
Aircraft 53 Series TAYP-AIR Pins and Blocks

1. SCOPE

This specification covers the design performance and test requirements for taper pin terminals and terminal blocks for aircraft electrical use in an ambient temperature range of -55°C (-67°F) to 105°C (221°F) continuously with intermittent five minute ambient temperatures of 121°C (250°F).

2. APPLICABLE DOCUMENTS

The following documents form a part of this specification to the extent specified herein. Where there is a difference between this specification and the referenced documents, this specification shall take precedence.

| | |
|------------------------|---|
| MS-33586 | Definition of Dissimilar Metals |
| MIL-G-45204 | Gold Plating, Electrodeposited |
| MIL-M-20693A | Plastic, Molding Polyamide (Nylon) |
| ASTM B 140 | Copper Alloy B |
| QQ-N-290 | Nickel Plating |
| MIL-W-16878D | Wire, Electrical Insulated Copper |
| MIL-H-5606D | Hydraulic Fluid, Petroleum |
| MIL-J-5624 | Jet Fuel Grade JP-4 & JP-5 |
| MIL-L-7808 | Lubricating Oil Aircraft Turbin Engin |
| AMP I.S. 1611 | Hand Crimping Tools 59480 Instruction Sheet |
| AMP I.S. 7078 | Insertion Tool No. 380431-2 Instruction Sheet |
| AMP I.S. 7113 | Extraction Tool No. 91012-1 Instruction Sheet |
| MIL-STD-202C | Test Methods for Electronic Component Parts |
| MIL-T-7928E | Terminals, Lug and Splice, Crimp Style |
| AMP Drawing Numbers | |
| 42910, 42911, 42912 | Taper Pins |
| 581766, 581767, 581768 | Molded Taper Pin Receptacle Blocks |

3. REQUIREMENTS

3.1. Qualification

The parts furnished under this specification shall be a product which has been subjected to and passed the tests specified herein.

3.2. Design

- 3.2.1. **Block Weight** - The block weight with a full complement of taper pins without wire will not exceed .25 pounds.
- 3.2.2. **Insulation** - The insulating materials used for the products specified in this specification shall meet the minimum requirements of MIL -M-20693A and product drawings. The insulating material used in the pre-insulated taper pins when properly crimped must meet all the performance requirements of this specification.
- 3.2.3. **Metals** - Metals shall be of a corrosion resistant type or shall be suitably plated to resist corrosion. The use of dissimilar metals in contact which tend toward electrolytic corrosion will not be acceptable. Dissimilar metals are defined in MS-33586. All metals shall be as specified by the applicable product drawings and meet the performance requirements of this specification.
- 3.2.4. **Fungus Proof** - Materials which are not nutrients for fungi shall be used to the greatest extent possible. Where fungi nutrients must be used such material shall be treated with fungicidal agent.
- 3.2.5. **Interchangeability** - All units having the same part numbers shall be directly and completely interchangeable with each other with respect to installation and performance.
- 3.2.6. **Current Rating**
 - 3.2.6.1. **Pre-insulated Diamond Grip Pin** - The pre-insulated diamond grip taper pin shall have a current rating of 22 amps unless otherwise controlled by wire size.
 - 3.2.6.2. **Taper Pin Blocks** - The maximum current rating for individual taper receptacles and buses shall be 22 amps unless otherwise restricted by the insulating material and/or wire. Under no circumstances shall the combination of ambient temperature and temperature rise caused by current flow exceed 105 °C.
- 3.2.7. **Operating Temperature** - Blocks filled with taper pins crimped to wire shall be capable of continuous operation throughout an ambient temperature range of -55 °C to +105 °C. The upper ambient temperature limit is reduced by current heating effects as specified in Para. 3.2.6.2.

3.3. Performance

- 3.3.1. **Workmanship** - When checked in accordance with Para. 4.4.1, both the pre-insulated diamond grip taper pins and the molded taper pin receptacle blocks must meet all the requirements of the appropriate product drawings.

3.3.2. **Crimp Tensile Strength** - When tested in accordance with Para. 4.4.2. the mechanical crimp connection of the wire and the sample shall not break or become distorted to the extent that it is unfit for further use before the minimum tensile strength as specified in Table I is reached.

