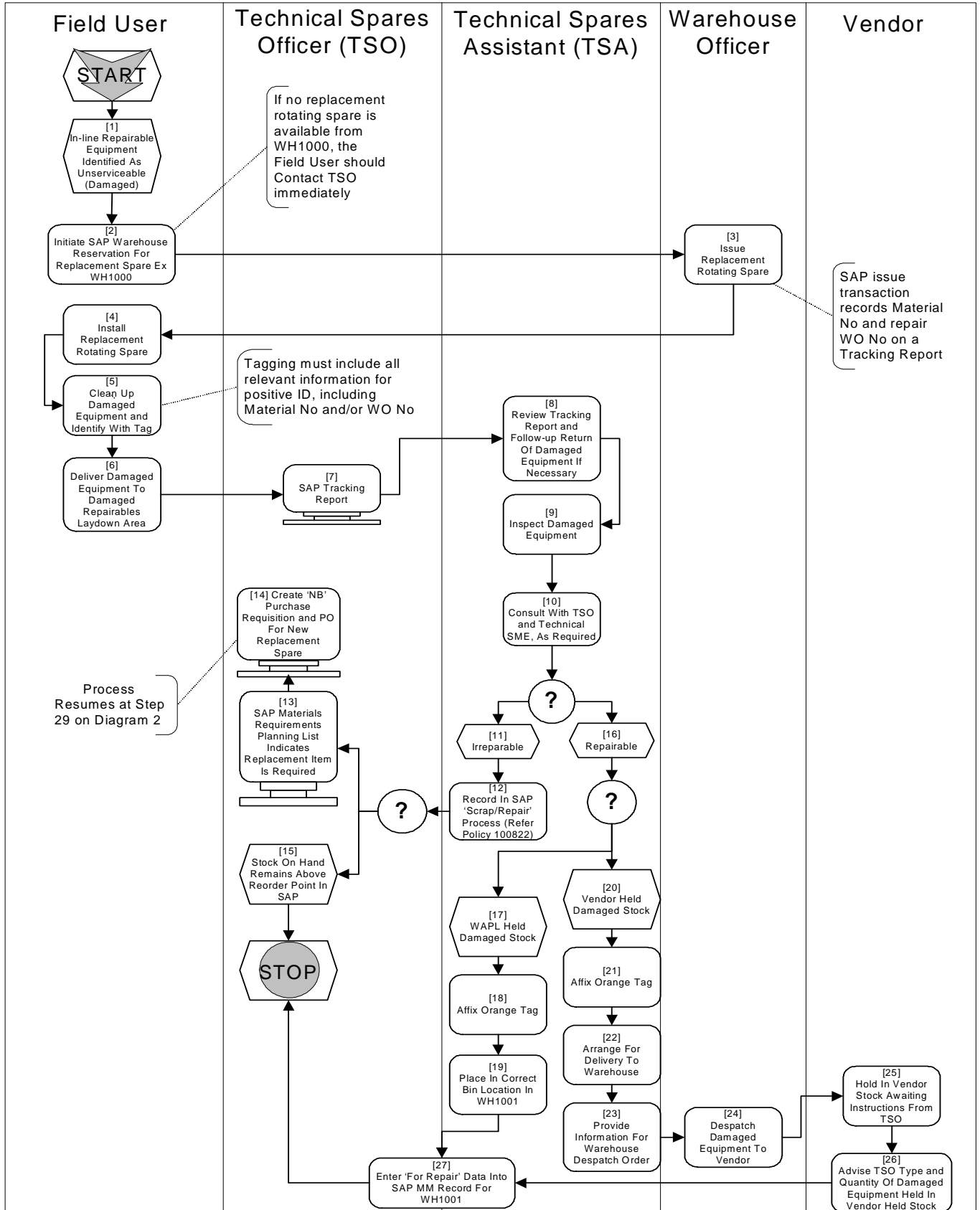


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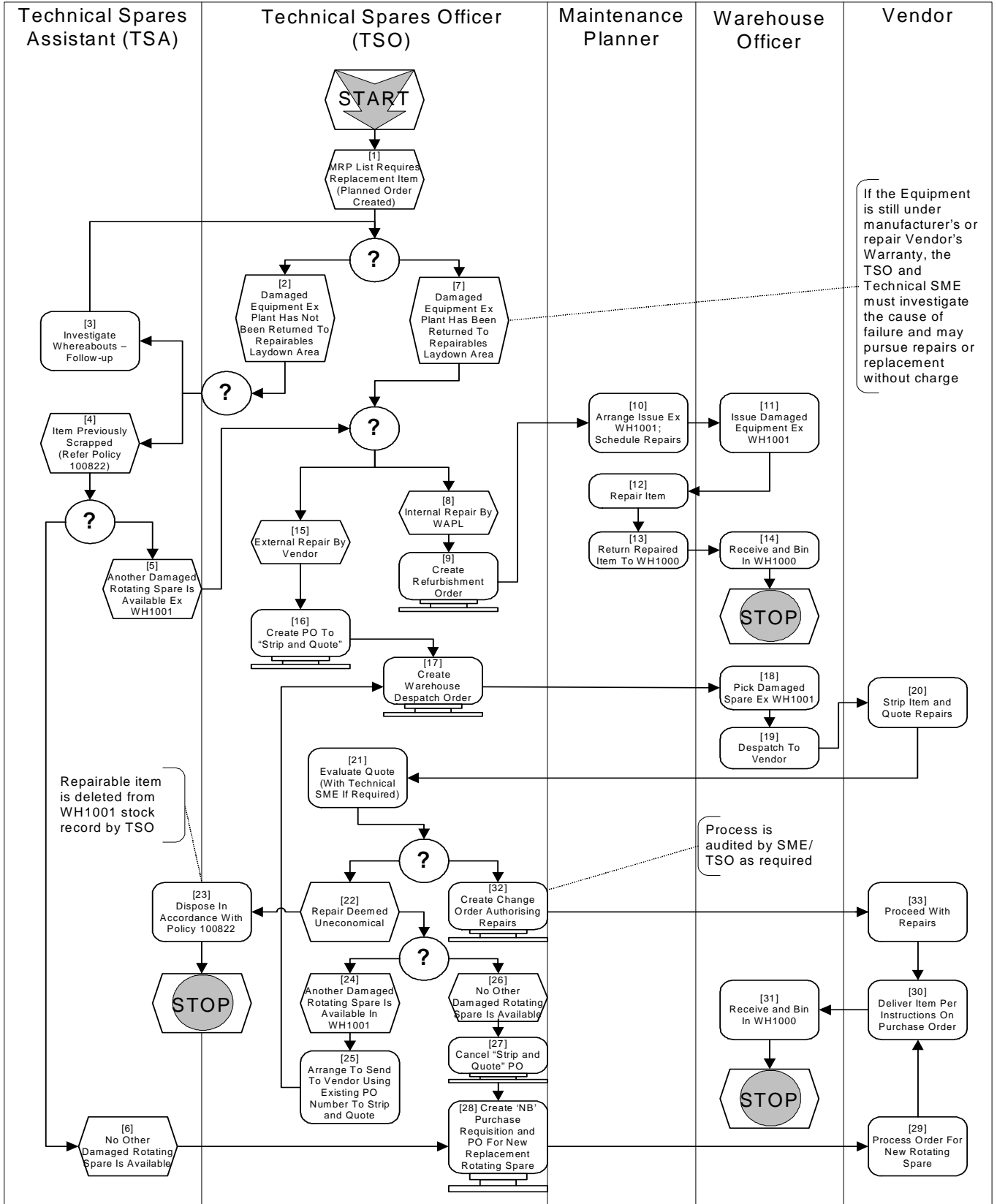
Damaged Spares Management – Diagram 1



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Repair Process – Diagram 2



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1 Purpose

- Overview** The purpose of this document is to record the process for getting repairable rotating spare equipment in and out of service in Refinery operating areas and the related arrangements for effecting their repair or disposal and replacement as required.
- Rationale** The rationale/philosophy supporting this document is that many engineered items of equipment in service can be economically repaired by replacing or restoring wearing components. Managing and maintaining an inventory of repaired items, ready for ‘rotation’ back into service as the need arises, is efficient and cost effective.
- Results** The results of a managed repairable spares process include:
- Availability of adequate stocks of rebuilt equipment.
 - The provision of a mechanism to facilitate decisions to repair or scrap and replace.
 - Cost effective Worsley Workshop (internal) or Vendor (external) repairs.
- Benefits** The benefits of managing a repairable spares process include:
- Cost advantages over full replacement value.
 - The provision of reliable ‘as new’ equipment to support production.
 - Facilitation of maintenance planning and scheduling.

2 Scope

- Scope Overview** The scope of this document includes the Worsley Asset.
- IT Systems** Information Technology (IT) systems utilised to facilitate this process is SAP MM (Materials Management) Module.
- Limitations** The following procedures have been identified, but not developed yet:
- Worsley Workshop Refurbishment Order Processing.

This document includes:

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3 Responsibilities

Field User	<ul style="list-style-type: none"> <input type="checkbox"/> Identify damaged ‘in line’ repairable equipment. <input type="checkbox"/> Requisition replacement spare and install. <input type="checkbox"/> Clean up and identify damaged equipment and deliver to Laydown Area.
Technical Spares Officer (TSO)	<ul style="list-style-type: none"> <input type="checkbox"/> Consult with Technical Subject Matter Experts to determine equipment condition. <input type="checkbox"/> Liaise with Worsley Workshop and Vendors. <input type="checkbox"/> Manage SAP MM functions related to ordering repairs or scrap and replace.
Technical Spares Assistant (TSA)	<ul style="list-style-type: none"> <input type="checkbox"/> Assist TSO as required.
Maintenance Planner	<ul style="list-style-type: none"> <input type="checkbox"/> Arrange Worsley Workshop repairs as required.
Warehouse Officer	<ul style="list-style-type: none"> <input type="checkbox"/> Issues and receipts of repaired and new replacement rotating spares.
Vendor	<ul style="list-style-type: none"> <input type="checkbox"/> Strip and quote (external) repairs as directed. <input type="checkbox"/> Effect repairs as directed. <input type="checkbox"/> Supply new replacement rotating spare equipment as directed.

4 Repairable Equipment (Rotating Spares) Management

4.1 Damaged Spares Management

Rotating Spare Not every item of equipment is suitable for refurbishment.

Due largely to continuous improvements in design and advanced technology in materials,

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methods of manufacture, etc, many items of modern equipment are designed to be scrapped and replaced after a relatively short working life.

The starting point in the Rotating Spare cycle described in section 4.1.1 is the ‘in line’ identification of an item of damaged equipment, (broken down or at the planned change-out stage) which has been predetermined as a suitable rotating spare candidate and recorded as such in the SAP MM Module.

4.1.1 Damaged Spares Management – Diagram 1

Please refer to the flow diagram

[1] In-line Repairable Equipment Identified As Unserviceable (Damaged)

“Damaged” equipment in-line may be broken down or due for planned change-out.

[2] Initiate SAP Warehouse Reservation For Replacement Spare Ex WH1000

If no replacement rotating spare is available from WH1000, the field user should contact the Technical Spares Officer immediately to determine availability.

[3] Issue Replacement Rotating Spare

Issue replacement rotating spare from WH1000 and record the SAP transaction.
On issue from the warehouse, a separate picking slip will now be printed for materials marked as ‘Rotating Spare’. This picking slip will be placed in an orange envelope and attached to the item.

[4] Install Replacement Rotating Spare

Install replacement rotating spare.

[5] Clean Up Damaged Equipment and Identify With Tag

The item removed from service must be thoroughly cleaned as required to remove all loose hazardous substances before leaving the process pad or work area.
Other loose items such as gaskets, bolts and debris must be removed from the damaged equipment and/or pallets so as to enable safe transport, possibly offsite.

Use the ‘orange envelope’ that was supplied with new item and place on damaged item.
The picking slip is required to be filled in with relevant details by the field user and placed back into ‘orange envelope’.

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[6] Deliver Damaged Equipment To Damaged Repairables Laydown Area The damaged spare is then to be returned to the rotating spares staging point in your Area and/or returned by the field user to applicable lay down area.
Contact Technical Spares Assistant (TSA) for further details.

[7] SAP Tracking Report SAP issue transaction records Material number and repair work order number on a tracking report.

[8] Review Tracking Report and Follow Up Return Of Damaged Equipment If Necessary Review tracking report and follow up return of damaged equipment if necessary.

[9] Inspect Damaged Equipment The damaged spare is identified by the TSA/TSO from information in the attached 'orange envelope'.

[10] Consult With TSO and Technical SME As Required Consult with TSO and Technical SME, as required, to determine if damaged equipment is repairable.

[11] Irreparable The damaged equipment is either beyond repair or deemed uneconomical to repair.

