CHAPTER 38

WEAPON REPAIR ORGANISATION (WRO)

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CHAPTER 38

WEAPON REPAIR ORGANISATION (WRO)

SECTION 1 - OVERVIEW

3801. Weapon Repair Organisation (WRO)

a. **Introduction.** An efficient WRO requires good organisation and careful preparation as well as the education and training of weapon repair personnel and operators. The objectives of the organisation are to:

(1) Advise the Command on the material state of the ship's equipment and the ship's ability to survive and fight before and after action damage.

(2) Monitor, maintain and repair Weapon, Sensor and Command Info equipment in all CBRNDC states.

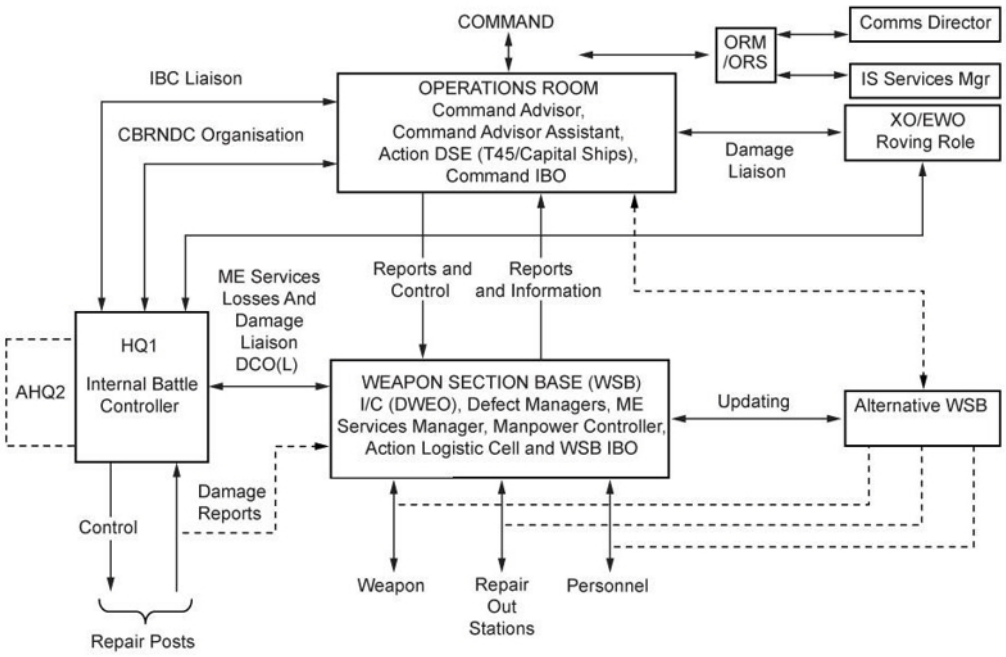
(3) Combat battle damage as an integral part of the Damage Control organisation.

b. WE Departments are encouraged to continually monitor the Best Practice Database, found on the Captain South Homepage and to consider implementing these observed practices where applicable. WEOs should note, however, that not all practices will achieve the same results cross platform or even across the same class of Ship.

3802. The Weapon Section Base

The organisation of weapon repair is illustrated in Fig 38-1.

Fig 38-1. Weapon Repair Organisation



3803. Management of Weapon Repair

The WRO must function effectively under all ship operating states and conditions. The stationing and duties of key WE personnel vary between Action Stations, Defence Watch, Cruising Watch and Emergency Situations and are summarised at Table 38-1. In particular the role of the WEO/SNRWE in each state is as follows:

a. **Action Stations (State 1).** As the Command Advisor (CA), the WEO/Snr WE is to close up in the Ops Room where they are responsible for advising the Command on the ship's ability to meet the Command Aim under varying conditions of threat, environment and battle damage, which in turn will drive repair priorities. They must therefore be fully integrated into the Command Team and have a sound appreciation of the tactical situation as well as up to date, accurate knowledge of the extent and nature of any damage/degradation to weapons, sensors, machinery and ship's structure. A full list of WEO/Snr WE duties is given in Para 3810. A Section Officer is to undertake the duties of PROTO in accordance with BRd 2170(1) Chapter 2. If circumstances dictate that CBRN hazards take priority over weapon repair activities and when directed by the WEO/Snr WE. The Section Officer is to delegate matters as appropriate to a suitable alternative in the WSB and close up in the SCC/HQ1 as the CBRN situation dictates.

b. **Defence Watches.** Normally the Ship's Company will be in 2 watches with certain key maintainers on call. The WEO/Snr WE is to maintain a sustainable routine agreed with the Command. When the WEO/Snr WE is absent from the Ops Room, the DSE is to carry out the tasks listed in BRd 300 Para 0114. For the on watch DSE to provide comprehensive advice to the Command in State 2 as the WEO/Snr WE's representative, they will need to monitor and have displayed the status of WE equipment and CBRNDC incidents in the ship. In the event of an internal incident occurring such as a fire, flood or battle damage, the Ops Room team is to be enhanced by the provision of a CBRNDC IBO and a Command Advisor's Assistant. These personnel are to be previously identified and their nomination recorded on the W&SB. Their closing up is to be initiated by the announcement of an internal emergency, or as called for by the DSE when they decide that the situation dictates.

c. **Cruising Watches.** This is the normal peacetime running state. A DSE, nominated by the WEO/Snr WE, is to be in attendance in the Ops Room for all major serials conducted during normal operational running conditions and during Operational Sea Training. The name of the 'on watch' DSE is to be displayed clearly in the Ops Room and they are to be easily identifiable by wearing a suitable brassard or surcoat. A manpower coordinator is to be nominated to assist the DSE. The WEO/Snr WE is also to visit the Ops Room frequently to familiarise themselves with the operating techniques, tactical scenarios equipment configuration and performance.

d. **Alternative Postures.** At times the operational tempo may be such that the posture adopted by the ship exceeds that required during Cruising Watches but does not reach the level achieved by Defence Watch manning. WEO/Snr WE must ensure that guidance is in place to reflect this requirement giving due consideration to direct WE support to the Command and the Ops Room, ensuring the provision of a flexible and enduring capability to conduct Weapon Repair rapidly at any time. Prior to periods of such operations, early liaison with the Command Team is required to agree the WE Department posture.

e. **Peacetime Emergencies.** As Command Advisor the WEO/Snr WE is to close up at the same time as the Standing Sea Emergency Party (SSEP) and position themselves close to the CO. They are to carry out those tasks listed in Para 3810. which are relevant to the situation. When Emergency Stations is required for a peacetime emergency, the State 3 WRO is to close up to manage WE defects and provide a level of equipment repair capability to meet the Command Aim. Consideration should be given to providing an immediate State 3/SSEP Weapon Repair Capability to safeguard critical C2 (External Communications, Internal Communications, and Main Broadcast), systems impacting on Navigational Safety (navigational radar, WECDIS, and Echo Sounder), and Aviation Services.

3804. Manning

The manning of the WRO must be commensurate with the task. The reduced staff available during defence watches has to be capable of advising the Command, monitoring and maintaining weapon engineering equipment whilst initiating repair action, calling out the appropriate section senior rating as required. Specialist maintainers are not to keep formal watches but remain as day workers, available at any time, unless:

a. There are duplicate experts for equipment.

b. The maintainers have an operator function.

Note. *Weapon repair personnel, allowing for their tasks, are to be dispersed as widely as possible to reduce the vulnerability of the organisation to action injuries.*

3805. Key Personnel

The manning of key positions is shown in Table 38-1.

Table 38-1. Deployment of Key Personnel

	STATE 1	STATE 2	STATE 3	EMERGENCY STATIONS
OPS ROOM	Command Advisor (see Note 1) Command Advisor Assistant Action DSE (if applicable) Command IBO (if applicable)	DSE	DSE as required.	Command Advisor will close up with the Command, usually on the Bridge, DSE as required in the Ops Room.

