



Locomotive Release from Shop Form

To be completed on every engine released from the Shop

I have reviewed the work packet for locomotive 8541 on this date 1-9-12 and take no exception to applicable laws, rules and or MMA standards, policies and standards.

Oil Sample K. Henry

Grease Engine Cooling fan K. Henry

Oil Filters J. Anderson



UNIT 8541

# Service Operations

DATE 1-9-12

## THROTTLE 8 INBOUND LOAD TESTS

Eng RPM (900)	EMD	<u>          </u>	Lube Oil Pres	<u>          </u>
Eng RPM (1050)	GE	<u>1050</u>	Water Temp	<u>          </u>
Horsepower		<u>3682</u>	Overspeed Setting	<u>1090</u>
Volts (5.3)	B-23	<u>          </u>	RACK SETTING	<u>28.5</u>
Volts (7)	C-30	<u>          </u>		
Volts (720)	B-39	<u>708</u>		

## THROTTLE #1 STALL TEST

OP Mode	(PWR)	<u>F</u>	
AMPS	(300)	<u>3008</u>	
MGA	(1220)	<u>          </u>	NOT APPLICABLE TO B-23 AND C-30
Charging Rate	(70v)	<u>74</u>	

## TL 24T

Throttle 1	(1V)	
Throttle 2		
Throttle 3		
Throttle 4		
Throttle 5		
Throttle 6		
Throttle 7		
Throttle 8	(72V)	

**B-23, B-39, C-30, GP-7 MO3 INSPECTION**

In-Bound Loadtest Electrical/Mechanical		WORKED BY:
<b>ELECTRICAL</b>		
VERIFY THE OPERATION OF THE GROUND RELAY		J. Harts
CHECK FOR LOW VOLTAGE GROUNDS (7 watt bulb)		J. Harts
WHILE IN THROTTLE 3 LOAD TEST, CHECK FOR AC GROUNDS		
CHECK OPERATION OF:		
A. HEATING		
COMPLETE THE <del>OUT</del> BOUND LOAD TEST SHEETS		J. Harts
GROUND RELAY-(TEST THREE TIMES TO VERY LOCK-OUT)(DYNAMIC & POWER)		J. Harts
IF EQUIPPED, VERIFY THE OPERATION OF THE LDVR CAMERA		J. Harts
<b>MECHANICAL</b>		
PROPER LUBRICATION? FUEL LEAKS? CAM ROLLER ROTATION? ETC.		
INSPECT FUEL SYSTEM HOSES AND PIPES FOR LEAKS		
INSPECT COOLING SYSTEM:		
A. CHECK HOSES AND PIPES FOR LEAKS		
CHECK OPERATION OF ENGINE PROTECTION DEVICES:		
A. CRANKCASE PRESSURE		
VISUALLY INSPECT AIR COMPRESSOR FOR WATER, AIR OR OIL LEAKS		J. Harts
PERFORM MANUAL AIR BRAKE TEST		
Verify Flow Gauge	NOTE: 120-	
130 main reservoir is 64 + or - 3,	130-140 main	J. Harts
reservoir is 60 + 0		
PERFORM PENALTY BRAKE TEST		J. Harts
CHECK FOR CORRECT AIR PRESSURE SETTINGS:		
A. MAIN RESERVOIR (130 - 140 PSI)		J. Harts
B. BRAKE PIPE (90 PSI)		J. Harts
C. EQUALIZING RESERVOIR (90 PSI)		J. Harts
D. BRAKE CYLINDER (72 - 74 PSI)		J. Harts
E. COMPRESSOR CONTROL (130 - 140 PSI +/- 5 PSI)		J. Harts
CHECK FLUID LEVELS BEFORE LOADING:		
A: ENGINE OIL		J. Harts
B: COOLING WATER		J. Harts
C: AIR COMPRESSOR OIL		J. Harts
TEST OPERATION OF THE FOLLOWING DEVICES:		
A. BELL		J. Harts
B. SANDERS (FORWARD, REVERSE, EMERGENCY)		J. Harts
C. RADIATOR SHUTTERS		

H.V. - 800 K at 500 Volts  
 C/O-Baggie Air Filters - *[Signature]*  
 No Fuel filters in stock - *[Signature]*  
 Aux-cab filters OK - *[Signature]*  
 Filled Toilet with Low-Temp - *[Signature]*

