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GL0585 Tagging philosophy Offshore Wind

Operation and maintenance

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1 Objective, target group and provision

GL-6842 - The document provides criteria to establish *what* items in an renewables facility will be identified with a plant tag number to enable cost effective development, safe & efficient operation, optimized inspection, maintenance and management of the facility throughout its lifecycle.

GL-6843 - The purpose of the first version of the GL is not to address all areas of tagging, but to focus on problem areas to ensure correct tagging, labeling, and limit the tagging to the level needed for an efficient and safe maintenance and to support the maintenance philosophy for the facility.

GL-6844 - The document does not describe *how* plant tag numbers should be derived nor the intelligence built into the tag numbers. This is defined in the project/plant specific TR0052, Engineering Numbering System (ENS).

GL-6845 - The target group is all project stakeholders, including contractors, sub-contractors, suppliers and Company project teams, who are involved in the specification, design, procurement, construction, installation, maintenance engineering, commissioning, lifetime extension etc. of equipment that forms part of the facility.

GL-6846 - The document is provided for in TR2381 LCI Requirements Master for Wind, and TR0052 Engineering Numbering System - Master for Wind

2 Introduction

2.1 Tag numbers and identifiers

GL-6849 - A large number of different identifiers are being used throughout the lifecycle of an renewable plant. Some identifiers are used in the project phase only, others are being assigned for the operations phase and some are used throughout the complete life cycle. The purpose of the descriptions below is to distinguish between identifiers that are to be managed in Company's technical information systems and identifiers that are not managed in this system.

2.1.1 Plant tag numbers

GL-6851 - Plant tag numbers are the unique identifiers assigned to functions and services like equipment, lines, instruments, etc. The purpose of plant tag numbers is to support safe operation and maintenance.

GL-6852 - The plant tag number defines the functional location of a physical item within a facility. The plant tag number refers to where in the system the tag is located, not the exact position. The item is allocated to the plant tag number for only so long as it is installed at that location/function.

GL-6853 - A plant tag number, as defined in this context, carries technical information and relationships to documents, spare parts and maintenance program throughout the lifecycle of the facility. This information is managed and stored in Company's technical information systems.

GL-6854 - In SAP, the term Functional Location (FL) is used instead of tag number. A FL is the plant tag number preceded by the SAP Plant ID (e.g. 2511 for Dudgeon Wind farm), which makes the FL unique across all of Company's plants.

GL-6855 - The plant tag numbers are derived using the codes and formats defined in the project/plant specific TR0052, Engineering Numbering System (ENS). TR0052 describes *how* to tag specific functional items, not *what* items to tag.

2.1.2 Administrative tags

GL-6857 - Administrative tags are non-physical tags used to create a collection of physical tags, e.g. as “nodes” in a technical tag hierarchy. These tags are normally not allocated by the facility project, but established by Company during maintenance engineering. Administrative tags are managed in Company’s technical information systems like plant tag numbers, but they normally don’t reference any documentation.

2.1.3 Project identifiers

GL-6859 - Not all unique identifiers that serve the purpose of monitoring progress or identify items in the project phase qualify as a plant tag number. Cable tray segments and nodes, static supports for piping, ducting supports, cable tray supports, structural sub-assemblies and area section numbers are examples of items that may require unique identifiers during the project phase, but are not required in the operations phase.

GL-6860 - Contrary to plant tag numbers, the project identifiers are *not* be transferred as tag numbers to Company’s technical information systems to avoid the added cost related to the creation and management of tag data and relationships.

2.1.4 Supplier’s tag numbers

GL-6862 - Supplier’s tag numbers are identifiers assigned by the supplier/manufacturer to items within an equipment package where plant tag numbers are not required.

GL-6863 - Supplier’s tag numbers will *not* be transferred to Company’s technical information systems. For this reason items that satisfy the criteria listed in section 2.2 will have to be allocated plant tag numbers even if they already have supplier tag numbers.

GL-7942 - For a WTGs, for example, are unique identifiers allocated to equipment inside a WTG to be defined as “Suppliers tag number”. From these should a selection be picked out based on guidance in this GL0585 and defined as “plant tag” for follow up in Employers STID and SAP systems for maintenance and access to information.

2.1.5 Completion tags

GL-6865 - Tags assigned in ProCoSys to support completion activities are internal to ProCoSys and will not be transferred to STID/SAP. Examples are:

- Preservation area tags
- Loop numbers (@Loop...)
- Tags for pressure test packs and related insulation, surface protection, flow-coding, etc. (#Tags)
- “Dummy” tags for non-ENS tagged items where MC is required, e.g. fireboxes, duct marking, insulation of equipment & tubing, miscellaneous structural scope
- Post RFO changes via EWP’s where ENS tags are owned by Operations and cannot be moved, i.e. may have to create a dummy tag ENS+suffix to be able to handle modification

2.2 General principles

GL-6872 - The number of plant tag numbers should be kept as low as possible and limited to the level needed for a cost efficient and safe operation and maintenance in accordance with the maintenance philosophy for the facility.

GL-7943 - All tag should have a parent tag, and be a part of a tag hierarchy. The tag hierarchy is used for planning, assembly, operation and maintenance of the Wind Power Plant.

GL-6873 - The tagging philosophy for a plant should be established according to best practice described in this guideline, experience from previous projects, existing operations and criteria such as criticality of functional items and maintenance strategy. Other criteria may also be taken in consideration, depending on the scope of work. The tagging philosophy should be agreed with Company/Employer and its Prepare For Operations (PFO) team for the project.

GL-6874 - In the operations phase, the plant tag number is used as a unique functional identifier for scheduling maintenance and inspection activities, assuring safe work, providing the ability to record equipment history and work as cost carrier to be part of the cost verification analysis. . It is used to find related documentation and spare parts, to specify critical components in a system and for measurements and control by the SCADA system.

GL-6875 - Items falling into one or more of the following categories will be uniquely tagged using the project/plant's TR0052:

- The item will be subject to scheduled maintenance and/or inspection and usage history
- The item is subject to certification or controlled documents, e.g. hazardous area rated, pressure regulation, mechanical handling safe working load, etc.
- The item performs a safety function, e.g. pressure relief valves and over-pressure protection devices
- The item is included in the set of plant Piping and Instrumentation Diagrams(P&ID) for hydraulic, cooling or ventilation systems
- The item is provided for monitoring of temperatures, vibrations, power production, rotations pr minute, voltage, current etc
- The item is subject to technical analysis and should keep performance data.

GL-6880 - Further details on what items are to be tagged are described in the section 3.

GL-7946 - Contractor should make doc-tag linking as part of detailed engineering as specified in TR2381.

2.3 Tag classification

GL-6882 - Company's technical information systems employ a standard classification for tagged items according to the service or function of the items

GL-6883 - An item with a plant tag number will be classified into one of the tag categories below, ref TR3111:

Tag Category #	Tag Category description	Remarks
1	Instrument field equipment	
2	Telecommunication field equipment	
3	Fire and gas field equipment	
4	Junction box	Instrument, F&G and telecom only
5	Cable	Excluding Heat tracing cables
6	Line	Plant Piping (Topsides & Onshore) or Flowlines
7	Main equipment	
8	Electrical field equipment	Minor electrical items, incl. electrical junction boxes
9	Manual valve	
11	Heat tracing cable	
12	Circuit and starter	For electrical power distribution
13	Special item	Non-standard piping items
14	Civil	Onshore plants only
19	Administrative	Not used in engineering (Company internal use)
21	Pipe support	Only pipe supports that require maintenance
23	Ducting	
24	Signal	Stand-alone signals only
25	Function (automation)	Stand-alone automation system functions only
26	Surface protection	Not used in engineering
27	Pipeline	
29	Hose Assembly	

2.4 Physical tagging

GL-6886 - Whenever practicable items that have been assigned a plant tag number must be physically labelled with this tag number. The physical tag will be made and fastened to withstand environmental conditions including water, wind and vibration for at least 25 years.

GL-7889 - Plant tag label in field should be the same as in Employer STID/SAP, drawings, O&M manual, SPIR and other relevant documentation and programs

GL-7935 - Label on the WTG High Voltage Switchgear should include the WTG prefix

GL-7887 - Label on the WTG and TP provided items can be labelled without the WTG prefix

3 Tagging guidelines

3.1 Equipment

3.1.1 General

GL-6890 - All major items of equipment packages will need to be assigned a plant tag number. Separate plant tag numbers will be assigned to components performing an individual service or function. A few examples illustrate this:

- Consider a pump assembly with a motor, coupling and pump. The coupling is subject to planned inspection and will be tagged along with the pump and the motor
- For a Wind Turbine Generator (WTG), Consider a Rotor Assembly which consists of Hub, Blades, Blade Bearings & Blade Flange connection. All these components are subject to periodic inspections and will be tagged individually.
- Consider a Generator System of a WTG. The main components of Generator systems such as Stator, Rotor, Sensors, RPM counter should be individually tagged.
Also for the Generator Cooling system components such as Cooling units, pumps, expansion tank, cooling tower and temperature tower should be tagged individually.
- A Diesel Engine with an electric starter motor is driving a generator. All three components perform separate services and will be tagged.
- WTG example, such as blade bearing lubrication system. Lubricants collector/drain cup assembly assigned separate plant tag numbers
- Cabinet, boxes and panels will be assigned a plant tag number, but internal components will not be tagged. Exception to this is equipment located inside cabinets that is subject to configuration change control, e.g. SCADA nodes or network switches.
- Lift System on a WTG. A lift System is subject to statutory periodic inspections and each main components such as lift cabin, lift trolley, safety stop, control boxes etc. should be tagged separately.
- For a Wind Turbine Generator (WTG), consider a Yaw system which consists and Yaw Drive, Yaw Ring / Bearing System & Yaw accessories which need to be all tagged separately. And for these Main Tags there will be a requirement for several sub tags. For example: The Main Tag item Yaw drive may have 12 or 16 separate drive units each consisting of a motor & gearbox which all need to tagged separately for the need of inspections and maintenance.
- Examples for the electrical system are; WTG converter, transformer, switchgear, circuit breakers, cooling fan and motors, light fixtures, etc
- Spare parts will not be tagged.

GL-6896 - Note that it may be necessary to mark/identify non-tagged components in cabinets, on pipes, etc. to be able to operate the plant safely and efficiently.

3.1.2 Safety equipment

GL-6898 - Fire fighting, fire protection equipment stations/cabinets, and smoke hood cabinet will be given a unique plant tag number. Individual items in the station/cabinet will not require plant tag numbers.

GL-6899 - Similarly, the immersion suit cabinet should be tagged, not the individual suit.

GL-7892 - Obstacle warning system aviation, and obstacle warning system marine

GL-6900 - For other single safety equipment, like stretchers, lifebuoys and portable fire extinguishers, first aid kits, eye washer, Fire Blanket, IP Telephone, davit launched life rafts the location will be tagged individually.

GL-7947 - Safety doors, windows and escape routes that require inspection and/or maintenance need a plant tag

3.1.3 Material handling equipment

GL-6902 - Fixed material handling systems, e.g. runway beams, lifting lugs (pad eyes), will be assigned a plant tag number. Portable material handling equipment that is permanently located on a specific equipment/package/module, such as fork lift trucks, trolleys, load slings, etc. will have a plant tag number.

GL-6903 - Lifting lugs on individual equipment (e.g. a large valve), designed to carry the equipment's own weight, will not be tagged as they are certified as part of the equipment itself.

GL-6904 - Offshore cranes (eg: the main platform crane on the substation) will be tagged in accordance with TR1727, unmanned installations, Offshore Cranes .

GL-7915 - Material Handling Davit Cranes on the Wind Turbine Transition Piece platform & external working areas on the Offshore Substation will have a plant tag number for each location. Additional rescue points or lifting lugs on the Davits should have a separate tag numbers

GL-7914 - Life Raft handling davits on the Offshore Substation will have a plant tag number only for each location.

GL-7913 - Overhead Cranes and other permanently located gantry lifting system should be assigned a plant tag number.

GL-7912 - The above Material Handling guidelines are applicable for all offshore & onshore plants. Eg - WTGs, offshore substations, onshore substations, special equipment rooms / buildings, etc.

3.1.4 Temporary equipment

GL-6909 - Equipment that will be used on a temporary basis only will normally not need a plant tag number. However, each project needs to assess if temporary equipment should be tagged for safety, operational or maintenance reasons.

3.2 Instruments and signals

GL-6911 - All instruments that interface with the plant's SCADA system, or have a direct safety function or process control function, will need a plant tag number. Signals transmitted to the SCADA system via a serial link from a package local control panel must be allocated a plant tag number.

GL-6912 - Local instrumentation devices, such as gauges on a panel and internal commodity items in cabinets, boxes and panels, are classified as components of the cabinet, box or panel and will not be tagged unless they interface the SCADA system.

GL-6913 - Signals from electrical field equipment and main equipment to the SCADA system will be tagged (as *Electrical equipment interface signals*). Signals not interfacing the SCADA system are normally not tagged.

GL-6914 - A thermistor on a motor/generator is regarded as part of the motor/generator and not given a separate plant tag number. If the interface signal from the thermistor ends up in the switchboard it will *not* be tagged, if it ends up in the SCADA system it will be tagged. The control cable between the thermistor and the switchboard will be tagged.

GL-6915 - A signal from a physical instrument or equipment shares the plant tag number and tag classification of the physical item. In STID the physical item will have the *signal flag* set to indicate the instrument tag number also represents the corresponding signal.

GL-6916 - Similarly, the plant tag number for a software application block in the SCADA (*Function* in Company's technical information systems) may be identical to the plant tag number of a physical item and/or signal. The software application block will have the same tag classification as the physical item with the *function flag* set in STID.

GL-6917 - Only stand-alone signals and software application blocks (*functions*), i.e. no related physical instrument exists, will be classified as *Signal* and *Function*, ref. section 2.3. Examples are signals wired or communicated from one logic solver to another. These signals will be tagged as *internode* signals.

GL-6918 - Except the loop reference, *signals* and *functions* normally don't reference any documentation in Company's technical information systems.

GL-6919 - Limit switches on automated valves are tagged. The actuator and positioner are regarded as parts of the automated valve and not separately tagged.

GL-6921 - All plant tag numbers within the same control loop will have the same system and sequence number.

3.3 Telecom items

GL-6923 - All permanently installed telecom equipment and field devices require a plant tag number.

GL-6924 - Internal components of equipment panels do not need their own plant tag numbers unless they interface with the SCADA system. Some items in telecom racks may need separate plant tag numbers, e.g. components being part of a safety system like PAGA or emergency telephones.

GL-6925 - PA speakers with junction boxes should be tagged as one tag.

GL-6926 - An access controlled door or gate with related items like card reader, junction box, sensors, locks and motors will share one plant tag number, normally the tag number of the card reader or a junction box. Remaining items do not need separate plant tag numbers, but will be identified by the supplier/manufacturer's numbering system.

3.4 Electrical equipment

GL-6928 - Electrical junction boxes are defined as *Electrical field equipment* contrary to Instrument (incl. Fire & Gas) and Telecom junction boxes, which are classified as *Junction Boxes* (ref. section 2.3).

GL-7902 - Tariff metering to be tagged

GL-6929 - Individual batteries in a battery rack are not tagged separately, only the battery rack will have a plant tag number.

GL-6930 - UPS for telecommunication equipment will be tagged as an electrical equipment tag and not as telecom tag.

3.5 Cables

GL-6932 - Power cables are normally tagged applying the tag number format for electrical cables. However, cables carrying 48/24 VDC will, if it is part of Telecom/Instrument system, be tagged according to telecom/instrument cable format with type code indicating its power function.

GL-6933 - The system number for an electrical cable is determined by the system number for the tag the cable is connected *to* (consumer).

GL-6934 - Instrument cables are tagged with the system number for the equipment connected at the peripheral end of the cable, i.e. the instrument for field cables and the junction box for multicores.

GL-6935 - Cables in the electrical systems used for control are tagged as control cables (tag format *electrical cable*), while cables interfacing SCADA are normally tagged as instrument cables. This means that e.g. a cable from a temperature element to a switchboard is tagged as a control cable and not instrument cable.

GL-6937 - Subsea cables (power, signal) like WTG HV, Inter-array and export cables should be classified as Main equipment. Fiber optic cables included inside subsea cables should be given a unique plant tag number as a sub plant tag below the main tag.

GL-6938 - These items are not tagged:

- “Flying lead” cables and patch cords
- Package or panel internal cables not connected to a tagged item
- Cable glands
- Terminals
- Coax connector

GL-6945 - A tagged coax cable will have the same cable number on each side of a coax connector (unless connected via a patch panel). A tagged fiber optic cable will have the same cable number on each side of a splice.

3.6 Piping and valves

3.6.1 Piping/Lines

GL-6948 - All lines will have a line tag number as defined in the plant’s TR0052 Master for Wind.

GL-6949 - Note that there is a difference between the line tag number and the line number. The line tag number is the unique identifier in Company’s technical information systems. The line number consists of the line tag number succeeded by line size, service code and piping class, and if the line is insulated and/or heat traced, insulation class, insulation thickness and heat tracing code. On P&IDs and Piping isometric drawings the complete line number will be used.

GL-6950 - Individual line (tag) numbers will be assigned to lines with the following origins and destinations:

- From individual equipment item to individual equipment item
- From line to individual equipment item and vice versa. A new line number is required for the line located downstream of equipment
- From line to line (exceptions: control valve bypass, block valve warm-up and equalizing bypasses, safety/relief valve bypass)
- From unique equipment to the same unique equipment item (except level standpipes)
- From line or equipment to atmosphere, funnel or closed drain system (exception: continuous process vent stacks and process drains)

GL-6956 - A new line (tag) number will be assigned when the piping class or the service code changes. However, tapping points, sample connections, instrument connections and other very short connections will be included in the line number they serve.

GL-6957 - At a tee (branch) only the main line/stream continues with the same line number.

GL-6958 - Individual piping components, like tees, bends, flanges, gaskets, bolts, reducers, spectacle blinds, spades/spacers, plugs, spool pieces, etc. will not be tagged.

3.6.2 Manual Valves

GL-6960 - To identify individual valves in drawings and operating procedures, valves on P&IDs will require a plant tag number, independent of size. Some valves like test valves and check valves are not tagged.

GL-6961 - During the design phase valves on the P&ID will be numbered with the VDS number according to the TR2000 specification. Plant tag numbers will not be assigned until the end of detailed design in accordance with the project/plant's ENS.

GL-6962 - Valves, which are non-manually activated, such as process control valves, are tagged as instruments and process measurement control functions.

3.6.3 Piping special items

GL-6964 - Piping special items are piping components not covered in the piping and valve material specification (TR2000). They include static mixers, strainers, locking devices, special valves, extension spindles, bird screens, special fittings, expanding bellows, flame arrestors, liquid seal pot, sample quill, Drain boxes and temporary filters etc.

GL-6965 - Each type of Special item will be assigned a special item number in accordance with the plant's TR0052. Identical special items located in multiple locations share the same special item number.

GL-6966 - Special items that require unique identification to accommodate for planned maintenance and inspection, (e.g. valves) will be assigned a plant tag number in addition to the Special item number.

GL-6967 - Utility stations and drain boxes will be classified as *Main equipment* unless otherwise stated in the plant's TR0052.

3.7 HVAC - Ventilation

GL-6969 - HVAC ducting should be assigned plant tag numbers if specified in the plant's TR0052.

GL-6970 - Similar to Piping, there is a difference between the duct tag number and the duct line number. The duct tag number is the unique identifier in Company's technical information systems. The duct line number consists of the duct tag number succeeded by duct size, function code, HVAC subsystem, duct class, insulation class and fire rating. The complete duct line number will be used on D&IDs.

GL-6971 - Note that the duct tag number or duct line number is not physically applied to the ductwork.

GL-6972 - Standard inline off-the-shelf HVAC items without electrical, instrument or pneumatic connection and with no regular operation or maintenance requirements will have a unique identifier to monitor progress in the project phase and to identify the item on drawings, documents and the 3D CAD model. This identifier will *not* be transferred to Company's technical information systems as a tag number.

3.8 Pipe supports

GL-6974 - Only pipe supports that require a maintenance program, such as spring support assemblies (including dampers/shock absorbers), require a plant tag number.

GL-6975 - Other pipe supports require a unique identifier to monitor progress in the project phase and to identify the pipe support on drawings, documents and the 3D CAD model. This identifier will *not* be transferred to Company's technical information systems as a tag number, but the numbering will be in accordance with the project/plant ENS.

3.9 Civil and structures

3.9.1 Civil and structures onshore

GL-6978 - Buildings such as onshore substations, separate equipment rooms, operations base office and warehouses within the renewable project will be assigned plant tag numbers

GL-7895 - The following items in onshore office and base, are *not to* be tagged:

- Loose items, e.g. fitness equipment
- Lightweight B type doors that are not connected to a system
- Windows
- Portable/moveable electrical equipment (coffee machines, office PCs, printers, copy machines, TVs, audio/video equipment, reading lamps etc.), which can be plugged into fixed socket outlets, should not be tagged except for electrical equipment connected to fuses greater than 16A (e.g. professional kitchen equipment and professional washing machines located in the kitchen and laundry areas)

3.9.2 Offshore structures

GL-6980 - Structural items subject to inspection and maintenance will be assigned plant tag numbers classified as *main equipment*. Examples are jacket, caissons, ballast water tanks, monopile, transition piece, tower structures, boat landing structures, external / internal ladders, stairs, work platforms

GL-6981 - Examples of tagging of structural items are provided in Appendix A.

GL-6982 - Standard structure elements, bolts, welds, and anodes will not be tagged.

3.9.3 Surface protection

GL-6984 - To support the maintenance program for surface protection, plant tag numbers will be assigned to surface areas/units of the facility. These tags are not allocated by the facility project, but established by Company as part of the preparation of the maintenance program for surface protection.

3.10 Subsea systems

GL-6988 - Tag numbers for subsea will be assigned in accordance with the project/plant's TR0052. Tag numbers are classified using relevant tag categories according to section 2.3. For details on tagging of subsea systems, ref. to App B. Some subsea equipment does not require a plant tag number e.g. Subsea Tools.

GL-6994 - Dynamic and static cables/umbilicals are to be classified as *Main equipment*.

GL-7923 - For Floating WTGs all Mooring System Equipment should be Tagged. Separate tags should be used for the items on each location that requiring periodic inspection. Eg - mooring brackets on each locations, mooring chain & accessories, mooring strongpoints, chain stoppers etc.

3.11 Packages/skids

3.11.1 General

GL-6999 - Items within supplier packages and skids that have an interface with the Contractor's systems or another package or skid will be assigned plant tag numbers. This includes all signals connected to the plant's SCADA systems.

