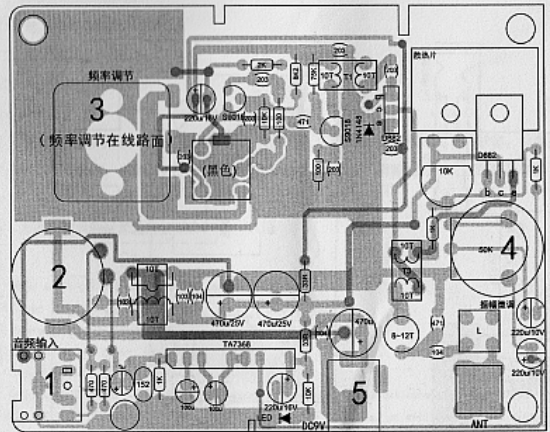


实验目的：了解高频信号产生、高频宽带功率放大、调幅发射调制原理

实验型发射机装配图



一、输入输出端子：

- 1—音源输入座：可为电脑、手机和MP4等。
- 2—音量调节旋钮：使用时须音量合适，过大可能会造成失真。
- 3—频点调节旋钮，可使频点调整在530~1600KHZ任一频点，最佳频点在1000~1600HZ，低于1000KHZ发射功率会有所下降，这是由于调谐回路引起。（成品板发货时的频点为1600KHZ，调试时可不调任何元件，中波收音机在1600KHZ左右则可收到信号）
- 4—调幅调制深度调节旋钮，调节旋钮可优化音质。
- 5—电源输入座 9V直流电，内正外负。
- 6—输出天线，家用时可接6米2.5平方毫米铜电线作为发射天线。

二、散件调试方法：

530KHZ 频点调试方法：

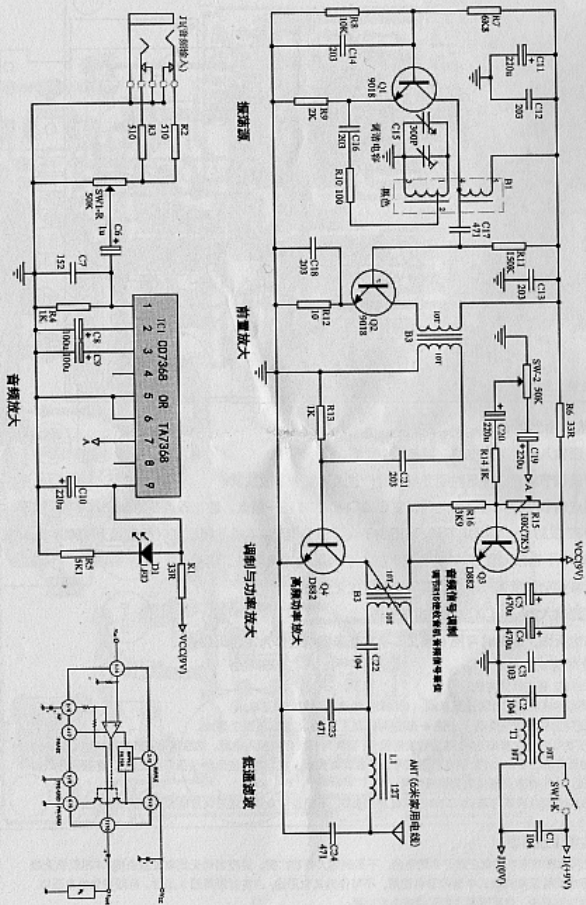
1. 将调台电容顺时针转动至尽端；(1600KHZ 频点则逆时针调至尽端)
2. 量将调制深度电位器（上述4）调逆时针调至尽端，此时调至深度最大。
3. 把收音机设定在530KHZ以接收发射信号，此时可将发射机接入电源，然后缓缓调节振荡线圈顶端磁帽，直至收音机在530KHZ频点收到信号。（若调试失败，应重新检查元件是否焊接正确），连接音频线加载音源，正常收音机则可收到调幅信号。

1600KHZ 频点调试方法与530KHZ 调试方法类似，不同是校准频点通过调台电容顶端的微调电容。

三、使用注意事项：

使用本大功率发射机应避开当地电台，不影响他人收听广播，遵守当地无线电管理条例。本机仅供无线电爱好者实验及测试老式中波收音机使用，不可作为其它用途；当发射距离超5米时，可降低供电电压以使发射功率减少，也可缩短发射天线减小发射功率。

实验型调幅发射机原理图
Schematic diagram of experimental AM transmitter



- 一、机器主要技术指标：
- (1) 输入电压：9V
 - (2) 整机电流：约 50mA
 - (3) 高频功率：约 400mW

二、关于波形：

Q1 及 Q2 甲类工作状态，用示波器测试为正弦波，无失真；Q3 及 Q4 在丙类工作状态，此类高频放大用示波器观测会有一些失真，但不影响载波的调制过程；用频谱分析仪测试波形完整、谐波成份小。