	STATE 1	STATE 2	STATE 3	EMERGENCY STATIONS
WSB/ WMC	WSB/WMC I/C Defect Managers 'L' line/WE Services Manager (WESM) Action Logistics Coordinator WSB IBO (if applicable) Messenger (if available) Manpower Controller.	Nominated WE Ratings iaw W&SB.	Not normally manned.	Warrant Officer. State 3 Weapon Repair Team iaw W&SB.
SCC/HQ1	PROTO in high threat CBRN environment Section Officer (Capital Ship)	N/A	N/A	Section Officer (may relocate to WSB as the situation allows).
Containment HQ	N/A	N/A	N/A	DEPCO as Manpower I/C Containment I/C and 2 I/C Deck Managers (including OOQ).
CIS	Ops Room: Comms Director IS Services Manager (see Note 2) MCO iaw W&SB	MCO iaw State 2 W&SB	MCO iaw State 3 W&SB	As per State 3

Notes:

1. The Command Advisor is to remain with the Command if they choose to locate themselves at a position other than the Operations Room. For example, the Bridge during FIAC.

2. The IS Services Manager will be best positioned next to key IS equipment (for example T23 OPS Room Annexe for access to RNCSS and MTE support in OPS Room).

SECTION 2 - STATE 1

3806. Tasks of the Command Advisor (CA)

For WEO/Snr WE to operate effectively as CA, they must establish a sound rapport with the CO, the XO/EWO (as Command Rovers), MEO (as Internal Battle Controller), and Warfare Officers (OPS Officer at State 3, Command PWO, AAWO, and Duty Staff). Brevity is key in all discussions focusing on the impact on the Command Aim.

To give sound advice and formulate Command priorities the CA must have a detailed knowledge of their Combat System as well as an understanding of the critical equipment in other departments, this should include propulsion configurations, steering, stability and key ME services (Electrical Services, Chilled Water, HP/LP Air etc). The CA must remain aware of the tactical situation at all times and routinely monitor Command Open Line, however, this is not to prevent movement around the Operations Room. The CAs main tasks are:

a. To assist the Command in fighting the external and internal battle.

b. To follow the Command Aim in order to determine the Command and equipment repair priorities. They are to ensure that all appropriate outstations are aware of, and work to, the Command Aim and these priorities. Command Advisor can recommend changes to those priorities depending upon the tactical situation and the extent and nature of any damage sustained. They are to deliver the internal battle picture to Command by regular structured briefings, post hit and by contributions to the Operations Room via the Environmental Sitrep.

c. To monitor the performance of weapons, sensors, communications, data handling systems and their supporting services, taking into account operator, tactical and material factors. They are to assess the effects of damage, defects and degradation upon the ship's ability to fight, establish estimated times to repair and alternative modes of operation where possible (this should also include options for battle override where available). They are to keep the Command fully informed of all significant changes that may affect the Operational Capability of the ship.

d. To monitor the extent of damage to the hull, propulsion and ancillary systems, the effect on the ship's ability to meet the Command Aim, the alternative modes of ship control based on the specialist advice of the MEO (as IBC), XO (as Command Rover) and LO (as DCO). The Command Advisor is to keep the Command informed of all significant changes that may affect the operational capability of the ship.

e. To integrate the requirements of the ship's warfare and engineering departments for the testing, maintenance and repair of systems and equipment within the existing tactical scenario and particularly to assess the extent of damage following an attack (Mini-SOCs and Blanket Searches).

f. To monitor casualties in order to establish the impact on OC and keep the Command informed of all significant personnel matters.

g. The Command Advisor is also to monitor the movement of personnel on the upperdeck, as well as dealing with smoke clearance approval within the ship (against the current external battle) to assist damage control, firefighting, weapon repair and recovery of State 1 posture.

h. To liaise with, and advise Command Rovers on:

(1) Command Priorities for fighting internal battle including internal incidents impacting restoration of Operational Capability. For example, reduction in ship speed to support primary leak stopping in key compartments.

(2) Explosive hazards including 'whole-ship' reactions to a CWI, also to include a discussion in reduction in speed to support stabilisation of explosive hazards.

(3) Casualties.

(4) Smoke Clearance and personnel access to the upperdeck.

(5) Domestic matters such as action snacks, action messing, the opening of heads, etc.

i. To carry out the duties of Command CBRN Advisor as the CBRN threat dictates.

j. Lead State 3 Bridge/Ops Room Command Huddles and support State 1 Ops Room Command Huddles.

k. **State 3.** All the above points are still applicable; however, without a specific external threat, focus is on the safeguard of navigation and personnel.

3807. The Weapon Section Base/Weapon Management Centre (WSB)(WMC)

The tasks of the WSB/WMC are:

a. Interpreting the Command Aim to set and deliver WE priorities for weapon repair, informing the Command Advisor as required.

b. Providing an information centre, holding information on equipment, supplies, critical routines and present conditions and advising the Command Advisor as required.

c. Receiving and recording reports from the Operations Room, SCC (ME Services), information from IBO Net, repair posts and weapon repair personnel. The WSB/WMC is to provide a central point for the control of WE department manpower and progress of WE Blanket Searches post incident. This should also include providing weapon repair personnel with safe routes when transiting through the ship.

d. Organising weapon repair personnel at action, during defence watches and State 3 emergencies.

e. Maintaining internal communications with weapon repair personnel and understanding reversionary modes of communication.

f. Interpreting equipment state reports in terms of their effect on the Ship's fighting characteristics and advising the Command Advisor.

g. Interpreting necessary changes to reversionary or emergency modes of operation in terms of the effect on the Ship's fighting characteristics and advising the Command Advisor.

h. Initiating weapon repair as the need arises and weapon maintenance as the opportunity occurs.

i. Informing the Command Advisor of any deterioration in weapon equipment performance.

j. Informing the Command Advisor when an essential check or routine is overdue and weapon performance standards can no longer be guaranteed.

k. Informing the Command Advisor of the options for repair and any associated penalty after the failure of, or damage to, weapon systems.

l. Advising the Command Advisor on explosive risks, including Conventional Weapon Incidents.

m. Providing technical advice and back-up as the need arises.

n. Liaising with the Logistics Department to provide spares as required.

o. Liaising with the SCC/HQ1 to ensure:

(1) An accurate WE Top 3 is passed into the SCC/HQ1 Command Huddle.

(2) The effects of damage on weapon systems or their supplies are identified quickly (electrical services, chilled water, LP/HP Air etc).

(3) SCC/HQ1 receives damage reports from weapon repair personnel.

(4) SCC/HQ1 is aware of damage to weapon system supplies and support services and the actions required to meet the Command priorities.

(5) The deployment and use of weapon repair personnel in meeting the Command priorities allowing for the current damage state.

(6) The Machinery Stateboard in the WSB (Weapons Management Software (WMS) on T45) is kept up to date.

p. Hold all WE department spare keys and back-up software.

q. Work with the Command Advisor (Comms Director and IS Services Manager) to coordinate the repair of key external communications and IS systems.

r. Updating the alternative WSB to allow for the easy transfer of control when required.

s. Advising weapon repair personnel of damage and incidents that could affect them or their equipment.

t. To provide a dedicated link at action to pass information on electrical losses (‘L’ Desk/Green Line/WESM). In State 2 this duty will be performed by the on watch WSB/ WMC I/C acting under the guidance of the DSE.