GL-7000 - The package/skid itself and other complete units will be assigned a plant tag number. Internal components (e.g. fuel injectors on a diesel engine) are generally not tagged, as they are assumed to be referenced by supplier's numbering system. However, other items of equipment integral to a package may fall into one of the criteria described in section 2.2 (e.g. a PSV in a compressor skid) and in these cases will need to be assigned a plant tag number.

GL-7001 - Examples of typical tagging scope in packages/skid are provided in App. C (HOLD – not in version 1 of this document).

3.11.2 WTG scope

GL-7904 - The WTG can be considered as a skid consisting of several thousand individual uniquely identified pieces of equipment.

GL-7905 - All main equipment should be named and assigned unique identifiers based on TR0052

GL-7916 - Equipment and signals of particular interest with regards to optimal maintenance to be assigned plant tags. These "plant tags" should come in addition to the WTGs standard tag if these are not already Plant Tag based, and physical labels placed near or at the location of such plant tags allowing technicians to scan such labels for instant access to relevant documentation available in STID.

GL-7917 - Plant tags should be allocated to equipment which need of maintenance, inspection, certification or have a high chance of needing replacement during the life time of the WTG.

Groups of similar items can be assigned one common location tag, e.g. all bolts on one flange in tower-tower connection can be assigned to one Plant tag which is identified on label somewhere near the flange

GL-7922 - A general principle for tagging should be standardized tagging of equipment that are standard part of all WTGs in the plant/park. Further, the unique WTG number should be easily visible (for instance a large wall marking), so that the combination of the unique WTG number and the standardized equipment labelling allows for unique identification of equipment. Normally the ID sign is a part of TP scope, and heli sign a part of WTG scope.

GL-7948 - Cables in WTG should be assigned a plant tag if:

- 1) The cable is essential in providing a measurement for a signal defined as plant tag like for example WTG transformer temperature, WTG generator temperature or cooling water temperature
- 2) The cable is not part of the standard WTG delivery, e.g. if it is part of special instrumentation like Fleet leader or CCTV monitoring, Repeater antennas or bird monitoring equipment placed only on some WTGs.
- 3) The cable is connected to equipment inside, outside or below the WTG not provided as part of standard delivery

3.11.3 Piping/Lines

GL-7003 - All lines within supplier process packages (e.g. Glycol Coolant Packages) will have plant tag numbers (line numbers). Internal piping within supplier machinery packages does not need a plant tag number.

GL-7004 - Tagged process and utility lines crossing a package interface will carry the same system number on both sides of the interface. E.g. the line tag number for a hydraulic power line will be tagged with system number 65 on both sides of the package interface.

3.11.4 Cables and Junction Boxes

GL-7006 - All skid edge/interface junction boxes into which contractor's or other supplier's cables are terminated will have plant tag numbers. Cables on the supplier's skid side of the junction box will use the supplier's numbering system.

GL-7007 - If there is a single instrument or equipment item on a package into which a purchaser's or another contractor's cable is terminated, then this cable will have a plant tag number, as will the instrument or equipment item.

GL-7009 - Cables supplied, installed and terminated completely within the equipment package will use the supplier's standard numbering system.

4 Additional information

4.1 Definitions and abbreviations

GL-7032 -

Abbreviation	Description
CAD	Computer Aided Design
CCR	Central Control Room
Company	ASA
Company's technical information systems	Consist of STID, SAP PM, ProCoSys and the TIE interface ("LCI Solution"), 3D CAD tools (AVEVA Plant, AVEVA Global, Navisworks) and STID cablerouting
Contractor	Contractual party that performs the work specified in a Form of Agreement (normally an EPC, EPCI, EPMA type of contract)
CPF	Central Processing Facility (onshore)
D&ID	Ducting & Instrumentation Diagram
DEH	Direct Electrical Heating
DTS	Distributed Temperature Sensing
ENS	Engineering Numbering System
EWP	Engineering Work Package
F&G	Fire and Gas
FL	Functional Location (tag number in SAP)
GL	Guideline
LCI	Life Cycle Information
MC	Mechanical Completion
MSF	Module support frame
PAGA	Public Address and General Alarm
PFO	Prepare for Operation
P&ID	Piping and Instrumentation Diagram
ProCoSys	Project Completion System
PSV	Pressure Safety Valve
RFO	Ready for Operation
SAP PM	Systems, Applications and Products (ERP system) Plant Maintenance
SCADA	Supervisory Control And Data Acquisition
SIE	Subsea Item Equipment
STID	Technical Information and Documentation system
TP	Transition Piece
U	Voltage
UPS	Uninterruptible power supply
VDC	Volt DC
VDS	Valve Data Sheet
WFC	Wind Farm Control room
WTG	Wind Turbine Generator

4.2 Changes from previous version

GL-7034 - This is the first version of the document.

4.3 References

GL-7036 - This document should be read in conjunction with the following documents:

- TR0052 Master for Wind - Engineering Numbering System (ENS)
- TR1727 Unmanned installations, Offshore Cranes
- TR2000 Piping and Valve Material Specification
- TR2381 LCI Requirements Master for Wind
- TR3111 LCI Requirements - Data content and transfer
- TR2231 LCI Requirements 3D CAD model

App A Tagging of structural items

GL-7045 - The examples below illustrate best practice for assigning plant tag numbers for the management of structural integrity.

A.1 Jacket & Topside

GL-7047 - The following plant tag numbers will be assigned for a Jacket structure for a typical offshore substation jacket

Item	Quantity / Comments
Jacket tag	Only one tag
Boat Landings	One tag per location
External Ladder	One tag per section of ladder (eg: Ladder section 1, Ladder section 2 etc.)
Fall arrest anchor points / brackets	One tag per anchor point / brackets
External Stairs	One tag per location
J-tubes	One tag per J-tube requiring inspection/maintenance. All J-tubes need not to be tagged
Caissons	One tag per caisson

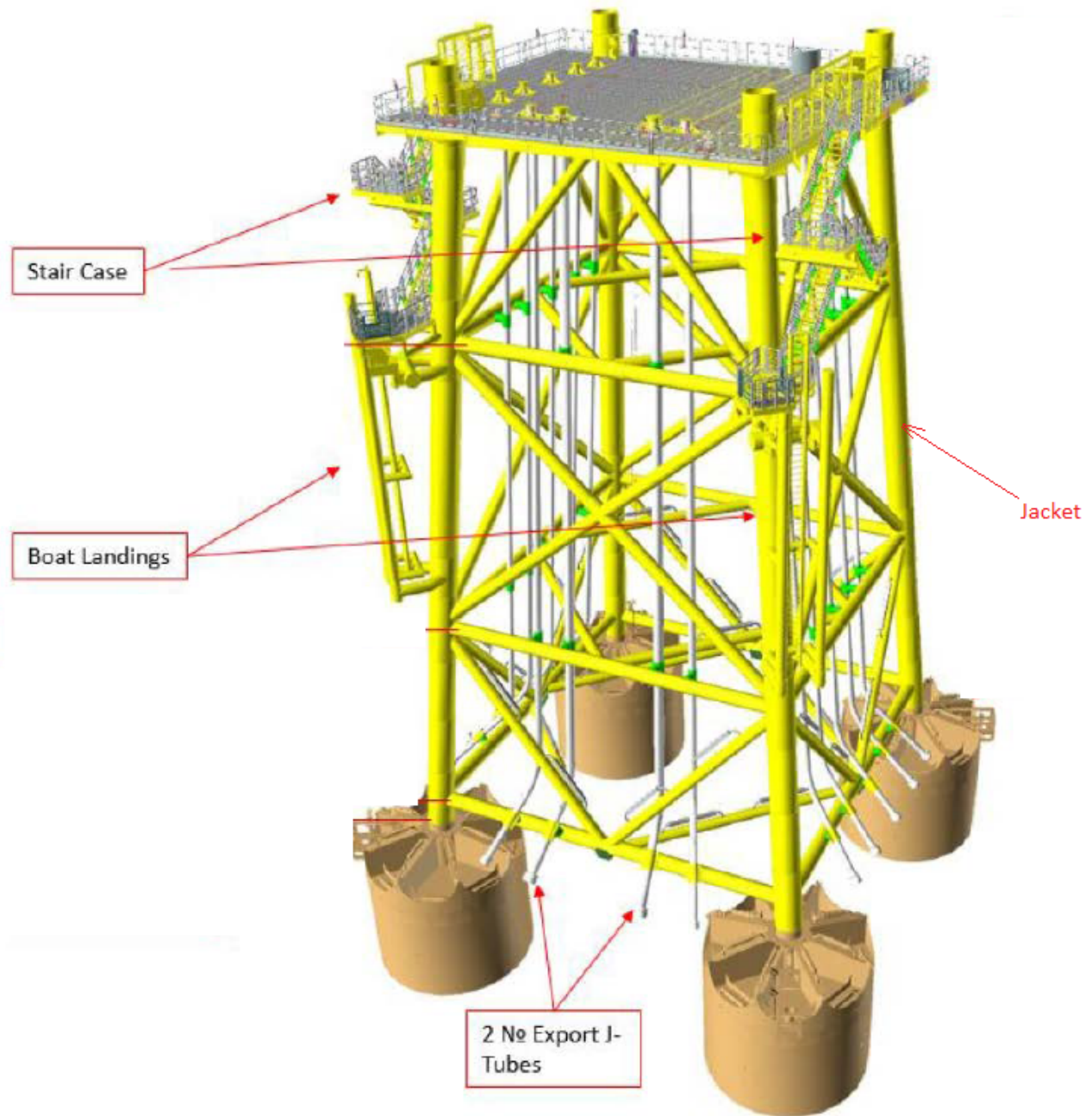
GL-7939 -

Figure A.1.1: Important Equipment need to be tagged on Jacket Structure - Example drawing only

GL-7918 - The following plant tag numbers will be assigned for structural items on a typical substation platform topside

Item	Quantity / Comments
Crane Pedestal	One tag per crane
Davit Crane Foundation	One tag per davit
Life Raft Davit Foundation	One tag per davit
Monorails	One tag per item
Main Equipment rooms (eg: transformer room, switch gear room)	One Tag Per Room

GL-7938 -

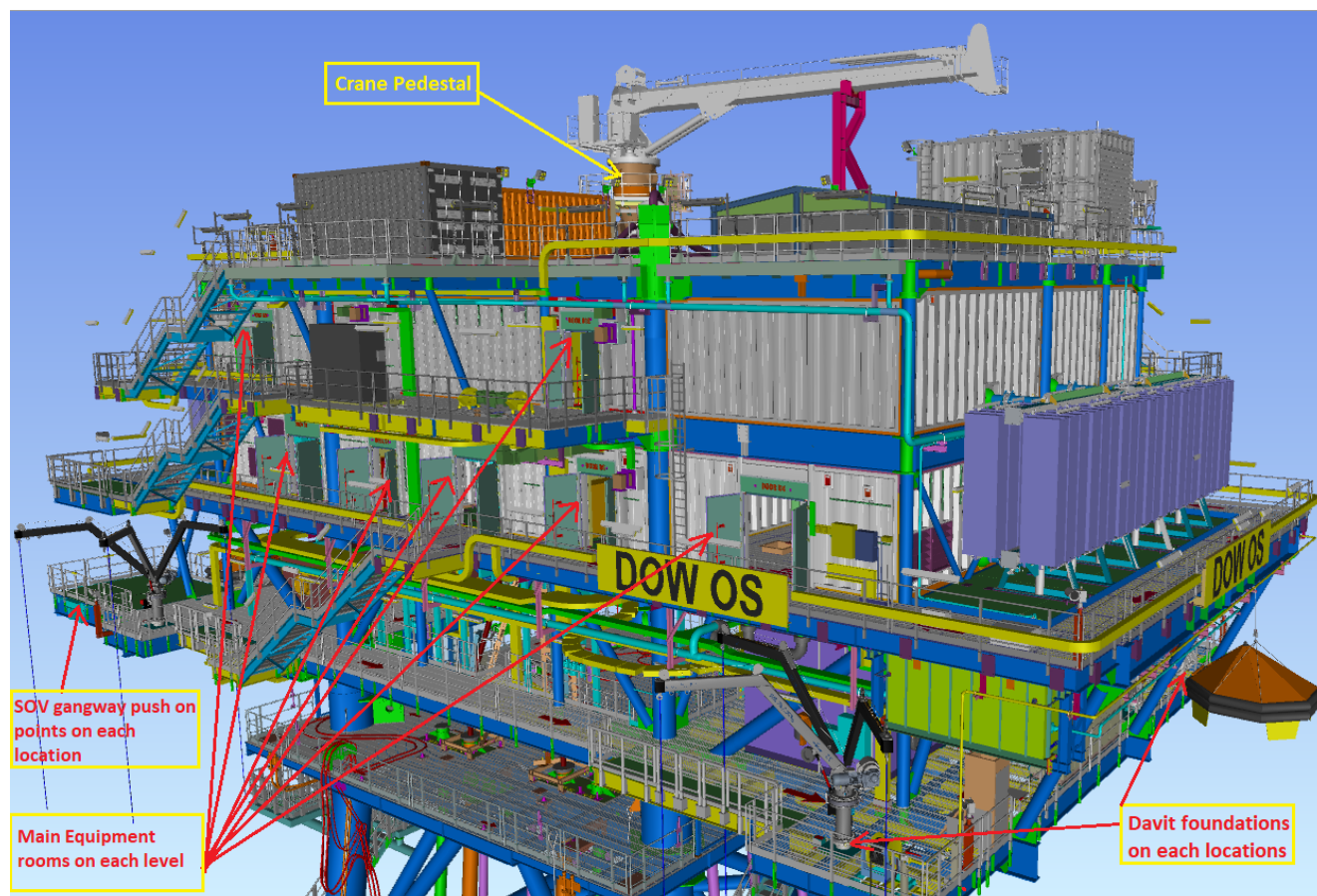


Figure A.1.2: Important Equipment need to be tagged for platform topside - Example drawing only

A.2 Wind Turbine Foundation/ Transition Piece / Tower

GL-7937 - The following plant tag numbers will be assigned for structural items on a typical bottom fixed WTG foundation / T-Piece

