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भारत सरकार
रेल मंत्रालय
GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS

ई.एम.डी. लोकोमोटिव के सोक बैक ल्यूब तेल फिल्टर की
विशिष्टिका
**Specification For Soak Back Lube Oil Filter For
EMD Locomotives**

विशिष्टि संख्या—चा.श. 0.2600—20
नवम्बर — 2021
(संशोधन — 02)
SPECIFICATION No. MP.0.2600-20
NOVEMBER - 2021
(REVISION - 02)

अनुसंधान अभिकल्प एवं मानक संगठन
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SPECIFICATION FOR SOAK BACK LUBE OIL FILTER FOR EMD LOCOMOTIVES**1. Scope**

This specification covers the soak back filter element (EMD part no. 8340000). The purpose of this element is to provide reliable and efficient filtration of lubricating oil supplied as a heat dissipant to the turbocharger bearings after shutdown, or a prelubricant prior to starting.

2. General Requirements**2.1 Environmental Air Temperatures**

2.1.1 Normally between 0°C and 50°C

2.1.2 During winter months, a low extreme of -5°C if the unit is not operating and left outside.

2.1.3 During tunnel service a high extreme of 120°C for short periods during summer months.

2.2 Lube Oil Temperature

2.2.1 Nominal lube oil temperatures will range from 10°C to 105°C.

2.2.2 Under adverse tunnel service, a high extreme of 140°C may be experienced for short periods of time.

2.3 Fluids handled by Soak Back Filter

2.3.1 Lube oil specification calls for the use of SAE 20W 40 oil of 90-100 V.I.

2.3.2 The filter element must be able to handle water that may be present in the lube oil in nominal amount of not more than 1%.

2.4 Life Expectancy

2.4.1 Normal life expectancy shall be three months.

3. Specification and Design

3.1.1 Filter paper fibre content (base stock) may be cotton and /or wood

3.1.2 Filter paper to be fully impregnated with phenolic resin.

3.1.3 Filter element must withstand a differential pressure of 8 kg/cm².

3.1.4 Center tube should be nominally 20-25% open.

3.1.5 The filter paper properties shall be as given in the table below:

Properties	Test Method	Specified Value
1. Basis weight	IS 1060 Pt 1	170-200 gms/m ²
2. Thickness (Uncorrugated)	IS 1060 Pt 1	0.65 ± .05 mm

3. Tensile strength (Dry)		
a) M/c direction	IS 1060 Pt 1	3.0 kg/cm (min.)
b) Across M/c direction	IS 1060 Pt 1	2.0 kg/cm (min.)
4. Burst strength	IS 1060 Pt 1	2.0 kg/cm ² (min.)
5. Corrugation depth	Optical micrometer	0.2 ± .05 mm
6. Mean pore size	As per AAR bubble point test method/ ASTM-F-316/03 (2011)*	20 ± 3 micron
7. Max. pore size		80 micron (max.)

* ASTM F-316/03 (2011) **OR** corresponding Indian Standard to be referred.

- 3.2 The design and construction shall be as per RDSO's drawing no.SK.DP-3701 (attached).
- 3.3 After the type test, changes to the filter element design or construction that effect performance or life cannot be made without RDSO's/PU's approval.

4. Testing

4.1 Efficiency Testing of Filter Paper as per RDSO's test plan no. MP.TP-23

The micron rating of the filter paper shall be 30μ max.

4.2 Differential Pressure Test

To determine the capability to withstand differential pressure without collapse the filter may be loaded with appropriate contaminant to bring the pressure drop to the specified requirement (8 kg/cm²) at 40 lpm and held there for 15 minutes. Physical inspection is to be used to confirm the structural integrity of the element after this test.

4.3 End load Test :

A tensile load of 10 kg applied at the end caps of the filter element for 5 minutes shall not cause any damage.

4.4 Fabrication Integrity :

Fabrication integrity of the filter element shall be verified as per test method described in IS: 8383 or ISO: 2942. The test fluid for this test shall be clean and filtered HSD oil at room temperature between 15 to 40 deg.c. No evidence of persistant stream of bubbles shall be visible from the filter element up to the pressure indicated below: -

1. End cap area bonded with 20 cms. Of water gauge (min) adhesive only.
2. Over the entire length of 12 cms. Of water gauge (min) paper element.