3808. Tasks of Weapon Section Base (WSB) I/C

a. The Weapon Repair Organisation is led by the DWEO in a non CBRN environment, normally located in the designated Weapon Section Base (WSB) or Weapon Management Centre (WMC). For the repair organisation to be effective, an accurate defect picture must be established. There are 2 facets to this: Operators must conduct accurate Mini-SOCs quickly, passing the results in duplicate to both WSB/WMC and the CAA, and weapon repair personnel must provide clear and accurate details of all defects, performance degradation and loss of supplies or essential services.

b. The DWEO must drive their team to obtain this picture and they will be aided by Defect managers, Manpower controller, 'L' line/WESM and an IBO.

c. The Command Huddle is an essential and often under-utilised component in building the damage picture and recovering key capabilities, allowing the WSB/WMC a shared understanding of Command and WE priorities and effort. Commencement of a Command Huddle should be piped over Main Broadcast to inform outstations with a 2 min pre-warning given to allow outstations to update reports on Priority repairs. During the Command Huddle, each of the positions within the WSB/WMC should be given the opportunity to brief. The use of individual Command Huddle Aide Memoire briefing cards is recommended to ensure brevity and clarity of information. It is vital that all the other positions listen to and understand the information provided. Comms links should not be answered and no discussion should take place during the Command Huddle unless 'Flash' or high priority reports are required. It is important that the Command Huddle is brief (2 - 3 mins) and avoids repetition, whilst still achieving the aim.

d. On completion of the Command Huddle, DWEO should clearly reiterate the Command Aim and his priorities. If required, they should direct action required in each area of the WSB/WMC. Plans should be kept simple. It should be noted that several Command Huddles may be required before the damage is fully resolved.

e. WSB I/Cs are encouraged to utilise a 5 point brief card for concentrated incidents such as a CWI, Bridge Hit, or a concentrated area of damage in one area. This will enable the team to better closed loop manage and rectify the incident, aiding resource control and picture compilation. This will aid in prompting the team for blanket searching, damage assessment and capability restoration, especially when briefing updates to Command.

3809. Defect Managers (DM)

a. The Defect Managers will be the 2 Warrant Officers on non-REMS ships (Weapons and Sensors) or 1 Warrant Officer and a Group head on REMS ships (Major and Minor). They are to assist the DWEO in compiling the picture, suggesting plausible top 3 defects and manage all ETBOLS.

b. In order to achieve this, Railex card holders (MOD Form 607) and cards are recommended to monitor defect repair. It is suggested that at least 4 cardholders are used and are marked up as 'Top 3', 'Weapons', 'Sensors' and 'Wrecked'. Additional holders may be used if found necessary, eg for 'L' defects.

Card holders should also be adapted to enable the whole of the 5 point brief card to be viewed without touching it. Cards should be marked such that they contain relevant information and should be plasticised so that they can be re-used.

c. Within each area, cards should be individually prioritised ie the highest priority defect placed in the top slot of the Railex card holder. ETBOLs must be used and closely monitored by Defect Managers to ensure they are realistic and accurate, with changes briefed as appropriate. Next Time To Report (NTTR) times should only be used where a repair time is genuinely not known, ie investigating defect identified during Structured Look; only one NTTR time should be required on each defect before an ETBOL can reasonably be expected. If a low priority defect has no manpower allocated, due to higher priority commitments, then a Zulu + time can be noted. This is a 2 figure time to retain the engineering assessment of repair; as soon as manpower is allocated this must translate in to an ETBOL or NTTR. Pre-printed cards can be made up to show the effects of losing a switchboard or EDC. Zulu + times should not be passed to operators.

d. The Railex system should be run and updated by the Defect Managers and DWEO should position themselves so that they can monitor all WSB/WMC boards including the Railex cards.

e. In T45 the DSAC WMS system is used, this allows Defect Managers to input defects onto a computer system using 'text speak'. Once the defects have been entered, priorities can be assigned as required. A top 5 priorities can be set, allowing the top 3 to be maintained once defects are rectified. The defect details and the priorities can be viewed in the Ops Room by the CAA team and by the SCC team in real time, removing the need for all details to be passed verbally between outstations.

f. Additionally in T45, the Alternate WMC (AWMC) act as a second hub for receiving defect reports which do not affect the Command Aim (categorised as Minor defects) and are responsible for entering these into WMS. This allows the WMC to focus on the defects affecting the Command Aim (Critical and Significant defects), whilst also giving all outstations visibility of the complete damage picture.

g. The DWEO should ensure Command Priority and Threat Warning changes are implemented and that the Railex system/DSAC agrees with the Command Stateboard.

3810. Manpower Controller (MC)

The whereabouts and condition of all WE personnel must be known at all times. Weapon Repair personnel should be instructed to check in at least every 20 mins to report their equipment state and location. Weapon Repair personnel must contact the WSB/WMC/MC to obtain a safe route before moving from one compartment to another. A report should also be made when they reach their destination. The MC is to also work with the DMs to account for personnel calling through them; with a pre-organised process in place, full manpower accounted for can be achieved rapidly post hit. The MC should utilise a laminated control board detailing locations, contact (and reversionary) numbers and personnel names. The name of their WRT I/C should also be recorded on REMS units.

3811. ME Services ('L' Desk) Liaison

a. Effective ME Services liaison is vital to the success of the Weapon Repair Organisation. A direct communication line must be available between the SCC/MCR and the WSB/WMC. Communications must be 2-way with both parties informing each other of known services losses as soon as practically possible after damage has been sustained. In T45, the close proximity of MESM-WESM within the SCC allows voice primary to be used for conveying information. It is vital that the roles and responsibilities of the 'L' Desk or WESM are fully understood and the impact on WE equipment when the loss of electrical supplies, Chilled Water and HP/LP air occurs.

b. WSB/WMC personnel should be aware that the Command priority will invariably be to retain some form of fighting capability and, therefore, emergency cable runs to weapon equipment may need to be given priority over everything else. Consideration must be given to dressing cable runners in BA where appropriate. If electrical supplies are lost, consideration should be given to prioritisation of breakers, noting the load capacity of emergency cable runs.

3812. Incident Board Operator (IBO)

a. The IBO has a critical role as part of the WSB and the Ops Room. The IBO should monitor the net for all incidents marking up the board, concentrating on the following:

(1) All incidents affecting safe routes and Blanket Searches.

(2) All incidents in proximity to key WE compartments and affecting electrical supplies for key capabilities.

(3) The position and status of weapon parks and force protection mounts.

b. The IBO should aim to share all pertinent information with the WSB team and, where appropriate, utilise the FLASH procedure to do so. IBO should utilise minimum effective communications in order to limit speaking time and maximise efficiency. His briefs should follow the format in Table 38-2.

c. The IBO does not necessarily have to be WE, but, if not should endeavour to conduct a series of WE rounds to familiarise himself with WE compartments, capabilities, supplies, services and terminology. It is advisable to create a 'L' supplies aides memoir to affix to the board to hasten reports until it becomes instinctive during training.

d. The IBO should obtain the critical flood depths for each WE compartment (and an appreciation of their impact on OC) and annotate on their boards to assist FLASH routines.

Table 38-2. IBO Reporting

	FLASH? TO WHOM?	WHAT ?	LOCATION	WHY?	WINNING/ HOLDING/ LOSING	ETBOL/ TTNR
T23 Example	FLASH!	Fire	1AB flat	Impacting MFUs	WINNING	No info; chasing
T45 Example	Logs/ WPNS!	Flood	4K Naval Stores	Impacting stores retrievals	HOLDING	1110

3813. Weapon Section Base Positions

The recommended positions of the main WSB/WMC is given in Table 38-3. Consideration should be given to the action required if the main WSB/WMC is no longer tenable. The location of any alternative site must depend on the extent and location of damage or smoke. The final decision must, therefore, be made at the time of evacuation, however, in order to plan and still give the necessary flexibility, a space is to be designated beforehand. The space, as far as practicable, is to be displaced laterally and vertically from the main WSB/ WMC and have the necessary internal communications. A WSB/WMC evacuation brief is to be given on closing up at State 1 with emphasis to new members of the team and the requirement for the IBO or nominated person to provide a safe route.

