement élargies et moins de perte de puissance.

Branchement pour haut-parleur supplémentaires — numéro de réf. 042060

Possibilité de branchements supplémentaires de haut-parleurs, soit stéréo ou mono. Elimination de fausses adaptions.

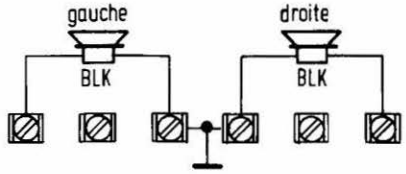
Totalisateur — numéro de réf. 103996

Facilement à monter selon plan onclus, côté droite de l'intérieur du meuble.

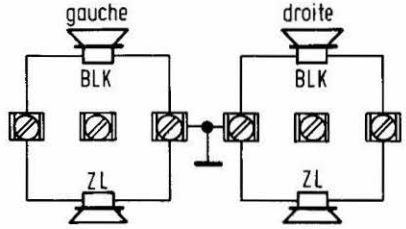
Consulette éléctronique — numéro de réf. 104215

Pour être relier sur appareils électroniques NSM. Schéma inclus.

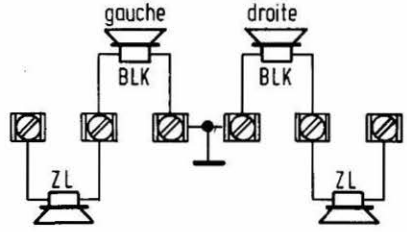
Différentes possibilités de branchement des haut-parleurs



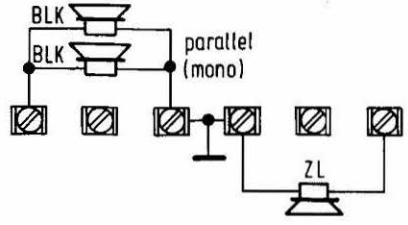
Appareil sans haut-parleur supplémentaire.



Monter les combinaisons de haut-parleurs supplémentaires ayant une impédance totale de 8 à 16 Ω en parallèle aux combinaisons de haut-parleurs de l'appareil.



Monter les combinaisons de haut-parleurs supplémentaires ayant une impédance totale de 2 à 8 Ω en série avec les combinaisons de haut-parleurs de l'appareil.



Haut-parleurs supplémentaires hors de la piece mono. Le régulateur VC 2 permet un réglage séparé de volume pour les deux pièces.

BLK = Combinaison des haut-parleurs de l'appareil
ZL = haut-parleurs supplémentaires

L'impédance minimum pour chaque canal ne doit pas être inférieure à 4 Ω.

TECHNISCHE DATEN — SPECIFICATIONS — CARACTERISTIQUES TECHNIQUES

Elektrische Werte / Electrical dates / Valeurs électriques

Netzspannung	110 - 240 V ~	Leistungsaufnahme / Power / Absorption de puissance						
Mains voltages	50/60 Hz	im Leerlauf	115 W	bei Spielvorbereitung	150 W	beim Spiel	180 W
Tension secteur		standy		transfer and scan		play	
Netztransformator	100 - 240 V ~ prim.	en marche a vide		lors de la preparation		lors du passage	
Mains transformer	sec I = 43 V						
Tension transformateur	sec II = 22 V						

Sicherungen / Fuses / Fusibles

	200 - 240 V	100 - 127 V
Netz / Mains / Tension	2 x 2 A	2 x 4 A
Trafo / Transfo / Transfo sec I (43 V)	1 x 4 A	1 x 4 A
sec II (22 V)	1 x 1 A	1 x 1 A
Verstärker / Amplifier / Amplificateur (58 V)	1 x 3 A	1 x 3 A
Motor / Motor / Moteur	1 x 1 A	1 x 1 A

Alle Sicherungen träge
all fuses slo blo
tous les fusibles a fusion retardee

Beleuchtung / Lighting / Illumination

2 Leuchtstofflampen	/ fluorescent lamps /	lampe fluorescente	F 30 T8 (30 W)
2 Vorschaltgeräte	/ ballast /	bobine	220 V/30 W 117 V/30/40 W
2 Starter	/ starter /	starter	FS 4 FS 4 30/40 W
2 Leuchtdioden	/ light-emitting diodes /	luminescence diodes	
1 3stellige 7-Segmentanzeige		7-segment-indicator tubee	7 segmentes témoin à 3 chiffres

Vorwahleinrichtung / Selection-circuit / Dispositif de sélect.

Microcomputer-Schaltkreis	/ micro-computer-circuit /	circuit-micro-computer	
10 Zifferntasten	/ number buttons /	touches de chiffres	1-0
2 Buchstabentasten	/ letter buttons /	touches de lettres	A, B
1 Korrektur-Taste	/ corrector buttons /	touches de correction	COR

Steuerung / Control / Commande

4 Integrierte MOS-Schaltkreise	HEF 4081	4 integrated MOS circuits	HEF 4081	4 circuits intégrés MOS	HEF 4081
1 Integrierter Transistor-Arroy	CA 3082	1 integrated transistor arroy	CA 3082	1 transistor-arroy intégré	CA 3082
1 Integrierter Spannungsregler	723 c	1 integrated potentiometer	723 c	1 potentiomètre intégré	723 c
3 Relais		3 relays		3 relais	
4 Foto-Widerstände		4 photo resistors		4 résistances-photo	
2 Foto-Transistoren		2 photo transistors		2 transistors-photo	
1 Infrarot-Leuchtdiode		1 infra red light emitting diode		1 diode luminescence infra-rouge	
2 Leuchtdioden / Spannungsindikator		2 light emitting diodes (voltage indicator)		2 diodes luminescence indicator de tension	
2 Langlebe-Glühlampen (Münzanlage)	18 V 40 mA	2 long-life lamps (coin mechanism)	18 V 40 mA	2 ampoules durables	18 V 40 mA

Abspielmechanik / Playing mechanism / Mécanisme du jeux

1 Laufgestell mit Schallplattenkassette für 80 Schallplatten		1 Carriage base with magazine for 80 records		1 base du chariot avec magasin pour 80 disques	
1 Laufwerk 45 UpM, Mono oder Stereo, vertikal gelagert		1 Carriage 45 RPM (33-1/3 RPM) mono or stereo, vertical located		1 chariot 45 tours/mn, mono ou stéréo, stockage vertical	
1 Popularitätszähler	80 Zählstreifen	1 Popularity meter	80 counting strips	1 compteur de popularité	80 bandes
1 Gesamtspielezähler	4 stellig	1 Total play meter	4 digits	1 compteur du nombre total des jeux	de quatre chiffres
1 Spielmotor (Laufwerk)	1500 UpM 42 V ~ 100% ED	1 Play motor	1500 RPM (1800 RPM/60 Hz)	1 moteur (chariot)	1500 tours/mn 42 V 100% ED
1 Antriebsmotor (Laufwerk)	2500 UpM 42 V ~ 20% ED	1 Drive motor	2500 RPM (3000 RPM/60 Hz)	1 moteur de translation	2500 tours/mn 42 V 20% ED
1 Auslösemagnet	36 V = 25% ED	1 Trip solenoid	36 V = 25% ED	1 aimant de déclanchement	36 V = 25% ED
1 Tonkopf	Shure-Magnetsystem	1 Cartridge	Shure-magnet-system	1 tête de lecture	(système magnétique Shure)

Kreditspeicherung und -verrechnung / Storage and balancing of credit / Mémorisation et décompte

über Mikrocomputer		over micro-computer		via micro-computer	
direkte/indirekte Umwertung	89 Geldeinheiten	direct/indirect conversion	89 money units	transformation directe / indirecte	89 unités de monnaie
Bonussystem möglich		bonus system possible		avoir possible	
Add.-und Subtraktionstaster	89 Geldeinheiten	add. and subtraction key switch	89 money unites	touche pour l'addition et la soustraction	89 unités de monnaie
Diodenprogrammierung	(steckbar)	diode programming	(pluggable)	programme par diodes fichables	

TECHNISCHE DATEN — SPECIFICATIONS — CARACTERISTIQUES TECHNIQUES

Verstärker **Amplifier** **Amplificateur**	siehe "TECHNISCHE ANLEITUNG" Transistor Verstärker Lautstärkesteller getrennte Lautstärkeeinstellung beider Kanäle und 1 REJECT-Knopf	see "TECHNICAL INSTRUCTIONS" Amplifier Volume control for each channel separately and one REJECT-button	voiez " Notice technique " Amplificateur régulateur de volume pour les deux canaux d'amplificateur et 1 bouton d'annulation
Lautsprecher **Loudspeaker** **Haut-parleur**	2 Lautsprecher P 245 8 Ω 2 Lautsprecher P 1521 8 Ω 2 Lautsprecher HM 10 5 Ω 2 Frequenzweichen	2 Loudspeakers P 245 8 Ω 2 Loudspeakers P 1521 8 Ω 2 Loudspeakers HM 10 5 Ω 2 Networks	2 haut-parleurs P 245 8 Ω 2 haut-parleurs P 1521 8 Ω 2 haut-parleurs HM 10 5 Ω 2 bifurcation sélective
Schlösser u. Schlüssel **Locks and keys** **Serrures et clés**	2 Gehäuse-Schlösser 2 Gehäuse-Schlüssel 1 Kassenschloß 2 Kassen-Schlüssel Nr. verschieden	2 Cabinet locks 2 Cabinet keys 1 Cash box lock 2 Cash box keys different numbers	2 serrures armoire 2 clefs armoire 1 serrure caisse 2 clefs caisse No. différent

* *

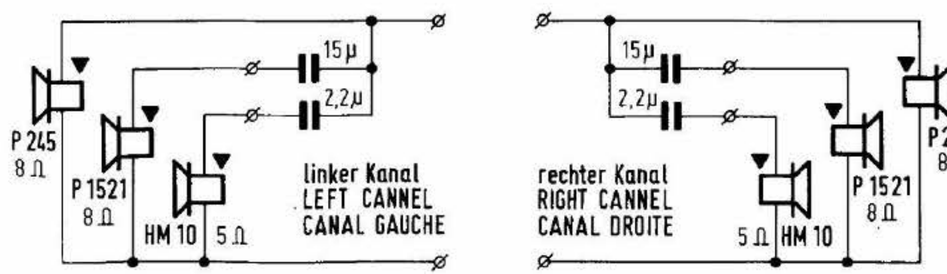
PRESTIGE E 160

Maße und Gewicht
Measurements and Weight
COTES ET POIDS

Höhe height hauteur			Breite width largeur			Tiefe depth profondeur			Gewicht weight poids		
1300	mm	max.	1040	mm	max.	635	mm	max.	118	kg	max.
51	inches		41	inches		25	inches		260	pounds	

