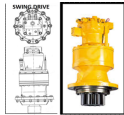





LIST OF ITEMS FOR DEVELOPMENT UNDER MAKE - II PROCEDURE ANNEXURE-4

Sl.no	Division	Part no	Description	Approximate annual requirement	Brief spec	Photograph	REMARKS	Contact Details
1	EARTH MOVERS	452CV01006	TRANSMISSION CONTROL VALVE ASSY	15 No's	The transmission control valve is used to redirect oil to the selected clutches for shifting of gears in Transmission assy.Specification: 5 spool solenoid operated control valve assembly Transmission speeds: 8 forward 8 reverse Operating pressure : 31 bar			<p>Name : Sekar.V Designation: CGM (R&D) R & D Complex BEML Ltd, BEML Nagar Kolar Gold Fields - 563 115 e - mail: g@beml.co.in Ph : 08153 262 124 Mob: 97409 56244</p>
2	EARTH MOVERS	451TM03412	SHIFT CONTROL	45 No's	Shift control valve is a part of transmission control valve used in motor grader equipment to select different speed ranges. Specification: Transmission Speeds : 6 forward, 5 reverse. Operating pressure : 31 bar			
3	EARTH MOVERS	2321500120	PR.CONTROL VALVE	45 No's	Pressure control valve is a part of transmission control valve used in motor grader equipment to select different speed ranges. Specification: Transmission Speeds : 6 forward, 5 reverse Operating pressure : 31 bar			
4	EARTH MOVERS	125FD02038	FLOATING SEAL KIT	120 No's	The floating seal is used to seal protect components in Final drive assembly from mud and soil. Specification:- O-Ring material : Nitrile rubber O-Ring shore hardness : 60±15 Seal Ring material : FC9Cr6Mo			
5	EARTH MOVERS	156FD02303	TRACK DRIVE	110 No's	Track drive is used in Excavator for moving of equipment from one place to another place in mining area and also helps to position the equipment in comfortable working position with the help of independent LH and RH hydrostatic circuits.			
6	EARTH MOVERS	130EG00122	KIT, PV780 LCD PANEL	105 No's	CAN (Control Area Network) based 7" electronic display monitors all the engine, transmission and other equipment critical parameters continuously. Some parameters are directly connected to display and other parameters are connected through CAN converter by using two cables (CAN low and CAN high). Display shows all parameters in analogue form and it provides audio visual alarm to the operator in case any parameter crosses the specified limit. Display Specifications: Display: 7" Colour TFT LCD Resolution: WVGA, 800 X 480 pixels Contrast ratio: 400:1 Flash Memory: 2 GB RAM: 128 MB SRAM USB: 2.0 host Video input: 3 NTSC/PAL Operating voltage: 6-36 VDC Inputs: 3 Analog (0-5V, 4-20 mA or Resistive), 5 Discrete and 1 Frequency in (2Hz-10 KHz) Outputs: 1 no. 500mA switched Low, Frequency Out (2Hz – 3 KHz) Communication: J1939, CAN Open, RS485 and USB host Operating Temperature: -40OC to +85OC Protection: IP67 Vibration: random vibration, 7.86 Grms, 3 axis. Shock: ±50G in 3 axis Sender CAN: Operating Voltage: 7 – 35 VDC	 <p align="center">7" Colour display</p>  <p align="center">Sender CAN</p>  <p align="center">Temperature Sensor</p>		





LIST OF ITEMS FOR DEVELOPMENT UNDER MAKE - II PROCEDURE ANNEXURE-4

Sl.no	Division	Part no	Description	Approximate annual requirement	Brief spec	Photograph	REMARKS	Contact Details																														
7	EARTH MOVERS	156SO01077	SWING MACHINERY	55 No's	Swing Machinery: Swing drive is used to revolve the upper structure of Excavator as per the positions of Dumpers for easy loading and faster loading of coal/ over burden in the mining fields.			Name : Sekar.V Designation: CGM (R&D) R & D Complex BEML Ltd, BEML Nagar Kolar Gold Fields - 563 115 e - mail: g@beml.co.in Ph : 08153 262 124 Mob: 97409 56244																														
8	EARTH MOVERS	451TM03291	LUB VALVE	45 No's	Lub valve is a part of transmission control valve used in motor grader equipment to lubricate bearings discs etc. Specification: Transmission Speeds : 6 forward, 5 reverse Operating pressure : 31 bar																																	
9	EARTH MOVERS	113CVB0029	RELIEF VALVE(W/C)	55 No's	Relief pressure : 20 kg/cm2. Max. Flow : 74.4 Lpm. Weight : 3.8 Kgs.																																	
10	EARTH MOVERS	BSP0146178	RECOIL SPRING	110 No's	The heavy duty Recoil springs for Dozer (Heavy Duty) and Excavators application. These recoil springs absorb energy when the equipment encounters a sudden load in its travel. These are used in the under carriages of earthmoving equipment and serve to prevent damage to the track, Sprocket or other Rollers. Specifications : Sl. <table border="0"> <thead> <tr> <th>No.</th> <th>Parameter</th> <th>BSP01 46178</th> </tr> </thead> <tbody> <tr><td>1</td><td>Coil dia in mm</td><td>47</td></tr> <tr><td>2</td><td>Mean coil dia in mm</td><td>178</td></tr> <tr><td>3</td><td>Free length in mm</td><td>760</td></tr> <tr><td>4</td><td>No of coils</td><td>11</td></tr> <tr><td>5</td><td>No of active coils</td><td>9</td></tr> <tr><td>6</td><td>Spring rate in kg/mm</td><td>96.14</td></tr> <tr><td>7</td><td>Test load in kg</td><td>25,620</td></tr> <tr><td>8</td><td>Squareness (max) In deg at both ends</td><td>1</td></tr> <tr><td>9</td><td>Flatness (max) in mm at both ends</td><td>0.5</td></tr> </tbody> </table>	No.	Parameter		BSP01 46178	1	Coil dia in mm	47	2	Mean coil dia in mm	178	3	Free length in mm	760	4	No of coils	11	5	No of active coils	9	6	Spring rate in kg/mm	96.14	7	Test load in kg	25,620	8	Squareness (max) In deg at both ends	1	9	Flatness (max) in mm at both ends	0.5		
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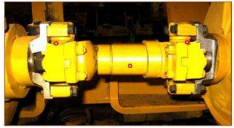



LIST OF ITEMS FOR DEVELOPMENT UNDER MAKE - II PROCEDURE ANNEXURE-4

Sl.no	Division	Part no	Description	Approximate annual requirement	Brief spec	Photograph	REMARKS	Contact Details																										
11	EARTH MOVERS	817AC02049	TECH. SCOPE (AC WITH HEATER SPLIT TYPE)	15 No's	<p>COMPRESSOR SPECIFICATION: DISPLACEMENT PER REVOLUTION 154.9 cc/rev. MAX. ALLOWABLE R.P.M 6000 R.P.M MAX. ALLOWABLE CONTINUOUS R.P.M 4000 R.P.M OIL (SP-15) 175 cc REFRIGERANT R134 a CLUTCH SPECIFICATION: RATED VOLTAGE DC 24V BREAKING TORQUE 3.5 kgf-m min @ 24V POWER CONSUMPTION 35 ~ 40 watts (max) BELT TYPE B – TYPE, V-BELT PULLEY DIAMETER @ 156.75mm</p> <p>CONDENSER : TYPE HEAVY DUTY REMOTE (CORE TYPE IN FRONT OF ROC) CAPACITY 44,500 BTU/hr</p> <p>EVAPORATOR : TYPE FULLY DUCTABLE INTEGRATED FILTRATION FLOOR MOUNTED COOLING CAPACITY 26,000 BTU/hr (7.6 Kw) HEATING CAPACITY 17,800 BTU/hr (5.2 Kw) AIR FLOW 540 cu.m/hr (320 cfm)</p> <p>AC TO MEET THE COOLING OF CABIN SIZE : LENGTH 1600 mm ,HEIGHT 1745 mm,WIDTH 940 mm COOLING TEMPERATURE INSIDE THE CABIN : 20°C @ 50°C AMBIENT INSTALLATION KIT AS PER SUPPLIER SCOPE</p>	 <p>PHOTOGRAPHICALLY INTEGRATED FILTRATION FLOOR MOUNTED</p> <p>CORE TYPE CONDENSER MOUNTING IN FRONT OF BACKDOOR (ROC)</p> <p>CONTROL PANEL</p> <p>24VDC COMPRESSOR WITH CLUTCH</p> <p>SPOT TYPE (BACK MOUNTED) AC/ FLAME REGULATOR KIT</p>		<p>Name : Sekar.V Designation: CGM (R&D) R & D Complex BEML Ltd, BEML Nagar Kolar Gold Fields - 563 115 e - mail: g@beml.co.in Ph : 08153 262 124 Mob: 97409 56244</p>																										
12	EARTH MOVERS	2352211140	BUSHING	60 No's	<p>The buses are used in motor grade final drive assembly between stationary and oscillating part. Specification:- Material: Phenolic Oleoresin Hardness: 80HRM min. Compression strength : 11kg/mm2 Min Specific gravity : 1.3 to 1.4</p>																													
13	EARTH MOVERS	BSP0160244	RECOIL SPRING	120 No's	<p>The heavy duty Recoil springs for Dozer (Heavy Duty) and Excavators application. These recoil springs absorb energy when the equipment encounters a sudden load in its travel. These are used in the under carriages of earthmoving equipment and serve to prevent damage to the track, Sprocket or other Rollers.</p> <p>Specifications : Sl. No. Parameter BSP01 60244</p> <table border="1"> <tr> <td>1</td> <td>Coil dia in mm</td> <td>60</td> </tr> <tr> <td>2</td> <td>Mean coil dia in mm</td> <td>244</td> </tr> <tr> <td>3</td> <td>Free length in mm</td> <td>1008</td> </tr> <tr> <td>4</td> <td>No of coils</td> <td>11</td> </tr> <tr> <td>5</td> <td>No of active coils</td> <td>9</td> </tr> <tr> <td>6</td> <td>Spring rate in kg/mm</td> <td>92.90</td> </tr> <tr> <td>7</td> <td>Test load in kg</td> <td>29,900</td> </tr> <tr> <td>8</td> <td>Squareness (max) In deg at both ends</td> <td>1</td> </tr> <tr> <td>9</td> <td>Flatness (max) in mm at both ends</td> <td>0.5</td> </tr> </table>	1	Coil dia in mm		60	2	Mean coil dia in mm	244	3	Free length in mm	1008	4	No of coils	11	5	No of active coils	9	6	Spring rate in kg/mm	92.90	7	Test load in kg	29,900	8	Squareness (max) In deg at both ends	1	9	Flatness (max) in mm at both ends	0.5	
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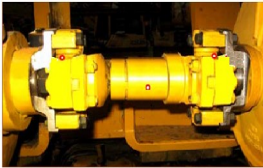



