

Quality Requirement

Preservation, Packing & shipping of
Proprietary Parts General Requirements

RIG/PLANT		
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Contents

1	PRESERVATION PACKING AND SHIPPING (PROPRIETARY PARTS).....	4
1.1	Purpose	4
1.2	Scope	4
1.3	General Requirements	4
1.4	Overseas shipment	5
2	PRESERVATION, PACKING, STORAGE AND SHIPPING REQUIREMENTS FOR PROPRIETARY PARTS	7
2.1	Packing of Electrical equipment	7
2.2	Packing of Instrument Equipment	7
2.3	Packing of Hydraulic components	7
3	PACKING; MARKING & SHIPPING REQUIREMENTS (PROPRIETARY PARTS)	8
3.1	General.....	8
3.2	Physical preservation documentation as applicable	8
3.3	Preservation Chart.....	8
4	ANNEX A – PRESERVATION CHECK-LIST	11
5	ANNEX B – NOV RIG TECHNOLOGIES GENERAL SHIPPING REQUIREMENTS.....	15

1 PRESERVATION PACKING AND SHIPPING (PROPRIETARY PARTS)

1.1 Purpose

These NOV Shipping Instructions are a supplement to NOV Supplier Instructions and regulate the packaging, preservation, and shipping procedures for all deliveries to National Oilwell Varco, Rig Technologies (NOV) of the following types:

- i. Complete machines/equipment to be shipped to NOV or directly to NOV customers, domestic or overseas and all types of transportation (road, sea or air)
- ii. Proprietary parts in unfinished condition between NOV and the supplier as well as Supplier and NOV.

They also regulate the required documentation for the shipments in order to comply with customs regulations for a continuous evidence of Country of origin.

Preservation instructions shall ensure the conformity of the product and constituent parts through their delivery to the intended destination.

1.2 Scope

The instructions describe the general terms and conditions for Packaging, Preservation, and Shipping, applicable to NOV Purchase Orders (PO). Additional instructions may apply when specified as part of PO documentation.

Any changes and additions to this regulation will only be effective when mutually agreed in writing between the parties. In the event of any conflict between the PO and these Shipping Instructions, the terms and conditions of the PO shall prevail.

Type of goods and variation in shipping means, distance, geographical area and time, require different instructions, e.g. short distance land transport of parts from supplier to NOV or between NOV facilities, vs. overseas shipments of assembled equipment.

1.3 General Requirements

This specification covers Packaging, Preservation, and Shipping, including transportation documentation, information and marking requirements for shipments of all parts and materials described in these quality requirements.

This section forms an integral part of the delivery and is detailed in the drawing specifications and instructions explicitly listed in the purchase order.

Supplier shall comply with all applicable descriptions in this specification depending upon the type of goods to be supplied unless otherwise specified in the engineering instructions.

Wooden material used for packing shall be in accordance with requirements in Appendix 1.

Larger parts which require handling by crane shall have clearly identified lifting points. Parts that require individual lashing during transportation shall have clearly identified lashing points.

Individual boxes and pallets shall be identified with the part numbers, quantities, and associated NOV PO and line number. Cases and crates shall be marked with indelible water-proof marking in clear legible characters at least on three sides.

A copy of the packing list shall accompany the material enclosed in waterproof envelopes fastened to the package.

When a Handling, Preservation & storage procedure is available, it shall be attached to the equipment during transport ensuring availability of the procedure on receipt of the equipment.

All openings in hydraulic / pneumatic tubing shall be provided with suitable caps or solid shank steel plugs of metallurgy equal to the metallurgy of the component being capped or plugged and to be covered with Denso®tape.

Unless more specific instructions exist as a part of the PO, the annex 1 check list shall be printed and added to the shipping documents.

Packages containing "Fragile" must be packed with special precautions against risk of breakage.

The marking needs to be clearly visible and attached documentation clearly indicated.

1.4 Overseas shipment

Materials used shall be in accordance with the best commercial export practices and packing shall be seaworthy capable of withstanding seawater and salient weather conditions for a minimum of 12 months.

It shall be capable of withstanding multiple handlings and to perform all its functions without any detrimental effects/pitting to the contents of the package/crate/bundle etc.

Methods used shall be such as to warrant safe delivery of the product to its ultimate destination. All packages shall be packaged in such a manner as to reduce column as much as possible.

Suitable height shall be provided on the bottom of the cases/crates for easy handling by forklift trucks (50x50mm block/ stringer for less than 1 MT and 75mm for more than 1 MT).

Heavy machinery which includes tables, rollers, counter-weights, machine heads or other movable parts will be blocked and braced to prevent movement. Items shipped in bundles must be securely tied with steel wire or strapping, steel reinforcing rods, bars, pipes structural members etc. shall be bundled in uniform lengths and weight shall be within the breaking strain of the securing wire or strapping.

All equipment attachments, accessories, steel structures, pipes and fittings shall be painted/ greased and/or provided with suitable protective compound/oil to prevent rust, corrosion or damage due to bad weather, and shall clearly indicate whether the materials should be stored under cover, unless specified differently on the PO documents.

All parts shall be securely fastened to the case bottom to avoid any displacement during transit.

Initial preservation shall be based on outdoor storage under salient weather conditions and for applicable duration agreed with NOV.

The packing shall be suitable for protecting materials/equipment against weathering, marine environment, climatic conditions of temperatures of 50° C and 100% humidity.

Glass surfaces, as cabin windows, large manometers, displays, screens and monitors shall be covered by means of plywood, in order to minimize risk of breakage. Such protection may be taped in place or fixed by other suitable means.

For air transport, special requirements may apply.

2 PRESERVATION, PACKING, STORAGE AND SHIPPING REQUIREMENTS FOR PROPRIETARY PARTS

2.1 Packing of Electrical equipment

Vents shall be waterproof sealed. Protective paper stripe shall be slipped under brushes.

Cable reels protection (e.g. planking, tarpaper, plywood, shrink-wrap) shall be selected based on size, weight, and risk of damage during transportation. For overseas shipments, reel needs to be planked and secured with metal bands.

Wooden strips shall be provided to protect reel edges. Ends of H.T. cables shall be plumbed and sealed with a lead-end and when finally planked the cable shall be strapped over with steel bands or hoops.

Material and strength of the cable reel shall be adapted to the size and weight of the cable.

Components which are moisture sensitive shall be stored with VCI – Vapor Corrosion Inhibitor.

The size of the VCI shall be appropriate for the volume of the interior it shall protect.

All non-terminated cable ends shall be fitted with shrinking shroud

2.2 Packing of Instrument Equipment

When instruments are packed in several layers in the same case horizontal partitions shall be provided suitably spaced and secured to case frame.

2.3 Packing of Hydraulic components

Packaging shall be weather resistant. Each item shall be stamped or tagged to identify size, material, and identification number.

When bolting is shipped in loose bags, marking of identification is required.

Packages containing "Fragile" parts must be packed with special precautions to eliminate risk of damage.

Valves shall be corrosion protected and valve flanges protected with suitable caps.

All hydraulic components shall be filled with proper hydraulic oil during storage and transport.

All open-end nozzles shall remain plugged or capped to avoid ingress of material that can contaminate the piping and the fluid in the piping.

3 PACKING; MARKING & SHIPPING REQUIREMENTS (PROPRIETARY PARTS)

3.1 General

Marking, Documentation and Information.

Individual part identification is required on parts (size allowing) and packages with the applicable part number as specified by the purchase order. Location and size must be as per NOV drawing when so indicated.

Individual packages shall be identified with the part numbers, quantities, and associated NOV PO and line number. Cases and crates shall be marked with permanent water-proof marking in clear legible characters. NOV part number and purchase order number must appear on all the shipping documentation, including Packing List and Commercial invoice.

If parts are to be exported from their origin manufacturing location, it must be stamped or marked with their Country of Origin, in compliance with the marking regulations of the country into which the parts will be imported.

Packages containing "Fragile" parts require additional marking such as "handle with care" or "this side up", and shall be marked with arrows, "fragile" or any other additional indications for protection and safe handling.

A copy of the Packing List enclosed in a waterproof envelope attached to the case or shipment shall accompany the material, and shall contain the following information: PO order number, PO line number, Country of Origin, NOV Part number, quantity shipped, packing slip number and traceability code / serial number if applicable. In addition, Packing List shall include dimension for each package (L, W, H) including net weight and gross weight.

When goods are shipped bundled, the shipping marks shall be adequately tagged for easy identification.

Specific marking for slinging shall be provided for all heavy lifts weighing 5 tons and above top-heavy containers will be so marked as either top-Heavy or Heavy Ends.

The marking needs to be clearly visible and attached documentation clearly indicated.

Ref figure 1: Sample Packing Slip in ANNEX B - NOV RIG TECHNOLOGIES GENERAL SHIPPING REQUIREMENTS

3.2 Physical preservation documentation as applicable

Preservation and hot oil flushing tags shall be signed and attached to the equipment.

If topping of gear boxes is required, special tags shall be attached.

3.3 Preservation Chart

The below table shall apply unless otherwise specified in the engineering documentation.

FACTORY PRESERVATION OF NOV EQUIPMENT		
SERVICE	TYPE OF PRESERVATIVE	NOTES
Unpainted machined surfaces	Painting system # 2	Use Tectyl 120 if painting is impossible
Fittings and hose couplings (not stainless steel)	Denso®tape	All hydraulic couplings to be Desotaped after FAT
Unconnected hose connections	Plug and Densotape	All hydraulic connections to be Desotaped after FAT
Outside located Electric Valves, sensors and transmitters.	Denso®tape	Applicable for solenoids and electrical connections on transmitters. To be Desotaped after FAT
Threaded openings in carbon steel (unused)	Hot dip galvanized bolt	
Threaded carbon steel holes in connection with stainless steel bolts (e.g. pipe support)	Tectyl 506	Spray inside hole before entering bolt
Door / hatch hinges	Texaco Multifak EP2	
Door / hatch gaskets	Acid free Vaseline	
Gaskets / O-rings	Acid free Vaseline	
Chain of carbon steel	Tectyl 506	
Pneumatic cylinder rods	Cortec VpCI-369	
Steel Wire [excluding Stainless Steel wire]	Tectyl 506 or Bridon Brilube 70	
Wire on drums	Rubber mat or strapped wood	
Wheels in non-austenitic steel material	Apply first one layer with Tectyl 506 and then one layer with Tectyl 120	E.g. carbon steel, S165M, 34CrNiMo6
Slew bearing	Apply first one layer Klüber Graftslocon CA 901 and then one layer with Tectyl 506	
Drive rack and pinion	Painting system # 2	Teeth: Apply Jotun Penguard Express ZP and Tectyl 120 Interface surface: Apply only Jotun Penguard Express ZP
Bondura bolts	Tectyl 506 and Densotape	
Wire sheave (cone)	Painting system # 6	
Welding socket	Denso®tape	Both sides
Loose unpainted items	Packing in VCI plastic	

Bearings	Texaco Multifak EP2	See lubrication chart and fabricators recommendations
Valve spindle	Densotape	
Eyelet	Tectyl 120	
Shaft	Tectyl 506 or Denso®tape	
Reduction valves	Densotape	After FAT
Hydraulic cylinders (exposed cylinder rods)	Denso®tape and strapped wood	
Instrument glasses	Rubber pad or plywood plate	
Cabinets / junction boxes	VCI (Vapour Corrosion Inhibitor) emitter, e.g. Zerust or Cortec and drain plug	Type of emitter to be selected in accordance with cabinet / JB volume. Date of installation to be noted on preservation tag.
Open glands	Plastic plugs	
Electrical interface contacts	Cortec VpCI-238	
Unterminated cables	Shrinking shroud	
El. motor shafts	Tectyl 506	
Accumulator bottles	2 – 3 Bar nitrogen	Not applicable when air freight is to be used.
Untreated black steel bolts, Allen screws and Electrolytic galvanized bolts (EL-Zinc) – When in an assembly	Removal of loose scale, rust etc. Then degreasing & cleaning with alkaline detergent	Apply 1 layer Jotun Jotacote Universal 150 µ & 1 layer Jotun Hardtop AX 50 µm
Untreated black steel bolts, Allen screws and Electrolytic galvanized bolts (EL-Zinc) – Loose in boxes	To be shipped in VCI plastic bags for protection.	
Fittings and flanges	Denso®Tape	50% overlay.

4 ANNEX A – PRESERVATION CHECK-LIST

Check-list to be the basis and tailored as required and applicable.

