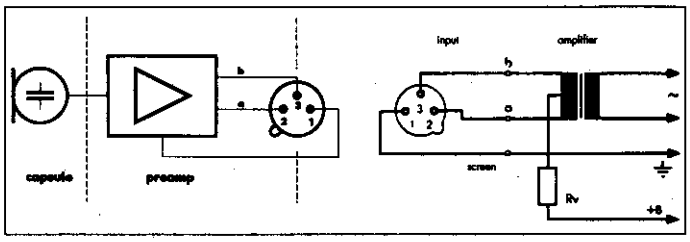
General Description:

The design of this large diaphragm condenser microphone is based on experience gained in long-term and worldwide operation of the previous models C 12A, C 12B, C 414 comb and C 414 EB-P 48. Modern technology and reliable components now enable us to offer additional features in the same space.
The microphone meets the highest professional standards and will withstand normal rough handling in studio applications. The main features are as follows: A twin-diaphragm system enables the selection of different microphone polar patterns. The diaphragm is manufactured from a special goldflashed plastic foil. The gold layer is deposited onto the diaphragm only on the outer side to prevent short circuiting to the main electrode when extremely high sound pressure levels are applied to the microphone. Preattenuation is incorporated to permit the increase of undistorted maximum sound pressure levels by 10 or 20 dB for close-up recordings. This technique inhibits distortion in the small transformers used in the microphone output or sound mixer inputs. The incorporated bass-cut circuitry reduces the risk of distortion at low frequencies. This feature is especially useful in combatting wind noise and stage floor vibration. The slope of the bass-cut filter is more than 12 db/octave, the cut-off frequency may be set to 75 Hz or 150 Hz.
The all-metal housing adds to the rejection of r.f. interference when the microphone is used in close proximity to transmitter stations or in conjunction with wireless microphones or other communication equipment. In addition to extremely wide-range low-distortion performance and temperature/humidity-resistant construction, the microphone offers remarkable operational flexibility.
A recessed switch on the front ❶ enables the user to select any one of four different polar patterns to adjust for different recording situations. Four different types of microphones are thus combined in only one C 414 B-ULS. The chosen polar patterns are highly uniform and frequency independent to guarantee the same sound character for all angles of incidence.
The electronics of the microphone has been redesigned with special attention to the complete linear transfer characteristics of all electrical parameters.
The low inherent self-noise and the high overload point guarantees a dynamic range of this microphone in the order of 125 dB (A-weighted), which is substantially more than figures found in conventional microphones and other associated equipment.
The stand adapter provided, model SA 18/3 may be easily removed from the shaft of the microphone by positioning the microphone relative to the adapter as shown, and pulling the adapter in downward direction. The small rim on the microphone shaft will prevent the adapter from accidentally sliding-off, even when the fastening lever is not properly tightened. The standard 3/8" threaded insert on the stand adapter will match most stand or suspension fittings.
For the purist engineers in the recording industry, we have provided also a transformerless version of this exceptional microphone – the C 414 B-TLII. This version features also a modified condenser capsule with a rise in the frequency response starting at 3 kHz to boost the "presence" range of the vocalist's voice. All other parameters of the C 414 B-ULS are met with the additional advantage of having no limiting output transformer for the high-level low-distortion transmission of the very low frequency range.

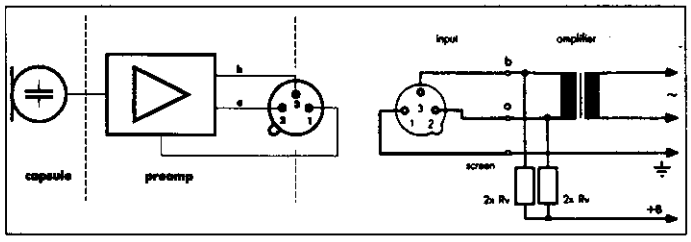
Powering Technique:

The C 414 B-ULS may be powered in phantom technique according to DIN 45596. These standards specify a positive voltage on the audio lines versus the screen of the audio cable of 12, 24 or 48 volts. In fact the C 414 B-ULS will operate with any voltage between 9 and 52 volts without special adaptation to the operating voltage.
The two possible wiring methods are shown below:

Input circuit incorporating transformer
with center tap (ungrounded).



Input circuit incorporating transformer
without center tap (ungrounded).

