



Exploration & Production

GENERAL SPECIFICATION

Field Operations

GS EP EXP 205

Requirements to MIE Team for Spare Parts

06	01/2012	Modification of Spare Parts Supply process, SPL-E recommendation.
05	01/2011	MIE Team, sp definition, Spare Part supply process, SPL form
04	10/2008	Separation MIEC and Vendor or Supplier definition,
03	10/2005	Updating for SAP (UNISUP & SALSA) co
02	09/2003	Change of group name and logo
01	11/2002	Form modifications
Rev.	Date	Notes

Owner: OPS/EXP

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1. Scope and application

1.1 Scope

This document provides to MIE Team the required method to define all the Operating Spare Parts.

The operational objectives pursued are:

- To have 100% of initial stock stored in the Subsidiary Warehouse(s), before the start-up of the installations
- To populate CMIMS and MM module with all the Operating Spare Parts in order to easily allow their procurement and/or replenishment at any time during the life time of the installations.

1.2 Application

This document applies to all construction projects including the erection of new facilities and the modification of existing facilities, either implemented by integrated project groups or by modification/ construction or maintenance teams of the affiliates. It concerns all facilities operated by company.

2. Reference documents

The reference documents listed below form an integral part of this General Specification. Unless otherwise stipulated, the applicable version of these documents, including relevant appendices and supplements, is the latest revision published at the EFFECTIVE DATE of the CONTRACT.

Standards

Reference	Title
Not applicable	

Professional Documents

Reference	Title
Not applicable	

Regulations

Reference	Title
Not applicable	



Codes

Reference	Title
Not applicable	

Other documents

Reference	Title
Not applicable	

Total General Specifications

Reference	Title
GS EP EXP 217	Requirements to, Suppliers and EPC'S for Spare Parts
GS EP EXP 207	Installation description structure

3. Terms and abbreviations

In the absence of a specific project document to define the contractual parties in the project, the following definitions apply to a project:

BOM	Bill Of Material
CFT	Call For Tender
CMIMS	Computerized Maintenance & Inspection Management System (name of the Affiliate's CMIMS)
Company	TOTAL E&P subsidiary
Contractor	Contractor directly contracted by Company
Company Representative	Party acting as representative of the Company
EDMS	Electronic Document Management System
EL	Equipment List
EPC	Generic term for Engineering Procurement and Construction contract. It covers different types of contracts: EPSCC, EPCC, etc.
GP	Project Group or Integrated Project Group
Item	The smallest element in a Spare Parts list (items in different Spare Parts lists can get the same Material Master code assuming they are identical)
LLI	Long Lead Items (pieces of equipment with a long delivery time)
Manufacturer	Manufacturer of a piece of equipment (or sub-equipment)

MatM	Material Master Record(set of descriptive data of one Spare Part). 1 Spare Part = 1 "MatM" with a SAP/r3 number
MIE	Maintenance & Inspection Engineering is the preparation of Spare Parts and all other maintenance and inspection activities during operation
MIE Team	Entity (Affiliate or Contractor or a Subcontractors of the EPC in charge of the maintenance & inspection engineering activities
MIEC	Contract or change order for the performances of the maintenance & inspection engineering activities
MM module	Material Management module of SAP/r3
MM Quality Control Team	Company's team in charge of the quality control of the Material Management data
MRP	Material Requirement Planning: used for managing stock reordering
OEM	Original Equipment Manufacturer
PM module	Plant Maintenance module of SAP/r3
PO	Purchase Order
PR	Purchase Request
ML	Manufacturer List
SPF	Spare Parts File → SPF consists in a list of one or several SPLs
SPF-E	Spare Parts File by main equipment
SPF-R	Spare Parts File by Supplier
SPL	Spare Parts List
SPL-E	Spare Parts List by main equipment
SPL-R	Spare Parts List by Manufacturer and Supplier
Supplier	Supplier of Company (LLI, Company Items)
Subcontractors	Contractor contracted by Contractors
MM Template	Template used to load Material Management data into the MM module
Vendor	Supplier of EPC or Contractors
V&S	Vendor AND Supplier
C&P	Contract and Procurement



4. Spare Parts definitions

A Spare Part is a replaceable component, sub assembly, and assembly identical to and interchangeable with the item it is intended to replace.

