ZODIAC

Description of Control Unit CU-7552

The control unit CU-7552 consists of a balanced hybrid, built up of T1 and IC 5 a/b, voltage supply with current-generator, microphone amplifier, micro-telephone amplifier, and tone-amplifier.

The voltage-supply of the control unit is done by a stabilized voltage of 10 volt. The stabilizer-circuit consists of the transistors Q17, Q18, and Q19, which stabilizes the voltage from 13.6 volt down to 10 volt.

The power supply to the line is made by a current-generator, consisting of the transistors Q11, Q12, Q13, Q14, Q15, and Q16. The current-generator is built up so that it is possible to change the polarity of the current, and that the line-supply can be grounded with + by operation on telephone line, or with - by local-controlled operation.

The current-generator delivers a current of 5 ma, and is activated in the position "Transmit". The direction of the current changes by switching the "C.R." switch in the position "ON" and "OFF", it also changes by switching "Recall" and "Reply call".

The control unit has the AF-inputs fixed microphone, microtelephone, and tone. A fixed microphone is connected to the input "Fixed Mic". The signal from the microphone is sent via C24 to the base of C3. The transistor Q3 amplifies the signal if the base via R29, and R29 is biased. The amplified signal is sent to the base of Q1 and amplified additionally, and then it is sent via a lowpass-filter and IC1b over T1 on the line.

A microtelephone can be connected to the input "M. T. Mic". The signal from the microphone is sent to the base of Q2. The transistor Q2 amplifies the signal if the base is biased via R23 and R24. The amplified signal is sent to the base of Q1. The reason why two stages are used for respectively the fixed microphone and the microtelephone is that they have different sensitivity, and that the stage for the microtelephone only is mounted if desired. The amplification of the two stages is adjusted by respectively R26 or R21.

A tone-signal is sent to the input "Tone in" from the tonetransceiver unit (TT-75314) if a selective call is carried out. The tone-signal is sent to the base of Q1 and amplified, after this the signal is sent the same way as mentioned above.

A signal received from the line is sent over T1 to IC1a, where the signal is amplified to eliminate the loss of the line. The amplitude of the signal is adjusted by R31. Ahead of R31 it is possible to place a component in parallel to R30 to compensate for the lines characteristic. After R31 it is possible to place a Notch-filter. The signal feds to Q4 over C27 and is amplified, after that the signal feds to Q7 and the base of Q5. If the gate of G7 is supplied with a low-potential via R49, the signal from Q7 feds to the AF-amplifier. From emitter of Q5 the signal feds to the M.T.-amplifier Q6 and further to "M.T.-Speaker". The signal to "M.T.-Speaker" can only be applied and amplified by Q6 if a low-potential is apllied to "M.T.-Control". The micro-telephone-amplifier-stage is only mounted if desired. Otherwise the signal from emitter of Q5 sends to the Tone-Transceiver TT-75314, and over C34 to the base of Q2. Here the signal is amplified and fed over C35 to the diodes D2 and D3 which rectifies the signal. The rectified signal controls Q9 so that "OCC Led" lights.

Function by fixed microphone without selective:

By keying pin 24 or pin 25 is grounded dependent on the position of the switch "CR". The input of the NAND-gate IC2a has low-potential, this gives a high-potential at the output which is fed to the input of IC2b 1,2,simultaneously a high-potential is fed to IC2b,8 via "Mike bloc". The output of IC2b will after this be at low-potential. This potential feds to two NOR-gates IC3 c and d. On the other input of IC3 d feds a potential via "M.T. control", which if the telephone is placed is high, causes that the output of IC 3d is low. This potential feds to the other input of IC 3c, which by this has low-potential at both inputs, then the output will be high and activate Q3, which transfers the signal from the fixed microphone. The M.T.-microphone is blocked in this case by the potential of the output of IC 3d. The speaker is blocked too, and there cannot be transfered AF-signals via Q7.

As soon as the button is released, the gates shifts potential so that the microphone and M.T. microphone blocks via the NOR-gates IC 3d and IC 3c, and the speaker is on via IC 2c and AF can be transfered via Q7.

Function by microtelephone(M.T.)

By taking off the telephone and pushing the "Call"-button, a selective call is carried out, and the M.T. microphoneinput, microphoneinput, "Speaker on" output and Q7 are blocked. The base of Q6 goes down so that signal can transfer to "M.T. Speaker2.

If the telephone keyes the base of Q2 admits a highpotential via NAND- and NOR-gates so that signal can transfer. By keying the telephone cross talk via the hybrid can arise because the "M.T. Speaker" is on. By a selective call by M.T. the speaker F.F. is not set, but the speaker F.F. is reset if the M.T. puts to the cradle again.

