PRODUCT SPECIFICATION

1. SCOPE

1.1. Content

This specification covers performance, tests and quality requirements for AMP-LATCH* Novo assembly and Novo Stackable assembly flat cable round conductor connector receptacles.

1.2. Connector Assembly Definition

Receptacle contacts crimped to .050 inch centerline ribbon cable, conductors (#28 and 26 solid and #28 and 26 stranded) AWG. Complete assemblies mate to .025 inch square posts on .100 inch centerline with equivalent post length of .210 ± .035 inch.

1.3. Qualification

When tests are performed on subject product line, procedures specified in AMP 109 series specifications shall be used. All inspections shall be performed using applicable inspection plan and product drawing.

2. APPLICABLE DOCUMENTS

The following documents form a part of this specification to the extent specified herein. Unless otherwise specified, latest edition of the document applies. In the event of conflict between requirements of this specification and product drawing, product drawing shall take precedence. In the event of conflict between requirements of this specification and referenced documents, this specification shall take precedence.

2.1. AMP Documents

A. 109-1: General Requirements for Test Specifications
B. 109 Series: Test Specifications as indicated in Figure 1. (Comply with MIL-STD-202, MIL-STD-1344 and EIA RS-364)
C. Corporate Bulletin 401-76: Cross-reference between AMP Test Specifications and Military or Commercial Documents
D. 114-40005: Connector, Ribbon Cable, AMP-LATCH, Application Of
E. 501-45: Test Report
F. 501-45-1: Test Report

* Trademark

Product Code: 5028, 5151, 5754

CONTROLLED DOCUMENT This specification is a controlled document per AMP Specification 102-21. It is subject to change and Corporate Standards should be contacted for latest revision.				DR F. Rinehardt 2/10/87	AMP AMP Incorporated Harrisburg, PA 17105-3608		
				CHK T. Johnson 2/10/87			
				APP E. Gill 2/10/87	NO 108-40000	REV B	LOC B
B	Revise per EC 0020-1212-93	B	9/13/93	PAGE 1 OF 6	TITLE CONNECTOR, FLAT CABLE ROUND CONDUCTOR, AMP-LATCH NOVO & NOVO STACKABLE, RECEPTACLES		
LTR	REVISION RECORD	APP	DATE				

3. REQUIREMENTS

3.1. Design and Construction

Product shall be of design, construction and physical dimensions specified on applicable product drawing.

3.2. Material

A. Contact: Copper alloy
B. Housing: Black thermoplastic, UL94V-0

3.3. Ratings

A. Current: 1 ampere maximum (single circuit energized), see Para 3.5.(b)
B. Operating temperature: -65 to 105°C, unless limited by temperature rating of cable used

3.4. Performance and Test Description

Product is designed to meet electrical, mechanical and environmental performance requirements specified in Figure 1. All tests are performed at ambient environmental conditions per AMP Specification 109-1 unless otherwise specified.

3.5. Test Requirements and Procedures Summary

Test Description	Requirement	Procedure
Examination of product.	Meets requirements of product drawing and AMP Spec 114-40005.	Visual, dimensional and functional per applicable quality inspection plan.
ELECTRICAL		
Termination resistance, dry circuit.	15 milliohms maximum.	Subject mated contacts assembled in housing to 50 mv open circuit at 100 ma. See Figure 3. AMP Spec 109-6-1.
Insulation resistance.	5000 megohms minimum initial. 1000 megohms minimum final after humidity.	Test between adjacent contacts within a row and contacts in adjacent row of unmated and unterminated connectors. AMP Spec 109-28-4.
Dielectric withstanding voltage.	1000 volts (dc) at sea level. 1 minute hold. No breakdown or flashover.	Test between adjacent contacts within a row and contacts in adjacent row of unmated and unterminated connectors. AMP Spec 109-29-1.