In the document, Spare equipment and consumable specific to equipment, will be included in the denomination "Spare Part".

4.1 During Project phase Spare Parts are classified in

4.1.1 Commissioning & Start-up Spare Parts

Spare Parts necessary to perform properly the commissioning and start-up of the equipment. They are defined approved and bought by Commissioning Team of the project.

These Spare Parts are consumed during commissioning and start up.

4.1.2 Capital Spare Parts

Capital Spare Parts comply with most of the following criteria:

- High value (value being defined for each Project/Affiliate e.g. >k\$ 20)
- Due to their high cost and low frequency rate of use they are purchased on an investment budget (CAPEX)
- Considered as strategic for safety and operation (high downtime cost on impact on CPY reputation but not likely to fail and not for routine maintenance)
- Long delivery time (typically more than a Year) or not on shelf (unique piece such as rotor) that requires Project to buy them early.

Capital spares are to be described and referenced in both CMIMS and MM module, purchased and delivered, as initial stock, to the Subsidiary. Capital spares are identified and delivered by EPC contractor. They are all managed in operation as SE.

Capital Spare Parts are sometimes called Insurance Spare.

- In this document Capital Spare Parts refer only to parts bought in Capex.

4.1.3 Operating Spare Parts

Operating Spare Parts group all Spare Parts required to perform all curative and preventive maintenance activities on equipment. All parts reasonably required during the life time of equipment will be listed.

Preparation for first provision of Operating Spare Parts is made by MIE Team during project phase for operation phase at the exception of Capital Spare Parts.

Operating Spare Parts comprise of two categories:

- Stored Spare Parts to be described and referenced in both CMIMS and MM module, purchased and delivered, as initial stock, to the Subsidiary prior to start up.. they comprises of:

- All parts that can be reasonably required for repair of equipment after failure to ensure production and safety. The quantity for initial stock will be based on the number of items installed and the delivery time up to the affiliate
- MIE Team shall define the first stock quantity in accordance with estimated capability of the Affiliate Purchase Department to ensure a smooth replenishment.
- Non Stored Spare Parts, not purchased as initial stock but described and referenced in both CMIMS and MM module.

4.2 After project phase, during operation

Spare Parts will be categorized according to operation requirements and management codes of the affiliate.

In operation it remains only “operating Spare Parts”. All Spare Parts shall have a Material Master record:

Management code		Description
MM	MINI-MAXI	not repairable parts, regular consumption, wear parts
SU	Supervised	random consumption, repairable part
SE	Safety stock	Spare Part assembly or essential part of equipment linked to vital function
ND	not stored	not in stock but in BOM

5. MIE Team Scope of Work

- The MIE Team scope of work for Spare Parts covers all parts required for maintaining equipment in operation (excluding the maintenance level 5 unless otherwise stated) and shall comprise:
 - Stored Spare Parts to be described and referenced in both CMIMS and MM module, purchased and delivered, as initial stock, to the Subsidiary. As a minimum:
 - . All items identified in Mini-Maxi management code (Consumable for equipment, parts for PM during 2 years)
 - . All safety stock (SE code)
 - Non Stored Spare Parts not purchased as initial stock but described and referenced in both CMIMS and MM module. Parts for curative maintenance or for infrequent Preventive Maintenance, parts included in Specific Maintenance Contract scope.
- The MIE Team scope of work includes the commissioning and start up Spare Part, the Capital Spare Part and the operating Spare Parts. However the commissioning and start up Spare Part, the Capital Spare Part is limited to verification, assessment and edition of a report whereas for Operating Spare Part MIE Team will provide an evaluation of the operating need, recommendation for quantity to order and management code.



