

Chapter 5

ROTARY WING (INTEGRATED WEAPON SYSTEMS) ENGAGEMENTS

GENERAL

0501. **Aim.** The aim of this chapter is to detail the procedures for the planning and conduct of Rotary Wing Integrated Weapon Systems (RW(IWS)) engagements on Defence Land Ranges.

0502. **Definition.** Integrated Weapon Systems are those that are either permanently attached or appended to the Helicopter. These weapon systems are remotely operated by the pilots/observer. If weapon systems are not remotely operated then Chapter 4 applies.

0503. **Lead.** The Rotary Wing Air to Surface Working Group is the lead for coordinating the MOD procedures for RW(IWS) engagements. As the Defence Competent Authority, Joint Helicopter Command Headquarters (JHCHQ) provides the Chairman and Secretary for the Rotary Wing Air to Surface Working Group (RWASWG) which reports through the Air to Surface/Surface to Air Working Party (ASSAWP) to the Defence Land Ranges Safety Committee (DLRSC).

0504. **Responsibility.** JHCHQ is the Defence Competent Authority for all RW(IWS); the following Services have responsibility for integrated weapon systems:

- a. Director Army Aviation (DAAvn) is the Competent Army Authority and is the awarding body for Army RWIWS range qualifications (M230E1 Area Weapon System; CRV-7 Aerial Rocket System; AGM 114K/L (SAL/RF) Hellfire).
- b. CINC FLEET ACOS AV is the Competent Naval Authority and is the awarding body for FLEET RWIWS range qualifications (Air to Surface weapon - Sea Skua; Anti-Submarine weapons - Torpedoes and Depth Charge).

0505. **Ranges.** Air to surface live firing using RW(IWS) is only to take place on ranges operating within the constraints of JSP 403.

SAFETY

0506. The safety of personnel, property and livestock is paramount and the ultimate responsibility for the safe conduct of live firing practice resides with the Range Conducting Officer:

- a. **Clear Range Procedure.** Steps are to be taken, in so far as is reasonably practicable, to ensure that the Range Impact Area/Zone is clear of unauthorized personnel, livestock and traffic before firing or hazardous training commences; and that it remains clear for the duration that the hazard exists. Sentries, vedettes, radar, closed circuit television surveillance, or a combination thereof, may be used to satisfy clear range procedures. These measures will be laid down in Range Standing Orders; the ultimate responsibility for the safe conduct of the live firing practice resides with the Range Conducting Officer.
- b. **Ballistic Safety Traces.** Only Weapon Danger Areas (WDA) / Hazard Impact Area Trace (HIAT) recommended by the Defence Ordnance Safety Group (DOSG) and authorized by the relevant Integrated Project Team Leader (IPTL) may be used in addition to any further requirements in the relevant Service

overriding document.

- c. **Laser Safety.** Lasers are only to be used in accordance with the direction given by the IPTL. Further details are in Chapter 2 of this volume and in Volume I, Chapter 9 of this JSP series.

RANGE CONTROL

0507. All RW(IWS) air-to-surface engagements are to be approved by the Range Safety Officer (RSO). On dedicated Air Weapons Ranges (AWR) this duty is performed by the Range Safety Officer (Air Traffic Control) (RSO(ATC)).

- a. **Exercise Director.** It is the responsibility of the Exercise Director (i.e., the person who directs that firing is to be carried out) to appoint the Planning Officer, the Senior Range Conducting Officer (Senior RCO) if one is required and the RCO and Safety Supervisors (SS). In doing so the Exercise Director is to ensure that they are competent and:

- (1) Of sufficient experience to match the complexity of the exercise. For example, in the case of a large-scale exercise incorporating a number of supporting weapons/arms it would be appropriate to nominate a qualified and experienced officer of field rank to be the Planning Officer/Senior RCO.
- (2) Suitably qualified or authorised.
- (3) Given the Training Objectives (TOs) and Enabling Objectives (EOs) to be covered, or the scope of the training, and sufficient time to plan and conduct the firing correctly.
- (4) Given guidance on, and provided with the resources and manpower to be able to plan, conduct and supervise the firing. This includes the specific provision of Safety Supervisors.

