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Audio\Hi Fi Applications

1- IC-Radio HF-MF-LF No. B013 دائرة راديو

دائرة بسيطة لراديو يمكنه كل من استقبال الترددات المرتفعة والمتوسطة والطويلة. تعمل الدائرة ببطارية ٩ فولت و أقصى قدرة لها ١ وات. لابد من التأكد من وضع المكونات بطريقة صحيحة حيث أن المكثف الكيماوي له طرف سالب و آخر موجب والدايود D له علامة في أحد الأطراف لابد أن توضع في مكانها على الدائرة المطبوعة وكذلك ال IC. وبناء على التردد الذي ترغب في استقباله نقوم بلف الملف حيث تكون عدد لفاته ١٠ للترددات المرتفعة و ٦٤ للترددات المتوسطة و ١١٠ للترددات الطويلة ولا نقوم بلف الملف مباشرة على القطعة الخاصة به ولكن نقوم بلفة على اسطوانة ورقية ثم نضع القطعة الخاصة بالملف داخل هذه الأسطوانة حيث نقوم باختيار التردد بإدخال و إخراج القطعة المعدنية مع الأسطوانة الورقية. ومن الممكن أن نستخدم أي سلك معزول طوله من ٢-٢٠ متر كهوائي Antenna وكلما زاد طول الهوائي كلما كان الاستقبال أفضل.

An easy to mount radio with loudspeaker. It is possible to receive high, medium or long frequency. Operating mode: single-circuit. For 9V. Output: max. 1 Watt. Excellent sound.

Please make sure that the components will be built in correctly. As far as the electrolytic capacitors are concerned, positive and negative must be observed. The diode "D" has a ring on one side which has to coincide with the assembly print. The IC has an indent on one side which also has to correspond to the assembly print. Depending on the frequency range you want to receive, a coil has to be wind on the enclosed ferrite rod.

For high frequency approx. 10 turns, for medium frequency approx. 64 turns and for long frequency approx. 110 turns.

Do not wind the coil directly on the ferrite rod, but on a paperboard roll and insert the ferrite rod into this roll. The receiver will be adjusted by pulling out or pushing in the ferrite rod into the coil.

It is only possible to wind one coil each time. The ends of wire should be rubbed with emery paper in order to remove the enameled cover, then they have to be tinned and connected with the board.

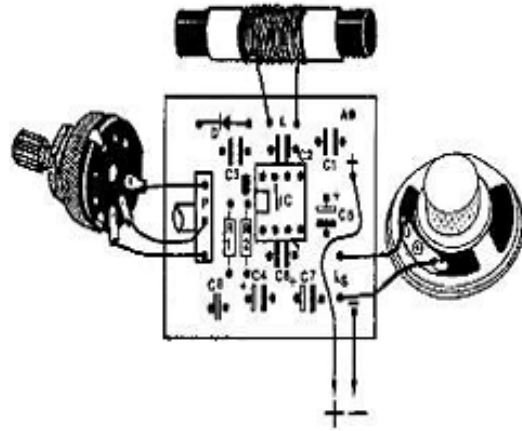
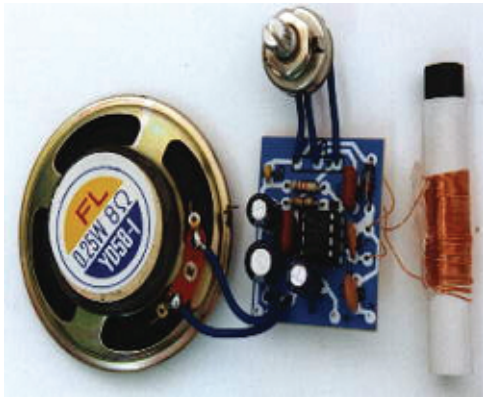
Now the antenna has to be connected. For this purpose use any insulated wire, approx. 2...20 meters long, and extend it in the room or outside as wide as possible and connect the end with the board according to the drawing.

In case you intend to extend the antenna in the open, it is absolutely necessary to observe the lightening protection regulations! Please ask your electrician! The more the antenna wire has been extended, the better will be the reception.

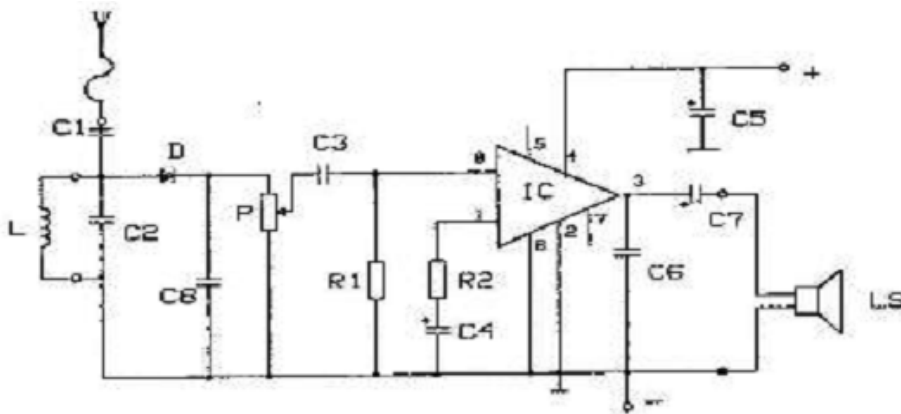
If you have an antenna cable connection in your house, you may also operate this radio at the antenna cable connection provided radio programs are fed, too.

Then connect the antenna input of the radio to the internal conductor of the coaxial cable connection! As battery we recommend a powerful 9V battery or even better 2 flat batteries of 4.5V connected in series. Adjust the volume with the pot "P".

The loudspeaker will achieve the best sound if it is installed in a case. If it is placed loose on the table, the case as resonance body lacks and sound and volume will be poor. By means of a step switch it is possible to switch the coil over.



LAYOUT AND TOP VIEW

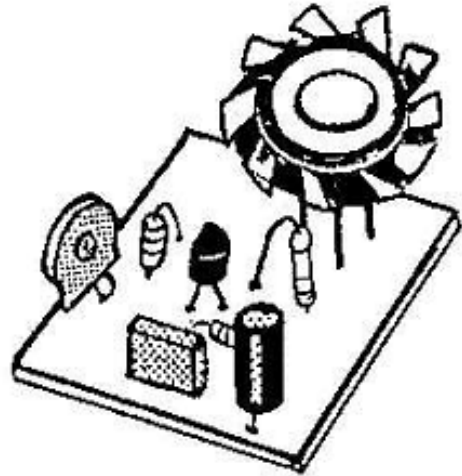
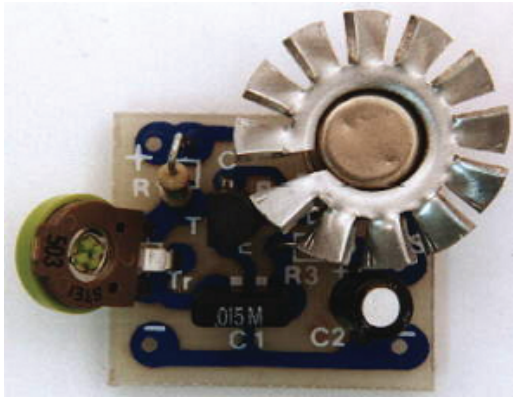


CIRCUIT DIAGRAM

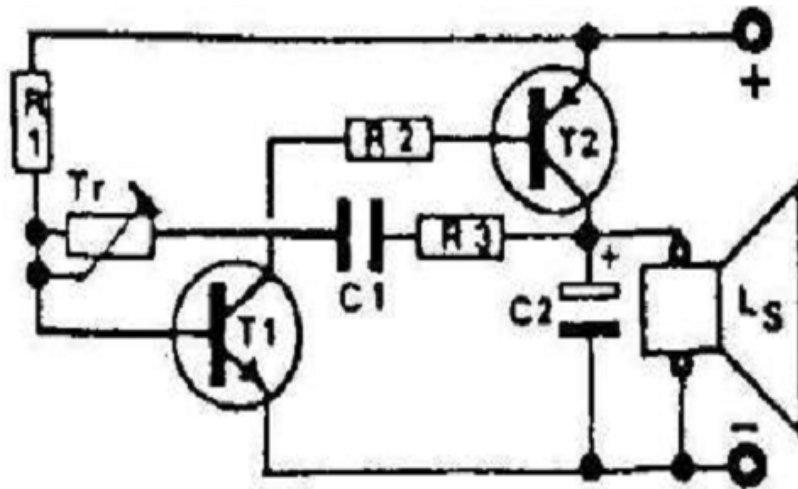
2- Fog Horn, 5W No. B015 دائرة توليد صوت تشويش

هذه الدائرة تقوم بتوليد صوت مرتفع ومزعج يشبه صوت أبواق السفن . وتعمل بجهد دخل من ٤,٥-١٢ فولت وأقصى قدرة لها ٥ وات وتتطلب سماعات ٨ أوم . لابد من تركيب شريحة التبريد على الترانزستور T2 ولابد أن يوضع ملتصق بها تماما .

generates a deep, noisy sound similar to the fog-horns of ships. Operating voltage: 4,5...12 volts. Power: max. 5W depending on the voltage. For 8 ohms - loudspeakers. It is required to connect a loudspeaker of 8 ohms to operate the fog-horn. Several loudspeakers should be tested by listening to chose that loudspeaker with best fidelity and highest volume level. It is required to use a built-in loudspeaker so that the chassis functions as a sound-board. A loudspeaker with an open chassis results in a poor and too low sound. The attached cooling clip has to be fixed on the transistor T2. The transistor is to be pushed to its edge into the cooling clip and must fit tight in it. The cooling clip may not contact any other metal part but the transistor; it shall also receive sufficient air supply. The requested sound is to be adjusted with the trimmer "Tr". Please pay attention to sufficient power supply! The unit requires a power supply of 300mA, depending on the voltage! If the fog horn doesn't work properly during battery operation (baby- or monocells), the internal resistance of the batteries may be too high. In this case, an electrolytic capacitor 1000µF 12V (between + and -) should be fitted parallel to the voltage connection of the board.



LAYOUT & TOP VIEW



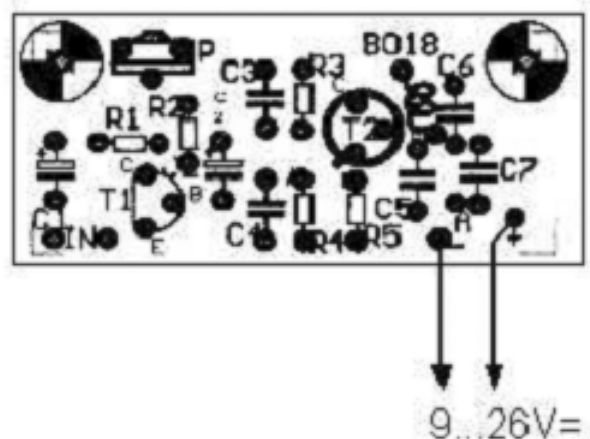
CIRCUIT DIAGRAM

دائرة إرسال تعديل ترددي (مذبذب ٢ وات) No. B018 3-FM Oscillator 2W

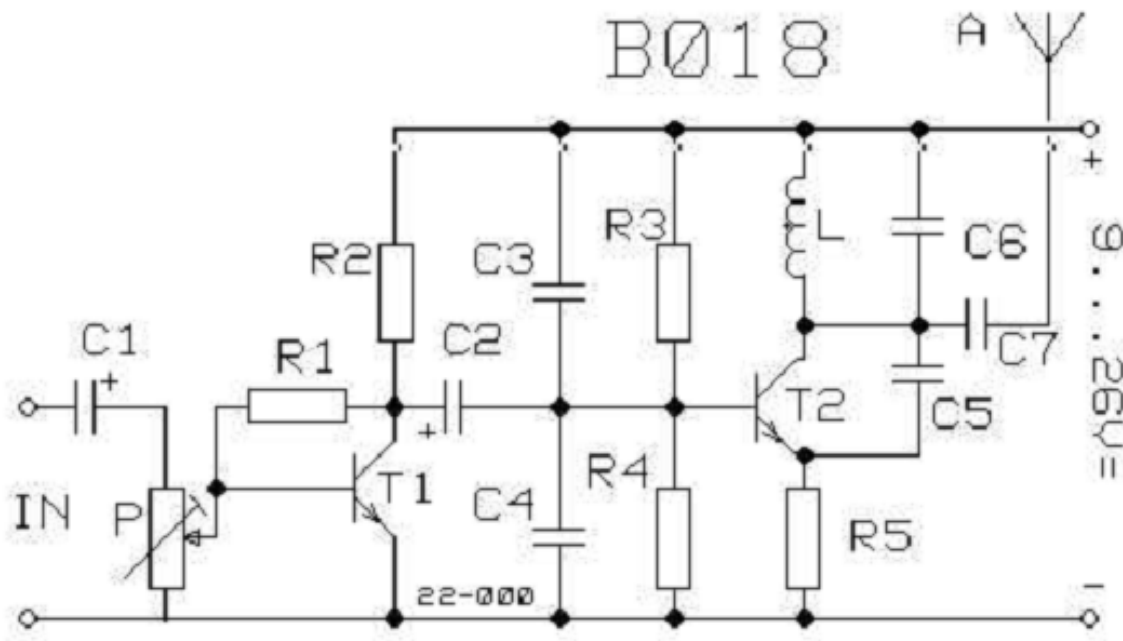
تقوم الدائرة بإنتاج إشارة مترددة بتردد من ٨٠ إلى ١٢٠ ميجاهرتيز . وجهد التشغيل من ٩ إلى ٢٦ فولت وقدرة الدخل ٢ وات وتستخدم هذه الدائرة لإنشاء محطة راديو خاصة وهذا ممنوع في كثير من الدول . والملف المطلوب غير موجود مع الدائرة ويجب لفه.

Adjustable: approx. 80...120 MHz. Operating voltage: 9...26V=, max. 2W input. Suitable for microphone or tape connector. In the EC the device may only be used by licensed radio amateurs. The use as bugging device (mini-spy) or private radio transmitter is prohibited and a punishable offence in many countries (e.g. Europe). Exceptions exist in the USA or international waters. The required coil is not enclosed. It is to be wound by using own material (bare wire). This FM-transmitter has a maximal power of 2 Watt input with approx. 26 Volt=. Although, we recommend when using it as ordinary test oscillator to operate solely with

9V=. In case the capacity is used fully the transistor T2 has to be cooled through a cooling star (the cooling star is not included in the construction set). With operating voltages over 10V it is necessary to include this cooling star! We recommend to operate the transmitter through a battery. In the first place because then it will be impossible that any high frequency is radiated accidentally through the lead to the power supply, and in the second place the transmitter will be "free of humming". With the trimmer potentiometer "P" value of modulation can be adjusted. You may connect a dynamic microphone, a tape recorder or a tone generator at the input of the transmitter. Please use bare and solid wire (silver-plated or tin-plated or copper-bright) with a wire diameter of 0.5...1 mm to manufacture the coil. Wind the wire on a round body with a diameter of 3 mm (e.g. a drill) with 4 turns. Then pull the coil from the wound body and solder the coil with a leg length of approx. 2...4 mm into the board. Bend the wire windings apart so that the windings do not touch each other. Depending on the desired frequency range, you may also make more windings (e.g. 5 windings for transmitter frequencies of < 90 MHz and 3 windings for transmitter frequencies of > 110 MHz. For the fine tuning bend the coil slightly: Pressing together the coil reduces the transmitter frequency (if necessary, insert one coil with 1 more winding = 5 turns). Pulling apart the coil increases the transmitter frequency (or uncoil 1 winding = 3 turns). Please note that the oscillator produces so-called "harmonic waves", if no filters are installed in addition. That means: if the basic transmitter frequency is e.g. 90 MHz, it may happen that it has a weak harmonic wave (transmitter frequency > 100 MHz), too. You have to tune-in the transmitter in such a manner that the strongest transmitter frequency is in the desired frequency range (with the signal level measuring set in many receivers). At the antenna output, the radio amateur may connect a bar antenna or an insulated strand (as an antenna) and thus transmit kilometer-long. Length of the bar antenna or strand: approx. 75 cm.



LAYOUT AND TOP VIEW

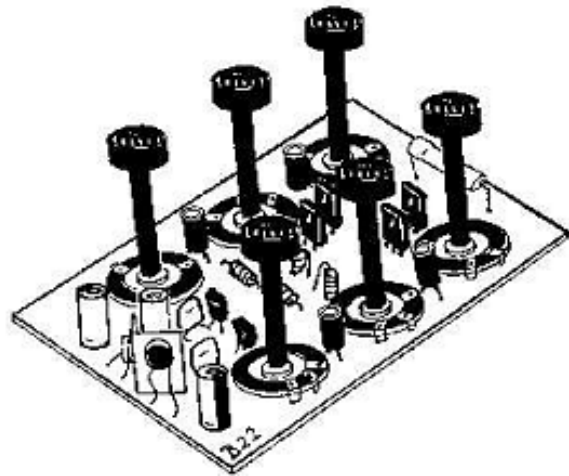


CIRCUIT DIAGRAM

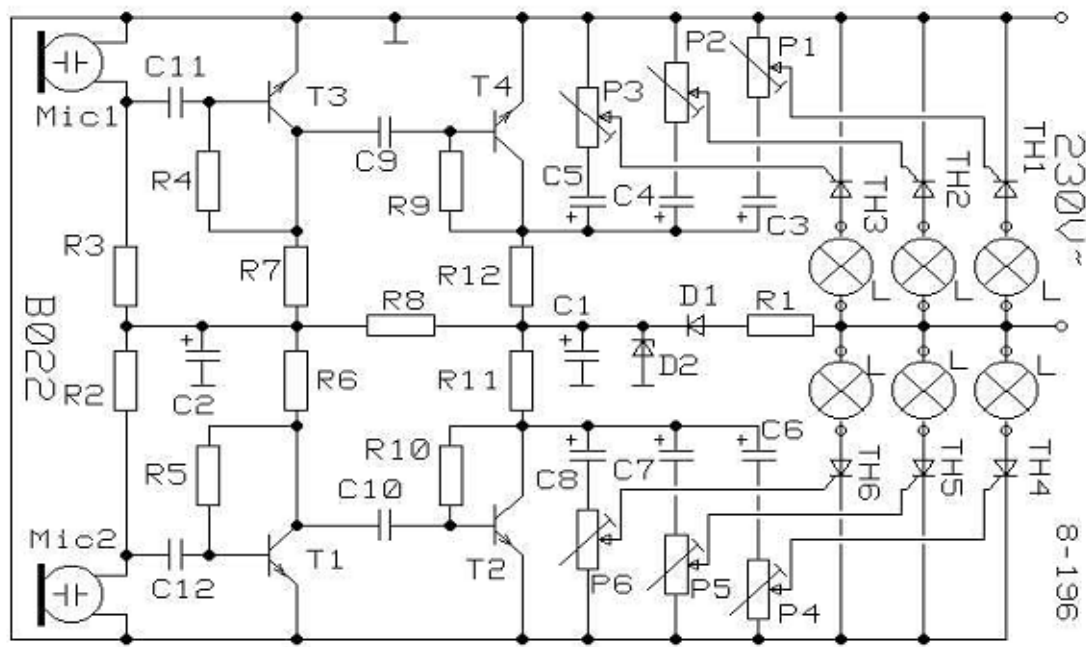
دائرة مكسر ٦ قنوات صوت و ضوء No. B022 4- 6-channel microphone music light

يمكن التحكم في كل قناة على حدة كما يمكن أن نضع لمبة بقوة قصوى ٥٠٠ وات لكل قناة وهذه الدائرة مناسبة جدا لصالونات الديسكو وقاعات الحفلات.