If a selective call is sent, the procedure will be the same as operation without selective only with the difference, that the button "Call" is pushed so that the tone-sequence starts and sends out, speaker F.F. is set via pin 19, and D9, D10, and the speaker is on. The speaker goes off as soon as there is keyed. If there is keyed, a high-potential is fed via pin 21 to the "Call" F.F. and resets it. If a selective call is received, the correct received sequence will cause a signal on "address out" in the TT-75314-unit. This signal feds via pin 18 and D8 to the speaker F.F. and sets it so that the speaker will be on after the call (Swedish-performance), in the Danish-performance the speaker reproduces only alarm. The speaker F.F. resets by a highpotential at pin 16 (Reset).

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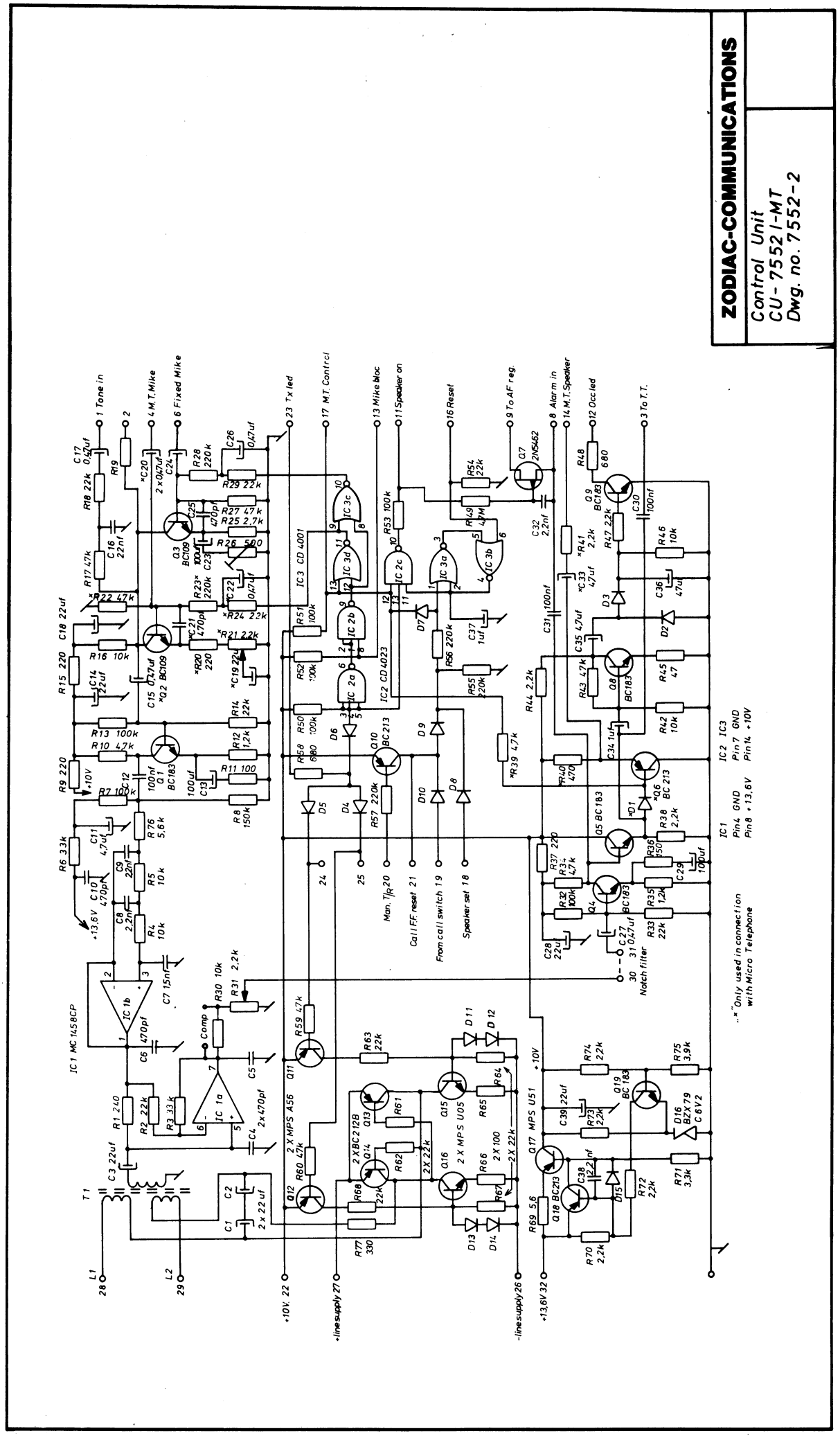
ZODIAC-COMMUNICATIONS APS, DENMARK