5.1 MIE SPF identification and process selection

MIE Team will receive from Main Vendors through EPC Contractor, a Vendor SPF-E dossier comprising of Vendor SPF-E front sheet in first folder, as many Vendor SPL-E as necessary and ML Manufacturer list in the last folder. This dossier will be referenced in EDMS as a Vendor SPF-E dossier (with EDMS vendor number).

MIE Team will deliver to Company an MIE SPF Dossier containing all data from Vendor enriched with MIE Team recommendation. MIE Team dossier shall be referenced in EDMS. This MIE SPF document will be submitted to Company for approval.

MIE Team set up the SPF documents as follow:

- Prepare Spare Parts project strategy following Maintenance and Inspection Policy / Philosophy defined by Project / Subsidiary and C&P usual Subsidiary Practices
- Determine the list of “Main Equipment” (or Main Tag) as defined in **GS EP EXP 207** (Topo Functional breakdown) for which Spare Parts dossiers will be established
- Verify the vendor Spare Part dossier for all equipment. The dossier comprises of documentation associated and SPL forms and ML form
- Analyse, amend and complete the lists of Spare Parts (SPF-E, SPL-E & ML) recommended by V&S. Each time that an OEM can be detected and considered as potential Vendor, MIE Team shall collect required information to allow supply of the relevant Spare from this OEM
- When required, liaise with relevant entities (EPC, V&S., Manufacturers, Company, etc.) in order to complement, clarify, and/or consolidate the collected data
- Allocate to each item, MM Reference Number (MatM) taking into account the existing references already stored in the affiliate (items comparison shall be done only on the Manufacturer Part Number). Company shall provide complete list of its existing stock on weekly or monthly basis as defined in the contractual document
- Verify the documents needed for drawing up the lists of Spare Parts in term of quality and quantity (exploded views, Manufacturers’ recommendations, technical data sheets, drawings completed with references, catalogue of Spare Parts, servicing and repair handbooks, etc.)
- Check that the Vendors Spare Parts dossiers (refer to **GS EP EXP 217**) have been issued for all individual piece of equipment, and that these documents are complete and consistent. As a minimum as many Spare Part dossiers as equipment PO. Equipment PO can cover several pieces of equipment
- To ensure as soon as possible a complete engineering work to update and complement the writing of the Spare Parts descriptions (starting first with long description then short one) forwarded by the V&S., by carrying out all the technical investigations required in the event of missing or incomplete information, on behalf of the company.
- Coordinate with the Affiliate in order to identify the average lead time and quantity to order for replenishment.

In case vendor Spare Parts dossier have been received with incomplete data (description, etc.), and that the upgrade process have been ineffective, it will be MIE Team 's responsibility to have



those data complemented with appropriate information as soon as Spare Parts have been received at collecting location and/or storage location.

This step ends with the validation by Company of the SPF-E MIE Team dossier.

- MIE Team is responsible for collecting all information and if necessary to proceed to collecting place and/or storage location as soon as Spare Parts is received.

Company will approve the technical content of SPFs and SPLs documents.

Two Spare Parts purchase processes can be used as described below (see Appendix 3/4).

First Process is the purchase to equipment vendor on the basis of SPL-E, the second process is the purchase to component manufacturer after analysis and grouping of several SPL-E into an SPL-R

The selection of equipment to be purchased following the second process is to be defined before the beginning of purchase activity. The identified grouping PO(based on SPL-R) can be for example, gaskets, bolts, instrumentation, electrical appliances....

5.1.1 Spare Parts Purchase to equipment vendor

Unique selection of "Equipment & Spare Parts" with a Purchase Order for equipment and a purchase order for Spare Parts (Total Cost of Ownership).

MIE team is responsible for preparing the specific Spare Parts lists using SPL-E / SPF-E as per appendix.

The process below is recommended each time project anticipate a time issue for the delivery at start-up.

