

TELEGRAPH ADAPTOR SYSTEM

TG 4 N° 23076395-7

FOR

TX20 TELEPRINTER

TECHNICAL DOCUMENT

TECHNICAL DESCRIPTION

MAINTENANCE MANUAL

ILLUSTRATED PARTS CATALOGUE



FOREWORD

This TECHNICAL DOCUMENT covers the telegraph «ADAPTATION» board 23076395-7 of the TX20 teleprinter. The document is divided into three parts :

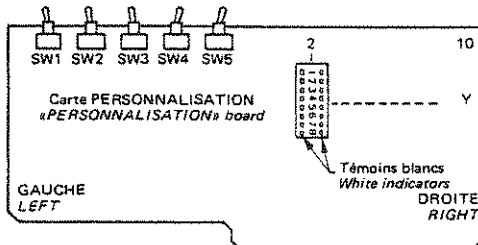
- 1 - Technical description .
- 2 - Maintenance manual .
- 3 - Illustrated parts catalogue .

It forms is a complement to the WORKSHOP TECHNICAL DOCUMENT of the TX20 teleprinter.

FICHE TECHNIQUE TECHNICAL SHEET

TX20 - RX20 POSITIONNEMENT DES INTERRUPTEURS DE LA CARTE PERSONNALISATION SWITCH SETTINGS OF THE «PERSONNALISATION» BOARD

INTERRUPTEURS ACCESSIBLES A L'OPERATEUR SWITCHES WITHIN THE REACH OF THE OPERATOR			
INTERRUPTEUR SWITCH	FONCTION FUNCTION	LEVIER A GAUCHE TOGGLE TO LEFT	LEVIER A DROITE TOGGLE TO RIGHT
SW01	Etat du PERFORATEUR lors de la réception d'un appel <i>State of TAPE PUNCH when receipt of an incoming call</i>	Mis en marche <i>On</i>	Mis à l'arrêt <i>Off</i>
SW02	Interligne <i>Line feed</i>	Simple <i>Single</i>	Double <i>Double</i>
SW03	Dégagement du texte <i>Text release</i>	Après 250 ms <i>After 250 ms</i>	Après 750 ms <i>After 750 ms</i>
SW04 (2)			
SW05 (2)			
INTERRUPTEURS ACCESSIBLES A L'INSTALLATEUR OU A L'AGENT DE MAINTENANCE SWITCHES WITHIN THE REACH OF THE FITTER OR MAINTENANCE PERSONNEL			
INTERRUPTEUR SWITCH Y2	FONCTION FUNCTION	TÉMOIN BLANC (1) APPARENT A GAUCHE WHITE INDICATOR SEEABLE ON THE LEFT	TÉMOIN BLANC (1) APPARENT A DROITE WHITE INDICATOR SEEABLE ON THE RIGHT
1	Communication <i>Communication</i>	SIMPLEX <i>SIMPLEX</i>	DUPLEX <i>DUPLEX</i>
2	(3) Possibilité d'exploitation seulement après échange d'indicatif à l'établissement de la communication. <i>Operating possibility only after exchange of answer-back codes when the communication is through.</i> (4) Minuterie (fin de communication) <i>Time-switch (End of Call)</i>	Inopérant <i>Invalide</i>	Opérant <i>Operative</i>
3		Inopérant <i>Invalide</i>	Opérant <i>Operative</i>
4	Alarme sonore (défaut) <i>Sound alarm (fault)</i>	Permanente <i>Permanent</i>	Fugitive <i>Momentary</i>
5	Déclenchement de l'EMETTEUR D'INDICATIF par la séquence de signaux «CHIFFRES» «D» <i>Trigger of the ANSWER-BACK UNIT by the sequence of «FIGURES» «D» signals.</i>	Impossible <i>Impossible</i>	Possible <i>Possible</i>
6	«Echoplex» <i>«Echoplex»</i>	Non <i>No</i>	Oui <i>Yes</i>
7	Perforation de «CHIFFRES» «D» <i>Punching of «FIGURES» «D»</i>	Sans <i>Without</i>	Avec <i>With</i>
8	(3) (2) Nombre de caractères par ligne <i>Number of characters per line</i> (4) Emission de la combinaison «32 ^{ème} » <i>Transmission of «32^{ème}» combination</i>	72	69
9		Avec <i>With</i>	Sans <i>Without</i>
10	Transmission <i>Transmission</i>	Simple courant 2 fils <i>Single current 2 wires</i>	Double courant ou simple courant 4 fils <i>Double current or single current 4 wires</i>



NOTA (1) Le changement de position des interrupteurs Y2 s'effectue par appui sur les témoins blancs.
NOTE Position change of switches Y2 is carried out by depressing the white indicators.

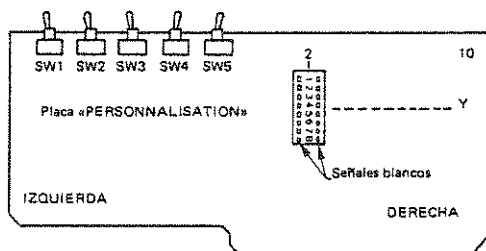
(2) Option (suivant logiciel)
Option (depending on software)

(3) RÉSEAU COMMUTÉ
SWITCHING NETWORK

(4) POSTE à POSTE
POINT to POINT

**FICHA TECNICA
TX20 - RX20
POSICION DE LOS INTERRUPTORES DE LA PLACA «PERSONNALISATION»**

INTERRUPTORES ACCESIBLES POR EL OPERATOR			
INTERRUPTOR	FUNCION	PALANCA POR LA IZQUIERDA	PALANCA POR LA DERECHA
SW01	Situación del PERFORADOR DE CINTA a recepción de un llamado	Puesta en acción	Puesta en parada
SW02	Interlínea	Simple	Doble
SW03	Salida del texto	Después 250 ms	Después 750 ms
SW04 (2)			
SW05 (2)			
INTERRUPTORES ACCESIBLES POR EL INSTALADOR O EL AGENTE DE MANTENIMIENTO			
INTERRUPTOR Y2	FUNCION	SEÑAL BLANCO (1) APARENTE POR LA IZQUIERDA	SEÑAL BLANCO (1) APARENTE POR LA DERECHA
1	Funcionamiento	Simplex	Duplex
2	(3) Posibilidad de explotación solamente después cambio de indicativo al establecimiento de la comunicación	No funcionando	Funcionando
	(4) Cronometrizador (Fin de comunicación)	No funcionando	Funcionando
3	Alarma sonora (Defecto)	Permanente	Fugitiva
4	Puesta en acción del EMISOR DE INDICATIVO por medio de tecla «CIFRA» «D»	Imposible	Posible
5 (4)	«Echoplex»	No	Si
6	Perforación de «CIFRAS» «D»	Sin	Con
7 (3) (2)	Número de caracteres por línea	72	69
	Emisión de la combinación «32»	Con	Sin
8	Transmisión	Simple corriente 2 hilos	Doble corriente o simple corriente 4 hilos



- NOTA**
- (1) El cambio de posición de los interruptores Y2 se efectua apoyando sobre los señales blancos.
 - (2) Opción (siguiente logicial)
 - (3) RED COMMUTADA
 - (4) PUESTO A PUESTO

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FICHE TECHNIQUE TECHNICAL SHEET

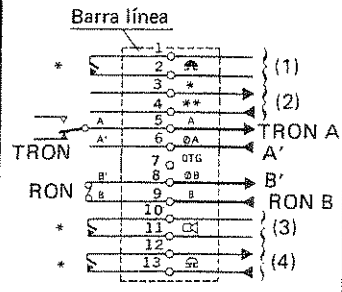
TX20 - TX21 - TM22 RACCORDEMENTS CONNECTION TYPE

Type de carte ADAPTATION « ADAPTATION » board type	Type de liaison Connection type Mode de liaison Connection mode	Type de raccordement Connection		
		2 fils 2 wires	3 fils 3 wires	4 fils 4 wires
TG2 - TG10 - TG12 - TG16 - TG18	PASSIF PASSIVE			
	SIMPLE COURANT SINGLE CURRENT			
TG15	DOUBLE COURANT DOUBLE CURRENT			
TG1 - TG3 TG4 - TG8	DOUBLE COURANT DOUBLE CURRENT			
TG12 - TG8D	DESIETER ET GRENIER		<p style="text-align: center;">NOTA</p> <p>TG1 - TG1D - TG2 - TG3 TG4 - TG8 - TG8D - TG10 TG12 - TG15</p> <p>(1) Appel urgent (sauf TG12) (2) Présence de la prise télégraphique (3) « Alarme » défaut (4) « Appel urgent pour TG12 » (et « Signalisation » transmission (1) Priority call (except TG12) (2) TG plug connected (3) Breakdown « alarm » (and priority call for TG12) (4) Transmission « alarm »</p>	<p style="text-align: center;">RACCORDEMENT CRYPTOGRAPHIQUE AVEC TG10 - TG16 - TG18) (CRYPTOGRAPHIC CONNECTION WITH TG10 - TG16 - TG18)</p> <p>(1) Appel urgent (2) Chiffrement d'Emission de Données (ED) (3) Borne 10 venant du système de chiffrement (4) Déchiffrement de Réception de Données (RD)</p> <p>pour (2) et (4) les flèches indiquent le sens des informations (1) Priority call (2) Data Transmission (DT) coding (3) Terminal 10 coming from the coding system (4) Data Reception (DR) decoding</p> <p>for (2) and (4) the arrows indicate the data flow direction.</p>



FICHA TECNICA
TX20 - TX21 - TM22
CONEXIONES

Tipo de tarjeta ADAPTACION	Tipo de conexión	Modo de conexión	Tipo de conexión		
			2 hilos	3 hilos	4 hilos
TG2 - TG10 - TG12 - TG16 - TG18	CORRIENTE SIMPLE	PASIVO		X	X
		ACTIVO			
TG15	CORRIENTE DOBLE		X	X	X
TG1 - TG3 TG4 - TG8	CORRIENTE DOBLE		X	X	X
TG1D - TG8D	DESIETIER ET GRENIER			X	X
			<p>NOTA</p> <p>TG1 - TG1D - TG2 - TG3 TG4 - TG8 - TG8D - TG10 TG12 - TG15</p> <p>(1) Llamada urgente (excepto TG12) (2) Presencia de la toma telegráfica (3) «Alarma» defecto (y Llamada urgente para TG12) (4) «Señalización» transmisión</p>		
			(CONEXION CRIPTOGRAFICA CON TG10 - TG16 - TG18)		
			<p>(1) Llamada urgente (2) Cifrado de emisión de datos (3) Borne 10 procedente del sistema de cifrado (4) Descifrado de recepción de datos para (2) y (4) las flechas indican el sentido de las informaciones</p>		



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TECHNICAL DESCRIPTION



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PLATE 1 - Schematic diagram

1 INTRODUCTION

The ADAPTATION board permits the unit to be used in point-to-point mode or on the telegraph network being switched, according to the Type A signalling, in double-current, simplex or duplex.

It provides the following functions :

- telegraphic power supply,
- isolation of the unit with respect to the transmission channel,
- supervision of the transmission channel,
- exchange of calling signals,
- connection to or Disconnection of the unit to the transmission channel,
- modulation transfer, in reception and in transmission,
- line cut off indicator.