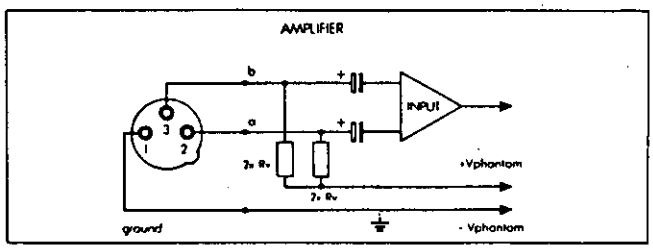


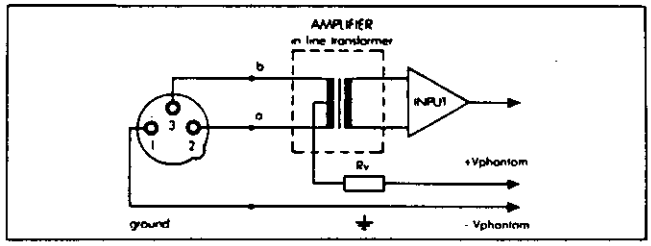
The following values for Rv (or 2 x Rv) are standardised:

U =	Rv	2 x Rv
12 V±2 V	330 ohms	680 ohms
48 V±4 V	3300 ohms	6800 ohms

The resistors 2 x Rv have to be of at least 0.5% tolerance type to satisfy the symmetry requirements.
In case where single ended (grounded) amplifier inputs, or where no input transformers are available, either capacitors or optional transformers have to be wired into the audio lines to prevent any current leakage into the input circuitry.

Phantom powering with unbalanced inputs





Cleaning Hints:

All metal surfaces may be safely cleaned from time to time with methylated spirit or alcohol. The foam windscreen should be occasionally soaked in a non-aggressive detergent/water solution and will be ready to use after drying.

Included Accessoires:

H 100 Elastic suspension
W 414 Foam-type windscreen
Original frequency response curve containing serial number and production date code

Optional Accessoires:

B 18	Battery supply unit
N 62 E	Power supply unit for two microphones
N 66 E	Power supply unit for six microphones
MK 9/10	10 m cable incl. XLR-type connectors
PF 80	Pop screen
SA 18/3 B	All-metal stand adapter

Specifications:

Transducer Type:	One-inch dual-diaphragm pressure gradient transducer
Directional Characteristic:	Cardioid, hypercardioid, omni-directional and figure-of-eight
Open-circuit Sensitivity at 1000 Hz:	12.5 mV/Pa≙1.25 mV/µb≙ −38 dBV re. 1 V/Pa + 1.5/ − 1 dB
Frequency Range:	20 to 20,000 Hz (see frequency response curves)
Electrical Impedance:	180 ohms (from 20 to 20,000 Hz)
Recommended Load Impedance:	600 ohms (but will function without deterioration with all impedances from almost zero to open circuit)
Response of Bass-cut Filter:	12 dB/octave slope with onset at 75 Hz or 150 Hz
Preattenuation:	Switchable to − 10 dB or − 20 dB
Equivalent Noise Level: − acc. to DIN 45405 (CCIR 468-2): − acc. to DIN 45412 (A-weighted):	 25 dB 14 dB-A
S/N ratio ref. 1 Pa (A-weighted):	80 dB
Max. Sound Pressure for 0.5% THD:	*) 200 Pa≙140/150/160 dB SPL (1 kHz, 0/ − 10/ − 20 dB) 100 Pa≙134/144/154 dB SPL (30 Hz − 20,000 Hz, 0/ − 10/ − 20 dB)
Total Dynamic Range:	126 dB min.
Operating Temperature Range: Permissible Humidity Level:	− 10 °C to + 60 °C 90% (+ 20 °C), 85% (+ 60 °C)
Power Requirement:	9 to 52 volts, phantom powering (acc. to DIN 45596)
Current Consumption:	approx. 2 mA
Connector:	3 pin XLR-type mating
Dimensions:	141 x 45 x 35 mm (5.6 x 1.8 x 1.4 inch)
Net Weight:	310 g (11 oz)