MIEC shall provide Spare Parts documents in the following order:

- Spare Parts dossiers by Equipment including:
 - **MIE SPF-E** form listing SPL-E'S for Main Tag (if any) and all Sub Tags
 - **MIE SPL-E** forms listing all MM Items recommended (to be stored or not)
 - **MIE ML** form listing all Manufacturers already referenced in the SPL-E'S
 - All Spare Parts associated documentation.
- PO to original vendor.

An assessment by MIEC of the final quantity to store is required in this process.

In this process Final SPL means MIE SPL-E and MIE SPF-E

5.1.2 Grouping of Spare Part Purchase order

After selection and purchasing of equipment in project, identification of equipment Spare Part then grouping by component manufacturer is performed before Call for tender and purchase.

Grouping (SPL-R) process is especially recommended for non specific material, e.g. instrumentation consumables, electrical consumables, bearings, gaskets, seals, bolting material, etc. Generally, the type of material for which the availability is assured at the suppliers.



The selection of equipment requiring grouping shall be made early by MIE team and clearly mentioned in Spare Parts Recommendation strategy. This process requires establishing MIE SPF-E, MIE SPL-E, SPF-R, SPL-R, MIE ML and CRL as per appendix.

MIEC shall provide Spare Parts documents in the following order:

- Spare Parts dossiers by Equipment including:
 - **MIE SPF-E** front form listing SPL-E's Main Tags and/or all Sub Tags
 - **MIE SPL-E** forms listing all recommended MM Items (to be stored or not)
 - **MIE ML** form registering all Manufacturers listed in the SPL-E'S
 - All Spare Parts documentation.
- Spare Parts dossiers by Supplier including:
 - **SPF-R** front form: grouping SPL-R by Supplier
 - **SPL-R** forms listing all MM Items which have been made by the same Manufacturer. Before the CFT and the purchase request, MIE Team shall use this list to optimise the total number of items to order for the project (and stock management when required)
 - **CRL** Cross reference list form allowing links with SPL-E'S.
- Validation of MIE SPL –E and SPL-R:
 - In this process Final SPL, SPF means SPL-R and SPF-R.

5.2 Approved Spare Parts dossier SPF, template and CMIMS loading

This final Spare Part dossier contains the Spare Parts documents (as defined above) and a MM Templates for loading the Company's Computerised Maintenance & Inspection Management System (CMIMS) and Material Management Systems.

5.2.1 MM Template

The Material master Templates contains the data of final SPL in a form fit for loading to UNISUP. MM Template shall respect:

- The constraints of UNISUP tool, number and type of characters
- The Company C&P procedures, including the use of key words approved list in the short and long description
- MM templates are checked by MM Quality Control Team up to achievement of Company Requirements.

5.2.2 Data loading

From MM template there are two options:

- **Direct key in of the Material Master records** in SAP system in accordance with the process and the responsibilities defined by Company/GP/MIE Team —(<5000 RECORDS).MM template is the prerequisite for this option but dispensation to use the final SPL, validated by the Company can be requested.



- **Mass Injection in SAP system of Material Master** prepared by GP and MIE Team. The Material Master Templates preparation validated by Company is the prerequisite for the Mass Injection. This option imposes:
 - Full compliance with the process validated by Company
 - The "SPL Follow-Up" document associated to each SPL-R. and issued by MIE Team
 - Each Material Master record to create or update is validated together with the 5 data: "final SPF no., final SPL no., final SPL item no., Material Master no. with revision number.
- C&P procedures detail the method to build Material Master data.

5.2.3 Material number

Allocate to each item, which is not yet in the Material Master, a MM Reference Number (MatM). An Item is considered in the Material Master when its Manufacturer Part Number matches fully an existing number.

Company shall provide its complete list of MatM on the regular basis defined in project document:

- Company shall decide, at the beginning of the activity, between:
 - a) Automatic material number allocation by the MM module at the loading of the Template MM (following a chronological order)
 - b) Manual material number allocation by MIE Team (following a chronological order). Company provides to MIE Team a sufficient range of material number.
- Final update of Spare Part dossier by equipment:
 - Optimisation of the final total quantity installed and purchased for each material master record. Action to be done after the completion of all SPL
 - Update of long description up to Company requirement. This update shall take place after the delivery and inspection of Spare Part at collecting place.