**B-23, B-39, C-30, GP-7 MO3 INSPECTION**

Revision Date: 06/26/2010  
 Issued By: Tim Scalia

ELECTRICAL IN HOUSE	WORKED BY:
SERVICE THE BATTERIES	J. [Signature]
VERIFY EVENT RECORDER IS WORKING	J. [Signature]
CHECK & RECORD THE DATE ON HEAD END DEVICE <u>9-20-11</u>	J. [Signature]
CLOSELY INSPECT THE HEAD END DEVICE CONNECTOR. ENSURE IT IS TIGHTLY CONNECTED AND NOT CROSS THREADED	J. [Signature]
CHECK THE FOLLOWING EQUIPMENT AND THEIR RELATED GUARDS AND LENSES FOR PROPER OPERATION:	_____
CHECK ALL GROUND AND STEP LIGHTS, FRONT AND REAR HEADLIGHTS, DITCH LIGHTS, CAB LIGHTS, GAUGE LIGHTS, NUMBER PLATES, PLATFORM LIGHTS, ALL WARNING AND INDICATOR LIGHTS	J. [Signature]
<b>TRACTION MOTORS AND UNDERFRAME</b>	
CHECK THE TRACTION MOTOR LEADS, VERIFY NO LEADS ARE RUBBING ON THE FRAME	J. [Signature]
INSPECT TRACTION MOTOR COVERS AND ENSURE BOLTS ARE IN PLACE AND TIGHT	J. [Signature]
CHECK M.U. RECEPTACLE PINS AND LIDS. MAKE NECESSARY REPAIRS	J. [Signature]
MAKE SURE M.U. CABLES DO NOT FOUL COUPLERS	J. [Signature]

**B-23, B-39, C-30, GP-7 MO3 INSPECTION**

**Out-Bound Loadtest Electrical/Mechanical**

WORKED BY:

**ELECTRICAL**

- VERIFY THE OPERATION OF THE GROUND RELAY
- CHECK FOR LOW VOLTAGE GROUNDS (7 watt bulb)
- WHILE IN THROTTLE 3 LOAD TEST, CHECK FOR AC GROUNDS
- CHECK OPERATION OF:
  - A. HEATING
- COMPLETE THE OUTBOUND LOAD TEST SHEETS
- GROUND RELAY-(TEST THREE TIMES TO VERY LOCK-OUT)(DYNAMIC & POWER)
- IF EQUIPPED, VERIFY THE OPERATION OF THE LDVR CAMERA

*J. Martin*  
*J. Martin*  


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*J. Martin*  
*J. Martin*  


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**MECHANICAL**

- PROPER LUBRICATION? FUEL LEAKS? CAM ROLLER ROTATION? ETC.
- INSPECT FUEL SYSTEM HOSES AND PIPES FOR LEAKS
- INSPECT COOLING SYSTEM:
  - A. CHECK HOSES AND PIPES FOR LEAKS
- CHECK OPERATION OF ENGINE PROTECTION DEVICES:
  - A. CRANKCASE PRESSURE
- VISUALLY INSPECT AIR COMPRESSOR FOR WATER, AIR OR OIL LEAKS
- PERFORM MANUAL AIR BRAKE TEST
  - Verify Flow Gauge
  - 130 main reservoir is 64 + or - 3,
  - reservoir is 60 + o
- PERFORM PENALTY BRAKE TEST
- CHECK FOR CORRECT AIR PRESSURE SETTINGS:
  - A. MAIN RESERVOIR (130 - 140 PSI)
  - B. BRAKE PIPE (90 PSI)
  - C. EQUALIZING RESERVOIR (90 PSI)
  - D. BRAKE CYLINDER (72 - 74 PSI)
  - E. COMPRESSOR CONTROL (130 - 140 PSI +/-5 PSI)
- CHECK FLUID LEVELS BEFORE LOADING:
  - A. ENGINE OIL
  - B. COOLING WATER
  - C. AIR COMPRESSOR OIL
- TEST OPERATION OF THE FOLLOWING DEVICES:
  - A. BELL
  - B. SANDERS (FORWARD, REVERSE, EMERGENCY)
  - C. RADIATOR SHUTTERS