- b. **Planning Officer.** The Planning Officer is the Officer, Warrant Officer or Senior NCO who is appointed by the Exercise Director and is responsible for the planning of the exercise. This will include the definition of the firing area, arcs of fire, permitted ammunition natures, target siting, safe location of all weapon firing positions and the production of a detailed written exercise instruction. If as a result of this detailed planning the Planning Officer considers there are insufficient resources or manpower available and in particular qualified safety staff, then the Planning Officer is to refer the matter back to the Exercise Director for a decision. The Planning Officer is to be qualified, current and competent and may, or may not be, the Senior RCO or RCO. The Planning of all aspects of firing must be meticulous and HIAT/WDA templates must be produced for each weapon type. The qualified personnel responsible for the supporting weapons are to hold the appropriate HIAT/WDA templates. This activity will need to be co-ordinated by the Planning Officer who is then responsible for compiling the overall exercise trace showing the danger area of all weapons involved in the exercise. The overall exercise trace and written instructions are then to be submitted to the range control authority by the Planning Officer who will liaise with them as necessary. In order to discharge these duties correctly the Planning Officer will need to consult all relevant publications applicable to the exercise.

- c. **Senior RCO.** An overall Senior RCO, who is qualified, current and competent will

c. **Senior RCO.** An overall Senior RCO, who is qualified, current and competent will be appointed by the Exercise Director whenever supporting arms (e.g., Artillery, Armour, Infantry Support Weapons, Fixed Wing Aircraft or Engineer assets) are incorporated into the firing exercise. The Senior RCO is to conduct briefings and rehearsals for all Unit safety staff and Range Staff as necessary. Subordinate RCOs for all weapon systems are to be present and are to be thoroughly briefed and have a clear understanding of all aspects of the exercise plan.

d. **RCO.** The RCO is appointed by the Exercise Director to be responsible for the safe conduct of the firing as specified by the Exercise Director in accordance with the relevant Single Service regulations; he may also be the Planning Officer. The RCO is to be qualified, current and competent. For large exercises or those involving supporting arms and/or Infantry support weapons the RCO may be one of several subordinate RCOs reporting to the Senior RCO. During the conduct of the firing it is essential that all subordinate RCOs be sited so as to maintain effective communications with, and control of, their respective elements. They are to be in contact with the Senior RCO at all times. At the direction of the Exercise Director, or in accordance with the relevant Service instructions, the RCO may be assisted by a number of Safety Supervisors.

e. **Aircraft Commander.** The Aircraft Commander is responsible for issuing fire control orders and controlling the fire of his aircraft, as directed by the RCO/RSO(ATC) in accordance with Range Standing Orders. During the conduct of the firing it is essential that effective communications are maintained with the RCO/RSO(ATC). The Aircraft Commander is to be qualified, current and competent in accordance with the relevant single Service regulations.

f. **Safety Supervisor.** The level of supervision required for a particular exercise/range practice is to be determined by the Exercise Director. The minimum level must not be less than what is stated in the relevant Single Service regulations. Safety Supervisors are responsible for the safe conduct of firing as directed by the RCO or RSO(ATC) in accordance with range instructions. Safety Supervisors are to be qualified or authorised, current and competent in accordance with the relevant single Service regulations.

g. **Arming Area Safety Officer (AASO)¹.** The AASO of the practising unit, who is normally a SNCO, is to ensure that:

(1) All personnel involved in the loading and unloading of RW(IWS) ordnance have been tested in accordance with the relevant Air Publication (AP) and their Training Records are suitably endorsed.

(2) All ordnance is loaded onto the aircraft correctly with all weapon management switches SAFE, in accordance with the relevant AP.

(3) The Ammunition Technical Officer (ATO) inspects all missiles and rockets as they are unpacked, and that any 'dropped' ordnance is reported to ATO immediately.

(4) Both flight and general safety are not compromised in the weapon loading area. The movement of all personnel is to be carefully controlled.

¹ Within Army Aviation this role is conducted by the FARP Commander for operations and live fire training. During live fire training the FARP Commander conducts operations in co-ordination with the RCO

(5) It is advised that Aircraft are not refuelled at any time with live missiles, rockets, chaff or flares loaded. However, if it is required to be conducted for training purposes, it must be carried out in accordance with the specific to type Service Deviation and/or Military Aircraft Release.