Table 38-3. Positions of Weapon Section Bases

POSITION IN SHIP	T23	T45	LPD	LPH	QEC	T26
WSB	EMR	HQ1/SCC	OPS Room Annex	Computer Room	HQ1/ SCC	OPS Rm
Alt WSB	Combined Radar Office (see Note)	04E RT1045 Radar Office	Aft Radar Office	AEO Office	EMR	CTO

Note. *The AWSB may also be located on 1E/02E Flat.*

3814. Tasks of Weapon Repair Personnel

Weapon Repair Teams must develop a working knowledge of all equipment within their area of responsibility, this also needs to include all essential supplies (electrical, chilled water, LP/HP air etc.) for equipment on their Blanket Search Cards. They must also ensure they maintain suitably stocked Battle Bags and have an unambiguous State 1 Preparations card. The tasks of Weapon Repair Personnel deployed in direct support of weapon systems and equipment under the direction of the WSB/WMC are:

a. Maintaining regular communication with the WSB and ensuring the WSB is aware of their movements and contact details.

b. Monitoring the performance standards of their equipment.

c. Monitoring the availability of all forms of normal, alternative and emergency supplies and support services.

d. Advising operators and the WSB of any changes in equipment performance standard.

e. Advising operators on the need to carry out SOCs/Mini-SOCs, assisting them as required, ie periodically, when the ship has been subject to shock or damage, and when equipment has been returned from repair or when performance is suspect.

f. Advising or assisting operators on any adjustment required to meet changing environmental conditions.

g. Carrying out routine maintenance when due, and when the opportunity or the threat allows subject to Command approval (or pre-approved delegation by CTM).

h. Carrying out repairs under the direction of the WSB, informing the WSB of progress and of any limitations imposed by the defect or the repair.

i. Call for technical support from the WSB when required.

j. Checking the equipment areas for CBRNDC conditions as directed by the WSB.

k. Locating damage control facilities and support stores in their equipment area.

l. Assist the WSB in compiling an accurate defect picture by conducting timely Blanket Searches and providing reports in the 5 Point Brief format.

m. Identifying hazardous materials or conditions in the equipment areas and taking or advising on the appropriate safety measures when damage control actions or repairs are in hand.

n. Act in support of the damage control organisation as directed by the WSB.

o. Carrying out rounds in the action and defence states as required by the WSB.

Table 38-4. 5 Point Brief Format

POINT	TITLE	NOTES
1	Line No. and Equipment	Clearly state the line number as listed on Command State boards and which equipment is affected, eg *Line No. 2, Radar 996*.
2	Nature of defect	Briefly describe the nature of the defect, eg *440v power supply loss, loss of radar transmitter.*
3	What needs to be done?	Describe the actions required to rectify or investigate the defect. If more personnel/stores/tools are required ensure this is reported, eg *Run emergency cable from TRMG space, 1 additional hand required.*

POINT	TITLE	NOTES
4	Capability statement	Provide a clear statement of what, if any, capability remains, or brief on fallback or reversionary modes/ configurations where applicable, eg *Loss of medium range air surveillance radar, fallback - 1022, link 11.*
5	ETBOL/TTNR	Estimated Time Back On Line or Time To Next Report must be provided in 4 figure format, eg *ETBOL 1035*. Two figure times may only be used if it is impossible to progress defect due to lack of access/manpower/ equipment, then an estimate of time to repair may be given. This must be converted to a 4 figure ETBOL once the missing criterion has been fulfilled. ETBOLs must be realistic, achievable and include the time to run up equipment post repair and conduct MiniSocs.

3815. WRT Outstations

a. Whilst closed up, outstations must critically monitor the performance of their equipment, paying particular attention to the availability of supplies and services. On closing up, a Blanket Search should be considered to establish the baseline and configuration of equipment. Outstations must maintain regular contact with the WSB/ WMC manpower controller, advising them of their location and any movement, ensuring that a safe route is always obtained before moving between compartments.

b. Following damage, outstations should conduct Blanket Searches as directed by the WSB/WMC. These should be conducted in accordance with a pre-produced Blanket Search card, detailing the areas to be searched and any specific requirements for those compartments. As the search is progressed, reports on priority defects should be provided to the WSB/WMC (via the WRT I/C for REMS units) in accordance with the 5 point brief. Reports should convey the effect on the Command Aim. Where directed by the WSB/WMC, the risk may be taken to repair 'Quick Win' defects before the Blanket Search is completed but priority must be given to defects which affect the Command Aim; giving rise to 'Smart' Blanket Searches.

c. On completion of the Blanket Search, repairs should be conducted as directed by the WSB/WMC. Personnel must be flexible and should appreciate that the WSB/ WMC will be allocating resources to defects on a priority basis. Personnel should note that they may be tasked to repair equipment outside their immediate area of expertise.

d. Defects that do **NOT** affect the Command Aim should be noted and the Blanket Search completed prior to calling in all defects found. On T45s, all defects that do **NOT** affect the Command Aim are to be correlated by the WRT I/C and passed to the AWMC for processing.

e. When conducting practical repairs, it is important that personnel are focussed on the restoration of the capability to Command and apply lateral thought whilst maintaining basic personal safety and balancing the engineering risk against the operational imperative.

f. Safe Isolations (electrical, hydraulic and pneumatic) of equipment must always be conducted prior to commencing practical repairs and relevant Action Isolation notices attached (iaw BRd 2170 Chapter 19).

3816. Information Systems Services Manager (ISSM) at State 1

The ISSM Is responsible for the management of all IS services, as part of the Weapon Repair Organisation, their role includes:

a. Close up in iaw WSB requirements at State 1 with the location to be determined by platform.

b. Competent in the conduct of blanket searches and mini-SOCs in respective State 1 areas of responsibility.

c. To respond to compartment faults/indications iaw State 1 requirements - to be detailed by WSB.

d. To be tasked by the WSB for all IS/CIS related faults and defects iaw their current skill set; this does not extend to low level repairs outside of their JPA competencies.

e. To be tasked for any high priority MCO related issues/defects ie electrical supply or loss of SCOT services.

3817. Ops Room Material Requirements

a. The Command Advisor and their assistant will be based in the Operations Room and should have easy access to the Command for briefing, be able to monitor equipment performance (eg TACS), have access to an incident board and be able to liaise with the CMD/PWO/ORS/ORM Action DSE and Comms manager. The following communications will be required.

(1) **CA/IBC Hotline to HQ1.** ‘Bleep’ phone, internal telephone, RICE/FICS comms or equivalent.

(2) **Command Open Line**. (single ear piece headset with Press to Talk switch and extension lead are recommended). Weapon Repair Hotline to I/C in WSB/ WMC and to AWSB - (‘Bleep’ phone, WE Man Gp Line for T45s).

(3) **CBRN Protection Officer Line.** (may be combined with '(1)').

(4) **HQ2/AHQ Line.** (may be combined with '(1)').

b. **Command Stateboard**. The Command Stateboard is an important tool to enable the Command Advisor to build the damage picture in consultation with IBC and XO, formulate repair priorities and present them to the Command. Therefore it is important that it is tuned to the manner in which all parties communicate within this organisation. A direct copy of the Command Stateboard is also to be held in the SCC/HQ1 (for use by the IBC in action) and both the main and alternative WSB. At Action this board is invariably manned by the Command Advisors Assistant/Action DSE, with a smaller, personalised version used by the CA to brief Command and aid minimum effective communication with the IBC by use of an identical briefing board held by IBC. An example of a Command Stateboard board is included are at Annex 38B. It is by no means comprehensive and may include additional information, as Ship's Staff feel fit. It is intended to be an aid to the BDR process not a burden to it. Guidance on the component parts and their use is detailed below:

(1) It is readily accessible to the Command.

(2) Information is legible and of a size that can be easily read.

(3) It is portable, in the event of having to evacuate the compartment.

(4) Adequate emergency lighting arrangements are available.

(5) All weapons, sensors and communications equipment are listed, in a logical order (eg by directors, threat etc) and with space alongside for notes on the condition of equipment.

(6) The current Weapon Repair Priority and Command Top 3 can be clearly marked.

(7) The current Command Aim can be clearly shown.

(8) The current threat warnings can be clearly shown. This section should include Air, Surface, Sub-Surface and Mine threat warnings Red, Yellow and White.

(9) A diagrammatic representation of main machinery is included, along with major ancillary equipment such as Steering Gear, Fire Pumps, Chilled Water Plants etc. Space should be sufficient to permit notes on the state of equipment.

(10) Any steering and/or machinery limitations can be clearly shown.

