Client Logo:	Tag No	Pages
	NA	1 of 20

Project Title

Rough Neck 5"-8"

Location	Po No
TBA	NA

Rev. No.	Date	Reason for Revision	Prep.	Check.	Appr.dd
01	11.12.10	Issued for approval	RØ	OV	RØ

DEPRO™
OIL TOOLS & MECHANICAL EQUIPMENT

Vendor

Approved	1
Accepted with comments Update and resubmit	2
Not Accepted	3
For Information	4

Technical Description:

USER MANUAL FOR ROUGH NECK 5”-8”

Document No:

DEP-DO-0388

TABLE OF CONTENTS

DEPRO™ OIL TOOLS & MECHANICAL EQUIPMENT

WARNING

HIGH PRESSURE HYDRAULIC

- **This product involves high pressure hydraulic.**
- **The operator and all personnel involved in the operation shall be fully conversant with the user manual and ensure that safe working practices are used at all times.**

HYDRAULIC FLUID HAZARD

- **The hydraulic fluid used during these tests may contain glycol or other harmful substances, which should not be handled or ingested.**
- **Refer to the hydraulic fluid health and safety data sheet for handling, first aid and disposal recommendations.**

SYMBOLS AND CONVENTIONS

The following words and symbols found throughout this manual mark special messages to alert the operator of specific information concerning of the PERSONNEL, the EQUIPMENT or the PROCESS.

THE TEXT SET OFF IN THIS MANNER PROVIDES WARNING NOTICE THAT FAILURE TO FOLLOW THESE DIRECTIONS IN THIS WARNING CAN RESULT IN BODILY HARM OR LOSS OF LIFE AND/OR EXTENSIVE DAMAGE TO EQUIPMENT.

The text set off in this manner provides warning notice that failure to follow these directions in this CAUTION can result in damage to equipment.

The text set off in this manner present clarifying information or specific instructions pertinent to the immediate instruction.

The text set off in this manner is used to identify possible environmental impact of an action taken or equipment/material used.

EC DECLARATION OF CONFORMITY ACC. TO MACHINERY DIRECTIVE 522

Product no.	Description	EC Declaration of Conformity no.
DEP-A-0115	Rough Neck 5”-8”	TBA

1 INTRODUCTION

1.1 Purpose

The purpose of this manual is to define and describe the operations for the Rough Neck. The Rough Neck has been fully tested at Depros facilities and is ready for use at Location.
Before use, the operator must have theoretical and practical education in use of the equipment.
The operator must also have the knowledge required by the customer.
All the duties / instructions in this manual must be followed during use of equipment Incorrect operation or maintenance renders warranty void.
All un-authorised tamper or modification of equipment is strictly forbidden, and will render warranty void.
The specification values, rated capacities and other information contained in this manual refer to the maximum capacities.

The rough neck is centred in position in existing frame. Tool is allowed movement for +\-250mm in vertical position to allow adjustment to the drill pipe.