6. Spare Parts Procurement and Supply

Unless otherwise specified in the contractual documents and depending on the process selected all following activities are of MIE Team responsibility.

6.1 Spare Parts preservation

Protective packaging is applied to Spare Parts for both shipment and long term storage to prevent degradation from shocks, corrosion or natural ageing.

MIE Team shall verify that the preservation procedure provided by V&S. for each Operating Spare Parts is adapted and requested for upgrade to Contractor each time it is necessary.



6.2 Procurement of Operating Spare Parts

The procurement process for the supply of the Operating Spare Parts will be decided by the GP. The tenderers pre-selection, the Purchase Request preparation, the Call For Tenders publication, the tenders evaluation, the Purchase Orders preparation and, the procurement follow-up is of MIE Team responsibility except for UNISUP inputs.

6.3 Inspection/Labelling receipt of Operating Spare Parts by MIE Team

MIE Team shall perform a systematic inspection of Spare Parts, including visual inspection, quantitative inspection, item/material packaging, checks on labelling (reference number, order number, Supplier reference and Manufacturer References), and verification of technical and administrative documentation where applicable.

The qualitative inspection is performed on request of Company (with or without the Company specialist). The contract will detail the requirements in terms of qualitative inspection and the scope of work of each party to perform this task.

MIE Team shall submit to Company for approval an inspection plan adapted to the different types of Spare Parts.

MIE Team shall issue an inspection report for each Spare Part purchase order.

6.4 Transport/Shipments of Spare Parts

Spare Parts are ordered EX-WORKS. Transportation from Supplier's facilities to the collecting location and from the collecting location to the Facilities/Site warehouse(s) is usually under Company's responsibility, which entrusts it to the Forwarding Agent of its choice. This may only be done after completion of the inspection by MIE Team.

MIE Team shall ensure that the packaging is adequately carried out for all materials to be transported (by road, sea, air).

MIE Team shall keep up-to-date all recapitulative lists and keep them available for Company at any time.