2 DESCRIPTION

The «ADAPTATION» board essentially consists of :

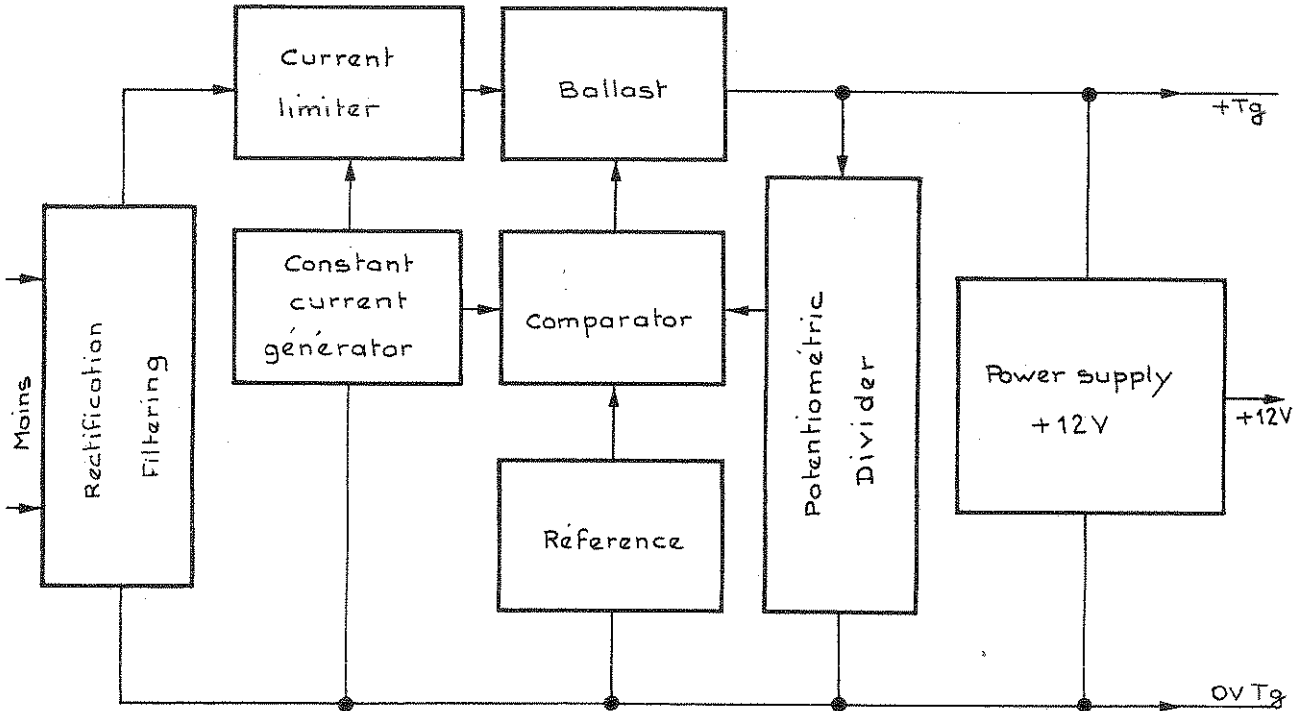
- a maintenance switch (SW2) offering the maintenance operator the following configurations :
 - : NORMAL (W)
 - : ISOLATION (O)
 - : LOOP (L)
 - : EARTH (E)
 - : REVERSE (T)
- a modulation speed selector switch (SW1) : 50, 75 or 100 Bd.
- a stabilized and regulated telegraphic power supply delivering the voltages : + 50 Tg and - 50 V Tg.
- a supervision circuit : ensuring reception channel supervision ,
- a constant current electronic transmission relay : ensuring the modulation transfer from the transmission channel ,
- a transmission relay control circuit
- a reception relay protective circuit : protecting the reception relay with respect to current and voltage ,
- a electronic reception relay : ensuring modulation transfert over the reception channel ,
- alarm relays : supplying the user with following information :
 - . priority call ,
 - . breakdown alarm ,
 - . transmission alarm.

NOTE : Marqued switch

Technical document	«ADAPTATION» board
SW3	3
SW4	4
SW5	5
SW6	6
SW7	7
SW8	8

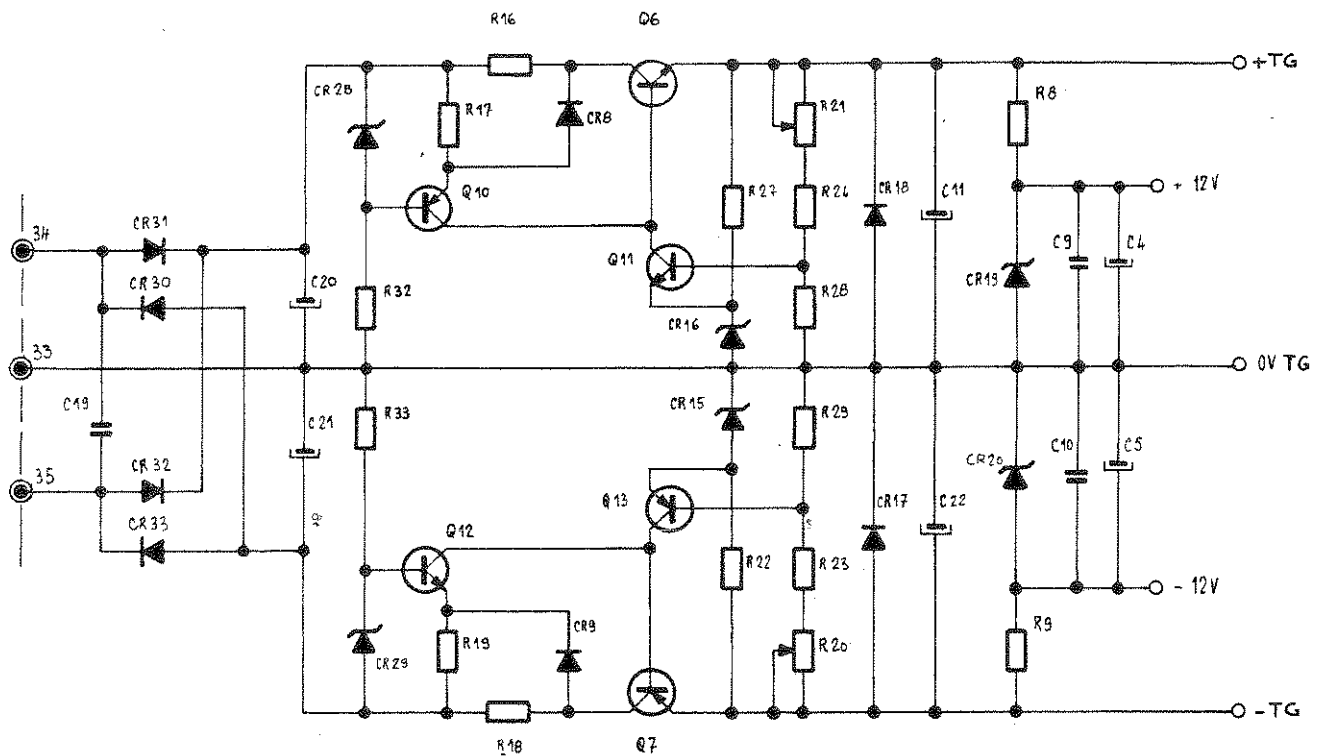
3 OPERATION (See PLATE 1)

3.1 TELEGRAPH POWER SUPPLY

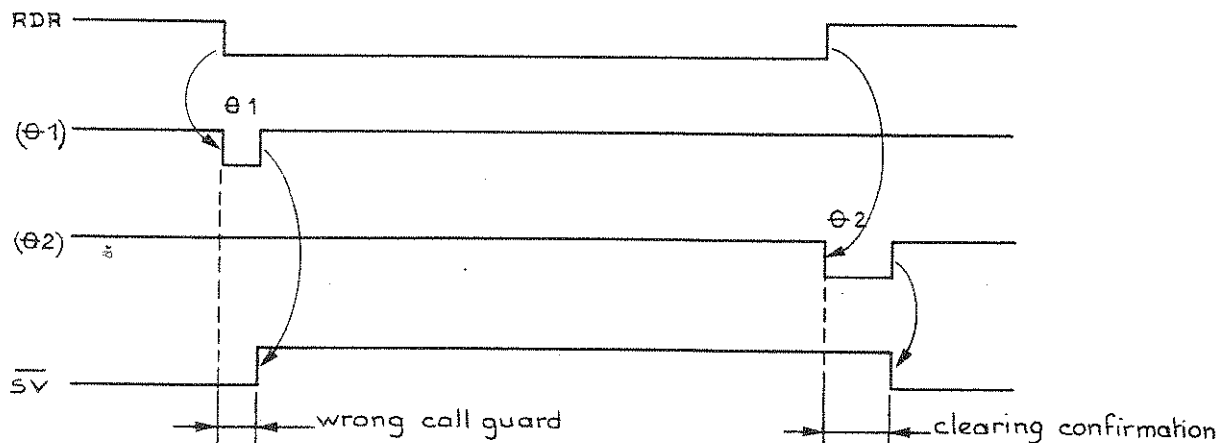
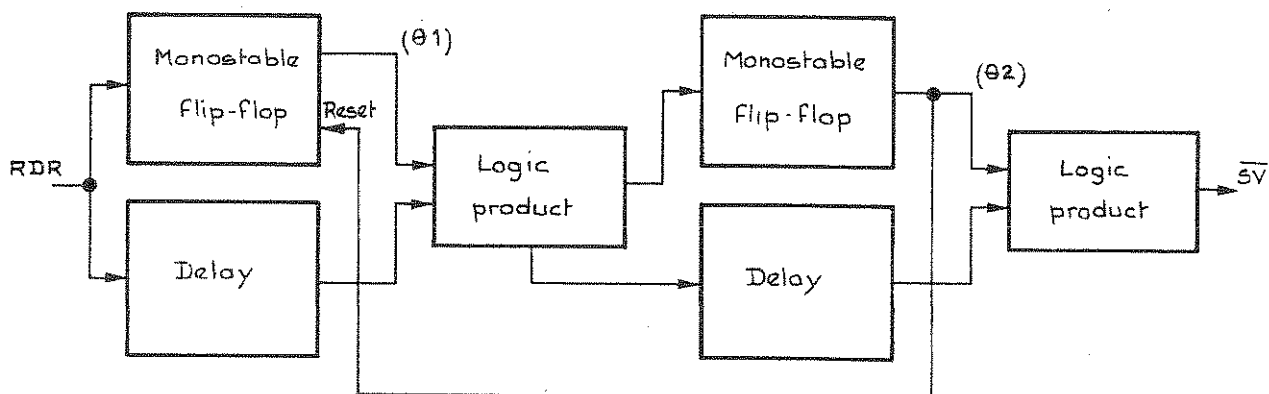


The AC voltage from one of the secondary windings of the TRANSFORMER is rectified by the diodes (CR30 through CR32) and then filtered by the capacitors (C20 and C21). The series type regulation uses a ballast-transistor (Q6) controlled by the comparator-transistor (Q11) and transistor (Q10). Transistor (Q11) compares the reference voltage determined by the Zener diode (CR16), polarized by resistor (R27), at the fraction of the output voltage determined by the potentiometric divider consisting of resistors (R21, R24 and R28). Transistor (Q10) acts as a constant current generator, the base current of which is determined by the Zener diode (CR28).

The combination of resistors (R16) and (R17) and diode (CR8) forms a current limiter. The voltage across resistor (R16), for a limit operating current, causes the diode (CR8) to conduct. Transistor (Q10) tends to block, resulting in a decrease in base current of the ballast-transistor (Q6). The power supply (+ 12 V and - 12 V) is provided by the Zener diodes (CR19 and CR20) which are biased by resistors (R8 and R9). The power supply (- Tg) is provided by an arrangement similar to that of power supply (+ Tg).