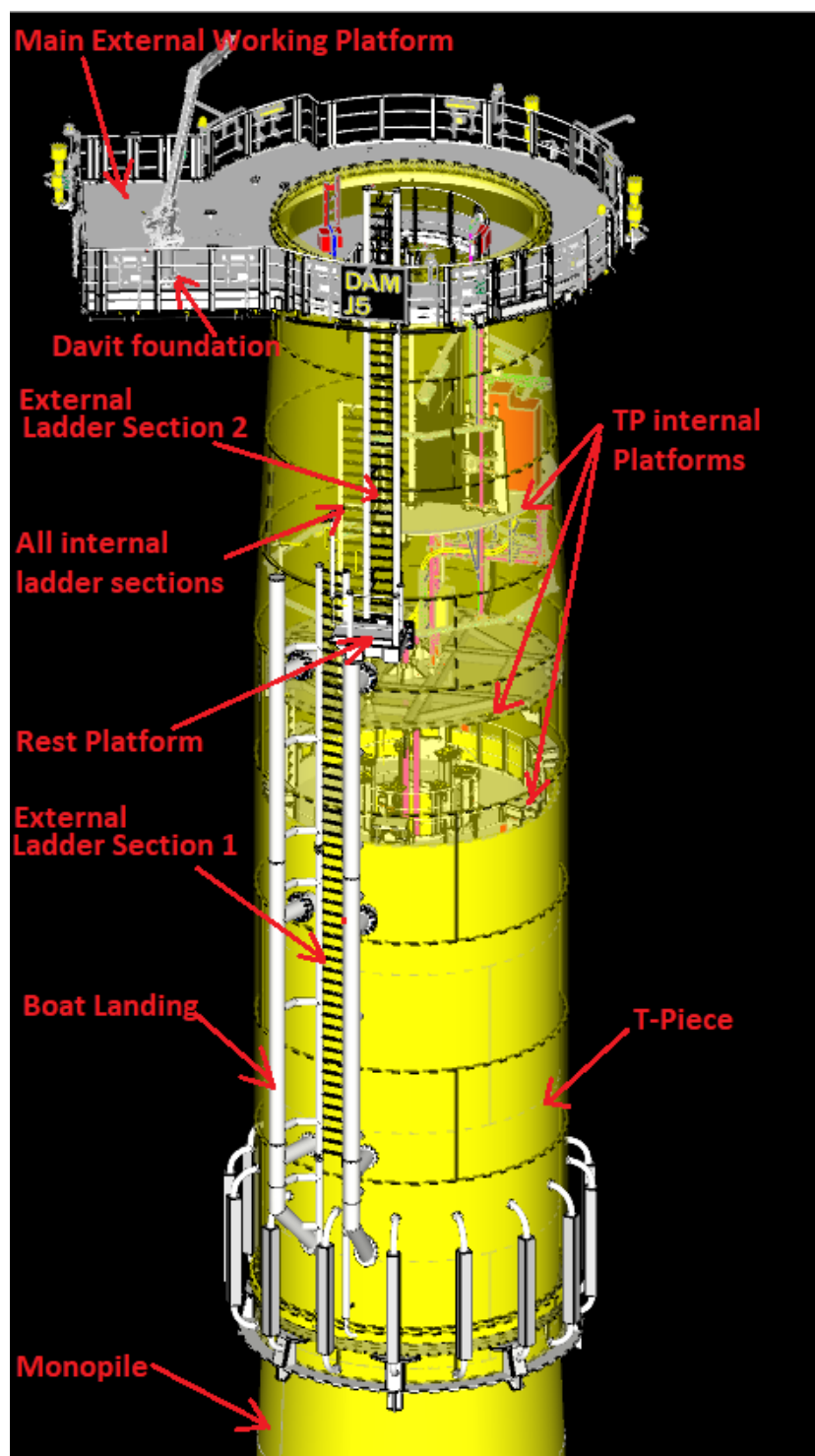


Figure A.2.1: Important Equipment need to be tagged for bottom fixed WTG foundation / T-Piece- Example drawing only

GL-7931 - The following plant tag numbers will be assigned for structural items on a typical floating WTG Spar structure

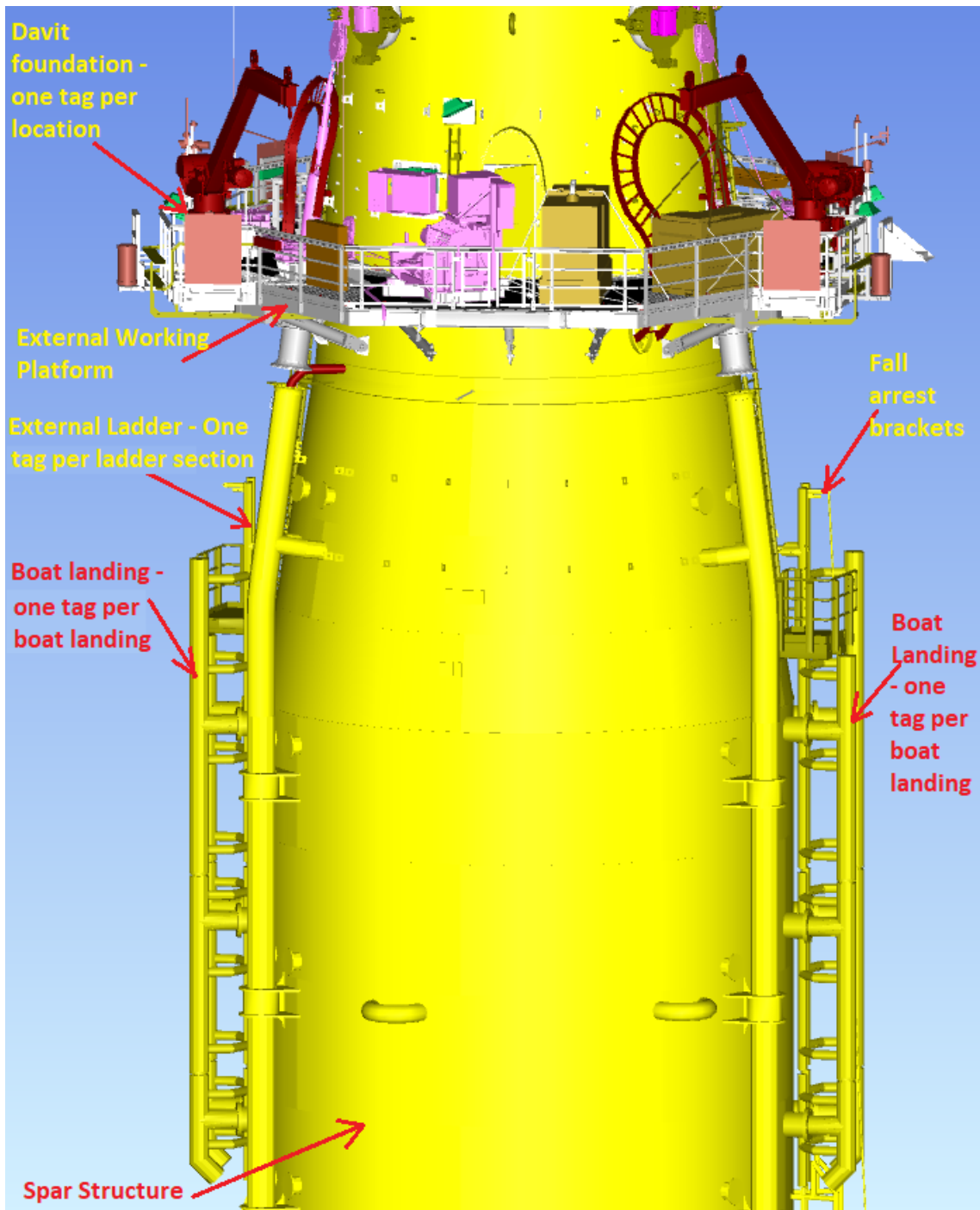


Figure A.2.2: Important Equipment need to be tagged for floating WTG Spar structure - Example drawing only

GL-7933 - All tower sections (eg: bottom, middle, top) and flange connections should have tag numbers. Fasteners on the flange connection will not be tagged. Tower internal platforms will have separate tag number.

A.3 Tanks / Enclosures

GL-7052 - Ballast Tanks and enclosures in the floating facilities will be assigned plant tag numbers.

App B Tagging of subsea systems

GL-7056 - The following equipment installed subsea should as a minimum be assigned a plant tag number for a subsea system:

- Inter array cable
- Export cable
- Clamp connectors
 - Seal Assembly
- DTS system
- Electric Jumpers
 - One plant tag number for each Electric jumper and description like "A/B side", "from/to", etc.