Each channel can be adjusted separately. It is feasible to connect lamps up to max. 500 Watt / 230 Volt ~ per channel. Extremely high input sensitivity! For discotheques, party rooms, etc... This microphone lighting console has 2 microphones at the entries. Therefore, it is not necessary to produce a cable junction to the stereo systems. It is solely possible to connect glow lamps 230 Volt ~, never use quartz or fluorescent lamps, It is advisable to place within the 230V~ current supply a fuse of 10 Ampere! Please observe at any circumstances the VDE-safety regulations! For example, complete touch-protection of all elements carrying current, earthing of all metal lamp sockets, pull-relief of all cables, etc. We recommend to have the mounting before the first operation tested by an expert, Short circuits and overloads will lead to the immediate destruction of the thyristors, In case that during operation one of the channels of the microphone music light won't react, it is necessary to turn down slightly one of the channels which possibly flashes too much.



LAYOUT AND TOP VIEW



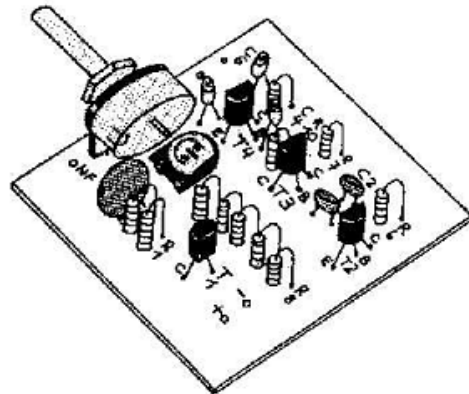
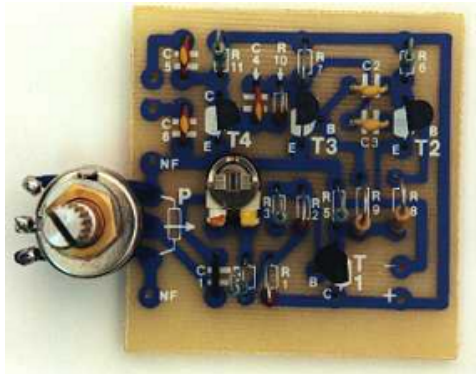
CIRCUIT DIAGRAM

5-Audioscope No. B027 دائرة أوديو سكوب

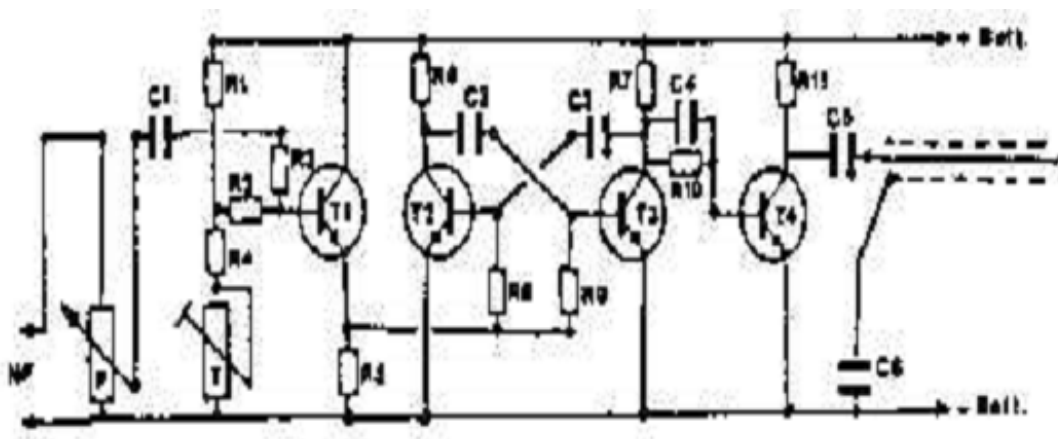
هذه الدائرة تنتج خطوط سوداء عمودية على شاشة التلفزيون والتي تتحرك تبعا للإيقاع الموسيقي مع مراعاة أن الوصلة بين التلفزيون و الأوديو سكوب قصير بقدر الإمكان وان يكون كبل محوري .

produces vertical black bars on the TV-screen, which move according to the rhythm of the music (similar to an oscillator). The cable between the television and the audio scope should be as short as possible and screened (coaxial cable). Please carry out the mounting according to the figure, At the AF input is to be

connected the sound source (e.g. radio, tape recorder, etc.) which should be controlled by the audio scope. Balancing is realized through the potentiometer. The television is set on channel 2, 3 or 4, depending on the picture quality. The audio scope should be regulated through the control T achieving on the viewing screen one or several bars with clear outlines. Attention! Whenever you are regulating with the control T the picture, it is necessary to close the potentiometer P (at the stop at the left side). The most efficient operating voltage between 9..14V could be determined through tests!



LAYOUT AND TOP VIEW



CIRCUIT DIAGRAM

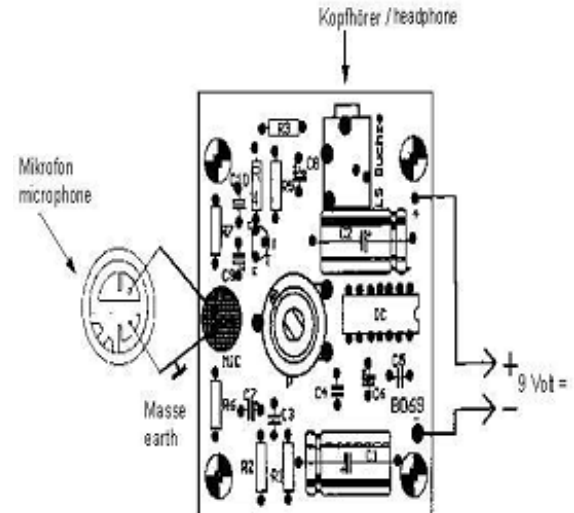
6- Listening-Stethoscope No. B069

دائرة تصنت من خلال الحائط

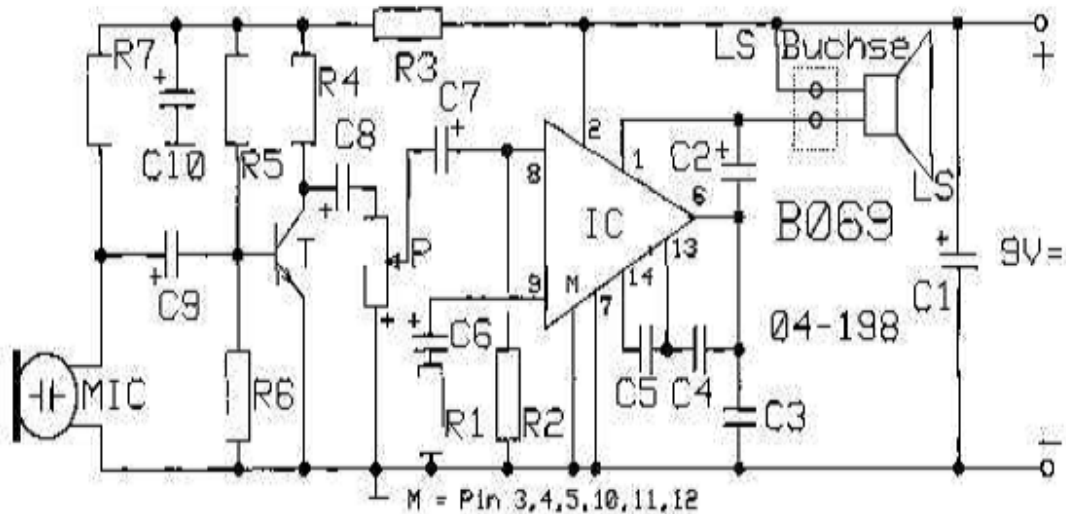
باستخدام هذه الدائرة يمكنك الاستماع من خلال الحوائط الرفيعة والأبواب والنوافذ وهي عبارة عن مكبر شديد الحساسية بميكروفون صغير وسماعات وتستخدم لملاحظة الأطفال أو الحيوانات الأليفة ويمكن التحكم في الصوت من خلال المقاومة المتغيرة.

You are able to listen through thin walls, doors, windows, etc. Highly sensitive preamplifier with microphone capsule and headphone. To be used for observing animals (e.g. mice), as baby-alarm etc. UB: 9V. The IC has to be placed so, that the notches on the case of the IC coincide with the marks on the p.w.b..

Controlling of volume and sensitivity can be achieved with the potentiometer. In case of disturbances like bubbling, humming etc., the p.w.b. has to be placed in a metal case, connecting the case with "earth" (negative pole at the battery). For monitoring babies, animals etc. the p.w.b. may be situated with the microphone in the room which you want to listen. The microphone is so sensitive that even inferior noises are listened. The cable of the headphone and of the current supply can be extended in any length. The microphone should not be connected through a longer cable with the p.w.b.! If the p.w.b. (printed wiring board) with the microphone capsule cannot be situated directly in the room which you want to listen, the microphone must be fixed with adhesive tape at the most sound conducting window or door. Through a cable (3...4 m) the headphone is connected with the p.w.b. The listening person has to be quite remote from the capsule. In this room should not be any noises because of following reasons: The microphone capsule has to pick up even weak noises coming from the other room. Therefore, turn on the amplifier considerably so that particular inferior noises are recorded. You must consider that the capsule does not distinguish between the sounds in the listened room and the noises in the "control room". That's why the noises in the control room are amplified. Usually, these noises are louder and therefore the listener may hear his own respiratory sounds like listening to a "thundering storm". To prevent this, the person must sit 3...5 m far from the capsule. Therefore, any noises must be omitted because they will surely drown out the noises coming from the listened room and will make it impossible to listen. Besides, it lasts ten minutes till the ear gets accustomed to the weak noises coming from the listened room, after it had suffered from absorbing any ambient noise in the controlled room (the amplifier amplifies anything). Listening will only be achieved using sound conducting materials: windows with one pane, massive doors, plaster walls, wooden floors etc. Listening is not possible through stone walls, sound-insolated walls etc. Advice: The microphone case must be situated directly and firmly on the listened resonance body (e.g. door) because the capsule absorbs the noises generally through the case of the capsule as "sounds in solids". The capsule may not be fixed with e.g. rubber foam! We should inform you that this construction unit is exclusively designed to be used for observing animals (listening mice ducts) or for technical application (e.g. listening water pipes to detect drop-noises) or for listening any noises of bearings in the interior of the engines. The intercepting of conversations of persons and of strange flats etc. is liable to a penalty.



LAYOUT AND TOP VIEW



CIRCUIT DIAGRAM

7- universal Pre-Amplifier No. B073 Super Wideband: Approx. 10 Hz...150kHz

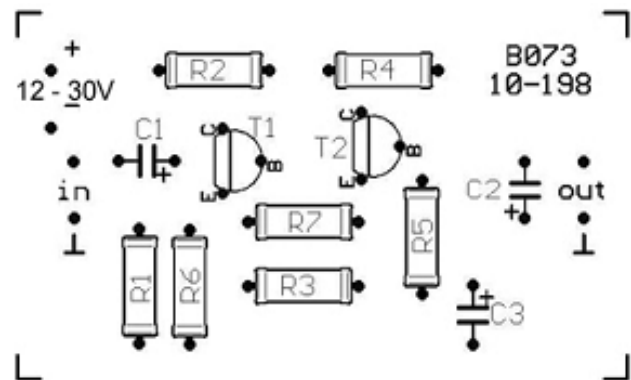
دائرة تكبير من ١٠-١٥٠ هيرتز

تعمل الدائرة بجهد تشغيل من ١٢ إلى ٣٠ فولت وجهد دخل من ٠,٠٠٢ إلى ٠,٠٢ فولت وجهد خرج من ٠,٢ إلى ٢ فولت. وتستخدم كمكبر ابتدائي لمكبرات القدرة العالية ومكبرات الصوت. إذا بدأت الدائرة في التذبذب بسبب عدم تنقية جهد التشغيل يمكننا أن نقوم بتوصيل مكثف 100μF 30V بالتوازي مع ال power supply.

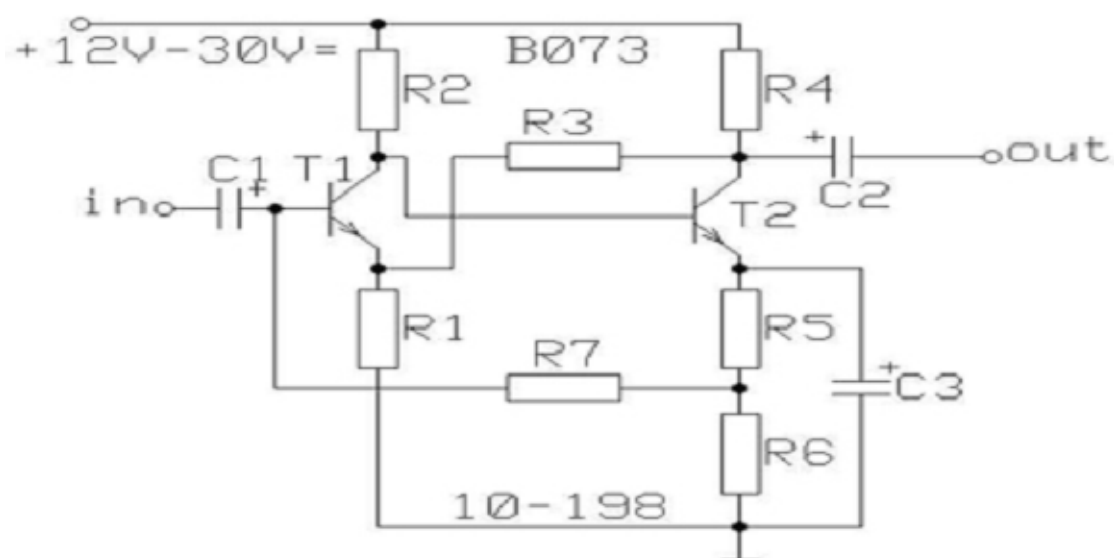
step preamplifier for 12...30V= operating voltage. Input: 2...20mV, output: 200mV...2V.

Application: pre-amplifier for high-power amplifier, headphones-amplifier, etc. This pre-amplifier operates with 12...30V= power supplies. It is not necessary to stabilize the voltage, however, it needs to be filtered. If the pre-amplifier starts

humming or oscillating (continuous tone) due to poorly filtered voltage, you should connect an electrolytic capacitor of approx. 100 μ F 30V between + and - parallel to the power supply of the pre-amplifier. The connection-wires "input" and "output" of the amplifier must be connected with shielded cables. In any case, the braided screen has to be connected to the junction marked by . If shielded cables are not used, hum-interferences might occur: the amplifier will transmit 50Hz-humming simultaneously with the signal amplified. Signal sources from 2mV to 20mV output voltages may be connected directly, e.g. microphones, etc. The connection of sources with over 20mV output voltage (e.g. record player with crystal-system, etc.) might result in blasting the pre-amplifier and distortions. In this case, a potentiometer should be connected before the input to regulate the input voltage to a lower level. Recommended potentiometers or trimming potentiometers: from 1 k to 100 k. In very rare cases, the pre-amplifier could start oscillating when fed by batteries with a too small internal resistance. In case this happens, an electrolytic capacitor of approx. 100 μ F 30V has to be connected parallel to the power supply.



LAYOUT AND TOP VIEW



CIRCUIT DIAGRAM

Safety instructions for B073

These operating instructions belong to this product. They contain important instructions for operation and handling. Please keep this in mind when passing the product on to another person. This kit is not intended for persons under 14 years (it has no CE approval as a children's toy). Never expose this kit to high temperatures, strong vibrations or humidity. Setting into operation has to be done by adequate qualified personnel in order to guarantee the safe operation of this product.

The operating voltage may only be drawn from a battery or power supply unit tested for safety. The regulations for prevention of accidents for electrical installations and operating material of the industrial employer's liability insurance association are to be observed in industrial facilities. In schools, training centers and do-it-yourself workshops, the operation of this appliance is to be supervised reliably by trained personnel. Never place the appliance close to combustible or inflammable materials (e.g. curtains). We do not assume any liability for material damage or personal injury caused by non-compliance with the operating instructions and these safety instructions as well as for its consequential damage

8- Amplifier 12W No. B075 دائرة تكبير ١٢ وات

مكبر هاي فاي ، الخرج من ٤ إلى ١٢ وات بناءً على جهد التشغيل ، جهد التشغيل من ٨ إلى ١٦ فولت ، تستخدم للسماعات من ١,٦ إلى ٨ اوم ، نطاق الترددات من ٤٠ هيرتز إلى ٢٠ كيلو هيرتز .

Hi-Fi amplifier, output: 4...12 watts, depends on operating voltage and loudspeaker. Operating voltage: 8...16V. For loudspeakers of 1,6...8 ohms. Frequency range: approx. 40...20.000 Hz. Vi: 50mV.

Required cooling element: approx. 10 x 4 x 2 cm (cooling fan). Please pay attention to the proper assembly of the board: the electrolytic capacitors are to be installed in the appropriate position (+ and -). The IC must be screwed on the cooling unit. The cooling unit must be mounted insulated, as it is electrically connected to the IC. Accordingly, the cooling unit may not be screwed directly on the housing, etc.! The cooling unit could be too small, if the amplifier is continuously operated at max. power output. When the IC "turns off" due to extreme rise in temperature (overheating protection), a larger cooling unit should be used. Signal sources of min. 50mV output voltage (e.g. record players with crystal-system, cassette-players etc.) can be connected to this amplifier.

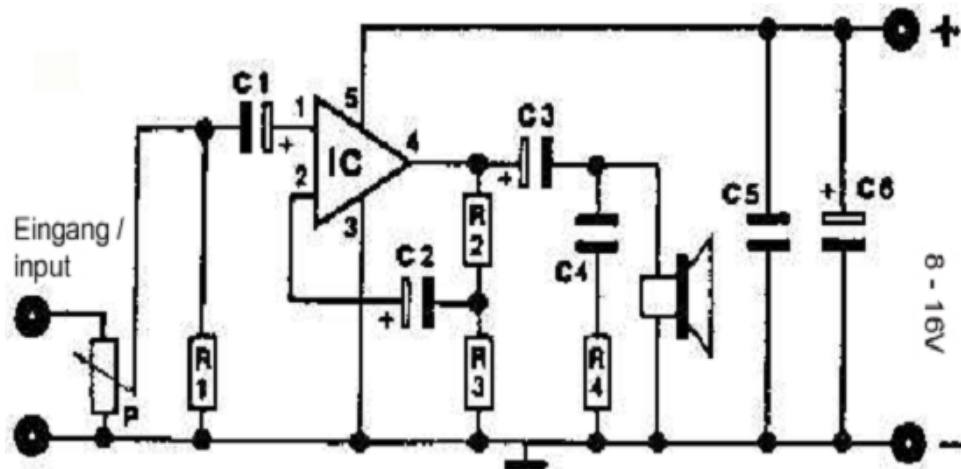
An increase of the sensitivity to approx. 1mV may be attained by a pre-amplifier (e.g. Kemo-kit no. B073). Upon this, you may also connect microphones. When magnetic-shell record players are to be connected, it is necessary to use an equalizing pre-amplifier (e.g. B074). For stereo operation always use two amplifiers: one for each channel. A sufficiently strong accumulator (car accommodator) is required for operation. Power output of the amplifier:

At 14V with a 4 ohms loudspeaker connected: approx. 6 watts.