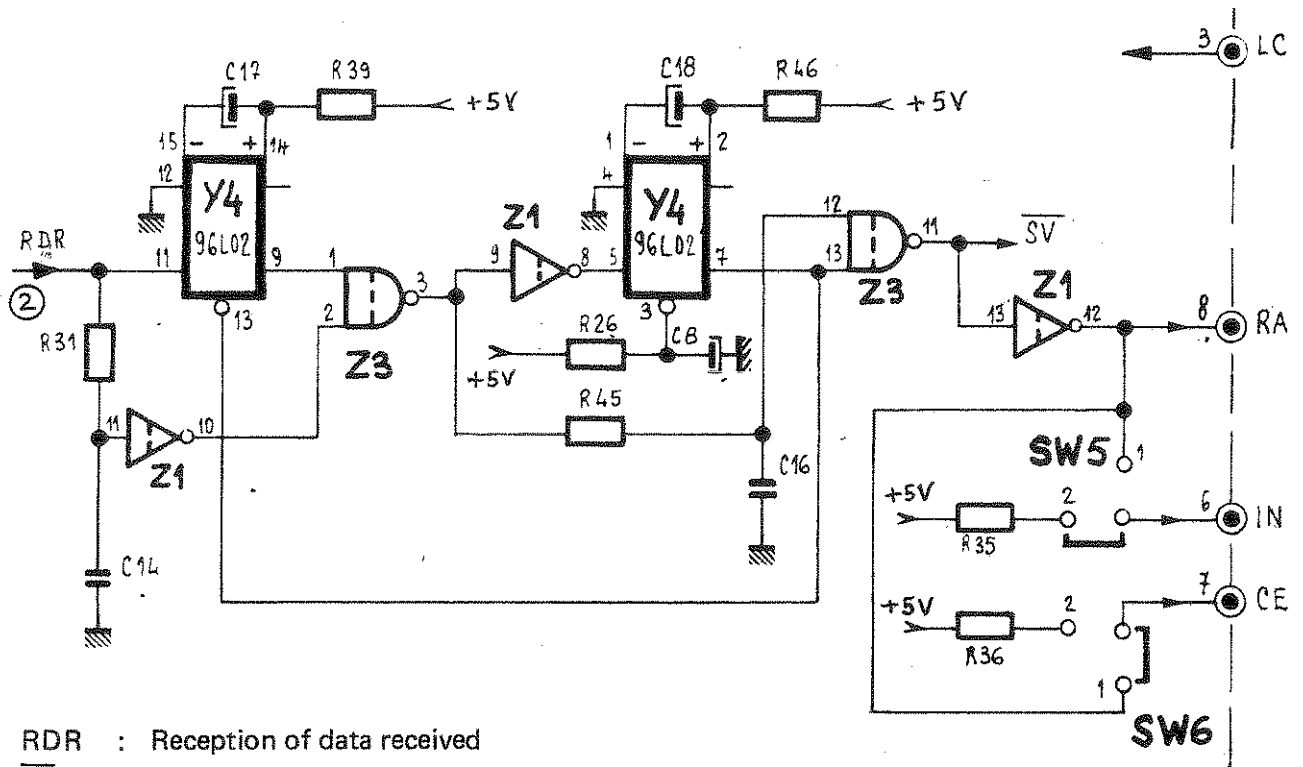


3.2 SUPERVISION



The supervision signal (\overline{SV}) prepared from signal (RDR), is essentially generated by two one-shot flip-flops ($\theta 1$ and $\theta 2$). On the trailing edge of (RDR) the one-shot flip-flop ($\theta 1$) delivers its pulse. On the leading edge of (RDR), the one-shot flip-flop ($\theta 2$) delivers its pulse. The signal (\overline{SV}) is prepared by the leading edges of ($\theta 1$) and ($\theta 2$). The wrong call guard is equal to pulse ($\theta 1$), the clearing confirmation is equal to pulse ($\theta 2$). Capacitor (C8) holds the one-shot flip-flop ($\theta 2$, Y4.7*) at zero when the unit is switched on.

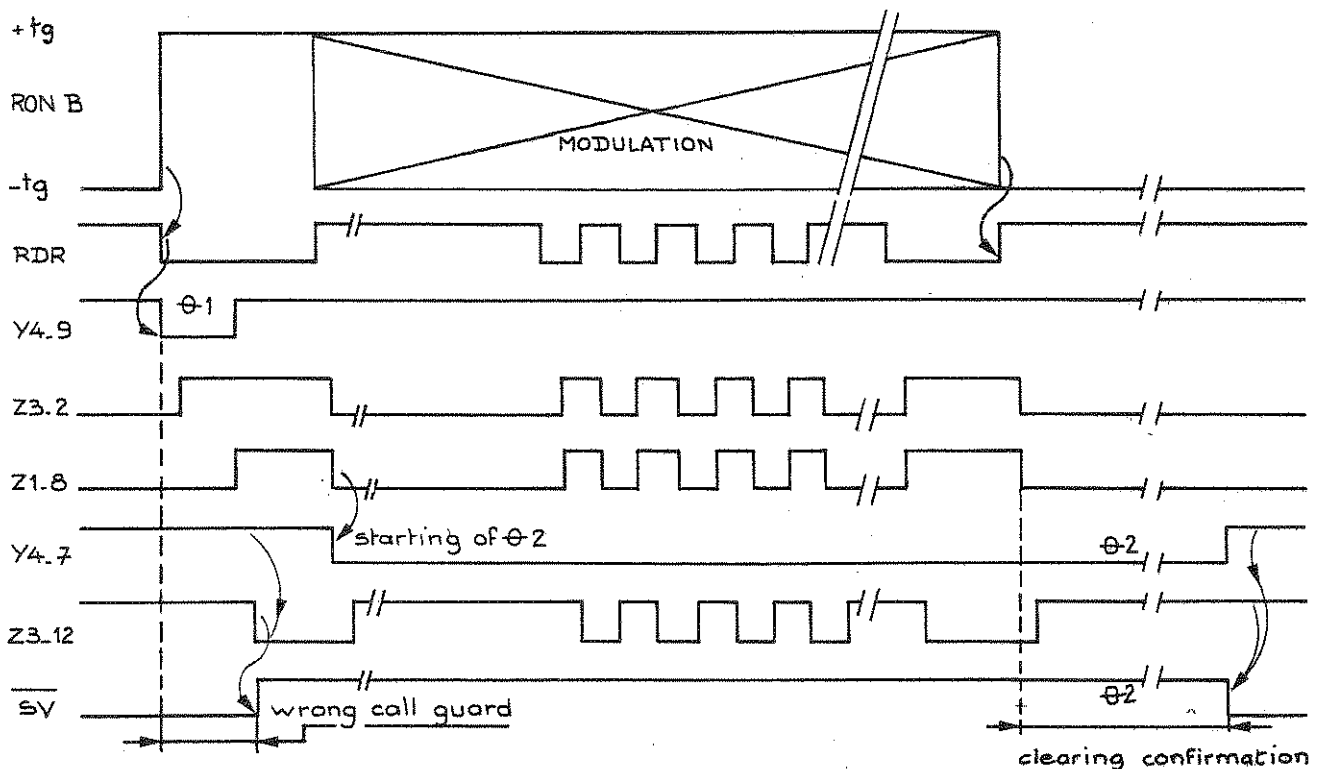
* NOTE : Y4.7 means pin 7 of circuit Y4.

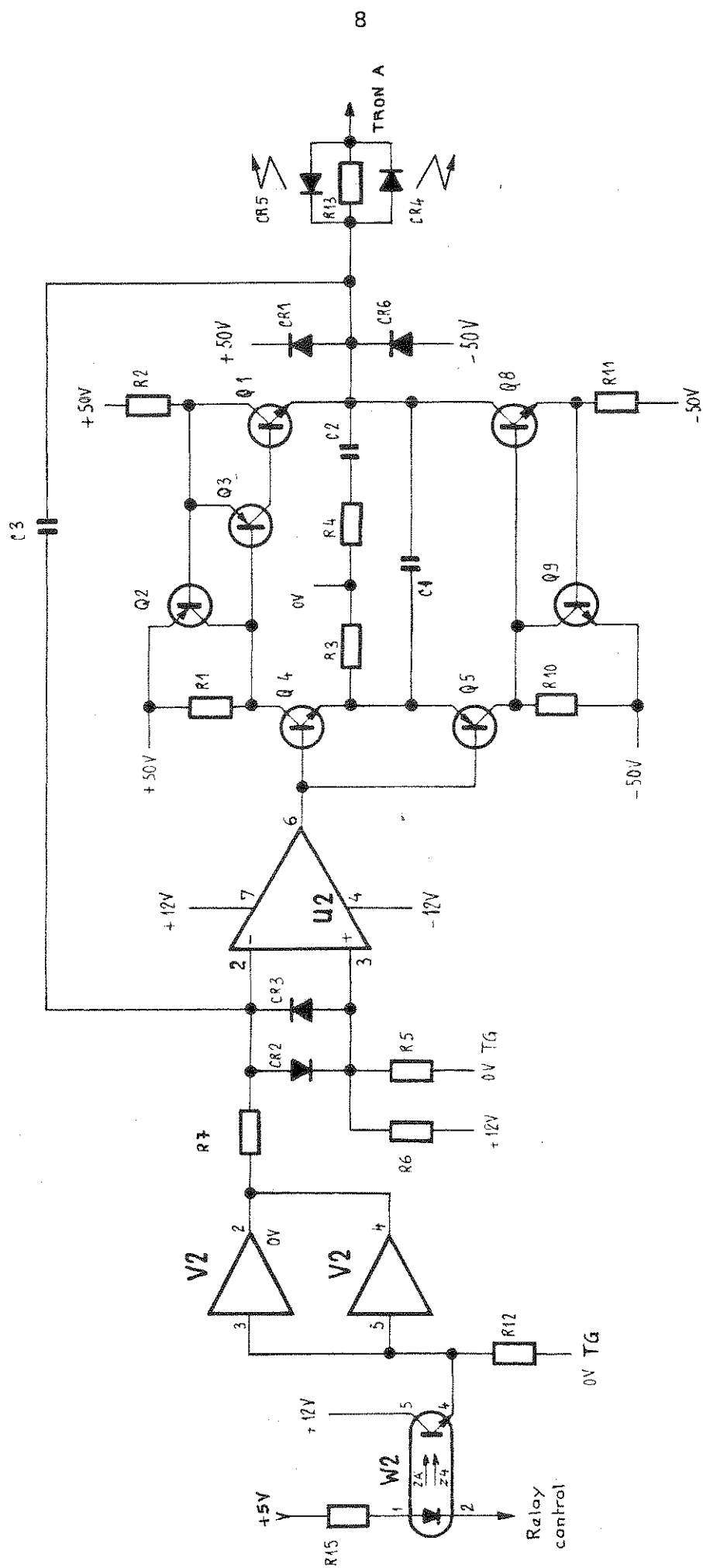


- RDR : Reception of data received
- SV : Supervision
- RA : Call reception
- IN : Proceed-to-select signal
- CE : Call-connected signal

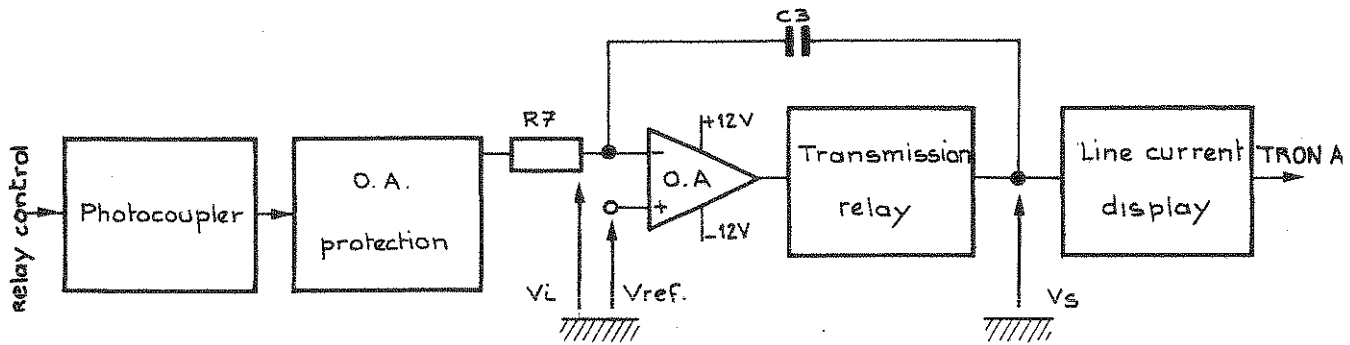
The «proceed-to-select» (IN) and «call-connected» (CE) signals are available when the switches (SW5 and SW6) are in the «I» position.

