

DOWN HOLE ASSEMBLY WITH COILED TUBING SPARE PARTS

Item No.	Descriptions	Unit	Qty .
1	<u>Motor Head Assembly (MHA)</u> – The motor head assembly combines the double flapper check valve with heavy duty hydraulic disconnect (drop ball) and dual circulation valve(drop ball) , standard components for virtually all string tools design .With Spare part (O rings pressure seal , shear pins , balls ..etc) as recommended – Easy field installation ,High tensile capacity , high pressure seal – high torque capacity . Outside diameter 1 11/16 inch – AMMT with O’ring Groove thread	Set	4
2	<u>Connectors :</u> – Each connectors below should be configure with coiled tubing(Q-900 , 1.5” OD , weight 1.62#, I.D 1.282” , wall thickness 0.109 “) – Standard specification – Easy field installation. – high tensile capacity , high pressure seal . non restrictive bore , high torque capacity . – Outside diameter 1 11/16 inch – AMMT with O’ring Groove thread Any necessary Spare Part for all sub items included (ring seal , screws , dimple hammer, wheels, tool box... etc).	----	----
2.1	Roll – on connectors	Nos	6
2.2	Roll – On Connector Crimping Tools : It has two interchangeable wheels , one of which is used to swage coiled tubing onto Roll – on connector . and the other is a cutting wheel which can use to cutting the coiled tubing with (3 wheels as spare part for each type)	Nos	3
2.3	Slimline Dimple Connectors : As standard technical specifications which recommended for using with coiled tubing 1.5 inch outside diameter	Nos	4
2.4	Dimple Tools It use for collect the dimple connector onto coiled tubing with necessary spare parts	Nos	3
2.5	Double Ended Roll – On Connectors - should be allow the inline attachment of two length of coiled tubing (1.5 “ OD , wall thickness	Nos	4
2.6	Internal Slip Connectors : Should be allow the attachment of coiled tubing to the CT Tools , secure with tapered slips , with spare parts	Nos	3
3	Straight Bars : – Provides a means of extending the tool string , whilst maintaining the maximum through bore , length 3 ft – Full flow through bore Solid construction	Nos	6
4	Wash Tools : – all wash tools in below items should be suitable for using with coiled tubing for cleaning and circulating and designed in standard specification	----	----

	– O.D 1 11/16 inch , AMMT with O’ring Groove thread Necessary Spare Part included (nozzles , seal rings , plug nozzles , lubrication instrument, tools.. etc) for each sub item below as recommended				
Item No.	Descriptions			Unit	Qty .
4.1	Rotary Jet Wash Tools : – O.D. 1.687 “ , Jetting nozzle insert (12) 6M x 1.0-07812”(2mm) hole Diameter.			Nos	4
4.2	Multi – Jet Wash Tool : O.D 1.687 “ , jetting nozzle insert (13 x 3/16 “)			Nos	4
4.3	Single Port Flow thru nozzle			Nos	3
4.4	Multiple Back Flow Port Nozzle			Nos	3
4.5	Multiple side Flow Port Nozzle			Nos	3
5	Slim MHA with BHA – motor head assembly combines the double flapper check valve with hydraulic disconnect (drop ball) and dual circulation valve(drop ball) ,with slim BHA (Roll – On connector with crimping tools , two pieces(straight bar 3 ft) , Rotary Jet Wash Tool , Multi Jet Wash Tool , Multiple Back Flow Port Nozzle . – Easy field installation , High tensile capacity , high pressure seal – Configure with coiled tubing (Q-900 , 1.5” OD , weight 1.62#, I.D 1.282” , wall thickness 0.109 “) – Out side diameter 1.5 “ , AMMT with O’ring Groove thread – Spare part (O rings pressure seal , shear pins ,wheels ,balls ..etc) as recommended for each part			Set	3
6	SPARPARTS FOR COILED TUBING UNIT 1.5” , HR660 , MANUFACTURER: NOV HYDRA RIG – 2009 MODEL NUMBER: 3CB004120/3CB204123/cCB404124/CD400462 S/N : HRC1263003609CTU/HRC1263003609WK/HRC1263003609C / HRC1263003609R				
6.1	Chassis Engine : Caterpillar C – 15				
	Part No.	Description		Unit	Qty.
6.1.1	2568753	Filter element / fuel primary		Nos	20
6.1.2	1R0749	Filter element / fuel Secondary		Nos	20
6.1.3	1R0716	Filter element / oil		Nos	30
6.1.4	P181032	Filter element / Air		Nos	20
6.1.5	2802698	Fuel filter		Nos	20
6.1.6	G140012	Air Cleaner		Nos	10
6.1.7	22594DYC	V-belt (Fan)		Nos	6
6.1.8	17541DYC	V-Belt (Alternator)		Nos	4