ZODIAC

TYPE	NO.	CODE	DESCRIPTION	
CU-7552			Control Unit	
	R1		Resistor, 240 Ohm, 5%, 1/8 W	
	R2		Resistor, 22 kohm, 5%, 1/8 W	
	R3		Resistor, 33 kohm, 5%, 1/8 W	
	R4		Resistor, 10 kohm, 5%, 1/8 W	
	R5		Resistor, 10 kohm, 5%, 1/8 W	
	R6		Resistor, 33 kohm, 5%, 1/8 W	
	R7		Resistor, 100 kohm, 5%, 1/8 W	
	R8		Resistor, 150 kohm, 5%, 1/8 W	
	R9		Resistor, 220 ohm, 5%, 1/8 W	
	R10		Resistor, 4,7 kohm, 5%, 1/8 W	
	R11		Resistor, 100 ohm, 5%, 1/8 W	
	R12		Resistor, 1,2 kohm, 5%, 1/8 W	
	R13		Resistor, 100 kohm, 5%, 1/8 W	
	R14		Resistor, 22 kohm, 5%, 1/8 W	
	R15		Resistor, 220 ohm, 5%, 1/8 W	
	R16		Resistor, 10 kohm, 5%, 1/8 W	
	R17		Resistor, 47 kohm, 5%, 1/8 W	
	R18		Resistor, 22 kohm, 5%, 1/8 W	
	R19			
	R20		Resistor, 220 ohm, 5%, 1/8 W	
	R21		Trimmer, 2,2 kohm, hor.	
	R22		Resistor, 47 kohm, 5%, 1/8 W	
	R23		Resistor, 220 kohm, 5%, 1/8 W	
	R24		Resistor, 22 kohm, 5%, 1/8 W	
	R25		Resistor, 2,7 kohm, 5%, 1/8 W	
	R26		Trimmer, 500 ohm, hor.	
	R27		Resistor, 47 kohm, 5%, 1/8 W	
	R28		Resistor, 220 kohm, 5%, 1/8 W	

ZODIAC

TYPE	NO.	CODE	DESCRIPTION	
	R29		Resistor, 22 kohm, 5%, 1/8 W	
	R30		Resistor, 10 kohm, 5%, 1/8 W	
	R31		Trimmer, 2,2 kohm, hor.	
	R32		Resistor, 100 kohm, 5%, 1/8 W	
	R33		Resistor, 22 kohm, 5%, 1/8 W	
	R34		Resistor, 4,7 kohm, 5%, 1/8 W	
	R35		Resistor, 1,2 kohm, 5%, 1/8 W	
	R36		Resistor, 150 ohm, 5%, 1/8 W	
	R37		Resistor, 220 ohm, 5%, 1/8 W	
	R38		Resistor, 2,2 kohm, 5%, 1/8 W	
	R39		Resistor, 4,7 kohm, 5%, 1/8 W	
	R40		Resistor, 470 ohm, 5%, 1/8 W	
	R41			
	R42		Resisotr, 10 kohm, 5%, 1/8 W	
	R43		Resistor, 47 kohm, 5%, 1/8 W	
	R44		Resistor, 2,2 kohm, 5%, 1/8 W	
	R45		Resistor, 47 ohm, 5%, 1/8 W	
	R46		Resistor, 10 kohm, 5%, 1/8 W	
	R47		Resistor, 2,2 kohm, 5%, 1/8 W	
	R48		Resistor, 680 ohm, 5%, 1/8 W	
	R49		Resistor, 4,7 Mohm, 5%, 1/8 W	
	R50		Resistor, 100 kohm, 5%, 1/8 W	
	R51		Resistor, 100 kohm, 5%, 1/8 W	
	R52		Resistor, 100 kohm, 5%, 1/8 W	
	R53		Resistor, 100 kohm, 5%, 1/8 W	
	R54		Resistor, 22 kohm, 5%, 1/8 W	
	R55		Resistor, 220 kohm, 5%, 1/8 W	
	R56		Resistor, 220 kohm, 5%, 1/8 W	
	R57		Resistor, 220 kohm, 5%, 1/8 W	
	R58		Resistor, 680 Ohm, 5%, 1/8 W	

