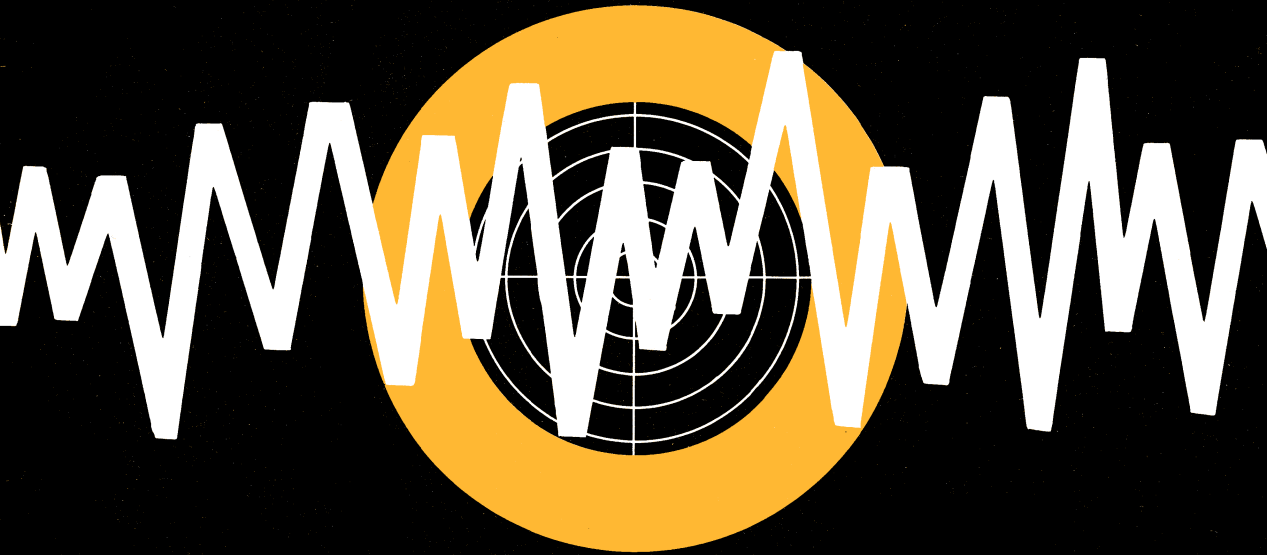


Operation Manual

apollo



AP400

Deluxe U.H.F. Transceiver

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Introduction

Thank you for selecting Apollo. We know you will find our transceiver as exciting as it is practical. Only the highest quality components are incorporated into your radio to assure reliability and maximum performance. The AP400 is manufactured by the world's largest transceiver manufacturer, Cybernet Electronics Corporation.

Installing and operating the AP400 is not complicated, but the flexibility provided by its many features may not be fully appreciated until a little time is spent becoming familiar with its controls and connections.

It will be to your advantage to save all the packing materials — carton, fillers, cushionings etc., they will prove valuable in preventing damage should you ever need to transport your unit.

Licensing Information

Operation of this equipment requires a valid station license issued by the P and T (Postal and Telecommunications Department). Do not transmit with your equipment until you have received your license. Be sure that you have read the P and T Form RB14 rules and regulations before operating your transceiver. Licensing application is to be made on a P and T Form RB13. A copy of this form is included with your new transceiver.

