



IADC™

**IADC GLOBAL
SUPPLY CHAIN COMMITTEE**

**Manufacturing Record Book
Guidance (GU-IADC-SC-004)
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This document contains recommendations from the IADC Supply Chain Committee, developed with participation of equipment Manufacturers and Classification Societies, and should be used as a standard guide while creating Manufacturing Record Books (MRBs).

This document does not intend to modify or contradict any regulatory industry standards such as API or any other. This document should be used as a reference while creating MRBs in compliance with minimum industry requirements.

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Suggested revisions to the guidelines are invited and will be considered along with future changes to its content. Suggestions should be submitted to the Director-Offshore Technical and Regulatory Affairs, International Association of Drilling Contractors, 3657 Briarpark Drive, Suite 200, Houston, TX 77042. (713-292-1945)

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Document Change History Sheet

Date	Version	Reason for Change
18-Oct-2016		Baseline
30-Oct-2017	Rev.1	Expanded/Revised : Chapter 2 – Abbreviations Chapter 4 – MRB Section Details Section 3.1 Top Level Part Description Added: Appendix B – Example of ITP
30-Oct-2018	Rev. 2	Expanded/Revised : Chapter 4-MRB Section Details Section 3 – Traceability and Manufacturing Documentation – Manufacturer Records – Part D-Part G Removed: Chapter 4-MRB Section Details Section 1.2 Affidavit for Country of Origin

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CHAPTER 1. INTRODUCTION

The IADC Manufacturing Record Book Guidance document is intended to assist purchasers, suppliers, service providers and classification societies involved with drilling equipment, on the request and supply of relevant inspection and quality documentation in an organized and standard manner to facilitate the review of such documentation packages.

This document provides the recommended Table of Contents and minimum content requirements to be used when compiling a Manufacturing Record Book (MRB).

All documents within an MRB shall be in the English language unless specified differently in the applicable purchase order.

This guidance document is intended to cover all equipment new builds, repair and remanufacture events.

CHAPTER 2. DEFINITIONS / ACRONYMS

For the purposes of this document the following are the acronyms and definitions of certain terms used throughout this guidance document.

Term	Definition
ABS	A third party classification society, American Bureau of Shipping
API	American Petroleum Institute
Assembly Drawings	Drawing that list all parts and subassemblies that make the final product
Bookmark	An object used within a PDF file to create a shortcut to the documentation it is referencing.
BOP	Blowout preventer
CE	Conformity marking for certain products sold within the European Economic Area
Certifying Authority	An independent third party organization, typically a Classification Society that establishes and maintains technical standards for the construction and operation of ships and offshore structures (ships, offshore structures and the equipment contained within). The Certifying Authority will also validate that construction is according to these standards and carry out regular surveys in service to ensure compliance with the standards. (e.g. ABS, LR, DNV GL)
COC	Certificate of Compliance / Conformance - Document containing the statement by the manufacturer certifying that the equipment meets the requirements of the applicable Standards and Specifications.

DFT	Dry Film Thickness
DNV GL	A third party classification society, Det Norske Veritas Germanischer Lloyd
D&I	Disassembly and Inspection
FAT	Factory Acceptance Test
Finished Product	Any equipment that is identified within the scope of supply that is a discrete unit or deliverable on the purchase order.
ITP	Inspection Test Plan
LR	A third party classification society, Lloyd's Register
Manufacturing Record Book	A compilation of manufacturing records for a specific piece of equipment. Commonly referred to as MRB
MT	Magnetic Particle Testing, a form of Non-Destructive Examination
MTR	Material Test Record
NDE	Non-destructive Examination
Non Compliance Report	A non-fulfilment of a requirement or specification. Commonly referred to as NCR
OEM	Original Equipment Manufacturer
PO	Purchase Order
PT	Liquid Penetrant Testing, a form of Non-Destructive Examination
PWHT	Post Weld Heat Treat
Remanufacture	Process of disassembly, reassembly and testing of equipment, with or without the replacement of parts, in which machining, welding, heat treatment, or other manufacturing operation is employed
Repair	Process of disassembly, inspection, reassembly and testing of equipment, with or without the replacement of parts in order to correct failed or worn components.
RT	Radiographic Testing, a form of Non-Destructive Examination
UT	Ultrasonic Testing, a form of Non-Destructive Examination
Welding Procedure Specification	The formal written document describing welding procedures, which provides direction to the welder or welding operators for making sound and quality production welds as per the code requirements. Commonly referred to as WPS