(11) A diagrammatic representation of the ship's main power generation and distribution system is provided, along with space to permit notes on the state of equipment.

(12) Casualty status.

(13) Space for additional notes or comments.

c. **Personalised Command Briefing board (to include):**

(1) Command Aim.

(2) **BDR Prioritisation Table.** The Command Top 3, the Top 3 incidents from WE, ME, Damage Control Organisation (DCO) and DCO(Electrical) (DCO(L)) that have the greatest impact on the Command Aim. Prioritised in discussion between IBC and the CA, with the CA having veto. To compile the defect picture:

(a) The Top 3 WE incidents, prioritised by the WSB received and amended by veto by CA, or, if he is SQEP, the CA's Assistant.

(b) The Top 3 ME, DCO and DCO(L) incidents briefed by IBC. When CA/IBC confer the IBC is to download to the CA then receive the WE and Command Top 3 from CA. Always state if the Command Aim is or is not achievable.

(3) Warfare Environment Threat Levels.

(4) CBRN Threat Level.

(5) **CBRN Threat and Citadel Pressure.** A brief note of citadel pressures and CBRN threat in a CBRN Environment. BRACIS can be used to brief the Command on CBRN incidents and detail such as exposure times and chemical agents.

(6) Table of casualty triage category against number.

(7) ME Status for Speed, Steering and Stability.

(8) Next Time on Top.

(9) Percentage of wholeship and WE Blanket Searches completed.

(10) **Triage Categories.** A reminder of Triage categories. This is to be provided on a separate sheet by MHQ ensuring confidentiality of casualties is maintained to the Command level (to avoid any associated negative impact on morale).

(11) **Engine Configuration vs Speed Comparison.** A simple table to remind CA of the engine configuration vs speed implications and the inherent impact on Command Aim.

(12) **Steering Implication Table.** Enables the CA to digest a simple instruction from IBC or OOW/NO via Command Open Line, the impact of loss of steering modes.

(13) **ME Machinery Availability.** A simple block diagram of the propulsion layout to give a quick pictorial representation of lost equipment.

The IBC may require an equivalent of the WE Equipment so that he can keep track of defects, but he will normally focus on those to which he has an impact ie electrical losses and CW supplies. The level and use of both diagrams will depend on the experience and knowledge of the user; it can be expanded to include generation and DC support equipment (ie HPSW pumps). However, if it grows too big it will become cumbersome and difficult to maintain.

(14) **Stability Table.** A simple indicator of the stability status, where MEO can advise the CA of the GM with a simple descriptor on which he can advise the Command. If red/amber/green states used, an explanation should be provided.

3818. WSB/WMC Material Requirements

The following communications, stateboards and documentation will be required[1]:

a. Command Open Line - (a loudspeaker, no speech facility necessary).

b. Weapon Repair Hotline from I/C WSB/WMC's position to CAA and AWSB/AWMC ('Bleep Phone').

c. Weapon Repair Group Line from Command Stateboard markers position to CAA and AWSB/AWMC - (Headset).

d. CBRN and DC IBO net from CBRN Incident Board marker's position to HQ1, HQ2/AHQ, Bridge, Ops Room, AWSB and Section Bases - (Headset).

e. Electrical Repair Hotline ('L' or 'Green' Line) to 'L' desks in HQ1 and HQ2/AHQ.

f. Communications with Weapon Repair personnel. These should extend to a comprehensive RICE/FICS network including all major WE outstations, however a (working) telephone is the bare minimum.

g. A Command Stateboard that is a duplicate of the one in the OPS Room.

h. A Weapon and Sensor Stateboard which should contain the following information (examples can be found at Annex 38C and Annex 38D):

(1) Equipment is grouped in a similar way to the grouping used on the Command Stateboard.

(2) Quantity, type and source of all supplies and services supporting each equipment are listed.

(3) Equipment sharing the same source of supply should be highlighted in the same colour.

(4) Details of reversionary and emergency modes of operation are listed.

(5) Other details, such as run up times, critical temperatures, and limits without cooling/ventilation/air etc. are given.

1. WSB Handbook DBR 9442 (3E) and System Engineers handbook (3D) refer.

i. A Command Huddle aide memoire is available.

j. A CBRNDC incident board is available.

k. A manpower control board is available, considering the following information:

(1) Information is legible and of a size that can easily be read.

(2) Adequate emergency lighting arrangements are included.

(3) It is easily portable in the event of having to evacuate the compartment.

(4) The names, locations and method(s) of contacting Weapon Repair Personnel are included.

(5) Times personnel last checked in, where they go if they leave their designated station.

(6) Status of Blanket Searches can be annotated.

(7) Status of spare manpower can be annotated.

l. An adequate system of defect recording will be required, however the method of recording will depend on the class of ship (Railex cards or DSAC/WMS). Sufficient defect card-holders must be available for use by the DWEO/Defect Managers to accurately display a valid defect picture and there should be a clear method for indicating equipment that has been called for Mini-SOCs. Whichever method is used, the recorded defects should reflect information accurately and include:

(1) Line Number/Equipment.

(2) Time equipment will be back on line (ETBOL) or time of next SITREP (NTTR).

Note. *Four figure time including time for run up and Mini-SOCs.*

In certain circumstances a Z+ time is acceptable (awaiting stores/manpower etc) but should be updated as soon as an ETBOL is available.

(3) Adequate space for description of the defect and action being taken.

(4) List any reversionary modes available.

(5) Operational limitation posed by defect - Remaining Capability.

(6) Means of identifying personnel allocated to defect.

m. As a minimum the following additional information should be readily available within the WSB/WMC:

(1) Individual equipment supplies and services (HP and LP air/chilled water/ hydraulics/main and converted power supplies).

(2) Emergency supplies and possible alternative sources of supply, particularly domestic supplies. These should include current and power requirements/ limitations.

(3) Expected battery performance in the event of power losses.

(4) Expected running times of equipment in the event of loss of chilled water and/or air cooling.

(5) Effects of running equipment in 'Battle Override'.

(6) Reversionary modes of operation (if any) of weapons and sensors equipment.

(7) Block diagrams of data distribution and communications networks showing locations of DDUs, DBs, Nodes etc.

(8) Lists of known Symptom to Defect Correlations.

(9) Standard Operating Procedures (SOPs) for recovery from expected or common equipment failures (CMCDS, RICE 10 and FICS etc).

(10) Layout of magazine floods and spray systems including valve types and numbers and their locations.

(11) Layout of Chilled Water systems relevant to weapons and sensors including valve types and numbers and their locations.

(12) Misfire/hangfire/stoppage procedures for all weapon systems.

Fig 38-2. Weapon Repair Monitoring Card

Line No.	**EQUIPMENT**	**ETBOL/TTNR* (4 Figure Time)**
EXACT NATURE OF DEFECT		
WHAT IS BEING DONE		
REMAINING CAPABILITY, REVERSIONARY/FALL BACK MODES		

*Estimated Time Back On Line/Time To Next Report

3819. Fibre Optic Aspects of Damage Control

a. **General.** Beyond the statements wrt the importance of the continued supply of electrical power under all conditions, there is an ever increasing reliance on network system functionality and data transfer via Ethernet and/or Fibre Optics that directly enables the ship to maintain maximum fighting efficiency in peace and war. The spectrum of systems and equipments that rely on this network functionality are ever increasing, as such the RN needs to have the onboard knowledge, skills and tools to be able to maintain, diagnose and repair the network system. The provision of equipment to allow rapid emergency repair of important equipment is also further emphasised by DE&S Naval Authority Fire Safety[1].

