



MULTI Palm II

2M/FM

POCKET TRANSCEIVER

INSTRUCTION MANUAL

FDK **FUKUYAMA**
ELECTRONICS
TOKYO, JAPAN

FUKUYAMA

SPECIFICATIONS

Transceive Frequency Range	2MHz in 144-148MHz
Transceive Channels	6 Channels
Model of Operation	FM
Antenna Impedance	50 Ohms unbalanced, BNC connector
Power Requirement	12V DC (Negative Grounded)
Power Consumption	Transmit 300mA Receive 100mA Stand-by 25mA
Size	68 m/m (2-43/64) In. Width 154 m/m (6-1/16) In. Highness 41.5 m/m (1-41/64) In. Deepness
Weight	1.03 lbs (470g)
Repeater Offset	±600KHz
Modulation	Variable reactance phase modulation
Max. Deviation	±5KHz
Microphone	Condenser Microphone
Receiver	Double conversion superheterodyne (1st IF = 16.9MHz, 2nd IF 455KHz)
Sensitivity	-4dBμ (NO 20dB)
Audio Output	Maximum 0.3 Watts
Attachment	Rubber ducky antenna. Ni-cd battery pack. DC cable with cigarette lighter plug. Carrying strap.
Optional Attachment	Leather case CC-2 Battery charger BC-2 Ni-cd battery pack BT-2 Battery case BB-2 Crystal

CHARACTERISTICS

Palm-2 is a 2 meter FM Hand Held Transceiver designed for portable and single handed operation in the field use. The Palm-2 has competitive sensitivity with other mobile transceiver and delivers one watt output even though it is small size.

- **Build in Condenser Microphone**

Palm-2 uses high quality condenser microphone rather than a speaker microphone which is used in other manufactures hand held transceiver.

- **One Crystal System**

Palm-2 uses one crystal for receive and transmit in one channel. This system is very economical in case of purchasing the crystals for new channels.

- **Build in Ni-cd Batteries**

Palm-2 uses rechargeable Ni-cd batteries (12.5V, 225mA/Hr.) and can be charged within 15 hours by optional wall mount battery charger or charged by car battery (up to 80% of charge).

- **Antenna Connector**

Palm-2 uses BNC antenna connector, so it is easy to hook up to another antenna or dummy load.

- **You can operate Palm-2 anywhere**

- ★ **Field Use**

Its possible maximum 3-3/4 hours operation with build in Ni-cd batteries by ratio of 1 minute (TX) 1 minute (RX) and 8 minutes (Stand-by). Current drain 300mA at TX, 100mA at RX and 25mA at Stand-by.

$$\frac{\text{Battery capacity}}{\text{Average current drain}} = \frac{225\text{mA/Hr.}}{60\text{mA}} = 3 \frac{3}{4} \text{ Hours}$$

- ★ **Automobile**

You can operate Palm-2 with cigarette lighter plug in your car using attached DC cable.

- ★ **Home**

You can use Palm-2 with external power supply and antenna at home as a fixed station.

- Ni-cd batteries are fully charged when shipped from factory but it may have self discharged during storage.

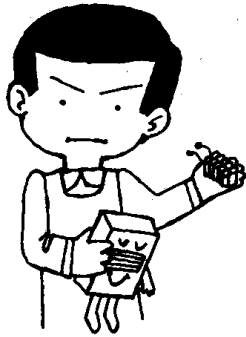
Please charge it before use.

- **Repeater Offset**

Palm-2 has $\pm 600\text{KHz}$ repeater offset capability.

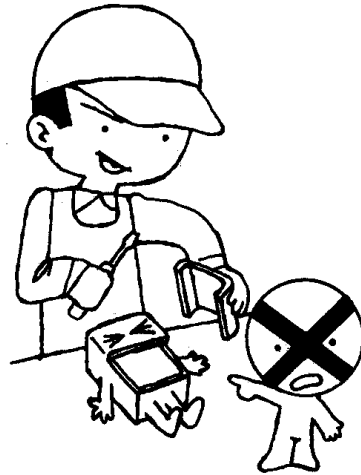
PRECAUTION

When you replace battery pack, be cautious for polarity of the battery.