General Description

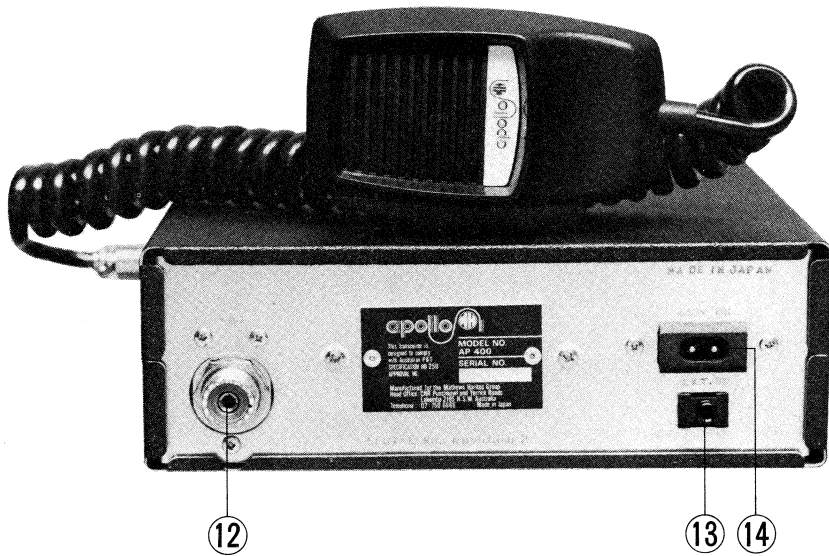
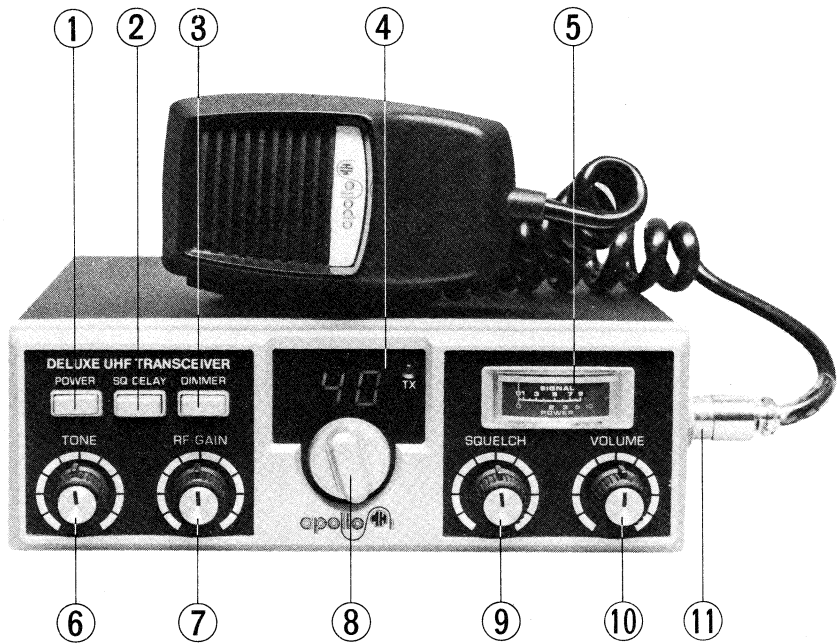
The AP400 is a unique, all solid state, professional quality transceiver providing 40 PLL (Phase locked loop) synthesizing system controlled FM channels on the Citizens Band of 476.425 to 477.400 MHz.

The transceiver also has many features such as delayed-action Squelch circuit, large illuminated SRF meter, Dimmer switch, R.F. Gain control, Tone control, Channel indicating L.E.D. All these make the AP400 very easy to use and most reliable.

We strongly suggest you read this operating manual carefully before operation so that you may receive the full benefits from your transceiver.

