

S/6220/2016/5584 U

Annexure-C

Scope of Supply

Hydraulic power pack for Gear shifting, table lifting and general lubrication of DCVB (Model 1M553) as per Hydraulic Circuit Diagram No. C1

ONE SET WILL CONSIST OF -

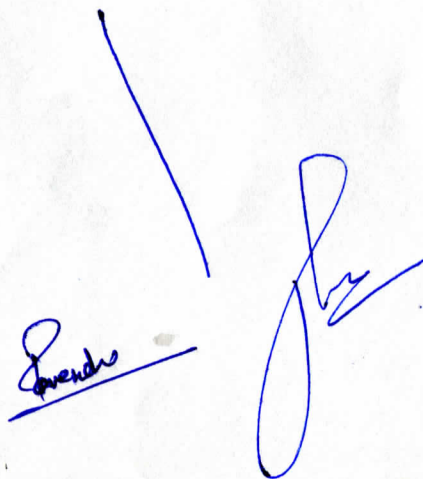
- 1. HYDRAULIC SYSTEM FOR GEAR SHIFTING**
- 2. HYDRAULIC SYSTEM FOR TABLE LIFTING AND GEAR BOX LUBRICATION**
- 3. LUBRICATION UNIT FOR GENERAL LUBRICATION**
- 4. SPARES**

SL. NO.	DESCRIPTION	MAKE	QUANTITY
1.	HYDRAULIC SYSTEM FOR GEAR SHIFTING :		
1.1	Gear pump- Pressure: 50 kg/cm ² (Rated.) ,20 kg/cm ² (Operating), Flow rate: 20 LPM	Hydac/Vickers/parker/ Yuken/Rexroth/hawe	01
1.2	Motor- Suitably rated three phase AC Induction motor 400V AC $\pm$ 10%, 50Hz.	Siemens / L&T / GE / ABB / Bharat Bijli	01
1.3	Suitable coupling for pump & motor	VENDOR TO SPECIFY	01
1.4	Pressure switch of suitable rating	Hydac/Vickers/parker/ Rexroth/hawe /Yuken	01
1.5	Operating temperature should be in the range of 10-45 ⁰ C. a temperature gauge of suitable rating is to be provided	Vendor to Specify	01
1.6	Non return valve	Hydac/Vickers/parker/ Rexroth/hawe/Yuken	01
1.7	Pressure relief valve of suitable rating	Hydac/Vickers/parker/ Rexroth/hawe/Yuken	01
1.8	Delivery line filter(25 micron) with suitable visual clogging indicator	EPE/HYDAC/BHAGWATI/ MAHE	
1.9	Return line filter (50 micron)	EPE/HYDAC/BHAGWATI/ MAHE	01

1.10	3-position 4-port direction control valves of suitable ratings	Hydac/Vickers/parker/ Rexroth/hawe/Yuken	06
1.11	Pressure gauge 100mm dia, suitable for 0-50 kg/cm ²	Wika /Hydro Technioque /Mass	01
1.12	Oil reservoir	VENDOR TO SPECIFY	01
1.13	Inspection cover	VENDOR TO SPECIFY	01
1.14	Drain valve	VENDOR TO SPECIFY	01
1.15	Oil level indicator (glass)	VENDOR TO SPECIFY	01
1.16	Return line filter	EPE/HYDAC/BHAGWATI/ MAHE	01
1.17	Float switch	VENDOR TO SPECIFY	01
1.18	Tank breather filter	VENDOR TO SPECIFY	01
1.19	Terminal box to suit 30 terminals	VENDOR TO SPECIFY	01
1.20	Suction strainer	EPE/HYDAC/BHAGWATI/ MAHE	01
1.21	Minimess coupling	VENDOR TO SPECIFY	20
1.22	Seamless steel pipe of 10mm ID , minimum 1 mm thickness , 2000mm length	Hyloc/parker/hydroline/gat es/hydraulics/jindal	10
2.	HYDRAULIC SYSTEM FOR TABLE LIFTING AND GEAR BOX LUBRICATION		
2.1	Gear pump- Pressure : 20 kg/cm ² · Operating Pressure- 65 Kg/ cm ² · Flow : 32 LPM	Hydac/Vickers/parker/ Rexroth/hawe	01
2.2	Motor- Suitably rated three phase AC Induction motor 400V AC ± 10%, 50Hz	Siemens / L&T / GE / ABB / Bharat Bijli	01
2.3	Suitable coupling for pump & motor	VENDOR TO SPECIFY	01
2.4	Non return valve	Hydac/Vickers/parker/ Rexroth/hawe	01
2.5	Relief valve of suitable rating	Hydac/Vickers/parker/ Rexroth/hawe	01
2.6	Return line filter	EPE/HYDAC/BHAGWATI/ MAHE	01
2.7	Flow switch with indicator of suitable rating	IFM/ REXROTH/ PARKER	01
2.8	Seamless M.S. pipe of 24mm ID , 2-3 mm thickness, 2000mm length	Hyloc/parker/hydroline/gat es/hydraulics/Jindal	05

