

THE DEFENCE LOGISTICS SUPPORT CHAIN MANUAL JSP 886

VOLUME 3 SUPPLY CHAIN MANAGEMENT

PART 310 MANAGEMENT OF REPAIRABLES (Formerly JSP 886, Volume 13, Leaflet MG 9/1)

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SECTION 1 - MG 9/1 - MANAGEMENT OF REPAIRABLES

BACKGROUND

1. The MG 9 series of Leaflets provide information on maintenance policy and guidance on all aspects of the management of repairables, and aims to promote the most efficient and cost effective management of repair programmes.
2. This leaflet sets out the procedures for the management of repair programmes, explains the various IT and other resources to assist in the task, and details the procedures to be used for the effective management of repairables.

PURPOSE

3. To familiarise IPTs with the procedures involved in the management of repairables and calculation of repair requirements to ensure they are consistent with usage and consumption.

GUIDANCE FOR THE MANAGEMENT OF REPAIRABLES

GENERAL INFORMATION

4. Reference Documents
 - a. JSP 886 Volume 2 Part 306 (MM 11) - The Preparation, Submission and Progression of Demand Orders and Requisitions
 - b. JSP 886 (Vol 13) MM87 - The Provisioning and Supply of RAF Equipment on Embodiment Loan to Contractors
 - c. JSP 886 Volume 3 Part 307 (MG 9/6) - Suffix Stock Procedures
 - d. JSP 886 (Vol 13) C25/1 - 3rd Line Calibration & Maintenance of Avionic & Ground Radio/Radar Equipment
 - e. JSP 886 (Vol 13) C25/4 - 3rd Line Maintenance and Calibration of Ground Radio/Radar Equipment.
 - f. Interim DEF Stan 05-99 - Managing Government Furnished Assets in Industry.
 - g. Def Stan 05-123/1 Chapter 501 - The Issue of MOD Owned Equipment.
 - h. Def Stan 05-126 - The Contractors Repair Supply Procedures.
 - i. MoD Contracts Manual Section 8.5 - Government Furnished Supplies.
 - j. EP3 User Guide.
 - k. DLO BP 1406 - Management of Repair.

INTRODUCTION

5. The recovery of equipment by repair provides a source of supply over which the Integrated Project Team (IPT) has a great deal of influence, both in Service and in

Industry. For repair to be an effective source of assets, the full co-operation and understanding of units, Commands and SA staff is necessary. The efficient control and cost-effective management of supply aspects in repair programmes is one of the prime responsibilities of IPTs. The IPT should, therefore, manage their repair programmes to ensure timely supply support to the Services and other customers to whom they have a responsibility.

6. The provisions of this leaflet do not apply to Defence Accommodation Stores. Repair policy and procedures for this range are covered in JSP 384 Chapter 9.

SUPPLY PROCEDURES

7. **Repair Management Parameters.** The setting of correct parameters for the control of repairable items is fundamentally important if repair programmes are to operate efficiently. There are numerous repair parameters, some manually set, others calculated by the Supply Control Computer System (SCCS). These need to be understood before Supply Managers can adequately manage a range of repairable equipment. A detailed explanation of these parameters is outlined below.

8. The main repair parameters are as follows:

a. **Contract Repair Allowance (CRA).** This is a parameter set by the Supply Manager (SM) and represents the highest level of repairable stock at a contractor and in transit which cannot be exceeded without creating a shortage of serviceable assets: See Paragraph 8c below. This figure is set when repair contract divisions are being created. Initially, (unless there are supply difficulties) it should relate to the anticipated number of R4 components to be fed in during the first few months of the contract relating to the number months in the Repair Period. This may be based on the most appropriate of the following:

$$\begin{array}{lll} \text{Repair Period} \times \text{Driving Factor} & = & \text{CRA} \\ \text{Or } \text{Repair Period} \times \text{R4 Arisings} & = & \text{CRA} \\ \text{Or } \text{Repair Period} \times \text{Monthly Feed in Rate} & = & \text{CRA} \end{array}$$

b. **Service Repair Allowance (SRA).** This is a parameter set by the SM and represents the total level of in-service R4 holdings which, if exceeded, could create a shortage of serviceable assets if R4 items are not fed in for repair. This figure is set when creating the item record, Transaction Code (TC) CLZ and is subsequently amended by TC APZ. It is not possible to give hard and fast rules on the setting of SRA because it will vary according to the item status, contract situation and the number of serviceable/repairable components in the system. The following notes are offered for guidance:

(1) **For Items in IP.** If the item is in IP, the SRA should be set to 1 to prompt early repair consideration. If once prompted an accurate assessment of SRA cannot be made, it can be set at up to 25% of the IP buy quantity and updated later in the life of the item when more consumption information is known.

(2) **Current Contract Cover Available.** The number of current R4 holdings after initial feed-in should be taken into account when reviewing the SRA. The suggested formula is: current R4 holdings **plus** monthly R4 arising rate **minus** initial quantity to be fed in against contract.

(3) **No Current Repair Cover.** Where repair calculations have resulted in a negative Repair Cover, SRA should be set at the number of R4 components held plus 75% of the negative Repair Cover, for example, surplus serviceable assets.

c. Once the CRA or SRA are exceeded, an Output Q028 (Advice of Repairable Item Out of Control) is generated. The SM should consider taking the action recommended in the SCCS and MJDI (POC) User Guide at JSP 886 (Vol 30) MO Q028.

d. **Repair Turn Round Time (RTRT).** The RTRT is an element of the RP and is the length of time, factory door to factory door, taken to repair an item. This period does not include the transit time to and from the factory.

e. **Repair Period (RP).** The RP is a parameter set by the SM and is defined as the time taken to repair an item, including the transit time to and from the repair centre. The RP is therefore the RTRT plus the transit time. The transit time on SCCS is calculated as 15 days for each direction, giving a total of 1 month. For the purposes of calculating Repair Cover (on EP3), 2 months transit time may be used, if this is more appropriate. Approval is required for RPs in excess of 6 months and the levels are as follows;

RTRT	RP	Approval
1-5	2-6	None Required
6-9	7-10	Head of Branch
10-23	11-24	Gp Capt/B2 level

Note: SCCS will not accept an RP in excess of 24 months.

f. **Forward Repair Contract Period (FRCP).** The FRCP is a parameter set by the Supply Manager and represents the number of months covered by a repair contract. For contracts which are longer than 12 months, a FRCP of 12 months is to be used for repair review purposes.

g. **Recovery Factor (RF).** The RF is a ratio between the number of items fed into a repair agency and the number items that are scrapped during the repair process. The RF is, therefore, calculated as follows:

$$\frac{\text{Qty fed in for Repair} - \text{Number Scrapped}}{\text{Qty fed in for Repair}}$$

It should be noted that the details of the items fed in for repair and scrapped by agencies should be taken from the same period (the last year, for example). If the number of items fed in for repair and scrapped at 4th Line is a positive number and

the numbers are equal to each other, the 4th line RF will be 0. In such cases the input information should be checked and if found to be correct, Engineering advice should be sought to review the repair policy of the item. The calculation should be discontinued.

- h. **Computed Repair Potential (CRP).** The CRP is a computer calculation of the number of items that past repair output and scrap arisings suggest can be obtained from a repair agency in the future. The CRP is, therefore, calculated as follows:

$$\frac{(\text{R4 Arisings} \times \text{FF} \times (\text{ROP} - \text{RP}) + \text{Global R4 Stock}) \times \text{RF}}{\text{Number of Months}}$$

- i. **Management Repair Potential (MRP).** The MRP is a parameter set by the Supply Manager and is an estimate of the number of items that can be produced by a repair agency during the ROP (Reorder Period). The SM arrives at this figure by utilising the CRP and applying realistic knowledge of factors such as scrap rates, unscheduled failures, repair capacity, manpower and financial constraints, modification programmes and operational constraints. Under normal circumstances the Supply Manager is to use the CRP which can be obtained from Output documents (for example, R001, R003, QSZ, QPZ) and is to be prepared to justify any variation. In the cases when accurate details for the completion of the MRP are not available (for example. Initial Provisioning), 25% of the IP quantity may be used.