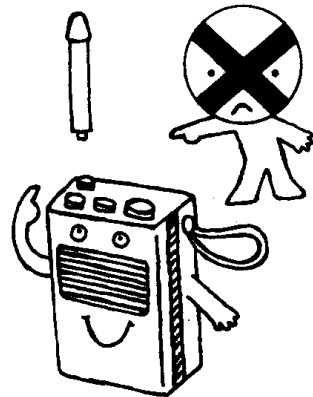


It is advisable not to open the cover often unless necessary for battery or crystal replacement.

The slugs and trimmers are arranged at factory, so it is not necessary to touch other than crystal trimmer.



Do not try to transmit without connecting antenna, No load transmission may give permanent damage to the final transistor.



BLOCK DIAGRAM

HOW TO ADD/REPLACE CHANNELS

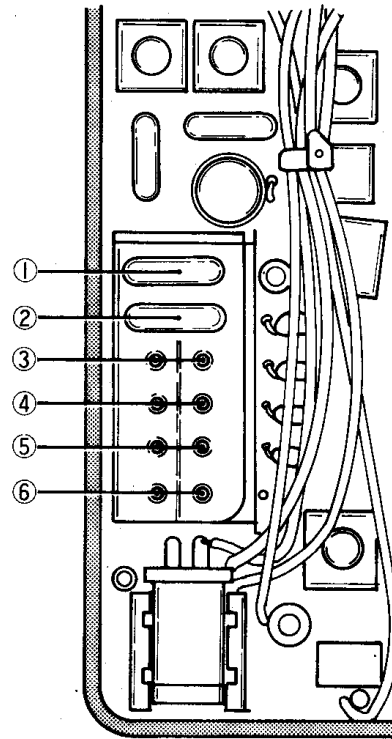
Open the front cover (refer to battery replacement procedure), and insert crystal.

Adjust trimmers (located under the rear cover) for oscillator frequency. Use frequency counter or other receiver which has centermeter.

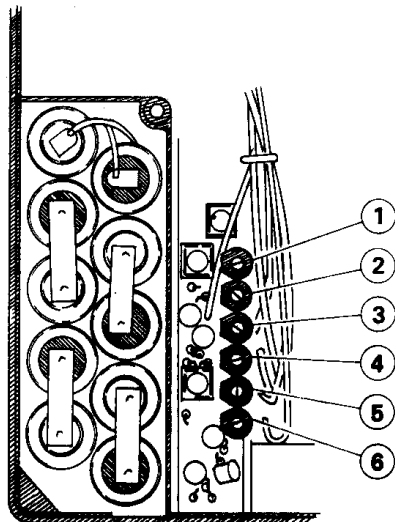
If you will order crystals other than FDK use following formula to calculate crystal frequency and specify 20pF load capacity with fundamental mode.