TABLE I
Crimp Tensile

| <u>Wire Size</u> | <u>Tensile - Pounds</u> |
|------------------|-------------------------|
| 24 | 10 |
| 22 | 15 |
| 20 | 19 |
| 18 | 38 |
| 16 | 50 |

3.3.3. **Insulation Resistance** - When measured in accordance with Para. 4.4.3. the insulation resistance shall not be less than 5,000 megohms.

3.3.4. **Contact Resistance and Crimp Resistance** - When measured in accordance with Para. 4.4.4. the voltage drop through the pin and receptacle and crimp shall not exceed the values specified in Table II.

TABLE II
MILLIVOLT DROP

| <u>Wire Size</u> | <u>Rated Test Current Amps</u> | <u>Maximum Millivolt Drop</u> | | | |
|------------------|--------------------------------|-----------------------------------|--------------------------------------|---------------------------------|------------------------------------|
| | | <u>Contact Resistance Initial</u> | <u>Contact Resistance After Test</u> | <u>Crimp Resistance Initial</u> | <u>Crimp Resistance After Test</u> |
| 16 | 22 | 5.0 | 6.0 | 9 | 11 |
| 18 | 16 | 4.0 | 5.0 | 7 | 9 |
| 20 | 11 | 3.0 | 4.0 | 6 | 10 |
| 22 | 9 | 2.5 | 3.5 | 8 | 12 |

3.3.5. **Vibration** - When tested in accordance with Para. 4.4.5. the contacts shall not become disengaged from the block. There shall be no chipping, cracking, breaking or loosening of the parts; and there shall be no interruption of continuity of any of the contact circuits. The contact resistance shall be measured on a random sample of 10% of the contacts in each block or a minimum of five, whichever is greater and meet the requirements of Paras. 3.3.4. and 3.3.6. The pins and block sockets shall be inspected for cracks and other flaws through a device having a magnification power of at least three diameters. There shall be no cracks visible by this inspection.

3.3.6. **Removal Force** - When tested in accordance with Para. 4.4.6. the force required to disengage taper pins from the block receptacle shall not be less than 13 pounds.

- 3.3.7. Corrosion - After exposure to the corrosive atmosphere specified in Para. 4.4.7. the connectors shall meet the "After Test" requirements of Para. 3.3.4.
- 3.3.8. Current Cycling - When tested in accordance with Para. 4.4.8. the temperature rise of the taper pin wire barrels or the taper pin receptacles in the connector block shall not exceed 145°C, the contact resistance and crimp resistance shall not exceed the "After Test" values specified in Table II and the high potential shall not be less than the "After Current Cycling" specified in Para. 3.3.9.
- 3.3.9. Dielectric Strength - When tested in accordance with Para. 4.4.9.1. (BLOCK TEST) or Para. 4.4.9.2. (TAPER PIN TEST) there shall be no evidence of breakdown or flashover as the voltage is being increased to the test voltage specified in Table III or during the 60 second hold time.

TABLE III
TEST VOLTAGES
A.C. 60 CPS MIN.

| <u>Conditioning Paragraph</u> | <u>Block & Pin Assembly</u> | <u>Crimped Taper Pin Insulation</u> |
|-------------------------------|---------------------------------|-------------------------------------|
| After Conditioning 4.4.20. | 2,000 VAC | |
| After Immersion 4.4.18. | 700 VAC | 1,500 VAC |
| After Current Cycling 4.4.8. | 2,000 VAC | |
| After Humidity 4.4.16. | 700 VAC | |
| After Heat Age 4.4.21. | | 1,500 VAC |
| After Low Temp. Crimp 4.4.17. | | 1,500 VAC |

- 3.3.10. Durability
 - 3.3.10.1. Socket Durability - When tested in accordance with Para. 4.4.10.1. the force to remove the taper pins from the receptacle molded in the block shall not be less than 13 pounds.
 - 3.3.10.2. Block Durability - When tested as specified in Para. 4.4.10.2. the block shall not exhibit any breaking or chipping of any surface.
- 3.3.11. Temperature Cycling - When tested as specified in Para. 4.4.11. the contact resistance and crimp resistance shall not exceed the "After Test" values specified in Table II, the removal force specified in Para. 3.3.6. and the crimp tensile strength specified in Para. 3.3.2.
- 3.3.12. Physical Shock - When tested as specified in Para. 4.4.12. there shall be no loosening of contacts, breaking, chipping, or any other damage which would impair the function of the connector.