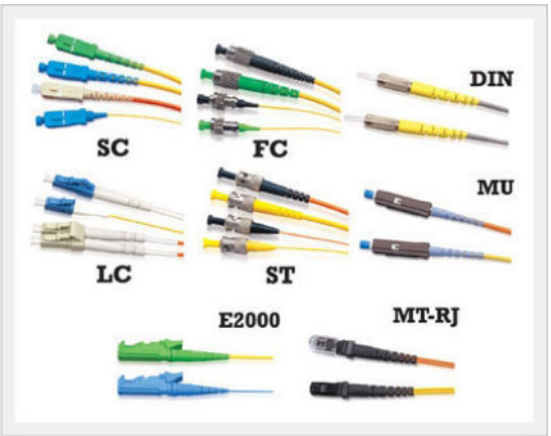
b. This section is not the correct technical publication for detailing fibre optic types, network architecture and termination types etc, however, due to a lack of extant Defence Standards[2], policy and technical publication[3] wrt onboard fibre optics, a general overview of RN fibre installations has been detailed at Annex 38H. The content within Annex 38H is an overview only and **DOES NOT** replace or supersede that contained within the relevant system/equipment technical documentation, datum pack etc, as such maintainers **ARE NOT** to use this information as a primary means of reference material.

c. **Levels of Fibre Optic Repair.** As with all systems and equipments there is a level of repair that is both dependant on the operating environment (be it peace, war, State 1, 2 or 3), the ability to access shore support and the technical skill (in terms of underpinning knowledge, skill of hand and onboard tooling) that dictates what we require in terms of OMDR from the onboard maintainer and also where that support purely sits within the shore support environment.

d. **FO Patch Cord/Cable.** A fibre optic patch cord/cable is capped at either end with connectors that allow it to be rapidly and conveniently connected to enable restoration of connectivity of the network, system and equipment. The advantage of this type of repair is that it is quick and requires minimal skill of hand; however, this type of repair is limited based on the need to have access to the required connections points and the physical separation between those connection points, either by distance and/or watertight boundaries. Patch cords can be provided with a spectrum of end connection types (FC, SC, ST, LC, MFM, MTRJ, MPO, MU, SMA, FDDI, E2000, DIN4, and D4) to support the spectrum of network, system and equipment fits. The majority of RN fibre networks are fitted with FC, SC, ST, LC, MFM, MTRJ and SMA connector types, as such ships staff need to be provided with sufficient patch cords (at various lengths) with the requisite spectrum of connector types.

1. DE&S Naval Authority Fire - Recoverability - Essential Characteristics for Surface Ships Version 1.1 dated Aug 09.
2. Defence Standards Series 60-01, 60-02 and 07-263 now obsolescent.
3. BR 2000(90) - Fibre Optics last reviewed Oct 99 with no agreed sponsor/owner.

Fig 38-3. Various Connector Types



e. **FO Mechanical Splice.** A mechanical splice is a junction of 2 or more optical fibres that are aligned and held in place by a self-contained assembly. The fibres are not permanently joined, just precisely held together so that light can pass from one to another. Where the option to utilise a patch cord is not viable the mechanical splice provides a quick and effective method of fibre repair, re-connection. There are a number of mechanical splice methods on the market, ship's staff will need to be provided with sufficient quantities of the agreed mechanical splice products to support mechanical splicing of the fibre network, system and equipments.

Fig 38-4. Mechanical Splice

f. **FO Fusion Splicing.** Fusion splicing is the act of joining 2 optical fibres end-to-end using heat. The goal is to fuse the 2 fibres together in such a way that light passing through the fibres is not scattered or reflected back by the splice, and so that the splice and the region surrounding it are almost as strong as the virgin fibre itself. Where the option to utilise a patch cord is not available and/or where a more permanent repair can be provided (beyond what the mechanical splice can deliver) there may/will be a need to conduct a fusion splice. The conduct of fusion splicing requires a greater degree of knowledge, skill of hand and onboard tooling to that for mechanical splicing, onboard engineers need to be equipped with the requisite toolkit and fibre pig tails to support fusion splicing of fibre network, systems and equipments.

Fig 38-5. Fibre Optic Repair Kit

SECTION 3 - STATE 2

3820. WE Department at State 2

a. The WE Department has 2 major functions at State 2:

(1) To support the Ops Room and the 'fight' capability via the DSE in the Ops Room and appropriate WSB/WMC/maintainer support.

(2) To support the Command via WEO acting as Command Advisor.

b. The support offered by the WE Department at State 2 should be sustainable throughout long-term high intensity operations both in terms of material and personnel. Care should be taken, particularly in lean manned ships, to ensure that the most effective use is made of available manpower. Maintenance requirements, configurations and loading states for equipment should be carefully considered within the requirements of Operational Notice and Command intentions.

c. In addition to Support to Warfare, careful consideration should be given to the WE input to the Defence Watch Emergency Party (DWEP) where used. Sufficient cover should be provided by the WE Department to deal with emergent small-scale incidents that would not normally require the ship to be called to State 1.

3821. Command Advisor Routine

The WEO should work the same routine as the CO. A second Command Advisor may be used to provide support to XO when the CO and WEO off watch. The training provided to the second Command Advisor should be carefully considered to allow them to function in this role, although it is accepted that a second Command Advisor will not be required to undertake the full range of activities that the WEO is expected to perform at State 1.

3822. DSE Routine

A DSE should be present in the Ops Room whenever a Warfare Officer is closed up. Care should be taken to ensure that the DSE roster is sustainable whilst allowing the WE Management Team to continue to function effectively. The DSE should coordinate WSB effort in rectifying defects and provide elements of Command Advice to the on-watch Warfare Officer. It should be noted that the scope of the advice provided to the on-watch Warfare Officer should be expanded from that provided during State 3 Warfare serials, to encompass whole ship DC/FF and ME aspects where these are required. WEO should ensure DSEs used in State 2 have received suitable training in the whole ship aspects of Command Advice and this training recorded in the Training Log.

3823. Weapon Repair Organisation (WRO)

a. The WSB/WMC should be set up as for State 1, but with reduced manning to meet the perceived threat in accordance with the Command Estimate. As a minimum, manning should consist of an IBO who may also conduct WE Rounds and an I/C who is responsible for liaising with the DSE to coordinate WE call out and defect repair. In the event that no Command Estimate process has been conducted, manning of the WSB/WMC should be in accordance with the Watch and Station Bill. The Alternative WSB/WMC should also be set up for State 1, but left unmanned.

b. Personnel manning the WSB/WMC should be familiar with the roles they are required to undertake and should have received suitable training.

c. Sufficient WE personnel should be available outside the WSB/WMC to ensure correct operation of equipment (where operation is a WE responsibility) and to ensure that all equipment achieves the required operational availability. Personnel should be allocated and trained in advance so that there is a secondary/back up/team worked maintainer for all WE Systems in each watch as required by BRd 300. Care should be taken to ensure that the WE Department commitment to the DWEP can be met.

3824. Incidents at State 2

a. Small DC/FF incidents should be handled 'on the watch' by the DWEP. Where the DWEP is unable to deal with the incident or if a clear picture of the scale of the incident cannot be formed, then the ship will be called to State 1.

b. Irrespective of the whole-ship reactions to an incident, the DSE and WSB should consider initiating Mini-SOCs and Blanket Search, concentrating the available resource into the areas most likely to be affected by the incident. It should be noted that initial DC/FF reactions must not be compromised by Mini-SOCs or Blanket Search and that these activities may need to be delayed until manpower becomes available.

c. Defects noted during Mini-SOCs/Blanket Search should be reported/prioritised and actioned as for State 1. Care should be taken over prioritisation of manpower and call out of additional manpower, particularly where damage has affected key equipment.

3825. Equipment Considerations

A Command Estimate process should be conducted in advance of prolonged high intensity State 2 operations to define the Command requirements for Operational Notice and ammunition loading. The WE Department must ensure that the Command requirements are realistic and can be met for the perceived duration. Appropriate representation should be made to the CO if they are unrealistic. Particular note should be made of the effects of weather on ammunition and systems, and the requirements for essential (not only mandatory and safety) preventative maintenance. Systems should also be prepared for firing on a rolling wartime process as defined by Command, striving for maximum system availability and minimum loss of capability at all times. Where Operational Notice requirements cannot be met as a result of defects or routine maintenance, the DSE must liaise closely with the on watch Warfare Officer to minimise impact.