[12] Record in SAP 'Scrap/Repair' Process Record in SAP 'Scrap/Repair' process.

[13] SAP Materials Requirements Planning (MRP) List Indicates Replacement Required The predetermined reorder point has been broken, generating a planned order in SAP.

[14] Create 'NB' Purchase A Purchase Order is generated by the Technical Spares Officer via the normal procurement process in SAP to procure a new replacement spare.

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Requisition and PO For New Replacement Spare

[15] Stock On Hand Remains Above Reorder Point In SAP

The predetermined reorder point has not been broken. No action is required.

[16] Repairable

The damaged equipment is not beyond repair and is economical to repair.

[17] WAPL Held Damaged Stock

The damaged item is to be held by WAPL pending refurbishment order.

[18] Affix Orange Tag

The orange tag identifies the item as a WAPL held repairable spare with SAP Material number.

[19] Place In Correct Bin Location In WH1001

WH1001 is set aside for damaged equipment pending refurbishment. The item is placed in the appropriate bin location/compound. Go to step [27].

[20] Vendor Held Damaged Stock

The damaged item is to be held by a predetermined Vendor pending an order to strip and quote repair costs.

[21] Affix Orange Tag

The orange tag identifies the item as a Vendor held repairable spare with SAP Material number.

[22] Arrange For Delivery To Warehouse

Arrange for delivery to Warehouse.

[23] Provide Information For Warehouse Despatch Order

Provide information for Warehouse Despatch Order.

[24] Despatch Damaged Equipment To Vendor

Despatch damaged equipment to Vendor.

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[25] Hold In Vendor Stock Awaiting Instructions From TSO

Hold in Vendor stock awaiting instructions from TSO.

[26] Advise TSO Type and Quantity Of Damaged Equipment Held In Vendor Held Stock

Advise TSO type and quantity of damaged equipment held in Vendor held stock.

[27] Enter 'For Repair' Data Into SAP MM Record For WH1001

Enter 'For Repair' data into SAP MM record for WH1001.

4.2 Repair Process

General

Repairs are undertaken either internally by Worsley's Workshop or externally by Vendors who may represent the original equipment manufacturer, or other companies who may have developed capabilities to provide cost effective repairs and/or replacements.

The damaged spares management process described in section 4.1 is principally about getting rotating spares in and out of line in order to maintain Refinery production.

This section examines the process of managing the repair or replacement of a rotating spare, from the perspective of the Technical Spares Officer responsible for ensuring timely availability of the item.

4.2.1 Repair Process – Diagram 2

Please refer to the flow diagram

[1] MRP List Requires Replacement Item (Planned Order Created)

The predetermined reorder point has been broken, generating a planned order in SAP.

[2] Damaged Equipment Ex Plant Has Not Been Returned To Repairables Laydown Area

Damaged equipment ex plant has NOT been returned to the Repairables Laydown Area.

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[3] Investigate Whereabouts - Follow-up

TSA checks with field users to determine the whereabouts of the item removed from service.

[4] Item Previously Scrapped (Refer Policy 100822)

The item removed from service was destroyed or so badly deteriorated as to be scrapped immediately upon removal. Refer to Disposal of Equipment and Materials Policy (100822).

[5] Another Damaged Rotating Spare Is Available Ex WH 1001

Another damaged rotating spare is available ex WH1001.

[6] No Other Damaged Rotating Spare Is Available

No other damaged rotating spare is available.

[7] Damaged Equipment Ex Plant Has Been Returned To Repairables Laydown Area

Damaged equipment ex plant has been returned to Repairables Laydown Area.



Note

If the equipment is still under manufacturer's or repair vendor's warranty, the Technical Spares Officer and Technical Subject Matter Expert must investigate the cause of failure and may pursue repairs or replacement under warranty.

[8] Internal Repair By WAPL

Internal repair by WAPL.

[9] Create Refurbishment Order

Refurbishment Order is created in SAP by Technical Spares Officer in consultation with the Workshop Planner in respect of availability of parts and labour and delivery lead time.

[10] Arrange Issue Ex WH 1001, Schedule Repairs

Arrange issue ex WH1001, schedule repairs through WAPL Workshop in accordance with discussions with TSO.

