COMMCHOICE

CIRCUIT DESCRIPTION

REMOTE TRANSMITTER

REF: Remote Transmitter Rev. C schematic

The transmitter frequency is generated by a voltage controlled oscillator (Q2) which is controlled by a dual modulus phase locked loop. The VCO's output is divided by 64/65 by divider U1, whose output goes to U2, a PLL controller. This frequency is compared to the PLL "reference" frequency, which is generated by an on board oscillator with an external crystal of +/- 25 ppm accuracy and stability. Any error pulses are filtered by U6 and U3, with the resulting DC error voltage applied to varicap Q1A, whose capacitance varies to control the frequency of the VCO. L3 is adjusted to set the control voltage (Q1A, pin 3) to approx. half the supply voltage. Variable capacitor C6 is used to precisely set the transmitter output frequency. The DIP switches set the nominal output frequency. The crystal is the only critical frequency control element.

The VCO's output also goes to buffer/driver stage Q10, which is fixed tuned approximately to the transmitter frequency to reduce harmonics. The transmitter RF output , Q4, has a tuned (C30), tapped resonant circuit to further reduce unwanted frequencies. The gate 2 bias on both these stages is switchable to reduce the output by approx. 3 dBc. The normal output is approx. 16 to 18 dBm.

On power up, the transmitter's output is not enabled until the PLL lock detect signal goes high and comparator U10A switches Q3 on, thereby applying the switched (6V) power to the output stages.

Modulation:

The microphone audio comes through a diode limiter into a compressor. R98A, at the compressor's output
sets the deviation (it is adjusted as the rear panel Mic. Level control, R98 is at maximum). The audio is then routed to the PLL through a preemphasis network.

A crystal controlled squelch tone in the range of 28 to 46 KHz is generated by U4/Y1 and is introduced to the same summing junction as the audio. R12 is adjusted for a modulation level of -22dBc.

REMOTE RECEIVER

The receiver is entirely shielded, to suppress local oscillator radiation. The receive antenna is isolated from
the LO by both a helical resonator (L7)and a tuned RF amplifier (Q7).

BASE TRANSMITTER

This transmitter is identical to the Remote, with the following exceptions:

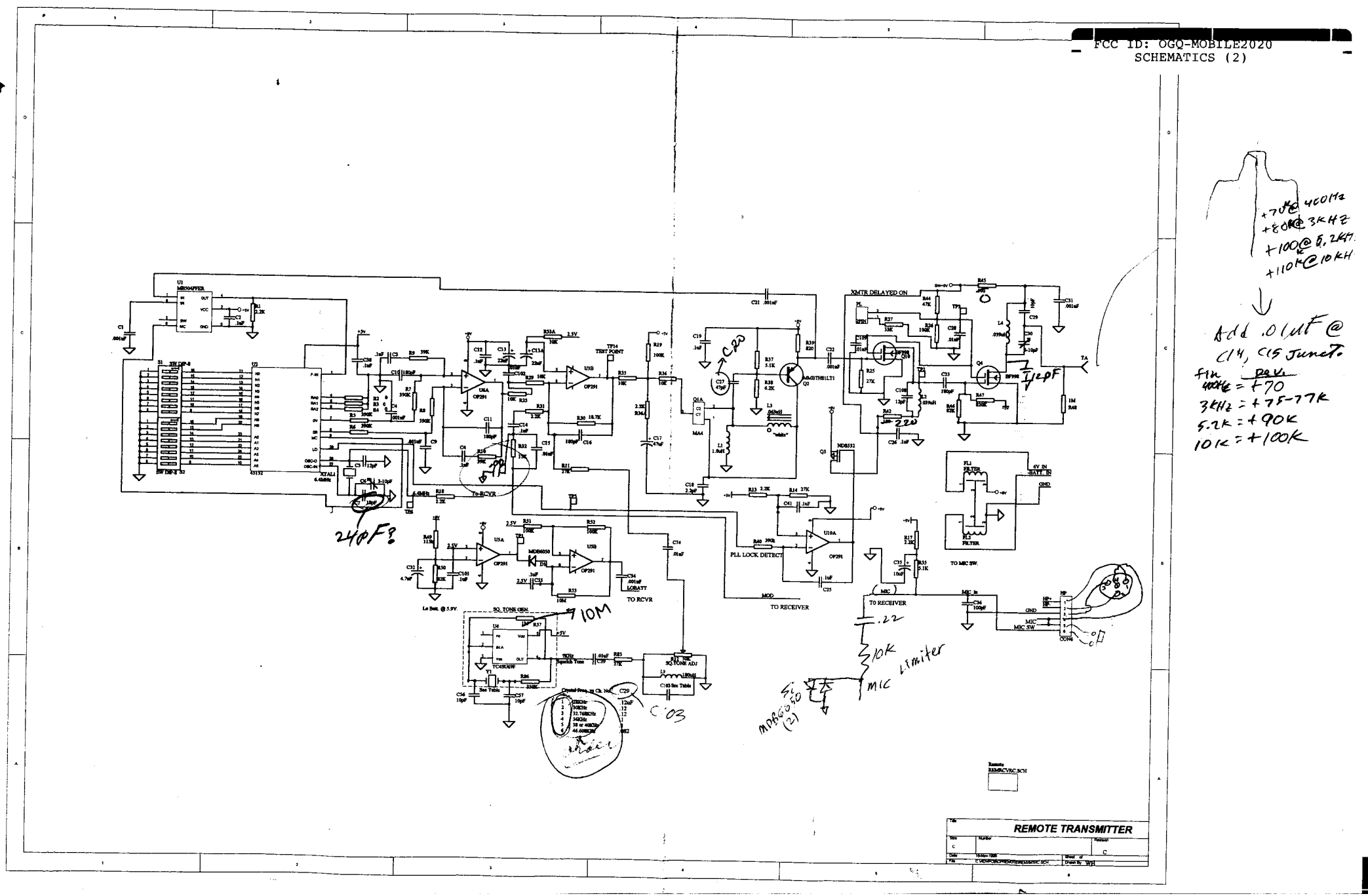
The transmitted squelch tone is 40KHz and is frequency modulated as a subcarrier audio at a level of approx. -20dBc.

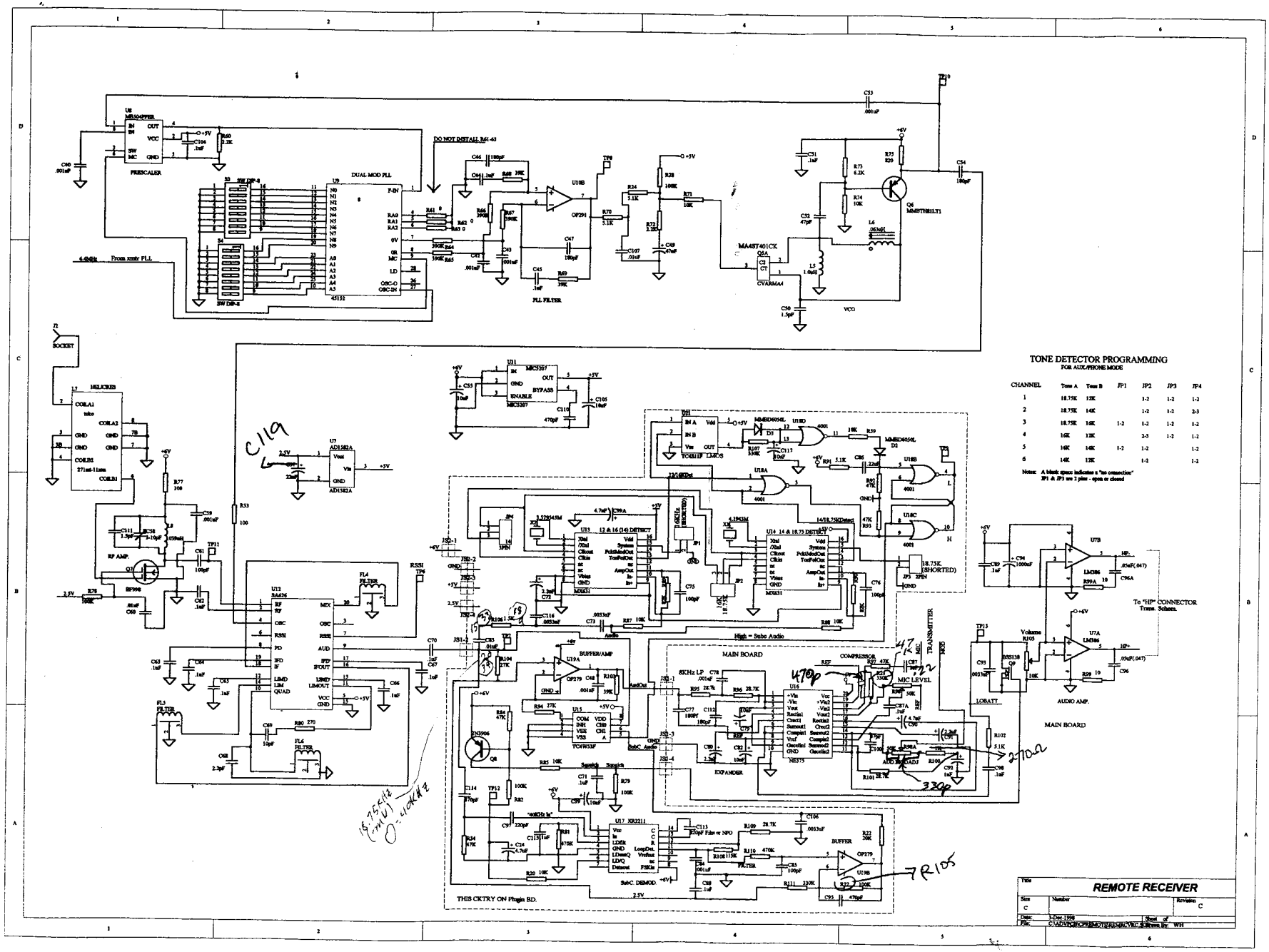
A fixed and a momentary control tone at approx. -15dBc are transmitted to place the selected remote into the
"aux." Mode.

BASE RECEIVERS

These six receivers are identical to the remote receiver, except for the tone detector and subcarrier circuits.

FCC ID: OGQ-MOBILE2020
SCHEMATICS (2)




PRESCALER
DUAL MOD PLL
DO NOT INSTALL R61-63
PLL FILTER
VCO
TONE DETECTOR PROGRAMMING
FOR AUI/PHONE MODE
CHANNEL | Tone A | Tone B | JP1 | JP2 | JP3 | JP4
1 | 18.75K | 12K | | 1-2 | 1-2 | 1-2
2 | 18.75K | 14K | | 1-2 | 1-2 | 2-3
3 | 18.75K | 16K | 1-2 | 1-2 | 1-2 | 1-2
4 | 16K | 12K | | 3-3 | 1-2 | 1-2
5 | 16K | 14K | 1-2 | 1-2 | | 1-2
6 | 14K | 12K | | 1-2 | | 1-2
Notes: A blank space indicates a "no connection"
JP1 & JP3 are 2 pins - open or closed
MAIN BOARD
TRANSMITTER
MOD
MIC LEVEL
AUDIO AMP.
To "HP" CONNECTOR Trans. Schem.
High = Subc Audio
THIS CKTRY ON Plugin BD.
REMOTE RECEIVER
Size C
Number
Revision C
Date: 4-Dec-1998
Sheet of
File: C:\ADVISOR\PCB\MOTHER\MOTVRC.SCH
Drawn By: WH