CHAPTER 3. MRB CONTENTS

Every MRB shall have a Front Cover, Revision Page, Table of Contents, and a Back Cover. All of these Pages shall be bookmarked within the electronic file of the MRB. Furthermore, all Sections and Subsections described in Chapter 4 of this document shall be bookmarked. All bookmarks shall have dividers within the hard copy of the MRB, in case a hard copy is a requirement of the order.

The Front Cover shall include:

- Client Name
- Rig Name or Hull Number
- OEM Name
- Equipment Description
- Part Number (s)
- Serial Number (s)
- Purchase Order Number
- MRB Document Number and revision number

Table of Contents

Section 1 – Finished Product Documentation

Section 2 – Certifying Authority Documentation

Section 3 – Traceability and Manufacturing Documentation

Section 4 – Supplementary Documentation

CHAPTER 4. MRB SECTION DETAILS

Section 1 - Finished Product Documentation

This section contains the information related to the Finished Product and should include the following subsections:

1.1 OEM Certificate of Compliance/Conformance (COC)

Certificate of Compliance / Conformance - Document containing the statement by the manufacturer certifying that the equipment meets the requirements of the applicable Standards and Specifications.

The repaired/remanufactured equipment and all its component parts meet the requirements of the original or current product definition.

Other documents such as Statement of Fact or Certificate of Service can be provided as applicable per API.

The following information is the minimum required on a COC:

- Manufacturer Name
- Manufacturer Order Number
- Owner Name (optional)
- Owner PO Number
- Rig/Hull Number (if applicable)
- Equipment Description
- Manufacturer Serial Number
- Manufacturer Part Number with revision level
- Owner's Equipment ID Number (optional)
- Date of Manufacture (completion date)
- Applicable Standards and specifications
- Manufacturer's Authorized Representative Signature
- COC Certificate Number, and
- Certificate Date

1.2 Top Level Bill of Material and Assembly Drawings

The Top Level Bill of Material must specify to what revision the Finished Product was built or remanufactured to.

As-built Assembly Drawings shall be provided (applicable for top level assemblies such as top drives, etc.; not applicable for consumables)

For repair or remanufacture with no design changes the original Assembly Drawings should be referenced from original MRB. If a design change has been made, an updated Assembly Drawing is required for the applicable change.

1.3 Nameplate photograph

For new equipment, a photograph of the nameplate will be provided.

For repair or remanufacture both the original (when available) and the new nameplate photographs are to be provided when applicable.

Section 2 - Certifying Authority Documentation

This section covers any or all applicable Certifying Authority Documentation such as: Design Approval Letter, Survey Reports, Design Verification Report, Type Approval Certificate, Product Certificate, Endorsements, etc. This section also contains any special certification for a product such as "CE Marking." If no Certifying Authority Documentation is required, then this section shall be left blank.

2.1 Design Approval Documents

A document verifying the product design has been assessed for use by the Certifying Authority.

2.2 Final Product Certificates

Final Product Certificates / Survey Reports that are applicable to new build, repair and remanufacture.

Section 3 – Traceability and Manufacturing Documentation

Every document in the MRB shall have the traceability information (e.g., Part Number, Serial Number, Heat Number, PO Number or Sales Order Number) on each relevant page of the document.

The Manufacturing Documentation Section content is specific to the equipment and shall follow the order of the Quality Plan/Inspection Test Plan guidelines or Quality guidelines of the facility. If notification is required of NCR during the manufacturer process it must be stated on the Purchase Order along with an outline of the notification process.

Within all MRBs this section shall contain the manufacturing documentation by Part Number with the Top Level Assembly Part Number being the first Subsection; and the remaining Subsections being the Lower Level Assemblies and/or Components of the Top Level Assembly.

The first Subsection covering the Top Level Assembly shall contain reports for all testing performed at the top level (ITP, FAT, Load Test, and Drift test, Coating / Painting etc.) as applicable.

Remaining Subsections should cover Lower Level Assemblies and/or Components (mini-packs) and shall include the traceability record for each Subassembly and Component; as well as other manufacturing documentation such as the MTR, Traceability Sheet, Welding, NDE, Hardness, FAT and preservation as applicable for the part.

3.1 Top Level Part Description	
	<p>3.1.1 Inspection Test Plan (ITP) The following information is the minimum required on an ITP:</p> <ul style="list-style-type: none"> • Customer Name • Rig Name • Customer Purchase Order Number • OEM Sales Order Number • OEM Facility Ref • Certification Authority/Third Party Inspection • Equipment Part Number • Equipment Description • ITP Definition & Abbreviations • Detailed Description of Critical Components, as defined by the OEM • Detailed Description of Manufacturing Process for critical components
	<p>3.1.2 Traceability Sheet</p> <ul style="list-style-type: none"> • Equipment Part Number • Equipment Description • Manufacturer Serial Number or Heat/Lot Number of all Critical Components, as defined by the OEM
	<p>3.1.3 Final Assembly Test Report (as identified in ITP)</p> <ul style="list-style-type: none"> • Equipment Part Number • Manufacturer Serial Number

	<ul style="list-style-type: none"> • Test Record(s) as outlined in OEM Procedure(s) • OEM Procedure(s) Used
	<p>3.1.4 Coating and Painting Report</p> <ul style="list-style-type: none"> • Equipment Part Number • Manufacturer Serial Number • Manufacturer of coating • OEM Procedure(s) Used • Dry Film Thickness (DFT) • Atmospheric conditions • Batch and/or Lot number of coating • Quantity of items coated/painted
	<p>3.1.5 Preservation Report</p> <ul style="list-style-type: none"> • Equipment Part Number • Equipment Description • Date Preservation Began • OEM Procedure Number
3.2 Component 1: Description	
	3.2.1 Component 1 Traceability Sheet
	3.2.2 Component 1 Manufacturing Records as applicable (see Manufacturing Records section below)
3.3 Component 2: Description	
	3.3.1 Component 2 Traceability Sheet
	3.3.2 Component 2 Manufacturing Records as applicable (see Manufacturing Records section below)
3.X Component Y: Description	
	3.X.1 Component Y Traceability Sheet
	3.X.2 Component Y Manufacturing Records as applicable (see Manufacturing Records section below)

Manufacturing Records: (required as applicable)