* *

Lautsprecher - Kombination
SPEAKER COMBINATION
COMBINAISONS DE HAUT - PARLEUR



ÄNDERUNGEN IM SINNE DES TECHNISCHEN FORTSCHRITTES VORBEHALTEN

THE MANUFACTURER RESERVES THE RIGHT TO MAKE TECHNICAL MODIFICATIONS

SOUS RESERVE DE MODIFICATIONS IMPOSEES PAR LE PROGRES TECHNIQUE

SPEZIAL-SERVICE-UNTERLAGEN für
PARTICULAR SERVICE INSTRUCTIONS for
INSTRUCTIONS DE SERVICE INDIVIDUELLES pour

electronic

MUSIKAUTOMAT
PHONOGRAPH
ELECTROPHONE

PRESTIGE ES 160

*

AUFSTELLEN DER BOX
INSTALLATION OF PHONOGRAPH
MISE EN PLACE DU BOX

*

TECHNISCHE DATEN
SPECIFICATIONS
CARACTERISTIQUES TECHNIQUES

*

BAUGRUPPEN-LAGEPLAN
LAYOUT OF COMPONENTS
PLAN DES ELEMENTS

*

ERSATZTEIL-LISTE
SPARE PARTS LIST
LISTE DES PIECES DETACHEES

*

01/80 NSM APPARATEBAU KG · D-6530 BINGEN/RHEIN 1-GERMANY 208513

AUFSTELLEN DER BOX

Ein GEHÄUSESCHLÜSSEL und ein KASSENSCHLÜSSEL

sind mit Klebeband auf der Frontscheibe befestigt. Die übrigen Schlüssel befinden sich im Kassenbeutel.

Nach Öffnen der Schlösser an beiden Gehäuseseiten läßt sich die Haube ganz hochschwenken und mit der Haubenstütze sichern. Zum Programmieren kann das Montagerohr (liegt quer zur Frontwand) in eine Schelle, innen an der rechten Seitenwand, gesteckt werden, um darauf die Haube, nur wenig geöffnet, abzustützen.

PROGRAMMTAFELN

am Griff fassen. Plastikspangen zusammendrücken und Programmtafel aufklappen.

(Die voll aufgeklappten Programmtafeln lassen sich aushängen.)

TITELSTREIFEN

aus dem Kassenbeutel nehmen, beschriften und in gewünschter Reihenfolge in die Programmtafel einschieben.

INSTALLATION OF PHONOGRAPH

One CABINET KEY and one CASH BOX KEY

are taped to the front panel. The other keys are in the cash bag.

Upon the opening of the locks at the two sides of the housing, the lid can be turned fully upwards and secured by the lid support. For the programming, the assembling tube (located at right angles to the rear wall) can be put into a clip at the inner side of the right side wall, in order to underprop the lid opened but a little.

TITLE STRIP HOLDERS

Seize at handle. Press plastic retainers together, and swing out holder.

(The fully swung-out holder can be unhinged.)

TITLE STRIPS

Take title strips out of cash bag. After lettering of title strips insert same into title strip holder in the desired sequence.

MISE EN PLACE DES BOX

UNE CLE DE L'APPAREIL ET UNE CLE DE LA CAISSE

sont fixées avec une bande adhésive sur la vitre frontale. Les autres clés se trouvent dans le sac à caisse.

Après avoir ouvert les serrures aux deux côtés du meuble, on peut tourner le bonnet tout à fait vers le haut, pour l'arrêter alors moyennant l'appui à bonnet. Pour réaliser la programmation, on peut mettre le tube de montage (qui est placé en travers du mur frontal) dans un collier sis à l'intérieur du mur latéral à droite, pour appuyer par ce tube le bonnet ouvert seulement un peu.

PORTES DES TITRES

Saisir par la poignée, presser les ressorts à cran d'arrêt, relever le porte-titres.

(On peut retirer les portes-titres lorsque tout à fait relevés.)

TITRES

Pendre dans le sachet les bandes de titres, apposer les inscriptions et les intraduire dans les portes-titres dans l'ordre voulu.

TECHNISCHE DATEN — SPECIFICATIONS — CARACTERISTIQUES TECHNIQUES

Elektrische Werte / Electrical dates / Valeurs électriques

Netzspannung 100 - 240 V~ 50 / 60 Hz
Netztransformator 100 - 240 V~ prim.
sec I = 2 x 13 V
sec II = 22 V
sec III = 43 V
Leistungsaufnahme: im Leerlauf 90 W
Bei Spielvorbereitung 120 W
beim Spiel 160 W

Mains voltages 100 - 240 VAC 50/60 Hz
Mains transformer 100 - 240 VAC prim.
sec I = 2x 13 VAC
sec II = 22 VAC
sec III = 43 VAC
Power consumation: at stand by 90 W
at transfer and scan 120 W
max. 160 W

Tension secteur 100 - 240 V~ 50 / 60 Hz
Tension transformateur 100 - 240 V~ prim.
sec I = 2 x 13 V
sec II = 22 V
sec III = 43 V
Absorption de puissance: en marche a vide 90 W
lors de la preparation 120 W
lors du passage 160 W

Sicherungen / Fuses / Fusibles

	2 x T 3,15 A (200 - 240 V)	2 x T 4 A (100 - 127 V)
Hauptsicherung MAIN FUSE FUSIBLE PRINCIPAL		

SECONDARY FUSES

Si 1	T 4 A
Si 2	T 2.0 A
Si 3	T 2.0 A
Si 4	T 1,25 A
Si 5	T 2.0 A
Si 6	T 2.0 A
Si 7	T 1.0 A

Beleuchtung / Lighting / Illumination

1 Leuchtstofflampe	TL - D 16 W		1 fluorescent lamp	TL - D 16 W		1 lampe fluorescente	TL - D 16 W	
1 Vorschaltgerät	220 V / 16 W	117 V/ 16 W	1 ballast	220V/ 16 W	117V/ 16 W	1 babine de réactance	220 V / 16 W	117 V / 16 W
1 Starter	S 10	FS 4	1 starter	S 10	FS 4	1 starter	S 10	FS 4
5 7-Segmentanzeigen	1/2 "		5 7-segment displays	1/2"		5 témoins à 7 segments	1/2 "	
6 Glühlampen	12 V / 2 W		6 lamps	12V/ 2W		6 lampes	12 V / 2 W	

Vorwahleinrichtung / Selection circuit / Disposif de sélection

Mikrocomputer
10 Zifferntasten
1 Korrekturtaste " C "
1 Hit - Taste
1 Hit - Wähltaste

Microcomputer
10 number keys
1 correction key "C"
1 Hit key
1 Hit selection key

microordinateur
10 touches de chiffres
1 touches de correction " C "
1 touches de hit
1 touches de selection "hit"

Steuerung / Control / Commande

ROM's, EA-ROM, Integrierte MOS-Schaltkreise, Integrierte TTL-Schaltkreise, Integrierte Transistor-Array
4 Integrierte Spannungsregler
3 Relais
6 Leuchtdioden für Spannungsanzeige
2 Foto-Transistoren } Laufwerkposition
1 Infrarot-Leuchtdiode }
3 bzw. 4 Foto-Transistoren } Münzdurchlauf
3 bzw. 4 Infrarot-Leuchtdioden }

ROM's, EA-ROM, MOS integrated circuits TTL integrated circuits, integrated transistor array
4 integrated voltage regulators
3 relays
6 LED for Voltage indication
2 photo-transistors } placed at carriage
1 Infrared LED }
3, or 4, photo-transistors } placed at coin chutes
3, or 4, infrared LED }

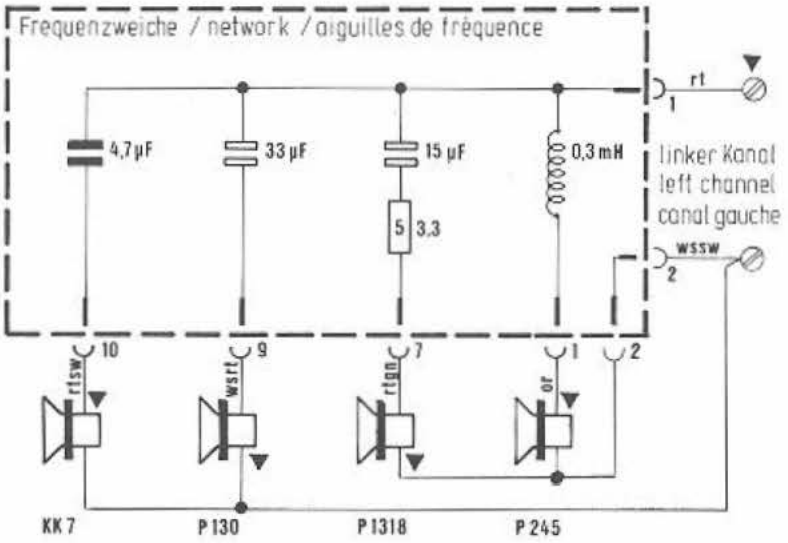
ROM's, EA-ROM, circuits intégrées, type MOS circuits intégrées, type TTL, groupements de transistors intégrés
4 régulateurs de tension intégrés
3 relais
6 diodes de signalisation faisant indicateur de tension
2 transistors photoélectrique } position du chariot
1 diode de signalisation infrarouge }
3 ou 4 transistors photoélectrique } monnayeur
3 ou 4 diodes de signalisation infrarouge }