GL-7934 - Mooring and Suction Anchor System & accessories on floating WTGs. The following components of a mooring system will be tagged:

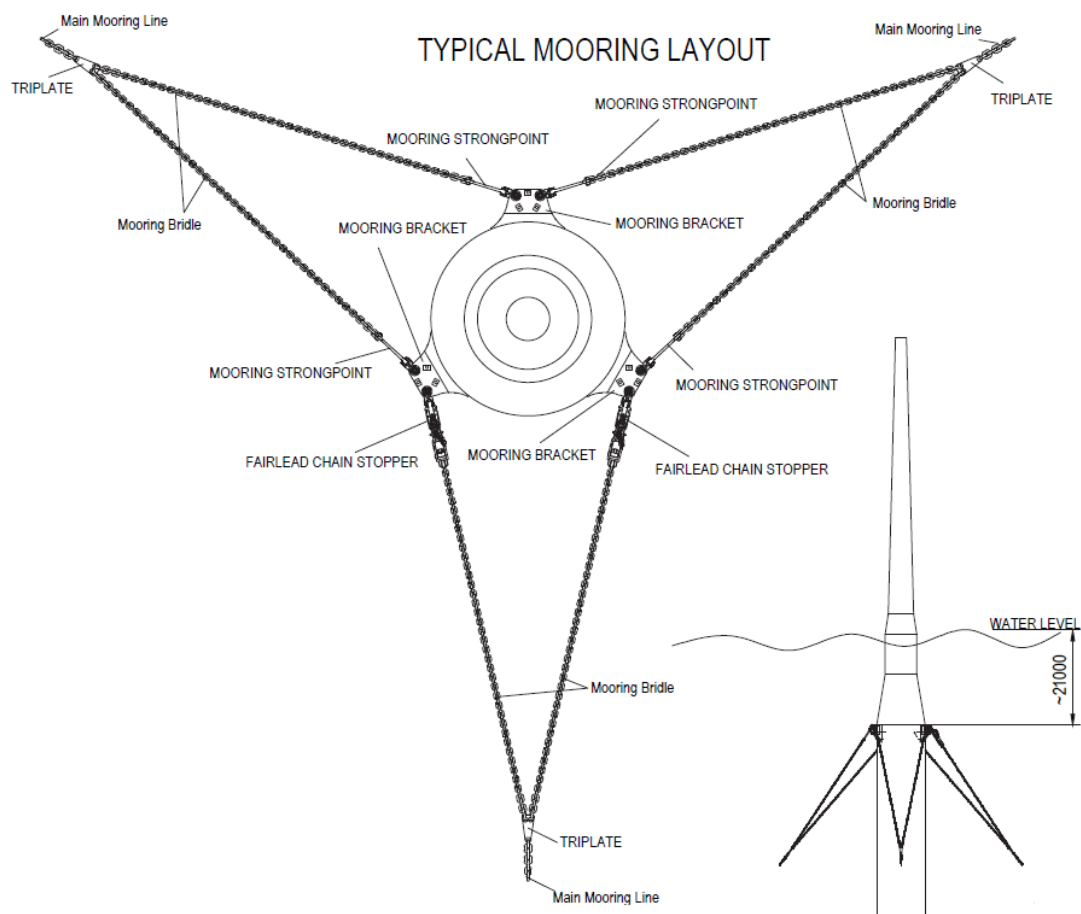
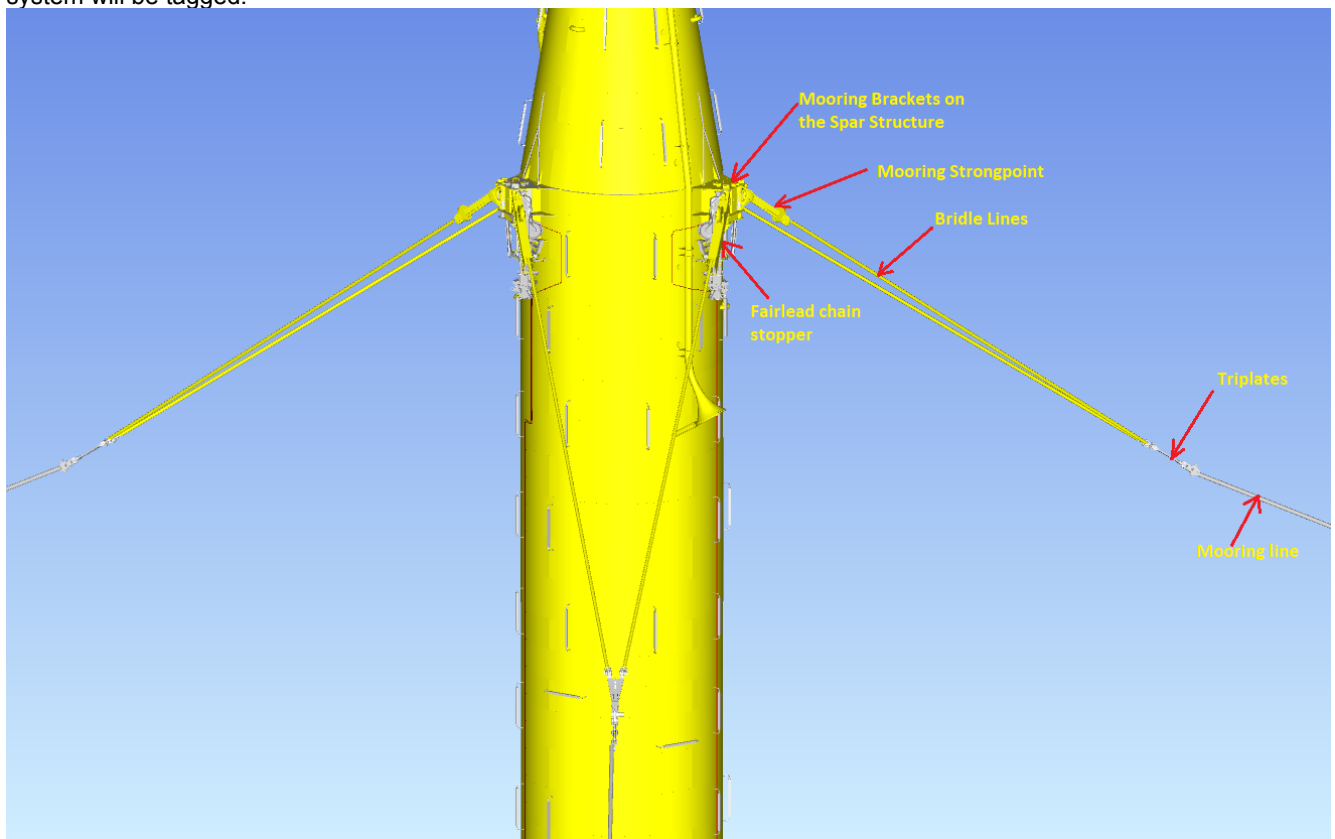


Figure B.1: Important components to be tagged for floating WTG mooring system - Example drawing only