9. The setting of a realistic MRP is one of the most important steps in the management of repairables. In the provisioning calculation the MRP is counted as an asset. It, therefore, follows that if the figure is set too high and where the R001 output is still utilised, Requisition Requests may be suppressed resulting in appropriate action not being taken. Alternatively, if the MRP is set too low, Output R001 will be generated needlessly.

CALCULATING REPAIR COVER

10. A review of all repairables should be carried out annually to ascertain repair contract cover for the forthcoming months and to establish if disposal action should be considered. The approved Repair Calculation Tool, EP3, should be used if available. Otherwise, the Repair Cover Out Sheet (SM Form 135 electronic Tool Repair Prov, should be used (or other approved method if exempt). The annual review date on EP3 should be set to initiate a Repair Review at least a period in time equal to the Administration Lead Time (ALT) before the contract/contract period is due to start. An interim Repair Review can be requested on EP3 at any time should the supply situation indicate that one is required. Further guidance can be obtained from the EP3 User Guide, available via the Supply Manager's Tool Kit.

11. The repair calculations are normally undertaken by the SM and checked by the Head of Cell (HOC). In some IPTs, it is also the policy for the Engineering Authority to review and agree the results of the repair calculations. The HOB will undertake a 5% check of repair calculations. This calculation is based on a Forward Repair Period (FRP) multiplied by the Driving Factor (see below). This is then added to normal direct and indirect liabilities and compared with assets. The FRP is similar to the FOP in concept but uses instead the appropriate repair parameter as follows:

$$\text{FRP} = (\text{DWSL} + \text{ALT (See Note)}) + \text{FRCP} + \text{RP}$$

Note: ALT is referred to in EP3 Repair and Repair Prov as Months to Start Date (MSD).

12. **Driving Factor (DF).** The DF is a figure used in the calculation of repair contract cover on ES3 Repair to assess future repair requirements. The DF may be based on either;

- a. Recurring Demand Rate (Global Forward Demand Rate, GFDR)
- b.
$$\frac{\text{R4 Arisings} \times \text{GFF}}{\text{Number of Months}}$$
- c.
$$\frac{\text{3rd Line ORM} \times \text{No Off}}{12}$$
 For Engine Areas only (see note below)

Note: Not all items removed from the Engine/module will be Unserviceable and require repair (any items removed as Serviceable will not enter the repair loop). The ORM (Overhaul Repair Meeting) calculation should therefore be multiplied by the Unserviceable Factor. If, for example, 75% of items are removed as Unserviceable, the ORM calculation at c. above should be multiplied by this factor (to 2 decimal place) for example, 0.75. The Unserviceable Factor should not exceed 1.

13. When calculating the most suitable DF, it is important to note that the GFDR is often suppressed to zero by SCCS and that the R4 arisings, information utilised by EP3 and found on Output documents (for example, R001, R003, QSZ, QPZ) are to be treated with caution. The most appropriate DF should be selected, after reference to contractors repair returns and/or application of the knowledge of the range. The results of the calculation are the basis for the negotiations of repair contract cover. Nothing, however, can be substituted for reasoned logic, and where there is evidence to support a different quantity for repair than that given by the calculation, then this should be used.

SUFFIX STOCK

14. Suffix Stock is a valuable potential asset and JSP 886 Volume 3 Part 307 (MG 9/6) explains the Suffix Stock procedure. SMs are to note that suffix stock does not constitute part of the asset equation in the provisioning process. In general the lead time for the repair of Suffix Stock will be less than purchasing a new item and efforts are to be made to have this equipment recovered first. 'Dues In' from Suffix Stock are to be included as assets in the Repair Calculation, where appropriate.