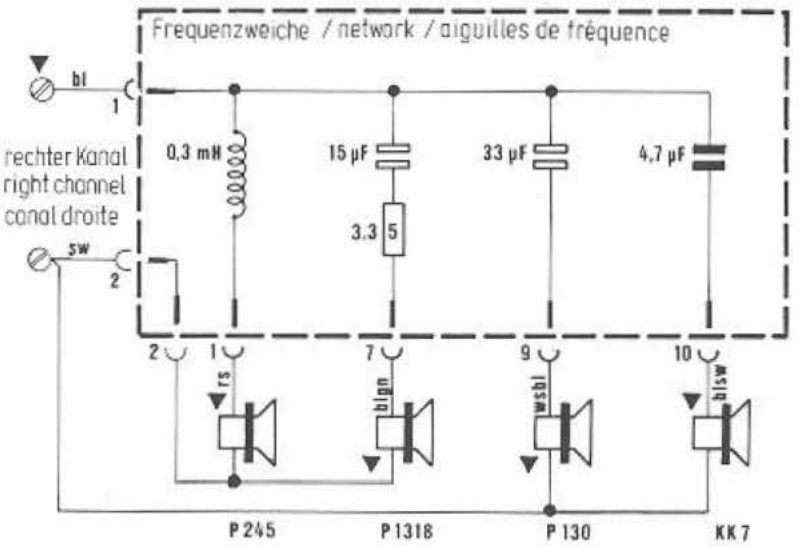
TECHNISCHE DATEN — SPECIFICATIONS — CARACTERISTIQUES TECHNIQUES

Abspielmechanik **Playing mechanism** **Mécanisme de lecture**	1 Laufgestell mit Schallplattenkassetten für 80 Platten, vertikal gelagert 1 Laufwerk 45 UpM, Stereo oder Mono 1 Spielmotor 1500 UpM 42 V~ 100% ED 1 Antriebsmotor 2500 UpM 42 V~ 20% ED ✱ 1 Auslösemagnet 56 V= 15% ED 1 Tonkopf Shure-Magnetsystem	1 Carriage base with magazine for 80 records, vertically stored. 1 Carriage 45 RPM, stereo or mono 1 Play motor 1500 RPM 42 V~ 100% ED 1 Drive motor 2500 RPM 42 V~ 20% ED ✱ 1 Trip solenoid 56 V= 15% ED 1 Cartridge Shure-magnetic-system	1 base du chariot avec magasin pour 80 disques, logement vertical 1 chariot 45 tr/mn , stéréo ou mono 1 moteur p. tourne-disque 1500 tr/mn 42 V~ 100 % ED 1 moteur de commande 2500 tr/mn 42 V~ 20 % ED ✱ 1 aimant de déclenchement 56 V= 15 % ED 1 tête de lecture système magnétique Shure
Kreditspeicherung und - verrechnung **Credit and Convertion** **Mémorisation et décompte**	Einstellung - Preisstaffel durch Service-Programm über Mikrocomputer direkte / indirekte Umwertung (Bonus) Additions-Taste Service-Auswertung: Anschluß für Service-Speicher (EA-ROM)	Setting of prices by Service Program thru microcomputer direct / indirect conversion (bonus) add button Service evaluation: connection for service modul (EA-ROM)	Mise de la gamme des prix par Programme Service sur microordinateur conversion directe/indirecte (boni) clef d'addition Exploitation du Service: connexion pour mémoire-Service (EA-ROM)
Verstärker **Amplifier** **Amplificateur**	siehe " SERVICE MANUAL ", Seite 8 und 20 Lautstärkesteller: getrennte Lautstärkeeinstellung beider Kanäle und 1 REJECT-Knopf	see " SERVICE MANUAL ", page 8 and 20 Volume control: for each channel separately and one REJECT-button	voir " SERVICE MANUAL ", pages 8 et 20 régulateurs de volume séparés pour les deux canaux d' amplificateur et une clef REJECT
Lautsprecher **Loudspeaker** **Haut - parleur**	2 Lautsprecher P 245 6,5 Ω 2 Lautsprecher P 1318 8 Ω 2 Lautsprecher P 130 8 Ω 2 Lautsprecher KK 7 8 Ω 2 Frequenzweiche	2 Loudspeaker P 245 6,5 Ω 2 Loudspeaker P 1318 8 Ω 2 Loudspeaker P 130 8 Ω 2 Loudspeaker KK 7 8 Ω 2 networks	2 haut-parleurs P 245 6,5 Ω 2 haut-parleurs P 1318 8 Ω 2 haut-parleurs P 130 8 Ω 2 haut-parleurs KK 7 8 Ω 2 aiguilles de fréquence
Schlösser u. Schlüssel **Locks and keys** **Serrures et clés**	2 Gehäuse-Schlösser 2 Gehäuse-Schlüssel 1 Kassenschloß 2 Kassenschlüssel (verschiedene Nr.)	2 Cabinet locks 2 Cabinet keys 1 Cash box lock 2 Cash box keys (different from cabinet key)	2 serrures armoire 2 clefs armoire 1 serrure caisse 2 clefs caisse (nos. différents)

✱ ED = Einschaltdauer / continuous duty / durée de mise en circuit

Lautsprecher-Kombination
Speaker combination
Combinaison de haut-parleur

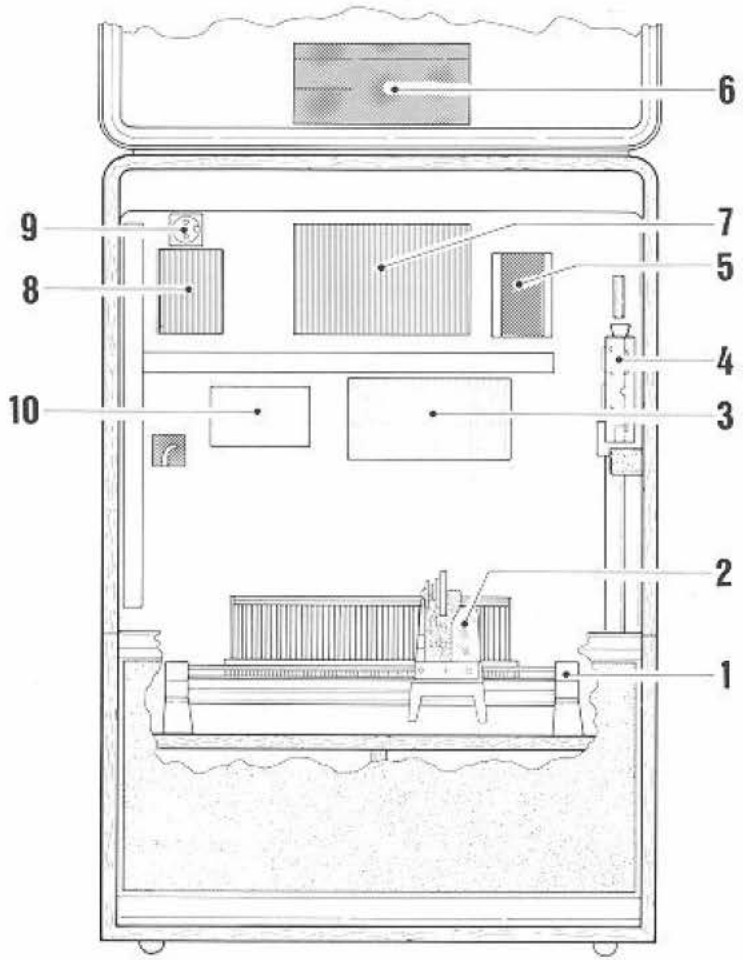




	Höhe max. height hauteur	Breite max. width largeur	Tiefe max. depth profondeur	Gewicht max. weight poids
Maße und Gewicht **Measurements and weight** **Cotes et poids**	1278 mm 50-1/4 inches	896 mm 35-1/4 inches	638 mm 25 inches	100 kg 220 pounds (lbs)

ÄNDERUNGEN IM SINNE DES TECHNISCHEN FORTSCHRITTES VORBEHALTEN !
SUBJECT TO TECHNICAL MODIFICATIONS !
SOUS RESERVE DE MODIFICATIONS TECHNIQUES !

BAUGRUPPEN-LAGEPLAN * LAYOUT OF ELEMENTS * PLAN DE ELEMENTS



1 Laufgestell
CARRIAGE BASE
BASE DU CHARIOT

2 Laufwerk
CARRIAGE
CHARIOT

3 Steuer - und Speichereinheit
CONTROL AND CREDIT UNIT
CENTRE DE COMMANDE ET DE CREDIT

4 Münzanlage
COIN MECHANISM
MONNAYEUR

5 Lautstärkesteller
VOLUME CONTROL
REGULATEUR DE VOLUME

6 Tastatur
KEY BOARD
CLAVIER

7 „electronic" Zentrale
CENTRE
CENTRALE „ electronique "

8 Schalterplatte
JUNCTION PLATE
PLAQUE PORTE - INTERRUPTEUR

9 Service - Steckdose
SERVICE CONNECTION
PRISE DE CONTACT DE SERVICE

10 Ausgangsübertrager
OUTPUT JUNCTION BOX
TRANSFORMATEUR DE LIGNE

GEHÄUSE

Bitte beachten Sie!

Diese Ersatzteil - Liste gilt nur für den Musikautomaten:

PRESTIGE ES 160

Jede Ersatzteilbestellung muß folgende Angaben enthalten:

1. Gerätetyp
2. Geräte - Nummer
3. Bestell - Menge
4. Bestell - Nummer
5. Benennung

Die Gerätenummer befindet sich auf dem Typenschild an der Gehäuse-Rückwand.

Klare Bestellangaben ersparen unnötige Rückfragen und führen zu rascher Erledigung Ihres Auftrages.

BITTE RICHTEN SIE ERSATZTEIL-BESTELLUNGEN NUR AN IHREN GROSSHÄNDLER ODER AN DIE LÖWEN-ORGANISATION !

Beispiel

Geräte - Typ .....
Geräte - Nummer .....

Stück	Bestell-Nr.	Benennung
1	221 115	Si-Diode 1 N 4004
4	224 158	Lautsprecher P 1318

CABINET

Please note

This spare parts list is applicable to NSM phonographs only

PRESTIGE ES 160

Every spare part order should contain the following:

1. Model
2. Serial number
3. Quantity
4. Part number
5. Description

The serial number is on the manufacturing plate on rearside of cabinet.

Precise orders save unnecessary questions and bring the best results.

ORDER SPARE PARTS THRU YOUR NSM - DISTRIBUTOR !

