



USER REQUIREMENTS FOR A HIGH-SPEED TARGET TOWING AIRCRAFT

RT61-2024

HIRING OF AIRCRAFT AND HELICOPTER TO THE STATE

1. SCOPE

This document serves as the specification requirement for the hire of civilian **high-speed target towing aircraft** for the Naval Weapons Analysis Section.

2. REFERENCE DOCUMENTS

The following documents form part of the specification to the extent specified herein. In the event of any conflict between the requirements of this document and the listed documents, the requirements of this document shall govern:

2.1 Military Publications

SANOP 46/1	Operational Acceptance Trials SA Navy FSG (Frigate small guided valour class) Skerpion Weapon System.
SANXP 4 C	Gunnery And Missile Exercise Manual.

3. REQUIREMENTS

Naval Weapons Analysis Section (NWAS) has a requirement for a high-speed target towing aircraft.

4. QUALIFICATIONS: HIGH SPEED TOWING AIRCRAFT

- 4.1 Aircraft Type: A jet aircraft capable of towing recoverable and non-recoverable lighted FKB's, Infra-Red (IR) FKB's and Low-Level High Keeping targets, Supplied by Air Affairs Australia, fitted with an Acoustic Miss Distance Indicator (AMD) supplied by Air Target Sweden, with parameters as listed below.
- 4.2 Aircraft Height: It must be able to maintain a constant altitude of up to 2000 meters (MSL).
- 4.3 Speed: It must be able to maintain a speed greater than 270 knots (TAS).
- 4.4 Range: It must have an operational range of at least 1000 nautical miles and Must be able to operate for at least 1 (one) hour (on task) per sortie.
- 4.5 Target: FKB, IR FKB and Low-Level High Keeping target fitted with an Acoustic Miss Distance Indicator (AMD) towed at a distance of up to 7100 meters behind the aircraft using the Marquardt MTR101 Reel
- 4.6 Winch: The aircraft is to have an underwing hard point capable of fitting the Marquardt MTR 101 Reel and mountings for non-recoverable targets.
- 4.7 The following specifications applies to the winch which is supplied by the SA Navy and operated and maintained by Air Affairs Australia:
 - a. A special type certificate (STC) as listed in the South African Airworthiness Standards. The contractor during the tender process must supply the STC for the pilots and aircraft.
 - b. The reel releasing speeds is between 200 to 300 knots (TAS).
 - c. Drag 2400 ft pounds (towing tension).
 - d. Electrical power: 28 V DC, 115V AC 50 Amps.
 - e. Weight 450 Kg without reel and cable.
 - f. Cable must be ACCA grade and up to 8000 meters long.
 - g. All relevant antennas to be fitted to aircraft for controller console.
- 4.8 Further requirements for the aircraft are as follows:

- a. The aircraft must be capable of conducting towing exercises and be capable of carrying three (3) participating naval representatives.
- b. The aircraft must be available for the full fourteen (14) day duration of, for example the Weapons Acceptance Program, with a response time of not more than 24 hours to be on task in the trial area.
- c. The aircraft must be capable to carry the marquardt reel and a high-speed target per sortie.
- d. The aircraft must be capable of operating over the sea to fifty (50) nautical miles (TAS).
- e. The aircraft must be fitted with radio equipment capable of communicating simultaneously with Air Traffic Control and units of the SA Navy.
- f. The SA Navy intends to make use of this aircraft primarily in the Western Cape or Durban area, but it must be available anywhere over land and around the coast of the RSA. Highest frequency of usage will be around the Simon's Town area.
- g. Frequency of usage will be at the discretion of the SA Navy and subject to availability and requirement of firing platforms.
- h. The aircraft has to be fitted with operational navigation radar.
- i. The aircraft is to be fitted with all equipment needed by the way of external hard points on the wings and all other necessary onboard equipment to provide the required service.
- j. The contractor must be insured for damages to civilian property whilst performing services for the DOD.

5 RESPONSIBILITIES

5.1 The contractor will be responsible for the following:

5.2 During any given sortie a crew qualified for target towing and winch operation shall fly the aircraft. As a minimum the contractor will be required to provide the following personnel:

- a. One Pilot in Command
- b. One second in command

- c. One Contractor's representative who may be the Pilot in Command
 - d. One certified Marquardt MTR 101 Reel operator.
 - e. The Contractor's representative shall be responsible for:
 - i. Interfacing between the SA Navy and the contractor and maintaining close liaison with the Project officers in matters regarding scheduling of the contractor's aircraft.
 - ii. The provisions of the contractor's flight crew with comprehensive mission information.
- 5.3 The contractor will be responsible for the storage and maintenance of said targets and Marquardt Reel (Supplied by the SA Navy and maintained by Air Affairs Australia) by suitably qualified personnel. The Navy shall supply the AMDI pods to the contractor prior to each exercise and uplift on completion.
- 5.4 The following is required from the contractor:
- a. Maintenance stand.
 - b. Forklift.
 - c. Dolly / Hydraulic lift (this is the spool and Reel lifting device).
 - d. Nitrogen Bottles with nozzle adapter.
 - e. Fuel (50/50 petrol and AVCAT) and refuelling equipment for the IR Targets.
 - f. All relevant test equipment and tools for the testing of the Reel and targets before deployment.
 - g. A factory engineer certified by Air Affairs Australia to prepare and mount reel and targets for deployment.
 - h. An engineer certified by Air Affairs Australia to rewind reel after use.
 - i. A factory certified engineer to fit the AMDI to FKB, IR FKB and Low Level High Keeping targets prior to deployment.
- 5.5 The Contractor is to supply certified proof of completion of scheduled maintenance by Air Affairs Australia of the winch system/targets to the SA Navy, SO Operational Test and Evaluation, within fourteen (14) days of completion of the maintenance. This report is to clearly indicate any variance from specifications and problems experienced or detected during maintenance.

- 5.6 The SA Navy reserves the right to have access to the Contractor's Premises at reasonable time for the purpose of verifying the number and condition of targets and winch system held at the Contractor's premises.
- 5.7 The SA Navy will not be responsible for any cost incurred by the Contractor for the storage and insurance of the targets kept at the Contractor's premises.
- 5.8 The Contractor shall, within 3 (three) months of the effective date of the contract (Contract Start Date) provide written proof to the SA Navy of having adequate insurance against fire and theft for all SA Navy property held by the Contractor on his premises or on the sites other than state property.
- 5.9 Targets lost during streaming/recovery operations shall be for the Contractor's account with the exemption of targets intentionally jettisoned due to aircraft emergency.
- 5.10 The SA Navy's Officer in Tactical Command of the exercise shall be informed by radio communication of the emergency and intention to jettison before jettisoning the target.
- 5.11 The SA Navy will be responsible for the following:
 - a. To inform the Contractor of the area in which the aircraft will be expected to operate and details of the flight schedule (including flight profiles) and radio frequencies.
 - b. The safe conduct of the exercise in accordance with current approved air safety regulations.
 - c. Informing the pilot of the aircraft of local weather conditions in the firing area at least one (1) hour before the scheduled commencement of the sortie.
 - d. Monitor the track of the aircraft for the duration of the sortie.
 - e. When the tracking platform is a warship, it shall provide a Search and Rescue capability within its means for the duration of the sortie. This responsibility does not relieve the Contractor from compliance with standard Civil Aviation regulations in this respect.
 - f. The SA Navy agrees to pay the Contractor for any spares as required due to unforeseen mechanical breakdowns beyond the normal maintenance schedule of the Marquardt Reel and associated equipment.

6 TECHNICAL DATA MISS DISTANCE INDICATOR AS 133 / 12U

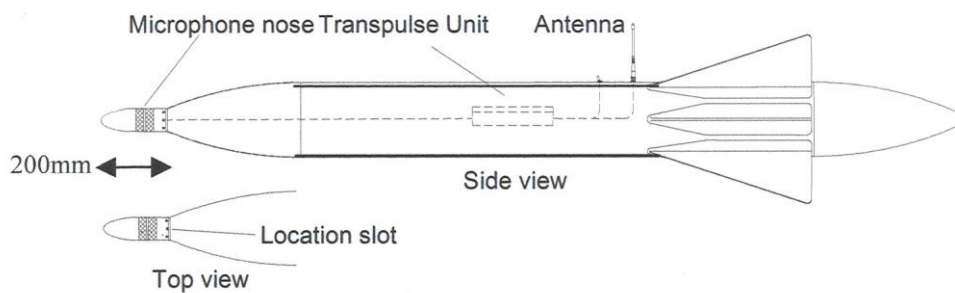
- 6.1 General:

- a. Power supply. 12 VDC Rechargeable Ni-Cd battery pack.
- b. Battery operational time. Min 6 hours at +25°C.
- c. Weight. Approx. 3 kg.

6.2 Transmitter:

- a. Carrier frequency. Fixed within 400 – 470 MHz.
- b. Carrier frequency deviation. 2.5 kHz.
- c. Modulation 2-level FSK 4800 baud.
- d. Radiated power. Min 0.8 W.

6.3 Typical installation of AS 133 / 12U:



7. RESTRICTED USE OF TARGETS

- 7.1 The use of the winch system/targets is restricted to the use of the SA Navy only. If required to be used by other Departments or concerns, prior approval from the Department of Defence, and specific, the SA Navy's SO Operational Test and Evaluation is to be obtained.

- 7.2 When in use by other participating Departments or concerns, damage to or loss of the targets shall be for that participating Departments or concerns account.