NOTE: 120-  
130-140 main



# Service Operations

## THROTTLE 8 OUTBOUND LOAD TESTS

UNIT \_\_\_\_\_

DATE \_\_\_\_\_

Eng RPM (900)	EMD	<u>          </u>	Lube Oil Pres	<u>          </u>
Eng RPM (1050)	GE	<u>1050</u>	Water Temp	<u>          </u>
Horsepower		<u>3740</u>	Overspeed Setting	<u>1020</u>
Volts (5.3)	B-23	<u>          </u>	RACK SETTING	<u>23.5</u>
Volts (7)	C-30	<u>          </u>		
Volts (720)	B-39	<u>714</u>		

### THROTTLE #1 STALL TEST

OP Mode	(PWR)	<u>F</u>	
AMPS	(300)	<u>300</u>	
MGA	(1220)	<u>          </u>	NOT APPLICABLE TO B-23 AND C-30
Charging Rate	(70v)	<u>74</u>	<u>3773</u>

### TL 24T

Throttle 1	(1V)	
Throttle 2		
Throttle 3		
Throttle 4		
Throttle 5		
Throttle 6		
Throttle 7		
Throttle 8	(72V)	

Unit: 8541

Date: 1-9-12

### DEFECTS FOUND DURING INSPECTION

DEFECT <u>CDU Falling apart</u>	INSPECTED BY: <u>J. Harts</u>
REPAIR <u>Tightened Loose screws and bolts</u>	CORRECTED BY: <u>J. Harts</u>

DEFECT <u>Evening Recorder not showing brake pipe pressure</u>	INSPECTED BY: <u>J. Harts</u>
REPAIR <u>R+R Evening Recorder - retested - ok</u>	CORRECTED BY: <u>J. Harts</u>

DEFECT <u>3 worn out brake shoes</u>	INSPECTED BY: <u>K. Harty</u>
REPAIR <u>changed</u>	CORRECTED BY: <u>K. Harty</u>

DEFECT <u># Rear truck / R SIDE BRAKE Adjuster WAS stuck. won't move -</u>	INSPECTED BY: <u>K. Harty</u>
REPAIR <u>Must have been here - (check) working fine</u>	CORRECTED BY: <u>R.S. / K.H.</u>

DEFECT _____	INSPECTED BY: _____
REPAIR _____	CORRECTED BY: _____

Unit: \_\_\_\_\_

Date: \_\_\_\_\_

### DEFECTS FOUND DURING INSPECTION

DEFECT _____ _____ _____	INSPECTED BY: _____ _____
REPAIR _____ _____ _____	CORRECTED BY: _____

DEFECT _____ _____ _____	INSPECTED BY: _____ _____
REPAIR _____ _____ _____	CORRECTED BY: _____

DEFECT _____ _____ _____	INSPECTED BY: _____ _____
REPAIR _____ _____ _____	CORRECTED BY: _____

DEFECT _____ _____ _____	INSPECTED BY: _____ _____
REPAIR _____ _____ _____	CORRECTED BY: _____

DEFECT _____ _____ _____	INSPECTED BY: _____ _____
REPAIR _____ _____ _____	CORRECTED BY: _____



# Description of Work Performed

Locomotive ID \_\_\_\_\_

Time Started \_\_\_\_\_

Time Finished \_\_\_\_\_





LOCOMOTIVE

8541

DATE

1-10-12

	Start Readings				Has Shims			END READING				Has Shims		OLD GAUGE
	Flange Height	Flange Thickness	Rim Thickness	Witness Groove	YES	NO		Flange Height	Flange Thickness	Rim Thickness	Witness Groove	YES	NO	
L#4	0.18	0-0	2.15				L#1							FLANGE THICKNESS MEASUREMENT 0-on 0--1-17/64" 1-on 0--1-15/64" 2-on 0--1-7/32" 3-on 0--1-5/32" 4-on 0--1-7/64" 5-on 0--1-3/64" 6-on 0--1-1/32" 7-on 0--63/64" 8-on 0--15/16"
L#3	0.18	0-0	2.12				L#2							
L#2	3.22	0-0	2.5				L#3							
L#1	4.22	0-0	3.5				L#4							
L#5							L#5							
L#6							L#6							
R#4	0.18	0-0	3.				R#1							OLD GAUGE FLANGE HEIGHT MEASUREMENT 0-on 0--1" 0-on 1--1-1/16" 0-on 2--1-1/8" 0-on 3--1-3/16" 0-on 4--1-1/4" 0-on 5--1-5/16" 0-on 6--1-3/8" 2-on 6--1-13/32" 4-on 6--1-7/16" 6-on 6--1-31/64"
R#3	0.20	0-0	2.11				R#2							
R#2	2.22	0-0	2.5				R#3							
R#1	0.22	0-0	3.2				R#4							
R#5							R#5							
R#6							R#6							

WEAR LIMITS FOR ROAD & SWITCH LOCOMOTIVES - MINIMUM DAILY REQUIREMENTS

FRA 1 1/2" MMA 1 7/16" Flange Height  
 FRA 7/8" MMA 15/16" Flange Thickness  
 FRA 1" MMA 1 1/16" Rim Thickness  
 FRA 5/16" MMA 1/4" Tread Wear

FLANGE HEIGHT MEASUREMENT

NEW GAUGE

0-on 17--1-1/16"  
 0-on 18--1-1/8"  
 0-on 19--1-3/16"  
 0-on 20--1-1/4"  
 0-on 21--1-5/16"  
 0-on 22--1-3/8"  
 2-on 22--1-13/32"  
 4-on 22--1-7/16"  
 6-on 22--1-15/32"  
 8-on 22--1-1/2"

WEAR LIMITS - ROAD & SWITCH LOCOS - MIN. 92 DAY REQ

WEAR LIMITS - PASSENGER LOCOS - MIN 92 DAY REQ

FLANGE HEIGHT	FLANGE THICKNESS	RIM THICKNESS	TREAD WEAR	FLANGE HEIGHT	FLANGE THICKNESS	RIM THICKNESS	TREAD WEAR
FRA 1 1/2"	FRA 7/8"	FRA 1"	FRA 5/16"	FRA 1 1/2"	FRA 7/8"	FRA 1"	FRA 5/16"
MMA 1 7/16"	MMA 1 1/32"	MMA 1 1/8"	MMA 1/4"	MMA 1 7/16"	MMA 1"	MMA 1 1/4"	MMA 1/4"

CONVERSION CHART FOR WHEEL DIAMETER

8= 37"	15= 37 7/8"	22= 38 1/2"	29= 39 5/8"	36= 40 1/2"
9= 37 1/8"	16= 38"	23= 38 7/8"	30= 39 1/2"	37= 40 5/8"
10= 37 1/4"	17= 38 1/8"	24= 39"	31= 39 7/8"	38= 40 3/4"
11= 37 3/8"	18= 38 1/4"	25= 39 1/8"	32= 40"	39= 40 7/8"
12= 37 1/2"	19= 38 3/8"	26= 39 1/4"	33= 40 1/8"	40= 41"
13= 37 5/8"	20= 38 1/2"	27= 39 3/8"	34= 40 1/4"	41= 41 1/8"
14= 37 3/4"	21= 38 5/8"	28= 39 1/2"	35= 40 3/8"	42= 41 1/4"

FLANGE THICKNESS MEASUREMENT

NEW GAUGE

0-on 0-1-17/64"  
 1-on 0-1-15/64"  
 2-on 0-1-7/32"  
 3-on 0-1-5/32"  
 4-on 0-1-7/64"  
 5-on 0-1-3/64"  
 6-on 0-1-1/32"  
 7-on 0-63/64"  
 8-on 0-15/16"

LOCOMOTIVE RAIL CLEARANCE

COUPLER HEIGHT	FRONT	PILOT HEIGHT	FRONT	HEIGHT OF HORIZONTAL END HANDHOLD OR UNCOUPLING LEVER IF USED AS HORIZONTAL HANDHOLD	LOCO RAIL CLEARANCE
FRA	MAX 34 1/2" MIN 31 1/2"	FRA	MAX 6" MIN 3"	5"	FRA MIN 2 1/2"
MMA	MAX 34 1/2" MIN 32 1/2"	MMA	MAX 6" MIN 3 1/2"	5"	MMA MIN 3"

WHEEL DIAMETER MEASUREMENTS ARE TAKEN FROM THE TOP OF THE WITNESS GROOVE. 40" DIAMETER WHEELS WITNESS GROOVE = 36"

42" DIAMETER WHEEL WITNESS GROOVE = 38"

WHEEL MATCHING STANDARDS FOR 6 AXLE LOCOMOTIVES (FRA & MMA STANDARDS ARE THE SAME)

3/4" IS THE MAXIMUM VARIATION ALLOWED, IN WHEEL DIAMETER, BETWEEN ANY 2 WHEELS IN THE SAME TRUCK WITHOUT SHIMS.