LIST OF ITEMS FOR DEVELOPMENT UNDER MAKE - II PROCEDURE ANNEXURE-4

Sl.no	Division	Part no	Description	Approximate annual requirement	Brief spec	Photograph	REMARKS	Contact Details																											
14	EARTH MOVERS	BSP0144158	RECOIL SPRING	90 No's	<p>The heavy duty Recoil springs for Dozer (Heavy Duty) and Excavators application. These recoil springs absorb energy when the equipment encounters a sudden load in its travel. These are used in the under carriages of earthmoving equipment and serve to prevent damage to the track, Sprocket or other Rollers.</p> <p align="right">Specifications :</p> <p>Sl. No. Parameter BSP01 44158</p> <table border="0"> <tr><td>1</td><td>Coil dia in mm</td><td>44</td></tr> <tr><td>2</td><td>Mean coil dia in mm</td><td>158</td></tr> <tr><td>3</td><td>Free length in mm</td><td>819</td></tr> <tr><td>4</td><td>No of coils</td><td>13</td></tr> <tr><td>5</td><td>No of active coils</td><td>11</td></tr> <tr><td>6</td><td>Spring rate in kg/mm</td><td>86.39</td></tr> <tr><td>7</td><td>Test load in kg</td><td>20100</td></tr> <tr><td>8</td><td>Squareness (max) In deg at both ends</td><td>1</td></tr> <tr><td>9</td><td>Flatness (max) in mm at both ends</td><td>0.5</td></tr> </table>	1	Coil dia in mm	44	2	Mean coil dia in mm	158	3	Free length in mm	819	4	No of coils	13	5	No of active coils	11	6	Spring rate in kg/mm	86.39	7	Test load in kg	20100	8	Squareness (max) In deg at both ends	1	9	Flatness (max) in mm at both ends	0.5			<p>Name : Sekar.V Designation: CGM (R&D) R & D Complex BEML Ltd, BEML Nagar Kolar Gold Fields - 563 115 e - mail: g@beml.co.in Ph : 08153 262 124 Mob: 97409 56244</p>
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15	EARTH MOVERS	761AS02093	MASTER CYLINDER	10 No's	<p>Master cylinder for Wheel loader and Wheel dozer application. It is used in Brake system which is air over hydraulic type. The brakes chambers are connected to master cylinders where the air pressure pushes the oil to apply brake. When brake pedal is depressed, piston in the master cylinder is pushed by plunger due to air pressure from brake chamber. This makes the oil to flow out from master cylinder outlet to apply pressure on piston in final drive of the axle. In turn the piston (in axle) pushes the clutch plates to come in close contact with discs which rotates, so when they are held, the rotation is stopped and brakes are applied to stop the machine.</p> <p align="right">Specification:</p> <p>Bore : Ø38.1 mm Stroke :75 mm Working media :Mineral oil Max. pressure rating: Max brake pressure = 100bar (front & rear axle)</p>																														
16	EARTH MOVERS	BSP0146193	RECOIL SPRING	110 No's	<p>The heavy duty Recoil springs for Dozer (Heavy Duty) and Excavators application. These recoil springs absorb energy when the equipment encounters a sudden load in its travel. These are used in the under carriages of earthmoving equipment and serve to prevent damage to the track, Sprocket or other Rollers.</p> <p align="right">Specifications :</p> <p>Sl. No. Parameter BSP01 46193</p> <table border="0"> <tr><td>1</td><td>Coil dia in mm</td><td>46</td></tr> <tr><td>2</td><td>Mean coil dia in mm</td><td>193</td></tr> <tr><td>3</td><td>Free length in mm</td><td>583</td></tr> <tr><td>4</td><td>No of coils</td><td>8.56</td></tr> <tr><td>5</td><td>No of active coils</td><td>6.56</td></tr> <tr><td>6</td><td>Spring rate in kg/mm</td><td>94.90</td></tr> <tr><td>7</td><td>Test load in kg</td><td>20,100</td></tr> <tr><td>8</td><td>Squareness (max) In deg at both ends</td><td>1</td></tr> <tr><td>9</td><td>Flatness (max) in mm at both ends</td><td>0.5</td></tr> </table>	1	Coil dia in mm	46	2	Mean coil dia in mm	193	3	Free length in mm	583	4	No of coils	8.56	5	No of active coils	6.56	6	Spring rate in kg/mm	94.90	7	Test load in kg	20,100	8	Squareness (max) In deg at both ends	1	9	Flatness (max) in mm at both ends	0.5			
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17	EARTH MOVERS	758TH91197	GEAR BRG.TBL	20 No's	<p>Gear bearing is used Turn Table assembly for tyre handling application.</p> <p align="right">Specification:</p> <p>Material : 42CrMo4/ 46Cr4N Module : 5No. Of teeth :84</p>																														





LIST OF ITEMS FOR DEVELOPMENT UNDER MAKE - II PROCEDURE ANNEXURE-4

Sl.no	Division	Part no	Description	Approximate annual requirement	Brief spec	Photograph	REMARKS	Contact Details
18	EARTH MOVERS	2352511700	CHAIN	60 No's	The Chain is used to give drive to front and rear wheels of Tandem assembly by taking input drive from Final drive assembly in BG605 Motor Grader. Specification: No of links:50nos Pitch : 63.50 Minimum Fracture strength: 50,000Kg Minimum Deformation load: 24,000Kg			<p>Name : Sekar.V Designation: CGM (R&D) R & D Complex BEML Ltd, BEML Nagar Kolar Gold Fields - 563 115 e - mail: g@beml.co.in Ph : 08153 262 124 Mob: 97409 56244</p>
19	EARTH MOVERS	758TH91229	GEAR BRG.TBL	10 No's	Gear bearing is used Turn Table assembly for tyre handling application. Specification: Material : 42CrMo4/ 46Cr4N Module : 6 No. Of teeth :93			
20	EARTH MOVERS	761P201126	PROPELLER SHAFT	10 No's	The propeller shaft is used to transmit power from engine to Wheels through transmission, drop box and axle of loader equipment. Specification: Compressed length :500mm Slip : 90mm Operating speed : 2800rpm max Operating angle : 6deg Max. Torque : 3100Nm Mechanics : 9C			
21	EARTH MOVERS	355P291088	PROPELLER SHAFT	10 No's	The propeller shaft is used to transmit power from engine to Wheels through transmission, drop box and axle of loader equipment. Specification: Compressed length :550mm Slip : 80mm Operating speed : 2400rpm max Max. Torque : 2400Nm Mechanics : 7C			
22	EARTH MOVERS	456P202005	PROPELLER SHAFT	10 No's	The propeller shaft is used to transmit power from engine to Wheels through transmission, drop box and axle of loader equipment. Specification: Compressed length :232mm Slip : 51mm Operating speed : 2400rpm max Max. Torque : 3020Nm Mechanics : 7C			
23	EARTH MOVERS	355P291071	PROPELLER SHAFT	10 No's	The propeller shaft is used to transmit power from engine to Wheels through transmission, drop box and axle of loader equipment. Specification: Compressed length :390mm Slip : 50mm Operating speed : 2400rpm max Max. Torque : 3020Nm Mechanics : 7C			





LIST OF ITEMS FOR DEVELOPMENT UNDER MAKE - II PROCEDURE ANNEXURE-4

Sl.no	Division	Part no	Description	Approximate annual requirement	Brief spec	Photograph	REMARKS	Contact Details																														
24	EARTH MOVERS	761P201101	PROPELLER SHAFT	20 No's	The propeller shaft is used to transmit power from engine to Wheels through transmission, drop box and axle of loader equipment. Specification: Compressed length :570mm Slip : 130mm Operating speed : 2800rpm max Operating angle : 6deg Max. Torque : 3100Nm Mechanics : 9C			<p>Name : Sekar.V Designation: CGM (R&D) R & D Complex BEML Ltd, BEML Nagar Kolar Gold Fields - 563 115 e - mail: g@beml.co.in Ph : 08153 262 124 Mob: 97409 56244</p>																														
25	EARTH MOVERS	355P291063	PROPELLER SHAFT	10 No's	The propeller shaft is used to transmit power from engine to Wheels through transmission, drop box and axle of loader equipment. Specification: Compressed length :210mm Slip : 30mm Operating speed : 1400rpm max Operating angle : 15deg Max. Torque : 585Nm Mechanics : 6C																																	
26	EARTH MOVERS	451BP02019	CENTER BRAKE ASSY	45 No's	The centre brake assembly is used for Parking brake application in motor grader equipment. Specification: Max. Allowable brake torque : 500kgm.																																	
27	EARTH MOVERS	BSP0163277	RECOIL SPRING	90 No's	The heavy duty Recoil springs for Dozer (Heavy Duty) and Excavators application. These recoil springs absorb energy when the equipment encounters a sudden load in its travel. These are used in the under carriages of earthmoving equipment and serve to prevent damage to the track, Sprocket or other Rollers. Specifications : Sl. <table border="1"> <thead> <tr> <th>No.</th> <th>Parameter</th> <th>BSP01 63277</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Coil dia in mm</td> <td>63</td> </tr> <tr> <td>2</td> <td>Mean coil dia in mm</td> <td>277</td> </tr> <tr> <td>3</td> <td>Free length in mm</td> <td>1179</td> </tr> <tr> <td>4</td> <td>No of coils</td> <td>11</td> </tr> <tr> <td>5</td> <td>No of active coils</td> <td>9</td> </tr> <tr> <td>6</td> <td>Spring rate in kg/mm</td> <td>82.35</td> </tr> <tr> <td>7</td> <td>Test load in kg</td> <td>33,700</td> </tr> <tr> <td>8</td> <td>Squareness (max) In deg at both ends</td> <td>1</td> </tr> <tr> <td>9</td> <td>Flatness (max) in mm at both ends</td> <td>0.5</td> </tr> </tbody> </table>	No.	Parameter		BSP01 63277	1	Coil dia in mm	63	2	Mean coil dia in mm	277	3	Free length in mm	1179	4	No of coils	11	5	No of active coils	9	6	Spring rate in kg/mm	82.35	7	Test load in kg	33,700	8	Squareness (max) In deg at both ends	1	9	Flatness (max) in mm at both ends	0.5		
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28	EARTH MOVERS	757EG11026	SMART ALARM, BACKUP	90 No's	Smart alarm gives audio warning when equipment reverse gear is engaged. Alarm intensity varies depending on the surrounding noise. Specification: Operating voltage: 12-24VDC Maximum current drawn: 600mA Sound level: 87 – 112db (Automatic) Operating temperature: -40OC to +85 OC Protection: Spike & Surge protected Enclosure: Epoxy sealed against mud water & vibration Duty cycle: 1 pulse per second, 50% ON 50% OFF Frequency: 1250Hz Case: Steel																																	

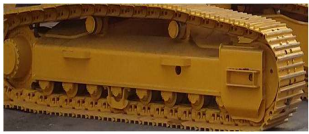

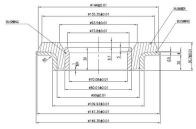
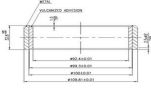
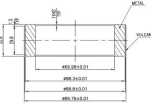