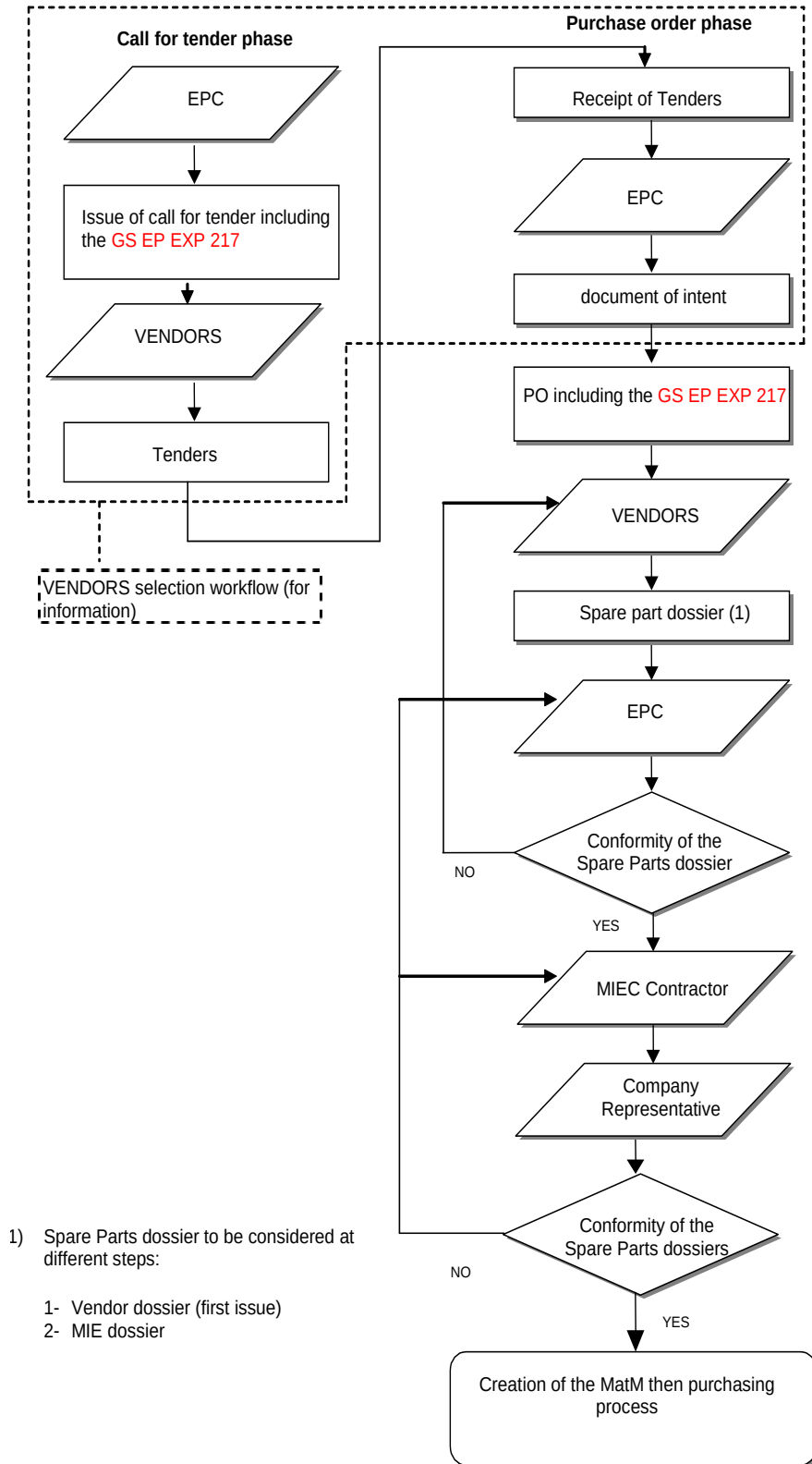
7. Spare Parts dossiers workflow

EPC shall ensure that the Spare Parts dossiers have been completed by V&S before sending them to MIE Team.

MIE Team will check that Vendor SPF dossier contains all data required and request Contractor/V&S to supply all missing information necessary for Spare Parts dossiers up to Company requirement. MIE Team shall keep dated and documented records of all demands.

MIE Team will produce, for all final SPL, a reverse planning including all phases, from SPL up to delivery to Company site, in order to follow up regularly the progress and the compliance with the final delivery dates. This planning will include all milestones dates.

Simplified Spare Parts documents workflow up to Item (= Material Master) creation





Bibliography

GS EP EXP 203	Maintenance preparation during a project phase: Documentation
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Appendix 1 Matrix of Responsibility

The responsibilities to fill in the Spare Parts documents (appendix 1 to 6) are described below and on each appendix in the excel file.

1 - Spare Parts Purchase to equipment vendor

No.	Type of document	Data Source	Document prepared by	Document reviewed for quality control by	Final issue by	Approval
1	SPF-E	Manufacturer documentation	V&S.	EPC	MIE Team	Company
2	SPL-E	Manufacturer documentation	V&S.	EPC	MIE Team	Company
3	ML	Manufacturer documentation	V&S.	EPC	MIE Team	Company
6	CRL	SPF-E, SPL-E, ML	MIE Team	MIE Team	MIE Team	Company

2 - Grouping of Spare Part Purchase order

No.	Type of document	Data Source	Document prepared by	Document reviewed for quality control by	Final issue	Approval
1	SPF-E	Manufacturer documentation	V&S.	EPC+MIEC Team	MIE Team	Company
2	SPL-E	Manufacturer documentation	V&S.	EPC+MIEC Team	MIE Team	Company
3	ML	Manufacturer documentation	V&S.	EPC+MIEC Team	MIE Team	Company
4	SPF-R	SPF-E, SPL-E, ML	MIE Team	MIE Team	MIE Team	Company
5	SPL-R	SPF-E, SPL-E, ML	MIE Team	MIE Team	MIE Team	Company
6	EL	SPF-E, SPL-E, ML	MIE Team	MIE Team	MIE Team	Company