$$\frac{F(\text{receive MHz}) - 16.9}{6}$$

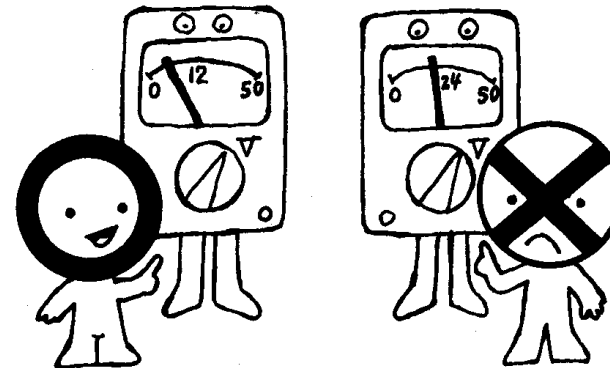
= Crystal frequency (MHz) of order



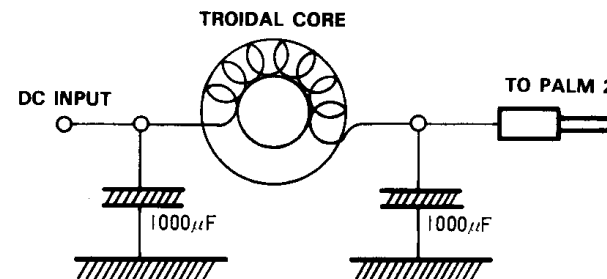
ADJUST THIS TRIMMER FOR OPERATING FREQUENCY



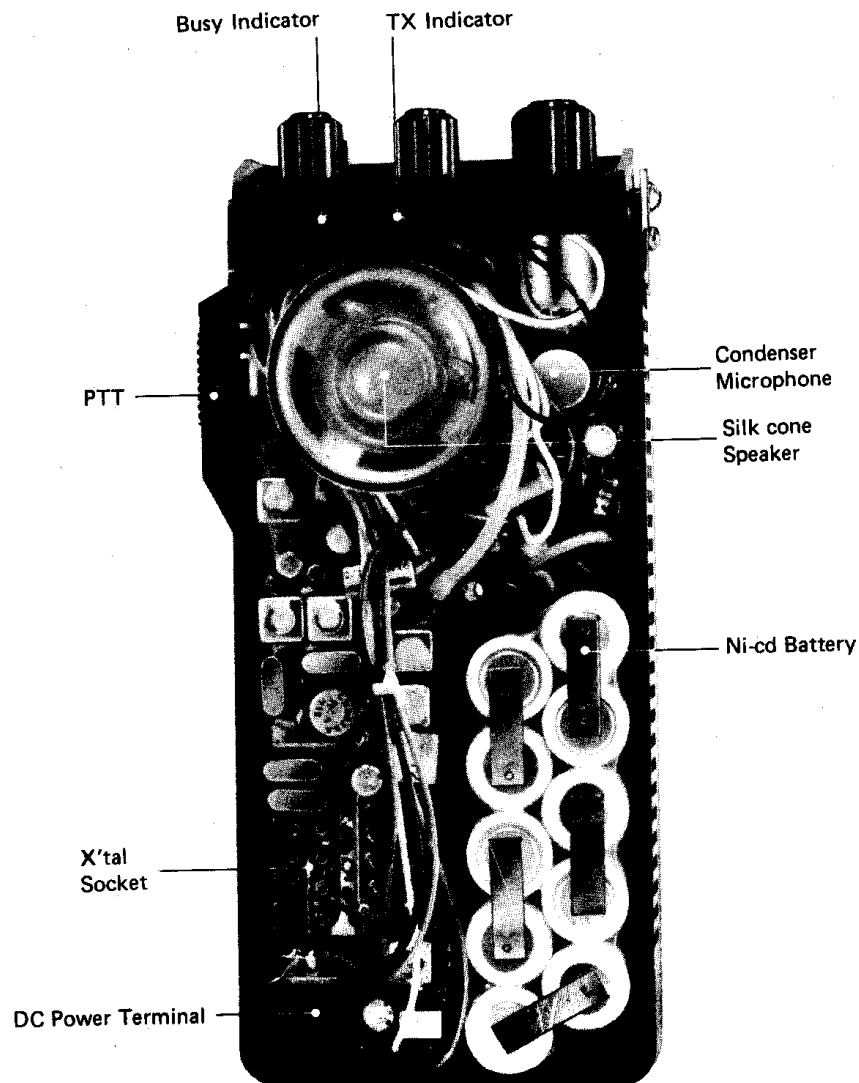
It is not recommended to use or store Palm-2 in high temperature or high humidity environment or explosive gas environment.



When you use Palm-2 in your car, make sure car is equipped with 12 volt negative ground system. Slight modification is required for 24 volt or positive ground system car use.



It is recommendable to insert a simple noise filter in order to remove alternator noise in your car.



■ **EAR** — Earphone Jack.

■ **ANT** — Antenna connector (BNC type)

■ **PTT** — Push to talk switch.

This switch needs steady pushing while transmit.

■ **Busy Indicator**

This indicator lights at signal reception.

■ **TX Indicator**

This indicator light when PTT switch is depressed.

If battery become discharged, the indicator will not light.

■ **DC Connector**

This connector is provided for external power supply or battery charger.

■ **Strap Mount**

This mount is for carrying strap mounting.

Operation Procedure

1. Insert battery pack.
2. Connect antenna.
3. Turn ON power switch.
4. Set volume control and Squelch control.
5. Select channel selector and set repeater offset switch.
6. Push PTT switch and talk.

OPERATION OF SWITCHES, CONNECTOR AND INDICATORS

■ ON-VOL — Power switch and Volume control.

Power will be turned OFF at fully turned to counter clock wise. Power will be ON at turn to clock wise and volume will increase clock wise turn.

The louder volume may consume more battery power.

■ SQ — Squelch control.

Set squelch control where you can not hear noise.

You need to adjust the setting point again if signal is not strong enough.

■ CH — Channel selector.

You can select channel 1 through 6.

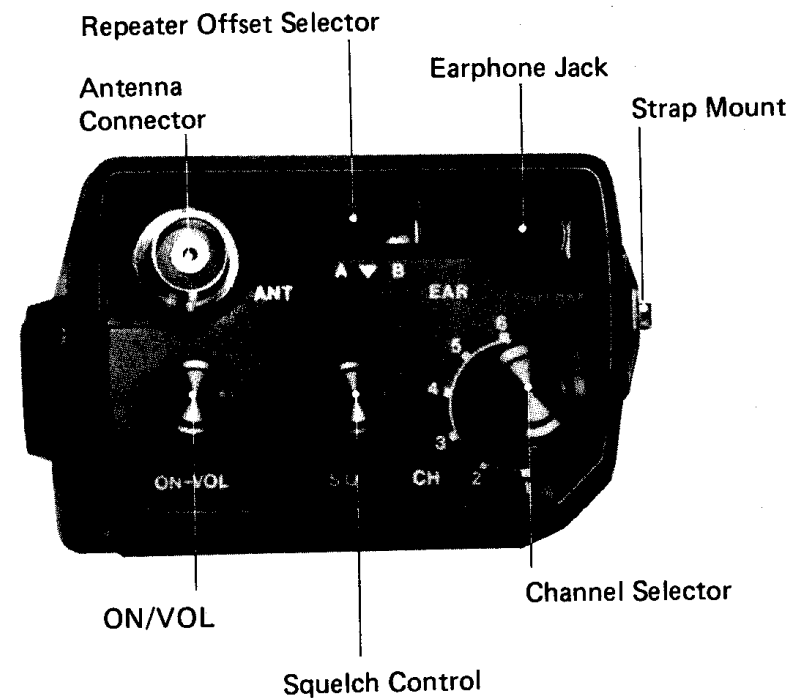
Do not turn this selector while transmitting.

■ A ▼ B — Repeater offset selector

A--Transmit frequency is 600KHz lower than receive frequency.

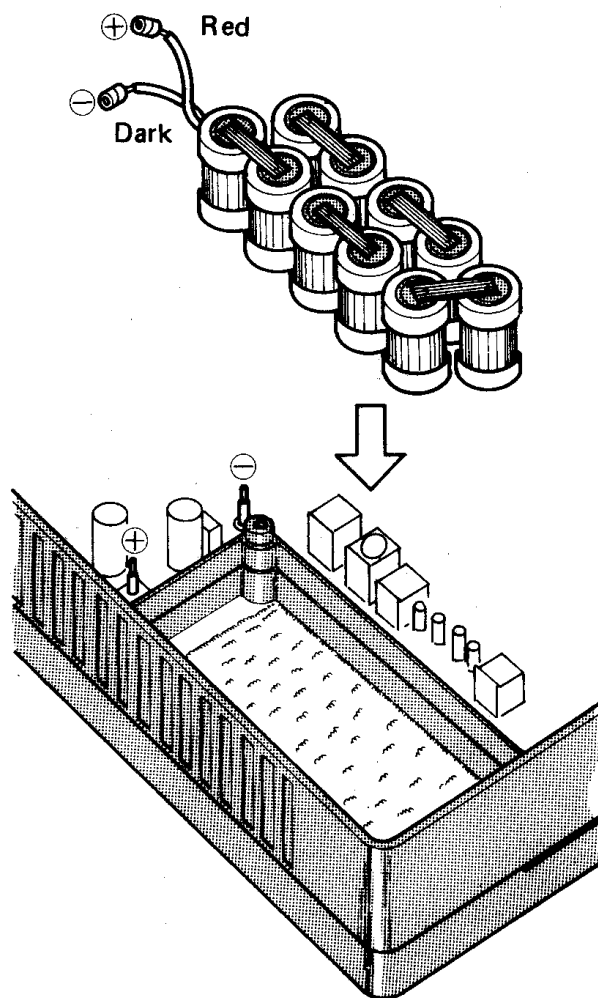
▼--Simplex.

B--Transmit frequency is 600KHz higher than receive frequency.



HOW TO INSERT BATTERY PACK

- Remove the screw in the middle of back cover
- Open front cover by twisting a dime in the lower back cover slot.
- Place a battery pack.
- Insert battery wire, first Red color wire to Positive (+) terminal then Dark color wire to Negative (-) terminal.
- Make sure connection is right before turn ON power switch.



