

AMP-FIT* Plastic Pipe Fittings**1. INTRODUCTION****1.1. Purpose**

Testing was performed on AMP-FIT* plastic pipe fittings to determine their conformance to the requirements of AMP Product Specification 108-11039 Revision A.

1.2. Scope

This report covers the electrical, mechanical, and environmental performance of AMP-FIT plastic pipe fittings. Testing was performed at the Americas Global Automotive Division Product Reliability Center between Aug97 and Apr98. The test file numbers for this testing are ACL 34740004A and 34740004B. This documentation is on file at and available from the Americas Global Automotive Division Product Reliability Center.

1.3. Conclusion

The AMP-FIT plastic pipe fittings listed in paragraph 1.5., conformed to the electrical, mechanical, and environmental performance requirements of AMP Product Specification 108-11039 Revision A.

1.4. Product Description

AMP-FIT plastic pipe fittings provide leak-proof connections in pressurized type CA-3131 dry air pipe systems.

1.5. Test Samples

The test samples were representative of normal production lots, and samples identified with the following part numbers were used for test:

Test Group	Quantity	Part Number	Description
1	1	561759-1 Rev C	Type K branch Tee connector
	1	332824 Rev P	Type H branch Tee connector
	1	332844 Rev P	Type L branch Tee connector
	5	CA-3131	Air pipe (4 inch length)
2	31	556455-1 Rev A	Check valve
	200"	---	Dekorun 3/8 inch air pipe tubing
	2	561312-1 Rev G	NPT disconnect plug
	6	561306-1 Rev B	Globe valve
	5	561304-1 Rev B	AMP-FIT Tee connector
3	10	561274-1 Rev F	Pulling eye
	10	332843 Rev G	Transition coupling
	20	CA 3131	Air pipe (2 inch length)
	5	561759-1 Rev C	Type K branch Tee connector

Figure 1 (cont)

4	10	561274-1 Rev F	Pulling eye
	10	561720-1 Rev D	Transition coupling
	10	CA 3131	Air pipe (3 inch length)
	15	---	Dekoron 3/8 inch air pipe tubing (6 inch length)
	5	561304-1 Rev B	Tee connector
	5	561309-1 Rev C	Female disconnect
	5	17088-2 Rev C	F valve

Figure 1 (end)

1.6 Environmental Conditions

Unless otherwise stated, the following environmental conditions prevailed during testing:

Temperature: 15 to 35°C
Relative Humidity: 20 to 80%

1.7 Qualification Test Sequence

Test or Examination	Test Group (a)			
	1	2	3	4
	Test Sequence (b)			
Examination of product	1,3	1,5	1,6	1,6
Electrical continuity	2			
Tensile test			5	5
Check valve flow test		2,4		
Leakage test			2,4	2,4
Temperature cycling		3	3	3

NOTE

- (a) See Para 1.5.
(b) Numbers indicate sequence in which tests are performed.

Figure 2

2. SUMMARY OF TESTING

2.1. Examination of Product - All Test Groups

All samples submitted for testing were representative of normal production lots. Where specified, samples were visually examined and no evidence of physical damage detrimental to product performance was observed.

2.2. Electrical Continuity - Test Group 1

No continuity was observed between the aluminum liner and the metal bonding post.

2.3. Tensile Test - Test Groups 3 and 4

No evidence of physical damage detrimental to product performance was observed on the couplings or fittings.

2.4. Check Valve Flow Test - Test Group 2

No evidence of leakage was observed with the valve in the closed position. Pressure required to open or close the valve was below .75 psig.

2.5. Leakage Test - Test Groups 3 and 4

No leakage was observed.

2.6. Temperature cycling - Test Groups 2, 3 and 4

No evidence of physical damage was visible as a result of exposure to temperature cycling.

3. TEST METHODS**3.1. Examination of Product**

Where specified, samples were visually examined for evidence of physical damage detrimental to product performance.

3.2. Electrical Continuity

Samples were tested using a standard volt/ohmmeter between the .004 inch aluminum liner of the plastic pipe and the metal bonding post of the fitting.

3.3. Tensile Test

Samples were pulled using a tensile/compression device with the rate of travel at 2 inches per minute. A free floating fixture was attached to the cross head while a standard vise was attached to the base.

3.4. Check Valve Flow Test

Check valve pressure differential and airflow were performed with the check valve installed in the open position. Check valve was installed by threading both ends into NPT quick disconnects. Closing pressure was recorded by installing the check valve against the air flow in the closed position. Manometer readings were recorded at 15 psi with air flow adjusted to 1 cfm or 60 cfh.

3.5. Leakage Test

Samples were pressurized with 15 psi, submerged under 6 inches of water, and held for 2 minutes.

3.6. Temperature Cycling

Samples were subjected to 512 cycles (each cycle lasting 2 hours) with each cycle consisting of 30 minute dwells at -18 and 40°C.