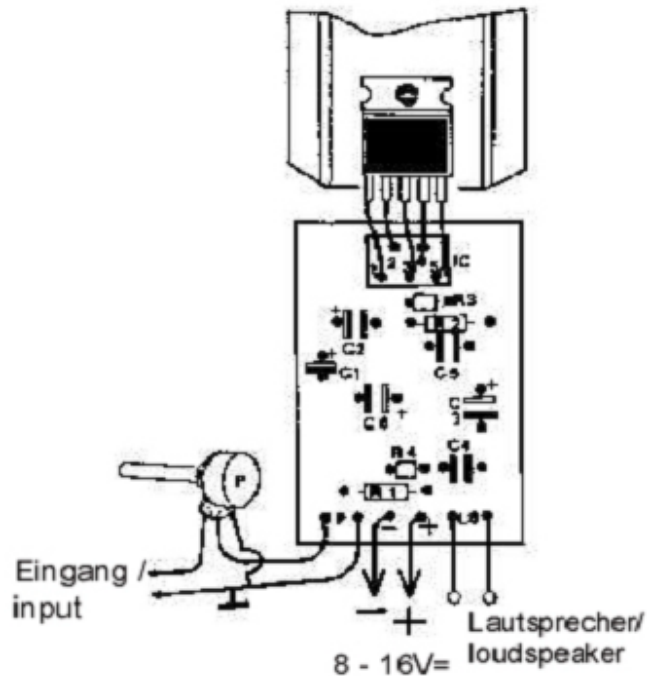
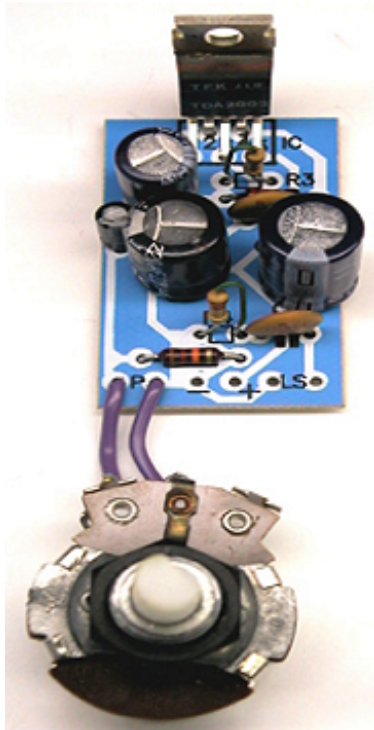
At 16V with a 1,6 ohms loudspeaker connected: approx. 12 watts.

At 16V with a 4 ohms loudspeaker connected: approx. 8 watts.

The impedance may be modified by switching several loudspeaker in series or parallel.



CIRCUIT DIAGRAM



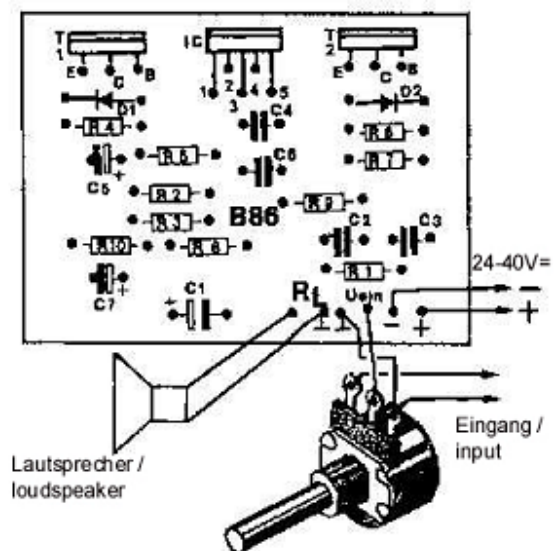
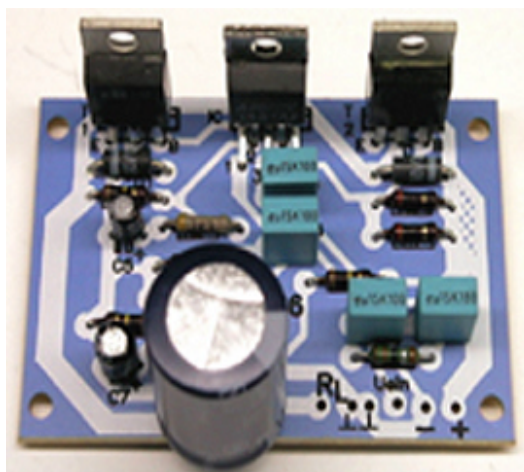
LAYOUT AND TOP VIEW

9- Amplifier 80 Watt No. B086 مكبر ٨٠ وات

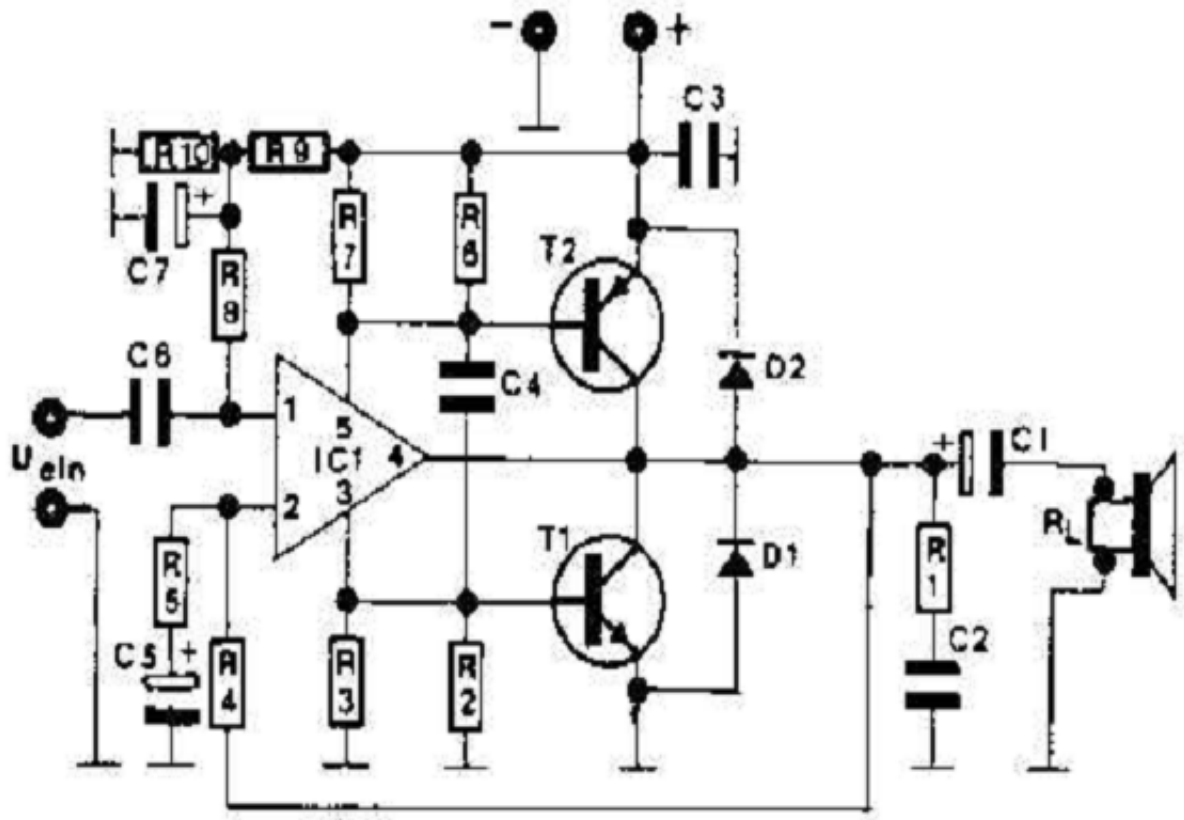
دائرة تكبير ٨٠ وات ، جهد التشغيل من ٢٤ فولت إلى ٤٠ فولت ، تعمل الدائرة في النطاق الترددي من ٢٠ هيرتز إلى ٢٠ كيلو هيرتز ، تستخدم للسماعات من ٤ إلى ١٦ أوم .

High quality power amplifier with IC. Operating voltage: 24...40 Volt. For loudspeaker 4...16 Ohm. F: approx. 20...20.000 Hz. Required cooling element: cooling fin with min. 2K/W (min. approx. 15 x 5 x 3 cm) and insulating material (3 x TO220), not included in the construction set! Please take special care that the elcas (+ and -) and the diodes are mounted correctly. The two transistors and the

IC as well have to be mounted, insulated and plane on a sufficiently great cooling element (min. 2K/W). Please make sure by testing with an ohmmeter that the cooling plates of the transistors and of the IC's do not have actually any conductive connection through the cooling element. The amplifier should never, even for some seconds, be operated for "testing" without cooling element. Due to the great power the transistors may be "killed" within 3..5 seconds by "heat". The amplifier has an input sensitivity of approx. 800mV. If the resistance R4 (100k) will be replaced by a resistance 270k, sensitivity will increase approx. up to 400mV. The circuitry will, however, work considerably more stabilized with 100k. The mains supply unit has to be well filtered and should not show more than 42V during no-load running! For best results, we recommend a stabilized mains supply unit 40V 3A. If the amplifier tends to self-vibration due to a far too low interior resistance of the mains supply unit, it will be necessary to place parallel to the current supply on the amplifier board an elca of 4700 μ F 50V. The amplifier will achieve max. power at 40V voltage and with a 4 Ohm loudspeaker. With lower voltages and highly ohmic loudspeakers power will accordingly decrease. In case that the input sensitivity is not sufficient for the desired application, it is necessary to pre connect a pre-amplifier. For this purpose, you may use, for example, our pre-amplifier construction set B 073. A pre-amplifier will always be necessary, if it is wanted to connect signal sources with an output voltage below 800mV (e.g. microphones, disc-players, etc.)! Short circuits, overloads, too high operating voltage or too low loudspeaker impedance (under 4 Ohm) will lead to destruction of the IC's and of the transistors! It is advisable to use screened cable for the wiring of the input of the amplifier, connecting the screening network with "earth". Volume can be adjusted with a rotary potentiometer 10k log. (The potentiometer is not included in the construction set).



LAYOUT AND TOP VIEW



CIRCUIT DIAGRAM

10- Microphone preamplifier No. B090 دائرة مكبر ابتدائي للميكروفون

يمكن ضبط مقاومة الدخل لتلائم أي ميكروفون من ٤ أوم إلى ١٠٠ كيلو أوم ، جهد الدخل من ٠,٠٠٢ إلى ٠,٠٠٤ فولت ، أقصى خرج للدائرة ١,٨ فولت ويمكن التحكم في قيمة التكبير ، النطاق الترددي من ٢٠ هيرتز إلى ٤٠ كيلو هيرتز ، جهد الدخل من ٦ إلى ٢٠ فولت .

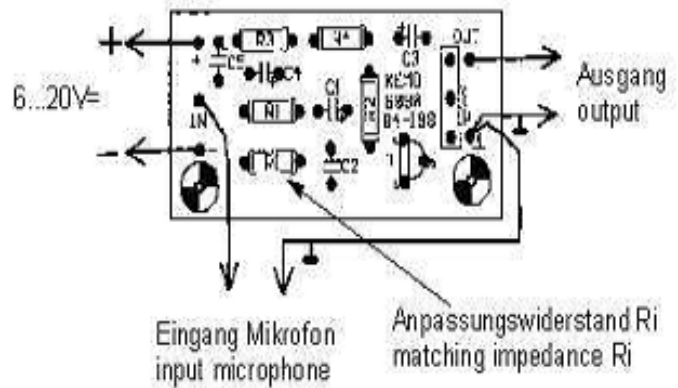
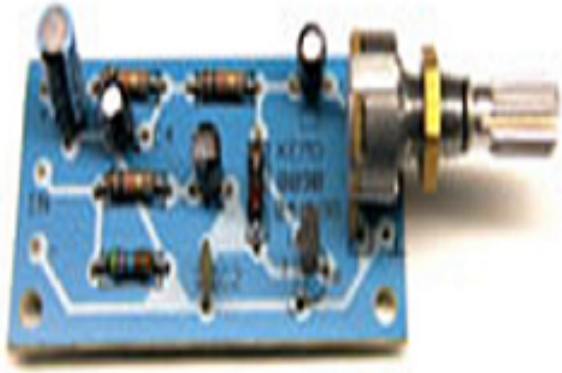
The input impedance is adjustable for any microphone from 4 Ohm up to 100 k Ohm.

Input: approx. 2...40mV. Output: max. 1,8 Vpp.

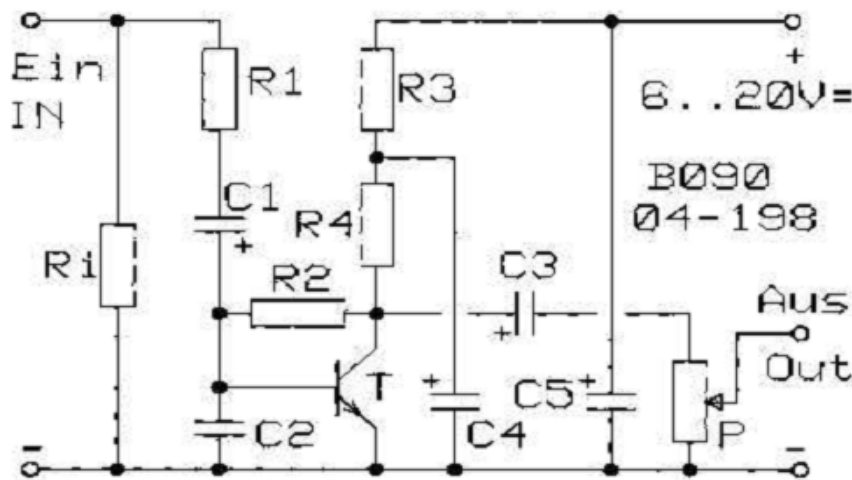
Amplification is adjustable.

F: approx. 20...40.000 Hz. For 6...20 Volt=.

It is advisable to fit the preamplifier into a compact metal housing. Then, it is necessary to ground the housing with the negative pole of the current lead on the printed board. The microphone has to be connected through screened cable, the screening should be connected at the printed board with the ground connection. The output has to be connected also with screened cable. The operating voltage should be supplied either through a battery or through a well filtered power supply. In case that the voltage and the combined ground connection coincide with the reconnected final amplifier, it is possible to take the operating voltage even from the final amplifier. The input impedance could be adjusted through the resistance Ri. Depending on the microphone in use, you may insert into the printed board one of the three enclosed resistances.



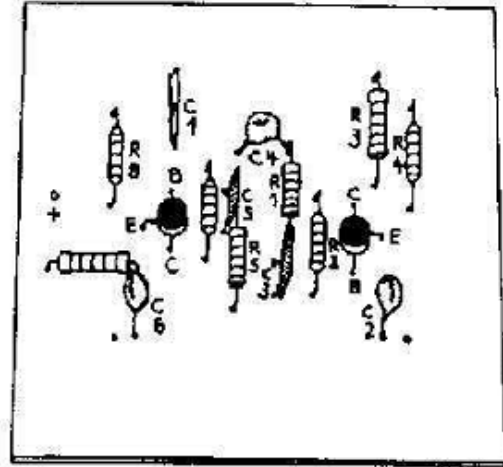
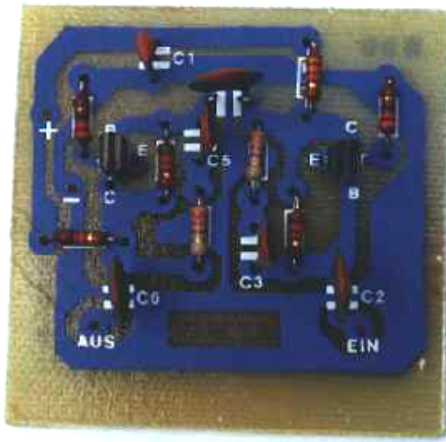
LAYOUT AND CIRCUIT VIEW



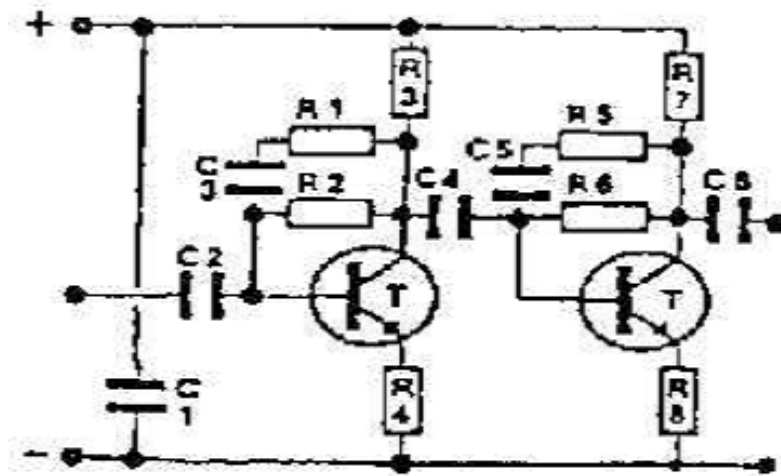
CIRCUIT DIAGRAM

11-SPECIAL ANTENNA AMPLIFIER 30 ... 850 MHz No. B099 دائرة تكبير للهوائي
مكبر لهوائي الاستقبال ذو نطاق ترددي من ٣٠ إلى ٨٥٠ ميغاهيرتز ، جهد التشغيل من ٩ إلى ١٢ فولت ، مقاومة الدخل والخرج ٦٠ أوم ، أقصى قيمة للتكبير ٢٠ ديسيبيبل ، وهو مناسب جدا لتقوية استقبال الإرسال التلفزيوني للمستويين VHF و UHF .

Wideband antenna amplifier, approx. 30...850 MHz. Operating voltage: 9...12 Volt. Input and output impedance: 60 Ohm. Amplification max. 20dB. No need of balancing. Especially suitable for amplification of weak television signals within VHF and UHF range as well as for amateurs receivers. Please solder all components parts on the printed board using connecting terminals as short as possible! The antenna coaxial cable has to be connected with the amplifier at the copper surface of the board. Doing so, the inner conductor of the coaxial cable has to be placed on the soldering spots "ON" resp. "OFF" and the screening network on earth. These are the great copper surfaces beside the Kemo mark. The printed board should be mounted into an enclosed metal housing. It is necessary to connect ground (negative terminal) of the printed board with the housing. The nearer the amplifier has been mounted to the antenna, the better the received power. For operation it is necessary to use either a well filtered stabilized power supply or a battery.



LAYOUT AND TOP VIEW



CIRCUIT DIAGRAM

دائرة استقبال ترددات مرتفعة جدا 12-VHF-Receiver 9V= No. B100

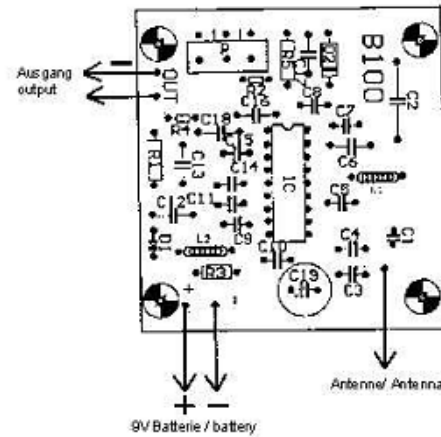
هذه الدائرة تستقبل ترددات ال VHF بجودة عالية إذا تم توصيلها بطريقة صحيحة حيث أن هناك ضرورة قصوى يجب عملها للحصول على التنعيم السليم وهي لف عدد ٢ ملف شديدا الحساسية و الاختيارية وهما الملفان L1 و L2 والذنان لابد أن يلفا باستخدام السلك المغطى بالفضة المرفق مع الدائرة وبالطريقة الآتية.