- 3.3.13. Flammability - When tested as specified in Para. 4.4.13. the material from which the block and pin insulation is made shall not support combustion. The sample shall be self-extinguishing within 20 seconds after removal of the flame.
- 3.3.14. Sand and Dust - After the pin and block receptacles have been conditioned as specified in Para. 4.4.14. the block and taper pin assemblies must meet the "After Test Contact Resistance" specified in Para. 3.3.4. and the removal force values of Para. 3.3.6.
- 3.3.15. Axial Load - Taper pins of each wire size when tested in accordance with Para. 4.4.15. must meet the following. The insulating sleeve shall withstand a minimum axial force, prior to crimping, of 3 pounds in either direction without moving more than 1/32 inch on the barrel of the terminal.
- 3.3.16. Temperature Differential - When tested as specified in Para. 4.4.19. the contact resistance and crimp resistance shall not exceed the "After Test" values specified in Table II and the removal forces. Para. 3.3.6.
- 3.3.17. Immersion
- 3.3.17.1. Taper Pin - The taper pins tested in accordance with Para. 4.4.18. shall meet the After Immersion Dielectric Strength specified in Para. 3.3.9.
- 3.3.17.2. Taper Pin and Block Assembly - The taper pin block assembly when tested in accordance with Para. 4.4.18. shall meet the After Immersion block and pin assembly high potential specified in Para. 3.3.9. The block and pin assembly shall also meet the removal force of Para. 3.3.6.

4. QUALITY ASSURANCE PROVISIONS

4.1. Test Conditions

Unless otherwise stated herein, tests and examinations required by this specification shall be made under any combination of conditions within the range below. Any specified condition shall not affect the other two ambient ranges.

| | |
|----------------------|----------------------------|
| Temperature: | 20° to 30°C |
| Relative Humidity: | 30 to 80 percent |
| Barometric Pressure: | 25 to 31 inches of mercury |

4.2. Test Samples

The test samples shall be subjected to the tests specified in Tables IV and V.

4.2.1. Taper Pin Blocks - Two samples of each part number listed below shall be subjected to the 5 test groups listed in Table IV. The blocks used in Group B tests shall be mounted as shown in Figure 2. The blocks shall be filled with solid taper pins prepared as described in Para. 4.2.2., using Insertion Tool No. 380431-2. (Feed through type shall have pins mounted in each side of the block).

| <u>Quantity Required for Qualification Test</u> | <u>Commoning</u> | <u>Total Receptacles/Block</u> | <u>Part No.</u> |
|---|-----------------------------------|--------------------------------|-----------------|
| 10 | 12 Sets 4 Comm. | 48 Gold | 581768-4 |
| 10 | 12 Sets 3 Comm. | 36 Gold | 581767-4 |
| 10 | No Commoning Feed Through Type | 24 Gold | 581766-1 |

4.2.2. Solid Taper Pin Samples - 1330 solid taper pins (AMP P/N 42912-3) shall be subjected to Examination of Product, (See Para. 4.4.1.) and then crimped with Hand Tool No. 59480 to 3 foot lengths of #16 AWG MIL-W-16878D, Type E Wire.

Twenty five taper pin samples representing each wire range listed in Table II shall be subjected to Examination of Product (See Para. 4.4.1.) and then crimped with Hand Tool No. 59480 to 3 foot lengths of MIL-W-16878D, Type E Wire. One 12 inch sample of the insulating tubing representing each part number used to insulate the sleeves assembled to the pins that are being qualified. These samples shall be subjected to the tests listed in Table V.

4.3. Test Report

The test reports shall state the actual values obtained where applicable when tested in accordance with this specification.

4.4. Test Methods

4.4.1. Examination of Product - The molded taper blocks and taper pins used for tests in this specification shall have the characteristics specified on the product prints, measured using standard measuring tools. The dimensions shall meet the requirements of Para. 3.3.1. The uncrimped and crimped taper pins shall meet the requirements of Para. 3.3.15.

4.4.2. Crimp Tensile Strength - Samples shall be placed in a standard tensile testing machine and sufficient force applied to pull the wire out of the crimped area, break the wire or the sample. The test load shall be applied at a rate not exceeding 10 inches per minute. The holding surfaces of the tensile machine clamp may be serrated to provide sufficient gripping strength. The test samples shall meet the requirements of Para. 3.3.2.