1.2 Abbreviations and definitions

HPU	Hydraulic Power Unit
FABRICATOR	Depro
COMPANY	Fugro Offshore Geotechnics

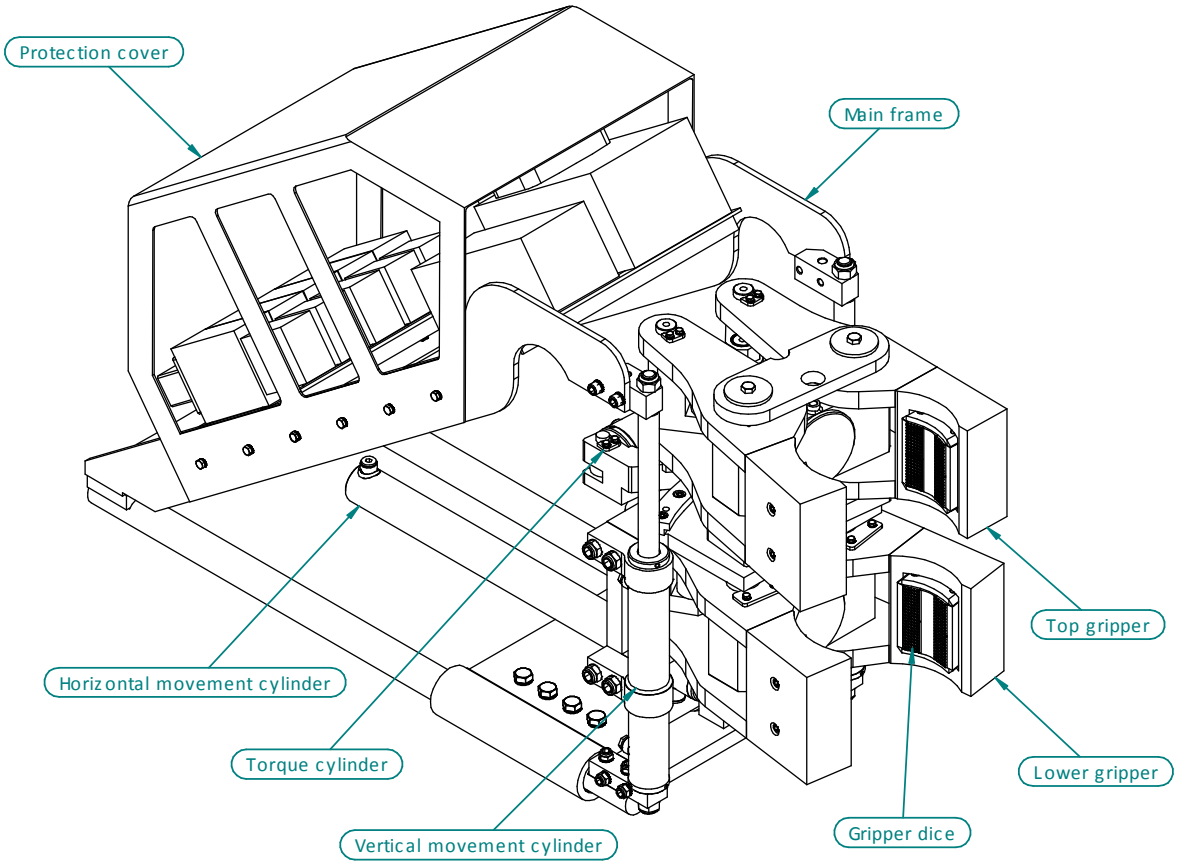
1.3 Reference Documents

Document No	Document Title
NORSOK M-501	Coating
DEP-A-0115	GA Drawing
DEP-DD-0005	Hydraulic Schematic
DEP-DO-0299	Data Sheet Make & Break gripper 5”-8”
DEP-DO-0089	FAT Procedure

1.4 Technical Data

Technical	Description
Hydraulic Fluid	Tellus T15, NAS 8 or better
Max working pressure (System)	230 Bar
Fittings	Ref DEP-DD-0005
Dry Weight	~ 520 kg
Dimension WxLxH	470x560x670
Stroking length	620mm

1.5 Overview of Rough Neck



2 TOOL DUTY DESCRIPTION

This document describes the functionality and operations for hydraulic operated rough neck. The rough neck is designed for make & break function for pipe size 5” Through 8”. The guaranteed make torque is 30 000Nm. The rough neck will be operated by the use of remote function delivered with the rough neck. This is a RC 400 remote 5 PROP P67 allowing operation from the drilling cabin, A separate user manual from vendor of remote is delivered with the rough neck, and is operators responsibility to read and understand the remote unit.
Always make sure to maintain safe working distance to the rough neck during operation.

The Rough Neck is operated by hydraulic pressure regulated by the valve block integrated on the rough neck. Hydraulic functions are activated through the remote unit. In order to allow correct use hydraulic schematic DEP-DD-0005 and functions of the hydraulic must be implemented and understood by the operator.

3 GENERAL SAFETY GUIDELINES

NEVER ATTEMPT TO BYPASS OR OVERRIDE CONTROL FUNCTIONS USING TEMPORARY LEADS OR JUMPERS.