6.1.9	51 – 13	Wiper Blade	Nos	4
6.1.10	H4656BULB	Headlamp (Low Beam)	Nos	4
6.1.11	H4651BULB	Headlamp (High Beam)	Nos	4

Item No.	Part No.	Descriptions	Unit	Qty .
6.1.12	K256 – 554	Blinker Lamp	Nos	2
6.1.13	1156 PLB	Replacement Bulb (Blinker)	Nos	10
6.1.14	194PLB	Replacement Bulb (Blinker)	Nos	10
6.1.15	P54 – 1028	Marker Lamp	Nos	2
6.1.16	904PLB	Replacement Bulb (Marker)	Nos	10
6.1.17	168270	Tail Lamp Assy. (Right Hand)	Nos	2
6.1.18	168340	Tail Lamp (Left Hand)	Nos	2
6.1.19	115PLB	Replacement Bulb (Tail)	Nos	10
6.1.20	89PLB	Replacement Bulb (Tail)	Nos	10
6.2	Wet Kit / Trailer Hydraulic Components		---	----
6.2.1	3HFR02488	Filter pressure	Nos	4
6.2.2	3HFR02489	Element for 3HFR02488	Nos	24
6.2.3	3HFP03081	Filter High Pressure	Nos	4
6.2.4	3HFP03080	Element for 3HFP03081	Nos	24
6.2.5	3HFP02659	Filter Return Line Tank Top	Nos	4
6.2.6	3HFP02658	Element for 3HFP02659	Nos	24
6.2.7	3HFP01375	Filter High Pressure	Nos	2
6.2.8	3HFR02424	Element for 3HFP01375	Nos	30
6.2.9	3HFR01989	Filter Pressure	Nos	2

6.2.10	3HFR02477	Element for 3HFR01989	Nos	30
6.2.11	3HFP02967	Filter High Pressure	Nos	2
6.2.12	3HFP02968	Element for 3HFP02967	Nos	24
6.2.13	602-1099	Ball Valve .75" 4k WP	Nos	2
6.2.14	3PCV01099	Butterfly Valve 3"	Nos	2

Item No.	Part No.	Descriptions	Unit	Qty .
6.2.15	3HVC00622	Valve, Check (.5 PSI Crack)	Nos	2
6.2.16	3HVC00209	Valve, Check (65 PSI Crack)	Nos	2
6.2.17	602-0664	Valve, Vickers	Nos	2
6.2.18	3HVF00533	Valve Cartridge	Nos	2
6.2.19	3HXX01623	Valve, Body	Nos	2
6.2.20	3HVF01114	Valve, Needle .38" FNPT	Nos	2
6.2.21	3HMG01773	Motor Gerotor	Nos	2
6.2.22	3HVC00442	Valve, Counterbalance	Nos	2
6.2.23	3HFP03244	Filter, Magnetic 120 GPM	Nos	2
6.2.24	3HFP03256	Element for 3HFP03244	Nos	20
6.2.25	3HHD00699	Coupling QD 1/4" FNPT	Nos	10
6.2.26	3HHD00729	Coupling QD 3/8" FNPT	Nos	10
6.2.27	3HHD00732	Coupling QD 1/2" FNPT	Nos	10
6.2.28	3HHD00727	Coupling QD 3/4" FNPT	Nos	10
6.2.29	3HHD00724	Coupling QD 1" FNPT	Nos	10
6.2.30	3HHD00848	Nipple QD Male	Nos	4
6.2.31	3HHD01152	Coupling QD 1.25" FNPT	Nos	2

6.2.32	3HHD01158	Coupling QD 1.5" FNPT Nipple	Nos	2
6.2.33	3HHD01156	Coupling QD 1.5" FNPT Coupler	Nos	2
6.2.34	3ITM00249	Gauge Temp 3" 50/300F	Nos	4
6.3	Tubing Reel Components		---	---
6.3.1	3CB410602	Torque Limiter	Nos	2
6.3.2	3CB410673	Levelwind Yoke (Blade)	Nos	10
6.3.3	3HSX02941	Seal Kit f/ Drive Motor	Nos	4

Item No.	Part No.	Descriptions	Unit	Qty .
6.3.4	TCH00003	Reel Brake Repair Kit	Nos	2
6.3.5	3HMV00654	Override Motor	Nos	2
6.3.6	3TBS00154	Bearing Roller Bore 5.118"	Nos	2
6.3.7	CD420084	Swivel 1.50" Bore H2S/STD	Nos	2
6.3.8	CD416217	Tubing Counter RC-203	Nos	2
6.3.9	3CB411327	Roller Levelwind	Nos	2
6.4	Reel Swivel Parts			
6.4.1	TBB00022	Swivel Bearing	Nos	2
6.4.2	CC420032	Mandrel Coated	Nos	2
6.4.3	HSX00003	Seal Kit	Nos	4
6.4.4	CB420039	Ring Back Up	Nos	4
6.4.5	HSO00063	O-Ring 2-149	Nos	5
6.4.6	HSO00027	O-Ring 2-329	Nos	5
6.4.7	HSO00008	O-Ring 2-249	Nos	5
6.4.8	CC420015	Ring Extrusion	Nos	2

6.4.9	CB420051	Ring Retainer	Nos	2
6.4.10	TXS00009	Seal Oil Bore 85mm	Nos	5
6.5	Control Cabin / Control Panel Components		---	---
6.5.1	3ESP00274	Switch E-kill		4
6.5.2	3EXX00159	Shroud, Standard Push Button		2
6.5.3	3CB515825	Gauge SG-8 -40K/+80K		4
6.5.4	3CB515827	Gauge SG-6 0 -10K		2
6.5.5	3EST00384	Switch Toggle SPDT 2POS		4

Item No.	Part No.	Descriptions	Unit	Qty .
6.5.6	3HVT01237	Valve, 2-Way .25FNPT	Nos	2
6.5.7	3IPM00482	Dampener Kit	Nos	2
6.5.8	3HVD01252	Valve, Directional Control	Nos	2
6.5.9	3HVP01245	Valve, Pressure Reducing	Nos	2
6.5.10	3HVS00896	Body, Sequence Valve	Nos	2
6.5.11	3HVT01235	Valve, 2-Way .25FNPT	Nos	2
6.5.12	3HVD01238	Valve, 3-Way .25FNPT	Nos	2
6.5.13	3HVD01248	Valve, 3-Way .25FNPT	Nos	2
6.5.14	3AVR00076	Valve, Regulator 1/8" FNPT	Nos	2
6.5.15	3HVF01137	Valve, NDL .25" FNPT	Nos	2
6.5.16	3HVP00056	Valve, Pressure Reducing	Nos	2
6.5.17	3HXX00054	Valve, Body	Nos	2
6.5.18	3HVC01216	Valve, Control Remote	Nos	2

6.5.19	3HVR01052	Valve, Relief Remote	Nos	2
6.5.20	3HVD01247	Valve, 3-Way .38FNPT	Nos	2
6.5.21	3EST00406	Switch, Toggle SPDT 3-Pos	Nos	2
6.5.22	3EST00377	Switch, Toggle SPDT 2-Pos	Nos	2
6.5.23	3EST00423	Switch, Toggle SPDT	Nos	2
6.5.24	3EST00097	Switch Toggle 2 POS	Nos	2
6.5.25	3EST00096	Switch Toggle 3 POS	Nos	2
6.6	Injector Components		---	---
6.6.1	CD315387	Injector Chain Assembly	Nos	2
6.6.2	CD315386	Carrier Chain Machining	Nos	20
6.6.3	CB315389	Spring Retainer	Nos	40

Item No.	Part No.	Descriptions	Unit	Qty .
6.6.4	CB315388	Pad Elastomer	Nos	40
6.6.5	TDR00171	Pin Link Cotter 180-3	Nos	20
6.6.6	TDR00058	Link Roller 180	Nos	20
6.6.7	TDR00015	PI Conn "M" Moveable	Nos	20
6.6.8	TDR00056	PI Center 180 "F" Fixed	Nos	10
6.6.9	TDR 00057	Pin Cotter Zee 180	Nos	10
6.6.10	CA314196	Roller 1.50	Nos	40
6.6.11	CB315402	Shaft Bearing	Nos	20
6.6.12	BSR00039	Ring Retaining External	Nos	20
6.6.13	CD365724	1.50" Gripper	Nos	60