4.5 High temperature test :

The filter element shall be soaked in engine oil maintained at a constant temperature of 130 deg. \pm 5 deg.c for a period of 24 hours. The filter shall be subjected to end load test before it cools down below 70 deg.c.

4.6 Test to establish resistance of water contamination

This test is designed to ensure that pleat collapse and permature plugging does not occur when lube oil is contaminated with water.

1. The quantity of oil used shall be 40 litres.
2. After completion of the normal flow rate Vs pressure drop test at 10, 20, 30 and 40 lpm (inlet pressure 3.5 kg/cm²), add 1% of water by volume in the sump oil and mix it by circulating the oil water mixture through the by pass circuit for at least 10 minutes. Pass the contaminated oil through the filter for 15 minutes and stop.
3. After cooling to about 45°C, reheat back to 80°C and circulate the oil water mixture through the filter for the period of half an hour.
4. Repeat the flow rate Vs pressure differential test and plot in the form of a graph.

The pressure defferential characteristics for the contaminated oil should not be substantially higher than the one obtained with uncontaminated oil. As a guide line, an increase in pressure differential of 0.25 kg/cm² at 40 litres/minute flow shall be taken as the limit of increase in pressure differential due to effect of contaminated oil.

4.7 Testing of Rubber components

The rubber components shall conform to EMS Grade Duro No. 70 of EMD'S EMS-647 (Annexure I) **OR** corresponding Indian Standard to be referred. In addition the compression set (%) at 100°C for 24+0/-2 hrs shall be 25% max. Type testing shall be done as per EMS-647 **OR** corresponding Indian Standard to be referred. Slabs and buttons corresponding to each batch shall be provided. For the purpose of conforming/correlating the composition of the test slab and test button with that of the components, the following tests shall be performed both on test slabs and the components and shall comply with the requirements given as under.

S.No.	Parameter	Requirement
a.	Identification of polymer (NBR)	Observation shall be identical
b.	Specific gravity	The result shall be within ± 0.02
c.	Percent Ash content	The result shall be ± 1.0 for ash content upto 20% and ± 1.5 for

Once the type test is done, the source and grade of the sub vendor for rubber components shall be frozen. Any change would require fresh type test.

5. Type tests for Qualifying New Sources

- 5.1 The following tests shall be performed in the presence of RDSO/PU representative.

- 5.1.1 Testing of filter paper for basis weight, pore size, corrugation depth & other properties (If complete testing facilities are not available, samples would be drawn by RDSO/PU for testing. The grade of paper should be established and frozen.)
- 5.1.2 Static and pressure differential tests and fabrication integrity test of filter element to determine structural integrity.
- 5.1.3 Testing of filter paper using RDSO's test plan no. MP.TP-23 to determine the efficiency characteristics.
- 5.1.4 Test of filter element to establish resistance to water contamination.
- 5.1.5 Type testing of rubber components shall be done as per para 4.7.
- 5.2 Upon satisfactory completion of the tests in items 5.1.1 to 5.1.5, the following field testing is required for qualification and acceptance.
 - 5.2.1 Field test on a minimum of three HHP locomotives in heavy duty service for period of six months. The field test is to be arranged and conducted by the base locomotive shed as per format attached as **Annexure - III**. The supplier shall be involved in the trial and shall liason with the base shed for timely collection of data, preparation and despatch of reports to RDSO/PU etc.
 - 5.2.2 The field test will consist of monitoring filter pressure drop, recording service life and the condition of the filter at the time of removal.
 - 5.2.3 At the end of the field test, a report summarizing comparative filter performance, life, and turbocharger related maintenance events shall be submitted by the base shed for review and disposition by RDSO/PU as to acceptability.

6. Inspection

- 6.1 Filter elements will conform to the approved drawing in so far as physical details are specified as per format as **Annexure - II**.
- 6.2 The filter elements shall be free of corrosion or defects which will affect life, performance, or appearance.
- 6.3 The cured filter paper used in the construction of the element shall be tested for the paper properties as given in para 3.1.5 at an approved laboratory.
- 6.4 The grade and brand of the media used shall be the same which has been used for type test approval.
- 6.5 A certificate shall be available from the vendor of rubber components regarding the grade of rubber used. Hardness of gaskets would be checked. For orders of more than 1000 nos., complete testing as per para 4.7 shall be done.
- 6.6 The detailed method of regular inspection and sample size shall be arrived at by mutual agreement between IR and supplier depending on the order quantity.

7. Vendor Changes In Approved Status

Shall be governed by procedures of Item controlling organization.

8. Preference To Make In India

The Government of India policy on 'Make in India' shall apply.

9. The revised Specification shall be implemented from **12th November-2021**.

7628234/2025/O/o DY CME(DSL)/HQ/WR

9-27-63 H. C. Tyree		<h2 style="margin: 0;">MATERIAL SPECIFICATION</h2>				SPECIFICATION EMS - 647							
APPROVED <i>H. C. Tyree</i> 7/26/68		ELECTRO-MOTIVE DIVISION GENERAL MOTORS CORPORATION LA GRANGE, ILLINOIS				<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 10%;">REV.</th> <th style="width: 90%;">DATE</th> </tr> <tr> <td style="text-align: center;">A</td> <td style="text-align: center;">3-31-67</td> </tr> <tr> <td colspan="2" style="text-align: center;">REVISION</td> </tr> </table>		REV.	DATE	A	3-31-67	REVISION	
REV.	DATE												
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REVISION													
NAME-- SYNTHETIC RUBBER - FUEL OIL AND LUBE OIL RESISTANT (NBR)													
REQUIREMENTS:-													
1. <u>Standards and Practices:</u> As appear in ASTM D735-61T**, under the grades indicated in paragraph 2 of this specification.													
2. <u>Properties:</u>													
EMS Grade	Duro No.	Duro	Ten. Str. Min. PSI	Elong. Min. %	Heat Aged 70 Hrs. at 212°F.			Oil Aged 70 Hours At 212°F.					
					Change in Ten. Str., Max., %	Change in Elong. Max., %	Change in Duro, Maximum	Vol. Change After 72 Hrs At 158°F. In Diesel Fuel Oil, 3% Max.	in ASTM #1 Oil		in ASTM #3 Oil		
									Volume Change, %	Duro Change	Volume Change, %	Duro Change	
60	60±5	1200	250	-20	-50	+15	17	-10 to +5	-5 to +10	-5 to +20	-10 to +5		
70	70±5	1500	300	-20	-50	+15	12	-15 to +5	+5 to +20	-10 to +15	0 to +15		
72	70±5	400	150	-25	-50	+15	+50	0 to -10	0 to +10	5 to +30	-5 to -30		

¹ Compressed 30%. ² Compressed 25%. ³ EMS 1004 Fuel Oil, Low Gravity (Sinclair 240).

3. Tolerances: (unless otherwise specified on the engineering drawing) Note: For dimensional inspection the thickness shall be measured by a dial micrometer graduated in thousandths of an inch having a flat presser foot 1/4" in diameter, actuated by a load of 3 ± 0.1 oz., except that for molded rings having a cross-sectional thickness of less than 0.25" the micrometer shall be actuated by a load of 0.7 ± 0.1 oz.

Sheet and Strip 1/8" and less thick ----- ± 1/64"
 Sheet and Strip Over 1/8" to 1/2" incl.,
 thick ----- ± 1/32"
 Sheet and Strip Over 1/2" thick ----- ± 3/64"
 Tubing and Molded Hose Less than 1/16"
 Wall thickness ----- ± .005"
 Tubing and Molded Hose 1/16" Wall Thickness
 and thicker ----- ± 10%
 Molded Parts, except O rings, Section ----- ± .010"
 O Rings, Section, 1/8" and Less ----- ± .003"
 Over 1/8" to 3/16", incl. ----- ± .004"
 Over 3/16" ----- ± .005"
 Extrusions, Section ----- ± .010"

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 Issuing Authority S.S.E. G.M.
 28 MAR 2002
 SHEET 1 OF 2

EMD 432-1-C	MATERIALS MANUAL	INDEX NO.
GENERAL MOTORS CORPORATION LA GRANGE, ILLINOIS	MATERIAL SPECIFICATION ELECTRO-MOTIVE DIVISION	SPECIFICATION EMS-647 REAFF (CONTINUOUS)

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SS

4. Color: Black, unless otherwise specified on the engineering drawing.
5. Identification: All shipments to be identified as EMS-647 Rubber and Duro grades.
6. Test Samples: Sample parts made of material to this specification shall be submitted to and approved by the responsible EMD staff engineer and the Metallurgical Department before shipment of any such parts for production use.

Once a part has been approved, there shall be no change in compounding or processing without reapproval.

****NOTE:** Wherever the specification or test of any society is referred to herein with its date, number, or revision letter stated, no other dated or month recent revisions are acceptable except by revision of this Electro-Motive specification.

GENERAL INFORMATION:-(Not Mandatory Vendor Requirements)

The properties required in this compound are essentially those of Nitrile rubber and are suitable for application where high resistance to fuel oils and lube oil are necessary. The first use of Grade 70 material at EMD was in seal rings for fuel filters; the first use of Grade 60 was in combination fuel and lube oil filter seals. Grade 72 has been used for fuel gage gasketing.

DRAFTING INFORMATION:-

Where use of this material is specified, it shall be designated as:

MATERIAL: EMS 647 RUBBER

_____ DURO

inserting the appropriate grade number before DURO.

All engineering drawings shall have "Engineering Approval of Source Required" stamped thereon.

NOTE: These specifications were developed without considering whether patents may or may not be involved. In all cases, therefore, the supplier shall be required to assume patent liability.



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MINISTRY OF RAILWAYS

ल्यूब एवं इंधन तेल के फिल्टर पेपर की माइक्रॉन रेटिंग के
परीक्षण की विधि
**Test Method for Micron Rating of Lube and Fuel
Oil Filter Paper for Locomotives**

परीक्षण कार्यक्रम संख्या—चा श. टीपी—23
जुलाई 2003
(संशोधन—0.00)
TEST PROGRAMME No. MP.TP-23
JULY 2003
(REVISION-0.00)

अनुसंधान अभिकल्प एवं मानक संगठन
मानक नगर, लखनऊ - 226011
RESEARCH DESIGNS & STANDARDS ORGANISATION
MANAK NAGAR, LUCKNOW-226 011

Test method for Micron rating of lube and fuel oil filter paper

0. Scope :

This material consists of dispersing 100 milligrams of standard test dust in prefiltered (0.45 μ filter) solvent and filtering through a 47 mm diameter test filter. The amount of this dust collected by the test filter is weighed and the percent particle size removal efficiency is calculated.

1. Apparatus :

Millipore filter apparatus as per annexure 'B' of ISO 4548 : 4 (1997).

2. Materials :

- i. Solvent- Solox (Commercial Alcohol) or Petroleum Ether (Prefiltered 0.45 μ filter).
- ii) Standard Test Dust : The following dusts as per ISO 12103-2.
 - a. ISO 12103-M2
 - b. ISO 12103-M3
 - c. ISO 12103-M4
 - d. ISO 12103-M5

3. Procedure :

Cut a 47 mm diameter disc from the filter paper to be tested. Using a gasket cutting die and hand a press. Weigh the filter disc to the nearest 0.1 Milligram and record the weight. Place the filter disc in the Millipore Filter Apparatus as defined in para 2.

Disperse 100 Milligrams of Standard Test Dust in one liter of prefiltered (0.45 μ filter) solvent. Connect the vacuum pump or aspirator to the flask and create a vacuum. Pour the solvent and suspended dust mixture into the funnel and filter. Rinse the beaker and the funnel with prefiltered (0.45 μ) solvent to remove all the remaining test dust. Dry the disc containing the test dust in an oven at 100⁰ C for 20 minutes and allow to cool to room temperature. Weigh the test filter containing the test dust to the nearest 0.1 Milligram and record. The test is run in triplicate and the individual results averaged to determine the filter efficiency. The filter paper should be evaluated using the four size ranges of dust particle.

Extreme cleanliness is of the utmost importance in this test.

4. Analysis:

Draw a graph with particle size on the x-axis and efficiency on the y axis. The mean particle sizes (50% mean particle size) used for the ISO 12013-2 test dusts are:-

Grade	Particle size (Microns)
ISO 12013-M2	6.9
ISO 12013-M3	13.6
ISO 12013-M4	30.1
ISO 12013-M5	54

The four points obtained on the graph shall be joined by a curve. The particle size where this curve crosses 90% efficiency is the micron rating of the filter paper.

**Test Plan/Check sheet for Type Test /Purchase Inspection of Soak Back Lube Oil Filter For
EMD Locomotives as per RDSO Specification No. MP.0.2600-20 and Drawing No. SKDP –3701**

A. Dimensional check :

SN	Para No. of Specification	Dimension Description [Ref: RDSO Drg. No. SKDP – 3701 (Alt. – 1)]	Specified Value (mm)	Observed Value (mm)	Remarks (OK/NOT OK)
1.	3.2	Total Length of Filter	189 ± 1		
		Outer Diameter of Filter	75.4*		
		Inner Dia. of Gasket	26.2 *		
		Outer Dia. of Gasket	35*		
		Thickness of Gasket	6.4*		
		Diameter of Centre tube	30*		
		Thickness of Steel Sheet for Center Tube and End Caps	0.4 (min.) without plating		
		Height of End Caps (Top & Bottom)	8*		
		Depth of Adhesive filling End Caps	5		
		Spring Wire Diameter	2.6 *		
		Spring Length	150*		
		No. of pleats of Filter Media Corrugated	38±2		
		No. of Coils (Tip to Tip)	14 +1/2		

* TOLERANCES ON UNTOLERANCED DIMENSIONS TO BE TAKEN AS PER IS:2102 (COARSE)

B. Visual and physical checks :

SN.	Test Description	Para No. of Specification	Parameter to be Checked/ Test method	Specified Value (mm)	Observed Value	Remarks (OK/Not OK)
1.	Visual Check	3.1.2	Impregnation of filter paper with phenolic resin.	OK/ Not OK		Specify non-compliance, if Not OK
		3.1.4	Condition (Perforation) of Center tube	20-25% open		Specify non-compliance, if Not OK
		6.2	Free of corrosion or defects affecting life, performance or appearance			Specify non-compliance, if Not OK

C. Performance test :

SN.	Test Description	Para No. of Specification	Parameter to be Checked/ Test method	Specified Value (mm)	Observed Value	Remarks (OK/Not OK)
1.	Efficiency Testing of Filter Paper	4.1	RDSO's test plan no. MP.TP-23	The micron rating of the filter paper shall be 30 μ (max.)		
2.	Differential Pressure Test	4.2	As per para 4.2 of the specification.	Should not collapse at pressure drop to the specified requirement (8 kg/cm ²) at 40 lpm for 15 minutes.		
3.	End Load test	4.3	Apply tensile load of 10 kg at the end caps of the filter elements for 5 min.	Shall not cause any damage.		
4.	Fabrication Integrity test	4.4	As per para 4.4 of the specification and test procedure given in IS:8383 or ISO 2942	No visible evidence of persistent stream of bubbles from the filter element up to the pressure indicated below : - 1. End cap area bonded with adhesive only- 20 cms. of water gauge (min)		

				2. Over the entire length of paper element.- 12 cms. of water gauge (min)		
5.	High Temperature test	4.5	Soak filter element in engine oil maintained at a constant temperature of $130^{\circ}\text{C} \pm 5^{\circ}\text{C}$ for a period of 24 hrs. The filter shall be subjected to end load test before it cools down below 70°C	Shall not cause any damage.		
6.	Resistance to Water contamination.	4.6	As per Para 4.6 of the specification	Pressure differential with contaminated oil should not increase more than 0.25 kg/cm^2 at 40 litres/minute compared to un-contaminated oil.		
7.	Testing of Rubber components	4.7	(i)The rubber components to conform to EMS Grade Duro No. 70 of EMD'S EMS-647 OR Corresponding Indian Standard to be referred. (ii)Testing as per Para 4.7 of the specification. a. Identification of polymer (NBR). b. Specific gravity c. Percent Ash content (iii)Hardness of Gasket to	a. Observation shall be identical b. The result shall be within ± 0.02 c. The result shall be ± 1.0 for ash content upto 20% and ± 1.5 for ash content above 20%.		Attach rubber components test certificate /undertaking submitted by vendor

RDSO

(Rev-02)

			be checked.			
			(iv) In addition the compression set (%) at 100°C for 24+0 hr shall be 25% max.			

D. Paper properties test :

SN.	Test Description	Para No. of Specification	Parameter to be Checked/ Test method	Specified Value	Observed Value	Remarks (OK/Not OK)
1.	Filter paper	5.1.1	Grade/type of filter paper.			Collect the declaration/undertaking by filter manufacturer regarding make & grade/type of filter paper
2.		3.1.5	1. Basis Weight as per IS-1060 Pt.I	170-200 gms/m ²		
			2. Thickness (Uncorrugated) as per test method/standard IS-1060 Pt. I	0.65 ± .05 mm		
			3. Tensile strength (dry) min. as per test method/standard IS-1060 Pt. I a) Machine direction b) Across machine	a. 3.0 kg/cm (min.) b. 2.0 kg/cm (min.)		
			4. Burst strength (min.) as per test method/standard IS-1060 Pt. I	2.0 kg/cm ² (min.)		
			5. Corrugation depth (Optical micrometer)	0.2 ± .05 mm		
			6. Mean pore size as per AAR	20±3 microns		

			Bubble Point test method/ASTM F-316/03 (2011) or Corresponding Indian Standard			
			7. Max pore size as per AAR Bubble Point test method/ASTM F-316/03 (2011) or Corresponding Indian Standard	80 Microns (max.)		

E. Other checks :

SN.	Test Description	Para No. of Specification	Parameter to be Checked/ Test method	Specified Value	Observed Value	Remarks (OK/Not OK)
1.	Undertaking	6.4 & 6.5	Undertaking/Certificate to be submitted by the firm in compliance to clause 6.4 & 6.5 of the specification.	As per Clause 6.4 & 6.5 .		Attach Undertaking/Certificate given by firm.

N.B.

- All the above tests are to be done during type testing.
 - During type testing, the tests mentioned in clauses 3.1.5 & 4 of the specification shall be done at the firm's Test Rig/Laboratory or any Approved Laboratory (if facility not available at firm's premises).
 - Purchase inspection: Tests mentioned in (A) Dimension Check, (B) Visual & Physical Check & (C) Performance Test to be carried out.
- Note:- (i) For orders of more than 1000 nos., complete testing of Rubber components as Para 4.7 will have to be done.
(ii) Certificate regarding grade and brand of the media & rubber components used to be taken for each lot supplied. It should be same as that used for type test approval.

Test to establish resistance to water contamination (Para 4.6 of the specification)

Test Oil :
 Quantity : 40 Ltrs.
 Temperature : 80° C
 Test Sample :
 Test Rig : Soak Back Lube Oil Filter Test Rig of M/s -----

(A) Before Water Addition :

Flow Rate	Pressure in Soak Back Filter (Kg/cm ²)		Pressure Drop of Filter (X)
LPM	Inlet (A)	Outlet (B)	X=A-B
10	3.5		
20	3.5		
30	3.5		
40	3.5		

(B) After Water Addition :

Flow Rate	Pressure in Soak Back Filter (Kg/cm ²)		Pressure Drop of Filter (Y)
LPM	Inlet (A)	Outlet (B)	Y=A-B
10	3.5		
20	3.5		
30	3.5		
40	3.5		

N.B. :

An increase in pressure differential of 0.25 kg/cm² at 40 litres/minute flow shall be taken as the limit of increase in pressure differential due to effect of contaminated oil.

Annexure – III

**Trial Scheme for Field Trial of Soak Back Lube Oil Filter For EMD Locomotives for RDSO
Drg. No. SKDP – 3701)**

- Field trial is to be done in three locomotives in three different diesel sheds.
- Fitment Scheme:

Shed	Loco type	No. of Loco	Filter quantity per loco	Quantity to be fitted (No. of Loco*Qty per loco)	Duration of trial
Shed X	HHP loco	1	1	1	06 Months (180 Days)*
Shed Y	HHP loco	1	1	1	06 Months (180 Days)*
Shed Z	HHP loco	1	1	1	06 Months (180 Days)*

* With filter change in the middle of Trial Duration (as life of Soak Back Filter is 90 days)

- The shed shall record the data as per the following (after filter change in middle as well as after end of trial):-

(A) Pressure Drop across Filter :-

SN	Loco No.	Shed/Rly.	Pressure drop across filter (Kg/cm ²)

(B) Service Life of Filter :-

SN	Loco No.	Shed/Rly.	Date of Fitment	Date of Failure (if any)	Date of Removal	Service Life (in days)	Reason of Removal

(C) Comparative Filter Performance :-

SN	Loco No	Condition of Existing Filter (SKDP – 3701) at the time of removal during schedule	Condition of Trial Filter (SKDP – 3701) at the time of removal.	Remarks (if any)

RDSO

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(D) Turbocharger related maintenance events (if any):-

4. The diesel shed shall immediately remove the filters from the service in case the shed arrives at the conclusion that abnormality has arisen in the locomotive and the abnormality is attributable to the filters.
5. The Trial Filters shall be replaced when the trial period is over.
6. After completion of field trial, each shed may submit the field trial report to RDSO/Vendor approval agency.
7. Any other remarks (other than those prescribed).