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3.	LUBRICATION UNIT FOR GENERAL LUBRICATION	CENLUB (5-ALU)	01
4.	SPARES: Following spares shall be supplied along with the order.		
4.1	Directional control valves		10
4.2	Solenoid Coils		20
4.3	Filter elements of each type.		20
4.4	Gear Pump of each type		01
5.	OTHER TERMS AND CONDITIONS: All the components will be suitably mounted on the tank with all required manifolds & Party will provide the component of end connections needed for fitting of power pack on the machine including male / female stud coupling, straight coupling, elbow coupling etc.		
6.	DOCUMENTS: Three sets of operation and maintenance manual, giving all details like hydraulic circuit diagram, mechanical assembly drawings, spares list, Catalogue of all bought out items, complete parts list and any other details required by BHEL.		
7.	GUARANTEE:		
7.1	The power pack will remain under guarantee period for a period of eighteen months from the date of receipt at BHEL, Hardwar or 12 months from the date of commissioning whichever is later.		
7.2	Party will replace the defective components free of cost during guarantee period.		
8.0	DELIVERY: 90 DAYS		



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Hydraulic circuit Diagram

BHEL - Haridwar

DCVB m/c

Model - 1M553/557

S/622-1211058410

Scope of Supply

Annexure-D

Hydraulic power pack for Gear shifting, table lifting and general lubrication of SCVB (Model 1531/1541) as per Hydraulic Circuit Diagram No.D1

- ONE SET WILL CONSIST OF -**
1. HYDRAULIC SYSTEM FOR GEAR SHIFTING
 2. HYDRAULIC SYSTEM FOR TABLE LIFTING AND GEAR BOX LUBRICATION
 3. LUBRICATION UNIT FOR GENERAL LUBRICATION
 4. SPARES

SL. NO.	DESCRIPTION	MAKE	QUANTITY
1.	HYDRAULIC SYSTEM FOR GEAR SHIFTING :		
1.1	Vane/Gear pump- Pressure: 50 kg/cm ² (Rated.) ,20 kg/cm ² (Operating), Flow rate: 25 LPM	Hydac/Vickers/parker/ Yuken/Rexroth/hawe	01
1.2	Motor- Suitably rated three phase AC Induction motor 400V AC $\pm$ 10%, 50Hz.	Siemens / L&T / GE / ABB / Bharat Bijli	01
1.3	Suitable coupling for pump & motor	VENDOR TO SPECIFY	01
1.4	Pressure switch of suitable rating	Hydac/Vickers/parker/ Rexroth/hawe /Yuken	01
1.5	Operating temperature should be in the range of 10-45 ⁰ C. a temperature gauge of suitable rating is to be provided.	VENDOR TO SPECIFY	
1.6	Non return valve	Hydac/Vickers/parker/ Rexroth/hawe/Yuken	01
1.7	Pressure relief valve of suitable rating	Hydac/Vickers/parker/ Rexroth/hawe/Yuken	01
1.8	Delivery line filter(25 micron) with suitable visual clogging indicator	EPE/HYDAC/BHAGWATI/ MAHE	01
1.8	Return line filter(50 micron)	EPE/HYDAC/BHAGWATI/ MAHE	01