١- يلف عدد ٤ لفات من الملف في ٥ مم.

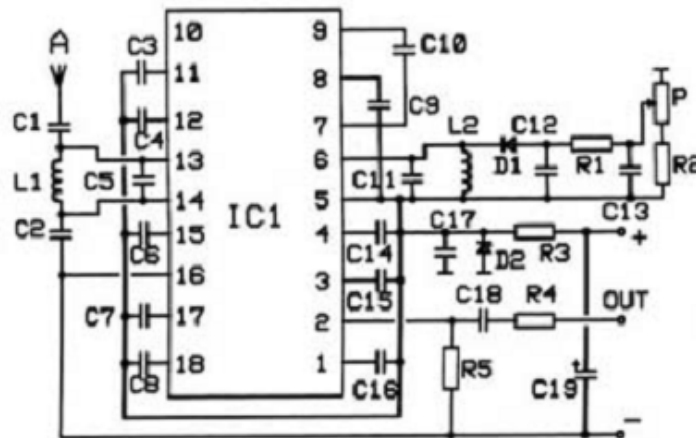
٢- تمد طرفي كل ملف مسافة ٨ مم إلى أن توصل في اللوحة المطبوعة .

High-quality VHF-receiver with special-IC. There are hardly tuning necessity (2 coils to be wound). Extraordinary sensitive + selective. Output: approx. 40mV for a final amplifier or earphone. The two coils L1 and L2 have to be wound using the enclosed silver-coated wire as indicated in the following: At a 5 mm borer you have to wind 4 windings with the wire, then pull out the borer and stretch the two terminals of the coil up to 8 mm, so that they can fit into the drillings of the board. The windings should never have contact. Please take special care while mounting the diodes, that they have been placed on the board the right way (see equipping print page 11). The IC has been marked with a notch at one side, which has to coincide with the corresponding mark on the board. The IC should be placed at last, that means after having finished equipping of the board, into the socket. The printed board has to be operated through a 9V battery. With the aid of the potentiometer it is feasible to adjust the sending stations (tuning). At the antenna

connection you have to place an approx. 80...100 cm wire as antenna (or telescopic antenna). At the outputs of this radio it is either possible to connect a highly ohmic crystal-earphone (impedance 50 K Ohm) or a loudspeaker (for loudspeaker reception). For this purpose, we recommend our well-tried Kemo-amplifier-kits, available in any power between 2.5...200 Watt. Please ask your dealer!



LAYOUT AND TOP VIEW



CIRCUIT DIAGRAM

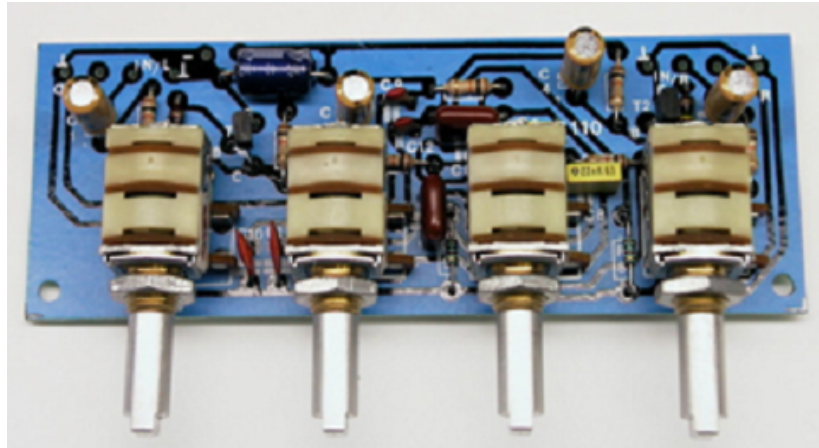
دائرة تحكم في النغمات لصوت ستريو 13-Stereo-Tone-Control No. B110

هذه الدائرة يمكن أن توضع قبل خرج مكبر الصوت حيث يمكن التحكم في ال **volume** وال **bass** و ال **treble** كلا على حدة . جهد التشغيل من ٩ إلى ١٨ فولت . كبلات التوصيل من خرج المكبر إلى دخل الدائرة لابد أن تكون معزولة **shielded** حتى لا تتعرض الإشارة إلى التشويش . التحكم في ال **bass** وال **treble** يتم عن طريق المقاومتان المتغيرة **p1** و **p2** . التحكم في ال **volume** يتم عن طريق المقاومتان **p3** و **p4** .

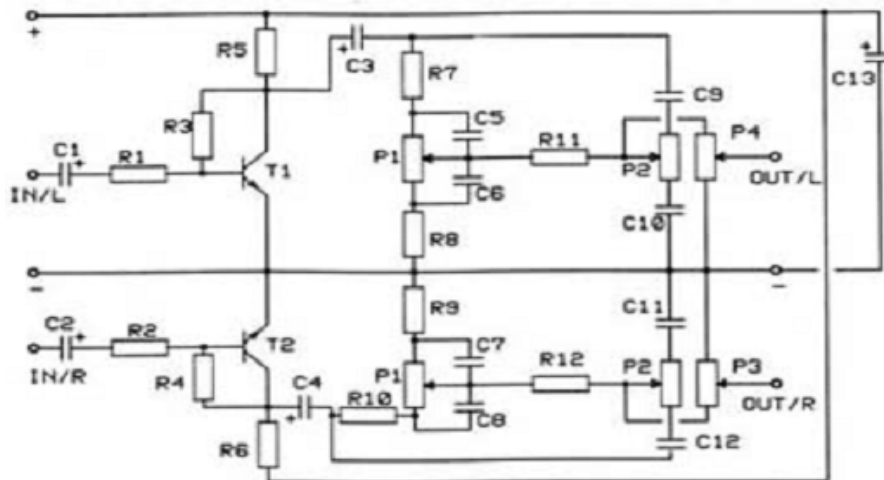
This stereo-tone-control may be connected in front of the output-amplifier. Treble, bass, and volume are separately adjustable. Operating voltage: 9 - 18 volts. The connection cables of output amplifier and signal source (e.g. record player) must be shielded in order to avoid a humming noise. Connect the shielding to the connection indicated by the mass-symbol. It is also recommended to encase the board in a shielding case (metal housing). The metal case must be connected to mass.

Treble and bass of both stereo-channels can be adjusted with the stereo-tandem potentiometers P1 + P2). The volume of the right and the left channel is

separately adjustable with potentiometer P3 and P4. Due to this, a balance regulator is not necessary.



LAYOUT AND TOP VIEW



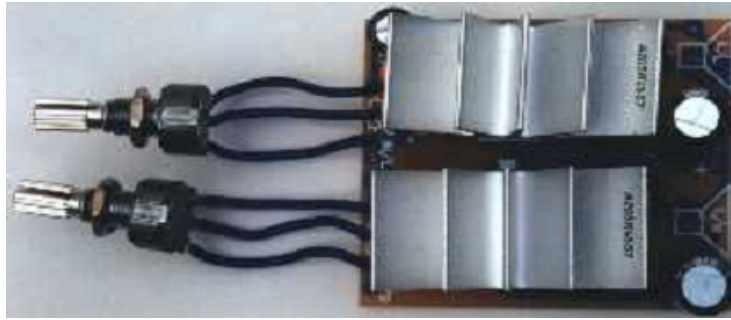
CIRCUIT DIAGRAM

دائرة مكبر ستريو ٨ وات 14-Stereo amplifier 2 x 8 Watt - 6...15 V No. B114

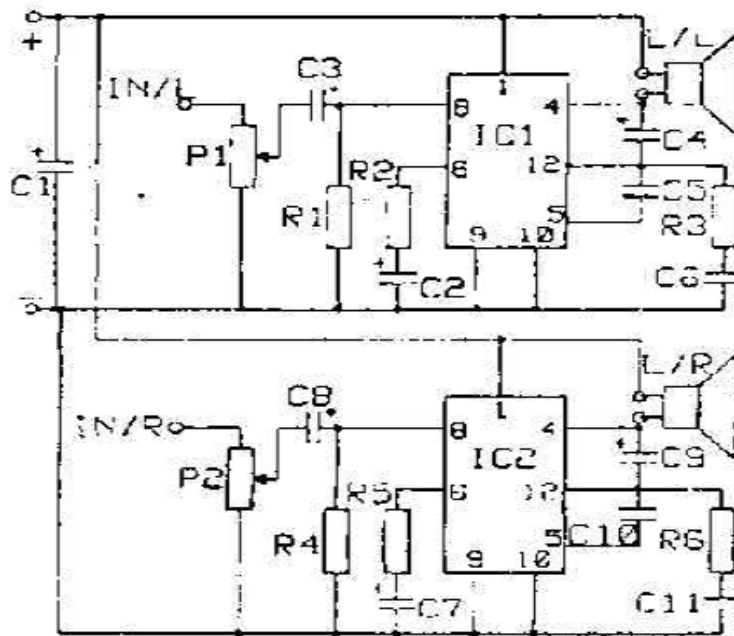
تستخدم هذه الدائرة مع السماعات من ٤ الى ١٦ اوم ولها حساسية جهد دخل 250mV وفي حالة ما إذا كانت مصادر الإشارة تعطي أقل جهد خرج أقل من جهد الدخل المطلوب لتشغيل الدائرة لابد من توصيل مكبر ابتدائي للإشارة مثل B073 وسوف تحقق الدائرة أقصى قدرة لها فقط عندما تعمل على 15V مع سماعة 40hm .

For loudspeaker 4...16 Ohm All components parts have to be mounted, according to the parts list, onto the printed board, including the potentiometers. The amplifier has an input sensitivity of approx. 250mV. In case that the signal sources are to be connected at minor output voltages (e.g. microphones), it is necessary to pre connect a preamplifier. We recommend, depending on the different usages, our universal preamplifier B073, our stereo sound corrector with

preamplifier B110 or when using magnetic stereo record players our stereo equalizing preamplifier B074. The amplifier will achieve maximal power solely with 15V operating voltage and with a 4 Ohm loudspeaker. With minor operating voltages and higher loudspeaker impedance rates power will increase correspondingly. Please use solely screened wires when carrying out the connections at the input of the amplifier and make sure connecting the screening network with "earth" (negative battery). The screened wire will avoid any hum interferences within the amplifier.



TOP VIEW



CIRCUIT DIAGRAM

15- Amplifier 8 Watt No. B115 دائرة مكبر ٨ وات

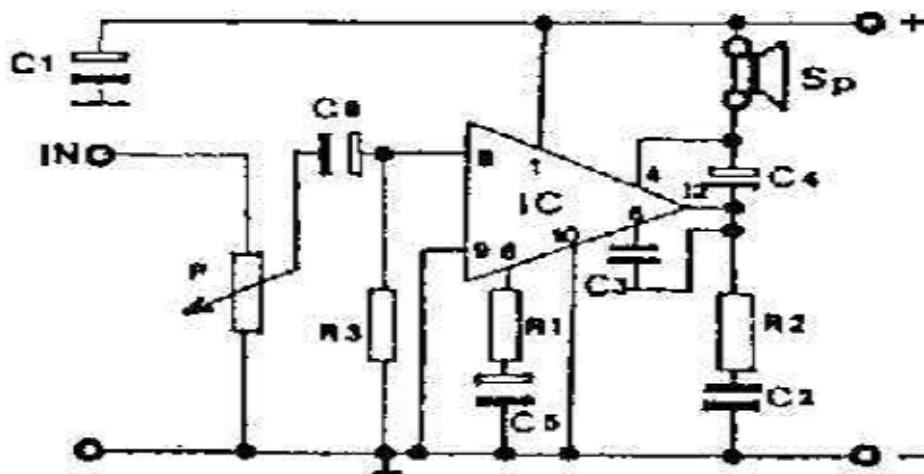
مكبر هاي فاي ، جهد التشغيل للدائرة من ٦ إلى ١٦ فولت . يمكن أن نستخدم مع الدائرة سماعات من ٤ إلى ١٦ اوم ، النطاق الترددي المناسب لعمل الدائرة من 40Hz إلى 20KHz . المقاومة المتغيرة p توصل على اللوحة المطبوعة باستخدام أسلاك قصيرة ولا توصل مباشرة على اللوحة المطبوعة .

HiFi-amplifier with one IC. Operating voltage: 6...16 Volt. Sensitivity: approx. 160mV, for loudspeakers 4...16 Ohm. Frequency range: 40Hz-20kHz. The

potentiometer "P" has to be connected through short wires with the printed board. At the amplifier could be connected signal sources with at least 160mV output voltage (e.g. crystal record players, cassette recorders, etc.). With a pre-amplifier (e.g. kit B 073) it will be feasible to increase the sensitivity up to approx. 1mV. Then, it would be possible to connect microphones, too. In case that you want to connect at the amplifier magnetic record players, it will be necessary to pre-connect an equalizing pre-amplifier (e.g. B 074). The amplifier will achieve its max. power with 8 W at an operating voltage of 16 V. With lower voltage, the max. power will decrease correspondingly.



TOP VIEW



CIRCUIT DIAGRAM

16- Mini-VHF-oscillator No. B117

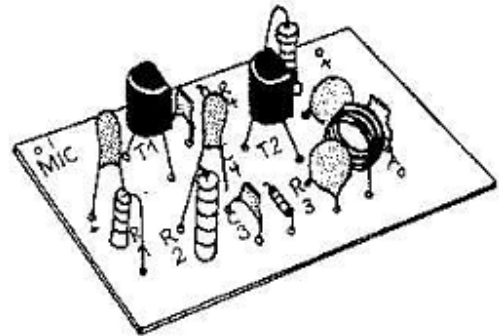
دائرة مذبذب إرسال ترددات VHF

هذه الدائرة تقوم بتوليد ترددات في نطاق ال VHF من 88MHz إلى 108MHz وتعمل بجهد تشغيل 9V وشديدة الحساسية لدخل الميكروفون و المسجل و مولد الإشارة . مع الأخذ في الاعتبار أن استخدام هذه الدائرة ممنوع في بعض التطبيقات وفي بعض البلاد. ومن الممكن استخدام دائرة الإرسال هذه في السفن في البحار لاستعمالها في حالات الطوارئ .

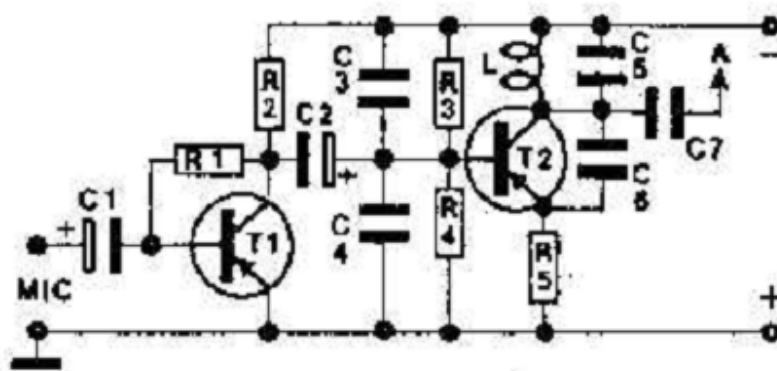
88...108 MHz. Operating voltage: 9 Volt battery. Extremely sensitive input for microphones, record-players, signal generator etc.

Attention: The operation and the possession of this transmitter as monitoring transmitter (Mini-agent) or as any other free radiating transmitter is liable to penalty It is absolutely necessary to operate the device exclusively for test purposes after having placed it into a HF-proof metal housing (according to communication regulations it is forbidden to radiate any HF-radiation externally). Possibly the transmitter may be used on ships within international seas, e.g. as

SOS-transmitter, for the own radio-station, etc. The coil has been enclosed already wound and has to be soldered into the holes marked with "L". The microphone input is extraordinary sensitive. In case the transmitter may overdrive after receiving an extreme input signal, it is necessary to pre connect a trimmer potentiometer of approx. 100kOhm as voltage separator. Please observe the communication regulations! Adjustment of the transmitter: During battery operation with a 9V-battery the transmitter mounted according to the parts list will oscillate at approx. 90...100 MHz. Through stretching or pressing together the turns of the coil "L" it is feasible to modified considerably the transmitting frequency.



LAYOUT AND TOP VIEW



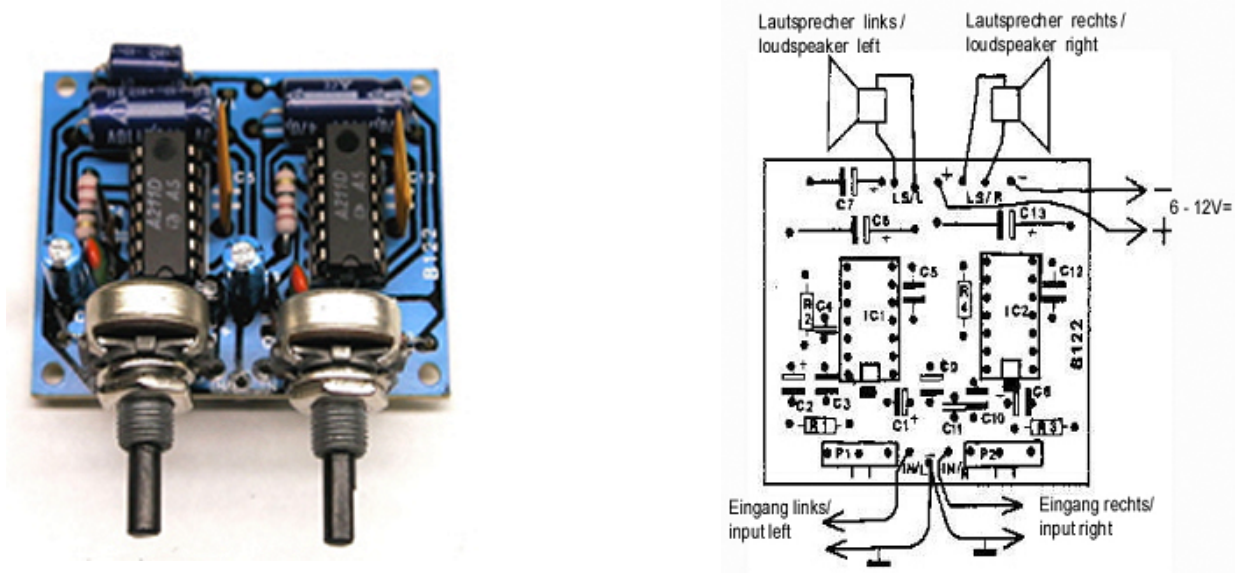
CIRCUIT DIAGRAM

17- Stereo-amplifier No. B122 2 x 2,5 watt دائرة مكبر ستريو ٢,٥ وات

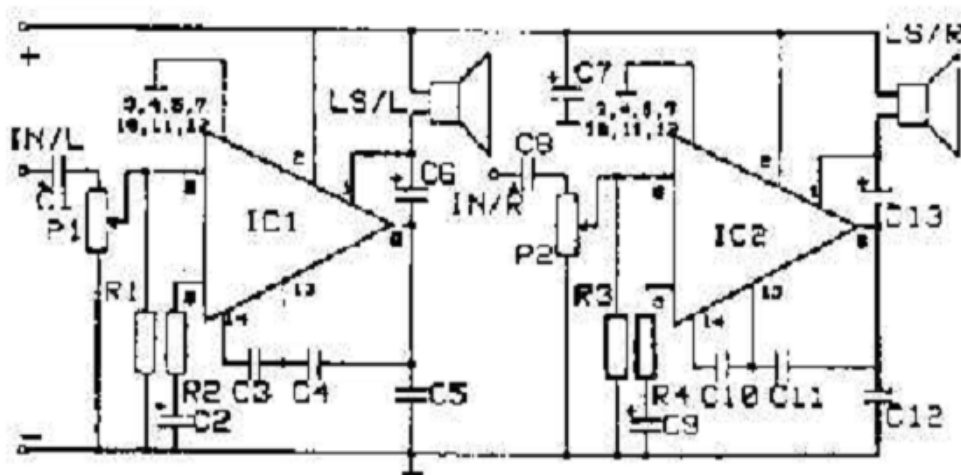
يجب لحام المقاومة المتغيرة مباشرة على اللوحة المطبوعة حساسية الدخل 100mV . جهد التشغيل للدائرة ١٢ فولت وتعطى افضل تكبير مع السماعات ٨ اوم .

Constructing instructions: The potentiometer are soldered directly on the printed wiring board. The IC's have at one side a notch, which has to coincide with the printed notch on the equipment print. The IC's may get hot during use. Please take special care of using the right polarity of the Elkos (+ and -). The amplifier has an input sensitivity of approx. 100mV. If it is desired to connect signal transmitters with inferior output voltage (eg. some microphones), a preamplifier has to be connected in series. We recommend for this purpose, depending on the intended use, our universal-stereo-preamplifier B142 or, for magnetic stereo record player our equalizing-preamplifier B074. Any signal source with superior output voltage as 100mV, as eg crystal record player, cassette tape-recorder, diode receiver etc. can, of course, be connected directly. The amplifier achieves its maximal power only with 12V operating voltage and using a 8 ohm loudspeaker. With inferior operating voltage and superior impedances of the

loudspeaker, power will decrease respectively. Please use as junctions for the amplifier nothing but screened cable and connect the screening network with ground. The screened cable will prevent any hum interferences in the amplifier.



LAYOUT AND TOP VIEW



CIRCUIT DIAGRAM

18- STEREO LED-VOLUME INDICATOR 2 x 11 LED's No. B124

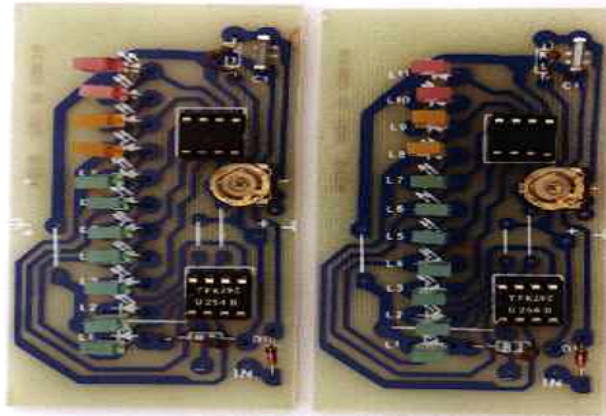
دائرة توضيح لمستوى صوت استريو

تستطيع الدائرة توضيح (قياس) مستوى الصوت من ٢ وات إلى ١٠٠ وات وذلك عن طريق 22 LED في صفين . جهد التشغيل للدائرة ١٢ فولت . مع الأخذ في الاعتبار تركيب ال LEDs بطريقة صحيحة على اللوحة المطبوعة .

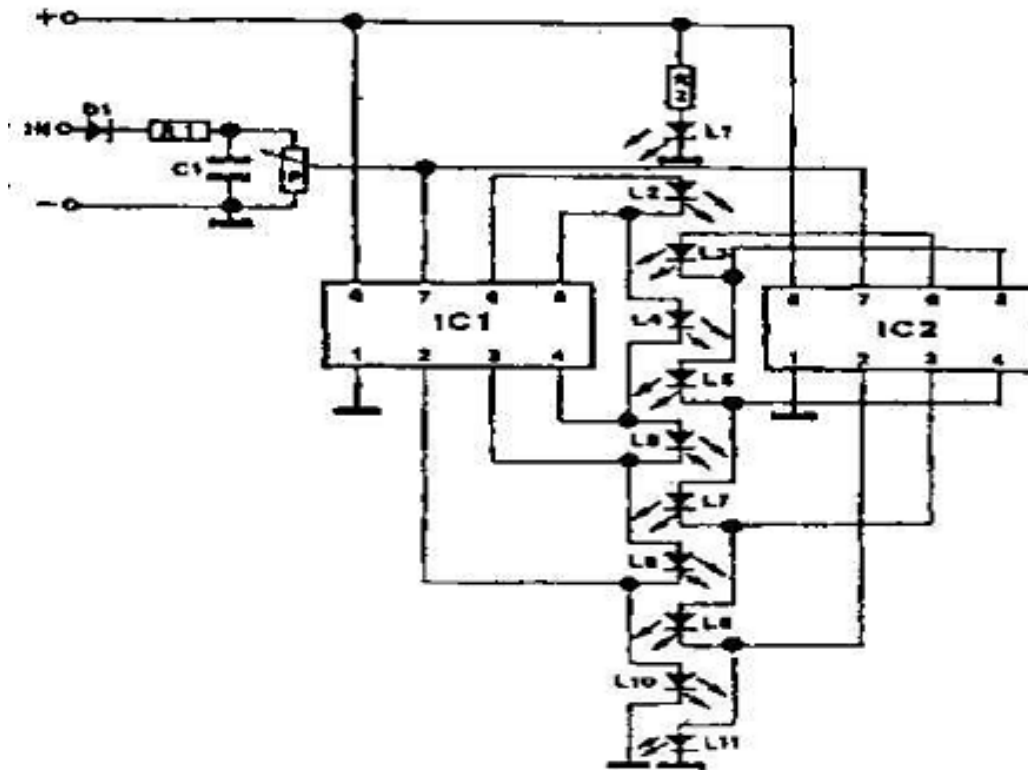
Almost inertia less volume indicator for amplifier units from 2...100 Watt.

Indication is realized through 22 LED's (2 x 11 LED). Operating voltage: 12 V. Easy connection with the loudspeakers. Please take special care when mounting the LED's and IC's that correct fitting has been carried out. The IC's have been designed with a notch or a point at one side, which has to coincide with the print on the board. The connections of the printed circuit board, marked with "INPUT",

should be connected parallel to the loudspeaker cabinet. Each stereo-channel has an own indicator board. Through the trimmer potentiometer it is feasible to adjust the max. measurement range.



LAYOUT AND TOP VIEW



CIRCUIT DIAGRAM

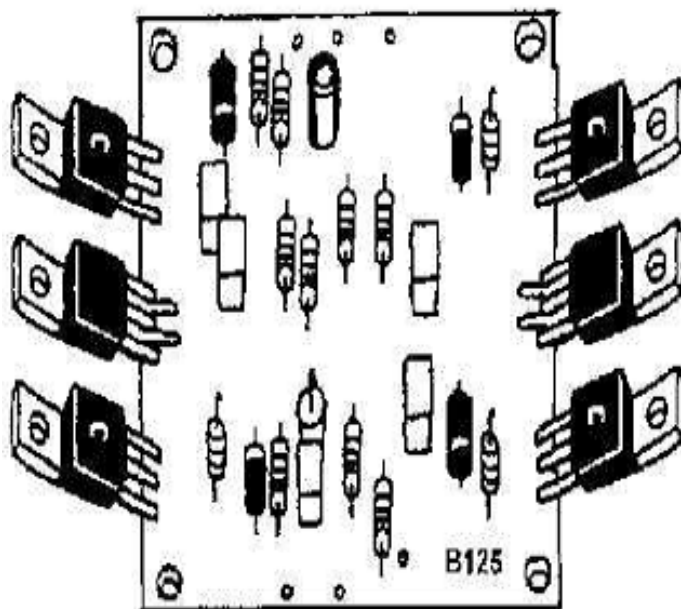
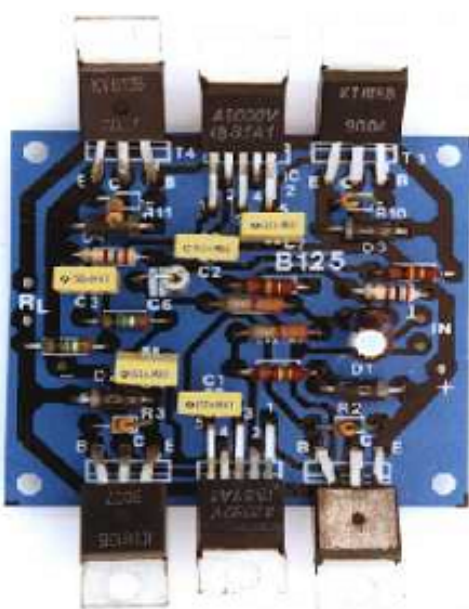
19- 200W – Amplifier No. B125 دائرة مكبر ٢٠٠ وات

دائرة مكبر عالي القدرة والجودة تعمل مع السماعات من ٤ اوم إلى ١٦ اوم وجهد تشغيل الدائرة من ٢٤ فولت إلى ٣٦ فولت و أقصى تيار دخل ٥ أمبير. النطاق الترددي للدائرة من ٢٠ هيرتز إلى ٢٠ كيلو هيرتز . مع مراعاة عملية تبريد للترانزستور بتوصيله بجسم معدني .

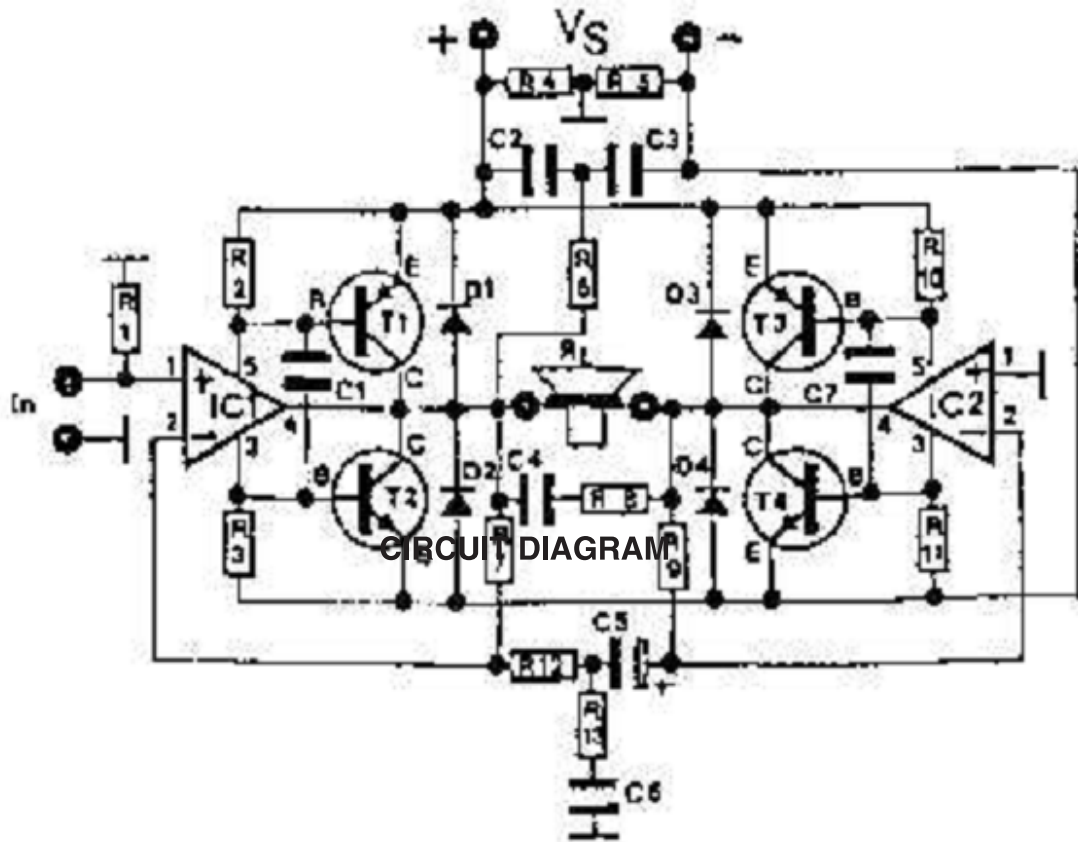
High-power amplifier of top-class quality for loudspeaker from 4...16 Ohm.

Operating voltage: 24...36V, max. 5A. F: 20...20.000 Hz. Required cooling element:

cooling fin with min. dimensions 20 x 10 x 4cm or greater (thermal resistance < 1K/W). Please take special care that the transistors and the IC's have been fixed firmly at solely one or two separated cooling elements with sufficient dimensions for this purpose (thermal resistance < 1K/W). Doing so, it is necessary to mount the transistors and the IC's insulated (with mica washer and plastic nipple) according to the figure (page 15)! Please make sure before first operation that the transistors and the IC's really do not have any electrical connection towards the cooling plate! (With the aid of an ohm-meter). The transistors have to be placed plane and firmly onto the cooling element! It is of extraordinary importance with this high-power amplifier that there is a considerable heat dissipation! A "test-run" without cooling element even for some seconds is impossible! The already mounted cooling element should be situated in a well ventilated case. The power supply should be sufficiently powerful, power consumption of the amplifier may increase up to 5A. In case of using an unstabilized power supply, it is advisable to place a transformer of max. 28V. The amplifier will then show solely approx. 120W at a 4-Ohm loudspeaker, for it no-load voltage of the power supply will not be too high. If it is desired to use complete power, it is necessary to place a stabilized power supply with approx. 36V 5A. No-load voltage should not pass over 44V! As filter elca it is advisable to choose values of min. 10.000 μ F / 50V! The cables leading to the current supply and to the loudspeakers should have at least a cross section of min. 1,5mm². The connected loudspeaker have to be equipped according to the high output power and should not have a lower impedance as 4 Ohm! With lower connecting impedance and short circuit within the loudspeaker wiring, the transistors will be destructed. The amplifier has an input sensitivity of approx. 500...800mV. Therefore, it is possible to connect directly at the amplifier tape decks, tuners, etc. In case there are connected signal sources with lower output voltage, it is necessary to pre-connect a pre-amplifier (e.g. our pre-amplifier kit B 073). Then it will also be possible to connect microphones, etc.



LAYOUT AND TOP VIEW



20- Stereo-Decoder No. B127 (دائرة استريو ديكودر (تشفير إشارة ستريو))

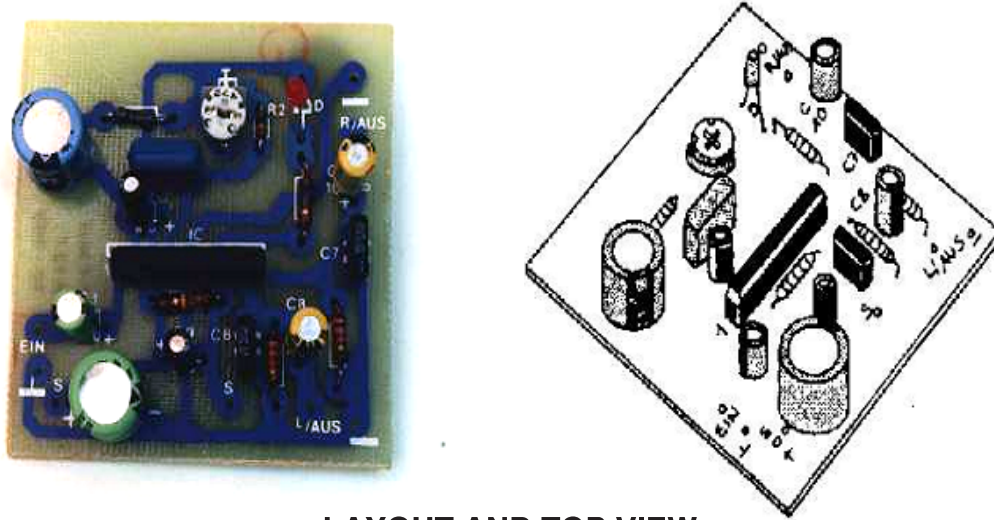
دائرة الديكودر توصل عند الطرفين A F عند خرج إشارة ال VHF . ويمكن بعد ذلك توصيل مكبر استريو عند خرج الديكودر. الديكودر يتطلب أن تكون إشارة الدخل اكبر من ١ فولت . ولابد من توصيل المكونات بطريقة صحيحة علي الدائرة . وفي حالة كون الإشارة غير كافية أي اقل من ١ فولت فأنها تؤخذ من طرفي خرج السماعات .

The decoder has simply to be connected at the A.F. output (e.g. loudspeaker connection) of a VHF-radio. It is then possible to connect at the output of the decoder a stereo amplifier. Disconnectedly, automatic switch-over mono-stereo when receiving the stereo signal. Stereo indication through LED. Operating voltage: 4.5...12V

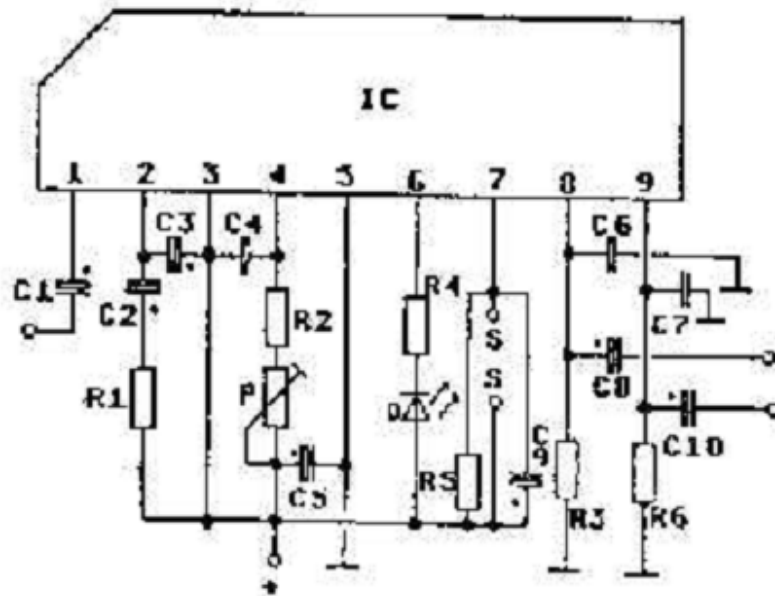
Please take special care that the printed board has been correctly equipped. The notch at the IC has to coincide with the one at the print of the board. Furthermore, it is necessary that the LED, the diodes and the elcas have been fitted correctly into the board. The decoder requires an input signal of approx. 1V.

In case that this signal isn't sufficiently strong at the TAPE socket of the radio, it will be necessary to take it from the loudspeaker output of the radio. Doing so, it is advisable not to adjust the radio too loud, because otherwise the decoder could be over amplified. In case that the decoder will be operated permanently on automatic operation (automatic mono / stereo switch-over), the two contacts "s+s" at the board have not to be connected. In case you also want to adjust the decoder by hand into mono, it is possible to connect at "s+s" a switch in order to achieve switching-over into "mono" in case of especially weak signals. The decoder will be balanced through the potentiometer "P". You have to tune in a stereo transmission and to adjust the potentiometer "P" till the LED lights up. Now, you should regulate the potentiometer setting the centre position of the luminous range. It is then feasible to connect at both outputs "left" and "right" a

stereo amplifier. Please use solely screened cable. The screening network has to be connected with the ground-connections.



LAYOUT AND TOP VIEW



CIRCUIT DIAGRAM

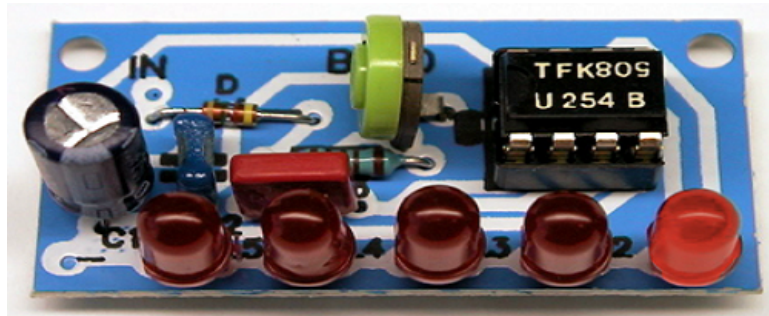
21- LED-Recording Level Indication LED Volt- and Ammeter No. B130

دائرة قياس مستوى الصوت باستخدام LEDs

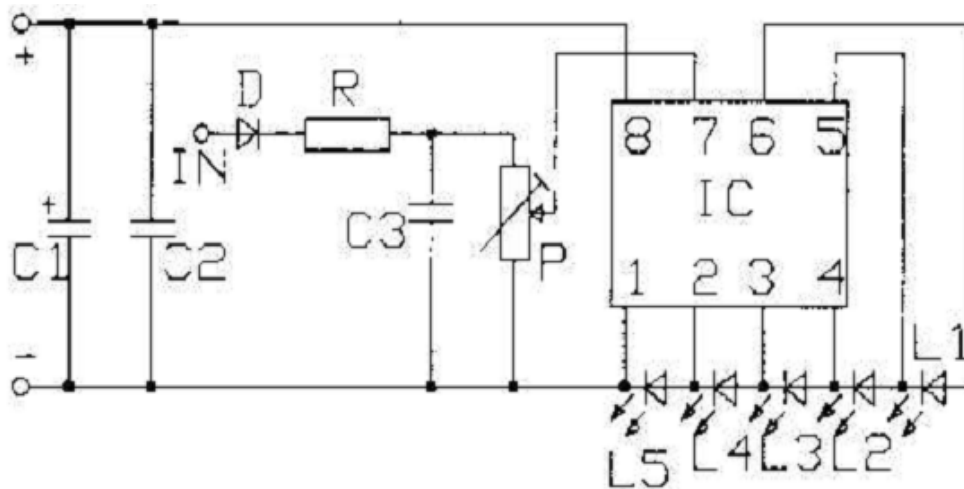
دائرة توضيح لمستوى الصوت باستخدام 5LEDs . جهد التشغيل للدائرة ١٢ فولت .

Almost inertia-free measuring instrument with 5-LED-indication. Perfect as recording level indication for amplifiers or loudspeaker enclosures, as volt- or ammeter etc. For 12 Volt. When tipping the board please pay attention to the right polarity of the ICs. The notch or the point on the one side of the IC must correspond to the tip print on the board. The LEDs are flattened on one side. The operating voltage for the board is 12V. In case of using as a recording level indication for amplifiers the input "IN" of the board must be directly connected parallel to the loudspeaker box of the amplifier. Then the LED-VU-Meter will be

put to full deflection (the 5th LED just begins to glow) by using the trimming potentiometer at full volume. In case voltages shall be measured then the polarity for alternating voltage does not matter. With direct voltage the positive pole must be at the connection marked with "+". For voltage measurements over 20V the protective resistor R must be increased accordingly (e.g. up to 100 Volt 50 k Ohm). In case of usage as ammeter the board must be connected according to the following connection diagram. The resistor "X" should be calculated in such a way that the LED indication indicates total at max. current.



LAYOUT AND TOP VIEW



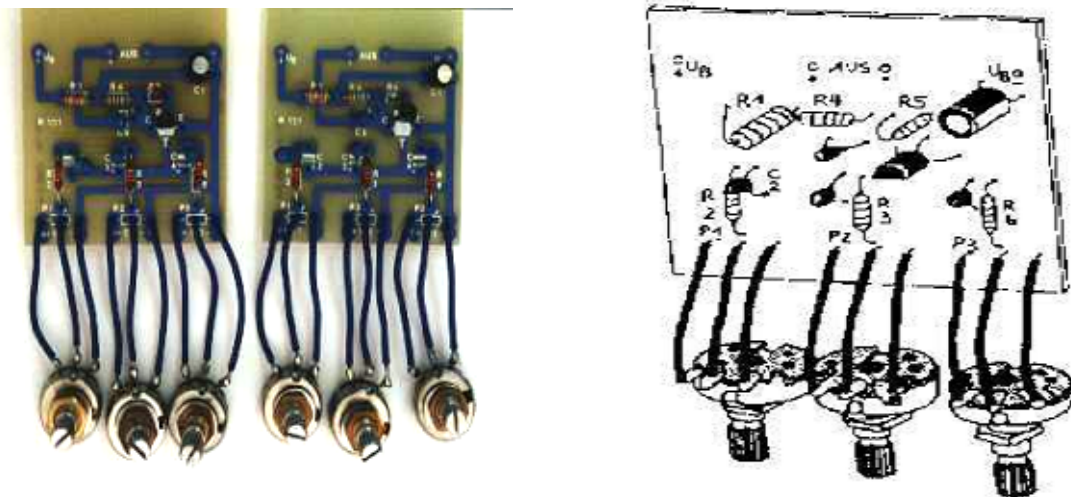
CIRCUIT DIAGRAM

22- Stereo - Mixer Unit No. B131 دائرة ميكسر استريو

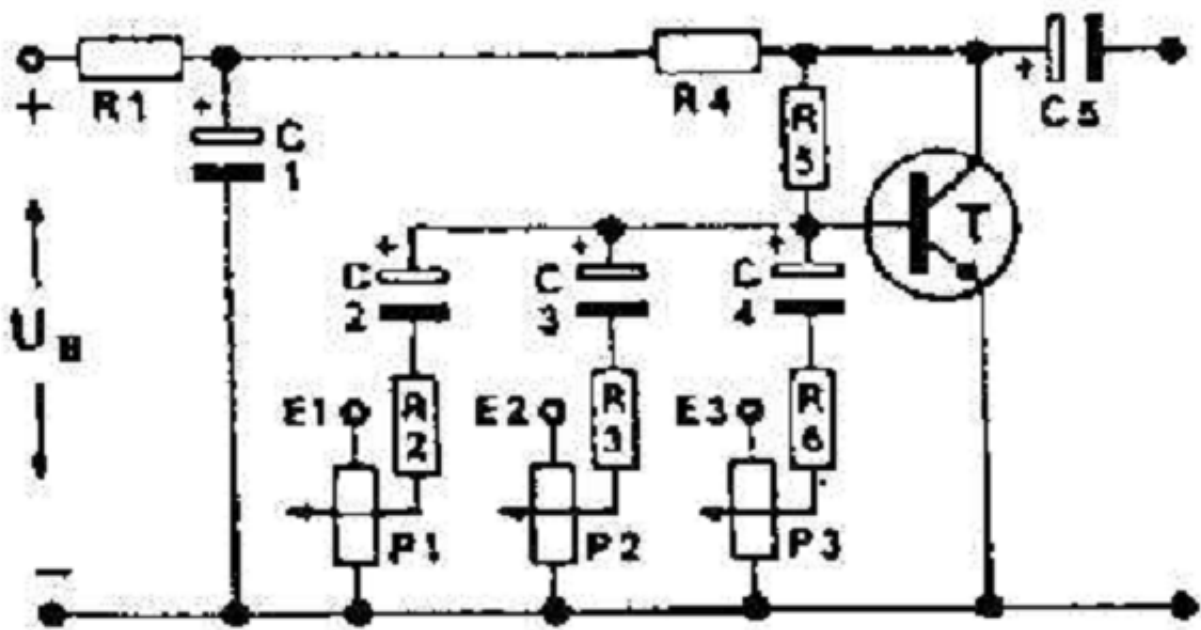
دائرة ميكسر لثلاث إشارات يمكن التحكم في كلا منها على حدة . جهد التشغيل للدائرة من ٦ فولت إلى ١٢ فولت والخرج ٣ فولت. النطاق الترددي من ٢٠ هيرتز إلى ٢٠ كيلو هيرتز . كل إشارة دخل توضع على دائرة منفصلة. كما يجب وضع المكونات على الدائرة بطريقة صحيحة.

It is possible to mix up 3 stereo signals and to adjust each channel separately. Operating voltage: approx. 6...12 Volt. Output: max. 3V. F: 20...20000 Hz. Each stereo channel has been mounted at an own printed board. Therefore, it is possible to mount them separated from each other in a housing. Please take special care when placing the tantalum elcas. One of the connections has been marked with a positive mark (+). This pole must coincide with the positive pole (+) at the board. All cables leading to the input or output of the board should be made out of screened cable. Doing so, the screening network has to be

connected always with "ground". The ground pole has been marked on the board with (-). It is advisable to fit the boards into a metal case and to connect the case with "ground" as screening box. Otherwise, there could be hum interferences. It is feasible to connect at the input of the mixer unit microphones, tape recorders, record players, etc. The output has to be connected with an amplifier. Caution! Working with too small (highly ohmic) batteries for the current supply, it is possible that the pre-amplifier does oscillate and it may produce by itself sounds. In those cases it is necessary to connect parallel to the current input at the board an elca of approx. 1000 μ F 20V (parallel to the battery). When fixing metal knobs on the potentiometers, there could be some kind of humming in the loudspeaker while touching the potentiometers. In those cases it is necessary to connect the cases of the potentiometers also with "ground".



LAYOUT AND TOP VIEW



CIRCUIT DIAGRAM

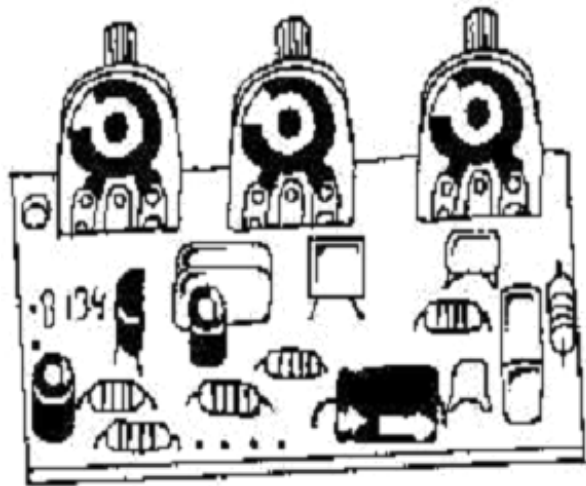


23- Mono Sound Controller separate treble, bass and volume regulation No. B134

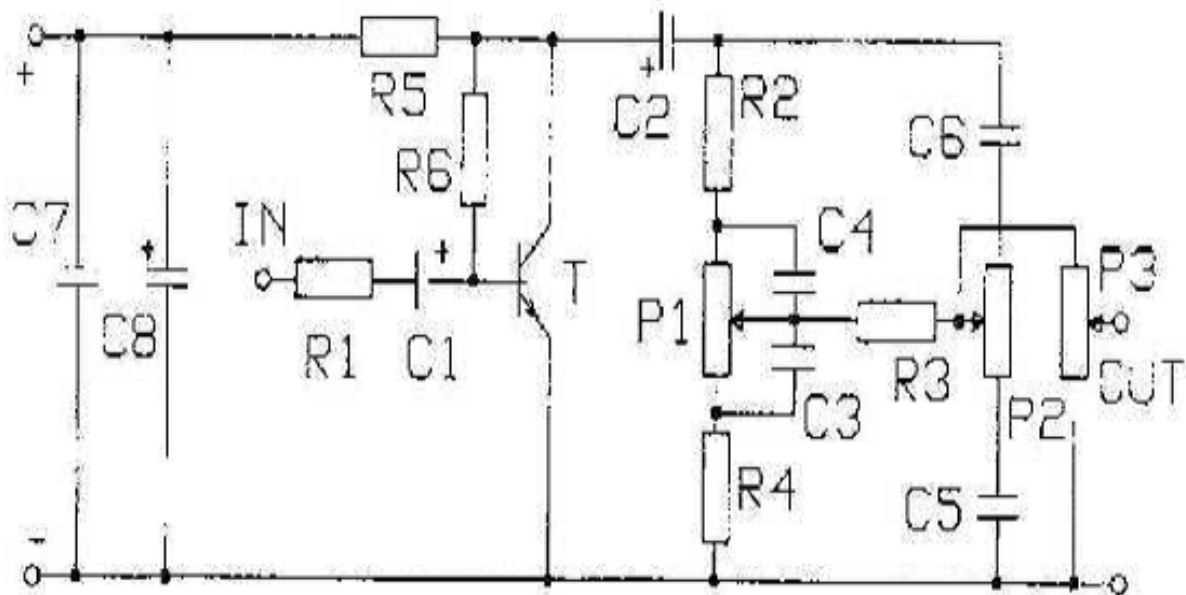
دائرة تحكم فى اشارة صوت أحادية

توصل الدائرة على خرج مكبر الصوت . جهد التشغيل للدائرة من ٩ فولت إلى ١٨ فولت . كما يتم لحام المقاومات المتغيرة مباشرة على اللوحة المطبوعة . ولتجنب تدخل إشارات غير مرغوب فيها مع الإشارة الأصلية نقوم بتوصيل مصدر الإشارة مع دائرة التكبير باستخدام كبلات معزولة .

This mono sound controller must be superposed to the mono final amplifier. Trebles, basses and volume are adjustable separately. Operating voltage: 9...18 Volt. The three potentiometers must be soldered directly on the board. In order to avoid hum interferences the connection cables to the signal source (e.g. record player) and to the final amplifier must be installed with shielded cables. The shielding has to be put to the connection with the minus (sign.) "-". It is also recommendable to install the board inside a shielded housing (metal housing). Then the housing must be connected with minus "-".



LAYOUT AND TOP VIEW



CIRCUIT DIAGRAM

24- ELECTRONIC MELODY "It's a small world" No. B145 دائرة توليد نغمات

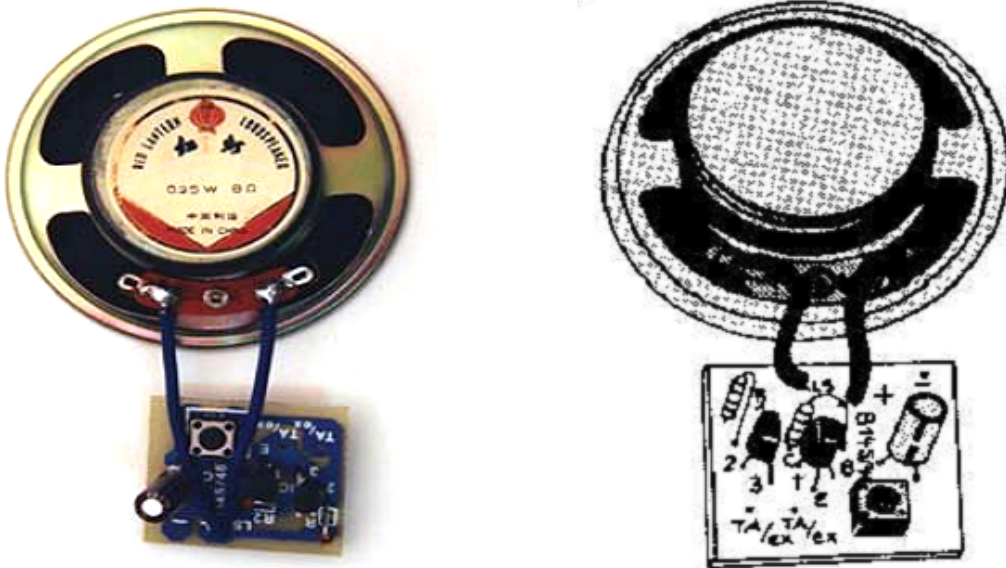
الدائرة تقوم بتشغيل نغمة WALZ الشهيرة لمدة طويلة وبصوت عالي الجودة ويبدأ التشغيل بالضغط على الأزرار ويتوقف آليا . جهد التشغيل للدائرة ٣ فولت . كما يجب وضع المكونات بطريقة صحيحة على الدائرة المطبوعة.

plays for a long time the famous Walz melody in an expressive high-quality sound. The melody will start through a push-button and stop automatically.

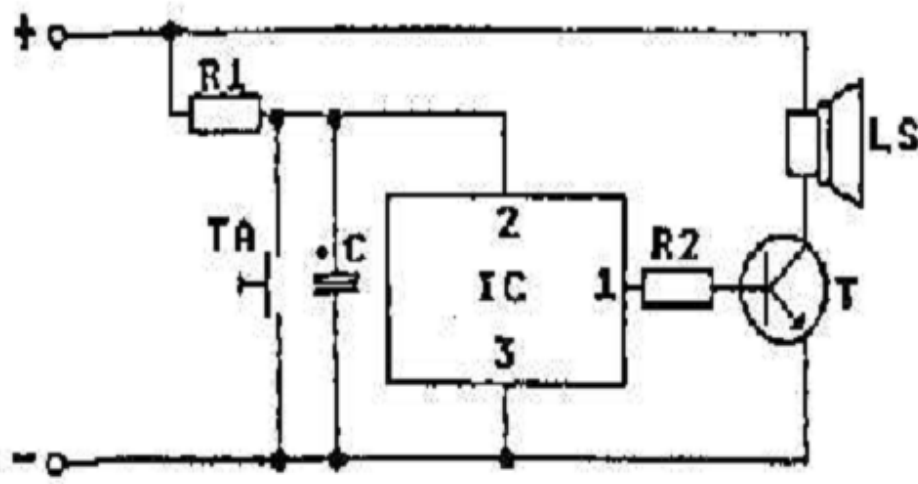
Loudspeaker included. Operating voltage: 3V.

The printed circuit board should be equipped following the component print. After having applied the operating voltage (1,5 ... 3 Volt), you may push the button "TA" and, now, the melody will be heard. Whenever the button is pushed, the melody will sound again. It is possible to use another push-button (e.g. bell-push for doors), the printed circuit board has been designed to realise this connection.

Attention! In case of too high operating voltage, false polarity and short circuits within the loudspeaker connection, the device will be destroyed. Fitting the loudspeaker in a housing with sound aperture will improve considerably the quality of sound.



LAYOUT AND TOP VIEW

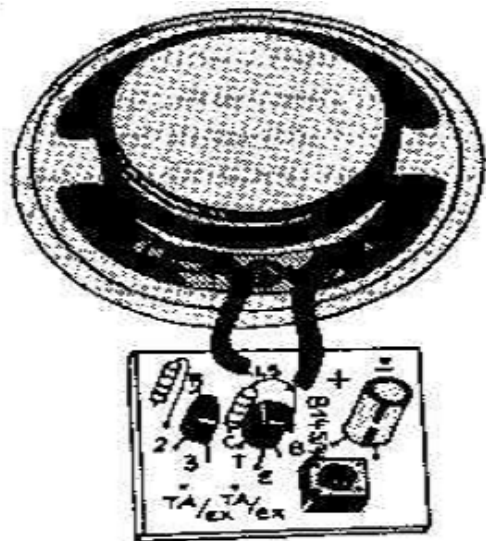
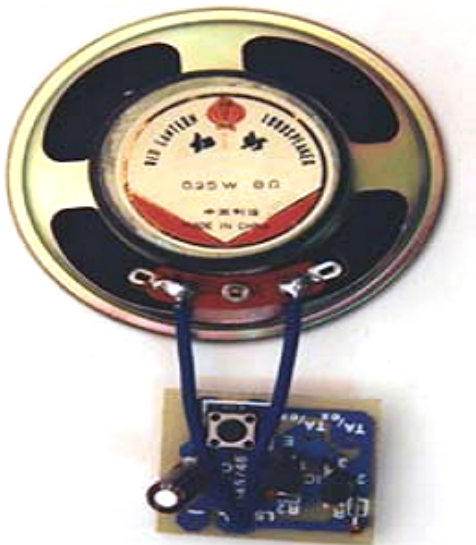


CIRCUIT DIAGRAM

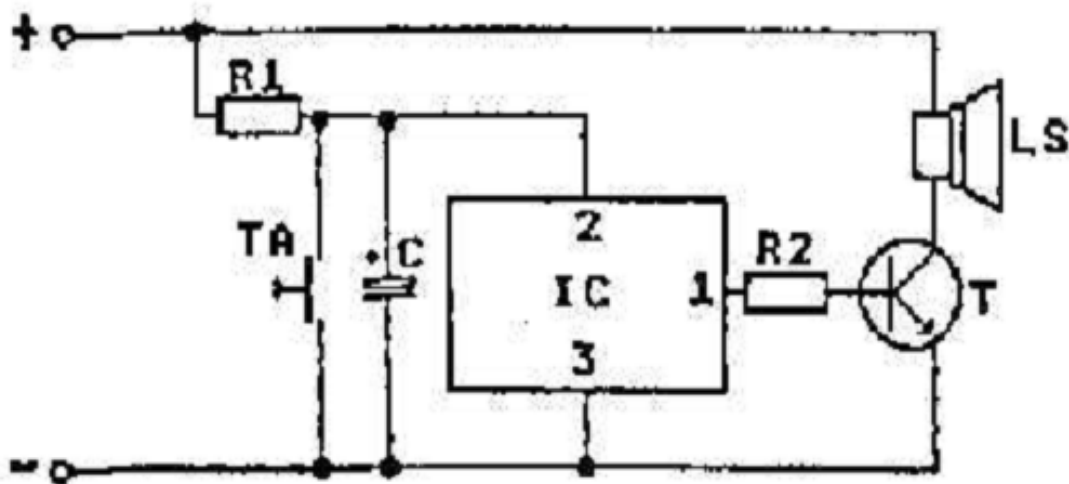
25- ELECTRONIC MELODY "Coo Coo Walz" No. B146 دائرة توليد نغمات

الدائرة تقوم بتشغيل نغمة (Coo Coo WALZ) الشهيرة لمدة طويلة وبصوت عالي الجودة ويبدأ التشغيل بالضغط على الأزرار ويتوقف آليا . جهد التشغيل للدائرة ٣ فولت . كما يجب وضع المكونات بطريقة صحيحة على الدائرة المطبوعة.

plays for a long time the famous Waltz melody in an expressive high-quality sound. The melody will start through a push-button and stop automatically. Loudspeaker included. Operating voltage: 3V. The printed circuit board should be equipped following the component print. After having applied the operating voltage (1,5 ... 3 Volt), you may push the button "TA" and, now, the melody will be heard. Whenever the button is pushed, the melody will sound again. It is possible to use another push-button (e.g. bell-push for doors), the printed circuit board has been designed to realize this connection. Attention! In case of too high operating voltage, false polarity and short circuits within the loudspeaker connection, the device will be destroyed. Fitting the loudspeaker in a housing with sound aperture will improve considerably the quality of sound.



LAYOUT AND TOP VIEW



CIRCUIT DIAGRAM

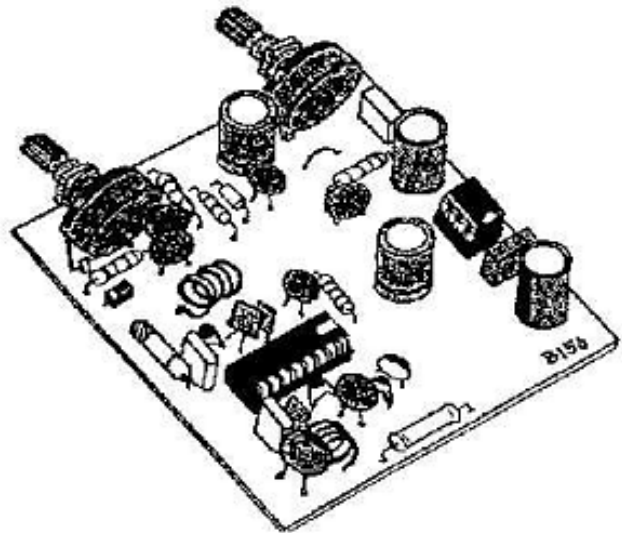
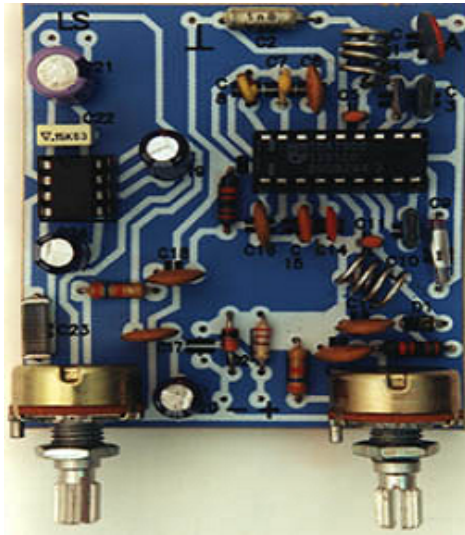
2٦- FM-Receiver No. B156 دائرة استقبال تعديل ترددي

تستخدم هذه الدائرة للشرطة أو للطيران . النطاق الترددي الذي يمكن استقباله من ١٠٨ ميغاهيرتز إلى ١٣٢ ميغاهيرتز . وهي دائرة استقبال عالية الجودة باستخدام ال IC TDA 7000 و نستخدم مع الدائرة سماعات ٨ اوم .

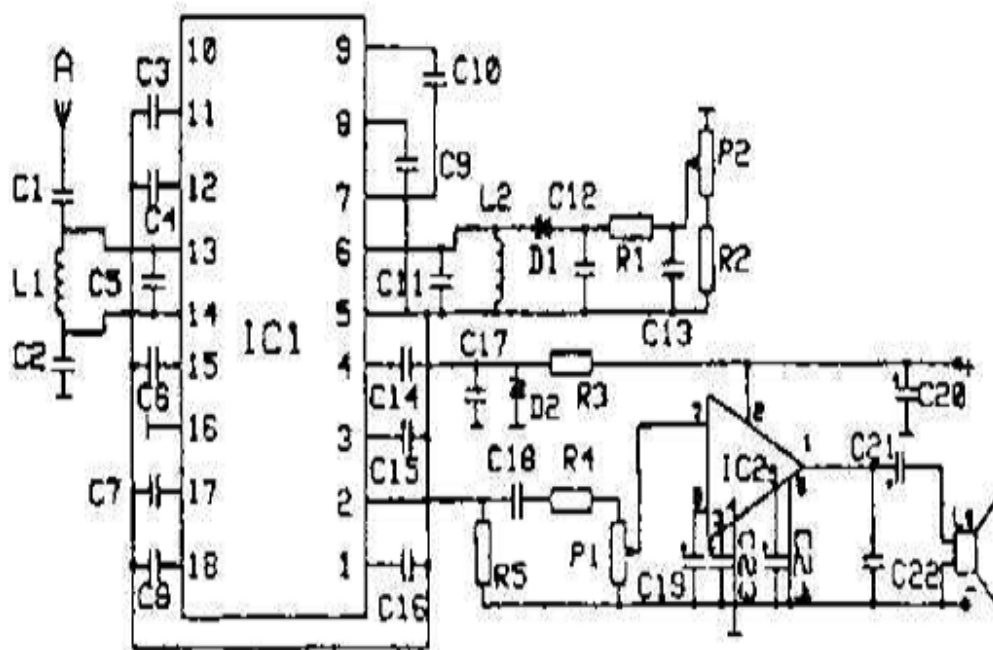
Also for police radio and aeronautical radio service

approx. 108 - 132 MHz

High-quality receiver with the IC TDA 7000. Excellent reception properties + selectivity. Loudspeaker connection 8 Ohm (1W). Very simple construction, almost no alignments are necessary. Operating voltage 9 Volt approx. 88 - 108 MHz. Licensed radio amateurs may extend the frequency area of this FM-receiver up to approx. 132 MHz. The two coils L1 and L2 will be wound by using the enclosed piece of silver-plated wire as follows: Coil up 4 windings with the wire on a 5mm drill, pull the drill out again and extend the two connection wires of the coil to 8mm (so that they fit into the drillings of the board). The windings must not get in contact with each other. During installation of the electrolytic capacitors and the diodes please pay attention that they will be inserted in the board in the correct direction. The ICs have a notch on one side which also must correspond to the respective mark on the board. At first the IC holders must be soldered in and finally the ICs will be put into the holders in the correct direction. The potentiometers have to be soldered directly on the board. Please do not forget the wire strap on the board. Starting: A loudspeaker of 8 Ohm will be connected which should not be too small (ideal 1 Watt) in order to obtain a good sound at optimal volume. As current supply a bigger 9V battery should be used (e.g. two 4.5V flat batteries in series). The small 9V transistor-compound batteries are discharged too fast as the VHF-radio has a strong 1 Watt high-level stage. As antenna serves a telescopic antenna or e.g. a piece of wire of approx. 80...100cm length. If you switch on now and the volume control (P1) will be advanced, a noise should be audible. By using the potentiometer P2 you now can tune-in a station. By modifying the oscillator coil L2 the range of reception can be changed. Either by pressing or extending the coil or if you take another number of turns. Reducing the coil results in a displacement of the range of reception upwards (>108 MHz), an increase in a range of reception downwards(< 88 MHz). Unauthorized persons are not allowed to receive other frequencies than the normal VHF radio frequency! Changes may only be carried out by amateurs possessing a corresponding license! You may also extend the frequency area up to 132 MHz. In this case please replace coil L2 by a coil with 2 windings. Now the frequency area amounts to approx. 88 - 132 MHz. But this may only be done by radio amateurs who are in possession of a corresponding valid license!



LAYOUT AND TOP VIEW



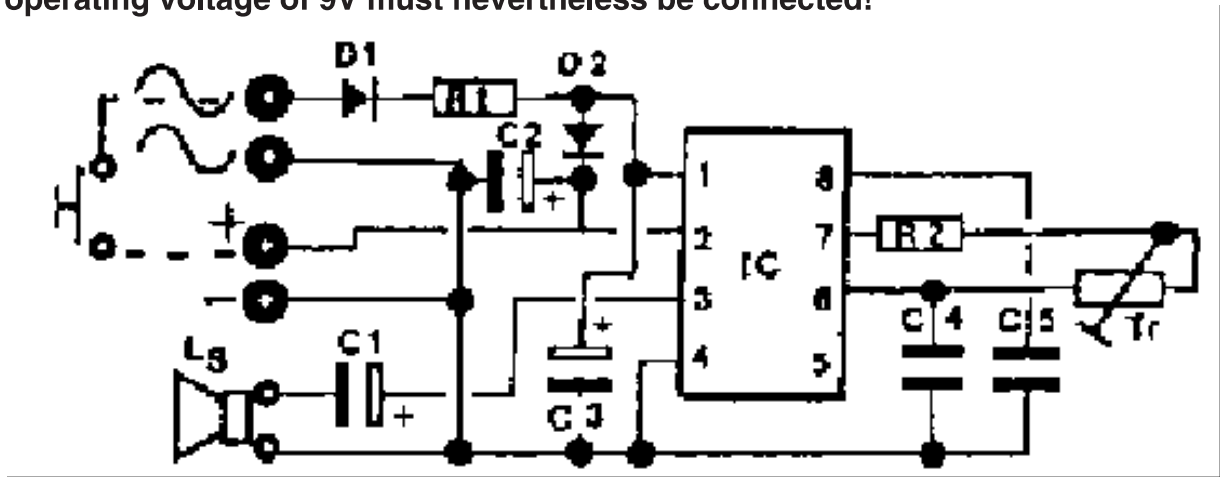
CIRCUIT DIAGRAM

دائرة جرس باب ثلاثة نغمات 2V - 3-Tone gong No.B164

الدائرة تصدر ثلاث نغمات مختلفة. جهد التشغيل للدائرة ٩ فولت وتعمل مع سماعات ٨ اوم وتستخدم لجرس الباب أو كإشارة تعريف أو للإعلان عن الإخبار. وتعمل باستخدام زر ضغط أو عن طريق الجهد الناتج من جرس الباب.

Melodious, electronic 3-tone Gong with the Siemens IC SAB 600. Ideal as door gong, identification signal, announcement of news etc. Operating voltage: 9 V. For loudspeaker 8 Ohm. Released through a pushbutton or with a voltage 6...12V coming from the doorbell system (DC or AC voltage). Please take special care when equipping the printed circuit board that the right polarity of the diodes and

elcas is used (these parts have to be placed in the right manner onto the printed circuit board according the components equipment print). The IC has at one side a slot, which has to coincide with the slot at the components equipment print. The printed circuit board is operated through a battery or a power supply 9 Volt. As loudspeaker it is advisable to use an ordinary 8 Ohm loudspeaker. But it has to be fitted into a case or baffle board. If the loudspeaker housing has been connected loose at the working bench, sound will be considerable inferior as with a fixed loudspeaker (the housing or the baffle board will do as resonance board). Through the trimmer desired sound can be adjusted. The gong may be either released through a pushbutton (working current) or in case of an existing doorbell system through a short voltage pulse on the connections "signal voltage" (6...12V). This signal voltage can be supplied by the doorbell. The operating voltage of 9V must nevertheless be connected!

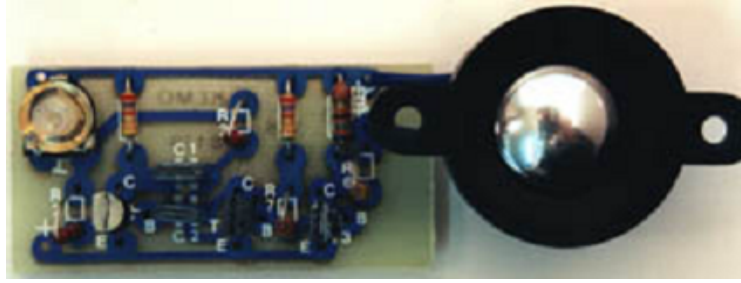


CIRCUIT DIAGRAM

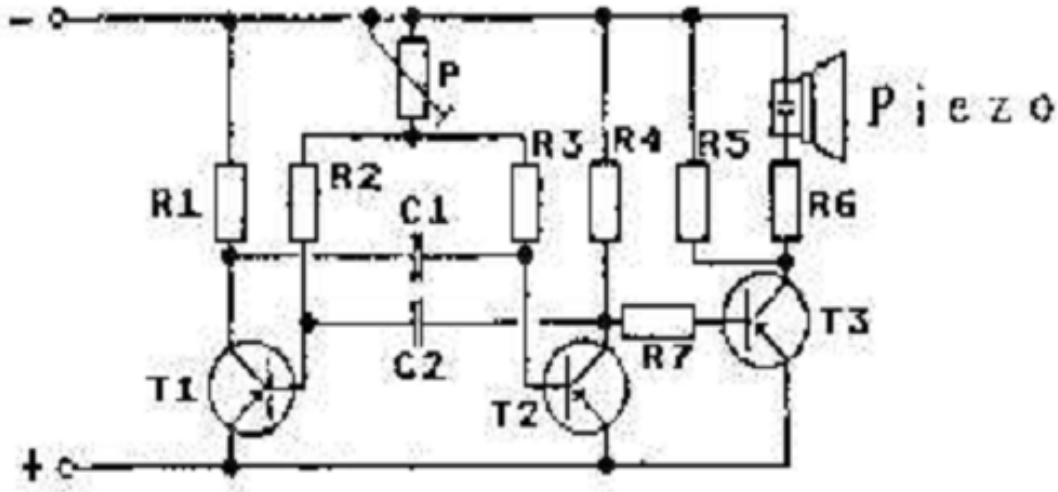
2٨- ULTRASONIC DOG WHISTLE No. B179 دائرة لتوليد ترددات مسموعة للكلاب

تقوم هذه الدائرة بإصدار ترددات فوق صوتية مسموعة جدا بالنسبة للكلاب وغير مسموعة للإنسان . وتنتج الدائرة ترددات قابلة للتعديل بين ٨٠٠٠ هيرتز و ٢٥٠٠٠ هيرتز ومع الدائرة سماعة خاصة بها . ويمكن استخدام الدائرة في تعليم الكلاب . جهد التشغيل للدائرة ٩ فولت.

This electronic ultrasonic whistle emits high-powered ultrasonic sounds which are widely audible for dogs. These high frequencies are mostly not to be heard for the human being, dogs can be drilled with it. The frequency is adjustable between approx. 8000...25000 Hz. A special piezo loudspeaker is included. Operating voltage: 9V. Indispensable for all dog-owner! The printed circuit board has to be equipped according to the parts list and the plan. As operating voltage a 9V battery will be sufficient. It will be expedient to use a small pushbutton, which switches on the battery but only as long as the pushbutton is pressed. The loudspeaker has to be mounted providing that the hemispherical special membrane of the piezo loudspeaker has been fitted with completely free propagation and without any covering. Sounds will emerge out of the metal colored membrane. Ultrasonic sounds have a considerable directional effect. Therefore, the loudspeaker should always be held to the dog, if you are going to call for it. Through the trimmer potentiometer on the printed circuit board, sound can be adjusted as desired. Likewise to human beings the hearing capacity of dogs in regard to higher sounds will decrease when getting older. We recommend for older dogs to use a lower sound than for a young dog.



layout top view



circuit diagram

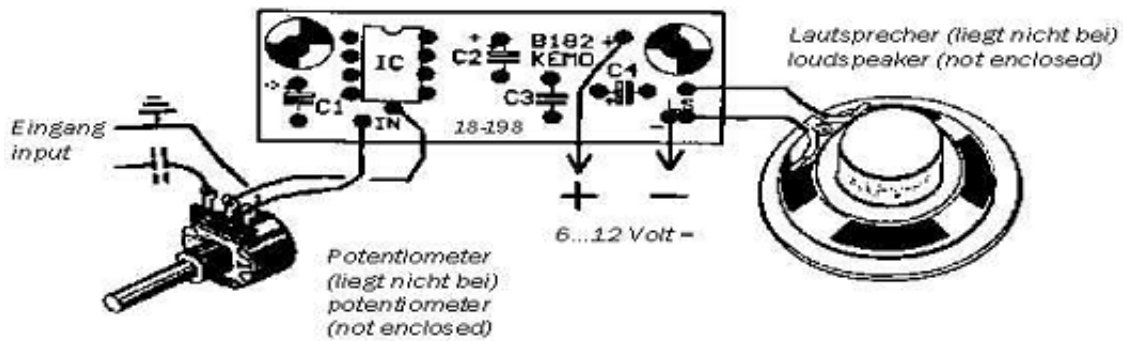
دائرة تكبير قدرتها ١ وات 29 - Amplifier 1 Watt No. B182

مكبر عام بقدرة ٢ وات . جهد التشغيل للدائرة من ٦ فولت إلى ١٢ فولت . حساسية الدخل ٥٠ ملي فولت . تعمل الدائرة مع السماعات ٨ اوم . النطاق الترددي من ٢٠ هيرتز إلى ٢٠٠٠٠ هيرتز.

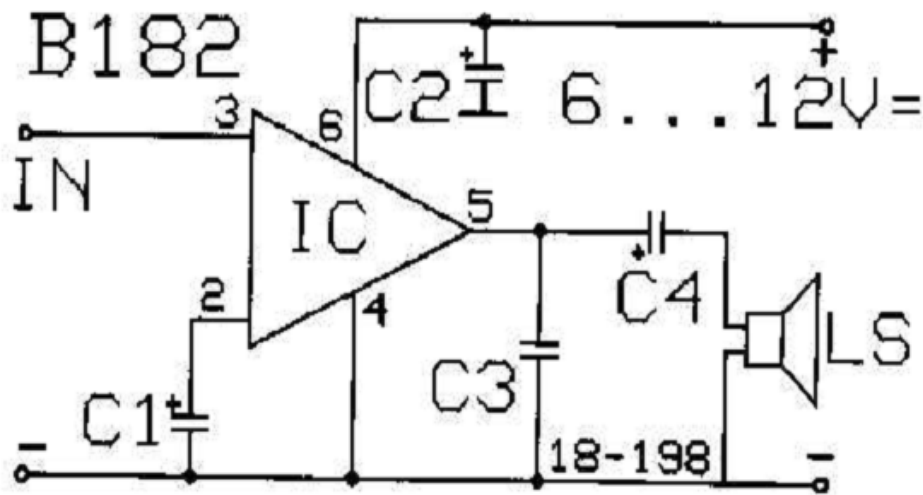
Small universal amplifier with a peak sound capacity of 2 Watt. Operating voltage: 6...12 V=. Input sensitivity: approx. 50 mV, loudspeaker connection: 8 ohm.

Frequency range: approx. 20...25000 Hz.

Please take special care, while carrying out equipping of the printed board, that the elcas have been fixed into the board correctly (attention! positive and negative). The IC has been marked at one side of the housing with a notch, which should coincide with the corresponding mark of the printed board. As volume control it is possible to use a potentiometer with a value between approx. 10 k and 100 k log. Whenever there will be connected signal sources without output coupling capacitor, it is necessary to connect a capacitor 0,1 μ F in series with the input of the amplifier. The amplifier will show peak power at 12V= operating voltage. With lower voltages output power will decrease correspondingly. Please pay attention that the current supply will be sufficiently powerful. The amplifier has a current consumption of max. 200mA! Therefore, it is advisable to use either a small power supply or powerful batteries (e.g. 2 x 4,5V flat batteries connected in series). The small 9V block container batteries will become to easily run-down! The cables leading to the input of the amplifier, to the potentiometer and to the signal source should be as short as possible and also screened! The screening network of the screened cable will have to be connected with earth (negative pole).



Top View



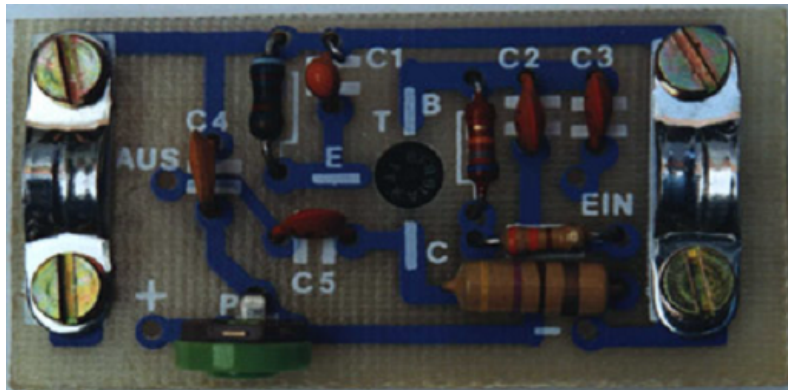
Circuit Diagram

٣٠- Antenna amplifier approx. 50...1000 MHz No. B199

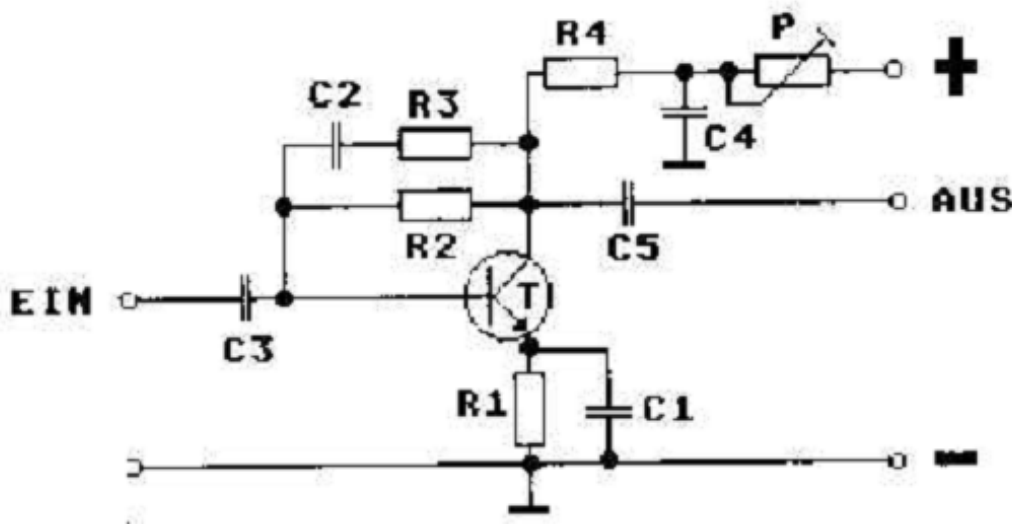
مكبر إرسال أحادي المرحلة بمعامل تكبير قابل للتعديل بشكل مستمر و أعلى معامل للتكبير هو ١٥ ديسيبل . ويعمل للقنوات التليفزيونية والإذاعية . مقاومة الدخل و الخرج من ٥٠ أوم إلى ٧٥ أوم . ويوجد مكان لتركيب الكبل المحوري على اللوحة المطبوعة لتوصيل إشارة الدخل . جهد التشغيل للدائرة من ٦ فولت إلى ١٨ فولت . ويجب أن يلحم الترانزستور T1 على اللوحة المطبوعة في المكان المخصص له أسفل اللوحة المطبوعة.

Single-stage antenna amplifier, with continuously adjustable amplification up to max. 15 dB. For any television range from channel 2 up to channel 65, extraordinary suitable for VHF radio and cable television. Input and output impedance: 50...75 Ohm. There are prepared clamps for coaxial cable on the board. As required it is possible to connect two antenna amplifiers one after another. The total amplification will correspondingly increase. Operating voltage: 6...18V. The transistor T1 has to be soldered carefully with the connecting pins underneath the printed board on the conductor line, provided for this purpose. The drilling hole at the printed board will take the transistor body. The transistor should be soldered that way that the print on the transistor will be seen through the hole (from the wiring side). All other component parts should be soldered with as short as possible connecting wires on the printed board following the component print. Depending on each application (desired frequency range) there are different component parts for the components C3, C5 and R3. In case you

want to use the amplifier within the frequency range of VHF / cable television, please mount the printed board according to the parts list. In case you want to use the amplifier almost within the frequency range of the UHF channels, channel 21 up to channel 65, then it is necessary to use the mentioned parts, on the right, different values. These different values have been indicated separately at the right side of the parts list. All other component parts will remain without modification. In case the amplifier should be used at the same time as broadband-amplifier for any frequency, then it is advisable to use component parts for the frequency range UHF channel 21...65. It operate within the lower ranges up to VHF, but won't show within the lower ranges utmost power. The antenna amplifier has to be fixed into a metal total enclosure. The choke should be mounted directly at the antenna amplifier. As choke could be used a simple small ferrite core with approx. 10 turns enameled-insulated wire. The screws of these clamps have to achieve a good electric contact with the subjacent strip conductor. The antenna cable has to be insulated, the inner conductor has to be soldered each with the connections ON and OFF and, consequently the bare screening network fixed with screws under the clamps. Through the trimmer potentiometer at the board, it is feasible to adjust the power continuously. Therefore, it is possible to avoid any adjustment difficulties.



Layout And Top View



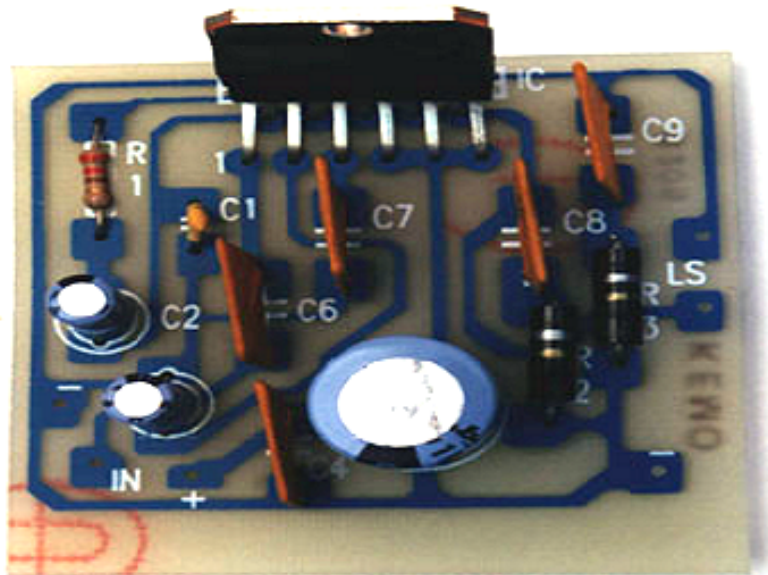
CIRCUIT DIAGRAM

31 - Amplifier 50 Watt No. B205 دائرة تكبير ٥٠ وات

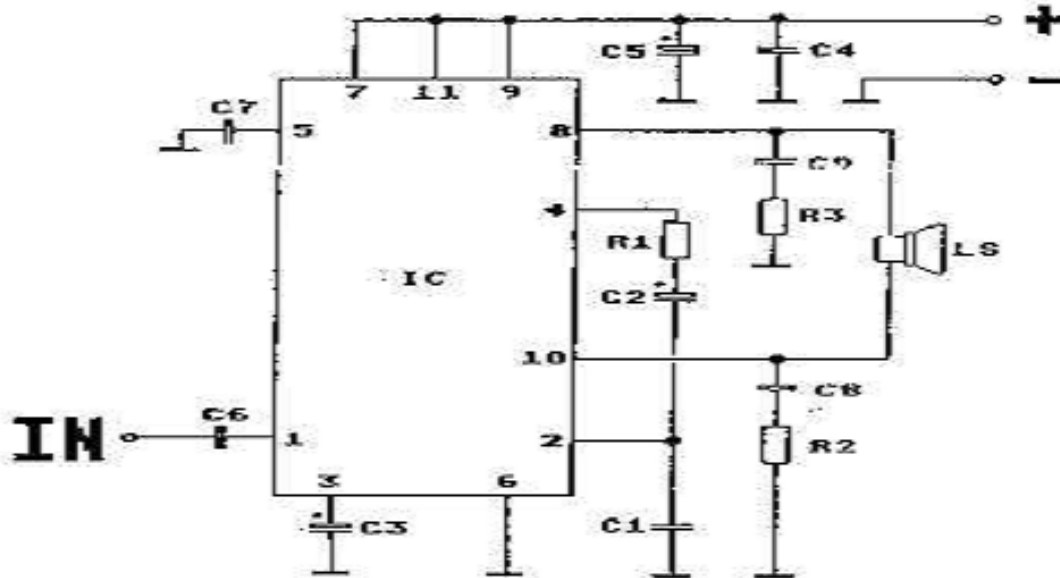
مكبر هاي فاي عالي الجودة بقدرة ٥٠ وات . جهد التشغيل للدائرة من ٦ فولت الى ١٨ فولت و أعلى تيار دخل ٣ أمبير وتعمل مع السماعات من ٤ اوم إلى ٨ اوم والنطاق الترددي للدائرة من ٢٠ هيرتز إلى ٣٠ كيلو هيرتز .

High-quality Hi-Fi amplifier including bridge circuit with IC. Power: 50W music, 30W sine. Operating voltage: 6...18 Volt. Current supply: max. 3A. For loudspeaker 4...8 Ohm. Sensibility: approx. 300mV. F: approx. 20...30.000 Hz. Required cooling element: approx. 10x4x2 cm (cooling fin). Please take special care while mounting the printed wiring board: The elcas have to be placed observing especially "+" and "-". The connections of the IC's have to be bent carefully with the aid of a flat nosed pliers onto the basic grid of the printed wiring board. The IC must be fixed at a cooling element (approx. 10x4x2 cm, not enclosed in the kit). The cooling element should be mounted insulated because of being connected electrically with the IC. That means, don't connect the cooling element directly with the housing etc.! It is possible to connect at this amplifier signal sources which show approx. 300mV output voltage (crystal record player, cassette deck, etc.). With a preamplifier (e.g. B073) it will be feasible to increase the sensibility up to approx. 1mV. In case you want to operate at this amplifier magnetic record players, it is necessary to connect an equalizing preamplifier (e.g. B074). For stereo operation it is necessary to connect 2 amplifiers, for each channel one amplifier. The amplifier produces with a 4 ohm loudspeaker approx. 50W and with a 8 ohm loudspeaker approx. 32W. The power supply must be well filtered (filter elcas approx. 4700μF) and, if possible, have a stabilized output voltage.

In case the current supply shows to be far too ohmic, the amplifier may oscillate or distort. Then, it is necessary to connect parallel to the voltage supply at the printed wiring board an elca with 1000μF 40V (between + and -).



LAYOUT AND TOP VIEW



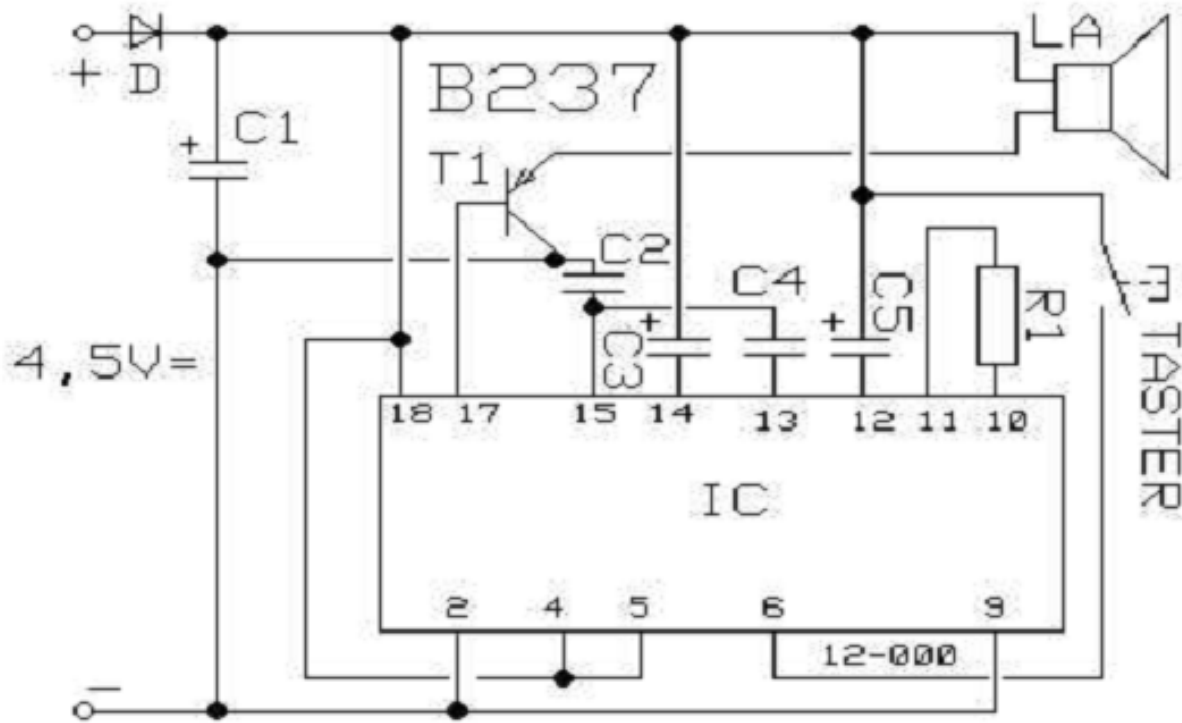
CIRCUIT DIAGRAM

32- 6-Melody Generator No. B237 دائرة توليد نغمات

في كل مرة يتم فيها الضغط على المفتاح يقوم مولد النغمات بتشغيل واحدة من اثني عشر نغمة مخزنة بداخله وتستمر تعمل من ١٥ إلى ٢٠ ثانية . جهد التشغيل للدائرة من ٣ إلى ٤,٥ فولت ، تستخدم سماعات من ٤ إلى ٨ اوم .

Every time after pressing the key, the melody generator plays one of the 12 stored melodies in succession. The melodies always play for about 15...25 seconds.

Operating voltage: 3...4.5V=. Required loudspeaker: 4...8 ohm. Use: doorbell, break signal, etc The board has to be assembled and soldered according to the parts list and assembly print. Please pay attention to the correct polarity of the electrolytic capacitors, the diode and correct installation of the IC (one side of the case has a notch). If possible, please use a 4.5 volt battery as operating voltage. When using a power supply, it must be absolutely a "stabilized" power supply! (Please check the tension.) Simple non-stabilized power supplies do often have a much higher output voltage at a low current load than indicated on the monitoring switch of the power supply. A voltage of more than 5V, however, will destroy the IC!! Please use a 4- or 8-ohm loudspeaker with rigidly suspended membrane (loudspeakers with soft rubber beading membranes are too low for this purpose). You may use any type between 0.25...5 watt. Of course, the loudspeaker has to be installed into a case in order to provide its full sound. One push-button 1 x ON can be connected to both "Key Button"-connections (not enclosed). When short-circuiting both contacts with the push-button, a melody starts and then stops automatically. When pressing the push-button again, the next melody starts etc. In case long cables shall be laid, you may extend the cable towards the loudspeaker up to max. 50 m and the cable towards the current supply may have a maximum length of 50 m, too. The cable towards the push-button, however, must only be 10 cm long at maximum! The reason for this is that the input of the IC at the push-button is highly resistive and electric disturbances from the outside (e.g. from running electric motors, lamps, etc.) may cause that the melody generator releases permanently and uncontrollably.



CIRCUIT DIAGRAM

Other circuits

1- 2 Watt Audio Amplifier دائرة تكبير ٢ وات

تعمل هذه الدائرة مع نطاق واسع من الترددات و تعطي مستوى أقل من التشويش ونستطيع أن نستخدم معها سماعات ٨ اوم بقدرة حتى ٥ وات مع تشويش أعلى نسبياً ونستطيع استخدام أي مصدر جهد من ١٢ إلى ١٨ فولت .

Notes:

This was one of the earliest circuits that I ever designed and built, in Spring 1982. At that time I had only an analogue meter and a calculator to work with. Although far from perfect, this amplifier does have a wide frequency response, low distortion, and is capable of driving an 8 ohm speaker to output levels of around 5 watts with slightly higher distortion. Any power supply in the range 12 to 18 Volts DC may be used.