6.6.14	HCS00068	Cylinder Hyd Tension	Nos	2
6.6.15	HSX00204	Seal Kit f/ HCS00068	Nos	4
6.6.16	CB360957	Plate Wear HR660	Nos	4
6.6.17	IPM00364	Gauge Press 0 - 3000	Nos	4
6.6.18	HMP00148	Seal Kit For Motor	Nos	2
6.6.19	HVR00283	Valve Relief Pop Off	Nos	2
6.6.20	CB364859	Nozzle Quick Change	Nos	2
6.6.21	IPM00370	Gauge Press 0 - 600	Nos	4
6.6.22	IPM00048	Gauge Press 0 - 5000	Nos	4
6.6.23	IPM00366	Gauge Press 0 - 160	Nos	2
6.6.24	IPM00364	Gauge Press 0 - 3000	Nos	2
6.6.25	CD360114	Hold Down Box Roller	Nos	2
6.6.26	CB360122	Shaft Roller	Nos	10
6.6.27	CC360062	Roller Assy Tbg Guide 1-1/2"	Nos	10

Item No.	Part No.	Descriptions	Unit	Qty .
6.6.28	CC365552	Traction Cylinder	Nos	2
6.6.29	ZSW00092	Seal Kit Traction Cyl	Nos	4
6.6.30	CC365732	Bushing Traction	Nos	10
6.7		Crane Spares	---	---
6.7.1	HFR02894	Hydraulic Filter	Nos	10
6.7.2	HFS02943	Suction Strainer	Nos	3
6.7.3	HSX02944	Pump Seal Kit	Nos	2
6.7.4	HSX02945	Spool Seal Kit	Nos	4
6.7.5	HSX02946	Outrigger Extend Seal Kit	Nos	2

6.8	Trailer / Chassis Spares			
6.8.1	24R21	Spare Tire (Bridgestone VGT)	Nos	4
6.8.2	WSMT	Spare Rim 21 x 18 355MM	Nos	2
6.8.3	3ELI02563	Brake Light Assy 12/24V	Nos	4
6.8.4	3ELI02566	Signal Light Assy 12/24V	Nos	4
6.8.5	3ELI02564	Marker Light Assy 12/24V	Nos	4
6.9	PCE Spares		---	---
6.9.1	DSH4-SK01	Seal Kits – Stripper	Nos	6
6.9.2	7954-4009D	M-Seal - Stripper	Nos	12
6.9.3	8412-6037	Interlocking Packers - Stripper	Nos	50
6.9.4	8204-2231	Non-Extrusion Rings - Stripper	Nos	25
6.9.5	EH34-SK01	Bonnet Seal Kits - BOP	Nos	10
6.9.6	EH34-SK02	Actuator Seal Kits - BOP	Nos	25
6.9.7	EVA4-S000	Equalizing valve Seal Kits - BOP	Nos	10
6.9.8	7810-3621	Blind Front Seals - BOP	Nos	8

Item No.	Part No.	Descriptions	Unit	Qty .
6.9.9	7810-3637	Front Seals - BOP	Nos	12
6.9.10	8010-1223	Real Seals - BOP	Nos	24
6.9.11	9110-0137	Slip Inserts - BOP	Nos	8
6.9.12	8011-5555	Shear blades - BOP	Nos	8
6.9.13	7935-0805	Socket Head Cap Screw	Nos	12
6.10	DAS Spares		---	---
6.10.1	3EXX02390	Digital Encoder	Nos	3

6.10.2	3EXX02391	Pressure Transducer	Nos	3
6.10.3	3EXX02392	Proximity Switch	Nos	3
6.10.4	3EWX02393	100' Sensor Cable w/Connectors	Nos	6
6.10.5	3EKV02394	12/5 VDC Power Convertor	Nos	3
6.10.6	3EKV02395	12/12 VDC Power Convertor	Nos	3
6.10.7	3EKV02396	12/24 VDC Power Convertor	Nos	3
6.11	Electrical Spare Parts		----	----
6.11.1	3ELI02512	Panel Mount Red LED 12V	Nos	2
6.11.2	3ELI02364	Lamp Quartz, 500W , 220V	Nos	20
6.11.3	3ELI00069	Work Light 12VDC	Nos	4
6.11.4	3ECR02369	Receptacle 16A/250V 2 Prong	Nos	2
6.11.5	3ECR00660	Connector, Thru Bulkhead	Nos	10
6.11.6	3ELF02402	Lamp, Fluorescent 18W	Nos	5
6.11.7	3ELF02403	Fluorescent Light Fixture	Nos	2
6.11.8	3EPB00122	Breaker 16A	Nos	10
6.11.9	3ECW01981	Terminal Block Single	Nos	10