1 1/4" IS THE MAXIMUM VARIATION ALLOWED, IN WHEEL DIAMETER, BETWEEN ANY 2 WHEELS IN THE SAME TRUCK WITH SHIMS APPLIED.

1 1/2" IS THE MAXIMUM VARIATION ALLOWED, IN WHEEL DIAMETER, BETWEEN ANY 2 WHEELS ON DIFFERENT TRUCKS.

NOTE: WHEN FIGURING THE DIFFERENCE IN WHEEL DIAMETER, TO DETERMINE IF SHIMS ARE REQUIRED, YOU MUST USE THE AVERAGE WHEEL DIAMETER FIGURES

REMEMBER THIS RULE

0 TO 5 DIAMETER DIFFERENCE NO SHIMS REQUIRED 6 TO 10 DIAMETER DIFFERENCE ADD APPROPRIATE SHIMS TO BOTH BOXES ON BOTH SIDES OVER 10 IN DIAMETER DIFFERENCE REQUIRES WHEEL CHANGE OR TRUED NOTE: ON EMD LOCOMOTIVES USE ONLY ONE 1/2" SHIM EMD PART NUMBER 8455981 SHELLED TREAD AND FLAT SPOTS MUST BE TRUED OR CHANGED WHEN FOUND ON PERIODIC OR UNSCHEDULED MAINTENANCE. KCS CONDEMNING LIMITS FOR SHELLED TREAD ON A SERVICE TRACK.

\*ONE SHELLED SPOT 1" OR GREATER IN LENGTH \*ONE SHELLED SPOT WITH A DEPTH OF 1/4" OR MORE.

EMPLOYEES SIGNATURE

*[Signature]*

SUPERVISORS SIGNATURE

*[Signature]*

DRAINED OFF WATER ON WICK BOXES & REWIRE & TOP (4 WHEELS)  
 with oil - *[Signature]* ADDED 6800 GREASE TO ALL GEAR CASES

# JSP-010 (BATTERY MAINTENANCE AND QUALIFICATION)

## JOB SPECIFIC PROCESS

Locomotive Type: ALL MODELS

Valid for Road Numbers: (All Models)

**Overview: This job process sheet will assist with the maintenance and qualification of batteries.**

### SPECIAL TOOLS OR EQUIPMENT:

SEQUENCE OF JOB STEPS	Please print your name, NO signatures
1. Ensure the locomotive is shutdown, discharged, all of the circuit breakers are open and the battery knife switch is open.	<i>J. Hart</i>
<b>Battery Qualification/Maintenance</b>	
2. <b>NOTE: If batteries are dead, connect the charger until the charge rate falls below 10 amps to determine state of charge. Readings under 20 V are suspect for units with just 2 batteries.</b>	
3. Insert hose stem into battery cell and squeeze bulb.	
4. Release pressure until enough acid solution is drawn into the tube allowing the float to float freely. Be sure float does not touch rubber stopper at the top of the tube.	
5. The float reading at the water line is the uncorrected charge level of the battery.	
6. Read and record the specific gravity of all 16 pilot cells. "record readings below": acceptable range is 1.225 – 1.300 ( if out of this range notify tech support) <b>Note 1:</b> the sheet below is set up for 2 or 8 batteries as some units have 8 batteries. <b>Note 2:</b> accurate readings cannot be obtained if water has recently been added to cells. Differences of 50 points or more between readings in battery cells may indicate pending battery failure.	
7. Based on the above specific gravity readings, do any batteries need replaced? Remember, if the unit came in with already dead batteries, an attempt to charge the batteries must be made before taking the specific gravity readings. YES	
8. Return acid to cell from which it was drawn.	
9. Be sure all vent plugs are replaced and tight.	
10. With Unit shut down measure the voltage reading across each battery at the terminals, record readings on the chart below.	
11. Make a general check of the battery as to proper blocking, clean and tight connections at all points, and any unusual appearance or condition. If any unusual appearance or conditions exit, like corrosion, clean with scotch-brite buffer or wire br	
12. Apply approved protective coating to connections after terminals are cleaned and dried	
13. Add water as required (Add water to bottom of filler neck).	
<b>Battery Cranking Voltage Test</b>	
14. Close battery knife switch, and circuit breakers.	
15. Open the injector toggle switch, on EUI units to prevent unit from starting.	
<b>NOTE: Battery cranking voltage readings do not need to be taken on Air Start Locomotives.</b>	