Operating Controls and Features

- 1 Power Push Button.** This turns the supply power on or off.
- 2 Squelch Delay Button. Normal (Button Out):** In this position the squelch acts in the prescribed manner under the Squelch Control Section.
Slow (Button In): In this position the control reduces the chopping effect of weak signals by holding the squelch open for a longer period of time.
- 3 Dimmer Push Button.** Permits you to adjust the intensity of the Channel Readout and S/RF meter. During daylight hours the intensity may be brightest (button out) and at night the intensity may be dimmed (button in).
- 4 Channel Indicator.** This is an LED (Light Emitting Diode) digital readout to show the channel you choose. TX lamp light up in transmission.
- 5 S/RF Meter.** Indicates relative incoming signal strength when receiving, and relative power output when transmitting.
- 6 Tone Control.** Controls the tonal quality in reception. Adjust for your preference.
- 7 RF Gain Control.** Controls the receiving sensitivity. To increase reception sensitivity, turn knob clockwise.
- 8 Channel Selector.** Controls transmitter and receiver frequencies simultaneously.
- 9 Squelch Control.** This control is used to eliminate any annoying background noise when no signals are present. The degree of sensitivity to incoming signals is adjustable. When the Squelch control is rotated to the fully clockwise position it provides maximum squelch; in the fully counter-clockwise position, it provides minimum squelch.
- 10 Volume Control.** Controls the sound output from the speaker when receiving. The volume control does not affect transmitting output.
- 11 Mic Jack.** Accepts push-to-talk microphone provided with the unit.
- 12 Antenna Connector.** Connects your antenna system to the coaxial antenna connector of the rear panel. Use of a 50 Ohm impedance antenna is recommended since this unit is designed to match a 50 Ohm load (antenna). For specification information of CB antennas that meet your specific needs please consult with your dealer from whom you purchased the unit. The antenna should be mounted as high as possible for longer communication range.
- 13 EXT. SP Jack.** Used for connection of an external speaker. This accepts a standard type 3.5 mm 2 circuit phone plug.
- 14 Power Socket.** For connection to power supply (13.8V DC).



Fixed Station Installation

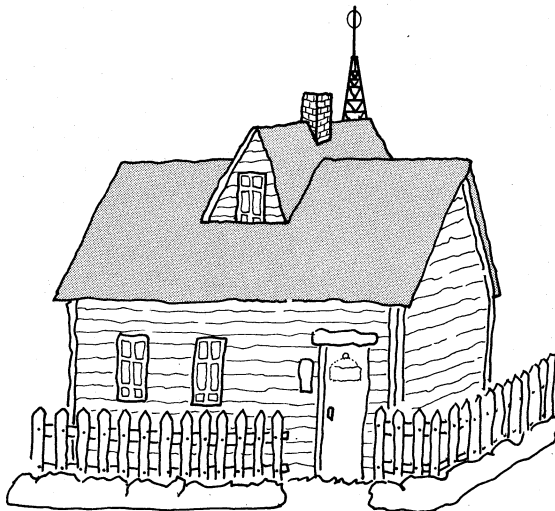
The operating voltage supply is to be connected to a 12V power supply (Red = positive pole, Black = negative pole of chassis). If the length of the power supply cable is to exceed the length supplied, cable with a larger cross section should be used. Next connect the antenna by plugging the connector into the socket on the rear of the transceiver and tighten. Preferably the length of the antenna cable should not exceed 10m.

Mounting of the base antenna must be carried out by experienced individuals and inline with the antenna manufacturer's directions. Applicable regulations should be observed at all times giving particular regard to antenna height, earthing, lightning protection, government height limits and safety.

The two types of antenna cable most commonly used in Australia are RG58U and RG8U. The dB loss with these cables is:

RG8U = 1.6 dB per 10 metres.

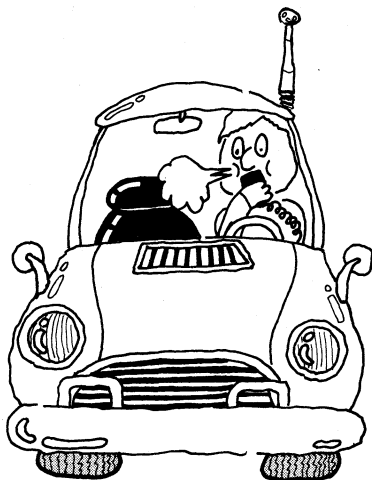
RG58U = 5.0 dB per 10 metres.



Mobile Installation

Plan the location of the transceiver and the microphone bracket before starting installation. Select a location that is convenient for operations and does not interfere with the driver or passenger in the vehicle.

In an automobile the transceiver is usually mounted underneath the dashpanel.