Item No.	Part No.	Descriptions	Unit	Qty .
6.11.10	3ECW00792	Terminal Block Single	Nos	4
6.11.11	3ECW01439	Terminal, Fuse	Nos	10
6.11.12	3ECW02227	Terminal Fuse Block Single	Nos	10
6.11.13	3ECW01953	Terminal Block Single	Nos	2
6.11.14	3ECW01952	Terminal Block Single	Nos	4

6.11.15	3ECW01950	Terminal Block Single	Nos	4
6.11.16	3ECW01979	Terminal Block Single	Nos	6
6.11.17	3ECW01983	Bridge Connector	Nos	4
6.11.18	3ECW01963	Terminal Block Double	Nos	10
6.11.19	3ECW01977	Terminal Block Single	Nos	15
6.11.20	3ESX00078	Relay 12 Volt	Nos	8
6.11.21	3EPB01342	6A Automotive Breaker	Nos	6
6.11.22	3EPB01343	10A Automotive Breaker	Nos	6
6.11.23	3EXX01465	Power Supply 12-24VDC	Nos	4
6.11.24	3EXX01188	Socket, Relay S-10 Single Pole	Nos	8
6.11.25	3EXX01286	Fuse 0.5A Fast Blow	Nos	40
6.11.26	3EXX00659	Cap #10 Receptacle	Nos	5
6.11.27	3IEA00363	Module Current Loop Splitter	Nos	2
6.11.28	3ECC00821	Connector , Bulkhead	Nos	2
6.11.29	3EWX02465	Cable, 6 Pin Female/Bare 15 ft	Nos	4
6.11.30	3IPE00425	Transducer 0-15K PSI 1502 Union	Nos	8
6.11.31	502-0596	Bulb 12V	Nos	20
7	HYDROULIC OIL TYPE BOSS HVI 36 <u>OR</u> EQUIVELENT		Liter	3000

Item No.	Descriptions	Unit	Qty .
8	STEEL SPOOLING REEL AS SPECIFICATIONS : - core diameter (72 inches) - outside flange diameter (119 inches) - inside flange to flange width (70 inches) should be suitable to accommodate in (yard spooler stand serial number HRC1263003609SS)	Nos	2

9	15,000 ft of 1 ½ “ OD × 0.109” Wall Thickness , QT-900 , H₂S service Coiled Tubing install on spare wooden shipping spool . the tubing is also suitable for CO₂ service. - Covered with weather proof . - The wood shipping spool (wooden reel) should be loading on removable wooden skid fixed by bolts or belts easy to separate to allow hanging the wooden reel on yard spooler for pipe spooling operations	Nos	3
10	15,000 ft of 1 ½ “ OD × 0.134” Wall Thickness , QT-900 , H₂S service Coiled Tubing install on spare wooden shipping spool . The tubing is also suitable for CO₂ service. - Covered with weather proof. - The wood shipping spool (wooden reel) should be loading on removable wooden skid fixed by bolts or belts easy to separate to allow hanging the wooden reel on yard spooler for pipe spooling operations.	Nos	2

General Remarks

1. Remarks for items and sub items (1 to 5) and items (9 , 10) :
 - A- The materials should be H₂S resistance and suitable to pumping any fluids through it (nitrogen , acid stimulation ,clean out fluids) for many operations
 - B- Working condition : pressure 10000 psi , temperature up to 300 °F
 - C- The supplier have to present the technical specifications, manuals manufacturer company with authorize letter.
 - D- Third party inspections and ISO certificate demanded .
2. For spare parts items (6 , 7) , the supplier should present a letter from NOV – Hydra Rig Company confirming that all spare parts in supplier’s technical offer are suitable to use in Coiled Tubing Unit Components (Model Numbers : 3CB004120/3CB204123/cCB404124/CD400462
3. The supplier should be training coiled tubing crew (four persons from Missan Oil Company) in manufacturer facility outside of Iraq (free of charge).
4. The packing list should be including the description, part number, quantity, country of origin and all details.
5. Origin of materials : USA , CANADA , MEXICO ,UK , ITALIA , GERMANY, FRANCE , AUSTRIA , SWEDEN , FINLAND, NORWAY, BULGARIA , JAPAN AND AUSTRALIA.
6. ALL certificate of origin must be legalized by chamber of commerce ministry of trade at the country of origin and stamped by Iraqi consulate in that country.

The Standard evaluation Requested:

Item	Descriptions	Evaluate %
1.	Technical Specifications	75 %
2.	The implementation period of the contract	15 %
3.	Origin of materials	10 %
Total percentage		100%