INSTALLATION OF AUXILIARY RADIOS TYPE 2 and 3 HELICOPTERS

VICTORIAN EQUIPMENT STANDARDS

1 GENERAL

1.1 The following sets out standards for the installation of auxiliary radios in aircraft used for Member operations.

1.2 It is emphasised that the Contractor is responsible for the fitting and installation of any auxiliary radio equipment, for the maintenance of any installation and for ensuring that the equipment continues to function. The Contractor is also responsible for obtaining any engineering orders and approvals, etc. that may be required.

2 AERIALS AND AERIAL MOUNTS

2.1 High quality 5/16 brass male thread of 26 TPI ("Australian Standard Mobile Base") type antenna bases must be used, unless an aircraft "shark fin" antenna is provided (cellular telephones excepted).

2.2 Where an aerial is provided by the Contractor, the effective "bandwidth", and the method of connection to the radio, must be approved by the Member.

2.3 Rubber washers and sealants must be used on bases to help provide a weatherproof seal to the airframe.

2.4 Bases must be belly mounted at or near the aircraft centre line in a position that will provide a 360 degree radiation pattern below the aircraft.

2.5 Siting must allow vertical polarisation of an aerial.

2.6 The clearance between the base and the ground (aircraft full load height) must be not less than 500mm.

2.7 The desired distance between other aerials mounted on the aircraft must be of a distance greater than 600mm.

2.8 All aerials must be sited to prevent damage from personnel and/or injury to any personnel during any hover exit operations (specific to Type 3 helicopters only).

3 AERIAL CABLING

3.1 Mil Spec RG 58 C/U type cable or electrically equivalent with attenuation no greater than 3.1 dB per 10 metres at 200MHz. Connections to be waterproofed as required.

3.2 Cable must be soldered to aerial mount.

3.3 Solder connection to mount must be waterproofed.

3.4 Cable(s) must be loomed to prevent abrasion to the cable or prevent fouling with mechanical linkages, pipes or flight control cables in aircraft.

3.5 Cable must be terminated at radio site with a BNC connector suitable for the type of cable (cellular telephone excepted).

4 RADIO LOCATION

4.1 Transceivers must be installed to allow easy access for maintenance or changeover purposes.

4.2 If transceivers are mounted in a locker or boot, adequate protection must be placed around the radio and associated cables to prevent either from being knocked or damaged and the ingress of liquids including oil and water.

4.3 Any excess cable length must be contained by cable clamps to prevent it from hanging and allowing it to be caught on items within lockers and boots.

4.4 Transceivers and control heads must not be exposed to direct sunlight.

4.5 Sufficient airspace or airflow for heat dissipation must be provided to the transceivers.

4.6 Transceivers, wiring and control heads must be sited to avoid any electrical or other interference from other aircraft components.

4.7 Control heads must be sited to allow the ergonomic operation by users and to protect from accidental knocks or abrasions.

4.8 An additional control head must be mounted in the rear passenger compartment at a location acceptable to the Member (applies to all Type 3 helicopters and Type 2 helicopters required to undertake rappelling operations).

> ***NOTE:*** *The mounting of the Member radio head should in no way impede the comfortable use and operation of the FLIR equipment.*

5 DC POWER

5.1 Regulated and filtered 13.8 volts negative earth/chassis DC supply to each radio from an outlet socket type MS 3102 16 S 4 S. Polarisation to be A+ and B-.

> ***NOTE:*** *The polarity of this plug is the reverse of the 24-28V DC supply.*

5.2 Each radio is required to be capable of 8 amps current capacity.

5.3 Power for radios should come from the radio supply bus of the aircraft with voltage being supplied from this bus through a switch and circuit breaker, of suitable current rating, marked “aux radios” (or “phone” if applicable).

5.4 Power cable to radio site will be a suitable aircraft approved wire, capable of supplying the required current without causing damage to or interfering with the operation of the aircraft.

5.5 Interconnection between the 13.8 volt supply socket and the transceiver will be via a fused lead and an MS 3102 16 S 4 P plug.

5.6 Power cable(s) must be loomed to prevent abrasion to cable or prevent fouling with the mechanical linkages, pipes or flight control cables in the aircraft.

6 AUDIO INTERFACING

6.1 Transmit and receive audio must be clear and of high quality without excessive distortion, noise or muffling. Audio quality must be acceptable to the Member.

6.2 All communication system sockets and drop leads must be capable of accepting a single pole / NATO U-174/U and/or U-93A/U or equivalent plug.

6.3 All flight helmets/headsets used by the pilots and crew must be interfaced to provide the correct audio level, and impedance levels, into, and out of the radio(s), as well as providing sidetone, from all transmit positions within the aircraft. This interface must be made to high electrical standards allowing for the harsh operating environment.

6.4 Balancing of audio levels for all communications must be carried out for all positions in the aircraft.

6.5 Receive audio of any auxiliary radios must be via the aircraft's normal audio selection box.

6.6 Transmit audio of any auxiliary radios must be via the aircraft's normal transmit control circuits.

6.7 PTT of any auxiliary radios must be controlled through the aircraft's normal PTT.

6.8 The ability for the pilot and co-pilot position and the position immediately behind the co-pilot, to transmit and receive on all radios installed in the aircraft.

6.9 Voice Activated (VOX) intercom capability for all positions.

6.10 A foot operated intercom / “push to talk” transmit switch fitted to the co-pilot position.

6.11 A hand operated “push to talk” transmit switch fitted to the dash in the co-pilot position.

6.12 A hand operated “push to talk” transmit switch fitted to the position immediately behind the co-pilot, preferably on a drop lead.

7 INSTALLATION

7.1 All work is to be carried out by suitably qualified personnel in accordance with standard aviation engineering practices and legislative requirements.

7.2 All plugs, sockets and connectors must be of high quality and positive locking which is acceptable to the Member.

7.3 All wiring and mounting hardware to be of high quality and acceptable to the Member.

7.4 All installation and wiring details are to be made available to the Member.

8 ACCEPTANCE AND TESTING

8.1 Authorised Officers of the Member’s Aviation Services Unit will check that the installation meets the Members requirements prior to an aircraft commencing a Service Period.

8.2 In addition to normal technical testing, acceptance testing is to include an operational transmit and receive check, conducted in flight, and must establish communication with a station at least 15 km from the aircraft.