- 4.4.3. **Insulation Resistance** - With the blocks mounted as shown in Figure 2, the insulation resistance shall be measured separately between any pair of adjacent rows of contacts or when measured between any contact and a mounting plate or bracket. Measurements shall be made using a megohmmeter capable of supplying a direct potential of 500 volts. Electrification time shall not exceed 2 minutes. The tested blocks shall meet the requirements of Para. 3.3.3.
- 4.4.4. **Contact Resistance & Crimp Resistance** - The voltage drop should be measured separately between the block receptacle and the taper pin driving shoulder, and between the pin extraction shoulder and a point on the wire 1/8 inch from the end of the metallic sleeve inside the nylon insulating sleeve (See Figure 1). The measured parts shall meet the requirements of Para. 3.3.4.
- 4.4.5. **Vibration** - The following conditioning shall be performed on the test samples prior to submitting them to any vibration tests. The blocks shall be supported as shown in Figure 2. Each test sample shall have the pins subjected to a conditioning of 10 pulls with a 12 pound axial force. This can be performed with a insertion tool with a pull force set for 12 pounds. (Caution should be taken not to impact the tool prior to pulling). After conditioning all contacts shall be connected in a series and wire bundle shall be supported on a stationary support. A current of 100 milliamperes shall flow through the circuit. The frequency range of the vibration test shall be 5 to 2,000 cps, with the double amplitude or acceleration maintained at 0.5 inch of 20 g's, whichever is the limiting value. The rate of frequency change shall be subjected to traverse the range of 5 to 2,000 cps in 15 minutes. The samples shall be vibrated in three different axes:
 - (a) Along the axis of the contacts
 - (b) At right angles to the axis of the contacts
 - (c) At right angles to "b" in the same plane as "b".

Any resonant frequencies during the test shall be noted. The assembly shall be vibrated in accordance with the following schedule.

Vibration Test Schedule
(Times refer to one axis of vibration)

| Number of Resonances | 0 | 1 | 2 | 3 | 4 |
|---|-----|-----|-----|----|-----|
| Total Vibration Times at Resonance, Minutes (30 minutes at each resonance) | - | 30 | 60 | 90 | 120 |
| Cycling Time, Minutes | 180 | 150 | 120 | 90 | 60 |

If more than four resonant frequencies are observed along any axis, the four most severe resonant frequencies shall be selected for test. Half of each resonance and cycling period shall be conducted at room temperature and the Other half at 100°C. Upon completion of the test the blocks must meet the requirements of Para. 3.3.5.

4.4.6. Removal Force - The force required to disengage each taper pin in a connector block shall be measured on a standard tensile machine. The holding fixture must pull on the taper pin driving shoulder in such a way as not to damage the wire. The load shall be applied along the axis of the pin at a rate of 1 pound per second. The pins when removed shall meet the requirements of Para. 3.3.6.

4.4.7. Corrosion - The pins removed from the blocks after vibration shall be replaced into the blocks from which they were removed and the fully wired connector shall be subjected to the corrosion test as specified in MIL-STD-202, Method 101, except the exposure time shall be as follows:

The connector blocks with taper pins installed in the receptacle shall be subjected to 30 cycles consisting of (1) 4 percent salt spray for 15 hours, (2) 100°C air oven for one hour, and (3) ambient air dried for 8 hours. Contact resistance measurements shall be made every third cycle and after a minimum of four hours of the eight hour drying period, and meet the after test requirements of Para. 3.3.4.

4.4.8. Current Cycling - The connector blocks filled with properly installed taper pins shall be subjected to 50 current cycles. Each cycle shall consist of 30 minutes at 150 percent of rated current of 22 amps followed by 15 minutes at no load. The temperature of the taper pin wire barrels and sockets in the taper pin connector block shall be recorded during the 1st, 25th, and 50th cycle. After completion of this test the connector shall meet the requirements of Para. 3.3.8. The contact resistance and crimp resistance shall meet the after test values of Para. 3.3.4. The high voltage shall meet the after current cycling requirements of Para. 3.3.9.

4.4.9. High Potential

4.4.9.1. Dielectric Strength Blocks - Connector blocks with entry from one side only shall be mounted on a flat unfinished aluminum plate. The connector blocks with taper pin entry from either side shall have taper pins inserted in the side opposite the barrier. A test voltage of the values specified in Table III as related to the environmental conditioning shall be applied between all adjacent contacts and between any external mounting hardware and the closest contacts to the hardware. The test voltage shall be applied at the rate of approximately 500 volts per second until the voltage specified in Table III is reached.