Appendix 2 Operating Spare Parts & Management Process (MRP)

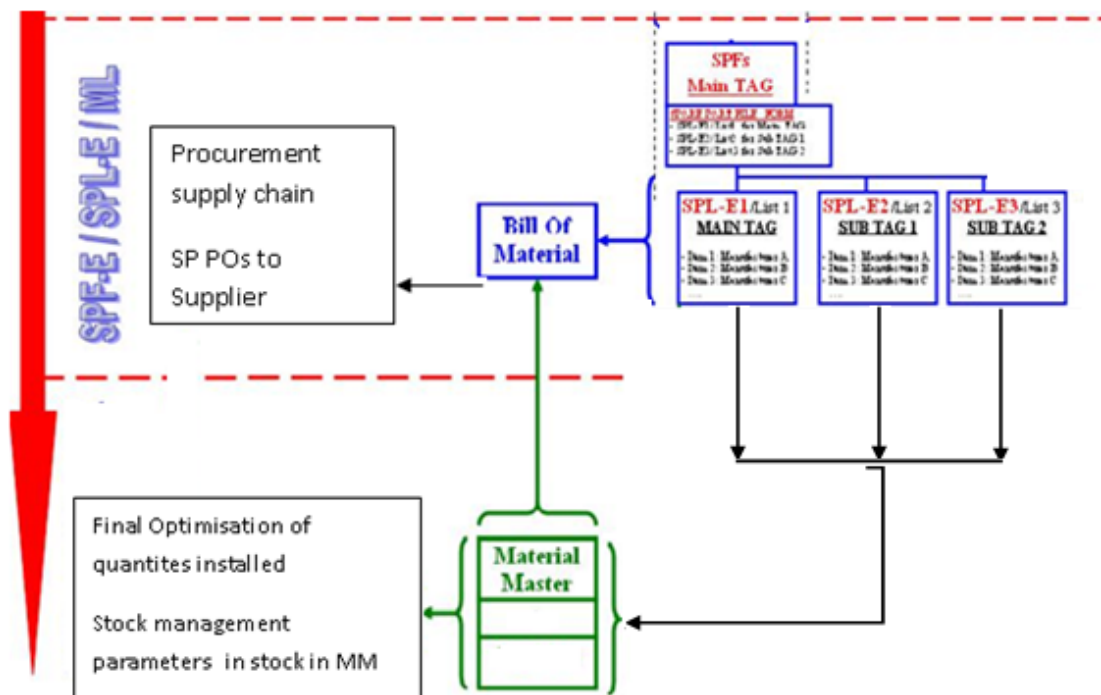
This chart must be used to fill in the Management Type of the Spare Parts:

- Green: to be used to fill in the management type in the SPL-E, SPL-R
- Blue: to be used to fill in the TEMPLATES MM which are used to load the MatM data in the CMIMS (UNISUP).