ALWAYS WEAR SUITABLE PROTECTIVE CLOTHING AND SAFETY GLASSES WHEN THERE IS A POSSIBILITY OF CONTACT WITH HYDRAULIC FLUID

REFER TO THE RELEVANT HEALTH AND SAFETY INSTRUCTIONS FOR LUBRICANT USED FOR DETAILS OF PROTECTIVE MEASURES.

Site, Vessel and Company health and Safety System must be adhered to at all times.

4 HANDLING AND TRANSPORT INSTRUCTIONS

The rough neck will be transported from Depro as required from Client.

NEVER OVERRIDE THE FUNCTIONS

LIFTING OF COMPONENTS ON VESSEL DECK SHOULD BE MINIMIZED

Handle the equipment with care; In particular shocks and external loads must be avoided.

Always ensure that the equipment is secured during transport. Never stack the equipment.

Lifting appliance to be provided by Company

Deck handling philosophy and systems depends on company, installation, contractor and installation vessel, any harm to personnel or equipment during this phase is under Companies appointed personnel’s risk and procedures for safety handling.

5 REQUIREMENT FOR OPERATION

5.1 Equipment requirement

The list below includes main equipment only. A complete Installation Data list must be prepared prior to the operation, including spare parts, consumables. Etc. Recommended spare parts list are listed in a separate spare parts list.

Equipment	Quantity
HPU, min 230 bar working pressure	1
Electrical power supply 24V max 4 amp	1

Rough Neck trolley not part of this delivery

5.2 Vessel requirement

No specific vessel requirement is identified.

5.3 HPU requirement

The following requirements apply for the HPU:

1. Hydraulic working pressure: 230 Bar
2. Hydraulic flow capacity: Min 20 l/m
3. Maximum back pressure on return line: 5 Bar
4. Maximum back pressure on drain line: 1 Bar

6 INSTALLATION

6.1 Assembly of tool

There`s no special procedure needed for assembly. Rough Neck is fully assembled and tested in Depro`s facilities and are ready for operation. If maintenance is to be performed, the GA drawing DEP-A-0155, Hydraulic schematic DEP-DD-0005 and all referred drawings shall be used.

6.2 Unpacking

Check the following when unpacking:

Step	Description	Date	Sign
1	Check inventory against packing list and report any missing items using the Missing item/Damage Report section 13.1		
2	Visually inspect each item for damages. Report any defects found using the report. Do not proceed until all unacceptable conditions are rectified.		
3	Clean of preservatives and check the conditions of the part. Report any defects		
4	Verify that the surface protection is undamaged		

6.3 Connection of tool

Step	Description	Date	Sign
1	Place rough neck in position onboard vessel		
2	Connect rough neck to hydraulic couplings, Ref DEP-DD-0005		
3	Verify that the selected remote control operates the rough neck as intended. Check that battery is charged.		
4	Run the rough neck to outer position by the use of remote control. Place gripper and torque arms around drill pipe. Activate make, verify that the read out unit in drill cabin works.		
5	Once the torque is achieved open the gripper and make & break arms, retract the rough neck into position.		
6	When retracted, check that the rough neck is protected from external structure.		

6.4 Function Test

Check the following steps before operation:

Final position of make and break equipment before performing any operations.

Step	Description	Date	Sign
1	Verify that the cylinders extract and retract correctly		
2	Check for hydraulic leaks		
3	Make sure tool are set up with cylinders retracted		
4	Gripping mechanism opens\closes		
5	Verify valves and pressure are set correctly		
6	Run through section 1 in chapter 5 of FAT report DEP-DO-0089 prior to live performance		

7 OPERATION

7.1 Controls before use

Always observe that there are no:

- Visible damages to the structure
- Unusual noise or vibrations

7.2 Equipment start-up

The following procedure should be followed for the equipment start-up:

Step	Description
1.	Make sure the emergency stop button is not activated
2.	Turn the “Torque” knob counter clock wise to end position
3.	Press “Start” button ◇
4.	Operate all tool functions according to lable on radio remote control unit

7.3 Make up torque

The following procedure should be followed to make up torque:

Step	Description
1.	Position the gripper arms on each of the pipe joints
2.	The “Make/Brake” cylinder should be positioned all the way to break position
3.	Operate both gripper functions until they have a solid grip on the pipes. In order to achieve this, the levers should be kept activated in fully at least 2 seconds after gripping the pipes.
4.	Operate the “Make/Brake” cylinder in make direction until correct torque has been applied. *

*Note:

- The first time after equipment start-up, the torque level has to be set by operating the “Make/Brake” cylinder to end position, while “Torque” knob is turned clockwise until display shows required torque to be applied.
- If correct torque is not reached or the cylinder reaches end position, the top gripping arm has to be opened and pos 2-4 have to be repeated.