PRESERVATION SPECIFICATION & RECORD – MECHANICAL/HYDRAULIC								
Record No.: <i>Equipment Reference</i>		Tag / Serial No.:	Description:				Record page 1 of XX	
Activity No.:	Intervals (Months)	Description of Preservation Activity	Preservative	Initial Preservation	Date/Sign Preserved (2)	Date/Sign Preserved (3)	Date/Sign Preserved (4)	Date/Sign Preserved (5)
1	3	All unpainted steel surface and flanges coated with preservatives						
2	3	Extended cylinder rods coated with preservatives and protected with wood.						
3	3	Open-end nozzles plugged or capped properly. Nozzle face coated with preservative						
4	3	All loose items/removed parts preserved, stored and marked						
5	1	Check that protection structure is undamaged						
6	3	All painting undamaged. Unless do repair painting						
7	3	Hydraulic system initially filled up with specified oil.						
8	2	Check air bottles or accumulators for nitrogen pressure. Pressure between 1.5 to 3 barg.						
9	3	Gear box topped up with specified gear oil						
10	3	Heavy Duty gearboxes filled to correct level with specified preservative oil.						
11	3	Valve spindles densotaped. Densotaping undamaged.						
12	3	Yellow chromated steel densotaped. Densotaping undamaged.						



Document number 103189088

Revision 2

Page 12 of 18

13	3	Shafts on rotating equipment, which are not locked, shall be rotated 1 ¼ turn in the rotating direction. New shaft pos. from one turn to the other. Bearings w/lube oil , check oil level before turning						
14	3	Greased bearings contain adequate grease						
15	3	All hatch bolts greased						
16	3	Carbon steel pipe internally preserved						
Comments: Write NA in the "Preservative" when not applicable								
Performed by: Date/Sign: _____			Accepted by: Date/Sign: _____			Reference Engineering specifications when applicable		

PRESERVATION SPECIFICATION & RECORD – ELECTRICAL / INSTRUMENT

Record No.: <i>Equipment Reference</i>	Tag / Serial No.:	Description:	Record page 1 of XX					
Activity No.:	Intervals (Months)	Description of Preservation Activity	Preservative	Initial Preservation	Date/Sign Preserved (2)	Date/Sign Preserved (3)	Date/Sign Preserved (4)	Date/Sign Preserved (5)
1	2	Check that protection structure is undamaged						
2	2	All sensitive instrumentation exposed to damage are protected.						
3	2	All cabinets, panels and boxes exposed to humidity protected with desiccant. Replace desiccant if necessary.						
4	2	Inspect internals for corrosion and moisture – If so, dry up and repair, add desiccant and ensure tight sealings.						
5	3	All spare cable entrances in panels and boxes plugged. If not vertical installed with drain plug down – seal drain plug.						
6	3	Open nipples and glands in panels and junction boxes to be sealed off.						
7	3	All non-terminated cable ends fitted with shrinking shroud						
8	3	Check for physical damages to cable trays etc.						
9	5	Gasket in panels or junction box doors to be protected with preservatives, if stored outdoors						
10	3	Stainless steel - remove black steel welding/grinding spatter						
11	3	Shafts on el. motors and mech. seals protected w/ grease tape.						
12	1	Inspect that space heater is effective using an ammeter or hand feel the unit. Ensure that indication light on temp heating distribution panel is working.						
13	1	For space heaters that are not temporarily energized, measure insulation resistance phase to phase and phase to earth. Attached form EP-02 to be filled in.						
14	3	Batteries for PLC and CPU fully charged and isolated from consumer.						

Document number 103189088


Revision 2

Page 14 of 18

15	3	Emergency light batteries and UPS batteries – See supplier instruction.							
16	3	Openings in hydr./ pneum. tubing protected with caps or plugs of material equal to the component being plugged or a non-corrosive material							
Comments: Write NA in the "Preservative" when not applicable									
Performed by: Date/Sign: _____			Accepted by: Date/Sign: _____				Reference Engineering specifications when applicable		

5 ANNEX B – NOV RIG TECHNOLOGIES GENERAL SHIPPING REQUIREMENTS

1 – FIGURES



SUPPLIER NAME

Address


BILL TO

NOV (Name of Destination)


(Bill to Address of destination) City, State & Zip Code

SHIP TO

PACKING SLIP# 340846



Order date	Customer PO
05/24/12	157683











Line #	NOV Part #	Qty Shipped	Traceability Code / Serial #
1	10012807-001	10	175875189
			
2	10012531-001	5	17587190
			

Figure 1: Sample Packing Slip

This packing slip is purely an example. All the barcoded information in the figure is required, but the visual appearance does not need to match.