Figure 1 (cont)

Test Description	Requirement	Procedure
MECHANICAL		
Vibration, random.	No discontinuity greater than 1 microsecond. See Note (d).	Subject wired and mated connectors to 23.91 G's rms, 20 minutes each plane. See Figure 4. AMP Spec 109-21-5, Test level G.
Physical shock.	No discontinuity greater than 1 microsecond. See Note (d).	Subject rigid mount wired and mated connectors to 100 G's sawtooth shock pulses of 6 milliseconds duration. 3 shocks in each direction applied along 3 mutually perpendicular planes, 18 shocks total. AMP Spec 109-26-9.
Connector mating force.	12 ounces maximum per contact.	Measure force necessary to mate connector for first mating. Calculate mating force per contact by dividing mating force by number of contacts. AMP Spec 109-42, Condition A.
Connector unmating force.	1.5 ounces minimum per contact.	Measure force necessary to unmate connector after first mating. Calculate unmating force per contact by dividing unmating force by number of contacts. AMP Spec 109-42, Condition A.
Durability.	Termination resistance, dry circuit. See Note (c).	Mate and unmate 15 μin gold plated connectors for 75 cycles and 30 μin gold plated connectors for 150 cycles at maximum rate of 150 cycles per hour. AMP Spec 109-27.

Figure 1 (cont)

Test Description	Requirement	Procedure
ENVIRONMENTAL		
Thermal shock.	Termination resistance, dry circuit. Insulation resistance. Dielectric withstanding voltage. See Note (a). See Note (c).	Subject unwired and unmated connectors of Test Group 2 and wired and mated connectors of Test Group 4 to 5 cycles between −65 and 105°C. AMP Spec 109-22.
Humidity-temperature cycling.	Insulation resistance. Dielectric withstanding voltage. See Note (d).	Subject mated and unterminated connectors to 10 days humidity-temperature cycling at 25 to 65°C and 80 to 98% RH. 5 cold shocks at −10°C. AMP Spec 109-23, Condition B, Method III less step 7(b).
Mixed flowing gas.	Termination resistance, dry circuit. See Note (d).	Subject mated connectors to environmental class III for 20 days. AMP Spec 109-85-3.
Temperature life.	Termination resistance, dry circuit. See Note (d).	Subject wired and mated connectors to temperature life. AMP Spec 109-43, Test Level 10, Duration C.

(a) Unless limited by temperature rating of cable used.
(b) Continuous current rating for individual contacts cannot be applied directly to the number of contacts as they are dependent on thermal and physical properties of the materials. System design shall assure that continuous current rating does not create internal hot spots that exceed temperature designated by connector specification during steady state or transient conditions.
(c) Shall show no evidence of damage, cracking or chipping.
(d) Shall remain mated and show no evidence of damage, cracking or chipping.

Figure 1 (end)

3.6. Connector Tests and Sequence

Test Or Examination	Test Group (a)				
	1	2	3	4	5
	Test Sequence (b)				
Examination of Product	1,9	1,8	1,5	1,5	1,5
Termination resistance, dry circuit	3,7		2,4	2,4	2,4
Insulation resistance		2,6			
Dielectric withstanding voltage		3,7			
Vibration	5				
Physical shock	6				
Connector mating force	2				
Connector unmating force	8				
Durability	4				
Thermal shock		4		3	
Humidity-temperature cycling		5			
Mixed flowing gas			3		
Temperature life					3

(a) See Para 4.1.A.
(b) Numbers indicate sequence in which tests are performed.

Figure 2

4. QUALITY ASSURANCE PROVISIONS

4.1. Qualification Testing

A. Sample Selection

Connector housings and contacts shall be prepared in accordance with applicable Instruction Sheets and shall be selected at random from current production. All test groups shall consist of minimum of 6 connectors. 5 contact circuits in each connector shall be randomly selected and identified. These contacts shall be used for all measurements unless otherwise specified.

B. Test Sequence

Qualification inspection shall be verified by testing samples as specified in Figure 2.

4.2. Requalification Testing

If changes affecting form, fit or function are made to product or manufacturing process, product assurance shall coordinate requalification testing, consisting of all or part of original testing sequence as determined by development/product, quality and reliability engineering.

4.3. Acceptance

Acceptance is based on verification that product meets requirements of Figure 1. Failures attributed to equipment, test setup or operator deficiencies shall not disqualify product. When product failure occurs, corrective action shall be taken and samples resubmitted for qualification. Testing to confirm corrective action is required before resubmittal.