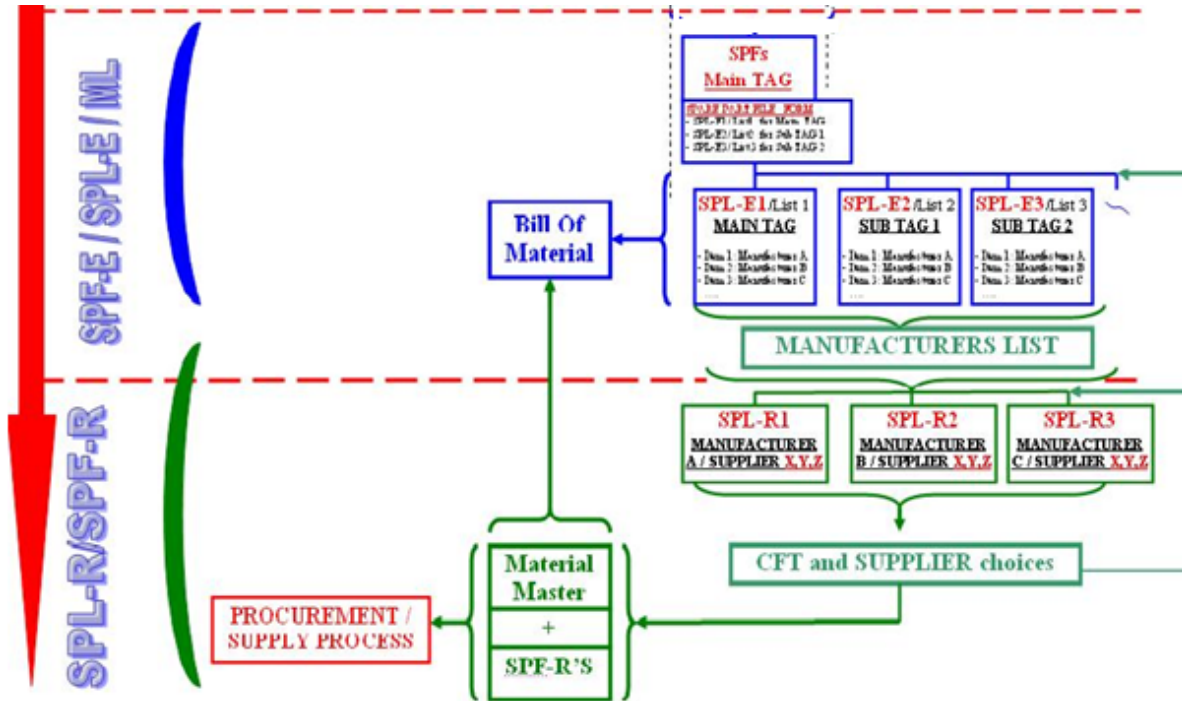
Management choice	Process	Management Codes in UNISUP MM for GPI TEMPLATE or for Direct Input				
Criteria to manage Operating Spare Parts	PROCUREMENT	DISMM	DISLS	DISPO	MINBE or EISBE	MABST
	SPL-E & SPL-R codes	MRP type	Lot Size	MRP controller	MINI Qty	MAXI Qty
not repairable Parts (wear part) regular consumption	Mini-Maxi	V1	HB	MM + code	Mini (MNBE)	Maxi
	MM code on SPL-E & SPL-R	Reorder Point			0 or 1 prohibited	must be > or = mini
repairable part or random consumption	Supervised	PD	Z6	SU + code	Safety Level (EISBE)	Not usable
	MS code on SPL-E & SPL-R	Actual Demand			0 prohibited > or = 1	
random consumption, parts for vital function	Safety (french=SEcurité)	PD	Z6	SE + code	Safety Level (EISBE)	Not usable
	SS code on SPL-E & SPL-R	Actual Demand Insurance or Capital Spare Parts			0 prohibited > or = 1	
NOT STORED Not Stored, but included in a BOM and bought beyond the first 2 years	Not Stored	ND		SU + code		
	0 stock Qty on SPL-E & SPL-R	No Planning	Not usable	Neutral if ND, better to fill in	Not usable	Not usable
CAPITAL SPARE PART (generic level, to be confirmed by each subsidiary ore GPI)	managed by subsidiary					
	STANDARD METIER RULES	STANDARD UNISUP & METIER RULES	STANDARD UNISUP & METIER RULES	UNISUP AFRICA CODES EXAMPLE	STANDARD METIER RULES FOR SPARE PARTS LEVELS	STANDARD METIER RULES FOR SPARE PARTS LEVELS

Appendix 3 PO Processes

1- Spare Parts Purchase to equipment vendor



2 - Grouping of Spare Part Purchase order SPF-E, SPL-E & SPL-R



Appendix 4 Operating Spare Parts Workflow