HOW TO CHARGE A BATTERY

1. How to charge a battery

Use a battery charger BC-2.

It will take 15 hours for full charge of Ni-cd battery pack with BC-2. First turn OFF power switch on Palm-2 then plug charger cable to DC connector which is located lower end of Palm-2.

You should not charge more than 15 hours, over charging shorten the Ni-cd battery life.

If you turn Palm-2 power switch on while plugging battery charger, battery will not be charged.

Make sure you turn OFF power switch while charging battery.

2. Use other regulated power supply

Adjust maximum charging current is less than 22.5mA.

It will take 15 hours for full charge.

The plug fit for Palm-2 is 8 m/m diameter and connect outer sleeve to positive, inner conductor negative.

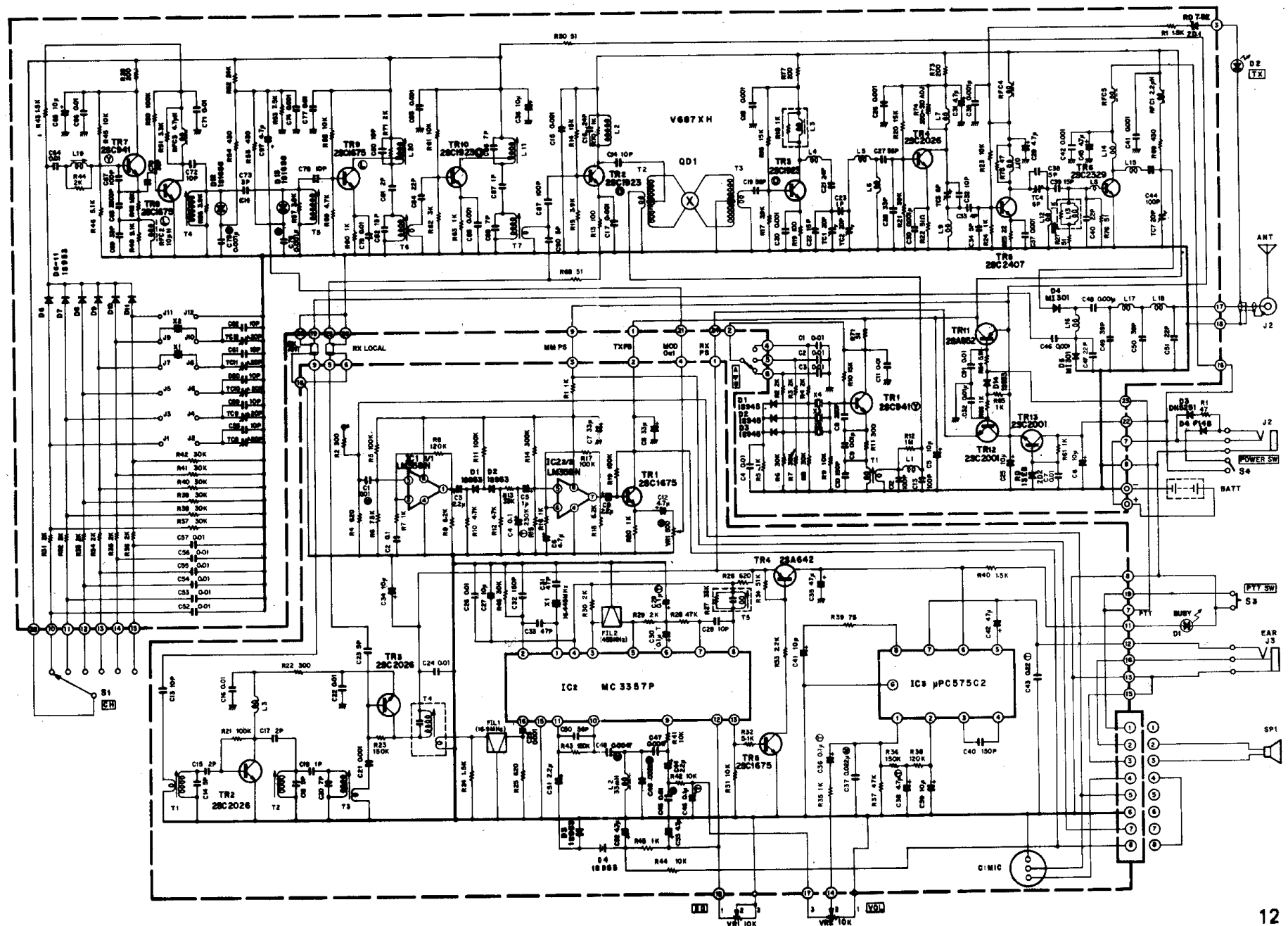
3. Use other manufacturers' battery charger

You can use other Ni-cd battery charger (14-15V DC) but make sure charging current is less than 22.5mA.

