



Repair of Rotable Equipment

1.0 PURPOSE

This procedure sets out guidelines for offsite repair of rotatable equipment.

2.0 SCOPE

This procedure applies to all repairs of rotatable equipment organised by the Supply Department.

3.0 REFERENCES

AS 3902/ISO 9002 – 1987 - Quality Systems for Production and Installation
ISO 8402 - Quality - vocabulary
AS 1057 - Quality Assurance and Control - Glossary of Terms

Note: In the event of conflict between AS 1057 and ISO 8402, the latter will prevail.

TP-SPLY-001 - Supply Logistics Requirements - Rotable Equipment

4.0 DESCRIPTION

The activities required to control repair of rotatable equipment are charted in Section 5.0 Documentation - Annex.1.

4.1 Removal of Equipment

4.1.1 Field Removal

As determined by breakdown or planned maintenance requirements, equipment will be removed from the field by the area maintainers.

4.1.2 RIM – Rotables Inventory Management

When a rotatable item is requisitioned from the Warehouse, the Ellipse RIM module automatically notifies the Rotables Maintainer by email. This process ensures that advance notice is received of a repair requirement.

4.1.3 Transport, Contamination and Tagging

- a. Rotable items requisitioned from the store shall be issued with a blue "Rotables" tag. This tag indicates to the Maintainer that the equipment being replaced is a rotatable item and must be considered for repair upon removal.
- b. Once the piece of equipment has been removed from service, the Maintainer is responsible for attaching to the item of equipment an "Item for Repair" tag (Annex 2).
- c. The maintainer is further responsible for completing the tag against each heading using a permanent marker:
 - Equipment No./Tag No. (2 places)
 - W/O No. (Work Order Number - 2 places)
 - Tradesperson to insert his/her name
 - Reason for Removal – Maintainer Personnel to specify the reason(s) the equipment was removed.
- d. Once an item has been removed from service, it must be "washed down" before it can be released for subsequent maintenance activities. The "wash-down" and "release" shall be managed by the Production Coordinator within the plant area. The practice of the "Wash-Down Operator" applying an "Information" tag if he/she becomes aware of a hazard when washing is encouraged. "Wash down" involves

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cleaning and flushing necessary to ensure that as much of the contaminant as practical is removed from the item.

- e. It is the responsibility of the Production Coordinator (or delegate) to transport "washed down" items to the "Washed and ready for Decontamination" area (located outside the workshop).
- f. The Maintenance Supervisor (or his delegate) will then review the washed equipment and determine:
- If the equipment is to be scrapped (in consultation with the Rotables Service Officer)
 - The risk associated with the decontamination process and the scope and location to undertake decontamination activities (i.e. Workshop, Hydrolyzing Shed or Unit 600 Wash-down Facility)
- g. After decontamination of equipment is complete, the Maintainer is responsible for attaching a "Decontamination" tag (Documentation 6.3). Information from the "Item for Repair" tag must be transferred to the "Decontamination" tag by the Maintainer. The item shall then be transferred to the "Decontaminated and Ready for Repair" area outside the workshop (or left in the U600 wash-down area). Decontamination involves stripping, cleaning and flushing as required to ensure that there is no likelihood of a health or safety hazard to subsequent maintenance operations.
- Note:** Only items with "Decontamination" tags shall be located in the "Decontaminated and Ready for Repair" area outside the workshop.
- h. The Maintainer is further responsible for completing the tag against each heading using permanent marker;
- Equipment Number/Tag Number
 - Work Order Number
 - Tradesperson/Operator to insert his/her name
 - Tradesperson/Operator to sign his/her name
 - Reason for removal – Maintainer/Operations Personnel to specify the reason(s) the equipment was removed.
- i. If there is still possibility of a hazard existing after the decontamination process is practically completed, then no "Decontamination" tag shall be fitted. An "Information" tag shall be fitted describing the hazard. The future course of action must be assessed on case-by-case basis. This must involve discussion with the "person taking control of the equipment for repair" (i.e. Rotables Service Officer, Workshop Supervisor or Repair Contract Supervisor). A JSA will normally be required for subsequent decontamination activities.

4.2 Preparation of Equipment

4.2.1 Review

The Reliability Workshop Supervisor/Contract Coordinator and the Rotables Service Officer assign for repair the equipment deposited in the "Equipment Requiring Maintenance" area.

4.2.2 Assignment for Repair

The maintainer removes the bottom tear off portion of each "Item for Repair" tag and passes it onto the relevant Area Planner. The Area Planner then notifies the Rotables Service Officer of the repair, either by passing on the tag, or by email.

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The Workshop Supervisor/Contract Coordinator notes details of rotatable equipment requiring maintenance and consults with the Area Planner, the Area Maintenance Superintendent, and the Rotables Service Officer, to determine when the equipment must be back on-site.

Note: Outside of normal work hours it may be necessary for the shift mechanical supervisor to carry out the functions listed above, if the work is urgent.

The Reliability Workshop Supervisor/Contract Coordinator decides whether the equipment is to be repaired on-site or off-site, based on turnaround requirements, spares availability, manpower, past history, etc, and advises the Rotables Service Officer.

4.3 Workshop Repairs

When equipment is to be repaired in the Workshop the Rotables Service Officer will raise a new work order to cover the repairs. This work order is to be raised by duplicating the original work order, and adding a "W" prefix to the front of original work order number. This will allow the maintainer who performs the repair to be fully aware of the reasons for removal, assisting in definition of the repair scope, and also allow the costs to be correctly allocated to the original equipment.

The RIM module will automatically raise a purchase order for the equipment, thus preventing re-order of the equipment whilst the repair is progressed, and facilitate the return of the equipment to the warehouse after repair.

The Reliability Workshop Supervisor/Contract Coordinator will authorise the work order and then assign it to a maintainer, setting the priority for the work using the criteria above.

4.4 Repair and Maintenance Contracts

It is the responsibility of the Rotables Service Officer to issue a "Repair and Maintenance Contract" for items that are to be sent off-site. The RK repair request must detail the Supplier, Scope of Work, Supply of parts (i.e. Free Issue or repairer procurement), and the required return Date.

The original and duplicates of this contract are sent to Supply, the Rotables Service Officer retaining the book-fast copy.

The type of equipment, anticipated cost of repair, and the scope of work will determine whether a single quote will suffice, or whether multiple quotes or tenders should be requested.

On completion of the Repair and Maintenance Contract documentation, the equipment item is dispatched to the off-site supplier with the supplier's copy of the contract documentation.

Note: The Repair and Maintenance contract stipulates that the contractor must certify that repairs or maintenance were carried out in accordance with the contract.

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4.4.1 Off Site Repair Requiring Single Quote

- a. Equipment repairs that do not require multiple quotes will be sent to the supplier nominated by the Rotables Service Officer, after consultation with the Repair and Maintenance Inspector. It is the Repair and Maintenance Inspector's responsibility to determine the most appropriate repairer, based on the type of repair, availability of parts, workloads etc.
- b. The Rotables Service Officer will fax/email a copy of the Repair Order, with the scope of work, to the Repair & Maintenance Inspector for notification of the Repair. If the repair is urgent, and if the Repair and Maintenance Inspector is unable to assist in expediting the repairs, then the whole job will be handled directly by the Rotables Service Officer.
- c. Once the supplier receives the item for repair and the scope of work, a quote is to be prepared, and the detailed costing transferred to the 'Tiwest Joint Venture – Kwinana Quote Sheet'.
- d. The quote is to be faxed/e-mailed to the Rotables Service Officer and the Repair and Maintenance Inspector, who discuss and agree on the quote.
- e. The Rotables Service Officer takes the quote to the Area Maintenance Superintendent for Authorisation of the repair, and then faxes the authorised quote to the repairer to start the repairs. The original signed quote is then forwarded to Purchasing who input the details to the Ellipse system.

Note: Steps c) to e) are to be repeated as required, if a scope of work must be changed as a result of a supplier's survey, or due to unforeseen problems arising during the repair work. The Repair & Maintenance Inspector is to notify the Rotables Service Officer by e-mail, and send a revised quote for authorisation. The revised quote must be clearly marked as a revision, and include a revision number for tracking purposes.

4.4.2 Off Site Repair Requiring Multiple Quotes

- a. Suppliers will be requested to inspect the item for repair, either at site or another designated location. Each supplier must be given a copy of the written work scope, details of any parts to be free issued, the required return date, and any specific conditions which are to be applied. Suppliers must also be advised of any alterations to the scope, which may result from discussions between Tiwest and other suppliers during the course of the process. The supplier is then to provide a quote on the 'Tiwest Joint Venture – Kwinana Quote Sheet'.
- b. The Rotables Service Officer and the Repair and Maintenance Inspector will discuss the quotes and select the most appropriate one, taking into account the cost, type of repair, supplier workloads, etc.
- c. The Rotables Service Officer then takes the quotes to the Area Maintenance Superintendent for Authorisation of the recommended repair.
- d. The Rotables Service Officer raises an RK Repair Request detailing the agreed Supplier, Scope of Work, Supply of parts (i.e. Free Issue or repairer procurement), and the required return Date, as per the discussions and quote.

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- e. The Rotables Service Officer then takes the RK Repair Request to Purchasing, who will forward the order to the supplier.
- f. Once the RK Repair Request is completed the Warehouse Supervisor dispatches the equipment item to Supplier, unless it was sent off site for the quote process.
- g. The Rotables Service Officer will fax a copy of the Repair Order and the agreed scope of work to the Repair & Maintenance Inspector for notification of the Repair.

Note: Steps b) to e) are to be repeated as required, if a scope of work must be changed as a result of a supplier's survey, or due to unforeseen problems arising during the repair work. The Repair & Maintenance Inspector is to notify the Rotables Service Officer by e-mail, and send a revised quote for authorisation. The revised quote must be clearly marked as a revision, and include a revision number for tracking purposes.

4.5 Expediting Rotable Equipment

The Repair and Maintenance Inspector will follow up on outstanding items with the Supplier. This includes initiating all necessary expediting by Tiwest or contract personnel.

Liaison with the Reliability Workshop Supervisor/Contract Coordinator and Rotables Service Officer is considered critical to the facilitation of timely equipment repair. Any overrun on due date is to be discussed with the Rotables Service Officer and the Area Maintenance Superintendent, as soon as it is apparent that there is a problem.

Similarly, the Repair and Maintenance Inspector shall review and investigate alternate repair methodologies and supplier repair facilities, to determine which suppliers can carry out the repairs required, with Quality, Cost and Repair Time as the main focus.

4.6 Quality Control

Contractor certification that repairs/maintenance were carried out as specified in the contract constitutes inspection acceptance, upon TIWEST review and approval (by signature or initials) of each contractor certificate. The Repair and Maintenance Inspector is responsible for such review and approval.

Liaise with Suppliers who are repairing equipment to ensure quality of repair, at the agreed cost.

4.7 Scrap Control

All scrapped items are to be returned to site with delivery dockets for tracking.

5.0 DOCUMENTATION

- Annex 1 Off-site Rotables repair chart
- Annex 2 Item for Repair Tag

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ANNEX 1 – Off-Site Rotables Repair Chart
ACTIVITY

ACTION BY

EQUIPMENT FAILURE, OR REMOVAL FOR PLANNED MAINTENANCE. ROTABLE REQUISITIONED FROM WAREHOUSE.	MAINTAINER
RIM MODULE EMAILS ROTABLES MAINTAINER DETAILS OF TRANSACTION.	
REMOVE AND TRANSPORT TO AREA LAYDOWN BAY. (MAINTAINER TO ENSURE THAT PRODUCTION HAS CLEANED ITEM)	MAINTAINER
PLACE REPAIR TAG ON ITEM	MAINTAINER - COMPLETES REPAIR TAG DETAILS
ADVISE HALF OF REPAIR TAG DELIVERED TO WORKSHOP SUPERVISOR. ANY SPECIFIC REQUIREMENTS TO BE DETAILED, INCLUDING DUE DATE IF NECESSARY.	AREA PLANNER
WORKSHOP SUPERVISOR & ROTABLES MAINTAINER DECIDE WHETHER TO REPAIR IN-HOUSE OR EXTERNALLY.	RELIABILITY WORKSHOP SUPERVISOR & ROTABLES SERVICE OFFICER
<u>IF EXTERNAL:</u> REPAIRER THEN ROTABLES MAINTAINER COMPLETES RMC, AND FORWARDS TO STORE WITH ITEM. <u>IF IN-HOUSE:</u> ITEM ALLOCATED TO WORKSHOP MAINTAINER FOR REPAIR.	ROTABLES SERVICE OFFICER RELIABILITY WORKSHOP SUPERVISOR
EQUIPMENT DELIVERED TO SUPPLIER WHO INSPECTS AND QUOTES ON REPAIR.	STORE / SUPPLIER
QUOTES REVIEWED, THEN RECOMMENDED QUOTE TAKEN TO AREA MAINTENANCE SUPERINTENDENT FOR AUTHORISATION.	ROTABLES SERVICE OFFICER & REPAIR & MAINTENANCE INSPECTOR
SUPPLIER ISSUED WITH AUTHORISED CONTRACT.	PURCHASING
REPAIR EFFECTED.	SUPPLIER
CHECK REPAIR QUALITY, FOLLOW UP OUTSTANDING ITEMS, INITIATE EXPEDITING.	REPAIR & MAINTENANCE INSPECTOR
REPAIRED AND INSPECTED EQUIPMENT IS RECEIVED BACK INTO STORE	

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ANNEX 2

ITEM FOR REPAIR TAG

ITEM FOR REPAIR

EQUIPMENT No./TAG No.

W/O No. TRADESMAN.....

REASON FOR REMOVAL:

.....

.....

.....

EQUIPMENT No./TAG No.:

W/OR No.:

ITEM FOR REPAIR

Decontamination Tag

CAUTION

Decontamination Tag

Be aware that this equipment
DMR & controls entraped
 (CHECK WHICHEVER APPLICABLE)

Chlorine
 Titanium Tetrachloride
 Sodium Hydroxide
 Sodium Aluminate
 Hydrochloric Acid
 Sulphuric Acid
 Sodium Sulfate
 Aluminium Chloride
 Other (specify).....

USE SAFETY PROCEDURES AS
 DESCRIBED IN MATERIAL
 SAFETY DATA SHEETS (MSDS)

TWT 946

DECONTAMINATION TAG

EQUIPMENT No./TAG No.:

W/O No.: NAME:

SIGNATURE:

REASON FOR REMOVAL:

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AMENDMENT FORM

The following amendment has been made to this document:

DCR/PCR	Change
Page: 5	Update procedure for Tagging of equipment
Page 11	Addition of Decontamination Tag sample
DCR5112	Pgs 1 & 2 - Changes to decontamination procedure
10/01/08	Bi-Annual Audit – minor changes to titles & signatories

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