Timing diagram



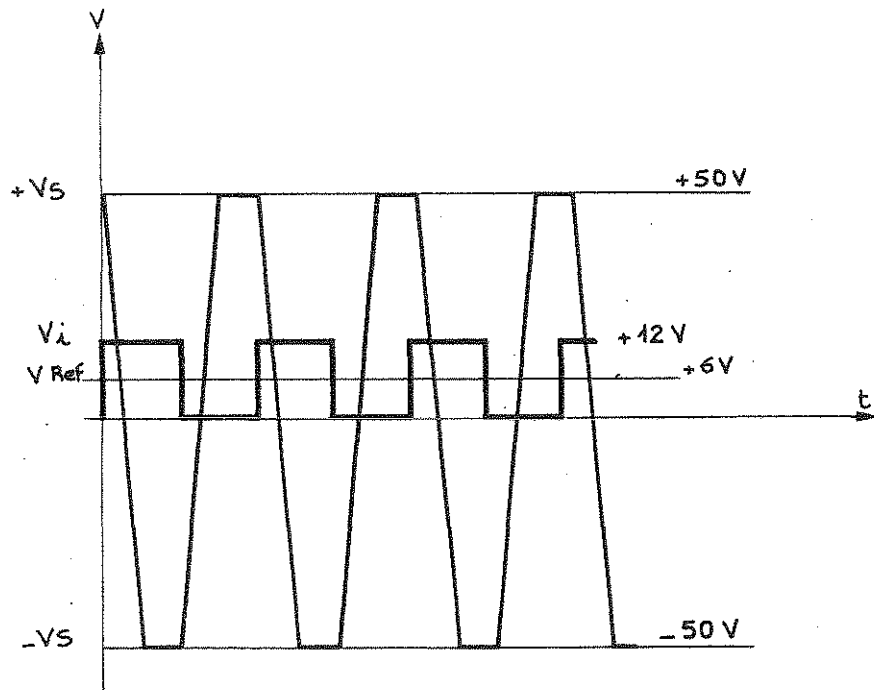


3.3 TRANSMISSION

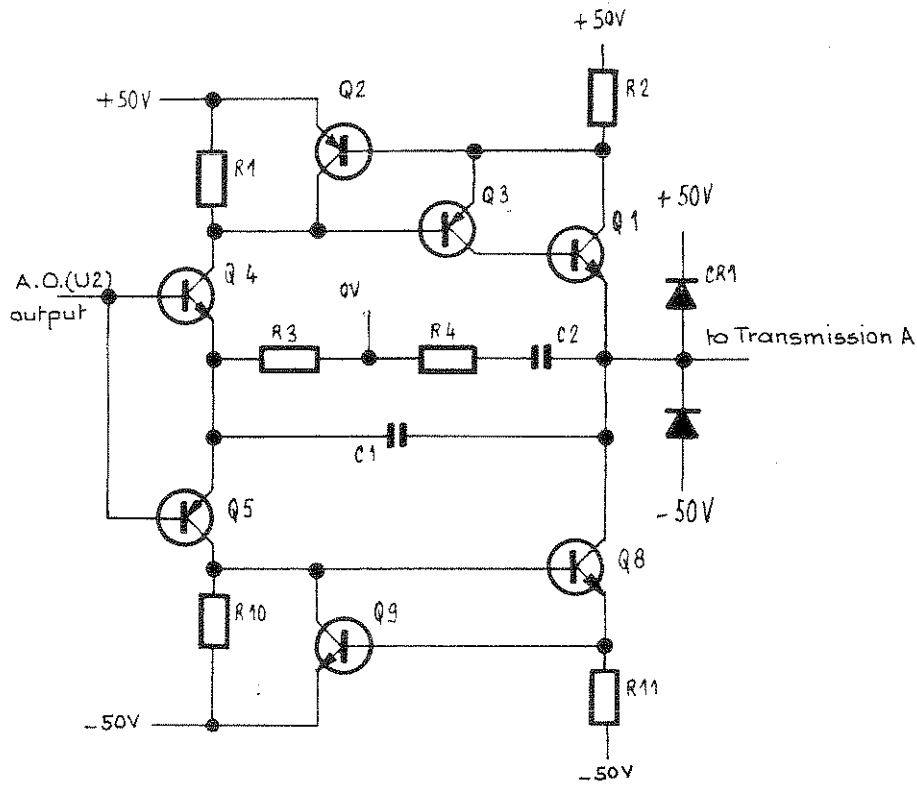


The transmission section essentially consists of an operational amplifier O.A. (U2) followed by an electronic relay triggering at + 50 V and - 50 V. Capacitor (C3), together with resistor (R7), connected to the O.A. (-) input and to the electronic relay output, form an integrator in order to obtain a trapezoid signal at the output (see V versus Time curve). The O.A. is controlled through the photocoupler (W2) and non-reversing amplifiers (V2). The two diodes (CR2 and CR3) provide the O.A. two inputs with voltage protection. The line current polarity display is provided by L.E.D. diodes (CR4 and CR5). Resistor (R13) calibrates the current flowing through the L.E.D. diodes.

V versus Time curve :

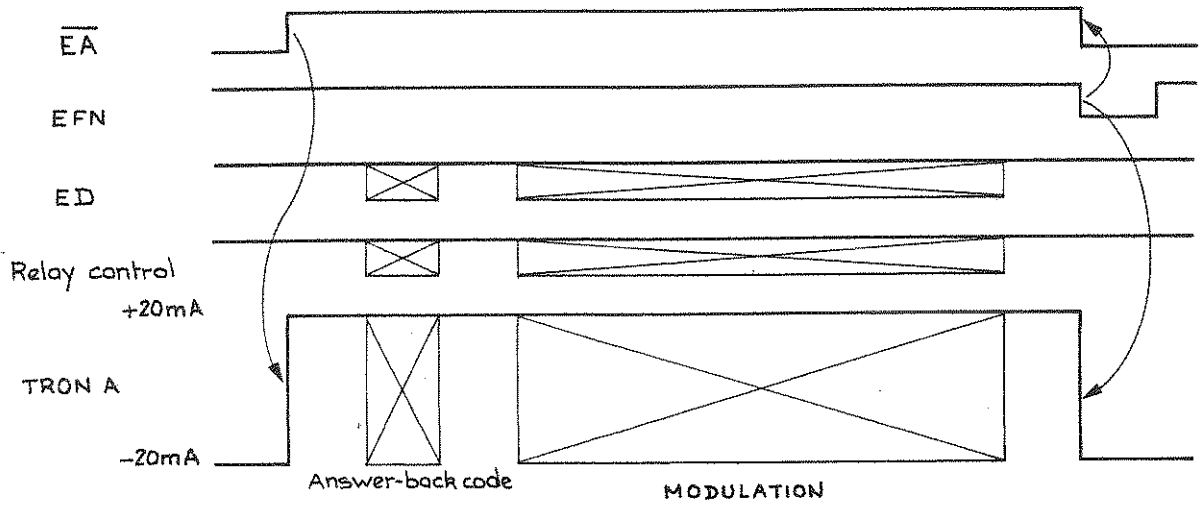


ELECTRONIC TRANSMISSION RELAY

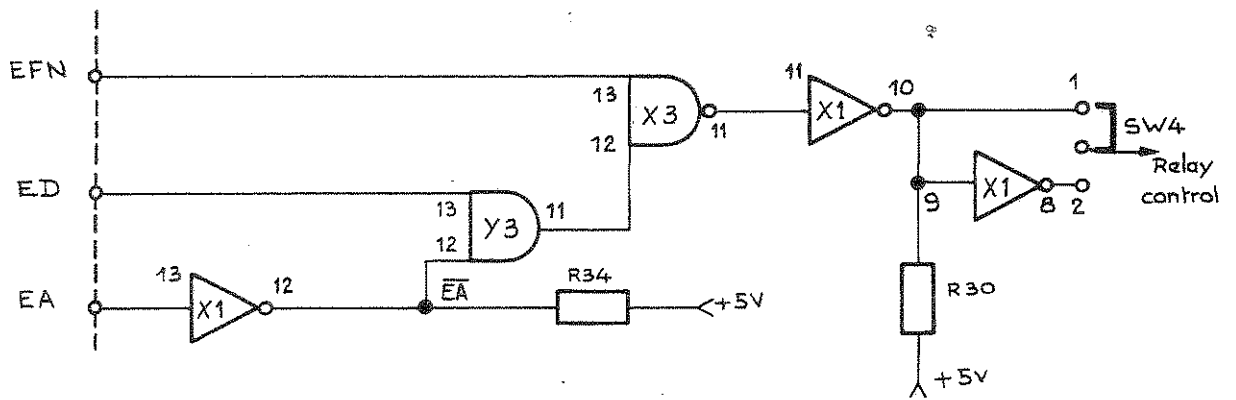


The electronic relay consists of two complementary circuits which trigger at + 50 V and - 50 V. When the O.A. (U2) output voltage is positive, transistor (Q4) is conductive. Its collector voltage, which is determined by resistors (R1 and R3), provides control of the Darlington system formed by transistors (Q1 and Q3). Transistor (Q2) is used as a current regulator. An increase in current line causes transistor (Q2) to conduct, resulting in a decrease in control current of Darlington system, and therefore a decrease in line current. When the O.A. output voltage is negative, transistor (Q5) is conductive which controls transistor (Q8). Transistor (Q9) is used as a current regulator.

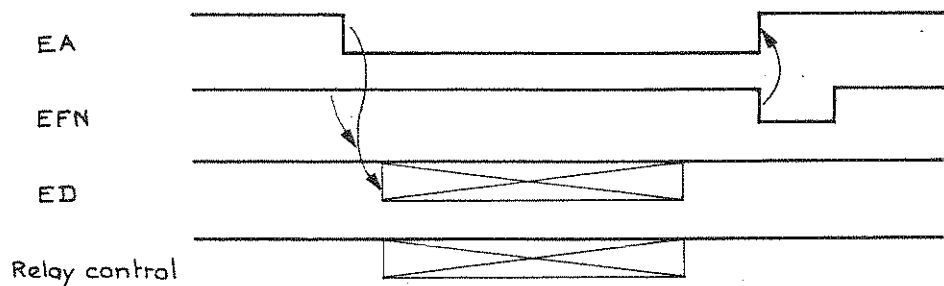
TRANSMISSION TIMING DIAGRAM (Calling station)



RELAY CONTROL CIRCUIT



- ED : Data transmission
- EA : Calling transmission
- EFN : Transmission of end and selection.



