QM-C-8.1/AB/0021
INSPECTION PLAN (CHECK SHEET)

Item name :		Air Flow Measuring Valve and Air Flow Indicator, ALCo & Electric loco
Spec no. /Drg no.:	**AFMV**	RDSO Misc Report No. MP-1412/88 April 1988 and Drg no. SK.DP-2705
	AFI	Diesel Loco SK.DP-3523 and Electric Loco SK.DP-3510 & 3518 and Report No. MP-1412/88, RDSO Insp. Plan No. MP.TP-14, Drg. No. WABCO, C-76488,

1. **Firm's name:**

2. **Date (period) of test:**

3. **Contract/Material details:**

4. **Types of Tests:**

Sl. no.	Test description	Observation
(A) Air Flow Measuring Valve(AFMV)		
I.	Visual & Dimensional check	Annexure-A1
II.	Performance/Calibration test	Annexure-A2
B) Air Flow Indicator(AFI)		
I.	Visual & Dimensional check	Annexure-B1
II.	Performance and Calibration test	Annexure-B2
III.	Shock and Endurance test	Annexure-B3

Annexure-A1

(A) Air flow Measuring valve(Pipe mounted/Panel Mounted):

I. Visual & Dimensional checks :

Visual checks:

Sr. No	Parameters	Standards	Observation	Remarks
a)	Name of Manufacturer	Yes		
b)	Month & Year of manufacture	Yes		
c)	Painting quality and finish	Yes		
d)	Rubber cap on connection ports to protect from dust.	Yes		

Dimension checks:

S. no.	Stipulated parameters	Standards (As per drg.)	Observation	Remarks
1	Square PC Dim.	140 mm (± 1 mm)		
2	Centre to centre distance of mounting holes. (Pipe mounted/Panel Mounted)	112 mm/ 116.5 mm (±1 mm)		
3	Total height.	130 mm max		
4	Sq. face to connection port centre distance(Pipe mounted)	70 mm (± 0.5 mm)		
	'INLET' port centre distance from centre line of sq face. (Panel mounted)	20 mm (± 0.5 mm)		
	Centre to centre distance of Connection ports(Panel mounted)	52mm (± 0.5 mm)		
5	Calibration plug face to square face distance	152 mm		
6	Height of connection port centre	25 mm (± 0.5 mm)		
7	Mounting hole centre to square face end distance(Pipe mounted)	14 mm (± 0.5 mm)		
8	Mounting hole dia. (Pipe mounted/Panel Mounted)	13.5 mm (+ 0.25 mm) /M12		
9	'INLET' and 'OUTLET' ports size. (Pipe mounted/Panel Mounted)	3/4" or 1" BSP thread/ 1" hole		
10	AFI Gauge connection port threads size.	3/8" BSP		

Annexure-A2

II. Performance/Calibration test:

CALIBRATION REPORT OF AIR FLOW MEASURING VALVE (Ref: Misc report no. MP-1412/88)										
S.NO.	**SL. NO. OF VALVE**	**TEST -1**		**TEST-2**	**TEST-3**		**TEST-4**	**TEST-5**	**TEST-6**	**REMARKS**
		CALB.CHOKE & NEEDLE VALVE SETTING 70 PSI		**GENERAL LEAKAGE** (STD. NO LEAKAGE)	**MINIMUM INDICATION**		**INDICATOR RANGE** (STD. NOT LESS THAN 45 PSI)	**CAPACITY TEST.** (STD. TIME MUST NOT EXCEED 7.5 SEC.)	**BY PASS CHOKE.** (STD TIME MUST NOT EXCEED 6.0 SEC.)	
		AIR FLOW IN CFM (STD. 18 ¼ TO 21 ¾)	INDICTOR GAUGE READING 70 PSI (SETTLED AT 70 PSI ± 2)		AF CFM 2 CFM	READING NOT LESS THAN 6 PSI				

Annexure-B1

(B) Air flow Indicator (Drg no. SK.DP-3523/ SK.DP-3510):

I. Visual & Dimensional check:

Visual Checks:

Sr. No	Parameters			Standards (MP.TP-14 & SK.DP-3523(for Diesel loco) and SK.DP-3510 & SK.DP-3518 (for Electric loco))	Observation	Remarks
a)	Name of Manufacturer			Yes		
b)	Month & Year of manufacture			Yes		
c)	Painting quality and finish of AFI			Yes		
d)	Dial Backlit type (for SK.DP-3523)			Yes		
e)	Scale marking 0-100 in wagons as per drg			Yes		
f)	Colour of sub parts,	Dial,		Black		
		Marking on dial as per drg (SK.DP-3523/SK.DP-3510)		White/ Green fluorescent		
		Pointers	Top	Red		
			Bottom	White		
		LEDs, as per drg (SK.DP-3523/SK.DP-3510)		02 nos Green on lower side & rest white /All Green		
		Complete out portion of AFI		Black		
g)	Cables			1.5 mm^2 PVC insulated flexible cord with suitable for 250 V. Conforming to IS: 694 PTI1964.		
h)	The top of the pointer must cover 1/10 to 9/10 of the length of the shortest lines of the graduation			Yes		
i)	Pointer stop provided			Yes		
j)	Provision for manual resetting of reference pointer.			Yes		
k)	Cables socket (no. 7007) crimped on each connection wire for LED gauge			Yes		
l)	Glass properly fitted to ensure protection from environment			Yes		
m)	Back plate removable			Yes		
n)	Port connector of gauges as per RDSO drawings			Yes		
o)	Material of Case and bezel			Aluminum.		
p)	Rubber cap on shank to protect the threads			Yes		
q	Bourdon tube material as per RDSO drg			Yes		

