Govt.of India
Ministry of Railways
Research Designs & Standards Organisation
Manak Nagar, Lucknow-226011

QM-C-7.1/Rubber/0011/C

Inspection Plan(Check Sheet)

Item : SILENT BLOCK FOR ANCHOR LINK OF B. G. COACHES

Specn. : Specification No.C-9406 (Rev.2)

Amd. :01 0f November-2005.

Drg. No. & Alt. : SK- 94101 (Alt.2)

1.	**Name of Manufacturing**	:
2.	**Date of Offer**	:
3.	**RDSO File No.**	:
4.	**Description of material**	:
5.	**Drawing and alteration no.**	:
6.	**Specification and Grade**	:
7.	**P.O. No.**	:
8.	**Total Quantity Ordered**	:
9.	**Quantity earlier passed**	:
10.	**Quantity now offered**	:
11.	**Consignee**	:
12.	**D.P.**	:

Whether Testing Equipment/Measuring Gauges Due for Calibration

Yes **No**

1. Dt. Of Inspection :

2. Qty. accepted :

3. Qty. rejected :

4. Balance Order :

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R.D.SO. Rubber to Metal Bonded Items.

VISUAL & DIMENSIONAL CHECKSHEET(Type-A)

Lot Size:_____(1000 no. Max.)

a) **For Dimensional check: Sample Size:_____(8% specified)**

b) **For Visual and making Check: Sample Size:_____(4% specified)**

Sl. No.	A (70± 0.5)	B 25 -0.012/-0.052	C (36±0.1	D (170 ±1)	E (100± 0.5)	F (90.5+ 0.050/+0 .025)	G (Ø 50mm)	H 35 mm	68 mm
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R.D.SO. Rubber to Metal Bonded Items.

VISUAL & DIMENSIONAL CHECKSHEET(Type-B)

Lot Size:_____(1000 no. Max.)

a) For Dimensional check: Sample Size:_____(8% specified)

b) For Visual and making Check: Sample Size:_____(4% specified)

Sl. No.	A (70± 0.5)	B (Ø 25 -0.2,-0.00)	C (Ø 30 -0.012,-0.52)	D (150 ±0.5)	E (200± 1)	F (98+ ±0.5)	G (Ø 52±0.1mm)	H (Ø 90+0.050,+0.025	Ø 67
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R.D.SO. Rubber to Metal Bonded Items.

COMPRESSIVE LOAD TEST

Process : Compressive Load applied 08 tonnes

Requirement :
1. **No Damage to Rubber or Steel**
2. **Deflection not more than2 mm**
3. **No Permanent set**

Lot Size : _____(1000 nos. Max.) Sample size :_____(1% Specified

Observations :

Sample No.	Observations		
	Rubber/Steel Condition	Deflection(in mm)	Permanent set
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8			
9.			
10			

Remark:

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R.D.SO. Rubber to Metal Bonded Items.

TORSIONAL & CONICAL STIFFNESS

Process : Torsional and Conical stiffness for 8 degree deflection

Requirement : Torque required should be with in 8000 to 10000 kg cm
Permanent set not to exceed 0.5 degree

LotSize :_____(1000nos.Max.)Sample Size :_____(1%specified)

Observed :

Sample No.	Observations			
	Torsional Torque	Permanent Set	Conical Torque	Permanent Set
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				

Remark :

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ENDURANCE TEST

Endurance Test Specification :

1.	**Radial Load**	**:**	**08 Tonnes**
2.	**Frequency**	**:**	**10 Cycles /Minutes**
3.	**Cyclic Displacement**	**:**	**30mmon either side of central position**
4.	**Total Cycles**	**:**	**1,00,000Cycles**
5.	**Sample Size**	**:**	**Specified:-OneEvery5000 Nos.**

Specified Requirement :

After completion of 1,00,000 cycles there should not be any permanent set and damage to rubber or steel components & rubber metal bond failure. The silent block shall satisfy compressive load test after 24 hours after it has undergone endurance test.

Observation:

Date	No. of Cycles Run

Remark:

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R.D.SO.Rubber to Metal Bonded Items.

PROPERTIES OF RUBBER

1. Physical Properties of Rubber

1. Before Ageing

For Details of theseValues Please see Page 9&10

Parameter	Specified	Observed		
		I	II	III
Tensile Strength (min.)	180 Kg/cm^2			
Modulus at200% Elongation(min.)	125Kg/cm^2			
Elongation at Break (min.)	280%			
Shore Hardness	80 ±5			
Compression Setat70+1/-0^{0}Cfor 24+0/-2 hrs(Max.)	-25%			
Ash Content(Max.)	5%			
Specific Gravity	1.20 Nominal			
Bond Strength (Min)	500 PSI			

B. After Ageing

Parameter	Specified	Observed			Percentage Variation		
Change in T.S.	±25%						
Change in Modulus at 200% Elongation	+20%						
Change in E.B.	+10, -30%						
Change in Shore Hardness	+7, -0						

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R.D.SO. Rubber to Metal Bonded Items.

Sample Size 03 Nos

Ash Content :

Sl. No.	Empty Crusible(E)	Crucible + Sample(S)	Crucible+ Ash(A)	%Ash	$= \frac{A-E}{S-E} \times 100$
1.					
2.					
3.					

SpecificGravity:

Sl. No.	Weightin Air(W)	Weight inWater(W_0)	Sp. Gr.	$= \frac{W}{W-W_0} \times 100$
1.				
2.				
3.				

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R.D.SO. Rubber to Metal Bonded Items.

Sample Size 03Nos. of sample tested

Hardness (Before ageing)			**Hardness (After ageing)**			**Changein Shore Hardness (after ageing)**		
a	b	c	a	b	c	a	b	c

Compression Set

	Dia. 13.5±0.5 mm	To Original 6.3±0.3mm	T1 Final mm	Ts Spacer mm	Compression Set = $\frac{To-T1}{To-Ts} \times 100$	Mean
1.						
2.						
3.						

Bond Strength Test

Specified value Min 500 P.S.I. Test conducted as per IS: 3400 Part-14, 1984

Value Observed _____ PSI

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R.D.SO. Rubber to Metal Bonded Items.
Sample Size 03Nos. ofsample tested
PHYSICAL PROPERTIES OF RUBBER USED IN SILENT BLOCKS FOR ANCHOR LINK

A. BeforeAgeing

S.No.	Thickness (2.0±0.2)mm				Width (4±0.1 mm	Area	Load In Kgs	T.S. Kg/cm^2	Median	Load at 200%E.B.	Mod. at 200%E.B	Elongation atbreak			Median
	a	b	c	Avr.								Initial (20±0.1) mm	Final	%E.B.	
1.															
2.															
3.															

B. After Ageing (at70±1°C for72+0/-2 hrs)

S.No.	Thickness (2.0±0.2)mm				Width (4±0.1 mm	Area	Load In Kgs	T.S. Kg/cm^2	Median	Load at 200%E.B.	Mod. at 200%E.B	Elongation at break			Median
	a	b	c	Avr.								Initial (20±0.1) mm	Final	%E.B.	
1.															
2.															
3.															

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