EXAMPLE

Model .....
Serial number .....

QTY	PART NR.	DESCRIPTION
1	221 115	SI-DIODE 1 N 4004
4	224 158	LOUDSPEAKER P 1318

CORPS

Observations

Cette liste des pieces détachées n est valable que pour les juke - box NSM

PRESTIGE ES 160

Chaque commande de pièces détachées doit avoir les indications suivantes:

1. modèle
2. numéro de série
3. quantités
4. référence
5. description

Le numéro de série se trouve au dos de l'appareil sur une plaque d'indentification.

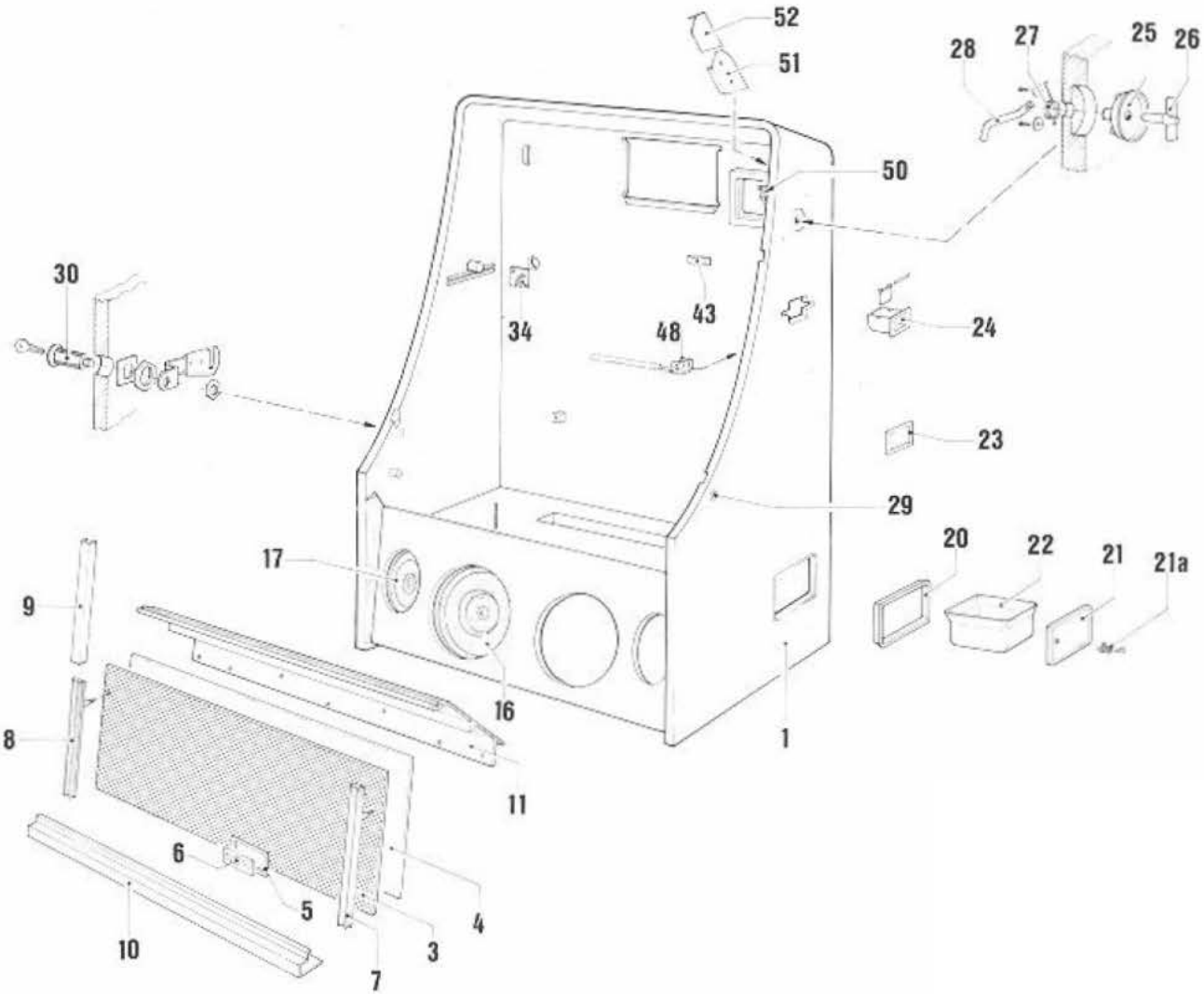
Les commandes précises évitent des questions inutiles et garantient une rapide livraison.

DISTRIBUTION PAR CONCESSIONNAIRE NSM !

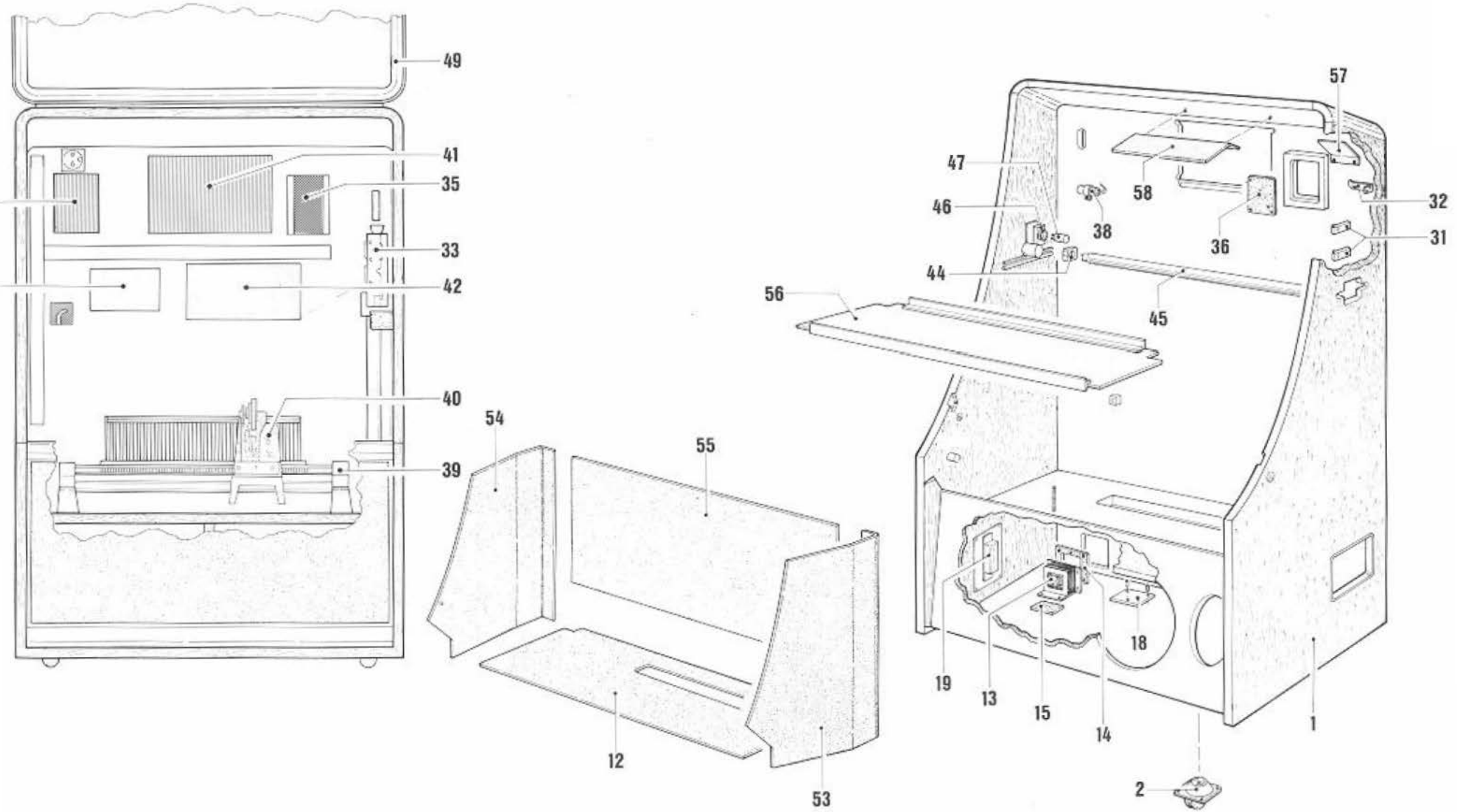
EXEMPLE

modèle .....
numéro de serie .....

NOMBRE	REFERENCE	NOMENCLATURE
1	221 115	SI-DIODE 1 N 4004
4	224 158	HAUT-PARLEUR P 1318


52
51
28
27
25
26
50
30
34
48
43
24
23
29
17
20
22
21
21a
9
16
1
8
11
6
5
4
3
10
7