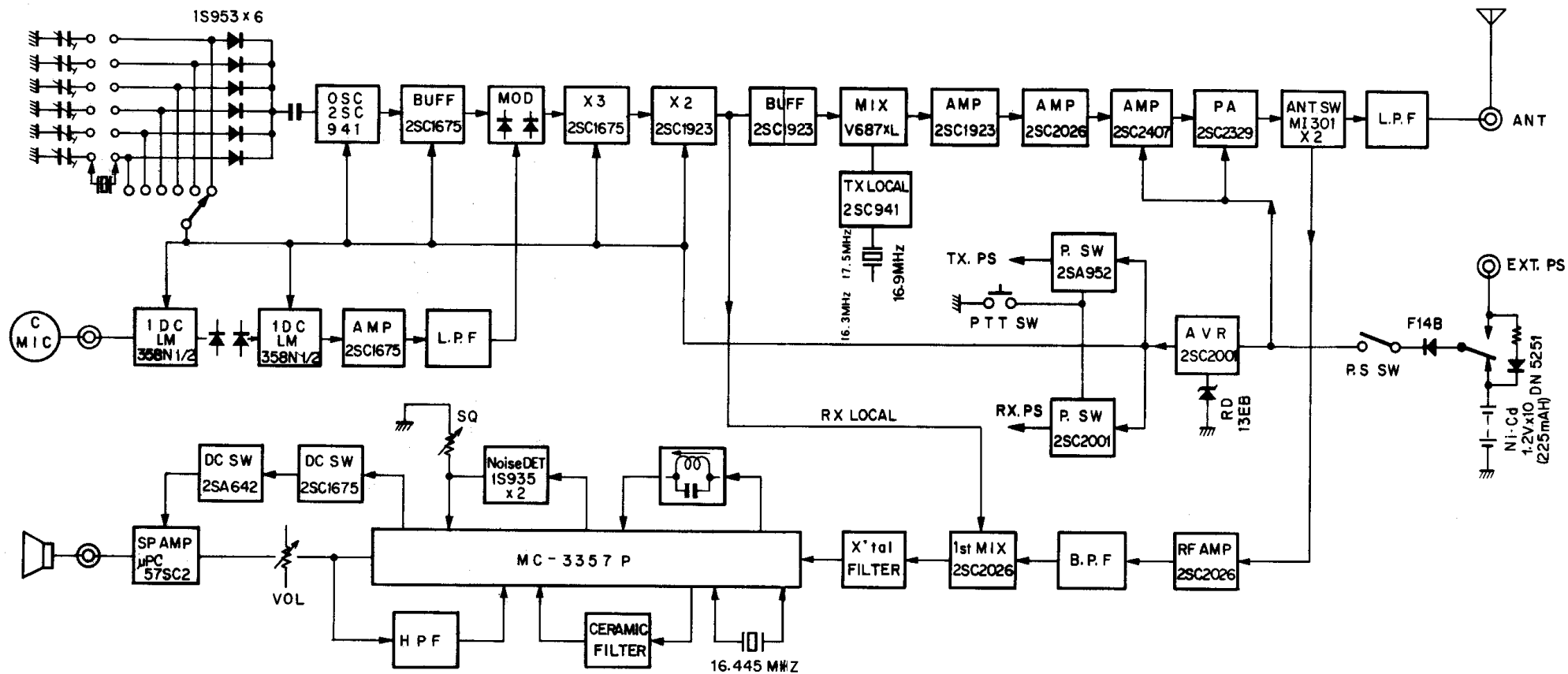
4. Use car battery

If you use attached DC cable and operate in your car battery will be charged up to 80% of full charge, but it is depend on DC system of your car.

CIRCUIT DIAGRAM



BLOCK DIAGRAM



CIRCUIT DIAGRAM