1.9	3-position 4-port direction control valves of suitable on suitable manifold. Solenoid voltage shall be 24V, DC, 50Hz	Hydac/Vickers/parker/ Rexroth/hawe/Yuken	07
1.10	Two position four port solenoid operated directional control valves mounted on suitable manifold. Solenoid voltage shall be 24V, DC, 50Hz	Hydac/Vickers/parker/ Rexroth/hawe/Yuken	01
1.11	Pressure gauge 100mm dia, suitable for 0-50 kg/cm ²	Wika /Hydro Technioque /Mass	01
1.12	Oil reservoir	VENDOR TO SPECIFY	01
1.13	Inspection cover	VENDOR TO SPECIFY	01
1.14	Drain valve	VENDOR TO SPECIFY	01
1.15	Oil level indicator (glass)	VENDOR TO SPECIFY	01
1.16	Return line filter	EPE/HYDAC/BHAGWATI/ MAHE	01
1.17	Float switch	VENDOR TO SPECIFY	01
1.18	Tank breather filter	VENDOR TO SPECIFY	01
1.19	Terminal box to suit 30 terminals	VENDOR TO SPECIFY	01
1.20	Suction strainer	EPE/HYDAC/BHAGWATI/ MAHE	01
1.21	Minimess coupling	VENDOR TO SPECIFY	20
1.22	Seamless steel pipe of 10mm ID , minimum 1 mm thickness , 2000mm length	Hyloc/parker/hydroline/gat es/hydraulics/jindal	10
2.	HYDRAULIC SYSTEM FOR TABLE LIFTING AND GEAR BOX LUBRICATION		
2.1	Vane/Gear pump- Operating Pressure : 20 kg/cm ² . Max Pressure- 65 Kg/ cm ² Flow : 32 LPM	Hydac/Vickers/parker/ Rexroth/hawe	01
2.2	Motor- Suitably rated three phase AC Induction motor 400V AC $\pm$ 10%, 50Hz	Siemens / L&T / GE / ABB / Bharat Bijli	01
2.3	Suitable coupling for pump & motor	VENDOR TO SPECIFY	01
2.4	Operating temperature should be in the range of 10-45 ⁰ C. a temperature gauge of suitable rating is to be provided.	VENDOR TO SPECIFY	01
2.5	Non return valve	Hydac/Vickers/parker/ Rexroth/hawe	01
2.6	Relief valve of suitable rating	Hydac/Vickers/parker/ Rexroth/hawe	01

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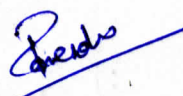
1.9	3-position 4-port direction control valves of suitable on suitable manifold. Solenoid voltage shall be 24V, DC, 50Hz	Hydac/Vickers/parker/ Rexroth/hawe/Yuken	07
1.10	Two position four port solenoid operated directional control valves mounted on suitable manifold. Solenoid voltage shall be 24V, DC, 50Hz	Hydac/Vickers/parker/ Rexroth/hawe/Yuken	01
1.11	Pressure gauge 100mm dia, suitable for 0-50 kg/cm ²	Wika /Hydro Technioque /Mass	01
1.12	Oil reservoir	VENDOR TO SPECIFY	01
1.13	Inspection cover	VENDOR TO SPECIFY	01
1.14	Drain valve	VENDOR TO SPECIFY	01
1.15	Oil level indicator (glass)	VENDOR TO SPECIFY	01
1.16	Return line filter	EPE/HYDAC/BHAGWATI/ MAHE	01
1.17	Float switch	VENDOR TO SPECIFY	01
1.18	Tank breather filter	VENDOR TO SPECIFY	01
1.19	Terminal box to suit 30 terminals	VENDOR TO SPECIFY	01
1.20	Suction strainer	EPE/HYDAC/BHAGWATI/ MAHE	01
1.21	Minimess coupling	VENDOR TO SPECIFY	20
1.22	Seamless steel pipe of 10mm ID , minimum 1 mm thickness , 2000mm length	Hyloc/parker/hydroline/gat es/hydraulics/jindal	10
2.	HYDRAULIC SYSTEM FOR TABLE LIFTING AND GEAR BOX LUBRICATION		
2.1	Vane/Gear pump- Operating Pressure : 20 kg/cm ² . Max Pressure- 65 Kg/ cm ² Flow : 32 LPM	Hydac/Vickers/parker/ Rexroth/hawe	01
2.2	Motor- Suitably rated three phase AC Induction motor 400V AC $\pm$ 10%, 50Hz	Siemens / L&T / GE / ABB / Bharat Bijli	01
2.3	Suitable coupling for pump & motor	VENDOR TO SPECIFY	01
2.4	Operating temperature should be in the range of 10-45 ⁰ C. a temperature gauge of suitable rating is to be provided.	VENDOR TO SPECIFY	01
2.5	Non return valve	Hydac/Vickers/parker/ Rexroth/hawe	01
2.6	Relief valve of suitable rating	Hydac/Vickers/parker/ Rexroth/hawe	01