4.4. Quality Conformance Inspection

Applicable AMP quality inspection plan will specify sampling acceptable quality level to be used. Dimensional and functional requirements shall be in accordance with applicable product drawing and this specification.

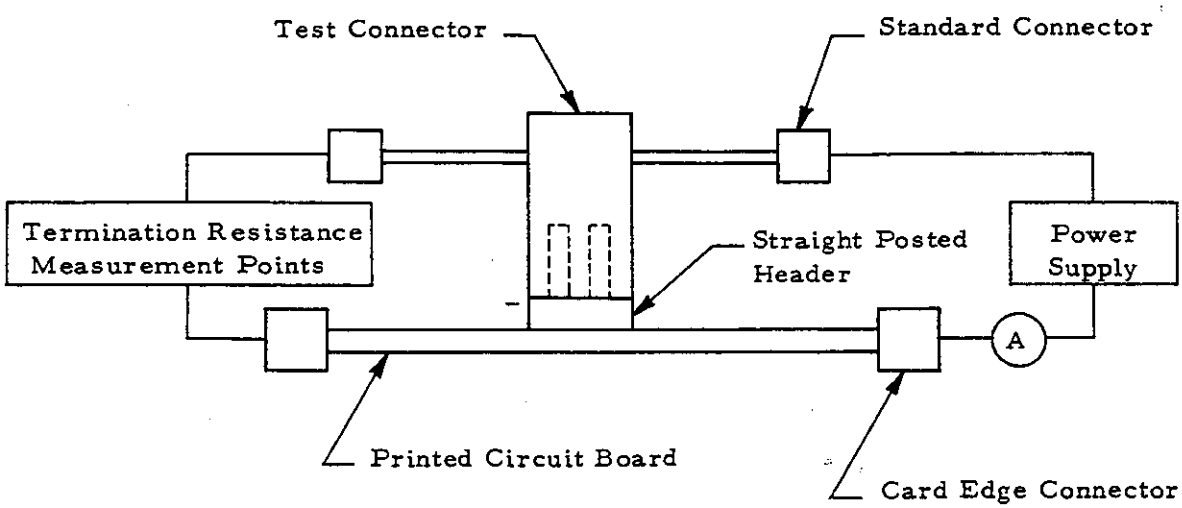

Figure 3
Termination Resistance Measurement Points

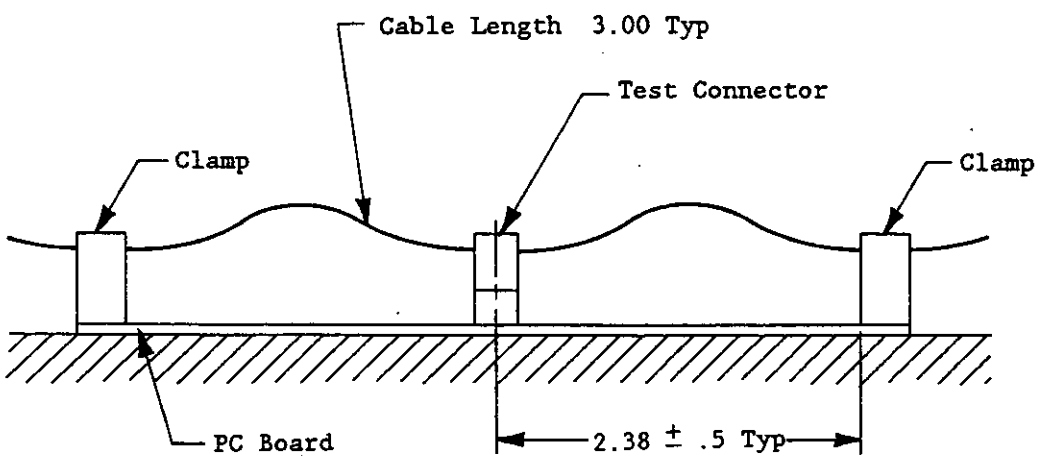

Figure 4
Vibration Fixture