4.4.9.2. Dielectric Strength Taper Pins - The taper pins shall be prepared and tested in accordance with MIL-T-7928E, Para. 4.6.6, except for the following: The pin shall be covered with beeswax to a depth sufficient to cover the wire crimp depression resulting from the applied crimping pressure. (this should not cover the insulation crimp). The voltage specified in Table III shall be applied at a rate of approximately 500 volts AC rms per second and held for 1 minute between the wire assembled to the taper pin and the salt water.

4.4.10. Durability

4.4.10.1. **Pin and Socket Durability** - Solid taper pins shall be inserted and removed 25 times in each taper pin socket of the connector blocks. Measurements of the force required to remove the pin from its respective socket shall be made on the first, tenth, fifteenth, and twenty fifth (in accordance with Para. 4.4.6.). The measurements must meet the requirements of Para. 3.3.10.1.

4.4.10.2. **Block Durability** - Test blocks without pins inserted shall be dropped from a height of six feet with gravity force onto a concrete floor. Upon completion of this test the block shall meet the requirements of Para. 3.3.10.2.

4.4.11. **Temperature Cycling** - Taper pins shall be inserted in the receptacles of the connector block and the assembly shall be exposed to 25 continuous cycles of the following: A cycle shall consist of 100°C for 30 minutes, 121°C for 5 minutes, and -55°C for 30 minutes. The block shall not be exposed to room temperature longer than two minutes during transfer to and from the hot and cold chambers. During exposure to the above environments the rated test current specified in Table II shall be applied to each taper pin. The test for contact resistance (See Para. 4.4.4.) and removal force (See Para. 4.4.6.) shall be made on 30 or 50 percent of the taper pin contacts at the end of the last 30 minutes exposure to 100°C. The same tests of contact resistance and removal force shall be made on another 30 percent of the taper pin contacts at the end of the last 30 minutes exposure to -55°C. The connector blocks shall be conditioned at 25°C for 2 hours, and the same tests of contact resistance and removal force shall be made on the remaining 40 percent of the taper pin contacts. After completion of this test the pins and receptacles shall meet the requirements of Para. 3.3.11.

4.4.12. **Physical Shock** - The taper pin contacts and connector blocks mounted as shown in Figure 2 shall be subjected to 18 impact shocks of 50 g's, each shock impulse having a time duration of 11 ± 1 milliseconds. The intensity shall be within 10 percent when measured with a filter having a band width of 5 to 100 cycles per second. The maximum "G" shall be reached in approximately 5-1/2 milliseconds. The shock shall be applied in the following direction:

- (a) Along the axis of the taper pins. 3 shocks in each direction.
- (b) At 90° to the axis of the taper pins. 3 shocks in each direction.
- (c) At right angles to (b) in the same plane. 3 shocks in each direction.

Upon completion of these tests the parts shall meet the requirements of Para. 3.3.12.

- 4.4.13. Flammability - One twelve inch sample of tubing representing each part number used to insulate the sleeve assembled to the pins being qualified (See Para. 4.2.) shall be tested as follows:

A wing shaped, flame spreader having a 1/16 by 2 inch opening, shall be fitted to the top of a bunsen burner, having a 1/4 inch inlet, a nominal bore of 3/8 inch and a length of approximately 4 inches. The flame shall be adjusted to a height of 2 inches with an inter-cone approximately 1/3 its height. The burner shall be placed in an enclosure which permits a flow of sufficient air for complete combustion but be free from drafts.

Tubing Test - The sample shall be held in a horizontal position and the end of the tubing applied to the tip of the flame for a period of 10 seconds and then removed. The sample shall meet the requirements of Para. 3.3.13.

Block Test - The edge of one of the mounting lugs of the molded housing shall be suspended against the tip of the 2 inch gas flame for a period of 20 seconds. The sample shall be removed after the 20 seconds and meet the requirements of Para. 3.3.13.