Figure 2: Code 128 sample

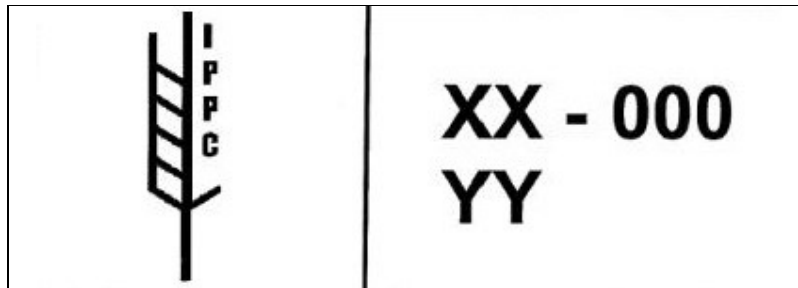


Figure 3: Wood Marking

The IPPC logo is on the left; on the right, XX represents the ISO country code and 000 represents the unique number assigned to the producer of the wood packaging material in order to be able to trace back to the treatment facility used; YY represents the method of treatment. Other letters and symbols may be present on the mark as long as the above items are included and clearly legible, permanent, and placed in a visible location, preferably on at least two sides of the article being certified.

2 ADDITIONAL INSTRUCTIONS

Guidelines for Liquidated Damages and Penalties on Wood Packaging Material (WPM)

The following instructions describe the general requirements for Wood Marking. Country specific regulations of the importing country may apply and shall be adhered to. These will be made available via NOV Rig Technologies Supplier Connect.

When required, wooden material used for packing shall be heat treated or fumigated, approved and stamped according to rules in IPPC (International Plant Protection Convention) “Guidelines for Regulating Wood Packaging Material in International Trade,” ISPM 15 of the International Standards of Phytosanitary Measures (ISPM).

Failure to comply with requirements for Wood Packing Material (WPM) may result in Liquidated Damages and penalties against supplier.

WPM – such as crates, boxes, and pieces of wood used to support or brace cargo – shall include a mark that certifies the wood completed the required treatment. WPM shall display a visible, legible, and permanent mark certifying treatment and include the following elements:

- The International Plant Protection Convention (IPPC) logo
- The ISO two-letter country code for the country that produced the wood packing material followed by a unique number code.

- The unique number code assigned by the country's National Plant Protection Organization (NPPO) to the producer of the wood packaging material, who is responsible for ensuring appropriate wood is used and properly marked. This code allows a trace back to the facility that treated and stamped the WPM
- An abbreviation that discloses the type of treatment

Ref. Figure 3: Wood Marking

Exceptions and Exemptions

The regulation applies to WPM made from softwood or hardwood. Certain articles, though, may be exempt or excepted from the treatment and marking requirements in accordance with country specific regulations of the importing country.

Failure to comply with REGULATIONS

Regulated WPM must be properly marked to indicate that it has been either heat treated or fumigated. There are three categories under WPM for this enforcement:

- 1) UN marked: WPM that is encountered by customs during the course of inspection and found not bearing the required treatment and markings
- 2) Inappropriately marked: WPM that is encountered by customs during the course of inspection and found to be inappropriately marked or illegibly marked is assumed to be untreated by either of the approved methods identified under applicable regulation. and
- 3) INFESTED: WPM that is infested with a pest confirms that the WPM has not been treated in accordance with applicable regulation.

Regulations provide for immediate export of WPM that does not contain the required mark. Marked WPM containing pests is considered WPM that has not been treated and marked in accordance with applicable regulation and shall be immediately exported. The importer of record, carrier, or bonded custodian is responsible for any costs or charges associated with export.

Any WPM violation which results in an assessment by customs of liquidated damages and/or penalties on NOV, where NOV is the importer of record, will result in a claim by NOV against the supplier.

ISPM 15 requirements apply to all species of coniferous (softwood) and non-coniferous (hardwood) packaging materials.



Violative Packaging



Illegible WPM Mark