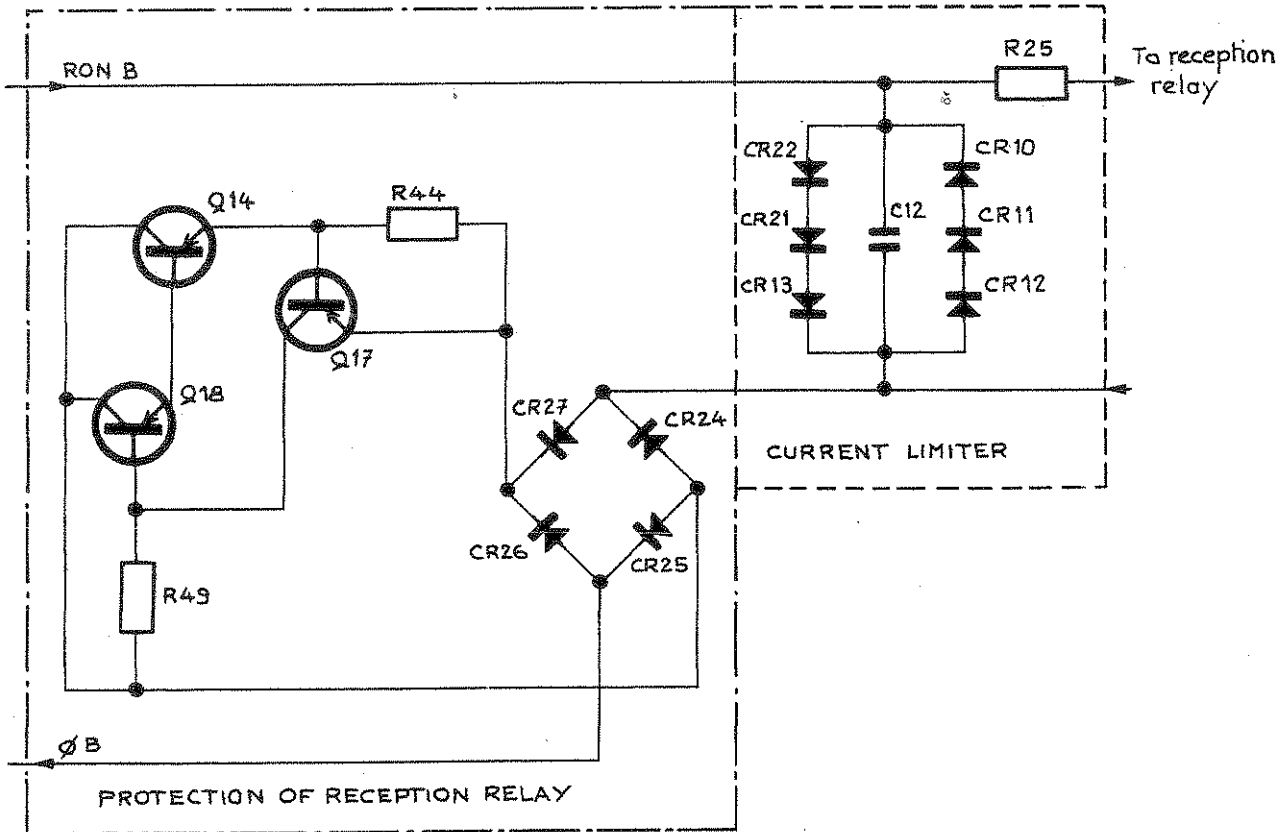
3.4 RECEPTION

PROTECTION OF RECEPTION RELAY

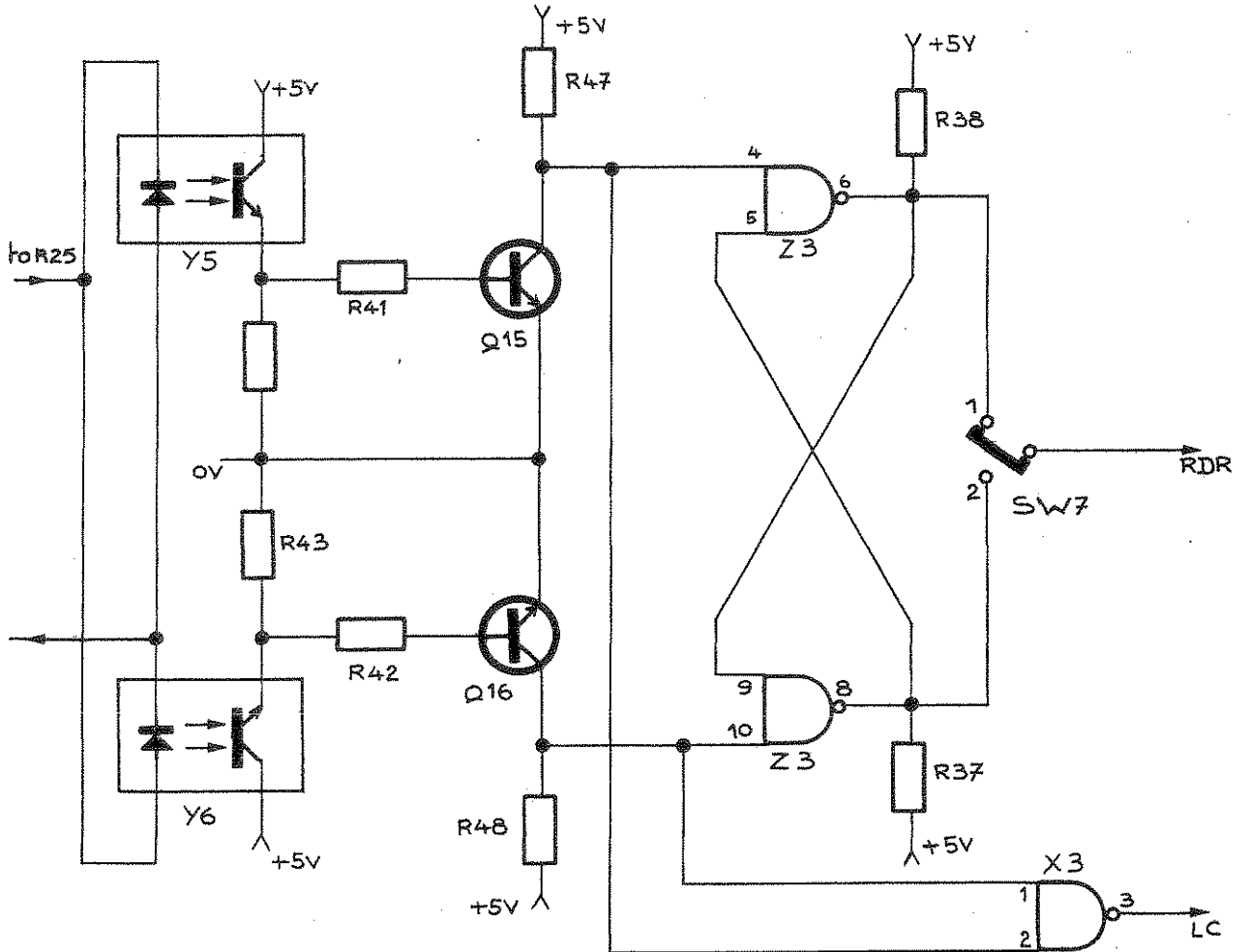
This circuit consists of two groups of three diodes (CR10 through CR12, and CR21-CR22), top-to-bottom mounted. If the modulation polarity on RON B is positive, the three diodes (CR13, CR21 and CR22) are conductive and the three diodes (CR10 through CR12) are blocked. If the modulation polarity on RON B is negative, the three diodes (CR10 through CR12) are conductive, and the three diodes (CR13, CR21 and CR22) are blocked. The voltage across the reception relay is thus chopped whatever the polarity and amplitude of the modulation received.

CURRENT LIMITER

The circuit consists of the diode bridge (CR24 through CR27), resistors (R44 and R49) and transistors (Q14, Q17 and Q18). The increase in transistor (Q17) base current causes the «Darlington» system, made up of transistors (Q14 and Q18), to be blocked. Resistor (R14) determines the limiting current threshold value.



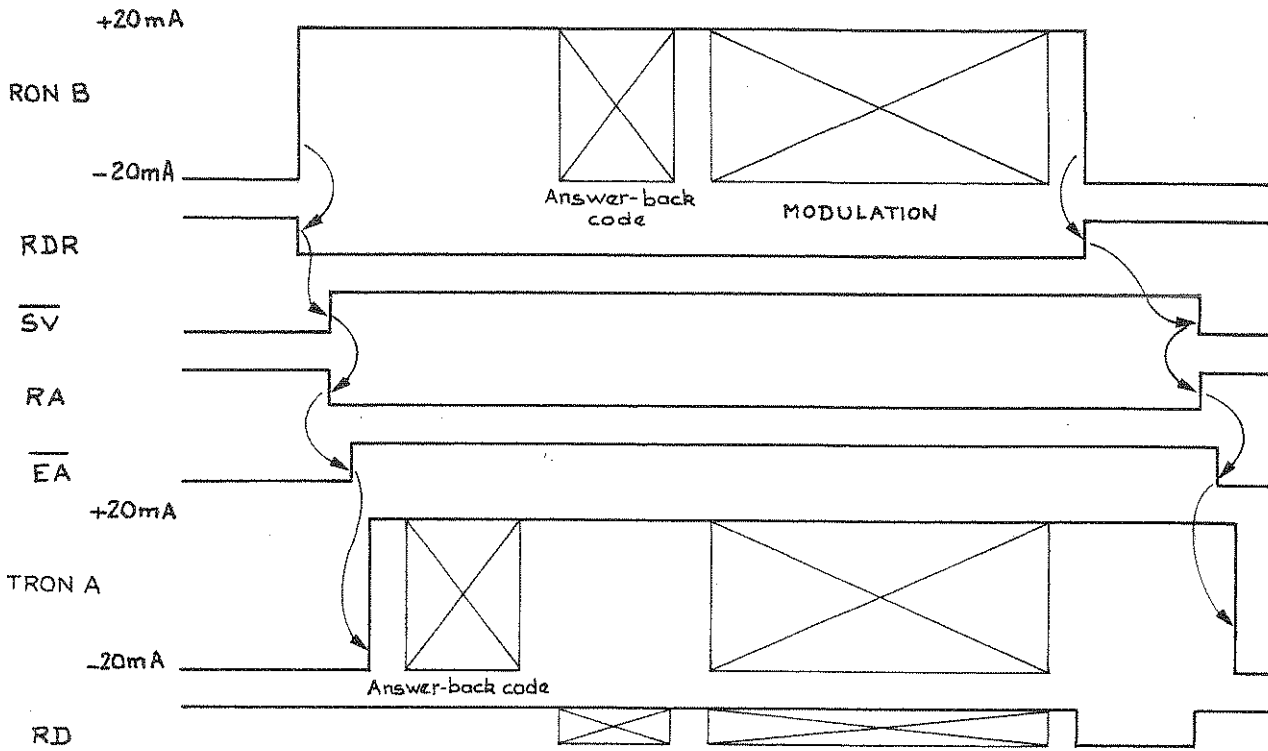
ELECTRONIC RECEPTION RELAY



The electronic reception relay consists of two identical circuits operating in a complementary way according to the modulation received.

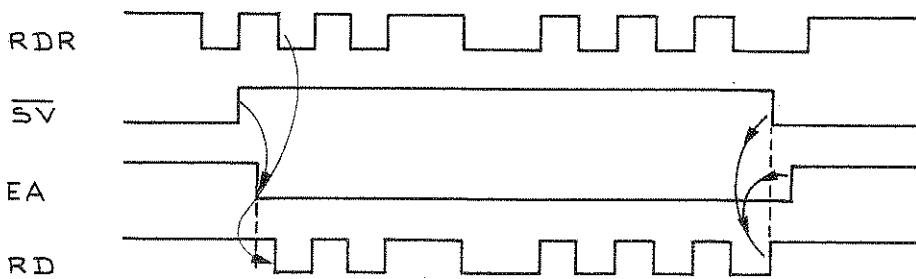
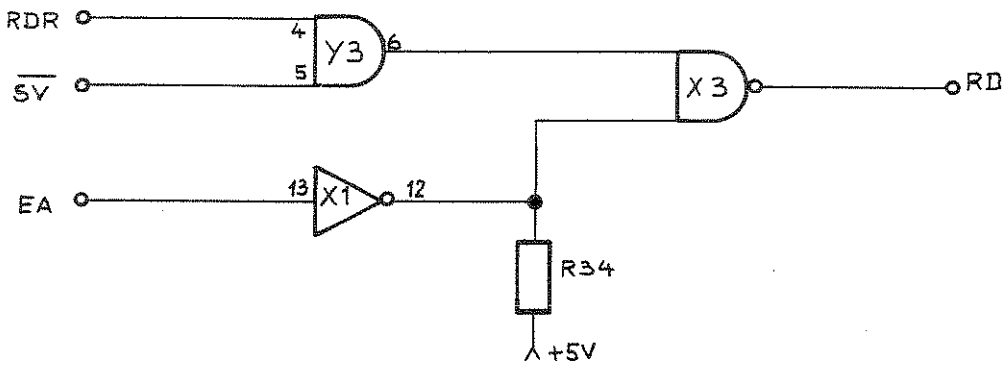
When the modulation received is positive, the photocoupler transistor (Y6) is conducting generating a base current in transistor (Q16) through resistor (R42). Transistor (Q16) becomes conducting, this condition dictates a «0» logic level on input (10) of gate (Z3). The output (RDR) goes to «0» (switch SW7 in position 1). The «Line interruption» (LC) information is present on the logic gate (X3) output (3) when its two inputs (1 and 2) are at a logic level «1». Switch (SW7) provides reversal of the output state of the electronic reception relay.

RECEPTION TIMING DIAGRAM (Called station)

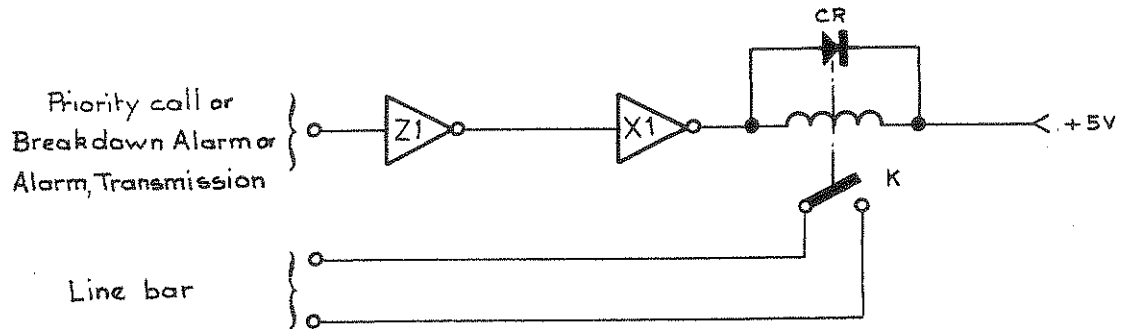


Switch (SW7) is in position «1».