- 4.4.14. Sand and Dust - With the pin contacts removed from the block, fill the block receptacles with sand and dust (40 mesh silica compound). The block shall then be oriented with the barriers downward and struck against a rigid surface with sufficient force to remove the excess sand and dust. This blow should remove all sand and dust except that which clings to the inter-face of the receptacle. Sprinkle all taper pin contacts with sand and dust. Insert the taper pin contacts into the block receptacles and meet the requirements specified in Para. 3.3.14.
- 4.4.15. Axial Load - The pin shall be held in a fixture suitable to allow a 3 pound axial force to be applied to the insulating sleeve in either direction at a rate of 1 pound per second. The pin must meet the requirements of Para. 3.3.15.
- 4.4.16. Humidity - Prior to subjecting the blocks to the humidity conditioning the block and pins shall be subjected to the following temperature differential:

Taper pins conditioned for 1 hour at an ambient temperature of 25°C (77°F) shall be inserted into a connector block that has been conditioned for 1 hour at 82.2°C (180°F) with an insertion tool which has been conditioned for 1 hour at 25°C (77°F). The connector block assembly shall be stabilized at room temperature a minimum of 1 hour before any subsequent testing. Upon completion of the temperature differential the connector blocks with pins installed shall be subjected to a temperature of 70° ± 2°C (160° ± 3.6°F) and a relative humidity of 95 ± 2 percent for a period of 14 days. Upon completion of the humidity conditioning and within 15 minutes with no forced drying of the parts, they shall be checked for high potential per Para. 4.4.9, and meet the after humidity requirements of Para. 3.3.9.

4.4.17. Low Temperature Crimp - The taper pin wire, and the crimping tool shall be maintained at a temperature of -15°C for a period of 1 hour, and the contacts then crimped to their proper size of wire at 15°C . The contacts shall then be exposed to -55°C and maintained at that temperature for 1 hour. The contacts shall be allowed to return to a temperature of 20°C to 25°C for 1 hour. After the terminals have returned to temperature the pins shall meet the after low temperature crimp requirements of Para. 3.3.9.

4.4.18. Immersion - Contacts and blocks shall be immersed in each of the following fluids:

| | | |
|------------------------------|-------------|----------|
| (a) Aircraft Lubricating Oil | MIL-L-7808C | 20 hours |
| (b) JP 5 Jet Engine Fuel | MIL-J-5624D | 20 hours |
| (c) Hydraulic Oil | MIL-H-5606A | 20 hours |
| (d) Skydrol | 500A | 20 hours |
| (e) Water | Distilled | 2 hours |
| (f) Carbon Tetrachloride | - - - - | 2 hours |

Contacts and blocks which have been immersed in the specified fluids for the length of time specified shall be assembled upon removal from the fluids. The assembly shall remain for one hour in free air at room temperature before any subsequent testing. After the one hour period, any remaining excess fluid may be wiped from the contacts and blocks. The test specified in Para. 3.3.17. shall be run within 2 hours after the one hour in free air and meet the requirements of Para. 3.3.17.

4.4.19. Temperature Differential - Taper pins which have been conditioned for 1 hour at 82.2°C (180°F) shall be inserted into a connector block that has been conditioned for 1 hour at an ambient temperature of 25°C (77°F) with an insertion tool which has been conditioned at 48.8°C (120°F) for 1 hour. The connector block assembly shall be stabilized at room temperature a minimum of 1 hour before any subsequent testing as specified in Table IV. Upon completion of temperature conditioning the parts shall meet the requirements of Para. 3.3.16.

4.4.20. Temperature Humidity Conditioning - The taper pin blocks, with taper pins installed, shall be subjected to a temperature of $25^{\circ}\text{C} \pm 2^{\circ}\text{C}$ ($77^{\circ} \pm 3.6^{\circ}\text{F}$) and a relative humidity of 50 ± 2 percent for a period of 96 hours. Any test performed after this conditioning shall be conducted within 15 minutes with no forced drying.

4.4.21. Heat Age - Crimped contacts shall be maintained at a temperature of 120°C to 122°C for a period of 120 hours. After removal from the chamber, the contacts shall be cooled to between 20°C and 25°C within a period of 1 hour. After 1 hour cooling the terminals shall meet the after heat age dielectric strength requirements in Table III. (See Para. 3.3.9.)