LIST OF ITEMS FOR DEVELOPMENT UNDER MAKE - II PROCEDURE ANNEXURE-4

Sl.no	Division	Part no	Description	Approximate annual requirement	Brief spec	Photograph	REMARKS	Contact Details																														
29	EARTH MOVERS	953EG83482	LED ROOF LAMP	120 No's	LED roof lamp fitted inside (to roof) the operator cabin provides illumination during night time when ever lamp switch is ON.This lap gives white colour illumination. Specification: Operating voltage: 24VDC Power Consumption: 6W Light Colour: White Case material: Steel			Name : Sekar.V Designation: CGM (R&D) R & D Complex BEML Ltd, BEML Nagar Kolar Gold Fields - 563 115 e - mail: g@beml.co.in Ph : 08153 262 124 Mob: 97409 56244																														
30	EARTH MOVERS	BSP0140165	Recoil Springs	60 No's	The heavy duty Recoil springs for Dozer (Heavy Duty) and Excavators application. These recoil springs absorb energy when the equipment encounters a sudden load in its travel. These are used in the under carriages of earthmoving equipment and serve to prevent damage to the track, Sprocket or other Rollers. Specifications : Sl. <table border="1"> <thead> <tr> <th>No.</th> <th>Parameter</th> <th>BSP01 40165</th> </tr> </thead> <tbody> <tr><td>1</td><td>Coil dia in mm</td><td>40</td></tr> <tr><td>2</td><td>Mean coil dia in mm</td><td>165</td></tr> <tr><td>3</td><td>Free length in mm</td><td>648</td></tr> <tr><td>4</td><td>No of coils</td><td>10.5</td></tr> <tr><td>5</td><td>No of active coils</td><td>8.5</td></tr> <tr><td>6</td><td>Spring rate in kg/mm</td><td>62.80</td></tr> <tr><td>7</td><td>Test load in kg</td><td>13,400</td></tr> <tr><td>8</td><td>Squareness (max) In deg at both ends</td><td>1</td></tr> <tr><td>9</td><td>Flatness (max) in mm at both ends</td><td>0.5</td></tr> </tbody> </table>	No.	Parameter		BSP01 40165	1	Coil dia in mm	40	2	Mean coil dia in mm	165	3	Free length in mm	648	4	No of coils	10.5	5	No of active coils	8.5	6	Spring rate in kg/mm	62.80	7	Test load in kg	13,400	8	Squareness (max) In deg at both ends	1	9	Flatness (max) in mm at both ends	0.5		
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31	EARTH MOVERS	BSP0150183	Recoil Springs	70 No's	The heavy duty Recoil springs for Dozer (Heavy Duty) and Excavators application. These recoil springs absorb energy when the equipment encounters a sudden load in its travel. These are used in the under carriages of earthmoving equipment and serve to prevent damage to the track, Sprocket or other Rollers. Specifications : Sl. <table border="1"> <thead> <tr> <th>No.</th> <th>Parameter</th> <th>BSP01 50183</th> </tr> </thead> <tbody> <tr><td>1</td><td>Coil dia in mm</td><td>50</td></tr> <tr><td>2</td><td>Mean coil dia in mm</td><td>183</td></tr> <tr><td>3</td><td>Free length in mm</td><td>822</td></tr> <tr><td>4</td><td>No of coils</td><td>12</td></tr> <tr><td>5</td><td>No of active coils</td><td>10</td></tr> <tr><td>6</td><td>Spring rate in kg/mm</td><td>95.5</td></tr> <tr><td>7</td><td>Test load in kg</td><td>22,200</td></tr> <tr><td>8</td><td>Squareness (max) In deg at both ends</td><td>1</td></tr> <tr><td>9</td><td>Flatness (max) in mm at both ends</td><td>0.5</td></tr> </tbody> </table>	No.	Parameter	BSP01 50183	1	Coil dia in mm	50	2	Mean coil dia in mm	183	3	Free length in mm	822	4	No of coils	12	5	No of active coils	10	6	Spring rate in kg/mm	95.5	7	Test load in kg	22,200	8	Squareness (max) In deg at both ends	1	9	Flatness (max) in mm at both ends	0.5			
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32	EARTH MOVERS	BSP0146178	Recoil Springs	110 No's	The heavy duty Recoil springs for Dozer (Heavy Duty) and Excavators application. These recoil springs absorb energy when the equipment encounters a sudden load in its travel. These are used in the under carriages of earthmoving equipment and serve to prevent damage to the track, Sprocket or other Rollers. Specifications : Sl. <table border="1"> <thead> <tr> <th>No.</th> <th>Parameter</th> <th>BSP01 46178</th> </tr> </thead> <tbody> <tr><td>1</td><td>Coil dia in mm</td><td>47</td></tr> <tr><td>2</td><td>Mean coil dia in mm</td><td>178</td></tr> <tr><td>3</td><td>Free length in mm</td><td>760</td></tr> <tr><td>4</td><td>No of coils</td><td>11</td></tr> <tr><td>5</td><td>No of active coils</td><td>9</td></tr> <tr><td>6</td><td>Spring rate in kg/mm</td><td>96.14</td></tr> <tr><td>7</td><td>Test load in kg</td><td>25,620</td></tr> <tr><td>8</td><td>Squareness (max) In deg at both ends</td><td>1</td></tr> <tr><td>9</td><td>Flatness (max) in mm at both ends</td><td>0.5</td></tr> </tbody> </table>	No.	Parameter	BSP01 46178	1	Coil dia in mm	47	2	Mean coil dia in mm	178	3	Free length in mm	760	4	No of coils	11	5	No of active coils	9	6	Spring rate in kg/mm	96.14	7	Test load in kg	25,620	8	Squareness (max) In deg at both ends	1	9	Flatness (max) in mm at both ends	0.5			
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LIST OF ITEMS FOR DEVELOPMENT UNDER MAKE - II PROCEDURE ANNEXURE-4

Sl.no	Division	Part no	Description	Approximate annual requirement	Brief spec	Photograph	REMARKS	Contact Details
33	EARTH MOVERS	2352211590	SEAL RING	110 No's	The Seal Ring is used to arrest oil leakage during piston actuation in final drive assembly. Specification:-Material - Rareflon;Pressure : 40 bar;Temperature : 120 deg max.			<p>Name : Sekar.V Designation: CGM (R&D) R & D Complex BEML Ltd, BEML Nagar Kolar Gold Fields - 563 115 e - mail: g@beml.co.in Ph : 08153 262 124 Mob: 97409 56244</p>
34	EARTH MOVERS	701821706	SEAL RING	150 No's	The Seal Ring is used to arrest oil leakage during piston actuation in transmission. Specification:-Material : HSBsC3;Maximum pressure: 20 bar ;Oil temperature : 120 deg max.;Peripheral speed : 20m/s			
35	EARTH MOVERS	130CT00284	TRACK SHOE PROFILE	180 Tons	Single grouser track shoes for crawler type 416 hp Bull Dozers (heavy duty earthmoving application). Shoes are hot rolled and hardened for better strength and toughness. The shoes are made of Born grade steel material to meet the wear resistance requirement thereby enhancing the life of the track chain.1. DESCRIPTION : HOT ROLLED TRACK SHOE STOCK 2. CHEMICAL COMPOSITION: C 0.28 - 0.33 Mn 1.0 - 1.3 Si 0.25 - 0.35 Cr 0.35 - 0.65 S 0.03 Max P 0.03 Max B 0.0005 - 0.003 Mo 0.08 - 0.15 3. Mechanical properties as per BEML unit standard B1202-00. Hardness at 1.5 mm below Quenched end: 49-56 HRC Hardness at 15 mm below Quenched end: 39-50 HRC 4. SUPPLY CONDITION: NORMALIZED	<p>130CT00284 --TRACK SHOE PROFILE DOZER</p> 		
36	EARTH MOVERS	125CT00326	TRACK SHOE PROFILE	210 Tons	Single grouser track shoes for crawler type 416 hp Bull Dozers (heavy duty earthmoving application). Shoes are hot rolled and hardened for better strength and toughness. The shoes are made of Born grade steel material to meet the wear resistance requirement thereby enhancing the life of the track chain.MATERIAL PROPERTIES: 1. DESCRIPTION : HOT ROLLED TRACK SHOE STOCK 2. CHEMICAL COMPOSITION: C 0.28 - 0.33 Mn 1.0 - 1.3 Si 0.25 - 0.35 Cr 0.35 - 0.65 S 0.03 Max P 0.03 Max B 0.0005 - 0.003 Mo 0.08 - 0.15 3. Mechanical properties as per BEML unit standard B1202-00. Hardness at 1.5 mm below Quenched end: 49-56 HRC Hardness at 15 mm below Quenched end: 39-50 HRC 4. SUPPLY CONDITION: NORMALIZED	<p>125CT00326 --TRACK SHOE PROFILE DOZER</p> 		


LIST OF ITEMS FOR DEVELOPMENT UNDER MAKE - II PROCEDURE ANNEXURE-4

Sl.no	Division	Part no	Description	Approximate annual requirement	Brief spec	Photograph	REMARKS	Contact Details
37	EARTH MOVERS	155CTB0025	TRACK SHOE PROFILE	81 Tons	<p>Triple grouser track shoes for crawler type 147 hp Excavator (heavy duty earthmoving application). Shoes are hot rolled and hardened for better strength and toughness. The shoes are made of Born grade steel material to meet the wear resistance requirement thereby enhancing the life of the track chain.MATERIAL PROPERTIES:</p> <p>1. DESCRIPTION : HOT ROLLED TRACK SHOE STOCK 2. CHEMICAL COMPOSITION: C 0.28 - 0.33 Mn 1.0 - 1.3 Si 0.25 - 0.35 Cr 0.35 - 0.65 S 0.03 Max P 0.03 Max B 0.0005 - 0.003 Mo 0.08 - 0.15 3. Mechanical properties as per BEML unit standard B1202-00. Hardness at 1.5 mm below Quenched end: 49-56 HRC Hardness at 15 mm below Quenched end: 39-50 HRC 4. SUPPLY CONDITION: NORMALIZED</p>			<p>Name : Sekar.V Designation: CGM (R&D) R & D Complex BEML Ltd, BEML Nagar Kolar Gold Fields - 563 115 e - mail: g@beml.co.in Ph : 08153 262 124 Mob: 97409 56244</p>
38	EARTH MOVERS	2352211580	SEAL RING	15 No's	The Seal Ring is used to arrest oil leakage during piston actuation in final drive assembly.Specification:-Material - Rareflon;Pressure : 40 bar;Temperature : 120 deg max.			
39	EARTH MOVERS	130EI91124	CUSHION	360 No's	Vibration isolator (Cushion) used for engine mounting at 4 mounting locations of 416 hp Bull Dozer application. Cushions are heavy duty type with better damping characteristics to prevent transmission of shocks from the equipment to the engine in order to improve the life of the engine components.			
40	EARTH MOVERS	130EI91132	CUSHION	180 No's	Vibration isolator (Cushion) used for engine mounting at 4 mounting locations of 416 hp Bull Dozer application. Cushions are heavy duty type with better damping characteristics to prevent transmission of shocks from the equipment to the engine in order to improve the life of the engine components.			
41	EARTH MOVERS	130EI91149	CUSHION	180 No's	Vibration isolator (Cushion) used for engine mounting at 4 mounting locations of 416 hp Bull Dozer application. Cushions are heavy duty type with better damping characteristics to prevent transmission of shocks from the equipment to the engine in order to improve the life of the engine components.			
42	EARTH MOVERS	2321519530	SNAP RING	100 No's	The double layer snap ring is used to arrest axial motion of ring gear and planetary assembly in transmission. Specification:-Material: SWRH 67/82 B;Hardness : 42~48 HRc			
43	EARTH MOVERS	985TM11147	SNAP RING	50 No's	The double layer snap ring is used to arrest axial motion of ring gear and planetary assembly in transmission. Specification:-Material: SWRH 67/82 B; Hardness : 42~48 HRc			

LIST OF ITEMS FOR DEVELOPMENT UNDER MAKE - II PROCEDURE ANNEXURE-4

Sl.no	Division	Part no	Description	Approximate annual requirement	Brief spec	Photograph	REMARKS	Contact Details
44	Hydraulic & Power line	442071480374	Synchromesh 4th & 5th Gear	50 No's	This assy consists of carrier, Connecting Sleeve, Synchro cones for which input Raw materials are Forging. It involves , Turning,hobbing, Tooth Chamfering, internal shaping , GCQT & Special process Molycoat			Name : Madhusudan B.H Designation: DGM (R&D) , R & D Complex BEML Ltd, BEML Nagar Kolar Gold Fields - 563 115 e - mail: g@beml.co.in Ph : 08153 264044 Mob: 7406897591
45	Hydraulic & Power line	442071480384	Synchromesh constant mesh	50 No's	This assy consists of carrier, Connecting Sleeve, Synchro cone for which input Raw materials are Forging. It involves , Turning,hobbing, internal shaping , Swaging ,GCQT & Special process Molycoat			
46	Hydraulic & Power line	716516870	NYLOC NUT	50 No's	In the above Nylock nuts, the Nut materials are quenched and tempered to 24~28 HRC.			
47	Hydraulic & Power line	716513638	NYLOC NUT	50 No's	In the above Nylock nuts, the Nut materials are quenched and tempered to 24~28 HRC. 			

LIST OF ITEMS FOR DEVELOPMENT UNDER MAKE - II PROCEDURE ANNEXURE-4

Sl.no	Division	Part no	Description	Approximate annual requirement	Brief spec	Photograph	REMARKS	Contact Details
48	Truck	953EG0074	Proximity warning system for dump trucks	200 No's	<p>The system consist of sensor and display which will detects both moving and stationary objects in a pre-defined coverage area and reports the distance of the closest object via visual range indicators and an audible signal to a vehicle operator. To ensure the safety of operator & equipment as per the compliance of DGMS.</p> <p>Specification: Electrical Specification: Operating Voltage: 9-32VDC Operating Temperature: -40 to 85 oC Vibration: 25G RMS, 3 Axis Shock: 25G 3 Axis</p> <p>Operating Characteristics: Maximum Range: 32 feet (10m) Programmable Ranges: 10 to 32 feet (3m to 10m) Warning Ranges: 5 zones divided into programmed range Minimum Resolution: 1 foot</p> <p>Note ; The usage of device on equipment is certified by department of telecommunication government of India</p>	 <p align="center">Sensor And Display</p>		<p>Name : Sudharshan K S Designation: CGM (R&D) , R & D Complex, BEML Ltd Belvadi post Mysore - 570 018 e - mail: sudhiks@beml.co.in Ph : 0821 2400348 Mob: 9731561734</p>
49	Truck	953EG03404	Emergency steering Motor for dump trucks	250 No's	<p>Emergency Steering Motor is used to supply the auxiliary power to the steering unit in case of Hydraulic pump failure or Engine failure. This is an supplementary power pack to regular steering system & also to meet the safety norms of DGMS requirement.</p> <p>Specification: Electrical Specification: Description: DC Motor Power Rating: 3.5KW Operating Voltage: 24VDC Operating Temperature: -40 to 110 oC Insulation Type: B Revolution Direction: Clockwise Duty Cycle: 90 Sec for Continuous operation.</p>	 <p align="center">Emergency Steering Motor</p>		

LIST OF ITEMS FOR DEVELOPMENT UNDER MAKE - II PROCEDURE ANNEXURE-4

Sl.no	Division	Part no	Description	Approximate annual requirement	Brief spec	Photograph	REMARKS	Contact Details
50	Truck	451EG80088	Kit ,Dash board system(Murphy 1905)	50 No's	Centralized dashboard system which continuously monitor all the parameter of the equipment. The system is based on CAN(Controller Area Network) technology, which is two wire system CAN_high (yellow wire) and CAN low (green wire).If any parameter crosses it specified limit it will alert the operator by visual and audio indication.			<p>Name : Sudharshan K S Designation: CGM (R&D) , R & D Complex, BEML Ltd Belvadi post Mysore - 570 018 e - mail: sudhiks@beml.co.in Ph : 0821 2400348 Mob: 9731561734</p>
51	Truck	452EG80118	MURPHY KIT(MECHANICAL ENGINE & TRANS)	20 No's	Display Specification: Display: 7" Resolution: WVGA, 800 x 480pixels Flash memory: 2GB RAM: 128Mbytes SRAM USB: 2.0 host Operating Voltage: 6-36VDC Operating Temperature: -40 to +85 oC Protection: IP67 Vibration: Random Vibration 7.86 Grms, 3 Axis Shock: ±50G in 3 Axis			
52	Truck	931EG80107	DASH BOARD SYSTEM KIT	10 No's	Protocols: J1939, NMEA2000[GPS], CAN Open, Free Form CAN Emission: SAE J1113 Controller Specification: Operating Voltage: 8-36VDC Operating Temperature: -40 to +85 oC Protection: IP67 Vibration: Random Vibration 5 Grms, 3 Axis Shock: ±40G in 3 Axis Protocols: J1939 CAN protocol			
53	Truck	938EG80102	DASH BOARD KIT (MURPHY)	15 No's				
54	Truck	953EG80236	MURPHY KIT(PV780) ELEC ENGINE , MECH TRANS	36 No's				
55	Truck	953EG80252	MURPHY KIT PV780(ELEC ENGINE & TRANS)	36 No's				

LIST OF ITEMS FOR DEVELOPMENT UNDER MAKE - II PROCEDURE ANNEXURE-4

Sl.no	Division	Part no	Description	Approximate annual requirement	Brief spec	Photograph	REMARKS	Contact Details
61	Engine	4128380678	Air Compressor	109 No's	Air compressor used on Heavy duty diesel engines Type - Water Cooled Construction - Twin Cylinder Volume - 442 cc			Name : Tamilselvan Designation: GM (R&D) , Engine Division,BEML Ltd Belvadi post Mysore - 570 018 e - mail: gp@beml.co.in Ph : 0821 2402447 Mob: 9731561744
62	Engine	6151813112	Air Compressor	42 No's	Air compressor used on Heavy duty diesel engines Type - Water Cooled Construction - Single Cylinder Volume - 340 cc			
63	Engine	6162332060	Piston ring assembly	1950 No's	Piston Rings for Heavy Duty Diesel Engines (170 bore dia) Material: KPR3 of ES1119 dia-170mm ; thickness - 4mm			
64	Engine	6211312033	Piston ring assembly	798 No's	Piston Rings for Heavy Duty Diesel Engines (140 bore dia) Material: KPR3 of ES1119 dia-140mm ; thickness - 4mm			
65	Engine	6150312033	Piston ring assembly	1056 No's	Piston Rings for Heavy Duty Diesel Engines (125 bore dia) Material: KPR3 of ES1119 dia-125mm ; thickness - 4mm			
66	Engine	6137312040	Piston ring assembly	798 No's	Piston Rings for Heavy Duty Diesel Engines (105 bore dia) Material: KPR3 of ES1119 dia-105mm ; thickness - 4mm			
67	Engine	6162131812	Gasket cylinder head	1950 No's	Cylinder head gasket for heavy duty diesel engines (170 bore dia) Material - SPCCTA PLATE Thickness - 2 mm size - 230 x 340 mm			
68	Engine	6210171814	Gasket cylinder head	798 No's	Cylinder head gasket for heavy duty diesel engines (140 bore dia) Material - SPCCTA PLATE Thickness - 2 mm			
69	Engine	6150171813	Gasket cylinder head	1056 No's	Cylinder head gasket for heavy duty diesel engines (125 bore dia) Material - SPCCTA PLATE Thickness - 2 mm size - 160 x 260 mm			

LIST OF ITEMS FOR DEVELOPMENT UNDER MAKE - II PROCEDURE ANNEXURE-4

Sl.no	Division	Part no	Description	Approximate annual requirement	Brief spec	Photograph	REMARKS	Contact Details
70	Palakkad	442925810194	DEFLECTOR RH	150 No's	TECHNICAL SPECIFICATION: Injection molded plastic Item Size: 515x190x3mm Weight :350gms Protection Item fitted to cabin			Name : Rajashekar.R Designation: DGM (R&D) , Palakkad Complex, BEML Ltd KINFRA Park, Menon park road Kanjikode East, Palakkad - 678 621 e - mail: gap@beml.co.in Ph : 0491 2565291 Mob: 9496001526
71	Palakkad	442925810204	DEFLECTOR LH	150 No's	TECHNICAL SPECIFICATION: Injection molded plastic Item Size: 515x190x3mm Weight :350gms Protection Item fitted to cabin			
72	Palakkad	443312039000	BOARD LAMP	150 No's	TECHNICAL SPECIFICATION: Nominal voltage : 24 V Nominal current : 0.167 A Nominal wattage : 4 W Standard to be complied for lamp : AIS 012 & AIS 008 (As per CMVR) Standard to be complied for bulbs : AIS 034 (As per CMVR) Environmental standard : JSS 55555 – 2012 (Rev3)			
73	Palakkad	442099701524	OIL PRESSURE GAUGE SENSOR 38 0070 25 with Switch coupling SPOJKA SPINACE 442601144000	150 No's	TECHNICAL SPECIFICATION: Mechanical Specification: (a) Pressure setting : 4.5 ± 10% bar upward (b) Operating pressure : 15 bar (c) Maximum over pressure : 30 bar for 1 minute duration (d) Torque : 30 Nm max. (e) Medium : Motor Oil/ Air Electrical Specification: (a) Rated voltage : 12 / 24V DC (b) Test Voltage : 13.5V (c) Max. Voltage sag : 150mV at 1000mA (d) Permissible electrical load : Max. 30W at resistive load 10W at inductive load & inductance 400mH (e) Protection to DIN 40050 : Plug in connection with contact Area : IP 66 Connecting Components: IP 64			
74	Palakkad	442075300214	ENGINE BRAKE	150 No's	TECHNICAL SPECIFICATION: Operating Air Pressure : 8 bar Air Cylinder stroke : 40 mm Cylinder Bore Diameter : 40 mm Exhaust Pipe Diameter : 4 Inch Weight : 3.5 kg			
75	Palakkad	442070034000	STEERING GEAR BOX	150 No's	TECHNICAL SPECIFICATION : TYPE : Worm type with one finger Gear ratio : 25.5 Total number of steering wheel turns to achieve a full lock : 5 2/3 Weight : 42Kg Oil specification : Servo Gear Super 80W-90 (IOC)			

LIST OF ITEMS FOR DEVELOPMENT UNDER MAKE - II PROCEDURE ANNEXURE-4

Sl.no	Division	Part no	Description	Approximate annual requirement	Brief spec	Photograph	REMARKS	Contact Details
76	Palakkad	443743050000	SUBPRESSURE INDICATOR	150 No's	TECHNICAL SPECIFICATION: Nominal Voltage : 24V Set pressure: 6+0.6Kpa			<p>Name : Rajashekar.R Designation: DGM (R&D) , Palakkad Complex, BEML Ltd KINFRA Park, Menon park road Kanjikode East, Palakkad - 678 621 e - mail: gap@beml.co.in Ph : 0491 2565291 Mob: 9496001526</p>
77	Palakkad	443999108000	CUT OFF SWITCH, TRW 31116	150 No's	TECHNICAL SPECIFICATION: Nominal voltage : 24 V Nominal current : 1.16 A Max Nominal wattage : 28 W Torque for tightening : 50 N-m Max Type of switch : NC (Normally Closed)			
78	Palakkad	443311026000	WATERTIGHT HEAD LAMP DIA 160 MM	450 No's	TECHNICAL SPECIFICATION: Nominal voltage : 24 V Nominal current : 3.125 / 2.91 A Nominal wattage : 75 / 70 W Standard to be complied for lamp : AIS 012 & AIS 008 (As per CMVR) Standard to be complied for bulb : AIS 034 (As per CMVR) Environmental standard : JSS 55555 – 2012 (Rev3)			
79	Palakkad	443311065000	FOG HEADLAMP 891017-2	300 No's	TECHNICAL SPECIFICATION: Nominal voltage : 24 V Nominal current : 2.91 A Nominal wattage : 70 W Standard to be complied for lamp : AIS 012 & AIS 008 (As per CMVR) Standard to be complied for bulb : AIS 034 (As per CMVR) Environmental standard : JSS 55555 – 2012 (Rev3)			
80	Palakkad	443312035000	REAR LAMP, LH	150 No's	BRIEF DESCRIPTION: The Rear Cluster LH Lamp (443312035000) used on BEML-TATRA vehicle and is mounted on the rear of a vehicle used for three illumination applications mentioned below. (i) The lamp used to draw the attention to the presence of stationary vehicle. (Parking lamp). (ii) To indicate other road-users to the rear of the vehicle that its driver is applying the service brake (Stop lamp). (iii) To be operated by the driver, signals the latter's intension to change the direction in which the vehicle is proceeding (Direction indicator lamp). The assembly is made up of die cast aluminum, cold drawn steel sheet and is powder finished to Olive Green. TECHNICAL SPECIFICATION: Nominal voltage : 24 V Nominal current : 0.875 A, 0.875/0.208 A Nominal wattage : 21 W, 21/5 W Standard to be complied for lamp : AIS 012 & AIS 008 (As per CMVR) Standard to be complied for bulbs : AIS 034 (As per CMVR) Environmental standard : JSS 55555 – 2012 (Rev3)			
81	Palakkad	443312037000	REAR LAMP, RH	150 No's	TECHNICAL SPECIFICATION: Nominal voltage : 24 V Nominal current : 0.875 A, 0.875/0.208 A Nominal wattage : 21 W, 21/5 W Standard to be complied for lamp : AIS 012 & AIS 008 (As per CMVR) Standard to be complied for bulbs : AIS 034 (As per CMVR) Environmental standard : JSS 55555 – 2012 (Rev3)			






LIST OF ITEMS FOR DEVELOPMENT UNDER MAKE - II PROCEDURE ANNEXURE-4

Sl.no	Division	Part no	Description	Approximate annual requirement	Brief spec	Photograph	REMARKS	Contact Details
82	Palakkad	443853040000	STARTER MOTOR PUSH BUTTON	150 No's	TECHNICAL SPECIFICATION: Nominal voltage : 24 V Nominal current : 10 A Max Torque for tightening switch : 10 kgf.cm Max Type of switch : NO (Normally Open)			Name : Rajashekar.R Designation: DGM (R&D) , Palakkad Complex, BEML Ltd KINFRA Park, Menon park road Kanjikode East, Palakkad - 678 621 e - mail: gap@beml.co.in Ph : 0491 2565291 Mob: 9496001526
83	Palakkad	443853026000	PUSH BUTTON SWITCH	150 No's	TECHNICAL SPECIFICATION: Nominal voltage : 24 V Nominal current : 4 A Max Type of switch : NO (Normally Open) Connection : Water tight			
84	Palakkad	442080361004	WATERTIGHT LAMPS	300 No's	TECHNICAL SPECIFICATION: Nominal voltage : 24 V Nominal current : 0.16 A Nominal wattage : 4 W Standard to be complied for lamp : AIS 012 & AIS 008 (As per CMVR) Standard to be complied for bulb : AIS 034 (As per CMVR) Environmental standard : JSS 55555 – 2012 (Rev3)			
85	Palakkad	443312009000	WATER TIGHT LAMP	150 No's	TECHNICAL SPECIFICATION: Supply Voltage : 24V DC Wattage : 21 W Bulb base : Ba 15S Lens color : White (Clear) Life : > 50000 hrs Operating temperature range : -40° to +70° Finish : Aluminium die casting, Steel parts by galvanic cadmium and Chromate plated, Copper parts are nickel plated.			
86	Palakkad	442973100074	SIDE COVER, LH	150 No's	Side cover is Protective sheet metal cover. Fixed below cabin door. Material used: Cold rolled carbon sheet. Sheet thickness : 1mm Length of side cover : 1021mm Out surface of side cover coated with enamel synthetic Paint. And inner side painted Rubberized paint			
87	Palakkad	442973100054	SIDE COVER, RH	150 No's	Side cover is Protective sheet metal cover. Fixed below cabin door. Material used: Cold rolled carbon sheet. Sheet thickness : 1mm Length of side cover : 1021mm Out surface of side cover coated with enamel synthetic Paint. And inner side painted Rubberized paint			
88	Palakkad	321880164000	AIR DUCT	150 No's	TECHNICAL SPECIFICATION: Size: 800x600x5 Matl: Polyester Glass Laminated Material Colour : Graphite Black			



LIST OF ITEMS FOR DEVELOPMENT UNDER MAKE - II PROCEDURE ANNEXURE-4

Sl.no	Division	Part no	Description	Approximate annual requirement	Brief spec	Photograph	REMARKS	Contact Details
89	Palakkad	273243014000	SEALING SECTION	150 No's	TECHNICAL SPECIFICATION: Synthetic rubber Inner Diameter :477/-2 mm Hardness:56-65 IRHD Provided as a gasket/Protective cover to Air duct.			Name : Rajashekar.R Designation: DGM (R&D) , Palakkad Complex, BEML Ltd KINFRA Park, Menon park road Kanjikode East, Palakkad - 678 621 e - mail: gap@beml.co.in Ph : 0491 2565291 Mob: 9496001526
90	Palakkad	442954165654	AIR DUCT GASKET	150 No's	TECHNICAL SPECIFICATION: Synthetic rubber Hardness:55-64 (SH. A) Provided as a Protective gasket to Air duct.			
91	Palakkad	443621019000	TELESCOPIC DAMPER	600 No's	TECHNICAL SPECIFICATION: Extended length : 652 mm Compressed Length : 412 mm Stroke Length : 240 mm Bush Diameter : 24 mm Weight : 5 kg			
92	Palakkad	442073900544	STEERING BOOSTER WITH JOINT	150 No's	TECHNICAL SPECIFICATION : MODEL : RV 78 - 26311.42 TYPE : Double Acting WORKING FLUID : Servo System 32 (IOC) MAX PRESSURE : 11 MPa WEIGHT : 20 Kg HYDRAULIC PORT : M18X1.5			
93	Palakkad	442079070054	SOCKET	150 No's	TECHNICAL SPECIFICATION: Nominal Voltage : 24V Nominal Current : 6A No. of Poles : 1			
94	Palakkad	442075915584	SPRING HOSE	150 No's	BRIEF DESCRIPTION: BEML TATRA Vehicle is fitted with flexible metal hose pipe connected to the Engine Exhaust system for discharge of gases. TECHNICAL SPECIFICATION: MATERIAL : STAINLESS STEEL 1.4301 (AISI 304) RING : STAINLESS STEEL (1.5mm Thick) EXHAUST TUBE OD : 106.5 mm EXHAUST TUBE ID : 102.5 mm			
95	Palakkad	442030050804	CROSS GRIDER	50 No's	TECHNICAL SPECIFICATION: 1.5% Manganese Casting. Mounted to Chassis and bolted to Backbone tube.Load bearing Item			
96	Palakkad	442072801004	FRONT BRACKET, RH	50 No's	TECHNICAL SPECIFICATION: Size: 250x85x40 Matl: Carbon Steel Casting,Gr-1 IS: 2707-1996			




LIST OF ITEMS FOR DEVELOPMENT UNDER MAKE - II PROCEDURE ANNEXURE-4

Sl.no	Division	Part no	Description	Approximate annual requirement	Brief spec	Photograph	REMARKS	Contact Details
97	Palakkad	442072801014	FRONT BRACKET, LH	50 No's	TECHNICAL SPECIFICATION: Size: 250x85x40 Matl: Carbon Steel Casting, Gr-1 IS: 2707-1996			<p>Name : Rajashekar.R Designation: DGM (R&D) , Palakkad Complex, BEML Ltd KINFRA Park, Menon park road Kanjikode East, Palakkad - 678 621 e - mail: gap@beml.co.in Ph : 0491 2565291 Mob: 9496001526</p>
98	Palakkad	321841025000	CANISTER KANYSTR 5 L OMYVACE CEL. SKEL	150 No's	TECHNICAL SPECIFICATION: Material : Blow molded plastic Size: 285x240x125mm Capacity: 5lts			
99	Palakkad	443311119000	TURN INDICATOR UKAZATEL SMERU 892 007	600 No's	TECHNICAL SPECIFICATION: Supply Voltage : 24V DC Wattage : 21 W Bulb base : Ba 15S Lens color : White (Clear) Life : > 50000 hrs Operating temperature range : -40° to +70° Finish : Aluminium die casting, Steel parts by galvanic cadmium and Chromate plated, Copper parts are nickel plated. Water Resisances : Water tight. Standard to be complied for lamp : AIS 012 (As per CMVR) Standard to be complied for bulb : AIS 034 (As per CMVR) Environmental standard : JSS 55555 – 2012 (Rev3)			
100	Palakkad	443429860000	INDICATOR SNIMAC OTACEK 2159.20002501	150 No's	Specification: Nominal Voltage : 6.5 – 30 V Current : 16mA at 30V Operating temp: -30 Deg to +145 deg protection: En 60529 , IP: 67 Vibration Resistance: 30g			
101	Palakkad	442079026714	ORANGE BEACON Maják AEB - úprava	300 No's	Used on the cabin for beacon lamp Appaication TECHNICAL SPECIFICATION: Nominal Voltage : 24 V Nominal wattage: 21W			


LIST OF ITEMS FOR DEVELOPMENT UNDER MAKE - II PROCEDURE ANNEXURE-4

Sl.no	Division	Part no	Description	Approximate annual requirement	Brief spec	Photograph	REMARKS	Contact Details
102	BANGALORE COMPLEX	9422100803	CURRENT COLLECTOR SYSTEM, 750V DC-RH	192 No's	750 VDC THIRD RAIL CURRENT COLLECTION SYSTEM RH TYPE WITH CAST IRON SHOE, , FUSE AND BRACKET, HIGH POWER CABLE BETWEEN COLLECTOR SHOE TO FUSE BOX, AND ALL MISCELLANEOUS (MALE & FEMALE CONNECTOR, PIN , SOCKET AND HARDWARE FOR INSTALLATION) PTS No: GR/TD/3499 Rev 1 dated 17.02.17		SI No. 102 to 106 " CURRENT COLLECTOR DEVICE ITEMS" to be developed from same source.	NAME: K C SHASHIKANTH DESIGNATION: GM (R&D), BANGALORE COMPLEX, BEML LTD POST BOX-7501, NEW TIPPASANDRA BANGALORE – 560 075 e - mail: kcs@rd.beml.co.in PH: 080-2502 2786 MOB: 9731397825
103	BANGALORE COMPLEX	9422100804	CURRENT COLLECTOR SYSTEM, 750V DC-LH	192 No's	750 VDC THIRD RAIL CURRENT COLLECTION SYSTEM LH TYPE WITH CAST IRON SHOE FUSE AND BRACKET, HIGH POWER CABLE BETWEEN COLLECTOR SHOE TO FUSE BOX AND ALL MISCELLANEOUS (MALE & FEMALE CONNECTOR, PIN , SOCKET AND HARDWARE FOR INSTALLATION) PTS No: GR/TD/3499 Rev 1 dated 17.02.17			
104	BANGALORE COMPLEX	94221063	MANUAL HAND LEVER FOR CCD	48 No's	MANUAL HAND LEVER FOR CCD AS PER PTS:GR/TD/3499			
105	BANGALORE COMPLEX	94221064	STRINGER CONNECTOR MALE	96 No's	STINGER CONNECTOR MALE WITH BOX(PIN HOUSED IN BOX ALONG WITH GLAND, LUG S & OTHER ACCESSORIES) AS PER PTS:GR/TD/3499			
106	BANGALORE COMPLEX	94221065	STRINGER CONNECTOR FEMALE	24 No's	STINGER CONNECTOR FEMALE (WITH COVER AND DUMMY PLUG) AS PER PTS:GR/TD/3499			

LIST OF ITEMS FOR DEVELOPMENT UNDER MAKE - II PROCEDURE ANNEXURE-4


Sl.no	Division	Part no	Description	Approximate annual requirement	Brief spec	Photograph	REMARKS	Contact Details	
107	BANGALORE COMPLEX	94221025	LED BASED SALOON LIGHT(L-1302MM)	4032 No's	LED BASED SALOON LIGHT (1302MM) FOR KMRL- RS (3R) PROJECT AS PER PTS GR/TD/3481	 	SI No. 107 to 117 " LED LIGHTING SYSTEMS" to be developed from same source.	NAME: K C SHASHIKANTH DESIGNATION: GM (R&D), BANGALORE COMPLEX, BEML LTD POST BOX-7501, NEW TIPPASANDRA BANGALORE – 560 075 e - mail: kcs@rd.beml.co.in PH: 080-2502 2786 MOB: 9731397825	
108	BANGALORE COMPLEX	94221026	LED BASED SALOON LIGHT(L=690MM)	288 No's	LED BASED SALOON LIGHT (690MM) FOR KMRL- RS (3R) PROJECT AS PER PTS GR/TD/3481				
109	BANGALORE COMPLEX	94221027	GANGWAY LIGHT-LED	120 No's	GANGWAY LIGHT-LED FOR KMRL- RS (3R) PROJECT AS PER PTS GR/TD/3481				
110	BANGALORE COMPLEX	94221030	CAB MAIN LIGHT-LED	48 No's	CAB MAIN LIGHT-LED FOR KMRL- RS (3R) PROJECT AS PER PTS GR/TD/3481				
111	BANGALORE COMPLEX	94221031	HEAD LIGHT-LED	48 No's	HEAD LIGHT-LED FOR KMRL- RS (3R) PROJECT AS PER PTS GR/TD/3481				
112	BANGALORE COMPLEX	94221032	MARKER AND TAIL LIGHT-LED	48 No's	MARKER AND TAIL LIGHT-LED FOR KMRL- RS (3R) PROJECT AS PER PTS GR/TD/3481				
113	BANGALORE COMPLEX	94221033	FLASHER LIGHT-LED	48 No's	FLASHER LIGHT-LED FOR KMRL- RS (3R) PROJECT AS PER PTS GR/TD/3481				
114	BANGALORE COMPLEX	94221034	DRIVING CONSOLE LIGHT-LED	48 No's	DRIVING CONSOLE LIGHT-LED FOR KMRL- RS (3R) PROJECT AS PER PTS GR/TD/34				
115	BANGALORE COMPLEX	94221035	AUTO DIMMER	144 No's	AUTODIMMER FOR KMRL- RS (3R) PROJECT AS PER PTS GR/TD/3481				
116	BANGALORE COMPLEX	94221036	SENSOR	288 No's	SENSOR FOR KMRL- RS (3R) PROJECT AS PER PTS GR/TD/3481				
117	BANGALORE COMPLEX	94221097	DC-DC CONVERTER, DRIVER CONSOLE LIGHT	48 No's	DC-DC CONVERTER FOR DRIVING CONSOLE LIGHT(110V-24V DC) FOR KMRL- RS (3R) PROJECT AS PER PTS GR/TD/3481				
118	BANGALORE COMPLEX	9425608701	PROTECTION FILM 195x150x0.5	2448 No's	PROTECTION FILM 195x150x0.5T				
119	BANGALORE COMPLEX	9425608702	PROTECTION FILM 150x130x0.5	1728 No's	PROTECTION FILM 150x130x0.5T				
120	BANGALORE COMPLEX	9425608703	PROTECTION FILM 200x130x0.5	1152 No's	PROTECTION FILM 200x130x0.5T				
121	BANGALORE COMPLEX	9425608704	PROTECTION FILM 250x130x0.5	1056 No's	PROTECTION FILM 250x130x0.5T				
122	BANGALORE COMPLEX	9425608705	PROTECTION FILM 410x130x0.5	96 No's	PROTECTION FILM 410x130x0.5T				
123	BANGALORE COMPLEX	9425608706	PROTECTION FILM 720x160x0.5	96 No's	PROTECTION FILM 720x160x0.5T				
124	BANGALORE COMPLEX	9425608707	PROTECTION FILM 150x100x0.5	96 No's	PROTECTION FILM 150x100x0.5T				
125	BANGALORE COMPLEX	9425608708	PROTECTION FILM 120x40x0.5T	288 No's	PROTECTION FILM 120x40x0.5T				
126	BANGALORE COMPLEX	9425608709	PROTECTION FILM 225x40x0.5T	480 No's	PROTECTION FILM 225x40x0.5T				
127	BANGALORE COMPLEX	9425608710	PROTECTION FILM 350x40x0.5T	96 No's	PROTECTION FILM 350x40x0.5T				
128	BANGALORE COMPLEX	9425608711	PROTECTION FILM 410x40x0.5T	96 No's	PROTECTION FILM 410x40x0.5T				
129	BANGALORE COMPLEX	9425608712	PROTECTION FILM 510x150x0.5	96 No's	PROTECTION FILM 510x150x0.5T				
130	BANGALORE COMPLEX	9425608713	PROTECTION FILM 480x100x0.5	96 No's	PROTECTION FILM 480x100x0.5T				
131	BANGALORE COMPLEX	9425608714	PROTECTION FILM 480x40x0.5T	96 No's	PROTECTION FILM 480x40x0.5T				
132	BANGALORE COMPLEX	9425608715	PROTECTION FILM 250x100x0.5	96 No's	PROTECTION FILM 250x100x0.5T				

LIST OF ITEMS FOR DEVELOPMENT UNDER MAKE - II PROCEDURE ANNEXURE-4

Sl.no	Division	Part no	Description	Approximate annual requirement	Brief spec	Photograph	REMARKS	Contact Details
133	BANGALORE COMPLEX	9425608716	PROTECTION FILM 530x40x0.5T	96 No's	PROTECTION FILM 530x40x0.5T			<p>NAME: K C SHASHIKANTH DESIGNATION: GM (R&D), BANGALORE COMPLEX, BEML LTD POST BOX-7501, NEW TIPPASANDRA BANGALORE – 560 075 e - mail: kcs@rd.beml.co.in PH: 080-2502 2786 MOB: 9731397825</p>
134	BANGALORE COMPLEX	9425608717	PROTECTION FILM 150x140x0.5	96 No's	PROTECTION FILM 150x140x0.5T			
135	BANGALORE COMPLEX	9425608718	PROTECTION FILM 300x120x0.5	96 No's	PROTECTION FILM 300x120x0.5T			
136	BANGALORE COMPLEX	9425608719	PROTECTION FILM 130x60x0.5T	96 No's	PROTECTION FILM 130x60x0.5T			
137	BANGALORE COMPLEX	9425608720	PROTECTION FILM 310x40x0.5T	96 No's	PROTECTION FILM 310x40x0.5T			
138	BANGALORE COMPLEX	9425608721	PROTECTION FILM 280x130x0.5	96 No's	PROTECTION FILM 280x130x0.5T			
139	BANGALORE COMPLEX	9425608722	PROTECTION FILM 240x90x0.5T	96 No's	PROTECTION FILM 240x90x0.5T			
140	BANGALORE COMPLEX	9425608723	PROTECTION FILM 210x90x0.5T	96 No's	PROTECTION FILM 210x90x0.5T			
141	BANGALORE COMPLEX	9425608724	PROTECTION FILM 255x25x0.5T	96 No's	PROTECTION FILM 255x25x0.5T			
142	BANGALORE COMPLEX	9425608725	PROTECTION FILM 135x40x0.5T	96 No's	PROTECTION FILM 135x40x0.5T			
143	BANGALORE COMPLEX	9425608731	PROTECTION FILM 220x130x0.5	816 No's	PROTECTION FILM 220x130x0.5T			
144	BANGALORE COMPLEX	9425608732	PROTECTION FILM 260x130x0.5	192 No's	PROTECTION FILM 260x130x0.5T			
145	BANGALORE COMPLEX	9425608733	PROTECTION FILM 520x130x0.5	96 No's	PROTECTION FILM 520x130x0.5T			
146	BANGALORE COMPLEX	9425608734	PROTECTION FILM 550x130x0.5	96 No's	PROTECTION FILM 550x130x0.5T			
147	BANGALORE COMPLEX	9425608737	PROTECTION FILM 300x220x0.5	96 No's	PROTECTION FILM 300x220x0.5T			
148	BANGALORE COMPLEX	9425608739	PROTECTION FILM 270x95x0.5T	96 No's	PROTECTION FILM 270x95x0.5T			
149	BANGALORE COMPLEX	9425608740	PROTECTION FILM 195x190x0.5	96 No's	PROTECTION FILM 195x190x0.5T			
150	BANGALORE COMPLEX	9425608741	PROTECTION FILM 150x80x0.5T	672 No's	PROTECTION FILM 150x80x0.5T			
151	BANGALORE COMPLEX	9425608742	PROTECTION FILM 215x40x0.5T	48 No's	PROTECTION FILM 215x40x0.5T			
152	BANGALORE COMPLEX	9425608743	PROTECTION FILM 180x40x0.5T	528 No's	PROTECTION FILM 180x40x0.5T			
153	BANGALORE COMPLEX	9425608744	PROTECTION FILM 150x120x0.5	192 No's	PROTECTION FILM 150x120x0.5T			
154	BANGALORE COMPLEX	9425608745	PROTECTION FILM 490x80x0.5T	48 No's	PROTECTION FILM 490x80x0.5T			
155	BANGALORE COMPLEX	9425608746	PROTECTION FILM 465x85x0.5T	48 No's	PROTECTION FILM 465x85x0.5T			
156	BANGALORE COMPLEX	9425608747	PROTECTION FILM 260x220x0.5	96 No's	PROTECTION FILM 260x220x0.5T			
157	BANGALORE COMPLEX	9425608748	PROTECTION FILM 260x80x0.5T	48 No's	PROTECTION FILM 260x80x0.5T			
158	BANGALORE COMPLEX	9425608750	PROTECTION FILM 285x80x0.5T	48 No's	PROTECTION FILM 285x80x0.5T			
159	BANGALORE COMPLEX	9425608751	PROTECTION FILM 285x40x0.5T	48 No's	PROTECTION FILM 285x40x0.5T			
160	BANGALORE COMPLEX	9425608752	PROTECTION FILM 210x190x0.5	48 No's	PROTECTION FILM 210x190x0.5T			
161	BANGALORE COMPLEX	9425608753	PROTECTION FILM 15x115x0.5T	576 No's	PROTECTION FILM 15x115x0.5T			
162	BANGALORE COMPLEX	9425608754	PROTECTION FILM 15x250x0.5T	192 No's	PROTECTION FILM 15x250x0.5T			
163	BANGALORE COMPLEX	9425608755	PROTECTION FILM 15x270x0.5T	96 No's	PROTECTION FILM 15x270x0.5T			
164	BANGALORE COMPLEX	9425608756	PROTECTION FILM 15x320x0.5T	96 No's	PROTECTION FILM 15x320x0.5T			
165	BANGALORE COMPLEX	9425608757	PROTECTION FILM 15x390x0.5T	192 No's	PROTECTION FILM 15x390x0.5T			
166	BANGALORE COMPLEX	9425608758	PROTECTION FILM 15x570x0.5T	96 No's	PROTECTION FILM 15x570x0.5T			
167	BANGALORE COMPLEX	9425608759	PROTECTION FILM 20x110x0.5T	96 No's	PROTECTION FILM 20x110x0.5T			


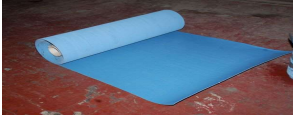

SI No. 118 to 209 " PROTECTION FILM ITEMS" to be developed from same source.

LIST OF ITEMS FOR DEVELOPMENT UNDER MAKE - II PROCEDURE ANNEXURE-4

Sl.no	Division	Part no	Description	Approximate annual requirement	Brief spec	Photograph	REMARKS	Contact Details
168	BANGALORE COMPLEX	9425608760	PROTECTION FILM 20x270x0.5T	96 No's	PROTECTION FILM 20x270x0.5T			
169	BANGALORE COMPLEX	9425608761	PROTECTION FILM 20x440x0.5T	96 No's	PROTECTION FILM 20x440x0.5T			
170	BANGALORE COMPLEX	9425608762	PROTECTION FILM 20x530x0.5T	96 No's	PROTECTION FILM 20x530x0.5T			
171	BANGALORE COMPLEX	9425608763	PROTECTION FILM 45x150x0.5T	96 No's	PROTECTION FILM 45x150x0.5T			
172	BANGALORE COMPLEX	9425608764	PROTECTION FILM 50x430x0.5T	96 No's	PROTECTION FILM 50x430x0.5T			
173	BANGALORE COMPLEX	9425608765	PROTECTION FILM 50x330x0.5T	96 No's	PROTECTION FILM 50x330x0.5T			
174	BANGALORE COMPLEX	9425608766	PROTECTION FILM 55x410x0.5T	192 No's	PROTECTION FILM 55x410x0.5T			
175	BANGALORE COMPLEX	9425608767	PROTECTION FILM 60x60x0.5T	96 No's	PROTECTION FILM 60x60x0.5T			
176	BANGALORE COMPLEX	9425608768	PROTECTION FILM 70x210x0.5T	96 No's	PROTECTION FILM 70x210x0.5T			
177	BANGALORE COMPLEX	9425608769	PROTECTION FILM 75x300x0.5T	96 No's	PROTECTION FILM 75x300x0.5T			
178	BANGALORE COMPLEX	9425608770	PROTECTION FILM 50x80x0.5T	96 No's	PROTECTION FILM 50x80x0.5T			
179	BANGALORE COMPLEX	9425608771	PROTECTION FILM 90x170x0.5T	96 No's	PROTECTION FILM 90x170x0.5T			
180	BANGALORE COMPLEX	9425608772	PROTECTION FILM 95x100x0.5T	288 No's	PROTECTION FILM 95x100x0.5T			
181	BANGALORE COMPLEX	9425608773	PROTECTION FILM 45x250x0.5T	96 No's	PROTECTION FILM 45x250x0.5T			
182	BANGALORE COMPLEX	9425608774	PROTECTION FILM 30x150x0.5T	288 No's	PROTECTION FILM 30x150x0.5T			
183	BANGALORE COMPLEX	9425608775	PROTECTION FILM 20x180x0.5T	48 No's	PROTECTION FILM 20x180x0.5T			
184	BANGALORE COMPLEX	9425608776	PROTECTION FILM 20x220x0.5T	48 No's	PROTECTION FILM 20x220x0.5T			
185	BANGALORE COMPLEX	9425608777	PROTECTION FILM 25x80x0.5T	96 No's	PROTECTION FILM 25x80x0.5T			
186	BANGALORE COMPLEX	9425608778	PROTECTION FILM 25x280x0.5T	48 No's	PROTECTION FILM 25x280x0.5T			
187	BANGALORE COMPLEX	9425608779	PROTECTION FILM 30x70x0.5T	48 No's	PROTECTION FILM 30x70x0.5T			
188	BANGALORE COMPLEX	9425608780	PROTECTION FILM 30x130x0.5T	48 No's	PROTECTION FILM 30x130x0.5T			
189	BANGALORE COMPLEX	9425608781	PROTECTION FILM 30x260x0.5T	48 No's	PROTECTION FILM 30x260x0.5T			
190	BANGALORE COMPLEX	9425608782	PROTECTION FILM 30x495x0.5T	48 No's	PROTECTION FILM 30x495x0.5T			
191	BANGALORE COMPLEX	9425608783	PROTECTION FILM 30x515x0.5T	48 No's	PROTECTION FILM 30x515x0.5T			
192	BANGALORE COMPLEX	9425608784	PROTECTION FILM 60x260x0.5T	48 No's	PROTECTION FILM 60x260x0.5T			
193	BANGALORE COMPLEX	9425608785	PROTECTION FILM 70x130x0.5T	48 No's	PROTECTION FILM 70x130x0.5T			
194	BANGALORE COMPLEX	9425608786	PROTECTION FILM 70x150x0.5T	96 No's	PROTECTION FILM 70x150x0.5T			
195	BANGALORE COMPLEX	9425608787	PROTECTION FILM 70x260x0.5T	48 No's	PROTECTION FILM 70x260x0.5T			
196	BANGALORE COMPLEX	9425608788	PROTECTION FILM 145x220x0.5T	48 No's	PROTECTION FILM 145x220x0.5T			
197	BANGALORE COMPLEX	9425608789	PROTECTION FILM 95x100x0.5T	48 No's	PROTECTION FILM 95x100x0.5T			
198	BANGALORE COMPLEX	9425608790	PROTECTION FILM 30x320x0.5T	48 No's	PROTECTION FILM 30x320x0.5T			
199	BANGALORE COMPLEX	9425608791	PROTECTION FILM 50x150x0.5T	48 No's	PROTECTION FILM 50x150x0.5T			
200	BANGALORE COMPLEX	9425608792	PROTECTION FILM 60x150x0.5T	48 No's	PROTECTION FILM 60x150x0.5T			
201	BANGALORE COMPLEX	9425640127	PROTECTION FILM 0.5T	96 No's	PROTECTION FILM 0.5T TO DWG NO 94256401			
202	BANGALORE COMPLEX	9425640128	PROTECTION FILM 0.5T	96 No's	PROTECTION FILM 0.5T TO DWG NO 94256401			
203	BANGALORE COMPLEX	9425640129	PROTECTION FILM 0.5T	96 No's	PROTECTION FILM 0.5T TO DWG NO 94256401			
204	BANGALORE COMPLEX	9425670022	PROTECTION FILM 0.5T	96 No's	PROTECTION FILM 0.5T TO DWG NO 94256700			
205	BANGALORE COMPLEX	9425670120	PROTECTION FILM 0.5T	48 No's	PROTECTION FILM 0.5T TO DWG NO 94256701			
206	BANGALORE COMPLEX	9425670121	PROTECTION FILM 0.5T	144 No's	PROTECTION FILM 0.5T TO DWG NO 94256701			
207	BANGALORE COMPLEX	9425670122	PROTECTION FILM 0.5T	48 No's	PROTECTION FILM 0.5T TO DWG NO 94256701			
208	BANGALORE COMPLEX	9425670123	PROTECTION FILM 0.5T	48 No's	PROTECTION FILM 0.5T TO DWG NO 94256701			
209	BANGALORE COMPLEX	9425670124	PROTECTION FILM 0.5T	48 No's	PROTECTION FILM 0.5T TO DWG NO 94256701			

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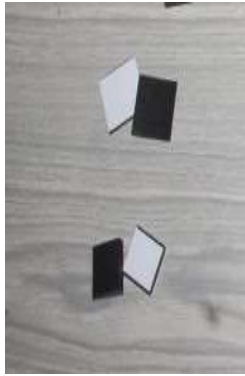
LIST OF ITEMS FOR DEVELOPMENT UNDER MAKE - II PROCEDURE ANNEXURE-4

Sl.no	Division	Part no	Description	Approximate annual requirement	Brief spec	Photograph	REMARKS	Contact Details
233	BANGALORE COMPLEX	94216107	FLOOR BOARD-1	288 No's	FLOOR BOARD - 1 TO DRAWING No. 942-16107 AND CONFORMING TO PTS DOC. No.GR/TD/3428		SI No. 233 to 247 " FLOOR BOARDS" to be developed from same source	NAME: K C SHASHIKANTH DESIGNATION: GM (R&D), BANGALORE COMPLEX, BEML LTD POST BOX-7501, NEW TIPPASANDRA BANGALORE – 560 075 e - mail: kcs@rd.beml.co.in PH: 080-2502 2786 MOB: 9731397825
234	BANGALORE COMPLEX	94216108	FLOOR BOARD-2	392 No's	FLOOR BOARD - 2 TO DRAWING No. 942-16108 AND CONFORMING TO PTS DOC. No.GR/TD/3428			
235	BANGALORE COMPLEX	94216109	FLOOR BOARD-3	48 No's	FLOOR BOARD - 3 TO DRAWING No. 942-16109 AND CONFORMING TO PTS DOC. No.GR/TD/3428			
236	BANGALORE COMPLEX	94216110	FLOOR BOARD-4	48 No's	FLOOR BOARD - 4 TO DRAWING No. 942-16110 AND CONFORMING TO PTS DOC. No.GR/TD/3428			
237	BANGALORE COMPLEX	94216111	FLOOR BOARD-5	288 No's	FLOOR BOARD - 5 TO DRAWING No. 942-16111 AND CONFORMING TO PTS DOC. No.GR/TD/3428			
238	BANGALORE COMPLEX	94216112	FLOOR BOARD-6	144 No's	FLOOR BOARD - 6 TO DRAWING No. 942-16112 AND CONFORMING TO PTS DOC. No.GR/TD/3428			
239	BANGALORE COMPLEX	94216113	FLOOR BOARD-7	144 No's	FLOOR BOARD - 7 TO DRAWING No. 942-16113 AND CONFORMING TO PTS DOC. No.GR/TD/3428			
240	BANGALORE COMPLEX	94216114	FLOOR BOARD-8	144 No's	FLOOR BOARD - 8 TO DRAWING No. 942-16114 AND CONFORMING TO PTS DOC. No.GR/TD/3428			
241	BANGALORE COMPLEX	94216115	FLOOR BOARD-9	288 No's	FLOOR BOARD - 9 TO DRAWING No. 942-16115 AND CONFORMING TO PTS DOC. No.GR/TD/3428			
242	BANGALORE COMPLEX	94216116	FLOOR BOARD-10	48 No's	FLOOR BOARD - 10 TO DRAWING No. 942-16116 AND CONFORMING TO PTS DOC. No. GR/TD/3428			
243	BANGALORE COMPLEX	94216117	FLOOR BOARD-11	288 No's	FLOOR BOARD - 11 TO DRAWING No. 942-16117 AND CONFORMING TO PTS DOC. No. GR/TD/3428			
244	BANGALORE COMPLEX	94216118	FLOOR BOARD-12	48 No's	FLOOR BOARD - 12 TO DRAWING No. 942-16118 AND CONFORMING TO PTS DOC. No.GR/TD/3428			
245	BANGALORE COMPLEX	94216119	FLOOR BOARD-12	96 No's	FLOOR BOARD - 13 TO DRAWING No. 942-16119 AND CONFORMING TO PTS DOC. No.GR/TD/3428			
246	BANGALORE COMPLEX	94216120	FLOOR BOARD-14	96 No's	FLOOR BOARD - 14 TO DRAWING No. 942-16120 AND CONFORMING TO PTS DOC. No.GR/TD/3428			
247	BANGALORE COMPLEX	94216121	FLOOR BOARD-15	48 No's	FLOOR BOARD - 15 TO DRAWING No. 942-16121 AND CONFORMING TO PTS DOC. No.GR/TD/3428			
248	BANGALORE COMPLEX	94216139	Floor Covering Wheelchair	48 No's	FLOOR COVERING WHEELCHAIR TO DRAWING No. 942-16139.		SI No. 248 to 250 " FLOOR COVERING ITEMS" to be developed from same source	
249	BANGALORE COMPLEX	R307495003	Floor covering-2.5mmthk X 2metre width X 21metre Roll	288 No's	FLOOR COVERING-2.5mm THK x 2m WIDTH x 21m ROLL, TRAVELLER CLASSIC R15 PALLADIUM 8805 AND CONFIRMING TO PTS DOC. No. GR/TD/3531.			
250	BANGALORE COMPLEX	R607917100	Floor Covering Joint Welding Rod	3456 No's	FLOOR COVERING JOINT WELDING ROD - Ø5mm x 100m ROLL, WELDING ROD CR 50 & COLOUR MATCHING WITH THE FLOOR COVERING COLOUR PALLADIUM 8805.			
251	BANGALORE COMPLEX	942161031	FLOOR PACKING1-THK2MM x W38MM x L1480MM	1440 No's	FLOOR PACKING-1 TO DRAWING No. 942-16103 AND CONFORMING TO PTS DOC. NO. GR/TD/1766			
252	BANGALORE COMPLEX	942161032	FLOOR PACKING2-THK2MM x W61MM x L1648MM	1440 No's	FLOOR PACKING-2 TO DRAWING No. 942-16103 AND CONFORMING TO PTS DOC. NO. GR/TD/1766			
253	BANGALORE COMPLEX	942161033	FLOOR PACKING3-THK2MM x W40MM x L500MM	5760 No's	FLOOR PACKING-3 TO DRAWING No. 942-16103 AND CONFORMING TO PTS DOC. NO. GR/TD/1766			
254	BANGALORE COMPLEX	942161034	FLOOR PACKING4-THK1MM x W35MM x L1420MM	6912 No's	FLOOR PACKING-4 TO DRAWING No. 942-16103 AND CONFORMING TO PT S DOC. NO. GR/TD/1766			
255	BANGALORE COMPLEX	942161035	FLOOR PACKING5-THK3MM x W20MM x L40MM	41472 No's	FLOOR PACKING-5 TO DRAWING No. 942-16103 AND CONFORMING TO PTS DOC. NO.GR/TD/1766			
256	BANGALORE COMPLEX	942161036	FLOOR PACKING6-THK2MM x W40MM x L40MM	48384 No's	FLOOR PACKING-6 TO DRAWING No. 942-16103 AND CONFORMING TO PTS DOC. NO.GR/TD/1766			

LIST OF ITEMS FOR DEVELOPMENT UNDER MAKE - II PROCEDURE ANNEXURE-4

Sl.no	Division	Part no	Description	Approximate annual requirement	Brief spec	Photograph	REMARKS	Contact Details
257	BANGALORE COMPLEX	90960306	GUIDE PACKING (18A)	3456 No's	GUIDE PACKING 18A TO DWG NO. 90960306	 		<p>NAME: K C SHASHIKANTH DESIGNATION: GM (R&D), BANGALORE COMPLEX, BEML LTD POST BOX-7501, NEW TIPPASANDRA BANGALORE – 560 075 e - mail: kcs@rd.beml.co.in PH: 080-2502 2786 MOB: 9731397825</p>
258	BANGALORE COMPLEX	94260142	GUIDE PACKING (10Ax10A)	576 No's	GUIDE PACKING (10Ax10A) TO DWG NO 94260142			
259	BANGALORE COMPLEX	94260304	PACKING RUBBER-EPDM	14976 No's	PACKING RUBBER TO DRWG NO : 94260304			
260	BANGALORE COMPLEX	94260305	PACKING RUBBER-EPDM	13824 No's	PACKING RUBBER TO DRWG NO : 94260305			
261	BANGALORE COMPLEX	90956582	PACKING	864 No's	PACKING TO DRG NO,909 56582			
262	BANGALORE COMPLEX	94250126	PACKING	2901 No's	PACKING TO DRG No. 94250126			
263	BANGALORE COMPLEX	94250129	PACKING-ETU	6994 No's	PACKING-ETU TO DRG No. 94250129			
264	BANGALORE COMPLEX	94250130	PACKING-PIB	10491 No's	PACKING-PIB TO DRG No. 94250130			
265	BANGALORE COMPLEX	94250131	PACKING-SOCKET	2901 No's	PACKING-SOCKET TO DRG No. 94250131			
266	BANGALORE COMPLEX	94256150	PACKING	3480 mtrs	PACKING TO DRG No. 94256150			
267	BANGALORE COMPLEX	94256173	PACKING T2, W 30mm, L 1000mm	9860 mtrs	PACKING T2, W 30mm, L 1000mm TO DRG NO. 94256173			
268	BANGALORE COMPLEX	94256174	PACKING T2, W 50mm, L 1000mm	797.5 mtrs	PACKING T2, W 50mm, L 1000mm TO DRG NO. 94256174			
269	BANGALORE COMPLEX	94256175	PACKING T2, W 60mm, L 1000mm	217.5 mtrs	PACKING T2, W 60mm, L 1000mm TO DRG NO. 94256175			
270	BANGALORE COMPLEX	94256176	PACKING T2, W 80mm, L 1000mm	568145 mtrs	PACKING T2, W 80mm, L 1000mm TO DRG NO. 94256176			
271	BANGALORE COMPLEX	94256177	PACKING T4, W 30mm, L 1000mm	268145 mtrs	PACKING T4, W 30mm, L 1000mm TO DRG NO. 94256177			
272	BANGALORE COMPLEX	94256178	PACKING T4, W 60mm, L 1000mm	72.5 mtrs	PACKING T4, W 60mm, L 1000mm TO DRG NO. 94256178			
273	BANGALORE COMPLEX	94256179	PACKING T4, W 80mm, L 1000mm	9280 mtrs	PACKING T4, W 80mm, L 1000mm TO DRG NO. 94256179			
274	BANGALORE COMPLEX	94256180	PACKING T5, W 30mm, L 1000mm	2030 mtrs	PACKING T5, W 30mm, L 1000mm TO DRG NO. 94256180			
275	BANGALORE COMPLEX	94256181	PACKING T5, W 60mm, L 1000mm	73 mtrs	PACKING T5, W 60mm, L 1000mm TO DRG NO. 94256181			

LIST OF ITEMS FOR DEVELOPMENT UNDER MAKE - II PROCEDURE ANNEXURE-4


Sl.no	Division	Part no	Description	Approximate annual requirement	Brief spec	Photograph	REMARKS	Contact Details
276	BANGALORE COMPLEX	94256182	PACKING T1, W 80mm, L 1000mm	1740 Mtrs	PACKING T1, W 80mm, L 1000mm TO DRG NO. 94256182	 	<p>SI No. 251 to 333 " FLOOR PACKING, PACKING RUBBER , RUBBER SEAL, GUIDE PACKING & PACKING ITEMS" to be developed from same source</p>	<p>NAME: K C SHASHIKANTH DESIGNATION: GM (R&D), BANGALORE COMPLEX, BEML LTD POST BOX-7501, NEW TIPPASANDRA BANGALORE – 560 075 e - mail: kcs@rd.beml.co.in PH: 080-2502 2786 MOB: 9731397825</p>
277	BANGALORE COMPLEX	94219316	PACKING EPDM 3MM THKx30MMx2000MM	13989 No's	PACKING EPDM 3MM THKx30MMx2000MM TO DRAWING NO 94219316			
278	BANGALORE COMPLEX	94219317	PACKING EPDM 2MM THKx30MMx2000MM	13989 No's	PACKING EPDM 2MM THKx30MMx2000MM TO DRAWING NO 94219317			
279	BANGALORE COMPLEX	94219319	PACKING EPDM 5MM THKx40MMx50MM	13094 No's	PACKING EPDM 5MM THKx40MMx50MM TO DRAWING NO 94219319			
280	BANGALORE COMPLEX	94219365	PAD PACKING EPDM 16MM THKx15MMx80MM	30240 No's	PAD, PACKING TO DRAWING NO 94219365			
281	BANGALORE COMPLEX	94219368	PAD PACKING SILICON 1MM THKx30MMx36MM	37872 No's	PAD, PACKING TO DRAWING NO 94219368			
282	BANGALORE COMPLEX	9421931801	PACKING SILICON 5MM THKx30MMx60MM	48322 No's	PACKING SILICON 5MM THK TO DRAWING NO 9421931801			
283	BANGALORE COMPLEX	9421931802	PACKING SILICON 3MM THKx30MMx60MM	61179 No's	PACKING SILICON 3MM THK TO DRAWING NO 9421931802			
284	BANGALORE COMPLEX	9421932501	PACKING SILICON 3MM THKx30MMx100MM	8702 No's	PACKING SILICON 3MM THKx30MMx100MM TO DRAWING NO 9421932501			
285	BANGALORE COMPLEX	9421932502	PACKING SILICON 3MM THKx30MMx90MM	8702 No's	PACKING SILICON 3MM THKx30MMx90MM TO DRAWING NO 9421932502			
286	BANGALORE COMPLEX	9421932503	PACKING SILICON 3MM THKx30MMx140MM	11602 No's	PACKING SILICON 3MM THKx30MMx140MM TO DRAWING NO 9421932503			
287	BANGALORE COMPLEX	9421932504	PACKING SILICON 3MM THKx30MMx80MM	2901 No's	PACKING SILICON 3MM THKx30MMx80MM TO DRAWING NO 9421932504			
288	BANGALORE COMPLEX	9421932505	PACKING SILICON 3MM THKx25MMx80MM	2901 No's	PACKING SILICON 3MM THKx25MMx80MM TO DRAWING NO 9421932505			
289	BANGALORE COMPLEX	9421932506	PACKING SILICON 3MM THKx30MMx190MM	5801 No's	PACKING SILICON 3MM THKx30MMx190MM TO DRAWING NO 9421932506			
290	BANGALORE COMPLEX	9421932507	PACKING SILICON 3MM THKx30MMx40MM	2901 No's	PACKING SILICON 3MM THKx30MMx40MM TO DRAWING NO 9421932507			
291	BANGALORE COMPLEX	9421932508	PACKING SILICON 3MM THKx30MMx40MM	8702 No's	PACKING SILICON 3MM THKx30MMx40MM TO DRAWING NO 9421932508			
292	BANGALORE COMPLEX	9421932509	PACKING SILICON 2MM THKx30MMx40MM	2901 No's	PACKING SILICON 2MM THKx30MMx40MM TO DRAWING NO 9421932509			
293	BANGALORE COMPLEX	9421932510	PACKING SILICON 3MM THKx30MMx20MM	5801 No's	PACKING SILICON 3MM THKx30MMx20MM TO DRAWING NO 9421932510			

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Sl.no	Division	Part no	Description	Approximate annual requirement	Brief spec	Photograph	REMARKS	Contact Details
294	BANGALORE COMPLEX	94214102	RUBBER STOP	298 No's	RUBBER, STOP TO LATEST DRG NO. 94214102			
295	BANGALORE COMPLEX	94214105	STOPPER RUBBER	1193 No's	STOPPER, RUBBER TO LATEST DRG NO. 94214105			
296	BANGALORE COMPLEX	94218110	RUBBER PROFILE WEATHER STRIP L6200MM	298 No's	RUBBER PROFILE WEATHER STRIP TO DRAWING NO 94218110			
297	BANGALORE COMPLEX	942231071	SEAT RUBBER PROFILE-A	16293 No's	SEAT RUBBER PROFILE-A TO DRAWING NO. 942-23107-1			
298	BANGALORE COMPLEX	942231072	SEAT RUBBER PROFILE-A	13392 No's	SEAT RUBBER PROFILE-A TO DRAWING NO. 942-23107-2			
299	BANGALORE COMPLEX	942231073	SEAT RUBBER PROFILE-A	6398 No's	SEAT RUBBER PROFILE-A TO DRAWING NO. 942-23107-3			
300	BANGALORE COMPLEX	942231191	SEAT RUBBER PROFILE-C	4947 No's	SEAT RUBBER PROFILE-C TO DRAWING NO. 942-23119-1			
301	BANGALORE COMPLEX	942231192	SEAT RUBBER PROFILE-C	2901 No's	SEAT RUBBER PROFILE-C TO DRAWING NO. 942-23119-2			
302	BANGALORE COMPLEX	942231193	SEAT RUBBER PROFILE-C	298 No's	SEAT RUBBER PROFILE-C TO DRAWING NO. 942-23119-3			
303	BANGALORE COMPLEX	9421935607	RUBBER SEAL PROFILE 7	298 No's	RUBBER, SEAL, PROFILE TO DRAWING NO 9421935607			
304	BANGALORE COMPLEX	9421935608	RUBBER SEAL PROFILE 8	298 No's	RUBBER, SEAL, PROFILE TO DRAWING NO 9421935608			
305	BANGALORE COMPLEX	9421935609	RUBBER SEAL PROFILE 9	298 No's	RUBBER, SEAL, PROFILE TO DRAWING NO 9421935609			
306	BANGALORE COMPLEX	9421935610	RUBBER SEAL PROFILE 10	298 No's	RUBBER, SEAL, PROFILE TO DRAWING NO 9421935610			
307	BANGALORE COMPLEX	9422214201	RUBBER SEAL	298 No's	RUBBER SEAL TO LATEST DRAWING 9422214201			
308	BANGALORE COMPLEX	9422214202	RUBBER SEAL	3795 No's	RUBBER SEAL TO LATEST DRAWING 9422214202			
309	BANGALORE COMPLEX	9422214203	RUBBER SEAL	298 No's	RUBBER SEAL TO LATEST DRAWING 9422214203			
310	BANGALORE COMPLEX	9422214204	RUBBER SEAL	298 No's	RUBBER SEAL TO LATEST DRAWING 9422214204			
311	BANGALORE COMPLEX	9422214205	RUBBER SEAL	1749 No's	RUBBER SEAL TO LATEST DRAWING 9422214205			
312	BANGALORE COMPLEX	9422214206	RUBBER SEAL	298 No's	RUBBER SEAL TO LATEST DRAWING 9422214206			
313	BANGALORE COMPLEX	9422214207	RUBBER SEAL	1450 No's	RUBBER SEAL TO LATEST DRAWING 9422214207			
314	BANGALORE COMPLEX	9422214208	RUBBER SEAL	1450 No's	RUBBER SEAL TO LATEST DRAWING 9422214208			
315	BANGALORE COMPLEX	9422214209	RUBBER SEAL	576 No's	RUBBER SEAL TO LATEST DRAWING 9422214209			
316	BANGALORE COMPLEX	9422214211	RUBBER SEAL	298 No's	RUBBER SEAL TO LATEST DRAWING 9422214211			
317	BANGALORE COMPLEX	9422214212	RUBBER SEAL	298 No's	RUBBER SEAL TO LATEST DRAWING 9422214212			
318	BANGALORE COMPLEX	9422214213	RUBBER SEAL	3497 No's	RUBBER SEAL TO LATEST DRAWING 9422214213			
319	BANGALORE COMPLEX	94256149	PROTECTIVE RUBBER	3480 Mtrs	RUBBER PROTECTIVE TO DRG No. 94256149			
320	BANGALORE COMPLEX	94219320	RUBBER PROFILE-C SILICON L=90MM	26229 No's	RUBBER, PROFILE-C SILICON L=90MM TO DRAWING NO 94219320			
321	BANGALORE COMPLEX	9421935601	RUBBER SEAL PROFILE 1	1450 No's	RUBBER, SEAL, PROFILE TO DRAWING NO 9421935601			
322	BANGALORE COMPLEX	9421935602	RUBBER SEAL PROFILE 2	1450 No's	RUBBER, SEAL, PROFILE TO DRAWING NO 9421935602			
323	BANGALORE COMPLEX	9421935603	RUBBER SEAL PROFILE 3	1450 No's	RUBBER, SEAL, PROFILE TO DRAWING NO 9421935603			
324	BANGALORE COMPLEX	9421935604	RUBBER SEAL PROFILE 4	1450 No's	RUBBER, SEAL, PROFILE TO DRAWING NO 9421935604			
325	BANGALORE COMPLEX	9421935605	RUBBER SEAL PROFILE 5	1749 No's	RUBBER, SEAL, PROFILE TO DRAWING NO 9421935605			
326	BANGALORE COMPLEX	9421935606	RUBBER SEAL PROFILE 6	1749 No's	RUBBER, SEAL, PROFILE TO DRAWING NO 9421935606			
327	BANGALORE COMPLEX	9422214210	RUBBER SEAL	1749 No's	RUBBER, SEAL TO DRAWING NO 9422214210			
328	BANGALORE COMPLEX	94223109	SEAT PACKING	3199 No's	SEAT PACKING-2 TO DRAWING NO. 942-23109			
329	BANGALORE COMPLEX	94229155	PACKING, STOPPER	13094 No's	PACKING STOPPER TO DRAWING No. 942-29155 AND CONFORM			

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Sl.no	Division	Part no	Description	Approximate annual requirement	Brief spec	Photograph	REMARKS	Contact Details
330	BANGALORE COMPLEX	94260143	GUIDE PACKING (10AX10AX10A)	144 No's	GIUDE PACKING (10Ax10Ax10Ax10A) TO DWG NO 94260143			
331	BANGALORE COMPLEX	94260144	GUIDE PACKING (10AX10AX22A)	144 No's	GIUDE PACKING (10Ax10Ax22A) TO DWG NO 94260144			
332	BANGALORE COMPLEX	94260145	GUIDE PACKING (18AX10AX22A)	144 No's	GIUDE PACKING (18Ax10Ax22A) TO DWG NO 94260145			
333	BANGALORE COMPLEX	94260146	GUIDE PACKING (10AX22AX22A)	144 No's	GIUDE PACKING (10Ax22Ax22A) TO DWG NO 94260146			
334	BANGALORE COMPLEX	94218010	CAB MASK ASSEMBLY	48 No's	CAB MASK ASSY TO LATEST DRG NO 94218010.		TO BE DEVELOPED FROM "INTERIOR PANEL" SUPPLIER ALONG WITH PANELS	