DATA RECEPTION CIRCUIT



3.5 ALARMS



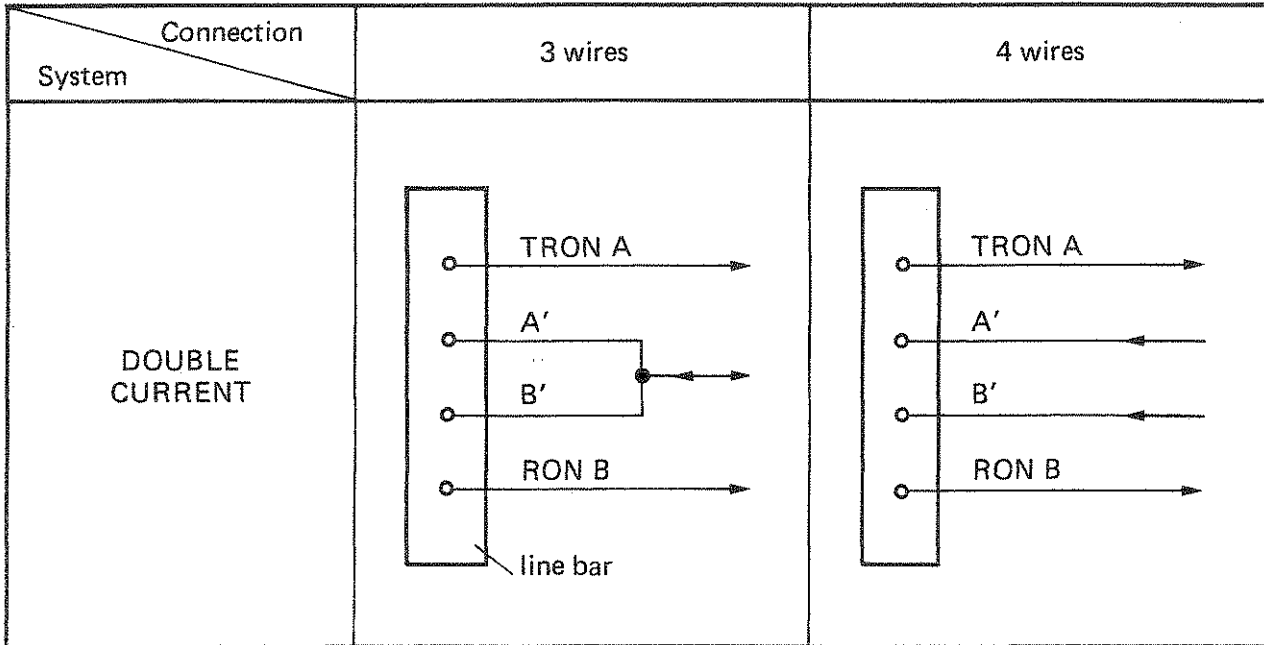
The schematic diagram is identical for the three alarm relays. The relay contact (K) closure is achieved when the «Priority call», «Breakdown Alarm» or «Alarm transmission» presents a logic «0» on the logic gate (Z1) input. Diode (CR), which is reserve-mounted, protects relay (K) against the overvoltage occurring when its power supply is cut-off.

The relay contacts are accessible on the line bar. The breaking capacities of the relays are indicated in the Field Maintenance Manual of the unit.

3.6 FUNCTIONAL CIRCUIT

SWITCH	FUNCTION	POSITION	
		direct	reverse
SW4	Modulation (transmission)	direct	reverse
SW5	Proceed-to-select	with	without
SW6	Call-connected	with	without
SW7	Modulation (reception)	direct	reverse

3.7 TELEGRAPH CIRCUITS



4 CHARACTERISTICS

TECHNOLOGY : electronic

TELEGRAPHIC POWER SUPPLY

– voltage regulated and stabilized : ± 50 V

– current limited : $I_{\max} = 80$ mA

SUPERVISION

– wrong call guard : 70 ms

– clearing confirmation : 800 ms

TRANSMISSION

– input isolated with respect to output : 500 VDC

– output : telegraphic, double-current

– transmission relay, current injector, line
resistance between 0Ω and 2800Ω : $17\text{ mA} \leq I \leq 56\text{ mA}$

– psophometric filter

– weighted noise voltage at 17 mA and at 100 Bd,
as measured by means of a psophometer in
accordance with the CCITT Recommendation
P54 (green book) : ≤ 0.775 V

RECEPTION

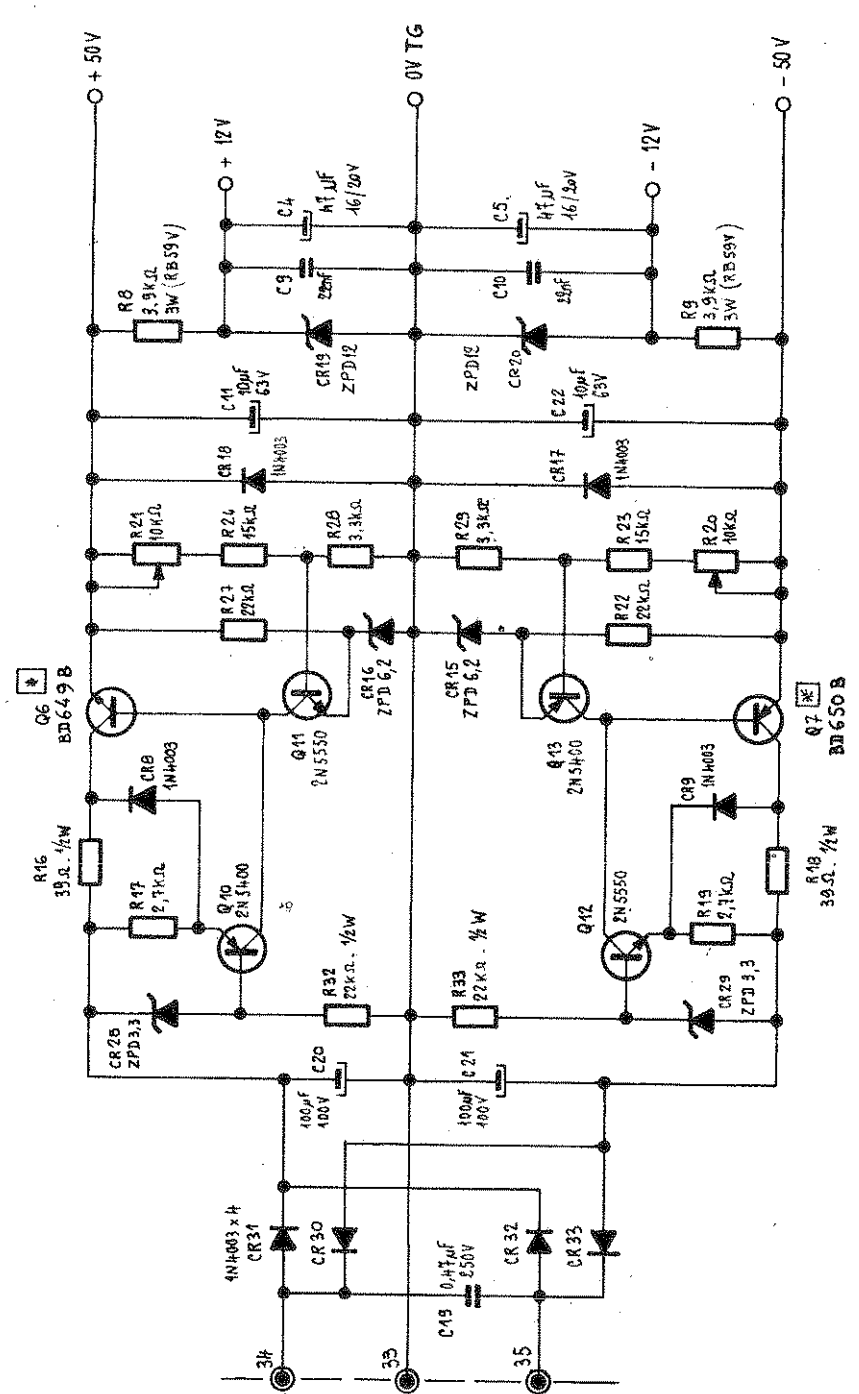
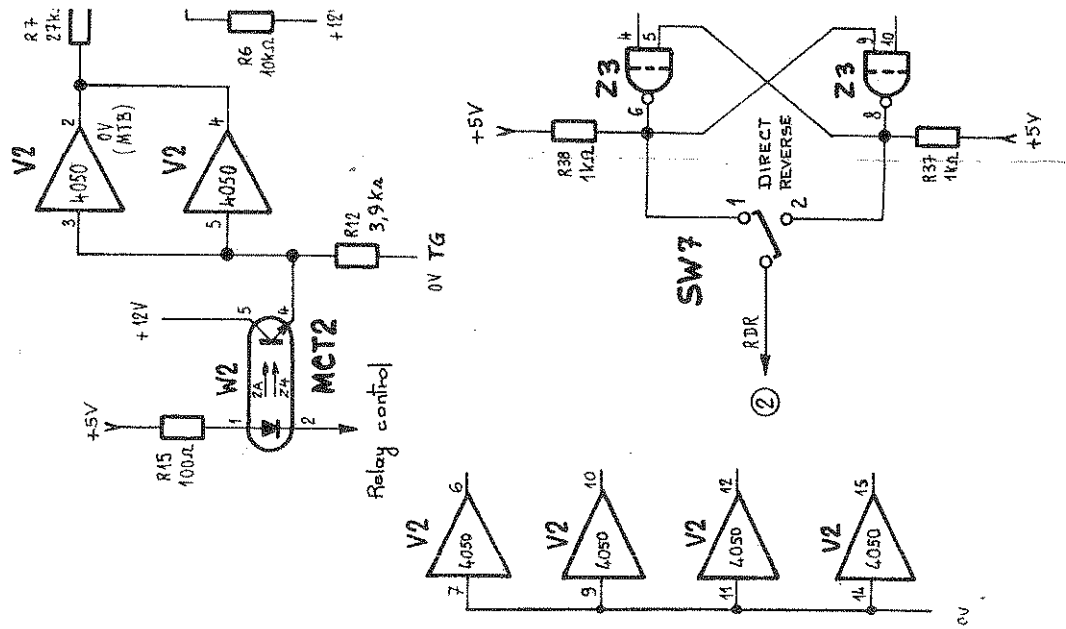
– input isolated with respect to output : 500 VDC

– line input : protected against over-currents by
current limiter ; $25\text{ mA} \leq I \leq 30\text{ mA}$

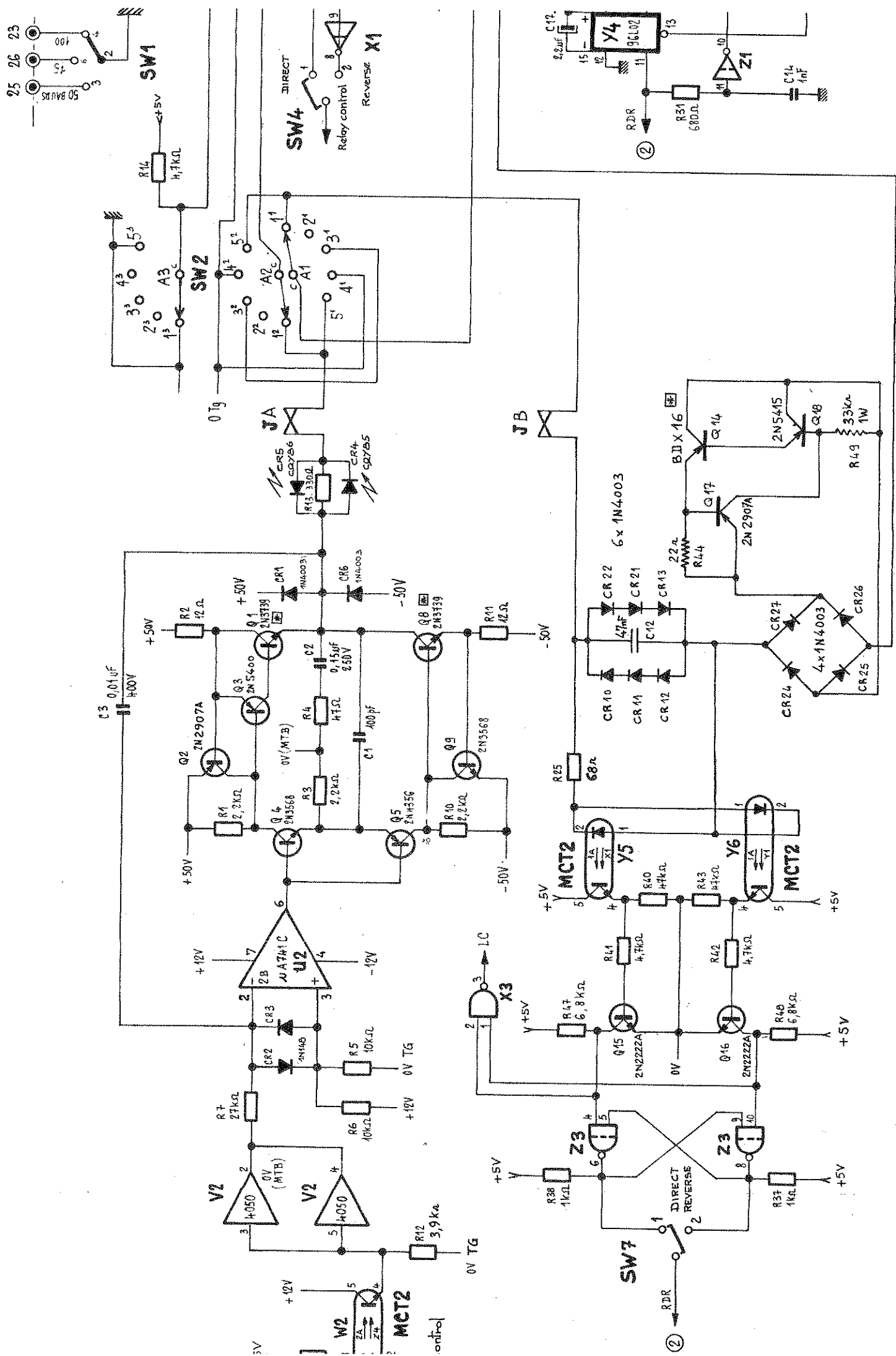
– TTL level compatible output

MODULATION : direct or reverse (selectable through
selector switch)