Position ITEM POSITION	Bestell-Nr. PART NR. REFERENCE	Benennung	DESCRIPTION	NOMENCLATURE	Stück QTY NOMBRE
		Musikbox „PRESTIGE ES 160"	PHONOGRAPH „PRESTIGE ES 160"	ELECTROPHONE "PRESTIGE ES 160"	
1	108 889	Gehäuse mit Beschlägen, gebohrt	CABINET with ARMATURES	CORPS avec ARMATURES	1
2	207 817	Lenkrolle	ROLLER	GALET (ROULEAU)	4
3	211 042	Lautsprechergitter, unten	SPEAKER GRILL, LOWER	GRILLE DE HAUT-PARLEUR, INFERIEURE	1
4	209 057	Schutzgewebe, unten	SPEAKER TISSUE	TISSU / HAUT-PARLEUR	1
5	202 087	Halterahmen	HOLDER FOR EMBLEM	PORTE - ENSEIGNE	1
6	201 732	Firmenschild - NSM -	EMBLEM - NSM -	ENSEIGNE COMMERCIALE - NSM -	1
7	108 414	Klemmprofil, rechts, genietet	TERMINAL PROFILE, RIGHT, STAMPED	PROFIL DE RETENU, DROITE, RIVE	1
8	108 415	Klemmprofil, links, genietet	TERMINAL PROFILE, LEFT, STAMPED	PROFIL DE RETENU, GAUCHE, RIVE	1
9	200 900	Zierleiste	DECORATIVE STRIP	BORDURE DE MOULURE	2
10	200 899	Trittleiste	STEP BOARD	PROFIL A PIEDS	1
11	200 896	Frontprofil	FRONT PROFILE	PROFIL FRONTAL	1
12	212 046	Abdeckung (Bild)	COVER (FIGURE)	COUVERTURE (FIGURE)	1
13	106 586	Transformator, vollst.	TRANSFORMER, ASSY	TRANSFORMATEUR, COMPL.	1
14	201 896	Isolierplatte I	INSULATING I	PLAQUE ISOLANTE I	1
15	201 897	Isolierplatte II	INSULATING II	PLAQUE ISOLANTE II	1
16	224 157	Lautsprecher P 245 6,5 Ω	LOUDSPEAKER P 245 6,5 Ω	HAUT-PARLEUR P 245 6,5 Ω	2
17	224 158	Lautsprecher P 1318 8 Ω	LOUDSPEAKER P 1318 8 Ω	HAUT-PARLEUR P 1318 8 Ω	2
18	108 245	Frequenzweiche, vollst. siehe Seite 16	SEPARATING NETWORK, ASSY SEE PAGE 16	BIFURCATION SELECTIVE, COMPL. VOIR PAGE 16	2
	100 102	Buchse	SPACER	BOITE, DOUILLE	6
	106 738	Drosselgrundplatte, vollst. - 50 Hz -	MOUNTING PLATE with BALLAST - 50 Hz -	SEMELLE PAPILON, COMPL. - 50 Hz -	1
	224 064	Vorschaltgerät 16 W - 50 Hz -	BALLAST 16 W - 50 Hz -	SEMELLE PAPILON 16 W - 50 Hz -	1
19	106 739	Drosselgrundplatte, vollst. - 60 Hz -	MOUNTING PLATE with BALLAST - 60 Hz -	SEMELLE PAPILON, COMPL. - 60 Hz -	1
	224 100	Vorschaltgerät 16 W - 60 Hz -	BALLAST 16 W - 60 Hz -	SEMELLE PAPILON 16 W - 60 Hz -	1
20	023 681	Kassenrahmen	CASH-BOX, FRAME	CADRE DE LA CAISSE	1
21	042 108	Kassendeckel, vollst.	CASH-BOX, DOOR, ASSY	COUVERCLE DE LA CAISSE, COMPL.	1
21 a	207 008	Kassenschloß mit 2 Schlüssel	CASH-BOX, LOCK with 2 KEYS	SERRURE CAISSE avec 2 CLEFS	1
22	207 496	Geldbeutel, vollst.	CASH - BAG, ASSY	SAC DE MONNAIE, COMPL.	1
23	023 682	Rahmen Aufsteller-Anschrift	FRAME FOR ADDRESS-CARD	CADRE / ADRESSE DU MONTEUR	1
24	029 335	Rückzahlbecher	COIN RETURN CAP	GODET DE REMBOURSEMENT	1
	102 495	Münzklappe	COIN LID	VOLET DE MONNAIE	1
	022 466	Unterlage	WASHER	SUPPORT	2
25	028 233	Lagertopf	RETAINING SPACER	POT A PALIER	1
26	028 007	Drehknopf	REJECT KNOB	BOUTON DE REGLAGE	1
27	205 448	Torsionsfeder	TORSION SPRING	BARRE DE TORSION	1
28	023 704	Druckwinkel	PRESSURE BRACKET	CORNIERE DE PRESSION	1
29	108 892	Schloß, rechts, kompl.	CABINET LOCK, RIGHT, COMPL.	SERRURE DE L'ARMOIRE, DROITE, COMPL.	1
	217 164	Schließhebel rechts, vollst.	CLOSING LEVER RIGHT, ASSY	LEVIER DE FERMETURE DROITE, COMPL.	1
30	108 893	Schloß links, kompl.	CABINET LOCK LEFT, COMPL.	SERRURE DE L'ARMOIRE GAUCHE, COMPL.	1
	217 163	Schließhebel links, vollst.	CLOSING LEVER LEFT, ASSY	LEVIER DE FERMETURE GAUCHE, COMPL.	1
31	102 331	Lagerstück	SUPPORT	SUPPORT	2
32	023 630	Blattfeder	FLAT SPRING	RESSORT A LAMES	1
33	107 812	Münzprüferhalteblech - 3 Kanal - siehe Seite 15	COIN MECHANISM - 3 CHANNEL - SEE PAGE 15	MONNAYEUR - 3 CANAUX - VOIR PAGE 15	1
	107 813	Münzprüferhalteblech - 4 Kanal -	COIN MECHANISM - 4 CHANNEL -	MONNAYEUR - 4 CANAUX -	1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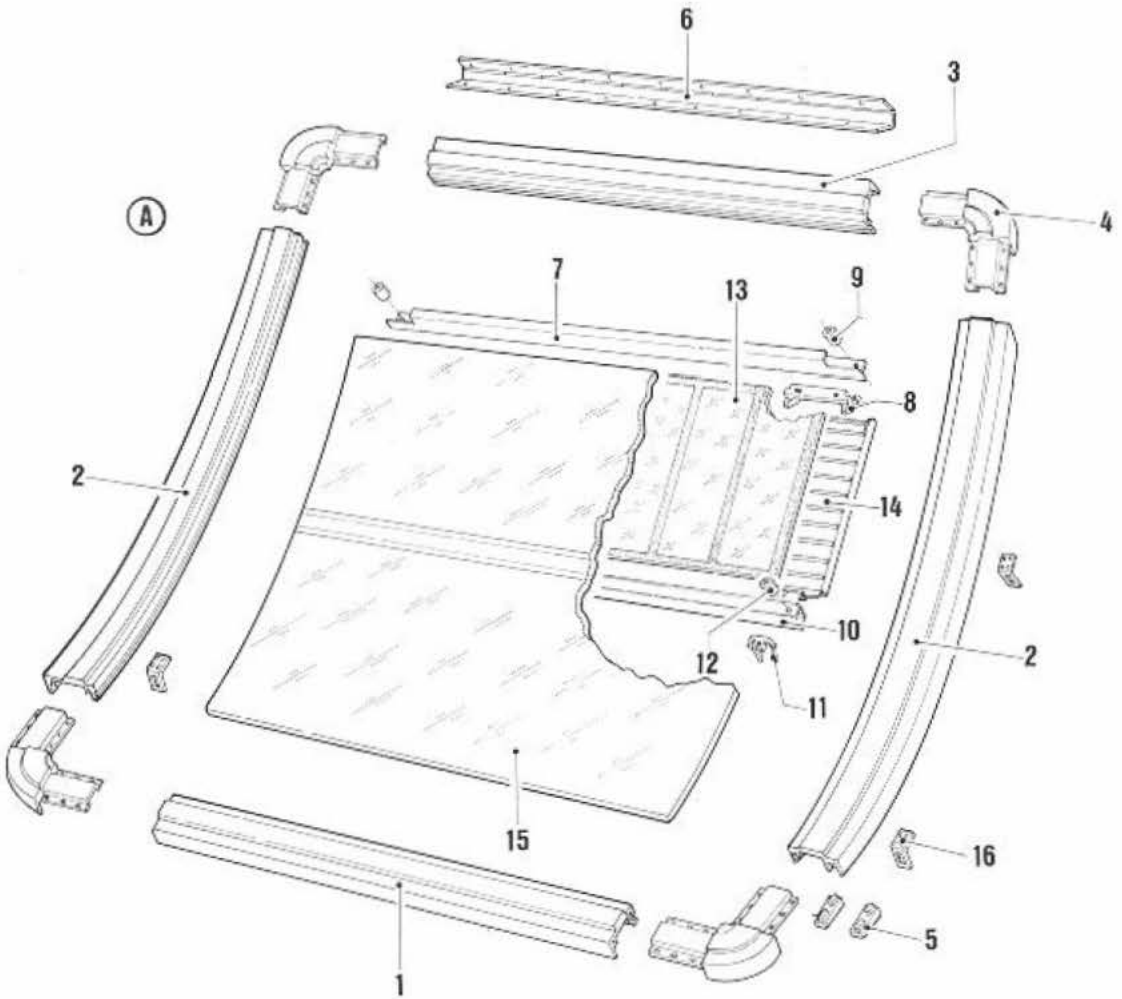
Position ITEM POSITION	Bestell-Nr. PART NR. REFERENCE	Benennung	DESCRIPTION	NOMENCLATURE	Stück QTY NOMBRE
34	022 467	Verschlußplatte - Netzkabel	CLOSING PLATE - MAIN CABLE -	COUVERCLE DE FERMETURE	1
35	106 290	Lautstärkesteller, vollst. siehe Seite 16	VOLUME CONTROL, ASSY SEE PAGE 16	REGULATEUR DE VOLUME, COMPL. VOIR PAGE 16	1
36	023 641	Abdeckplatte - Lautstärkesteller -	COVER PLATE - VOLUME CONTROL -	PLAQUE DE PROTECTION - REGULATEUR DE VOLUME	1
37	105 617	Ausgangsübertrager siehe Seite 16	OUTPUT TRANSFORMER SEE PAGE 16	TRANSFORMATEUR DE LIGNE VOIR PAGE 16	1
38	220 320	Funk-Entstörkondensator			1
39		Laufgestell ES	CARRIAGE BASE ES	BASE DE CHARIOT ES	1
40		Laufwerk ES > siehe SERVICE MANUAL 208 534	CARRIAGE ES > SEE SERVICE MANUAL 208 534	CHARIOT ES > VOIR SERVICE MANUAL 208 534	1
41		Zentrale ES	CENTRE ES	CENTRALE ES	1
42	108 913	Steuer- und Speichereinheit, vollst.	CONTROL AND CREDIT UNIT, ASSY	CENTRE DE COMMANDE ET DE CREDIT, COMPL.	1
43	108 093	Blattfeder (Erdung)	FLAT SPRING (GROUND)	RESSORT A LAMES (GROUND)	1
44	225 367	Einbaufassung	SOCKET	DOUILLE DE LAMP	2
45	226 073	Leuchtstofflampe 16 W	FLUORESCENT LAMP 16 W	LAMPE FLUORESCENTE 16 W	1
	108 947	Transparentfolie	TRANSPARENT FOIL	FEUILLE TRANSPARENTE	1
46	225 364	Starterfassung	STARTER HOLDER	DOUILLE DE DEPART	1
	104 622	Isolierplatte	INSULATING PLATE	PLAQUE ISOLANTE	1
47	225 040	Starter S 10	STARTER S 10	DEMMAREUR S 10	1
46	225 021	Starterfassung (60 Hz)	STARTER HOLDER (60 Hz)	DOUILLE DE DEPART (60 Hz)	1
47	225 024	Starter FS - 4	STARTER FS - 4	DEMMAREUR FS - 4	1
48	205 563	Druckfeder (Haubenstütze)	PRESSURE SPRING (SUPPORT ROD)	RESSORT DE PRESSION (L'APPUI)	1
49		Programmtafelrahmen siehe Seite 12	PROGRAM LID SEE PAGE 12	CADRE DU PROGRAMME VOIR PAGE 12	
50	222 406	Mikroschalter (Gehäuseschalter)	MICRO SWITCH (CABINET SWITCH)	INTERRUPTEUR MINIATURE	1
51	200 907	Münzrohr	COIN TUBE	TUBE A MONNAIE	1
52	108 412	Einschub	PANEL	CAISSON	1
53	212 043	Abdeckung, rechts (Bild)	COVER, RIGHT (FIGURE)	COUVERTURE, DROITE (FIGURE)	1
54	212 044	Abdeckung, links (Bild)	COVER, LEFT (FIGURE)	COUVERTURE, GAUCHE (FIGURE)	1