REPAIR AT THIRD LINE AND THE DARA

15. Repair facilities exist In-Service for some equipment for example, Ground Radio and Radar equipment, Electronic Testing and Measuring equipment (JSP 886 (Vol 13) C25/1 and C25/4 refer). Most other in Service repair previously carried out by the DARA at the following locations:

- a. The Aircraft Business Unit (ABU) at St Athan in South Wales and Fleetlands in Hampshire.
- b. The Electronic Business Unit (LBU) at Sealand, Deeside.
- c. The Engine and Components Business Unit (ECBU) at Almondbank on Tayside, St Athan and Fleetlands.

REPAIR IN INDUSTRY (REQUISITIONS)

16. The MOD preferred policy for repair at 4th line is to withdraw from spares support arrangements and to negotiate spares inclusive contracts or other approved innovative schemes, wherever possible provided these can be shown to be the most cost effective repair solution. Before raising the requisition for the new or follow-on contract, IPT staff should liaise with the Contracts Branch and MOD(DPA), if appropriate, to conduct an Investment Appraisal (SM Forms 190,191,192 and 193 refer), to establish the most appropriate contract arrangements. For a follow-on contract, it may be possible to encourage the contractor to accept a lower level of spares support, or for him to provide full commercial support at a rate which may be advantageous to the MOD.

17. The instructions for the completion of repair requisition are covered in JSP 886 Volume 2, Part 306 (MM 11). Instructions for the input of requisition details to SCCS are contained in the SCCS and MJDI (POC) User Guide at JSP 886 Volume 30, (MI 3/3 and MI 3/5). All repair requisitions are to specify that clauses are required in the contract to provide specified RTRTs and to provide a monthly repair progress return. A clause is also to be included which specifies the Beyond Economic Repair (BER) limit. See Paragraph 31 for more details on BER.

18. Details of the repair costs for new requirements should be obtained on a budgetary estimate basis from Industry or for existing requirements from the prices agreed against the current Contract for this equipment. In the absence of this information and for requisition purposes only, repair costs estimates may be based on the following;

a. Industrial Repair not Supported by Government Furnished Equipment.

Where repair is not supported by Government Furnished Equipment, use 50% of New Build price.

b. Repair Supported by Government Furnished Equipment or In-Service Repair. Where repair in Industry is supported by Government Furnished Equipment or for In-Service Repair use 30% of New Build price.

19. The contract requirements and the relevant clauses should be clearly specified on the requisition. These should include the need for returns from Industry, specified Repair Turn Round Times and repair cost data. Where staffs are in doubt they should liaise with the Contracts Branch during the requisition stage.

NOTIFICATION OF REPAIR SPARES REQUIREMENTS BETWEEN IPTS

20. If the repair of a component generates a requirement for a spare managed by another RM, the SM of the repairable item is to liaise with the manager of the spare part so that the appropriate provision action can be taken (Annex B to JSP 886 (Volume 13), MM 87 refers, SM Form 185 for EL items).

NOTIFICATION OF REPAIR FEED-IN ARRANGEMENTS AND CRSP SUPPORT

21. At least one month before repair planning meetings or no later than 3 months before commencement of repair feed-in, IPTs are to provide the repair agencies with details of the forecast for repair for the following annual period, plus a 3 Year/5 Year repair forecast. Such forecasts are to include, where possible, the approximate monthly feed-in rate to

assist the repair agency in their forward planning. The letter to the repair agency is to include a clause which explains that any feed-in figures are only estimates and do not represent any commitment by the MOD. Further details of this type of clause can be found in Section 2 of Def Stan 05-126. Where there is CRSP support of repair, the repair forecast figures are also used to assess spares requirements (Schedule 'A' - SM Form 112 refers). These should be advised to the Repair/CRSP Contractor, CRSP Warehouse and other SMs of the spares.

CONTRACT ACCURACY AND CONTRACT PROGRESSION

22. When the contract is received from the Commercial Branch, the IPT is responsible for ensuring that it contains all the relevant clauses required by the original requisition. If not, these should be queried with the Commercial Branch and changed if necessary. Once satisfied, the SM is responsible for inputting the details of the contract on SCCS and ensuring the R4 arising codes are set correctly.