*) This value ist valid for the C 414 B-TLII for 30 Hz to 20,000 Hz

This product conforms to EN 50 082-1 and EN 50 081-1

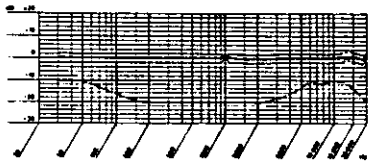
Frequency Response Curves

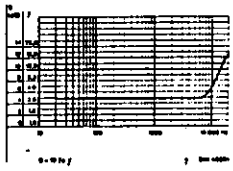
Polar Response Curves C 414 B-ULS

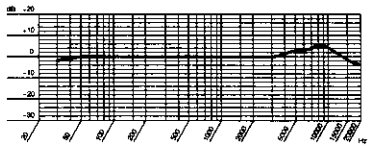
Directivity Factor

Frequency Response Curves C 414 B-TLII

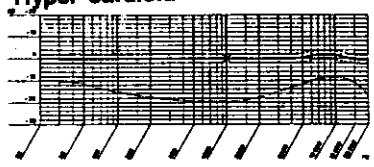
Cardioid

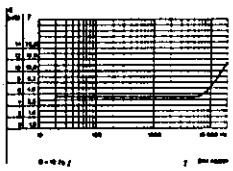


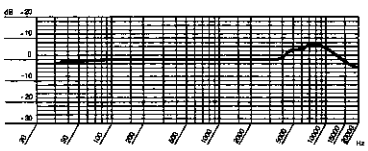




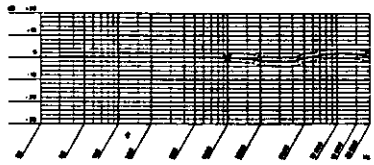
Hyper-cardioid

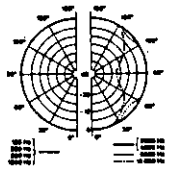


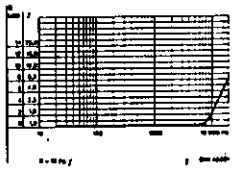




Omni-directional







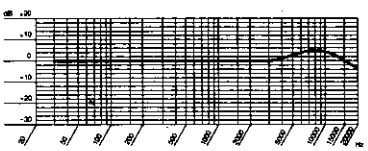
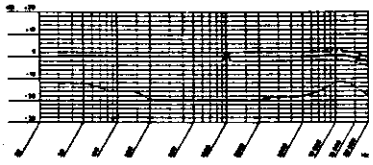
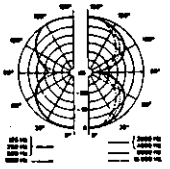
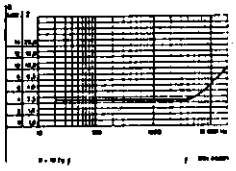
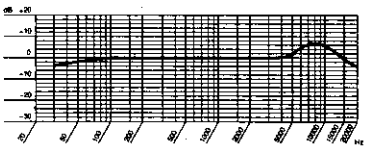