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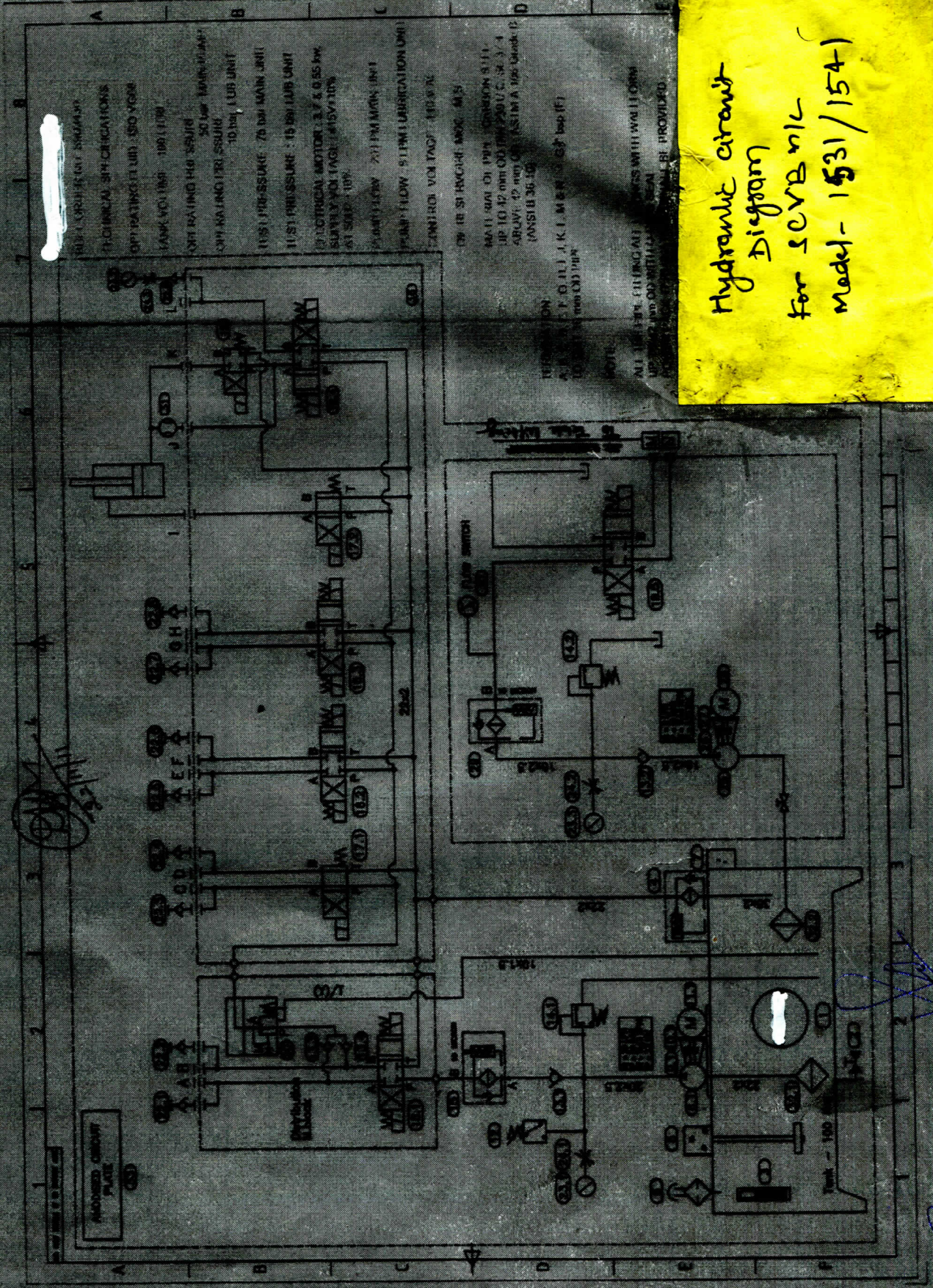
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2.7	Delivery line filter(25 micron) with suitable visual clogging indicator	EPE/HYDAC/BHAGWATI/MAHE	01
2.8	Return line filter	EPE/HYDAC/BHAGWATI/MAHE	01
2.9	Flow switch with indicator of suitable rating	IFM/ REXROTH/ PARKER	01
2.10	Seamless M.S. pipe of 24mm ID , 2-3 mm thickness, 2000mm length	Hyloc/parker/hydroline/gates/hydraulics/Jindal	05
3.	LUBRICATION UNIT FOR GENERAL LUBRICATION	CENLUB (5-ALU)	01
4.	SPARES: Following spares shall be supplied along with the order.		
4.1	Directional control valves		10
4.2	Solenoid Coils		20
4.3	Filter elements of each type.		20
4.4	* Gear Pump of each type		01
5.	OTHER TERMS AND CONDITIONS: All the components will be suitably mounted on the tank with all required manifolds & Party will provide the component of end connections needed for fitting of power pack on the machine including male / female stud coupling, straight coupling, elbow coupling etc.		
6.	DOCUMENTS: Three sets of operation and maintenance manual, giving all details like hydraulic circuit diagram, mechanical assembly drawings, spares list, Catalogue of all bought out items, complete parts list and any other details required by BHEL.		
7.	GUARANTEE:		
7.1	The power pack will remain under guarantee period for a period of eighteen months from the date of receipt at BHEL, Hardwar or 12 months from the date of commissioning whichever is later.		
7.2	Party will replace the defective components free of cost during guarantee period.		
8.0	DELIVERY: 90 DAYS		