ZODIAC

TYPE	NO.	CODE	DESCRIPTION	
	R59		Resistor, 47 kohm, 5%, 1/8 W	
	R60		Resistor, 47 kohm, 5%, 1/8 W	
	R61		Resistor, 22 kohm, 5%, 1/8 W	
	R62		Resistor, 22 kohm, 5%, 1/8 W	
	R63		Resistor, 22 kohm, 5%, 1/8 W	
	R64		Resistor, 22 kohm, 5%, 1/8 W	
	R65		Resistor, 100 ohm, 5%, 1/8 W	
	R66		Resistor, 100 ohm, 5%, 1/8 W	
	R67		Resistor, 22 kohm, 5%, 1/8 W	
	R68		Resistor, 22 kohm, 5%, 1/8 W	
	R69		Resistor, 5,6 ohm, 5%, 1/8 W	
	R70		Resistor, 2,2 kohm, 5%, 1/8 W	
	R71		Resistor, 3,3 kohm, 5%, 1/8 W	
	R72		Resisotr, 2,2 kohm, 5%, 1/8 W	
	R73		Resistor, 2,2 kohm, 5%, 1/8 W	
	R74		Resistor, 2,2 kohm, 5%, 1/8 W	
	R75		Resistor, 3,9 kohm, 5%, 1/8 W	
	R76		Resistor, 5,6 kohm, 5%, 1/8 W	
	R77		Resistor, 330 ohm, 5%, 1/8 W	
	C1		Capacitor, 22 uF/63V, elko	
	C2		Capacitor, 22 uF/63V, elko	
	C3		Capacitor, 22 uf/16V, tantal	
	C4		Capacitor, 470 pF, ceramic	
	C5		Capacitor, 470 pF, ceramic	
	C6		Capacitor, 470 pF, ceramic	
	C7		Capacitor, 1,5 nF, ceramic	
	C8		Capacitor, 2,2 nF, ceramic	
	C9		Capacitor, 2,2 nF, ceramic	
	C10		Capacitor, 470 pF, ceramic	
	C11		Capacitor, 4,7 uF/16V, tantal	

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TYPE	NO.	CODE	DESCRIPTION	
	C12		Capacitor, 100 nF, polyester	
	C13		Capacitor, 100 uF/3V, tantal	
	C14		Capacitor, 22 uF/16V, tantal	
	C15		Capacitor, 0,47 uF, tantal	
	C16		Capacitor, 22 nF, polyester	
	C17		Capacitor, 0,47 uF, tantal	
	C18		Capacitor, 22 uF/16V, tantal	
	C19		Capacitor, 22uF/6V, tantal	
	C20		Capacitor, 0,47 uF, tantal	
	C21		Capacitor, 470 pF, ceramic	
	C22		Capacitor, 0,47 uF, tantal	
	C23		Capacitor, 100 uF/3V, tantal	
	C24		Capacitor, 0,47 uF, tantal	
	C25		Capacitor, 470 pF, ceramic	
	C26		Capacitor, 0,47 uF, tantal	
	C27		Capacitor, 0,47 uF, tantal	
	C28		Capacitor, 22 uF/16V, tantal	
	C29		Capacitor, 100 uF/3V, tantal	
	C30		Capacitor, 100 nF, polyester	
	C31		Capacitor, 100 nF, polyester	
	C32		Capacitor, 2,2 nF, ceramic	
	C33		Capacitor, 4,7 uF/16V, tantal	
	C34		Capacitor, 1uF, tantal	
	C35		Capacitor, 4,7 uF/16V, tantal	
	C36		Capacitor, 47 uF/6V, tantal	
	C37		Capacitor, 1uF, tantal	
	C38		Capacitor, 2,2 nF, ceramic	
	C39		Capacitor, 22 uF/16V, tantal	
	IC1		IC, MC1458CP1	
	IC2		IC, 4023	

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TYPE	NO.	CODE	DESCRIPTION	
	IC3		IC, 4001	
	Q1		Transistor, BC183	
	Q2		Transistor, BC109	
	Q3		Transistor, BC109	
	Q4		Transistor, BC183	
	Q5		Transistor, BC183	
	Q6		Transistor, BC213	
	Q7		Transistor, 2N5462	
	Q8		Transistor, BC183	
	Q9		Transistor, BC183	
	Q10		Transistor, BC213	
	Q11		Transistor, MPS-A56	
	Q12		Transistor, MPS-A56	
	Q13		Transistor, BC212B	
	Q14		Transistor, BC212B	
	Q15		Transistor, MPS-U05	
	Q16		Transistor, MPS-U05	
	Q17		Transistor, MPS-U51	
	Q18		Transistor, BC213	
	Q19		Transistor, BC183	
	D1		Diode, 1N4148	
	D2		Diode, 1N4148	
	D3		Diode, 1N4148	
	D4		Diode, 1N4148	
	D5		Diode, 1N4148	
	D6		Diode, 1N4148	
	D7		Diode, 1N4148	
	D8		Diode, 1N4148	
	D9		Diode, 1N4148	
	D10		Diode, 1N4148	

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TYPE	NO.	CODE	DESCRIPTION	
	D11		Diode, 1N4148	
	D12		Diode, 1N4148	
	D13		Diode, 1N4148	
	D14		Diode, 1N4148	
	D15		Diode, 1N4148	
	D16		Diode, BZX79 C6V2	
	T1		Transformer, JS 11879	

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