55	212 045	Abdeckung, hinten (Bild)	COVER, REAR (FIGURE)	COUVERTURE, DERRIERE (FIGURE)	1
56	108 595	Blende, vollst.	TRIMPLATE, ASSY	ECRAN, COMPL.	1
57	108 843	Reflektor	REFLECTOR	REFLECTEUR	1
58	108 844	Reflektor	REFLECTOR	REFLECTEUR	1
59	106 553	Schalterplatte - 50 Hz - siehe Seite 16	JUNCTION PLATE - 50 Hz - SEE PAGE 16	PLAQUE PORTE - INTERRUPTEUR - 50 Hz - VOIR PAGE 16	1
	106 554	Schalterplatte - 60 Hz -	JUNCTION PLATE - 60 Hz -	PLAQUE PORTE - INTERRUPTEUR - 60 Hz -	1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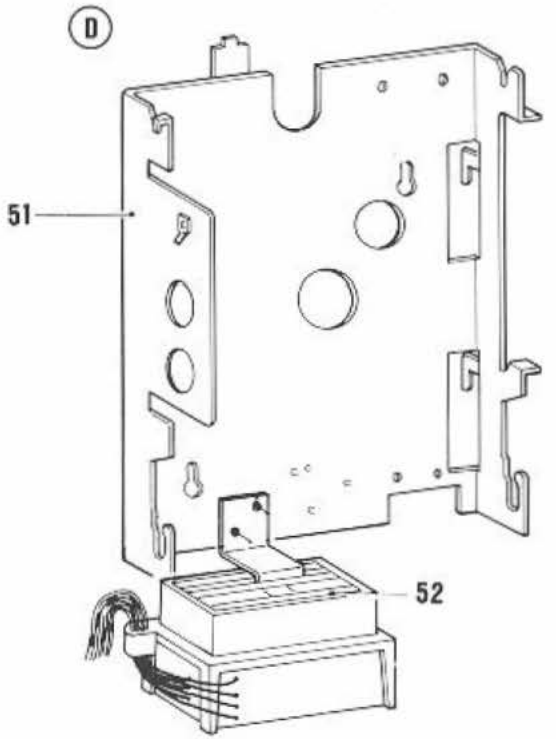
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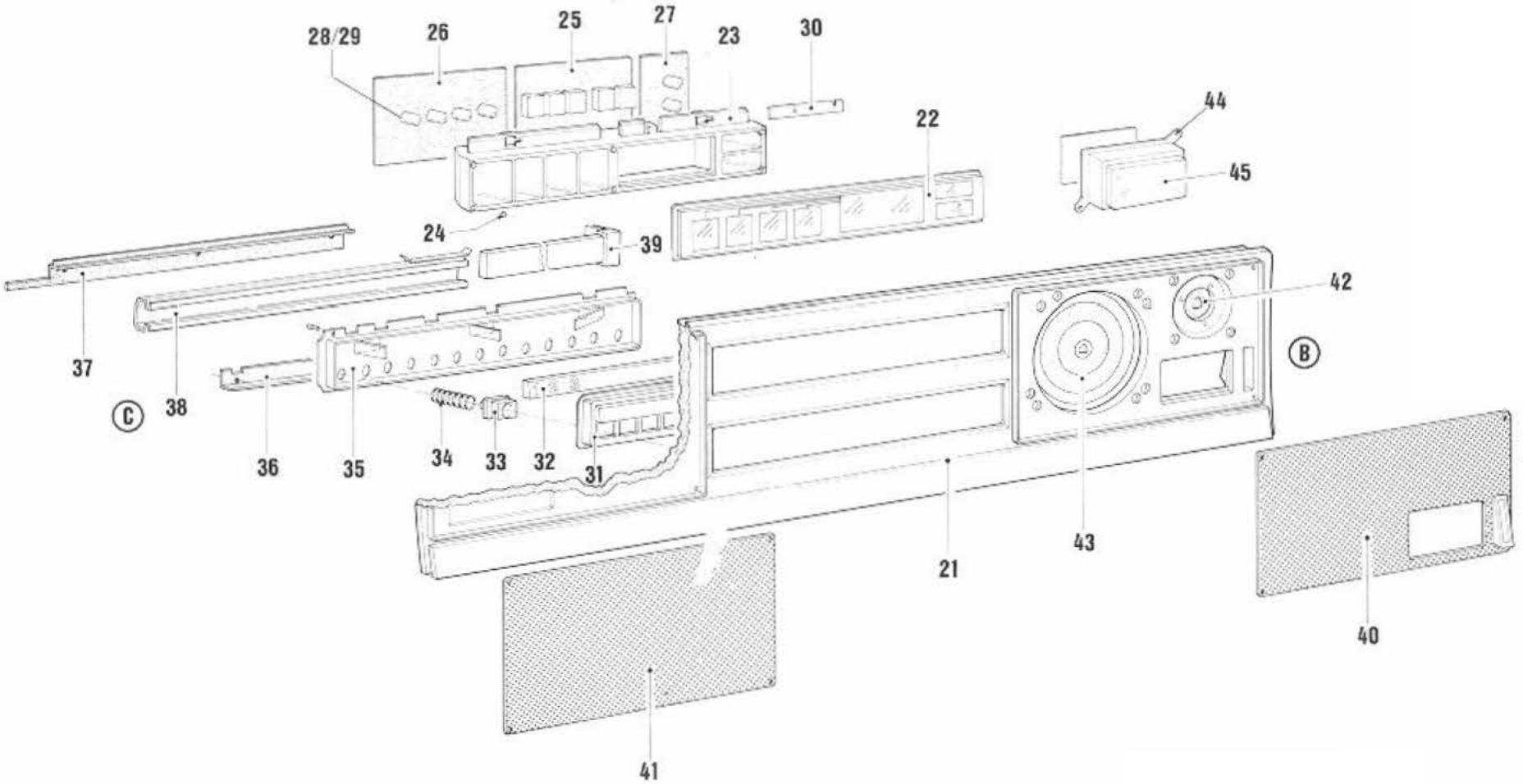
Position ITEM POSITION	Bestell-Nr. PART NR. REFERENCE	Benennung	DESCRIPTION	NOMENCLATURE	Stück QTY NOMBRE
Ⓐ		PROGRAMMTAFELRAHMEN	PROGRAM LID	CADRE DE PROGRAMME	
1	200 903	Querprofil	CROSS PROFILE	PROFIL TRANSVERSAL	1
2	200 904	Längsprofil	LONGITUDINAL PROFILE	PROFIL LONGITUDINAL	2
3	200 906	Querprofil, oben	CROSS PROFILE, UPPER	PROFIL TRANSVERSAL, SUPERIEURE	1
4	200 902	Eckverbinder	EDGE CONNECTOR	CONNECTEUR DE BORD	4
5	200 905	Ausgleichstück	COMPENSATOR	COMPENSATEUR	8
6	211 053	Scharnier	HINGE	CHANIERE	1
7	200 897	Programmtafelprofil, oben	PROGRAM PROFILE, UPPER	PROFIL DE PROGRAMME, SUPERIEURE	1
8	108 305	Scharnierteil	HINGE PART	PIECES CHANIERE	8
9	108 306	Distanzhülse	SPACER	BOITE, DOUILLE	2
10	200 898	Programmtafelprofil, unten	PROGRAM PROFILE, LOWER	PROFIL DE PROGRAMME, INFERIEURE	1
11	029 240	Rastfeder	STOP SPRING	RESSORT D'ARRET	8
12	108 307	Distanzhülse	SPACER	BOITE, DOUILLE	2
13	212 034	Abdeckscheibe	PROTETIVE CAP	CALOTTE PROTECTRICE	1
14	106 563	Streifenträger 100 - 209	TITLE STRIP HOLDER 100 - 209	TABLEAU DE PROGRAMME 100 - 209	1
	106 564	Streifenträger 110 - 219	TITLE STRIP HOLDER 110 - 219	TABLEAU DE PROGRAMME 110 - 219	1
	106 565	Streifenträger 120 - 229	TITLE STRIP HOLDER 120 - 229	TABLEAU DE PROGRAMME 120 - 229	1
	106 566	Streifenträger 130 - 239	TITLE STRIP HOLDER 130 - 239	TABLEAU DE PROGRAMME 130 - 239	1
	106 567	Streifenträger 140 - 249	TITLE STRIP HOLDER 140 - 249	TABLEAU DE PROGRAMME 140 - 249	1
	106 568	Streifenträger 150 - 259	TITLE STRIP HOLDER 150 - 259	TABLEAU DE PROGRAMME 150 - 259	1
	106 569	Streifenträger 160 - 269	TITLE STRIP HOLDER 160 - 269	TABLEAU DE PROGRAMME 160 - 269	1
	106 570	Streifenträger 170 - 279	TITLE STRIP HOLDER 170 - 279	TABLEAU DE PROGRAMME 170 - 279	1
	208 391	Titelstreifen	TITLE STRIP	TITRES	
15	212 035	Frontscheibe	FRONT GLASS	VITRE - FRONT	1
16	108 324	Schließwinkel	CLOSING BRACKET	EQUERRE DE FERMETURE	3
Ⓑ	108 304	Tastaturträger, vollst.	KEY BOARD SUPPORTING, ASSY	SUPPORT DU CLAVIER, COMPL.	1
21	108 310	Trägerplatte	SUPPORTING PLATE	PLAQUE DE PORTEUSE	1
22	212 004	Programmtafelscheibe	PROGRAM GLASS	VITRE POUR CADRE DU TABLEAU	1
23	106 666	Tubus	TUBE	TUBE	1
24	217 056	Filzstopfen	FELT WASHER	RONDELLE DE FEUTRE	6
25	106 668	Leiterplatte - Spielanzeige -, gelötet	CIRCUIT PLATE - PLAYING INDICATOR-, SOLDERED	PLAQUETTE A CIRCUIT - INDICATEUR, SOUDEE	1
	221 185	Widerstand 180 Ω 0,71 W (1 W)	RESISTOR 180 Ω 0,71 W (1 W)	RESISTANCE 180 Ω 0,71 W (1 W)	7
26	106 669	Leiterplatte I, gelötet	CIRCUIT PLATE I, SOLDERED	PLAQUETTE A CIRCUIT I, SOUDEE	1
	221 668	Widerstand 18 Ω 0,71 W (1 W)	RESISTOR 18 Ω 0,71 W (1 W)	RESISTANCE 18 Ω 0,71 W (1 W)	2
	221 115	Si-Diode 1 N 4004	SI-DIODE 1 N 4004	SI - DIODE 1 N 4004	3
27	217 055	Leiterplatte II	CIRCUIT PLATE II	PLAQUETTE A CIRCUIT II	1
28	225 533	Lampenfassung	LAMP SOCKET	DOUILLE DE LAMPE	6
29	226 049	Glassockellampe 12 V 2 W	LAMP 12 V 2 W	LAMPE 12 V 2 W	6
30	108 311	Lasche	STRAP	BARRETTE	1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Position ITEM POSITION	Bestell-Nr. PART NR. REFERENCE	Benennung	DESCRIPTION	NOMENCLATURE	Stück QTY NOMBRE
©	106 625	Tastatur, vollst.	KEY BOARD, ASSY	CLAVIER (TOUCHES), COMPL.	1
31	105 468	Tastenrahmen	KEY FRAME	CADRE DES BOUTONS, TOUCHES	1
32	106 663	Einsatzstück	INSERTION PIECE	PIECE INTERCALAIRE	1
33	103 987	Drucktaste, vollst.	PRESS BUTTON, ASSY	BOUTON - POUSSOIR, COMPL.	13
34	205 447	Druckfeder	PRESSURE SPRING	RESSORT DE PRESSION	13
35	106 664	Tastenboden	KEY SUPPORT	FOND DES BOUTONS	1
36	200 728	Druckwinkel	PRESSURE BRACKET	ANGLE DE PRESSION	1
37	200 832	Druckwinkel	PRESSURE BRACKET	ANGLE DE PRESSION	1
	106 638	Tastaturprofil, vollst.	KEY BOARD PROFILE, ASSY	PROFIL DU CLAVIER, COMPL.	1
38	106 637	Tastaturprofil, genietet	KEY BOARD PROFILE, STAMPED	PROFIL DU CLAVIER, RIVE	1
39	106 628	Kontaktleiste, vollst.	CONTACT STRIP, ASSY	REGLETTE DE CONTACT, COMPL.	1
40	108 890	Lautsprecherabdeckung, rechts	LOUDSPEAKER - COVER, RIGHT	PLAQUE DE PROTECTION, HAUT-PARLEUR, DROITE	1
41	108 891	Lautsprecherabdeckung, links	LOUDSPEAKER - COVER, LEFT	PLAQUE DE PROTECTION, HAUT-PARLEUR, GAUCHE	1
42	224 176	Lautsprecher KK 7 8 Ω	LOUDSPEAKER KK 7 8 Ω	HAUT-PARLEUR KK 7 8 Ω	2
43	224 173	Lautsprecher P 130 8 Ω	LOUDSPEAKER P 130 8 Ω	HAUT-PARLEUR P 130 8 Ω	2
44	108 232	Rahmen für Spielanweisung	FRAME FOR PRICING INSTRUCTION	CADRE / INDICATION DES JEUX	1
45	108 233	Halter für Spielanweisung	HOLDER FOR PRICING INSTRUCTION	SUPPORT / INDICATION DES JEUX	1
3 KANAL CHANNEL CANAUX	107 812	MÜNZPRÜFERHALTEBLECH, vollst.	COIN MECHANISM, ASSY	MONNAYEUR, COMPL.	
51	107 814	Münzprüferhalteblech, vormont.	HOUSING, PRE-MOUNTED	PLAQUE DE MAINTIN DU SELECTEUR, PRE-MONTE	1
52	107 468	Münzdurchlauf, vollst.	COIN CHUTE, ASSY	PASSAGE DE MONNAIE, COMPL.	1
4 KANAL CHANNEL CANAUX	107 813	MÜNZPRÜFERHALTEBLECH, vollst.	COIN MECHANISM, ASSY	MONNAYEUR, COMPL.	
51	107 814	Münzprüferhalteblech, vormont.	HOUSING, PRE-MOUNTED	PLAQUE DE MAINTIN DU SELECTEUR, PRE-MONTE	1
52	107 474	Münzdurchlauf, vollst.	COIN CHUTE, ASSY	PASSAGE DE MONNAIE, COMPL.	1