23. Repair contracts are to be actively progressed by SM using SCCS outputs such as the Contract Situation Reports and Low Stock Reports. These are to be used in conjunction with Command HQ 'State' Demands to prompt discussion at the periodic progression meetings.

24. Inhibition Codes for Repair Contracts. There are three types of inhibitions codes which can be used, by the RM, to control the placement of Diversion Orders against the Repair Contracts and to allow/inhibit feed-in. These are as follows;

a. Inhibit Diversion Order Code. This inhibits the placement of Diversion Orders (DOs), on an item basis, against the contract (TC ACZ) and can be overridden by TC HDA. The codes are;

- 0 DOs not inhibited on the item.
- 1 System set to prevent DOs being placed until the date specified in the DO Release Date field.
- 2 DOs permanently inhibited on the item.

b. Contract Diversion Order Inhibit Code. This inhibits the placement of DOs on all items on the contract (TC AKZ) and can be overridden by TC HDA. The codes are;

- 0 DOs not inhibited.
- 1 DOs inhibited for all items on the contract.

c. Inhibit Feed-In Indicator. This inhibits the feed-in of R4 Arisings, on an item basis, against the contract (TC ACZ). The codes are as follows;

- 0 Feed-in of R4 Arisings allowed.
- 1 Feed-in of R4 Arisings inhibited.

REPAIRABLE ARISING AT UNITS

25. Return of Repairables from Units within the RAF Supply IT System (RAFSITS).

It is most important that repairables are returned to the designated repair agency as soon as possible. Following a unit recurring demand for a 'P' Class item, RAFSITS automatically creates an internal dues-in for the same quantity. The 'due' is cleared by the return of the repairable item into the custody of the unit Supply Sqn. If, after 21 days the repairable item has not been reported as being received in Supply Sqn. custody, the unit will receive an ADP output notifying it that the 'due' has been cancelled and the outstanding transaction is to be cleared by off-line management progression. The performance of the unit with respect to this procedure is tested during annual quality assurance inspections.

26. **Return of Repairable Arisings from Off-line Units.** Off-line units, unless specifically authorised to the contrary, are to return repairable arisings to the Depot.

AUTOMATICALLY PRODUCED INSTRUCTIONS FOR R4 HOLDINGS

27. **Unit and Depot Procedures.** The Supply Manager is to set and maintain a Depot and Unit repairable arising code for each on-line repairable item. These codes provide an automatic output to the appropriate unit giving details of the disposal instructions for the item, for example, whether the items are to be sent for 3rd/4th Line Repair, Retained or Returned to Depot. Detailed below are the R4 Arising Codes which are amended by TC APZ;

R4 Arising Codes - Depot

- 0 Retain
- 1 Not in Use
- 2 Report to SMB
- 3 Send to Contractor
- 4 Send to Specialist Repair Unit(SRU) with Commitment Order
- 5 Send to Contractor iaw current instructions
- 6 Not in Use
- 7 Not in Use
- 8 Send to SRU without Commitment Order
- 9 Not in Use

R4 Arising Codes - Unit

- 0 Retain
- 1 Report to Depot
- 2 Report to SMB
- 3 Send to Contractor
- 4 Send to SRU with Commitment Order
- 5 Send to Contractor iaw current instructions
- 6 Return to Depot
- 7 Not in Use
- 8 Send to SRU without Commitment Order
- 9 Not in Use

28. **Setting of R4 Arising Codes.** R4 Arising Codes should be set with care to ensure they are appropriate to the contract arrangements and allow direct feed-in to Contractor/SRU/DARA wherever possible and to avoid any unnecessary transportation via the Depot.

RETURN OF ITEMS FOR REPAIR

29. All items returned to a 3rd line or 4th line agency for repair are to be complete. Any deficiencies are to be recorded on the MOD Form 731 (Equipment Label). If the item is required to have an Engineering Record Card, this is to be enclosed with the item.