(a)	<p>Material Test Record (MTR)</p> <ul style="list-style-type: none"> • Chemical Analysis, Tensile Mechanical Tests, Hardness Tests, Charpy Impact Values, Heat Treatment, Material Specification Number
(b)	<p>Welding (Original and/or Weld Repair)</p> <ul style="list-style-type: none"> • Weld Maps - Original and/or Weld Repair <ul style="list-style-type: none"> – Part Number / Part Serial Number – Welder ID – Filler Metal Heat and /or Batch Number – Flux Lot Number – WPS Number and revision number – Sketch (Weld Maps) of Part or Assembly identifying weld location – Filler Metal Type – Weld Inspection Records (visual, fit-up verification) – Total Remaining PWHT Time per Weld – Completion date of welding – NDE and hardness report number (if not traceable and properly identified under section (d))
(c)	<p>Post Weld Heat Treatment (PWHT)</p> <ul style="list-style-type: none"> • PWHT Chart(s) showing the entire PWHT cycle, part number, serial and/or Heat Number and/or heat treat lot number, a WPS number with revision number is required • Sketch of local PWHT Heater size location and thermocouple(s) location.
(d)	<p>Non-destructive Examination and Hardness Records (Original and/or Weld Repair) If any of the below NDE is performed during the manufacturing process, the minimum list of requirements are as follows:</p> <ul style="list-style-type: none"> • Magnetic Particle (MT) <ul style="list-style-type: none"> – Date of examination – Clearly name along with certification/qualification level and cert. number(if applicable) for personnel performing the examination – Provide identification of the weld, part, or component examined including weld number, serial number or other identifier – Provide examination method, procedure number, acceptance criteria and revision no – Show results of the examination which include a fail or pass status that advises that the inspection had no relevant indications – Record the magnetic particle equipment and type of current – Block/magnetic field – Record magnetic particles (visible, fluorescent, wet, dry) – Record light intensity at inspection surface, unique gauge serial number and tool serial number

	<ul style="list-style-type: none"> – Record ambient temperature and temperature surface temperature of the part being inspection – Record the degaussing method used • Liquid Penetrant (PT) <ul style="list-style-type: none"> – Date of examination – Clearly name along with certification/qualification level and cert number (if applicable) for personnel performing the examination – Provide identification of the weld, part, or component examined including weld number, serial number or other identifier – Provide examination method, procedure number, acceptance criteria and revision no – Show results of the examination which include a fail or pass status that advises that the inspection had no relevant indications – Record liquid penetrant type (visible, wet or fluorescent) – Record the type (number or letter designation) of each penetrant, penetrant remover, emulsifier, and developer used – Record light intensity at inspection surface, unique gauge serial number and tool serial number – Record ambient temperature and temperature surface temperature of the part being inspection • Radiographic (RT) <ul style="list-style-type: none"> – Date of examination – Clearly name along with certification/qualification and cert. number (if applicable) for personnel performing the examination – Identification of the weld, part, or component examined including weld number, serial number, or other identifier – Examination method, technique, procedure number, acceptance criteria, and revision – Results of the examination – Record film density value – Record number of radiographs (exposures) with lengths – Record X-ray voltage or isotope type used – Record distance from source side of object to film (d = distance from source side of weld or object being radiographed to the film) – Record weld thickness, weld reinforcement thickness, as applicable – Record film manufacturer and their assigned type/ designation – Record single- or double-wall exposure – Record single- or double-wall viewing – Record each radiograph location (per weld) and provide sketch of location where radiograph started – Evaluation and disposition of the material(s) or weld(s) examined • Ultrasonic (UT) <ul style="list-style-type: none"> – Date of examination – Clearly name along with certification/qualification level and cert. number (if applicable) for personnel performing the examination – Record procedure identification, acceptance criteria and revision – Identify ultrasonic instrument used (including manufacturer's serial number) – Identify search unit(s); single element or dual element with transducer (including manufacturer's serial number, frequency, and size) – Record beam angle(s) and compression used – Record couplant, brand name or type – Record search unit cable(s) (type and length)
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	<ul style="list-style-type: none"> - Record special equipment, if used (search units, wedges, shoes, automatic scanning equipment, recording equipment, etc.) - Record calibration block identification and description - Record instrument reference level gain and, if used, damping and reject setting(s) - Record calibration data (including reference reflector(s), indication amplitude(s), and distance reading(s)) - Record correction data (Db) - Scan plan identification required for volumetric inspection, per code requirement - Record surface(s) from which examination was conducted, including surface condition - Record pass or fail - Record areas of restricted access or inaccessible welds • Phased Array (in addition to UT requirements noted above) <ul style="list-style-type: none"> - Record computerized program identification and revision when used - Record simulation block(s) and electronic simulator(s) identification when used - Record data correlating simulation block(s) and electronic simulator(s), when used, with initial calibration • Hardness Report <ul style="list-style-type: none"> - Date of examination - Clearly name along with certification/qualification level and cert number (if applicable) for personnel performing the examination - Provide part no. and description of the part being examined - Provide serial no. of the part being examined - Examination method, technique, procedure number, acceptance criteria, and revision - Record ambient temperature of the part being inspected - Record manufacturer and serial numbers of instruments (equip and scope) <ul style="list-style-type: none"> ▪ Record calibration date of instruments used for the inspection (if applicable) ▪ Record ball diameter (if applicable) ▪ Record model type (instrument and scope) used for evaluation (if applicable) - Record calibration block used for inspection - Record hardness method used - Record hardness procedure no. - Record hardness results - Record surface conditions
(e)	<p>Electrical Equipment Reports</p> <ul style="list-style-type: none"> • Test certificates as identified in ITP
(f)	<p>Pressure Vessels/Accumulators/Heat Exchangers/Lube Oil Coolers</p> <ul style="list-style-type: none"> • COC and applicable industry certifications (such as U1-A Form), traceable to the cylinder's serial number as identified in ITP.