BRUSH RECORD

UNIT # 8541

DR. 1-9-12

MAIN ALTERNATOR

POS	1	2	3	4	B	W
9						
10						
11	OK					
12						
1						
2						

SIGNATURE J. M. [Signature]

NO. 1 TRACTION MOTOR

POS	1	2	3	B	W
3					
6	OK				
9					
12					

SIGNATURE J. M. [Signature]

NO. 2 TRACTION MOTOR

POS	1	2	3	B	W
3					
6	OK				
9					
12					

SIGNATURE J. M. [Signature]

NO. 3 TRACTION MOTOR

POS	1	2	3	B	W
3					
6	OK				
9					
12					

SIGNATURE J. M. [Signature]

NO. 4 TRACTION MOTOR

POS	1	2	3	B	W
3					
6	OK				
9					
12					

SIGNATURE J. M. [Signature]

AUXILIARY GENERATOR

POS	1	2	3	B	W
2					
4	OK				
8					
10					

SIGNATURE J. M. [Signature]

L Cab Heaters R

~~NO. 5 TRACTION MOTOR~~

POS	1	2	3	B	W
3					
6	OK				
9					
12					

SIGNATURE J. M. [Signature]

~~NO. 6 TRACTION MOTOR~~

POS	1	2	3	B	W
3					
6	✓				
9					
12					

SIGNATURE J. M. [Signature]

EXCITER GENERATOR

POS	1	2	3	B	W
2					
4	OK				
8					
10					

SIGNATURE J. M. [Signature]

DYNAMIC BRAKING BLOWER MOTORS

FRONT

POS	1	B	W
2			
4	OK		
8			
10			

SIGNATURE J. M. [Signature]

REAR

POS	1	B	W
2			
4	OK		
8			
10			

SIGNATURE J. M. [Signature]

FUEL PUMP MOTOR

POS	1	B	W
3			
9	X		

SIGNATURE Brushless

Montreal, Maine & Atlantic Railway  
Locomotive

Unit 8541

Date 1-10-12

3 Month Federal Air Work.

Signature

1. Inspect and repair air piping and valves for leaks ..... *K. Hayes*
2. Test all air gauges with gauge tester and set if required..... *K. Hayes*
3. With full brake pipe pressure, make a 20lb. reduction, move the cutoff valve to "OUT" position and move the lead - dead valve to "DEAD" position. Brakes must remain applied for 5 minutes..... *K. Hayes*
4. Cover each trainline hose coupling with hand and test for leakage through valve, then apply blank dummy couplings to the trainline hoses on each end of the unit and open trainline valves. Make a 20lb. reduction with the Automatic, move the cutoff valve to "OUT" position and check for brake pipe leakage. Leakage shall not exceed 5 lb. per minute..... *front/rear*  
*OK K. Hayes*
5. Reduce main reservoir pressure to 85 lbs. by draining #2 main reservoir. (\*) Check cab gauge for leakage from main reservoirs and piping for 3 minutes. Leakage must not exceed an average of 3 lb. per minute during the test..... *K. Hayes*  
*J. Anderson*
6. Drain #1 main reservoir (\*) completely and test check valve between reservoirs. Pressure should remain on the main reservoir gauge in the cab as #1 main reservoir is drained..... *K. Hayes*  
*J. Anderson*
7. Check all MU valve handles to ensure the locking devices work properly. Lubricate or replace as necessary..... *K. Hayes*
8. Check knuckle thrower to make sure it opens the knuckle. Lubricate or repair as necessary..... *K. Hayes*

Note (\*) #1 reservoir is without the check valve, #2 is with the check valve.

9 test AND CALABRIA Air Flow Meter