(6) Loading of ordnance, with or without rotors turning, is carried out only after all servicing including refuelling is complete. Aircraft are loaded facing the safe heading.

h. **Forward Air Controller (FAC).** At tactical ranges, firing clearance may be given by a suitably qualified FAC , although the RCO remains responsible for the safety of the live firing practice.

i. **DE&S/TEST Ranges.** Range control at DE&S/TEST (contractor operated) ranges will be in accordance with the relevant Range Standing Orders and, where appropriate, the Trial Specification.

j. **Air-to-Surface Firing.** Air-to-surface firing entirely over the sea in other than designated ranges is to be conducted in accordance with single Service regulations.

GENERAL ORDERS AND CONDUCT

0508. The RCO will be responsible for the planning, preparation, briefing, safe conduct and supervision of air to surface live firing practices.

0509. The RCO will ensure that:

- h. A suitable range is identified, booked and liaison established.
- i. The RSO/RSO(ATC) has access to the relevant WDA/HIAT.
- j. The WDA/HIAT has been applied to the satisfaction of the Range Staff for that range.
- k. The firer has completed all appropriate training.
- l. A full safety brief is given to all those who will be on the range during the firing period.
- m. A detailed range brief and air gunnery exercise safety brief is conducted. As a minimum, these briefs should include the following points:

Weapon Safety

Laser Safety

Communications

Voice Procedures

Range clearance

Maximum height & speed of aircraft.

Circuit Patterns/Profile

Movement box and firing line identification

Dry/Live/Hot Runs

Arcs & Arc markers
Refuelling location
Loading
Arming
Firing
Targets
Stop actions
Actions on - Weapons Misfires/Stoppages
Limitations
Emergencies
Debrief and Reports
Accident/Incident Procedures

n. An armourer and/or AT is to be either present or available in accordance with regulations applicable to the weapon type.

0510. The following conditions apply to all air to surface RW(IWS) live firing on to ranges:

- a. Weapon management switches are to be kept in a SAFE condition until the aircraft is in such a position that any deliberate or accidental firing would result in all munitions impacting in the RDA.
- b. The weapon is not to be selected to LIVE until a clearance has been given by the RCO or RSO(ATC).
- c. Weapons may not be fired until the correct target has been positively identified and confirmed by the firer and confirmed with the RCO or RSO(ATC).
- d. Weapon management switches are to be selected to SAFE immediately after each weapon engagement.
- e. It is the responsibility of the aircraft Commander to ensure that the maximum height and speed stipulated for the WDA/HIAT are not exceeded.

0511. **Laser.** Non-eye safe lasers are to be treated as live weapons since direct, diffuse, wet target and specular laser reflections can be dangerous. Further details are in Chapter 2 and in Volume I, Chapter 9 of this JSP.

COMMUNICATIONS AND CONTROL

0512. **Radio.** Radio calls are to be in accordance with Reference S. Definitions of standard terminology used on ranges are given in Annex A to Chapter 7. Calls may be classified as mandatory or advisory.

- a. **Mandatory Radio Calls.** The following occurrences are to be requested or reported:

- (1) Joining the range – requested by aircraft Commander.
 - (2) Clearance to join – given by RCO or RSO(ATC).
 - (3) Clearance to use the laser – given by RCO or RSO(ATC).
 - (4) Clearance to live fire – given by RCO or RSO(ATC).
 - (5) Stopping of live firing – given by RCO or RSO(ATC).
 - (6) Confirmation that weapon management switches are SAFE on departure – given by aircraft Commander.
 - (7) Passing of essential traffic information and precautionary warnings – given by RCO or RSO(ATC).
- b. **Advisory Radio Calls.** It is only advisory that the following information is transmitted:
- (1) Aircraft position on the range – given by aircraft Commander.
 - (2) Weapon scores – given by RCO or RSO(ATC).
- c. **Loss of Communications.** In the event of loss of communications the following actions are to take place:
- (1) The firer is to cease firing.
 - (2) The aircraft Commander is to ensure that all weapon management switches are selective to 'SAFE' and weapons maintained on a safe heading.
 - (3) The practice is to be terminated and the RCO and RSO/RSO(ATC) informed at the earliest opportunity.

ARMAMENT ANOMALOUS OCCURRENCES

0513. In the event of an ammunition accident, incident and weapon/ammunition defect, RCOs are to comply with the reporting procedures contained in the relevant Service safety document and also submit an accident/incident signal in accordance with Chapter 2.