以下为国外买家测试的波形成果：

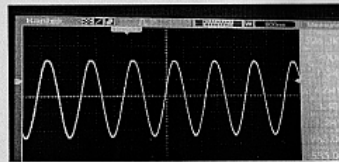
1、Main technical indicators of the machine:

- (1) Input voltage: 9V
- (2) Overall current: About 50mA
- (3) High frequency power: About 400mW

2、About waveforms:

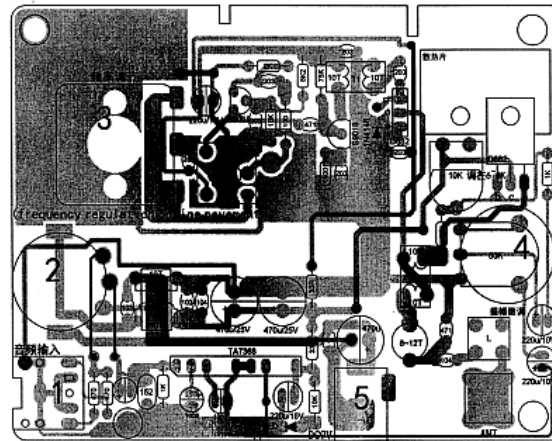
Q1 and Q2 are in class A working state, tested as sine wave with oscilloscope, without distortion; Q3 and Q4 are in class C working state, such high-frequency amplification will have certain distortion when observed with oscilloscope, but will not affect the modulation process of carrier wave; the test waveform is complete with spectrum analyzer, and the harmonic component is small.

The following are the waveform results tested by foreign buyers:



实验型调幅发射机配件发货清单(2020版)

包装分类	元件类型	类型	规格	数量
包装1	电阻 (1/6W)	固定		
		固定	33R	2
		固定	100R	2
		固定	470R	2
		固定	1K	4
		固定	2K OR 2K2	1
		固定	8K2	1
		固定	10K	2
	可调电阻	固定	75K	1
		可调电阻	10K	1
		双联电位器	50K (5脚)	1
	电容	旋钮音量	50K	1
		电解	1u (OR 2.2u)	1
		电解	100u	2
		电解	220u (10V)	2
		电解	220u (16V)	2
		电解	470u (25V)	3
		瓷片	471	2
		瓷片	103	2
		瓷片	203	7
		瓷片	104	3
		涤纶	152 OR 332	1
	电感	调谐PVC	AM	1
		共模电感	10T	1
		高频电感	10T (高频放大)	2
		高频电感	10T5 (滤波)	1
	二极管	发光	绿、绿、黄、黄	1
		整流	1N448	1
	三极管		S9018	2
			D882	2
	DC座		5.5mm	1
	音频座		带开关 黑	1
	天线座		四脚+垫片+螺丝	1
	调谐电容螺丝		调谐PVC螺丝	1
	本振		黑	1
散热片		铜色	1	
散热片螺丝		散热片	2	
散热片垫片		散热片	1	
集成电路		TA7368	1	
包装2		音频线	1	
包装3		主PCB板	绿色	
		元件总数	67	



1. Input and output terminals:

1-audio input seat: it can be computer, mobile phone, MP4, etc.

2-volume adjustment knob: the volume shall be appropriate when using, and excessive volume may cause distortion.

3-frequency point adjustment knob can adjust the frequency point at any frequency point of 5301600khz, the best frequency point is 10001600hz, and the transmission power will be reduced below 000khz, which is caused by the tuning circuit. (the frequency point of the finished product board is 1600khz when it is delivered, no components can be adjusted when debugging, and the signal can be received when the medium wave radio is around 1600khz)

4-am modulation depth adjustment knob, adjust the knob to optimize the sound quality.

5-power input base 9V DC, positive inside and negative outside.

6-output antenna: it can be connected with 6 W2.5 mm2 copper wire as the transmitting antenna for household use.

2. Commissioning method of parts:

530khz frequency point debugging method:

1. Turn the capacitance of the regulating station clockwise to the end of the terminal: (turn the frequency point of 1600khz anticlockwise to the end of the terminal)

2. Adjust the modulation depth potentiometer (4 above) to the full end anticlockwise; at this time, adjust it to the maximum depth

3. Set the radio at 530khz to receive the transmission signal; at this time, connect the transmitter to the power supply, and then slowly adjust the magnetic cap at the top of the oscillation coil until the radio receives the signal at the 530khz frequency point (if the debugging fails, check whether the components are welded correctly again), connect the audio line to load the sound source, and the normal radio can receive the amplitude modulation signal. 1600khz frequency point debugging method: similar to 530khz debugging method, the difference is that the calibration frequency point passes the fine-tuning capacitance at the top of the capacitance of the tuning table.

3. Precautions for use:

When using this micro power transmitter, it should avoid the local radio station, not affect others to listen to the radio, and comply with the local radio management regulations; this machine is only used for radio lovers to experiment and test the old medium wave radio, and can not be used for other purposes; when the transmission distance is more than 5 meters, the power supply voltage can be reduced to reduce the transmission, power, and the transmission antenna can be shortened to reduce the transmission power.