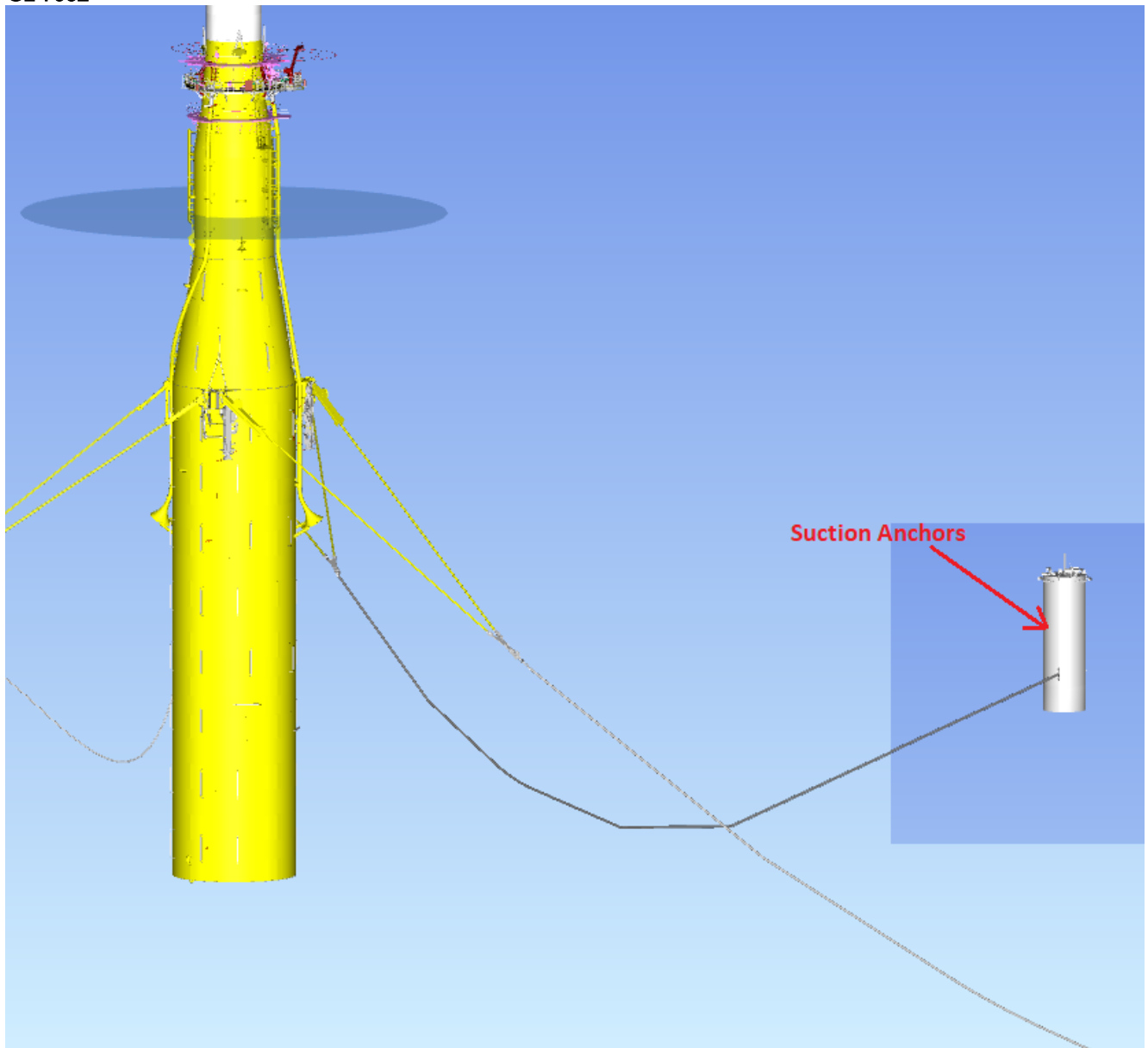
GL-7952 -

Figure B.2: Each Suction Anchors should have Separate Tag Numbers

GL-7953 - Ballast Systems - Water level / Leakage Systems should have separate Tag numbers

App C Examples of tagging scope for WTG Main Equipment

GL-7932 - The following plant tag numbers will be assigned for Main components on a typical WTG

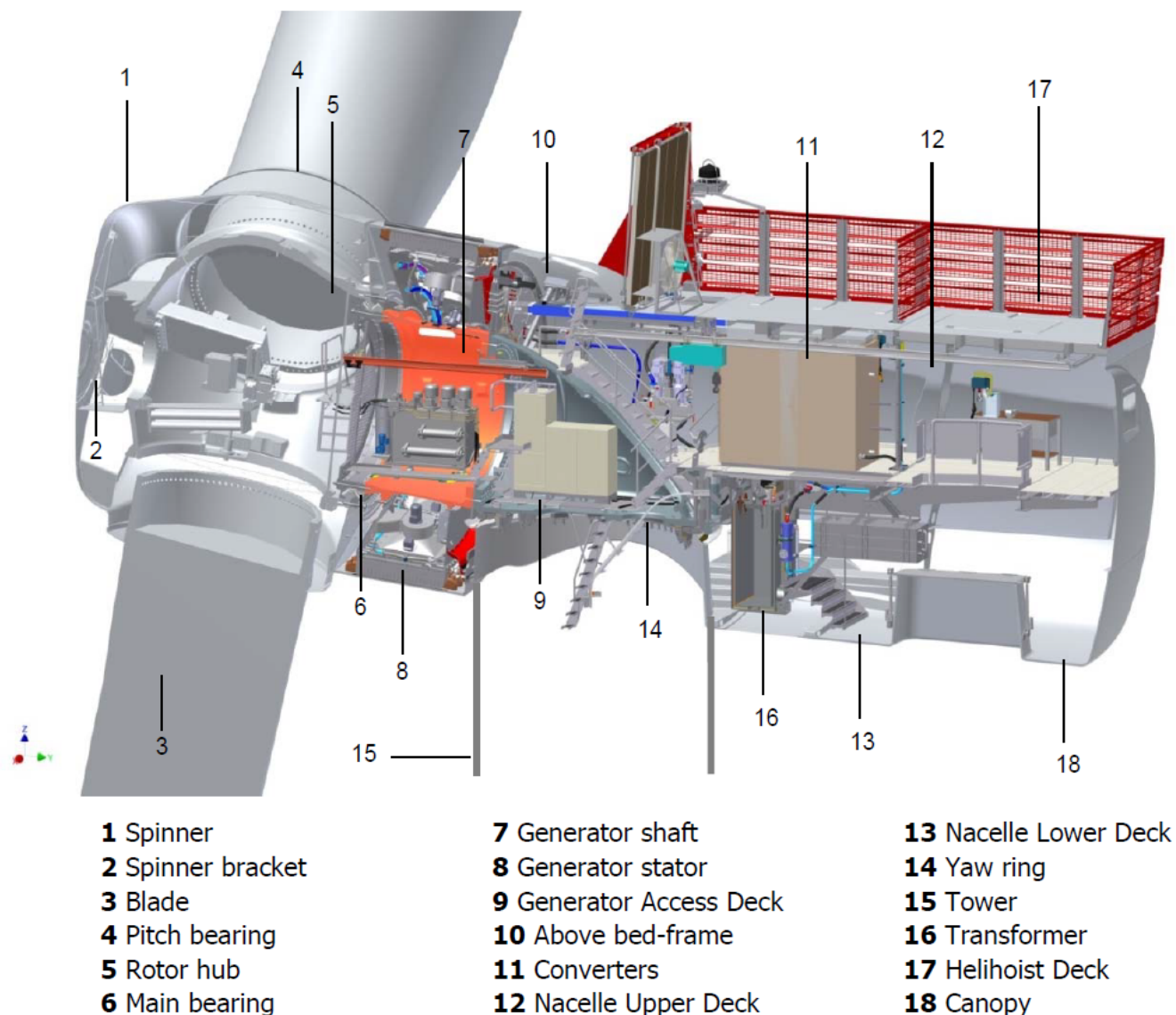


Figure C.1: Main Equipment to be Tagged for a Typical WTG - Courtesy drawing SGRE 6.0MW WTG

App D Examples of tagging scope in packages/skid

GL-7082 - HOLD – will be included in the next version of this document.