Mounting

The AP400 is supplied with a universal mounting bracket. The transceiver is held in the bracket by two bolts permitting adjustment at the most convenient angle.

The bracket must be mounted with the machine screws and nuts supplied. The mounting must be mechanically strong and also provide a good electrical connection to the chassis of the vehicle. Proceed as follows to mount the transceiver.

1 After you have determined the most convenient location in your vehicle, hold the AP400 with the mounting bracket in the exact location desired. If nothing interferes with the mounting in the

desired location, remove the bracket and use it as a template to mark the location for the mounting bolts. Before drilling the holes, make sure nothing interferes with the installation of these bolts. Avoid mounting close to heaters or air conditioners.

2 Connect the antenna plug to the standard receptacle on the rear of the panel. Most CB antennas are terminated with a type PL-259 plug and mate with the receptacle of AP400.

Power Connection

The Model AP400 is designed to be used in 12V DC negative or positive ground system. But if you are unsure of your vehicles polarity, ask your dealer or local service station.

Connect the power cable supplied to the Power connector on the rear panel in the following manner:

Connect the Red wire to the positive battery terminal.

Connect the Black wire to the negative battery terminal.

Note: To ensure proper operation, care should be taken in attaching the transceiver and mounting bracket to the car in such a way as to obtain good ground connection at that point.

Transceiver Servicing

If you install the transceiver, do not attempt to make any transmitter adjustments. All adjustments and servicing are best performed by returning the unit freight pre paid to Mathews Haritos Pty. Limited, Corner Punchbowl Road and Yerrick Road, Lakemba 2195, N.S.W. with a description of the fault or service required.

Operation

Caution: Do not transmit until an antenna or suitable dummy load has been connected to the coax antenna output jack.

- 1 Make sure that the antenna and power cables are properly connected.
- 2 Turn the unit on and adjust the volume to desired level.
- 3 Set the channel selector to a desired channel.
- 4 Adjust the squelch control.
- 5 To transmit, press and hold the push-to-talk switch on the microphone. Hold the microphone 2 to 3 inches from your mouth and speak in normal tone of voice.

To receive, release the push-to-talk switch.

UHF Channel Information

No.	Frequency in MHz	No.	Frequency in MHz	No.	Frequency in MHz	No.	Frequency in MHz
1	476.425	11	476.675	21	476.925	31	477.175
2	476.450	12	476.700	22	476.950	32	477.200
3	476.475	13	476.725	23	476.975	33	477.225
4	476.500	14	476.750	24	477.000	34	477.250
5	476.525	15	476.775	25	477.025	35	477.275
6	476.550	16	476.800	26	477.050	36	477.300
7	476.575	17	476.825	27	477.075	37	477.325
8	476.600	18	476.850	28	477.100	38	477.350
9	476.625	19	476.875	29	477.125	39	477.375
10	476.650	20	476.900	30	477.150	40	477.400

Technical Specifications

General

Frequency Range 476.425 to 477.400 MHz

Frequency Stability Meets P and T Specs

RB250 (3.5)

Duty Cycle 1 minute TX, 4 minutes RX

DC Power Source 11 to 16 volts (13.8 Volt nominal)

Current Drain RX Standby – 0.35 A

TX maximum modulation – 1.7 A

Antenna Impedance 50 Ohm

Dimensions 65-h, 190-w, 230-d mm

Transmitter

RF Output Power 5 Watts

Modulation 16 F3

Deviation 5 kHz (for 100% modulation with 1000 Hz signal)

Spurious Emission Meets P and T Specs 3.4 of RB250

Audio Distortion at 1000 Hz 10%

Receiver

Sensitivity (12 dB SINAD) 0.3 μ V

Selectivity at ± 25 kHz 60 dB

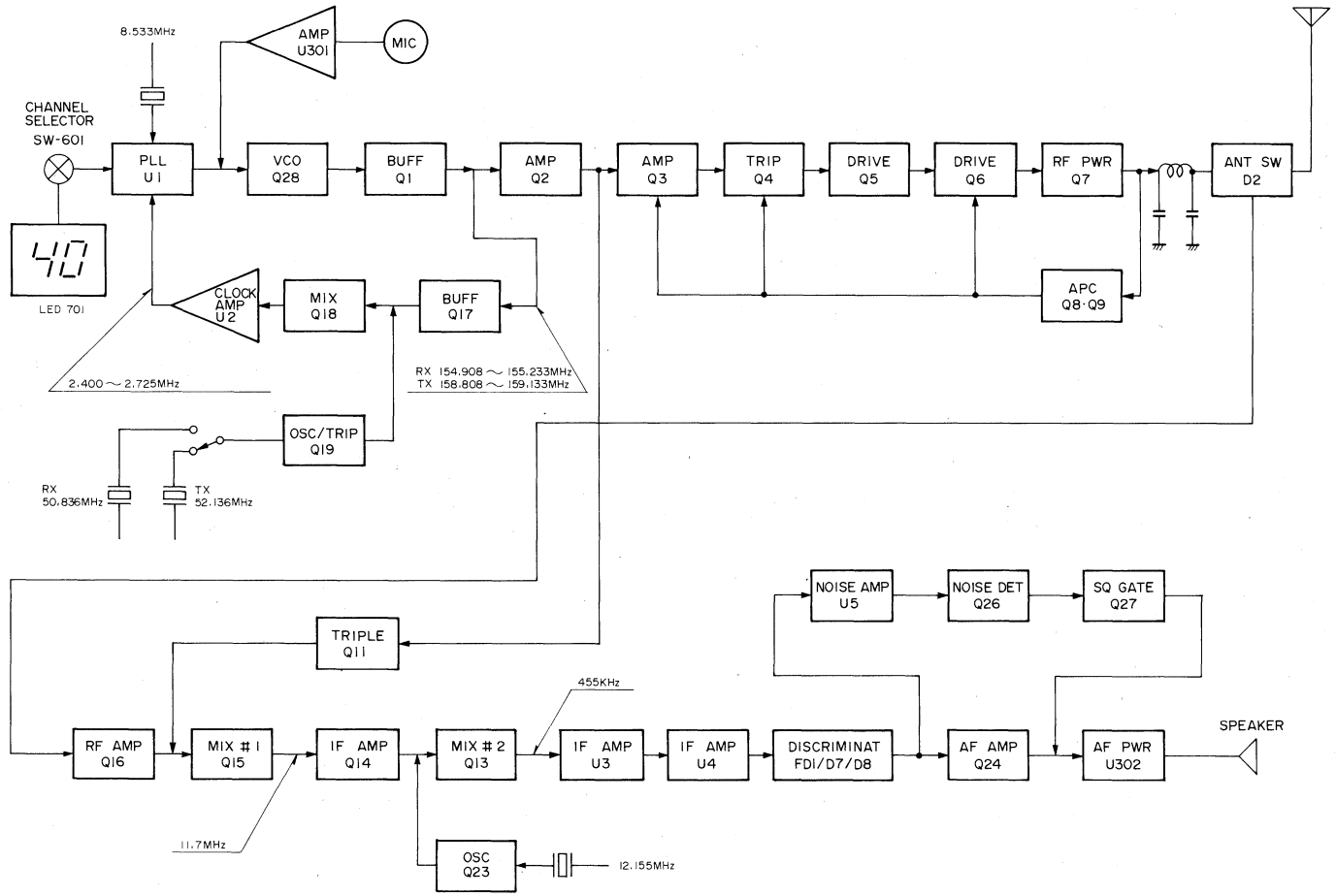
Spurious and Image Rejection 60 dB

Threshold Squelch Sensitivity Less than 1-dB noise quieting level

Tight Squelch Sensitivity Less than 2 dB

Audio Output Power at 10% Distortion 2 Watts for 8 Ohm

Receiver Radiation Meets P and T Specs 4.2 of RB250



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