7.4 Brake up torque

The following procedure should be followed to make up torque:

Step	Description
1.	Position the gripper arms on each of the pipe joints
2.	The “Make/Brake” cylinder should be positioned all the way to make position
3.	Operate both gripper functions until they have a solid grip on the pipes
4.	Operate the “Make/Brake” cylinder in brake direction until pipes loosen

7.5 Emergency stop

Emergency stop shall be used in dangerous situations only.

EMERGENCY STOP SHALL NOT BE RESET UNTIL THE CAUSE IS CLEARED.

8 MAINTENANCE

Maintenance is recommended to be carried out by trained personnel and by using the GA drawing DEP-A-0115 and DEP-DD-0005.

All rebuilt to be approved by Depro AS in order to obtain guarantee and strength in product.

8.1 Maintenance schedule

Periodically, preventive maintenance is required:

REFER TO THE RELEVANT HEALTH AND SAFETY INSTRUCTIONS FOR PRESERVATIVES USED FOR DETAILS OF PROTECTIVE MEASURES.

Table 1 Maintenance schedule

	INSTRUCTIONS	PRIOR TO START UP	AFTER EACH OPERATION	STORING	EVERY 6 MONTH IN STORAGE	EVERY 12 MONTH IN STORAGE	EVERY 24 MONTH IN OPERATION
1.	Visual inspection	X	X		X		
2.	Flush with NAS 8 class oil			X	X		
3.	Replacement of seals						X
4.	Complete disassembly of rough neck						X
5.	With reference to item 4 inspect for deformation & crack by use of NDE and visual inspection.						X

8.2 Lubrication

There are 2 lubrication points on the tool, positioned on the front end between the gripping cylinders. These should be regularly lubricated each 200 working hours.

8.3 Controls

The following controls should be performed every 6 months:

1. *Visual control of structure for damages, cracks and deformations*
2. *Visual control of cables and electrical equipment for damages.*
3. *Visual control of cylinders for damages.*
4. *Check cylinders for oil leakages.*
5. *Check that bolts are tightened, tighten if necessary.*
6. *Check that information and warning labels are visible, replace if necessary.*

8.4 Replacement of dices

The dices should be replaced when teeth are worn and solid grip on the pipes are no longer obtained.

When the dices are replaced, the different shims delivered should be used according to the pipe dimension to be handled. The shims are clearly marked with the correct pipe size.

8.5 Repair

Contact DEPRO AS for instructions prior to any repair that requires heat-treatment (welding).

9STORAGE

The Rough Neck must always be stored in dedicated area and strapped in order to avoid movement.

Indoor storage area is recommended, if stored outdoors the equipment must not be exposed to rain, snow, sea-spray or excessive dust.

Storage temperature: - 20°C to + 40°C . (-4°F to 104° F)

Maximum air humidity: 95%

The following general instruction applies for storage:

Ensure that the recommended preservatives are in good condition. Re-apply as necessary, and wipe off excess preservative.

Store the tool in allocated area and strap to avoid movement

10 CONTINGENCY OPERATIONS

There are no identified contingency operations identified for this product.

11 CONTACT ADDRESS

DEPRO AS
Industrivegen 6
Håland Øst
4340 Bryne
Norway
Telephone: +47 51 48 21 90

12 REVISION HISTORY

Rev	Description of change	Date
01	Issued for construction	2009.23.09

13 ATTACHEMENT

13.1 Missing items/damage report

Missing items

Item No.	Title

Damaged items

Item No.	Title	Description of Damage

Date:	Sign: