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No. SD.Text.5 (PART)

Date: 23.01.2019

CME/DMW/PTA,
CDE/DLW/BSB,
CMPE/Diesel- All Zonal Railways.

Sub: Recommended Lubricants, Coolants and Cleaning Compounds for diesel locomotives.

Ref: Railway Board's D.O. No. 93/RS (POL)/58/Policy dated 05.11.1993.

APPROVED COOLANT for HHP diesel locomotives at Page no 9 of the MP.MI -15 has been revised.

A copy of the revised page of the MP.MI -15 (Revision -12) (January -2019) is enclosed herewith. The revised MP.MI -15 (Revision -12) (January -2019) has been emailed to PUs, Zonal railway HQs and diesel sheds.

Revised Maintenance instruction MP.MI -15 (Revision -12) (January -2019) may also be accessed / downloaded from RDSO website using following path:

<http://www.rdsolndianrailways.gov.in> → Vendor interface → vendor registration guidelines → Motive Power → SN-9

(Abhijit Singh)

Director Standards /Engine/MP
for EDSMP RDSO/Lucknow

Copy to:

1. Principal Chief Material Manager – All Zonal Railways
2. CWM –CB, GOC, KGP, All, JMP, & Parel
3. Director Rly (Store), Rly Bd.
4. DME/Tr/Rly Bd., Rail Bhawan, New Delhi-110 001

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भारत सरकार
रेल मंत्रालय

GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS

डीज़ल रेल इंजनों हेतु संस्तुत लुब्रीकेंट्स, कूलेंट्स
तथा क्लीनिंग कंपाउंड्स

**Recommended Lubricants, Coolants and Cleaning Compounds
for Diesel Locomotives**

अनुरक्षण निर्देश स०: एमपी.एमआई-15
Maintenance Instruction No. MP.MI - 15

(संशोधन-12)
(Revision-12)

(जनवरी – 2019)
(January- 2019)

एमपी.एमआई-15 (संशोधन-11 (जुलाई – 2018) के अधिक्रमण में,
[(Supersedes MP.MI -15 (Rev-11) (July - 2018)]

अनुसंधान अभिकल्प और मानक संगठन
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RESEARCH DESIGNS AND STANDARDS ORGANISATION
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PREFACE

Motive Power Directorate of RDSO has been issuing maintenance instruction (MI) on approved lubricating oils, Greases, Coolants and cleaning compounds for use on various applications on ALCo & HHP diesel locomotives in line with Railway Board's D.O. No. 93/ RS (POL)/58/Policy, Dated 05.11.1993.

List of recommended lubricants, Coolants and Cleaning compounds for various applications on diesel locomotives was last issued in the year July – 2018 vide MI No. MP.MI – 15 (Rev.-11), July – 2018. This revision 12 of MP.MI – 15 supersedes the earlier revision i.e. MI No. MP.MI - 15 (Rev.-11), July - 2018

The following important change has been made in this document:

Common boron free coolant for ALCo and HHP locomotives by changing approved coolants at Page 9 of MP MI – 15 as below.

From

SN	Firm	Product Name
1	M/s NALCO	NALCO 2100
2	M/s Oriental Chemicals	ISC 7537

To

SN	Firm	Product Name
1	M/s HPCL,MUMBAI	HP POWER KOOL RR

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LIST OF APPROVED LUBRICANTS AND COOLANTS FOR ALCo, DLW DIESEL-ELECTRIC LOCOMOTIVES

**WDM₂, WDM_{3A}, WDM_{3B}, WDM_{3C}, WDM_{3D}, WDG_{3A},
WDP₁, WDP_{3A}, WDS_{6Adt}, WDS₆, YDM₄&YDM_{4A}& for NRC and Export locos.**

APPROVED LUBRICANTS

S. No	Application	OIL COMPANY						Others
		IOC	HPC	BPC	BL	EXXON MOBIL	SHELL	
1	DIESEL ENGINE CRANK CASE OIL	Servo RR 606 MG PLUS II	HP RR 813 M	MAK RR 513 M	Balmerol RR 513 M	Mobil RR Super 2413	-	-
2	EXPRESSOR/COMPRESSOR CRANK CASE OIL	Servo Press 150 RR	Hycom 150 P	MAK Compressor Oil-150	-	-	-	-
<u>AIR FILTRATION SYSTEM</u>								
3	3.1 OIL BATH AIR INTAKE FILTER	-	-	-	-	-	-	Re-Refined Engine Oil
	3.2 IMPINGEMENT TYPE CAR BODY FILTER	Servoneum 181	Numatic 220	MAK Metamol R-181	-	-	-	-
<u>ELECTRICAL MACHINES</u>								
4	4.1 TA / TG, GEAR CASE (WDM ₂ , WDM _{3A} , WDM _{3B} , WDM _{3C} , WDM _{3D})	Servo RR 606 MG PLUS (II)	HP RR 813 M	MAK RR 513 M	Balmerol RR 513 M	Mobil RR Super 2413	-	-
	4.2 TG BEARING OF GE/BHEL MAKE (WDM ₆ , WDS ₆ , YDM ₄ & YDM _{4A})	-	-	-	-	-	Shell Gadus Rail S2 Traction Motor Bearing Grease	-
	4.3 TRACTION MOTOR SUSPENSION BEARING (BUSH/PLAIN TYPE)	Servo Prime 76	Turbinol 77	MAK Turbol 78	BalmerolProtom ac T-76	-	-	-
	4.4 TRACTION MOTOR ROLLER SUSPENSION BEARING (TUBE)	-	Lithon 3	-	-	-	Shell Gadus S2 V 100 3 grease	-
	4.5 TRACTION MOTOR GEAR CASE (Plain suspension bearing type)	Servo Coat 170 T	-	MAK Camex Compound G	1) Bluecoat 3 2) Balmerol Prototraccube	-	-	-
	4.6 TRACTION MOTOR GEAR CASE (Roller suspension bearing type)	-	-	-	Balmerol prototraccube	-	-	-

LIST OF APPROVED LUBRICANTS AND COOLANTS FOR ALCo, DLW DIESEL-ELECTRIC LOCOMOTIVES

**WDM₂, WDM_{3A}, WDM_{3B}, WDM_{3C}, WDM_{3D}, WDG_{3A},
WDP₁, WDP_{3A}, WDS_{6Adt}, WDS₆, YDM₄ & YDM_{4A} & for NRC and Export locos.**

APPROVED LUBRICANTS

S. No	Application		OIL COMPANY					Others	
			IOC	HPC	BPC	BL	EXXON MOBIL		SHELL
4	4.7	TRACTION MOTOR ARMATURE SEALED BEARING (GE/BHEL MAKE)	Servo Plex TM3	-	-	Balmerol Multigrease TM 3	-	Shell Gadus Rail S2 Traction Motor Bearing Grease	-
	4.8	TRACTION MOTOR ARMATURE NON SEALED BEARING (BHEL MAKE)	Servo Gem RR3	-	MAK RR Grease 3	Balmerol Multigrease LL3	-	-	-
	4.9	<u>AUXILIARY ELECTRICAL MACHINES</u> BEARINGS OF AUXILIARY GENERATOR, EXCITER, TRACTION MOTOR BLOWER, CRANK CASE EXHAUSTER, FUEL BOOSTER PUMP MOTOR & AXLE GENERATOR	Servo Gem RR3	-	MAK RR Grease 3	Balmerol Multigrease LL3	-	-	-
5	<u>OTHER ELECTRICAL EQUIPMENTS</u>								
	5.1	ELECTRICAL CONTROL EQUIPMENT, REVERSAL AIR CYLINDER, BRAKING SWITCHCAM ROLLER, ELECTRO-PNEUMATIC EQUIPMENT PISTON PACKING	Servo Prime 76	Turbinol 77	MAK Turbol 78	Balmerol Protomac T-76	-	-	-
	5.2	ELECTRICAL CONTROL EQUIPMENT, GEAR SEGMENT & CAMS, BRAKING RESISTANCE BLOWER MOTOR BEARING	Servo Gem RR3	Lithon 3	MAK RR Grease 3	Balmerol Multigrease LL3	-	-	-
	5.3	RADIATOR FAN GEAR UNIT	-	-	-	-	-	-	Re-Refined Engine Oil

LIST OF APPROVED LUBRICANTS AND COOLANTS FOR ALCo, DLW DIESEL-ELECTRIC LOCOMOTIVES

**WDM₂, WDM_{3A}, WDM_{3B}, WDM_{3C}, WDM_{3D}, WDG_{3A},
WDP₁, WDP_{3A}, WDS_{6Adt}, WDS₆, YDM₄& YDM_{4A} & for NRC and Export locos.**

APPROVED LUBRICANTS

S. No	Application	Oil Company						Others	
		IOC	HPC	BPC	BL	Exxon Mobil	Shell		
<u>GOVERNOR</u>									
6	6.1	GOVERNOR (WOODWARD, GE, EDC)	Servo Prime 76	Turbinol 77	MAK Turbol 78	Balmerol Protomac T-76	-	-	-
	6.2	GOVERNOR LINKAGE					-	-	-
	6.3	GOVERNOR, MICRO CONTROLLER BASED (MCBG) ACTUATOR					-	-	-
	6.4	GOVERNOR NEEDLE BEARING (GE ONLY)	Servo Gem RR3	-	MAK RR Grease 3	Balmerol Multigrease LL3	-	-	-
<u>BOGIE</u>									
7	7.1	AXLE BOX CYLINDRICAL ROLLER BEARING	Servo Gem RR3	Lithon RR 3	MAK RR Grease 3	Balmerol Multigrease LL3	-	-	-
	7.2	AXLE BOX CYLINDRICAL ROLLER UNIT (WDM3A, wdg3aWDM3D)	-	-	-	-	-	Shell Gadus S5 V42P 2.5 grease	-
	7.3	CENTRAL PLATE & LOADING PAD	Servo Prime 76	Turbinol 77	MAK Turbol 78	Balmerol Protomac T-76	-	-	-
<u>BRAKE ITEMS</u>									
8	8.1	BRAKE CYLINDER BUCKET, PISTON PACKING & 'O' RING	Servo Gem RR3	-	MAK RR Grease 3	Balmerol Multigrease LL3	-	-	-
	8.2	SPOOL VALVES & BUSH FOR VA-1-B CONTROL VALVE & RUBBER BONDED CHECK VALVE	-	-	-	-	-	-	Graphited powder
	8.3	METALLIC BRAKE VALVE, PISTON RING & BUSHES, FELT SEALING OF BRAKE CYLINDERS HOLLOW PISTON ROD	Servo Prime 76	Turbinol 77	MAK Turbol 78	Balmerol Protomac T-76	-	-	-

LIST OF APPROVED LUBRICANTS AND COOLANTS FOR ALCo, DLW DIESEL-ELECTRIC LOCOMOTIVES

**WDM₂, WDM_{3A}, WDM_{3B}, WDM_{3C}, WDM_{3D}, WDG_{3A},
WDP₁, WDP_{3A}, WDS_{6Adt}, WDS₆, YDM₄ & YDM_{4A} & for NRC and Export locos.**

APPROVED LUBRICANTS

S. No	Application	Oil Company						Others	
		IOC	HPC	BPC	BL	Exxon Mobil	Shell		
8	<u>BRAKE ITEMS</u>								
	8.4	CAM & CAM DOG SURFACES	-	-	-	-	-	-	Graphited Grease
	8.5	BRAKE EQUIPMENT RUBBER COMPONENTS	-	-	-	-	-	-	Molykote 55 Silicon Grease
9	<u>OTHER ITEMS</u>								
	9.1	FIP RACK	Servo Prime 76	Turbinol 77	MAK Turbol 78	Balmerol Protomac T-76	-	-	-
	9.2	FIP CALIBRATING OIL	Servo Calib 5	-	-	-	-	-	-
	9.3	RADIATOR FAN DRIVE SPLINE AND UNIVERSAL COUPLING, BRAKE SLACK ADJUSTER	Servo Gem RR3	-	MAK RR Grease 3	Balmerol Multigrease LL3	-	-	-
	9.4	COUPLING BETWEEN ENGINE & EXPRESSOR / COMPRESSOR	Servo Coat 170 T	-	MAK Camex Compound G	Bluecoat 3	-	-	-

APPROVED COOLANT

S. NO.	Firm	Product Name
1	M/s HPCL, MUMBAI	HP POWER KOOL RR

LIST OF APPROVED LUBRICANTS SPECIFIC TO WDM_{3F} LOCOS ONLY

APPROVED LUBRICANTS

S. No	Application	OIL COMPANY						Others
		IOC	HPC	BPC	BL	EXXON MOBIL	SHELL	
1	TRACTION MOTOR ARMATURE BEARING PINION AND COMMUTATOR END (5GE752AH36)	Servo Plex TM3	-	-	Balmerol Multigrease TM3	-	Shell Gadus Rail S2 Traction Motor Bearing Grease	-
2	GEAR CASE	-	-	-	-	Mobil SHC 3200 TM	-	-
3	ROLLER SUSPENSION BEARING (U TUBE BEARING PINION AND COMMUTATOR END)	-	-	-	-	Mobilith SHC 460	-	Chevron Utiptex Synthetic EP of M/s Chevron Global Lubricants
4	ALTERNATOR 5GTA24C1 ROLLER BEARING	Servo RR 606 MG PLUS (II)	HP RR 813 M	MAK RR 513 M	Balmerol RR 513 M	Mobil RR Super 2413	-	-
5	EXCITER 5GY27M2 COMMUTATOR END BEARING	Servo Plex TM3	-	-	Balmerol Multigrease TM 3	-	Shell Gadus Rail S2 Traction Motor Bearing Grease	-
6	AUXILIARY GENERATOR 5GY27L2 COMMUTATOR END BEARING	Servo Plex TM3	-	-	Balmerol Multigrease TM 3	-	Shell Gadus Rail S2 Traction Motor Bearing Grease	-

LIST OF APPROVED LUBRICANTS AND COOLANTS FOR DIESEL-HYDRAULIC LOCOMOTIVES

WDS_{4B}, WDS_{4D}, YDM₂, ZDM₃, ZDM_{3A}, ZDM₄ & ZDM_{4A}

APPROVED LUBRICANTS

S. No	Application	Oil Company						Others
		IOC	HPC	BPC	BL	Exxon Mobil	Shell	
1	DIESEL ENGINE CRANK CASE OIL	Servo RR 606 MG PLUS II	HP RR 813 M	MAK RR 513 M	Balmerol RR 513 M	Mobil RR Super 2413	-	-
2	TURBO SUPER CHARGER	Servo System 100	-	-	-	-	-	-
<u>AIR COMPRESSOR CRANK CASE OIL</u>								
3	3.1 AIR COMPRESSOR (KNORR BREMSE)	Servo Press 150 RR	Hycom 150 P	MAK Compressor Oil - 150	-	-	-	-
	3.2 AIR COMPRESSOR (KPC-2EC 38)	Servo System 81	-	-	-	-	-	-
	3.3 AIR COMPRESSOR (ELGI-TRC 1000)	Servo Press 150 RR	Hycom 150 P	MAK Compressor Oil - 150	-	-	-	-
<u>VACUUM EXHAUSTER</u>								
4	4.1 VACUUM EXHAUSTER (KORTING)	Servo Press 150 RR	Hycom 150 P	MAK Compressor Oil - 150	-	-	-	-
	4.2 VACUUM EXHAUSTER (SLM-VL-30)				-	-	-	-
5	HYDRAULIC TRANSMISSION OIL	Servo Torque 10	-	-	-	-	-	-
6	HYDRAULIC FAN DRIVE BEHR (PUMP & MOTOR)	Servo Prime 76	Turbinol 77	MAK Turbol 78	Balmerol Protomac T-76	-	-	-
7	REVERSING / INTERMEDIATE GEAR BOX (WDS _{4B} & WDS _{4D})	Servo Gear HP 90	HP Gear Oil EP 90	MAK Spirol 90 EP	-	-	-	-
8	AXLE DRIVE (YDM ₂ , ZDM ₃ , ZDM _{3A} , ZDM ₄ & ZDM _{4A})				-	-	-	-
9	CARDEN SHAFT	Servo Grease Molex	Lithon M2	-	-	-	-	-
10	AXLE ROLLER BEARING AND OTHER GENERAL APPLICATION	Servo Gem RR3	-	MAK RR Grease 3	Balmerol Multigrease LL3	-	-	-

LIST OF APPROVED LUBRICANTS AND COOLANTS FOR DIESEL-HYDRAULIC LOCOMOTIVES

WDS_{4B}, WDS_{4D}, YDM₂, ZDM₃, ZDM_{3A}, ZDM₄ & ZDM_{4A}

APPROVED LUBRICANTS

S. No	Application	Oil Company						Others
		IOC	HPC	BPC	BL	Exxon Mobil	Shell	
<u>AIR BRAKE EQUIPMENTS</u>								
11	KNORR UNITS-CONTROL VALVES' COCKS	-	-	-	-	-	-	Graphited powder
12	AIR BRAKE EQUIPMENT OTHER THAN KNORR UNITS	Servo Gem RR3	Lithon 3	MAK RR Grease 3	Balmerol Multigrease LL3	-	-	-
<u>AIR BRAKE EQUIPMENT WESTINGHOUSE UNITS</u>								
13	13.1 ROTARY DISC DRIVE	-	-	-	-	-	-	Vaseline
	13.2 STANDSTILL DETECTOR VALVE	Servo Gem RR3	Lithon 3	MAK RR Grease 3	Balmerol Multigrease LL3	-	-	-
14	AIR BRAKE EQUIPMENT KORTING UNITS-WETTING LIQUID AIR BRAKE FILTER	Servo Prime 76	Turbinol 77	MAK Turbol 78	Balmerol Protomac T-76	-	-	-
15	BRAKE EQUIPMENT RUBBER COMPONENT	-	-	-	-	-	-	Molykote 55 Silicon Grease

APPROVED COOLANT

S. NO.	Firm	Product Name
1	M/s HPCL, MUMBAI	HP POWER KOOL RR

LIST OF APPROVED LUBRICANTS AND COOLANTS FOR HHP (EMD) LOCOMOTIVES

WDG₄, WDP₄, WDG_{4B}, WDP_{4D}, WDG_{4D} and WDG₅

APPROVED LUBRICANTS

S. No	Application		Oil Company					Others
			IOC	HPC	BPC	Exxon Mobil	Shell	
1	DIESEL ENGINE CRANK CASE OIL		Servo RR 606 MG Plus II	HP RR 813 M	MAK RR 513 M	-	-	-
2	AIR COMPRESSOR OIL		Servo Press 100 RR	-	-	-	-	-
3	AC TRACTION MOTOR NON-DRIVE END BEARING GREASE		-	-	-	-	Shell Gadus Rail S2 Traction Motor Bearing Grease	-
4	AC TRACTION MOTOR DRIVE END / PINION END BEARING OIL		Servosyngear 460 RR	-	-	Mobil SHC 634	-	-
5	GEAR CASE OIL		Servosyngear 460 RR	-	-	Mobil SHC 634	-	-
6	TRACTION MOTOR ROLLER SUSPENSION BEARING		-	-	-	Exxon Arapen RB 320 Grease	-	-
7	'AXLE JOURNAL CARTRIDGE TAPPER ROLLER BEARING (CTRB)'		CTRB Make		Recommended grease			-
			NEI/BRENCO/ Schaeffler (FAG		Shell alvania EP-D			-
			Timken/ SKF		Exxon Arapen RB 320/ Mobilith SHC 100			-
8	DB GRID DC MOTOR.	UPPER BEARING	-	-	-	-	-	CHEVRON SRI-2
		LOWER BEARING	-	-	-	-	-	SUPERMIL M-125
9	COOLING SYSTEM AC MOTOR	UPPER BEARING	-	-	-	-	-	CHEVRON SRI-2
		LOWER BEARING	-	-	-	-	-	SUPERMIL M-125

LIST OF APPROVED LUBRICANTS AND COOLANTS FOR HHP (EMD) LOCOMOTIVES

WDG₄, WDP₄, WDG_{4B}, WDP_{4D}, WDG_{4D} and WDG₅

APPROVED LUBRICANTS

S. No	Application	Oil Company					Others
		IOC	HPC	BPC	Exxon Mobil	Shell	
10	AC AUXILIARY GENERATOR BEARINGS	-	-	-	-	-	CHEVRON SRI-2 GREASE
11	MAIN GENERATOR BEARING	-	-	-	EXXON UNIREXN-2 GREASE	-	-
12	AIR BRAKE VALVE	-	-	-	-	-	DOW CORNING 111 GREASE
13	HAND BRAKE	-	-	-	-	SHELL GADUS RAIL S2 TRACTION MOTOR BEARING GREASE	-
14	INERT. FIL. /TCC BLOWER MOTOR	-	-	-	-	-	CHEVRON SRI-2
15	WHEEL FLANGE LUBE	-	-	-	-	SHELL OSSAGOL C. MOLY GREASE	-

APPROVED COOLANTS

S.No	Firm	Product Name
1	M/s HPCL, MUMBAI	HP POWER KOOL RR

LIST OF APPROVED LUBRICANTS AND COOLANTS FOR DIESEL-HYDRAULIC LOCOMOTIVES

ZDM₅ / NDM₅, NDM₆& NDM₁

APPROVED LUBRICANTS

S. No	Application	Oil Company						Others	
		IOC	HPC	BPC	BL	Exxon Mobil	Shell		
1	<u>DIESEL ENGINE CRANK CASE OIL</u>	Servo RR 606 MG PLUS II	HP RR 813 M	MAK RR 513 M	Balmerol RR 513 M	Mobil RR Super 2413	-	-	
	1.1						KIRLOSKAR CUMMINS KTA-1150L	-	-
	1.2						KIRLOSKAR CUMMINS NTA-855	-	-
	1.3						KIRLOSKAR CUMMINS NT-895	-	-
2	ENGINE TURBO SUPER CHARGER	Servo RR 606 MG PLUS II	HP RR 813 M	MAK RR 513 M	Balmerol RR 513 M	Mobil RR Super 2413	-	-	
3	<u>HYDRAULIC TRANSMISSION</u> VOITH L2rzu2 & l4rzu2	Servo Torque 10	-	MAK HYDROL TQ 32	-	-	-	-	
4	AIR COMPRESSOR (ELGI-TRC 1000)	Servo Press 150 RR	Hycom 150 P	MAK Compressor Oil - 150	-	-	-	-	
5	VACUUM EXHAUSTER (SLM-VL -30)				-	-	-	-	
6	CARDON SHAFT	Servo Grease Molex	Lithon M2	-	-	-	-	-	
7	AXLE ROLLER BEARING	Servo Gem RR3	-	MAK RR Grease 3	Balmerol Multigrease LL3	-	-	-	
8	8.1	AXLE DRIVE (SAN)	Servo Gear HP 90	HP Gear Oil EP 90	MAK Spirol 90 EP	-	-	-	
	8.2	AXLE GEAR BOX				-	-	-	
9	BHER HYDRAULIC FAN DRIVE	Servo Prime 76	Turbinol 77	MAK Turbol 78	Balmerol Protomac T-76	-	-	-	

LIST OF APPROVED LUBRICANTS AND COOLANTS FOR DIESEL-HYDRAULIC LOCOMOTIVES

ZDM₅ / NDM₅, NDM₆& NDM₁

APPROVED LUBRICANTS

S. No	Application	Oil Company						OTHERS	
		IOC	HPC	BPC	BL	Exxon Mobil	Shell		
<u>BRAKE EQUIPMENTS</u>									
10	10.1	BRAKE CYLINDER, PISTON PACKING AND 'O' RING	Servo Gem RR3	Lithon 3	MAK RR Grease 3	Balmerol Multigrease LL3	-	-	-
	10.2	TORQUE ARM, BRAKE SHAFT & HANGER, AUXILLARY DRIVE GEAR, HAND BRAKE, WHEEL SHAFT & LINKAGE, DRAW & BUFFER GEAR, VACUUM EXHAUSTER AND COMPRESSOR DRIVE GEAR							
	10.3	SPOOL VALVE & BUSH FOR VA-B CONTROL VALVE AND RUBBER BONDED CHECK VALVE	-	-	-	-	-	-	Graphited Powder
	10.4	BRAKE EQUIPMENT RUBBER COMPONENTS	-	-	-	-	-	-	Molykote 55 Silicon Grease
	10.5	PIVOT, BRAKE LEVER, HAND BRAKE, SPROCKET AND RADIATER SHUTTER	-	-	-	-	-	-	Re-refined Engine Oil

APPROVED COOLANT

S. NO.	Firm	Product Name
1	M/s HPCL, MUMBAI	HP POWER KOOL RR

LIST OF CLEANING COMPOUNDS FOR DIESEL LOCOMOTIVES

For De-Scaling of Radiator Inside

S No	Name of Product	Percentage (%) V/V	Temp. in Deg C	Duration In Hrs	ph of Product	Name of Supplier / Address
1	HEAD & RADIATOR CLEANER (CCC)	20	60 TO 70	6	Below 2	M/s Tushar Chemicals & Lubricants Add: Jindal Market, Katchery Bazar, RampuraPhul-151 103, Distt. Bathinda (Pb.), Fax: 01651 – 220540 / 500056
2	RC – 502	10	75 TO 80	6	Below 2	M/s Vinni Chemicals Pvt. Ltd. Add: 5, ShivajiMarg, Najafgarh Road, New Delhi-110 015 Fax: 011 – 25423325 / 41428008
3	RADICLEAN -i	20	50 TO 70	3	Below 2	M/s Olivine MercantilesPvt. Ltd. Add: 9D, Shakespeare Court, 21 A, Shakespeare Sarani, Kolkata- 700 017, INDIA Fax: 033 – 22879242
	RADICLEAN -ii	10	50 TO 70	1/2	7.5 TO 8.5	

Note: The cleaning solutions should be prepared & kept up to the temperature mentioned before circulating in the radiator during inside cleaning process.

For Cleaning of Radiator from Outside

S No	Name of Product	Percentage (%) V/V	Temp. inDeg C	Duration In Hrs	Name of Supplier / Address
1	Orion 5017	10	Ambient	1 to 2 (Including soaking- with pressure jet cleaning)	M/s Oriental Chemicals Works (P) Ltd. Add: 1/1B, GobindaAddy Road, Kolkata-700 027, Fax: 033 - 24796723 Procurement as per Brand Name & Product data sheet
2	RADICLEAN -i	20	Ambient	15 Minutes (Including soaking- with pressure jet cleaning)	M/s Olivine MercantilesPvt. Ltd. Add: 9D, Shakespeare Court, 21 A, Shakespeare Sarani, Kolkata-700 017, INDIA Fax: 033 – 22879242
	RADICLEAN -ii	10		10 Minutes (Including soaking- with pressure jet cleaning)	

LIST OF CLEANING COMPOUNDS FOR DIESEL LOCOMOTIVES

For De-Scaling of After Cooler Inside

S No	Name of Product	Percentage (%) V/V	Temp. In Deg C	Duration In Hrs	ph of Product	Name Of Supplier / Address
1	HEAD & RADIATOR CLEANER (CCC)	10	60 TO 70	6	Below 2	M/s Tushar Chemicals & Lubricants Add: Jindal Market, Katchery Bazar, RampuraPhul-151 103, Distt. Bathinda (Pb.), Fax:: 01651 – 220540 / 500056
2	RC – 502	10	70 TO75	6	Below 2	M/s Vinni Chemicals Pvt. Ltd. Add: 5, ShivajiMarg, Najafgarh Road, New Delhi-110 015 Fax: 011 – 25423325 / 41428008

Cleaning Compounds for Miscellaneous Ferrous Components

(All Ferrous Components like cylinder heads, Exhaust & Inlet Valves of cylinder heads, compressor valves, Nozzle tips etc.)

S No	Name of Product	Procurement As Per	Remarks About Application	Name Of Supplier / Address
1	Orion 331 R	Spec. No. MP.0.8000.02 (Rev-00), August -08	Components to be cleaned as per Table-6 of the specification	M/s Oriental Chemicals Works (P) Ltd. Add: 1/1B, GobindaAddy Road, Kolkata-700 027, Fax: 033 - 24796723
2	VC - 601			M/s Vinni Chemicals Pvt. Ltd. Add: 5, ShivajiMarg, Najafgarh Road, New Delhi-110 015 Fax: 011 – 25423325