Section 4 – Supplementary Documentation

This section covers any special / supplementary documentation such as: Hazardous Area Documentation or other as required. If the Equipment does have Hazardous Area Certificates, then this section shall contain both the Hazardous Area Equipment List, as well as the Hazardous Area Equipment Certificates. If no supplementary documentation is needed then this section shall be left blank.

Note: The below Appendixes are for example purposes only and are solely provided to aid in further guidance of the MRB.

APPENDIX A – EXAMPLE OF MRB

Table of Content {BOP ASSY, 18-15 SRBOP}		
Section		
1.0	Finished Product Documentation	
	1.1	OEM Certificate of Compliance/Conformance (COC)
	1.2	Top Level Bill of Material and General Arrangement Drawing
	1.3	Nameplate Photograph
2.0	Certifying Authority Documentation (e.g., ABS,LR,DNVGL, etc.)	
	2.1	Design Approval Documents
	2.2	Final Product Certificates
3.0	Traceability and Manufacturing Documentation	
	3.1	Ram BOP Final Assembly (PN xxxxxx)
	3.1.1	Inspection Test Plan
	3.1.2	Traceability Sheet
	3.1.3	Final Assembly Test Report
	3.1.4	Coating and Painting Report
	3.1.5	Preservation Report
	3.2	Ram Blocks Assembly (PN xxxxxx).. - Traceability Sheet
	3.2.1	Ram Block Assembly
	3.2.1.1	Material Test Reports
	3.2.1.2	Nondestructive Testing and Hardness Report
	3.2.2	Packers
	3.2.2.1	Reports

	3.3	Bonnet Final Assembly (PN xxxxxx) - Traceability Sheet	
	3.3.1	Bonnet Body	
		3.3.1.1	Material Test Reports (TYPICAL)
		3.3.1.2	Welding (TYPICAL)
		3.3.1.3	Nondestructive Testing and Hardness Report (TYPICAL)
	3.3.2	Cylinder	
	3.3.3	Cylinder Head	
	3.3.4	Piston	
	3.3.5	Overhauling Screw	
	3.3.6	Overhauling Nut	
	3.3.7	Front Clutch Plate	
	3.3.8	Rear Clutch Plate	
	3.3.9	Retainer Plate	
	3.3.10	Bonnet Hinge	
	3.3.11	Transfer Ring	
	3.3.12	Bonnet Retaining Ring	
	3.3.13	Bonnet Body Bolting	
	3.3.14	Seal Carrier	
	3.4	Ram Body Assembly (PN xxxxxx) – Traceability Sheet	
	3.5	Bonnet Bolting (PN xxxxxx) - Traceability Sheet	
	3.6	Fluid Hinges (PN xxxxxx) - Traceability Sheet	
	3.7	Flanges (PN xxxxxx) - Traceability Sheet	
	3.8	Seal Ring (PN xxxxxx)	
4.0	Supplementary Documentation		