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SCVB



Hydraulic circuit
Diagram
for SCVB m/c
Model - 1531/154

Annexure-B

Supply, Installation and commissioning of Hydraulic power pack for Russian Plano milling machine, (Model-7A256T) Plan no-1-001/BI.1.

Purpose: In the machine, existing hydraulic system is to be replaced with new one. Circuit diagram of existing hydraulic system for all the operations is attached for reference in Annexure- C.

Details of the Existing System: Existing hydraulic system is governed with a gear pump with operating pressure 5 Kg /Cm2, Max pressure: 25 Kg /Cm2, discharge: 12 to 15 LPM, Motor capacity 1.1 KW at 1440 rpm and following functions are performed through lubrication system-

- i) Lubrication of bed guide ways
- ii) Lubrication of Main drive worm gears

In existing system discharge pressure can be regulated by a pressure setting device in which at one position pressure has been adjusted for 0.5 kg/cm2 for finish plano milling operation and 2 kg/cm2 for rough plano milling operation. This conventional pressure regulation system shall be replaced with new one as per required pressure setting range.

Quantity of power packs- One (01) SET. One set will consist of the following:-

1. Lubrication system for machine bed guide ways & main drive worm
2. Centralized lubrication system for the lubrication of cross-rail, column, and lead screw.
3. Spares

Scope of supply and Terms & Conditions for ONE (01) SET-

SL. NO.	DESCRIPTION	MAKE	Quantity	Vendor's Remark
1.0	Hydraulic Power pack for hydraulic press			
1.1	Equivalent pump motor set/sets with required hydraulic accessories like non-return valves, Pressure relief valve, pressure switch, Pressure Gauge (0-10 Kg/cm2) & (0-25 Kg/cm2), pressure line filter in inlet 100 µm and outlet 30 µm, flow switch, differential pressure gauge , directional control valves with manifolds.	Parker/ Rexroth/Hydac Vickers / Hawe / Yuken only.	01 Set	