LINE INTERRUPTION INFORMATION



Heat sink mounted



2

MAINTENANCE MANUAL

CONTENTS

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3 - FINAL TESTING	4

LIST OF TOOLS

- Watchmaker's screw-driver, 3 blades
- Socket wrench, 3 mm
- Socket wrench, 2.5 mm
- Tweezer
- Soldering iron
- Stabilized power supply
- Two-channel oscilloscope
- All-purpose meter
- 35-pin connector
- ADAPTATION specific equipment

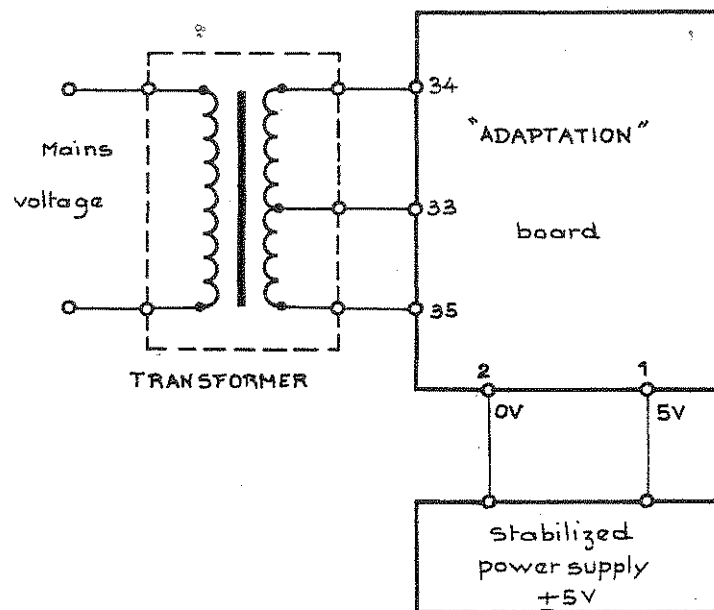
1 INITIAL TESTING

Static testing :

- Visually check condition of components.
- With an ohmmeter, check :
 - . resistors,
 - . capacitors,
 - . diodes,
 - . transistors,
 - . all connectors contacts (SW1 through SW10),
 - . all of the alarm relays.

Dynamic testing

- Build the following set-up using a 35-pin connector (reference given in the TX20 Workshop Illustrated Parts Catalogue).



- Switch power ON.
- Check telegraphic power supply (+ TG and - TG) with a voltmeter.

- Test all of the ADAPTATION board functions.

NOTE : These various tests are performed by the specific equipment.

2 ASSEMBLY-DISASSEMBLY

- Replace all faulty components, taking care not to camber the output leads too close to their body.

3 FINAL TESTING

- Test again the board functions using the specific equipment.

3

NOMENCLATURE ILLUSTRÉE
ILLUSTRATED CATALOGUE
NOMENCLATURA ILUSTRADA
ILLUSTRIERTES TEILEVERZEICHNIS

AVANT-PROPOS

1 - METHODE D'UTILISATION DE LA NOMENCLATURE ILLUSTREE

Connaissant un article par sa fonction et en général par sa position sur l'ensemble, rechercher sur la planche le repère de l'article ; la nomenclature située en regard de la planche donne, pour le repère considéré (colonne 1), son numéro de code suivi de sa clef (colonne 2), sa description (colonne 3) et sa quantité (colonne 4) dans l'ensemble où il est monté.

2 - PRINCIPE DE DECOMPOSITION DE L'ENSEMBLE

L'appartenance de pièces (ou d'un groupe de pièces) à un ensemble est mis en évidence dans la nomenclature par un décalage d'un rang vers la droite de toutes les lignes décrivant ces pièces. Les articles de fixation de cet ensemble apparaissent au même rang que celui-ci, à la suite de sa décomposition.

3 - SIGNES ET ABBREVIATIONS

PM (POUR MEMOIRE)

Mentionné dans la colonne 4 lorsque l'article a déjà été cité précédemment (y compris dans le Document Technique Site).

Exemple : Pour un ensemble dont la description fait l'objet de plusieurs planches, la colonne 4 est renseignée lors de la première apparition de l'ensemble, la mention «PM» est ensuite portée sur les nomenclatures suivantes.

SB (SUIVANT BESOIN)

Utilisé lorsque l'article ne peut être défini qu'au moment du réglage de l'appareil.

INTRODUCTION

1 - HOW TO USE THE CATALOGUE

Knowing the item by reason of its function and position, note in the plate the identification number of the item and consult the list appearing opposite, in which you will find, on the same line as the identification number (in column 1) its numerical code followed of its key (col. 2), its name (col. 3) or description, and the number of units (col. 4) in the assembly.

2 - SUBORDINATION CRITERIA

Parts, or groups of parts pertaining to an assembly are listed one «step» further to the right and immediately below the assembly. Items used to mount the assembly are however listed in the same vertical alignment as the assembly itself, immediately below the parts or groups of parts.

3 - CONVENTIONAL SIGNS AND ABBREVIATIONS

PM («POUR MEMOIRE»)

This appears in column 4 of catalogue parts lists if the item is to be found in a preceding list (also including in Field Maintenance Manual).

For example : If an assembly is shown in several plates, column 4 is filled in the list facing the first plate only, «PM» appearing in this column, at the corresponding level, in the lists facing the other plates.

SB («SUIVANT BESOIN»)

This indicates that the quantity required can only be determined when carrying out maintenance or adjustments.

INTRODUCCION

1 - METODO A UTILIZAR PARA LA NOMENCLATURA ILUSTRADA

Conociendo un artículo por su función y en general por su posición dentro del conjunto, en dicha ilustración buscar la señal del artículo : la nomenclatura situada frente a ella proporciona para la señal considerada (columna 1), el número de codificación seguido de su llave (columna 2), la descripción (columna 3), y la cantidad (columna 4) dentro del conjunto en el que dicho artículo está montado.

2 - PRINCIPIO DE SUBORDINACION

La pertenencia de una pieza (o grupo de piezas) a un conjunto es puesta en evidencia en la nomenclatura por la alineación un espacio de letra hacia derecha de las líneas que describen la pieza o grupo, bajo la denominación del conjunto. Los elementos de fijación de este aparecen a continuación de la descripción de las piezas, pero alineados con la denominación.

3 - SENALES Y ABBREVIATURAS

PM («POUR MEMOIRE»)

Aparece en la columna 4 cuando la cantidad de un artículo ha sido ya indicada precedentemente (comprendido en el Sitio Libro Técnico).

Por ejemplo : Si un conjunto aparece en varias cantidades de las piezas frente a la primera ilustración solamente, «PM» enviando hacia esta primera nomenclatura en todos los otros casos.

SB («SUIVANT BESOIN»)

Indica que la cantidad precisada no puede definirse antes del desmontaje, etc. del conjunto.

VORWORT

1 - VERWENDUNG DES IKV

Der gesuchte Teil ist Ihnen durch seine Funktion und Lage in der Maschine bekannt, auf der Abbildung die Erkennungsnummer des Teils suchen : in der gegenüberstehenden Aufstellung werden Sie diese Nummer (1. Kolonne) mit seiner vom Codierschlüssel gefolgt Codennummer (2. Kolonne), seiner Bezeichnung (3. Kolonne) und der Stückzahl (4. Kolonne) des Teiles in der Baueinheit finden.

2 - UNTERTEILUNG DES IKV

Die Zugehörigkeit der Teile oder Gruppen von Teilen wird im IKV durch senkrechte Einreihung ihrer Bezeichnungen um einen Abstand nach rechts von der Bezeichnung ihrer Baueinheit gekennzeichnet. Die Befestigungselement der Baueinheit erscheinen in der Folge der Aufstellung, in derselben Einreihung wie die Baueinheitsbezeichnungen.

3 - ABKURZUNGEN UND ZEICHEN

PM («POUR MEMOIRE»)

Diese Abkürzung erscheint in der Kolonne 4 gegenüber einem Teil, dessen Stückzahl bereits angegeben ist (Einschliesslich in den Feld Technische Unterlage).

Beispiel : Wenn eine Baueinheit in verschiedenen Abbildungen erscheint wird die Kolonne 4 nur in der Aufstellung gegenüber der ersten Abbildung die Stückzahl angeben und in den anderen Fällen stattdessen die Abkürzung «PM» aufweisen.

SB («SUIVANT BESOIN»)

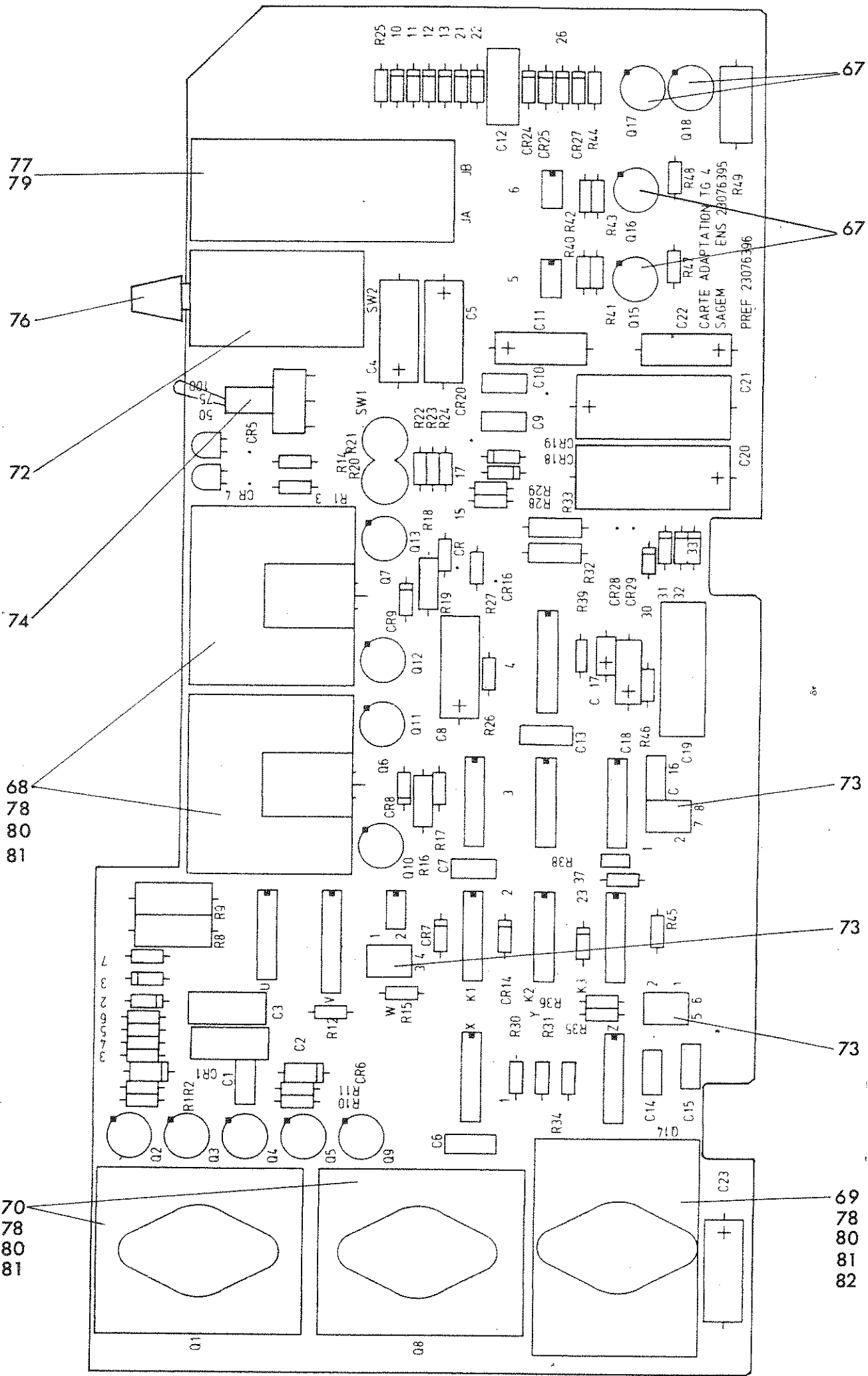
Bedeutet «je nach Bedarf» also benötigte Menge bzw. Stückzahl erst nach Abbau feststellbar.