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-
- [11] Issue Damaged Equipment Ex WH1001** Issue damaged equipment ex WH1001.
-
- [12] Repair Item** Repair item.
-
- [13] Return Repaired Item To WH1000** Return repaired item to WH1000.
-
- [14] Receive and Bin In WH1000** Receive and bin in WH1000.
-
- [15] External Repair By Vendor** External repair by Vendor.
-
- [16] Create PO To "Strip and Quote"** Purchase Order created in SAP for the nominated Vendor to strip and quote repairs only. The Order to include all necessary technical documentation, scope of work and current revisions of relevant drawings as required.
-
- [17] Create Warehouse Despatch Order** A system generated Warehouse Despatch Order is printed at the Warehouse allowing despatch of the item to the appropriate Vendor.
-
- [18] Pick Damaged Spare Ex WH1001** Upon printing of the Warehouse Despatch Order the required item is picked from the damaged stock warehouse (WH1001) and prepared for despatch by the Warehouse Operator.
-
- [19] Despatch to Vendor** Item is despatched to Vendor as per Warehouse delivery system.
-
- [20] Strip Item and Quote Repairs** Vendor returns a quotation to the Technical Spares Officer for repairs in accordance with the scope of work issued with the Purchase Order.
-
- [21] Evaluate Quote (With Technical SME If Required)** The Vendor's quote is evaluated by the Technical Spares Officer in consultation with technical SME as required.
-
- [22] Repair Deemed Uneconomical** Repair deemed uneconomical.

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Note

The guideline regarding economical repair is that costs should be less than 75% of new replacement cost and with acceptable delivery lead times.

[23] Dispose In Accordance With Policy 100822

Dispose in accordance with Disposal of Equipment and Material Policy (100822).

[24] Another Damaged Rotating Spare Is Available In WH1001

Another damaged rotating spare is available in WH1001.

[25] Arrange To Send To Vendor Using Existing PO Number To Strip and Quote

Arrange to send to Vendor using existing Purchase Order number to strip and quote. Return to step [17].

[26] No Other Damaged Rotating Spare Is Available

No other damaged rotating spare is available.

[27] Cancel "Strip and Quote" PO

Cancel "strip and quote" PO.

[28] Create 'NB' Purchase Requisition and PO For New Replacement Rotating Spare

Create 'NB' Purchase Requisition and Purchase Order for new replacement rotating spare.

[29] Process Order For New Rotating Spare

Process order for new rotating spare.

[30] Deliver Item Per Instructions On Purchase Order

Vendor returns the repaired items in accordance with Purchase Order instructions.

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Note

Any quality assurance or statutory inspections required are undertaken upon receipt. Test certificates and other relevant documentation are recorded and filed as directed by the Technical Spares Officer.

[31] Receive and Bin In WH1000

Receive and bin in WH1000.

[32] Create Change Order Authorising Repairs

Create Change Order authorising repairs.

[33] Proceed With Repairs

Repairs are undertaken at the quoted cost and in accordance with instructions in the Change Order.

5 Definitions, Terms and Abbreviations

IT	Information Technology
MM Module	Materials Management Module within SAP
MRP	Materials Requirements Planning
PO or Purchase Order	A SAP generated WAPL Purchase Order issued to a Vendor for external repairs.
Refurbishment Order	A SAP generated Order issued for internal repairs by WAPL workshop.
SAP	Systems, Applications and Products. An integrated and computerised business system developed by SAP-AG which is used to implement and automate Worsley documentation.
SME	Subject Matter Expert
TSA	Technical Spares Assistant
TSO	Technical Spares Officer
WAPL	Worsley Alumina Pty Ltd/the Worsley Asset
WH1000	Warehouse designated for holding normal spares
WH1001	Warehouse designated for holding damaged spares
WO	Work Order

6 References

100822	Disposal of Equipment and Material Policy
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7 Document Control

Reviewer Acceptance

Role	Name	Signature	Date
Purchasing and Warehouse Superintendent			
Purchasing Coordinator Tech Spares			
Senior Technical Spares Officer			
Warehouse & Inventory Coordinator			
Workshop Superintendent			
Reliability Maintenance Superintendent			
Planned Maintenance Superintendent			
Shutdown Maintenance Superintendent			
Raw Materials Asset Care Superintendent			
Senior Financial Accountant			
Commercial Manager			
Production Services Manager			
Document Steward			

Approval Circulation

Role	Name	Signature	Date
Commercial Manager			
Document Administrator			
Document Integration Review			