TABLE IV

| Tests | Test Paragraph | Requirement Paragraph | Group (2 Blocks Each Group) | | | | |
|-----------------------------------|----------------|-----------------------|--------------------------------|---|---|---|---|
| | | | A | B | C | D | E |
| Visual and Dimensional | 4.4.1. | 3.3.1. | X | X | X | X | X |
| Block Durability | 4.4.10.1. | 3.3.10.1. | | X | X | | |
| Contact Resistance | 4.4.4. | 3.3.4. | | X | X | | |
| Vibration | 4.4.5. | 3.3.5. | | X | | | |
| Removal Force | 4.4.6. | 3.3.6. | | X | | | X |
| Corrosion | 4.4.7. | 3.3.4. | | X | | | |
| Current Cycling | 4.4.8. | 3.3.8. | | X | | | |
| Humidity | 4.4.16. | 3.3.9. | | | X | | |
| Pin and Socket Durability | 4.4.10.1. | 3.3.10.1. | | X | | | |
| Temperature Cycling | 4.4.11. | 3.3.11. | | | | | X |
| Temperature Differential | 4.4.19. | 3.3.16. | | | | | X |
| Physical Shock | 4.4.12. | 3.3.12. | | X | | | |
| Temperature Humidity | 4.4.20. | | X | | | | X |
| Dielectric Strength Pin and Block | 4.4.9.1. | 3.3.9. | | | | | X |
| Removal Force | 4.4.6. | 3.3.6. | | | | | X |
| Sand and Dust | 4.4.14. | 3.3.14. | | | | | X |
| Immersion | 4.4.18. | 3.3.17. | | | | | X |
| Insulation Resistance | 4.4.3. | 3.3.3. | X | | | | |
| Flame Resistance | 4.4.13. | 3.3.13. | | | | | X |

TABLE V

Taper Pin Qualification Tests

| Test Sequence | Test Paragraph | Requirement Paragraph | Group | |
|-------------------------|----------------|-----------------------|------------------------|------------------------|
| | | | A 25 Each Wire Size | B 25 Each Wire Size |
| Visual and Dimensional | 4.4.1. | 3.3.1. | X | X |
| Axial Load Before Crimp | 4.4.15. | 3.3.15. | X | |
| Axial Load After Crimp | 4.4.15. | 3.3.15. | X | |
| Low Temperature Crimp | 4.4.17. | 3.3.9. | X | |
| Crimp Tensile Strength | 4.4.2. | 3.3.2. | X | |
| Immersion | 4.4.18. | | | X |
| Heat Age | 4.4.21. | 3.3.9. | | X |
| Flame Resistance | 4.4.13. | 3.3.13. | | X |