APPENDIX B – EXAMPLE OF ITP

Section					
1.0	Order Information and Equipment Information				
1.1	Order Information				
	1.1.1	Customer Name			
	1.1.2	Rig Name			
	1.1.3	Customer Purchase Order No.			
	1.1.4	OEM Sales Order No.			
	1.1.5	Certification Authority (Third Party Inspection)			
1.2	Equipment Information				
	1.2.1	Equipment Part No.			
	1.2.2	Equipment Description			
	1.2.3	Codes, Standards or Specifications applied			
2.0	ITP Definitions & Abbreviations (e.g.: W=Witness, H=Hold, R=Review)				
2.1	Definitions Hold Point (H) Inspection Point (I) Monitor Point (M) Review Point (R)				
2.2	Abbreviations				
	RTR:	OEM Work Order/Router	S/O:	Sign Off By Qualified/Authorized Representative	
	OEM:	OEM Personnel Designated For Inspection Activity Cited	QUAL:	Qualified/Authorized OEM Representative	
	CUS:	Customer Or Their Designated Representative	INSP:	Qualified/Authorized OEM Inspector	
	CA:	Certification Authority Designated In Purchase Order	OPER:	Qualified/Authorized OEM Operator	
	RR:	Required Record (Document) Per Manufacturing Process	CERT LII:	Certified Level II NDE Inspector	
	MRB:	Required Record (Document) That Will Be Included In MRB	N/A:	Not Applicable	
3.0	Detailed Description of Critical Components				
Item	Description	Material Specification	Level of Cert	Quality Clause Key	
				CAT 1 (MRB)	CAT 2 (RR)
0	Product XYZ Assembly			1.1, 1.7, 2.6	4.8
1	Product XYZ Component 1	12345678	EN 10204 3.1	2.1, 2.7	4.4
1.1	Product XYZ Component 1 Sub-Component 1	23456789	EN 10204 3.1	2.1, 2.7	4.4
2	Product XYZ Component 2	N/A	N/A	1.1, 1.13, 2.1,2.6,2.8 2.6, 2.8	4.2, 4.4

4.0		Detailed Description of Activities							
ACTION NO.	ITEM NO.	MFG/QUALITY ACTIVITY	ACCEPTANCE STANDARD	VERIFYING DOCUMENT/VERIFYING ACTIVITY	INSPECTION				
					DOC		OEM	CUST	CA
					RR	MRB			
10	0	Contract Review	Customer Requirements	Purchase Order Acknowledgement			R		
20	0	Sales Order Review	Verify Sales Order Contains Customer, Manufacturing, Inspection, and Documentation Requirements	Sales Order			R		
30	0	Third Party/OEM Prefab Meeting		Inspection & Test Plan			R		H
40	0	Design Approval	Certification Authority Requirements	Certification Authority Design Approval		X	R		
50	0	Engineering Release	Approved Drawings & Bill Of Material	Engineering Release Notice			R		
60	0	Procurement	Materials & Components Per Engineering Drawings	Approved Purchase Orders			R		
70	0	Router Review	Verify ITP Requirements Are Defined On Process Documents	Router S/O By Quality Assurance Engineering			R		
80	1	A. Rough Machine B. MT Inspect C. Dimensional Inspect D. Weld E. Stress Relief	A. Design Drawings B. SOP 123456 C. SOP 234567 D. WPS 123456 E. WPS 123456	A. RTR S/O By QUAL OPER B. RTR S/O By CERT LII C. RTR S/O By QUAL INSP D. RTR S/O By QUAL OPER E. RTR, CHARTS S/O By QUAL OPER	X	X X X	I I I I	H	M H