Dimension Checks:

Sr. No.	Stipulated parameters		Standards (MP.TP-14 & SK.DP-3523(for Diesel loco) and SK.DP-3510 & SK.DP-3518 (for Electric loco))	Observed value	Remarks
a)	Bezel flange Dia		134 ±1 mm		
b)	Bezel Dia-1		108 ±1 mm		
c)	Bezel Dia-2		80 ±1 mm		
d)	Bezel Dia-3		112 -1 mm		
e)	Case Dia.		105 ±1 mm		
f)	Case & Bezel Height		48 ±1.5 mm		
g)	Distance of shank centre line as per drg (SK.DP-3523/SK.DP-3510)		19.5±3 mm/ 25±3mm		
h)	PCD of Mounting holes.		121 PCD		
i)	Dia. Of mounting Holes		5.6 ±0.4mm x 3 nos		
j)	Mounting Flange thickness as per drg (SK.DP-3523/SK.DP-3510)		3.15/3.0 ±0.3mm		
k)	Mounting Flange Projection		3.0±0.3mm		
l)	Cover glass thickness		1.5 to 3mm,		
m)	Shank	Thread size	3/8" BSP		
		Thread Length	16.0±0.5 mm		
		Tip OD	6.0±0.5 mm		
		Tip length	5.0±0.5 mm		
		Bolt width A/F	22.00±0.2 mm		
		Bolt thickness	10.00±0.5 mm		
n)	Washer	Outer dia.	14.3±1 mm		
		Inner dia.	6.5±0.5 mm		
		Thickness	1.6 to 3.2 mm		
o)	No. of LEDs and connection (parallel) as per RDSO drg.		Yes		
p)	LED working voltage and reverse polarity protection as per RDSO drg.		Yes		
q)	Resistance in LED circuit as per RDSO drg.		Yes		
r)	Marking 100 =70 PSI.		Yes.		
s)	Height of gauge(for SKDP 3510)		97±1.5mm		

Annexure-B2

II. Performance and Calibration test:

Test description		**Standards (Misc report no. MP-1412/88 & MPTP-14)**		**Observation**
Accuracy Test (Calibration): The error in indication with either UP & DN,		± 1.4 PSI (2 wagon)		As per table given below
Observation of Air flow indicator:				
S. no.	Reading in master gauges in PSI (in wagon)	Reading in AFI in wagon		Remarks
		UP	DN	
1	5(0)			
2	14(20)			
3	28(40)			
4	42(60)			
5	56(80)			
6	70(100)			
7	Above 70 PSI (Pointer deflection upto max. working range)			

Annexure-B3

III. Shock Test & Endurance test.

Test description		**Standards (Misc report no. MP-1412/88 & MPTP-14)**				**Observation**
Shock Test						
The error in AFI gauge indication before and after test at any point of the range,		± 1.4 PSI (2 wagon)				As per table given below
Observation of Air flow indicator:						
S. no.	Reading in master gauges in PSI (in wagon)	Reading in AFI in wagon				Remarks
		AFI S.no.		AFI S.no.		
		Before test	After test	Before test	After test	
1	5(0)					
2	14(20)					
3	28(40)					
4	42(60)					
5	56(80)					
6	70(100)					
7	Above 70 PSI (Pointer deflection upto max. working range)					
8	70(100)					
9	56(80)					
10	42(60)					
11	28(40)					
12	14(20)					
13	5(0)					
Endurance test						
The difference at any point of the range between AFI gauge error before and after the endurance test,		± 1.4 PSI (2 wagon)				As per table given below
Observation of Air flow indicator:						
S. no.	Reading in master gauges in PSI (in wagon)	Reading in AFI(in wagon)				Remarks
		AFI S.no.		AFI S.no.		
		Before test	After test	Before test	After test	
1	5(0)					
2	14(20)					
3	28(40)					
4	42(60)					
5	56(80)					
6	70(100)					
7	Above 70 PSI					

	(Pointer deflection upto max. working range)					
8	70(100)					
9	56(80)					
10	42(60)					
11	28(40)					
12	14(20)					
13	5(0)					