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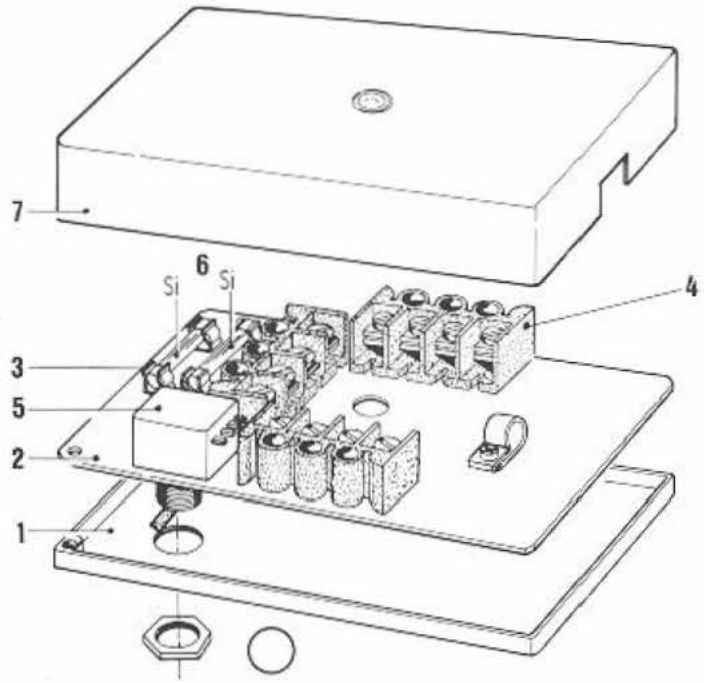
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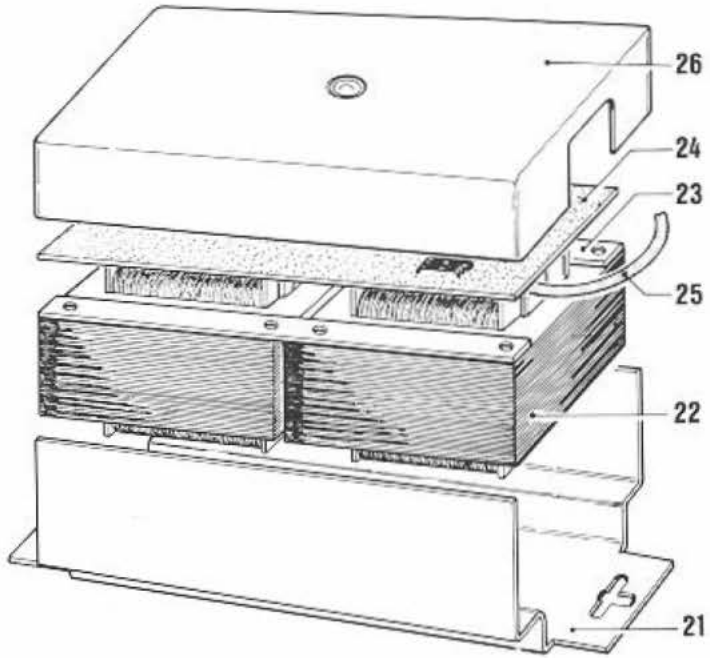
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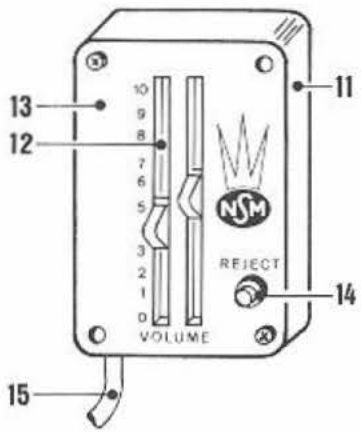
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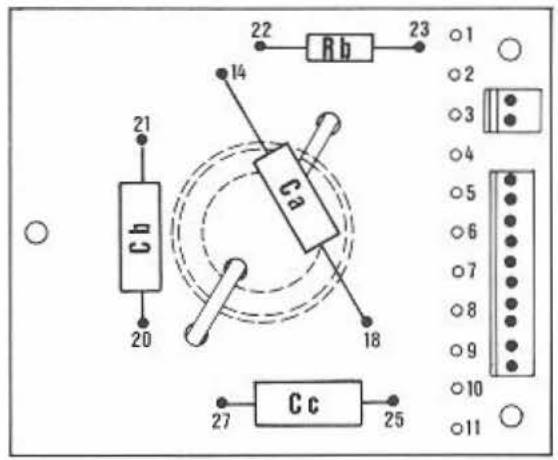
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Position ITEM POSITION	Bestell-Nr. PART NR. REFERENCE		Benennung	DESCRIPTION	NOMENCLATURE	Stück QTY NOMBRE
(A)	106 553	50 Hz	Schalterplatte, vollständig 50 Hz	JUNCTION PLATE, ASSY 50 Hz	PLAQUE PORTE-INTERRUPTEUR, COMPL. 50 Hz	
1	103 663		Unterteil	BOTTOM PART	PARTIE INFERIEURE	1
2	106 556		Leiterplatte, gelötet	CIRCUIT PLATE, SOLDERED	PLAQUETTE A CIRCUIT, SOUDEE	1
3	225 016		Sicherungshalter	FUSE HOLDER	PORTE-FUSIBLE	4
4	225 423		Klemmleiste	TERMINAL BOARD	BARRE A BORNES	3
5	222 328		Geräteschalter	PLUG SWITCH	INTERRUPTEUR D'APPAREIL	1
6	225 054		Sicherung T 3,15 A träge	FUSE T 3,15 A SLO-BLO	FUSIBLE T 3,15 A RETARDEE	2
7	103 668		Haube	COVER	CAPOT	1
(A)	106 554	60 Hz	Schalterplatte, vollständig 60 Hz	JUNCTION PLATE, ASSY 60 Hz	PLAQUE PORTE-INTERRUPTEUR, COMPL. 60 Hz	
1	104 977		Unterteil	BOTTOM PART	PARTIE INFERIEURE	1
2	106 557		Leiterplatte, gelötet	CIRCUIT PLATE, SOLDERED	PLAQUETTE A CIRCUIT, SOUDEE	1
3	225 405		Sicherungshalter	FUSE HOLDER	PORTE-FUSIBLE	4
4	225 423		Klemmleiste	TERMINAL BOARD	BARRE A BORNES	3
5	222 328		Geräteschalter	PLUG SWITCH	INTERRUPTEUR D'APPAREIL	1
6	225 542		Sicherung 4 A träge	FUSE 4 A SLO-BLO	FUSIBLE 4 A RETARDEE	2
7	104 978		Haube	COVER	CAPOT	1
(B)	106 290	STEREO	Lautstärkesteller, vollständig	VOLUME CONTROL, ASSY	REGULATEUR DE VOLUME, COMPL.	
11	029 339		Gehäuse	HOUSING	BOITIER	1
	103 908		Leiterplatte, vollständig	CIRCUIT PLATE, ASSY	PLAQUE A CIRCUIT, COMPL.	1
12	221 323		Schichtschiebewiderstand 100 K	SLIDE RESISTOR 100 K	RESISTANCE A CURSEUR 100 K	2
13	201 880		Abdeckblech	COVER	PLAQUE DE RECOUVREMENT	1
14	222 321		Drucktaster	PRESS BUTTOM	BOUTON "REJECT"	1
	023 735		Halteplatte	HOLDING PLATE	PLAQUE DE RETENUE	1
15	106 292		Anschlußleitung, vollst.	CONNECTING CABLE, ASSY	PEIGNE DE CABLES, COMPL.	1
(C)	105 617		Ausgangsübertrager, vollständig	OUTPUT TRANSFORMER, ASSY	TRANSFORMATEUR DE LIGNE, COMPL.	
21	201 876		Gehäuse	HOUSING	BOITE	1
22	223 319		Transformator	TRANSFORMER	TRANSFORMATEUR	2
23	105 615		Leiste	LEDGE	REGLETTE	2
24	105 618		Leiterplatte, vollständig	CIRCUIT PLATE, ASSY	PLAQUE A CIRCUIT, COMPL.	1
25	105 671		Kabelbaum	CABLE HARNESS	PEIGNE DE CABLES	1
26	104 978		Haube	COVER	CAPOT	1
(D)	108 245		Frequenzweiche, vollständig	SEPARATING NETWORK, ASSY	BIFURCATION SELECTIVE, COMPL.	2
C c	220 306		Tonfrequenz-Kondensator 4,7 µF 15 V	AUDIO FREQUENCY CAPACITOR 4,7 µF 15 V	FREQUENCE VOCALE CONDENSATEUR 4,7 µF 15 V	2
C a	220 210		Tonfrequenz-Kondensator 33 µF 15 V	AUDIO FREQUENCY CAPACITOR 33 µF 15 V	FREQUENCE VOCALE CONDENSATEUR 33 µF 15 V	2
C b	220 146		Tonfrequenz-Kondensator 15 µF 15 V	AUDIO FREQUENCY CAPACITOR 15 µF 15 V	FREQUENCE VOCALE CONDENSATEUR 15 µF 15 V	2
R b	221 255		Drahtwiderstand 3,3 Ω 5 W	WIRE WOUND RESISTOR 3,3 Ω 5 W	RESISTANCE BOBINEE 3,3 Ω 5 W	2