SECTION 4 - STATE 3

3826. Incidents at State 3

a. In the event of an emergency sufficient enough to warrant Emergency Stations, the WRO is run and managed from WSB/WMC or AWSB/AWMC and is run along a similar format as the WSB/WMC at State 1 with much of the same documentation, procedures and communications. WE Personnel involved in Containment Party duties are to be relieved by the Emergency Stations Spare Hands as the situation dictates. This will enable the specialist maintainers to be better utilised in the WRO.

b. Once the WRO has stood up, a minimum of 2 WRO Blanket Search Teams complete with WRO Battle Bags, will each conduct a set of comprehensive rounds commencing from as close to the internal incident as possible. Working their way forward and aft simultaneously, following the stipulated WE rounds route, ensuring 100% coverage of WE compartments.

c. The status of these rounds is reported back to the WSB regularly to update progress and to maintain regular contact with the WE Rounds teams. The I/C of the WRO then reports updates to the CAA who then feeds this information to the both the CA and the DWEO in the SCC who will advise the DCO.

d. Any defects discovered are reported to the WSB using the 5 point brief format. The I/C will then prioritise the defects in line with the Command Aim and advise whether the team should attempt repair or continue their rounds. Should equipment be required to be taken offline or made unavailable to Command for defect repair, the I/C will seek permission from the Command Advisor before any further reduction in capability is removed from the Command.

e. Mini-SOCs are to be conducted as directed by either the PWO, if closed up, or the Command Advisor. Completed Mini-SOCs forms are to be given to the I/C to ensure correlation with the Defect Board in the CRO and that no defects have been missed.

f. All members of the WRO are to keep abreast of the developing internal/tactical situation to ensure that any weapon repair efforts are focussed correctly. By knowing the Command Aim, Blanket Search teams will be able to prioritise defects that they find and know which ones are to be flashed back to the I/C as a priority. For example, a defect affecting a navigational aid will take priority over a defect found on the primary weapon system, when the ship is at State 3 (Smart Blanket Searching).

SECTION 5 - TYPE 23 REVISED ENGINEERING MANPOWER STRUCTURE (REMS) AT STATE 1

3827. Overview

a. REMS is now being adopted, normally by ships during their Upkeep period. The new manning structure has forced responsibility downwards during normal State 3 running in that the majority of equipment maintenance responsibility is now held at POET(WE) level and below. Likewise, this equates to State 1 where the majority of the defect repair team will comprise POETs and below.

b. REMS is not in force in all platforms; units are advised to engage with FLOT and FOST to assist in the transition and for advice, especially when due to arrive for a BOST. In order to best utilise available manpower, and to take into account the reduction to a single WO1ET(WE), the family tree detailed at Fig 38-6 is to be adopted at State 1. Coordination of defect reporting and repair is now initially held at one of three Weapon Repair Team posts, each headed up by a competent I/C. These WRTs collate defects from their respective Blanket Searchers and prioritise them before passing to the WSB for inclusion into the wholeship picture.

3828. WRT Base Locations

a. The internal communications layout on board each unit gives the best guide for the location of each of the 3 WRT bases. Each base must, ideally, have a direct ICS/ Bleep Phone link to the WSB in order to provide a degree of redundancy in the event of Telex loss. Whilst this limits the compartments that are available, it is also key to locate each base above 2 Deck in order to prevent CBRN DC incidents restricting access or egress.

b. Locating the Midships WRT base at the AWSB position serves 2 purposes. Firstly, the internal comms fit is already established meaning that communications to not only the WSB but also the majority of WE compartments is already in place, permitting the I/C the best opportunity to control his team. In addition to this, the midships I/C will be able to temporarily control the Weapon Repair process in the event of a WSB relocation.

c. Internal comms fits in the fwd sections are limited, however locating the team in the Gunbay flat permits access to a Bleep Phone panel which distributes to the majority of weapons compartments in the fwd sections. The additional benefit of this location is that the ladder up the stbd side of the Silo provides direct access to fresh air. The Fwd SIS provides a degree of Internal Communications however, with it being located below decks, there is a possibility of the team becoming trapped should a DC incident occur above.

d. The position of the Aft team can depend on a variety of factors; SQEP availability, WE equipment fit and Aviation department requirements as examples. Locating the team in the vicinity of the Aft Tracker has a multitude of advantages. The communications layout within the Aft Tracker office permits a degree of Internal Comms coverage, via the existing Weapons smoke comms fit, to both the WSB and AWSB. Any defects associated with 911 Aft will, more often that not, feature in both the Aft WRT Top 3 and WE Top 3; locating a repair team in close proximity will help ensure an accurate repair plan and faster WRT response.

e. Close liaison with the Aviation department may permit the Aft team to coordinate their effort from the Air Office which, although only equipped with a Telex telephone, allows the I/C an area to plan and coordinate without hindering the Aft Tracker maintainer in any way. During normal State 1 serials having the team located outside the citadel will make no difference. The Aft SIS and Hangar are locations that have been previously tested and found to be unsuitable; the Aft SIS being susceptible to DC incidents on 2 Deck and the Hangar unsuitable due to FOD issues.

3829. WRT Base Responsibilities

a. Each WRT covers a specific area of the ship. The Fwd WRT covers from Alpha to Delta Section, Midships WRT is responsible for Echo Section and the Aft WRT from Foxtrot to November Sections. WRT personnel may be allocated to defects outside of their normal areas or responsibility as required, but it is important that each team member starts from a prescribed position in order to ensure that each blanket search is covered.

b. Whilst this change of routine may work in its entirety on one platform, there may need to be adaptations on others in order to take into account variations in manpower status, equipment status and SQEP on board. Ships are to discuss any proposed changes in routine with their FOST lead team, prior to commencing any phase of OST. This document details a benchmark that will ensure standardisation across all platforms. Units can customise certain aspects according to how; this can include, but is not exclusive to:

(1) The process of moving defects between WRTs in order to relieve workload on a specific team, as opposed to the defect being retained and manpower surged between teams.

(2) Units that have SWMLU SQEP issues can adapt their State 1 manning plot to relocate W3W to a Tracker office.