Figure-eight

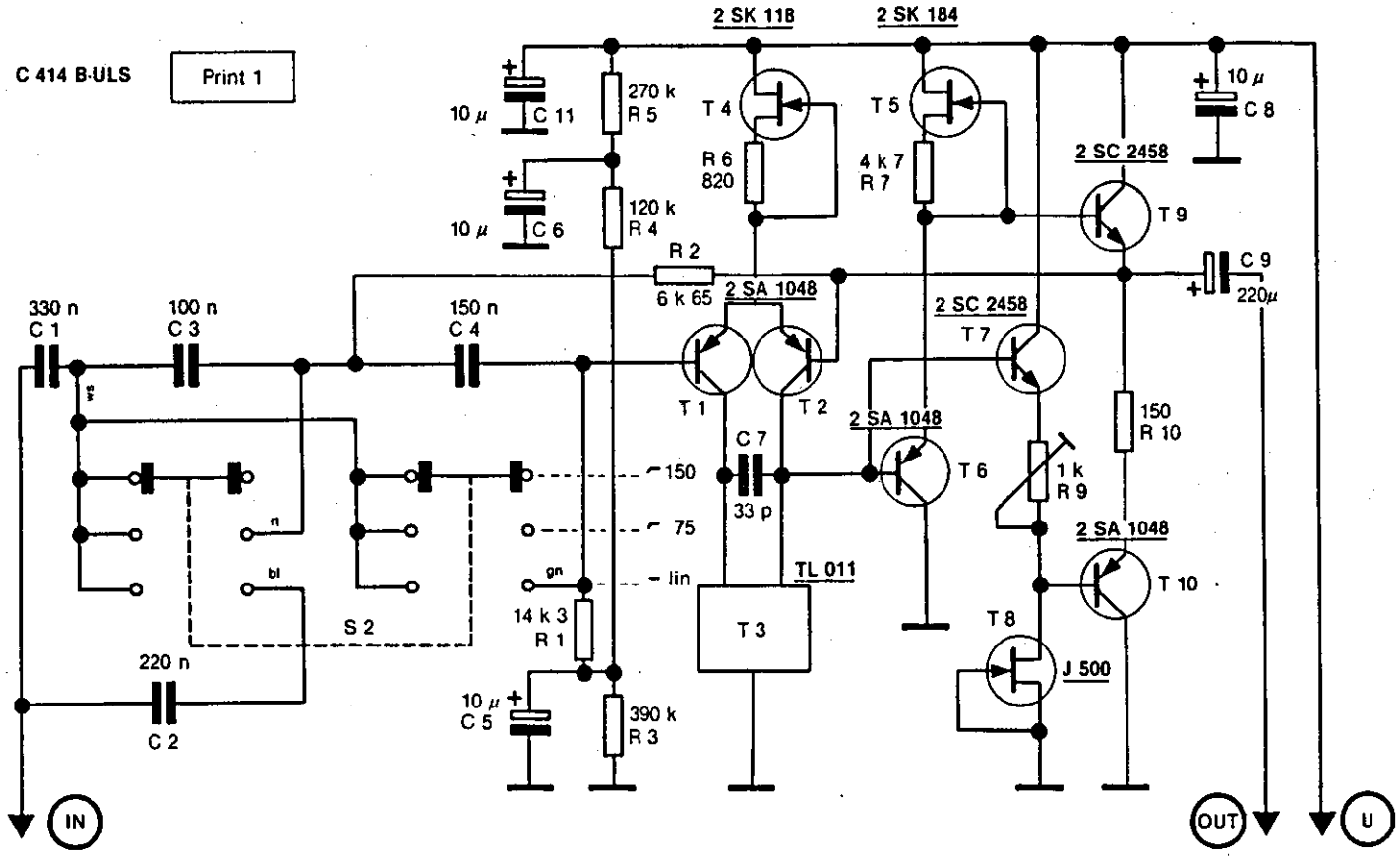




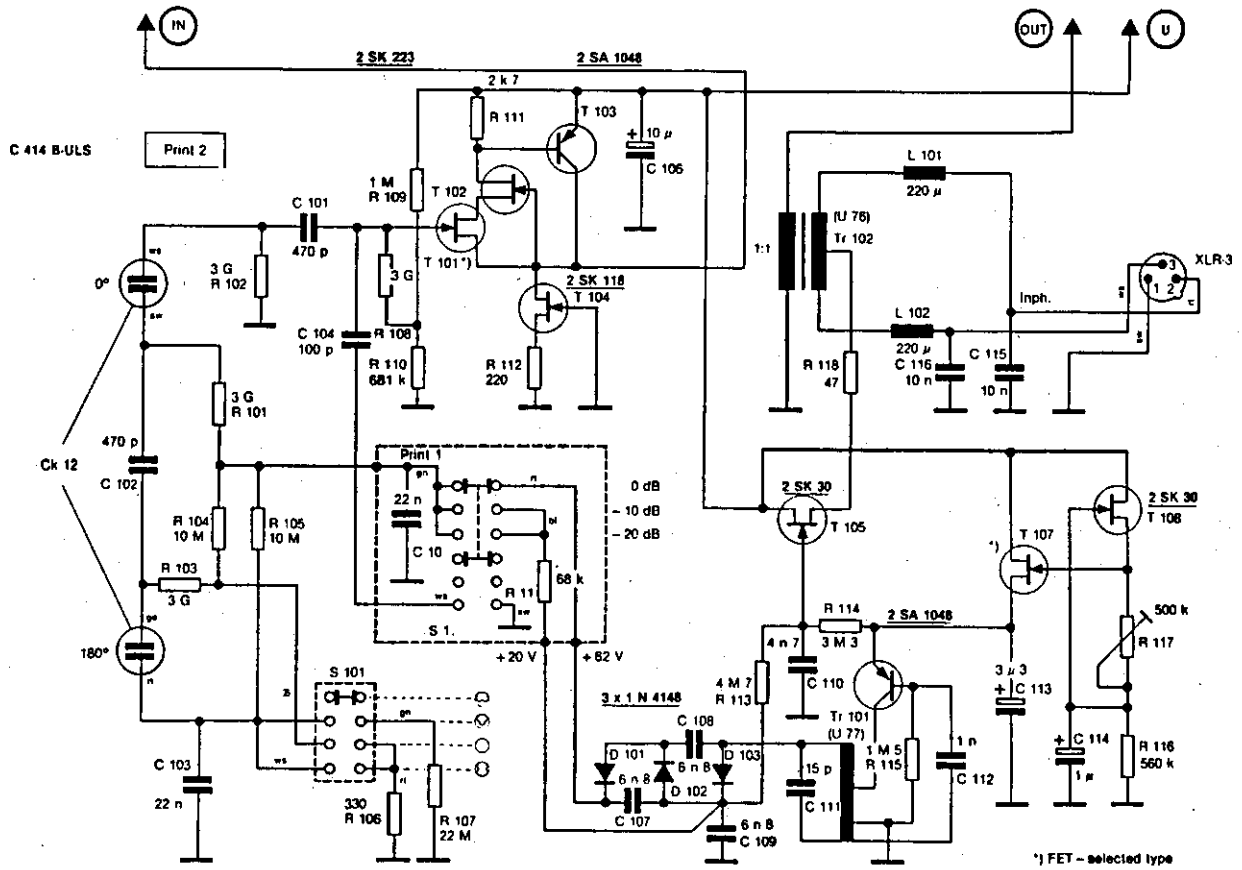