ERSATZTEIL-LISTE — SPARE PARTS LIST — LISTE DES PIECES DETACHEES

	Bestell-Nr. PART NR. REFERENCE	Benennung	DESCRIPTION	NOMENCLATURE	Stück QTY NOMBRE
	108 313	Kabelbaum: Leuchtstofflampen - 50 Hz -	CABLE HARNESS: FLUORESCENT LAMPS - 50 Hz -	PEIGNE DE CABLES: LAMPES FLUORESCENTE - 50 Hz	1
	108 341	Kabelbaum: Leuchtstofflampen - 60 Hz -	CABLE HARNESS: FLUORESCENT LAMPS - 60 Hz -	PEIGNE DE CABLES: LAMPES FLUORESCENTE - 60 Hz	1
	106 747	Kabelbaum: Spielanweisung	CABLE HARNESS: PRICING INSTRUCTION	PEIGNE DE CABLES: ORDRE DE JOU	1
	108 244	Masseleitung: Zentrale - Münzprüfer	GROUND WIRE: CENTRE - COIN MECHANISM	FIL DE MASSE: CENTRALE - MONNAYEUR	1
	108 318	Masseleitung: Lautsprechergitter	GROUND WIRE: LOUDSPEAKER GRILL	FIL DE MASSE: GRILLE/HAUT-PARLEUR	2
	108 319	Masseleitung: Tastatur - Rahmen	GROUND WIRE: KEY BOARD - FRAME	FIL DE MASSE: CLAVIER - CADRE	1
	108 320	Masseband: Zentrale - Rahmen	GROUND WIRE: CENTRE - FRAME	FIL DE MASSE: CENTRALE - CADRE	1
	108 242	Kabelbaum: Lautsprecher	CABLE HARNESS: LOUDSPEAKER	PEIGNE DE CABLES: HAUT-PARLEUR	1
	225 281	Molex-Buchsengehäuse 10polig	MOLEX-SOCKET 10 PRONGS	BOITE-MOLEX A 10 POLES	2
	225 296	Molex-Buchsengehäuse 2polig	MOLEX-SOCKET 2 PRONGS	BOITE-MOLEX A 2 POLES	2
	222 042	Molex-Crimp-Kontakt	MOLEX-CRIMP-CONTACT	CONTACT-MOLEX-CRIMP	14
	106 337	Kabelbaum: Gehäuseschalter	CABLE HARNESS: SWITCH	PEIGNE DE CABLES: INTERRUPTEUR	1
	225 432	Molex-Buchsengehäuse 4polig	MOLEX-SOCKET 4 PRONGS	BOITE-MOLEX A 4 POLES	1
	222 043	Molex-Crimp-Kontakt	MOLEX-CRIMP-CONTACT	CONTACT-MOLEX-CRIMP	2
	108 239	Kabelbaum: Zentrale - Netztrafo	CABLE HARNESS: CENTRE - TRANSFORMER	PEIGNE DE CABLES: CENTRALE - TRANSFORMATEUR	1
	225 279	Molex-Buchsengehäuse 8polig	MOLEX-SOCKET 8 PRONGS	BOITE-MOLEX A 8 POLES	1
	222 041	Molex-Crimp-Kontakt	MOLEX-CRIMP-CONTACT	CONTACT-MOLEX-CRIMP	7
	108 581	Kabelbaum: Schleppleitung	CABLE HARNESS: TRAILING CABLE	PEIGNE DE CABLES: CABLE DE TRAINAGE	1
	225 436	Molex-Buchsengehäuse 17polig	MOLEX-SOCKET 17 PRONGS	BOITE-MOLEX A 17 POLES	1
	225 391	Molex-Buchsengehäuse 10polig	MOLEX-SOCKET 10 PRONGS	BOITE-MOLEX A 10 POLES	1
	225 433	Molex-Buchsengehäuse 9polig	MOLEX-SOCKET 9 PRONGS	BOITE-MOLEX A 9 POLES	1
	222 043	Molex-Crimp-Kontakt	MOLEX-CRIMP-CONTACT	CONTACT-MOLEX-CRIMP	32
	225 444	Hirschmann-Stecker Typ Mas 700 S	HIRSCHMANN-PIN TYP Mas 700 S	FICHE-HIRSCHMANN TYPE Mas 700 S	1
	108 314	Kabelbaum: Tastatur	CABLE HARNESS: KEY BOARD	PEIGNE DE CABLES: CLAVIER (TOUCHES)	1
	026 008	Molex-Buchsengehäuse 9polig	MOLEX-SOCKET 9 PRONGS	BOITE-MOLEX A 9 POLES	1
	225 386	Molex-Buchsengehäuse 8polig	MOLEX-SOCKET 8 PRONGS	BOITE-MOLEX A 8 POLES	1
	222 043	Molex-Crimp-Kontakt	MOLEX-CRIMP-CONTACT	CONTACT-MOLEX-CRIMP	16
	108 315	Kabelbaum: Spielanzeige - Spielanweisung	CABLE HARNESS: PLAYING INDICAT.-PRICING INS.	PEIGNE DE CABLES: INDICATEUR - ORDRE DE JOU	1
	026 011	Molex-Buchsengehäuse 18polig	MOLEX-SOCKET 18 PRONGS	BOITE-MOLEX A 18 POLES	1
	222 043	Molex-Crimp-Kontakt	MOLEX-CRIMP-CONTACT	CONTACT-MOLEX-CRIMP	18

ohne Abbildung
no picture
sans figurer