Instructions covering the disposal or retention of R4 equipment are to be issued in accordance with the R4 Arisings Code. Whenever an Advice of Disposal Instructions for R/D (R4) Equipment (U31) is produced at the unit in respect of R4 Arisings, repairables will be despatched using the appropriate Issue Priority. When R4 equipment is fed in for repair, either from the Depot or a Unit, under the specific instruction of the SM, the same issue priority is to apply. Exceptionally, SMs may authorise the use of Issue Priority 05 or 06 (05 or 08) for specific items to meet a critical shortage. When a unit is tasked by the SM to issue R4 equipment to a Contractor for repair, units are to use transaction code GRP. This will ensure that the contract records on SCCS are updated automatically.

SCALING REVIEW

30. Support Chain Solutions carry out an annual re-scaling exercise for all platforms, based on information supplied and verified by the IPTs, resulting in an annual scale output for both peace and war, for each DLO platform. It is important that IPT Engineering staff/Supply Managers ensure that the Logistic Technical Analysis section (LTA) within the Logistic Analysis and Research Organisation (LARO) are kept appraised of all developments and changes to their ranges; particularly where changes to class of store, alternatives, part numbers and contracted/achieved repair turn round times are concerned.

REPROVISIONING REVIEW

31. There are circumstances when a SM will consider that a single item of equipment is incorrectly scaled, or may be prompted to review the scaling requirement as a result of:

- a. Undertaking a repair review, if the quantity available for repair on the Repair Review Document is less than the repair cover requirement.
- b. EP3 advising that the scaling should be reviewed as a result of the calculations.
- c. There being any known factors likely to influence R4 arising rates, such as the introduction of modifications, item obsolescence, changes to the maintenance policy, changes to lifing details or special refurbishment programmes.
- d. An unusually high scrap arising rate.
- e. An unexpected substantial increase in recurring consumption rates at units.
- f. The turnover of repairables indicating a need to review the scale of unit Turn Round Spares.
- g. Spares holdings considered to be excessive.

In any of these circumstances, the SM should review the item concerned Engineering Authority for possible reprovisioning up to the existing scaled requirement, or disposal action where excess stock is held. Where the existing scaling is deemed to be insufficient or excessive, Support Chain Solutions should be consulted for further guidance (Paragraph 30 refers).

ITEMS BEYOND ECONOMIC REPAIR (BER)

32. There will be occasions when necessary repairs to an item are so extensive that the cost of the repair is deemed as uneconomical. Repair Agencies must request disposal

instructions from the SM for BER equipment. Items which are considered to be BER will normally be scrapped. Exceptionally, it may be necessary because of operational reasons, to waive the BER rule, for example, if the item is in short supply and the lead time of a New Build item is not acceptable. The authority to do so lies with the Head of Branch. The following guidelines are to be used to determine the BER limit:

- a. **Industrial Repair not Supported by Government Furnished Equipment.** When industrial repair is not supported by Government Furnished Equipment, a BER limit of 75% of the replacement item price is to be used.
- b. **Repair Supported by Government Furnished Equipment or In-Service Repair.** When repair is supported by Government Furnished Equipment or the repair is carried out in-Service a BER of 45% of the item replacement price is to be used.

ITEMS SCRAPPED

33. Authority must be obtained, from the SM (who should seek Engineering advice), before an item sent in for repair can be scrapped (Paragraph 32 above refers). Following the appropriate approval, the Supply Manager will be informed by one of the following means:

- a. Output Q073.
- b. MOD Form F650A.
- c. An RN equivalent Scrap Certificate.
- d. Locally Produced Scrap Certificate.

On receipt of a scrap certificate (sub Paragraph b, c or d above) for items scrapped by a Contractor/Repair Agency outside of SCCS, the SM should update the 'Qty Scrapped by Ctrr' on the Contract Record (TC ACZ). This action will result in SCCS decrementing the corresponding amount from the 'Qty Dues In' and 'Qty Fed In'. Where the Contractor/Repair Agency does not allow Compensatory Feed In, staff will need to increase the 'Fed In' figure by the number scrapped.