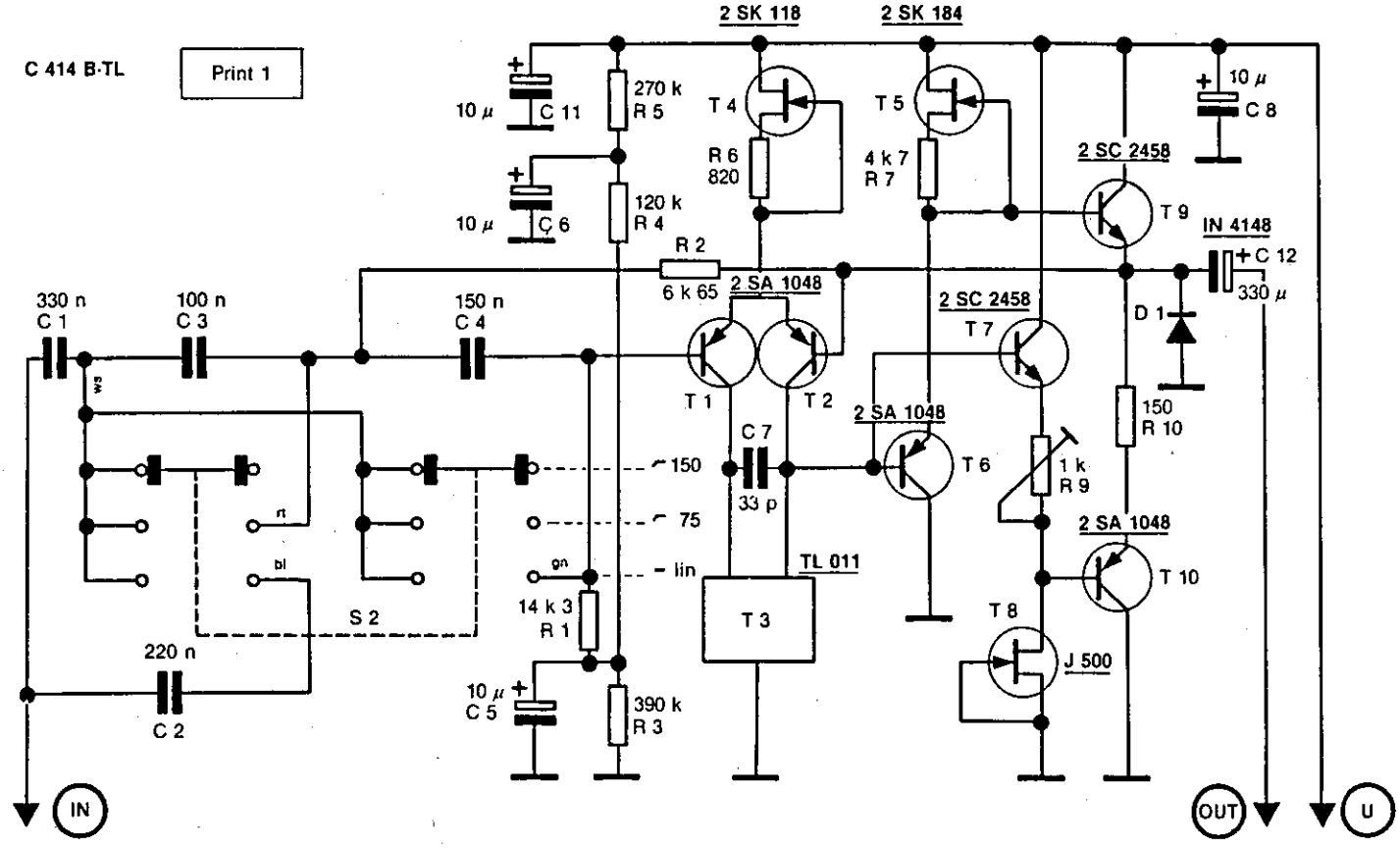
Circuit Diagram



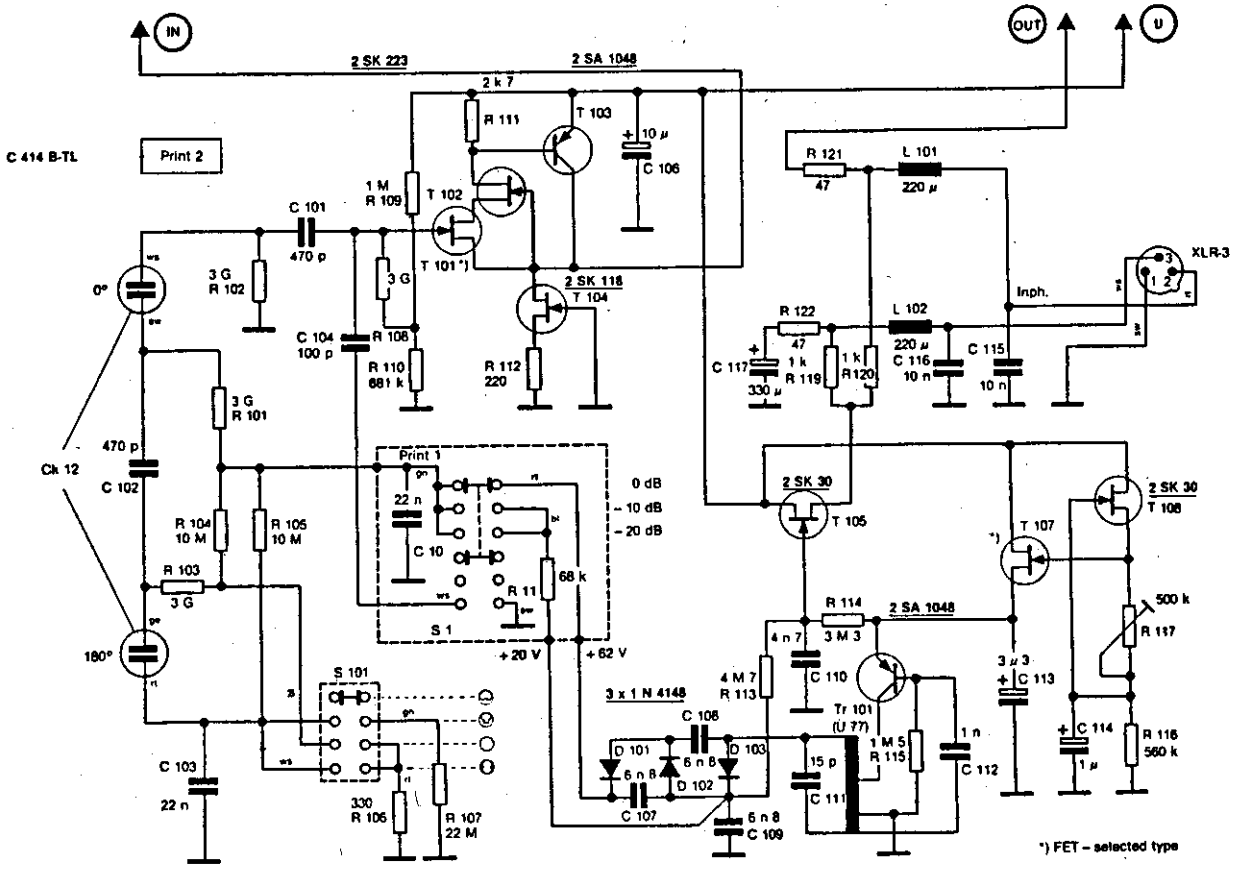
Circuit Diagram



Circuit Diagram



Circuit Diagram



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