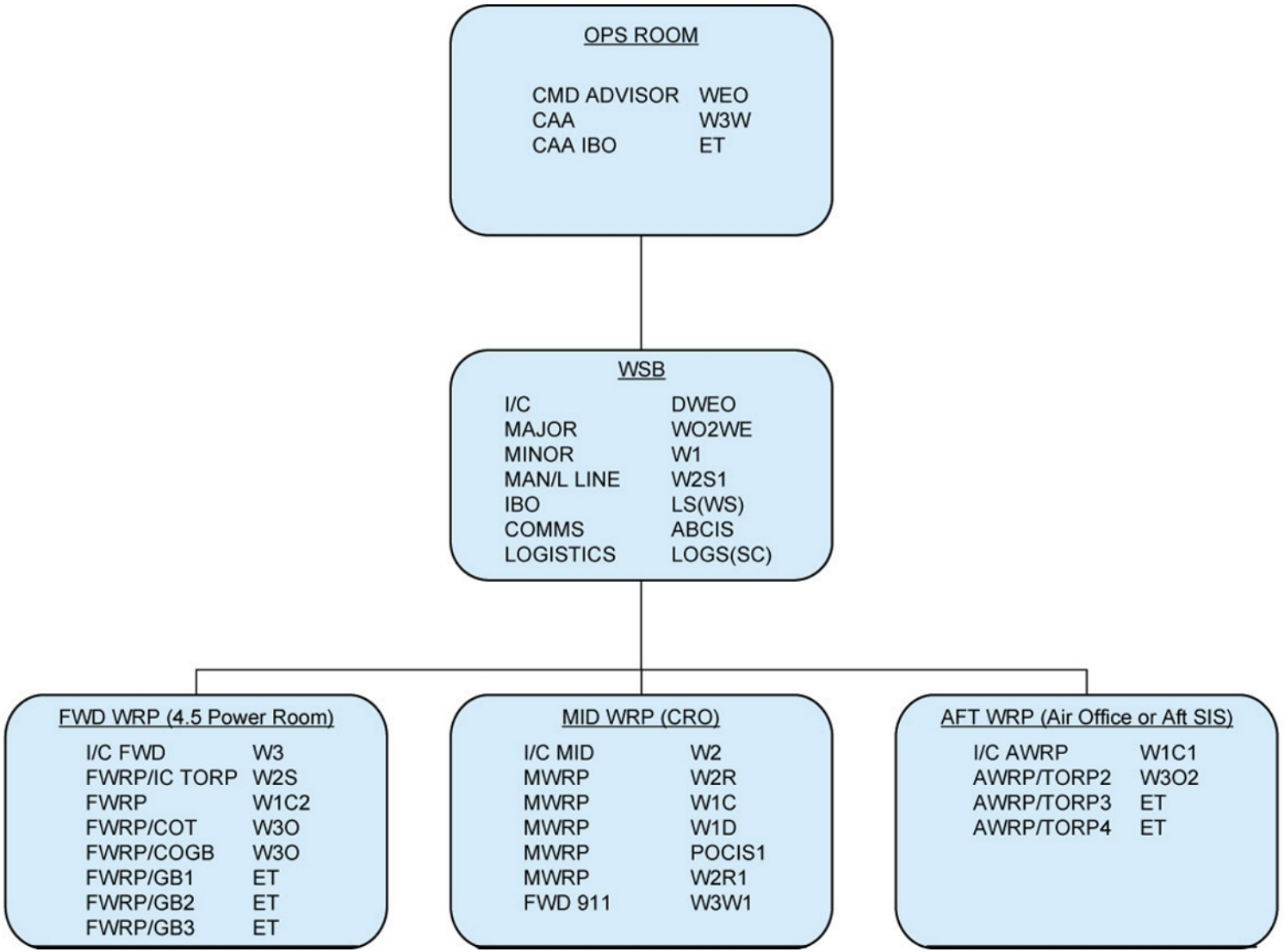
(3) Spare equipment keys and/or software can be dispersed to one of the WRT I/Cs (normally Midships WRT) in order to reduce the risk of a DC incident hindering the movement of an item through the ship.

3830. WRT Members

a. WRT members are to be trained in all aspects of Blanket Searching, BDR (with the possible exception of specialised repairs such as Fibre Optic), on and offline fuse testing, action isolations and all critical cable runs in their operating area. They are to be issued with a set of Blanket Search cards, a set of blank laminated 5 Point Brief cards and a comprehensively stocked Battle Bag containing all items listed at Annex 38E. In addition to this, they are to have an understanding of the Command Aim, and how it will be affected by the loss of specific WE equipments.

b. Immediately following a hit, each WRT member reports in to their respective I/C prior to commencing their Blanket Search. Following their prescribed routes, they are to then check all equipment utilising aids such as mimic cards and information detailed on their Blanket Search cards. As defects are located the WRT member is to decide whether or not the loss of that equipment has an effect on the Command Aim. If it does they are to compile a 5 Point Brief and pass this to their WRT I/C; at this point their I/C will decide whether they are to prosecute the defect or continue Blanket Searching. If the defect has little impact then they are to compile a 5 Point Brief, retaining the card before continuing on their Blanket Search route. Once they finish their route, all 5 Point Briefs that have yet to be reported are handed to the I/C who will pass them to the Minor defect manager in the WSB.

Fig 38-6. T23 REMS Family Tree



3831. WRT I/C

a. Each WRT I/C heads up their respective team and specific area of the ship. The new manning structure sees an element of responsibility devolved from the WSB, permitting each WRT I/C to make decisions regarding the order that defects are prosecuted and the manpower required to action them.

b. Immediately following a 'hit', the WRT I/C collates manpower status reports for each member of the respective WRT before making 1 single call to the WSB Manpower Controller - ideally this must be completed by Z+2.

c. As the Blanket Searchers report defects, the WRT I/C is responsible for receiving and taking action on the resulting 5 point briefs, whether this be recording the defect to be dealt with at a later date, if it is felt that it has nil or negligible impact on the Command Aim, or immediately prosecuting the defect if there is an effect. Defects that do affect the Command Aim are to be passed to the Major DM in the WSB, with the 5 Point Brief updated to include the relevant information regarding who the repairer is, and any other supporting information to amplify the impact on the ship's capability. The WRT I/C is then responsible for the management of that defect, chasing of ETBOLs and surging extra manpower if required.

d. If the WRT I/C allocates a Blanket Searcher to repair a defect then it is his responsibility to inform the WSB, specifically the Manpower Controller, that a Blanket Search is incomplete.

3832. Weapon Section Base (WSB) Manning

a. The DWEO remains I/C of the WSB, and ultimately responsible for the coordination of the Weapon Repair process. In effect, DWEO has the ultimate say on the individual prioritisations determined by the WRT I/Cs because the WSB has a greater understanding of current Command priorities and an overall picture of the damage sustained.

b. As defects are passed through from the CAs structured look, DWEO is to prioritise in line with the Command Aim and pass to the Major DM. Similarly, as 5 Point Briefs are fed into the WSB, these defects too must be given a priority. The link between CA and DWEO is retained; this is predominantly through the direct line to the CAA, however, WEO can speak directly via the bleep phone.

c. The WO1ET(WE) now assumes the role as Major Defect Manager, initially focussing on defects that affect the Command Aim, these reports are collated from the WRT I/Cs as they receive them from their Blanket Searchers. The Major DM will also action the key equipment losses determined from the CAs structured look, passing defects out to relevant WRTs to enable specific areas to be prioritised for blanket search. At this stage a viable NTTR is to be formulated for each key defect, based on an estimated time for a Blanket Searcher to find and appraise the defect before formulating a 5 Point Brief. From that point on, the Major DM is to receive and process 5 point briefs from the individual WRT I/Cs. As the key defects are rectified, the Major DM will then take the highest priority items from the Minor DM, taking action accordingly until all equipment is either back online or at a point where Command are content with progress.

d. The Minor Defect Manager is tasked with the management of defects that do not directly affect the Command Aim, prioritising equipment that has an effect on the C2 internal effort on board, and also identifying any potential change in Priority Environment and hence any items that may be necessary to support the a future Command Aim.

e. Given that Minor and Major DMs operate in exactly the same fashion and because the Major DM will be overloaded immediately following any hit, the initial deluge of Major defects identified at the structured look can initially be shared between both DMs.

f. The person operating in the Minor DM role can be range from a competent LET(WE) through to a CPOET(WE) Group Head. This decision can lie individually with each ship and depend on manpower availability and equipment fit. Those ships with a reduced WE fit in the Aft section may choose not to utilise a Group Head as the I/C of that WRT; in this case a Group Head could be employed as the Minor DM, permitting exposure to the WSB environment.

g. With Manpower control primarily coordinated at WRT level by each individual WRT I/C, the Manpower Controller now has additional capacity to conduct the 'L-Line' role. However, the overall manpower picture must still be held within the WSB to permit the Manpower Controller, in consultation with the IBO, to safely formulate and pass safe routes to individual WRT members. As personnel are allocated to defects, by their respective WRT I/Cs, their location must be relayed to the Manpower Controller who will ensure alignment with the DMs.

h. By retaining the tracking of manpower within the WSB, the availability of personnel can be closely monitored which can permit the Manpower Controller to reallocate WRT members to alternate defects as required. Individual WRT I/Cs are to inform the Manpower Controller about the status of their teams immediately post 'hit' and the current status of Blanket Searches; this information is to be 'Flashed' into the WSB.

i. The Manpower Controller is also responsible for raising defect cards for Blanket Searches that have not been completed, whether it be due to a lack of manpower, or a Blanket Searcher re-rolled to repair a defect. In this case, a 5 Point Brief Card must be raised which must then be handed to either the Major or Minor DM (depending on the location of the Blanket Search and whether the equipment in that area could affect the Command Aim). An outstanding Blanket Search must be prioritised as if it were a defect.

j. The roles conducted by the IBO and the Logistics support remain as per pre-REMS manned ships.