COMMANDE DE PIÈCES DE RECHANGE
ORDER FOR REPLACEMENT PARTS
PEDIDOS PARA PIEZAS DE RECAMBIO
BESTELLUNG VON ERSATZTEILEN

<p>Pour commander une pièce de rechange, il est nécessaire d'indiquer :</p> <ul style="list-style-type: none">- le nom de l'appareil et son numéro de série (sur la plaque constructeur),- la désignation de la pièce selon la nomenclature Ex : RESSORT- le numéro de code suivi de sa clé. Ex : 23008560-6 <p>NOTA : Le signe ***** dans la colonne 2 de la nomenclature indique que l'article n'est pas prévu en rechange.</p> <p>Les commandes de pièces de rechange et la correspondance s'y rapportant (demandes de prix, délais de livraison, facturation etc.) sont à formuler à :</p>	<p>When ordering a part, please indicate :</p> <ul style="list-style-type: none">- machine name and serial number (on name-plate),- the part name e.g. : « RESSORT »- the numerical code followed of its key. e.g. 23008560-6 <p>NOTE : The sign ***** in column 2 of parts list means that no spare is provided for this component.</p> <p>Orders and all related correspondence (enquiries, concerning bills, delivery dates, etc.) should be addressed to :</p>	<p>Para pedir una pieza de recambio, es necesario indicar :</p> <ul style="list-style-type: none">- la descripción del aparato y su número de serie (sobre la placa del constructor),- la denominación de la pieza según la nomenclatura Ejemplo : « RESSORT »- el numero de codificación seguido de su llave. Ejemplo : 23008560-6 <p>NOTA : El signo ***** en la columna 2 de la nomenclatura indica que el artículo no esta previsto en recambio.</p> <p>Rogamos dirigir los pedidos para piezas de recambio y toda correspondencia relativa à :</p>	<p>Bei jeder Bestellung sind folgende Einzelheiten anzugeben :</p> <ul style="list-style-type: none">- Gerätname und Seriennummer (auf Namenplatte)- Name des Teils gemäss Teilliste z.B. : « RESSORT »- Codierschlüssel gefolgt von Codenummer. z.B. 23008560-6 <p>ANMERKUNG : Das ***** Zeichen in der Reihe 2 der Nomenklatur zeigt an, daß der Artikel nicht für Ersatzteile vorgesehen ist.</p> <p>Bestellungen und bezüglichen Schriftwechsel (Anfragen, Lieferzeiterkundigungen u.s.w.) an folgende Anschriften richten :</p>
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SAGEM
Département Télétransmissions
Service Pièces Détachées
6, Avenue d'Iéna
75783 PARIS-CEDEX 16
Téléphone : 723-54-55 — Télex : 611890 F — SAGEM PARIS

<p>Dans les cas d'urgence, les demandes de rechange peuvent être formulées par téléphone ou de préférence par message télex à l'adresse ci-dessus.</p>	<p>Urgent orders may be telephoned or (preferably) telexed to the same address.</p>	<p>En los casos de urgencia formular los pedidos por teléfono o (preferentemente) por mensaje telex a la dirección indicada arriba.</p>	<p>In dringenden Fälle Bestellungen telefonisch oder (vorzugsweise) mittels Telex an obige Anschrift durchgeben.</p>
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TELEGRAPH ADAPTOR SYSTEM

1	2	3							4
		1	2	3	4	5	6	7	
1- 1	23076395 7	CARTE ADAPTATION TELEGRAPHIQUE							PM
2	14338202 8	.	RESISTANCE	RC2T	1/4W	+5%	12 Ω	(R2,R11)	2
3	14338205 2	.	RESISTANCE	RC2T	1/4W	+5%	22 Ω	(R44)	1
3	14339091 8	.	RESISTANCE	RC2T	1/4W	+5%	47 Ω	(R4)	1
5	14338211 4	.	RESISTANCE	RC2T	1/4W	+5%	68 Ω	(R25)	1
6	14339089 8	.	RESISTANCE	RC2T	1/4W	+5%	100 Ω	(R15)	1
7	14339093 9	.	RESISTANCE	RC2T	1/4W	+5%	330 Ω	(R13)	1
8	14338223 9	.	RESISTANCE	RC2T	1/4W	+5%	680 Ω	(R31,R45)	2
9	14339094 7	.	RESISTANCE	RC2T	1/4W	+5%	1k Ω	(R37,R38)	2
10	14339098 9	.	RESISTANCE	RC2T	1/4W	+5%	2,2k Ω	(R1,R3,R10)	3
11	14339108 5	.	RESISTANCE	RC2T	1/4W	+5%	2,7k Ω	(R17,R19)	2
12	14339109 8	.	RESISTANCE	RC2T	1/4W	+5%	3,3k Ω	(R28,R29)	2
13	14339126 7	.	RESISTANCE	RC2T	1/4W	+5%	3,9k Ω	(R12)	1
14	14339096 8	.	RESISTANCE	RC2T	1/4W	+5%	4,7k Ω	(R14,R30,R34 A R36,R41,R42)	7
15	14339110 0	.	RESISTANCE	RC2T	1/4W	+5%	6,8k Ω	(R47,R48)	2
16	14339100 1	.	RESISTANCE	RC2T	1/4W	+5%	10k Ω	(R5,R6,R26)	3
17	14339112 1	.	RESISTANCE	RC2T	1/4W	+5%	15k Ω	(R23,R24)	2
18	14339113 9	.	RESISTANCE	RC2T	1/4W	+5%	22k Ω	(R22,R27)	2
19	14339114 2	.	RESISTANCE	RC2T	1/4W	+5%	27k Ω	(R7)	1
20	14339117 1	.	RESISTANCE	RC2T	1/4W	+5%	47k Ω	(R40,R43)	2
21	14339118 4	.	RESISTANCE	RC2T	1/4W	+5%	100k Ω	(R39)	1
22	14339119 2	.	RESISTANCE	RC2T	1/4W	+5%	180k Ω	(R46)	1
23	14338262 2	.	RESISTANCE	RC3T	1/2W	+5%	39 Ω	(R16,R18)	2
24	14339020 2	.	RESISTANCE	RC3T	1/2W	+5%	22k Ω	(R32,R33)	2
25	14319014 9	.	RESISTANCE	RB59	3W	+5%	3,9k Ω	(R8,R9)	2
26	14328620 0	.	RESISTANCE	RC41U	1W	+5%	33k Ω	(R49)	1
27	14358909 9	.	POTENTIOMETRE	EQ 3329P	+20%	10k Ω	(R20,R21)	2	
28	14458015 2	.	CONDENSATEUR	CERAMIQUE INDUSTRIEL	+10%	63V 100pF	(C1)	1	
29	14458021 4	.	CONDENSATEUR	CERAMIQUE INDUSTRIEL	+10%	63V 1000pF	(C14,C16)	2	
30	14458203 1	.	CONDENSATEUR	CERAMIQUE INDUSTRIEL	+10%-20%	16V 22000pF	(C6,C7,C9,C10,C13,C15)	6	
31	14448454 5	.	CONDENSATEUR	POLYESTER R	+10%	400V 10nF	(C3)	1	
32	14448440 9	.	CONDENSATEUR	POLYESTER R	+10%	250V 0,47 μF	(C19)	1	
33	14448123 9	.	CONDENSATEUR	POLYESTER R	+10%	250V 0,15 μF	(C2)	1	
34	14448434 2	.	CONDENSATEUR	POLYESTER R	+10%	250V 47nF	(C12)	1	
35	14438281 6	.	CONDENSATEUR	TANTALE CTS13	+10%	20V 2,2 μF	(C17)	1	
36	14438328 0	.	CONDENSATEUR	TANTALE CTS13	+10%	20V 15 μF	(C18)	1	
37	14428442 4	.	CONDENSATEUR	INDUS 85	-10%+100%	25V 47 μF	(C4,C5,C8,C23)	4	
38	14428450 7	.	CONDENSATEUR	INDUS 85	-10%+100%	63V 10 μF	(C11, C22)	2	

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		1	2	3	4	5	6	7	
39	14428522 3	.	CONDENSATEUR ELECTROLYTIQUE CMF-FP -10% +50% 100V 100 μ F (C20,C21)						2
40	14018681 2	.	DIODE 1N4003 (CR1,CR6 A CR14,CR17,CR18, CR21 A CR27,CR30 A CR32)						23
41	14018656 0	.	DIODE EQ ZPD 3,3 (CR28,CR29)						2
42	14018660 1	.	DIODE EQ ZPD 6,2 (CR15,CR16)						2
43	14018664 3	.	DIODE EQ ZPD 12 (CR19,CR20)						2
44	14019002 2	.	DIODE EQ 1N4148 (CR2,CR3)						2
45	14239010 9	.	DIODE ELECTROLUMINESCENTE EQ CQY85 (ROUGE) DES 4-423-003 (CR4)						1
46	14239025 8	.	DIODE ELECTROLUMINESCENTE EQ CQY86 (VERTE) DES 4-423-002 (CR5)						1
47	14038854 9	.	TRANSISTOR 2N2222A (Q15,Q16)						2
48	14038366 4	.	TRANSISTOR 2N3568 (Q4,Q9)						2
49	14038367 7	.	TRANSISTOR 2N3739 (Q1,Q8)						2
50	14038368 5	.	TRANSISTOR 2N4356 (Q5)						1
51	14038842 4	.	TRANSISTOR 2N5400 (Q3,Q10,Q13)						3
52	14038833 8	.	TRANSISTOR 2N5550 (Q11,Q12)						2
53	14038370 5	.	TRANSISTOR EQ BD 650 (Q7)						1
54	14038371 8	.	TRANSISTOR EQ BD 649 (Q6)						1
55	14038910 3	.	TRANSISTOR BDX 16 (Q14)						1
56	14039013 5	.	TRANSISTOR 2N2907A (Q2,Q17)						2
57	14038835 9	.	TRANSISTOR 2N5415 (Q18)						1
58	14239002 6	.	PHOTOCOUPLEUR EQ MCT2 (W2,Y5,Y6)						3
59	14049351 9	.	CIRCUIT INTEGRE EQ 74LS00 (X3)						1
60	14049304 8	.	CIRCUIT INTEGRE EQ 74LS08 (Y3)						1
61	14049094 3	.	CIRCUIT INTEGRE EQ 7416 (X1)						1
62	14049497 5	.	CIRCUIT INTEGRE EQ 74LS14 (Z1)						1
63	14049561 2	.	CIRCUIT INTEGRE EQ 74LS132 (Z3)						1
64	14049824 1	.	CIRCUIT INTEGRE EQ 96L02 (Y4)						1
65	14049984 2	.	CIRCUIT INTEGRE EQ 4050B IND (Y2)						1
66	14058110 8	.	CIRCUIT INTEGRE 741C MINI DIL (U2)						1
67	14099000 5	.	SURRELEVATEUR EQ EN340						4
68	23076469 9	.	RADIATEUR						2
69	23074095 9	.	RADIATEUR						1
70	14099043 0	.	RADIATEUR REF. LB66B1CB "IERC"						2
71	13220931 9	.	RELAIS CONTACT SEC SOUS AMPOULE DES 4-331-001 (K1,K2,K3)						3
72	23059694 7	.	COMMUTATEUR ROTATIF (SW2)						1
73	13211680 3	.	COMMUTATEUR A GLISSIERE REF. TS2 "JEANRENAUD" (SW5 A SW7)						3
74	13211958 1	.	INTERRUPTEUR A LEVIER DES 4-321-012 (SW1)						1
75	13310061 6	.	JACK DOUBLE RUPTURE DES 4-331-001 (JA,JB)						1

1	2		3							4
			1	2	3	4	5	6	7	
76	13911222	5	.	BOUTON + CAPUCHON DES 4-391-002	.	.	.	.	1
77	15621067	2	.	VIS CL M2,5X10U ACIER cd5+Fic	.	.	.	.	1
78	15621460	9	.	VIS CL M3X10U NFE27-116 U-Z39 Pb2	.	.	.	.	10
79	15700288	9	.	RONDELLE M2,5U ACIER cd5+Fic	.	.	.	.	1
80	15700378	7	.	RONDELLE ONDULEE B DIN137 Ø3 ACIER cd8+Fic	.	.	.	.	10
81	15500308	1	.	ECROU H M3U NFE27-4U U-Z39 Pb2	.	.	.	.	10
82	23076918	6	.	PLAQUETTE ISOLANTE	.	.	.	.	1