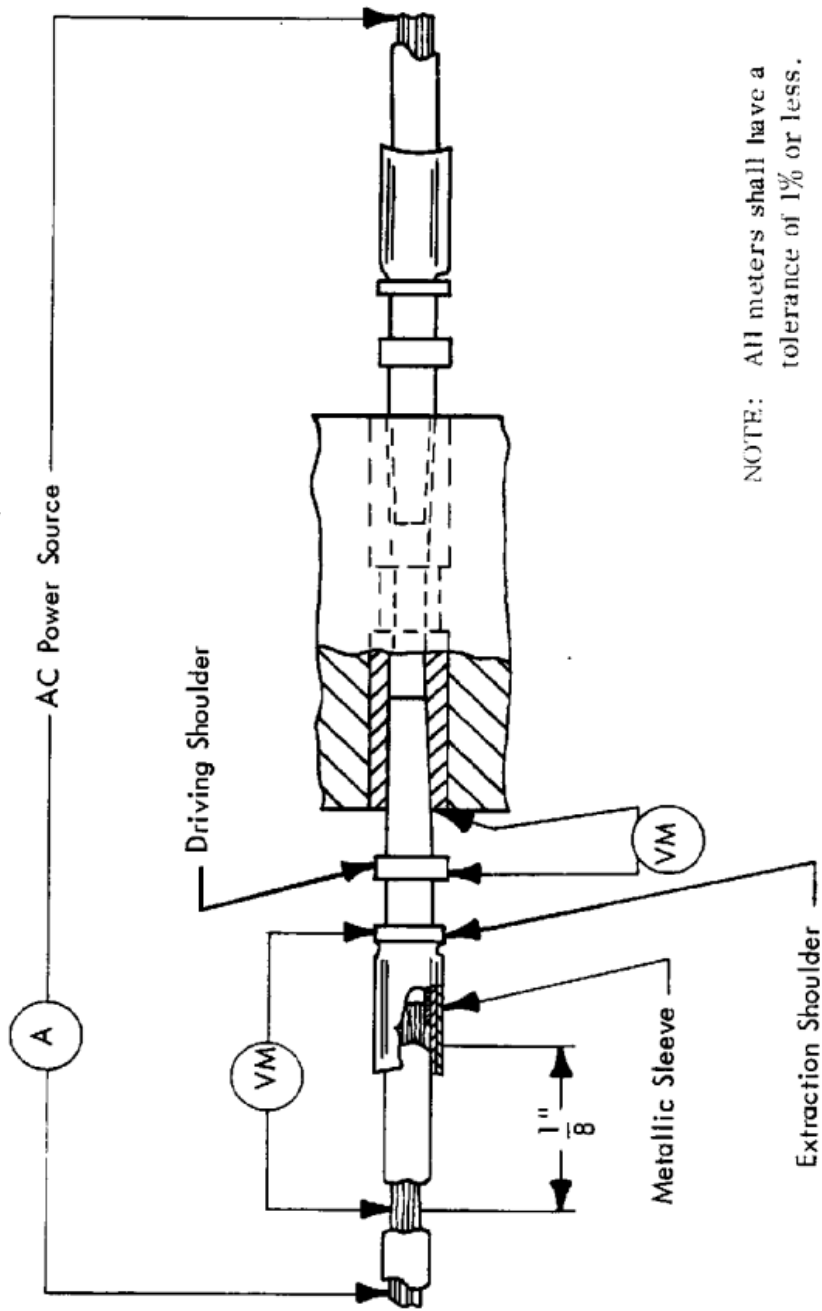


FIGURE 1

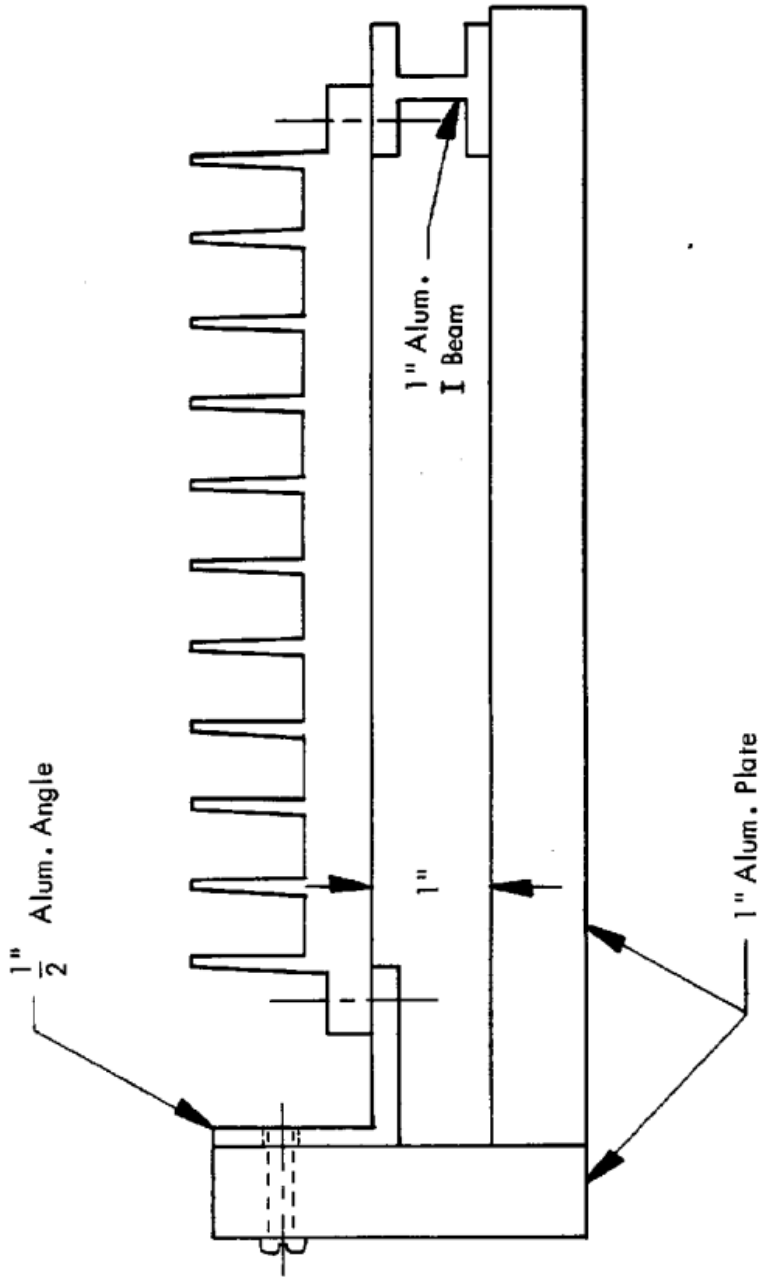


FIGURE 2